ATTACHMENT 9
FCR 001 ANALYTICAL LABORATORY REPORTS

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Client: NW Natural

Project: NW Natural

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RC
Signature

October-07-2010
Date

Analytical Resources, Incorporated
Analytical Chemists and Consultants

October 18, 2010

[redacted]

RE: Project: NWN-INS
ARI Job No: RP83

Dear [redacted]

Please find enclosed the Chain-of-Custody (COC) records, sample receipt documentation, and the final data package for samples from the project referenced above.

Sample receipt and details of these analyses are discussed in the Case Narrative.

An electronic copy of this package will remain on file with ARI. Should you have any questions or problems, please feel free to contact me at your convenience.

Sincerely,

ANALYTICAL RESOURCES, INC.

Susan Dunnihoo
Director, Client Services
sue@arilabs.com
206-695-6207

Enclosures

cc: eFile RP83

SD/co

4611 South 134th Place, Suite 100 • Tukwila WA 98168 • **206-695-6200** • **206-695-6201** fax

Chain of Custody Documentation

ARI Job ID: RP83

Chain of Custody Record & Laboratory Analysis Request RP07

CO CO COC#

ANCHOR QEA

Date: 9/29/10
Laboratory : ARI
Project Name: Gasco Data Gaps
Project Number: 000029.02.23
Project Manager: Ryan Barth
Phone Number: 206.287.9130
Shipment Method: courier

Analytical Parameters

Line	Field Sample ID	Collection Date/Time	Matrix	No. of Containers	TS,TOC,Cyanide	Metals	SVOC,PCB,Pest/TPH-D	VOC	CU-Triax	EPH Archive -10°C	VPH Archive Hold Do Not Freeze	Archive -10°C	Geotech - Hold - Do Not Freeze	TCLP (All tests Table 1-3)	TCLP (VOC/GRO Table 1-3)	Waste Charct. (Corr,Ignit,pH)(Spectra Sub)	TCLP Bench Test Archive -10°C (16 oz)	TCLP Benct Test Archive (2 oz) Hold No Freeze	TCLP Archive (16 oz) -10°C	PAHs (NW Natural addtl sample)	VOCs (NW Natur addtl samples)		Comments
1	GSM-0750-0-5-100927	9/27/10 1200	SO	8	X	X	X	X		X	X	X	X										Hold Geotech Samples - Analysis to be determined at a later date
2	GSM-0750-5-7.5-100927	1250	SO	1					X														
3	GSM-0750-7.5-10-100927	1500	SO	1									X										
4	GSM-0750-10-15-100927	1600	SO	1									X										
5	GSM-0750-15-20-100927	1720	SO	13	X	X	X	X		X	X	X	X	X	X	X	X		X				2 oz Bench Test Archive for VOCs not collected
6	GSM-0850-0-5-100928	9/28/10 1305	SO	8	X	X	X	X		X	X	X	X										
7	GSM-0850-5-7.5-100928	1400	SO	2								X	X										
8	GSM-0850-7.5-10-100928	1420	SO	1					X														
9	GSM-0850-10-15-100928	1530	SO	14	X	X	X	X		X	X	X	X	X	X	X	X	X	X				
10	GSM-0850-10-11-100928	1540	SO	2																X	X		
11	GSM-RB-100929	9/29/10 0830	W	10	X	X	X	X															
12	TB 1		W	3				X															

1 email sample confirmation report to labdata@anchorqea.com

2 See FSP for methods, analytes, and reporting limits

Additional notes/comments:

Relinquished By:	Company:	Received By:
Matt Wilson Matt Wilson	Anchor QEA LLC. 9/29/10 1005	YARED LISANEWORK YL #256 09/29/10 10:05AM
Signature/Printed Name	Date/Time	Signature/Printed Name / Date/Time
Relinquished By: YARED LISANEWORK	Company: YL #256 09/29/10 1:15PM	Received By: 9/29/10 1315
Signature/Printed Name	Date/Time	Signature/Printed Name / Date/Time

RP83:00000

Distribution: A copy will be made for the laboratory and client. The Project file will retain the original.

Chain of Custody Record & Laboratory Analysis Request

CO CO COC#

ANCHOR QEA

Date: 9/29/10
Laboratory : ARI
Project Name: Gasco Data Gaps
Project Number: 000029.02.23
Project Manager: Ryan Barth
Phone Number: 206.287.9130
Shipment Method: courier

Analytical Parameters

Line	Field Sample ID	Collection Date/Time	Matrix	No. of Containers	TS,TOC,Cyanide	Metals	SVOC,PCB,Pest/TPH-D	VOC	CU-Triax	EPH Archive -10°C	VPH Archive Hold Do Not Freeze	Archive -10°C	Geotech - Hold - Do Not Freeze	TCLP (All tests Table 1-3)	TCLP (VOC/GRO Table 1-3)	Waste Charct. (Corr,Ignit,pH)(Spectra Sub)	TCLP Bench Test Archive -10°C (16 oz)	TCLP Benct Test Archive (2 oz) Hold No Freeze	TCLP Archive (16 oz) -10°C	PAHs (NW Natural addtl sample)	VOCs (NW Natur addtl samples)		Comments
1	TB 2		W	3				X															Hold Geotech Samples - Analysis to be determined at a later date
2	TB 3		W	3				X															
3																							
4																							
5																							
6																							
7																							
8																							
9																							
10																							
11																							
12																							

1 email sample confirmation report to labdata@anchorqea.com

2 See FSP for methods, analytes, and reporting limits

Additional notes/comments:

Relinquished By:	Company: Anchor QEA LLC.	Received By:
Matt Wilson	9/29/10 1005	YARED LISANEWORK 9/10 09/28/10 10:05AM
Signature/Printed Name	Date/Time	Signature/Printed Name / Date/Time

Relinquished By:	Company:	Received By:
		9/29/10 1315
Signature/Printed Name	Date/Time	Signature/Printed Name / Date/Time

RP83:000011

Distribution: A copy will be made for the laboratory and client. The Project file will retain the original.

Analytical Resources, Incorporated
Analytical Chemists and Consultants

Cooler Receipt Form

ARI Client: Anchor

Project Name: Gasco

COC No(s): _____ (NA)

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

Assigned ARI Job No: RP07, RP13, RP14

Tracking No: _____ (NA)

Preliminary Examination Phase:

Were intact, properly signed and dated custody seals attached to the outside of to 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)..... 0.6 5.6 0.6 AMB AMB

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

Temp Gun ID#: 90877952

Cooler Accepted by: AJ Date: 9/29/10 Time: 1315

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: _____			
Was sufficient ice used (if appropriate)?	NA	YES	NO
Were all bottles sealed in individual plastic bags?		YES	NO
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	9/22/10	

Was Sample Split by ARI : (NA) YES Date/Time: _____ Equipment: _____ Split by: _____

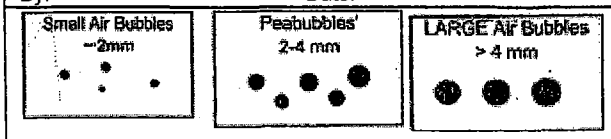
Samples Logged by: AJ Date: 9/29/10 Time: 1800

***** 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:



Small → "sm"
Peabubbles → "pb".
Large → "lg"
Headspace → "hs"

Case Narrative, Data Qualifiers, Control Limits

ARI Job ID: RP83

ANALYTICAL
RESOURCES
INCORPORATED

Case Narrative

Client: NW Natural
Project: NWN-INS
ARI Job No.: RP83

Sample receipt

One sediment sample was received September 29, 2010 under ARI job RP83, as part of a larger shipment. For details regarding sample receipt, please refer to the Cooler Receipt Form.

Volatiles by SW8260C

The sample was analyzed within the method recommended holding times.

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

The surrogate percent recoveries were within the control limits.

The method blank was clean at the reporting limit. The LCS and LCSD percent recoveries were within control limits.

RP83:00007r
S 10/22/10

Analytical Resources, Incorporated
Analytical Chemists and Consultants

Data Reporting Qualifiers

Effective 7/10/2009

Inorganic Data

U Indicates that the target analyte was not detected at the reported concentration

* Duplicate RPD is not within established control limits

B Reported value is less than the CRDL but ≥ the Reporting Limit

N Matrix Spike recovery not within established control limits

NA Not Applicable, analyte not spiked

H The natural concentration of the spiked element is so much greater than the concentration spiked that an accurate determination of spike recovery is not possible

L Analyte concentration is ≤5 times the Reporting Limit and the replicate control limit defaults to ±1 RL instead of the normal 20% RPD

Organic Data

U Indicates that the target analyte was not detected at the reported concentration

* Flagged value is not within established control limits

B Analyte detected in an associated Method Blank at a concentration greater than one-half of ARI's Reporting Limit or 5% of the regulatory limit or 5% of the analyte concentration in the sample.

J Estimated concentration when the value is less than ARI's established reporting limits

D The spiked compound was not detected due to sample extract dilution

E Estimated concentration calculated for an analyte response above the valid instrument calibration range. A dilution is required to obtain an accurate quantification of the analyte.

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).

S Indicates an analyte response that has saturated the detector. The calculated concentration is not valid; a dilution is required to obtain valid quantification of the analyte

RP83 : 00008

Data Reporting Qualifiers

Effective 7/10/2009

NA The flagged analyte was not analyzed for

NR Spiked compound recovery is not reported due to chromatographic interference

NS The flagged analyte was not spiked into the sample

M Estimated value for an analyte detected and confirmed by an analyst but with low spectral match parameters. This flag is used only for GC-MS analyses

M2 The sample contains PCB congeners that do not match any standard Aroclor pattern. The PCBs are identified and quantified as the Aroclor whose pattern most closely matches that of the sample. The reported value is an estimate.

N The analysis indicates the presence of an analyte for which there is presumptive evidence to make a "tentative identification"

Y The analyte is not detected at or above the reported concentration. The reporting limit is raised due to chromatographic interference. The Y flag is equivalent to the U flag with a raised reporting limit.

C The analyte was positively identified on only one of two chromatographic columns. Chromatographic interference prevented a positive identification on the second column

P The analyte was detected on both chromatographic columns but the quantified values differ by ≥40% RPD with no obvious chromatographic interference

Geotechnical Data

A The total of all fines fractions. This flag is used to report total fines when only sieve analysis is requested and balances total grain size with sample weight.

F Samples were frozen prior to particle size determination

SM Sample matrix was not appropriate for the requested analysis. This normally refers to samples contaminated with an organic product that interferes with the sieving process and/or moisture content, porosity and saturation calculations

SS Sample did not contain the proportion of "fines" required to perform the pipette portion of the grain size analysis

W Weight of sample in some pipette aliquots was below the level required for accurate weighting

RP83 : 00009

Analytical Resources,Incorporated
Analytical Chemists and Consultants

Spike Recovery Control Limits for Analysis of Solid Samples Volatile Organic Compounds (VOA) EPA SW-846 Methods 8260C 5 mL Purge Volume [7]

Effective:5/18/09

Control limits are updated periodically. Assure that you have ARI's current control limits by downloading the files at the time of use. http://www.arilabs.com/portal/downloads/ARI-CLs.zip

	Low Level [1]	Low Level ME Limits [3]	Medium Level [2]	Medium Level ME Limits [3]
LCS Spike Recovery [8]				
Dichlorodifluoromethane	53 - 148	37 - 164	25 - 128	**10** - 145
Chloromethane	64 - 125	54 - 135	55 - 121	44 - 132
Vinyl Chloride	63 - 137	51 - 149	66 - 123	57 - 133
Bromomethane	57 - 136	44 - 149	40 - 154	21 - 173
Chloroethane	64 - 131	53 - 142	72 - 128	63 - 137
Trichlorofluoromethane	69 - 132	59 - 143	69 - 135	58 - 146
Acrolein	54 - 137	40 - 151	39 - 135	23 - 151
1,1,2-Trichloro-1,2,2-trifluoroethane	74 - 130	65 - 139	65 - 139	53 - 151
Acetone	60 - 131	48 - 143	55 - 130	43 - 143
1,1-Dichloroethene	75 - 126	67 - 135	73 - 133	63 - 143
Bromoethane	76 - 126	68 - 134	74 - 133	64 - 143
Methyl Iodide	65 - 139	53 - 151	47 - 155	29 - 173
Methylene Chloride	70 - 123	61 - 132	**80 - 120**	75 - 122
Acrylonitrile	67 - 125	57 - 135	62 - 129	51 - 140
Methyl tert-Butyl Ether	70 - 120	62 - 128	69 - 128	59 - 138
Carbon Disulfide	71 - 129	61 - 139	64 - 135	52 - 147
trans-1,2-Dichloroethene	80 - **120**	74 - 126	78 - 125	70 - 133
Vinyl Acetate	60 - 136	47 - 149	66 - 132	55 - 143
1,1-Dichloroethane	**80** - **120**	75 - 124	77 - 124	69 132
2-Butanone	70 - **120**	62 - 127	65 - 126	55 - 136
2,2-Dichloropropane	74 - 123	66 - 131	75 - 127	66 - 136
cis-1,2-Dichloroethene	**80** - **120**	76 - 123	**80** - 125	74 - 132
Chloroform	80 - **120**	74 - 123	**80** - 124	73 - 131
Bromodichloromethane	77 - 121	70 - 128	78 - 130	69 - 139
1,1,1-Trichloroethane	77 - 121	70 - 128	76 - 130	67 - 139
1,1-Dichloropropene	**80** - **120**	77 - 123	77 - 131	68 - 140
Carbon Tetrachloride	77 - 122	70 - 130	74 - 129	65 - 138
1,2-Dichloroethane	76 - **120**	69 - 123	73 - 123	65 - 131
Benzene	**80** - 120	80 - 126	**80** - **120**	75 - 130
Trichloroethene	**80** - **120**	77 - 123	**80** - 125	75 - 132
1,2-Dichloropropane	**80** - **120**	76 - 120	**80** - 122	74 - 129
Bromochloromethane	80 - 120	73 - 127	**80** - 127	73 - 135
Dibromomethane	80 - **120**	74 - 121	**80** - 121	76 - 128
2-Chloroethylvinylether	**10** - 191	**10** - 222	61 - 128	50 - 139

RP83:00010

Analytical Resources,Incorporated
Analytical Chemists and Consultants

Spike Recovery Control Limits for Analysis of Solid Samples Volatile Organic Compounds (VOA) EPA SW-846 Methods 8260C 5 mL Purge Volume [7]

Effective:5/18/09

Control limits are updated periodically. Assure that you have ARI's current control limits by downloading the files at the time of use. http://www.arilabs.com/portal/downloads/ARI-CLs.zip

	Low Level [1]	Low Level ME Limits [3]	Medium Level [2]	Medium Level ME Limits [3]
4-Methyl-2-Pentanone	67 - **120**	59 - 125	80 - 123	73 - 130
cis-1,3-Dichloropropene	74 - **120**	67 - 125	80 - 122	73 - 129
Toluene	**80** - **120**	79 - **120**	**80** - 122	**80** - 127
trans-1,3-Dichloropropene	65 - **120**	57 - 125	**80** - 123	79 - 129
2-Hexanone	65 - 130	54 - 141	58 - 129	46 - 141
1,1,2-Trichloroethane	**80** - **120**	75 - 122	**80** - 120	77 - 126
1,3-Dichloropropane	80 - **120**	74 - 122	**80** - 120	76 - 126
Tetrachloroethene	**80** - 121	79 - 127	**80** - 130	73 - 138
Dibromochloromethane	64 - **120**	55 - 128	77 - 120	70 - 127
Ethylene Dibromide	75 - **120**	68 - 124	**80** - **120**	**80** - 120
Chlorobenzene	**80** - **120**	82 - 120	**80** - 121	80 - 127
Ethylbenzene	**80** - 127	80 - 134	**80** - 126	**80** - 132
1,1,2,2-Tetrachloroethane	74 - 120	66 - 128	79 - **120**	73 - 123
m,p-Xylene	**80** - 125	**80** - 131	**80** - 130	**80** - 137
o-Xylene	78 - **120**	71 - 126	**80** - 124	**80** - 130
Styrene	**80** - 123	78 - 130	**80** - 132	77 - 140
Isopropylbenzene	**80** - 127	84 - 133	**80** - 130	**80** - 137
Bromoform	60 - **120**	50 - 128	68 - 129	58 - 139
1,1,1,2-Tetrachloroethane	69 - 121	60 - 130	**80** - 126	76 - 133
1,2,3-Trichloropropane	72 - 121	64 - 129	77 - **120**	71 - 121
trans-1,4-Dichloro-2-butene	65 - 126	55 - 136	66 - 127	56 - 137
n-Propylbenzene	**80** - 132	**80** - 139	**80** - 132	77 - 140
Bromobenzene	**80** - **120**	78 - 122	**80** - 121	80 - 127
1,3,5-Trimethylbenzene	**80** - 125	**80** - 131	78 - 137	68 - 147
2-Chlorotoluene	**80** - 125	77 - 132	**80** - 123	**80** - 129
4-Chlorotoluene	**80** - 127	77 - 134	**80** - 130	74 - 138
tert-Butylbenzene	87 - 122	**80** - 128	**80** - 133	78 - 141
1,2,4-Trimethylbenzene	**80** - 126	**80** - 132	**80** - 131	79 - 139
sec-Butylbenzene	**80** - 134	80 - 142	**80** - 136	76 - 146
4-Isopropyltoluene	**80** - 131	**80** - 138	**80** - 141	71 - 151
1,3-Dichlorobenzene	**80** - 120	**80** - 126	**80** 126	77 - 133
1,4-Dichlorobenzene	**80** - 120	79 - 126	**80** 121	77 - 127
n-Butylbenzene	**80** - 138	**80** - 146	**80** - 138	77 - 147
1,2-Dichlorobenzene	**80** - **120**	78 - 122	**80** - **120**	**80** - 121
1,2-Dibromo-3-chloropropane	59 - 120	49 - 130	67 - 121	58 - 130
1,2,4-Trichlorobenzene	78 - 130	69 - 139	**80** - 133	72 - 142

RP83:00011

Analytical Resources,Incorporated
Analytical Chemists and Consultants

Spike Recovery Control Limits for Analysis of Solid Samples Volatile Organic Compounds (VOA) EPA SW-846 Methods 8260C 5 mL Purge Volume [7]

Effective:5/18/09

Control limits are updated periodically. Assure that you have ARI's current control limits by downloading the files at the time of use. http://www.arilabs.com/portal/downloads/ARI-CLs.zip

	Low Level [1]	Low Level ME Limits [3]	Medium Level [2]	Medium Level ME Limits [3]
Hexachloro-1,3-butadiene	76 - 129	67 - 138	62 - 148	48 - 162
Naphthalene	66 - **120**	58 - 126	74 - 133	64 - 143
1,2,3-Trichlorobenzene	73 - 123	65 - 131	80 - 126	72 - 134
MB/LCS Surrogate Recovery				
Dibromofluoromethane	**80 - 120**	(4)	**80 - 120**	(4)
d4-1,2-Dichloroethane	79 - 121	(4)	76 - **120**	(4)
d8-Toluene	**80 - 120**	(4)	**80 - 120**	(4)
4-Bromofluorobenzene	**80 - 120**	(4)	**80 - 120**	(4)
d4-1,2-Dichlorobenzene	**80 - 120**	(4)	**80 - 120**	(4)
Sample Surrogate Recovery				
Dibromofluoromethane	30 - 160[6]	(4)	30 - 160[6]	(4)
d4-1,2-Dichloroethane	75 - 152	(4)	69 - **120**	(4)
d8-Toluene	82 - 115	(4)	**80 - 120**	(4)
4-Bromofluorobenzene	64 - **120**	(4)	76 - 128	(4)
d4-1,2-Dichlorobenzene	**80 - 120**	(4)	**80 - 120**	(4)

(1) Control Limits calculated using all data generated 1/1/08 through 12/31/08.
(2) Control Limits calculated using all data generated 3/1/07 through 11/15/07.
(3) **ME** = A **marginal exceedance** defined in the NELAC Standard[5] as beyond the LCS-CL but still within the ME limits. ME limits are between 3 and 4 standard deviations around the mean. A maximum of four marginal exceedances are acceptable. Five or more marginal exceedances require corrective action.
(4) Marginal Exceedances not allowed for surrogate standards
(5) **2003 NELAC Standard (EPA/600/R-04/003), July 2003**, Chapter 5, pages 251-252.
(6) 30 – 160 are default, advisory control limits used when there is insufficient data to calculate historic control limits. **DO NOT** use these limits as the sole reason to reject the data from a batch of analyses
(7) Highlighted control limits (**bold font**) are adjusted from the calculated values as follows:
a) ARI does not use control limits < 10
b) Control limits for analyzes with no separate preparation procedure are adjusted to reflect the minimum uncertainty in the calibration of the instrument allowed by the referenced analytical method.
(8) Laboratory Control Sample (LCS) spike recovery control limits also used as advisory control limits for sample matrix spike (MS) analyzes. MS recovery values are advisory and not used to assess the acceptability of an analytical batch.

RP83:00012

Volatile Analysis
Report and Summary QC Forms

ARI Job ID: RP83

ANALYTICAL RESOURCES INCORPORATED

ORGANICS ANALYSIS DATA SHEET
Volatiles by Purge & Trap GC/MS-Method SW8260C **Sample ID: GSM-08SO-10-11-100928**
 SAMPLE

Lab Sample ID: RP83A
LIMS ID: 10-25370
Matrix: Sediment
Data Release Authorized:
Reported: 10/07/10

QC Report No: RP83-NW Natural
Project: NW Natural

Date Sampled: 09/28/10
Date Received: 09/29/10

Instrument/Analyst: FINN5/PKC
Date Analyzed: 10/05/10 20:09

Sample Amount: 6.93 mg-dry-wt
Purge Volume: 5.0 mL
Moisture: 24.0%

CAS Number	Analyte	RL	Result	Q
71-43-2	**Benzene**	**720**	**3,500**	
108-88-3	Toluene	720	< 720	U
100-41-4	**Ethylbenzene**	**720**	**12,000**	
179601-23-1	**m,p-Xylene**	**720**	**7,600**	
95-47-6	**o-Xylene**	**720**	**4,000**	

Reported in µg/kg (ppb)

Volatile Surrogate Recovery

d4-1,2-Dichloroethane	98.2%
d8-Toluene	100%
Bromofluorobenzene	93.6%
d4-1,2-Dichlorobenzene	104%

Results corrected for soil moisture content per Section 11.10.5 of EPA Method 8000C.

ANALYTICAL RESOURCES INCORPORATED

VOA SURROGATE RECOVERY SUMMARY

Matrix: Sediment

QC Report No: RP83-NW Natural
Project: NW Natural

ARI ID	Client ID	Level	DCE	TOL	BFB	DCB	TOT OUT
MB-100510	Method Blank	Med	101%	97.5%	96.0%	102%	0
LCS-100510	Lab Control	Med	83.0%	100%	95.3%	98.6%	0
LCSD-100510	Lab Control Dup	Med	99.5%	100%	99.6%	98.9%	0
RP83A	GSM-08SO-10-11-100928	Med	98.2%	100%	93.6%	104%	0

	LCS/MB LIMITS		QC LIMITS	
SW8260C	Low	Med	Low	Med
(DCE) = d4-1,2-Dichloroethane	79-121	76-120	75-152	69-120
(TOL) = d8-Toluene	80-120	80-120	82-115	80-120
(BFB) = Bromofluorobenzene	80-120	80-120	64-120	76-128
(DCB) = d4-1,2-Dichlorobenzene	80-120	80-120	80-120	80-120

Log Number Range: 10-25370 to 10-25370

ANALYTICAL RESOURCES INCORPORATED

ORGANICS ANALYSIS DATA SHEET
Volatiles by Purge & Trap GC/MS-Method SW8260C **Sample ID: LCS-100510**
 LAB CONTROL SAMPLE

Lab Sample ID: LCS-100510
LIMS ID: 10-25370
Matrix: Sediment
Data Release Authorized:
Reported: 10/07/10

QC Report No: RP83-NW Natural
Project: NW Natural

Date Sampled: NA
Date Received: NA

Instrument/Analyst LCS: FINN5/PKC
LCSD: FINN5/PKC
Date Analyzed LCS: 10/05/10 13:53
LCSD: 10/05/10 14:28

Sample Amount LCS: 100 mg-dry-wt
LCSD: 100 mg-dry-wt
Purge Volume LCS: 5.0 mL
LCSD: 5.0 mL
Moisture: NA

Analyte	LCS	Spike Added-LCS	LCS Recovery	LCSD	Spike Added-LCSD	LCSD Recovery	RPD
Benzene	2480	2500	99.2%	2550	2500	102%	2.8%
Toluene	2290	2500	91.6%	2360	2500	94.4%	3.0%
Ethylbenzene	2650	2500	106%	2630	2500	105%	0.8%
m,p-Xylene	5320	5000	106%	5300	5000	106%	0.4%
o-Xylene	2510	2500	100%	2560	2500	102%	2.0%

Reported in µg/kg (ppb)

RPD calculated using sample concentrations per SW846.

Volatile Surrogate Recovery

	LCS	LCSD
d4-1,2-Dichloroethane	83.0%	99.5%
d8-Toluene	100%	100%
Bromofluorobenzene	95.3%	99.6%
d4-1,2-Dichlorobenzene	98.6%	98.9%

4A
VOLATILE METHOD BLANK SUMMARY

Method Blank ID.

MB1005

Lab Name: ANALYTICAL RESOURCES, INC

Client: NW NATURAL

ARI Job No: RP83

Project: NW NATURAL

Lab File ID: MB1005A

Lab Sample ID: MB1005

Date Analyzed: 10/05/10

Time Analyzed: 1534

Instrument ID: FINN5

Heated Purge: (Y/N) Y

THIS METHOD BLANK APPLIES TO THE FOLLOWING SAMPLES, MS and MSD:

	EPA SAMPLE NO.	LAB SAMPLE ID	LAB FILE ID	TIME ANALYZED
01	LCS1005	LCS1005	LCS1005	1353
02	LCS1005	LCS1005	LCS1005A	1428
03	GSM-08SO-10-	RP83A	RP83A	2009
04				
05				
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COMMENTS:

FORM IV VOA

OLM3.2M

ANALYTICAL RESOURCES INCORPORATED

ORGANICS ANALYSIS DATA SHEET
Volatiles by Purge & Trap GC/MS-Method SW8260C **Sample ID: MB-100510**
 METHOD BLANK

Lab Sample ID: MB-100510
LIMS ID: 10-25370
Matrix: Sediment
Data Release Authorized:
Reported: 10/07/10

QC Report No: RP83-NW Natural
Project: NW Natural

Date Sampled: NA
Date Received: NA

Instrument/Analyst: FINN5/PKC
Date Analyzed: 10/05/10 15:34

Sample Amount: 100 mg-dry-wt
Purge Volume: 5.0 mL
Moisture: NA

CAS Number	Analyte	RL	Result	Q
71-43-2	Benzene	50	< 50	U
108-88-3	Toluene	50	< 50	U
100-41-4	Ethylbenzene	50	< 50	U
179601-23-1	m,p-Xylene	50	< 50	U
95-47-6	o-Xylene	50	< 50	U

Reported in µg/kg (ppb)

Volatile Surrogate Recovery

d4-1,2-Dichloroethane	101%
d8-Toluene	97.5%
Bromofluorobenzene	96.0%
d4-1,2-Dichlorobenzene	102%

5A
VOLATILE ORGANIC INSTRUMENT PERFORMANCE CHECK
BROMOFLUOROBENZENE (BFB)

Lab Name: ANALYTICAL RESOURCES, INC Contract: NW NATURAL

Lab Code: ARI Case No.: NW NATURAL SDG No.: RP83

Lab File ID: BFB0921 BFB Injection Date: 09/21/10

Instrument ID: FINN5 BFB Injection Time: 0946

GC Column: RTX502.2 ID: 0.18 (mm) Heated Purge: (Y/N) N

m/e	ION ABUNDANCE CRITERIA	% RELATIVE ABUNDANCE
50	8.0 - 40.0% of mass 95	30.0
75	30.0 - 66.0% of mass 95	54.7
95	Base Peak, 100% relative abundance	100.0
96	5.0 - 9.0% of mass 95	6.8
173	Less than 2.0% of mass 174	0.2 (0.2)1
174	50.0 - 101.0% of mass 95	63.0
175	4.0 - 9.0% of mass 174	4.4 (7.0)1
176	93.0 - 101.0% of mass 174	60.3 (95.7)1
177	5.0 - 9.0% of mass 176	4.0 (6.6)2

1-Value is % mass 174 2-Value is % mass 176

THIS CHECK APPLIES TO THE FOLLOWING SAMPLES, MS, MSD, BLANKS, AND STANDARDS:

	EPA SAMPLE NO.	LAB SAMPLE ID	LAB FILE ID	DATE ANALYZED	TIME ANALYZED
01	VSTD001	IC0921	0010921	09/21/10	1400
02	VSTD200	IC0921	2000921	09/21/10	1436
03	VSTD150	IC0921	1500921	09/21/10	1502
04	VSTD100	IC0921	1000921	09/21/10	1529
05	VSTD050	IC0921	0500921	09/21/10	1555
06	VSTD010	IC0921	0100921	09/21/10	1622
07	VSTD005	IC0921	0050921	09/21/10	1648
08	VSTD002	IC0921	0020921	09/21/10	1715
09	ICV0921	ICV0921	ICV0921	09/21/10	1741
10					
11					
12					
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22					

5A
VOLATILE ORGANIC INSTRUMENT PERFORMANCE CHECK
BROMOFLUOROBENZENE (BFB)

Lab Name: ANALYTICAL RESOURCES, INC Contract: NW NATURAL

Lab Code: ARI Case No.: NW NATURAL SDG No.: RP83

Lab File ID: BFB1005 BFB Injection Date: 10/05/10

Instrument ID: FINN5 BFB Injection Time: 1144

GC Column: RTX502.2 ID: 0.18 (mm) Heated Purge: (Y/N) N

m/e	ION ABUNDANCE CRITERIA	% RELATIVE ABUNDANCE	
50	8.0 - 40.0% of mass 95	28.3	
75	30.0 - 66.0% of mass 95	53.6	
95	Base Peak, 100% relative abundance	100.0	
96	5.0 - 9.0% of mass 95	6.6	
173	Less than 2.0% of mass 174	0.2	(0.4)1
174	50.0 - 101.0% of mass 95	67.2	
175	4.0 - 9.0% of mass 174	5.0	(7.4)1
176	93.0 - 101.0% of mass 174	67.6	(100.6)1
177	5.0 - 9.0% of mass 176	4.5	(6.6)2

1-Value is % mass 174 2-Value is % mass 176

THIS CHECK APPLIES TO THE FOLLOWING SAMPLES, MS, MSD, BLANKS, AND STANDARDS:

	EPA SAMPLE NO.	LAB SAMPLE ID	LAB FILE ID	DATE ANALYZED	TIME ANALYZED
01	CC1005	CC1005	CC1005	10/05/10	1244
02	LCS1005	LCS1005	LCS1005	10/05/10	1353
03	LCS1005	LCS1005	LCS1005A	10/05/10	1428
04	MB1005	MB1005	MB1005A	10/05/10	1534
05	GSM-08SO-10-11-1	RP83A	RP83A	10/05/10	2009
06					
07					
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12					
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15					
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18					
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20					
21					
22					

FORM V VOA OLM3.2M

FORM 6
VOLATILE INITIAL CALIBRATION DATA

Lab Name: ANALYTICAL RESOURCES, INC Client: NW NATURAL

ARI Job No: RP83 Project: NW NATURAL

Instrument ID: FINN5 Calibration Date: 09/21/10

LAB FILE ID: RF1: 0010921 RF2: 0020921 RF5: 0050921
RF10: 0100921 RF50: 0500921

COMPOUND	RF1	RF2	RF5	RF10	RF50
Chloromethane	2.000	1.804	1.989	2.451	2.010
Vinyl Chloride	1.914	1.731	2.182	2.618	1.973
Bromomethane	1.381	1.133	1.089	0.936	0.917
Chloroethane	1.072	0.980	0.984	0.964	0.912
Trichlorofluoromethane	1.562	1.498	1.559	1.462	1.468
Acrolein		0.179	0.188	0.170	0.161
112Trichloro122Trifluoroetha	1.180	1.098	1.076	1.156	1.054
Acetone	0.434	0.498	0.439	0.399	0.361
1,1-Dichloroethene	0.751	0.773	0.785	0.817	0.787
Bromoethane	0.602	0.554	0.679	0.708	0.648
Iodomethane	1.233	1.171	1.279	1.348	1.300
Methylene Chloride		1.381	1.154	1.091	1.018
Acrylonitrile		0.221	0.317	0.329	0.309
Carbon Disulfide	3.625	2.963	3.208	3.422	3.131
Trans-1,2-Dichloroethene	0.763	0.692	0.770	0.822	0.750
Vinyl Acetate	2.246	2.058	2.243	2.398	2.187
1,1-Dichloroethane	1.828	1.638	1.867	2.011	1.752
2-Butanone	0.477	0.447	0.473	0.495	0.460
2,2-Dichloropropane	1.485	1.597	1.484	1.570	1.395
Cis-1,2-Dichloroethene	0.695	0.651	0.733	0.807	0.702
Chloroform	1.530	1.418	1.550	1.656	1.470
Bromochloromethane	0.258	0.281	0.298	0.371	0.334
1,1,1-Trichloroethane	1.258	1.161	1.230	1.356	1.224
1,1-Dichloropropene	1.004	0.827	0.849	0.912	0.813
Carbon Tetrachloride	0.737	0.712	0.720	0.775	0.697
1,2-Dichloroethane	0.867	0.835	0.862	0.932	0.824
Benzene	2.090	1.818	1.870	2.099	1.790
Trichloroethene	0.498	0.506	0.524	0.549	0.502
1,2-Dichloropropane	0.743	0.600	0.632	0.675	0.586
Bromodichloromethane	0.747	0.670	0.728	0.814	0.715
Dibromomethane	0.315	0.290	0.314	0.319	0.294
2-Chloroethyl Vinyl Ether		0.230	0.261	0.286	0.264
4-Methyl-2-Pentanone	0.206	0.171	0.186	0.193	0.173
Cis 1,3-dichloropropene	0.965	0.816	0.844	0.945	0.846
Toluene	1.374	1.080	1.082	1.144	1.013
Trans 1,3-Dichloropropene	0.921	0.699	0.784	0.830	0.757
2-Hexanone	0.648	0.556	0.559	0.576	0.522

FORM 6
VOLATILE INITIAL CALIBRATION DATA

Lab Name: ANALYTICAL RESOURCES, INC Client: NW NATURAL

ARI Job No: RP83 Project: NW NATURAL

Instrument ID: FINN5 Calibration Date: 09/21/10

LAB FILE ID: RF1: 0010921 RF2: 0020921 RF5: 0050921
RF10: 0100921 RF50: 0500921

COMPOUND	RF1	RF2	RF5	RF10	RF50
1,1,2-Trichloroethane	0.344	0.328	0.337	0.366	0.326
1,3-Dichloropropane	0.891	0.915	0.858	0.858	0.776
Tetrachloroethene	0.569	0.503	0.494	0.530	0.478
Chlorodibromomethane	0.507	0.456	0.487	0.530	0.497
1,2-Dibromoethane	0.378	0.351	0.379	0.414	0.370
Chlorobenzene	1.317	1.113	1.145	1.254	1.126
Ethyl Benzene	2.614	2.278	2.234	2.447	2.237
1,1,1,2-Tetrachloroethane	0.482	0.432	0.451	0.489	0.429
m,p-xylene	0.879	0.702	0.753	0.847	0.793
o-Xylene	0.796	0.727	0.731	0.831	0.794
Styrene	1.439	1.212	1.195	1.376	1.296
Bromoform	0.705	0.565	0.587	0.630	0.591
1,1,2,2-Tetrachloroethane	1.243	1.027	1.131	1.145	1.018
1,2,3-Trichloropropane		0.197	0.226	0.247	0.231
Trans-1,4-Dichloro 2-Butene		0.449	0.451	0.474	0.425
N-Propyl Benzene	6.129	4.626	4.768	5.343	4.809
Bromobenzene	1.086	0.901	0.926	1.008	0.887
Isopropyl Benzene	4.491	4.103	3.905	4.355	3.884
2-Chloro Toluene	4.039	2.969	3.306	3.370	3.187
4-Chloro Toluene	3.881	3.367	3.019	3.852	3.154
T-Butyl Benzene	3.430	2.650	2.681	3.061	2.773
1,3,5-Trimethyl Benzene	3.902	3.169	3.142	3.496	3.199
1,2,4-Trimethylbenzene	4.149	3.118	2.908	3.434	3.155
S-Butyl Benzene	4.903	4.168	4.130	4.754	4.250
4-Isopropyl Toluene	3.545	3.002	2.957	3.431	3.185
1,3-Dichlorobenzene	1.803	1.550	1.519	1.831	1.670
1,4-Dichlorobenzene	1.944	1.495	1.532	1.800	1.634
N-Butyl Benzene	4.144	3.220	3.359	3.938	3.580
1,2-Dichlorobenzene	1.817	1.477	1.450	1.725	1.514
1,2-Dibromo 3-Chloropropane		0.332	0.325	0.312	0.236
1,2,4-Trichlorobenzene	1.352	0.938	0.955	1.266	0.997
Hexachloro 1,3-Butadiene	0.883	0.680	0.699	0.847	0.684
Naphthalene		2.074	1.967	2.528	1.928
1,2,3-Trichlorobenzene		1.042	0.952	1.208	0.888
Dichlorodifluoromethane	0.988	0.625	0.831	0.904	0.898
Methyl tert-Butyl Ether	2.280	2.118	2.418	2.467	2.205

FORM VI VOA

FORM 6
VOLATILE INITIAL CALIBRATION DATA

Lab Name: ANALYTICAL RESOURCES, INC Client: NW NATURAL

ARI Job No: RP83 Project: NW NATURAL

Instrument ID: FINN5 Calibration Date: 09/21/10

LAB FILE ID: RF1: 0010921 RF2: 0020921 RF5: 0050921
RF10: 0100921 RF50: 0500921

COMPOUND	RF1	RF2	RF5	RF10	RF50
d4-1,2-Dichloroethane	0.822	0.951	0.975	0.980	0.934
d8-Toluene	1.208	1.182	1.191	1.190	1.172
4-Bromofluorobenzene	0.602	0.614	0.624	0.620	0.624
d4-1,2-Dichlorobenzene	0.859	0.882	0.889	0.893	0.880
Dibromofluoromethane	0.590	0.636	0.653	0.646	0.623

FORM 6
VOLATILE INITIAL CALIBRATION DATA

Lab Name: ANALYTICAL RESOURCES, INC Client: NW NATURAL

ARI Job No: RP83 Project: NW NATURAL

Instrument ID: FINN5 Calibration Date: 09/21/10

LAB FILE ID: RF100: 1000921 RF150: 1500921 RF200: 2000921

COMPOUND	RF100	RF150	RF200
Chloromethane	2.171	2.173	2.159
Vinyl Chloride	2.207	2.157	1.914
Bromomethane	0.759	0.704	0.658
Chloroethane	0.793	0.734	0.684
Trichlorofluoromethane	1.321	1.152	1.046
Acrolein	0.146	0.129	0.119
112Trichloro122Trifluoroetha	0.973	0.867	0.814
Acetone	0.321	0.284	
1,1-Dichloroethene	0.749	0.681	0.639
Bromoethane	0.640	0.596	0.566
Iodomethane	1.334	1.232	1.220
Methylene Chloride	0.945	0.898	0.852
Acrylonitrile	0.309	0.302	0.294
Carbon Disulfide	3.115	2.856	2.545
Trans-1,2-Dichloroethene	0.769	0.772	0.778
Vinyl Acetate	2.204	2.031	1.800
1,1-Dichloroethane	1.825	1.809	1.691
2-Butanone	0.457	0.441	0.418
2,2-Dichloropropane	1.417	1.416	1.408
Cis-1,2-Dichloroethene	0.728	0.737	0.731
Chloroform	1.497	1.494	1.441
Bromochloromethane	0.344	0.338	0.350
1,1,1-Trichloroethane	1.250	1.237	1.230
1,1-Dichloropropene	0.791	0.786	0.774
Carbon Tetrachloride	0.676	0.672	0.674
1,2-Dichloroethane	0.810	0.811	0.785
Benzene	1.703	1.524	1.330
Trichloroethene	0.501	0.499	0.497
1,2-Dichloropropane	0.577	0.586	0.574
Bromodichloromethane	0.698	0.706	0.689
Dibromomethane	0.281	0.285	0.286
2-Chloroethyl Vinyl Ether	0.265	0.273	0.276
4-Methyl-2-Pentanone	0.166	0.169	0.167
Cis 1,3-dichloropropene	0.824	0.853	0.816
Toluene	0.993	1.019	0.940
Trans 1,3-Dichloropropene	0.750	0.774	0.745
2-Hexanone	0.431	0.355	

FORM VI VOA

FORM 6
VOLATILE INITIAL CALIBRATION DATA

Lab Name: ANALYTICAL RESOURCES, INC Client: NW NATURAL

ARI Job No: RP83 Project: NW NATURAL

Instrument ID: FINN5 Calibration Date: 09/21/10

LAB FILE ID: RF100: 1000921 RF150: 1500921 RF200: 2000921

COMPOUND	RF100	RF150	RF200
1,1,2-Trichloroethane	0.324	0.332	0.334
1,3-Dichloropropane	0.780	0.780	0.773
Tetrachloroethene	0.489	0.492	0.510
Chlorodibromomethane	0.508	0.500	0.512
1,2-Dibromoethane	0.358	0.376	0.371
Chlorobenzene	1.143	1.112	1.040
Ethyl Benzene	2.084	1.799	1.533
1,1,1,2-Tetrachloroethane	0.439	0.446	0.471
m,p-xylene	0.845	0.793	0.709
o-Xylene	0.813	0.841	0.878
Styrene	1.347	1.332	1.227
Bromoform	0.575	0.568	0.504
1,1,2,2-Tetrachloroethane	0.972	0.955	0.835
1,2,3-Trichloropropane	0.217	0.205	0.180
Trans-1,4-Dichloro 2-Butene	0.412	0.392	0.346
N-Propyl Benzene	3.930		
Bromobenzene	0.892	0.884	0.804
Isopropyl Benzene	3.473	2.818	
2-Chloro Toluene	3.148	2.604	2.125
4-Chloro Toluene	3.048	2.642	
T-Butyl Benzene	2.702	2.442	1.902
1,3,5-Trimethyl Benzene	3.094	2.565	1.978
1,2,4-Trimethylbenzene	3.074	2.584	
S-Butyl Benzene	3.790	3.004	
4-Isopropyl Toluene	3.082	2.550	2.026
1,3-Dichlorobenzene	1.709	1.714	1.494
1,4-Dichlorobenzene	1.710	1.704	1.490
N-Butyl Benzene	3.381	2.770	
1,2-Dichlorobenzene	1.555	1.539	1.372
1,2-Dibromo 3-Chloropropane	0.231	0.216	
1,2,4-Trichlorobenzene	0.959	0.915	0.858
Hexachloro 1,3-Butadiene	0.645	0.593	0.578
Naphthalene	1.801	1.649	1.364
1,2,3-Trichlorobenzene	0.870	0.821	0.769
Dichlorodifluoromethane	0.957	0.984	0.996
Methyl tert-Butyl Ether	2.221	2.139	1.976

FORM 6
VOLATILE INITIAL CALIBRATION DATA

Lab Name: ANALYTICAL RESOURCES, INC Client: NW NATURAL

ARI Job No: RP83 Project: NW NATURAL

Instrument ID: FINN5 Calibration Date: 09/21/10

LAB FILE ID: RF100: 1000921 RF150: 1500921 RF200: 2000921

COMPOUND	RF100	RF150	RF200
d4-1,2-Dichloroethane	0.952	0.974	0.976
d8-Toluene	1.149	1.181	1.158
4-Bromofluorobenzene	0.650	0.655	0.691
d4-1,2-Dichlorobenzene	0.881	0.856	0.847
Dibromofluoromethane	0.645	0.659	0.652

FORM 6
VOLATILE INITIAL CALIBRATION DATA

Lab Name: ANALYTICAL RESOURCES, INC Client: NW NATURAL

ARI Job No: RP83 Project: NW NATURAL

Instrument ID: FINN5 Calibration Date: 09/21/10

COMPOUND	CURVE TYPE	AVE RF	%RSD OR R^2
Chloromethane	AVRG	2.095	9.1
Vinyl Chloride	AVRG	2.087	12.9
Bromomethane	2ORDR		0.9996
Chloroethane	AVRG	0.890	15.4
Trichlorofluoromethane	AVRG	1.384	13.9
Acrolein	AVRG	0.156	16.5
112Trichloro122Trifluoroetha	AVRG	1.027	12.9
Acetone	AVRG	0.391	19.0
1,1-Dichloroethene	AVRG	0.748	7.9
Bromoethane	AVRG	0.624	8.7
Iodomethane	AVRG	1.265	4.8
Methylene Chloride	AVRG	1.048	17.2
Acrylonitrile	AVRG	0.297	11.9
Carbon Disulfide	AVRG	3.108	10.7
Trans-1,2-Dichloroethene	AVRG	0.765	4.7
Vinyl Acetate	AVRG	2.146	8.4
1,1-Dichloroethane	AVRG	1.802	6.3
2-Butanone	AVRG	0.458	5.2
2,2-Dichloropropane	AVRG	1.472	5.2
Cis-1,2-Dichloroethene	AVRG	0.723	6.1
Chloroform	AVRG	1.507	4.9
Bromochloromethane	AVRG	0.322	12.0
1,1,1-Trichloroethane	AVRG	1.243	4.3
1,1-Dichloropropene	AVRG	0.844	9.2
Carbon Tetrachloride	AVRG	0.708	5.1
1,2-Dichloroethane	AVRG	0.841	5.4
Benzene	AVRG	1.778	14.7
Trichloroethene	AVRG	0.509	3.6
1,2-Dichloropropane	AVRG	0.622	9.6
Bromodichloromethane	AVRG	0.721	6.2
Dibromomethane	AVRG	0.298	5.2
2-Chloroethyl Vinyl Ether	AVRG	0.265	6.7
4-Methyl-2-Pentanone	AVRG	0.179	8.1
Cis 1,3-dichloropropene	AVRG	0.863	6.8
Toluene	AVRG	1.081	12.4
Trans 1,3-Dichloropropene	AVRG	0.782	8.6
2-Hexanone	AVRG	0.521	18.8

<- Indicates value outside QC limits:
(%RSD < 20% or R^2 > 0.990)

FORM 6
VOLATILE INITIAL CALIBRATION DATA

Lab Name: ANALYTICAL RESOURCES, INC Client: NW NATURAL

ARI Job No: RP83 Project: NW NATURAL

Instrument ID: FINN5 Calibration Date: 09/21/10

COMPOUND	CURVE TYPE	AVE RF	%RSD OR R^2
1,1,2-Trichloroethane	AVRG	0.336	4.1
1,3-Dichloropropane	AVRG	0.829	7.0
Tetrachloroethene	AVRG	0.508	5.7
Chlorodibromomethane	AVRG	0.500	4.3
1,2-Dibromoethane	AVRG	0.375	5.0
Chlorobenzene	AVRG	1.156	7.6
Ethyl Benzene	AVRG	2.153	16.1
1,1,1,2-Tetrachloroethane	AVRG	0.455	5.1
m,p-xylene	AVRG	0.790	8.3
o-Xylene	AVRG	0.801	6.5
Styrene	AVRG	1.303	6.6
Bromoform	AVRG	0.590	9.8
1,1,2,2-Tetrachloroethane	AVRG	1.041	12.3
1,2,3-Trichloropropane	AVRG	0.215	10.4
Trans-1,4-Dichloro 2-Butene	AVRG	0.421	10.2
N-Propyl Benzene	AVRG	4.934	15.0
Bromobenzene	AVRG	0.924	9.3
Isopropyl Benzene	AVRG	3.861	14.7
2-Chloro Toluene	AVRG	3.094	18.2
4-Chloro Toluene	AVRG	3.280	13.8
T-Butyl Benzene	AVRG	2.705	16.4
1,3,5-Trimethyl Benzene	AVRG	3.068	18.9
1,2,4-Trimethylbenzene	AVRG	3.203	15.3
S-Butyl Benzene	AVRG	4.143	15.2
4-Isopropyl Toluene	AVRG	2.972	16.4
1,3-Dichlorobenzene	AVRG	1.661	7.7
1,4-Dichlorobenzene	AVRG	1.664	9.6
N-Butyl Benzene	AVRG	3.484	13.1
1,2-Dichlorobenzene	AVRG	1.556	9.4
1,2-Dibromo 3-Chloropropane	AVRG	0.275	19.3
1,2,4-Trichlorobenzene	AVRG	1.030	17.3
Hexachloro 1,3-Butadiene	AVRG	0.701	15.7
Naphthalene	AVRG	1.902	19.1
1,2,3-Trichlorobenzene	AVRG	0.936	15.9
Dichlorodifluoromethane	AVRG	0.898	13.8
Methyl tert-Butyl Ether	AVRG	2.228	7.2

<- Indicates value outside QC limits:
(%RSD < 20% or R^2 > 0.990)

FORM 6
VOLATILE INITIAL CALIBRATION DATA

Lab Name: ANALYTICAL RESOURCES, INC Client: NW NATURAL

ARI Job No: RP83 Project: NW NATURAL

Instrument ID: FINN5 Calibration Date: 09/21/10

COMPOUND	CURVE TYPE	AVE RF	%RSD OR R^2
d4-1,2-Dichloroethane	AVRG	0.946	5.6
d8-Toluene	AVRG	1.179	1.6
4-Bromofluorobenzene	AVRG	0.635	4.5
d4-1,2-Dichlorobenzene	AVRG	0.873	1.9
Dibromofluoromethane	AVRG	0.638	3.5

<- Indicates value outside QC limits:
(%RSD < 20% or R^2 > 0.990)

FORM VI VOA

7A

VOLATILE CONTINUING CALIBRATION CHECK

Lab Name: ANALYTICAL RESOURCES, INC — Client: NW NATURAL

ARI Job No: RP83 — Project: NW NATURAL

Instrument ID: FINN5 — Cont. Calib. Date: 10/05/10

Init. Calib. Date: 09/21/10 — Cont. Calib. Time: 1244

COMPOUND	CalAmt or ARF	CC Amt or RF	MIN RRF	CURVE TYPE	%D or Drift
Chloromethane	2.095	2.341	0.100	AVRG	11.7
Vinyl Chloride	2.087	2.122	0.010	AVRG	1.7
Bromomethane	50.000	58.671	0.010	2ORDR	17.3
Chloroethane	0.890	1.026	0.010	AVRG	15.3
Trichlorofluoromethane	1.384	1.614	0.010	AVRG	16.6
Acrolein	0.156	0.177	0.010	AVRG	13.5
112Trichloro122Trifluoroetha	1.027	1.062	0.010	AVRG	3.4
Acetone	0.391	0.325	0.010	AVRG	-16.9
1,1-Dichloroethene	0.748	0.856	0.010	AVRG	14.4
Bromoethane	0.624	0.663	0.010	AVRG	6.2
Iodomethane	1.265	1.317	0.010	AVRG	4.1
Methylene Chloride	1.048	0.908	0.010	AVRG	-13.4
Acrylonitrile	0.297	0.280	0.010	AVRG	-5.7
Carbon Disulfide	3.108	2.988	0.010	AVRG	-3.9
Trans-1,2-Dichloroethene	0.764	0.773	0.010	AVRG	1.2
Vinyl Acetate	2.146	1.972	0.010	AVRG	-8.1
1,1-Dichloroethane	1.803	1.780	0.100	AVRG	-1.3
2-Butanone	0.458	0.393	0.010	AVRG	-14.2
2,2-Dichloropropane	1.472	1.326	0.010	AVRG	-9.9
Cis-1,2-Dichloroethene	0.723	0.730	0.010	AVRG	1.0
Chloroform	1.507	1.435	0.010	AVRG	-4.8
Bromochloromethane	0.322	0.334	0.010	AVRG	3.7
1,1,1-Trichloroethane	1.243	1.160	0.010	AVRG	-6.7
1,1-Dichloropropene	0.844	0.810	0.010	AVRG	-4.0
Carbon Tetrachloride	0.708	0.668	0.010	AVRG	-5.6
1,2-Dichloroethane	0.841	0.784	0.010	AVRG	-6.8
Benzene	1.778	1.793	0.010	AVRG	0.8
Trichloroethene	0.510	0.511	0.010	AVRG	0.2
1,2-Dichloropropane	0.622	0.579	0.010	AVRG	-6.9
Bromodichloromethane	0.721	0.676	0.010	AVRG	-6.2
Dibromomethane	0.298	0.286	0.010	AVRG	-4.0
2-Chloroethyl Vinyl Ether	0.265	0.236	0.010	AVRG	-10.9
4-Methyl-2-Pentanone	0.179	0.145	0.010	AVRG	-19.0
Cis 1,3-dichloropropene	0.864	0.802	0.010	AVRG	-7.2
Toluene	1.081	1.011	0.010	AVRG	-6.5
Trans 1,3-Dichloropropene	0.782	0.700	0.010	AVRG	-10.5
2-Hexanone	0.521	0.445	0.010	AVRG	-14.6

<- Exceeds QC limit of 20% D
* RF less than minimum RF

FORM VII VOA

7A

VOLATILE CONTINUING CALIBRATION CHECK

Lab Name: ANALYTICAL RESOURCES, INC — Client: NW NATURAL

ARI Job No: RP83 — Project: NW NATURAL

Instrument ID: FINN5 — Cont. Calib. Date: 10/05/10

Init. Calib. Date: 09/21/10 — Cont. Calib. Time: 1244

COMPOUND	CalAmt or ARF	CC Amt or RF	MIN RRF	CURVE TYPE	%D or Drift	
1,1,2-Trichloroethane	0.336	0.312	0.010	AVRG	-7.1	
1,3-Dichloropropane	0.829	0.790	0.010	AVRG	-4.7	
Tetrachloroethene	0.508	0.536	0.010	AVRG	5.5	
Chlorodibromomethane	0.500	0.493	0.010	AVRG	-1.4	
1,2-Dibromoethane	0.375	0.352	0.010	AVRG	-6.1	
Chlorobenzene	1.156	1.194	0.300	AVRG	3.3	
Ethyl Benzene	2.153	2.364	0.010	AVRG	9.8	
1,1,1,2-Tetrachloroethane	0.455	0.430	0.010	AVRG	-5.5	
m,p-xylene	0.790	0.872	0.010	AVRG	10.4	
o-Xylene	0.801	0.845	0.010	AVRG	5.5	
Styrene	1.303	1.396	0.010	AVRG	7.1	
Bromoform	0.591	0.542	0.100	AVRG	-8.3	
1,1,2,2-Tetrachloroethane	1.041	0.982	0.300	AVRG	-5.7	
1,2,3-Trichloropropane	0.215	0.212	0.010	AVRG	-1.4	
Trans-1,4-Dichloro 2-Butene	0.421	0.374	0.010	AVRG	-11.2	
N-Propyl Benzene	4.934	5.183	0.010	AVRG	5.0	
Bromobenzene	0.924	0.986	0.010	AVRG	6.7	
Isopropyl Benzene	3.861	4.160	0.010	AVRG	7.7	
2-Chloro Toluene	3.094	3.386	0.010	AVRG	9.4	
4-Chloro Toluene	3.280	3.582	0.010	AVRG	9.2	
T-Butyl Benzene	2.705	2.971	0.010	AVRG	9.8	
1,3,5-Trimethyl Benzene	3.068	3.522	0.010	AVRG	14.8	
1,2,4-Trimethylbenzene	3.203	3.463	0.010	AVRG	8.1	
S-Butyl Benzene	4.143	4.643	0.010	AVRG	12.1	
4-Isopropyl Toluene	2.972	3.583	0.010	AVRG	20.6	<-
1,3-Dichlorobenzene	1.661	1.885	0.010	AVRG	13.5	
1,4-Dichlorobenzene	1.664	1.879	0.010	AVRG	12.9	
N-Butyl Benzene	3.484	4.040	0.010	AVRG	16.0	
1,2-Dichlorobenzene	1.556	1.626	0.010	AVRG	4.5	
1,2-Dibromo 3-Chloropropane	0.275	0.184	0.010	AVRG	-33.1	<-
1,2,4-Trichlorobenzene	1.030	1.027	0.010	AVRG	-0.3	
Hexachloro 1,3-Butadiene	0.701	0.675	0.010	AVRG	-3.7	
Naphthalene	1.902	1.626	0.010	AVRG	-14.5	
1,2,3-Trichlorobenzene	0.936	0.861	0.010	AVRG	-8.0	
Dichlorodifluoromethane	0.898	1.226	0.010	AVRG	36.5	<-
Methyl tert-Butyl Ether	2.228	1.980	0.010	AVRG	-11.1	

<- Exceeds QC limit of 20% D

* RF less than minimum RF

FORM VII VOA

7A
VOLATILE CONTINUING CALIBRATION CHECK

Lab Name: ANALYTICAL RESOURCES, INC — Client: NW NATURAL

ARI Job No: RP83 — Project: NW NATURAL

Instrument ID: FINN5 — Cont. Calib. Date: 10/05/10

Init. Calib. Date: 09/21/10 — Cont. Calib. Time: 1244

COMPOUND	CalAmt or ARF	CC Amt or RF	MIN RRF	CURVE TYPE	%D or Drift
d4-1,2-Dichloroethane	0.946	0.801	0.010	AVRG	-15.3
d8-Toluene	1.179	1.184	0.010	AVRG	0.4
4-Bromofluorobenzene	0.635	0.614	0.010	AVRG	-3.3
d4-1,2-Dichlorobenzene	0.873	0.840	0.010	AVRG	-3.8
Dibromofluoromethane	0.638	0.604	0.010	AVRG	-5.3

<- Exceeds QC limit of 20% D
* RF less than minimum RF

FORM VII VOA

8A
VOLATILE INTERNAL STANDARD AREA AND RT SUMMARY

Lab Name: ANALYTICAL RESOURCES, INC — Client: NW NATURAL

ARI Job No: RP83 — Project: NW NATURAL

Ical Midpoint ID: 0500921 — Ical Date: 09/21/10

Instrument ID: FINN5 — Project Run Date: 10/05/10

		IS1(PFB) AREA #	RT #	IS2(DFB) AREA #	RT #	IS3(CLB) AREA #	RT #
	ICAL MIDPT	91870	6.63	137983	7.65	123519	10.79
	UPPER LIMIT	183740	7.13	275966	8.15	247038	11.29
	LOWER LIMIT	45935	6.13	68992	7.15	61760	10.29
	Sample ID						
01	LCS1005	113634	6.59	167895	7.61	142402	10.76
02	LCS1005	105263	6.61	159760	7.63	140873	10.77
03	MB1005	107988	6.61	156726	7.62	136390	10.77
04	GSM-08SO-10-	109118	6.61	162281	7.63	142519	10.77
05							
06							
07							
08							
09							
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12							
13							
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16							
17							
18							
19							
20							
21							
22							

IS1 (PFB) = Pentafluorobenzene
IS2 (DFB) = 1,4-Difluorobenzene
IS3 (CLB) = d5-Chlorobenzene

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

* Values outside of QC limits.

8A
VOLATILE INTERNAL STANDARD AREA AND RT SUMMARY

Lab Name: ANALYTICAL RESOURCES, INC — Client: NW NATURAL

ARI Job No: RP83 — Project: NW NATURAL

Ical Midpoint ID: 0500921 — Ical Date: 09/21/10

Instrument ID: FINN5 — Project Run Date: 10/05/10

		IS4(DCB) AREA #	RT #	AREA #	RT #	AREA #	RT #
	ICAL MIDPT	67589	13.48				
	UPPER LIMIT	135178	13.98				
	LOWER LIMIT	33794	12.98				
	Sample ID						
01	LCS1005	77701	13.45				
02	LCS1005	79017	13.46				
03	MB1005	69923	13.46				
04	GSM-08SO-10-	73316	13.46				
05							
06							
07							
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14							
15							
16							
17							
18							
19							
20							
21							
22							

IS4 (DCB) = d4-1,4-Dichlorobenzene

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

* Values outside of QC limits.

Total Solids

ARI Job ID: RP83

Volatiles Total Solids-voats
Data By: Paul K. Campbell
Created: 10/ 6/10

Worklist: 3585
Analyst: PKC
Comments:

Oven ID:_____

Balance ID:_____

Samples In: Date:_____ Time:_____ Temp:_____ Analyst:_____

Samples Out: Date:_____ Time:_____ Temp:_____ Analyst:_____

ARI ID	Tare Wt (g)	Wet Wt (g)	Dry Wt (g)	% Solids
1. RP07A 10-24771	1.14	12.05	9.88	80.11
2. RP07E 10-24775	1.11	11.65	9.26	77.32
3. RP07F 10-24776	1.12	11.76	7.94	64.10
4. RP07I 10-24779	1.15	11.24	8.51	72.94
5. RP10A 10-24799	1.10	15.82	12.31	76.15
6. RP83A 10-25370	1.44	15.26	11.95	76.05

Worklist ID: 3585 Page: 1
* - VOA TS Copied From BETX TS
% - VOA TS Copied From Metals TS
$ - VOA TS Copied From Extraction TS

Analytical Resources, Incorporated
Analytical Chemists and Consultants

Total Solids Bench Sheet

Laboratory Section VOA

Oven Identification: 11 **Balance ID:** 400500 16 PT120

Samples in Oven: Date: 10/5/2010 Time: 235 P Temp: 104° Analyst: AR

Removed from Oven: Date: 10/6/10 Time: 1529 Temp: 108 Analyst: PC

Source of Total Solids Data If From A Different Lab:

ARI Sample ID	Tare Weight (g)	Tare + Sample Wet (g)	Tare + Sample Dry (g)	Date & Time Last Weight	Final Weighting >12 hrs[1]
(Blue) RP07 A	1.14	12.05	9.88	10/6/10 1534	
E	1.11	11.65	9.26		
F	1.12	11.76	7.94		
I	1.15	11.24	8.51		
(Red) RP10 A	1.10	15.82	12.31		
RP83 A	1.44	15.29	11.95		
AR 10/5/2010					

1) Place a check mark in this column if samples have dried > 12 but < 24 hours. When samples have been at 104°C < 12 hours, constant weight must be verified as described in SOP 10023S. Use a 2nd bench sheet for additional weightings.

Volatile Raw Data
Preparation Log

ARI Job ID: RP83

Analytical Resources, Incorporated
Analytical Chemists and Consultants

Volatile Organics Extraction Bench Sheet

(8260B, 8260B-SIM, 8021, NWTPH-Gx, AK-101, TPH-G, VPH, TCLP-ZHE)

ARI Project No.: RP07 & RP10

Client ID/Project:

	Extraction Date	MeOH Lot No.	Analyst
1st Extraction:	10/5/2010		AR
2nd Extraction:			

	Lab ID	Vial No.	Preservative		Method 5035 Sample Weight					Comments
			$NaHSO_3$	CH_3OH	Vial Weight	Tare (from vial)	Sample Weight	Extract Volume	MeOH Spilt Volume	
	MB:									
	LCS:									
	LCSD:									
1	RP07 A	1					5.25	NA	NA AR 10/5/2010	
2	E	2					5.04	5mL MeOH	10µL	761 ppm screen
3	F	1					5.20	NA	NA	
4	I	2					5.60	5mL MeOH	100µL	1:2 ppm Screen
5	RP10 A	1					6.54	NA	NA	
6	RP83A	1					5.34	5mL MeOH	10µL	571 ppm Screen
7										
8										
9										
10										
11										
12										
13										
14										
15										
16										
17										
18										
19										
20										
	Balance ID:									

	Solution ID	Concentration	Amount Spiked	Analyst	Witness
Surrogate:					
Spike:					

RP83 : 00039

Volatile Raw Data
Initial Calibration Notes and Raw Data

ARI Job ID: RP83

Analytical Resources, Incorporated
Analytical Chemists and Consultants

VOA Analyst Notes / Corrective Action Log

ARI Project ID: F5 ical Client ID: _____

ARI SOP: **404S**(Gas) **410S**(BTEX) **430S**(VPH) **700S**(8260C) **703S**(SIM) **706S**(524.2) **710S**(RSK-175)

Parameter(s): _____

Instrument: NT-3 NT-5 NT-7 NT-9 NT-10 PID-1 PID-2 PID-3 FID-6 FINN-5

Purge Volume (mL) 5 Curve Date: 9/21/10 Analysis Start Date: 9/21/10

pH ≤ 2.0	YES / NO / NA	Method Blank In Control?	YES / NO
BFB Tune Meets Criteria?	YES / NO / NA	LCS / LCSD Recovery In Control?	YES / NO
Internal Standard Meets Criteria?	YES / NO / NA	Surrogate Recovery In Control?	YES / NO
ICal acceptable?	YES / NO	CCal acceptable?	YES / NO
Q flag applied?	YES / NO / NA	Q flag applied?	YES / NO / NA
Manual Integrations for ICal?	YES / NO	Manual Integrations for Samples?	Yes /NO
Special Analysis Criteria Met?	YES / NO / NA		

Bubbles/Headspace: None SM (≤ 2mm •) PB (2-4mm) LG (> 4mm ●) Head Space

Detail problems, corrective actions and/or other pertinent information below (use reverse side when necessary):

bromoethane – quadratic

ICV
ICDFM 126%R
bromoethane 129%R
TCFM 125%R

Additional Details on Reverse: Yes / No

Analyst: _____ **Date:** 9/22/10

Reviewer: _____ **Date:** 9/25/10

Analytical Resources Inc.: Organics Instrument Log

FINN5 Serial No.: 5500-000421A

Date: 9/21/10 Analysis: BNA Analyst: [illegible]

GC Program: (-) Column No: 881729 Column Type: MXDB

Instrument Tune (.U or .CT.): BFB0921 EM Voltage: 1771

Calibration File: 2000921 Curve Date: 9/21/10

IS/SS	Ical/Ccal	LCS/ICV
WG55-3	WG52-2	WG77-2
	WG52-7	WG64-4
		WG64-7

INTERNAL STANDARD SUMMARY FOR DATABATCH - /chem1/finn5.i/21SEP10.b

	Time	Filename	LabID	ClientID	WT								
1	0946	BFB0921.d	BFB0921	BFB0921	0.00								
2	1332	BFB0921A.d	BFB0921	BFB0921	0.00								
3	1400	0010921.d	IC0921	VSTD001	5.00	6.62	98090	7.64	139464	10.78	121650	13.47	59739
4	1436	2000921.d	IC0921	VSTD200	5.00	6.62	87453	7.64	139494	10.78	122656	13.47	91799
5	1502	1500921.d	IC0921	VSTD150	5.00	6.63	85562	7.65	135243	10.79	121020	13.48	75375
6	1529	1000921.d	IC0921	VSTD100	5.00	6.62	90164	7.64	141240	10.78	121372	13.47	71146
7	1555	0500921.d	IC0921	VSTD050	5.00	6.63	91870	7.65	137983	10.79	123519	13.48	67589
8	1622	0100921.d	IC0921	VSTD010	5.00	6.61	83180	7.63	125379	10.77	114010	13.46	59666
9	1648	0050921.d	IC0921	VSTD005	5.00	6.61	87492	7.63	128943	10.77	116136	13.46	59882
10	1715	0020921.d	IC0921	VSTD002	5.00	6.63	94862	7.64	136952	10.79	120078	13.47	61850
11	1741	ICV0921.d	ICV0921	ICV0921	5.00	6.63	87734	7.65	133434	10.79	116196	13.48	64814

9/21/10

Maintenance / Comments

Maintenance Verification (Identify ICal or CCal that demonstrates the instrument is in control):

Every line must contain information or be lined out. Make all entries legible. Start a new page for each QC period.

Data File: /chem1/finn5.i/21SEP10.b/BFB0921A.d

Date : 21-SEP-2010 13:32

Client ID: BFB0921

Instrument: finn5.i

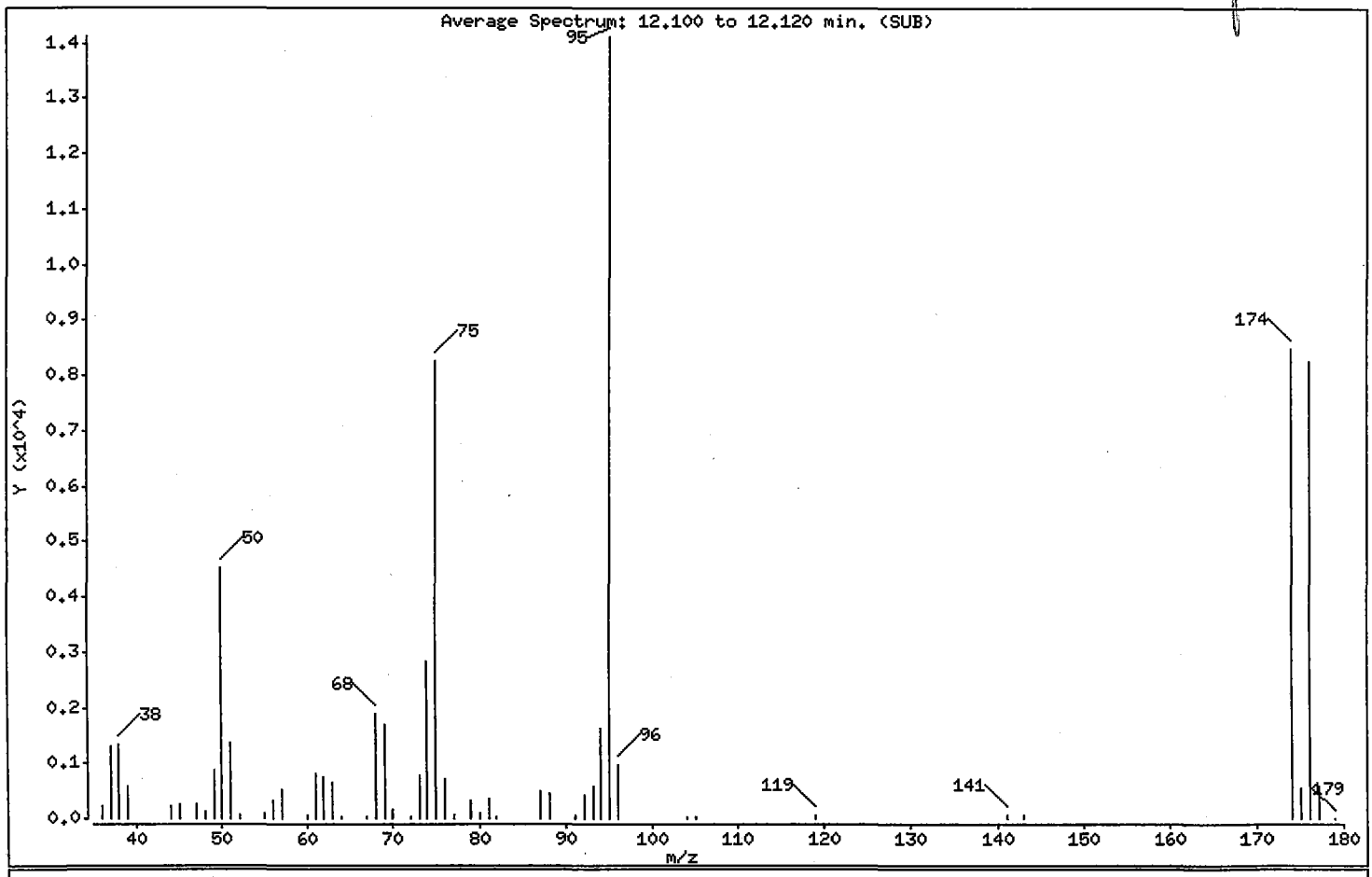
Sample Info: BFB0921,BFB0921,,1,21SEP10,,

Operator: PB

Column phase: RTX502.2

Column diameter: 0.18

1 Bromofluorobenzene



m/e	ION ABUNDANCE CRITERIA	% RELATIVE ABUNDANCE
95	Base Peak, 100% relative abundance	100.00
50	8.00 - 40.00% of mass 95	31.93
75	30.00 - 66.00% of mass 95	58.64
96	5.00 - 9.00% of mass 95	6.82
173	Less than 2.00% of mass 174	0.00 (0.00)
174	50.00 - 101.00% of mass 95	60.03
175	4.00 - 9.00% of mass 174	3.85 (6.40)
176	93.00 - 101.00% of mass 174	58.64 (97.68)
177	5.00 - 9.00% of mass 176	4.11 (7.02)

Data File: /chem1/finn5.i/21SEP10.b/BFB0921A.d

Date : 21-SEP-2010 13:32

Client ID: BFB0921 Instrument: finn5.i

Sample Info: BFB0921,BFB0921,,1,21SEP10,,

Operator: PB

Column phase: RTX502.2 Column diameter: 0.18

Data File: BFB0921A.d
Spectrum: Average Spectrum: 12.100 to 12.120 min. (SUB)
Location of Maximum: 95.00
Number of points: 52

m/z	Y	m/z	Y	m/z	Y	m/z	Y
36.00	239	57.00	519	76.00	722	104.00	22
37.00	1296	60.00	78	77.00	56	105.00	47
38.00	1331	61.00	803	79.00	335	119.00	51
39.00	578	62.00	763	80.00	87	141.00	78
44.00	212	63.00	638	81.00	342	143.00	70
45.00	262	64.00	42	82.00	34	174.00	8478
47.00	257	67.00	44	87.00	481	175.00	543
48.00	121	68.00	1882	88.00	450	176.00	8281
49.00	887	69.00	1698	91.00	80	177.00	581
50.00	4509	70.00	166	92.00	421	179.00	3
51.00	1361	72.00	19	93.00	587		
52.00	63	73.00	775	94.00	1639		
55.00	85	74.00	2818	95.00	14122		
56.00	327	75.00	8281	96.00	963		

Data File: /chem1/finn5.i/21SEP10.b/BFB0921A.d

Date : 21-SEP-2010 13:32

Client ID: BFB0921

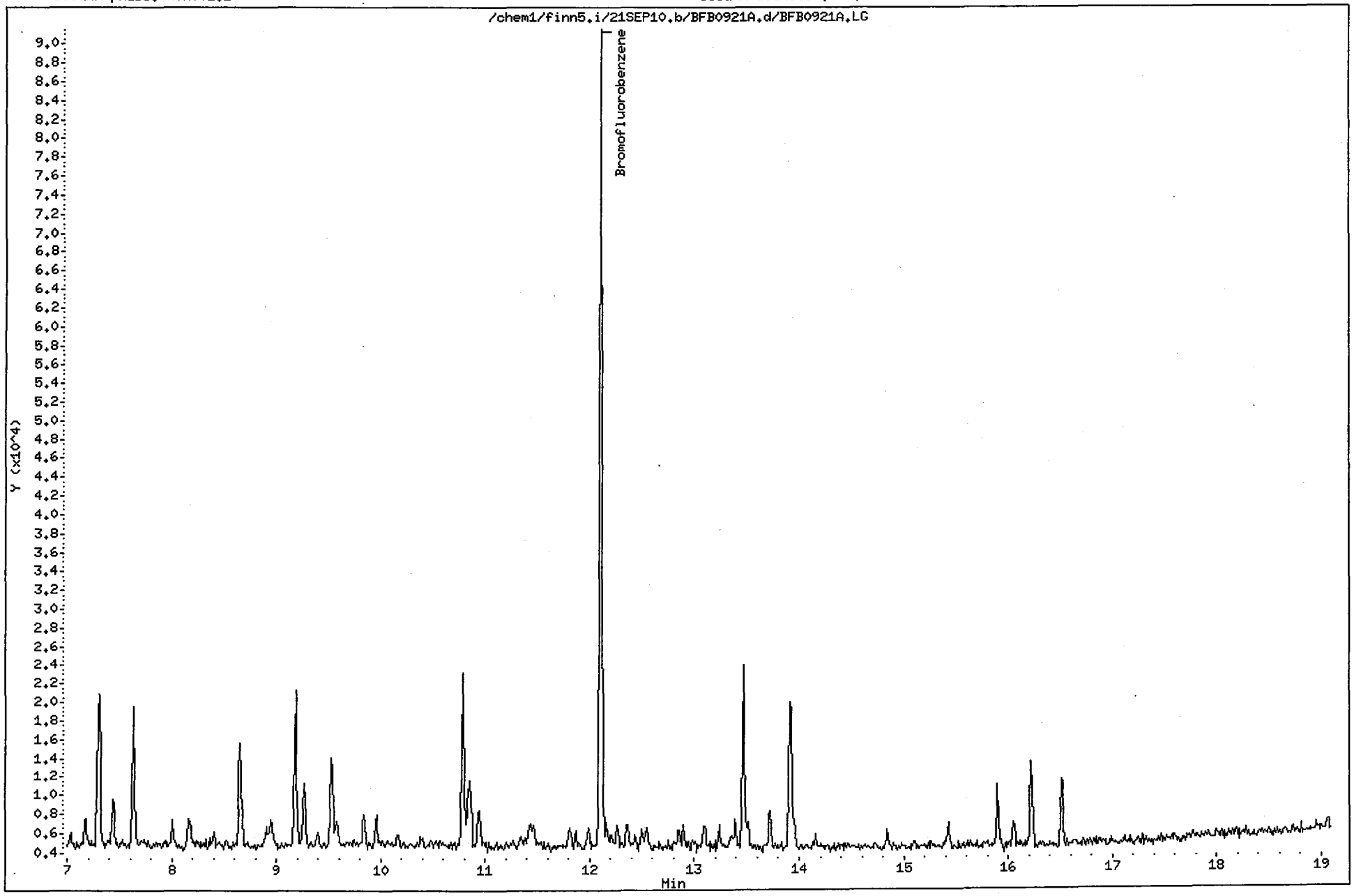
Sample Info: BFB0921,BFB0921,,1,21SEP10,,

Column phase: RTX502.2

Instrument: finn5.i

Operator: PB

Column diameter: 0.18



RP83:00015

Analytical Resources, Inc.

INITIAL CALIBRATION DATA

Start Cal Date : 21-SEP-2010 14:00
End Cal Date : 21-SEP-2010 17:15
Quant Method : ISTD
Origin : Force
Target Version : 3.50
Integrator : HP RTE
Method file : /chem1/finn5.i/21SEP10.b/s8260b.m
Cal Date : 22-Sep-2010 09:39 patrickb

Calibration File Names:
Level 1: /chem1/finn5.i/21SEP10.b/0010921.d
Level 2: /chem1/finn5.i/21SEP10.b/0020921.d
Level 3: /chem1/finn5.i/21SEP10.b/0050921.d
Level 4: /chem1/finn5.i/21SEP10.b/0100921.d
Level 5: /chem1/finn5.i/21SEP10.b/0500921.d
Level 6: /chem1/finn5.i/21SEP10.b/1000921.d
Level 7: /chem1/finn5.i/21SEP10.b/1500921.d
Level 8: /chem1/finn5.i/21SEP10.b/2000921.d

Compound	1 Level 1	2 Level 2	5 Level 3	10 Level 4	50 Level 5	100 Level 6	Curve	Coefficients b	m1	m2	%RSD or R^2
	150 Level 7	200 Level 8									
1 Dichlorodifluoromethane	0.98838	0.62538	0.83105	0.90400	0.89837	0.95673					
	0.98425	0.99570					AVRG		0.89798		13.79654
2 Chloromethane	1.99969	1.80394	1.98944	2.45101	2.00992	2.17138					
	2.17306	2.15899					AVRG		2.09468		9.11084
3 Vinyl Chloride	1.91355	1.73146	2.18214	2.61800	1.97332	2.20679					
	2.15709	1.91458					AVRG		2.08712		12.92530

KP 853 - 000165

Analytical Resources, Inc.

INITIAL CALIBRATION DATA

Start Cal Date : 21-SEP-2010 14:00
End Cal Date : 21-SEP-2010 17:15
Quant Method : ISTD
Origin : Force
Target Version : 3.50
Integrator : HP RTE
Method file : /chem1/finn5.i/21SEP10.b/s8260b.m
Cal Date : 22-Sep-2010 09:39 patrickb

Compound	1 Level 1 150 Level 7	2 Level 2 200 Level 8	5 Level 3	10 Level 4	50 Level 5	100 Level 6	Curve	Coefficients b	m1	m2	%RSD or R^2	
4 Bromomethane	2710	4301	9527	15581	84213	136864						
	180689	230354					QUAD	0.000e+00	0.96282	0.21350	0.99960	
181 Ethyl Ether	+++++	+++++	+++++	+++++	+++++	+++++						
	+++++	+++++					AVRG		0.000e+00		0.000e+00	<-
5 Chloroethane	1.07248	0.98011	0.98398	0.96375	0.91206	0.79303						
	0.73452	0.68362					AVRG		0.89044		15.44202	
6 Trichlorofluoromethane	1.56234	1.49849	1.55877	1.46159	1.46765	1.32133						
	1.15156	1.04643					AVRG		1.38352		13.94025	
7 Acrolein	+++++	0.17884	0.18793	0.16988	0.16061	0.14653						
	0.12921	0.11864					AVRG		0.15595		16.46890	
8 112Trichloro122Trifluoroethan	1.18055	1.09844	1.07598	1.15641	1.05411	0.97328						
	0.86714	0.81358					AVRG		1.02744		12.87811	
9 Acetone	0.43430	0.49825	0.43901	0.39865	0.36131	0.32117						
	0.28399	+++++					AVRG		0.39095		18.95539	

RP837.00047

Analytical Resources, Inc.

INITIAL CALIBRATION DATA

Start Cal Date : 21-SEP-2010 14:00
End Cal Date : 21-SEP-2010 17:15
Quant Method : ISTD
Origin : Force
Target Version : 3.50
Integrator : HP RTE
Method file : /chem1/finn5.i/21SEP10.b/s8260b.m
Cal Date : 22-Sep-2010 09:39 patrickb

Compound	1 Level 1 / 150 Level 7	2 Level 2 / 200 Level 8	5 Level 3	10 Level 4	50 Level 5	100 Level 6	Curve	Coefficients b	m1	m2	%RSD or R^2
10 1,1-Dichloroethene	0.75135	0.77349	0.78521	0.81666	0.78683	0.74874					
	0.68122	0.63938					AVRG		0.74786		7.91488
11 Bromoethane	0.60251	0.55396	0.67949	0.70846	0.64857	0.63998					
	0.59625	0.56552					AVRG		0.62434		8.69483
12 Iodomethane	1.23305	1.17144	1.27863	1.34858	1.29963	1.33441					
	1.23177	1.22042					AVRG		1.26474		4.82381
13 Methylene Chloride	+++++	1.38122	1.15371	1.09083	1.01848	0.94468					
	0.89803	0.85259					AVRG		1.04851		17.24921
14 Acrylonitrile	+++++	0.22085	0.31660	0.32929	0.30905	0.30867					
	0.30166	0.29391					AVRG		0.29715		11.92859
16 Methyl tert-Butyl Ether	2.28056	2.11781	2.41839	2.46724	2.20467	2.22100					
	2.13872	1.97646					AVRG		2.22811		7.20154
15 Carbon Disulfide	3.62524	2.96299	3.20784	3.42162	3.13099	3.11541					
	2.85657	2.54513					AVRG		3.10822		10.72245

RP83-000148

Analytical Resources, Inc.

INITIAL CALIBRATION DATA

Start Cal Date : 21-SEP-2010 14:00
End Cal Date : 21-SEP-2010 17:15
Quant Method : ISTD
Origin : Force
Target Version : 3.50
Integrator : HP RTE
Method file : /chem1/finn5.i/21SEP10.b/s8260b.m
Cal Date : 22-Sep-2010 09:39 patrickb

Compound	1 Level 1 / 150 Level 7	2 Level 2 / 200 Level 8	5 Level 3	10 Level 4	50 Level 5	100 Level 6	Curve	Coefficients b	m1	m2	%RSD or R^2	
17 Trans-1,2-Dichloroethene	0.76307	0.69206	0.77013	0.82177	0.75034	0.76940						
	0.77255	0.77800					AVRG		0.76467		4.69779	
18 Vinyl Acetate	2.24641	2.05852	2.24272	2.39757	2.18697	2.20357						
	2.03084	1.80018					AVRG		2.14585		8.41467	
19 1,1-Dichloroethane	1.82791	1.63817	1.86703	2.01100	1.75252	1.82464						
	1.80865	1.69085					AVRG		1.80260		6.31749	
179 Hexane	+++++	+++++	+++++	+++++	+++++	+++++						
	+++++	+++++					AVRG		0.000e+00		0.000e+00	<-
20 2-Butanone	0.47711	0.44712	0.47335	0.49481	0.45955	0.45694						
	0.44111	0.41840					AVRG		0.45855		5.16592	
21 2,2-Dichloropropane	1.48486	1.59706	1.48425	1.57039	1.39494	1.41685						
	1.41586	1.40813					AVRG		1.47154		5.25410	
22 Cis-1,2-Dichloroethene	0.69477	0.65147	0.73287	0.80711	0.70222	0.72837						
	0.73731	0.73112					AVRG		0.72315		6.14324	

RP83 0004 9

Analytical Resources, Inc.

INITIAL CALIBRATION DATA

Start Cal Date : 21-SEP-2010 14:00
End Cal Date : 21-SEP-2010 17:15
Quant Method : ISTD
Origin : Force
Target Version : 3.50
Integrator : HP RTE
Method file : /chem1/finn5.i/21SEP10.b/s8260b.m
Cal Date : 22-Sep-2010 09:39 patrickb

Compound	1 Level 1 / 150 Level 7	2 Level 2 / 200 Level 8	5 Level 3	10 Level 4	50 Level 5	100 Level 6	Curve	Coefficients b	m1	m2	%RSD or R^2
24 Chloroform	1.52972	1.41811	1.55020	1.65611	1.47053	1.49728					
	1.49386	1.44094					AVRG		1.50709		4.91936
26 Bromochloromethane	0.25844	0.28146	0.29797	0.37136	0.33403	0.34407					
	0.33805	0.34993					AVRG		0.32191		11.95478
27 1,1,1-Trichloroethane	1.25803	1.16142	1.23017	1.35622	1.22377	1.24999					
	1.23698	1.23052					AVRG		1.24339		4.34939
182 1-Butanol	+++++	+++++	+++++	+++++	+++++	+++++					
	+++++	+++++					AVRG		0.000e+00		0.000e+00 <-
29 1,1-Dichloropropene	1.00384	0.82693	0.84906	0.91227	0.81289	0.79060					
	0.78645	0.77414					AVRG		0.84452		9.23053
30 Carbon Tetrachloride	0.73711	0.71229	0.72016	0.77549	0.69711	0.67569					
	0.67243	0.67376					AVRG		0.70800		5.11184
32 1,2-Dichloroethane	0.86725	0.83496	0.86247	0.93177	0.82455	0.80958					
	0.81108	0.78531					AVRG		0.84087		5.44623

RP833-000050

Analytical Resources, Inc.

INITIAL CALIBRATION DATA

Start Cal Date : 21-SEP-2010 14:00
End Cal Date : 21-SEP-2010 17:15
Quant Method : ISTD
Origin : Force
Target Version : 3.50
Integrator : HP RTE
Method file : /chem1/finn5.i/21SEP10.b/s8260b.m
Cal Date : 22-Sep-2010 09:39 patrickb

Compound	1 Level 1 / 150 Level 7	2 Level 2 / 200 Level 8	5 Level 3	10 Level 4	50 Level 5	100 Level 6	Curve	Coefficients b	m1	m2	%RSD or R^2	
33 Benzene	2.09050	1.81834	1.86959	2.09900	1.78962	1.70316						
	1.52442	1.33024					AVRG		1.77811		14.74604	
180 Isooctane	+++++	+++++	+++++	+++++	+++++	+++++						
	+++++	+++++					AVRG		0.000e+00		0.000e+00	<-
35 Trichloroethene	0.49762	0.50656	0.52403	0.54894	0.50182	0.50091						
	0.49864	0.49668					AVRG		0.50940		3.58244	
36 1,2-Dichloropropane	0.74284	0.60021	0.63229	0.67483	0.58614	0.57733						
	0.58593	0.57403					AVRG		0.62170		9.58531	
38 1,4-Dioxane	+++++	+++++	+++++	+++++	+++++	+++++						
	+++++	+++++					AVRG		0.000e+00		0.000e+00	<-
37 Bromodichloromethane	0.74679	0.66976	0.72761	0.81449	0.71475	0.69860						
	0.70577	0.68907					AVRG		0.72086		6.17428	
39 Dibromomethane	0.31514	0.29007	0.31425	0.31927	0.29414	0.28135						
	0.28547	0.28594					AVRG		0.29820		5.17526	

RP853-00065

Analytical Resources, Inc.

INITIAL CALIBRATION DATA

Start Cal Date : 21-SEP-2010 14:00
End Cal Date : 21-SEP-2010 17:15
Quant Method : ISTD
Origin : Force
Target Version : 3.50
Integrator : HP RTE
Method file : /chem1/finn5.i/21SEP10.b/s8260b.m
Cal Date : 22-Sep-2010 09:39 patrickb

Compound	1 Level 1	2 Level 2	5 Level 3	10 Level 4	50 Level 5	100 Level 6	Curve	Coefficients b	m1	m2	%RSD or R^2
	150 Level 7	200 Level 8									
40 2-Chloroethyl Vinyl Ether	+++++	0.23001	0.26089	0.28629	0.26437	0.26464					
	0.27300	0.27645					AVRG		0.26509		6.69547
41 4-Methyl-2-Pentanone	0.20622	0.17148	0.18591	0.19320	0.17305	0.16553					
	0.16935	0.16750					AVRG		0.17903		8.14671
42 Cis 1,3-dichloropropene	0.96512	0.81561	0.84355	0.94501	0.84599	0.82358					
	0.85331	0.81581					AVRG		0.86350		6.77280
28 Cyclohexane	+++++	+++++	+++++	+++++	+++++	+++++					
	+++++	+++++					AVRG		0.000e+00		0.000e+00 <-
44 Toluene	1.37455	1.08012	1.08226	1.14445	1.01296	0.99286					
	1.01870	0.94016					AVRG		1.08076		12.42943
45 Trans 1,3-Dichloropropene	0.92067	0.69897	0.78446	0.82992	0.75747	0.74982					
	0.77365	0.74508					AVRG		0.78250		8.57197
46 2-Hexanone	0.64858	0.55651	0.55917	0.57550	0.52219	0.43080					
	0.35540	+++++					AVRG		0.52116		18.78838

TP85 00052

Analytical Resources, Inc.

INITIAL CALIBRATION DATA

Start Cal Date : 21-SEP-2010 14:00
End Cal Date : 21-SEP-2010 17:15
Quant Method : ISTD
Origin : Force
Target Version : 3.50
Integrator : HP RTE
Method file : /chem1/finn5.i/21SEP10.b/s8260b.m
Cal Date : 22-Sep-2010 09:39 patrickb

Compound	1 Level 1	2 Level 2	5 Level 3	10 Level 4	50 Level 5	100 Level 6	Curve	Coefficients b	m1	m2	%RSD or R^2
	150 Level 7	200 Level 8									
47 1,1,2-Trichloroethane	0.34453	0.32767	0.33720	0.36589	0.32581	0.32371					
	0.33221	0.33393					AVRG		0.33637		4.06612
48 1,3-Dichloropropane	0.89108	0.91482	0.85796	0.85852	0.77566	0.77996					
	0.77997	0.77276					AVRG		0.82884		7.02704
49 Tetrachloroethene	0.56885	0.50280	0.49399	0.52973	0.47787	0.48898					
	0.49182	0.51022					AVRG		0.50803		5.73120
50 Chlorodibromomethane	0.50678	0.45658	0.48727	0.53044	0.49703	0.50847					
	0.50055	0.51161					AVRG		0.49984		4.30104
51 1,2-Dibromoethane	0.37823	0.35122	0.37877	0.41426	0.36989	0.35782					
	0.37589	0.37122					AVRG		0.37466		5.01083
53 Chlorobenzene	1.31730	1.11344	1.14547	1.25414	1.12638	1.14263					
	1.11170	1.04023					AVRG		1.15641		7.59466
55 1,1,1,2-Tetrachloroethane	0.48253	0.43222	0.45094	0.48926	0.42908	0.43868					
	0.44653	0.47097					AVRG		0.45503		5.07404

RP83-00053

Analytical Resources, Inc.

INITIAL CALIBRATION DATA

Start Cal Date : 21-SEP-2010 14:00
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Quant Method : ISTD
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Target Version : 3.50
Integrator : HP RTE
Method file : /chem1/finn5.i/21SEP10.b/s8260b.m
Cal Date : 22-Sep-2010 09:39 patrickb

Compound	1 Level 1 / 150 Level 7	2 Level 2 / 200 Level 8	5 Level 3	10 Level 4	50 Level 5	100 Level 6	Curve	Coefficients b	m1	m2	%RSD or R^2
54 Ethyl Benzene	2.61447	2.27810	2.23428	2.44724	2.23701	2.08376					
	1.79930	1.53336					AVRG		2.15344		16.11209
56 m,p-xylene	0.87916	0.70225	0.75291	0.84729	0.79270	0.84494					
	0.79335	0.70927					AVRG		0.79023		8.26530
57 o-Xylene	0.79573	0.72661	0.73121	0.83107	0.79428	0.81276					
	0.84132	0.87854					AVRG		0.80144		6.52714
58 Styrene	1.43896	1.21171	1.19515	1.37611	1.29629	1.34700					
	1.33162	1.22701					AVRG		1.30298		6.63828
59 Isopropyl Benzene	4.49120	4.10267	3.90468	4.35533	3.88443	3.47292					
	2.81796	+++++					AVRG		3.86131		14.72966
60 Bromoform	0.70473	0.56467	0.58665	0.62950	0.59082	0.57461					
	0.56815	0.50440					AVRG		0.59044		9.79595
61 1,1,2,2-Tetrachloroethane	1.24291	1.02708	1.13139	1.14487	1.01756	0.97225					
	0.95519	0.83527					AVRG		1.04082		12.30859

Analytical Resources, Inc.

INITIAL CALIBRATION DATA

Start Cal Date : 21-SEP-2010 14:00
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Origin : Force
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Integrator : HP RTE
Method file : /chem1/finn5.i/21SEP10.b/s8260b.m
Cal Date : 22-Sep-2010 09:39 patrickb

Compound	1 Level 1	2 Level 2	5 Level 3	10 Level 4	50 Level 5	100 Level 6	Curve	Coefficients b	m1	m2	%RSD or R^2
	150 Level 7	200 Level 8									
63 1,2,3-Trichloropropane	+++++	0.19685	0.22578	0.24687	0.23085	0.21699					
	0.20545	0.18016					AVRG		0.21471		10.45095
65 Trans-1,4-Dichloro 2-Butene	+++++	0.44867	0.45089	0.47431	0.42529	0.41225					
	0.39180	0.34622					AVRG		0.42135		10.17979
66 N-Propyl Benzene	6.12916	4.62652	4.76821	5.34283	4.80901	3.93045					
	+++++	+++++					AVRG		4.93436		15.00320
67 Bromobenzene	1.08556	0.90137	0.92565	1.00803	0.88713	0.89246					
	0.88412	0.80375					AVRG		0.92351		9.33978
68 1,3,5-Trimethyl Benzene	3.90197	3.16896	3.14151	3.49554	3.19941	3.09356					
	2.56470	1.97792					AVRG		3.06795		18.89953
69 2-Chloro Toluene	4.03924	2.96928	3.30617	3.36967	3.18719	3.14797					
	2.60447	2.12483					AVRG		3.09360		18.20618
70 4-Chloro Toluene	3.88105	3.36661	3.01910	3.85169	3.15417	3.04853					
	2.64218	+++++					AVRG		3.28048		13.85732

RP8 3 0020 55

Analytical Resources, Inc.

INITIAL CALIBRATION DATA

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End Cal Date : 21-SEP-2010 17:15
Quant Method : ISTD
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Target Version : 3.50
Integrator : HP RTE
Method file : /chem1/finn5.i/21SEP10.b/s8260b.m
Cal Date : 22-Sep-2010 09:39 patrickb

Compound	1 Level 1	2 Level 2	5 Level 3	10 Level 4	50 Level 5	100 Level 6	Curve	Coefficients b	m1	m2	%RSD or R^2
	150 Level 7	200 Level 8									
71 T-Butyl Benzene	3.42992	2.64956	2.68061	3.06129	2.77314	2.70252					
	2.44199	1.90171	-				AVRG		2.70509		16.38526
72 1,2,4-Trimethylbenzene	4.14888	3.11803	2.90805	3.43395	3.15508	3.07421					
	2.58442	+++++					AVRG		3.20323		15.31387
73 S-Butyl Benzene	4.90299	4.16855	4.13029	4.75438	4.25059	3.79043					
	3.00459	+++++					AVRG		4.14312		15.21440
74 4-Isopropyl Toluene	3.54542	3.00162	2.95698	3.43085	3.18518	3.08164					
	2.55055	2.02642					AVRG		2.97233		16.43122
75 1,3-Dichlorobenzene	1.80284	1.55012	1.51932	1.83094	1.66992	1.70931					
	1.71430	1.49380					AVRG		1.66132		7.70091
64 Cyclohexanone	+++++	+++++	+++++	+++++	+++++	+++++					
	+++++	+++++					AVRG		0.000e+00		0.000e+00 <-
77 1,4-Dichlorobenzene	1.94429	1.49515	1.53251	1.80002	1.63362	1.70974					
	1.70358	1.49022					AVRG		1.66364		9.57557

RP-63-000056

Analytical Resources, Inc.

INITIAL CALIBRATION DATA

Start Cal Date : 21-SEP-2010 14:00
End Cal Date : 21-SEP-2010 17:15
Quant Method : ISTD
Origin : Force
Target Version : 3.50
Integrator : HP RTE
Method file : /chem1/finn5.i/21SEP10.b/s8260b.m
Cal Date : 22-Sep-2010 09:39 patrickb

Compound	1 Level 1 150 Level 7	2 Level 2 200 Level 8	5 Level 3	10 Level 4	50 Level 5	100 Level 6	Curve	Coefficients b	m1	m2	%RSD or R^2	
178 1,2,3-Trimethylbenzene	+++++	+++++	+++++	+++++	+++++	+++++						
	+++++	+++++					AVRG		0.000e+00		0.000e+00	<-
78 N-Butyl Benzene	4.14386	3.21989	3.35861	3.93767	3.57967	3.38112						
	2.76965	+++++					AVRG		3.48435		13.13482	
80 1,2-Dichlorobenzene	1.81707	1.47696	1.45052	1.72460	1.51374	1.55510						
	1.53908	1.37161					AVRG		1.55609		9.40820	
81 1,2-Dibromo 3-Chloropropane	+++++	0.33226	0.32514	0.31207	0.23630	0.23114						
	0.21576	+++++					AVRG		0.27544		19.27677	
82 1,2,4-Trichlorobenzene	1.35171	0.93856	0.95504	1.26613	0.99677	0.95934						
	0.91505	0.85785					AVRG		1.03006		17.29605	
83 Hexachloro 1,3-Butadiene	0.88301	0.67987	0.69904	0.84722	0.68384	0.64474						
	0.59281	0.57812					AVRG		0.70108		15.73803	
84 Naphthalene	+++++	2.07437	1.96670	2.52774	1.92857	1.80127						
	1.64915	1.36433					AVRG		1.90173		19.07215	

RP63.00037

Analytical Resources, Inc.

INITIAL CALIBRATION DATA

Start Cal Date : 21-SEP-2010 14:00
End Cal Date : 21-SEP-2010 17:15
Quant Method : ISTD
Origin : Force
Target Version : 3.50
Integrator : HP RTE
Method file : /chem1/finn5.i/21SEP10.b/s8260b.m
Cal Date : 22-Sep-2010 09:39 patrickb

Compound	1 Level 1 / 150 Level 7	2 Level 2 / 200 Level 8	5 Level 3	10 Level 4	50 Level 5	100 Level 6	Curve	Coefficients b	m1	m2	%RSD or R^2
85 1,2,3-Trichlorobenzene	+++++	1.04163	0.95187	1.20823	0.88788	0.87007					
	0.82063	0.76921					AVRG		0.93565		15.93088
$ 25 Dibromofluoromethane	0.58955	0.63603	0.65262	0.64613	0.62295	0.64546					
	0.65872	0.65237					AVRG		0.63798		3.52939
$ 31 d4-1,2-Dichloroethane	0.82180	0.95094	0.97484	0.98050	0.93357	0.95253					
	0.97388	0.97628					AVRG		0.94554		5.56232
$ 43 d8-Toluene	1.20754	1.18211	1.19144	1.18954	1.17245	1.14932					
	1.18084	1.15815					AVRG		1.17892		1.58747
$ 62 4-Bromofluorobenzene	0.60189	0.61388	0.62451	0.62002	0.62384	0.64965					
	0.65462	0.69070					AVRG		0.63489		4.49568
79 d4-1,2-Dichlorobenzene	0.85890	0.88226	0.88890	0.89262	0.87952	0.88065					
	0.85585	0.84685					AVRG		0.87320		1.93616

00053

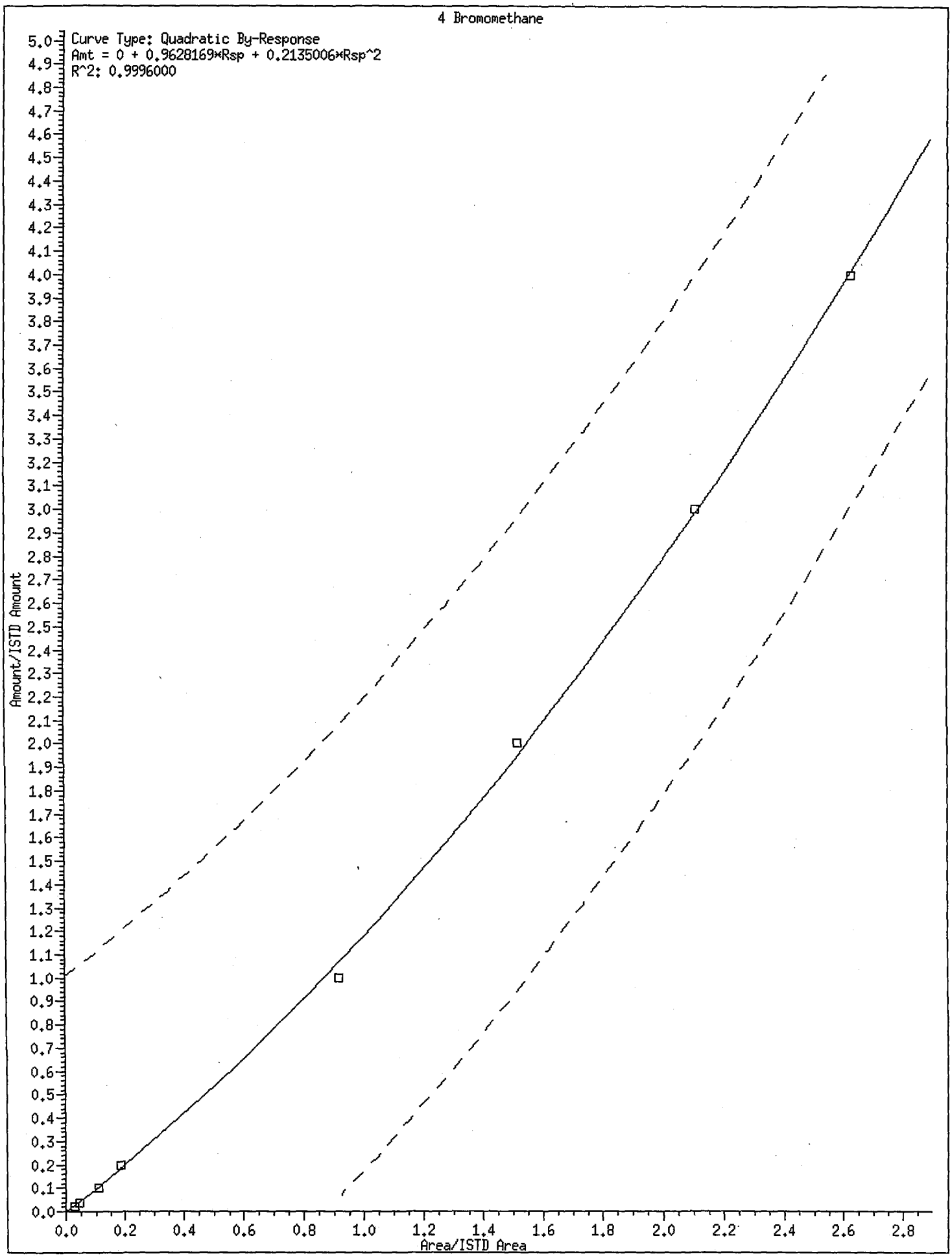
Analytical Resources, Inc.

INITIAL CALIBRATION DATA

Start Cal Date : 21-SEP-2010 14:00
End Cal Date : 21-SEP-2010 17:15
Quant Method : ISTD
Origin : Force
Target Version : 3.50
Integrator : HP RTE
Method file : /chem1/finn5.i/21SEP10.b/s8260b.m
Cal Date : 22-Sep-2010 09:39 patrickb

Curve	Formula	Units
Averaged	Amt = Rsp/m1	Response
Quad	Amt = b + m1*Rsp + m2*Rsp^2	Response

RP831 00059


4 Bromomethane
Curve Type: Quadratic By-Response
Amt = 0 + 0.9628169*Rsp + 0.2135006*Rsp^2
R^2: 0.9996000
Amount/ISTD Amount
Area/ISTD Area

Analytical Resources, Inc.

INITIAL CALIBRATION DATA

Start Cal Date : 21-SEP-2010 14:00
End Cal Date : 21-SEP-2010 17:15
Quant Method : ISTD
Origin : Disabled
Target Version : 3.50
Integrator : HP RTE
Method file : /chem1/finn5.i/21SEP10.b/s8260b.m
Cal Date : 22-Sep-2010 09:39 patrickb
Curve Type : Average

Calibration File Names:
Level 1: /chem1/finn5.i/21SEP10.b/0010921.d
Level 2: /chem1/finn5.i/21SEP10.b/0020921.d
Level 3: /chem1/finn5.i/21SEP10.b/0050921.d
Level 4: /chem1/finn5.i/21SEP10.b/0100921.d
Level 5: /chem1/finn5.i/21SEP10.b/0500921.d
Level 6: /chem1/finn5.i/21SEP10.b/1000921.d
Level 7: /chem1/finn5.i/21SEP10.b/1500921.d
Level 8: /chem1/finn5.i/21SEP10.b/2000921.d

Compound	1.000 Level 1 / 150.000 Level 7	2.000 Level 2 / 200.000 Level 8	5.000 Level 3	10.000 Level 4	50.000 Level 5	100.000 Level 6	RRF	% RSD	
1 Dichlorodifluoromethane	0.98838	0.62538	0.83105	0.90400	0.89837	0.95673			
	0.98425	0.99570					0.89798	13.797	
2 Chloromethane	1.99969	1.80394	1.98944	2.45101	2.00992	2.17138			
	2.17306	2.15899					2.09468	9.111	
3 Vinyl Chloride	1.91355	1.73146	2.18214	2.61800	1.97332	2.20679			
	2.15709	1.91458					2.08712	12.925	
4 Bromomethane	1.38138	1.13349	1.08890	0.93658	0.91665	0.75897			
	0.70393	0.65851					0.94730	25.928	<-
181 Ethyl Ether	+++++	+++++	+++++	+++++	+++++	+++++			
	+++++	+++++					+++++	+++++	<-
5 Chloroethane	1.07248	0.98011	0.98398	0.96375	0.91206	0.79303			
	0.73452	0.68362					0.89044	15.442	

Analytical Resources, Inc.

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Origin : Disabled
Target Version : 3.50
Integrator : HP RTE
Method file : /chem1/finn5.i/21SEP10.b/s8260b.m
Cal Date : 22-Sep-2010 09:39 patrickb
Curve Type : Average

Compound	1.000 Level 1	2.000 Level 2	5.000 Level 3	10.000 Level 4	50.000 Level 5	100.000 Level 6	RRF	% RSD
	150.000 Level 7	200.000 Level 8						
6 Trichlorofluoromethane	1.56234	1.49849	1.55877	1.46159	1.46765	1.32133		
	1.15156	1.04643					1.38352	13.940
7 Acrolein	+++++	0.17884	0.18793	0.16988	0.16061	0.14653		
	0.12921	0.11864					0.15595	16.469
8 112Trichloro122Trifluoroethan	1.18055	1.09844	1.07598	1.15641	1.05411	0.97328		
	0.86714	0.81358					1.02744	12.878
9 Acetone	0.43430	0.49825	0.43901	0.39865	0.36131	0.32117		
	0.28399	+++++					0.39095	18.955
10 1,1-Dichloroethene	0.75135	0.77349	0.78521	0.81666	0.78683	0.74874		
	0.68122	0.63938					0.74786	7.915
11 Bromoethane	0.60251	0.55396	0.67949	0.70846	0.64857	0.63998		
	0.59625	0.56552					0.62434	8.695
12 Iodomethane	1.23305	1.17144	1.27863	1.34858	1.29963	1.33441		
	1.23177	1.22042					1.26474	4.824
13 Methylene Chloride	+++++	1.38122	1.15371	1.09083	1.01848	0.94468		
	0.89803	0.85259					1.04851	17.249
14 Acrylonitrile	+++++	0.22085	0.31660	0.32929	0.30905	0.30867		
	0.30166	0.29391					0.29715	11.929

Analytical Resources, Inc.

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Target Version : 3.50
Integrator : HP RTE
Method file : /chem1/finn5.i/21SEP10.b/s8260b.m
Cal Date : 22-Sep-2010 09:39 patrickb
Curve Type : Average

Compound	1.000 Level 1 / 150.000 Level 7	2.000 Level 2 / 200.000 Level 8	5.000 Level 3	10.000 Level 4	50.000 Level 5	100.000 Level 6	RRF	% RSD	
16 Methyl tert-Butyl Ether	2.28056	2.11781	2.41839	2.46724	2.20467	2.22100			
	2.13872	1.97646					2.22811	7.202	
15 Carbon Disulfide	3.62524	2.96299	3.20784	3.42162	3.13099	3.11541			
	2.85657	2.54513					3.10822	10.722	
17 Trans-1,2-Dichloroethene	0.76307	0.69206	0.77013	0.82177	0.75034	0.76940			
	0.77255	0.77800					0.76467	4.698	
18 Vinyl Acetate	2.24641	2.05852	2.24272	2.39757	2.18697	2.20357			
	2.03084	1.80018					2.14585	8.415	
19 1,1-Dichloroethane	1.82791	1.63817	1.86703	2.01100	1.75252	1.82464			
	1.80865	1.69085					1.80260	6.317	
179 Hexane	+++++	+++++	+++++	+++++	+++++	+++++			
	+++++	+++++					+++++	+++++	<-
20 2-Butanone	0.47711	0.44712	0.47335	0.49481	0.45955	0.45694			
	0.44111	0.41840					0.45855	5.166	
21 2,2-Dichloropropane	1.48486	1.59706	1.48425	1.57039	1.39494	1.41685			
	1.41586	1.40813					1.47154	5.254	
22 Cis-1,2-Dichloroethene	0.69477	0.65147	0.73287	0.80711	0.70222	0.72837			
	0.73731	0.73112					0.72315	6.143	

Analytical Resources, Inc.

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Integrator : HP RTE
Method file : /chem1/finn5.i/21SEP10.b/s8260b.m
Cal Date : 22-Sep-2010 09:39 patrickb
Curve Type : Average

Compound	1.000 Level 1 / 150.000 Level 7	2.000 Level 2 / 200.000 Level 8	5.000 Level 3	10.000 Level 4	50.000 Level 5	100.000 Level 6	RRF	% RSD	
24 Chloroform	1.52972	1.41811	1.55020	1.65611	1.47053	1.49728			
	1.49386	1.44094					1.50709	4.919	
26 Bromochloromethane	0.25844	0.28146	0.29797	0.37136	0.33403	0.34407			
	0.33805	0.34993					0.32191	11.955	
27 1,1,1-Trichloroethane	1.25803	1.16142	1.23017	1.35622	1.22377	1.24999			
	1.23698	1.23052					1.24339	4.349	
182 1-Butanol	+++++	+++++	+++++	+++++	+++++	+++++			
	+++++	+++++					+++++	+++++	<-
29 1,1-Dichloropropene	1.00384	0.82693	0.84906	0.91227	0.81289	0.79060			
	0.78645	0.77414					0.84452	9.231	
30 Carbon Tetrachloride	0.73711	0.71229	0.72016	0.77549	0.69711	0.67569			
	0.67243	0.67376					0.70800	5.112	
32 1,2-Dichloroethane	0.86725	0.83496	0.86247	0.93177	0.82455	0.80958			
	0.81108	0.78531					0.84087	5.446	
33 Benzene	2.09050	1.81834	1.86959	2.09900	1.78962	1.70316			
	1.52442	1.33024					1.77811	14.746	
180 Isooctane	+++++	+++++	+++++	+++++	+++++	+++++			
	+++++	+++++					+++++	+++++	<-

Analytical Resources, Inc.

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Target Version : 3.50
Integrator : HP RTE
Method file : /chem1/finn5.i/21SEP10.b/s8260b.m
Cal Date : 22-Sep-2010 09:39 patrickb
Curve Type : Average

Compound	1.000 Level 1 / 150.000 Level 7	2.000 Level 2 / 200.000 Level 8	5.000 Level 3	10.000 Level 4	50.000 Level 5	100.000 Level 6	___ RRF	% RSD
35 Trichloroethene	0.49762	0.50656	0.52403	0.54894	0.50182	0.50091		
	0.49864	0.49668					0.50940	3.582
36 1,2-Dichloropropane	0.74284	0.60021	0.63229	0.67483	0.58614	0.57733		
	0.58593	0.57403					0.62170	9.585
38 1,4-Dioxane	+++++	+++++	+++++	+++++	+++++	+++++		
	+++++	+++++					+++++	+++++ <-
37 Bromodichloromethane	0.74679	0.66976	0.72761	0.81449	0.71475	0.69860		
	0.70577	0.68907					0.72086	6.174
39 Dibromomethane	0.31514	0.29007	0.31425	0.31927	0.29414	0.28135		
	0.28547	0.28594					0.29820	5.175
40 2-Chloroethyl Vinyl Ether	+++++	0.23001	0.26089	0.28629	0.26437	0.26464		
	0.27300	0.27645					0.26509	6.695
41 4-Methyl-2-Pentanone	0.20622	0.17148	0.18591	0.19320	0.17305	0.16553		
	0.16935	0.16750					0.17903	8.147
42 Cis 1,3-dichloropropene	0.96512	0.81561	0.84355	0.94501	0.84599	0.82358		
	0.85331	0.81581					0.86350	6.773
28 Cyclohexane	+++++	+++++	+++++	+++++	+++++	+++++		
	+++++	+++++					+++++	+++++ <-

Analytical Resources, Inc.

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Method file : /chem1/finn5.i/21SEP10.b/s8260b.m
Cal Date : 22-Sep-2010 09:39 patrickb
Curve Type : Average

Compound	1.000 Level 1	2.000 Level 2	5.000 Level 3	10.000 Level 4	50.000 Level 5	100.000 Level 6	RRF	% RSD
	150.000 Level 7	200.000 Level 8						
44 Toluene	1.37455	1.08012	1.08226	1.14445	1.01296	0.99286		
	1.01870	0.94016					1.08076	12.429
45 Trans 1,3-Dichloropropene	0.92067	0.69897	0.78446	0.82992	0.75747	0.74982		
	0.77365	0.74508					0.78250	8.572
46 2-Hexanone	0.64858	0.55651	0.55917	0.57550	0.52219	0.43080		
	0.35540	+++++					0.52116	18.788
47 1,1,2-Trichloroethane	0.34453	0.32767	0.33720	0.36589	0.32581	0.32371		
	0.33221	0.33393					0.33637	4.066
48 1,3-Dichloropropane	0.89108	0.91482	0.85796	0.85852	0.77566	0.77996		
	0.77997	0.77276					0.82884	7.027
49 Tetrachloroethene	0.56885	0.50280	0.49399	0.52973	0.47787	0.48898		
	0.49182	0.51022					0.50803	5.731
50 Chlorodibromomethane	0.50678	0.45658	0.48727	0.53044	0.49703	0.50847		
	0.50055	0.51161					0.49984	4.301
51 1,2-Dibromoethane	0.37823	0.35122	0.37877	0.41426	0.36989	0.35782		
	0.37589	0.37122					0.37466	5.011
53 Chlorobenzene	1.31730	1.11344	1.14547	1.25414	1.12638	1.14263		
	1.11170	1.04023					1.15641	7.595

Analytical Resources, Inc.

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Cal Date : 22-Sep-2010 09:39 patrickb
Curve Type : Average

Compound	1.000 Level 1	2.000 Level 2	5.000 Level 3	10.000 Level 4	50.000 Level 5	100.000 Level 6	RRF	% RSD
	150.000 Level 7	200.000 Level 8						
55 1,1,1,2-Tetrachloroethane	0.48253	0.43222	0.45094	0.48926	0.42908	0.43868		
	0.44653	0.47097					0.45503	5.074
54 Ethyl Benzene	2.61447	2.27810	2.23428	2.44724	2.23701	2.08376		
	1.79930	1.53336					2.15344	16.112
56 m,p-xylene	0.87916	0.70225	0.75291	0.84729	0.79270	0.84494		
	0.79335	0.70927					0.79023	8.265
57 o-Xylene	0.79573	0.72661	0.73121	0.83107	0.79428	0.81276		
	0.84132	0.87854					0.80144	6.527
58 Styrene	1.43896	1.21171	1.19515	1.37611	1.29629	1.34700		
	1.33162	1.22701					1.30298	6.638
59 Isopropyl Benzene	4.49120	4.10267	3.90468	4.35533	3.88443	3.47292		
	2.81796	+++++					3.86131	14.730
60 Bromoform	0.70473	0.56467	0.58665	0.62950	0.59082	0.57461		
	0.56815	0.50440					0.59044	9.796
61 1,1,2,2-Tetrachloroethane	1.24291	1.02708	1.13139	1.14487	1.01756	0.97225		
	0.95519	0.83527					1.04082	12.309
63 1,2,3-Trichloropropane	+++++	0.19685	0.22578	0.24687	0.23085	0.21699		
	0.20545	0.18016					0.21471	10.451

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Curve Type : Average

Compound	1.000 Level 1	2.000 Level 2	5.000 Level 3	10.000 Level 4	50.000 Level 5	100.000 Level 6	RRF	% RSD
	150.000 Level 7	200.000 Level 8						
65 Trans-1,4-Dichloro 2-Butene	+++++	0.44867	0.45089	0.47431	0.42529	0.41225		
	0.39180	0.34622					0.42135	10.180
66 N-Propyl Benzene	6.12916	4.62652	4.76821	5.34283	4.80901	3.93045		
	+++++	+++++					4.93436	15.003
67 Bromobenzene	1.08556	0.90137	0.92565	1.00803	0.88713	0.89246		
	0.88412	0.80375					0.92351	9.340
68 1,3,5-Trimethyl Benzene	3.90197	3.16896	3.14151	3.49554	3.19941	3.09356		
	2.56470	1.97792					3.06795	18.900
69 2-Chloro Toluene	4.03924	2.96928	3.30617	3.36967	3.18719	3.14797		
	2.60447	2.12483					3.09360	18.206
70 4-Chloro Toluene	3.88105	3.36661	3.01910	3.85169	3.15417	3.04853		
	2.64218	+++++					3.28048	13.857
71 T-Butyl Benzene	3.42992	2.64956	2.68061	3.06129	2.77314	2.70252		
	2.44199	1.90171					2.70509	16.385
72 1,2,4-Trimethylbenzene	4.14888	3.11803	2.90805	3.43395	3.15508	3.07421		
	2.58442	+++++					3.20323	15.314
73 S-Butyl Benzene	4.90299	4.16855	4.13029	4.75438	4.25059	3.79043		
	3.00459	+++++					4.14312	15.214

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Curve Type : Average

Compound	1.000 Level 1 150.000 Level 7	2.000 Level 2 200.000 Level 8	5.000 Level 3	10.000 Level 4	50.000 Level 5	100.000 Level 6	RRF	% RSD	
74 4-Isopropyl Toluene	3.54542	3.00162	2.95698	3.43085	3.18518	3.08164			
	2.55055	2.02642					2.97233	16.431	
75 1,3-Dichlorobenzene	1.80284	1.55012	1.51932	1.83094	1.66992	1.70931			
	1.71430	1.49380					1.66132	7.701	
64 Cyclohexanone	+++++	+++++	+++++	+++++	+++++	+++++			
	+++++	+++++					+++++	+++++	<-
77 1,4-Dichlorobenzene	1.94429	1.49515	1.53251	1.80002	1.63362	1.70974			
	1.70358	1.49022					1.66364	9.576	
178 1,2,3-Trimethylbenzene	+++++	+++++	+++++	+++++	+++++	+++++			
	+++++	+++++					+++++	+++++	<-
78 N-Butyl Benzene	4.14386	3.21989	3.35861	3.93767	3.57967	3.38112			
	2.76965	+++++					3.48435	13.135	
80 1,2-Dichlorobenzene	1.81707	1.47696	1.45052	1.72460	1.51374	1.55510			
	1.53908	1.37161					1.55609	9.408	
81 1,2-Dibromo 3-Chloropropane	+++++	0.33226	0.32514	0.31207	0.23630	0.23114			
	0.21576	+++++					0.27544	19.277	
82 1,2,4-Trichlorobenzene	1.35171	0.93856	0.95504	1.26613	0.99677	0.95934			
	0.91505	0.85785					1.03006	17.296	

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Curve Type : Average

Compound	1.000 Level 1 / 150.000 Level 7	2.000 Level 2 / 200.000 Level 8	5.000 Level 3	10.000 Level 4	50.000 Level 5	100.000 Level 6	___ RRF	% RSD
83 Hexachloro 1,3-Butadiene	0.88301	0.67987	0.69904	0.84722	0.68384	0.64474		
	0.59281	0.57812					0.70108	15.738
84 Naphthalene	+++++	2.07437	1.96670	2.52774	1.92857	1.80127		
	1.64915	1.36433					1.90173	19.072
85 1,2,3-Trichlorobenzene	+++++	1.04163	0.95187	1.20823	0.88788	0.87007		
	0.82063	0.76921					0.93565	15.931
$ 25 Dibromofluoromethane	0.58955	0.63603	0.65262	0.64613	0.62295	0.64546		
	0.65872	0.65237					0.63798	3.529
$ 31 d4-1,2-Dichloroethane	0.82180	0.95094	0.97484	0.98050	0.93357	0.95253		
	0.97388	0.97628					0.94554	5.562
$ 43 d8-Toluene	1.20754	1.18211	1.19144	1.18954	1.17245	1.14932		
	1.18084	1.15815					1.17892	1.587
$ 62 4-Bromofluorobenzene	0.60189	0.61388	0.62451	0.62002	0.62384	0.64965		
	0.65462	0.69070					0.63489	4.496
$ 79 d4-1,2-Dichlorobenzene	0.85890	0.88226	0.88890	0.89262	0.87952	0.88065		
	0.85585	0.84685					0.87320	1.936

Analytical Resources, Inc.
RETENTION TIME SUMMARY REPORT

Method File: /chem1/finn5.i/21SEP10.b/s8260b.m
Batch File: /chem1/finn5.i/21SEP10.b
Inst ID: finn5.i

ID:	RT01	RT02	RT03	RT04	RT05	RT06	RT07	RT08
FILENAME:	0010921	2000921	1500921	1000921	0500921	0100921	0050921	0020921
INJ.DATE:	21-SEP-2010	21-SEP-2010	21-SEP-2010	21-SEP-2010	21-SEP-2010	21-SEP-2010	21-SEP-2010	21-SEP-2010
INJ.TIME:	14:00	14:36	15:02	15:29	15:55	16:22	16:48	17:15

Compound	RT01	RT02	RT03	RT04	RT05	RT06	RT07	RT08	EXPEC RT	RT WINDOW	AVG RT	STD DEV
1 Dichlorodifluoromethan	3.005	3.005	3.015	3.005	3.015	2.995	2.995	3.015	3.005	2.740-3.270	3.006	0.008
2 Chloromethane	3.306	3.316	3.327	3.316	3.316	3.306	3.306	3.316	3.306	3.042-3.571	3.314	0.007
3 Vinyl Chloride	3.427	3.407	3.427	3.417	3.427	3.407	3.407	3.427	3.427	3.162-3.692	3.418	0.010
4 Bromomethane	3.909	3.899	3.909	3.909	3.919	3.899	3.899	3.919	3.909	3.644-4.174	3.908	0.008
181 Ethyl Ether	+++++	+++++	+++++	+++++	+++++	+++++	+++++	+++++	4.500	4.235-4.765	+++++	+++++
5 Chloroethane	3.980	3.960	3.980	3.970	3.990	3.960	3.970	3.990	3.980	3.715-4.245	3.975	0.012
6 Trichlorofluoromethane	4.241	4.231	4.241	4.241	4.251	4.231	4.231	4.251	4.241	3.976-4.506	4.240	0.008
7 Acrolein	4.623	4.623	4.643	4.623	4.633	4.613	4.613	4.633	4.623	4.358-4.888	4.625	0.010
8 112Trichloro122Trifluo	4.643	4.633	4.643	4.633	4.653	4.623	4.633	4.643	4.643	4.378-4.908	4.638	0.009
9 Acetone	4.673	4.683	4.693	4.683	4.693	4.673	4.663	4.683	4.673	4.408-4.938	4.681	0.010
10 1,1-Dichloroethene	4.844	4.834	4.844	4.834	4.854	4.824	4.824	4.844	4.844	4.579-5.109	4.838	0.011
11 Bromoethane	5.055	5.055	5.065	5.055	5.065	5.045	5.045	5.065	5.055	4.790-5.320	5.056	0.008
12 Iodomethane	5.156	5.156	5.166	5.156	5.166	5.146	5.146	5.166	5.156	4.891-5.420	5.157	0.008
13 Methylene Chloride	5.276	5.266	5.286	5.276	5.286	5.256	5.266	5.276	5.276	5.011-5.541	5.274	0.010
14 Acrylonitrile	5.357	5.357	5.367	5.357	5.367	5.347	5.347	5.367	5.357	5.092-5.621	5.358	0.008
16 Methyl tert-Butyl Ethe	5.397	5.397	5.407	5.397	5.407	5.387	5.387	5.407	5.397	5.132-5.662	5.398	0.008
15 Carbon Disulfide	5.377	5.367	5.387	5.377	5.387	5.367	5.367	5.387	5.377	5.112-5.642	5.377	0.009

Reviewer 1 _____ Date: _____
Reviewer 2 _____ Date: 9/23/10

RDRB 00071

Analytical Resources, Inc.
RETENTION TIME SUMMARY REPORT

Method File: /chem1/finn5.i/21SEP10.b/s8260b.m
Batch File: /chem1/finn5.i/21SEP10.b
Inst ID: finn5.i

Compound	RT01	RT02	RT03	RT04	RT05	RT06	RT07	RT08	EXPEC RT	RT WINDOW	AVG RT	STD DEV
17 Trans-1,2-Dichloroethe	5.558	5.548	5.568	5.558	5.568	5.548	5.548	5.568	5.558	5.293-5.822	5.558	0.009
18 Vinyl Acetate	5.879	5.879	5.889	5.879	5.889	5.869	5.869	5.889	5.879	5.614-6.144	5.880	0.008
19 1,1-Dichloroethane	5.940	5.940	5.950	5.940	5.950	5.929	5.929	5.950	5.940	5.675-6.204	5.941	0.008
179 Hexane	+++++	+++++	+++++	+++++	+++++	+++++	+++++	+++++	5.990	5.725-6.255	+++++	+++++
20 2-Butanone	6.281	6.281	6.291	6.281	6.291	6.271	6.271	6.291	6.281	6.016-6.546	6.282	0.008
21 2,2-Dichloropropane	6.462	6.452	6.472	6.462	6.472	6.452	6.452	6.462	6.462	6.197-6.727	6.461	0.008
22 Cis-1,2-Dichloroethene	6.502	6.492	6.512	6.492	6.512	6.482	6.482	6.502	6.502	6.237-6.767	6.497	0.012
* 23 Pentafluorobenzene	6.623	6.623	6.633	6.623	6.633	6.613	6.613	6.633	6.623	6.358-6.888	6.624	0.008
24 Chloroform	6.643	6.643	6.653	6.643	6.653	6.633	6.633	6.653	6.643	6.378-6.908	6.644	0.008
26 Bromochloromethane	6.804	6.804	6.824	6.804	6.824	6.794	6.794	6.814	6.804	6.539-7.069	6.808	0.012
$ 25 Dibromofluoromethane	6.844	6.844	6.854	6.844	6.854	6.834	6.834	6.854	6.844	6.579-7.109	6.845	0.008
27 1,1,1-Trichloroethane	7.035	7.035	7.045	7.035	7.045	7.025	7.025	7.045	7.035	6.770-7.300	7.036	0.008
182 1-Butanol	+++++	+++++	+++++	+++++	+++++	+++++	+++++	+++++	8.030	7.765-8.295	+++++	+++++
29 1,1-Dichloropropene	7.176	7.176	7.186	7.176	7.186	7.166	7.166	7.186	7.176	6.870-7.481	7.177	0.008
$ 31 d4-1,2-Dichloroethane	7.306	7.306	7.316	7.306	7.316	7.296	7.296	7.316	7.306	7.041-7.571	7.308	0.008
30 Carbon Tetrachloride	7.286	7.286	7.306	7.296	7.306	7.276	7.286	7.296	7.286	6.981-7.592	7.293	0.011
32 1,2-Dichloroethane	7.397	7.397	7.407	7.397	7.407	7.387	7.387	7.407	7.397	7.091-7.702	7.398	0.008
33 Benzene	7.447	7.437	7.457	7.447	7.457	7.427	7.437	7.447	7.447	7.141-7.752	7.445	0.010
180 Isooctane	+++++	+++++	+++++	+++++	+++++	+++++	+++++	+++++	6.687	6.422-6.952	+++++	+++++
* 34 1,4-Difluorobenzene	7.638	7.638	7.648	7.638	7.648	7.628	7.628	7.638	7.638	7.332-7.944	7.638	0.008
35 Trichloroethene	8.010	8.010	8.020	8.010	8.020	8.000	8.000	8.020	8.010	7.704-8.315	8.011	0.008
36 1,2-Dichloropropane	8.171	8.171	8.181	8.171	8.181	8.161	8.161	8.181	8.171	7.865-8.476	8.172	0.008

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RP833 000072

Analytical Resources, Inc.
RETENTION TIME SUMMARY REPORT

Method File: /chem1/finn5.i/21SEP10.b/s8260b.m
Batch File: /chem1/finn5.i/21SEP10.b
Inst ID: finn5.i

	Compound	RT01	RT02	RT03	RT04	RT05	RT06	RT07	RT08	EXPEC RT	RT WINDOW	AVG RT	STD DEV
	38 1,4-Dioxane	+++++	+++++	+++++	+++++	+++++	+++++	+++++	+++++	8.887	8.622-9.152	+++++	+++++
	37 Bromodichloromethane	8.402	8.402	8.412	8.402	8.412	8.392	8.392	8.412	8.402	8.096-8.707	8.403	0.008
	39 Dibromomethane	8.472	8.472	8.482	8.472	8.482	8.462	8.462	8.482	8.472	8.167-8.778	8.473	0.008
	40 2-Chloroethyl Vinyl Et	8.623	8.623	8.633	8.623	8.633	8.613	8.613	8.623	8.623	8.317-8.928	8.623	0.008
	41 4-Methyl-2-Pentanone	8.653	8.653	8.673	8.653	8.663	8.643	8.643	8.663	8.653	8.347-8.958	8.656	0.010
	42 Cis 1,3-dichloropropen	8.904	8.904	8.924	8.904	8.914	8.894	8.894	8.914	8.904	8.599-9.210	8.907	0.010
	28 Cyclohexane	+++++	+++++	+++++	+++++	+++++	+++++	+++++	+++++	7.337	7.072-7.602	+++++	+++++
$	43 d8-Toluene	9.186	9.186	9.196	9.186	9.196	9.176	9.176	9.196	9.186	8.880-9.491	9.187	0.008
	44 Toluene	9.266	9.266	9.276	9.266	9.276	9.256	9.256	9.276	9.266	8.960-9.572	9.267	0.008
	45 Trans 1,3-Dichloroprop	9.397	9.397	9.407	9.397	9.407	9.387	9.387	9.407	9.397	9.091-9.702	9.398	0.008
	46 2-Hexanone	9.537	9.537	9.547	9.537	9.547	9.517	9.527	9.537	9.537	9.106-9.969	9.536	0.010
	47 1,1,2-Trichloroethane	9.578	9.578	9.598	9.578	9.588	9.568	9.568	9.588	9.578	9.272-9.883	9.580	0.010
	48 1,3-Dichloropropane	9.839	9.839	9.849	9.839	9.849	9.829	9.829	9.849	9.839	9.407-10.270	9.840	0.008
	49 Tetrachloroethene	9.960	9.960	9.970	9.960	9.970	9.949	9.949	9.970	9.960	9.528-10.391	9.961	0.008
	50 Chlorodibromomethane	10.171	10.171	10.181	10.171	10.181	10.150	10.161	10.171	10.171	9.739-10.602	10.169	0.010
	51 1,2-Dibromoethane	10.392	10.392	10.402	10.392	10.402	10.382	10.382	10.402	10.392	10.086-10.697	10.393	0.008
*	52 d5-Chlorobenzene	10.784	10.784	10.794	10.784	10.794	10.774	10.774	10.794	10.784	10.352-11.215	10.785	0.008
	53 Chlorobenzene	10.834	10.834	10.844	10.834	10.844	10.814	10.824	10.834	10.834	10.402-11.265	10.833	0.010
	55 1,1,1,2-Tetrachloroeth	10.854	10.854	10.864	10.854	10.864	10.844	10.844	10.864	10.854	10.423-11.285	10.855	0.008
	54 Ethyl Benzene	10.864	10.864	10.874	10.864	10.874	10.854	10.854	10.864	10.864	10.433-11.295	10.864	0.008
	56 m,p-xylene	10.944	10.944	10.954	10.944	10.954	10.934	10.934	10.944	10.944	10.513-11.376	10.944	0.008
	57 o-Xylene	11.437	11.427	11.447	11.427	11.437	11.417	11.417	11.437	11.437	11.005-11.868	11.431	0.011
	58 Styrene	11.457	11.457	11.477	11.457	11.467	11.447	11.447	11.467	11.457	11.026-11.888	11.459	0.010
	59 Isopropyl Benzene	11.809	11.809	11.819	11.809	11.819	11.799	11.799	11.819	11.809	11.270-12.347	11.810	0.008

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RR83 : 000073

Analytical Resources, Inc.
RETENTION TIME SUMMARY REPORT

Method File: /chem1/finn5.i/21SEP10.b/s8260b.m
Batch File: /chem1/finn5.i/21SEP10.b
Inst ID: finn5.i

	Compound	RT01	RT02	RT03	RT04	RT05	RT06	RT07	RT08	EXPEC RT	RT WINDOW	AVG RT	STD DEV
	60 Bromoform	11.869	11.869	11.879	11.869	11.879	11.859	11.859	11.879	11.869	11.330-12.408	11.870	0.008
	61 1,1,2,2-Tetrachloroeth	11.990	11.990	12.000	11.990	12.000	11.980	11.980	12.000	11.990	11.451-12.528	11.991	0.008
$	62 4-Bromofluorobenzene	12.110	12.110	12.120	12.110	12.120	12.100	12.100	12.110	12.110	11.679-12.542	12.110	0.008
	63 1,2,3-Trichloropropane	12.160	12.160	12.171	12.160	12.171	12.150	12.150	12.160	12.160	11.622-12.699	12.160	0.008
	65 Trans-1,4-Dichloro 2-B	12.211	12.211	12.221	12.211	12.221	12.201	12.201	12.211	12.211	11.672-12.749	12.211	0.008
	66 N-Propyl Benzene	12.261	12.271	12.281	12.261	12.271	12.251	12.251	12.271	12.261	11.722-12.799	12.265	0.011
	67 Bromobenzene	12.361	12.351	12.372	12.351	12.361	12.341	12.341	12.361	12.361	11.823-12.900	12.355	0.011
	68 1,3,5-Trimethyl Benzen	12.442	12.442	12.452	12.442	12.452	12.422	12.422	12.442	12.442	11.903-12.980	12.439	0.012
	69 2-Chloro Toluene	12.492	12.492	12.512	12.492	12.502	12.482	12.482	12.502	12.492	11.953-13.031	12.495	0.010
	70 4-Chloro Toluene	12.542	12.542	12.552	12.542	12.552	12.532	12.532	12.542	12.542	12.004-13.081	12.542	0.008
	71 T-Butyl Benzene	12.844	12.844	12.864	12.844	12.854	12.834	12.834	12.854	12.844	12.305-13.382	12.846	0.010
	72 1,2,4-Trimethylbenzene	12.894	12.894	12.904	12.894	12.904	12.884	12.884	12.904	12.894	12.355-13.433	12.895	0.008
	73 S-Butyl Benzene	13.095	13.095	13.105	13.095	13.105	13.085	13.085	13.095	13.095	12.556-13.634	13.095	0.008
	74 4-Isopropyl Toluene	13.236	13.246	13.256	13.236	13.246	13.226	13.226	13.246	13.236	12.697-13.774	13.240	0.011
	75 1,3-Dichlorobenzene	13.387	13.387	13.397	13.387	13.397	13.377	13.377	13.397	13.387	12.848-13.925	13.388	0.008
	64 Cyclohexanone	+++++	+++++	+++++	+++++	+++++	+++++	+++++	+++++	13.768	13.336-14.200	+++++	+++++
*	76 d4-1,4-Dichlorobenzene	13.467	13.467	13.477	13.467	13.477	13.457	13.457	13.467	13.467	12.928-14.006	13.467	0.008
	77 1,4-Dichlorobenzene	13.507	13.507	13.517	13.507	13.517	13.497	13.497	13.507	13.507	12.968-14.046	13.507	0.008
	178 1,2,3-Trimethylbenzene	+++++	+++++	+++++	+++++	+++++	+++++	+++++	+++++	14.100	13.561-14.639	+++++	+++++
	78 N-Butyl Benzene	13.718	13.718	13.728	13.718	13.728	13.708	13.708	13.718	13.718	13.179-14.257	13.718	0.008
$	79 d4-1,2-Dichlorobenzene	13.909	13.909	13.929	13.909	13.919	13.899	13.899	13.919	13.909	13.370-14.448	13.912	0.010
	80 1,2-Dichlorobenzene	13.949	13.949	13.959	13.949	13.959	13.929	13.929	13.949	13.949	13.411-14.488	13.947	0.012
	81 1,2-Dibromo 3-Chloropr	14.854	14.844	14.864	14.844	14.864	14.834	14.834	14.854	14.854	14.315-15.393	14.849	0.012

9/22/10

RP85 : 00071

Analytical Resources, Inc.
RETENTION TIME SUMMARY REPORT

Method File: /chem1/finn5.i/21SEP10.b/s8260b.m
Batch File: /chem1/finn5.i/21SEP10.b
Inst ID: finn5.i

Compound	RT01	RT02	RT03	RT04	RT05	RT06	RT07	RT08	EXPEC RT	RT WINDOW	AVG RT	STD DEV
82 1,2,4-Trichlorobenzene	15.899	15.899	15.909	15.899	15.909	15.879	15.889	15.899	15.899	15.360-16.438	15.898	0.010
83 Hexachloro 1,3-Butadie	16.050	16.050	16.060	16.050	16.060	16.040	16.040	16.060	16.050	15.511-16.588	16.051	0.008
84 Naphthalene	16.221	16.221	16.231	16.221	16.231	16.211	16.211	16.231	16.221	15.682-16.759	16.222	0.008
85 1,2,3-Trichlorobenzene	16.512	16.512	16.522	16.512	16.522	16.502	16.502	16.522	16.512	15.973-17.051	16.513	0.008

9/22/10

RP83 : 000075

MANUAL INTEGRATION SUMMARY FOR DATABATCH - /chem1/finn5.i/21SEP10.b

ARI Job No.: BFB0 Method: bfb8260.m Instrument: finn5.i Date: 21-SEP-2010

Time	Filename	LabID	ClientId	DF	Manually Integrated Compounds
1332	BFB0921A.d	BFB0921	BFB0921	1	NO MANUAL INTEGRATION
1400	0010921.d	IC0921	VSTD001	1	Chloroethane, Acetone, 2-Hexanone, 1,1,2,2-Tetrachloroethane, 1,2,3-Trichloropropane, Trans-1,4-Dichloro 2-Butene, 1,2,4-Trichlorobenzene,
1436	2000921.d	IC0921	VSTD200	1	NO MANUAL INTEGRATION
1502	1500921.d	IC0921	VSTD150	1	NO MANUAL INTEGRATION
1529	1000921.d	IC0921	VSTD100	1	NO MANUAL INTEGRATION
1555	0500921.d	IC0921	VSTD050	1	NO MANUAL INTEGRATION
1622	0100921.d	IC0921	VSTD010	1	NO MANUAL INTEGRATION
1648	0050921.d	IC0921	VSTD005	1	2-Hexanone,
1715	0020921.d	IC0921	VSTD002	1	2-Hexanone, Trans-1,4-Dichloro 2-Butene,
1741	ICV0921.d	ICV0921	ICV0921	1	NO MANUAL INTEGRATION

RP63 : 020075

Analytical Resources, Inc.

8260C

Data file : /chem1/finn5.i/21SEP10.b/0010921.d
Lab Smp Id: IC0921 Client Smp ID: VSTD001
Inj Date : 21-SEP-2010 14:00
Operator : PB Inst ID: finn5.i
Smp Info : IC0921,5,5,0
Misc Info : 10-
Comment :
Method : /chem1/finn5.i/21SEP10.b/s8260b.m
Meth Date : 22-Sep-2010 09:41 patrickb Quant Type: ISTD
Cal Date : 21-SEP-2010 14:00 Cal File: 0010921.d
Als bottle: 1 Calibration Sample, Level: 1
Dil Factor: 1.00000
Integrator: HP RTE Compound Sublist: voa.sub
Target Version: 3.50
Processing Host: cserv3

Concentration Formula: Amt * DF * Pv * 1 / (Sa * ((100 - M) / 100)) * CpndVaria

Name	Value	Description
DF	1.00000	Dilution Factor
Pv	5.00000	Purge Volume
Sa	5.00000	Sample Amount
M	0.00000	Moisture (%)

Cpnd Variable Local Compound Variable

Compounds	QUANT SIG MASS	RT	EXP RT	REL RT	RESPONSE	AMOUNTS CAL-AMT (ug/Kg)	AMOUNTS ON-COL (ug/Kg)
1 Dichlorodifluoromethane	85	3.005	3.005	(0.454)	1939	1.00000	1.101
2 Chloromethane	50	3.306	3.306	(0.499)	3923	1.00000	0.9546
3 Vinyl Chloride	62	3.427	3.427	(0.517)	3754	1.00000	0.9168(Q)
4 Bromomethane	94	3.909	3.909	(0.590)	2710	1.00000	1.338(Q)
5 Chloroethane	64	3.980	3.980	(0.601)	2104	1.00000	1.204(QM)
6 Trichlorofluoromethane	101	4.241	4.241	(0.640)	3065	1.00000	1.129(Q)
7 Acrolein	56	4.623	4.623	(0.698)	2174	5.00000	7.106(Q)
8 112Trichloro122Trifluoroethane	101	4.643	4.643	(0.701)	2316	1.00000	1.149
9 Acetone	43	4.673	4.673	(0.706)	4260	5.00000	5.554(M)
10 1,1-Dichloroethene	96	4.844	4.844	(0.731)	1474	1.00000	1.005
11 Bromoethane	108	5.055	5.055	(0.763)	1182	1.00000	0.9650
12 Iodomethane	142	5.156	5.156	(0.778)	2419	1.00000	0.9749
13 Methylene Chloride	84	5.276	5.276	(0.797)	3555	1.00000	1.728
14 Acrylonitrile	53	5.357	5.357	(0.809)	562	1.00000	0.9641(Q)

	Compounds	QUANT SIG MASS	RT	EXP RT	REL RT	RESPONSE	AMOUNTS CAL-AMT (ug/Kg)	AMOUNTS ON-COL (ug/Kg)
	16 Methyl tert-Butyl Ether	73	5.397	5.397	(0.815)	4474	1.00000	1.024(Q)
	15 Carbon Disulfide	76	5.377	5.377	(0.812)	7112	1.00000	1.166(Q)
	17 Trans-1,2-Dichloroethene	96	5.558	5.558	(0.839)	1497	1.00000	0.9979
	18 Vinyl Acetate	43	5.879	5.879	(0.888)	4407	1.00000	1.047
	19 1,1-Dichloroethane	63	5.940	5.940	(0.897)	3586	1.00000	1.014
	20 2-Butanone	43	6.281	6.281	(0.948)	4680	5.00000	5.202
	21 2,2-Dichloropropane	77	6.462	6.462	(0.976)	2913	1.00000	1.009
	22 Cis-1,2-Dichloroethene	96	6.502	6.502	(0.982)	1363	1.00000	0.9608
*	23 Pentafluorobenzene	168	6.623	6.623	(1.000)	98090	50.0000	
	24 Chloroform	83	6.643	6.643	(1.003)	3001	1.00000	1.015(Q)
	26 Bromochloromethane	128	6.804	6.804	(1.027)	507	1.00000	0.8028(Q)
$	25 Dibromofluoromethane	111	6.844	6.844	(1.033)	57829	50.0000	46.205(Q)
	27 1,1,1-Trichloroethane	97	7.035	7.035	(1.062)	2468	1.00000	1.012
	29 1,1-Dichloropropene	75	7.176	7.176	(0.939)	2800	1.00000	1.189
	30 Carbon Tetrachloride	117	7.286	7.286	(0.954)	2056	1.00000	1.041
$	31 d4-1,2-Dichloroethane	65	7.306	7.306	(1.103)	80610	50.0000	43.456
	32 1,2-Dichloroethane	62	7.397	7.397	(0.968)	2419	1.00000	1.031
	33 Benzene	78	7.447	7.447	(0.975)	5831	1.00000	1.176
*	34 1,4-Difluorobenzene	114	7.638	7.638	(1.000)	139464	50.0000	
	35 Trichloroethene	95	8.010	8.010	(1.049)	1388	1.00000	0.9769
	36 1,2-Dichloropropane	63	8.171	8.171	(1.070)	2072	1.00000	1.195
	37 Bromodichloromethane	83	8.402	8.402	(1.100)	2083	1.00000	1.036
	39 Dibromomethane	93	8.472	8.472	(1.109)	879	1.00000	1.057
	40 2-Chloroethyl Vinyl Ether	63	8.623	8.623	(1.129)	881	1.00000	1.191
	41 4-Methyl-2-Pentanone	58	8.653	8.653	(1.133)	2876	5.00000	5.759
	42 Cis 1,3-dichloropropene	75	8.904	8.904	(1.166)	2692	1.00000	1.118
$	43 d8-Toluene	98	9.186	9.186	(1.203)	168408	50.0000	51.214
	44 Toluene	92	9.266	9.266	(1.213)	3834	1.00000	1.272
	45 Trans 1,3-Dichloropropene	75	9.397	9.397	(1.230)	2568	1.00000	1.176
	46 2-Hexanone	43	9.537	9.537	(0.884)	7890	5.00000	6.222(M)
	47 1,1,2-Trichloroethane	97	9.578	9.578	(1.254)	961	1.00000	1.024
	48 1,3-Dichloropropane	76	9.839	9.839	(0.912)	2168	1.00000	1.075
	49 Tetrachloroethene	166	9.960	9.960	(0.924)	1384	1.00000	1.120
	50 Chlorodibromomethane	129	10.171	10.171	(0.943)	1233	1.00000	1.014
	51 1,2-Dibromoethane	107	10.392	10.392	(1.361)	1055	1.00000	1.010(T)
*	52 d5-Chlorobenzene	117	10.784	10.784	(1.000)	121650	50.0000	
	53 Chlorobenzene	112	10.834	10.834	(1.005)	3205	1.00000	1.139
	54 Ethyl Benzene	91	10.864	10.864	(1.007)	6361	1.00000	1.214
	55 1,1,1,2-Tetrachloroethane	131	10.854	10.854	(1.007)	1174	1.00000	1.060
	56 m,p-xylene	106	10.944	10.944	(1.015)	4278	2.00000	2.225(Q)
	57 o-Xylene	106	11.437	11.437	(1.061)	1936	1.00000	0.9929(Q)
	58 Styrene	104	11.457	11.457	(1.062)	3501	1.00000	1.104
	59 Isopropyl Benzene	105	11.809	11.809	(0.877)	5366	1.00000	1.163
	60 Bromoform	173	11.869	11.869	(0.881)	842	1.00000	1.194
	61 1,1,2,2-Tetrachloroethane	83	11.990	11.990	(0.890)	1485	1.00000	1.194(M)
$	62 4-Bromofluorobenzene	95	12.110	12.110	(1.123)	73220	50.0000	47.401
	63 1,2,3-Trichloropropane	110	12.160	12.160	(0.903)	185	1.00000	0.7212(QM)

Compounds	QUANT SIG MASS	RT	EXP RT	REL RT	RESPONSE	AMOUNTS CAL-AMT (ug/Kg)	AMOUNTS ON-COL (ug/Kg)
65 Trans-1,4-Dichloro 2-Butene	53	12.211	12.211	(0.907)	641	1.00000	1.273(QM)
66 N-Propyl Benzene	91	12.261	12.261	(0.910)	7323	1.00000	1.242
67 Bromobenzene	156	12.361	12.361	(0.918)	1297	1.00000	1.175
68 1,3,5-Trimethyl Benzene	105	12.442	12.442	(0.924)	4662	1.00000	1.272
69 2-Chloro Toluene	91	12.492	12.492	(0.928)	4826	1.00000	1.306
70 4-Chloro Toluene	91	12.542	12.542	(0.931)	4637	1.00000	1.183
71 T-Butyl Benzene	119	12.844	12.844	(0.954)	4098	1.00000	1.268
72 1,2,4-Trimethylbenzene	105	12.894	12.894	(0.957)	4957	1.00000	1.295
73 S-Butyl Benzene	105	13.095	13.095	(0.972)	5858	1.00000	1.183
74 4-Isopropyl Toluene	119	13.236	13.236	(0.983)	4236	1.00000	1.193
75 1,3-Dichlorobenzene	146	13.387	13.387	(0.994)	2154	1.00000	1.085
* 76 d4-1,4-Dichlorobenzene	152	13.467	13.467	(1.000)	59739	50.0000	
77 1,4-Dichlorobenzene	146	13.507	13.507	(1.003)	2323	1.00000	1.169
78 N-Butyl Benzene	91	13.718	13.718	(1.019)	4951	1.00000	1.189
$ 79 d4-1,2-Dichlorobenzene	152	13.909	13.909	(1.033)	51310	50.0000	49.182
80 1,2-Dichlorobenzene	146	13.949	13.949	(1.036)	2171	1.00000	1.168
81 1,2-Dibromo 3-Chloropropane	75	14.854	14.854	(1.103)	658	1.00000	1.999(Q)
82 1,2,4-Trichlorobenzene	180	15.899	15.899	(1.181)	1615	1.00000	1.312(M)
83 Hexachloro 1,3-Butadiene	225	16.050	16.050	(1.192)	1055	1.00000	1.259
84 Naphthalene	128	16.221	16.221	(1.204)	3476	1.00000	1.530
85 1,2,3-Trichlorobenzene	180	16.512	16.512	(1.226)	1598	1.00000	1.429

QC Flag Legend

T - Target compound detected outside RT window.
Q - Qualifier signal failed the ratio test.
M - Compound response manually integrated.

Analytical Resources, Inc.

INTERNAL STANDARD COMPOUNDS
AREA AND RT SUMMARY

Instrument ID: finn5.i
Lab File ID: 0010921.d
Lab Smp Id: IC0921
Analysis Type: VOA
Quant Type: ISTD
Operator: PB
Method File: /chem1/finn5.i/21SEP10.b/s8260b.m
Misc Info: 10-

Calibration Date: 21-SEP-2010
Calibration Time: 15:55
Client Smp ID: VSTD001
Level: LOW
Sample Type: SOIL

Test Mode:
Use Initial Calibration Level 5.
If Continuing Cal. use Initial Cal. Level 5

COMPOUND	STANDARD	AREA LIMIT LOWER	AREA LIMIT UPPER	SAMPLE	%DIFF
23 Pentafluorobenzen	91870	45935	183740	98090	6.77
34 1,4-Difluorobenze	137983	68992	275966	139464	1.07
52 d5-Chlorobenzene	123519	61760	247038	121650	-1.51
76 d4-1,4-Dichlorobe	67589	33794	135178	59739	-11.61

COMPOUND	STANDARD	RT LIMIT LOWER	RT LIMIT UPPER	SAMPLE	%DIFF
23 Pentafluorobenzen	6.63	6.13	7.13	6.62	-0.15
34 1,4-Difluorobenze	7.65	7.15	8.15	7.64	-0.13
52 d5-Chlorobenzene	10.79	10.29	11.29	10.78	-0.09
76 d4-1,4-Dichlorobe	13.48	12.98	13.98	13.47	-0.07

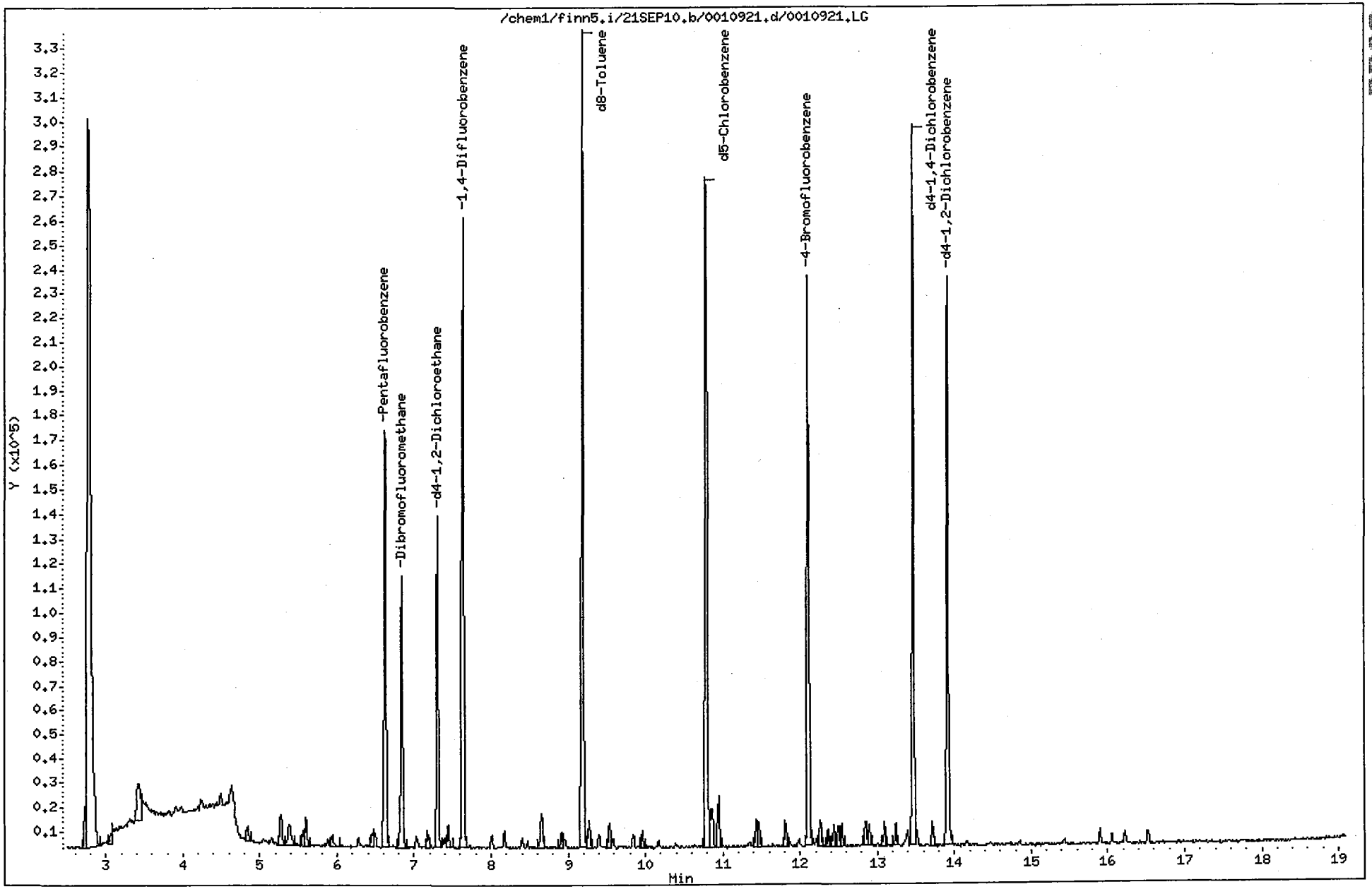
AREA UPPER LIMIT = +100% of internal standard area.
AREA LOWER LIMIT = - 50% of internal standard area.
RT UPPER LIMIT = + 0.50 minutes of internal standard RT.
RT LOWER LIMIT = - 0.50 minutes of internal standard RT.

Data File: /chem1/finn5.i/21SEP10.b/0010921.d
Date : 21-SEP-2010 14:00
Client ID: VSTD001
Sample Info: IC0921,5,5,0

Instrument: finn5.i

Operator: PB
Column diameter: 0.18

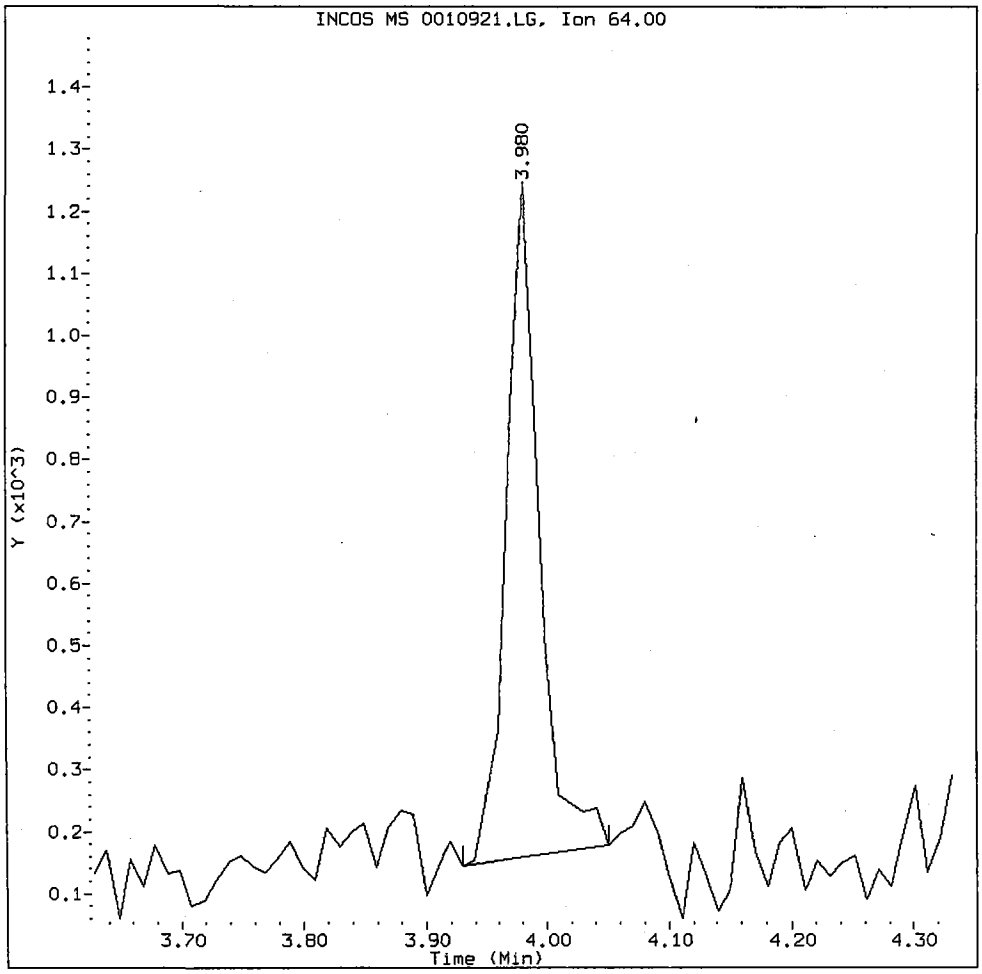
Column phase: Rtx502.2



RP83:00081

IC0921, /chem1/finn5.i/21SEP10.b/0010921.d

Chloroethane Amount: 1.20 Area: 2104



MANUAL INTEGRATION for Chloroethane

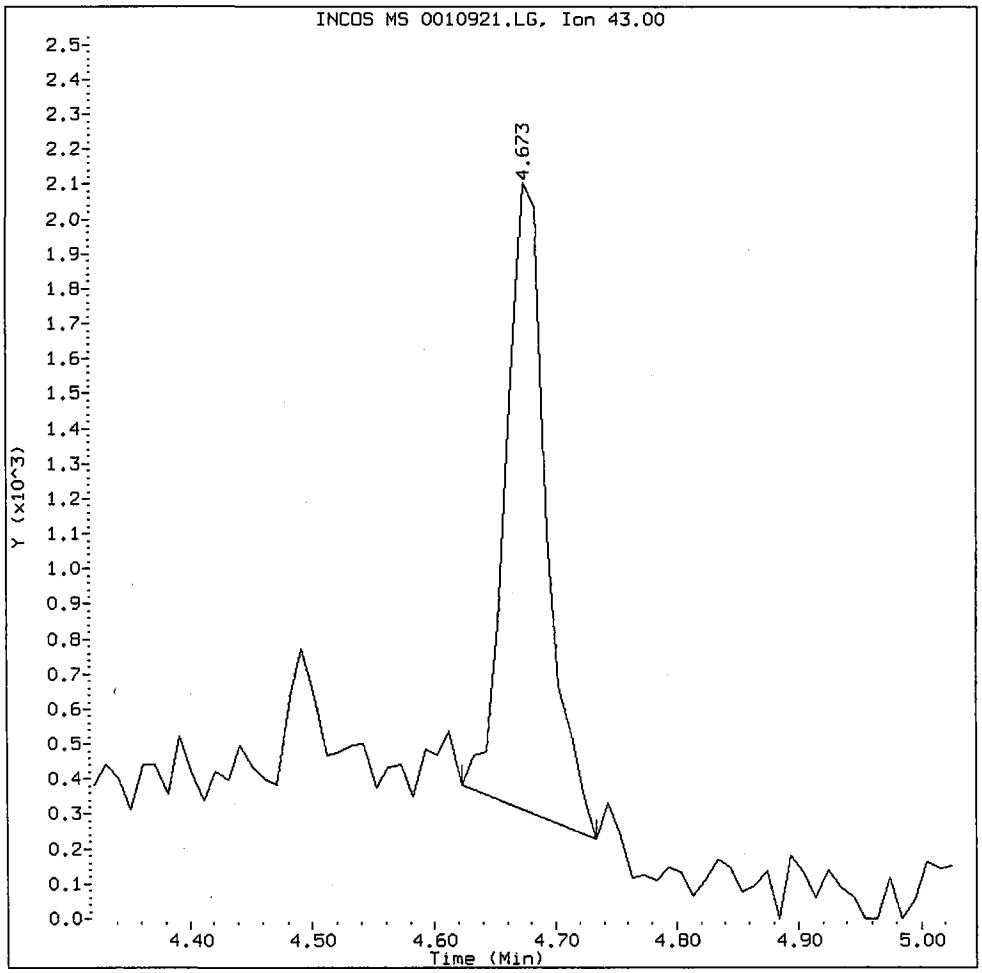
1. Baseline correction
2. Poor chromatography
3. Peak not found
4. Totals calculation

5. Other _____

Analyst: _____ Date: 9/2010

IC0921, /chem1/finn5.i/21SEP10.b/0010921.d

Acetone Amount: 5.55 Area: 4260



MANUAL INTEGRATION for Acetone

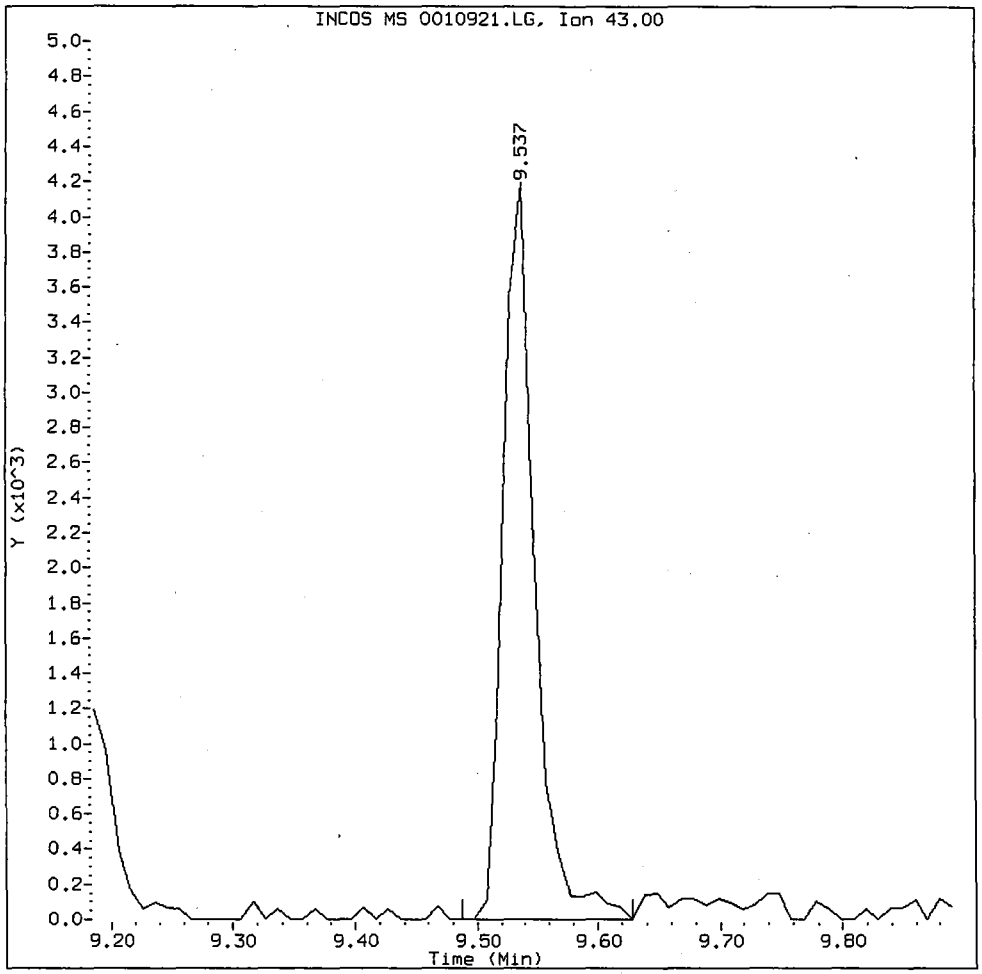
1. Baseline correction
2. Poor chromatography
3. Peak not found
4. Totals calculation

5. Other _____

Analyst: _____ Date: 9/22/10

IC0921, /chem1/finn5.i/21SEP10.b/0010921.d

2-Hexanone Amount: 6.22 Area: 7890



MANUAL INTEGRATION for 2-Hexanone

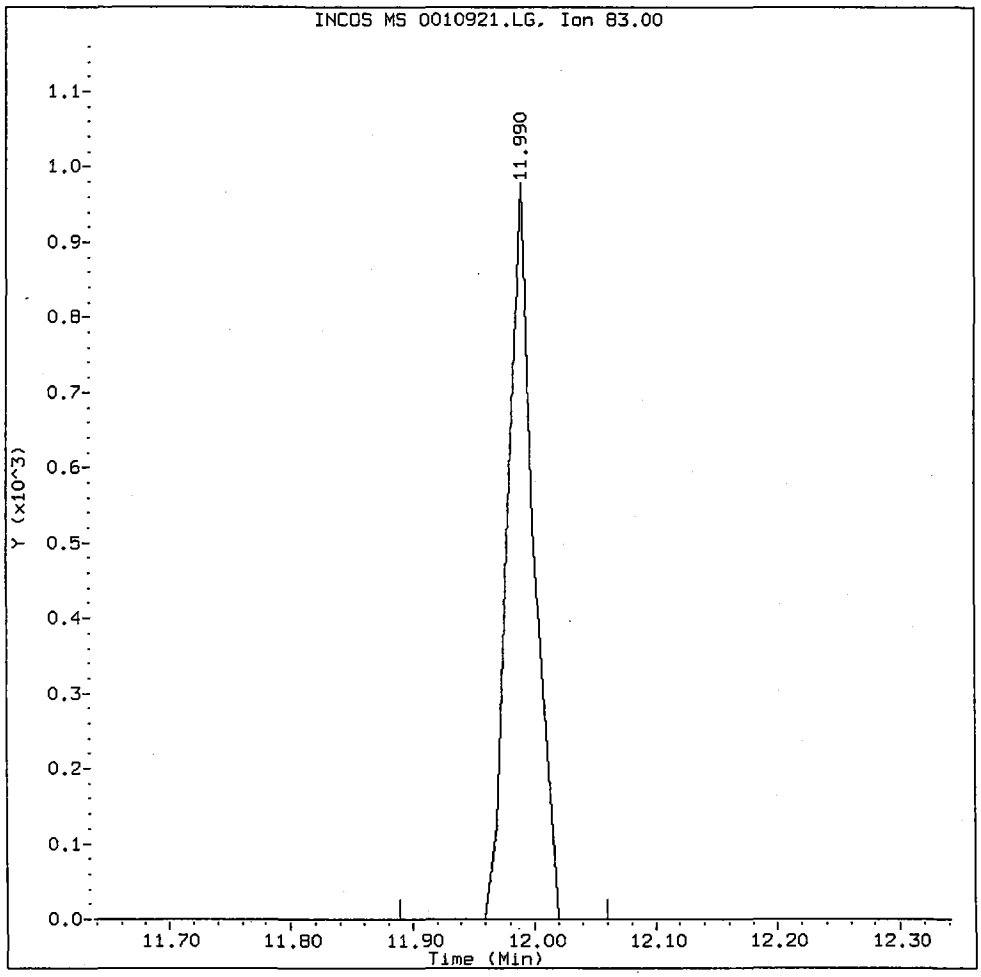
1. Baseline correction
2. Poor chromatography
3. Peak not found
4. Totals calculation

5. Other _____

Analyst: _____ Date: 9/24/10

IC0921, /chem1/finn5.i/21SEP10.b/0010921.d

1,1,2,2-Tetrachloroethane Amount: 1.19 Area: 1485



MANUAL INTEGRATION for 1,1,2,2-Tetrachloroethane

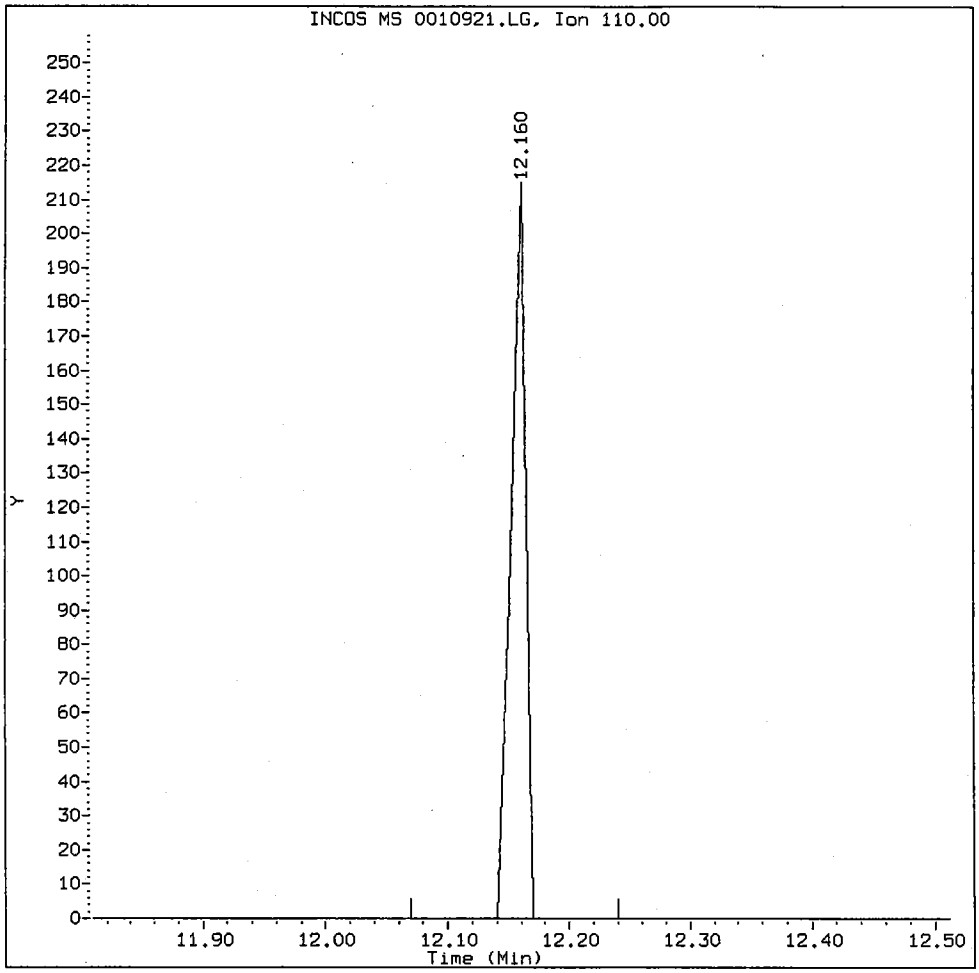
1. Baseline correction
2. Poor chromatography
3. Peak not found
4. Totals calculation

5. Other _____

Analyst: _____ Date: _____

IC0921, /chem1/finn5.i/21SEP10.b/0010921.d

1,2,3-Trichloropropane Amount: 0.72 Area: 185



MANUAL INTEGRATION for 1,2,3-Trichloropropane

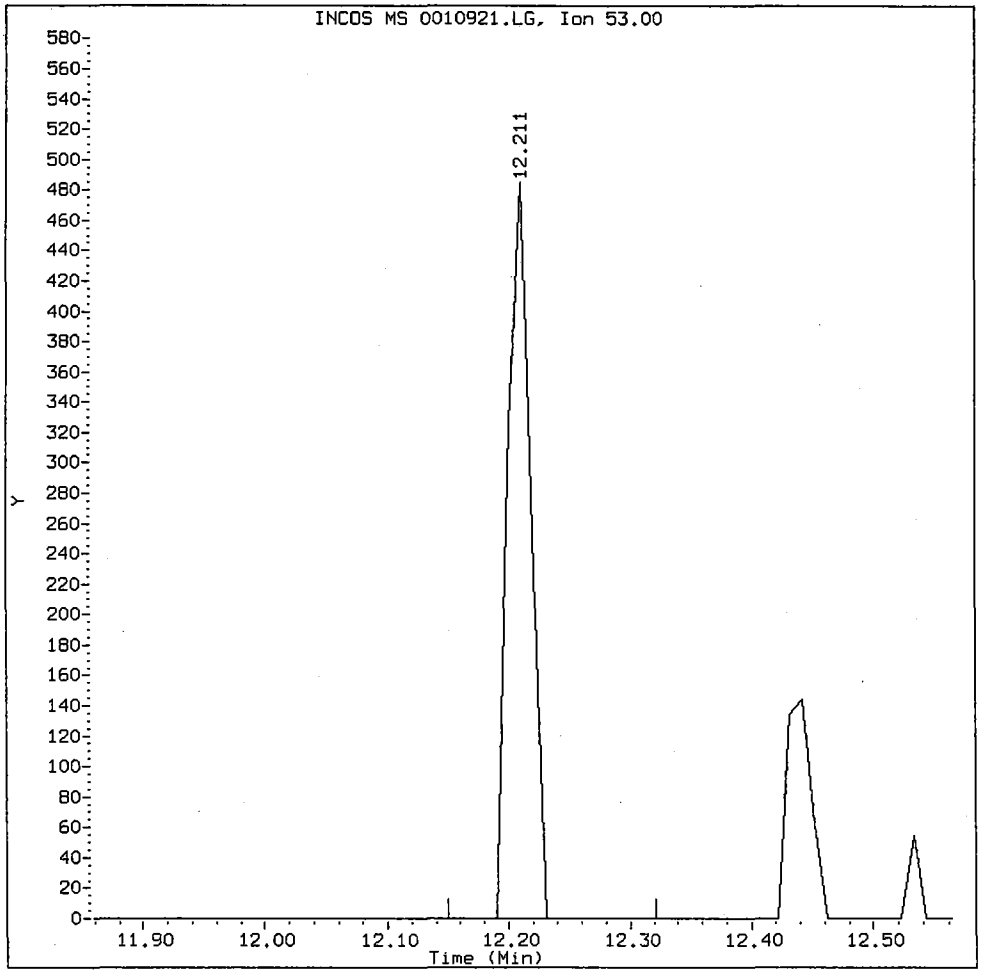
1. Baseline correction
2. Poor chromatography
3. Peak not found
4. Totals calculation

5. Other _____

Analyst: _____ Date: _____

IC0921, /chem1/finn5.i/21SEP10.b/0010921.d

Trans-1,4-Dichloro 2-Butene Amount: 1.27 Area: 641



MANUAL INTEGRATION for Trans-1,4-Dichloro 2-Butene

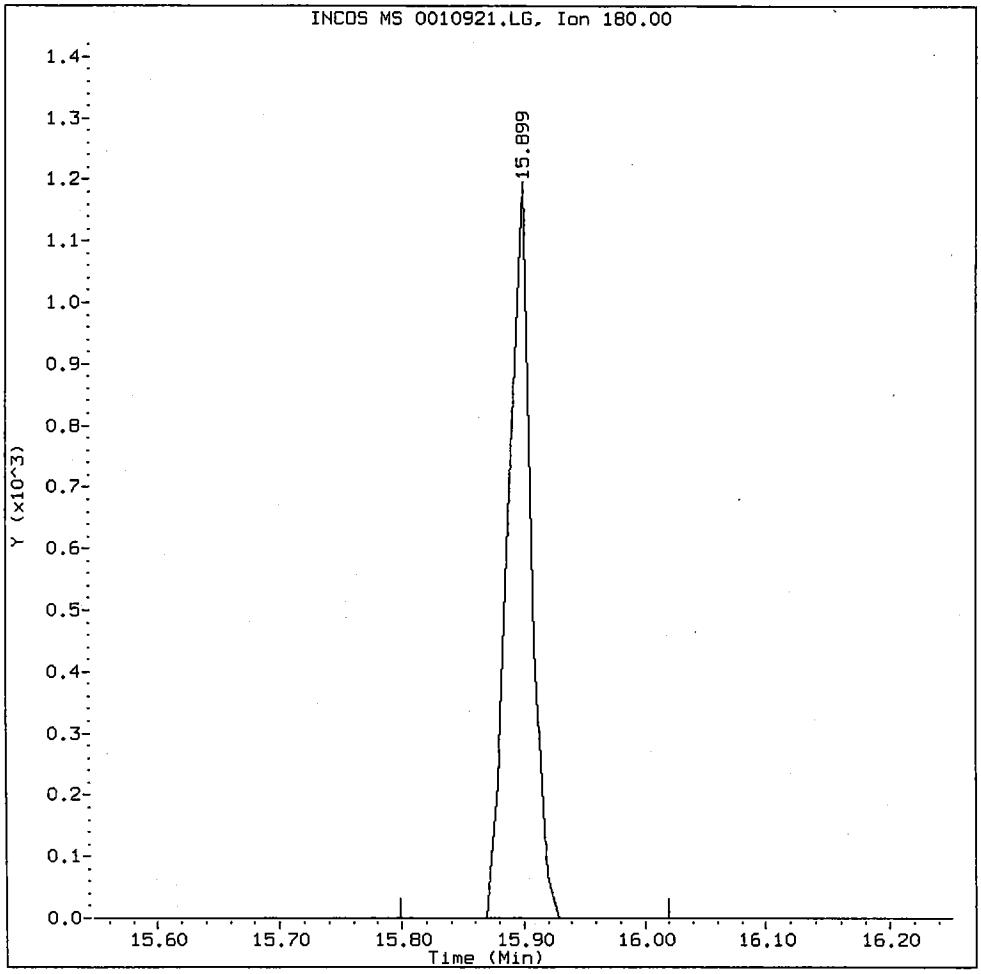
1. Baseline correction
2. Poor chromatography
3. Peak not found
4. Totals calculation

5. Other _____

Analyst: _____ Date: 9/21/10

IC0921, /chem1/finn5.i/21SEP10.b/0010921.d

1,2,4-Trichlorobenzene Amount: 1.31 Area: 1615



MANUAL INTEGRATION for 1,2,4-Trichlorobenzene

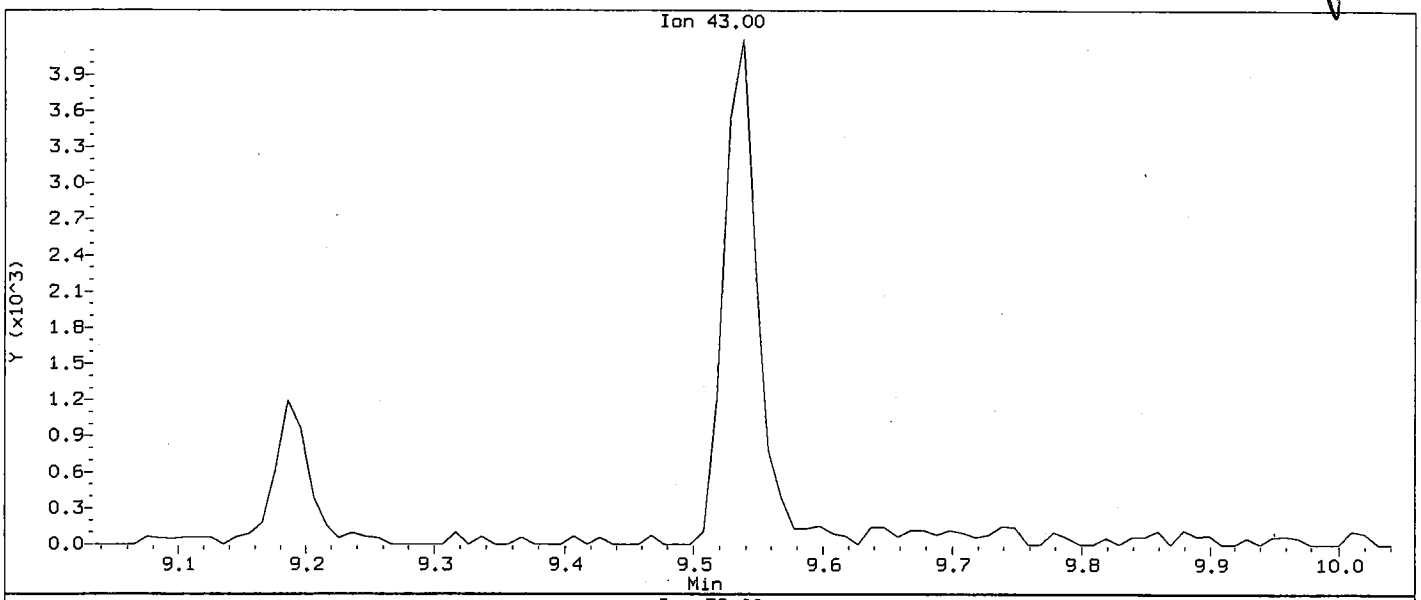
1. Baseline correction
2. Poor chromatography
3. Peak not found
4. Totals calculation

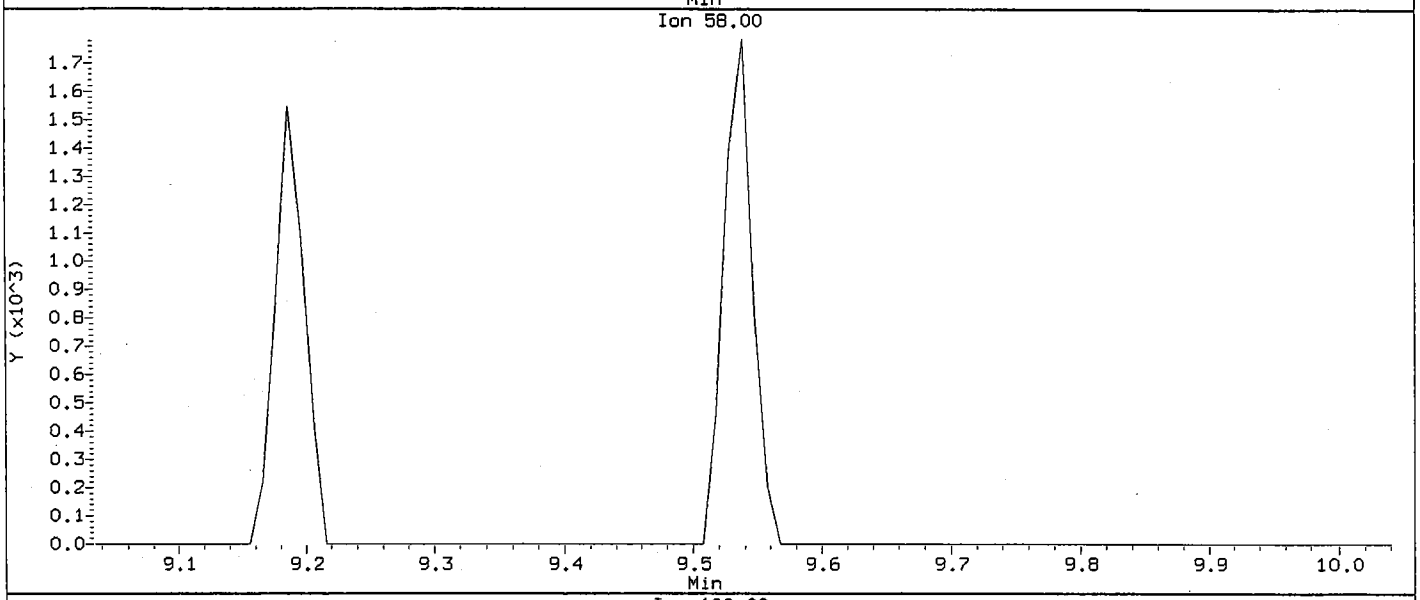
5. Other _____

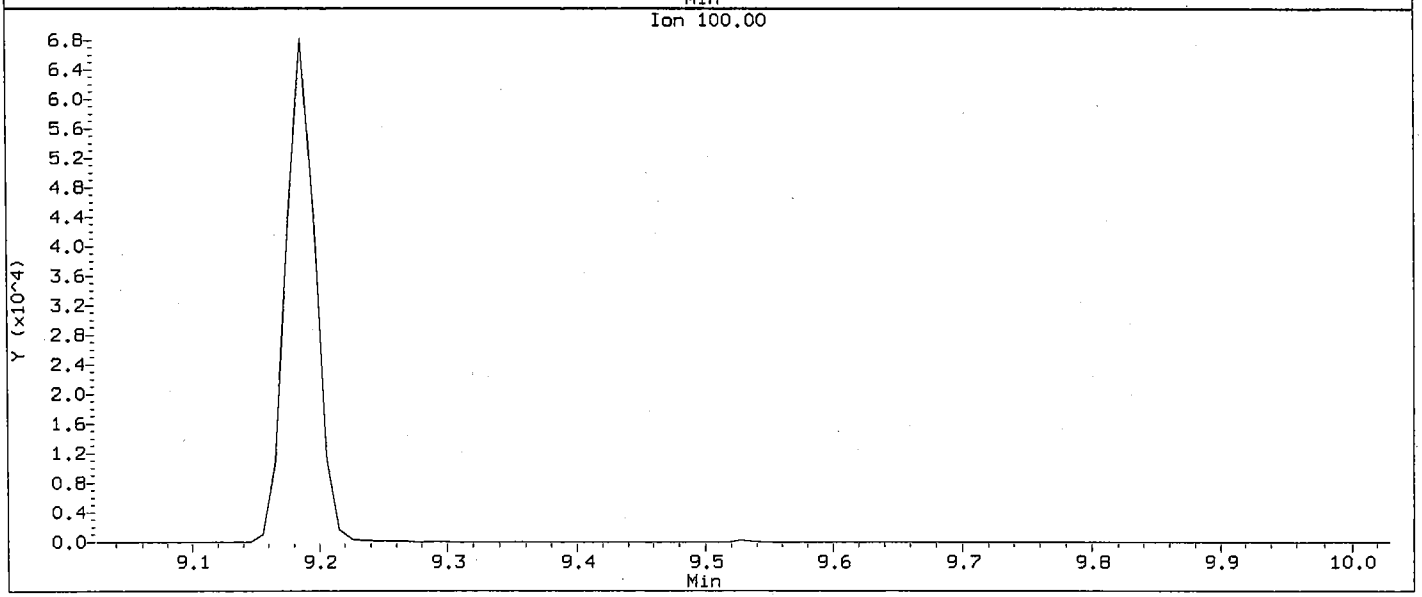
Analyst: _____ Date: _____

Data File: /chem1/finn5.i/21SEP10.b/0010921.d/0010921.LG
Injection Date: 21-SEP-2010 14:00
Instrument: finn5.i
Client Sample ID: VSTD001

Compound: 2-Hexanone
CAS Number:



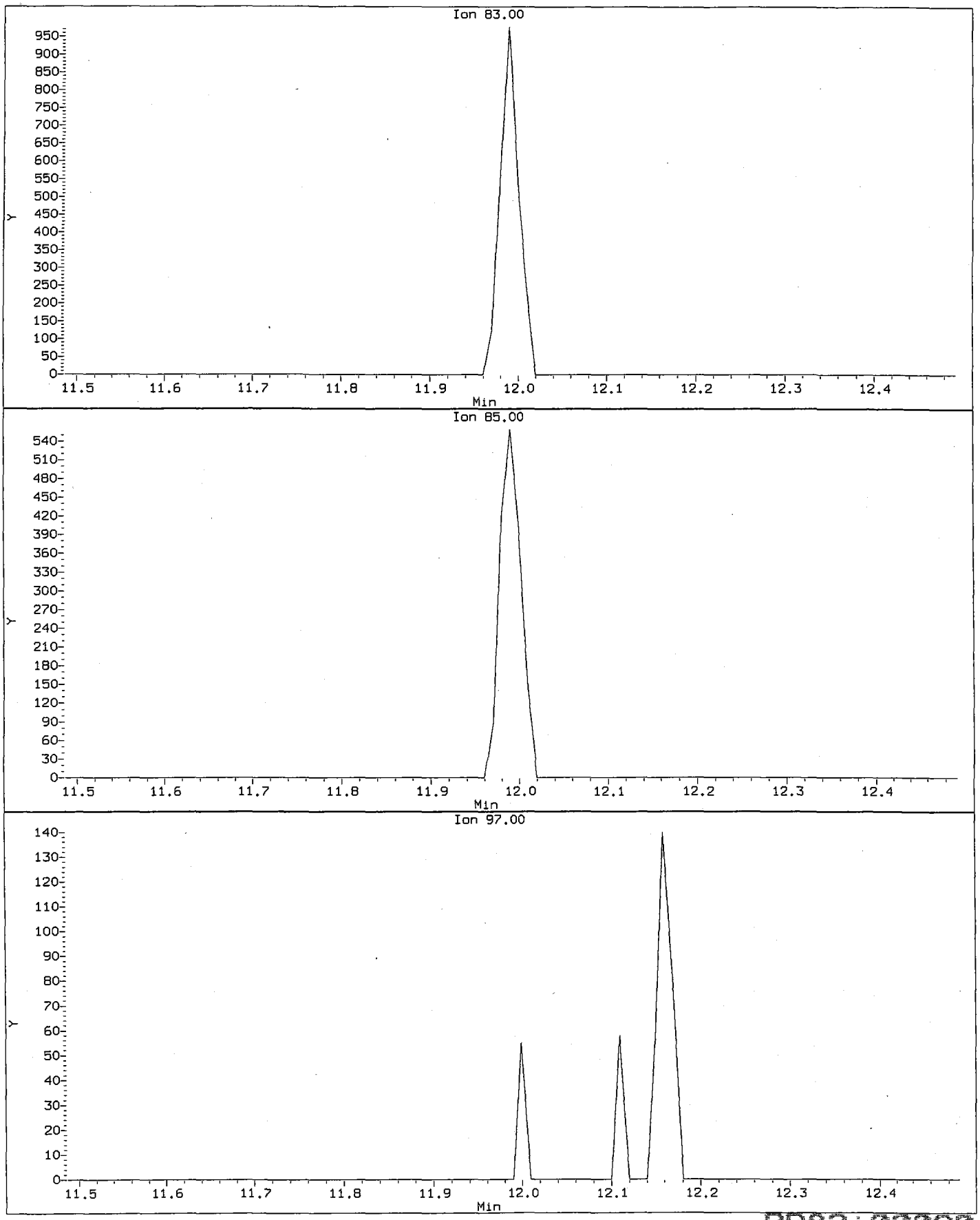




Data File: /chem1/finn5.i/21SEP10.b/0010921.d/0010921.LG
Injection Date: 21-SEP-2010 14:00
Instrument: finn5.i
Client Sample ID: VSTD001

Compound: 1,1,2,2-Tetrachloroethane
CAS Number:

RP 9/22/10



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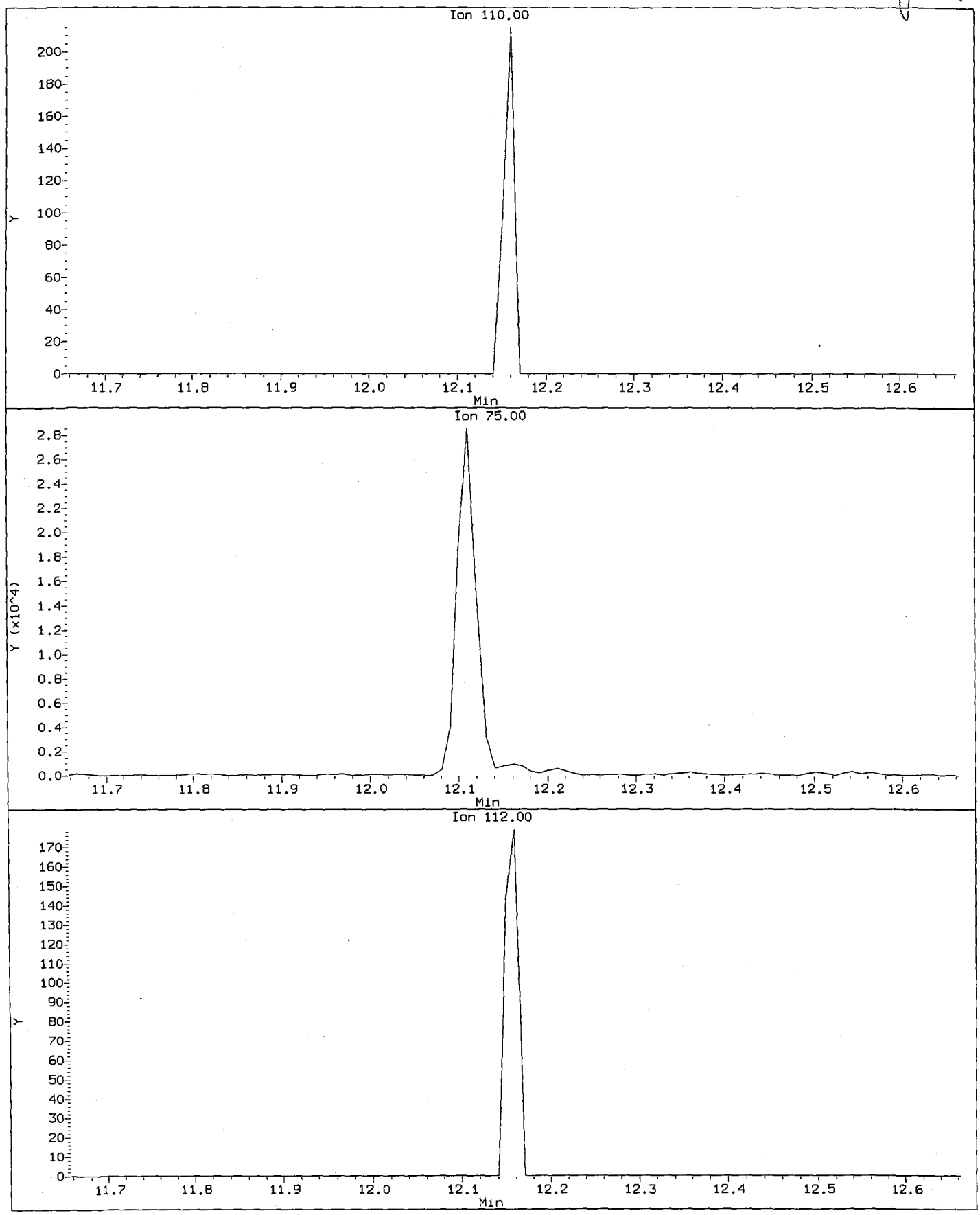
Injection Date: 21-SEP-2010 14:00
Instrument: finn5.i
Client Sample ID: VSTD001

Compound: 1,2,3-Trichloropropane
CAS Number:



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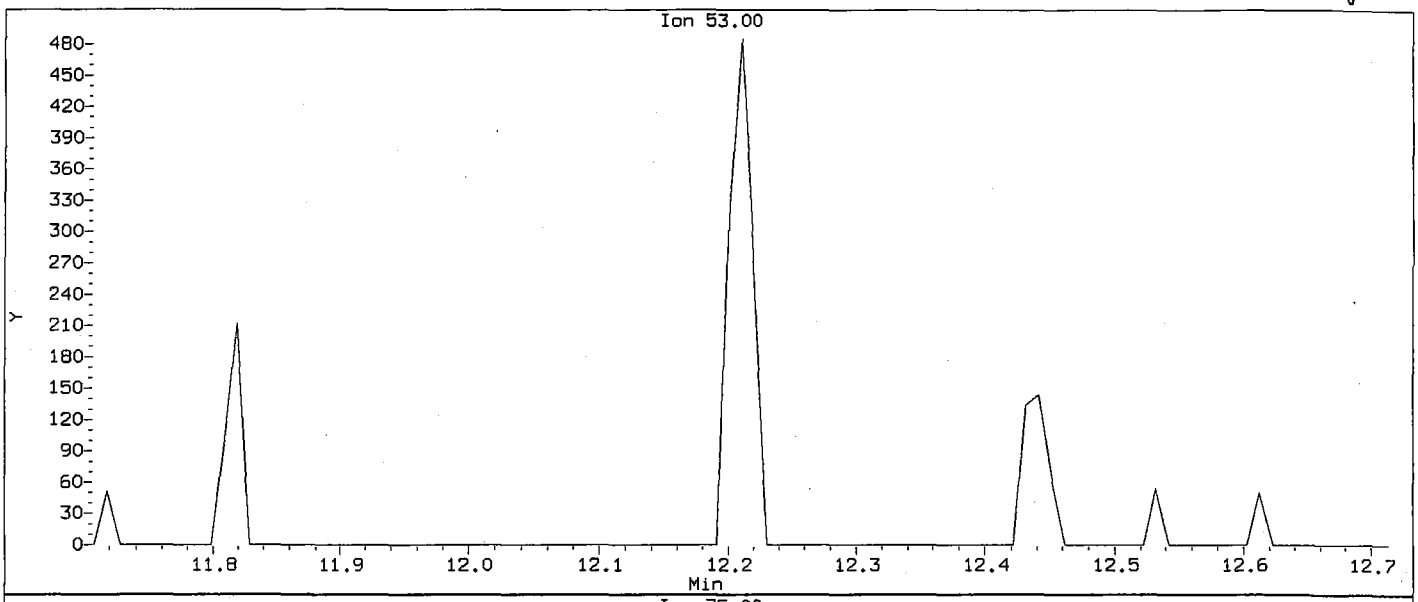
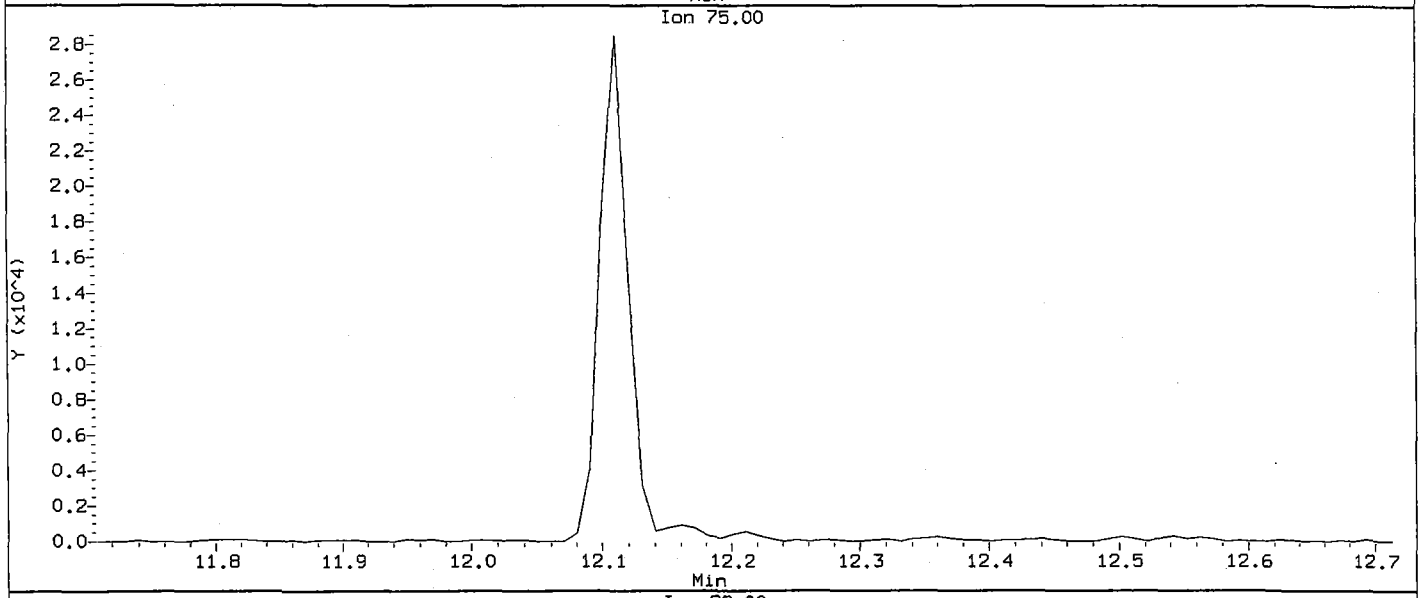
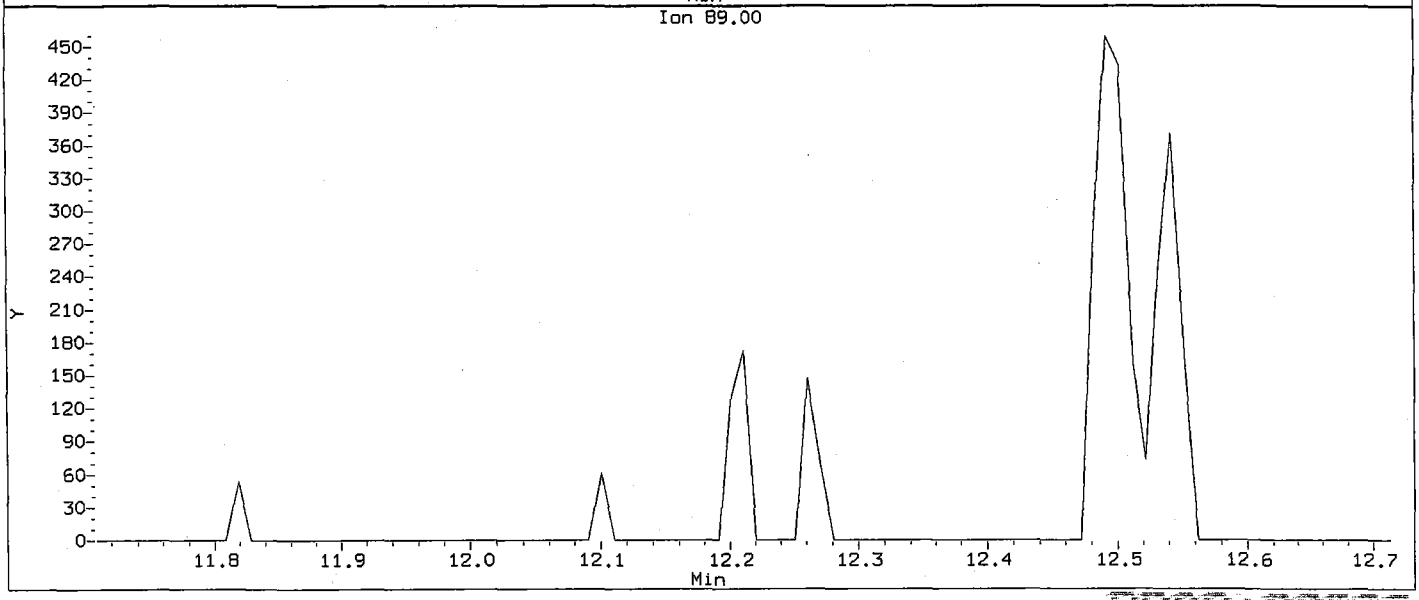
Injection Date: 21-SEP-2010 14:00
Instrument: finn5.i
Client Sample ID: VSTD001

Compound: Trans-1,4-Dichloro 2-Butene
CAS Number:

19/22b







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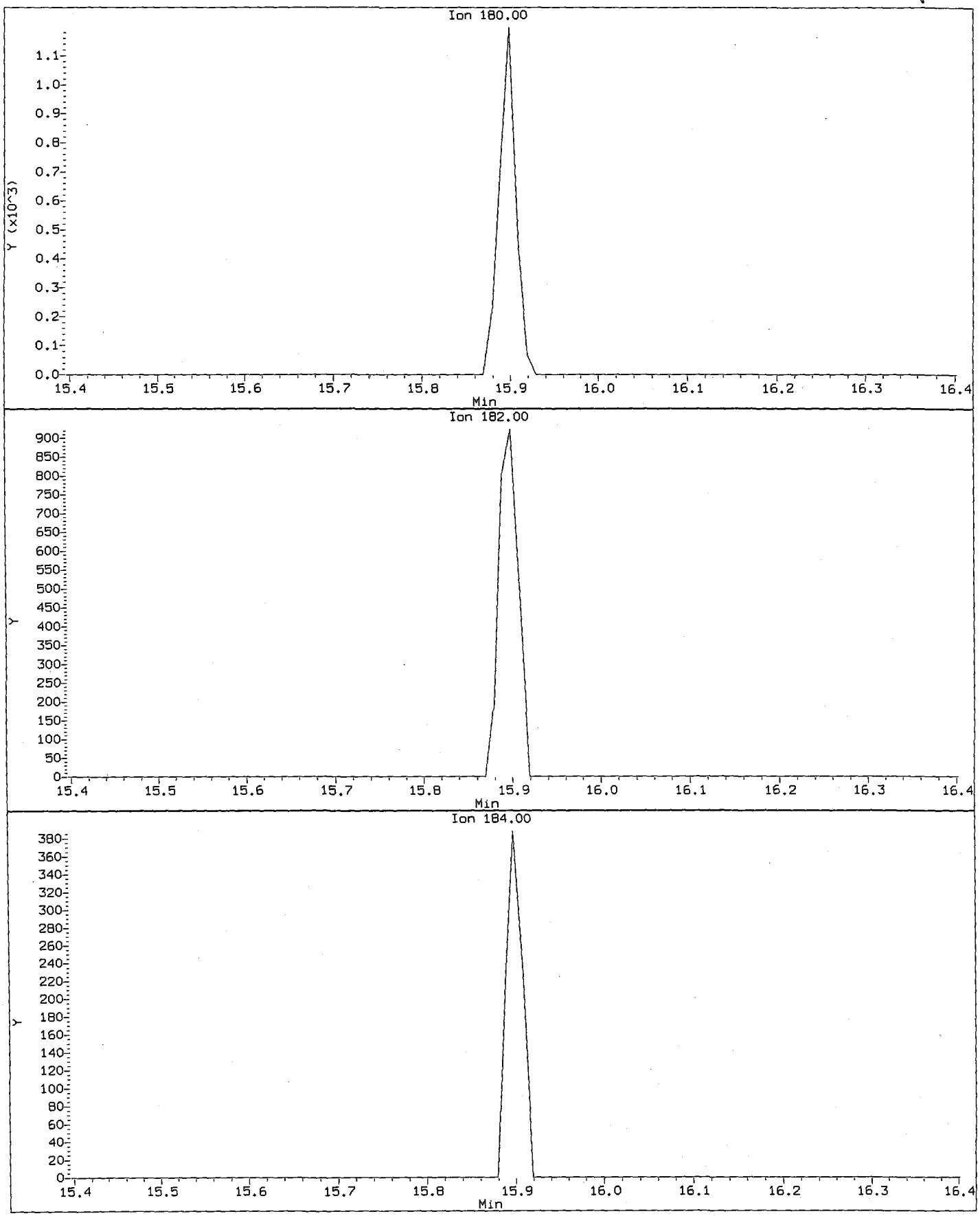
Injection Date: 21-SEP-2010 14:00
Instrument: finn5.i
Client Sample ID: VSTD001

Compound: 1,2,4-Trichlorobenzene
CAS Number:

19/226



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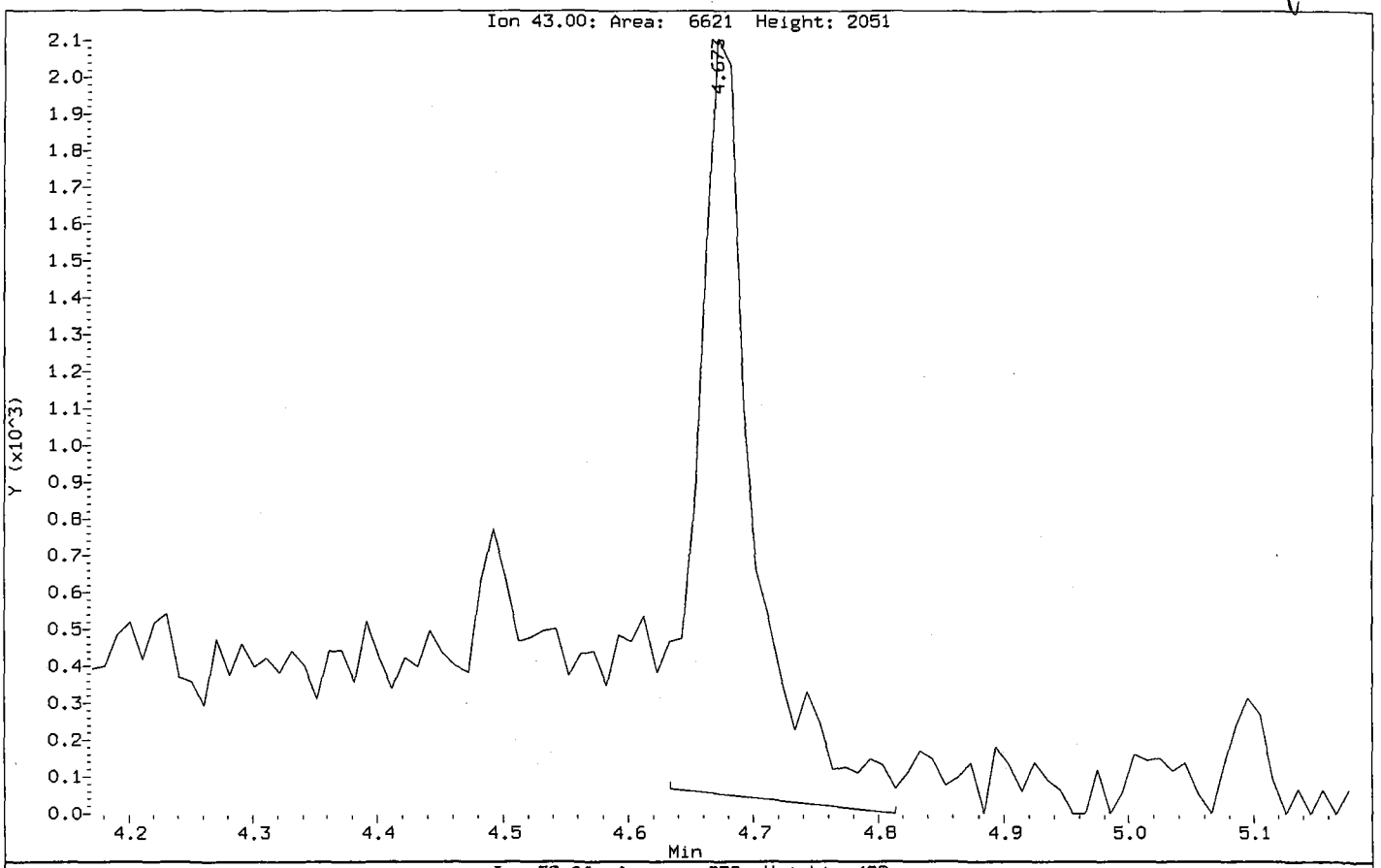
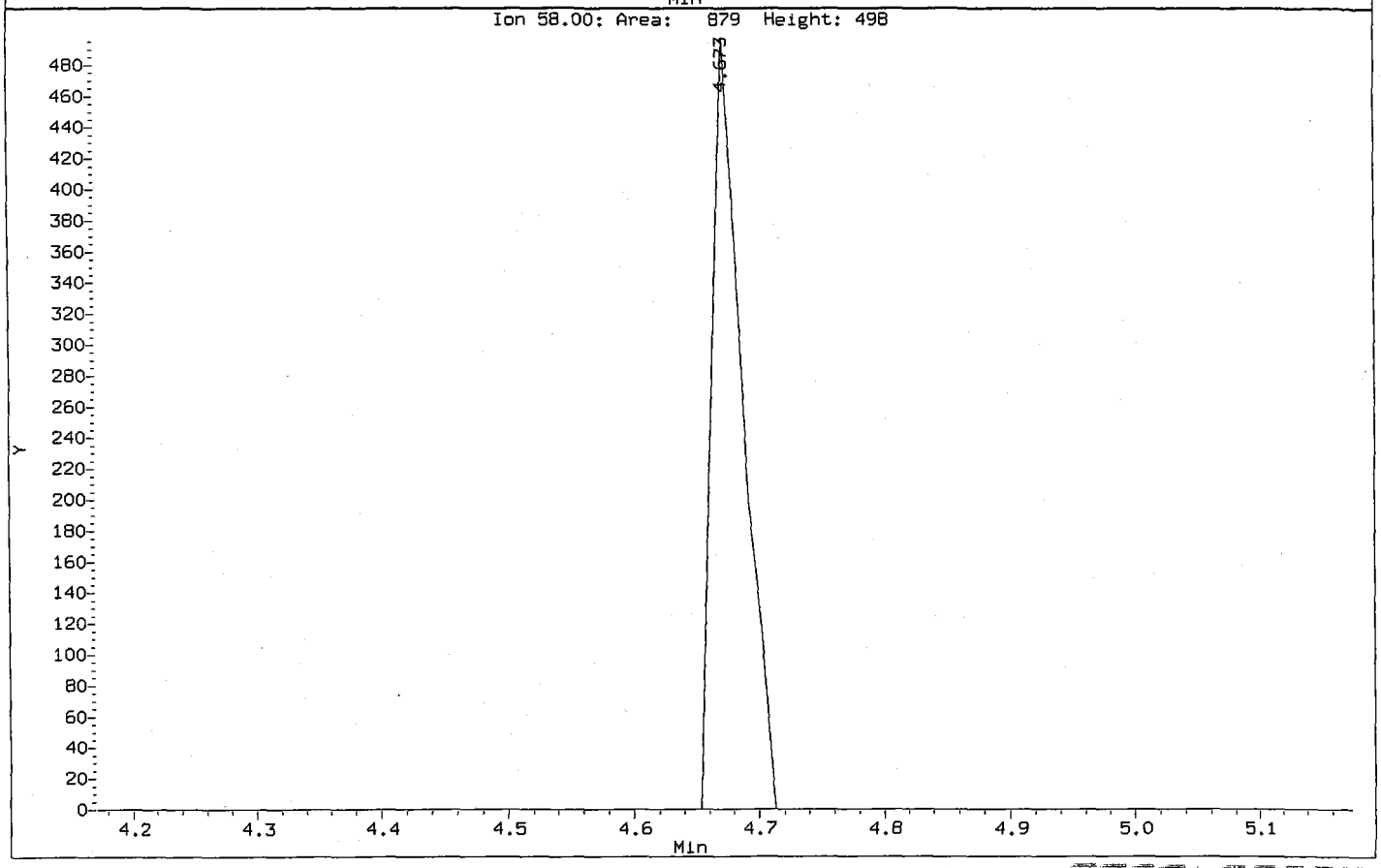
Injection Date: 21-SEP-2010 14:00
Instrument: finn5.i
Client Sample ID: VSTD001

Compound: Acetone
CAS Number:





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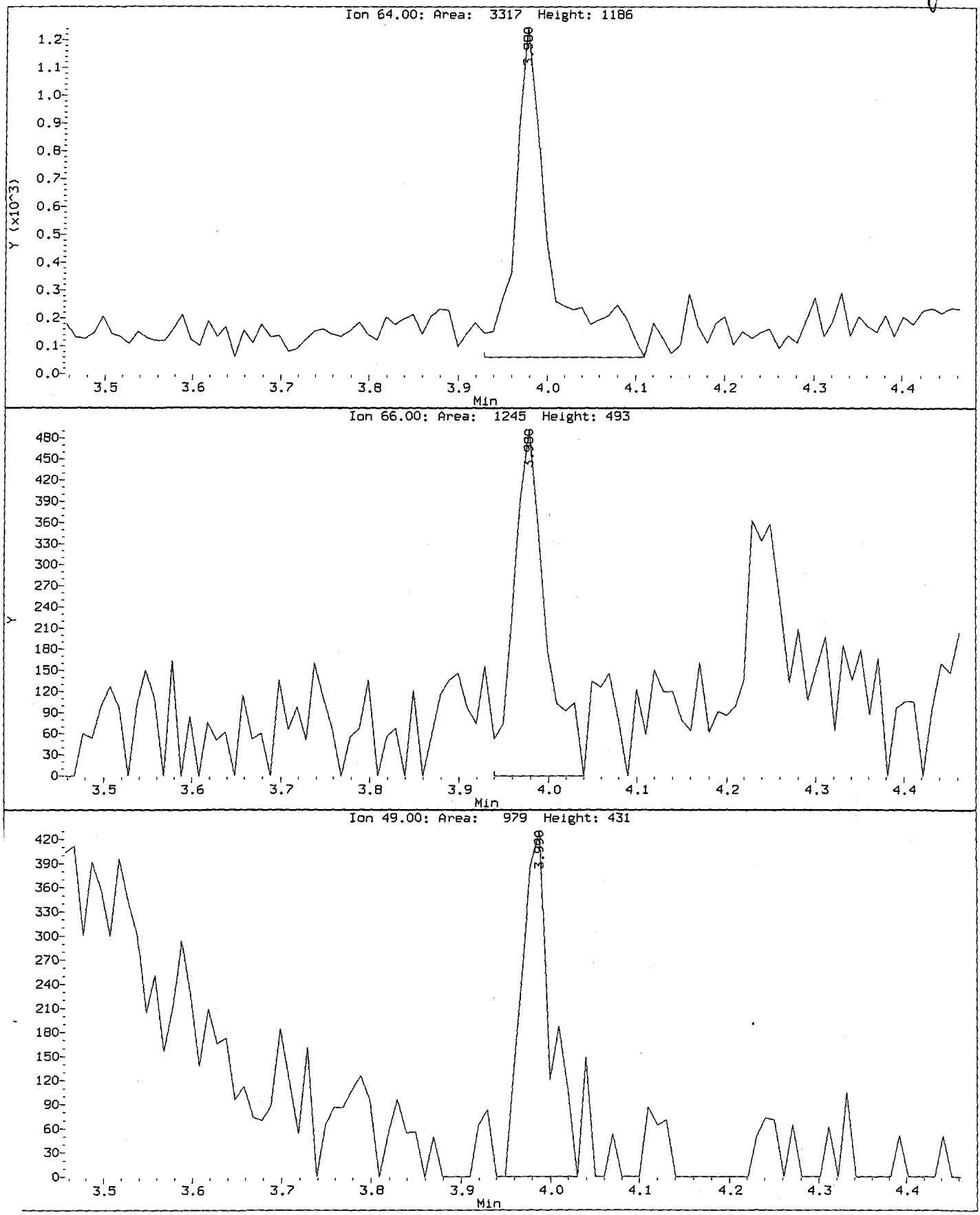
Injection Date: 21-SEP-2010 14:00
Instrument: finn5.i
Client Sample ID: VSTD001

Compound: Chloroethane
CAS Number:

11 9/2010



RP83 : 00095

Analytical Resources, Inc.

8260C

Data file : /chem1/finn5.i/21SEP10.b/0020921.d
Lab Smp Id: IC0921 Client Smp ID: VSTD002
Inj Date : 21-SEP-2010 17:15
Operator : PB Inst ID: finn5.i
Smp Info : IC0921,5,5,0
Misc Info : 10-
Comment :
Method : /chem1/finn5.i/21SEP10.b/s8260b.m
Meth Date : 22-Sep-2010 09:41 patrickb Quant Type: ISTD
Cal Date : 21-SEP-2010 17:15 Cal File: 0020921.d
Als bottle: 1 Calibration Sample, Level: 2
Dil Factor: 1.00000
Integrator: HP RTE Compound Sublist: voa.sub
Target Version: 3.50
Processing Host: cserv3

Concentration Formula: Amt * DF * Pv * 1 / (Sa * ((100 - M) / 100)) * CpndVaria

Name	Value	Description
DF	1.00000	Dilution Factor
Pv	5.00000	Purge Volume
Sa	5.00000	Sample Amount
M	0.00000	Moisture (%)

Cpnd Variable Local Compound Variable

Compounds	QUANT SIG MASS	RT	EXP RT	REL RT	RESPONSE	AMOUNTS CAL-AMT (ug/Kg)	ON-COL (ug/Kg)
1 Dichlorodifluoromethane	85	3.015	3.015	(0.455)	2373	2.00000	1.393
2 Chloromethane	50	3.316	3.316	(0.500)	6845	2.00000	1.722
3 Vinyl Chloride	62	3.427	3.427	(0.517)	6570	2.00000	1.659(Q)
4 Bromomethane	94	3.919	3.919	(0.591)	4301	2.00000	2.205
5 Chloroethane	64	3.990	3.990	(0.602)	3719	2.00000	2.201(Q)
6 Trichlorofluoromethane	101	4.251	4.251	(0.641)	5686	2.00000	2.166
7 Acrolein	56	4.633	4.633	(0.698)	3393	10.0000	11.468
8 112Trichloro122Trifluoroethane	101	4.643	4.643	(0.700)	4168	2.00000	2.138
9 Acetone	43	4.683	4.683	(0.706)	9453	10.0000	12.744
10 1,1-Dichloroethene	96	4.844	4.844	(0.730)	2935	2.00000	2.068
11 Bromoethane	108	5.065	5.065	(0.764)	2102	2.00000	1.774
12 Iodomethane	142	5.166	5.166	(0.779)	4445	2.00000	1.852
13 Methylene Chloride	84	5.276	5.276	(0.795)	5241	2.00000	2.635
14 Acrylonitrile	53	5.367	5.367	(0.809)	838	2.00000	1.486(Q)

	Compounds	QUANT SIG MASS	RT	EXP RT	REL RT	RESPONSE	AMOUNTS CAL-AMT (ug/Kg)	AMOUNTS ON-COL (ug/Kg)
	16 Methyl tert-Butyl Ether	73	5.407	5.407	(0.815)	8036	2.00000	1.901(Q)
	15 Carbon Disulfide	76	5.387	5.387	(0.812)	11243	2.00000	1.906(Q)
	17 Trans-1,2-Dichloroethene	96	5.568	5.568	(0.839)	2626	2.00000	1.810
	18 Vinyl Acetate	43	5.889	5.889	(0.888)	7811	2.00000	1.919
	19 1,1-Dichloroethane	63	5.950	5.950	(0.897)	6216	2.00000	1.818
	20 2-Butanone	43	6.291	6.291	(0.948)	8483	10.0000	9.751
	21 2,2-Dichloropropane	77	6.462	6.462	(0.974)	6060	2.00000	2.170
	22 Cis-1,2-Dichloroethene	96	6.502	6.502	(0.980)	2472	2.00000	1.802
*	23 Pentafluorobenzene	168	6.633	6.633	(1.000)	94862	50.0000	
	24 Chloroform	83	6.653	6.653	(1.003)	5381	2.00000	1.882(Q)
	26 Bromochloromethane	128	6.814	6.814	(1.027)	1068	2.00000	1.749(Q)
$	25 Dibromofluoromethane	111	6.854	6.854	(1.033)	60335	50.0000	49.847(Q)
	27 1,1,1-Trichloroethane	97	7.045	7.045	(1.062)	4407	2.00000	1.868
	29 1,1-Dichloropropene	75	7.186	7.186	(0.941)	4530	2.00000	1.958
	30 Carbon Tetrachloride	117	7.296	7.296	(0.955)	3902	2.00000	2.012
$	31 d4-1,2-Dichloroethane	65	7.316	7.316	(1.103)	90208	50.0000	50.285
	32 1,2-Dichloroethane	62	7.407	7.407	(0.970)	4574	2.00000	1.986
	33 Benzene	78	7.447	7.447	(0.975)	9961	2.00000	2.045
*	34 1,4-Difluorobenzene	114	7.638	7.638	(1.000)	136952	50.0000	
	35 Trichloroethene	95	8.020	8.020	(1.050)	2775	2.00000	1.989
	36 1,2-Dichloropropane	63	8.181	8.181	(1.071)	3288	2.00000	1.931
	37 Bromodichloromethane	83	8.412	8.412	(1.101)	3669	2.00000	1.858
	39 Dibromomethane	93	8.482	8.482	(1.111)	1589	2.00000	1.945
	40 2-Chloroethyl Vinyl Ether	63	8.623	8.623	(1.129)	1260	2.00000	1.735(Q)
	41 4-Methyl-2-Pentanone	58	8.663	8.663	(1.134)	4697	10.0000	9.578(Q)
	42 Cis 1,3-dichloropropene	75	8.914	8.914	(1.167)	4468	2.00000	1.889
$	43 d8-Toluene	98	9.196	9.196	(1.204)	161893	50.0000	50.135
	44 Toluene	92	9.276	9.276	(1.214)	5917	2.00000	1.999
	45 Trans 1,3-Dichloropropene	75	9.407	9.407	(1.232)	3829	2.00000	1.786
	46 2-Hexanone	43	9.537	9.537	(0.884)	13365	10.0000	10.678(M)
	47 1,1,2-Trichloroethane	97	9.588	9.588	(1.255)	1795	2.00000	1.948
	48 1,3-Dichloropropane	76	9.849	9.849	(0.912)	4394	2.00000	2.207
	49 Tetrachloroethene	166	9.970	9.970	(0.924)	2415	2.00000	1.979
	50 Chlorodibromomethane	129	10.171	10.171	(0.942)	2193	2.00000	1.827
	51 1,2-Dibromoethane	107	10.402	10.402	(1.362)	1924	2.00000	1.875(T)
*	52 d5-Chlorobenzene	117	10.794	10.794	(1.000)	120078	50.0000	
	53 Chlorobenzene	112	10.834	10.834	(1.004)	5348	2.00000	1.926
	54 Ethyl Benzene	91	10.864	10.864	(1.007)	10942	2.00000	2.116
	55 1,1,1,2-Tetrachloroethane	131	10.864	10.864	(1.007)	2076	2.00000	1.900
	56 m,p-xylene	106	10.944	10.944	(1.014)	6746	4.00000	3.555(Q)
	57 o-Xylene	106	11.437	11.437	(1.060)	3490	2.00000	1.813
	58 Styrene	104	11.467	11.467	(1.062)	5820	2.00000	1.860
	59 Isopropyl Benzene	105	11.819	11.819	(0.878)	10150	2.00000	2.125
	60 Bromoform	173	11.879	11.879	(0.882)	1397	2.00000	1.913
	61 1,1,2,2-Tetrachloroethane	83	12.000	12.000	(0.891)	2541	2.00000	1.974
$	62 4-Bromofluorobenzene	95	12.110	12.110	(1.122)	73713	50.0000	48.345
	63 1,2,3-Trichloropropane	110	12.160	12.160	(0.903)	487	2.00000	1.834(Q)

Compounds	QUANT SIG MASS	RT	EXP RT	REL RT	RESPONSE	AMOUNTS CAL-AMT (ug/Kg)	AMOUNTS ON-COL (ug/Kg)
65 Trans-1,4-Dichloro 2-Butene	53	12.211	12.211	(0.907)	1110	2.00000	2.130(QM)
66 N-Propyl Benzene	91	12.271	12.271	(0.911)	11446	2.00000	1.875
67 Bromobenzene	156	12.361	12.361	(0.918)	2230	2.00000	1.952
68 1,3,5-Trimethyl Benzene	105	12.442	12.442	(0.924)	7840	2.00000	2.066
69 2-Chloro Toluene	91	12.502	12.502	(0.928)	7346	2.00000	1.920
70 4-Chloro Toluene	91	12.542	12.542	(0.931)	8329	2.00000	2.052
71 T-Butyl Benzene	119	12.854	12.854	(0.954)	6555	2.00000	1.959
72 1,2,4-Trimethylbenzene	105	12.904	12.904	(0.958)	7714	2.00000	1.947
73 S-Butyl Benzene	105	13.095	13.095	(0.972)	10313	2.00000	2.012
74 4-Isopropyl Toluene	119	13.246	13.246	(0.984)	7426	2.00000	2.020
75 1,3-Dichlorobenzene	146	13.397	13.397	(0.995)	3835	2.00000	1.866
* 76 d4-1,4-Dichlorobenzene	152	13.467	13.467	(1.000)	61850	50.0000	
77 1,4-Dichlorobenzene	146	13.507	13.507	(1.003)	3699	2.00000	1.797
78 N-Butyl Benzene	91	13.718	13.718	(1.019)	7966	2.00000	1.848
$ 79 d4-1,2-Dichlorobenzene	152	13.919	13.919	(1.034)	54568	50.0000	50.519
80 1,2-Dichlorobenzene	146	13.949	13.949	(1.036)	3654	2.00000	1.898
81 1,2-Dibromo 3-Chloropropane	75	14.854	14.854	(1.103)	822	2.00000	2.412(Q)
82 1,2,4-Trichlorobenzene	180	15.899	15.899	(1.181)	2322	2.00000	1.822
83 Hexachloro 1,3-Butadiene	225	16.060	16.060	(1.193)	1682	2.00000	1.939
84 Naphthalene	128	16.231	16.231	(1.205)	5132	2.00000	2.182
85 1,2,3-Trichlorobenzene	180	16.522	16.522	(1.227)	2577	2.00000	2.226

QC Flag Legend

T - Target compound detected outside RT window.
Q - Qualifier signal failed the ratio test.
M - Compound response manually integrated.

Analytical Resources, Inc.

INTERNAL STANDARD COMPOUNDS
AREA AND RT SUMMARY

Instrument ID: finn5.i
Lab File ID: 0020921.d
Lab Smp Id: IC0921
Analysis Type: VOA
Quant Type: ISTD
Operator: PB
Method File: /chem1/finn5.i/21SEP10.b/s8260b.m
Misc Info: 10-

Calibration Date: 21-SEP-2010
Calibration Time: 15:55
Client Smp ID: VSTD002
Level: LOW
Sample Type: SOIL

Test Mode:
Use Initial Calibration Level 5.
If Continuing Cal. use Initial Cal. Level 5

COMPOUND	STANDARD	AREA LIMIT LOWER	AREA LIMIT UPPER	SAMPLE	%DIFF
23 Pentafluorobenzen	91870	45935	183740	94862	3.26
34 1,4-Difluorobenze	137983	68992	275966	136952	-0.75
52 d5-Chlorobenzene	123519	61760	247038	120078	-2.79
76 d4-1,4-Dichlorobe	67589	33794	135178	61850	-8.49

COMPOUND	STANDARD	RT LIMIT LOWER	RT LIMIT UPPER	SAMPLE	%DIFF
23 Pentafluorobenzen	6.63	6.13	7.13	6.63	0.00
34 1,4-Difluorobenze	7.65	7.15	8.15	7.64	-0.13
52 d5-Chlorobenzene	10.79	10.29	11.29	10.79	0.00
76 d4-1,4-Dichlorobe	13.48	12.98	13.98	13.47	-0.07

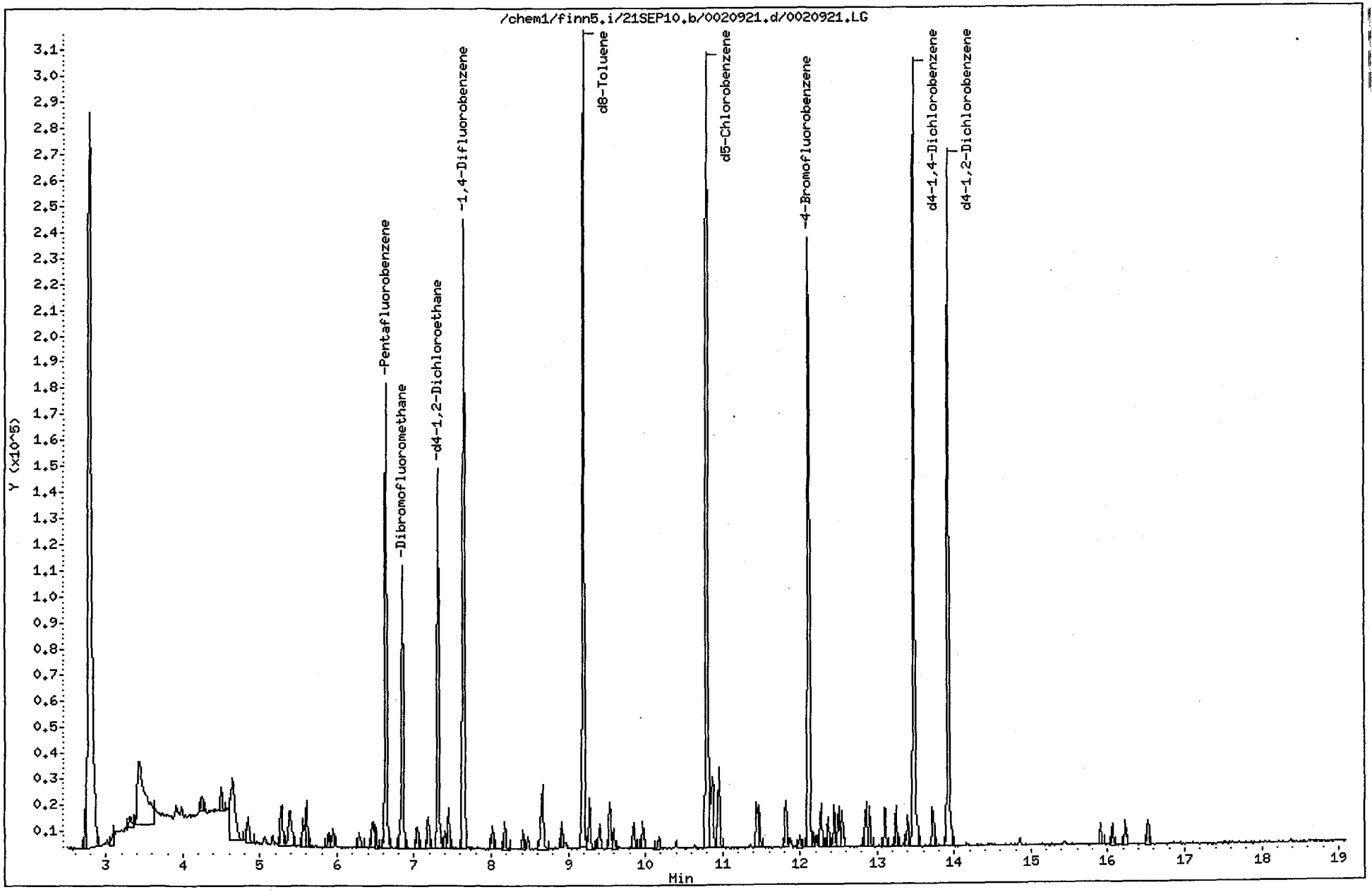
AREA UPPER LIMIT = +100% of internal standard area.
AREA LOWER LIMIT = - 50% of internal standard area.
RT UPPER LIMIT = + 0.50 minutes of internal standard RT.
RT LOWER LIMIT = - 0.50 minutes of internal standard RT.

Data File: /chem1/finn5.i/21SEP10.b/0020921.d
Date : 21-SEP-2010 17:15
Client ID: VSTD002
Sample Info: IC0921,5,5,0

Instrument: finn5.i

Operator: PB
Column diameter: 0.18

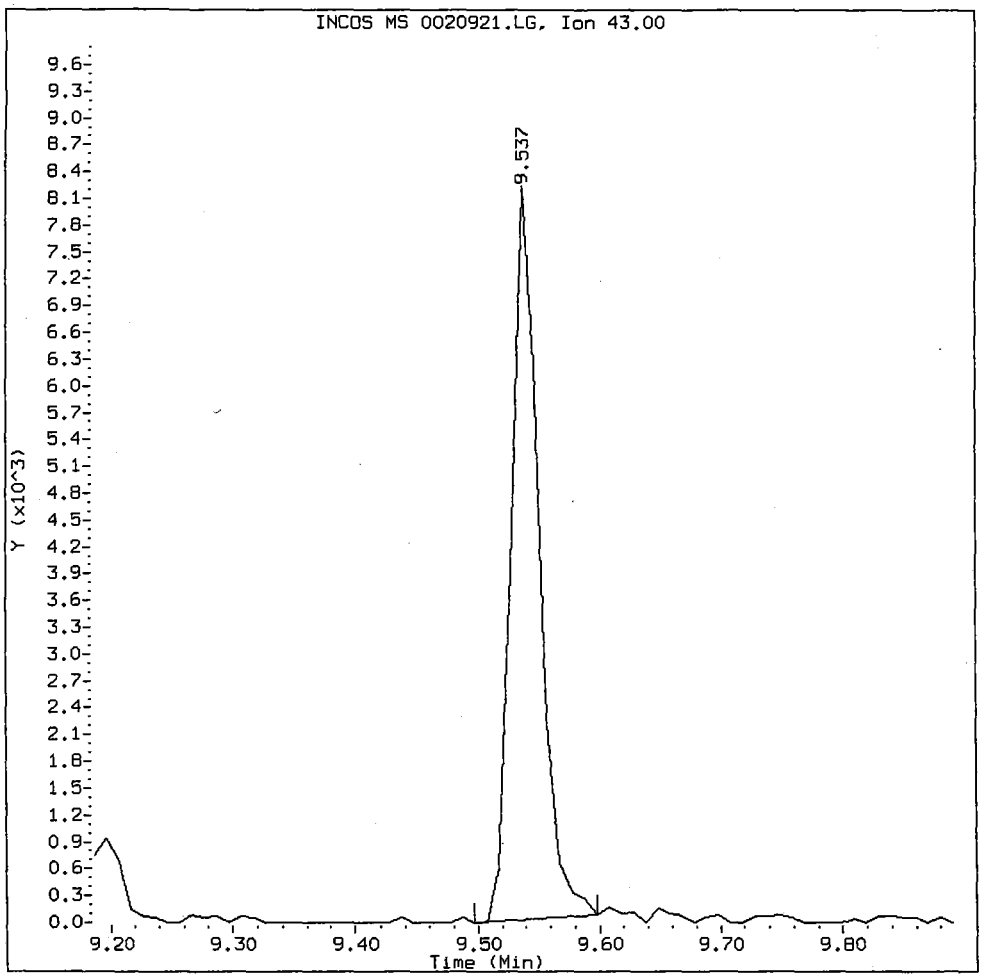
Column phase: Rtx502.2



RPB3 00100

IC0921, /chem1/finn5.i/21SEP10.b/0020921.d

2-Hexanone Amount: 10.68 Area: 13365



MANUAL INTEGRATION for 2-Hexanone

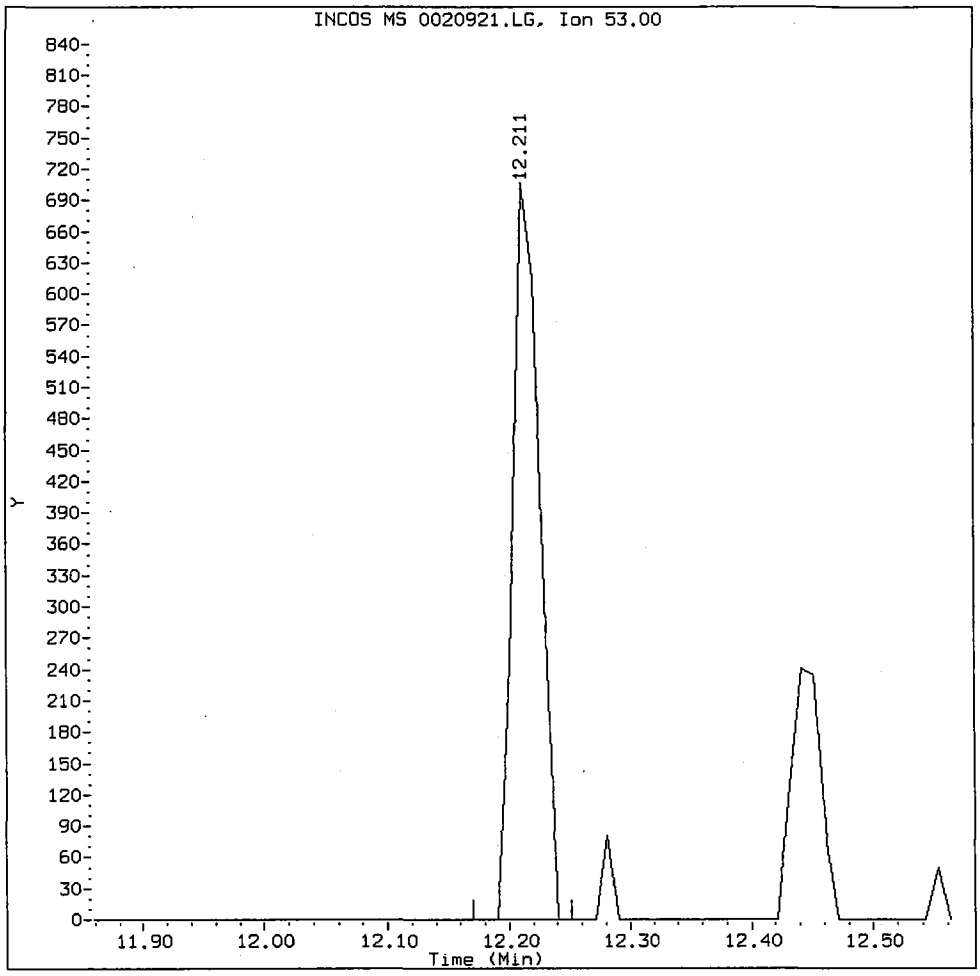
1. Baseline correction
2. Poor chromatography
3. Peak not found
4. Totals calculation

5. Other _____

Analyst: _____ Date: _____

IC0921, /chem1/finn5.i/21SEP10.b/0020921.d

Trans-1,4-Dichloro 2-Butene Amount: 2.13 Area: 1110



MANUAL INTEGRATION for Trans-1,4-Dichloro 2-Butene

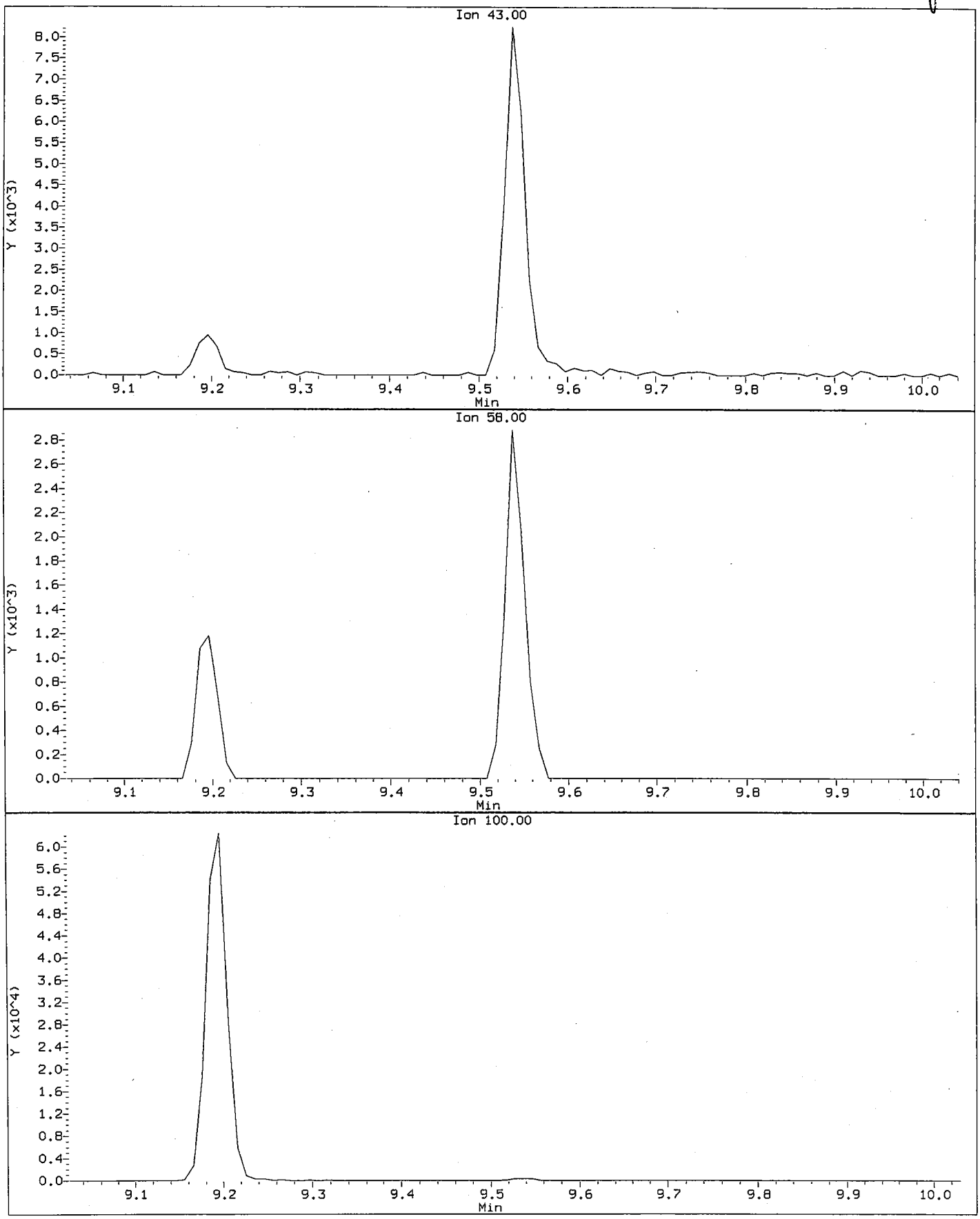
1. Baseline correction
2. Poor chromatography
3. Peak not found
4. Totals calculation

5. Other _____

Analyst: _____ Date: 9/21/10

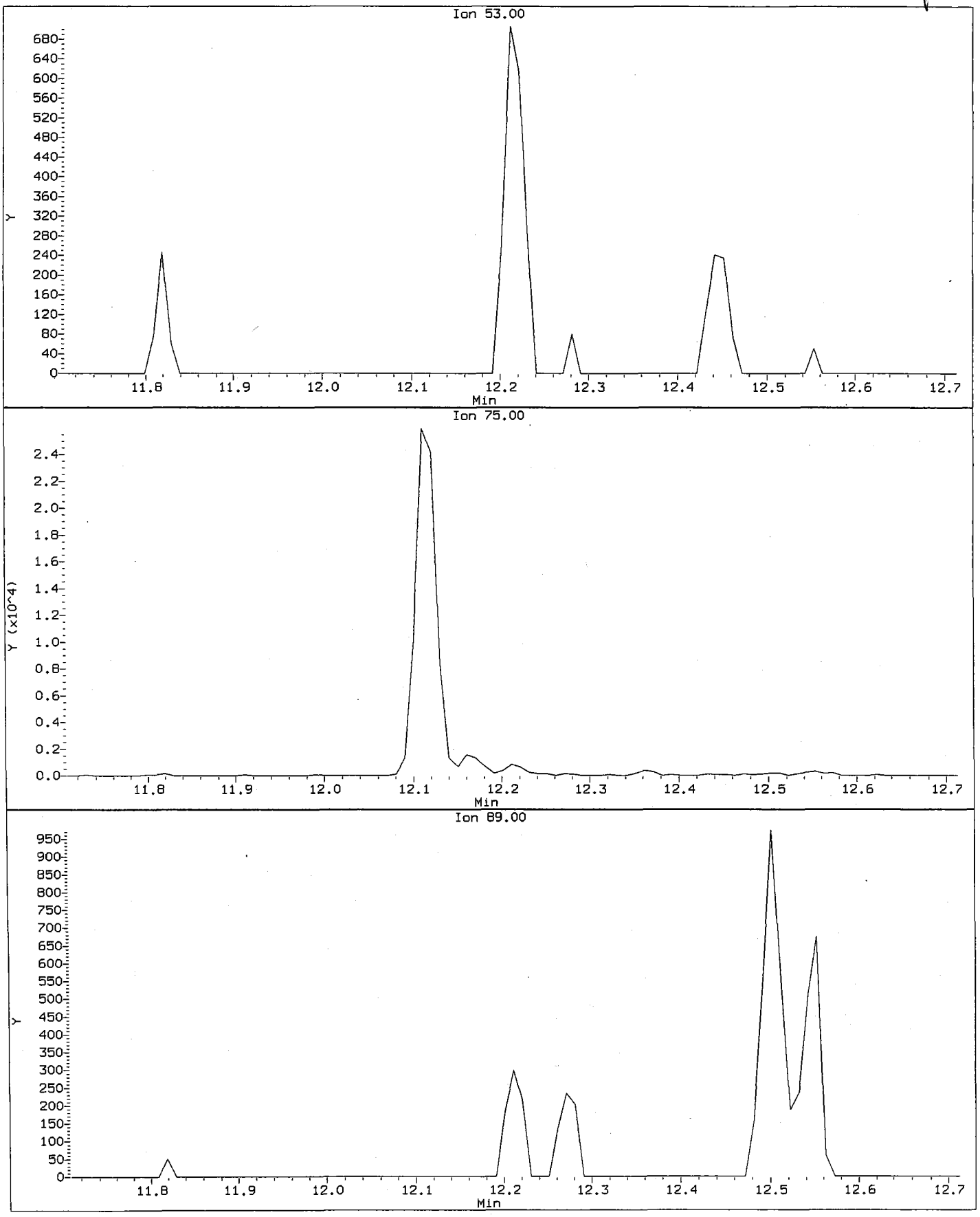
Data File: /chem1/finn5.i/21SEP10.b/0020921.d/0020921.LG
Injection Date: 21-SEP-2010 17:15
Instrument: finn5.i
Client Sample ID: VSTD002

Compound: 2-Hexanone
CAS Number:



Data File: /chem1/finn5.i/21SEP10.b/0020921.d/0020921.LG
Injection Date: 21-SEP-2010 17:15
Instrument: finn5.i
Client Sample ID: VSTD002

Compound: Trans-1,4-Dichloro 2-Butene
CAS Number:



Analytical Resources, Inc.

8260C

Data file : /chem1/finn5.i/21SEP10.b/0050921.d
Lab Smp Id: IC0921 Client Smp ID: VSTD005
Inj Date : 21-SEP-2010 16:48
Operator : PB Inst ID: finn5.i
Smp Info : IC0921,5,5,0
Misc Info : 10-
Comment :
Method : /chem1/finn5.i/21SEP10.b/s8260b.m
Meth Date : 22-Sep-2010 09:41 patrickb Quant Type: ISTD
Cal Date : 21-SEP-2010 16:48 Cal File: 0050921.d
Als bottle: 1 Calibration Sample, Level: 3
Dil Factor: 1.00000
Integrator: HP RTE Compound Sublist: voa.sub
Target Version: 3.50
Processing Host: cserv3

Concentration Formula: Amt * DF * Pv * 1 / (Sa * ((100 - M) / 100)) * CpndVaria

Name	Value	Description
DF	1.00000	Dilution Factor
Pv	5.00000	Purge Volume
Sa	5.00000	Sample Amount
M	0.00000	Moisture (%)

Cpnd Variable Local Compound Variable

Compounds	QUANT SIG MASS	RT	EXP RT	REL RT	RESPONSE	AMOUNTS CAL-AMT (ug/Kg)	ON-COL (ug/Kg)
1 Dichlorodifluoromethane	85	2.995	2.995	(0.453)	7271	5.00000	4.627
2 Chloromethane	50	3.306	3.306	(0.500)	17406	5.00000	4.749
3 Vinyl Chloride	62	3.407	3.407	(0.515)	19092	5.00000	5.228(Q)
4 Bromomethane	94	3.899	3.899	(0.590)	9527	5.00000	5.369
5 Chloroethane	64	3.970	3.970	(0.600)	8609	5.00000	5.525
6 Trichlorofluoromethane	101	4.231	4.231	(0.640)	13638	5.00000	5.633
7 Acrolein	56	4.613	4.613	(0.698)	8221	25.0000	30.126
8 112Trichloro122Trifluoroethane	101	4.633	4.633	(0.701)	9414	5.00000	5.236
9 Acetone	43	4.663	4.663	(0.705)	19205	25.0000	28.073
10 1,1-Dichloroethene	96	4.824	4.824	(0.729)	6870	5.00000	5.250
11 Bromoethane	108	5.045	5.045	(0.763)	5945	5.00000	5.442
12 Iodomethane	142	5.146	5.146	(0.778)	11187	5.00000	5.055
13 Methylene Chloride	84	5.266	5.266	(0.796)	10094	5.00000	5.502
14 Acrylonitrile	53	5.347	5.347	(0.808)	2770	5.00000	5.327(Q)

	Compounds	QUANT SIG MASS	RT	EXP RT	REL RT	RESPONSE	AMOUNTS CAL-AMT (ug/Kg)	AMOUNTS ON-COL (ug/Kg)
	16 Methyl tert-Butyl Ether	73	5.387	5.387	(0.815)	21159	5.00000	5.427(Q)
	15 Carbon Disulfide	76	5.367	5.367	(0.812)	28066	5.00000	5.160(Q)
	17 Trans-1,2-Dichloroethene	96	5.548	5.548	(0.839)	6738	5.00000	5.036
	18 Vinyl Acetate	43	5.869	5.869	(0.888)	19622	5.00000	5.226
	19 1,1-Dichloroethane	63	5.929	5.929	(0.897)	16335	5.00000	5.179
	20 2-Butanone	43	6.271	6.271	(0.948)	20707	25.0000	25.807
	21 2,2-Dichloropropane	77	6.452	6.452	(0.976)	12986	5.00000	5.043
	22 Cis-1,2-Dichloroethene	96	6.482	6.482	(0.980)	6412	5.00000	5.067
*	23 Pentafluorobenzene	168	6.613	6.613	(1.000)	87492	50.0000	
	24 Chloroform	83	6.633	6.633	(1.003)	13563	5.00000	5.143
	26 Bromochloromethane	128	6.794	6.794	(1.027)	2607	5.00000	4.628(Q)
$	25 Dibromofluoromethane	111	6.834	6.834	(1.033)	57099	50.0000	51.148(Q)
	27 1,1,1-Trichloroethane	97	7.025	7.025	(1.062)	10763	5.00000	4.947
	29 1,1-Dichloropropene	75	7.166	7.166	(0.939)	10948	5.00000	5.027
	30 Carbon Tetrachloride	117	7.286	7.286	(0.955)	9286	5.00000	5.086
$	31 d4-1,2-Dichloroethane	65	7.296	7.296	(1.103)	85291	50.0000	51.549
	32 1,2-Dichloroethane	62	7.387	7.387	(0.968)	11121	5.00000	5.128
	33 Benzene	78	7.437	7.437	(0.975)	24107	5.00000	5.257
*	34 1,4-Difluorobenzene	114	7.628	7.628	(1.000)	128943	50.0000	
	35 Trichloroethene	95	8.000	8.000	(1.049)	6757	5.00000	5.144
	36 1,2-Dichloropropane	63	8.161	8.161	(1.070)	8153	5.00000	5.085
	37 Bromodichloromethane	83	8.392	8.392	(1.100)	9382	5.00000	5.047
	39 Dibromomethane	93	8.462	8.462	(1.109)	4052	5.00000	5.269
	40 2-Chloroethyl Vinyl Ether	63	8.613	8.613	(1.129)	3364	5.00000	4.921(Q)
	41 4-Methyl-2-Pentanone	58	8.643	8.643	(1.133)	11986	25.0000	25.961
	42 Cis 1,3-dichloropropene	75	8.894	8.894	(1.166)	10877	5.00000	4.884
$	43 d8-Toluene	98	9.176	9.176	(1.203)	153628	50.0000	50.531
	44 Toluene	92	9.256	9.256	(1.213)	13955	5.00000	5.007
	45 Trans 1,3-Dichloropropene	75	9.387	9.387	(1.231)	10115	5.00000	5.012
	46 2-Hexanone	43	9.527	9.527	(0.884)	32470	25.0000	26.823(M)
	47 1,1,2-Trichloroethane	97	9.568	9.568	(1.254)	4348	5.00000	5.012
	48 1,3-Dichloropropane	76	9.829	9.829	(0.912)	9964	5.00000	5.176
	49 Tetrachloroethene	166	9.949	9.949	(0.924)	5737	5.00000	4.862
	50 Chlorodibromomethane	129	10.161	10.161	(0.943)	5659	5.00000	4.874
	51 1,2-Dibromoethane	107	10.382	10.382	(1.361)	4884	5.00000	5.055
*	52 d5-Chlorobenzene	117	10.774	10.774	(1.000)	116136	50.0000	
	53 Chlorobenzene	112	10.824	10.824	(1.005)	13303	5.00000	4.953
	54 Ethyl Benzene	91	10.854	10.854	(1.007)	25948	5.00000	5.188
	55 1,1,1,2-Tetrachloroethane	131	10.844	10.844	(1.007)	5237	5.00000	4.955
	56 m,p-xylene	106	10.934	10.934	(1.015)	17488	10.0000	9.528
	57 o-Xylene	106	11.417	11.417	(1.060)	8492	5.00000	4.562
	58 Styrene	104	11.447	11.447	(1.062)	13880	5.00000	4.586
	59 Isopropyl Benzene	105	11.799	11.799	(0.877)	23382	5.00000	5.056
	60 Bromoform	173	11.859	11.859	(0.881)	3513	5.00000	4.968
	61 1,1,2,2-Tetrachloroethane	83	11.980	11.980	(0.890)	6775	5.00000	5.435
$	62 4-Bromofluorobenzene	95	12.100	12.100	(1.123)	72528	50.0000	49.183
	63 1,2,3-Trichloropropane	110	12.150	12.150	(0.903)	1352	5.00000	5.258(Q)

Compounds	QUANT SIG MASS	RT	EXP RT	REL RT	RESPONSE	AMOUNTS CAL-AMT (ug/Kg)	AMOUNTS ON-COL (ug/Kg)
65 Trans-1,4-Dichloro 2-Butene	53	12.201	12.201	(0.907)	2700	5.00000	5.350
66 N-Propyl Benzene	91	12.251	12.251	(0.910)	28553	5.00000	4.832
67 Bromobenzene	156	12.341	12.341	(0.917)	5543	5.00000	5.012
68 1,3,5-Trimethyl Benzene	105	12.422	12.422	(0.923)	18812	5.00000	5.120
69 2-Chloro Toluene	91	12.482	12.482	(0.928)	19798	5.00000	5.344
70 4-Chloro Toluene	91	12.532	12.532	(0.931)	18079	5.00000	4.602
71 T-Butyl Benzene	119	12.834	12.834	(0.954)	16052	5.00000	4.955
72 1,2,4-Trimethylbenzene	105	12.884	12.884	(0.957)	17414	5.00000	4.539
73 S-Butyl Benzene	105	13.085	13.085	(0.972)	24733	5.00000	4.984
74 4-Isopropyl Toluene	119	13.226	13.226	(0.983)	17707	5.00000	4.974
75 1,3-Dichlorobenzene	146	13.377	13.377	(0.994)	9098	5.00000	4.573
* 76 d4-1,4-Dichlorobenzene	152	13.457	13.457	(1.000)	59882	50.0000	
77 1,4-Dichlorobenzene	146	13.497	13.497	(1.003)	9177	5.00000	4.606
78 N-Butyl Benzene	91	13.708	13.708	(1.019)	20112	5.00000	4.820
$ 79 d4-1,2-Dichlorobenzene	152	13.899	13.899	(1.033)	53229	50.0000	50.899
80 1,2-Dichlorobenzene	146	13.929	13.929	(1.035)	8686	5.00000	4.661
81 1,2-Dibromo 3-Chloropropane	75	14.834	14.834	(1.102)	1947	5.00000	5.902(Q)
82 1,2,4-Trichlorobenzene	180	15.889	15.889	(1.181)	5719	5.00000	4.636
83 Hexachloro 1,3-Butadiene	225	16.040	16.040	(1.192)	4186	5.00000	4.985
84 Naphthalene	128	16.211	16.211	(1.205)	11777	5.00000	5.171
85 1,2,3-Trichlorobenzene	180	16.502	16.502	(1.226)	5700	5.00000	5.087

QC Flag Legend

Q - Qualifier signal failed the ratio test.
M - Compound response manually integrated.

Analytical Resources, Inc.

INTERNAL STANDARD COMPOUNDS
AREA AND RT SUMMARY

Instrument ID: finn5.i
Lab File ID: 0050921.d
Lab Smp Id: IC0921
Analysis Type: VOA
Quant Type: ISTD
Operator: PB
Method File: /chem1/finn5.i/21SEP10.b/s8260b.m
Misc Info: 10-

Calibration Date: 21-SEP-2010
Calibration Time: 15:55
Client Smp ID: VSTD005
Level: LOW
Sample Type: SOIL

Test Mode:
Use Initial Calibration Level 5.
If Continuing Cal. use Initial Cal. Level 5

COMPOUND	STANDARD	AREA LIMIT LOWER	AREA LIMIT UPPER	SAMPLE	%DIFF
23 Pentafluorobenzen	91870	45935	183740	87492	-4.77
34 1,4-Difluorobenze	137983	68992	275966	128943	-6.55
52 d5-Chlorobenzene	123519	61760	247038	116136	-5.98
76 d4-1,4-Dichlorobe	67589	33794	135178	59882	-11.40

COMPOUND	STANDARD	RT LIMIT LOWER	RT LIMIT UPPER	SAMPLE	%DIFF
23 Pentafluorobenzen	6.63	6.13	7.13	6.61	-0.30
34 1,4-Difluorobenze	7.65	7.15	8.15	7.63	-0.26
52 d5-Chlorobenzene	10.79	10.29	11.29	10.77	-0.19
76 d4-1,4-Dichlorobe	13.48	12.98	13.98	13.46	-0.15

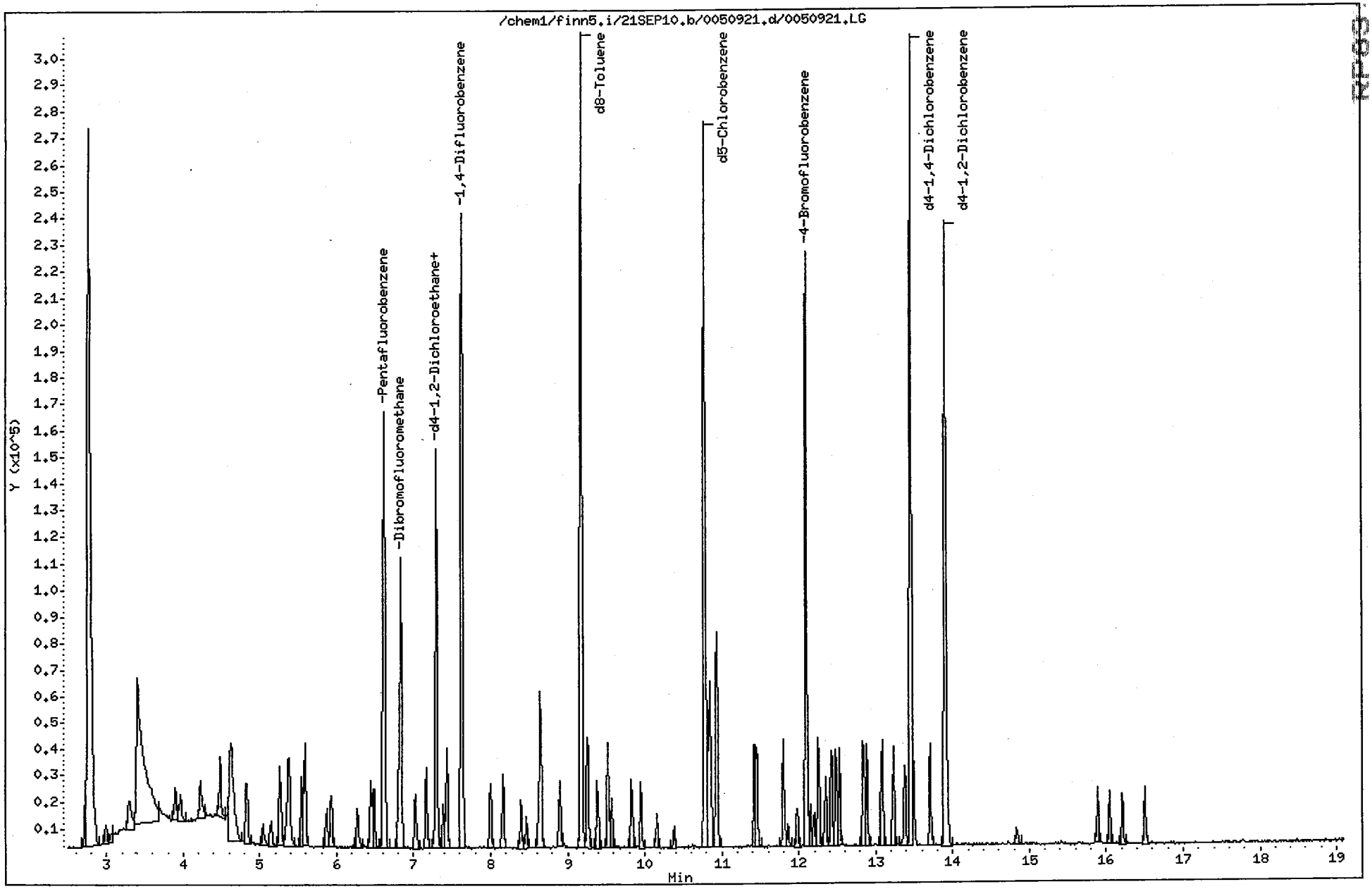
AREA UPPER LIMIT = +100% of internal standard area.
AREA LOWER LIMIT = - 50% of internal standard area.
RT UPPER LIMIT = + 0.50 minutes of internal standard RT.
RT LOWER LIMIT = - 0.50 minutes of internal standard RT.

Data File: /chem1/finn5.i/21SEP10.b/0050921.d
Date : 21-SEP-2010 16:48
Client ID: VSTD005
Sample Info: IC0921,5,5,0

Instrument: finn5.i

Operator: PB
Column diameter: 0.18

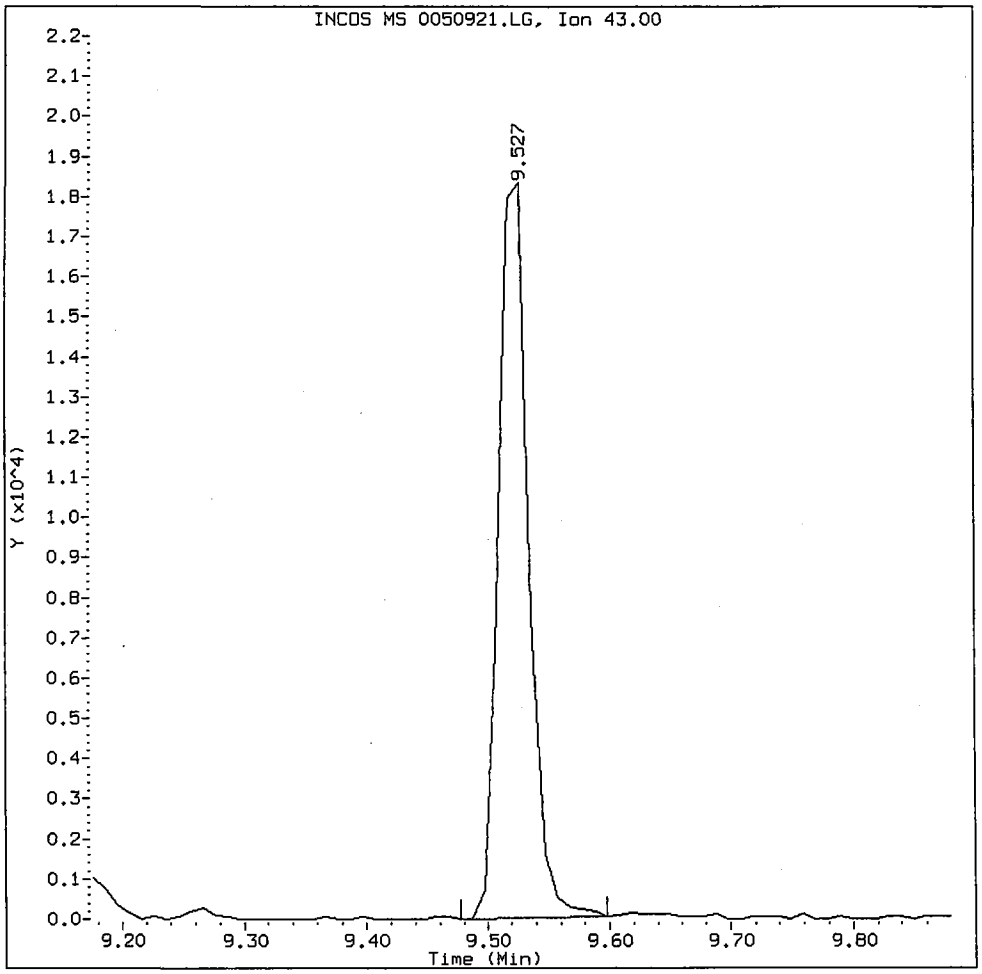
Column phase: Rtx502.2



RPD: 00109

IC0921, /chem1/finn5.i/21SEP10.b/0050921.d

2-Hexanone Amount: 26.82 Area: 32470



MANUAL INTEGRATION for 2-Hexanone

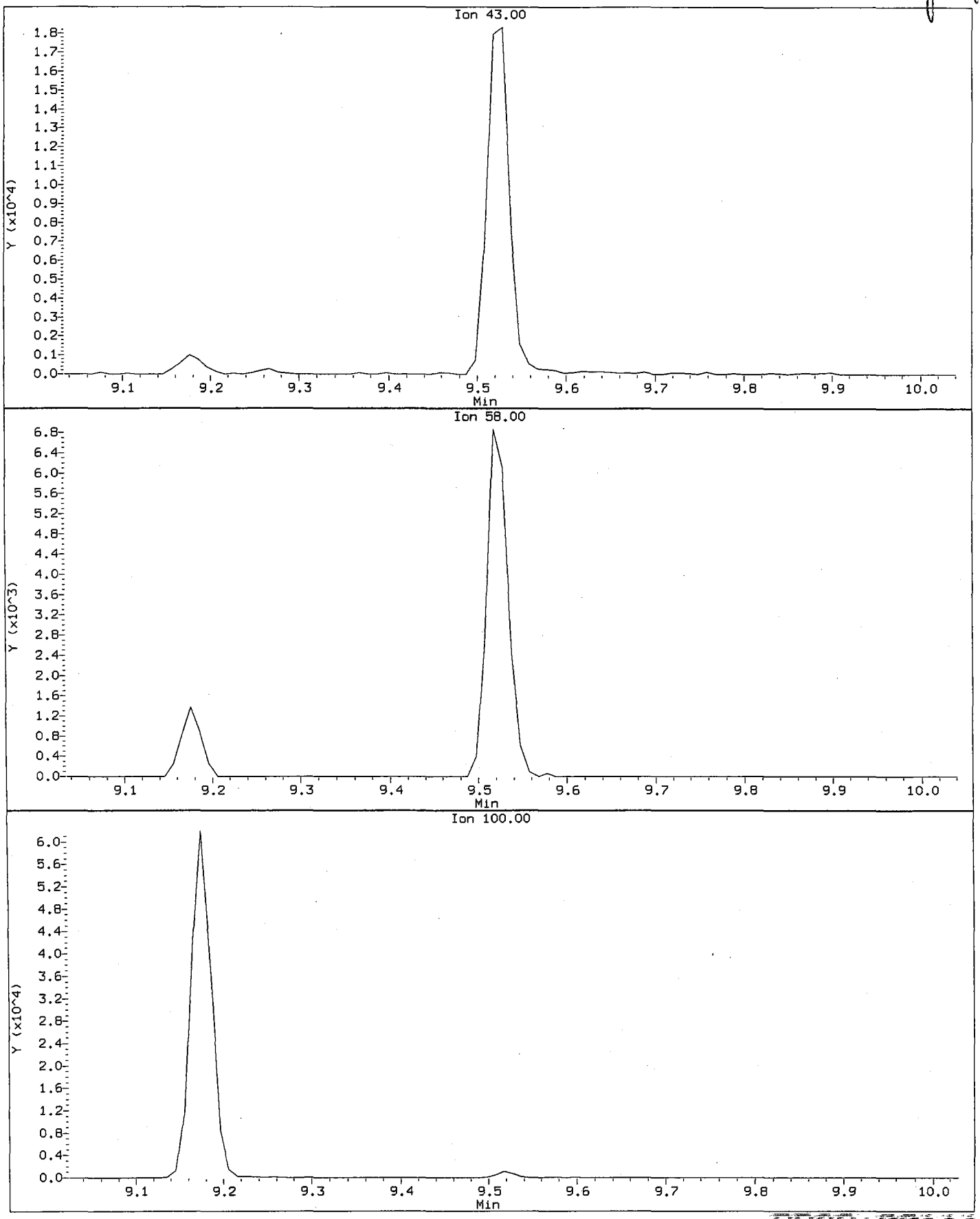
1. Baseline correction
2. Poor chromatography
3. Peak not found
4. Totals calculation

5. Other _____

Analyst: _____ Date: 9/21/10

Data File: /chem1/finn5.i/21SEP10.b/0050921.d/0050921.LG
Injection Date: 21-SEP-2010 16:48
Instrument: finn5.i
Client Sample ID: VSTD005

Compound: 2-Hexanone
CAS Number:



Analytical Resources, Inc.

8260C

Data file : /chem1/finn5.i/21SEP10.b/0100921.d
Lab Smp Id: IC0921 Client Smp ID: VSTD010
Inj Date : 21-SEP-2010 16:22
Operator : PB Inst ID: finn5.i
Smp Info : IC0921,5,5,0
Misc Info : 10-
Comment :
Method : /chem1/finn5.i/21SEP10.b/s8260b.m
Meth Date : 22-Sep-2010 09:41 patrickb Quant Type: ISTD
Cal Date : 21-SEP-2010 16:22 Cal File: 0100921.d
Als bottle: 1 Calibration Sample, Level: 4
Dil Factor: 1.00000
Integrator: HP RTE Compound Sublist: voa.sub
Target Version: 3.50
Processing Host: cserv3

Concentration Formula: Amt * DF * Pv * 1 / (Sa * ((100 - M) / 100)) * CpndVaria

Name	Value	Description
DF	1.00000	Dilution Factor
Pv	5.00000	Purge Volume
Sa	5.00000	Sample Amount
M	0.00000	Moisture (%)

Cpnd Variable Local Compound Variable

Compounds	QUANT SIG MASS	RT	EXP RT	REL RT	RESPONSE	AMOUNTS CAL-AMT (ug/Kg)	ON-COL (ug/Kg)
1 Dichlorodifluoromethane	85	2.995	2.995	(0.453)	15039	10.0000	10.067
2 Chloromethane	50	3.306	3.306	(0.500)	40775	10.0000	11.701
3 Vinyl Chloride	62	3.407	3.407	(0.515)	43553	10.0000	12.544(Q)
4 Bromomethane	94	3.899	3.899	(0.590)	15581	10.0000	9.392
5 Chloroethane	64	3.960	3.960	(0.599)	16033	10.0000	10.823
6 Trichlorofluoromethane	101	4.231	4.231	(0.640)	24315	10.0000	10.564
7 Acrolein	56	4.613	4.613	(0.698)	14131	50.0000	54.468
8 112Trichloro122Trifluoroethane	101	4.623	4.623	(0.699)	19238	10.0000	11.255
9 Acetone	43	4.673	4.673	(0.707)	33160	50.0000	50.985
10 1,1-Dichloroethene	96	4.824	4.824	(0.729)	13586	10.0000	10.920
11 Bromoethane	108	5.045	5.045	(0.763)	11786	10.0000	11.347
12 Iodomethane	142	5.146	5.146	(0.778)	22435	10.0000	10.663
13 Methylene Chloride	84	5.256	5.256	(0.795)	18147	10.0000	10.404
14 Acrylonitrile	53	5.347	5.347	(0.808)	5478	10.0000	11.082(Q)

	Compounds	QUANT SIG MASS	RT	EXP RT	REL RT	RESPONSE	AMOUNTS CAL-AMT (ug/Kg)	AMOUNTS ON-COL (ug/Kg)
	16 Methyl tert-Butyl Ether	73	5.387	5.387	(0.815)	41045	10.0000	11.073(Q)
	15 Carbon Disulfide	76	5.367	5.367	(0.812)	56922	10.0000	11.008(Q)
	17 Trans-1,2-Dichloroethene	96	5.548	5.548	(0.839)	13671	10.0000	10.747
	18 Vinyl Acetate	43	5.869	5.869	(0.888)	39886	10.0000	11.173
	19 1,1-Dichloroethane	63	5.929	5.929	(0.897)	33455	10.0000	11.156
	20 2-Butanone	43	6.271	6.271	(0.948)	41158	50.0000	53.953
	21 2,2-Dichloropropane	77	6.452	6.452	(0.976)	26125	10.0000	10.672
	22 Cis-1,2-Dichloroethene	96	6.482	6.482	(0.980)	13427	10.0000	11.161
*	23 Pentafluorobenzene	168	6.613	6.613	(1.000)	83180	50.0000	
	24 Chloroform	83	6.633	6.633	(1.003)	27551	10.0000	10.989
	26 Bromochloromethane	128	6.794	6.794	(1.027)	6178	10.0000	11.536
$	25 Dibromofluoromethane	111	6.834	6.834	(1.033)	53745	50.0000	50.639(Q)
	27 1,1,1-Trichloroethane	97	7.025	7.025	(1.062)	22562	10.0000	10.907
	29 1,1-Dichloropropene	75	7.166	7.166	(0.939)	22876	10.0000	10.802
	30 Carbon Tetrachloride	117	7.276	7.276	(0.954)	19446	10.0000	10.953
$	31 d4-1,2-Dichloroethane	65	7.296	7.296	(1.103)	81558	50.0000	51.848
	32 1,2-Dichloroethane	62	7.387	7.387	(0.968)	23365	10.0000	11.081
	33 Benzene	78	7.427	7.427	(0.974)	52634	10.0000	11.805
*	34 1,4-Difluorobenzene	114	7.628	7.628	(1.000)	125379	50.0000	
	35 Trichloroethene	95	8.000	8.000	(1.049)	13765	10.0000	10.776
	36 1,2-Dichloropropane	63	8.161	8.161	(1.070)	16922	10.0000	10.855
	37 Bromodichloromethane	83	8.392	8.392	(1.100)	20424	10.0000	11.299
	39 Dibromomethane	93	8.462	8.462	(1.109)	8006	10.0000	10.706
	40 2-Chloroethyl Vinyl Ether	63	8.613	8.613	(1.129)	7179	10.0000	10.800(Q)
	41 4-Methyl-2-Pentanone	58	8.643	8.643	(1.133)	24223	50.0000	53.957
	42 Cis 1,3-dichloropropene	75	8.894	8.894	(1.166)	23697	10.0000	10.944
$	43 d8-Toluene	98	9.176	9.176	(1.203)	149143	50.0000	50.450
	44 Toluene	92	9.256	9.256	(1.213)	28698	10.0000	10.589
	45 Trans 1,3-Dichloropropene	75	9.387	9.387	(1.231)	20811	10.0000	10.606
	46 2-Hexanone	43	9.517	9.517	(0.883)	65613	50.0000	55.213
	47 1,1,2-Trichloroethane	97	9.568	9.568	(1.254)	9175	10.0000	10.878
	48 1,3-Dichloropropane	76	9.829	9.829	(0.912)	19576	10.0000	10.358
	49 Tetrachloroethene	166	9.949	9.949	(0.924)	12079	10.0000	10.427
	50 Chlorodibromomethane	129	10.150	10.150	(0.942)	12095	10.0000	10.612
	51 1,2-Dibromoethane	107	10.382	10.382	(1.361)	10388	10.0000	11.057
*	52 d5-Chlorobenzene	117	10.774	10.774	(1.000)	114010	50.0000	
	53 Chlorobenzene	112	10.814	10.814	(1.004)	28597	10.0000	10.845
	54 Ethyl Benzene	91	10.854	10.854	(1.007)	55802	10.0000	11.364
	55 1,1,1,2-Tetrachloroethane	131	10.844	10.844	(1.007)	11156	10.0000	10.752
	56 m,p-xylene	106	10.934	10.934	(1.015)	38640	20.0000	21.444
	57 o-Xylene	106	11.417	11.417	(1.060)	18950	10.0000	10.370
	58 Styrene	104	11.447	11.447	(1.062)	31378	10.0000	10.561
	59 Isopropyl Benzene	105	11.799	11.799	(0.877)	51973	10.0000	11.279
	60 Bromoform	173	11.859	11.859	(0.881)	7512	10.0000	10.662
	61 1,1,2,2-Tetrachloroethane	83	11.980	11.980	(0.890)	13662	10.0000	11.000
$	62 4-Bromofluorobenzene	95	12.100	12.100	(1.123)	70689	50.0000	48.829
	63 1,2,3-Trichloropropane	110	12.150	12.150	(0.903)	2946	10.0000	11.498

Compounds	QUANT SIG MASS	RT	EXP RT	REL RT	RESPONSE	AMOUNTS CAL-AMT (ug/Kg)	AMOUNTS ON-COL (ug/Kg)
65 Trans-1,4-Dichloro 2-Butene	53	12.201	12.201	(0.907)	5660	10.0000	11.257
66 N-Propyl Benzene	91	12.251	12.251	(0.910)	63757	10.0000	10.828
67 Bromobenzene	156	12.341	12.341	(0.917)	12029	10.0000	10.915
68 1,3,5-Trimethyl Benzene	105	12.422	12.422	(0.923)	41713	10.0000	11.394
69 2-Chloro Toluene	91	12.482	12.482	(0.928)	40211	10.0000	10.892
70 4-Chloro Toluene	91	12.532	12.532	(0.931)	45963	10.0000	11.741
71 T-Butyl Benzene	119	12.834	12.834	(0.954)	36531	10.0000	11.317
72 1,2,4-Trimethylbenzene	105	12.884	12.884	(0.957)	40978	10.0000	10.720
73 S-Butyl Benzene	105	13.085	13.085	(0.972)	56735	10.0000	11.475
74 4-Isopropyl Toluene	119	13.226	13.226	(0.983)	40941	10.0000	11.543
75 1,3-Dichlorobenzene	146	13.377	13.377	(0.994)	21849	10.0000	11.021
* 76 d4-1,4-Dichlorobenzene	152	13.457	13.457	(1.000)	59666	50.0000	
77 1,4-Dichlorobenzene	146	13.497	13.497	(1.003)	21480	10.0000	10.820
78 N-Butyl Benzene	91	13.708	13.708	(1.019)	46989	10.0000	11.301
$ 79 d4-1,2-Dichlorobenzene	152	13.899	13.899	(1.033)	53259	50.0000	51.112
80 1,2-Dichlorobenzene	146	13.929	13.929	(1.035)	20580	10.0000	11.083
81 1,2-Dibromo 3-Chloropropane	75	14.834	14.834	(1.102)	3724	10.0000	11.330
82 1,2,4-Trichlorobenzene	180	15.879	15.879	(1.180)	15109	10.0000	12.292
83 Hexachloro 1,3-Butadiene	225	16.040	16.040	(1.192)	10110	10.0000	12.084
84 Naphthalene	128	16.211	16.211	(1.205)	30164	10.0000	13.292
85 1,2,3-Trichlorobenzene	180	16.502	16.502	(1.226)	14418	10.0000	12.913

QC Flag Legend

Q - Qualifier signal failed the ratio test.

Analytical Resources, Inc.

INTERNAL STANDARD COMPOUNDS
AREA AND RT SUMMARY

Instrument ID: finn5.i
Lab File ID: 0100921.d
Lab Smp Id: IC0921
Analysis Type: VOA
Quant Type: ISTD
Operator: PB
Method File: /chem1/finn5.i/21SEP10.b/s8260b.m
Misc Info: 10-

Calibration Date: 21-SEP-2010
Calibration Time: 15:55
Client Smp ID: VSTD010
Level: LOW
Sample Type: SOIL

Test Mode:
Use Initial Calibration Level 5.
If Continuing Cal. use Initial Cal. Level 5

COMPOUND	STANDARD	AREA LIMIT LOWER	AREA LIMIT UPPER	SAMPLE	%DIFF
23 Pentafluorobenzen	91870	45935	183740	83180	-9.46
34 1,4-Difluorobenze	137983	68992	275966	125379	-9.13
52 d5-Chlorobenzene	123519	61760	247038	114010	-7.70
76 d4-1,4-Dichlorobe	67589	33794	135178	59666	-11.72

COMPOUND	STANDARD	RT LIMIT LOWER	RT LIMIT UPPER	SAMPLE	%DIFF
23 Pentafluorobenzen	6.63	6.13	7.13	6.61	-0.30
34 1,4-Difluorobenze	7.65	7.15	8.15	7.63	-0.26
52 d5-Chlorobenzene	10.79	10.29	11.29	10.77	-0.19
76 d4-1,4-Dichlorobe	13.48	12.98	13.98	13.46	-0.15

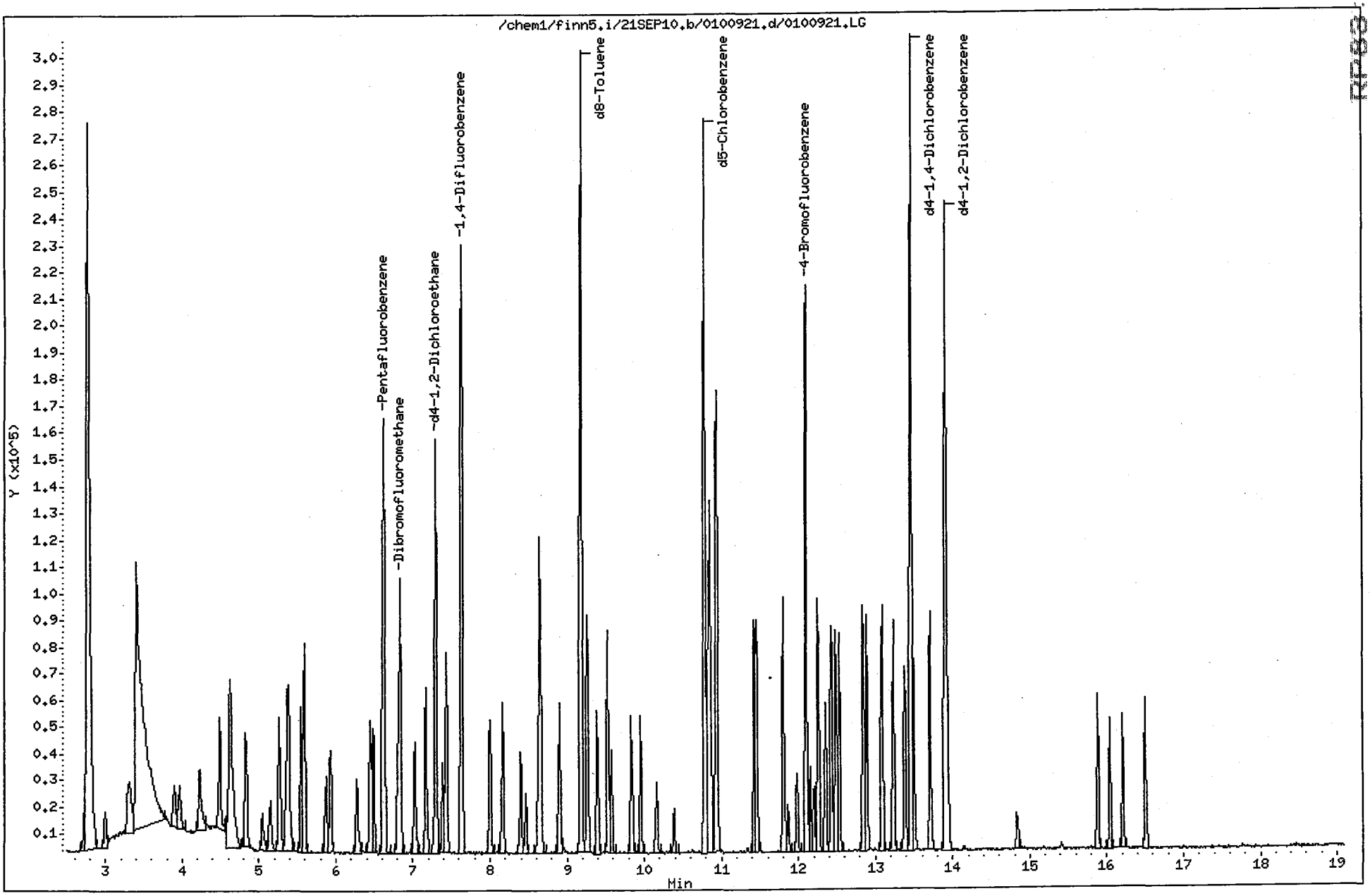
AREA UPPER LIMIT = +100% of internal standard area.
AREA LOWER LIMIT = - 50% of internal standard area.
RT UPPER LIMIT = + 0.50 minutes of internal standard RT.
RT LOWER LIMIT = - 0.50 minutes of internal standard RT.

Data File: /chem1/finn5.i/21SEP10.b/0100921.d
Date : 21-SEP-2010 16:22
Client ID: VSTD010
Sample Info: IC0921,5,5,0

Instrument: finn5.i

Operator: PB
Column diameter: 0.18

Column phase: Rtx502.2



RP83 00116

Analytical Resources, Inc.

8260C

Data file : /chem1/finn5.i/21SEP10.b/0500921.d
Lab Smp Id: IC0921 Client Smp ID: VSTD050
Inj Date : 21-SEP-2010 15:55
Operator : PB Inst ID: finn5.i
Smp Info : IC0921,5,5,0
Misc Info : 10-
Comment :
Method : /chem1/finn5.i/21SEP10.b/s8260b.m
Meth Date : 22-Sep-2010 09:41 patrickb Quant Type: ISTD
Cal Date : 21-SEP-2010 15:55 Cal File: 0500921.d
Als bottle: 1 Calibration Sample, Level: 5
Dil Factor: 1.00000
Integrator: HP RTE Compound Sublist: voa.sub
Target Version: 3.50
Processing Host: cserv3

Concentration Formula: Amt * DF * Pv * 1 / (Sa * ((100 - M) / 100)) * CpndVaria

Name	Value	Description
DF	1.00000	Dilution Factor
Pv	5.00000	Purge Volume
Sa	5.00000	Sample Amount
M	0.00000	Moisture (%)

Cpnd Variable Local Compound Variable

Compounds	QUANT SIG MASS	RT	EXP RT	REL RT	RESPONSE	AMOUNTS CAL-AMT (ug/Kg)	ON-COL (ug/Kg)
1 Dichlorodifluoromethane	85	3.015	3.015	(0.455)	82533	50.0000	50.021
2 Chloromethane	50	3.316	3.316	(0.500)	184651	50.0000	47.977
3 Vinyl Chloride	62	3.427	3.427	(0.517)	181289	50.0000	47.274
4 Bromomethane	94	3.919	3.919	(0.591)	84213	50.0000	53.098
5 Chloroethane	64	3.990	3.990	(0.602)	83791	50.0000	51.214
6 Trichlorofluoromethane	101	4.251	4.251	(0.641)	134833	50.0000	53.040
7 Acrolein	56	4.633	4.633	(0.698)	73774	250.000	257.46
8 112Trichloro122Trifluoroethane	101	4.653	4.653	(0.702)	96841	50.0000	51.298
9 Acetone	43	4.693	4.693	(0.708)	165968	250.000	231.04
10 1,1-Dichloroethene	96	4.854	4.854	(0.732)	72286	50.0000	52.605
11 Bromoethane	108	5.065	5.065	(0.764)	59584	50.0000	51.940
12 Iodomethane	142	5.166	5.166	(0.779)	119397	50.0000	51.379
13 Methylene Chloride	84	5.286	5.286	(0.797)	93568	50.0000	48.568
14 Acrylonitrile	53	5.367	5.367	(0.809)	28392	50.0000	52.002

	Compounds	QUANT SIG MASS	RT	EXP RT	REL RT	RESPONSE	AMOUNTS CAL-AMT (ug/Kg)	AMOUNTS ON-COL (ug/Kg)
	16 Methyl tert-Butyl Ether	73	5.407	5.407	(0.815)	202543	50.0000	49.474
	15 Carbon Disulfide	76	5.387	5.387	(0.812)	287644	50.0000	50.366
	17 Trans-1,2-Dichloroethene	96	5.568	5.568	(0.839)	68934	50.0000	49.063
	18 Vinyl Acetate	43	5.889	5.889	(0.888)	200917	50.0000	50.958
	19 1,1-Dichloroethane	63	5.950	5.950	(0.897)	161004	50.0000	48.611
	20 2-Butanone	43	6.291	6.291	(0.948)	211092	250.000	250.54
	21 2,2-Dichloropropane	77	6.472	6.472	(0.976)	128153	50.0000	47.397
	22 Cis-1,2-Dichloroethene	96	6.512	6.512	(0.982)	64513	50.0000	48.553
*	23 Pentafluorobenzene	168	6.633	6.633	(1.000)	91870	50.0000	
	24 Chloroform	83	6.653	6.653	(1.003)	135098	50.0000	48.787
	26 Bromochloromethane	128	6.824	6.824	(1.029)	30687	50.0000	51.881
$	25 Dibromofluoromethane	111	6.854	6.854	(1.033)	57230	50.0000	48.822
	27 1,1,1-Trichloroethane	97	7.045	7.045	(1.062)	112428	50.0000	49.211
	29 1,1-Dichloropropene	75	7.186	7.186	(0.940)	112165	50.0000	48.127
	30 Carbon Tetrachloride	117	7.306	7.306	(0.955)	96190	50.0000	49.231
$	31 d4-1,2-Dichloroethane	65	7.316	7.316	(1.103)	85767	50.0000	49.367
	32 1,2-Dichloroethane	62	7.407	7.407	(0.968)	113774	50.0000	49.029
	33 Benzene	78	7.457	7.457	(0.975)	246937	50.0000	50.324
*	34 1,4-Difluorobenzene	114	7.648	7.648	(1.000)	137983	50.0000	
	35 Trichloroethene	95	8.020	8.020	(1.049)	69243	50.0000	49.256
	36 1,2-Dichloropropane	63	8.181	8.181	(1.070)	80877	50.0000	47.140
	37 Bromodichloromethane	83	8.412	8.412	(1.100)	98624	50.0000	49.577
	39 Dibromomethane	93	8.482	8.482	(1.109)	40586	50.0000	49.318
	40 2-Chloroethyl Vinyl Ether	63	8.633	8.633	(1.129)	36479	50.0000	49.864
	41 4-Methyl-2-Pentanone	58	8.663	8.663	(1.133)	119388	250.000	241.65
	42 Cis 1,3-dichloropropene	75	8.914	8.914	(1.166)	116732	50.0000	48.986
$	43 d8-Toluene	98	9.196	9.196	(1.202)	161778	50.0000	49.725
	44 Toluene	92	9.276	9.276	(1.213)	139771	50.0000	46.863
	45 Trans 1,3-Dichloropropene	75	9.407	9.407	(1.230)	104518	50.0000	48.400
	46 2-Hexanone	43	9.547	9.547	(0.885)	322502	250.000	250.49
	47 1,1,2-Trichloroethane	97	9.588	9.588	(1.254)	44956	50.0000	48.430
	48 1,3-Dichloropropane	76	9.849	9.849	(0.912)	95809	50.0000	46.792
	49 Tetrachloroethene	166	9.970	9.970	(0.924)	59026	50.0000	47.031
	50 Chlorodibromomethane	129	10.181	10.181	(0.943)	61393	50.0000	49.719
	51 1,2-Dibromoethane	107	10.402	10.402	(1.360)	51039	50.0000	49.363
*	52 d5-Chlorobenzene	117	10.794	10.794	(1.000)	123519	50.0000	
	53 Chlorobenzene	112	10.844	10.844	(1.005)	139129	50.0000	48.701
	54 Ethyl Benzene	91	10.874	10.874	(1.007)	276313	50.0000	51.940
	55 1,1,1,2-Tetrachloroethane	131	10.864	10.864	(1.007)	53000	50.0000	47.149
	56 m,p-xylene	106	10.954	10.954	(1.015)	195826	100.000	100.31
	57 o-Xylene	106	11.437	11.437	(1.060)	98109	50.0000	49.554
	58 Styrene	104	11.467	11.467	(1.062)	160116	50.0000	49.743
	59 Isopropyl Benzene	105	11.819	11.819	(0.877)	262545	50.0000	50.299
	60 Bromoform	173	11.879	11.879	(0.881)	39933	50.0000	50.032
	61 1,1,2,2-Tetrachloroethane	83	12.000	12.000	(0.890)	68776	50.0000	48.883
$	62 4-Bromofluorobenzene	95	12.120	12.120	(1.123)	77056	50.0000	49.130
	63 1,2,3-Trichloropropane	110	12.171	12.171	(0.903)	15603	50.0000	53.759

Compounds	QUANT SIG MASS	RT	EXP RT	REL RT	RESPONSE	AMOUNTS CAL-AMT (ug/Kg)	AMOUNTS ON-COL (ug/Kg)
65 Trans-1,4-Dichloro 2-Butene	53	12.221	12.221	(0.907)	28745	50.0000	50.468
66 N-Propyl Benzene	91	12.271	12.271	(0.910)	325036	50.0000	48.730
67 Bromobenzene	156	12.361	12.361	(0.917)	59960	50.0000	48.030
68 1,3,5-Trimethyl Benzene	105	12.452	12.452	(0.924)	216245	50.0000	52.142
69 2-Chloro Toluene	91	12.502	12.502	(0.928)	215419	50.0000	51.513
70 4-Chloro Toluene	91	12.552	12.552	(0.931)	213187	50.0000	48.075
71 T-Butyl Benzene	119	12.854	12.854	(0.954)	187434	50.0000	51.258
72 1,2,4-Trimethylbenzene	105	12.904	12.904	(0.957)	213249	50.0000	49.248
73 S-Butyl Benzene	105	13.105	13.105	(0.972)	287293	50.0000	51.297
74 4-Isopropyl Toluene	119	13.246	13.246	(0.983)	215283	50.0000	53.580
75 1,3-Dichlorobenzene	146	13.397	13.397	(0.994)	112868	50.0000	50.259
* 76 d4-1,4-Dichlorobenzene	152	13.477	13.477	(1.000)	67589	50.0000	
77 1,4-Dichlorobenzene	146	13.517	13.517	(1.003)	110415	50.0000	49.098
78 N-Butyl Benzene	91	13.728	13.728	(1.019)	241946	50.0000	51.368
$ 79 d4-1,2-Dichlorobenzene	152	13.919	13.919	(1.033)	59446	50.0000	50.362
80 1,2-Dichlorobenzene	146	13.959	13.959	(1.036)	102312	50.0000	48.639
81 1,2-Dibromo 3-Chloropropane	75	14.864	14.864	(1.103)	15971	50.0000	42.894
82 1,2,4-Trichlorobenzene	180	15.909	15.909	(1.180)	67371	50.0000	48.384
83 Hexachloro 1,3-Butadiene	225	16.060	16.060	(1.192)	46220	50.0000	48.770
84 Naphthalene	128	16.231	16.231	(1.204)	130350	50.0000	50.706
85 1,2,3-Trichlorobenzene	180	16.522	16.522	(1.226)	60011	50.0000	47.447

Analytical Resources, Inc.

INTERNAL STANDARD COMPOUNDS
AREA AND RT SUMMARY

Instrument ID: finn5.i
Lab File ID: 0500921.d
Lab Smp Id: IC0921
Analysis Type: VOA
Quant Type: ISTD
Operator: PB
Method File: /chem1/finn5.i/21SEP10.b/s8260b.m
Misc Info: 10-

Calibration Date: 21-SEP-2010
Calibration Time: 15:55
Client Smp ID: VSTD050
Level: LOW
Sample Type: SOIL

Test Mode:
Use Initial Calibration Level 5.
If Continuing Cal. use Initial Cal. Level 5

COMPOUND	STANDARD	AREA LIMIT LOWER	AREA LIMIT UPPER	SAMPLE	%DIFF
23 Pentafluorobenzen	91870	45935	183740	91870	0.00
34 1,4-Difluorobenze	137983	68992	275966	137983	0.00
52 d5-Chlorobenzene	123519	61760	247038	123519	0.00
76 d4-1,4-Dichlorobe	67589	33794	135178	67589	0.00

COMPOUND	STANDARD	RT LIMIT LOWER	RT LIMIT UPPER	SAMPLE	%DIFF
23 Pentafluorobenzen	6.63	6.13	7.13	6.63	0.00
34 1,4-Difluorobenze	7.65	7.15	8.15	7.65	0.00
52 d5-Chlorobenzene	10.79	10.29	11.29	10.79	0.00
76 d4-1,4-Dichlorobe	13.48	12.98	13.98	13.48	0.00

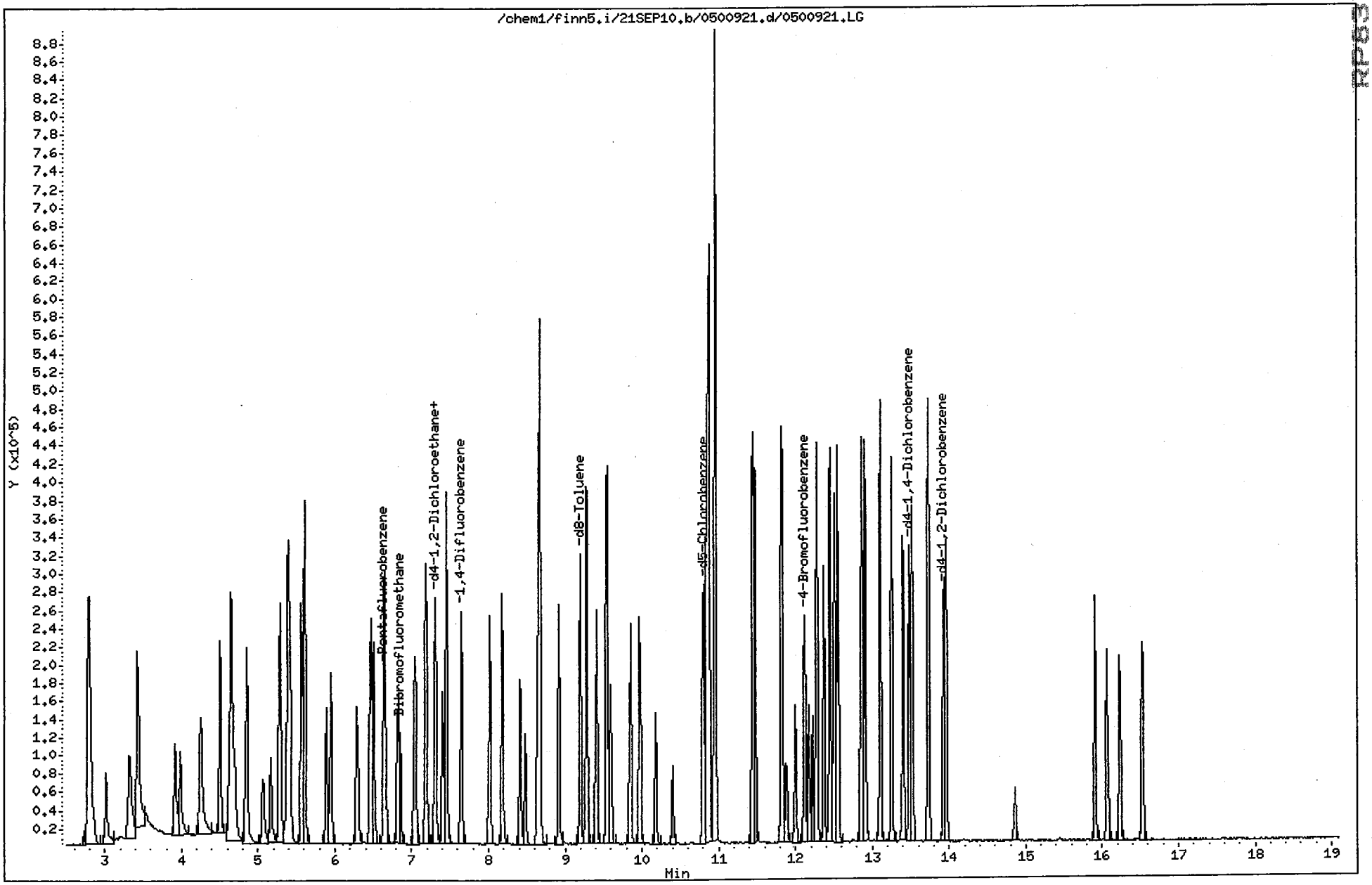
AREA UPPER LIMIT = +100% of internal standard area.
AREA LOWER LIMIT = - 50% of internal standard area.
RT UPPER LIMIT = + 0.50 minutes of internal standard RT.
RT LOWER LIMIT = - 0.50 minutes of internal standard RT.

Data File: /chem1/finn5.i/21SEP10.b/0500921.d
Date : 21-SEP-2010 15:55
Client ID: VSTD050
Sample Info: IC0921,5,5,0

Instrument: finn5.i

Operator: PB
Column diameter: 0.18

Column phase: Rtx502.2



RP63 00121

Analytical Resources, Inc.

8260C

Data file : /chem1/finn5.i/21SEP10.b/1000921.d
Lab Smp Id: IC0921 Client Smp ID: VSTD100
Inj Date : 21-SEP-2010 15:29
Operator : PB Inst ID: finn5.i
Smp Info : IC0921,5,5,0
Misc Info : 10-
Comment :
Method : /chem1/finn5.i/21SEP10.b/s8260b.m
Meth Date : 22-Sep-2010 09:41 patrickb Quant Type: ISTD
Cal Date : 21-SEP-2010 15:29 Cal File: 1000921.d
Als bottle: 1 Calibration Sample, Level: 6
Dil Factor: 1.00000
Integrator: HP RTE Compound Sublist: voa.sub
Target Version: 3.50
Processing Host: cserv3

Concentration Formula: Amt * DF * Pv * 1 / (Sa * ((100 - M) / 100)) * CpndVaria

Name	Value	Description
DF	1.00000	Dilution Factor
Pv	5.00000	Purge Volume
Sa	5.00000	Sample Amount
M	0.00000	Moisture (%)

Cpnd Variable Local Compound Variable

Compounds	QUANT SIG MASS	RT	EXP RT	REL RT	RESPONSE	AMOUNTS CAL-AMT (ug/Kg)	ON-COL (ug/Kg)
1 Dichlorodifluoromethane	85	3.005	3.005	(0.454)	172526	100.000	106.54
2 Chloromethane	50	3.316	3.316	(0.501)	391560	100.000	103.66
3 Vinyl Chloride	62	3.417	3.417	(0.516)	397946	100.000	105.73
4 Bromomethane	94	3.909	3.909	(0.590)	136864	100.000	97.672
5 Chloroethane	64	3.970	3.970	(0.599)	143005	100.000	89.060
6 Trichlorofluoromethane	101	4.241	4.241	(0.640)	238273	100.000	95.505
7 Acrolein	56	4.623	4.623	(0.698)	132113	500.000	469.79
8 112Trichloro122Trifluoroethane	101	4.633	4.633	(0.700)	175510	100.000	94.729
9 Acetone	43	4.683	4.683	(0.707)	289577	500.000	410.75
10 1,1-Dichloroethene	96	4.834	4.834	(0.730)	135019	100.000	100.12
11 Bromoethane	108	5.055	5.055	(0.763)	115407	100.000	102.50
12 Iodomethane	142	5.156	5.156	(0.778)	240632	100.000	105.51
13 Methylene Chloride	84	5.276	5.276	(0.797)	170353	100.000	90.098
14 Acrylonitrile	53	5.357	5.357	(0.809)	55662	100.000	103.88(Q)

	Compounds	QUANT SIG MASS	RT	EXP RT	REL RT	RESPONSE	AMOUNTS CAL-AMT (ug/Kg)	ON-COL (ug/Kg)
	16 Methyl tert-Butyl Ether	73	5.397	5.397	(0.815)	400509	100.000	99.681(Q)
	15 Carbon Disulfide	76	5.377	5.377	(0.812)	561795	100.000	100.23(Q)
	17 Trans-1,2-Dichloroethene	96	5.558	5.558	(0.839)	138744	100.000	100.62
	18 Vinyl Acetate	43	5.879	5.879	(0.888)	397366	100.000	102.69
	19 1,1-Dichloroethane	63	5.940	5.940	(0.897)	329034	100.000	101.22
	20 2-Butanone	43	6.281	6.281	(0.948)	411997	500.000	498.25
	21 2,2-Dichloropropane	77	6.462	6.462	(0.976)	255497	100.000	96.283
	22 Cis-1,2-Dichloroethene	96	6.492	6.492	(0.980)	131345	100.000	100.72
*	23 Pentafluorobenzene	168	6.623	6.623	(1.000)	90164	50.0000	
	24 Chloroform	83	6.643	6.643	(1.003)	270002	100.000	99.349
	26 Bromochloromethane	128	6.804	6.804	(1.027)	62046	100.000	106.88
$	25 Dibromofluoromethane	111	6.844	6.844	(1.033)	58197	50.0000	50.586(Q)
	27 1,1,1-Trichloroethane	97	7.035	7.035	(1.062)	225409	100.000	100.53
	29 1,1-Dichloropropene	75	7.176	7.176	(0.939)	223330	100.000	93.615
	30 Carbon Tetrachloride	117	7.296	7.296	(0.955)	190868	100.000	95.435
$	31 d4-1,2-Dichloroethane	65	7.306	7.306	(1.103)	85884	50.0000	50.370
	32 1,2-Dichloroethane	62	7.397	7.397	(0.968)	228690	100.000	96.278
	33 Benzene	78	7.447	7.447	(0.975)	481108	100.000	95.785
*	34 1,4-Difluorobenzene	114	7.638	7.638	(1.000)	141240	50.0000	
	35 Trichloroethene	95	8.010	8.010	(1.049)	141496	100.000	98.333
	36 1,2-Dichloropropane	63	8.171	8.171	(1.070)	163083	100.000	92.862
	37 Bromodichloromethane	83	8.402	8.402	(1.100)	197340	100.000	96.912
	39 Dibromomethane	93	8.472	8.472	(1.109)	79477	100.000	94.350
	40 2-Chloroethyl Vinyl Ether	63	8.623	8.623	(1.129)	74755	100.000	99.828(Q)
	41 4-Methyl-2-Pentanone	58	8.653	8.653	(1.133)	233797	500.000	462.30(Q)
	42 Cis 1,3-dichloropropene	75	8.904	8.904	(1.166)	232644	100.000	95.377
$	43 d8-Toluene	98	9.186	9.186	(1.203)	162330	50.0000	48.744
	44 Toluene	92	9.266	9.266	(1.213)	280462	100.000	91.867
	45 Trans 1,3-Dichloropropene	75	9.397	9.397	(1.230)	211808	100.000	95.823
	46 2-Hexanone	43	9.537	9.537	(0.884)	522867	500.000	413.30
	47 1,1,2-Trichloroethane	97	9.578	9.578	(1.254)	91443	100.000	96.238
	48 1,3-Dichloropropane	76	9.839	9.839	(0.912)	189330	100.000	94.102
	49 Tetrachloroethene	166	9.960	9.960	(0.924)	118696	100.000	96.249
	50 Chlorodibromomethane	129	10.171	10.171	(0.943)	123428	100.000	101.73
	51 1,2-Dibromoethane	107	10.392	10.392	(1.361)	101078	100.000	95.505
*	52 d5-Chlorobenzene	117	10.784	10.784	(1.000)	121372	50.0000	
	53 Chlorobenzene	112	10.834	10.834	(1.005)	277366	100.000	98.808
	54 Ethyl Benzene	91	10.864	10.864	(1.007)	505821	100.000	96.764
	55 1,1,1,2-Tetrachloroethane	131	10.854	10.854	(1.007)	106488	100.000	96.409
	56 m,p-xylene	106	10.944	10.944	(1.015)	410210	200.000	213.85(Q)
	57 o-Xylene	106	11.427	11.427	(1.060)	197293	100.000	101.41
	58 Styrene	104	11.457	11.457	(1.062)	326975	100.000	103.38
	59 Isopropyl Benzene	105	11.809	11.809	(0.877)	494169	100.000	89.941
	60 Bromoform	173	11.869	11.869	(0.881)	81763	100.000	97.319
	61 1,1,2,2-Tetrachloroethane	83	11.990	11.990	(0.890)	138343	100.000	93.412
$	62 4-Bromofluorobenzene	95	12.110	12.110	(1.123)	78849	50.0000	51.162
	63 1,2,3-Trichloropropane	110	12.160	12.160	(0.903)	30876	100.000	101.06

Compounds	QUANT SIG MASS	RT	EXP RT	REL RT	RESPONSE	AMOUNTS CAL-AMT (ug/Kg)	ON-COL (ug/Kg)
65 Trans-1,4-Dichloro 2-Butene	53	12.211	12.211	(0.907)	58660	100.000	97.841
66 N-Propyl Benzene	91	12.261	12.261	(0.910)	559272	100.000	79.655
67 Bromobenzene	156	12.351	12.351	(0.917)	126990	100.000	96.638
68 1,3,5-Trimethyl Benzene	105	12.442	12.442	(0.924)	440189	100.000	100.83
69 2-Chloro Toluene	91	12.492	12.492	(0.928)	447931	100.000	101.76
70 4-Chloro Toluene	91	12.542	12.542	(0.931)	433781	100.000	92.929
71 T-Butyl Benzene	119	12.844	12.844	(0.954)	384547	100.000	99.905
72 1,2,4-Trimethylbenzene	105	12.894	12.894	(0.957)	437436	100.000	95.972
73 S-Butyl Benzene	105	13.095	13.095	(0.972)	539348	100.000	91.487
74 4-Isopropyl Toluene	119	13.236	13.236	(0.983)	438493	100.000	103.68
75 1,3-Dichlorobenzene	146	13.387	13.387	(0.994)	243221	100.000	102.89
* 76 d4-1,4-Dichlorobenzene	152	13.467	13.467	(1.000)	71146	50.0000	
77 1,4-Dichlorobenzene	146	13.507	13.507	(1.003)	243283	100.000	102.77
78 N-Butyl Benzene	91	13.718	13.718	(1.019)	481107	100.000	97.037
$ 79 d4-1,2-Dichlorobenzene	152	13.909	13.909	(1.033)	62655	50.0000	50.427
80 1,2-Dichlorobenzene	146	13.949	13.949	(1.036)	221279	100.000	99.937
81 1,2-Dibromo 3-Chloropropane	75	14.844	14.844	(1.102)	32890	100.000	83.917
82 1,2,4-Trichlorobenzene	180	15.899	15.899	(1.181)	136506	100.000	93.134
83 Hexachloro 1,3-Butadiene	225	16.050	16.050	(1.192)	91741	100.000	91.963
84 Naphthalene	128	16.221	16.221	(1.204)	256306	100.000	94.717
85 1,2,3-Trichlorobenzene	180	16.512	16.512	(1.226)	123804	100.000	92.991

QC Flag Legend

Q - Qualifier signal failed the ratio test.

Analytical Resources, Inc.

INTERNAL STANDARD COMPOUNDS
AREA AND RT SUMMARY

Instrument ID: finn5.i
Lab File ID: 1000921.d
Lab Smp Id: IC0921
Analysis Type: VOA
Quant Type: ISTD
Operator: PB
Method File: /chem1/finn5.i/21SEP10.b/s8260b.m
Misc Info: 10-

Calibration Date: 21-SEP-2010
Calibration Time: 15:55
Client Smp ID: VSTD100
Level: LOW
Sample Type: SOIL

Test Mode:
Use Initial Calibration Level 5.
If Continuing Cal. use Initial Cal. Level 5

COMPOUND	STANDARD	AREA LIMIT LOWER	AREA LIMIT UPPER	SAMPLE	%DIFF
23 Pentafluorobenzen	91870	45935	183740	90164	-1.86
34 1,4-Difluorobenze	137983	68992	275966	141240	2.36
52 d5-Chlorobenzene	123519	61760	247038	121372	-1.74
76 d4-1,4-Dichlorobe	67589	33794	135178	71146	5.26

COMPOUND	STANDARD	RT LIMIT LOWER	RT LIMIT UPPER	SAMPLE	%DIFF
23 Pentafluorobenzen	6.63	6.13	7.13	6.62	-0.15
34 1,4-Difluorobenze	7.65	7.15	8.15	7.64	-0.13
52 d5-Chlorobenzene	10.79	10.29	11.29	10.78	-0.09
76 d4-1,4-Dichlorobe	13.48	12.98	13.98	13.47	-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.

Data File: /chem1/finn5.i/21SEP10.b/1000921.d

Date : 21-SEP-2010 15:29

Client ID: VSTD100

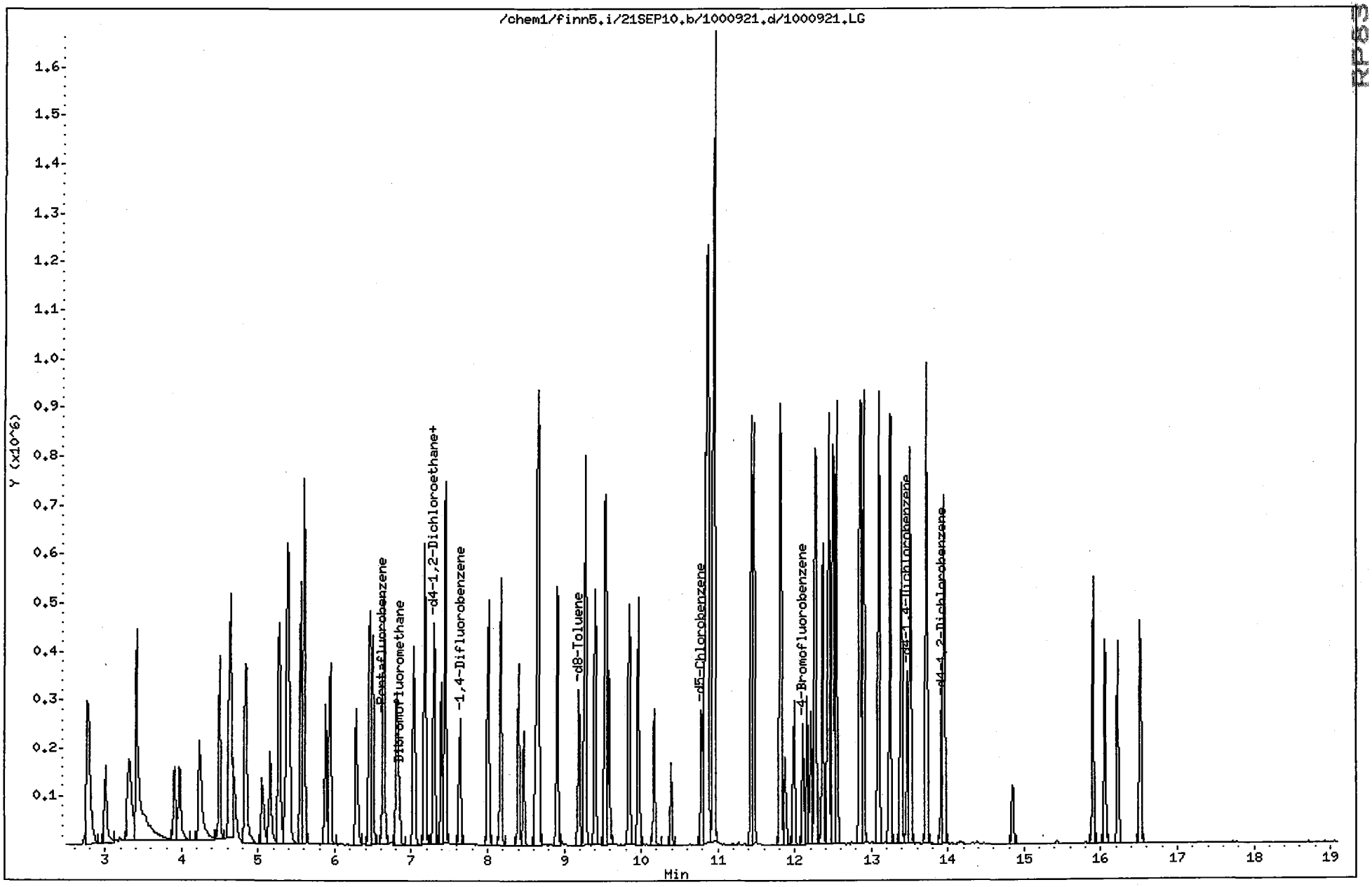
Sample Info: IC0921,5,5,0

Column phase: Rtx502.2

Instrument: finn5.i

Operator: PB

Column diameter: 0.18



RP63 00125

Analytical Resources, Inc.

8260C

Data file : /chem1/finn5.i/21SEP10.b/1500921.d
Lab Smp Id: IC0921 Client Smp ID: VSTD150
Inj Date : 21-SEP-2010 15:02
Operator : PB Inst ID: finn5.i
Smp Info : IC0921,5,5,0
Misc Info : 10-
Comment :
Method : /chem1/finn5.i/21SEP10.b/s8260b.m
Meth Date : 22-Sep-2010 09:41 patrickb Quant Type: ISTD
Cal Date : 21-SEP-2010 15:02 Cal File: 1500921.d
Als bottle: 1 Calibration Sample, Level: 7
Dil Factor: 1.00000
Integrator: HP RTE Compound Sublist: voa.sub
Target Version: 3.50
Processing Host: cserv3

Concentration Formula: Amt * DF * Pv * 1 / (Sa * ((100 - M) / 100)) * CpndVaria

Name	Value	Description
DF	1.00000	Dilution Factor
Pv	5.00000	Purge Volume
Sa	5.00000	Sample Amount
M	0.00000	Moisture (%)

Cpnd Variable Local Compound Variable

Compounds	QUANT SIG MASS	RT	EXP RT	REL RT	RESPONSE	AMOUNTS CAL-AMT (ug/Kg)	ON-COL (ug/Kg)
1 Dichlorodifluoromethane	85	3.015	3.015	(0.455)	252643	150.000	164.41
2 Chloromethane	50	3.327	3.327	(0.501)	557793	150.000	155.61
3 Vinyl Chloride	62	3.427	3.427	(0.517)	553696	150.000	155.03
4 Bromomethane	94	3.909	3.909	(0.589)	180689	150.000	149.27
5 Chloroethane	64	3.980	3.980	(0.600)	188541	150.000	123.73
6 Trichlorofluoromethane	101	4.241	4.241	(0.639)	295589	150.000	124.85
7 Acrolein	56	4.643	4.643	(0.700)	165838	750.000	621.43
8 112Trichloro122Trifluoroethane	101	4.643	4.643	(0.700)	222582	150.000	126.60
9 Acetone	43	4.693	4.693	(0.708)	364476	750.000	544.79
10 1,1-Dichloroethene	96	4.844	4.844	(0.730)	174859	150.000	136.63
11 Bromoethane	108	5.065	5.065	(0.764)	153049	150.000	143.25
12 Iodomethane	142	5.166	5.166	(0.779)	316178	150.000	146.09
13 Methylene Chloride	84	5.286	5.286	(0.797)	230513	150.000	128.47
14 Acrylonitrile	53	5.367	5.367	(0.809)	77433	150.000	152.28(Q)

	Compounds	QUANT SIG MASS	RT	EXP RT	REL RT	RESPONSE	AMOUNTS CAL-AMT (ug/Kg)	AMOUNTS ON-COL (ug/Kg)
	16 Methyl tert-Butyl Ether	73	5.407	5.407	(0.815)	548979	150.000	143.98(Q)
	15 Carbon Disulfide	76	5.387	5.387	(0.812)	733241	150.000	137.86(Q)
	17 Trans-1,2-Dichloroethene	96	5.568	5.568	(0.839)	198304	150.000	151.55
	18 Vinyl Acetate	43	5.889	5.889	(0.888)	521287	150.000	141.96
	19 1,1-Dichloroethane	63	5.950	5.950	(0.897)	464256	150.000	150.50
	20 2-Butanone	43	6.291	6.291	(0.948)	566140	750.000	721.48
	21 2,2-Dichloropropane	77	6.472	6.472	(0.976)	363432	150.000	144.32
	22 Cis-1,2-Dichloroethene	96	6.512	6.512	(0.982)	189256	150.000	152.94
*	23 Pentafluorobenzene	168	6.633	6.633	(1.000)	85562	50.0000	
	24 Chloroform	83	6.653	6.653	(1.003)	383452	150.000	148.68
	26 Bromochloromethane	128	6.824	6.824	(1.029)	86773	150.000	157.52
$	25 Dibromofluoromethane	111	6.854	6.854	(1.033)	56361	50.0000	51.625(Q)
	27 1,1,1-Trichloroethane	97	7.045	7.045	(1.062)	317516	150.000	149.23
	29 1,1-Dichloropropene	75	7.186	7.186	(0.940)	319086	150.000	139.68
	30 Carbon Tetrachloride	117	7.306	7.306	(0.955)	272823	150.000	142.46
$	31 d4-1,2-Dichloroethane	65	7.316	7.316	(1.103)	83327	50.0000	51.498
	32 1,2-Dichloroethane	62	7.407	7.407	(0.968)	329078	150.000	144.68
	33 Benzene	78	7.457	7.457	(0.975)	618500	150.000	128.60
*	34 1,4-Difluorobenzene	114	7.648	7.648	(1.000)	135243	50.0000	
	35 Trichloroethene	95	8.020	8.020	(1.049)	202313	150.000	146.83
	36 1,2-Dichloropropane	63	8.181	8.181	(1.070)	237729	150.000	141.37
	37 Bromodichloromethane	83	8.412	8.412	(1.100)	286353	150.000	146.86
	39 Dibromomethane	93	8.482	8.482	(1.109)	115822	150.000	143.59
	40 2-Chloroethyl Vinyl Ether	63	8.633	8.633	(1.129)	110765	150.000	154.48(Q)
	41 4-Methyl-2-Pentanone	58	8.673	8.673	(1.134)	343543	750.000	709.44(Q)
	42 Cis 1,3-dichloropropene	75	8.924	8.924	(1.167)	346214	150.000	148.23
$	43 d8-Toluene	98	9.196	9.196	(1.202)	159701	50.0000	50.081
	44 Toluene	92	9.276	9.276	(1.213)	413318	150.000	141.39(Q)
	45 Trans 1,3-Dichloropropene	75	9.407	9.407	(1.230)	313894	150.000	148.30
	46 2-Hexanone	43	9.547	9.547	(0.885)	645152	750.000	511.45
	47 1,1,2-Trichloroethane	97	9.598	9.598	(1.255)	134787	150.000	148.14
	48 1,3-Dichloropropane	76	9.849	9.849	(0.912)	283177	150.000	141.16
	49 Tetrachloroethene	166	9.970	9.970	(0.924)	178560	150.000	145.21
	50 Chlorodibromomethane	129	10.181	10.181	(0.943)	181729	150.000	150.21
	51 1,2-Dibromoethane	107	10.402	10.402	(1.360)	152510	150.000	150.49
*	52 d5-Chlorobenzene	117	10.794	10.794	(1.000)	121020	50.0000	
	53 Chlorobenzene	112	10.844	10.844	(1.005)	403612	150.000	144.20
	54 Ethyl Benzene	91	10.874	10.874	(1.007)	653254	150.000	125.33
	55 1,1,1,2-Tetrachloroethane	131	10.864	10.864	(1.007)	162116	150.000	147.20
	56 m,p-xylene	106	10.954	10.954	(1.015)	576067	300.000	301.18(Q)
	57 o-Xylene	106	11.447	11.447	(1.061)	305448	150.000	157.46(Q)
	58 Styrene	104	11.477	11.477	(1.063)	483458	150.000	153.30
	59 Isopropyl Benzene	105	11.819	11.819	(0.877)	637211	150.000	109.47
	60 Bromoform	173	11.879	11.879	(0.881)	128472	150.000	144.34
	61 1,1,2,2-Tetrachloroethane	83	12.000	12.000	(0.890)	215992	150.000	137.66
$	62 4-Bromofluorobenzene	95	12.120	12.120	(1.123)	79222	50.0000	51.554
	63 1,2,3-Trichloropropane	110	12.171	12.171	(0.903)	46458	150.000	143.53

Compounds	QUANT SIG MASS	RT	EXP RT	REL RT	RESPONSE	AMOUNTS CAL-AMT (ug/Kg)	AMOUNTS ON-COL (ug/Kg)
65 Trans-1,4-Dichloro 2-Butene	53	12.221	12.221	(0.907)	88596	150.000	139.48
66 N-Propyl Benzene	91	12.281	12.281	(0.911)	701486	150.000	94.304
67 Bromobenzene	156	12.372	12.372	(0.918)	199921	150.000	143.60
68 1,3,5-Trimethyl Benzene	105	12.452	12.452	(0.924)	579942	150.000	125.39
69 2-Chloro Toluene	91	12.512	12.512	(0.928)	588935	150.000	126.28
70 4-Chloro Toluene	91	12.552	12.552	(0.931)	597462	150.000	120.81
71 T-Butyl Benzene	119	12.864	12.864	(0.954)	552196	150.000	135.41
72 1,2,4-Trimethylbenzene	105	12.904	12.904	(0.957)	584401	150.000	121.02
73 S-Butyl Benzene	105	13.105	13.105	(0.972)	679413	150.000	108.78
74 4-Isopropyl Toluene	119	13.256	13.256	(0.984)	576742	150.000	128.71
75 1,3-Dichlorobenzene	146	13.397	13.397	(0.994)	387647	150.000	154.78
* 76 d4-1,4-Dichlorobenzene	152	13.477	13.477	(1.000)	75375	50.0000	
77 1,4-Dichlorobenzene	146	13.517	13.517	(1.003)	385222	150.000	153.60
78 N-Butyl Benzene	91	13.728	13.728	(1.019)	626288	150.000	119.23
$ 79 d4-1,2-Dichlorobenzene	152	13.929	13.929	(1.034)	64510	50.0000	49.007
80 1,2-Dichlorobenzene	146	13.959	13.959	(1.036)	348025	150.000	148.36
81 1,2-Dibromo 3-Chloropropane	75	14.864	14.864	(1.103)	48788	150.000	117.50
82 1,2,4-Trichlorobenzene	180	15.909	15.909	(1.180)	206915	150.000	133.25
83 Hexachloro 1,3-Butadiene	225	16.060	16.060	(1.192)	134050	150.000	126.84
84 Naphthalene	128	16.231	16.231	(1.204)	372915	150.000	130.08
85 1,2,3-Trichlorobenzene	180	16.522	16.522	(1.226)	185565	150.000	131.56

QC Flag Legend

Q - Qualifier signal failed the ratio test.

Analytical Resources, Inc.

INTERNAL STANDARD COMPOUNDS
AREA AND RT SUMMARY

Instrument ID: finn5.i
Lab File ID: 1500921.d
Lab Smp Id: IC0921
Analysis Type: VOA
Quant Type: ISTD
Operator: PB
Method File: /chem1/finn5.i/21SEP10.b/s8260b.m
Misc Info: 10-

Calibration Date: 21-SEP-2010
Calibration Time: 15:55
Client Smp ID: VSTD150
Level: LOW
Sample Type: SOIL

Test Mode:
Use Initial Calibration Level 5.
If Continuing Cal. use Initial Cal. Level 5

COMPOUND	STANDARD	AREA LIMIT LOWER	AREA LIMIT UPPER	SAMPLE	%DIFF
23 Pentafluorobenzen	91870	45935	183740	85562	-6.87
34 1,4-Difluorobenze	137983	68992	275966	135243	-1.99
52 d5-Chlorobenzene	123519	61760	247038	121020	-2.02
76 d4-1,4-Dichlorobe	67589	33794	135178	75375	11.52

COMPOUND	STANDARD	RT LIMIT LOWER	RT LIMIT UPPER	SAMPLE	%DIFF
23 Pentafluorobenzen	6.63	6.13	7.13	6.63	0.00
34 1,4-Difluorobenze	7.65	7.15	8.15	7.65	0.00
52 d5-Chlorobenzene	10.79	10.29	11.29	10.79	0.00
76 d4-1,4-Dichlorobe	13.48	12.98	13.98	13.48	0.00

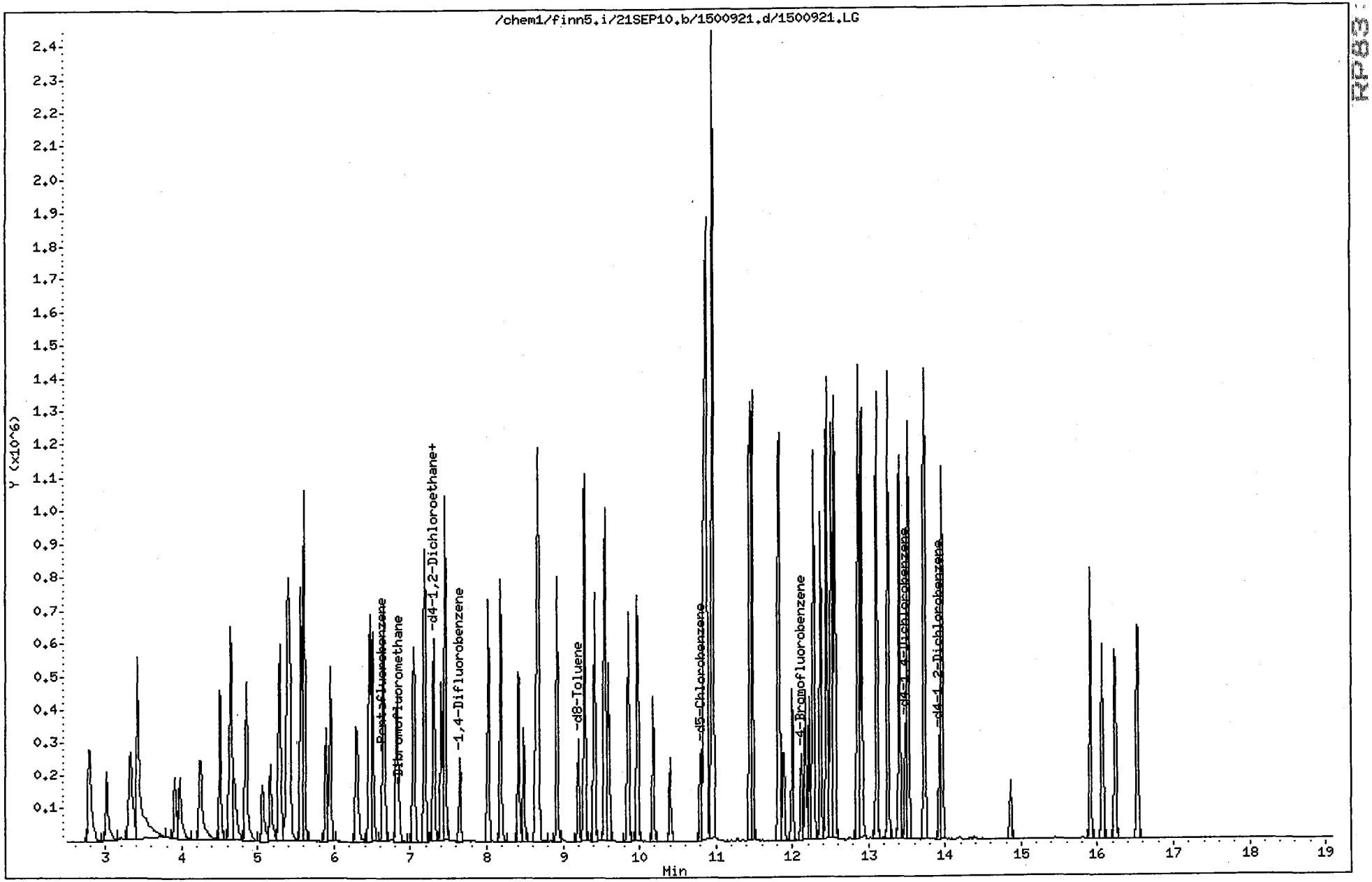
AREA UPPER LIMIT = +100% of internal standard area.
AREA LOWER LIMIT = - 50% of internal standard area.
RT UPPER LIMIT = + 0.50 minutes of internal standard RT.
RT LOWER LIMIT = - 0.50 minutes of internal standard RT.

Data File: /chem1/finn5.i/21SEP10.b/1500921.d
Date : 21-SEP-2010 15:02
Client ID: VSTD150
Sample Info: IC0921,5,5,0

Column phase: Rtx502.2

Instrument: finn5.i

Operator: PB
Column diameter: 0.18



Analytical Resources, Inc.

8260C

Data file : /chem1/finn5.i/21SEP10.b/2000921.d
Lab Smp Id: IC0921 Client Smp ID: VSTD200
Inj Date : 21-SEP-2010 14:36
Operator : PB Inst ID: finn5.i
Smp Info : IC0921,5,5,0
Misc Info : 10-
Comment :
Method : /chem1/finn5.i/21SEP10.b/s8260b.m
Meth Date : 22-Sep-2010 09:41 patrickb Quant Type: ISTD
Cal Date : 21-SEP-2010 14:36 Cal File: 2000921.d
Als bottle: 1 Calibration Sample, Level: 8
Dil Factor: 1.00000
Integrator: HP RTE Compound Sublist: voa.sub
Target Version: 3.50
Processing Host: cserv3

Concentration Formula: Amt * DF * Pv * 1 / (Sa * ((100 - M) / 100)) * CpndVaria

Name	Value	Description
DF	1.00000	Dilution Factor
Pv	5.00000	Purge Volume
Sa	5.00000	Sample Amount
M	0.00000	Moisture (%)

Cpnd Variable Local Compound Variable

Compounds	QUANT SIG MASS	RT	EXP RT	REL RT	RESPONSE	AMOUNTS CAL-AMT (ug/Kg)	ON-COL (ug/Kg)
1 Dichlorodifluoromethane	85	3.005	3.005	(0.454)	348309	200.000	221.76
2 Chloromethane	50	3.316	3.316	(0.501)	755241	200.000	206.14
3 Vinyl Chloride	62	3.407	3.407	(0.514)	669743	200.000	183.47
4 Bromomethane	94	3.899	3.899	(0.589)	230354	200.000	200.87
5 Chloroethane	64	3.960	3.960	(0.598)	239137	200.000	153.54
6 Trichlorofluoromethane	101	4.231	4.231	(0.639)	366055	200.000	151.27
7 Acrolein	56	4.623	4.623	(0.698)	207512	1000.00	760.78
8 112Trichloro122Trifluoroethane	101	4.633	4.633	(0.700)	284600	200.000	158.37
9 Acetone	43	4.683	4.683	(0.707)	444800	1000.00	650.48
10 1,1-Dichloroethene	96	4.834	4.834	(0.730)	223664	200.000	170.99
11 Bromoethane	108	5.055	5.055	(0.763)	197826	200.000	181.16
12 Iodomethane	142	5.156	5.156	(0.778)	426918	200.000	192.99
13 Methylene Chloride	84	5.266	5.266	(0.795)	298246	200.000	162.63
14 Acrylonitrile	53	5.357	5.357	(0.809)	102814	200.000	197.82(Q)

	Compounds	QUANT SIG MASS	RT	EXP RT	REL RT	RESPONSE	AMOUNTS CAL-AMT (ug/Kg)	AMOUNTS ON-COL (ug/Kg)
	16 Methyl tert-Butyl Ether	73	5.397	5.397	(0.815)	691388	200.000	177.41(Q)
	15 Carbon Disulfide	76	5.367	5.367	(0.810)	890316	200.000	163.77(Q)
	17 Trans-1,2-Dichloroethene	96	5.548	5.548	(0.838)	272153	200.000	203.49(Q)
	18 Vinyl Acetate	43	5.879	5.879	(0.888)	629723	200.000	167.78
	19 1,1-Dichloroethane	63	5.940	5.940	(0.897)	591479	200.000	187.60
	20 2-Butanone	43	6.281	6.281	(0.948)	731812	1000.00	912.45
	21 2,2-Dichloropropane	77	6.452	6.452	(0.974)	492581	200.000	191.38
	22 Cis-1,2-Dichloroethene	96	6.492	6.492	(0.980)	255755	200.000	202.20
*	23 Pentafluorobenzene	168	6.623	6.623	(1.000)	87453	50.0000	
	24 Chloroform	83	6.643	6.643	(1.003)	504059	200.000	191.22
	26 Bromochloromethane	128	6.804	6.804	(1.027)	122408	200.000	217.40
$	25 Dibromofluoromethane	111	6.844	6.844	(1.033)	57052	50.0000	51.128(Q)
	27 1,1,1-Trichloroethane	97	7.035	7.035	(1.062)	430449	200.000	197.93
	29 1,1-Dichloropropene	75	7.176	7.176	(0.939)	431949	200.000	183.33
	30 Carbon Tetrachloride	117	7.286	7.286	(0.954)	375940	200.000	190.32
$	31 d4-1,2-Dichloroethane	65	7.306	7.306	(1.103)	85379	50.0000	51.626
	32 1,2-Dichloroethane	62	7.397	7.397	(0.968)	438185	200.000	186.78
	33 Benzene	78	7.437	7.437	(0.974)	742241	200.000	149.62
*	34 1,4-Difluorobenzene	114	7.638	7.638	(1.000)	139494	50.0000	
	35 Trichloroethene	95	8.010	8.010	(1.049)	277133	200.000	195.00
	36 1,2-Dichloropropane	63	8.171	8.171	(1.070)	320297	200.000	184.66
	37 Bromodichloromethane	83	8.402	8.402	(1.100)	384486	200.000	191.18
	39 Dibromomethane	93	8.472	8.472	(1.109)	159549	200.000	191.78
	40 2-Chloroethyl Vinyl Ether	63	8.623	8.623	(1.129)	154250	200.000	208.56(Q)
	41 4-Methyl-2-Pentanone	58	8.653	8.653	(1.133)	467293	1000.00	935.58(Q)
	42 Cis 1,3-dichloropropene	75	8.904	8.904	(1.166)	455201	200.000	188.95
$	43 d8-Toluene	98	9.186	9.186	(1.203)	161555	50.0000	49.119
	44 Toluene	92	9.266	9.266	(1.213)	524584	200.000	173.98(Q)
	45 Trans 1,3-Dichloropropene	75	9.397	9.397	(1.230)	415735	200.000	190.43
	46 2-Hexanone	43	9.537	9.537	(0.884)	736824	1000.00	576.33(Q)
	47 1,1,2-Trichloroethane	97	9.578	9.578	(1.254)	186325	200.000	198.55
	48 1,3-Dichloropropane	76	9.839	9.839	(0.912)	379136	200.000	186.47
	49 Tetrachloroethene	166	9.960	9.960	(0.924)	250328	200.000	200.86
	50 Chlorodibromomethane	129	10.171	10.171	(0.943)	251010	200.000	204.71
	51 1,2-Dibromoethane	107	10.392	10.392	(1.361)	207134	200.000	198.16
*	52 d5-Chlorobenzene	117	10.784	10.784	(1.000)	122656	50.0000	
	53 Chlorobenzene	112	10.834	10.834	(1.005)	510363	200.000	179.91
	54 Ethyl Benzene	91	10.864	10.864	(1.007)	752305	200.000	142.41(Q)
	55 1,1,1,2-Tetrachloroethane	131	10.854	10.854	(1.007)	231067	200.000	207.01
	56 m,p-xylene	106	10.944	10.944	(1.015)	695966	400.000	359.02(Q)
	57 o-Xylene	106	11.427	11.427	(1.060)	431031	200.000	219.24(Q)
	58 Styrene	104	11.457	11.457	(1.062)	602000	200.000	188.34
	59 Isopropyl Benzene	105	11.809	11.809	(0.877)	743146	200.000	104.83
	60 Bromoform	173	11.869	11.869	(0.881)	185213	200.000	170.85
	61 1,1,2,2-Tetrachloroethane	83	11.990	11.990	(0.890)	306708	200.000	160.50
$	62 4-Bromofluorobenzene	95	12.110	12.110	(1.123)	84718	50.0000	54.395
	63 1,2,3-Trichloropropane	110	12.160	12.160	(0.903)	66155	200.000	167.82

Compounds	QUANT SIG MASS	RT	EXP RT	REL RT	RESPONSE	AMOUNTS CAL-AMT (ug/Kg)	AMOUNTS ON-COL (ug/Kg)
65 Trans-1,4-Dichloro 2-Butene	53	12.211	12.211	(0.907)	127132	200.000	164.34
66 N-Propyl Benzene	91	12.271	12.271	(0.911)	831183	200.000	91.748
67 Bromobenzene	156	12.351	12.351	(0.917)	295135	200.000	174.06(Q)
68 1,3,5-Trimethyl Benzene	105	12.442	12.442	(0.924)	726286	200.000	128.94(Q)
69 2-Chloro Toluene	91	12.492	12.492	(0.928)	780229	200.000	137.37
70 4-Chloro Toluene	91	12.542	12.542	(0.931)	708788	200.000	117.68(Q)
71 T-Butyl Benzene	119	12.844	12.844	(0.954)	698302	200.000	140.60
72 1,2,4-Trimethylbenzene	105	12.894	12.894	(0.957)	725013	200.000	123.28(Q)
73 S-Butyl Benzene	105	13.095	13.095	(0.972)	826877	200.000	108.70
74 4-Isopropyl Toluene	119	13.246	13.246	(0.984)	744092	200.000	136.35
75 1,3-Dichlorobenzene	146	13.387	13.387	(0.994)	548519	200.000	179.83
* 76 d4-1,4-Dichlorobenzene	152	13.467	13.467	(1.000)	91799	50.0000	
77 1,4-Dichlorobenzene	146	13.507	13.507	(1.003)	547204	200.000	179.15
78 N-Butyl Benzene	91	13.718	13.718	(1.019)	753971	200.000	117.86(Q)
$ 79 d4-1,2-Dichlorobenzene	152	13.909	13.909	(1.033)	77740	50.0000	48.491
80 1,2-Dichlorobenzene	146	13.949	13.949	(1.036)	503650	200.000	176.29
81 1,2-Dibromo 3-Chloropropane	75	14.844	14.844	(1.102)	68751	200.000	135.95
82 1,2,4-Trichlorobenzene	180	15.899	15.899	(1.181)	314998	200.000	166.56
83 Hexachloro 1,3-Butadiene	225	16.050	16.050	(1.192)	212285	200.000	164.92
84 Naphthalene	128	16.221	16.221	(1.204)	500978	200.000	143.48
85 1,2,3-Trichlorobenzene	180	16.512	16.512	(1.226)	282451	200.000	164.42

QC Flag Legend

Q - Qualifier signal failed the ratio test.

Analytical Resources, Inc.

INTERNAL STANDARD COMPOUNDS
AREA AND RT SUMMARY

Instrument ID: finn5.i
Lab File ID: 2000921.d
Lab Smp Id: IC0921
Analysis Type: VOA
Quant Type: ISTD
Operator: PB
Method File: /chem1/finn5.i/21SEP10.b/s8260b.m
Misc Info: 10-

Calibration Date: 21-SEP-2010
Calibration Time: 15:55
Client Smp ID: VSTD200
Level: LOW
Sample Type: SOIL

Test Mode:
Use Initial Calibration Level 5.
If Continuing Cal. use Initial Cal. Level 5

COMPOUND	STANDARD	AREA LIMIT LOWER	AREA LIMIT UPPER	SAMPLE	%DIFF
23 Pentafluorobenzen	91870	45935	183740	87453	-4.81
34 1,4-Difluorobenze	137983	68992	275966	139494	1.10
52 d5-Chlorobenzene	123519	61760	247038	122656	-0.70
76 d4-1,4-Dichlorobe	67589	33794	135178	91799	35.82

COMPOUND	STANDARD	RT LIMIT LOWER	RT LIMIT UPPER	SAMPLE	%DIFF
23 Pentafluorobenzen	6.63	6.13	7.13	6.62	-0.15
34 1,4-Difluorobenze	7.65	7.15	8.15	7.64	-0.13
52 d5-Chlorobenzene	10.79	10.29	11.29	10.78	-0.09
76 d4-1,4-Dichlorobe	13.48	12.98	13.98	13.47	-0.07

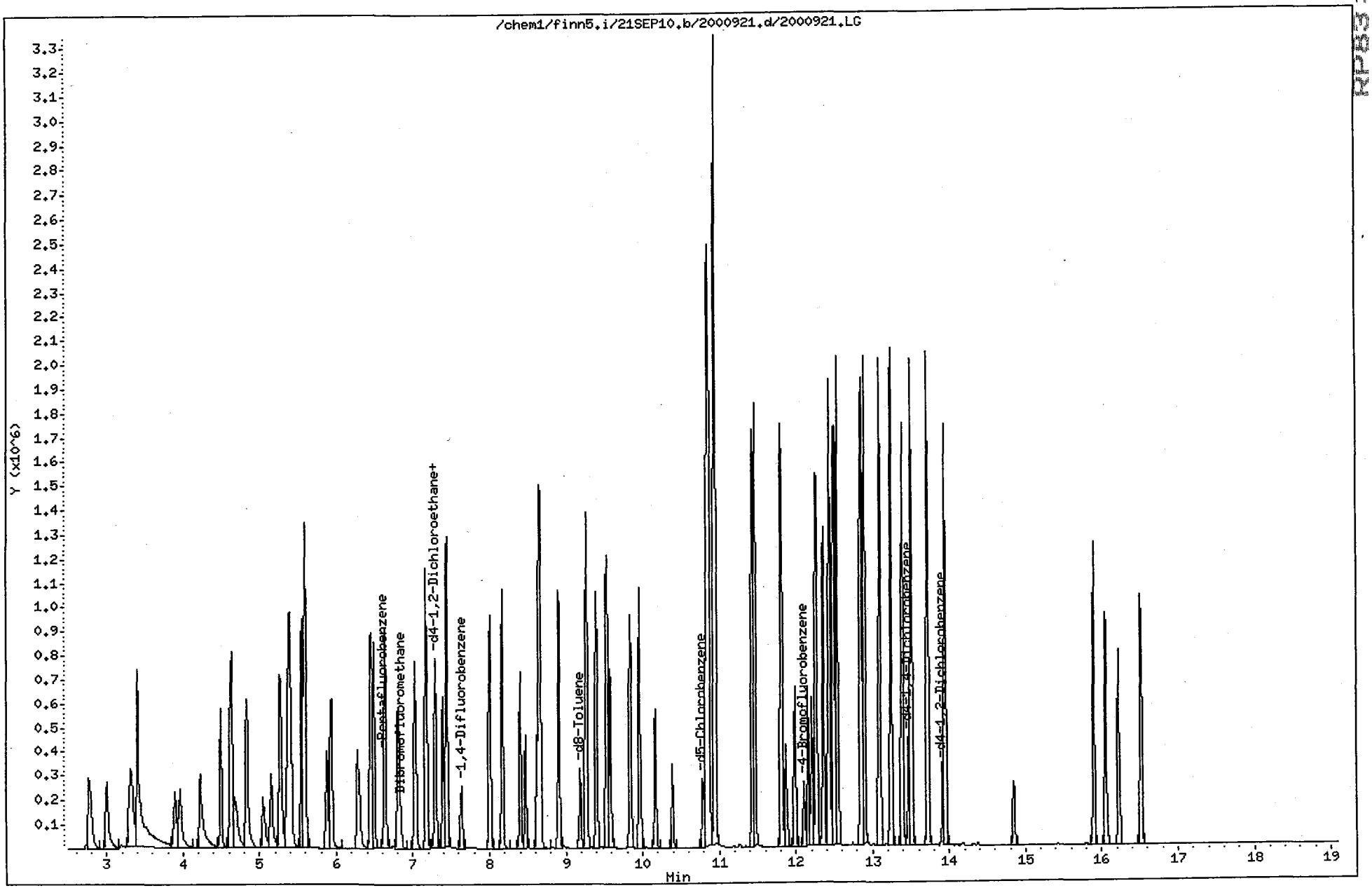
AREA UPPER LIMIT = +100% of internal standard area.
AREA LOWER LIMIT = - 50% of internal standard area.
RT UPPER LIMIT = + 0.50 minutes of internal standard RT.
RT LOWER LIMIT = - 0.50 minutes of internal standard RT.

Data File: /chem1/finn5.i/21SEP10.b/2000921.d
Date : 21-SEP-2010 14:36
Client ID: VSTD200
Sample Info: IC0921,5,5,0

Instrument: finn5.i

Operator: PB
Column diameter: 0.18

Column phase: Rtx502.2



Analytical Resources, Inc.

8260C

Data file : /chem1/finn5.i/21SEP10.b/ICV0921.d
Lab Smp Id: ICV0921 Client Smp ID: ICV0921
Inj Date : 21-SEP-2010 17:41
Operator : PB Inst ID: finn5.i
Smp Info : ICV0921,5,5,0
Misc Info : 10-
Comment :
Method : /chem1/finn5.i/21SEP10.b/s8260b.m
Meth Date : 22-Sep-2010 09:41 patrickb Quant Type: ISTD
Cal Date : 21-SEP-2010 14:36 Cal File: 2000921.d
Als bottle: 1 QC Sample: LCS
Dil Factor: 1.00000
Integrator: HP RTE Compound Sublist: voa.sub
Target Version: 3.50
Processing Host: cserv3

9/22/10

Concentration Formula: Amt * DF * Pv * 1 / (Sa * ((100 - M) / 100)) * CpndVaria

Name	Value	Description
DF	1.00000	Dilution Factor
Pv	5.00000	Purge Volume
Sa	5.00000	Sample Amount
M	0.00000	Moisture (%)

Cpnd Variable Local Compound Variable

Compounds	QUANT SIG MASS	RT	EXP RT	REL RT	RESPONSE	CONCENTRATIONS ON-COLUMN (ug/Kg)	FINAL (ug/Kg)
1 Dichlorodifluoromethane	85	3.015	3.005	(0.455)	99191	62.9515	62.952(R)
2 Chloromethane	50	3.316	3.316	(0.500)	180555	49.1241	49.124
3 Vinyl Chloride	62	3.427	3.407	(0.517)	202730	55.3571	55.357
4 Bromomethane	94	3.919	3.899	(0.591)	91010	61.4256	61.426(R)
5 Chloroethane	64	3.990	3.960	(0.602)	90839	58.1391	58.139
6 Trichlorofluoromethane	101	4.251	4.231	(0.641)	146352	60.2858	60.286(R)
7 Acrolein	56	4.633	4.623	(0.698)	15909	58.1387	58.139
8 112Trichloro122Trifluoroethane	101	4.653	4.633	(0.702)	99443	55.1597	55.160
9 Acetone	43	4.693	4.683	(0.708)	40401	58.8938	58.894
10 1,1-Dichloroethene	96	4.844	4.834	(0.730)	77966	59.4136	59.414
11 Bromoethane	108	5.065	5.055	(0.764)	59092	53.9395	53.940
12 Iodomethane	142	5.166	5.156	(0.779)	110104	49.6139	49.614
13 Methylene Chloride	84	5.286	5.266	(0.797)	102406	55.6617	55.662
14 Acrylonitrile	53	5.367	5.357	(0.809)	29680	56.9240	56.924(Q)

	Compounds	QUANT SIG MASS	RT	EXP RT	REL RT	RESPONSE	CONCENTRATIONS ON-COLUMN (ug/Kg)	FINAL (ug/Kg)
	16 Methyl tert-Butyl Ether	73	5.407	5.397	(0.815)	205769	52.6315	52.632(Q)
	15 Carbon Disulfide	76	5.387	5.367	(0.812)	237109	43.4749	43.475(Q)
	17 Trans-1,2-Dichloroethene	96	5.568	5.548	(0.839)	72249	53.8471	53.847
	18 Vinyl Acetate	43	5.889	5.879	(0.888)	156304	41.5120	41.512
	19 1,1-Dichloroethane	63	5.950	5.940	(0.897)	165826	52.4271	52.427
	20 2-Butanone	43	6.291	6.281	(0.948)	43368	53.8996	53.900
	21 2,2-Dichloropropane	77	6.472	6.452	(0.976)	129599	50.1916	50.192
	22 Cis-1,2-Dichloroethene	96	6.502	6.492	(0.980)	66722	52.5824	52.582
*	23 Pentafluorobenzene	168	6.633	6.623	(1.000)	87734	50.0000	
	24 Chloroform	83	6.653	6.643	(1.003)	134188	50.7429	50.743
	26 Bromochloromethane	128	6.814	6.804	(1.027)	61330	108.577	108.58
$	25 Dibromofluoromethane	111	6.854	6.844	(1.033)	57164	51.0645	51.064(Q)
	27 1,1,1-Trichloroethane	97	7.045	7.035	(1.062)	113037	51.8103	51.810
	29 1,1-Dichloropropene	75	7.186	7.176	(0.940)	107341	47.6275	47.627
	30 Carbon Tetrachloride	117	7.296	7.286	(0.954)	96853	51.2602	51.260
$	31 d4-1,2-Dichloroethane	65	7.316	7.306	(1.103)	86397	52.0738	52.074
	32 1,2-Dichloroethane	62	7.407	7.397	(0.968)	117212	52.2330	52.233
	33 Benzene	78	7.457	7.437	(0.975)	241147	50.8192	50.819
*	34 1,4-Difluorobenzene	114	7.648	7.638	(1.000)	133434	50.0000	
	35 Trichloroethene	95	8.020	8.010	(1.049)	67541	49.6836	49.684
	36 1,2-Dichloropropane	63	8.181	8.171	(1.070)	78144	47.0996	47.100
	37 Bromodichloromethane	83	8.412	8.402	(1.100)	101977	53.0099	53.010
	39 Dibromomethane	93	8.482	8.472	(1.109)	40472	50.8565	50.856
	40 2-Chloroethyl Vinyl Ether	63	8.633	8.623	(1.129)	34642	48.9676	48.968(Q)
	41 4-Methyl-2-Pentanone	58	8.663	8.653	(1.133)	24675	51.6461	51.646
	42 Cis 1,3-dichloropropene	75	8.914	8.904	(1.166)	110445	47.9278	47.928
$	43 d8-Toluene	98	9.196	9.186	(1.202)	154076	48.9725	48.972
	44 Toluene	92	9.276	9.266	(1.213)	130260	45.1634	45.163
	45 Trans 1,3-Dichloropropene	75	9.407	9.397	(1.230)	94259	45.1377	45.138
	46 2-Hexanone	43	9.537	9.537	(0.884)	65632	54.1900	54.190
	47 1,1,2-Trichloroethane	97	9.588	9.578	(1.254)	43338	48.2787	48.279
	48 1,3-Dichloropropane	76	9.849	9.839	(0.912)	94740	49.1859	49.186
	49 Tetrachloroethene	166	9.970	9.960	(0.924)	54953	46.5457	46.546
	50 Chlorodibromomethane	129	10.171	10.171	(0.942)	61877	53.2691	53.269
	51 1,2-Dibromoethane	107	10.402	10.392	(1.360)	50643	50.6500	50.650
*	52 d5-Chlorobenzene	117	10.794	10.784	(1.000)	116196	50.0000	
	53 Chlorobenzene	112	10.834	10.834	(1.004)	132408	49.2698	49.270
	54 Ethyl Benzene	91	10.874	10.864	(1.007)	265006	52.9544	52.954
	55 1,1,1,2-Tetrachloroethane	131	10.864	10.854	(1.007)	51195	48.4140	48.414
	56 m,p-xylene	106	10.944	10.944	(1.014)	186501	101.556	101.56
	57 o-Xylene	106	11.437	11.427	(1.060)	93288	50.0881	50.088
	58 Styrene	104	11.467	11.457	(1.062)	151126	49.9091	49.909
	59 Isopropyl Benzene	105	11.819	11.809	(0.877)	220454	44.0437	44.044
	60 Bromoform	173	11.879	11.869	(0.881)	39920	52.1572	52.157
	61 1,1,2,2-Tetrachloroethane	83	12.000	11.990	(0.890)	67304	49.8848	49.885
$	62 4-Bromofluorobenzene	95	12.120	12.110	(1.123)	74109	50.2288	50.229
	63 1,2,3-Trichloropropane	110	12.171	12.160	(0.903)	15335	55.0981	55.098

	Compounds	QUANT SIG MASS	RT	EXP RT	REL RT	RESPONSE	CONCENTRATIONS ON-COLUMN (ug/Kg)	FINAL (ug/Kg)
	65 Trans-1,4-Dichloro 2-Butene	53	12.221	12.211	(0.907)	25800	47.2369	47.237
	66 N-Propyl Benzene	91	12.271	12.271	(0.910)	312531	48.8611	48.861
	67 Bromobenzene	156	12.361	12.351	(0.917)	58816	49.1310	49.131
	68 1,3,5-Trimethyl Benzene	105	12.442	12.442	(0.923)	209423	52.6596	52.660
	69 2-Chloro Toluene	91	12.502	12.492	(0.928)	197902	49.3500	49.350
	70 4-Chloro Toluene	91	12.552	12.542	(0.931)	214990	50.5572	50.557
	71 T-Butyl Benzene	119	12.854	12.844	(0.954)	181683	51.8123	51.812
	72 1,2,4-Trimethylbenzene	105	12.904	12.894	(0.957)	204909	49.3485	49.348
	73 S-Butyl Benzene	105	13.105	13.095	(0.972)	275533	51.3036	51.304
	74 4-Isopropyl Toluene	119	13.246	13.246	(0.983)	205495	53.3341	53.334
	75 1,3-Dichlorobenzene	146	13.397	13.387	(0.994)	106073	49.2553	49.255
*	76 d4-1,4-Dichlorobenzene	152	13.477	13.467	(1.000)	64814	50.0000	
	77 1,4-Dichlorobenzene	146	13.517	13.507	(1.003)	104614	48.5099	48.510
	78 N-Butyl Benzene	91	13.728	13.718	(1.019)	228229	50.5301	50.530
$	79 d4-1,2-Dichlorobenzene	152	13.919	13.909	(1.033)	57649	50.9309	50.931
	80 1,2-Dichlorobenzene	146	13.949	13.949	(1.035)	99966	49.5587	49.559
	81 1,2-Dibromo 3-Chloropropane	75	14.854	14.844	(1.102)	15655	43.8451	43.845
	82 1,2,4-Trichlorobenzene	180	15.899	15.899	(1.180)	58618	43.9006	43.901
	83 Hexachloro 1,3-Butadiene	225	16.060	16.050	(1.192)	41299	45.4436	45.444
	84 Naphthalene	128	16.231	16.221	(1.204)	119666	48.5425	48.542
	85 1,2,3-Trichlorobenzene	180	16.522	16.512	(1.226)	54450	44.8939	44.894

QC Flag Legend

Q - Qualifier signal failed the ratio test.
R - Spike/Surrogate failed recovery limits.

Analytical Resources, Inc.

INTERNAL STANDARD COMPOUNDS
AREA AND RT SUMMARY

Instrument ID: finn5.i
Lab File ID: ICV0921.d
Lab Smp Id: ICV0921
Analysis Type: VOA
Quant Type: ISTD
Operator: PB
Method File: /chem1/finn5.i/21SEP10.b/s8260b.m
Misc Info: 10-

Calibration Date: 21-SEP-2010
Calibration Time: 15:55
Client Smp ID: ICV0921
Level: LOW
Sample Type: SOIL

Test Mode:
Use Initial Calibration Level 5.
If Continuing Cal. use Initial Cal. Level 5

COMPOUND	STANDARD	AREA LIMIT LOWER	AREA LIMIT UPPER	SAMPLE	%DIFF
23 Pentafluorobenzen	91870	45935	183740	87734	-4.50
34 1,4-Difluorobenze	137983	68992	275966	133434	-3.30
52 d5-Chlorobenzene	123519	61760	247038	116196	-5.93
76 d4-1,4-Dichlorobe	67589	33794	135178	64814	-4.11

COMPOUND	STANDARD	RT LIMIT LOWER	RT LIMIT UPPER	SAMPLE	%DIFF
23 Pentafluorobenzen	6.63	6.13	7.13	6.63	0.00
34 1,4-Difluorobenze	7.65	7.15	8.15	7.65	0.00
52 d5-Chlorobenzene	10.79	10.29	11.29	10.79	0.00
76 d4-1,4-Dichlorobe	13.48	12.98	13.98	13.48	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.

Analytical Resources, Inc.

RECOVERY REPORT

Client Name:
Sample Matrix: SOLID
Lab Smp Id: ICV0921
Level: LOW
Data Type: MS DATA
SpikeList File: icv.spk
Sublist File: voa.sub
Method File: /chem1/finn5.i/21SEP10.b/s8260b.m
Misc Info: 10-

Client SDG: 21SEP10
Fraction: VOA
Client Smp ID: ICV0921
Operator: PB
SampleType: LCS
Quant Type: ISTD

SPIKE COMPOUND	CONC ADDED ug/Kg	CONC RECOVERED ug/Kg	% RECOVERED	LIMITS
1 Dichlorodifluorome	50.000	62.952	125.90*	80-120
2 Chloromethane	50.000	49.124	98.25	80-120
3 Vinyl Chloride	50.000	55.357	110.71	80-120
4 Bromomethane	50.000	61.426	122.85*	80-120
5 Chloroethane	50.000	58.139	116.28	80-120
6 Trichlorofluoromet	50.000	60.286	120.57*	80-120
7 Acrolein	50.000	58.139	116.28	80-120
8 112Trichloro122Tri	50.000	55.160	110.32	80-120
9 Acetone	50.000	58.894	117.79	80-120
10 1,1-Dichloroethene	50.000	59.414	118.83	80-120
11 Bromoethane	50.000	53.940	107.88	80-120
12 Iodomethane	50.000	49.614	99.23	80-120
13 Methylene Chloride	50.000	55.662	111.32	80-120
15 Carbon Disulfide	50.000	43.475	86.95	80-120
14 Acrylonitrile	50.000	56.924	113.85	80-120
16 Methyl tert-Butyl	50.000	52.632	105.26	80-120
17 Trans-1,2-Dichloro	50.000	53.847	107.69	80-120
18 Vinyl Acetate	50.000	41.512	83.02	80-120
19 1,1-Dichloroethane	50.000	52.427	104.85	80-120
20 2-Butanone	50.000	53.900	107.80	80-120
21 2,2-Dichloropropan	50.000	50.192	100.38	80-120
22 Cis-1,2-Dichloroet	50.000	52.582	105.16	80-120
24 Chloroform	50.000	50.743	101.49	80-120
26 Bromochloromethane	100.00	108.58	108.58	80-120
27 1,1,1-Trichloroeth	50.000	51.810	103.62	80-120
29 1,1-Dichloropropen	50.000	47.627	95.25	80-120
30 Carbon Tetrachlori	50.000	51.260	102.52	80-120
32 1,2-Dichloroethane	50.000	52.233	104.47	80-120
33 Benzene	50.000	50.819	101.64	80-120
35 Trichloroethene	50.000	49.684	99.37	80-120
36 1,2-Dichloropropan	50.000	47.100	94.20	80-120
37 Bromodichlorometha	50.000	53.010	106.02	80-120
39 Dibromomethane	50.000	50.856	101.71	80-120

SPIKE COMPOUND	CONC ADDED ug/Kg	CONC RECOVERED ug/Kg	% RECOVERED	LIMITS
40 2-Chloroethyl Viny	50.000	48.968	97.94	80-120
41 4-Methyl-2-Pentano	50.000	51.646	103.29	80-120
42 Cis 1,3-dichloropr	50.000	47.928	95.86	80-120
44 Toluene	50.000	45.163	90.33	80-120
45 Trans 1,3-Dichloro	50.000	45.138	90.28	80-120
46 2-Hexanone	50.000	54.190	108.38	80-120
47 1,1,2-Trichloroeth	50.000	48.279	96.56	80-120
48 1,3-Dichloropropan	50.000	49.186	98.37	80-120
49 Tetrachloroethene	50.000	46.546	93.09	80-120
50 Chlorodibromometha	50.000	53.269	106.54	80-120
51 1,2-Dibromoethane	50.000	50.650	101.30	80-120
53 Chlorobenzene	50.000	49.270	98.54	80-120
55 1,1,1,2-Tetrachlor	50.000	48.414	96.83	80-120
54 Ethyl Benzene	50.000	52.954	105.91	80-120
56 m,p-xylene	100.00	101.56	101.56	80-120
57 o-Xylene	50.000	50.088	100.18	80-120
58 Styrene	50.000	49.909	99.82	80-120
59 Isopropyl Benzene	50.000	44.044	88.09	80-120
60 Bromoform	50.000	52.157	104.31	80-120
61 1,1,2,2-Tetrachlor	50.000	49.885	99.77	80-120
63 1,2,3-Trichloropro	50.000	55.098	110.20	80-120
65 Trans-1,4-Dichloro	50.000	47.237	94.47	80-120
66 N-Propyl Benzene	50.000	48.861	97.72	80-120
67 Bromobenzene	50.000	49.131	98.26	80-120
68 1,3,5-Trimethyl Be	50.000	52.660	105.32	80-120
69 2-Chloro Toluene	50.000	49.350	98.70	80-120
70 4-Chloro Toluene	50.000	50.557	101.11	80-120
71 T-Butyl Benzene	50.000	51.812	103.62	80-120
72 1,2,4-Trimethylben	50.000	49.348	98.70	80-120
73 S-Butyl Benzene	50.000	51.304	102.61	80-120
74 4-Isopropyl Toluen	50.000	53.334	106.67	80-120
75 1,3-Dichlorobenzen	50.000	49.255	98.51	80-120
77 1,4-Dichlorobenzen	50.000	48.510	97.02	80-120
78 N-Butyl Benzene	50.000	50.530	101.06	80-120
80 1,2-Dichlorobenzen	50.000	49.559	99.12	80-120
81 1,2-Dibromo 3-Chlo	50.000	43.845	87.69	80-120
82 1,2,4-Trichloroben	50.000	43.901	87.80	80-120
83 Hexachloro 1,3-But	50.000	45.444	90.89	80-120
84 Naphthalene	50.000	48.542	97.09	80-120
85 1,2,3-Trichloroben	50.000	44.894	89.79	80-120

SURROGATE COMPOUND	AMOUNT ADDED ug/Kg	AMOUNT RECOVERED ug/Kg	% RECOVERED	LIMITS
$ 25 Dibromofluorometha	50.000	51.064	102.13	30-160

SURROGATE COMPOUND	AMOUNT ADDED ug/Kg	AMOUNT RECOVERED ug/Kg	% RECOVERED	LIMITS
$ 31 d4-1,2-Dichloroeth	50.000	52.074	104.15	75-152
$ 43 d8-Toluene	50.000	48.972	97.95	82-115
$ 62 4-Bromofluorobenze	50.000	50.229	100.46	64-120
$ 79 d4-1,2-Dichloroben	50.000	50.931	101.86	80-120

Data File: /chem1/finn5.i/21SEP10.b/ICV0921.d

Date : 21-SEP-2010 17:41

Client ID: ICV0921

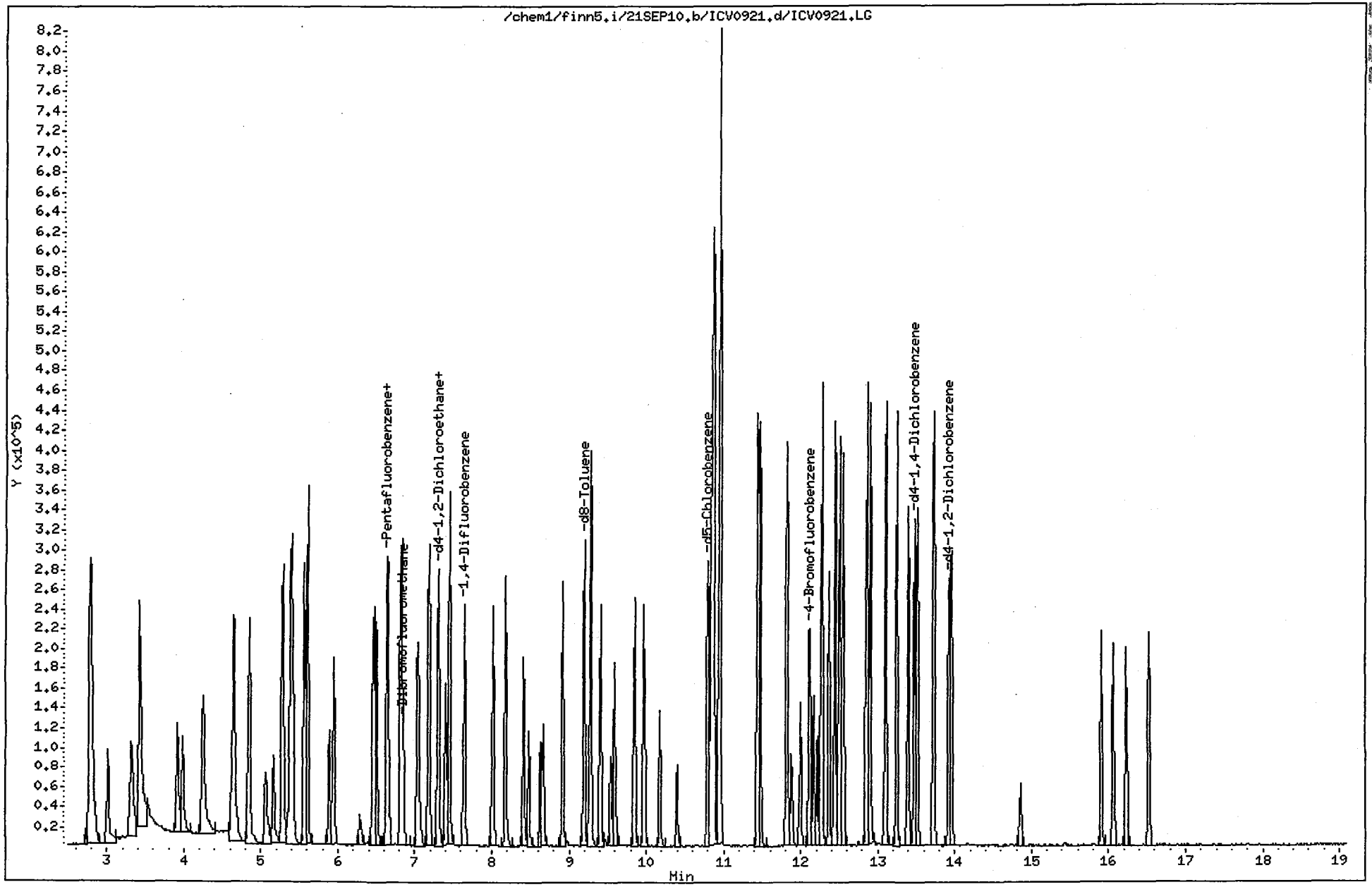
Sample Info: ICV0921,5,5,0

Column phase: Rtx502.2

Instrument: finn5.i

Operator: PB

Column diameter: 0.18



RP85.591 11

Volatile Raw Data
Run Logs, Continuing Calibrations, and Raw Data

ARI Job ID: RP83

Analytical Resources, Incorporated
Analytical Chemists and Consultants

VOA Analyst Notes / Corrective Action Log

ARI Project ID: RP83 Client ID: NW Natural

ARI SOP: **404S**(Gas) **410S**(BTEX) **430S**(VPH) **700S**(8260C) **703S**(SIM) **706S**(524.2) **710S**(RSK-175)

Parameter(s): 8260C

Instrument: NT-3 NT-5 NT-7 NT-9 NT-10 PID-1 PID-2 PID-3 FID-6 FINN-5

Purge Volume (mL) 5 Curve Date: 9/20/10 Analysis Start Date: 10/5/10

pH ≤ 2.0	YES / NO / NA	Method Blank In Control?	YES / NO
BFB Tune Meets Criteria?	YES / NO / NA	LCS / LCSD Recovery In Control?	YES / NO
Internal Standard Meets Criteria?	YES / NO / NA	Surrogate Recovery In Control?	YES / NO
ICal acceptable?	YES / NO	CCal acceptable?	YES / NO
Q flag applied?	YES / NO / NA	Q flag applied?	YES / NO / NA
Manual Integrations for ICal?	YES / NO	Manual Integrations for Samples?	Yes / NO
Special Analysis Criteria Met?	YES / NO / NA		

Bubbles/Headspace: None SM (≤ 2mm •) PB (2-4mm) LG (> 4mm ●) Head Space

Detail problems, corrective actions and/or other pertinent information below (use reverse side when necessary):

Analyzed at medium level due to naphthalene content, saturated. SOA ✓
Spectrum attached.

Additional Details on Reverse: Yes / No

Analyst: PC **Date:** 10/6/10

Reviewer: [illegible] **Date:** 10/7/10

Analytical Resources Inc.: Organics Instrument Log

FINN5 Serial No.: 5500-000421A

Date: 10/5/10 Analysis: 8260C Analyst: AR

GC Program: F5 Column No: 821729 Column Type: RTX502-2

Instrument Tune (.U or .CT.): BFB1005 EM Voltage: 1771

Calibration File: CC1005 Curve Date: 9/24/10

IS/SS	Ical/Ccal	LCS/ICV
VW655-3	VW654-2	
	VW658-1	
	VW654-3	
	VW657-5	
	VW655-2	

INTERNAL STANDARD SUMMARY FOR DATABATCH - /chem1/finn5.i/05OCT10.b

	Time	Filename	LabID	ClientID	WT											
1	1144	BFB1005.d	BFB1005	BFB1005	0.00											
2	1244	CC1005.d	CC1005	CC1005	5.00	6.61	114117	7.63	170706	10.78	143407	13.46	78450			
3	1353	LCS1005.d	LCS1005	LCS1005	5.00	6.59	113634	7.61	167895	10.76	142402	13.45	77701			
4	1428	LCS1005A.d	LCS1005	LCS1005	5.00	6.61	105263	7.63	159760	10.77	140873	13.46	79017			
5	1455	MB1005.d	MB1005	MB1005	5.00	6.61	104423	7.62	156163	10.77	138954	13.46	68527			
6	1534	MB1005A.d	MB1005	MB1005	5.00	6.61	107988	7.62	156726	10.77	136390	13.46	69923			
7	1611	RP07L.d	RP07L	TB1	1	6.60	96916	7.62	142872	10.76	133886	13.45	68913			
8	1638	RP07M.d	RP07M	TB2	1	6.60	98903	7.62	146532	10.77	131123	13.46	64448			
9	1704	RP07N.d	RP07N	TB3	1	6.60	102769	7.61	147467	10.76	134128	13.45	69367			
10	1731	RP07K.d	RP07K	GSM-RB-100929	1	6.61	101490	7.62	148946	10.77	133765	13.45	69970			
11	1757	RP10A.d	RP10A	WASTECHAR-092310	5.00	6.61	103600	7.63	153502	10.77	124552	13.46	48136			
12	1823	RP07A.d	RP07A	GSM-07SO-0-5-100927	5.00	6.60	98258	7.61	144097	10.76	118522	13.45	47318			
13	1850	RP07F.d	RP07F	GSM-08SO-0-5-100928	5.00	6.59	97883	7.61	149457	10.76	127756	13.44	59905			
14	1916	RP07I.d	RP07I	GSM-08SO-10-15-1009	5.00	6.60	87550	7.62	131009	10.77	116881	13.46	57761			
15	1942	RP07E.d	RP07E	GSM-07SO-15-20-1009	5.00	6.62	96798	7.63	145470	10.78	130868	13.47	67840			
16	2009	RP83A.d	RP83A	GSM-08SO-10-11-1009	5.00	6.61	109118	7.63	162281	10.77	142519	13.46	73316			
17	2035	RP07IMS.d	RP07IMS	GSM-08SO-10-15-1009	5.00	6.61	95633	7.63	149351	10.77	138249	13.46	75523			
18	2101	RP07IMSD.d	RP07IMSD	GSM-08SO-10-15-1009	5.00	6.61	84767	7.63	132851	10.77	119199	13.46	64660			
19	2128	RB1005.d	RB1005		5.00	6.62	101414	7.63	150356	10.78	132652	13.47	63114			

PC 10/6/10

ntenance / Comments

ntenance Verification (Identify ICal or CCal that demonstrates the instrument is in control):

line must contain information or be lined out. Make all entries legible. Start a new page for each QC period.

Q-FLAG SUMMARY FOR DATABATCH - /chem1/finn5.i/05OCT10.b

Instrument: finn5.i Date: 05-OCT-2010 Method: s8260b.m

INITIAL CAL: 21-SEP-2010

Compound	%RSD or R^2
NO Q-FLAGS	

CONTINUING CAL: 05-OCT-2010

Compound	%D
4-Isopropyl Toluene	20.5
1,2-Dibromo 3-Chloropropane	-33.2
Dichlorodifluoromethane	36.5

MANUAL INTEGRATION SUMMARY FOR DATABATCH - /chem1/finn5.i/05OCT10.b

ARI Job No.: CC10 Method: s8260b.m Instrument: finn5.i Date: 05-OCT-2010

Time	Filename	LabID	ClientId	DF	Manually Integrated Compounds
1244	CC1005.d	CC1005	CC1005	1	NO MANUAL INTEGRATION
1353	LCS1005.d	LCS1005	LCS1005	1	NO MANUAL INTEGRATION
1428	LCS1005A.d	LCS1005	LCS1005	1	NO MANUAL INTEGRATION
1534	MB1005A.d	MB1005	MB1005	1	NO MANUAL INTEGRATION
2009	RP83A.d	RP83A	GSM-08SO-1	1	NO MANUAL INTEGRATION

RP83 : 00149

 DC 10/6/10

Data File: /chem1/finn5.i/05OCT10.b/BFB1005.d

Date : 05-OCT-2010 11:44

Client ID: BFB1005

Instrument: finn5.i

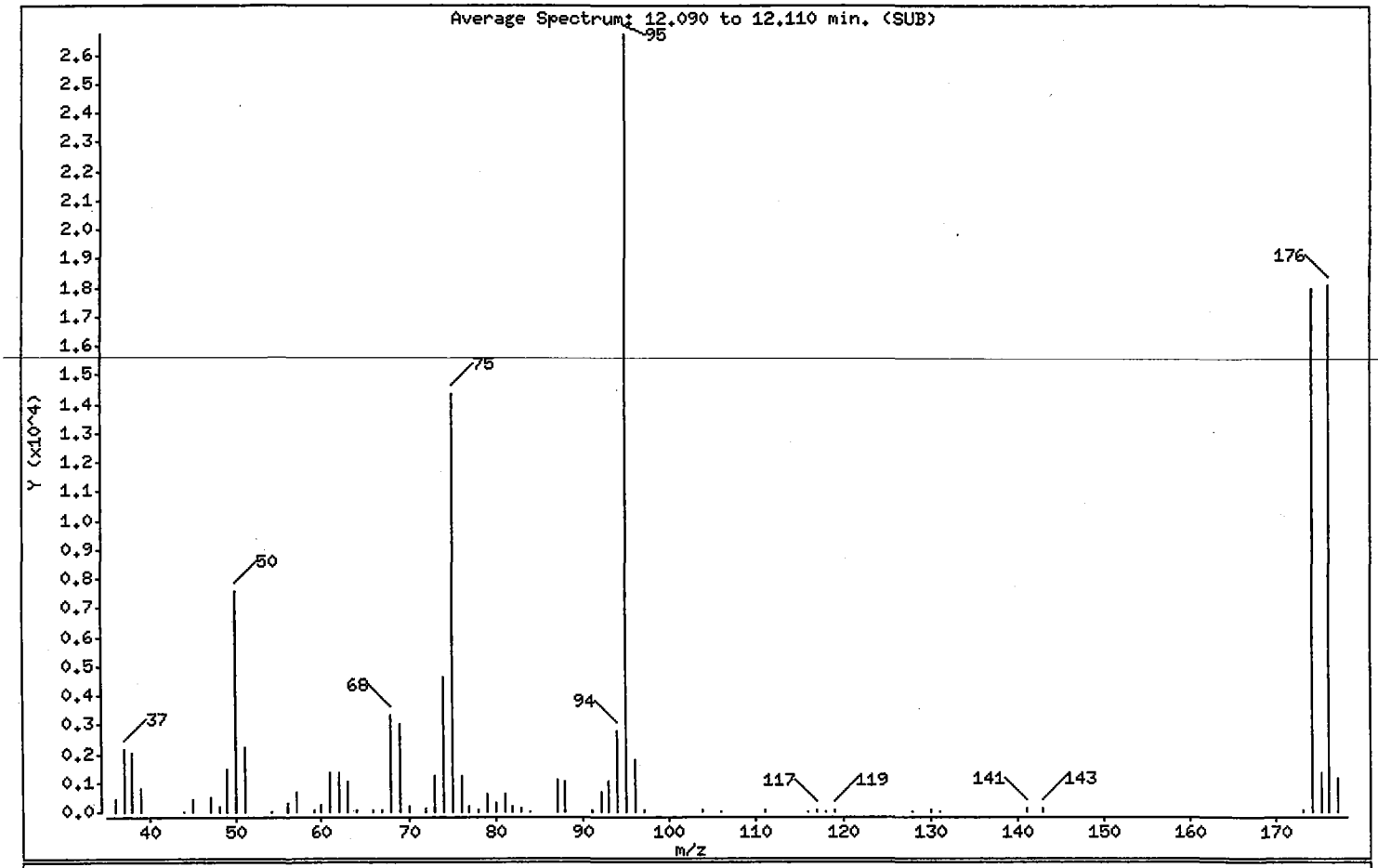
Sample Info: BFB1005,5,5,0

Operator: ar

Column phase: RTX502.2

Column diameter: 0.18

1 Bromofluorobenzene



m/e	ION ABUNDANCE CRITERIA	% RELATIVE ABUNDANCE
95	Base Peak, 100% relative abundance	100.00
50	8.00 - 40.00% of mass 95	28.25
75	30.00 - 66.00% of mass 95	53.61
96	5.00 - 9.00% of mass 95	6.61
173	Less than 2.00% of mass 174	0.24 (0.35)
174	50.00 - 101.00% of mass 95	67.22
175	4.00 - 9.00% of mass 174	5.01 (7.45)
176	93.00 - 101.00% of mass 174	67.64 (100.62)
177	5.00 - 9.00% of mass 176	4.46 (6.60)

Data File: /chem1/finn5.i/05OCT10.b/BFB1005.d

Date : 05-OCT-2010 11:44

Client ID: BFB1005 Instrument: finn5.i

Sample Info: BFB1005,5,5,0

Operator: ar

Column phase: RTX502.2 Column diameter: 0.18

Data File: BFB1005.d
Spectrum: Average Spectrum: 12.090 to 12.110 min. (SUB)
Location of Maximum: 95.00
Number of points: 64

m/z	Y	m/z	Y	m/z	Y	m/z	Y
36.00	413	62.00	1340	81.00	620	117.00	82
37.00	2160	63.00	1038	82.00	211	118.00	25
38.00	2020	64.00	39	83.00	114	119.00	57
39.00	793	66.00	82	84.00	19	128.00	27
44.00	16	67.00	91	87.00	1087	130.00	45
45.00	415	68.00	3312	88.00	1075	131.00	17
47.00	487	69.00	3035	91.00	51	141.00	123
48.00	172	70.00	184	92.00	663	143.00	148
49.00	1466	72.00	123	93.00	1052	173.00	63
50.00	7549	73.00	1242	94.00	2784	174.00	17960
51.00	2208	74.00	4604	95.00	26720	175.00	1338
54.00	28	75.00	14325	96.00	1766	176.00	18072
56.00	283	76.00	1242	97.00	36	177.00	1192
57.00	692	77.00	165	104.00	53		
59.00	51	78.00	65	106.00	21		
60.00	250	79.00	605	111.00	40		
61.00	1357	80.00	279	116.00	19		

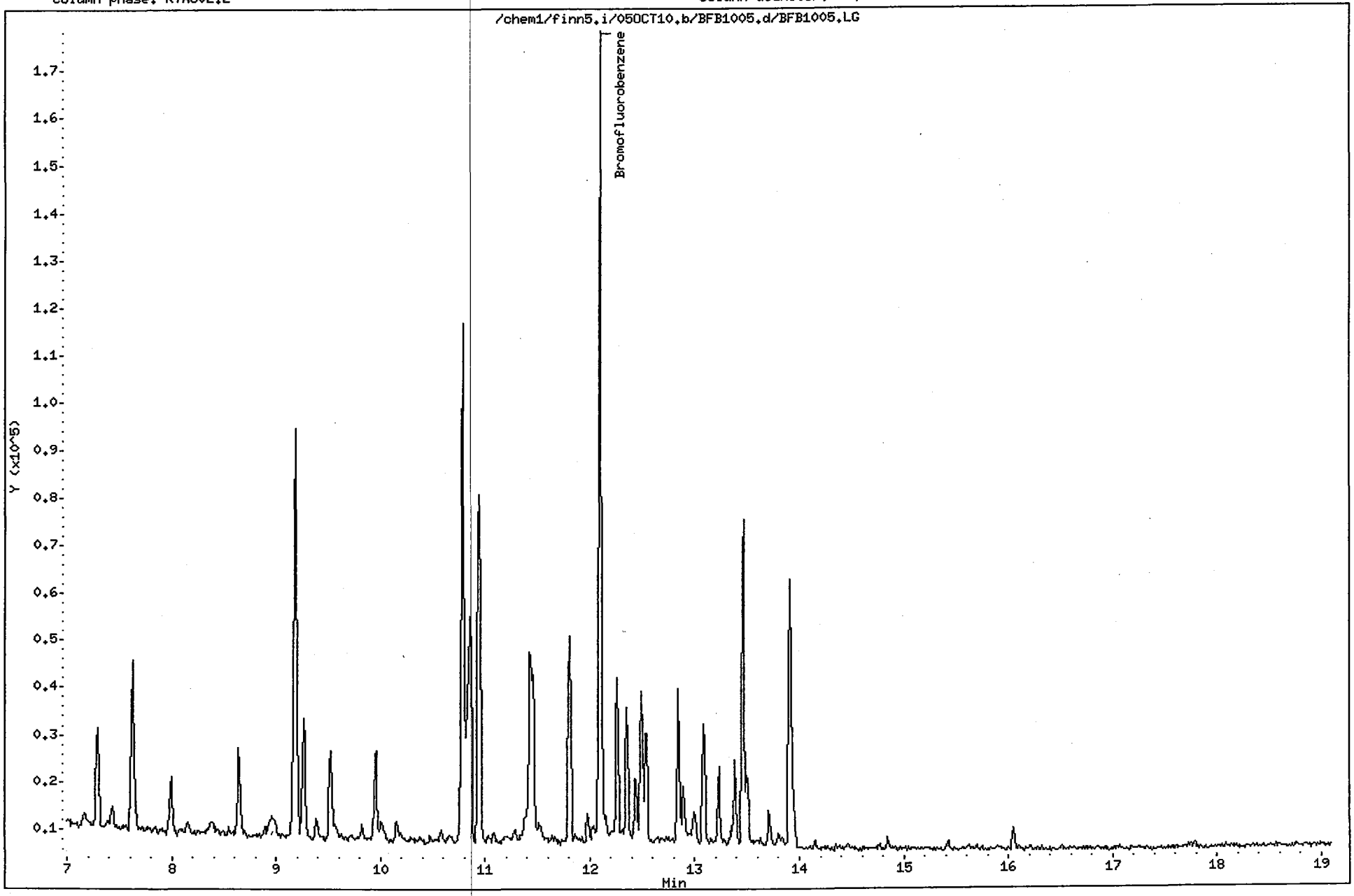
Data File: /chem1/finn5.i/05OCT10.b/BFB1005.d
Date : 05-OCT-2010 11:44
Client ID: BFB1005
Sample Info: BFB1005,5,5,0

Column phase: RTX502.2

Page 1

Instrument: finn5.i

Operator: ar
Column diameter: 0.18



RP83 : 001152

PC 10/6/10

Analytical Resources, Inc.

8260C

Data file : /chem1/finn5.i/05OCT10.b/CC1005.d
Lab Smp Id: CC1005 Client Smp ID: CC1005
Inj Date : 05-OCT-2010 12:44
Operator : PB Inst ID: finn5.i
Smp Info : CC1005,5,5,0
Misc Info : 10-
Comment :
Method : /chem1/finn5.i/05OCT10.b/s8260b.m
Meth Date : 05-Oct-2010 14:08 paul Quant Type: ISTD
Cal Date : 21-SEP-2010 14:36 Cal File: 2000921.d
Als bottle: 1 Continuing Calibration Sample
Dil Factor: 1.00000
Integrator: HP RTE Compound Sublist: voa.sub
Target Version: 3.50

Concentration Formula: Amt * DF * Pv * 1 / (Sa * ((100 - M) / 100)) * CpndVaria

Name	Value	Description
DF	1.00000	Dilution Factor
Pv	5.00000	Purge Volume
Sa	5.00000	Sample Amount
M	0.00000	Moisture (%)

Cpnd Variable Local Compound Variable

Compounds	QUANT SIG MASS	RT	EXP RT	REL RT	RESPONSE	AMOUNTS CAL-AMT (ug/Kg)	AMOUNTS ON-COL (ug/Kg)
1 Dichlorodifluoromethane	85	2.995	2.995	(0.453)	139892	50.0000	68.256
2 Chloromethane	50	3.296	3.296	(0.498)	267129	50.0000	55.876
3 Vinyl Chloride	62	3.407	3.407	(0.515)	242213	50.0000	50.847
4 Bromomethane	94	3.899	3.899	(0.590)	113879	50.0000	58.671
5 Chloroethane	64	3.970	3.970	(0.600)	117089	50.0000	57.614
6 Trichlorofluoromethane	101	4.231	4.231	(0.640)	184219	50.0000	58.340
7 Acrolein	56	4.613	4.613	(0.698)	100976	250.000	283.70
8 112Trichloro122Trifluoroethane	101	4.633	4.633	(0.701)	121246	50.0000	51.705
9 Acetone	43	4.663	4.663	(0.705)	185599	250.000	208.00
10 1,1-Dichloroethene	96	4.824	4.824	(0.729)	97730	50.0000	57.257
11 Bromoethane	108	5.045	5.045	(0.763)	75706	50.0000	53.128
12 Iodomethane	142	5.146	5.146	(0.778)	150303	50.0000	52.069
13 Methylene Chloride	84	5.256	5.256	(0.795)	103685	50.0000	43.328
14 Acrylonitrile	53	5.337	5.337	(0.807)	31905	50.0000	47.045(Q)
16 Methyl tert-Butyl Ether	73	5.387	5.387	(0.815)	225936	50.0000	44.429(Q)

	Compounds	QUANT SIG MASS	RT	EXP RT	REL RT	RESPONSE	AMOUNTS CAL-AMT (ug/Kg)	AMOUNTS ON-COL (ug/Kg)
	15 Carbon Disulfide	76	5.367	5.367	(0.812)	341023	50.0000	48.072
	17 Trans-1,2-Dichloroethene	96	5.548	5.548	(0.839)	88169	50.0000	50.520
	18 Vinyl Acetate	43	5.869	5.869	(0.888)	225052	50.0000	45.952
	19 1,1-Dichloroethane	63	5.929	5.929	(0.897)	203083	50.0000	49.362
	20 2-Butanone	43	6.271	6.271	(0.948)	224186	250.000	214.21
	21 2,2-Dichloropropane	77	6.452	6.452	(0.976)	151382	50.0000	45.073
	22 Cis-1,2-Dichloroethene	96	6.482	6.482	(0.980)	83291	50.0000	50.465
*	23 Pentafluorobenzene	168	6.613	6.613	(1.000)	114117	50.0000	
	24 Chloroform	83	6.633	6.633	(1.003)	163798	50.0000	47.620
	26 Bromochloromethane	128	6.794	6.794	(1.027)	38150	50.0000	51.924
$	25 Dibromofluoromethane	111	6.834	6.834	(1.033)	68952	50.0000	47.354(Q)
	27 1,1,1-Trichloroethane	97	7.025	7.025	(1.062)	132391	50.0000	46.652
	29 1,1-Dichloropropene	75	7.166	7.166	(0.939)	138304	50.0000	47.967
	30 Carbon Tetrachloride	117	7.276	7.276	(0.954)	114029	50.0000	47.174
$	31 d4-1,2-Dichloroethane	65	7.296	7.296	(1.103)	91460	50.0000	42.380
	32 1,2-Dichloroethane	62	7.387	7.387	(0.968)	133825	50.0000	46.615
	33 Benzene	78	7.427	7.427	(0.974)	306158	50.0000	50.432
*	34 1,4-Difluorobenzene	114	7.628	7.628	(1.000)	170706	50.0000	
	35 Trichloroethene	95	8.000	8.000	(1.049)	87231	50.0000	50.158
	36 1,2-Dichloropropane	63	8.161	8.161	(1.070)	98832	50.0000	46.563
	37 Bromodichloromethane	83	8.392	8.392	(1.100)	115499	50.0000	46.930
	39 Dibromomethane	93	8.462	8.462	(1.109)	48746	50.0000	47.880
	40 2-Chloroethyl Vinyl Ether	63	8.613	8.613	(1.129)	40385	50.0000	44.622
	41 4-Methyl-2-Pentanone	58	8.643	8.643	(1.133)	123866	250.000	202.65
	42 Cis 1,3-dichloropropene	75	8.894	8.894	(1.166)	136875	50.0000	46.428
$	43 d8-Toluene	98	9.176	9.176	(1.203)	202091	50.0000	50.209
	44 Toluene	92	9.256	9.256	(1.213)	172550	50.0000	46.764
	45 Trans 1,3-Dichloropropene	75	9.387	9.387	(1.231)	119519	50.0000	44.738
	46 2-Hexanone	43	9.527	9.527	(0.884)	319333	250.000	213.63
	47 1,1,2-Trichloroethane	97	9.578	9.578	(1.256)	53349	50.0000	46.455
	48 1,3-Dichloropropane	76	9.829	9.829	(0.911)	113248	50.0000	47.639
	49 Tetrachloroethene	166	9.949	9.949	(0.923)	76860	50.0000	52.749
	50 Chlorodibromomethane	129	10.161	10.161	(0.942)	70644	50.0000	49.277
	51 1,2-Dibromoethane	107	10.382	10.382	(1.361)	60101	50.0000	46.985
*	52 d5-Chlorobenzene	117	10.784	10.784	(1.000)	143407	50.0000	
	53 Chlorobenzene	112	10.824	10.824	(1.004)	171245	50.0000	51.630
	54 Ethyl Benzene	91	10.854	10.854	(1.007)	338989	50.0000	54.885
	55 1,1,1,2-Tetrachloroethane	131	10.844	10.844	(1.006)	61713	50.0000	47.287
	56 m,p-xylene	106	10.934	10.934	(1.014)	250213	100.000	110.40
	57 o-Xylene	106	11.427	11.427	(1.060)	121146	50.0000	52.704
	58 Styrene	104	11.457	11.457	(1.062)	200251	50.0000	53.584
	59 Isopropyl Benzene	105	11.809	11.809	(0.878)	326346	50.0000	53.866
	60 Bromoform	173	11.869	11.869	(0.882)	42513	50.0000	45.891
	61 1,1,2,2-Tetrachloroethane	83	11.980	11.980	(0.890)	77073	50.0000	47.196
$	62 4-Bromofluorobenzene	95	12.100	12.100	(1.122)	88071	50.0000	48.365
	63 1,2,3-Trichloropropane	110	12.150	12.150	(0.903)	16624	50.0000	49.347
	65 Trans-1,4-Dichloro 2-Butene	53	12.201	12.201	(0.907)	29354	50.0000	44.402

Compounds	QUANT SIG MASS	RT	EXP RT	REL RT	RESPONSE	AMOUNTS CAL-AMT (ug/Kg)	AMOUNTS ON-COL (ug/Kg)
66 N-Propyl Benzene	91	12.261	12.261	(0.911)	406617	50.0000	52.520
67 Bromobenzene	156	12.351	12.351	(0.918)	77366	50.0000	53.393
68 1,3,5-Trimethyl Benzene	105	12.432	12.432	(0.924)	276303	50.0000	57.400
69 2-Chloro Toluene	91	12.492	12.492	(0.928)	265652	50.0000	54.729
70 4-Chloro Toluene	91	12.532	12.532	(0.931)	281012	50.0000	54.596
71 T-Butyl Benzene	119	12.844	12.844	(0.954)	233104	50.0000	54.921
72 1,2,4-Trimethylbenzene	105	12.894	12.894	(0.958)	271689	50.0000	54.058
73 S-Butyl Benzene	105	13.085	13.085	(0.972)	364266	50.0000	56.036
74 4-Isopropyl Toluene	119	13.236	13.236	(0.984)	281067	50.0000	60.268
75 1,3-Dichlorobenzene	146	13.387	13.387	(0.995)	147850	50.0000	56.720
* 76 d4-1,4-Dichlorobenzene	152	13.457	13.457	(1.000)	78450	50.0000	
77 1,4-Dichlorobenzene	146	13.497	13.497	(1.003)	147405	50.0000	56.471
78 N-Butyl Benzene	91	13.708	13.708	(1.019)	316906	50.0000	57.967
~~$ 79 d4-1,2-Dichlorobenzene~~	~~152~~	~~13.909~~	~~13.909~~	~~(1.034)~~	~~65895~~	~~50.0000~~	~~48.097~~
80 1,2-Dichlorobenzene	146	13.939	13.939	(1.036)	127569	50.0000	52.250
81 1,2-Dibromo 3-Chloropropane	75	14.844	14.844	(1.103)	14441	50.0000	33.415
82 1,2,4-Trichlorobenzene	180	15.889	15.889	(1.181)	80542	50.0000	49.835
83 Hexachloro 1,3-Butadiene	225	16.050	16.050	(1.193)	52972	50.0000	48.156
84 Naphthalene	128	16.221	16.221	(1.205)	127559	50.0000	42.750
85 1,2,3-Trichlorobenzene	180	16.512	16.512	(1.227)	67541	50.0000	46.008

QC Flag Legend

Q - Qualifier signal failed the ratio test.

Data File: /chem1/finn5.i/05OCT10.b/CC1005.d
Report Date: 05-Oct-2010 14:08

Analytical Resources, Inc.

CONTINUING CALIBRATION COMPOUNDS

Instrument ID: finn5.i
Lab File ID: CC1005.d
Analysis Type: SOIL
Lab Sample ID: CC1005
Method: /chem1/finn5.i/05OCT10.b/s8260b.m

Injection Date: 05-OCT-2010 12:44
Init. Cal. Date(s): 21-SEP-2010 21-SEP-2010
Init. Cal. Times: 14:00 17:15
Quant Type: ISTD

COMPOUND	RRF / AMOUNT	RF50	CCAL RRF50	MIN RRF	%D / %DRIFT	MAX %D / %DRIFT	CURVE TYPE	
1 Dichlorodifluoromethane	0.89798	1.22587	1.22587	0.010	36.51317	20.00000	Averaged	<-
2 Chloromethane	2.09468	2.34082	2.34082	0.100	11.75107	20.00000	Averaged	
3 Vinyl Chloride	2.08712	2.12249	2.12249	0.010	1.69477	20.00000	Averaged	
4 Bromomethane	58.67088	50.00000	0.99791	0.010	17.34176	20.00000	Quadratic	
5 Chloroethane	0.89044	1.02604	1.02604	0.010	15.22858	20.00000	Averaged	
6 Trichlorofluoromethane	1.38352	1.61429	1.61429	0.010	16.68008	20.00000	Averaged	
7 Acrolein	0.15595	0.17697	0.17697	0.010	13.47953	20.00000	Averaged	
8 112Trichloro122Trifluoroeth	1.02744	1.06247	1.06247	0.010	3.40964	20.00000	Averaged	
9 Acetone	0.39095	0.32528	0.32528	0.010	-16.79913	20.00000	Averaged	
10 1,1-Dichloroethene	0.74786	0.85640	0.85640	0.010	14.51340	20.00000	Averaged	
11 Bromoethane	0.62434	0.66340	0.66340	0.010	6.25608	20.00000	Averaged	
12 Iodomethane	1.26474	1.31709	1.31709	0.010	4.13891	20.00000	Averaged	
13 Methylene Chloride	1.04851	0.90859	0.90859	0.010	-13.34464	20.00000	Averaged	
14 Acrylonitrile	0.29715	0.27959	0.27959	0.010	-5.90912	20.00000	Averaged	
16 Methyl tert-Butyl Ether	2.22811	1.97986	1.97986	0.010	-11.14170	20.00000	Averaged	
15 Carbon Disulfide	3.10822	2.98835	2.98835	0.010	-3.85664	20.00000	Averaged	
17 Trans-1,2-Dichloroethene	0.76467	0.77262	0.77262	0.010	1.04000	20.00000	Averaged	
18 Vinyl Acetate	2.14585	1.97211	1.97211	0.010	-8.09659	20.00000	Averaged	
19 1,1-Dichloroethane	1.80260	1.77959	1.77959	0.100	-1.27613	20.00000	Averaged	
20 2-Butanone	0.45855	0.39290	0.39290	0.010	-14.31570	20.00000	Averaged	
21 2,2-Dichloropropane	1.47154	1.32655	1.32655	0.010	-9.85326	20.00000	Averaged	
22 Cis-1,2-Dichloroethene	0.72315	0.72988	0.72988	0.010	0.92956	20.00000	Averaged	
24 Chloroform	1.50709	1.43535	1.43535	0.010	-4.76042	20.00000	Averaged	
26 Bromochloromethane	0.32191	0.33430	0.33430	0.010	3.84902	20.00000	Averaged	
$ 25 Dibromofluoromethane	0.63798	0.60422	0.60422	0.010	-5.29102	20.00000	Averaged	
27 1,1,1-Trichloroethane	1.24339	1.16013	1.16013	0.010	-6.69630	20.00000	Averaged	
29 1,1-Dichloropropene	0.84452	0.81019	0.81019	0.010	-4.06532	20.00000	Averaged	
30 Carbon Tetrachloride	0.70800	0.66799	0.66799	0.010	-5.65208	20.00000	Averaged	
$ 31 d4-1,2-Dichloroethane	0.94554	0.80145	0.80145	0.010	-15.23883	20.00000	Averaged	
32 1,2-Dichloroethane	0.84087	0.78395	0.78395	0.010	-6.76920	20.00000	Averaged	
33 Benzene	1.77811	1.79348	1.79348	0.010	0.86454	20.00000	Averaged	
35 Trichloroethene	0.50940	0.51101	0.51101	0.010	0.31524	20.00000	Averaged	
36 1,2-Dichloropropane	0.62170	0.57896	0.57896	0.010	-6.87471	20.00000	Averaged	
37 Bromodichloromethane	0.72086	0.67660	0.67660	0.010	-6.13987	20.00000	Averaged	
39 Dibromomethane	0.29820	0.28556	0.28556	0.010	-4.24031	20.00000	Averaged	

Analytical Resources, Inc.

CONTINUING CALIBRATION COMPOUNDS

Instrument ID: finn5.i
Lab File ID: CC1005.d
Analysis Type: SOIL
Lab Sample ID: CC1005
Method: /chem1/finn5.i/05OCT10.b/s8260b.m

Injection Date: 05-OCT-2010 12:44
Init. Cal. Date(s): 21-SEP-2010 21-SEP-2010
Init. Cal. Times: 14:00 17:15
Quant Type: ISTD

COMPOUND	RRF / AMOUNT	RF50	CCAL RRF50	MIN RRF	%D / %DRIFT	MAX %D / %DRIFT	CURVE TYPE
40 2-Chloroethyl Vinyl Ether	0.26509	0.23658	0.23658	0.001	-10.75659	20.00000	Averaged
41 4-Methyl-2-Pentanone	0.17903	0.14512	0.14512	0.010	-18.93923	20.00000	Averaged
42 Cis 1,3-dichloropropene	0.86350	0.80182	0.80182	0.010	-7.14298	20.00000	Averaged
$ 43 d8-Toluene	1.17892	1.18386	1.18386	0.010	0.41840	20.00000	Averaged
44 Toluene	1.08076	1.01081	1.01081	0.010	-6.47245	20.00000	Averaged
45 Trans 1,3-Dichloropropene	0.78250	0.70015	0.70015	0.010	-10.52484	20.00000	Averaged
46 2-Hexanone	0.52116	0.44535	0.44535	0.010	-14.54692	20.00000	Averaged
47 1,1,2-Trichloroethane	0.33637	0.31252	0.31252	0.010	-7.09023	20.00000	Averaged
48 1,3-Dichloropropane	0.82884	0.78970	0.78970	0.010	-4.72245	20.00000	Averaged
49 Tetrachloroethene	0.50803	0.53596	0.53596	0.010	5.49760	20.00000	Averaged
50 Chlorodibromomethane	0.49984	0.49261	0.49261	0.010	-1.44596	20.00000	Averaged
51 1,2-Dibromoethane	0.37466	0.35207	0.35207	0.010	-6.03001	20.00000	Averaged
53 Chlorobenzene	1.15641	1.19412	1.19412	0.300	3.26112	20.00000	Averaged
54 Ethyl Benzene	2.15344	2.36382	2.36382	0.010	9.76951	20.00000	Averaged
55 1,1,1,2-Tetrachloroethane	0.45503	0.43034	0.43034	0.010	-5.42576	20.00000	Averaged
56 m,p-xylene	0.79023	0.87239	0.87239	0.010	10.39591	20.00000	Averaged
57 o-Xylene	0.80144	0.84478	0.84478	0.010	5.40732	20.00000	Averaged
58 Styrene	1.30298	1.39638	1.39638	0.010	7.16836	20.00000	Averaged
59 Isopropyl Benzene	3.86131	4.15988	4.15988	0.010	7.73235	20.00000	Averaged
60 Bromoform	0.59044	0.54192	0.54192	0.100	-8.21847	20.00000	Averaged
61 1,1,2,2-Tetrachloroethane	1.04082	0.98244	0.98244	0.300	-5.60818	20.00000	Averaged
$ 62 4-Bromofluorobenzene	0.63489	0.61413	0.61413	0.010	-3.26901	20.00000	Averaged
63 1,2,3-Trichloropropane	0.21471	0.21190	0.21190	0.010	-1.30567	20.00000	Averaged
65 Trans-1,4-Dichloro 2-Butene	0.42135	0.37417	0.37417	0.010	-11.19644	20.00000	Averaged
66 N-Propyl Benzene	4.93436	5.18309	5.18309	0.010	5.04070	20.00000	Averaged
67 Bromobenzene	0.92351	0.98617	0.98617	0.010	6.78539	20.00000	Averaged
68 1,3,5-Trimethyl Benzene	3.06795	3.52199	3.52199	0.010	14.79971	20.00000	Averaged
69 2-Chloro Toluene	3.09360	3.38622	3.38622	0.010	9.45890	20.00000	Averaged
70 4-Chloro Toluene	3.28048	3.58201	3.58201	0.010	9.19190	20.00000	Averaged
71 T-Butyl Benzene	2.70509	2.97134	2.97134	0.010	9.84234	20.00000	Averaged
72 1,2,4-Trimethylbenzene	3.20323	3.46318	3.46318	0.010	8.11514	20.00000	Averaged
73 S-Butyl Benzene	4.14312	4.64324	4.64324	0.010	12.07111	20.00000	Averaged
74 4-Isopropyl Toluene	2.97233	3.58272	3.58272	0.010	20.53582	20.00000	Averaged <-
75 1,3-Dichlorobenzene	1.66132	1.88462	1.88462	0.010	13.44113	20.00000	Averaged
77 1,4-Dichlorobenzene	1.66364	1.87896	1.87896	0.010	12.94222	20.00000	Averaged

Analytical Resources, Inc.

CONTINUING CALIBRATION COMPOUNDS

Instrument ID: finn5.i Injection Date: 05-OCT-2010 12:44
Lab File ID: CC1005.d Init. Cal. Date(s): 21-SEP-2010 21-SEP-2010
Analysis Type: SOIL Init. Cal. Times: 14:00 17:15
Lab Sample ID: CC1005 Quant Type: ISTD
Method: /chem1/finn5.i/05OCT10.b/s8260b.m

COMPOUND	RRF / AMOUNT	RF50	CCAL RRF50	MIN RRF	%D / %DRIFT	MAX %D / %DRIFT	CURVE TYPE	
78 N-Butyl Benzene	3.48435	4.03955	4.03955	0.010	15.93415	20.00000	Averaged	
$ 79 d4-1,2-Dichlorobenzene	0.87320	0.83996	0.83996	0.010	-3.80674	20.00000	Averaged	
80 1,2-Dichlorobenzene	1.55609	1.62611	1.62611	0.010	4.49976	20.00000	Averaged	
81 1,2-Dibromo 3-Chloropropane	0.27544	0.18408	0.18408	0.010	-33.16963	20.00000	Averaged	<-
82 1,2,4-Trichlorobenzene	1.03006	1.02666	1.02666	0.010	-0.33016	20.00000	Averaged	
83 Hexachloro 1,3-Butadiene	0.70108	0.67523	0.67523	0.010	-3.68746	20.00000	Averaged	
84 Naphthalene	1.90173	1.62598	1.62598	0.010	-14.49998	20.00000	Averaged	
85 1,2,3-Trichlorobenzene	0.93565	0.86094	0.86094	0.010	-7.98457	20.00000	Averaged	

Analytical Resources, Inc.

INTERNAL STANDARD COMPOUNDS
AREA AND RT SUMMARY

Instrument ID: finn5.i
Lab File ID: CC1005.d
Lab Smp Id: CC1005
Analysis Type: VOA
Quant Type: ISTD
Operator: PB
Method File: /chem1/finn5.i/05OCT10.b/s8260b.m
Misc Info: 10-

Calibration Date: 05-OCT-2010
Calibration Time: 12:44
Client Smp ID: CC1005
Level: LOW
Sample Type: SOIL

Test Mode:
Use Initial Calibration Level 5.
If Continuing Cal. use Initial Cal. Level 5

COMPOUND	STANDARD	AREA LIMIT LOWER	AREA LIMIT UPPER	SAMPLE	%DIFF
23 Pentafluorobenzen	91870	45935	183740	114117	24.22
34 1,4-Difluorobenze	137983	68992	275966	170706	23.72
52 d5-Chlorobenzene	123519	61760	247038	143407	16.10
76 d4-1,4-Dichlorobe	67589	33794	135178	78450	16.07

COMPOUND	STANDARD	RT LIMIT LOWER	RT LIMIT UPPER	SAMPLE	%DIFF
23 Pentafluorobenzen	6.63	6.13	7.13	6.61	-0.30
34 1,4-Difluorobenze	7.65	7.15	8.15	7.63	-0.26
52 d5-Chlorobenzene	10.79	10.29	11.29	10.78	-0.09
76 d4-1,4-Dichlorobe	13.48	12.98	13.98	13.46	-0.15

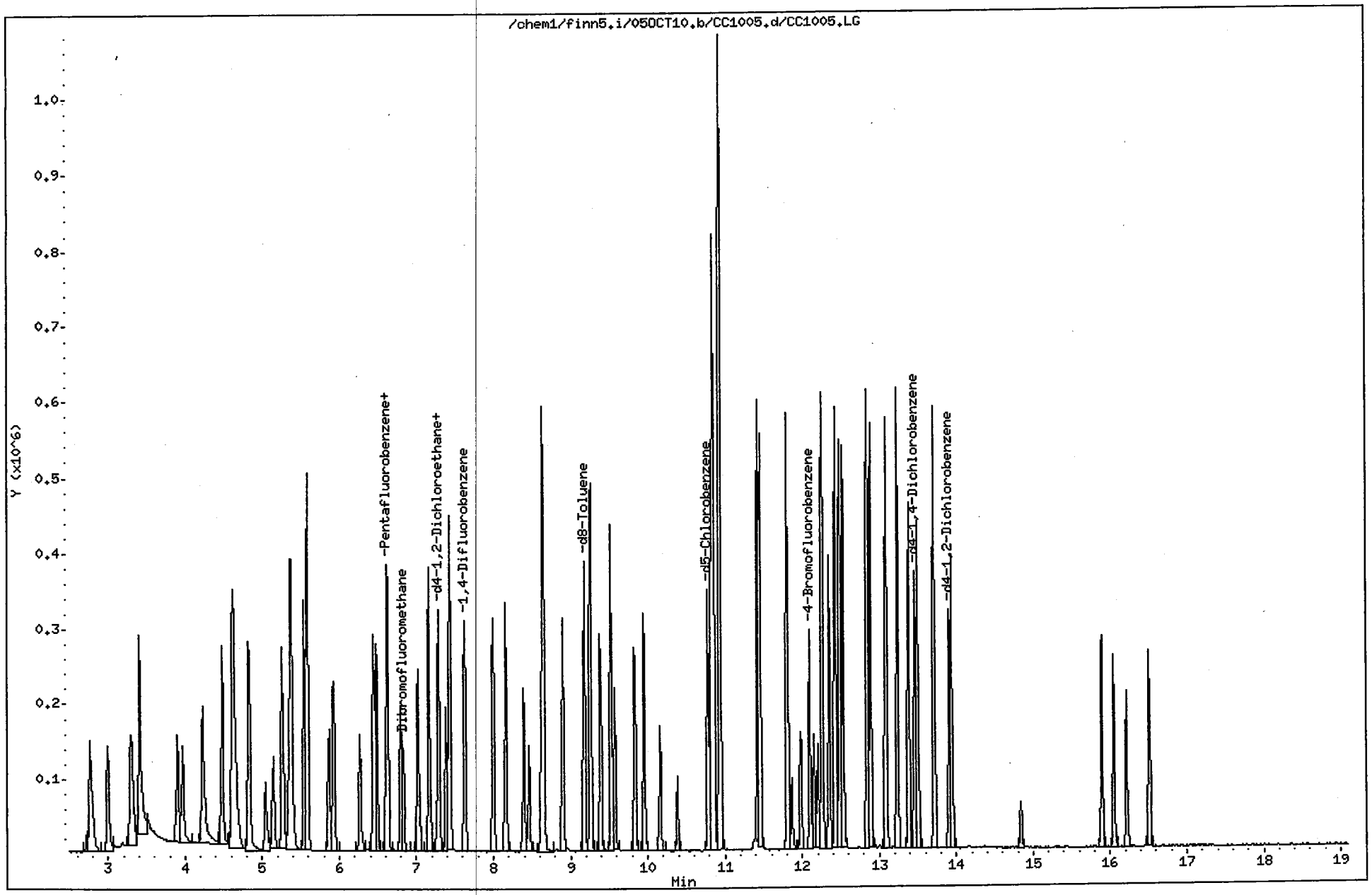
AREA UPPER LIMIT = +100% of internal standard area.
AREA LOWER LIMIT = - 50% of internal standard area.
RT UPPER LIMIT = + 0.50 minutes of internal standard RT.
RT LOWER LIMIT = - 0.50 minutes of internal standard RT.

Data File: /chem1/finn5.i/05OCT10.b/CC1005.d
Date : 05-OCT-2010 12:44
Client ID: CC1005
Sample Info: CC1005,5,5,0

Column phase: Rtx502.2

Instrument: finn5.i

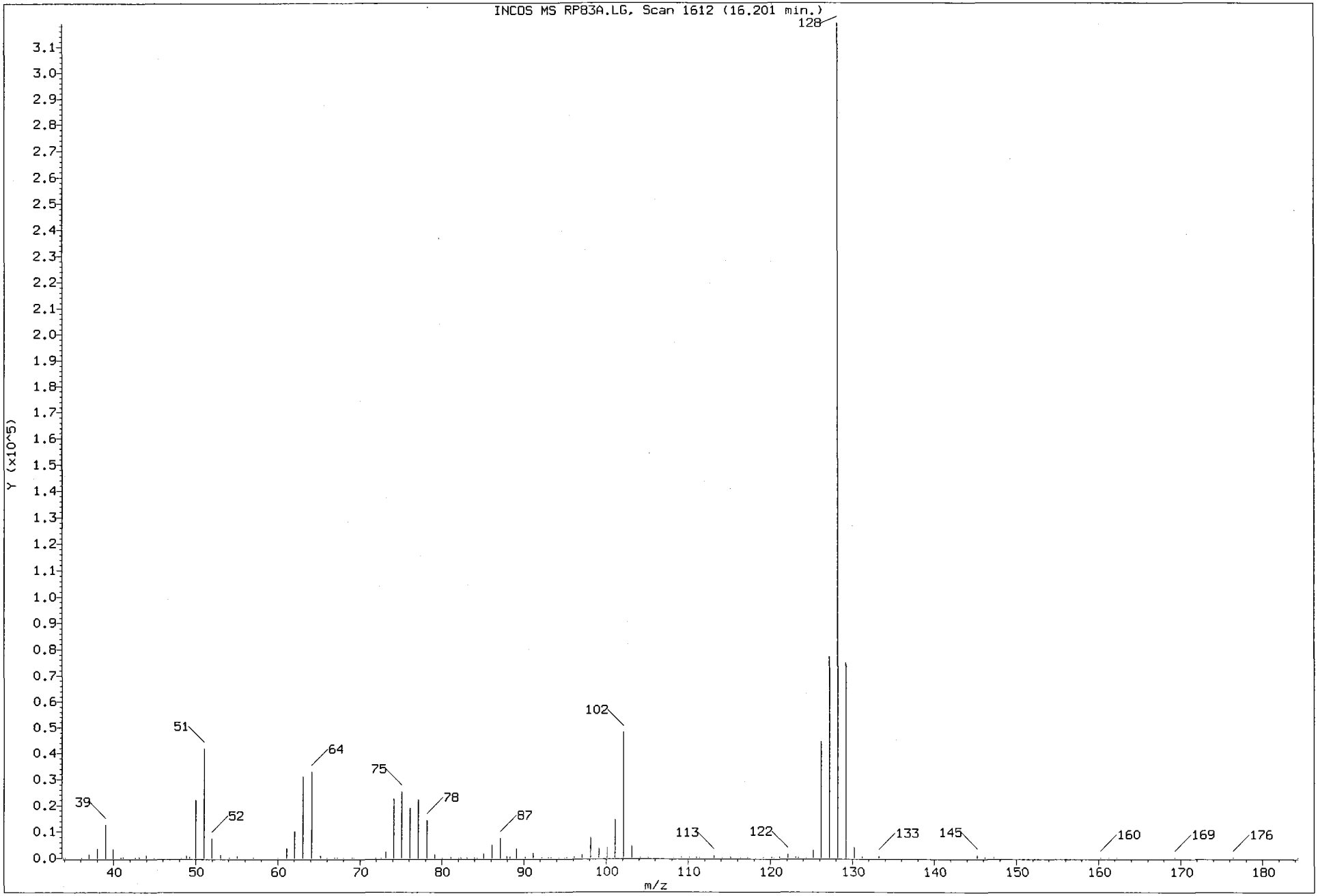
Operator: PB
Column diameter: 0.18



RP83:00165

Data File: /chem1/finn5.i/05OCT10.b/RP83A.d/RP83A.LG
Injection Date: 05-OCT-2010 20:09
Instrument: finn5.i
Client Sample ID: GSM-08SO-10-11-1009

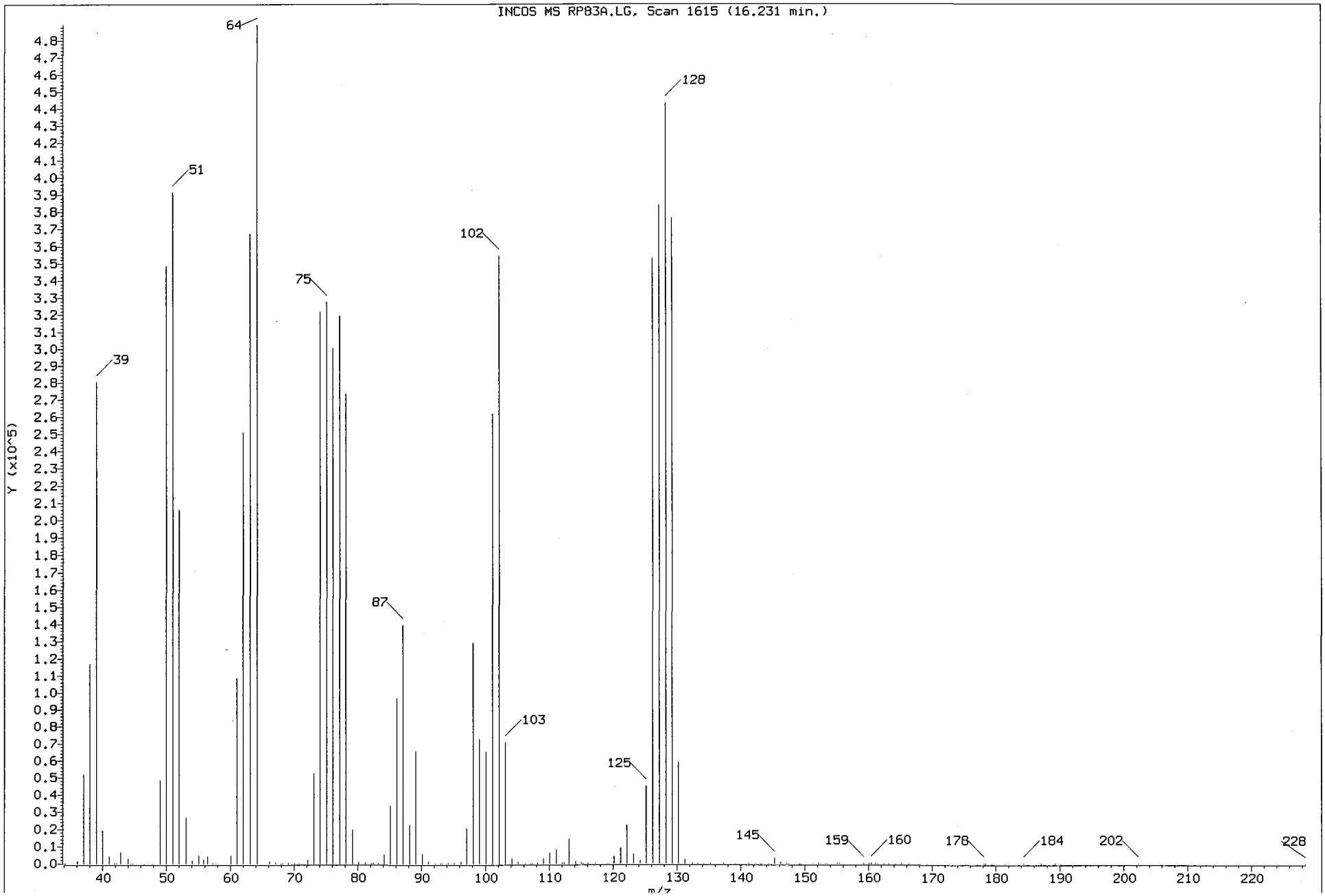
Side of Peak



RP83 00161

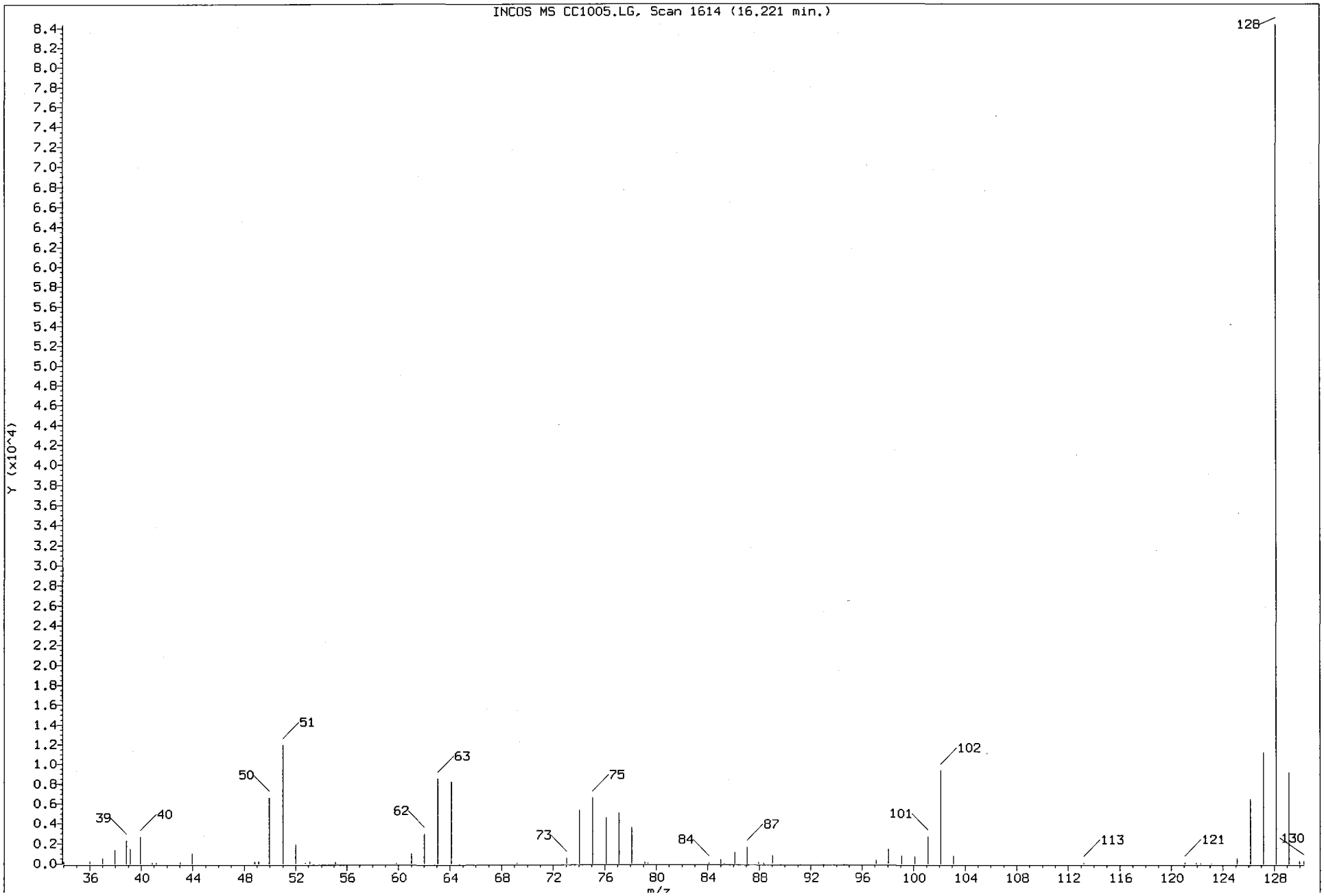
Data File: /chem1/finn5.i/05OCT10.b/RP83A.d/RP83A.LG
Injection Date: 05-OCT-2010 20:09
Instrument: finn5.i
Client Sample ID: GSM-08SO-10-11-1009

Sat



RP83 : 00152

Data File: /chem1/finn5.i/05OCT10.b/CC1005.d/CC1005.LG
Injection Date: 05-OCT-2010 12:44
Instrument: finn5.i
Client Sample ID: CC1005



RP83 : 005153

PC 10/6/10

Analytical Resources, Inc.

8260C

Data file : /chem1/finn5.i/05OCT10.b/LCS1005.d
Lab Smp Id: LCS1005 Client Smp ID: LCS1005
Inj Date : 05-OCT-2010 13:53
Operator : PB Inst ID: finn5.i
Smp Info : LCS1005,5,5,0
Misc Info : 10-
Comment :
Method : /chem1/finn5.i/05OCT10.b/s8260b.m
Meth Date : 05-Oct-2010 14:08 paul Quant Type: ISTD
Cal Date : 21-SEP-2010 14:36 Cal File: 2000921.d
Als bottle: 1 QC Sample: LCS
Dil Factor: 1.00000
~~Integrator: HP RTE~~ ~~Compound Sublist: voa.sub~~
Target Version: 3.50

Concentration Formula: Amt * DF * Pv * 1 / (Sa * ((100 - M) / 100)) * CpndVaria

Name	Value	Description
DF	1.00000	Dilution Factor
Pv	5.00000	Purge Volume
Sa	5.00000	Sample Amount
M	0.00000	Moisture (%)

Cpnd Variable Local Compound Variable

Compounds	QUANT SIG MASS	RT	EXP RT	REL RT	RESPONSE	CONCENTRATIONS ON-COLUMN (ug/Kg)	FINAL (ug/Kg)
1 Dichlorodifluoromethane	85	2.975	2.995	(0.451)	131832	64.5976	64.598
2 Chloromethane	50	3.276	3.296	(0.497)	252155	52.9679	52.968
3 Vinyl Chloride	62	3.397	3.407	(0.515)	237528	50.0761	50.076
4 Bromomethane	94	3.879	3.899	(0.588)	120202	62.8684	62.868
5 Chloroethane	64	3.950	3.970	(0.599)	119713	59.1560	59.156
6 Trichlorofluoromethane	101	4.211	4.231	(0.639)	187766	59.7163	59.716
7 Acrolein	56	4.593	4.613	(0.697)	99168	279.804	279.80
8 112Trichloro122Trifluoroethane	101	4.613	4.633	(0.700)	122673	52.5359	52.536
9 Acetone	43	4.653	4.663	(0.706)	182828	205.770	205.77
10 1,1-Dichloroethene	96	4.814	4.824	(0.730)	96369	56.6993	56.699
11 Bromoethane	108	5.025	5.045	(0.762)	73792	52.0053	52.005
12 Iodomethane	142	5.125	5.146	(0.777)	150318	52.2963	52.296
13 Methylene Chloride	84	5.246	5.256	(0.796)	106576	44.7252	44.725
14 Acrylonitrile	53	5.326	5.337	(0.808)	29504	43.6901	43.690(Q)
16 Methyl tert-Butyl Ether	73	5.367	5.387	(0.814)	216461	42.7470	42.747(Q)

	Compounds	QUANT SIG MASS	RT	EXP RT	REL RT	RESPONSE	CONCENTRATIONS ON-COLUMN (ug/Kg)	FINAL (ug/Kg)
	15 Carbon Disulfide	76	5.347	5.367	(0.811)	331098	46.8713	46.871(Q)
	17 Trans-1,2-Dichloroethene	96	5.527	5.548	(0.838)	85987	49.4793	49.479
	18 Vinyl Acetate	43	5.849	5.869	(0.887)	213933	43.8674	43.867
	19 1,1-Dichloroethane	63	5.909	5.929	(0.896)	195307	47.6740	47.674
	20 2-Butanone	43	6.251	6.271	(0.948)	212640	204.042	204.04
	21 2,2-Dichloropropane	77	6.432	6.452	(0.976)	146858	43.9125	43.912
	22 Cis-1,2-Dichloroethene	96	6.472	6.482	(0.982)	79576	48.4187	48.419
*	23 Pentafluorobenzene	168	6.593	6.613	(1.000)	113634	50.0000	
	24 Chloroform	83	6.613	6.633	(1.003)	156747	45.7637	45.764
	26 Bromochloromethane	128	6.784	6.794	(1.029)	35903	49.0753	49.075
$	25 Dibromofluoromethane	111	6.814	6.834	(1.034)	67203	46.3500	46.350(Q)
	27 1,1,1-Trichloroethane	97	7.005	7.025	(1.062)	129460	45.8133	45.813
	29 1,1-Dichloropropene	75	7.146	7.166	(0.939)	133715	47.1521	47.152
	~~30 Carbon Tetrachloride~~	~~117~~	~~7.266~~	~~7.276~~	~~(0.955)~~	~~111771~~	~~47.0140~~	~~47.014~~
$	31 d4-1,2-Dichloroethane	65	7.276	7.296	(1.104)	89152	41.4871	41.487
	32 1,2-Dichloroethane	62	7.367	7.387	(0.968)	128815	45.6214	45.621
	33 Benzene	78	7.417	7.427	(0.975)	296297	49.6253	49.625
*	34 1,4-Difluorobenzene	114	7.608	7.628	(1.000)	167895	50.0000	
	35 Trichloroethene	95	7.980	8.000	(1.049)	85293	49.8641	49.864
	36 1,2-Dichloropropane	63	8.140	8.161	(1.070)	94274	45.1592	45.159
	37 Bromodichloromethane	83	8.382	8.392	(1.102)	111804	46.1895	46.190
	39 Dibromomethane	93	8.442	8.462	(1.110)	46706	46.6443	46.644
	40 2-Chloroethyl Vinyl Ether	63	8.593	8.613	(1.129)	37417	42.0353	42.035(Q)
	41 4-Methyl-2-Pentanone	58	8.623	8.643	(1.133)	116740	194.191	194.19
	42 Cis 1,3-dichloropropene	75	8.884	8.894	(1.168)	130383	44.9668	44.967
$	43 d8-Toluene	98	9.156	9.176	(1.203)	198326	50.0986	50.099
	44 Toluene	92	9.246	9.256	(1.215)	166377	45.8458	45.846
	45 Trans 1,3-Dichloropropene	75	9.377	9.387	(1.232)	112399	42.7768	42.777
	46 2-Hexanone	43	9.507	9.527	(0.883)	310237	209.013	209.01
	47 1,1,2-Trichloroethane	97	9.558	9.578	(1.256)	51876	45.9285	45.928
	48 1,3-Dichloropropane	76	9.819	9.829	(0.912)	107129	45.3828	45.383
	49 Tetrachloroethene	166	9.929	9.949	(0.922)	74445	51.4516	51.452
	50 Chlorodibromomethane	129	10.140	10.161	(0.942)	67408	47.3519	47.352
	51 1,2-Dibromoethane	107	10.362	10.382	(1.362)	56634	45.0167	45.017
*	52 d5-Chlorobenzene	117	10.764	10.784	(1.000)	142402	50.0000	
	53 Chlorobenzene	112	10.804	10.824	(1.004)	166141	50.4452	50.445
	54 Ethyl Benzene	91	10.834	10.854	(1.007)	325492	53.0716	53.072
	55 1,1,1,2-Tetrachloroethane	131	10.834	10.844	(1.007)	59498	45.9119	45.912
	56 m,p-xylene	106	10.914	10.934	(1.014)	239480	106.406	106.41
	57 o-Xylene	106	11.407	11.427	(1.060)	114729	50.2643	50.264
	58 Styrene	104	11.437	11.457	(1.063)	192994	52.0068	52.007
	59 Isopropyl Benzene	105	11.789	11.809	(0.877)	311648	51.9359	51.936
	60 Bromoform	173	11.849	11.869	(0.881)	40192	43.8036	43.804
	61 1,1,2,2-Tetrachloroethane	83	11.970	11.980	(0.890)	73015	45.1418	45.142
$	62 4-Bromofluorobenzene	95	12.080	12.100	(1.122)	86145	47.6418	47.642
	63 1,2,3-Trichloropropane	110	12.140	12.150	(0.903)	15582	46.7018	46.702
	65 Trans-1,4-Dichloro 2-Butene	53	12.191	12.201	(0.907)	28787	43.9650	43.965

Compounds	QUANT SIG MASS	RT	EXP RT	REL RT	RESPONSE	CONCENTRATIONS ON-COLUMN (ug/Kg)	FINAL (ug/Kg)
66 N-Propyl Benzene	91	12.241	12.261	(0.910)	392826	51.2280	51.228
67 Bromobenzene	156	12.331	12.351	(0.917)	73908	51.4981	51.498
68 1,3,5-Trimethyl Benzene	105	12.412	12.432	(0.923)	265248	55.6344	55.634
69 2-Chloro Toluene	91	12.472	12.492	(0.928)	247554	51.4925	51.492
70 4-Chloro Toluene	91	12.522	12.532	(0.931)	282146	55.3447	55.345
71 T-Butyl Benzene	119	12.824	12.844	(0.954)	225186	53.5671	53.567
72 1,2,4-Trimethylbenzene	105	12.874	12.894	(0.957)	260860	52.4031	52.403
73 S-Butyl Benzene	105	13.075	13.085	(0.972)	352694	54.7784	54.778
74 4-Isopropyl Toluene	119	13.216	13.236	(0.983)	265951	57.5762	57.576
75 1,3-Dichlorobenzene	146	13.366	13.387	(0.994)	141235	54.7053	54.705
* 76 d4-1,4-Dichlorobenzene	152	13.447	13.457	(1.000)	77701	50.0000	
77 1,4-Dichlorobenzene	146	13.487	13.497	(1.003)	140474	54.3344	54.334
78 N-Butyl Benzene	91	13.698	13.708	(1.019)	308288	56.9342	56.934
$ 79 d4-1,2-Dichlorobenzene	152	13.889	13.909	(1.033)	66878	49.2845	49.284
80 1,2-Dichlorobenzene	146	13.919	13.939	(1.035)	125107	51.7354	51.735
81 1,2-Dibromo 3-Chloropropane	75	14.824	14.844	(1.102)	13679	31.9566	31.957
82 1,2,4-Trichlorobenzene	180	15.879	15.889	(1.181)	80721	50.4271	50.427
83 Hexachloro 1,3-Butadiene	225	16.030	16.050	(1.192)	52322	48.0238	48.024
84 Naphthalene	128	16.201	16.221	(1.205)	128811	43.5854	43.585
85 1,2,3-Trichlorobenzene	180	16.492	16.512	(1.226)	68644	47.2097	47.210

QC Flag Legend

Q - Qualifier signal failed the ratio test.

Analytical Resources, Inc.

INTERNAL STANDARD COMPOUNDS
AREA AND RT SUMMARY

Instrument ID: finn5.i
Lab File ID: LCS1005.d
Lab Smp Id: LCS1005
Analysis Type: VOA
Quant Type: ISTD
Operator: PB
Method File: /chem1/finn5.i/05OCT10.b/s8260b.m
Misc Info: 10-

Calibration Date: 05-OCT-2010
Calibration Time: 12:44
Client Smp ID: LCS1005
Level: LOW
Sample Type: SOIL

Test Mode:
Use Initial Calibration Level 5.
If Continuing Cal. use Initial Cal. Level 5

COMPOUND	STANDARD	AREA LIMIT LOWER	AREA LIMIT UPPER	SAMPLE	%DIFF
23 Pentafluorobenzen	91870	45935	183740	113634	23.69
34 1,4-Difluorobenze	137983	68992	275966	167895	21.68
52 d5-Chlorobenzene	123519	61760	247038	142402	15.29
76 d4-1,4-Dichlorobe	67589	33794	135178	77701	14.96

COMPOUND	STANDARD	RT LIMIT LOWER	RT LIMIT UPPER	SAMPLE	%DIFF
23 Pentafluorobenzen	6.61	6.11	7.11	6.59	-0.30
34 1,4-Difluorobenze	7.63	7.13	8.13	7.61	-0.26
52 d5-Chlorobenzene	10.78	10.28	11.28	10.76	-0.19
76 d4-1,4-Dichlorobe	13.46	12.96	13.96	13.45	-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.

Analytical Resources, Inc.

RECOVERY REPORT

Client Name:
Sample Matrix: SOLID
Lab Smp Id: LCS1005
Level: LOW
Data Type: MS DATA
SpikeList File: all.spk
Sublist File: voa.sub
Method File: /chem1/finn5.i/05OCT10.b/s8260b.m
Misc Info: 10-

Client SDG: 05OCT10
Fraction: VOA
Client Smp ID: LCS1005
Operator: PB
SampleType: LCS
Quant Type: ISTD

SPIKE COMPOUND	CONC ADDED ug/Kg	CONC RECOVERED ug/Kg	% RECOVERED	LIMITS
1 Dichlorodifluorome	50.000	64.598	129.20	53-148
2 Chloromethane	50.000	52.968	105.94	64-125
3 Vinyl Chloride	50.000	50.076	100.15	63-137
4 Bromomethane	50.000	62.868	125.74	57-136
5 Chloroethane	50.000	59.156	118.31	64-131
6 Trichlorofluoromet	50.000	59.716	119.43	69-132
7 Acrolein	250.00	279.80	111.92	54-137
8 112Trichloro122Tri	50.000	52.536	105.07	74-130
9 Acetone	250.00	205.77	82.31	60-131
10 1,1-Dichloroethene	50.000	56.699	113.40	75-126
11 Bromoethane	50.000	52.005	104.01	76-126
12 Iodomethane	50.000	52.296	104.59	65-139
13 Methylene Chloride	50.000	44.725	89.45	70-123
15 Carbon Disulfide	50.000	46.871	93.74	71-129
14 Acrylonitrile	50.000	43.690	87.38	67-125
16 Methyl tert-Butyl	50.000	42.747	85.49	70-120
17 Trans-1,2-Dichloro	50.000	49.479	98.96	80-120
18 Vinyl Acetate	50.000	43.867	87.73	60-136
19 1,1-Dichloroethane	50.000	47.674	95.35	80-120
20 2-Butanone	250.00	204.04	81.62	70-120
21 2,2-Dichloropropan	50.000	43.912	87.83	74-123
22 Cis-1,2-Dichloroet	50.000	48.419	96.84	80-120
24 Chloroform	50.000	45.764	91.53	80-120
26 Bromochloromethane	50.000	49.075	98.15	80-120
27 1,1,1-Trichloroeth	50.000	45.813	91.63	77-121
29 1,1-Dichloropropen	50.000	47.152	94.30	80-120
30 Carbon Tetrachlori	50.000	47.014	94.03	77-122
32 1,2-Dichloroethane	50.000	45.621	91.24	76-120
33 Benzene	50.000	49.625	99.25	80-120
35 Trichloroethene	50.000	49.864	99.73	80-120
36 1,2-Dichloropropan	50.000	45.159	90.32	80-120
37 Bromodichlorometha	50.000	46.190	92.38	77-121
39 Dibromomethane	50.000	46.644	93.29	80-120

SPIKE COMPOUND	CONC ADDED ug/Kg	CONC RECOVERED ug/Kg	% RECOVERED	LIMITS
40 2-Chloroethyl Viny	50.000	42.035	84.07	10-191
41 4-Methyl-2-Pentano	250.00	194.19	77.68	67-120
42 Cis 1,3-dichloropr	50.000	44.967	89.93	74-120
44 Toluene	50.000	45.846	91.69	80-120
45 Trans 1,3-Dichloro	50.000	42.777	85.55	65-120
46 2-Hexanone	250.00	209.01	83.61	65-130
47 1,1,2-Trichloroeth	50.000	45.928	91.86	80-120
48 1,3-Dichloropropan	50.000	45.383	90.77	80-120
49 Tetrachloroethene	50.000	51.452	102.90	80-121
50 Chlorodibromometha	50.000	47.352	94.70	64-120
51 1,2-Dibromoethane	50.000	45.017	90.03	75-120
53 Chlorobenzene	50.000	50.445	100.89	80-120
55 1,1,1,2-Tetrachlor	50.000	45.912	91.82	69-121
54 Ethyl Benzene	50.000	53.072	106.14	80-127
56 m,p-xylene	100.00	106.41	106.41	80-125
57 o-Xylene	50.000	50.264	100.53	78-120
58 Styrene	50.000	52.007	104.01	80-123
59 Isopropyl Benzene	50.000	51.936	103.87	80-127
60 Bromoform	50.000	43.804	87.61	60-120
61 1,1,2,2-Tetrachlor	50.000	45.142	90.28	74-120
63 1,2,3-Trichloropro	50.000	46.702	93.40	72-121
65 Trans-1,4-Dichloro	50.000	43.965	87.93	65-126
66 N-Propyl Benzene	50.000	51.228	102.46	80-132
67 Bromobenzene	50.000	51.498	103.00	80-120
68 1,3,5-Trimethyl Be	50.000	55.634	111.27	80-125
69 2-Chloro Toluene	50.000	51.492	102.99	80-125
70 4-Chloro Toluene	50.000	55.345	110.69	80-127
71 T-Butyl Benzene	50.000	53.567	107.13	87-122
72 1,2,4-Trimethylben	50.000	52.403	104.81	80-126
73 S-Butyl Benzene	50.000	54.778	109.56	80-134
74 4-Isopropyl Toluen	50.000	57.576	115.15	80-131
75 1,3-Dichlorobenzen	50.000	54.705	109.41	80-120
77 1,4-Dichlorobenzen	50.000	54.334	108.67	80-120
78 N-Butyl Benzene	50.000	56.934	113.87	80-138
80 1,2-Dichlorobenzen	50.000	51.735	103.47	80-120
81 1,2-Dibromo 3-Chlo	50.000	31.957	63.91	59-120
82 1,2,4-Trichloroben	50.000	50.427	100.85	78-130
83 Hexachloro 1,3-But	50.000	48.024	96.05	76-129
84 Naphthalene	50.000	43.585	87.17	66-120
85 1,2,3-Trichloroben	50.000	47.210	94.42	73-123

SURROGATE COMPOUND	AMOUNT ADDED ug/Kg	AMOUNT RECOVERED ug/Kg	% RECOVERED	LIMITS
$ 25 Dibromofluorometha	50.000	46.350	92.70	30-160

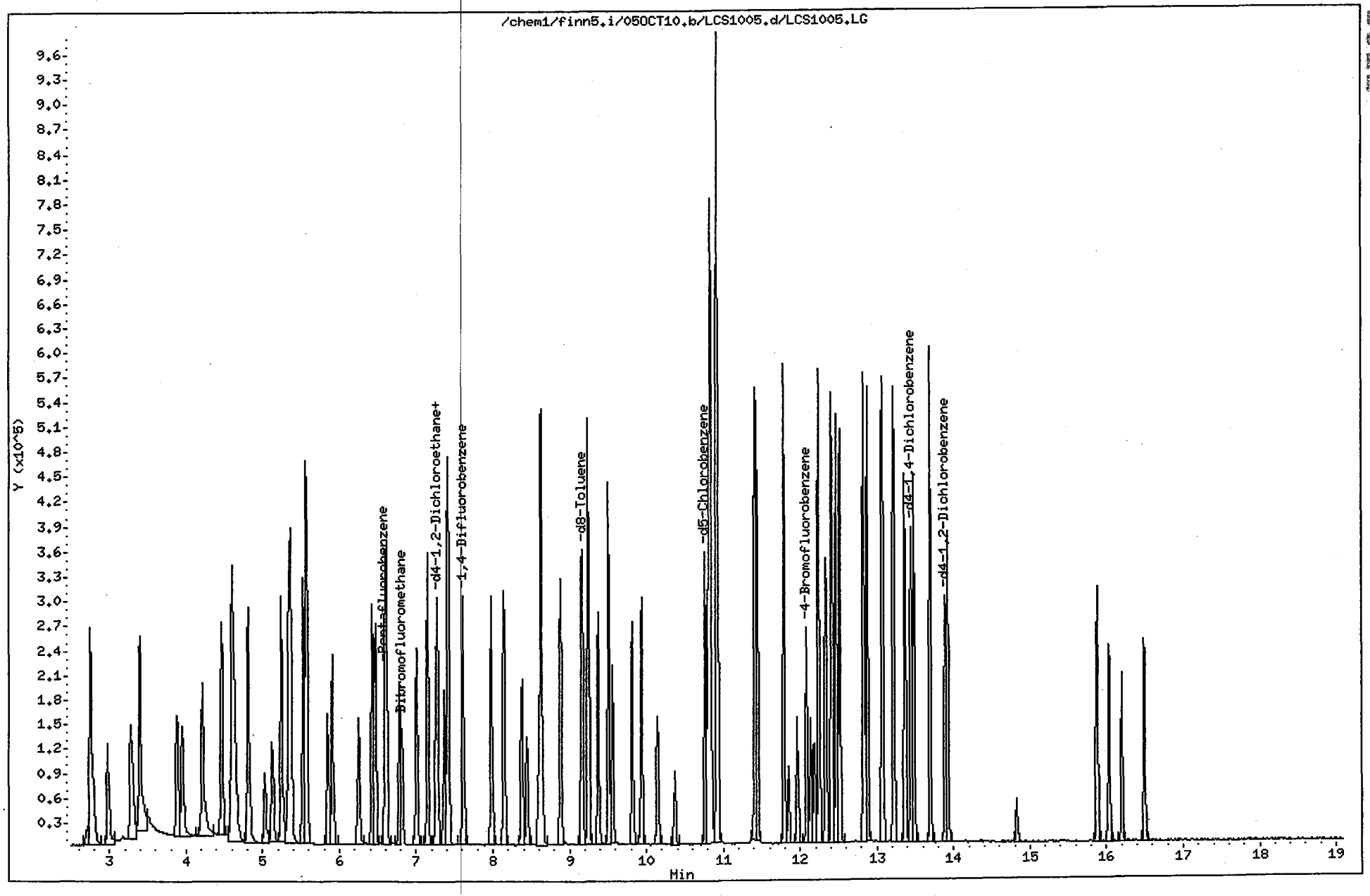
SURROGATE COMPOUND	AMOUNT ADDED ug/Kg	AMOUNT RECOVERED ug/Kg	% RECOVERED	LIMITS
$ 31 d4-1,2-Dichloroeth	50.000	41.487	82.97	75-152
$ 43 d8-Toluene	50.000	50.099	100.20	82-115
$ 62 4-Bromofluorobenze	50.000	47.642	95.28	64-120
$ 79 d4-1,2-Dichloroben	50.000	49.284	98.57	80-120

Data File: /chem1/finn5.i/05OCT10.b/LCS1005.d
Date : 05-OCT-2010 13:53
Client ID: LCS1005
Sample Info: LCS1005,5,5,0

Column phase: Rtx502.2

Instrument: finn5.i

Operator: PB
Column diameter: 0.18



RP83:001171

PC 10/6/10

Analytical Resources, Inc.

8260C

Data file : /chem1/finn5.i/05OCT10.b/LCS1005A.d
Lab Smp Id: LCS1005 Client Smp ID: LCS1005
Inj Date : 05-OCT-2010 14:28
Operator : PB Inst ID: finn5.i
Smp Info : LCS1005,5,5,0
Misc Info : 10-
Comment :
Method : /chem1/finn5.i/05OCT10.b/s8260b.m
Meth Date : 05-Oct-2010 14:08 paul Quant Type: ISTD
Cal Date : 21-SEP-2010 14:36 Cal File: 2000921.d
Als bottle: 1 QC Sample: LCSD
Dil Factor: 1.00000
~~Integrator: HP RTE~~ ~~Compound Sublist: voa.sub~~
Target Version: 3.50

Concentration Formula: Amt * DF * Pv * 1 / (Sa * ((100 - M) / 100)) * CpndVaria

Name	Value	Description
DF	1.00000	Dilution Factor
Pv	5.00000	Purge Volume
Sa	5.00000	Sample Amount
M	0.00000	Moisture (%)

Cpnd Variable Local Compound Variable

Compounds	QUANT SIG MASS	RT	EXP RT	REL RT	RESPONSE	CONCENTRATIONS ON-COLUMN (ug/Kg)	FINAL (ug/Kg)
1 Dichlorodifluoromethane	85	2.995	2.995	(0.453)	119962	63.4557	63.456
2 Chloromethane	50	3.296	3.296	(0.498)	244685	55.4861	55.486
3 Vinyl Chloride	62	3.407	3.407	(0.515)	234957	53.4732	53.473
4 Bromomethane	94	3.899	3.899	(0.590)	114562	65.0384	65.038
5 Chloroethane	64	3.970	3.970	(0.600)	115021	61.3570	61.357
6 Trichlorofluoromethane	101	4.231	4.231	(0.640)	180368	61.9252	61.925
7 Acrolein	56	4.613	4.613	(0.698)	105131	320.219	320.22
8 112Trichloro122Trifluoroethane	101	4.623	4.633	(0.699)	118601	54.8314	54.831
9 Acetone	43	4.663	4.663	(0.705)	192151	233.460	233.46
10 1,1-Dichloroethene	96	4.824	4.824	(0.729)	94349	59.9255	59.926
11 Bromoethane	108	5.045	5.045	(0.763)	72145	54.8885	54.888
12 Iodomethane	142	5.146	5.146	(0.778)	146758	55.1180	55.118
13 Methylene Chloride	84	5.256	5.256	(0.795)	106186	48.1051	48.105
14 Acrylonitrile	53	5.337	5.337	(0.807)	31425	50.2355	50.235(Q)
16 Methyl tert-Butyl Ether	73	5.387	5.387	(0.815)	222794	47.4964	47.496(Q)

	Compounds	QUANT SIG MASS	RT	EXP RT	REL RT	RESPONSE	CONCENTRATIONS ON-COLUMN (ug/Kg)	FINAL (ug/Kg)
	15 Carbon Disulfide	76	5.367	5.367	(0.812)	323864	49.4930	49.493(Q)
	17 Trans-1,2-Dichloroethene	96	5.548	5.548	(0.839)	82944	51.5239	51.524
	18 Vinyl Acetate	43	5.869	5.869	(0.888)	224773	49.7554	49.755
	19 1,1-Dichloroethane	63	5.919	5.929	(0.895)	193919	51.0994	51.099
	20 2-Butanone	43	6.271	6.271	(0.948)	229504	237.738	237.74
	21 2,2-Dichloropropane	77	6.442	6.452	(0.974)	141695	45.7381	45.738
	22 Cis-1,2-Dichloroethene	96	6.482	6.482	(0.980)	78466	51.5403	51.540
*	23 Pentafluorobenzene	168	6.613	6.613	(1.000)	105263	50.0000	
	24 Chloroform	83	6.633	6.633	(1.003)	155841	49.1175	49.118
	26 Bromochloromethane	128	6.794	6.794	(1.027)	37108	54.7556	54.756
$	25 Dibromofluoromethane	111	6.834	6.834	(1.033)	67232	50.0569	50.057(Q)
	27 1,1,1-Trichloroethane	97	7.025	7.025	(1.062)	126133	48.1856	48.186
	29 1,1-Dichloropropene	75	7.166	7.166	(0.939)	129129	47.8535	47.854
	~~30 Carbon Tetrachloride~~	~~117~~	~~7.276~~	~~7.276~~	~~(0.954)~~	~~109490~~	~~48.3997~~	~~48.400~~
$	31 d4-1,2-Dichloroethane	65	7.296	7.296	(1.103)	98998	49.7326	49.733
	32 1,2-Dichloroethane	62	7.387	7.387	(0.968)	129863	48.3346	48.335
	33 Benzene	78	7.427	7.427	(0.974)	289586	50.9707	50.971
*	34 1,4-Difluorobenzene	114	7.628	7.628	(1.000)	159760	50.0000	
	35 Trichloroethene	95	8.000	8.000	(1.049)	81972	50.3628	50.363
	36 1,2-Dichloropropane	63	8.161	8.161	(1.070)	93373	47.0050	47.005
	37 Bromodichloromethane	83	8.392	8.392	(1.100)	110561	48.0018	48.002
	39 Dibromomethane	93	8.462	8.462	(1.109)	47552	49.9072	49.907
	40 2-Chloroethyl Vinyl Ether	63	8.613	8.613	(1.129)	38945	45.9796	45.980(Q)
	41 4-Methyl-2-Pentanone	58	8.643	8.643	(1.133)	128271	224.237	224.24
	42 Cis 1,3-dichloropropene	75	8.894	8.894	(1.166)	130293	47.2240	47.224
$	43 d8-Toluene	98	9.176	9.176	(1.203)	188511	50.0439	50.044
	44 Toluene	92	9.256	9.256	(1.213)	163165	47.2499	47.250
	45 Trans 1,3-Dichloropropene	75	9.387	9.387	(1.231)	113855	45.5373	45.537
	46 2-Hexanone	43	9.517	9.527	(0.883)	338153	230.293	230.29
	47 1,1,2-Trichloroethane	97	9.568	9.578	(1.254)	53054	49.3633	49.363
	48 1,3-Dichloropropane	76	9.829	9.829	(0.912)	111018	47.5405	47.540
	49 Tetrachloroethene	166	9.949	9.949	(0.924)	72470	50.6307	50.631
	50 Chlorodibromomethane	129	10.161	10.161	(0.943)	67032	47.5985	47.598
	51 1,2-Dibromoethane	107	10.382	10.382	(1.361)	57960	48.4159	48.416
*	52 d5-Chlorobenzene	117	10.774	10.784	(1.000)	140873	50.0000	
	53 Chlorobenzene	112	10.824	10.824	(1.005)	163763	50.2626	50.263
	54 Ethyl Benzene	91	10.854	10.854	(1.007)	318882	52.5579	52.558
	55 1,1,1,2-Tetrachloroethane	131	10.844	10.844	(1.007)	58958	45.9886	45.989
	56 m,p-xylene	106	10.934	10.934	(1.015)	236127	106.055	106.06
	57 o-Xylene	106	11.417	11.427	(1.060)	115432	51.1208	51.121
	58 Styrene	104	11.447	11.457	(1.062)	190777	51.9673	51.967
	59 Isopropyl Benzene	105	11.799	11.809	(0.877)	312505	51.2119	51.212
	60 Bromoform	173	11.859	11.869	(0.881)	42887	45.9626	45.962
	61 1,1,2,2-Tetrachloroethane	83	11.980	11.980	(0.890)	78057	47.4556	47.456
$	62 4-Bromofluorobenzene	95	12.100	12.100	(1.123)	89046	49.7808	49.781
	63 1,2,3-Trichloropropane	110	12.150	12.150	(0.903)	17461	51.4602	51.460
	65 Trans-1,4-Dichloro 2-Butene	53	12.201	12.201	(0.907)	29980	45.0245	45.024

Compounds	QUANT SIG MASS	RT	EXP RT	REL RT	RESPONSE	CONCENTRATIONS ON-COLUMN (ug/Kg)	FINAL (ug/Kg)
66 N-Propyl Benzene	91	12.251	12.261	(0.910)	393284	50.4341	50.434
67 Bromobenzene	156	12.341	12.351	(0.917)	74505	51.0500	51.050
68 1,3,5-Trimethyl Benzene	105	12.432	12.432	(0.924)	263298	54.3061	54.306
69 2-Chloro Toluene	91	12.482	12.492	(0.928)	265035	54.2112	54.211
70 4-Chloro Toluene	91	12.532	12.532	(0.931)	266451	51.3961	51.396
71 T-Butyl Benzene	119	12.834	12.844	(0.954)	223120	52.1923	52.192
72 1,2,4-Trimethylbenzene	105	12.884	12.894	(0.957)	267499	52.8426	52.842
73 S-Butyl Benzene	105	13.085	13.085	(0.972)	352844	53.8895	53.890
74 4-Isopropyl Toluene	119	13.226	13.236	(0.983)	270219	57.5265	57.526
75 1,3-Dichlorobenzene	146	13.377	13.387	(0.994)	144382	54.9935	54.993
* 76 d4-1,4-Dichlorobenzene	152	13.457	13.457	(1.000)	79017	50.0000	
77 1,4-Dichlorobenzene	146	13.497	13.497	(1.003)	143839	54.7098	54.710
78 N-Butyl Benzene	91	13.708	13.708	(1.019)	299884	54.4604	54.460
~~$ 79 d4-1,2-Dichlorobenzene~~	~~152~~	~~13.899~~	~~13.909~~	~~(1.033)~~	~~68259~~	~~49.4654~~	~~49.465~~
80 1,2-Dichlorobenzene	146	13.939	13.939	(1.036)	125665	51.1011	51.101
81 1,2-Dibromo 3-Chloropropane	75	14.844	14.844	(1.103)	16036	36.8412	36.841
82 1,2,4-Trichlorobenzene	180	15.889	15.889	(1.181)	86219	52.9654	52.965
83 Hexachloro 1,3-Butadiene	225	16.040	16.050	(1.192)	55061	49.6970	49.697
84 Naphthalene	128	16.211	16.221	(1.205)	150830	50.1868	50.187
85 1,2,3-Trichlorobenzene	180	16.502	16.512	(1.226)	76033	51.4212	51.421

QC Flag Legend

Q - Qualifier signal failed the ratio test.

Analytical Resources, Inc.

INTERNAL STANDARD COMPOUNDS
AREA AND RT SUMMARY

Instrument ID: finn5.i
Lab File ID: LCS1005A.d
Lab Smp Id: LCS1005
Analysis Type: VOA
Quant Type: ISTD
Operator: PB
Method File: /chem1/finn5.i/05OCT10.b/s8260b.m
Misc Info: 10-

Calibration Date: 05-OCT-2010
Calibration Time: 12:44
Client Smp ID: LCS1005
Level: LOW
Sample Type: SOIL

Test Mode:
Use Initial Calibration Level 5.
If Continuing Cal. use Initial Cal. Level 5

COMPOUND	STANDARD	AREA LIMIT LOWER	AREA LIMIT UPPER	SAMPLE	%DIFF
23 Pentafluorobenzen	91870	45935	183740	105263	14.58
34 1,4-Difluorobenze	137983	68992	275966	159760	15.78
52 d5-Chlorobenzene	123519	61760	247038	140873	14.05
76 d4-1,4-Dichlorobe	67589	33794	135178	79017	16.91

COMPOUND	STANDARD	RT LIMIT LOWER	RT LIMIT UPPER	SAMPLE	%DIFF
23 Pentafluorobenzen	6.61	6.11	7.11	6.61	0.00
34 1,4-Difluorobenze	7.63	7.13	8.13	7.63	0.00
52 d5-Chlorobenzene	10.78	10.28	11.28	10.77	-0.09
76 d4-1,4-Dichlorobe	13.46	12.96	13.96	13.46	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.

Analytical Resources, Inc.

RECOVERY REPORT

Client Name:
Sample Matrix: SOLID
Lab Smp Id: LCS1005
Level: LOW
Data Type: MS DATA
SpikeList File: all.spk
Sublist File: voa.sub
Method File: /chem1/finn5.i/05OCT10.b/s8260b.m
Misc Info: 10-

Client SDG: 05OCT10
Fraction: VOA
Client Smp ID: LCS1005
Operator: PB
SampleType: LCSD
Quant Type: ISTD

SPIKE	COMPOUND	CONC ADDED ug/Kg	CONC RECOVERED ug/Kg	% RECOVERED	LIMITS
1	Dichlorodifluorome	50.000	63.456	126.91	53-148
2	Chloromethane	50.000	55.486	110.97	64-125
3	Vinyl Chloride	50.000	53.473	106.95	63-137
4	Bromomethane	50.000	65.038	130.08	57-136
5	Chloroethane	50.000	61.357	122.71	64-131
6	Trichlorofluoromet	50.000	61.925	123.85	69-132
7	Acrolein	250.00	320.22	128.09	54-137
8	112Trichloro122Tri	50.000	54.831	109.66	74-130
9	Acetone	250.00	233.46	93.38	60-131
10	1,1-Dichloroethene	50.000	59.926	119.85	75-126
11	Bromoethane	50.000	54.888	109.78	76-126
12	Iodomethane	50.000	55.118	110.24	65-139
13	Methylene Chloride	50.000	48.105	96.21	70-123
15	Carbon Disulfide	50.000	49.493	98.99	71-129
14	Acrylonitrile	50.000	50.235	100.47	67-125
16	Methyl tert-Butyl	50.000	47.496	94.99	70-120
17	Trans-1,2-Dichloro	50.000	51.524	103.05	80-120
18	Vinyl Acetate	50.000	49.755	99.51	60-136
19	1,1-Dichloroethane	50.000	51.099	102.20	80-120
20	2-Butanone	250.00	237.74	95.10	70-120
21	2,2-Dichloropropan	50.000	45.738	91.48	74-123
22	Cis-1,2-Dichloroet	50.000	51.540	103.08	80-120
24	Chloroform	50.000	49.118	98.24	80-120
26	Bromochloromethane	50.000	54.756	109.51	80-120
27	1,1,1-Trichloroeth	50.000	48.186	96.37	77-121
29	1,1-Dichloropropen	50.000	47.854	95.71	80-120
30	Carbon Tetrachlori	50.000	48.400	96.80	77-122
32	1,2-Dichloroethane	50.000	48.335	96.67	76-120
33	Benzene	50.000	50.971	101.94	80-120
35	Trichloroethene	50.000	50.363	100.73	80-120
36	1,2-Dichloropropan	50.000	47.005	94.01	80-120
37	Bromodichlorometha	50.000	48.002	96.00	77-121
39	Dibromomethane	50.000	49.907	99.81	80-120

SPIKE COMPOUND	CONC ADDED ug/Kg	CONC RECOVERED ug/Kg	% RECOVERED	LIMITS
40 2-Chloroethyl Viny	50.000	45.980	91.96	10-191
41 4-Methyl-2-Pentano	250.00	224.24	89.69	67-120
42 Cis 1,3-dichloropr	50.000	47.224	94.45	74-120
44 Toluene	50.000	47.250	94.50	80-120
45 Trans 1,3-Dichloro	50.000	45.537	91.07	65-120
46 2-Hexanone	250.00	230.29	92.12	65-130
47 1,1,2-Trichloroeth	50.000	49.363	98.73	80-120
48 1,3-Dichloropropan	50.000	47.540	95.08	80-120
49 Tetrachloroethene	50.000	50.631	101.26	80-121
50 Chlorodibromometha	50.000	47.598	95.20	64-120
51 1,2-Dibromoethane	50.000	48.416	96.83	75-120
53 Chlorobenzene	50.000	50.263	100.53	80-120
55 1,1,1,2-Tetrachlor	50.000	45.989	91.98	69-121
54 Ethyl Benzene	50.000	52.558	105.12	80-127
56 m,p-xylene	100.00	106.06	106.06	80-125
57 o-Xylene	50.000	51.121	102.24	78-120
58 Styrene	50.000	51.967	103.93	80-123
59 Isopropyl Benzene	50.000	51.212	102.42	80-127
60 Bromoform	50.000	45.962	91.93	60-120
61 1,1,2,2-Tetrachlor	50.000	47.456	94.91	74-120
63 1,2,3-Trichloropro	50.000	51.460	102.92	72-121
65 Trans-1,4-Dichloro	50.000	45.024	90.05	65-126
66 N-Propyl Benzene	50.000	50.434	100.87	80-132
67 Bromobenzene	50.000	51.050	102.10	80-120
68 1,3,5-Trimethyl Be	50.000	54.306	108.61	80-125
69 2-Chloro Toluene	50.000	54.211	108.42	80-125
70 4-Chloro Toluene	50.000	51.396	102.79	80-127
71 T-Butyl Benzene	50.000	52.192	104.38	87-122
72 1,2,4-Trimethylben	50.000	52.842	105.69	80-126
73 S-Butyl Benzene	50.000	53.890	107.78	80-134
74 4-Isopropyl Toluen	50.000	57.526	115.05	80-131
75 1,3-Dichlorobenzen	50.000	54.993	109.99	80-120
77 1,4-Dichlorobenzen	50.000	54.710	109.42	80-120
78 N-Butyl Benzene	50.000	54.460	108.92	80-138
80 1,2-Dichlorobenzen	50.000	51.101	102.20	80-120
81 1,2-Dibromo 3-Chlo	50.000	36.841	73.68	59-120
82 1,2,4-Trichloroben	50.000	52.965	105.93	78-130
83 Hexachloro 1,3-But	50.000	49.697	99.39	76-129
84 Naphthalene	50.000	50.187	100.37	66-120
85 1,2,3-Trichloroben	50.000	51.421	102.84	73-123

SURROGATE COMPOUND	AMOUNT ADDED ug/Kg	AMOUNT RECOVERED ug/Kg	% RECOVERED	LIMITS
$ 25 Dibromofluorometha	50.000	50.057	100.11	30-160

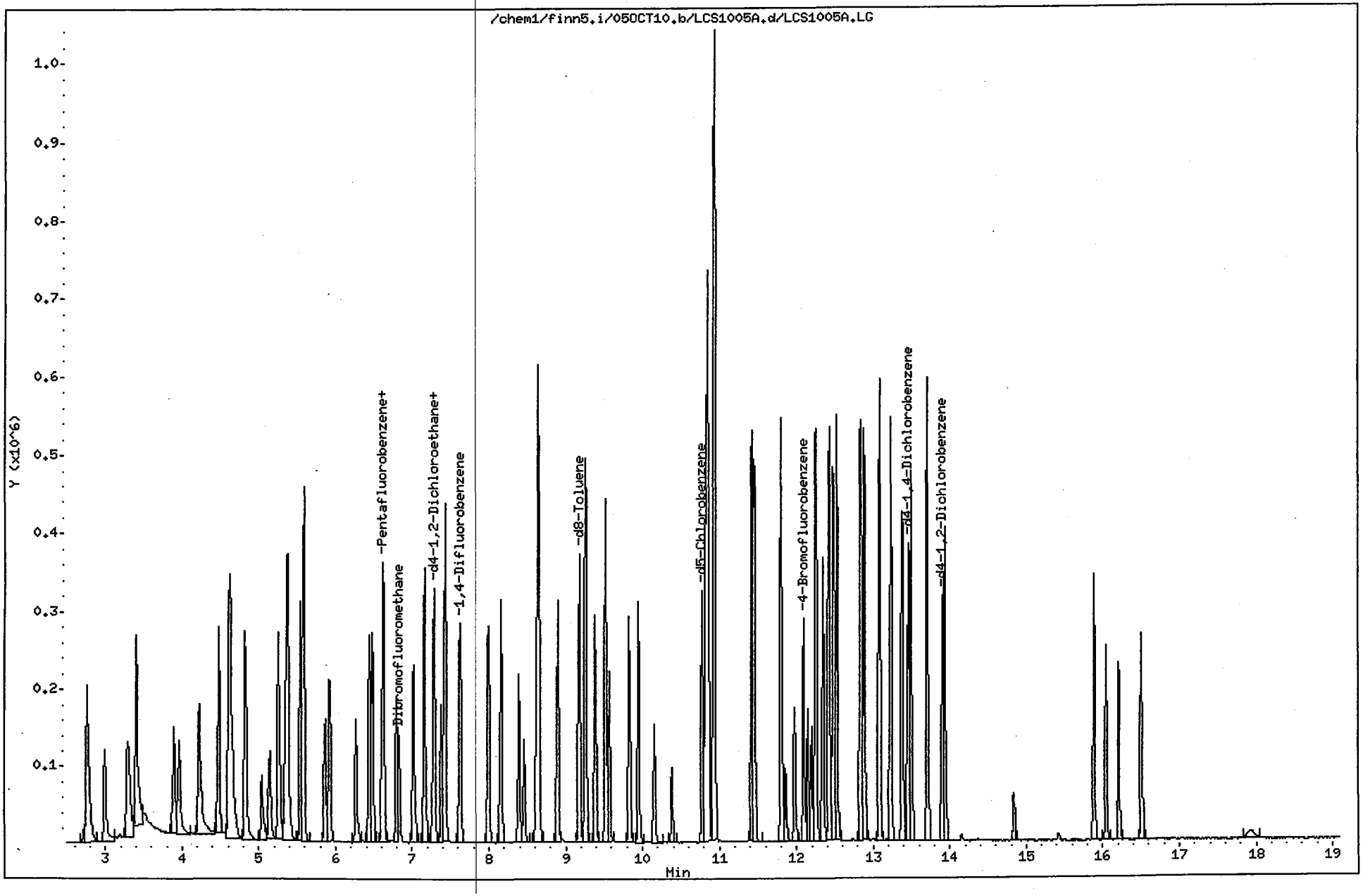
SURROGATE COMPOUND	AMOUNT ADDED ug/Kg	AMOUNT RECOVERED ug/Kg	% RECOVERED	LIMITS
$ 31 d4-1,2-Dichloroeth	50.000	49.733	99.47	75-152
$ 43 d8-Toluene	50.000	50.044	100.09	82-115
$ 62 4-Bromofluorobenze	50.000	49.781	99.56	64-120
$ 79 d4-1,2-Dichloroben	50.000	49.465	98.93	80-120

Data File: /chem1/finn5.i/05OCT10.b/LCS1005A.d
Date : 05-OCT-2010 14:28
Client ID: LCS1005
Sample Info: LCS1005,5,5,0

Column phase: Rtx502.2

Instrument: finn5.i

Operator: PB
Column diameter: 0.18



RP83:00175

PC 10/6/10

Analytical Resources, Inc.

8260C

Data file : /chem1/finn5.i/05OCT10.b/MB1005A.d
Lab Smp Id: MB1005 Client Smp ID: MB1005
Inj Date : 05-OCT-2010 15:34
Operator : PB Inst ID: finn5.i
Smp Info : MB1005,5,5,0
Misc Info : 10-
Comment :
Method : /chem1/finn5.i/05OCT10.b/s8260b.m
Meth Date : 06-Oct-2010 15:48 paul Quant Type: ISTD
Cal Date : 21-SEP-2010 14:36 Cal File: 2000921.d
Als bottle: 1 QC Sample: BLANK
Dil Factor: 1.00000
~~Integrator: HP RTE~~ ~~Compound Sublist: voa.sub~~
Target Version: 3.50

Concentration Formula: Amt * DF * Pv * 1 / (Sa * ((100 - M) / 100)) * CpndVaria

Name	Value	Description
DF	1.00000	Dilution Factor
Pv	5.00000	Purge Volume
Sa	5.00000	Sample Amount
M	0.00000	Moisture (%)

Cpnd Variable Local Compound Variable

Compounds	QUANT SIG MASS	RT	EXP RT	REL RT	RESPONSE	CONCENTRATIONS ON-COLUMN (ug/Kg)	FINAL (ug/Kg)
1 Dichlorodifluoromethane	85	Compound Not Detected.					
2 Chloromethane	50	Compound Not Detected.					
3 Vinyl Chloride	62	Compound Not Detected.					
4 Bromomethane	94	Compound Not Detected.					
5 Chloroethane	64	Compound Not Detected.					
6 Trichlorofluoromethane	101	Compound Not Detected.					
7 Acrolein	56	Compound Not Detected.					
8 112Trichloro122Trifluoroethane	101	Compound Not Detected.					
9 Acetone	43	4.653	4.663	(0.704)	2709	3.20833	3.208(Q)
10 1,1-Dichloroethene	96	Compound Not Detected.					
11 Bromoethane	108	Compound Not Detected.					
12 Iodomethane	142	Compound Not Detected.					
13 Methylene Chloride	84	5.256	5.256	(0.795)	3478	1.53587	1.536
14 Acrylonitrile	53	Compound Not Detected.					
16 Methyl tert-Butyl Ether	73	Compound Not Detected.					

	Compounds	QUANT SIG MASS	RT	EXP RT	REL RT	RESPONSE	CONCENTRATIONS ON-COLUMN (ug/Kg)	FINAL (ug/Kg)
	15 Carbon Disulfide	76	Compound Not Detected.					
	17 Trans-1,2-Dichloroethene	96	Compound Not Detected.					
	18 Vinyl Acetate	43	Compound Not Detected.					
	19 1,1-Dichloroethane	63	Compound Not Detected.					
	20 2-Butanone	43	Compound Not Detected.					
	21 2,2-Dichloropropane	77	Compound Not Detected.					
	22 Cis-1,2-Dichloroethene	96	Compound Not Detected.					
*	23 Pentafluorobenzene	168	6.613	6.613	(1.000)	107988	50.0000	
	24 Chloroform	83	Compound Not Detected.					
	26 Bromochloromethane	128	Compound Not Detected.					
$	25 Dibromofluoromethane	111	6.824	6.834	(1.032)	68940	50.0335	50.033(Q)
	27 1,1,1-Trichloroethane	97	Compound Not Detected.					
	29 1,1-Dichloropropene	75	Compound Not Detected.					
	30 Carbon Tetrachloride	117	Compound Not Detected.					
$	31 d4-1,2-Dichloroethane	65	7.296	7.296	(1.103)	102823	50.3505	50.350
	32 1,2-Dichloroethane	62	Compound Not Detected.					
	33 Benzene	78	Compound Not Detected.					
*	34 1,4-Difluorobenzene	114	7.618	7.628	(1.000)	156726	50.0000	
	35 Trichloroethene	95	Compound Not Detected.					
	36 1,2-Dichloropropane	63	Compound Not Detected.					
	37 Bromodichloromethane	83	Compound Not Detected.					
	39 Dibromomethane	93	Compound Not Detected.					
	40 2-Chloroethyl Vinyl Ether	63	Compound Not Detected.					
	41 4-Methyl-2-Pentanone	58	8.643	8.643	(1.135)	549	0.97831	0.9783(Q)
	42 Cis 1,3-dichloropropene	75	Compound Not Detected.					
$	43 d8-Toluene	98	9.176	9.176	(1.204)	180204	48.7649	48.765
	44 Toluene	92	Compound Not Detected.					
	45 Trans 1,3-Dichloropropene	75	Compound Not Detected.					
	46 2-Hexanone	43	Compound Not Detected.					
	47 1,1,2-Trichloroethane	97	Compound Not Detected.					
	48 1,3-Dichloropropane	76	Compound Not Detected.					
	49 Tetrachloroethene	166	Compound Not Detected.					
	50 Chlorodibromomethane	129	Compound Not Detected.					
	51 1,2-Dibromoethane	107	Compound Not Detected.					
*	52 d5-Chlorobenzene	117	10.774	10.784	(1.000)	136390	50.0000	
	53 Chlorobenzene	112	Compound Not Detected.					
	54 Ethyl Benzene	91	Compound Not Detected.					
	55 1,1,1,2-Tetrachloroethane	131	Compound Not Detected.					
	56 m,p-xylene	106	Compound Not Detected.					
	57 o-Xylene	106	Compound Not Detected.					
	58 Styrene	104	Compound Not Detected.					
	59 Isopropyl Benzene	105	Compound Not Detected.					
	60 Bromoform	173	Compound Not Detected.					
	61 1,1,2,2-Tetrachloroethane	83	Compound Not Detected.					
$	62 4-Bromofluorobenzene	95	12.100	12.100	(1.123)	83116	47.9927	47.993
	63 1,2,3-Trichloropropane	110	Compound Not Detected.					
	65 Trans-1,4-Dichloro 2-Butene	53	Compound Not Detected.					

	Compounds	QUANT SIG MASS	RT	EXP RT	REL RT	RESPONSE	CONCENTRATIONS ON-COLUMN (ug/Kg)	FINAL (ug/Kg)
66	N-Propyl Benzene	91	Compound Not Detected.					
67	Bromobenzene	156	Compound Not Detected.					
68	1,3,5-Trimethyl Benzene	105	Compound Not Detected.					
69	2-Chloro Toluene	91	Compound Not Detected.					
70	4-Chloro Toluene	91	Compound Not Detected.					
71	T-Butyl Benzene	119	Compound Not Detected.					
72	1,2,4-Trimethylbenzene	105	Compound Not Detected.					
73	S-Butyl Benzene	105	Compound Not Detected.					
74	4-Isopropyl Toluene	119	Compound Not Detected.					
75	1,3-Dichlorobenzene	146	Compound Not Detected.					
* 76	d4-1,4-Dichlorobenzene	152	13.457	13.457	(1.000)	69923	50.0000	
77	1,4-Dichlorobenzene	146	Compound Not Detected.					
78	N-Butyl Benzene	91	Compound Not Detected.					
$ 79	d4-1,2-Dichlorobenzene	152	13.899	13.909	(1.033)	62318	51.0331	51.033(Q)
80	1,2-Dichlorobenzene	146	Compound Not Detected.					
81	1,2-Dibromo 3-Chloropropane	75	Compound Not Detected.					
82	1,2,4-Trichlorobenzene	180	15.889	15.889	(1.181)	469	0.32558	0.3256
83	Hexachloro 1,3-Butadiene	225	Compound Not Detected.					
84	Naphthalene	128	Compound Not Detected.					
85	1,2,3-Trichlorobenzene	180	Compound Not Detected.					

QC Flag Legend

Q - Qualifier signal failed the ratio test.

Analytical Resources, Inc.

INTERNAL STANDARD COMPOUNDS
AREA AND RT SUMMARY

Instrument ID: finn5.i
Lab File ID: MB1005A.d
Lab Smp Id: MB1005
Analysis Type: VOA
Quant Type: ISTD
Operator: PB
Method File: /chem1/finn5.i/05OCT10.b/s8260b.m
Misc Info: 10-

Calibration Date: 05-OCT-2010
Calibration Time: 12:44
Client Smp ID: MB1005
Level: LOW
Sample Type: SOIL

Test Mode:
Use Initial Calibration Level 5.
If Continuing Cal. use Initial Cal. Level 5

COMPOUND	STANDARD	AREA LIMIT LOWER	AREA LIMIT UPPER	SAMPLE	%DIFF
23 Pentafluorobenzen	91870	45935	183740	107988	17.54
34 1,4-Difluorobenze	137983	68992	275966	156726	13.58
52 d5-Chlorobenzene	123519	61760	247038	136390	10.42
76 d4-1,4-Dichlorobe	67589	33794	135178	69923	3.45

COMPOUND	STANDARD	RT LIMIT LOWER	RT LIMIT UPPER	SAMPLE	%DIFF
23 Pentafluorobenzen	6.61	6.11	7.11	6.61	0.00
34 1,4-Difluorobenze	7.63	7.13	8.13	7.62	-0.13
52 d5-Chlorobenzene	10.78	10.28	11.28	10.77	-0.09
76 d4-1,4-Dichlorobe	13.46	12.96	13.96	13.46	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.

Analytical Resources, Inc.

RECOVERY REPORT

Client Name:
Sample Matrix: SOLID
Lab Smp Id: MB1005
Level: LOW
Data Type: MS DATA
SpikeList File: all.spk
Sublist File: voa.sub
Method File: /chem1/finn5.i/05OCT10.b/s8260b.m
Misc Info: 10-

Client SDG: 05OCT10
Fraction: VOA
Client Smp ID: MB1005
Operator: PB
SampleType: BLANK
Quant Type: ISTD

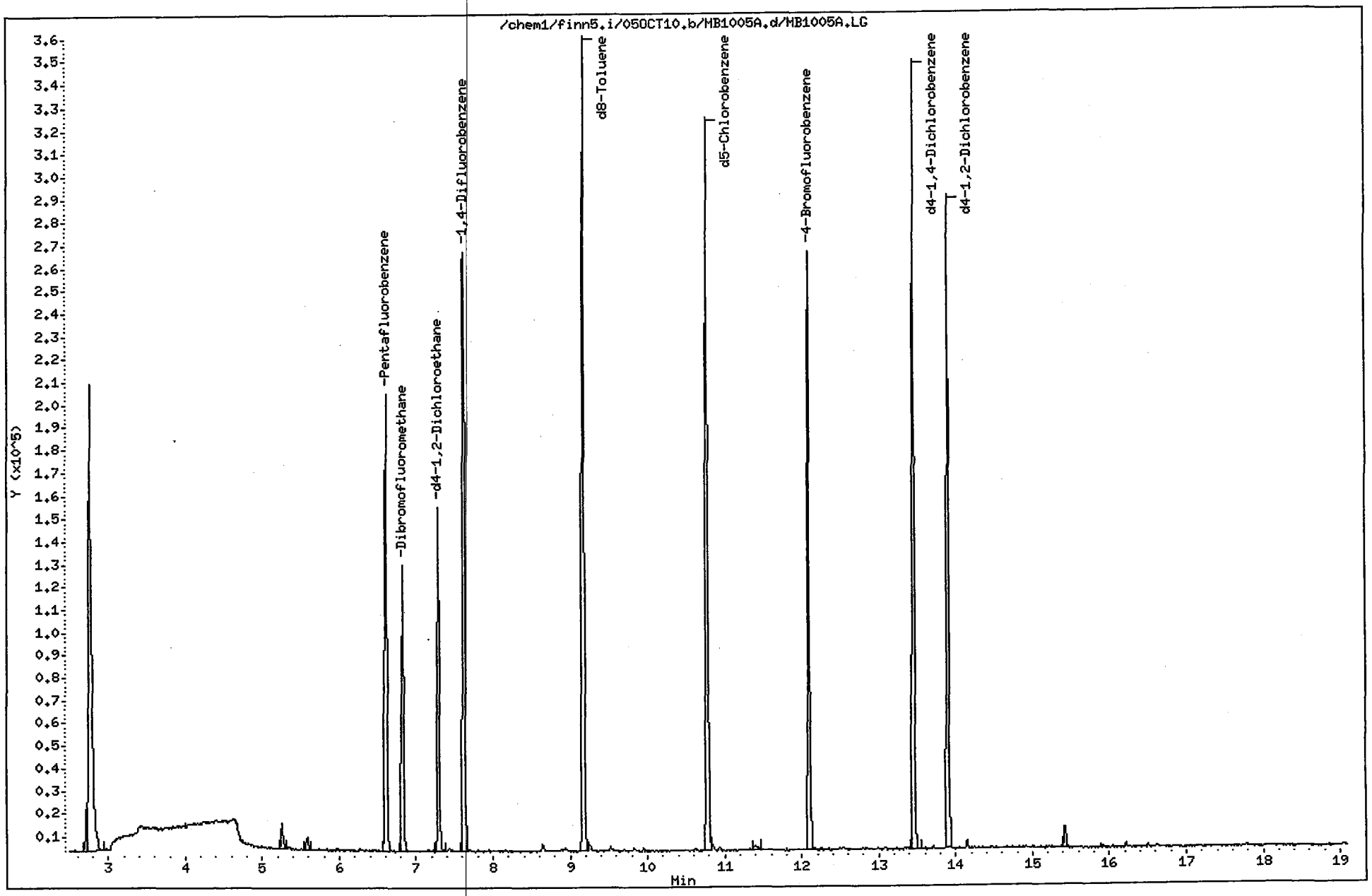
SURROGATE COMPOUND	AMOUNT ADDED ug/Kg	AMOUNT RECOVERED ug/Kg	% RECOVERED	LIMITS
$ 25 Dibromofluorometha	50.000	50.033	100.07	30-160
$ 31 d4-1,2-Dichloroeth	50.000	50.350	100.70	75-152
$ 43 d8-Toluene	50.000	48.765	97.53	82-115
$ 62 4-Bromofluorobenze	50.000	47.993	95.99	64-120
$ 79 d4-1,2-Dichloroben	50.000	51.033	102.07	80-120

Data File: /chem1/finn5.i/05OCT10.b/MB1005A.d
Date : 05-OCT-2010 15:34
Client ID: MB1005
Sample Info: MB1005,5,5,0

Column phase: Rtx502.2

Instrument: finn5.i

Operator: PB
Column diameter: 0.18



RP83:00185

Data File: /chem1/finn5.i/05OCT10.b/MB1005A.d

Date : 05-OCT-2010 15:34

Client ID: MB1005

Instrument: finn5.i

Sample Info: MB1005,5,5,0

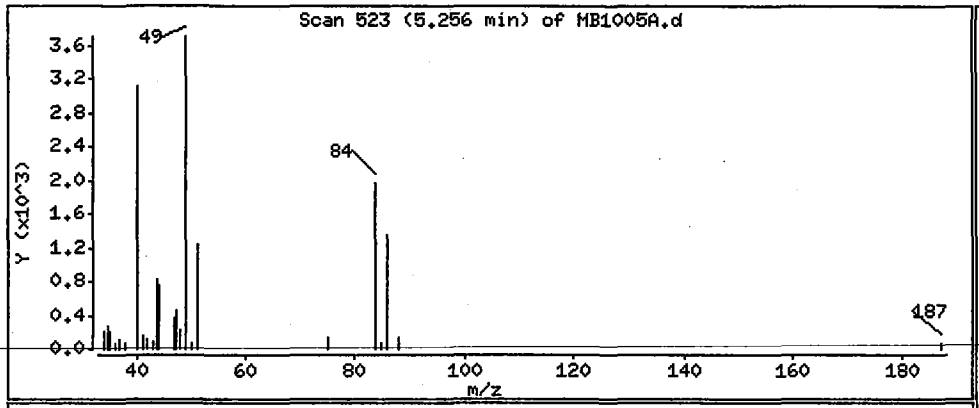
Operator: PB

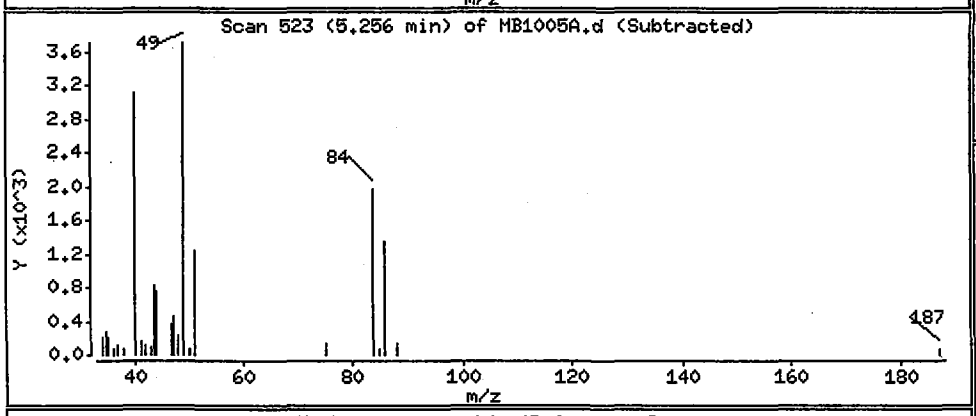
Column phase: Rtx502.2

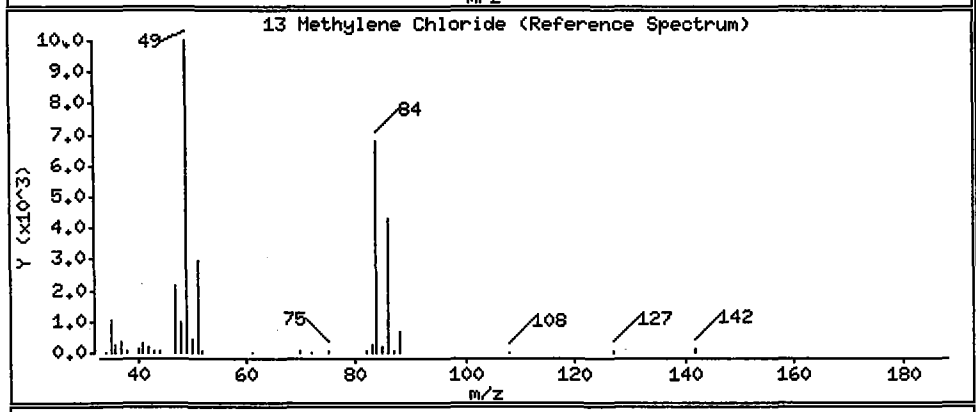
Column diameter: 0.18

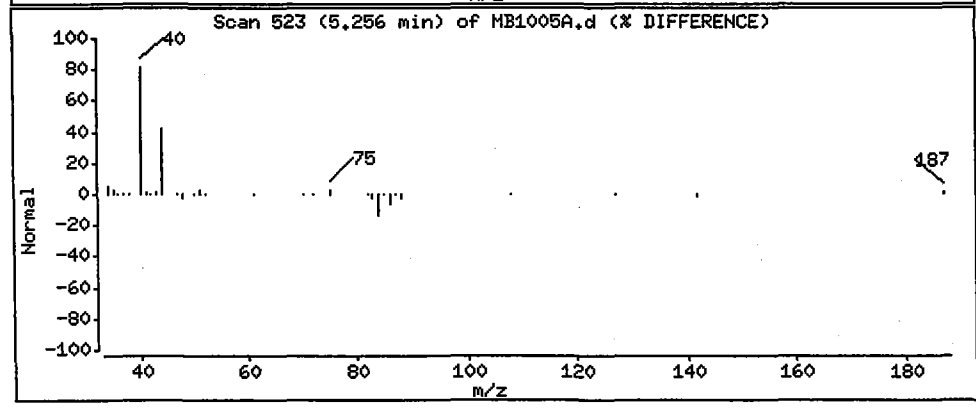
13 Methylene Chloride

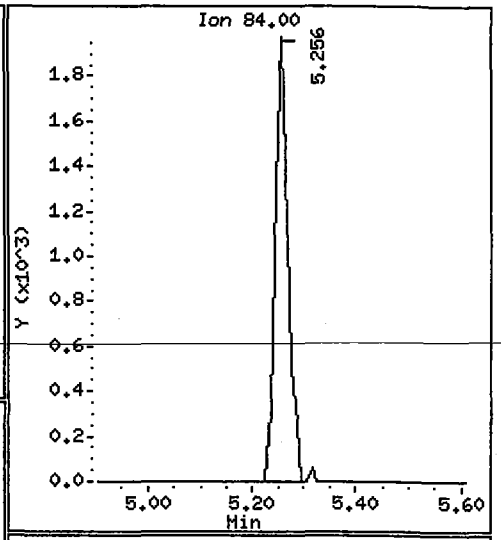
Concentration: 1.536 ug/Kg

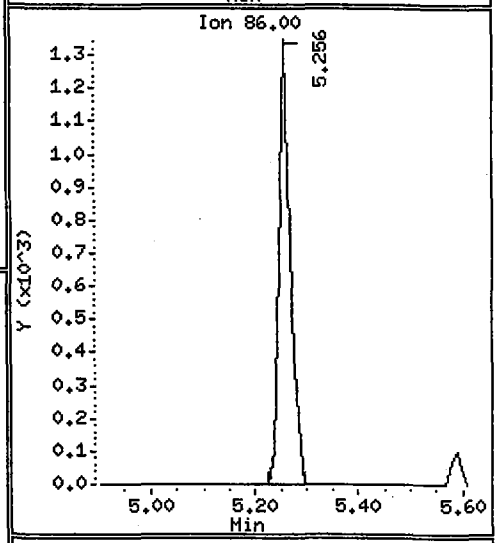


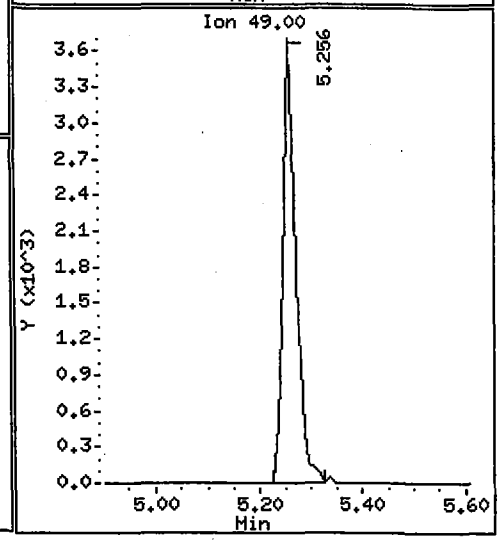












PK 10/4/10

Analytical Resources, Inc.

8260C

Data file : /chem1/finn5.i/05OCT10.b/RP83A.d
Lab Smp Id: RP83A Client Smp ID: GSM-08SO-10-11-1009
Inj Date : 05-OCT-2010 20:09
Operator : PB Inst ID: finn5.i
Smp Info : RP83A,5,5,1,10UL/5ML
Misc Info : 10-25370
Comment :
Method : /chem1/finn5.i/05OCT10.b/s8260b.m
Meth Date : 06-Oct-2010 15:48 paul Quant Type: ISTD
Cal Date : 21-SEP-2010 14:36 Cal File: 2000921.d
Als bottle: 1
Dil Factor: 1.00000
Integrator: HP RTE Compound Sublist: voa.sub
Target Version: 3.50

Concentration Formula: Amt * DF * Uf * 1/(Ws * (100 - M)/100) * CpndVariable

M	0.00000	Moisture (%)
Uf	1.00000	factor
Ws	5.00000	Weight of sample extracted (g)

Cpnd Variable Local Compound Variable

Compounds	QUANT SIG MASS	RT	EXP RT	REL RT	RESPONSE	CONCENTRATIONS ON-COLUMN (ug/Kg)	FINAL (ug/Kg)
1 Dichlorodifluoromethane	85	Compound Not Detected.					
2 Chloromethane	50	Compound Not Detected.					
3 Vinyl Chloride	62	Compound Not Detected.					
4 Bromomethane	94	Compound Not Detected.					
5 Chloroethane	64	Compound Not Detected.					
6 Trichlorofluoromethane	101	Compound Not Detected.					
7 Acrolein	56	Compound Not Detected.					
8 112Trichloro122Trifluoroethane	101	Compound Not Detected.					
9 Acetone	43	4.663	4.663	(0.705)	2553	2.99226	0.5984
10 1,1-Dichloroethene	96	Compound Not Detected.					
11 Bromoethane	108	Compound Not Detected.					
12 Iodomethane	142	Compound Not Detected.					
13 Methylene Chloride	84	5.256	5.256	(0.795)	3414	1.49199	0.2984(Q)
14 Acrylonitrile	53	Compound Not Detected.					
16 Methyl tert-Butyl Ether	73	Compound Not Detected.					
15 Carbon Disulfide	76	Compound Not Detected.					
17 Trans-1,2-Dichloroethene	96	Compound Not Detected.					
18 Vinyl Acetate	43	Compound Not Detected.					
19 1,1-Dichloroethane	63	Compound Not Detected.					

SB

	Compounds	QUANT SIG MASS	RT	EXP RT	REL RT	RESPONSE	CONCENTRATIONS ON-COLUMN (ug/Kg)	CONCENTRATIONS FINAL (ug/Kg)
	20 2-Butanone	43	Compound Not Detected.					
	21 2,2-Dichloropropane	77	Compound Not Detected.					
	22 Cis-1,2-Dichloroethene	96	Compound Not Detected.					
*	23 Pentafluorobenzene	168	6.613	6.613	(1.000)	109118	50.0000	
	24 Chloroform	83	Compound Not Detected.					
	26 Bromochloromethane	128	Compound Not Detected.					
$	25 Dibromofluoromethane	111	6.834	6.834	(1.033)	70638	50.7349	10.147(Q)
	27 1,1,1-Trichloroethane	97	Compound Not Detected.					
	29 1,1-Dichloropropene	75	Compound Not Detected.					
	30 Carbon Tetrachloride	117	Compound Not Detected.					
$	31 d4-1,2-Dichloroethane	65	7.296	7.296	(1.103)	101299	49.0905	9.818
	32 1,2-Dichloroethane	62	Compound Not Detected.					
	33 Benzene	78	7.437	7.427	(0.975)	27620	4.78595	0.9572
*	34 1,4-Difluorobenzene	114	7.628	7.628	(1.000)	162281	50.0000	
	35 Trichloroethene	95	Compound Not Detected.					
	36 1,2-Dichloropropane	63	Compound Not Detected.					
	37 Bromodichloromethane	83	Compound Not Detected.					
	39 Dibromomethane	93	Compound Not Detected.					
	40 2-Chloroethyl Vinyl Ether	63	Compound Not Detected.					
	41 4-Methyl-2-Pentanone	58	Compound Not Detected.					
	42 Cis 1,3-dichloropropene	75	Compound Not Detected.					
$	43 d8-Toluene	98	9.176	9.176	(1.203)	191375	50.0152	10.003
	44 Toluene	92	9.256	9.256	(1.213)	2073	0.59098	0.1182
	45 Trans 1,3-Dichloropropene	75	Compound Not Detected.					
	46 2-Hexanone	43	Compound Not Detected.					
	47 1,1,2-Trichloroethane	97	Compound Not Detected.					
	48 1,3-Dichloropropane	76	Compound Not Detected.					
	49 Tetrachloroethene	166	Compound Not Detected.					
	50 Chlorodibromomethane	129	Compound Not Detected.					
	51 1,2-Dibromoethane	107	Compound Not Detected.					
*	52 d5-Chlorobenzene	117	10.774	10.784	(1.000)	142519	50.0000	
	53 Chlorobenzene	112	Compound Not Detected.					
	54 Ethyl Benzene	91	10.854	10.854	(1.007)	99967	16.2862	3.257
	55 1,1,1,2-Tetrachloroethane	131	Compound Not Detected.					
	56 m,p-xylene	106	10.934	10.934	(1.015)	23832	10.5804	2.116(Q)
	57 o-Xylene	106	11.427	11.427	(1.061)	12788	5.59796	1.120
	58 Styrene	104	Compound Not Detected.					
	59 Isopropyl Benzene	105	11.799	11.809	(0.877)	14697	2.59576	0.5192
	60 Bromoform	173	Compound Not Detected.					
	61 1,1,2,2-Tetrachloroethane	83	Compound Not Detected.					
$	62 4-Bromofluorobenzene	95	12.100	12.100	(1.123)	84710	46.8096	9.362
	63 1,2,3-Trichloropropane	110	Compound Not Detected.					
	65 Trans-1,4-Dichloro 2-Butene	53	Compound Not Detected.					
	66 N-Propyl Benzene	91	Compound Not Detected.					
	67 Bromobenzene	156	Compound Not Detected.					
	68 1,3,5-Trimethyl Benzene	105	12.432	12.432	(0.924)	26506	5.89207	1.178
	69 2-Chloro Toluene	91	Compound Not Detected.					

	Compounds	QUANT SIG MASS	RT	EXP RT	REL RT	RESPONSE	CONCENTRATIONS ON-COLUMN (ug/Kg)	FINAL (ug/Kg)
	70 4-Chloro Toluene	91	Compound Not Detected.					
	71 T-Butyl Benzene	119	Compound Not Detected.					
	72 1,2,4-Trimethylbenzene	105	12.884	12.894	(0.957)	68290	14.5392	2.908
	73 S-Butyl Benzene	105	13.085	13.085	(0.972)	19390	3.19170	0.6383
	74 4-Isopropyl Toluene	119	13.236	13.236	(0.984)	5913	1.35669	0.2713
	75 1,3-Dichlorobenzene	146	Compound Not Detected.					
*	76 d4-1,4-Dichlorobenzene	152	13.457	13.457	(1.000)	73316	50.0000	
	77 1,4-Dichlorobenzene	146	Compound Not Detected.					
	78 N-Butyl Benzene	91	13.698	13.708	(1.018)	6429	1.25832	0.2517(Q)
$	79 d4-1,2-Dichlorobenzene	152	13.909	13.909	(1.034)	66463	51.9086	10.382
	80 1,2-Dichlorobenzene	146	Compound Not Detected.					
	81 1,2-Dibromo 3-Chloropropane	75	Compound Not Detected.					
	82 1,2,4-Trichlorobenzene	180	Compound Not Detected.					
	83 Hexachloro 1,3-Butadiene	225	Compound Not Detected.					
	84 Naphthalene	128	16.231	16.221	(1.206)	1312161	470.553	94.111(Q)
	85 1,2,3-Trichlorobenzene	180	Compound Not Detected.					

QC Flag Legend

Q - Qualifier signal failed the ratio test.

Analytical Resources, Inc.

INTERNAL STANDARD COMPOUNDS
AREA AND RT SUMMARY

Instrument ID: finn5.i
Lab File ID: RP83A.d
Lab Smp Id: RP83A
Analysis Type: VOA
Quant Type: ISTD
Operator: PB
Method File: /chem1/finn5.i/05OCT10.b/s8260b.m
Misc Info: 10-25370

Calibration Date: 05-OCT-2010
Calibration Time: 12:44
Client Smp ID: GSM-08SO-10-11-1009
Level: MED
Sample Type: Sediment

Test Mode:
Use Initial Calibration Level 5.
If Continuing Cal. use Initial Cal. Level 5

COMPOUND	STANDARD	AREA LIMIT LOWER	AREA LIMIT UPPER	SAMPLE	%DIFF
23 Pentafluorobenzen	91870	45935	183740	109118	18.77
34 1,4-Difluorobenze	137983	68992	275966	162281	17.61
52 d5-Chlorobenzene	123519	61760	247038	142519	15.38
76 d4-1,4-Dichlorobe	67589	33794	135178	73316	8.47

COMPOUND	STANDARD	RT LIMIT LOWER	RT LIMIT UPPER	SAMPLE	%DIFF
23 Pentafluorobenzen	6.61	6.11	7.11	6.61	0.00
34 1,4-Difluorobenze	7.63	7.13	8.13	7.63	0.00
52 d5-Chlorobenzene	10.78	10.28	11.28	10.77	-0.09
76 d4-1,4-Dichlorobe	13.46	12.96	13.96	13.46	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.

Analytical Resources, Inc.

RECOVERY REPORT

Client Name: NW Natural
Sample Matrix: SOLID
Lab Smp Id: RP83A
Level: MED
Data Type: MS DATA
SpikeList File: all.spk
Sublist File: voa.sub
Method File: /chem1/finn5.i/05OCT10.b/s8260b.m
Misc Info: 10-25370

Client SDG: RP83
Fraction: VOA
Client Smp ID: GSM-08SO-10-11-1009
Operator: PB
SampleType: SAMPLE
Quant Type: ISTD

SURROGATE COMPOUND	AMOUNT ADDED ug/Kg	AMOUNT RECOVERED ug/Kg	% RECOVERED	LIMITS
$ 25 Dibromofluorometha	50.000	50.735	101.47	30-160
$ 31 d4-1,2-Dichloroeth	50.000	49.090	98.18	75-152
$ 43 d8-Toluene	50.000	50.015	100.03	82-115
$ 62 4-Bromofluorobenze	50.000	46.810	93.62	64-120
$ 79 d4-1,2-Dichloroben	50.000	51.909	103.82	80-120

Data File: /chem1/finn5.i/05OCT10.b/RP83A.d

Date : 05-OCT-2010 20:09

Client ID: GSM-08SO-10-11-1009

Sample Info: RP83A,5,5,1,10UL/5ML

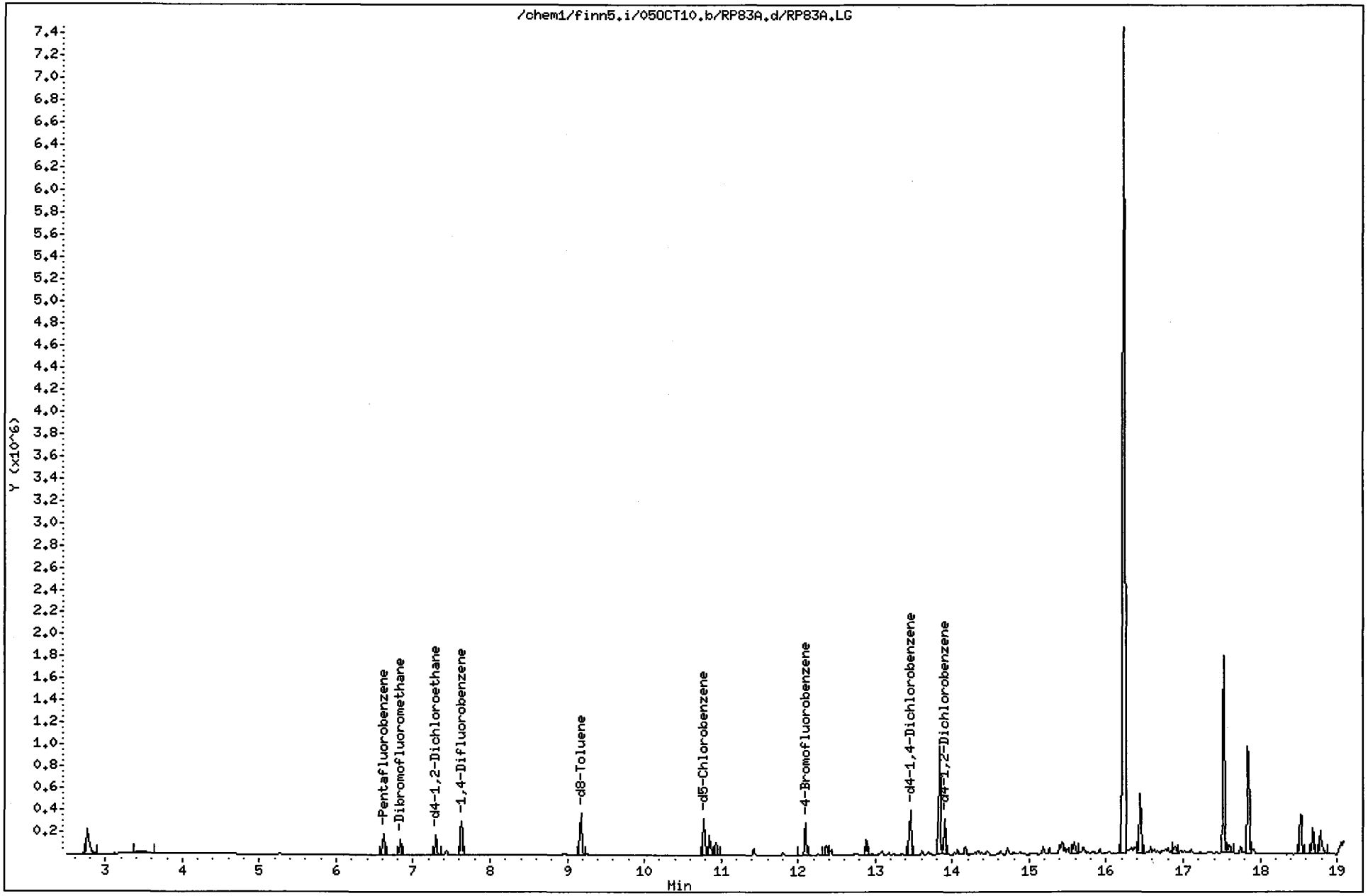
Column phase: Rtx502.2

Instrument: finn5.i

Operator: PB

Column diameter: 0.18

RP83:00192



Data File: /chem1/finn5.i/05OCT10.b/RP83A.d

Date : 05-OCT-2010 20:09

Client ID: GSM-08SO-10-11-1009

Instrument: finn5.i

Sample Info: RP83A,5,5,1,10UL/5ML

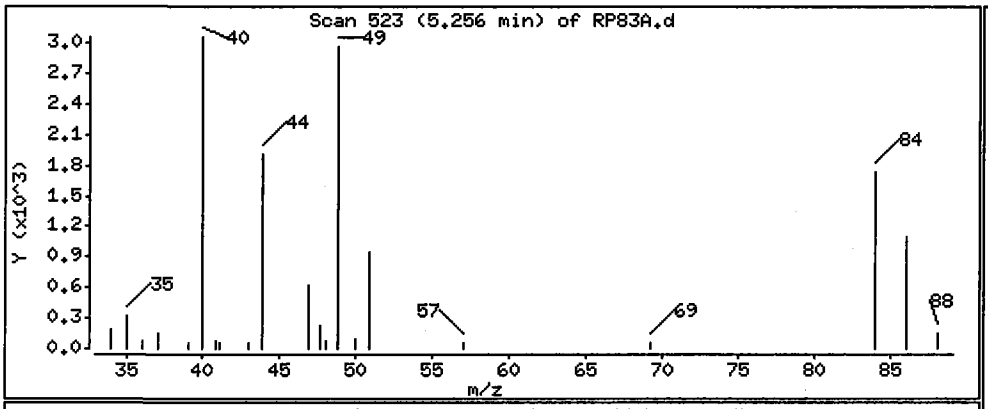
Operator: PB

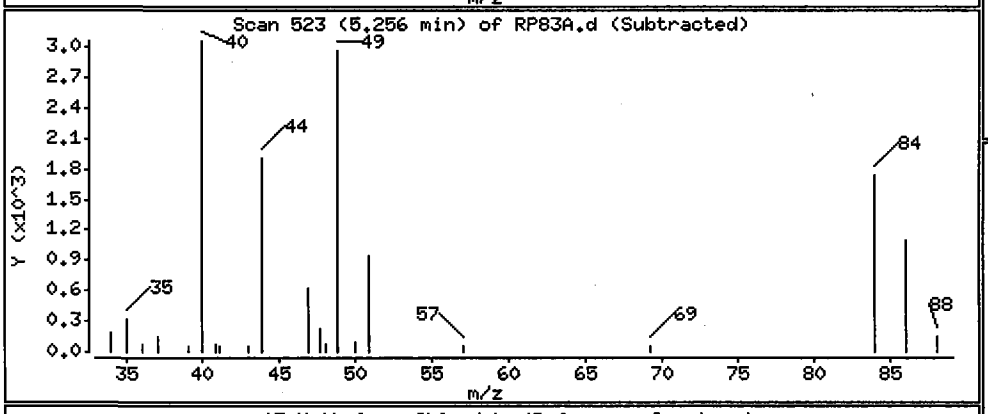
Column phase: Rtx502.2

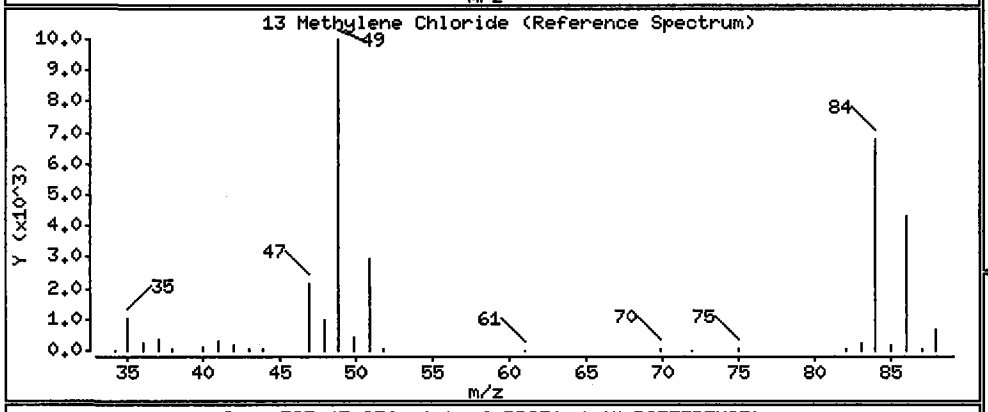
Column diameter: 0.18

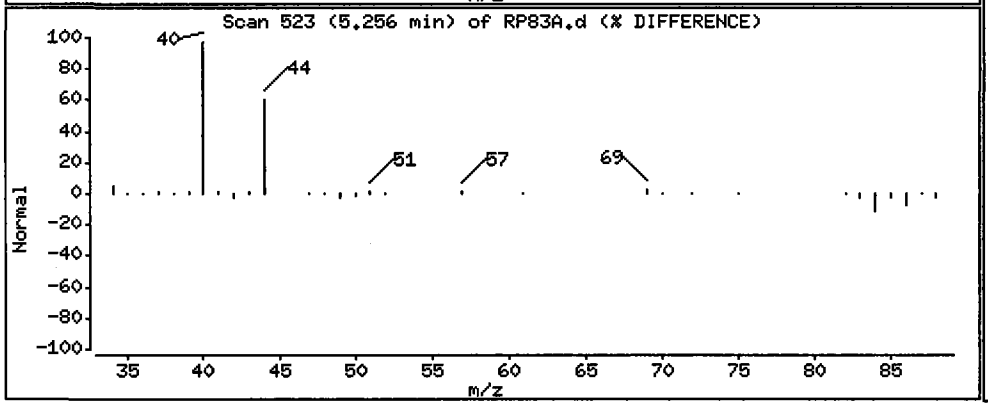
13 Methylene Chloride

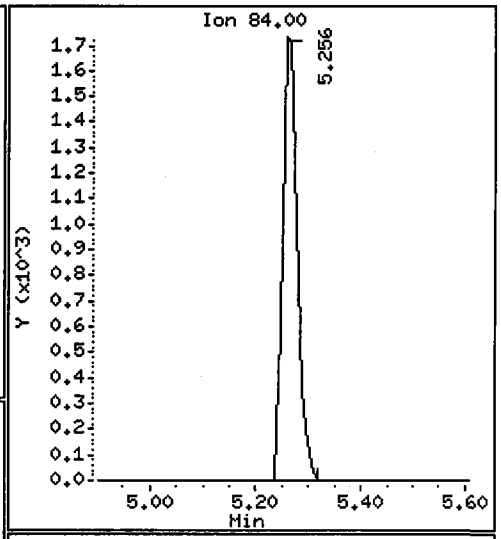
Concentration: 0.2984 ug/Kg

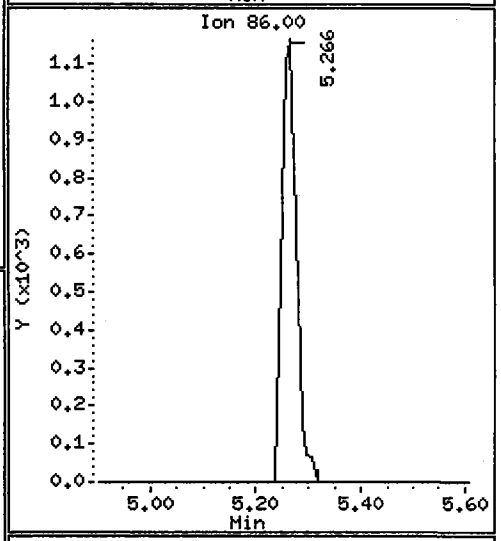


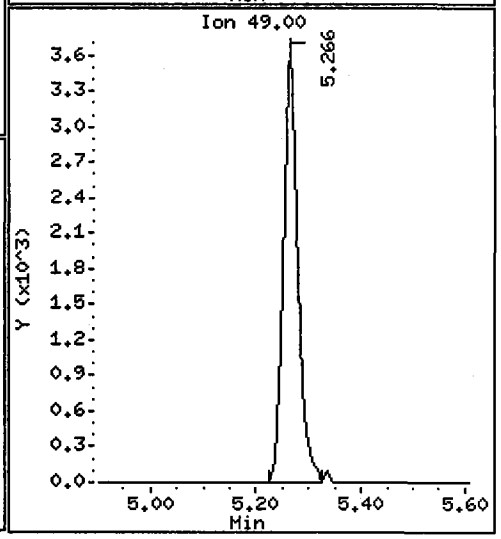












Data File: /chem1/finn5.i/05OCT10.b/RP83A.d

Date : 05-OCT-2010 20:09

Client ID: GSM-08SO-10-11-1009

Instrument: finn5.i

Sample Info: RP83A,5,5,1,10UL/5ML

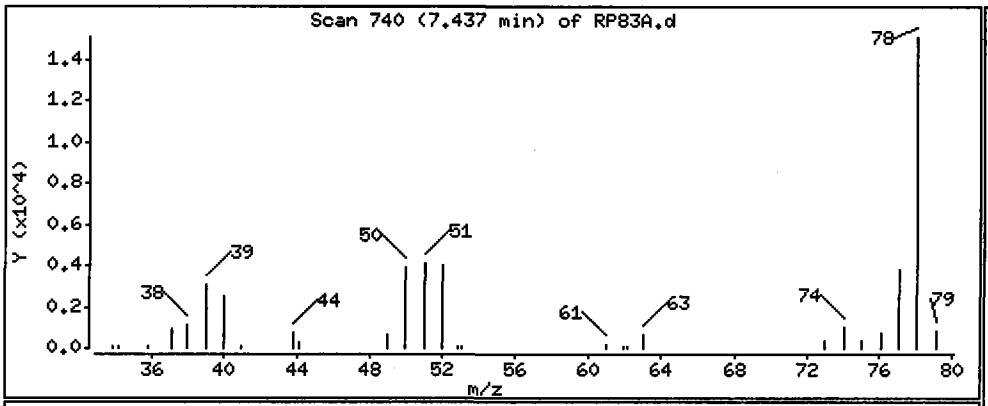
Operator: PB

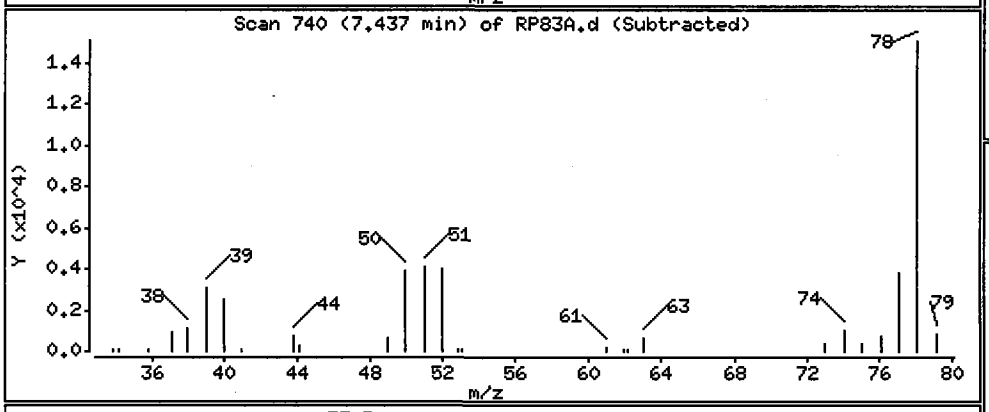
Column phase: Rtx502.2

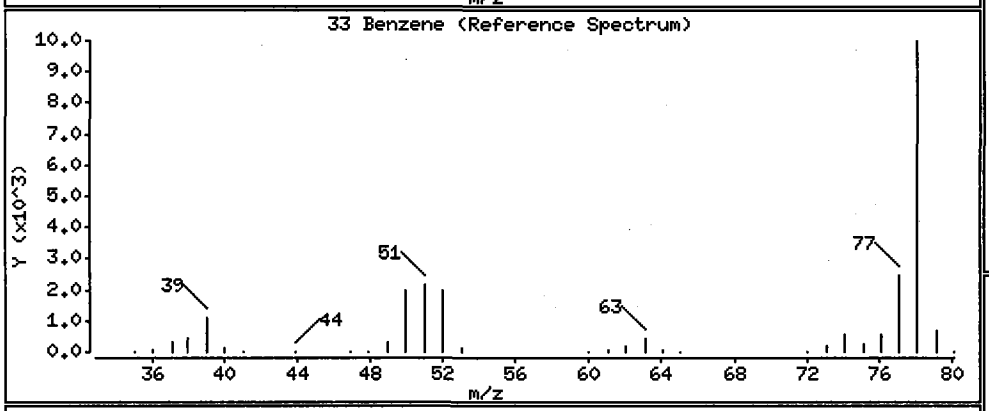
Column diameter: 0.18

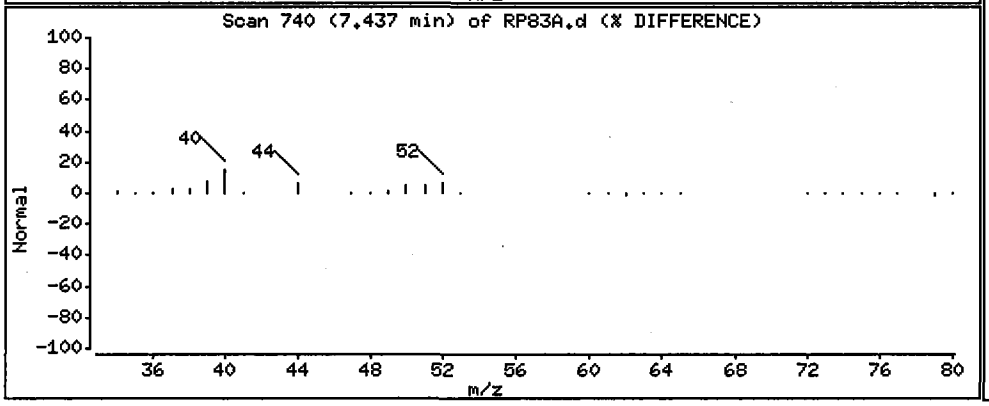
33 Benzene

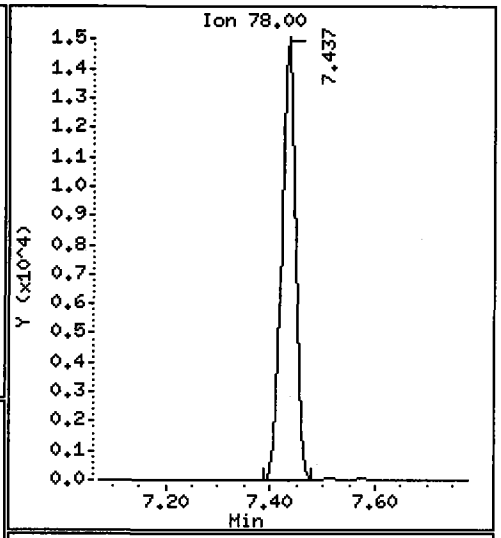
Concentration: 0.9572 ug/Kg

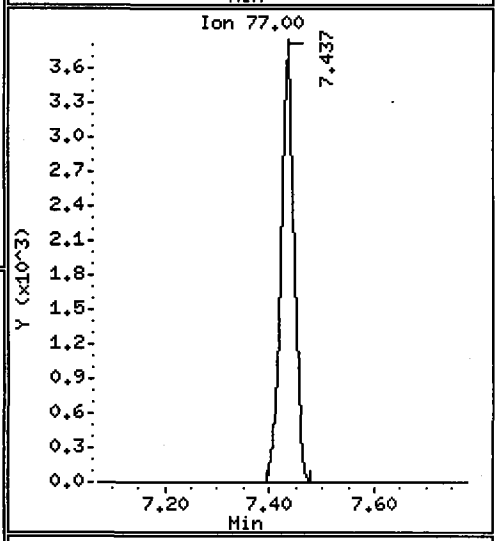


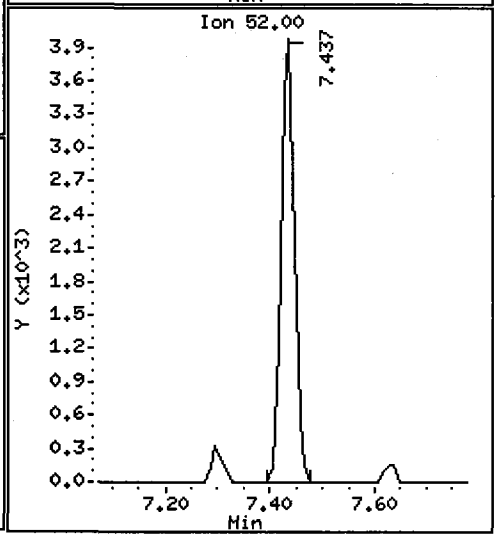












Data File: /chem1/finn5.i/05OCT10.b/RP83A.d

Date : 05-OCT-2010 20:09

Client ID: GSM-08SO-10-11-1009

Instrument: finn5.i

Sample Info: RP83A,5,5,1,10UL/5ML

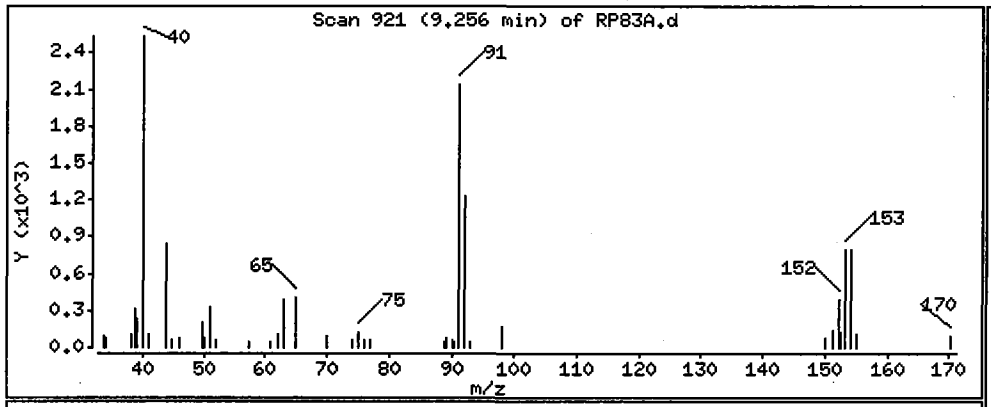
Operator: PB

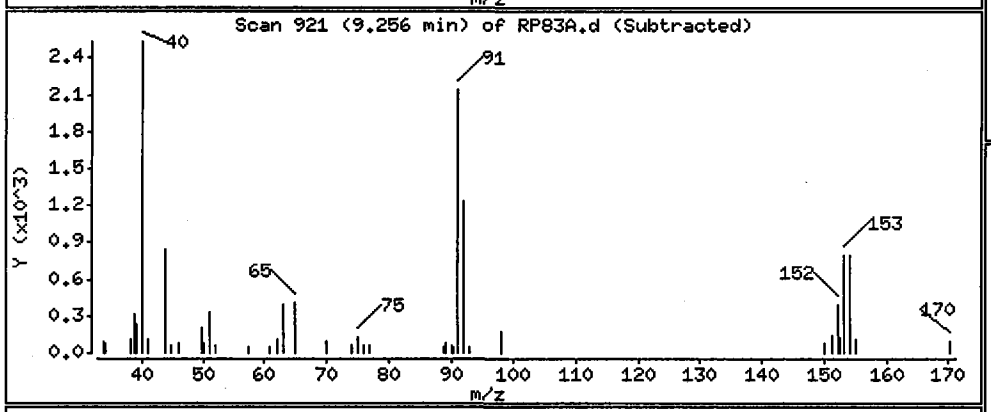
Column phase: Rtx502.2

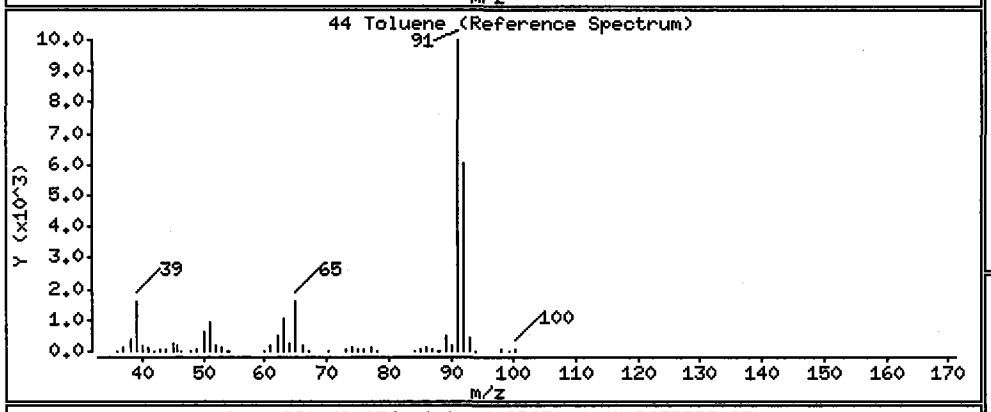
Column diameter: 0.18

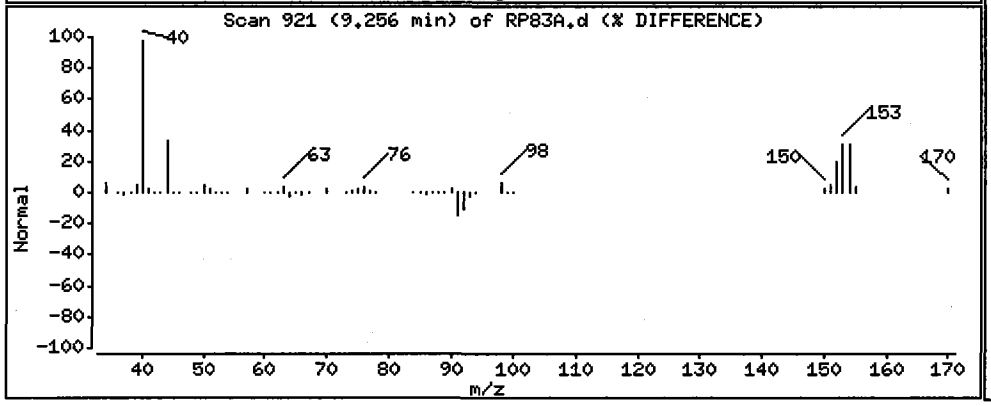
44 Toluene

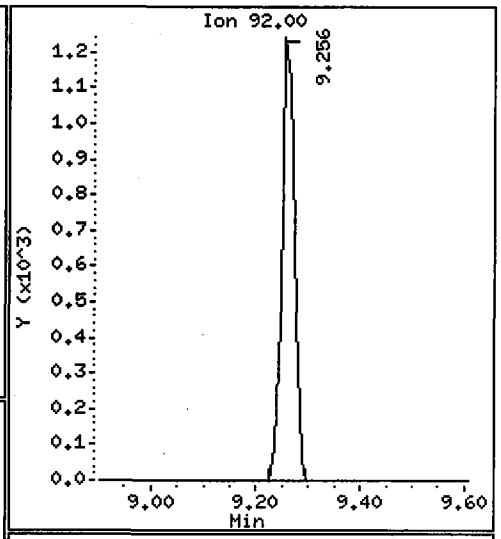
Concentration: 0.1182 ug/Kg

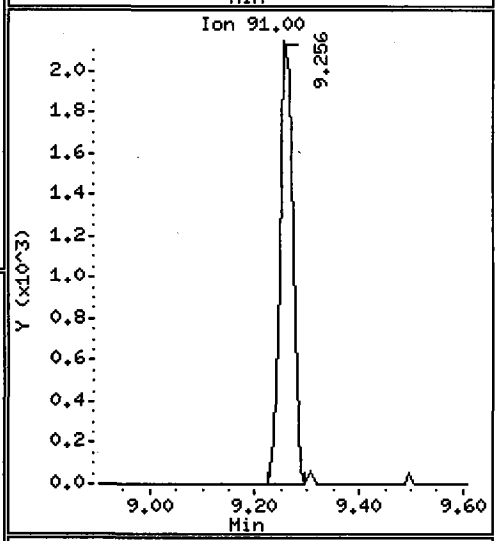


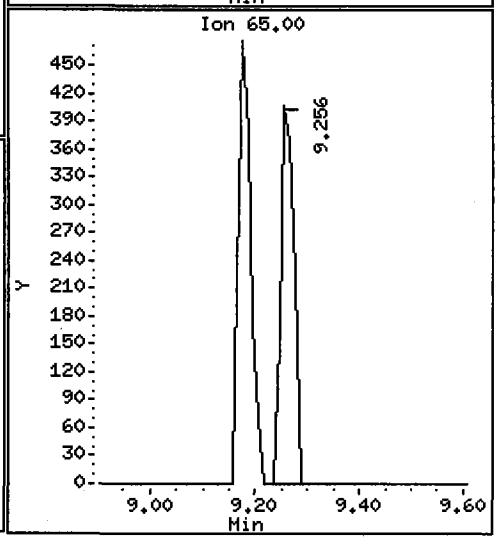












Data File: /chem1/finn5.i/05OCT10.b/RP83A.d

Date : 05-OCT-2010 20:09

Client ID: GSM-08SO-10-11-1009

Instrument: finn5.i

Sample Info: RP83A,5,5,1,10UL/5ML

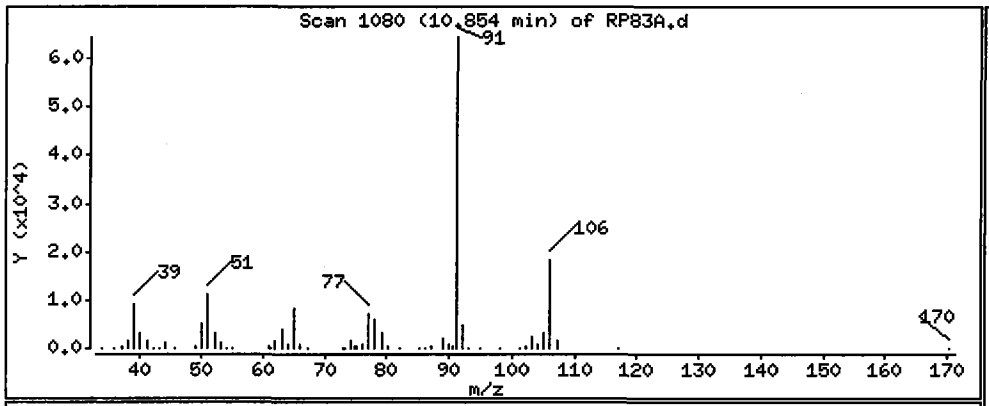
Operator: PB

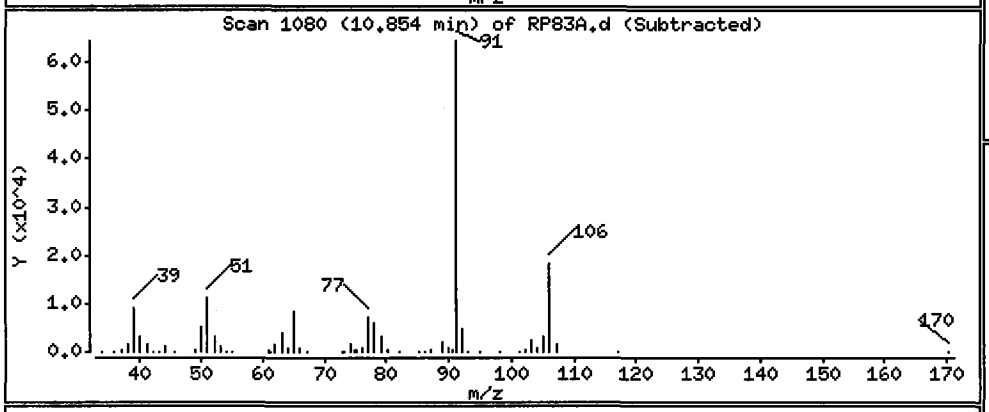
Column phase: Rtx502.2

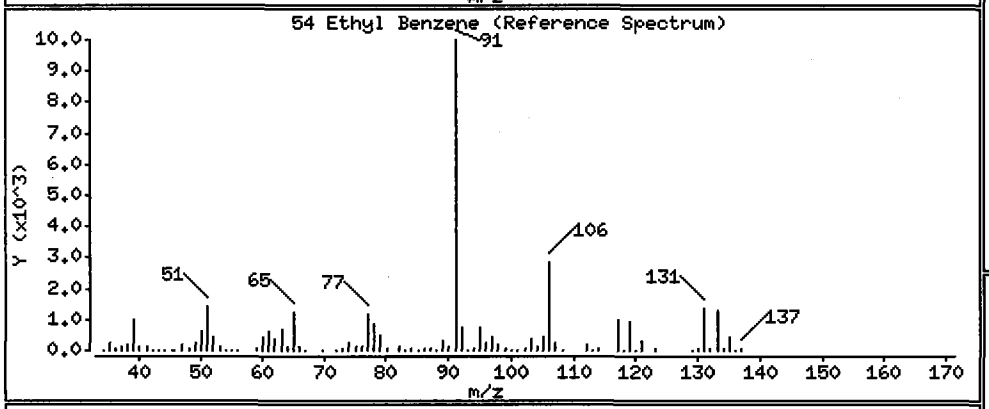
Column diameter: 0.18

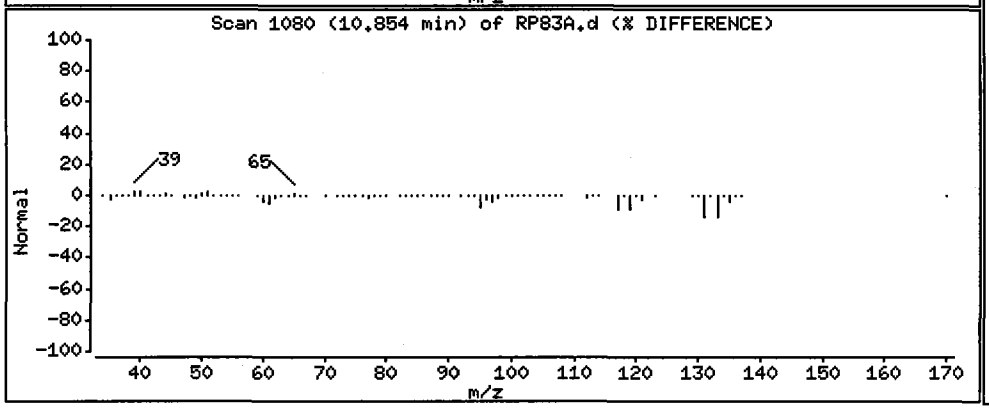
54 Ethyl Benzene

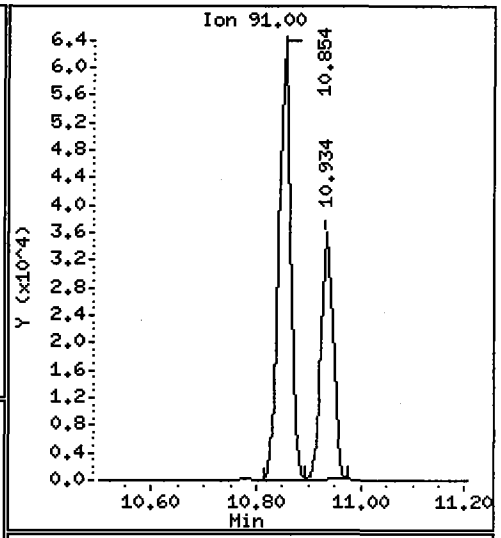
Concentration: 3.257 ug/Kg

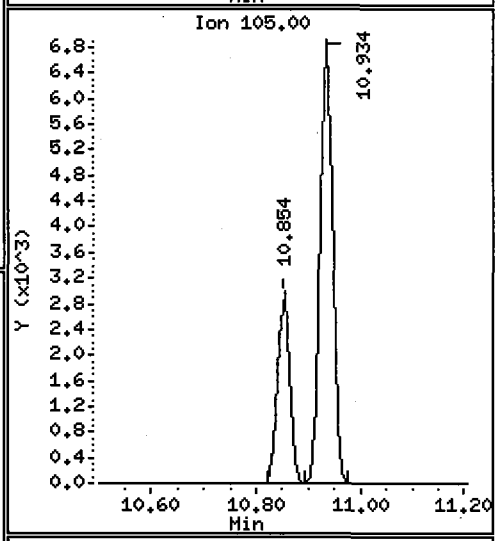


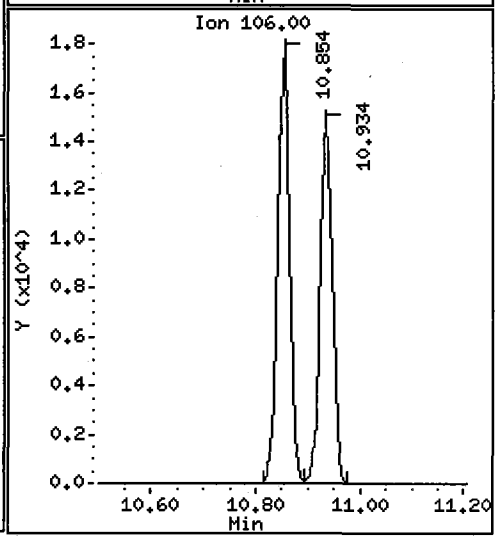












Data File: /chem1/finn5.i/05OCT10.b/RP83A.d

Date : 05-OCT-2010 20:09

Client ID: GSM-08SO-10-11-1009

Instrument: finn5.i

Sample Info: RP83A,5,5,1,10UL/5ML

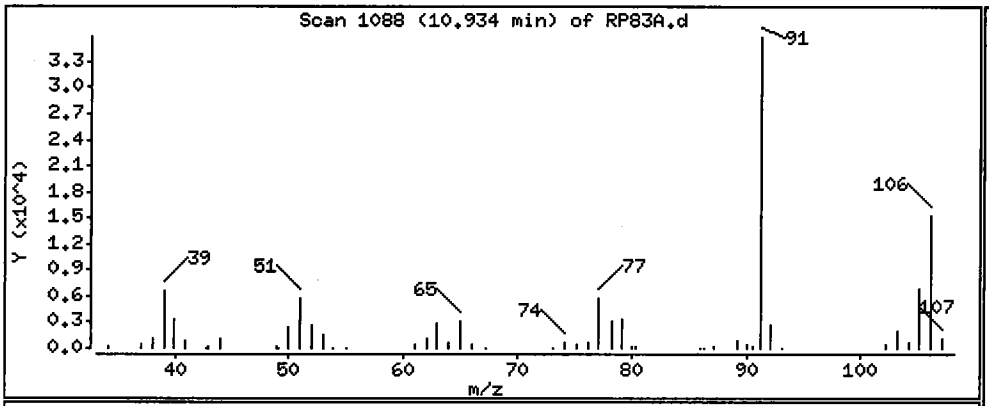
Operator: PB

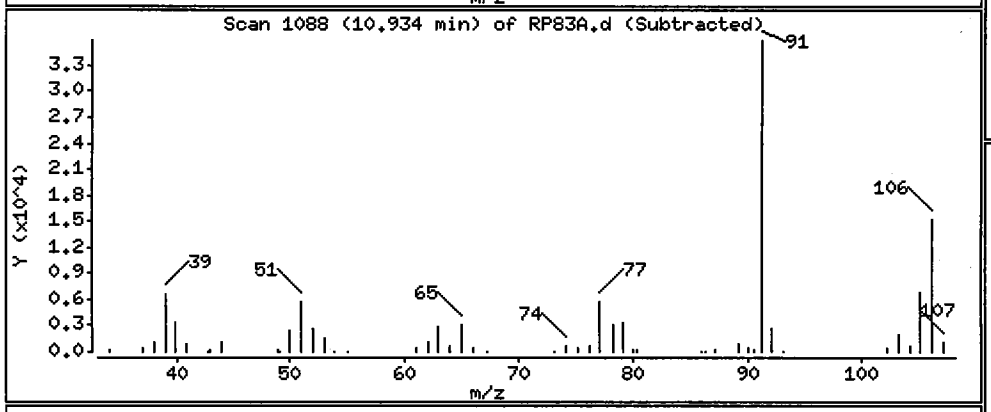
Column phase: Rtx502.2

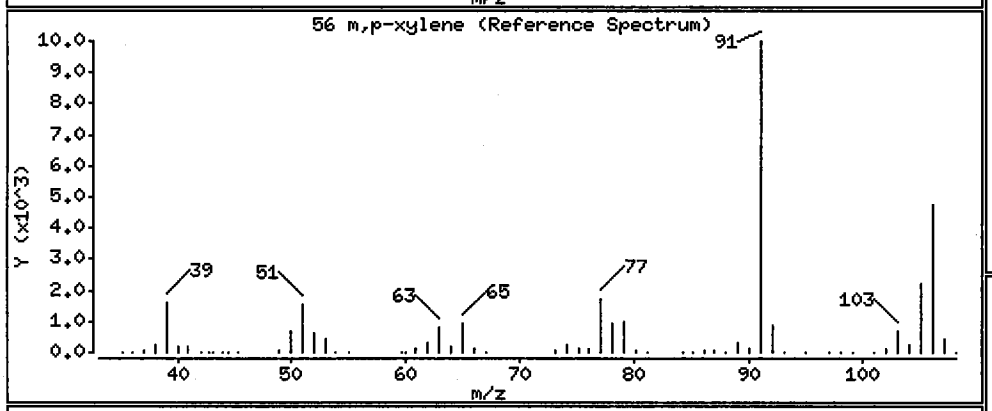
Column diameter: 0.18

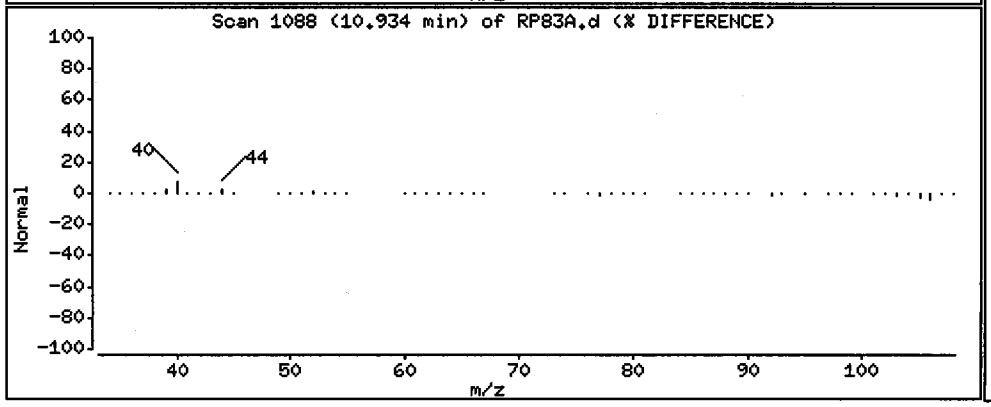
56 m,p-xylene

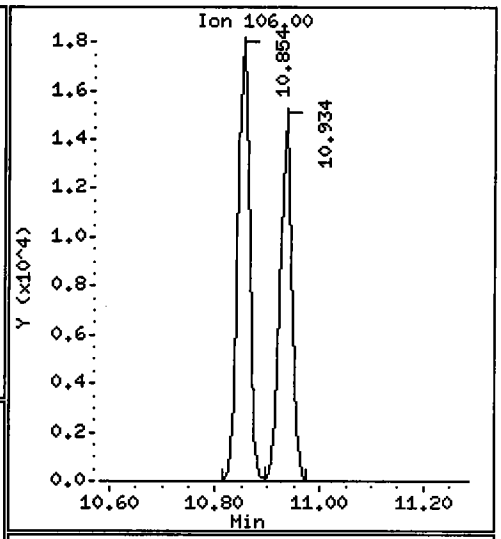
Concentration: 2.116 ug/Kg

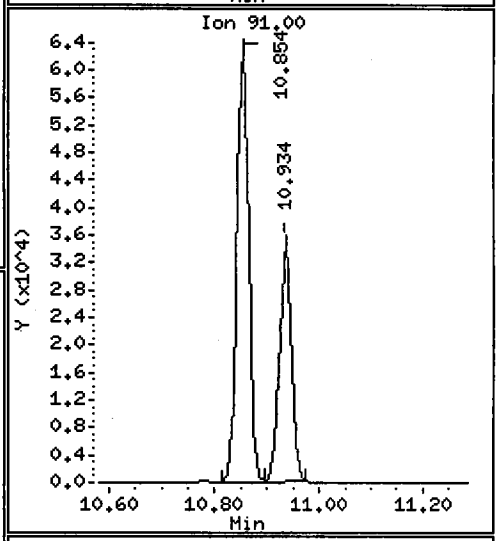


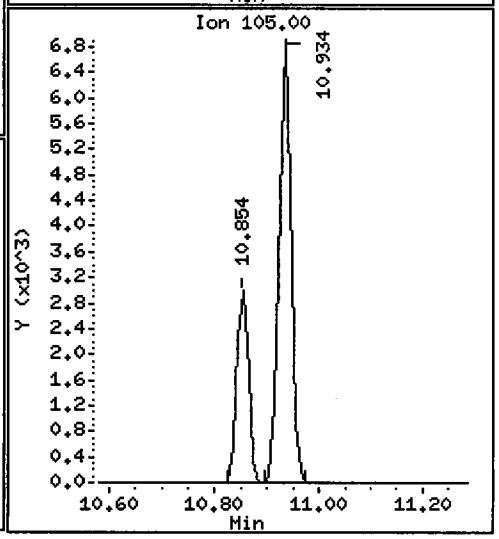












Data File: /chem1/finn5.i/05OCT10.b/RP83A.d

Date : 05-OCT-2010 20:09

Client ID: GSM-08SO-10-11-1009

Instrument: finn5.i

Sample Info: RP83A,5,5,1,10UL/5ML

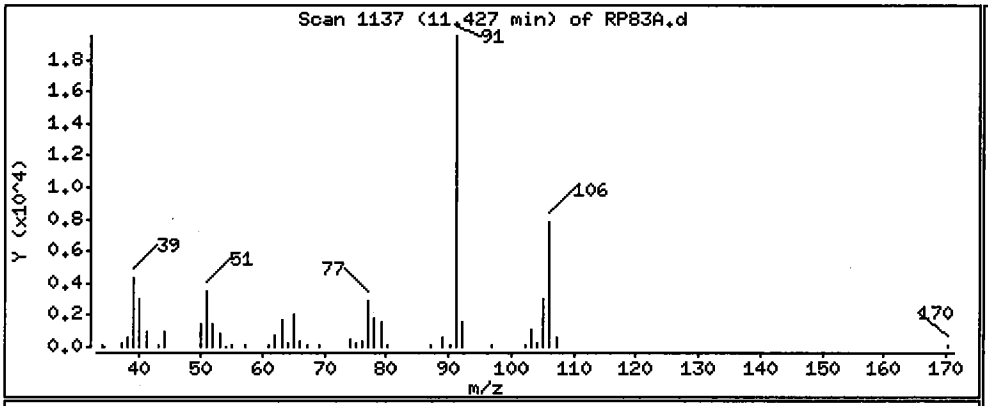
Operator: PB

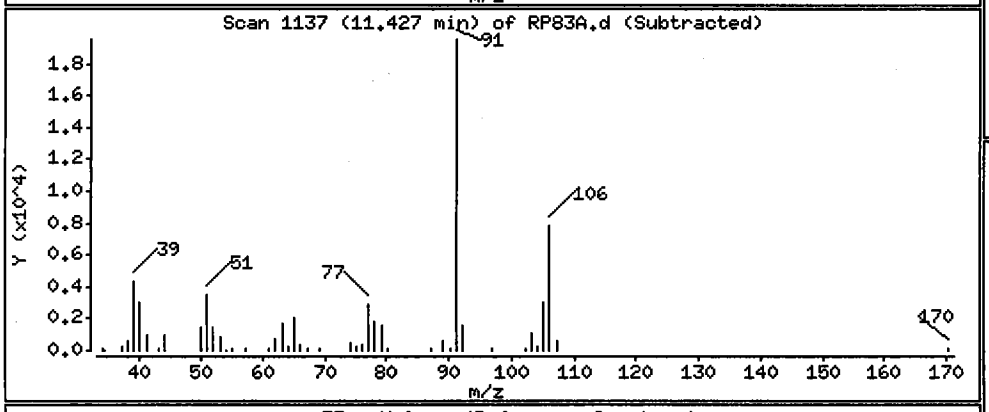
Column phase: Rtx502.2

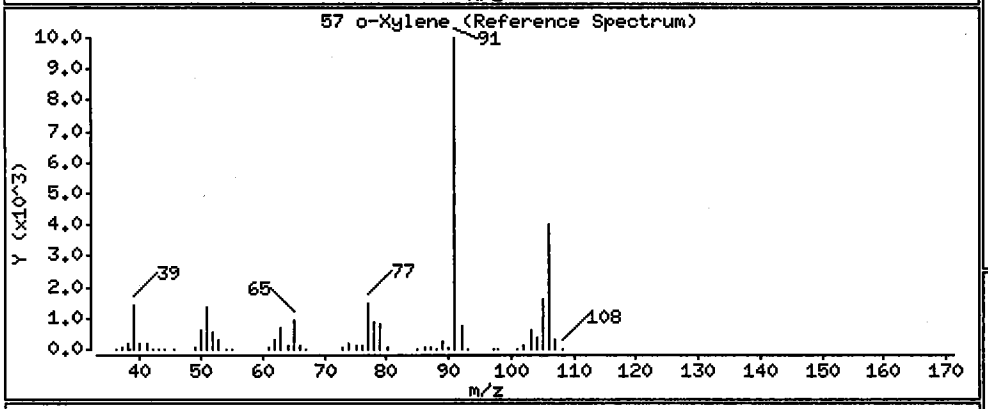
Column diameter: 0.18

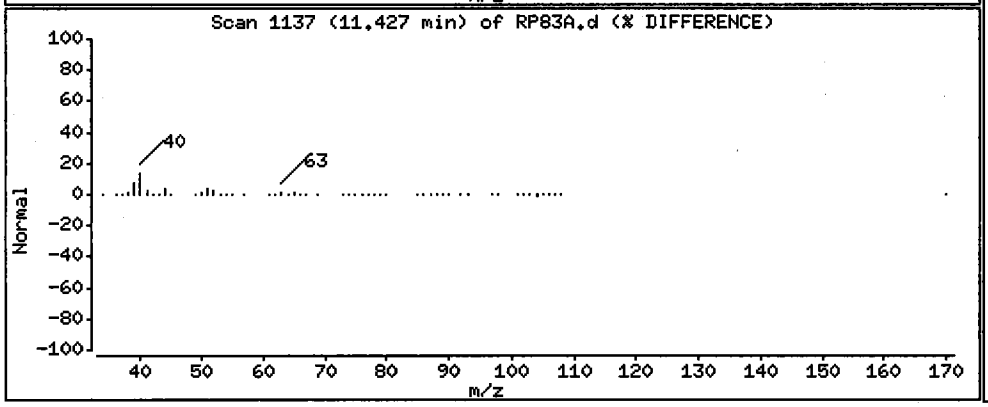
57 o-Xylene

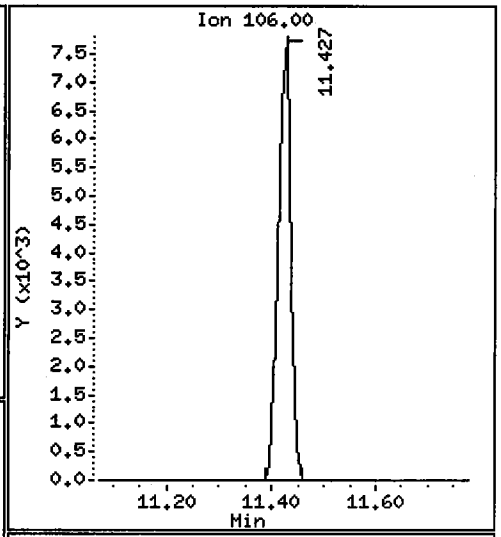
Concentration: 1.120 ug/Kg

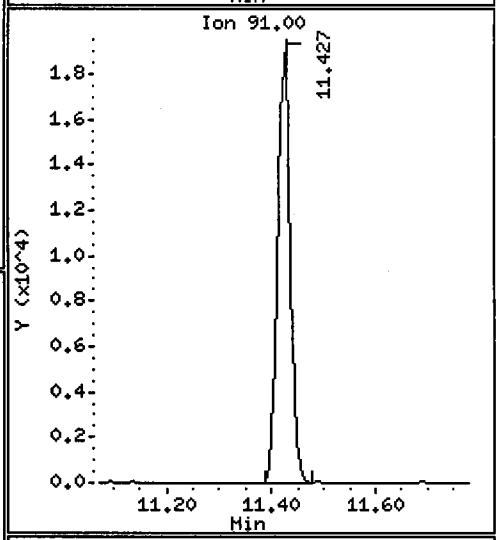


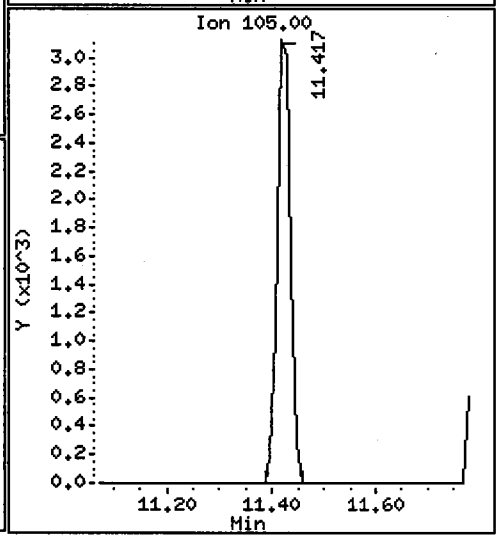












Data File: /chem1/finn5.i/05OCT10.b/RP83A.d

Date : 05-OCT-2010 20:09

Client ID: GSM-08SO-10-11-1009

Instrument: finn5.i

Sample Info: RP83A,5,5,1,10UL/5ML

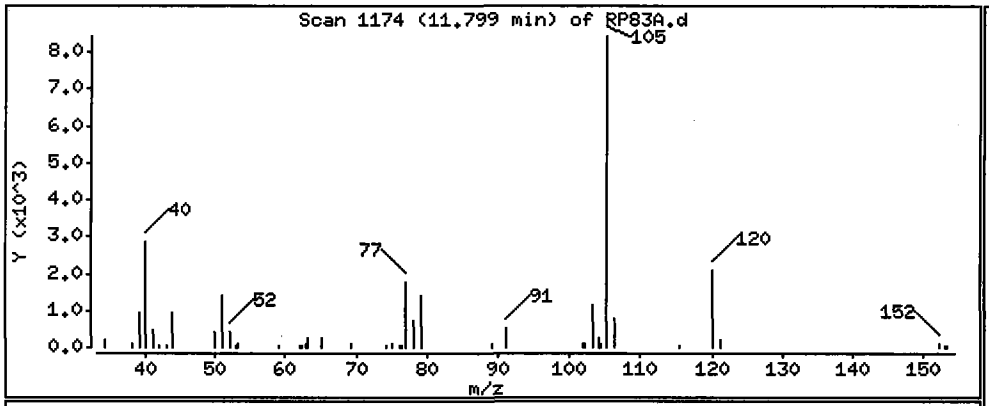
Operator: PB

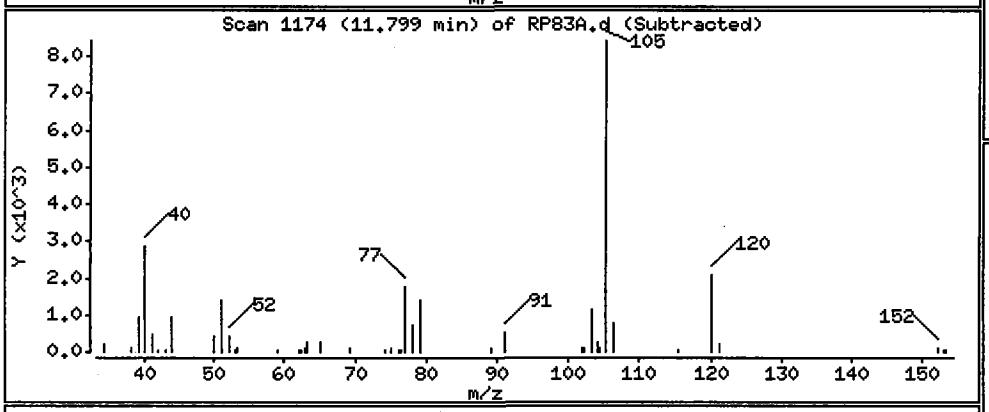
Column phase: Rtx502.2

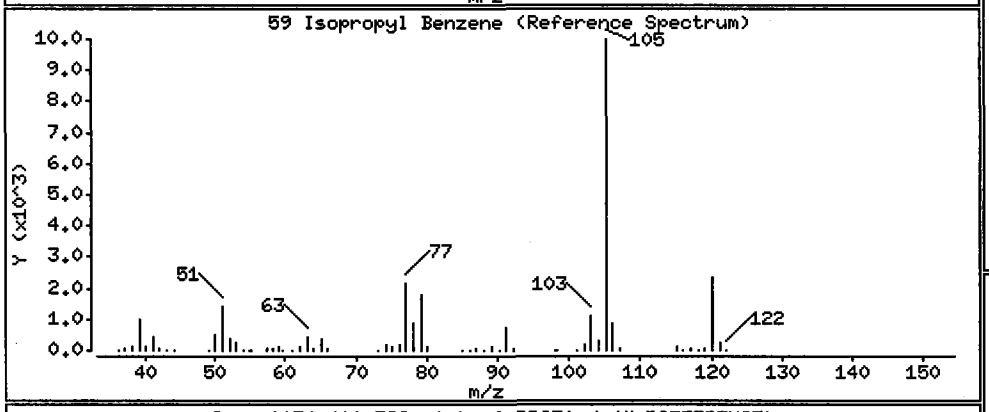
Column diameter: 0.18

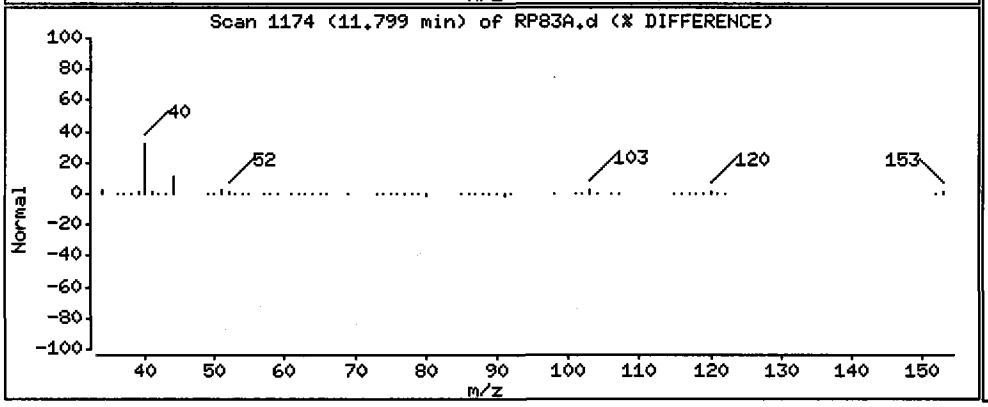
59 Isopropyl Benzene

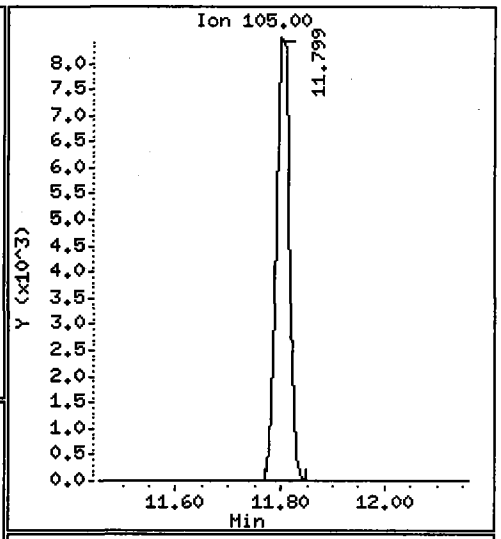
Concentration: 0.5192 ug/Kg

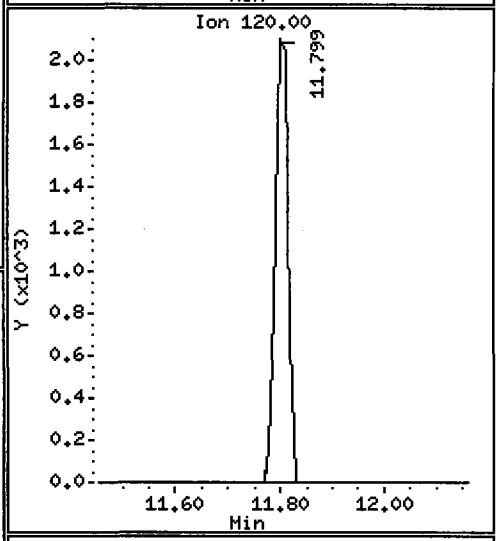


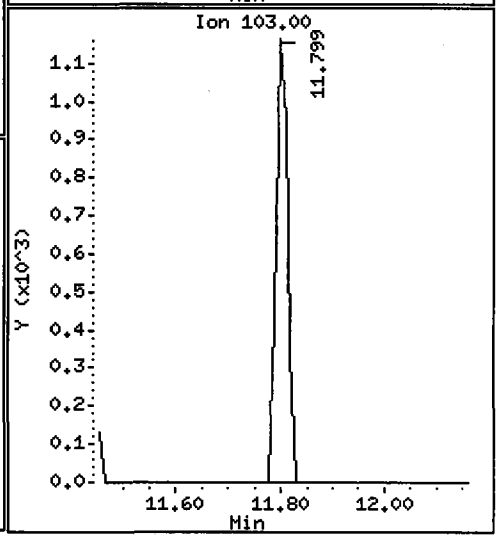












Data File: /chem1/finn5.i/05OCT10.b/RP83A.d

Date : 05-OCT-2010 20:09

Client ID: GSM-08SO-10-11-1009

Instrument: finn5.i

Sample Info: RP83A,5,5,1,10UL/5ML

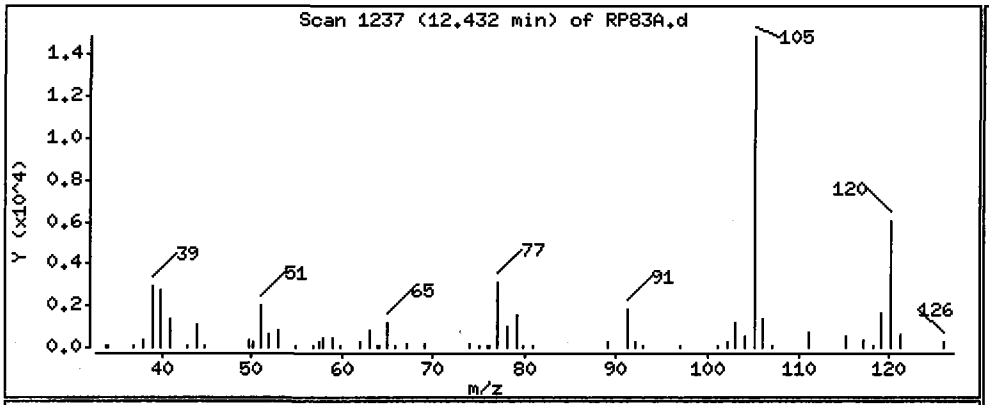
Operator: PB

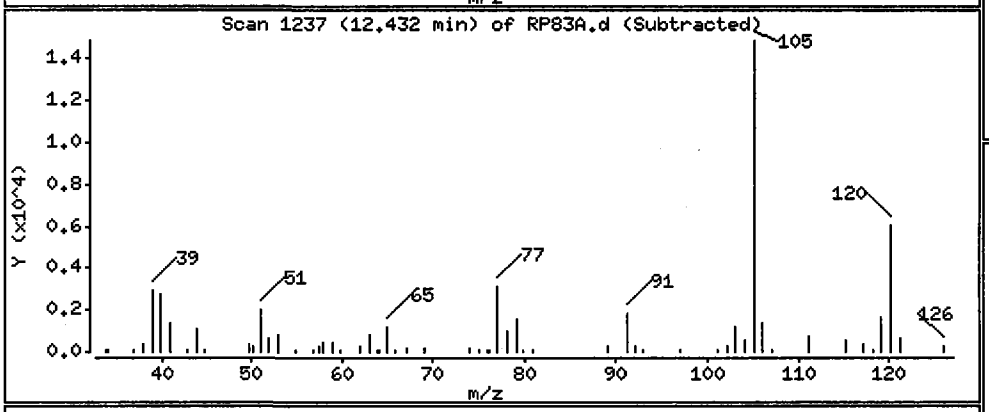
Column phase: Rtx502.2

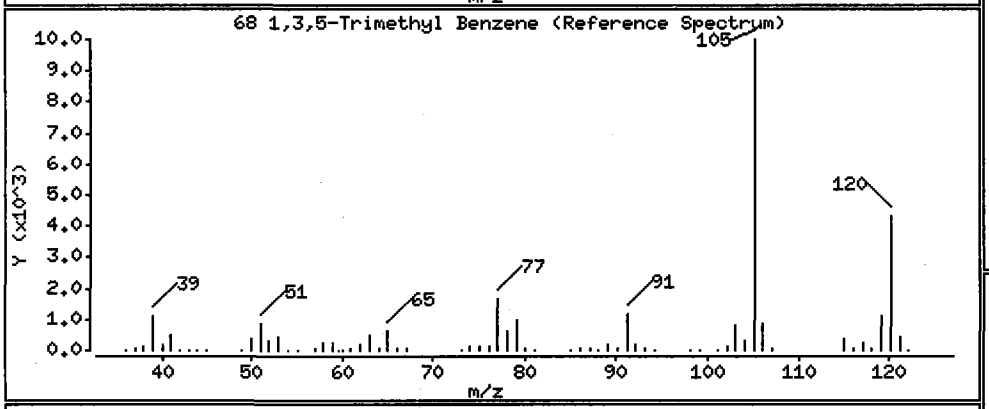
Column diameter: 0.18

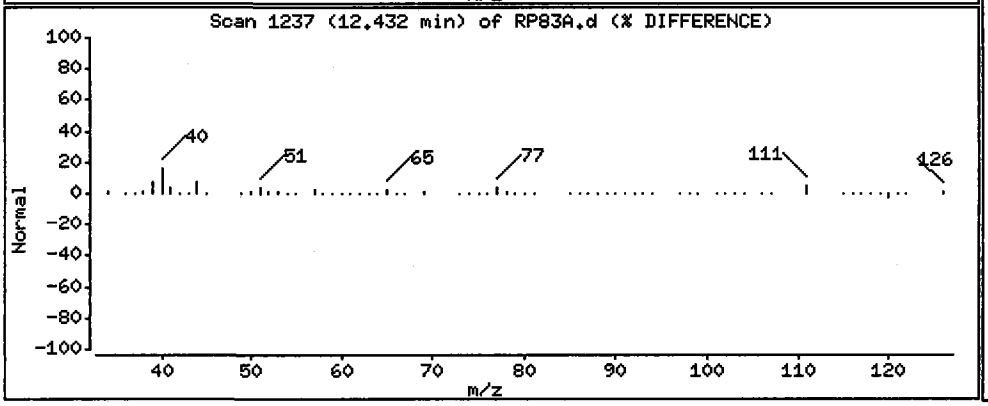
68 1,3,5-Trimethyl Benzene

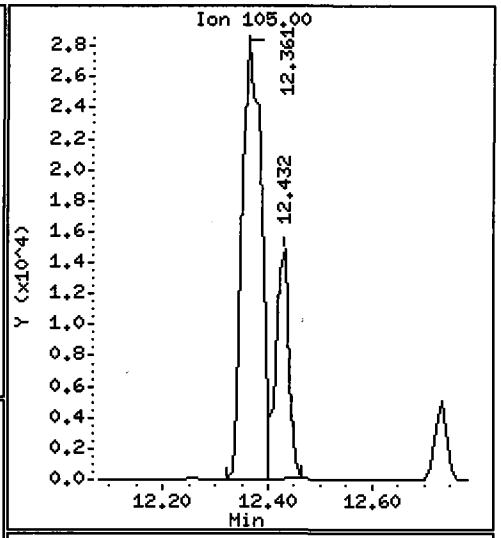
Concentration: 1.178 ug/Kg

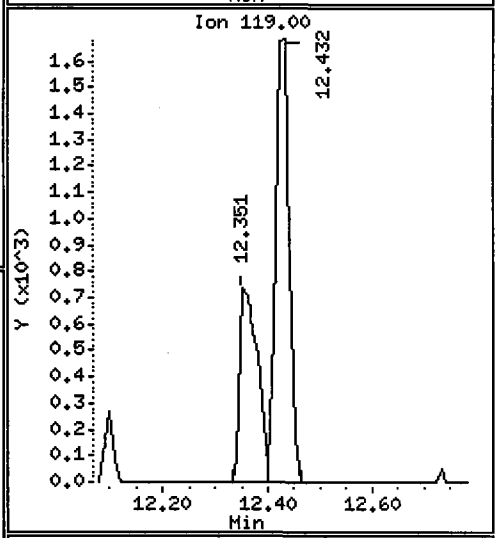


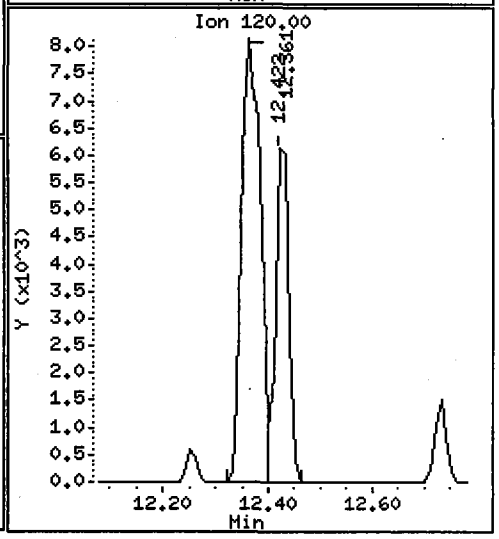












Data File: /chem1/finn5.i/05OCT10.b/RP83A.d

Date : 05-OCT-2010 20:09

Client ID: GSM-08SO-10-11-1009

Instrument: finn5.i

Sample Info: RP83A,5,5,1,10UL/5ML

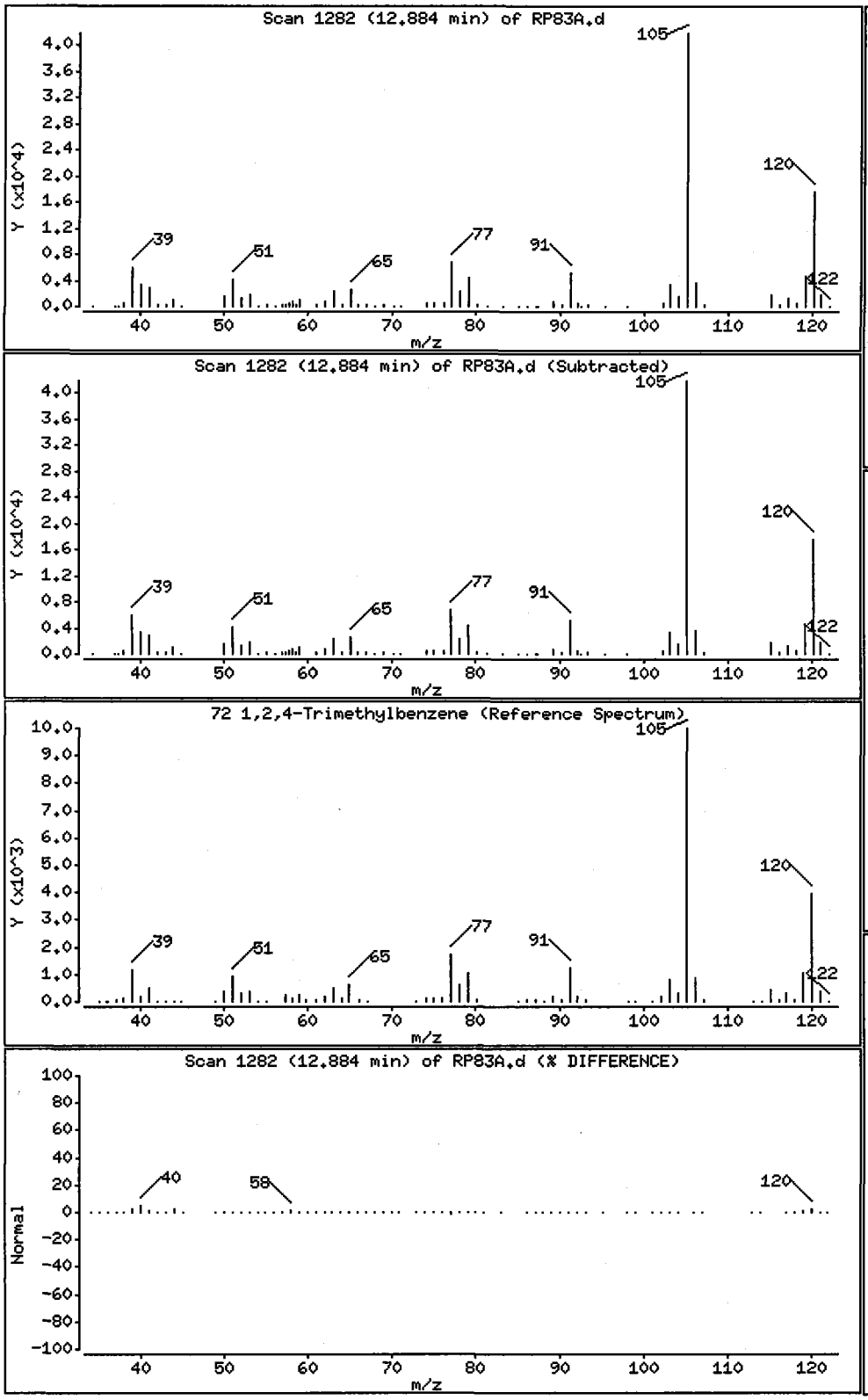
Operator: PB

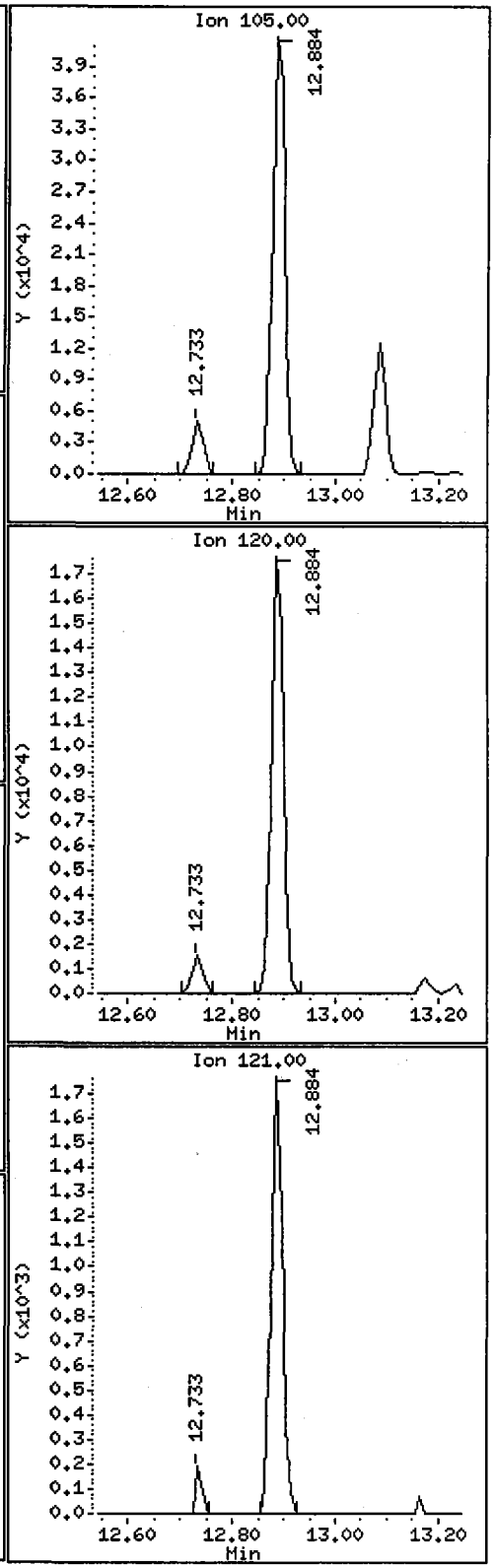
Column phase: Rtx502.2

Column diameter: 0.18

72 1,2,4-Trimethylbenzene

Concentration: 2.908 ug/Kg





Data File: /chem1/finn5.i/05OCT10.b/RP83A.d

Date : 05-OCT-2010 20:09

Client ID: GSM-08SO-10-11-1009

Instrument: finn5.i

Sample Info: RP83A,5,5,1,10UL/5ML

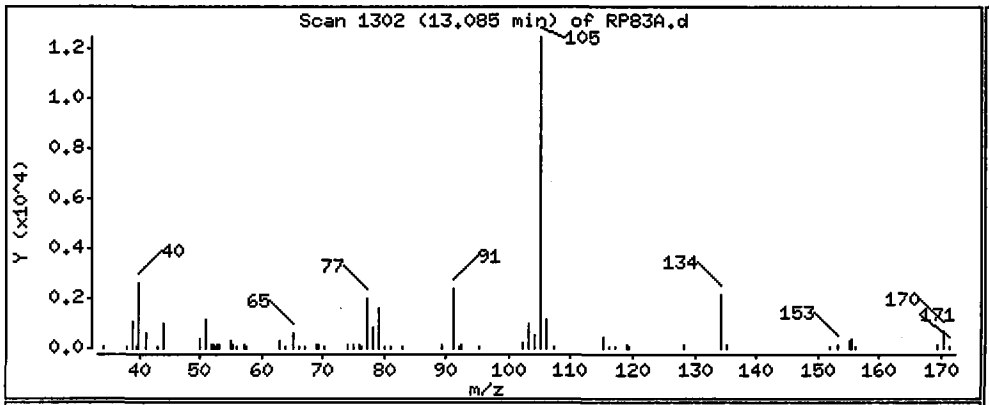
Operator: PB

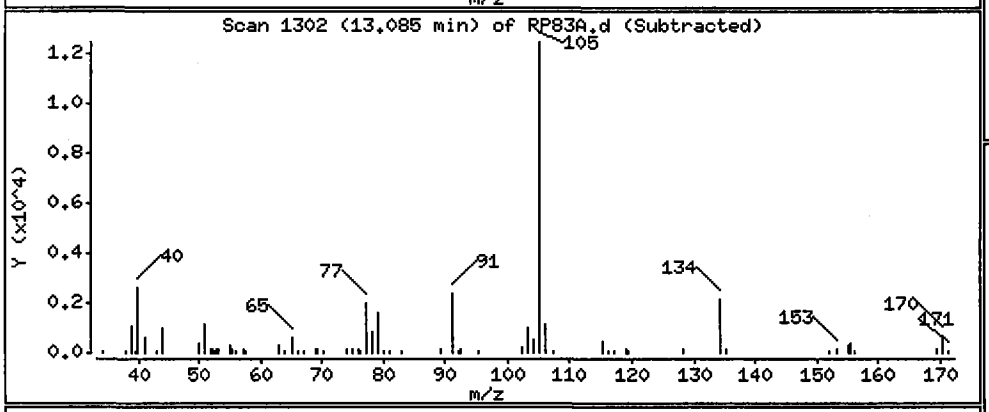
Column phase: Rtx502.2

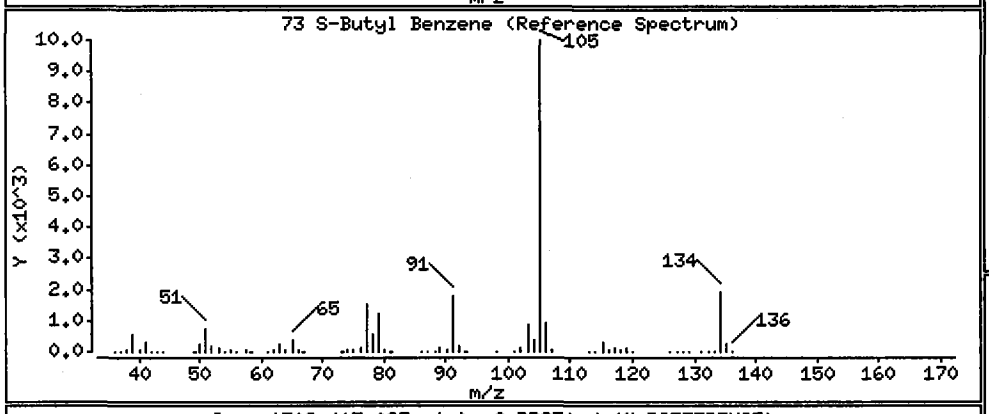
Column diameter: 0.18

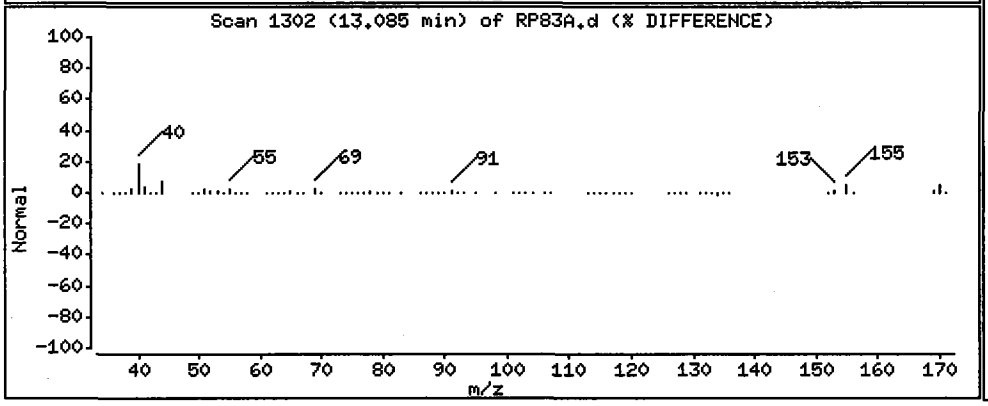
73 S-Butyl Benzene

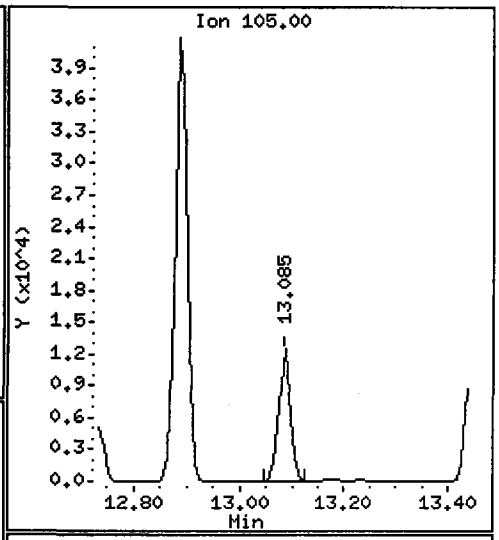
Concentration: 0.6383 ug/Kg

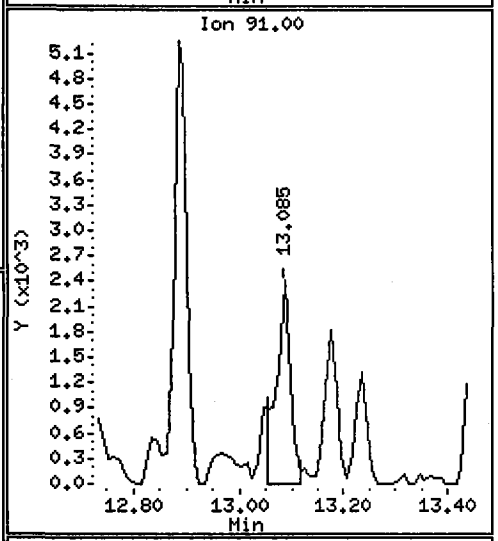


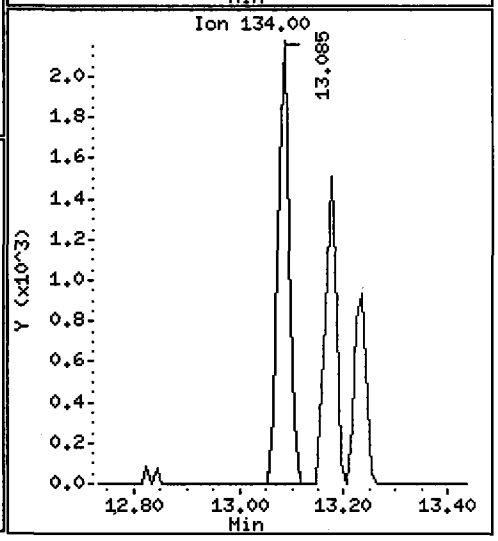












Data File: /chem1/finn5.i/05OCT10.b/RP83A.d

Date : 05-OCT-2010 20:09

Client ID: GSM-08SO-10-11-1009

Instrument: finn5.i

Sample Info: RP83A,5,5,1,10UL/5ML

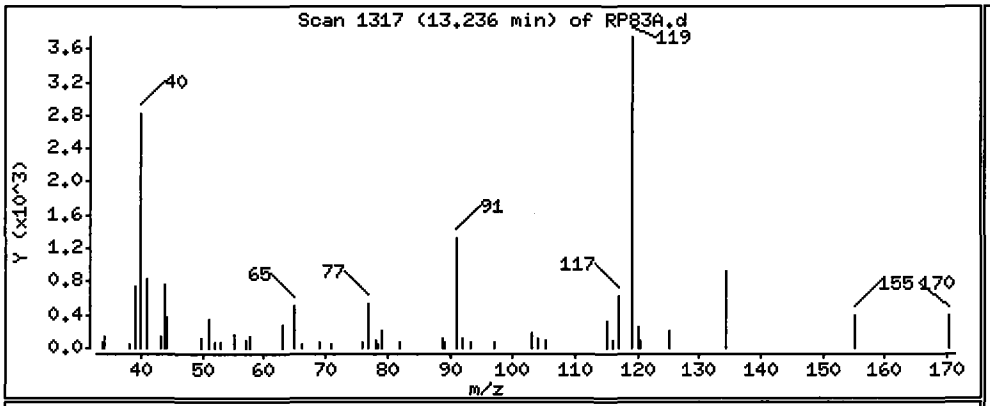
Operator: PB

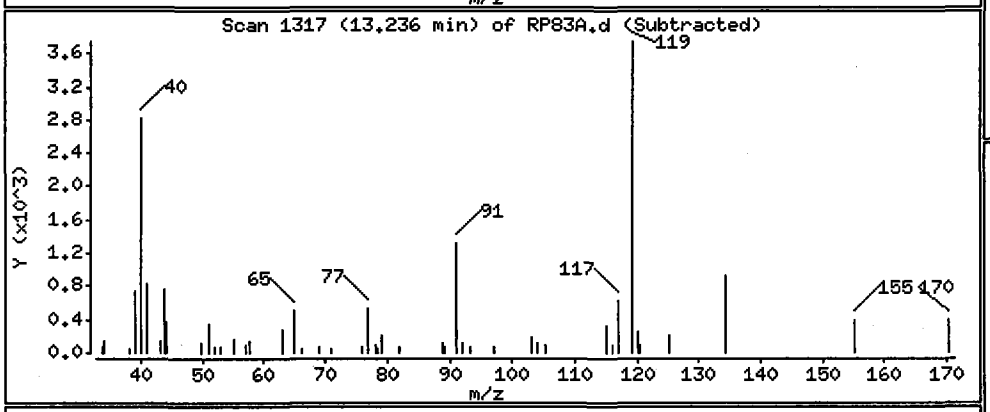
Column phase: Rtx502.2

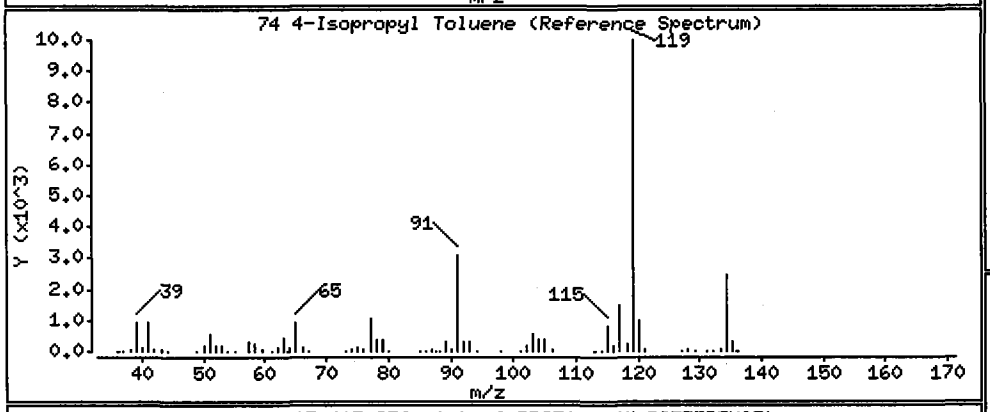
Column diameter: 0.18

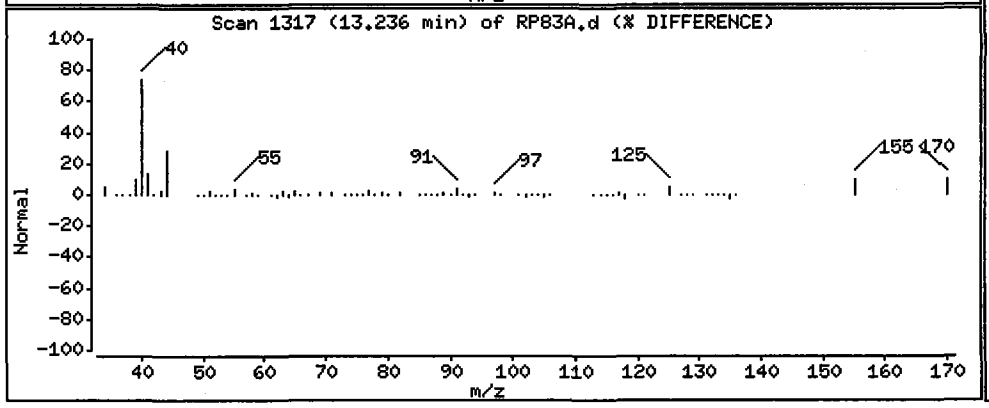
74 4-Isopropyl Toluene

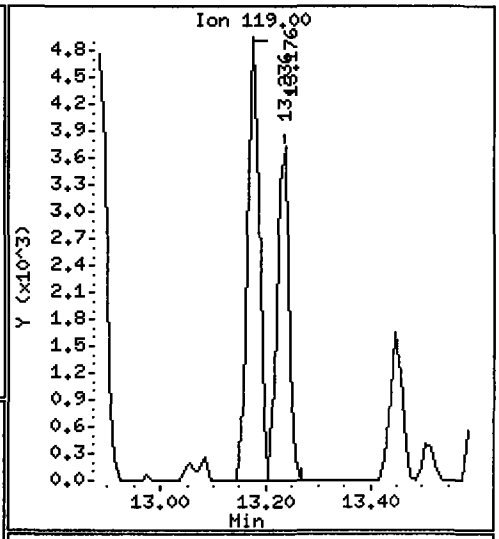
Concentration: 0.2713 ug/Kg

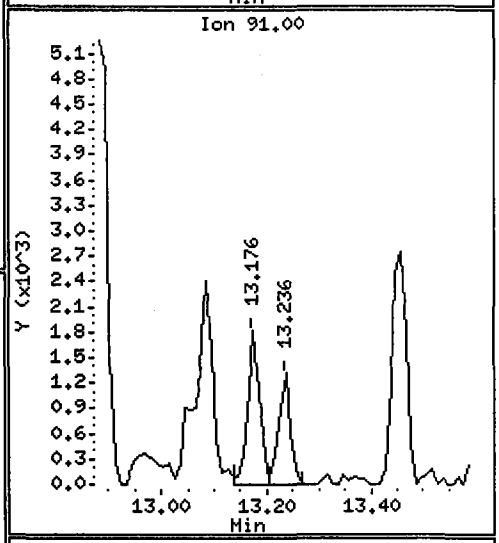


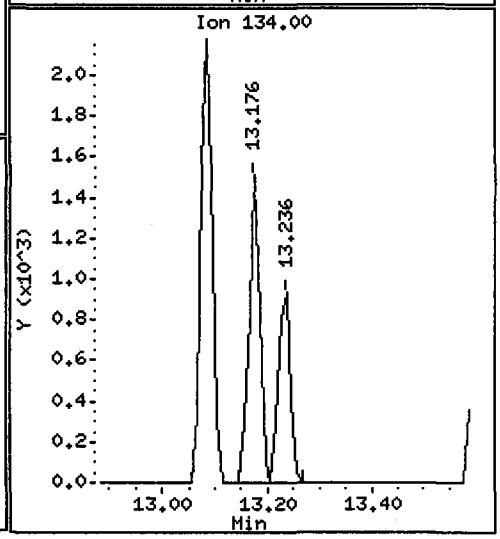












Data File: /chem1/finn5.i/05OCT10.b/RP83A.d

Date : 05-OCT-2010 20:09

Client ID: GSM-08SO-10-11-1009

Instrument: finn5.i

Sample Info: RP83A,5,5,1,10UL/5ML

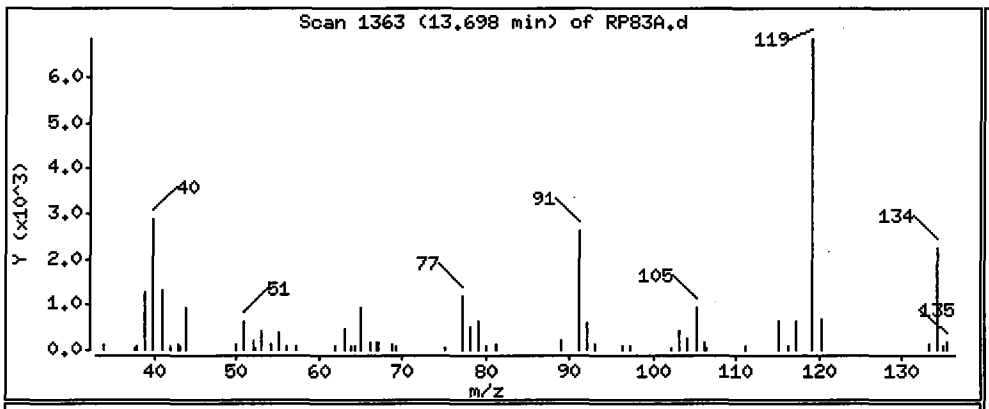
Operator: PB

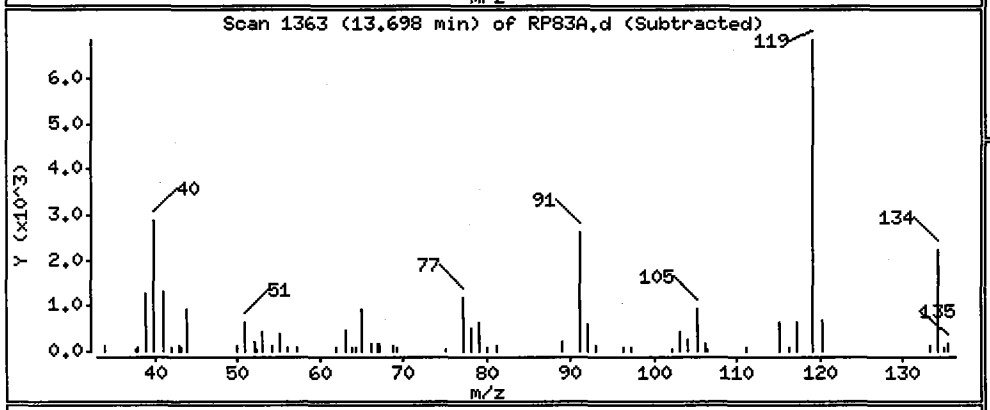
Column phase: Rtx502.2

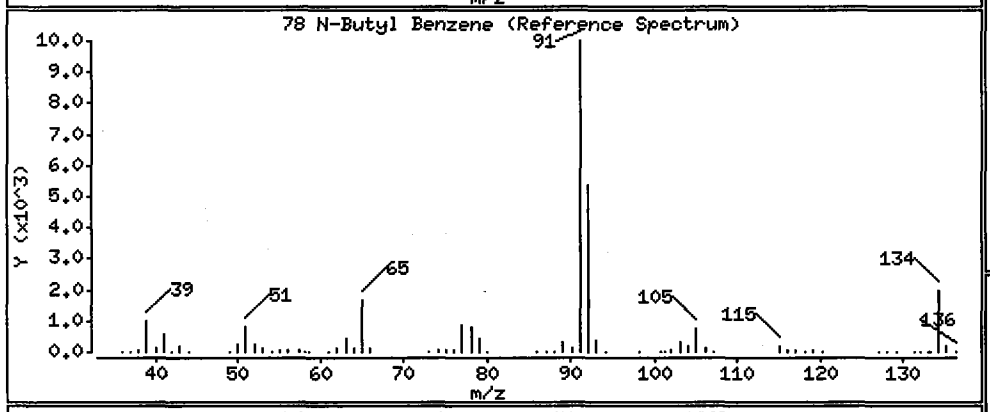
Column diameter: 0.18

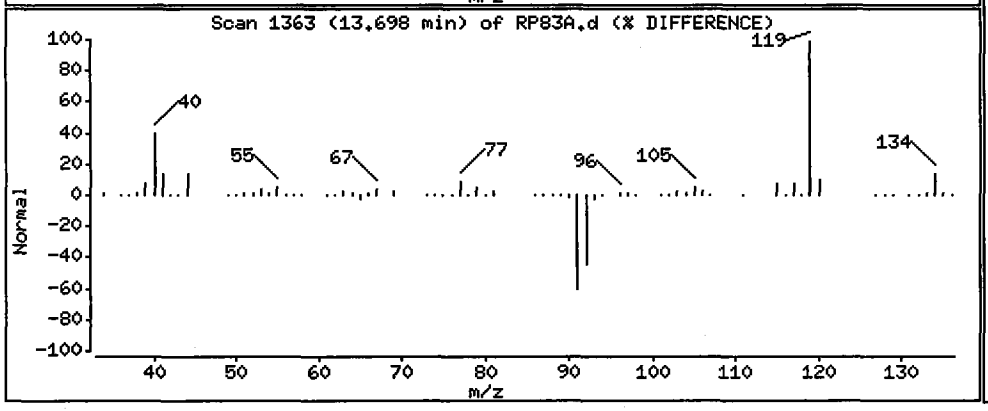
78 N-Butyl Benzene

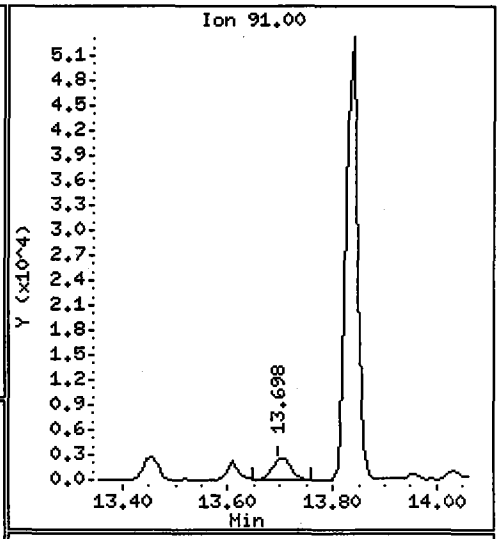
Concentration: 0.2517 ug/Kg

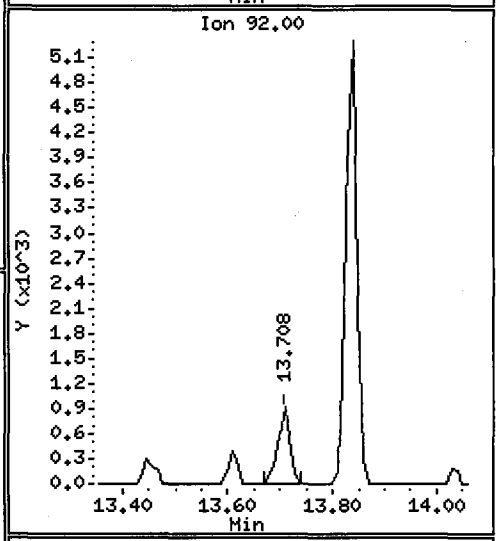


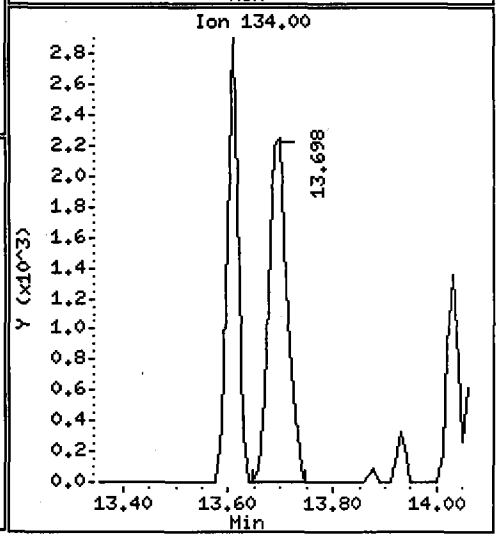












Data File: /chem1/finn5.i/05OCT10.b/RP83A.d

Date : 05-OCT-2010 20:09

Client ID: GSM-08SO-10-11-1009

Instrument: finn5.i

Sample Info: RP83A,5,5,1,10UL/5ML

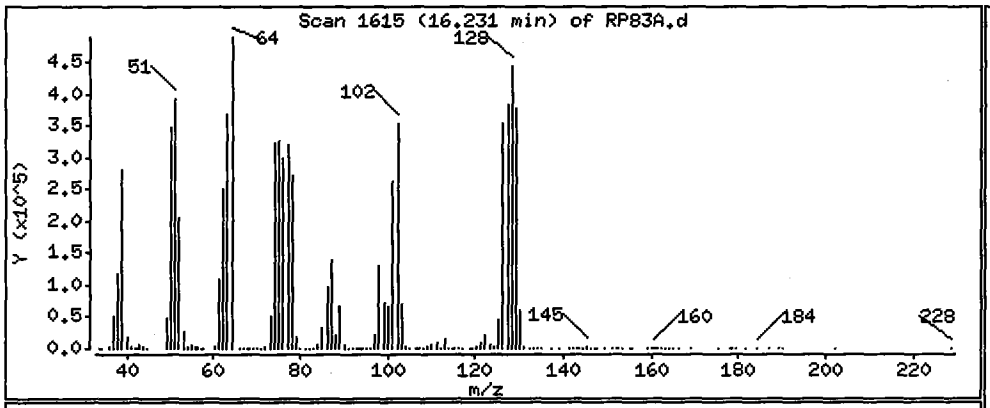
Operator: PB

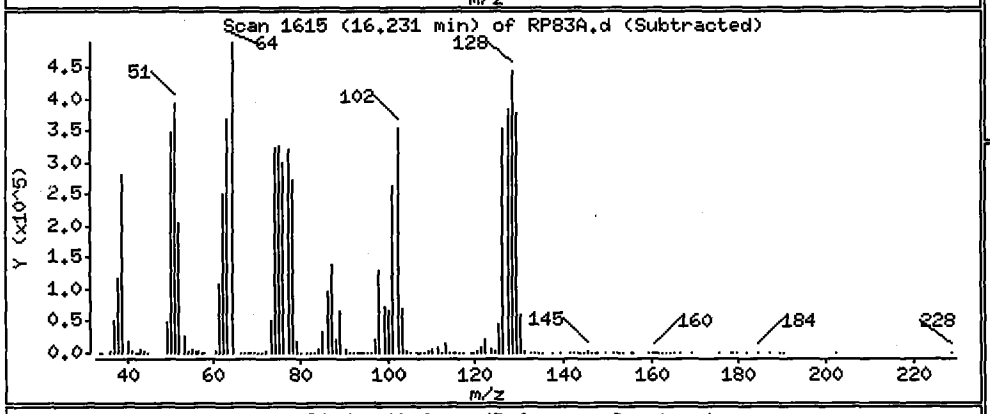
Column phase: Rtx502.2

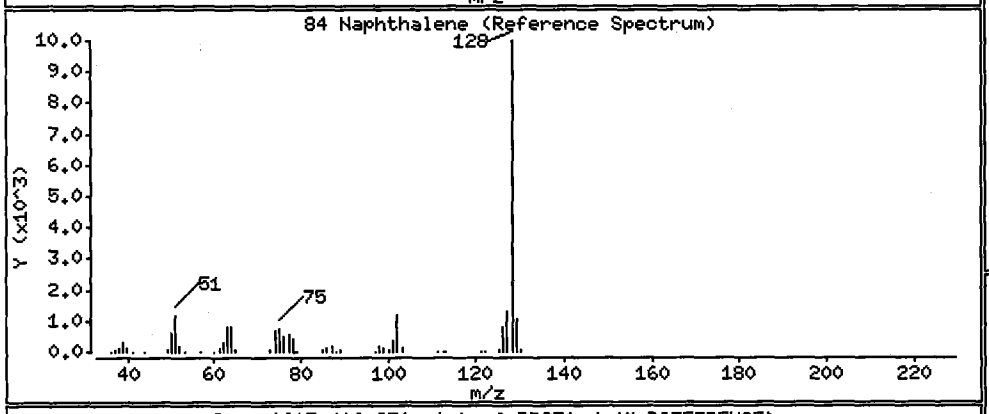
Column diameter: 0.18

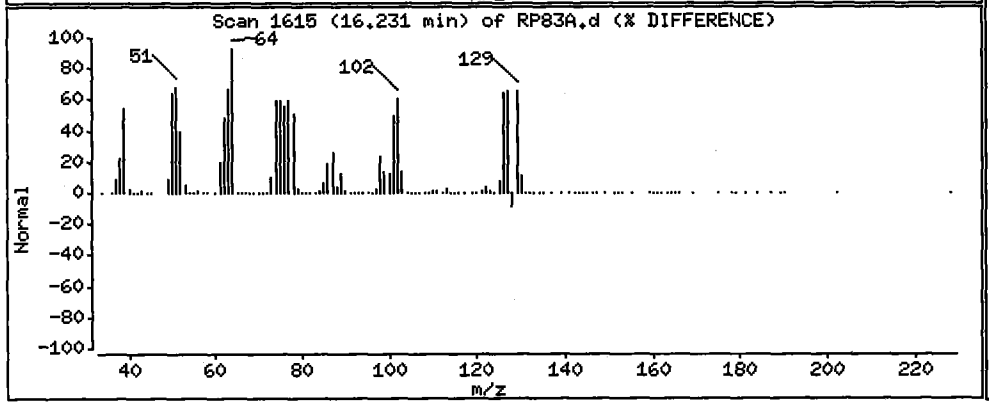
84 Naphthalene

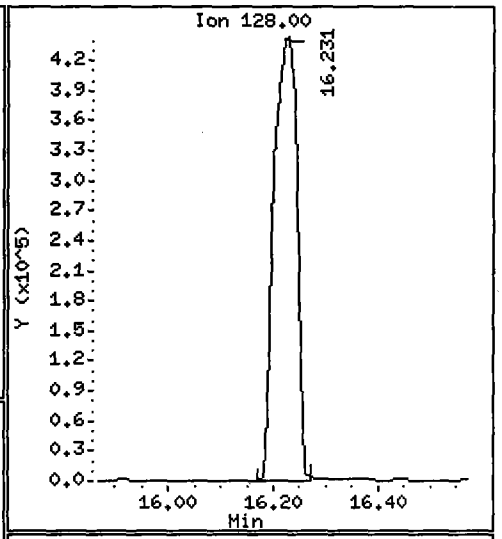
Concentration: 94.111 ug/Kg

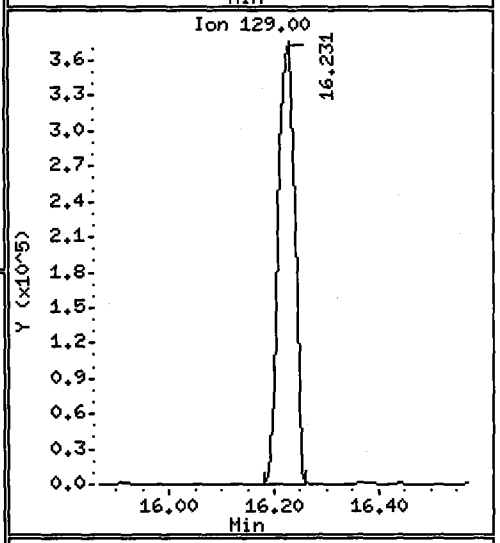












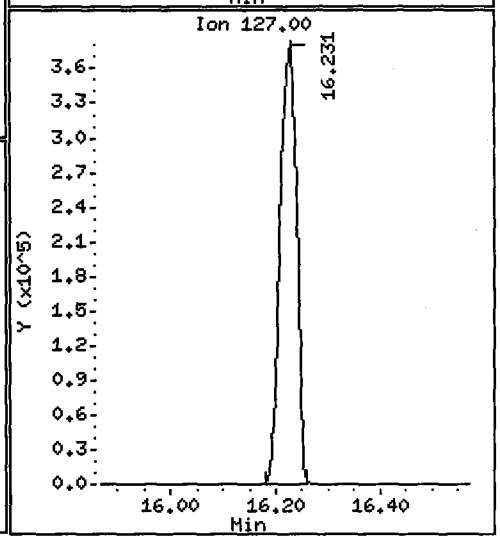


Table of Contents: ARI Job RQ80

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Project: NWN-INS

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Signature

October-25-2010
Date

Analytical Resources, Incorporated
Analytical Chemists and Consultants

October 26, 2010

[redacted]

RE: Project: NW Natural, NWN-INS
ARI Job No: RQ80

Dear [redacted]

Please find enclosed the Chain-of-Custody (COC) record, sample receipt documentation, and the final data package for samples from the project referenced above.

Sample receipt and details of these analyses are discussed in the Case Narrative.

An electronic copy of this package will remain on file with ARI. Should you have any questions or problems, please feel free to contact me at your convenience.

Sincerely,

ANALYTICAL RESOURCES, INC.

Susan Dunnihoo
Director, Client Services
sue@arilabs.com
206-695-6207

Enclosures

cc: eFile RQ80

SD/co

4611 South 134th Place, Suite 100 • Tukwila WA 98168 • **206-695-6200** • **206-695-6201** fax

Chain of Custody Documentation

ARI Job ID: RQ80

ANCHOR QEA
1423 3rd Ave., Suite 300
Seattle, WA 98101
Ph: 206-287-9130

ENVIRONMENTAL SAMPLE CHAIN OF CUSTODY

COC ID: COC-AARISPAH-101008-01
Sample Custodian: KH
Client: NW Natural **Project:** Gasco Data Gaps **Lab:** ARISPAH

COC Sample Number	Field Sample ID	MS/MSD	Date Collected	Time Collected	Media*	# Containers	PAH (NW Natural) EPA 8270	VOC (NW Natural) EPA 8260	Trip Blank												
001	DGS-20-0113.7-101008	N	10/08/2010	09:19	SE	2	☑	☑	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐
	DGS-TB-100810-01	N	10/08/2010	9:19	H_2O	3			☑												

Comments:

Relinquished by:	Received by:	Relinquished by:	Received by:	Relinquished by:	Received by:
Signature [signature]	Signature [signature]	Signature	Signature [signature]	Signature	Signature
Print Name Amy Corp	Print Name YALLED Lizarraga	Print Name	Print Name A. Volgardsen	Print Name	Print Name
Company Anchor QEA	Company YL # 716	Company	Company ARI	Company	Company
Date/Time 10/11/10 9:04	Date/Time 10/11/10 11:07	Date/Time	Date/Time 10/11/10 1445	Date/Time	Date/Time

Date Printed: 10/8/2010 * SE= SEDIMENT

F0060 00005

Analytical Resources, Incorporated
Analytical Chemists and Consultants

Cooler Receipt Form

ARI Client: ANCHOR

COC No(s): COC-AARISPAH-101005-01 NA

Assigned ARI Job No: RQ80

Project Name: NWN-INS

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

Tracking No: NA

Preliminary Examination Phase:

Were intact, properly signed and dated custody seals attached to the outside of to 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)..... 4.1 4.6 1.9 5.7 2.1 1.7

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

Temp Gun ID#:

Cooler Accepted by: AV Date: 10/11/10 Time: 1445

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:			
Was sufficient ice used (if appropriate)?	NA	YES	NO
Were all bottles sealed in individual plastic bags?		YES	NO
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	10/5/10	

Was Sample Split by ARI : NA YES Date/Time: Equipment: Split by:

Samples Logged by: JW Date: 10/11/10 Time: 1605

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

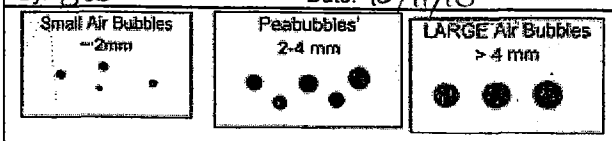
Sample ID on Bottle	Sample ID on COC	Sample ID on Bottle	Sample ID on COC

Additional Notes, Discrepancies, & Resolutions:

temps Cont.- 2.4, 2.9, 2.9, 1.8, 3.4, 2.6, 2.4, 1.9

Trip Blank 2 of 3 vials "pb"

By: JW Date: 10/11/10



Small → "sm"
Peabubbles → "pb"
Large → "lg"
Headspace → "hs"

Case Narrative, Data Qualifiers, Control Limits

ARI Job ID: RQ80

ANALYTICAL
RESOURCES
INCORPORATED

Case Narrative

Client: NW Natural
Project: NW Natural, NWN-INS
ARI Job No.: RQ80

Sample receipt

One sediment sample and a trip blank were received October 11, 2010 under ARI job RQ80, as part of a larger shipment. For details regarding sample receipt, please refer to the Cooler Receipt Form.

Volatiles by SW8260C

The samples were analyzed within the method recommended holding times.

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

The surrogate percent recoveries were within the control limits.

The method blank was clean at the reporting limit. The LCS and LCSD percent recoveries were within control limits.

Analytical Resources, Incorporated
Analytical Chemists and Consultants

Data Reporting Qualifiers

Effective 7/10/2009

Inorganic Data

U Indicates that the target analyte was not detected at the reported concentration

* Duplicate RPD is not within established control limits

B Reported value is less than the CRDL but ≥ the Reporting Limit

N Matrix Spike recovery not within established control limits

NA Not Applicable, analyte not spiked

H The natural concentration of the spiked element is so much greater than the concentration spiked that an accurate determination of spike recovery is not possible

L Analyte concentration is ≤5 times the Reporting Limit and the replicate control limit defaults to ±1 RL instead of the normal 20% RPD

Organic Data

U Indicates that the target analyte was not detected at the reported concentration

* Flagged value is not within established control limits

B Analyte detected in an associated Method Blank at a concentration greater than one-half of ARI's Reporting Limit or 5% of the regulatory limit or 5% of the analyte concentration in the sample.

J Estimated concentration when the value is less than ARI's established reporting limits

D The spiked compound was not detected due to sample extract dilution

E Estimated concentration calculated for an analyte response above the valid instrument calibration range. A dilution is required to obtain an accurate quantification of the analyte.

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).

S Indicates an analyte response that has saturated the detector. The calculated concentration is not valid; a dilution is required to obtain valid quantification of the analyte

RQ80 : 00007

Data Reporting Qualifiers

Effective 7/10/2009

NA The flagged analyte was not analyzed for

NR Spiked compound recovery is not reported due to chromatographic interference

NS The flagged analyte was not spiked into the sample

M Estimated value for an analyte detected and confirmed by an analyst but with low spectral match parameters. This flag is used only for GC-MS analyses

M2 The sample contains PCB congeners that do not match any standard Aroclor pattern. The PCBs are identified and quantified as the Aroclor whose pattern most closely matches that of the sample. The reported value is an estimate.

N The analysis indicates the presence of an analyte for which there is presumptive evidence to make a "tentative identification"

Y The analyte is not detected at or above the reported concentration. The reporting limit is raised due to chromatographic interference. The Y flag is equivalent to the U flag with a raised reporting limit.

C The analyte was positively identified on only one of two chromatographic columns. Chromatographic interference prevented a positive identification on the second column

P The analyte was detected on both chromatographic columns but the quantified values differ by ≥40% RPD with no obvious chromatographic interference

Geotechnical Data

A The total of all fines fractions. This flag is used to report total fines when only sieve analysis is requested and balances total grain size with sample weight.

F Samples were frozen prior to particle size determination

SM Sample matrix was not appropriate for the requested analysis. This normally refers to samples contaminated with an organic product that interferes with the sieving process and/or moisture content, porosity and saturation calculations

SS Sample did not contain the proportion of "fines" required to perform the pipette portion of the grain size analysis

W Weight of sample in some pipette aliquots was below the level required for accurate weighting

R080 : 00008

Analytical Resources,Incorporated
Analytical Chemists and Consultants

Spike Recovery Control Limits for Analysis of Solid Samples Volatile Organic Compounds (VOA) EPA SW-846 Methods 8260C 5 mL Purge Volume [7]

Effective:5/18/09

Control limits are updated periodically. Assure that you have ARI's current control limits by downloading the files at the time of use. http://www.arilabs.com/portal/downloads/ARI-CLs.zip

	Low Level [1]	Low Level ME Limits [3]	Medium Level [2]	Medium Level ME Limits [3]
LCS Spike Recovery [8]				
Dichlorodifluoromethane	53 - 148	37 - 164	25 - 128	**10** - 145
Chloromethane	64 - 125	54 - 135	55 - 121	44 - 132
Vinyl Chloride	63 - 137	51 - 149	66 - 123	57 - 133
Bromomethane	57 - 136	44 - 149	40 - 154	21 - 173
Chloroethane	64 - 131	53 - 142	72 - 128	63 - 137
Trichlorofluoromethane	69 - 132	59 - 143	69 - 135	58 - 146
Acrolein	54 - 137	40 - 151	39 - 135	23 - 151
1,1,2-Trichloro-1,2,2-trifluoroethane	74 - 130	65 - 139	65 - 139	53 - 151
Acetone	60 - 131	48 - 143	55 - 130	43 - 143
1,1-Dichloroethene	75 - 126	67 - 135	73 - 133	63 - 143
Bromoethane	76 - 126	68 - 134	74 - 133	64 - 143
Methyl Iodide	65 - 139	53 - 151	47 - 155	29 - 173
Methylene Chloride	70 - 123	61 - 132	**80 - 120**	75 - 122
Acrylonitrile	67 - 125	57 - 135	62 - 129	51 - 140
Methyl tert-Butyl Ether	70 - 120	62 - 128	69 - 128	59 - 138
Carbon Disulfide	71 - 129	61 - 139	64 - 135	52 - 147
trans-1,2-Dichloroethene	80 - **120**	74 - 126	78 - 125	70 - 133
Vinyl Acetate	60 - 136	47 - 149	66 - 132	55 - 143
1,1-Dichloroethane	**80** - **120**	75 - 124	77 - 124	69 132
2-Butanone	70 - **120**	62 - 127	65 - 126	55 - 136
2,2-Dichloropropane	74 - 123	66 - 131	75 - 127	66 - 136
cis-1,2-Dichloroethene	**80** - **120**	76 - 123	**80** - 125	74 - 132
Chloroform	80 - **120**	74 - 123	**80** - 124	73 - 131
Bromodichloromethane	77 - 121	70 - 128	78 - 130	69 - 139
1,1,1-Trichloroethane	77 - 121	70 - 128	76 - 130	67 - 139
1,1-Dichloropropene	**80** - **120**	77 - 123	77 - 131	68 - 140
Carbon Tetrachloride	77 - 122	70 - 130	74 - 129	65 - 138
1,2-Dichloroethane	76 - **120**	69 - 123	73 - 123	65 - 131
Benzene	**80** - 120	80 - 126	**80** - **120**	75 - 130
Trichloroethene	**80** - **120**	77 - 123	**80** - 125	75 - 132
1,2-Dichloropropane	**80** - **120**	76 - 120	**80** - 122	74 - 129
Bromochloromethane	80 - 120	73 - 127	**80** - 127	73 - 135
Dibromomethane	80 - **120**	74 - 121	**80** - 121	76 - 128
2-Chloroethylvinylether	**10** - 191	**10** - 222	61 - 128	50 - 139

RQ80 : 00005

Analytical Resources,Incorporated
Analytical Chemists and Consultants

Spike Recovery Control Limits for Analysis of Solid Samples Volatile Organic Compounds (VOA) EPA SW-846 Methods 8260C 5 mL Purge Volume [7]

Effective:5/18/09

Control limits are updated periodically. Assure that you have ARI's current control limits by downloading the files at the time of use. http://www.arilabs.com/portal/downloads/ARI-CLs.zip

	Low Level [1]	Low Level ME Limits [3]	Medium Level [2]	Medium Level ME Limits [3]
4-Methyl-2-Pentanone	67 - **120**	59 - 125	80 - 123	73 - 130
cis-1,3-Dichloropropene	74 - **120**	67 - 125	80 - 122	73 - 129
Toluene	**80** - **120**	79 - **120**	**80** - 122	**80** - 127
trans-1,3-Dichloropropene	65 - **120**	57 - 125	**80** - 123	79 - 129
2-Hexanone	65 - 130	54 - 141	58 - 129	46 - 141
1,1,2-Trichloroethane	**80** - **120**	75 - 122	**80** - 120	77 - 126
1,3-Dichloropropane	80 - **120**	74 - 122	**80** - 120	76 - 126
Tetrachloroethene	**80** - 121	79 - 127	**80** - 130	73 - 138
Dibromochloromethane	64 - **120**	55 - 128	77 - 120	70 - 127
Ethylene Dibromide	75 - **120**	68 - 124	**80** - **120**	**80** - 120
Chlorobenzene	**80** - **120**	82 - 120	**80** - 121	80 - 127
Ethylbenzene	**80** - 127	80 - 134	**80** - 126	**80** - 132
1,1,2,2-Tetrachloroethane	74 - 120	66 - 128	79 - **120**	73 - 123
m,p-Xylene	**80** - 125	**80** - 131	**80** - 130	**80** - 137
o-Xylene	78 - **120**	71 - 126	**80** - 124	**80** - 130
Styrene	**80** - 123	78 - 130	**80** - 132	77 - 140
Isopropylbenzene	**80** - 127	84 - 133	**80** - 130	**80** - 137
Bromoform	60 - **120**	50 - 128	68 - 129	58 - 139
1,1,1,2-Tetrachloroethane	69 - 121	60 - 130	**80** - 126	76 - 133
1,2,3-Trichloropropane	72 - 121	64 - 129	77 - **120**	71 - 121
trans-1,4-Dichloro-2-butene	65 - 126	55 - 136	66 - 127	56 - 137
n-Propylbenzene	**80** - 132	**80** - 139	**80** - 132	77 - 140
Bromobenzene	**80** - **120**	78 - 122	**80** - 121	80 - 127
1,3,5-Trimethylbenzene	**80** - 125	**80** - 131	78 - 137	68 - 147
2-Chlorotoluene	**80** - 125	77 - 132	**80** - 123	**80** - 129
4-Chlorotoluene	**80** - 127	77 - 134	**80** - 130	74 - 138
tert-Butylbenzene	87 - 122	**80** - 128	**80** - 133	78 - 141
1,2,4-Trimethylbenzene	**80** - 126	**80** - 132	**80** - 131	79 - 139
sec-Butylbenzene	**80** - 134	80 - 142	**80** - 136	76 - 146
4-Isopropyltoluene	**80** - 131	**80** - 138	**80** - 141	71 - 151
1,3-Dichlorobenzene	**80** - 120	**80** - 126	**80** 126	77 - 133
1,4-Dichlorobenzene	**80** - 120	79 - 126	**80** 121	77 - 127
n-Butylbenzene	**80** - 138	**80** - 146	**80** - 138	77 - 147
1,2-Dichlorobenzene	**80** - **120**	78 - 122	**80** - **120**	**80** - 121
1,2-Dibromo-3-chloropropane	59 - 120	49 - 130	67 - 121	58 - 130
1,2,4-Trichlorobenzene	78 - 130	69 - 139	**80** - 133	72 - 142

R080 : 00010

Analytical Resources,Incorporated
Analytical Chemists and Consultants

Spike Recovery Control Limits for Analysis of Solid Samples Volatile Organic Compounds (VOA) EPA SW-846 Methods 8260C 5 mL Purge Volume [7]

Effective:5/18/09

Control limits are updated periodically. Assure that you have ARI's current control limits by downloading the files at the time of use. http://www.arilabs.com/portal/downloads/ARI-CLs.zip

	Low Level [1]	Low Level ME Limits [3]	Medium Level [2]	Medium Level ME Limits [3]
Hexachloro-1,3-butadiene	76 - 129	67 - 138	62 - 148	48 - 162
Naphthalene	66 - **120**	58 - 126	74 - 133	64 - 143
1,2,3-Trichlorobenzene	73 - 123	65 - 131	80 - 126	72 - 134
MB/LCS Surrogate Recovery				
Dibromofluoromethane	**80 - 120**	(4)	**80 - 120**	(4)
d4-1,2-Dichloroethane	79 - 121	(4)	76 - **120**	(4)
d8-Toluene	**80 - 120**	(4)	**80 - 120**	(4)
4-Bromofluorobenzene	**80 - 120**	(4)	**80 - 120**	(4)
d4-1,2-Dichlorobenzene	**80 - 120**	(4)	**80 - 120**	(4)
Sample Surrogate Recovery				
Dibromofluoromethane	30 - 160[6]	(4)	30 - 160[6]	(4)
d4-1,2-Dichloroethane	75 - 152	(4)	69 - **120**	(4)
d8-Toluene	82 - 115	(4)	**80 - 120**	(4)
4-Bromofluorobenzene	64 - **120**	(4)	76 - 128	(4)
d4-1,2-Dichlorobenzene	**80 - 120**	(4)	**80 - 120**	(4)

(1) Control Limits calculated using all data generated 1/1/08 through 12/31/08.
(2) Control Limits calculated using all data generated 3/1/07 through 11/15/07.
(3) **ME** = A **marginal exceedance** defined in the NELAC Standard[5] as beyond the LCS-CL but still within the ME limits. ME limits are between 3 and 4 standard deviations around the mean. A maximum of four marginal exceedances are acceptable. Five or more marginal exceedances require corrective action.
(4) Marginal Exceedances not allowed for surrogate standards
(5) **2003 NELAC Standard (EPA/600/R-04/003), July 2003**, Chapter 5, pages 251-252.
(6) 30 – 160 are default, advisory control limits used when there is insufficient data to calculate historic control limits. **DO NOT** use these limits as the sole reason to reject the data from a batch of analyses
(7) Highlighted control limits (**bold font**) are adjusted from the calculated values as follows:
a) ARI does not use control limits < 10
b) Control limits for analyzes with no separate preparation procedure are adjusted to reflect the minimum uncertainty in the calibration of the instrument allowed by the referenced analytical method.
(8) Laboratory Control Sample (LCS) spike recovery control limits also used as advisory control limits for sample matrix spike (MS) analyzes. MS recovery values are advisory and not used to assess the acceptability of an analytical batch.

RQ80 : 00011

Volatile Analysis
Report and Summary QC Forms

ARI Job ID: RQ80

ANALYTICAL RESOURCES INCORPORATED

ORGANICS ANALYSIS DATA SHEET
Volatiles by Purge & Trap GC/MS-Method SW8260C **Sample ID: DGS-20-0113.7-101008**
Page 1 of 1 **SAMPLE**

Lab Sample ID: RQ80A
LIMS ID: 10-25982
Matrix: Sediment
Data Release Authorized:
Reported: 10/25/10

QC Report No: RQ80-NW Natural
Project: NWN-INS

Date Sampled: 10/08/10
Date Received: 10/11/10

Instrument/Analyst: NT9/PAB
Date Analyzed: 10/20/10 15:43

Sample Amount: 4.27 g-dry-wt
Purge Volume: 5.0 mL
Moisture: 23.2%

CAS Number	Analyte	RL	Result	Q
71-43-2	Benzene	1.2	< 1.2	U
108-88-3	Toluene	1.2	< 1.2	U
100-41-4	Ethylbenzene	1.2	< 1.2	U
179601-23-1	m,p-Xylene	1.2	< 1.2	U
95-47-6	o-Xylene	1.2	< 1.2	U

Reported in µg/kg (ppb)

Volatile Surrogate Recovery

d4-1,2-Dichloroethane	106%
d8-Toluene	99.0%
Bromofluorobenzene	97.4%
d4-1,2-Dichlorobenzene	101%

ANALYTICAL RESOURCES INCORPORATED

VOA SURROGATE RECOVERY SUMMARY

Matrix: Sediment

QC Report No: RQ80-NW Natural
Project: NWN-INS

ARI ID	Client ID	Level	DCE	TOL	BFB	DCB	TOT OUT
MB-102010	Method Blank	Low	99.5%	99.4%	98.1%	101%	0
LCS-102010	Lab Control	Low	99.6%	98.9%	97.2%	99.6%	0
LCSD-102010	Lab Control Dup	Low	97.5%	98.0%	96.6%	99.3%	0
RQ80A	DGS-20-0113.7-101008	Low	106%	99.0%	97.4%	101%	0

	LCS/MB LIMITS		QC LIMITS	
SW8260C	Low	Med	Low	Med
(DCE) = d4-1,2-Dichloroethane	79-121	76-120	75-152	69-120
(TOL) = d8-Toluene	80-120	80-120	82-115	80-120
(BFB) = Bromofluorobenzene	80-120	80-120	64-120	76-128
(DCB) = d4-1,2-Dichlorobenzene	80-120	80-120	80-120	80-120

Log Number Range: 10-25982 to 10-25982

ANALYTICAL RESOURCES INCORPORATED

ORGANICS ANALYSIS DATA SHEET
Volatiles by Purge & Trap GC/MS-Method SW8260C **Sample ID: DGS-TB-101008-01**
 Trip Blank

Lab Sample ID: RQ80B
LIMS ID: 10-25983
Matrix: Water
Data Release Authorized:
Reported: 10/25/10

QC Report No: RQ80-NW Natural
Project: NWN-INS

Date Sampled: 10/08/10
Date Received: 10/11/10

Instrument/Analyst: NT9/PAB
Date Analyzed: 10/20/10 16:14

Sample Amount: 5.00 mL
Purge Volume: 5.0 mL

CAS Number	Analyte	RL	Result	Q
71-43-2	Benzene	1.0	< 1.0	U
108-88-3	Toluene	1.0	< 1.0	U
100-41-4	Ethylbenzene	1.0	< 1.0	U
179601-23-1	m,p-Xylene	2.0	< 2.0	U
95-47-6	o-Xylene	1.0	< 1.0	U

Reported in µg/L (ppb)

Volatile Surrogate Recovery

d4-1,2-Dichloroethane	94.3%
d8-Toluene	98.8%
Bromofluorobenzene	97.1%
d4-1,2-Dichlorobenzene	101%

ANALYTICAL RESOURCES INCORPORATED

VOA SURROGATE RECOVERY SUMMARY

Matrix: Water

QC Report No: RQ80-NW Natural
Project: NWN-INS

ARI ID	Client ID	PV	DCE	TOL	BFB	DCB	TOT OUT
RQ80B	DGS-TB-101008-01	5	94.3%	98.8%	97.1%	101%	0

SW8260C	LCS/MB LIMITS	QC LIMITS
(DCE) = d4-1,2-Dichloroethane	80-122	80-125
(TOL) = d8-Toluene	80-120	80-120
(BFB) = Bromofluorobenzene	80-120	80-120
(DCB) = d4-1,2-Dichlorobenzene	80-120	80-120

Prep Method: SW5030B
Log Number Range: 10-25983 to 10-25983

ANALYTICAL RESOURCES INCORPORATED

ORGANICS ANALYSIS DATA SHEET
Volatiles by Purge & Trap GC/MS-Method SW8260C **Sample ID: LCS-102010**
 LAB CONTROL SAMPLE

Lab Sample ID: LCS-102010
LIMS ID: 10-25982
Matrix: Sediment
Data Release Authorized:
Reported: 10/25/10

QC Report No: RQ80-NW Natural
Project: NWN-INS

Date Sampled: NA
Date Received: NA

Instrument/Analyst LCS: NT9/PAB
LCSD: NT9/PAB
Date Analyzed LCS: 10/20/10 13:42
LCSD: 10/20/10 15:09

Sample Amount LCS: 5.00 g-dry-wt
LCSD: 5.00 g-dry-wt
Purge Volume LCS: 5.0 mL
LCSD: 5.0 mL
Moisture: NA

Analyte	LCS	Spike Added-LCS	LCS Recovery	LCSD	Spike Added-LCSD	LCSD Recovery	RPD
Benzene	44.7	50.0	89.4%	55.2	50.0	110%	21.0%
Toluene	43.6	50.0	87.2%	54.4	50.0	109%	22.0%
Ethylbenzene	45.0	50.0	90.0%	57.7	50.0	115%	24.7%
m,p-Xylene	93.0	100	93.0%	120	100	120%	25.4%
o-Xylene	45.6	50.0	91.2%	56.2	50.0	112%	20.8%

Reported in µg/kg (ppb)

RPD calculated using sample concentrations per SW846.

Volatile Surrogate Recovery

	LCS	LCSD
d4-1,2-Dichloroethane	99.6%	97.5%
d8-Toluene	98.9%	98.0%
Bromofluorobenzene	97.2%	96.6%
d4-1,2-Dichlorobenzene	99.6%	99.3%

4A
VOLATILE METHOD BLANK SUMMARY

Method Blank ID.

MB1020

Lab Name: ANALYTICAL RESOURCES, INC

Client: NW NATURAL

ARI Job No: RQ83

Project: NWN-INS

Lab File ID: MB1020

Lab Sample ID: MB1020

Date Analyzed: 10/20/10

Time Analyzed: 1412

Instrument ID: NT9

Heated Purge: (Y/N) Y

THIS METHOD BLANK APPLIES TO THE FOLLOWING SAMPLES, MS and MSD:

	EPA SAMPLE NO.	LAB SAMPLE ID	LAB FILE ID	TIME ANALYZED
01	LCS1020	LCS1020	LCS1020	1342
02	LCS1020	LCS1020	LCS1020A	1509
03	DGS-20-0113.	RQ80A	RQ80A	1543
04	DGS-TB-10100	RQ80B	RQ80B	1614
05	GST-TBSO-2-1	RQ83B	RQ83B	1644
06	GST-09SO-17-	RQ83A	RQ83A	1715
07				
08				
09				
10				
11				
12				
13				
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29				
30				

COMMENTS:

FORM IV VOA

OLM3.2M

ANALYTICAL RESOURCES INCORPORATED

ORGANICS ANALYSIS DATA SHEET
Volatiles by Purge & Trap GC/MS-Method SW8260C **Sample ID: MB-102010**
 METHOD BLANK

Lab Sample ID: MB-102010
LIMS ID: 10-25982
Matrix: Sediment
Data Release Authorized:
Reported: 10/25/10

QC Report No: RQ80-NW Natural
Project: NWN-INS

Date Sampled: NA
Date Received: NA

Instrument/Analyst: NT9/PAB
Date Analyzed: 10/20/10 14:12

Sample Amount: 5.00 g-dry-wt
Purge Volume: 5.0 mL
Moisture: NA

CAS Number	Analyte	RL	Result	Q
71-43-2	Benzene	1.0	< 1.0	U
108-88-3	Toluene	1.0	< 1.0	U
100-41-4	Ethylbenzene	1.0	< 1.0	U
179601-23-1	m,p-Xylene	1.0	< 1.0	U
95-47-6	o-Xylene	1.0	< 1.0	U

Reported in µg/kg (ppb)

Volatile Surrogate Recovery

d4-1,2-Dichloroethane	99.5%
d8-Toluene	99.4%
Bromofluorobenzene	98.1%
d4-1,2-Dichlorobenzene	101%

5A
VOLATILE ORGANIC INSTRUMENT PERFORMANCE CHECK
BROMOFLUOROBENZENE (BFB)

Lab Name: ANALYTICAL RESOURCES, INC Contract: NW NATURAL

Lab Code: ARI Case No.: NWN-INS SDG No.: RQ83

Lab File ID: BFB08280 BFB Injection Date: 08/28/10

Instrument ID: NT9 BFB Injection Time: 0745

GC Column: RTX502.2 ID: 0.18 (mm) Heated Purge: (Y/N) N

m/e	ION ABUNDANCE CRITERIA	% RELATIVE ABUNDANCE
50	8.0 - 40.0% of mass 95	16.8
75	30.0 - 66.0% of mass 95	49.9
95	Base Peak, 100% relative abundance	100.0
96	5.0 - 9.0% of mass 95	7.2
173	Less than 2.0% of mass 174	0.5 (0.5)1
174	50.0 - 101.0% of mass 95	94.4
175	4.0 - 9.0% of mass 174	6.7 (7.1)1
176	93.0 - 101.0% of mass 174	91.9 (97.3)1
177	5.0 - 9.0% of mass 176	7.1 (7.7)2

1-Value is % mass 174 2-Value is % mass 176

THIS CHECK APPLIES TO THE FOLLOWING SAMPLES, MS, MSD, BLANKS, AND STANDARDS:

	EPA SAMPLE NO.	LAB SAMPLE ID	LAB FILE ID	DATE ANALYZED	TIME ANALYZED
01	VSTD001	IC0828	0010828	08/28/10	1252
02	VSTD200	IC0828	2000828	08/28/10	1321
03	VSTD150	IC0828	1500828	08/28/10	1351
04	VSTD100	IC0828	1000828	08/28/10	1421
05	VSTD050	IC0828	0500828	08/28/10	1451
06	VSTD010	IC0828	0100828	08/28/10	1521
07	VSTD005	IC0828	0050828	08/28/10	1551
08	VSTD002	IC0828	0020828	08/28/10	1621
09					
10					
11					
12					
13					
14					
15					
16					
17					
18					
19					
20					
21					
22					

FORM V VOA OLM3.2M

5A
VOLATILE ORGANIC INSTRUMENT PERFORMANCE CHECK
BROMOFLUOROBENZENE (BFB)

Lab Name: ANALYTICAL RESOURCES, INC Contract: NW NATURAL

Lab Code: ARI Case No.: NWN-INS SDG No.: RQ83

Lab File ID: BFB1020 BFB Injection Date: 10/20/10

Instrument ID: NT9 BFB Injection Time: 1204

GC Column: RTX502.2 ID: 0.18 (mm) Heated Purge: (Y/N) N

m/e	ION ABUNDANCE CRITERIA	% RELATIVE ABUNDANCE
50	8.0 - 40.0% of mass 95	17.1
75	30.0 - 66.0% of mass 95	51.1
95	Base Peak, 100% relative abundance	100.0
96	5.0 - 9.0% of mass 95	7.5
173	Less than 2.0% of mass 174	0.5 (0.6)1
174	50.0 - 101.0% of mass 95	96.2
175	4.0 - 9.0% of mass 174	6.9 (7.2)1
176	93.0 - 101.0% of mass 174	93.6 (97.2)1
177	5.0 - 9.0% of mass 176	6.9 (7.3)2

1-Value is % mass 174 2-Value is % mass 176

THIS CHECK APPLIES TO THE FOLLOWING SAMPLES, MS, MSD, BLANKS, AND STANDARDS:

	EPA SAMPLE NO.	LAB SAMPLE ID	LAB FILE ID	DATE ANALYZED	TIME ANALYZED
01	VSTD050	CC1020	0501020A	10/20/10	1311
02	LCS1020	LCS1020	LCS1020	10/20/10	1342
03	MB1020	MB1020	MB1020	10/20/10	1412
04	LCS1020	LCS1020	LCS1020A	10/20/10	1509
05	DGS-20-0113.7-10	RQ80A	RQ80A	10/20/10	1543
06	DGS-TB-101008-01	RQ80B	RQ80B	10/20/10	1614
07	GST-TBSO-2-10100	RQ83B	RQ83B	10/20/10	1644
08	GST-09SO-17-18-1	RQ83A	RQ83A	10/20/10	1715
09					
10					
11					
12					
13					
14					
15					
16					
17					
18					
19					
20					
21					
22					

FORM 6
VOLATILE INITIAL CALIBRATION DATA

Lab Name: ANALYTICAL RESOURCES, INC Client: NW NATURAL

ARI Job No: RQ83 Project: NWN-INS

Instrument ID: NT9 Calibration Date: 08/28/10

LAB FILE ID: RF1: 0010828 RF2: 0020828 RF5: 0050828
RF10: 0100828 RF50: 0500828

COMPOUND	RF1	RF2	RF5	RF10	RF50
Vinyl Chloride	0.441	0.369	0.408	0.407	0.444
1,1-Dichloroethene	0.467	0.396	0.404	0.424	0.428
Trans-1,2-Dichloroethene	0.514	0.447	0.463	0.475	0.478
Cis-1,2-Dichloroethene	0.489	0.415	0.448	0.461	0.462
Benzene	1.326	1.187	1.235	1.266	1.279
Trichloroethene	0.367	0.323	0.347	0.348	0.353
Toluene	1.035	0.855	0.868	0.877	0.885
Tetrachloroethene	0.558	0.482	0.482	0.493	0.509
Ethyl Benzene	2.020	1.786	1.825	1.891	1.925
m,p-xylene	0.815	0.706	0.748	0.773	0.805
o-Xylene	0.737	0.656	0.708	0.736	0.739
d4-1,2-Dichloroethane	0.382	0.378	0.387	0.386	0.391
d8-Toluene	1.127	1.132	1.140	1.141	1.142
4-Bromofluorobenzene	0.457	0.460	0.471	0.475	0.468
d4-1,2-Dichlorobenzene	0.870	0.869	0.883	0.879	0.881
Dibromofluoromethane	0.362	0.359	0.366	0.369	0.377

FORM 6
VOLATILE INITIAL CALIBRATION DATA

Lab Name: ANALYTICAL RESOURCES, INC Client: NW NATURAL

ARI Job No: RQ83 Project: NWN-INS

Instrument ID: NT9 Calibration Date: 08/28/10

LAB FILE ID: RF100: 1000828 RF150: 1500828 RF200: 2000828

COMPOUND	RF100	RF150	RF200
Vinyl Chloride	0.534	0.493	0.476
1,1-Dichloroethene	0.530		
Trans-1,2-Dichloroethene	0.577	0.557	0.569
Cis-1,2-Dichloroethene	0.530	0.524	0.538
Benzene	1.486	1.465	1.514
Trichloroethene	0.418	0.400	0.416
Toluene	1.041	1.022	1.061
Tetrachloroethene	0.625	0.589	0.609
Ethyl Benzene	2.326	2.266	2.352
m,p-xylene	0.966	0.913	0.902
o-Xylene	0.864	0.850	0.884
d4-1,2-Dichloroethane	0.380	0.384	0.383
d8-Toluene	1.126	1.127	1.128
4-Bromofluorobenzene	0.461	0.457	0.455
d4-1,2-Dichlorobenzene	0.865	0.877	0.867
Dibromofluoromethane	0.379	0.389	0.390

FORM 6
VOLATILE INITIAL CALIBRATION DATA

Lab Name: ANALYTICAL RESOURCES, INC Client: NW NATURAL

ARI Job No: RQ83 Project: NWN-INS

Instrument ID: NT9 Calibration Date: 08/28/10

COMPOUND	CURVE TYPE	AVE RF	%RSD OR R^2
Vinyl Chloride	AVRG	0.447	11.9
1,1-Dichloroethene	AVRG	0.441	11.3
Trans-1,2-Dichloroethene	AVRG	0.510	10.1
Cis-1,2-Dichloroethene	AVRG	0.483	9.2
Benzene	AVRG	1.345	9.4
Trichloroethene	AVRG	0.372	9.5
Toluene	AVRG	0.956	9.5
Tetrachloroethene	AVRG	0.544	10.9
Ethyl Benzene	AVRG	2.049	11.3
m,p-xylene	AVRG	0.829	10.9
o-Xylene	AVRG	0.772	10.8
d4-1,2-Dichloroethane	AVRG	0.384	1.1
d8-Toluene	AVRG	1.133	0.6
4-Bromofluorobenzene	AVRG	0.463	1.6
d4-1,2-Dichlorobenzene	AVRG	0.874	0.8
Dibromofluoromethane	AVRG	0.374	3.1

<- Indicates value outside QC limits:
(%RSD < 20% or R^2 > 0.990)

FORM VI VOA

7A

VOLATILE CONTINUING CALIBRATION CHECK

Lab Name: ANALYTICAL RESOURCES, INC — Client: NW NATURAL

ARI Job No: RQ83 — Project: NWN-INS

Instrument ID: NT9 — Cont. Calib. Date: 10/20/10

Init. Calib. Date: 08/28/10 — Cont. Calib. Time: 1311

COMPOUND	CalAmt or ARF	CC Amt or RF	MIN RRF	CURVE TYPE	%D or Drift
Vinyl Chloride	0.446	0.360	0.010	AVRG	-19.3
1,1-Dichloroethene	0.442	0.388	0.010	AVRG	-12.2
Trans-1,2-Dichloroethene	0.510	0.425	0.010	AVRG	-16.7
Cis-1,2-Dichloroethene	0.483	0.419	0.010	AVRG	-13.2
Benzene	1.345	1.163	0.010	AVRG	-13.5
Trichloroethene	0.372	0.324	0.010	AVRG	-12.9
Toluene	0.956	0.808	0.010	AVRG	-15.5
Tetrachloroethene	0.543	0.473	0.010	AVRG	-12.9
Ethyl Benzene	2.049	1.767	0.010	AVRG	-13.8
m,p-xylene	0.828	0.738	0.010	AVRG	-10.9
o-Xylene	0.772	0.675	0.010	AVRG	-12.6
d4-1,2-Dichloroethane	0.384	0.379	0.010	AVRG	-1.3
d8-Toluene	1.133	1.119	0.010	AVRG	-1.2
4-Bromofluorobenzene	0.463	0.449	0.010	AVRG	-3.0
d4-1,2-Dichlorobenzene	0.874	0.874	0.010	AVRG	0.0
Dibromofluoromethane	0.374	0.371	0.010	AVRG	-0.8

<- Exceeds QC limit of 20% D
* RF less than minimum RF

FORM VII VOA

8A
VOLATILE INTERNAL STANDARD AREA AND RT SUMMARY

Lab Name: ANALYTICAL RESOURCES, INC — Client: NW NATURAL

ARI Job No: RQ83 — Project: NWN-INS

Ical Midpoint ID: 0500828 — Ical Date: 08/28/10

Instrument ID: NT9 — Project Run Date: 10/20/10

		IS1(PFB) AREA #	RT #	IS2(DFB) AREA #	RT #	IS3(CLB) AREA #	RT #
	ICAL MIDPT	704281	4.94	937745	5.32	853013	7.40
	UPPER LIMIT	1408562	5.44	1875490	5.82	1706026	7.90
	LOWER LIMIT	352140	4.44	468872	4.82	426506	6.90
	Sample ID						
01	LCS1020	800130	4.93	1049229	5.32	938129	7.39
02	MB1020	766662	4.93	1013953	5.32	904849	7.40
03	LCS1020	649147	4.93	857509	5.32	758186	7.40
04	DGS-20-0113.	771798	4.93	1040161	5.32	928499	7.40
05	DGS-TB-10100	713787	4.94	947589	5.32	843489	7.40
06	GST-TBSO-2-1	484658	4.93	601802	5.32	652638	7.39
07	GST-09SO-17-	680856	4.93	903061	5.32	808671	7.40
08							
09							
10							
11							
12							
13							
14							
15							
16							
17							
18							
19							
20							
21							
22							

IS1 (PFB) = Pentafluorobenzene
IS2 (DFB) = 1,4-Difluorobenzene
IS3 (CLB) = d5-Chlorobenzene

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

* Values outside of QC limits.

8A
VOLATILE INTERNAL STANDARD AREA AND RT SUMMARY

Lab Name: ANALYTICAL RESOURCES, INC Client: NW NATURAL

ARI Job No: RQ83 Project: NWN-INS

Ical Midpoint ID: 0500828 Ical Date: 08/28/10

Instrument ID: NT9 Project Run Date: 10/20/10

		IS4 (DCB) AREA #	RT #	AREA #	RT #	AREA #	RT #
	ICAL MIDPT	503655	9.11				
	UPPER LIMIT	1007310	9.61				
	LOWER LIMIT	251828	8.61				
	Sample ID						
01	LCS1020	539415	9.11				
02	MB1020	510746	9.11				
03	LCS1020	430494	9.12				
04	DGS-20-0113.	508100	9.11				
05	DGS-TB-10100	464499	9.11				
06	GST-TBSO-2-1	548014	9.11				
07	GST-09SO-17-	475784	9.11				
08							
09							
10							
11							
12							
13							
14							
15							
16							
17							
18							
19							
20							
21							
22							

IS4 (DCB) = d4-1,4-Dichlorobenzene

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

* Values outside of QC limits.

Total Solids

ARI Job ID: RQ80

Volatiles Total Solids-voats
Data By: Pat Basilio
Created: 10/21/10

Worklist: 8757
Analyst: PAB
Comments:

Oven ID:_____

Balance ID:_____

Samples In: Date:_____ Time:_____ Temp:_____ Analyst:_____

Samples Out: Date:_____ Time:_____ Temp:_____ Analyst:_____

ARI ID	Tare Wt (g)	Wet Wt (g)	Dry Wt (g)	% Solids
1. RQ80A 10-25982	1.50	7.20	5.88	76.84

Worklist ID: 8757 Page: 1
* - VOA TS Copied From BETX TS
% - VOA TS Copied From Metals TS
$ - VOA TS Copied From Extraction TS

Volatiles Total Solids-voats
Data By: Pat Basilio
Created: 10/21/10

Worklist: 8757
Analyst: PAB
Comments:

Oven ID: 11

Balance ID: 400 500 16 PT16

Samples In: Date: 10/26/10 Time: 4:30 Temp: 104 Analyst: B

Samples Out: Date: 10/26/10 Time: 2 pm Temp: 104 Analyst: B

ARI ID	Tare Wt (g)	Wet Wt (g)	Dry Wt (g)	% Solids
1. RQ80A 10-25982	1.50	7.20	5.88	

Worklist ID: 8757 Page: 1
* - VOA TS Copied From BETX TS
% - VOA TS Copied From Metals TS
$ - VOA TS Copied From Extraction TS

Volatile Raw Data
Preparation Log

ARI Job ID: RQ80

Analytical Resources, Incorporated
Analytical Chemists and Consultants

Volatile Organics Extraction Bench Sheet

(8260B, 8260B-SIM, 8021, NWTPH-Gx, AK-101, TPH-G, VPH, TCLP-ZHE)

ARI Project No. H080 | Client ID/Project | Extraction Date | MeOH Lot No. | Analyst

1st Extraction:

2nd Extraction:

	Lab ID	Vial No.	Preservative		Method 5035 Sample Weight					Comments
			$NaHSO_3$	CH_3OH	Vial Weight	Tare (from vial)	Sample Weight	Extract Volume	MeOH Spilt Volume	
	MB:									
	LCS:									
	LCSD:									
1	H080 A						5.56			
2	B						5 mL			
3										
4										
5										
6										
7										
8										
9										
10										
11										
12										
13										
14										
15										
16										
17										
18										
19										
20										
	Balance ID:									

	Solution ID	Concentration	Amount Spiked	Analyst	Witness
Surrogate:					
Spike:					

Volatile Raw Data
Initial Calibration Notes and Raw Data

ARI Job ID: RQ80

Analytical Resources, Incorporated
Analytical Chemists and Consultants

VOA Analyst Notes / Corrective Action Log

ARI Project ID: MTical Client ID: _____

ARI SOP: **404S**(Gas) **410S**(BTEX) **430S**(VPH) **700S**(8260C) **703S**(SIM) **706S**(524.2) **710S**(RSK-175)

Parameter(s): _____

Instrument: NT-3 NT-5 NT-7 NT-9 NT-10 PID-1 PID-2 PID-3 FID-6 FINN-5

Purge Volume (mL) 5 Curve Date: 8/28/10 Analysis Start Date: 8/28/10

pH ≤ 2.0	YES / NO / NA	Method Blank In Control?	YES / NO
BFB Tune Meets Criteria?	YES / NO / NA	LCS / LCSD Recovery In Control?	YES / NO
Internal Standard Meets Criteria?	YES / NO / NA	Surrogate Recovery In Control?	YES / NO
ICal acceptable?	YES / NO	CCal acceptable?	YES / NO
Q flag applied?	YES / NO / NA	Q flag applied?	YES / NO / NA
Manual Integrations for ICal?	YES / NO	Manual Integrations for Samples?	Yes /NO
Special Analysis Criteria Met?	YES / NO / NA		

Bubbles/Headspace: None SM (≤ 2mm •) PB (2-4mm) LG (> 4mm ●) Head Space

Detail problems, corrective actions and/or other pertinent information below (use reverse side when necessary):

Additional Details on Reverse: Yes / No

Analyst: _____ **Date:** 10/18/10

Reviewer: _____ **Date:** 10/18/10

Analytical Resources Inc.: Volatile Organics Instrument Log

NT-9 Serial No.:GC=US00021704, MS=US80230047

Date: 8/28/10 Analysis: 8260C Analyst: M

GC Program: VOA Column No: 562075 Column Type: MTX VM

Instrument Tune (.U or .CT.): bfb08280 EM Voltage: 1289

Calibration File: 2000828 Curve Date: 8/28/10

IS/SS	Ical/Ccal	LCS/ICV
W652-1	W652-2	W647-2
	W652-3	W643-4
		W643-1

INTERNAL STANDARD SUMMARY FOR DATABATCH - /chem1/nt9.i/28AUG10.b

	Time	Filename	LabID	ClientID	WT									
1	0745	bfb08280.d	BFB0828	BFB0828	0.00									
2	1252	0010828.d	IC0828	VSTD001	5.00	4.93	593554	5.32	790571	7.40	695489	9.12	387125	
3	1321	2000828.d	IC0828	VSTD200	5.00	4.93	640076	5.32	861135	7.40	803012	9.13	480939	
4	1351	1500828.d	IC0828	VSTD150	5.00	4.93	648980	5.32	873392	7.40	806370	9.12	478126	
5	1421	1000828.d	IC0828	VSTD100	5.00	4.93	577839	5.32	774194	7.40	701708	9.11	414842	
6	1451	0500828.d	IC0828	VSTD050	5.00	4.94	704281	5.32	937745	7.40	853013	9.11	503655	
7	1521	0100828.d	IC0828	VSTD010	5.00	4.93	705939	5.32	945928	7.40	855411	9.11	505684	
8	1551	0050828.d	IC0828	VSTD005	5.00	4.94	686435	5.32	917886	7.40	828296	9.11	481111	
9	1621	0020828.d	IC0828	VSTD002	5.00	4.94	638204	5.32	847674	7.40	752656	9.11	418493	
10	1821	icv0828.d	ICV0828	ICV0828	5.00	4.93	643032	5.32	855721	7.40	778023	9.11	462358	

M 30b

Maintenance / Comments

Maintenance Verification (Identify ICal or CCal that demonstrates the instrument is in control):

Every line must contain information or be lined out. Make all entries legible. Start a new page for each QC period.

MANUAL INTEGRATION SUMMARY FOR DATABATCH - /chem1/nt9.i/28AUG10.b/gasco.b

ARI Job No.: BFB0 Method: bfb8260.m Instrument: nt9.i Date: 28-AUG-2010

Time	Filename	LabID	ClientId	DF	Manually Integrated Compounds
0745	bfb08280.d	BFB0828	BFB0828	1	NO MANUAL INTEGRATION
1252	0010828.d	IC0828	VSTD001	1	NO MANUAL INTEGRATION
1321	2000828.d	IC0828	VSTD200	1	NO MANUAL INTEGRATION
1351	1500828.d	IC0828	VSTD150	1	NO MANUAL INTEGRATION
1421	1000828.d	IC0828	VSTD100	1	NO MANUAL INTEGRATION
1451	0500828.d	IC0828	VSTD050	1	NO MANUAL INTEGRATION
1521	0100828.d	IC0828	VSTD010	1	NO MANUAL INTEGRATION
1551	0050828.d	IC0828	VSTD005	1	NO MANUAL INTEGRATION
1621	0020828.d	IC0828	VSTD002	1	NO MANUAL INTEGRATION
1821	icv0828.d	ICV0828	ICV0828	1	NO MANUAL INTEGRATION

Data File: /chem1/nt9.i/28AUG10.b/gasco.b/bfb08280.d

Date : 28-AUG-2010 07:45

Client ID: BFB0828

Instrument: nt9.i

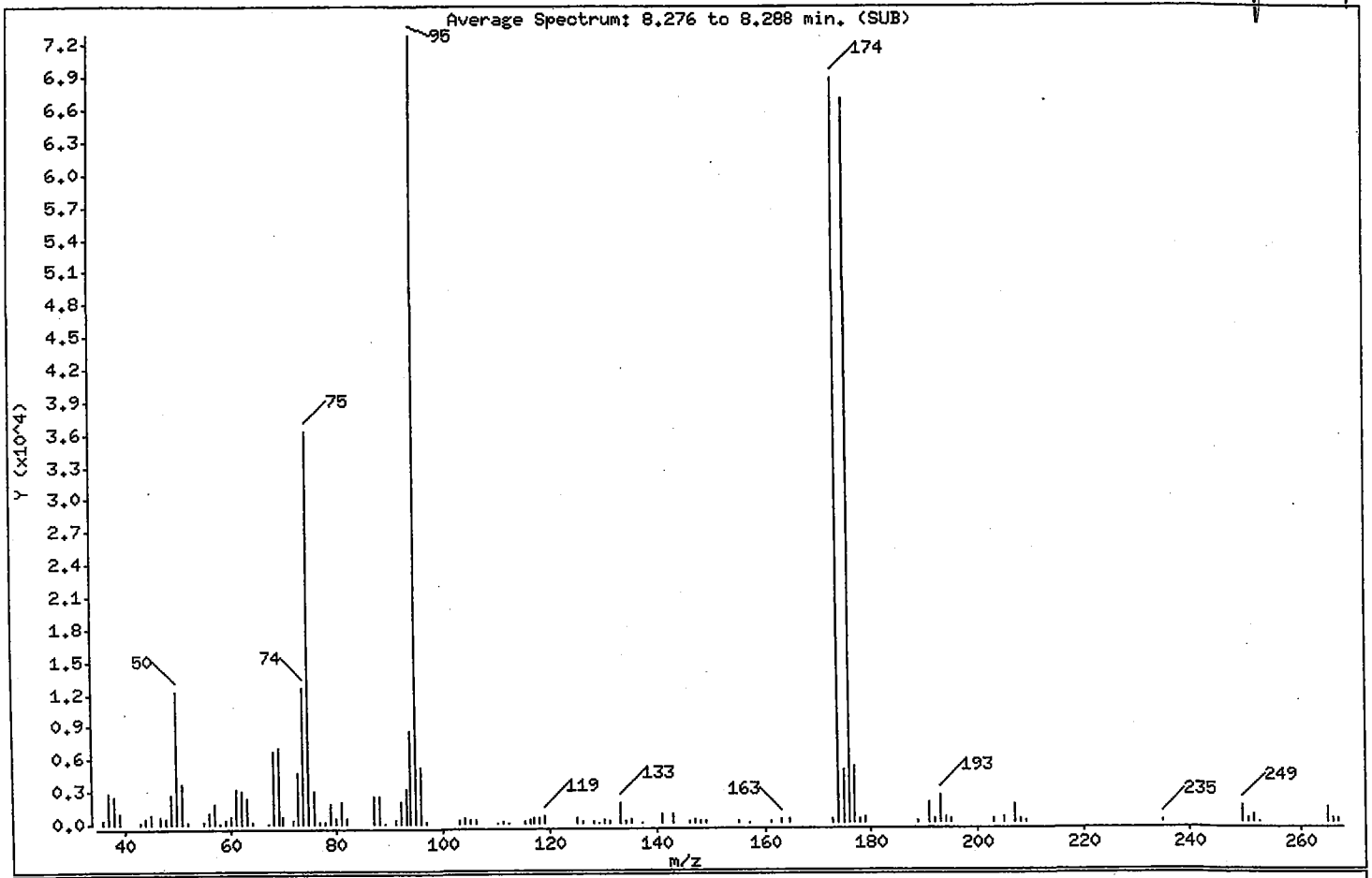
Sample Info: BFB0828,BFB0828,,1,28AUG10,,

Operator: PB

Column phase: RTX502.2

Column diameter: 0.18

1 Bromofluorobenzene



m/e	ION ABUNDANCE CRITERIA	% RELATIVE ABUNDANCE
95	Base Peak, 100% relative abundance	100.00
50	8.00 - 40.00% of mass 95	16.76
75	30.00 - 66.00% of mass 95	49.85
96	5.00 - 9.00% of mass 95	7.19
173	Less than 2.00% of mass 174	0.46 (0.49)
174	50.00 - 101.00% of mass 95	94.44
175	4.00 - 9.00% of mass 174	6.67 (7.06)
176	93.00 - 101.00% of mass 174	91.93 (97.34)
177	5.00 - 9.00% of mass 176	7.06 (7.68)

Data File: /chem1/nt9.i/28AUG10.b/gasco.b/bfb08280.d

Date : 28-AUG-2010 07:45

Client ID: BFB0828 Instrument: nt9.i

Sample Info: BFB0828,BFB0828,,1,28AUG10,,

Operator: PB

Column phase: RTX502.2 Column diameter: 0.18

Data File: bfb08280.d
Spectrum: Average Spectrum: 8.276 to 8.288 min. (SUB)
Location of Maximum: 95.00
Number of points: 107

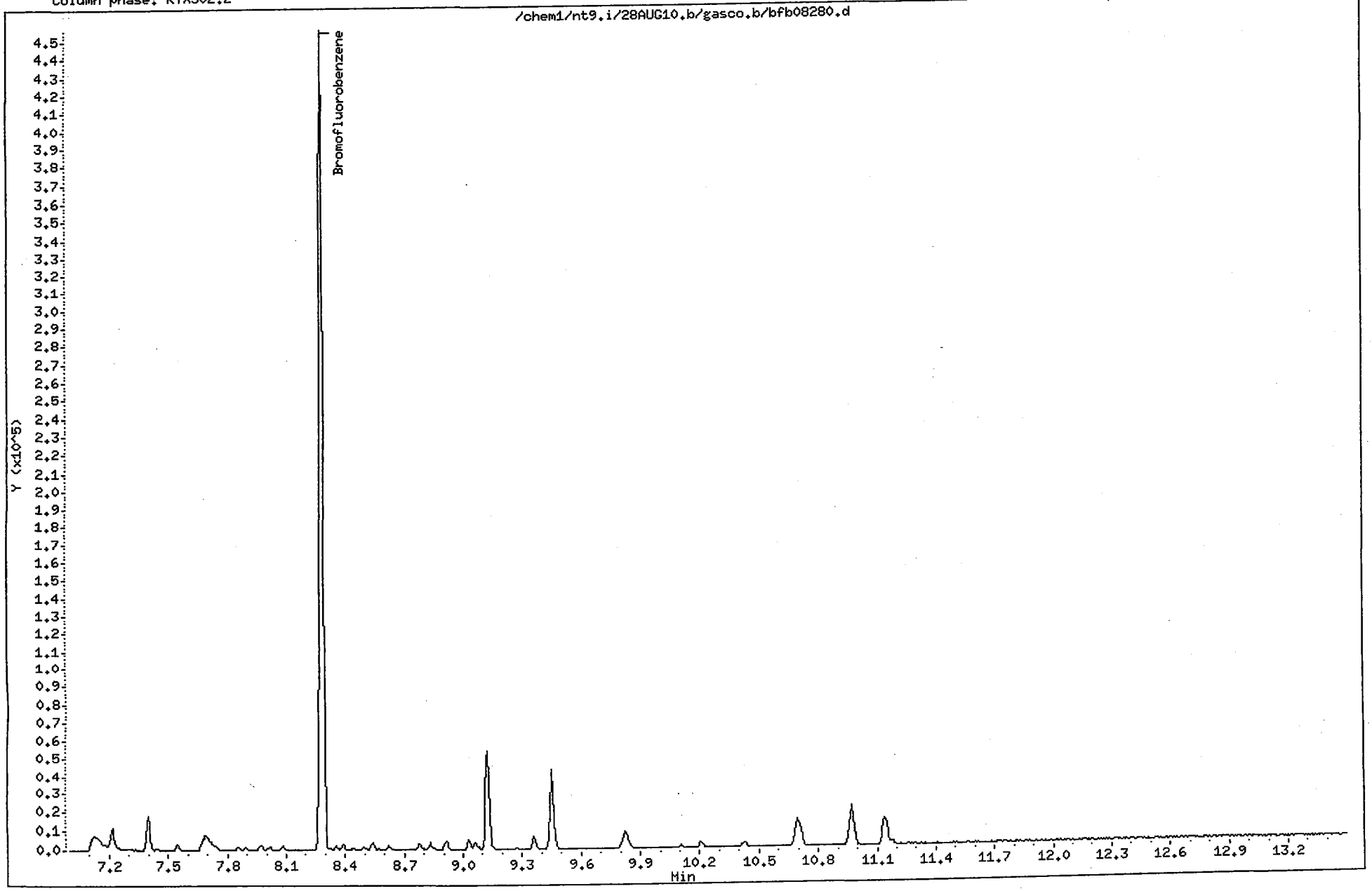
m/z	Y	m/z	Y	m/z	Y	m/z	Y
36.00	383	72.00	370	112.00	67	173.00	337
37.00	2783	73.00	4646	115.00	140	174.00	68840
38.00	2596	74.00	12549	116.00	270	175.00	4860
39.00	1028	75.00	36336	117.00	579	176.00	67016
43.00	171	76.00	3036	118.00	486	177.00	5144
44.00	505	77.00	222	119.00	711	178.00	294
45.00	771	78.00	240	125.00	546	179.00	515
47.00	626	79.00	1890	126.00	184	189.00	142
48.00	420	80.00	568	128.00	240	191.00	1872
49.00	2714	81.00	2029	129.00	62	192.00	407
50.00	12217	82.00	430	130.00	311	193.00	2498
51.00	3643	87.00	2567	131.00	124	194.00	510
52.00	200	88.00	2511	133.00	1910	195.00	309
55.00	224	89.00	67	134.00	87	203.00	267
56.00	986	91.00	283	135.00	330	205.00	508
57.00	1791	92.00	2026	137.00	60	207.00	1704
58.00	51	93.00	3113	141.00	759	208.00	343
59.00	361	94.00	8567	143.00	826	209.00	155
60.00	622	95.00	72896	146.00	111	235.00	211
61.00	3175	96.00	5238	147.00	278	249.00	1515
62.00	3089	97.00	197	148.00	241	250.00	403
63.00	2347	103.00	356	149.00	183	251.00	614
64.00	164	104.00	426	155.00	175	252.00	54
67.00	59	105.00	265	157.00	54	265.00	1352
68.00	6691	106.00	334	161.00	153	266.00	408
69.00	7006	110.00	63	163.00	356	267.00	303
70.00	655	111.00	129	165.00	293		

Data File: /chem1/nt9.i/28AUG10.b/gasco.b/bfb08280.d
Date : 28-AUG-2010 07:45
Client ID: BFB0828
Sample Info: BFB0828,BFB0828,,1,28AUG10,,

Instrument: nt9.i

Operator: PB
Column diameter: 0.18

Column phase: RTX502.2



Analytical Resources, Inc.

INITIAL CALIBRATION DATA

Start Cal Date : 28-AUG-2010 12:52
End Cal Date : 28-AUG-2010 16:21
Quant Method : ISTD
Origin : Disabled
Target Version : 3.50
Integrator : HP RTE
Method file : /chem1/nt9.i/28AUG10.b/gasco.b/VO063010S.m
Cal Date : 18-Oct-2010 13:57 patrickb
Curve Type : Average

10/18/10

Calibration File Names:
Level 1: /chem1/nt9.i/28AUG10.b/gasco.b/0010828.d
Level 2: /chem1/nt9.i/28AUG10.b/gasco.b/0020828.d
Level 3: /chem1/nt9.i/28AUG10.b/gasco.b/0050828.d
Level 4: /chem1/nt9.i/28AUG10.b/gasco.b/0100828.d
Level 5: /chem1/nt9.i/28AUG10.b/gasco.b/0500828.d
Level 6: /chem1/nt9.i/28AUG10.b/gasco.b/1000828.d
Level 7: /chem1/nt9.i/28AUG10.b/gasco.b/1500828.d
Level 8: /chem1/nt9.i/28AUG10.b/gasco.b/2000828.d

Compound	1.000 Level 1	2.000 Level 2	5.000 Level 3	10.000 Level 4	50.000 Level 5	100.000 Level 6	RRF	% RSD
	150.000 Level 7	200.000 Level 8						
3 Vinyl Chloride	0.44124	0.36900	0.40850	0.40724	0.44421	0.53382		
	0.49296	0.47638					0.44667	11.877
7 1,1-Dichloroethene	0.46702	0.39654	0.40390	0.42362	0.42777	0.52984		
	+++++	+++++					0.44145	11.280
15 Trans-1,2-Dichloroethene	0.51402	0.44676	0.46277	0.47513	0.47849	0.57736		
	0.55726	0.56926					0.51013	10.142
20 Cis-1,2-Dichloroethene	0.48917	0.41464	0.44768	0.46073	0.46216	0.53041		
	0.52431	0.53780					0.48336	9.201
23 Chloroform	0.75975	0.67506	0.71303	0.72761	0.73463	0.83871		
	0.83123	0.85351					0.76669	8.647
24 Carbon Tetrachloride	0.45322	0.37467	0.37878	0.40053	0.45310	0.56307		
	0.54319	0.54624					0.46410	16.760

Analytical Resources, Inc.

INITIAL CALIBRATION DATA

Start Cal Date : 28-AUG-2010 12:52
End Cal Date : 28-AUG-2010 16:21
Quant Method : ISTD
Origin : Disabled
Target Version : 3.50
Integrator : HP RTE
Method file : /chem1/nt9.i/28AUG10.b/gasco.b/VO063010S.m
Cal Date : 18-Oct-2010 13:57 patrickb
Curve Type : Average

Compound	1.000 Level 1	2.000 Level 2	5.000 Level 3	10.000 Level 4	50.000 Level 5	100.000 Level 6	RRF	% RSD
	150.000 Level 7	200.000 Level 8						
29 2-Butanone	0.05280	0.04234	0.04252	0.04537	0.04571	0.05600		
	0.05162	0.05187					0.04853	10.655
30 Benzene	1.32638	1.18660	1.23515	1.26601	1.27868	1.48595		
	1.46478	1.51452					1.34476	9.368
33 1,2-Dichloroethane	0.39130	0.33993	0.36738	0.38396	0.38080	0.40438		
	0.40958	0.41716					0.38681	6.473
34 Trichloroethene	0.36714	0.32330	0.34682	0.34800	0.35294	0.41807		
	0.40032	0.41556					0.37152	9.538
43 Toluene	1.03514	0.85549	0.86756	0.87730	0.88499	1.04109		
	1.02215	1.06128					0.95562	9.535
44 Tetrachloroethene	0.55860	0.48183	0.48172	0.49322	0.50901	0.62547		
	0.58919	0.60919					0.54353	10.926
53 Chlorobenzene	1.22382	1.05021	1.09789	1.12925	1.13123	1.29199		
	1.28087	1.33347					1.19234	8.711
54 Ethyl Benzene	2.02002	1.78634	1.82546	1.89117	1.92492	2.32640		
	2.26623	2.35247					2.04913	11.315
56 m,p-xylene	0.81500	0.70598	0.74855	0.77341	0.80494	0.96610		
	0.91344	0.90257					0.82875	10.870

Analytical Resources, Inc.

INITIAL CALIBRATION DATA

Start Cal Date : 28-AUG-2010 12:52
End Cal Date : 28-AUG-2010 16:21
Quant Method : ISTD
Origin : Disabled
Target Version : 3.50
Integrator : HP RTE
Method file : /chem1/nt9.i/28AUG10.b/gasco.b/VO063010S.m
Cal Date : 18-Oct-2010 13:57 patrickb
Curve Type : Average

Compound	1.000 Level 1 / 150.000 Level 7	2.000 Level 2 / 200.000 Level 8	5.000 Level 3	10.000 Level 4	50.000 Level 5	100.000 Level 6	RRF	% RSD
57 o-Xylene	0.73725	0.65651	0.70844	0.73580	0.73913	0.86456		
	0.85023	0.88429					0.77203	10.757
76 1,4-Dichlorobenzene	1.88673	1.56801	1.64288	1.69190	1.69135	1.90846		
	1.93573	2.02878					1.79423	9.225
$ 25 Dibromofluoromethane	0.36234	0.35910	0.36558	0.36940	0.37735	0.37880		
	0.38862	0.38978					0.37387	3.111
$ 31 d4-1,2-Dichloroethane	0.38156	0.37856	0.38687	0.38650	0.39071	0.37956		
	0.38432	0.38267					0.38384	1.062
$ 42 d8-Toluene	1.12727	1.13191	1.13958	1.14128	1.14178	1.12624		
	1.12676	1.12835					1.13290	0.605
$ 61 4-Bromofluorobenzene	0.45724	0.46015	0.47109	0.47490	0.46790	0.46064		
	0.45738	0.45543					0.46309	1.563
$ 78 d4-1,2-Dichlorobenzene	0.87020	0.86950	0.88301	0.87935	0.88127	0.86506		
	0.87680	0.86706					0.87403	0.790

Report Date : 18-Oct-2010 13:50

Analytical Resources, Inc.
RETENTION TIME SUMMARY REPORT

Method File: /chem1/nt9.i/28AUG10.b/gasco.b/VO063010S.m
Batch File: /chem1/nt9.i/28AUG10.b/gasco.b
Inst ID: nt9.i

ID:	RT01	RT02	RT03	RT04	RT05	RT06	RT07	RT08
FILENAME:	0010828	2000828	1500828	1000828	0500828	0100828	0050828	0020828
INJ.DATE:	28-AUG-2010	28-AUG-2010	28-AUG-2010	28-AUG-2010	28-AUG-2010	28-AUG-2010	28-AUG-2010	28-AUG-2010
INJ.TIME:	12:52	13:21	13:51	14:21	14:51	15:21	15:51	16:21

Compound	RT01	RT02	RT03	RT04	RT05	RT06	RT07	RT08	EXPEC RT	RT WINDOW	AVG RT	STD DEV
3 Vinyl Chloride	1.409	1.406	1.403	1.409	1.407	1.407	1.412	1.407	1.407	1.308-1.505	1.407	0.003
7 1,1-Dichloroethene	2.314	2.294	2.297	2.303	2.312	2.301	2.312	2.318	2.312	2.213-2.410	2.306	0.009
15 Trans-1,2-Dichloroethe	3.033	3.018	3.021	3.027	3.036	3.030	3.036	3.036	3.036	2.937-3.134	3.030	0.007
20 Cis-1,2-Dichloroethene	4.136	4.133	4.135	4.136	4.139	4.139	4.139	4.139	4.139	4.040-4.237	4.137	0.002
23 Chloroform	4.379	4.382	4.384	4.385	4.382	4.382	4.382	4.382	4.382	4.283-4.481	4.382	0.002
24 Carbon Tetrachloride	4.469	4.466	4.469	4.470	4.473	4.467	4.472	4.473	4.473	4.366-4.579	4.470	0.003
$ 25 Dibromofluoromethane	4.526	4.529	4.531	4.532	4.529	4.529	4.529	4.529	4.529	4.430-4.628	4.529	0.002
29 2-Butanone	4.645	4.659	4.655	4.651	4.642	4.654	4.648	4.648	4.642	4.543-4.741	4.650	0.006
30 Benzene	4.831	4.828	4.825	4.832	4.829	4.829	4.829	4.829	4.829	4.722-4.935	4.829	0.002
$ 31 d4-1,2-Dichloroethane	4.939	4.936	4.938	4.939	4.936	4.937	4.936	4.937	4.936	4.838-5.035	4.937	0.001
* 32 Pentafluorobenzene	4.933	4.930	4.933	4.933	4.936	4.931	4.936	4.937	4.936	4.837-5.035	4.934	0.003
33 1,2-Dichloroethane	4.990	4.993	4.989	4.990	4.993	4.988	4.993	4.993	4.993	4.886-5.099	4.991	0.002
34 Trichloroethene	5.284	5.281	5.283	5.284	5.281	5.282	5.281	5.282	5.281	5.175-5.388	5.282	0.001
* 35 1,4-Difluorobenzene	5.324	5.321	5.323	5.324	5.321	5.321	5.321	5.321	5.321	5.215-5.427	5.322	0.001
$ 42 d8-Toluene	6.308	6.305	6.307	6.308	6.305	6.306	6.305	6.306	6.305	6.199-6.412	6.306	0.001
43 Toluene	6.342	6.344	6.341	6.342	6.345	6.345	6.345	6.345	6.345	6.238-6.451	6.344	0.002
44 Tetrachloroethene	6.608	6.610	6.607	6.608	6.611	6.611	6.611	6.611	6.611	6.463-6.759	6.610	0.002

Reviewer 1 _____ Date: _____
Reviewer 2 _____ Date: _____

10/18/10

E1000 .ASM

Report Date : 18-Oct-2010 13:50

Analytical Resources, Inc.
RETENTION TIME SUMMARY REPORT

Method File: /chem1/nt9.i/28AUG10.b/gasco.b/VO063010S.m
Batch File: /chem1/nt9.i/28AUG10.b/gasco.b
Inst ID: nt9.i

Compound	RT01	RT02	RT03	RT04	RT05	RT06	RT07	RT08	EXPEC RT	RT WINDOW	AVG RT	STD DEV
* 52 d5-Chlorobenzene	7.400	7.402	7.399	7.400	7.397	7.397	7.397	7.397	7.397	7.249-7.545	7.399	0.002
53 Chlorobenzene	7.411	7.414	7.410	7.411	7.408	7.409	7.408	7.409	7.408	7.260-7.556	7.410	0.002
54 Ethyl Benzene	7.439	7.442	7.439	7.439	7.437	7.437	7.437	7.437	7.437	7.289-7.585	7.438	0.002
56 m,p-xylene	7.547	7.549	7.546	7.547	7.544	7.544	7.544	7.545	7.544	7.396-7.692	7.546	0.002
57 o-Xylene	7.852	7.855	7.852	7.852	7.850	7.850	7.850	7.850	7.850	7.702-7.997	7.851	0.002
$ 61 4-Bromofluorobenzene	8.282	8.302	8.281	8.277	8.274	8.280	8.274	8.274	8.274	8.126-8.422	8.280	0.009
* 75 d4-1,4-Dichlorobenzene	9.119	9.128	9.119	9.114	9.111	9.111	9.111	9.106	9.111	8.929-9.293	9.115	0.007
76 1,4-Dichlorobenzene	9.131	9.139	9.130	9.125	9.122	9.123	9.117	9.117	9.122	8.940-9.304	9.125	0.007
$ 78 d4-1,2-Dichlorobenzene	9.447	9.450	9.441	9.436	9.434	9.434	9.433	9.434	9.434	9.251-9.616	9.439	0.007

10/18/10

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Analytical Resources, Inc.

8260C

Data file : /chem1/nt9.i/28AUG10.b/gasco.b/0010828.d
Lab Smp Id: IC0828 Client Smp ID: VSTD001
Inj Date : 28-AUG-2010 12:52
Operator : PB Inst ID: nt9.i
Smp Info : IC0828,5,5,0
Misc Info : 10-
Comment :
Method : /chem1/nt9.i/28AUG10.b/gasco.b/VO063010S.m
Meth Date : 18-Oct-2010 13:50 patrickb Quant Type: ISTD
Cal Date : 28-AUG-2010 12:52 Cal File: 0010828.d
Als bottle: 1 Calibration Sample, Level: 1
Dil Factor: 1.00000
Integrator: HP RTE Compound Sublist: gasco.sub
Target Version: 3.50
Processing Host: cserv3

Concentration Formula: Amt * DF * Pv * 1 / (Sa * ((100 - M) / 100)) * CpndVaria

Name	Value	Description
DF	1.00000	Dilution Factor
Pv	5.00000	Purge Volume
Sa	5.00000	Sample Amount
M	0.00000	% Moisture (not decanted)

Cpnd Variable Local Compound Variable

Compounds	QUANT SIG MASS	RT	EXP RT	REL RT	RESPONSE	AMOUNTS CAL-AMT (ug/Kg)	ON-COL (ug/Kg)
3 Vinyl Chloride	62	1.409	1.407	(0.286)	5238	1.00000	0.9878
7 1,1-Dichloroethene	96	2.314	2.312	(0.469)	5544	1.00000	1.058
15 Trans-1,2-Dichloroethene	96	3.033	3.036	(0.615)	6102	1.00000	1.008
20 Cis-1,2-Dichloroethene	96	4.136	4.139	(0.838)	5807	1.00000	1.012
23 Chloroform	83	4.379	4.382	(0.888)	9019	1.00000	0.9909
24 Carbon Tetrachloride	117	4.469	4.473	(0.840)	7166	1.00000	0.9766
* 32 Pentafluorobenzene	168	4.933	4.936	(1.000)	593554	50.0000	
$ 25 Dibromofluoromethane	111	4.526	4.529	(0.917)	215070	50.0000	48.458
$ 31 d4-1,2-Dichloroethane	65	4.939	4.936	(1.001)	226475	50.0000	49.702
29 2-Butanone	72	4.645	4.642	(0.942)	3134	5.00000	5.440
30 Benzene	78	4.831	4.829	(0.908)	20972	1.00000	0.9863
33 1,2-Dichloroethane	62	4.990	4.993	(0.937)	6187	1.00000	1.012
* 35 1,4-Difluorobenzene	114	5.324	5.321	(1.000)	790571	50.0000	
34 Trichloroethene	95	5.284	5.281	(0.993)	5805	1.00000	0.9882

Compounds	QUANT SIG MASS	RT	EXP RT	REL RT	RESPONSE	AMOUNTS CAL-AMT (ug/Kg)	AMOUNTS ON-COL (ug/Kg)
$ 42 d8-Toluene	98	6.308	6.305	(1.185)	891184	50.0000	49.751
43 Toluene	92	6.342	6.345	(1.191)	16367	1.00000	1.083
44 Tetrachloroethene	166	6.608	6.611	(0.893)	7770	1.00000	1.028
* 52 d5-Chlorobenzene	117	7.400	7.397	(1.000)	695489	50.0000	
53 Chlorobenzene	112	7.411	7.408	(1.002)	17023	1.00000	1.026
54 Ethyl Benzene	91	7.439	7.437	(1.005)	28098	1.00000	0.9858
56 m,p-xylene	106	7.547	7.544	(1.020)	22673	2.00000	1.967
57 o-Xylene	106	7.852	7.850	(1.061)	10255	1.00000	0.9550
$ 61 4-Bromofluorobenzene	95	8.282	8.274	(1.119)	318004	50.0000	49.368
* 75 d4-1,4-Dichlorobenzene	152	9.119	9.111	(1.000)	387125	50.0000	
76 1,4-Dichlorobenzene	146	9.131	9.122	(1.001)	14608	1.00000	1.052
$ 78 d4-1,2-Dichlorobenzene	152	9.447	9.434	(1.036)	336878	50.0000	49.781

Analytical Resources, Inc.

INTERNAL STANDARD COMPOUNDS
AREA AND RT SUMMARY

Instrument ID: nt9.i
Lab File ID: 0010828.d
Lab Smp Id: IC0828
Analysis Type: VOA
Quant Type: ISTD
Operator: PB
Method File: /chem1/nt9.i/28AUG10.b/gasco.b/VO063010S.m
Misc Info: 10-

Calibration Date: 28-AUG-2010
Calibration Time: 14:51
Client Smp ID: VSTD001
Level: LOW
Sample Type: SOIL

Test Mode:
Use Initial Calibration Level 5.
If Continuing Cal. use Initial Cal. Level 5

COMPOUND	STANDARD	AREA LIMIT LOWER	AREA LIMIT UPPER	SAMPLE	%DIFF
32 Pentafluorobenzen	704281	352140	1408562	593554	-15.72
35 1,4-Difluorobenze	937745	468872	1875490	790571	-15.69
52 d5-Chlorobenzene	853013	426506	1706026	695489	-18.47
75 d4-1,4-Dichlorobe	503655	251828	1007310	387125	-23.14

COMPOUND	STANDARD	RT LIMIT LOWER	RT LIMIT UPPER	SAMPLE	%DIFF
32 Pentafluorobenzen	4.94	4.44	5.44	4.93	-0.06
35 1,4-Difluorobenze	5.32	4.82	5.82	5.32	0.05
52 d5-Chlorobenzene	7.40	6.90	7.90	7.40	0.03
75 d4-1,4-Dichlorobe	9.11	8.61	9.61	9.12	0.09

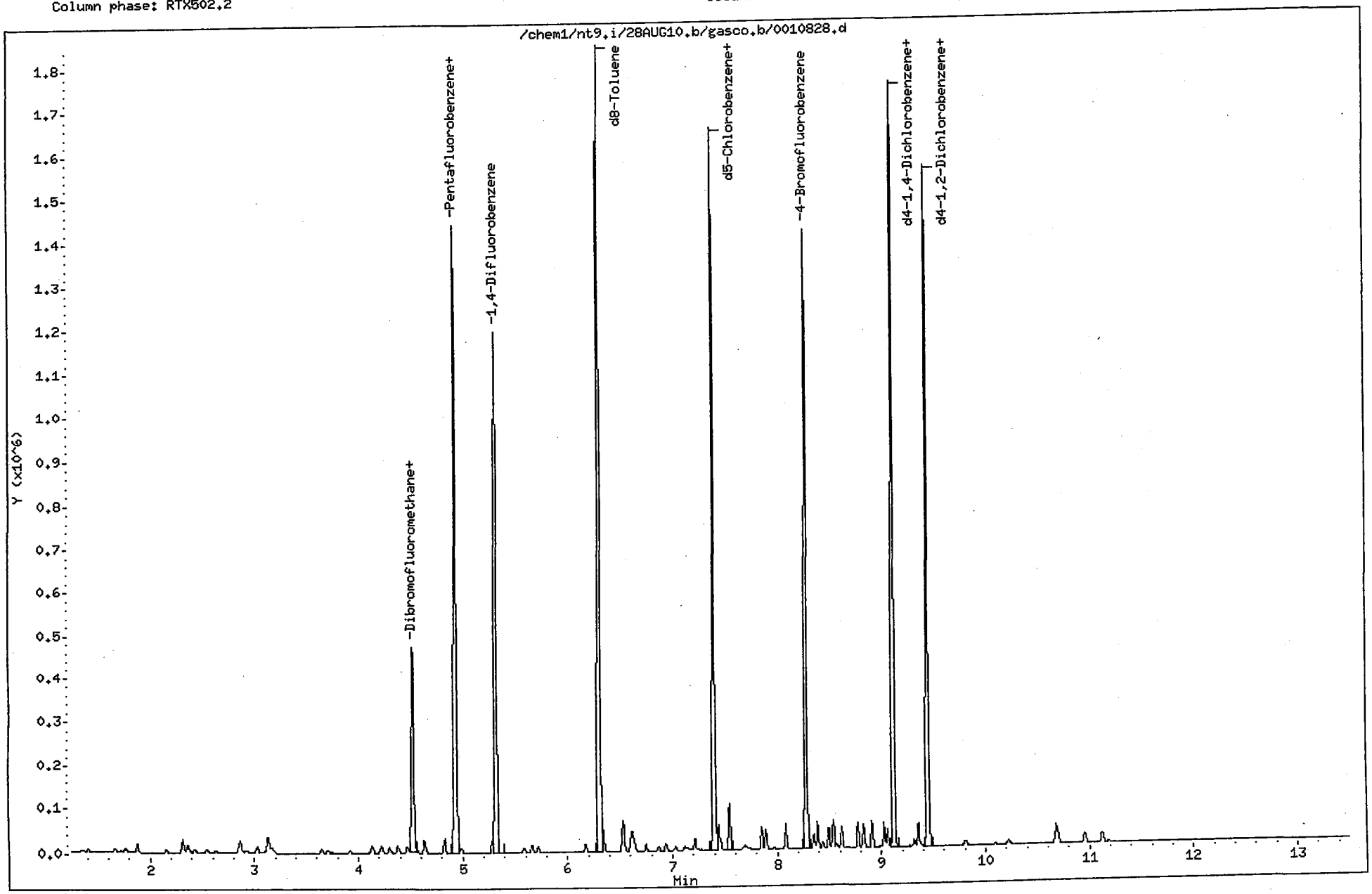
AREA UPPER LIMIT = +100% of internal standard area.
AREA LOWER LIMIT = - 50% of internal standard area.
RT UPPER LIMIT = + 0.50 minutes of internal standard RT.
RT LOWER LIMIT = - 0.50 minutes of internal standard RT.

Data File: /chem1/nt9.i/28AUG10.b/gasco.b/0010828.d
Date : 28-AUG-2010 12:52
Client ID: VSTD001
Sample Info: IC0828,5,5,0

Instrument: nt9.i

Operator: PB
Column diameter: 0.18

Column phase: RTX502.2



Analytical Resources, Inc.

8260C

Data file : /chem1/nt9.i/28AUG10.b/gasco.b/0020828.d
Lab Smp Id: IC0828 Client Smp ID: VSTD002
Inj Date : 28-AUG-2010 16:21
Operator : PB Inst ID: nt9.i
Smp Info : IC0828,5,5,0
Misc Info : 10-
Comment :
Method : /chem1/nt9.i/28AUG10.b/gasco.b/VO063010S.m
Meth Date : 18-Oct-2010 13:50 patrickb Quant Type: ISTD
Cal Date : 28-AUG-2010 16:21 Cal File: 0020828.d
Als bottle: 1 Calibration Sample, Level: 2
Dil Factor: 1.00000
Integrator: HP RTE Compound Sublist: gasco.sub
Target Version: 3.50
Processing Host: cserv3

Concentration Formula: Amt * DF * Pv * 1 / (Sa * ((100 - M) / 100)) * CpndVaria

Name	Value	Description
DF	1.00000	Dilution Factor
Pv	5.00000	Purge Volume
Sa	5.00000	Sample Amount
M	0.00000	% Moisture (not decanted)

Cpnd Variable Local Compound Variable

Compounds	QUANT SIG MASS	RT	EXP RT	REL RT	RESPONSE	AMOUNTS CAL-AMT (ug/Kg)	AMOUNTS ON-COL (ug/Kg)
3 Vinyl Chloride	62	1.407	1.407	(0.285)	9420	2.00000	1.652
7 1,1-Dichloroethene	96	2.318	2.312	(0.469)	10123	2.00000	1.797
15 Trans-1,2-Dichloroethene	96	3.036	3.036	(0.615)	11405	2.00000	1.752
20 Cis-1,2-Dichloroethene	96	4.139	4.139	(0.838)	10585	2.00000	1.716
23 Chloroform	83	4.382	4.382	(0.888)	17233	2.00000	1.761
24 Carbon Tetrachloride	117	4.473	4.473	(0.841)	12704	2.00000	1.615
* 32 Pentafluorobenzene	168	4.937	4.936	(1.000)	638204	50.0000	
$ 25 Dibromofluoromethane	111	4.529	4.529	(0.917)	229178	50.0000	48.024
$ 31 d4-1,2-Dichloroethane	65	4.937	4.936	(1.000)	241601	50.0000	49.312
29 2-Butanone	72	4.648	4.642	(0.942)	5404	10.0000	8.724
30 Benzene	78	4.829	4.829	(0.908)	40234	2.00000	1.765
33 1,2-Dichloroethane	62	4.993	4.993	(0.938)	11526	2.00000	1.758
* 35 1,4-Difluorobenzene	114	5.321	5.321	(1.000)	847674	50.0000	
34 Trichloroethene	95	5.282	5.281	(0.993)	10962	2.00000	1.740

Compounds	QUANT SIG MASS	RT	EXP RT	REL RT	RESPONSE	AMOUNTS CAL-AMT (ug/Kg)	AMOUNTS ON-COL (ug/Kg)
$ 42 d8-Toluene	98	6.306	6.305	(1.185)	959492	50.0000	49.957
43 Toluene	92	6.345	6.345	(1.192)	29007	2.00000	1.790
44 Tetrachloroethene	166	6.611	6.611	(0.894)	14506	2.00000	1.773
* 52 d5-Chlorobenzene	117	7.397	7.397	(1.000)	752656	50.0000	
53 Chlorobenzene	112	7.409	7.408	(1.002)	31618	2.00000	1.762
54 Ethyl Benzene	91	7.437	7.437	(1.005)	53780	2.00000	1.744
56 m,p-xylene	106	7.545	7.544	(1.020)	42509	4.00000	3.407
57 o-Xylene	106	7.850	7.850	(1.061)	19765	2.00000	1.701
$ 61 4-Bromofluorobenzene	95	8.274	8.274	(1.119)	346336	50.0000	49.682
* 75 d4-1,4-Dichlorobenzene	152	9.106	9.111	(1.000)	418493	50.0000	
76 1,4-Dichlorobenzene	146	9.117	9.122	(1.001)	26248	2.00000	1.748
$ 78 d4-1,2-Dichlorobenzene	152	9.434	9.434	(1.036)	363879	50.0000	49.741

Analytical Resources, Inc.

INTERNAL STANDARD COMPOUNDS
AREA AND RT SUMMARY

Instrument ID: nt9.i
Lab File ID: 0020828.d
Lab Smp Id: IC0828
Analysis Type: VOA
Quant Type: ISTD
Operator: PB
Method File: /chem1/nt9.i/28AUG10.b/gasco.b/VO063010S.m
Misc Info: 10-

Calibration Date: 28-AUG-2010
Calibration Time: 14:51
Client Smp ID: VSTD002
Level: LOW
Sample Type: SOIL

Test Mode:
Use Initial Calibration Level 5.
If Continuing Cal. use Initial Cal. Level 5

COMPOUND	STANDARD	AREA LIMIT LOWER	AREA LIMIT UPPER	SAMPLE	%DIFF
32 Pentafluorobenzen	704281	352140	1408562	638204	-9.38
35 1,4-Difluorobenze	937745	468872	1875490	847674	-9.61
52 d5-Chlorobenzene	853013	426506	1706026	752656	-11.77
75 d4-1,4-Dichlorobe	503655	251828	1007310	418493	-16.91

COMPOUND	STANDARD	RT LIMIT LOWER	RT LIMIT UPPER	SAMPLE	%DIFF
32 Pentafluorobenzen	4.94	4.44	5.44	4.94	0.01
35 1,4-Difluorobenze	5.32	4.82	5.82	5.32	0.01
52 d5-Chlorobenzene	7.40	6.90	7.90	7.40	0.00
75 d4-1,4-Dichlorobe	9.11	8.61	9.61	9.11	-0.06

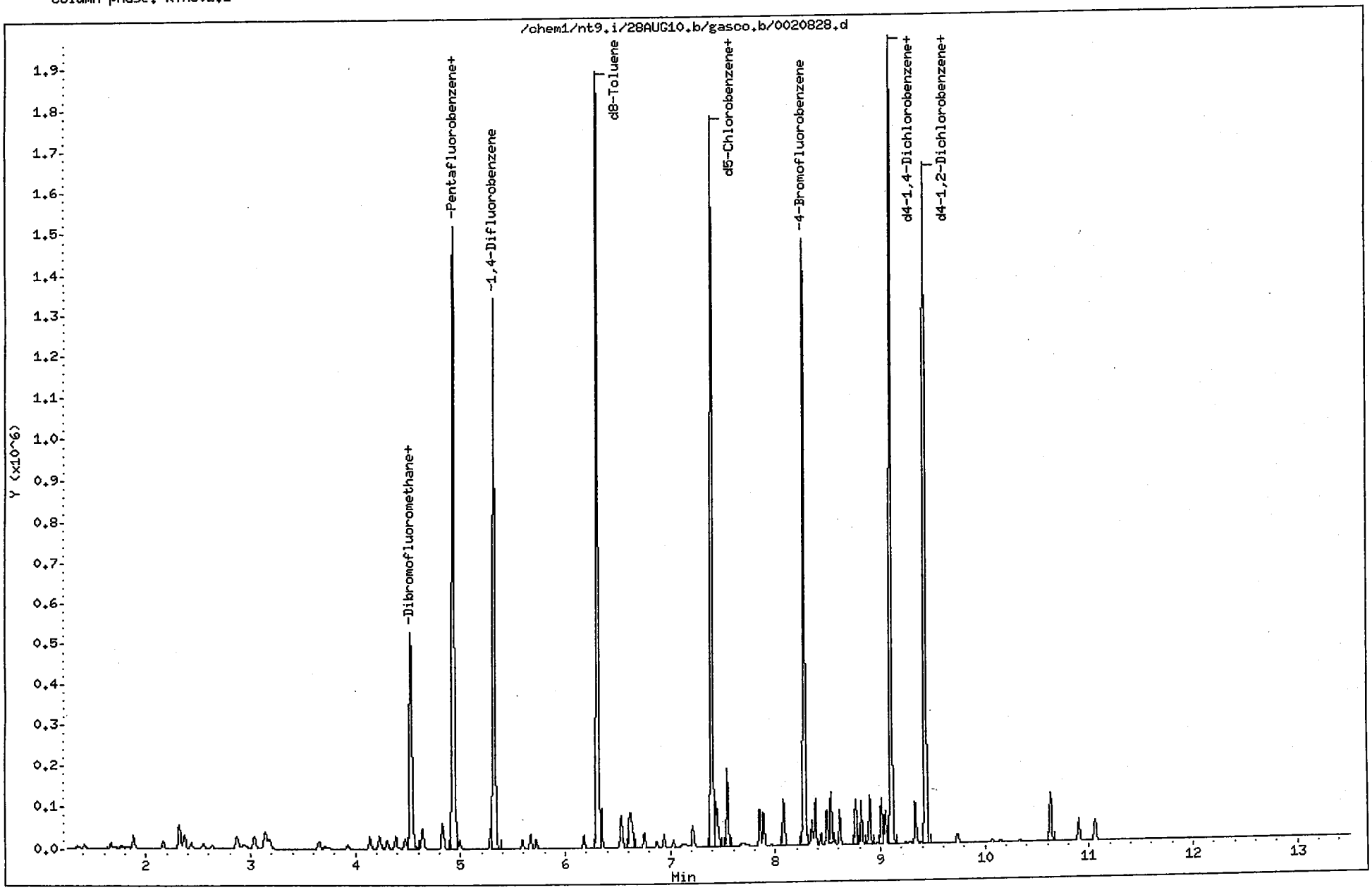
AREA UPPER LIMIT = +100% of internal standard area.
AREA LOWER LIMIT = - 50% of internal standard area.
RT UPPER LIMIT = + 0.50 minutes of internal standard RT.
RT LOWER LIMIT = - 0.50 minutes of internal standard RT.

Data File: /chem1/nt9.i/28AUG10.b/gasco.b/0020828.d
Date : 28-AUG-2010 16:21
Client ID: VSTD002
Sample Info: IC0828,5,5,0

Instrument: nt9.i

Operator: PB
Column diameter: 0.18

Column phase: RTX502.2



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Analytical Resources, Inc.

8260C

Data file : /chem1/nt9.i/28AUG10.b/gasco.b/0050828.d
Lab Smp Id: IC0828 Client Smp ID: VSTD005
Inj Date : 28-AUG-2010 15:51
Operator : PB Inst ID: nt9.i
Smp Info : IC0828,5,5,0
Misc Info : 10-
Comment :
Method : /chem1/nt9.i/28AUG10.b/gasco.b/VO063010S.m
Meth Date : 18-Oct-2010 13:50 patrickb Quant Type: ISTD
Cal Date : 28-AUG-2010 15:51 Cal File: 0050828.d
Als bottle: 1 Calibration Sample, Level: 3
Dil Factor: 1.00000
Integrator: HP RTE Compound Sublist: gasco.sub
Target Version: 3.50
Processing Host: cserv3

10/18/10

Concentration Formula: Amt * DF * Pv * 1 / (Sa * ((100 - M) / 100)) * CpndVaria

Name	Value	Description
DF	1.00000	Dilution Factor
Pv	5.00000	Purge Volume
Sa	5.00000	Sample Amount
M	0.00000	% Moisture (not decanted)

Cpnd Variable Local Compound Variable

Compounds	QUANT SIG MASS	RT	EXP RT	REL RT	RESPONSE	AMOUNTS CAL-AMT (ug/Kg)	AMOUNTS ON-COL (ug/Kg)
3 Vinyl Chloride	62	1.412	1.407	(0.286)	28041	5.00000	4.573
7 1,1-Dichloroethene	96	2.312	2.312	(0.468)	27725	5.00000	4.575
15 Trans-1,2-Dichloroethene	96	3.036	3.036	(0.615)	31766	5.00000	4.536
20 Cis-1,2-Dichloroethene	96	4.139	4.139	(0.838)	30730	5.00000	4.631
23 Chloroform	83	4.382	4.382	(0.888)	48945	5.00000	4.650
24 Carbon Tetrachloride	117	4.472	4.473	(0.841)	34768	5.00000	4.081
* 32 Pentafluorobenzene	168	4.936	4.936	(1.000)	686435	50.0000	
$ 25 Dibromofluoromethane	111	4.529	4.529	(0.917)	250949	50.0000	48.891
$ 31 d4-1,2-Dichloroethane	65	4.936	4.936	(1.000)	265558	50.0000	50.394
29 2-Butanone	72	4.648	4.642	(0.942)	14593	25.0000	21.904
30 Benzene	78	4.829	4.829	(0.908)	113373	5.00000	4.592
33 1,2-Dichloroethane	62	4.993	4.993	(0.938)	33721	5.00000	4.749
* 35 1,4-Difluorobenzene	114	5.321	5.321	(1.000)	917886	50.0000	
34 Trichloroethene	95	5.281	5.281	(0.993)	31834	5.00000	4.668

Compounds	QUANT SIG MASS	RT	EXP RT	REL RT	RESPONSE	AMOUNTS CAL-AMT (ug/Kg)	AMOUNTS ON-COL (ug/Kg)
$ 42 d8-Toluene	98	6.305	6.305	(1.185)	1046006	50.0000	50.295
43 Toluene	92	6.345	6.345	(1.192)	79632	5.00000	4.539
44 Tetrachloroethene	166	6.611	6.611	(0.894)	39901	5.00000	4.431
* 52 d5-Chlorobenzene	117	7.397	7.397	(1.000)	828296	50.0000	
53 Chlorobenzene	112	7.408	7.408	(1.002)	90938	5.00000	4.604
54 Ethyl Benzene	91	7.437	7.437	(1.005)	151202	5.00000	4.454
56 m,p-xylene	106	7.544	7.544	(1.020)	124005	10.0000	9.032
57 o-Xylene	106	7.850	7.850	(1.061)	58680	5.00000	4.588
$ 61 4-Bromofluorobenzene	95	8.274	8.274	(1.119)	390204	50.0000	50.864
* 75 d4-1,4-Dichlorobenzene	152	9.111	9.111	(1.000)	481111	50.0000	
76 1,4-Dichlorobenzene	146	9.117	9.122	(1.001)	79041	5.00000	4.578
$ 78 d4-1,2-Dichlorobenzene	152	9.433	9.434	(1.035)	424828	50.0000	50.514

Analytical Resources, Inc.

INTERNAL STANDARD COMPOUNDS
AREA AND RT SUMMARY

Instrument ID: nt9.i
Lab File ID: 0050828.d
Lab Smp Id: IC0828
Analysis Type: VOA
Quant Type: ISTD
Operator: PB
Method File: /chem1/nt9.i/28AUG10.b/gasco.b/VO063010S.m
Misc Info: 10-

Calibration Date: 28-AUG-2010
Calibration Time: 14:51
Client Smp ID: VSTD005
Level: LOW
Sample Type: SOIL

Test Mode:
Use Initial Calibration Level 5.
If Continuing Cal. use Initial Cal. Level 5

COMPOUND	STANDARD	AREA LIMIT LOWER	AREA LIMIT UPPER	SAMPLE	%DIFF
32 Pentafluorobenzen	704281	352140	1408562	686435	-2.53
35 1,4-Difluorobenze	937745	468872	1875490	917886	-2.12
52 d5-Chlorobenzene	853013	426506	1706026	828296	-2.90
75 d4-1,4-Dichlorobe	503655	251828	1007310	481111	-4.48

COMPOUND	STANDARD	RT LIMIT LOWER	RT LIMIT UPPER	SAMPLE	%DIFF
32 Pentafluorobenzen	4.94	4.44	5.44	4.94	0.00
35 1,4-Difluorobenze	5.32	4.82	5.82	5.32	0.00
52 d5-Chlorobenzene	7.40	6.90	7.90	7.40	0.00
75 d4-1,4-Dichlorobe	9.11	8.61	9.61	9.11	0.00

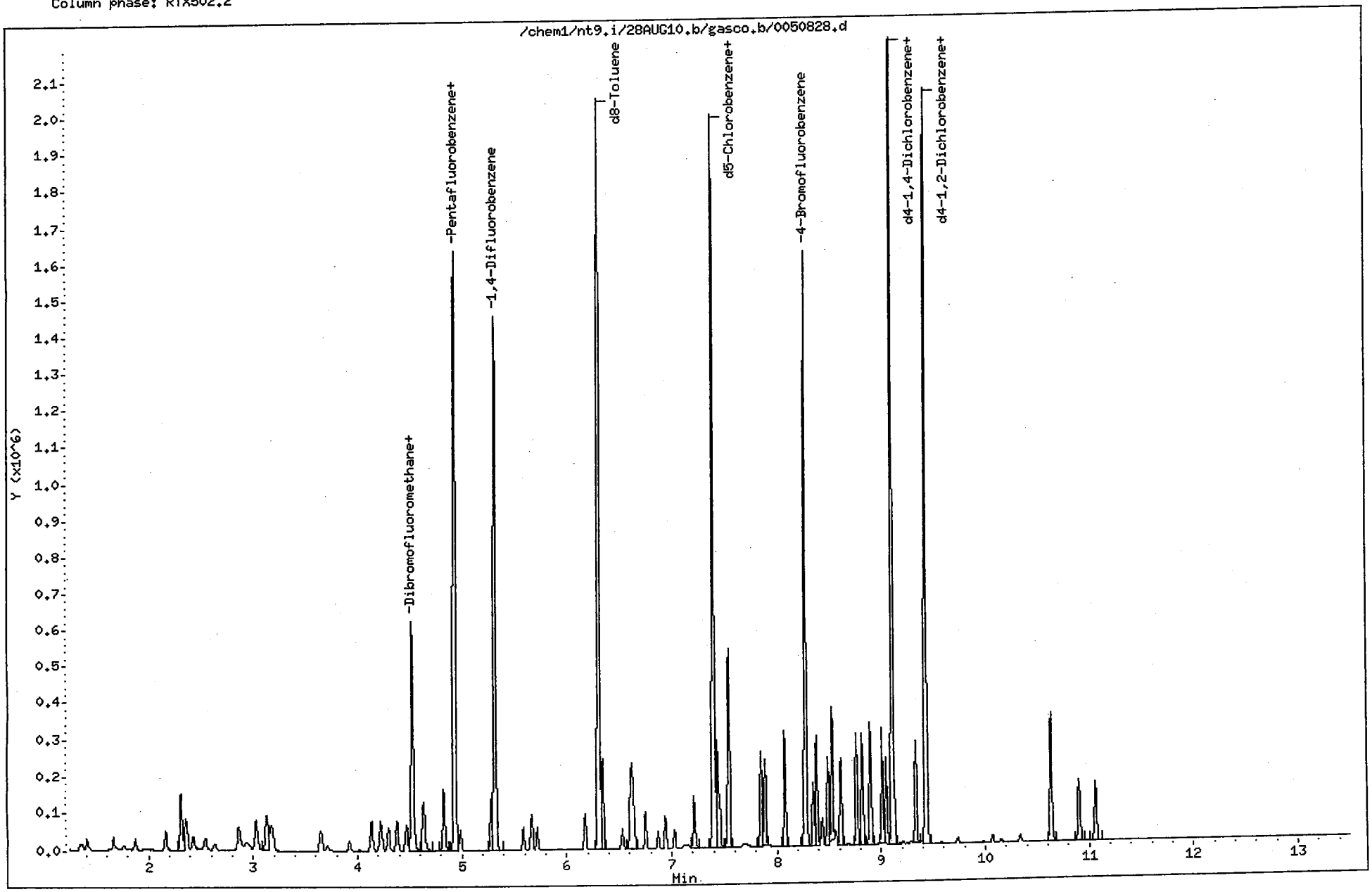
AREA UPPER LIMIT = +100% of internal standard area.
AREA LOWER LIMIT = - 50% of internal standard area.
RT UPPER LIMIT = + 0.50 minutes of internal standard RT.
RT LOWER LIMIT = - 0.50 minutes of internal standard RT.

Data File: /chem1/nt9.i/28AUG10.b/gasco.b/0050828.d
Date : 28-AUG-2010 15:51
Client ID: VSTD005
Sample Info: IC0828,5,5,0

Instrument: nt9.i

Operator: PB
Column diameter: 0.18

Column phase: RTX502.2



Analytical Resources, Inc.

8260C

Data file : /chem1/nt9.i/28AUG10.b/gasco.b/0100828.d
Lab Smp Id: IC0828 Client Smp ID: VSTD010
Inj Date : 28-AUG-2010 15:21
Operator : PB Inst ID: nt9.i
Smp Info : IC0828,5,5,0
Misc Info : 10-
Comment :
Method : /chem1/nt9.i/28AUG10.b/gasco.b/VO063010S.m
Meth Date : 18-Oct-2010 13:50 patrickb Quant Type: ISTD
Cal Date : 28-AUG-2010 15:21 Cal File: 0100828.d
Als bottle: 1 Calibration Sample, Level: 4
Dil Factor: 1.00000
Integrator: HP RTE Compound Sublist: gasco.sub
Target Version: 3.50
Processing Host: cserv3

Concentration Formula: Amt * DF * Pv * 1 / (Sa * ((100 - M) / 100)) * CpndVaria

Name	Value	Description
DF	1.00000	Dilution Factor
Pv	5.00000	Purge Volume
Sa	5.00000	Sample Amount
M	0.00000	% Moisture (not decanted)

Cpnd Variable Local Compound Variable

Compounds	QUANT SIG MASS	RT	EXP RT	REL RT	RESPONSE	AMOUNTS CAL-AMT (ug/Kg)	ON-COL (ug/Kg)
3 Vinyl Chloride	62	1.407	1.407	(0.285)	57497	10.0000	9.117
7 1,1-Dichloroethene	96	2.301	2.312	(0.467)	59810	10.0000	9.596
15 Trans-1,2-Dichloroethene	96	3.030	3.036	(0.615)	67082	10.0000	9.314
20 Cis-1,2-Dichloroethene	96	4.139	4.139	(0.839)	65050	10.0000	9.532
23 Chloroform	83	4.382	4.382	(0.889)	102730	10.0000	9.490
24 Carbon Tetrachloride	117	4.467	4.473	(0.839)	75774	10.0000	8.630
* 32 Pentafluorobenzene	168	4.931	4.936	(1.000)	705939	50.0000	
$ 25 Dibromofluoromethane	111	4.529	4.529	(0.919)	260774	50.0000	49.402
$ 31 d4-1,2-Dichloroethane	65	4.937	4.936	(1.001)	272846	50.0000	50.346
29 2-Butanone	72	4.654	4.642	(0.944)	32029	50.0000	46.747
30 Benzene	78	4.829	4.829	(0.908)	239511	10.0000	9.414
33 1,2-Dichloroethane	62	4.988	4.993	(0.937)	72640	10.0000	9.926
* 35 1,4-Difluorobenzene	114	5.321	5.321	(1.000)	945928	50.0000	
34 Trichloroethene	95	5.282	5.281	(0.993)	65837	10.0000	9.367

Compounds	QUANT SIG MASS	RT	EXP RT	REL RT	RESPONSE	AMOUNTS CAL-AMT (ug/Kg)	AMOUNTS ON-COL (ug/Kg)
$ 42 d8-Toluene	98	6.306	6.305	(1.185)	1079570	50.0000	50.370
43 Toluene	92	6.345	6.345	(1.192)	165972	10.0000	9.180
44 Tetrachloroethene	166	6.611	6.611	(0.894)	84382	10.0000	9.074
* 52 d5-Chlorobenzene	117	7.397	7.397	(1.000)	855411	50.0000	
53 Chlorobenzene	112	7.409	7.408	(1.002)	193194	10.0000	9.471
54 Ethyl Benzene	91	7.437	7.437	(1.005)	323546	10.0000	9.229
56 m,p-xylene	106	7.544	7.544	(1.020)	264634	20.0000	18.665
57 o-Xylene	106	7.850	7.850	(1.061)	125882	10.0000	9.531
$ 61 4-Bromofluorobenzene	95	8.280	8.274	(1.119)	406232	50.0000	51.275
* 75 d4-1,4-Dichlorobenzene	152	9.111	9.111	(1.000)	505684	50.0000	
76 1,4-Dichlorobenzene	146	9.123	9.122	(1.001)	171113	10.0000	9.430
$ 78 d4-1,2-Dichlorobenzene	152	9.434	9.434	(1.035)	444672	50.0000	50.304

Analytical Resources, Inc.

INTERNAL STANDARD COMPOUNDS
AREA AND RT SUMMARY

Instrument ID: nt9.i
Lab File ID: 0100828.d
Lab Smp Id: IC0828
Analysis Type: VOA
Quant Type: ISTD
Operator: PB
Method File: /chem1/nt9.i/28AUG10.b/gasco.b/VO063010S.m
Misc Info: 10-

Calibration Date: 28-AUG-2010
Calibration Time: 14:51
Client Smp ID: VSTD010
Level: LOW
Sample Type: SOIL

Test Mode:
Use Initial Calibration Level 5.
If Continuing Cal. use Initial Cal. Level 5

COMPOUND	STANDARD	AREA LIMIT LOWER	AREA LIMIT UPPER	SAMPLE	%DIFF
32 Pentafluorobenzen	704281	352140	1408562	705939	0.24
35 1,4-Difluorobenze	937745	468872	1875490	945928	0.87
52 d5-Chlorobenzene	853013	426506	1706026	855411	0.28
75 d4-1,4-Dichlorobe	503655	251828	1007310	505684	0.40

COMPOUND	STANDARD	RT LIMIT LOWER	RT LIMIT UPPER	SAMPLE	%DIFF
32 Pentafluorobenzen	4.94	4.44	5.44	4.93	-0.11
35 1,4-Difluorobenze	5.32	4.82	5.82	5.32	0.00
52 d5-Chlorobenzene	7.40	6.90	7.90	7.40	0.00
75 d4-1,4-Dichlorobe	9.11	8.61	9.61	9.11	0.00

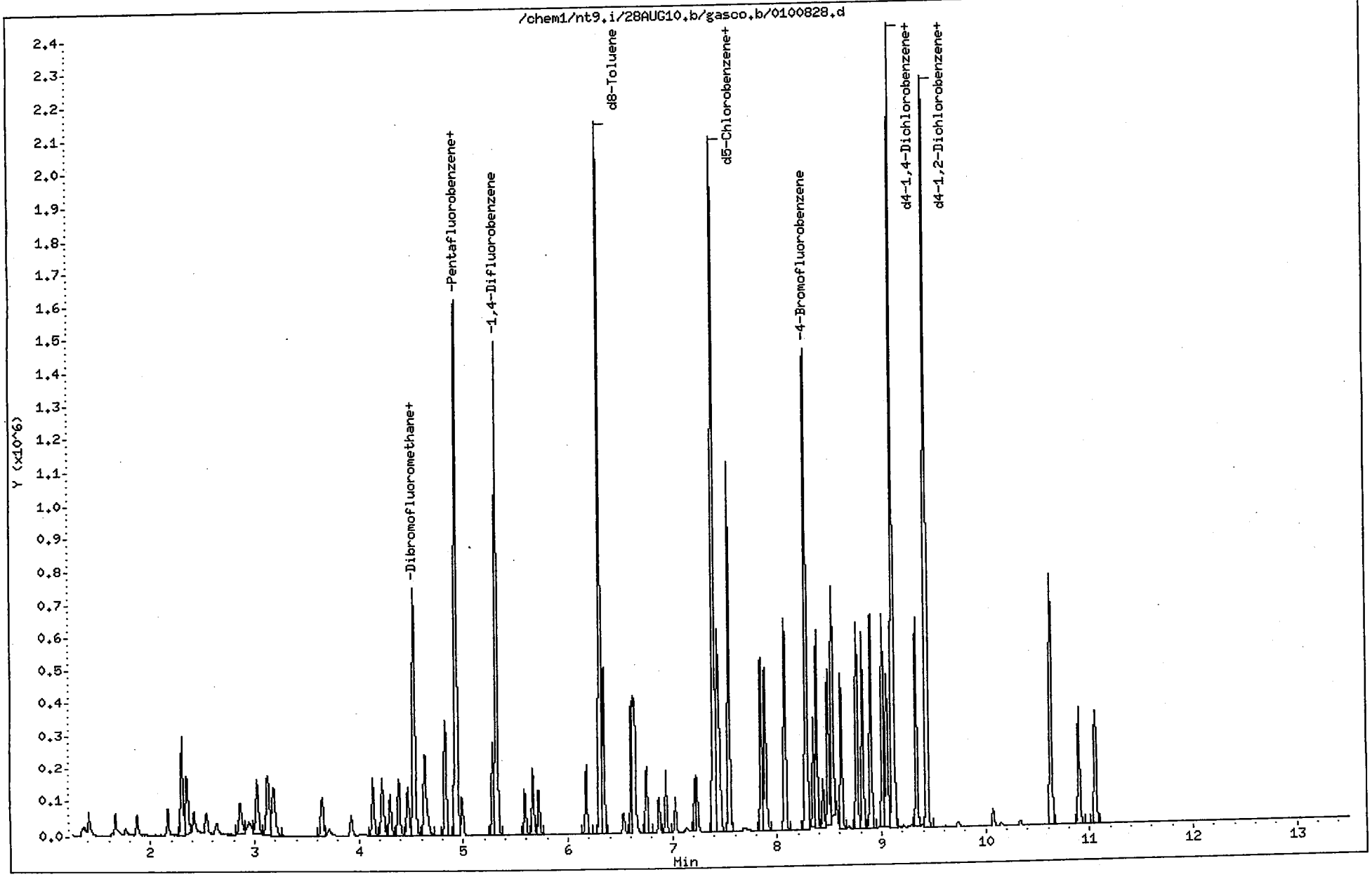
AREA UPPER LIMIT = +100% of internal standard area.
AREA LOWER LIMIT = - 50% of internal standard area.
RT UPPER LIMIT = + 0.50 minutes of internal standard RT.
RT LOWER LIMIT = - 0.50 minutes of internal standard RT.

Data File: /chem1/nt9.i/28AUG10.b/gasco.b/0100828.d
Date : 28-AUG-2010 15:21
Client ID: VSTD010
Sample Info: IC0828,5,5,0

Instrument: nt9.i

Operator: PB
Column diameter: 0.18

Column phase: RTX502.2



R0005 : 00055

Analytical Resources, Inc.

8260C

Data file : /chem1/nt9.i/28AUG10.b/gasco.b/0500828.d
Lab Smp Id: IC0828 Client Smp ID: VSTD050
Inj Date : 28-AUG-2010 14:51
Operator : PB Inst ID: nt9.i
Smp Info : IC0828,5,5,0
Misc Info : 10-
Comment :
Method : /chem1/nt9.i/28AUG10.b/gasco.b/VO063010S.m
Meth Date : 18-Oct-2010 13:50 patrickb Quant Type: ISTD
Cal Date : 28-AUG-2010 14:51 Cal File: 0500828.d
Als bottle: 1 Calibration Sample, Level: 5
Dil Factor: 1.00000
Integrator: HP RTE Compound Sublist: gasco.sub
Target Version: 3.50
Processing Host: cserv3

Concentration Formula: Amt * DF * Pv * 1 / (Sa * ((100 - M) / 100)) * CpndVaria

Name	Value	Description
DF	1.00000	Dilution Factor
Pv	5.00000	Purge Volume
Sa	5.00000	Sample Amount
M	0.00000	% Moisture (not decanted)

Cpnd Variable Local Compound Variable

Compounds	QUANT SIG MASS	RT	EXP RT	REL RT	RESPONSE	AMOUNTS CAL-AMT (ug/Kg)	AMOUNTS ON-COL (ug/Kg)
3 Vinyl Chloride	62	1.407	1.407	(0.285)	312846	50.0000	49.724
7 1,1-Dichloroethene	96	2.312	2.312	(0.468)	301272	50.0000	48.451
15 Trans-1,2-Dichloroethene	96	3.036	3.036	(0.615)	336994	50.0000	46.899
20 Cis-1,2-Dichloroethene	96	4.139	4.139	(0.838)	325490	50.0000	47.807
23 Chloroform	83	4.382	4.382	(0.888)	517386	50.0000	47.909
24 Carbon Tetrachloride	117	4.473	4.473	(0.841)	424892	50.0000	48.815
* 32 Pentafluorobenzene	168	4.936	4.936	(1.000)	704281	50.0000	
$ 25 Dibromofluoromethane	111	4.529	4.529	(0.917)	265763	50.0000	50.466
$ 31 d4-1,2-Dichloroethane	65	4.936	4.936	(1.000)	275168	50.0000	50.894
29 2-Butanone	72	4.642	4.642	(0.940)	160954	250.000	235.47
30 Benzene	78	4.829	4.829	(0.908)	1199076	50.0000	47.543
33 1,2-Dichloroethane	62	4.993	4.993	(0.938)	357096	50.0000	49.223
* 35 1,4-Difluorobenzene	114	5.321	5.321	(1.000)	937745	50.0000	
34 Trichloroethene	95	5.281	5.281	(0.993)	330969	50.0000	47.500

Compounds	QUANT SIG MASS	RT	EXP RT	REL RT	RESPONSE	AMOUNTS CAL-AMT (ug/Kg)	AMOUNTS ON-COL (ug/Kg)
$ 42 d8-Toluene	98	6.305	6.305	(1.185)	1070696	50.0000	50.392
43 Toluene	92	6.345	6.345	(1.192)	829892	50.0000	46.304
44 Tetrachloroethene	166	6.611	6.611	(0.894)	434192	50.0000	46.824
* 52 d5-Chlorobenzene	117	7.397	7.397	(1.000)	853013	50.0000	
53 Chlorobenzene	112	7.408	7.408	(1.002)	964956	50.0000	47.437
54 Ethyl Benzene	91	7.437	7.437	(1.005)	1641982	50.0000	46.969
56 m,p-xylene	106	7.544	7.544	(1.020)	1373249	100.000	97.127
57 o-Xylene	106	7.850	7.850	(1.061)	630491	50.0000	47.870
$ 61 4-Bromofluorobenzene	95	8.274	8.274	(1.119)	399128	50.0000	50.519
* 75 d4-1,4-Dichlorobenzene	152	9.111	9.111	(1.000)	503655	50.0000	
76 1,4-Dichlorobenzene	146	9.122	9.122	(1.001)	851859	50.0000	47.133
$ 78 d4-1,2-Dichlorobenzene	152	9.434	9.434	(1.035)	443857	50.0000	50.414

Analytical Resources, Inc.

INTERNAL STANDARD COMPOUNDS
AREA AND RT SUMMARY

Instrument ID: nt9.i
Lab File ID: 0500828.d
Lab Smp Id: IC0828
Analysis Type: VOA
Quant Type: ISTD
Operator: PB
Method File: /chem1/nt9.i/28AUG10.b/gasco.b/VO063010S.m
Misc Info: 10-

Calibration Date: 28-AUG-2010
Calibration Time: 14:51
Client Smp ID: VSTD050
Level: LOW
Sample Type: SOIL

Test Mode:
Use Initial Calibration Level 5.
If Continuing Cal. use Initial Cal. Level 5

COMPOUND	STANDARD	AREA LIMIT LOWER	AREA LIMIT UPPER	SAMPLE	%DIFF
32 Pentafluorobenzen	704281	352140	1408562	704281	0.00
35 1,4-Difluorobenze	937745	468872	1875490	937745	0.00
52 d5-Chlorobenzene	853013	426506	1706026	853013	0.00
75 d4-1,4-Dichlorobe	503655	251828	1007310	503655	0.00

COMPOUND	STANDARD	RT LIMIT LOWER	RT LIMIT UPPER	SAMPLE	%DIFF
32 Pentafluorobenzen	4.94	4.44	5.44	4.94	0.00
35 1,4-Difluorobenze	5.32	4.82	5.82	5.32	0.00
52 d5-Chlorobenzene	7.40	6.90	7.90	7.40	0.00
75 d4-1,4-Dichlorobe	9.11	8.61	9.61	9.11	0.00

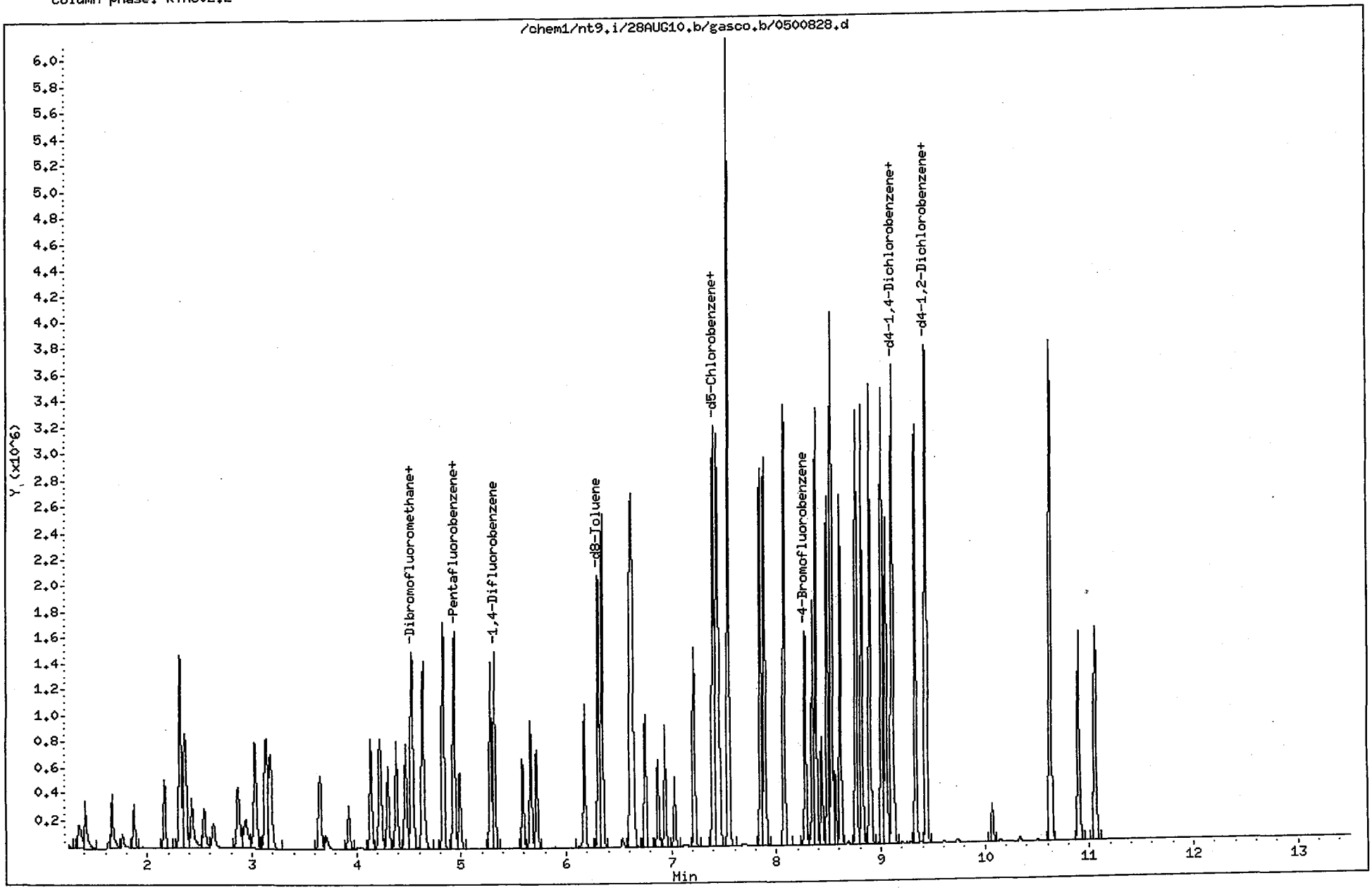
AREA UPPER LIMIT = +100% of internal standard area.
AREA LOWER LIMIT = - 50% of internal standard area.
RT UPPER LIMIT = + 0.50 minutes of internal standard RT.
RT LOWER LIMIT = - 0.50 minutes of internal standard RT.

Data File: /chem1/nt9.i/28AUG10.b/gasco.b/0500828.d
Date : 28-AUG-2010 14:51
Client ID: VSTD050
Sample Info: IC0828,5,5,0

Column phase: RTX502.2

Instrument: nt9.i

Operator: PB
Column diameter: 0.18



19000 : 00001

Analytical Resources, Inc.

8260C

Data file : /chem1/nt9.i/28AUG10.b/gasco.b/1000828.d
Lab Smp Id: IC0828 Client Smp ID: VSTD100
Inj Date : 28-AUG-2010 14:21
Operator : PB Inst ID: nt9.i
Smp Info : IC0828,5,5,0
Misc Info : 10-
Comment :
Method : /chem1/nt9.i/28AUG10.b/gasco.b/VO063010S.m
Meth Date : 18-Oct-2010 13:50 patrickb Quant Type: ISTD
Cal Date : 28-AUG-2010 14:21 Cal File: 1000828.d
Als bottle: 1 Calibration Sample, Level: 6
Dil Factor: 1.00000
Integrator: HP RTE Compound Sublist: gasco.sub
Target Version: 3.50
Processing Host: cserv3

10/18/10

Concentration Formula: Amt * DF * Pv * 1 / (Sa * ((100 - M) / 100)) * CpndVaria

Name	Value	Description
DF	1.00000	Dilution Factor
Pv	5.00000	Purge Volume
Sa	5.00000	Sample Amount
M	0.00000	% Moisture (not decanted)

Cpnd Variable Local Compound Variable

Compounds	QUANT SIG MASS	RT	EXP RT	REL RT	RESPONSE	AMOUNTS CAL-AMT (ug/Kg)	AMOUNTS ON-COL (ug/Kg)
3 Vinyl Chloride	62	1.409	1.407	(0.286)	616920	100.000	119.51
7 1,1-Dichloroethene	96	2.303	2.312	(0.467)	612323	100.000	120.02
15 Trans-1,2-Dichloroethene	96	3.027	3.036	(0.614)	667246	100.000	113.18
20 Cis-1,2-Dichloroethene	96	4.136	4.139	(0.838)	612984	100.000	109.73
23 Chloroform	83	4.385	4.382	(0.889)	969275	100.000	109.39
24 Carbon Tetrachloride	117	4.470	4.473	(0.840)	871845	100.000	121.32
* 32 Pentafluorobenzene	168	4.933	4.936	(1.000)	577839	50.0000	
$ 25 Dibromofluoromethane	111	4.532	4.529	(0.919)	218888	50.0000	50.660
$ 31 d4-1,2-Dichloroethane	65	4.939	4.936	(1.001)	219324	50.0000	49.442
29 2-Butanone	72	4.651	4.642	(0.943)	323582	500.000	576.97
30 Benzene	78	4.832	4.829	(0.908)	2300822	100.000	110.50
33 1,2-Dichloroethane	62	4.990	4.993	(0.937)	626143	100.000	104.54
* 35 1,4-Difluorobenzene	114	5.324	5.321	(1.000)	774194	50.0000	
34 Trichloroethene	95	5.284	5.281	(0.993)	647329	100.000	112.53

Compounds	QUANT SIG MASS	RT	EXP RT	REL RT	RESPONSE	AMOUNTS CAL-AMT (ug/Kg)	AMOUNTS ON-COL (ug/Kg)
$ 42 d8-Toluene	98	6.308	6.305	(1.185)	871932	50.0000	49.706
43 Toluene	92	6.342	6.345	(1.191)	1612019	100.000	108.94
44 Tetrachloroethene	166	6.608	6.611	(0.893)	877796	100.000	115.08
* 52 d5-Chlorobenzene	117	7.400	7.397	(1.000)	701708	50.0000	
53 Chlorobenzene	112	7.411	7.408	(1.002)	1813196	100.000	108.36
54 Ethyl Benzene	91	7.439	7.437	(1.005)	3264901	100.000	113.53
56 m,p-xylene	106	7.547	7.544	(1.020)	2711686	200.000	233.15
57 o-Xylene	106	7.852	7.850	(1.061)	1213342	100.000	111.99
$ 61 4-Bromofluorobenzene	95	8.277	8.274	(1.118)	323235	50.0000	49.735
* 75 d4-1,4-Dichlorobenzene	152	9.114	9.111	(1.000)	414842	50.0000	
76 1,4-Dichlorobenzene	146	9.125	9.122	(1.001)	1583421	100.000	106.37
$ 78 d4-1,2-Dichlorobenzene	152	9.436	9.434	(1.035)	358863	50.0000	49.487

Analytical Resources, Inc.

INTERNAL STANDARD COMPOUNDS
AREA AND RT SUMMARY

Instrument ID: nt9.i
Lab File ID: 1000828.d
Lab Smp Id: IC0828
Analysis Type: VOA
Quant Type: ISTD
Operator: PB
Method File: /chem1/nt9.i/28AUG10.b/gasco.b/VO063010S.m
Misc Info: 10-

Calibration Date: 28-AUG-2010
Calibration Time: 14:51
Client Smp ID: VSTD100
Level: LOW
Sample Type: SOIL

Test Mode:
Use Initial Calibration Level 5.
If Continuing Cal. use Initial Cal. Level 5

COMPOUND	STANDARD	AREA LIMIT LOWER	AREA LIMIT UPPER	SAMPLE	%DIFF
32 Pentafluorobenzen	704281	352140	1408562	577839	-17.95
35 1,4-Difluorobenze	937745	468872	1875490	774194	-17.44
52 d5-Chlorobenzene	853013	426506	1706026	701708	-17.74
75 d4-1,4-Dichlorobe	503655	251828	1007310	414842	-17.63

COMPOUND	STANDARD	RT LIMIT LOWER	RT LIMIT UPPER	SAMPLE	%DIFF
32 Pentafluorobenzen	4.94	4.44	5.44	4.93	-0.06
35 1,4-Difluorobenze	5.32	4.82	5.82	5.32	0.05
52 d5-Chlorobenzene	7.40	6.90	7.90	7.40	0.04
75 d4-1,4-Dichlorobe	9.11	8.61	9.61	9.11	0.03

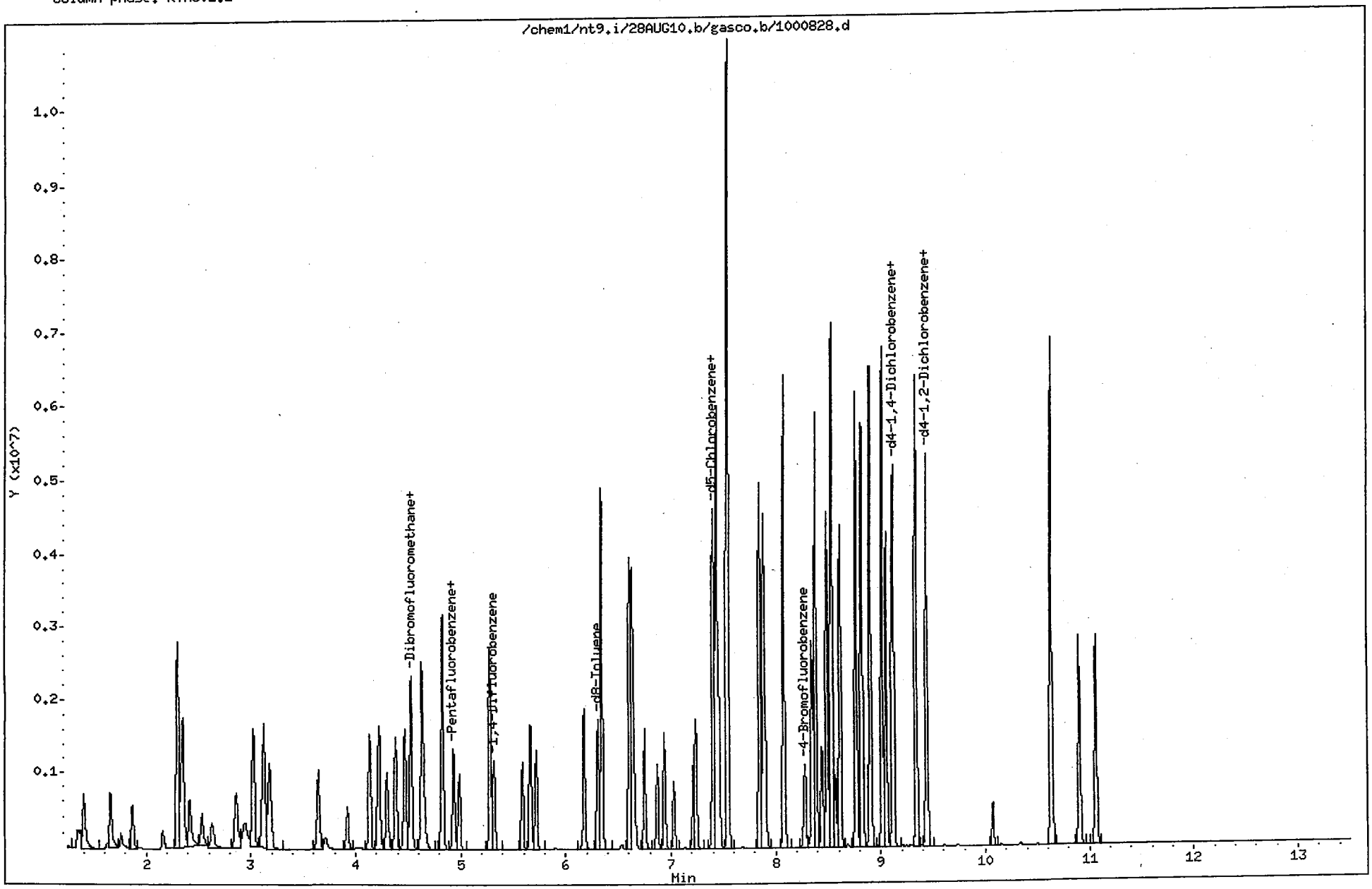
AREA UPPER LIMIT = +100% of internal standard area.
AREA LOWER LIMIT = - 50% of internal standard area.
RT UPPER LIMIT = + 0.50 minutes of internal standard RT.
RT LOWER LIMIT = - 0.50 minutes of internal standard RT.

Data File: /chem1/nt9.i/28AUG10.b/gasco.b/1000828.d
Date : 28-AUG-2010 14:21
Client ID: VSTD100
Sample Info: IC0828,5,5,0

Instrument: nt9.i

Operator: PB
Column diameter: 0.18

Column phase: RTX502.2



Analytical Resources, Inc.

8260C

Data file : /chem1/nt9.i/28AUG10.b/gasco.b/1500828.d
Lab Smp Id: IC0828 Client Smp ID: VSTD150
Inj Date : 28-AUG-2010 13:51
Operator : PB Inst ID: nt9.i
Smp Info : IC0828,5,5,0
Misc Info : 10-
Comment :
Method : /chem1/nt9.i/28AUG10.b/gasco.b/VO063010S.m
Meth Date : 18-Oct-2010 13:51 patrickb Quant Type: ISTD
Cal Date : 28-AUG-2010 13:51 Cal File: 1500828.d
Als bottle: 1 Calibration Sample, Level: 7
Dil Factor: 1.00000
Integrator: HP RTE Compound Sublist: gasco.sub
Target Version: 3.50
Processing Host: cserv3

Concentration Formula: Amt * DF * Pv * 1 / (Sa * ((100 - M) / 100)) * CpndVaria

Name	Value	Description
DF	1.00000	Dilution Factor
Pv	5.00000	Purge Volume
Sa	5.00000	Sample Amount
M	0.00000	% Moisture (not decanted)

Cpnd Variable Local Compound Variable

Compounds	QUANT SIG MASS	RT	EXP RT	REL RT	RESPONSE	AMOUNTS CAL-AMT (ug/Kg)	ON-COL (ug/Kg)
3 Vinyl Chloride	62	1.403	1.407	(0.284)	959765	150.000	165.55
7 1,1-Dichloroethene	96	2.297	2.312	(0.466)	226199	150.000	39.477
15 Trans-1,2-Dichloroethene	96	3.021	3.036	(0.612)	1084953	150.000	163.86
20 Cis-1,2-Dichloroethene	96	4.135	4.139	(0.838)	1020798	150.000	162.71
23 Chloroform	83	4.384	4.382	(0.889)	1618355	150.000	162.63
24 Carbon Tetrachloride	117	4.469	4.473	(0.840)	1423243	150.000	175.56
* 32 Pentafluorobenzene	168	4.933	4.936	(1.000)	648980	50.0000	
$ 25 Dibromofluoromethane	111	4.531	4.529	(0.919)	252207	50.0000	51.972
$ 31 d4-1,2-Dichloroethane	65	4.938	4.936	(1.001)	249417	50.0000	50.062
29 2-Butanone	72	4.655	4.642	(0.944)	502468	750.000	797.73
30 Benzene	78	4.825	4.829	(0.906)	3837983	150.000	163.39
33 1,2-Dichloroethane	62	4.989	4.993	(0.937)	1073167	150.000	158.83
* 35 1,4-Difluorobenzene	114	5.323	5.321	(1.000)	873392	50.0000	
34 Trichloroethene	95	5.283	5.281	(0.993)	1048917	150.000	161.63

Compounds	QUANT SIG MASS	RT	EXP RT	REL RT	RESPONSE	AMOUNTS CAL-AMT (ug/Kg)	AMOUNTS ON-COL (ug/Kg)
$ 42 d8-Toluene	98	6.307	6.305	(1.185)	984102	50.0000	49.729
43 Toluene	92	6.341	6.345	(1.191)	2678205	150.000	160.44
44 Tetrachloroethene	166	6.607	6.611	(0.893)	1425322	150.000	162.60
* 52 d5-Chlorobenzene	117	7.399	7.397	(1.000)	806370	50.0000	
53 Chlorobenzene	112	7.410	7.408	(1.002)	3098562	150.000	161.14
54 Ethyl Benzene	91	7.439	7.437	(1.005)	5482264	150.000	165.89
56 m,p-xylene	106	7.546	7.544	(1.020)	4419442	300.000	330.66
57 o-Xylene	106	7.852	7.850	(1.061)	2056807	150.000	165.19
$ 61 4-Bromofluorobenzene	95	8.281	8.274	(1.119)	368820	50.0000	49.384
* 75 d4-1,4-Dichlorobenzene	152	9.119	9.111	(1.000)	478126	50.0000	
76 1,4-Dichlorobenzene	146	9.130	9.122	(1.001)	2776568	150.000	161.83
$ 78 d4-1,2-Dichlorobenzene	152	9.441	9.434	(1.035)	419222	50.0000	50.158

Analytical Resources, Inc.

INTERNAL STANDARD COMPOUNDS
AREA AND RT SUMMARY

Instrument ID: nt9.i
Lab File ID: 1500828.d
Lab Smp Id: IC0828
Analysis Type: VOA
Quant Type: ISTD
Operator: PB
Method File: /chem1/nt9.i/28AUG10.b/gasco.b/VO063010S.m
Misc Info: 10-

Calibration Date: 28-AUG-2010
Calibration Time: 14:51
Client Smp ID: VSTD150
Level: LOW
Sample Type: SOIL

Test Mode:
Use Initial Calibration Level 5.
If Continuing Cal. use Initial Cal. Level 5

COMPOUND	STANDARD	AREA LIMIT LOWER	AREA LIMIT UPPER	SAMPLE	%DIFF
32 Pentafluorobenzen	704281	352140	1408562	648980	-7.85
35 1,4-Difluorobenze	937745	468872	1875490	873392	-6.86
52 d5-Chlorobenzene	853013	426506	1706026	806370	-5.47
75 d4-1,4-Dichlorobe	503655	251828	1007310	478126	-5.07

COMPOUND	STANDARD	RT LIMIT LOWER	RT LIMIT UPPER	SAMPLE	%DIFF
32 Pentafluorobenzen	4.94	4.44	5.44	4.93	-0.08
35 1,4-Difluorobenze	5.32	4.82	5.82	5.32	0.04
52 d5-Chlorobenzene	7.40	6.90	7.90	7.40	0.03
75 d4-1,4-Dichlorobe	9.11	8.61	9.61	9.12	0.08

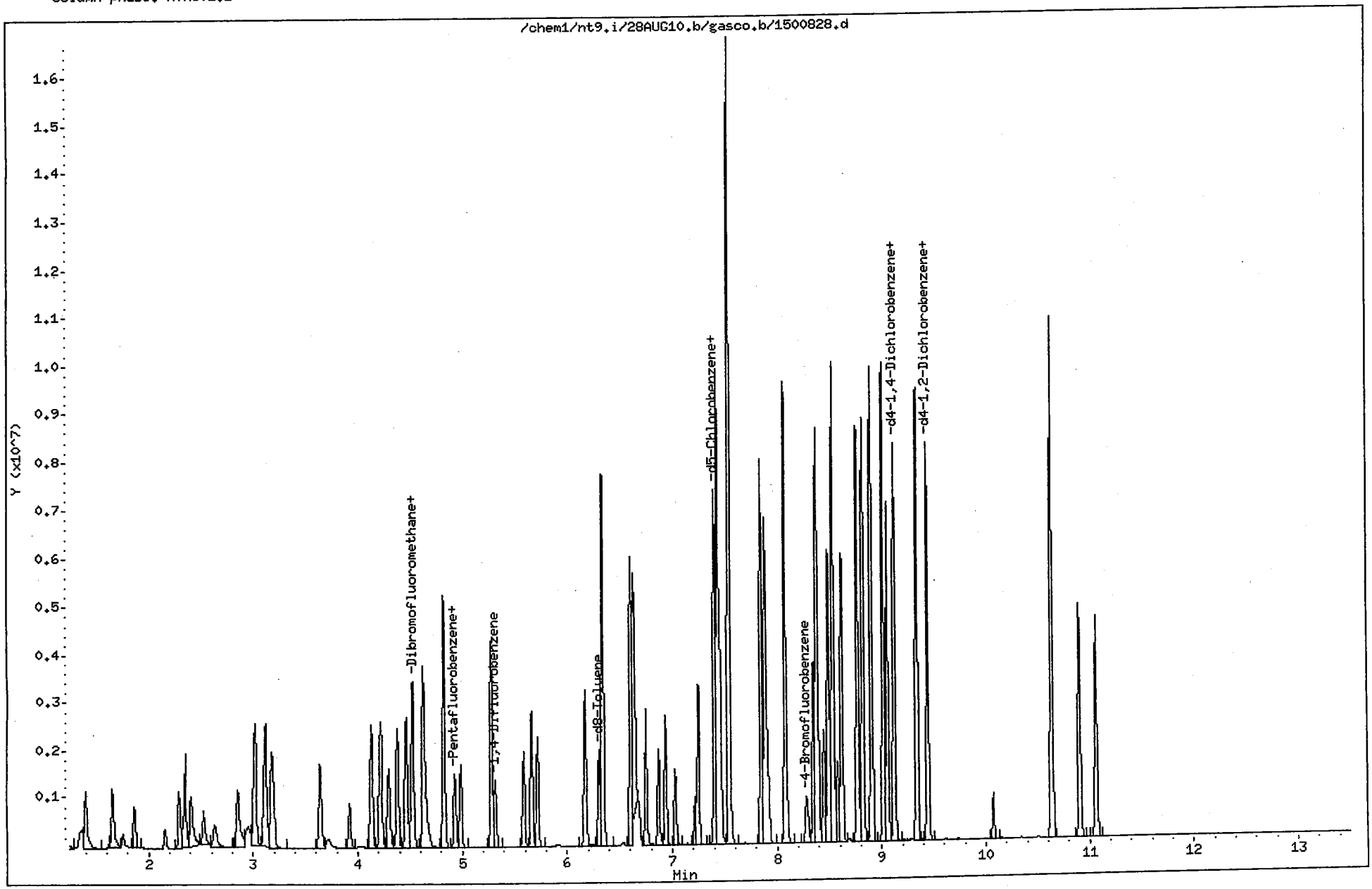
AREA UPPER LIMIT = +100% of internal standard area.
AREA LOWER LIMIT = - 50% of internal standard area.
RT UPPER LIMIT = + 0.50 minutes of internal standard RT.
RT LOWER LIMIT = - 0.50 minutes of internal standard RT.

Data File: /chem1/nt9.i/28AUG10.b/gasco.b/1500828.d
Date : 28-AUG-2010 13:51
Client ID: VSTD150
Sample Info: IC0828,5,5,0

Instrument: nt9.i

Operator: PB
Column diameter: 0.18

Column phase: RTX502.2



P0000 : 00072

Analytical Resources, Inc.

8260C

Data file : /chem1/nt9.i/28AUG10.b/gasco.b/2000828.d
Lab Smp Id: IC0828 Client Smp ID: VSTD200
Inj Date : 28-AUG-2010 13:21
Operator : PB Inst ID: nt9.i
Smp Info : IC0828,5,5,0
Misc Info : 10-
Comment :
Method : /chem1/nt9.i/28AUG10.b/gasco.b/VO063010S.m
Meth Date : 18-Oct-2010 13:51 patrickb Quant Type: ISTD
Cal Date : 28-AUG-2010 13:21 Cal File: 2000828.d
Als bottle: 1 Calibration Sample, Level: 8
Dil Factor: 1.00000
Integrator: HP RTE Compound Sublist: gasco.sub
Target Version: 3.50
Processing Host: cserv3

Concentration Formula: Amt * DF * Pv * 1 / (Sa * ((100 - M) / 100)) * CpndVaria

Name	Value	Description
DF	1.00000	Dilution Factor
Pv	5.00000	Purge Volume
Sa	5.00000	Sample Amount
M	0.00000	% Moisture (not decanted)

Cpnd Variable Local Compound Variable

Compounds	QUANT SIG MASS	RT	EXP RT	REL RT	RESPONSE	AMOUNTS CAL-AMT (ug/Kg)	ON-COL (ug/Kg)
3 Vinyl Chloride	62	1.406	1.407	(0.285)	1219685	200.000	213.30
7 1,1-Dichloroethene	96	2.294	2.312	(0.465)	282248	200.000	49.945
15 Trans-1,2-Dichloroethene	96	3.018	3.036	(0.612)	1457472	200.000	223.18
20 Cis-1,2-Dichloroethene	96	4.133	4.139	(0.838)	1376931	200.000	222.52
23 Chloroform	83	4.382	4.382	(0.889)	2185253	200.000	222.65
24 Carbon Tetrachloride	117	4.466	4.473	(0.839)	1881538	200.000	235.40
* 32 Pentafluorobenzene	168	4.930	4.936	(1.000)	640076	50.0000	
$ 25 Dibromofluoromethane	111	4.529	4.529	(0.919)	249487	50.0000	52.127
$ 31 d4-1,2-Dichloroethane	65	4.936	4.936	(1.001)	244940	50.0000	49.848
29 2-Butanone	72	4.659	4.642	(0.945)	664069	1000.00	1069.0
30 Benzene	78	4.828	4.829	(0.908)	5216825	200.000	225.25
33 1,2-Dichloroethane	62	4.993	4.993	(0.938)	1436910	200.000	215.69
* 35 1,4-Difluorobenzene	114	5.321	5.321	(1.000)	861135	50.0000	
34 Trichloroethene	95	5.281	5.281	(0.993)	1431429	200.000	223.71

Compounds	QUANT SIG MASS	RT	EXP RT	REL RT	RESPONSE	AMOUNTS CAL-AMT (ug/Kg)	AMOUNTS ON-COL (ug/Kg)
$ 42 d8-Toluene	98	6.305	6.305	(1.185)	971664	50.0000	49.799
43 Toluene	92	6.344	6.345	(1.192)	3655611	200.000	222.11
44 Tetrachloroethene	166	6.610	6.611	(0.893)	1956752	200.000	224.16
* 52 d5-Chlorobenzene	117	7.402	7.397	(1.000)	803012	50.0000	
53 Chlorobenzene	112	7.414	7.408	(1.002)	4283165	200.000	223.67
54 Ethyl Benzene	91	7.442	7.437	(1.005)	7556256	200.000	229.61
56 m,p-xylene	106	7.549	7.544	(1.020)	5798209	400.000	435.63
57 o-Xylene	106	7.855	7.850	(1.061)	2840377	200.000	229.08
$ 61 4-Bromofluorobenzene	95	8.302	8.274	(1.121)	365719	50.0000	49.173
* 75 d4-1,4-Dichlorobenzene	152	9.128	9.111	(1.000)	480939	50.0000	
76 1,4-Dichlorobenzene	146	9.139	9.122	(1.001)	3902870	200.000	226.14
$ 78 d4-1,2-Dichlorobenzene	152	9.450	9.434	(1.035)	417003	50.0000	49.601

Analytical Resources, Inc.

INTERNAL STANDARD COMPOUNDS
AREA AND RT SUMMARY

Instrument ID: nt9.i
Lab File ID: 2000828.d
Lab Smp Id: IC0828
Analysis Type: VOA
Quant Type: ISTD
Operator: PB
Method File: /chem1/nt9.i/28AUG10.b/gasco.b/VO063010S.m
Misc Info: 10-

Calibration Date: 28-AUG-2010
Calibration Time: 14:51
Client Smp ID: VSTD200
Level: LOW
Sample Type: SOIL

Test Mode:
Use Initial Calibration Level 5.
If Continuing Cal. use Initial Cal. Level 5

COMPOUND	STANDARD	AREA LIMIT LOWER	AREA LIMIT UPPER	SAMPLE	%DIFF
32 Pentafluorobenzen	704281	352140	1408562	640076	-9.12
35 1,4-Difluorobenze	937745	468872	1875490	861135	-8.17
52 d5-Chlorobenzene	853013	426506	1706026	803012	-5.86
75 d4-1,4-Dichlorobe	503655	251828	1007310	480939	-4.51

COMPOUND	STANDARD	RT LIMIT LOWER	RT LIMIT UPPER	SAMPLE	%DIFF
32 Pentafluorobenzen	4.94	4.44	5.44	4.93	-0.12
35 1,4-Difluorobenze	5.32	4.82	5.82	5.32	-0.01
52 d5-Chlorobenzene	7.40	6.90	7.90	7.40	0.07
75 d4-1,4-Dichlorobe	9.11	8.61	9.61	9.13	0.18

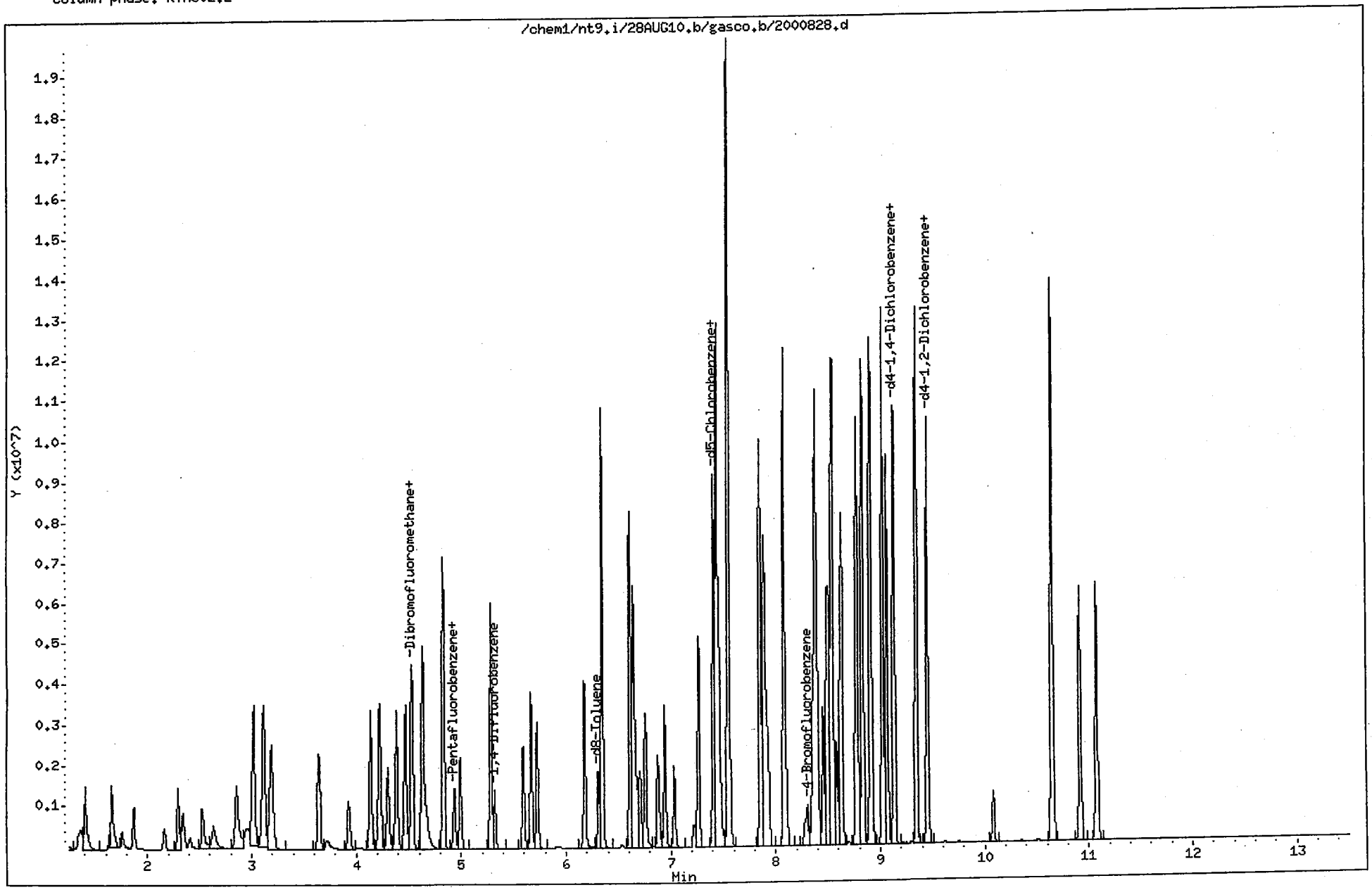
AREA UPPER LIMIT = +100% of internal standard area.
AREA LOWER LIMIT = - 50% of internal standard area.
RT UPPER LIMIT = + 0.50 minutes of internal standard RT.
RT LOWER LIMIT = - 0.50 minutes of internal standard RT.

Data File: /chem1/nt9.i/28AUG10.b/gasco.b/2000828.d
Date : 28-AUG-2010 13:21
Client ID: VSTD200
Sample Info: IC0828,5,5,0

Instrument: nt9.i

Operator: PB
Column diameter: 0.18

Column phase: RTX502.2



R059 : 00075

Analytical Resources, Inc.

8260C

Data file : /chem1/nt9.i/28AUG10.b/gasco.b/icv0828.d
Lab Smp Id: ICV0828 Client Smp ID: ICV0828
Inj Date : 28-AUG-2010 18:21
Operator : PB Inst ID: nt9.i
Smp Info : ICV0828,5,5,0
Misc Info : 10-
Comment :
Method : /chem1/nt9.i/28AUG10.b/gasco.b/VO063010S.m
Meth Date : 18-Oct-2010 13:57 patrickb Quant Type: ISTD
Cal Date : 28-AUG-2010 13:21 Cal File: 2000828.d
Als bottle: 1 QC Sample: LCS
Dil Factor: 1.00000
Integrator: HP RTE Compound Sublist: gasco.sub
Target Version: 3.50
Processing Host: cserv3

Concentration Formula: Amt * DF * Pv * 1 / (Sa * ((100 - M) / 100)) * CpndVaria

Name	Value	Description
DF	1.00000	Dilution Factor
Pv	5.00000	Purge Volume
Sa	5.00000	Sample Amount
M	0.00000	% Moisture (not decanted)

Cpnd Variable Local Compound Variable

Compounds	QUANT SIG MASS	RT	EXP RT	REL RT	RESPONSE	CONCENTRATIONS ON-COLUMN (ug/Kg)	FINAL (ug/Kg)
3 Vinyl Chloride	62	1.409	1.407	(0.286)	292616	50.9389	50.939
7 1,1-Dichloroethene	96	2.314	2.312	(0.469)	294499	51.8730	51.873
15 Trans-1,2-Dichloroethene	96	3.032	3.036	(0.615)	322932	49.2228	49.223
20 Cis-1,2-Dichloroethene	96	4.141	4.139	(0.839)	310696	49.9804	49.980
23 Chloroform	83	4.384	4.382	(0.889)	494333	50.1345	50.134
24 Carbon Tetrachloride	117	4.475	4.473	(0.841)	383674	48.3047	48.305
* 32 Pentafluorobenzene	168	4.933	4.936	(1.000)	643032	50.0000	
$ 25 Dibromofluoromethane	111	4.531	4.529	(0.919)	238899	49.6853	49.685
$ 31 d4-1,2-Dichloroethane	65	4.939	4.936	(1.001)	248940	50.4287	50.429
29 2-Butanone	72	4.644	4.642	(0.942)	155543	249.228	249.23
30 Benzene	78	4.831	4.829	(0.908)	1154612	50.1683	50.168
33 1,2-Dichloroethane	62	4.989	4.993	(0.937)	337480	50.9785	50.978
* 35 1,4-Difluorobenzene	114	5.323	5.321	(1.000)	855721	50.0000	
34 Trichloroethene	95	5.284	5.281	(0.993)	318689	50.1215	50.121

Compounds	QUANT SIG MASS	RT	EXP RT	REL RT	RESPONSE	CONCENTRATIONS ON-COLUMN (ug/Kg)	FINAL (ug/Kg)
$ 42 d8-Toluene	98	6.307	6.305	(1.185)	976850	50.3820	50.382
43 Toluene	92	6.341	6.345	(1.191)	803253	49.1138	49.114
44 Tetrachloroethene	166	6.607	6.611	(0.893)	418104	49.4354	49.435
* 52 d5-Chlorobenzene	117	7.399	7.397	(1.000)	778023	50.0000	
53 Chlorobenzene	112	7.411	7.408	(1.002)	913646	49.2442	49.244
54 Ethyl Benzene	91	7.439	7.437	(1.005)	1586757	49.7645	49.764
56 m,p-xylene	106	7.546	7.544	(1.020)	1314112	101.903	101.90
57 o-Xylene	106	7.846	7.850	(1.060)	604545	50.3238	50.324
$ 61 4-Bromofluorobenzene	95	8.276	8.274	(1.119)	363565	50.4536	50.454
* 75 d4-1,4-Dichlorobenzene	152	9.108	9.111	(1.000)	462358	50.0000	(Q)
76 1,4-Dichlorobenzene	146	9.119	9.122	(1.001)	768233	46.3027	46.303
$ 78 d4-1,2-Dichlorobenzene	152	9.436	9.434	(1.036)	405284	50.1445	50.145 (Q)

QC Flag Legend

Q - Qualifier signal failed the ratio test.

Analytical Resources, Inc.

INTERNAL STANDARD COMPOUNDS
AREA AND RT SUMMARY

Instrument ID: nt9.i
Lab File ID: icv0828.d
Lab Smp Id: ICV0828
Analysis Type: VOA
Quant Type: ISTD
Operator: PB
Method File: /chem1/nt9.i/28AUG10.b/gasco.b/VO063010S.m
Misc Info: 10-

Calibration Date: 28-AUG-2010
Calibration Time: 14:51
Client Smp ID: ICV0828
Level: LOW
Sample Type: SOIL

Test Mode:
Use Initial Calibration Level 5.
If Continuing Cal. use Initial Cal. Level 5

COMPOUND	STANDARD	AREA LIMIT LOWER	AREA LIMIT UPPER	SAMPLE	%DIFF
32 Pentafluorobenzen	704281	352140	1408562	643032	-8.70
35 1,4-Difluorobenze	937745	468872	1875490	855721	-8.75
52 d5-Chlorobenzene	853013	426506	1706026	778023	-8.79
75 d4-1,4-Dichlorobe	503655	251828	1007310	462358	-8.20

COMPOUND	STANDARD	RT LIMIT LOWER	RT LIMIT UPPER	SAMPLE	%DIFF
32 Pentafluorobenzen	4.94	4.44	5.44	4.93	-0.07
35 1,4-Difluorobenze	5.32	4.82	5.82	5.32	0.04
52 d5-Chlorobenzene	7.40	6.90	7.90	7.40	0.03
75 d4-1,4-Dichlorobe	9.11	8.61	9.61	9.11	-0.04

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.

Analytical Resources, Inc.

RECOVERY REPORT

Client Name:
Sample Matrix: SOLID
Lab Smp Id: ICV0828
Level: LOW
Data Type: MS DATA
SpikeList File: gasco.spk
Sublist File: gasco.sub
Method File: /chem1/nt9.i/28AUG10.b/gasco.b/VO063010S.m
Misc Info: 10-

Client SDG: 28AUG10
Fraction: VOA
Client Smp ID: ICV0828
Operator: PB
SampleType: LCS
Quant Type: ISTD

SPIKE COMPOUND	CONC ADDED ug/Kg	CONC RECOVERED ug/Kg	% RECOVERED	LIMITS
3 Vinyl Chloride	50.000	50.939	101.88	63-137
7 1,1-Dichloroethene	50.000	51.873	103.75	75-126
15 Trans-1,2-Dichloro	50.000	49.223	98.45	80-120
20 Cis-1,2-Dichloroet	50.000	49.980	99.96	80-120
23 Chloroform	50.000	50.134	100.27	80-120
24 Carbon Tetrachlori	50.000	48.305	96.61	77-122
29 2-Butanone	250.00	249.23	99.69	70-120
30 Benzene	50.000	50.168	100.34	80-120
33 1,2-Dichloroethane	50.000	50.978	101.96	76-120
34 Trichloroethene	50.000	50.121	100.24	80-120
43 Toluene	50.000	49.114	98.23	80-120
44 Tetrachloroethene	50.000	49.435	98.87	80-121
53 Chlorobenzene	50.000	49.244	98.49	80-120
54 Ethyl Benzene	50.000	49.764	99.53	80-127
56 m,p-xylene	100.00	101.90	101.90	80-125
57 o-Xylene	50.000	50.324	100.65	78-120
76 1,4-Dichlorobenzen	50.000	46.303	92.61	80-120

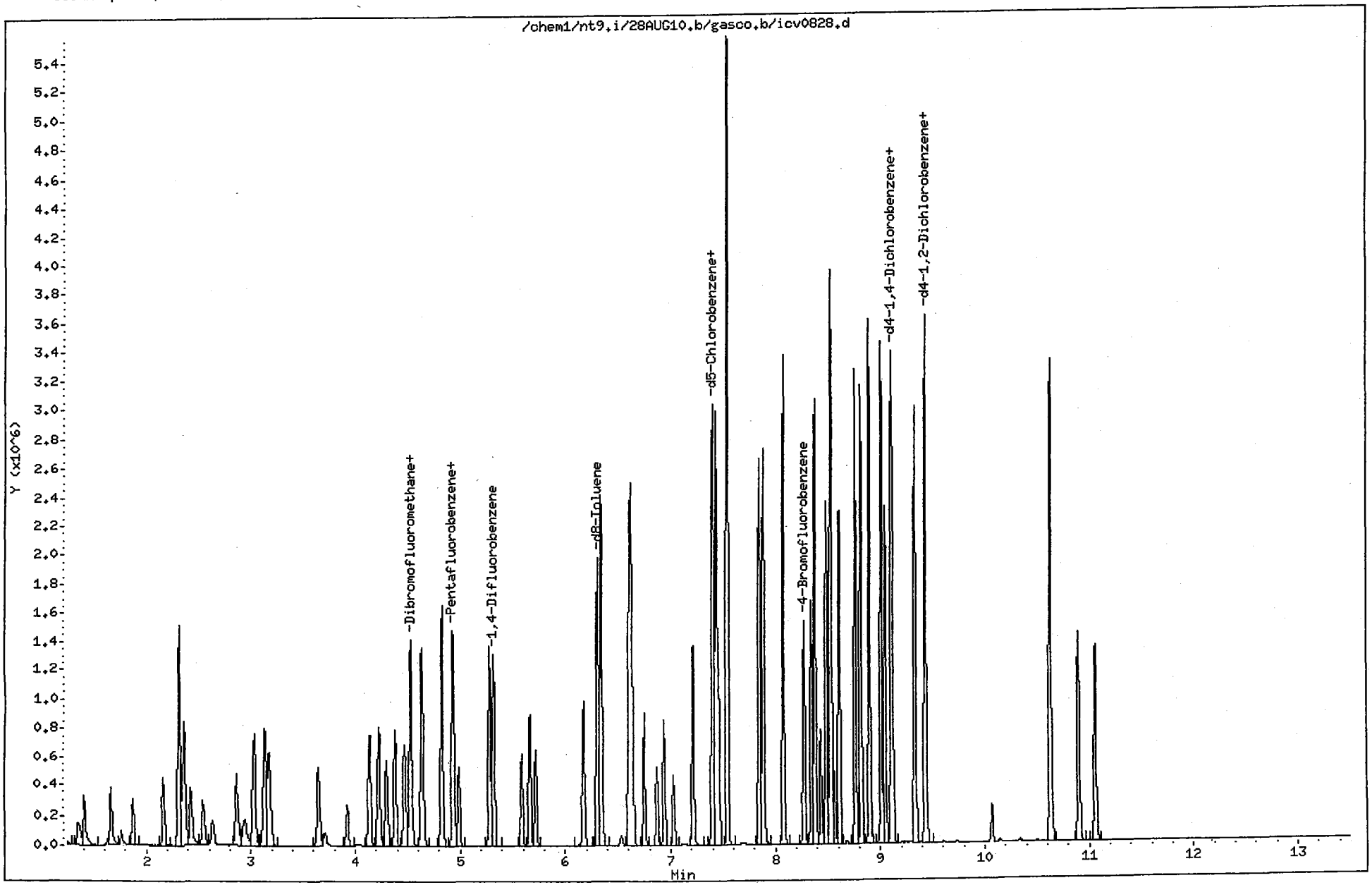
SURROGATE COMPOUND	AMOUNT ADDED ug/Kg	AMOUNT RECOVERED ug/Kg	% RECOVERED	LIMITS
$ 25 Dibromofluorometha	50.000	49.685	99.37	30-160
$ 31 d4-1,2-Dichloroeth	50.000	50.429	100.86	75-152
$ 42 d8-Toluene	50.000	50.382	100.76	82-115
$ 61 4-Bromofluorobenze	50.000	50.454	100.91	64-120
$ 78 d4-1,2-Dichloroben	50.000	50.145	100.29	80-120

Data File: /chem1/nt9.i/28AUG10.b/gasco.b/icv0828.d
Date : 28-AUG-2010 18:21
Client ID: ICV0828
Sample Info: ICV0828,5,5,0

Instrument: nt9.i

Operator: PB
Column diameter: 0.18

Column phase: RTX502.2



R000 : 00001

Volatile Raw Data
Run Logs, Continuing Calibrations, and Raw Data

ARI Job ID: RQ80

Analytical Resources, Incorporated
Analytical Chemists and Consultants

VOA Analyst Notes / Corrective Action Log

ARI Project ID: RQ80 Client ID: MW Natway

ARI SOP: **404S**(Gas) **410S**(BTEX) **430S**(VPH) **700S**(8260C) **703S**(SIM) **706S**(524.2) **710S**(RSK-175)

Parameter(s): _____

Instrument: NT-3 NT-5 NT-7 NT-9 NT-10 PID-1 PID-2 PID-3 FID-6 FINN-5

Purge Volume (mL) 5 Curve Date: 8/4/10 Analysis Start Date: 10/20/10

pH ≤ 2.0	YES / NO / NA	Method Blank In Control?	YES / NO
BFB Tune Meets Criteria?	YES / NO / NA	LCS / LCSD Recovery In Control?	YES / NO
Internal Standard Meets Criteria?	YES / NO / NA	Surrogate Recovery In Control?	YES / NO
ICal acceptable?	YES / NO	CCal acceptable?	YES / NO
Q flag applied?	YES / NO / NA	Q flag applied?	YES / NO / NA
Manual Integrations for ICal?	YES / NO	Manual Integrations for Samples?	Yes / NO
Special Analysis Criteria Met?	YES / NO / NA		

Bubbles/Headspace: None SM (≤ 2mm •) PB (2-4mm) LG (> 4mm ●) Head Space

Detail problems, corrective actions and/or other pertinent information below (use reverse side when necessary):

Additional Details on Reverse: Yes / No

Analyst: _____ **Date:** 10/25/10

Reviewer: _____ **Date:** 10/25/10

Analytical Resources Inc.: Volatile Organics Instrument Log

NT-9 Serial No.:GC=US00021704, MS=US80230047

Date: 10/20/10 Analysis: 8260C Analyst: [illegible]

GC Program: 100A Column No: 562025 Column Type: MTX-VMS

Instrument Tune (.U or .CT.): bfb1020 EM Voltage: 1306

Calibration File: 0501020A Curve Date: 8/28/10

IS/SS	Ical/Ccal	LCS/ICV
W652-1	W652-2	W652-2

INTERNAL STANDARD SUMMARY FOR DATABATCH - /chem1/nt9.i/20OCT10.b

	Time	Filename	LabID	ClientID	WT											
1	1204	bfb1020.d	BFB1020	BFB1020	0.00											
2	1241	0501020.d	CC1020	VSTD050	5.00	4.93	759799	5.32	1008709	7.40	894597	9.11	503499			
3	1311	0501020A.d	CC1020	VSTD050	5.00	4.93	754912	5.32	991176	7.40	890048	9.11	507063			
4	1342	lcs1020.d	LCS1020	LCS1020	5.00	4.93	800130	5.32	1049229	7.39	938129	9.11	539415			
5	1509	lcs1020a.d	LCS1020	LCS1020	5.00	4.93	649147	5.32	857509	7.40	758186	9.12	430494			
6	1412	mb1020.d	MB1020	MB1020	5.00	4.93	766662	5.32	1013953	7.40	904849	9.11	510746			
7	1543	rq80a.d	RQ80A	DGS-20-0113.7-10100	5.00	4.93	771798	5.32	1040161	7.40	928499	9.11	508100			
8	1614	rq80b.d	RQ80B	DGS-TB-101008-01	1	4.94	713787	5.32	947589	7.40	843489	9.11	464499			
9	1644	rq83b.d	RQ83B	GST-TBSO-2-101008	1	4.93	484658	5.32	601802	7.39	652638	9.11	548014			
10	1715	rq83a.d	RQ83A	GST-09SO-17-18-1010	5.00	4.93	680856	5.32	903061	7.40	808671	9.11	475784			
11	1745	rq83a2.d	RQ83A	GST-09SO-17-18-1010	5.00	4.92	44448	5.30	37475	7.42	908187	9.12	536756			
12	1816	rr00m2.d	RR00M	DGS-TB-100810-02	1	4.93	610560	5.32	817920	7.40	727434	9.11	403024			
13	1846	rr00f2.d	RR00F	DGS-23-0408-101008	5.00	4.94	712657	5.32	948715	7.40	862504	9.11	491154			
14	1917	rr00n2.d	RR00N	DGS-18-0001-101008	5.00	4.92	99745	5.28	74203	7.43	945795	9.12	600412			
15	1947	rr00o2.d	RR00O	DGS-18-0104-101008	5.00	4.93	762563	5.32	1008418	7.40	879203	9.11	496706			
16	2018	rr00p2.d	RR00P	DGS-18-0408-101008	5.00	4.93	669897	5.32	887102	7.40	765465	9.11	437737			
17	2048	rr33a.d	RR33A	DGS-TB-101012-05	1	4.94	766811	5.32	1012520	7.40	898661	9.11	507377			
18	2119	rr33b.d	RR33B	DGS-07-011.3-101012	5.00	4.91	122495	5.29	239156	7.42	717430	9.11	404764			
19	2149	rr33c.d	RR33C	DGS-07-2.22.7-10101	5.00	4.93	597188	5.32	794733	7.40	708371	9.11	379125			
20	2219	rr33d.d	RR33D	DGS-07-034.2-101012	5.00	4.93	374821	5.31	316420	7.38	834016	9.11	468165			
21	2250	rr33e.d	RR33E	DGS-07-4.75.2-10101	5.00	4.94	453368	5.32	603467	7.40	504618					
22	2320	rr33f.d	RR33F	DGS-07-5.66.7-10101	5.00	4.94	583629	5.32	752307	7.40	668366					

Maintenance Verification (Identify ICal or CCal that demonstrates the instrument is in control): ICAL 4hr

Every line must contain information or be lined out. Make all entries legible. Start a new page for each QC period.

MANUAL INTEGRATION SUMMARY FOR DATABATCH - /chem1/nt9.i/20OCT10.b/gasco.b

ARI Job No.: BFB1 Method: bfb8260.m Instrument: nt9.i Date: 20-OCT-2010

Time	Filename	LabID	ClientId	DF	Manually Integrated Compounds
1204	bfb1020.d	BFB1020	BFB1020	1	NO MANUAL INTEGRATION
1311	0501020A.d	CC1020	VSTD050	1	NO MANUAL INTEGRATION
1342	lcs1020.d	LCS1020	LCS1020	1	NO MANUAL INTEGRATION
1509	lcs1020a.d	LCS1020	LCS1020	1	NO MANUAL INTEGRATION
1412	mb1020.d	MB1020	MB1020	1	NO MANUAL INTEGRATION
1543	rq80a.d	RQ80A	DGS-20-011	1	NO MANUAL INTEGRATION
1614	rq80b.d	RQ80B	DGS-TB-101	1	NO MANUAL INTEGRATION
1644	rq83b.d	RQ83B	GST-TBSO-2	1	NO MANUAL INTEGRATION
1715	rq83a.d	RQ83A	GST-09SO-1	1	NO MANUAL INTEGRATION

H0085 : 00085

Q-FLAG SUMMARY FOR DATABATCH - /chem1/nt9.i/20OCT10.b/gasco.b

Instrument: nt9.i Date: 20-OCT-2010 Method: gasco.b/VO063010S.m

INITIAL CAL: 28-AUG-2010

Compound	%RSD or R^2
NO Q-FLAGS	

CONTINUING CAL: 20-OCT-2010

Compound	%D
NO Q-FLAGS	

Data File: /chem1/nt9.i/20OCT10.b/gasco.b/bfb1020.d

Date : 20-OCT-2010 12:04

Client ID: BFB1020

Instrument: nt9.i

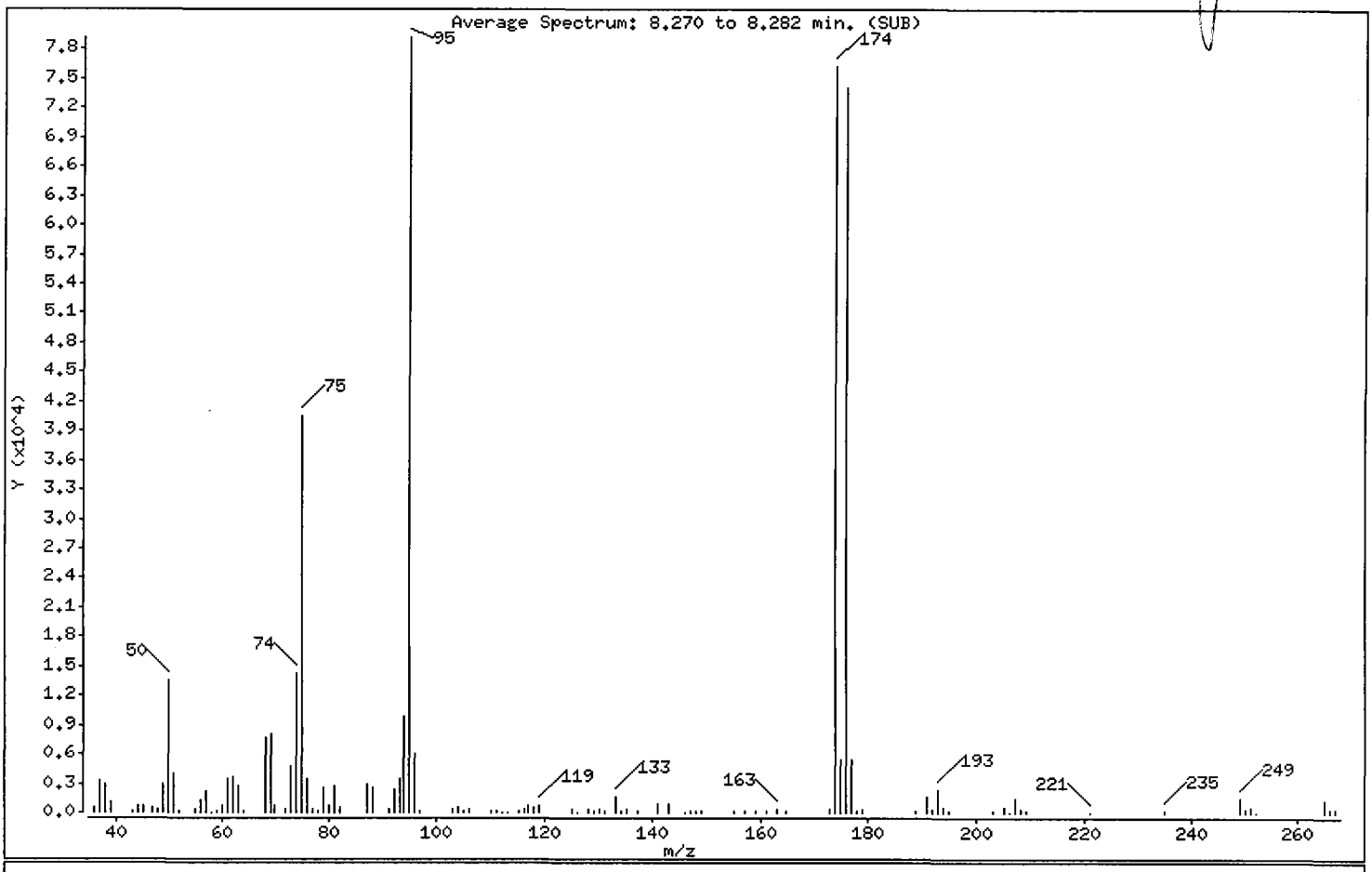
Sample Info: BFB1020,BFB1020,,1,20OCT10,,

Operator: PB

Column phase: RTX502.2

Column diameter: 0.18

1 Bromofluorobenzene



m/e	ION ABUNDANCE CRITERIA	% RELATIVE ABUNDANCE
95	Base Peak, 100% relative abundance	100.00
50	8.00 - 40.00% of mass 95	17.11
75	30.00 - 66.00% of mass 95	51.09
96	5.00 - 9.00% of mass 95	7.53
173	Less than 2.00% of mass 174	0.53 (0.55)
174	50.00 - 101.00% of mass 95	96.22
175	4.00 - 9.00% of mass 174	6.88 (7.15)
176	93.00 - 101.00% of mass 174	93.57 (97.25)
177	5.00 - 9.00% of mass 176	6.85 (7.32)

Data File: /chem1/nt9.i/20OCT10.b/gasco.b/bfb1020.d

Date : 20-OCT-2010 12:04

Client ID: BFB1020

Instrument: nt9.i

Sample Info: BFB1020,BFB1020,,1,20OCT10,,

Operator: PB

Column phase: RTX502.2

Column diameter: 0.18

Data File: bfb1020.d
Spectrum: Average Spectrum: 8.270 to 8.282 min. (SUB)
Location of Maximum: 95.00
Number of points: 109

m/z	Y	m/z	Y	m/z	Y	m/z	Y
36.00	555	74.00	14286	117.00	668	176.00	74080
37.00	3295	75.00	40448	118.00	480	177.00	5424
38.00	2907	76.00	3487	119.00	731	178.00	268
39.00	1169	77.00	371	125.00	455	179.00	418
43.00	136	78.00	187	126.00	57	189.00	157
44.00	685	79.00	2480	128.00	442	191.00	1594
45.00	730	80.00	708	129.00	171	192.00	292
47.00	607	81.00	2695	130.00	366	193.00	2309
48.00	427	82.00	564	131.00	112	194.00	460
49.00	2903	87.00	2915	133.00	1672	195.00	187
50.00	13543	88.00	2636	134.00	186	203.00	196
51.00	4039	91.00	278	135.00	333	205.00	501
52.00	131	92.00	2367	137.00	154	206.00	75
55.00	295	93.00	3463	141.00	980	207.00	1526
56.00	1193	94.00	9870	143.00	966	208.00	326
57.00	2098	95.00	79168	146.00	63	209.00	170
58.00	55	96.00	5960	147.00	213	221.00	51
59.00	115	97.00	152	148.00	246	235.00	167
60.00	710	103.00	400	149.00	128	249.00	1386
61.00	3520	104.00	472	155.00	214	250.00	338
62.00	3697	105.00	174	157.00	130	251.00	587
63.00	2813	106.00	416	159.00	116	252.00	76
64.00	251	110.00	102	161.00	231	265.00	1281
68.00	7708	111.00	203	163.00	313	266.00	389
69.00	7965	112.00	51	165.00	213	267.00	346
70.00	681	113.00	56	173.00	420		
72.00	378	115.00	158	174.00	76176		
73.00	4733	116.00	374	175.00	5447		

Data File: /chem1/nt9.i/20OCT10.b/gasco.b/bfb1020.d

Date : 20-OCT-2010 12:04

Client ID: BFB1020

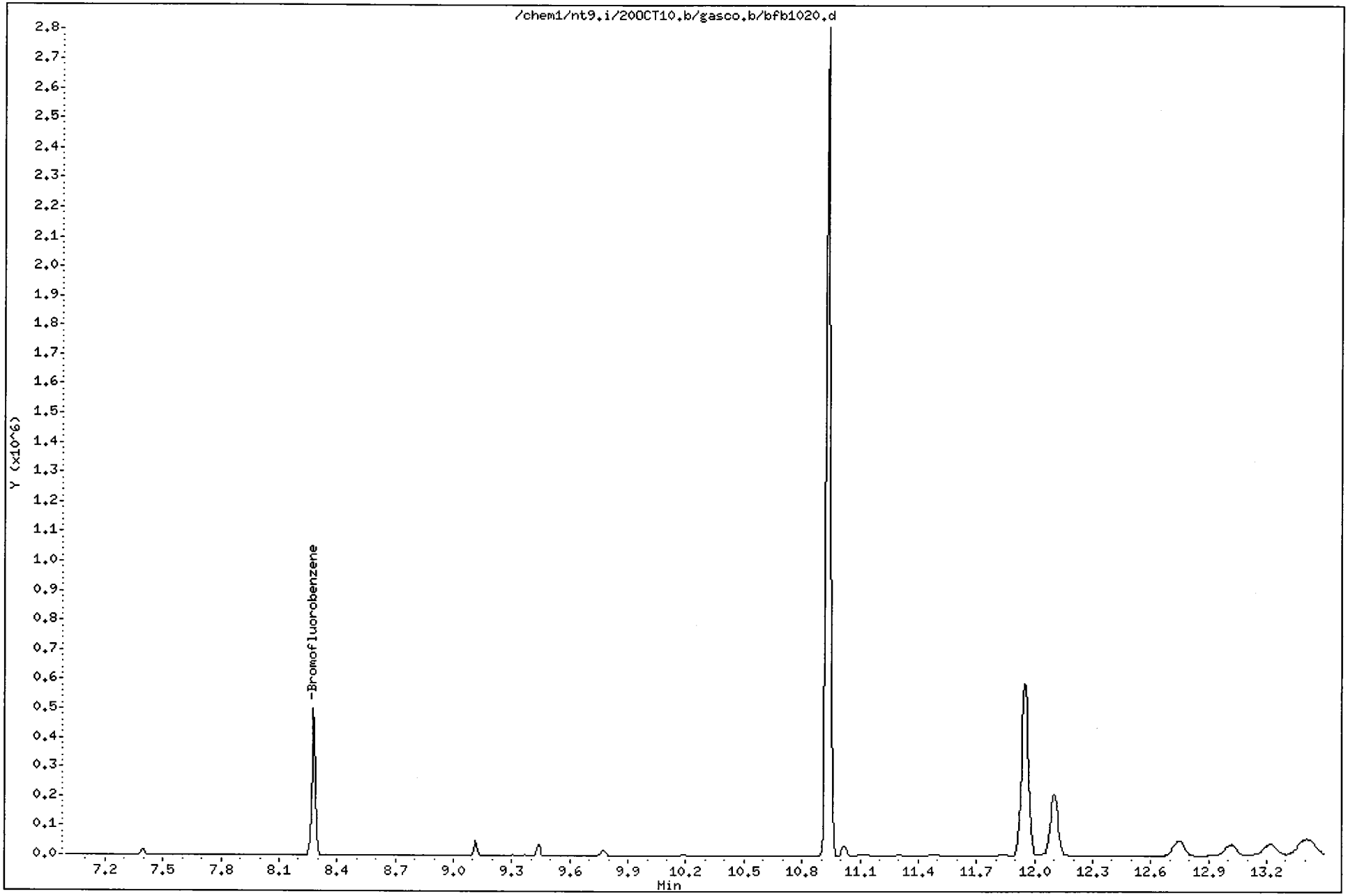
Sample Info: BFB1020,BFB1020,,1,20OCT10,,

Column phase: RTX502.2

Instrument: nt9.i

Operator: PB

Column diameter: 0.18



R080 00085

Analytical Resources, Inc.

8260C

Data file : /chem1/nt9.i/20OCT10.b/gasco.b/0501020A.d
Lab Smp Id: CC1020 Client Smp ID: VSTD050
Inj Date : 20-OCT-2010 13:11
Operator : PB Inst ID: nt9.i
Smp Info : CC1020,5,5,0
Misc Info : 10-
Comment :
Method : /chem1/nt9.i/20OCT10.b/gasco.b/VO063010S.m
Meth Date : 20-Oct-2010 15:01 patrickb Quant Type: ISTD
Cal Date : 28-AUG-2010 13:21 Cal File: 2000828.d
Als bottle: 1 Continuing Calibration Sample
Dil Factor: 1.00000
Integrator: HP RTE Compound Sublist: gasco.sub
Target Version: 3.50
Processing Host: cserv3

Concentration Formula: Amt * DF * Pv * 1 / (Sa * ((100 - M) / 100)) * CpndVaria

Name	Value	Description
DF	1.00000	Dilution Factor
Pv	5.00000	Purge Volume
Sa	5.00000	Sample Amount
M	0.00000	% Moisture (not decanted)

Cpnd Variable Local Compound Variable

Compounds	QUANT SIG MASS	RT	EXP RT	REL RT	RESPONSE	AMOUNTS CAL-AMT (ug/Kg)	ON-COL (ug/Kg)
3 Vinyl Chloride	62	1.407	1.407	(0.285)	272142	50.0000	40.354
7 1,1-Dichloroethene	96	2.312	2.312	(0.469)	293012	50.0000	43.962
15 Trans-1,2-Dichloroethene	96	3.031	3.031	(0.615)	320939	50.0000	41.669
20 Cis-1,2-Dichloroethene	96	4.140	4.140	(0.839)	316586	50.0000	43.380
23 Chloroform	83	4.383	4.383	(0.889)	506022	50.0000	43.714
24 Carbon Tetrachloride	117	4.473	4.473	(0.841)	384080	50.0000	41.748
* 32 Pentafluorobenzene	168	4.932	4.932	(1.000)	754912	50.0000	
$ 25 Dibromofluoromethane	111	4.530	4.530	(0.919)	279872	50.0000	49.580
$ 31 d4-1,2-Dichloroethane	65	4.937	4.937	(1.001)	286217	50.0000	49.387
29 2-Butanone	72	4.643	4.643	(0.941)	179067	250.000	244.40
30 Benzene	78	4.830	4.830	(0.908)	1153181	50.0000	43.259
33 1,2-Dichloroethane	62	4.988	4.988	(0.937)	358364	50.0000	46.735
* 35 1,4-Difluorobenzene	114	5.322	5.322	(1.000)	991176	50.0000	
34 Trichloroethene	95	5.282	5.282	(0.993)	320896	50.0000	43.572

Compounds	QUANT SIG MASS	RT	EXP RT	REL RT	RESPONSE	AMOUNTS CAL-AMT (ug/Kg)	AMOUNTS ON-COL (ug/Kg)
$ 42 d8-Toluene	98	6.306	6.306	(1.185)	1109032	50.0000	49.383
43 Toluene	92	6.340	6.340	(1.191)	800737	50.0000	42.269
44 Tetrachloroethene	166	6.606	6.606	(0.893)	420855	50.0000	43.498
* 52 d5-Chlorobenzene	117	7.398	7.398	(1.000)	890048	50.0000	
53 Chlorobenzene	112	7.409	7.409	(1.002)	944153	50.0000	44.483
54 Ethyl Benzene	91	7.438	7.438	(1.005)	1573059	50.0000	43.125
56 m,p-xylene	106	7.539	7.539	(1.019)	1314683	100.000	89.116
57 o-Xylene	106	7.845	7.845	(1.060)	600947	50.0000	43.728
$ 61 4-Bromofluorobenzene	95	8.275	8.275	(1.119)	399981	50.0000	48.521
* 75 d4-1,4-Dichlorobenzene	152	9.112	9.112	(1.000)	507063	50.0000	
76 1,4-Dichlorobenzene	146	9.118	9.118	(1.001)	816332	50.0000	44.864
$ 78 d4-1,2-Dichlorobenzene	152	9.434	9.434	(1.035)	443066	50.0000	49.986

Data File: /chem1/nt9.i/20OCT10.b/gasco.b/0501020A.d
Report Date: 20-Oct-2010 15:01

Analytical Resources, Inc.

INTERNAL STANDARD COMPOUNDS
AREA AND RT SUMMARY

Instrument ID: nt9.i
Lab File ID: 0501020A.d
Lab Smp Id: CC1020
Analysis Type: VOA
Quant Type: ISTD
Operator: PB
Method File: /chem1/nt9.i/20OCT10.b/gasco.b/VO063010S.m
Misc Info: 10-

Calibration Date: 20-OCT-2010
Calibration Time: 12:41
Client Smp ID: VSTD050
Level: LOW
Sample Type: SOIL

Test Mode:
Use Initial Calibration Level 5.
If Continuing Cal. use Initial Cal. Level 5

COMPOUND	STANDARD	AREA LIMIT LOWER	AREA LIMIT UPPER	SAMPLE	%DIFF
32 Pentafluorobenzen	704281	352140	1408562	754912	7.19
35 1,4-Difluorobenze	937745	468872	1875490	991176	5.70
52 d5-Chlorobenzene	853013	426506	1706026	890048	4.34
75 d4-1,4-Dichlorobe	503655	251828	1007310	507063	0.68

COMPOUND	STANDARD	RT LIMIT LOWER	RT LIMIT UPPER	SAMPLE	%DIFF
32 Pentafluorobenzen	4.94	4.44	5.44	4.93	-0.10
35 1,4-Difluorobenze	5.32	4.82	5.82	5.32	0.02
52 d5-Chlorobenzene	7.40	6.90	7.90	7.40	0.01
75 d4-1,4-Dichlorobe	9.11	8.61	9.61	9.11	0.01

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.

Analytical Resources, Inc.

CONTINUING CALIBRATION COMPOUNDS

Instrument ID: nt9.i
Lab File ID: 0501020A.d
Analysis Type: SOIL
Lab Sample ID: CC1020
Method: /chem1/nt9.i/20OCT10.b/gasco.b/VO063010S.m

Injection Date: 20-OCT-2010 13:11
Init. Cal. Date(s): 28-AUG-2010 28-AUG-2010
Init. Cal. Times: 12:52 16:21
Quant Type: ISTD

COMPOUND	RRF / AMOUNT	RF50	MIN RRF	%D / %DRIFT	MAX %D / %DRIFT	CURVE TYPE
3 Vinyl Chloride	0.44667	0.36050	0.100	-19.29248	20.00000	Averaged
7 1,1-Dichloroethene	0.44145	0.38814	0.100	-12.07547	20.00000	Averaged
15 Trans-1,2-Dichloroethene	0.51013	0.42514	0.010	-16.66161	20.00000	Averaged
20 Cis-1,2-Dichloroethene	0.48336	0.41937	0.010	-13.23942	20.00000	Averaged
23 Chloroform	0.76669	0.67031	0.100	-12.57147	20.00000	Averaged
24 Carbon Tetrachloride	0.46410	0.38750	0.100	-16.50499	20.00000	Averaged
$ 25 Dibromofluoromethane	0.37387	0.37073	0.100	-0.83923	20.00000	Averaged
$ 31 d4-1,2-Dichloroethane	0.38384	0.37914	0.010	-1.22545	20.00000	Averaged
29 2-Butanone	0.04853	0.04744	0.001	-2.24063	20.00000	Averaged
30 Benzene	1.34476	1.16345	0.100	-13.48283	20.00000	Averaged
33 1,2-Dichloroethane	0.38681	0.36156	0.100	-6.52924	20.00000	Averaged
34 Trichloroethene	0.37152	0.32375	0.100	-12.85682	20.00000	Averaged
$ 42 d8-Toluene	1.13290	1.11891	0.010	-1.23499	20.00000	Averaged
43 Toluene	0.95562	0.80787	0.100	-15.46193	20.00000	Averaged
44 Tetrachloroethene	0.54353	0.47285	0.100	-13.00471	20.00000	Averaged
53 Chlorobenzene	1.19234	1.06079	0.300	-11.03309	20.00000	Averaged
54 Ethyl Benzene	2.04913	1.76739	0.100	-13.74926	20.00000	Averaged
56 m,p-xylene	0.82875	0.73855	0.100	-10.88446	20.00000	Averaged
57 o-Xylene	0.77203	0.67519	0.100	-12.54383	20.00000	Averaged
$ 61 4-Bromofluorobenzene	0.46309	0.44939	0.200	-2.95822	20.00000	Averaged
76 1,4-Dichlorobenzene	1.79423	1.60992	0.100	-10.27225	20.00000	Averaged
$ 78 d4-1,2-Dichlorobenzene	0.87403	0.87379	0.010	-0.02786	20.00000	Averaged

Data File: /chem1/nt9.i/20OCT10.b/gasco.b/0501020A.d

Date : 20-OCT-2010 13:11

Client ID: VSTD050

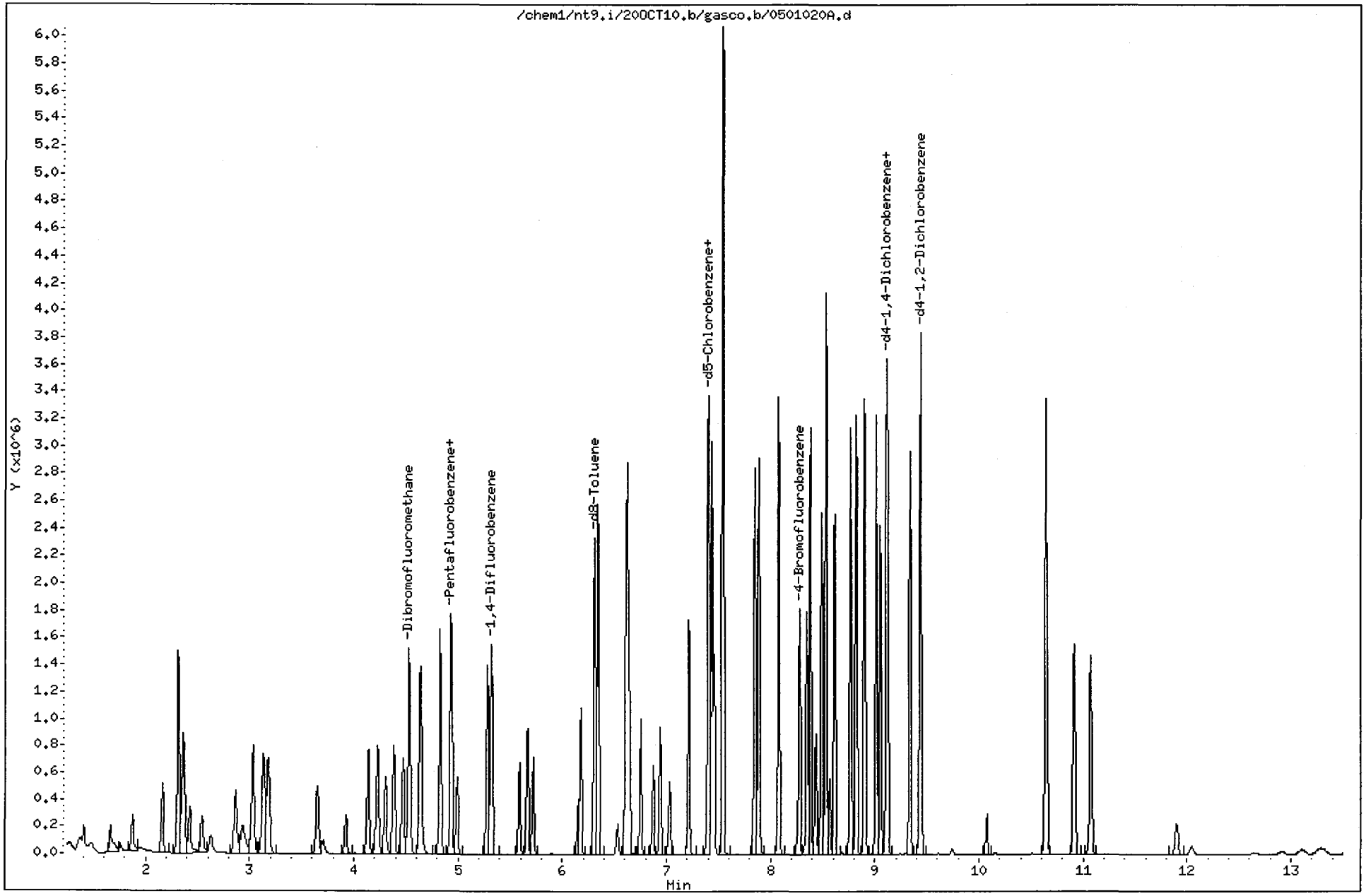
Sample Info: CC1020,5,5,0

Column phase: RTX502.2

Instrument: nt9.i

Operator: PB

Column diameter: 0.18



R0860 00051

Analytical Resources, Inc.

8260C

Data file : /chem1/nt9.i/20OCT10.b/gasco.b/lcs1020.d
Lab Smp Id: LCS1020 Client Smp ID: LCS1020
Inj Date : 20-OCT-2010 13:42
Operator : PB Inst ID: nt9.i
Smp Info : LCS1020,5,5,0
Misc Info : 10-
Comment :
Method : /chem1/nt9.i/20OCT10.b/gasco.b/VO063010S.m
Meth Date : 25-Oct-2010 13:51 patrickb Quant Type: ISTD
Cal Date : 28-AUG-2010 13:21 Cal File: 2000828.d
Als bottle: 1 QC Sample: LCS
Dil Factor: 1.00000
Integrator: HP RTE Compound Sublist: gasco.sub
Target Version: 3.50
Processing Host: cserv3

Concentration Formula: Amt * DF * Pv * 1 / (Sa * ((100 - M) / 100)) * CpndVaria

Name	Value	Description
DF	1.00000	Dilution Factor
Pv	5.00000	Purge Volume
Sa	5.00000	Sample Amount
M	0.00000	% Moisture (not decanted)

Cpnd Variable Local Compound Variable

Compounds	QUANT SIG MASS	RT	EXP RT	REL RT	RESPONSE	CONCENTRATIONS ON-COLUMN (ug/Kg)	FINAL (ug/Kg)
3 Vinyl Chloride	62	1.410	1.407	(0.286)	297945	41.6831	41.683
7 1,1-Dichloroethene	96	2.309	2.312	(0.468)	325062	46.0146	46.015
15 Trans-1,2-Dichloroethene	96	3.033	3.031	(0.615)	351170	43.0175	43.017
20 Cis-1,2-Dichloroethene	96	4.136	4.140	(0.838)	347264	44.8948	44.895
23 Chloroform	83	4.379	4.383	(0.888)	553246	45.0928	45.093
24 Carbon Tetrachloride	117	4.470	4.473	(0.840)	433418	44.5037	44.504
* 32 Pentafluorobenzene	168	4.934	4.932	(1.000)	800130	50.0000	
$ 25 Dibromofluoromethane	111	4.526	4.530	(0.917)	299104	49.9929	49.993
$ 31 d4-1,2-Dichloroethane	65	4.939	4.937	(1.001)	305977	49.8131	49.813
29 2-Butanone	72	4.645	4.643	(0.942)	178235	229.515	229.51
30 Benzene	78	4.826	4.830	(0.907)	1262150	44.7266	44.727
33 1,2-Dichloroethane	62	4.990	4.988	(0.938)	384360	47.3521	47.352
* 35 1,4-Difluorobenzene	114	5.318	5.322	(1.000)	1049229	50.0000	
34 Trichloroethene	95	5.279	5.282	(0.993)	352218	45.1783	45.178

Compounds	QUANT SIG MASS	RT	EXP RT	REL RT	RESPONSE	CONCENTRATIONS ON-COLUMN (ug/Kg)	FINAL (ug/Kg)
$ 42 d8-Toluene	98	6.308	6.306	(1.186)	1175490	49.4457	49.446
43 Toluene	92	6.342	6.340	(1.193)	875185	43.6428	43.643
44 Tetrachloroethene	166	6.608	6.606	(0.894)	462642	45.3658	45.366
* 52 d5-Chlorobenzene	117	7.394	7.398	(1.000)	938129	50.0000	
53 Chlorobenzene	112	7.406	7.409	(1.002)	1024118	45.7780	45.778
54 Ethyl Benzene	91	7.434	7.438	(1.005)	1729105	44.9739	44.974
56 m,p-xylene	106	7.542	7.539	(1.020)	1446241	93.0088	93.009
57 o-Xylene	106	7.847	7.845	(1.061)	660151	45.5741	45.574
$ 61 4-Bromofluorobenzene	95	8.277	8.275	(1.119)	422417	48.6162	48.616
* 75 d4-1,4-Dichlorobenzene	152	9.108	9.112	(1.000)	539415	50.0000	
76 1,4-Dichlorobenzene	146	9.120	9.118	(1.001)	884494	45.6945	45.694
$ 78 d4-1,2-Dichlorobenzene	152	9.431	9.434	(1.035)	469734	49.8163	49.816

Analytical Resources, Inc.

INTERNAL STANDARD COMPOUNDS
AREA AND RT SUMMARY

Instrument ID: nt9.i
Lab File ID: lcs1020.d
Lab Smp Id: LCS1020
Analysis Type: VOA
Quant Type: ISTD
Operator: PB
Method File: /chem1/nt9.i/20OCT10.b/gasco.b/VO063010S.m
Misc Info: 10-

Calibration Date: 20-OCT-2010
Calibration Time: 13:11
Client Smp ID: LCS1020
Level: LOW
Sample Type: SOIL

Test Mode:
Use Initial Calibration Level 5.
If Continuing Cal. use Initial Cal. Level 5

COMPOUND	STANDARD	AREA LIMIT LOWER	AREA LIMIT UPPER	SAMPLE	%DIFF
32 Pentafluorobenzen	704281	352140	1408562	800130	13.61
35 1,4-Difluorobenze	937745	468872	1875490	1049229	11.89
52 d5-Chlorobenzene	853013	426506	1706026	938129	9.98
75 d4-1,4-Dichlorobe	503655	251828	1007310	539415	7.10

COMPOUND	STANDARD	RT LIMIT LOWER	RT LIMIT UPPER	SAMPLE	%DIFF
32 Pentafluorobenzen	4.93	4.43	5.43	4.93	0.04
35 1,4-Difluorobenze	5.32	4.82	5.82	5.32	-0.07
52 d5-Chlorobenzene	7.40	6.90	7.90	7.39	-0.05
75 d4-1,4-Dichlorobe	9.11	8.61	9.61	9.11	-0.04

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.

Analytical Resources, Inc.

RECOVERY REPORT

Client Name:
Sample Matrix: SOLID
Lab Smp Id: LCS1020
Level: LOW
Data Type: MS DATA
SpikeList File: gasco.spk
Sublist File: gasco.sub
Method File: /chem1/nt9.i/20OCT10.b/gasco.b/VO063010S.m
Misc Info: 10-

Client SDG: 20OCT10
Fraction: VOA
Client Smp ID: LCS1020
Operator: PB
SampleType: LCS
Quant Type: ISTD

SPIKE COMPOUND	CONC ADDED ug/Kg	CONC RECOVERED ug/Kg	% RECOVERED	LIMITS
3 Vinyl Chloride	50.000	41.683	83.37	63-137
7 1,1-Dichloroethene	50.000	46.015	92.03	75-126
15 Trans-1,2-Dichloro	50.000	43.017	86.03	80-120
20 Cis-1,2-Dichloroet	50.000	44.895	89.79	80-120
23 Chloroform	50.000	45.093	90.19	80-120
24 Carbon Tetrachlori	50.000	44.504	89.01	77-122
29 2-Butanone	250.00	229.51	91.81	70-120
30 Benzene	50.000	44.727	89.45	80-120
33 1,2-Dichloroethane	50.000	47.352	94.70	76-120
34 Trichloroethene	50.000	45.178	90.36	80-120
43 Toluene	50.000	43.643	87.29	80-120
44 Tetrachloroethene	50.000	45.366	90.73	80-121
53 Chlorobenzene	50.000	45.778	91.56	80-120
54 Ethyl Benzene	50.000	44.974	89.95	80-127
56 m,p-xylene	100.00	93.009	93.01	80-125
57 o-Xylene	50.000	45.574	91.15	78-120
76 1,4-Dichlorobenzen	50.000	45.694	91.39	80-120

SURROGATE COMPOUND	AMOUNT ADDED ug/Kg	AMOUNT RECOVERED ug/Kg	% RECOVERED	LIMITS
$ 25 Dibromofluorometha	50.000	49.993	99.99	30-160
$ 31 d4-1,2-Dichloroeth	50.000	49.813	99.63	75-152
$ 42 d8-Toluene	50.000	49.446	98.89	82-115
$ 61 4-Bromofluorobenze	50.000	48.616	97.23	64-120
$ 78 d4-1,2-Dichloroben	50.000	49.816	99.63	80-120

Data File: /chem1/nt9.i/20OCT10.b/gasco.b/lcs1020.d

Date : 20-OCT-2010 13:42

Client ID: LCS1020

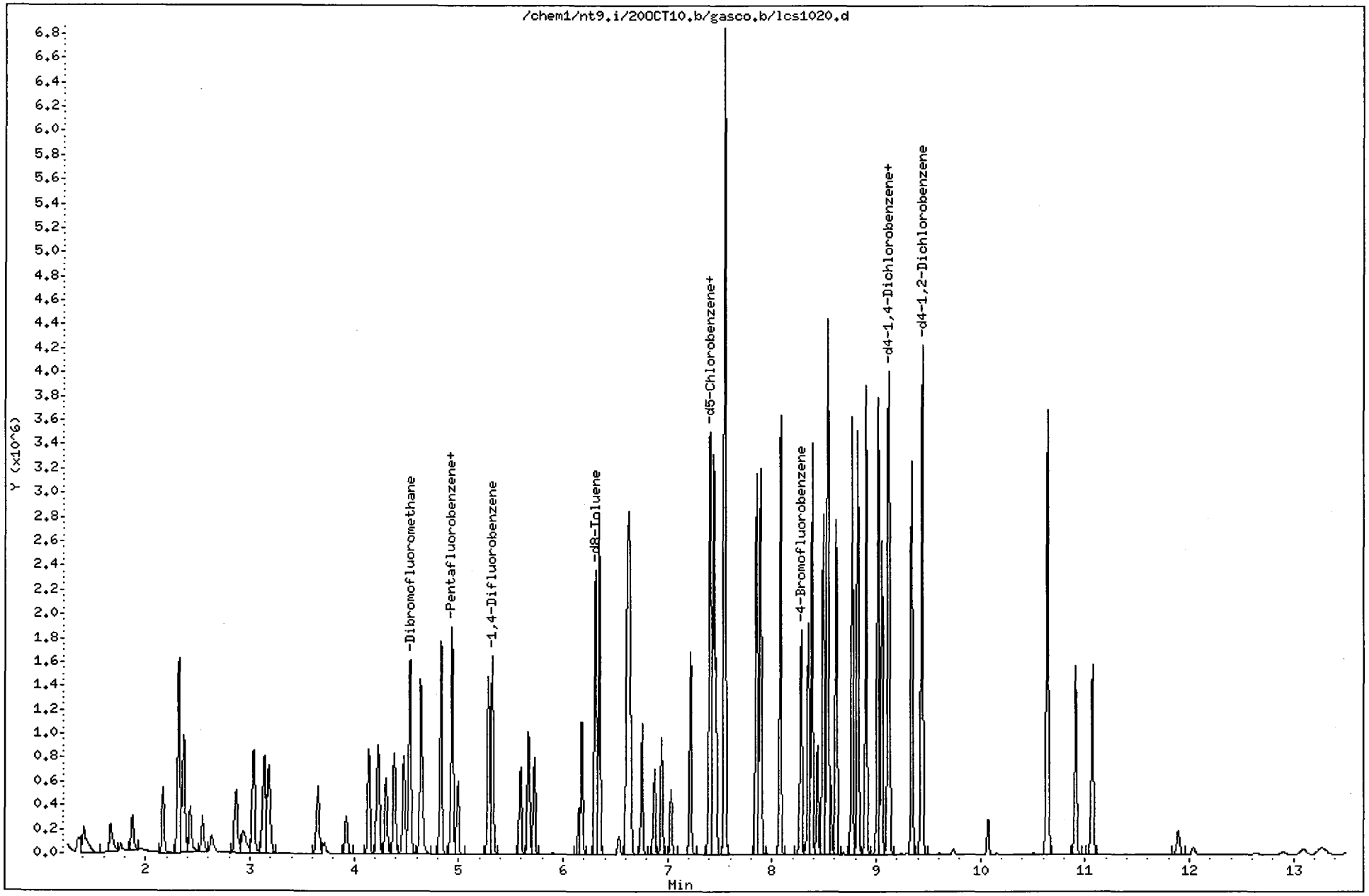
Sample Info: LCS1020,5,5,0

Column phase: RTX502.2

Instrument: nt9.i

Operator: PB

Column diameter: 0.18



R0000 : 00055

Analytical Resources, Inc.

8260C

Data file : /chem1/nt9.i/20OCT10.b/gasco.b/mb1020.d
Lab Smp Id: MB1020 Client Smp ID: MB1020
Inj Date : 20-OCT-2010 14:12
Operator : PB Inst ID: nt9.i
Smp Info : MB1020,5,5,0
Misc Info : 10-
Comment :
Method : /chem1/nt9.i/20OCT10.b/gasco.b/VO063010S.m
Meth Date : 25-Oct-2010 13:51 patrickb Quant Type: ISTD
Cal Date : 28-AUG-2010 13:21 Cal File: 2000828.d
Als bottle: 1 QC Sample: BLANK
Dil Factor: 1.00000
Integrator: HP RTE Compound Sublist: gasco.sub
Target Version: 3.50
Processing Host: cserv3

Concentration Formula: Amt * DF * Pv * 1 / (Sa * ((100 - M) / 100)) * CpndVaria

Name	Value	Description
DF	1.00000	Dilution Factor
Pv	5.00000	Purge Volume
Sa	5.00000	Sample Amount
M	0.00000	% Moisture (not decanted)

Cpnd Variable Local Compound Variable

Compounds	QUANT SIG MASS	RT	EXP RT	REL RT	RESPONSE	CONCENTRATIONS ON-COLUMN (ug/Kg)	FINAL (ug/Kg)
3 Vinyl Chloride	62	Compound Not Detected.					
7 1,1-Dichloroethene	96	Compound Not Detected.					
15 Trans-1,2-Dichloroethene	96	Compound Not Detected.					
20 Cis-1,2-Dichloroethene	96	Compound Not Detected.					
23 Chloroform	83	Compound Not Detected.					
24 Carbon Tetrachloride	117	Compound Not Detected.					
* 32 Pentafluorobenzene	168	4.931	4.932	(1.000)	766662	50.0000	
$ 25 Dibromofluoromethane	111	4.530	4.530	(0.919)	278268	48.5407	48.541
$ 31 d4-1,2-Dichloroethane	65	4.937	4.937	(1.001)	292859	49.7588	49.759
29 2-Butanone	72	Compound Not Detected.					
30 Benzene	78	Compound Not Detected.					
33 1,2-Dichloroethane	62	Compound Not Detected.					
* 35 1,4-Difluorobenzene	114	5.322	5.322	(1.000)	1013953	50.0000	
34 Trichloroethene	95	Compound Not Detected.					

Compounds	QUANT SIG MASS	RT	EXP RT	REL RT	RESPONSE	CONCENTRATIONS ON-COLUMN (ug/Kg)	FINAL (ug/Kg)
$ 42 d8-Toluene	98	6.306	6.306	(1.185)	1141297	49.6776	49.678
43 Toluene	92	Compound Not Detected.					
44 Tetrachloroethene	166	Compound Not Detected.					
* 52 d5-Chlorobenzene	117	7.398	7.398	(1.000)	904849	50.0000	
53 Chlorobenzene	112	Compound Not Detected.					
54 Ethyl Benzene	91	Compound Not Detected.					
56 m,p-xylene	106	Compound Not Detected.					
57 o-Xylene	106	Compound Not Detected.					
$ 61 4-Bromofluorobenzene	95	8.275	8.275	(1.119)	410963	49.0376	49.038
* 75 d4-1,4-Dichlorobenzene	152	9.106	9.112	(1.000)	510746	50.0000	
76 1,4-Dichlorobenzene	146	Compound Not Detected.					
$ 78 d4-1,2-Dichlorobenzene	152	9.434	9.434	(1.036)	449828	50.3830	50.383

Analytical Resources, Inc.

INTERNAL STANDARD COMPOUNDS
AREA AND RT SUMMARY

Instrument ID: nt9.i
Lab File ID: mb1020.d
Lab Smp Id: MB1020
Analysis Type: VOA
Quant Type: ISTD
Operator: PB
Method File: /chem1/nt9.i/20OCT10.b/gasco.b/VO063010S.m
Misc Info: 10-

Calibration Date: 20-OCT-2010
Calibration Time: 13:11
Client Smp ID: MB1020
Level: LOW
Sample Type: SOIL

Test Mode:
Use Initial Calibration Level 5.
If Continuing Cal. use Initial Cal. Level 5

COMPOUND	STANDARD	AREA LIMIT LOWER	AREA LIMIT UPPER	SAMPLE	%DIFF
32 Pentafluorobenzen	704281	352140	1408562	766662	8.86
35 1,4-Difluorobenze	937745	468872	1875490	1013953	8.13
52 d5-Chlorobenzene	853013	426506	1706026	904849	6.08
75 d4-1,4-Dichlorobe	503655	251828	1007310	510746	1.41

COMPOUND	STANDARD	RT LIMIT LOWER	RT LIMIT UPPER	SAMPLE	%DIFF
32 Pentafluorobenzen	4.93	4.43	5.43	4.93	0.00
35 1,4-Difluorobenze	5.32	4.82	5.82	5.32	0.00
52 d5-Chlorobenzene	7.40	6.90	7.90	7.40	0.00
75 d4-1,4-Dichlorobe	9.11	8.61	9.61	9.11	-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.

Analytical Resources, Inc.

RECOVERY REPORT

Client Name:
Sample Matrix: SOLID
Lab Smp Id: MB1020
Level: LOW
Data Type: MS DATA
SpikeList File: all.spk
Sublist File: gasco.sub
Method File: /chem1/nt9.i/20OCT10.b/gasco.b/VO063010S.m
Misc Info: 10-

Client SDG: 20OCT10
Fraction: VOA
Client Smp ID: MB1020
Operator: PB
SampleType: BLANK
Quant Type: ISTD

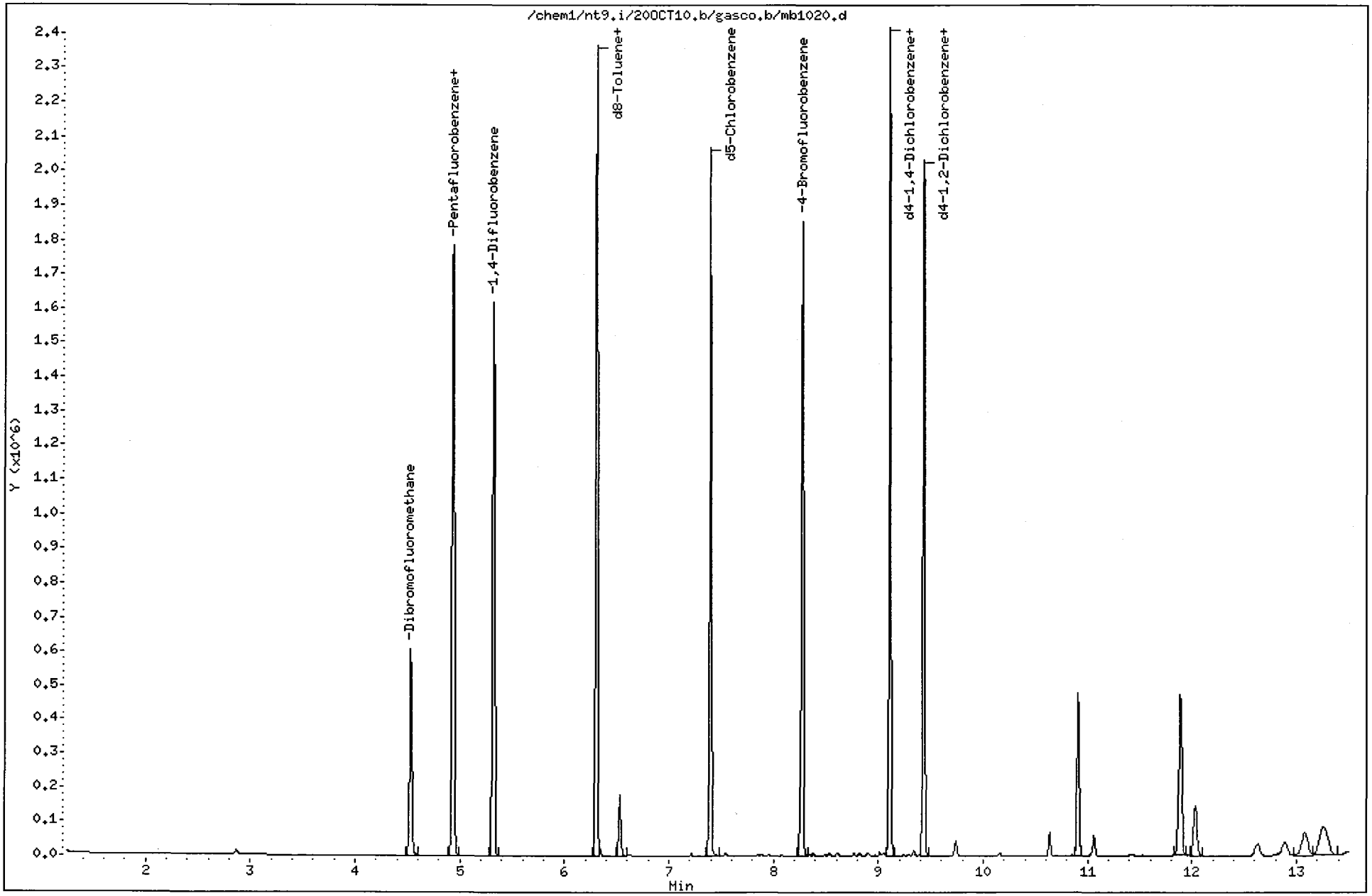
SURROGATE COMPOUND	AMOUNT ADDED ug/Kg	AMOUNT RECOVERED ug/Kg	% RECOVERED	LIMITS
$ 25 Dibromofluorometha	50.000	48.541	97.08	30-160
$ 31 d4-1,2-Dichloroeth	50.000	49.759	99.52	75-152
$ 42 d8-Toluene	50.000	49.678	99.36	82-115
$ 61 4-Bromofluorobenze	50.000	49.038	98.08	64-120
$ 78 d4-1,2-Dichloroben	50.000	50.383	100.77	80-120

Data File: /chem1/nt9.i/20OCT10.b/gasco.b/mb1020.d
Date : 20-OCT-2010 14:12
Client ID: MB1020
Sample Info: MB1020,5,5,0

Column phase: RTX502.2

Instrument: nt9.i

Operator: PB
Column diameter: 0.18



R050 : 001001

Analytical Resources, Inc.

8260C

Data file : /chem1/nt9.i/20OCT10.b/gasco.b/lcs1020a.d
Lab Smp Id: LCS1020 Client Smp ID: LCS1020
Inj Date : 20-OCT-2010 15:09
Operator : PB Inst ID: nt9.i
Smp Info : LCS1020,5,5,0
Misc Info : 10-
Comment :
Method : /chem1/nt9.i/20OCT10.b/gasco.b/VO063010S.m
Meth Date : 25-Oct-2010 13:51 patrickb Quant Type: ISTD
Cal Date : 28-AUG-2010 13:21 Cal File: 2000828.d
Als bottle: 1 QC Sample: LCSD
Dil Factor: 1.00000
Integrator: HP RTE Compound Sublist: gasco.sub
Target Version: 3.50
Processing Host: cserv3

Concentration Formula: Amt * DF * Pv * 1 / (Sa * ((100 - M) / 100)) * CpndVaria

Name	Value	Description
DF	1.00000	Dilution Factor
Pv	5.00000	Purge Volume
Sa	5.00000	Sample Amount
M	0.00000	% Moisture (not decanted)

Cpnd Variable Local Compound Variable

Compounds	QUANT SIG MASS	RT	EXP RT	REL RT	RESPONSE	CONCENTRATIONS ON-COLUMN (ug/Kg)	FINAL (ug/Kg)
3 Vinyl Chloride	62	1.407	1.407	(0.285)	317930	54.8243	54.824
7 1,1-Dichloroethene	96	2.312	2.312	(0.469)	361698	63.1093	63.109(R)
15 Trans-1,2-Dichloroethene	96	3.030	3.031	(0.615)	376406	56.8331	56.833
20 Cis-1,2-Dichloroethene	96	4.139	4.140	(0.839)	343460	54.7306	54.731
23 Chloroform	83	4.382	4.383	(0.889)	541736	54.4245	54.424
24 Carbon Tetrachloride	117	4.473	4.473	(0.841)	460481	57.8539	57.854
* 32 Pentafluorobenzene	168	4.931	4.932	(1.000)	649147	50.0000	
$ 25 Dibromofluoromethane	111	4.530	4.530	(0.919)	239741	49.3908	49.391
$ 31 d4-1,2-Dichloroethane	65	4.937	4.937	(1.001)	242967	48.7551	48.755
29 2-Butanone	72	4.643	4.643	(0.941)	183655	291.500	291.50
30 Benzene	78	4.829	4.830	(0.908)	1272366	55.1695	55.169
33 1,2-Dichloroethane	62	4.988	4.988	(0.937)	349707	52.7153	52.715
* 35 1,4-Difluorobenzene	114	5.321	5.322	(1.000)	857509	50.0000	
34 Trichloroethene	95	5.282	5.282	(0.993)	374933	58.8442	58.844

Compounds	QUANT SIG MASS	RT	EXP RT	REL RT	RESPONSE	CONCENTRATIONS ON-COLUMN (ug/Kg)	FINAL (ug/Kg)
$ 42 d8-Toluene	98	6.306	6.306	(1.185)	952155	49.0059	49.006
43 Toluene	92	6.340	6.340	(1.191)	891673	54.4064	54.406
44 Tetrachloroethene	166	6.611	6.606	(0.894)	511467	62.0566	62.057(R)
* 52 d5-Chlorobenzene	117	7.398	7.398	(1.000)	758186	50.0000	
53 Chlorobenzene	112	7.409	7.409	(1.002)	1012761	56.0145	56.015
54 Ethyl Benzene	91	7.437	7.438	(1.005)	1791900	57.6686	57.669
56 m,p-xylene	106	7.545	7.539	(1.020)	1506051	119.842	119.84
57 o-Xylene	106	7.850	7.845	(1.061)	658329	56.2347	56.235
$ 61 4-Bromofluorobenzene	95	8.280	8.275	(1.119)	339224	48.3073	48.307
* 75 d4-1,4-Dichlorobenzene	152	9.117	9.112	(1.000)	430494	50.0000	
76 1,4-Dichlorobenzene	146	9.129	9.118	(1.001)	881097	57.0359	57.036
$ 78 d4-1,2-Dichlorobenzene	152	9.445	9.434	(1.036)	373701	49.6592	49.659

QC Flag Legend

R - Spike/Surrogate failed recovery limits.

Analytical Resources, Inc.

INTERNAL STANDARD COMPOUNDS
AREA AND RT SUMMARY

Instrument ID: nt9.i
Lab File ID: lcs1020a.d
Lab Smp Id: LCS1020
Analysis Type: VOA
Quant Type: ISTD
Operator: PB
Method File: /chem1/nt9.i/20OCT10.b/gasco.b/VO063010S.m
Misc Info: 10-

Calibration Date: 20-OCT-2010
Calibration Time: 13:11
Client Smp ID: LCS1020
Level: LOW
Sample Type: SOIL

Test Mode:
Use Initial Calibration Level 5.
If Continuing Cal. use Initial Cal. Level 5

COMPOUND	STANDARD	AREA LIMIT LOWER	AREA LIMIT UPPER	SAMPLE	%DIFF
32 Pentafluorobenzen	704281	352140	1408562	649147	-7.83
35 1,4-Difluorobenze	937745	468872	1875490	857509	-8.56
52 d5-Chlorobenzene	853013	426506	1706026	758186	-11.12
75 d4-1,4-Dichlorobe	503655	251828	1007310	430494	-14.53

COMPOUND	STANDARD	RT LIMIT LOWER	RT LIMIT UPPER	SAMPLE	%DIFF
32 Pentafluorobenzen	4.93	4.43	5.43	4.93	-0.01
35 1,4-Difluorobenze	5.32	4.82	5.82	5.32	-0.01
52 d5-Chlorobenzene	7.40	6.90	7.90	7.40	-0.01
75 d4-1,4-Dichlorobe	9.11	8.61	9.61	9.12	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.

Analytical Resources, Inc.

RECOVERY REPORT

Client Name:
Sample Matrix: SOLID
Lab Smp Id: LCS1020
Level: LOW
Data Type: MS DATA
SpikeList File: gasco.spk
Sublist File: gasco.sub
Method File: /chem1/nt9.i/20OCT10.b/gasco.b/VO063010S.m
Misc Info: 10-

Client SDG: 20OCT10
Fraction: VOA
Client Smp ID: LCS1020
Operator: PB
SampleType: LCSD
Quant Type: ISTD

SPIKE COMPOUND	CONC ADDED ug/Kg	CONC RECOVERED ug/Kg	% RECOVERED	LIMITS
3 Vinyl Chloride	50.000	54.824	109.65	63-137
7 1,1-Dichloroethene	50.000	63.109	126.22*	75-126
15 Trans-1,2-Dichloro	50.000	56.833	113.67	80-120
20 Cis-1,2-Dichloroet	50.000	54.731	109.46	80-120
23 Chloroform	50.000	54.424	108.85	80-120
24 Carbon Tetrachlori	50.000	57.854	115.71	77-122
29 2-Butanone	250.00	291.50	116.60	70-120
30 Benzene	50.000	55.169	110.34	80-120
33 1,2-Dichloroethane	50.000	52.715	105.43	76-120
34 Trichloroethene	50.000	58.844	117.69	80-120
43 Toluene	50.000	54.406	108.81	80-120
44 Tetrachloroethene	50.000	62.057	124.11*	80-121
53 Chlorobenzene	50.000	56.015	112.03	80-120
54 Ethyl Benzene	50.000	57.669	115.34	80-127
56 m,p-xylene	100.00	119.84	119.84	80-125
57 o-Xylene	50.000	56.235	112.47	78-120
76 1,4-Dichlorobenzen	50.000	57.036	114.07	80-120

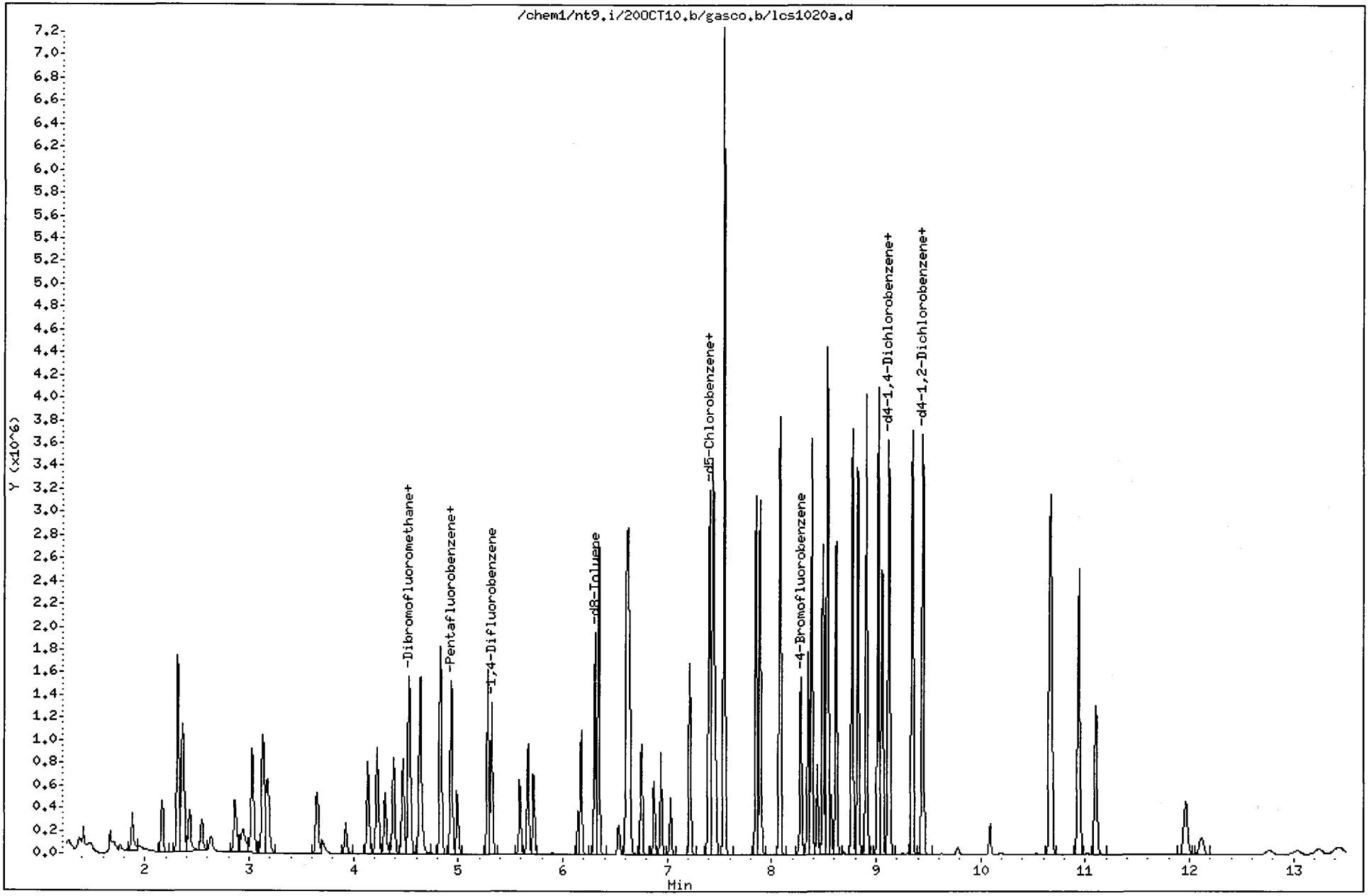
SURROGATE COMPOUND	AMOUNT ADDED ug/Kg	AMOUNT RECOVERED ug/Kg	% RECOVERED	LIMITS
$ 25 Dibromofluorometha	50.000	49.391	98.78	30-160
$ 31 d4-1,2-Dichloroeth	50.000	48.755	97.51	75-152
$ 42 d8-Toluene	50.000	49.006	98.01	82-115
$ 61 4-Bromofluorobenze	50.000	48.307	96.61	64-120
$ 78 d4-1,2-Dichloroben	50.000	49.659	99.32	80-120

Data File: /chem1/nt9.i/20OCT10.b/gasco.b/lcs1020a.d
Date : 20-OCT-2010 15:09
Client ID: LCS1020
Sample Info: LCS1020,5,5,0

Column phase: RTX502.2

Instrument: nt9.i

Operator: PB
Column diameter: 0.18



R085:00105

Analytical Resources, Inc.

8260C

Data file : /chem1/nt9.i/20OCT10.b/gasco.b/rq80a.d
Lab Smp Id: RQ80A Client Smp ID: DGS-20-0113.7-10100
Inj Date : 20-OCT-2010 15:43
Operator : PB Inst ID: nt9.i
Smp Info : RQ80A,5,5.56,0
Misc Info : 10-25982
Comment :
Method : /chem1/nt9.i/20OCT10.b/gasco.b/VO063010S.m
Meth Date : 25-Oct-2010 13:52 patrickb Quant Type: ISTD
Cal Date : 28-AUG-2010 13:21 Cal File: 2000828.d
Als bottle: 1
Dil Factor: 1.00000
Integrator: HP RTE Compound Sublist: gasco.sub
Target Version: 3.50
Processing Host: cserv3

10/25

Concentration Formula: Amt * DF * Pv * 1 / (Sa * ((100 - M) / 100)) * CpndVaria

Name	Value	Description
DF	1.00000	Dilution Factor
Pv	5.00000	Purge Volume
Sa	5.56000	Sample Amount
M	0.00000	% Moisture (not decanted)

Cpnd Variable Local Compound Variable

Compounds	QUANT SIG MASS	RT	EXP RT	REL RT	RESPONSE	CONCENTRATIONS ON-COLUMN (ug/Kg)	FINAL (ug/Kg)
3 Vinyl Chloride	62	Compound Not Detected.					
7 1,1-Dichloroethene	96	Compound Not Detected.					
15 Trans-1,2-Dichloroethene	96	Compound Not Detected.					
20 Cis-1,2-Dichloroethene	96	Compound Not Detected.					
23 Chloroform	83	Compound Not Detected.					
24 Carbon Tetrachloride	117	Compound Not Detected.					
* 32 Pentafluorobenzene	168	4.931	4.932	(1.000)	771798	50.0000	
$ 25 Dibromofluoromethane	111	4.529	4.530	(0.919)	284587	49.3126	44.346
$ 31 d4-1,2-Dichloroethane	65	4.937	4.937	(1.001)	314032	53.0012	47.663
29 2-Butanone	72	4.648	4.643	(0.943)	324	0.43253	0.3890(Q)
30 Benzene	78	Compound Not Detected.					
33 1,2-Dichloroethane	62	Compound Not Detected.					
* 35 1,4-Difluorobenzene	114	5.321	5.322	(1.000)	1040161	50.0000	
34 Trichloroethene	95	Compound Not Detected.					

Compounds	QUANT SIG MASS	RT	EXP RT	REL RT	RESPONSE	CONCENTRATIONS ON-COLUMN (ug/Kg)	FINAL (ug/Kg)
$ 42 d8-Toluene	98	6.306	6.306	(1.185)	1166889	49.5118	44.525
43 Toluene	92	Compound Not Detected.					
44 Tetrachloroethene	166	Compound Not Detected.					
* 52 d5-Chlorobenzene	117	7.397	7.398	(1.000)	928499	50.0000	
53 Chlorobenzene	112	Compound Not Detected.					
54 Ethyl Benzene	91	Compound Not Detected.					
56 m,p-xylene	106	Compound Not Detected.					
57 o-Xylene	106	Compound Not Detected.					
$ 61 4-Bromofluorobenzene	95	8.274	8.275	(1.119)	418659	48.6834	43.780
* 75 d4-1,4-Dichlorobenzene	152	9.111	9.112	(1.000)	508100	50.0000	
76 1,4-Dichlorobenzene	146	Compound Not Detected.					
$ 78 d4-1,2-Dichlorobenzene	152	9.434	9.434	(1.035)	449897	50.6531	45.551

QC Flag Legend

Q - Qualifier signal failed the ratio test.

Analytical Resources, Inc.

INTERNAL STANDARD COMPOUNDS
AREA AND RT SUMMARY

Instrument ID: nt9.i
Lab File ID: rq80a.d
Lab Smp Id: RQ80A
Analysis Type: VOA
Quant Type: ISTD
Operator: PB
Method File: /chem1/nt9.i/20OCT10.b/gasco.b/VO063010S.m
Misc Info: 10-25982

Calibration Date: 20-OCT-2010
Calibration Time: 13:11
Client Smp ID: DGS-20-0113.7-10100
Level: LOW
Sample Type: Sediment

Test Mode:
Use Initial Calibration Level 5.
If Continuing Cal. use Initial Cal. Level 5

COMPOUND	STANDARD	AREA LIMIT LOWER	AREA LIMIT UPPER	SAMPLE	%DIFF
32 Pentafluorobenzen	704281	352140	1408562	771798	9.59
35 1,4-Difluorobenze	937745	468872	1875490	1040161	10.92
52 d5-Chlorobenzene	853013	426506	1706026	928499	8.85
75 d4-1,4-Dichlorobe	503655	251828	1007310	508100	0.88

COMPOUND	STANDARD	RT LIMIT LOWER	RT LIMIT UPPER	SAMPLE	%DIFF
32 Pentafluorobenzen	4.93	4.43	5.43	4.93	-0.01
35 1,4-Difluorobenze	5.32	4.82	5.82	5.32	-0.01
52 d5-Chlorobenzene	7.40	6.90	7.90	7.40	-0.01
75 d4-1,4-Dichlorobe	9.11	8.61	9.61	9.11	-0.01

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.

Analytical Resources, Inc.

RECOVERY REPORT

Client Name: NW Natural
Sample Matrix: SOLID
Lab Smp Id: RQ80A
Level: LOW
Data Type: MS DATA
SpikeList File: all.spk
Sublist File: gasco.sub
Method File: /chem1/nt9.i/20OCT10.b/gasco.b/VO063010S.m
Misc Info: 10-25982

Client SDG: RQ80
Fraction: VOA
Client Smp ID: DGS-20-0113.7-10100
Operator: PB
SampleType: SAMPLE
Quant Type: ISTD

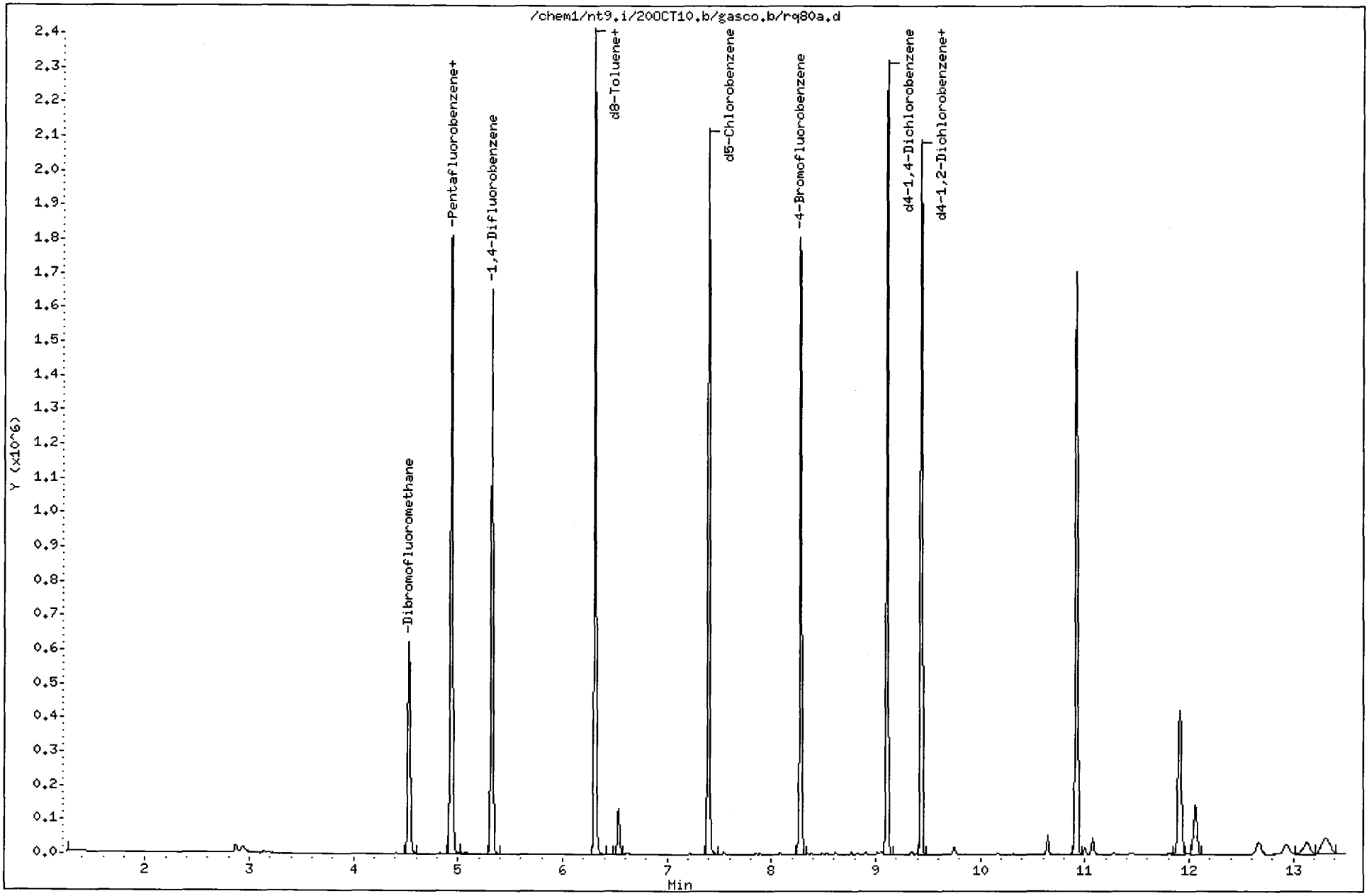
SURROGATE COMPOUND	AMOUNT ADDED ug/Kg	AMOUNT RECOVERED ug/Kg	% RECOVERED	LIMITS
$ 25 Dibromofluorometha	50.000	49.313	98.63	30-160
$ 31 d4-1,2-Dichloroeth	50.000	53.001	106.00	75-152
$ 42 d8-Toluene	50.000	49.512	99.02	82-115
$ 61 4-Bromofluorobenze	50.000	48.683	97.37	64-120
$ 78 d4-1,2-Dichloroben	50.000	50.653	101.31	80-120

Data File: /chem1/nt9.i/20OCT10.b/gasco.b/rq80a.d
Date : 20-OCT-2010 15:43
Client ID: DGS-20-0113.7-10100
Sample Info: RQ80A,5,5.56,0

Column phase: RTX502.2

Instrument: nt9.i

Operator: PB
Column diameter: 0.18



RQ80 : 001 11

Analytical Resources, Inc.

8260C

Data file : /chem1/nt9.i/20OCT10.b/gasco.b/rq80b.d
Lab Smp Id: RQ80B Client Smp ID: DGS-TB-101008-01
Inj Date : 20-OCT-2010 16:14
Operator : PB Inst ID: nt9.i
Smp Info : RQ80B,5,5,0
Misc Info : 10-25983
Comment :
Method : /chem1/nt9.i/20OCT10.b/gasco.b/VO063010S.m
Meth Date : 25-Oct-2010 13:52 patrickb Quant Type: ISTD
Cal Date : 28-AUG-2010 13:21 Cal File: 2000828.d
Als bottle: 1
Dil Factor: 1.00000
Integrator: HP RTE Compound Sublist: gasco.sub
Target Version: 3.50
Processing Host: cserv3

10/25/10

Concentration Formula: Amt * DF * Pv / Sa * CpndVariable

Name	Value	Description
DF	1.00000	Dilution Factor
Pv	0.00000	Purge Volume (mL)
Sa	0.00000	Sample Amount (mL)

Cpnd Variable Local Compound Variable

	Compounds	QUANT SIG MASS	RT	EXP RT	REL RT	RESPONSE	CONCENTRATIONS ON-COLUMN (ug/Kg)	FINAL (ug/L)
	3 Vinyl Chloride	62	Compound Not Detected.					
	7 1,1-Dichloroethene	96	Compound Not Detected.					
	15 Trans-1,2-Dichloroethene	96	Compound Not Detected.					
	20 Cis-1,2-Dichloroethene	96	Compound Not Detected.					
	23 Chloroform	83	Compound Not Detected.					
	24 Carbon Tetrachloride	117	Compound Not Detected.					
*	32 Pentafluorobenzene	168	4.936	4.932	(1.000)	713787	50.0000	
$	25 Dibromofluoromethane	111	4.529	4.530	(0.917)	251389	47.1003	47.100
$	31 d4-1,2-Dichloroethane	65	4.936	4.937	(1.000)	258308	47.1395	47.139
	29 2-Butanone	72	4.936	4.643	(1.000)	998	1.44059	1.441(Q)
	30 Benzene	78	Compound Not Detected.					
	33 1,2-Dichloroethane	62	Compound Not Detected.					
*	35 1,4-Difluorobenzene	114	5.321	5.322	(1.000)	947589	50.0000	
	34 Trichloroethene	95	Compound Not Detected.					
$	42 d8-Toluene	98	6.305	6.306	(1.185)	1060938	49.4140	49.414

Compounds	QUANT SIG MASS	RT	EXP RT	REL RT	RESPONSE	CONCENTRATIONS ON-COLUMN (ug/Kg)	FINAL (ug/L)
43 Toluene	92	6.344	6.340	(1.192)	3208	0.17713	0.1771
44 Tetrachloroethene	166	Compound Not Detected.					
* 52 d5-Chlorobenzene	117	7.397	7.398	(1.000)	843489	50.0000	
53 Chlorobenzene	112	Compound Not Detected.					
54 Ethyl Benzene	91	Compound Not Detected.					
56 m,p-xylene	106	Compound Not Detected.					
57 o-Xylene	106	Compound Not Detected.					
$ 61 4-Bromofluorobenzene	95	8.273	8.275	(1.119)	379220	48.5416	48.542
* 75 d4-1,4-Dichlorobenzene	152	9.111	9.112	(1.000)	464499	50.0000	
76 1,4-Dichlorobenzene	146	Compound Not Detected.					
$ 78 d4-1,2-Dichlorobenzene	152	9.433	9.434	(1.035)	409302	50.4082	50.408

QC Flag Legend

Q - Qualifier signal failed the ratio test.

Analytical Resources, Inc.

INTERNAL STANDARD COMPOUNDS
AREA AND RT SUMMARY

Instrument ID: nt9.i
Lab File ID: rq80b.d
Lab Smp Id: RQ80B
Analysis Type: VOA
Quant Type: ISTD
Operator: PB
Method File: /chem1/nt9.i/20OCT10.b/gasco.b/VO063010S.m
Misc Info: 10-25983

Calibration Date: 20-OCT-2010
Calibration Time: 13:11
Client Smp ID: DGS-TB-101008-01
Level: LOW
Sample Type: Water

Test Mode:
Use Initial Calibration Level 5.
If Continuing Cal. use Initial Cal. Level 5

COMPOUND	STANDARD	AREA LIMIT LOWER	AREA LIMIT UPPER	SAMPLE	%DIFF
32 Pentafluorobenzen	704281	352140	1408562	713787	1.35
35 1,4-Difluorobenze	937745	468872	1875490	947589	1.05
52 d5-Chlorobenzene	853013	426506	1706026	843489	-1.12
75 d4-1,4-Dichlorobe	503655	251828	1007310	464499	-7.77

COMPOUND	STANDARD	RT LIMIT LOWER	RT LIMIT UPPER	SAMPLE	%DIFF
32 Pentafluorobenzen	4.93	4.43	5.43	4.94	0.09
35 1,4-Difluorobenze	5.32	4.82	5.82	5.32	-0.03
52 d5-Chlorobenzene	7.40	6.90	7.90	7.40	-0.02
75 d4-1,4-Dichlorobe	9.11	8.61	9.61	9.11	-0.01

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.

Analytical Resources, Inc.

RECOVERY REPORT

Client Name: NW Natural
Sample Matrix: LIQUID
Lab Smp Id: RQ80B
Level: LOW
Data Type: MS DATA
SpikeList File: all.spk
Sublist File: gasco.sub
Method File: /chem1/nt9.i/20OCT10.b/gasco.b/VO063010S.m
Misc Info: 10-25983

Client SDG: RQ80
Fraction: VOA
Client Smp ID: DGS-TB-101008-01
Operator: PB
SampleType: SAMPLE
Quant Type: ISTD

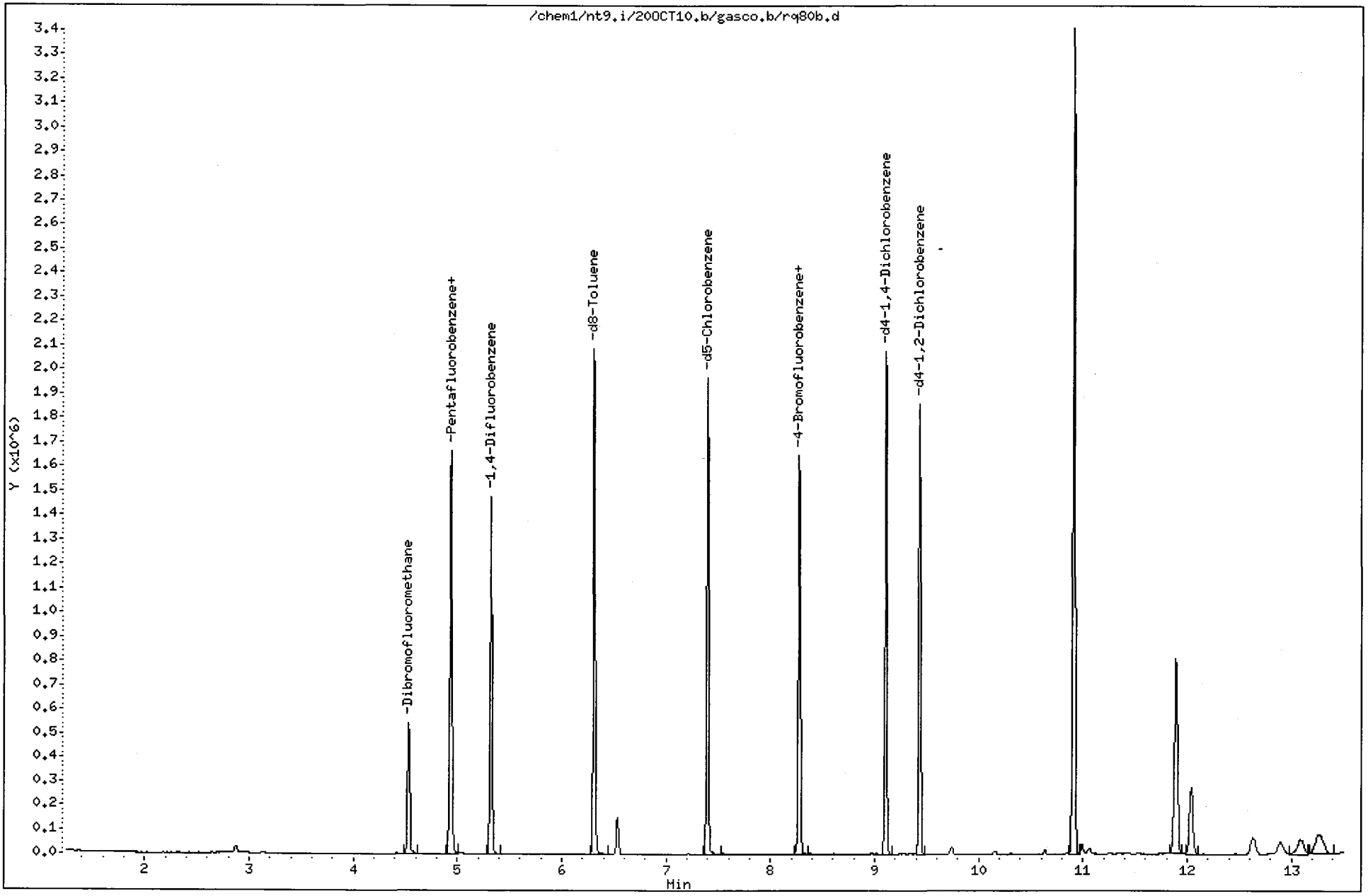
SURROGATE COMPOUND	AMOUNT ADDED ug/Kg	AMOUNT RECOVERED ug/Kg	% RECOVERED	LIMITS
$ 25 Dibromofluorometha	50.000	47.100	94.20	30-160
$ 31 d4-1,2-Dichloroeth	50.000	47.139	94.28	75-152
$ 42 d8-Toluene	50.000	49.414	98.83	82-115
$ 61 4-Bromofluorobenze	50.000	48.542	97.08	71-120
$ 78 d4-1,2-Dichloroben	50.000	50.408	100.82	80-121

Data File: /chem1/nt9.i/20OCT10.b/gasco.b/rq80b.d
Date : 20-OCT-2010 16:14
Client ID: DGS-TB-101008-01
Sample Info: RQ80B,5,5,0

Column phase: RTX502.2

Instrument: nt9.i

Operator: PB
Column diameter: 0.18



RQ80B : 00119

Table of Contents: ARI Job RQ83

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Project: NWN-INS

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Signature

October-25-2010
Date

Analytical Resources, Incorporated
Analytical Chemists and Consultants

October 26, 2010

[redacted]

RE: Project: NWN-INS
ARI Job No: RQ83

Dear [redacted]

Please find enclosed the Chain-of-Custody (COC) record, sample receipt documentation, and the final data package for samples from the project referenced above.

Sample receipt and details of these analyses are discussed in the Case Narrative.

An electronic copy of this package will remain on file with ARI. Should you have any questions or problems, please feel free to contact me at your convenience.

Sincerely,

ANALYTICAL RESOURCES, INC.

Susan Dunnihoo
Director, Client Services
sue@arilabs.com
206-695-6207

Enclosures

cc: eFile RQ83

SD/co

4611 South 134th Place, Suite 100 • Tukwila WA 98168 • **206-695-6200** • **206-695-6201** fax

Chain of Custody Documentation

ARI Job ID: RQ83

Chain of Custody Record & Laboratory Analysis Request

COC# RQ83.

ANCHOR QEA

Date: 10/08/10
Laboratory : ARI
Project Name: Gasco Data Gaps
Project Number: 000029.02.23
Project Manager: Ryan Barth
Phone Number: 206.287.9130
Shipment Method: courier

Analytical Parameters

Line	Field Sample ID	Collection Date/Time	Matrix	No. of Containers	TS,TOC,Cyanide	Metals	SVOC,PCB,Pest/TPH-D	VOC	CU-Triax	EPH Archive -10°C	VPH Archive Hold Do Not Freeze	Archive -10°C	Geotech - Hold - Do Not Freeze	TCLP (All tests Table 1-3)	TCLP (VOC/GRO Table 1-3)	Waste Charct. (Corr,Ignit,pH)(Spectra Sub)	TCLP Bench Test Archive -10°C (16 oz)	TCLP Benct Test Archive (2 oz) Hold No Freeze	TCLP Archive (16 oz) -10°C	PAHs NW Natural Sample	VOCs		Comments
1	GST-0950-17-18-101008	10/08/10 0955	SO	2																X	X		~~Hold Geotech Samples - Analysis to be determined at a later date~~
2	GST-TB SO-2-101008		W	3				X															
3																							
4																							
5																							
6																							
7																							
8																							
9																							
10																							
11																							
12																							

1 email sample confirmation report to labdata@anchorqea.com

2 See FSP for methods, analytes, and reporting limits

Additional notes/comments:

Relinquished By:	Company:	Received By:	
Matt Wilson	Anchor QEA LLC.	A. Voigardson	ARI
Signature/Printed Name	Date/Time 10/11/10 0720	Signature/Printed Name	Date/Time 10/11/10 1445

Relinquished By:	Company:	Received By:	
Signature/Printed Name	Date/Time	Signature/Printed Name	Date/Time

000029.00003

Distribution: A copy will be made for the laboratory and client. The Project file will retain the original.

Analytical Resources, Incorporated
Analytical Chemists and Consultants

Cooler Receipt Form

ARI Client: Northwest Natural

COC No(s): _____ (NA)

Assigned ARI Job No: RQ83

Project Name: MWN-INS

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

Tracking No: _____ NA

Preliminary Examination Phase:

Were intact, properly signed and dated custody seals attached to the outside of to 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)..... 0.9 ___ ___ ___ ___ ___

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

Temp Gun ID#: 90877952

Cooler Accepted by: AV Date: 10/11/10 Time: 1445

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: _____			
Was sufficient ice used (if appropriate)?	NA	(YES)	NO
Were all bottles sealed in individual plastic bags?		(YES)	NO
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	9/22/10	

Was Sample Split by ARI : (NA) YES Date/Time: _____ Equipment: _____ Split by: _____

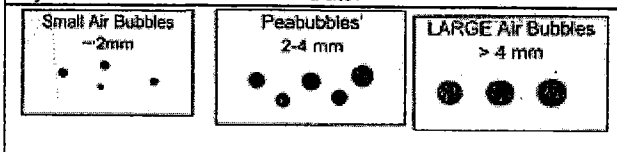
Samples Logged by: CLCM Date: 10/12/10 Time: 0839.

***** 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:



Small → "sm"	
Peabubbles → "pb"	
Large → "lg"	
Headspace → "hs"	

Case Narrative, Data Qualifiers, Control Limits

ARI Job ID: RQ83

ANALYTICAL
RESOURCES
INCORPORATED

Case Narrative

Client: NW Natural
Project: NWN-INS
ARI Job No.: RQ83

Sample receipt

One soil sample and a trip blank were received October 11, 2010 under ARI job RQ83, as part of larger shipment. For details regarding sample receipt, please refer to the Cooler Receipt Form.

Volatiles by SW8260C

The samples were analyzed within the method recommended holding times.

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

The surrogate percent recovery of Bromofluorobenzene was outside the control limits for sample **GST-TBSO-2-101008**. All other surrogate percent recoveries were within control limits. No corrective action was taken.

The method blanks were clean at the reporting limits. The LCS and LCSD percent recoveries were within control limits.

Sample **GST-09SO-17-18-101008** was run medium level.

Analytical Resources, Incorporated
Analytical Chemists and Consultants

Data Reporting Qualifiers

Effective 7/10/2009

Inorganic Data

U Indicates that the target analyte was not detected at the reported concentration

* Duplicate RPD is not within established control limits

B Reported value is less than the CRDL but ≥ the Reporting Limit

N Matrix Spike recovery not within established control limits

NA Not Applicable, analyte not spiked

H The natural concentration of the spiked element is so much greater than the concentration spiked that an accurate determination of spike recovery is not possible

L Analyte concentration is ≤5 times the Reporting Limit and the replicate control limit defaults to ±1 RL instead of the normal 20% RPD

Organic Data

U Indicates that the target analyte was not detected at the reported concentration

* Flagged value is not within established control limits

B Analyte detected in an associated Method Blank at a concentration greater than one-half of ARI's Reporting Limit or 5% of the regulatory limit or 5% of the analyte concentration in the sample.

J Estimated concentration when the value is less than ARI's established reporting limits

D The spiked compound was not detected due to sample extract dilution

E Estimated concentration calculated for an analyte response above the valid instrument calibration range. A dilution is required to obtain an accurate quantification of the analyte.

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).

S Indicates an analyte response that has saturated the detector. The calculated concentration is not valid; a dilution is required to obtain valid quantification of the analyte

RQ83 : 00007

Data Reporting Qualifiers

Effective 7/10/2009

NA The flagged analyte was not analyzed for

NR Spiked compound recovery is not reported due to chromatographic interference

NS The flagged analyte was not spiked into the sample

M Estimated value for an analyte detected and confirmed by an analyst but with low spectral match parameters. This flag is used only for GC-MS analyses

M2 The sample contains PCB congeners that do not match any standard Aroclor pattern. The PCBs are identified and quantified as the Aroclor whose pattern most closely matches that of the sample. The reported value is an estimate.

N The analysis indicates the presence of an analyte for which there is presumptive evidence to make a "tentative identification"

Y The analyte is not detected at or above the reported concentration. The reporting limit is raised due to chromatographic interference. The Y flag is equivalent to the U flag with a raised reporting limit.

C The analyte was positively identified on only one of two chromatographic columns. Chromatographic interference prevented a positive identification on the second column

P The analyte was detected on both chromatographic columns but the quantified values differ by ≥40% RPD with no obvious chromatographic interference

Geotechnical Data

A The total of all fines fractions. This flag is used to report total fines when only sieve analysis is requested and balances total grain size with sample weight.

F Samples were frozen prior to particle size determination

SM Sample matrix was not appropriate for the requested analysis. This normally refers to samples contaminated with an organic product that interferes with the sieving process and/or moisture content, porosity and saturation calculations

SS Sample did not contain the proportion of "fines" required to perform the pipette portion of the grain size analysis

W Weight of sample in some pipette aliquots was below the level required for accurate weighting

RQ83 : 00008

Analytical Resources,Incorporated
Analytical Chemists and Consultants

Spike Recovery Control Limits for Analysis of Solid Samples
Volatile Organic Compounds (VOA) EPA SW-846 Methods 8260C
5 mL Purge Volume [7]

Effective:5/18/09

Control limits are updated periodically. Assure that you have ARI's current control limits by downloading the files at the time of use. http://www.arilabs.com/portal/downloads/ARI-CLs.zip

	Low Level [1]	Low Level ME Limits [3]	Medium Level [2]	Medium Level ME Limits [3]
LCS Spike Recovery [8]				
Dichlorodifluoromethane	53 - 148	37 - 164	25 - 128	**10** - 145
Chloromethane	64 - 125	54 - 135	55 - 121	44 - 132
Vinyl Chloride	63 - 137	51 - 149	66 - 123	57 - 133
Bromomethane	57 - 136	44 - 149	40 - 154	21 - 173
Chloroethane	64 - 131	53 - 142	72 - 128	63 - 137
Trichlorofluoromethane	69 - 132	59 - 143	69 - 135	58 - 146
Acrolein	54 - 137	40 - 151	39 - 135	23 - 151
1,1,2-Trichloro-1,2,2-trifluoroethane	74 - 130	65 - 139	65 - 139	53 - 151
Acetone	60 - 131	48 - 143	55 - 130	43 - 143
1,1-Dichloroethene	75 - 126	67 - 135	73 - 133	63 - 143
Bromoethane	76 - 126	68 - 134	74 - 133	64 - 143
Methyl Iodide	65 - 139	53 - 151	47 - 155	29 - 173
Methylene Chloride	70 - 123	61 - 132	**80 - 120**	75 - 122
Acrylonitrile	67 - 125	57 - 135	62 - 129	51 - 140
Methyl tert-Butyl Ether	70 - 120	62 - 128	69 - 128	59 - 138
Carbon Disulfide	71 - 129	61 - 139	64 - 135	52 - 147
trans-1,2-Dichloroethene	80 - **120**	74 - 126	78 - 125	70 - 133
Vinyl Acetate	60 - 136	47 - 149	66 - 132	55 - 143
1,1-Dichloroethane	**80 - 120**	75 - 124	77 - 124	69 132
2-Butanone	70 - **120**	62 - 127	65 - 126	55 - 136
2,2-Dichloropropane	74 - 123	66 - 131	75 - 127	66 - 136
cis-1,2-Dichloroethene	**80 - 120**	76 - 123	**80** - 125	74 - 132
Chloroform	80 - **120**	74 - 123	**80** - 124	73 - 131
Bromodichloromethane	77 - 121	70 - 128	78 - 130	69 - 139
1,1,1-Trichloroethane	77 - 121	70 - 128	76 - 130	67 - 139
1,1-Dichloropropene	**80 - 120**	77 - 123	77 - 131	68 - 140
Carbon Tetrachloride	77 - 122	70 - 130	74 - 129	65 - 138
1,2-Dichloroethane	76 - **120**	69 - 123	73 - 123	65 - 131
Benzene	**80** - 120	80 - 126	**80 - 120**	75 - 130
Trichloroethene	**80 - 120**	77 - 123	**80** - 125	75 - 132
1,2-Dichloropropane	**80 - 120**	76 - 120	**80** - 122	74 - 129
Bromochloromethane	80 - 120	73 - 127	**80** - 127	73 - 135
Dibromomethane	80 - **120**	74 - 121	**80** - 121	76 - 128
2-Chloroethylvinylether	**10** - 191	**10** - 222	61 - 128	50 - 139

RQ83 : 00009

Analytical Resources,Incorporated
Analytical Chemists and Consultants

Spike Recovery Control Limits for Analysis of Solid Samples Volatile Organic Compounds (VOA) EPA SW-846 Methods 8260C 5 mL Purge Volume [7]

Effective:5/18/09

Control limits are updated periodically. Assure that you have ARI's current control limits by downloading the files at the time of use. http://www.arilabs.com/portal/downloads/ARI-CLs.zip

	Low Level [1]	Low Level ME Limits [3]	Medium Level [2]	Medium Level ME Limits [3]
4-Methyl-2-Pentanone	67 - **120**	59 - 125	80 - 123	73 - 130
cis-1,3-Dichloropropene	74 - **120**	67 - 125	80 - 122	73 - 129
Toluene	**80** - **120**	79 - **120**	**80** - 122	**80** - 127
trans-1,3-Dichloropropene	65 - **120**	57 - 125	**80** - 123	79 - 129
2-Hexanone	65 - 130	54 - 141	58 - 129	46 - 141
1,1,2-Trichloroethane	**80** - **120**	75 - 122	**80** - 120	77 - 126
1,3-Dichloropropane	80 - **120**	74 - 122	**80** - 120	76 - 126
Tetrachloroethene	**80** - 121	79 - 127	**80** - 130	73 - 138
Dibromochloromethane	64 - **120**	55 - 128	77 - 120	70 - 127
Ethylene Dibromide	75 - **120**	68 - 124	**80** - **120**	**80** - 120
Chlorobenzene	**80** - **120**	82 - 120	**80** - 121	80 - 127
Ethylbenzene	**80** - 127	80 - 134	**80** - 126	**80** - 132
1,1,2,2-Tetrachloroethane	74 - 120	66 - 128	79 - **120**	73 - 123
m,p-Xylene	**80** - 125	**80** - 131	**80** - 130	**80** - 137
o-Xylene	78 - **120**	71 - 126	**80** - 124	**80** - 130
Styrene	**80** - 123	78 - 130	**80** - 132	77 - 140
Isopropylbenzene	**80** - 127	84 - 133	**80** - 130	**80** - 137
Bromoform	60 - **120**	50 - 128	68 - 129	58 - 139
1,1,1,2-Tetrachloroethane	69 - 121	60 - 130	**80** - 126	76 - 133
1,2,3-Trichloropropane	72 - 121	64 - 129	77 - **120**	71 - 121
trans-1,4-Dichloro-2-butene	65 - 126	55 - 136	66 - 127	56 - 137
n-Propylbenzene	**80** - 132	**80** - 139	**80** - 132	77 - 140
Bromobenzene	**80** - **120**	78 - 122	**80** - 121	80 - 127
1,3,5-Trimethylbenzene	**80** - 125	**80** - 131	78 - 137	68 - 147
2-Chlorotoluene	**80** - 125	77 - 132	**80** - 123	**80** - 129
4-Chlorotoluene	**80** - 127	77 - 134	**80** - 130	74 - 138
tert-Butylbenzene	87 - 122	**80** - 128	**80** - 133	78 - 141
1,2,4-Trimethylbenzene	**80** - 126	**80** - 132	**80** - 131	79 - 139
sec-Butylbenzene	**80** - 134	80 - 142	**80** - 136	76 - 146
4-Isopropyltoluene	**80** - 131	**80** - 138	**80** - 141	71 - 151
1,3-Dichlorobenzene	**80** - 120	**80** - 126	**80** 126	77 - 133
1,4-Dichlorobenzene	**80** - 120	79 - 126	**80** 121	77 - 127
n-Butylbenzene	**80** - 138	**80** - 146	**80** - 138	77 - 147
1,2-Dichlorobenzene	**80** - **120**	78 - 122	**80** - **120**	**80** - 121
1,2-Dibromo-3-chloropropane	59 - 120	49 - 130	67 - 121	58 - 130
1,2,4-Trichlorobenzene	78 - 130	69 - 139	**80** - 133	72 - 142

RQ83 : 00010

Analytical Resources,Incorporated
Analytical Chemists and Consultants

Spike Recovery Control Limits for Analysis of Solid Samples Volatile Organic Compounds (VOA) EPA SW-846 Methods 8260C 5 mL Purge Volume (7)

Effective:5/18/09

Control limits are updated periodically. Assure that you have ARI's current control limits by downloading the files at the time of use. http://www.arilabs.com/portal/downloads/ARI-CLs.zip

	Low Level (1)	Low Level ME Limits (3)	Medium Level (2)	Medium Level ME Limits (3)
Hexachloro-1,3-butadiene	76 - 129	67 - 138	62 - 148	48 - 162
Naphthalene	66 - **120**	58 - 126	74 - 133	64 - 143
1,2,3-Trichlorobenzene	73 - 123	65 - 131	80 - 126	72 - 134
MB/LCS Surrogate Recovery				
Dibromofluoromethane	**80 - 120**	(4)	**80 - 120**	(4)
d4-1,2-Dichloroethane	79 - 121	(4)	76 - **120**	(4)
d8-Toluene	**80 - 120**	(4)	**80 - 120**	(4)
4-Bromofluorobenzene	**80 - 120**	(4)	**80 - 120**	(4)
d4-1,2-Dichlorobenzene	**80 - 120**	(4)	**80 - 120**	(4)
Sample Surrogate Recovery				
Dibromofluoromethane	30 - 160(6)	(4)	30 - 160(6)	(4)
d4-1,2-Dichloroethane	75 - 152	(4)	69 - **120**	(4)
d8-Toluene	82 - 115	(4)	**80 - 120**	(4)
4-Bromofluorobenzene	64 - **120**	(4)	76 - 128	(4)
d4-1,2-Dichlorobenzene	**80 - 120**	(4)	**80 - 120**	(4)

(1) Control Limits calculated using all data generated 1/1/08 through 12/31/08.
(2) Control Limits calculated using all data generated 3/1/07 through 11/15/07.
(3) **ME** = A **marginal exceedance** defined in the NELAC Standard(5) as beyond the LCS-CL but still within the ME limits. ME limits are between 3 and 4 standard deviations around the mean. A maximum of four marginal exceedances are acceptable. Five or more marginal exceedances require corrective action.
(4) Marginal Exceedances not allowed for surrogate standards
(5) **2003 NELAC Standard (EPA/600/R-04/003), July 2003**, Chapter 5, pages 251-252.
(6) 30 – 160 are default, advisory control limits used when there is insufficient data to calculate historic control limits. **DO NOT** use these limits as the sole reason to reject the data from a batch of analyses
(7) Highlighted control limits (**bold font**) are adjusted from the calculated values as follows:
a) ARI does not use control limits < 10
b) Control limits for analyzes with no separate preparation procedure are adjusted to reflect the minimum uncertainty in the calibration of the instrument allowed by the referenced analytical method.
(8) Laboratory Control Sample (LCS) spike recovery control limits also used as advisory control limits for sample matrix spike (MS) analyzes. MS recovery values are advisory and not used to assess the acceptability of an analytical batch.

R083 : 00011

Volatile Analysis
Report and Summary QC Forms

ARI Job ID: RQ83

ANALYTICAL RESOURCES INCORPORATED

ORGANICS ANALYSIS DATA SHEET
Volatiles by Purge & Trap GC/MS-Method SW8260C **Sample ID: GST-09SO-17-18-101008**
 SAMPLE

Lab Sample ID: RQ83A
LIMS ID: 10-26010
Matrix: Soil
Data Release Authorized:
Reported: 10/25/10

QC Report No: RQ83-NW Natural
Project: NWN-INS

Date Sampled: 10/08/10
Date Received: 10/11/10

Instrument/Analyst: NT9/PAB
Date Analyzed: 10/20/10 17:15

Sample Amount: 0.965 mg-dry-wt
Purge Volume: 5.0 mL
Moisture: 17.5%

CAS Number	Analyte	RL	Result	Q
71-43-2	Benzene	5,200	44,000	
108-88-3	Toluene	5,200	33,000	
100-41-4	Ethylbenzene	5,200	59,000	
179601-23-1	m,p-Xylene	5,200	63,000	
95-47-6	o-Xylene	5,200	30,000	

Reported in µg/kg (ppb)

Volatile Surrogate Recovery

d4-1,2-Dichloroethane	97.4%
d8-Toluene	98.9%
Bromofluorobenzene	98.6%
d4-1,2-Dichlorobenzene	102%

Results corrected for soil moisture content per Section 11.10.5 of EPA Method 8000C.

ANALYTICAL RESOURCES INCORPORATED

VOA SURROGATE RECOVERY SUMMARY

Matrix: Soil

QC Report No: RQ83-NW Natural
Project: NWN-INS

ARI ID	Client ID	Level	DCE	TOL	BFB	DCB	TOT OUT
MB-102010	Method Blank	Med	99.5%	99.4%	98.1%	101%	0
LCS-102010	Lab Control	Med	99.6%	98.9%	97.2%	99.6%	0
LCSD-102010	Lab Control Dup	Med	97.5%	98.0%	96.6%	99.3%	0
RQ83A	GST-09SO-17-18-101008	Med	97.4%	98.9%	98.6%	102%	0

	LCS/MB LIMITS		QC LIMITS	
SW8260C	Low	Med	Low	Med
(DCE) = d4-1,2-Dichloroethane	79-121	76-120	75-152	69-120
(TOL) = d8-Toluene	80-120	80-120	82-115	80-120
(BFB) = Bromofluorobenzene	80-120	80-120	64-120	76-128
(DCB) = d4-1,2-Dichlorobenzene	80-120	80-120	80-120	80-120

Log Number Range: 10-26010 to 10-26010

ANALYTICAL RESOURCES INCORPORATED

ORGANICS ANALYSIS DATA SHEET
Volatiles by Purge & Trap GC/MS-Method SW8260C **Sample ID: GST-TBSO-2-101008**
 TRIP BLANKS

Lab Sample ID: RQ83B
LIMS ID: 10-26011
Matrix: Water
Data Release Authorized:
Reported: 10/25/10

QC Report No: RQ83-NW Natural
Project: NWN-INS

Date Sampled: 10/08/10
Date Received: 10/11/10

Instrument/Analyst: NT9/PAB
Date Analyzed: 10/20/10 16:44

Sample Amount: 5.00 mL
Purge Volume: 5.0 mL

CAS Number	Analyte	RL	Result	Q
71-43-2	Benzene	1.0	< 1.0	U
108-88-3	Toluene	1.0	< 1.0	U
100-41-4	Ethylbenzene	1.0	< 1.0	U
179601-23-1	m,p-Xylene	2.0	< 2.0	U
95-47-6	o-Xylene	1.0	< 1.0	U

Reported in µg/L (ppb)

Volatile Surrogate Recovery

d4-1,2-Dichloroethane	90.5%
d8-Toluene	107%
Bromofluorobenzene	130%
d4-1,2-Dichlorobenzene	104%

ANALYTICAL RESOURCES INCORPORATED

VOA SURROGATE RECOVERY SUMMARY

Matrix: Water

QC Report No: RQ83-NW Natural
Project: NWN-INS

ARI ID	Client ID	PV	DCE	TOL	BFB	DCB	TOT OUT
MB-102010	Method Blank	5	99.5%	99.4%	98.1%	101%	0
LCS-102010	Lab Control	5	99.6%	98.9%	97.2%	99.6%	0
LCSD-102010	Lab Control Dup	5	97.5%	98.0%	96.6%	99.3%	0
RQ83B	GST-TBSO-2-101008	5	90.5%	107%	130%*	104%	1

	LCS/MB LIMITS	QC LIMITS
SW8260C		
(DCE) = d4-1,2-Dichloroethane	80-122	80-125
(TOL) = d8-Toluene	80-120	80-120
(BFB) = Bromofluorobenzene	80-120	80-120
(DCB) = d4-1,2-Dichlorobenzene	80-120	80-120

Prep Method: SW5030B
Log Number Range: 10-26011 to 10-26011

ANALYTICAL RESOURCES INCORPORATED

ORGANICS ANALYSIS DATA SHEET
Volatiles by Purge & Trap GC/MS-Method SW8260C **Sample ID: LCS-102010**
 LAB CONTROL SAMPLE

Lab Sample ID: LCS-102010
LIMS ID: 10-26010
Matrix: Soil
Data Release Authorized:
Reported: 10/25/10

QC Report No: RQ83-NW Natural
Project: NWN-INS

Date Sampled: NA
Date Received: NA

Instrument/Analyst LCS: NT9/PAB
LCSD: NT9/PAB
Date Analyzed LCS: 10/20/10 13:42
LCSD: 10/20/10 15:09

Sample Amount LCS: 20.0 mg-dry-wt
LCSD: 20.0 mg-dry-wt
Purge Volume LCS: 5.0 mL
LCSD: 5.0 mL
Moisture: NA

Analyte	LCS	Spike Added-LCS	LCS Recovery	LCSD	Spike Added-LCSD	LCSD Recovery	RPD
Benzene	11200	12500	89.6%	13800	12500	110%	20.8%
Toluene	10900	12500	87.2%	13600	12500	109%	22.0%
Ethylbenzene	11200	12500	89.6%	14400	12500	115%	25.0%
m,p-Xylene	23300	25000	93.2%	30000	25000	120%	25.1%
o-Xylene	11400	12500	91.2%	14100	12500	113%	21.2%

Reported in µg/kg (ppb)

RPD calculated using sample concentrations per SW846.

Volatile Surrogate Recovery

	LCS	LCSD
d4-1,2-Dichloroethane	99.6%	97.5%
d8-Toluene	98.9%	98.0%
Bromofluorobenzene	97.2%	96.6%
d4-1,2-Dichlorobenzene	99.6%	99.3%

ANALYTICAL RESOURCES INCORPORATED

ORGANICS ANALYSIS DATA SHEET
Volatiles by Purge & Trap GC/MS-Method SW8260C **Sample ID: LCS-102010**
 LAB CONTROL SAMPLE

Lab Sample ID: LCS-102010
LIMS ID: 10-26011
Matrix: Water
Data Release Authorized:
Reported: 10/25/10

QC Report No: RQ83-NW Natural
Project: NWN-INS

Date Sampled: NA
Date Received: NA

Instrument/Analyst LCS: NT9/PAB
LCSD: NT9/PAB
Date Analyzed LCS: 10/20/10 13:42
LCSD: 10/20/10 15:09

Sample Amount LCS: 5.00 mL
LCSD: 5.00 mL
Purge Volume LCS: 5.0 mL
LCSD: 5.0 mL

Analyte	LCS	Spike Added-LCS	LCS Recovery	LCSD	Spike Added-LCSD	LCSD Recovery	RPD
Benzene	44.7	50.0	89.4%	55.2	50.0	110%	21.0%
Toluene	43.6	50.0	87.2%	54.4	50.0	109%	22.0%
Ethylbenzene	45.0	50.0	90.0%	57.7	50.0	115%	24.7%
m,p-Xylene	93.0	100	93.0%	120	100	120%	25.4%
o-Xylene	45.6	50.0	91.2%	56.2	50.0	112%	20.8%

Reported in µg/L (ppb)

RPD calculated using sample concentrations per SW846.

Volatile Surrogate Recovery

	LCS	LCSD
d4-1,2-Dichloroethane	99.6%	97.5%
d8-Toluene	98.9%	98.0%
Bromofluorobenzene	97.2%	96.6%
d4-1,2-Dichlorobenzene	99.6%	99.3%

4A
VOLATILE METHOD BLANK SUMMARY

Method Blank ID.

MB1020

Lab Name: ANALYTICAL RESOURCES, INC

Client: NW NATURAL

ARI Job No: RQ83

Project: NWN-INS

Lab File ID: MB1020

Lab Sample ID: MB1020

Date Analyzed: 10/20/10

Time Analyzed: 1412

Instrument ID: NT9

Heated Purge: (Y/N) Y

THIS METHOD BLANK APPLIES TO THE FOLLOWING SAMPLES, MS and MSD:

	EPA SAMPLE NO.	LAB SAMPLE ID	LAB FILE ID	TIME ANALYZED
01	LCS1020	LCS1020	LCS1020	1342
02	LCS1020	LCS1020	LCS1020A	1509
03	DGS-20-0113.	RQ80A	RQ80A	1543
04	DGS-TB-10100	RQ80B	RQ80B	1614
05	GST-TBSO-2-1	RQ83B	RQ83B	1644
06	GST-09SO-17-	RQ83A	RQ83A	1715
07				
08				
09				
10				
11				
12				
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30				

COMMENTS:

FORM IV VOA

OLM3.2M

ANALYTICAL RESOURCES INCORPORATED

ORGANICS ANALYSIS DATA SHEET
Volatiles by Purge & Trap GC/MS-Method SW8260C **Sample ID: MB-102010**
 METHOD BLANK

Lab Sample ID: MB-102010
LIMS ID: 10-26010
Matrix: Soil
Data Release Authorized:
Reported: 10/25/10

QC Report No: RQ83-NW Natural
Project: NWN-INS

Date Sampled: NA
Date Received: NA

Instrument/Analyst: NT9/PAB
Date Analyzed: 10/20/10 14:12

Sample Amount: 20.0 mg-dry-wt
Purge Volume: 5.0 mL
Moisture: NA

CAS Number	Analyte	RL	Result	Q
71-43-2	Benzene	250	< 250	U
108-88-3	Toluene	250	< 250	U
100-41-4	Ethylbenzene	250	< 250	U
179601-23-1	m,p-Xylene	250	< 250	U
95-47-6	o-Xylene	250	< 250	U

Reported in µg/kg (ppb)

Volatile Surrogate Recovery

d4-1,2-Dichloroethane	99.5%
d8-Toluene	99.4%
Bromofluorobenzene	98.1%
d4-1,2-Dichlorobenzene	101%

ANALYTICAL RESOURCES INCORPORATED

ORGANICS ANALYSIS DATA SHEET
Volatiles by Purge & Trap GC/MS-Method SW8260C **Sample ID: MB-102010**
 METHOD BLANK

Lab Sample ID: MB-102010
LIMS ID: 10-26011
Matrix: Water
Data Release Authorized:
Reported: 10/25/10

QC Report No: RQ83-NW Natural
Project: NWN-INS

Date Sampled: NA
Date Received: NA

Instrument/Analyst: NT9/PAB
Date Analyzed: 10/20/10 14:12

Sample Amount: 5.00 mL
Purge Volume: 5.0 mL

CAS Number	Analyte	RL	Result	Q
71-43-2	Benzene	1.0	< 1.0	U
108-88-3	Toluene	1.0	< 1.0	U
100-41-4	Ethylbenzene	1.0	< 1.0	U
179601-23-1	m,p-Xylene	2.0	< 2.0	U
95-47-6	o-Xylene	1.0	< 1.0	U

Reported in µg/L (ppb)

Volatile Surrogate Recovery

d4-1,2-Dichloroethane	99.5%
d8-Toluene	99.4%
Bromofluorobenzene	98.1%
d4-1,2-Dichlorobenzene	101%

5A
VOLATILE ORGANIC INSTRUMENT PERFORMANCE CHECK
BROMOFLUOROBENZENE (BFB)

Lab Name: ANALYTICAL RESOURCES, INC Contract: NW NATURAL

Lab Code: ARI Case No.: NWN-INS SDG No.: RQ83

Lab File ID: BFB08280 BFB Injection Date: 08/28/10

Instrument ID: NT9 BFB Injection Time: 0745

GC Column: RTX502.2 ID: 0.18 (mm) Heated Purge: (Y/N) N

m/e	ION ABUNDANCE CRITERIA	% RELATIVE ABUNDANCE
50	8.0 - 40.0% of mass 95	16.8
75	30.0 - 66.0% of mass 95	49.9
95	Base Peak, 100% relative abundance	100.0
96	5.0 - 9.0% of mass 95	7.2
173	Less than 2.0% of mass 174	0.5 (0.5)1
174	50.0 - 101.0% of mass 95	94.4
175	4.0 - 9.0% of mass 174	6.7 (7.1)1
176	93.0 - 101.0% of mass 174	91.9 (97.3)1
177	5.0 - 9.0% of mass 176	7.1 (7.7)2

1-Value is % mass 174 2-Value is % mass 176

THIS CHECK APPLIES TO THE FOLLOWING SAMPLES, MS, MSD, BLANKS, AND STANDARDS:

	EPA SAMPLE NO.	LAB SAMPLE ID	LAB FILE ID	DATE ANALYZED	TIME ANALYZED
01	VSTD001	IC0828	0010828	08/28/10	1252
02	VSTD200	IC0828	2000828	08/28/10	1321
03	VSTD150	IC0828	1500828	08/28/10	1351
04	VSTD100	IC0828	1000828	08/28/10	1421
05	VSTD050	IC0828	0500828	08/28/10	1451
06	VSTD010	IC0828	0100828	08/28/10	1521
07	VSTD005	IC0828	0050828	08/28/10	1551
08	VSTD002	IC0828	0020828	08/28/10	1621
09					
10					
11					
12					
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22					

FORM V VOA OLM3.2M

5A
VOLATILE ORGANIC INSTRUMENT PERFORMANCE CHECK
BROMOFLUOROBENZENE (BFB)

Lab Name: ANALYTICAL RESOURCES, INC Contract: NW NATURAL

Lab Code: ARI Case No.: NWN-INS SDG No.: RQ83

Lab File ID: BFB1020 BFB Injection Date: 10/20/10

Instrument ID: NT9 BFB Injection Time: 1204

GC Column: RTX502.2 ID: 0.18 (mm) Heated Purge: (Y/N) N

m/e	ION ABUNDANCE CRITERIA	% RELATIVE ABUNDANCE
50	8.0 - 40.0% of mass 95	17.1
75	30.0 - 66.0% of mass 95	51.1
95	Base Peak, 100% relative abundance	100.0
96	5.0 - 9.0% of mass 95	7.5
173	Less than 2.0% of mass 174	0.5 (0.6)1
174	50.0 - 101.0% of mass 95	96.2
175	4.0 - 9.0% of mass 174	6.9 (7.2)1
176	93.0 - 101.0% of mass 174	93.6 (97.2)1
177	5.0 - 9.0% of mass 176	6.9 (7.3)2

1-Value is % mass 174 2-Value is % mass 176

THIS CHECK APPLIES TO THE FOLLOWING SAMPLES, MS, MSD, BLANKS, AND STANDARDS:

	EPA SAMPLE NO.	LAB SAMPLE ID	LAB FILE ID	DATE ANALYZED	TIME ANALYZED
01	VSTD050	CC1020	0501020A	10/20/10	1311
02	LCS1020	LCS1020	LCS1020	10/20/10	1342
03	MB1020	MB1020	MB1020	10/20/10	1412
04	LCS1020	LCS1020	LCS1020A	10/20/10	1509
05	DGS-20-0113.7-10	RQ80A	RQ80A	10/20/10	1543
06	DGS-TB-101008-01	RQ80B	RQ80B	10/20/10	1614
07	GST-TBSO-2-10100	RQ83B	RQ83B	10/20/10	1644
08	GST-09SO-17-18-1	RQ83A	RQ83A	10/20/10	1715
09					
10					
11					
12					
13					
14					
15					
16					
17					
18					
19					
20					
21					
22					

FORM V VOA OLM3.2M

FORM 6
VOLATILE INITIAL CALIBRATION DATA

Lab Name: ANALYTICAL RESOURCES, INC Client: NW NATURAL

ARI Job No: RQ83 Project: NWN-INS

Instrument ID: NT9 Calibration Date: 08/28/10

LAB FILE ID: RF1: 0010828 RF2: 0020828 RF5: 0050828
RF10: 0100828 RF50: 0500828

COMPOUND	RF1	RF2	RF5	RF10	RF50
Vinyl Chloride	0.441	0.369	0.408	0.407	0.444
1,1-Dichloroethene	0.467	0.396	0.404	0.424	0.428
Trans-1,2-Dichloroethene	0.514	0.447	0.463	0.475	0.478
Cis-1,2-Dichloroethene	0.489	0.415	0.448	0.461	0.462
Benzene	1.326	1.187	1.235	1.266	1.279
Trichloroethene	0.367	0.323	0.347	0.348	0.353
Toluene	1.035	0.855	0.868	0.877	0.885
Tetrachloroethene	0.558	0.482	0.482	0.493	0.509
Ethyl Benzene	2.020	1.786	1.825	1.891	1.925
m,p-xylene	0.815	0.706	0.748	0.773	0.805
o-Xylene	0.737	0.656	0.708	0.736	0.739
d4-1,2-Dichloroethane	0.382	0.378	0.387	0.386	0.391
d8-Toluene	1.127	1.132	1.140	1.141	1.142
4-Bromofluorobenzene	0.457	0.460	0.471	0.475	0.468
d4-1,2-Dichlorobenzene	0.870	0.869	0.883	0.879	0.881
Dibromofluoromethane	0.362	0.359	0.366	0.369	0.377

FORM 6
VOLATILE INITIAL CALIBRATION DATA

Lab Name: ANALYTICAL RESOURCES, INC Client: NW NATURAL

ARI Job No: RQ83 Project: NWN-INS

Instrument ID: NT9 Calibration Date: 08/28/10

LAB FILE ID: RF100: 1000828 RF150: 1500828 RF200: 2000828

COMPOUND	RF100	RF150	RF200
Vinyl Chloride	0.534	0.493	0.476
1,1-Dichloroethene	0.530		
Trans-1,2-Dichloroethene	0.577	0.557	0.569
Cis-1,2-Dichloroethene	0.530	0.524	0.538
Benzene	1.486	1.465	1.514
Trichloroethene	0.418	0.400	0.416
Toluene	1.041	1.022	1.061
Tetrachloroethene	0.625	0.589	0.609
Ethyl Benzene	2.326	2.266	2.352
m,p-xylene	0.966	0.913	0.902
o-Xylene	0.864	0.850	0.884
d4-1,2-Dichloroethane	0.380	0.384	0.383
d8-Toluene	1.126	1.127	1.128
4-Bromofluorobenzene	0.461	0.457	0.455
d4-1,2-Dichlorobenzene	0.865	0.877	0.867
Dibromofluoromethane	0.379	0.389	0.390

FORM 6
VOLATILE INITIAL CALIBRATION DATA

Lab Name: ANALYTICAL RESOURCES, INC Client: NW NATURAL

ARI Job No: RQ83 Project: NWN-INS

Instrument ID: NT9 Calibration Date: 08/28/10

COMPOUND	CURVE TYPE	AVE RF	%RSD OR R^2
Vinyl Chloride	AVRG	0.447	11.9
1,1-Dichloroethene	AVRG	0.441	11.3
Trans-1,2-Dichloroethene	AVRG	0.510	10.1
Cis-1,2-Dichloroethene	AVRG	0.483	9.2
Benzene	AVRG	1.345	9.4
Trichloroethene	AVRG	0.372	9.5
Toluene	AVRG	0.956	9.5
Tetrachloroethene	AVRG	0.544	10.9
Ethyl Benzene	AVRG	2.049	11.3
m,p-xylene	AVRG	0.829	10.9
o-Xylene	AVRG	0.772	10.8
d4-1,2-Dichloroethane	AVRG	0.384	1.1
d8-Toluene	AVRG	1.133	0.6
4-Bromofluorobenzene	AVRG	0.463	1.6
d4-1,2-Dichlorobenzene	AVRG	0.874	0.8
Dibromofluoromethane	AVRG	0.374	3.1

<- Indicates value outside QC limits:
(%RSD < 20% or R^2 > 0.990)

7A

VOLATILE CONTINUING CALIBRATION CHECK

Lab Name: ANALYTICAL RESOURCES, INC — Client: NW NATURAL

ARI Job No: RQ83 — Project: NWN-INS

Instrument ID: NT9 — Cont. Calib. Date: 10/20/10

Init. Calib. Date: 08/28/10 — Cont. Calib. Time: 1311

COMPOUND	CalAmt or ARF	CC Amt or RF	MIN RRF	CURVE TYPE	%D or Drift
Vinyl Chloride	0.446	0.360	0.010	AVRG	-19.3
1,1-Dichloroethene	0.442	0.388	0.010	AVRG	-12.2
Trans-1,2-Dichloroethene	0.510	0.425	0.010	AVRG	-16.7
Cis-1,2-Dichloroethene	0.483	0.419	0.010	AVRG	-13.2
Benzene	1.345	1.163	0.010	AVRG	-13.5
Trichloroethene	0.372	0.324	0.010	AVRG	-12.9
Toluene	0.956	0.808	0.010	AVRG	-15.5
Tetrachloroethene	0.543	0.473	0.010	AVRG	-12.9
Ethyl Benzene	2.049	1.767	0.010	AVRG	-13.8
m,p-xylene	0.828	0.738	0.010	AVRG	-10.9
o-Xylene	0.772	0.675	0.010	AVRG	-12.6
d4-1,2-Dichloroethane	0.384	0.379	0.010	AVRG	-1.3
d8-Toluene	1.133	1.119	0.010	AVRG	-1.2
4-Bromofluorobenzene	0.463	0.449	0.010	AVRG	-3.0
d4-1,2-Dichlorobenzene	0.874	0.874	0.010	AVRG	0.0
Dibromofluoromethane	0.374	0.371	0.010	AVRG	-0.8

<- Exceeds QC limit of 20% D
* RF less than minimum RF

FORM VII VOA

8A
VOLATILE INTERNAL STANDARD AREA AND RT SUMMARY

Lab Name: ANALYTICAL RESOURCES, INC — Client: NW NATURAL

ARI Job No: RQ83 — Project: NWN-INS

Ical Midpoint ID: 0500828 — Ical Date: 08/28/10

Instrument ID: NT9 — Project Run Date: 10/20/10

		IS1(PFB) AREA #	RT #	IS2(DFB) AREA #	RT #	IS3(CLB) AREA #	RT #
	ICAL MIDPT	704281	4.94	937745	5.32	853013	7.40
	UPPER LIMIT	1408562	5.44	1875490	5.82	1706026	7.90
	LOWER LIMIT	352140	4.44	468872	4.82	426506	6.90
	Sample ID						
01	LCS1020	800130	4.93	1049229	5.32	938129	7.39
02	MB1020	766662	4.93	1013953	5.32	904849	7.40
03	LCS1020	649147	4.93	857509	5.32	758186	7.40
04	DGS-20-0113.	771798	4.93	1040161	5.32	928499	7.40
05	DGS-TB-10100	713787	4.94	947589	5.32	843489	7.40
06	GST-TBSO-2-1	484658	4.93	601802	5.32	652638	7.39
07	GST-09SO-17-	680856	4.93	903061	5.32	808671	7.40
08							
09							
10							
11							
12							
13							
14							
15							
16							
17							
18							
19							
20							
21							
22							

IS1 (PFB) = Pentafluorobenzene
IS2 (DFB) = 1,4-Difluorobenzene
IS3 (CLB) = d5-Chlorobenzene

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

* Values outside of QC limits.

8A
VOLATILE INTERNAL STANDARD AREA AND RT SUMMARY

Lab Name: ANALYTICAL RESOURCES, INC — Client: NW NATURAL

ARI Job No: RQ83 — Project: NWN-INS

Ical Midpoint ID: 0500828 — Ical Date: 08/28/10

Instrument ID: NT9 — Project Run Date: 10/20/10

		IS4(DCB) AREA #	RT #	AREA #	RT #	AREA #	RT #
	ICAL MIDPT	503655	9.11				
	UPPER LIMIT	1007310	9.61				
	LOWER LIMIT	251828	8.61				
	Sample ID						
01	LCS1020	539415	9.11				
02	MB1020	510746	9.11				
03	LCS1020	430494	9.12				
04	DGS-20-0113.	508100	9.11				
05	DGS-TB-10100	464499	9.11				
06	GST-TBSO-2-1	548014	9.11				
07	GST-09SO-17-	475784	9.11				
08							
09							
10							
11							
12							
13							
14							
15							
16							
17							
18							
19							
20							
21							
22							

IS4 (DCB) = d4-1,4-Dichlorobenzene

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

* Values outside of QC limits.

Total Solids

ARI Job ID: RQ83

Volatiles Total Solids-voats
Data By: Pat Basilio
Created: 10/21/10

Worklist: 8758
Analyst: PAB
Comments:

Oven ID:_____

Balance ID:_____

Samples In: Date:_____ Time:_____ Temp:_____ Analyst:_____

Samples Out: Date:_____ Time:_____ Temp:_____ Analyst:_____

ARI ID	Tare Wt (g)	Wet Wt (g)	Dry Wt (g)	% Solids
1. RQ83A 10-26010	1.50	8.35	7.15	82.48

* - VOA TS Copied From BETX TS
% - VOA TS Copied From Metals TS
$ - VOA TS Copied From Extraction TS

Volatiles Total Solids-voats
Data By: Pat Basilio
Created: 10/21/10

Worklist: 8758
Analyst: PAB
Comments:

Oven ID: 11

Balance ID: 40080016 PT120

Samples In: Date: 10/20/10 Time: 4:30 Temp: 106 Analyst: [illegible]

Samples Out: Date: 10/21/10 Time: 2pm Temp: 105 Analyst: [illegible]

ARI ID	Tare Wt (g)	Wet Wt (g)	Dry Wt (g)	% Solids
1. RQ83A 10-26010	1.86	8.35	7.15	

Worklist ID: 8758 Page: 1
* - VOA TS Copied From BETX TS
% - VOA TS Copied From Metals TS
$ - VOA TS Copied From Extraction TS

Volatile Raw Data
Preparation Log

ARI Job ID: RQ83

Analytical Resources, Incorporated
Analytical Chemists and Consultants

Volatile Organics Extraction Bench Sheet

(8260B, 8260B-SIM, 8021, NWTPH-Gx, AK-101, TPH-G, VPH, TCLP-ZHE)

ARI Project No. KQ83 | Client ID/Project | Extraction Date | MeOH Lot No. | Analyst

1st Extraction:

2nd Extraction:

	Lab ID	Vial No.	Preservative		Method 5035 Sample Weight					Comments
			$NaHSO_3$	CH_3OH	Vial Weight	Tare (from vial)	Sample Weight	Extract Volume	MeOH Spilt Volume	
	MB:									
	LCS:									
	LCSD:									
1	KQ83 A						1.2	5mL	50mL	
2	B						5mL			
3										
4										
5										
6										
7										
8										
9										
10										
11										
12										
13										
14										
15										
16										
17										
18										
19										
20										
	Balance ID:									

	Solution ID	Concentration	Amount Spiked	Analyst	Witness
Surrogate:					
Spike:					

Volatile Raw Data
Initial Calibration Notes and Raw Data

ARI Job ID: RQ83

Analytical Resources, Incorporated
Analytical Chemists and Consultants

VOA Analyst Notes / Corrective Action Log

ARI Project ID: MTBCA Client ID: _____

ARI SOP: **404S**(Gas) **410S**(BTEX) **430S**(VPH) **700S**(8260C) **703S**(SIM) **706S**(524.2) **710S**(RSK-175)

Parameter(s): _____

Instrument: NT-3 NT-5 NT-7 NT-9 NT-10 PID-1 PID-2 PID-3 FID-6 FINN-5

Purge Volume (mL) 5 Curve Date: 8/28/10 Analysis Start Date: 8/28/10

pH ≤ 2.0	YES / NO / NA	Method Blank In Control?	YES / NO
BFB Tune Meets Criteria?	YES / NO / NA	LCS / LCSD Recovery In Control?	YES / NO
Internal Standard Meets Criteria?	YES / NO / NA	Surrogate Recovery In Control?	YES / NO
ICal acceptable?	YES / NO	CCal acceptable?	YES / NO
Q flag applied?	YES / NO / NA	Q flag applied?	YES / NO / NA
Manual Integrations for ICal?	YES / NO	Manual Integrations for Samples?	Yes /NO
Special Analysis Criteria Met?	YES / NO / NA		

Bubbles/Headspace: None SM (≤ 2mm •) PB (2-4mm) LG (> 4mm ●) Head Space

Detail problems, corrective actions and/or other pertinent information below (use reverse side when necessary):

Additional Details on Reverse: Yes / No

Analyst: _____ **Date:** 10/18/10

Reviewer: _____ **Date:** 10/18/10

Analytical Resources Inc.: Volatile Organics Instrument Log

NT-9 Serial No.:GC=US00021704, MS=US80230047

Date: 8/28/10 Analysis: 8260C Analyst: M

GC Program: VOA Column No: 562025 Column Type: MTX VMS

Instrument Tune (.U or .CT.): bfb08280 EM Voltage: 1289

Calibration File: 2000ppb Curve Date: 8/28/10

IS/SS	Ical/Ccal	LCS/ICV
W652-1	W652-2	W643-2
	W652-3	W643-4
		W643-1

INTERNAL STANDARD SUMMARY FOR DATABATCH - /chem1/nt9.i/28AUG10.b

	Time	Filename	LabID	ClientID	WT								
1	0745	bfb08280.d	BFB0828	BFB0828	0.00								
2	1252	0010828.d	IC0828	VSTD001	5.00	4.93	593554	5.32	790571	7.40	695489	9.12	387125
3	1321	2000828.d	IC0828	VSTD200	5.00	4.93	640076	5.32	861135	7.40	803012	9.13	480939
4	1351	1500828.d	IC0828	VSTD150	5.00	4.93	648980	5.32	873392	7.40	806370	9.12	478126
5	1421	1000828.d	IC0828	VSTD100	5.00	4.93	577839	5.32	774194	7.40	701708	9.11	414842
6	1451	0500828.d	IC0828	VSTD050	5.00	4.94	704281	5.32	937745	7.40	853013	9.11	503655
7	1521	0100828.d	IC0828	VSTD010	5.00	4.93	705939	5.32	945928	7.40	855411	9.11	505684
8	1551	0050828.d	IC0828	VSTD005	5.00	4.94	686435	5.32	917886	7.40	828296	9.11	481111
9	1621	0020828.d	IC0828	VSTD002	5.00	4.94	638204	5.32	847674	7.40	752656	9.11	418493
10	1821	icv0828.d	ICV0828	ICV0828	5.00	4.93	643032	5.32	855721	7.40	778023	9.11	462358

M 8/28/10

Maintenance / Comments

Maintenance Verification (Identify ICal or CCal that demonstrates the instrument is in control):

Every line must contain information or be lined out. Make all entries legible. Start a new page for each QC period.

MANUAL INTEGRATION SUMMARY FOR DATABATCH - /chem1/nt9.i/28AUG10.b/gasco.b

ARI Job No.: BFB0 Method: bfb8260.m Instrument: nt9.i Date: 28-AUG-2010

Time	Filename	LabID	ClientId	DF	Manually Integrated Compounds
0745	bfb08280.d	BFB0828	BFB0828	1	NO MANUAL INTEGRATION
1252	0010828.d	IC0828	VSTD001	1	NO MANUAL INTEGRATION
1321	2000828.d	IC0828	VSTD200	1	NO MANUAL INTEGRATION
1351	1500828.d	IC0828	VSTD150	1	NO MANUAL INTEGRATION
1421	1000828.d	IC0828	VSTD100	1	NO MANUAL INTEGRATION
1451	0500828.d	IC0828	VSTD050	1	NO MANUAL INTEGRATION
1521	0100828.d	IC0828	VSTD010	1	NO MANUAL INTEGRATION
1551	0050828.d	IC0828	VSTD005	1	NO MANUAL INTEGRATION
1621	0020828.d	IC0828	VSTD002	1	NO MANUAL INTEGRATION
1821	icv0828.d	ICV0828	ICV0828	1	NO MANUAL INTEGRATION

R0883 : 000038

Data File: /chem1/nt9.i/28AUG10.b/gasco.b/bfb08280.d

Date : 28-AUG-2010 07:45

Client ID: BFB0828

Instrument: nt9.i

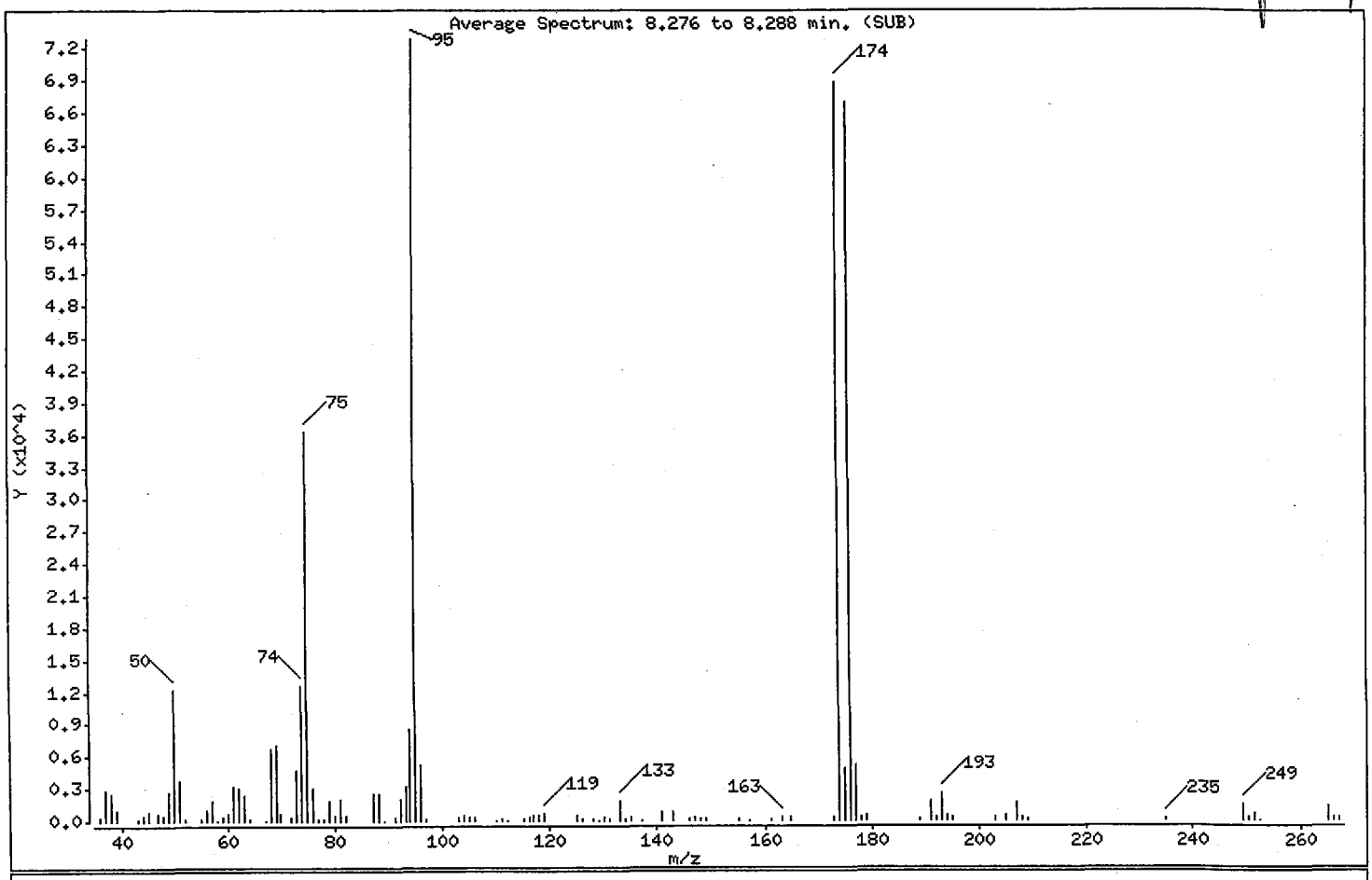
Sample Info: BFB0828,BFB0828,,1,28AUG10,,

Operator: PB

Column phase: RTX502.2

Column diameter: 0.18

1 Bromofluorobenzene



m/e	ION ABUNDANCE CRITERIA	% RELATIVE ABUNDANCE
95	Base Peak, 100% relative abundance	100.00
50	8.00 - 40.00% of mass 95	16.76
75	30.00 - 66.00% of mass 95	49.85
96	5.00 - 9.00% of mass 95	7.19
173	Less than 2.00% of mass 174	0.46 (0.49)
174	50.00 - 101.00% of mass 95	94.44
175	4.00 - 9.00% of mass 174	6.67 (7.06)
176	93.00 - 101.00% of mass 174	91.93 (97.34)
177	5.00 - 9.00% of mass 176	7.06 (7.68)

Data File: /chem1/nt9.i/28AUG10.b/gasco.b/bfb08280.d

Date : 28-AUG-2010 07:45

Client ID: BFB0828

Instrument: nt9.i

Sample Info: BFB0828,BFB0828,,1,28AUG10,,

Operator: PB

Column phase: RTX502.2

Column diameter: 0.18

Data File: bfb08280.d
Spectrum: Average Spectrum: 8.276 to 8.288 min. (SUB)
Location of Maximum: 95.00
Number of points: 107

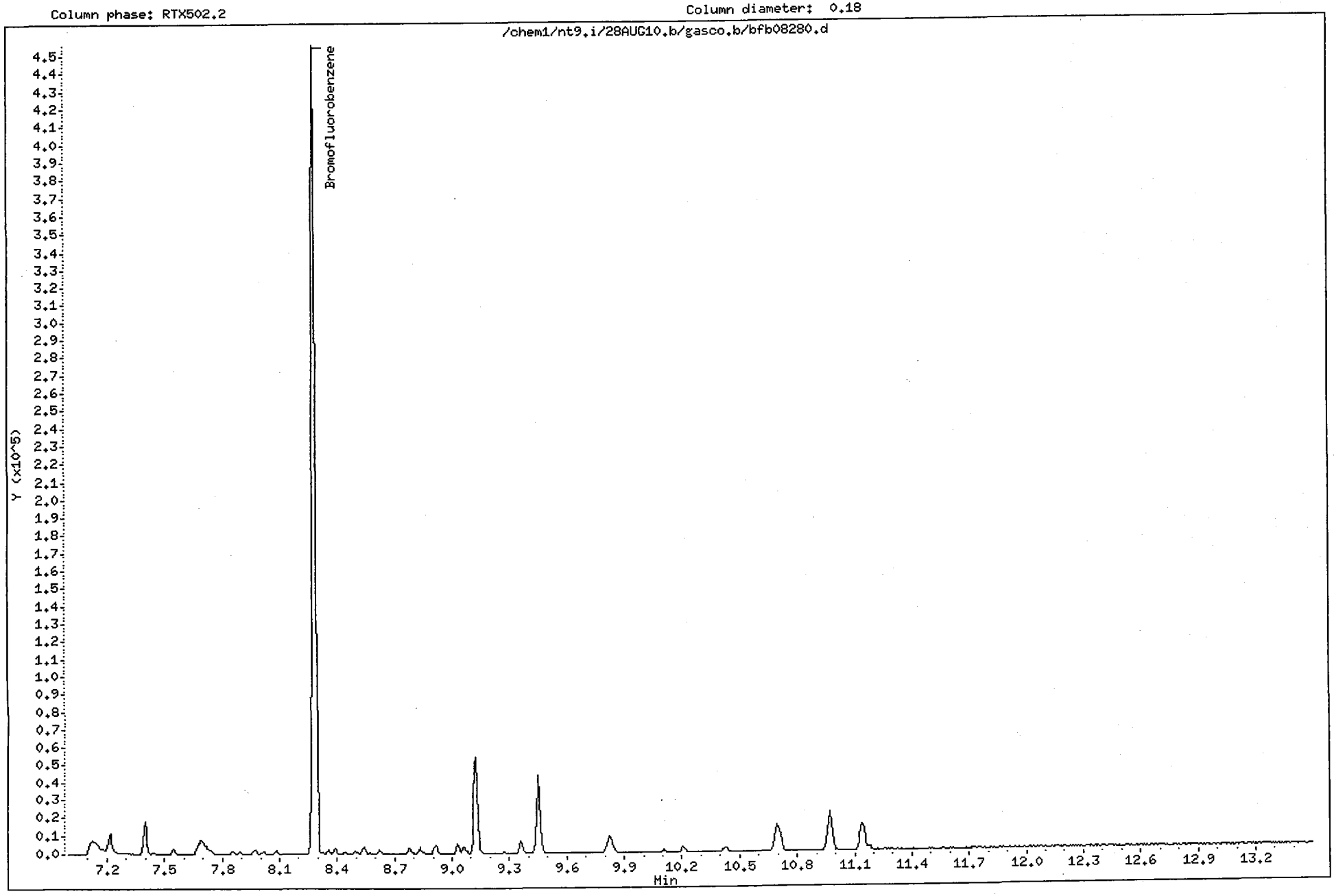
m/z	Y	m/z	Y	m/z	Y	m/z	Y
36.00	383	72.00	370	112.00	67	173.00	337
37.00	2783	73.00	4646	115.00	140	174.00	68840
38.00	2596	74.00	12549	116.00	270	175.00	4860
39.00	1028	75.00	36336	117.00	579	176.00	67016
43.00	171	76.00	3036	118.00	486	177.00	5144
44.00	505	77.00	222	119.00	711	178.00	294
45.00	771	78.00	240	125.00	546	179.00	515
47.00	626	79.00	1890	126.00	184	189.00	142
48.00	420	80.00	568	128.00	240	191.00	1872
49.00	2714	81.00	2029	129.00	62	192.00	407
50.00	12217	82.00	430	130.00	311	193.00	2498
51.00	3643	87.00	2567	131.00	124	194.00	510
52.00	200	88.00	2511	133.00	1910	195.00	309
55.00	224	89.00	67	134.00	87	203.00	267
56.00	986	91.00	283	135.00	330	205.00	508
57.00	1791	92.00	2026	137.00	60	207.00	1704
58.00	51	93.00	3113	141.00	759	208.00	343
59.00	361	94.00	8567	143.00	826	209.00	155
60.00	622	95.00	72896	146.00	111	235.00	211
61.00	3175	96.00	5238	147.00	278	249.00	1515
62.00	3089	97.00	197	148.00	241	250.00	403
63.00	2347	103.00	356	149.00	183	251.00	614
64.00	164	104.00	426	155.00	175	252.00	54
67.00	59	105.00	265	157.00	54	265.00	1352
68.00	6691	106.00	334	161.00	153	266.00	408
69.00	7006	110.00	63	163.00	356	267.00	303
70.00	655	111.00	129	165.00	293		

Data File: /chem1/nt9.i/28AUG10.b/gasco.b/bfb08280.d
Date : 28-AUG-2010 07:45
Client ID: BFB0828
Sample Info: BFB0828,BFB0828,,1,28AUG10,,

Instrument: nt9.i

Operator: PB
Column diameter: 0.18

Column phase: RTX502.2



R003 : 00014

Analytical Resources, Inc.

INITIAL CALIBRATION DATA

Start Cal Date : 28-AUG-2010 12:52
End Cal Date : 28-AUG-2010 16:21
Quant Method : ISTD
Origin : Disabled
Target Version : 3.50
Integrator : HP RTE
Method file : /chem1/nt9.i/28AUG10.b/gasco.b/VO063010S.m
Cal Date : 18-Oct-2010 13:57 patrickb
Curve Type : Average

10/18/10

Calibration File Names:
Level 1: /chem1/nt9.i/28AUG10.b/gasco.b/0010828.d
Level 2: /chem1/nt9.i/28AUG10.b/gasco.b/0020828.d
Level 3: /chem1/nt9.i/28AUG10.b/gasco.b/0050828.d
Level 4: /chem1/nt9.i/28AUG10.b/gasco.b/0100828.d
Level 5: /chem1/nt9.i/28AUG10.b/gasco.b/0500828.d
Level 6: /chem1/nt9.i/28AUG10.b/gasco.b/1000828.d
Level 7: /chem1/nt9.i/28AUG10.b/gasco.b/1500828.d
Level 8: /chem1/nt9.i/28AUG10.b/gasco.b/2000828.d

Compound	1.000 Level 1	2.000 Level 2	5.000 Level 3	10.000 Level 4	50.000 Level 5	100.000 Level 6	RRF	% RSD
	150.000 Level 7	200.000 Level 8						
3 Vinyl Chloride	0.44124	0.36900	0.40850	0.40724	0.44421	0.53382		
	0.49296	0.47638					0.44667	11.877
7 1,1-Dichloroethene	0.46702	0.39654	0.40390	0.42362	0.42777	0.52984		
	+++++	+++++					0.44145	11.280
15 Trans-1,2-Dichloroethene	0.51402	0.44676	0.46277	0.47513	0.47849	0.57736		
	0.55726	0.56926					0.51013	10.142
20 Cis-1,2-Dichloroethene	0.48917	0.41464	0.44768	0.46073	0.46216	0.53041		
	0.52431	0.53780					0.48336	9.201
23 Chloroform	0.75975	0.67506	0.71303	0.72761	0.73463	0.83871		
	0.83123	0.85351					0.76669	8.647
24 Carbon Tetrachloride	0.45322	0.37467	0.37878	0.40053	0.45310	0.56307		
	0.54319	0.54624					0.46410	16.760

Analytical Resources, Inc.

INITIAL CALIBRATION DATA

Start Cal Date : 28-AUG-2010 12:52
End Cal Date : 28-AUG-2010 16:21
Quant Method : ISTD
Origin : Disabled
Target Version : 3.50
Integrator : HP RTE
Method file : /chem1/nt9.i/28AUG10.b/gasco.b/VO063010S.m
Cal Date : 18-Oct-2010 13:57 patrickb
Curve Type : Average

Compound	1.000 Level 1 150.000 Level 7	2.000 Level 2 200.000 Level 8	5.000 Level 3	10.000 Level 4	50.000 Level 5	100.000 Level 6	RRF	% RSD
29 2-Butanone	0.05280	0.04234	0.04252	0.04537	0.04571	0.05600		
	0.05162	0.05187					0.04853	10.655
30 Benzene	1.32638	1.18660	1.23515	1.26601	1.27868	1.48595		
	1.46478	1.51452					1.34476	9.368
33 1,2-Dichloroethane	0.39130	0.33993	0.36738	0.38396	0.38080	0.40438		
	0.40958	0.41716					0.38681	6.473
34 Trichloroethene	0.36714	0.32330	0.34682	0.34800	0.35294	0.41807		
	0.40032	0.41556					0.37152	9.538
43 Toluene	1.03514	0.85549	0.86756	0.87730	0.88499	1.04109		
	1.02215	1.06128					0.95562	9.535
44 Tetrachloroethene	0.55860	0.48183	0.48172	0.49322	0.50901	0.62547		
	0.58919	0.60919					0.54353	10.926
53 Chlorobenzene	1.22382	1.05021	1.09789	1.12925	1.13123	1.29199		
	1.28087	1.33347					1.19234	8.711
54 Ethyl Benzene	2.02002	1.78634	1.82546	1.89117	1.92492	2.32640		
	2.26623	2.35247					2.04913	11.315
56 m,p-xylene	0.81500	0.70598	0.74855	0.77341	0.80494	0.96610		
	0.91344	0.90257					0.82875	10.870

Analytical Resources, Inc.

INITIAL CALIBRATION DATA

Start Cal Date : 28-AUG-2010 12:52
End Cal Date : 28-AUG-2010 16:21
Quant Method : ISTD
Origin : Disabled
Target Version : 3.50
Integrator : HP RTE
Method file : /chem1/nt9.i/28AUG10.b/gasco.b/VO063010S.m
Cal Date : 18-Oct-2010 13:57 patrickb
Curve Type : Average

Compound	1.000 Level 1 / 150.000 Level 7	2.000 Level 2 / 200.000 Level 8	5.000 Level 3	10.000 Level 4	50.000 Level 5	100.000 Level 6	RRF	% RSD
57 o-Xylene	0.73725	0.65651	0.70844	0.73580	0.73913	0.86456		
	0.85023	0.88429					0.77203	10.757
76 1,4-Dichlorobenzene	1.88673	1.56801	1.64288	1.69190	1.69135	1.90846		
	1.93573	2.02878					1.79423	9.225
$ 25 Dibromofluoromethane	0.36234	0.35910	0.36558	0.36940	0.37735	0.37880		
	0.38862	0.38978					0.37387	3.111
$ 31 d4-1,2-Dichloroethane	0.38156	0.37856	0.38687	0.38650	0.39071	0.37956		
	0.38432	0.38267					0.38384	1.062
$ 42 d8-Toluene	1.12727	1.13191	1.13958	1.14128	1.14178	1.12624		
	1.12676	1.12835					1.13290	0.605
$ 61 4-Bromofluorobenzene	0.45724	0.46015	0.47109	0.47490	0.46790	0.46064		
	0.45738	0.45543					0.46309	1.563
$ 78 d4-1,2-Dichlorobenzene	0.87020	0.86950	0.88301	0.87935	0.88127	0.86506		
	0.87680	0.86706					0.87403	0.790

Report Date : 18-Oct-2010 13:50

Analytical Resources, Inc.
RETENTION TIME SUMMARY REPORT

Method File: /chem1/nt9.i/28AUG10.b/gasco.b/VO063010S.m
Batch File: /chem1/nt9.i/28AUG10.b/gasco.b
Inst ID: nt9.i

ID:	RT01	RT02	RT03	RT04	RT05	RT06	RT07	RT08
FILENAME:	0010828	2000828	1500828	1000828	0500828	0100828	0050828	0020828
INJ.DATE:	28-AUG-2010	28-AUG-2010	28-AUG-2010	28-AUG-2010	28-AUG-2010	28-AUG-2010	28-AUG-2010	28-AUG-2010
INJ.TIME:	12:52	13:21	13:51	14:21	14:51	15:21	15:51	16:21

Compound	RT01	RT02	RT03	RT04	RT05	RT06	RT07	RT08	EXPEC RT	RT WINDOW	AVG RT	STD DEV
3 Vinyl Chloride	1.409	1.406	1.403	1.409	1.407	1.407	1.412	1.407	1.407	1.308-1.505	1.407	0.003
7 1,1-Dichloroethene	2.314	2.294	2.297	2.303	2.312	2.301	2.312	2.318	2.312	2.213-2.410	2.306	0.009
15 Trans-1,2-Dichloroethe	3.033	3.018	3.021	3.027	3.036	3.030	3.036	3.036	3.036	2.937-3.134	3.030	0.007
20 Cis-1,2-Dichloroethene	4.136	4.133	4.135	4.136	4.139	4.139	4.139	4.139	4.139	4.040-4.237	4.137	0.002
23 Chloroform	4.379	4.382	4.384	4.385	4.382	4.382	4.382	4.382	4.382	4.283-4.481	4.382	0.002
24 Carbon Tetrachloride	4.469	4.466	4.469	4.470	4.473	4.467	4.472	4.473	4.473	4.366-4.579	4.470	0.003
$ 25 Dibromofluoromethane	4.526	4.529	4.531	4.532	4.529	4.529	4.529	4.529	4.529	4.430-4.628	4.529	0.002
29 2-Butanone	4.645	4.659	4.655	4.651	4.642	4.654	4.648	4.648	4.642	4.543-4.741	4.650	0.006
30 Benzene	4.831	4.828	4.825	4.832	4.829	4.829	4.829	4.829	4.829	4.722-4.935	4.829	0.002
$ 31 d4-1,2-Dichloroethane	4.939	4.936	4.938	4.939	4.936	4.937	4.936	4.937	4.936	4.838-5.035	4.937	0.001
* 32 Pentafluorobenzene	4.933	4.930	4.933	4.933	4.936	4.931	4.936	4.937	4.936	4.837-5.035	4.934	0.003
33 1,2-Dichloroethane	4.990	4.993	4.989	4.990	4.993	4.988	4.993	4.993	4.993	4.886-5.099	4.991	0.002
34 Trichloroethene	5.284	5.281	5.283	5.284	5.281	5.282	5.281	5.282	5.281	5.175-5.388	5.282	0.001
* 35 1,4-Difluorobenzene	5.324	5.321	5.323	5.324	5.321	5.321	5.321	5.321	5.321	5.215-5.427	5.322	0.001
$ 42 d8-Toluene	6.308	6.305	6.307	6.308	6.305	6.306	6.305	6.306	6.305	6.199-6.412	6.306	0.001
43 Toluene	6.342	6.344	6.341	6.342	6.345	6.345	6.345	6.345	6.345	6.238-6.451	6.344	0.002
44 Tetrachloroethene	6.608	6.610	6.607	6.608	6.611	6.611	6.611	6.611	6.611	6.463-6.759	6.610	0.002

Reviewer 1 _____ Date: _____
Reviewer 2 _____ Date: _____

10/18/10

Analytical Resources, Inc.
RETENTION TIME SUMMARY REPORT

Method File: /chem1/nt9.i/28AUG10.b/gasco.b/VO063010S.m
Batch File: /chem1/nt9.i/28AUG10.b/gasco.b
Inst ID: nt9.i

Compound	RT01	RT02	RT03	RT04	RT05	RT06	RT07	RT08	EXPEC RT	RT WINDOW	AVG RT	STD DEV
* 52 d5-Chlorobenzene	7.400	7.402	7.399	7.400	7.397	7.397	7.397	7.397	7.397	7.249-7.545	7.399	0.002
53 Chlorobenzene	7.411	7.414	7.410	7.411	7.408	7.409	7.408	7.409	7.408	7.260-7.556	7.410	0.002
54 Ethyl Benzene	7.439	7.442	7.439	7.439	7.437	7.437	7.437	7.437	7.437	7.289-7.585	7.438	0.002
56 m,p-xylene	7.547	7.549	7.546	7.547	7.544	7.544	7.544	7.545	7.544	7.396-7.692	7.546	0.002
57 o-Xylene	7.852	7.855	7.852	7.852	7.850	7.850	7.850	7.850	7.850	7.702-7.997	7.851	0.002
$ 61 4-Bromofluorobenzene	8.282	8.302	8.281	8.277	8.274	8.280	8.274	8.274	8.274	8.126-8.422	8.280	0.009
* 75 d4-1,4-Dichlorobenzene	9.119	9.128	9.119	9.114	9.111	9.111	9.111	9.106	9.111	8.929-9.293	9.115	0.007
76 1,4-Dichlorobenzene	9.131	9.139	9.130	9.125	9.122	9.123	9.117	9.117	9.122	8.940-9.304	9.125	0.007
$ 78 d4-1,2-Dichlorobenzene	9.447	9.450	9.441	9.436	9.434	9.434	9.433	9.434	9.434	9.251-9.616	9.439	0.007

10/18/10

1063 00015

Analytical Resources, Inc.

8260C

Data file : /chem1/nt9.i/28AUG10.b/gasco.b/0010828.d
Lab Smp Id: IC0828 Client Smp ID: VSTD001
Inj Date : 28-AUG-2010 12:52
Operator : PB Inst ID: nt9.i
Smp Info : IC0828,5,5,0
Misc Info : 10-
Comment :
Method : /chem1/nt9.i/28AUG10.b/gasco.b/VO063010S.m
Meth Date : 18-Oct-2010 13:50 patrickb Quant Type: ISTD
Cal Date : 28-AUG-2010 12:52 Cal File: 0010828.d
Als bottle: 1 Calibration Sample, Level: 1
Dil Factor: 1.00000
Integrator: HP RTE Compound Sublist: gasco.sub
Target Version: 3.50
Processing Host: cserv3

Concentration Formula: Amt * DF * Pv * 1 / (Sa * ((100 - M) / 100)) * CpndVaria

Name	Value	Description
DF	1.00000	Dilution Factor
Pv	5.00000	Purge Volume
Sa	5.00000	Sample Amount
M	0.00000	% Moisture (not decanted)

Cpnd Variable Local Compound Variable

Compounds	QUANT SIG MASS	RT	EXP RT	REL RT	RESPONSE	AMOUNTS CAL-AMT (ug/Kg)	AMOUNTS ON-COL (ug/Kg)
3 Vinyl Chloride	62	1.409	1.407	(0.286)	5238	1.00000	0.9878
7 1,1-Dichloroethene	96	2.314	2.312	(0.469)	5544	1.00000	1.058
15 Trans-1,2-Dichloroethene	96	3.033	3.036	(0.615)	6102	1.00000	1.008
20 Cis-1,2-Dichloroethene	96	4.136	4.139	(0.838)	5807	1.00000	1.012
23 Chloroform	83	4.379	4.382	(0.888)	9019	1.00000	0.9909
24 Carbon Tetrachloride	117	4.469	4.473	(0.840)	7166	1.00000	0.9766
* 32 Pentafluorobenzene	168	4.933	4.936	(1.000)	593554	50.0000	
$ 25 Dibromofluoromethane	111	4.526	4.529	(0.917)	215070	50.0000	48.458
$ 31 d4-1,2-Dichloroethane	65	4.939	4.936	(1.001)	226475	50.0000	49.702
29 2-Butanone	72	4.645	4.642	(0.942)	3134	5.00000	5.440
30 Benzene	78	4.831	4.829	(0.908)	20972	1.00000	0.9863
33 1,2-Dichloroethane	62	4.990	4.993	(0.937)	6187	1.00000	1.012
* 35 1,4-Difluorobenzene	114	5.324	5.321	(1.000)	790571	50.0000	
34 Trichloroethene	95	5.284	5.281	(0.993)	5805	1.00000	0.9882

Compounds	QUANT SIG MASS	RT	EXP RT	REL RT	RESPONSE	AMOUNTS CAL-AMT (ug/Kg)	AMOUNTS ON-COL (ug/Kg)
$ 42 d8-Toluene	98	6.308	6.305	(1.185)	891184	50.0000	49.751
43 Toluene	92	6.342	6.345	(1.191)	16367	1.00000	1.083
44 Tetrachloroethene	166	6.608	6.611	(0.893)	7770	1.00000	1.028
* 52 d5-Chlorobenzene	117	7.400	7.397	(1.000)	695489	50.0000	
53 Chlorobenzene	112	7.411	7.408	(1.002)	17023	1.00000	1.026
54 Ethyl Benzene	91	7.439	7.437	(1.005)	28098	1.00000	0.9858
56 m,p-xylene	106	7.547	7.544	(1.020)	22673	2.00000	1.967
57 o-Xylene	106	7.852	7.850	(1.061)	10255	1.00000	0.9550
$ 61 4-Bromofluorobenzene	95	8.282	8.274	(1.119)	318004	50.0000	49.368
* 75 d4-1,4-Dichlorobenzene	152	9.119	9.111	(1.000)	387125	50.0000	
76 1,4-Dichlorobenzene	146	9.131	9.122	(1.001)	14608	1.00000	1.052
$ 78 d4-1,2-Dichlorobenzene	152	9.447	9.434	(1.036)	336878	50.0000	49.781

Analytical Resources, Inc.

INTERNAL STANDARD COMPOUNDS
AREA AND RT SUMMARY

Instrument ID: nt9.i
Lab File ID: 0010828.d
Lab Smp Id: IC0828
Analysis Type: VOA
Quant Type: ISTD
Operator: PB
Method File: /chem1/nt9.i/28AUG10.b/gasco.b/VO063010S.m
Misc Info: 10-

Calibration Date: 28-AUG-2010
Calibration Time: 14:51
Client Smp ID: VSTD001
Level: LOW
Sample Type: SOIL

Test Mode:
Use Initial Calibration Level 5.
If Continuing Cal. use Initial Cal. Level 5

COMPOUND	STANDARD	AREA LIMIT LOWER	AREA LIMIT UPPER	SAMPLE	%DIFF
32 Pentafluorobenzen	704281	352140	1408562	593554	-15.72
35 1,4-Difluorobenze	937745	468872	1875490	790571	-15.69
52 d5-Chlorobenzene	853013	426506	1706026	695489	-18.47
75 d4-1,4-Dichlorobe	503655	251828	1007310	387125	-23.14

COMPOUND	STANDARD	RT LIMIT LOWER	RT LIMIT UPPER	SAMPLE	%DIFF
32 Pentafluorobenzen	4.94	4.44	5.44	4.93	-0.06
35 1,4-Difluorobenze	5.32	4.82	5.82	5.32	0.05
52 d5-Chlorobenzene	7.40	6.90	7.90	7.40	0.03
75 d4-1,4-Dichlorobe	9.11	8.61	9.61	9.12	0.09

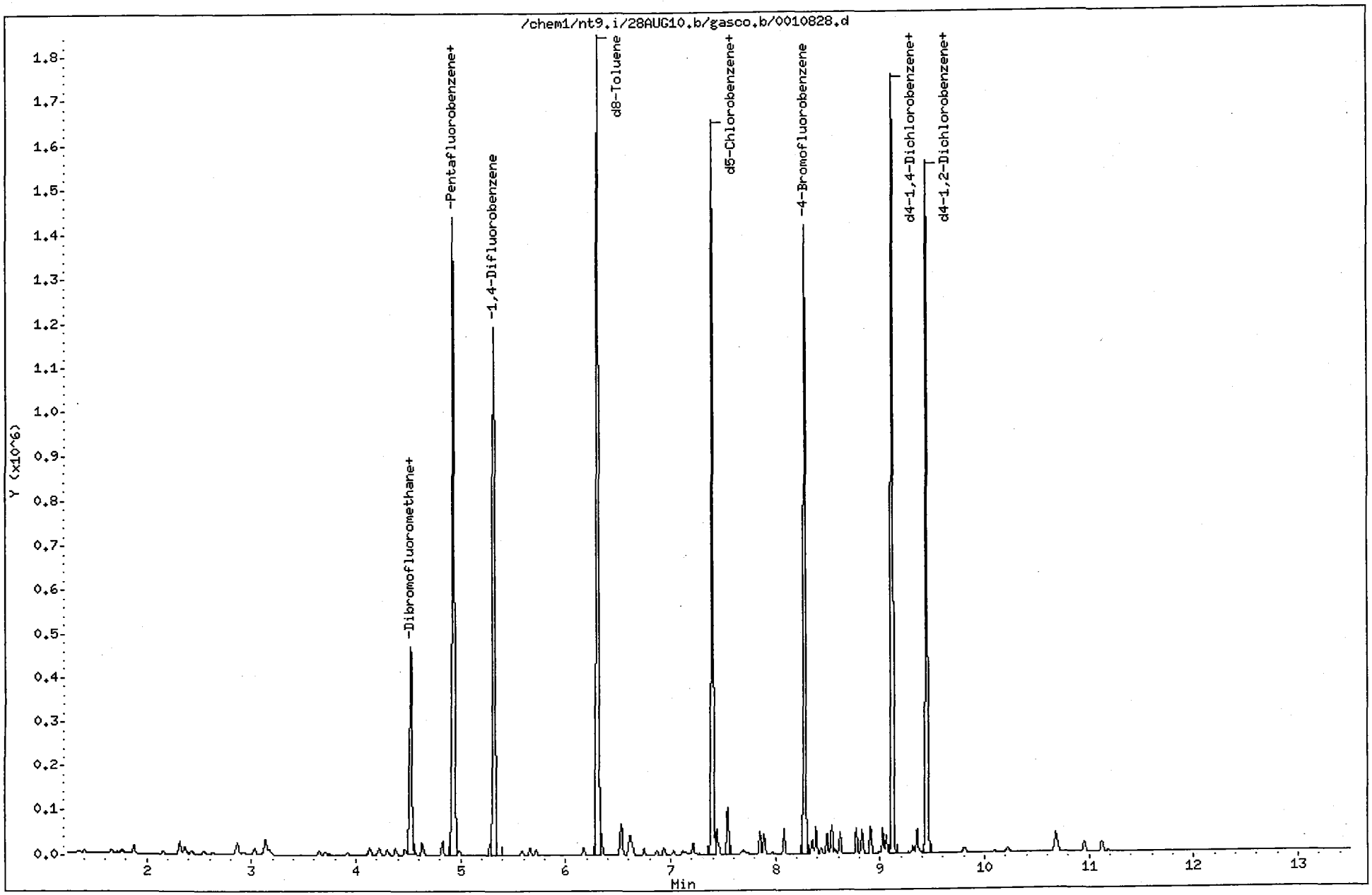
AREA UPPER LIMIT = +100% of internal standard area.
AREA LOWER LIMIT = - 50% of internal standard area.
RT UPPER LIMIT = + 0.50 minutes of internal standard RT.
RT LOWER LIMIT = - 0.50 minutes of internal standard RT.

Data File: /chem1/nt9.i/28AUG10.b/gasco.b/0010828.d
Date : 28-AUG-2010 12:52
Client ID: VSTD001
Sample Info: IC0828,5,5,0

Instrument: nt9.i

Operator: PB
Column diameter: 0.18

Column phase: RTX502.2



R0389 00555

Analytical Resources, Inc.

8260C

Data file : /chem1/nt9.i/28AUG10.b/gasco.b/0020828.d
Lab Smp Id: IC0828 Client Smp ID: VSTD002
Inj Date : 28-AUG-2010 16:21
Operator : PB Inst ID: nt9.i
Smp Info : IC0828,5,5,0
Misc Info : 10-
Comment :
Method : /chem1/nt9.i/28AUG10.b/gasco.b/VO063010S.m
Meth Date : 18-Oct-2010 13:50 patrickb Quant Type: ISTD
Cal Date : 28-AUG-2010 16:21 Cal File: 0020828.d
Als bottle: 1 Calibration Sample, Level: 2
Dil Factor: 1.00000
Integrator: HP RTE Compound Sublist: gasco.sub
Target Version: 3.50
Processing Host: cserv3

10/18/10

Concentration Formula: Amt * DF * Pv * 1 / (Sa * ((100 - M) / 100)) * CpndVaria

Name	Value	Description
DF	1.00000	Dilution Factor
Pv	5.00000	Purge Volume
Sa	5.00000	Sample Amount
M	0.00000	% Moisture (not decanted)

Cpnd Variable Local Compound Variable

Compounds	QUANT SIG MASS	RT	EXP RT	REL RT	RESPONSE	AMOUNTS CAL-AMT (ug/Kg)	AMOUNTS ON-COL (ug/Kg)
3 Vinyl Chloride	62	1.407	1.407	(0.285)	9420	2.00000	1.652
7 1,1-Dichloroethene	96	2.318	2.312	(0.469)	10123	2.00000	1.797
15 Trans-1,2-Dichloroethene	96	3.036	3.036	(0.615)	11405	2.00000	1.752
20 Cis-1,2-Dichloroethene	96	4.139	4.139	(0.838)	10585	2.00000	1.716
23 Chloroform	83	4.382	4.382	(0.888)	17233	2.00000	1.761
24 Carbon Tetrachloride	117	4.473	4.473	(0.841)	12704	2.00000	1.615
* 32 Pentafluorobenzene	168	4.937	4.936	(1.000)	638204	50.0000	
$ 25 Dibromofluoromethane	111	4.529	4.529	(0.917)	229178	50.0000	48.024
$ 31 d4-1,2-Dichloroethane	65	4.937	4.936	(1.000)	241601	50.0000	49.312
29 2-Butanone	72	4.648	4.642	(0.942)	5404	10.0000	8.724
30 Benzene	78	4.829	4.829	(0.908)	40234	2.00000	1.765
33 1,2-Dichloroethane	62	4.993	4.993	(0.938)	11526	2.00000	1.758
* 35 1,4-Difluorobenzene	114	5.321	5.321	(1.000)	847674	50.0000	
34 Trichloroethene	95	5.282	5.281	(0.993)	10962	2.00000	1.740

Compounds	QUANT SIG MASS	RT	EXP RT	REL RT	RESPONSE	AMOUNTS CAL-AMT (ug/Kg)	AMOUNTS ON-COL (ug/Kg)
$ 42 d8-Toluene	98	6.306	6.305	(1.185)	959492	50.0000	49.957
43 Toluene	92	6.345	6.345	(1.192)	29007	2.00000	1.790
44 Tetrachloroethene	166	6.611	6.611	(0.894)	14506	2.00000	1.773
* 52 d5-Chlorobenzene	117	7.397	7.397	(1.000)	752656	50.0000	
53 Chlorobenzene	112	7.409	7.408	(1.002)	31618	2.00000	1.762
54 Ethyl Benzene	91	7.437	7.437	(1.005)	53780	2.00000	1.744
56 m,p-xylene	106	7.545	7.544	(1.020)	42509	4.00000	3.407
57 o-Xylene	106	7.850	7.850	(1.061)	19765	2.00000	1.701
$ 61 4-Bromofluorobenzene	95	8.274	8.274	(1.119)	346336	50.0000	49.682
* 75 d4-1,4-Dichlorobenzene	152	9.106	9.111	(1.000)	418493	50.0000	
76 1,4-Dichlorobenzene	146	9.117	9.122	(1.001)	26248	2.00000	1.748
$ 78 d4-1,2-Dichlorobenzene	152	9.434	9.434	(1.036)	363879	50.0000	49.741

Analytical Resources, Inc.

INTERNAL STANDARD COMPOUNDS
AREA AND RT SUMMARY

Instrument ID: nt9.i
Lab File ID: 0020828.d
Lab Smp Id: IC0828
Analysis Type: VOA
Quant Type: ISTD
Operator: PB
Method File: /chem1/nt9.i/28AUG10.b/gasco.b/VO063010S.m
Misc Info: 10-

Calibration Date: 28-AUG-2010
Calibration Time: 14:51
Client Smp ID: VSTD002
Level: LOW
Sample Type: SOIL

Test Mode:
Use Initial Calibration Level 5.
If Continuing Cal. use Initial Cal. Level 5

COMPOUND	STANDARD	AREA LIMIT LOWER	AREA LIMIT UPPER	SAMPLE	%DIFF
32 Pentafluorobenzen	704281	352140	1408562	638204	-9.38
35 1,4-Difluorobenze	937745	468872	1875490	847674	-9.61
52 d5-Chlorobenzene	853013	426506	1706026	752656	-11.77
75 d4-1,4-Dichlorobe	503655	251828	1007310	418493	-16.91

COMPOUND	STANDARD	RT LIMIT LOWER	RT LIMIT UPPER	SAMPLE	%DIFF
32 Pentafluorobenzen	4.94	4.44	5.44	4.94	0.01
35 1,4-Difluorobenze	5.32	4.82	5.82	5.32	0.01
52 d5-Chlorobenzene	7.40	6.90	7.90	7.40	0.00
75 d4-1,4-Dichlorobe	9.11	8.61	9.61	9.11	-0.06

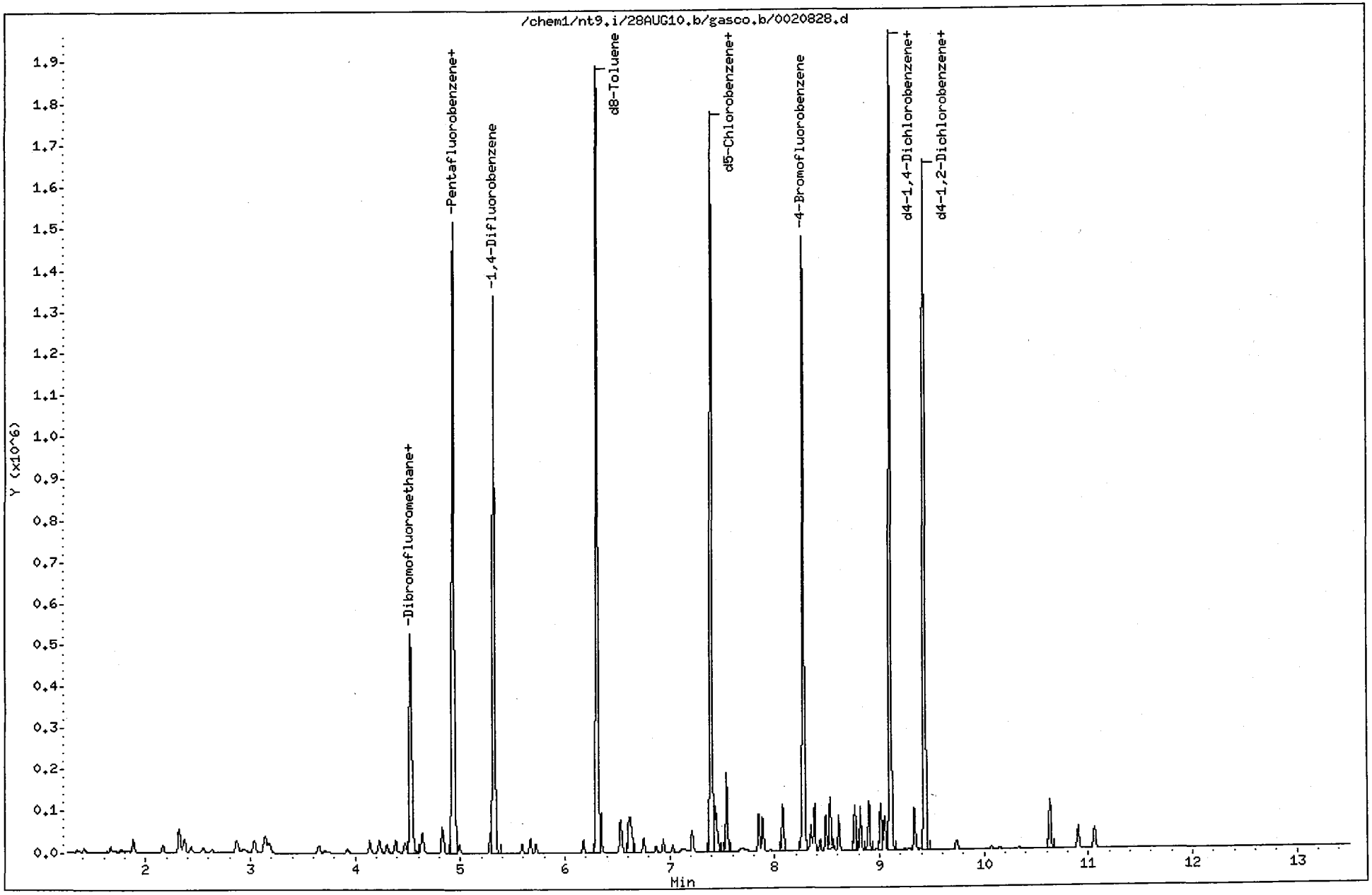
AREA UPPER LIMIT = +100% of internal standard area.
AREA LOWER LIMIT = - 50% of internal standard area.
RT UPPER LIMIT = + 0.50 minutes of internal standard RT.
RT LOWER LIMIT = - 0.50 minutes of internal standard RT.

Data File: /chem1/nt9.i/28AUG10.b/gasco.b/0020828.d
Date : 28-AUG-2010 16:21
Client ID: VSTD002
Sample Info: IC0828,5,5,0

Instrument: nt9.i

Operator: PB
Column diameter: 0.18

Column phase: RTX502.2



R363 : 00051

Analytical Resources, Inc.

8260C

Data file : /chem1/nt9.i/28AUG10.b/gasco.b/0050828.d
Lab Smp Id: IC0828 Client Smp ID: VSTD005
Inj Date : 28-AUG-2010 15:51
Operator : PB Inst ID: nt9.i
Smp Info : IC0828,5,5,0
Misc Info : 10-
Comment :
Method : /chem1/nt9.i/28AUG10.b/gasco.b/VO063010S.m
Meth Date : 18-Oct-2010 13:50 patrickb Quant Type: ISTD
Cal Date : 28-AUG-2010 15:51 Cal File: 0050828.d
Als bottle: 1 Calibration Sample, Level: 3
Dil Factor: 1.00000
Integrator: HP RTE Compound Sublist: gasco.sub
Target Version: 3.50
Processing Host: cserv3

Concentration Formula: Amt * DF * Pv * 1 / (Sa * ((100 - M) / 100)) * CpndVaria

Name	Value	Description
DF	1.00000	Dilution Factor
Pv	5.00000	Purge Volume
Sa	5.00000	Sample Amount
M	0.00000	% Moisture (not decanted)

Cpnd Variable Local Compound Variable

Compounds	QUANT SIG MASS	RT	EXP RT	REL RT	RESPONSE	AMOUNTS CAL-AMT (ug/Kg)	AMOUNTS ON-COL (ug/Kg)
3 Vinyl Chloride	62	1.412	1.407	(0.286)	28041	5.00000	4.573
7 1,1-Dichloroethene	96	2.312	2.312	(0.468)	27725	5.00000	4.575
15 Trans-1,2-Dichloroethene	96	3.036	3.036	(0.615)	31766	5.00000	4.536
20 Cis-1,2-Dichloroethene	96	4.139	4.139	(0.838)	30730	5.00000	4.631
23 Chloroform	83	4.382	4.382	(0.888)	48945	5.00000	4.650
24 Carbon Tetrachloride	117	4.472	4.473	(0.841)	34768	5.00000	4.081
* 32 Pentafluorobenzene	168	4.936	4.936	(1.000)	686435	50.0000	
$ 25 Dibromofluoromethane	111	4.529	4.529	(0.917)	250949	50.0000	48.891
$ 31 d4-1,2-Dichloroethane	65	4.936	4.936	(1.000)	265558	50.0000	50.394
29 2-Butanone	72	4.648	4.642	(0.942)	14593	25.0000	21.904
30 Benzene	78	4.829	4.829	(0.908)	113373	5.00000	4.592
33 1,2-Dichloroethane	62	4.993	4.993	(0.938)	33721	5.00000	4.749
* 35 1,4-Difluorobenzene	114	5.321	5.321	(1.000)	917886	50.0000	
34 Trichloroethene	95	5.281	5.281	(0.993)	31834	5.00000	4.668

Compounds	QUANT SIG MASS	RT	EXP RT	REL RT	RESPONSE	AMOUNTS CAL-AMT (ug/Kg)	AMOUNTS ON-COL (ug/Kg)
$ 42 d8-Toluene	98	6.305	6.305	(1.185)	1046006	50.0000	50.295
43 Toluene	92	6.345	6.345	(1.192)	79632	5.00000	4.539
44 Tetrachloroethene	166	6.611	6.611	(0.894)	39901	5.00000	4.431
* 52 d5-Chlorobenzene	117	7.397	7.397	(1.000)	828296	50.0000	
53 Chlorobenzene	112	7.408	7.408	(1.002)	90938	5.00000	4.604
54 Ethyl Benzene	91	7.437	7.437	(1.005)	151202	5.00000	4.454
56 m,p-xylene	106	7.544	7.544	(1.020)	124005	10.0000	9.032
57 o-Xylene	106	7.850	7.850	(1.061)	58680	5.00000	4.588
$ 61 4-Bromofluorobenzene	95	8.274	8.274	(1.119)	390204	50.0000	50.864
* 75 d4-1,4-Dichlorobenzene	152	9.111	9.111	(1.000)	481111	50.0000	
76 1,4-Dichlorobenzene	146	9.117	9.122	(1.001)	79041	5.00000	4.578
$ 78 d4-1,2-Dichlorobenzene	152	9.433	9.434	(1.035)	424828	50.0000	50.514

Analytical Resources, Inc.

INTERNAL STANDARD COMPOUNDS
AREA AND RT SUMMARY

Instrument ID: nt9.i
Lab File ID: 0050828.d
Lab Smp Id: IC0828
Analysis Type: VOA
Quant Type: ISTD
Operator: PB
Method File: /chem1/nt9.i/28AUG10.b/gasco.b/VO063010S.m
Misc Info: 10-

Calibration Date: 28-AUG-2010
Calibration Time: 14:51
Client Smp ID: VSTD005
Level: LOW
Sample Type: SOIL

Test Mode:
Use Initial Calibration Level 5.
If Continuing Cal. use Initial Cal. Level 5

COMPOUND	STANDARD	AREA LIMIT LOWER	AREA LIMIT UPPER	SAMPLE	%DIFF
32 Pentafluorobenzen	704281	352140	1408562	686435	-2.53
35 1,4-Difluorobenze	937745	468872	1875490	917886	-2.12
52 d5-Chlorobenzene	853013	426506	1706026	828296	-2.90
75 d4-1,4-Dichlorobe	503655	251828	1007310	481111	-4.48

COMPOUND	STANDARD	RT LIMIT LOWER	RT LIMIT UPPER	SAMPLE	%DIFF
32 Pentafluorobenzen	4.94	4.44	5.44	4.94	0.00
35 1,4-Difluorobenze	5.32	4.82	5.82	5.32	0.00
52 d5-Chlorobenzene	7.40	6.90	7.90	7.40	0.00
75 d4-1,4-Dichlorobe	9.11	8.61	9.61	9.11	0.00

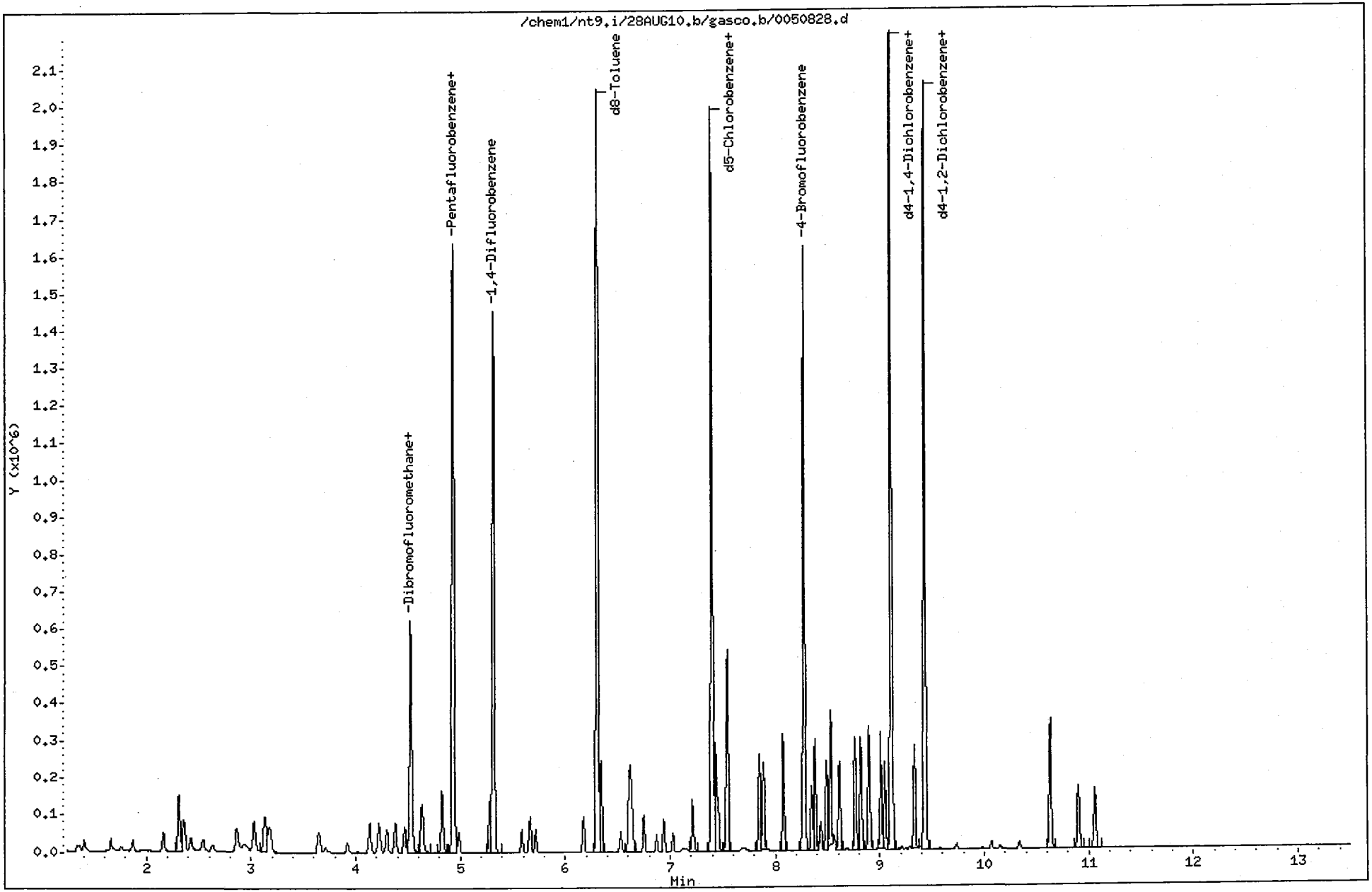
AREA UPPER LIMIT = +100% of internal standard area.
AREA LOWER LIMIT = - 50% of internal standard area.
RT UPPER LIMIT = + 0.50 minutes of internal standard RT.
RT LOWER LIMIT = - 0.50 minutes of internal standard RT.

Data File: /chem1/nt9.i/28AUG10.b/gasco.b/0050828.d
Date : 28-AUG-2010 15:51
Client ID: VSTD005
Sample Info: IC0828,5,5,0

Instrument: nt9.i

Operator: PB
Column diameter: 0.18

Column phase: RTX502.2



Analytical Resources, Inc.

8260C

Data file : /chem1/nt9.i/28AUG10.b/gasco.b/0100828.d
Lab Smp Id: IC0828 Client Smp ID: VSTD010
Inj Date : 28-AUG-2010 15:21
Operator : PB Inst ID: nt9.i
Smp Info : IC0828,5,5,0
Misc Info : 10-
Comment :
Method : /chem1/nt9.i/28AUG10.b/gasco.b/VO063010S.m
Meth Date : 18-Oct-2010 13:50 patrickb Quant Type: ISTD
Cal Date : 28-AUG-2010 15:21 Cal File: 0100828.d
Als bottle: 1 Calibration Sample, Level: 4
Dil Factor: 1.00000
Integrator: HP RTE Compound Sublist: gasco.sub
Target Version: 3.50
Processing Host: cserv3

Concentration Formula: Amt * DF * Pv * 1 / (Sa * ((100 - M) / 100)) * CpndVaria

Name	Value	Description
DF	1.00000	Dilution Factor
Pv	5.00000	Purge Volume
Sa	5.00000	Sample Amount
M	0.00000	% Moisture (not decanted)

Cpnd Variable Local Compound Variable

Compounds	QUANT SIG MASS	RT	EXP RT	REL RT	RESPONSE	AMOUNTS CAL-AMT (ug/Kg)	AMOUNTS ON-COL (ug/Kg)
3 Vinyl Chloride	62	1.407	1.407	(0.285)	57497	10.0000	9.117
7 1,1-Dichloroethene	96	2.301	2.312	(0.467)	59810	10.0000	9.596
15 Trans-1,2-Dichloroethene	96	3.030	3.036	(0.615)	67082	10.0000	9.314
20 Cis-1,2-Dichloroethene	96	4.139	4.139	(0.839)	65050	10.0000	9.532
23 Chloroform	83	4.382	4.382	(0.889)	102730	10.0000	9.490
24 Carbon Tetrachloride	117	4.467	4.473	(0.839)	75774	10.0000	8.630
* 32 Pentafluorobenzene	168	4.931	4.936	(1.000)	705939	50.0000	
$ 25 Dibromofluoromethane	111	4.529	4.529	(0.919)	260774	50.0000	49.402
$ 31 d4-1,2-Dichloroethane	65	4.937	4.936	(1.001)	272846	50.0000	50.346
29 2-Butanone	72	4.654	4.642	(0.944)	32029	50.0000	46.747
30 Benzene	78	4.829	4.829	(0.908)	239511	10.0000	9.414
33 1,2-Dichloroethane	62	4.988	4.993	(0.937)	72640	10.0000	9.926
* 35 1,4-Difluorobenzene	114	5.321	5.321	(1.000)	945928	50.0000	
34 Trichloroethene	95	5.282	5.281	(0.993)	65837	10.0000	9.367

Compounds	QUANT SIG MASS	RT	EXP RT	REL RT	RESPONSE	AMOUNTS CAL-AMT (ug/Kg)	AMOUNTS ON-COL (ug/Kg)
$ 42 d8-Toluene	98	6.306	6.305	(1.185)	1079570	50.0000	50.370
43 Toluene	92	6.345	6.345	(1.192)	165972	10.0000	9.180
44 Tetrachloroethene	166	6.611	6.611	(0.894)	84382	10.0000	9.074
* 52 d5-Chlorobenzene	117	7.397	7.397	(1.000)	855411	50.0000	
53 Chlorobenzene	112	7.409	7.408	(1.002)	193194	10.0000	9.471
54 Ethyl Benzene	91	7.437	7.437	(1.005)	323546	10.0000	9.229
56 m,p-xylene	106	7.544	7.544	(1.020)	264634	20.0000	18.665
57 o-Xylene	106	7.850	7.850	(1.061)	125882	10.0000	9.531
$ 61 4-Bromofluorobenzene	95	8.280	8.274	(1.119)	406232	50.0000	51.275
* 75 d4-1,4-Dichlorobenzene	152	9.111	9.111	(1.000)	505684	50.0000	
76 1,4-Dichlorobenzene	146	9.123	9.122	(1.001)	171113	10.0000	9.430
$ 78 d4-1,2-Dichlorobenzene	152	9.434	9.434	(1.035)	444672	50.0000	50.304

Analytical Resources, Inc.

INTERNAL STANDARD COMPOUNDS
AREA AND RT SUMMARY

Instrument ID: nt9.i
Lab File ID: 0100828.d
Lab Smp Id: IC0828
Analysis Type: VOA
Quant Type: ISTD
Operator: PB
Method File: /chem1/nt9.i/28AUG10.b/gasco.b/VO063010S.m
Misc Info: 10-

Calibration Date: 28-AUG-2010
Calibration Time: 14:51
Client Smp ID: VSTD010
Level: LOW
Sample Type: SOIL

Test Mode:
Use Initial Calibration Level 5.
If Continuing Cal. use Initial Cal. Level 5

COMPOUND	STANDARD	AREA LIMIT LOWER	AREA LIMIT UPPER	SAMPLE	%DIFF
32 Pentafluorobenzen	704281	352140	1408562	705939	0.24
35 1,4-Difluorobenze	937745	468872	1875490	945928	0.87
52 d5-Chlorobenzene	853013	426506	1706026	855411	0.28
75 d4-1,4-Dichlorobe	503655	251828	1007310	505684	0.40

COMPOUND	STANDARD	RT LIMIT LOWER	RT LIMIT UPPER	SAMPLE	%DIFF
32 Pentafluorobenzen	4.94	4.44	5.44	4.93	-0.11
35 1,4-Difluorobenze	5.32	4.82	5.82	5.32	0.00
52 d5-Chlorobenzene	7.40	6.90	7.90	7.40	0.00
75 d4-1,4-Dichlorobe	9.11	8.61	9.61	9.11	0.00

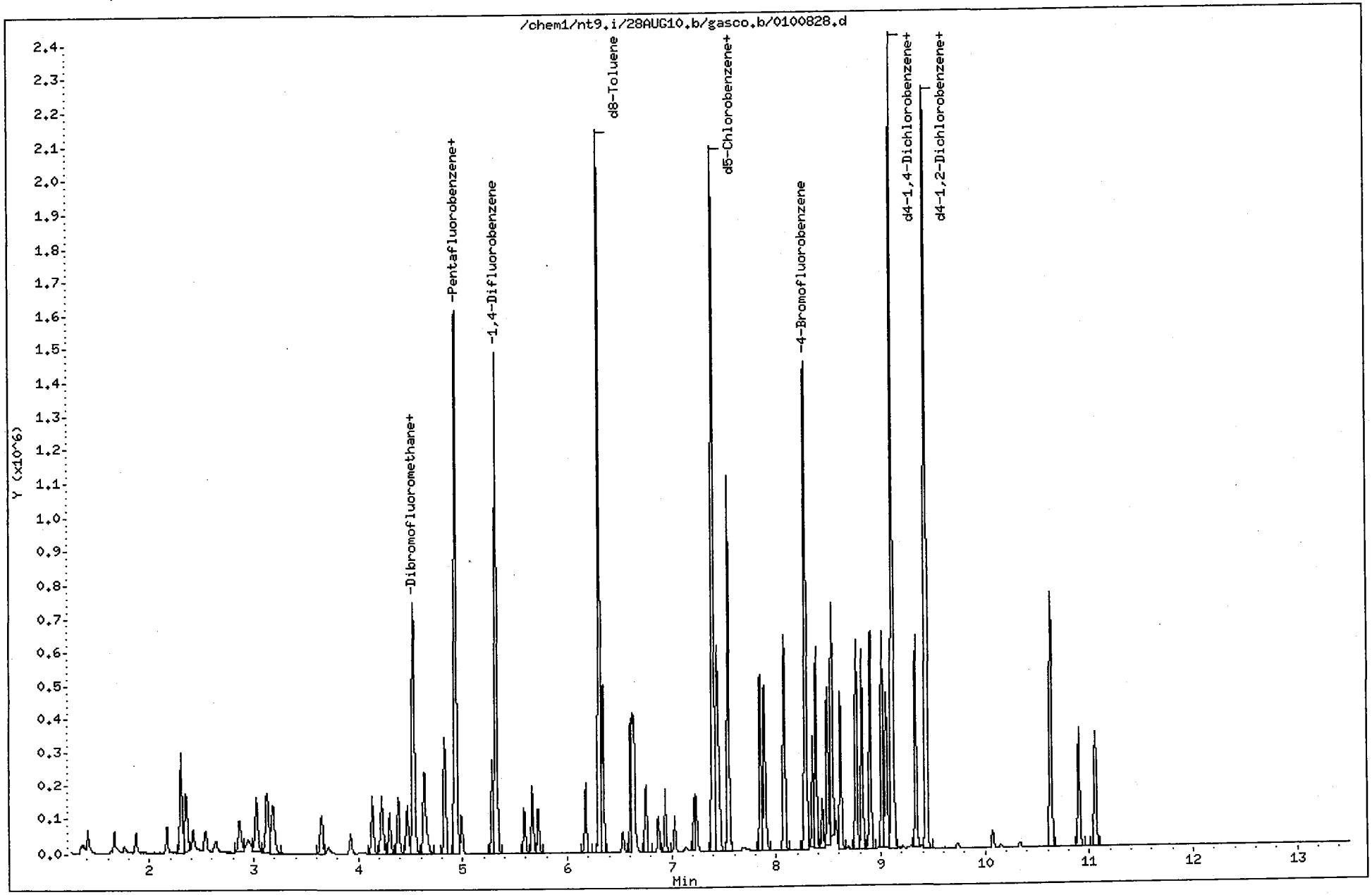
AREA UPPER LIMIT = +100% of internal standard area.
AREA LOWER LIMIT = - 50% of internal standard area.
RT UPPER LIMIT = + 0.50 minutes of internal standard RT.
RT LOWER LIMIT = - 0.50 minutes of internal standard RT.

Data File: /chem1/nt9.i/28AUG10.b/gasco.b/0100828.d
Date : 28-AUG-2010 15:21
Client ID: VSTD010
Sample Info: IC0828,5,5,0

Instrument: nt9.i

Operator: PB
Column diameter: 0.18

Column phase: RTX502.2



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8260C

Data file : /chem1/nt9.i/28AUG10.b/gasco.b/0500828.d
Lab Smp Id: IC0828 Client Smp ID: VSTD050
Inj Date : 28-AUG-2010 14:51
Operator : PB Inst ID: nt9.i
Smp Info : IC0828,5,5,0
Misc Info : 10-
Comment :
Method : /chem1/nt9.i/28AUG10.b/gasco.b/VO063010S.m
Meth Date : 18-Oct-2010 13:50 patrickb Quant Type: ISTD
Cal Date : 28-AUG-2010 14:51 Cal File: 0500828.d
Als bottle: 1 Calibration Sample, Level: 5
Dil Factor: 1.00000
Integrator: HP RTE Compound Sublist: gasco.sub
Target Version: 3.50
Processing Host: cserv3

Concentration Formula: Amt * DF * Pv * 1 / (Sa * ((100 - M) / 100)) * CpndVaria

Name	Value	Description
DF	1.00000	Dilution Factor
Pv	5.00000	Purge Volume
Sa	5.00000	Sample Amount
M	0.00000	% Moisture (not decanted)

Cpnd Variable Local Compound Variable

Compounds	QUANT SIG MASS	RT	EXP RT	REL RT	RESPONSE	AMOUNTS CAL-AMT (ug/Kg)	ON-COL (ug/Kg)
3 Vinyl Chloride	62	1.407	1.407	(0.285)	312846	50.0000	49.724
7 1,1-Dichloroethene	96	2.312	2.312	(0.468)	301272	50.0000	48.451
15 Trans-1,2-Dichloroethene	96	3.036	3.036	(0.615)	336994	50.0000	46.899
20 Cis-1,2-Dichloroethene	96	4.139	4.139	(0.838)	325490	50.0000	47.807
23 Chloroform	83	4.382	4.382	(0.888)	517386	50.0000	47.909
24 Carbon Tetrachloride	117	4.473	4.473	(0.841)	424892	50.0000	48.815
* 32 Pentafluorobenzene	168	4.936	4.936	(1.000)	704281	50.0000	
$ 25 Dibromofluoromethane	111	4.529	4.529	(0.917)	265763	50.0000	50.466
$ 31 d4-1,2-Dichloroethane	65	4.936	4.936	(1.000)	275168	50.0000	50.894
29 2-Butanone	72	4.642	4.642	(0.940)	160954	250.000	235.47
30 Benzene	78	4.829	4.829	(0.908)	1199076	50.0000	47.543
33 1,2-Dichloroethane	62	4.993	4.993	(0.938)	357096	50.0000	49.223
* 35 1,4-Difluorobenzene	114	5.321	5.321	(1.000)	937745	50.0000	
34 Trichloroethene	95	5.281	5.281	(0.993)	330969	50.0000	47.500

Compounds	QUANT SIG MASS	RT	EXP RT	REL RT	RESPONSE	AMOUNTS CAL-AMT (ug/Kg)	AMOUNTS ON-COL (ug/Kg)
$ 42 d8-Toluene	98	6.305	6.305	(1.185)	1070696	50.0000	50.392
43 Toluene	92	6.345	6.345	(1.192)	829892	50.0000	46.304
44 Tetrachloroethene	166	6.611	6.611	(0.894)	434192	50.0000	46.824
* 52 d5-Chlorobenzene	117	7.397	7.397	(1.000)	853013	50.0000	
53 Chlorobenzene	112	7.408	7.408	(1.002)	964956	50.0000	47.437
54 Ethyl Benzene	91	7.437	7.437	(1.005)	1641982	50.0000	46.969
56 m,p-xylene	106	7.544	7.544	(1.020)	1373249	100.000	97.127
57 o-Xylene	106	7.850	7.850	(1.061)	630491	50.0000	47.870
$ 61 4-Bromofluorobenzene	95	8.274	8.274	(1.119)	399128	50.0000	50.519
* 75 d4-1,4-Dichlorobenzene	152	9.111	9.111	(1.000)	503655	50.0000	
76 1,4-Dichlorobenzene	146	9.122	9.122	(1.001)	851859	50.0000	47.133
$ 78 d4-1,2-Dichlorobenzene	152	9.434	9.434	(1.035)	443857	50.0000	50.414

Analytical Resources, Inc.

INTERNAL STANDARD COMPOUNDS
AREA AND RT SUMMARY

Instrument ID: nt9.i
Lab File ID: 0500828.d
Lab Smp Id: IC0828
Analysis Type: VOA
Quant Type: ISTD
Operator: PB
Method File: /chem1/nt9.i/28AUG10.b/gasco.b/VO063010S.m
Misc Info: 10-

Calibration Date: 28-AUG-2010
Calibration Time: 14:51
Client Smp ID: VSTD050
Level: LOW
Sample Type: SOIL

Test Mode:
Use Initial Calibration Level 5.
If Continuing Cal. use Initial Cal. Level 5

COMPOUND	STANDARD	AREA LIMIT LOWER	AREA LIMIT UPPER	SAMPLE	%DIFF
32 Pentafluorobenzen	704281	352140	1408562	704281	0.00
35 1,4-Difluorobenze	937745	468872	1875490	937745	0.00
52 d5-Chlorobenzene	853013	426506	1706026	853013	0.00
75 d4-1,4-Dichlorobe	503655	251828	1007310	503655	0.00

COMPOUND	STANDARD	RT LIMIT LOWER	RT LIMIT UPPER	SAMPLE	%DIFF
32 Pentafluorobenzen	4.94	4.44	5.44	4.94	0.00
35 1,4-Difluorobenze	5.32	4.82	5.82	5.32	0.00
52 d5-Chlorobenzene	7.40	6.90	7.90	7.40	0.00
75 d4-1,4-Dichlorobe	9.11	8.61	9.61	9.11	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.

Data File: /chem1/nt9.i/28AUG10.b/gasco.b/0500828.d

Date : 28-AUG-2010 14:51

Client ID: VSTD050

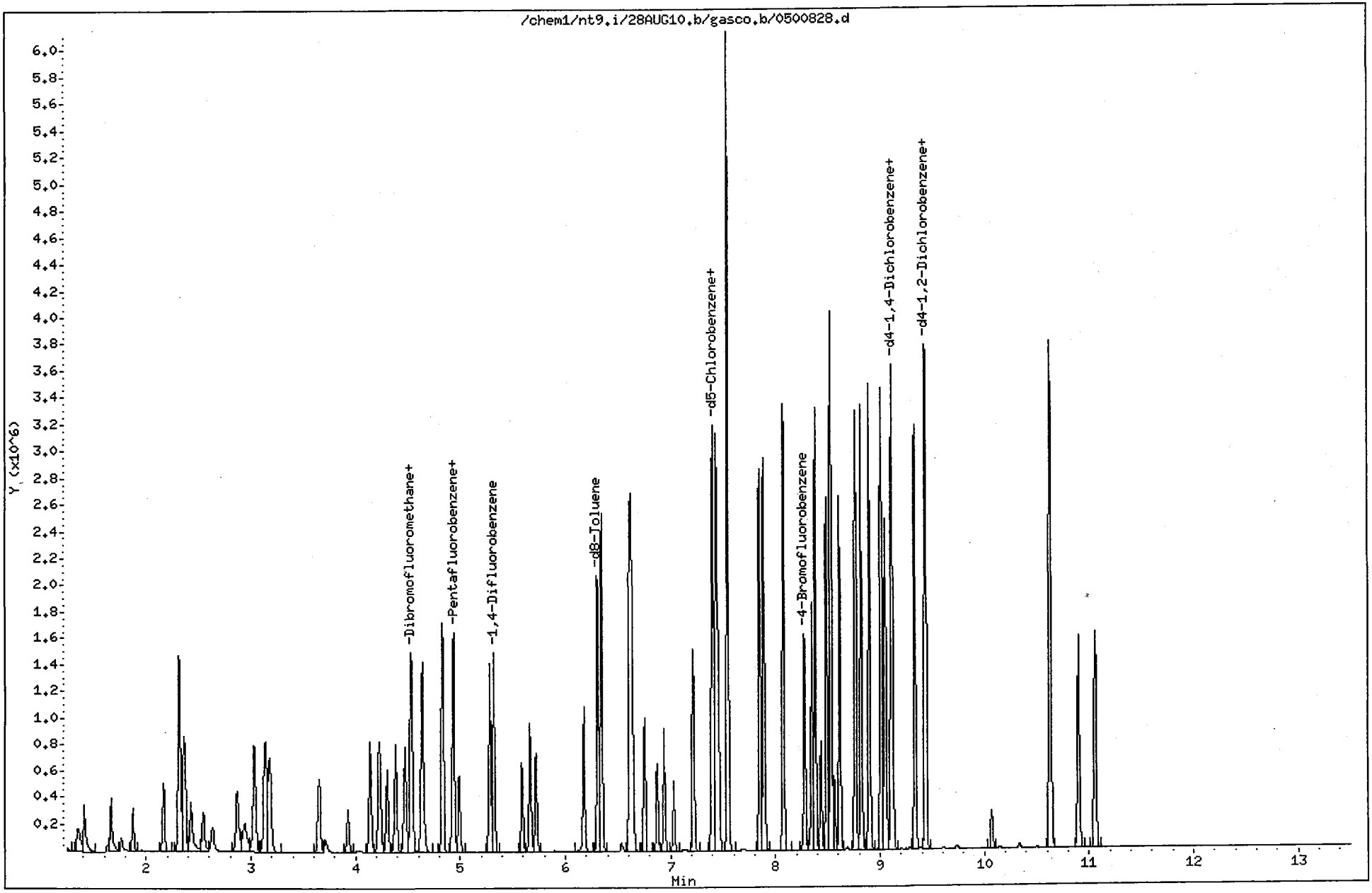
Sample Info: IC0828,5,5,0

Column phase: RTX502.2

Instrument: nt9.i

Operator: PB

Column diameter: 0.18



R083 : 00055

Analytical Resources, Inc.

8260C

Data file : /chem1/nt9.i/28AUG10.b/gasco.b/1000828.d
Lab Smp Id: IC0828 Client Smp ID: VSTD100
Inj Date : 28-AUG-2010 14:21
Operator : PB Inst ID: nt9.i
Smp Info : IC0828,5,5,0
Misc Info : 10-
Comment :
Method : /chem1/nt9.i/28AUG10.b/gasco.b/VO063010S.m
Meth Date : 18-Oct-2010 13:50 patrickb Quant Type: ISTD
Cal Date : 28-AUG-2010 14:21 Cal File: 1000828.d
Als bottle: 1 Calibration Sample, Level: 6
Dil Factor: 1.00000
Integrator: HP RTE Compound Sublist: gasco.sub
Target Version: 3.50
Processing Host: cserv3

10/18

Concentration Formula: Amt * DF * Pv * 1 / (Sa * ((100 - M) / 100)) * CpndVaria

Name	Value	Description
DF	1.00000	Dilution Factor
Pv	5.00000	Purge Volume
Sa	5.00000	Sample Amount
M	0.00000	% Moisture (not decanted)

Cpnd Variable Local Compound Variable

Compounds	QUANT SIG MASS	RT	EXP RT	REL RT	RESPONSE	AMOUNTS CAL-AMT (ug/Kg)	AMOUNTS ON-COL (ug/Kg)
3 Vinyl Chloride	62	1.409	1.407	(0.286)	616920	100.000	119.51
7 1,1-Dichloroethene	96	2.303	2.312	(0.467)	612323	100.000	120.02
15 Trans-1,2-Dichloroethene	96	3.027	3.036	(0.614)	667246	100.000	113.18
20 Cis-1,2-Dichloroethene	96	4.136	4.139	(0.838)	612984	100.000	109.73
23 Chloroform	83	4.385	4.382	(0.889)	969275	100.000	109.39
24 Carbon Tetrachloride	117	4.470	4.473	(0.840)	871845	100.000	121.32
* 32 Pentafluorobenzene	168	4.933	4.936	(1.000)	577839	50.0000	
$ 25 Dibromofluoromethane	111	4.532	4.529	(0.919)	218888	50.0000	50.660
$ 31 d4-1,2-Dichloroethane	65	4.939	4.936	(1.001)	219324	50.0000	49.442
29 2-Butanone	72	4.651	4.642	(0.943)	323582	500.000	576.97
30 Benzene	78	4.832	4.829	(0.908)	2300822	100.000	110.50
33 1,2-Dichloroethane	62	4.990	4.993	(0.937)	626143	100.000	104.54
* 35 1,4-Difluorobenzene	114	5.324	5.321	(1.000)	774194	50.0000	
34 Trichloroethene	95	5.284	5.281	(0.993)	647329	100.000	112.53

Compounds	QUANT SIG MASS	RT	EXP RT	REL RT	RESPONSE	AMOUNTS CAL-AMT (ug/Kg)	AMOUNTS ON-COL (ug/Kg)
$ 42 d8-Toluene	98	6.308	6.305	(1.185)	871932	50.0000	49.706
43 Toluene	92	6.342	6.345	(1.191)	1612019	100.000	108.94
44 Tetrachloroethene	166	6.608	6.611	(0.893)	877796	100.000	115.08
* 52 d5-Chlorobenzene	117	7.400	7.397	(1.000)	701708	50.0000	
53 Chlorobenzene	112	7.411	7.408	(1.002)	1813196	100.000	108.36
54 Ethyl Benzene	91	7.439	7.437	(1.005)	3264901	100.000	113.53
56 m,p-xylene	106	7.547	7.544	(1.020)	2711686	200.000	233.15
57 o-Xylene	106	7.852	7.850	(1.061)	1213342	100.000	111.99
$ 61 4-Bromofluorobenzene	95	8.277	8.274	(1.118)	323235	50.0000	49.735
* 75 d4-1,4-Dichlorobenzene	152	9.114	9.111	(1.000)	414842	50.0000	
76 1,4-Dichlorobenzene	146	9.125	9.122	(1.001)	1583421	100.000	106.37
$ 78 d4-1,2-Dichlorobenzene	152	9.436	9.434	(1.035)	358863	50.0000	49.487

Analytical Resources, Inc.

INTERNAL STANDARD COMPOUNDS
AREA AND RT SUMMARY

Instrument ID: nt9.i
Lab File ID: 1000828.d
Lab Smp Id: IC0828
Analysis Type: VOA
Quant Type: ISTD
Operator: PB
Method File: /chem1/nt9.i/28AUG10.b/gasco.b/VO063010S.m
Misc Info: 10-

Calibration Date: 28-AUG-2010
Calibration Time: 14:51
Client Smp ID: VSTD100
Level: LOW
Sample Type: SOIL

Test Mode:
Use Initial Calibration Level 5.
If Continuing Cal. use Initial Cal. Level 5

COMPOUND	STANDARD	AREA LIMIT LOWER	AREA LIMIT UPPER	SAMPLE	%DIFF
32 Pentafluorobenzen	704281	352140	1408562	577839	-17.95
35 1,4-Difluorobenze	937745	468872	1875490	774194	-17.44
52 d5-Chlorobenzene	853013	426506	1706026	701708	-17.74
75 d4-1,4-Dichlorobe	503655	251828	1007310	414842	-17.63

COMPOUND	STANDARD	RT LIMIT LOWER	RT LIMIT UPPER	SAMPLE	%DIFF
32 Pentafluorobenzen	4.94	4.44	5.44	4.93	-0.06
35 1,4-Difluorobenze	5.32	4.82	5.82	5.32	0.05
52 d5-Chlorobenzene	7.40	6.90	7.90	7.40	0.04
75 d4-1,4-Dichlorobe	9.11	8.61	9.61	9.11	0.03

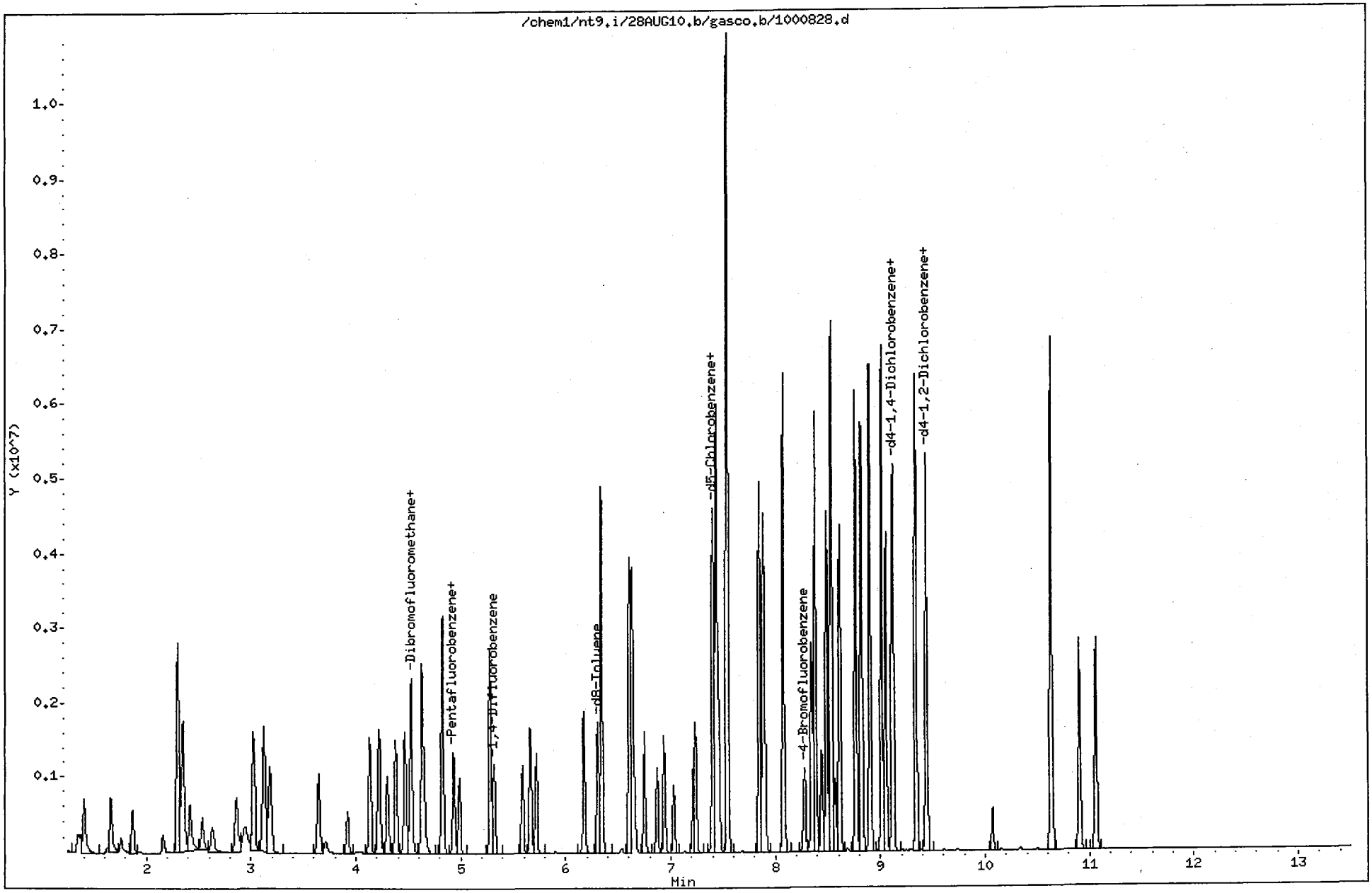
AREA UPPER LIMIT = +100% of internal standard area.
AREA LOWER LIMIT = - 50% of internal standard area.
RT UPPER LIMIT = + 0.50 minutes of internal standard RT.
RT LOWER LIMIT = - 0.50 minutes of internal standard RT.

Data File: /chem1/nt9.i/28AUG10.b/gasco.b/1000828.d
Date : 28-AUG-2010 14:21
Client ID: VSTD100
Sample Info: IC0828,5,5,0

Instrument: nt9.i

Operator: PB
Column diameter: 0.18

Column phase: RTX502.2



R0863 : 000079

Analytical Resources, Inc.

8260C

Data file : /chem1/nt9.i/28AUG10.b/gasco.b/1500828.d
Lab Smp Id: IC0828 Client Smp ID: VSTD150
Inj Date : 28-AUG-2010 13:51
Operator : PB Inst ID: nt9.i
Smp Info : IC0828,5,5,0
Misc Info : 10-
Comment :
Method : /chem1/nt9.i/28AUG10.b/gasco.b/VO063010S.m
Meth Date : 18-Oct-2010 13:51 patrickb Quant Type: ISTD
Cal Date : 28-AUG-2010 13:51 Cal File: 1500828.d
Als bottle: 1 Calibration Sample, Level: 7
Dil Factor: 1.00000
Integrator: HP RTE Compound Sublist: gasco.sub
Target Version: 3.50
Processing Host: cserv3

Concentration Formula: Amt * DF * Pv * 1 / (Sa * ((100 - M) / 100)) * CpndVaria

Name	Value	Description
DF	1.00000	Dilution Factor
Pv	5.00000	Purge Volume
Sa	5.00000	Sample Amount
M	0.00000	% Moisture (not decanted)

Cpnd Variable Local Compound Variable

Compounds	QUANT SIG MASS	RT	EXP RT	REL RT	RESPONSE	AMOUNTS CAL-AMT (ug/Kg)	AMOUNTS ON-COL (ug/Kg)
3 Vinyl Chloride	62	1.403	1.407	(0.284)	959765	150.000	165.55
7 1,1-Dichloroethene	96	2.297	2.312	(0.466)	226199	150.000	39.477
15 Trans-1,2-Dichloroethene	96	3.021	3.036	(0.612)	1084953	150.000	163.86
20 Cis-1,2-Dichloroethene	96	4.135	4.139	(0.838)	1020798	150.000	162.71
23 Chloroform	83	4.384	4.382	(0.889)	1618355	150.000	162.63
24 Carbon Tetrachloride	117	4.469	4.473	(0.840)	1423243	150.000	175.56
* 32 Pentafluorobenzene	168	4.933	4.936	(1.000)	648980	50.0000	
$ 25 Dibromofluoromethane	111	4.531	4.529	(0.919)	252207	50.0000	51.972
$ 31 d4-1,2-Dichloroethane	65	4.938	4.936	(1.001)	249417	50.0000	50.062
29 2-Butanone	72	4.655	4.642	(0.944)	502468	750.000	797.73
30 Benzene	78	4.825	4.829	(0.906)	3837983	150.000	163.39
33 1,2-Dichloroethane	62	4.989	4.993	(0.937)	1073167	150.000	158.83
* 35 1,4-Difluorobenzene	114	5.323	5.321	(1.000)	873392	50.0000	
34 Trichloroethene	95	5.283	5.281	(0.993)	1048917	150.000	161.63

Compounds	QUANT SIG MASS	RT	EXP RT	REL RT	RESPONSE	AMOUNTS CAL-AMT (ug/Kg)	AMOUNTS ON-COL (ug/Kg)
$ 42 d8-Toluene	98	6.307	6.305	(1.185)	984102	50.0000	49.729
43 Toluene	92	6.341	6.345	(1.191)	2678205	150.000	160.44
44 Tetrachloroethene	166	6.607	6.611	(0.893)	1425322	150.000	162.60
* 52 d5-Chlorobenzene	117	7.399	7.397	(1.000)	806370	50.0000	
53 Chlorobenzene	112	7.410	7.408	(1.002)	3098562	150.000	161.14
54 Ethyl Benzene	91	7.439	7.437	(1.005)	5482264	150.000	165.89
56 m,p-xylene	106	7.546	7.544	(1.020)	4419442	300.000	330.66
57 o-Xylene	106	7.852	7.850	(1.061)	2056807	150.000	165.19
$ 61 4-Bromofluorobenzene	95	8.281	8.274	(1.119)	368820	50.0000	49.384
* 75 d4-1,4-Dichlorobenzene	152	9.119	9.111	(1.000)	478126	50.0000	
76 1,4-Dichlorobenzene	146	9.130	9.122	(1.001)	2776568	150.000	161.83
$ 78 d4-1,2-Dichlorobenzene	152	9.441	9.434	(1.035)	419222	50.0000	50.158

Analytical Resources, Inc.

INTERNAL STANDARD COMPOUNDS
AREA AND RT SUMMARY

Instrument ID: nt9.i
Lab File ID: 1500828.d
Lab Smp Id: IC0828
Analysis Type: VOA
Quant Type: ISTD
Operator: PB
Method File: /chem1/nt9.i/28AUG10.b/gasco.b/VO063010S.m
Misc Info: 10-

Calibration Date: 28-AUG-2010
Calibration Time: 14:51
Client Smp ID: VSTD150
Level: LOW
Sample Type: SOIL

Test Mode:
Use Initial Calibration Level 5.
If Continuing Cal. use Initial Cal. Level 5

COMPOUND	STANDARD	AREA LIMIT LOWER	AREA LIMIT UPPER	SAMPLE	%DIFF
32 Pentafluorobenzen	704281	352140	1408562	648980	-7.85
35 1,4-Difluorobenze	937745	468872	1875490	873392	-6.86
52 d5-Chlorobenzene	853013	426506	1706026	806370	-5.47
75 d4-1,4-Dichlorobe	503655	251828	1007310	478126	-5.07

COMPOUND	STANDARD	RT LIMIT LOWER	RT LIMIT UPPER	SAMPLE	%DIFF
32 Pentafluorobenzen	4.94	4.44	5.44	4.93	-0.08
35 1,4-Difluorobenze	5.32	4.82	5.82	5.32	0.04
52 d5-Chlorobenzene	7.40	6.90	7.90	7.40	0.03
75 d4-1,4-Dichlorobe	9.11	8.61	9.61	9.12	0.08

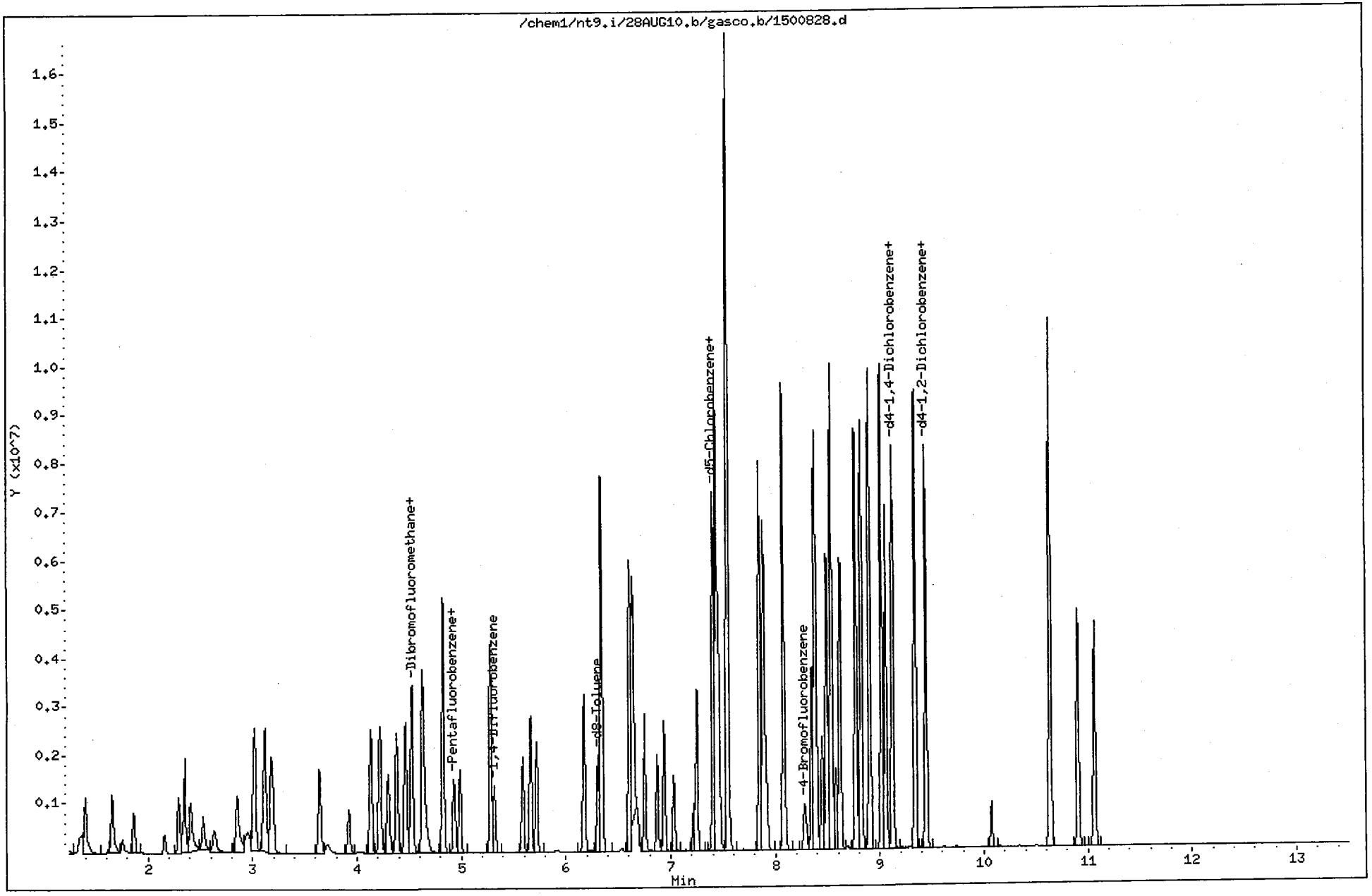
AREA UPPER LIMIT = +100% of internal standard area.
AREA LOWER LIMIT = - 50% of internal standard area.
RT UPPER LIMIT = + 0.50 minutes of internal standard RT.
RT LOWER LIMIT = - 0.50 minutes of internal standard RT.

Data File: /chem1/nt9.i/28AUG10.b/gasco.b/1500828.d
Date : 28-AUG-2010 13:51
Client ID: VSTD150
Sample Info: IC0828,5,5,0

Column phase: RTX502.2

Instrument: nt9.i

Operator: PB
Column diameter: 0.18



1500828.D

Analytical Resources, Inc.

8260C

Data file : /chem1/nt9.i/28AUG10.b/gasco.b/2000828.d
Lab Smp Id: IC0828 Client Smp ID: VSTD200
Inj Date : 28-AUG-2010 13:21
Operator : PB Inst ID: nt9.i
Smp Info : IC0828,5,5,0
Misc Info : 10-
Comment :
Method : /chem1/nt9.i/28AUG10.b/gasco.b/VO063010S.m
Meth Date : 18-Oct-2010 13:51 patrickb Quant Type: ISTD
Cal Date : 28-AUG-2010 13:21 Cal File: 2000828.d
Als bottle: 1 Calibration Sample, Level: 8
Dil Factor: 1.00000
Integrator: HP RTE Compound Sublist: gasco.sub
Target Version: 3.50
Processing Host: cserv3

Concentration Formula: Amt * DF * Pv * 1 / (Sa * ((100 - M) / 100)) * CpndVaria

Name	Value	Description
DF	1.00000	Dilution Factor
Pv	5.00000	Purge Volume
Sa	5.00000	Sample Amount
M	0.00000	% Moisture (not decanted)

Cpnd Variable Local Compound Variable

Compounds	QUANT SIG MASS	RT	EXP RT	REL RT	RESPONSE	AMOUNTS CAL-AMT (ug/Kg)	ON-COL (ug/Kg)
3 Vinyl Chloride	62	1.406	1.407	(0.285)	1219685	200.000	213.30
7 1,1-Dichloroethene	96	2.294	2.312	(0.465)	282248	200.000	49.945
15 Trans-1,2-Dichloroethene	96	3.018	3.036	(0.612)	1457472	200.000	223.18
20 Cis-1,2-Dichloroethene	96	4.133	4.139	(0.838)	1376931	200.000	222.52
23 Chloroform	83	4.382	4.382	(0.889)	2185253	200.000	222.65
24 Carbon Tetrachloride	117	4.466	4.473	(0.839)	1881538	200.000	235.40
* 32 Pentafluorobenzene	168	4.930	4.936	(1.000)	640076	50.0000	
$ 25 Dibromofluoromethane	111	4.529	4.529	(0.919)	249487	50.0000	52.127
$ 31 d4-1,2-Dichloroethane	65	4.936	4.936	(1.001)	244940	50.0000	49.848
29 2-Butanone	72	4.659	4.642	(0.945)	664069	1000.00	1069.0
30 Benzene	78	4.828	4.829	(0.908)	5216825	200.000	225.25
33 1,2-Dichloroethane	62	4.993	4.993	(0.938)	1436910	200.000	215.69
* 35 1,4-Difluorobenzene	114	5.321	5.321	(1.000)	861135	50.0000	
34 Trichloroethene	95	5.281	5.281	(0.993)	1431429	200.000	223.71

Compounds	QUANT SIG MASS	RT	EXP RT	REL RT	RESPONSE	AMOUNTS CAL-AMT (ug/Kg)	AMOUNTS ON-COL (ug/Kg)
$ 42 d8-Toluene	98	6.305	6.305	(1.185)	971664	50.0000	49.799
43 Toluene	92	6.344	6.345	(1.192)	3655611	200.000	222.11
44 Tetrachloroethene	166	6.610	6.611	(0.893)	1956752	200.000	224.16
* 52 d5-Chlorobenzene	117	7.402	7.397	(1.000)	803012	50.0000	
53 Chlorobenzene	112	7.414	7.408	(1.002)	4283165	200.000	223.67
54 Ethyl Benzene	91	7.442	7.437	(1.005)	7556256	200.000	229.61
56 m,p-xylene	106	7.549	7.544	(1.020)	5798209	400.000	435.63
57 o-Xylene	106	7.855	7.850	(1.061)	2840377	200.000	229.08
$ 61 4-Bromofluorobenzene	95	8.302	8.274	(1.121)	365719	50.0000	49.173
* 75 d4-1,4-Dichlorobenzene	152	9.128	9.111	(1.000)	480939	50.0000	
76 1,4-Dichlorobenzene	146	9.139	9.122	(1.001)	3902870	200.000	226.14
$ 78 d4-1,2-Dichlorobenzene	152	9.450	9.434	(1.035)	417003	50.0000	49.601

Analytical Resources, Inc.

INTERNAL STANDARD COMPOUNDS
AREA AND RT SUMMARY

Instrument ID: nt9.i
Lab File ID: 2000828.d
Lab Smp Id: IC0828
Analysis Type: VOA
Quant Type: ISTD
Operator: PB
Method File: /chem1/nt9.i/28AUG10.b/gasco.b/VO063010S.m
Misc Info: 10-

Calibration Date: 28-AUG-2010
Calibration Time: 14:51
Client Smp ID: VSTD200
Level: LOW
Sample Type: SOIL

Test Mode:
Use Initial Calibration Level 5.
If Continuing Cal. use Initial Cal. Level 5

COMPOUND	STANDARD	AREA LIMIT LOWER	AREA LIMIT UPPER	SAMPLE	%DIFF
32 Pentafluorobenzen	704281	352140	1408562	640076	-9.12
35 1,4-Difluorobenze	937745	468872	1875490	861135	-8.17
52 d5-Chlorobenzene	853013	426506	1706026	803012	-5.86
75 d4-1,4-Dichlorobe	503655	251828	1007310	480939	-4.51

COMPOUND	STANDARD	RT LIMIT LOWER	RT LIMIT UPPER	SAMPLE	%DIFF
32 Pentafluorobenzen	4.94	4.44	5.44	4.93	-0.12
35 1,4-Difluorobenze	5.32	4.82	5.82	5.32	-0.01
52 d5-Chlorobenzene	7.40	6.90	7.90	7.40	0.07
75 d4-1,4-Dichlorobe	9.11	8.61	9.61	9.13	0.18

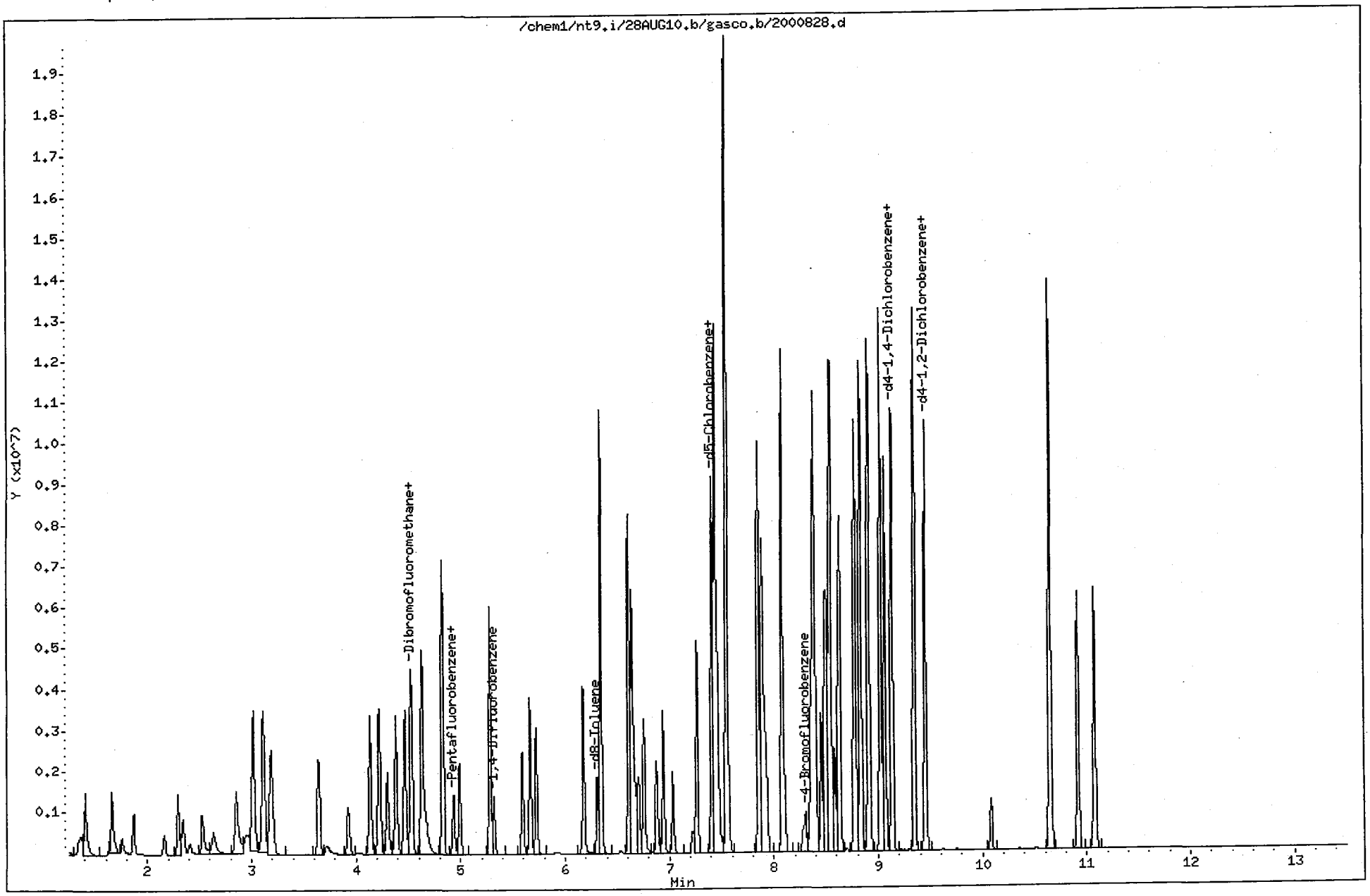
AREA UPPER LIMIT = +100% of internal standard area.
AREA LOWER LIMIT = - 50% of internal standard area.
RT UPPER LIMIT = + 0.50 minutes of internal standard RT.
RT LOWER LIMIT = - 0.50 minutes of internal standard RT.

Data File: /chem1/nt9.i/28AUG10.b/gasco.b/2000828.d
Date : 28-AUG-2010 13:21
Client ID: VSTD200
Sample Info: IC0828,5,5,0

Column phase: RTX502.2

Instrument: nt9.i

Operator: PB
Column diameter: 0.18



Analytical Resources, Inc.

8260C

Data file : /chem1/nt9.i/28AUG10.b/gasco.b/icv0828.d
Lab Smp Id: ICV0828 Client Smp ID: ICV0828
Inj Date : 28-AUG-2010 18:21
Operator : PB Inst ID: nt9.i
Smp Info : ICV0828,5,5,0
Misc Info : 10-
Comment :
Method : /chem1/nt9.i/28AUG10.b/gasco.b/VO063010S.m
Meth Date : 18-Oct-2010 13:57 patrickb Quant Type: ISTD
Cal Date : 28-AUG-2010 13:21 Cal File: 2000828.d
Als bottle: 1 QC Sample: LCS
Dil Factor: 1.00000
Integrator: HP RTE Compound Sublist: gasco.sub
Target Version: 3.50
Processing Host: cserv3

Concentration Formula: Amt * DF * Pv * 1 / (Sa * ((100 - M) / 100)) * CpndVaria

Name	Value	Description
DF	1.00000	Dilution Factor
Pv	5.00000	Purge Volume
Sa	5.00000	Sample Amount
M	0.00000	% Moisture (not decanted)

Cpnd Variable Local Compound Variable

Compounds	QUANT SIG MASS	RT	EXP RT	REL RT	RESPONSE	CONCENTRATIONS ON-COLUMN (ug/Kg)	FINAL (ug/Kg)
3 Vinyl Chloride	62	1.409	1.407	(0.286)	292616	50.9389	50.939
7 1,1-Dichloroethene	96	2.314	2.312	(0.469)	294499	51.8730	51.873
15 Trans-1,2-Dichloroethene	96	3.032	3.036	(0.615)	322932	49.2228	49.223
20 Cis-1,2-Dichloroethene	96	4.141	4.139	(0.839)	310696	49.9804	49.980
23 Chloroform	83	4.384	4.382	(0.889)	494333	50.1345	50.134
24 Carbon Tetrachloride	117	4.475	4.473	(0.841)	383674	48.3047	48.305
* 32 Pentafluorobenzene	168	4.933	4.936	(1.000)	643032	50.0000	
$ 25 Dibromofluoromethane	111	4.531	4.529	(0.919)	238899	49.6853	49.685
$ 31 d4-1,2-Dichloroethane	65	4.939	4.936	(1.001)	248940	50.4287	50.429
29 2-Butanone	72	4.644	4.642	(0.942)	155543	249.228	249.23
30 Benzene	78	4.831	4.829	(0.908)	1154612	50.1683	50.168
33 1,2-Dichloroethane	62	4.989	4.993	(0.937)	337480	50.9785	50.978
* 35 1,4-Difluorobenzene	114	5.323	5.321	(1.000)	855721	50.0000	
34 Trichloroethene	95	5.284	5.281	(0.993)	318689	50.1215	50.121

Compounds	QUANT SIG MASS	RT	EXP RT	REL RT	RESPONSE	CONCENTRATIONS ON-COLUMN (ug/Kg)	FINAL (ug/Kg)
$ 42 d8-Toluene	98	6.307	6.305	(1.185)	976850	50.3820	50.382
43 Toluene	92	6.341	6.345	(1.191)	803253	49.1138	49.114
44 Tetrachloroethene	166	6.607	6.611	(0.893)	418104	49.4354	49.435
* 52 d5-Chlorobenzene	117	7.399	7.397	(1.000)	778023	50.0000	
53 Chlorobenzene	112	7.411	7.408	(1.002)	913646	49.2442	49.244
54 Ethyl Benzene	91	7.439	7.437	(1.005)	1586757	49.7645	49.764
56 m,p-xylene	106	7.546	7.544	(1.020)	1314112	101.903	101.90
57 o-Xylene	106	7.846	7.850	(1.060)	604545	50.3238	50.324
$ 61 4-Bromofluorobenzene	95	8.276	8.274	(1.119)	363565	50.4536	50.454
* 75 d4-1,4-Dichlorobenzene	152	9.108	9.111	(1.000)	462358	50.0000	(Q)
76 1,4-Dichlorobenzene	146	9.119	9.122	(1.001)	768233	46.3027	46.303
$ 78 d4-1,2-Dichlorobenzene	152	9.436	9.434	(1.036)	405284	50.1445	50.145 (Q)

QC Flag Legend

Q - Qualifier signal failed the ratio test.

Analytical Resources, Inc.

INTERNAL STANDARD COMPOUNDS
AREA AND RT SUMMARY

Instrument ID: nt9.i
Lab File ID: icv0828.d
Lab Smp Id: ICV0828
Analysis Type: VOA
Quant Type: ISTD
Operator: PB
Method File: /chem1/nt9.i/28AUG10.b/gasco.b/VO063010S.m
Misc Info: 10-

Calibration Date: 28-AUG-2010
Calibration Time: 14:51
Client Smp ID: ICV0828
Level: LOW
Sample Type: SOIL

Test Mode:
Use Initial Calibration Level 5.
If Continuing Cal. use Initial Cal. Level 5

COMPOUND	STANDARD	AREA LIMIT LOWER	AREA LIMIT UPPER	SAMPLE	%DIFF
32 Pentafluorobenzen	704281	352140	1408562	643032	-8.70
35 1,4-Difluorobenze	937745	468872	1875490	855721	-8.75
52 d5-Chlorobenzene	853013	426506	1706026	778023	-8.79
75 d4-1,4-Dichlorobe	503655	251828	1007310	462358	-8.20

COMPOUND	STANDARD	RT LIMIT LOWER	RT LIMIT UPPER	SAMPLE	%DIFF
32 Pentafluorobenzen	4.94	4.44	5.44	4.93	-0.07
35 1,4-Difluorobenze	5.32	4.82	5.82	5.32	0.04
52 d5-Chlorobenzene	7.40	6.90	7.90	7.40	0.03
75 d4-1,4-Dichlorobe	9.11	8.61	9.61	9.11	-0.04

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.

Analytical Resources, Inc.

RECOVERY REPORT

Client Name:
Sample Matrix: SOLID
Lab Smp Id: ICV0828
Level: LOW
Data Type: MS DATA
SpikeList File: gasco.spk
Sublist File: gasco.sub
Method File: /chem1/nt9.i/28AUG10.b/gasco.b/VO063010S.m
Misc Info: 10-

Client SDG: 28AUG10
Fraction: VOA
Client Smp ID: ICV0828
Operator: PB
SampleType: LCS
Quant Type: ISTD

SPIKE COMPOUND	CONC ADDED ug/Kg	CONC RECOVERED ug/Kg	% RECOVERED	LIMITS
3 Vinyl Chloride	50.000	50.939	101.88	63-137
7 1,1-Dichloroethene	50.000	51.873	103.75	75-126
15 Trans-1,2-Dichloro	50.000	49.223	98.45	80-120
20 Cis-1,2-Dichloroet	50.000	49.980	99.96	80-120
23 Chloroform	50.000	50.134	100.27	80-120
24 Carbon Tetrachlori	50.000	48.305	96.61	77-122
29 2-Butanone	250.00	249.23	99.69	70-120
30 Benzene	50.000	50.168	100.34	80-120
33 1,2-Dichloroethane	50.000	50.978	101.96	76-120
34 Trichloroethene	50.000	50.121	100.24	80-120
43 Toluene	50.000	49.114	98.23	80-120
44 Tetrachloroethene	50.000	49.435	98.87	80-121
53 Chlorobenzene	50.000	49.244	98.49	80-120
54 Ethyl Benzene	50.000	49.764	99.53	80-127
56 m,p-xylene	100.00	101.90	101.90	80-125
57 o-Xylene	50.000	50.324	100.65	78-120
76 1,4-Dichlorobenzen	50.000	46.303	92.61	80-120

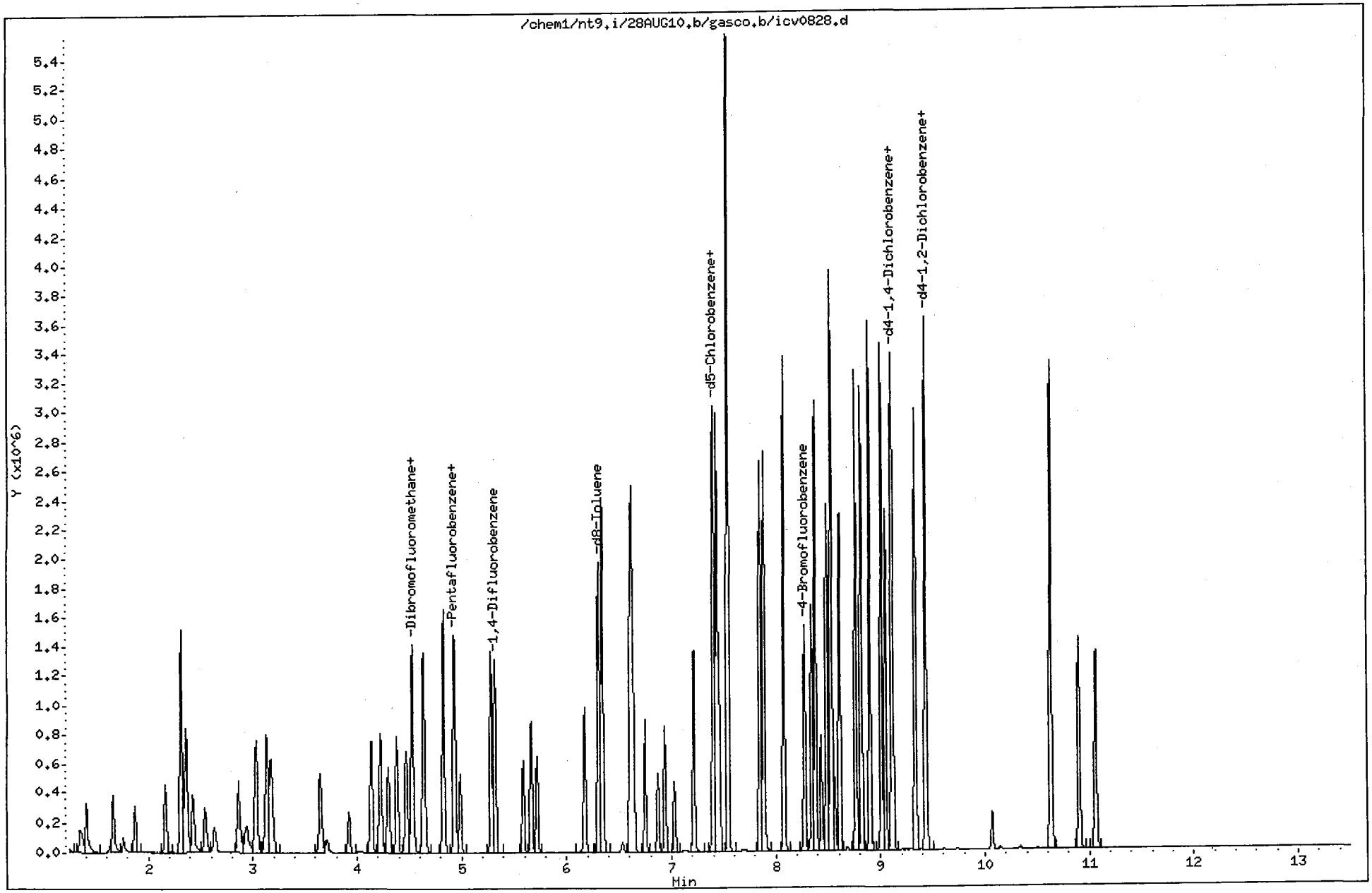
SURROGATE COMPOUND	AMOUNT ADDED ug/Kg	AMOUNT RECOVERED ug/Kg	% RECOVERED	LIMITS
$ 25 Dibromofluorometha	50.000	49.685	99.37	30-160
$ 31 d4-1,2-Dichloroeth	50.000	50.429	100.86	75-152
$ 42 d8-Toluene	50.000	50.382	100.76	82-115
$ 61 4-Bromofluorobenze	50.000	50.454	100.91	64-120
$ 78 d4-1,2-Dichloroben	50.000	50.145	100.29	80-120

Data File: /chem1/nt9.i/28AUG10.b/gasco.b/icv0828.d
Date : 28-AUG-2010 18:21
Client ID: ICV0828
Sample Info: ICV0828,5,5,0

Instrument: nt9.i

Operator: PB
Column diameter: 0.18

Column phase: RTX502.2



R085 : 0005

Volatile Raw Data
Run Logs, Continuing Calibrations, and Raw Data

ARI Job ID: RQ83

Analytical Resources, Incorporated
Analytical Chemists and Consultants

VOA Analyst Notes / Corrective Action Log

ARI Project ID: KQ83 Client ID: NW Natural

ARI SOP: **404S**(Gas) **410S**(BTEX) **430S**(VPH) **700S**(8260C) **703S**(SIM) **706S**(524.2) **710S**(RSK-175)

Parameter(s): _____

Instrument: NT-3 NT-5 NT-7 NT-9 NT-10 PID-1 PID-2 PID-3 FID-6 FINN-5

Purge Volume (mL) 5 Curve Date: 8/28/10 Analysis Start Date: 10/20/10

pH ≤ 2.0	YES / NO / NA	Method Blank In Control?	YES / NO
BFB Tune Meets Criteria?	YES / NO / NA	LCS / LCSD Recovery In Control?	YES / NO
Internal Standard Meets Criteria?	YES / NO / NA	Surrogate Recovery In Control?	YES / NO
ICal acceptable?	YES / NO	CCal acceptable?	YES / NO
Q flag applied?	YES / NO / NA	Q flag applied?	YES / NO / NA
Manual Integrations for ICal?	YES / NO	Manual Integrations for Samples?	Yes / NO
Special Analysis Criteria Met?	YES / NO / NA		

Bubbles/Headspace: None SM (≤ 2mm •) PB (2-4mm) LG (> 4mm ●) Head Space

Detail problems, corrective actions and/or other pertinent information below (use reverse side when necessary):

Sample B - SS BFB out high - no hits in sample - T.B.

Additional Details on Reverse: Yes / No

Analyst: _____ **Date:** 10/20/10

Reviewer: _____ **Date:** 10/25/10

Analytical Resources Inc.: Volatile Organics Instrument Log

NT-9 Serial No.:GC=US00021704, MS=US80230047

Date: 10/20/10 Analysis: 8260C Analyst: [illegible]

GC Program: 10A Column No: 562075 Column Type: MTX-VMS

Instrument Tune (.U or .CT.): bfb1020 EM Voltage: 1306

Calibration File: 0501020A Curve Date: 8/28/10

IS/SS	Ical/Ccal	LCS/ICV
W6521	W6522	W6522

INTERNAL STANDARD SUMMARY FOR DATABATCH - /chem1/nt9.i/20OCT10.b

	Time	Filename	LabID	ClientID	WT										
1	1204	bfb1020.d	BFB1020	BFB1020	0.00										
2	1241	0501020.d	CC1020	VSTD050	5.00	4.93	759799	5.32	1008709	7.40	894597	9.11	503499		
3	1311	0501020A.d	CC1020	VSTD050	5.00	4.93	754912	5.32	991176	7.40	890048	9.11	507063		
4	1342	lcs1020.d	LCS1020	LCS1020	5.00	4.93	800130	5.32	1049229	7.39	938129	9.11	539415		
5	1509	lcs1020a.d	LCS1020	LCS1020	5.00	4.93	649147	5.32	857509	7.40	758186	9.12	430494		
6	1412	mb1020.d	MB1020	MB1020	5.00	4.93	766662	5.32	1013953	7.40	904849	9.11	510746		
7	1543	rq80a.d	RQ80A	DGS-20-0113.7-10100	5.00	4.93	771798	5.32	1040161	7.40	928499	9.11	508100		
8	1614	rq80b.d	RQ80B	DGS-TB-101008-01	1	4.94	713787	5.32	947589	7.40	843489	9.11	464499		
9	1644	rq83b.d	RQ83B	GST-TBSO-2-101008	1	4.93	484658	5.32	601802	7.39	652638	9.11	548014		
10	1715	rq83a.d	RQ83A	GST-09SO-17-18-1010	5.00	4.93	680856	5.32	903061	7.40	808671	9.11	475784		
11	1745	rq83a2.d	RQ83A	GST-09SO-17-18-1010	5.00	4.92	44448	5.30	37475	7.42	908187	9.12	536756		
12	1816	rr00m2.d	RR00M	DGS-TB-100810-02	1	4.93	610560	5.32	817920	7.40	727434	9.11	403024		
13	1846	rr00f2.d	RR00F	DGS-23-0408-101008	5.00	4.94	712657	5.32	948715	7.40	862504	9.11	491154		
14	1917	rr00n2.d	RR00N	DGS-18-0001-101008	5.00	4.92	99745	5.28	74203	7.43	945795	9.12	600412		
15	1947	rr00o2.d	RR00O	DGS-18-0104-101008	5.00	4.93	762563	5.32	1008418	7.40	879203	9.11	496706		
16	2018	rr00p2.d	RR00P	DGS-18-0408-101008	5.00	4.93	669897	5.32	887102	7.40	765465	9.11	437737		
17	2048	rr33a.d	RR33A	DGS-TB-101012-05	1	4.94	766811	5.32	1012520	7.40	898661	9.11	507377		
18	2119	rr33b.d	RR33B	DGS-07-011.3-101012	5.00	4.91	122495	5.29	239156	7.42	717430	9.11	404764		
19	2149	rr33c.d	RR33C	DGS-07-2.22.7-10101	5.00	4.93	597188	5.32	794733	7.40	708371	9.11	379125		
20	2219	rr33d.d	RR33D	DGS-07-034.2-101012	5.00	4.93	374821	5.31	316420	7.38	834016	9.11	468165		
21	2250	rr33e.d	RR33E	DGS-07-4.75.2-10101	5.00	4.94	453368	5.32	603467	7.40	504618				
22	2320	rr33f.d	RR33F	DGS-07-5.66.7-10101	5.00	4.94	583629	5.32	752307	7.40	668366				

Maintenance Verification (Identify ICal or CCal that demonstrates the instrument is in control):

Every line must contain information or be lined out. Make all entries legible. Start a new page for each QC period.

MANUAL INTEGRATION SUMMARY FOR DATABATCH - /chem1/nt9.i/20OCT10.b/gasco.b

ARI Job No.: BFB1 Method: bfb8260.m Instrument: nt9.i Date: 20-OCT-2010

Time	Filename	LabID	ClientId	DF	Manually Integrated Compounds
1204	bfb1020.d	BFB1020	BFB1020	1	NO MANUAL INTEGRATION
1311	0501020A.d	CC1020	VSTD050	1	NO MANUAL INTEGRATION
1342	lcs1020.d	LCS1020	LCS1020	1	NO MANUAL INTEGRATION
1509	lcs1020a.d	LCS1020	LCS1020	1	NO MANUAL INTEGRATION
1412	mb1020.d	MB1020	MB1020	1	NO MANUAL INTEGRATION
1543	rq80a.d	RQ80A	DGS-20-011	1	NO MANUAL INTEGRATION
1614	rq80b.d	RQ80B	DGS-TB-101	1	NO MANUAL INTEGRATION
1644	rq83b.d	RQ83B	GST-TBSO-2	1	NO MANUAL INTEGRATION
1715	rq83a.d	RQ83A	GST-09SO-1	1	NO MANUAL INTEGRATION

P0083 : 55087

Q-FLAG SUMMARY FOR DATABATCH - /chem1/nt9.i/20OCT10.b/gasco.b

Instrument: nt9.i Date: 20-OCT-2010 Method: gasco.b/VO063010S.m

INITIAL CAL: 28-AUG-2010

Compound	%RSD or R^2
NO Q-FLAGS	

CONTINUING CAL: 20-OCT-2010

Compound	%D
NO Q-FLAGS	

Data File: /chem1/nt9.i/20OCT10.b/gasco.b/bfb1020.d

Date : 20-OCT-2010 12:04

Client ID: BFB1020

Instrument: nt9.i

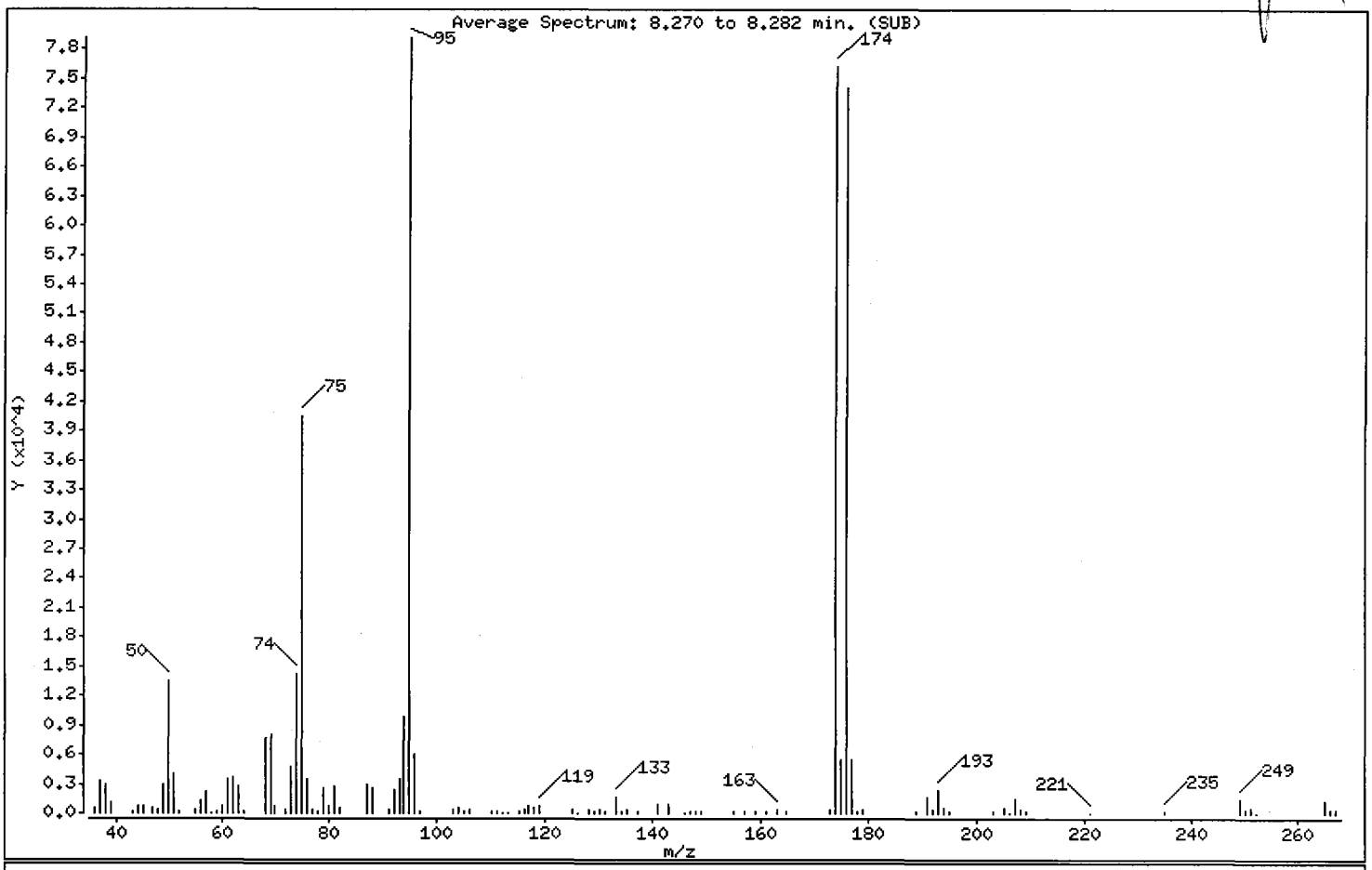
Sample Info: BFB1020,BFB1020,,1,20OCT10,,

Operator: PB

Column phase: RTX502.2

Column diameter: 0.18

1 Bromofluorobenzene



m/e	ION ABUNDANCE CRITERIA	% RELATIVE ABUNDANCE
95	Base Peak, 100% relative abundance	100.00
50	8.00 - 40.00% of mass 95	17.11
75	30.00 - 66.00% of mass 95	51.09
96	5.00 - 9.00% of mass 95	7.53
173	Less than 2.00% of mass 174	0.53 (0.55)
174	50.00 - 101.00% of mass 95	96.22
175	4.00 - 9.00% of mass 174	6.88 (7.15)
176	93.00 - 101.00% of mass 174	93.57 (97.25)
177	5.00 - 9.00% of mass 176	6.85 (7.32)

Data File: /chem1/nt9.i/20OCT10.b/gasco.b/bfb1020.d

Date : 20-OCT-2010 12:04

Client ID: BFB1020

Instrument: nt9.i

Sample Info: BFB1020,BFB1020,,1,20OCT10,,

Operator: PB

Column phase: RTX502.2

Column diameter: 0.18

Data File: bfb1020.d
Spectrum: Average Spectrum: 8.270 to 8.282 min. (SUB)
Location of Maximum: 95.00
Number of points: 109

m/z	Y	m/z	Y	m/z	Y	m/z	Y
36.00	555	74.00	14286	117.00	668	176.00	74080
37.00	3295	75.00	40448	118.00	480	177.00	5424
38.00	2907	76.00	3487	119.00	731	178.00	268
39.00	1169	77.00	371	125.00	455	179.00	418
43.00	136	78.00	187	126.00	57	189.00	157
44.00	685	79.00	2480	128.00	442	191.00	1594
45.00	730	80.00	708	129.00	171	192.00	292
47.00	607	81.00	2695	130.00	366	193.00	2309
48.00	427	82.00	564	131.00	112	194.00	460
49.00	2903	87.00	2915	133.00	1672	195.00	187
50.00	13543	88.00	2636	134.00	186	203.00	196
51.00	4039	91.00	278	135.00	333	205.00	501
52.00	131	92.00	2367	137.00	154	206.00	75
55.00	295	93.00	3463	141.00	980	207.00	1526
56.00	1193	94.00	9870	143.00	966	208.00	326
57.00	2098	95.00	79168	146.00	63	209.00	170
58.00	55	96.00	5960	147.00	213	221.00	51
59.00	115	97.00	152	148.00	246	235.00	167
60.00	710	103.00	400	149.00	128	249.00	1386
61.00	3520	104.00	472	155.00	214	250.00	338
62.00	3697	105.00	174	157.00	130	251.00	587
63.00	2813	106.00	416	159.00	116	252.00	76
64.00	251	110.00	102	161.00	231	265.00	1281
68.00	7708	111.00	203	163.00	313	266.00	389
69.00	7965	112.00	51	165.00	213	267.00	346
70.00	681	113.00	56	173.00	420		
72.00	378	115.00	158	174.00	76176		
73.00	4733	116.00	374	175.00	5447		

Data File: /chem1/nt9.i/20OCT10.b/gasco.b/bfb1020.d

Date : 20-OCT-2010 12:04

Client ID: BFB1020

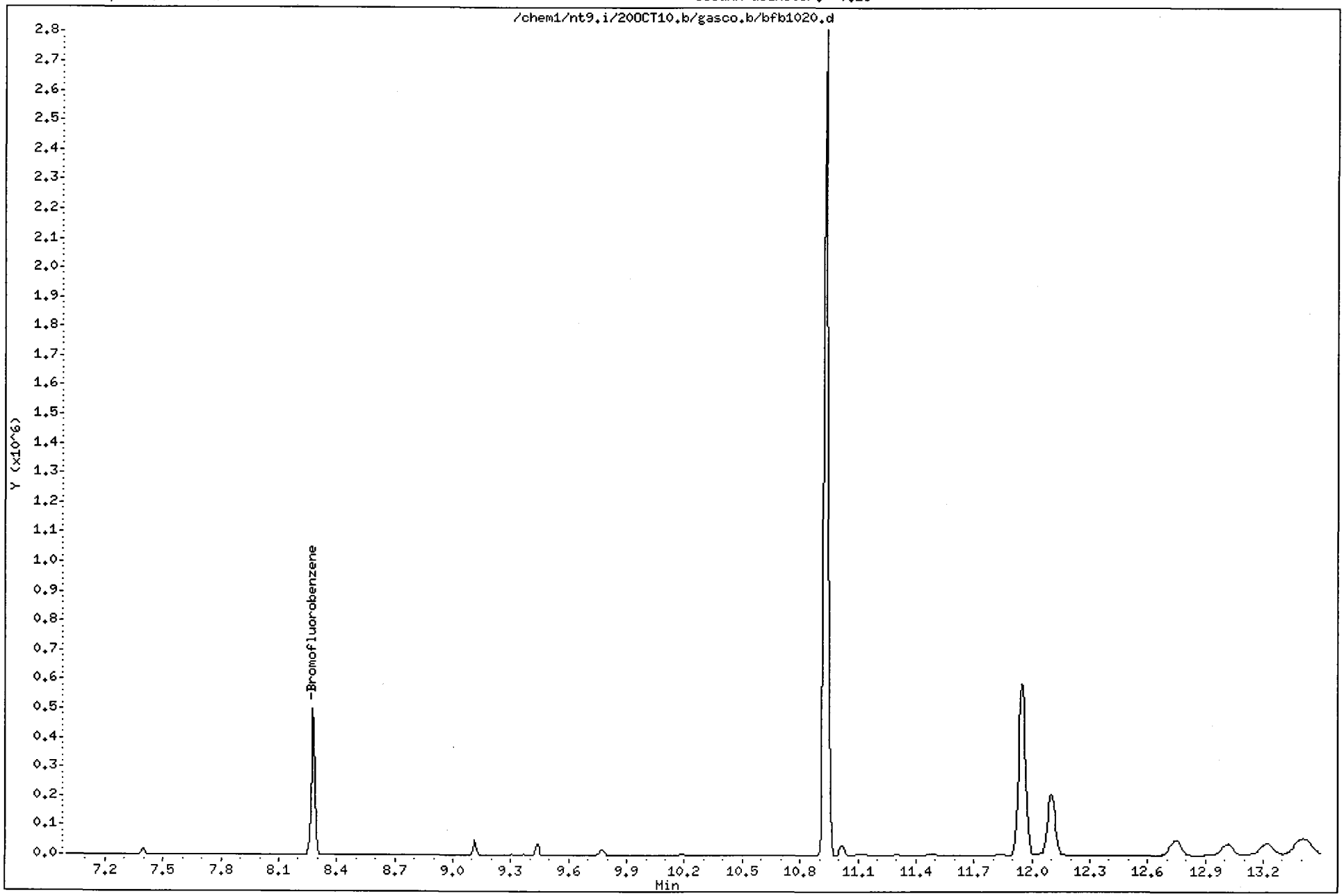
Sample Info: BFB1020,BFB1020,,1,20OCT10,,

Column phase: RTX502.2

Instrument: nt9.i

Operator: PB

Column diameter: 0.18



R093:00051

Analytical Resources, Inc.

8260C

Data file : /chem1/nt9.i/20OCT10.b/gasco.b/0501020A.d
Lab Smp Id: CC1020 Client Smp ID: VSTD050
Inj Date : 20-OCT-2010 13:11
Operator : PB Inst ID: nt9.i
Smp Info : CC1020,5,5,0
Misc Info : 10-
Comment :
Method : /chem1/nt9.i/20OCT10.b/gasco.b/VO063010S.m
Meth Date : 20-Oct-2010 15:01 patrickb Quant Type: ISTD
Cal Date : 28-AUG-2010 13:21 Cal File: 2000828.d
Als bottle: 1 Continuing Calibration Sample
Dil Factor: 1.00000
Integrator: HP RTE Compound Sublist: gasco.sub
Target Version: 3.50
Processing Host: cserv3

Concentration Formula: Amt * DF * Pv * 1 / (Sa * ((100 - M) / 100)) * CpndVaria

Name	Value	Description
DF	1.00000	Dilution Factor
Pv	5.00000	Purge Volume
Sa	5.00000	Sample Amount
M	0.00000	% Moisture (not decanted)

Cpnd Variable Local Compound Variable

Compounds	QUANT SIG MASS	RT	EXP RT	REL RT	RESPONSE	AMOUNTS CAL-AMT (ug/Kg)	ON-COL (ug/Kg)
3 Vinyl Chloride	62	1.407	1.407	(0.285)	272142	50.0000	40.354
7 1,1-Dichloroethene	96	2.312	2.312	(0.469)	293012	50.0000	43.962
15 Trans-1,2-Dichloroethene	96	3.031	3.031	(0.615)	320939	50.0000	41.669
20 Cis-1,2-Dichloroethene	96	4.140	4.140	(0.839)	316586	50.0000	43.380
23 Chloroform	83	4.383	4.383	(0.889)	506022	50.0000	43.714
24 Carbon Tetrachloride	117	4.473	4.473	(0.841)	384080	50.0000	41.748
* 32 Pentafluorobenzene	168	4.932	4.932	(1.000)	754912	50.0000	
$ 25 Dibromofluoromethane	111	4.530	4.530	(0.919)	279872	50.0000	49.580
$ 31 d4-1,2-Dichloroethane	65	4.937	4.937	(1.001)	286217	50.0000	49.387
29 2-Butanone	72	4.643	4.643	(0.941)	179067	250.000	244.40
30 Benzene	78	4.830	4.830	(0.908)	1153181	50.0000	43.259
33 1,2-Dichloroethane	62	4.988	4.988	(0.937)	358364	50.0000	46.735
* 35 1,4-Difluorobenzene	114	5.322	5.322	(1.000)	991176	50.0000	
34 Trichloroethene	95	5.282	5.282	(0.993)	320896	50.0000	43.572

Compounds	QUANT SIG MASS	RT	EXP RT	REL RT	RESPONSE	AMOUNTS CAL-AMT (ug/Kg)	AMOUNTS ON-COL (ug/Kg)
$ 42 d8-Toluene	98	6.306	6.306	(1.185)	1109032	50.0000	49.383
43 Toluene	92	6.340	6.340	(1.191)	800737	50.0000	42.269
44 Tetrachloroethene	166	6.606	6.606	(0.893)	420855	50.0000	43.498
* 52 d5-Chlorobenzene	117	7.398	7.398	(1.000)	890048	50.0000	
53 Chlorobenzene	112	7.409	7.409	(1.002)	944153	50.0000	44.483
54 Ethyl Benzene	91	7.438	7.438	(1.005)	1573059	50.0000	43.125
56 m,p-xylene	106	7.539	7.539	(1.019)	1314683	100.000	89.116
57 o-Xylene	106	7.845	7.845	(1.060)	600947	50.0000	43.728
$ 61 4-Bromofluorobenzene	95	8.275	8.275	(1.119)	399981	50.0000	48.521
* 75 d4-1,4-Dichlorobenzene	152	9.112	9.112	(1.000)	507063	50.0000	
76 1,4-Dichlorobenzene	146	9.118	9.118	(1.001)	816332	50.0000	44.864
$ 78 d4-1,2-Dichlorobenzene	152	9.434	9.434	(1.035)	443066	50.0000	49.986

Analytical Resources, Inc.

INTERNAL STANDARD COMPOUNDS
AREA AND RT SUMMARY

Instrument ID: nt9.i
Lab File ID: 0501020A.d
Lab Smp Id: CC1020
Analysis Type: VOA
Quant Type: ISTD
Operator: PB
Method File: /chem1/nt9.i/20OCT10.b/gasco.b/VO063010S.m
Misc Info: 10-

Calibration Date: 20-OCT-2010
Calibration Time: 12:41
Client Smp ID: VSTD050
Level: LOW
Sample Type: SOIL

Test Mode:
Use Initial Calibration Level 5.
If Continuing Cal. use Initial Cal. Level 5

COMPOUND	STANDARD	AREA LIMIT LOWER	AREA LIMIT UPPER	SAMPLE	%DIFF
32 Pentafluorobenzen	704281	352140	1408562	754912	7.19
35 1,4-Difluorobenze	937745	468872	1875490	991176	5.70
52 d5-Chlorobenzene	853013	426506	1706026	890048	4.34
75 d4-1,4-Dichlorobe	503655	251828	1007310	507063	0.68

COMPOUND	STANDARD	RT LIMIT LOWER	RT LIMIT UPPER	SAMPLE	%DIFF
32 Pentafluorobenzen	4.94	4.44	5.44	4.93	-0.10
35 1,4-Difluorobenze	5.32	4.82	5.82	5.32	0.02
52 d5-Chlorobenzene	7.40	6.90	7.90	7.40	0.01
75 d4-1,4-Dichlorobe	9.11	8.61	9.61	9.11	0.01

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.

Data File: /chem1/nt9.i/20OCT10.b/gasco.b/0501020A.d
Report Date: 20-Oct-2010 15:01

Analytical Resources, Inc.

CONTINUING CALIBRATION COMPOUNDS

Instrument ID: nt9.i
Lab File ID: 0501020A.d
Analysis Type: SOIL
Lab Sample ID: CC1020
Method: /chem1/nt9.i/20OCT10.b/gasco.b/VO063010S.m

Injection Date: 20-OCT-2010 13:11
Init. Cal. Date(s): 28-AUG-2010 28-AUG-2010
Init. Cal. Times: 12:52 16:21
Quant Type: ISTD

COMPOUND	RRF / AMOUNT	RF50	MIN RRF	%D / %DRIFT	MAX %D / %DRIFT	CURVE TYPE
3 Vinyl Chloride	0.44667	0.36050	0.100	-19.29248	20.00000	Averaged
7 1,1-Dichloroethene	0.44145	0.38814	0.100	-12.07547	20.00000	Averaged
15 Trans-1,2-Dichloroethene	0.51013	0.42514	0.010	-16.66161	20.00000	Averaged
20 Cis-1,2-Dichloroethene	0.48336	0.41937	0.010	-13.23942	20.00000	Averaged
23 Chloroform	0.76669	0.67031	0.100	-12.57147	20.00000	Averaged
24 Carbon Tetrachloride	0.46410	0.38750	0.100	-16.50499	20.00000	Averaged
$ 25 Dibromofluoromethane	0.37387	0.37073	0.100	-0.83923	20.00000	Averaged
$ 31 d4-1,2-Dichloroethane	0.38384	0.37914	0.010	-1.22545	20.00000	Averaged
29 2-Butanone	0.04853	0.04744	0.001	-2.24063	20.00000	Averaged
30 Benzene	1.34476	1.16345	0.100	-13.48283	20.00000	Averaged
33 1,2-Dichloroethane	0.38681	0.36156	0.100	-6.52924	20.00000	Averaged
34 Trichloroethene	0.37152	0.32375	0.100	-12.85682	20.00000	Averaged
$ 42 d8-Toluene	1.13290	1.11891	0.010	-1.23499	20.00000	Averaged
43 Toluene	0.95562	0.80787	0.100	-15.46193	20.00000	Averaged
44 Tetrachloroethene	0.54353	0.47285	0.100	-13.00471	20.00000	Averaged
53 Chlorobenzene	1.19234	1.06079	0.300	-11.03309	20.00000	Averaged
54 Ethyl Benzene	2.04913	1.76739	0.100	-13.74926	20.00000	Averaged
56 m,p-xylene	0.82875	0.73855	0.100	-10.88446	20.00000	Averaged
57 o-Xylene	0.77203	0.67519	0.100	-12.54383	20.00000	Averaged
$ 61 4-Bromofluorobenzene	0.46309	0.44939	0.200	-2.95822	20.00000	Averaged
76 1,4-Dichlorobenzene	1.79423	1.60992	0.100	-10.27225	20.00000	Averaged
$ 78 d4-1,2-Dichlorobenzene	0.87403	0.87379	0.010	-0.02786	20.00000	Averaged

Data File: /chem1/nt9.i/20OCT10.b/gasco.b/0501020A.d

Date : 20-OCT-2010 13:11

Client ID: VSTD050

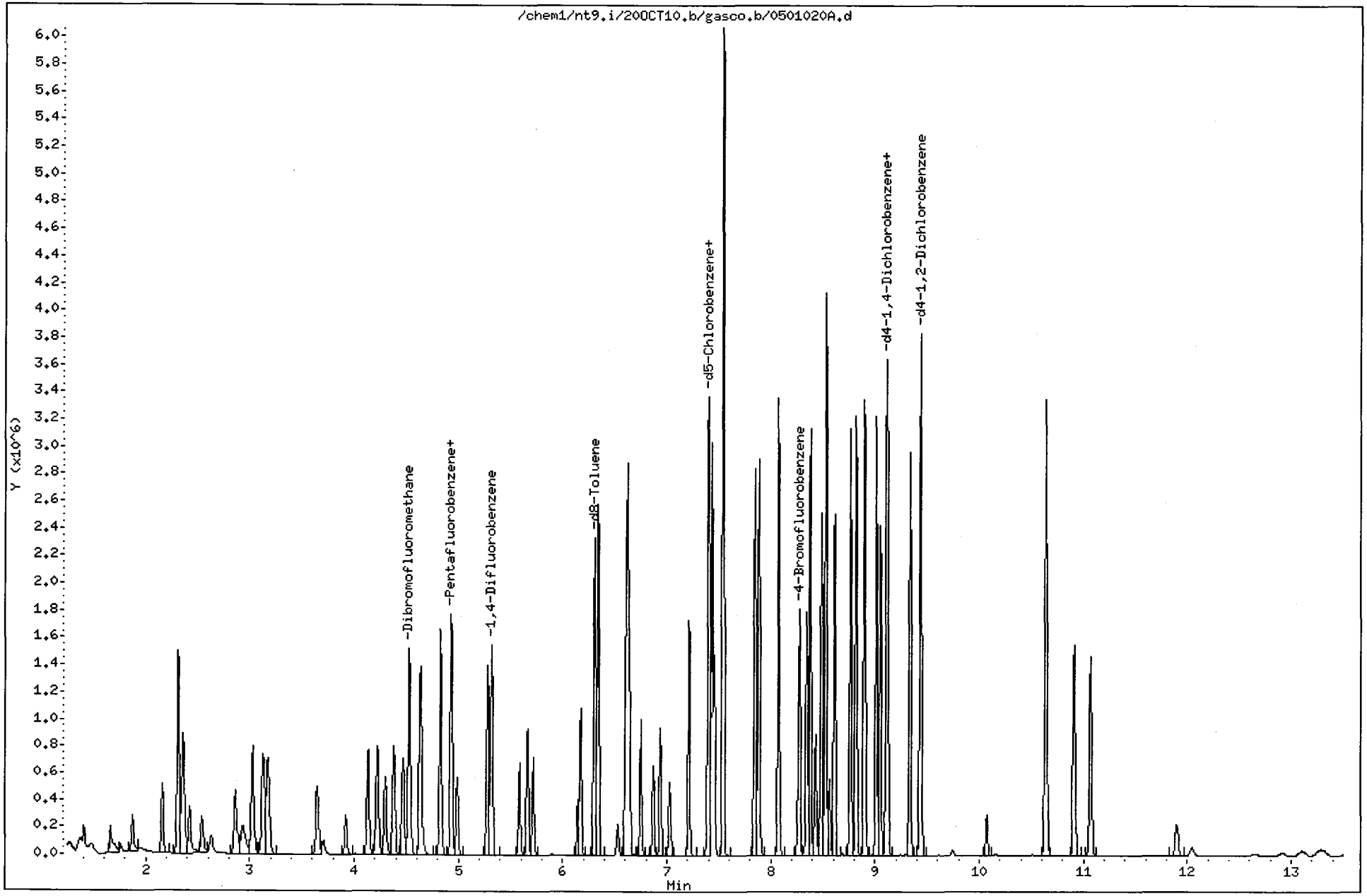
Sample Info: CC1020,5,5,0

Column phase: RTX502.2

Instrument: nt9.i

Operator: PB

Column diameter: 0.18



RG83 : 00056

Analytical Resources, Inc.

8260C

Data file : /chem1/nt9.i/20OCT10.b/gasco.b/lcs1020.d
Lab Smp Id: LCS1020 Client Smp ID: LCS1020
Inj Date : 20-OCT-2010 13:42
Operator : PB Inst ID: nt9.i
Smp Info : LCS1020,5,5,0
Misc Info : 10-
Comment :
Method : /chem1/nt9.i/20OCT10.b/gasco.b/VO063010S.m
Meth Date : 25-Oct-2010 13:51 patrickb Quant Type: ISTD
Cal Date : 28-AUG-2010 13:21 Cal File: 2000828.d
Als bottle: 1 QC Sample: LCS
Dil Factor: 1.00000
Integrator: HP RTE Compound Sublist: gasco.sub
Target Version: 3.50
Processing Host: cserv3

Concentration Formula: Amt * DF * Pv * 1 / (Sa * ((100 - M) / 100)) * CpndVaria

Name	Value	Description
DF	1.00000	Dilution Factor
Pv	5.00000	Purge Volume
Sa	5.00000	Sample Amount
M	0.00000	% Moisture (not decanted)

Cpnd Variable Local Compound Variable

Compounds	QUANT SIG MASS	RT	EXP RT	REL RT	RESPONSE	CONCENTRATIONS ON-COLUMN (ug/Kg)	FINAL (ug/Kg)
3 Vinyl Chloride	62	1.410	1.407	(0.286)	297945	41.6831	41.683
7 1,1-Dichloroethene	96	2.309	2.312	(0.468)	325062	46.0146	46.015
15 Trans-1,2-Dichloroethene	96	3.033	3.031	(0.615)	351170	43.0175	43.017
20 Cis-1,2-Dichloroethene	96	4.136	4.140	(0.838)	347264	44.8948	44.895
23 Chloroform	83	4.379	4.383	(0.888)	553246	45.0928	45.093
24 Carbon Tetrachloride	117	4.470	4.473	(0.840)	433418	44.5037	44.504
* 32 Pentafluorobenzene	168	4.934	4.932	(1.000)	800130	50.0000	
$ 25 Dibromofluoromethane	111	4.526	4.530	(0.917)	299104	49.9929	49.993
$ 31 d4-1,2-Dichloroethane	65	4.939	4.937	(1.001)	305977	49.8131	49.813
29 2-Butanone	72	4.645	4.643	(0.942)	178235	229.515	229.51
30 Benzene	78	4.826	4.830	(0.907)	1262150	44.7266	44.727
33 1,2-Dichloroethane	62	4.990	4.988	(0.938)	384360	47.3521	47.352
* 35 1,4-Difluorobenzene	114	5.318	5.322	(1.000)	1049229	50.0000	
34 Trichloroethene	95	5.279	5.282	(0.993)	352218	45.1783	45.178

Compounds	QUANT SIG MASS	RT	EXP RT	REL RT	RESPONSE	CONCENTRATIONS ON-COLUMN (ug/Kg)	FINAL (ug/Kg)
$ 42 d8-Toluene	98	6.308	6.306	(1.186)	1175490	49.4457	49.446
43 Toluene	92	6.342	6.340	(1.193)	875185	43.6428	43.643
44 Tetrachloroethene	166	6.608	6.606	(0.894)	462642	45.3658	45.366
* 52 d5-Chlorobenzene	117	7.394	7.398	(1.000)	938129	50.0000	
53 Chlorobenzene	112	7.406	7.409	(1.002)	1024118	45.7780	45.778
54 Ethyl Benzene	91	7.434	7.438	(1.005)	1729105	44.9739	44.974
56 m,p-xylene	106	7.542	7.539	(1.020)	1446241	93.0088	93.009
57 o-Xylene	106	7.847	7.845	(1.061)	660151	45.5741	45.574
$ 61 4-Bromofluorobenzene	95	8.277	8.275	(1.119)	422417	48.6162	48.616
* 75 d4-1,4-Dichlorobenzene	152	9.108	9.112	(1.000)	539415	50.0000	
76 1,4-Dichlorobenzene	146	9.120	9.118	(1.001)	884494	45.6945	45.694
$ 78 d4-1,2-Dichlorobenzene	152	9.431	9.434	(1.035)	469734	49.8163	49.816

Analytical Resources, Inc.

INTERNAL STANDARD COMPOUNDS
AREA AND RT SUMMARY

Instrument ID: nt9.i
Lab File ID: lcs1020.d
Lab Smp Id: LCS1020
Analysis Type: VOA
Quant Type: ISTD
Operator: PB
Method File: /chem1/nt9.i/20OCT10.b/gasco.b/VO063010S.m
Misc Info: 10-

Calibration Date: 20-OCT-2010
Calibration Time: 13:11
Client Smp ID: LCS1020
Level: LOW
Sample Type: SOIL

Test Mode:
Use Initial Calibration Level 5.
If Continuing Cal. use Initial Cal. Level 5

COMPOUND	STANDARD	AREA LIMIT LOWER	AREA LIMIT UPPER	SAMPLE	%DIFF
32 Pentafluorobenzen	704281	352140	1408562	800130	13.61
35 1,4-Difluorobenze	937745	468872	1875490	1049229	11.89
52 d5-Chlorobenzene	853013	426506	1706026	938129	9.98
75 d4-1,4-Dichlorobe	503655	251828	1007310	539415	7.10

COMPOUND	STANDARD	RT LIMIT LOWER	RT LIMIT UPPER	SAMPLE	%DIFF
32 Pentafluorobenzen	4.93	4.43	5.43	4.93	0.04
35 1,4-Difluorobenze	5.32	4.82	5.82	5.32	-0.07
52 d5-Chlorobenzene	7.40	6.90	7.90	7.39	-0.05
75 d4-1,4-Dichlorobe	9.11	8.61	9.61	9.11	-0.04

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.

Analytical Resources, Inc.

RECOVERY REPORT

Client Name:
Sample Matrix: SOLID
Lab Smp Id: LCS1020
Level: LOW
Data Type: MS DATA
SpikeList File: gasco.spk
Sublist File: gasco.sub
Method File: /chem1/nt9.i/20OCT10.b/gasco.b/VO063010S.m
Misc Info: 10-

Client SDG: 20OCT10
Fraction: VOA
Client Smp ID: LCS1020
Operator: PB
SampleType: LCS
Quant Type: ISTD

SPIKE COMPOUND	CONC ADDED ug/Kg	CONC RECOVERED ug/Kg	% RECOVERED	LIMITS
3 Vinyl Chloride	50.000	41.683	83.37	63-137
7 1,1-Dichloroethene	50.000	46.015	92.03	75-126
15 Trans-1,2-Dichloro	50.000	43.017	86.03	80-120
20 Cis-1,2-Dichloroet	50.000	44.895	89.79	80-120
23 Chloroform	50.000	45.093	90.19	80-120
24 Carbon Tetrachlori	50.000	44.504	89.01	77-122
29 2-Butanone	250.00	229.51	91.81	70-120
30 Benzene	50.000	44.727	89.45	80-120
33 1,2-Dichloroethane	50.000	47.352	94.70	76-120
34 Trichloroethene	50.000	45.178	90.36	80-120
43 Toluene	50.000	43.643	87.29	80-120
44 Tetrachloroethene	50.000	45.366	90.73	80-121
53 Chlorobenzene	50.000	45.778	91.56	80-120
54 Ethyl Benzene	50.000	44.974	89.95	80-127
56 m,p-xylene	100.00	93.009	93.01	80-125
57 o-Xylene	50.000	45.574	91.15	78-120
76 1,4-Dichlorobenzen	50.000	45.694	91.39	80-120

SURROGATE COMPOUND	AMOUNT ADDED ug/Kg	AMOUNT RECOVERED ug/Kg	% RECOVERED	LIMITS
$ 25 Dibromofluorometha	50.000	49.993	99.99	30-160
$ 31 d4-1,2-Dichloroeth	50.000	49.813	99.63	75-152
$ 42 d8-Toluene	50.000	49.446	98.89	82-115
$ 61 4-Bromofluorobenze	50.000	48.616	97.23	64-120
$ 78 d4-1,2-Dichloroben	50.000	49.816	99.63	80-120

Data File: /chem1/nt9.i/20OCT10.b/gasco.b/lcs1020.d

Date : 20-OCT-2010 13:42

Client ID: LCS1020

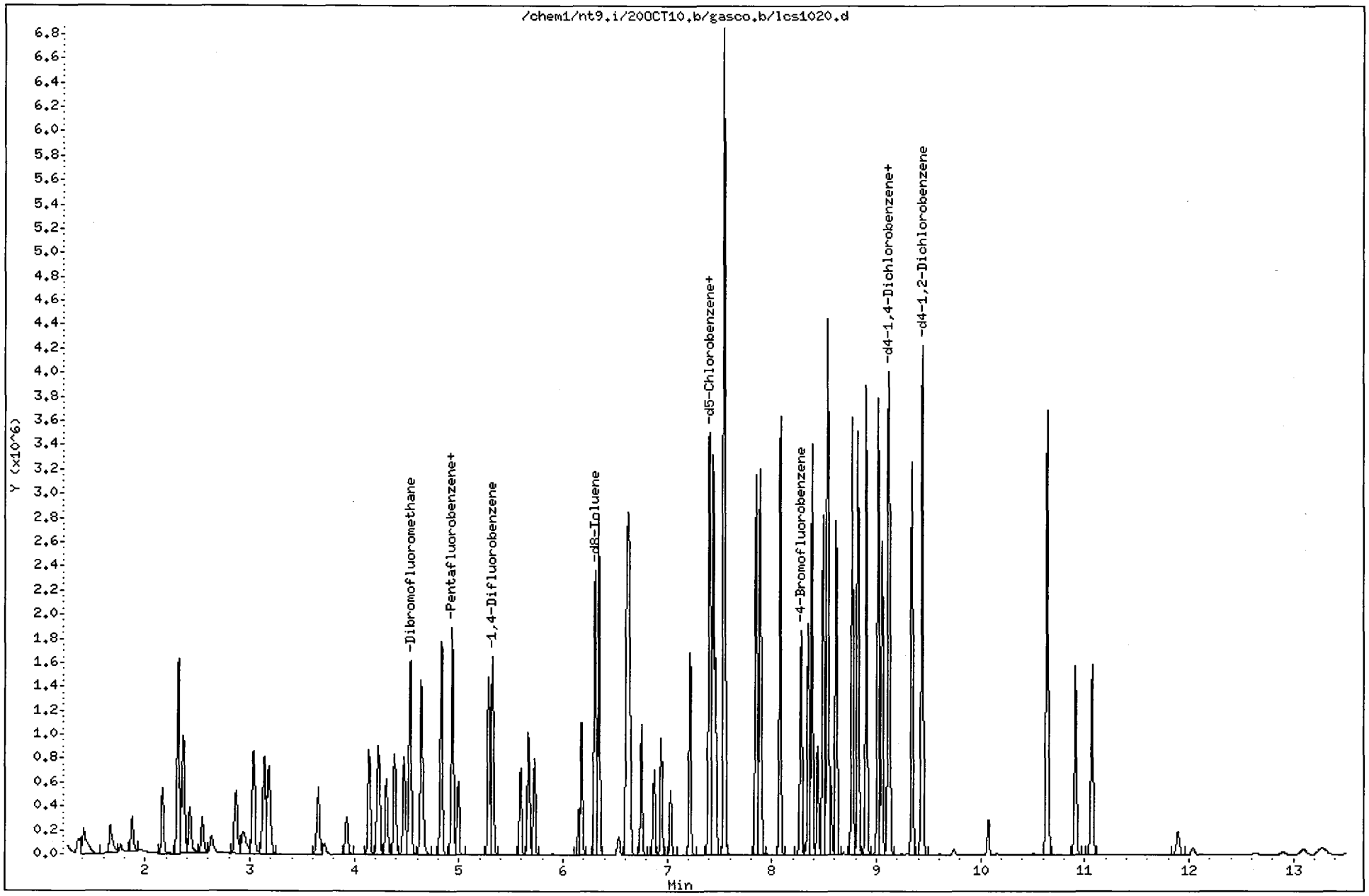
Sample Info: LCS1020,5,5,0

Column phase: RTX502.2

Instrument: nt9.i

Operator: PB

Column diameter: 0.18



R083 00151

Analytical Resources, Inc.

8260C

Data file : /chem1/nt9.i/20OCT10.b/gasco.b/mb1020.d
Lab Smp Id: MB1020 Client Smp ID: MB1020
Inj Date : 20-OCT-2010 14:12
Operator : PB Inst ID: nt9.i
Smp Info : MB1020,5,5,0
Misc Info : 10-
Comment :
Method : /chem1/nt9.i/20OCT10.b/gasco.b/VO063010S.m
Meth Date : 25-Oct-2010 13:51 patrickb Quant Type: ISTD
Cal Date : 28-AUG-2010 13:21 Cal File: 2000828.d
Als bottle: 1 QC Sample: BLANK
Dil Factor: 1.00000
Integrator: HP RTE Compound Sublist: gasco.sub
Target Version: 3.50
Processing Host: cserv3

Concentration Formula: Amt * DF * Pv * 1 / (Sa * ((100 - M) / 100)) * CpndVaria

Name	Value	Description
DF	1.00000	Dilution Factor
Pv	5.00000	Purge Volume
Sa	5.00000	Sample Amount
M	0.00000	% Moisture (not decanted)

Cpnd Variable Local Compound Variable

Compounds	QUANT SIG MASS	RT	EXP RT	REL RT	RESPONSE	CONCENTRATIONS ON-COLUMN (ug/Kg)	FINAL (ug/Kg)
3 Vinyl Chloride	62	Compound Not Detected.					
7 1,1-Dichloroethene	96	Compound Not Detected.					
15 Trans-1,2-Dichloroethene	96	Compound Not Detected.					
20 Cis-1,2-Dichloroethene	96	Compound Not Detected.					
23 Chloroform	83	Compound Not Detected.					
24 Carbon Tetrachloride	117	Compound Not Detected.					
* 32 Pentafluorobenzene	168	4.931	4.932	(1.000)	766662	50.0000	
$ 25 Dibromofluoromethane	111	4.530	4.530	(0.919)	278268	48.5407	48.541
$ 31 d4-1,2-Dichloroethane	65	4.937	4.937	(1.001)	292859	49.7588	49.759
29 2-Butanone	72	Compound Not Detected.					
30 Benzene	78	Compound Not Detected.					
33 1,2-Dichloroethane	62	Compound Not Detected.					
* 35 1,4-Difluorobenzene	114	5.322	5.322	(1.000)	1013953	50.0000	
34 Trichloroethene	95	Compound Not Detected.					

Compounds	QUANT SIG MASS	RT	EXP RT	REL RT	RESPONSE	CONCENTRATIONS ON-COLUMN (ug/Kg)	FINAL (ug/Kg)
$ 42 d8-Toluene	98	6.306	6.306	(1.185)	1141297	49.6776	49.678
43 Toluene	92	Compound Not Detected.					
44 Tetrachloroethene	166	Compound Not Detected.					
* 52 d5-Chlorobenzene	117	7.398	7.398	(1.000)	904849	50.0000	
53 Chlorobenzene	112	Compound Not Detected.					
54 Ethyl Benzene	91	Compound Not Detected.					
56 m,p-xylene	106	Compound Not Detected.					
57 o-Xylene	106	Compound Not Detected.					
$ 61 4-Bromofluorobenzene	95	8.275	8.275	(1.119)	410963	49.0376	49.038
* 75 d4-1,4-Dichlorobenzene	152	9.106	9.112	(1.000)	510746	50.0000	
76 1,4-Dichlorobenzene	146	Compound Not Detected.					
$ 78 d4-1,2-Dichlorobenzene	152	9.434	9.434	(1.036)	449828	50.3830	50.383

Analytical Resources, Inc.

INTERNAL STANDARD COMPOUNDS
AREA AND RT SUMMARY

Instrument ID: nt9.i
Lab File ID: mb1020.d
Lab Smp Id: MB1020
Analysis Type: VOA
Quant Type: ISTD
Operator: PB
Method File: /chem1/nt9.i/20OCT10.b/gasco.b/VO063010S.m
Misc Info: 10-

Calibration Date: 20-OCT-2010
Calibration Time: 13:11
Client Smp ID: MB1020
Level: LOW
Sample Type: SOIL

Test Mode:
Use Initial Calibration Level 5.
If Continuing Cal. use Initial Cal. Level 5

COMPOUND	STANDARD	AREA LIMIT LOWER	AREA LIMIT UPPER	SAMPLE	%DIFF
32 Pentafluorobenzen	704281	352140	1408562	766662	8.86
35 1,4-Difluorobenze	937745	468872	1875490	1013953	8.13
52 d5-Chlorobenzene	853013	426506	1706026	904849	6.08
75 d4-1,4-Dichlorobe	503655	251828	1007310	510746	1.41

COMPOUND	STANDARD	RT LIMIT LOWER	RT LIMIT UPPER	SAMPLE	%DIFF
32 Pentafluorobenzen	4.93	4.43	5.43	4.93	0.00
35 1,4-Difluorobenze	5.32	4.82	5.82	5.32	0.00
52 d5-Chlorobenzene	7.40	6.90	7.90	7.40	0.00
75 d4-1,4-Dichlorobe	9.11	8.61	9.61	9.11	-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.

Analytical Resources, Inc.

RECOVERY REPORT

Client Name:
Sample Matrix: SOLID
Lab Smp Id: MB1020
Level: LOW
Data Type: MS DATA
SpikeList File: all.spk
Sublist File: gasco.sub
Method File: /chem1/nt9.i/20OCT10.b/gasco.b/VO063010S.m
Misc Info: 10-

Client SDG: 20OCT10
Fraction: VOA
Client Smp ID: MB1020
Operator: PB
SampleType: BLANK
Quant Type: ISTD

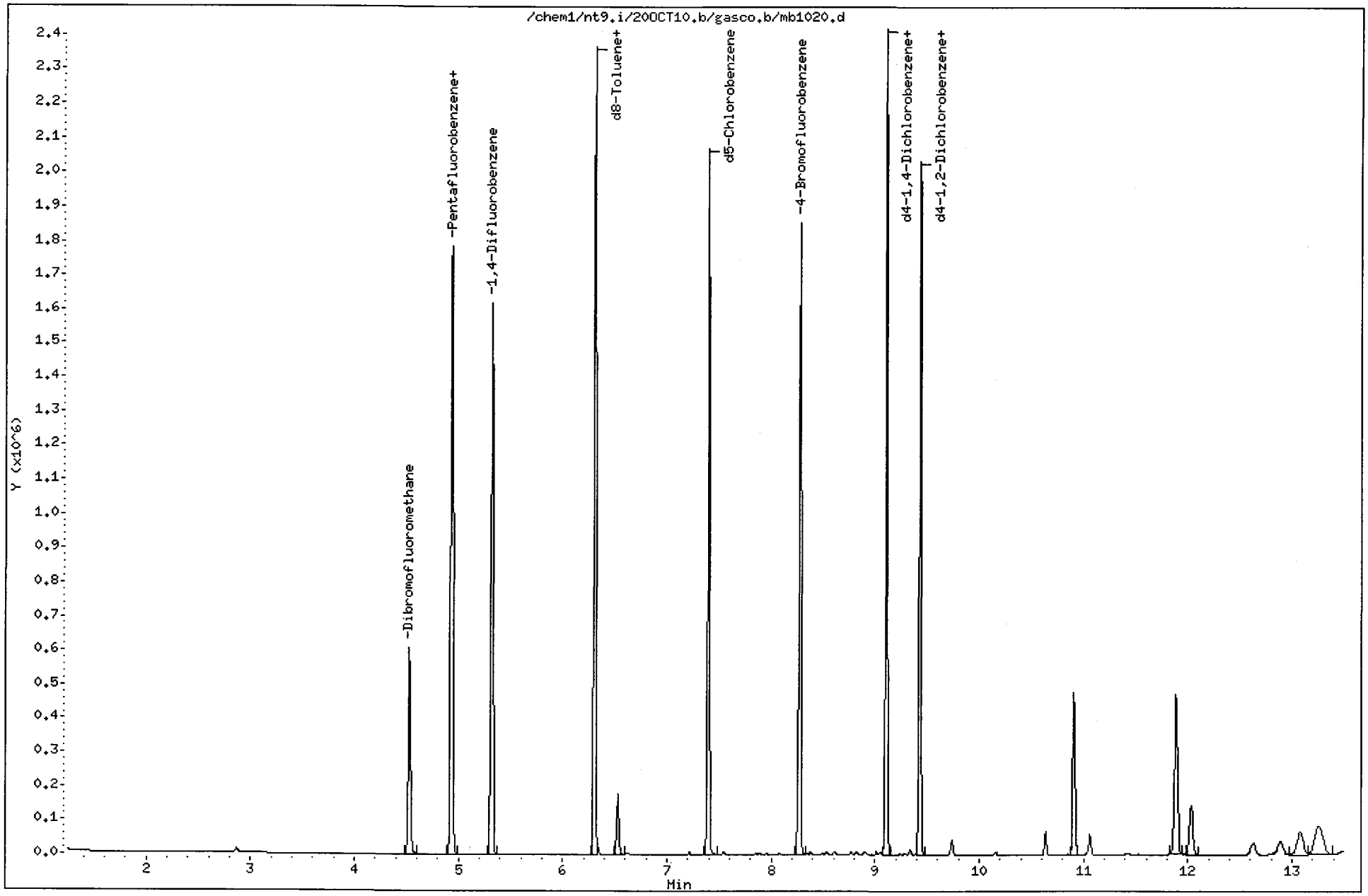
SURROGATE COMPOUND	AMOUNT ADDED ug/Kg	AMOUNT RECOVERED ug/Kg	% RECOVERED	LIMITS
$ 25 Dibromofluorometha	50.000	48.541	97.08	30-160
$ 31 d4-1,2-Dichloroeth	50.000	49.759	99.52	75-152
$ 42 d8-Toluene	50.000	49.678	99.36	82-115
$ 61 4-Bromofluorobenze	50.000	49.038	98.08	64-120
$ 78 d4-1,2-Dichloroben	50.000	50.383	100.77	80-120

Data File: /chem1/nt9.i/20OCT10.b/gasco.b/mb1020.d
Date : 20-OCT-2010 14:12
Client ID: MB1020
Sample Info: MB1020,5,5,0

Column phase: RTX502.2

Instrument: nt9.i

Operator: PB
Column diameter: 0.18



Analytical Resources, Inc.

8260C

Data file : /chem1/nt9.i/20OCT10.b/gasco.b/lcs1020a.d
Lab Smp Id: LCS1020 Client Smp ID: LCS1020
Inj Date : 20-OCT-2010 15:09
Operator : PB Inst ID: nt9.i
Smp Info : LCS1020,5,5,0
Misc Info : 10-
Comment :
Method : /chem1/nt9.i/20OCT10.b/gasco.b/VO063010S.m
Meth Date : 25-Oct-2010 13:51 patrickb Quant Type: ISTD
Cal Date : 28-AUG-2010 13:21 Cal File: 2000828.d
Als bottle: 1 QC Sample: LCSD
Dil Factor: 1.00000
Integrator: HP RTE Compound Sublist: gasco.sub
Target Version: 3.50
Processing Host: cserv3

Concentration Formula: Amt * DF * Pv * 1 / (Sa * ((100 - M) / 100)) * CpndVaria

Name	Value	Description
DF	1.00000	Dilution Factor
Pv	5.00000	Purge Volume
Sa	5.00000	Sample Amount
M	0.00000	% Moisture (not decanted)

Cpnd Variable Local Compound Variable

Compounds	QUANT SIG MASS	RT	EXP RT	REL RT	RESPONSE	CONCENTRATIONS ON-COLUMN (ug/Kg)	FINAL (ug/Kg)
3 Vinyl Chloride	62	1.407	1.407	(0.285)	317930	54.8243	54.824
7 1,1-Dichloroethene	96	2.312	2.312	(0.469)	361698	63.1093	63.109(R)
15 Trans-1,2-Dichloroethene	96	3.030	3.031	(0.615)	376406	56.8331	56.833
20 Cis-1,2-Dichloroethene	96	4.139	4.140	(0.839)	343460	54.7306	54.731
23 Chloroform	83	4.382	4.383	(0.889)	541736	54.4245	54.424
24 Carbon Tetrachloride	117	4.473	4.473	(0.841)	460481	57.8539	57.854
* 32 Pentafluorobenzene	168	4.931	4.932	(1.000)	649147	50.0000	
$ 25 Dibromofluoromethane	111	4.530	4.530	(0.919)	239741	49.3908	49.391
$ 31 d4-1,2-Dichloroethane	65	4.937	4.937	(1.001)	242967	48.7551	48.755
29 2-Butanone	72	4.643	4.643	(0.941)	183655	291.500	291.50
30 Benzene	78	4.829	4.830	(0.908)	1272366	55.1695	55.169
33 1,2-Dichloroethane	62	4.988	4.988	(0.937)	349707	52.7153	52.715
* 35 1,4-Difluorobenzene	114	5.321	5.322	(1.000)	857509	50.0000	
34 Trichloroethene	95	5.282	5.282	(0.993)	374933	58.8442	58.844

Compounds	QUANT SIG MASS	RT	EXP RT	REL RT	RESPONSE	CONCENTRATIONS ON-COLUMN (ug/Kg)	FINAL (ug/Kg)
$ 42 d8-Toluene	98	6.306	6.306	(1.185)	952155	49.0059	49.006
43 Toluene	92	6.340	6.340	(1.191)	891673	54.4064	54.406
44 Tetrachloroethene	166	6.611	6.606	(0.894)	511467	62.0566	62.057(R)
* 52 d5-Chlorobenzene	117	7.398	7.398	(1.000)	758186	50.0000	
53 Chlorobenzene	112	7.409	7.409	(1.002)	1012761	56.0145	56.015
54 Ethyl Benzene	91	7.437	7.438	(1.005)	1791900	57.6686	57.669
56 m,p-xylene	106	7.545	7.539	(1.020)	1506051	119.842	119.84
57 o-Xylene	106	7.850	7.845	(1.061)	658329	56.2347	56.235
$ 61 4-Bromofluorobenzene	95	8.280	8.275	(1.119)	339224	48.3073	48.307
* 75 d4-1,4-Dichlorobenzene	152	9.117	9.112	(1.000)	430494	50.0000	
76 1,4-Dichlorobenzene	146	9.129	9.118	(1.001)	881097	57.0359	57.036
$ 78 d4-1,2-Dichlorobenzene	152	9.445	9.434	(1.036)	373701	49.6592	49.659

QC Flag Legend

R - Spike/Surrogate failed recovery limits.

Analytical Resources, Inc.

INTERNAL STANDARD COMPOUNDS
AREA AND RT SUMMARY

Instrument ID: nt9.i
Lab File ID: lcs1020a.d
Lab Smp Id: LCS1020
Analysis Type: VOA
Quant Type: ISTD
Operator: PB
Method File: /chem1/nt9.i/20OCT10.b/gasco.b/VO063010S.m
Misc Info: 10-

Calibration Date: 20-OCT-2010
Calibration Time: 13:11
Client Smp ID: LCS1020
Level: LOW
Sample Type: SOIL

Test Mode:
Use Initial Calibration Level 5.
If Continuing Cal. use Initial Cal. Level 5

COMPOUND	STANDARD	AREA LIMIT LOWER	AREA LIMIT UPPER	SAMPLE	%DIFF
32 Pentafluorobenzen	704281	352140	1408562	649147	-7.83
35 1,4-Difluorobenze	937745	468872	1875490	857509	-8.56
52 d5-Chlorobenzene	853013	426506	1706026	758186	-11.12
75 d4-1,4-Dichlorobe	503655	251828	1007310	430494	-14.53

COMPOUND	STANDARD	RT LIMIT LOWER	RT LIMIT UPPER	SAMPLE	%DIFF
32 Pentafluorobenzen	4.93	4.43	5.43	4.93	-0.01
35 1,4-Difluorobenze	5.32	4.82	5.82	5.32	-0.01
52 d5-Chlorobenzene	7.40	6.90	7.90	7.40	-0.01
75 d4-1,4-Dichlorobe	9.11	8.61	9.61	9.12	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.

Analytical Resources, Inc.

RECOVERY REPORT

Client Name:
Sample Matrix: SOLID
Lab Smp Id: LCS1020
Level: LOW
Data Type: MS DATA
SpikeList File: gasco.spk
Sublist File: gasco.sub
Method File: /chem1/nt9.i/20OCT10.b/gasco.b/VO063010S.m
Misc Info: 10-

Client SDG: 20OCT10
Fraction: VOA
Client Smp ID: LCS1020
Operator: PB
SampleType: LCSD
Quant Type: ISTD

SPIKE COMPOUND	CONC ADDED ug/Kg	CONC RECOVERED ug/Kg	% RECOVERED	LIMITS
3 Vinyl Chloride	50.000	54.824	109.65	63-137
7 1,1-Dichloroethene	50.000	63.109	126.22*	75-126
15 Trans-1,2-Dichloro	50.000	56.833	113.67	80-120
20 Cis-1,2-Dichloroet	50.000	54.731	109.46	80-120
23 Chloroform	50.000	54.424	108.85	80-120
24 Carbon Tetrachlori	50.000	57.854	115.71	77-122
29 2-Butanone	250.00	291.50	116.60	70-120
30 Benzene	50.000	55.169	110.34	80-120
33 1,2-Dichloroethane	50.000	52.715	105.43	76-120
34 Trichloroethene	50.000	58.844	117.69	80-120
43 Toluene	50.000	54.406	108.81	80-120
44 Tetrachloroethene	50.000	62.057	124.11*	80-121
53 Chlorobenzene	50.000	56.015	112.03	80-120
54 Ethyl Benzene	50.000	57.669	115.34	80-127
56 m,p-xylene	100.00	119.84	119.84	80-125
57 o-Xylene	50.000	56.235	112.47	78-120
76 1,4-Dichlorobenzen	50.000	57.036	114.07	80-120

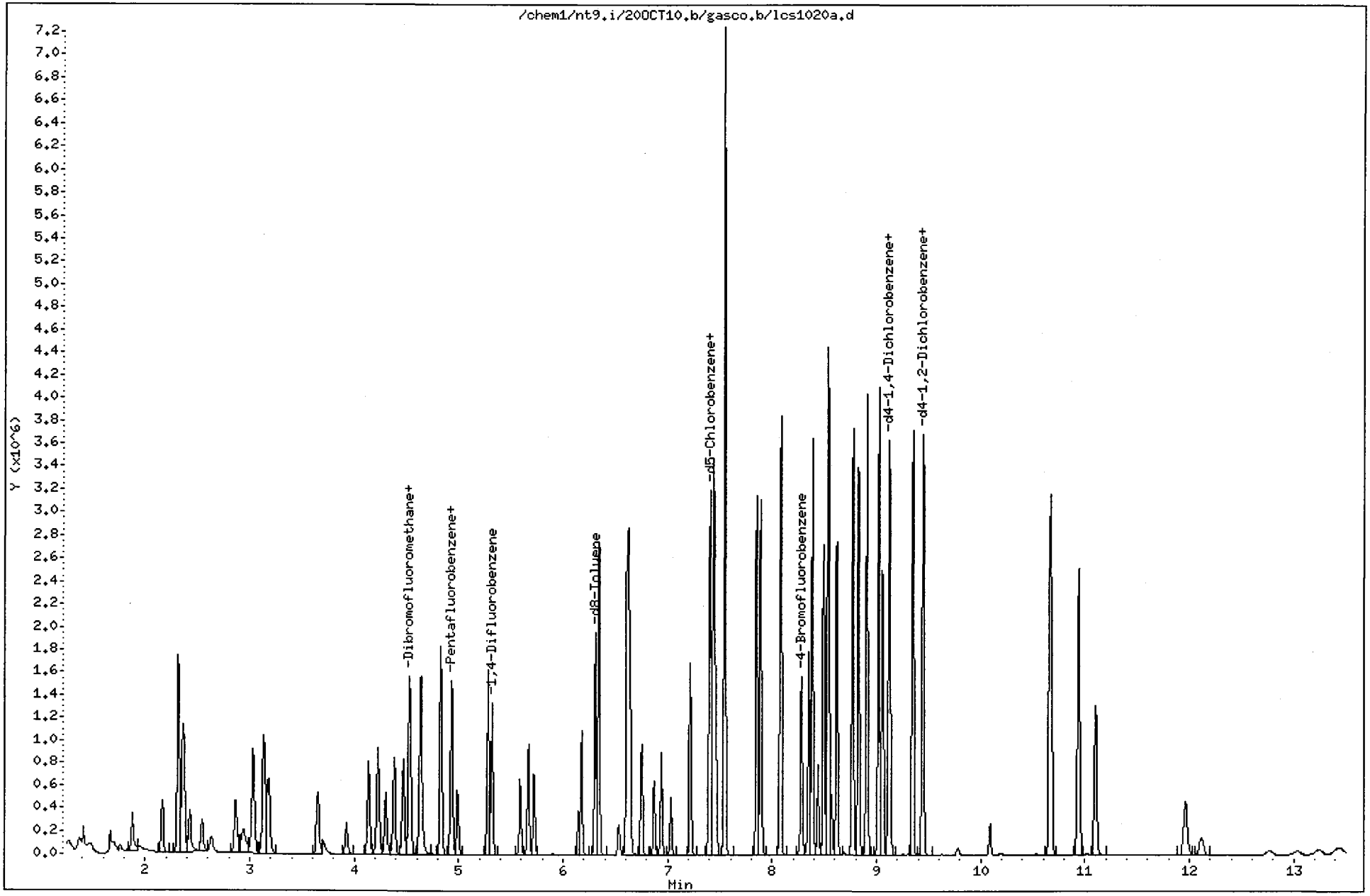
SURROGATE COMPOUND	AMOUNT ADDED ug/Kg	AMOUNT RECOVERED ug/Kg	% RECOVERED	LIMITS
$ 25 Dibromofluorometha	50.000	49.391	98.78	30-160
$ 31 d4-1,2-Dichloroeth	50.000	48.755	97.51	75-152
$ 42 d8-Toluene	50.000	49.006	98.01	82-115
$ 61 4-Bromofluorobenze	50.000	48.307	96.61	64-120
$ 78 d4-1,2-Dichloroben	50.000	49.659	99.32	80-120

Data File: /chem1/nt9.i/20OCT10.b/gasco.b/lcs1020a.d
Date : 20-OCT-2010 15:09
Client ID: LCS1020
Sample Info: LCS1020,5,5,0

Column phase: RTX502.2

Instrument: nt9.i

Operator: PB
Column diameter: 0.18



R083:05114

Analytical Resources, Inc.

8260C

Data file : /chem1/nt9.i/20OCT10.b/gasco.b/rq83b.d
Lab Smp Id: RQ83B
Client Smp ID: GST-TBSO-2-101008
Inj Date : 20-OCT-2010 16:44
Operator : PB
Inst ID: nt9.i
Smp Info : RQ83B,5,5,0
Misc Info : 10-26011
Comment :
Method : /chem1/nt9.i/20OCT10.b/gasco.b/VO063010S.m
Meth Date : 25-Oct-2010 13:52 patrickb
Quant Type: ISTD
Cal Date : 28-AUG-2010 13:21
Cal File: 2000828.d
Als bottle: 1
Dil Factor: 1.00000
Integrator: HP RTE
Compound Sublist: gasco.sub
Target Version: 3.50
Processing Host: cserv3

Concentration Formula: Amt * DF * Pv / Sa * CpndVariable

Name	Value	Description
DF	1.00000	Dilution Factor
Pv	0.00000	Purge Volume (mL)
Sa	0.00000	Sample Amount (mL)

Cpnd Variable — Local Compound Variable

Compounds	QUANT SIG MASS	RT	EXP RT	REL RT	RESPONSE	CONCENTRATIONS ON-COLUMN (ug/Kg)	FINAL (ug/L)
3 Vinyl Chloride	62	Compound Not Detected.					
7 1,1-Dichloroethene	96	Compound Not Detected.					
15 Trans-1,2-Dichloroethene	96	Compound Not Detected.					
20 Cis-1,2-Dichloroethene	96	Compound Not Detected.					
23 Chloroform	83	Compound Not Detected.					
24 Carbon Tetrachloride	117	Compound Not Detected.					
* 32 Pentafluorobenzene	168	4.928	4.932	(1.000)	484658	50.0000	
$ 25 Dibromofluoromethane	111	4.526	4.530	(0.918)	115541	31.8821	31.882
$ 31 d4-1,2-Dichloroethane	65	4.939	4.937	(1.002)	168309	45.2363	45.236
29 2-Butanone	72	4.554	4.643	(0.924)	459	0.97579	0.9758(Q) nlq
30 Benzene	78	Compound Not Detected.					
33 1,2-Dichloroethane	62	Compound Not Detected.					
* 35 1,4-Difluorobenzene	114	5.318	5.322	(1.000)	601802	50.0000	
34 Trichloroethene	95	Compound Not Detected.					
$ 42 d8-Toluene	98	6.308	6.306	(1.186)	727238	53.3338	53.334

Compounds	QUANT SIG MASS	RT	EXP RT	REL RT	RESPONSE	CONCENTRATIONS ON-COLUMN (ug/Kg)	FINAL (ug/L)
43 Toluene	92	6.342	6.340	(1.193)	1936	0.16832	0.1683
44 Tetrachloroethene	166	Compound Not Detected.					
* 52 d5-Chlorobenzene	117	7.394	7.398	(1.000)	652638	50.0000	
53 Chlorobenzene	112	Compound Not Detected.					
54 Ethyl Benzene	91	Compound Not Detected.					
56 m,p-xylene	106	7.541	7.539	(1.020)	1255	0.11602	0.1160
57 o-Xylene	106	7.541	7.845	(1.020)	1255	0.12454	0.1245(Q)
$ 61 4-Bromofluorobenzene	95	8.277	8.275	(1.119)	392296	64.8999	64.900(R)
* 75 d4-1,4-Dichlorobenzene	152	9.108	9.112	(1.000)	548014	50.0000	
76 1,4-Dichlorobenzene	146	Compound Not Detected.					
$ 78 d4-1,2-Dichlorobenzene	152	9.431	9.434	(1.035)	498520	52.0395	52.040

QC Flag Legend

Q - Qualifier signal failed the ratio test.
R - Spike/Surrogate failed recovery limits.

Analytical Resources, Inc.

INTERNAL STANDARD COMPOUNDS
AREA AND RT SUMMARY

Instrument ID: nt9.i
Lab File ID: rq83b.d
Lab Smp Id: RQ83B
Analysis Type: VOA
Quant Type: ISTD
Operator: PB
Method File: /chem1/nt9.i/20OCT10.b/gasco.b/VO063010S.m
Misc Info: 10-26011

Calibration Date: 20-OCT-2010
Calibration Time: 13:11
Client Smp ID: GST-TBSO-2-101008
Level: LOW
Sample Type: Water

Test Mode:
Use Initial Calibration Level 5.
If Continuing Cal. use Initial Cal. Level 5

COMPOUND	STANDARD	AREA LIMIT LOWER	AREA LIMIT UPPER	SAMPLE	%DIFF
32 Pentafluorobenzen	704281	352140	1408562	484658	-31.18
35 1,4-Difluorobenze	937745	468872	1875490	601802	-35.82
52 d5-Chlorobenzene	853013	426506	1706026	652638	-23.49
75 d4-1,4-Dichlorobe	503655	251828	1007310	548014	8.81

COMPOUND	STANDARD	RT LIMIT LOWER	RT LIMIT UPPER	SAMPLE	%DIFF
32 Pentafluorobenzen	4.93	4.43	5.43	4.93	-0.08
35 1,4-Difluorobenze	5.32	4.82	5.82	5.32	-0.07
52 d5-Chlorobenzene	7.40	6.90	7.90	7.39	-0.05
75 d4-1,4-Dichlorobe	9.11	8.61	9.61	9.11	-0.04

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.

Analytical Resources, Inc.

RECOVERY REPORT

Client Name: NW Natural
Sample Matrix: LIQUID
Lab Smp Id: RQ83B
Level: LOW
Data Type: MS DATA
SpikeList File: all.spk
Sublist File: gasco.sub
Method File: /chem1/nt9.i/20OCT10.b/gasco.b/VO063010S.m
Misc Info: 10-26011

Client SDG: RQ83
Fraction: VOA
Client Smp ID: GST-TBSO-2-101008
Operator: PB
SampleType: SAMPLE
Quant Type: ISTD

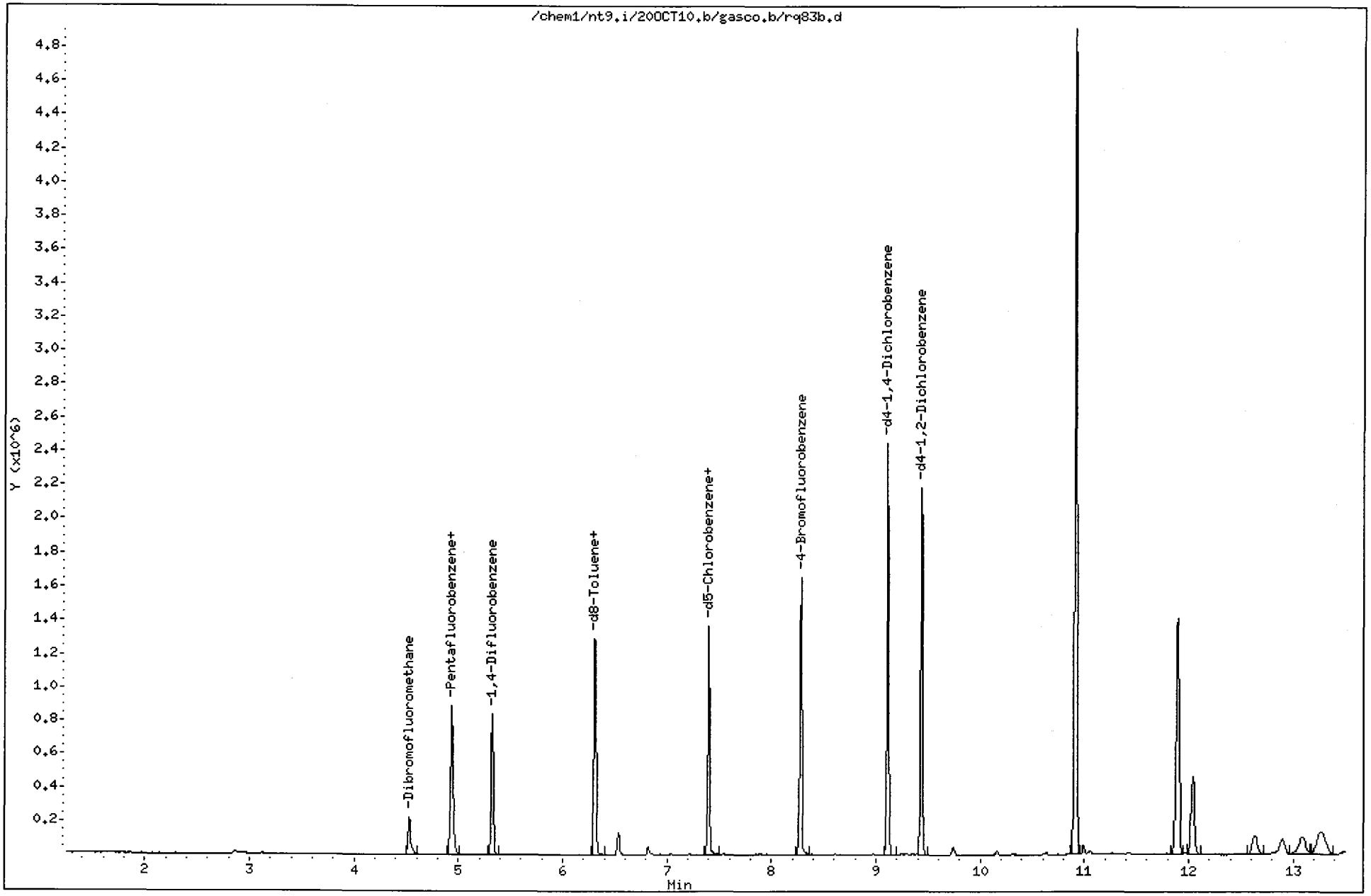
SURROGATE COMPOUND	AMOUNT ADDED ug/Kg	AMOUNT RECOVERED ug/Kg	% RECOVERED	LIMITS
$ 25 Dibromofluorometha	50.000	31.882	63.76	30-160
$ 31 d4-1,2-Dichloroeth	50.000	45.236	90.47	75-152
$ 42 d8-Toluene	50.000	53.334	106.67	82-115
$ 61 4-Bromofluorobenze	50.000	64.900	129.80*	71-120
$ 78 d4-1,2-Dichloroben	50.000	52.040	104.08	80-121

Data File: /chem1/nt9.i/20OCT10.b/gasco.b/rq83b.d
Date : 20-OCT-2010 16:44
Client ID: GST-TBSO-2-101008
Sample Info: RQ83B,5,5,0

Column phase: RTX502.2

Instrument: nt9.i

Operator: PB
Column diameter: 0.18



Analytical Resources, Inc.

8260C

Data file : /chem1/nt9.i/20OCT10.b/gasco.b/rq83a.d
Lab Smp Id: RQ83A Client Smp ID: GST-09SO-17-18-1010
Inj Date : 20-OCT-2010 17:15
Operator : PB Inst ID: nt9.i
Smp Info : RQ83A,5,1.22,1,5UL 1.22G/5ML
Misc Info : 10-26010
Comment :
Method : /chem1/nt9.i/20OCT10.b/gasco.b/VO063010S.m
Meth Date : 25-Oct-2010 13:52 patrickb Quant Type: ISTD
Cal Date : 28-AUG-2010 13:21 Cal File: 2000828.d
Als bottle: 1
Dil Factor: 1.00000
Integrator: HP RTE Compound Sublist: gasco.sub
Target Version: 3.50
Processing Host: cserv3

Concentration Formula: Amt * DF * Uf * 1/(Ws * (100 - M)/100) * CpndVariable

M	0.00000	% Moisture (not decanted)
Uf	1.00000	ng unit correction factor
Ws	5.00000	Weight of sample extracted (g)

Cpnd Variable Local Compound Variable

Compounds	QUANT SIG MASS	RT	EXP RT	REL RT	RESPONSE	CONCENTRATIONS ON-COLUMN (ug/Kg)	FINAL (ug/Kg)
3 Vinyl Chloride	62	Compound Not Detected.					
7 1,1-Dichloroethene	96	Compound Not Detected.					
15 Trans-1,2-Dichloroethene	96	Compound Not Detected.					
20 Cis-1,2-Dichloroethene	96	Compound Not Detected.					
23 Chloroform	83	Compound Not Detected.					
24 Carbon Tetrachloride	117	Compound Not Detected.					
* 32 Pentafluorobenzene	168	4.932	4.932	(1.000)	680856	50.0000	
$ 25 Dibromofluoromethane	111	4.530	4.530	(0.919)	239027	46.9503	9.390
$ 31 d4-1,2-Dichloroethane	65	4.937	4.937	(1.001)	254647	48.7191	9.744
29 2-Butanone	72	4.830	4.643	(0.979)	306	0.46307	0.09261 (Q)
30 Benzene	78	4.830	4.830	(0.908)	205179	8.44775	1.690
33 1,2-Dichloroethane	62	Compound Not Detected.					
* 35 1,4-Difluorobenzene	114	5.322	5.322	(1.000)	903061	50.0000	
34 Trichloroethene	95	Compound Not Detected.					
$ 42 d8-Toluene	98	6.306	6.306	(1.185)	1011838	49.4508	9.890
43 Toluene	92	6.340	6.340	(1.191)	111145	6.43956	1.288
44 Tetrachloroethene	166	Compound Not Detected.					
* 52 d5-Chlorobenzene	117	7.398	7.398	(1.000)	808671	50.0000	
53 Chlorobenzene	112	Compound Not Detected.					

Compounds	QUANT SIG MASS	RT	EXP RT	REL RT	RESPONSE	CONCENTRATIONS ON-COLUMN (ug/Kg)	FINAL (ug/Kg)
54 Ethyl Benzene	91	7.438	7.438	(1.005)	376265	11.3533	2.271
56 m,p-xylene	106	7.540	7.539	(1.019)	162739	12.1413	2.428
57 o-Xylene	106	7.845	7.845	(1.060)	73142	5.85777	1.172
$ 61 4-Bromofluorobenzene	95	8.275	8.275	(1.119)	369384	49.3183	9.864
* 75 d4-1,4-Dichlorobenzene	152	9.106	9.112	(1.000)	475784	50.0000	
76 1,4-Dichlorobenzene	146	Compound Not Detected.					
$ 78 d4-1,2-Dichlorobenzene	152	9.435	9.434	(1.036)	426402	51.2686	10.254

QC Flag Legend

Q - Qualifier signal failed the ratio test.

Analytical Resources, Inc.

INTERNAL STANDARD COMPOUNDS
AREA AND RT SUMMARY

Instrument ID: nt9.i
Lab File ID: rq83a.d
Lab Smp Id: RQ83A
Analysis Type: VOA
Quant Type: ISTD
Operator: PB
Method File: /chem1/nt9.i/20OCT10.b/gasco.b/VO063010S.m
Misc Info: 10-26010

Calibration Date: 20-OCT-2010
Calibration Time: 13:11
Client Smp ID: GST-09SO-17-18-1010
Level: MED
Sample Type: Soil

Test Mode:
Use Initial Calibration Level 5.
If Continuing Cal. use Initial Cal. Level 5

COMPOUND	STANDARD	AREA LIMIT LOWER	AREA LIMIT UPPER	SAMPLE	%DIFF
32 Pentafluorobenzen	704281	352140	1408562	680856	-3.33
35 1,4-Difluorobenze	937745	468872	1875490	903061	-3.70
52 d5-Chlorobenzene	853013	426506	1706026	808671	-5.20
75 d4-1,4-Dichlorobe	503655	251828	1007310	475784	-5.53

COMPOUND	STANDARD	RT LIMIT LOWER	RT LIMIT UPPER	SAMPLE	%DIFF
32 Pentafluorobenzen	4.93	4.43	5.43	4.93	0.00
35 1,4-Difluorobenze	5.32	4.82	5.82	5.32	0.00
52 d5-Chlorobenzene	7.40	6.90	7.90	7.40	0.00
75 d4-1,4-Dichlorobe	9.11	8.61	9.61	9.11	-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.

Analytical Resources, Inc.

RECOVERY REPORT

Client Name: NW Natural
Sample Matrix: SOLID
Lab Smp Id: RQ83A
Level: MED
Data Type: MS DATA
SpikeList File: all.spk
Sublist File: gasco.sub
Method File: /chem1/nt9.i/20OCT10.b/gasco.b/VO063010S.m
Misc Info: 10-26010

Client SDG: RQ83
Fraction: VOA
Client Smp ID: GST-09SO-17-18-1010
Operator: PB
SampleType: SAMPLE
Quant Type: ISTD

SURROGATE COMPOUND	AMOUNT ADDED ug/Kg	AMOUNT RECOVERED ug/Kg	% RECOVERED	LIMITS
$ 25 Dibromofluorometha	50.000	46.950	93.90	30-160
$ 31 d4-1,2-Dichloroeth	50.000	48.719	97.44	75-152
$ 42 d8-Toluene	50.000	49.451	98.90	82-115
$ 61 4-Bromofluorobenze	50.000	49.318	98.64	64-120
$ 78 d4-1,2-Dichloroben	50.000	51.269	102.54	80-120

Data File: /chem1/nt9.i/20OCT10.b/gasco.b/rq83a.d

Date : 20-OCT-2010 17:15

Client ID: GST-09SO-17-18-1010

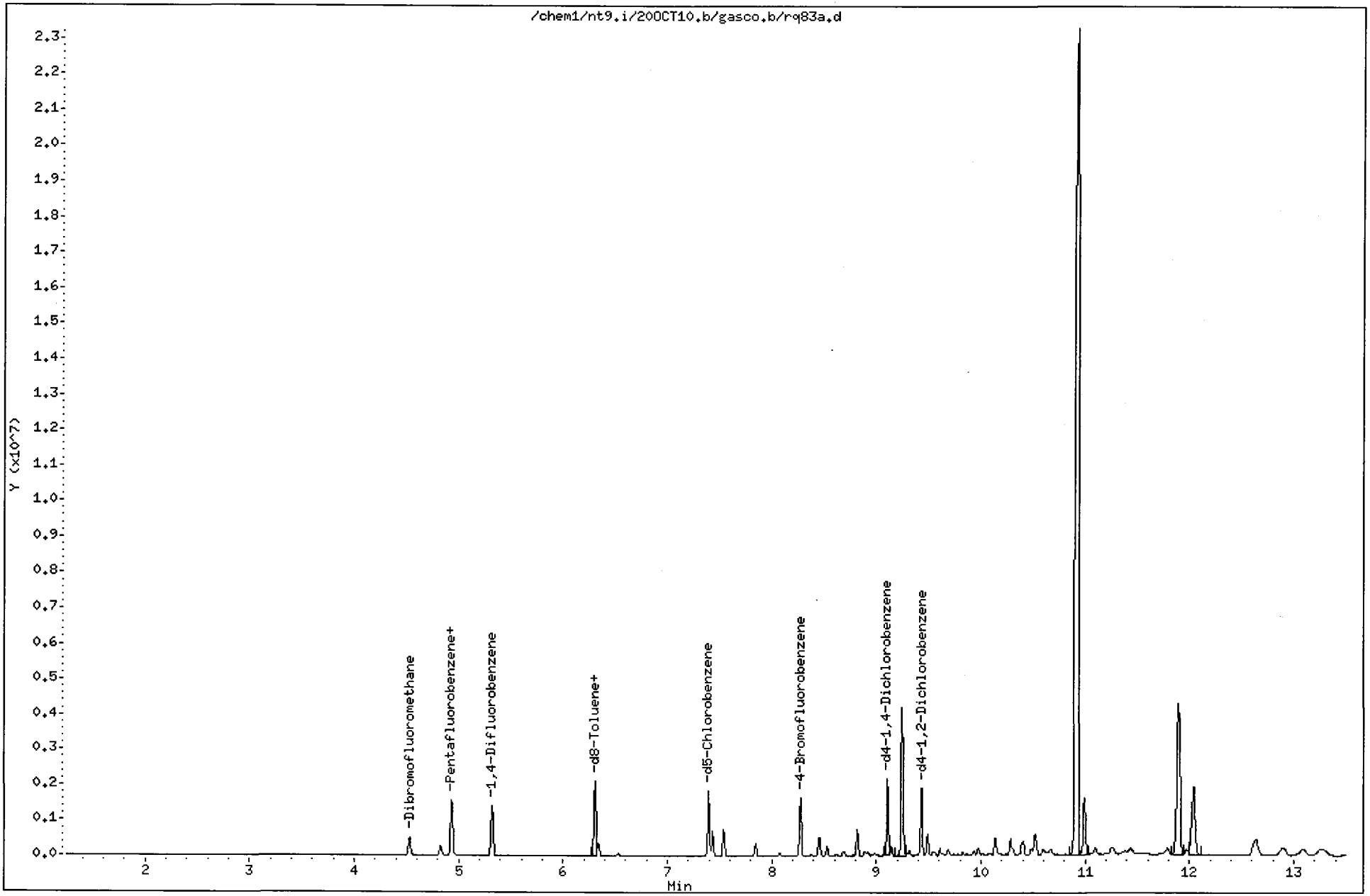
Sample Info: RQ83A,5,1.22,1,5UL 1.22G/5ML

Column phase: RTX502.2

Instrument: nt9.i

Operator: PB

Column diameter: 0.18



RQ83 : 00121

Data File: /chem1/nt9.i/20OCT10.b/gasco.b/rq83a.d

Date : 20-OCT-2010 17:15

Client ID: GST-09SO-17-18-1010

Instrument: nt9.i

Sample Info: RQ83A,5,1.22,1,5UL 1.22G/5ML

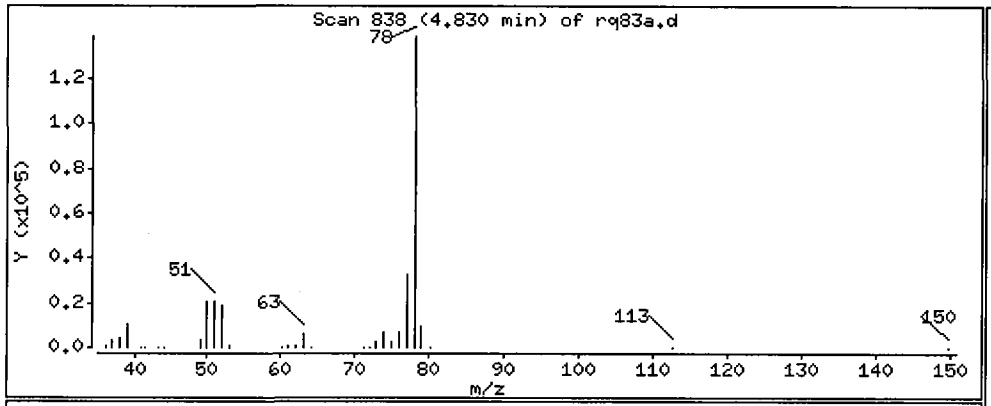
Operator: PB

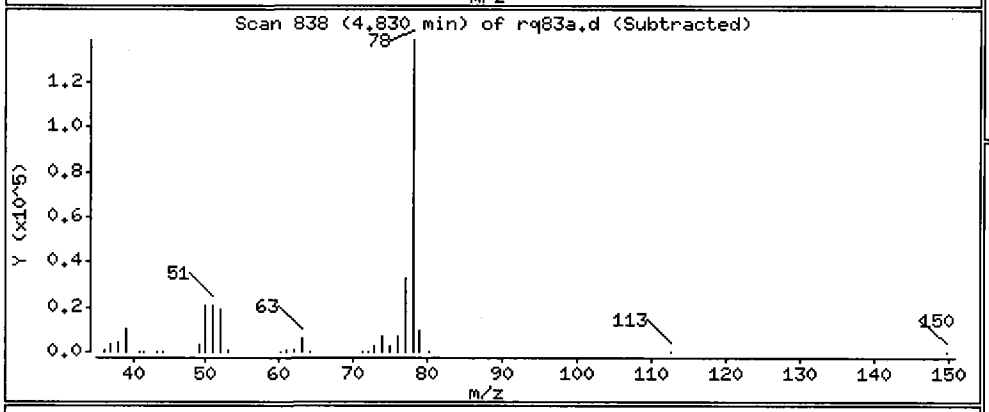
Column phase: RTX502.2

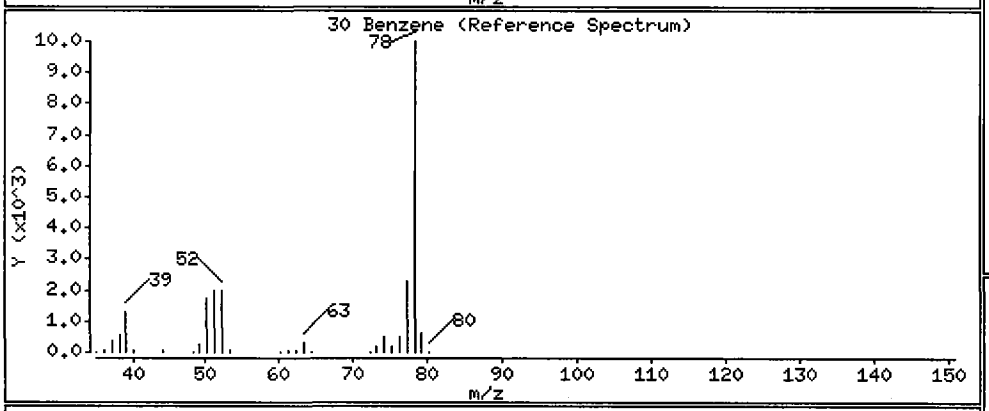
Column diameter: 0.18

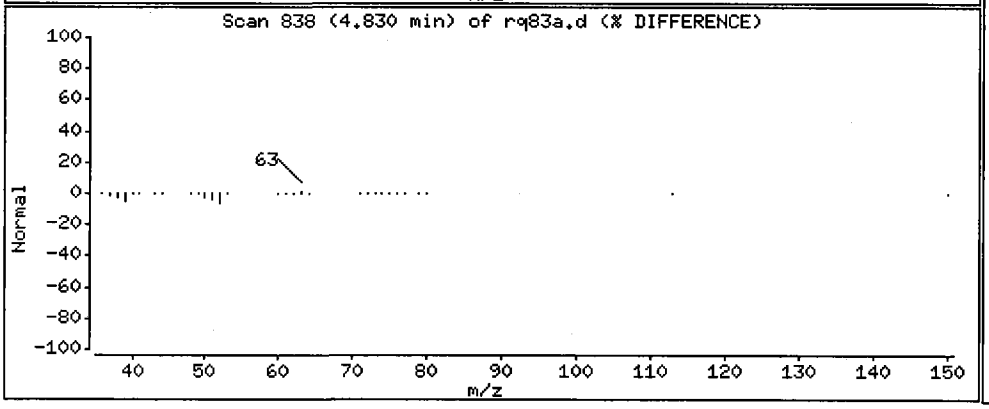
30 Benzene

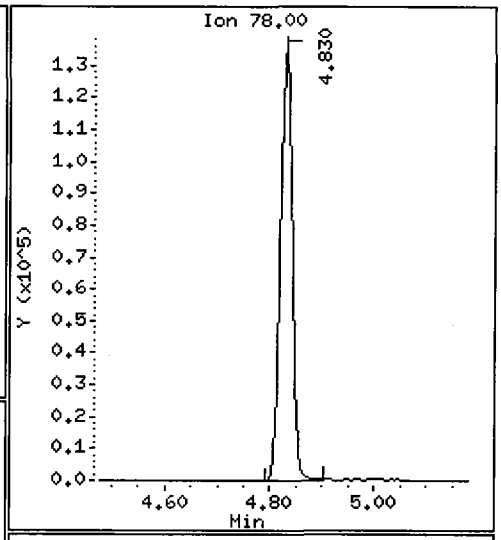
Concentration: 1.690 ug/Kg

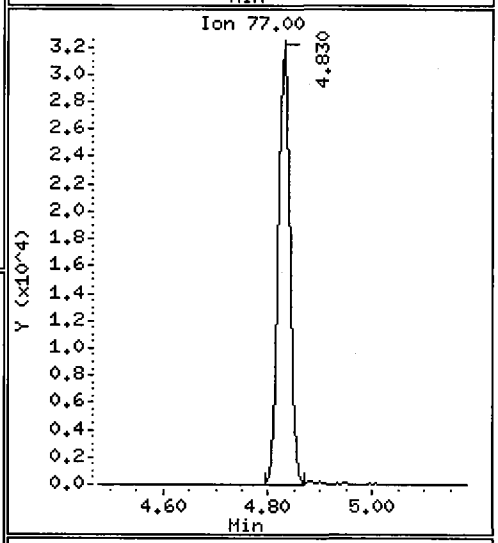


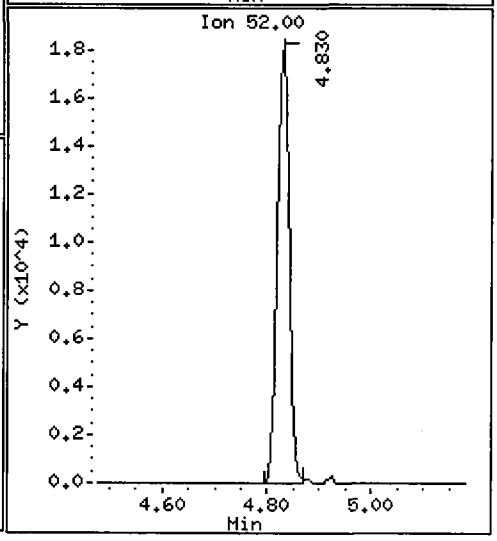












Data File: /chem1/nt9.i/20OCT10.b/gasco.b/rq83a.d

Date : 20-OCT-2010 17:15

Client ID: GST-09SO-17-18-1010

Instrument: nt9.i

Sample Info: RQ83A,5,1.22,1,5UL 1.22G/5ML

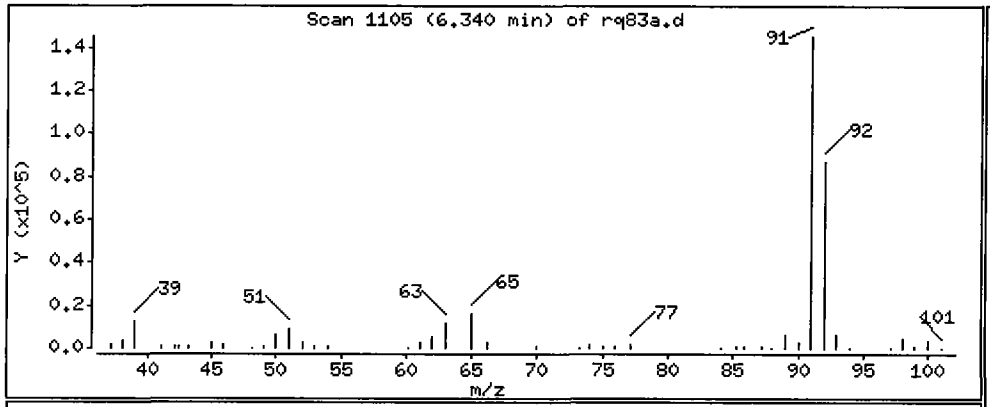
Operator: PB

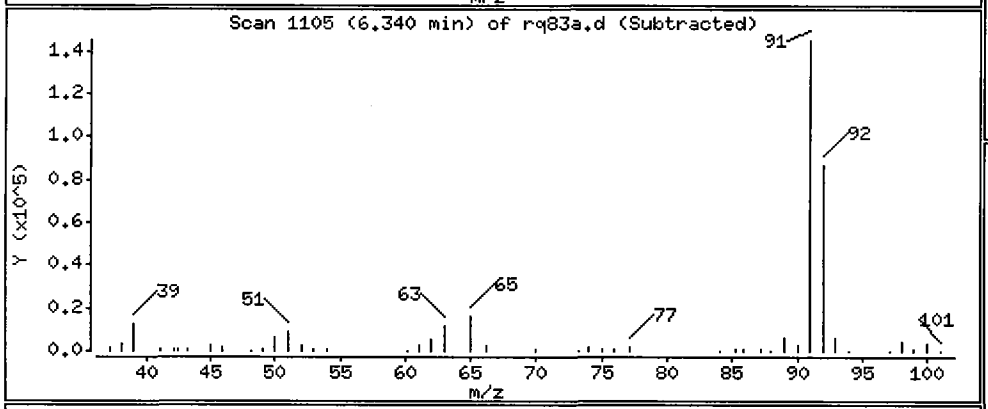
Column phase: RTX502.2

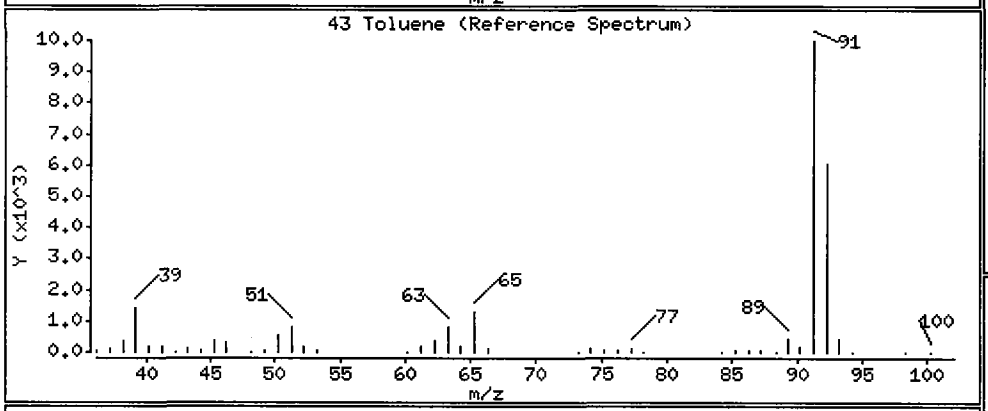
Column diameter: 0.18

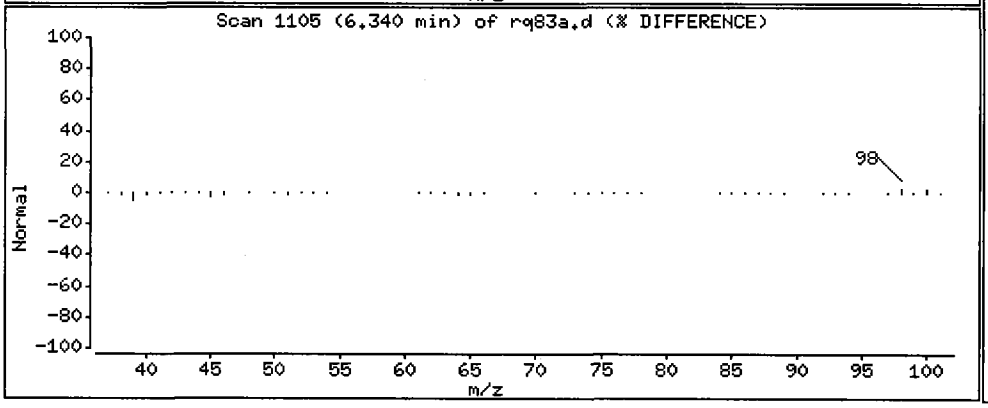
43 Toluene

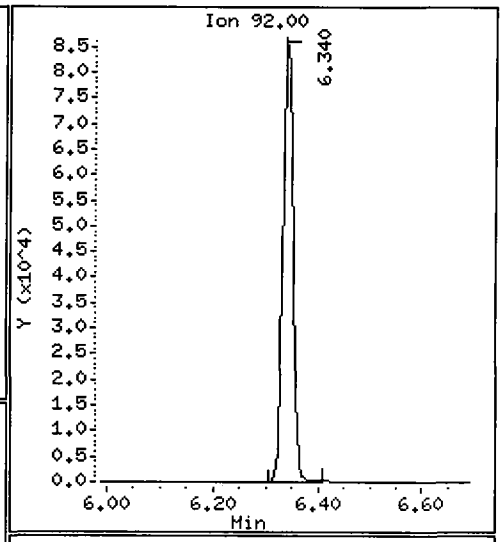
Concentration: 1.288 ug/Kg

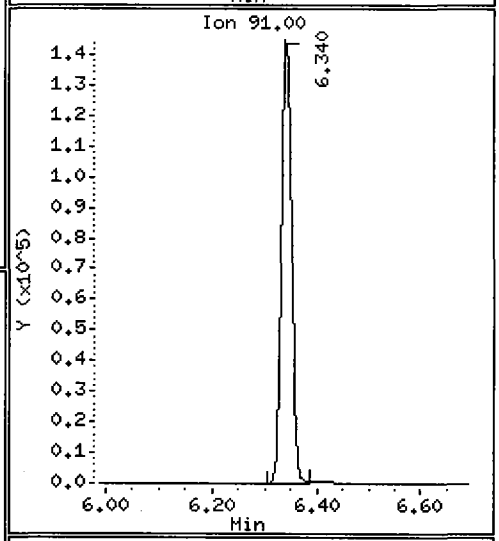


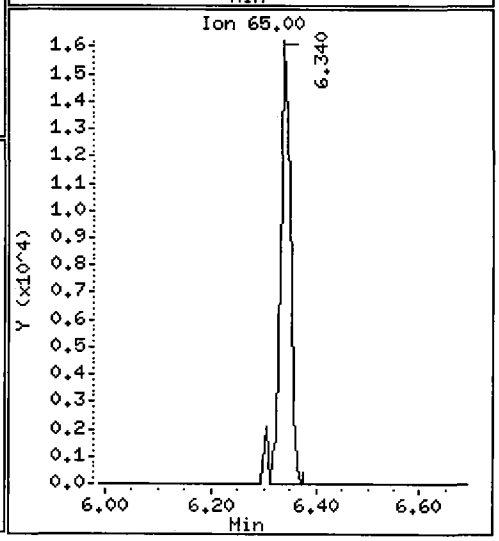












Data File: /chem1/nt9.i/20OCT10.b/gasco.b/rq83a.d

Date : 20-OCT-2010 17:15

Client ID: GST-09SO-17-18-1010

Instrument: nt9.i

Sample Info: RQ83A,5,1.22,1.5UL 1.22G/5ML

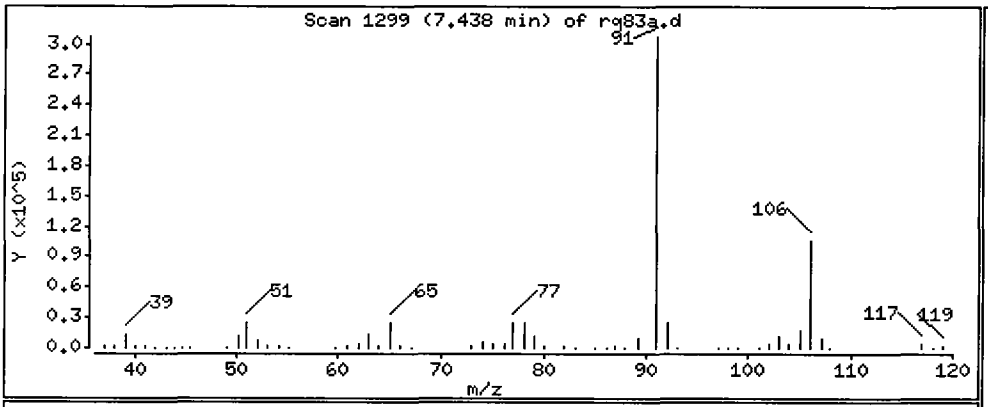
Operator: PB

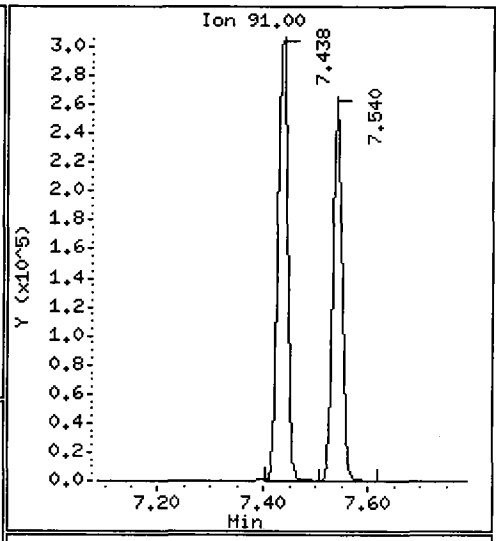
Column phase: RTX502.2

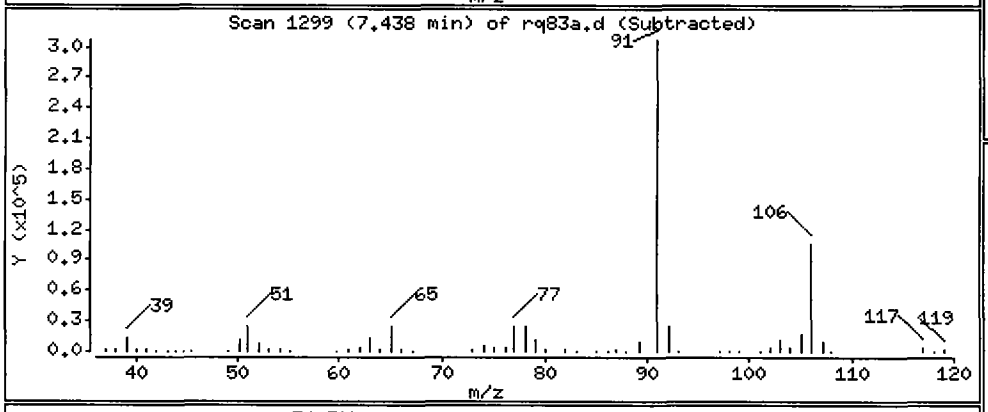
Column diameter: 0.18

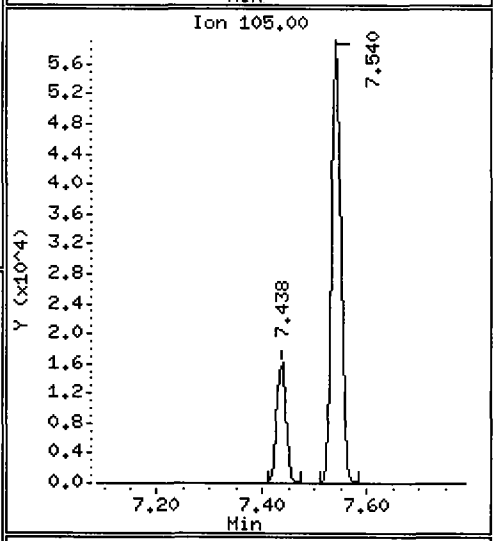
54 Ethyl Benzene

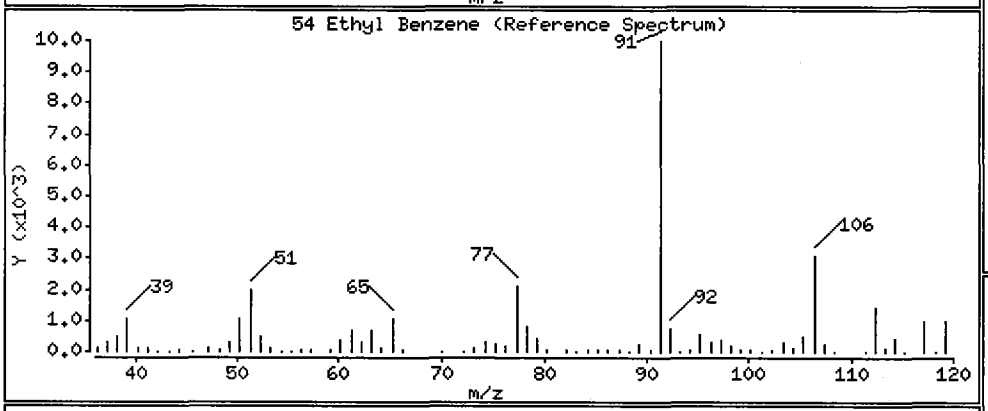
Concentration: 2.271 ug/Kg

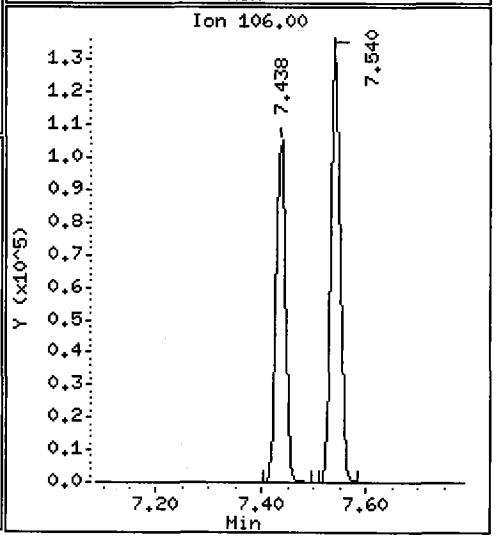


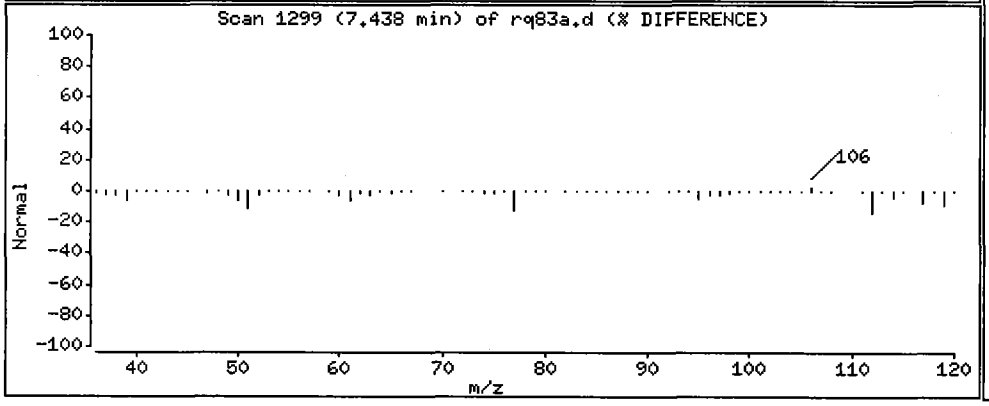












Data File: /chem1/nt9.i/20OCT10.b/gasco.b/rq83a.d

Date : 20-OCT-2010 17:15

Client ID: GST-09SO-17-18-1010

Instrument: nt9.i

Sample Info: RQ83A,5,1.22,1,5UL 1.22G/5ML

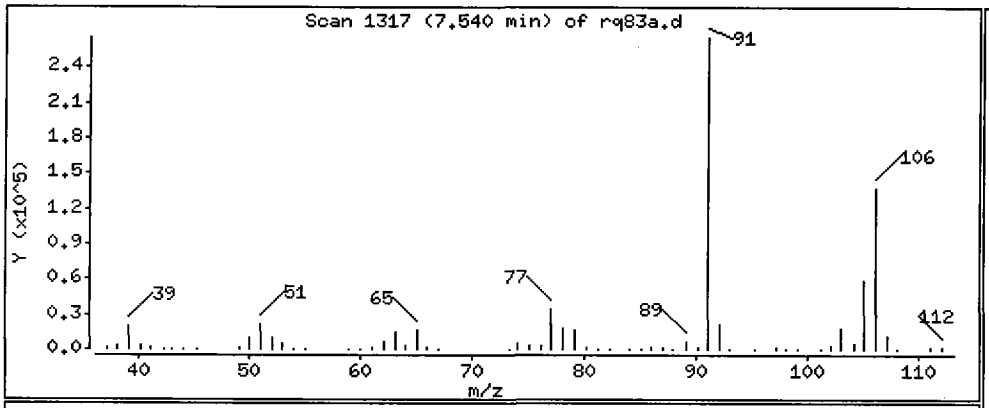
Operator: PB

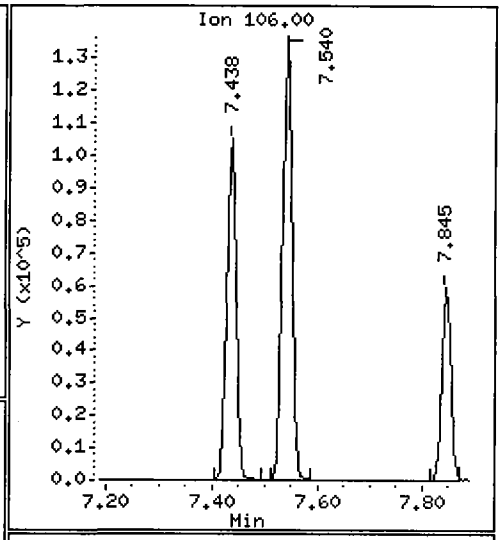
Column phase: RTX502.2

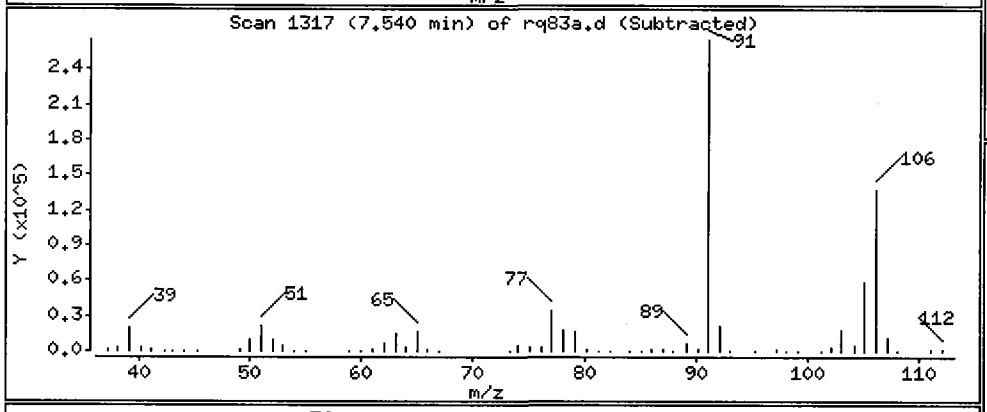
Column diameter: 0.18

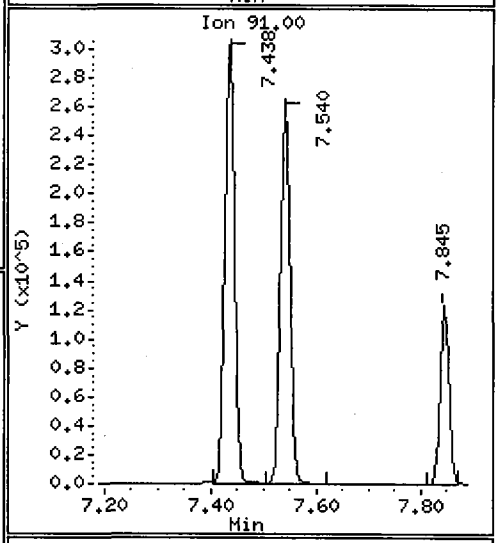
56 m,p-xylene

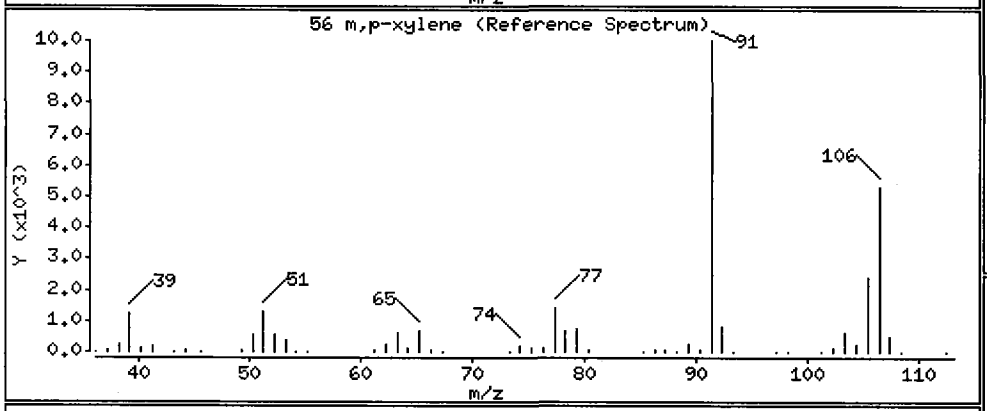
Concentration: 2.428 ug/Kg

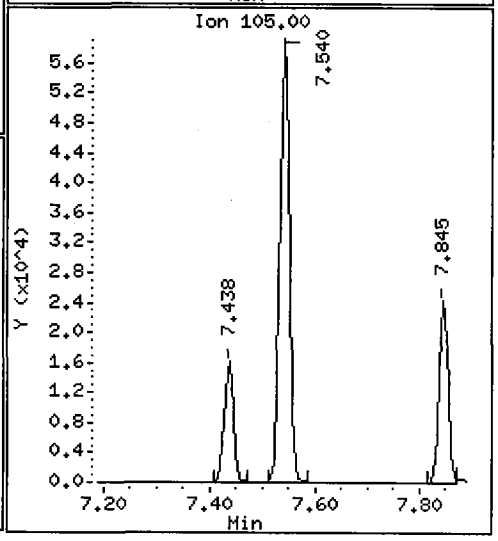


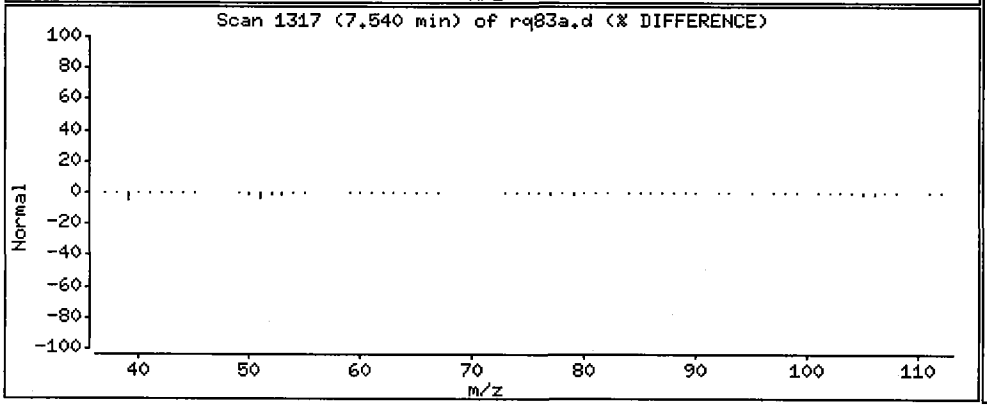












Data File: /chem1/nt9.i/20OCT10.b/gasco.b/rq83a.d

Date : 20-OCT-2010 17:15

Client ID: GST-09SO-17-18-1010

Instrument: nt9.i

Sample Info: RQ83A,5,1.22,1,5UL 1.22G/5ML

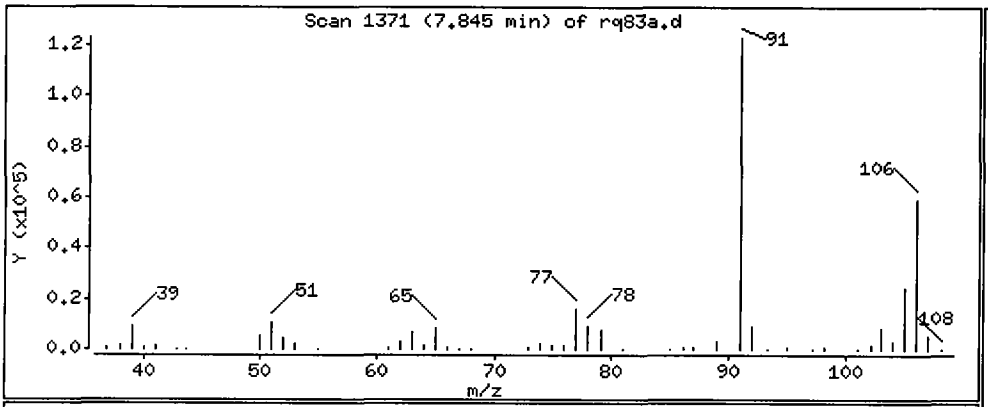
Operator: PB

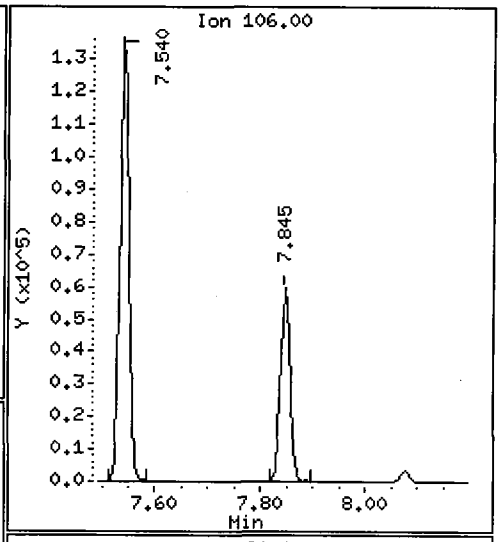
Column phase: RTX502.2

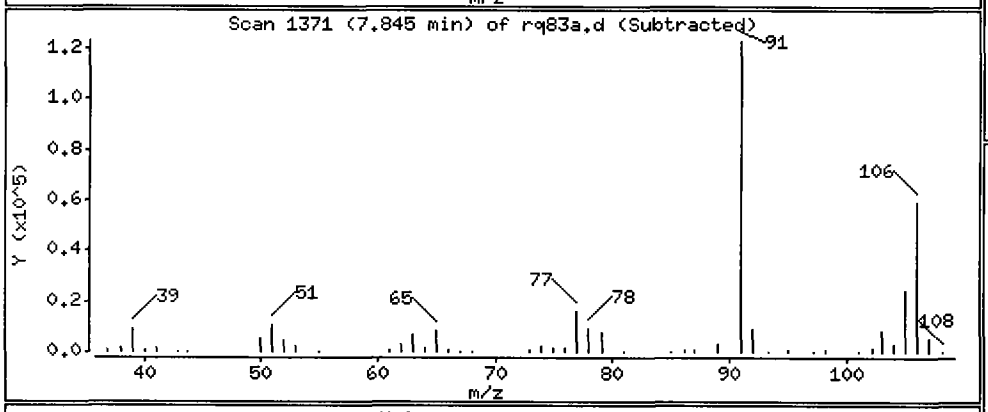
Column diameter: 0.18

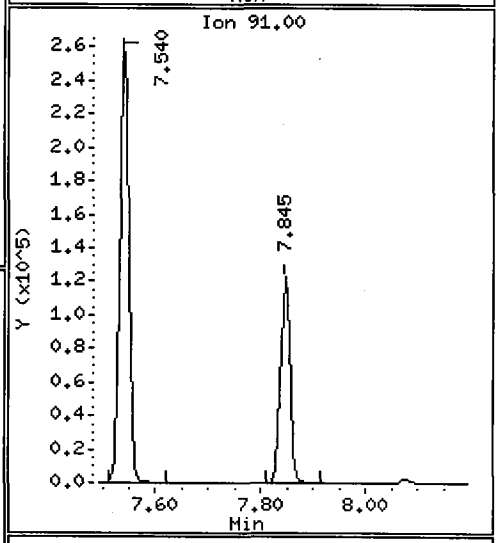
57 o-Xylene

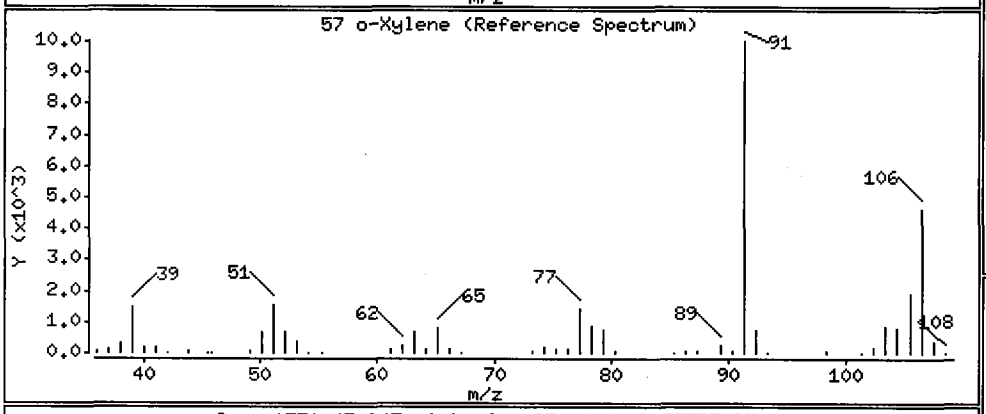
Concentration: 1.172 ug/Kg

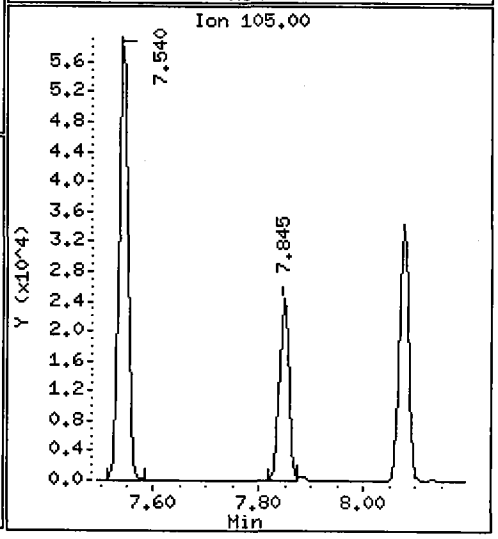












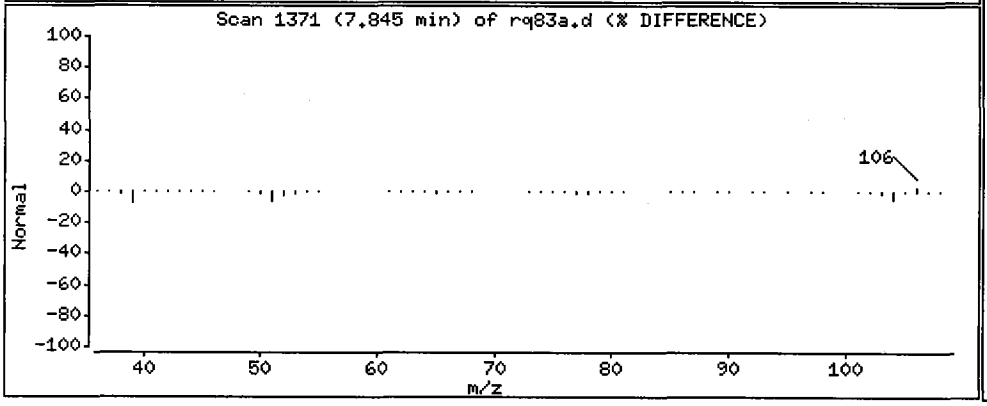


Table of Contents: ARI Job RQ84

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Project: NWN-INS

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EJ

Signature

October-22-2010

Date

Analytical Resources, Incorporated
Analytical Chemists and Consultants

October 22, 2010

[redacted]

RE: Project: NWN-INS
ARI Job No: RQ84

Dear[redacted]

Please find enclosed the Chain-of-Custody (COC) records, sample receipt documentation, and the final data package for samples from the project referenced above.

Sample receipt and details of these analyses are discussed in the Case Narrative.

An electronic copy of this package will remain on file with ARI. Should you have any questions or problems, please feel free to contact me at your convenience.

Sincerely,

ANALYTICAL RESOURCES, INC.

Susan Dunnihoo

Susan Dunnihoo
Director, Client Services
sue@arilabs.com
206-695-6207

Enclosures

cc: eFile RQ84

SD/sdrd

4611 South 134th Place, Suite 100 • Tukwila WA 98168 • **206-695-6200** • **206-695-6201** fax

Chain of Custody Documentation

ARI Job ID: RQ84

ANCHOR QEA
1423 3rd Ave., Suite 300
Seattle, WA 98101
Ph: 206-287-9130

ENVIRONMENTAL SAMPLE CHAIN OF CUSTODY

COC ID: COC-AARISPAH-101006-01
Sample Custodian: KH
Lab: ARISPAH

Client: NW Natural **Project:** Gasco Data Gaps

COC Sample Number	Field Sample ID	MS/MSD	Date Collected	Time Collected	Media*	# Containers	PAH (NW Natural) EPA 8270	VOC (NW Natural) EPA 8260															
001	DGS-30-0113.9-101006	N	10/06/2010	10:22	SE	2	✔	✔															HOT
002	DGS-19-3.34.1-101006	N	10/06/2010	16:59	SE	2	✔	✔															
003	DGS-19-4.48.2-101006	N	10/06/2010	16:59	SE	2	✔	✔															
004	DGS-19-10.210.9-101006	N	10/06/2010	16:59	SE	2	✔	✔															

Comments:

Relinquished by:	Received by:	Relinquished by:	Received by:	Relinquished by:	Received by:
Signature [illegible]	Signature [illegible]	Signature	Signature [illegible]	Signature	Signature
Print Name Amy Gorp	Print Name [illegible]	Print Name	Print Name [illegible]	Print Name	Print Name
Company Anchor QEA	Company YL #836	Company	Company ARI	Company	Company
Date/Time 10/7/10 1742	Date/Time 10/08 10:30AM	Date/Time	Date/Time 10/8/10 1400	Date/Time	Date/Time

Date Printed: 10/6/2010 * SE= SEDIMENT

R0021 00003

ANCHOR QEA
1423 3rd Ave., Suite 300
Seattle, WA 98101
Ph: 206-287-9130

ENVIRONMENTAL SAMPLE CHAIN OF CUSTODY

COC ID: COC-AARISPAH-101007-01
Sample Custodian: KH
Client: NW Natural **Project:** Gasco Data Gaps **Lab:** ARISPAH

COC Sample Number	Field Sample ID	MS/MSD	Date Collected	Time Collected	Media*	# Containers	PAH (NW Natural) EPA 8270	VOC (NW Natural) EPA 8260														
001	DGS-08-4.44.6-101007	N	10/07/2010	08:54	SE	2	☑	☑														HOT

Comments:

Relinquished by:	Received by:	Relinquished by:	Received by:	Relinquished by:	Received by:
Signature [illegible]	Signature [illegible]	Signature	Signature [illegible]	Signature	Signature
Print Name Amy Corp	Print Name [illegible] Lisanne	Print Name	Print Name Jennifer Miller	Print Name	Print Name
Company Anchor QEA	Company YL [illegible]	Company	Company AKT	Company	Company
Date/Time 10/7/10 1742	Date/Time 10/08/10 10:30 AM	Date/Time	Date/Time 10/8/10 1400	Date/Time	Date/Time

Date Printed: 10/7/2010 * SE= SEDIMENT

DOCUMENT 00001

Analytical Resources, Incorporated
Analytical Chemists and Consultants

Cooler Receipt Form

ARI Client: Anchor

COC No(s): _____ NA

Assigned ARI Job No: RQ84

Project Name: NWIV-INS

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

Tracking No: _____ NA

Preliminary Examination Phase:

Were intact, properly signed and dated custody seals attached to the outside of to 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)..... See below 25 coolers

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

Temp Gun ID#: 90877952

Cooler Accepted by: Jim Date: 10/8/10 Time: 1400

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: _____

Was sufficient ice used (if appropriate)? ..... NA YES NO

Were all bottles sealed in individual plastic bags? ..... YES NO

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 _____

Was Sample Split by ARI : NA YES Date/Time: _____ Equipment: _____ Split by: _____

Samples Logged by: TTT Date: 10/12/10 Time: 0940

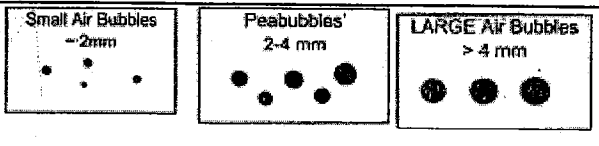
***** Notify Project Manager of discrepancies or concerns *****

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

Additional Notes, Discrepancies, & Resolutions:

4.9, 4.6, 1.6, 0.2, 2.3, 1.3, 1.9, 0.4, 1.4, 4.9, 1.2, 1.5, 3.8, 2.1, 0.3, 2.9, 1.4, 0.4, 4.8, 3.0, 0.1, 2.7, 5.9, 6.9, 2.4

By: Date:



Small → "sm"	
Peabubbles → "pb"	
Large → "lg"	
Headspace → "hs"	

Case Narrative, Data Qualifiers, Control Limits

ARI Job ID: RQ84

Case Narrative

Client: NW Natural
Project: NWN-INS
ARI Job No.: RQ84

Sample receipt

Five sediment samples were received October 8, 2010 under ARI job RQ84, as part of a larger shipment. For details regarding sample receipt, please refer to the Cooler Receipt Form.

Volatiles by SW8260C

The sample was analyzed within the method recommended holding times.

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

The surrogate percent recoveries were within the control limits.

The method blank was clean at the reporting limit. The LCS and LCSD percent recoveries were within control limits.

The matrix spike/matrix spike duplicate run on sample **DGS-30-0113.9-101006** had recoveries and RPD within advisory limits.

The analyst noted that four of the samples were run medium level due to the nature of the samples.

Analytical Resources, Incorporated
Analytical Chemists and Consultants

Data Reporting Qualifiers

Effective 7/10/2009

Inorganic Data

U Indicates that the target analyte was not detected at the reported concentration

* Duplicate RPD is not within established control limits

B Reported value is less than the CRDL but ≥ the Reporting Limit

N Matrix Spike recovery not within established control limits

NA Not Applicable, analyte not spiked

H The natural concentration of the spiked element is so much greater than the concentration spiked that an accurate determination of spike recovery is not possible

L Analyte concentration is ≤5 times the Reporting Limit and the replicate control limit defaults to ±1 RL instead of the normal 20% RPD

Organic Data

U Indicates that the target analyte was not detected at the reported concentration

* Flagged value is not within established control limits

B Analyte detected in an associated Method Blank at a concentration greater than one-half of ARI's Reporting Limit or 5% of the regulatory limit or 5% of the analyte concentration in the sample.

J Estimated concentration when the value is less than ARI's established reporting limits

D The spiked compound was not detected due to sample extract dilution

E Estimated concentration calculated for an analyte response above the valid instrument calibration range. A dilution is required to obtain an accurate quantification of the analyte.

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).

S Indicates an analyte response that has saturated the detector. The calculated concentration is not valid; a dilution is required to obtain valid quantification of the analyte

R084 : 00008

Data Reporting Qualifiers

Effective 7/10/2009

NA The flagged analyte was not analyzed for

NR Spiked compound recovery is not reported due to chromatographic interference

NS The flagged analyte was not spiked into the sample

M Estimated value for an analyte detected and confirmed by an analyst but with low spectral match parameters. This flag is used only for GC-MS analyses

M2 The sample contains PCB congeners that do not match any standard Aroclor pattern. The PCBs are identified and quantified as the Aroclor whose pattern most closely matches that of the sample. The reported value is an estimate.

N The analysis indicates the presence of an analyte for which there is presumptive evidence to make a "tentative identification"

Y The analyte is not detected at or above the reported concentration. The reporting limit is raised due to chromatographic interference. The Y flag is equivalent to the U flag with a raised reporting limit.

C The analyte was positively identified on only one of two chromatographic columns. Chromatographic interference prevented a positive identification on the second column

P The analyte was detected on both chromatographic columns but the quantified values differ by ≥40% RPD with no obvious chromatographic interference

Geotechnical Data

A The total of all fines fractions. This flag is used to report total fines when only sieve analysis is requested and balances total grain size with sample weight.

F Samples were frozen prior to particle size determination

SM Sample matrix was not appropriate for the requested analysis. This normally refers to samples contaminated with an organic product that interferes with the sieving process and/or moisture content, porosity and saturation calculations

SS Sample did not contain the proportion of "fines" required to perform the pipette portion of the grain size analysis

W Weight of sample in some pipette aliquots was below the level required for accurate weighting

RQ84 : 00009

Analytical Resources,Incorporated
Analytical Chemists and Consultants

Spike Recovery Control Limits for Analysis of Solid Samples
Volatile Organic Compounds (VOA) EPA SW-846 Methods 8260C
5 mL Purge Volume [7]

Effective:5/18/09

Control limits are updated periodically. Assure that you have ARI's current control limits by downloading the files at the time of use. http://www.arilabs.com/portal/downloads/ARI-CLs.zip

	Low Level [1]	Low Level ME Limits [3]	Medium Level [2]	Medium Level ME Limits [3]
LCS Spike Recovery [8]				
Dichlorodifluoromethane	53 - 148	37 - 164	25 - 128	**10** - 145
Chloromethane	64 - 125	54 - 135	55 - 121	44 - 132
Vinyl Chloride	63 - 137	51 - 149	66 - 123	57 - 133
Bromomethane	57 - 136	44 - 149	40 - 154	21 - 173
Chloroethane	64 - 131	53 - 142	72 - 128	63 - 137
Trichlorofluoromethane	69 - 132	59 - 143	69 - 135	58 - 146
Acrolein	54 - 137	40 - 151	39 - 135	23 - 151
112-Trichloro-221-trifluoroethane	74 - 130	65 - 139	65 - 139	53 - 151
Acetone	60 - 131	48 - 143	55 - 130	43 - 143
1,1-Dichloroethene	75 - 126	67 - 135	73 - 133	63 - 143
Bromoethane	76 - 126	68 - 134	74 - 133	64 - 143
Methyl Iodide	65 - 139	53 - 151	47 - 155	29 - 173
Methylene Chloride	70 - 123	61 - 132	**80** - **120**	75 - 122
Acrylonitrile	67 - 125	57 - 135	62 - 129	51 - 140
Methyl tert-Butyl Ether	70 - 120	62 - 128	69 - 128	59 - 138
Carbon Disulfide	71 - 129	61 - 139	64 - 135	52 - 147
trans-1,2-Dichloroethene	80 - **120**	74 - 126	78 - 125	70 - 133
Vinyl Acetate	60 - 136	47 - 149	66 - 132	55 - 143
1,1-Dichloroethane	**80** - **120**	75 - 124	77 - 124	69 132
2-Butanone	70 - **120**	62 - 127	65 - 126	55 - 136
2,2-Dichloropropane	74 - 123	66 - 131	75 - 127	66 - 136
cis-1,2-Dichloroethene	**80** - **120**	76 - 123	**80** - 125	74 - 132
Chloroform	80 - **120**	74 - 123	**80** - 124	73 - 131
Bromodichloromethane	77 - 121	70 - 128	78 - 130	69 - 139
1,1,1-Trichloroethane	77 - 121	70 - 128	76 - 130	67 - 139
1,1-Dichloropropene	**80** - **120**	77 - 123	77 - 131	68 - 140
Carbon Tetrachloride	77 - 122	70 - 130	74 - 129	65 - 138
1,2-Dichloroethane	76 - **120**	69 - 123	73 - 123	65 - 131
Benzene	**80** - 120	80 - 126	**80** - **120**	75 - 130
Trichloroethene	**80** - **120**	77 - 123	**80** - 125	75 - 132
1,2-Dichloropropane	**80** - **120**	76 - 120	**80** - 122	74 - 129
Bromochloromethane	80 - 120	73 - 127	**80** - 127	73 - 135
Dibromomethane	80 - **120**	74 - 121	**80** - 121	76 - 128
2-Chloroethylvinylether	**10** - 191	**10** - 222	61 - 128	50 - 139

R084 : 00010

Analytical Resources,Incorporated
Analytical Chemists and Consultants

Spike Recovery Control Limits for Analysis of Solid Samples Volatile Organic Compounds (VOA) EPA SW-846 Methods 8260C 5 mL Purge Volume (7)

Effective:5/18/09

Control limits are updated periodically. Assure that you have ARI's current control limits by downloading the files at the time of use. http://www.arilabs.com/portal/downloads/ARI-CLs.zip

	Low Level (1)	Low Level ME Limits (3)	Medium Level (2)	Medium Level ME Limits (3)
4-Methyl-2-Pentanone	67 - **120**	59 - 125	80 - 123	73 - 130
cis-1,3-Dichloropropene	74 - **120**	67 - 125	80 - 122	73 - 129
Toluene	**80** - **120**	79 - **120**	**80** - 122	**80** - 127
trans-1,3-Dichloropropene	65 - **120**	57 - 125	**80** - 123	79 - 129
2-Hexanone	65 - 130	54 - 141	58 - 129	46 - 141
1,1,2-Trichloroethane	**80** - **120**	75 - 122	**80** - 120	77 - 126
1,3-Dichloropropane	80 - **120**	74 - 122	**80** - 120	76 - 126
Tetrachloroethene	**80** - 121	79 - 127	**80** - 130	73 - 138
Dibromochloromethane	64 - **120**	55 - 128	77 - 120	70 - 127
Ethylene Dibromide	75 - **120**	68 - 124	**80** - **120**	**80** - 120
Chlorobenzene	**80** - **120**	82 - 120	**80** - 121	80 - 127
Ethylbenzene	**80** - 127	80 - 134	**80** - 126	**80** - 132
1,1,2,2-Tetrachloroethane	74 - 120	66 - 128	79 - **120**	73 - 123
m,p-Xylene	**80** - 125	**80** - 131	**80** - 130	**80** - 137
o-Xylene	78 - **120**	71 - 126	**80** - 124	**80** - 130
Styrene	**80** - 123	78 - 130	**80** - 132	77 - 140
Isopropylbenzene	**80** - 127	84 - 133	**80** - 130	**80** - 137
Bromoform	60 - **120**	50 - 128	68 - 129	58 - 139
1,1,1,2-Tetrachloroethane	69 - 121	60 - 130	**80** - 126	76 - 133
1,2,3-Trichloropropane	72 - 121	64 - 129	77 - **120**	71 - 121
trans-1,4-Dichloro-2-butene	65 - 126	55 - 136	66 - 127	56 - 137
n-Propylbenzene	**80** - 132	**80** - 139	**80** - 132	77 - 140
Bromobenzene	**80** - **120**	78 - 122	**80** - 121	80 - 127
1,3,5-Trimethylbenzene	**80** - 125	**80** - 131	78 - 137	68 - 147
2-Chlorotoluene	**80** - 125	77 - 132	**80** - 123	**80** - 129
4-Chlorotoluene	**80** - 127	77 - 134	**80** - 130	74 - 138
tert-Butylbenzene	87 - 122	**80** - 128	**80** - 133	78 - 141
1,2,4-Trimethylbenzene	**80** - 126	**80** - 132	**80** - 131	79 - 139
sec-Butylbenzene	**80** - 134	80 - 142	**80** - 136	76 - 146
4-Isopropyltoluene	**80** - 131	**80** - 138	**80** - 141	71 - 151
1,3-Dichlorobenzene	**80** - 120	**80** - 126	**80** 126	77 - 133
1,4-Dichlorobenzene	**80** - 120	79 - 126	**80** 121	77 - 127
n-Butylbenzene	**80** - 138	**80** - 146	**80** - 138	77 - 147
1,2-Dichlorobenzene	**80** - **120**	78 - 122	**80** - **120**	**80** - 121
1,2-Dibromo-3-chloropropane	59 - 120	49 - 130	67 - 121	58 - 130
1,2,4-Trichlorobenzene	78 - 130	69 - 139	**80** - 133	72 - 142

RQ84 : 00011

Analytical Resources,Incorporated
Analytical Chemists and Consultants

Spike Recovery Control Limits for Analysis of Solid Samples Volatile Organic Compounds (VOA) EPA SW-846 Methods 8260C 5 mL Purge Volume [7]

Effective:5/18/09

Control limits are updated periodically. Assure that you have ARI's current control limits by downloading the files at the time of use. http://www.arilabs.com/portal/downloads/ARI-CLs.zip

	Low Level [1]	Low Level ME Limits [3]	Medium Level [2]	Medium Level ME Limits [3]
Hexachloro-1,3-butadiene	76 - 129	67 - 138	62 - 148	48 - 162
Naphthalene	66 - **120**	58 - 126	74 - 133	64 - 143
1,2,3-Trichlorobenzene	73 - 123	65 - 131	80 - 126	72 - 134
MB/LCS Surrogate Recovery				
Dibromofluoromethane	**80 - 120**	(4)	**80 - 120**	(4)
d4-1,2-Dichloroethane	79 - 121	(4)	76 - **120**	(4)
d8-Toluene	**80 - 120**	(4)	**80 - 120**	(4)
4-Bromofluorobenzene	**80 - 120**	(4)	**80 - 120**	(4)
d4-1,2-Dichlorobenzene	**80 - 120**	(4)	**80 - 120**	(4)
Sample Surrogate Recovery				
Dibromofluoromethane	30 - 160[6]	(4)	30 - 160[6]	(4)
d4-1,2-Dichloroethane	75 - 152	(4)	69 - **120**	(4)
d8-Toluene	82 - 115	(4)	**80 - 120**	(4)
4-Bromofluorobenzene	64 - **120**	(4)	76 - 128	(4)
d4-1,2-Dichlorobenzene	**80 - 120**	(4)	**80 - 120**	(4)

(1) Control Limits calculated using all data generated 1/1/08 through 12/31/08.
(2) Control Limits calculated using all data generated 3/1/07 through 11/15/07.
(3) **ME** = A **marginal exceedance** defined in the NELAC Standard[5] as beyond the LCS-CL but still within the ME limits. ME limits are between 3 and 4 standard deviations around the mean. A maximum of four marginal exceedances are acceptable. Five or more marginal exceedances require corrective action.
(4) Marginal Exceedances not allowed for surrogate standards
(5) **2003 NELAC Standard (EPA/600/R-04/003), July 2003**, Chapter 5, pages 251-252.
(6) 30 – 160 are default, advisory control limits used when there is insufficient data to calculate historic control limits. **DO NOT** use these limits as the sole reason to reject the data from a batch of analyses
(7) Highlighted control limits (**bold font**) are adjusted from the calculated values as follows:
a) ARI does not use control limits < 10
b) Control limits for analyzes with no separate preparation procedure are adjusted to reflect the minimum uncertainty in the calibration of the instrument allowed by the referenced analytical method.
(8) Laboratory Control Sample (LCS) spike recovery control limits also used as advisory control limits for sample matrix spike (MS) analyzes. MS recovery values are advisory and not used to assess the acceptability of an analytical batch.

RQB4 : 00012

Volatile Analysis
Report and Summary QC Forms

ARI Job ID: RQ84

ANALYTICAL RESOURCES INCORPORATED

ORGANICS ANALYSIS DATA SHEET
Volatiles by Purge & Trap GC/MS-Method SW8260C **Sample ID: DGS-30-0113.9-101006**
 SAMPLE

Lab Sample ID: RQ84A
LIMS ID: 10-26012
Matrix: Sediment
Data Release Authorized:
Reported: 10/21/10

QC Report No: RQ84-NW Natural
Project: NWN-INS

Date Sampled: 10/06/10
Date Received: 10/08/10

Instrument/Analyst: NT9/PAB
Date Analyzed: 10/15/10 13:06

Sample Amount: 4.54 g-dry-wt
Purge Volume: 5.0 mL
Moisture: 18.0%

CAS Number	Analyte	RL	Result	Q
71-43-2	**Benzene**	**1.1**	**3.3**	
108-88-3	Toluene	1.1	< 1.1	U
100-41-4	Ethylbenzene	1.1	< 1.1	U
179601-23-1	m,p-Xylene	1.1	< 1.1	U
95-47-6	o-Xylene	1.1	< 1.1	U

Reported in µg/kg (ppb)

Volatile Surrogate Recovery

d4-1,2-Dichloroethane	106%
d8-Toluene	99.4%
Bromofluorobenzene	98.3%
d4-1,2-Dichlorobenzene	101%

ANALYTICAL RESOURCES INCORPORATED

ORGANICS ANALYSIS DATA SHEET
Volatiles by Purge & Trap GC/MS-Method SW8260C **Sample ID: DGS-19-3.34.1-101006**
 SAMPLE

Lab Sample ID: RQ84B
LIMS ID: 10-26013
Matrix: Sediment
Data Release Authorized:
Reported: 10/21/10

QC Report No: RQ84-NW Natural
Project: NWN-INS

Date Sampled: 10/06/10
Date Received: 10/08/10

Instrument/Analyst: NT9/PAB
Date Analyzed: 10/15/10 16:37

Sample Amount: 4.34 mg-dry-wt
Purge Volume: 5.0 mL
Moisture: 23.0%

CAS Number	Analyte	RL	Result	Q
71-43-2	**Benzene**	**1,200**	**1,600**	
108-88-3	Toluene	1,200	< 1,200	U
100-41-4	**Ethylbenzene**	**1,200**	**18,000**	
179601-23-1	**m,p-Xylene**	**1,200**	**6,500**	
95-47-6	**o-Xylene**	**1,200**	**4,600**	

Reported in µg/kg (ppb)

Volatile Surrogate Recovery

d4-1,2-Dichloroethane	100%
d8-Toluene	98.5%
Bromofluorobenzene	97.4%
d4-1,2-Dichlorobenzene	102%

Results corrected for soil moisture content per Section 11.10.5 of EPA Method 8000C.

ANALYTICAL RESOURCES INCORPORATED

ORGANICS ANALYSIS DATA SHEET
Volatiles by Purge & Trap GC/MS-Method SW8260C **Sample ID: DGS-19-4.48.2-101006**
 SAMPLE

Lab Sample ID: RQ84C
LIMS ID: 10-26014
Matrix: Sediment
Data Release Authorized:
Reported: 10/21/10

QC Report No: RQ84-NW Natural
Project: NWN-INS

Date Sampled: 10/06/10
Date Received: 10/08/10

Instrument/Analyst: NT9/PAB
Date Analyzed: 10/15/10 17:07

Sample Amount: 15.0 mg-dry-wt
Purge Volume: 5.0 mL
Moisture: 23.0%

CAS Number	Analyte	RL	Result	Q
71-43-2	Benzene	330	< 330	U
108-88-3	Toluene	330	< 330	U
100-41-4	**Ethylbenzene**	**330**	**3,300**	
179601-23-1	**m,p-Xylene**	**330**	**1,100**	
95-47-6	**o-Xylene**	**330**	**880**	

Reported in µg/kg (ppb)

Volatile Surrogate Recovery

d4-1,2-Dichloroethane	97.3%
d8-Toluene	99.5%
Bromofluorobenzene	99.3%
d4-1,2-Dichlorobenzene	100%

Results corrected for soil moisture content per Section 11.10.5 of EPA Method 8000C.

ANALYTICAL RESOURCES INCORPORATED

ORGANICS ANALYSIS DATA SHEET
Volatiles by Purge & Trap GC/MS-Method SW8260C **Sample ID: DGS-19-10.210.9-101006**
 SAMPLE

Lab Sample ID: RQ84D
LIMS ID: 10-26015
Matrix: Sediment
Data Release Authorized:
Reported: 10/21/10

QC Report No: RQ84-NW Natural
Project: NWN-INS

Date Sampled: 10/06/10
Date Received: 10/08/10

Instrument/Analyst: NT9/PAB
Date Analyzed: 10/15/10 17:37

Sample Amount: 7.39 mg-dry-wt
Purge Volume: 5.0 mL
Moisture: 23.3%

CAS Number	Analyte	RL	Result	Q
71-43-2	Benzene	680	< 680	U
108-88-3	Toluene	680	< 680	U
100-41-4	Ethylbenzene	680	< 680	U
179601-23-1	m,p-Xylene	680	< 680	U
95-47-6	o-Xylene	680	< 680	U

Reported in µg/kg (ppb)

Volatile Surrogate Recovery

d4-1,2-Dichloroethane	100%
d8-Toluene	99.5%
Bromofluorobenzene	99.7%
d4-1,2-Dichlorobenzene	100%

Results corrected for soil moisture content per Section 11.10.5 of EPA Method 8000C.

ANALYTICAL RESOURCES INCORPORATED

ORGANICS ANALYSIS DATA SHEET
Volatiles by Purge & Trap GC/MS-Method SW8260C **Sample ID: DGS-08-4.44.6-101007**
 SAMPLE

Lab Sample ID: RQ84E
LIMS ID: 10-26016
Matrix: Sediment
Data Release Authorized:
Reported: 10/21/10

QC Report No: RQ84-NW Natural
Project: NWN-INS

Date Sampled: 10/07/10
Date Received: 10/08/10

Instrument/Analyst: NT9/PAB
Date Analyzed: 10/15/10 18:07

Sample Amount: 1.57 mg-dry-wt
Purge Volume: 5.0 mL
Moisture: 22.0%

CAS Number	Analyte	RL	Result	Q
71-43-2	Benzene	3,200	< 3,200	U
108-88-3	Toluene	3,200	< 3,200	U
100-41-4	**Ethylbenzene**	**3,200**	**48,000**	
179601-23-1	**m,p-Xylene**	**3,200**	**8,200**	
95-47-6	**o-Xylene**	**3,200**	**13,000**	

Reported in µg/kg (ppb)

Volatile Surrogate Recovery

d4-1,2-Dichloroethane	99.7%
d8-Toluene	99.4%
Bromofluorobenzene	98.3%
d4-1,2-Dichlorobenzene	101%

Results corrected for soil moisture content per Section 11.10.5 of EPA Method 8000C.

ANALYTICAL RESOURCES INCORPORATED

VOA SURROGATE RECOVERY SUMMARY

Matrix: Sediment

QC Report No: RQ84-NW Natural
Project: NWN-INS

ARI ID	Client ID	Level	DCE	TOL	BFB	DCB	TOT OUT
MB-101510	Method Blank	Low	95.4%	99.4%	96.7%	98.7%	0
LCS-101510	Lab Control	Low	102%	99.1%	97.4%	100%	0
LCSD-101510	Lab Control Dup	Low	102%	99.3%	96.9%	101%	0
RQ84A	DGS-30-0113.9-101006	Low	106%	99.4%	98.3%	101%	0
RQ84AMS	DGS-30-0113.9-101006	Low	107%	100%	99.8%	101%	0
RQ84AMSD	DGS-30-0113.9-101006	Low	106%	100%	99.6%	101%	0
MB-101510	Method Blank	Med	95.4%	99.4%	96.7%	98.7%	0
LCS-101510	Lab Control	Med	102%	99.1%	97.4%	100%	0
LCSD-101510	Lab Control Dup	Med	102%	99.3%	96.9%	101%	0
RQ84B	DGS-19-3.34.1-101006	Med	100%	98.5%	97.4%	102%	0
RQ84C	DGS-19-4.48.2-101006	Med	97.3%	99.5%	99.3%	100%	0
RQ84D	DGS-19-10.210.9-101006	Med	100%	99.5%	99.7%	100%	0
RQ84E	DGS-08-4.44.6-101007	Med	99.7%	99.4%	98.3%	101%	0

	LCS/MB LIMITS		QC LIMITS	
SW8260C	Low	Med	Low	Med
(DCE) = d4-1,2-Dichloroethane	79-121	76-120	75-152	69-120
(TOL) = d8-Toluene	80-120	80-120	82-115	80-120
(BFB) = Bromofluorobenzene	80-120	80-120	64-120	76-128
(DCB) = d4-1,2-Dichlorobenzene	80-120	80-120	80-120	80-120

Log Number Range: 10-26012 to 10-26016

ANALYTICAL RESOURCES INCORPORATED

ORGANICS ANALYSIS DATA SHEET
Volatiles by Purge & Trap GC/MS-Method SW8260C **Sample ID: DGS-30-0113.9-101006**
 MATRIX SPIKE

Lab Sample ID: RQ84A
LIMS ID: 10-26012
Matrix: Sediment
Data Release Authorized:
Reported: 10/21/10

QC Report No: RQ84-NW Natural
Project: NWN-INS

Date Sampled: 10/06/10
Date Received: 10/08/10

Instrument/Analyst MS: NT9/PAB
MSD: NT9/PAB
Date Analyzed MS: 10/15/10 15:36
MSD: 10/15/10 16:07

Sample Amount MS: 4.30 g-dry-wt
MSD: 4.35 g-dry-wt
Purge Volume MS: 5.0 mL
MSD: 5.0 mL
Moisture: 18.0%

Analyte	Sample	MS	Spike Added-MS	MS Recovery	MSD	Spike Added-MSD	MSD Recovery	RPD
Benzene	3.3	54.0	58.1	87.3%	57.9	57.5	95.0%	7.0%
Toluene	< 1.1 U	51.8	58.1	89.2%	54.4	57.5	94.6%	4.9%
Ethylbenzene	< 1.1 U	52.3	58.1	90.0%	56.0	57.5	97.4%	6.8%
m,p-Xylene	< 1.1 U	108	116	93.1%	114	115	99.1%	5.4%
o-Xylene	< 1.1 U	53.3	58.1	91.7%	56.9	57.5	99.0%	6.5%

Reported in µg/kg (ppb)

RPD calculated using sample concentrations per SW846.

ANALYTICAL RESOURCES INCORPORATED

ORGANICS ANALYSIS DATA SHEET
Volatiles by Purge & Trap GC/MS-Method SW8260C **Sample ID: DGS-30-0113.9-101006**
 MATRIX SPIKE

Lab Sample ID: RQ84A
LIMS ID: 10-26012
Matrix: Sediment
Data Release Authorized:
Reported: 10/21/10

QC Report No: RQ84-NW Natural
Project: NWN-INS

Date Sampled: 10/06/10
Date Received: 10/08/10

Instrument/Analyst: NT9/PAB
Date Analyzed: 10/15/10 15:36

Sample Amount: 4.30 g-dry-wt
Purge Volume: 5.0 mL
Moisture: 18.0%

CAS Number	Analyte	RL	Result	Q
71-43-2	Benzene	1.2	---	
108-88-3	Toluene	1.2	---	
100-41-4	Ethylbenzene	1.2	---	
179601-23-1	m,p-Xylene	1.2	---	
95-47-6	o-Xylene	1.2	---	

Reported in µg/kg (ppb)

Volatile Surrogate Recovery

d4-1,2-Dichloroethane	107%
d8-Toluene	100%
Bromofluorobenzene	99.8%
d4-1,2-Dichlorobenzene	101%

ANALYTICAL RESOURCES INCORPORATED

ORGANICS ANALYSIS DATA SHEET
Volatiles by Purge & Trap GC/MS-Method SW8260C **Sample ID: DGS-30-0113.9-101006**
 MATRIX SPIKE DUP

Lab Sample ID: RQ84A
LIMS ID: 10-26012
Matrix: Sediment
Data Release Authorized:
Reported: 10/21/10

QC Report No: RQ84-NW Natural
Project: NWN-INS

Date Sampled: 10/06/10
Date Received: 10/08/10

Instrument/Analyst: NT9/PAB
Date Analyzed: 10/15/10 16:07

Sample Amount: 4.35 g-dry-wt
Purge Volume: 5.0 mL
Moisture: 18.0%

CAS Number	Analyte	RL	Result	Q
71-43-2	Benzene	1.2	---	
108-88-3	Toluene	1.2	---	
100-41-4	Ethylbenzene	1.2	---	
179601-23-1	m,p-Xylene	1.2	---	
95-47-6	o-Xylene	1.2	---	

Reported in µg/kg (ppb)

Volatile Surrogate Recovery

d4-1,2-Dichloroethane	106%
d8-Toluene	100%
Bromofluorobenzene	99.6%
d4-1,2-Dichlorobenzene	101%

ANALYTICAL RESOURCES INCORPORATED

ORGANICS ANALYSIS DATA SHEET
Volatiles by Purge & Trap GC/MS-Method SW8260C **Sample ID: LCS-101510**
 LAB CONTROL SAMPLE

Lab Sample ID: LCS-101510
LIMS ID: 10-26012
Matrix: Sediment
Data Release Authorized:
Reported: 10/21/10

QC Report No: RQ84-NW Natural
Project: NWN-INS

Date Sampled: NA
Date Received: NA

Instrument/Analyst LCS: NT9/PAB
LCSD: NT9/PAB
Date Analyzed LCS: 10/15/10 11:31
LCSD: 10/15/10 12:01

Sample Amount LCS: 5.00 g-dry-wt
LCSD: 5.00 g-dry-wt
Purge Volume LCS: 5.0 mL
LCSD: 5.0 mL
Moisture: NA

Analyte	LCS	Spike Added-LCS	LCS Recovery	LCSD	Spike Added-LCSD	LCSD Recovery	RPD
Benzene	52.3	50.0	105%	52.4	50.0	105%	0.2%
Toluene	51.1	50.0	102%	51.2	50.0	102%	0.2%
Ethylbenzene	53.2	50.0	106%	52.5	50.0	105%	1.3%
m,p-Xylene	110	100	110%	109	100	109%	0.9%
o-Xylene	53.0	50.0	106%	52.4	50.0	105%	1.1%

Reported in µg/kg (ppb)

RPD calculated using sample concentrations per SW846.

Volatile Surrogate Recovery

	LCS	LCSD
d4-1,2-Dichloroethane	102%	102%
d8-Toluene	99.1%	99.3%
Bromofluorobenzene	97.4%	96.9%
d4-1,2-Dichlorobenzene	100%	101%

ANALYTICAL RESOURCES INCORPORATED

ORGANICS ANALYSIS DATA SHEET
Volatiles by Purge & Trap GC/MS-Method SW8260C **Sample ID: LCS-101510**
 LAB CONTROL SAMPLE

Lab Sample ID: LCS-101510
LIMS ID: 10-26013
Matrix: Sediment
Data Release Authorized:
Reported: 10/21/10

QC Report No: RQ84-NW Natural
Project: NWN-INS

Date Sampled: NA
Date Received: NA

Instrument/Analyst LCS: NT9/PAB
LCSD: NT9/PAB
Date Analyzed LCS: 10/15/10 11:31
LCSD: 10/15/10 12:01

Sample Amount LCS: 100 mg-dry-wt
LCSD: 100 mg-dry-wt
Purge Volume LCS: 5.0 mL
LCSD: 5.0 mL
Moisture: NA

Analyte	LCS	Spike Added-LCS	LCS Recovery	LCSD	Spike Added-LCSD	LCSD Recovery	RPD
Benzene	2620	2500	105%	2620	2500	105%	0.0%
Toluene	2560	2500	102%	2560	2500	102%	0.0%
Ethylbenzene	2660	2500	106%	2620	2500	105%	1.5%
m,p-Xylene	5510	5000	110%	5440	5000	109%	1.3%
o-Xylene	2650	2500	106%	2620	2500	105%	1.1%

Reported in µg/kg (ppb)

RPD calculated using sample concentrations per SW846.

Volatile Surrogate Recovery

	LCS	LCSD
d4-1,2-Dichloroethane	102%	102%
d8-Toluene	99.1%	99.3%
Bromofluorobenzene	97.4%	96.9%
d4-1,2-Dichlorobenzene	100%	101%

4A
VOLATILE METHOD BLANK SUMMARY

Method Blank ID.

MB1015

Lab Name: ANALYTICAL RESOURCES, INC

Client: NW NATURAL

ARI Job No: RQ84

Project: NWN-INS

Lab File ID: MB1015

Lab Sample ID: MB1015

Date Analyzed: 10/15/10

Time Analyzed: 1231

Instrument ID: NT9

Heated Purge: (Y/N) Y

THIS METHOD BLANK APPLIES TO THE FOLLOWING SAMPLES, MS and MSD:

	EPA SAMPLE NO.	LAB SAMPLE ID	LAB FILE ID	TIME ANALYZED
01	LCS1015	LCS1015	LCS1015	1131
02	LCS1015	LCS1015	LCS1015A	1201
03	DGS-30-0113.	RQ84A	RQ84A	1306
04	DGS-30-0113.	RQ84AMS	RQ84AMS	1536
05	DGS-30-0113.	RQ84AMSD	RQ84AMSD	1607
06	DGS-19-3.34.	RQ84B	RQ84B2	1637
07	DGS-19-4.48.	RQ84C	RQ84C2	1707
08	DGS-19-10.21	RQ84D	RQ84D2	1737
09	DGS-08-4.44.	RQ84E	RQ84E2	1807
10				
11				
12				
13				
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COMMENTS:

FORM IV VOA

OLM3.2M

ANALYTICAL RESOURCES INCORPORATED

ORGANICS ANALYSIS DATA SHEET
Volatiles by Purge & Trap GC/MS-Method SW8260C **Sample ID: MB-101510**
 METHOD BLANK

Lab Sample ID: MB-101510
LIMS ID: 10-26012
Matrix: Sediment
Data Release Authorized:
Reported: 10/21/10

QC Report No: RQ84-NW Natural
Project: NWN-INS

Date Sampled: NA
Date Received: NA

Instrument/Analyst: NT9/PAB
Date Analyzed: 10/15/10 12:31

Sample Amount: 5.00 g-dry-wt
Purge Volume: 5.0 mL
Moisture: NA

CAS Number	Analyte	RL	Result	Q
71-43-2	Benzene	1.0	< 1.0	U
108-88-3	Toluene	1.0	< 1.0	U
100-41-4	Ethylbenzene	1.0	< 1.0	U
179601-23-1	m,p-Xylene	1.0	< 1.0	U
95-47-6	o-Xylene	1.0	< 1.0	U

Reported in µg/kg (ppb)

Volatile Surrogate Recovery

d4-1,2-Dichloroethane	95.4%
d8-Toluene	99.4%
Bromofluorobenzene	96.7%
d4-1,2-Dichlorobenzene	98.7%

ANALYTICAL RESOURCES INCORPORATED

ORGANICS ANALYSIS DATA SHEET
Volatiles by Purge & Trap GC/MS-Method SW8260C **Sample ID: MB-101510**
 METHOD BLANK

Lab Sample ID: MB-101510
LIMS ID: 10-26013
Matrix: Sediment
Data Release Authorized:
Reported: 10/21/10

QC Report No: RQ84-NW Natural
Project: NWN-INS

Date Sampled: NA
Date Received: NA

Instrument/Analyst: NT9/PAB
Date Analyzed: 10/15/10 12:31

Sample Amount: 100 mg-dry-wt
Purge Volume: 5.0 mL
Moisture: NA

CAS Number	Analyte	RL	Result	Q
71-43-2	Benzene	50	< 50	U
108-88-3	Toluene	50	< 50	U
100-41-4	Ethylbenzene	50	< 50	U
179601-23-1	m,p-Xylene	50	< 50	U
95-47-6	o-Xylene	50	< 50	U

Reported in µg/kg (ppb)

Volatile Surrogate Recovery

d4-1,2-Dichloroethane	95.4%
d8-Toluene	99.4%
Bromofluorobenzene	96.7%
d4-1,2-Dichlorobenzene	98.7%

5A
VOLATILE ORGANIC INSTRUMENT PERFORMANCE CHECK
BROMOFLUOROBENZENE (BFB)

Lab Name: ANALYTICAL RESOURCES, INC Contract: NW NATURAL

Lab Code: ARI Case No.: NWN-INS SDG No.: RQ84

Lab File ID: BFB08280 BFB Injection Date: 08/28/10

Instrument ID: NT9 BFB Injection Time: 0745

GC Column: RTX502.2 ID: 0.18 (mm) Heated Purge: (Y/N) N

m/e	ION ABUNDANCE CRITERIA	% RELATIVE ABUNDANCE
50	8.0 - 40.0% of mass 95	16.8
75	30.0 - 66.0% of mass 95	49.9
95	Base Peak, 100% relative abundance	100.0
96	5.0 - 9.0% of mass 95	7.2
173	Less than 2.0% of mass 174	0.5 (0.5)1
174	50.0 - 101.0% of mass 95	94.4
175	4.0 - 9.0% of mass 174	6.7 (7.1)1
176	93.0 - 101.0% of mass 174	91.9 (97.3)1
177	5.0 - 9.0% of mass 176	7.1 (7.7)2

1-Value is % mass 174 2-Value is % mass 176

THIS CHECK APPLIES TO THE FOLLOWING SAMPLES, MS, MSD, BLANKS, AND STANDARDS:

	EPA SAMPLE NO.	LAB SAMPLE ID	LAB FILE ID	DATE ANALYZED	TIME ANALYZED
01	VSTD001	IC0828	0010828	08/28/10	1252
02	VSTD200	IC0828	2000828	08/28/10	1321
03	VSTD150	IC0828	1500828	08/28/10	1351
04	VSTD100	IC0828	1000828	08/28/10	1421
05	VSTD050	IC0828	0500828	08/28/10	1451
06	VSTD010	IC0828	0100828	08/28/10	1521
07	VSTD005	IC0828	0050828	08/28/10	1551
08	VSTD002	IC0828	0020828	08/28/10	1621
09					
10					
11					
12					
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22					

FORM V VOA OLM3.2M

5A
VOLATILE ORGANIC INSTRUMENT PERFORMANCE CHECK
BROMOFLUOROBENZENE (BFB)

Lab Name: ANALYTICAL RESOURCES, INC Contract: NW NATURAL

Lab Code: ARI Case No.: NWN-INS SDG No.: RQ84

Lab File ID: BFB10150 BFB Injection Date: 10/15/10

Instrument ID: NT9 BFB Injection Time: 0958

GC Column: RTX502.2 ID: 0.18 (mm) Heated Purge: (Y/N) N

m/e	ION ABUNDANCE CRITERIA	% RELATIVE ABUNDANCE
50	8.0 - 40.0% of mass 95	16.0
75	30.0 - 66.0% of mass 95	49.3
95	Base Peak, 100% relative abundance	100.0
96	5.0 - 9.0% of mass 95	7.3
173	Less than 2.0% of mass 174	0.5 (0.5)1
174	50.0 - 101.0% of mass 95	100.0
175	4.0 - 9.0% of mass 174	6.9 (6.9)1
176	93.0 - 101.0% of mass 174	97.0 (97.0)1
177	5.0 - 9.0% of mass 176	8.4 (8.6)2

1-Value is % mass 174 2-Value is % mass 176

THIS CHECK APPLIES TO THE FOLLOWING SAMPLES, MS, MSD, BLANKS, AND STANDARDS:

	EPA SAMPLE NO.	LAB SAMPLE ID	LAB FILE ID	DATE ANALYZED	TIME ANALYZED
01	VSTD050	CC1015	0501015	10/15/10	1101
02	LCS1015	LCS1015	LCS1015	10/15/10	1131
03	LCS1015	LCS1015	LCS1015A	10/15/10	1201
04	MB1015	MB1015	MB1015	10/15/10	1231
05	DGS-30-0113.9-10	RQ84A	RQ84A	10/15/10	1306
06	DGS-30-0113.9-10	RQ84AMS	RQ84AMS	10/15/10	1536
07	DGS-30-0113.9-10	RQ84AMSD	RQ84AMSD	10/15/10	1607
08	DGS-19-3.34.1-10	RQ84B	RQ84B2	10/15/10	1637
09	DGS-19-4.48.2-10	RQ84C	RQ84C2	10/15/10	1707
10	DGS-19-10.210.9-	RQ84D	RQ84D2	10/15/10	1737
11	DGS-08-4.44.6-10	RQ84E	RQ84E2	10/15/10	1807
12					
13					
14					
15					
16					
17					
18					
19					
20					
21					
22					

FORM V VOA OLM3.2M

FORM 6
VOLATILE INITIAL CALIBRATION DATA

Lab Name: ANALYTICAL RESOURCES, INC Client: NW NATURAL

ARI Job No: RQ84 Project: NWN-INS

Instrument ID: NT9 Calibration Date: 08/28/10

LAB FILE ID: RF1: 0010828 RF2: 0020828 RF5: 0050828
RF10: 0100828 RF50: 0500828

COMPOUND	RF1	RF2	RF5	RF10	RF50
Vinyl Chloride	0.441	0.369	0.408	0.407	0.444
1,1-Dichloroethene	0.467	0.396	0.404	0.424	0.428
Trans-1,2-Dichloroethene	0.514	0.447	0.463	0.475	0.478
Cis-1,2-Dichloroethene	0.489	0.415	0.448	0.461	0.462
Benzene	1.326	1.187	1.235	1.266	1.279
Trichloroethene	0.367	0.323	0.347	0.348	0.353
Toluene	1.035	0.855	0.868	0.877	0.885
Tetrachloroethene	0.558	0.482	0.482	0.493	0.509
Ethyl Benzene	2.020	1.786	1.825	1.891	1.925
m,p-xylene	0.815	0.706	0.748	0.773	0.805
o-Xylene	0.737	0.656	0.708	0.736	0.739
d4-1,2-Dichloroethane	0.382	0.378	0.387	0.386	0.391
d8-Toluene	1.127	1.132	1.140	1.141	1.142
4-Bromofluorobenzene	0.457	0.460	0.471	0.475	0.468
d4-1,2-Dichlorobenzene	0.870	0.869	0.883	0.879	0.881
Dibromofluoromethane	0.362	0.359	0.366	0.369	0.377

FORM 6
VOLATILE INITIAL CALIBRATION DATA

Lab Name: ANALYTICAL RESOURCES, INC Client: NW NATURAL

ARI Job No: RQ84 Project: NWN-INS

Instrument ID: NT9 Calibration Date: 08/28/10

LAB FILE ID: RF100: 1000828 RF150: 1500828 RF200: 2000828

COMPOUND	RF100	RF150	RF200
Vinyl Chloride	0.534	0.493	0.476
1,1-Dichloroethene	0.530		
Trans-1,2-Dichloroethene	0.577	0.557	0.569
Cis-1,2-Dichloroethene	0.530	0.524	0.538
Benzene	1.486	1.465	1.514
Trichloroethene	0.418	0.400	0.416
Toluene	1.041	1.022	1.061
Tetrachloroethene	0.625	0.589	0.609
Ethyl Benzene	2.326	2.266	2.352
m,p-xylene	0.966	0.913	0.902
o-Xylene	0.864	0.850	0.884
d4-1,2-Dichloroethane	0.380	0.384	0.383
d8-Toluene	1.126	1.127	1.128
4-Bromofluorobenzene	0.461	0.457	0.455
d4-1,2-Dichlorobenzene	0.865	0.877	0.867
Dibromofluoromethane	0.379	0.389	0.390

FORM 6
VOLATILE INITIAL CALIBRATION DATA

Lab Name: ANALYTICAL RESOURCES, INC Client: NW NATURAL

ARI Job No: RQ84 Project: NWN-INS

Instrument ID: NT9 Calibration Date: 08/28/10

COMPOUND	CURVE TYPE	AVE RF	%RSD OR R^2
Vinyl Chloride	AVRG	0.447	11.9
1,1-Dichloroethene	AVRG	0.441	11.3
Trans-1,2-Dichloroethene	AVRG	0.510	10.1
Cis-1,2-Dichloroethene	AVRG	0.483	9.2
Benzene	AVRG	1.345	9.4
Trichloroethene	AVRG	0.372	9.5
Toluene	AVRG	0.956	9.5
Tetrachloroethene	AVRG	0.544	10.9
Ethyl Benzene	AVRG	2.049	11.3
m,p-xylene	AVRG	0.829	10.9
o-Xylene	AVRG	0.772	10.8
d4-1,2-Dichloroethane	AVRG	0.384	1.1
d8-Toluene	AVRG	1.133	0.6
4-Bromofluorobenzene	AVRG	0.463	1.6
d4-1,2-Dichlorobenzene	AVRG	0.874	0.8
Dibromofluoromethane	AVRG	0.374	3.1

<- Indicates value outside QC limits:
(%RSD < 20% or R^2 > 0.990)

7A

VOLATILE CONTINUING CALIBRATION CHECK

Lab Name: ANALYTICAL RESOURCES, INC — Client: NW NATURAL

ARI Job No: RQ84 — Project: NWN-INS

Instrument ID: NT9 — Cont. Calib. Date: 10/15/10

Init. Calib. Date: 08/28/10 — Cont. Calib. Time: 1101

COMPOUND	CalAmt or ARF	CC Amt or RF	MIN RRF	CURVE TYPE	%D or Drift
Vinyl Chloride	0.446	0.452	0.010	AVRG	1.3
1,1-Dichloroethene	0.442	0.478	0.010	AVRG	8.1
Trans-1,2-Dichloroethene	0.510	0.523	0.010	AVRG	2.5
Cis-1,2-Dichloroethene	0.483	0.502	0.010	AVRG	3.9
Benzene	1.345	1.382	0.010	AVRG	2.8
Trichloroethene	0.372	0.394	0.010	AVRG	5.9
Toluene	0.956	0.968	0.010	AVRG	1.2
Tetrachloroethene	0.543	0.595	0.010	AVRG	9.6
Ethyl Benzene	2.049	2.153	0.010	AVRG	5.1
m,p-xylene	0.828	0.902	0.010	AVRG	8.9
o-Xylene	0.772	0.807	0.010	AVRG	4.5
d4-1,2-Dichloroethane	0.384	0.393	0.010	AVRG	2.3
d8-Toluene	1.133	1.123	0.010	AVRG	-0.9
4-Bromofluorobenzene	0.463	0.454	0.010	AVRG	-1.9
d4-1,2-Dichlorobenzene	0.874	0.875	0.010	AVRG	0.1
Dibromofluoromethane	0.374	0.384	0.010	AVRG	2.7

<- Exceeds QC limit of 20% D
* RF less than minimum RF

FORM VII VOA

8A
VOLATILE INTERNAL STANDARD AREA AND RT SUMMARY

Lab Name: ANALYTICAL RESOURCES, INC — Client: NW NATURAL

ARI Job No: RQ84 — Project: NWN-INS

Ical Midpoint ID: 0500828 — Ical Date: 08/28/10

Instrument ID: NT9 — Project Run Date: 10/15/10

		IS1(PFB) AREA #	RT #	IS2(DFB) AREA #	RT #	IS3(CLB) AREA #	RT #
	ICAL MIDPT	704281	4.94	937745	5.32	853013	7.40
	UPPER LIMIT	1408562	5.44	1875490	5.82	1706026	7.90
	LOWER LIMIT	352140	4.44	468872	4.82	426506	6.90
	Sample ID						
01	LCS1015	580374	4.93	779721	5.32	693013	7.40
02	LCS1015	618378	4.93	824989	5.32	735755	7.40
03	MB1015	653148	4.94	867669	5.32	765328	7.40
04	DGS-30-0113.	655055	4.94	887991	5.32	793107	7.40
05	DGS-30-0113.	695685	4.94	936643	5.32	858308	7.40
06	DGS-30-0113.	698969	4.93	940627	5.32	859261	7.40
07	DGS-19-3.34.	574860	4.93	767231	5.32	673927	7.40
08	DGS-19-4.48.	663759	4.93	877253	5.32	776624	7.40
09	DGS-19-10.21	688573	4.93	917607	5.32	810225	7.39
10	DGS-08-4.44.	665631	4.94	882526	5.32	775712	7.40
11							
12							
13							
14							
15							
16							
17							
18							
19							
20							
21							
22							

IS1 (PFB) = Pentafluorobenzene
IS2 (DFB) = 1,4-Difluorobenzene
IS3 (CLB) = d5-Chlorobenzene

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

* Values outside of QC limits.

8A
VOLATILE INTERNAL STANDARD AREA AND RT SUMMARY

Lab Name: ANALYTICAL RESOURCES, INC — Client: NW NATURAL

ARI Job No: RQ84 — Project: NWN-INS

Ical Midpoint ID: 0500828 — Ical Date: 08/28/10

Instrument ID: NT9 — Project Run Date: 10/15/10

		IS4(DCB) AREA #	RT #	AREA #	RT #	AREA #	RT #
	ICAL MIDPT	503655	9.11				
	UPPER LIMIT	1007310	9.61				
	LOWER LIMIT	251828	8.61				
	Sample ID						
01	LCS1015	386509	9.11				
02	LCS1015	405851	9.11				
03	MB1015	416733	9.11				
04	DGS-30-0113.	432162	9.11				
05	DGS-30-0113.	496253	9.11				
06	DGS-30-0113.	502047	9.11				
07	DGS-19-3.34.	365325	9.11				
08	DGS-19-4.48.	429849	9.12				
09	DGS-19-10.21	448713	9.11				
10	DGS-08-4.44.	424733	9.11				
11							
12							
13							
14							
15							
16							
17							
18							
19							
20							
21							
22							

IS4 (DCB) = d4-1,4-Dichlorobenzene

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

* Values outside of QC limits.

Total Solids

ARI Job ID: RQ84

Volatiles Total Solids-voats
Data By: Pat Basilio
Created: 10/21/10

Worklist: 8756
Analyst: PAB
Comments:

Oven ID:_____

Balance ID:_____

Samples In: Date:_____ Time:_____ Temp:_____ Analyst:_____

Samples Out: Date:_____ Time:_____ Temp:_____ Analyst:_____

ARI ID	Tare Wt (g)	Wet Wt (g)	Dry Wt (g)	% Solids
1. RQ84A 10-26012	1.15	8.43	7.12	82.01
2. RQ84B 10-26013	1.48	9.29	7.49	76.95
3. RQ84C 10-26014	1.22	10.14	8.09	77.02
4. RQ84D 10-26015	1.49	9.03	7.27	76.66
5. RQ84E 10-26016	1.50	9.68	7.88	78.00

Worklist ID: 8756 Page: 1
* - VOA TS Copied From BETX TS
% - VOA TS Copied From Metals TS
$ - VOA TS Copied From Extraction TS

Volatiles Total Solids-voats
Data By: Pat Basilio
Created: 10/21/10

Worklist: 8756
Analyst: PAB
Comments:

Oven ID: 11

Balance ID: 40030016 PT(W)

Samples In: Date: 10/20/10 Time: 4:20 Temp: 106 Analyst: PA

Samples Out: Date: 10/21/10 Time: 2pm Temp: 107 Analyst: PA

ARI ID	Tare Wt (g)	Wet Wt (g)	Dry Wt (g)	% Solids
1. RQ84A 10-26012	1.15	8.43	7.12	
2. RQ84B 10-26013	1.48	9.29	7.49	
3. RQ84C 10-26014	1.22	10.14	8.09	
4. RQ84D 10-26015	1.49	9.03	7.27	
5. RQ84E 10-26016	1.50	9.68	7.88	

Worklist ID: 8756 Page: 1
* - VOA TS Copied From BETX TS
% - VOA TS Copied From Metals TS
$ - VOA TS Copied From Extraction TS

Volatile Raw Data
Preparation Log

ARI Job ID: RQ84

Analytical Resources, Incorporated
Analytical Chemists and Consultants

Volatile Organics Extraction Bench Sheet

(8260B, 8260B-SIM, 8021, NWTPH-Gx, AK-101, TPH-G, VPH, TCLP-ZHE)

ARI Project No.: RQ84

Client ID/Project:

Extraction Date — 1st Extraction:

Extraction Date — 2nd Extraction:

MeOH Lot No.:

Analyst: p 10/15/

	Lab ID	Vial No.	Preservative		Method 5035 Sample Weight					Comments
			$NaHSO_3$	CH_3OH	Vial Weight	Tare (from vial)	Sample Weight	Extract Volume	MeOH Spilt Volume	
	MB:									
	LCS:									
	LCSD:									
1	RQ84 A						5.54			
2	B						1.19	5mL	5mL	
3	C						1.02	↓	↓	
4	D						1.01	↓	1mL	
5	E						1.05	↓	1mL	p 10/15/
6	A ms						5.24			
7	A msd						5.31			
8										
9										
10										
11										
12										
13										
14										
15										
16										
17										
18										
19										
20										
	Balance ID:									

	Solution ID	Concentration	Amount Spiked	Analyst	Witness
Surrogate:					
Spike:					

R0081 : 000010

Volatile Raw Data
Initial Calibration Notes and Raw Data

ARI Job ID: RQ84

Analytical Resources, Incorporated
Analytical Chemists and Consultants

VOA Analyst Notes / Corrective Action Log

ARI Project ID: MTBICal Client ID: _____

ARI SOP: **404S**(Gas) **410S**(BTEX) **430S**(VPH) **700S**(8260C) **703S**(SIM) **706S**(524.2) **710S**(RSK-175)

Parameter(s): _____

Instrument: NT-3 NT-5 NT-7 NT-9 NT-10 PID-1 PID-2 PID-3 FID-6 FINN-5

Purge Volume (mL) 5 Curve Date: 8/28/10 Analysis Start Date: 8/28/10

pH ≤ 2.0	YES / NO / NA	Method Blank In Control?	YES / NO
BFB Tune Meets Criteria?	YES / NO / NA	LCS / LCSD Recovery In Control?	YES / NO
Internal Standard Meets Criteria?	YES / NO / NA	Surrogate Recovery In Control?	YES / NO
ICal acceptable?	YES / NO	CCal acceptable?	YES / NO
Q flag applied?	YES / NO / NA	Q flag applied?	YES / NO / NA
Manual Integrations for ICal?	YES / NO	Manual Integrations for Samples?	Yes /NO
Special Analysis Criteria Met?	YES / NO / NA		

Bubbles/Headspace: None SM (≤ 2mm •) PB (2-4mm) LG (> 4mm ●) Head Space

Detail problems, corrective actions and/or other pertinent information below (use reverse side when necessary):

Additional Details on Reverse: Yes / No

Analyst: _____ **Date:** 10/18/10

Reviewer: _____ **Date:** 10/18/10

Analytical Resources Inc.: Volatile Organics Instrument Log

NT-9 Serial No.:GC=US00021704, MS=US80230047

Date: 8/28/10 Analysis: 8260C Analyst: M

GC Program: VOA Column No: 562025 Column Type: MTX VMS

Instrument Tune (.U or .CT.): bfb08280 EM Voltage: 1289

Calibration File: 2000ppb Curve Date: 8/28/10

IS/SS	Ical/Ccal	LCS/ICV
W652-1	W652-2	W647-2
	W652-3	W643-4
		W643-1

INTERNAL STANDARD SUMMARY FOR DATABATCH - /chem1/nt9.i/28AUG10.b

	Time	Filename	LabID	ClientID	WT									
1	0745	bfb08280.d	BFB0828	BFB0828	0.00									
2	1252	0010828.d	IC0828	VSTD001	5.00	4.93	593554	5.32	790571	7.40	695489	9.12	387125	
3	1321	2000828.d	IC0828	VSTD200	5.00	4.93	640076	5.32	861135	7.40	803012	9.13	480939	
4	1351	1500828.d	IC0828	VSTD150	5.00	4.93	648980	5.32	873392	7.40	806370	9.12	478126	
5	1421	1000828.d	IC0828	VSTD100	5.00	4.93	577839	5.32	774194	7.40	701708	9.11	414842	
6	1451	0500828.d	IC0828	VSTD050	5.00	4.94	704281	5.32	937745	7.40	853013	9.11	503655	
7	1521	0100828.d	IC0828	VSTD010	5.00	4.93	705939	5.32	945928	7.40	855411	9.11	505684	
8	1551	0050828.d	IC0828	VSTD005	5.00	4.94	686435	5.32	917886	7.40	828296	9.11	481111	
9	1621	0020828.d	IC0828	VSTD002	5.00	4.94	638204	5.32	847674	7.40	752656	9.11	418493	
10	1821	icv0828.d	ICV0828	ICV0828	5.00	4.93	643032	5.32	855721	7.40	778023	9.11	462358	

8/28/10

Maintenance / Comments

Maintenance Verification (Identify ICal or CCal that demonstrates the instrument is in control):

Every line must contain information or be lined out. Make all entries legible. Start a new page for each QC period.

Data File: /chem1/nt9.i/28AUG10.b/gasco.b/bfb08280.d

Date : 28-AUG-2010 07:45

Client ID: BFB0828

Instrument: nt9.i

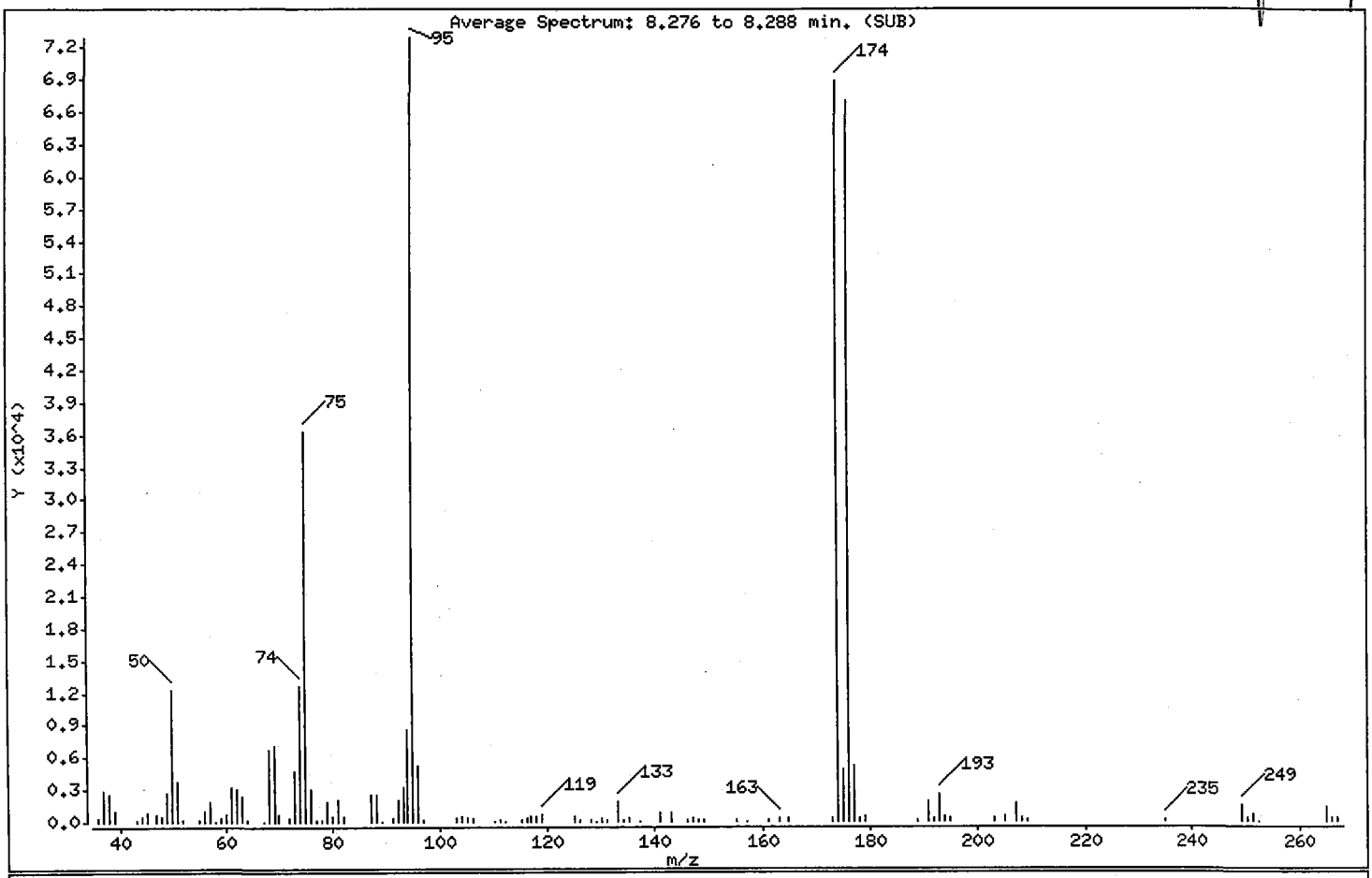
Sample Info: BFB0828,BFB0828,,1,28AUG10,,

Operator: PB

Column phase: RTX502.2

Column diameter: 0.18

1 Bromofluorobenzene



m/e	ION ABUNDANCE CRITERIA	% RELATIVE ABUNDANCE
95	Base Peak, 100% relative abundance	100.00
50	8.00 - 40.00% of mass 95	16.76
75	30.00 - 66.00% of mass 95	49.85
96	5.00 - 9.00% of mass 95	7.19
173	Less than 2.00% of mass 174	0.46 (0.49)
174	50.00 - 101.00% of mass 95	94.44
175	4.00 - 9.00% of mass 174	6.67 (7.06)
176	93.00 - 101.00% of mass 174	91.93 (97.34)
177	5.00 - 9.00% of mass 176	7.06 (7.68)

Data File: /chem1/nt9.i/28AUG10.b/gasco.b/bfb08280.d

Date : 28-AUG-2010 07:45

Client ID: BFB0828 Instrument: nt9.i

Sample Info: BFB0828,BFB0828,,1,28AUG10,,

Operator: PB

Column phase: RTX502.2 Column diameter: 0.18

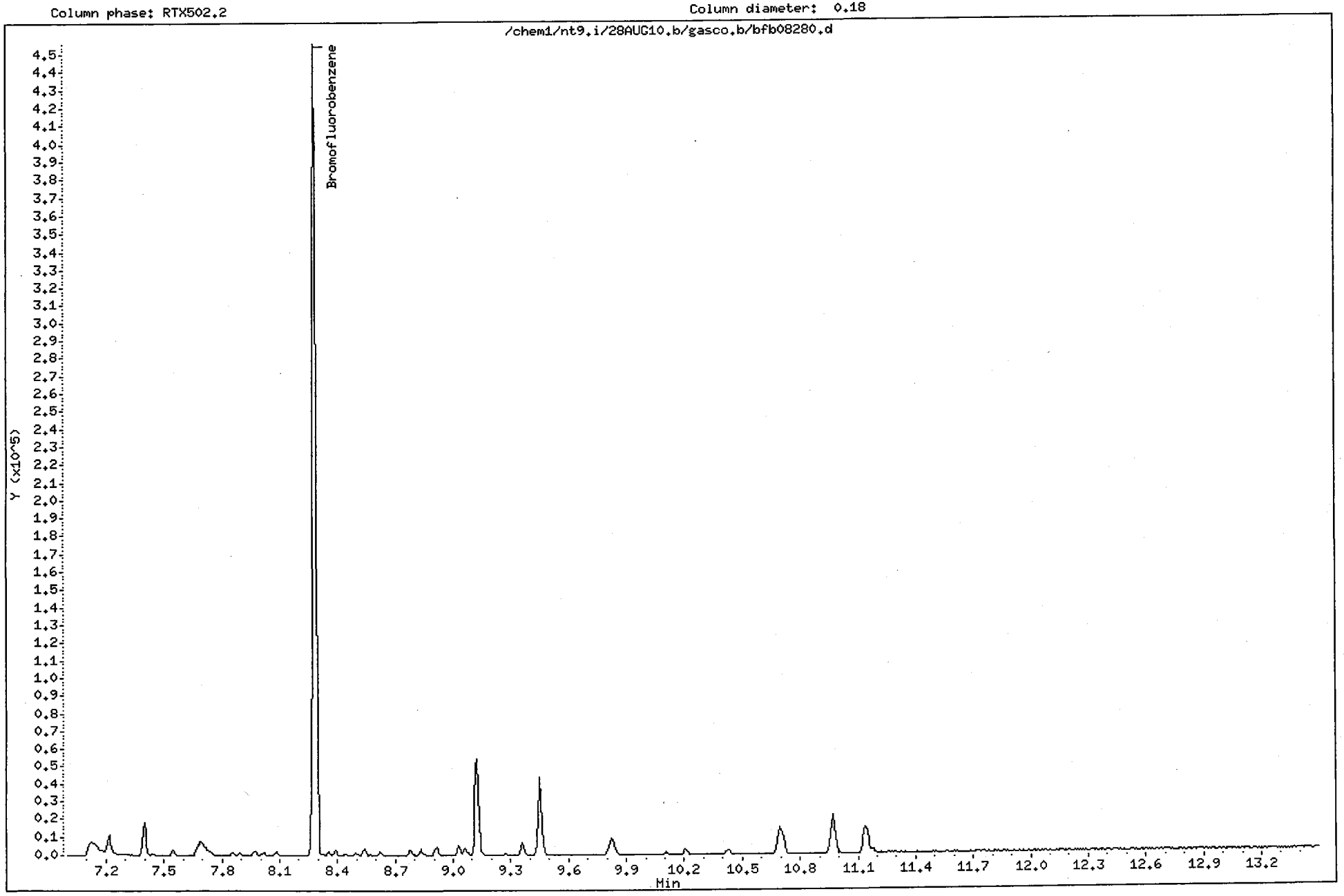
Data File: bfb08280.d
Spectrum: Average Spectrum: 8.276 to 8.288 min. (SUB)
Location of Maximum: 95.00
Number of points: 107

m/z	Y	m/z	Y	m/z	Y	m/z	Y
36.00	383	72.00	370	112.00	67	173.00	337
37.00	2783	73.00	4646	115.00	140	174.00	68840
38.00	2596	74.00	12549	116.00	270	175.00	4860
39.00	1028	75.00	36336	117.00	579	176.00	67016
43.00	171	76.00	3036	118.00	486	177.00	5144
44.00	505	77.00	222	119.00	711	178.00	294
45.00	771	78.00	240	125.00	546	179.00	515
47.00	626	79.00	1890	126.00	184	189.00	142
48.00	420	80.00	568	128.00	240	191.00	1872
49.00	2714	81.00	2029	129.00	62	192.00	407
50.00	12217	82.00	430	130.00	311	193.00	2498
51.00	3643	87.00	2567	131.00	124	194.00	510
52.00	200	88.00	2511	133.00	1910	195.00	309
55.00	224	89.00	67	134.00	87	203.00	267
56.00	986	91.00	283	135.00	330	205.00	508
57.00	1791	92.00	2026	137.00	60	207.00	1704
58.00	51	93.00	3113	141.00	759	208.00	343
59.00	361	94.00	8567	143.00	826	209.00	155
60.00	622	95.00	72896	146.00	111	235.00	211
61.00	3175	96.00	5238	147.00	278	249.00	1515
62.00	3089	97.00	197	148.00	241	250.00	403
63.00	2347	103.00	356	149.00	183	251.00	614
64.00	164	104.00	426	155.00	175	252.00	54
67.00	59	105.00	265	157.00	54	265.00	1352
68.00	6691	106.00	334	161.00	153	266.00	408
69.00	7006	110.00	63	163.00	356	267.00	303
70.00	655	111.00	129	165.00	293		

Data File: /chem1/nt9.i/28AUG10.b/gasco.b/bfb08280.d
Date : 28-AUG-2010 07:45
Client ID: BFB0828
Sample Info: BFB0828,BFB0828,,1,28AUG10,,

Instrument: nt9.i
Operator: PB
Column diameter: 0.18

Column phase: RTX502.2



R081:00015

Analytical Resources, Inc.

INITIAL CALIBRATION DATA

Start Cal Date : 28-AUG-2010 12:52
End Cal Date : 28-AUG-2010 16:21
Quant Method : ISTD
Origin : Disabled
Target Version : 3.50
Integrator : HP RTE
Method file : /chem1/nt9.i/28AUG10.b/gasco.b/VO063010S.m
Cal Date : 18-Oct-2010 13:57 patrickb
Curve Type : Average

10/18/10

Calibration File Names:
Level 1: /chem1/nt9.i/28AUG10.b/gasco.b/0010828.d
Level 2: /chem1/nt9.i/28AUG10.b/gasco.b/0020828.d
Level 3: /chem1/nt9.i/28AUG10.b/gasco.b/0050828.d
Level 4: /chem1/nt9.i/28AUG10.b/gasco.b/0100828.d
Level 5: /chem1/nt9.i/28AUG10.b/gasco.b/0500828.d
Level 6: /chem1/nt9.i/28AUG10.b/gasco.b/1000828.d
Level 7: /chem1/nt9.i/28AUG10.b/gasco.b/1500828.d
Level 8: /chem1/nt9.i/28AUG10.b/gasco.b/2000828.d

Compound	1.000 Level 1	2.000 Level 2	5.000 Level 3	10.000 Level 4	50.000 Level 5	100.000 Level 6	RRF	% RSD
	150.000 Level 7	200.000 Level 8						
3 Vinyl Chloride	0.44124	0.36900	0.40850	0.40724	0.44421	0.53382		
	0.49296	0.47638					0.44667	11.877
7 1,1-Dichloroethene	0.46702	0.39654	0.40390	0.42362	0.42777	0.52984		
	+++++	+++++					0.44145	11.280
15 Trans-1,2-Dichloroethene	0.51402	0.44676	0.46277	0.47513	0.47849	0.57736		
	0.55726	0.56926					0.51013	10.142
20 Cis-1,2-Dichloroethene	0.48917	0.41464	0.44768	0.46073	0.46216	0.53041		
	0.52431	0.53780					0.48336	9.201
23 Chloroform	0.75975	0.67506	0.71303	0.72761	0.73463	0.83871		
	0.83123	0.85351					0.76669	8.647
24 Carbon Tetrachloride	0.45322	0.37467	0.37878	0.40053	0.45310	0.56307		
	0.54319	0.54624					0.46410	16.760

Analytical Resources, Inc.

INITIAL CALIBRATION DATA

Start Cal Date : 28-AUG-2010 12:52
End Cal Date : 28-AUG-2010 16:21
Quant Method : ISTD
Origin : Disabled
Target Version : 3.50
Integrator : HP RTE
Method file : /chem1/nt9.i/28AUG10.b/gasco.b/VO063010S.m
Cal Date : 18-Oct-2010 13:57 patrickb
Curve Type : Average

Compound	1.000 Level 1 / 150.000 Level 7	2.000 Level 2 / 200.000 Level 8	5.000 Level 3	10.000 Level 4	50.000 Level 5	100.000 Level 6	RRF	% RSD
29 2-Butanone	0.05280	0.04234	0.04252	0.04537	0.04571	0.05600		
	0.05162	0.05187					0.04853	10.655
30 Benzene	1.32638	1.18660	1.23515	1.26601	1.27868	1.48595		
	1.46478	1.51452					1.34476	9.368
33 1,2-Dichloroethane	0.39130	0.33993	0.36738	0.38396	0.38080	0.40438		
	0.40958	0.41716					0.38681	6.473
34 Trichloroethene	0.36714	0.32330	0.34682	0.34800	0.35294	0.41807		
	0.40032	0.41556					0.37152	9.538
43 Toluene	1.03514	0.85549	0.86756	0.87730	0.88499	1.04109		
	1.02215	1.06128					0.95562	9.535
44 Tetrachloroethene	0.55860	0.48183	0.48172	0.49322	0.50901	0.62547		
	0.58919	0.60919					0.54353	10.926
53 Chlorobenzene	1.22382	1.05021	1.09789	1.12925	1.13123	1.29199		
	1.28087	1.33347					1.19234	8.711
54 Ethyl Benzene	2.02002	1.78634	1.82546	1.89117	1.92492	2.32640		
	2.26623	2.35247					2.04913	11.315
56 m,p-xylene	0.81500	0.70598	0.74855	0.77341	0.80494	0.96610		
	0.91344	0.90257					0.82875	10.870

Analytical Resources, Inc.

INITIAL CALIBRATION DATA

Start Cal Date : 28-AUG-2010 12:52
End Cal Date : 28-AUG-2010 16:21
Quant Method : ISTD
Origin : Disabled
Target Version : 3.50
Integrator : HP RTE
Method file : /chem1/nt9.i/28AUG10.b/gasco.b/VO063010S.m
Cal Date : 18-Oct-2010 13:57 patrickb
Curve Type : Average

Compound	1.000 Level 1 / 150.000 Level 7	2.000 Level 2 / 200.000 Level 8	5.000 Level 3	10.000 Level 4	50.000 Level 5	100.000 Level 6	RRF	% RSD
57 o-Xylene	0.73725	0.65651	0.70844	0.73580	0.73913	0.86456		
	0.85023	0.88429					0.77203	10.757
76 1,4-Dichlorobenzene	1.88673	1.56801	1.64288	1.69190	1.69135	1.90846		
	1.93573	2.02878					1.79423	9.225
$ 25 Dibromofluoromethane	0.36234	0.35910	0.36558	0.36940	0.37735	0.37880		
	0.38862	0.38978					0.37387	3.111
$ 31 d4-1,2-Dichloroethane	0.38156	0.37856	0.38687	0.38650	0.39071	0.37956		
	0.38432	0.38267					0.38384	1.062
$ 42 d8-Toluene	1.12727	1.13191	1.13958	1.14128	1.14178	1.12624		
	1.12676	1.12835					1.13290	0.605
$ 61 4-Bromofluorobenzene	0.45724	0.46015	0.47109	0.47490	0.46790	0.46064		
	0.45738	0.45543					0.46309	1.563
$ 78 d4-1,2-Dichlorobenzene	0.87020	0.86950	0.88301	0.87935	0.88127	0.86506		
	0.87680	0.86706					0.87403	0.790

Analytical Resources, Inc.
RETENTION TIME SUMMARY REPORT

Method File: /chem1/nt9.i/28AUG10.b/gasco.b/VO063010S.m
Batch File: /chem1/nt9.i/28AUG10.b/gasco.b
Inst ID: nt9.i

ID:	RT01	RT02	RT03	RT04	RT05	RT06	RT07	RT08
FILENAME:	0010828	2000828	1500828	1000828	0500828	0100828	0050828	0020828
INJ.DATE:	28-AUG-2010	28-AUG-2010	28-AUG-2010	28-AUG-2010	28-AUG-2010	28-AUG-2010	28-AUG-2010	28-AUG-2010
INJ.TIME:	12:52	13:21	13:51	14:21	14:51	15:21	15:51	16:21

	Compound	RT01	RT02	RT03	RT04	RT05	RT06	RT07	RT08	EXPEC RT	RT WINDOW	AVG RT	STD DEV
	3 Vinyl Chloride	1.409	1.406	1.403	1.409	1.407	1.407	1.412	1.407	1.407	1.308-1.505	1.407	0.003
	7 1,1-Dichloroethene	2.314	2.294	2.297	2.303	2.312	2.301	2.312	2.318	2.312	2.213-2.410	2.306	0.009
	15 Trans-1,2-Dichloroethe	3.033	3.018	3.021	3.027	3.036	3.030	3.036	3.036	3.036	2.937-3.134	3.030	0.007
	20 Cis-1,2-Dichloroethene	4.136	4.133	4.135	4.136	4.139	4.139	4.139	4.139	4.139	4.040-4.237	4.137	0.002
	23 Chloroform	4.379	4.382	4.384	4.385	4.382	4.382	4.382	4.382	4.382	4.283-4.481	4.382	0.002
	24 Carbon Tetrachloride	4.469	4.466	4.469	4.470	4.473	4.467	4.472	4.473	4.473	4.366-4.579	4.470	0.003
$	25 Dibromofluoromethane	4.526	4.529	4.531	4.532	4.529	4.529	4.529	4.529	4.529	4.430-4.628	4.529	0.002
	29 2-Butanone	4.645	4.659	4.655	4.651	4.642	4.654	4.648	4.648	4.642	4.543-4.741	4.650	0.006
	30 Benzene	4.831	4.828	4.825	4.832	4.829	4.829	4.829	4.829	4.829	4.722-4.935	4.829	0.002
$	31 d4-1,2-Dichloroethane	4.939	4.936	4.938	4.939	4.936	4.937	4.936	4.937	4.936	4.838-5.035	4.937	0.001
*	32 Pentafluorobenzene	4.933	4.930	4.933	4.933	4.936	4.931	4.936	4.937	4.936	4.837-5.035	4.934	0.003
	33 1,2-Dichloroethane	4.990	4.993	4.989	4.990	4.993	4.988	4.993	4.993	4.993	4.886-5.099	4.991	0.002
	34 Trichloroethene	5.284	5.281	5.283	5.284	5.281	5.282	5.281	5.282	5.281	5.175-5.388	5.282	0.001
*	35 1,4-Difluorobenzene	5.324	5.321	5.323	5.324	5.321	5.321	5.321	5.321	5.321	5.215-5.427	5.322	0.001
$	42 d8-Toluene	6.308	6.305	6.307	6.308	6.305	6.306	6.305	6.306	6.305	6.199-6.412	6.306	0.001
	43 Toluene	6.342	6.344	6.341	6.342	6.345	6.345	6.345	6.345	6.345	6.238-6.451	6.344	0.002
	44 Tetrachloroethene	6.608	6.610	6.607	6.608	6.611	6.611	6.611	6.611	6.611	6.463-6.759	6.610	0.002

Reviewer 1 _____ Date: _____
Reviewer 2 _____ Date: _____

10/18/10

00059

Analytical Resources, Inc.
RETENTION TIME SUMMARY REPORT

Method File: /chem1/nt9.i/28AUG10.b/gasco.b/VO063010S.m
Batch File: /chem1/nt9.i/28AUG10.b/gasco.b
Inst ID: nt9.i

Compound	RT01	RT02	RT03	RT04	RT05	RT06	RT07	RT08	EXPEC RT	RT WINDOW	AVG RT	STD DEV
* 52 d5-Chlorobenzene	7.400	7.402	7.399	7.400	7.397	7.397	7.397	7.397	7.397	7.249-7.545	7.399	0.002
53 Chlorobenzene	7.411	7.414	7.410	7.411	7.408	7.409	7.408	7.409	7.408	7.260-7.556	7.410	0.002
54 Ethyl Benzene	7.439	7.442	7.439	7.439	7.437	7.437	7.437	7.437	7.437	7.289-7.585	7.438	0.002
56 m,p-xylene	7.547	7.549	7.546	7.547	7.544	7.544	7.544	7.545	7.544	7.396-7.692	7.546	0.002
57 o-Xylene	7.852	7.855	7.852	7.852	7.850	7.850	7.850	7.850	7.850	7.702-7.997	7.851	0.002
$ 61 4-Bromofluorobenzene	8.282	8.302	8.281	8.277	8.274	8.280	8.274	8.274	8.274	8.126-8.422	8.280	0.009
* 75 d4-1,4-Dichlorobenzene	9.119	9.128	9.119	9.114	9.111	9.111	9.111	9.106	9.111	8.929-9.293	9.115	0.007
76 1,4-Dichlorobenzene	9.131	9.139	9.130	9.125	9.122	9.123	9.117	9.117	9.122	8.940-9.304	9.125	0.007
$ 78 d4-1,2-Dichlorobenzene	9.447	9.450	9.441	9.436	9.434	9.434	9.433	9.434	9.434	9.251-9.616	9.439	0.007

R008 : 00551

MANUAL INTEGRATION SUMMARY FOR DATABATCH - /chem1/nt9.i/28AUG10.b/gasco.b

ARI Job No.: BFB0 Method: bfb8260.m Instrument: nt9.i Date: 28-AUG-2010

Time	Filename	LabID	ClientId	DF	Manually Integrated Compounds
0745	bfb08280.d	BFB0828	BFB0828	1	NO MANUAL INTEGRATION
1252	0010828.d	IC0828	VSTD001	1	NO MANUAL INTEGRATION
1321	2000828.d	IC0828	VSTD200	1	NO MANUAL INTEGRATION
1351	1500828.d	IC0828	VSTD150	1	NO MANUAL INTEGRATION
1421	1000828.d	IC0828	VSTD100	1	NO MANUAL INTEGRATION
1451	0500828.d	IC0828	VSTD050	1	NO MANUAL INTEGRATION
1521	0100828.d	IC0828	VSTD010	1	NO MANUAL INTEGRATION
1551	0050828.d	IC0828	VSTD005	1	NO MANUAL INTEGRATION
1621	0020828.d	IC0828	VSTD002	1	NO MANUAL INTEGRATION
1821	icv0828.d	ICV0828	ICV0828	1	NO MANUAL INTEGRATION

P0811 000052

Analytical Resources, Inc.

8260C

Data file : /chem1/nt9.i/28AUG10.b/gasco.b/0010828.d
Lab Smp Id: IC0828 Client Smp ID: VSTD001
Inj Date : 28-AUG-2010 12:52
Operator : PB Inst ID: nt9.i
Smp Info : IC0828,5,5,0
Misc Info : 10-
Comment :
Method : /chem1/nt9.i/28AUG10.b/gasco.b/VO063010S.m
Meth Date : 18-Oct-2010 13:50 patrickb Quant Type: ISTD
Cal Date : 28-AUG-2010 12:52 Cal File: 0010828.d
Als bottle: 1 Calibration Sample, Level: 1
Dil Factor: 1.00000
Integrator: HP RTE Compound Sublist: gasco.sub
Target Version: 3.50
Processing Host: cserv3

Concentration Formula: Amt * DF * Pv * 1 / (Sa * ((100 - M) / 100)) * CpndVaria

Name	Value	Description
DF	1.00000	Dilution Factor
Pv	5.00000	Purge Volume
Sa	5.00000	Sample Amount
M	0.00000	% Moisture (not decanted)

Cpnd Variable Local Compound Variable

Compounds	QUANT SIG MASS	RT	EXP RT	REL RT	RESPONSE	AMOUNTS CAL-AMT (ug/Kg)	ON-COL (ug/Kg)
3 Vinyl Chloride	62	1.409	1.407	(0.286)	5238	1.00000	0.9878
7 1,1-Dichloroethene	96	2.314	2.312	(0.469)	5544	1.00000	1.058
15 Trans-1,2-Dichloroethene	96	3.033	3.036	(0.615)	6102	1.00000	1.008
20 Cis-1,2-Dichloroethene	96	4.136	4.139	(0.838)	5807	1.00000	1.012
23 Chloroform	83	4.379	4.382	(0.888)	9019	1.00000	0.9909
24 Carbon Tetrachloride	117	4.469	4.473	(0.840)	7166	1.00000	0.9766
* 32 Pentafluorobenzene	168	4.933	4.936	(1.000)	593554	50.0000	
$ 25 Dibromofluoromethane	111	4.526	4.529	(0.917)	215070	50.0000	48.458
$ 31 d4-1,2-Dichloroethane	65	4.939	4.936	(1.001)	226475	50.0000	49.702
29 2-Butanone	72	4.645	4.642	(0.942)	3134	5.00000	5.440
30 Benzene	78	4.831	4.829	(0.908)	20972	1.00000	0.9863
33 1,2-Dichloroethane	62	4.990	4.993	(0.937)	6187	1.00000	1.012
* 35 1,4-Difluorobenzene	114	5.324	5.321	(1.000)	790571	50.0000	
34 Trichloroethene	95	5.284	5.281	(0.993)	5805	1.00000	0.9882

Compounds	QUANT SIG MASS	RT	EXP RT	REL RT	RESPONSE	AMOUNTS CAL-AMT (ug/Kg)	AMOUNTS ON-COL (ug/Kg)
$ 42 d8-Toluene	98	6.308	6.305	(1.185)	891184	50.0000	49.751
43 Toluene	92	6.342	6.345	(1.191)	16367	1.00000	1.083
44 Tetrachloroethene	166	6.608	6.611	(0.893)	7770	1.00000	1.028
* 52 d5-Chlorobenzene	117	7.400	7.397	(1.000)	695489	50.0000	
53 Chlorobenzene	112	7.411	7.408	(1.002)	17023	1.00000	1.026
54 Ethyl Benzene	91	7.439	7.437	(1.005)	28098	1.00000	0.9858
56 m,p-xylene	106	7.547	7.544	(1.020)	22673	2.00000	1.967
57 o-Xylene	106	7.852	7.850	(1.061)	10255	1.00000	0.9550
$ 61 4-Bromofluorobenzene	95	8.282	8.274	(1.119)	318004	50.0000	49.368
* 75 d4-1,4-Dichlorobenzene	152	9.119	9.111	(1.000)	387125	50.0000	
76 1,4-Dichlorobenzene	146	9.131	9.122	(1.001)	14608	1.00000	1.052
$ 78 d4-1,2-Dichlorobenzene	152	9.447	9.434	(1.036)	336878	50.0000	49.781

Analytical Resources, Inc.

INTERNAL STANDARD COMPOUNDS
AREA AND RT SUMMARY

Instrument ID: nt9.i
Lab File ID: 0010828.d
Lab Smp Id: IC0828
Analysis Type: VOA
Quant Type: ISTD
Operator: PB
Method File: /chem1/nt9.i/28AUG10.b/gasco.b/VO063010S.m
Misc Info: 10-

Calibration Date: 28-AUG-2010
Calibration Time: 14:51
Client Smp ID: VSTD001
Level: LOW
Sample Type: SOIL

Test Mode:
Use Initial Calibration Level 5.
If Continuing Cal. use Initial Cal. Level 5

COMPOUND	STANDARD	AREA LIMIT LOWER	AREA LIMIT UPPER	SAMPLE	%DIFF
32 Pentafluorobenzen	704281	352140	1408562	593554	-15.72
35 1,4-Difluorobenze	937745	468872	1875490	790571	-15.69
52 d5-Chlorobenzene	853013	426506	1706026	695489	-18.47
75 d4-1,4-Dichlorobe	503655	251828	1007310	387125	-23.14

COMPOUND	STANDARD	RT LIMIT LOWER	RT LIMIT UPPER	SAMPLE	%DIFF
32 Pentafluorobenzen	4.94	4.44	5.44	4.93	-0.06
35 1,4-Difluorobenze	5.32	4.82	5.82	5.32	0.05
52 d5-Chlorobenzene	7.40	6.90	7.90	7.40	0.03
75 d4-1,4-Dichlorobe	9.11	8.61	9.61	9.12	0.09

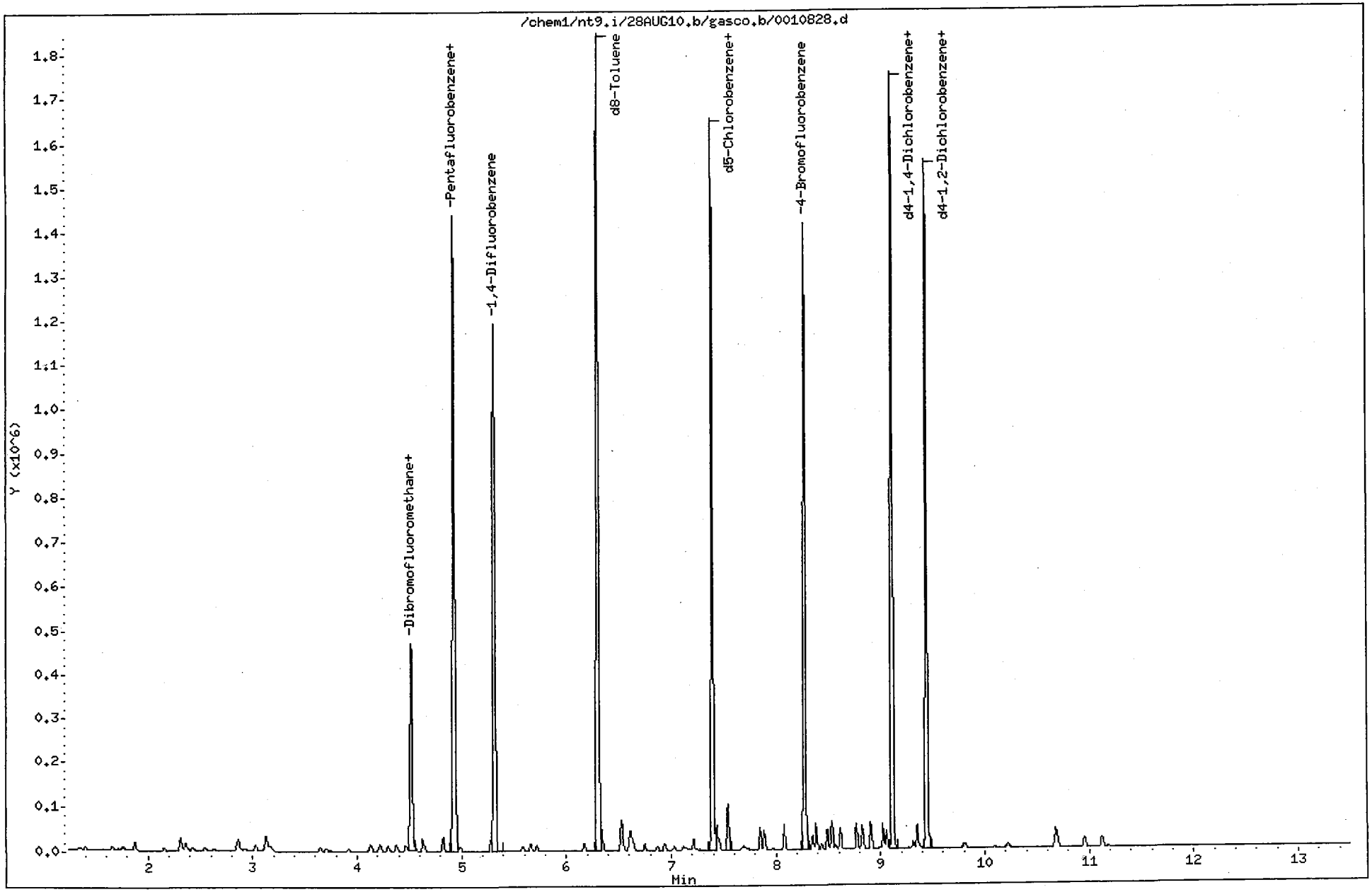
AREA UPPER LIMIT = +100% of internal standard area.
AREA LOWER LIMIT = - 50% of internal standard area.
RT UPPER LIMIT = + 0.50 minutes of internal standard RT.
RT LOWER LIMIT = - 0.50 minutes of internal standard RT.

Data File: /chem1/nt9.i/28AUG10.b/gasco.b/0010828.d
Date : 28-AUG-2010 12:52
Client ID: VSTD001
Sample Info: IC0828,5,5,0

Instrument: nt9.i

Operator: PB
Column diameter: 0.18

Column phase: RTX502.2



R081 : 00055

Analytical Resources, Inc.

8260C

Data file : /chem1/nt9.i/28AUG10.b/gasco.b/0020828.d
Lab Smp Id: IC0828 Client Smp ID: VSTD002
Inj Date : 28-AUG-2010 16:21
Operator : PB Inst ID: nt9.i
Smp Info : IC0828,5,5,0
Misc Info : 10-
Comment :
Method : /chem1/nt9.i/28AUG10.b/gasco.b/VO063010S.m
Meth Date : 18-Oct-2010 13:50 patrickb Quant Type: ISTD
Cal Date : 28-AUG-2010 16:21 Cal File: 0020828.d
Als bottle: 1 Calibration Sample, Level: 2
Dil Factor: 1.00000
Integrator: HP RTE Compound Sublist: gasco.sub
Target Version: 3.50
Processing Host: cserv3

Concentration Formula: Amt * DF * Pv * 1 / (Sa * ((100 - M) / 100)) * CpndVaria

Name	Value	Description
DF	1.00000	Dilution Factor
Pv	5.00000	Purge Volume
Sa	5.00000	Sample Amount
M	0.00000	% Moisture (not decanted)

Cpnd Variable Local Compound Variable

Compounds	QUANT SIG MASS	RT	EXP RT	REL RT	RESPONSE	AMOUNTS CAL-AMT (ug/Kg)	ON-COL (ug/Kg)
3 Vinyl Chloride	62	1.407	1.407	(0.285)	9420	2.00000	1.652
7 1,1-Dichloroethene	96	2.318	2.312	(0.469)	10123	2.00000	1.797
15 Trans-1,2-Dichloroethene	96	3.036	3.036	(0.615)	11405	2.00000	1.752
20 Cis-1,2-Dichloroethene	96	4.139	4.139	(0.838)	10585	2.00000	1.716
23 Chloroform	83	4.382	4.382	(0.888)	17233	2.00000	1.761
24 Carbon Tetrachloride	117	4.473	4.473	(0.841)	12704	2.00000	1.615
* 32 Pentafluorobenzene	168	4.937	4.936	(1.000)	638204	50.0000	
$ 25 Dibromofluoromethane	111	4.529	4.529	(0.917)	229178	50.0000	48.024
$ 31 d4-1,2-Dichloroethane	65	4.937	4.936	(1.000)	241601	50.0000	49.312
29 2-Butanone	72	4.648	4.642	(0.942)	5404	10.0000	8.724
30 Benzene	78	4.829	4.829	(0.908)	40234	2.00000	1.765
33 1,2-Dichloroethane	62	4.993	4.993	(0.938)	11526	2.00000	1.758
* 35 1,4-Difluorobenzene	114	5.321	5.321	(1.000)	847674	50.0000	
34 Trichloroethene	95	5.282	5.281	(0.993)	10962	2.00000	1.740

Compounds	QUANT SIG MASS	RT	EXP RT	REL RT	RESPONSE	AMOUNTS CAL-AMT (ug/Kg)	AMOUNTS ON-COL (ug/Kg)
$ 42 d8-Toluene	98	6.306	6.305	(1.185)	959492	50.0000	49.957
43 Toluene	92	6.345	6.345	(1.192)	29007	2.00000	1.790
44 Tetrachloroethene	166	6.611	6.611	(0.894)	14506	2.00000	1.773
* 52 d5-Chlorobenzene	117	7.397	7.397	(1.000)	752656	50.0000	
53 Chlorobenzene	112	7.409	7.408	(1.002)	31618	2.00000	1.762
54 Ethyl Benzene	91	7.437	7.437	(1.005)	53780	2.00000	1.744
56 m,p-xylene	106	7.545	7.544	(1.020)	42509	4.00000	3.407
57 o-Xylene	106	7.850	7.850	(1.061)	19765	2.00000	1.701
$ 61 4-Bromofluorobenzene	95	8.274	8.274	(1.119)	346336	50.0000	49.682
* 75 d4-1,4-Dichlorobenzene	152	9.106	9.111	(1.000)	418493	50.0000	
76 1,4-Dichlorobenzene	146	9.117	9.122	(1.001)	26248	2.00000	1.748
$ 78 d4-1,2-Dichlorobenzene	152	9.434	9.434	(1.036)	363879	50.0000	49.741

Analytical Resources, Inc.

INTERNAL STANDARD COMPOUNDS
AREA AND RT SUMMARY

Instrument ID: nt9.i
Lab File ID: 0020828.d
Lab Smp Id: IC0828
Analysis Type: VOA
Quant Type: ISTD
Operator: PB
Method File: /chem1/nt9.i/28AUG10.b/gasco.b/VO063010S.m
Misc Info: 10-

Calibration Date: 28-AUG-2010
Calibration Time: 14:51
Client Smp ID: VSTD002
Level: LOW
Sample Type: SOIL

Test Mode:
Use Initial Calibration Level 5.
If Continuing Cal. use Initial Cal. Level 5

COMPOUND	STANDARD	AREA LIMIT LOWER	AREA LIMIT UPPER	SAMPLE	%DIFF
32 Pentafluorobenzen	704281	352140	1408562	638204	-9.38
35 1,4-Difluorobenze	937745	468872	1875490	847674	-9.61
52 d5-Chlorobenzene	853013	426506	1706026	752656	-11.77
75 d4-1,4-Dichlorobe	503655	251828	1007310	418493	-16.91

COMPOUND	STANDARD	RT LIMIT LOWER	RT LIMIT UPPER	SAMPLE	%DIFF
32 Pentafluorobenzen	4.94	4.44	5.44	4.94	0.01
35 1,4-Difluorobenze	5.32	4.82	5.82	5.32	0.01
52 d5-Chlorobenzene	7.40	6.90	7.90	7.40	0.00
75 d4-1,4-Dichlorobe	9.11	8.61	9.61	9.11	-0.06

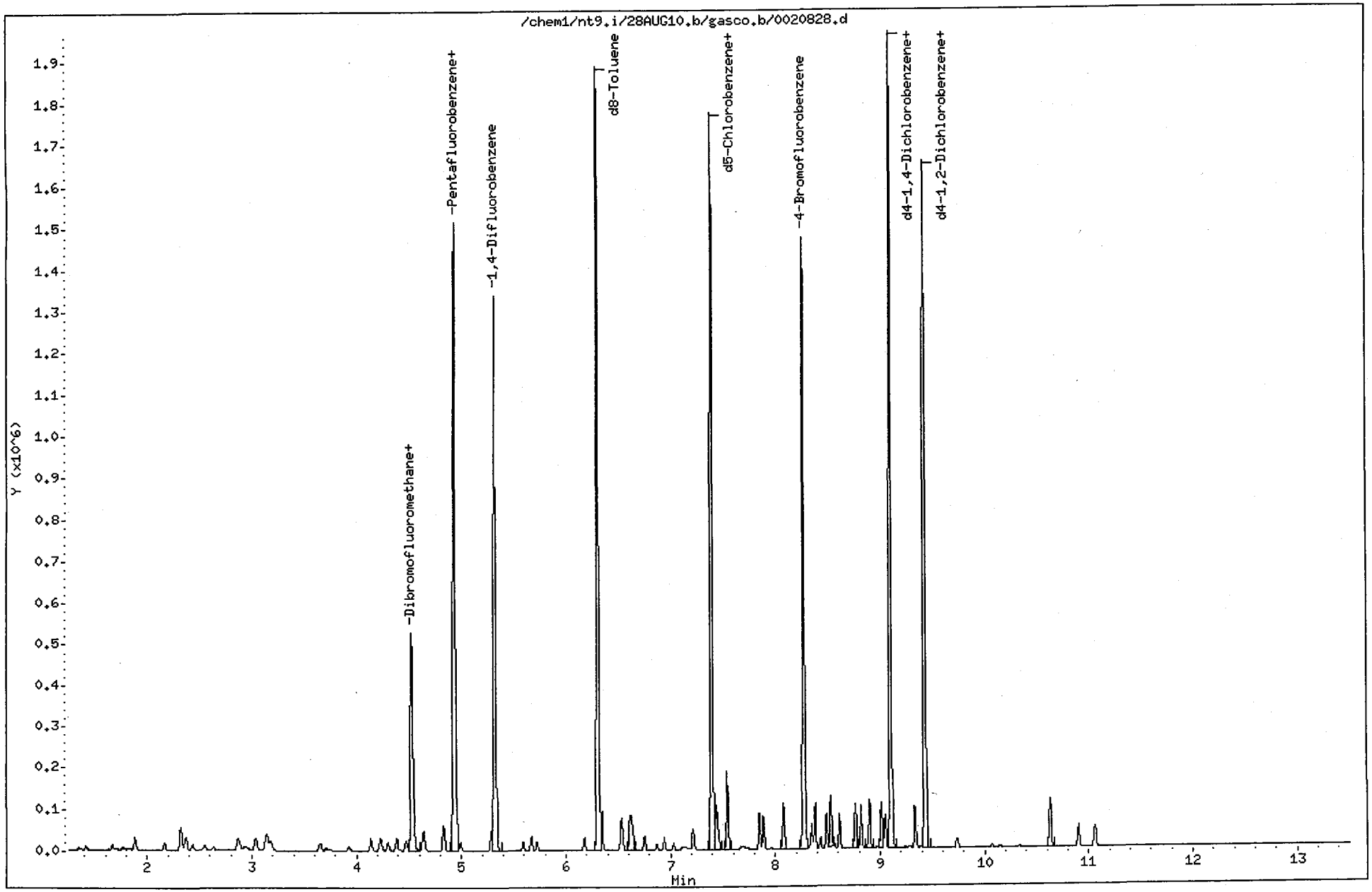
AREA UPPER LIMIT = +100% of internal standard area.
AREA LOWER LIMIT = - 50% of internal standard area.
RT UPPER LIMIT = + 0.50 minutes of internal standard RT.
RT LOWER LIMIT = - 0.50 minutes of internal standard RT.

Data File: /chem1/nt9.i/28AUG10.b/gasco.b/0020828.d
Date : 28-AUG-2010 16:21
Client ID: VSTD002
Sample Info: IC0828,5,5,0

Instrument: nt9.i

Operator: PB
Column diameter: 0.18

Column phase: RTX502.2



R081 : 00066

Analytical Resources, Inc.

8260C

Data file : /chem1/nt9.i/28AUG10.b/gasco.b/0050828.d
Lab Smp Id: IC0828 Client Smp ID: VSTD005
Inj Date : 28-AUG-2010 15:51
Operator : PB Inst ID: nt9.i
Smp Info : IC0828,5,5,0
Misc Info : 10-
Comment :
Method : /chem1/nt9.i/28AUG10.b/gasco.b/VO063010S.m
Meth Date : 18-Oct-2010 13:50 patrickb Quant Type: ISTD
Cal Date : 28-AUG-2010 15:51 Cal File: 0050828.d
Als bottle: 1 Calibration Sample, Level: 3
Dil Factor: 1.00000
Integrator: HP RTE Compound Sublist: gasco.sub
Target Version: 3.50
Processing Host: cserv3

Concentration Formula: Amt * DF * Pv * 1 / (Sa * ((100 - M) / 100)) * CpndVaria

Name	Value	Description
DF	1.00000	Dilution Factor
Pv	5.00000	Purge Volume
Sa	5.00000	Sample Amount
M	0.00000	% Moisture (not decanted)

Cpnd Variable Local Compound Variable

Compounds	QUANT SIG MASS	RT	EXP RT	REL RT	RESPONSE	AMOUNTS CAL-AMT (ug/Kg)	ON-COL (ug/Kg)
3 Vinyl Chloride	62	1.412	1.407	(0.286)	28041	5.00000	4.573
7 1,1-Dichloroethene	96	2.312	2.312	(0.468)	27725	5.00000	4.575
15 Trans-1,2-Dichloroethene	96	3.036	3.036	(0.615)	31766	5.00000	4.536
20 Cis-1,2-Dichloroethene	96	4.139	4.139	(0.838)	30730	5.00000	4.631
23 Chloroform	83	4.382	4.382	(0.888)	48945	5.00000	4.650
24 Carbon Tetrachloride	117	4.472	4.473	(0.841)	34768	5.00000	4.081
* 32 Pentafluorobenzene	168	4.936	4.936	(1.000)	686435	50.0000	
$ 25 Dibromofluoromethane	111	4.529	4.529	(0.917)	250949	50.0000	48.891
$ 31 d4-1,2-Dichloroethane	65	4.936	4.936	(1.000)	265558	50.0000	50.394
29 2-Butanone	72	4.648	4.642	(0.942)	14593	25.0000	21.904
30 Benzene	78	4.829	4.829	(0.908)	113373	5.00000	4.592
33 1,2-Dichloroethane	62	4.993	4.993	(0.938)	33721	5.00000	4.749
* 35 1,4-Difluorobenzene	114	5.321	5.321	(1.000)	917886	50.0000	
34 Trichloroethene	95	5.281	5.281	(0.993)	31834	5.00000	4.668

Compounds	QUANT SIG MASS	RT	EXP RT	REL RT	RESPONSE	AMOUNTS CAL-AMT (ug/Kg)	AMOUNTS ON-COL (ug/Kg)
$ 42 d8-Toluene	98	6.305	6.305	(1.185)	1046006	50.0000	50.295
43 Toluene	92	6.345	6.345	(1.192)	79632	5.00000	4.539
44 Tetrachloroethene	166	6.611	6.611	(0.894)	39901	5.00000	4.431
* 52 d5-Chlorobenzene	117	7.397	7.397	(1.000)	828296	50.0000	
53 Chlorobenzene	112	7.408	7.408	(1.002)	90938	5.00000	4.604
54 Ethyl Benzene	91	7.437	7.437	(1.005)	151202	5.00000	4.454
56 m,p-xylene	106	7.544	7.544	(1.020)	124005	10.0000	9.032
57 o-Xylene	106	7.850	7.850	(1.061)	58680	5.00000	4.588
$ 61 4-Bromofluorobenzene	95	8.274	8.274	(1.119)	390204	50.0000	50.864
* 75 d4-1,4-Dichlorobenzene	152	9.111	9.111	(1.000)	481111	50.0000	
76 1,4-Dichlorobenzene	146	9.117	9.122	(1.001)	79041	5.00000	4.578
$ 78 d4-1,2-Dichlorobenzene	152	9.433	9.434	(1.035)	424828	50.0000	50.514

Analytical Resources, Inc.

INTERNAL STANDARD COMPOUNDS
AREA AND RT SUMMARY

Instrument ID: nt9.i
Lab File ID: 0050828.d
Lab Smp Id: IC0828
Analysis Type: VOA
Quant Type: ISTD
Operator: PB
Method File: /chem1/nt9.i/28AUG10.b/gasco.b/VO063010S.m
Misc Info: 10-

Calibration Date: 28-AUG-2010
Calibration Time: 14:51
Client Smp ID: VSTD005
Level: LOW
Sample Type: SOIL

Test Mode:
Use Initial Calibration Level 5.
If Continuing Cal. use Initial Cal. Level 5

COMPOUND	STANDARD	AREA LIMIT LOWER	AREA LIMIT UPPER	SAMPLE	%DIFF
32 Pentafluorobenzen	704281	352140	1408562	686435	-2.53
35 1,4-Difluorobenze	937745	468872	1875490	917886	-2.12
52 d5-Chlorobenzene	853013	426506	1706026	828296	-2.90
75 d4-1,4-Dichlorobe	503655	251828	1007310	481111	-4.48

COMPOUND	STANDARD	RT LIMIT LOWER	RT LIMIT UPPER	SAMPLE	%DIFF
32 Pentafluorobenzen	4.94	4.44	5.44	4.94	0.00
35 1,4-Difluorobenze	5.32	4.82	5.82	5.32	0.00
52 d5-Chlorobenzene	7.40	6.90	7.90	7.40	0.00
75 d4-1,4-Dichlorobe	9.11	8.61	9.61	9.11	0.00

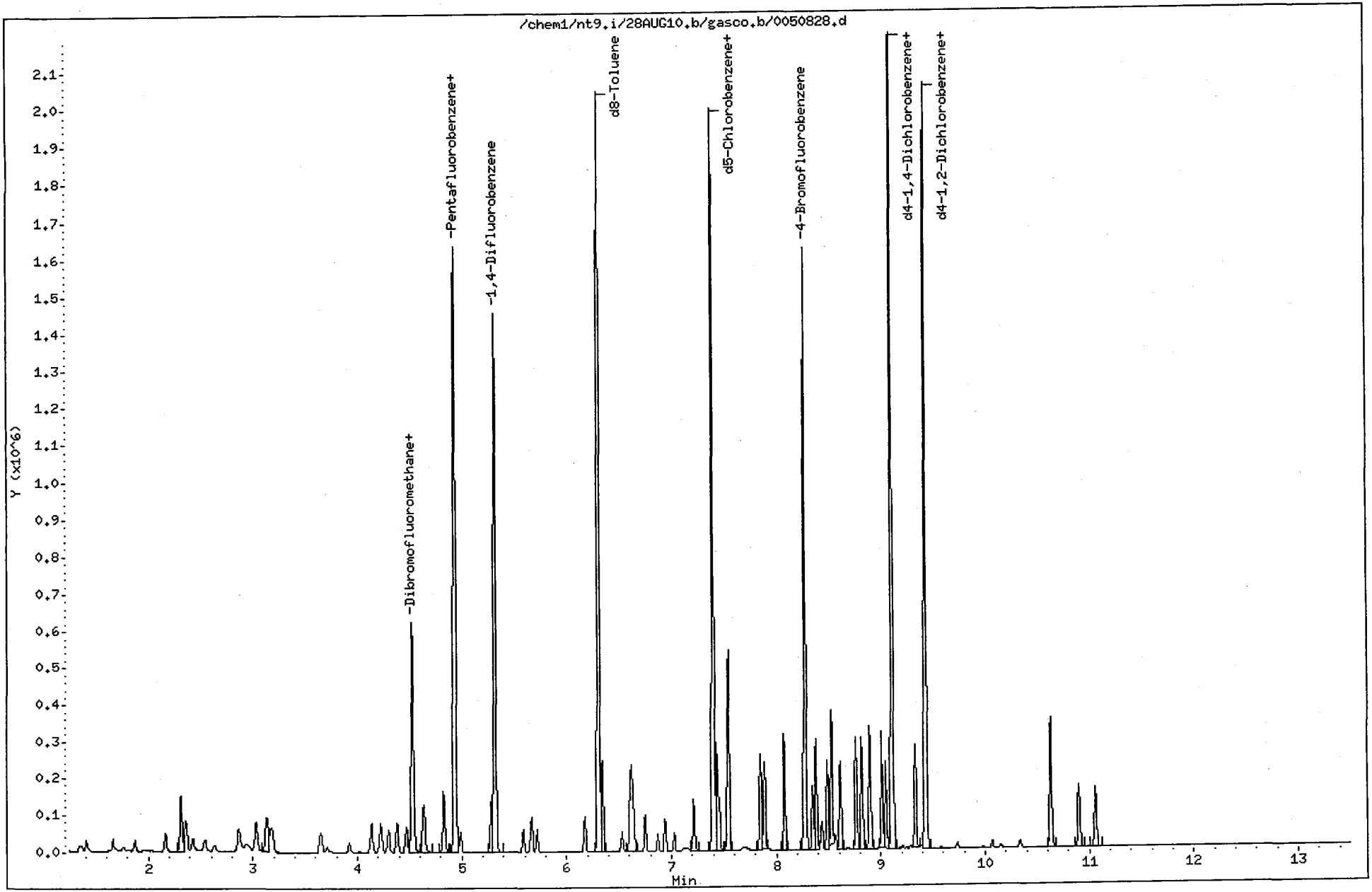
AREA UPPER LIMIT = +100% of internal standard area.
AREA LOWER LIMIT = - 50% of internal standard area.
RT UPPER LIMIT = + 0.50 minutes of internal standard RT.
RT LOWER LIMIT = - 0.50 minutes of internal standard RT.

Data File: /chem1/nt9.i/28AUG10.b/gasco.b/0050828.d
Date : 28-AUG-2010 15:51
Client ID: VSTD005
Sample Info: IC0828,5,5,0

Column phase: RTX502.2

Instrument: nt9.i

Operator: PB
Column diameter: 0.18



R081 : 00051

Analytical Resources, Inc.

8260C

Data file : /chem1/nt9.i/28AUG10.b/gasco.b/0100828.d
Lab Smp Id: IC0828 Client Smp ID: VSTD010
Inj Date : 28-AUG-2010 15:21
Operator : PB Inst ID: nt9.i
Smp Info : IC0828,5,5,0
Misc Info : 10-
Comment :
Method : /chem1/nt9.i/28AUG10.b/gasco.b/VO063010S.m
Meth Date : 18-Oct-2010 13:50 patrickb Quant Type: ISTD
Cal Date : 28-AUG-2010 15:21 Cal File: 0100828.d
Als bottle: 1 Calibration Sample, Level: 4
Dil Factor: 1.00000
Integrator: HP RTE Compound Sublist: gasco.sub
Target Version: 3.50
Processing Host: cserv3

Concentration Formula: Amt * DF * Pv * 1 / (Sa * ((100 - M) / 100)) * CpndVaria

Name	Value	Description
DF	1.00000	Dilution Factor
Pv	5.00000	Purge Volume
Sa	5.00000	Sample Amount
M	0.00000	% Moisture (not decanted)

Cpnd Variable Local Compound Variable

Compounds	QUANT SIG MASS	RT	EXP RT	REL RT	RESPONSE	AMOUNTS CAL-AMT (ug/Kg)	ON-COL (ug/Kg)
3 Vinyl Chloride	62	1.407	1.407	(0.285)	57497	10.0000	9.117
7 1,1-Dichloroethene	96	2.301	2.312	(0.467)	59810	10.0000	9.596
15 Trans-1,2-Dichloroethene	96	3.030	3.036	(0.615)	67082	10.0000	9.314
20 Cis-1,2-Dichloroethene	96	4.139	4.139	(0.839)	65050	10.0000	9.532
23 Chloroform	83	4.382	4.382	(0.889)	102730	10.0000	9.490
24 Carbon Tetrachloride	117	4.467	4.473	(0.839)	75774	10.0000	8.630
* 32 Pentafluorobenzene	168	4.931	4.936	(1.000)	705939	50.0000	
$ 25 Dibromofluoromethane	111	4.529	4.529	(0.919)	260774	50.0000	49.402
$ 31 d4-1,2-Dichloroethane	65	4.937	4.936	(1.001)	272846	50.0000	50.346
29 2-Butanone	72	4.654	4.642	(0.944)	32029	50.0000	46.747
30 Benzene	78	4.829	4.829	(0.908)	239511	10.0000	9.414
33 1,2-Dichloroethane	62	4.988	4.993	(0.937)	72640	10.0000	9.926
* 35 1,4-Difluorobenzene	114	5.321	5.321	(1.000)	945928	50.0000	
34 Trichloroethene	95	5.282	5.281	(0.993)	65837	10.0000	9.367

Compounds	QUANT SIG MASS	RT	EXP RT	REL RT	RESPONSE	AMOUNTS CAL-AMT (ug/Kg)	AMOUNTS ON-COL (ug/Kg)
$ 42 d8-Toluene	98	6.306	6.305	(1.185)	1079570	50.0000	50.370
43 Toluene	92	6.345	6.345	(1.192)	165972	10.0000	9.180
44 Tetrachloroethene	166	6.611	6.611	(0.894)	84382	10.0000	9.074
* 52 d5-Chlorobenzene	117	7.397	7.397	(1.000)	855411	50.0000	
53 Chlorobenzene	112	7.409	7.408	(1.002)	193194	10.0000	9.471
54 Ethyl Benzene	91	7.437	7.437	(1.005)	323546	10.0000	9.229
56 m,p-xylene	106	7.544	7.544	(1.020)	264634	20.0000	18.665
57 o-Xylene	106	7.850	7.850	(1.061)	125882	10.0000	9.531
$ 61 4-Bromofluorobenzene	95	8.280	8.274	(1.119)	406232	50.0000	51.275
* 75 d4-1,4-Dichlorobenzene	152	9.111	9.111	(1.000)	505684	50.0000	
76 1,4-Dichlorobenzene	146	9.123	9.122	(1.001)	171113	10.0000	9.430
$ 78 d4-1,2-Dichlorobenzene	152	9.434	9.434	(1.035)	444672	50.0000	50.304

Analytical Resources, Inc.

INTERNAL STANDARD COMPOUNDS
AREA AND RT SUMMARY

Instrument ID: nt9.i
Lab File ID: 0100828.d
Lab Smp Id: IC0828
Analysis Type: VOA
Quant Type: ISTD
Operator: PB
Method File: /chem1/nt9.i/28AUG10.b/gasco.b/VO063010S.m
Misc Info: 10-

Calibration Date: 28-AUG-2010
Calibration Time: 14:51
Client Smp ID: VSTD010
Level: LOW
Sample Type: SOIL

Test Mode:
Use Initial Calibration Level 5.
If Continuing Cal. use Initial Cal. Level 5

COMPOUND	STANDARD	AREA LIMIT LOWER	AREA LIMIT UPPER	SAMPLE	%DIFF
32 Pentafluorobenzen	704281	352140	1408562	705939	0.24
35 1,4-Difluorobenze	937745	468872	1875490	945928	0.87
52 d5-Chlorobenzene	853013	426506	1706026	855411	0.28
75 d4-1,4-Dichlorobe	503655	251828	1007310	505684	0.40

COMPOUND	STANDARD	RT LIMIT LOWER	RT LIMIT UPPER	SAMPLE	%DIFF
32 Pentafluorobenzen	4.94	4.44	5.44	4.93	-0.11
35 1,4-Difluorobenze	5.32	4.82	5.82	5.32	0.00
52 d5-Chlorobenzene	7.40	6.90	7.90	7.40	0.00
75 d4-1,4-Dichlorobe	9.11	8.61	9.61	9.11	0.00

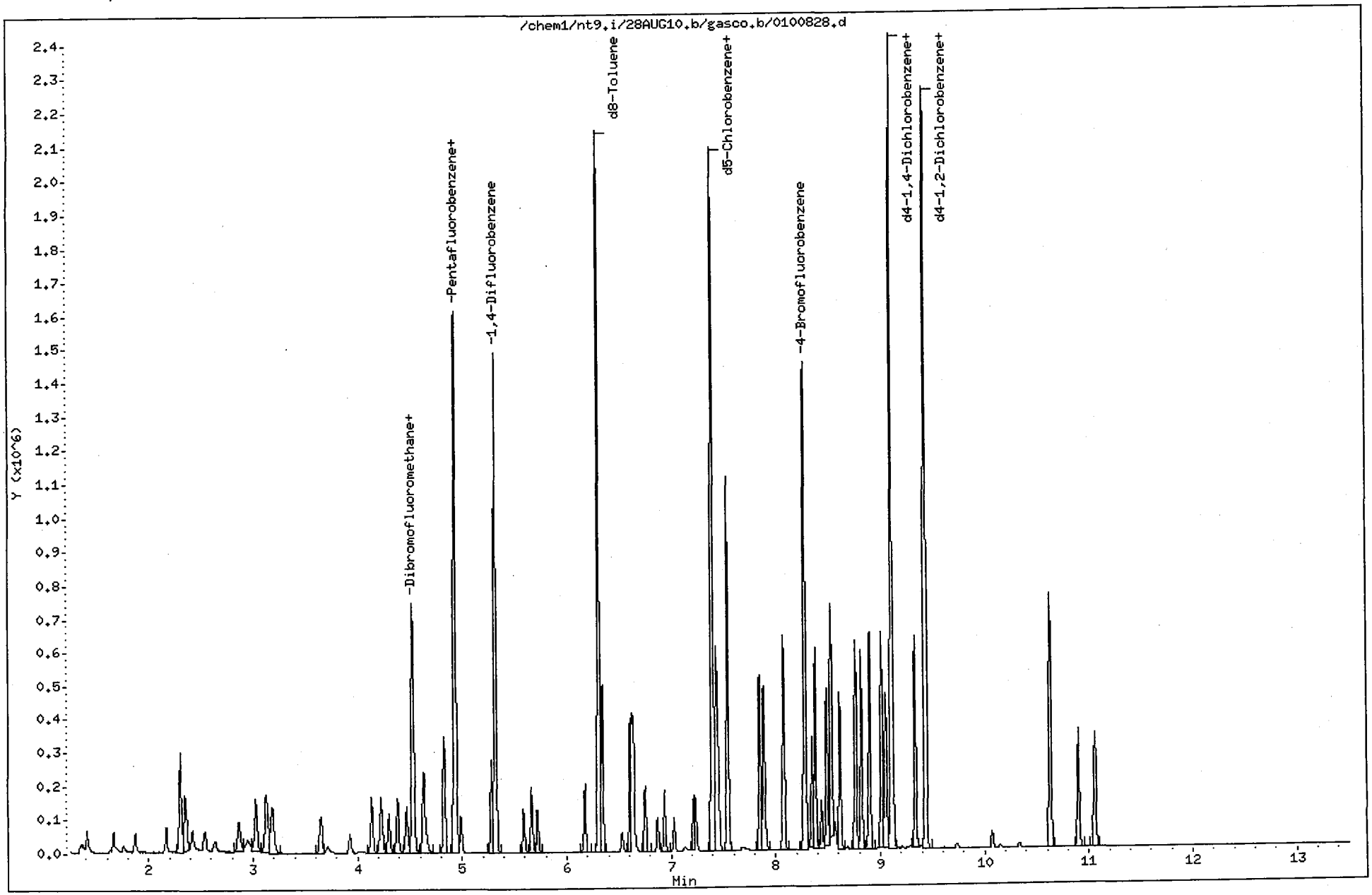
AREA UPPER LIMIT = +100% of internal standard area.
AREA LOWER LIMIT = - 50% of internal standard area.
RT UPPER LIMIT = + 0.50 minutes of internal standard RT.
RT LOWER LIMIT = - 0.50 minutes of internal standard RT.

Data File: /chem1/nt9.i/28AUG10.b/gasco.b/0100828.d
Date : 28-AUG-2010 15:21
Client ID: VSTD010
Sample Info: IC0828,5,5,0

Column phase: RTX502.2

Instrument: nt9.i

Operator: PB
Column diameter: 0.18



R031 : 9906

Analytical Resources, Inc.

8260C

Data file : /chem1/nt9.i/28AUG10.b/gasco.b/0500828.d
Lab Smp Id: IC0828 Client Smp ID: VSTD050
Inj Date : 28-AUG-2010 14:51
Operator : PB Inst ID: nt9.i
Smp Info : IC0828,5,5,0
Misc Info : 10-
Comment :
Method : /chem1/nt9.i/28AUG10.b/gasco.b/VO063010S.m
Meth Date : 18-Oct-2010 13:50 patrickb Quant Type: ISTD
Cal Date : 28-AUG-2010 14:51 Cal File: 0500828.d
Als bottle: 1 Calibration Sample, Level: 5
Dil Factor: 1.00000
Integrator: HP RTE Compound Sublist: gasco.sub
Target Version: 3.50
Processing Host: cserv3

Concentration Formula: Amt * DF * Pv * 1 / (Sa * ((100 - M) / 100)) * CpndVaria

Name	Value	Description
DF	1.00000	Dilution Factor
Pv	5.00000	Purge Volume
Sa	5.00000	Sample Amount
M	0.00000	% Moisture (not decanted)

Cpnd Variable Local Compound Variable

Compounds	QUANT SIG MASS	RT	EXP RT	REL RT	RESPONSE	AMOUNTS CAL-AMT (ug/Kg)	ON-COL (ug/Kg)
3 Vinyl Chloride	62	1.407	1.407	(0.285)	312846	50.0000	49.724
7 1,1-Dichloroethene	96	2.312	2.312	(0.468)	301272	50.0000	48.451
15 Trans-1,2-Dichloroethene	96	3.036	3.036	(0.615)	336994	50.0000	46.899
20 Cis-1,2-Dichloroethene	96	4.139	4.139	(0.838)	325490	50.0000	47.807
23 Chloroform	83	4.382	4.382	(0.888)	517386	50.0000	47.909
24 Carbon Tetrachloride	117	4.473	4.473	(0.841)	424892	50.0000	48.815
* 32 Pentafluorobenzene	168	4.936	4.936	(1.000)	704281	50.0000	
$ 25 Dibromofluoromethane	111	4.529	4.529	(0.917)	265763	50.0000	50.466
$ 31 d4-1,2-Dichloroethane	65	4.936	4.936	(1.000)	275168	50.0000	50.894
29 2-Butanone	72	4.642	4.642	(0.940)	160954	250.000	235.47
30 Benzene	78	4.829	4.829	(0.908)	1199076	50.0000	47.543
33 1,2-Dichloroethane	62	4.993	4.993	(0.938)	357096	50.0000	49.223
* 35 1,4-Difluorobenzene	114	5.321	5.321	(1.000)	937745	50.0000	
34 Trichloroethene	95	5.281	5.281	(0.993)	330969	50.0000	47.500

Compounds	QUANT SIG MASS	RT	EXP RT	REL RT	RESPONSE	AMOUNTS CAL-AMT (ug/Kg)	AMOUNTS ON-COL (ug/Kg)
$ 42 d8-Toluene	98	6.305	6.305	(1.185)	1070696	50.0000	50.392
43 Toluene	92	6.345	6.345	(1.192)	829892	50.0000	46.304
44 Tetrachloroethene	166	6.611	6.611	(0.894)	434192	50.0000	46.824
* 52 d5-Chlorobenzene	117	7.397	7.397	(1.000)	853013	50.0000	
53 Chlorobenzene	112	7.408	7.408	(1.002)	964956	50.0000	47.437
54 Ethyl Benzene	91	7.437	7.437	(1.005)	1641982	50.0000	46.969
56 m,p-xylene	106	7.544	7.544	(1.020)	1373249	100.000	97.127
57 o-Xylene	106	7.850	7.850	(1.061)	630491	50.0000	47.870
$ 61 4-Bromofluorobenzene	95	8.274	8.274	(1.119)	399128	50.0000	50.519
* 75 d4-1,4-Dichlorobenzene	152	9.111	9.111	(1.000)	503655	50.0000	
76 1,4-Dichlorobenzene	146	9.122	9.122	(1.001)	851859	50.0000	47.133
$ 78 d4-1,2-Dichlorobenzene	152	9.434	9.434	(1.035)	443857	50.0000	50.414

Analytical Resources, Inc.

INTERNAL STANDARD COMPOUNDS
AREA AND RT SUMMARY

Instrument ID: nt9.i
Lab File ID: 0500828.d
Lab Smp Id: IC0828
Analysis Type: VOA
Quant Type: ISTD
Operator: PB
Method File: /chem1/nt9.i/28AUG10.b/gasco.b/VO063010S.m
Misc Info: 10-

Calibration Date: 28-AUG-2010
Calibration Time: 14:51
Client Smp ID: VSTD050
Level: LOW
Sample Type: SOIL

Test Mode:
Use Initial Calibration Level 5.
If Continuing Cal. use Initial Cal. Level 5

COMPOUND	STANDARD	AREA LIMIT LOWER	AREA LIMIT UPPER	SAMPLE	%DIFF
32 Pentafluorobenzen	704281	352140	1408562	704281	0.00
35 1,4-Difluorobenze	937745	468872	1875490	937745	0.00
52 d5-Chlorobenzene	853013	426506	1706026	853013	0.00
75 d4-1,4-Dichlorobe	503655	251828	1007310	503655	0.00

COMPOUND	STANDARD	RT LIMIT LOWER	RT LIMIT UPPER	SAMPLE	%DIFF
32 Pentafluorobenzen	4.94	4.44	5.44	4.94	0.00
35 1,4-Difluorobenze	5.32	4.82	5.82	5.32	0.00
52 d5-Chlorobenzene	7.40	6.90	7.90	7.40	0.00
75 d4-1,4-Dichlorobe	9.11	8.61	9.61	9.11	0.00

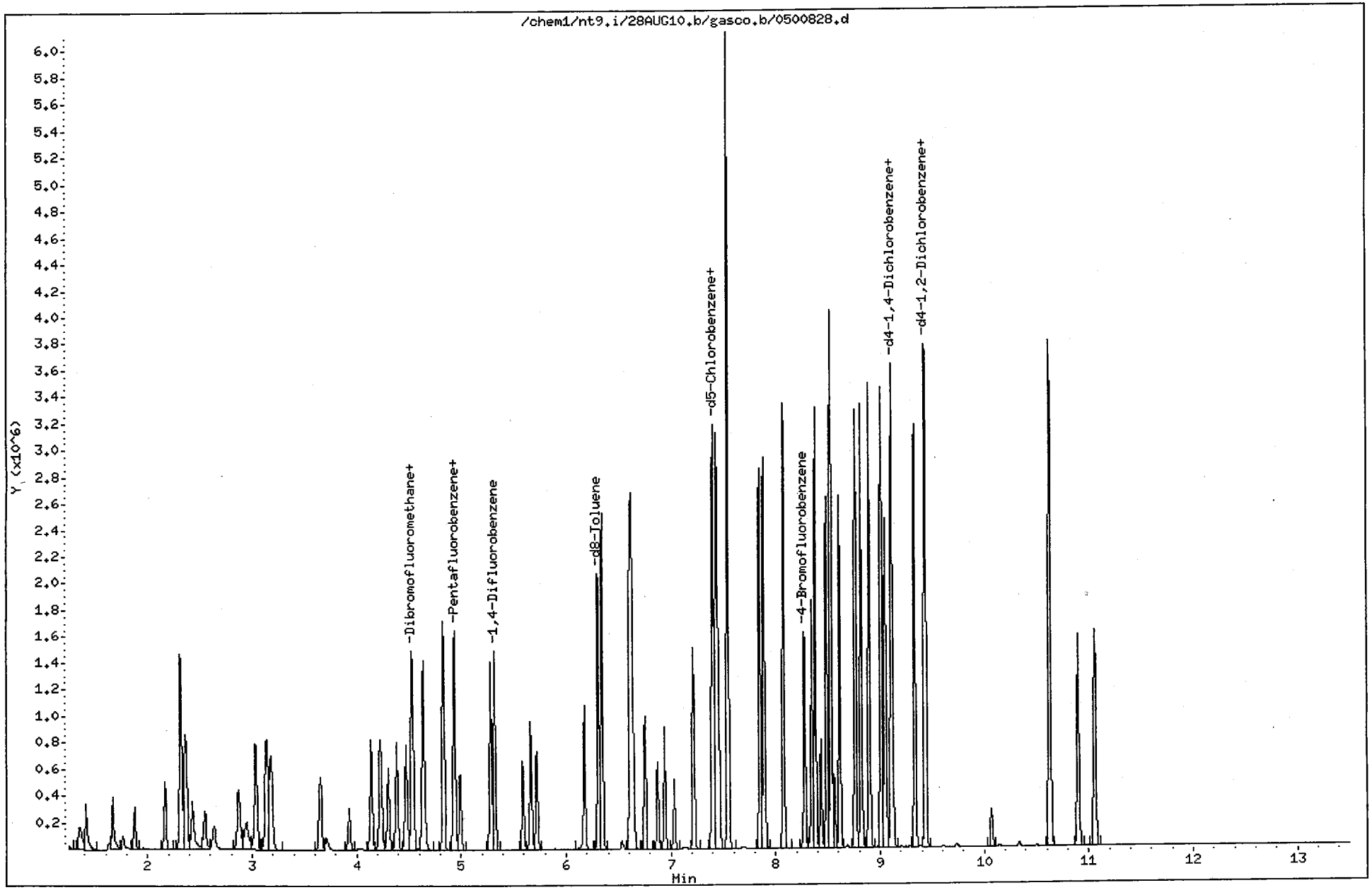
AREA UPPER LIMIT = +100% of internal standard area.
AREA LOWER LIMIT = - 50% of internal standard area.
RT UPPER LIMIT = + 0.50 minutes of internal standard RT.
RT LOWER LIMIT = - 0.50 minutes of internal standard RT.

Data File: /chem1/nt9.i/28AUG10.b/gasco.b/0500828.d
Date : 28-AUG-2010 14:51
Client ID: VSTD050
Sample Info: IC0828,5,5,0

Instrument: nt9.i

Operator: PB
Column diameter: 0.18

Column phase: RTX502.2



R081:00572

Analytical Resources, Inc.

8260C

Data file : /chem1/nt9.i/28AUG10.b/gasco.b/1000828.d
Lab Smp Id: IC0828 Client Smp ID: VSTD100
Inj Date : 28-AUG-2010 14:21
Operator : PB Inst ID: nt9.i
Smp Info : IC0828,5,5,0
Misc Info : 10-
Comment :
Method : /chem1/nt9.i/28AUG10.b/gasco.b/VO063010S.m
Meth Date : 18-Oct-2010 13:50 patrickb Quant Type: ISTD
Cal Date : 28-AUG-2010 14:21 Cal File: 1000828.d
Als bottle: 1 Calibration Sample, Level: 6
Dil Factor: 1.00000
Integrator: HP RTE Compound Sublist: gasco.sub
Target Version: 3.50
Processing Host: cserv3

10/18/10

Concentration Formula: Amt * DF * Pv * 1 / (Sa * ((100 - M) / 100)) * CpndVaria

Name	Value	Description
DF	1.00000	Dilution Factor
Pv	5.00000	Purge Volume
Sa	5.00000	Sample Amount
M	0.00000	% Moisture (not decanted)

Cpnd Variable Local Compound Variable

Compounds	QUANT SIG MASS	RT	EXP RT	REL RT	RESPONSE	AMOUNTS CAL-AMT (ug/Kg)	AMOUNTS ON-COL (ug/Kg)
3 Vinyl Chloride	62	1.409	1.407	(0.286)	616920	100.000	119.51
7 1,1-Dichloroethene	96	2.303	2.312	(0.467)	612323	100.000	120.02
15 Trans-1,2-Dichloroethene	96	3.027	3.036	(0.614)	667246	100.000	113.18
20 Cis-1,2-Dichloroethene	96	4.136	4.139	(0.838)	612984	100.000	109.73
23 Chloroform	83	4.385	4.382	(0.889)	969275	100.000	109.39
24 Carbon Tetrachloride	117	4.470	4.473	(0.840)	871845	100.000	121.32
* 32 Pentafluorobenzene	168	4.933	4.936	(1.000)	577839	50.0000	
$ 25 Dibromofluoromethane	111	4.532	4.529	(0.919)	218888	50.0000	50.660
$ 31 d4-1,2-Dichloroethane	65	4.939	4.936	(1.001)	219324	50.0000	49.442
29 2-Butanone	72	4.651	4.642	(0.943)	323582	500.000	576.97
30 Benzene	78	4.832	4.829	(0.908)	2300822	100.000	110.50
33 1,2-Dichloroethane	62	4.990	4.993	(0.937)	626143	100.000	104.54
* 35 1,4-Difluorobenzene	114	5.324	5.321	(1.000)	774194	50.0000	
34 Trichloroethene	95	5.284	5.281	(0.993)	647329	100.000	112.53

Compounds	QUANT SIG MASS	RT	EXP RT	REL RT	RESPONSE	AMOUNTS CAL-AMT (ug/Kg)	AMOUNTS ON-COL (ug/Kg)
$ 42 d8-Toluene	98	6.308	6.305	(1.185)	871932	50.0000	49.706
43 Toluene	92	6.342	6.345	(1.191)	1612019	100.000	108.94
44 Tetrachloroethene	166	6.608	6.611	(0.893)	877796	100.000	115.08
* 52 d5-Chlorobenzene	117	7.400	7.397	(1.000)	701708	50.0000	
53 Chlorobenzene	112	7.411	7.408	(1.002)	1813196	100.000	108.36
54 Ethyl Benzene	91	7.439	7.437	(1.005)	3264901	100.000	113.53
56 m,p-xylene	106	7.547	7.544	(1.020)	2711686	200.000	233.15
57 o-Xylene	106	7.852	7.850	(1.061)	1213342	100.000	111.99
$ 61 4-Bromofluorobenzene	95	8.277	8.274	(1.118)	323235	50.0000	49.735
* 75 d4-1,4-Dichlorobenzene	152	9.114	9.111	(1.000)	414842	50.0000	
76 1,4-Dichlorobenzene	146	9.125	9.122	(1.001)	1583421	100.000	106.37
$ 78 d4-1,2-Dichlorobenzene	152	9.436	9.434	(1.035)	358863	50.0000	49.487

Analytical Resources, Inc.

INTERNAL STANDARD COMPOUNDS
AREA AND RT SUMMARY

Instrument ID: nt9.i
Lab File ID: 1000828.d
Lab Smp Id: IC0828
Analysis Type: VOA
Quant Type: ISTD
Operator: PB
Method File: /chem1/nt9.i/28AUG10.b/gasco.b/VO063010S.m
Misc Info: 10-

Calibration Date: 28-AUG-2010
Calibration Time: 14:51
Client Smp ID: VSTD100
Level: LOW
Sample Type: SOIL

Test Mode:
Use Initial Calibration Level 5.
If Continuing Cal. use Initial Cal. Level 5

COMPOUND	STANDARD	AREA LIMIT LOWER	AREA LIMIT UPPER	SAMPLE	%DIFF
32 Pentafluorobenzen	704281	352140	1408562	577839	-17.95
35 1,4-Difluorobenze	937745	468872	1875490	774194	-17.44
52 d5-Chlorobenzene	853013	426506	1706026	701708	-17.74
75 d4-1,4-Dichlorobe	503655	251828	1007310	414842	-17.63

COMPOUND	STANDARD	RT LIMIT LOWER	RT LIMIT UPPER	SAMPLE	%DIFF
32 Pentafluorobenzen	4.94	4.44	5.44	4.93	-0.06
35 1,4-Difluorobenze	5.32	4.82	5.82	5.32	0.05
52 d5-Chlorobenzene	7.40	6.90	7.90	7.40	0.04
75 d4-1,4-Dichlorobe	9.11	8.61	9.61	9.11	0.03

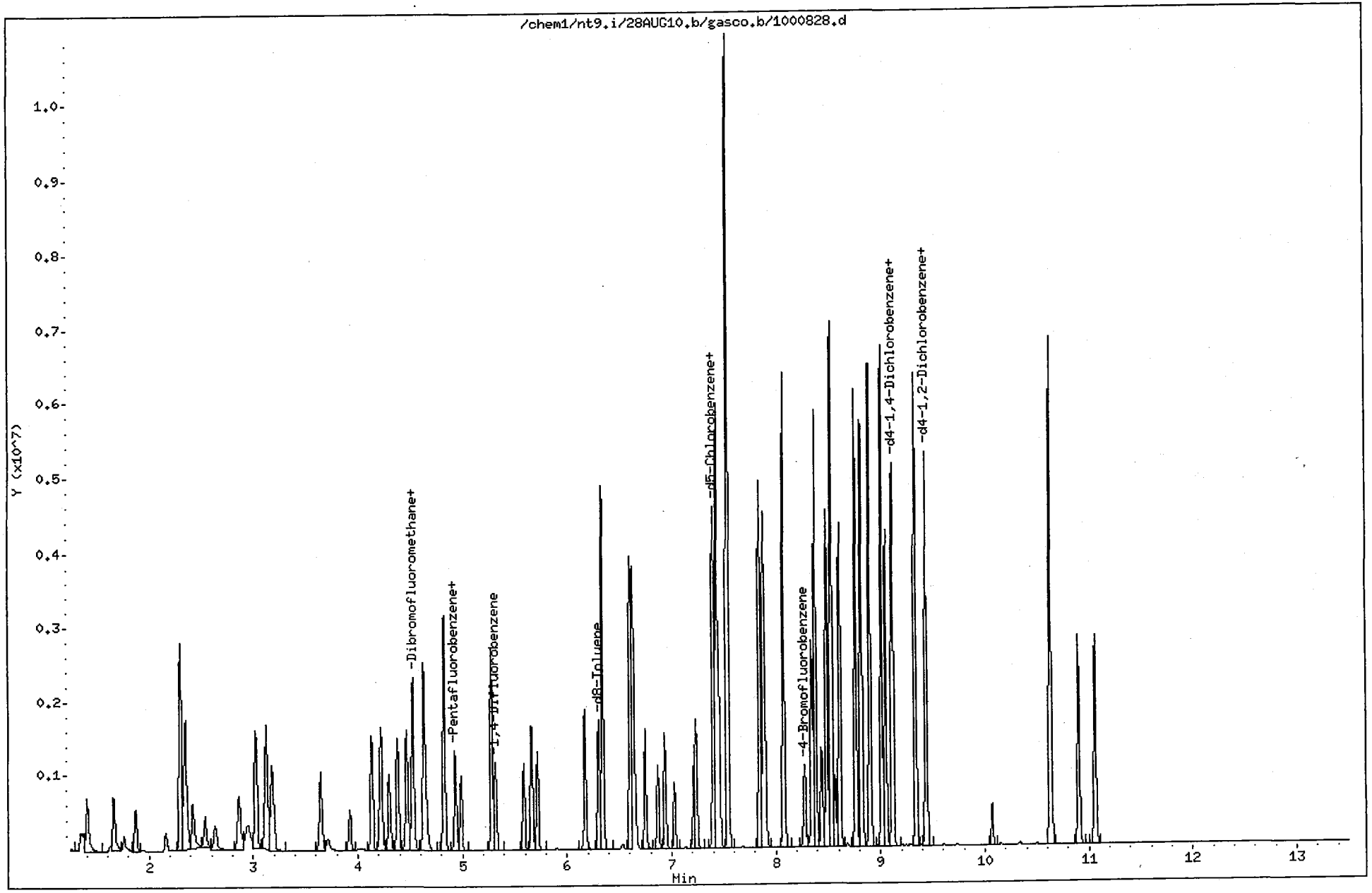
AREA UPPER LIMIT = +100% of internal standard area.
AREA LOWER LIMIT = - 50% of internal standard area.
RT UPPER LIMIT = + 0.50 minutes of internal standard RT.
RT LOWER LIMIT = - 0.50 minutes of internal standard RT.

Data File: /chem1/nt9.i/28AUG10.b/gasco.b/1000828.d
Date : 28-AUG-2010 14:21
Client ID: VSTD100
Sample Info: IC0828,5,5,0

Column phase: RTX502.2

Instrument: nt9.i

Operator: PB
Column diameter: 0.18



R081 : 00075

Analytical Resources, Inc.

8260C

Data file : /chem1/nt9.i/28AUG10.b/gasco.b/1500828.d
Lab Smp Id: IC0828 Client Smp ID: VSTD150
Inj Date : 28-AUG-2010 13:51
Operator : PB Inst ID: nt9.i
Smp Info : IC0828,5,5,0
Misc Info : 10-
Comment :
Method : /chem1/nt9.i/28AUG10.b/gasco.b/VO063010S.m
Meth Date : 18-Oct-2010 13:51 patrickb Quant Type: ISTD
Cal Date : 28-AUG-2010 13:51 Cal File: 1500828.d
Als bottle: 1 Calibration Sample, Level: 7
Dil Factor: 1.00000
Integrator: HP RTE Compound Sublist: gasco.sub
Target Version: 3.50
Processing Host: cserv3

Concentration Formula: Amt * DF * Pv * 1 / (Sa * ((100 - M) / 100)) * CpndVaria

Name	Value	Description
DF	1.00000	Dilution Factor
Pv	5.00000	Purge Volume
Sa	5.00000	Sample Amount
M	0.00000	% Moisture (not decanted)

Cpnd Variable Local Compound Variable

Compounds	QUANT SIG MASS	RT	EXP RT	REL RT	RESPONSE	AMOUNTS CAL-AMT (ug/Kg)	ON-COL (ug/Kg)
3 Vinyl Chloride	62	1.403	1.407	(0.284)	959765	150.000	165.55
7 1,1-Dichloroethene	96	2.297	2.312	(0.466)	226199	150.000	39.477
15 Trans-1,2-Dichloroethene	96	3.021	3.036	(0.612)	1084953	150.000	163.86
20 Cis-1,2-Dichloroethene	96	4.135	4.139	(0.838)	1020798	150.000	162.71
23 Chloroform	83	4.384	4.382	(0.889)	1618355	150.000	162.63
24 Carbon Tetrachloride	117	4.469	4.473	(0.840)	1423243	150.000	175.56
* 32 Pentafluorobenzene	168	4.933	4.936	(1.000)	648980	50.0000	
$ 25 Dibromofluoromethane	111	4.531	4.529	(0.919)	252207	50.0000	51.972
$ 31 d4-1,2-Dichloroethane	65	4.938	4.936	(1.001)	249417	50.0000	50.062
29 2-Butanone	72	4.655	4.642	(0.944)	502468	750.000	797.73
30 Benzene	78	4.825	4.829	(0.906)	3837983	150.000	163.39
33 1,2-Dichloroethane	62	4.989	4.993	(0.937)	1073167	150.000	158.83
* 35 1,4-Difluorobenzene	114	5.323	5.321	(1.000)	873392	50.0000	
34 Trichloroethene	95	5.283	5.281	(0.993)	1048917	150.000	161.63

Compounds	QUANT SIG MASS	RT	EXP RT	REL RT	RESPONSE	AMOUNTS CAL-AMT (ug/Kg)	AMOUNTS ON-COL (ug/Kg)
$ 42 d8-Toluene	98	6.307	6.305	(1.185)	984102	50.0000	49.729
43 Toluene	92	6.341	6.345	(1.191)	2678205	150.000	160.44
44 Tetrachloroethene	166	6.607	6.611	(0.893)	1425322	150.000	162.60
* 52 d5-Chlorobenzene	117	7.399	7.397	(1.000)	806370	50.0000	
53 Chlorobenzene	112	7.410	7.408	(1.002)	3098562	150.000	161.14
54 Ethyl Benzene	91	7.439	7.437	(1.005)	5482264	150.000	165.89
56 m,p-xylene	106	7.546	7.544	(1.020)	4419442	300.000	330.66
57 o-Xylene	106	7.852	7.850	(1.061)	2056807	150.000	165.19
$ 61 4-Bromofluorobenzene	95	8.281	8.274	(1.119)	368820	50.0000	49.384
* 75 d4-1,4-Dichlorobenzene	152	9.119	9.111	(1.000)	478126	50.0000	
76 1,4-Dichlorobenzene	146	9.130	9.122	(1.001)	2776568	150.000	161.83
$ 78 d4-1,2-Dichlorobenzene	152	9.441	9.434	(1.035)	419222	50.0000	50.158

Analytical Resources, Inc.

INTERNAL STANDARD COMPOUNDS
AREA AND RT SUMMARY

Instrument ID: nt9.i
Lab File ID: 1500828.d
Lab Smp Id: IC0828
Analysis Type: VOA
Quant Type: ISTD
Operator: PB
Method File: /chem1/nt9.i/28AUG10.b/gasco.b/VO063010S.m
Misc Info: 10-

Calibration Date: 28-AUG-2010
Calibration Time: 14:51
Client Smp ID: VSTD150
Level: LOW
Sample Type: SOIL

Test Mode:
Use Initial Calibration Level 5.
If Continuing Cal. use Initial Cal. Level 5

COMPOUND	STANDARD	AREA LIMIT LOWER	AREA LIMIT UPPER	SAMPLE	%DIFF
32 Pentafluorobenzen	704281	352140	1408562	648980	-7.85
35 1,4-Difluorobenze	937745	468872	1875490	873392	-6.86
52 d5-Chlorobenzene	853013	426506	1706026	806370	-5.47
75 d4-1,4-Dichlorobe	503655	251828	1007310	478126	-5.07

COMPOUND	STANDARD	RT LIMIT LOWER	RT LIMIT UPPER	SAMPLE	%DIFF
32 Pentafluorobenzen	4.94	4.44	5.44	4.93	-0.08
35 1,4-Difluorobenze	5.32	4.82	5.82	5.32	0.04
52 d5-Chlorobenzene	7.40	6.90	7.90	7.40	0.03
75 d4-1,4-Dichlorobe	9.11	8.61	9.61	9.12	0.08

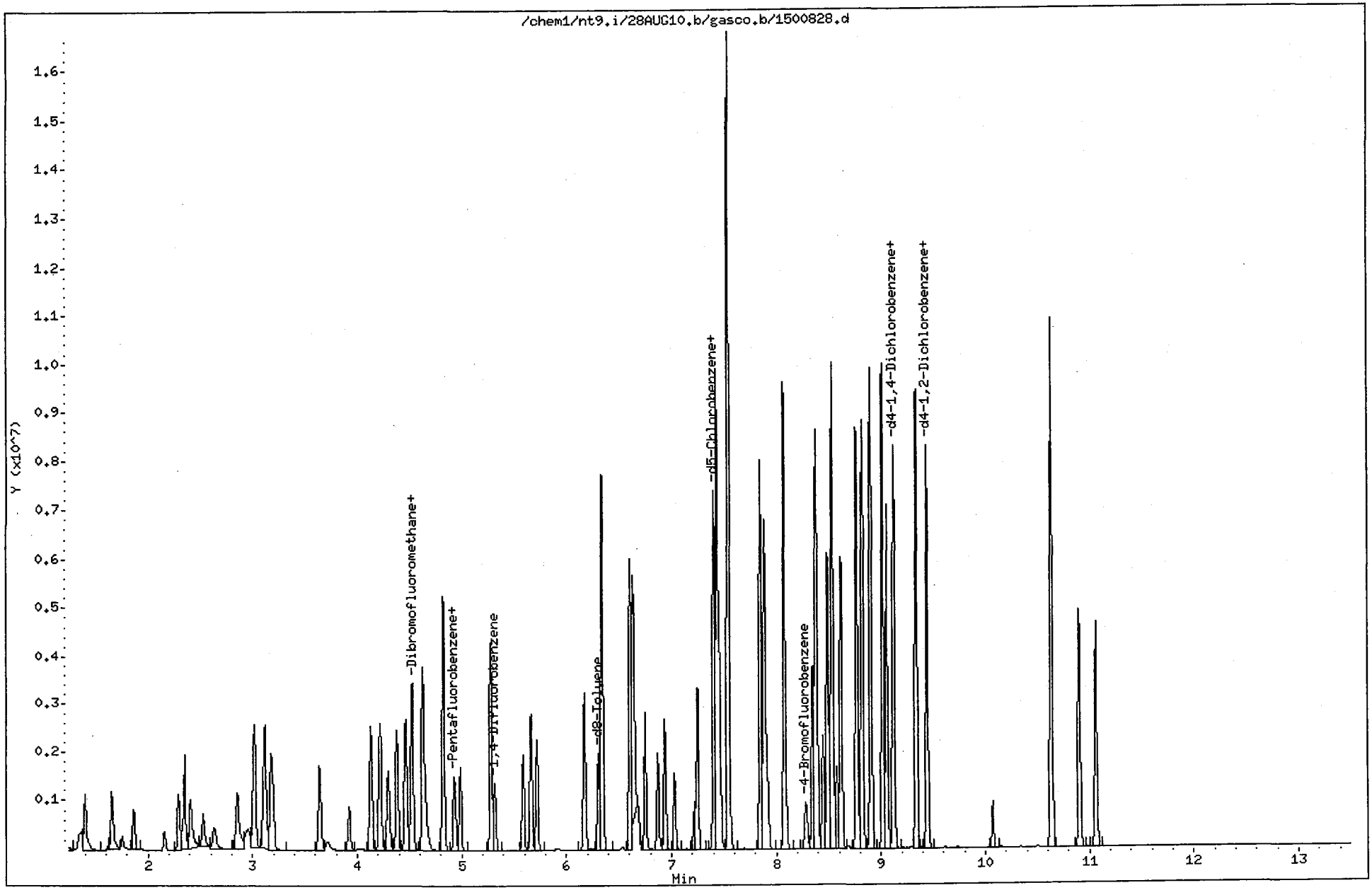
AREA UPPER LIMIT = +100% of internal standard area.
AREA LOWER LIMIT = - 50% of internal standard area.
RT UPPER LIMIT = + 0.50 minutes of internal standard RT.
RT LOWER LIMIT = - 0.50 minutes of internal standard RT.

Data File: /chem1/nt9.i/28AUG10.b/gasco.b/1500828.d
Date : 28-AUG-2010 13:51
Client ID: VSTD150
Sample Info: IC0828,5,5,0

Column phase: RTX502.2

Instrument: nt9.i

Operator: PB
Column diameter: 0.18



R031 : 00050

Analytical Resources, Inc.

8260C

Data file : /chem1/nt9.i/28AUG10.b/gasco.b/2000828.d
Lab Smp Id: IC0828 Client Smp ID: VSTD200
Inj Date : 28-AUG-2010 13:21
Operator : PB Inst ID: nt9.i
Smp Info : IC0828,5,5,0
Misc Info : 10-
Comment :
Method : /chem1/nt9.i/28AUG10.b/gasco.b/VO063010S.m
Meth Date : 18-Oct-2010 13:51 patrickb Quant Type: ISTD
Cal Date : 28-AUG-2010 13:21 Cal File: 2000828.d
Als bottle: 1 Calibration Sample, Level: 8
Dil Factor: 1.00000
Integrator: HP RTE Compound Sublist: gasco.sub
Target Version: 3.50
Processing Host: cserv3

Concentration Formula: Amt * DF * Pv * 1 / (Sa * ((100 - M) / 100)) * CpndVaria

Name	Value	Description
DF	1.00000	Dilution Factor
Pv	5.00000	Purge Volume
Sa	5.00000	Sample Amount
M	0.00000	% Moisture (not decanted)

Cpnd Variable Local Compound Variable

Compounds	QUANT SIG MASS	RT	EXP RT	REL RT	RESPONSE	AMOUNTS CAL-AMT (ug/Kg)	AMOUNTS ON-COL (ug/Kg)
3 Vinyl Chloride	62	1.406	1.407	(0.285)	1219685	200.000	213.30
7 1,1-Dichloroethene	96	2.294	2.312	(0.465)	282248	200.000	49.945
15 Trans-1,2-Dichloroethene	96	3.018	3.036	(0.612)	1457472	200.000	223.18
20 Cis-1,2-Dichloroethene	96	4.133	4.139	(0.838)	1376931	200.000	222.52
23 Chloroform	83	4.382	4.382	(0.889)	2185253	200.000	222.65
24 Carbon Tetrachloride	117	4.466	4.473	(0.839)	1881538	200.000	235.40
* 32 Pentafluorobenzene	168	4.930	4.936	(1.000)	640076	50.0000	
$ 25 Dibromofluoromethane	111	4.529	4.529	(0.919)	249487	50.0000	52.127
$ 31 d4-1,2-Dichloroethane	65	4.936	4.936	(1.001)	244940	50.0000	49.848
29 2-Butanone	72	4.659	4.642	(0.945)	664069	1000.00	1069.0
30 Benzene	78	4.828	4.829	(0.908)	5216825	200.000	225.25
33 1,2-Dichloroethane	62	4.993	4.993	(0.938)	1436910	200.000	215.69
* 35 1,4-Difluorobenzene	114	5.321	5.321	(1.000)	861135	50.0000	
34 Trichloroethene	95	5.281	5.281	(0.993)	1431429	200.000	223.71

Compounds	QUANT SIG MASS	RT	EXP RT	REL RT	RESPONSE	AMOUNTS CAL-AMT (ug/Kg)	AMOUNTS ON-COL (ug/Kg)
$ 42 d8-Toluene	98	6.305	6.305	(1.185)	971664	50.0000	49.799
43 Toluene	92	6.344	6.345	(1.192)	3655611	200.000	222.11
44 Tetrachloroethene	166	6.610	6.611	(0.893)	1956752	200.000	224.16
* 52 d5-Chlorobenzene	117	7.402	7.397	(1.000)	803012	50.0000	
53 Chlorobenzene	112	7.414	7.408	(1.002)	4283165	200.000	223.67
54 Ethyl Benzene	91	7.442	7.437	(1.005)	7556256	200.000	229.61
56 m,p-xylene	106	7.549	7.544	(1.020)	5798209	400.000	435.63
57 o-Xylene	106	7.855	7.850	(1.061)	2840377	200.000	229.08
$ 61 4-Bromofluorobenzene	95	8.302	8.274	(1.121)	365719	50.0000	49.173
* 75 d4-1,4-Dichlorobenzene	152	9.128	9.111	(1.000)	480939	50.0000	
76 1,4-Dichlorobenzene	146	9.139	9.122	(1.001)	3902870	200.000	226.14
$ 78 d4-1,2-Dichlorobenzene	152	9.450	9.434	(1.035)	417003	50.0000	49.601

Analytical Resources, Inc.

INTERNAL STANDARD COMPOUNDS
AREA AND RT SUMMARY

Instrument ID: nt9.i
Lab File ID: 2000828.d
Lab Smp Id: IC0828
Analysis Type: VOA
Quant Type: ISTD
Operator: PB
Method File: /chem1/nt9.i/28AUG10.b/gasco.b/VO063010S.m
Misc Info: 10-

Calibration Date: 28-AUG-2010
Calibration Time: 14:51
Client Smp ID: VSTD200
Level: LOW
Sample Type: SOIL

Test Mode:
Use Initial Calibration Level 5.
If Continuing Cal. use Initial Cal. Level 5

COMPOUND	STANDARD	AREA LIMIT LOWER	AREA LIMIT UPPER	SAMPLE	%DIFF
32 Pentafluorobenzen	704281	352140	1408562	640076	-9.12
35 1,4-Difluorobenze	937745	468872	1875490	861135	-8.17
52 d5-Chlorobenzene	853013	426506	1706026	803012	-5.86
75 d4-1,4-Dichlorobe	503655	251828	1007310	480939	-4.51

COMPOUND	STANDARD	RT LIMIT LOWER	RT LIMIT UPPER	SAMPLE	%DIFF
32 Pentafluorobenzen	4.94	4.44	5.44	4.93	-0.12
35 1,4-Difluorobenze	5.32	4.82	5.82	5.32	-0.01
52 d5-Chlorobenzene	7.40	6.90	7.90	7.40	0.07
75 d4-1,4-Dichlorobe	9.11	8.61	9.61	9.13	0.18

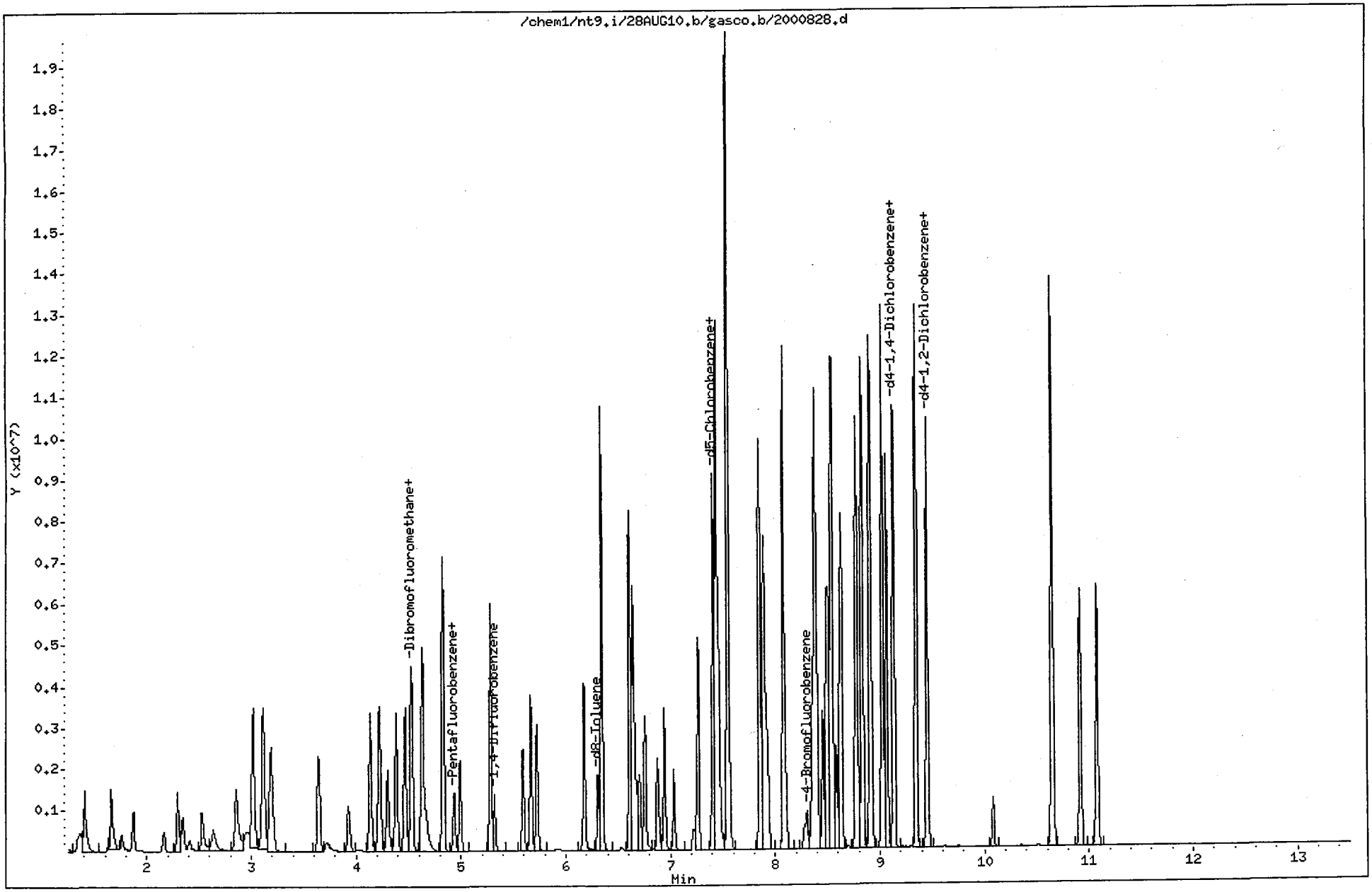
AREA UPPER LIMIT = +100% of internal standard area.
AREA LOWER LIMIT = - 50% of internal standard area.
RT UPPER LIMIT = + 0.50 minutes of internal standard RT.
RT LOWER LIMIT = - 0.50 minutes of internal standard RT.

Data File: /chem1/nt9.i/28AUG10.b/gasco.b/2000828.d
Date : 28-AUG-2010 13:21
Client ID: VSTD200
Sample Info: IC0828,5,5,0

Column phase: RTX502.2

Instrument: nt9.i

Operator: PB
Column diameter: 0.18



R0811 : 00081

Analytical Resources, Inc.

8260C

Data file : /chem1/nt9.i/28AUG10.b/gasco.b/icv0828.d
Lab Smp Id: ICV0828 Client Smp ID: ICV0828
Inj Date : 28-AUG-2010 18:21
Operator : PB Inst ID: nt9.i
Smp Info : ICV0828,5,5,0
Misc Info : 10-
Comment :
Method : /chem1/nt9.i/28AUG10.b/gasco.b/VO063010S.m
Meth Date : 18-Oct-2010 13:57 patrickb Quant Type: ISTD
Cal Date : 28-AUG-2010 13:21 Cal File: 2000828.d
Als bottle: 1 QC Sample: LCS
Dil Factor: 1.00000
Integrator: HP RTE Compound Sublist: gasco.sub
Target Version: 3.50
Processing Host: cserv3

Concentration Formula: Amt * DF * Pv * 1 / (Sa * ((100 - M) / 100)) * CpndVaria

Name	Value	Description
DF	1.00000	Dilution Factor
Pv	5.00000	Purge Volume
Sa	5.00000	Sample Amount
M	0.00000	% Moisture (not decanted)

Cpnd Variable Local Compound Variable

Compounds	QUANT SIG MASS	RT	EXP RT	REL RT	RESPONSE	CONCENTRATIONS ON-COLUMN (ug/Kg)	FINAL (ug/Kg)
3 Vinyl Chloride	62	1.409	1.407	(0.286)	292616	50.9389	50.939
7 1,1-Dichloroethene	96	2.314	2.312	(0.469)	294499	51.8730	51.873
15 Trans-1,2-Dichloroethene	96	3.032	3.036	(0.615)	322932	49.2228	49.223
20 Cis-1,2-Dichloroethene	96	4.141	4.139	(0.839)	310696	49.9804	49.980
23 Chloroform	83	4.384	4.382	(0.889)	494333	50.1345	50.134
24 Carbon Tetrachloride	117	4.475	4.473	(0.841)	383674	48.3047	48.305
* 32 Pentafluorobenzene	168	4.933	4.936	(1.000)	643032	50.0000	
$ 25 Dibromofluoromethane	111	4.531	4.529	(0.919)	238899	49.6853	49.685
$ 31 d4-1,2-Dichloroethane	65	4.939	4.936	(1.001)	248940	50.4287	50.429
29 2-Butanone	72	4.644	4.642	(0.942)	155543	249.228	249.23
30 Benzene	78	4.831	4.829	(0.908)	1154612	50.1683	50.168
33 1,2-Dichloroethane	62	4.989	4.993	(0.937)	337480	50.9785	50.978
* 35 1,4-Difluorobenzene	114	5.323	5.321	(1.000)	855721	50.0000	
34 Trichloroethene	95	5.284	5.281	(0.993)	318689	50.1215	50.121

Compounds	QUANT SIG MASS	RT	EXP RT	REL RT	RESPONSE	CONCENTRATIONS ON-COLUMN (ug/Kg)	FINAL (ug/Kg)
$ 42 d8-Toluene	98	6.307	6.305	(1.185)	976850	50.3820	50.382
43 Toluene	92	6.341	6.345	(1.191)	803253	49.1138	49.114
44 Tetrachloroethene	166	6.607	6.611	(0.893)	418104	49.4354	49.435
* 52 d5-Chlorobenzene	117	7.399	7.397	(1.000)	778023	50.0000	
53 Chlorobenzene	112	7.411	7.408	(1.002)	913646	49.2442	49.244
54 Ethyl Benzene	91	7.439	7.437	(1.005)	1586757	49.7645	49.764
56 m,p-xylene	106	7.546	7.544	(1.020)	1314112	101.903	101.90
57 o-Xylene	106	7.846	7.850	(1.060)	604545	50.3238	50.324
$ 61 4-Bromofluorobenzene	95	8.276	8.274	(1.119)	363565	50.4536	50.454
* 75 d4-1,4-Dichlorobenzene	152	9.108	9.111	(1.000)	462358	50.0000	(Q)
76 1,4-Dichlorobenzene	146	9.119	9.122	(1.001)	768233	46.3027	46.303
$ 78 d4-1,2-Dichlorobenzene	152	9.436	9.434	(1.036)	405284	50.1445	50.145(Q)

QC Flag Legend

Q - Qualifier signal failed the ratio test.

Analytical Resources, Inc.

INTERNAL STANDARD COMPOUNDS
AREA AND RT SUMMARY

Instrument ID: nt9.i
Lab File ID: icv0828.d
Lab Smp Id: ICV0828
Analysis Type: VOA
Quant Type: ISTD
Operator: PB
Method File: /chem1/nt9.i/28AUG10.b/gasco.b/VO063010S.m
Misc Info: 10-

Calibration Date: 28-AUG-2010
Calibration Time: 14:51
Client Smp ID: ICV0828
Level: LOW
Sample Type: SOIL

Test Mode:
Use Initial Calibration Level 5.
If Continuing Cal. use Initial Cal. Level 5

COMPOUND	STANDARD	AREA LIMIT LOWER	AREA LIMIT UPPER	SAMPLE	%DIFF
32 Pentafluorobenzen	704281	352140	1408562	643032	-8.70
35 1,4-Difluorobenze	937745	468872	1875490	855721	-8.75
52 d5-Chlorobenzene	853013	426506	1706026	778023	-8.79
75 d4-1,4-Dichlorobe	503655	251828	1007310	462358	-8.20

COMPOUND	STANDARD	RT LIMIT LOWER	RT LIMIT UPPER	SAMPLE	%DIFF
32 Pentafluorobenzen	4.94	4.44	5.44	4.93	-0.07
35 1,4-Difluorobenze	5.32	4.82	5.82	5.32	0.04
52 d5-Chlorobenzene	7.40	6.90	7.90	7.40	0.03
75 d4-1,4-Dichlorobe	9.11	8.61	9.61	9.11	-0.04

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.

Analytical Resources, Inc.

RECOVERY REPORT

Client Name:
Sample Matrix: SOLID
Lab Smp Id: ICV0828
Level: LOW
Data Type: MS DATA
SpikeList File: gasco.spk
Sublist File: gasco.sub
Method File: /chem1/nt9.i/28AUG10.b/gasco.b/VO063010S.m
Misc Info: 10-

Client SDG: 28AUG10
Fraction: VOA
Client Smp ID: ICV0828
Operator: PB
SampleType: LCS
Quant Type: ISTD

SPIKE COMPOUND	CONC ADDED ug/Kg	CONC RECOVERED ug/Kg	% RECOVERED	LIMITS
3 Vinyl Chloride	50.000	50.939	101.88	63-137
7 1,1-Dichloroethene	50.000	51.873	103.75	75-126
15 Trans-1,2-Dichloro	50.000	49.223	98.45	80-120
20 Cis-1,2-Dichloroet	50.000	49.980	99.96	80-120
23 Chloroform	50.000	50.134	100.27	80-120
24 Carbon Tetrachlori	50.000	48.305	96.61	77-122
29 2-Butanone	250.00	249.23	99.69	70-120
30 Benzene	50.000	50.168	100.34	80-120
33 1,2-Dichloroethane	50.000	50.978	101.96	76-120
34 Trichloroethene	50.000	50.121	100.24	80-120
43 Toluene	50.000	49.114	98.23	80-120
44 Tetrachloroethene	50.000	49.435	98.87	80-121
53 Chlorobenzene	50.000	49.244	98.49	80-120
54 Ethyl Benzene	50.000	49.764	99.53	80-127
56 m,p-xylene	100.00	101.90	101.90	80-125
57 o-Xylene	50.000	50.324	100.65	78-120
76 1,4-Dichlorobenzen	50.000	46.303	92.61	80-120

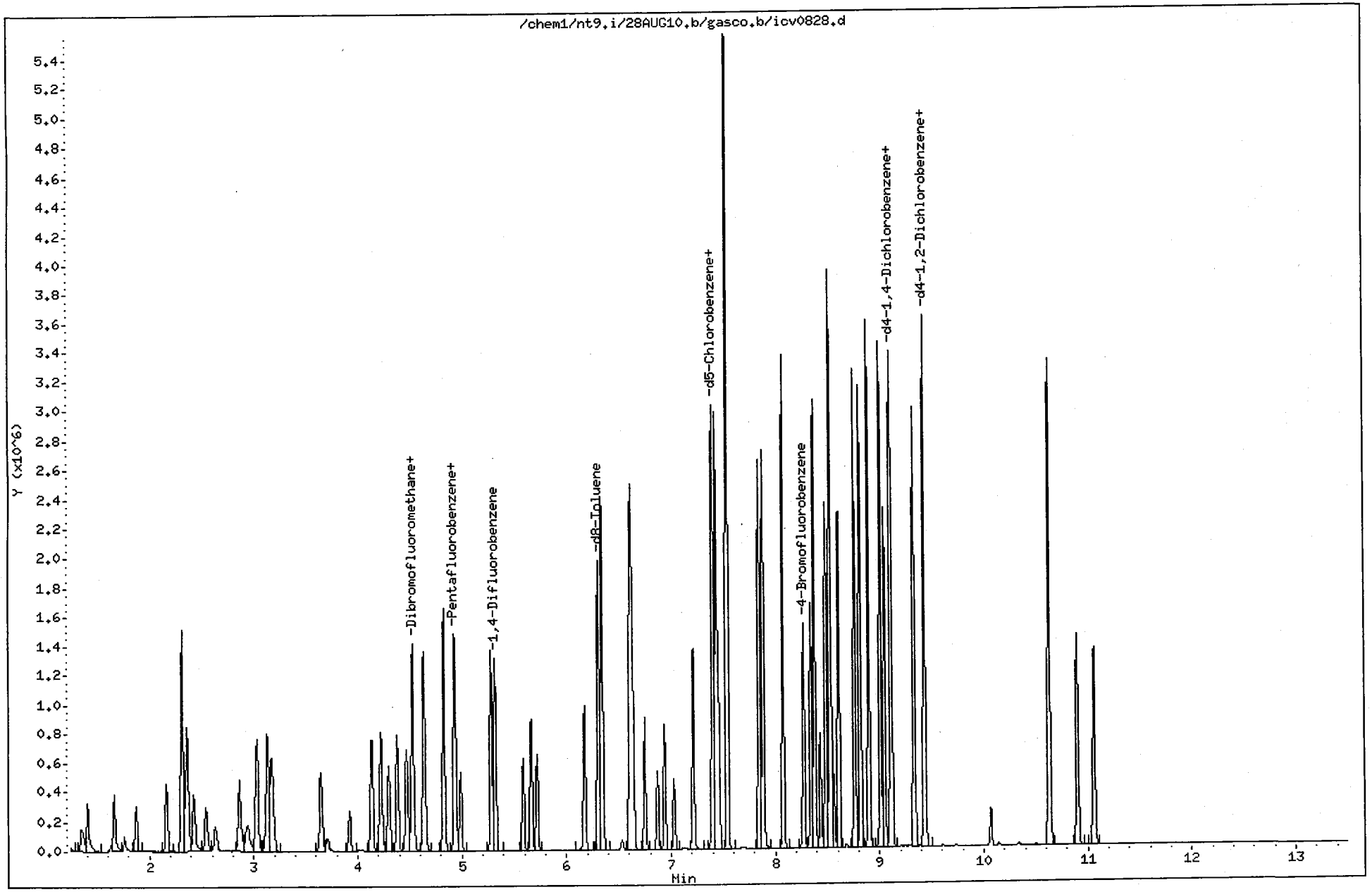
SURROGATE COMPOUND	AMOUNT ADDED ug/Kg	AMOUNT RECOVERED ug/Kg	% RECOVERED	LIMITS
$ 25 Dibromofluorometha	50.000	49.685	99.37	30-160
$ 31 d4-1,2-Dichloroeth	50.000	50.429	100.86	75-152
$ 42 d8-Toluene	50.000	50.382	100.76	82-115
$ 61 4-Bromofluorobenze	50.000	50.454	100.91	64-120
$ 78 d4-1,2-Dichloroben	50.000	50.145	100.29	80-120

Data File: /chem1/nt9.i/28AUG10.b/gasco.b/icv0828.d
Date : 28-AUG-2010 18:21
Client ID: ICV0828
Sample Info: ICV0828,5,5,0

Instrument: nt9.i

Operator: PB
Column diameter: 0.18

Column phase: RTX502.2



00001 : 00089

Volatile Raw Data
Run Logs, Continuing Calibrations, and Raw Data

ARI Job ID: RQ84

Analytical Resources, Incorporated
Analytical Chemists and Consultants

VOA Analyst Notes / Corrective Action Log

ARI Project ID: RQ84 Client ID: MW Naturway

ARI SOP: **404S**(Gas) **410S**(BTEX) **430S**(VPH) **700S**(8260C) **703S**(SIM) **706S**(524.2) **710S**(RSK-175)

Parameter(s): _____

Instrument: NT-3 NT-5 NT-7 NT-9 NT-10 PID-1 PID-2 PID-3 FID-6 FINN-5

Purge Volume (mL) 5 Curve Date: 8/24/10 Analysis Start Date: 10/15/10

pH ≤ 2.0	YES / NO / NA	Method Blank In Control?	YES / NO
BFB Tune Meets Criteria?	YES / NO / NA	LCS / LCSD Recovery In Control?	YES / NO
Internal Standard Meets Criteria?	YES / NO / NA	Surrogate Recovery In Control?	YES / NO
ICal acceptable?	YES / NO	CCal acceptable?	YES / NO
Q flag applied?	YES / NO / NA	Q flag applied?	YES / NO / NA
Manual Integrations for ICal?	YES / NO	Manual Integrations for Samples?	Yes / NO
Special Analysis Criteria Met?	YES / NO / NA		

Bubbles/Headspace: None SM (≤ 2mm •) PB (2-4mm) LG (> 4mm ●) Head Space

Detail problems, corrective actions and/or other pertinent information below (use reverse side when necessary):

Samples B, C, D, E run med level due to oily nature

QC run on A

Additional Details on Reverse: Yes / No

Analyst: _____ **Date:** 10/21/10

Reviewer: _____ **Date:** 10/21/10

Form 8042F Version 006 6/18/10

RQ84 : 00091

Analytical Resources Inc.: Volatile Organics Instrument Log

NT-9 Serial No.:GC=US00021704, MS=US80230047

Date: 10/15/10 Analysis: 8260C Analyst: P

GC Program: V07A Column No: 562075 Column Type: MXY

Instrument Tune (.U or .CT.): bfb10150 EM Voltage: 1259

Calibration File: 0501015 Curve Date: 8/28/10

IS/SS	Ical/Ccal	LCS/ICV
W652-1	W652-2	W652-2

INTERNAL STANDARD SUMMARY FOR DATABATCH - /chem1/nt9.i/15OCT10.b

	Time	Filename	LabID	ClientID	WT											
1	0958	bfb10150.d	BFB1015	BFB1015	0.00											
2	1101	0501015.d	CC1015	VSTD050	5.00	4.93	578366	5.32	779072	7.40	696653	9.11	393482			
3	1131	lcs1015.d	LCS1015	LCS1015	5.00	4.93	580374	5.32	779721	7.40	693013	9.11	386509			
4	1201	lcs1015a.d	LCS1015	LCS1015	5.00	4.93	618378	5.32	824989	7.40	735755	9.11	405851			
5	1231	mb1015.d	MB1015	MB1015	5.00	4.94	653148	5.32	867669	7.40	765328	9.11	416733			
6	1306	rq84a.d	RQ84A	DGS-30-0113.9-10100	5.00	4.94	655055	5.32	887991	7.40	793107	9.11	432162			
7	1336	rq84b.d	RQ84B	DGS-19-3.34.1-10100	5.00	4.93	586196	5.32	790289	7.39	695665	9.11	380556			
8	1406	rq84c.d	RQ84C	DGS-19-4.48.2-10100	5.00	4.94	587531	5.32	791777	7.40	699453	9.11	384360			
9	1436	rq84d.d	RQ84D	DGS-19-10.210.9-101	5.00	4.93	584235	5.32	793881	7.39	703968	9.11	380790			
10	1506	rq84e.d	RQ84E	DGS-08-4.44.6-10100	5.00	4.93	509476	5.32	694085	7.39	607079	9.11	323446			
11	1536	rq84ams.d	RQ84AMS	DGS-30-0113.9-10MS	5.00	4.94	695685	5.32	936643	7.40	858308	9.11	496253			
12	1607	rq84amsd.d	RQ84AMSD	DGS-30-0113.9-10MSD	5.00	4.93	698969	5.32	940627	7.40	859261	9.11	502047			
13	1637	rq84b2.d	RQ84B	DGS-19-3.34.1-10100	5.00	4.93	574860	5.32	767231	7.40	673927	9.11	365325			
14	1707	rq84c2.d	RQ84C	DGS-19-4.48.2-10100	5.00	4.93	663759	5.32	877253	7.40	776624	9.12	429849			
15	1737	rq84d2.d	RQ84D	DGS-19-10.210.9-101	5.00	4.93	688573	5.32	917607	7.39	810225	9.11	448713			
16	1807	rq84e2.d	RQ84E	DGS-08-4.44.6-10100	5.00	4.94	665631	5.32	882526	7.40	775712	9.11	424733			
17	1837	rq16a.d	RQ16A	DGS-13-0006-101005	5.00	4.94	716789	5.32	953099	7.40	852414	9.11	476000			
18	1907	rr02a.d	RR02A	DGS-31-011.9-101011	5.00	4.94	708019	5.32	938802	7.40	846350	9.11	476463			
19	1938	rr02b.d	RR02B	DGS-26-015.4-101011	5.00	4.94	647500	5.32	865382	7.40	768333	9.11	421665			
20	2008	rr02c.d	RR02C	DGS-32-2.83.8-10101	5.00	4.93	681831	5.32	909746	7.40	820443	9.11	466263			
21	2038	rr07a.d	RR07A	DGS-18-004.5-101008	5.00	4.93	598533	5.32	798030	7.40	704385	9.11	386524			
22	2108	rr39a.d	RR39A	DGS-18-015.5-101008	5.00	4.93	666530	5.32	893623	7.40	795331	9.11	442179			
23	2139	rr39ams.d	RR39AMS	DGS-18-015.5-1010MS	5.00	4.93	688234	5.32	909297	7.40	820598	9.11	473020			
24	2209	rq94a0.d	RQ94A		5.00	4.94	611386	5.32	812975	7.40	720100	9.11	395432			

MANUAL INTEGRATION SUMMARY FOR DATABATCH - /chem1/nt9.i/15OCT10.b/gasco.b

ARI Job No.: BFB1 Method: bfb8260.m Instrument: nt9.i Date: 15-OCT-2010

Time	Filename	LabID	ClientId	DF	Manually Integrated Compounds
0958	bfb10150.d	BFB1015	BFB1015	1	NO MANUAL INTEGRATION
1101	0501015.d	CC1015	VSTD050	1	NO MANUAL INTEGRATION
1131	lcs1015.d	LCS1015	LCS1015	1	NO MANUAL INTEGRATION
1201	lcs1015a.d	LCS1015	LCS1015	1	NO MANUAL INTEGRATION
1231	mb1015.d	MB1015	MB1015	1	NO MANUAL INTEGRATION
1306	rq84a.d	RQ84A	DGS-30-011	1	NO MANUAL INTEGRATION
1536	rq84ams.d	RQ84AMS	DGS-30-011	1	NO MANUAL INTEGRATION
1607	rq84amsd.d	RQ84AMSD	DGS-30-011	1	NO MANUAL INTEGRATION
1637	rq84b2.d	RQ84B	DGS-19-3.3	1	NO MANUAL INTEGRATION
1707	rq84c2.d	RQ84C	DGS-19-4.4	1	NO MANUAL INTEGRATION
1737	rq84d2.d	RQ84D	DGS-19-10.	1	NO MANUAL INTEGRATION
1807	rq84e2.d	RQ84E	DGS-08-4.4	1	NO MANUAL INTEGRATION

Q-FLAG SUMMARY FOR DATABATCH - /chem1/nt9.i/15OCT10.b/gasco.b

Instrument: nt9.i Date: 15-OCT-2010 Method: gasco.b/VO063010S.m

INITIAL CAL: 28-AUG-2010

Compound	%RSD or R^2
NO Q-FLAGS	

CONTINUING CAL: 15-OCT-2010

Compound	%D
NO Q-FLAGS	

Data File: /chem1/nt9.i/15OCT10.b/gasco.b/bfb10150.d

Date : 15-OCT-2010 09:58

Client ID: BFB1015

Instrument: nt9.i

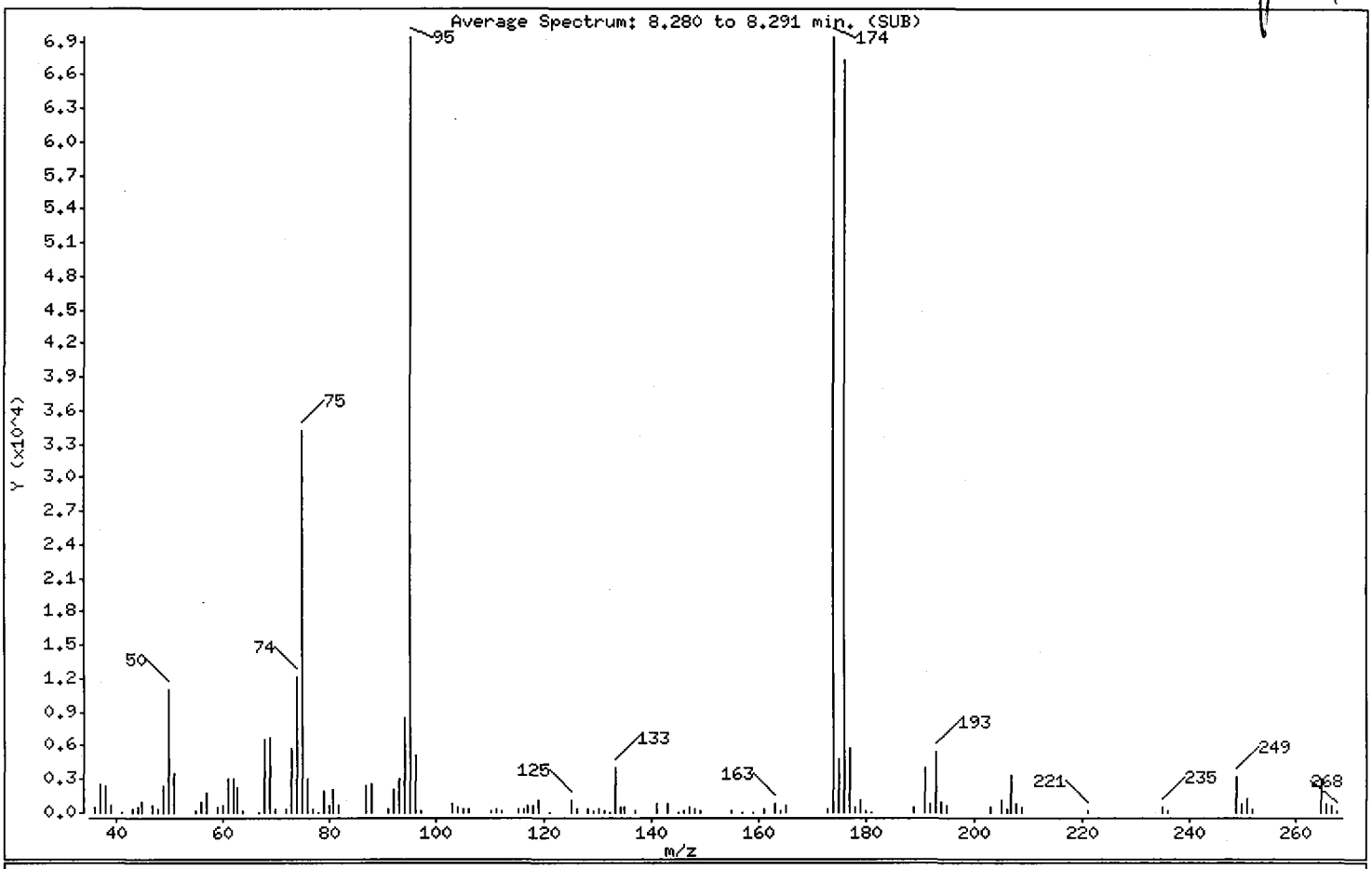
Sample Info: BFB1015,BFB1015,,1,15OCT10,,

Operator: PB

Column phase: RTX502.2

Column diameter: 0.18

1 Bromofluorobenzene



m/e	ION ABUNDANCE CRITERIA	% RELATIVE ABUNDANCE
95	Base Peak, 100% relative abundance	100.00
50	8.00 - 40.00% of mass 95	15.98
75	30.00 - 66.00% of mass 95	49.27
96	5.00 - 9.00% of mass 95	7.34
173	Less than 2.00% of mass 174	0.50 (0.50)
174	50.00 - 101.00% of mass 95	99.95
175	4.00 - 9.00% of mass 174	6.89 (6.90)
176	93.00 - 101.00% of mass 174	97.00 (97.04)
177	5.00 - 9.00% of mass 176	8.35 (8.61)

Data File: /chem1/nt9.i/15OCT10.b/gasco.b/bfb10150.d

Date : 15-OCT-2010 09:58

Client ID: BFB1015 Instrument: nt9.i

Sample Info: BFB1015,BFB1015,,1,15OCT10,,

Operator: PB

Column phase: RTX502.2 Column diameter: 0.18

Data File: bfb10150.d
Spectrum: Average Spectrum: 8.280 to 8.291 min. (SUB)
Location of Maximum: 95.00
Number of points: 116

m/z	Y	m/z	Y	m/z	Y	m/z	Y
36.00	475	76.00	2998	126.00	259	179.00	1109
37.00	2630	77.00	391	128.00	298	180.00	164
38.00	2385	78.00	71	129.00	121	181.00	58
39.00	618	79.00	1920	130.00	274	189.00	402
41.00	51	80.00	587	131.00	237	191.00	4054
43.00	397	81.00	2141	132.00	52	192.00	814
44.00	533	82.00	593	133.00	3969	193.00	5399
45.00	936	87.00	2441	134.00	548	194.00	940
47.00	635	88.00	2480	135.00	495	195.00	616
48.00	377	91.00	301	137.00	172	203.00	546
49.00	2415	92.00	2067	141.00	785	205.00	1079
50.00	11091	93.00	2966	143.00	852	206.00	275
51.00	3451	94.00	8451	145.00	67	207.00	3433
55.00	228	95.00	69424	146.00	122	208.00	789
56.00	925	96.00	5097	147.00	550	209.00	412
57.00	1725	97.00	141	148.00	252	221.00	178
59.00	519	103.00	861	149.00	239	235.00	422
60.00	603	104.00	529	155.00	218	236.00	102
61.00	3049	105.00	279	157.00	63	249.00	3122
62.00	2963	106.00	352	159.00	56	250.00	816
63.00	2291	110.00	190	161.00	356	251.00	1231
64.00	234	111.00	280	163.00	758	252.00	279
67.00	68	112.00	151	164.00	108	265.00	3001
68.00	6493	115.00	331	165.00	573	266.00	803
69.00	6698	116.00	347	173.00	346	267.00	635
70.00	318	117.00	682	174.00	69392	268.00	132
72.00	360	118.00	630	175.00	4786		
73.00	5749	119.00	1082	176.00	67336		
74.00	12227	121.00	64	177.00	5798		
75.00	34200	125.00	1126	178.00	531		

Data File: /chem1/nt9.i/15OCT10.b/gasco.b/bfb10150.d

Page 1

Date : 15-OCT-2010 09:58

Client ID: BFB1015

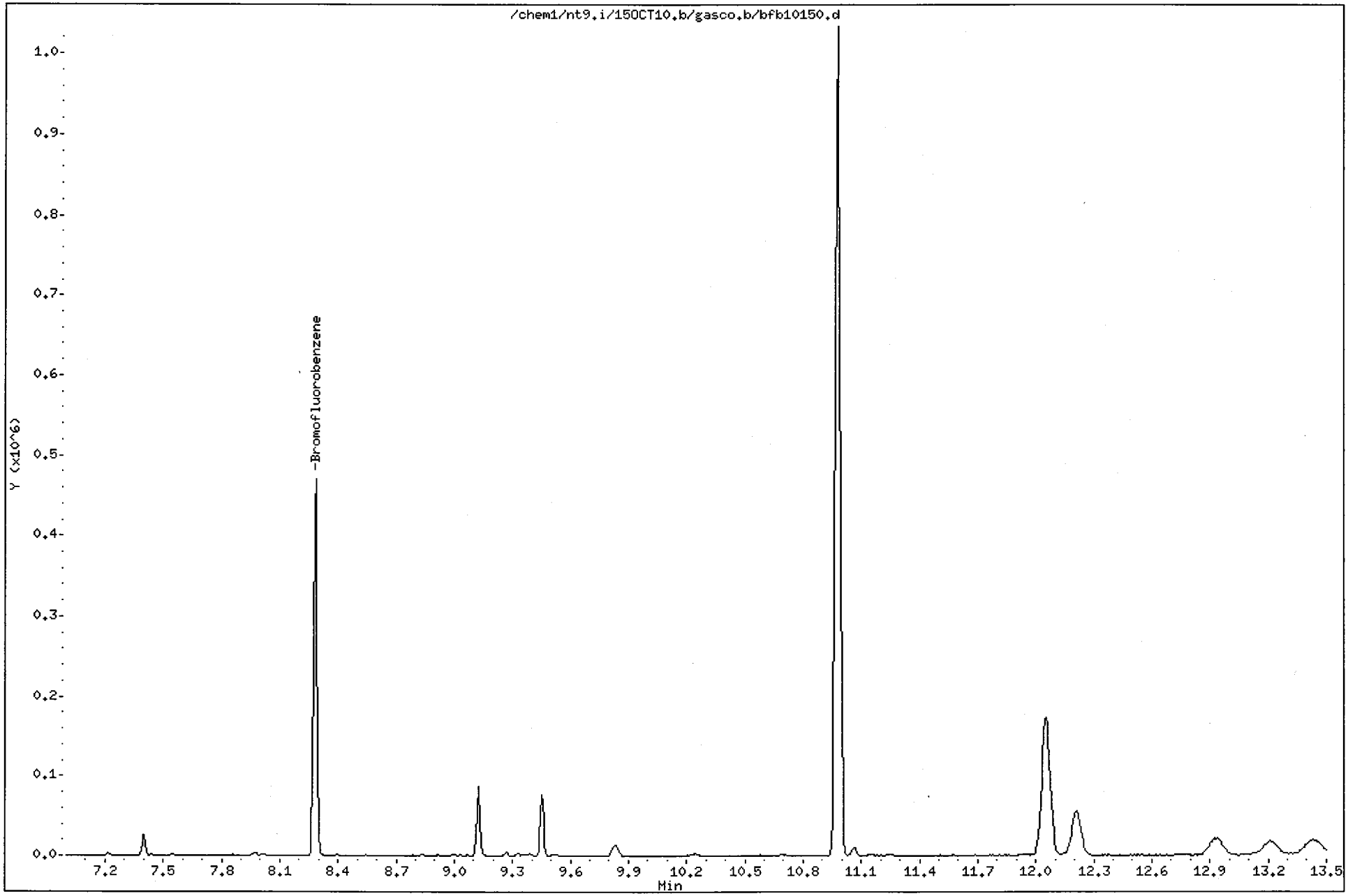
Instrument: nt9.i

Sample Info: BFB1015,BFB1015,,1,15OCT10,,

Operator: PB

Column phase: RTX502.2

Column diameter: 0.18



R081:00097

Analytical Resources, Inc.

8260C

Data file : /chem1/nt9.i/15OCT10.b/gasco.b/0501015.d
Lab Smp Id: CC1015 Client Smp ID: VSTD050
Inj Date : 15-OCT-2010 11:01
Operator : PB Inst ID: nt9.i
Smp Info : CC1015,5,5,0
Misc Info : 10-
Comment :
Method : /chem1/nt9.i/15OCT10.b/gasco.b/VO063010S.m
Meth Date : 18-Oct-2010 14:40 patrickb Quant Type: ISTD
Cal Date : 28-AUG-2010 13:21 Cal File: 2000828.d
Als bottle: 1 Continuing Calibration Sample
Dil Factor: 1.00000
Integrator: HP RTE Compound Sublist: gasco.sub
Target Version: 3.50
Processing Host: cserv3

Concentration Formula: Amt * DF * Pv * 1 / (Sa * ((100 - M) / 100)) * CpndVaria

Name	Value	Description
DF	1.00000	Dilution Factor
Pv	5.00000	Purge Volume
Sa	5.00000	Sample Amount
M	0.00000	% Moisture (not decanted)

Cpnd Variable Local Compound Variable

Compounds	QUANT SIG MASS	RT	EXP RT	REL RT	RESPONSE	AMOUNTS CAL-AMT (ug/Kg)	AMOUNTS ON-COL (ug/Kg)
3 Vinyl Chloride	62	1.407	1.407	(0.285)	261499	50.0000	50.612
7 1,1-Dichloroethene	96	2.312	2.312	(0.469)	276706	50.0000	54.188
15 Trans-1,2-Dichloroethene	96	3.030	3.030	(0.615)	302333	50.0000	51.235
20 Cis-1,2-Dichloroethene	96	4.139	4.139	(0.839)	290275	50.0000	51.916
23 Chloroform	83	4.382	4.382	(0.889)	460696	50.0000	51.947
24 Carbon Tetrachloride	117	4.473	4.473	(0.841)	398507	50.0000	55.108
* 32 Pentafluorobenzene	168	4.931	4.931	(1.000)	578366	50.0000	
$ 25 Dibromofluoromethane	111	4.529	4.529	(0.919)	221933	50.0000	51.318
$ 31 d4-1,2-Dichloroethane	65	4.937	4.937	(1.001)	227266	50.0000	51.186
29 2-Butanone	72	4.642	4.642	(0.941)	145606	250.000	259.39
30 Benzene	78	4.829	4.829	(0.908)	1077016	50.0000	51.401
33 1,2-Dichloroethane	62	4.988	4.988	(0.937)	304813	50.0000	50.574
* 35 1,4-Difluorobenzene	114	5.321	5.321	(1.000)	779072	50.0000	
34 Trichloroethene	95	5.282	5.282	(0.993)	307284	50.0000	53.082

Compounds	QUANT SIG MASS	RT	EXP RT	REL RT	RESPONSE	AMOUNTS CAL-AMT (ug/Kg)	AMOUNTS ON-COL (ug/Kg)
$ 42 d8-Toluene	98	6.306	6.306	(1.185)	874950	50.0000	49.566
43 Toluene	92	6.345	6.345	(1.192)	754562	50.0000	50.676
44 Tetrachloroethene	166	6.611	6.611	(0.894)	414246	50.0000	54.700
* 52 d5-Chlorobenzene	117	7.397	7.397	(1.000)	696653	50.0000	
53 Chlorobenzene	112	7.409	7.409	(1.002)	858660	50.0000	51.686
54 Ethyl Benzene	91	7.437	7.437	(1.005)	1499688	50.0000	52.527
56 m,p-xylene	106	7.544	7.544	(1.020)	1256464	100.000	108.81
57 o-Xylene	106	7.850	7.850	(1.061)	562541	50.0000	52.297
$ 61 4-Bromofluorobenzene	95	8.280	8.280	(1.119)	316478	50.0000	49.049
* 75 d4-1,4-Dichlorobenzene	152	9.111	9.111	(1.000)	393482	50.0000	
76 1,4-Dichlorobenzene	146	9.123	9.123	(1.001)	742686	50.0000	52.598
$ 78 d4-1,2-Dichlorobenzene	152	9.439	9.439	(1.036)	344407	50.0000	50.071

Data File: /chem1/nt9.i/15OCT10.b/gasco.b/0501015.d
Report Date: 18-Oct-2010 14:40

Analytical Resources, Inc.

INTERNAL STANDARD COMPOUNDS
AREA AND RT SUMMARY

Instrument ID: nt9.i
Lab File ID: 0501015.d
Lab Smp Id: CC1015
Analysis Type: VOA
Quant Type: ISTD
Operator: PB
Method File: /chem1/nt9.i/15OCT10.b/gasco.b/VO063010S.m
Misc Info: 10-

Calibration Date: 15-OCT-2010
Calibration Time: 11:01
Client Smp ID: VSTD050
Level: LOW
Sample Type: SOIL

Test Mode:
Use Initial Calibration Level 5.
If Continuing Cal. use Initial Cal. Level 5

COMPOUND	STANDARD	AREA LIMIT LOWER	AREA LIMIT UPPER	SAMPLE	%DIFF
32 Pentafluorobenzen	704281	352140	1408562	578366	-17.88
35 1,4-Difluorobenze	937745	468872	1875490	779072	-16.92
52 d5-Chlorobenzene	853013	426506	1706026	696653	-18.33
75 d4-1,4-Dichlorobe	503655	251828	1007310	393482	-21.87

COMPOUND	STANDARD	RT LIMIT LOWER	RT LIMIT UPPER	SAMPLE	%DIFF
32 Pentafluorobenzen	4.94	4.44	5.44	4.93	-0.11
35 1,4-Difluorobenze	5.32	4.82	5.82	5.32	0.00
52 d5-Chlorobenzene	7.40	6.90	7.90	7.40	0.00
75 d4-1,4-Dichlorobe	9.11	8.61	9.61	9.11	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.

Analytical Resources, Inc.

CONTINUING CALIBRATION COMPOUNDS

Instrument ID: nt9.i
Lab File ID: 0501015.d
Analysis Type: SOIL
Lab Sample ID: CC1015
Method: /chem1/nt9.i/15OCT10.b/gasco.b/VO063010S.m

Injection Date: 15-OCT-2010 11:01
Init. Cal. Date(s): 28-AUG-2010 28-AUG-2010
Init. Cal. Times: 12:52 16:21
Quant Type: ISTD

COMPOUND	RRF / AMOUNT	RF50	MIN RRF	%D / %DRIFT	MAX %D / %DRIFT	CURVE TYPE
3 Vinyl Chloride	0.44667	0.45213	0.100	1.22357	20.00000	Averaged
7 1,1-Dichloroethene	0.44145	0.47843	0.100	8.37672	20.00000	Averaged
15 Trans-1,2-Dichloroethene	0.51013	0.52274	0.010	2.47091	20.00000	Averaged
20 Cis-1,2-Dichloroethene	0.48336	0.50189	0.010	3.83265	20.00000	Averaged
23 Chloroform	0.76669	0.79655	0.100	3.89420	20.00000	Averaged
24 Carbon Tetrachloride	0.46410	0.51151	0.100	10.21685	20.00000	Averaged
$ 25 Dibromofluoromethane	0.37387	0.38372	0.100	2.63502	20.00000	Averaged
$ 31 d4-1,2-Dichloroethane	0.38384	0.39294	0.010	2.37109	20.00000	Averaged
29 2-Butanone	0.04853	0.05035	0.001	3.75634	20.00000	Averaged
30 Benzene	1.34476	1.38243	0.100	2.80163	20.00000	Averaged
33 1,2-Dichloroethane	0.38681	0.39125	0.100	1.14792	20.00000	Averaged
34 Trichloroethene	0.37152	0.39442	0.100	6.16497	20.00000	Averaged
$ 42 d8-Toluene	1.13290	1.12307	0.010	-0.86767	20.00000	Averaged
43 Toluene	0.95562	0.96854	0.100	1.35158	20.00000	Averaged
44 Tetrachloroethene	0.54353	0.59462	0.100	9.40023	20.00000	Averaged
53 Chlorobenzene	1.19234	1.23255	0.300	3.37234	20.00000	Averaged
54 Ethyl Benzene	2.04913	2.15270	0.100	5.05475	20.00000	Averaged
56 m,p-xylene	0.82875	0.90179	0.100	8.81264	20.00000	Averaged
57 o-Xylene	0.77203	0.80749	0.100	4.59357	20.00000	Averaged
$ 61 4-Bromofluorobenzene	0.46309	0.45428	0.200	-1.90221	20.00000	Averaged
76 1,4-Dichlorobenzene	1.79423	1.88747	0.100	5.19673	20.00000	Averaged
$ 78 d4-1,2-Dichlorobenzene	0.87403	0.87528	0.010	0.14277	20.00000	Averaged

Data File: /chem1/nt9.i/15OCT10.b/gasco.b/0501015.d

Date : 15-OCT-2010 11:01

Client ID: VSTD050

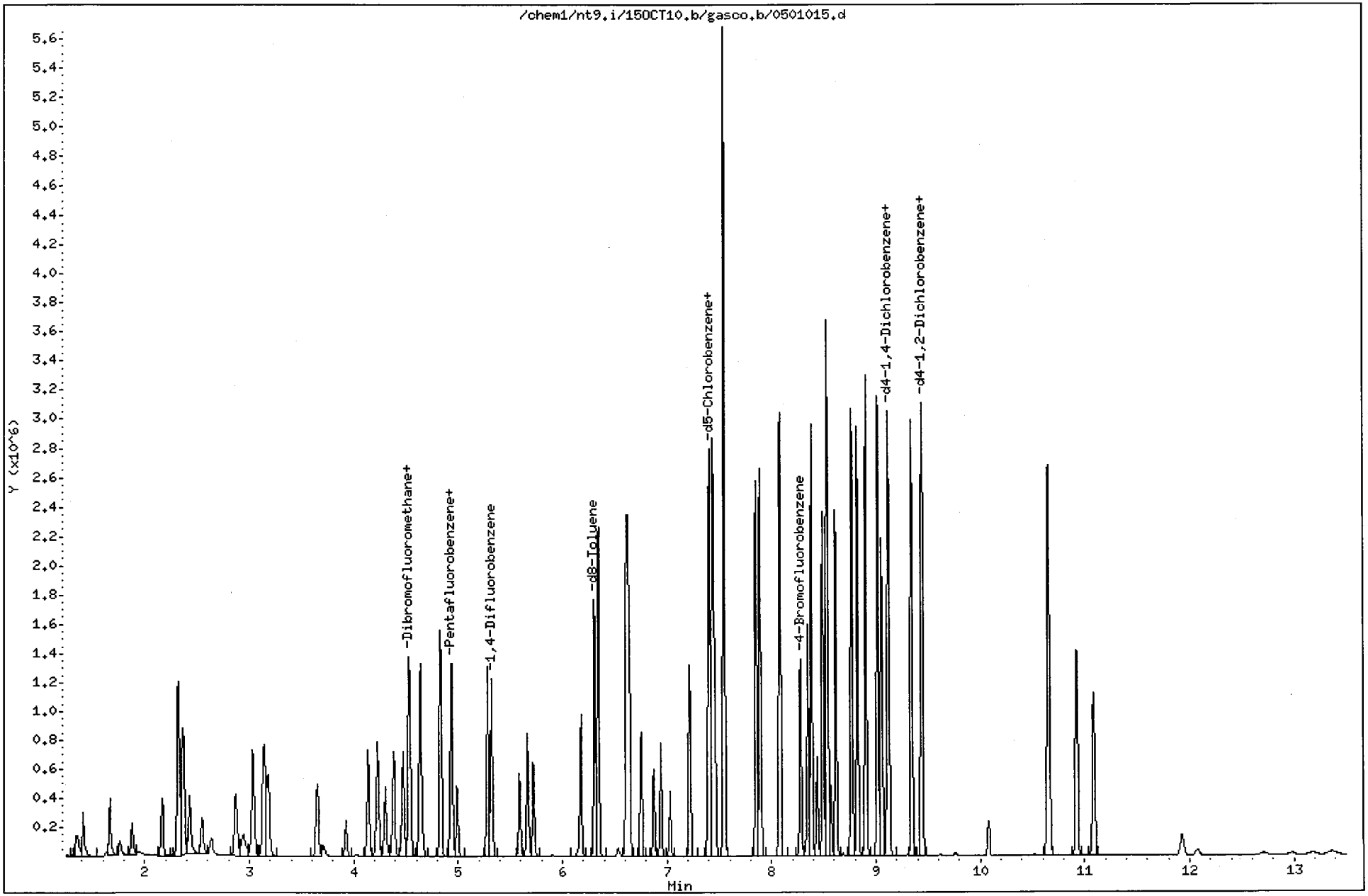
Sample Info: CC1015,5,5,0

Column phase: RTX502.2

Instrument: nt9.i

Operator: PB

Column diameter: 0.18



R0811:001102

Analytical Resources, Inc.

8260C

Data file : /chem1/nt9.i/15OCT10.b/gasco.b/lcs1015.d
Lab Smp Id: LCS1015 Client Smp ID: LCS1015
Inj Date : 15-OCT-2010 11:31
Operator : PB Inst ID: nt9.i
Smp Info : LCS1015,5,5,0
Misc Info : 10-
Comment :
Method : /chem1/nt9.i/15OCT10.b/gasco.b/VO063010S.m
Meth Date : 21-Oct-2010 11:28 patrickb Quant Type: ISTD
Cal Date : 28-AUG-2010 13:21 Cal File: 2000828.d
Als bottle: 1 QC Sample: LCS
Dil Factor: 1.00000
Integrator: HP RTE Compound Sublist: gasco.sub
Target Version: 3.50
Processing Host: cserv3

Concentration Formula: Amt * DF * Pv * 1 / (Sa * ((100 - M) / 100)) * CpndVaria

Name	Value	Description
DF	1.00000	Dilution Factor
Pv	5.00000	Purge Volume
Sa	5.00000	Sample Amount
M	0.00000	% Moisture (not decanted)

Cpnd Variable Local Compound Variable

Compounds	QUANT SIG MASS	RT	EXP RT	REL RT	RESPONSE	CONCENTRATIONS ON-COLUMN (ug/Kg)	FINAL (ug/Kg)
3 Vinyl Chloride	62	1.408	1.407	(0.285)	282780	54.5413	54.541
7 1,1-Dichloroethene	96	2.313	2.312	(0.469)	281789	54.9929	54.993
15 Trans-1,2-Dichloroethene	96	3.031	3.030	(0.615)	308867	52.1617	52.162
20 Cis-1,2-Dichloroethene	96	4.140	4.139	(0.839)	294389	52.4700	52.470
23 Chloroform	83	4.383	4.382	(0.889)	466589	52.4296	52.430
24 Carbon Tetrachloride	117	4.474	4.473	(0.841)	418403	57.8116	57.812
* 32 Pentafluorobenzene	168	4.932	4.931	(1.000)	580374	50.0000	
$ 25 Dibromofluoromethane	111	4.530	4.529	(0.919)	220738	50.8646	50.865
$ 31 d4-1,2-Dichloroethane	65	4.937	4.937	(1.001)	226321	50.7964	50.796
29 2-Butanone	72	4.643	4.642	(0.942)	149320	265.087	265.09
30 Benzene	78	4.830	4.829	(0.908)	1097238	52.3223	52.322
33 1,2-Dichloroethane	62	4.988	4.988	(0.937)	306903	50.8783	50.878
* 35 1,4-Difluorobenzene	114	5.322	5.321	(1.000)	779721	50.0000	
34 Trichloroethene	95	5.282	5.282	(0.993)	312435	53.9274	53.927

Compounds	QUANT SIG MASS	RT	EXP RT	REL RT	RESPONSE	CONCENTRATIONS ON-COLUMN (ug/Kg)	FINAL (ug/Kg)
$ 42 d8-Toluene	98	6.306	6.306	(1.185)	875181	49.5380	49.538
43 Toluene	92	6.346	6.345	(1.192)	762138	51.1420	51.142
44 Tetrachloroethene	166	6.612	6.611	(0.894)	417464	55.4146	55.415
* 52 d5-Chlorobenzene	117	7.398	7.397	(1.000)	693013	50.0000	
53 Chlorobenzene	112	7.409	7.409	(1.002)	863971	52.2790	52.279
54 Ethyl Benzene	91	7.438	7.437	(1.005)	1512020	53.2375	53.237
56 m,p-xylene	106	7.545	7.544	(1.020)	1266314	110.242	110.24
57 o-Xylene	106	7.851	7.850	(1.061)	567656	53.0495	53.049
$ 61 4-Bromofluorobenzene	95	8.275	8.280	(1.119)	312740	48.7241	48.724
* 75 d4-1,4-Dichlorobenzene	152	9.112	9.111	(1.000)	386509	50.0000	
76 1,4-Dichlorobenzene	146	9.123	9.123	(1.001)	727793	52.4735	52.474
$ 78 d4-1,2-Dichlorobenzene	152	9.435	9.439	(1.035)	338922	50.1629	50.163

Analytical Resources, Inc.

INTERNAL STANDARD COMPOUNDS
AREA AND RT SUMMARY

Instrument ID: nt9.i
Lab File ID: lcs1015.d
Lab Smp Id: LCS1015
Analysis Type: VOA
Quant Type: ISTD
Operator: PB
Method File: /chem1/nt9.i/15OCT10.b/gasco.b/VO063010S.m
Misc Info: 10-

Calibration Date: 15-OCT-2010
Calibration Time: 11:01
Client Smp ID: LCS1015
Level: LOW
Sample Type: SOIL

Test Mode:
Use Initial Calibration Level 5.
If Continuing Cal. use Initial Cal. Level 5

COMPOUND	STANDARD	AREA LIMIT LOWER	AREA LIMIT UPPER	SAMPLE	%DIFF
32 Pentafluorobenzen	704281	352140	1408562	580374	-17.59
35 1,4-Difluorobenze	937745	468872	1875490	779721	-16.85
52 d5-Chlorobenzene	853013	426506	1706026	693013	-18.76
75 d4-1,4-Dichlorobe	503655	251828	1007310	386509	-23.26

COMPOUND	STANDARD	RT LIMIT LOWER	RT LIMIT UPPER	SAMPLE	%DIFF
32 Pentafluorobenzen	4.93	4.43	5.43	4.93	0.02
35 1,4-Difluorobenze	5.32	4.82	5.82	5.32	0.01
52 d5-Chlorobenzene	7.40	6.90	7.90	7.40	0.01
75 d4-1,4-Dichlorobe	9.11	8.61	9.61	9.11	0.01

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.

Analytical Resources, Inc.

RECOVERY REPORT

Client Name:
Sample Matrix: SOLID
Lab Smp Id: LCS1015
Level: LOW
Data Type: MS DATA
SpikeList File: gasco.spk
Sublist File: gasco.sub
Method File: /chem1/nt9.i/15OCT10.b/gasco.b/VO063010S.m
Misc Info: 10-

Client SDG: 15OCT10
Fraction: VOA
Client Smp ID: LCS1015
Operator: PB
SampleType: LCS
Quant Type: ISTD

SPIKE COMPOUND	CONC ADDED ug/Kg	CONC RECOVERED ug/Kg	% RECOVERED	LIMITS
3 Vinyl Chloride	50.000	54.541	109.08	63-137
7 1,1-Dichloroethene	50.000	54.993	109.99	75-126
15 Trans-1,2-Dichloro	50.000	52.162	104.32	80-120
20 Cis-1,2-Dichloroet	50.000	52.470	104.94	80-120
23 Chloroform	50.000	52.430	104.86	80-120
24 Carbon Tetrachlori	50.000	57.812	115.62	77-122
29 2-Butanone	250.00	265.09	106.03	70-120
30 Benzene	50.000	52.322	104.64	80-120
33 1,2-Dichloroethane	50.000	50.878	101.76	76-120
34 Trichloroethene	50.000	53.927	107.85	80-120
43 Toluene	50.000	51.142	102.28	80-120
44 Tetrachloroethene	50.000	55.415	110.83	80-121
53 Chlorobenzene	50.000	52.279	104.56	80-120
54 Ethyl Benzene	50.000	53.237	106.47	80-127
56 m,p-xylene	100.00	110.24	110.24	80-125
57 o-Xylene	50.000	53.049	106.10	78-120
76 1,4-Dichlorobenzen	50.000	52.474	104.95	80-120

SURROGATE COMPOUND	AMOUNT ADDED ug/Kg	AMOUNT RECOVERED ug/Kg	% RECOVERED	LIMITS
$ 25 Dibromofluorometha	50.000	50.865	101.73	30-160
$ 31 d4-1,2-Dichloroeth	50.000	50.796	101.59	75-152
$ 42 d8-Toluene	50.000	49.538	99.08	82-115
$ 61 4-Bromofluorobenze	50.000	48.724	97.45	64-120
$ 78 d4-1,2-Dichloroben	50.000	50.163	100.33	80-120

Data File: /chem1/nt9.i/15OCT10.b/gasco.b/lcs1015.d

Date : 15-OCT-2010 11:31

Client ID: LCS1015

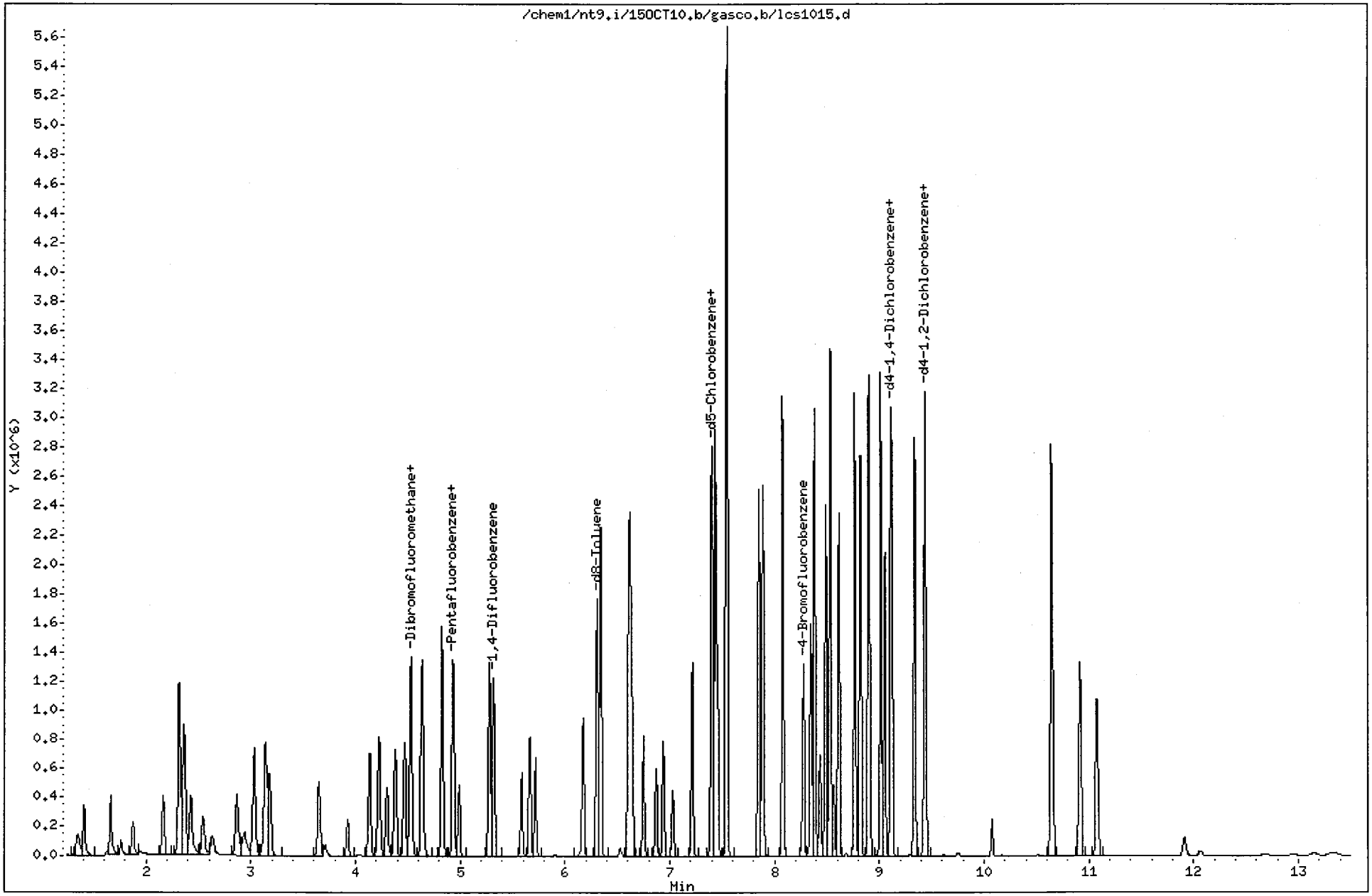
Sample Info: LCS1015,5,5,0

Column phase: RTX502.2

Instrument: nt9.i

Operator: PB

Column diameter: 0.18



R084:00167

Analytical Resources, Inc.

8260C

Data file : /chem1/nt9.i/15OCT10.b/gasco.b/lcs1015a.d
Lab Smp Id: LCS1015 Client Smp ID: LCS1015
Inj Date : 15-OCT-2010 12:01
Operator : PB Inst ID: nt9.i
Smp Info : LCS1015,5,5,0
Misc Info : 10-
Comment :
Method : /chem1/nt9.i/15OCT10.b/gasco.b/VO063010S.m
Meth Date : 21-Oct-2010 11:28 patrickb Quant Type: ISTD
Cal Date : 28-AUG-2010 13:21 Cal File: 2000828.d
Als bottle: 1 QC Sample: LCSD
Dil Factor: 1.00000
Integrator: HP RTE Compound Sublist: gasco.sub
Target Version: 3.50
Processing Host: cserv3

Concentration Formula: Amt * DF * Pv * 1 / (Sa * ((100 - M) / 100)) * CpndVaria

Name	Value	Description
DF	1.00000	Dilution Factor
Pv	5.00000	Purge Volume
Sa	5.00000	Sample Amount
M	0.00000	% Moisture (not decanted)

Cpnd Variable Local Compound Variable

Compounds	QUANT SIG MASS	RT	EXP RT	REL RT	RESPONSE	CONCENTRATIONS ON-COLUMN (ug/Kg)	FINAL (ug/Kg)
3 Vinyl Chloride	62	1.407	1.407	(0.285)	302375	54.7364	54.736
7 1,1-Dichloroethene	96	2.312	2.312	(0.469)	302995	55.4973	55.497
15 Trans-1,2-Dichloroethene	96	3.030	3.030	(0.615)	325350	51.5685	51.569
20 Cis-1,2-Dichloroethene	96	4.139	4.139	(0.839)	313410	52.4271	52.427
23 Chloroform	83	4.382	4.382	(0.889)	499614	52.6902	52.690
24 Carbon Tetrachloride	117	4.473	4.473	(0.841)	443377	57.9008	57.901
* 32 Pentafluorobenzene	168	4.931	4.931	(1.000)	618378	50.0000	
$ 25 Dibromofluoromethane	111	4.529	4.529	(0.919)	235123	50.8496	50.850
$ 31 d4-1,2-Dichloroethane	65	4.937	4.937	(1.001)	241059	50.7791	50.779
29 2-Butanone	72	4.642	4.642	(0.941)	162715	271.114	271.11
30 Benzene	78	4.829	4.829	(0.908)	1162364	52.3865	52.387
33 1,2-Dichloroethane	62	4.987	4.988	(0.937)	331870	51.9985	51.999
* 35 1,4-Difluorobenzene	114	5.321	5.321	(1.000)	824989	50.0000	
34 Trichloroethene	95	5.282	5.282	(0.993)	330378	53.8954	53.895

Compounds	QUANT SIG MASS	RT	EXP RT	REL RT	RESPONSE	CONCENTRATIONS ON-COLUMN (ug/Kg)	FINAL (ug/Kg)
$ 42 d8-Toluene	98	6.306	6.306	(1.185)	928492	49.6718	49.672
43 Toluene	92	6.345	6.345	(1.192)	807798	51.2316	51.232
44 Tetrachloroethene	166	6.611	6.611	(0.894)	436087	54.5238	54.524
* 52 d5-Chlorobenzene	117	7.397	7.397	(1.000)	735755	50.0000	
53 Chlorobenzene	112	7.409	7.409	(1.002)	913499	52.0648	52.065
54 Ethyl Benzene	91	7.437	7.437	(1.005)	1582614	52.4859	52.486
56 m,p-xylene	106	7.544	7.544	(1.020)	1326052	108.736	108.74
57 o-Xylene	106	7.850	7.850	(1.061)	595228	52.3947	52.395
$ 61 4-Bromofluorobenzene	95	8.274	8.280	(1.119)	330263	48.4651	48.465
* 75 d4-1,4-Dichlorobenzene	152	9.111	9.111	(1.000)	405851	50.0000	
76 1,4-Dichlorobenzene	146	9.123	9.123	(1.001)	748730	51.4103	51.410
$ 78 d4-1,2-Dichlorobenzene	152	9.434	9.439	(1.035)	357809	50.4344	50.434

Analytical Resources, Inc.

INTERNAL STANDARD COMPOUNDS
AREA AND RT SUMMARY

Instrument ID: nt9.i
Lab File ID: lcs1015a.d
Lab Smp Id: LCS1015
Analysis Type: VOA
Quant Type: ISTD
Operator: PB
Method File: /chem1/nt9.i/15OCT10.b/gasco.b/VO063010S.m
Misc Info: 10-

Calibration Date: 15-OCT-2010
Calibration Time: 11:01
Client Smp ID: LCS1015
Level: LOW
Sample Type: SOIL

Test Mode:
Use Initial Calibration Level 5.
If Continuing Cal. use Initial Cal. Level 5

COMPOUND	STANDARD	AREA LIMIT LOWER	AREA LIMIT UPPER	SAMPLE	%DIFF
32 Pentafluorobenzen	704281	352140	1408562	618378	-12.20
35 1,4-Difluorobenze	937745	468872	1875490	824989	-12.02
52 d5-Chlorobenzene	853013	426506	1706026	735755	-13.75
75 d4-1,4-Dichlorobe	503655	251828	1007310	405851	-19.42

COMPOUND	STANDARD	RT LIMIT LOWER	RT LIMIT UPPER	SAMPLE	%DIFF
32 Pentafluorobenzen	4.93	4.43	5.43	4.93	0.00
35 1,4-Difluorobenze	5.32	4.82	5.82	5.32	0.00
52 d5-Chlorobenzene	7.40	6.90	7.90	7.40	0.00
75 d4-1,4-Dichlorobe	9.11	8.61	9.61	9.11	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.

Analytical Resources, Inc.

RECOVERY REPORT

Client Name:
Sample Matrix: SOLID
Lab Smp Id: LCS1015
Level: LOW
Data Type: MS DATA
SpikeList File: gasco.spk
Sublist File: gasco.sub
Method File: /chem1/nt9.i/15OCT10.b/gasco.b/VO063010S.m
Misc Info: 10-

Client SDG: 15OCT10
Fraction: VOA
Client Smp ID: LCS1015
Operator: PB
SampleType: LCSD
Quant Type: ISTD

SPIKE COMPOUND	CONC ADDED ug/Kg	CONC RECOVERED ug/Kg	% RECOVERED	LIMITS
3 Vinyl Chloride	50.000	54.736	109.47	63-137
7 1,1-Dichloroethene	50.000	55.497	110.99	75-126
15 Trans-1,2-Dichloro	50.000	51.569	103.14	80-120
20 Cis-1,2-Dichloroet	50.000	52.427	104.85	80-120
23 Chloroform	50.000	52.690	105.38	80-120
24 Carbon Tetrachlori	50.000	57.901	115.80	77-122
29 2-Butanone	250.00	271.11	108.45	70-120
30 Benzene	50.000	52.387	104.77	80-120
33 1,2-Dichloroethane	50.000	51.999	104.00	76-120
34 Trichloroethene	50.000	53.895	107.79	80-120
43 Toluene	50.000	51.232	102.46	80-120
44 Tetrachloroethene	50.000	54.524	109.05	80-121
53 Chlorobenzene	50.000	52.065	104.13	80-120
54 Ethyl Benzene	50.000	52.486	104.97	80-127
56 m,p-xylene	100.00	108.74	108.74	80-125
57 o-Xylene	50.000	52.395	104.79	78-120
76 1,4-Dichlorobenzen	50.000	51.410	102.82	80-120

SURROGATE COMPOUND	AMOUNT ADDED ug/Kg	AMOUNT RECOVERED ug/Kg	% RECOVERED	LIMITS
$ 25 Dibromofluorometha	50.000	50.850	101.70	30-160
$ 31 d4-1,2-Dichloroeth	50.000	50.779	101.56	75-152
$ 42 d8-Toluene	50.000	49.672	99.34	82-115
$ 61 4-Bromofluorobenze	50.000	48.465	96.93	64-120
$ 78 d4-1,2-Dichloroben	50.000	50.434	100.87	80-120

Data File: /chem1/nt9.i/15OCT10.b/gasco.b/lcs1015a.d

Date : 15-OCT-2010 12:01

Client ID: LCS1015

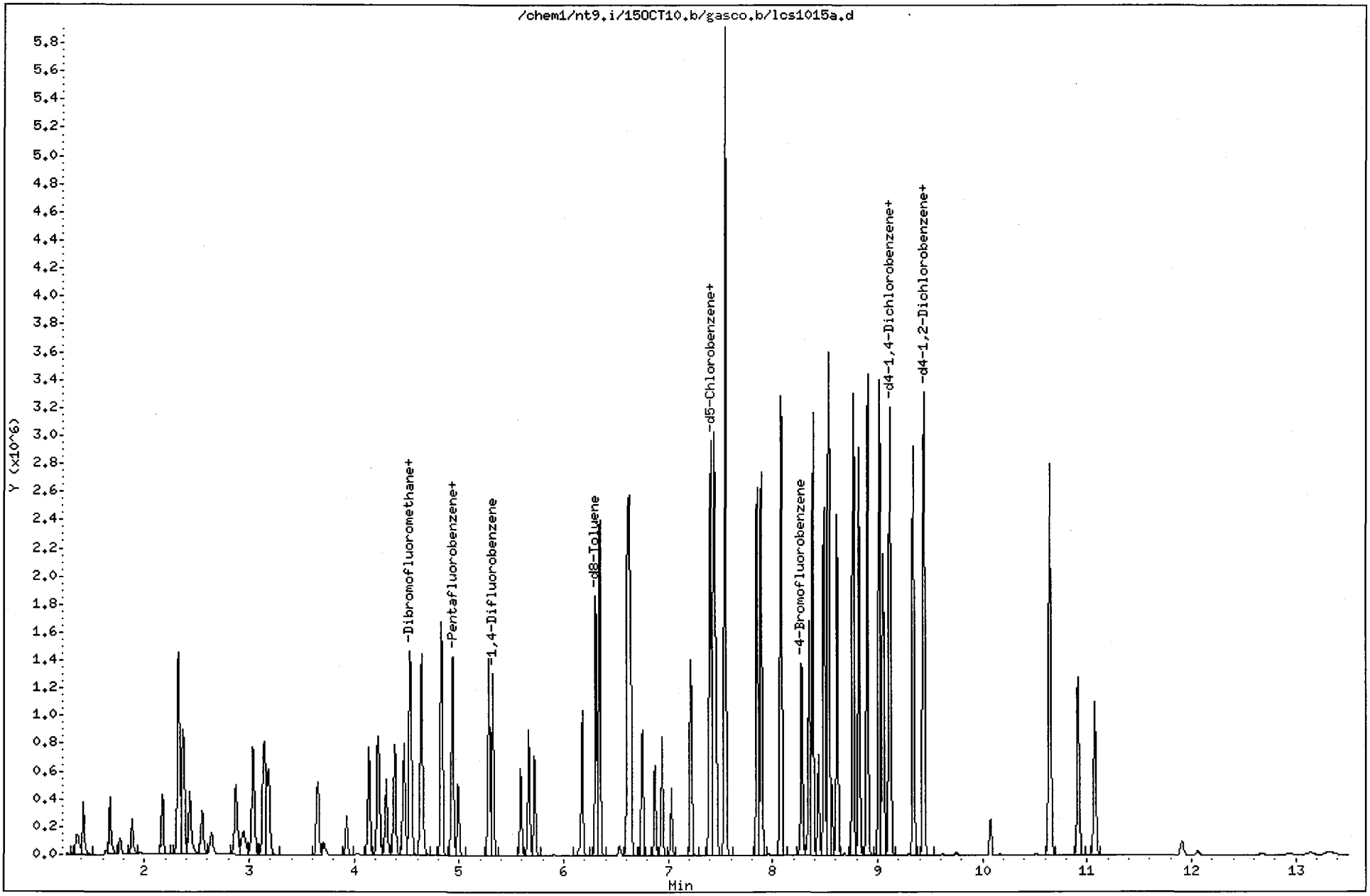
Sample Info: LCS1015,5,5,0

Column phase: RTX502.2

Instrument: nt9.i

Operator: PB

Column diameter: 0.18



R084 : 00112

Analytical Resources, Inc.

8260C

Data file : /chem1/nt9.i/15OCT10.b/gasco.b/mb1015.d
Lab Smp Id: MB1015 Client Smp ID: MB1015
Inj Date : 15-OCT-2010 12:31
Operator : PB Inst ID: nt9.i
Smp Info : MB1015,5,5,0
Misc Info : 10-
Comment :
Method : /chem1/nt9.i/15OCT10.b/gasco.b/VO063010S.m
Meth Date : 21-Oct-2010 11:28 patrickb Quant Type: ISTD
Cal Date : 28-AUG-2010 13:21 Cal File: 2000828.d
Als bottle: 1 QC Sample: BLANK
Dil Factor: 1.00000
Integrator: HP RTE Compound Sublist: gasco.sub
Target Version: 3.50
Processing Host: cserv3

Concentration Formula: Amt * DF * Pv * 1 / (Sa * ((100 - M) / 100)) * CpndVaria

Name	Value	Description
DF	1.00000	Dilution Factor
Pv	5.00000	Purge Volume
Sa	5.00000	Sample Amount
M	0.00000	% Moisture (not decanted)

Cpnd Variable Local Compound Variable

Compounds	QUANT SIG MASS	RT	EXP RT	REL RT	RESPONSE	CONCENTRATIONS ON-COLUMN (ug/Kg)	FINAL (ug/Kg)
3 Vinyl Chloride	62	Compound Not Detected.					
7 1,1-Dichloroethene	96	Compound Not Detected.					
15 Trans-1,2-Dichloroethene	96	Compound Not Detected.					
20 Cis-1,2-Dichloroethene	96	Compound Not Detected.					
23 Chloroform	83	Compound Not Detected.					
24 Carbon Tetrachloride	117	Compound Not Detected.					
* 32 Pentafluorobenzene	168	4.937	4.931	(1.000)	653148	50.0000	
$ 25 Dibromofluoromethane	111	4.530	4.529	(0.918)	235876	48.2968	48.297
$ 31 d4-1,2-Dichloroethane	65	4.937	4.937	(1.000)	239235	47.7121	47.712
29 2-Butanone	72	4.648	4.642	(0.942)	246	0.38806	0.3881(Q)
30 Benzene	78	Compound Not Detected.					
33 1,2-Dichloroethane	62	Compound Not Detected.					
* 35 1,4-Difluorobenzene	114	5.322	5.321	(1.000)	867669	50.0000	
34 Trichloroethene	95	Compound Not Detected.					

Compounds	QUANT SIG MASS	RT	EXP RT	REL RT	RESPONSE	CONCENTRATIONS ON-COLUMN (ug/Kg)	FINAL (ug/Kg)
$ 42 d8-Toluene	98	6.306	6.306	(1.185)	977333	49.7128	49.713
43 Toluene	92	Compound Not Detected.					
44 Tetrachloroethene	166	Compound Not Detected.					
* 52 d5-Chlorobenzene	117	7.398	7.397	(1.000)	765328	50.0000	
53 Chlorobenzene	112	Compound Not Detected.					
54 Ethyl Benzene	91	Compound Not Detected.					
56 m,p-xylene	106	Compound Not Detected.					
57 o-Xylene	106	Compound Not Detected.					
$ 61 4-Bromofluorobenzene	95	8.274	8.280	(1.119)	342764	48.3559	48.356
* 75 d4-1,4-Dichlorobenzene	152	9.112	9.111	(1.000)	416733	50.0000	(Q)
76 1,4-Dichlorobenzene	146	Compound Not Detected.					
$ 78 d4-1,2-Dichlorobenzene	152	9.434	9.439	(1.035)	359541	49.3552	49.355(Q)

QC Flag Legend

Q - Qualifier signal failed the ratio test.

Analytical Resources, Inc.

INTERNAL STANDARD COMPOUNDS
AREA AND RT SUMMARY

Instrument ID: nt9.i
Lab File ID: mb1015.d
Lab Smp Id: MB1015
Analysis Type: VOA
Quant Type: ISTD
Operator: PB
Method File: /chem1/nt9.i/15OCT10.b/gasco.b/VO063010S.m
Misc Info: 10-

Calibration Date: 15-OCT-2010
Calibration Time: 11:01
Client Smp ID: MB1015
Level: LOW
Sample Type: SOIL

Test Mode:
Use Initial Calibration Level 5.
If Continuing Cal. use Initial Cal. Level 5

COMPOUND	STANDARD	AREA LIMIT LOWER	AREA LIMIT UPPER	SAMPLE	%DIFF
32 Pentafluorobenzen	704281	352140	1408562	653148	-7.26
35 1,4-Difluorobenze	937745	468872	1875490	867669	-7.47
52 d5-Chlorobenzene	853013	426506	1706026	765328	-10.28
75 d4-1,4-Dichlorobe	503655	251828	1007310	416733	-17.26

COMPOUND	STANDARD	RT LIMIT LOWER	RT LIMIT UPPER	SAMPLE	%DIFF
32 Pentafluorobenzen	4.93	4.43	5.43	4.94	0.12
35 1,4-Difluorobenze	5.32	4.82	5.82	5.32	0.00
52 d5-Chlorobenzene	7.40	6.90	7.90	7.40	0.00
75 d4-1,4-Dichlorobe	9.11	8.61	9.61	9.11	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.

Analytical Resources, Inc.

RECOVERY REPORT

Client Name:
Sample Matrix: SOLID
Lab Smp Id: MB1015
Level: LOW
Data Type: MS DATA
SpikeList File: all.spk
Sublist File: gasco.sub
Method File: /chem1/nt9.i/15OCT10.b/gasco.b/VO063010S.m
Misc Info: 10-

Client SDG: 15OCT10
Fraction: VOA
Client Smp ID: MB1015
Operator: PB
SampleType: BLANK
Quant Type: ISTD

SURROGATE COMPOUND	AMOUNT ADDED ug/Kg	AMOUNT RECOVERED ug/Kg	% RECOVERED	LIMITS
$ 25 Dibromofluorometha	50.000	48.297	96.59	30-160
$ 31 d4-1,2-Dichloroeth	50.000	47.712	95.42	75-152
$ 42 d8-Toluene	50.000	49.713	99.43	82-115
$ 61 4-Bromofluorobenze	50.000	48.356	96.71	64-120
$ 78 d4-1,2-Dichloroben	50.000	49.355	98.71	80-120

Data File: /chem1/nt9.i/15OCT10.b/gasco.b/mb1015.d

Date : 15-OCT-2010 12:31

Client ID: MB1015

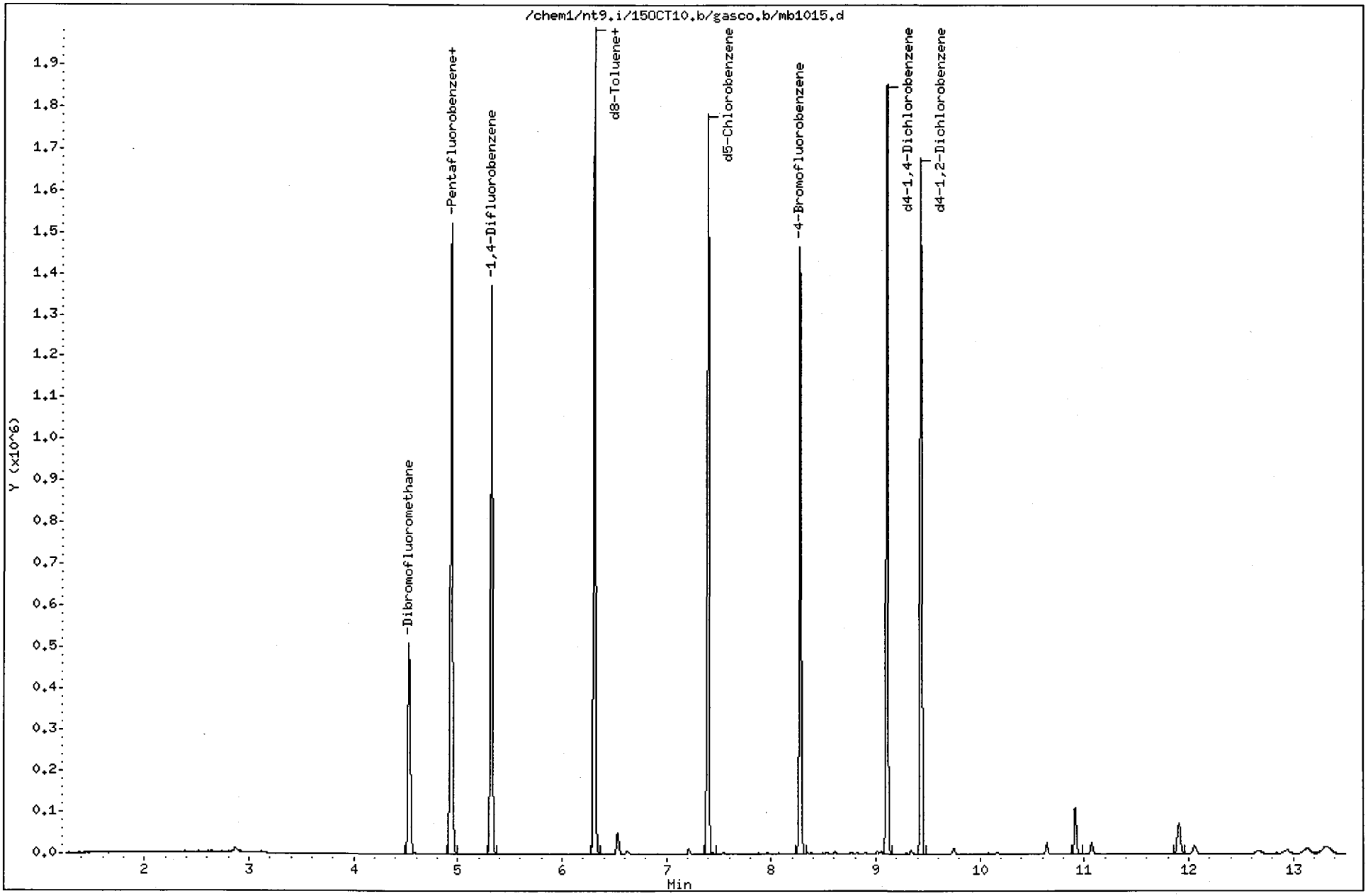
Sample Info: MB1015,5,5,0

Column phase: RTX502.2

Instrument: nt9.i

Operator: PB

Column diameter: 0.18



R0811 : 00117

Analytical Resources, Inc.

8260C

Data file : /chem1/nt9.i/15OCT10.b/gasco.b/rq84a.d
Lab Smp Id: RQ84A Client Smp ID: DGS-30-0113.9-10100
Inj Date : 15-OCT-2010 13:06
Operator : PB Inst ID: nt9.i
Smp Info : RQ84A,5,5.54,0
Misc Info : 10-26012
Comment :
Method : /chem1/nt9.i/15OCT10.b/gasco.b/VO063010S.m
Meth Date : 21-Oct-2010 11:29 patrickb Quant Type: ISTD
Cal Date : 28-AUG-2010 13:21 Cal File: 2000828.d
Als bottle: 1
Dil Factor: 1.00000
Integrator: HP RTE Compound Sublist: gasco.sub
Target Version: 3.50
Processing Host: cserv3

10/21/10

Concentration Formula: Amt * DF * Pv * 1 / (Sa * ((100 - M) / 100)) * CpndVaria

Name	Value	Description
DF	1.00000	Dilution Factor
Pv	5.00000	Purge Volume
Sa	5.54000	Sample Amount
M	0.00000	% Moisture (not decanted)

Cpnd Variable Local Compound Variable

Compounds	QUANT SIG MASS	RT	EXP RT	REL RT	RESPONSE	CONCENTRATIONS ON-COLUMN (ug/Kg)	FINAL (ug/Kg)
3 Vinyl Chloride	62	Compound Not Detected.					
7 1,1-Dichloroethene	96	Compound Not Detected.					
15 Trans-1,2-Dichloroethene	96	Compound Not Detected.					
20 Cis-1,2-Dichloroethene	96	Compound Not Detected.					
23 Chloroform	83	Compound Not Detected.					
24 Carbon Tetrachloride	117	Compound Not Detected.					
* 32 Pentafluorobenzene	168	4.937	4.931	(1.000)	655055	50.0000	
$ 25 Dibromofluoromethane	111	4.529	4.529	(0.917)	246377	50.3001	45.397
$ 31 d4-1,2-Dichloroethane	65	4.937	4.937	(1.000)	267460	53.1859	48.002
29 2-Butanone	72	4.648	4.642	(0.942)	898	1.41246	1.275(Q)
30 Benzene	78	4.829	4.829	(0.908)	71746	3.00410	2.711
33 1,2-Dichloroethane	62	Compound Not Detected.					
* 35 1,4-Difluorobenzene	114	5.321	5.321	(1.000)	887991	50.0000	
34 Trichloroethene	95	Compound Not Detected.					

Compounds	QUANT SIG MASS	RT	EXP RT	REL RT	RESPONSE	CONCENTRATIONS ON-COLUMN (ug/Kg)	FINAL (ug/Kg)
$ 42 d8-Toluene	98	6.306	6.306	(1.185)	999919	49.6977	44.853
43 Toluene	92	Compound Not Detected.					
44 Tetrachloroethene	166	Compound Not Detected.					
* 52 d5-Chlorobenzene	117	7.397	7.397	(1.000)	793107	50.0000	
53 Chlorobenzene	112	Compound Not Detected.					
54 Ethyl Benzene	91	7.437	7.437	(1.005)	27548	0.84754	0.7649
56 m,p-xylene	106	Compound Not Detected.					
57 o-Xylene	106	Compound Not Detected.					
$ 61 4-Bromofluorobenzene	95	8.274	8.280	(1.119)	360856	49.1252	44.337
* 75 d4-1,4-Dichlorobenzene	152	9.111	9.111	(1.000)	432162	50.0000	(Q)
76 1,4-Dichlorobenzene	146	Compound Not Detected.					
$ 78 d4-1,2-Dichlorobenzene	152	9.439	9.439	(1.036)	381951	50.5596	45.631(Q)

QC Flag Legend

Q - Qualifier signal failed the ratio test.

Analytical Resources, Inc.

INTERNAL STANDARD COMPOUNDS
AREA AND RT SUMMARY

Instrument ID: nt9.i
Lab File ID: rq84a.d
Lab Smp Id: RQ84A
Analysis Type: VOA
Quant Type: ISTD
Operator: PB
Method File: /chem1/nt9.i/15OCT10.b/gasco.b/VO063010S.m
Misc Info: 10-26012

Calibration Date: 15-OCT-2010
Calibration Time: 11:01
Client Smp ID: DGS-30-0113.9-10100
Level: LOW
Sample Type: Sediment

Test Mode:
Use Initial Calibration Level 5.
If Continuing Cal. use Initial Cal. Level 5

COMPOUND	STANDARD	AREA LIMIT LOWER	AREA LIMIT UPPER	SAMPLE	%DIFF
32 Pentafluorobenzen	704281	352140	1408562	655055	-6.99
35 1,4-Difluorobenze	937745	468872	1875490	887991	-5.31
52 d5-Chlorobenzene	853013	426506	1706026	793107	-7.02
75 d4-1,4-Dichlorobe	503655	251828	1007310	432162	-14.19

COMPOUND	STANDARD	RT LIMIT LOWER	RT LIMIT UPPER	SAMPLE	%DIFF
32 Pentafluorobenzen	4.93	4.43	5.43	4.94	0.11
35 1,4-Difluorobenze	5.32	4.82	5.82	5.32	0.00
52 d5-Chlorobenzene	7.40	6.90	7.90	7.40	0.00
75 d4-1,4-Dichlorobe	9.11	8.61	9.61	9.11	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.

Analytical Resources, Inc.

RECOVERY REPORT

Client Name: NW Natural
Sample Matrix: SOLID
Lab Smp Id: RQ84A
Level: LOW
Data Type: MS DATA
SpikeList File: all.spk
Sublist File: gasco.sub
Method File: /chem1/nt9.i/15OCT10.b/gasco.b/VO063010S.m
Misc Info: 10-26012

Client SDG: RQ84
Fraction: VOA
Client Smp ID: DGS-30-0113.9-10100
Operator: PB
SampleType: SAMPLE
Quant Type: ISTD

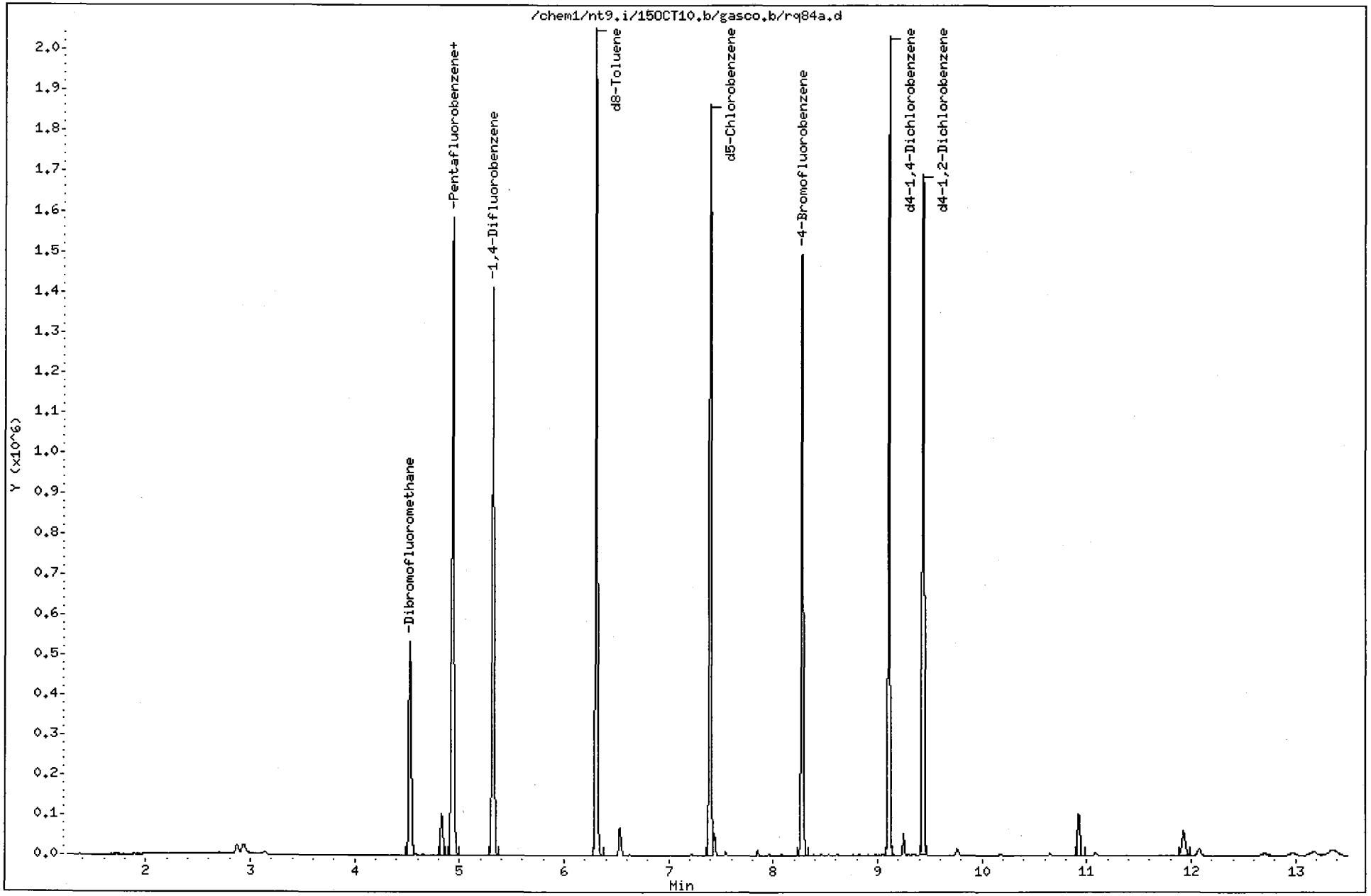
SURROGATE COMPOUND	AMOUNT ADDED ug/Kg	AMOUNT RECOVERED ug/Kg	% RECOVERED	LIMITS
$ 25 Dibromofluorometha	50.000	50.300	100.60	30-160
$ 31 d4-1,2-Dichloroeth	50.000	53.186	106.37	75-152
$ 42 d8-Toluene	50.000	49.698	99.40	82-115
$ 61 4-Bromofluorobenze	50.000	49.125	98.25	64-120
$ 78 d4-1,2-Dichloroben	50.000	50.560	101.12	80-120

Data File: /chem1/nt9.i/15OCT10.b/gasco.b/rq84a.d
Date : 15-OCT-2010 13:06
Client ID: DGS-30-0113.9-10100
Sample Info: RQ84A,5,5.54,0

Column phase: RTX502.2

Instrument: nt9.i

Operator: PB
Column diameter: 0.18



RQ84A:00122

Data File: /chem1/nt9.i/15OCT10.b/gasco.b/rq84a.d

Date : 15-OCT-2010 13:06

Client ID: DGS-30-0113.9-10100

Instrument: nt9.i

Sample Info: RQ84A,5,5.54,0

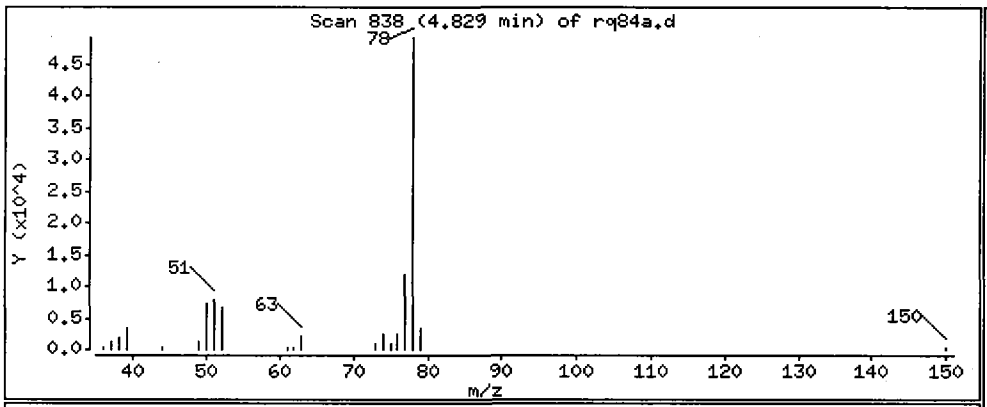
Operator: PB

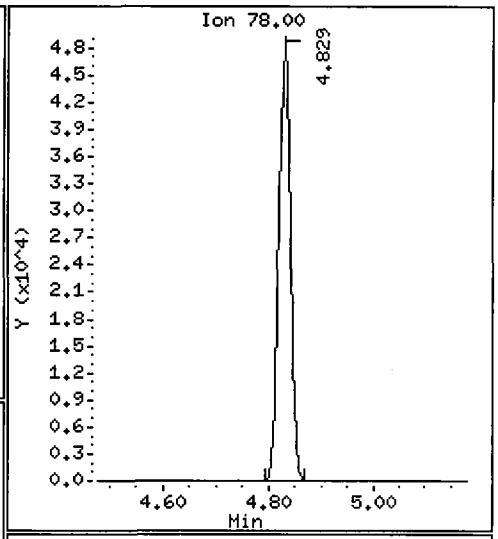
Column phase: RTX502.2

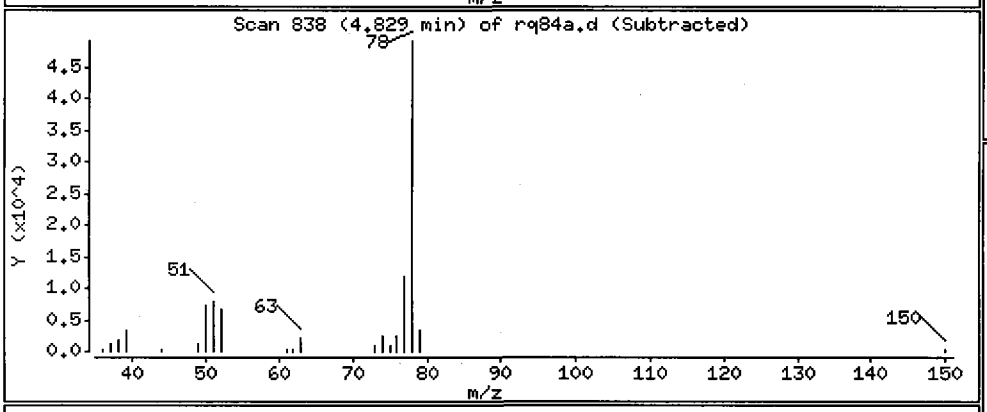
Column diameter: 0.18

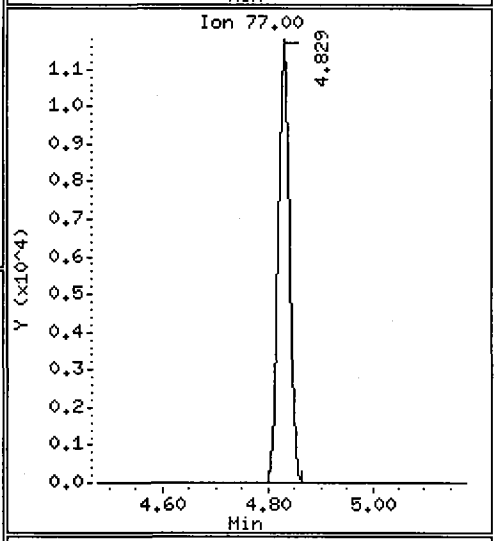
30 Benzene

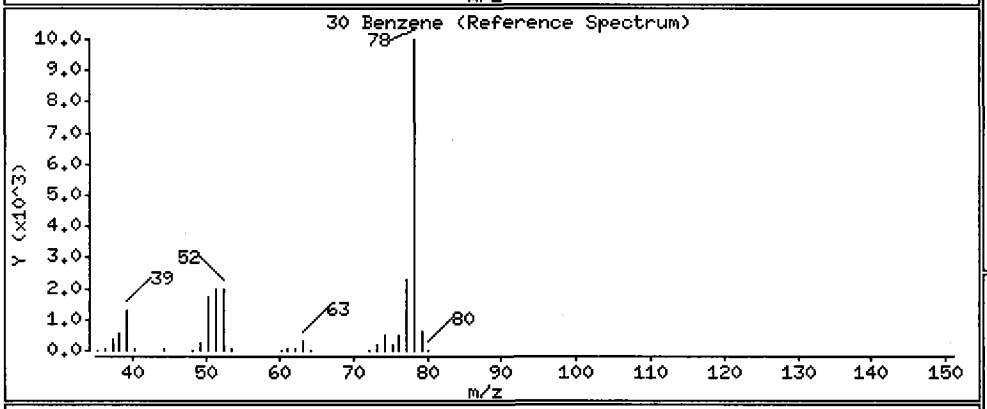
Concentration: 2.711 ug/Kg

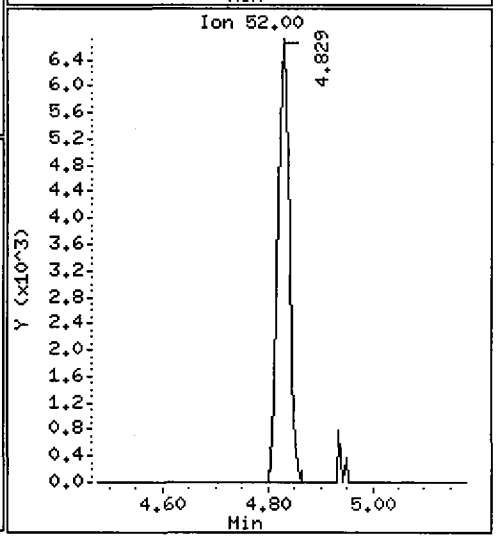


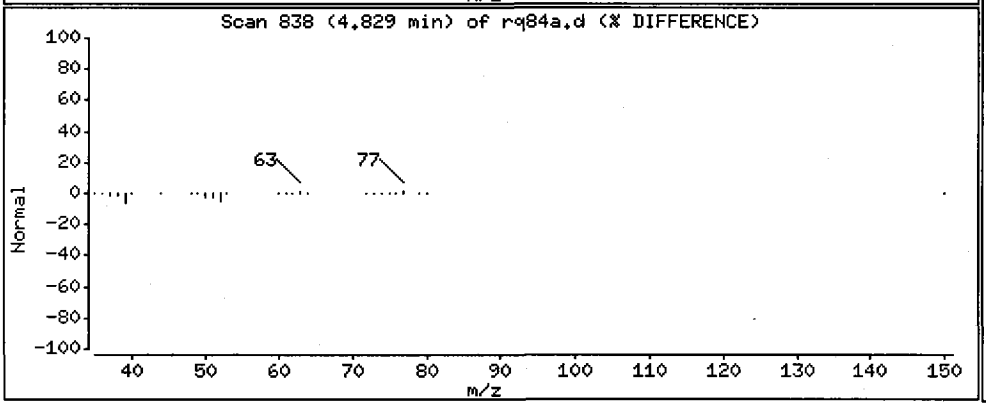












Analytical Resources, Inc.

8260C

Data file : /chem1/nt9.i/15OCT10.b/gasco.b/rq84ams.d
Lab Smp Id: RQ84AMS Client Smp ID: DGS-30-0113.9-10MS
Inj Date : 15-OCT-2010 15:36
Operator : PB Inst ID: nt9.i
Smp Info : RQ84AMS,5,5.24,0
Misc Info : 10-26012
Comment :
Method : /chem1/nt9.i/15OCT10.b/gasco.b/VO063010S.m
Meth Date : 21-Oct-2010 11:28 patrickb Quant Type: ISTD
Cal Date : 28-AUG-2010 13:21 Cal File: 2000828.d
Als bottle: 1 QC Sample: MS
Dil Factor: 1.00000
Integrator: HP RTE Compound Sublist: gasco.sub
Target Version: 3.50
Processing Host: cserv3

Concentration Formula: Amt * DF * Pv * 1 / (Sa * ((100 - M) / 100)) * CpndVaria

Name	Value	Description
DF	1.00000	Dilution Factor
Pv	5.00000	Purge Volume
Sa	5.24000	Sample Amount
M	0.00000	% Moisture (not decanted)

Cpnd Variable Local Compound Variable

Compounds	QUANT SIG MASS	RT	EXP RT	REL RT	RESPONSE	CONCENTRATIONS ON-COLUMN (ug/Kg)	FINAL (ug/Kg)
3 Vinyl Chloride	62	1.406	1.407	(0.285)	261724	42.1129	40.184
7 1,1-Dichloroethene	96	2.311	2.312	(0.468)	269945	43.9494	41.936
15 Trans-1,2-Dichloroethene	96	3.030	3.030	(0.614)	315353	44.4296	42.395
20 Cis-1,2-Dichloroethene	96	4.138	4.139	(0.838)	313910	46.6756	44.538
23 Chloroform	83	4.382	4.382	(0.888)	502822	47.1358	44.977
24 Carbon Tetrachloride	117	4.472	4.473	(0.841)	398188	45.8009	43.703
* 32 Pentafluorobenzene	168	4.936	4.931	(1.000)	695685	50.0000	
$ 25 Dibromofluoromethane	111	4.529	4.529	(0.917)	271923	52.2733	49.879
$ 31 d4-1,2-Dichloroethane	65	4.936	4.937	(1.000)	285889	53.5304	51.079
29 2-Butanone	72	4.647	4.642	(0.942)	167131	247.527	236.19
30 Benzene	78	4.828	4.829	(0.908)	1168941	46.4028	44.277
33 1,2-Dichloroethane	62	4.987	4.988	(0.937)	361217	49.8500	47.567
* 35 1,4-Difluorobenzene	114	5.321	5.321	(1.000)	936643	50.0000	
34 Trichloroethene	95	5.281	5.282	(0.993)	319280	45.8761	43.775

Compounds	QUANT SIG MASS	RT	EXP RT	REL RT	RESPONSE	CONCENTRATIONS ON-COLUMN (ug/Kg)	FINAL (ug/Kg)
$ 42 d8-Toluene	98	6.305	6.306	(1.185)	1062101	50.0462	47.754
43 Toluene	92	6.344	6.345	(1.192)	796279	44.4810	42.444
44 Tetrachloroethene	166	6.610	6.611	(0.894)	422316	45.2627	43.190
* 52 d5-Chlorobenzene	117	7.397	7.397	(1.000)	858308	50.0000	
53 Chlorobenzene	112	7.408	7.409	(1.002)	940705	45.9600	43.855
54 Ethyl Benzene	91	7.436	7.437	(1.005)	1581840	44.9698	42.910
56 m,p-xylene	106	7.544	7.544	(1.020)	1318560	92.6835	88.438
57 o-Xylene	106	7.849	7.850	(1.061)	606791	45.7861	43.689
$ 61 4-Bromofluorobenzene	95	8.279	8.280	(1.119)	396593	49.8889	47.604
* 75 d4-1,4-Dichlorobenzene	152	9.111	9.111	(1.000)	496253	50.0000	
76 1,4-Dichlorobenzene	146	9.122	9.123	(1.001)	803815	45.1383	43.071
$ 78 d4-1,2-Dichlorobenzene	152	9.433	9.439	(1.035)	439639	50.6799	48.359

Analytical Resources, Inc.

INTERNAL STANDARD COMPOUNDS
AREA AND RT SUMMARY

Instrument ID: nt9.i
Lab File ID: rq84ams.d
Lab Smp Id: RQ84AMS
Analysis Type: VOA
Quant Type: ISTD
Operator: PB
Method File: /chem1/nt9.i/15OCT10.b/gasco.b/VO063010S.m
Misc Info: 10-26012

Calibration Date: 15-OCT-2010
Calibration Time: 11:01
Client Smp ID: DGS-30-0113.9-10MS
Level: LOW
Sample Type: Sediment

Test Mode:
Use Initial Calibration Level 5.
If Continuing Cal. use Initial Cal. Level 5

COMPOUND	STANDARD	AREA LIMIT LOWER	AREA LIMIT UPPER	SAMPLE	%DIFF
32 Pentafluorobenzen	704281	352140	1408562	695685	-1.22
35 1,4-Difluorobenze	937745	468872	1875490	936643	-0.12
52 d5-Chlorobenzene	853013	426506	1706026	858308	0.62
75 d4-1,4-Dichlorobe	503655	251828	1007310	496253	-1.47

COMPOUND	STANDARD	RT LIMIT LOWER	RT LIMIT UPPER	SAMPLE	%DIFF
32 Pentafluorobenzen	4.93	4.43	5.43	4.94	0.10
35 1,4-Difluorobenze	5.32	4.82	5.82	5.32	-0.01
52 d5-Chlorobenzene	7.40	6.90	7.90	7.40	-0.01
75 d4-1,4-Dichlorobe	9.11	8.61	9.61	9.11	-0.01

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.

Analytical Resources, Inc.

RECOVERY REPORT

Client Name: NW Natural
Sample Matrix: SOLID
Lab Smp Id: RQ84AMS
Level: LOW
Data Type: MS DATA
SpikeList File: gasco.spk
Sublist File: gasco.sub
Method File: /chem1/nt9.i/15OCT10.b/gasco.b/VO063010S.m
Misc Info: 10-26012

Client SDG: RQ84
Fraction: VOA
Client Smp ID: DGS-30-0113.9-10MS
Operator: PB
SampleType: MS
Quant Type: ISTD

SPIKE COMPOUND	CONC ADDED ug/Kg	CONC RECOVERED ug/Kg	% RECOVERED	LIMITS
3 Vinyl Chloride	47.710	40.184	84.23	63-137
7 1,1-Dichloroethene	47.710	41.936	87.90	75-126
15 Trans-1,2-Dichloro	47.710	42.395	88.86	80-120
20 Cis-1,2-Dichloroet	47.710	44.538	93.35	80-120
23 Chloroform	47.710	44.977	94.27	80-120
24 Carbon Tetrachlori	47.710	43.703	91.60	77-122
29 2-Butanone	238.55	236.19	99.01	70-120
30 Benzene	47.710	44.277	92.81	80-120
33 1,2-Dichloroethane	47.710	47.567	99.70	76-120
34 Trichloroethene	47.710	43.775	91.75	80-120
43 Toluene	47.710	42.444	88.96	80-120
44 Tetrachloroethene	47.710	43.190	90.53	80-121
53 Chlorobenzene	47.710	43.855	91.92	80-120
54 Ethyl Benzene	47.710	42.910	89.94	80-127
56 m,p-xylene	95.420	88.438	92.68	80-125
57 o-Xylene	47.710	43.689	91.57	78-120
76 1,4-Dichlorobenzen	47.710	43.071	90.28	80-120

SURROGATE COMPOUND	AMOUNT ADDED ug/Kg	AMOUNT RECOVERED ug/Kg	% RECOVERED	LIMITS
$ 25 Dibromofluorometha	50.000	52.273	104.55	30-160
$ 31 d4-1,2-Dichloroeth	50.000	53.530	107.06	75-152
$ 42 d8-Toluene	50.000	50.046	100.09	82-115
$ 61 4-Bromofluorobenze	50.000	49.889	99.78	64-120
$ 78 d4-1,2-Dichloroben	50.000	50.680	101.36	80-120

Data File: /chem1/nt9.i/15OCT10.b/gasco.b/rq84ams.d

Date : 15-OCT-2010 15:36

Client ID: DGS-30-0113.9-10MS

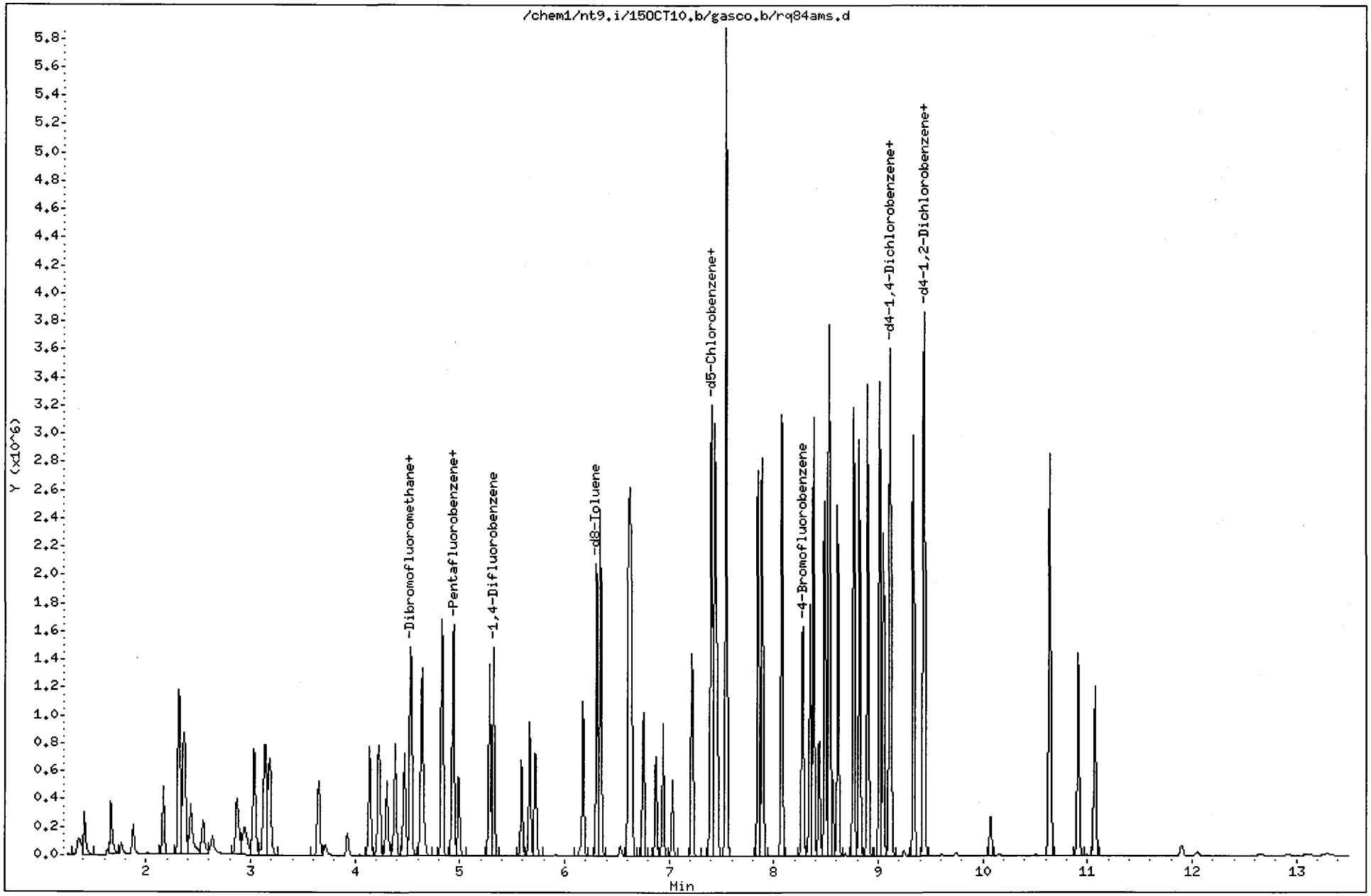
Sample Info: RQ84AMS,5,5.24,0

Column phase: RTX502.2

Instrument: nt9.i

Operator: PB

Column diameter: 0.18



RQ84:00128

Analytical Resources, Inc.

8260C

Data file : /chem1/nt9.i/15OCT10.b/gasco.b/rq84amsd.d
Lab Smp Id: RQ84AMSD Client Smp ID: DGS-30-0113.9-10MSD
Inj Date : 15-OCT-2010 16:07
Operator : PB Inst ID: nt9.i
Smp Info : RQ84AMSD,5,5.31,0
Misc Info : 10-26012
Comment :
Method : /chem1/nt9.i/15OCT10.b/gasco.b/VO063010S.m
Meth Date : 21-Oct-2010 11:28 patrickb Quant Type: ISTD
Cal Date : 28-AUG-2010 13:21 Cal File: 2000828.d
Als bottle: 1 QC Sample: MSD
Dil Factor: 1.00000
Integrator: HP RTE Compound Sublist: gasco.sub
Target Version: 3.50
Processing Host: cserv3

Concentration Formula: Amt * DF * Pv * 1 / (Sa * ((100 - M) / 100)) * CpndVaria

Name	Value	Description
DF	1.00000	Dilution Factor
Pv	5.00000	Purge Volume
Sa	5.31000	Sample Amount
M	0.00000	% Moisture (not decanted)

Cpnd Variable Local Compound Variable

Compounds	QUANT SIG MASS	RT	EXP RT	REL RT	RESPONSE	CONCENTRATIONS ON-COLUMN (ug/Kg)	FINAL (ug/Kg)
3 Vinyl Chloride	62	1.409	1.407	(0.286)	299203	47.9173	45.120
7 1,1-Dichloroethene	96	2.309	2.312	(0.468)	300152	48.6378	45.798
15 Trans-1,2-Dichloroethene	96	3.033	3.030	(0.615)	338810	47.5101	44.736
20 Cis-1,2-Dichloroethene	96	4.136	4.139	(0.838)	333730	49.3895	46.506
23 Chloroform	83	4.385	4.382	(0.889)	535225	49.9376	47.022
24 Carbon Tetrachloride	117	4.470	4.473	(0.840)	446424	51.1316	48.147
* 32 Pentafluorobenzene	168	4.933	4.931	(1.000)	698969	50.0000	
$ 25 Dibromofluoromethane	111	4.526	4.529	(0.917)	270116	51.6819	48.665
$ 31 d4-1,2-Dichloroethane	65	4.939	4.937	(1.001)	283571	52.8469	49.762
29 2-Butanone	72	4.645	4.642	(0.942)	162454	239.470	225.49
30 Benzene	78	4.832	4.829	(0.908)	1276632	50.4631	47.517
33 1,2-Dichloroethane	62	4.990	4.988	(0.937)	374420	51.4532	48.449
* 35 1,4-Difluorobenzene	114	5.324	5.321	(1.000)	940627	50.0000	
34 Trichloroethene	95	5.284	5.282	(0.993)	339951	48.6394	45.800

Compounds	QUANT SIG MASS	RT	EXP RT	REL RT	RESPONSE	CONCENTRATIONS ON-COLUMN (ug/Kg)	FINAL (ug/Kg)
$ 42 d8-Toluene	98	6.308	6.306	(1.185)	1067056	50.0668	47.144
43 Toluene	92	6.342	6.345	(1.191)	851656	47.3729	44.607
44 Tetrachloroethene	166	6.608	6.611	(0.893)	456386	48.8600	46.008
* 52 d5-Chlorobenzene	117	7.400	7.397	(1.000)	859261	50.0000	
53 Chlorobenzene	112	7.411	7.409	(1.002)	999024	48.7551	45.909
54 Ethyl Benzene	91	7.439	7.437	(1.005)	1717323	48.7672	45.920
56 m,p-xylene	106	7.541	7.544	(1.019)	1412920	99.2061	93.414
57 o-Xylene	106	7.847	7.850	(1.060)	657725	49.5743	46.680
$ 61 4-Bromofluorobenzene	95	8.277	8.280	(1.118)	396381	49.8069	46.899
* 75 d4-1,4-Dichlorobenzene	152	9.108	9.111	(1.000)	502047	50.0000	
76 1,4-Dichlorobenzene	146	9.119	9.123	(1.001)	856098	47.5194	44.745
$ 78 d4-1,2-Dichlorobenzene	152	9.436	9.439	(1.036)	444194	50.6140	47.659

Analytical Resources, Inc.

INTERNAL STANDARD COMPOUNDS
AREA AND RT SUMMARY

Instrument ID: nt9.i
Lab File ID: rq84amsd.d
Lab Smp Id: RQ84AMSD
Analysis Type: VOA
Quant Type: ISTD
Operator: PB
Method File: /chem1/nt9.i/15OCT10.b/gasco.b/VO063010S.m
Misc Info: 10-26012

Calibration Date: 15-OCT-2010
Calibration Time: 11:01
Client Smp ID: DGS-30-0113.9-10MSD
Level: LOW
Sample Type: Sediment

Test Mode:
Use Initial Calibration Level 5.
If Continuing Cal. use Initial Cal. Level 5

COMPOUND	STANDARD	AREA LIMIT LOWER	AREA LIMIT UPPER	SAMPLE	%DIFF
32 Pentafluorobenzen	704281	352140	1408562	698969	-0.75
35 1,4-Difluorobenze	937745	468872	1875490	940627	0.31
52 d5-Chlorobenzene	853013	426506	1706026	859261	0.73
75 d4-1,4-Dichlorobe	503655	251828	1007310	502047	-0.32

COMPOUND	STANDARD	RT LIMIT LOWER	RT LIMIT UPPER	SAMPLE	%DIFF
32 Pentafluorobenzen	4.93	4.43	5.43	4.93	0.05
35 1,4-Difluorobenze	5.32	4.82	5.82	5.32	0.05
52 d5-Chlorobenzene	7.40	6.90	7.90	7.40	0.03
75 d4-1,4-Dichlorobe	9.11	8.61	9.61	9.11	-0.04

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.

Analytical Resources, Inc.

RECOVERY REPORT

Client Name: NW Natural
Sample Matrix: SOLID
Lab Smp Id: RQ84AMSD
Level: LOW
Data Type: MS DATA
SpikeList File: gasco.spk
Sublist File: gasco.sub
Method File: /chem1/nt9.i/15OCT10.b/gasco.b/VO063010S.m
Misc Info: 10-26012

Client SDG: RQ84
Fraction: VOA
Client Smp ID: DGS-30-0113.9-10MSD
Operator: PB
SampleType: MSD
Quant Type: ISTD

SPIKE COMPOUND	CONC ADDED ug/Kg	CONC RECOVERED ug/Kg	% RECOVERED	LIMITS
3 Vinyl Chloride	47.081	45.120	95.83	63-137
7 1,1-Dichloroethene	47.081	45.798	97.28	75-126
15 Trans-1,2-Dichloro	47.081	44.736	95.02	80-120
20 Cis-1,2-Dichloroet	47.081	46.506	98.78	80-120
23 Chloroform	47.081	47.022	99.88	80-120
24 Carbon Tetrachlori	47.081	48.147	102.26	77-122
29 2-Butanone	235.40	225.49	95.79	70-120
30 Benzene	47.081	47.517	100.93	80-120
33 1,2-Dichloroethane	47.081	48.449	102.91	76-120
34 Trichloroethene	47.081	45.800	97.28	80-120
43 Toluene	47.081	44.607	94.75	80-120
44 Tetrachloroethene	47.081	46.008	97.72	80-121
53 Chlorobenzene	47.081	45.909	97.51	80-120
54 Ethyl Benzene	47.081	45.920	97.53	80-127
56 m,p-xylene	94.162	93.414	99.21	80-125
57 o-Xylene	47.081	46.680	99.15	78-120
76 1,4-Dichlorobenzen	47.081	44.745	95.04	80-120

SURROGATE COMPOUND	AMOUNT ADDED ug/Kg	AMOUNT RECOVERED ug/Kg	% RECOVERED	LIMITS
$ 25 Dibromofluorometha	50.000	51.682	103.36	30-160
$ 31 d4-1,2-Dichloroeth	50.000	52.847	105.69	75-152
$ 42 d8-Toluene	50.000	50.067	100.13	82-115
$ 61 4-Bromofluorobenze	50.000	49.807	99.61	64-120
$ 78 d4-1,2-Dichloroben	50.000	50.614	101.23	80-120

Data File: /chem1/nt9.i/15OCT10.b/gasco.b/rq84amsd.d

Date : 15-OCT-2010 16:07

Client ID: DGS-30-0113.9-10MSD

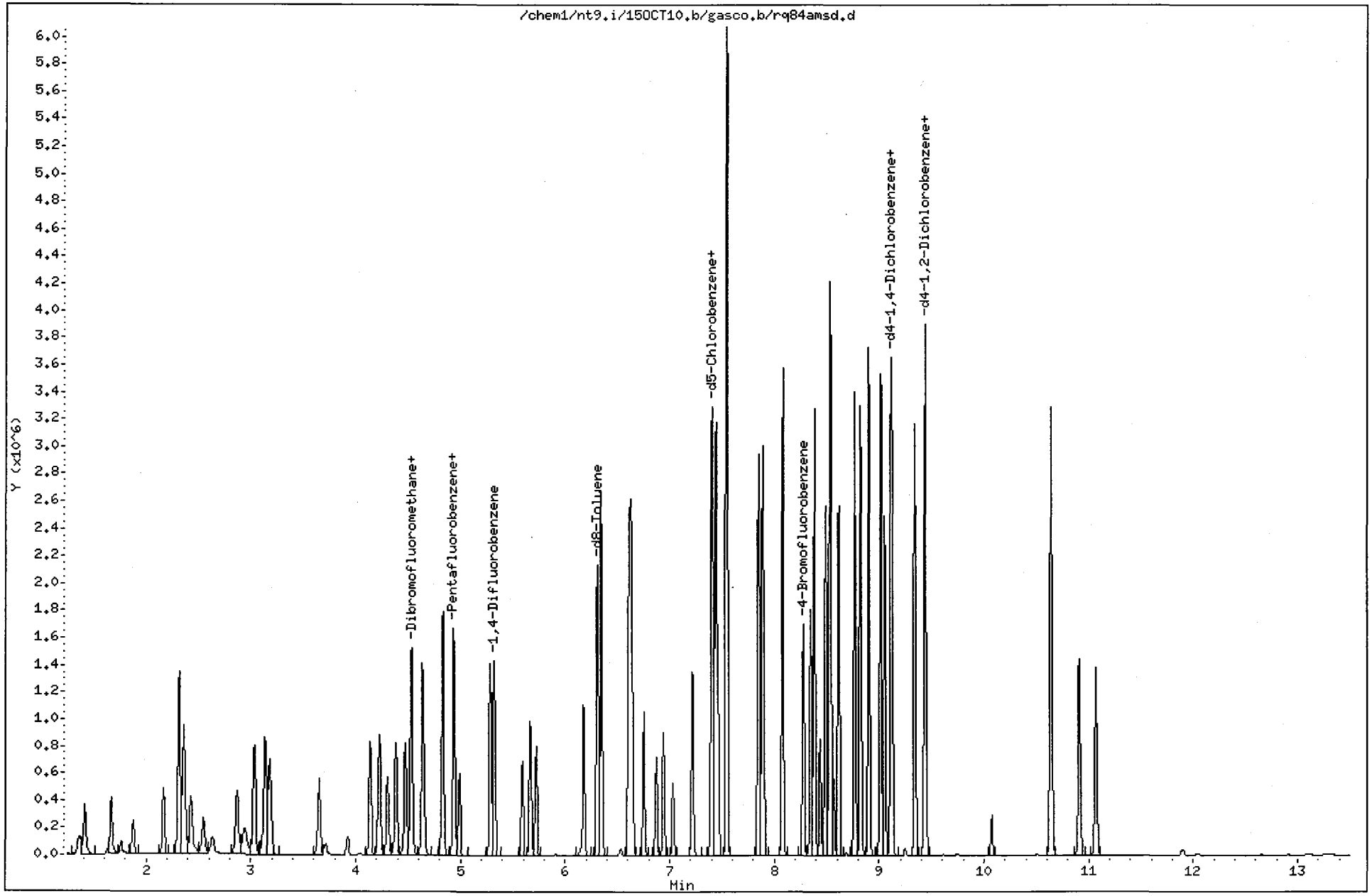
Sample Info: RQ84AMSD,5,5.31,0

Column phase: RTX502.2

Instrument: nt9.i

Operator: PB

Column diameter: 0.18



RQ81 : 00133

Analytical Resources, Inc.

8260C

Data file : /chem1/nt9.i/15OCT10.b/gasco.b/rq84b2.d
Lab Smp Id: RQ84B Client Smp ID: DGS-19-3.34.1-10100
Inj Date : 15-OCT-2010 16:37
Operator : PB Inst ID: nt9.i
Smp Info : RQ84B,5,1.19,1,25UL 1.19G/5ML
Misc Info : 10-26013
Comment :
Method : /chem1/nt9.i/15OCT10.b/gasco.b/VO063010S.m
Meth Date : 21-Oct-2010 11:29 patrickb Quant Type: ISTD
Cal Date : 28-AUG-2010 13:21 Cal File: 2000828.d
Als bottle: 1
Dil Factor: 1.00000
Integrator: HP RTE Compound Sublist: gasco.sub
Target Version: 3.50
Processing Host: cserv3

10/26

Concentration Formula: Amt * DF * Uf * 1/(Ws * (100 - M)/100) * CpndVariable

M	0.00000	% Moisture (not decanted)
Uf	1.00000	ng unit correction factor
Ws	5.00000	Weight of sample extracted (g)

Cpnd Variable Local Compound Variable

Compounds	QUANT SIG MASS	RT	EXP RT	REL RT	RESPONSE	CONCENTRATIONS ON-COLUMN (ug/Kg)	FINAL (ug/Kg)
3 Vinyl Chloride	62	Compound Not Detected.					
7 1,1-Dichloroethene	96	Compound Not Detected.					
15 Trans-1,2-Dichloroethene	96	Compound Not Detected.					
20 Cis-1,2-Dichloroethene	96	Compound Not Detected.					
23 Chloroform	83	Compound Not Detected.					
24 Carbon Tetrachloride	117	Compound Not Detected.					
* 32 Pentafluorobenzene	168	4.931	4.931	(1.000)	574860	50.0000	
$ 25 Dibromofluoromethane	111	4.530	4.529	(0.919)	208727	48.5582	9.712
$ 31 d4-1,2-Dichloroethane	65	4.937	4.937	(1.001)	221586	50.2107	10.042
29 2-Butanone	72	Compound Not Detected.					
30 Benzene	78	4.830	4.829	(0.908)	28924	1.40171	0.2803
33 1,2-Dichloroethane	62	Compound Not Detected.					
* 35 1,4-Difluorobenzene	114	5.322	5.321	(1.000)	767231	50.0000	
34 Trichloroethene	95	Compound Not Detected.					
$ 42 d8-Toluene	98	6.306	6.306	(1.185)	855962	49.2389	9.848
43 Toluene	92	Compound Not Detected.					
44 Tetrachloroethene	166	Compound Not Detected.					
* 52 d5-Chlorobenzene	117	7.398	7.397	(1.000)	673927	50.0000	
53 Chlorobenzene	112	Compound Not Detected.					

Compounds	QUANT SIG MASS	RT	EXP RT	REL RT	RESPONSE	CONCENTRATIONS ON-COLUMN (ug/Kg)	FINAL (ug/Kg)
54 Ethyl Benzene	91	7.437	7.437	(1.005)	433753	15.7047	3.141
56 m,p-xylene	106	7.545	7.544	(1.020)	62731	5.61585	1.123
57 o-Xylene	106	7.845	7.850	(1.060)	41420	3.98047	0.7961
$ 61 4-Bromofluorobenzene	95	8.275	8.280	(1.119)	303965	48.6982	9.740
* 75 d4-1,4-Dichlorobenzene	152	9.112	9.111	(1.000)	365325	50.0000	
76 1,4-Dichlorobenzene	146	Compound Not Detected.					
$ 78 d4-1,2-Dichlorobenzene	152	9.434	9.439	(1.035)	325092	50.9060	10.181(Q)

QC Flag Legend

Q - Qualifier signal failed the ratio test.

Analytical Resources, Inc.

INTERNAL STANDARD COMPOUNDS
AREA AND RT SUMMARY

Instrument ID: nt9.i
Lab File ID: rq84b2.d
Lab Smp Id: RQ84B
Analysis Type: VOA
Quant Type: ISTD
Operator: PB
Method File: /chem1/nt9.i/15OCT10.b/gasco.b/VO063010S.m
Misc Info: 10-26013

Calibration Date: 15-OCT-2010
Calibration Time: 11:01
Client Smp ID: DGS-19-3.34.1-10100
Level: MED
Sample Type: Sediment

Test Mode:
Use Initial Calibration Level 5.
If Continuing Cal. use Initial Cal. Level 5

COMPOUND	STANDARD	AREA LIMIT LOWER	AREA LIMIT UPPER	SAMPLE	%DIFF
32 Pentafluorobenzen	704281	352140	1408562	574860	-18.38
35 1,4-Difluorobenze	937745	468872	1875490	767231	-18.18
52 d5-Chlorobenzene	853013	426506	1706026	673927	-20.99
75 d4-1,4-Dichlorobe	503655	251828	1007310	365325	-27.47

COMPOUND	STANDARD	RT LIMIT LOWER	RT LIMIT UPPER	SAMPLE	%DIFF
32 Pentafluorobenzen	4.93	4.43	5.43	4.93	0.01
35 1,4-Difluorobenze	5.32	4.82	5.82	5.32	0.01
52 d5-Chlorobenzene	7.40	6.90	7.90	7.40	0.00
75 d4-1,4-Dichlorobe	9.11	8.61	9.61	9.11	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.

Analytical Resources, Inc.

RECOVERY REPORT

Client Name: NW Natural
Sample Matrix: SOLID
Lab Smp Id: RQ84B
Level: MED
Data Type: MS DATA
SpikeList File: all.spk
Sublist File: gasco.sub
Method File: /chem1/nt9.i/15OCT10.b/gasco.b/VO063010S.m
Misc Info: 10-26013

Client SDG: RQ84
Fraction: VOA
Client Smp ID: DGS-19-3.34.1-10100
Operator: PB
SampleType: SAMPLE
Quant Type: ISTD

SURROGATE COMPOUND	AMOUNT ADDED ug/Kg	AMOUNT RECOVERED ug/Kg	% RECOVERED	LIMITS
$ 25 Dibromofluorometha	50.000	48.558	97.12	30-160
$ 31 d4-1,2-Dichloroeth	50.000	50.211	100.42	75-152
$ 42 d8-Toluene	50.000	49.239	98.48	82-115
$ 61 4-Bromofluorobenze	50.000	48.698	97.40	64-120
$ 78 d4-1,2-Dichloroben	50.000	50.906	101.81	80-120

Data File: /chem1/nt9.i/15OCT10.b/gasco.b/rq84b2.d

Date : 15-OCT-2010 16:37

Client ID: DGS-19-3.34.1-10100

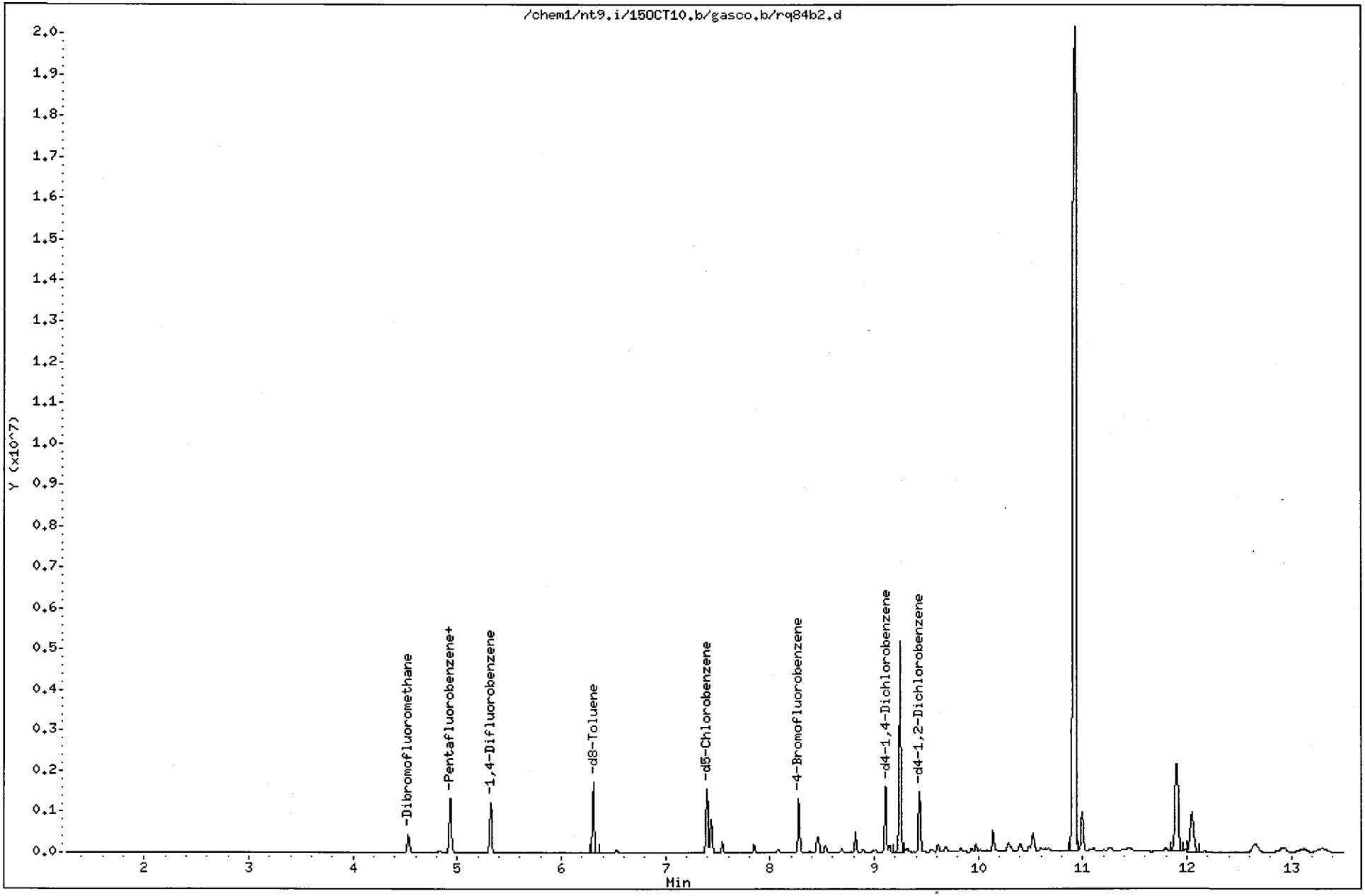
Sample Info: RQ84B,5,1.19,1,25UL 1.19G/5ML

Column phase: RTX502.2

Instrument: nt9.i

Operator: PB

Column diameter: 0.18



RQ81:00138

Data File: /chem1/nt9.i/15OCT10.b/gasco.b/rq84b2.d

Date : 15-OCT-2010 16:37

Client ID: DGS-19-3.34.1-10100

Instrument: nt9.i

Sample Info: RQ84B,5,1.19,1,25UL 1.19G/5ML

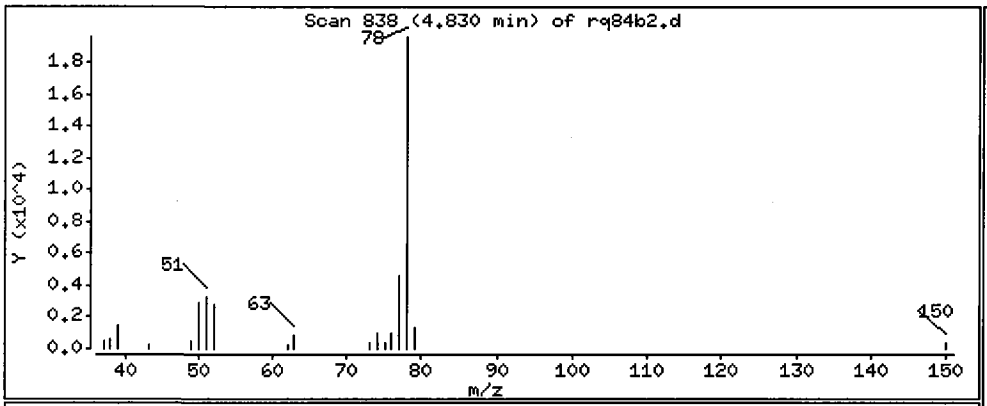
Operator: PB

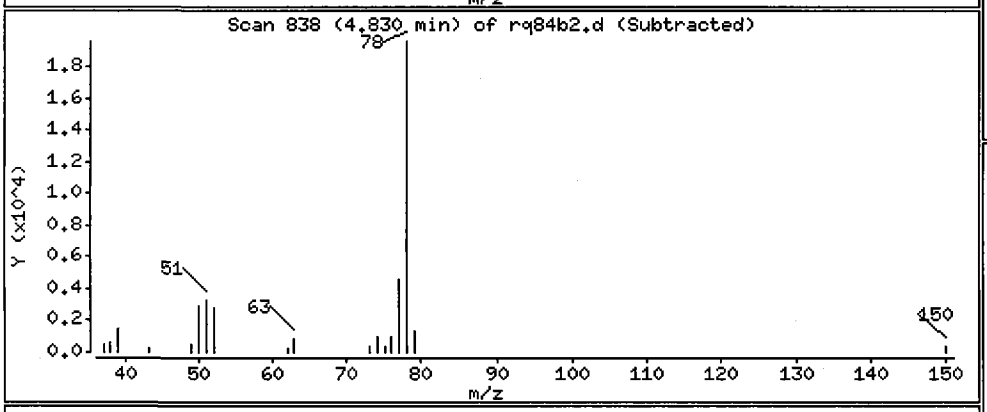
Column phase: RTX502.2

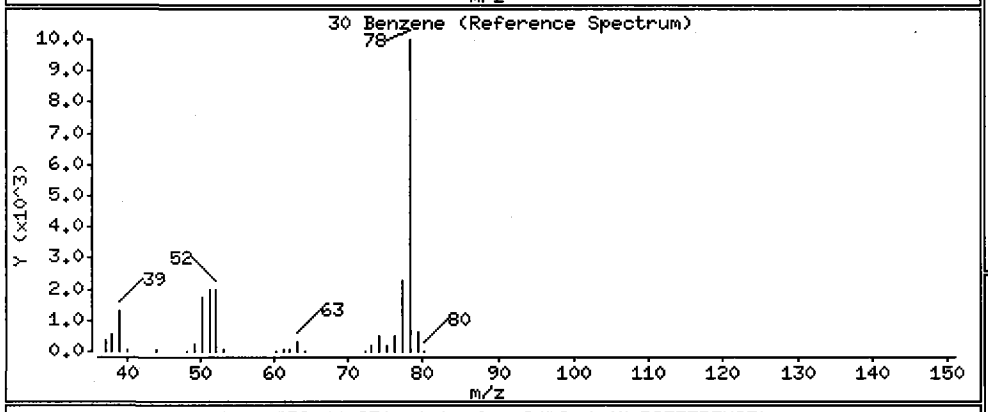
Column diameter: 0.18

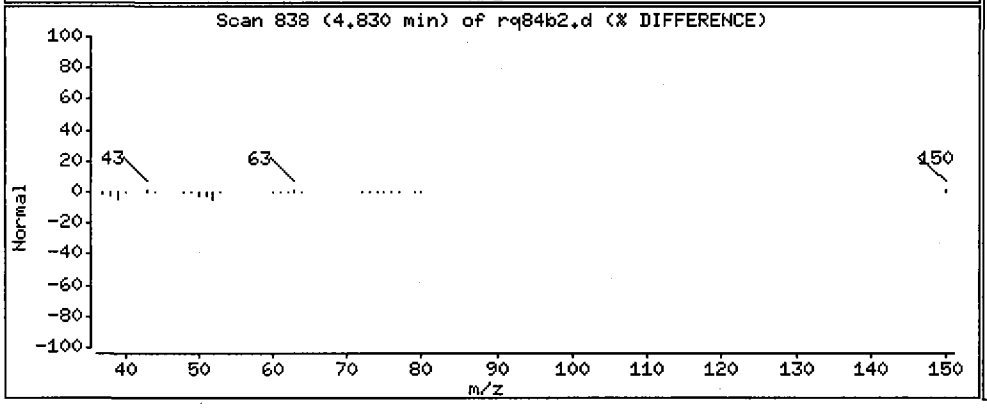
30 Benzene

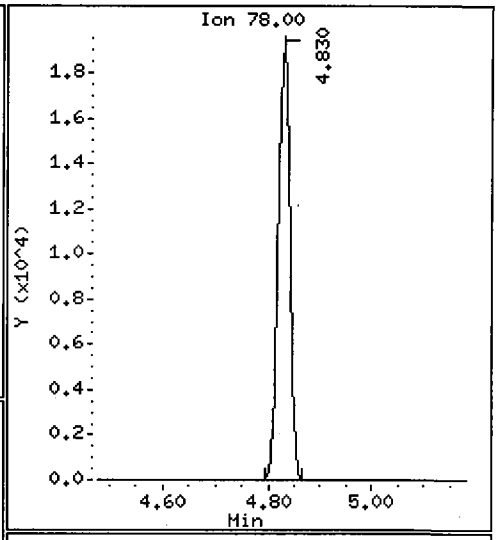
Concentration: 0.2803 ug/Kg

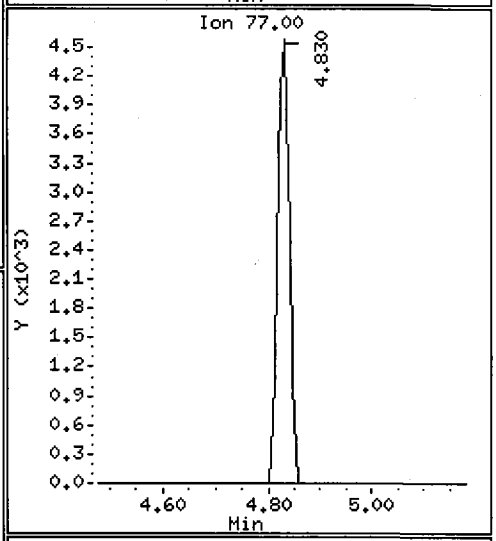


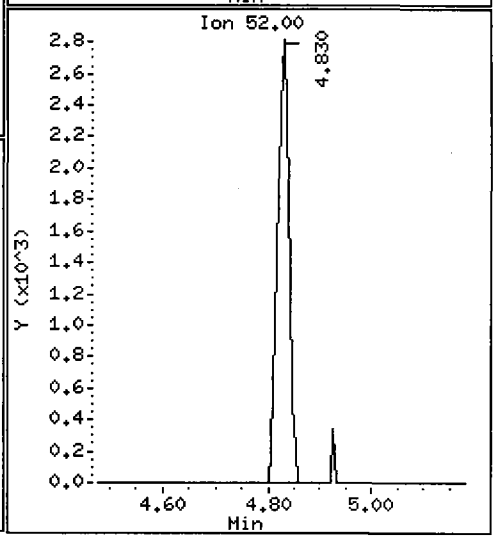












Data File: /chem1/nt9.i/15OCT10.b/gasco.b/rq84b2.d

Date : 15-OCT-2010 16:37

Client ID: DGS-19-3.34.1-10100

Instrument: nt9.i

Sample Info: RQ84B,5,1.19,1,25UL 1.19G/5ML

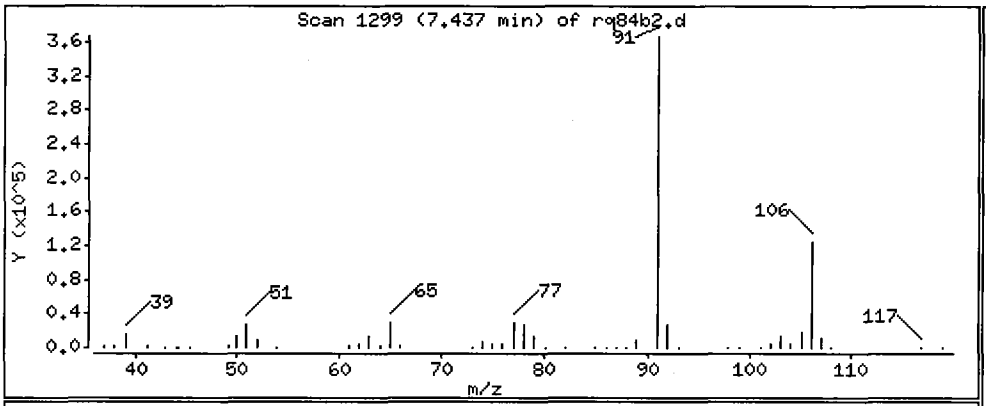
Operator: PB

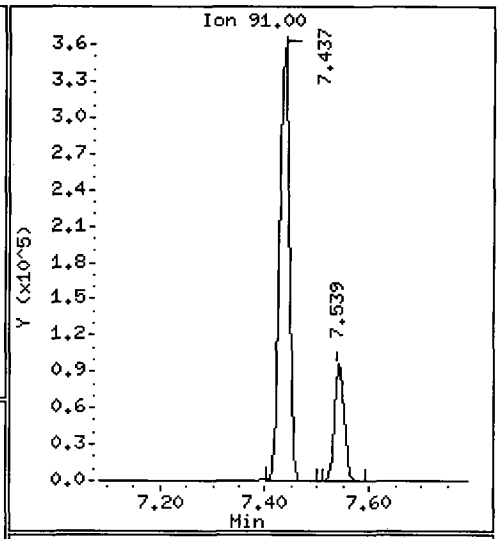
Column phase: RTX502.2

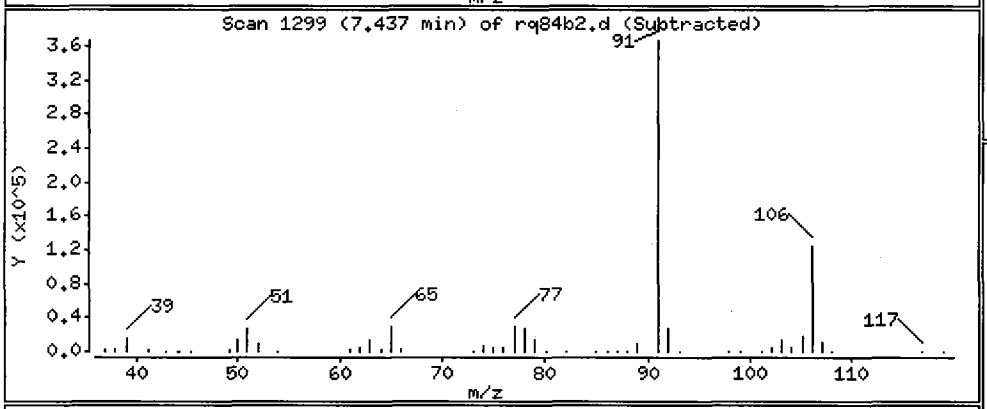
Column diameter: 0.18

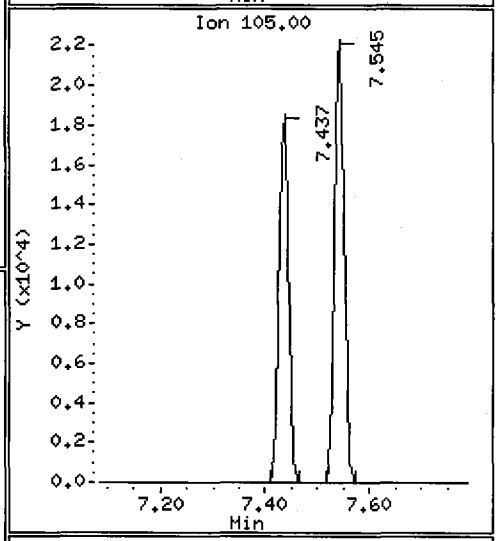
54 Ethyl Benzene

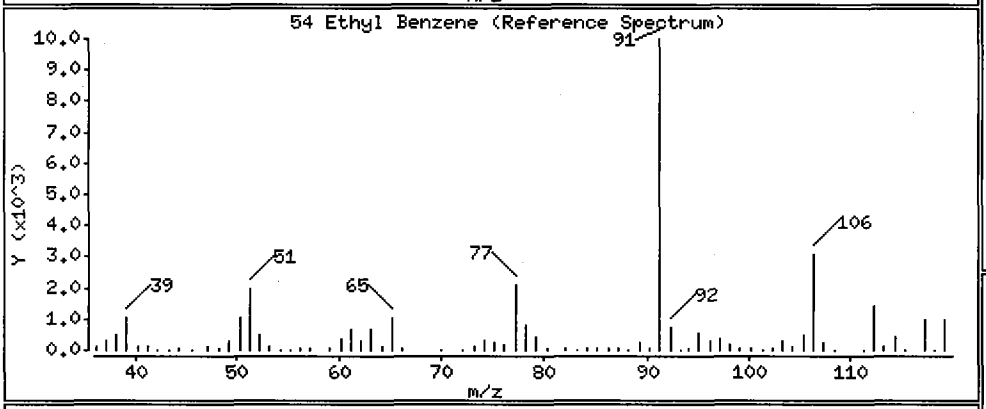
Concentration: 3.141 ug/Kg

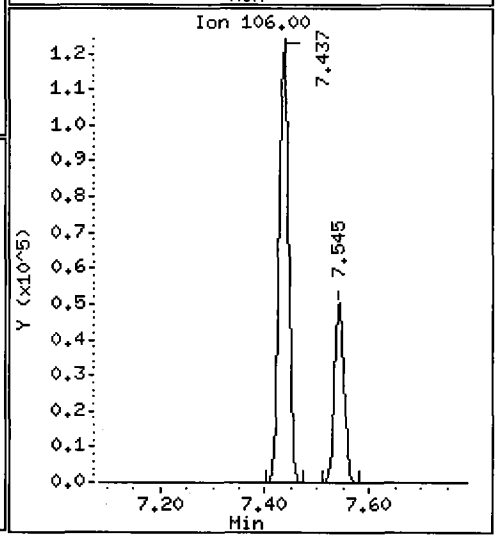


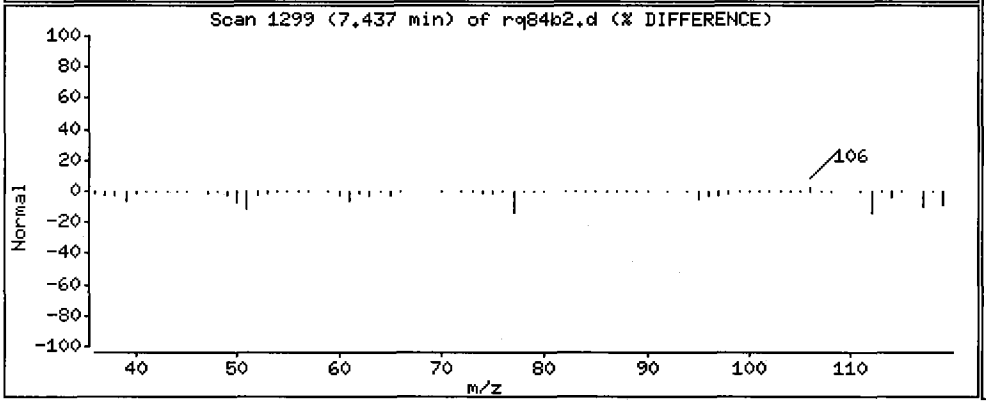












Data File: /chem1/nt9.i/15OCT10.b/gasco.b/rq84b2.d

Date : 15-OCT-2010 16:37

Client ID: DGS-19-3.34.1-10100

Instrument: nt9.i

Sample Info: RQ84B,5,1.19,1,25UL 1.19G/5ML

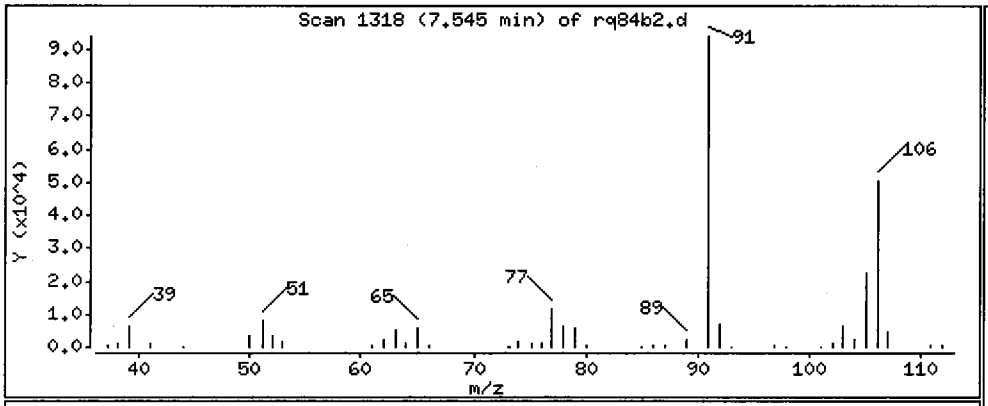
Operator: PB

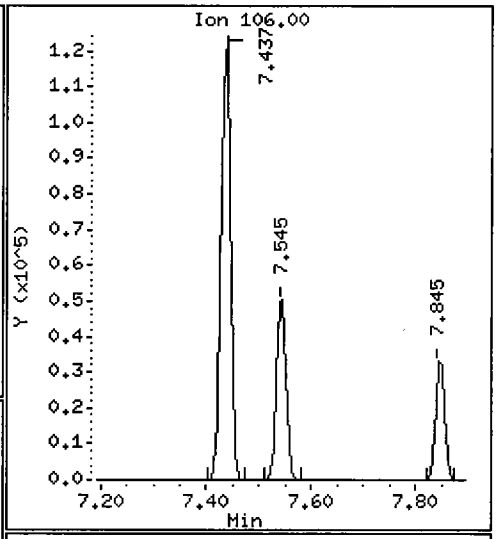
Column phase: RTX502.2

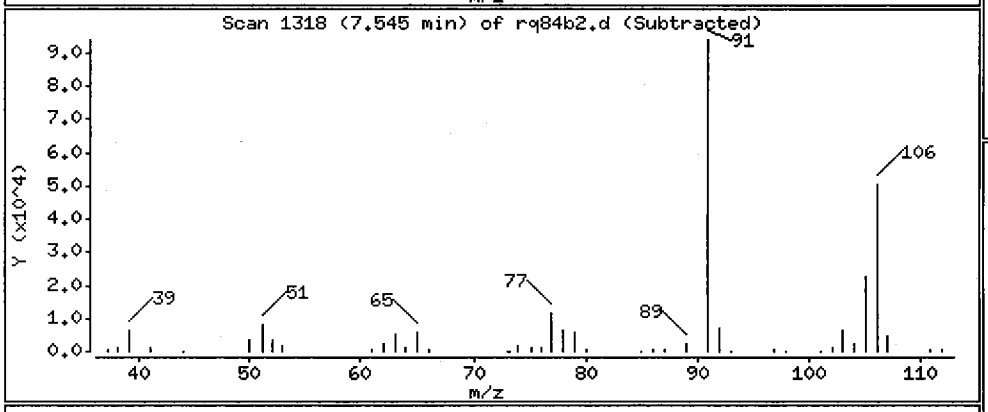
Column diameter: 0.18

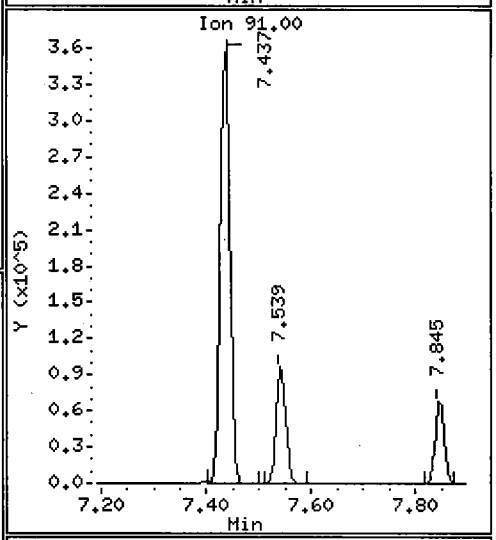
56 m,p-xylene

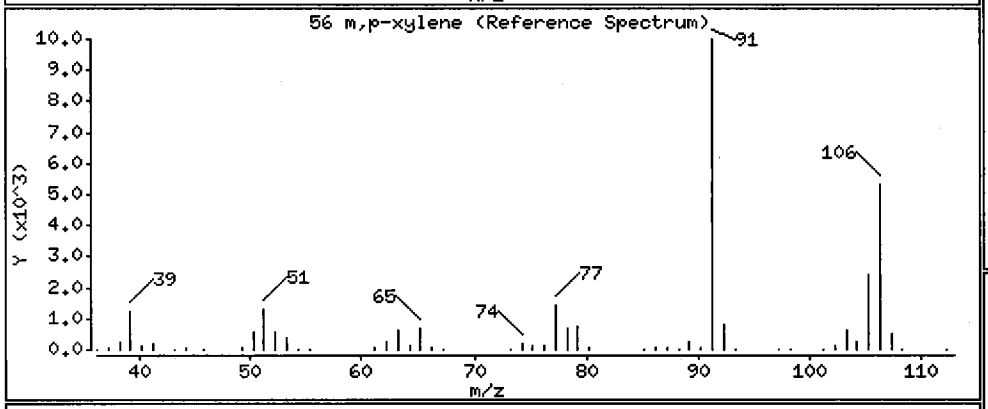
Concentration: 1.123 ug/Kg

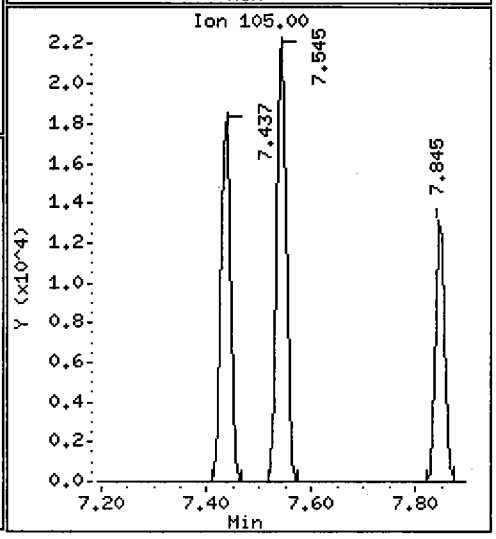


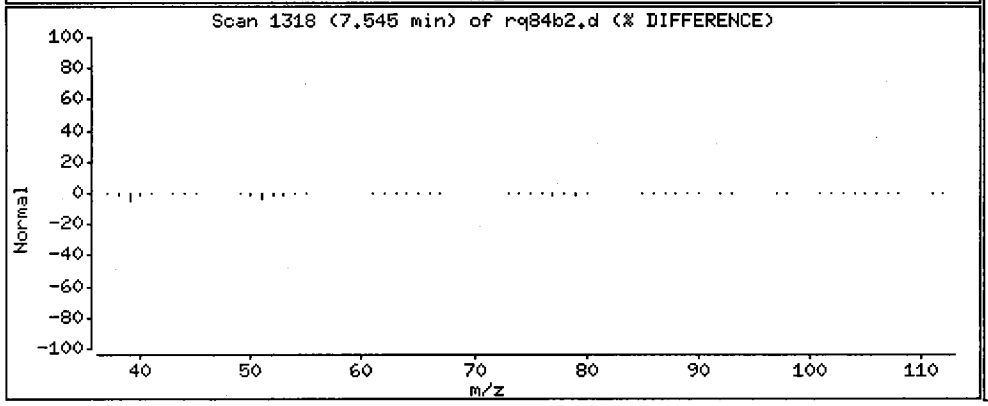












Data File: /chem1/nt9.i/15OCT10.b/gasco.b/rq84b2.d

Date : 15-OCT-2010 16:37

Client ID: DGS-19-3.34.1-10100

Instrument: nt9.i

Sample Info: RQ84B,5,1.19,1,25UL 1.19G/5ML

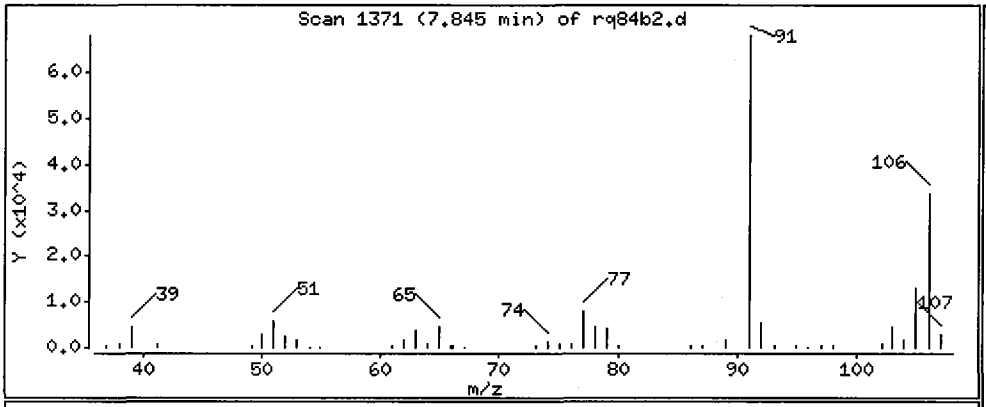
Operator: PB

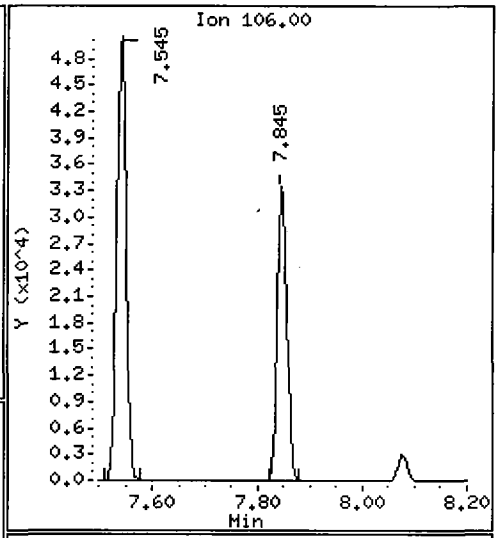
Column phase: RTX502.2

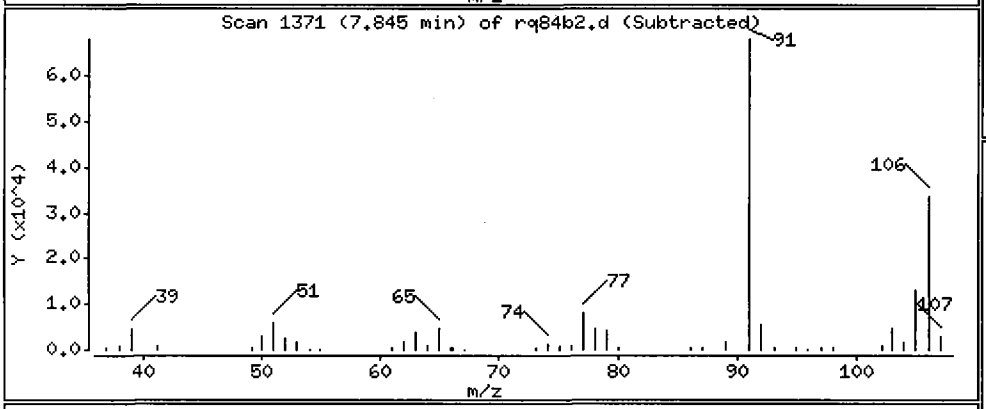
Column diameter: 0.18

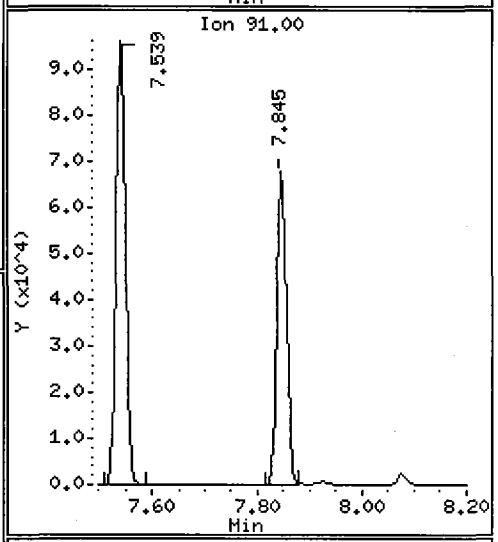
57 o-Xylene

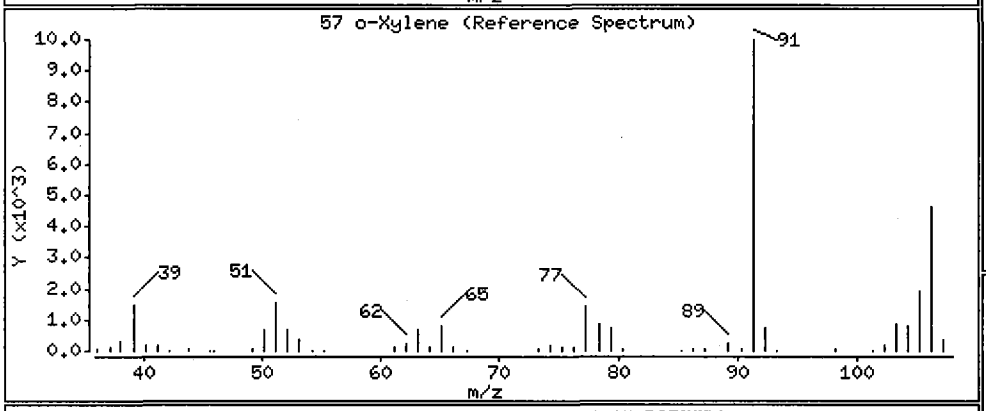
Concentration: 0.7961 ug/Kg

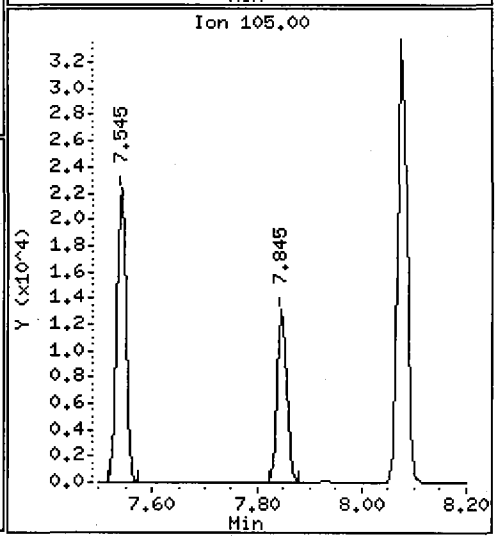


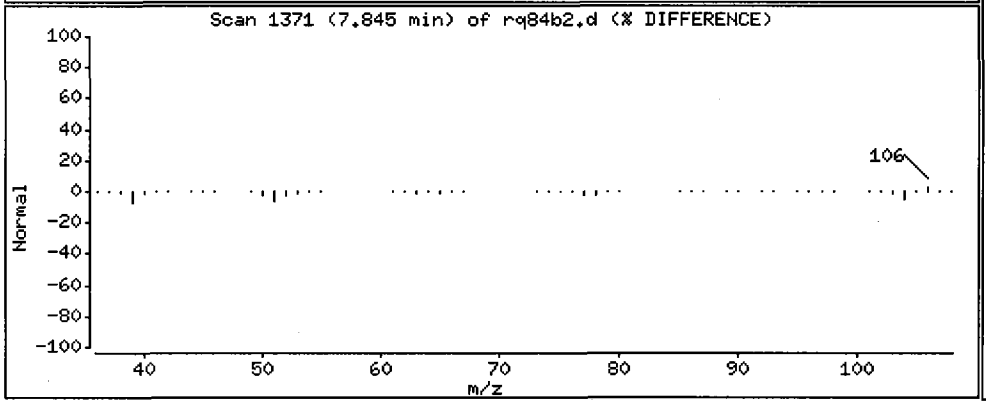












Analytical Resources, Inc.

8260C

Data file : /chem1/nt9.i/15OCT10.b/gasco.b/rq84c2.d
Lab Smp Id: RQ84C Client Smp ID: DGS-19-4.48.2-10100
Inj Date : 15-OCT-2010 17:07
Operator : PB Inst ID: nt9.i
Smp Info : RQ84C,5,1.02,1,100UL 1.02G/5ML
Misc Info : 10-26014
Comment :
Method : /chem1/nt9.i/15OCT10.b/gasco.b/VO063010S.m
Meth Date : 21-Oct-2010 11:29 patrickb Quant Type: ISTD
Cal Date : 28-AUG-2010 13:21 Cal File: 2000828.d
Als bottle: 1
Dil Factor: 1.00000
Integrator: HP RTE Compound Sublist: gasco.sub
Target Version: 3.50
Processing Host: cserv3

Concentration Formula: Amt * DF * Uf * 1/(Ws * (100 - M)/100) * CpndVariable

M	0.00000	% Moisture (not decanted)
Uf	1.00000	ng unit correction factor
Ws	5.00000	Weight of sample extracted (g)

Cpnd Variable Local Compound Variable

Compounds	QUANT SIG MASS	RT	EXP RT	REL RT	RESPONSE	CONCENTRATIONS ON-COLUMN (ug/Kg)	FINAL (ug/Kg)
3 Vinyl Chloride	62	Compound Not Detected.					
7 1,1-Dichloroethene	96	Compound Not Detected.					
15 Trans-1,2-Dichloroethene	96	Compound Not Detected.					
20 Cis-1,2-Dichloroethene	96	Compound Not Detected.					
23 Chloroform	83	Compound Not Detected.					
24 Carbon Tetrachloride	117	Compound Not Detected.					
* 32 Pentafluorobenzene	168	4.934	4.931	(1.000)	663759	50.0000	
$ 25 Dibromofluoromethane	111	4.526	4.529	(0.917)	233094	46.9642	9.393
$ 31 d4-1,2-Dichloroethane	65	4.934	4.937	(1.000)	247859	48.6418	9.728
29 2-Butanone	72	Compound Not Detected.					
30 Benzene	78	4.826	4.829	(0.907)	21088	0.89379	0.1788
33 1,2-Dichloroethane	62	Compound Not Detected.					
* 35 1,4-Difluorobenzene	114	5.318	5.321	(1.000)	877253	50.0000	
34 Trichloroethene	95	Compound Not Detected.					
$ 42 d8-Toluene	98	6.308	6.306	(1.186)	988904	49.7518	9.950
43 Toluene	92	Compound Not Detected.					
44 Tetrachloroethene	166	Compound Not Detected.					
* 52 d5-Chlorobenzene	117	7.400	7.397	(1.000)	776624	50.0000	
53 Chlorobenzene	112	Compound Not Detected.					

Compounds	QUANT SIG MASS	RT	EXP RT	REL RT	RESPONSE	CONCENTRATIONS ON-COLUMN (ug/Kg)	FINAL (ug/Kg)
54 Ethyl Benzene	91	7.434	7.437	(1.005)	313974	9.86471	1.973
56 m,p-xylene	106	7.541	7.544	(1.019)	42225	3.28023	0.6560
57 o-Xylene	106	7.847	7.850	(1.060)	31711	2.64446	0.5289
$ 61 4-Bromofluorobenzene	95	8.294	8.280	(1.121)	357215	49.6616	9.932
* 75 d4-1,4-Dichlorobenzene	152	9.120	9.111	(1.000)	429849	50.0000	
76 1,4-Dichlorobenzene	146	Compound Not Detected.					
$ 78 d4-1,2-Dichlorobenzene	152	9.442	9.439	(1.035)	376103	50.0534	10.011(Q)

QC Flag Legend

Q - Qualifier signal failed the ratio test.

Analytical Resources, Inc.

INTERNAL STANDARD COMPOUNDS
AREA AND RT SUMMARY

Instrument ID: nt9.i
Lab File ID: rq84c2.d
Lab Smp Id: RQ84C
Analysis Type: VOA
Quant Type: ISTD
Operator: PB
Method File: /chem1/nt9.i/15OCT10.b/gasco.b/VO063010S.m
Misc Info: 10-26014

Calibration Date: 15-OCT-2010
Calibration Time: 11:01
Client Smp ID: DGS-19-4.48.2-10100
Level: MED
Sample Type: Sediment

Test Mode:
Use Initial Calibration Level 5.
If Continuing Cal. use Initial Cal. Level 5

COMPOUND	STANDARD	AREA LIMIT LOWER	AREA LIMIT UPPER	SAMPLE	%DIFF
32 Pentafluorobenzen	704281	352140	1408562	663759	-5.75
35 1,4-Difluorobenze	937745	468872	1875490	877253	-6.45
52 d5-Chlorobenzene	853013	426506	1706026	776624	-8.96
75 d4-1,4-Dichlorobe	503655	251828	1007310	429849	-14.65

COMPOUND	STANDARD	RT LIMIT LOWER	RT LIMIT UPPER	SAMPLE	%DIFF
32 Pentafluorobenzen	4.93	4.43	5.43	4.93	0.05
35 1,4-Difluorobenze	5.32	4.82	5.82	5.32	-0.06
52 d5-Chlorobenzene	7.40	6.90	7.90	7.40	0.04
75 d4-1,4-Dichlorobe	9.11	8.61	9.61	9.12	0.09

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.

Analytical Resources, Inc.

RECOVERY REPORT

Client Name: NW Natural
Sample Matrix: SOLID
Lab Smp Id: RQ84C
Level: MED
Data Type: MS DATA
SpikeList File: all.spk
Sublist File: gasco.sub
Method File: /chem1/nt9.i/15OCT10.b/gasco.b/VO063010S.m
Misc Info: 10-26014

Client SDG: RQ84
Fraction: VOA
Client Smp ID: DGS-19-4.48.2-10100
Operator: PB
SampleType: SAMPLE
Quant Type: ISTD

SURROGATE COMPOUND	AMOUNT ADDED ug/Kg	AMOUNT RECOVERED ug/Kg	% RECOVERED	LIMITS
$ 25 Dibromofluorometha	50.000	46.964	93.93	30-160
$ 31 d4-1,2-Dichloroeth	50.000	48.642	97.28	75-152
$ 42 d8-Toluene	50.000	49.752	99.50	82-115
$ 61 4-Bromofluorobenze	50.000	49.662	99.32	64-120
$ 78 d4-1,2-Dichloroben	50.000	50.053	100.11	80-120

Data File: /chem1/nt9.i/15OCT10.b/gasco.b/rq84c2.d

Date : 15-OCT-2010 17:07

Client ID: DGS-19-4.48.2-10100

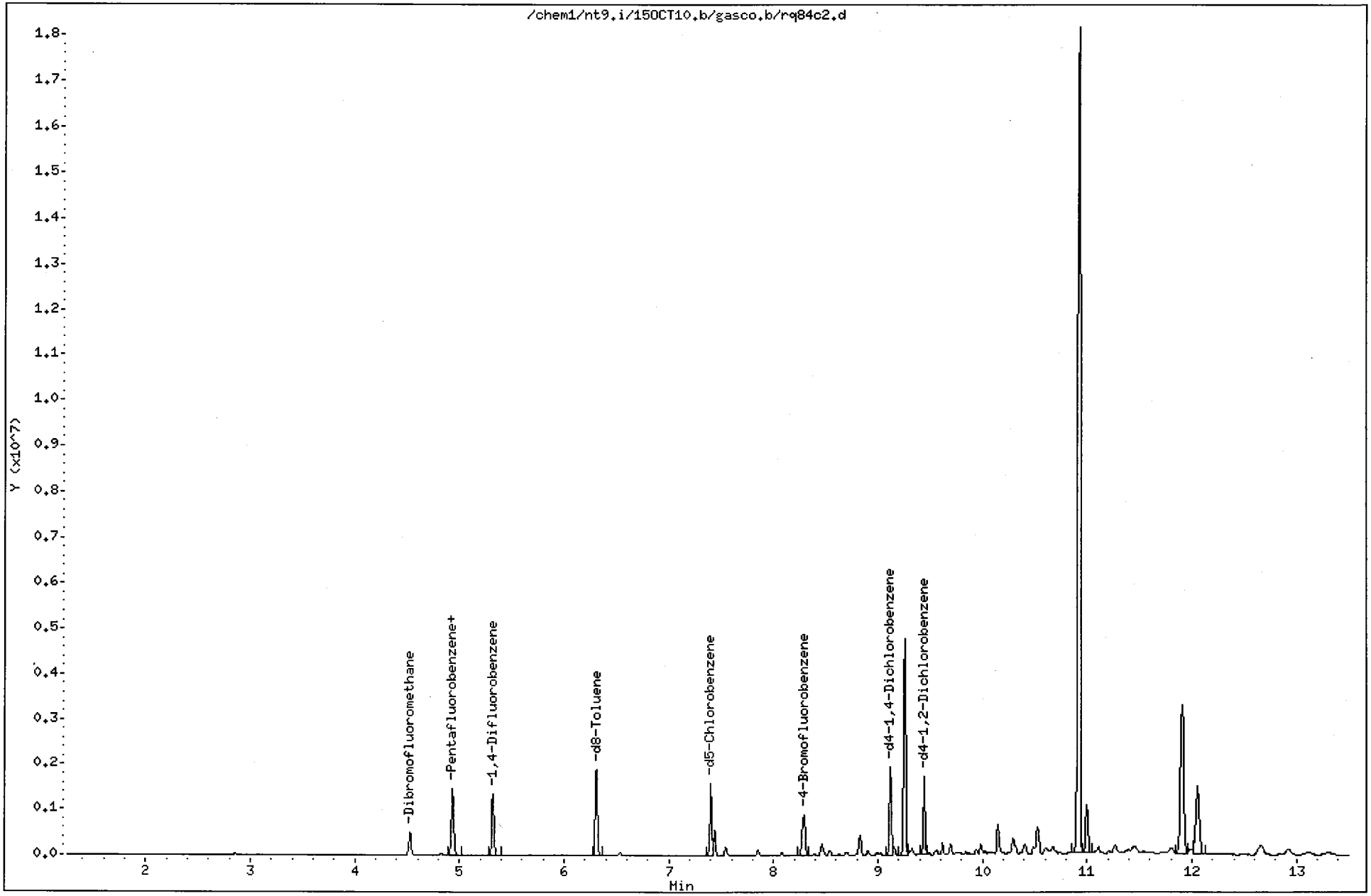
Sample Info: RQ84C,5,1.02,1,100UL 1.02G/5ML

Column phase: RTX502.2

Instrument: nt9.i

Operator: PB

Column diameter: 0.18



R0841 : 00117

Data File: /chem1/nt9.i/15OCT10.b/gasco.b/rq84c2.d

Date : 15-OCT-2010 17:07

Client ID: DGS-19-4.48.2-10100

Instrument: nt9.i

Sample Info: RQ84C,5,1.02,1,100UL 1.02G/5ML

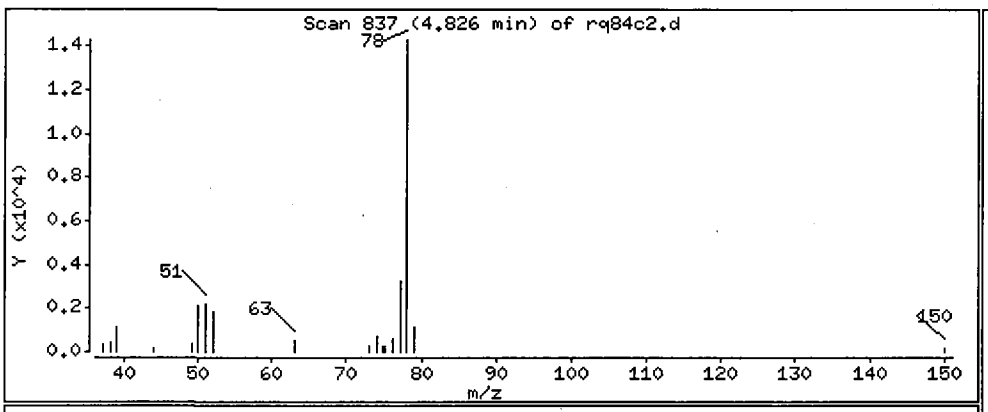
Operator: PB

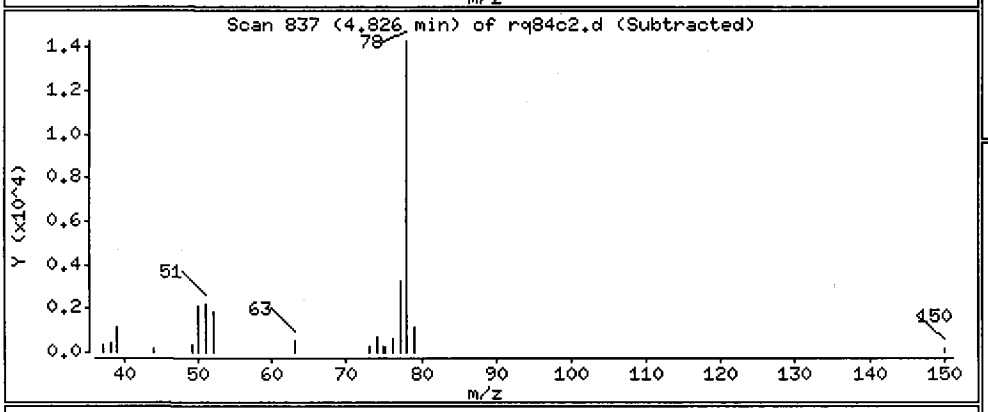
Column phase: RTX502.2

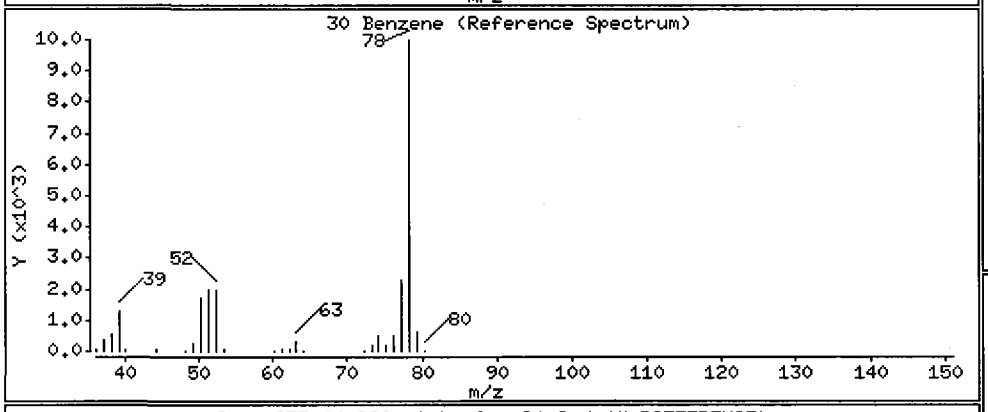
Column diameter: 0.18

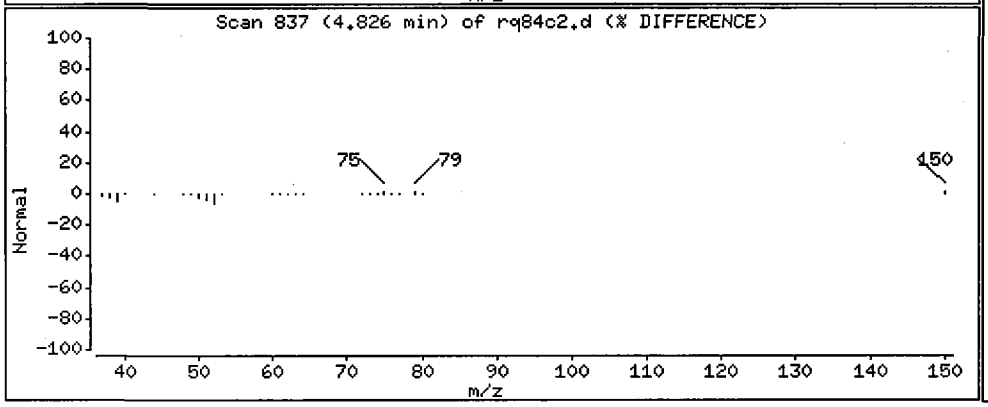
30 Benzene

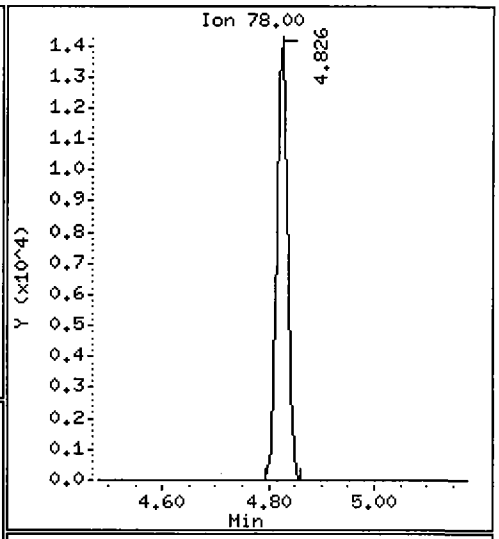
Concentration: 0.1788 ug/Kg

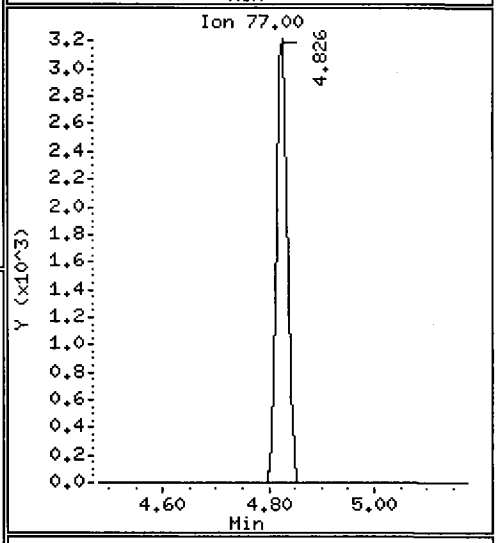


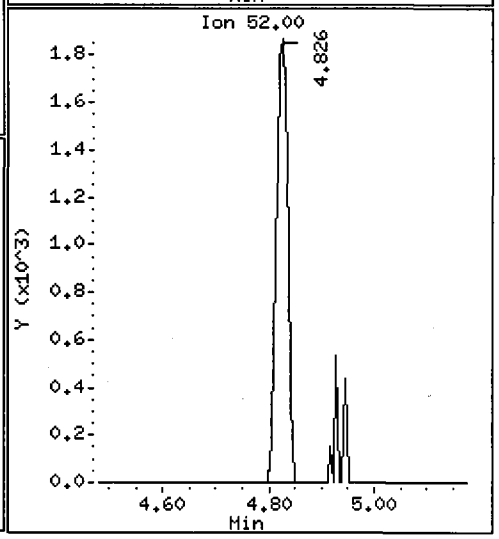












Data File: /chem1/nt9.i/15OCT10.b/gasco.b/rq84c2.d

Date : 15-OCT-2010 17:07

Client ID: DGS-19-4.48.2-10100

Instrument: nt9.i

Sample Info: RQ84C,5,1.02,1,100UL 1.02G/5ML

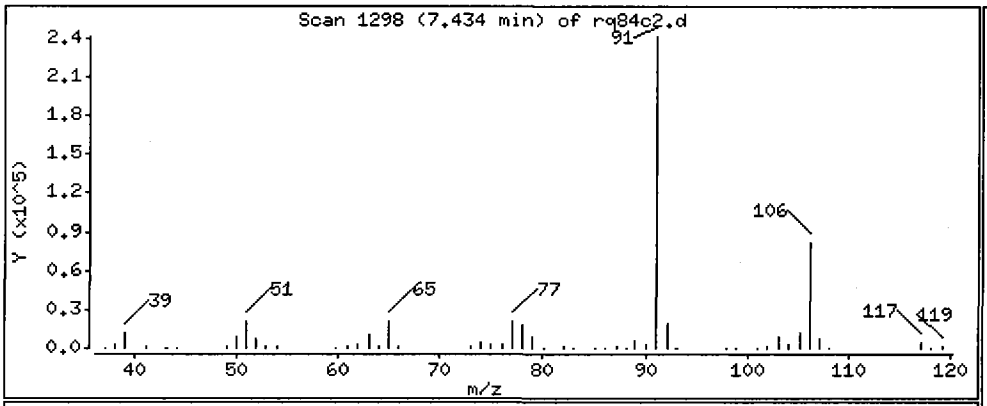
Operator: PB

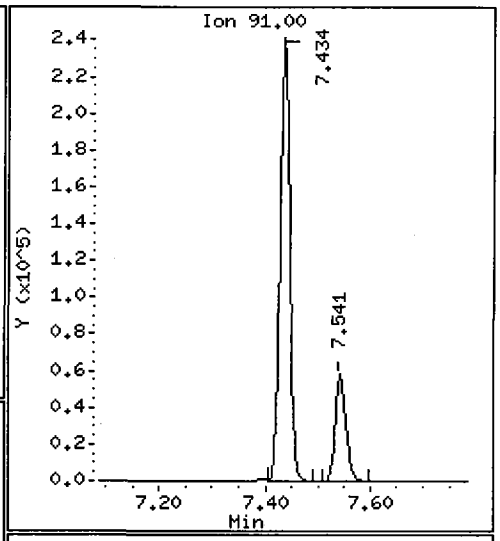
Column phase: RTX502.2

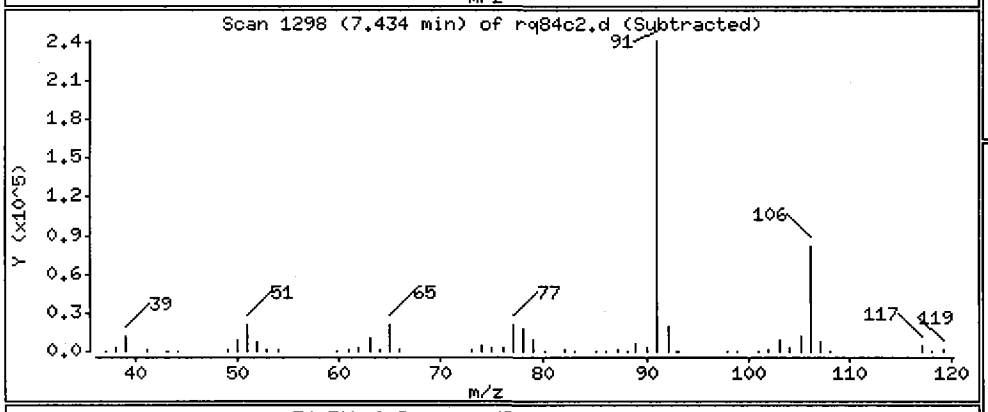
Column diameter: 0.18

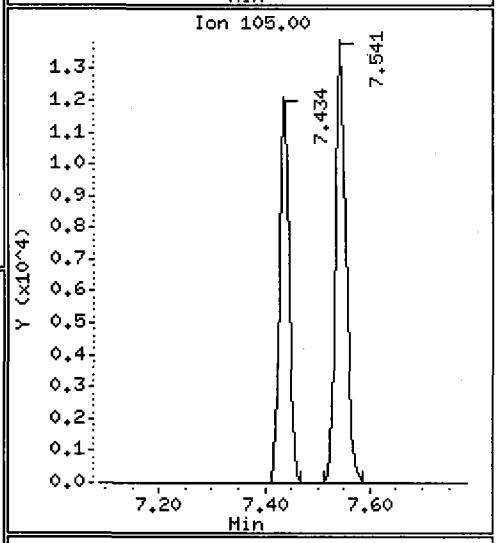
54 Ethyl Benzene

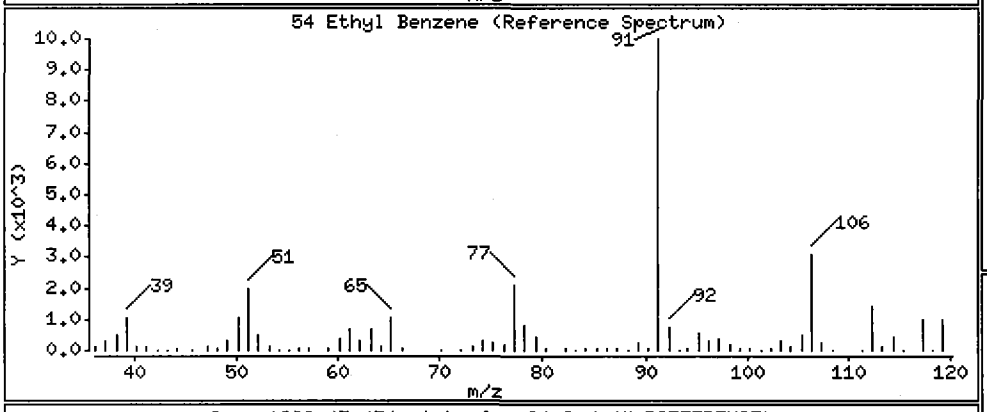
Concentration: 1.973 ug/Kg

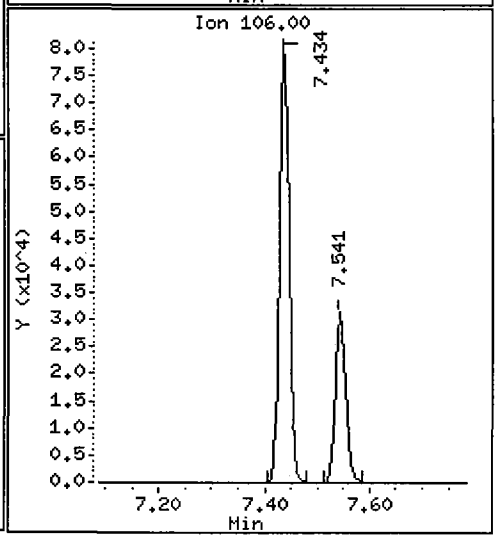


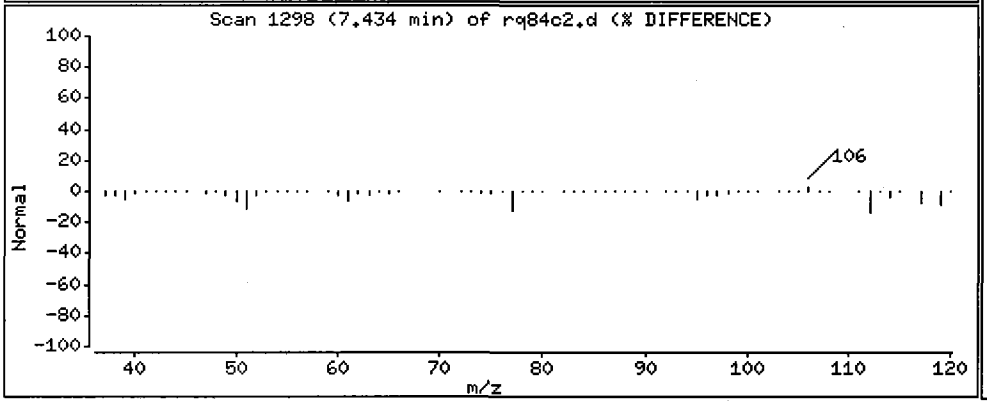












Data File: /chem1/nt9.i/15OCT10.b/gasco.b/rq84c2.d

Date : 15-OCT-2010 17:07

Client ID: DGS-19-4.48.2-10100

Instrument: nt9.i

Sample Info: RQ84C,5,1.02,1,100UL 1.02G/5ML

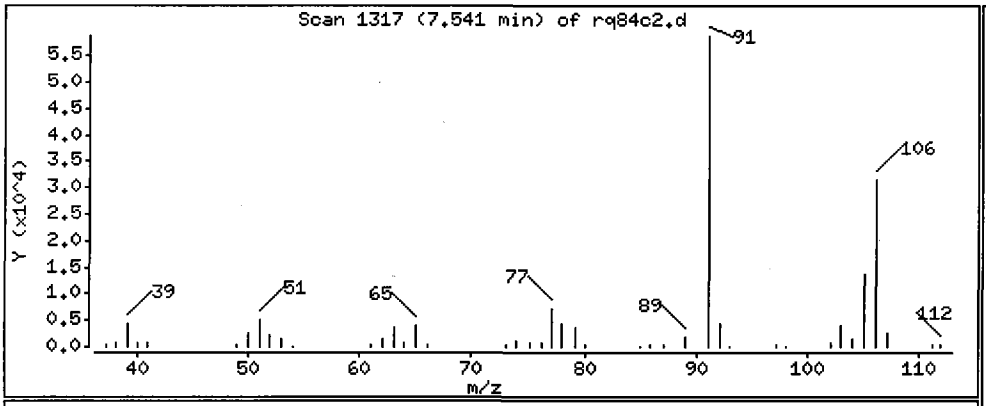
Operator: PB

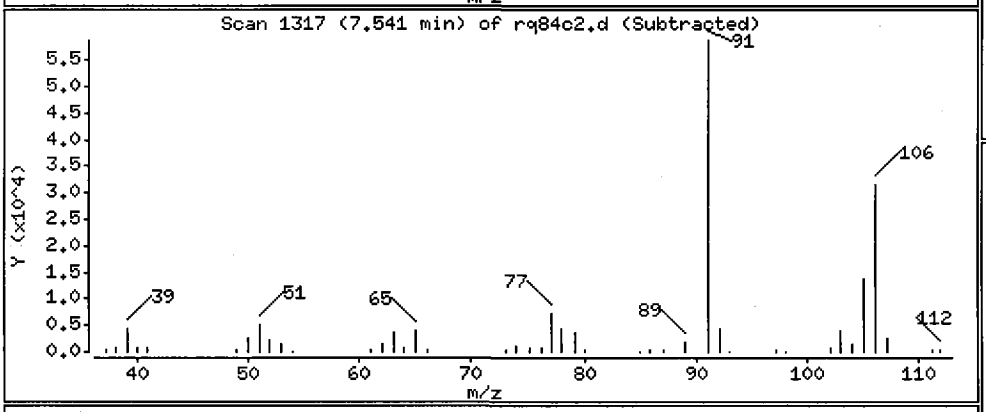
Column phase: RTX502.2

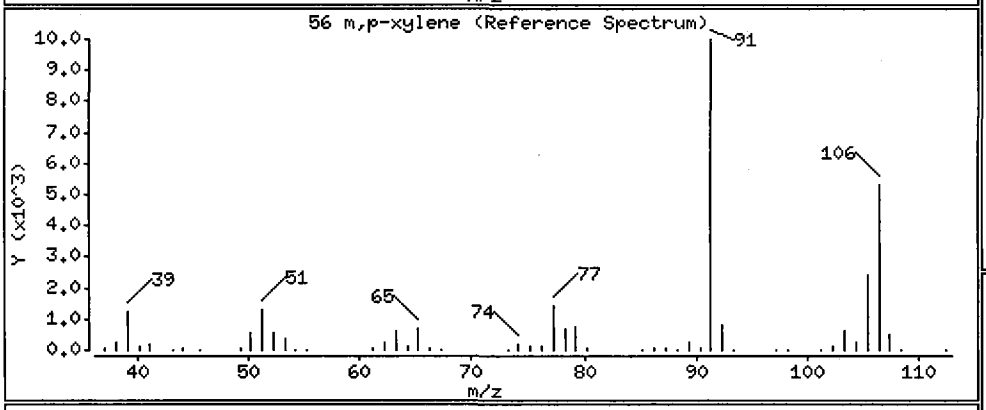
Column diameter: 0.18

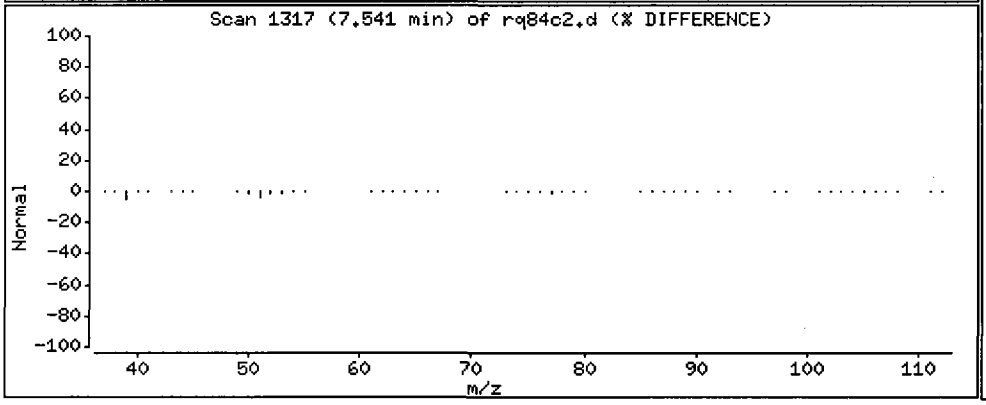
56 m,p-xylene

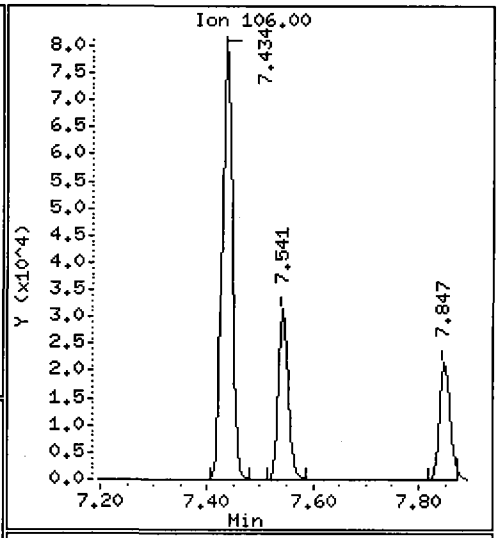
Concentration: 0.6560 ug/Kg

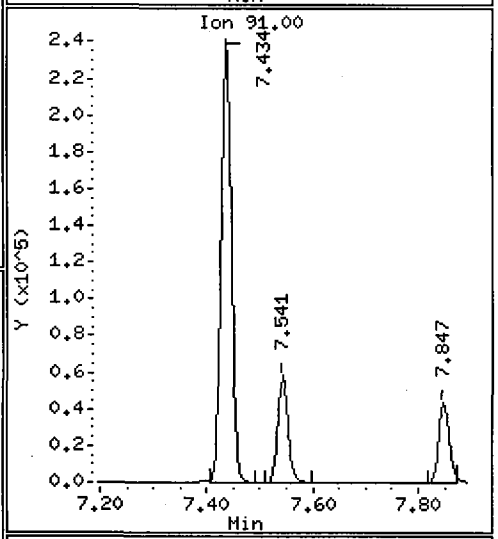


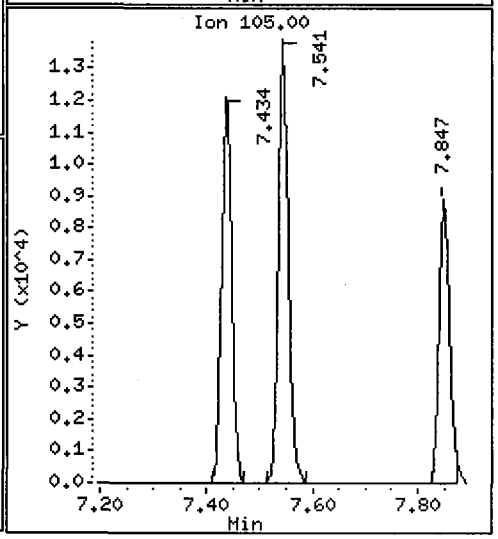












Data File: /chem1/nt9.i/15OCT10.b/gasco.b/rq84c2.d

Date : 15-OCT-2010 17:07

Client ID: DGS-19-4.48.2-10100

Instrument: nt9.i

Sample Info: RQ84C,5,1.02,1,100UL 1.02G/5ML

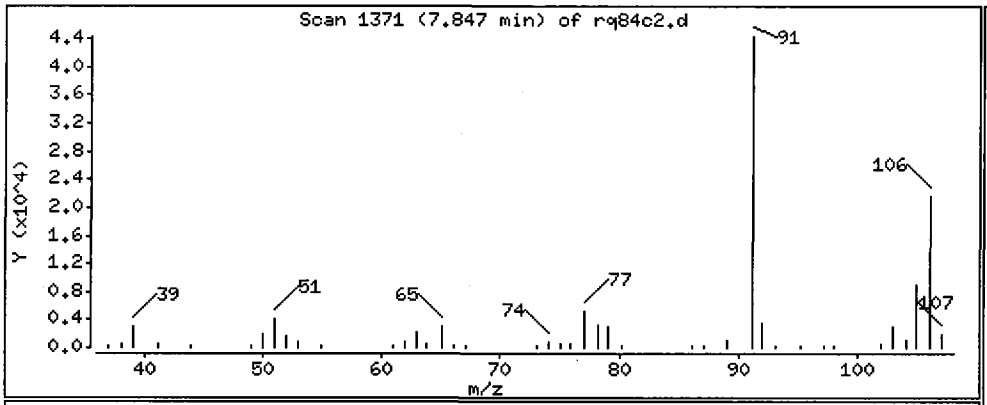
Operator: PB

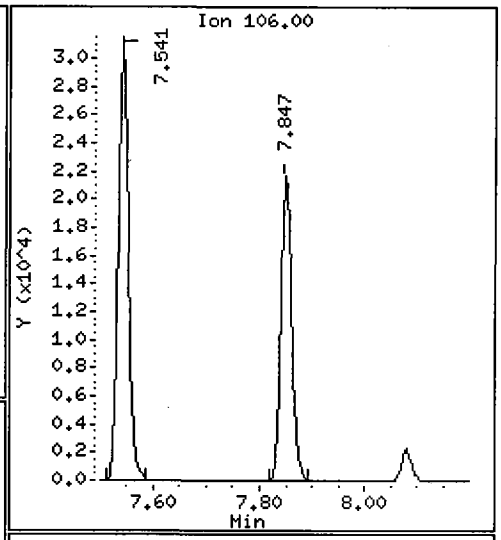
Column phase: RTX502.2

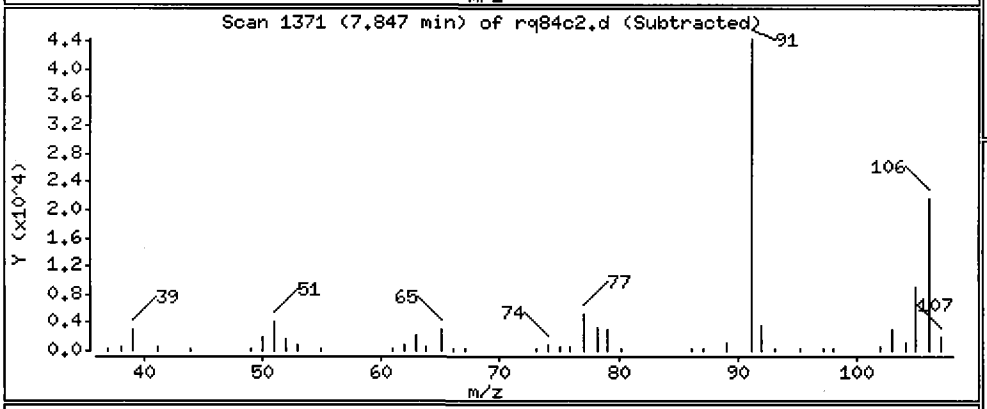
Column diameter: 0.18

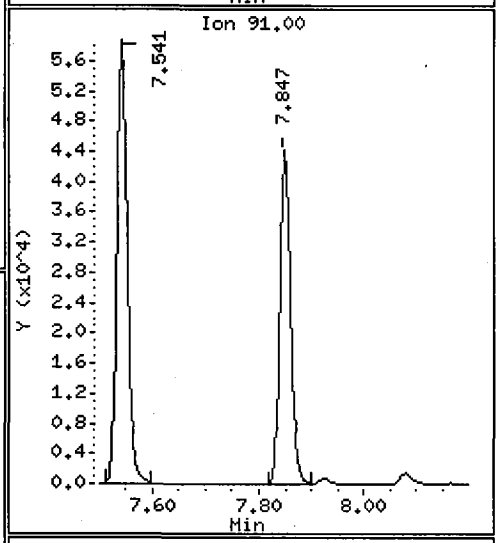
57 o-Xylene

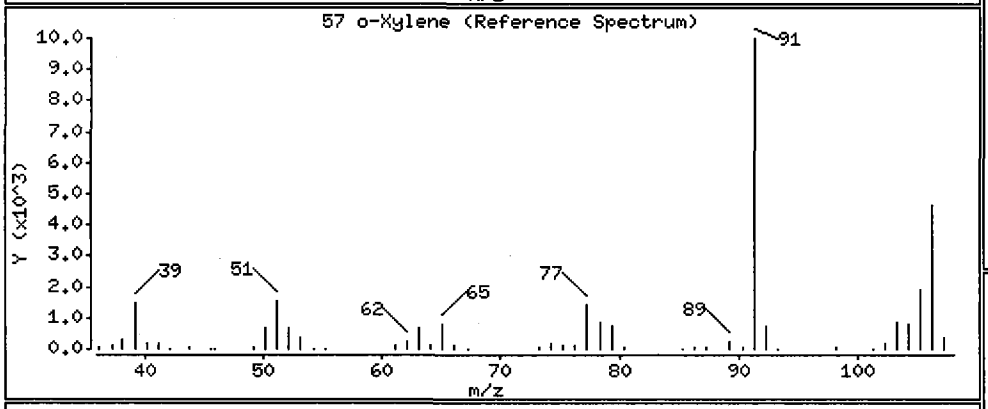
Concentration: 0.5289 ug/Kg

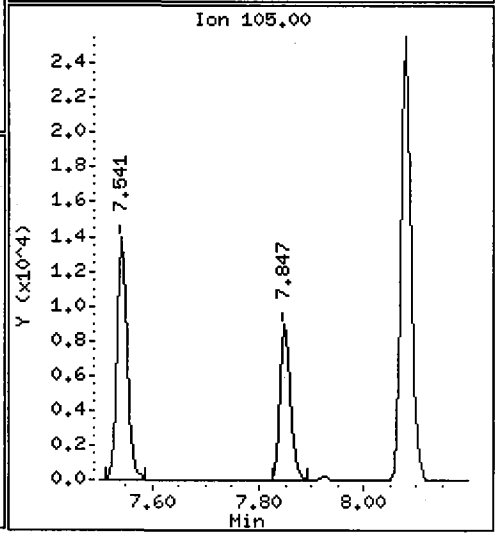


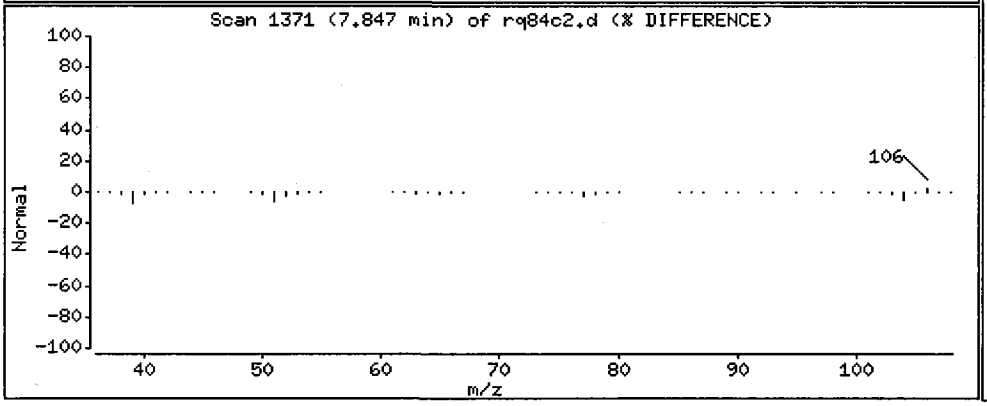












Analytical Resources, Inc.

8260C

Data file : /chem1/nt9.i/15OCT10.b/gasco.b/rq84d2.d
Lab Smp Id: RQ84D Client Smp ID: DGS-19-10.210.9-101
Inj Date : 15-OCT-2010 17:37
Operator : PB Inst ID: nt9.i
Smp Info : RQ84D,5,1.01,1,50UL 1.01G/5ML
Misc Info : 10-26015
Comment :
Method : /chem1/nt9.i/15OCT10.b/gasco.b/VO063010S.m
Meth Date : 21-Oct-2010 11:29 patrickb Quant Type: ISTD
Cal Date : 28-AUG-2010 13:21 Cal File: 2000828.d
Als bottle: 1
Dil Factor: 1.00000
Integrator: HP RTE Compound Sublist: gasco.sub
Target Version: 3.50
Processing Host: cserv3

10/21/10

Concentration Formula: Amt * DF * Uf * 1/(Ws * (100 - M)/100) * CpndVariable

M	0.00000	% Moisture (not decanted)
Uf	1.00000	ng unit correction factor
Ws	5.00000	Weight of sample extracted (g)

Cpnd Variable Local Compound Variable

	Compounds	QUANT SIG MASS	RT	EXP RT	REL RT	RESPONSE	CONCENTRATIONS ON-COLUMN (ug/Kg)	FINAL (ug/Kg)
	3 Vinyl Chloride	62	Compound Not Detected.					
	7 1,1-Dichloroethene	96	Compound Not Detected.					
	15 Trans-1,2-Dichloroethene	96	Compound Not Detected.					
	20 Cis-1,2-Dichloroethene	96	Compound Not Detected.					
	23 Chloroform	83	Compound Not Detected.					
	24 Carbon Tetrachloride	117	Compound Not Detected.					
*	32 Pentafluorobenzene	168	4.933	4.931	(1.000)	688573	50.0000	
$	25 Dibromofluoromethane	111	4.526	4.529	(0.917)	245116	47.6067	9.521
$	31 d4-1,2-Dichloroethane	65	4.939	4.937	(1.001)	264720	50.0786	10.016
	29 2-Butanone	72	Compound Not Detected.					
	30 Benzene	78	Compound Not Detected.					
	33 1,2-Dichloroethane	62	Compound Not Detected.					
*	35 1,4-Difluorobenzene	114	5.318	5.321	(1.000)	917607	50.0000	
	34 Trichloroethene	95	Compound Not Detected.					
$	42 d8-Toluene	98	6.308	6.306	(1.186)	1034595	49.7615	9.952
	43 Toluene	92	Compound Not Detected.					
	44 Tetrachloroethene	166	Compound Not Detected.					
*	52 d5-Chlorobenzene	117	7.394	7.397	(1.000)	810225	50.0000	
	53 Chlorobenzene	112	Compound Not Detected.					

Compounds	QUANT SIG MASS	RT	EXP RT	REL RT	RESPONSE	CONCENTRATIONS ON-COLUMN (ug/Kg)	FINAL (ug/Kg)
54 Ethyl Benzene	91	Compound Not Detected.					
56 m,p-xylene	106	Compound Not Detected.					
57 o-Xylene	106	Compound Not Detected.					
$ 61 4-Bromofluorobenzene	95	8.276	8.280	(1.119)	373973	49.8353	9.967
* 75 d4-1,4-Dichlorobenzene	152	9.114	9.111	(1.000)	448713	50.0000	
76 1,4-Dichlorobenzene	146	Compound Not Detected.					
$ 78 d4-1,2-Dichlorobenzene	152	9.436	9.439	(1.035)	393319	50.1440	10.029(Q)

QC Flag Legend

Q - Qualifier signal failed the ratio test.

Analytical Resources, Inc.

INTERNAL STANDARD COMPOUNDS
AREA AND RT SUMMARY

Instrument ID: nt9.i
Lab File ID: rq84d2.d
Lab Smp Id: RQ84D
Analysis Type: VOA
Quant Type: ISTD
Operator: PB
Method File: /chem1/nt9.i/15OCT10.b/gasco.b/VO063010S.m
Misc Info: 10-26015

Calibration Date: 15-OCT-2010
Calibration Time: 11:01
Client Smp ID: DGS-19-10.210.9-101
Level: MED
Sample Type: Sediment

Test Mode:
Use Initial Calibration Level 5.
If Continuing Cal. use Initial Cal. Level 5

COMPOUND	STANDARD	AREA LIMIT LOWER	AREA LIMIT UPPER	SAMPLE	%DIFF
32 Pentafluorobenzen	704281	352140	1408562	688573	-2.23
35 1,4-Difluorobenze	937745	468872	1875490	917607	-2.15
52 d5-Chlorobenzene	853013	426506	1706026	810225	-5.02
75 d4-1,4-Dichlorobe	503655	251828	1007310	448713	-10.91

COMPOUND	STANDARD	RT LIMIT LOWER	RT LIMIT UPPER	SAMPLE	%DIFF
32 Pentafluorobenzen	4.93	4.43	5.43	4.93	0.04
35 1,4-Difluorobenze	5.32	4.82	5.82	5.32	-0.07
52 d5-Chlorobenzene	7.40	6.90	7.90	7.39	-0.05
75 d4-1,4-Dichlorobe	9.11	8.61	9.61	9.11	0.02

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.

Analytical Resources, Inc.

RECOVERY REPORT

Client Name: NW Natural
Sample Matrix: SOLID
Lab Smp Id: RQ84D
Level: MED
Data Type: MS DATA
SpikeList File: all.spk
Sublist File: gasco.sub
Method File: /chem1/nt9.i/15OCT10.b/gasco.b/VO063010S.m
Misc Info: 10-26015

Client SDG: RQ84
Fraction: VOA
Client Smp ID: DGS-19-10.210.9-101
Operator: PB
SampleType: SAMPLE
Quant Type: ISTD

SURROGATE COMPOUND	AMOUNT ADDED ug/Kg	AMOUNT RECOVERED ug/Kg	% RECOVERED	LIMITS
$ 25 Dibromofluorometha	50.000	47.607	95.21	30-160
$ 31 d4-1,2-Dichloroeth	50.000	50.079	100.16	75-152
$ 42 d8-Toluene	50.000	49.761	99.52	82-115
$ 61 4-Bromofluorobenze	50.000	49.835	99.67	64-120
$ 78 d4-1,2-Dichloroben	50.000	50.144	100.29	80-120

Data File: /chem1/nt9.i/15OCT10.b/gasco.b/rq84d2.d

Date : 15-OCT-2010 17:37

Client ID: DGS-19-10.210.9-101

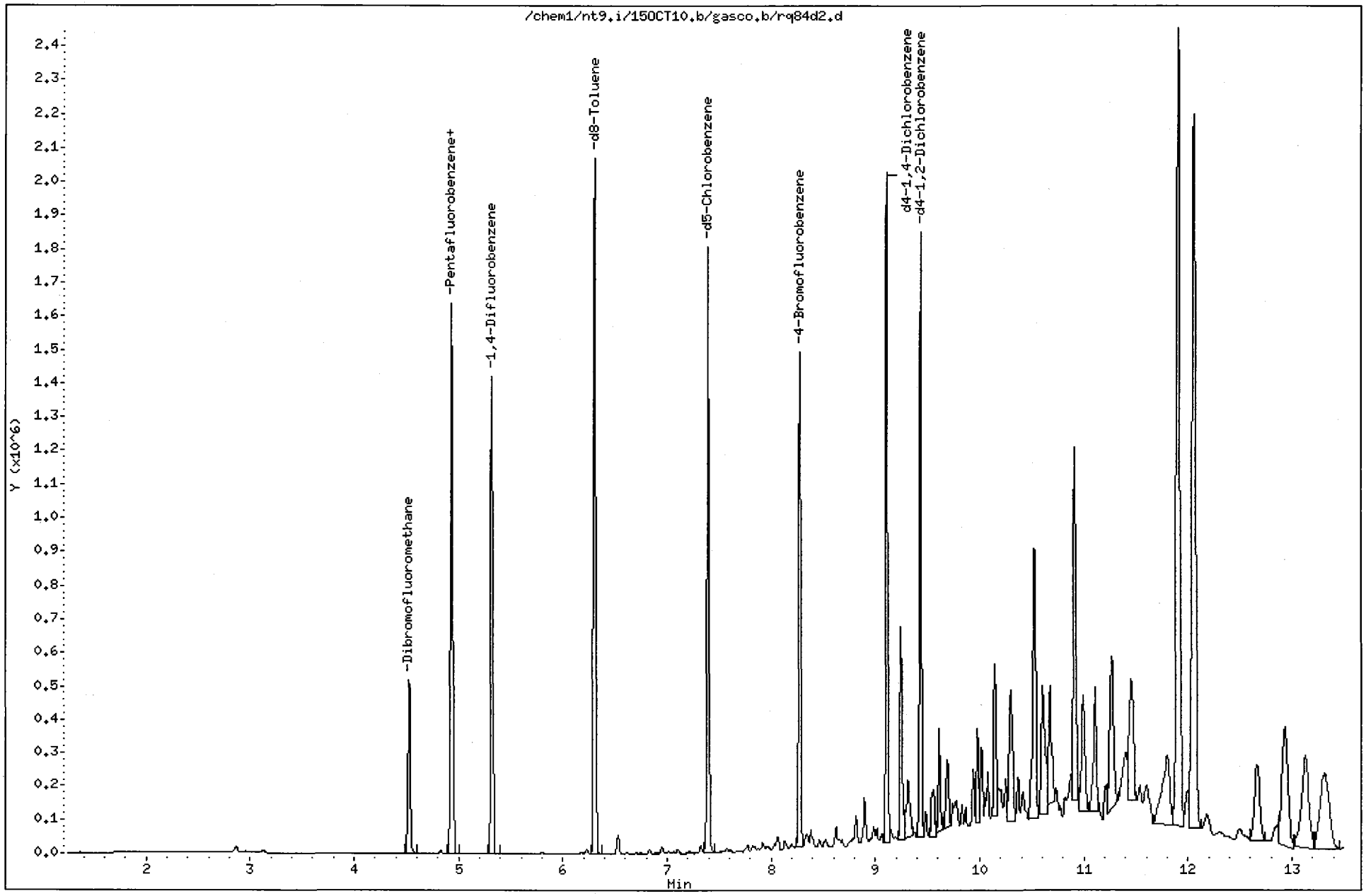
Sample Info: RQ84D,5,1.01,1,50UL 1.01G/5ML

Column phase: RTX502.2

Instrument: nt9.i

Operator: PB

Column diameter: 0.18



RQ81 : 00156

Analytical Resources, Inc.

8260C

Data file : /chem1/nt9.i/15OCT10.b/gasco.b/rq84e2.d
Lab Smp Id: RQ84E Client Smp ID: DGS-08-4.44.6-10100
Inj Date : 15-OCT-2010 18:07
Operator : PB Inst ID: nt9.i
Smp Info : RQ84E,5,1.05,1,10UL 1.05G/5ML
Misc Info : 10-26016
Comment :
Method : /chem1/nt9.i/15OCT10.b/gasco.b/VO063010S.m
Meth Date : 21-Oct-2010 11:29 patrickb Quant Type: ISTD
Cal Date : 28-AUG-2010 13:21 Cal File: 2000828.d
Als bottle: 1
Dil Factor: 1.00000
Integrator: HP RTE Compound Sublist: gasco.sub
Target Version: 3.50
Processing Host: cserv3

10/21/10

Concentration Formula: Amt * DF * Uf * 1/(Ws * (100 - M)/100) * CpndVariable

M	0.00000	% Moisture (not decanted)
Uf	1.00000	ng unit correction factor
Ws	5.00000	Weight of sample extracted (g)

Cpnd Variable Local Compound Variable

	Compounds	QUANT SIG MASS	RT	EXP RT	REL RT	RESPONSE	CONCENTRATIONS ON-COLUMN (ug/Kg)	FINAL (ug/Kg)
	3 Vinyl Chloride	62	Compound Not Detected.					
	7 1,1-Dichloroethene	96	Compound Not Detected.					
	15 Trans-1,2-Dichloroethene	96	Compound Not Detected.					
	20 Cis-1,2-Dichloroethene	96	Compound Not Detected.					
	23 Chloroform	83	Compound Not Detected.					
	24 Carbon Tetrachloride	117	Compound Not Detected.					
*	32 Pentafluorobenzene	168	4.936	4.931	(1.000)	665631	50.0000	
$	25 Dibromofluoromethane	111	4.528	4.529	(0.917)	238169	47.8518	9.570
$	31 d4-1,2-Dichloroethane	65	4.936	4.937	(1.000)	254766	49.8567	9.971
	29 2-Butanone	72	Compound Not Detected.					
	30 Benzene	78	Compound Not Detected.					
	33 1,2-Dichloroethane	62	Compound Not Detected.					
*	35 1,4-Difluorobenzene	114	5.320	5.321	(1.000)	882526	50.0000	
	34 Trichloroethene	95	Compound Not Detected.					
$	42 d8-Toluene	98	6.310	6.306	(1.186)	993651	49.6919	9.938
	43 Toluene	92	Compound Not Detected.					
	44 Tetrachloroethene	166	Compound Not Detected.					
*	52 d5-Chlorobenzene	117	7.396	7.397	(1.000)	775712	50.0000	
	53 Chlorobenzene	112	Compound Not Detected.					

Compounds	QUANT SIG MASS	RT	EXP RT	REL RT	RESPONSE	CONCENTRATIONS ON-COLUMN (ug/Kg)	FINAL (ug/Kg)
54 Ethyl Benzene	91	7.436	7.437	(1.005)	478032	15.0369	3.007
56 m,p-xylene	106	7.543	7.544	(1.020)	33205	2.58255	0.5165
57 o-Xylene	106	7.849	7.850	(1.061)	48282	4.03109	0.8062
$ 61 4-Bromofluorobenzene	95	8.279	8.280	(1.119)	352961	49.1279	9.826
* 75 d4-1,4-Dichlorobenzene	152	9.110	9.111	(1.000)	424733	50.0000	
76 1,4-Dichlorobenzene	146	Compound Not Detected.					
$ 78 d4-1,2-Dichlorobenzene	152	9.433	9.439	(1.035)	375669	50.5978	10.120

Analytical Resources, Inc.

INTERNAL STANDARD COMPOUNDS
AREA AND RT SUMMARY

Instrument ID: nt9.i
Lab File ID: rq84e2.d
Lab Smp Id: RQ84E
Analysis Type: VOA
Quant Type: ISTD
Operator: PB
Method File: /chem1/nt9.i/15OCT10.b/gasco.b/VO063010S.m
Misc Info: 10-26016

Calibration Date: 15-OCT-2010
Calibration Time: 11:01
Client Smp ID: DGS-08-4.44.6-10100
Level: MED
Sample Type: Sediment

Test Mode:
Use Initial Calibration Level 5.
If Continuing Cal. use Initial Cal. Level 5

COMPOUND	STANDARD	AREA LIMIT LOWER	AREA LIMIT UPPER	SAMPLE	%DIFF
32 Pentafluorobenzen	704281	352140	1408562	665631	-5.49
35 1,4-Difluorobenze	937745	468872	1875490	882526	-5.89
52 d5-Chlorobenzene	853013	426506	1706026	775712	-9.06
75 d4-1,4-Dichlorobe	503655	251828	1007310	424733	-15.67

COMPOUND	STANDARD	RT LIMIT LOWER	RT LIMIT UPPER	SAMPLE	%DIFF
32 Pentafluorobenzen	4.93	4.43	5.43	4.94	0.09
35 1,4-Difluorobenze	5.32	4.82	5.82	5.32	-0.02
52 d5-Chlorobenzene	7.40	6.90	7.90	7.40	-0.01
75 d4-1,4-Dichlorobe	9.11	8.61	9.61	9.11	-0.01

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.

Analytical Resources, Inc.

RECOVERY REPORT

Client Name: NW Natural
Sample Matrix: SOLID
Lab Smp Id: RQ84E
Level: MED
Data Type: MS DATA
SpikeList File: all.spk
Sublist File: gasco.sub
Method File: /chem1/nt9.i/15OCT10.b/gasco.b/VO063010S.m
Misc Info: 10-26016

Client SDG: RQ84
Fraction: VOA
Client Smp ID: DGS-08-4.44.6-10100
Operator: PB
SampleType: SAMPLE
Quant Type: ISTD

SURROGATE COMPOUND	AMOUNT ADDED ug/Kg	AMOUNT RECOVERED ug/Kg	% RECOVERED	LIMITS
$ 25 Dibromofluorometha	50.000	47.852	95.70	30-160
$ 31 d4-1,2-Dichloroeth	50.000	49.857	99.71	75-152
$ 42 d8-Toluene	50.000	49.692	99.38	82-115
$ 61 4-Bromofluorobenze	50.000	49.128	98.26	64-120
$ 78 d4-1,2-Dichloroben	50.000	50.598	101.20	80-120

Data File: /chem1/nt9.i/15OCT10.b/gasco.b/rq84e2.d

Date : 15-OCT-2010 18:07

Client ID: DGS-08-4.44.6-10100

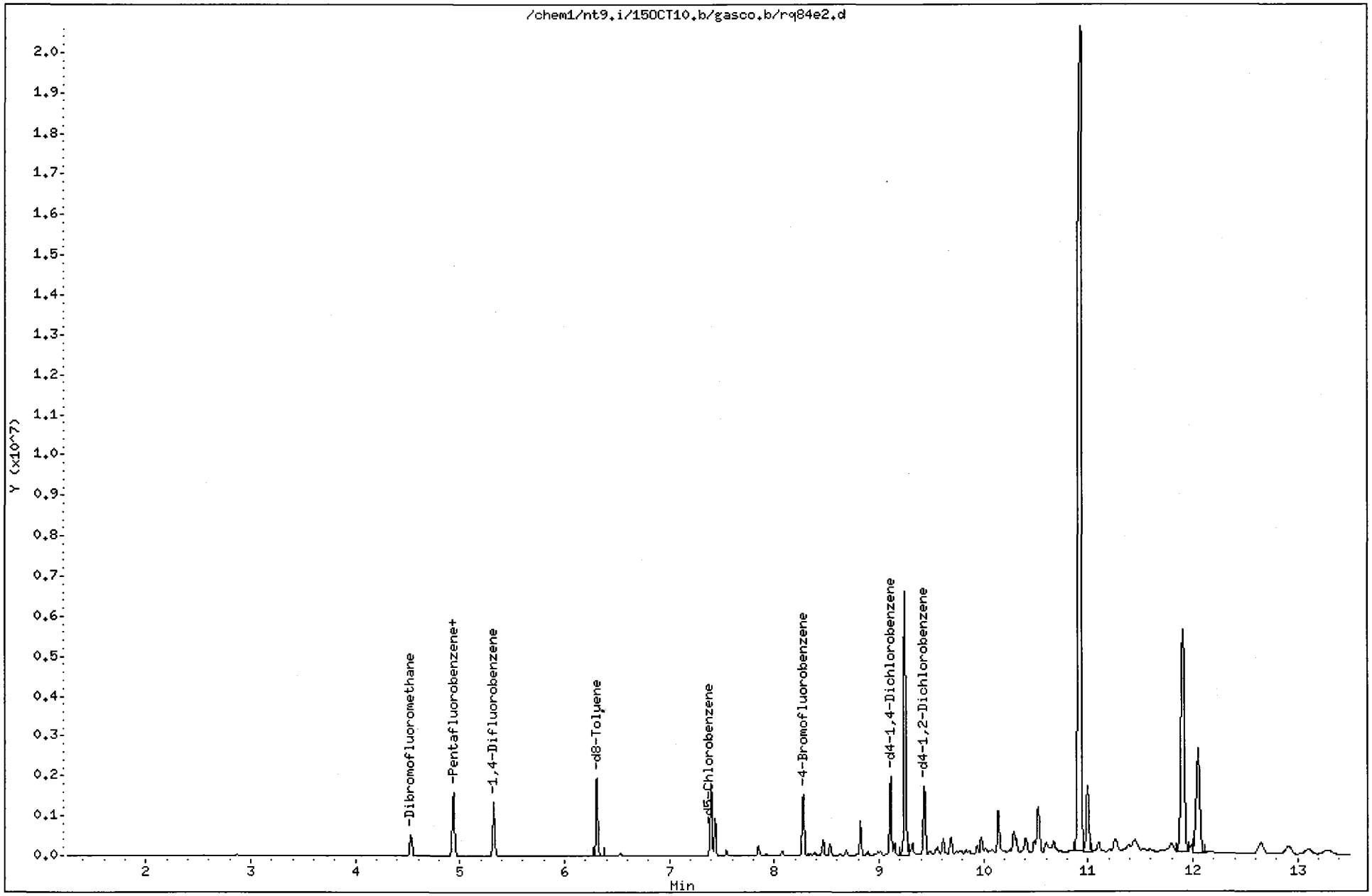
Instrument: nt9.i

Sample Info: RQ84E,5,1.05,1,10UL 1.05G/5ML

Operator: PB

Column phase: RTX502.2

Column diameter: 0.18



RQ84 : 00161

Data File: /chem1/nt9.i/15OCT10.b/gasco.b/rq84e2.d

Date : 15-OCT-2010 18:07

Client ID: DGS-08-4.44.6-10100

Instrument: nt9.i

Sample Info: RQ84E,5,1.05,1,10UL 1.05G/5ML

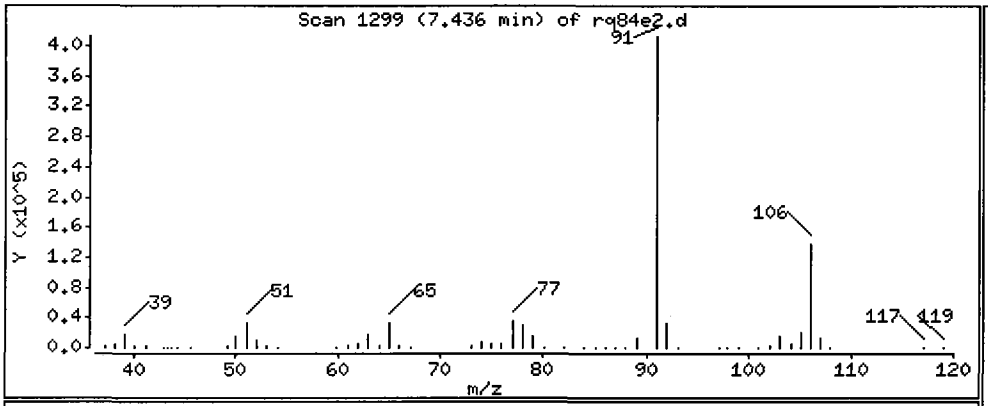
Operator: PB

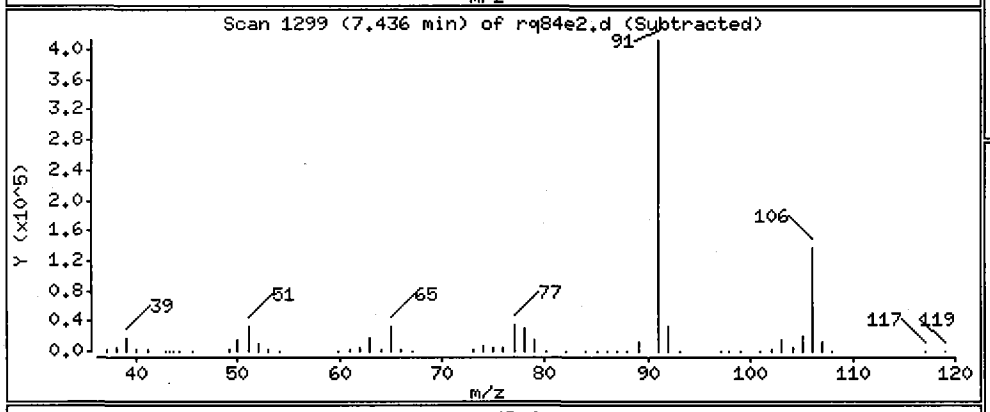
Column phase: RTX502.2

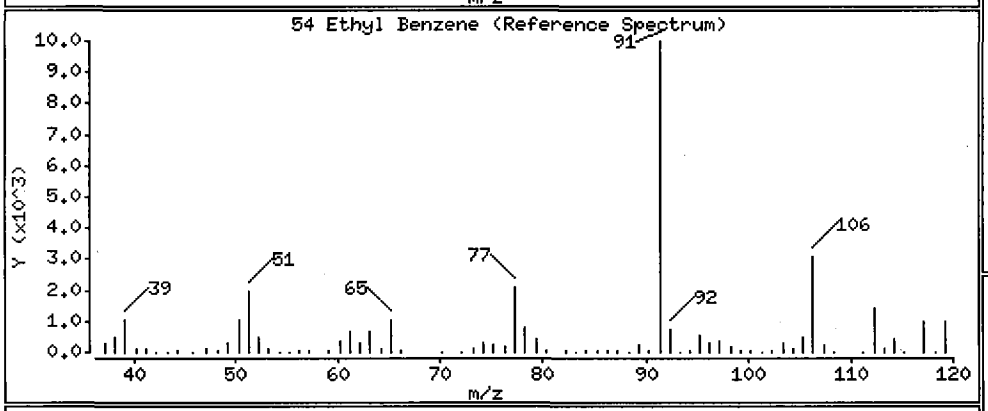
Column diameter: 0.18

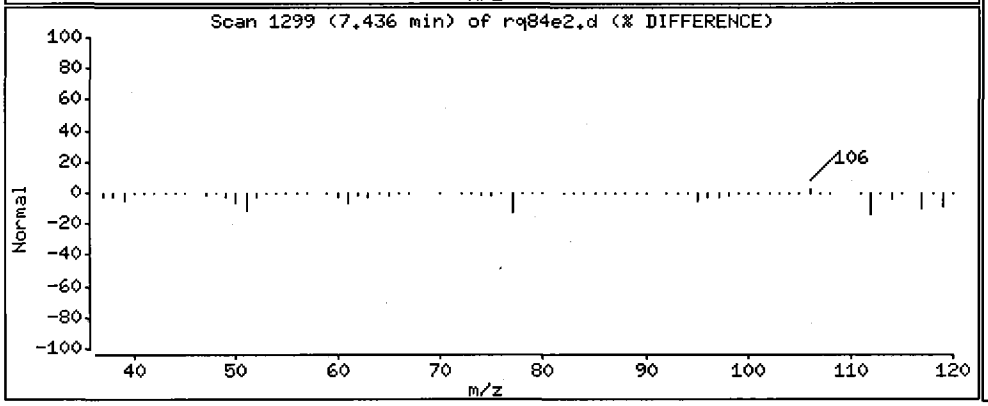
54 Ethyl Benzene

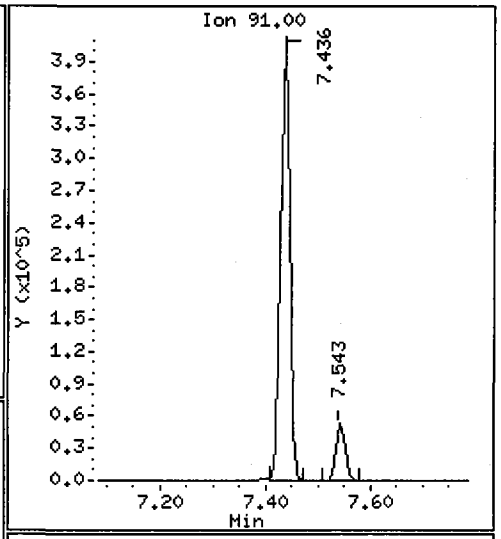
Concentration: 3.007 ug/Kg

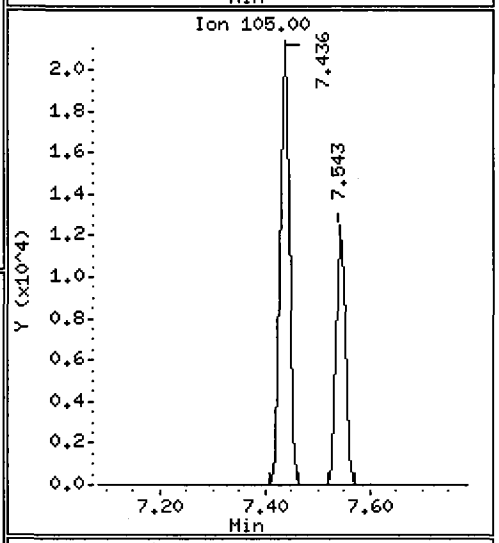


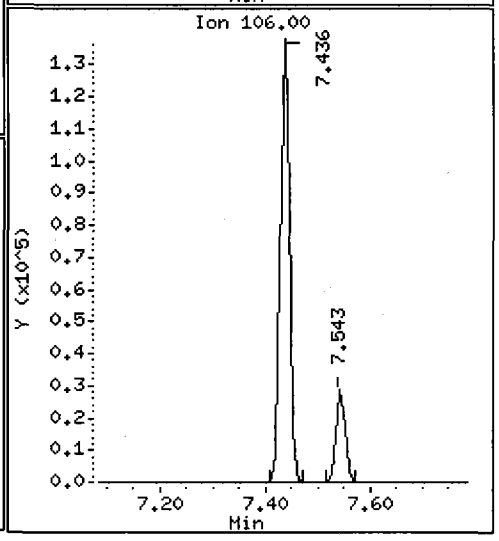












Data File: /chem1/nt9.i/15OCT10.b/gasco.b/rq84e2.d

Date : 15-OCT-2010 18:07

Client ID: DGS-08-4.44.6-10100

Instrument: nt9.i

Sample Info: RQ84E,5,1.05,1,10UL 1.05G/5ML

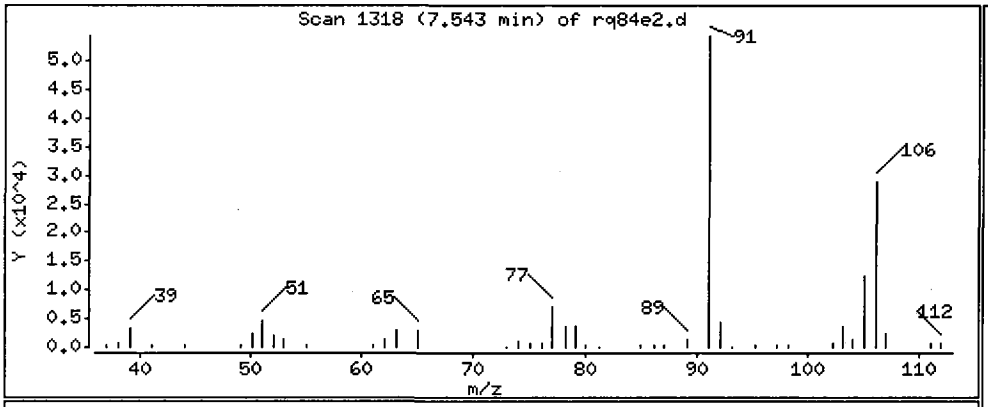
Operator: PB

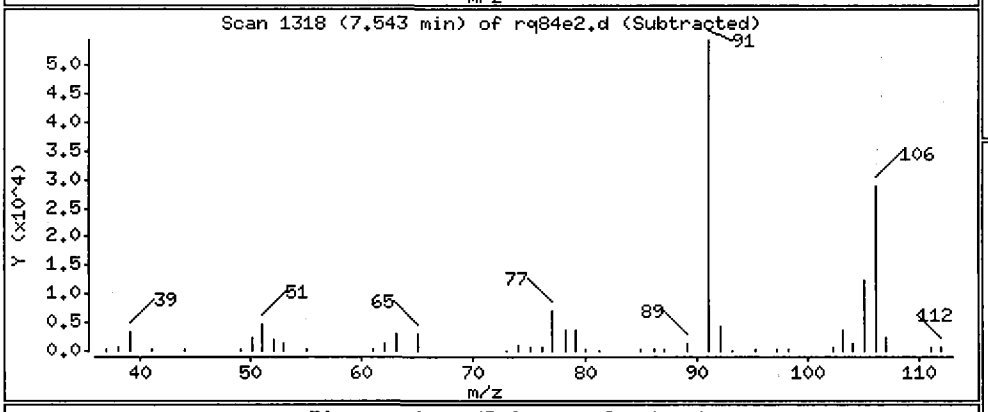
Column phase: RTX502.2

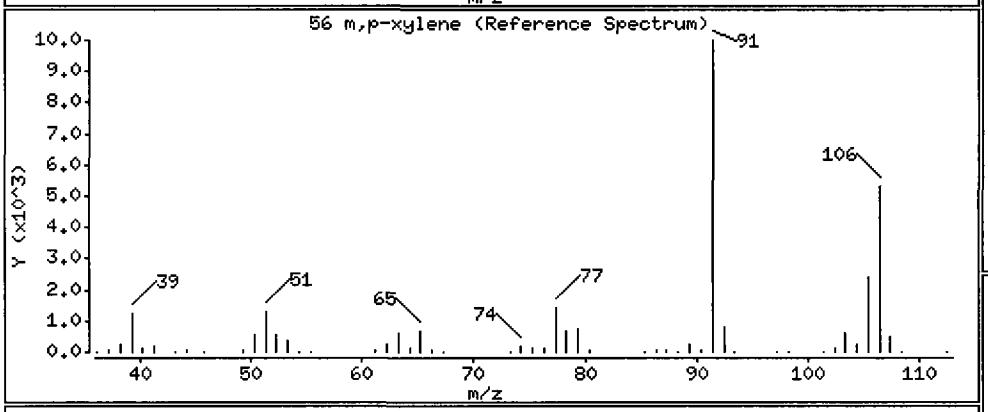
Column diameter: 0.18

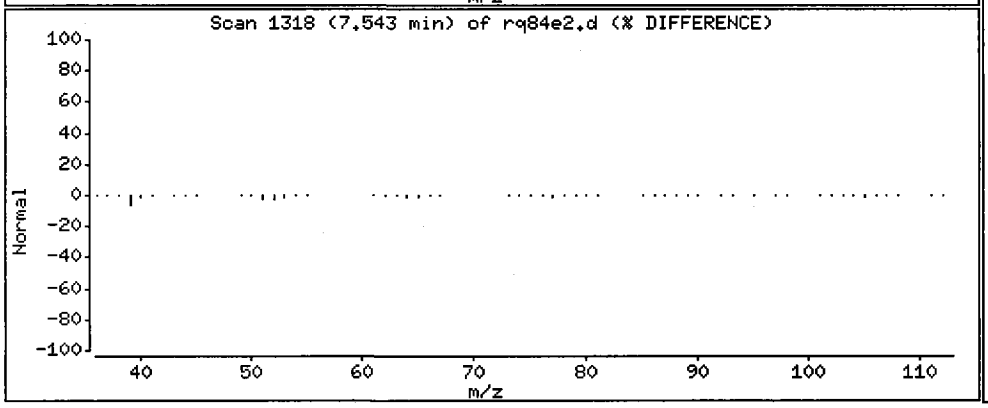
56 m,p-xylene

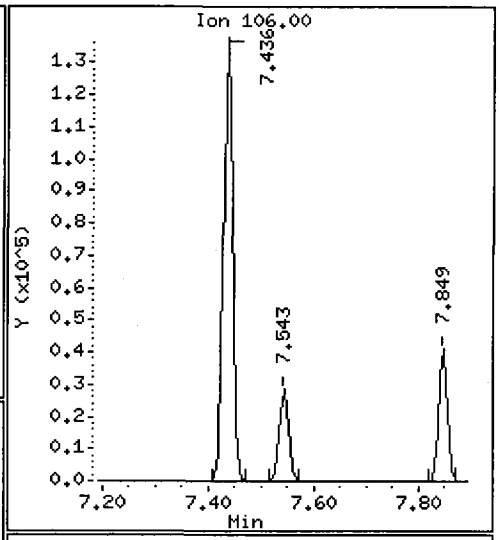
Concentration: 0.5165 ug/Kg

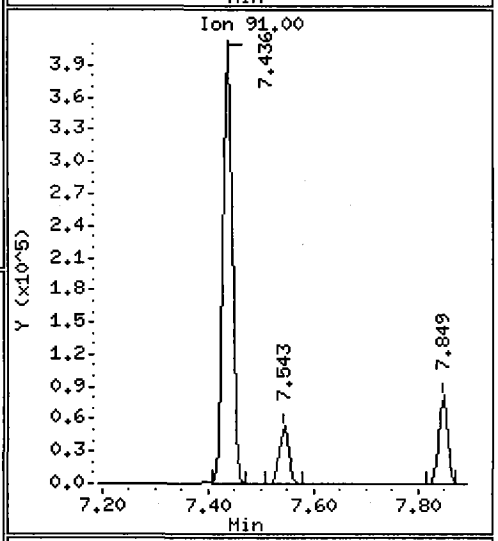


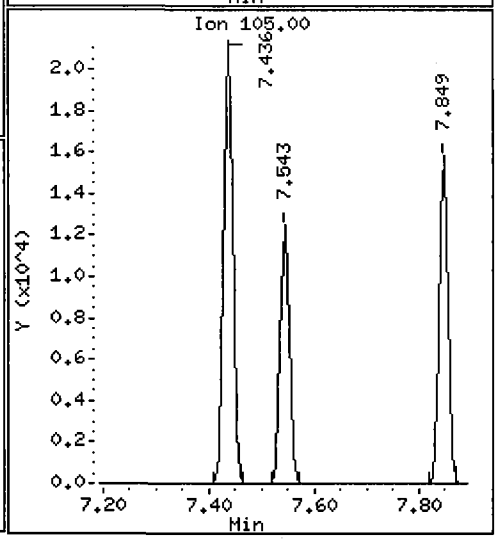












Data File: /chem1/nt9.i/15OCT10.b/gasco.b/rq84e2.d

Date : 15-OCT-2010 18:07

Client ID: DGS-08-4.44.6-10100

Instrument: nt9.i

Sample Info: RQ84E,5,1.05,1,10UL 1.05G/5ML

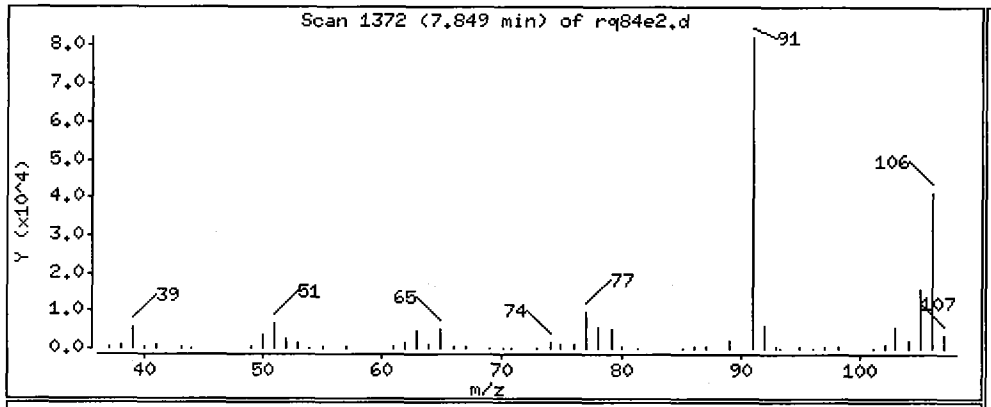
Operator: PB

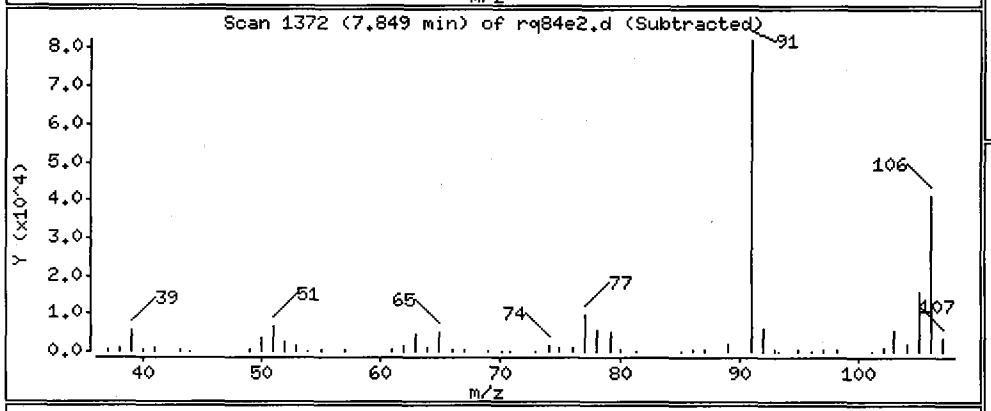
Column phase: RTX502.2

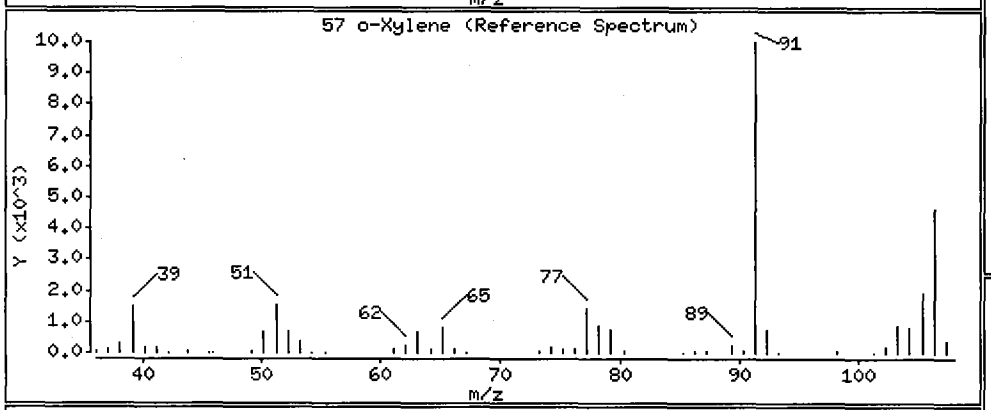
Column diameter: 0.18

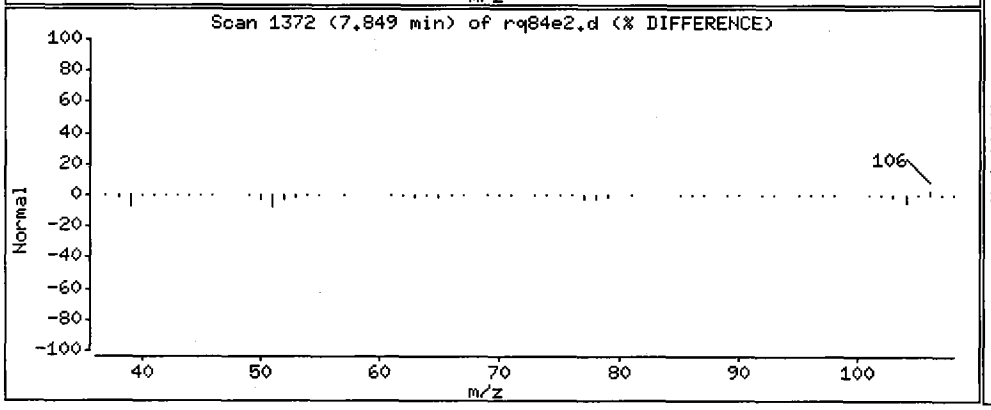
57 o-Xylene

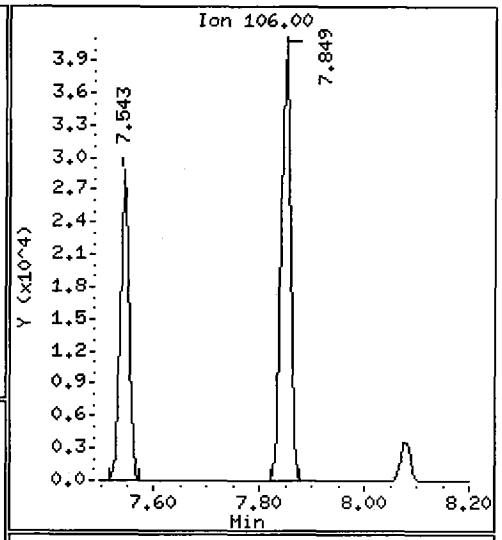
Concentration: 0.8062 ug/Kg

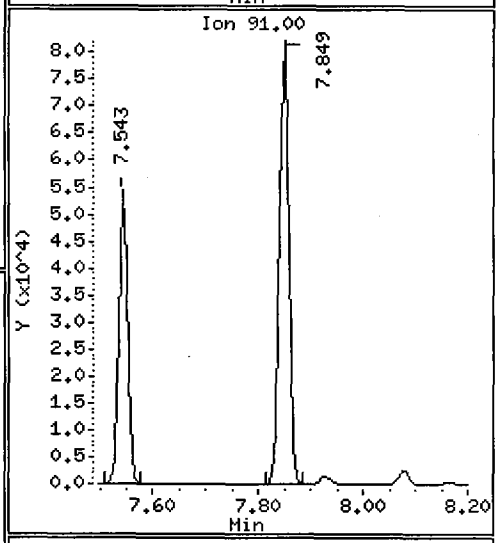












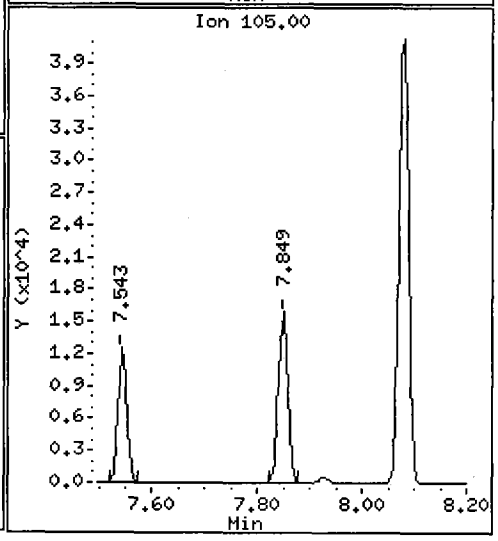


Table of Contents: ARI Job RR33

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Project: NWN-INS

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Signature

October-27-2010
Date

Analytical Resources, Incorporated
Analytical Chemists and Consultants

October 29, 2010

[redacted]

RE: Project: NWN-INS
ARI Job No: RR30

Dear[redacted]

Please find enclosed the original Chain-of-Custody (COC) records, sample receipt documentation, and the final data package for samples from the project referenced above.

Sample receipt and details of these analyses are discussed in the Case Narrative.

An electronic copy of this package will remain on file with ARI. Should you have any questions or problems, please feel free to contact me at your convenience.

Sincerely,

ANALYTICAL RESOURCES, INC.

Susan Dunnihoo
Director, Client Services
sue@arilabs.com
206-695-6207

Enclosures

cc: eFile RR30

SD/sdrd

4611 South 134th Place, Suite 100 • Tukwila WA 98168 • **206-695-6200** • **206-695-6201** fax

Chain of Custody Documentation

ARI Job ID: RR33

ANCHOR QEA 1423 3rd Ave., Suite 300 Seattle, WA 98101 Ph: 206-287-9130

ENVIRONMENTAL SAMPLE CHAIN OF CUSTODY

RR33

COC ID: COC-AARISPAH-101012-01
Sample Custodian: KH
Lab: ARISPAH

Client: NW Natural **Project:** Gasco Data Gaps

COC Sample Number	Field Sample ID	MS/MSD	Date Collected	Time Collected	Media*	# Containers	PAH (NW Natural) EPA 8270	VOC (NW Natural) EPA 8260														
002	DGS-TB-101012-05	N	10/12/2010	13:04	W	3	☐	☑	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐
003	DGS-07-011.3-101012	N	10/12/2010	15:45	SE	2	☑	☑	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐
004	DGS-07-2.22.7-101012	N	10/12/2010	15:45	SE	2	☑	☑	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐
005	DGS-07-034.2-101012	N	10/12/2010	15:45	SE	2	☑	☑	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐
006	DGS-07-4.75.2-101012	N	10/12/2010	15:45	SE	2	☑	☑	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐
007	DGS-07-5.66.7-101012	N	10/12/2010	15:45	SE	2	☑	☑	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐
001	DGS-36-066.7-101012	N	10/12/2010	11:50	SE	2	☑	☑	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐
008	DGS-07-077.3-101012	N	10/12/2010	15:45	SE	2	☑	☑	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐
009	DGS-07-7.98.4-101012	N	10/12/2010	15:45	SE	2	☑	☑	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐
010	DGS-07-8.79.1-101012	N	10/12/2010	15:45	SE	2	☑	☑	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐
011	DGS-07-9.710-101012	N	10/12/2010	15:45	SE	2	☑	☑	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐
012	DGS-07-10.610.9-101012	N	10/12/2010	15:45	SE	2	☑	☑	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐

HOT

Comments:

Relinquished by:	Received by:	Relinquished by:	Received by:	Relinquished by:	Received by:
Signature [signature]	Signature [signature]	Signature	Signature [signature]	Signature	Signature
Print Name Amy Corp	Print Name Vikas Visanewone	Print Name	Print Name Jennifer Millsap	Print Name	Print Name
Company Anchor QEA	Company YL #756	Company	Company ARI	Company	Company
Date/Time 10/13/10 1000	Date/Time 10/13/10 10:30	Date/Time	Date/Time 10/13/10 1400	Date/Time	Date/Time

Date Printed: 10/12/2010 * SE= SEDIMENT

RR33 : 00003

ANCHOR QEA
1423 3rd Ave., Suite 300
Seattle, WA 98101
Ph: 206-287-9130

ENVIRONMENTAL SAMPLE CHAIN OF CUSTODY

COC ID: COC-AARISPAH-101012-01
Sample Custodian: KH
Lab: ARISPAH

Client: NW Natural **Project:** Gasco Data Gaps

COC Sample Number	Field Sample ID	MS/MSD	Date Collected	Time Collected	Media*	# Containers	PAH (NW Natural) EPA 8270	VOC (NW Natural) EPA 8260															
013	DGS-07-11.611.8-101012	N	10/12/2010	15:45	SE	2	☑	☑	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐	HOT
014	DGS-07-12.713.2-101012	N	10/12/2010	15:45	SE	2	☑	☑	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐	HOT

Comments:

Relinquished by:	Received by:	Relinquished by:	Received by:	Relinquished by:	Received by:
Signature [illegible]	Signature [illegible]	Signature	Signature [illegible]	Signature	Signature
Print Name Amy Corp	Print Name VAR Lisamaudre	Print Name	Print Name Jennifer Milsap	Print Name	Print Name
Company Anchor QEA	Company YC #756	Company	Company ARI	Company	Company
Date/Time 10/13/10 1000	Date/Time 10/13/10 10:30	Date/Time	Date/Time 10/13/10 1400	Date/Time	Date/Time

Date Printed: 10/12/2010 * SE= SEDIMENT

RR33 : 000094

Analytical Resources, Incorporated
Analytical Chemists and Consultants

Cooler Receipt Form

ARI Client: Anchor

COC No(s): _____ (NA)

Assigned ARI Job No: RR33

Project Name: Gasco Data Gaps

Delivered by: Fed-Ex UPS (Courier) Hand Delivered Other: _____

Tracking No: _____ NA

Preliminary Examination Phase:

Were intact, properly signed and dated custody seals attached to the outside of to 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)..... 1.3 2.5 4.9 0.7 4.6 5.4 (see below)

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

Temp Gun ID#: _____

Cooler Accepted by: JM Date: 10/13/10 Time: 1400

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: _____

Was sufficient ice used (if appropriate)? ..... NA (YES) NO

Were all bottles sealed in individual plastic bags? ..... YES (NO)

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 _____

Was Sample Split by ARI : (NA) YES Date/Time: _____ Equipment: _____ Split by: _____

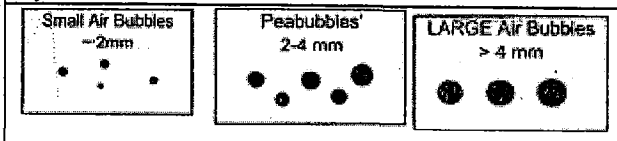
Samples Logged by: [illegible] Date: 10/14/10 Time: 1150

***** 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: temps = 0.9, 5.3, 5.5, 0.3 + 2 boxes + 2 soil sleeves.

By: Date:



Small → "sm"	
Peabubbles → "pb"	
Large → "lg"	
Headspace → "hs"	

Case Narrative, Data Qualifiers, Control Limits

ARI Job ID: RR33

ANALYTICAL
RESOURCES
INCORPORATED

Case Narrative

Client: NW Natural
Project: NWN-INS
ARI Job No.: RR30

Sample receipt

Thirteen sediment samples and a trip blank were received October 13, 2010 under ARI job RR30, as part of larger shipment. For details regarding sample receipt, please refer to the Cooler Receipt Form.

Volatiles by SW8260C

The samples and associated laboratory QC were analyzed within the method recommended holding times.

The initial and continuing calibrations were within method requirements.

The internal standard areas of Pentafluorobenzene, d5-Chlorobenzene, and d4-1,4-Dichlorobenzene fell outside the control limits low for sample **DGS-07-9.710-101012**. The sample was re-analyzed at a medium level and all internal standard areas were within control limits. No further corrective action was taken.

The surrogate percent recoveries of Bromofluorobenzene and d4-1,2-Dichlorobenzene were outside the control limits for sample **DGS-07-9.710-101012**. The sample was re-analyzed at a medium level and all surrogate percent recoveries were within control limits. No further corrective action was taken.

The surrogate percent recoveries of Bromofluorobenzene were outside the control limits high for sample **DGS-07-11.611.8-101012** and the matrix spike/matrix spike duplicates of sample **DGS-07-12.713.2-101012**. Sample **DGS-07-11.611.8-101012** was re-analyzed at a medium level and all surrogate percent recoveries were within control limits. No corrective action is required for matrix QC.

The method blanks were clean at the reporting limits. The LCS and LCSD percent recoveries were within control limits.

The matrix spike and matrix spike duplicate percent recoveries were within advisory control limits for sample **DGS-07-12.713.2-101012**.

The analyst noted that several samples were run medium level due to the nature of the samples.

Analytical Resources, Incorporated
Analytical Chemists and Consultants

Data Reporting Qualifiers

Effective 7/10/2009

Inorganic Data

U Indicates that the target analyte was not detected at the reported concentration

* Duplicate RPD is not within established control limits

B Reported value is less than the CRDL but ≥ the Reporting Limit

N Matrix Spike recovery not within established control limits

NA Not Applicable, analyte not spiked

H The natural concentration of the spiked element is so much greater than the concentration spiked that an accurate determination of spike recovery is not possible

L Analyte concentration is ≤5 times the Reporting Limit and the replicate control limit defaults to ±1 RL instead of the normal 20% RPD

Organic Data

U Indicates that the target analyte was not detected at the reported concentration

* Flagged value is not within established control limits

B Analyte detected in an associated Method Blank at a concentration greater than one-half of ARI's Reporting Limit or 5% of the regulatory limit or 5% of the analyte concentration in the sample.

J Estimated concentration when the value is less than ARI's established reporting limits

D The spiked compound was not detected due to sample extract dilution

E Estimated concentration calculated for an analyte response above the valid instrument calibration range. A dilution is required to obtain an accurate quantification of the analyte.

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).

S Indicates an analyte response that has saturated the detector. The calculated concentration is not valid; a dilution is required to obtain valid quantification of the analyte

RR33 : 00008

Data Reporting Qualifiers

Effective 7/10/2009

NA The flagged analyte was not analyzed for

NR Spiked compound recovery is not reported due to chromatographic interference

NS The flagged analyte was not spiked into the sample

M Estimated value for an analyte detected and confirmed by an analyst but with low spectral match parameters. This flag is used only for GC-MS analyses

M2 The sample contains PCB congeners that do not match any standard Aroclor pattern. The PCBs are identified and quantified as the Aroclor whose pattern most closely matches that of the sample. The reported value is an estimate.

N The analysis indicates the presence of an analyte for which there is presumptive evidence to make a "tentative identification"

Y The analyte is not detected at or above the reported concentration. The reporting limit is raised due to chromatographic interference. The Y flag is equivalent to the U flag with a raised reporting limit.

C The analyte was positively identified on only one of two chromatographic columns. Chromatographic interference prevented a positive identification on the second column

P The analyte was detected on both chromatographic columns but the quantified values differ by ≥40% RPD with no obvious chromatographic interference

Geotechnical Data

A The total of all fines fractions. This flag is used to report total fines when only sieve analysis is requested and balances total grain size with sample weight.

F Samples were frozen prior to particle size determination

SM Sample matrix was not appropriate for the requested analysis. This normally refers to samples contaminated with an organic product that interferes with the sieving process and/or moisture content, porosity and saturation calculations

SS Sample did not contain the proportion of "fines" required to perform the pipette portion of the grain size analysis

W Weight of sample in some pipette aliquots was below the level required for accurate weighting

RR33 : 00009

Analytical Resources,Incorporated
Analytical Chemists and Consultants

Spike Recovery Control Limits for Analysis of Solid Samples Volatile Organic Compounds (VOA) EPA SW-846 Methods 8260C 5 mL Purge Volume [7]

Effective:5/18/09

Control limits are updated periodically. Assure that you have ARI's current control limits by downloading the files at the time of use. http://www.arilabs.com/portal/downloads/ARI-CLs.zip

	Low Level [1]	Low Level ME Limits [3]	Medium Level [2]	Medium Level ME Limits [3]
LCS Spike Recovery [8]				
Dichlorodifluoromethane	53 - 148	37 - 164	25 - 128	**10** - 145
Chloromethane	64 - 125	54 - 135	55 - 121	44 - 132
Vinyl Chloride	63 - 137	51 - 149	66 - 123	57 - 133
Bromomethane	57 - 136	44 - 149	40 - 154	21 - 173
Chloroethane	64 - 131	53 - 142	72 - 128	63 - 137
Trichlorofluoromethane	69 - 132	59 - 143	69 - 135	58 - 146
Acrolein	54 - 137	40 - 151	39 - 135	23 - 151
1,1,2-Trichloro-1,2,2-trifluoroethane	74 - 130	65 - 139	65 - 139	53 - 151
Acetone	60 - 131	48 - 143	55 - 130	43 - 143
1,1-Dichloroethene	75 - 126	67 - 135	73 - 133	63 - 143
Bromoethane	76 - 126	68 - 134	74 - 133	64 - 143
Methyl Iodide	65 - 139	53 - 151	47 - 155	29 - 173
Methylene Chloride	70 - 123	61 - 132	**80 - 120**	75 - 122
Acrylonitrile	67 - 125	57 - 135	62 - 129	51 - 140
Methyl tert-Butyl Ether	70 - 120	62 - 128	69 - 128	59 - 138
Carbon Disulfide	71 - 129	61 - 139	64 - 135	52 - 147
trans-1,2-Dichloroethene	80 - **120**	74 - 126	78 - 125	70 - 133
Vinyl Acetate	60 - 136	47 - 149	66 - 132	55 - 143
1,1-Dichloroethane	**80 - 120**	75 - 124	77 - 124	69 132
2-Butanone	70 - **120**	62 - 127	65 - 126	55 - 136
2,2-Dichloropropane	74 - 123	66 - 131	75 - 127	66 - 136
cis-1,2-Dichloroethene	**80 - 120**	76 - 123	**80** - 125	74 - 132
Chloroform	80 - **120**	74 - 123	**80** - 124	73 - 131
Bromodichloromethane	77 - 121	70 - 128	78 - 130	69 - 139
1,1,1-Trichloroethane	77 - 121	70 - 128	76 - 130	67 - 139
1,1-Dichloropropene	**80 - 120**	77 - 123	77 - 131	68 - 140
Carbon Tetrachloride	77 - 122	70 - 130	74 - 129	65 - 138
1,2-Dichloroethane	76 - **120**	69 - 123	73 - 123	65 - 131
Benzene	**80** - 120	80 - 126	**80 - 120**	75 - 130
Trichloroethene	**80 - 120**	77 - 123	**80** - 125	75 - 132
1,2-Dichloropropane	**80 - 120**	76 - 120	**80** - 122	74 - 129
Bromochloromethane	80 - 120	73 - 127	**80** - 127	73 - 135
Dibromomethane	80 - **120**	74 - 121	**80** - 121	76 - 128
2-Chloroethylvinylether	**10** - 191	**10** - 222	61 - 128	50 - 139

RR33 : 00010

Analytical Resources,Incorporated
Analytical Chemists and Consultants

Spike Recovery Control Limits for Analysis of Solid Samples
Volatile Organic Compounds (VOA) EPA SW-846 Methods 8260C
5 mL Purge Volume [7]

Effective:5/18/09

Control limits are updated periodically. Assure that you have ARI's current control limits by downloading the files at the time of use. http://www.arilabs.com/portal/downloads/ARI-CLs.zip

	Low Level [1]	Low Level ME Limits [3]	Medium Level [2]	Medium Level ME Limits [3]
4-Methyl-2-Pentanone	67 - **120**	59 - 125	80 - 123	73 - 130
cis-1,3-Dichloropropene	74 - **120**	67 - 125	80 - 122	73 - 129
Toluene	**80** - **120**	79 - **120**	**80** - 122	**80** - 127
trans-1,3-Dichloropropene	65 - **120**	57 - 125	**80** - 123	79 - 129
2-Hexanone	65 - 130	54 - 141	58 - 129	46 - 141
1,1,2-Trichloroethane	**80** - **120**	75 - 122	**80** - 120	77 - 126
1,3-Dichloropropane	80 - **120**	74 - 122	**80** - 120	76 - 126
Tetrachloroethene	**80** - 121	79 - 127	**80** - 130	73 - 138
Dibromochloromethane	64 - **120**	55 - 128	77 - 120	70 - 127
Ethylene Dibromide	75 - **120**	68 - 124	**80** - **120**	**80** - 120
Chlorobenzene	**80** - **120**	82 - 120	**80** - 121	80 - 127
Ethylbenzene	**80** - 127	80 - 134	**80** - 126	**80** - 132
1,1,2,2-Tetrachloroethane	74 - 120	66 - 128	79 - **120**	73 - 123
m,p-Xylene	**80** - 125	**80** - 131	**80** - 130	**80** - 137
o-Xylene	78 - **120**	71 - 126	**80** - 124	**80** - 130
Styrene	**80** - 123	78 - 130	**80** - 132	77 - 140
Isopropylbenzene	**80** - 127	84 - 133	**80** - 130	**80** - 137
Bromoform	60 - **120**	50 - 128	68 - 129	58 - 139
1,1,1,2-Tetrachloroethane	69 - 121	60 - 130	**80** - 126	76 - 133
1,2,3-Trichloropropane	72 - 121	64 - 129	77 - **120**	71 - 121
trans-1,4-Dichloro-2-butene	65 - 126	55 - 136	66 - 127	56 - 137
n-Propylbenzene	**80** - 132	**80** - 139	**80** - 132	77 - 140
Bromobenzene	**80** - **120**	78 - 122	**80** - 121	80 - 127
1,3,5-Trimethylbenzene	**80** - 125	**80** - 131	78 - 137	68 - 147
2-Chlorotoluene	**80** - 125	77 - 132	**80** - 123	**80** - 129
4-Chlorotoluene	**80** - 127	77 - 134	**80** - 130	74 - 138
tert-Butylbenzene	87 - 122	**80** - 128	**80** - 133	78 - 141
1,2,4-Trimethylbenzene	**80** - 126	**80** - 132	**80** - 131	79 - 139
sec-Butylbenzene	**80** - 134	80 - 142	**80** - 136	76 - 146
4-Isopropyltoluene	**80** - 131	**80** - 138	**80** - 141	71 - 151
1,3-Dichlorobenzene	**80** - 120	**80** - 126	**80** 126	77 - 133
1,4-Dichlorobenzene	**80** - 120	79 - 126	**80** 121	77 - 127
n-Butylbenzene	**80** - 138	**80** - 146	**80** - 138	77 - 147
1,2-Dichlorobenzene	**80** - **120**	78 - 122	**80** - **120**	**80** - 121
1,2-Dibromo-3-chloropropane	59 - 120	49 - 130	67 - 121	58 - 130
1,2,4-Trichlorobenzene	78 - 130	69 - 139	**80** - 133	72 - 142

RR33 : 00011

Analytical Resources,Incorporated
Analytical Chemists and Consultants

Spike Recovery Control Limits for Analysis of Solid Samples Volatile Organic Compounds (VOA) EPA SW-846 Methods 8260C 5 mL Purge Volume (7)

Effective:5/18/09

Control limits are updated periodically. Assure that you have ARI's current control limits by downloading the files at the time of use. http://www.arilabs.com/portal/downloads/ARI-CLs.zip

	Low Level (1)	Low Level ME Limits (3)	Medium Level (2)	Medium Level ME Limits (3)
Hexachloro-1,3-butadiene	76 - 129	67 - 138	62 - 148	48 - 162
Naphthalene	66 - **120**	58 - 126	74 - 133	64 - 143
1,2,3-Trichlorobenzene	73 - 123	65 - 131	80 - 126	72 - 134
MB/LCS Surrogate Recovery				
Dibromofluoromethane	**80 - 120**	(4)	**80 - 120**	(4)
d4-1,2-Dichloroethane	79 - 121	(4)	76 - **120**	(4)
d8-Toluene	**80 - 120**	(4)	**80 - 120**	(4)
4-Bromofluorobenzene	**80 - 120**	(4)	**80 - 120**	(4)
d4-1,2-Dichlorobenzene	**80 - 120**	(4)	**80 - 120**	(4)
Sample Surrogate Recovery				
Dibromofluoromethane	30 - 160(6)	(4)	30 - 160(6)	(4)
d4-1,2-Dichloroethane	75 - 152	(4)	69 - **120**	(4)
d8-Toluene	82 - 115	(4)	**80 - 120**	(4)
4-Bromofluorobenzene	64 - **120**	(4)	76 - 128	(4)
d4-1,2-Dichlorobenzene	**80 - 120**	(4)	**80 - 120**	(4)

(1) Control Limits calculated using all data generated 1/1/08 through 12/31/08.
(2) Control Limits calculated using all data generated 3/1/07 through 11/15/07.
(3) **ME** = A **marginal exceedance** defined in the NELAC Standard(5) as beyond the LCS-CL but still within the ME limits. ME limits are between 3 and 4 standard deviations around the mean. A maximum of four marginal exceedances are acceptable. Five or more marginal exceedances require corrective action.
(4) Marginal Exceedances not allowed for surrogate standards
(5) **2003 NELAC Standard (EPA/600/R-04/003), July 2003**, Chapter 5, pages 251-252.
(6) 30 – 160 are default, advisory control limits used when there is insufficient data to calculate historic control limits. **DO NOT** use these limits as the sole reason to reject the data from a batch of analyses
(7) Highlighted control limits (**bold font**) are adjusted from the calculated values as follows:
a) ARI does not use control limits < 10
b) Control limits for analyzes with no separate preparation procedure are adjusted to reflect the minimum uncertainty in the calibration of the instrument allowed by the referenced analytical method.
(8) Laboratory Control Sample (LCS) spike recovery control limits also used as advisory control limits for sample matrix spike (MS) analyzes. MS recovery values are advisory and not used to assess the acceptability of an analytical batch.

RR33 : 00012

Volatile Analysis
Report and Summary QC Forms

ARI Job ID: RR33

ANALYTICAL RESOURCES INCORPORATED

ORGANICS ANALYSIS DATA SHEET
Volatiles by Purge & Trap GC/MS-Method SW8260C **Sample ID: DGS-07-011.3-101012**
 SAMPLE

Lab Sample ID: RR33B
LIMS ID: 10-26420
Matrix: Sediment
Data Release Authorized:
Reported: 10/27/10

QC Report No: RR33-NW Natural
Project: NWN-INS

Date Sampled: 10/12/10
Date Received: 10/13/10

Instrument/Analyst: NT9/PAB
Date Analyzed: 10/21/10 17:27

Sample Amount: 2.67 g-dry-wt
Purge Volume: 5.0 mL
Moisture: 49.4%

CAS Number	Analyte	RL	Result	Q
71-43-2	Benzene	1.9	< 1.9	U
108-88-3	Toluene	1.9	< 1.9	U
100-41-4	**Ethylbenzene**	**1.9**	**2.0**	
179601-23-1	m,p-Xylene	1.9	< 1.9	U
95-47-6	**o-Xylene**	**1.9**	**6.3**	

Reported in µg/kg (ppb)

Volatile Surrogate Recovery

d4-1,2-Dichloroethane	106%
d8-Toluene	98.7%
Bromofluorobenzene	102%
d4-1,2-Dichlorobenzene	102%

ANALYTICAL RESOURCES INCORPORATED

ORGANICS ANALYSIS DATA SHEET
Volatiles by Purge & Trap GC/MS-Method SW8260C **Sample ID: DGS-07-2.22.7-101012**
 SAMPLE

Lab Sample ID: RR33C
LIMS ID: 10-26421
Matrix: Sediment
Data Release Authorized:
Reported: 10/27/10

QC Report No: RR33-NW Natural
Project: NWN-INS

Date Sampled: 10/12/10
Date Received: 10/13/10

Instrument/Analyst: NT9/PAB
Date Analyzed: 10/20/10 21:49

Sample Amount: 3.05 g-dry-wt
Purge Volume: 5.0 mL
Moisture: 50.1%

CAS Number	Analyte	RL	Result	Q
71-43-2	Benzene	1.6	34	
108-88-3	Toluene	1.6	17	
100-41-4	Ethylbenzene	1.6	330	E
179601-23-1	m,p-Xylene	1.6	9.2	
95-47-6	o-Xylene	1.6	83	

Reported in µg/kg (ppb)

Volatile Surrogate Recovery

d4-1,2-Dichloroethane	112%
d8-Toluene	99.0%
Bromofluorobenzene	105%
d4-1,2-Dichlorobenzene	106%

ANALYTICAL RESOURCES INCORPORATED

ORGANICS ANALYSIS DATA SHEET
Volatiles by Purge & Trap GC/MS-Method SW8260C **Sample ID: DGS-07-2.22.7-101012**
 REANALYSIS

Lab Sample ID: RR33C
LIMS ID: 10-26421
Matrix: Sediment
Data Release Authorized:
Reported: 10/27/10

QC Report No: RR33-NW Natural
Project: NWN-INS

Date Sampled: 10/12/10
Date Received: 10/13/10

Instrument/Analyst: NT9/PAB
Date Analyzed: 10/26/10 18:35

Sample Amount: 33.8 mg-dry-wt
Purge Volume: 5.0 mL
Moisture: 50.1%

CAS Number	Analyte	RL	Result	Q
71-43-2	Benzene	150	< 150	U
108-88-3	Toluene	150	< 150	U
100-41-4	**Ethylbenzene**	**150**	**980**	
179601-23-1	m,p-Xylene	150	< 150	U
95-47-6	**o-Xylene**	**150**	**300**	

Reported in µg/kg (ppb)

Volatile Surrogate Recovery

d4-1,2-Dichloroethane	105%
d8-Toluene	99.7%
Bromofluorobenzene	98.0%
d4-1,2-Dichlorobenzene	101%

Results corrected for soil moisture content per Section 11.10.5 of EPA Method 8000C.

ANALYTICAL RESOURCES INCORPORATED

ORGANICS ANALYSIS DATA SHEET
Volatiles by Purge & Trap GC/MS-Method SW8260C **Sample ID: DGS-07-034.2-101012**
 SAMPLE

Lab Sample ID: RR33D
LIMS ID: 10-26422
Matrix: Sediment
Data Release Authorized:
Reported: 10/27/10

QC Report No: RR33-NW Natural
Project: NWN-INS

Date Sampled: 10/12/10
Date Received: 10/13/10

Instrument/Analyst: NT9/PAB
Date Analyzed: 10/21/10 17:57

Sample Amount: 2.97 g-dry-wt
Purge Volume: 5.0 mL
Moisture: 47.8%

CAS Number	Analyte	RL	Result	Q
71-43-2	Benzene	1.7	120	
108-88-3	Toluene	1.7	27	
100-41-4	Ethylbenzene	1.7	820	ES
179601-23-1	m,p-Xylene	1.7	73	
95-47-6	o-Xylene	1.7	160	

Reported in µg/kg (ppb)

Volatile Surrogate Recovery

d4-1,2-Dichloroethane	116%
d8-Toluene	98.8%
Bromofluorobenzene	117%
d4-1,2-Dichlorobenzene	102%

ANALYTICAL RESOURCES INCORPORATED

ORGANICS ANALYSIS DATA SHEET
Volatiles by Purge & Trap GC/MS-Method SW8260C **Sample ID: DGS-07-034.2-101012**
 REANALYSIS

Lab Sample ID: RR33D
LIMS ID: 10-26422
Matrix: Sediment
Data Release Authorized:
Reported: 10/27/10

QC Report No: RR33-NW Natural
Project: NWN-INS

Date Sampled: 10/12/10
Date Received: 10/13/10

Instrument/Analyst: NT9/PAB
Date Analyzed: 10/22/10 16:17

Sample Amount: 36.8 mg-dry-wt
Purge Volume: 5.0 mL
Moisture: 47.8%

CAS Number	Analyte	RL	Result	Q
71-43-2	**Benzene**	**140**	**260**	
108-88-3	Toluene	140	< 140	U
100-41-4	**Ethylbenzene**	**140**	**5,600**	
179601-23-1	**m,p-Xylene**	**140**	**290**	
95-47-6	**o-Xylene**	**140**	**700**	

Reported in µg/kg (ppb)

Volatile Surrogate Recovery

d4-1,2-Dichloroethane	99.7%
d8-Toluene	99.5%
Bromofluorobenzene	101%
d4-1,2-Dichlorobenzene	100%

Results corrected for soil moisture content per Section 11.10.5 of EPA Method 8000C.

ANALYTICAL RESOURCES INCORPORATED

ORGANICS ANALYSIS DATA SHEET
Volatiles by Purge & Trap GC/MS-Method SW8260C **Sample ID: DGS-07-4.75.2-101012**
 SAMPLE

Lab Sample ID: RR33E
LIMS ID: 10-26423
Matrix: Sediment
Data Release Authorized:
Reported: 10/27/10

QC Report No: RR33-NW Natural
Project: NWN-INS

Date Sampled: 10/12/10
Date Received: 10/13/10

Instrument/Analyst: NT9/PAB
Date Analyzed: 10/20/10 22:50

Sample Amount: 2.79 g-dry-wt
Purge Volume: 5.0 mL
Moisture: 53.1%

CAS Number	Analyte	RL	Result	Q
71-43-2	Benzene	1.8	45	
108-88-3	Toluene	1.8	6.3	
100-41-4	Ethylbenzene	1.8	1,400	ES
179601-23-1	m,p-Xylene	1.8	12	
95-47-6	o-Xylene	1.8	40	

Reported in µg/kg (ppb)

Volatile Surrogate Recovery

d4-1,2-Dichloroethane	110%
d8-Toluene	96.0%
Bromofluorobenzene	103%
d4-1,2-Dichlorobenzene	102%

ANALYTICAL RESOURCES INCORPORATED

ORGANICS ANALYSIS DATA SHEET
Volatiles by Purge & Trap GC/MS-Method SW8260C

Sample ID: DGS-07-4.75.2-101012
REANALYSIS

Lab Sample ID: RR33E
LIMS ID: 10-26423
Matrix: Sediment
Data Release Authorized:
Reported: 10/27/10

QC Report No: RR33-NW Natural
Project: NWN-INS

Date Sampled: 10/12/10
Date Received: 10/13/10

Instrument/Analyst: NT9/PAB
Date Analyzed: 10/26/10 19:05

Sample Amount: 30.6 mg-dry-wt
Purge Volume: 5.0 mL
Moisture: 53.1%

CAS Number	Analyte	RL	Result	Q
71-43-2	Benzene	160	< 160	U
108-88-3	Toluene	160	< 160	U
100-41-4	**Ethylbenzene**	**160**	**6,300**	
179601-23-1	m,p-Xylene	160	< 160	U
95-47-6	o-Xylene	160	< 160	U

Reported in µg/kg (ppb)

Volatile Surrogate Recovery

d4-1,2-Dichloroethane	104%
d8-Toluene	99.1%
Bromofluorobenzene	98.6%
d4-1,2-Dichlorobenzene	102%

Results corrected for soil moisture content per Section 11.10.5 of EPA Method 8000C.

ANALYTICAL RESOURCES INCORPORATED

ORGANICS ANALYSIS DATA SHEET
Volatiles by Purge & Trap GC/MS-Method SW8260C **Sample ID: DGS-07-5.66.7-101012**
 SAMPLE

Lab Sample ID: RR33F
LIMS ID: 10-26424
Matrix: Sediment
Data Release Authorized:
Reported: 10/27/10

QC Report No: RR33-NW Natural
Project: NWN-INS

Date Sampled: 10/12/10
Date Received: 10/13/10

Instrument/Analyst: NT9/PAB
Date Analyzed: 10/20/10 23:20

Sample Amount: 3.41 g-dry-wt
Purge Volume: 5.0 mL
Moisture: 43.4%

CAS Number	Analyte	RL	Result	Q
71-43-2	Benzene	1.5	47	
108-88-3	Toluene	1.5	3.8	
100-41-4	Ethylbenzene	1.5	840	ES
179601-23-1	m,p-Xylene	1.5	41	
95-47-6	o-Xylene	1.5	51	

Reported in µg/kg (ppb)

Volatile Surrogate Recovery

d4-1,2-Dichloroethane	104%
d8-Toluene	99.0%
Bromofluorobenzene	110%
d4-1,2-Dichlorobenzene	104%

ANALYTICAL RESOURCES INCORPORATED

ORGANICS ANALYSIS DATA SHEET
Volatiles by Purge & Trap GC/MS-Method SW8260C **Sample ID: DGS-07-5.66.7-101012**
 REANALYSIS

Lab Sample ID: RR33F
LIMS ID: 10-26424
Matrix: Sediment
Data Release Authorized:
Reported: 10/27/10

QC Report No: RR33-NW Natural
Project: NWN-INS

Date Sampled: 10/12/10
Date Received: 10/13/10

Instrument/Analyst: NT9/PAB
Date Analyzed: 10/26/10 19:36

Sample Amount: 44.2 mg-dry-wt
Purge Volume: 5.0 mL
Moisture: 43.4%

CAS Number	Analyte	RL	Result	Q
71-43-2	Benzene	110	< 110	U
108-88-3	Toluene	110	< 110	U
100-41-4	**Ethylbenzene**	**110**	**5,200**	
179601-23-1	m,p-Xylene	110	< 110	U
95-47-6	**o-Xylene**	**110**	**120**	

Reported in µg/kg (ppb)

Volatile Surrogate Recovery

d4-1,2-Dichloroethane	101%
d8-Toluene	98.7%
Bromofluorobenzene	99.6%
d4-1,2-Dichlorobenzene	101%

Results corrected for soil moisture content per Section 11.10.5 of EPA Method 8000C.

ANALYTICAL RESOURCES INCORPORATED

ORGANICS ANALYSIS DATA SHEET
Volatiles by Purge & Trap GC/MS-Method SW8260C **Sample ID: DGS-36-066.7-101012**
 SAMPLE

Lab Sample ID: RR33G
LIMS ID: 10-26425
Matrix: Sediment
Data Release Authorized:
Reported: 10/27/10

QC Report No: RR33-NW Natural
Project: NWN-INS

Date Sampled: 10/12/10
Date Received: 10/13/10

Instrument/Analyst: NT9/PAB
Date Analyzed: 10/21/10 12:54

Sample Amount: 3.94 g-dry-wt
Purge Volume: 5.0 mL
Moisture: 30.6%

CAS Number	Analyte	RL	Result	Q
71-43-2	Benzene	1.3	< 1.3	U
108-88-3	Toluene	1.3	< 1.3	U
100-41-4	Ethylbenzene	1.3	< 1.3	U
179601-23-1	m,p-Xylene	1.3	< 1.3	U
95-47-6	o-Xylene	1.3	< 1.3	U

Reported in µg/kg (ppb)

Volatile Surrogate Recovery

d4-1,2-Dichloroethane	112%
d8-Toluene	97.5%
Bromofluorobenzene	99.2%
d4-1,2-Dichlorobenzene	102%

ANALYTICAL RESOURCES INCORPORATED

ORGANICS ANALYSIS DATA SHEET
Volatiles by Purge & Trap GC/MS-Method SW8260C **Sample ID: DGS-07-077.3-101012**
 SAMPLE

Lab Sample ID: RR33H
LIMS ID: 10-26426
Matrix: Sediment
Data Release Authorized:
Reported: 10/27/10

QC Report No: RR33-NW Natural
Project: NWN-INS

Date Sampled: 10/12/10
Date Received: 10/13/10

Instrument/Analyst: NT9/PAB
Date Analyzed: 10/21/10 13:24

Sample Amount: 3.07 g-dry-wt
Purge Volume: 5.0 mL
Moisture: 48.6%

CAS Number	Analyte	RL	Result	Q
71-43-2	Benzene	1.6	40	
108-88-3	Toluene	1.6	3.3	
100-41-4	Ethylbenzene	1.6	730	ES
179601-23-1	m,p-Xylene	1.6	10	
95-47-6	o-Xylene	1.6	22	

Reported in µg/kg (ppb)

Volatile Surrogate Recovery

d4-1,2-Dichloroethane	108%
d8-Toluene	99.8%
Bromofluorobenzene	113%
d4-1,2-Dichlorobenzene	106%

ANALYTICAL RESOURCES INCORPORATED

ORGANICS ANALYSIS DATA SHEET
Volatiles by Purge & Trap GC/MS-Method SW8260C **Sample ID: DGS-07-077.3-101012**
 REANALYSIS

Lab Sample ID: RR33H
LIMS ID: 10-26426
Matrix: Sediment
Data Release Authorized:
Reported: 10/27/10

QC Report No: RR33-NW Natural
Project: NWN-INS

Date Sampled: 10/12/10
Date Received: 10/13/10

Instrument/Analyst: NT9/PAB
Date Analyzed: 10/22/10 16:47

Sample Amount: 35.6 mg-dry-wt
Purge Volume: 5.0 mL
Moisture: 48.6%

CAS Number	Analyte	RL	Result	Q
71-43-2	Benzene	140	< 140	U
108-88-3	Toluene	140	< 140	U
100-41-4	**Ethylbenzene**	**140**	**7,500**	
179601-23-1	m,p-Xylene	140	< 140	U
95-47-6	**o-Xylene**	**140**	**170**	

Reported in µg/kg (ppb)

Volatile Surrogate Recovery

d4-1,2-Dichloroethane	98.3%
d8-Toluene	99.5%
Bromofluorobenzene	104%
d4-1,2-Dichlorobenzene	101%

Results corrected for soil moisture content per Section 11.10.5 of EPA Method 8000C.

ANALYTICAL RESOURCES INCORPORATED

ORGANICS ANALYSIS DATA SHEET
Volatiles by Purge & Trap GC/MS-Method SW8260C **Sample ID: DGS-07-7.98.4-101012**
 SAMPLE

Lab Sample ID: RR33I
LIMS ID: 10-26427
Matrix: Sediment
Data Release Authorized:
Reported: 10/27/10

QC Report No: RR33-NW Natural
Project: NWN-INS

Date Sampled: 10/12/10
Date Received: 10/13/10

Instrument/Analyst: NT9/PAB
Date Analyzed: 10/21/10 13:54

Sample Amount: 3.54 g-dry-wt
Purge Volume: 5.0 mL
Moisture: 41.0%

CAS Number	Analyte	RL	Result	Q
71-43-2	Benzene	1.4	7.5	
108-88-3	Toluene	1.4	2.2	
100-41-4	Ethylbenzene	1.4	600	E
179601-23-1	m,p-Xylene	1.4	2.3	
95-47-6	o-Xylene	1.4	20	

Reported in µg/kg (ppb)

Volatile Surrogate Recovery

d4-1,2-Dichloroethane	108%
d8-Toluene	98.5%
Bromofluorobenzene	112%
d4-1,2-Dichlorobenzene	102%

ANALYTICAL RESOURCES INCORPORATED

ORGANICS ANALYSIS DATA SHEET
Volatiles by Purge & Trap GC/MS-Method SW8260C **Sample ID: DGS-07-7.98.4-101012**
 REANALYSIS

Lab Sample ID: RR33I
LIMS ID: 10-26427
Matrix: Sediment
Data Release Authorized:
Reported: 10/27/10

QC Report No: RR33-NW Natural
Project: NWN-INS

Date Sampled: 10/12/10
Date Received: 10/13/10

Instrument/Analyst: NT9/PAB
Date Analyzed: 10/22/10 17:17

Sample Amount: 41.8 mg-dry-wt
Purge Volume: 5.0 mL
Moisture: 41.0%

CAS Number	Analyte	RL	Result	Q
71-43-2	Benzene	120	< 120	U
108-88-3	Toluene	120	< 120	U
100-41-4	**Ethylbenzene**	**120**	**3,500**	
179601-23-1	m,p-Xylene	120	< 120	U
95-47-6	**o-Xylene**	**120**	**130**	

Reported in µg/kg (ppb)

Volatile Surrogate Recovery

d4-1,2-Dichloroethane	101%
d8-Toluene	99.5%
Bromofluorobenzene	105%
d4-1,2-Dichlorobenzene	101%

Results corrected for soil moisture content per Section 11.10.5 of EPA Method 8000C.

ANALYTICAL RESOURCES INCORPORATED

ORGANICS ANALYSIS DATA SHEET
Volatiles by Purge & Trap GC/MS-Method SW8260C **Sample ID: DGS-07-8.79.1-101012**
 SAMPLE

Lab Sample ID: RR33J
LIMS ID: 10-26428
Matrix: Sediment
Data Release Authorized:
Reported: 10/27/10

QC Report No: RR33-NW Natural
Project: NWN-INS

Date Sampled: 10/12/10
Date Received: 10/13/10

Instrument/Analyst: NT9/PAB
Date Analyzed: 10/21/10 14:25

Sample Amount: 3.20 g-dry-wt
Purge Volume: 5.0 mL
Moisture: 47.4%

CAS Number	Analyte	RL	Result	Q
71-43-2	Benzene	1.6	54	
108-88-3	Toluene	1.6	6.3	
100-41-4	Ethylbenzene	1.6	560	E
179601-23-1	m,p-Xylene	1.6	7.6	
95-47-6	o-Xylene	1.6	100	

Reported in µg/kg (ppb)

Volatile Surrogate Recovery

d4-1,2-Dichloroethane	108%
d8-Toluene	102%
Bromofluorobenzene	116%
d4-1,2-Dichlorobenzene	104%

ANALYTICAL RESOURCES INCORPORATED

ORGANICS ANALYSIS DATA SHEET
Volatiles by Purge & Trap GC/MS-Method SW8260C **Sample ID: DGS-07-8.79.1-101012**
 REANALYSIS

Lab Sample ID: RR33J
LIMS ID: 10-26428
Matrix: Sediment
Data Release Authorized:
Reported: 10/27/10

QC Report No: RR33-NW Natural
Project: NWN-INS

Date Sampled: 10/12/10
Date Received: 10/13/10

Instrument/Analyst: NT9/PAB
Date Analyzed: 10/22/10 17:47

Sample Amount: 37.3 mg-dry-wt
Purge Volume: 5.0 mL
Moisture: 47.4%

CAS Number	Analyte	RL	Result	Q
71-43-2	**Benzene**	**130**	**160**	
108-88-3	Toluene	130	< 130	U
100-41-4	**Ethylbenzene**	**130**	**6,200**	
179601-23-1	m,p-Xylene	130	< 130	U
95-47-6	**o-Xylene**	**130**	**1,200**	

Reported in µg/kg (ppb)

Volatile Surrogate Recovery

d4-1,2-Dichloroethane	99.8%
d8-Toluene	99.3%
Bromofluorobenzene	104%
d4-1,2-Dichlorobenzene	100%

Results corrected for soil moisture content per Section 11.10.5 of EPA Method 8000C.

ANALYTICAL RESOURCES INCORPORATED

ORGANICS ANALYSIS DATA SHEET
Volatiles by Purge & Trap GC/MS-Method SW8260C **Sample ID: DGS-07-9.710-101012**
 SAMPLE

Lab Sample ID: RR33K
LIMS ID: 10-26429
Matrix: Sediment
Data Release Authorized:
Reported: 10/27/10

QC Report No: RR33-NW Natural
Project: NWN-INS

Date Sampled: 10/12/10
Date Received: 10/13/10

Instrument/Analyst: NT9/PAB
Date Analyzed: 10/21/10 14:55

Sample Amount: 1.31 g-dry-wt
Purge Volume: 5.0 mL
Moisture: 49.5%

CAS Number	Analyte	RL	Result	Q
71-43-2	Benzene	3.8	940	E
108-88-3	Toluene	3.8	74	
100-41-4	Ethylbenzene	3.8	4,600	ES
179601-23-1	m,p-Xylene	3.8	990	E
95-47-6	o-Xylene	3.8	3,600	E

Reported in µg/kg (ppb)

Volatile Surrogate Recovery

d4-1,2-Dichloroethane	140%
d8-Toluene	88.0%
Bromofluorobenzene	324%
d4-1,2-Dichlorobenzene	41.8%

ANALYTICAL RESOURCES INCORPORATED

ORGANICS ANALYSIS DATA SHEET
Volatiles by Purge & Trap GC/MS-Method SW8260C **Sample ID: DGS-07-9.710-101012**
 REANALYSIS

Lab Sample ID: RR33K
LIMS ID: 10-26429
Matrix: Sediment
Data Release Authorized:
Reported: 10/27/10

QC Report No: RR33-NW Natural
Project: NWN-INS

Date Sampled: 10/12/10
Date Received: 10/13/10

Instrument/Analyst: NT9/PAB
Date Analyzed: 10/22/10 18:18

Sample Amount: 33.7 mg-dry-wt
Purge Volume: 5.0 mL
Moisture: 49.5%

CAS Number	Analyte	RL	Result	Q
71-43-2	**Benzene**	**150**	**700**	
108-88-3	Toluene	150	< 150	U
100-41-4	**Ethylbenzene**	**150**	**13,000**	
179601-23-1	**m,p-Xylene**	**150**	**980**	
95-47-6	**o-Xylene**	**150**	**4,100**	

Reported in µg/kg (ppb)

Volatile Surrogate Recovery

d4-1,2-Dichloroethane	101%
d8-Toluene	99.7%
Bromofluorobenzene	108%
d4-1,2-Dichlorobenzene	102%

Results corrected for soil moisture content per Section 11.10.5 of EPA Method 8000C.

ANALYTICAL RESOURCES INCORPORATED

ORGANICS ANALYSIS DATA SHEET
Volatiles by Purge & Trap GC/MS-Method SW8260C **Sample ID: DGS-07-10.610.9-101012**
 SAMPLE

Lab Sample ID: RR33L
LIMS ID: 10-26430
Matrix: Sediment
Data Release Authorized:
Reported: 10/27/10

QC Report No: RR33-NW Natural
Project: NWN-INS

Date Sampled: 10/12/10
Date Received: 10/13/10

Instrument/Analyst: NT9/PAB
Date Analyzed: 10/21/10 15:25

Sample Amount: 3.00 g-dry-wt
Purge Volume: 5.0 mL
Moisture: 44.4%

CAS Number	Analyte	RL	Result	Q
71-43-2	Benzene	1.7	200	
108-88-3	Toluene	1.7	14	
100-41-4	Ethylbenzene	1.7	670	E
179601-23-1	m,p-Xylene	1.7	61	
95-47-6	o-Xylene	1.7	200	

Reported in µg/kg (ppb)

Volatile Surrogate Recovery

d4-1,2-Dichloroethane	109%
d8-Toluene	99.5%
Bromofluorobenzene	112%
d4-1,2-Dichlorobenzene	103%

ANALYTICAL RESOURCES INCORPORATED

ORGANICS ANALYSIS DATA SHEET
Volatiles by Purge & Trap GC/MS-Method SW8260C **Sample ID: DGS-07-10.610.9-101012**
 REANALYSIS

Lab Sample ID: RR33L
LIMS ID: 10-26430
Matrix: Sediment
Data Release Authorized:
Reported: 10/27/10

QC Report No: RR33-NW Natural
Project: NWN-INS

Date Sampled: 10/12/10
Date Received: 10/13/10

Instrument/Analyst: NT9/PAB
Date Analyzed: 10/22/10 18:48

Sample Amount: 43.2 mg-dry-wt
Purge Volume: 5.0 mL
Moisture: 44.4%

CAS Number	Analyte	RL	Result	Q
71-43-2	**Benzene**	**120**	**310**	
108-88-3	Toluene	120	< 120	U
100-41-4	**Ethylbenzene**	**120**	**3,000**	
179601-23-1	**m,p-Xylene**	**120**	**260**	
95-47-6	**o-Xylene**	**120**	**880**	

Reported in µg/kg (ppb)

Volatile Surrogate Recovery

d4-1,2-Dichloroethane	100%
d8-Toluene	99.6%
Bromofluorobenzene	104%
d4-1,2-Dichlorobenzene	100%

Results corrected for soil moisture content per Section 11.10.5 of EPA Method 8000C.

ANALYTICAL RESOURCES INCORPORATED

ORGANICS ANALYSIS DATA SHEET
Volatiles by Purge & Trap GC/MS-Method SW8260C **Sample ID: DGS-07-11.611.8-101012**
 SAMPLE

Lab Sample ID: RR33M
LIMS ID: 10-26431
Matrix: Sediment
Data Release Authorized:
Reported: 10/27/10

QC Report No: RR33-NW Natural
Project: NWN-INS

Date Sampled: 10/12/10
Date Received: 10/13/10

Instrument/Analyst: NT9/PAB
Date Analyzed: 10/21/10 15:56

Sample Amount: 3.21 g-dry-wt
Purge Volume: 5.0 mL
Moisture: 44.6%

CAS Number	Analyte	RL	Result	Q
71-43-2	Benzene	1.6	250	
108-88-3	Toluene	1.6	15	
100-41-4	Ethylbenzene	1.6	470	E
179601-23-1	m,p-Xylene	1.6	66	
95-47-6	o-Xylene	1.6	240	

Reported in µg/kg (ppb)

Volatile Surrogate Recovery

d4-1,2-Dichloroethane	117%
d8-Toluene	97.4%
Bromofluorobenzene	135%
d4-1,2-Dichlorobenzene	98.5%

ANALYTICAL RESOURCES INCORPORATED

ORGANICS ANALYSIS DATA SHEET
Volatiles by Purge & Trap GC/MS-Method SW8260C **Sample ID: DGS-07-11.611.8-101012**
 REANALYSIS

Lab Sample ID: RR33M
LIMS ID: 10-26431
Matrix: Sediment
Data Release Authorized:
Reported: 10/27/10

QC Report No: RR33-NW Natural
Project: NWN-INS

Date Sampled: 10/12/10
Date Received: 10/13/10

Instrument/Analyst: NT9/PAB
Date Analyzed: 10/22/10 19:19

Sample Amount: 39.7 mg-dry-wt
Purge Volume: 5.0 mL
Moisture: 44.6%

CAS Number	Analyte	RL	Result	Q
71-43-2	**Benzene**	**130**	**700**	
108-88-3	Toluene	130	< 130	U
100-41-4	**Ethylbenzene**	**130**	**3,400**	
179601-23-1	**m,p-Xylene**	**130**	**510**	
95-47-6	**o-Xylene**	**130**	**1,900**	

Reported in µg/kg (ppb)

Volatile Surrogate Recovery

d4-1,2-Dichloroethane	101%
d8-Toluene	99.3%
Bromofluorobenzene	107%
d4-1,2-Dichlorobenzene	101%

Results corrected for soil moisture content per Section 11.10.5 of EPA Method 8000C.

ANALYTICAL RESOURCES INCORPORATED

ORGANICS ANALYSIS DATA SHEET
Volatiles by Purge & Trap GC/MS-Method SW8260C **Sample ID: DGS-07-12.713.2-101012**
 SAMPLE

Lab Sample ID: RR33N
LIMS ID: 10-26432
Matrix: Sediment
Data Release Authorized:
Reported: 10/27/10

QC Report No: RR33-NW Natural
Project: NWN-INS

Date Sampled: 10/12/10
Date Received: 10/13/10

Instrument/Analyst: NT9/PAB
Date Analyzed: 10/21/10 21:29

Sample Amount: 0.374 g-dry-wt
Purge Volume: 5.0 mL
Moisture: 42.4%

CAS Number	Analyte	RL	Result	Q
71-43-2	Benzene	13	370	
108-88-3	Toluene	13	49	
100-41-4	Ethylbenzene	13	2,700	E
179601-23-1	m,p-Xylene	13	540	
95-47-6	o-Xylene	13	1,200	

Reported in µg/kg (ppb)

Volatile Surrogate Recovery

d4-1,2-Dichloroethane	103%
d8-Toluene	96.7%
Bromofluorobenzene	98.1%
d4-1,2-Dichlorobenzene	104%

ANALYTICAL RESOURCES INCORPORATED

ORGANICS ANALYSIS DATA SHEET
Volatiles by Purge & Trap GC/MS-Method SW8260C **Sample ID: DGS-07-12.713.2-101012**

REANALYSIS

Lab Sample ID: RR33N
LIMS ID: 10-26432
Matrix: Sediment
Data Release Authorized:
Reported: 10/27/10

QC Report No: RR33-NW Natural
Project: NWN-INS

Date Sampled: 10/12/10
Date Received: 10/13/10

Instrument/Analyst: NT9/PAB
Date Analyzed: 10/22/10 19:49

Sample Amount: 41.5 mg-dry-wt
Purge Volume: 5.0 mL
Moisture: 42.4%

CAS Number	Analyte	RL	Result	Q
71-43-2	**Benzene**	**120**	**330**	
108-88-3	Toluene	120	< 120	U
100-41-4	**Ethylbenzene**	**120**	**2,200**	
179601-23-1	**m,p-Xylene**	**120**	**480**	
95-47-6	**o-Xylene**	**120**	**1,000**	

Reported in µg/kg (ppb)

Volatile Surrogate Recovery

d4-1,2-Dichloroethane	102%
d8-Toluene	100%
Bromofluorobenzene	107%
d4-1,2-Dichlorobenzene	100%

Results corrected for soil moisture content per Section 11.10.5 of EPA Method 8000C.

ANALYTICAL RESOURCES INCORPORATED

VOA SURROGATE RECOVERY SUMMARY

Matrix: Sediment

QC Report No: RR33-NW Natural
Project: NWN-INS

ARI ID	Client ID	Level	DCE	TOL	BFB	DCB	TOT OUT
RR33B	DGS-07-011.3-101012	Low	106%	98.7%	102%	102%	0
MB-102010	Method Blank	Low	99.5%	99.4%	98.1%	101%	0
LCS-102010	Lab Control	Low	99.6%	98.9%	97.2%	99.6%	0
LCSD-102010	Lab Control Dup	Low	97.5%	98.0%	96.6%	99.3%	0
RR33C	DGS-07-2.22.7-101012	Low	112%	99.0%	105%	106%	0
RR33CRE	DGS-07-2.22.7-101012	Med	105%	99.7%	98.0%	101%	0
MB-102110	Method Blank	Low	99.3%	99.1%	96.9%	99.8%	0
LCS-102110	Lab Control	Low	97.9%	98.4%	96.2%	98.8%	0
LCSD-102110	Lab Control Dup	Low	98.0%	98.1%	96.1%	99.4%	0
RR33D	DGS-07-034.2-101012	Low	116%	98.8%	117%	102%	0
RR33DRE	DGS-07-034.2-101012	Med	99.7%	99.5%	101%	100%	0
RR33E	DGS-07-4.75.2-101012	Low	110%	96.0%	103%	102%	0
RR33ERE	DGS-07-4.75.2-101012	Med	104%	99.1%	98.6%	102%	0
MB-102610	Method Blank	Med	101%	100%	96.2%	102%	0
LCS-102610	Lab Control	Med	90.6%	99.0%	95.4%	99.1%	0
LCSD-102610	Lab Control Dup	Med	101%	99.7%	94.4%	98.9%	0
RR33F	DGS-07-5.66.7-101012	Low	104%	99.0%	110%	104%	0
RR33FRE	DGS-07-5.66.7-101012	Med	101%	98.7%	99.6%	101%	0
RR33G	DGS-36-066.7-101012	Low	112%	97.5%	99.2%	102%	0
RR33H	DGS-07-077.3-101012	Low	108%	99.8%	113%	106%	0
RR33HRE	DGS-07-077.3-101012	Med	98.3%	99.5%	104%	101%	0
RR33I	DGS-07-7.98.4-101012	Low	108%	98.5%	112%	102%	0
RR33IRE	DGS-07-7.98.4-101012	Med	101%	99.5%	105%	101%	0
RR33J	DGS-07-8.79.1-101012	Low	108%	102%	116%	104%	0
RR33JRE	DGS-07-8.79.1-101012	Med	99.8%	99.3%	104%	100%	0
RR33K	DGS-07-9.710-101012	Low	140%	88.0%	324%*	41.8%*	2
RR33KRE	DGS-07-9.710-101012	Med	101%	99.7%	108%	102%	0
RR33L	DGS-07-10.610.9-101012	Low	109%	99.5%	112%	103%	0
RR33LRE	DGS-07-10.610.9-101012	Med	100%	99.6%	104%	100%	0
RR33M	DGS-07-11.611.8-101012	Low	117%	97.4%	135%*	98.5%	1
RR33MRE	DGS-07-11.611.8-101012	Med	101%	99.3%	107%	101%	0
MB-102210	Method Blank	Med	89.7%	97.8%	96.2%	98.5%	0
LCS-102210	Lab Control	Med	96.3%	98.3%	96.0%	100%	0
LCSD-102210	Lab Control Dup	Med	96.7%	98.5%	97.4%	99.1%	0
RR33N	DGS-07-12.713.2-101012	Low	103%	96.7%	98.1%	104%	0
RR33NRE	DGS-07-12.713.2-101012	Med	102%	100%	107%	100%	0
RR33NMS	DGS-07-12.713.2-101012	Med	102%	99.7%	49.6%*	100%	1
RR33NMSD	DGS-07-12.713.2-101012	Med	101%	99.6%	46.6%*	101%	1

	LCS/MB LIMITS		QC LIMITS	
SW8260C	Low	Med	Low	Med
(DCE) = d4-1,2-Dichloroethane	79-121	76-120	75-152	69-120
(TOL) = d8-Toluene	80-120	80-120	82-115	80-120
(BFB) = Bromofluorobenzene	80-120	80-120	64-120	76-128
(DCB) = d4-1,2-Dichlorobenzene	80-120	80-120	80-120	80-120

Log Number Range: 10-26420 to 10-26432

ANALYTICAL RESOURCES INCORPORATED

VOA SURROGATE RECOVERY SUMMARY

Matrix: Water

QC Report No: RR33-NW Natural
Project: NWN-INS

ARI ID	Client ID	PV	DCE	TOL	BFB	DCB	TOT OUT
RR33A	DGS-TB-101012-05	5	102%	99.0%	99.3%	102%	0

	LCS/MB LIMITS	QC LIMITS
SW8260C		
(DCE) = d4-1,2-Dichloroethane	80-122	80-125
(TOL) = d8-Toluene	80-120	80-120
(BFB) = Bromofluorobenzene	80-120	80-120
(DCB) = d4-1,2-Dichlorobenzene	80-120	80-120

Prep Method: SW5030B
Log Number Range: 10-26419 to 10-26419

ANALYTICAL RESOURCES INCORPORATED

ORGANICS ANALYSIS DATA SHEET
Volatiles by Purge & Trap GC/MS-Method SW8260C **Sample ID: DGS-TB-101012-05**
 Trip Blanks

Lab Sample ID: RR33A
LIMS ID: 10-26419
Matrix: Water
Data Release Authorized:
Reported: 10/27/10

QC Report No: RR33-NW Natural
Project: NWN-INS

Date Sampled: 10/12/10
Date Received: 10/13/10

Instrument/Analyst: NT9/PAB
Date Analyzed: 10/20/10 20:48

Sample Amount: 5.00 mL
Purge Volume: 5.0 mL

CAS Number	Analyte	RL	Result	Q
71-43-2	Benzene	1.0	< 1.0	U
108-88-3	Toluene	1.0	< 1.0	U
100-41-4	Ethylbenzene	1.0	< 1.0	U
179601-23-1	m,p-Xylene	2.0	< 2.0	U
95-47-6	o-Xylene	1.0	< 1.0	U

Reported in µg/L (ppb)

Volatile Surrogate Recovery

d4-1,2-Dichloroethane	102%
d8-Toluene	99.0%
Bromofluorobenzene	99.3%
d4-1,2-Dichlorobenzene	102%

ANALYTICAL RESOURCES INCORPORATED

ORGANICS ANALYSIS DATA SHEET
Volatiles by Purge & Trap GC/MS-Method SW8260C **Sample ID: DGS-07-12.713.2-101012**
 MATRIX SPIKE

Lab Sample ID: RR33N
LIMS ID: 10-26432
Matrix: Sediment
Data Release Authorized:
Reported: 10/27/10

QC Report No: RR33-NW Natural
Project: NWN-INS

Date Sampled: 10/12/10
Date Received: 10/13/10

Instrument/Analyst MS: NT9/PAB
MSD: NT9/PAB
Date Analyzed MS: 10/22/10 20:20
MSD: 10/22/10 20:50

Sample Amount MS: 41.5 mg-dry-wt
MSD: 41.5 mg-dry-wt
Purge Volume MS: 5.0 mL
MSD: 5.0 mL
Moisture: 42.4%

Analyte	Sample	MS	Spike Added-MS	MS Recovery	MSD	Spike Added-MSD	MSD Recovery	RPD
Benzene	330	6540	6020	103%	6510	6020	103%	0.5%
Toluene	< 121 U	6030	6020	100%	6010	6020	99.8%	0.3%
Ethylbenzene	2230	8330	6020	101%	8420	6020	103%	1.1%
m,p-Xylene	482	12600	12000	101%	12700	12000	102%	0.8%
o-Xylene	1010	7200	6020	103%	7250	6020	104%	0.7%

Reported in µg/kg (ppb)

RPD calculated using sample concentrations per SW846.

ANALYTICAL RESOURCES INCORPORATED

ORGANICS ANALYSIS DATA SHEET
Volatiles by Purge & Trap GC/MS-Method SW8260C

Sample ID: DGS-07-12.713.2-101012
MATRIX SPIKE

Lab Sample ID: RR33N
LIMS ID: 10-26432
Matrix: Sediment
Data Release Authorized:
Reported: 10/27/10

QC Report No: RR33-NW Natural
Project: NWN-INS

Date Sampled: 10/12/10
Date Received: 10/13/10

Instrument/Analyst: NT9/PAB
Date Analyzed: 10/22/10 20:20

Sample Amount: 41.5 mg-dry-wt
Purge Volume: 5.0 mL
Moisture: 42.4%

CAS Number	Analyte	RL	Result	Q
71-43-2	Benzene	120	---	
108-88-3	Toluene	120	---	
100-41-4	Ethylbenzene	120	---	
179601-23-1	m,p-Xylene	120	---	
95-47-6	o-Xylene	120	---	

Reported in µg/kg (ppb)

Volatile Surrogate Recovery

d4-1,2-Dichloroethane	102%
d8-Toluene	99.7%
Bromofluorobenzene	49.6%
d4-1,2-Dichlorobenzene	100%

Results corrected for soil moisture content per Section 11.10.5 of EPA Method 8000C.

ANALYTICAL RESOURCES INCORPORATED

ORGANICS ANALYSIS DATA SHEET
Volatiles by Purge & Trap GC/MS-Method SW8260C **Sample ID: DGS-07-12.713.2-101012**
 MATRIX SPIKE DUP

Lab Sample ID: RR33N
LIMS ID: 10-26432
Matrix: Sediment
Data Release Authorized:
Reported: 10/27/10

QC Report No: RR33-NW Natural
Project: NWN-INS

Date Sampled: 10/12/10
Date Received: 10/13/10

Instrument/Analyst: NT9/PAB
Date Analyzed: 10/22/10 20:50

Sample Amount: 41.5 mg-dry-wt
Purge Volume: 5.0 mL
Moisture: 42.4%

CAS Number	Analyte	RL	Result	Q
71-43-2	Benzene	120	---	
108-88-3	Toluene	120	---	
100-41-4	Ethylbenzene	120	---	
179601-23-1	m,p-Xylene	120	---	
95-47-6	o-Xylene	120	---	

Reported in µg/kg (ppb)

Volatile Surrogate Recovery

d4-1,2-Dichloroethane	101%
d8-Toluene	99.6%
Bromofluorobenzene	46.6%
d4-1,2-Dichlorobenzene	101%

Results corrected for soil moisture content per Section 11.10.5 of EPA Method 8000C.

ANALYTICAL RESOURCES INCORPORATED

ORGANICS ANALYSIS DATA SHEET
Volatiles by Purge & Trap GC/MS-Method SW8260C **Sample ID: LCS-102010**
 LAB CONTROL SAMPLE

Lab Sample ID: LCS-102010
LIMS ID: 10-26421
Matrix: Sediment
Data Release Authorized:
Reported: 10/27/10

QC Report No: RR33-NW Natural
Project: NWN-INS

Date Sampled: NA
Date Received: NA

Instrument/Analyst LCS: NT9/PAB
LCSD: NT9/PAB
Date Analyzed LCS: 10/20/10 13:42
LCSD: 10/20/10 15:09

Sample Amount LCS: 5.00 g-dry-wt
LCSD: 5.00 g-dry-wt
Purge Volume LCS: 5.0 mL
LCSD: 5.0 mL
Moisture: NA

Analyte	LCS	Spike Added-LCS	LCS Recovery	LCSD	Spike Added-LCSD	LCSD Recovery	RPD
Benzene	44.7	50.0	89.4%	55.2	50.0	110%	21.0%
Toluene	43.6	50.0	87.2%	54.4	50.0	109%	22.0%
Ethylbenzene	45.0	50.0	90.0%	57.7	50.0	115%	24.7%
m,p-Xylene	93.0	100	93.0%	120	100	120%	25.4%
o-Xylene	45.6	50.0	91.2%	56.2	50.0	112%	20.8%

Reported in µg/kg (ppb)

RPD calculated using sample concentrations per SW846.

Volatile Surrogate Recovery

	LCS	LCSD
d4-1,2-Dichloroethane	99.6%	97.5%
d8-Toluene	98.9%	98.0%
Bromofluorobenzene	97.2%	96.6%
d4-1,2-Dichlorobenzene	99.6%	99.3%

ANALYTICAL RESOURCES INCORPORATED

ORGANICS ANALYSIS DATA SHEET
Volatiles by Purge & Trap GC/MS-Method SW8260C **Sample ID: LCS-102110**
 LAB CONTROL SAMPLE

Lab Sample ID: LCS-102110
LIMS ID: 10-26422
Matrix: Sediment
Data Release Authorized:
Reported: 10/27/10

QC Report No: RR33-NW Natural
Project: NWN-INS

Date Sampled: NA
Date Received: NA

Instrument/Analyst LCS: NT9/PAB
LCSD: NT9/PAB
Date Analyzed LCS: 10/21/10 11:21
LCSD: 10/21/10 11:51

Sample Amount LCS: 5.00 g-dry-wt
LCSD: 5.00 g-dry-wt
Purge Volume LCS: 5.0 mL
LCSD: 5.0 mL
Moisture: NA

Analyte	LCS	Spike Added-LCS	LCS Recovery	LCSD	Spike Added-LCSD	LCSD Recovery	RPD
Benzene	50.7	50.0	101%	52.9	50.0	106%	4.2%
Toluene	48.9	50.0	97.8%	51.3	50.0	103%	4.8%
Ethylbenzene	51.6	50.0	103%	54.4	50.0	109%	5.3%
m,p-Xylene	106	100	106%	112	100	112%	5.5%
o-Xylene	51.2	50.0	102%	53.0	50.0	106%	3.5%

Reported in µg/kg (ppb)

RPD calculated using sample concentrations per SW846.

Volatile Surrogate Recovery

	LCS	LCSD
d4-1,2-Dichloroethane	97.9%	98.0%
d8-Toluene	98.4%	98.1%
Bromofluorobenzene	96.2%	96.1%
d4-1,2-Dichlorobenzene	98.8%	99.4%

ANALYTICAL RESOURCES INCORPORATED

ORGANICS ANALYSIS DATA SHEET
Volatiles by Purge & Trap GC/MS-Method SW8260C **Sample ID: LCS-102210**

LAB CONTROL SAMPLE

Lab Sample ID: LCS-102210
LIMS ID: 10-26432
Matrix: Sediment
Data Release Authorized:
Reported: 10/27/10

QC Report No: RR33-NW Natural
Project: NWN-INS

Date Sampled: NA
Date Received: NA

Instrument/Analyst LCS: NT9/PAB
LCSD: NT9/PAB
Date Analyzed LCS: 10/22/10 11:12
LCSD: 10/22/10 11:42

Sample Amount LCS: 100 mg-dry-wt
LCSD: 100 mg-dry-wt
Purge Volume LCS: 5.0 mL
LCSD: 5.0 mL
Moisture: NA

Analyte	LCS	Spike Added-LCS	LCS Recovery	LCSD	Spike Added-LCSD	LCSD Recovery	RPD
Benzene	2690	2500	108%	2720	2500	109%	1.1%
Toluene	2620	2500	105%	2640	2500	106%	0.8%
Ethylbenzene	2710	2500	108%	2730	2500	109%	0.7%
m,p-Xylene	5570	5000	111%	5620	5000	112%	0.9%
o-Xylene	2690	2500	108%	2730	2500	109%	1.5%

Reported in µg/kg (ppb)

RPD calculated using sample concentrations per SW846.

Volatile Surrogate Recovery

	LCS	LCSD
d4-1,2-Dichloroethane	96.3%	96.7%
d8-Toluene	98.3%	98.5%
Bromofluorobenzene	96.0%	97.4%
d4-1,2-Dichlorobenzene	100%	99.1%

ANALYTICAL RESOURCES INCORPORATED

ORGANICS ANALYSIS DATA SHEET
Volatiles by Purge & Trap GC/MS-Method SW8260C **Sample ID: LCS-102610**
 LAB CONTROL SAMPLE

Lab Sample ID: LCS-102610
LIMS ID: 10-26424
Matrix: Sediment
Data Release Authorized:
Reported: 10/27/10

QC Report No: RR33-NW Natural
Project: NWN-INS

Date Sampled: NA
Date Received: NA

Instrument/Analyst LCS: NT9/PAB
LCSD: NT9/PAB
Date Analyzed LCS: 10/26/10 10:19
LCSD: 10/26/10 10:49

Sample Amount LCS: 100 mg-dry-wt
LCSD: 100 mg-dry-wt
Purge Volume LCS: 5.0 mL
LCSD: 5.0 mL
Moisture: NA

Analyte	LCS	Spike Added-LCS	LCS Recovery	LCSD	Spike Added-LCSD	LCSD Recovery	RPD
Benzene	2460	2500	98.4%	2510	2500	100%	2.0%
Toluene	2360	2500	94.4%	2400	2500	96.0%	1.7%
Ethylbenzene	2480	2500	99.2%	2500	2500	100%	0.8%
m,p-Xylene	5080	5000	102%	5130	5000	103%	1.0%
o-Xylene	2460	2500	98.4%	2500	2500	100%	1.6%

Reported in µg/kg (ppb)

RPD calculated using sample concentrations per SW846.

Volatile Surrogate Recovery

	LCS	LCSD
d4-1,2-Dichloroethane	90.6%	101%
d8-Toluene	99.0%	99.7%
Bromofluorobenzene	95.4%	94.4%
d4-1,2-Dichlorobenzene	99.1%	98.9%

4A
VOLATILE METHOD BLANK SUMMARY

Method Blank ID.

MB1020

Lab Name: ANALYTICAL RESOURCES, INC

Client: NW NATURAL

ARI Job No: RR33

Project: NWN-INS

Lab File ID: MB1020

Lab Sample ID: MB1020

Date Analyzed: 10/20/10

Time Analyzed: 1412

Instrument ID: NT9

Heated Purge: (Y/N) Y

THIS METHOD BLANK APPLIES TO THE FOLLOWING SAMPLES, MS and MSD:

	EPA SAMPLE NO.	LAB SAMPLE ID	LAB FILE ID	TIME ANALYZED
01	LCS1020	LCS1020	LCS1020	1342
02	LCS1020	LCS1020	LCS1020A	1509
03	DGS-TB-10101	RR33A	RR33A	2048
04	DGS-07-2.22.	RR33C	RR33C	2149
05	DGS-07-4.75.	RR33E	RR33E	2250
06	DGS-07-5.66.	RR33F	RR33F	2320
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COMMENTS:

FORM IV VOA

OLM3.2M

ANALYTICAL RESOURCES INCORPORATED

ORGANICS ANALYSIS DATA SHEET
Volatiles by Purge & Trap GC/MS-Method SW8260C **Sample ID: MB-102010**
 METHOD BLANK

Lab Sample ID: MB-102010
LIMS ID: 10-26421
Matrix: Sediment
Data Release Authorized:
Reported: 10/27/10

QC Report No: RR33-NW Natural
Project: NWN-INS

Date Sampled: NA
Date Received: NA

Instrument/Analyst: NT9/PAB
Date Analyzed: 10/20/10 14:12

Sample Amount: 5.00 g-dry-wt
Purge Volume: 5.0 mL
Moisture: NA

CAS Number	Analyte	RL	Result	Q
71-43-2	Benzene	1.0	< 1.0	U
108-88-3	Toluene	1.0	< 1.0	U
100-41-4	Ethylbenzene	1.0	< 1.0	U
179601-23-1	m,p-Xylene	1.0	< 1.0	U
95-47-6	o-Xylene	1.0	< 1.0	U

Reported in µg/kg (ppb)

Volatile Surrogate Recovery

d4-1,2-Dichloroethane	99.5%
d8-Toluene	99.4%
Bromofluorobenzene	98.1%
d4-1,2-Dichlorobenzene	101%

4A
VOLATILE METHOD BLANK SUMMARY

Method Blank ID.

MB1021

Lab Name: ANALYTICAL RESOURCES, INC

Client: NW NATURAL

ARI Job No: RR33

Project: NWN-INS

Lab File ID: MB1021

Lab Sample ID: MB1021

Date Analyzed: 10/21/10

Time Analyzed: 1222

Instrument ID: NT9

Heated Purge: (Y/N) Y

THIS METHOD BLANK APPLIES TO THE FOLLOWING SAMPLES, MS and MSD:

	EPA SAMPLE NO.	LAB SAMPLE ID	LAB FILE ID	TIME ANALYZED
01	LCS1021	LCS1021	LCS1021	1121
02	LCS1021	LCS1021	LCS1021A	1151
03	DGS-36-066.7	RR33G	RR33G	1254
04	DGS-07-077.3	RR33H	RR33H	1324
05	DGS-07-7.98.	RR33I	RR33I	1354
06	DGS-07-8.79.	RR33J	RR33J	1425
07	DGS-07-9.710	RR33K	RR33K	1455
08	DGS-07-10.61	RR33L	RR33L	1525
09	DGS-07-11.61	RR33M	RR33M	1556
10	DGS-07-011.3	RR33B	RR33B2	1727
11	DGS-07-034.2	RR33D	RR33D2	1757
12	DGS-07-12.71	RR33N	RR33N2	2129
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COMMENTS:

ANALYTICAL RESOURCES INCORPORATED

ORGANICS ANALYSIS DATA SHEET
Volatiles by Purge & Trap GC/MS-Method SW8260C **Sample ID: MB-102110**
 METHOD BLANK

Lab Sample ID: MB-102110
LIMS ID: 10-26422
Matrix: Sediment
Data Release Authorized:
Reported: 10/27/10

QC Report No: RR33-NW Natural
Project: NWN-INS

Date Sampled: NA
Date Received: NA

Instrument/Analyst: NT9/PAB
Date Analyzed: 10/21/10 12:22

Sample Amount: 5.00 g-dry-wt
Purge Volume: 5.0 mL
Moisture: NA

CAS Number	Analyte	RL	Result	Q
71-43-2	Benzene	1.0	< 1.0	U
108-88-3	Toluene	1.0	< 1.0	U
100-41-4	Ethylbenzene	1.0	< 1.0	U
179601-23-1	m,p-Xylene	1.0	< 1.0	U
95-47-6	o-Xylene	1.0	< 1.0	U

Reported in µg/kg (ppb)

Volatile Surrogate Recovery

d4-1,2-Dichloroethane	99.3%
d8-Toluene	99.1%
Bromofluorobenzene	96.9%
d4-1,2-Dichlorobenzene	99.8%

4A
VOLATILE METHOD BLANK SUMMARY

Method Blank ID.

MB1022

Lab Name: ANALYTICAL RESOURCES, INC

Client: NW NATURAL

ARI Job No: RR33

Project: NWN-INS

Lab File ID: MB1022

Lab Sample ID: MB1022

Date Analyzed: 10/22/10

Time Analyzed: 1213

Instrument ID: NT9

Heated Purge: (Y/N) Y

THIS METHOD BLANK APPLIES TO THE FOLLOWING SAMPLES, MS and MSD:

	EPA SAMPLE NO.	LAB SAMPLE ID	LAB FILE ID	TIME ANALYZED
01	LCS1022	LCS1022	LCS1022	1112
02	LCS1022	LCS1022	LCS1022A	1142
03	DGS-07-034.2	RR33D	RR33D3	1617
04	DGS-07-077.3	RR33H	RR33H3	1647
05	DGS-07-7.98.	RR33I	RR33I3	1717
06	DGS-07-8.79.	RR33J	RR33J3	1747
07	DGS-07-9.710	RR33K	RR33K3	1818
08	DGS-07-10.61	RR33L	RR33L3	1848
09	DGS-07-11.61	RR33M	RR33M3	1919
10	DGS-07-12.71	RR33N	RR33N3	1949
11	DGS-07-12.71	RR33NMS	RR33NMS	2020
12	DGS-07-12.71	RR33NMSD	RR33NMSD	2050
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COMMENTS:

FORM IV VOA

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ANALYTICAL RESOURCES INCORPORATED

ORGANICS ANALYSIS DATA SHEET
Volatiles by Purge & Trap GC/MS-Method SW8260C **Sample ID: MB-102210**
 METHOD BLANK

Lab Sample ID: MB-102210
LIMS ID: 10-26432
Matrix: Sediment
Data Release Authorized:
Reported: 10/27/10

QC Report No: RR33-NW Natural
Project: NWN-INS

Date Sampled: NA
Date Received: NA

Instrument/Analyst: NT9/PAB
Date Analyzed: 10/22/10 12:13

Sample Amount: 100 mg-dry-wt
Purge Volume: 5.0 mL
Moisture: NA

CAS Number	Analyte	RL	Result	Q
71-43-2	Benzene	50	< 50	U
108-88-3	Toluene	50	< 50	U
100-41-4	Ethylbenzene	50	< 50	U
179601-23-1	m,p-Xylene	50	< 50	U
95-47-6	o-Xylene	50	< 50	U

Reported in µg/kg (ppb)

Volatile Surrogate Recovery

d4-1,2-Dichloroethane	89.7%
d8-Toluene	97.8%
Bromofluorobenzene	96.2%
d4-1,2-Dichlorobenzene	98.5%

4A
VOLATILE METHOD BLANK SUMMARY

Method Blank ID.

MB1026

Lab Name: ANALYTICAL RESOURCES, INC

Client: NW NATURAL

ARI Job No: RR33

Project: NWN-INS

Lab File ID: MB1026

Lab Sample ID: MB1026

Date Analyzed: 10/26/10

Time Analyzed: 1156

Instrument ID: NT9

Heated Purge: (Y/N) Y

THIS METHOD BLANK APPLIES TO THE FOLLOWING SAMPLES, MS and MSD:

	EPA SAMPLE NO.	LAB SAMPLE ID	LAB FILE ID	TIME ANALYZED
01	LCS1026	LCS1026	LCS1026	1019
02	LCS1026	LCS1026	LCS1026A	1049
03	DGS-07-2.22.	RR33C	RR33C2	1835
04	DGS-07-4.75.	RR33E	RR33E2	1905
05	DGS-07-5.66.	RR33F	RR33F2	1936
06				
07				
08				
09				
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COMMENTS:

FORM IV VOA

OLM3.2M

ANALYTICAL RESOURCES INCORPORATED

ORGANICS ANALYSIS DATA SHEET
Volatiles by Purge & Trap GC/MS-Method SW8260C **Sample ID: MB-102610**
 METHOD BLANK

Lab Sample ID: MB-102610
LIMS ID: 10-26424
Matrix: Sediment
Data Release Authorized:
Reported: 10/27/10

QC Report No: RR33-NW Natural
Project: NWN-INS

Date Sampled: NA
Date Received: NA

Instrument/Analyst: NT9/PAB
Date Analyzed: 10/26/10 11:56

Sample Amount: 100 mg-dry-wt
Purge Volume: 5.0 mL
Moisture: NA

CAS Number	Analyte	RL	Result	Q
71-43-2	Benzene	50	< 50	U
108-88-3	Toluene	50	< 50	U
100-41-4	Ethylbenzene	50	< 50	U
179601-23-1	m,p-Xylene	50	< 50	U
95-47-6	o-Xylene	50	< 50	U

Reported in µg/kg (ppb)

Volatile Surrogate Recovery

d4-1,2-Dichloroethane	101%
d8-Toluene	100%
Bromofluorobenzene	96.2%
d4-1,2-Dichlorobenzene	102%

5A
VOLATILE ORGANIC INSTRUMENT PERFORMANCE CHECK
BROMOFLUOROBENZENE (BFB)

Lab Name: ANALYTICAL RESOURCES, INC Contract: NW NATURAL

Lab Code: ARI Case No.: NWN-INS SDG No.: RR33

Lab File ID: BFB08280 BFB Injection Date: 08/28/10

Instrument ID: NT9 BFB Injection Time: 0745

GC Column: RTX502.2 ID: 0.18 (mm) Heated Purge: (Y/N) N

m/e	ION ABUNDANCE CRITERIA	% RELATIVE ABUNDANCE
50	8.0 - 40.0% of mass 95	16.8
75	30.0 - 66.0% of mass 95	49.9
95	Base Peak, 100% relative abundance	100.0
96	5.0 - 9.0% of mass 95	7.2
173	Less than 2.0% of mass 174	0.5 (0.5)1
174	50.0 - 101.0% of mass 95	94.4
175	4.0 - 9.0% of mass 174	6.7 (7.1)1
176	93.0 - 101.0% of mass 174	91.9 (97.3)1
177	5.0 - 9.0% of mass 176	7.1 (7.7)2

1-Value is % mass 174 2-Value is % mass 176

THIS CHECK APPLIES TO THE FOLLOWING SAMPLES, MS, MSD, BLANKS, AND STANDARDS:

	EPA SAMPLE NO.	LAB SAMPLE ID	LAB FILE ID	DATE ANALYZED	TIME ANALYZED
01	VSTD001	IC0828	0010828	08/28/10	1252
02	VSTD200	IC0828	2000828	08/28/10	1321
03	VSTD150	IC0828	1500828	08/28/10	1351
04	VSTD100	IC0828	1000828	08/28/10	1421
05	VSTD050	IC0828	0500828	08/28/10	1451
06	VSTD010	IC0828	0100828	08/28/10	1521
07	VSTD005	IC0828	0050828	08/28/10	1551
08	VSTD002	IC0828	0020828	08/28/10	1621
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5A
VOLATILE ORGANIC INSTRUMENT PERFORMANCE CHECK
BROMOFLUOROBENZENE (BFB)

Lab Name: ANALYTICAL RESOURCES, INC Contract: NW NATURAL

Lab Code: ARI Case No.: NWN-INS SDG No.: RR33

Lab File ID: BFB1020 BFB Injection Date: 10/20/10

Instrument ID: NT9 BFB Injection Time: 1204

GC Column: RTX502.2 ID: 0.18 (mm) Heated Purge: (Y/N) N

m/e	ION ABUNDANCE CRITERIA	% RELATIVE ABUNDANCE
50	8.0 - 40.0% of mass 95	17.1
75	30.0 - 66.0% of mass 95	51.1
95	Base Peak, 100% relative abundance	100.0
96	5.0 - 9.0% of mass 95	7.5
173	Less than 2.0% of mass 174	0.5 (0.6)1
174	50.0 - 101.0% of mass 95	96.2
175	4.0 - 9.0% of mass 174	6.9 (7.2)1
176	93.0 - 101.0% of mass 174	93.6 (97.2)1
177	5.0 - 9.0% of mass 176	6.9 (7.3)2

1-Value is % mass 174 2-Value is % mass 176

THIS CHECK APPLIES TO THE FOLLOWING SAMPLES, MS, MSD, BLANKS, AND STANDARDS:

	EPA SAMPLE NO.	LAB SAMPLE ID	LAB FILE ID	DATE ANALYZED	TIME ANALYZED
01	VSTD050	CC1020	0501020A	10/20/10	1311
02	LCS1020	LCS1020	LCS1020	10/20/10	1342
03	MB1020	MB1020	MB1020	10/20/10	1412
04	LCS1020	LCS1020	LCS1020A	10/20/10	1509
05	DGS-TB-101012-05	RR33A	RR33A	10/20/10	2048
06	DGS-07-2.22.7-10	RR33C	RR33C	10/20/10	2149
07	DGS-07-4.75.2-10	RR33E	RR33E	10/20/10	2250
08	DGS-07-5.66.7-10	RR33F	RR33F	10/20/10	2320
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5A
VOLATILE ORGANIC INSTRUMENT PERFORMANCE CHECK
BROMOFLUOROBENZENE (BFB)

Lab Name: ANALYTICAL RESOURCES, INC Contract: NW NATURAL

Lab Code: ARI Case No.: NWN-INS SDG No.: RR33

Lab File ID: BFB1021 BFB Injection Date: 10/21/10

Instrument ID: NT9 BFB Injection Time: 1015

GC Column: RTX502.2 ID: 0.18 (mm) Heated Purge: (Y/N) N

m/e	ION ABUNDANCE CRITERIA	% RELATIVE ABUNDANCE
50	8.0 - 40.0% of mass 95	17.5
75	30.0 - 66.0% of mass 95	52.6
95	Base Peak, 100% relative abundance	100.0
96	5.0 - 9.0% of mass 95	7.2
173	Less than 2.0% of mass 174	0.4 (0.4)1
174	50.0 - 101.0% of mass 95	95.7
175	4.0 - 9.0% of mass 174	7.1 (7.4)1
176	93.0 - 101.0% of mass 174	92.8 (96.9)1
177	5.0 - 9.0% of mass 176	7.0 (7.6)2

1-Value is % mass 174 2-Value is % mass 176

THIS CHECK APPLIES TO THE FOLLOWING SAMPLES, MS, MSD, BLANKS, AND STANDARDS:

	EPA SAMPLE NO.	LAB SAMPLE ID	LAB FILE ID	DATE ANALYZED	TIME ANALYZED
01	VSTD050	CC1021	0501021	10/21/10	1046
02	LCS1021	LCS1021	LCS1021	10/21/10	1121
03	LCS1021	LCS1021	LCS1021A	10/21/10	1151
04	MB1021	MB1021	MB1021	10/21/10	1222
05	DGS-36-066.7-101	RR33G	RR33G	10/21/10	1254
06	DGS-07-077.3-101	RR33H	RR33H	10/21/10	1324
07	DGS-07-7.98.4-10	RR33I	RR33I	10/21/10	1354
08	DGS-07-8.79.1-10	RR33J	RR33J	10/21/10	1425
09	DGS-07-9.710-101	RR33K	RR33K	10/21/10	1455
10	DGS-07-10.610.9-	RR33L	RR33L	10/21/10	1525
11	DGS-07-11.611.8-	RR33M	RR33M	10/21/10	1556
12	DGS-07-011.3-101	RR33B	RR33B2	10/21/10	1727
13	DGS-07-034.2-101	RR33D	RR33D2	10/21/10	1757
14	DGS-07-12.713.2-	RR33N	RR33N2	10/21/10	2129
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FORM V VOA OLM3.2M

5A
VOLATILE ORGANIC INSTRUMENT PERFORMANCE CHECK
BROMOFLUOROBENZENE (BFB)

Lab Name: ANALYTICAL RESOURCES, INC Contract: NW NATURAL

Lab Code: ARI Case No.: NWN-INS SDG No.: RR33

Lab File ID: BFB1022 BFB Injection Date: 10/22/10

Instrument ID: NT9 BFB Injection Time: 0953

GC Column: RTX502.2 ID: 0.18 (mm) Heated Purge: (Y/N) N

m/e	ION ABUNDANCE CRITERIA	% RELATIVE ABUNDANCE
50	8.0 - 40.0% of mass 95	16.6
75	30.0 - 66.0% of mass 95	49.5
95	Base Peak, 100% relative abundance	100.0
96	5.0 - 9.0% of mass 95	7.0
173	Less than 2.0% of mass 174	0.5 (0.5)1
174	50.0 - 101.0% of mass 95	96.9
175	4.0 - 9.0% of mass 174	6.9 (7.1)1
176	93.0 - 101.0% of mass 174	94.3 (97.3)1
177	5.0 - 9.0% of mass 176	7.1 (7.5)2

1-Value is % mass 174 2-Value is % mass 176

THIS CHECK APPLIES TO THE FOLLOWING SAMPLES, MS, MSD, BLANKS, AND STANDARDS:

	EPA SAMPLE NO.	LAB SAMPLE ID	LAB FILE ID	DATE ANALYZED	TIME ANALYZED
01	VSTD050	CC1022	0501022	10/22/10	1042
02	LCS1022	LCS1022	LCS1022	10/22/10	1112
03	LCS1022	LCS1022	LCS1022A	10/22/10	1142
04	MB1022	MB1022	MB1022	10/22/10	1213
05	DGS-07-034.2-101	RR33D	RR33D3	10/22/10	1617
06	DGS-07-077.3-101	RR33H	RR33H3	10/22/10	1647
07	DGS-07-7.98.4-10	RR33I	RR33I3	10/22/10	1717
08	DGS-07-8.79.1-10	RR33J	RR33J3	10/22/10	1747
09	DGS-07-9.710-101	RR33K	RR33K3	10/22/10	1818
10	DGS-07-10.610.9-	RR33L	RR33L3	10/22/10	1848
11	DGS-07-11.611.8-	RR33M	RR33M3	10/22/10	1919
12	DGS-07-12.713.2-	RR33N	RR33N3	10/22/10	1949
13	DGS-07-12.713.2-	RR33NMS	RR33NMS	10/22/10	2020
14	DGS-07-12.713.2-	RR33NMSD	RR33NMSD	10/22/10	2050
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FORM V VOA OLM3.2M

5A
VOLATILE ORGANIC INSTRUMENT PERFORMANCE CHECK
BROMOFLUOROBENZENE (BFB)

Lab Name: ANALYTICAL RESOURCES, INC Contract: NW NATURAL

Lab Code: ARI Case No.: NWN-INS SDG No.: RR33

Lab File ID: BFB10260 BFB Injection Date: 10/26/10

Instrument ID: NT9 BFB Injection Time: 0904

GC Column: RTX502.2 ID: 0.18 (mm) Heated Purge: (Y/N) N

m/e	ION ABUNDANCE CRITERIA	% RELATIVE ABUNDANCE
50	8.0 - 40.0% of mass 95	17.7
75	30.0 - 66.0% of mass 95	52.2
95	Base Peak, 100% relative abundance	100.0
96	5.0 - 9.0% of mass 95	7.4
173	Less than 2.0% of mass 174	0.4 (0.4)1
174	50.0 - 101.0% of mass 95	97.0
175	4.0 - 9.0% of mass 174	7.2 (7.5)1
176	93.0 - 101.0% of mass 174	93.3 (96.2)1
177	5.0 - 9.0% of mass 176	7.3 (7.8)2

1-Value is % mass 174 2-Value is % mass 176

THIS CHECK APPLIES TO THE FOLLOWING SAMPLES, MS, MSD, BLANKS, AND STANDARDS:

	EPA SAMPLE NO.	LAB SAMPLE ID	LAB FILE ID	DATE ANALYZED	TIME ANALYZED
01	VSTD050	CC1026	0501026	10/26/10	0941
02	LCS1026	LCS1026	LCS1026	10/26/10	1019
03	LCS1026	LCS1026	LCS1026A	10/26/10	1049
04	MB1026	MB1026	MB1026	10/26/10	1156
05	DGS-07-2.22.7-10	RR33C	RR33C2	10/26/10	1835
06	DGS-07-4.75.2-10	RR33E	RR33E2	10/26/10	1905
07	DGS-07-5.66.7-10	RR33F	RR33F2	10/26/10	1936
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FORM 6
VOLATILE INITIAL CALIBRATION DATA

Lab Name: ANALYTICAL RESOURCES, INC Client: NW NATURAL

ARI Job No: RR33 Project: NWN-INS

Instrument ID: NT9 Calibration Date: 08/28/10

LAB FILE ID: RF1: 0010828 RF2: 0020828 RF5: 0050828
RF10: 0100828 RF50: 0500828

COMPOUND	RF1	RF2	RF5	RF10	RF50
Vinyl Chloride	0.441	0.369	0.408	0.407	0.444
1,1-Dichloroethene	0.467	0.396	0.404	0.424	0.428
Trans-1,2-Dichloroethene	0.514	0.447	0.463	0.475	0.478
Cis-1,2-Dichloroethene	0.489	0.415	0.448	0.461	0.462
Benzene	1.326	1.187	1.235	1.266	1.279
Trichloroethene	0.367	0.323	0.347	0.348	0.353
Toluene	1.035	0.855	0.868	0.877	0.885
Tetrachloroethene	0.558	0.482	0.482	0.493	0.509
Ethyl Benzene	2.020	1.786	1.825	1.891	1.925
m,p-xylene	0.815	0.706	0.748	0.773	0.805
o-Xylene	0.737	0.656	0.708	0.736	0.739
d4-1,2-Dichloroethane	0.382	0.378	0.387	0.386	0.391
d8-Toluene	1.127	1.132	1.140	1.141	1.142
4-Bromofluorobenzene	0.457	0.460	0.471	0.475	0.468
d4-1,2-Dichlorobenzene	0.870	0.869	0.883	0.879	0.881
Dibromofluoromethane	0.362	0.359	0.366	0.369	0.377

FORM 6
VOLATILE INITIAL CALIBRATION DATA

Lab Name: ANALYTICAL RESOURCES, INC Client: NW NATURAL

ARI Job No: RR33 Project: NWN-INS

Instrument ID: NT9 Calibration Date: 08/28/10

LAB FILE ID: RF100: 1000828 RF150: 1500828 RF200: 2000828

COMPOUND	RF100	RF150	RF200
Vinyl Chloride	0.534	0.493	0.476
1,1-Dichloroethene	0.530		
Trans-1,2-Dichloroethene	0.577	0.557	0.569
Cis-1,2-Dichloroethene	0.530	0.524	0.538
Benzene	1.486	1.465	1.514
Trichloroethene	0.418	0.400	0.416
Toluene	1.041	1.022	1.061
Tetrachloroethene	0.625	0.589	0.609
Ethyl Benzene	2.326	2.266	2.352
m,p-xylene	0.966	0.913	0.902
o-Xylene	0.864	0.850	0.884
d4-1,2-Dichloroethane	0.380	0.384	0.383
d8-Toluene	1.126	1.127	1.128
4-Bromofluorobenzene	0.461	0.457	0.455
d4-1,2-Dichlorobenzene	0.865	0.877	0.867
Dibromofluoromethane	0.379	0.389	0.390

FORM 6
VOLATILE INITIAL CALIBRATION DATA

Lab Name: ANALYTICAL RESOURCES, INC Client: NW NATURAL

ARI Job No: RR33 Project: NWN-INS

Instrument ID: NT9 Calibration Date: 08/28/10

COMPOUND	CURVE TYPE	AVE RF	%RSD OR R^2
Vinyl Chloride	AVRG	0.447	11.9
1,1-Dichloroethene	AVRG	0.441	11.3
Trans-1,2-Dichloroethene	AVRG	0.510	10.1
Cis-1,2-Dichloroethene	AVRG	0.483	9.2
Benzene	AVRG	1.345	9.4
Trichloroethene	AVRG	0.372	9.5
Toluene	AVRG	0.956	9.5
Tetrachloroethene	AVRG	0.544	10.9
Ethyl Benzene	AVRG	2.049	11.3
m,p-xylene	AVRG	0.829	10.9
o-Xylene	AVRG	0.772	10.8
d4-1,2-Dichloroethane	AVRG	0.384	1.1
d8-Toluene	AVRG	1.133	0.6
4-Bromofluorobenzene	AVRG	0.463	1.6
d4-1,2-Dichlorobenzene	AVRG	0.874	0.8
Dibromofluoromethane	AVRG	0.374	3.1

<- Indicates value outside QC limits:
(%RSD < 20% or R^2 > 0.990)

FORM VI VOA

7A
VOLATILE CONTINUING CALIBRATION CHECK

Lab Name: ANALYTICAL RESOURCES, INC — Client: NW NATURAL

ARI Job No: RR33 — Project: NWN-INS

Instrument ID: NT9 — Cont. Calib. Date: 10/20/10

Init. Calib. Date: 08/28/10 — Cont. Calib. Time: 1311

COMPOUND	CalAmt or ARF	CC Amt or RF	MIN RRF	CURVE TYPE	%D or Drift
Vinyl Chloride	0.446	0.360	0.010	AVRG	-19.3
1,1-Dichloroethene	0.442	0.388	0.010	AVRG	-12.2
Trans-1,2-Dichloroethene	0.510	0.425	0.010	AVRG	-16.7
Cis-1,2-Dichloroethene	0.483	0.419	0.010	AVRG	-13.2
Benzene	1.345	1.163	0.010	AVRG	-13.5
Trichloroethene	0.372	0.324	0.010	AVRG	-12.9
Toluene	0.956	0.808	0.010	AVRG	-15.5
Tetrachloroethene	0.543	0.473	0.010	AVRG	-12.9
Ethyl Benzene	2.049	1.767	0.010	AVRG	-13.8
m,p-xylene	0.828	0.738	0.010	AVRG	-10.9
o-Xylene	0.772	0.675	0.010	AVRG	-12.6
d4-1,2-Dichloroethane	0.384	0.379	0.010	AVRG	-1.3
d8-Toluene	1.133	1.119	0.010	AVRG	-1.2
4-Bromofluorobenzene	0.463	0.449	0.010	AVRG	-3.0
d4-1,2-Dichlorobenzene	0.874	0.874	0.010	AVRG	0.0
Dibromofluoromethane	0.374	0.371	0.010	AVRG	-0.8

<- Exceeds QC limit of 20% D
* RF less than minimum RF

FORM VII VOA

7A

VOLATILE CONTINUING CALIBRATION CHECK

Lab Name: ANALYTICAL RESOURCES, INC — Client: NW NATURAL

ARI Job No: RR33 — Project: NWN-INS

Instrument ID: NT9 — Cont. Calib. Date: 10/21/10

Init. Calib. Date: 08/28/10 — Cont. Calib. Time: 1046

COMPOUND	CalAmt or ARF	CC Amt or RF	MIN RRF	CURVE TYPE	%D or Drift
Vinyl Chloride	0.446	0.409	0.010	AVRG	-8.3
1,1-Dichloroethene	0.442	0.482	0.010	AVRG	9.0
Trans-1,2-Dichloroethene	0.510	0.498	0.010	AVRG	-2.4
Cis-1,2-Dichloroethene	0.483	0.467	0.010	AVRG	-3.3
Benzene	1.345	1.319	0.010	AVRG	-1.9
Trichloroethene	0.372	0.378	0.010	AVRG	1.6
Toluene	0.956	0.911	0.010	AVRG	-4.7
Tetrachloroethene	0.543	0.563	0.010	AVRG	3.7
Ethyl Benzene	2.049	2.053	0.010	AVRG	0.2
m,p-xylene	0.828	0.856	0.010	AVRG	3.4
o-Xylene	0.772	0.770	0.010	AVRG	-0.2
d4-1,2-Dichloroethane	0.384	0.366	0.010	AVRG	-4.7
d8-Toluene	1.133	1.120	0.010	AVRG	-1.1
4-Bromofluorobenzene	0.463	0.451	0.010	AVRG	-2.6
d4-1,2-Dichlorobenzene	0.874	0.870	0.010	AVRG	-0.4
Dibromofluoromethane	0.374	0.368	0.010	AVRG	-1.6

<- Exceeds QC limit of 20% D

* RF less than minimum RF

FORM VII VOA

7A
VOLATILE CONTINUING CALIBRATION CHECK

Lab Name: ANALYTICAL RESOURCES, INC — Client: NW NATURAL

ARI Job No: RR33 — Project: NWN-INS

Instrument ID: NT9 — Cont. Calib. Date: 10/22/10

Init. Calib. Date: 08/28/10 — Cont. Calib. Time: 1042

COMPOUND	CalAmt or ARF	CC Amt or RF	MIN RRF	CURVE TYPE	%D or Drift
Vinyl Chloride	0.446	0.382	0.010	AVRG	-14.3
1,1-Dichloroethene	0.442	0.418	0.010	AVRG	-5.4
Trans-1,2-Dichloroethene	0.510	0.467	0.010	AVRG	-8.4
Cis-1,2-Dichloroethene	0.483	0.441	0.010	AVRG	-8.7
Benzene	1.345	1.206	0.010	AVRG	-10.3
Trichloroethene	0.372	0.331	0.010	AVRG	-11.0
Toluene	0.956	0.828	0.010	AVRG	-13.4
Tetrachloroethene	0.543	0.495	0.010	AVRG	-8.8
Ethyl Benzene	2.049	1.806	0.010	AVRG	-11.8
m,p-xylene	0.828	0.759	0.010	AVRG	-8.3
o-Xylene	0.772	0.700	0.010	AVRG	-9.3
d4-1,2-Dichloroethane	0.384	0.370	0.010	AVRG	-3.6
d8-Toluene	1.133	1.113	0.010	AVRG	-1.8
4-Bromofluorobenzene	0.463	0.445	0.010	AVRG	-3.9
d4-1,2-Dichlorobenzene	0.874	0.872	0.010	AVRG	-0.2
Dibromofluoromethane	0.374	0.368	0.010	AVRG	-1.6

<- Exceeds QC limit of 20% D
* RF less than minimum RF

FORM VII VOA

7A

VOLATILE CONTINUING CALIBRATION CHECK

Lab Name: ANALYTICAL RESOURCES, INC — Client: NW NATURAL

ARI Job No: RR33 — Project: NWN-INS

Instrument ID: NT9 — Cont. Calib. Date: 10/26/10

Init. Calib. Date: 08/28/10 — Cont. Calib. Time: 0941

COMPOUND	CalAmt or ARF	CC Amt or RF	MIN RRF	CURVE TYPE	%D or Drift
Vinyl Chloride	0.446	0.409	0.010	AVRG	-8.3
1,1-Dichloroethene	0.442	0.488	0.010	AVRG	10.4
Trans-1,2-Dichloroethene	0.510	0.524	0.010	AVRG	2.7
Cis-1,2-Dichloroethene	0.483	0.469	0.010	AVRG	-2.9
Benzene	1.345	1.328	0.010	AVRG	-1.3
Trichloroethene	0.372	0.383	0.010	AVRG	3.0
Toluene	0.956	0.904	0.010	AVRG	-5.4
Tetrachloroethene	0.543	0.566	0.010	AVRG	4.2
Ethyl Benzene	2.049	2.072	0.010	AVRG	1.1
m,p-xylene	0.828	0.868	0.010	AVRG	4.8
o-Xylene	0.772	0.774	0.010	AVRG	0.2
d4-1,2-Dichloroethane	0.384	0.354	0.010	AVRG	-7.8
d8-Toluene	1.133	1.117	0.010	AVRG	-1.4
4-Bromofluorobenzene	0.463	0.447	0.010	AVRG	-3.4
d4-1,2-Dichlorobenzene	0.874	0.871	0.010	AVRG	-0.3
Dibromofluoromethane	0.374	0.371	0.010	AVRG	-0.8

<- Exceeds QC limit of 20% D
* RF less than minimum RF

FORM VII VOA

8A
VOLATILE INTERNAL STANDARD AREA AND RT SUMMARY

Lab Name: ANALYTICAL RESOURCES, INC — Client: NW NATURAL

ARI Job No: RR33 — Project: NWN-INS

Ical Midpoint ID: 0500828 — Ical Date: 08/28/10

Instrument ID: NT9 — Project Run Date: 10/20/10

		IS1(PFB) AREA #	RT #	IS2(DFB) AREA #	RT #	IS3(CLB) AREA #	RT #
	ICAL MIDPT	704281	4.94	937745	5.32	853013	7.40
	UPPER LIMIT	1408562	5.44	1875490	5.82	1706026	7.90
	LOWER LIMIT	352140	4.44	468872	4.82	426506	6.90
	Sample ID						
01	LCS1020	800130	4.93	1049229	5.32	938129	7.39
02	MB1020	766662	4.93	1013953	5.32	904849	7.40
03	LCS1020	649147	4.93	857509	5.32	758186	7.40
04	DGS-TB-10101	766811	4.94	1012520	5.32	898661	7.40
05	DGS-07-2.22.	597188	4.93	794713	5.32	708371	7.40
06	DGS-07-4.75.	453368	4.94	603467	5.32	504618	7.40
07	DGS-07-5.66.	583629	4.94	752307	5.32	668366	7.40
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IS1 (PFB) = Pentafluorobenzene
IS2 (DFB) = 1,4-Difluorobenzene
IS3 (CLB) = d5-Chlorobenzene

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

* Values outside of QC limits.

8A
VOLATILE INTERNAL STANDARD AREA AND RT SUMMARY

Lab Name: ANALYTICAL RESOURCES, INC — Client: NW NATURAL

ARI Job No: RR33 — Project: NWN-INS

Ical Midpoint ID: 0500828 — Ical Date: 08/28/10

Instrument ID: NT9 — Project Run Date: 10/20/10

		IS4(DCB) AREA #	RT #	AREA #	RT #	AREA #	RT #
	ICAL MIDPT	503655	9.11				
	UPPER LIMIT	1007310	9.61				
	LOWER LIMIT	251828	8.61				
	Sample ID						
01	LCS1020	539415	9.11				
02	MB1020	510746	9.11				
03	LCS1020	430494	9.12				
04	DGS-TB-10101	507377	9.11				
05	DGS-07-2.22.	379125	9.11				
06	DGS-07-4.75.	252191	9.11				
07	DGS-07-5.66.	393814	9.11				
08							
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21							
22							

IS4 (DCB) = d4-1,4-Dichlorobenzene

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

* Values outside of QC limits.

8A
VOLATILE INTERNAL STANDARD AREA AND RT SUMMARY

Lab Name: ANALYTICAL RESOURCES, INC — Client: NW NATURAL

ARI Job No: RR33 — Project: NWN-INS

Ical Midpoint ID: 0500828 — Ical Date: 08/28/10

Instrument ID: NT9 — Project Run Date: 10/21/10

		IS1(PFB) AREA #	RT #	IS2(DFB) AREA #	RT #	IS3(CLB) AREA #	RT #
	ICAL MIDPT	704281	4.94	937745	5.32	853013	7.40
	UPPER LIMIT	1408562	5.44	1875490	5.82	1706026	7.90
	LOWER LIMIT	352140	4.44	468872	4.82	426506	6.90
	Sample ID						
01	LCS1021	680363	4.93	892256	5.32	788109	7.40
02	LCS1021	645095	4.93	845311	5.32	738301	7.40
03	MB1021	701792	4.93	916365	5.32	804718	7.40
04	DGS-36-066.7	538238	4.93	727217	5.32	624032	7.40
05	DGS-07-077.3	713267	4.93	934778	5.32	839958	7.40
06	DGS-07-7.98.	659801	4.94	868914	5.32	760065	7.40
07	DGS-07-8.79.	728977	4.94	958296	5.32	874560	7.40
08	DGS-07-9.710	338507*	4.93	517568	5.32	374451*	7.40
09	DGS-07-10.61	637043	4.93	846308	5.32	743012	7.40
10	DGS-07-11.61	608447	4.93	826866	5.32	723848	7.40
11	DGS-07-011.3	649998	4.94	852756	5.32	737120	7.40
12	DGS-07-034.2	658687	4.93	891652	5.32	777866	7.40
13	DGS-07-12.71	745081	4.93	1012901	5.32	848701	7.40
14							
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21							
22							

IS1 (PFB) = Pentafluorobenzene
IS2 (DFB) = 1,4-Difluorobenzene
IS3 (CLB) = d5-Chlorobenzene

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

* Values outside of QC limits.

8A
VOLATILE INTERNAL STANDARD AREA AND RT SUMMARY

Lab Name: ANALYTICAL RESOURCES, INC — Client: NW NATURAL

ARI Job No: RR33 — Project: NWN-INS

Ical Midpoint ID: 0500828 — Ical Date: 08/28/10

Instrument ID: NT9 — Project Run Date: 10/21/10

		IS4 (DCB) AREA #	RT #	AREA #	RT #	AREA #	RT #
	ICAL MIDPT	503655	9.11				
	UPPER LIMIT	1007310	9.61				
	LOWER LIMIT	251828	8.61				
	Sample ID						
01	LCS1021	450263	9.11				
02	LCS1021	411685	9.11				
03	MB1021	446895	9.11				
04	DGS-36-066.7	318645	9.11				
05	DGS-07-077.3	462938	9.11				
06	DGS-07-7.98.	412992	9.11				
07	DGS-07-8.79.	490531	9.11				
08	DGS-07-9.710	165423*	9.13				
09	DGS-07-10.61	384125	9.11				
10	DGS-07-11.61	312848	9.11				
11	DGS-07-011.3	389422	9.11				
12	DGS-07-034.2	377937	9.11				
13	DGS-07-12.71	346638	9.11				
14							
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20							
21							
22							

IS4 (DCB) = d4-1,4-Dichlorobenzene

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

* Values outside of QC limits.

8A
VOLATILE INTERNAL STANDARD AREA AND RT SUMMARY

Lab Name: ANALYTICAL RESOURCES, INC — Client: NW NATURAL

ARI Job No: RR33 — Project: NWN-INS

Ical Midpoint ID: 0500828 — Ical Date: 08/28/10

Instrument ID: NT9 — Project Run Date: 10/22/10

		IS1(PFB) AREA #	RT #	IS2(DFB) AREA #	RT #	IS3(CLB) AREA #	RT #
	ICAL MIDPT	704281	4.94	937745	5.32	853013	7.40
	UPPER LIMIT	1408562	5.44	1875490	5.82	1706026	7.90
	LOWER LIMIT	352140	4.44	468872	4.82	426506	6.90
	Sample ID						
01	LCS1022	671460	4.93	889910	5.32	784318	7.40
02	LCS1022	742968	4.93	975728	5.32	863418	7.40
03	MB1022	625245	4.93	805904	5.32	683342	7.40
04	DGS-07-034.2	804930	4.93	1064845	5.32	955933	7.40
05	DGS-07-077.3	830873	4.93	1096087	5.32	976251	7.40
06	DGS-07-7.98.	787577	4.93	1041788	5.32	927399	7.40
07	DGS-07-8.79.	717444	4.93	953208	5.32	850784	7.40
08	DGS-07-9.710	828616	4.93	1101628	5.32	985568	7.40
09	DGS-07-10.61	836608	4.93	1114177	5.32	998261	7.40
10	DGS-07-11.61	813286	4.93	1082097	5.32	970949	7.40
11	DGS-07-12.71	854368	4.93	1134660	5.32	1021069	7.40
12	DGS-07-12.71	826114	4.93	1102180	5.32	1001838	7.40
13	DGS-07-12.71	848310	4.93	1129553	5.32	1020377	7.40
14							
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20							
21							
22							

IS1 (PFB) = Pentafluorobenzene
IS2 (DFB) = 1,4-Difluorobenzene
IS3 (CLB) = d5-Chlorobenzene

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

* Values outside of QC limits.

8A
VOLATILE INTERNAL STANDARD AREA AND RT SUMMARY

Lab Name: ANALYTICAL RESOURCES, INC — Client: NW NATURAL

ARI Job No: RR33 — Project: NWN-INS

Ical Midpoint ID: 0500828 — Ical Date: 08/28/10

Instrument ID: NT9 — Project Run Date: 10/22/10

		IS4(DCB) AREA #	RT #	AREA #	RT #	AREA #	RT #
	ICAL MIDPT	503655	9.11				
	UPPER LIMIT	1007310	9.61				
	LOWER LIMIT	251828	8.61				
	Sample ID						
01	LCS1022	429666	9.11				
02	LCS1022	480377	9.11				
03	MB1022	367078	9.11				
04	DGS-07-034.2	546511	9.11				
05	DGS-07-077.3	557694	9.12				
06	DGS-07-7.98.	527362	9.12				
07	DGS-07-8.79.	478436	9.12				
08	DGS-07-9.710	564232	9.12				
09	DGS-07-10.61	572936	9.12				
10	DGS-07-11.61	550403	9.12				
11	DGS-07-12.71	577638	9.12				
12	DGS-07-12.71	561475	9.12				
13	DGS-07-12.71	571616	9.12				
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22							

IS4 (DCB) = d4-1,4-Dichlorobenzene

AREA UPPER LIMIT = +100% of internal standard area from Ical midpoint
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RT LOWER LIMIT = - 0.50 minutes of internal standard RT from Ical midpoint

* Values outside of QC limits.

8A
VOLATILE INTERNAL STANDARD AREA AND RT SUMMARY

Lab Name: ANALYTICAL RESOURCES, INC — Client: NW NATURAL

ARI Job No: RR33 — Project: NWN-INS

Ical Midpoint ID: 0500828 — Ical Date: 08/28/10

Instrument ID: NT9 — Project Run Date: 10/26/10

		IS1(PFB) AREA #	RT #	IS2(DFB) AREA #	RT #	IS3(CLB) AREA #	RT #
	ICAL MIDPT	704281	4.94	937745	5.32	853013	7.40
	UPPER LIMIT	1408562	5.44	1875490	5.82	1706026	7.90
	LOWER LIMIT	352140	4.44	468872	4.82	426506	6.90
	Sample ID						
01	LCS1026	581252	4.93	764778	5.32	674404	7.40
02	LCS1026	620312	4.93	816706	5.32	720181	7.40
03	MB1026	560477	4.93	747008	5.32	660128	7.40
04	DGS-07-2.22.	620196	4.93	822814	5.32	733108	7.39
05	DGS-07-4.75.	660418	4.93	866228	5.32	757286	7.40
06	DGS-07-5.66.	626617	4.93	825361	5.32	713769	7.40
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21							
22							

IS1 (PFB) = Pentafluorobenzene
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IS3 (CLB) = d5-Chlorobenzene

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AREA LOWER LIMIT = - 50% of internal standard area from Ical midpoint
RT UPPER LIMIT = + 0.50 minutes of internal standard RT from Ical midpoint
RT LOWER LIMIT = - 0.50 minutes of internal standard RT from Ical midpoint

* Values outside of QC limits.

8A
VOLATILE INTERNAL STANDARD AREA AND RT SUMMARY

Lab Name: ANALYTICAL RESOURCES, INC — Client: NW NATURAL

ARI Job No: RR33 — Project: NWN-INS

Ical Midpoint ID: 0500828 — Ical Date: 08/28/10

Instrument ID: NT9 — Project Run Date: 10/26/10

		IS4 (DCB) AREA #	RT #	AREA #	RT #	AREA #	RT #
	ICAL MIDPT	503655	9.11				
	UPPER LIMIT	1007310	9.61				
	LOWER LIMIT	251828	8.61				
	Sample ID						
01	LCS1026	373587	9.12				
02	LCS1026	382955	9.11				
03	MB1026	365128	9.11				
04	DGS-07-2.22.	425524	9.11				
05	DGS-07-4.75.	423169	9.11				
06	DGS-07-5.66.	401308	9.11				
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20							
21							
22							

IS4 (DCB) = d4-1,4-Dichlorobenzene

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

* Values outside of QC limits.

Total Solids

ARI Job ID: RR33

Volatiles Total Solids-voats
Data By: Pat Basilio
Created: 10/25/10

Worklist: 9971
Analyst: PAB
Comments:

Oven ID:_____

Balance ID:_____

Samples In: Date:_____ Time:_____ Temp:_____ Analyst:_____

Samples Out: Date:_____ Time:_____ Temp:_____ Analyst:_____

ARI ID	Tare Wt (g)	Wet Wt (g)	Dry Wt (g)	% Solids
1. RR33B 10-26420	1.48	8.36	4.96	50.58
2. RR33C 10-26421	1.49	8.99	5.23	49.87
3. RR33D 10-26422	1.48	8.41	5.10	52.24
4. RR33E 10-26423	1.44	9.29	5.12	46.88
5. RR33F 10-26424	1.47	8.84	5.64	56.58
6. RR33G 10-26425	1.68	8.48	6.40	69.41
7. RR33H 10-26426	1.46	8.54	5.10	51.41
8. RR33I 10-26427	1.44	7.81	5.20	59.03
9. RR33J 10-26428	1.46	7.31	4.54	52.65
10. RR33K 10-26429	1.48	9.05	5.30	50.46
11. RR33L 10-26430	1.49	7.34	4.74	55.56
12. RR33M 10-26431	1.50	8.47	5.36	55.38
13. RR33N 10-26432	1.65	8.23	5.44	57.60

* - VOA TS Copied From BETX TS
% - VOA TS Copied From Metals TS
$ - VOA TS Copied From Extraction TS

Volatiles Total Solids-voats
Data By: Pat Basilio
Created: 10/22/10

Worklist: 9304
Analyst: PAB
Comments:

Oven ID: 11

Balance ID: 40050016 PT120

Samples In: Date: 10/24/10 Time: 9:30am Temp: 103 Analyst: VP

Samples Out: Date: 10/25/10 Time: 12:40 Temp: 102 Analyst: VP

ARI ID	Tare Wt (g)	Wet Wt (g)	Dry Wt (g)	% Solids
1. RR33B 10-26420	1.48	8.36	7.46	
2. RR33C 10-26421	1.49	8.99	5.23	
3. RR33D 10-26422	1.48	8.41	5.10	
4. RR33E 10-26423	1.44	9.29	5.11	
5. RR33F 10-26424	1.47	8.84	5.64	
6. RR33G 10-26425	1.68	8.48	6.40	
7. RR33H 10-26426	1.46	8.54	5.15	
8. RR33I 10-26427	1.44	7.81	5.20	
9. RR33J 10-26428	1.46	7.31	4.54	
10. RR33K 10-26429	1.48	9.05	5.00	
11. RR33L 10-26430	1.49	7.34	4.74	
12. RR33M 10-26431	1.50	8.47	5.36	
13. RR33N 10-26432	1.65	8.23	5.44	

Worklist ID: 9304 Page: 1
* - VOA TS Copied From BETX TS
% - VOA TS Copied From Metals TS
$ - VOA TS Copied From Extraction TS

Volatile Raw Data
Preparation Log

ARI Job ID: RR33

Analytical Resources, Incorporated
Analytical Chemists and Consultants

Volatile Organics Extraction Bench Sheet

(8260B, 8260B-SIM, 8021, NWTPH-Gx, AK-101, TPH-G, VPH, TCLP-ZHE)

ARI Project No. KR33 | Client ID/Project | Extraction Date | MeOH Lot No. | Analyst B

1st Extraction:
2nd Extraction:

	Lab ID	Vial No.	Preservative		Method 5035 Sample Weight					Comments
			$NaHSO_3$	CH_3OH	Vial Weight	Tare (from vial)	Sample Weight	Extract Volume	MeOH Spilt Volume	
	MB:									
	LCS:									
	LCSD:									
1	KR33 A						5.01			
2	B						5.41			
3	C						6.11			
4	D						5.58			
5	E						5.96			
6	F						6.03			
7	G						5.68			
8	H						5.97			
9	I						5.99			
10	J						6.08			
11	K						~~5.34~~ 2.60		100/60	
12	L						5.40			
13	M						5.79			
14	N						5.85			
15	HL						0.62			
16	IL						0.65			
17	JL						0.59			
18	KL						0.62			
19	LL						0.55			
20	ML						0.53			
	Balance ID: N2						0.65			

10/26

	Solution ID	Concentration	Amount Spiked	Analyst	Witness
Surrogate:					
Spike:					

RR33 : 00080

Analytical Resources, Incorporated
Analytical Chemists and Consultants

Volatile Organics Extraction Bench Sheet

(8260B, 8260B-SIM, 8021, NWTPH-Gx, AK-101, TPH-G, VPH, TCLP-ZHE)

ARI Project No. HR33 | Client ID/Project | Extraction Date | MeOH Lot No. | Analyst

1st Extraction:

2nd Extraction:

	Lab ID	Vial No.	Preservative		Method 5035 Sample Weight					Comments
			$NaHSO_3$	CH_3OH	Vial Weight	Tare (from vial)	Sample Weight	Extract Volume	MeOH Spilt Volume	
	MB:									
	LCS:									
	LCSD:									
1	HR33 B2						5.28			
2	D2						5.68			
3										
4										
5										
6										
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15										
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17										
18										
19										
20										
	Balance ID:									

	Solution ID	Concentration	Amount Spiked	Analyst	Witness
Surrogate:					
Spike:					

RR33 : 00001

Analytical Resources, Incorporated
Analytical Chemists and Consultants

Volatile Organics Extraction Bench Sheet

(8260B, 8260B-SIM, 8021, NWTPH-Gx, AK-101, TPH-G, VPH, TCLP-ZHE)

ARI Project No. RR33 | Client ID/Project | Extraction Date | MeOH Lot No. | Analyst

1st Extraction:

2nd Extraction:

	Lab ID	Vial No.	Preservative		Method 5035 Sample Weight					Comments
			$NaHSO_3$	CH_3OH	Vial Weight	Tare (from vial)	Sample Weight	Extract Volume	MeOH Spilt Volume	
	MB:									
	LCS:									
	LCSD:									
1	RR33 D3						5.30	5mL	100mL	
2	H3						5.21			
3	I3						4.98			
4	J3						5.24			
5	K3						5.00			
6	L3						5.93			
7	M3						5.27			
8	N3						5.18			
9										
10										
11										
12										
13										
14										
15										
16										
17										
18										
19										
20										
	Balance ID:									

	Solution ID	Concentration	Amount Spiked	Analyst	Witness
Surrogate:					
Spike:					

RR33 : 00082

Analytical Resources, Incorporated
Analytical Chemists and Consultants

Volatile Organics Extraction Bench Sheet

(8260B, 8260B-SIM, 8021, NWTPH-Gx, AK-101, TPH-G, VPH, TCLP-ZHE)

ARI Project No. RR33 | Client ID/Project | Extraction Date | MeOH Lot No. | Analyst

1st Extraction:
2nd Extraction:

	Lab ID	Vial No.	Preservative		Method 5035 Sample Weight					Comments
			$NaHSO_3$	CH_3OH	Vial Weight	Tare (from vial)	Sample Weight	Extract Volume	MeOH Spilt Volume	
	MB:									
	LCS:									
	LCSD:									
1	RR33 02						5.14	5 ml	100 ml	
2	03						5.00			
3	04						5.92			
4										
5										
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18										
19										
20										
	Balance ID:									

	Solution ID	Concentration	Amount Spiked	Analyst	Witness
Surrogate:					
Spike:					

RR33 : 000033

Volatile Raw Data
Initial Calibration Notes and Raw Data

ARI Job ID: RR33

Analytical Resources, Incorporated
Analytical Chemists and Consultants

VOA Analyst Notes / Corrective Action Log

ARI Project ID: MTRCal Client ID: _____

ARI SOP: **404S**(Gas) **410S**(BTEX) **430S**(VPH) **700S**(8260C) **703S**(SIM) **706S**(524.2) **710S**(RSK-175)

Parameter(s): _____

Instrument: NT-3 NT-5 NT-7 NT-9 NT-10 PID-1 PID-2 PID-3 FID-6 FINN-5

Purge Volume (mL) 5 Curve Date: 8/28/10 Analysis Start Date: 8/28/10

pH ≤ 2.0	YES / NO / NA	Method Blank In Control?	YES / NO
BFB Tune Meets Criteria?	YES / NO / NA	LCS / LCSD Recovery In Control?	YES / NO
Internal Standard Meets Criteria?	YES / NO / NA	Surrogate Recovery In Control?	YES / NO
ICal acceptable?	YES / NO	CCal acceptable?	YES / NO
Q flag applied?	YES / NO / NA	Q flag applied?	YES / NO / NA
Manual Integrations for ICal?	YES / NO	Manual Integrations for Samples?	Yes /NO
Special Analysis Criteria Met?	YES / NO / NA		

Bubbles/Headspace: None SM (≤ 2mm •) PB (2-4mm) LG (> 4mm ●) Head Space

Detail problems, corrective actions and/or other pertinent information below (use reverse side when necessary):

Additional Details on Reverse: Yes / No

Analyst: _____ **Date:** 10/18/10

Reviewer: _____ **Date:** 10/18/10

Analytical Resources Inc.: Volatile Organics Instrument Log

NT-9 Serial No.:GC=US00021704, MS=US80230047

Date: 8/28/10 Analysis: 8260C Analyst: M

GC Program: VOA Column No: 562875 Column Type: MTX VMS

Instrument Tune (.U or .CT.): bfb08280 EM Voltage: 1289

Calibration File: 2000828 Curve Date: 8/28/10

IS/SS	Ical/Ccal	LCS/ICV
W652-1	W652-2	W643-2
	W652-3	W643-4
		W643-1

INTERNAL STANDARD SUMMARY FOR DATABATCH - /chem1/nt9.i/28AUG10.b

	Time	Filename	LabID	ClientID	WT									
1	0745	bfb08280.d	BFB0828	BFB0828	0.00									
2	1252	0010828.d	IC0828	VSTD001	5.00	4.93	593554	5.32	790571	7.40	695489	9.12	387125	
3	1321	2000828.d	IC0828	VSTD200	5.00	4.93	640076	5.32	861135	7.40	803012	9.13	480939	
4	1351	1500828.d	IC0828	VSTD150	5.00	4.93	648980	5.32	873392	7.40	806370	9.12	478126	
5	1421	1000828.d	IC0828	VSTD100	5.00	4.93	577839	5.32	774194	7.40	701708	9.11	414842	
6	1451	0500828.d	IC0828	VSTD050	5.00	4.94	704281	5.32	937745	7.40	853013	9.11	503655	
7	1521	0100828.d	IC0828	VSTD010	5.00	4.93	705939	5.32	945928	7.40	855411	9.11	505684	
8	1551	0050828.d	IC0828	VSTD005	5.00	4.94	686435	5.32	917886	7.40	828296	9.11	481111	
9	1621	0020828.d	IC0828	VSTD002	5.00	4.94	638204	5.32	847674	7.40	752656	9.11	418493	
10	1821	icv0828.d	ICV0828	ICV0828	5.00	4.93	643032	5.32	855721	7.40	778023	9.11	462358	

M 30b

Maintenance / Comments

Maintenance Verification (Identify ICal or CCal that demonstrates the instrument is in control):

Every line must contain information or be lined out. Make all entries legible. Start a new page for each QC period.

Data File: /chem1/nt9.i/28AUG10.b/gasco.b/bfb08280.d

Date : 28-AUG-2010 07:45

Client ID: BFB0828

Instrument: nt9.i

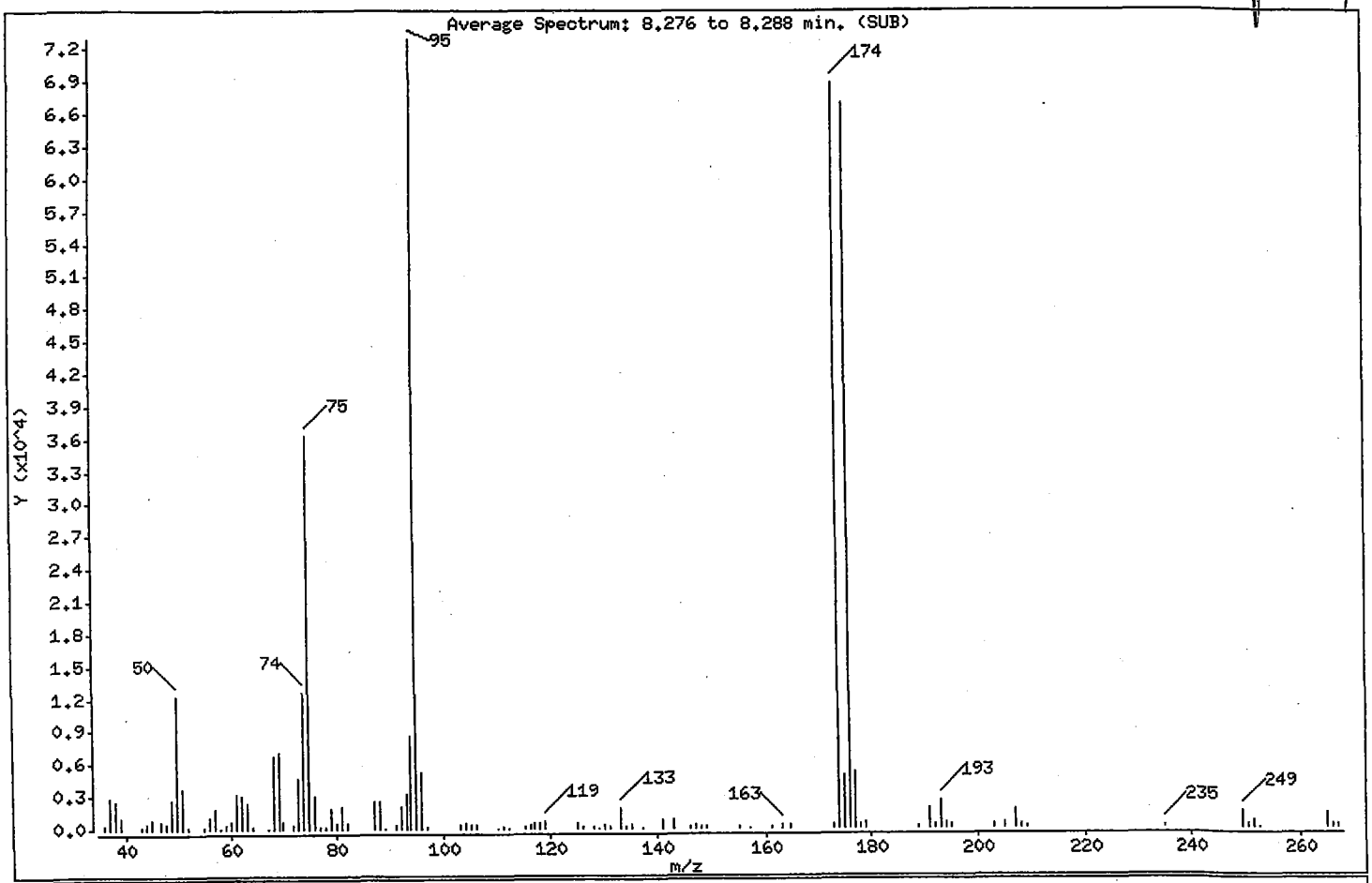
Sample Info: BFB0828,BFB0828,,1,28AUG10,,

Operator: PB

Column phase: RTX502.2

Column diameter: 0.18

1 Bromofluorobenzene



m/e	ION ABUNDANCE CRITERIA	% RELATIVE ABUNDANCE
95	Base Peak, 100% relative abundance	100.00
50	8.00 - 40.00% of mass 95	16.76
75	30.00 - 66.00% of mass 95	49.85
96	5.00 - 9.00% of mass 95	7.19
173	Less than 2.00% of mass 174	0.46 (0.49)
174	50.00 - 101.00% of mass 95	94.44
175	4.00 - 9.00% of mass 174	6.67 (7.06)
176	93.00 - 101.00% of mass 174	91.93 (97.34)
177	5.00 - 9.00% of mass 176	7.06 (7.68)

Data File: /chem1/nt9.i/28AUG10.b/gasco.b/bfb08280.d

Date : 28-AUG-2010 07:45

Client ID: BFB0828

Instrument: nt9.i

Sample Info: BFB0828,BFB0828,,1,28AUG10,,

Operator: PB

Column phase: RTX502.2

Column diameter: 0.18

Data File: bfb08280.d

Spectrum: Average Spectrum: 8.276 to 8.288 min. (SUB)

Location of Maximum: 95.00

Number of points: 107

m/z	Y	m/z	Y	m/z	Y	m/z	Y
36.00	383	72.00	370	112.00	67	173.00	337
37.00	2783	73.00	4646	115.00	140	174.00	68840
38.00	2596	74.00	12549	116.00	270	175.00	4860
39.00	1028	75.00	36336	117.00	579	176.00	67016
43.00	171	76.00	3036	118.00	486	177.00	5144
44.00	505	77.00	222	119.00	711	178.00	294
45.00	771	78.00	240	125.00	546	179.00	515
47.00	626	79.00	1890	126.00	184	189.00	142
48.00	420	80.00	568	128.00	240	191.00	1872
49.00	2714	81.00	2029	129.00	62	192.00	407
50.00	12217	82.00	430	130.00	311	193.00	2498
51.00	3643	87.00	2567	131.00	124	194.00	510
52.00	200	88.00	2511	133.00	1910	195.00	309
55.00	224	89.00	67	134.00	87	203.00	267
56.00	986	91.00	283	135.00	330	205.00	508
57.00	1791	92.00	2026	137.00	60	207.00	1704
58.00	51	93.00	3113	141.00	759	208.00	343
59.00	361	94.00	8567	143.00	826	209.00	155
60.00	622	95.00	72896	146.00	111	235.00	211
61.00	3175	96.00	5238	147.00	278	249.00	1515
62.00	3089	97.00	197	148.00	241	250.00	403
63.00	2347	103.00	356	149.00	183	251.00	614
64.00	164	104.00	426	155.00	175	252.00	54
67.00	59	105.00	265	157.00	54	265.00	1352
68.00	6691	106.00	334	161.00	153	266.00	408
69.00	7006	110.00	63	163.00	356	267.00	303
70.00	655	111.00	129	165.00	293		

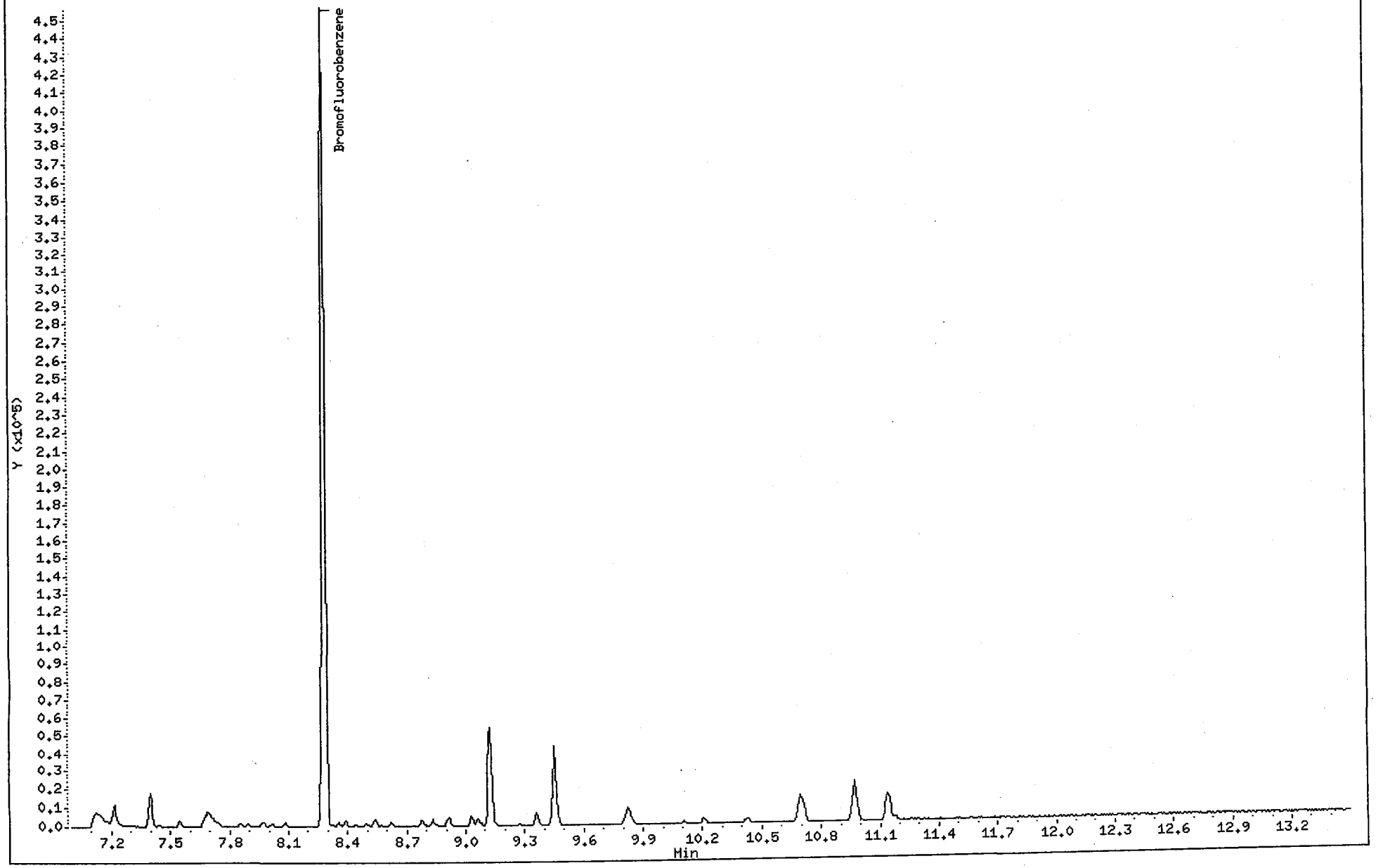
Data File: /chem1/nt9.i/28AUG10.b/gasco.b/bfb08280.d
Date : 28-AUG-2010 07:45
Client ID: BFB0828
Sample Info: BFB0828,BFB0828,,1,28AUG10,,

Instrument: nt9.i

Operator: PB
Column diameter: 0.18

Column phase: RTX502.2

/chem1/nt9.i/28AUG10.b/gasco.b/bfb08280.d



RR39:00009

Analytical Resources, Inc.

INITIAL CALIBRATION DATA

Start Cal Date : 28-AUG-2010 12:52
End Cal Date : 28-AUG-2010 16:21
Quant Method : ISTD
Origin : Disabled
Target Version : 3.50
Integrator : HP RTE
Method file : /chem1/nt9.i/28AUG10.b/gasco.b/VO063010S.m
Cal Date : 18-Oct-2010 13:57 patrickb
Curve Type : Average

10/18/10

Calibration File Names:
Level 1: /chem1/nt9.i/28AUG10.b/gasco.b/0010828.d
Level 2: /chem1/nt9.i/28AUG10.b/gasco.b/0020828.d
Level 3: /chem1/nt9.i/28AUG10.b/gasco.b/0050828.d
Level 4: /chem1/nt9.i/28AUG10.b/gasco.b/0100828.d
Level 5: /chem1/nt9.i/28AUG10.b/gasco.b/0500828.d
Level 6: /chem1/nt9.i/28AUG10.b/gasco.b/1000828.d
Level 7: /chem1/nt9.i/28AUG10.b/gasco.b/1500828.d
Level 8: /chem1/nt9.i/28AUG10.b/gasco.b/2000828.d

Compound	1.000 Level 1	2.000 Level 2	5.000 Level 3	10.000 Level 4	50.000 Level 5	100.000 Level 6	RRF	% RSD
	150.000 Level 7	200.000 Level 8						
3 Vinyl Chloride	0.44124	0.36900	0.40850	0.40724	0.44421	0.53382		
	0.49296	0.47638					0.44667	11.877
7 1,1-Dichloroethene	0.46702	0.39654	0.40390	0.42362	0.42777	0.52984		
	+++++	+++++					0.44145	11.280
15 Trans-1,2-Dichloroethene	0.51402	0.44676	0.46277	0.47513	0.47849	0.57736		
	0.55726	0.56926					0.51013	10.142
20 Cis-1,2-Dichloroethene	0.48917	0.41464	0.44768	0.46073	0.46216	0.53041		
	0.52431	0.53780					0.48336	9.201
23 Chloroform	0.75975	0.67506	0.71303	0.72761	0.73463	0.83871		
	0.83123	0.85351					0.76669	8.647
24 Carbon Tetrachloride	0.45322	0.37467	0.37878	0.40053	0.45310	0.56307		
	0.54319	0.54624					0.46410	16.760

Analytical Resources, Inc.

INITIAL CALIBRATION DATA

Start Cal Date : 28-AUG-2010 12:52
End Cal Date : 28-AUG-2010 16:21
Quant Method : ISTD
Origin : Disabled
Target Version : 3.50
Integrator : HP RTE
Method file : /chem1/nt9.i/28AUG10.b/gasco.b/VO063010S.m
Cal Date : 18-Oct-2010 13:57 patrickb
Curve Type : Average

Compound	1.000 Level 1	2.000 Level 2	5.000 Level 3	10.000 Level 4	50.000 Level 5	100.000 Level 6	RRF	% RSD
	150.000 Level 7	200.000 Level 8						
29 2-Butanone	0.05280	0.04234	0.04252	0.04537	0.04571	0.05600		
	0.05162	0.05187					0.04853	10.655
30 Benzene	1.32638	1.18660	1.23515	1.26601	1.27868	1.48595		
	1.46478	1.51452					1.34476	9.368
33 1,2-Dichloroethane	0.39130	0.33993	0.36738	0.38396	0.38080	0.40438		
	0.40958	0.41716					0.38681	6.473
34 Trichloroethene	0.36714	0.32330	0.34682	0.34800	0.35294	0.41807		
	0.40032	0.41556					0.37152	9.538
43 Toluene	1.03514	0.85549	0.86756	0.87730	0.88499	1.04109		
	1.02215	1.06128					0.95562	9.535
44 Tetrachloroethene	0.55860	0.48183	0.48172	0.49322	0.50901	0.62547		
	0.58919	0.60919					0.54353	10.926
53 Chlorobenzene	1.22382	1.05021	1.09789	1.12925	1.13123	1.29199		
	1.28087	1.33347					1.19234	8.711
54 Ethyl Benzene	2.02002	1.78634	1.82546	1.89117	1.92492	2.32640		
	2.26623	2.35247					2.04913	11.315
56 m,p-xylene	0.81500	0.70598	0.74855	0.77341	0.80494	0.96610		
	0.91344	0.90257					0.82875	10.870

Analytical Resources, Inc.

INITIAL CALIBRATION DATA

Start Cal Date : 28-AUG-2010 12:52
End Cal Date : 28-AUG-2010 16:21
Quant Method : ISTD
Origin : Disabled
Target Version : 3.50
Integrator : HP RTE
Method file : /chem1/nt9.i/28AUG10.b/gasco.b/VO063010S.m
Cal Date : 18-Oct-2010 13:57 patrickb
Curve Type : Average

Compound	1.000 Level 1 / 150.000 Level 7	2.000 Level 2 / 200.000 Level 8	5.000 Level 3	10.000 Level 4	50.000 Level 5	100.000 Level 6	RRF	% RSD
57 o-Xylene	0.73725	0.65651	0.70844	0.73580	0.73913	0.86456		
	0.85023	0.88429					0.77203	10.757
76 1,4-Dichlorobenzene	1.88673	1.56801	1.64288	1.69190	1.69135	1.90846		
	1.93573	2.02878					1.79423	9.225
$ 25 Dibromofluoromethane	0.36234	0.35910	0.36558	0.36940	0.37735	0.37880		
	0.38862	0.38978					0.37387	3.111
$ 31 d4-1,2-Dichloroethane	0.38156	0.37856	0.38687	0.38650	0.39071	0.37956		
	0.38432	0.38267					0.38384	1.062
$ 42 d8-Toluene	1.12727	1.13191	1.13958	1.14128	1.14178	1.12624		
	1.12676	1.12835					1.13290	0.605
$ 61 4-Bromofluorobenzene	0.45724	0.46015	0.47109	0.47490	0.46790	0.46064		
	0.45738	0.45543					0.46309	1.563
$ 78 d4-1,2-Dichlorobenzene	0.87020	0.86950	0.88301	0.87935	0.88127	0.86506		
	0.87680	0.86706					0.87403	0.790

Report Date : 18-Oct-2010 13:50

Analytical Resources, Inc.
RETENTION TIME SUMMARY REPORT

Method File: /chem1/nt9.i/28AUG10.b/gasco.b/VO063010S.m
Batch File: /chem1/nt9.i/28AUG10.b/gasco.b
Inst ID: nt9.i

ID:	RT01	RT02	RT03	RT04	RT05	RT06	RT07	RT08
FILENAME:	0010828	2000828	1500828	1000828	0500828	0100828	0050828	0020828
INJ.DATE:	28-AUG-2010	28-AUG-2010	28-AUG-2010	28-AUG-2010	28-AUG-2010	28-AUG-2010	28-AUG-2010	28-AUG-2010
INJ.TIME:	12:52	13:21	13:51	14:21	14:51	15:21	15:51	16:21

Compound	RT01	RT02	RT03	RT04	RT05	RT06	RT07	RT08	EXPEC RT	RT WINDOW	AVG RT	STD DEV
3 Vinyl Chloride	1.409	1.406	1.403	1.409	1.407	1.407	1.412	1.407	1.407	1.308-1.505	1.407	0.003
7 1,1-Dichloroethene	2.314	2.294	2.297	2.303	2.312	2.301	2.312	2.318	2.312	2.213-2.410	2.306	0.009
15 Trans-1,2-Dichloroethe	3.033	3.018	3.021	3.027	3.036	3.030	3.036	3.036	3.036	2.937-3.134	3.030	0.007
20 Cis-1,2-Dichloroethene	4.136	4.133	4.135	4.136	4.139	4.139	4.139	4.139	4.139	4.040-4.237	4.137	0.002
23 Chloroform	4.379	4.382	4.384	4.385	4.382	4.382	4.382	4.382	4.382	4.283-4.481	4.382	0.002
24 Carbon Tetrachloride	4.469	4.466	4.469	4.470	4.473	4.467	4.472	4.473	4.473	4.366-4.579	4.470	0.003
$ 25 Dibromofluoromethane	4.526	4.529	4.531	4.532	4.529	4.529	4.529	4.529	4.529	4.430-4.628	4.529	0.002
29 2-Butanone	4.645	4.659	4.655	4.651	4.642	4.654	4.648	4.648	4.642	4.543-4.741	4.650	0.006
30 Benzene	4.831	4.828	4.825	4.832	4.829	4.829	4.829	4.829	4.829	4.722-4.935	4.829	0.002
$ 31 d4-1,2-Dichloroethane	4.939	4.936	4.938	4.939	4.936	4.937	4.936	4.937	4.936	4.838-5.035	4.937	0.001
* 32 Pentafluorobenzene	4.933	4.930	4.933	4.933	4.936	4.931	4.936	4.937	4.936	4.837-5.035	4.934	0.003
33 1,2-Dichloroethane	4.990	4.993	4.989	4.990	4.993	4.988	4.993	4.993	4.993	4.886-5.099	4.991	0.002
34 Trichloroethene	5.284	5.281	5.283	5.284	5.281	5.282	5.281	5.282	5.281	5.175-5.388	5.282	0.001
* 35 1,4-Difluorobenzene	5.324	5.321	5.323	5.324	5.321	5.321	5.321	5.321	5.321	5.215-5.427	5.322	0.001
$ 42 d8-Toluene	6.308	6.305	6.307	6.308	6.305	6.306	6.305	6.306	6.305	6.199-6.412	6.306	0.001
43 Toluene	6.342	6.344	6.341	6.342	6.345	6.345	6.345	6.345	6.345	6.238-6.451	6.344	0.002
44 Tetrachloroethene	6.608	6.610	6.607	6.608	6.611	6.611	6.611	6.611	6.611	6.463-6.759	6.610	0.002

Reviewer 1 _____ Date: _____
Reviewer 2 _____ Date: _____

10/18/10

RRS3 00093

Report Date : 18-Oct-2010 13:50

Analytical Resources, Inc.
RETENTION TIME SUMMARY REPORT

Method File: /chem1/nt9.i/28AUG10.b/gasco.b/VO063010S.m
Batch File: /chem1/nt9.i/28AUG10.b/gasco.b
Inst ID: nt9.i

Compound	RT01	RT02	RT03	RT04	RT05	RT06	RT07	RT08	EXPEC RT	RT WINDOW	AVG RT	STD DEV
* 52 d5-Chlorobenzene	7.400	7.402	7.399	7.400	7.397	7.397	7.397	7.397	7.397	7.249-7.545	7.399	0.002
53 Chlorobenzene	7.411	7.414	7.410	7.411	7.408	7.409	7.408	7.409	7.408	7.260-7.556	7.410	0.002
54 Ethyl Benzene	7.439	7.442	7.439	7.439	7.437	7.437	7.437	7.437	7.437	7.289-7.585	7.438	0.002
56 m,p-xylene	7.547	7.549	7.546	7.547	7.544	7.544	7.544	7.545	7.544	7.396-7.692	7.546	0.002
57 o-Xylene	7.852	7.855	7.852	7.852	7.850	7.850	7.850	7.850	7.850	7.702-7.997	7.851	0.002
$ 61 4-Bromofluorobenzene	8.282	8.302	8.281	8.277	8.274	8.280	8.274	8.274	8.274	8.126-8.422	8.280	0.009
* 75 d4-1,4-Dichlorobenzene	9.119	9.128	9.119	9.114	9.111	9.111	9.111	9.106	9.111	8.929-9.293	9.115	0.007
76 1,4-Dichlorobenzene	9.131	9.139	9.130	9.125	9.122	9.123	9.117	9.117	9.122	8.940-9.304	9.125	0.007
$ 78 d4-1,2-Dichlorobenzene	9.447	9.450	9.441	9.436	9.434	9.434	9.433	9.434	9.434	9.251-9.616	9.439	0.007

10/18/10

RR33 00094

MANUAL INTEGRATION SUMMARY FOR DATABATCH - /chem1/nt9.i/28AUG10.b/gasco.b

ARI Job No.: BFB0 Method: bfb8260.m Instrument: nt9.i Date: 28-AUG-2010

Time	Filename	LabID	ClientId	DF	Manually Integrated Compounds
0745	bfb08280.d	BFB0828	BFB0828	1	NO MANUAL INTEGRATION
1252	0010828.d	IC0828	VSTD001	1	NO MANUAL INTEGRATION
1321	2000828.d	IC0828	VSTD200	1	NO MANUAL INTEGRATION
1351	1500828.d	IC0828	VSTD150	1	NO MANUAL INTEGRATION
1421	1000828.d	IC0828	VSTD100	1	NO MANUAL INTEGRATION
1451	0500828.d	IC0828	VSTD050	1	NO MANUAL INTEGRATION
1521	0100828.d	IC0828	VSTD010	1	NO MANUAL INTEGRATION
1551	0050828.d	IC0828	VSTD005	1	NO MANUAL INTEGRATION
1621	0020828.d	IC0828	VSTD002	1	NO MANUAL INTEGRATION
1821	icv0828.d	ICV0828	ICV0828	1	NO MANUAL INTEGRATION

RR33 00035

Analytical Resources, Inc.

8260C

Data file : /chem1/nt9.i/28AUG10.b/gasco.b/0010828.d
Lab Smp Id: IC0828 Client Smp ID: VSTD001
Inj Date : 28-AUG-2010 12:52
Operator : PB Inst ID: nt9.i
Smp Info : IC0828,5,5,0
Misc Info : 10-
Comment :
Method : /chem1/nt9.i/28AUG10.b/gasco.b/VO063010S.m
Meth Date : 18-Oct-2010 13:50 patrickb Quant Type: ISTD
Cal Date : 28-AUG-2010 12:52 Cal File: 0010828.d
Als bottle: 1 Calibration Sample, Level: 1
Dil Factor: 1.00000
Integrator: HP RTE Compound Sublist: gasco.sub
Target Version: 3.50
Processing Host: cserv3

Concentration Formula: Amt * DF * Pv * 1 / (Sa * ((100 - M) / 100)) * CpndVaria

Name	Value	Description
DF	1.00000	Dilution Factor
Pv	5.00000	Purge Volume
Sa	5.00000	Sample Amount
M	0.00000	% Moisture (not decanted)

Cpnd Variable Local Compound Variable

	Compounds	QUANT SIG MASS	RT	EXP RT	REL RT	RESPONSE	AMOUNTS CAL-AMT (ug/Kg)	ON-COL (ug/Kg)
	3 Vinyl Chloride	62	1.409	1.407	(0.286)	5238	1.00000	0.9878
	7 1,1-Dichloroethene	96	2.314	2.312	(0.469)	5544	1.00000	1.058
	15 Trans-1,2-Dichloroethene	96	3.033	3.036	(0.615)	6102	1.00000	1.008
	20 Cis-1,2-Dichloroethene	96	4.136	4.139	(0.838)	5807	1.00000	1.012
	23 Chloroform	83	4.379	4.382	(0.888)	9019	1.00000	0.9909
	24 Carbon Tetrachloride	117	4.469	4.473	(0.840)	7166	1.00000	0.9766
*	32 Pentafluorobenzene	168	4.933	4.936	(1.000)	593554	50.0000	
$	25 Dibromofluoromethane	111	4.526	4.529	(0.917)	215070	50.0000	48.458
$	31 d4-1,2-Dichloroethane	65	4.939	4.936	(1.001)	226475	50.0000	49.702
	29 2-Butanone	72	4.645	4.642	(0.942)	3134	5.00000	5.440
	30 Benzene	78	4.831	4.829	(0.908)	20972	1.00000	0.9863
	33 1,2-Dichloroethane	62	4.990	4.993	(0.937)	6187	1.00000	1.012
*	35 1,4-Difluorobenzene	114	5.324	5.321	(1.000)	790571	50.0000	
	34 Trichloroethene	95	5.284	5.281	(0.993)	5805	1.00000	0.9882

Compounds	QUANT SIG MASS	RT	EXP RT	REL RT	RESPONSE	AMOUNTS CAL-AMT (ug/Kg)	AMOUNTS ON-COL (ug/Kg)
$ 42 d8-Toluene	98	6.308	6.305	(1.185)	891184	50.0000	49.751
43 Toluene	92	6.342	6.345	(1.191)	16367	1.00000	1.083
44 Tetrachloroethene	166	6.608	6.611	(0.893)	7770	1.00000	1.028
* 52 d5-Chlorobenzene	117	7.400	7.397	(1.000)	695489	50.0000	
53 Chlorobenzene	112	7.411	7.408	(1.002)	17023	1.00000	1.026
54 Ethyl Benzene	91	7.439	7.437	(1.005)	28098	1.00000	0.9858
56 m,p-xylene	106	7.547	7.544	(1.020)	22673	2.00000	1.967
57 o-Xylene	106	7.852	7.850	(1.061)	10255	1.00000	0.9550
$ 61 4-Bromofluorobenzene	95	8.282	8.274	(1.119)	318004	50.0000	49.368
* 75 d4-1,4-Dichlorobenzene	152	9.119	9.111	(1.000)	387125	50.0000	
76 1,4-Dichlorobenzene	146	9.131	9.122	(1.001)	14608	1.00000	1.052
$ 78 d4-1,2-Dichlorobenzene	152	9.447	9.434	(1.036)	336878	50.0000	49.781

Analytical Resources, Inc.

INTERNAL STANDARD COMPOUNDS
AREA AND RT SUMMARY

Instrument ID: nt9.i
Lab File ID: 0010828.d
Lab Smp Id: IC0828
Analysis Type: VOA
Quant Type: ISTD
Operator: PB
Method File: /chem1/nt9.i/28AUG10.b/gasco.b/VO063010S.m
Misc Info: 10-

Calibration Date: 28-AUG-2010
Calibration Time: 14:51
Client Smp ID: VSTD001
Level: LOW
Sample Type: SOIL

Test Mode:
Use Initial Calibration Level 5.
If Continuing Cal. use Initial Cal. Level 5

COMPOUND	STANDARD	AREA LIMIT LOWER	AREA LIMIT UPPER	SAMPLE	%DIFF
32 Pentafluorobenzen	704281	352140	1408562	593554	-15.72
35 1,4-Difluorobenze	937745	468872	1875490	790571	-15.69
52 d5-Chlorobenzene	853013	426506	1706026	695489	-18.47
75 d4-1,4-Dichlorobe	503655	251828	1007310	387125	-23.14

COMPOUND	STANDARD	RT LIMIT LOWER	RT LIMIT UPPER	SAMPLE	%DIFF
32 Pentafluorobenzen	4.94	4.44	5.44	4.93	-0.06
35 1,4-Difluorobenze	5.32	4.82	5.82	5.32	0.05
52 d5-Chlorobenzene	7.40	6.90	7.90	7.40	0.03
75 d4-1,4-Dichlorobe	9.11	8.61	9.61	9.12	0.09

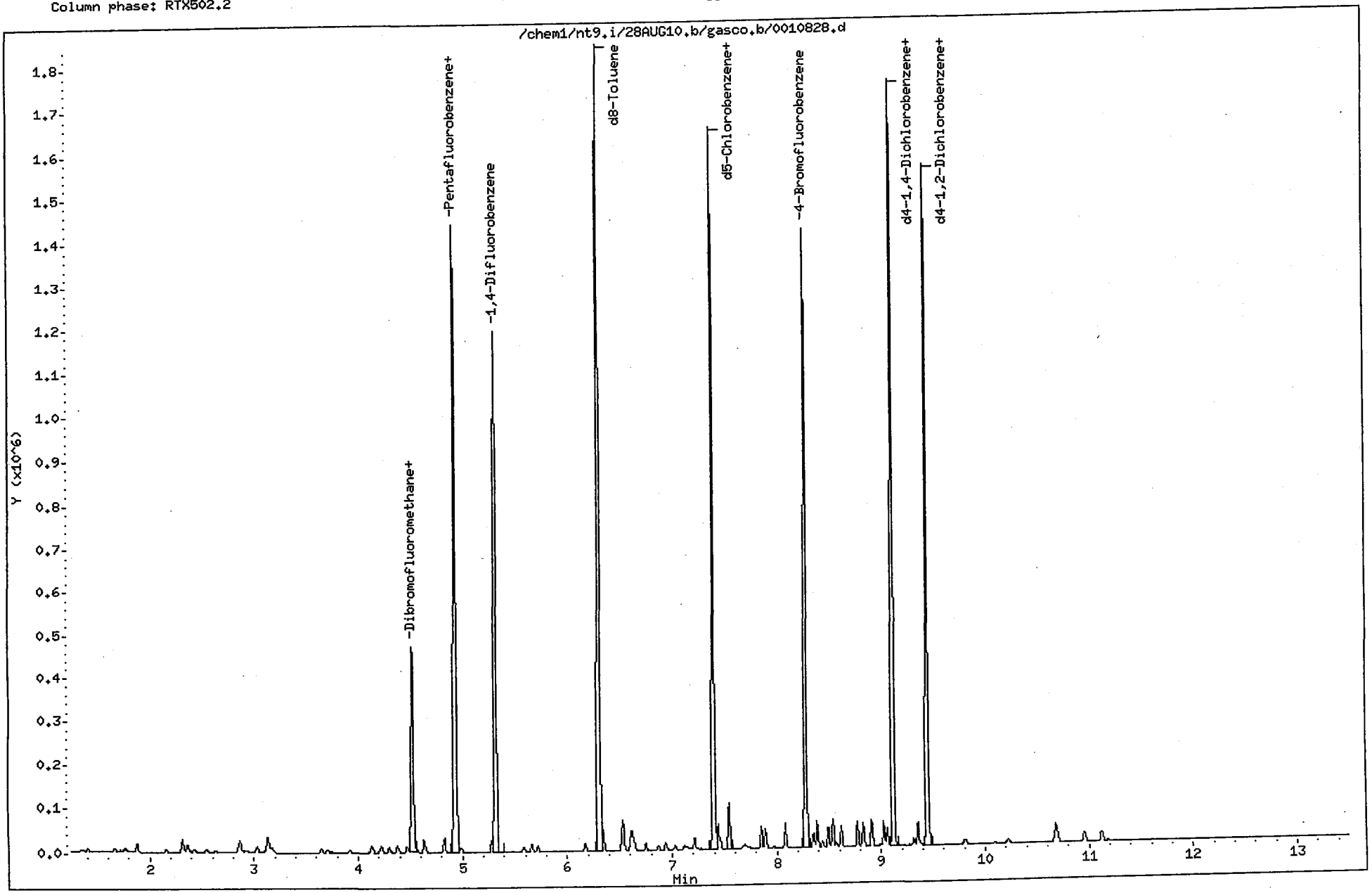
AREA UPPER LIMIT = +100% of internal standard area.
AREA LOWER LIMIT = - 50% of internal standard area.
RT UPPER LIMIT = + 0.50 minutes of internal standard RT.
RT LOWER LIMIT = - 0.50 minutes of internal standard RT.

Data File: /chem1/nt9.i/28AUG10.b/gasco.b/0010828.d
Date : 28-AUG-2010 12:52
Client ID: VSTD001
Sample Info: IC0828,5,5,0

Instrument: nt9.i

Operator: PB
Column diameter: 0.18

Column phase: RTX502.2



RR33 : 00099

Analytical Resources, Inc.

8260C

Data file : /chem1/nt9.i/28AUG10.b/gasco.b/0020828.d
Lab Smp Id: IC0828 Client Smp ID: VSTD002
Inj Date : 28-AUG-2010 16:21
Operator : PB Inst ID: nt9.i
Smp Info : IC0828,5,5,0
Misc Info : 10-
Comment :
Method : /chem1/nt9.i/28AUG10.b/gasco.b/VO063010S.m
Meth Date : 18-Oct-2010 13:50 patrickb Quant Type: ISTD
Cal Date : 28-AUG-2010 16:21 Cal File: 0020828.d
Als bottle: 1 Calibration Sample, Level: 2
Dil Factor: 1.00000
Integrator: HP RTE Compound Sublist: gasco.sub
Target Version: 3.50
Processing Host: cserv3

Concentration Formula: Amt * DF * Pv * 1 / (Sa * ((100 - M) / 100)) * CpndVaria

Name	Value	Description
DF	1.00000	Dilution Factor
Pv	5.00000	Purge Volume
Sa	5.00000	Sample Amount
M	0.00000	% Moisture (not decanted)

Cpnd Variable Local Compound Variable

Compounds	QUANT SIG MASS	RT	EXP RT	REL RT	RESPONSE	AMOUNTS CAL-AMT (ug/Kg)	AMOUNTS ON-COL (ug/Kg)
3 Vinyl Chloride	62	1.407	1.407	(0.285)	9420	2.00000	1.652
7 1,1-Dichloroethene	96	2.318	2.312	(0.469)	10123	2.00000	1.797
15 Trans-1,2-Dichloroethene	96	3.036	3.036	(0.615)	11405	2.00000	1.752
20 Cis-1,2-Dichloroethene	96	4.139	4.139	(0.838)	10585	2.00000	1.716
23 Chloroform	83	4.382	4.382	(0.888)	17233	2.00000	1.761
24 Carbon Tetrachloride	117	4.473	4.473	(0.841)	12704	2.00000	1.615
* 32 Pentafluorobenzene	168	4.937	4.936	(1.000)	638204	50.0000	
$ 25 Dibromofluoromethane	111	4.529	4.529	(0.917)	229178	50.0000	48.024
$ 31 d4-1,2-Dichloroethane	65	4.937	4.936	(1.000)	241601	50.0000	49.312
29 2-Butanone	72	4.648	4.642	(0.942)	5404	10.0000	8.724
30 Benzene	78	4.829	4.829	(0.908)	40234	2.00000	1.765
33 1,2-Dichloroethane	62	4.993	4.993	(0.938)	11526	2.00000	1.758
* 35 1,4-Difluorobenzene	114	5.321	5.321	(1.000)	847674	50.0000	
34 Trichloroethene	95	5.282	5.281	(0.993)	10962	2.00000	1.740

Compounds	QUANT SIG MASS	RT	EXP RT	REL RT	RESPONSE	AMOUNTS CAL-AMT (ug/Kg)	AMOUNTS ON-COL (ug/Kg)
$ 42 d8-Toluene	98	6.306	6.305	(1.185)	959492	50.0000	49.957
43 Toluene	92	6.345	6.345	(1.192)	29007	2.00000	1.790
44 Tetrachloroethene	166	6.611	6.611	(0.894)	14506	2.00000	1.773
* 52 d5-Chlorobenzene	117	7.397	7.397	(1.000)	752656	50.0000	
53 Chlorobenzene	112	7.409	7.408	(1.002)	31618	2.00000	1.762
54 Ethyl Benzene	91	7.437	7.437	(1.005)	53780	2.00000	1.744
56 m,p-xylene	106	7.545	7.544	(1.020)	42509	4.00000	3.407
57 o-Xylene	106	7.850	7.850	(1.061)	19765	2.00000	1.701
$ 61 4-Bromofluorobenzene	95	8.274	8.274	(1.119)	346336	50.0000	49.682
* 75 d4-1,4-Dichlorobenzene	152	9.106	9.111	(1.000)	418493	50.0000	
76 1,4-Dichlorobenzene	146	9.117	9.122	(1.001)	26248	2.00000	1.748
$ 78 d4-1,2-Dichlorobenzene	152	9.434	9.434	(1.036)	363879	50.0000	49.741

Analytical Resources, Inc.

INTERNAL STANDARD COMPOUNDS
AREA AND RT SUMMARY

Instrument ID: nt9.i
Lab File ID: 0020828.d
Lab Smp Id: IC0828
Analysis Type: VOA
Quant Type: ISTD
Operator: PB
Method File: /chem1/nt9.i/28AUG10.b/gasco.b/VO063010S.m
Misc Info: 10-

Calibration Date: 28-AUG-2010
Calibration Time: 14:51
Client Smp ID: VSTD002
Level: LOW
Sample Type: SOIL

Test Mode:
Use Initial Calibration Level 5.
If Continuing Cal. use Initial Cal. Level 5

COMPOUND	STANDARD	AREA LIMIT LOWER	AREA LIMIT UPPER	SAMPLE	%DIFF
32 Pentafluorobenzen	704281	352140	1408562	638204	-9.38
35 1,4-Difluorobenze	937745	468872	1875490	847674	-9.61
52 d5-Chlorobenzene	853013	426506	1706026	752656	-11.77
75 d4-1,4-Dichlorobe	503655	251828	1007310	418493	-16.91

COMPOUND	STANDARD	RT LIMIT LOWER	RT LIMIT UPPER	SAMPLE	%DIFF
32 Pentafluorobenzen	4.94	4.44	5.44	4.94	0.01
35 1,4-Difluorobenze	5.32	4.82	5.82	5.32	0.01
52 d5-Chlorobenzene	7.40	6.90	7.90	7.40	0.00
75 d4-1,4-Dichlorobe	9.11	8.61	9.61	9.11	-0.06

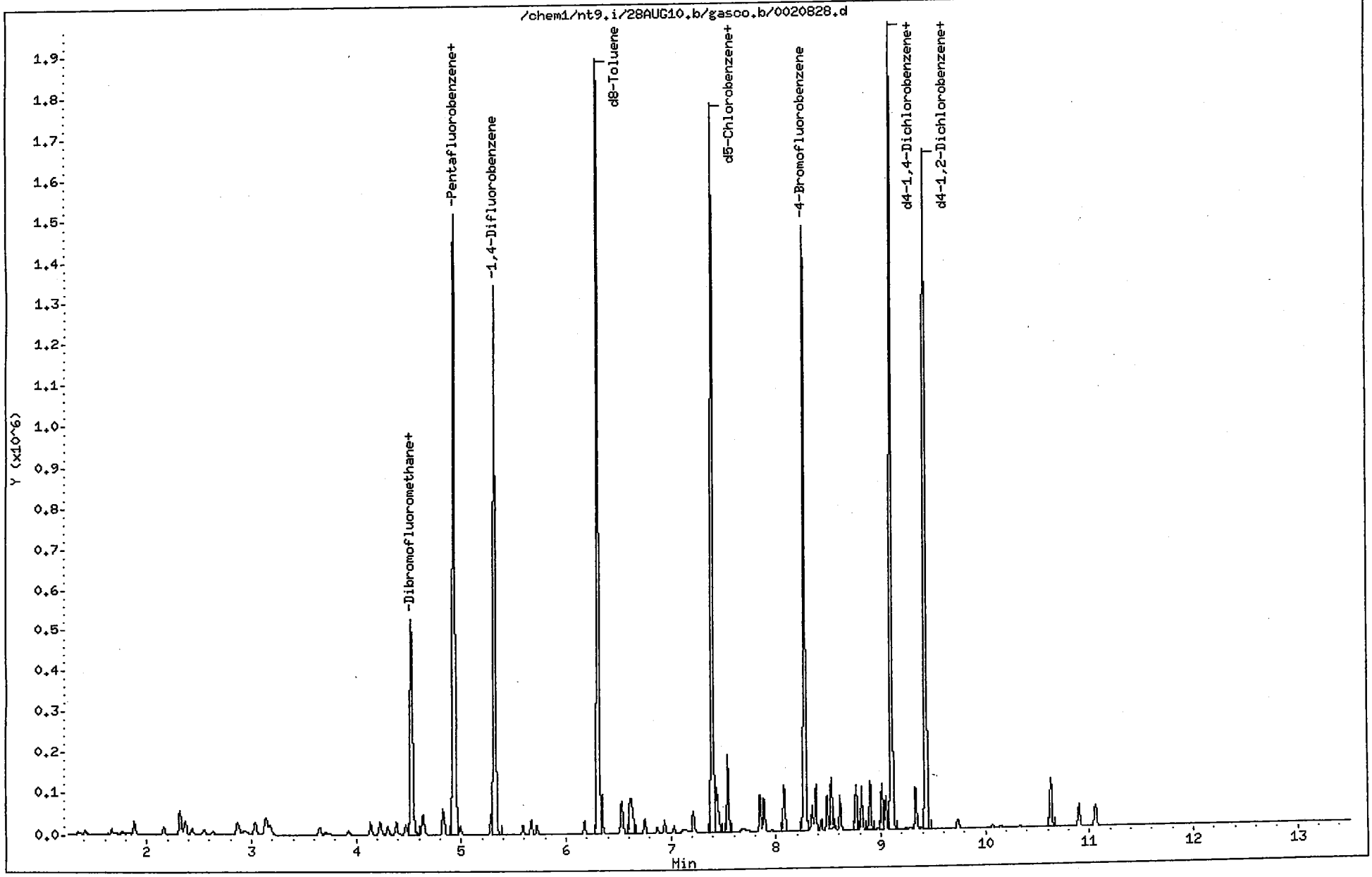
AREA UPPER LIMIT = +100% of internal standard area.
AREA LOWER LIMIT = - 50% of internal standard area.
RT UPPER LIMIT = + 0.50 minutes of internal standard RT.
RT LOWER LIMIT = - 0.50 minutes of internal standard RT.

Data File: /chem1/nt9.i/28AUG10.b/gasco.b/0020828.d
Date : 28-AUG-2010 16:21
Client ID: VSTD002
Sample Info: IC0828,5,5,0

Instrument: nt9.i

Operator: PB
Column diameter: 0.18

Column phase: RTX502.2



RR33.00100

Analytical Resources, Inc.

8260C

Data file : /chem1/nt9.i/28AUG10.b/gasco.b/0050828.d
Lab Smp Id: IC0828 Client Smp ID: VSTD005
Inj Date : 28-AUG-2010 15:51
Operator : PB Inst ID: nt9.i
Smp Info : IC0828,5,5,0
Misc Info : 10-
Comment :
Method : /chem1/nt9.i/28AUG10.b/gasco.b/VO063010S.m
Meth Date : 18-Oct-2010 13:50 patrickb Quant Type: ISTD
Cal Date : 28-AUG-2010 15:51 Cal File: 0050828.d
Als bottle: 1 Calibration Sample, Level: 3
Dil Factor: 1.00000
Integrator: HP RTE Compound Sublist: gasco.sub
Target Version: 3.50
Processing Host: cserv3

Concentration Formula: Amt * DF * Pv * 1 / (Sa * ((100 - M) / 100)) * CpndVaria

Name	Value	Description
DF	1.00000	Dilution Factor
Pv	5.00000	Purge Volume
Sa	5.00000	Sample Amount
M	0.00000	% Moisture (not decanted)

Cpnd Variable Local Compound Variable

Compounds	QUANT SIG MASS	RT	EXP RT	REL RT	RESPONSE	AMOUNTS CAL-AMT (ug/Kg)	ON-COL (ug/Kg)
3 Vinyl Chloride	62	1.412	1.407	(0.286)	28041	5.00000	4.573
7 1,1-Dichloroethene	96	2.312	2.312	(0.468)	27725	5.00000	4.575
15 Trans-1,2-Dichloroethene	96	3.036	3.036	(0.615)	31766	5.00000	4.536
20 Cis-1,2-Dichloroethene	96	4.139	4.139	(0.838)	30730	5.00000	4.631
23 Chloroform	83	4.382	4.382	(0.888)	48945	5.00000	4.650
24 Carbon Tetrachloride	117	4.472	4.473	(0.841)	34768	5.00000	4.081
* 32 Pentafluorobenzene	168	4.936	4.936	(1.000)	686435	50.0000	
$ 25 Dibromofluoromethane	111	4.529	4.529	(0.917)	250949	50.0000	48.891
$ 31 d4-1,2-Dichloroethane	65	4.936	4.936	(1.000)	265558	50.0000	50.394
29 2-Butanone	72	4.648	4.642	(0.942)	14593	25.0000	21.904
30 Benzene	78	4.829	4.829	(0.908)	113373	5.00000	4.592
33 1,2-Dichloroethane	62	4.993	4.993	(0.938)	33721	5.00000	4.749
* 35 1,4-Difluorobenzene	114	5.321	5.321	(1.000)	917886	50.0000	
34 Trichloroethene	95	5.281	5.281	(0.993)	31834	5.00000	4.668

Compounds	QUANT SIG MASS	RT	EXP RT	REL RT	RESPONSE	AMOUNTS CAL-AMT (ug/Kg)	AMOUNTS ON-COL (ug/Kg)
$ 42 d8-Toluene	98	6.305	6.305	(1.185)	1046006	50.0000	50.295
43 Toluene	92	6.345	6.345	(1.192)	79632	5.00000	4.539
44 Tetrachloroethene	166	6.611	6.611	(0.894)	39901	5.00000	4.431
* 52 d5-Chlorobenzene	117	7.397	7.397	(1.000)	828296	50.0000	
53 Chlorobenzene	112	7.408	7.408	(1.002)	90938	5.00000	4.604
54 Ethyl Benzene	91	7.437	7.437	(1.005)	151202	5.00000	4.454
56 m,p-xylene	106	7.544	7.544	(1.020)	124005	10.0000	9.032
57 o-Xylene	106	7.850	7.850	(1.061)	58680	5.00000	4.588
$ 61 4-Bromofluorobenzene	95	8.274	8.274	(1.119)	390204	50.0000	50.864
* 75 d4-1,4-Dichlorobenzene	152	9.111	9.111	(1.000)	481111	50.0000	
76 1,4-Dichlorobenzene	146	9.117	9.122	(1.001)	79041	5.00000	4.578
$ 78 d4-1,2-Dichlorobenzene	152	9.433	9.434	(1.035)	424828	50.0000	50.514

Analytical Resources, Inc.

INTERNAL STANDARD COMPOUNDS
AREA AND RT SUMMARY

Instrument ID: nt9.i
Lab File ID: 0050828.d
Lab Smp Id: IC0828
Analysis Type: VOA
Quant Type: ISTD
Operator: PB
Method File: /chem1/nt9.i/28AUG10.b/gasco.b/VO063010S.m
Misc Info: 10-

Calibration Date: 28-AUG-2010
Calibration Time: 14:51
Client Smp ID: VSTD005
Level: LOW
Sample Type: SOIL

Test Mode:
Use Initial Calibration Level 5.
If Continuing Cal. use Initial Cal. Level 5

COMPOUND	STANDARD	AREA LIMIT LOWER	AREA LIMIT UPPER	SAMPLE	%DIFF
32 Pentafluorobenzen	704281	352140	1408562	686435	-2.53
35 1,4-Difluorobenze	937745	468872	1875490	917886	-2.12
52 d5-Chlorobenzene	853013	426506	1706026	828296	-2.90
75 d4-1,4-Dichlorobe	503655	251828	1007310	481111	-4.48

COMPOUND	STANDARD	RT LIMIT LOWER	RT LIMIT UPPER	SAMPLE	%DIFF
32 Pentafluorobenzen	4.94	4.44	5.44	4.94	0.00
35 1,4-Difluorobenze	5.32	4.82	5.82	5.32	0.00
52 d5-Chlorobenzene	7.40	6.90	7.90	7.40	0.00
75 d4-1,4-Dichlorobe	9.11	8.61	9.61	9.11	0.00

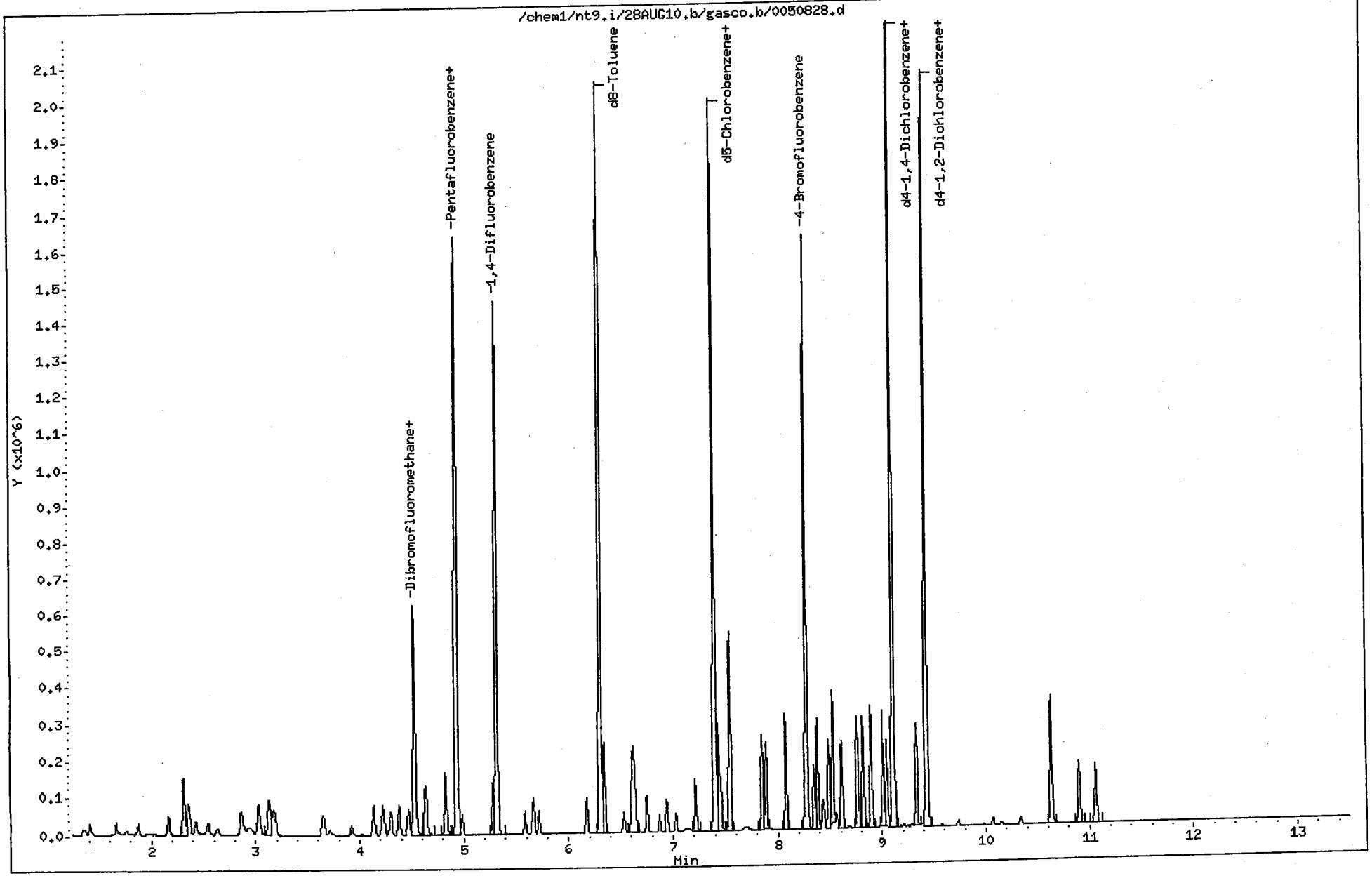
AREA UPPER LIMIT = +100% of internal standard area.
AREA LOWER LIMIT = - 50% of internal standard area.
RT UPPER LIMIT = + 0.50 minutes of internal standard RT.
RT LOWER LIMIT = - 0.50 minutes of internal standard RT.

Data File: /chem1/nt9.i/28AUG10.b/gasco.b/0050828.d
Date : 28-AUG-2010 15:51
Client ID: VSTD005
Sample Info: IC0828,5,5,0

Instrument: nt9.i

Operator: PB
Column diameter: 0.18

Column phase: RTX502.2



RR33:00197

Analytical Resources, Inc.

8260C

Data file : /chem1/nt9.i/28AUG10.b/gasco.b/0100828.d
Lab Smp Id: IC0828 Client Smp ID: VSTD010
Inj Date : 28-AUG-2010 15:21
Operator : PB Inst ID: nt9.i
Smp Info : IC0828,5,5,0
Misc Info : 10-
Comment :
Method : /chem1/nt9.i/28AUG10.b/gasco.b/VO063010S.m
Meth Date : 18-Oct-2010 13:50 patrickb Quant Type: ISTD
Cal Date : 28-AUG-2010 15:21 Cal File: 0100828.d
Als bottle: 1 Calibration Sample, Level: 4
Dil Factor: 1.00000
Integrator: HP RTE Compound Sublist: gasco.sub
Target Version: 3.50
Processing Host: cserv3

Concentration Formula: Amt * DF * Pv * 1 / (Sa * ((100 - M) / 100)) * CpndVaria

Name	Value	Description
DF	1.00000	Dilution Factor
Pv	5.00000	Purge Volume
Sa	5.00000	Sample Amount
M	0.00000	% Moisture (not decanted)

Cpnd Variable Local Compound Variable

Compounds	QUANT SIG MASS	RT	EXP RT	REL RT	RESPONSE	AMOUNTS CAL-AMT (ug/Kg)	AMOUNTS ON-COL (ug/Kg)
3 Vinyl Chloride	62	1.407	1.407	(0.285)	57497	10.0000	9.117
7 1,1-Dichloroethene	96	2.301	2.312	(0.467)	59810	10.0000	9.596
15 Trans-1,2-Dichloroethene	96	3.030	3.036	(0.615)	67082	10.0000	9.314
20 Cis-1,2-Dichloroethene	96	4.139	4.139	(0.839)	65050	10.0000	9.532
23 Chloroform	83	4.382	4.382	(0.889)	102730	10.0000	9.490
24 Carbon Tetrachloride	117	4.467	4.473	(0.839)	75774	10.0000	8.630
* 32 Pentafluorobenzene	168	4.931	4.936	(1.000)	705939	50.0000	
$ 25 Dibromofluoromethane	111	4.529	4.529	(0.919)	260774	50.0000	49.402
$ 31 d4-1,2-Dichloroethane	65	4.937	4.936	(1.001)	272846	50.0000	50.346
29 2-Butanone	72	4.654	4.642	(0.944)	32029	50.0000	46.747
30 Benzene	78	4.829	4.829	(0.908)	239511	10.0000	9.414
33 1,2-Dichloroethane	62	4.988	4.993	(0.937)	72640	10.0000	9.926
* 35 1,4-Difluorobenzene	114	5.321	5.321	(1.000)	945928	50.0000	
34 Trichloroethene	95	5.282	5.281	(0.993)	65837	10.0000	9.367

Compounds	QUANT SIG MASS	RT	EXP RT	REL RT	RESPONSE	AMOUNTS CAL-AMT (ug/Kg)	AMOUNTS ON-COL (ug/Kg)
$ 42 d8-Toluene	98	6.306	6.305	(1.185)	1079570	50.0000	50.370
43 Toluene	92	6.345	6.345	(1.192)	165972	10.0000	9.180
44 Tetrachloroethene	166	6.611	6.611	(0.894)	84382	10.0000	9.074
* 52 d5-Chlorobenzene	117	7.397	7.397	(1.000)	855411	50.0000	
53 Chlorobenzene	112	7.409	7.408	(1.002)	193194	10.0000	9.471
54 Ethyl Benzene	91	7.437	7.437	(1.005)	323546	10.0000	9.229
56 m,p-xylene	106	7.544	7.544	(1.020)	264634	20.0000	18.665
57 o-Xylene	106	7.850	7.850	(1.061)	125882	10.0000	9.531
$ 61 4-Bromofluorobenzene	95	8.280	8.274	(1.119)	406232	50.0000	51.275
* 75 d4-1,4-Dichlorobenzene	152	9.111	9.111	(1.000)	505684	50.0000	
76 1,4-Dichlorobenzene	146	9.123	9.122	(1.001)	171113	10.0000	9.430
$ 78 d4-1,2-Dichlorobenzene	152	9.434	9.434	(1.035)	444672	50.0000	50.304

Analytical Resources, Inc.

INTERNAL STANDARD COMPOUNDS
AREA AND RT SUMMARY

Instrument ID: nt9.i
Lab File ID: 0100828.d
Lab Smp Id: IC0828
Analysis Type: VOA
Quant Type: ISTD
Operator: PB
Method File: /chem1/nt9.i/28AUG10.b/gasco.b/VO063010S.m
Misc Info: 10-

Calibration Date: 28-AUG-2010
Calibration Time: 14:51
Client Smp ID: VSTD010
Level: LOW
Sample Type: SOIL

Test Mode:
Use Initial Calibration Level 5.
If Continuing Cal. use Initial Cal. Level 5

COMPOUND	STANDARD	AREA LIMIT LOWER	AREA LIMIT UPPER	SAMPLE	%DIFF
32 Pentafluorobenzen	704281	352140	1408562	705939	0.24
35 1,4-Difluorobenze	937745	468872	1875490	945928	0.87
52 d5-Chlorobenzene	853013	426506	1706026	855411	0.28
75 d4-1,4-Dichlorobe	503655	251828	1007310	505684	0.40

COMPOUND	STANDARD	RT LIMIT LOWER	RT LIMIT UPPER	SAMPLE	%DIFF
32 Pentafluorobenzen	4.94	4.44	5.44	4.93	-0.11
35 1,4-Difluorobenze	5.32	4.82	5.82	5.32	0.00
52 d5-Chlorobenzene	7.40	6.90	7.90	7.40	0.00
75 d4-1,4-Dichlorobe	9.11	8.61	9.61	9.11	0.00

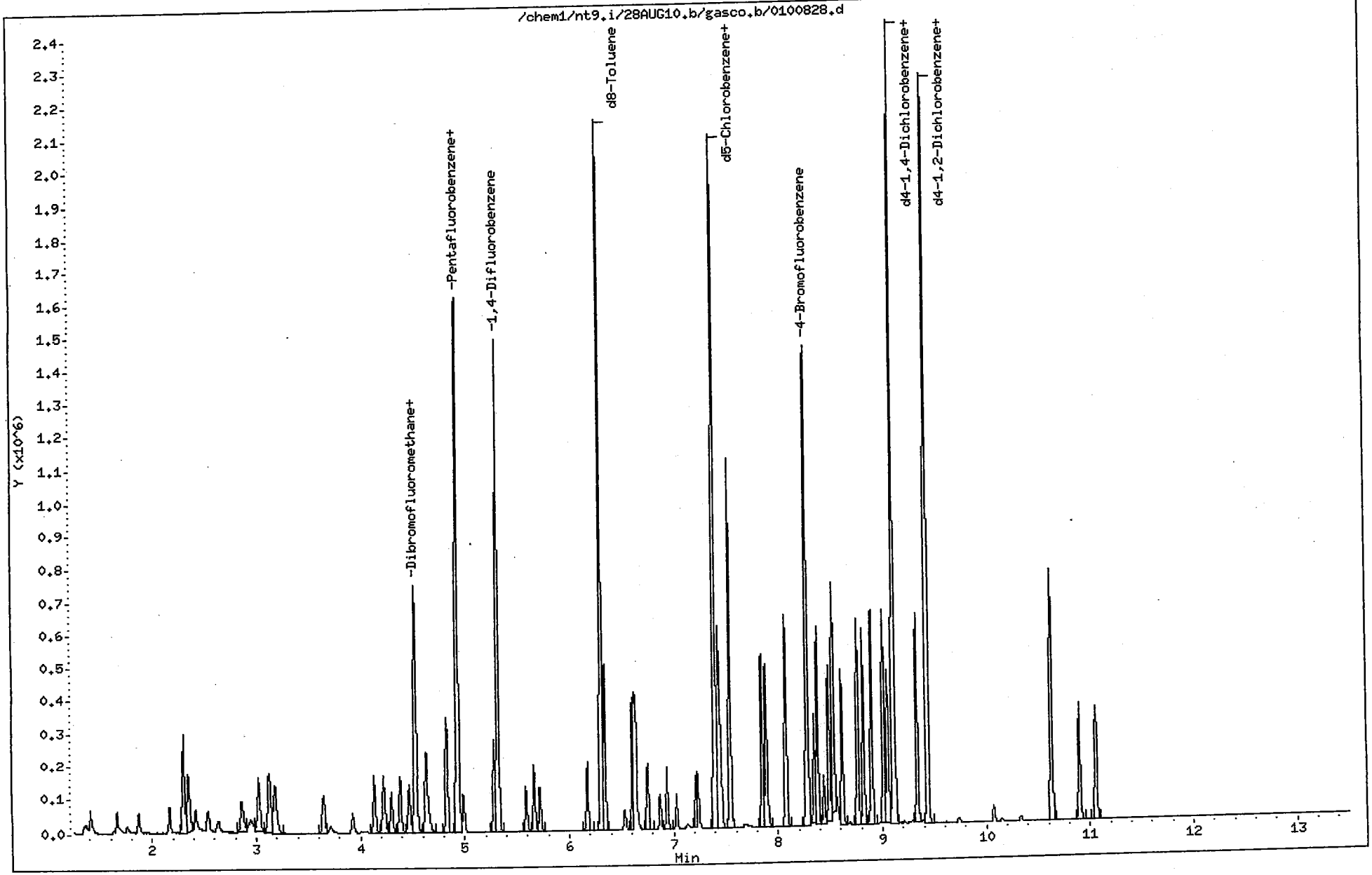
AREA UPPER LIMIT = +100% of internal standard area.
AREA LOWER LIMIT = - 50% of internal standard area.
RT UPPER LIMIT = + 0.50 minutes of internal standard RT.
RT LOWER LIMIT = - 0.50 minutes of internal standard RT.

Data File: /chem1/nt9.i/28AUG10.b/gasco.b/0100828.d
Date : 28-AUG-2010 15:21
Client ID: VSTD010
Sample Info: IC0828,5,5,0

Instrument: nt9.i

Operator: PB
Column diameter: 0.18

Column phase: RTX502.2



RR33:00111

Analytical Resources, Inc.

8260C

Data file : /chem1/nt9.i/28AUG10.b/gasco.b/0500828.d
Lab Smp Id: IC0828 Client Smp ID: VSTD050
Inj Date : 28-AUG-2010 14:51
Operator : PB Inst ID: nt9.i
Smp Info : IC0828,5,5,0
Misc Info : 10-
Comment :
Method : /chem1/nt9.i/28AUG10.b/gasco.b/VO063010S.m
Meth Date : 18-Oct-2010 13:50 patrickb Quant Type: ISTD
Cal Date : 28-AUG-2010 14:51 Cal File: 0500828.d
Als bottle: 1 Calibration Sample, Level: 5
Dil Factor: 1.00000
Integrator: HP RTE Compound Sublist: gasco.sub
Target Version: 3.50
Processing Host: cserv3

Concentration Formula: Amt * DF * Pv * 1 / (Sa * ((100 - M) / 100)) * CpndVaria

Name	Value	Description
DF	1.00000	Dilution Factor
Pv	5.00000	Purge Volume
Sa	5.00000	Sample Amount
M	0.00000	% Moisture (not decanted)

Cpnd Variable Local Compound Variable

Compounds	QUANT SIG MASS	RT	EXP RT	REL RT	RESPONSE	AMOUNTS CAL-AMT (ug/Kg)	ON-COL (ug/Kg)
3 Vinyl Chloride	62	1.407	1.407	(0.285)	312846	50.0000	49.724
7 1,1-Dichloroethene	96	2.312	2.312	(0.468)	301272	50.0000	48.451
15 Trans-1,2-Dichloroethene	96	3.036	3.036	(0.615)	336994	50.0000	46.899
20 Cis-1,2-Dichloroethene	96	4.139	4.139	(0.838)	325490	50.0000	47.807
23 Chloroform	83	4.382	4.382	(0.888)	517386	50.0000	47.909
24 Carbon Tetrachloride	117	4.473	4.473	(0.841)	424892	50.0000	48.815
* 32 Pentafluorobenzene	168	4.936	4.936	(1.000)	704281	50.0000	
$ 25 Dibromofluoromethane	111	4.529	4.529	(0.917)	265763	50.0000	50.466
$ 31 d4-1,2-Dichloroethane	65	4.936	4.936	(1.000)	275168	50.0000	50.894
29 2-Butanone	72	4.642	4.642	(0.940)	160954	250.000	235.47
30 Benzene	78	4.829	4.829	(0.908)	1199076	50.0000	47.543
33 1,2-Dichloroethane	62	4.993	4.993	(0.938)	357096	50.0000	49.223
* 35 1,4-Difluorobenzene	114	5.321	5.321	(1.000)	937745	50.0000	
34 Trichloroethene	95	5.281	5.281	(0.993)	330969	50.0000	47.500

Compounds	QUANT SIG MASS	RT	EXP RT	REL RT	RESPONSE	AMOUNTS CAL-AMT (ug/Kg)	AMOUNTS ON-COL (ug/Kg)
$ 42 d8-Toluene	98	6.305	6.305	(1.185)	1070696	50.0000	50.392
43 Toluene	92	6.345	6.345	(1.192)	829892	50.0000	46.304
44 Tetrachloroethene	166	6.611	6.611	(0.894)	434192	50.0000	46.824
* 52 d5-Chlorobenzene	117	7.397	7.397	(1.000)	853013	50.0000	
53 Chlorobenzene	112	7.408	7.408	(1.002)	964956	50.0000	47.437
54 Ethyl Benzene	91	7.437	7.437	(1.005)	1641982	50.0000	46.969
56 m,p-xylene	106	7.544	7.544	(1.020)	1373249	100.000	97.127
57 o-Xylene	106	7.850	7.850	(1.061)	630491	50.0000	47.870
$ 61 4-Bromofluorobenzene	95	8.274	8.274	(1.119)	399128	50.0000	50.519
* 75 d4-1,4-Dichlorobenzene	152	9.111	9.111	(1.000)	503655	50.0000	
76 1,4-Dichlorobenzene	146	9.122	9.122	(1.001)	851859	50.0000	47.133
$ 78 d4-1,2-Dichlorobenzene	152	9.434	9.434	(1.035)	443857	50.0000	50.414

Analytical Resources, Inc.

INTERNAL STANDARD COMPOUNDS
AREA AND RT SUMMARY

Instrument ID: nt9.i
Lab File ID: 0500828.d
Lab Smp Id: IC0828
Analysis Type: VOA
Quant Type: ISTD
Operator: PB
Method File: /chem1/nt9.i/28AUG10.b/gasco.b/VO063010S.m
Misc Info: 10-

Calibration Date: 28-AUG-2010
Calibration Time: 14:51
Client Smp ID: VSTD050
Level: LOW
Sample Type: SOIL

Test Mode:
Use Initial Calibration Level 5.
If Continuing Cal. use Initial Cal. Level 5

COMPOUND	STANDARD	AREA LIMIT LOWER	AREA LIMIT UPPER	SAMPLE	%DIFF
32 Pentafluorobenzen	704281	352140	1408562	704281	0.00
35 1,4-Difluorobenze	937745	468872	1875490	937745	0.00
52 d5-Chlorobenzene	853013	426506	1706026	853013	0.00
75 d4-1,4-Dichlorobe	503655	251828	1007310	503655	0.00

COMPOUND	STANDARD	RT LIMIT LOWER	RT LIMIT UPPER	SAMPLE	%DIFF
32 Pentafluorobenzen	4.94	4.44	5.44	4.94	0.00
35 1,4-Difluorobenze	5.32	4.82	5.82	5.32	0.00
52 d5-Chlorobenzene	7.40	6.90	7.90	7.40	0.00
75 d4-1,4-Dichlorobe	9.11	8.61	9.61	9.11	0.00

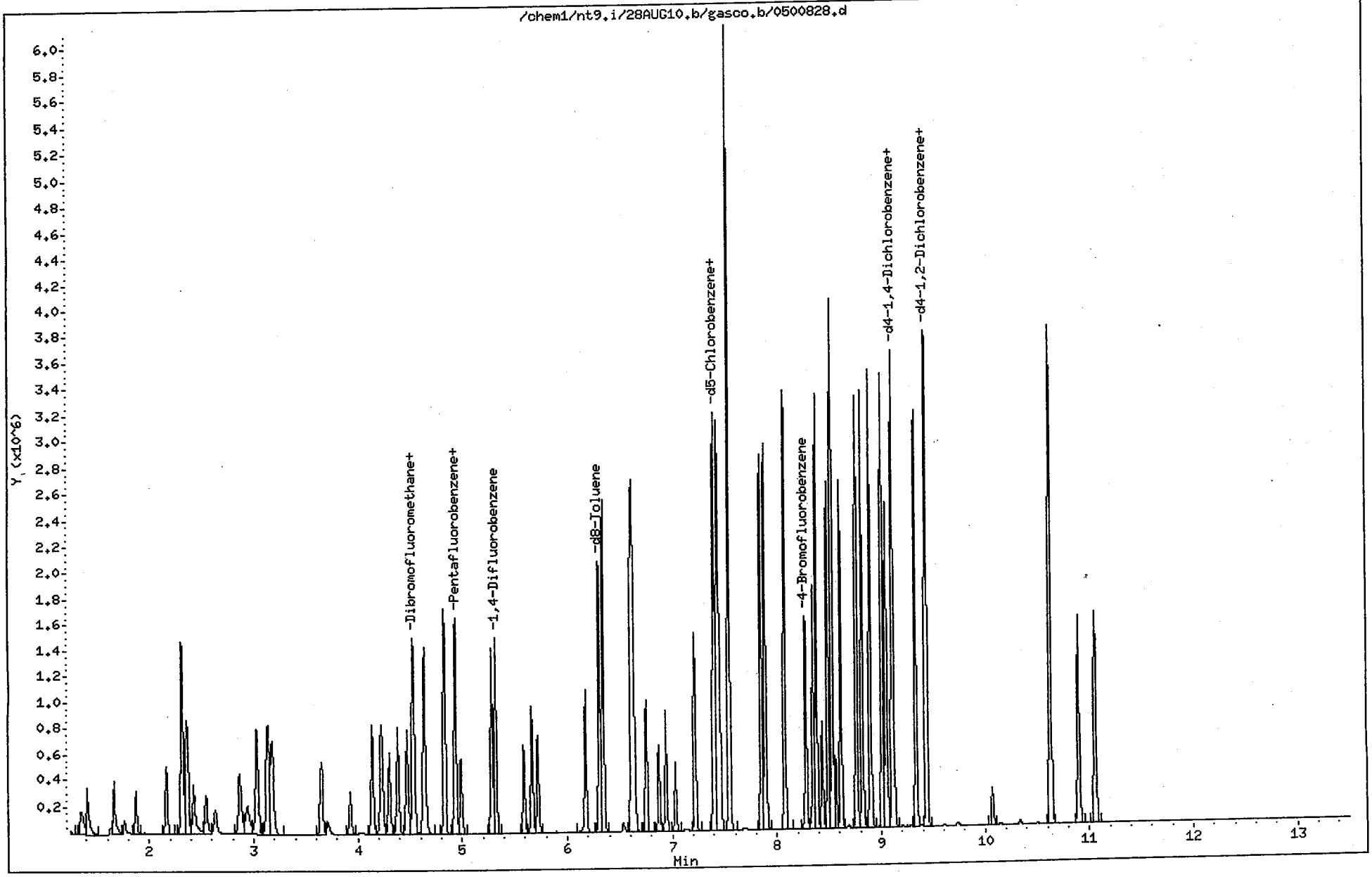
AREA UPPER LIMIT = +100% of internal standard area.
AREA LOWER LIMIT = - 50% of internal standard area.
RT UPPER LIMIT = + 0.50 minutes of internal standard RT.
RT LOWER LIMIT = - 0.50 minutes of internal standard RT.

Data File: /chem1/nt9.i/28AUG10.b/gasco.b/0500828.d
Date : 28-AUG-2010 14:51
Client ID: VSTD050
Sample Info: IC0828,5,5,0

Column phase: RTX502.2

Instrument: nt9.i

Operator: PB
Column diameter: 0.18



RR33:00115

Analytical Resources, Inc.

8260C

Data file : /chem1/nt9.i/28AUG10.b/gasco.b/1000828.d
Lab Smp Id: IC0828 Client Smp ID: VSTD100
Inj Date : 28-AUG-2010 14:21
Operator : PB Inst ID: nt9.i
Smp Info : IC0828,5,5,0
Misc Info : 10-
Comment :
Method : /chem1/nt9.i/28AUG10.b/gasco.b/VO063010S.m
Meth Date : 18-Oct-2010 13:50 patrickb Quant Type: ISTD
Cal Date : 28-AUG-2010 14:21 Cal File: 1000828.d
Als bottle: 1 Calibration Sample, Level: 6
Dil Factor: 1.00000
Integrator: HP RTE Compound Sublist: gasco.sub
Target Version: 3.50
Processing Host: cserv3

10/18

Concentration Formula: Amt * DF * Pv * 1 / (Sa * ((100 - M) / 100)) * CpndVaria

Name	Value	Description
DF	1.00000	Dilution Factor
Pv	5.00000	Purge Volume
Sa	5.00000	Sample Amount
M	0.00000	% Moisture (not decanted)

Cpnd Variable Local Compound Variable

Compounds	QUANT SIG MASS	RT	EXP RT	REL RT	RESPONSE	AMOUNTS CAL-AMT (ug/Kg)	ON-COL (ug/Kg)
3 Vinyl Chloride	62	1.409	1.407	(0.286)	616920	100.000	119.51
7 1,1-Dichloroethene	96	2.303	2.312	(0.467)	612323	100.000	120.02
15 Trans-1,2-Dichloroethene	96	3.027	3.036	(0.614)	667246	100.000	113.18
20 Cis-1,2-Dichloroethene	96	4.136	4.139	(0.838)	612984	100.000	109.73
23 Chloroform	83	4.385	4.382	(0.889)	969275	100.000	109.39
24 Carbon Tetrachloride	117	4.470	4.473	(0.840)	871845	100.000	121.32
* 32 Pentafluorobenzene	168	4.933	4.936	(1.000)	577839	50.0000	
$ 25 Dibromofluoromethane	111	4.532	4.529	(0.919)	218888	50.0000	50.660
$ 31 d4-1,2-Dichloroethane	65	4.939	4.936	(1.001)	219324	50.0000	49.442
29 2-Butanone	72	4.651	4.642	(0.943)	323582	500.000	576.97
30 Benzene	78	4.832	4.829	(0.908)	2300822	100.000	110.50
33 1,2-Dichloroethane	62	4.990	4.993	(0.937)	626143	100.000	104.54
* 35 1,4-Difluorobenzene	114	5.324	5.321	(1.000)	774194	50.0000	
34 Trichloroethene	95	5.284	5.281	(0.993)	647329	100.000	112.53

Compounds	QUANT SIG MASS	RT	EXP RT	REL RT	RESPONSE	AMOUNTS CAL-AMT (ug/Kg)	AMOUNTS ON-COL (ug/Kg)
$ 42 d8-Toluene	98	6.308	6.305	(1.185)	871932	50.0000	49.706
43 Toluene	92	6.342	6.345	(1.191)	1612019	100.000	108.94
44 Tetrachloroethene	166	6.608	6.611	(0.893)	877796	100.000	115.08
* 52 d5-Chlorobenzene	117	7.400	7.397	(1.000)	701708	50.0000	
53 Chlorobenzene	112	7.411	7.408	(1.002)	1813196	100.000	108.36
54 Ethyl Benzene	91	7.439	7.437	(1.005)	3264901	100.000	113.53
56 m,p-xylene	106	7.547	7.544	(1.020)	2711686	200.000	233.15
57 o-Xylene	106	7.852	7.850	(1.061)	1213342	100.000	111.99
$ 61 4-Bromofluorobenzene	95	8.277	8.274	(1.118)	323235	50.0000	49.735
* 75 d4-1,4-Dichlorobenzene	152	9.114	9.111	(1.000)	414842	50.0000	
76 1,4-Dichlorobenzene	146	9.125	9.122	(1.001)	1583421	100.000	106.37
$ 78 d4-1,2-Dichlorobenzene	152	9.436	9.434	(1.035)	358863	50.0000	49.487

Analytical Resources, Inc.

INTERNAL STANDARD COMPOUNDS
AREA AND RT SUMMARY

Instrument ID: nt9.i
Lab File ID: 1000828.d
Lab Smp Id: IC0828
Analysis Type: VOA
Quant Type: ISTD
Operator: PB
Method File: /chem1/nt9.i/28AUG10.b/gasco.b/VO063010S.m
Misc Info: 10-

Calibration Date: 28-AUG-2010
Calibration Time: 14:51
Client Smp ID: VSTD100
Level: LOW
Sample Type: SOIL

Test Mode:
Use Initial Calibration Level 5.
If Continuing Cal. use Initial Cal. Level 5

COMPOUND	STANDARD	AREA LIMIT LOWER	AREA LIMIT UPPER	SAMPLE	%DIFF
32 Pentafluorobenzen	704281	352140	1408562	577839	-17.95
35 1,4-Difluorobenze	937745	468872	1875490	774194	-17.44
52 d5-Chlorobenzene	853013	426506	1706026	701708	-17.74
75 d4-1,4-Dichlorobe	503655	251828	1007310	414842	-17.63

COMPOUND	STANDARD	RT LIMIT LOWER	RT LIMIT UPPER	SAMPLE	%DIFF
32 Pentafluorobenzen	4.94	4.44	5.44	4.93	-0.06
35 1,4-Difluorobenze	5.32	4.82	5.82	5.32	0.05
52 d5-Chlorobenzene	7.40	6.90	7.90	7.40	0.04
75 d4-1,4-Dichlorobe	9.11	8.61	9.61	9.11	0.03

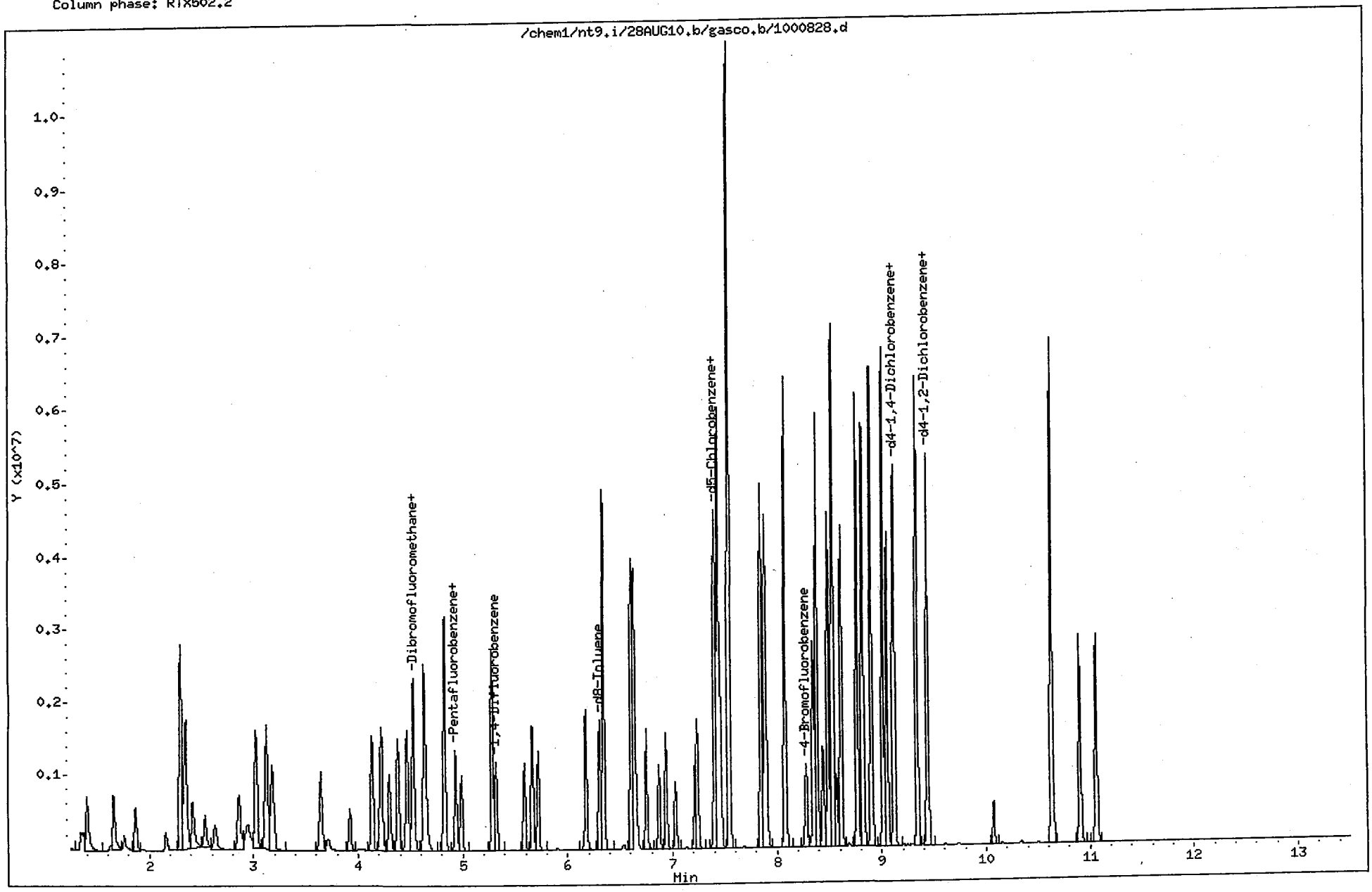
AREA UPPER LIMIT = +100% of internal standard area.
AREA LOWER LIMIT = - 50% of internal standard area.
RT UPPER LIMIT = + 0.50 minutes of internal standard RT.
RT LOWER LIMIT = - 0.50 minutes of internal standard RT.

Data File: /chem1/nt9.i/28AUG10.b/gasco.b/1000828.d
Date : 28-AUG-2010 14:21
Client ID: VSTD100
Sample Info: IC0828,5,5,0

Instrument: nt9.i

Operator: PB
Column diameter: 0.18

Column phase: RTX502.2



RR33:00119

Analytical Resources, Inc.

8260C

Data file : /chem1/nt9.i/28AUG10.b/gasco.b/1500828.d
Lab Smp Id: IC0828 Client Smp ID: VSTD150
Inj Date : 28-AUG-2010 13:51
Operator : PB Inst ID: nt9.i
Smp Info : IC0828,5,5,0
Misc Info : 10-
Comment :
Method : /chem1/nt9.i/28AUG10.b/gasco.b/VO063010S.m
Meth Date : 18-Oct-2010 13:51 patrickb Quant Type: ISTD
Cal Date : 28-AUG-2010 13:51 Cal File: 1500828.d
Als bottle: 1 Calibration Sample, Level: 7
Dil Factor: 1.00000
Integrator: HP RTE Compound Sublist: gasco.sub
Target Version: 3.50
Processing Host: cserv3

Concentration Formula: Amt * DF * Pv * 1 / (Sa * ((100 - M) / 100)) * CpndVaria

Name	Value	Description
DF	1.00000	Dilution Factor
Pv	5.00000	Purge Volume
Sa	5.00000	Sample Amount
M	0.00000	% Moisture (not decanted)

Cpnd Variable Local Compound Variable

Compounds	QUANT SIG MASS	RT	EXP RT	REL RT	RESPONSE	AMOUNTS CAL-AMT (ug/Kg)	ON-COL (ug/Kg)
3 Vinyl Chloride	62	1.403	1.407	(0.284)	959765	150.000	165.55
7 1,1-Dichloroethene	96	2.297	2.312	(0.466)	226199	150.000	39.477
15 Trans-1,2-Dichloroethene	96	3.021	3.036	(0.612)	1084953	150.000	163.86
20 Cis-1,2-Dichloroethene	96	4.135	4.139	(0.838)	1020798	150.000	162.71
23 Chloroform	83	4.384	4.382	(0.889)	1618355	150.000	162.63
24 Carbon Tetrachloride	117	4.469	4.473	(0.840)	1423243	150.000	175.56
* 32 Pentafluorobenzene	168	4.933	4.936	(1.000)	648980	50.0000	
$ 25 Dibromofluoromethane	111	4.531	4.529	(0.919)	252207	50.0000	51.972
$ 31 d4-1,2-Dichloroethane	65	4.938	4.936	(1.001)	249417	50.0000	50.062
29 2-Butanone	72	4.655	4.642	(0.944)	502468	750.000	797.73
30 Benzene	78	4.825	4.829	(0.906)	3837983	150.000	163.39
33 1,2-Dichloroethane	62	4.989	4.993	(0.937)	1073167	150.000	158.83
* 35 1,4-Difluorobenzene	114	5.323	5.321	(1.000)	873392	50.0000	
34 Trichloroethene	95	5.283	5.281	(0.993)	1048917	150.000	161.63

Compounds	QUANT SIG MASS	RT	EXP RT	REL RT	RESPONSE	AMOUNTS CAL-AMT (ug/Kg)	AMOUNTS ON-COL (ug/Kg)
$ 42 d8-Toluene	98	6.307	6.305	(1.185)	984102	50.0000	49.729
43 Toluene	92	6.341	6.345	(1.191)	2678205	150.000	160.44
44 Tetrachloroethene	166	6.607	6.611	(0.893)	1425322	150.000	162.60
* 52 d5-Chlorobenzene	117	7.399	7.397	(1.000)	806370	50.0000	
53 Chlorobenzene	112	7.410	7.408	(1.002)	3098562	150.000	161.14
54 Ethyl Benzene	91	7.439	7.437	(1.005)	5482264	150.000	165.89
56 m,p-xylene	106	7.546	7.544	(1.020)	4419442	300.000	330.66
57 o-Xylene	106	7.852	7.850	(1.061)	2056807	150.000	165.19
$ 61 4-Bromofluorobenzene	95	8.281	8.274	(1.119)	368820	50.0000	49.384
* 75 d4-1,4-Dichlorobenzene	152	9.119	9.111	(1.000)	478126	50.0000	
76 1,4-Dichlorobenzene	146	9.130	9.122	(1.001)	2776568	150.000	161.83
$ 78 d4-1,2-Dichlorobenzene	152	9.441	9.434	(1.035)	419222	50.0000	50.158

Analytical Resources, Inc.

INTERNAL STANDARD COMPOUNDS
AREA AND RT SUMMARY

Instrument ID: nt9.i
Lab File ID: 1500828.d
Lab Smp Id: IC0828
Analysis Type: VOA
Quant Type: ISTD
Operator: PB
Method File: /chem1/nt9.i/28AUG10.b/gasco.b/VO063010S.m
Misc Info: 10-

Calibration Date: 28-AUG-2010
Calibration Time: 14:51
Client Smp ID: VSTD150
Level: LOW
Sample Type: SOIL

Test Mode:
Use Initial Calibration Level 5.
If Continuing Cal. use Initial Cal. Level 5

COMPOUND	STANDARD	AREA LIMIT LOWER	AREA LIMIT UPPER	SAMPLE	%DIFF
32 Pentafluorobenzen	704281	352140	1408562	648980	-7.85
35 1,4-Difluorobenze	937745	468872	1875490	873392	-6.86
52 d5-Chlorobenzene	853013	426506	1706026	806370	-5.47
75 d4-1,4-Dichlorobe	503655	251828	1007310	478126	-5.07

COMPOUND	STANDARD	RT LIMIT LOWER	RT LIMIT UPPER	SAMPLE	%DIFF
32 Pentafluorobenzen	4.94	4.44	5.44	4.93	-0.08
35 1,4-Difluorobenze	5.32	4.82	5.82	5.32	0.04
52 d5-Chlorobenzene	7.40	6.90	7.90	7.40	0.03
75 d4-1,4-Dichlorobe	9.11	8.61	9.61	9.12	0.08

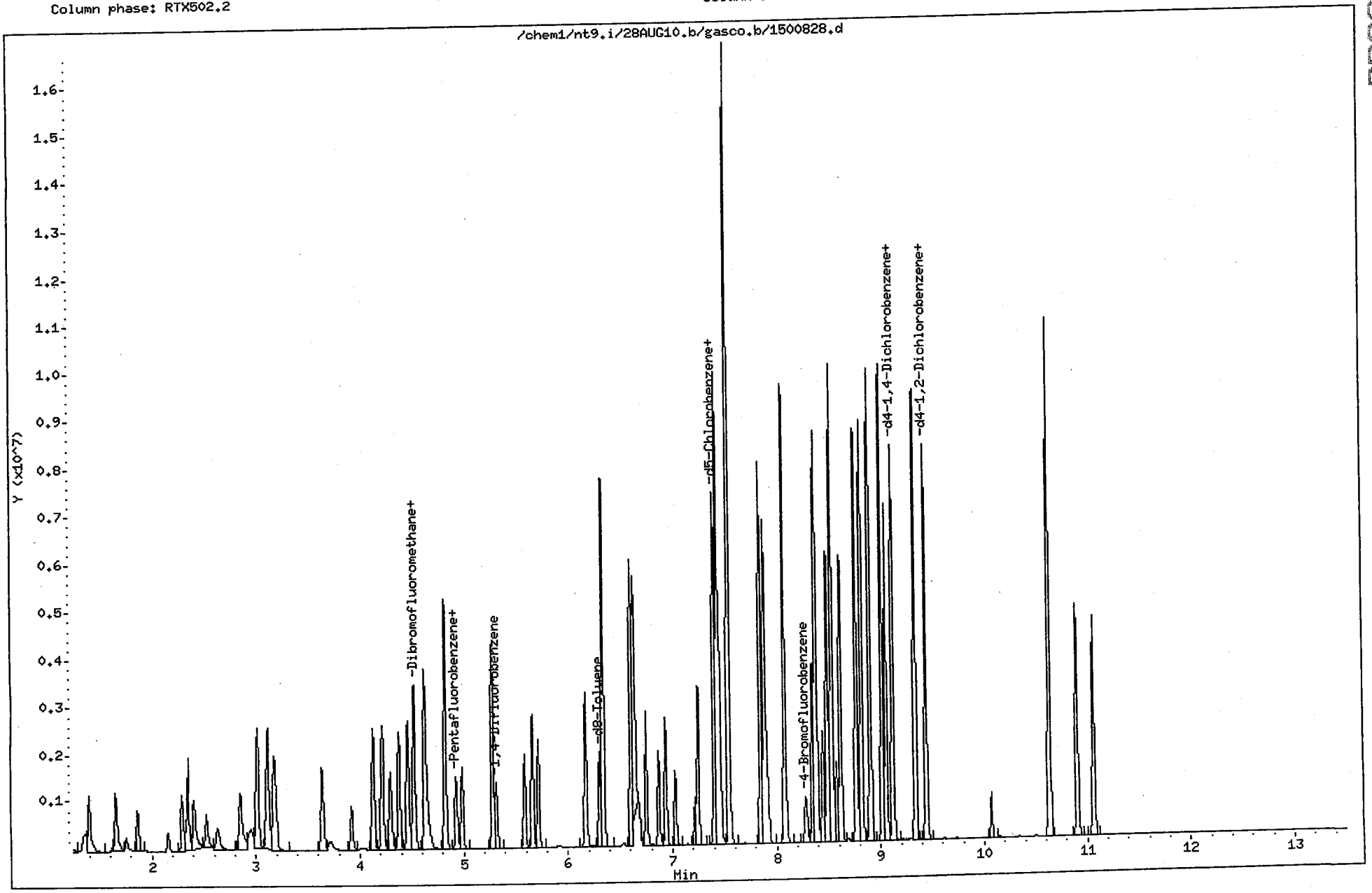
AREA UPPER LIMIT = +100% of internal standard area.
AREA LOWER LIMIT = - 50% of internal standard area.
RT UPPER LIMIT = + 0.50 minutes of internal standard RT.
RT LOWER LIMIT = - 0.50 minutes of internal standard RT.

Data File: /chem1/nt9.i/28AUG10.b/gasco.b/1500828.d
Date : 28-AUG-2010 13:51
Client ID: VSTD150
Sample Info: IC0828,5,5,0

Instrument: nt9.i

Operator: PB
Column diameter: 0.18

Column phase: RTX502.2



RR33:00123

Analytical Resources, Inc.

8260C

Data file : /chem1/nt9.i/28AUG10.b/gasco.b/2000828.d
Lab Smp Id: IC0828 Client Smp ID: VSTD200
Inj Date : 28-AUG-2010 13:21
Operator : PB Inst ID: nt9.i
Smp Info : IC0828,5,5,0
Misc Info : 10-
Comment :
Method : /chem1/nt9.i/28AUG10.b/gasco.b/VO063010S.m
Meth Date : 18-Oct-2010 13:51 patrickb Quant Type: ISTD
Cal Date : 28-AUG-2010 13:21 Cal File: 2000828.d
Als bottle: 1 Calibration Sample, Level: 8
Dil Factor: 1.00000
Integrator: HP RTE Compound Sublist: gasco.sub
Target Version: 3.50
Processing Host: cserv3

Concentration Formula: Amt * DF * Pv * 1 / (Sa * ((100 - M) / 100)) * CpndVaria

Name	Value	Description
DF	1.00000	Dilution Factor
Pv	5.00000	Purge Volume
Sa	5.00000	Sample Amount
M	0.00000	% Moisture (not decanted)

Cpnd Variable Local Compound Variable

Compounds	QUANT SIG MASS	RT	EXP RT	REL RT	RESPONSE	AMOUNTS CAL-AMT (ug/Kg)	ON-COL (ug/Kg)
3 Vinyl Chloride	62	1.406	1.407	(0.285)	1219685	200.000	213.30
7 1,1-Dichloroethene	96	2.294	2.312	(0.465)	282248	200.000	49.945
15 Trans-1,2-Dichloroethene	96	3.018	3.036	(0.612)	1457472	200.000	223.18
20 Cis-1,2-Dichloroethene	96	4.133	4.139	(0.838)	1376931	200.000	222.52
23 Chloroform	83	4.382	4.382	(0.889)	2185253	200.000	222.65
24 Carbon Tetrachloride	117	4.466	4.473	(0.839)	1881538	200.000	235.40
* 32 Pentafluorobenzene	168	4.930	4.936	(1.000)	640076	50.0000	
$ 25 Dibromofluoromethane	111	4.529	4.529	(0.919)	249487	50.0000	52.127
$ 31 d4-1,2-Dichloroethane	65	4.936	4.936	(1.001)	244940	50.0000	49.848
29 2-Butanone	72	4.659	4.642	(0.945)	664069	1000.00	1069.0
30 Benzene	78	4.828	4.829	(0.908)	5216825	200.000	225.25
33 1,2-Dichloroethane	62	4.993	4.993	(0.938)	1436910	200.000	215.69
* 35 1,4-Difluorobenzene	114	5.321	5.321	(1.000)	861135	50.0000	
34 Trichloroethene	95	5.281	5.281	(0.993)	1431429	200.000	223.71

Compounds	QUANT SIG MASS	RT	EXP RT	REL RT	RESPONSE	AMOUNTS CAL-AMT (ug/Kg)	ON-COL (ug/Kg)
$ 42 d8-Toluene	98	6.305	6.305	(1.185)	971664	50.0000	49.799
43 Toluene	92	6.344	6.345	(1.192)	3655611	200.000	222.11
44 Tetrachloroethene	166	6.610	6.611	(0.893)	1956752	200.000	224.16
* 52 d5-Chlorobenzene	117	7.402	7.397	(1.000)	803012	50.0000	
53 Chlorobenzene	112	7.414	7.408	(1.002)	4283165	200.000	223.67
54 Ethyl Benzene	91	7.442	7.437	(1.005)	7556256	200.000	229.61
56 m,p-xylene	106	7.549	7.544	(1.020)	5798209	400.000	435.63
57 o-Xylene	106	7.855	7.850	(1.061)	2840377	200.000	229.08
$ 61 4-Bromofluorobenzene	95	8.302	8.274	(1.121)	365719	50.0000	49.173
* 75 d4-1,4-Dichlorobenzene	152	9.128	9.111	(1.000)	480939	50.0000	
76 1,4-Dichlorobenzene	146	9.139	9.122	(1.001)	3902870	200.000	226.14
$ 78 d4-1,2-Dichlorobenzene	152	9.450	9.434	(1.035)	417003	50.0000	49.601

Analytical Resources, Inc.

INTERNAL STANDARD COMPOUNDS
AREA AND RT SUMMARY

Instrument ID: nt9.i
Lab File ID: 2000828.d
Lab Smp Id: IC0828
Analysis Type: VOA
Quant Type: ISTD
Operator: PB
Method File: /chem1/nt9.i/28AUG10.b/gasco.b/VO063010S.m
Misc Info: 10-

Calibration Date: 28-AUG-2010
Calibration Time: 14:51
Client Smp ID: VSTD200
Level: LOW
Sample Type: SOIL

Test Mode:
Use Initial Calibration Level 5.
If Continuing Cal. use Initial Cal. Level 5

COMPOUND	STANDARD	AREA LIMIT LOWER	AREA LIMIT UPPER	SAMPLE	%DIFF
32 Pentafluorobenzen	704281	352140	1408562	640076	-9.12
35 1,4-Difluorobenze	937745	468872	1875490	861135	-8.17
52 d5-Chlorobenzene	853013	426506	1706026	803012	-5.86
75 d4-1,4-Dichlorobe	503655	251828	1007310	480939	-4.51

COMPOUND	STANDARD	RT LIMIT LOWER	RT LIMIT UPPER	SAMPLE	%DIFF
32 Pentafluorobenzen	4.94	4.44	5.44	4.93	-0.12
35 1,4-Difluorobenze	5.32	4.82	5.82	5.32	-0.01
52 d5-Chlorobenzene	7.40	6.90	7.90	7.40	0.07
75 d4-1,4-Dichlorobe	9.11	8.61	9.61	9.13	0.18

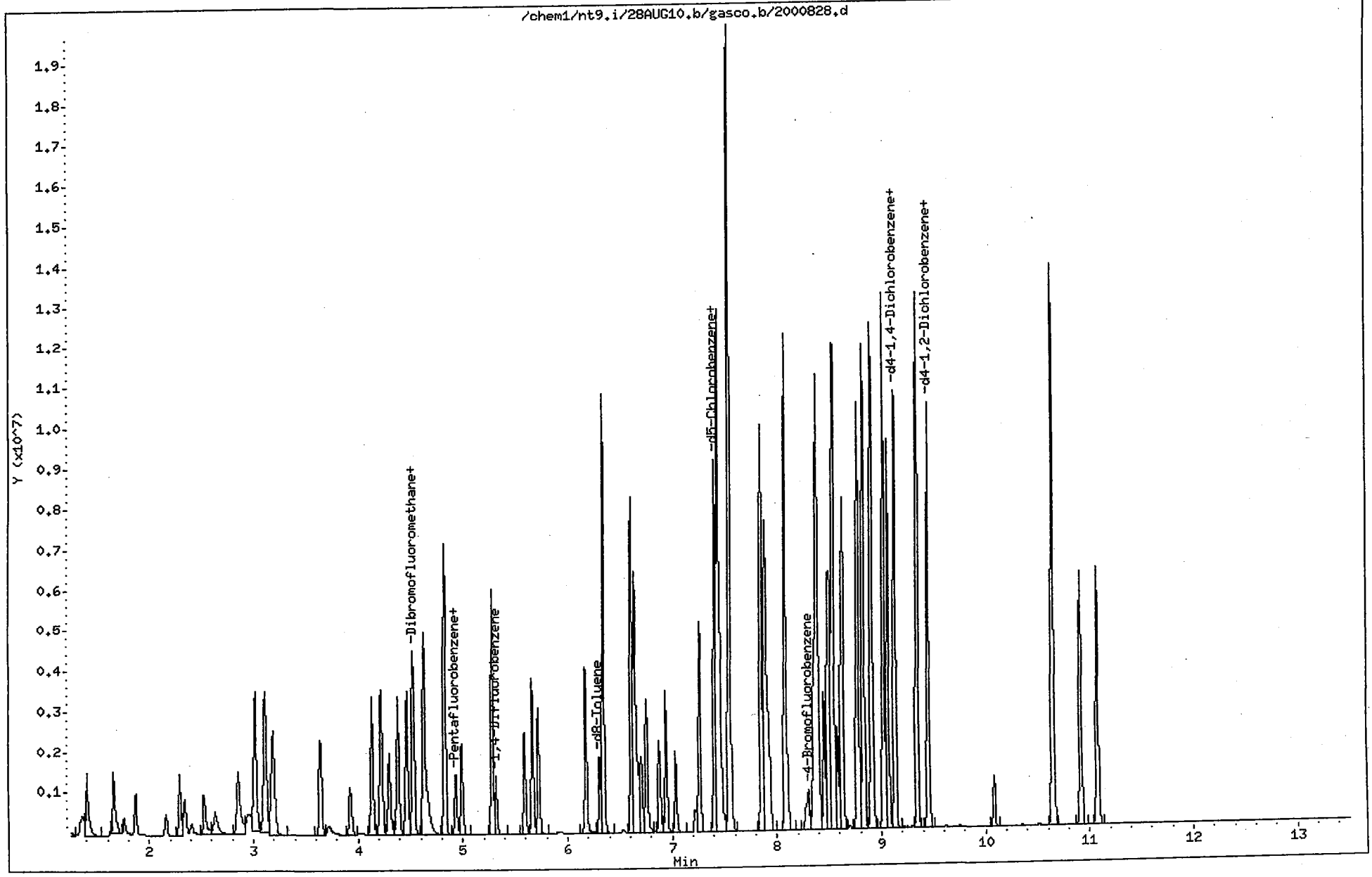
AREA UPPER LIMIT = +100% of internal standard area.
AREA LOWER LIMIT = - 50% of internal standard area.
RT UPPER LIMIT = + 0.50 minutes of internal standard RT.
RT LOWER LIMIT = - 0.50 minutes of internal standard RT.

Data File: /chem1/nt9.i/28AUG10.b/gasco.b/2000828.d
Date : 28-AUG-2010 13:21
Client ID: VSTD200
Sample Info: IC0828,5,5,0

Instrument: nt9.i

Operator: PB
Column diameter: 0.18

Column phase: RTX502.2



RR33:00127

Analytical Resources, Inc.

8260C

Data file : /chem1/nt9.i/28AUG10.b/gasco.b/icv0828.d
Lab Smp Id: ICV0828 Client Smp ID: ICV0828
Inj Date : 28-AUG-2010 18:21
Operator : PB Inst ID: nt9.i
Smp Info : ICV0828,5,5,0
Misc Info : 10-
Comment :
Method : /chem1/nt9.i/28AUG10.b/gasco.b/VO063010S.m
Meth Date : 18-Oct-2010 13:57 patrickb Quant Type: ISTD
Cal Date : 28-AUG-2010 13:21 Cal File: 2000828.d
Als bottle: 1 QC Sample: LCS
Dil Factor: 1.00000
Integrator: HP RTE Compound Sublist: gasco.sub
Target Version: 3.50
Processing Host: cserv3

Concentration Formula: Amt * DF * Pv * 1 / (Sa * ((100 - M) / 100)) * CpndVaria

Name	Value	Description
DF	1.00000	Dilution Factor
Pv	5.00000	Purge Volume
Sa	5.00000	Sample Amount
M	0.00000	% Moisture (not decanted)

Cpnd Variable Local Compound Variable

Compounds	QUANT SIG MASS	RT	EXP RT	REL RT	RESPONSE	CONCENTRATIONS ON-COLUMN (ug/Kg)	FINAL (ug/Kg)
3 Vinyl Chloride	62	1.409	1.407	(0.286)	292616	50.9389	50.939
7 1,1-Dichloroethene	96	2.314	2.312	(0.469)	294499	51.8730	51.873
15 Trans-1,2-Dichloroethene	96	3.032	3.036	(0.615)	322932	49.2228	49.223
20 Cis-1,2-Dichloroethene	96	4.141	4.139	(0.839)	310696	49.9804	49.980
23 Chloroform	83	4.384	4.382	(0.889)	494333	50.1345	50.134
24 Carbon Tetrachloride	117	4.475	4.473	(0.841)	383674	48.3047	48.305
* 32 Pentafluorobenzene	168	4.933	4.936	(1.000)	643032	50.0000	
$ 25 Dibromofluoromethane	111	4.531	4.529	(0.919)	238899	49.6853	49.685
$ 31 d4-1,2-Dichloroethane	65	4.939	4.936	(1.001)	248940	50.4287	50.429
29 2-Butanone	72	4.644	4.642	(0.942)	155543	249.228	249.23
30 Benzene	78	4.831	4.829	(0.908)	1154612	50.1683	50.168
33 1,2-Dichloroethane	62	4.989	4.993	(0.937)	337480	50.9785	50.978
* 35 1,4-Difluorobenzene	114	5.323	5.321	(1.000)	855721	50.0000	
34 Trichloroethene	95	5.284	5.281	(0.993)	318689	50.1215	50.121

Compounds	QUANT SIG MASS	RT	EXP RT	REL RT	RESPONSE	CONCENTRATIONS ON-COLUMN (ug/Kg)	FINAL (ug/Kg)
$ 42 d8-Toluene	98	6.307	6.305	(1.185)	976850	50.3820	50.382
43 Toluene	92	6.341	6.345	(1.191)	803253	49.1138	49.114
44 Tetrachloroethene	166	6.607	6.611	(0.893)	418104	49.4354	49.435
* 52 d5-Chlorobenzene	117	7.399	7.397	(1.000)	778023	50.0000	
53 Chlorobenzene	112	7.411	7.408	(1.002)	913646	49.2442	49.244
54 Ethyl Benzene	91	7.439	7.437	(1.005)	1586757	49.7645	49.764
56 m,p-xylene	106	7.546	7.544	(1.020)	1314112	101.903	101.90
57 o-Xylene	106	7.846	7.850	(1.060)	604545	50.3238	50.324
$ 61 4-Bromofluorobenzene	95	8.276	8.274	(1.119)	363565	50.4536	50.454
* 75 d4-1,4-Dichlorobenzene	152	9.108	9.111	(1.000)	462358	50.0000	(Q)
76 1,4-Dichlorobenzene	146	9.119	9.122	(1.001)	768233	46.3027	46.303
$ 78 d4-1,2-Dichlorobenzene	152	9.436	9.434	(1.036)	405284	50.1445	50.145(Q)

QC Flag Legend

Q - Qualifier signal failed the ratio test.

Analytical Resources, Inc.

INTERNAL STANDARD COMPOUNDS
AREA AND RT SUMMARY

Instrument ID: nt9.i
Lab File ID: icv0828.d
Lab Smp Id: ICV0828
Analysis Type: VOA
Quant Type: ISTD
Operator: PB
Method File: /chem1/nt9.i/28AUG10.b/gasco.b/VO063010S.m
Misc Info: 10-

Calibration Date: 28-AUG-2010
Calibration Time: 14:51
Client Smp ID: ICV0828
Level: LOW
Sample Type: SOIL

Test Mode:
Use Initial Calibration Level 5.
If Continuing Cal. use Initial Cal. Level 5

COMPOUND	STANDARD	AREA LIMIT LOWER	AREA LIMIT UPPER	SAMPLE	%DIFF
32 Pentafluorobenzen	704281	352140	1408562	643032	-8.70
35 1,4-Difluorobenze	937745	468872	1875490	855721	-8.75
52 d5-Chlorobenzene	853013	426506	1706026	778023	-8.79
75 d4-1,4-Dichlorobe	503655	251828	1007310	462358	-8.20

COMPOUND	STANDARD	RT LIMIT LOWER	RT LIMIT UPPER	SAMPLE	%DIFF
32 Pentafluorobenzen	4.94	4.44	5.44	4.93	-0.07
35 1,4-Difluorobenze	5.32	4.82	5.82	5.32	0.04
52 d5-Chlorobenzene	7.40	6.90	7.90	7.40	0.03
75 d4-1,4-Dichlorobe	9.11	8.61	9.61	9.11	-0.04

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.

Analytical Resources, Inc.

RECOVERY REPORT

Client Name:
Sample Matrix: SOLID
Lab Smp Id: ICV0828
Level: LOW
Data Type: MS DATA
SpikeList File: gasco.spk
Sublist File: gasco.sub
Method File: /chem1/nt9.i/28AUG10.b/gasco.b/VO063010S.m
Misc Info: 10-

Client SDG: 28AUG10
Fraction: VOA
Client Smp ID: ICV0828
Operator: PB
SampleType: LCS
Quant Type: ISTD

SPIKE COMPOUND	CONC ADDED ug/Kg	CONC RECOVERED ug/Kg	% RECOVERED	LIMITS
3 Vinyl Chloride	50.000	50.939	101.88	63-137
7 1,1-Dichloroethene	50.000	51.873	103.75	75-126
15 Trans-1,2-Dichloro	50.000	49.223	98.45	80-120
20 Cis-1,2-Dichloroet	50.000	49.980	99.96	80-120
23 Chloroform	50.000	50.134	100.27	80-120
24 Carbon Tetrachlori	50.000	48.305	96.61	77-122
29 2-Butanone	250.00	249.23	99.69	70-120
30 Benzene	50.000	50.168	100.34	80-120
33 1,2-Dichloroethane	50.000	50.978	101.96	76-120
34 Trichloroethene	50.000	50.121	100.24	80-120
43 Toluene	50.000	49.114	98.23	80-120
44 Tetrachloroethene	50.000	49.435	98.87	80-121
53 Chlorobenzene	50.000	49.244	98.49	80-120
54 Ethyl Benzene	50.000	49.764	99.53	80-127
56 m,p-xylene	100.00	101.90	101.90	80-125
57 o-Xylene	50.000	50.324	100.65	78-120
76 1,4-Dichlorobenzen	50.000	46.303	92.61	80-120

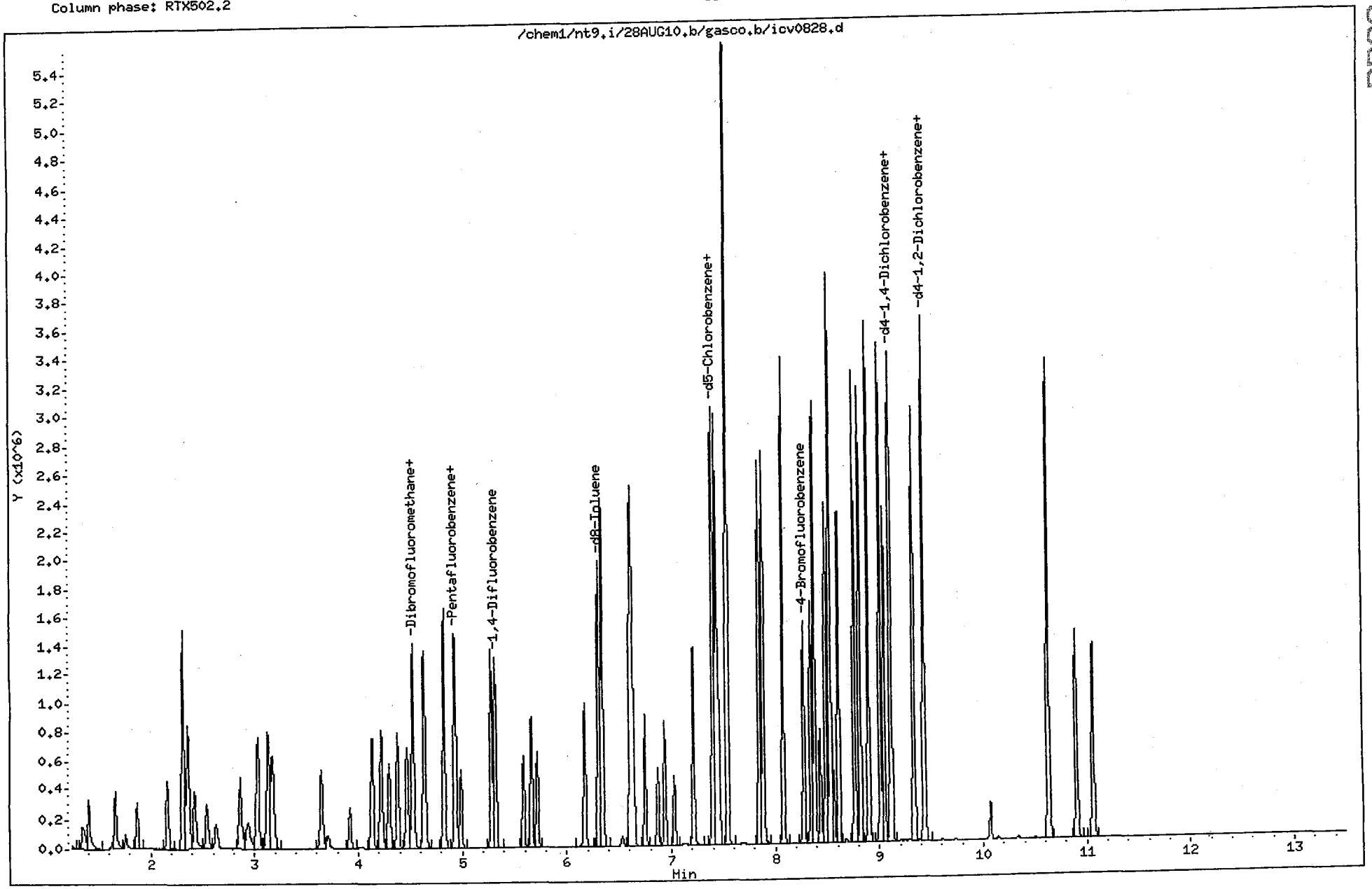
SURROGATE COMPOUND	AMOUNT ADDED ug/Kg	AMOUNT RECOVERED ug/Kg	% RECOVERED	LIMITS
$ 25 Dibromofluorometha	50.000	49.685	99.37	30-160
$ 31 d4-1,2-Dichloroeth	50.000	50.429	100.86	75-152
$ 42 d8-Toluene	50.000	50.382	100.76	82-115
$ 61 4-Bromofluorobenze	50.000	50.454	100.91	64-120
$ 78 d4-1,2-Dichloroben	50.000	50.145	100.29	80-120

Data File: /chem1/nt9.i/28AUG10.b/gasco.b/icv0828.d
Date : 28-AUG-2010 18:21
Client ID: ICV0828
Sample Info: ICV0828,5,5,0

Instrument: nt9.i

Operator: PB
Column diameter: 0.18

Column phase: RTX502.2



RRC8 : 00182

Volatile Raw Data
Run Logs, Continuing Calibrations, and Raw Data

ARI Job ID: RR33

Analytical Resources, Incorporated
Analytical Chemists and Consultants

VOA Analyst Notes / Corrective Action Log

ARI Project ID: RR33 Client ID: NW Natural

ARI SOP: **404S**(Gas) **410S**(BTEX) **430S**(VPH) **700S**(8260C) **703S**(SIM) **706S**(524.2) **710S**(RSK-175)

Parameter(s): _____

Instrument: NT-3 NT-5 NT-7 NT-9 NT-10 PID-1 PID-2 PID-3 FID-6 FINN-5

Purge Volume (mL) 5 Curve Date: 8/28/10 Analysis Start Date: 10/20/10

pH ≤ 2.0	YES / NO / NA	Method Blank In Control?	YES / NO
BFB Tune Meets Criteria?	YES / NO / NA	LCS / LCSD Recovery In Control?	YES / NO
Internal Standard Meets Criteria?	YES / NO / NA	Surrogate Recovery In Control?	YES / NO
ICal acceptable?	YES / NO	CCal acceptable?	YES / NO
Q flag applied?	YES / NO / NA	Q flag applied?	YES / NO / NA
Manual Integrations for ICal?	YES / NO	Manual Integrations for Samples?	Yes /NO
Special Analysis Criteria Met?	YES / NO / NA		

Bubbles/Headspace: None SM (≤ 2mm •) PB (2-4mm) LG (> 4mm ●) Head Space

Detail problems, corrective actions and/or other pertinent information below (use reverse side when necessary):

samples A, C (E flag), E (E, S), F (E, S) run successfully

Additional Details on Reverse: Yes / No

Analyst: _____ **Date:** 10/27/10

Reviewer: _____ **Date:** 10/27/10

Analytical Resources Inc.: Volatile Organics Instrument Log

NT-9 Serial No.:GC=US00021704, MS=US80230047

Date: 10/20/10 Analysis: 8260C Analyst: [illegible]

GC Program: VOA Column No: 562025 Column Type: MTX/Rtx

Instrument Tune (.U or .CT.): bfb1020 EM Voltage: 1306

Calibration File: 0501020A Curve Date: 8/28/10

IS/SS	Ical/Ccal	LCS/ICV
W6521	W6522-2	W6522-2

INTERNAL STANDARD SUMMARY FOR DATABATCH - /chem1/nt9.i/20OCT10.b

	Time	Filename	LabID	ClientID	WT										
1	1204	bfb1020.d	BFB1020	BFB1020	0.00										
2	1241	0501020.d	CC1020	VSTD050	5.00	4.93	759799	5.32	1008709	7.40	894597	9.11	503499		
3	1311	0501020A.d	CC1020	VSTD050	5.00	4.93	754912	5.32	991176	7.40	890048	9.11	507063		
4	1342	lcs1020.d	LCS1020	LCS1020	5.00	4.93	800130	5.32	1049229	7.39	938129	9.11	539415		
5	1509	lcs1020a.d	LCS1020	LCS1020	5.00	4.93	649147	5.32	857509	7.40	758186	9.12	430494		
6	1412	mb1020.d	MB1020	MB1020	5.00	4.93	766662	5.32	1013953	7.40	904849	9.11	510746		
7	1543	rq80a.d	RQ80A	DGS-20-0113.7-10100	5.00	4.93	771798	5.32	1040161	7.40	928499	9.11	508100		
8	1614	rq80b.d	RQ80B	DGS-TB-101008-01	1	4.94	713787	5.32	947589	7.40	843489	9.11	464499		
9	1644	rq83b.d	RQ83B	GST-TBSO-2-101008	1	4.93	484658	5.32	601802	7.39	652638	9.11	548014		
10	1715	rq83a.d	RQ83A	GST-09SO-17-18-1010	5.00	4.93	680856	5.32	903061	7.40	808671	9.11	475784		
11	1745	rq83a2.d	RQ83A	GST-09SO-17-18-1010	5.00	4.92	44448	5.30	37475	7.42	908187	9.12	536756		
12	1816	rr00m2.d	RR00M	DGS-TB-100810-02	1	4.93	610560	5.32	817920	7.40	727434	9.11	403024		
13	1846	rr00f2.d	RR00F	DGS-23-0408-101008	5.00	4.94	712657	5.32	948715	7.40	862504	9.11	491154		
14	1917	rr00n2.d	RR00N	DGS-18-0001-101008	5.00	4.92	99745	5.28	74203	7.43	945795	9.12	600412		
15	1947	rr00o2.d	RR00O	DGS-18-0104-101008	5.00	4.93	762563	5.32	1008418	7.40	879203	9.11	496706		
16	2018	rr00p2.d	RR00P	DGS-18-0408-101008	5.00	4.93	669897	5.32	887102	7.40	765465	9.11	437737		
17	2048	rr33a.d	RR33A	DGS-TB-101012-05	1	4.94	766811	5.32	1012520	7.40	898661	9.11	507377		
18	2119	rr33b.d	RR33B	DGS-07-011.3-101012	5.00	4.91	122495	5.29	239156	7.42	717430	9.11	404764		
19	2149	rr33c.d	RR33C	DGS-07-2.22.7-10101	5.00	4.93	597188	5.32	794743	7.40	708371	9.11	379125		
20	2219	rr33d.d	RR33D	DGS-07-034.2-101012	5.00	4.93	374821	5.31	316420	7.38	834016	9.11	468165		
21	2250	rr33e.d	RR33E	DGS-07-4.75.2-10101	5.00	4.94	453368	5.32	603467	7.40	504618				
22	2320	rr33f.d	RR33F	DGS-07-5.66.7-10101	5.00	4.94	583629	5.32	752307	7.40	668366				

Maintenance Verification (Identify ICal or CCal that demonstrates the instrument is in control):

Every line must contain information or be lined out. Make all entries legible. Start a new page for each QC period.

MANUAL INTEGRATION SUMMARY FOR DATABATCH - /chem1/nt9.i/20OCT10.b/gasco.b

ARI Job No.: BFB1 Method: bfb8260.m Instrument: nt9.i Date: 20-OCT-2010

Time	Filename	LabID	ClientId	DF	Manually Integrated Compounds
1204	bfb1020.d	BFB1020	BFB1020	1	NO MANUAL INTEGRATION
1311	0501020A.d	CC1020	VSTD050	1	NO MANUAL INTEGRATION
1342	lcs1020.d	LCS1020	LCS1020	1	NO MANUAL INTEGRATION
1509	lcs1020a.d	LCS1020	LCS1020	1	NO MANUAL INTEGRATION
1412	mb1020.d	MB1020	MB1020	1	NO MANUAL INTEGRATION
2048	rr33a.d	RR33A	DGS-TB-101	1	NO MANUAL INTEGRATION
2149	rr33c.d	RR33C	DGS-07-2.2	1	m,p-xylene,
2250	rr33e.d	RR33E	DGS-07-4.7	1	Ethyl Benzene, m,p-xylene, d4-1,4-Dichlorobenzene, d4-1,2-Dichlorobenzene,
2320	rr33f.d	RR33F	DGS-07-5.6	1	Ethyl Benzene, m,p-xylene, d4-1,4-Dichlorobenzene, d4-1,2-Dichlorobenzene,

RR33: 091 36

Q-FLAG SUMMARY FOR DATABATCH - /chem1/nt9.i/20OCT10.b/gasco.b

Instrument: nt9.i Date: 20-OCT-2010 Method: gasco.b/VO063010S.m

INITIAL CAL: 28-AUG-2010

Compound	%RSD or R^2
NO Q-FLAGS	

CONTINUING CAL: 20-OCT-2010

Compound	%D
NO Q-FLAGS	

Data File: /chem1/nt9.i/20OCT10.b/gasco.b/bfb1020.d

Date : 20-OCT-2010 12:04

Client ID: BFB1020

Instrument: nt9.i

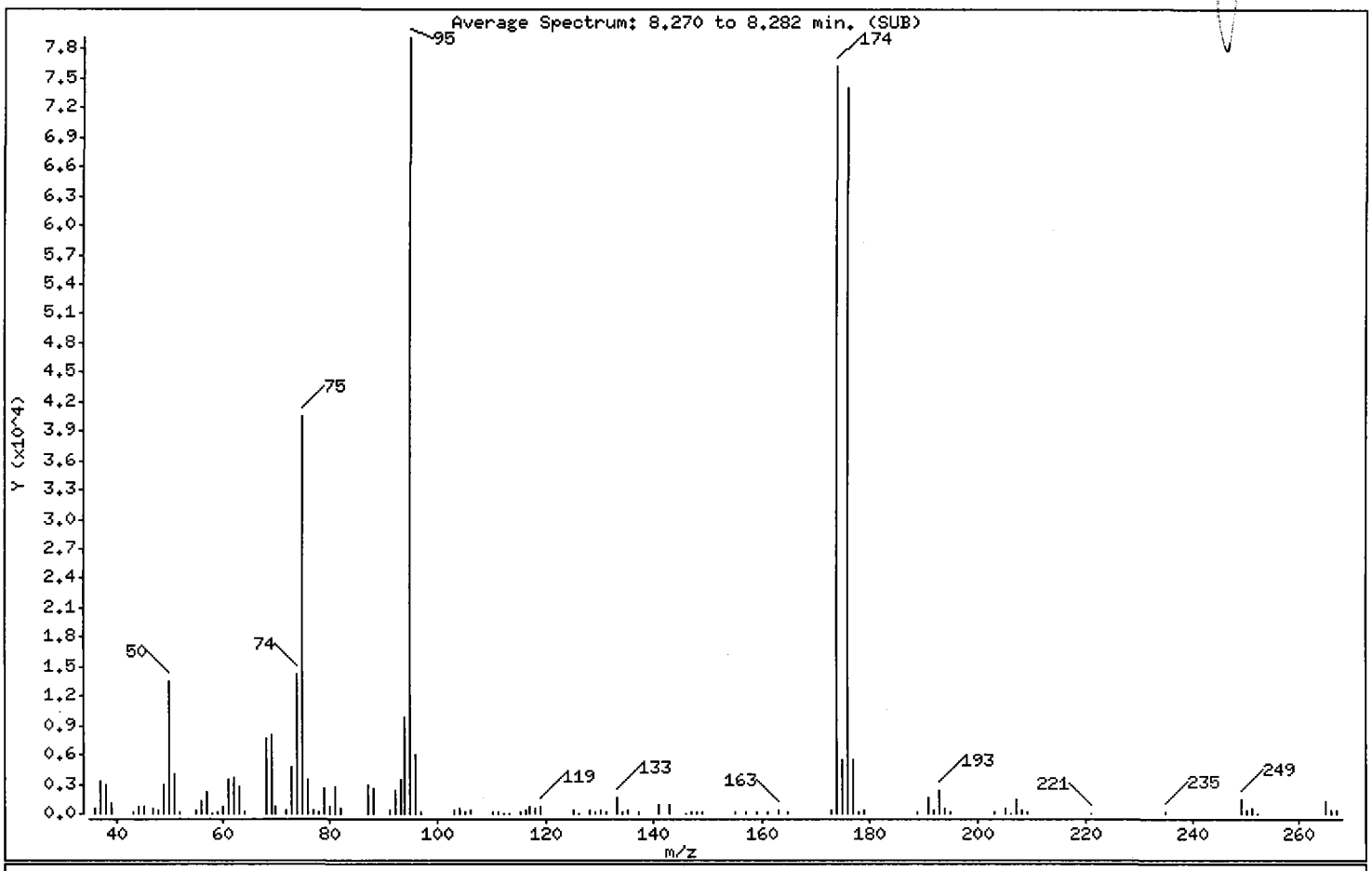
Sample Info: BFB1020,BFB1020,,1,20OCT10,,

Operator: PB

Column phase: RTX502.2

Column diameter: 0.18

1 Bromofluorobenzene



m/e	ION ABUNDANCE CRITERIA	% RELATIVE ABUNDANCE
95	Base Peak, 100% relative abundance	100.00
50	8.00 - 40.00% of mass 95	17.11
75	30.00 - 66.00% of mass 95	51.09
96	5.00 - 9.00% of mass 95	7.53
173	Less than 2.00% of mass 174	0.53 (0.55)
174	50.00 - 101.00% of mass 95	96.22
175	4.00 - 9.00% of mass 174	6.88 (7.15)
176	93.00 - 101.00% of mass 174	93.57 (97.25)
177	5.00 - 9.00% of mass 176	6.85 (7.32)

Data File: /chem1/nt9.i/20OCT10.b/gasco.b/bfb1020.d

Date : 20-OCT-2010 12:04

Client ID: BFB1020 Instrument: nt9.i

Sample Info: BFB1020,BFB1020,,1,20OCT10,,

Operator: PB

Column phase: RTX502.2 Column diameter: 0.18

Data File: bfb1020.d
Spectrum: Average Spectrum: 8.270 to 8.282 min. (SUB)
Location of Maximum: 95.00
Number of points: 109

m/z	Y	m/z	Y	m/z	Y	m/z	Y
36.00	555	74.00	14286	117.00	668	176.00	74080
37.00	3295	75.00	40448	118.00	480	177.00	5424
38.00	2907	76.00	3487	119.00	731	178.00	268
39.00	1169	77.00	371	125.00	455	179.00	418
43.00	136	78.00	187	126.00	57	189.00	157
44.00	685	79.00	2480	128.00	442	191.00	1594
45.00	730	80.00	708	129.00	171	192.00	292
47.00	607	81.00	2695	130.00	366	193.00	2309
48.00	427	82.00	564	131.00	112	194.00	460
49.00	2903	87.00	2915	133.00	1672	195.00	187
50.00	13543	88.00	2636	134.00	186	203.00	196
51.00	4039	91.00	278	135.00	333	205.00	501
52.00	131	92.00	2367	137.00	154	206.00	75
55.00	295	93.00	3463	141.00	980	207.00	1526
56.00	1193	94.00	9870	143.00	966	208.00	326
57.00	2098	95.00	79168	146.00	63	209.00	170
58.00	55	96.00	5960	147.00	213	221.00	51
59.00	115	97.00	152	148.00	246	235.00	167
60.00	710	103.00	400	149.00	128	249.00	1386
61.00	3520	104.00	472	155.00	214	250.00	338
62.00	3697	105.00	174	157.00	130	251.00	587
63.00	2813	106.00	416	159.00	116	252.00	76
64.00	251	110.00	102	161.00	231	265.00	1281
68.00	7708	111.00	203	163.00	313	266.00	389
69.00	7965	112.00	51	165.00	213	267.00	346
70.00	681	113.00	56	173.00	420		
72.00	378	115.00	158	174.00	76176		
73.00	4733	116.00	374	175.00	5447		

Data File: /chem1/nt9.i/20OCT10.b/gasco.b/bfb1020.d

Date : 20-OCT-2010 12:04

Client ID: BFB1020

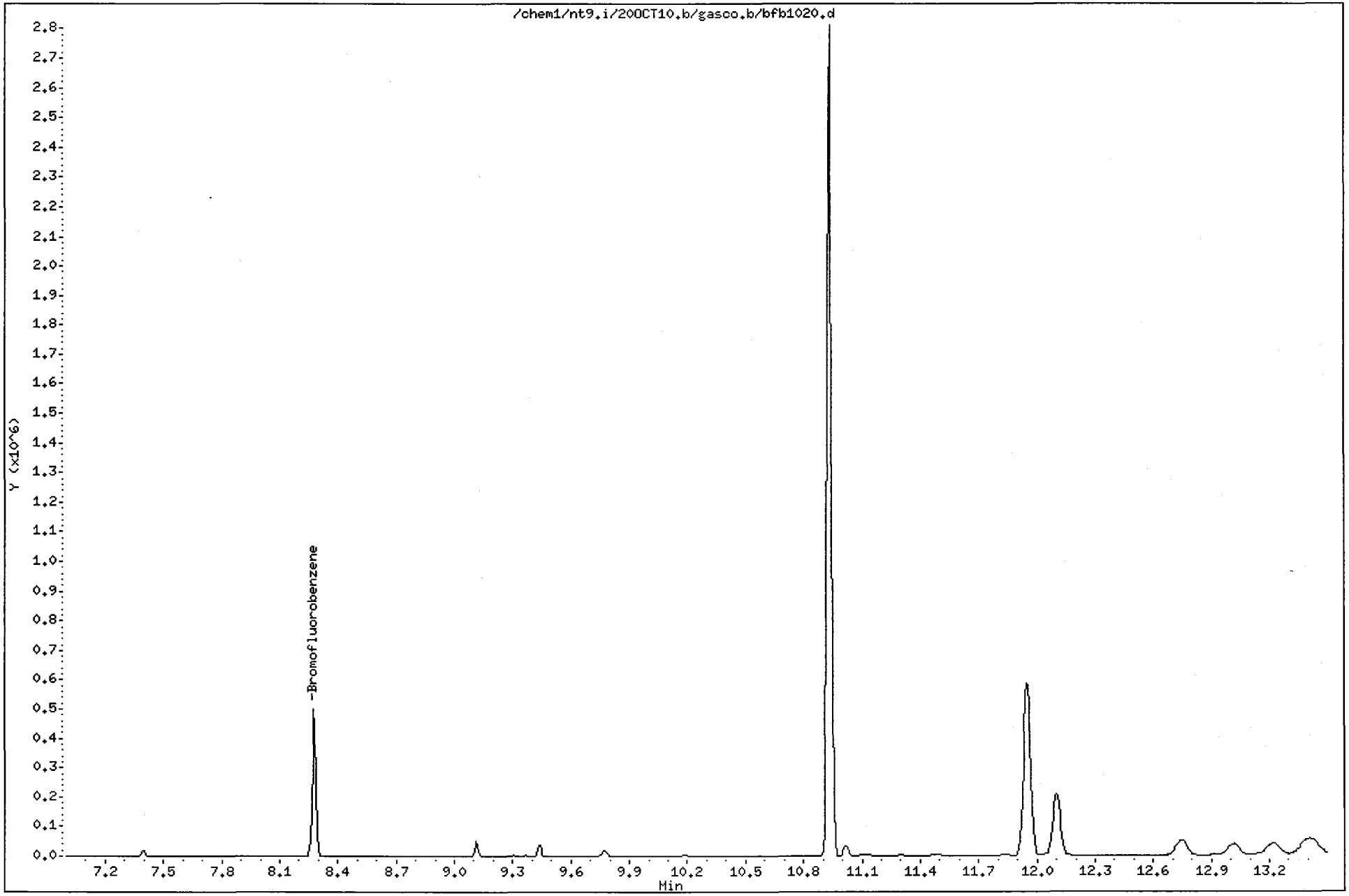
Instrument: nt9.i

Sample Info: BFB1020,BFB1020,,1,20OCT10,,

Operator: PB

Column phase: RTX502.2

Column diameter: 0.18



RR33:00140

Analytical Resources, Inc.

8260C

Data file : /chem1/nt9.i/20OCT10.b/gasco.b/0501020A.d
Lab Smp Id: CC1020 Client Smp ID: VSTD050
Inj Date : 20-OCT-2010 13:11
Operator : PB Inst ID: nt9.i
Smp Info : CC1020,5,5,0
Misc Info : 10-
Comment :
Method : /chem1/nt9.i/20OCT10.b/gasco.b/VO063010S.m
Meth Date : 20-Oct-2010 15:01 patrickb Quant Type: ISTD
Cal Date : 28-AUG-2010 13:21 Cal File: 2000828.d
Als bottle: 1 Continuing Calibration Sample
Dil Factor: 1.00000
Integrator: HP RTE Compound Sublist: gasco.sub
Target Version: 3.50
Processing Host: cserv3

Concentration Formula: Amt * DF * Pv * 1 / (Sa * ((100 - M) / 100)) * CpndVaria

Name	Value	Description
DF	1.00000	Dilution Factor
Pv	5.00000	Purge Volume
Sa	5.00000	Sample Amount
M	0.00000	% Moisture (not decanted)

Cpnd Variable Local Compound Variable

Compounds	QUANT SIG MASS	RT	EXP RT	REL RT	RESPONSE	AMOUNTS CAL-AMT (ug/Kg)	ON-COL (ug/Kg)
3 Vinyl Chloride	62	1.407	1.407	(0.285)	272142	50.0000	40.354
7 1,1-Dichloroethene	96	2.312	2.312	(0.469)	293012	50.0000	43.962
15 Trans-1,2-Dichloroethene	96	3.031	3.031	(0.615)	320939	50.0000	41.669
20 Cis-1,2-Dichloroethene	96	4.140	4.140	(0.839)	316586	50.0000	43.380
23 Chloroform	83	4.383	4.383	(0.889)	506022	50.0000	43.714
24 Carbon Tetrachloride	117	4.473	4.473	(0.841)	384080	50.0000	41.748
* 32 Pentafluorobenzene	168	4.932	4.932	(1.000)	754912	50.0000	
$ 25 Dibromofluoromethane	111	4.530	4.530	(0.919)	279872	50.0000	49.580
$ 31 d4-1,2-Dichloroethane	65	4.937	4.937	(1.001)	286217	50.0000	49.387
29 2-Butanone	72	4.643	4.643	(0.941)	179067	250.000	244.40
30 Benzene	78	4.830	4.830	(0.908)	1153181	50.0000	43.259
33 1,2-Dichloroethane	62	4.988	4.988	(0.937)	358364	50.0000	46.735
* 35 1,4-Difluorobenzene	114	5.322	5.322	(1.000)	991176	50.0000	
34 Trichloroethene	95	5.282	5.282	(0.993)	320896	50.0000	43.572

Compounds	QUANT SIG MASS	RT	EXP RT	REL RT	RESPONSE	AMOUNTS CAL-AMT (ug/Kg)	AMOUNTS ON-COL (ug/Kg)
$ 42 d8-Toluene	98	6.306	6.306	(1.185)	1109032	50.0000	49.383
43 Toluene	92	6.340	6.340	(1.191)	800737	50.0000	42.269
44 Tetrachloroethene	166	6.606	6.606	(0.893)	420855	50.0000	43.498
* 52 d5-Chlorobenzene	117	7.398	7.398	(1.000)	890048	50.0000	
53 Chlorobenzene	112	7.409	7.409	(1.002)	944153	50.0000	44.483
54 Ethyl Benzene	91	7.438	7.438	(1.005)	1573059	50.0000	43.125
56 m,p-xylene	106	7.539	7.539	(1.019)	1314683	100.000	89.116
57 o-Xylene	106	7.845	7.845	(1.060)	600947	50.0000	43.728
$ 61 4-Bromofluorobenzene	95	8.275	8.275	(1.119)	399981	50.0000	48.521
* 75 d4-1,4-Dichlorobenzene	152	9.112	9.112	(1.000)	507063	50.0000	
76 1,4-Dichlorobenzene	146	9.118	9.118	(1.001)	816332	50.0000	44.864
$ 78 d4-1,2-Dichlorobenzene	152	9.434	9.434	(1.035)	443066	50.0000	49.986

Analytical Resources, Inc.

INTERNAL STANDARD COMPOUNDS
AREA AND RT SUMMARY

Instrument ID: nt9.i
Lab File ID: 0501020A.d
Lab Smp Id: CC1020
Analysis Type: VOA
Quant Type: ISTD
Operator: PB
Method File: /chem1/nt9.i/20OCT10.b/gasco.b/VO063010S.m
Misc Info: 10-

Calibration Date: 20-OCT-2010
Calibration Time: 12:41
Client Smp ID: VSTD050
Level: LOW
Sample Type: SOIL

Test Mode:
Use Initial Calibration Level 5.
If Continuing Cal. use Initial Cal. Level 5

COMPOUND	STANDARD	AREA LIMIT LOWER	AREA LIMIT UPPER	SAMPLE	%DIFF
32 Pentafluorobenzen	704281	352140	1408562	754912	7.19
35 1,4-Difluorobenze	937745	468872	1875490	991176	5.70
52 d5-Chlorobenzene	853013	426506	1706026	890048	4.34
75 d4-1,4-Dichlorobe	503655	251828	1007310	507063	0.68

COMPOUND	STANDARD	RT LIMIT LOWER	RT LIMIT UPPER	SAMPLE	%DIFF
32 Pentafluorobenzen	4.94	4.44	5.44	4.93	-0.10
35 1,4-Difluorobenze	5.32	4.82	5.82	5.32	0.02
52 d5-Chlorobenzene	7.40	6.90	7.90	7.40	0.01
75 d4-1,4-Dichlorobe	9.11	8.61	9.61	9.11	0.01

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.

Analytical Resources, Inc.

CONTINUING CALIBRATION COMPOUNDS

Instrument ID: nt9.i
Lab File ID: 0501020A.d
Analysis Type: SOIL
Lab Sample ID: CC1020
Method: /chem1/nt9.i/20OCT10.b/gasco.b/VO063010S.m

Injection Date: 20-OCT-2010 13:11
Init. Cal. Date(s): 28-AUG-2010 28-AUG-2010
Init. Cal. Times: 12:52 16:21
Quant Type: ISTD

COMPOUND	RRF / AMOUNT	RF50	MIN RRF	%D / %DRIFT	MAX %D / %DRIFT	CURVE TYPE
3 Vinyl Chloride	0.44667	0.36050	0.100	-19.29248	20.00000	Averaged
7 1,1-Dichloroethene	0.44145	0.38814	0.100	-12.07547	20.00000	Averaged
15 Trans-1,2-Dichloroethene	0.51013	0.42514	0.010	-16.66161	20.00000	Averaged
20 Cis-1,2-Dichloroethene	0.48336	0.41937	0.010	-13.23942	20.00000	Averaged
23 Chloroform	0.76669	0.67031	0.100	-12.57147	20.00000	Averaged
24 Carbon Tetrachloride	0.46410	0.38750	0.100	-16.50499	20.00000	Averaged
$ 25 Dibromofluoromethane	0.37387	0.37073	0.100	-0.83923	20.00000	Averaged
$ 31 d4-1,2-Dichloroethane	0.38384	0.37914	0.010	-1.22545	20.00000	Averaged
29 2-Butanone	0.04853	0.04744	0.001	-2.24063	20.00000	Averaged
30 Benzene	1.34476	1.16345	0.100	-13.48283	20.00000	Averaged
33 1,2-Dichloroethane	0.38681	0.36156	0.100	-6.52924	20.00000	Averaged
34 Trichloroethene	0.37152	0.32375	0.100	-12.85682	20.00000	Averaged
$ 42 d8-Toluene	1.13290	1.11891	0.010	-1.23499	20.00000	Averaged
43 Toluene	0.95562	0.80787	0.100	-15.46193	20.00000	Averaged
44 Tetrachloroethene	0.54353	0.47285	0.100	-13.00471	20.00000	Averaged
53 Chlorobenzene	1.19234	1.06079	0.300	-11.03309	20.00000	Averaged
54 Ethyl Benzene	2.04913	1.76739	0.100	-13.74926	20.00000	Averaged
56 m,p-xylene	0.82875	0.73855	0.100	-10.88446	20.00000	Averaged
57 o-Xylene	0.77203	0.67519	0.100	-12.54383	20.00000	Averaged
$ 61 4-Bromofluorobenzene	0.46309	0.44939	0.200	-2.95822	20.00000	Averaged
76 1,4-Dichlorobenzene	1.79423	1.60992	0.100	-10.27225	20.00000	Averaged
$ 78 d4-1,2-Dichlorobenzene	0.87403	0.87379	0.010	-0.02786	20.00000	Averaged

Data File: /chem1/nt9.i/20OCT10.b/gasco.b/0501020A.d

Date : 20-OCT-2010 13:11

Client ID: VSTD050

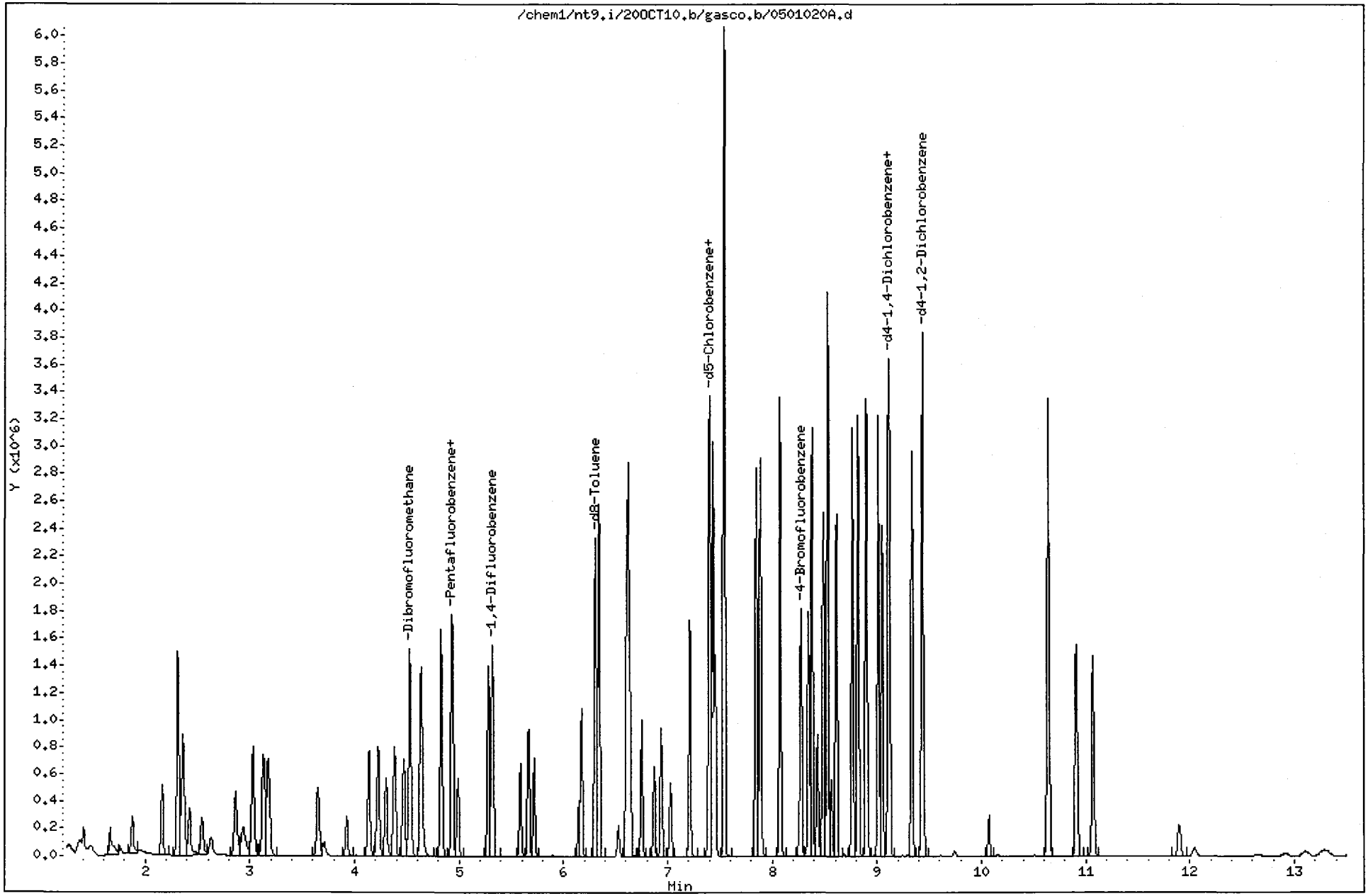
Sample Info: CC1020,5,5,0

Column phase: RTX502.2

Instrument: nt9.i

Operator: PB

Column diameter: 0.18



RR39:00145

Analytical Resources, Inc.

8260C

Data file : /chem1/nt9.i/20OCT10.b/gasco.b/lcs1020.d
Lab Smp Id: LCS1020 Client Smp ID: LCS1020
Inj Date : 20-OCT-2010 13:42
Operator : PB Inst ID: nt9.i
Smp Info : LCS1020,5,5,0
Misc Info : 10-
Comment :
Method : /chem1/nt9.i/20OCT10.b/gasco.b/VO063010S.m
Meth Date : 27-Oct-2010 10:51 patrickb Quant Type: ISTD
Cal Date : 28-AUG-2010 13:21 Cal File: 2000828.d
Als bottle: 1 QC Sample: LCS
Dil Factor: 1.00000
Integrator: HP RTE Compound Sublist: gasco.sub
Target Version: 3.50
Processing Host: cserv3

Concentration Formula: Amt * DF * Pv * 1 / (Sa * ((100 - M) / 100)) * CpndVaria

Name	Value	Description
DF	1.00000	Dilution Factor
Pv	5.00000	Purge Volume
Sa	5.00000	Sample Amount
M	0.00000	% Moisture (not decanted)

Cpnd Variable Local Compound Variable

Compounds	QUANT SIG MASS	RT	EXP RT	REL RT	RESPONSE	CONCENTRATIONS ON-COLUMN (ug/Kg)	FINAL (ug/Kg)
3 Vinyl Chloride	62	1.410	1.407	(0.286)	297945	41.6831	41.683
7 1,1-Dichloroethene	96	2.309	2.312	(0.468)	325062	46.0146	46.015
15 Trans-1,2-Dichloroethene	96	3.033	3.031	(0.615)	351170	43.0175	43.017
20 Cis-1,2-Dichloroethene	96	4.136	4.140	(0.838)	347264	44.8948	44.895
23 Chloroform	83	4.379	4.383	(0.888)	553246	45.0928	45.093
24 Carbon Tetrachloride	117	4.470	4.473	(0.840)	433418	44.5037	44.504
* 32 Pentafluorobenzene	168	4.934	4.932	(1.000)	800130	50.0000	
$ 25 Dibromofluoromethane	111	4.526	4.530	(0.917)	299104	49.9929	49.993
$ 31 d4-1,2-Dichloroethane	65	4.939	4.937	(1.001)	305977	49.8131	49.813
29 2-Butanone	72	4.645	4.643	(0.942)	178235	229.515	229.51
30 Benzene	78	4.826	4.830	(0.907)	1262150	44.7266	44.727
33 1,2-Dichloroethane	62	4.990	4.988	(0.938)	384360	47.3521	47.352
* 35 1,4-Difluorobenzene	114	5.318	5.322	(1.000)	1049229	50.0000	
34 Trichloroethene	95	5.279	5.282	(0.993)	352218	45.1783	45.178

Compounds	QUANT SIG MASS	RT	EXP RT	REL RT	RESPONSE	CONCENTRATIONS ON-COLUMN (ug/Kg)	FINAL (ug/Kg)
$ 42 d8-Toluene	98	6.308	6.306	(1.186)	1175490	49.4457	49.446
43 Toluene	92	6.342	6.340	(1.193)	875185	43.6428	43.643
44 Tetrachloroethene	166	6.608	6.606	(0.894)	462642	45.3658	45.366
* 52 d5-Chlorobenzene	117	7.394	7.398	(1.000)	938129	50.0000	
53 Chlorobenzene	112	7.406	7.409	(1.002)	1024118	45.7780	45.778
54 Ethyl Benzene	91	7.434	7.438	(1.005)	1729105	44.9739	44.974
56 m,p-xylene	106	7.542	7.539	(1.020)	1446241	93.0088	93.009
57 o-Xylene	106	7.847	7.845	(1.061)	660151	45.5741	45.574
$ 61 4-Bromofluorobenzene	95	8.277	8.275	(1.119)	422417	48.6162	48.616
* 75 d4-1,4-Dichlorobenzene	152	9.108	9.112	(1.000)	539415	50.0000	
76 1,4-Dichlorobenzene	146	9.120	9.118	(1.001)	884494	45.6945	45.694
$ 78 d4-1,2-Dichlorobenzene	152	9.431	9.434	(1.035)	469734	49.8163	49.816

Analytical Resources, Inc.

INTERNAL STANDARD COMPOUNDS
AREA AND RT SUMMARY

Instrument ID: nt9.i
Lab File ID: lcs1020.d
Lab Smp Id: LCS1020
Analysis Type: VOA
Quant Type: ISTD
Operator: PB
Method File: /chem1/nt9.i/20OCT10.b/gasco.b/VO063010S.m
Misc Info: 10-

Calibration Date: 20-OCT-2010
Calibration Time: 13:11
Client Smp ID: LCS1020
Level: LOW
Sample Type: SOIL

Test Mode:
Use Initial Calibration Level 5.
If Continuing Cal. use Initial Cal. Level 5

COMPOUND	STANDARD	AREA LIMIT LOWER	AREA LIMIT UPPER	SAMPLE	%DIFF
32 Pentafluorobenzen	704281	352140	1408562	800130	13.61
35 1,4-Difluorobenze	937745	468872	1875490	1049229	11.89
52 d5-Chlorobenzene	853013	426506	1706026	938129	9.98
75 d4-1,4-Dichlorobe	503655	251828	1007310	539415	7.10

COMPOUND	STANDARD	RT LIMIT LOWER	RT LIMIT UPPER	SAMPLE	%DIFF
32 Pentafluorobenzen	4.93	4.43	5.43	4.93	0.04
35 1,4-Difluorobenze	5.32	4.82	5.82	5.32	-0.07
52 d5-Chlorobenzene	7.40	6.90	7.90	7.39	-0.05
75 d4-1,4-Dichlorobe	9.11	8.61	9.61	9.11	-0.04

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.

Analytical Resources, Inc.

RECOVERY REPORT

Client Name:
Sample Matrix: SOLID
Lab Smp Id: LCS1020
Level: LOW
Data Type: MS DATA
SpikeList File: gasco.spk
Sublist File: gasco.sub
Method File: /chem1/nt9.i/20OCT10.b/gasco.b/VO063010S.m
Misc Info: 10-

Client SDG: 20OCT10
Fraction: VOA
Client Smp ID: LCS1020
Operator: PB
SampleType: LCS
Quant Type: ISTD

SPIKE COMPOUND	CONC ADDED ug/Kg	CONC RECOVERED ug/Kg	% RECOVERED	LIMITS
3 Vinyl Chloride	50.000	41.683	83.37	63-137
7 1,1-Dichloroethene	50.000	46.015	92.03	75-126
15 Trans-1,2-Dichloro	50.000	43.017	86.03	80-120
20 Cis-1,2-Dichloroet	50.000	44.895	89.79	80-120
23 Chloroform	50.000	45.093	90.19	80-120
24 Carbon Tetrachlori	50.000	44.504	89.01	77-122
29 2-Butanone	250.00	229.51	91.81	70-120
30 Benzene	50.000	44.727	89.45	80-120
33 1,2-Dichloroethane	50.000	47.352	94.70	76-120
34 Trichloroethene	50.000	45.178	90.36	80-120
43 Toluene	50.000	43.643	87.29	80-120
44 Tetrachloroethene	50.000	45.366	90.73	80-121
53 Chlorobenzene	50.000	45.778	91.56	80-120
54 Ethyl Benzene	50.000	44.974	89.95	80-127
56 m,p-xylene	100.00	93.009	93.01	80-125
57 o-Xylene	50.000	45.574	91.15	78-120
76 1,4-Dichlorobenzen	50.000	45.694	91.39	80-120

SURROGATE COMPOUND	AMOUNT ADDED ug/Kg	AMOUNT RECOVERED ug/Kg	% RECOVERED	LIMITS
$ 25 Dibromofluorometha	50.000	49.993	99.99	30-160
$ 31 d4-1,2-Dichloroeth	50.000	49.813	99.63	75-152
$ 42 d8-Toluene	50.000	49.446	98.89	82-115
$ 61 4-Bromofluorobenze	50.000	48.616	97.23	64-120
$ 78 d4-1,2-Dichloroben	50.000	49.816	99.63	80-120

Data File: /chem1/nt9.i/20OCT10.b/gasco.b/lcs1020.d

Date : 20-OCT-2010 13:42

Client ID: LCS1020

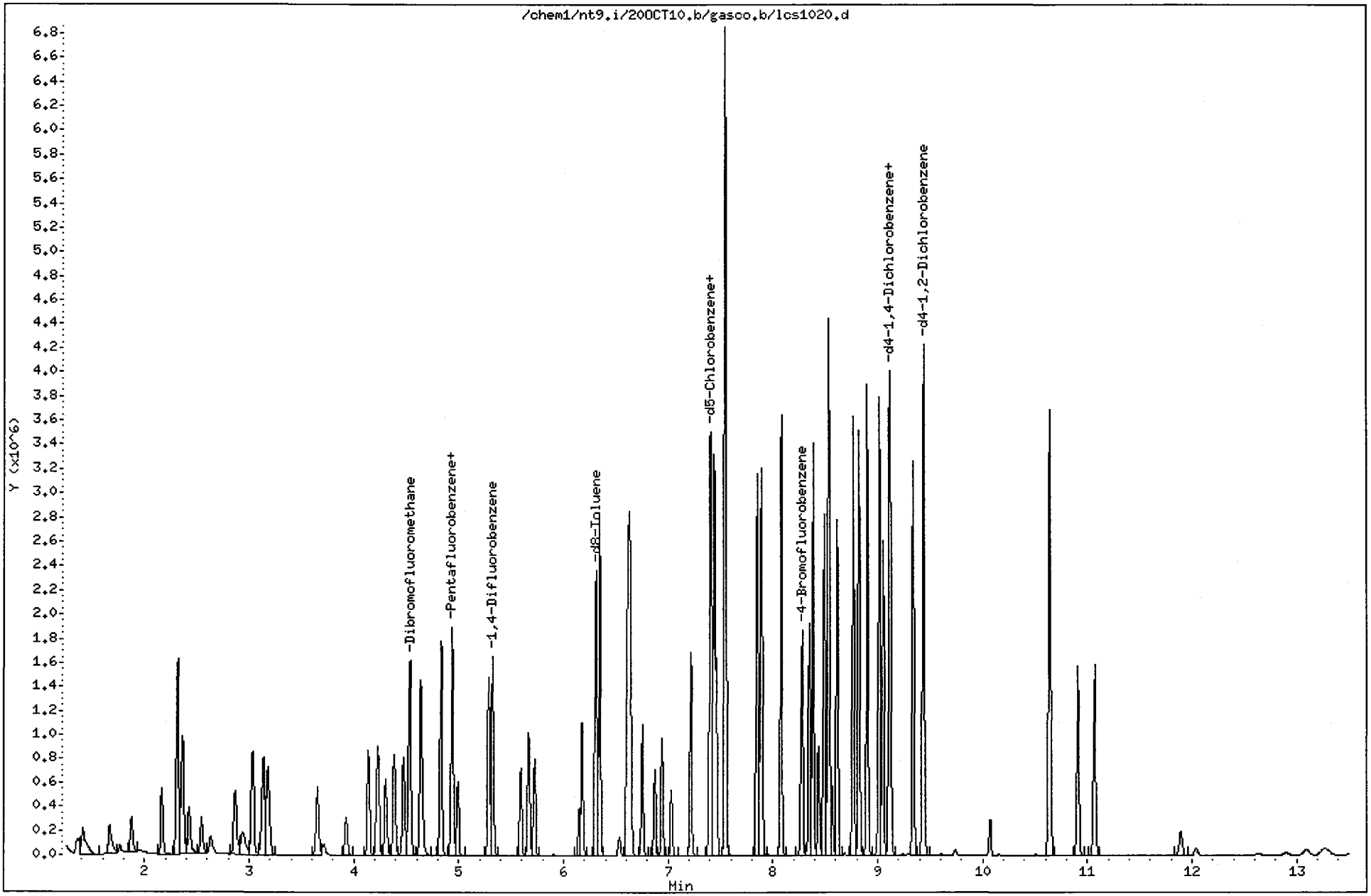
Sample Info: LCS1020,5,5,0

Column phase: RTX502.2

Instrument: nt9.i

Operator: PB

Column diameter: 0.18



RR33:09159

Analytical Resources, Inc.

8260C

Data file : /chem1/nt9.i/20OCT10.b/gasco.b/mb1020.d
Lab Smp Id: MB1020 Client Smp ID: MB1020
Inj Date : 20-OCT-2010 14:12
Operator : PB Inst ID: nt9.i
Smp Info : MB1020,5,5,0
Misc Info : 10-
Comment :
Method : /chem1/nt9.i/20OCT10.b/gasco.b/VO063010S.m
Meth Date : 27-Oct-2010 10:51 patrickb Quant Type: ISTD
Cal Date : 28-AUG-2010 13:21 Cal File: 2000828.d
Als bottle: 1 QC Sample: BLANK
Dil Factor: 1.00000
Integrator: HP RTE Compound Sublist: gasco.sub
Target Version: 3.50
Processing Host: cserv3

Concentration Formula: Amt * DF * Pv * 1 / (Sa * ((100 - M) / 100)) * CpndVaria

Name	Value	Description
DF	1.00000	Dilution Factor
Pv	5.00000	Purge Volume
Sa	5.00000	Sample Amount
M	0.00000	% Moisture (not decanted)

Cpnd Variable Local Compound Variable

Compounds	QUANT SIG MASS	RT	EXP RT	REL RT	RESPONSE	CONCENTRATIONS ON-COLUMN (ug/Kg)	FINAL (ug/Kg)
3 Vinyl Chloride	62	Compound Not Detected.					
7 1,1-Dichloroethene	96	Compound Not Detected.					
15 Trans-1,2-Dichloroethene	96	Compound Not Detected.					
20 Cis-1,2-Dichloroethene	96	Compound Not Detected.					
23 Chloroform	83	Compound Not Detected.					
24 Carbon Tetrachloride	117	Compound Not Detected.					
* 32 Pentafluorobenzene	168	4.931	4.932	(1.000)	766662	50.0000	
$ 25 Dibromofluoromethane	111	4.530	4.530	(0.919)	278268	48.5407	48.541
$ 31 d4-1,2-Dichloroethane	65	4.937	4.937	(1.001)	292859	49.7588	49.759
29 2-Butanone	72	Compound Not Detected.					
30 Benzene	78	Compound Not Detected.					
33 1,2-Dichloroethane	62	Compound Not Detected.					
* 35 1,4-Difluorobenzene	114	5.322	5.322	(1.000)	1013953	50.0000	
34 Trichloroethene	95	Compound Not Detected.					

Compounds	QUANT SIG MASS	RT	EXP RT	REL RT	RESPONSE	CONCENTRATIONS ON-COLUMN (ug/Kg)	FINAL (ug/Kg)
$ 42 d8-Toluene	98	6.306	6.306	(1.185)	1141297	49.6776	49.678
43 Toluene	92	Compound Not Detected.					
44 Tetrachloroethene	166	Compound Not Detected.					
* 52 d5-Chlorobenzene	117	7.398	7.398	(1.000)	904849	50.0000	
53 Chlorobenzene	112	Compound Not Detected.					
54 Ethyl Benzene	91	Compound Not Detected.					
56 m,p-xylene	106	Compound Not Detected.					
57 o-Xylene	106	Compound Not Detected.					
$ 61 4-Bromofluorobenzene	95	8.275	8.275	(1.119)	410963	49.0376	49.038
* 75 d4-1,4-Dichlorobenzene	152	9.106	9.112	(1.000)	510746	50.0000	
76 1,4-Dichlorobenzene	146	Compound Not Detected.					
$ 78 d4-1,2-Dichlorobenzene	152	9.434	9.434	(1.036)	449828	50.3830	50.383

Analytical Resources, Inc.

INTERNAL STANDARD COMPOUNDS
AREA AND RT SUMMARY

Instrument ID: nt9.i
Lab File ID: mb1020.d
Lab Smp Id: MB1020
Analysis Type: VOA
Quant Type: ISTD
Operator: PB
Method File: /chem1/nt9.i/20OCT10.b/gasco.b/VO063010S.m
Misc Info: 10-

Calibration Date: 20-OCT-2010
Calibration Time: 13:11
Client Smp ID: MB1020
Level: LOW
Sample Type: SOIL

Test Mode:
Use Initial Calibration Level 5.
If Continuing Cal. use Initial Cal. Level 5

COMPOUND	STANDARD	AREA LIMIT LOWER	AREA LIMIT UPPER	SAMPLE	%DIFF
32 Pentafluorobenzen	704281	352140	1408562	766662	8.86
35 1,4-Difluorobenze	937745	468872	1875490	1013953	8.13
52 d5-Chlorobenzene	853013	426506	1706026	904849	6.08
75 d4-1,4-Dichlorobe	503655	251828	1007310	510746	1.41

COMPOUND	STANDARD	RT LIMIT LOWER	RT LIMIT UPPER	SAMPLE	%DIFF
32 Pentafluorobenzen	4.93	4.43	5.43	4.93	0.00
35 1,4-Difluorobenze	5.32	4.82	5.82	5.32	0.00
52 d5-Chlorobenzene	7.40	6.90	7.90	7.40	0.00
75 d4-1,4-Dichlorobe	9.11	8.61	9.61	9.11	-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.

Analytical Resources, Inc.

RECOVERY REPORT

Client Name:
Sample Matrix: SOLID
Lab Smp Id: MB1020
Level: LOW
Data Type: MS DATA
SpikeList File: all.spk
Sublist File: gasco.sub
Method File: /chem1/nt9.i/20OCT10.b/gasco.b/VO063010S.m
Misc Info: 10-

Client SDG: 20OCT10
Fraction: VOA
Client Smp ID: MB1020
Operator: PB
SampleType: BLANK
Quant Type: ISTD

SURROGATE COMPOUND	AMOUNT ADDED ug/Kg	AMOUNT RECOVERED ug/Kg	% RECOVERED	LIMITS
$ 25 Dibromofluorometha	50.000	48.541	97.08	30-160
$ 31 d4-1,2-Dichloroeth	50.000	49.759	99.52	75-152
$ 42 d8-Toluene	50.000	49.678	99.36	82-115
$ 61 4-Bromofluorobenze	50.000	49.038	98.08	64-120
$ 78 d4-1,2-Dichloroben	50.000	50.383	100.77	80-120

Data File: /chem1/nt9.i/20OCT10.b/gasco.b/mb1020.d

Date : 20-OCT-2010 14:12

Client ID: MB1020

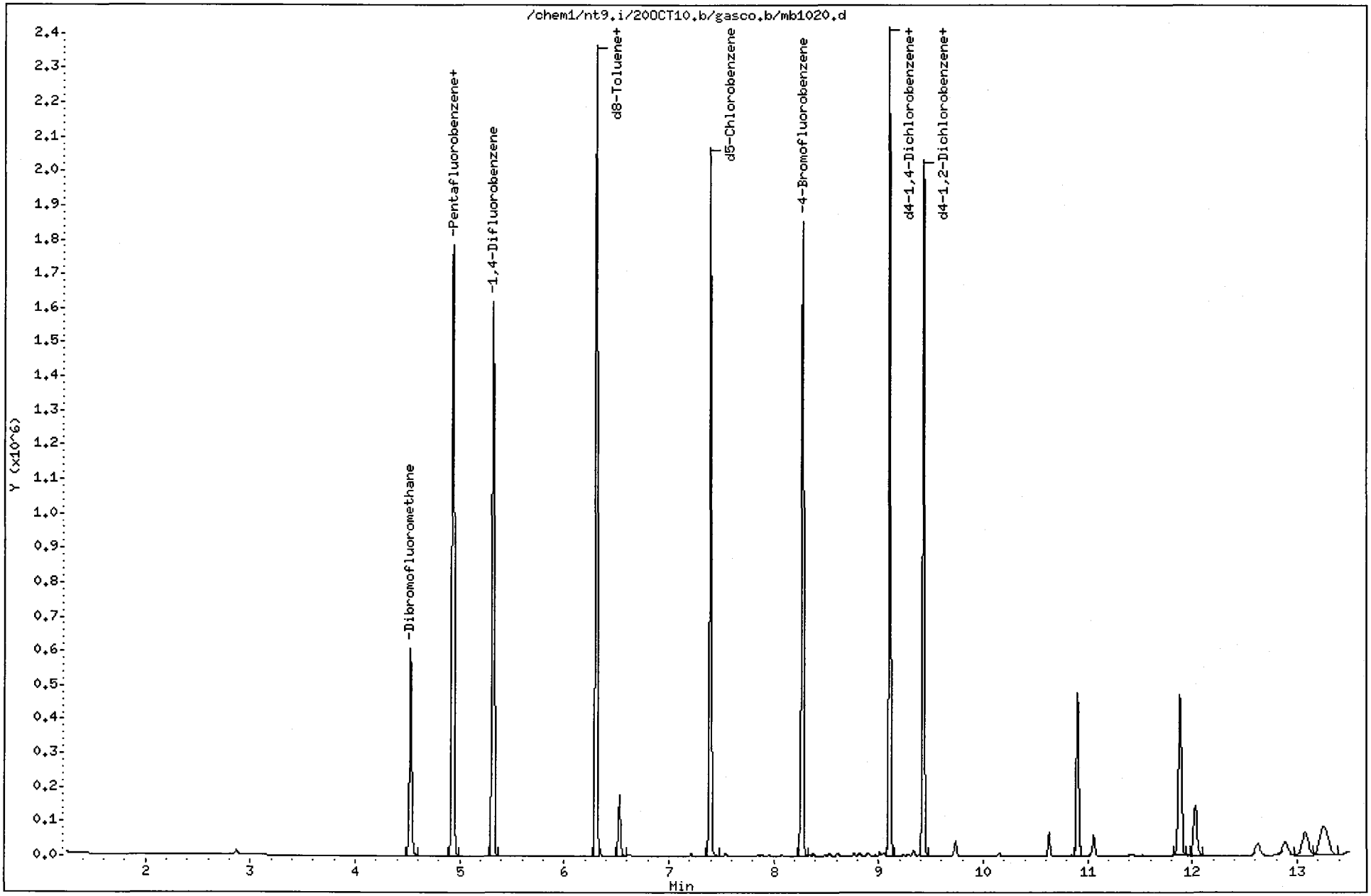
Sample Info: MB1020,5,5,0

Column phase: RTX502.2

Instrument: nt9.i

Operator: PB

Column diameter: 0.18



RR33:00155

Analytical Resources, Inc.

8260C

Data file : /chem1/nt9.i/20OCT10.b/gasco.b/lcs1020a.d
Lab Smp Id: LCS1020 Client Smp ID: LCS1020
Inj Date : 20-OCT-2010 15:09
Operator : PB Inst ID: nt9.i
Smp Info : LCS1020,5,5,0
Misc Info : 10-
Comment :
Method : /chem1/nt9.i/20OCT10.b/gasco.b/VO063010S.m
Meth Date : 27-Oct-2010 10:51 patrickb Quant Type: ISTD
Cal Date : 28-AUG-2010 13:21 Cal File: 2000828.d
Als bottle: 1 QC Sample: LCSD
Dil Factor: 1.00000
Integrator: HP RTE Compound Sublist: gasco.sub
Target Version: 3.50
Processing Host: cserv3

Concentration Formula: Amt * DF * Pv * 1 / (Sa * ((100 - M) / 100)) * CpndVaria

Name	Value	Description
DF	1.00000	Dilution Factor
Pv	5.00000	Purge Volume
Sa	5.00000	Sample Amount
M	0.00000	% Moisture (not decanted)

Cpnd Variable Local Compound Variable

Compounds	QUANT SIG MASS	RT	EXP RT	REL RT	RESPONSE	CONCENTRATIONS ON-COLUMN (ug/Kg)	FINAL (ug/Kg)
3 Vinyl Chloride	62	1.407	1.407	(0.285)	317930	54.8243	54.824
7 1,1-Dichloroethene	96	2.312	2.312	(0.469)	361698	63.1093	63.109(R)
15 Trans-1,2-Dichloroethene	96	3.030	3.031	(0.615)	376406	56.8331	56.833
20 Cis-1,2-Dichloroethene	96	4.139	4.140	(0.839)	343460	54.7306	54.731
23 Chloroform	83	4.382	4.383	(0.889)	541736	54.4245	54.424
24 Carbon Tetrachloride	117	4.473	4.473	(0.841)	460481	57.8539	57.854
* 32 Pentafluorobenzene	168	4.931	4.932	(1.000)	649147	50.0000	
$ 25 Dibromofluoromethane	111	4.530	4.530	(0.919)	239741	49.3908	49.391
$ 31 d4-1,2-Dichloroethane	65	4.937	4.937	(1.001)	242967	48.7551	48.755
29 2-Butanone	72	4.643	4.643	(0.941)	183655	291.500	291.50
30 Benzene	78	4.829	4.830	(0.908)	1272366	55.1695	55.169
33 1,2-Dichloroethane	62	4.988	4.988	(0.937)	349707	52.7153	52.715
* 35 1,4-Difluorobenzene	114	5.321	5.322	(1.000)	857509	50.0000	
34 Trichloroethene	95	5.282	5.282	(0.993)	374933	58.8442	58.844

Compounds	QUANT SIG MASS	RT	EXP RT	REL RT	RESPONSE	CONCENTRATIONS ON-COLUMN (ug/Kg)	FINAL (ug/Kg)
$ 42 d8-Toluene	98	6.306	6.306	(1.185)	952155	49.0059	49.006
43 Toluene	92	6.340	6.340	(1.191)	891673	54.4064	54.406
44 Tetrachloroethene	166	6.611	6.606	(0.894)	511467	62.0566	62.057(R)
* 52 d5-Chlorobenzene	117	7.398	7.398	(1.000)	758186	50.0000	
53 Chlorobenzene	112	7.409	7.409	(1.002)	1012761	56.0145	56.015
54 Ethyl Benzene	91	7.437	7.438	(1.005)	1791900	57.6686	57.669
56 m,p-xylene	106	7.545	7.539	(1.020)	1506051	119.842	119.84
57 o-Xylene	106	7.850	7.845	(1.061)	658329	56.2347	56.235
$ 61 4-Bromofluorobenzene	95	8.280	8.275	(1.119)	339224	48.3073	48.307
* 75 d4-1,4-Dichlorobenzene	152	9.117	9.112	(1.000)	430494	50.0000	
76 1,4-Dichlorobenzene	146	9.129	9.118	(1.001)	881097	57.0359	57.036
$ 78 d4-1,2-Dichlorobenzene	152	9.445	9.434	(1.036)	373701	49.6592	49.659

QC Flag Legend

R - Spike/Surrogate failed recovery limits.

Analytical Resources, Inc.

INTERNAL STANDARD COMPOUNDS
AREA AND RT SUMMARY

Instrument ID: nt9.i
Lab File ID: lcs1020a.d
Lab Smp Id: LCS1020
Analysis Type: VOA
Quant Type: ISTD
Operator: PB
Method File: /chem1/nt9.i/20OCT10.b/gasco.b/VO063010S.m
Misc Info: 10-

Calibration Date: 20-OCT-2010
Calibration Time: 13:11
Client Smp ID: LCS1020
Level: LOW
Sample Type: SOIL

Test Mode:
Use Initial Calibration Level 5.
If Continuing Cal. use Initial Cal. Level 5

COMPOUND	STANDARD	AREA LIMIT LOWER	AREA LIMIT UPPER	SAMPLE	%DIFF
32 Pentafluorobenzen	704281	352140	1408562	649147	-7.83
35 1,4-Difluorobenze	937745	468872	1875490	857509	-8.56
52 d5-Chlorobenzene	853013	426506	1706026	758186	-11.12
75 d4-1,4-Dichlorobe	503655	251828	1007310	430494	-14.53

COMPOUND	STANDARD	RT LIMIT LOWER	RT LIMIT UPPER	SAMPLE	%DIFF
32 Pentafluorobenzen	4.93	4.43	5.43	4.93	-0.01
35 1,4-Difluorobenze	5.32	4.82	5.82	5.32	-0.01
52 d5-Chlorobenzene	7.40	6.90	7.90	7.40	-0.01
75 d4-1,4-Dichlorobe	9.11	8.61	9.61	9.12	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.

Analytical Resources, Inc.

RECOVERY REPORT

Client Name:
Sample Matrix: SOLID
Lab Smp Id: LCS1020
Level: LOW
Data Type: MS DATA
SpikeList File: gasco.spk
Sublist File: gasco.sub
Method File: /chem1/nt9.i/20OCT10.b/gasco.b/VO063010S.m
Misc Info: 10-

Client SDG: 20OCT10
Fraction: VOA
Client Smp ID: LCS1020
Operator: PB
SampleType: LCSD
Quant Type: ISTD

SPIKE COMPOUND	CONC ADDED ug/Kg	CONC RECOVERED ug/Kg	% RECOVERED	LIMITS
3 Vinyl Chloride	50.000	54.824	109.65	63-137
7 1,1-Dichloroethene	50.000	63.109	126.22*	75-126
15 Trans-1,2-Dichloro	50.000	56.833	113.67	80-120
20 Cis-1,2-Dichloroet	50.000	54.731	109.46	80-120
23 Chloroform	50.000	54.424	108.85	80-120
24 Carbon Tetrachlori	50.000	57.854	115.71	77-122
29 2-Butanone	250.00	291.50	116.60	70-120
30 Benzene	50.000	55.169	110.34	80-120
33 1,2-Dichloroethane	50.000	52.715	105.43	76-120
34 Trichloroethene	50.000	58.844	117.69	80-120
43 Toluene	50.000	54.406	108.81	80-120
44 Tetrachloroethene	50.000	62.057	124.11*	80-121
53 Chlorobenzene	50.000	56.015	112.03	80-120
54 Ethyl Benzene	50.000	57.669	115.34	80-127
56 m,p-xylene	100.00	119.84	119.84	80-125
57 o-Xylene	50.000	56.235	112.47	78-120
76 1,4-Dichlorobenzen	50.000	57.036	114.07	80-120

SURROGATE COMPOUND	AMOUNT ADDED ug/Kg	AMOUNT RECOVERED ug/Kg	% RECOVERED	LIMITS
$ 25 Dibromofluorometha	50.000	49.391	98.78	30-160
$ 31 d4-1,2-Dichloroeth	50.000	48.755	97.51	75-152
$ 42 d8-Toluene	50.000	49.006	98.01	82-115
$ 61 4-Bromofluorobenze	50.000	48.307	96.61	64-120
$ 78 d4-1,2-Dichloroben	50.000	49.659	99.32	80-120

Data File: /chem1/nt9.i/20OCT10.b/gasco.b/lcs1020a.d

Date : 20-OCT-2010 15:09

Client ID: LCS1020

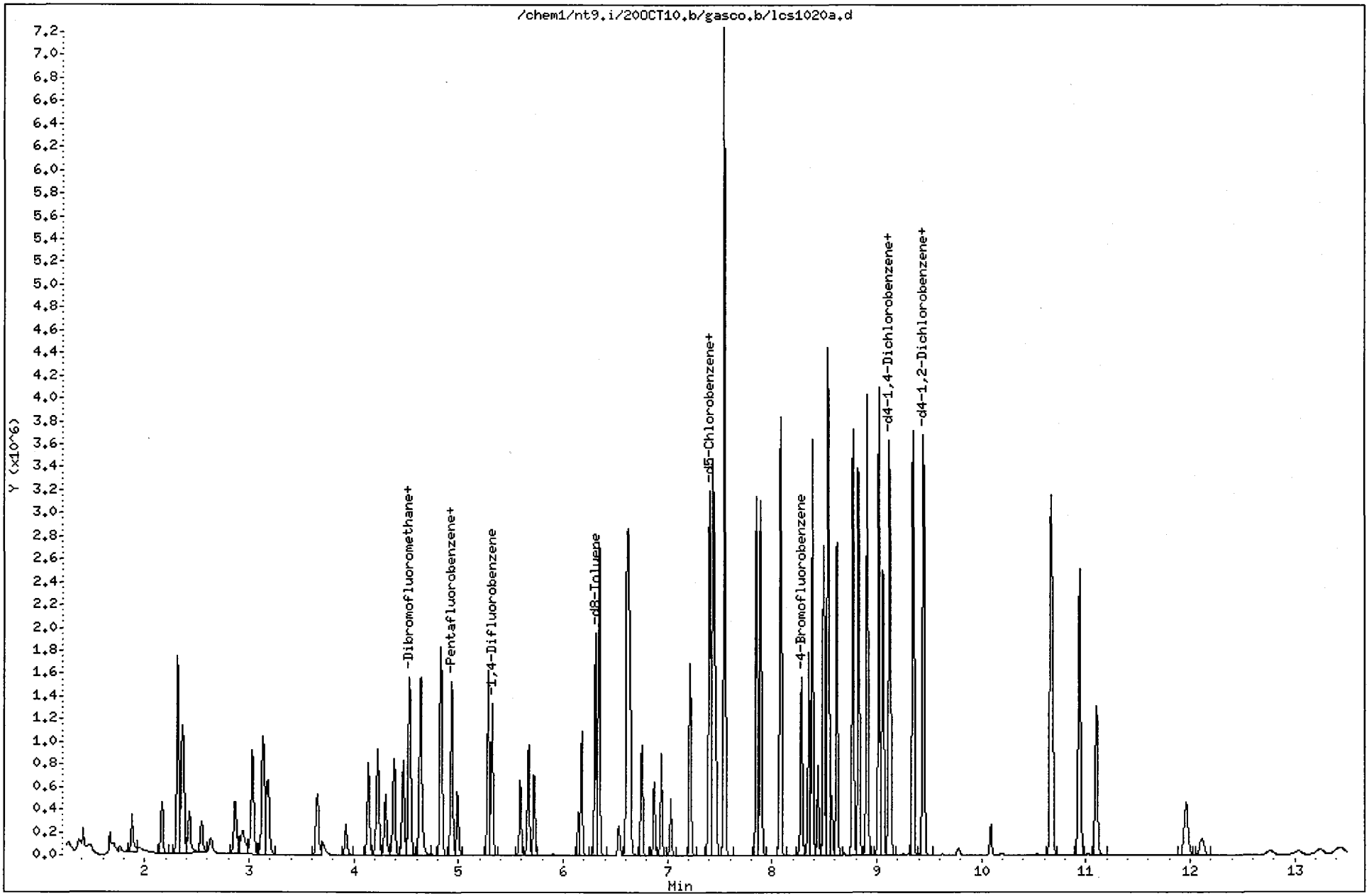
Sample Info: LCS1020,5,5,0

Column phase: RTX502.2

Instrument: nt9.i

Operator: PB

Column diameter: 0.18



RR33:00160

Analytical Resources, Inc.

8260C

Data file : /chem1/nt9.i/20OCT10.b/gasco.b/rr33a.d
Lab Smp Id: RR33A Client Smp ID: DGS-TB-101012-05
Inj Date : 20-OCT-2010 20:48
Operator : PB Inst ID: nt9.i
Smp Info : RR33A,5,5,0
Misc Info : 10-26419
Comment :
Method : /chem1/nt9.i/20OCT10.b/gasco.b/VO063010S.m
Meth Date : 27-Oct-2010 10:53 patrickb Quant Type: ISTD
Cal Date : 28-AUG-2010 13:21 Cal File: 2000828.d
Als bottle: 1
Dil Factor: 1.00000
Integrator: HP RTE Compound Sublist: gasco.sub
Target Version: 3.50
Processing Host: cserv3

Concentration Formula: Amt * DF * Pv / Sa * CpndVariable

Name	Value	Description
DF	1.00000	Dilution Factor
Pv	0.00000	Purge Volume (mL)
Sa	0.00000	Sample Amount (mL)

Cpnd Variable Local Compound Variable

Compounds	QUANT SIG MASS	RT	EXP RT	REL RT	RESPONSE	CONCENTRATIONS ON-COLUMN (ug/Kg)	FINAL (ug/L)
3 Vinyl Chloride	62	Compound Not Detected.					
7 1,1-Dichloroethene	96	Compound Not Detected.					
15 Trans-1,2-Dichloroethene	96	Compound Not Detected.					
20 Cis-1,2-Dichloroethene	96	Compound Not Detected.					
23 Chloroform	83	Compound Not Detected.					
24 Carbon Tetrachloride	117	Compound Not Detected.					
* 32 Pentafluorobenzene	168	4.937	4.932	(1.000)	766811	50.0000	
$ 25 Dibromofluoromethane	111	4.529	4.530	(0.917)	259143	45.1957	45.196
$ 31 d4-1,2-Dichloroethane	65	4.942	4.937	(1.001)	299484	50.8746	50.875
29 2-Butanone	72	Compound Not Detected.					
30 Benzene	78	Compound Not Detected.					
33 1,2-Dichloroethane	62	Compound Not Detected.					
* 35 1,4-Difluorobenzene	114	5.321	5.322	(1.000)	1012520	50.0000	
34 Trichloroethene	95	Compound Not Detected.					
$ 42 d8-Toluene	98	6.306	6.306	(1.185)	1135401	49.4909	49.491
43 Toluene	92	Compound Not Detected.					

Compounds	QUANT SIG MASS	RT	EXP RT	REL RT	RESPONSE	CONCENTRATIONS ON-COLUMN (ug/Kg)	FINAL (ug/L)
44 Tetrachloroethene	166	Compound Not Detected.					
* 52 d5-Chlorobenzene	117	7.397	7.398	(1.000)	898661	50.0000	
53 Chlorobenzene	112	Compound Not Detected.					
54 Ethyl Benzene	91	Compound Not Detected.					
56 m,p-xylene	106	Compound Not Detected.					
57 o-Xylene	106	Compound Not Detected.					
$ 61 4-Bromofluorobenzene	95	8.274	8.275	(1.119)	413214	49.6457	49.646
* 75 d4-1,4-Dichlorobenzene	152	9.106	9.112	(1.000)	507377	50.0000	
76 1,4-Dichlorobenzene	146	Compound Not Detected.					
$ 78 d4-1,2-Dichlorobenzene	152	9.434	9.434	(1.036)	450718	50.8179	50.818

Analytical Resources, Inc.

INTERNAL STANDARD COMPOUNDS
AREA AND RT SUMMARY

Instrument ID: nt9.i
Lab File ID: rr33a.d
Lab Smp Id: RR33A
Analysis Type: VOA
Quant Type: ISTD
Operator: PB
Method File: /chem1/nt9.i/20OCT10.b/gasco.b/VO063010S.m
Misc Info: 10-26419

Calibration Date: 20-OCT-2010
Calibration Time: 13:11
Client Smp ID: DGS-TB-101012-05
Level: LOW
Sample Type: Water

Test Mode:
Use Initial Calibration Level 5.
If Continuing Cal. use Initial Cal. Level 5

COMPOUND	STANDARD	AREA LIMIT LOWER	AREA LIMIT UPPER	SAMPLE	%DIFF
32 Pentafluorobenzen	704281	352140	1408562	766811	8.88
35 1,4-Difluorobenze	937745	468872	1875490	1012520	7.97
52 d5-Chlorobenzene	853013	426506	1706026	898661	5.35
75 d4-1,4-Dichlorobe	503655	251828	1007310	507377	0.74

COMPOUND	STANDARD	RT LIMIT LOWER	RT LIMIT UPPER	SAMPLE	%DIFF
32 Pentafluorobenzen	4.93	4.43	5.43	4.94	0.10
35 1,4-Difluorobenze	5.32	4.82	5.82	5.32	-0.01
52 d5-Chlorobenzene	7.40	6.90	7.90	7.40	-0.01
75 d4-1,4-Dichlorobe	9.11	8.61	9.61	9.11	-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.

Analytical Resources, Inc.

RECOVERY REPORT

Client Name: NW Natural
Sample Matrix: LIQUID
Lab Smp Id: RR33A
Level: LOW
Data Type: MS DATA
SpikeList File: all.spk
Sublist File: gasco.sub
Method File: /chem1/nt9.i/20OCT10.b/gasco.b/VO063010S.m
Misc Info: 10-26419

Client SDG: RR33
Fraction: VOA
Client Smp ID: DGS-TB-101012-05
Operator: PB
SampleType: SAMPLE
Quant Type: ISTD

SURROGATE COMPOUND	AMOUNT ADDED ug/Kg	AMOUNT RECOVERED ug/Kg	% RECOVERED	LIMITS
$ 25 Dibromofluorometha	50.000	45.196	90.39	30-160
$ 31 d4-1,2-Dichloroeth	50.000	50.875	101.75	75-152
$ 42 d8-Toluene	50.000	49.491	98.98	82-115
$ 61 4-Bromofluorobenze	50.000	49.646	99.29	71-120
$ 78 d4-1,2-Dichloroben	50.000	50.818	101.64	80-121

Data File: /chem1/nt9.i/20OCT10.b/gasco.b/rr33a.d

Date : 20-OCT-2010 20:48

Client ID: DGS-TB-101012-05

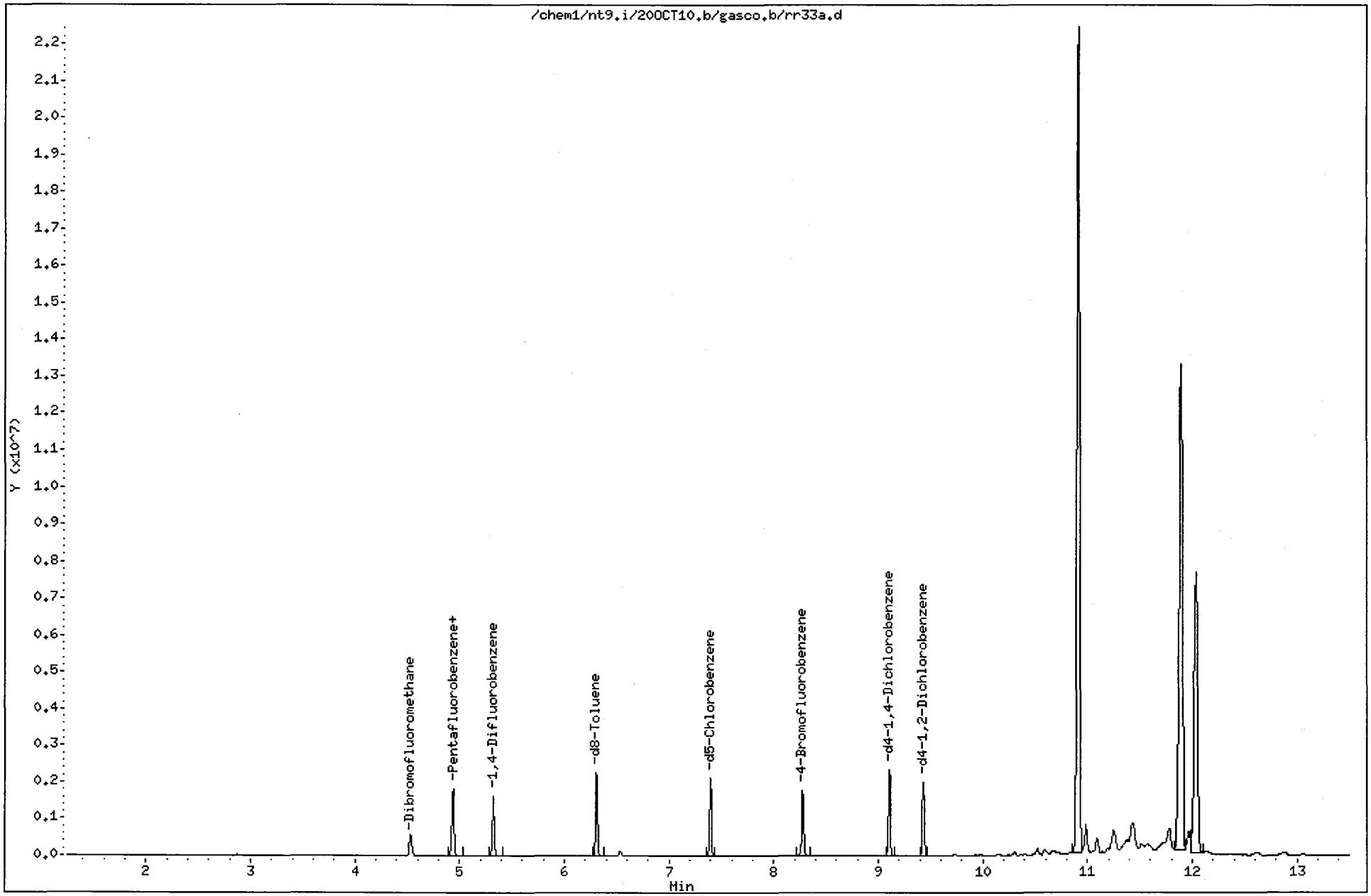
Sample Info: RR33A,5,5,0

Column phase: RTX502.2

Instrument: nt9.i

Operator: PB

Column diameter: 0.18



RR33:00165

Analytical Resources, Inc.

8260C

Data file : /chem1/nt9.i/20OCT10.b/gasco.b/rr33c.d
Lab Smp Id: RR33C Client Smp ID: DGS-07-2.22.7-10101
Inj Date : 20-OCT-2010 21:49
Operator : PB Inst ID: nt9.i
Smp Info : RR33C,5,6.11,0
Misc Info : 10-26421
Comment :
Method : /chem1/nt9.i/20OCT10.b/gasco.b/VO063010S.m
Meth Date : 27-Oct-2010 10:53 patrickb Quant Type: ISTD
Cal Date : 28-AUG-2010 13:21 Cal File: 2000828.d
Als bottle: 1
Dil Factor: 1.00000
Integrator: HP RTE Compound Sublist: gasco.sub
Target Version: 3.50
Processing Host: cserv3

Concentration Formula: Amt * DF * Pv * 1 / (Sa * ((100 - M) / 100)) * CpndVaria

Name	Value	Description
DF	1.00000	Dilution Factor
Pv	5.00000	Purge Volume
Sa	6.11000	Sample Amount
M	0.00000	% Moisture (not decanted)

Cpnd Variable Local Compound Variable

Compounds	QUANT SIG MASS	RT	EXP RT	REL RT	RESPONSE	CONCENTRATIONS ON-COLUMN (ug/Kg)	CONCENTRATIONS FINAL (ug/Kg)
3 Vinyl Chloride	62	Compound Not Detected.					
7 1,1-Dichloroethene	96	Compound Not Detected.					
15 Trans-1,2-Dichloroethene	96	Compound Not Detected.					
20 Cis-1,2-Dichloroethene	96	Compound Not Detected.					
23 Chloroform	83	Compound Not Detected.					
24 Carbon Tetrachloride	117	Compound Not Detected.					
* 32 Pentafluorobenzene	168	4.932	4.932	(1.000)	597188	50.0000	
$ 25 Dibromofluoromethane	111	4.531	4.530	(0.919)	221384	49.5771	40.570
$ 31 d4-1,2-Dichloroethane	65	4.938	4.937	(1.001)	256092	55.8599	45.712
29 2-Butanone	72	4.649	4.643	(0.943)	13392	23.1054	18.908(Q)
30 Benzene	78	4.830	4.830	(0.908)	441714	20.6660	16.912
33 1,2-Dichloroethane	62	Compound Not Detected.					
* 35 1,4-Difluorobenzene	114	5.323	5.322	(1.000)	794713	50.0000	
34 Trichloroethene	95	Compound Not Detected.					

Compounds	QUANT SIG MASS	RT	EXP RT	REL RT	RESPONSE	CONCENTRATIONS ON-COLUMN (ug/Kg)	FINAL (ug/Kg)
$ 42 d8-Toluene	98	6.307	6.306	(1.185)	891007	49.4824	40.493
43 Toluene	92	6.341	6.340	(1.191)	155546	10.2407	8.380
44 Tetrachloroethene	166	Compound Not Detected.					
* 52 d5-Chlorobenzene	117	7.399	7.398	(1.000)	708371	50.0000	
53 Chlorobenzene	112	7.410	7.409	(1.002)	4721	0.27947	0.2287(Q)
54 Ethyl Benzene	91	7.438	7.438	(1.005)	5913907	203.711	166.70 E
56 m,p-xylene	106	7.546	7.539	(1.020)	66047	5.62520	4.603(QM)
57 o-Xylene	106	7.846	7.845	(1.060)	550405	50.3221	41.180
$ 61 4-Bromofluorobenzene	95	8.275	8.275	(1.119)	344747	52.5463	43.000
* 75 d4-1,4-Dichlorobenzene	152	9.107	9.112	(1.000)	379125	50.0000	
76 1,4-Dichlorobenzene	146	9.124	9.118	(1.002)	4225	0.31055	0.2541(Q)
$ 78 d4-1,2-Dichlorobenzene	152	9.435	9.434	(1.036)	349701	52.7663	43.180

QC Flag Legend

Q - Qualifier signal failed the ratio test.
M - Compound response manually integrated.

Analytical Resources, Inc.

INTERNAL STANDARD COMPOUNDS
AREA AND RT SUMMARY

Instrument ID: nt9.i
Lab File ID: rr33c.d
Lab Smp Id: RR33C
Analysis Type: VOA
Quant Type: ISTD
Operator: PB
Method File: /chem1/nt9.i/20OCT10.b/gasco.b/VO063010S.m
Misc Info: 10-26421

Calibration Date: 20-OCT-2010
Calibration Time: 13:11
Client Smp ID: DGS-07-2.22.7-10101
Level: LOW
Sample Type: Sediment

Test Mode:
Use Initial Calibration Level 5.
If Continuing Cal. use Initial Cal. Level 5

COMPOUND	STANDARD	AREA LIMIT LOWER	AREA LIMIT UPPER	SAMPLE	%DIFF
32 Pentafluorobenzen	704281	352140	1408562	597188	-15.21
35 1,4-Difluorobenze	937745	468872	1875490	794713	-15.25
52 d5-Chlorobenzene	853013	426506	1706026	708371	-16.96
75 d4-1,4-Dichlorobe	503655	251828	1007310	379125	-24.73

COMPOUND	STANDARD	RT LIMIT LOWER	RT LIMIT UPPER	SAMPLE	%DIFF
32 Pentafluorobenzen	4.93	4.43	5.43	4.93	0.01
35 1,4-Difluorobenze	5.32	4.82	5.82	5.32	0.01
52 d5-Chlorobenzene	7.40	6.90	7.90	7.40	0.01
75 d4-1,4-Dichlorobe	9.11	8.61	9.61	9.11	-0.05

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.

Analytical Resources, Inc.

RECOVERY REPORT

Client Name: NW Natural
Sample Matrix: SOLID
Lab Smp Id: RR33C
Level: LOW
Data Type: MS DATA
SpikeList File: all.spk
Sublist File: gasco.sub
Method File: /chem1/nt9.i/20OCT10.b/gasco.b/VO063010S.m
Misc Info: 10-26421

Client SDG: RR33
Fraction: VOA
Client Smp ID: DGS-07-2.22.7-10101
Operator: PB
SampleType: SAMPLE
Quant Type: ISTD

SURROGATE COMPOUND	AMOUNT ADDED ug/Kg	AMOUNT RECOVERED ug/Kg	% RECOVERED	LIMITS
$ 25 Dibromofluorometha	50.000	49.577	99.15	30-160
$ 31 d4-1,2-Dichloroeth	50.000	55.860	111.72	75-152
$ 42 d8-Toluene	50.000	49.482	98.96	82-115
$ 61 4-Bromofluorobenze	50.000	52.546	105.09	64-120
$ 78 d4-1,2-Dichloroben	50.000	52.766	105.53	80-120

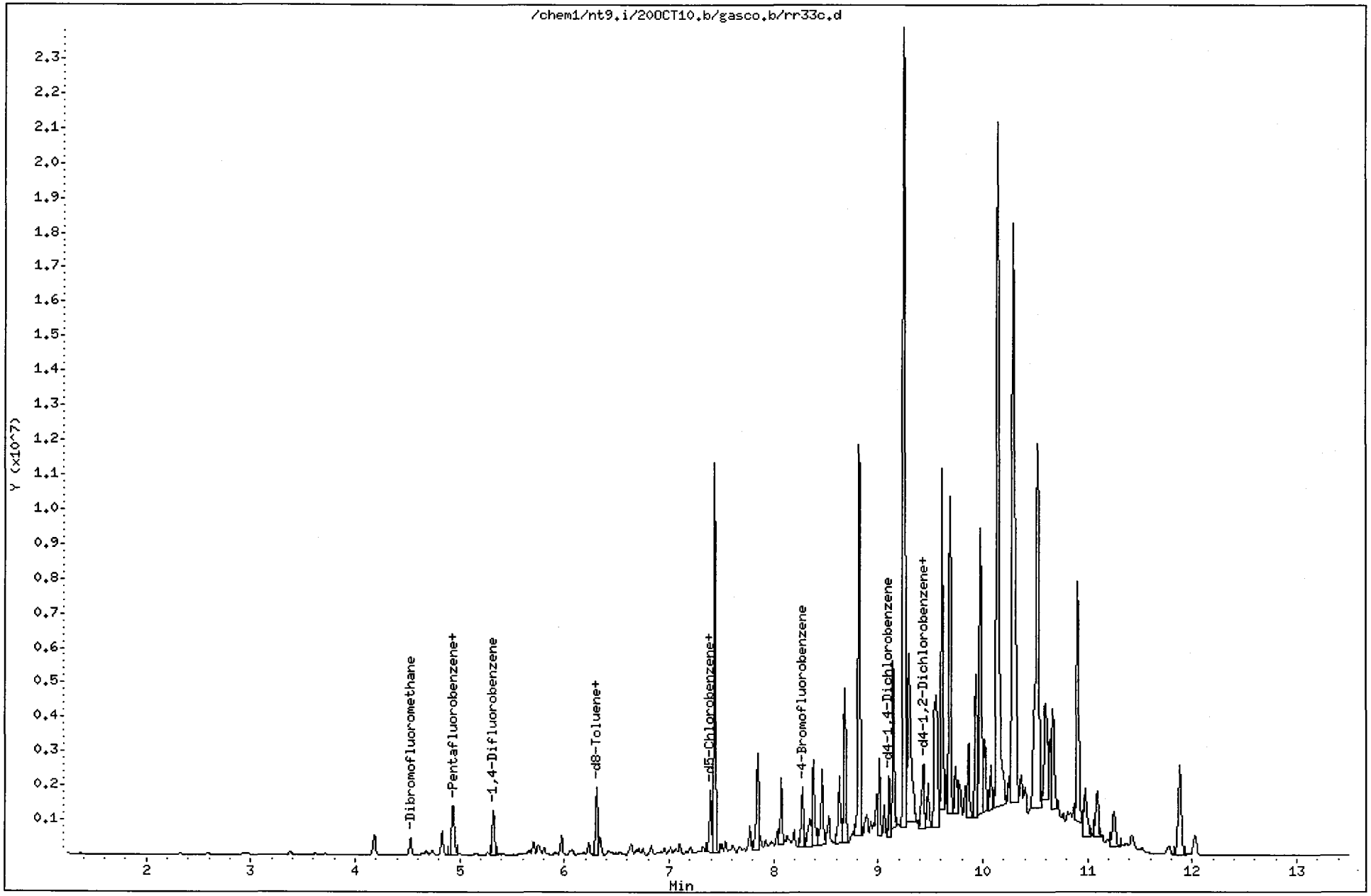
Data File: /chem1/nt9.i/20OCT10.b/gasco.b/rr33c.d
Date : 20-OCT-2010 21:49
Client ID: DGS-07-2.22.7-10101
Sample Info: RR33C,5,6.11,0

Column phase: RTX502.2

Instrument: nt9.i

Operator: PB
Column diameter: 0.18

RR33:00170



Data File: /chem1/nt9.i/20OCT10.b/gasco.b/rr33c.d

Date : 20-OCT-2010 21:49

Client ID: DGS-07-2.22.7-10101

Instrument: nt9.i

Sample Info: RR33C,5,6.11,0

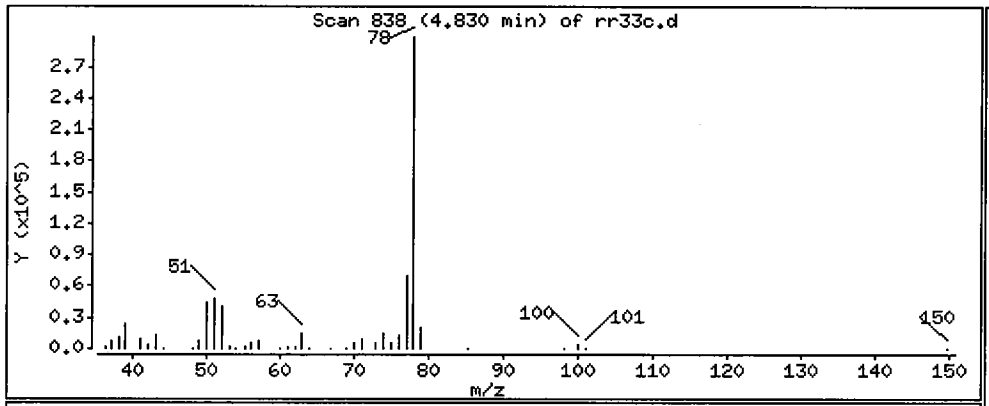
Operator: PB

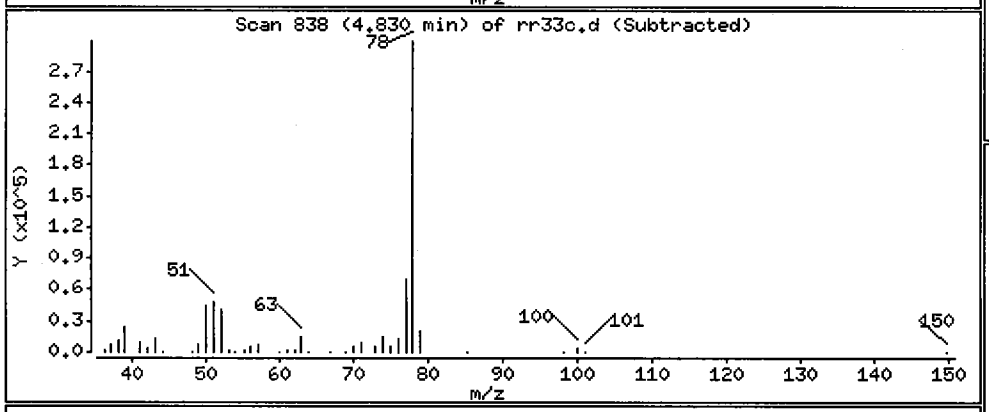
Column phase: RTX502.2

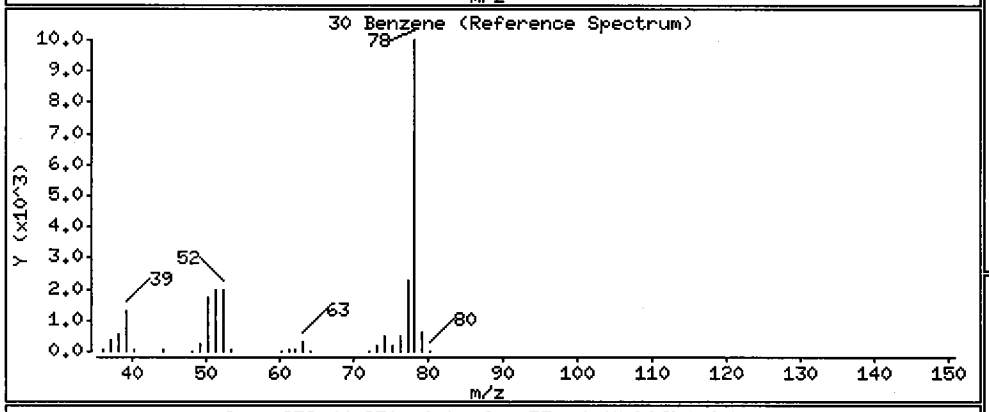
Column diameter: 0.18

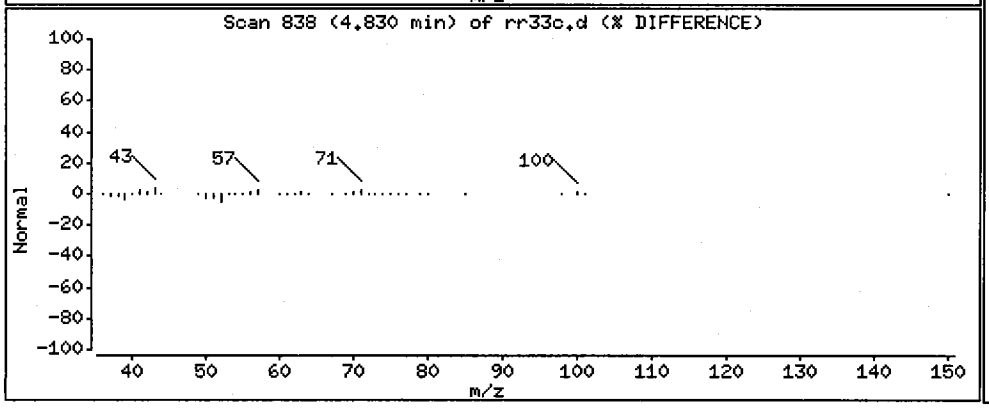
30 Benzene

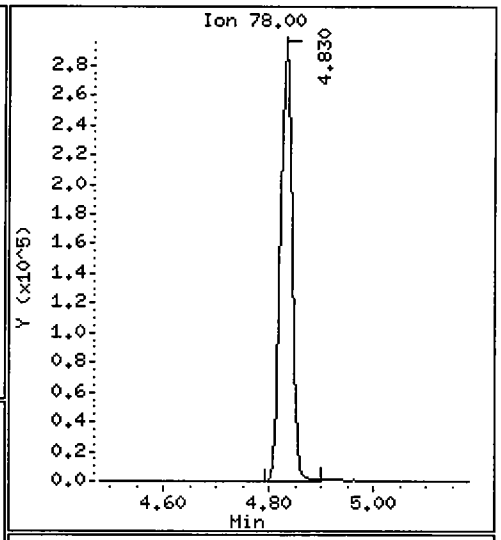
Concentration: 16.912 ug/Kg

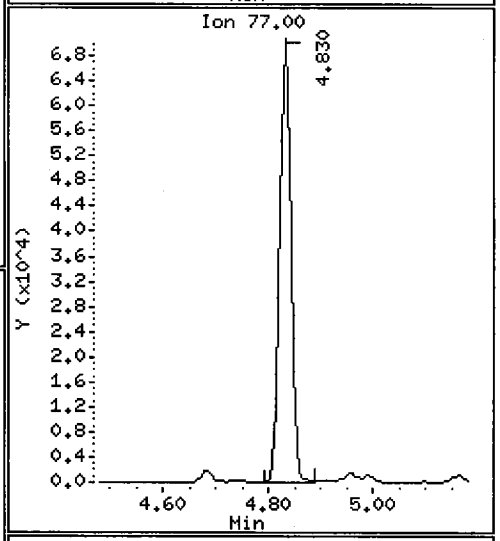


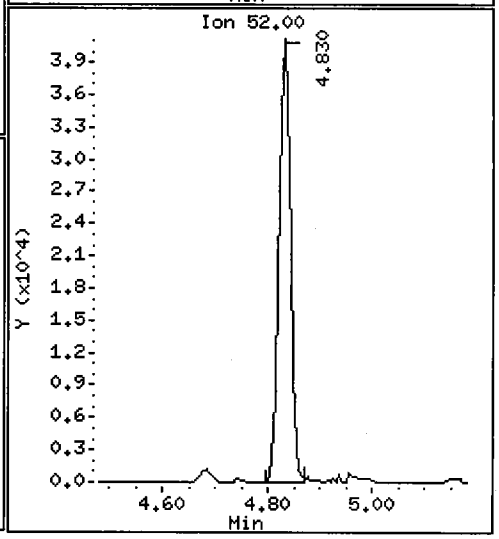












Data File: /chem1/nt9.i/20OCT10.b/gasco.b/rr33c.d

Date : 20-OCT-2010 21:49

Client ID: DGS-07-2.22.7-10101

Instrument: nt9.i

Sample Info: RR33C,5,6.11,0

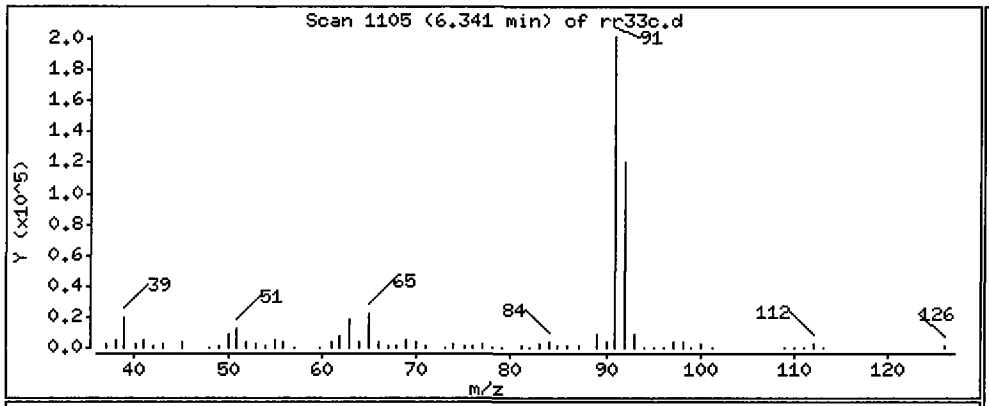
Operator: PB

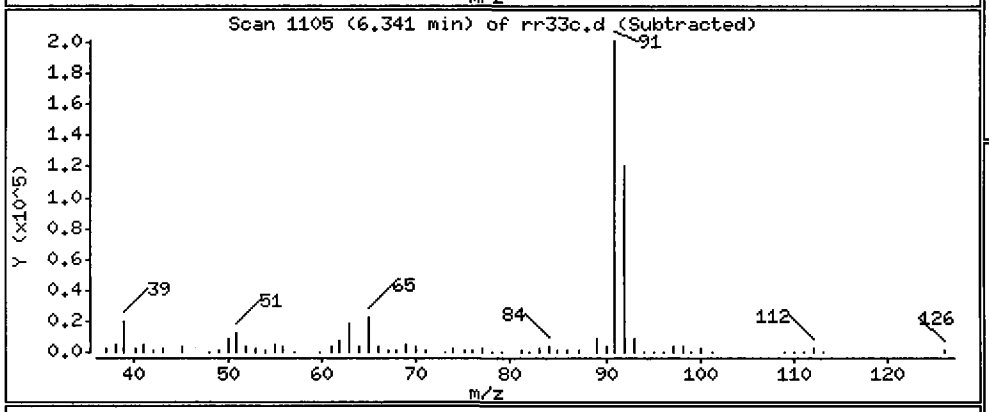
Column phase: RTX502.2

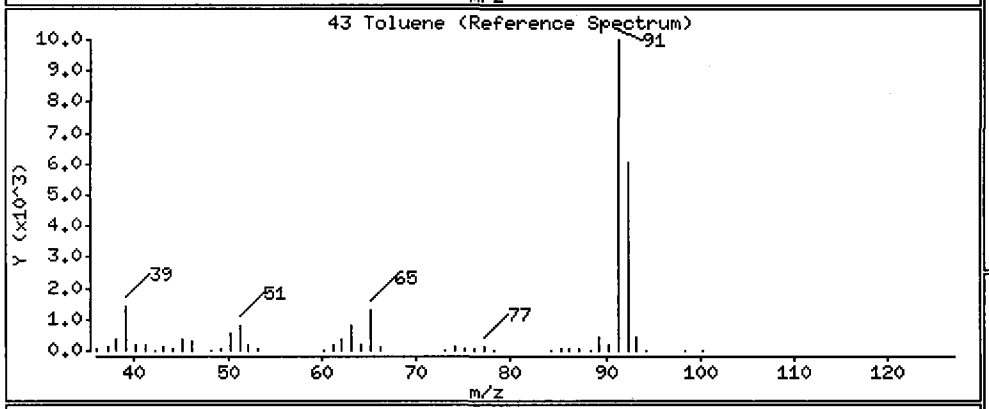
Column diameter: 0.18

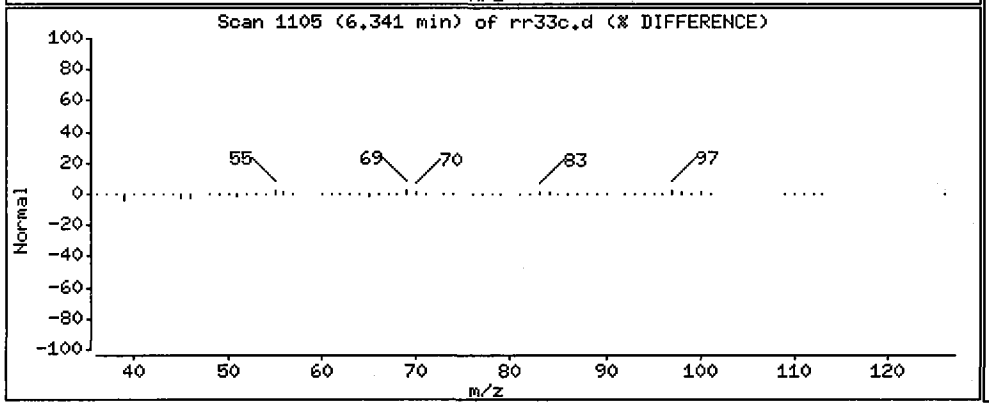
43 Toluene

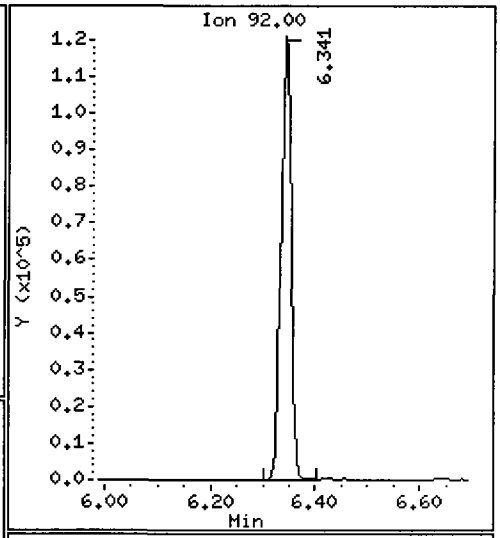
Concentration: 8.380 ug/Kg

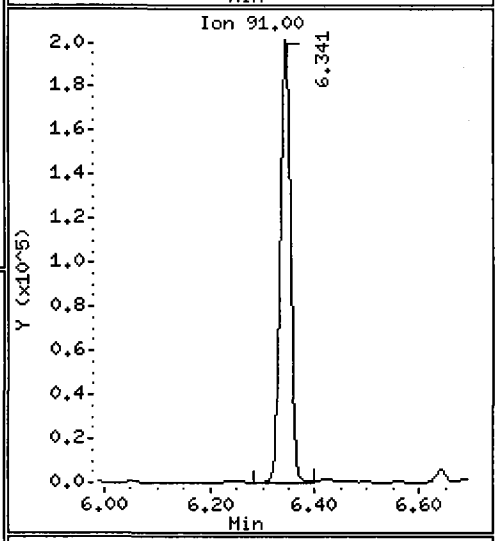


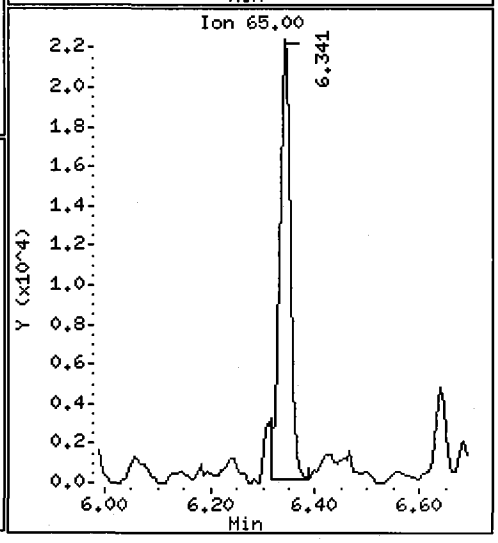












Data File: /chem1/nt9.i/20OCT10.b/gasco.b/rr33c.d

Date : 20-OCT-2010 21:49

Client ID: DGS-07-2.22.7-10101

Instrument: nt9.i

Sample Info: RR33C,5,6.11,0

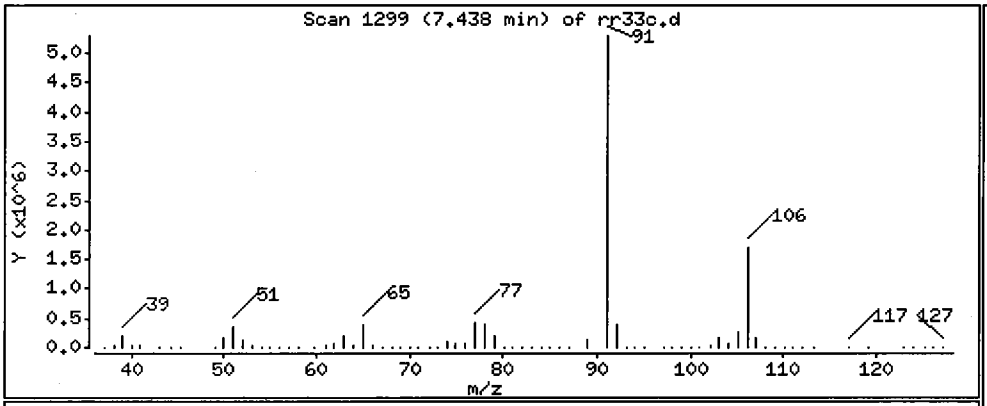
Operator: PB

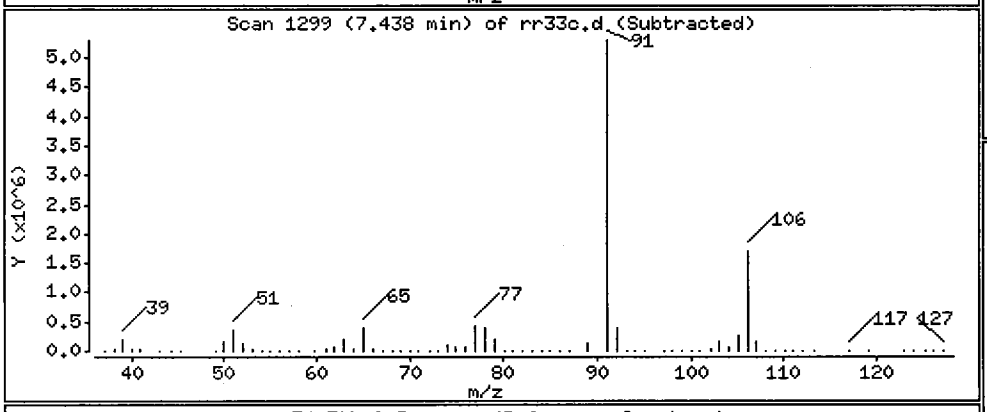
Column phase: RTX502.2

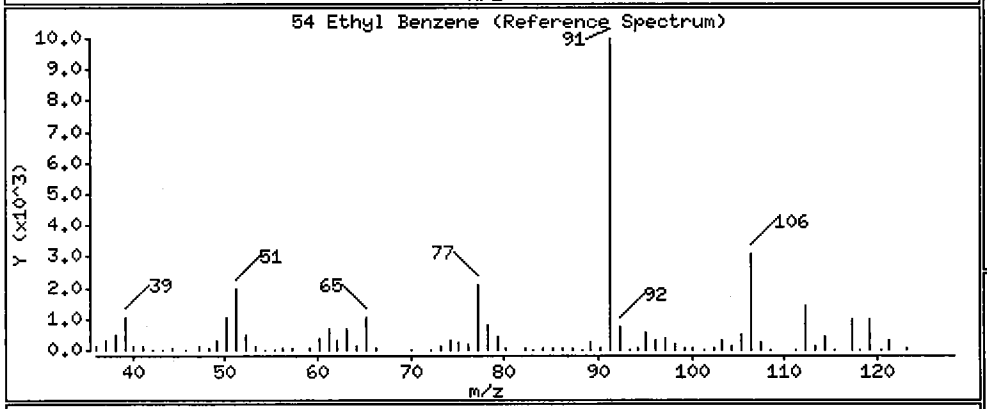
Column diameter: 0.18

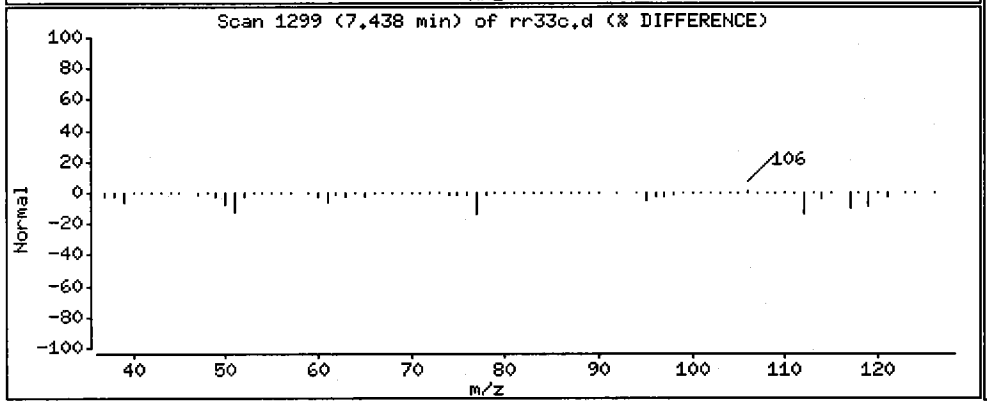
54 Ethyl Benzene

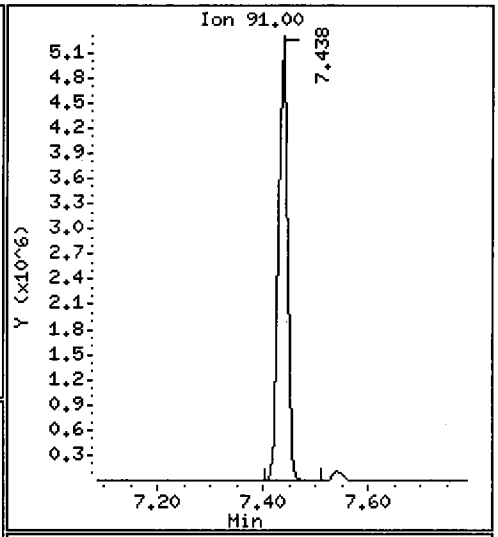
Concentration: 166.70 ug/Kg

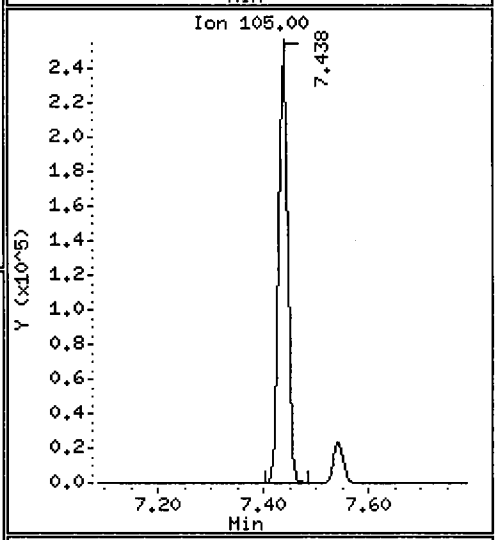


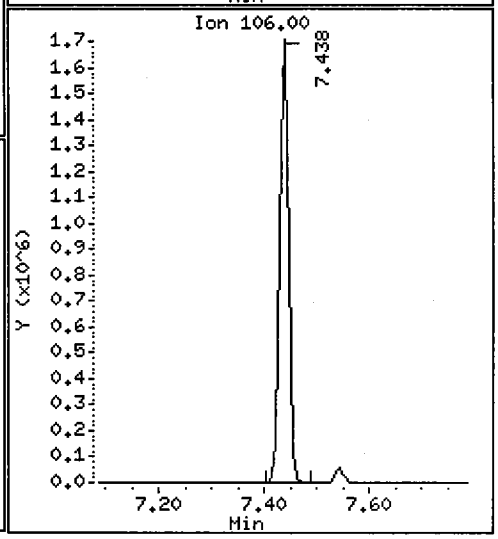












Data File: /chem1/nt9.i/20OCT10.b/gasco.b/rr33c.d

Date : 20-OCT-2010 21:49

Client ID: DGS-07-2.22.7-10101

Instrument: nt9.i

Sample Info: RR33C,5,6.11,0

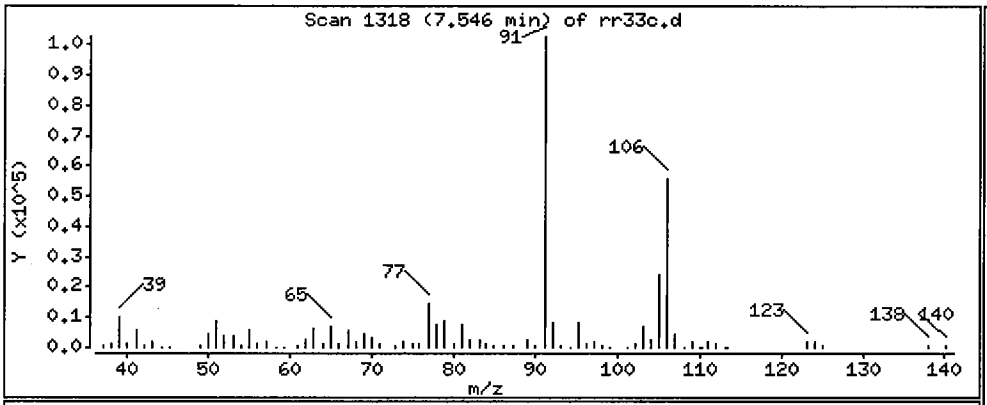
Operator: PB

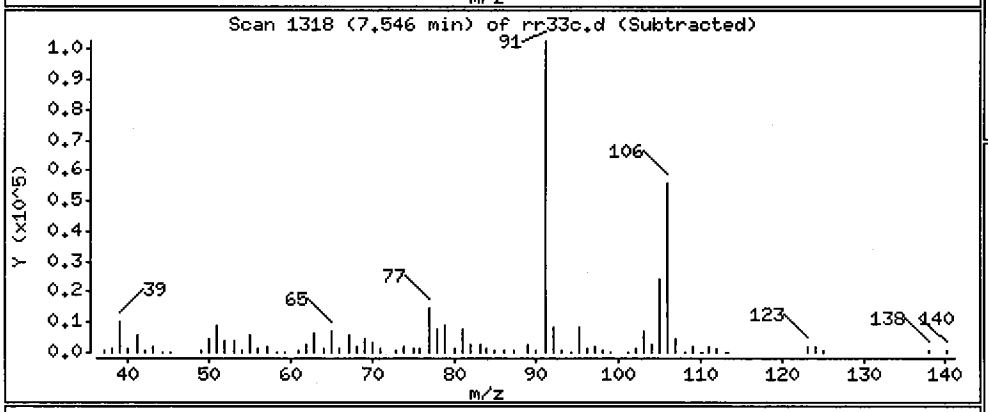
Column phase: RTX502.2

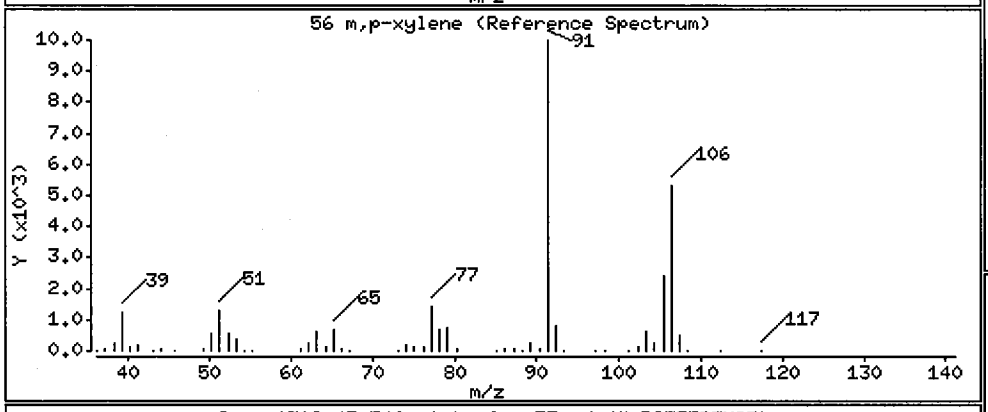
Column diameter: 0.18

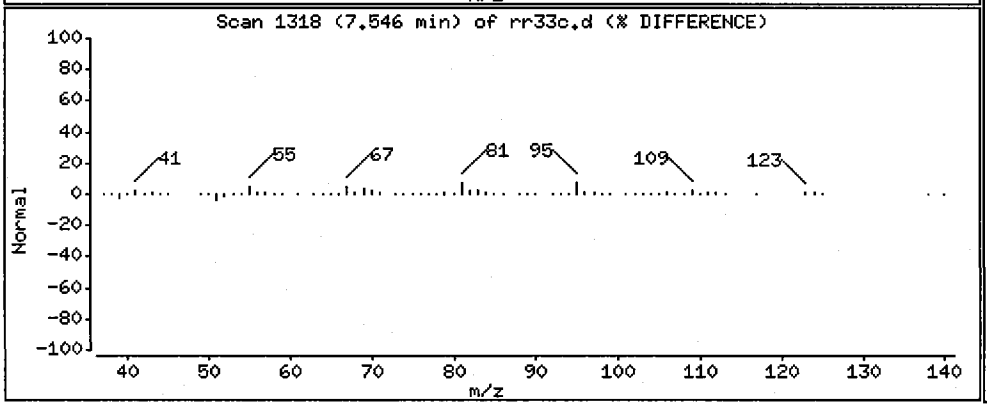
56 m,p-xylene

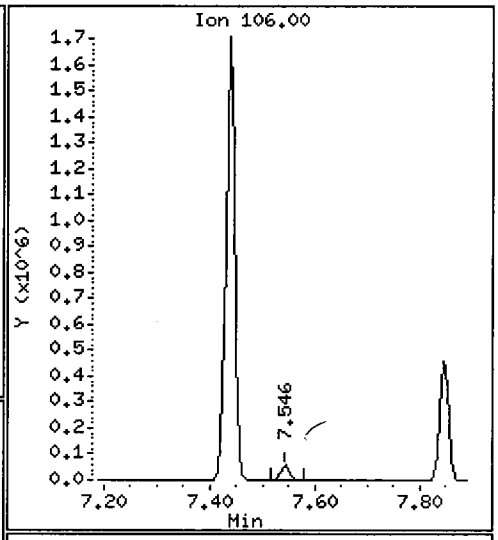
Concentration: 4.603 ug/Kg

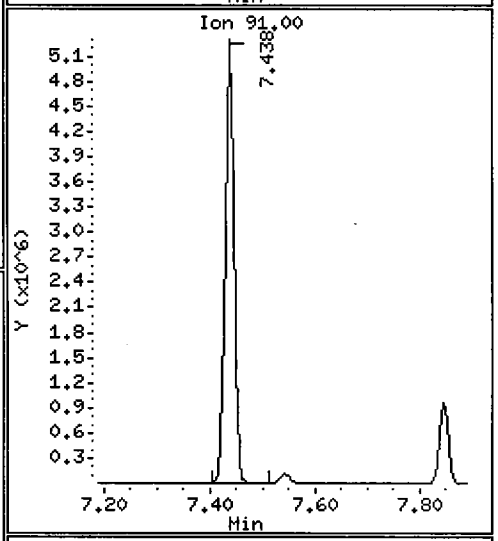


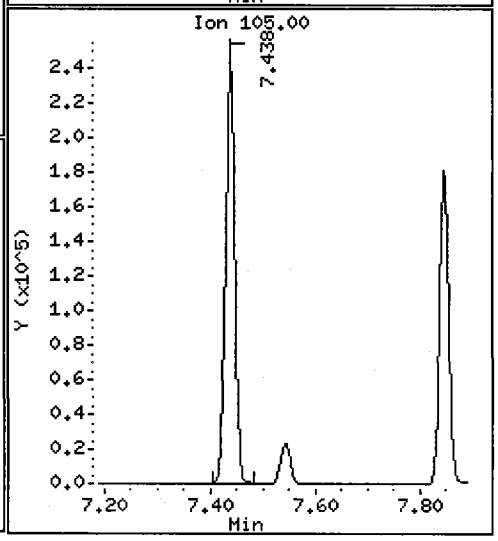












Data File: /chem1/nt9.i/20OCT10.b/gasco.b/rr33c.d

Date : 20-OCT-2010 21:49

Client ID: DGS-07-2.22.7-10101

Instrument: nt9.i

Sample Info: RR33C,5,6.11,0

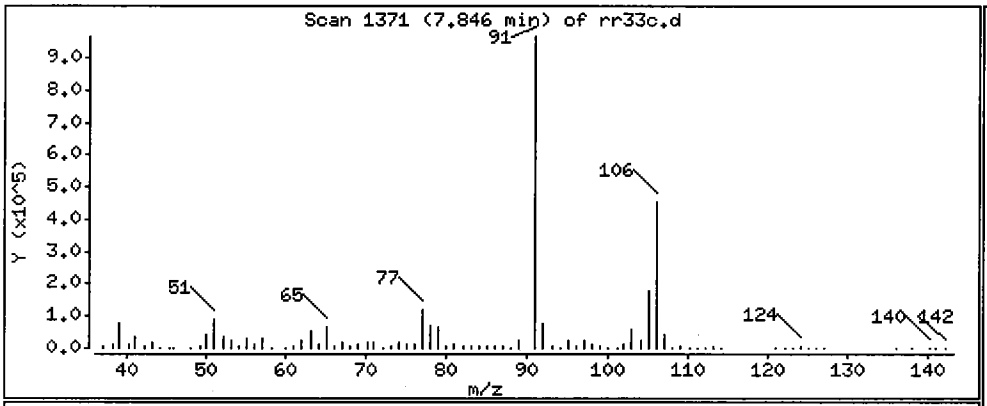
Operator: PB

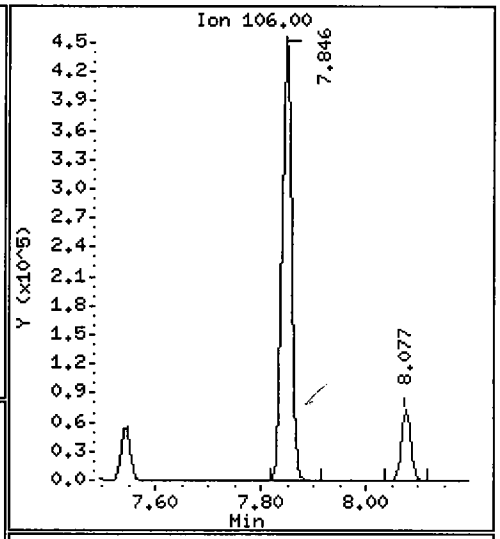
Column phase: RTX502.2

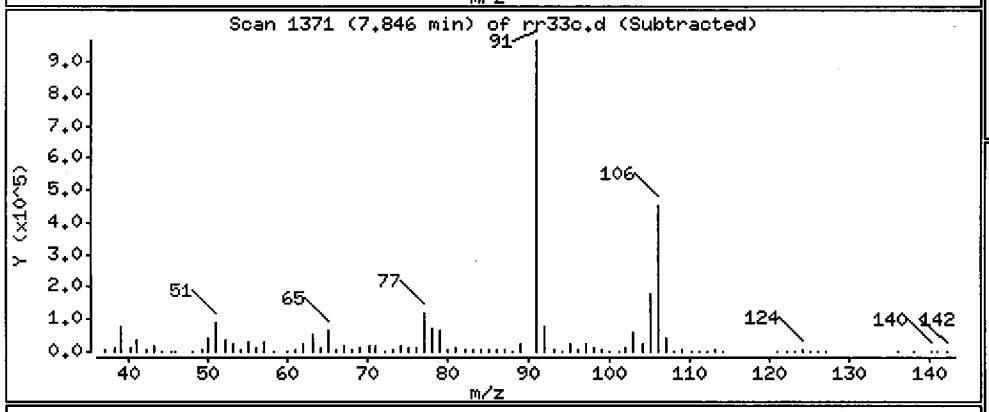
Column diameter: 0.18

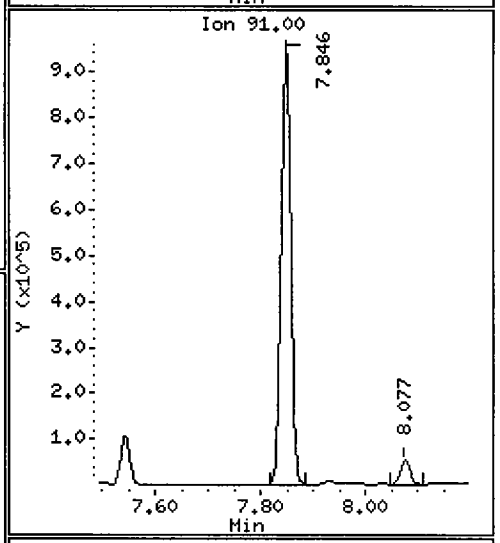
57 o-Xylene

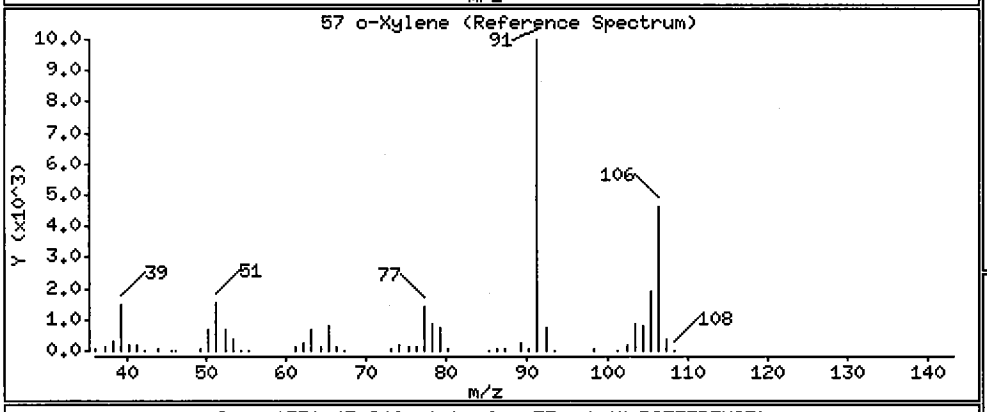
Concentration: 41.180 ug/Kg

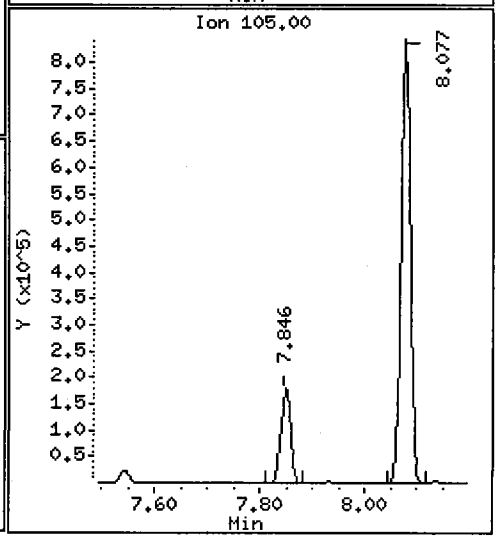


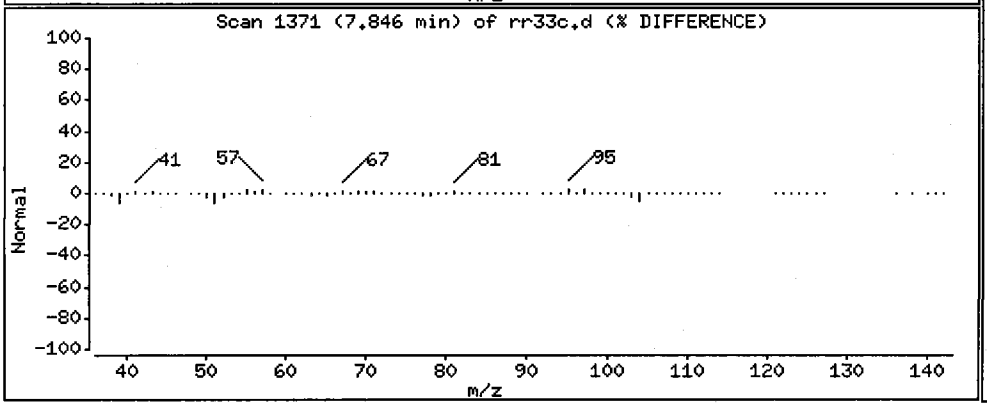






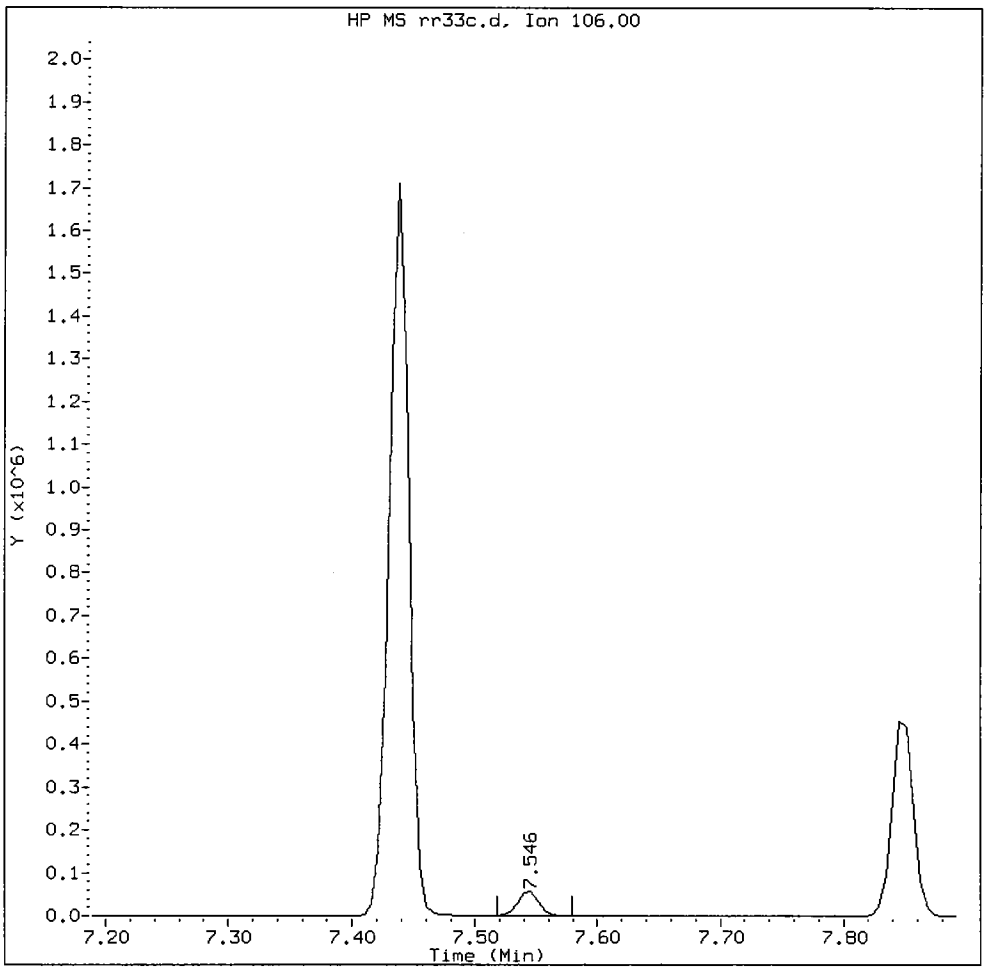






RR33C, /chem1/nt9.i/20OCT10.b/gasco.b/rr33c.d

m,p-xylene Amount: 5.63 Area: 66047



MANUAL INTEGRATION for m,p-xylene

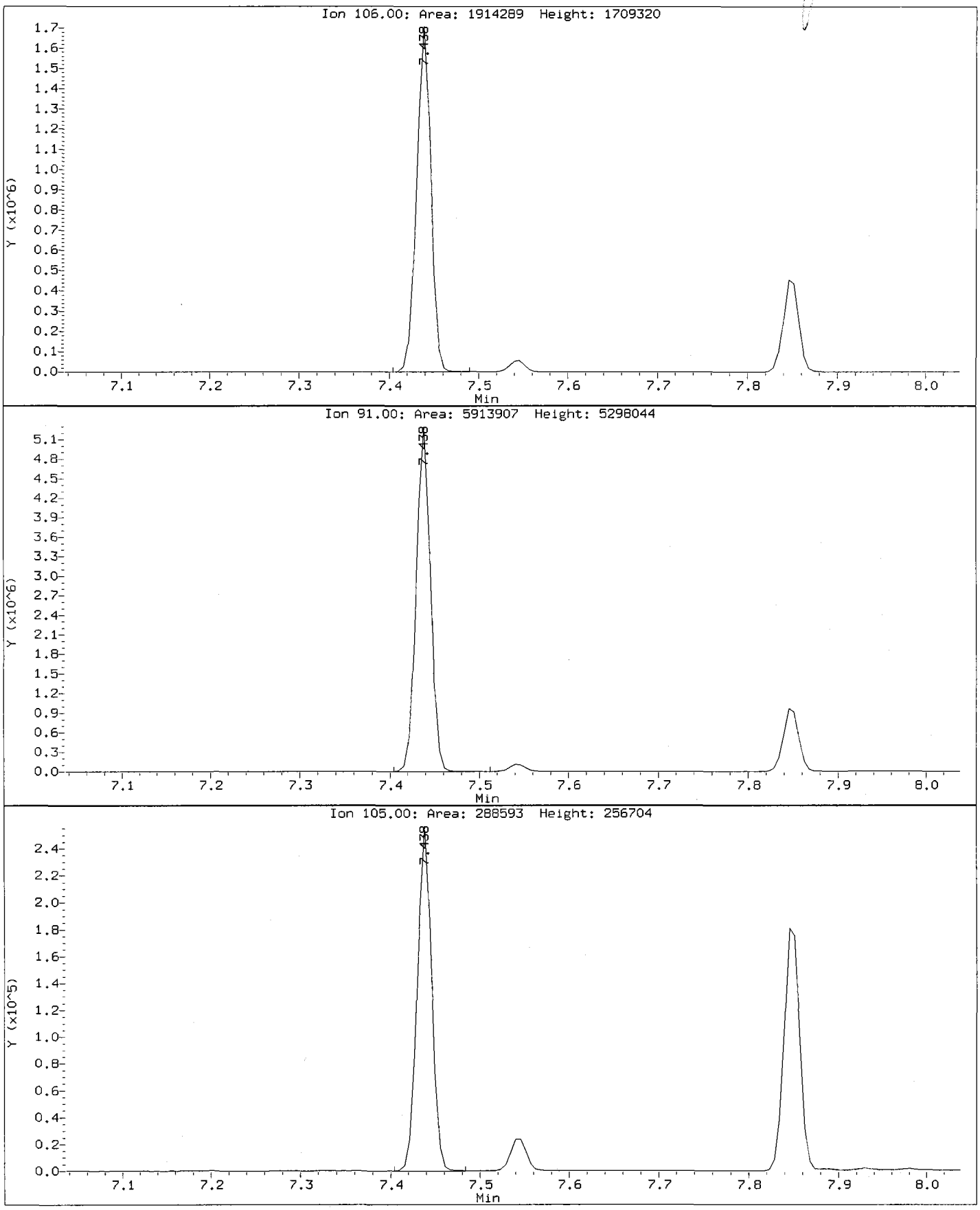
1. Baseline correction
2. Poor chromatography
3. Peak not found
4. Totals calculation

5. Other _____

Analyst: _____ Date: 10/27/10

Data File: /chem1/nt9.i/20OCT10.b/rr33c.d
Injection Date: 20-OCT-2010 21:49
Instrument: nt9.i
Client Sample ID: DGS-07-2.22.7-10101

Compound: m,p-xylene
CAS Number:



Analytical Resources, Inc.

8260C

Data file : /chem1/nt9.i/20OCT10.b/gasco.b/rr33e.d
Lab Smp Id: RR33E Client Smp ID: DGS-07-4.75.2-10101
Inj Date : 20-OCT-2010 22:50
Operator : PB Inst ID: nt9.i
Smp Info : RR33E,5,5.96,0
Misc Info : 10-26423
Comment :
Method : /chem1/nt9.i/20OCT10.b/gasco.b/VO063010S.m
Meth Date : 27-Oct-2010 10:53 patrickb Quant Type: ISTD
Cal Date : 28-AUG-2010 13:21 Cal File: 2000828.d
Als bottle: 1
Dil Factor: 1.00000
Integrator: HP RTE Compound Sublist: gasco.sub
Target Version: 3.50
Processing Host: cserv3

10/27/10

Concentration Formula: Amt * DF * Pv * 1 / (Sa * ((100 - M) / 100)) * CpndVaria

Name	Value	Description
DF	1.00000	Dilution Factor
Pv	5.00000	Purge Volume
Sa	5.96000	Sample Amount
M	0.00000	% Moisture (not decanted)

Cpnd Variable Local Compound Variable

Compounds	QUANT SIG MASS	RT	EXP RT	REL RT	RESPONSE	CONCENTRATIONS ON-COLUMN (ug/Kg)	FINAL (ug/Kg)
3 Vinyl Chloride	62	Compound Not Detected.					
7 1,1-Dichloroethene	96	Compound Not Detected.					
15 Trans-1,2-Dichloroethene	96	Compound Not Detected.					
20 Cis-1,2-Dichloroethene	96	Compound Not Detected.					
23 Chloroform	83	Compound Not Detected.					
24 Carbon Tetrachloride	117	Compound Not Detected.					
* 32 Pentafluorobenzene	168	4.937	4.932	(1.000)	453368	50.0000	
$ 25 Dibromofluoromethane	111	4.529	4.530	(0.917)	169063	49.8705	41.838
$ 31 d4-1,2-Dichloroethane	65	4.937	4.937	(1.000)	190837	54.8311	45.999
29 2-Butanone	72	4.648	4.643	(0.942)	15869	36.0642	30.255(Q)
30 Benzene	78	4.829	4.830	(0.908)	408150	25.1473	21.097
33 1,2-Dichloroethane	62	Compound Not Detected.					
* 35 1,4-Difluorobenzene	114	5.321	5.322	(1.000)	603467	50.0000	
34 Trichloroethene	95	Compound Not Detected.					

Compounds	QUANT SIG MASS	RT	EXP RT	REL RT	RESPONSE	CONCENTRATIONS ON-COLUMN (ug/Kg)	FINAL (ug/Kg)
$ 42 d8-Toluene	98	6.306	6.306	(1.185)	656313	47.9996	40.268
43 Toluene	92	6.345	6.340	(1.192)	40572	3.51768	2.951
44 Tetrachloroethene	166	Compound Not Detected.					
* 52 d5-Chlorobenzene	117	7.397	7.398	(1.000)	504618	50.0000	
53 Chlorobenzene	112	7.409	7.409	(1.002)	6779	0.56334	0.4726 (Q)
54 Ethyl Benzene	91	7.437	7.438	(1.005)	15872638	767.516	643.89 (M)
56 m,p-xylene	106	7.545	7.539	(1.020)	55526	6.63865	5.569 (QM)
57 o-Xylene	106	7.850	7.845	(1.061)	173222	22.2320	18.651
$ 61 4-Bromofluorobenzene	95	8.274	8.275	(1.119)	239925	51.3352	43.066
* 75 d4-1,4-Dichlorobenzene	152	9.106	9.112	(1.000)	252191	50.0000	(QM)
76 1,4-Dichlorobenzene	146	Compound Not Detected.					
$ 78 d4-1,2-Dichlorobenzene	152	9.434	9.434	(1.036)	223822	50.7710	42.593 (QM)

QC Flag Legend

Q - Qualifier signal failed the ratio test.
M - Compound response manually integrated.

Analytical Resources, Inc.

INTERNAL STANDARD COMPOUNDS
AREA AND RT SUMMARY

Instrument ID: nt9.i
Lab File ID: rr33e.d
Lab Smp Id: RR33E
Analysis Type: VOA
Quant Type: ISTD
Operator: PB
Method File: /chem1/nt9.i/20OCT10.b/gasco.b/VO063010S.m
Misc Info: 10-26423

Calibration Date: 20-OCT-2010
Calibration Time: 13:11
Client Smp ID: DGS-07-4.75.2-10101
Level: LOW
Sample Type: Sediment

Test Mode:
Use Initial Calibration Level 5.
If Continuing Cal. use Initial Cal. Level 5

COMPOUND	STANDARD	AREA LIMIT LOWER	AREA LIMIT UPPER	SAMPLE	%DIFF
32 Pentafluorobenzen	704281	352140	1408562	453368	-35.63
35 1,4-Difluorobenze	937745	468872	1875490	603467	-35.65
52 d5-Chlorobenzene	853013	426506	1706026	504618	-40.84
75 d4-1,4-Dichlorobe	503655	251828	1007310	252191	-49.93

COMPOUND	STANDARD	RT LIMIT LOWER	RT LIMIT UPPER	SAMPLE	%DIFF
32 Pentafluorobenzen	4.93	4.43	5.43	4.94	0.11
35 1,4-Difluorobenze	5.32	4.82	5.82	5.32	-0.01
52 d5-Chlorobenzene	7.40	6.90	7.90	7.40	-0.01
75 d4-1,4-Dichlorobe	9.11	8.61	9.61	9.11	-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.

Analytical Resources, Inc.

RECOVERY REPORT

Client Name: NW Natural
Sample Matrix: SOLID
Lab Smp Id: RR33E
Level: LOW
Data Type: MS DATA
SpikeList File: all.spk
Sublist File: gasco.sub
Method File: /chem1/nt9.i/20OCT10.b/gasco.b/VO063010S.m
Misc Info: 10-26423

Client SDG: RR33
Fraction: VOA
Client Smp ID: DGS-07-4.75.2-10101
Operator: PB
SampleType: SAMPLE
Quant Type: ISTD

SURROGATE COMPOUND	AMOUNT ADDED ug/Kg	AMOUNT RECOVERED ug/Kg	% RECOVERED	LIMITS
$ 25 Dibromofluorometha	50.000	49.871	99.74	30-160
$ 31 d4-1,2-Dichloroeth	50.000	54.831	109.66	75-152
$ 42 d8-Toluene	50.000	48.000	96.00	82-115
$ 61 4-Bromofluorobenze	50.000	51.335	102.67	64-120
$ 78 d4-1,2-Dichloroben	50.000	50.771	101.54	80-120

Data File: /chem1/nt9.i/20OCT10.b/gasco.b/rr33e.d

Date : 20-OCT-2010 22:50

Client ID: DGS-07-4.75.2-10101

Sample Info: RR33E,5,5.96,0

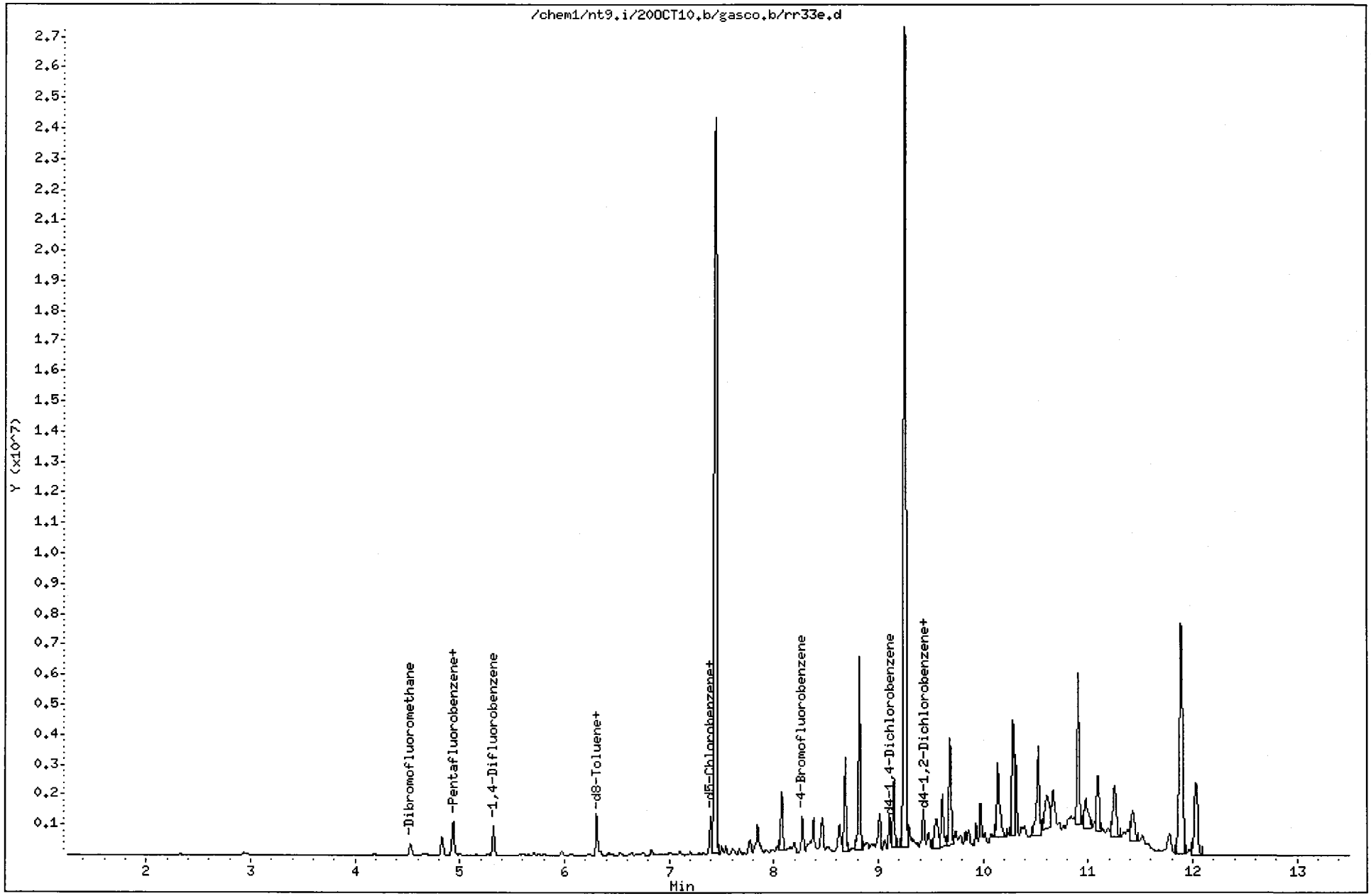
Column phase: RTX502.2

Instrument: nt9.i

Operator: PB

Column diameter: 0.18

RR33:00182



Data File: /chem1/nt9.i/20OCT10.b/gasco.b/rr33e.d

Date : 20-OCT-2010 22:50

Client ID: DGS-07-4.75.2-10101

Instrument: nt9.i

Sample Info: RR33E,5,5.96,0

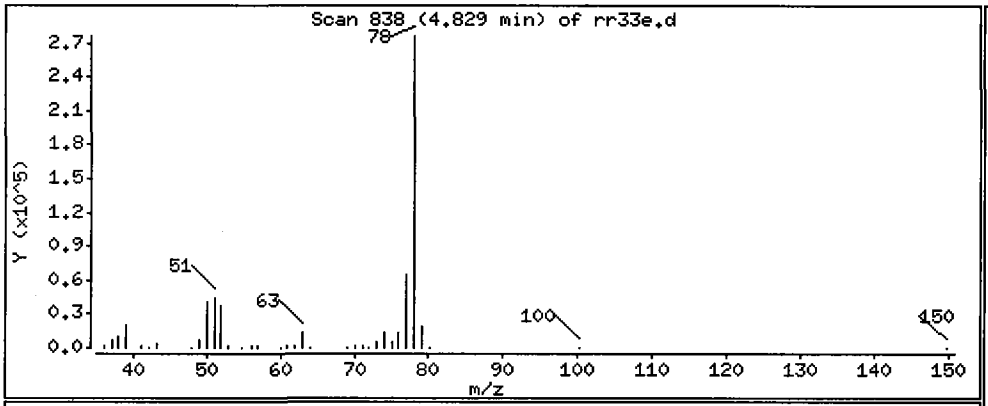
Operator: PB

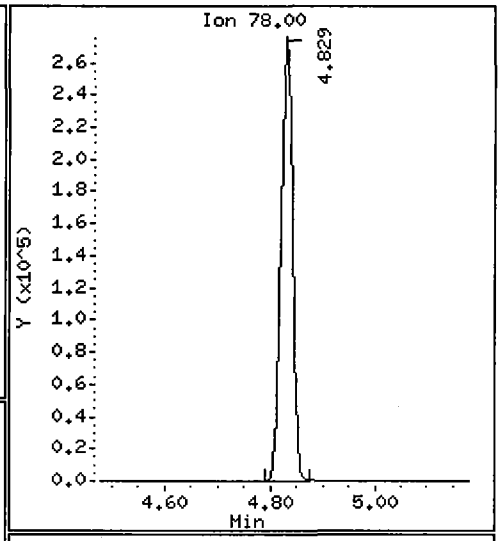
Column phase: RTX502.2

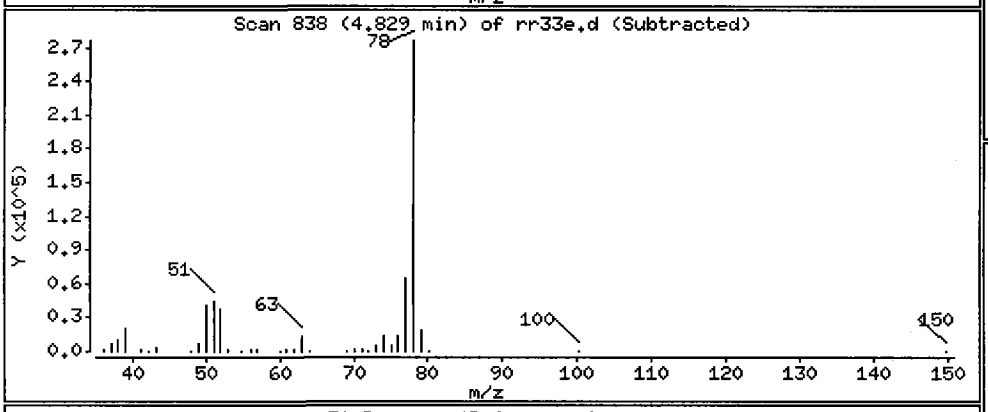
Column diameter: 0.18

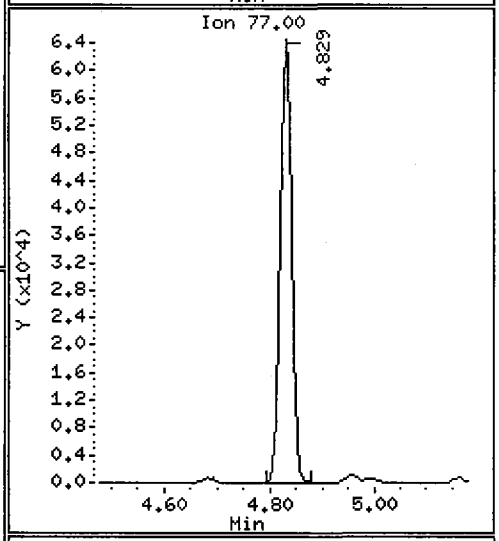
30 Benzene

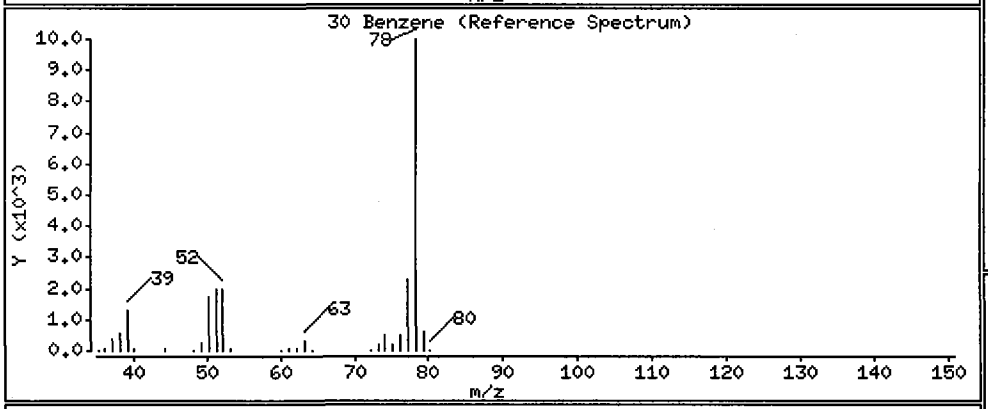
Concentration: 21.097 ug/Kg

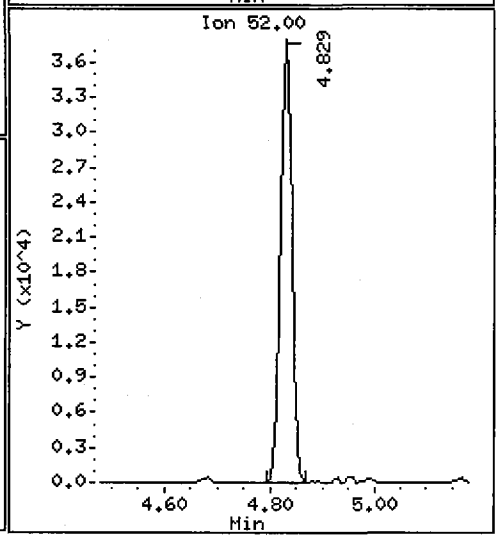


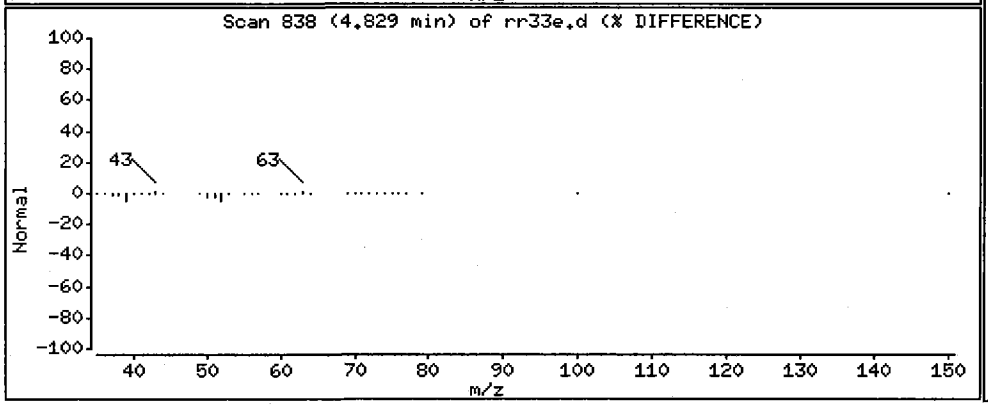












Data File: /chem1/nt9.i/20OCT10.b/gasco.b/rr33e.d

Date : 20-OCT-2010 22:50

Client ID: DGS-07-4.75.2-10101

Instrument: nt9.i

Sample Info: RR33E,5,5.96,0

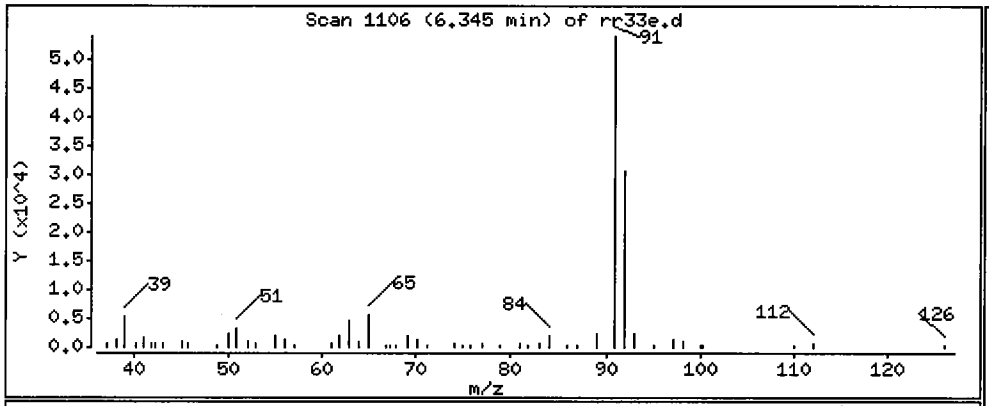
Operator: PB

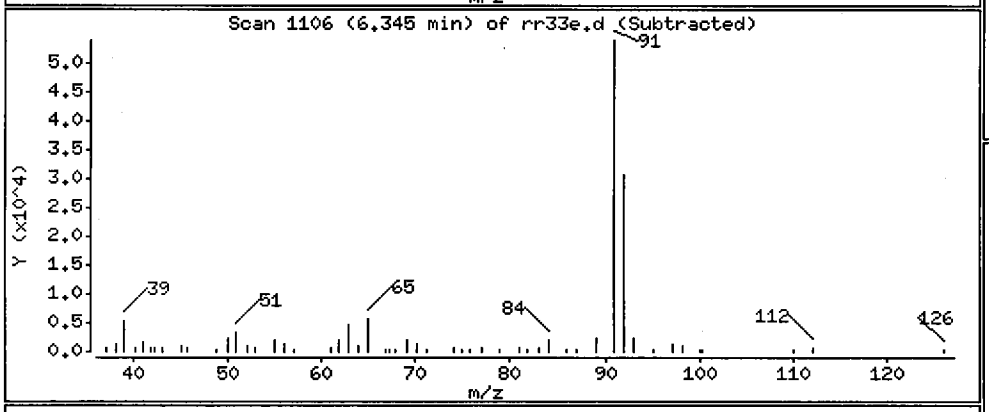
Column phase: RTX502.2

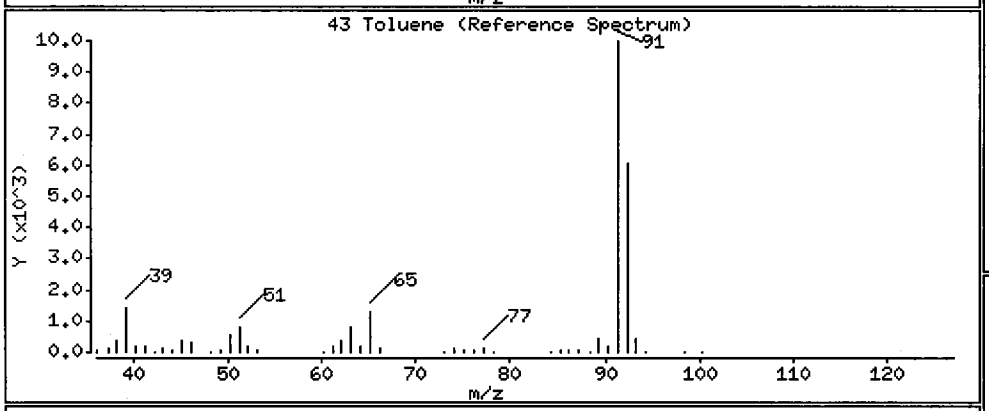
Column diameter: 0.18

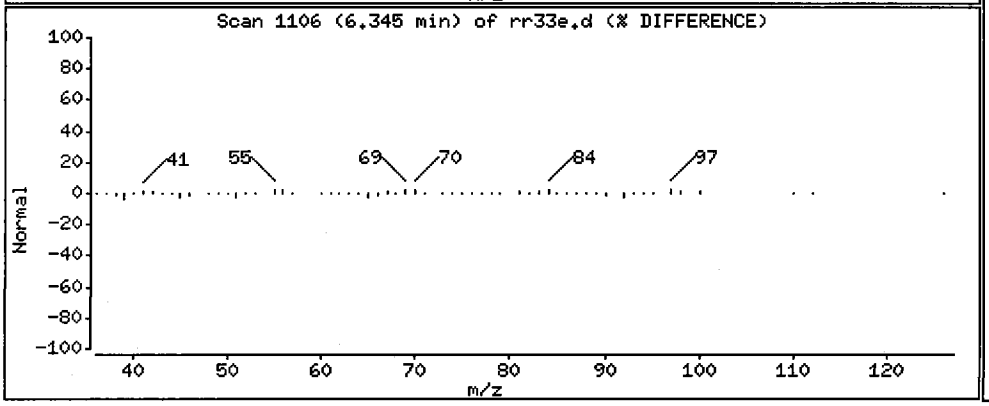
43 Toluene

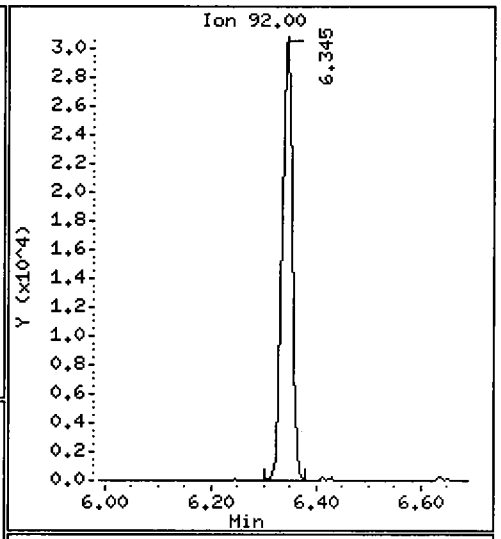
Concentration: 2.951 ug/Kg

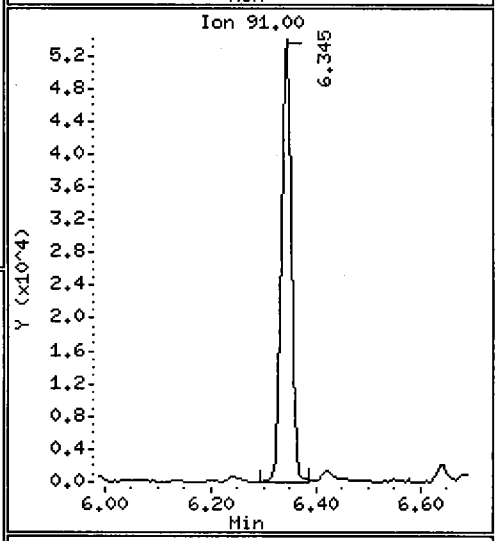


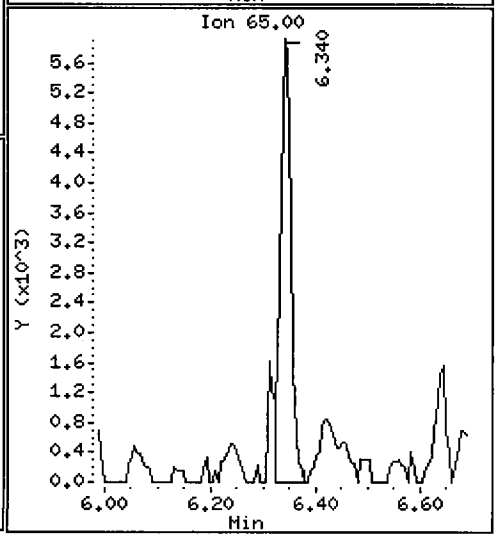












Data File: /chem1/nt9.i/20OCT10.b/gasco.b/rr33e.d

Date : 20-OCT-2010 22:50

Client ID: DGS-07-4.75.2-10101

Instrument: nt9.i

Sample Info: RR33E,5,5.96,0

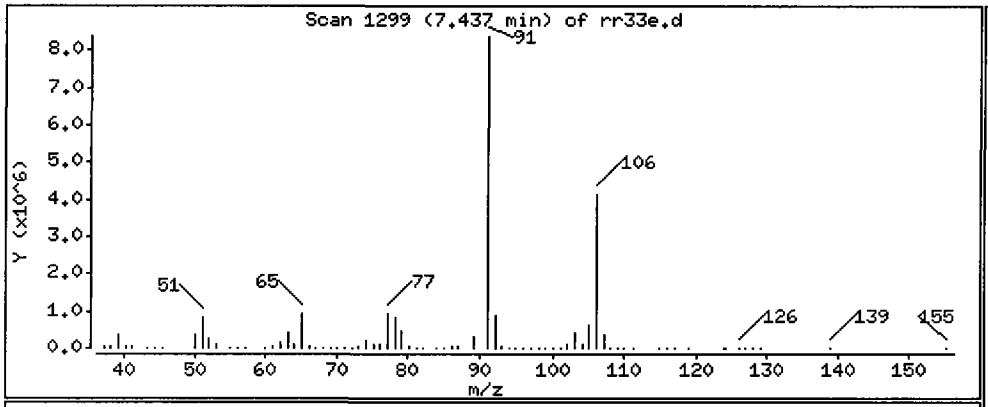
Operator: PB

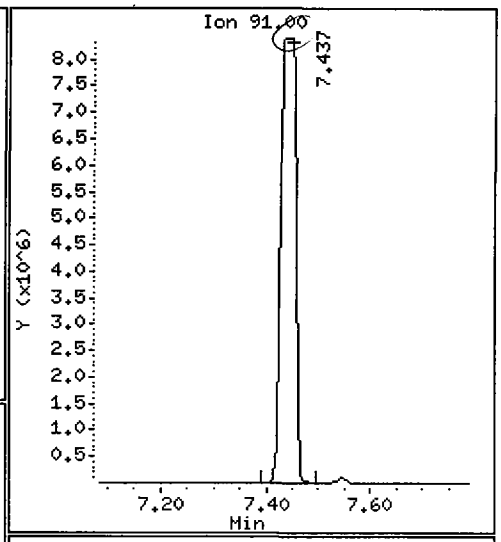
Column phase: RTX502.2

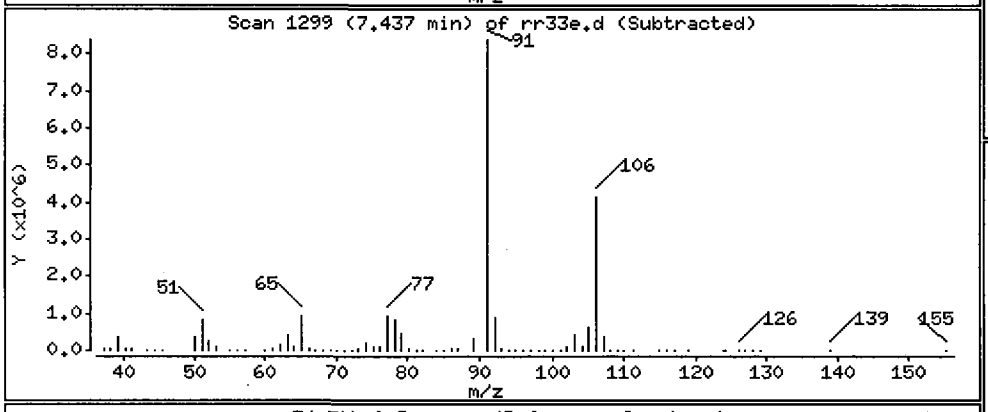
Column diameter: 0.18

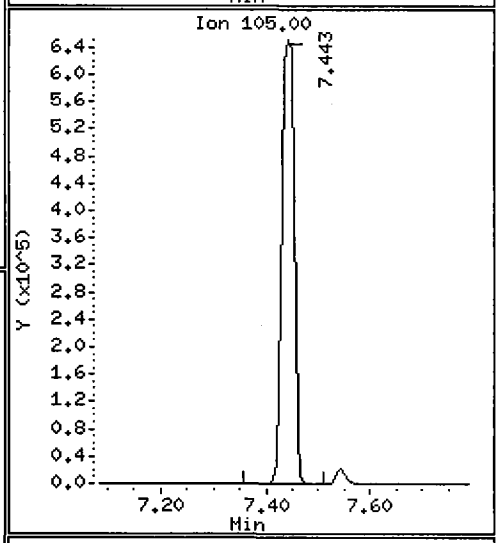
54 Ethyl Benzene

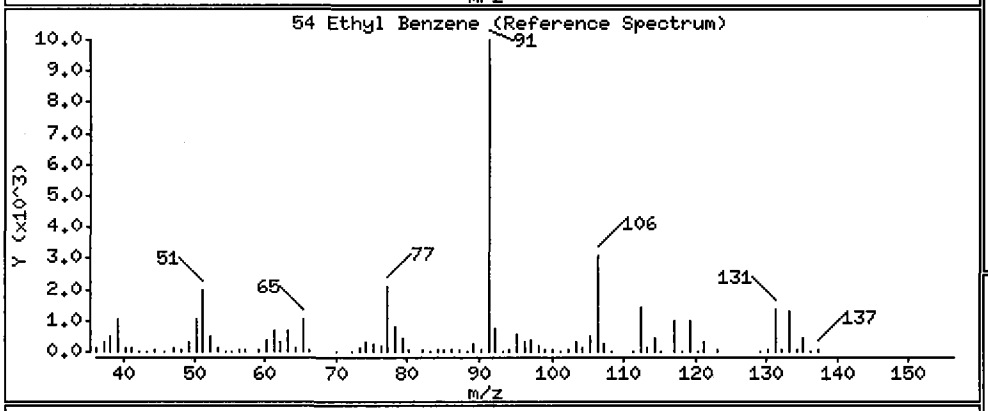
Concentration: 643.89 ug/Kg

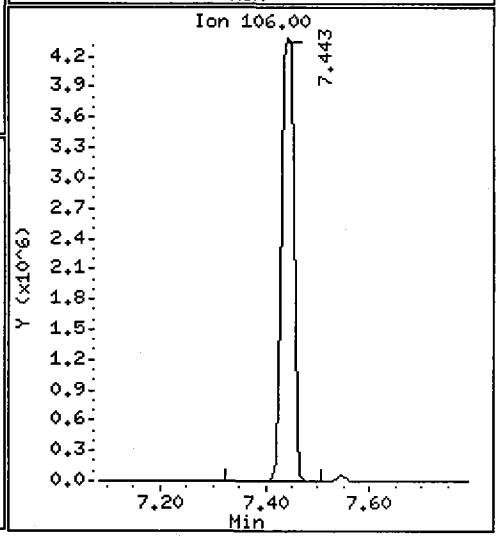


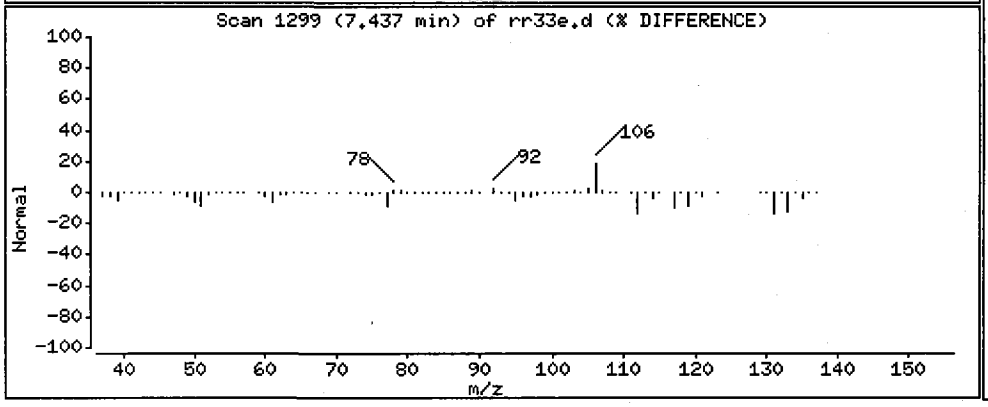












Data File: /chem1/nt9.i/20OCT10.b/gasco.b/rr33e.d

Date : 20-OCT-2010 22:50

Client ID: DGS-07-4.75.2-10101

Instrument: nt9.i

Sample Info: RR33E,5,5.96,0

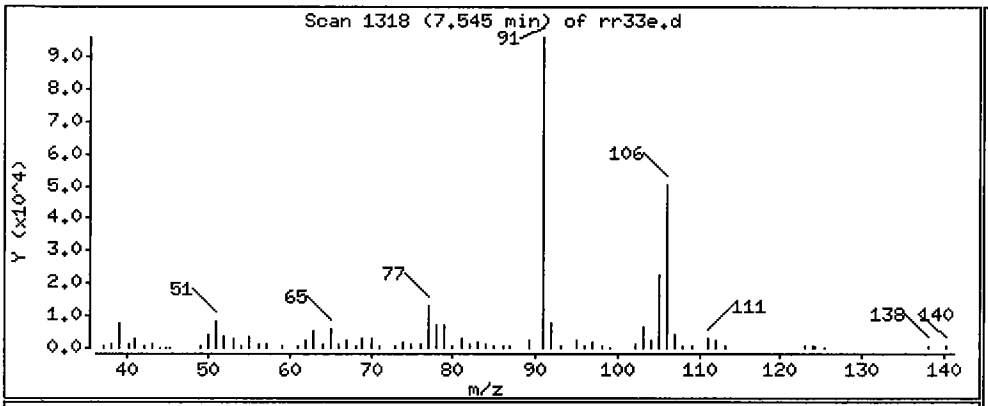
Operator: PB

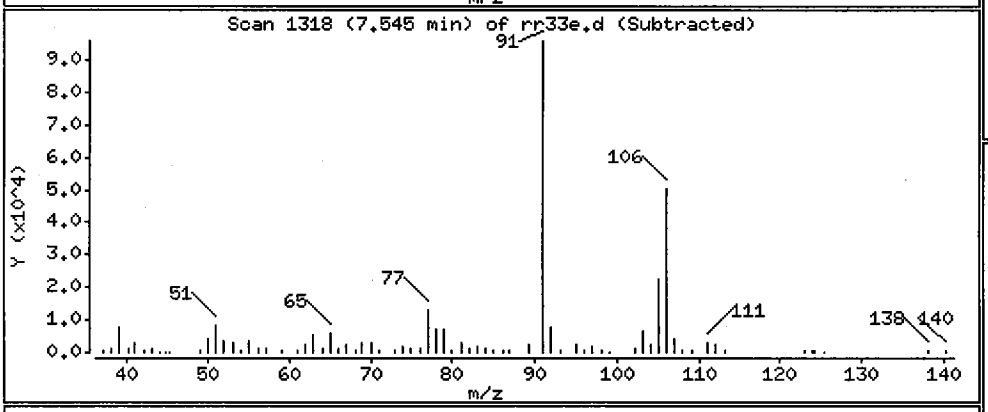
Column phase: RTX502.2

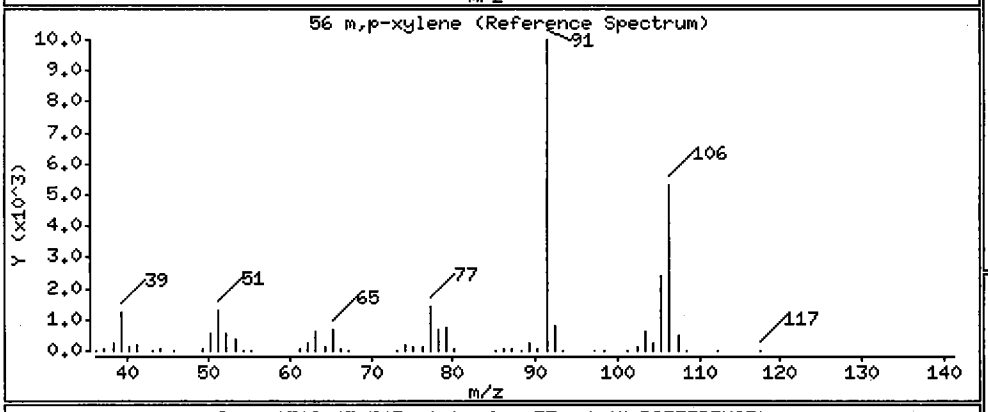
Column diameter: 0.18

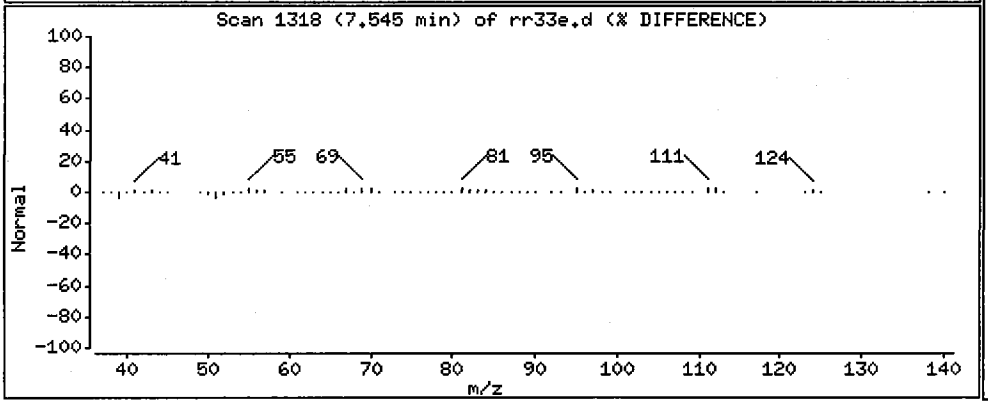
56 m,p-xylene

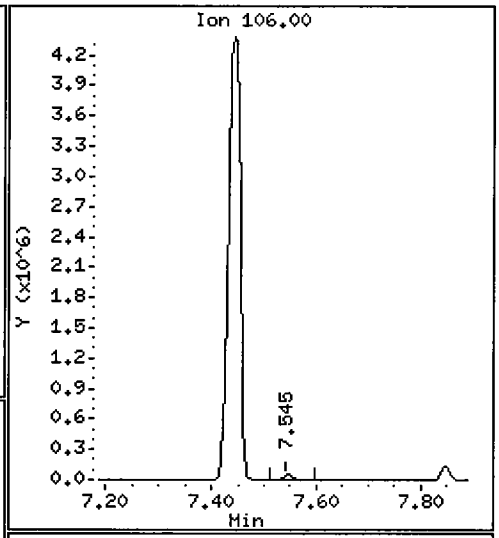
Concentration: 5.569 ug/Kg

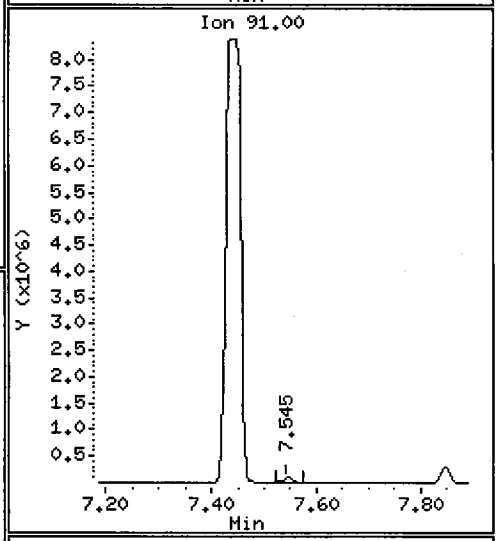


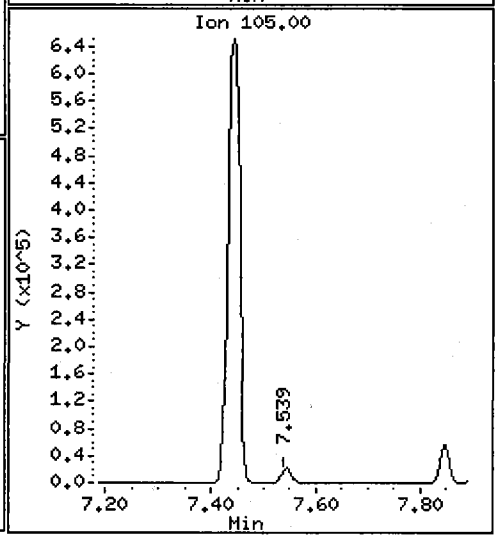












Data File: /chem1/nt9.i/20OCT10.b/gasco.b/rr33e.d

Date : 20-OCT-2010 22:50

Client ID: DGS-07-4.75.2-10101

Instrument: nt9.i

Sample Info: RR33E,5,5.96,0

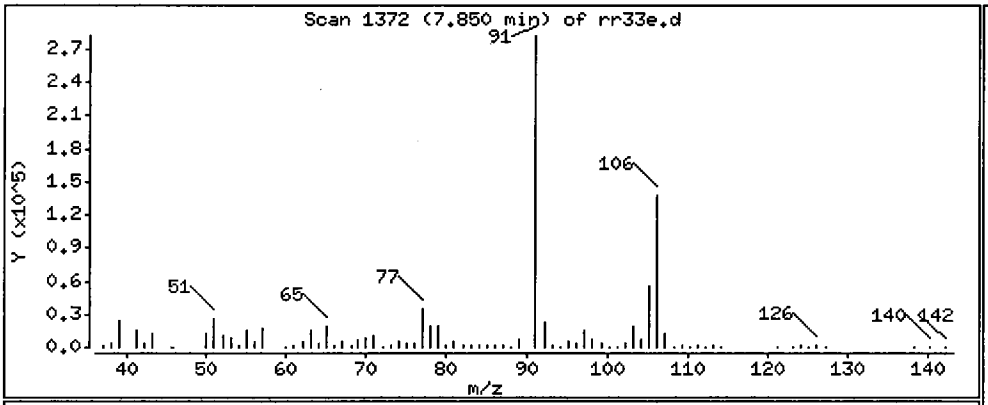
Operator: PB

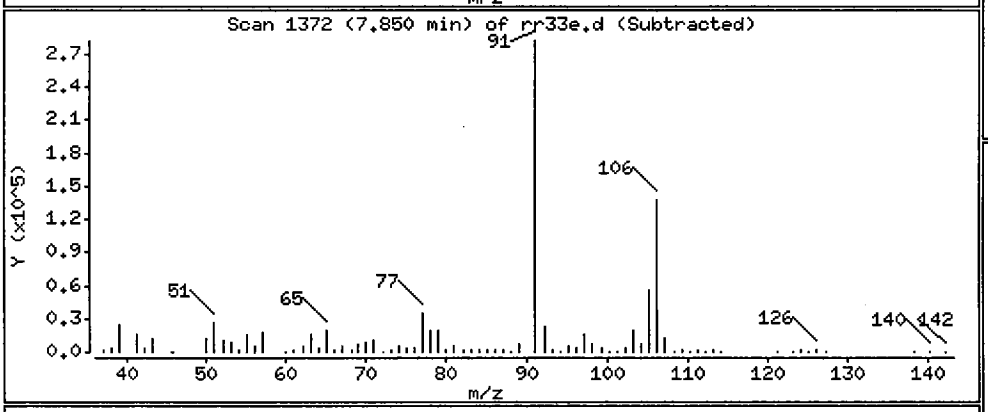
Column phase: RTX502.2

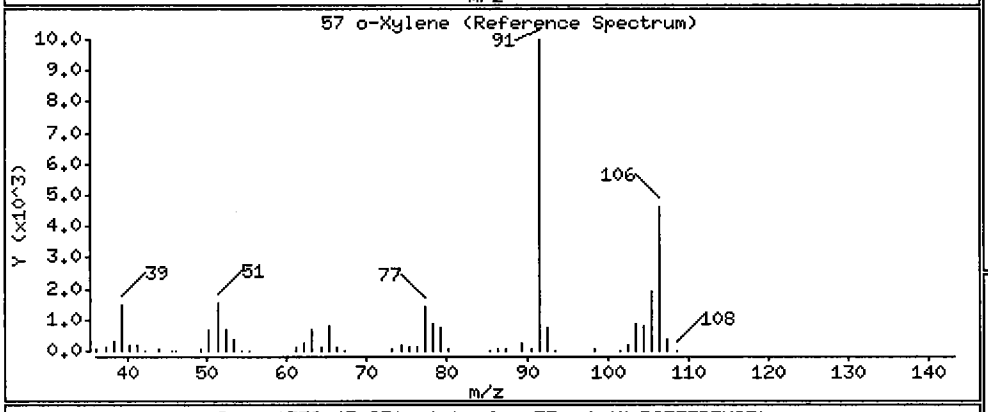
Column diameter: 0.18

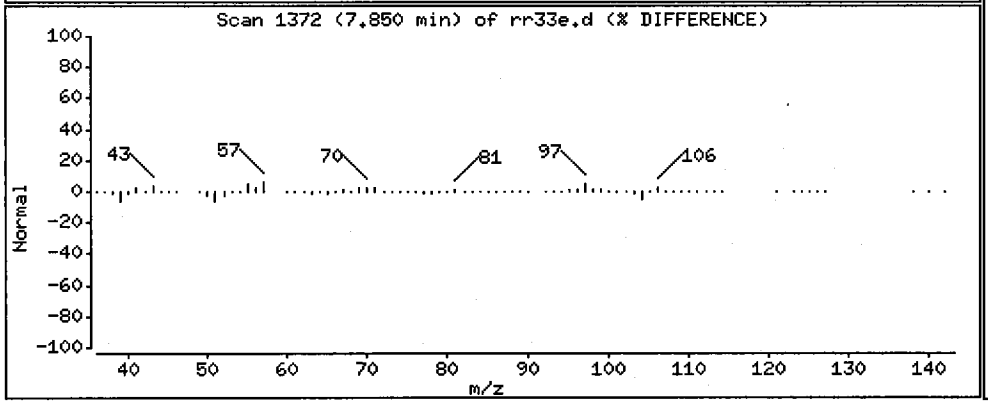
57 o-Xylene

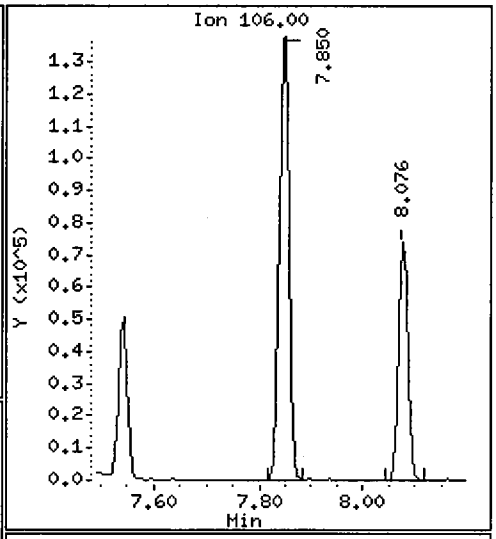
Concentration: 18.651 ug/Kg

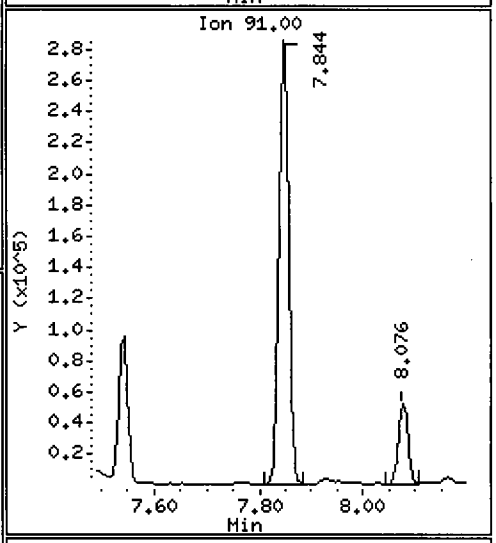


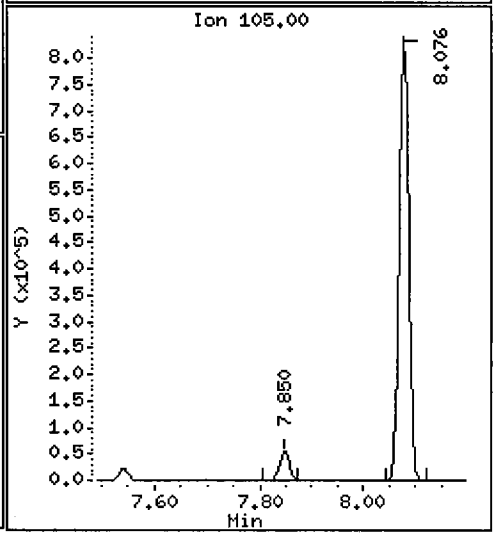






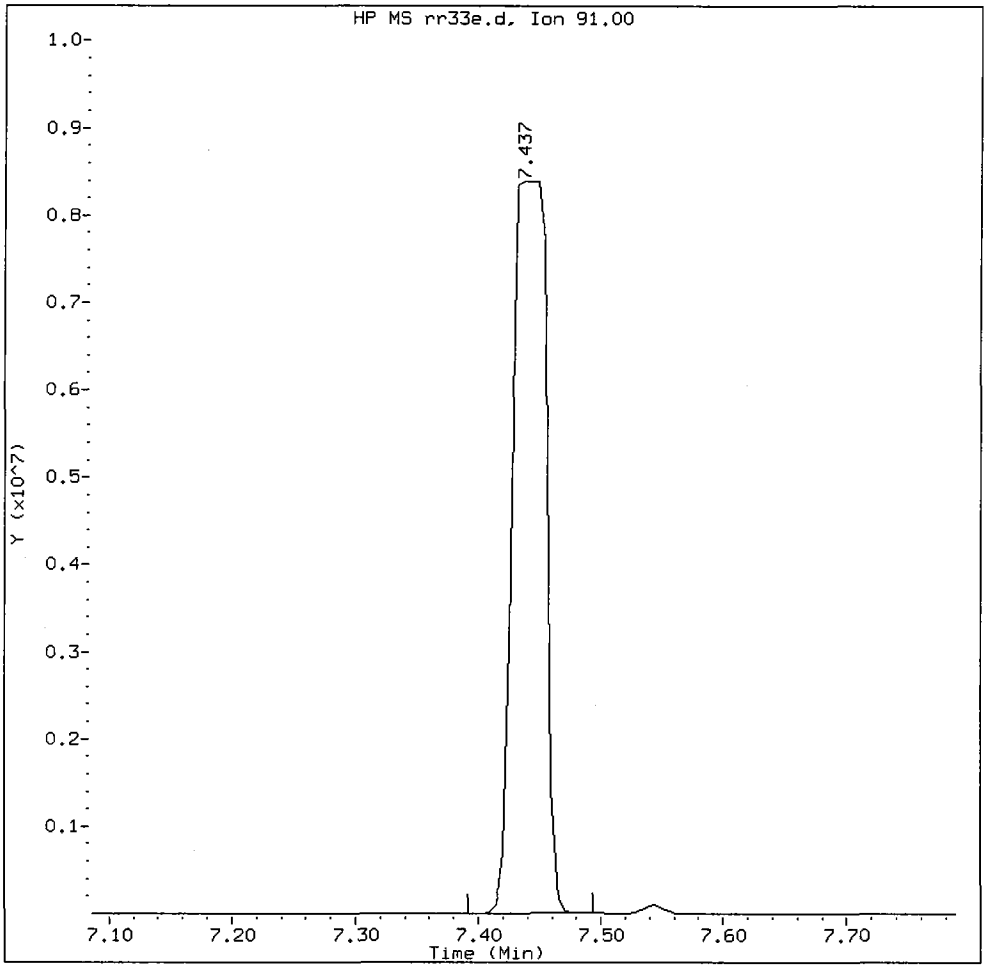






RR33E, /chem1/nt9.i/20OCT10.b/gasco.b/rr33e.d

Ethyl Benzene Amount: 767.52 Area: 15872638



MANUAL INTEGRATION for Ethyl Benzene

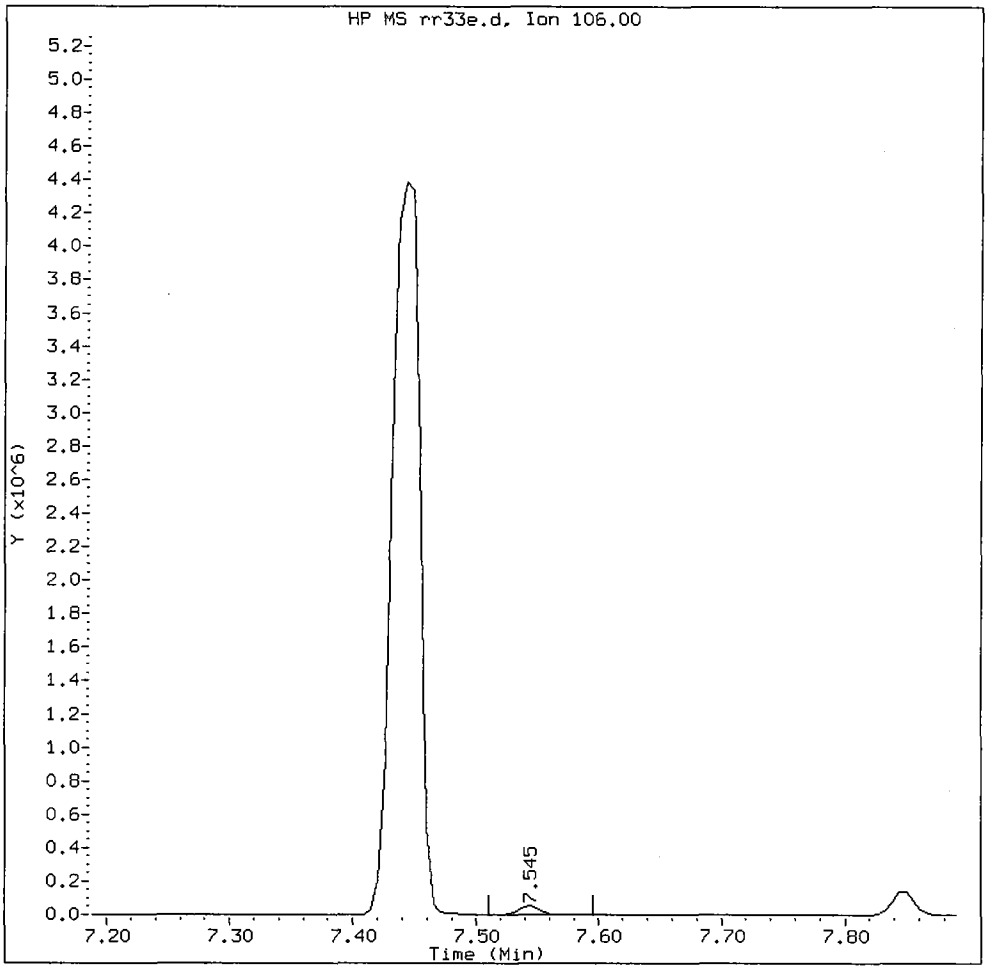
1. Baseline correction
2. Poor chromatography
3. Peak not found
4. Totals calculation

5. Other _____

Analyst: P Date: 10/27/W

RR33E, /chem1/nt9.i/20OCT10.b/gasco.b/rr33e.d

m,p-xylene Amount: 6.64 Area: 55526



MANUAL INTEGRATION for m,p-xylene

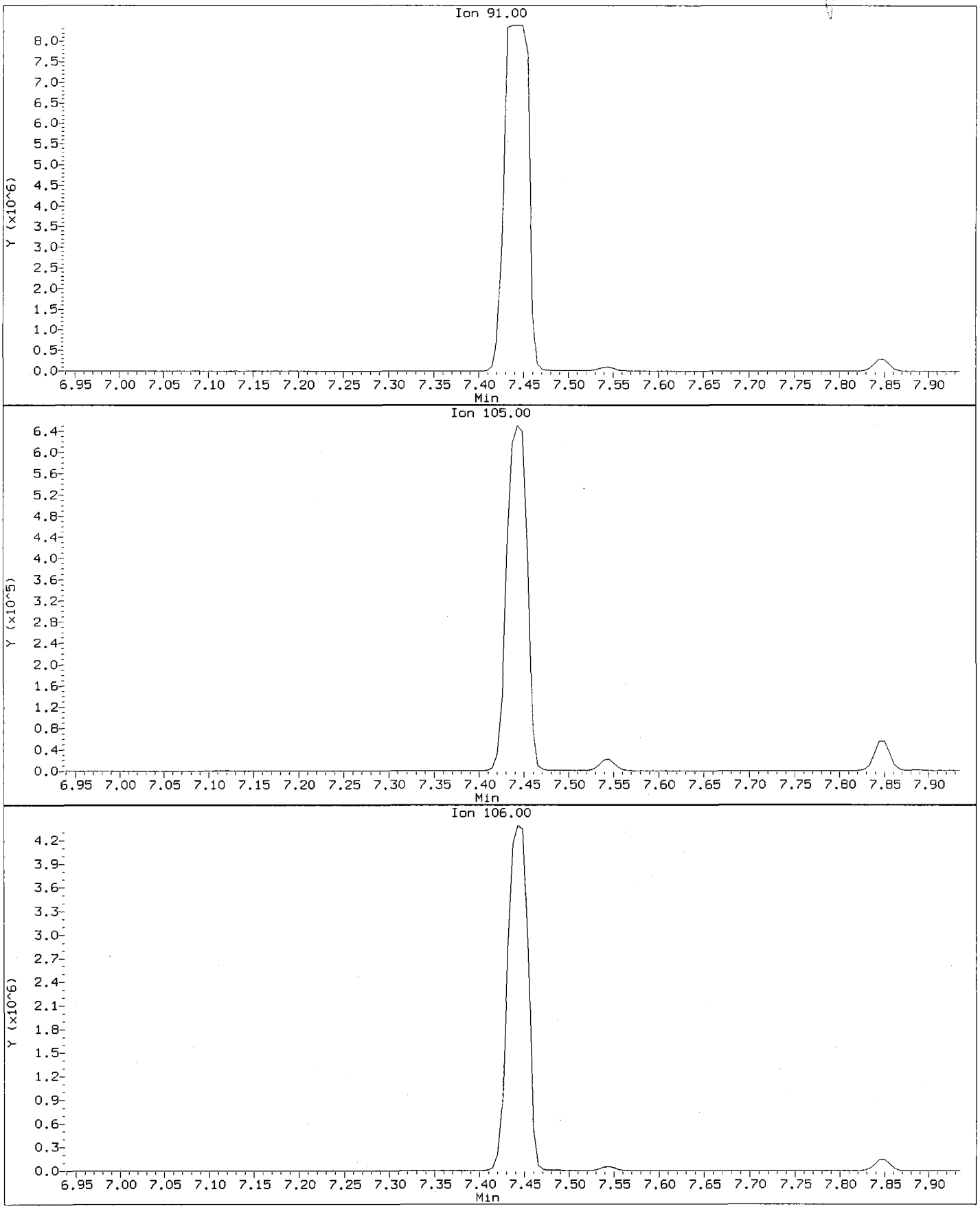
1. Baseline correction
2. Poor chromatography
3. Peak not found
4. Totals calculation

5. Other _____

Analyst: _____ Date: 10/22

Data File: /chem1/nt9.i/20OCT10.b/rr33e.d
Injection Date: 20-OCT-2010 22:50
Instrument: nt9.i
Client Sample ID: DGS-07-4.75.2-10101

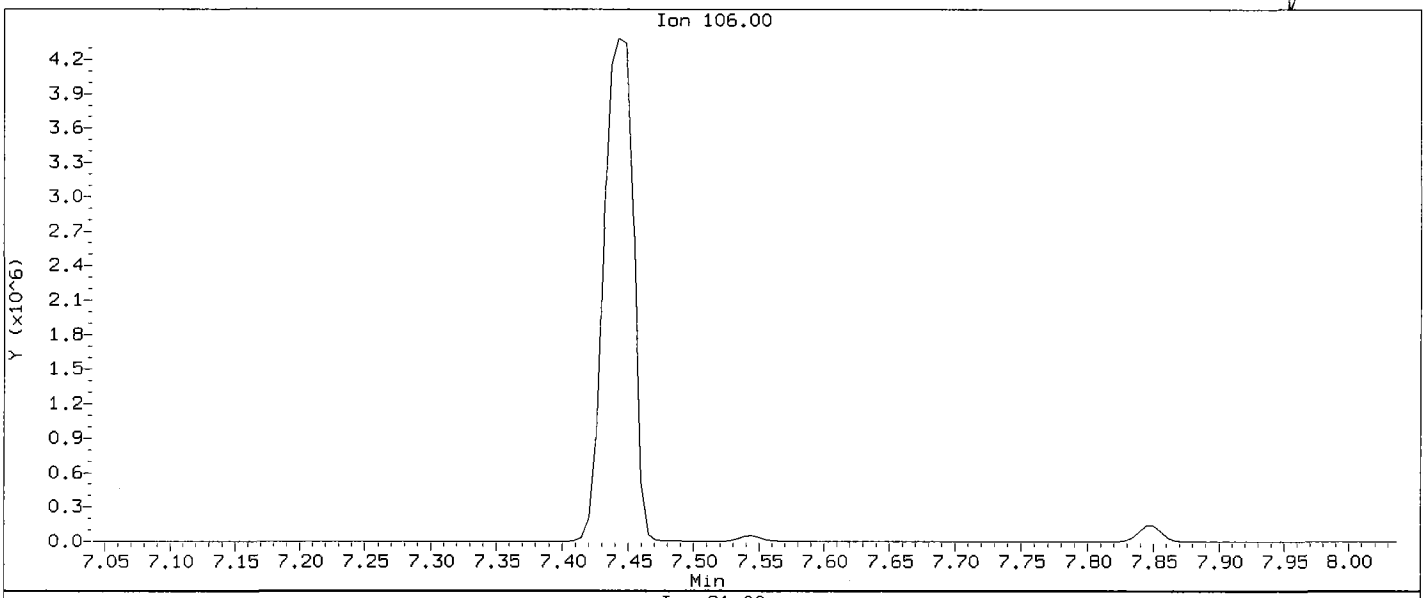
Compound: Ethyl Benzene
CAS Number:

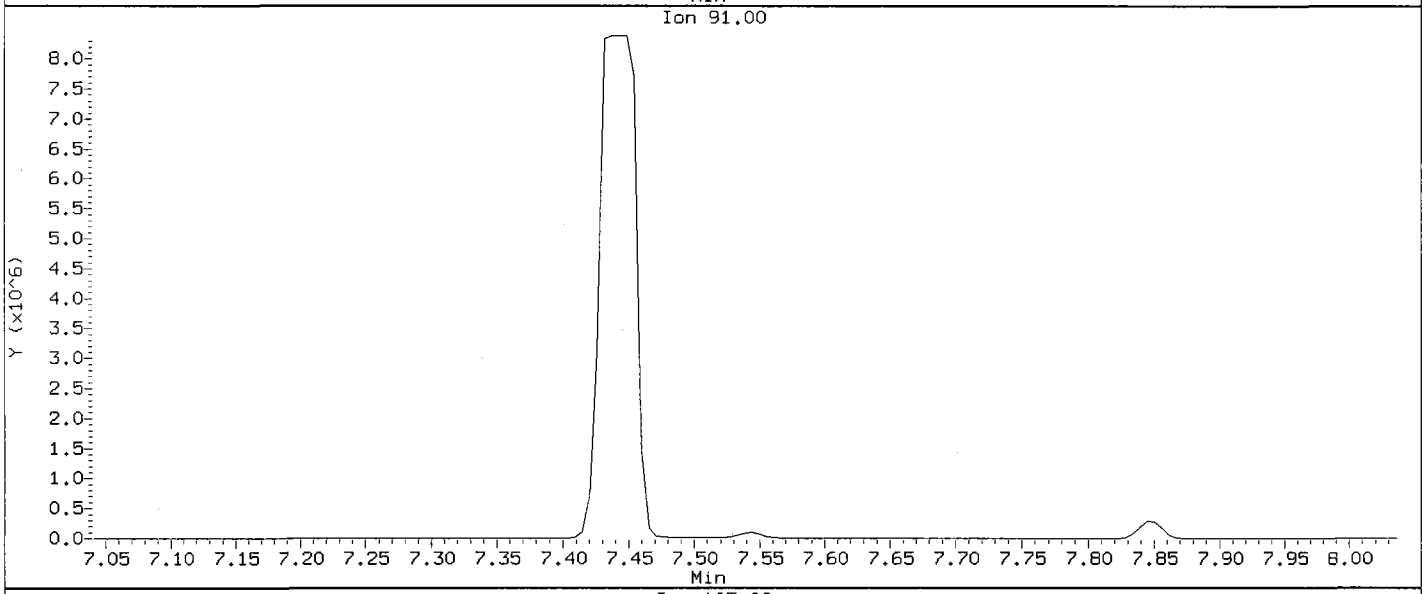


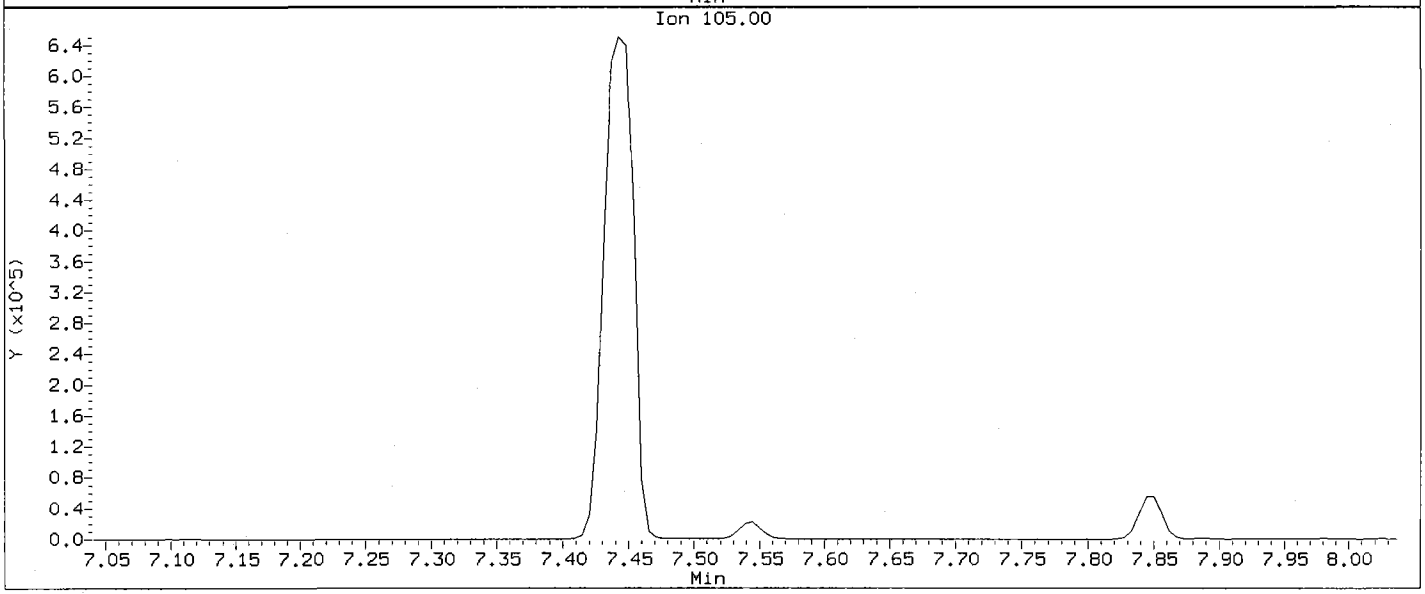
Data File: /chem1/nt9.i/20OCT10.b/rr33e.d
Injection Date: 20-OCT-2010 22:50
Instrument: nt9.i
Client Sample ID: DGS-07-4.75.2-10101

Compound: m,p-xylene
CAS Number:

11/2/2010







Analytical Resources, Inc.

8260C

Data file : /chem1/nt9.i/20OCT10.b/gasco.b/rr33f.d
Lab Smp Id: RR33F Client Smp ID: DGS-07-5.66.7-10101
Inj Date : 20-OCT-2010 23:20
Operator : PB Inst ID: nt9.i
Smp Info : RR33F,5,6.03,0
Misc Info : 10-26424
Comment :
Method : /chem1/nt9.i/20OCT10.b/gasco.b/VO063010S.m
Meth Date : 27-Oct-2010 10:53 patrickb Quant Type: ISTD
Cal Date : 28-AUG-2010 13:21 Cal File: 2000828.d
Als bottle: 1
Dil Factor: 1.00000
Integrator: HP RTE Compound Sublist: gasco.sub
Target Version: 3.50
Processing Host: cserv3

10/27

Concentration Formula: Amt * DF * Pv * 1 / (Sa * ((100 - M) / 100)) * CpndVaria

Name	Value	Description
DF	1.00000	Dilution Factor
Pv	5.00000	Purge Volume
Sa	6.03000	Sample Amount
M	0.00000	% Moisture (not decanted)

Cpnd Variable Local Compound Variable

Compounds	QUANT SIG MASS	RT	EXP RT	REL RT	RESPONSE	CONCENTRATIONS ON-COLUMN (ug/Kg)	FINAL (ug/Kg)
3 Vinyl Chloride	62	Compound Not Detected.					
7 1,1-Dichloroethene	96	Compound Not Detected.					
15 Trans-1,2-Dichloroethene	96	Compound Not Detected.					
20 Cis-1,2-Dichloroethene	96	Compound Not Detected.					
23 Chloroform	83	Compound Not Detected.					
24 Carbon Tetrachloride	117	Compound Not Detected.					
* 32 Pentafluorobenzene	168	4.936	4.932	(1.000)	583629	50.0000	
$ 25 Dibromofluoromethane	111	4.529	4.530	(0.917)	207168	47.4714	39.363
$ 31 d4-1,2-Dichloroethane	65	4.942	4.937	(1.001)	234019	52.2312	43.309
29 2-Butanone	72	4.653	4.643	(0.943)	5274	9.31068	7.720(Q)
30 Benzene	78	4.834	4.830	(0.909)	646039	31.9293	26.475
33 1,2-Dichloroethane	62	Compound Not Detected.					
* 35 1,4-Difluorobenzene	114	5.321	5.322	(1.000)	752307	50.0000	
34 Trichloroethene	95	Compound Not Detected.					

Compounds	QUANT SIG MASS	RT	EXP RT	REL RT	RESPONSE	CONCENTRATIONS ON-COLUMN (ug/Kg)	FINAL (ug/Kg)
$ 42 d8-Toluene	98	6.310	6.306	(1.186)	843390	49.4781	41.027
43 Toluene	92	6.344	6.340	(1.192)	36766	2.55702	2.120
44 Tetrachloroethene	166	Compound Not Detected.					
* 52 d5-Chlorobenzene	117	7.397	7.398	(1.000)	668366	50.0000	
53 Chlorobenzene	112	7.408	7.409	(1.002)	12081	0.75798	0.6285(Q)
54 Ethyl Benzene	91	7.436	7.438	(1.005)	15647780	571.268	473.69(QM)
56 m,p-xylene	106	7.544	7.539	(1.020)	312295	28.1901	23.375(M)
57 o-Xylene	106	7.849	7.845	(1.061)	356703	34.5645	28.660
$ 61 4-Bromofluorobenzene	95	8.279	8.275	(1.119)	340418	54.9921	45.599
* 75 d4-1,4-Dichlorobenzene	152	9.111	9.112	(1.000)	393814	50.0000	(QM)
76 1,4-Dichlorobenzene	146	Compound Not Detected.					
$ 78 d4-1,2-Dichlorobenzene	152	9.433	9.434	(0.000)	358677	52.1020	43.202(QM)

QC Flag Legend

Q - Qualifier signal failed the ratio test.
M - Compound response manually integrated.

Analytical Resources, Inc.

INTERNAL STANDARD COMPOUNDS
AREA AND RT SUMMARY

Instrument ID: nt9.i
Lab File ID: rr33f.d
Lab Smp Id: RR33F
Analysis Type: VOA
Quant Type: ISTD
Operator: PB
Method File: /chem1/nt9.i/20OCT10.b/gasco.b/VO063010S.m
Misc Info: 10-26424

Calibration Date: 20-OCT-2010
Calibration Time: 13:11
Client Smp ID: DGS-07-5.66.7-10101
Level: LOW
Sample Type: Sediment

Test Mode:
Use Initial Calibration Level 5.
If Continuing Cal. use Initial Cal. Level 5

COMPOUND	STANDARD	AREA LIMIT LOWER	AREA LIMIT UPPER	SAMPLE	%DIFF
32 Pentafluorobenzen	704281	352140	1408562	583629	-17.13
35 1,4-Difluorobenze	937745	468872	1875490	752307	-19.77
52 d5-Chlorobenzene	853013	426506	1706026	668366	-21.65
75 d4-1,4-Dichlorobe	503655	251828	1007310	393814	-21.81

COMPOUND	STANDARD	RT LIMIT LOWER	RT LIMIT UPPER	SAMPLE	%DIFF
32 Pentafluorobenzen	4.93	4.43	5.43	4.94	0.09
35 1,4-Difluorobenze	5.32	4.82	5.82	5.32	-0.03
52 d5-Chlorobenzene	7.40	6.90	7.90	7.40	-0.02
75 d4-1,4-Dichlorobe	9.11	8.61	9.61	9.11	-0.01

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.

Analytical Resources, Inc.

RECOVERY REPORT

Client Name: NW Natural
Sample Matrix: SOLID
Lab Smp Id: RR33F
Level: LOW
Data Type: MS DATA
SpikeList File: all.spk
Sublist File: gasco.sub
Method File: /chem1/nt9.i/20OCT10.b/gasco.b/VO063010S.m
Misc Info: 10-26424

Client SDG: RR33
Fraction: VOA
Client Smp ID: DGS-07-5.66.7-10101
Operator: PB
SampleType: SAMPLE
Quant Type: ISTD

SURROGATE COMPOUND	AMOUNT ADDED ug/Kg	AMOUNT RECOVERED ug/Kg	% RECOVERED	LIMITS
$ 25 Dibromofluorometha	50.000	47.471	94.94	30-160
$ 31 d4-1,2-Dichloroeth	50.000	52.231	104.46	75-152
$ 42 d8-Toluene	50.000	49.478	98.96	82-115
$ 61 4-Bromofluorobenze	50.000	54.992	109.98	64-120
$ 78 d4-1,2-Dichloroben	50.000	52.102	104.20	80-120

Data File: /chem1/nt9.i/20OCT10.b/gasco.b/rr33f.d

Date : 20-OCT-2010 23:20

Client ID: DGS-07-5.66.7-10101

Sample Info: RR33F,5,6.03,0

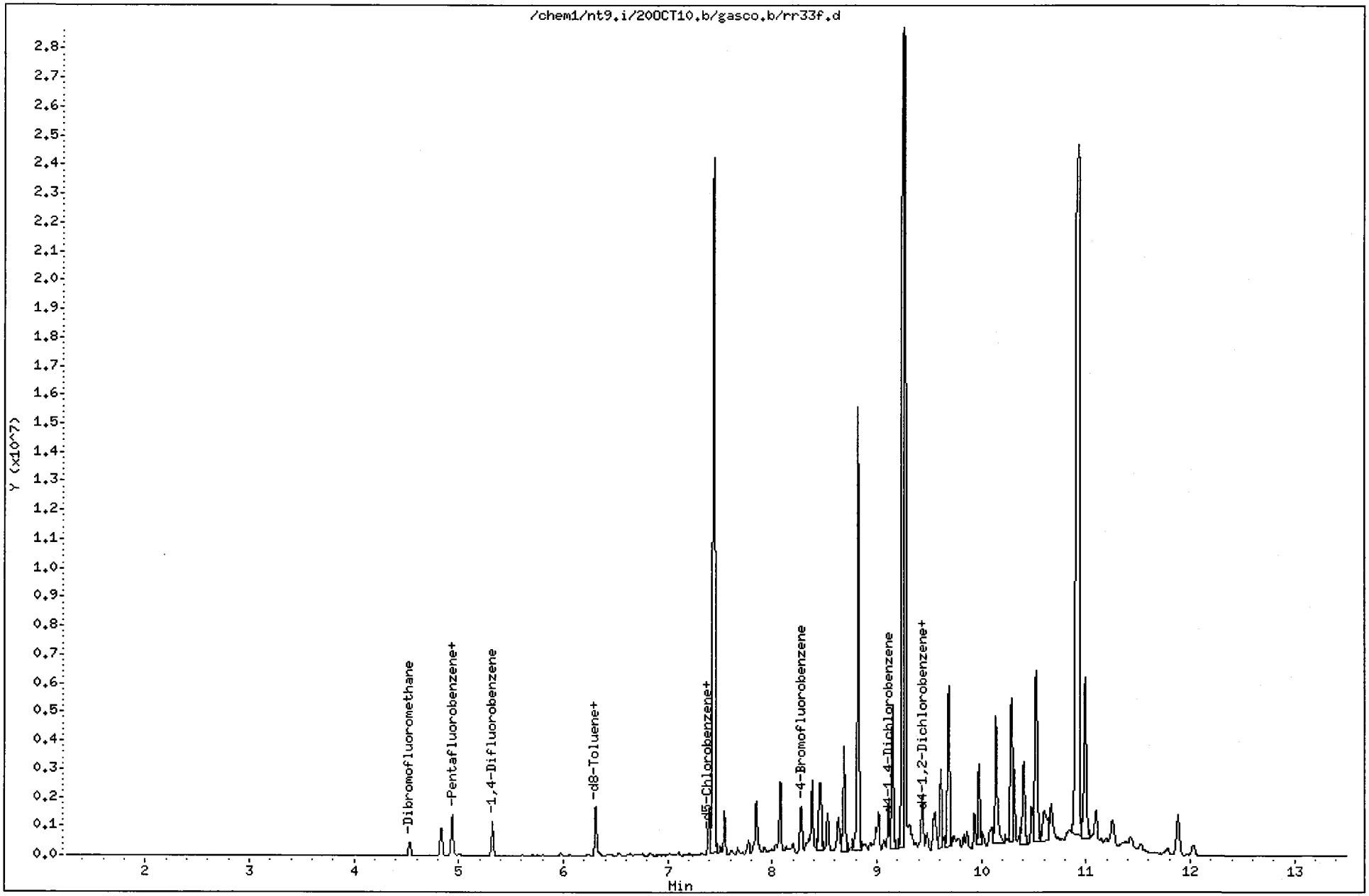
Column phase: RTX502.2

Instrument: nt9.i

Operator: PB

Column diameter: 0.18

RR33:00196



Data File: /chem1/nt9.i/20OCT10.b/gasco.b/rr33f.d

Date : 20-OCT-2010 23:20

Client ID: DGS-07-5.66.7-10101

Instrument: nt9.i

Sample Info: RR33F,5,6.03,0

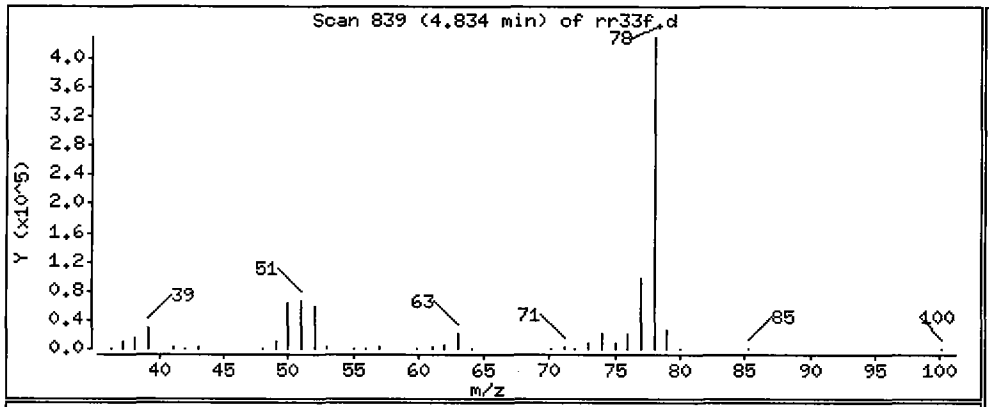
Operator: PB

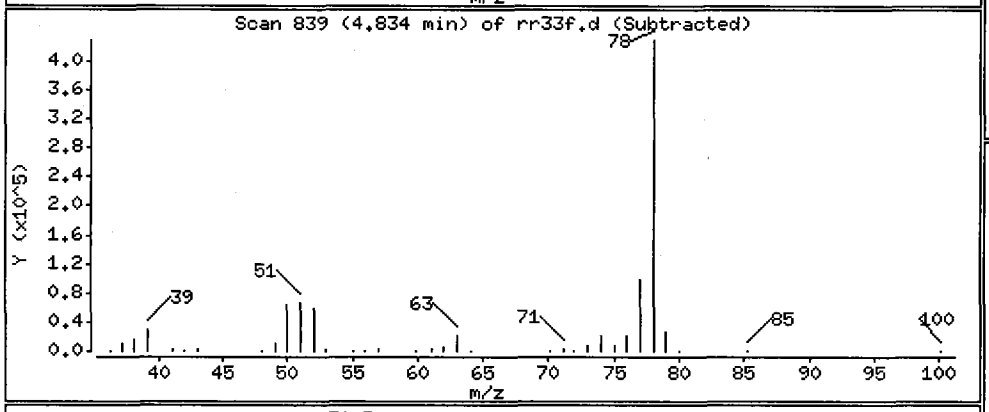
Column phase: RTX502.2

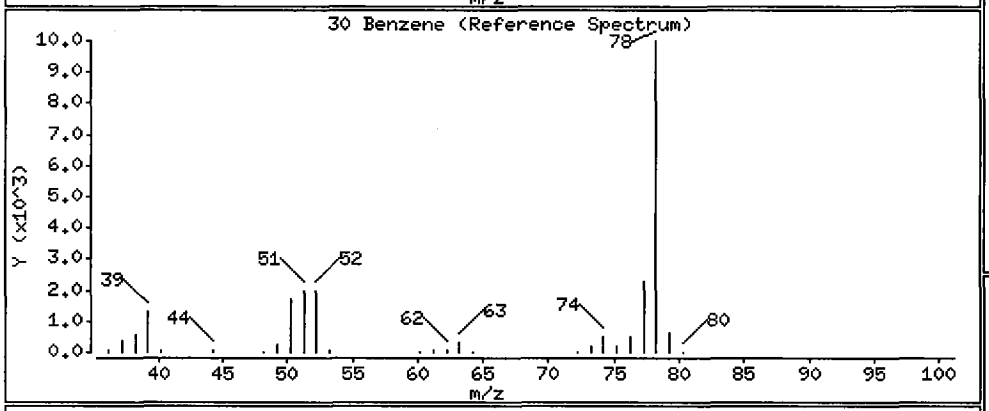
Column diameter: 0.18

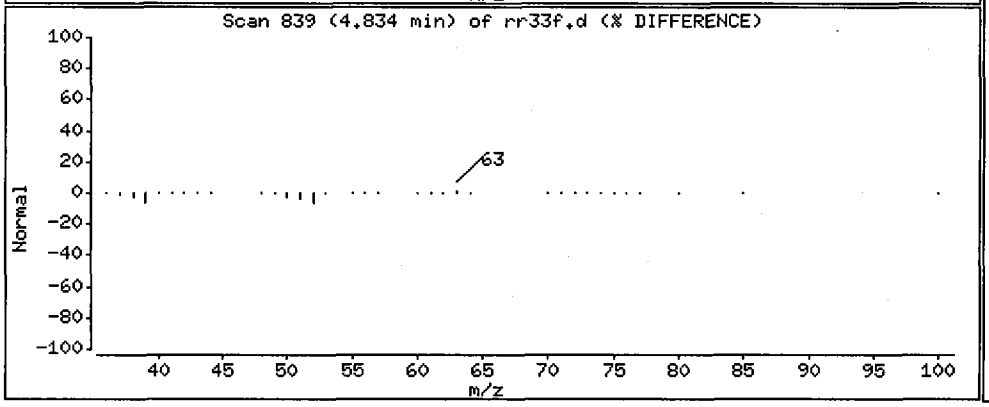
30 Benzene

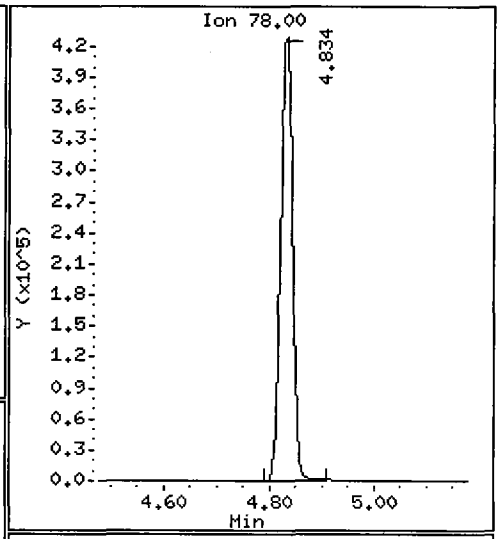
Concentration: 26.475 ug/Kg

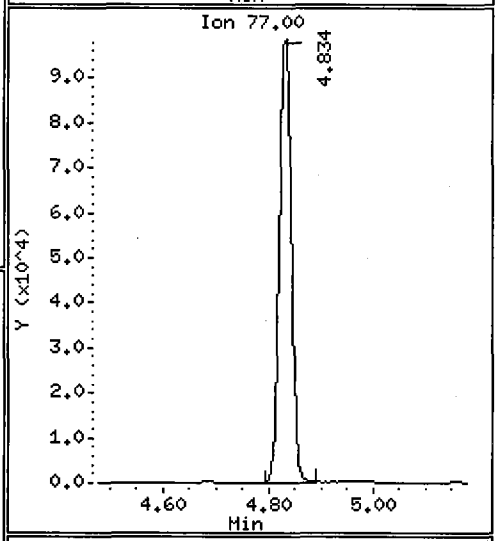


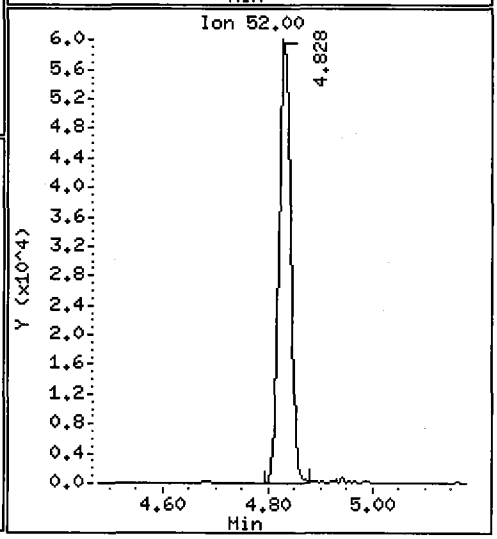












Data File: /chem1/nt9.i/20OCT10.b/gasco.b/rr33f.d

Date : 20-OCT-2010 23:20

Client ID: DGS-07-5.66.7-10101

Instrument: nt9.i

Sample Info: RR33F,5,6.03,0

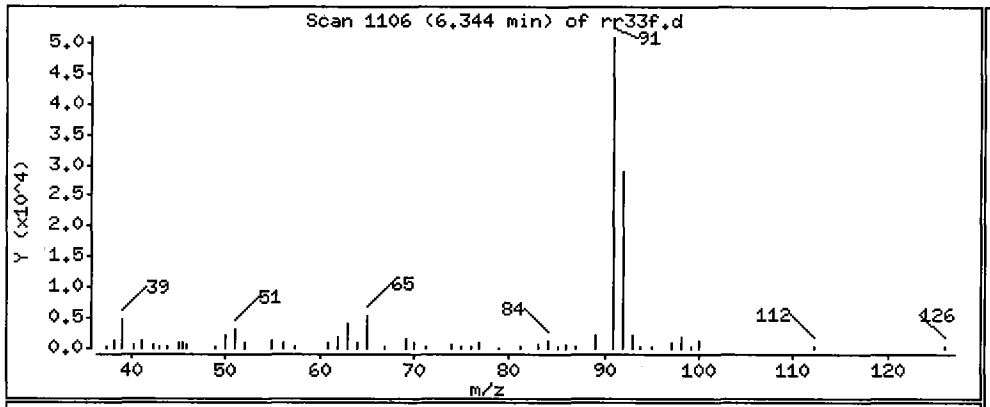
Operator: PB

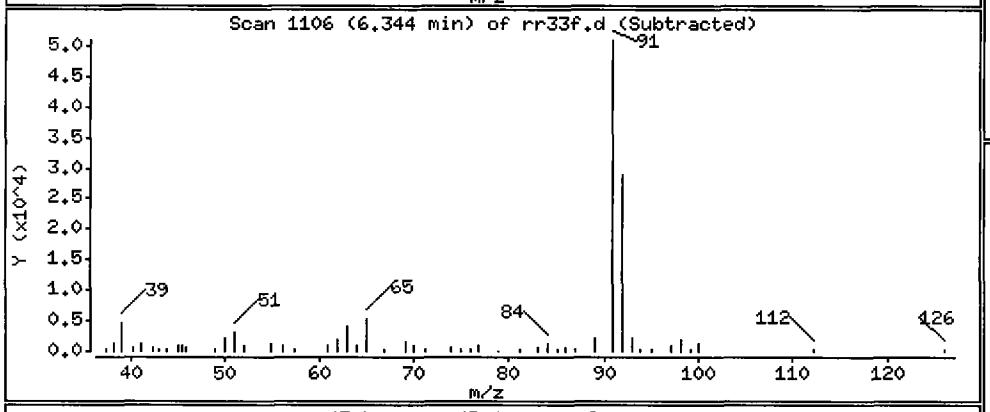
Column phase: RTX502.2

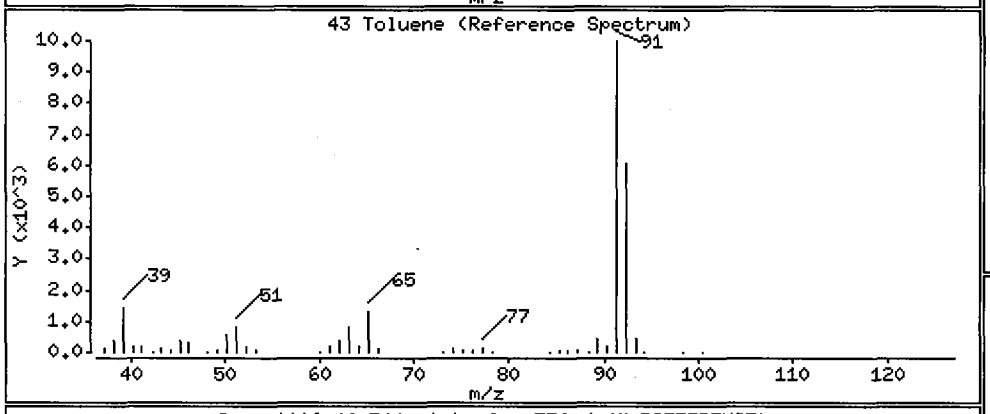
Column diameter: 0.18

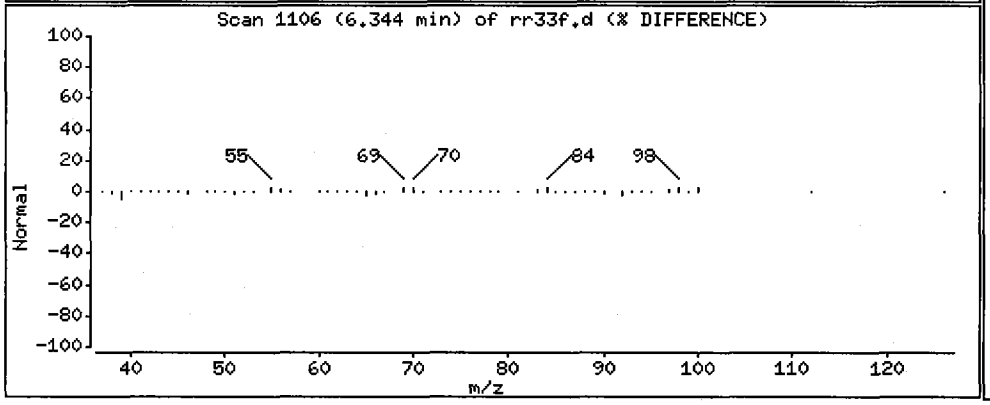
43 Toluene

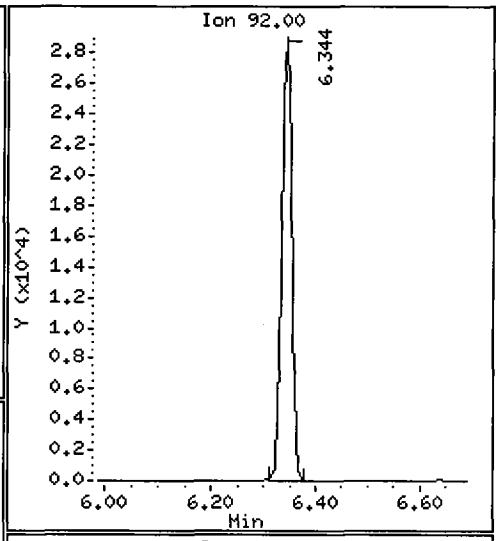
Concentration: 2.120 ug/Kg

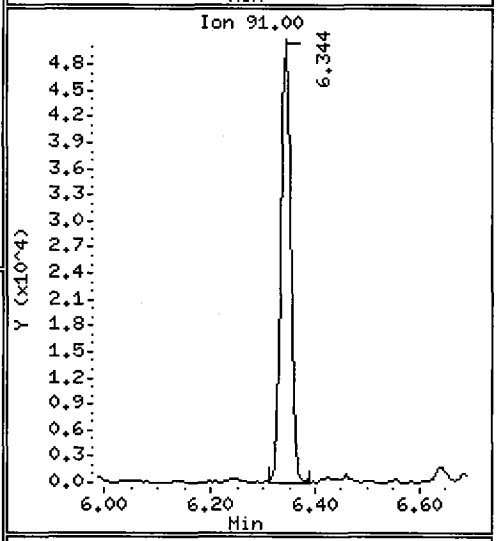


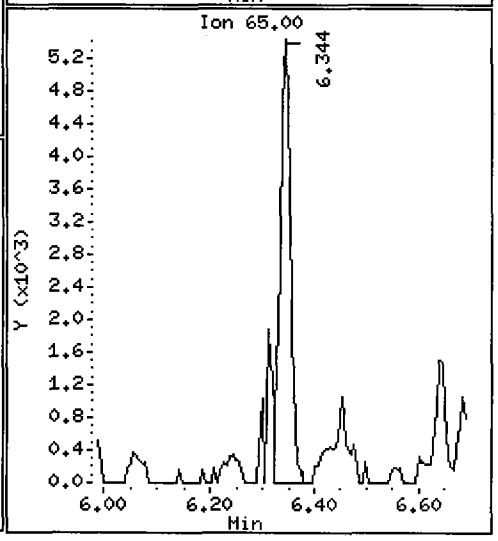












Data File: /chem1/nt9.i/20OCT10.b/gasco.b/rr33f.d

Date : 20-OCT-2010 23:20

Client ID: DGS-07-5.66.7-10101

Instrument: nt9.i

Sample Info: RR33F,5,6.03,0

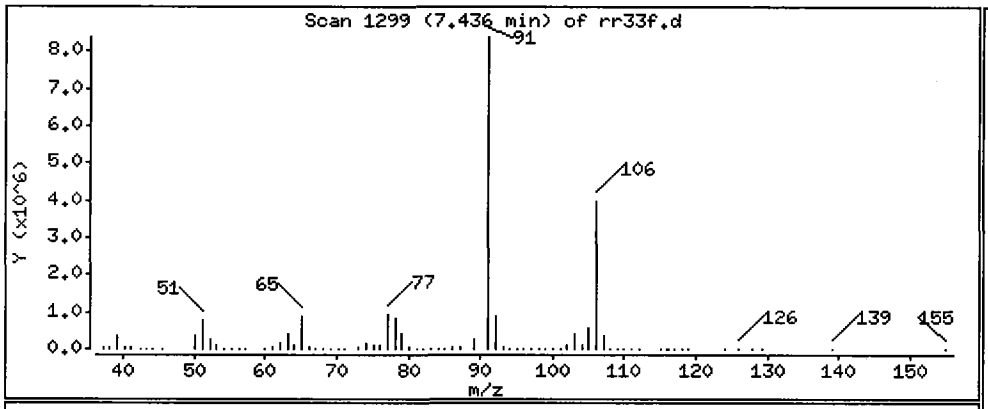
Operator: PB

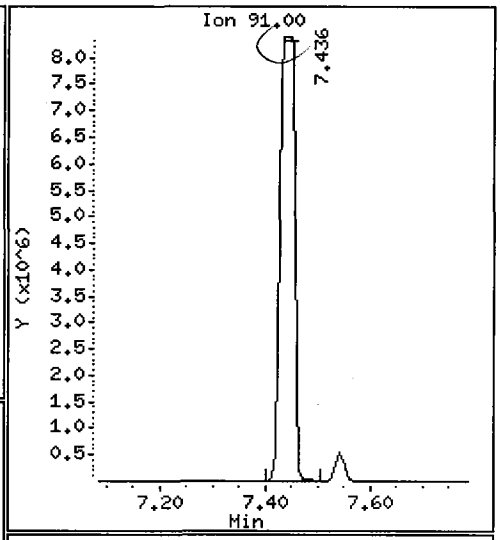
Column phase: RTX502.2

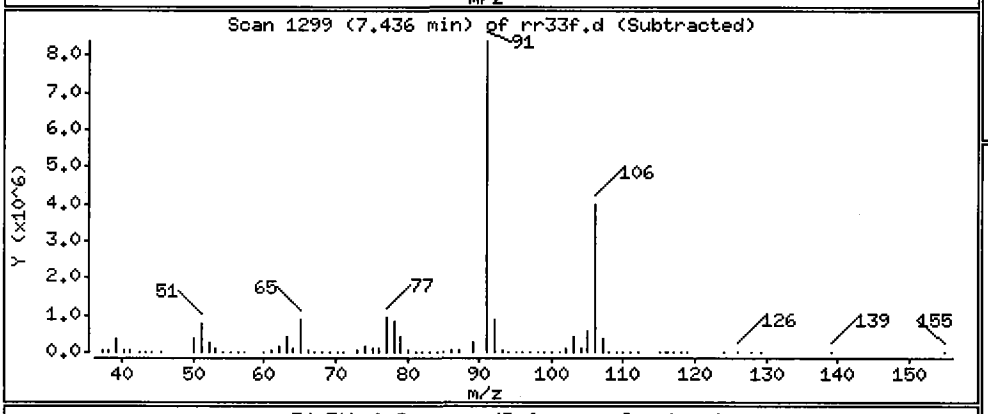
Column diameter: 0.18

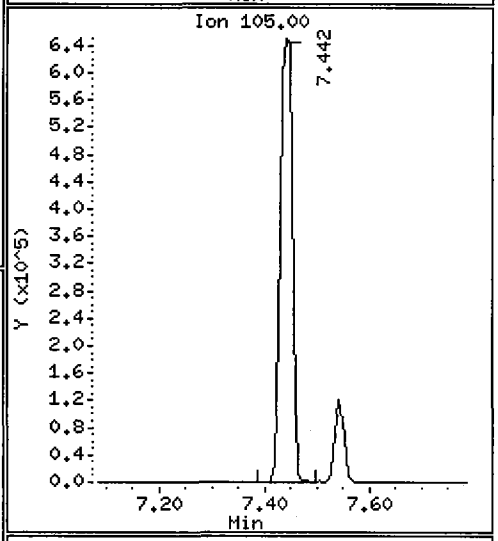
54 Ethyl Benzene

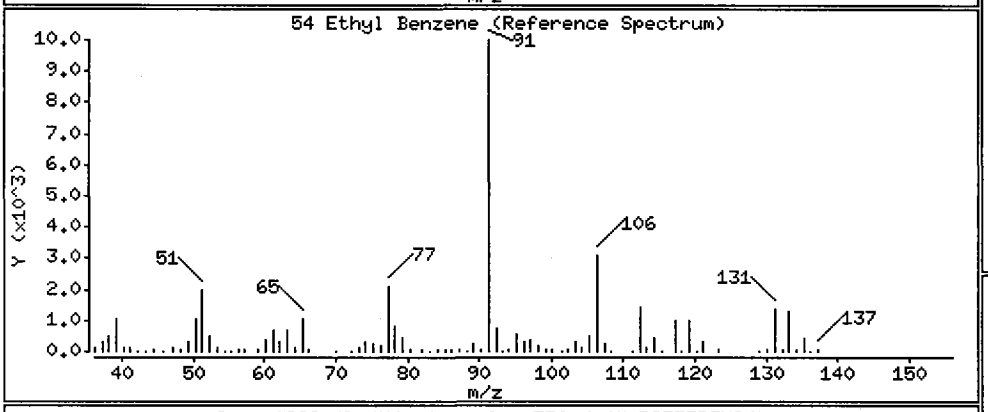
Concentration: 473.69 ug/Kg

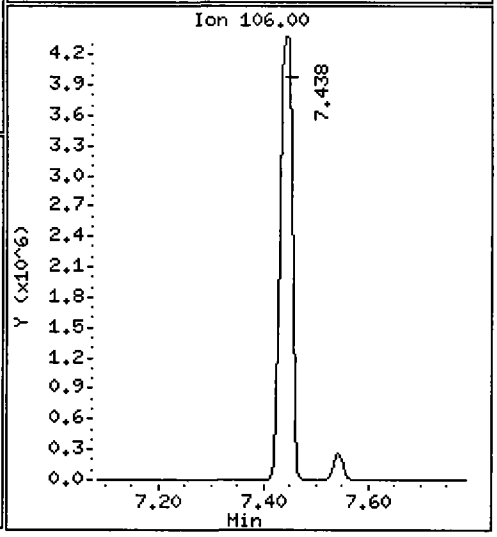


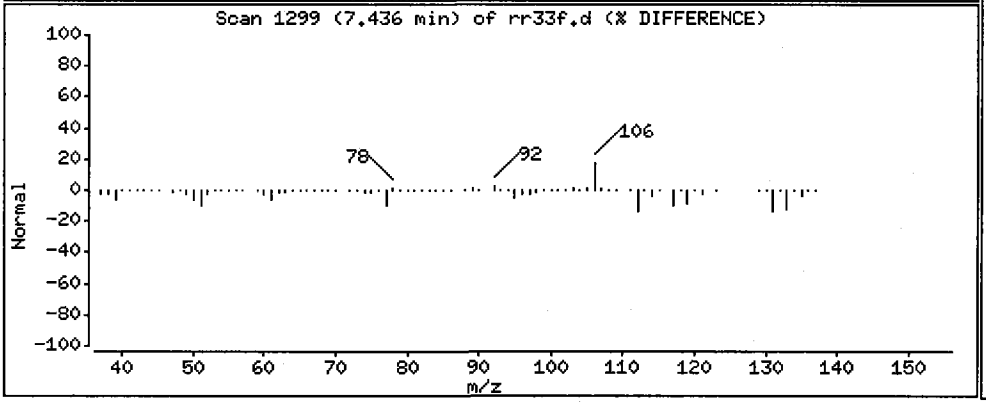












Data File: /chem1/nt9.i/20OCT10.b/gasco.b/rr33f.d

Date : 20-OCT-2010 23:20

Client ID: DGS-07-5.66.7-10101

Instrument: nt9.i

Sample Info: RR33F,5,6.03,0

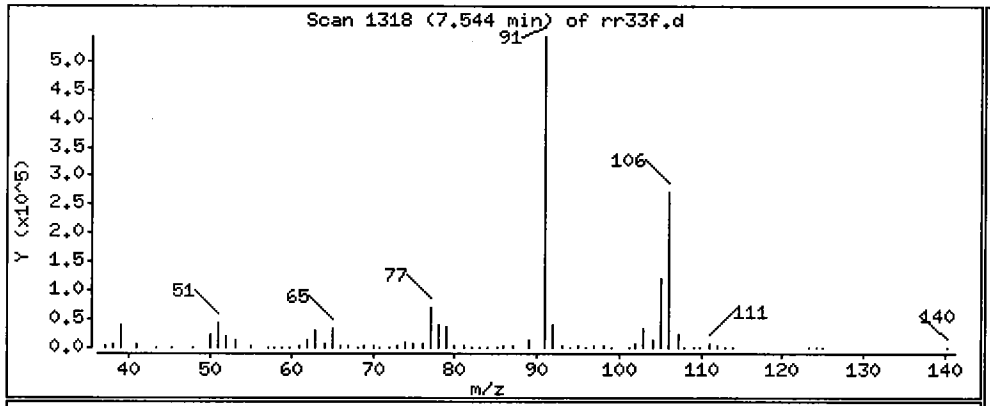
Operator: PB

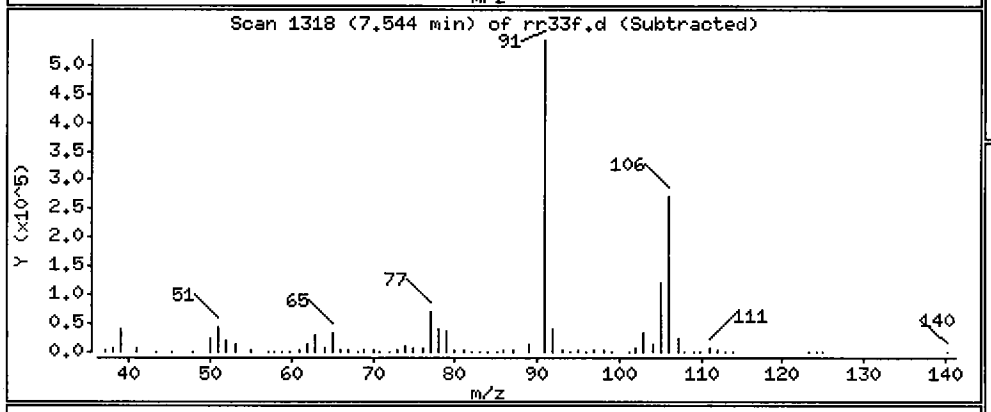
Column phase: RTX502.2

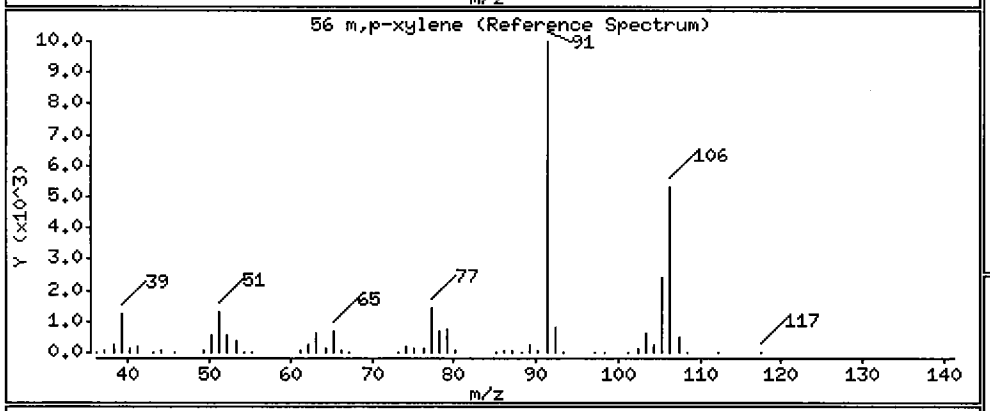
Column diameter: 0.18

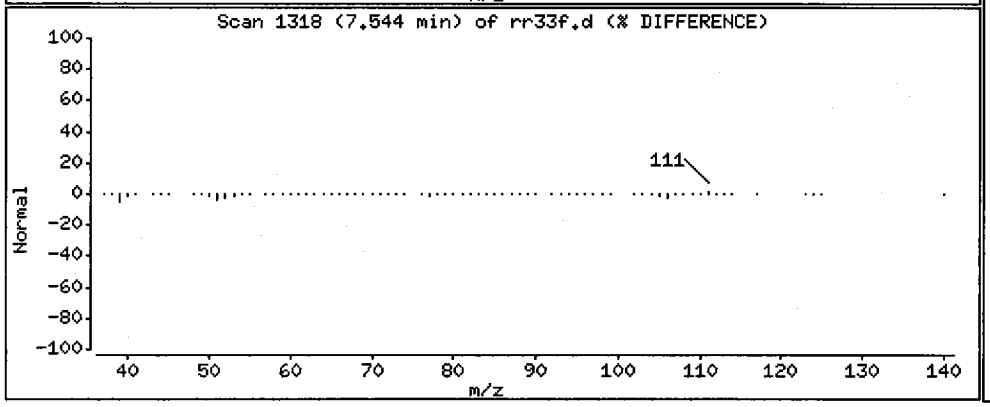
56 m,p-xylene

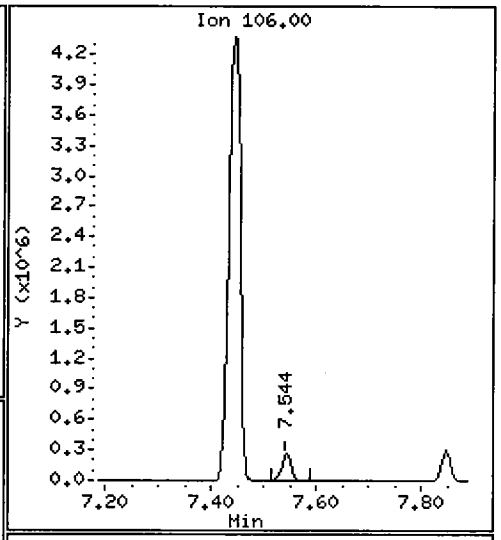
Concentration: 23.375 ug/Kg

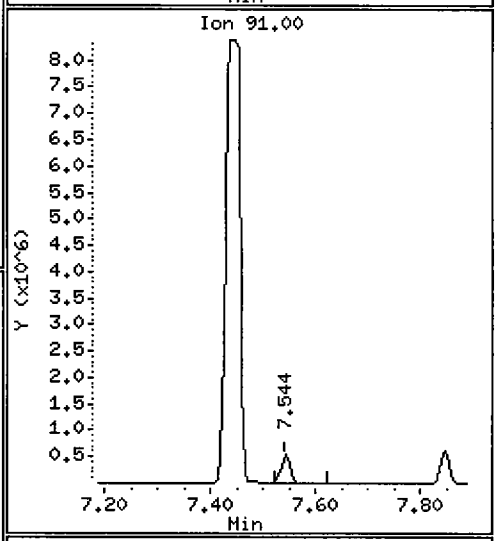


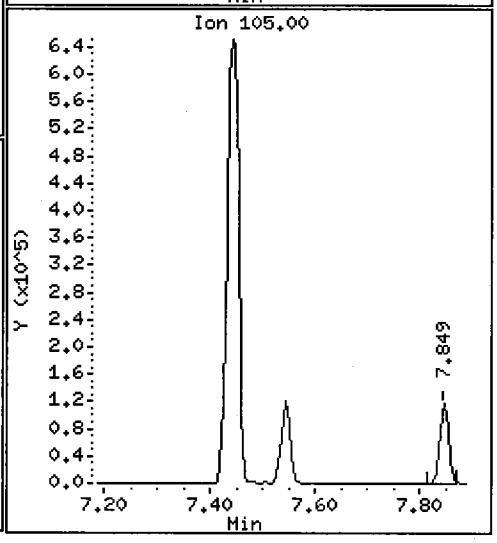












Data File: /chem1/nt9.i/20OCT10.b/gasco.b/rr33f.d

Date : 20-OCT-2010 23:20

Client ID: DGS-07-5.66.7-10101

Instrument: nt9.i

Sample Info: RR33F,5,6.03,0

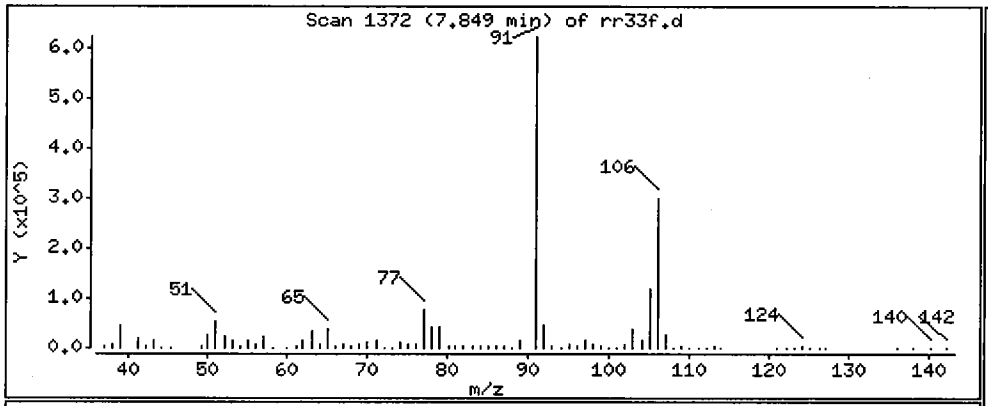
Operator: PB

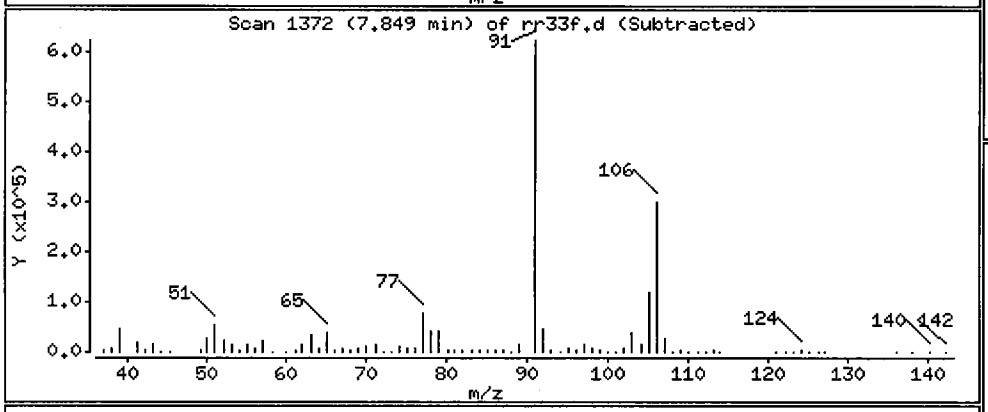
Column phase: RTX502.2

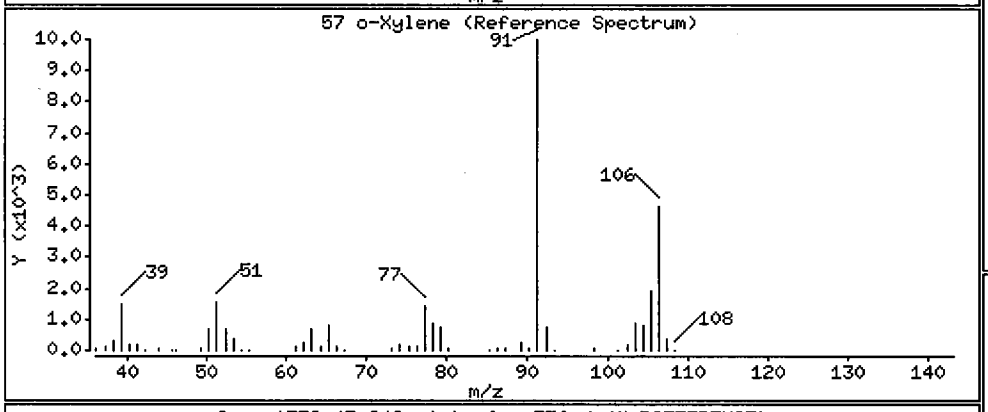
Column diameter: 0.18

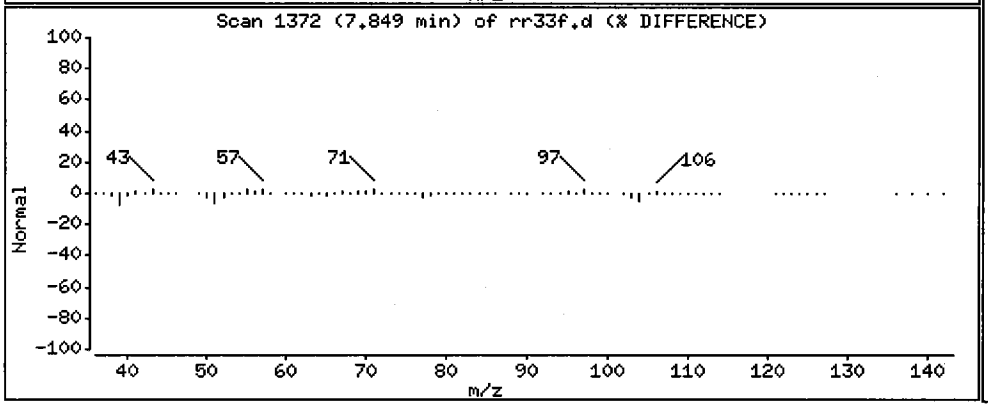
57 o-Xylene

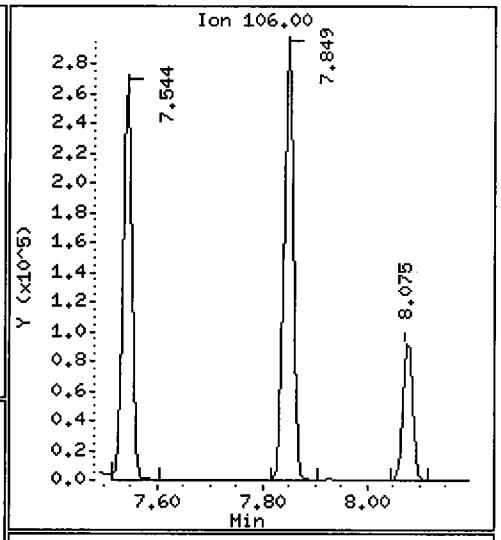
Concentration: 28.660 ug/Kg

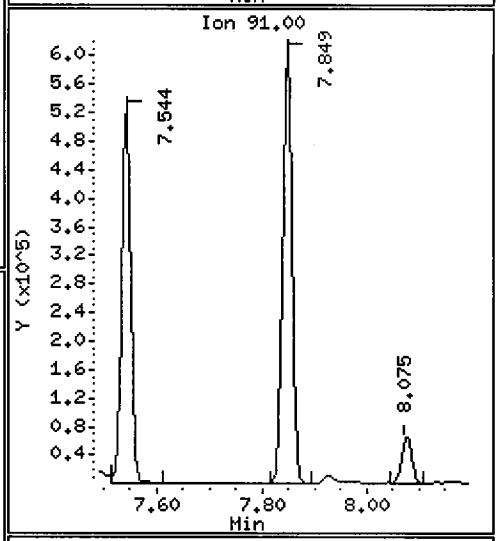


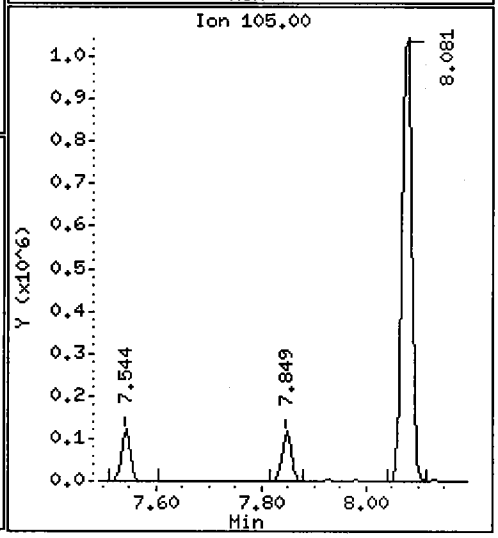






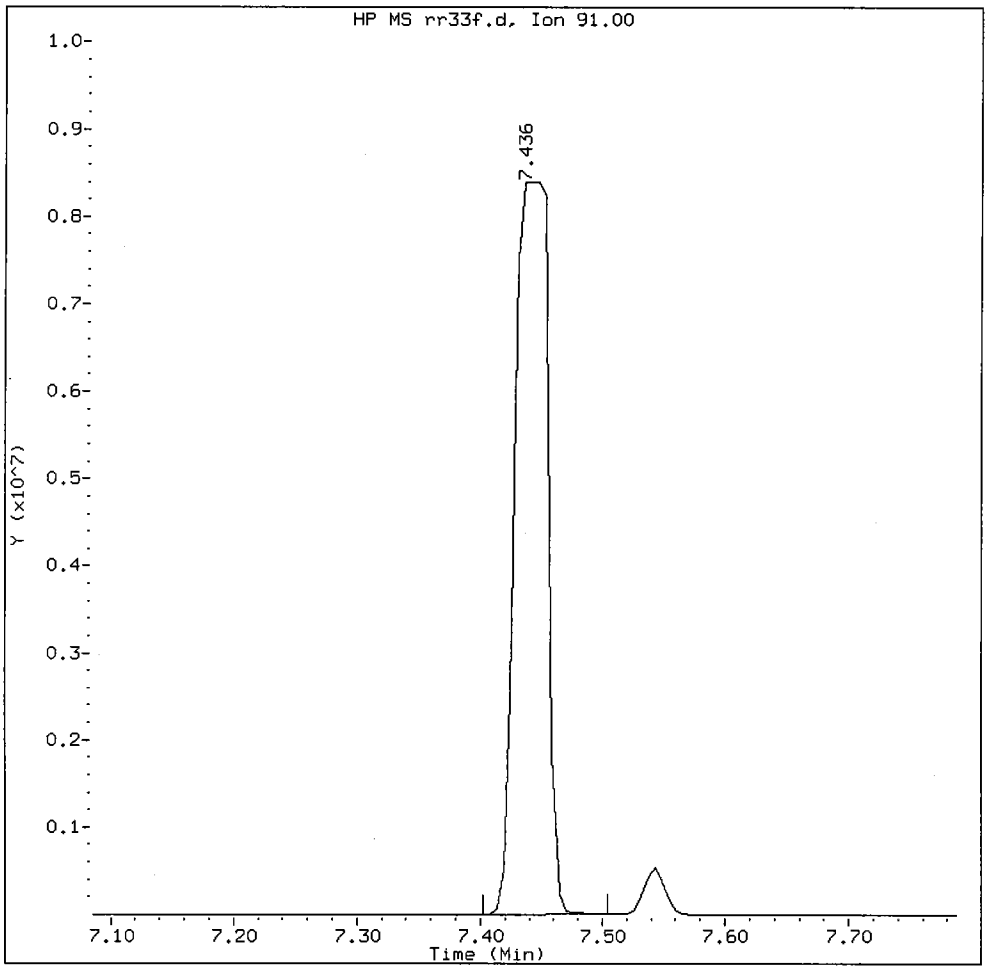






RR33F, /chem1/nt9.i/20OCT10.b/gasco.b/rr33f.d

Ethyl Benzene Amount: 571.27 Area: 15647780



MANUAL INTEGRATION for Ethyl Benzene

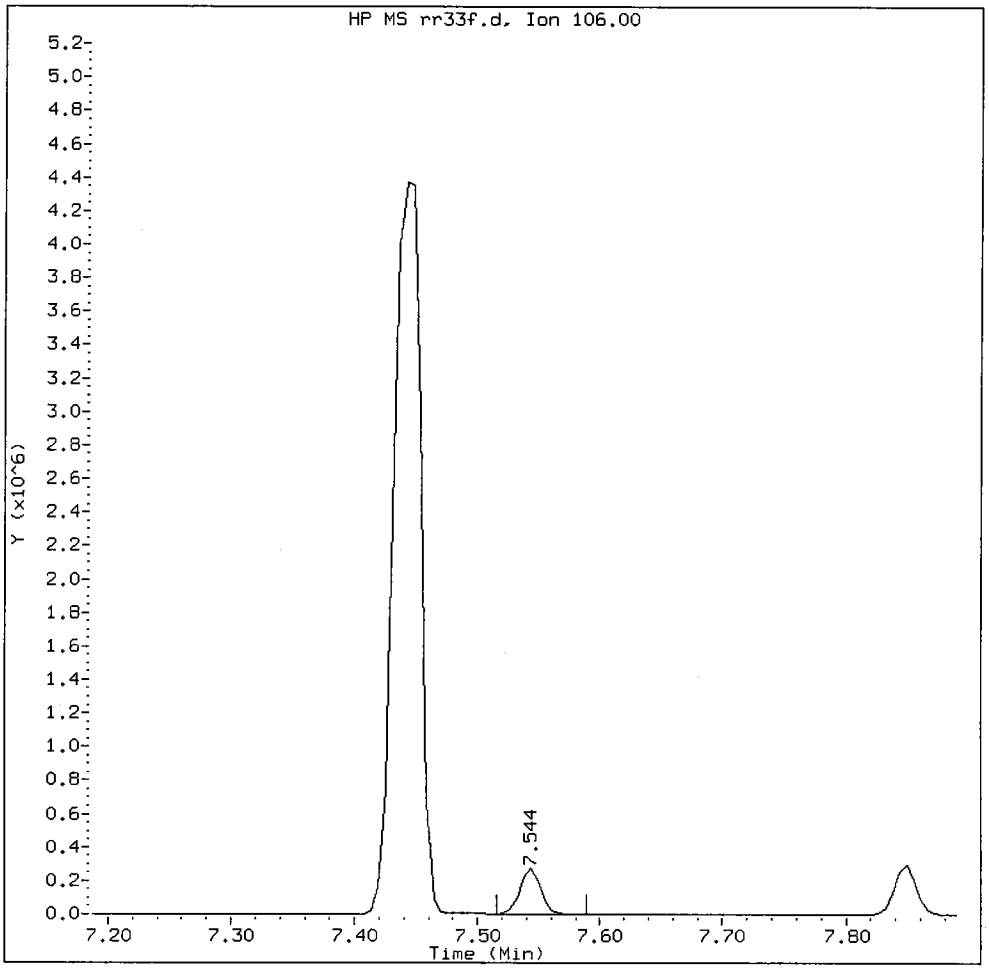
1. Baseline correction
2. Poor chromatography
3. Peak not found
4. Totals calculation

5. Other _____

Analyst: _____ Date: 10/27/10

RR33F, /chem1/nt9.i/20OCT10.b/gasco.b/rr33f.d

m,p-xylene Amount: 28.19 Area: 312295



MANUAL INTEGRATION for m,p-xylene

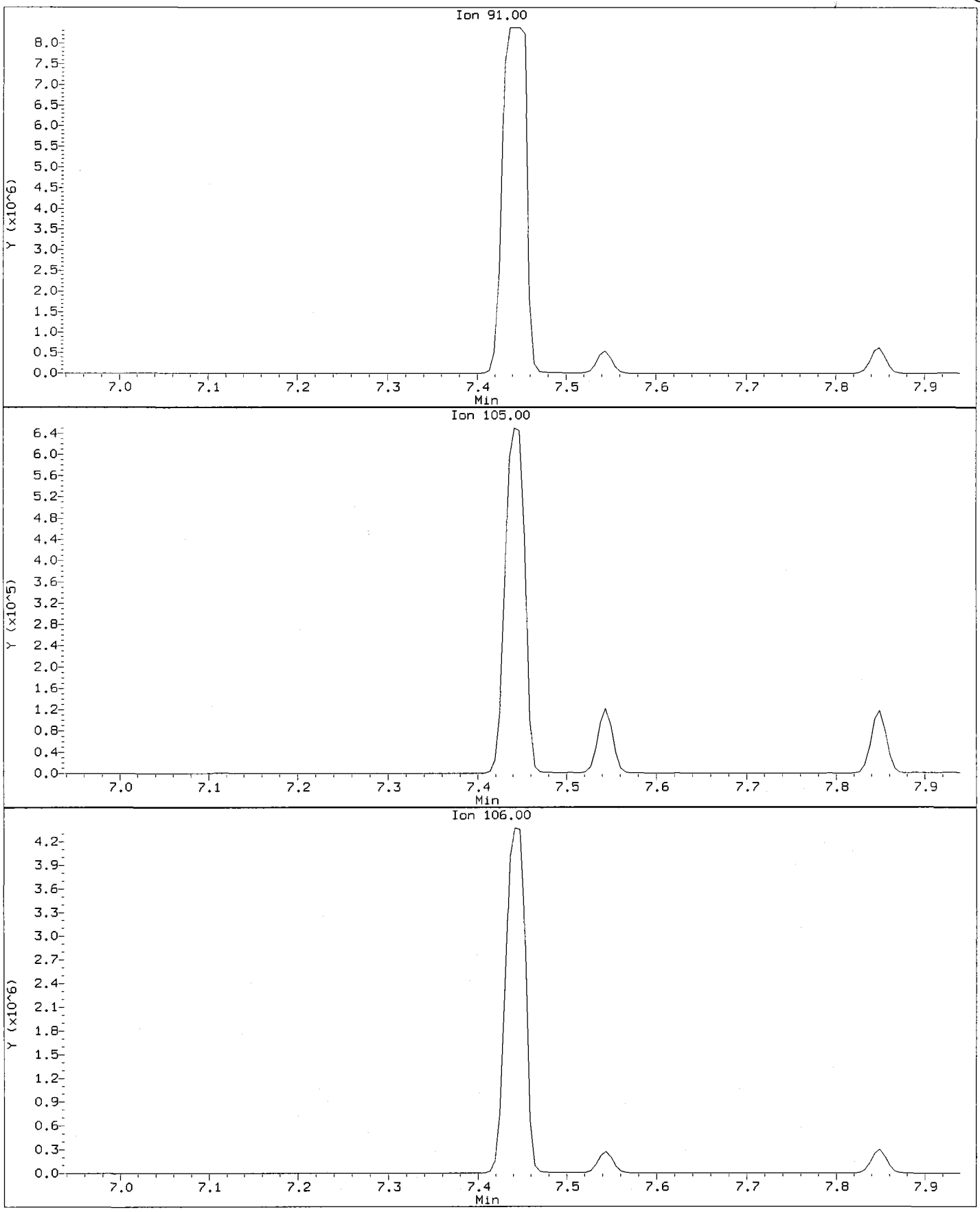
1. Baseline correction
2. Poor chromatography
3. Peak not found
4. Totals calculation

5. Other _____

Analyst: _____ Date: 10/27/10

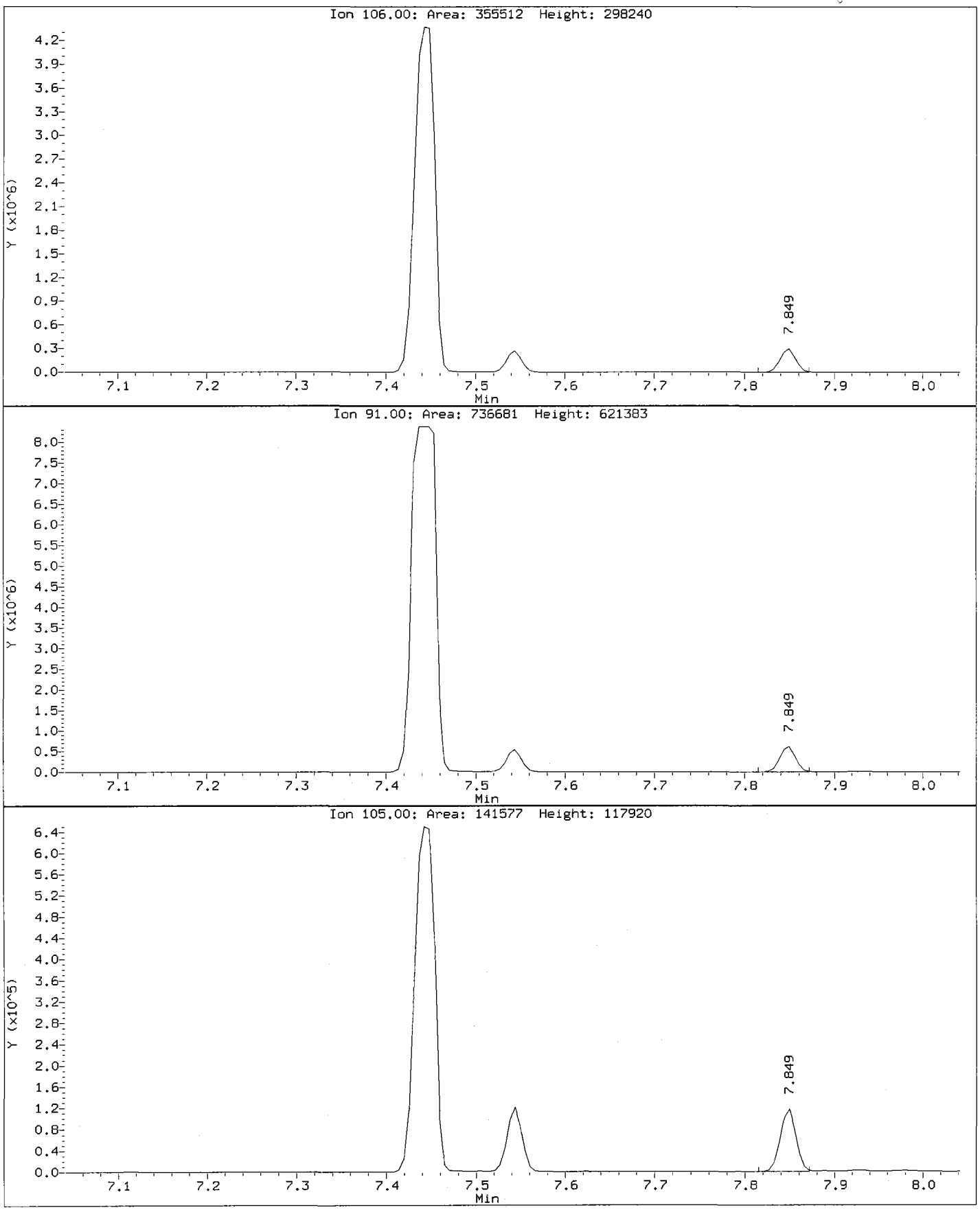
Data File: /chem1/nt9.i/20OCT10.b/rr33f.d
Injection Date: 20-OCT-2010 23:20
Instrument: nt9.i
Client Sample ID: DGS-07-5.66.7-10101

Compound: Ethyl Benzene
CAS Number:



Data File: /chem1/nt9.i/20OCT10.b/rr33f.d
Injection Date: 20-OCT-2010 23:20
Instrument: nt9.i
Client Sample ID: DGS-07-5.66.7-10101

Compound: m,p-xylene
CAS Number:



Analytical Resources, Incorporated
Analytical Chemists and Consultants

VOA Analyst Notes / Corrective Action Log

ARI Project ID: RR33 Client ID: NW Natural

ARI SOP: **404S**(Gas) **410S**(BTEX) **430S**(VPH) **700S**(8260C) **703S**(SIM) **706S**(524.2) **710S**(RSK-175)

Parameter(s): _____

Instrument: NT-3 NT-5 NT-7 NT-9 NT-10 PID-1 PID-2 PID-3 FID-6 FINN-5

Purge Volume (mL) 5 Curve Date: 8/28/10 Analysis Start Date: 10/26/10

pH ≤ 2.0	YES / NO / NA	Method Blank In Control?	YES / NO
BFB Tune Meets Criteria?	YES / NO / NA	LCS / LCSD Recovery In Control?	YES / NO
Internal Standard Meets Criteria?	YES / NO (sample K) / NA	Surrogate Recovery In Control?	YES / NO
ICal acceptable?	YES / NO	CCal acceptable?	YES / NO
Q flag applied?	YES / NO / NA	Q flag applied?	YES / NO / NA
Manual Integrations for ICal?	YES / NO	Manual Integrations for Samples?	Yes / NO
Special Analysis Criteria Met?	YES / NO / NA		

Bubbles/Headspace: None SM (≤ 2mm •) PB (2-4mm) LG (> 4mm ●) Head Space

Detail problems, corrective actions and/or other pertinent information below (use reverse side when necessary):

Samples B, D (E, flags), G, H (E, S), I (E), J (E), K (E, S), L (E), M (E), N (E) run

K - SS BFB, SS d4,1,2 DCB } out, IS - all except 1,4 DFB out low

M - SS BFB out

Additional Details on Reverse: Yes / No

Analyst: _____ **Date:** 10/27/10

Reviewer: _____ **Date:** 10/27/10

Analytical Resources Inc.: Volatile Organics Instrument Log

NT-9 Serial No.:GC=US00021704, MS=US80230047

Date: 10/21/10 Analysis: 8260C Analyst: [illegible]

GC Program: 60A Column No: 562575 Column Type: RTX-VMS

Instrument Tune (.U or .CT.): bfb1021 EM Voltage: 1256

Calibration File: 050102 Curve Date: 8/28/10

IS/SS	Ical/Ccal	LCS/ICV
WL6521	WL6522	WL6523

INTERNAL STANDARD SUMMARY FOR DATABATCH - /chem1/nt9.i/21OCT10.b

	Time	Filename	LabID	ClientID	WT									
1	1015	bfb1021.d	BFB1021	BFB1021	0.00									
2	1046	0501021.d	CC1021	VSTD050	5.00	4.93	666312	5.32	868230	7.40	769127	9.11	439933	
3	1121	lcs1021.d	LCS1021	LCS1021	5.00	4.93	680363	5.32	892256	7.40	788109	9.11	450263	
4	1151	lcs1021a.d	LCS1021	LCS1021	5.00	4.93	645095	5.32	845311	7.40	738301	9.11	411685	
5	1222	mb1021.d	MB1021	MB1021	5.00	4.93	701792	5.32	916365	7.40	804718	9.11	446895	
6	1254	rr33g.d	RR33G	DGS-36-066.7-101012	5.00	4.93	538238	5.32	727217	7.40	624032	9.11	318645	
7	1324	rr33h.d	RR33H	DGS-07-077.3-101012	5.00	4.93	713267	5.32	934778	7.40	839958	9.11	462938	
8	1354	rr33i.d	RR33I	DGS-07-7.98.4-10101	5.00	4.94	659801	5.32	868914	7.40	760065	9.11	412992	
9	1425	rr33j.d	RR33J	DGS-07-8.79.1-10101	5.00	4.94	728977	5.32	958296	7.40	874560	9.11	490531	
10	1455	rr33k.d	RR33K	DGS-07-9.710-101012	5.00	4.93	338507	5.32	517568	7.40	374451	9.13	165423	
11	1525	rr33l.d	RR33L	DGS-07-10.610.9-101	5.00	4.93	637043	5.32	846308	7.40	743012			
12	1556	rr33m.d	RR33M	DGS-07-11.611.8-101	5.00	4.93	608447	5.32	826866	7.40	723848			
13	1626	rr33n.d	RR33N	DGS-07-12.713.2-101	5.00	4.94	827165	5.32	1089939	7.40	1002033			
14	1657	rr00n3.d	RR00N	DGS-18-0001-101008	5.00	4.93	859702	5.32	1136653	7.40	1020534	9.12	568935	
15	1727	rr33b2.d	RR33B	DGS-07-011.3-101012	5.00	4.94	649998	5.32	852756	7.40	737120	9.11	389422	
16	1757	rr33d2.d	RR33D	DGS-07-034.2-101012	5.00	4.93	658687	5.32	891652	7.40	777866			
17	1828	rr33h2.d	RR33H	DGS-07-077.3-101012	5.00	4.94	758889	5.32	1008718	7.40	874336	9.11	449440	
18	1858	rr33i2.d	RR33I	DGS-07-7.98.4-10101	5.00	4.93	779366	5.32	1031885	7.40	891839	9.11	437967	
19	1928	rr33j2.d	RR33J	DGS-07-8.79.1-10101	5.00	4.93	754461	5.32	1014170	7.40	871181			
20	1958	rr33k2.d	RR33K	DGS-07-9.710-101012	5.00	4.93	542230	5.32	789634	7.40	614041	9.12	263360	
21	2028	rr33l2.d	RR33L	DGS-07-10.610.9-101	5.00	4.93	782547	5.32	1046044	7.40	891157			
22	2058	rr33m2.d	RR33M	DGS-07-11.611.8-101	5.00	4.93	642475	5.32	911077	7.40	730072			
23	2129	rr33n2.d	RR33N	DGS-07-12.713.2-101	5.00	4.93	745081	5.32	1012901	7.40	848701			
24	2159	rr00n4.d	RR00N	DGS-18-0001-101008	5.00	4.94	804085	5.32	1064667	7.40	958065	9.11	526616	

MANUAL INTEGRATION SUMMARY FOR DATABATCH - /chem1/nt9.i/21OCT10.b/gasco.b

ARI Job No.: BFB1 Method: bfb8260.m Instrument: nt9.i Date: 21-OCT-2010

Time	Filename	LabID	ClientId	DF	Manually Integrated Compounds
1015	bfb1021.d	BFB1021	BFB1021	1	NO MANUAL INTEGRATION
1046	0501021.d	CC1021	VSTD050	1	NO MANUAL INTEGRATION
1121	lcs1021.d	LCS1021	LCS1021	1	NO MANUAL INTEGRATION
1151	lcs1021a.d	LCS1021	LCS1021	1	NO MANUAL INTEGRATION
1222	mb1021.d	MB1021	MB1021	1	NO MANUAL INTEGRATION
1254	rr33g.d	RR33G	DGS-36-066	1	NO MANUAL INTEGRATION
1324	rr33h.d	RR33H	DGS-07-077	1	Ethyl Benzene, m,p-xylene, d4-1,4-Dichlorobenzene, d4-1,2-Dichlorobenzene,
1354	rr33i.d	RR33I	DGS-07-7.9	1	m,p-xylene,
1425	rr33j.d	RR33J	DGS-07-8.7	1	m,p-xylene, d4-1,4-Dichlorobenzene, d4-1,2-Dichlorobenzene,
1455	rr33k.d	RR33K	DGS-07-9.7	1	Ethyl Benzene,
1525	rr33l.d	RR33L	DGS-07-10.	1	d4-1,4-Dichlorobenzene, d4-1,2-Dichlorobenzene,
1556	rr33m.d	RR33M	DGS-07-11.	1	d4-1,4-Dichlorobenzene, d4-1,2-Dichlorobenzene,
1727	rr33b2.d	RR33B	DGS-07-011	1	NO MANUAL INTEGRATION
1757	rr33d2.d	RR33D	DGS-07-034	1	Ethyl Benzene, d4-1,4-Dichlorobenzene, d4-1,2-Dichlorobenzene,
2129	rr33n2.d	RR33N	DGS-07-12.	1	d4-1,4-Dichlorobenzene, d4-1,2-Dichlorobenzene,

RR33 : 00208

Q-FLAG SUMMARY FOR DATABATCH - /chem1/nt9.i/21OCT10.b/gasco.b

Instrument: nt9.i Date: 21-OCT-2010 Method: gasco.b/VO063010S.m

INITIAL CAL: 28-AUG-2010

Compound	%RSD or R^2
NO Q-FLAGS	

CONTINUING CAL: 21-OCT-2010

Compound	%D
NO Q-FLAGS	

Data File: /chem1/nt9.i/21OCT10.b/gasco.b/bfb1021.d

Date : 21-OCT-2010 10:15

Client ID: BFB1021

Instrument: nt9.i

Sample Info: BFB1021,BFB1021,,1,21OCT10,,

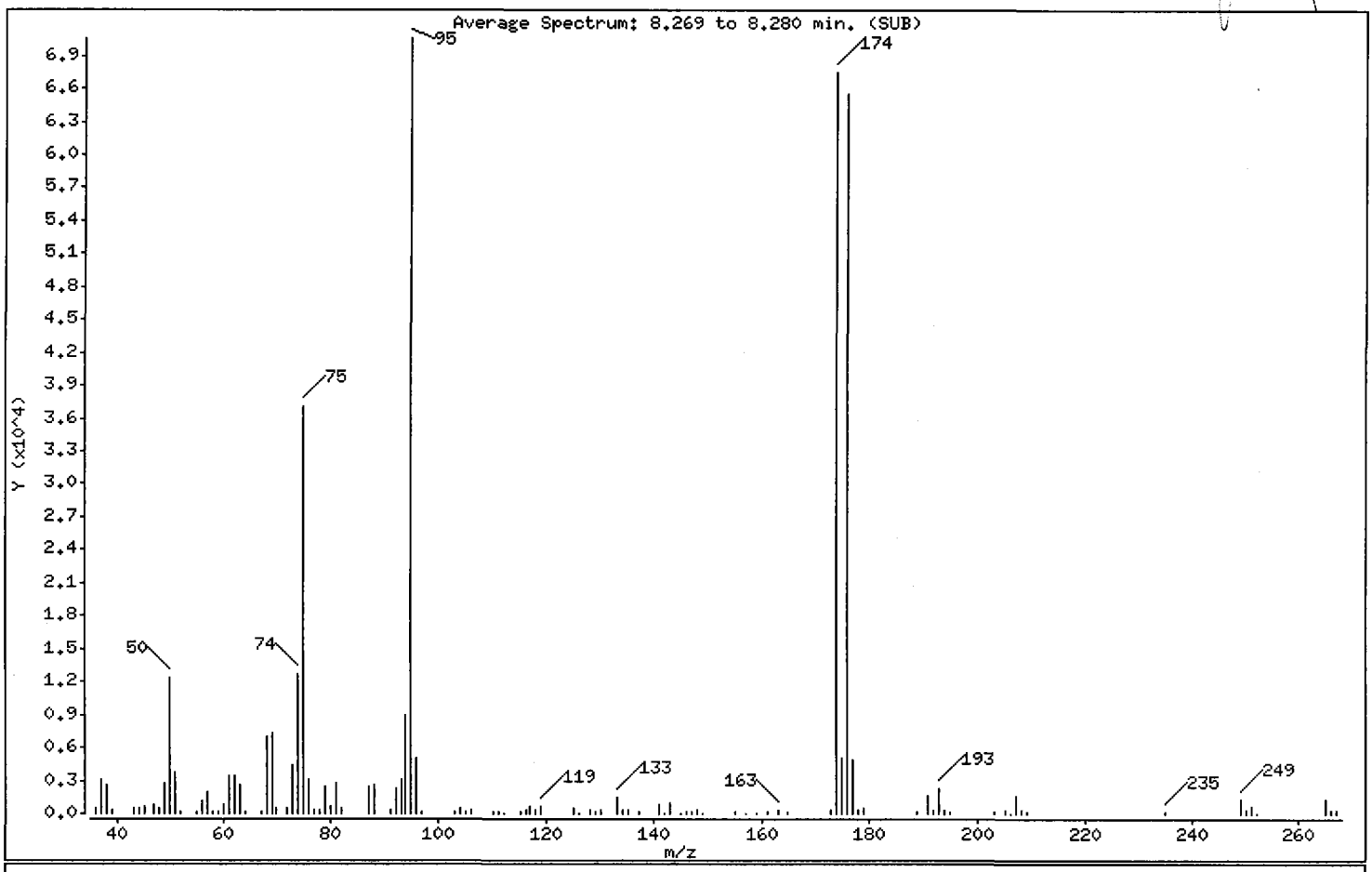
Operator: PB

Column phase: RTX502.2

Column diameter: 0.18

1 Bromofluorobenzene

10/2260



m/e	ION ABUNDANCE CRITERIA	% RELATIVE ABUNDANCE
95	Base Peak, 100% relative abundance	100.00
50	8.00 - 40.00% of mass 95	17.47
75	30.00 - 66.00% of mass 95	52.59
96	5.00 - 9.00% of mass 95	7.22
173	Less than 2.00% of mass 174	0.43 (0.45)
174	50.00 - 101.00% of mass 95	95.73
175	4.00 - 9.00% of mass 174	7.10 (7.42)
176	93.00 - 101.00% of mass 174	92.76 (96.89)
177	5.00 - 9.00% of mass 176	7.01 (7.55)

Data File: /chem1/nt9.i/21OCT10.b/gasco.b/bfb1021.d

Date : 21-OCT-2010 10:15

Client ID: BFB1021 Instrument: nt9.i

Sample Info: BFB1021,BFB1021,,1,21OCT10,,

Operator: PB

Column phase: RTX502.2 Column diameter: 0.18

Data File: bfb1021.d
Spectrum: Average Spectrum: 8.269 to 8.280 min. (SUB)
Location of Maximum: 95.00
Number of points: 109

m/z	Y	m/z	Y	m/z	Y	m/z	Y
36.00	524	73.00	4320	117.00	570	175.00	5013
37.00	3136	74.00	12750	118.00	379	176.00	65456
38.00	2641	75.00	37112	119.00	727	177.00	4944
39.00	325	76.00	3100	125.00	449	178.00	268
43.00	451	77.00	258	126.00	52	179.00	495
44.00	565	78.00	289	128.00	305	189.00	149
45.00	675	79.00	2397	129.00	159	191.00	1674
47.00	770	80.00	706	130.00	318	192.00	297
48.00	451	81.00	2697	133.00	1516	193.00	2301
49.00	2742	82.00	552	134.00	330	194.00	388
50.00	12326	87.00	2408	135.00	314	195.00	236
51.00	3713	88.00	2552	137.00	170	203.00	154
52.00	184	91.00	320	141.00	866	205.00	403
55.00	240	92.00	2259	142.00	57	206.00	63
56.00	1117	93.00	3150	143.00	941	207.00	1575
57.00	1942	94.00	8899	145.00	54	208.00	373
58.00	201	95.00	70568	146.00	111	209.00	158
59.00	229	96.00	5093	147.00	239	235.00	100
60.00	811	97.00	211	148.00	381	249.00	1293
61.00	3398	103.00	232	149.00	66	250.00	340
62.00	3434	104.00	415	155.00	176	251.00	589
63.00	2575	105.00	145	157.00	68	252.00	56
64.00	100	106.00	398	159.00	57	265.00	1229
67.00	137	110.00	123	161.00	202	266.00	393
68.00	7052	111.00	157	163.00	280	267.00	259
69.00	7280	112.00	51	165.00	233		
70.00	501	115.00	121	173.00	301		
72.00	446	116.00	285	174.00	67552		

Data File: /chem1/nt9.i/21OCT10.b/gasco.b/bfb1021.d

Date : 21-OCT-2010 10:15

Client ID: BFB1021

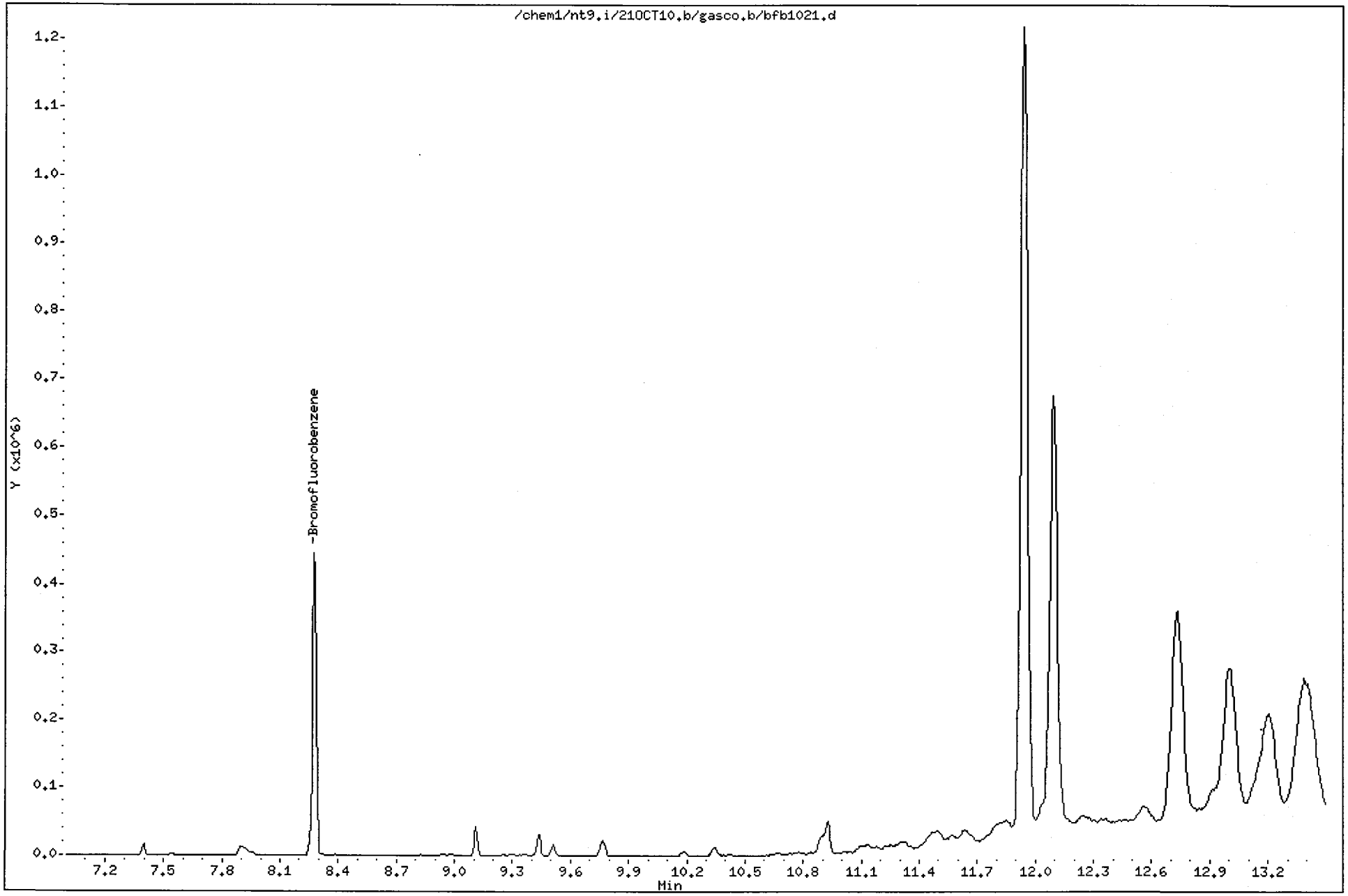
Sample Info: BFB1021,BFB1021,,1,21OCT10,,

Column phase: RTX502.2

Instrument: nt9.i

Operator: PB

Column diameter: 0.18



RR33-00212

Analytical Resources, Inc.

8260C

Data file : /chem1/nt9.i/21OCT10.b/gasco.b/0501021.d
Lab Smp Id: CC1021 Client Smp ID: VSTD050
Inj Date : 21-OCT-2010 10:46
Operator : PB Inst ID: nt9.i
Smp Info : CC1021,5,5,0
Misc Info : 10-
Comment :
Method : /chem1/nt9.i/21OCT10.b/gasco.b/VO063010S.m
Meth Date : 27-Oct-2010 11:06 patrickb Quant Type: ISTD
Cal Date : 28-AUG-2010 13:21 Cal File: 2000828.d
Als bottle: 1 Continuing Calibration Sample
Dil Factor: 1.00000
Integrator: HP RTE Compound Sublist: gasco.sub
Target Version: 3.50
Processing Host: cserv3

Concentration Formula: Amt * DF * Pv * 1 / (Sa * ((100 - M) / 100)) * CpndVaria

Name	Value	Description
DF	1.00000	Dilution Factor
Pv	5.00000	Purge Volume
Sa	5.00000	Sample Amount
M	0.00000	% Moisture (not decanted)

Cpnd Variable Local Compound Variable

Compounds	QUANT SIG MASS	RT	EXP RT	REL RT	RESPONSE	AMOUNTS CAL-AMT (ug/Kg)	AMOUNTS ON-COL (ug/Kg)
3 Vinyl Chloride	62	1.407	1.407	(0.285)	272625	50.0000	45.801
7 1,1-Dichloroethene	96	2.312	2.312	(0.469)	321558	50.0000	54.660
15 Trans-1,2-Dichloroethene	96	3.030	3.030	(0.615)	331557	50.0000	48.772
20 Cis-1,2-Dichloroethene	96	4.134	4.134	(0.838)	311344	50.0000	48.335
* 32 Pentafluorobenzene	168	4.931	4.931	(1.000)	666312	50.0000	
$ 25 Dibromofluoromethane	111	4.530	4.530	(0.919)	245005	50.0000	49.175
$ 31 d4-1,2-Dichloroethane	65	4.937	4.937	(1.001)	243964	50.0000	47.694
30 Benzene	78	4.829	4.829	(0.908)	1144895	50.0000	49.029
* 35 1,4-Difluorobenzene	114	5.321	5.321	(1.000)	868230	50.0000	
34 Trichloroethene	95	5.282	5.282	(0.993)	327818	50.0000	50.814
$ 42 d8-Toluene	98	6.306	6.306	(1.185)	972624	50.0000	49.441
43 Toluene	92	6.340	6.340	(1.191)	790612	50.0000	47.644
44 Tetrachloroethene	166	6.611	6.611	(0.894)	432711	50.0000	51.754
* 52 d5-Chlorobenzene	117	7.398	7.398	(1.000)	769127	50.0000	

Compounds	QUANT SIG MASS	RT	EXP RT	REL RT	RESPONSE	AMOUNTS CAL-AMT (ug/Kg)	AMOUNTS ON-COL (ug/Kg)
54 Ethyl Benzene	91	7.437	7.437	(1.005)	1578741	50.0000	50.086
56 m,p-xylene	106	7.545	7.545	(1.020)	1316613	100.000	103.28
57 o-Xylene	106	7.850	7.850	(1.061)	592226	50.0000	49.869
$ 61 4-Bromofluorobenzene	95	8.274	8.274	(1.119)	347070	50.0000	48.722
* 75 d4-1,4-Dichlorobenzene	152	9.112	9.112	(1.000)	439933	50.0000	
$ 78 d4-1,2-Dichlorobenzene	152	9.434	9.434	(1.035)	382741	50.0000	49.769

Analytical Resources, Inc.

INTERNAL STANDARD COMPOUNDS
AREA AND RT SUMMARY

Instrument ID: nt9.i
Lab File ID: 0501021.d
Lab Smp Id: CC1021
Analysis Type: VOA
Quant Type: ISTD
Operator: PB
Method File: /chem1/nt9.i/21OCT10.b/gasco.b/VO063010S.m
Misc Info: 10-

Calibration Date: 21-OCT-2010
Calibration Time: 10:46
Client Smp ID: VSTD050
Level: LOW
Sample Type: SOIL

Test Mode:
Use Initial Calibration Level 5.
If Continuing Cal. use Initial Cal. Level 5

COMPOUND	STANDARD	AREA LIMIT LOWER	AREA LIMIT UPPER	SAMPLE	%DIFF
32 Pentafluorobenzen	704281	352140	1408562	666312	-5.39
35 1,4-Difluorobenze	937745	468872	1875490	868230	-7.41
52 d5-Chlorobenzene	853013	426506	1706026	769127	-9.83
75 d4-1,4-Dichlorobe	503655	251828	1007310	439933	-12.65

COMPOUND	STANDARD	RT LIMIT LOWER	RT LIMIT UPPER	SAMPLE	%DIFF
32 Pentafluorobenzen	4.94	4.44	5.44	4.93	-0.11
35 1,4-Difluorobenze	5.32	4.82	5.82	5.32	0.01
52 d5-Chlorobenzene	7.40	6.90	7.90	7.40	0.01
75 d4-1,4-Dichlorobe	9.11	8.61	9.61	9.11	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.

Data File: /chem1/nt9.i/21OCT10.b/gasco.b/0501021.d
Report Date: 27-Oct-2010 11:06

Analytical Resources, Inc.

CONTINUING CALIBRATION COMPOUNDS

Instrument ID: nt9.i
Lab File ID: 0501021.d
Analysis Type: SOIL
Lab Sample ID: CC1021
Method: /chem1/nt9.i/21OCT10.b/gasco.b/VO063010S.m

Injection Date: 21-OCT-2010 10:46
Init. Cal. Date(s): 28-AUG-2010 28-AUG-2010
Init. Cal. Times: 12:52 16:21
Quant Type: ISTD

COMPOUND	RRF / AMOUNT	RF50	CCAL RRF50	MIN RRF	%D / %DRIFT	MAX %D / %DRIFT	CURVE TYPE
3 Vinyl Chloride	0.44667	0.40916	0.40916	0.100	-8.39854	20.00000	Averaged
7 1,1-Dichloroethene	0.44145	0.48259	0.48259	0.100	9.32057	20.00000	Averaged
15 Trans-1,2-Dichloroethene	0.51013	0.49760	0.49760	0.010	-2.45649	20.00000	Averaged
20 Cis-1,2-Dichloroethene	0.48336	0.46726	0.46726	0.010	-3.33040	20.00000	Averaged
$ 25 Dibromofluoromethane	0.37387	0.36770	0.36770	0.100	-1.65014	20.00000	Averaged
$ 31 d4-1,2-Dichloroethane	0.38384	0.36614	0.36614	0.010	-4.61200	20.00000	Averaged
30 Benzene	1.34476	1.31865	1.31865	0.100	-1.94126	20.00000	Averaged
34 Trichloroethene	0.37152	0.37757	0.37757	0.100	1.62883	20.00000	Averaged
$ 42 d8-Toluene	1.13290	1.12024	1.12024	0.010	-1.11741	20.00000	Averaged
43 Toluene	0.95562	0.91060	0.91060	0.100	-4.71121	20.00000	Averaged
44 Tetrachloroethene	0.54353	0.56260	0.56260	0.100	3.50857	20.00000	Averaged
54 Ethyl Benzene	2.04913	2.05264	2.05264	0.100	0.17148	20.00000	Averaged
56 m,p-xylene	0.82875	0.85591	0.85591	0.100	3.27754	20.00000	Averaged
57 o-Xylene	0.77203	0.77000	0.77000	0.100	-0.26291	20.00000	Averaged
$ 61 4-Bromofluorobenzene	0.46309	0.45125	0.45125	0.200	-2.55687	20.00000	Averaged
$ 78 d4-1,2-Dichlorobenzene	0.87403	0.87000	0.87000	0.010	-0.46154	20.00000	Averaged

Data File: /chem1/nt9.i/21OCT10.b/gasco.b/0501021.d

Date : 21-OCT-2010 10:46

Client ID: VSTD050

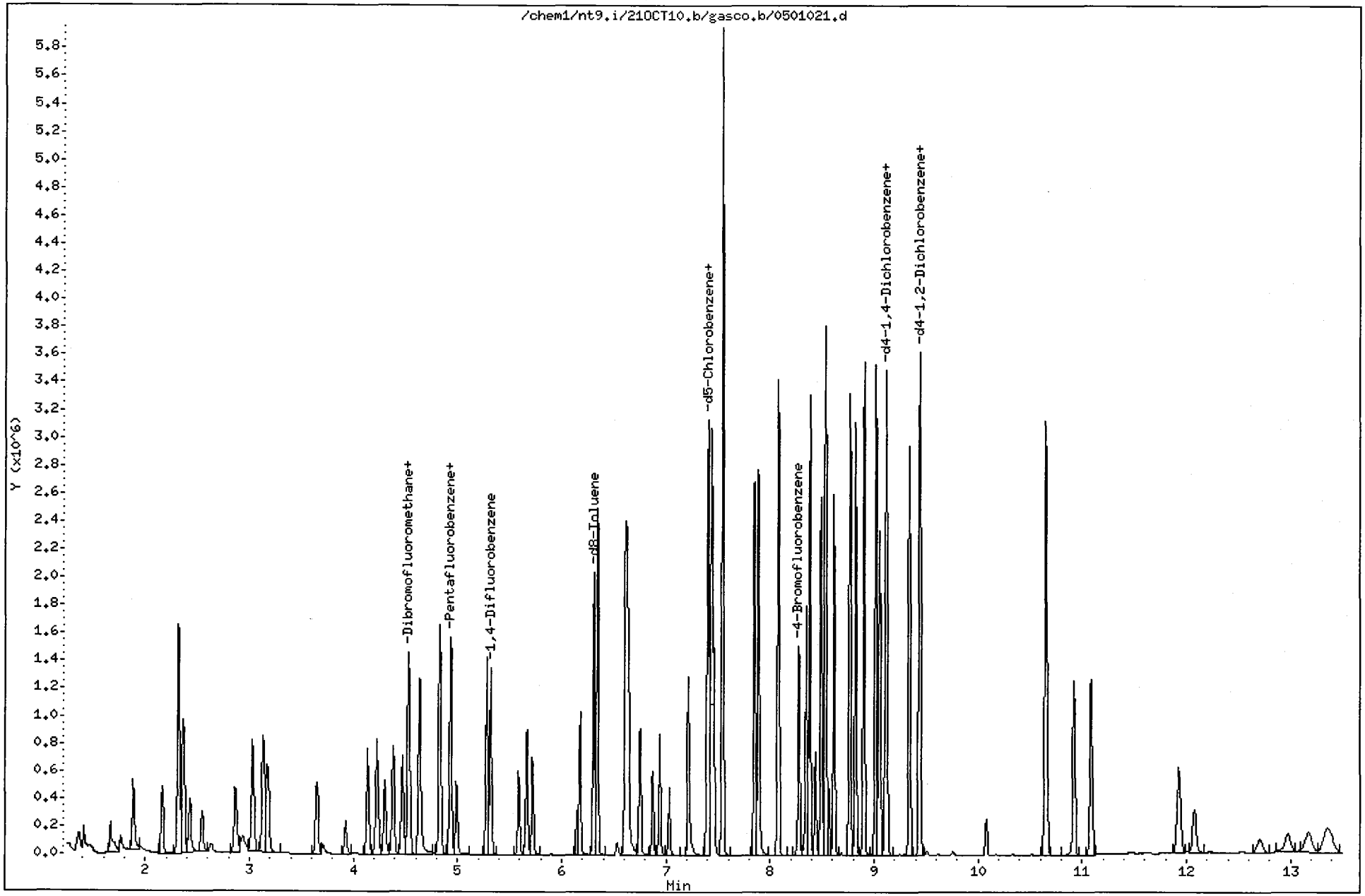
Sample Info: CC1021,5,5,0

Column phase: RTX502.2

Instrument: nt9.i

Operator: PB

Column diameter: 0.18



RR33-00217

Analytical Resources, Inc.

8260C

Data file : /chem1/nt9.i/21OCT10.b/gasco.b/lcs1021.d
Lab Smp Id: LCS1021 Client Smp ID: LCS1021
Inj Date : 21-OCT-2010 11:21
Operator : PB Inst ID: nt9.i
Smp Info : LCS1021,5,5,0
Misc Info : 10-
Comment :
Method : /chem1/nt9.i/21OCT10.b/gasco.b/VO063010S.m
Meth Date : 27-Oct-2010 11:07 patrickb Quant Type: ISTD
Cal Date : 28-AUG-2010 13:21 Cal File: 2000828.d
Als bottle: 1 QC Sample: LCS
Dil Factor: 1.00000
Integrator: HP RTE Compound Sublist: gasco.sub
Target Version: 3.50
Processing Host: cserv3

Concentration Formula: Amt * DF * Pv * 1 / (Sa * ((100 - M) / 100)) * CpndVaria

Name	Value	Description
DF	1.00000	Dilution Factor
Pv	5.00000	Purge Volume
Sa	5.00000	Sample Amount
M	0.00000	% Moisture (not decanted)

Cpnd Variable Local Compound Variable

Compounds	QUANT SIG MASS	RT	EXP RT	REL RT	RESPONSE	CONCENTRATIONS ON-COLUMN (ug/Kg)	FINAL (ug/Kg)
3 Vinyl Chloride	62	1.407	1.407	(0.285)	304556	50.1084	50.108
7 1,1-Dichloroethene	96	2.312	2.312	(0.469)	338595	56.3677	56.368
15 Trans-1,2-Dichloroethene	96	3.030	3.030	(0.615)	345129	49.7197	49.720
20 Cis-1,2-Dichloroethene	96	4.133	4.134	(0.838)	329024	50.0246	50.025
* 32 Pentafluorobenzene	168	4.931	4.931	(1.000)	680363	50.0000	
$ 25 Dibromofluoromethane	111	4.529	4.530	(0.919)	252437	49.6202	49.620
$ 31 d4-1,2-Dichloroethane	65	4.937	4.937	(1.001)	255794	48.9740	48.974
30 Benzene	78	4.829	4.829	(0.908)	1216385	50.6882	50.688
* 35 1,4-Difluorobenzene	114	5.321	5.321	(1.000)	892256	50.0000	
34 Trichloroethene	95	5.282	5.282	(0.993)	348265	52.5302	52.530
$ 42 d8-Toluene	98	6.305	6.306	(1.185)	995009	49.2172	49.217
43 Toluene	92	6.339	6.340	(1.191)	834430	48.9309	48.931
44 Tetrachloroethene	166	6.611	6.611	(0.894)	456207	53.2503	53.250
* 52 d5-Chlorobenzene	117	7.397	7.398	(1.000)	788109	50.0000	

Compounds	QUANT SIG MASS	RT	EXP RT	REL RT	RESPONSE	CONCENTRATIONS ON-COLUMN (ug/Kg)	FINAL (ug/Kg)
54 Ethyl Benzene	91	7.437	7.437	(1.005)	1665331	51.5603	51.560
56 m,p-xylene	106	7.544	7.545	(1.020)	1390539	106.449	106.45
57 o-Xylene	106	7.850	7.850	(1.061)	623137	51.2076	51.208
$ 61 4-Bromofluorobenzene	95	8.280	8.274	(1.119)	351271	48.1236	48.124
* 75 d4-1,4-Dichlorobenzene	152	9.111	9.112	(1.000)	450263	50.0000	
$ 78 d4-1,2-Dichlorobenzene	152	9.439	9.434	(1.036)	389017	49.4248	49.425

Analytical Resources, Inc.

INTERNAL STANDARD COMPOUNDS
AREA AND RT SUMMARY

Instrument ID: nt9.i
Lab File ID: lcs1021.d
Lab Smp Id: LCS1021
Analysis Type: VOA
Quant Type: ISTD
Operator: PB
Method File: /chem1/nt9.i/21OCT10.b/gasco.b/VO063010S.m
Misc Info: 10-

Calibration Date: 21-OCT-2010
Calibration Time: 10:46
Client Smp ID: LCS1021
Level: LOW
Sample Type: SOIL

Test Mode:
Use Initial Calibration Level 5.
If Continuing Cal. use Initial Cal. Level 5

COMPOUND	STANDARD	AREA LIMIT LOWER	AREA LIMIT UPPER	SAMPLE	%DIFF
32 Pentafluorobenzen	704281	352140	1408562	680363	-3.40
35 1,4-Difluorobenze	937745	468872	1875490	892256	-4.85
52 d5-Chlorobenzene	853013	426506	1706026	788109	-7.61
75 d4-1,4-Dichlorobe	503655	251828	1007310	450263	-10.60

COMPOUND	STANDARD	RT LIMIT LOWER	RT LIMIT UPPER	SAMPLE	%DIFF
32 Pentafluorobenzen	4.93	4.43	5.43	4.93	-0.01
35 1,4-Difluorobenze	5.32	4.82	5.82	5.32	-0.01
52 d5-Chlorobenzene	7.40	6.90	7.90	7.40	0.00
75 d4-1,4-Dichlorobe	9.11	8.61	9.61	9.11	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.

Analytical Resources, Inc.

RECOVERY REPORT

Client Name:
Sample Matrix: SOLID
Lab Smp Id: LCS1021
Level: LOW
Data Type: MS DATA
SpikeList File: gasco.spk
Sublist File: gasco.sub
Method File: /chem1/nt9.i/21OCT10.b/gasco.b/VO063010S.m
Misc Info: 10-

Client SDG: 21OCT10
Fraction: VOA
Client Smp ID: LCS1021
Operator: PB
SampleType: LCS
Quant Type: ISTD

SPIKE COMPOUND	CONC ADDED ug/Kg	CONC RECOVERED ug/Kg	% RECOVERED	LIMITS
3 Vinyl Chloride	50.000	50.108	100.22	63-137
7 1,1-Dichloroethene	50.000	56.368	112.74	75-126
15 Trans-1,2-Dichloro	50.000	49.720	99.44	80-120
20 Cis-1,2-Dichloroet	50.000	50.025	100.05	80-120
30 Benzene	50.000	50.688	101.38	80-120
34 Trichloroethene	50.000	52.530	105.06	80-120
43 Toluene	50.000	48.931	97.86	80-120
44 Tetrachloroethene	50.000	53.250	106.50	80-121
54 Ethyl Benzene	50.000	51.560	103.12	80-127
56 m,p-xylene	100.00	106.45	106.45	80-125
57 o-Xylene	50.000	51.208	102.42	78-120

SURROGATE COMPOUND	AMOUNT ADDED ug/Kg	AMOUNT RECOVERED ug/Kg	% RECOVERED	LIMITS
$ 25 Dibromofluorometha	50.000	49.620	99.24	30-160
$ 31 d4-1,2-Dichloroeth	50.000	48.974	97.95	75-152
$ 42 d8-Toluene	50.000	49.217	98.43	82-115
$ 61 4-Bromofluorobenze	50.000	48.124	96.25	64-120
$ 78 d4-1,2-Dichloroben	50.000	49.425	98.85	80-120

Data File: /chem1/nt9.i/21OCT10.b/gasco.b/lcs1021.d

Date : 21-OCT-2010 11:21

Client ID: LCS1021

Sample Info: LCS1021,5,5,0

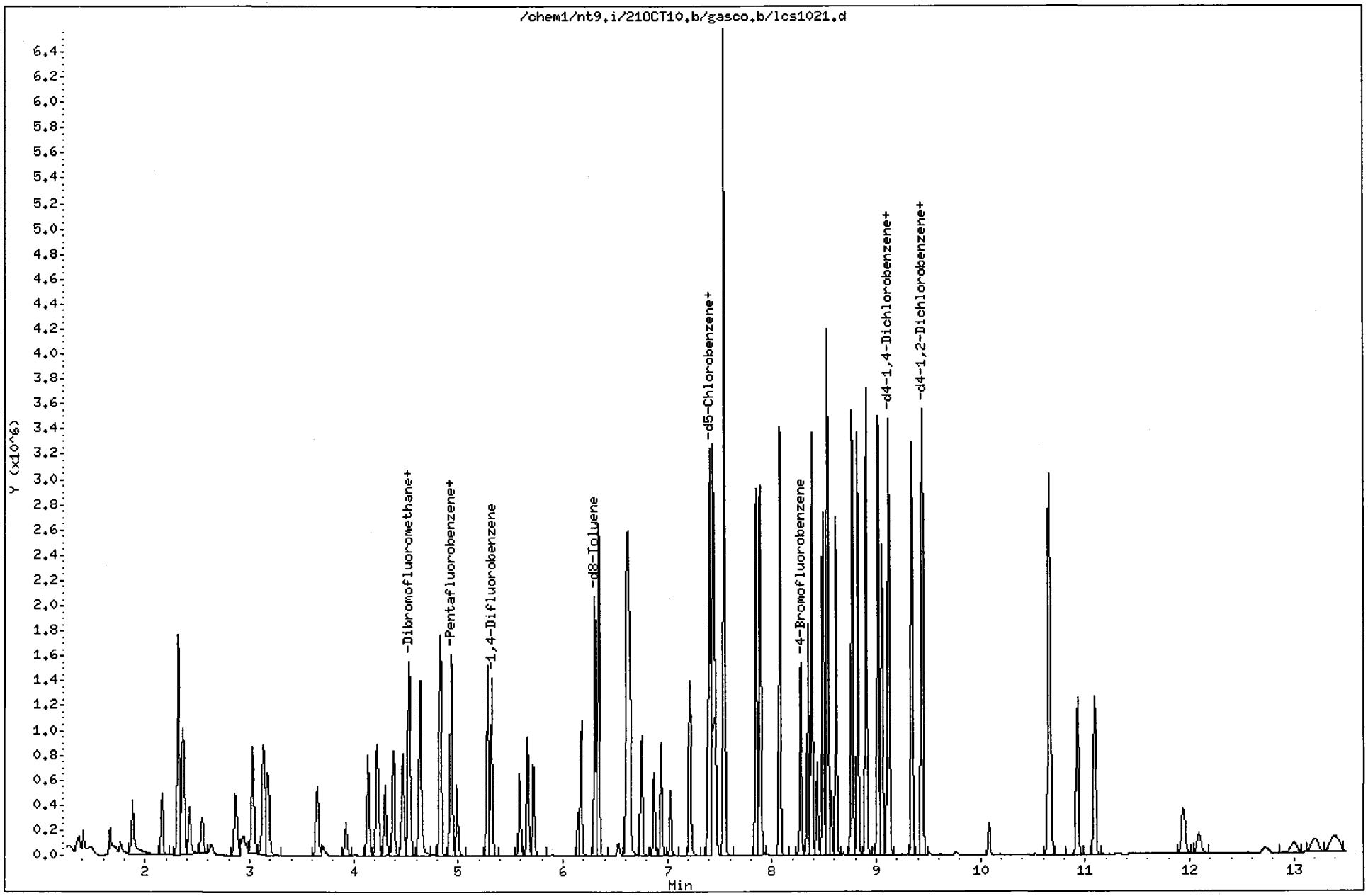
Column phase: RTX502.2

Instrument: nt9.i

Operator: PB

Column diameter: 0.18

RR33:00222



Analytical Resources, Inc.

8260C

Data file : /chem1/nt9.i/21OCT10.b/gasco.b/lcs1021a.d
Lab Smp Id: LCS1021 Client Smp ID: LCS1021
Inj Date : 21-OCT-2010 11:51
Operator : PB Inst ID: nt9.i
Smp Info : LCS1021,5,5,0
Misc Info : 10-
Comment :
Method : /chem1/nt9.i/21OCT10.b/gasco.b/VO063010S.m
Meth Date : 27-Oct-2010 11:07 patrickb Quant Type: ISTD
Cal Date : 28-AUG-2010 13:21 Cal File: 2000828.d
Als bottle: 1 QC Sample: LCSD
Dil Factor: 1.00000
Integrator: HP RTE Compound Sublist: gasco.sub
Target Version: 3.50
Processing Host: cserv3

10/27/10

Concentration Formula: Amt * DF * Pv * 1 / (Sa * ((100 - M) / 100)) * CpndVaria

Name	Value	Description
DF	1.00000	Dilution Factor
Pv	5.00000	Purge Volume
Sa	5.00000	Sample Amount
M	0.00000	% Moisture (not decanted)

Cpnd Variable Local Compound Variable

Compounds	QUANT SIG MASS	RT	EXP RT	REL RT	RESPONSE	CONCENTRATIONS ON-COLUMN (ug/Kg)	FINAL (ug/Kg)
3 Vinyl Chloride	62	1.407	1.407	(0.285)	314263	54.5323	54.532
7 1,1-Dichloroethene	96	2.312	2.312	(0.469)	334849	58.7916	58.792
15 Trans-1,2-Dichloroethene	96	3.030	3.030	(0.615)	347764	52.8383	52.838
20 Cis-1,2-Dichloroethene	96	4.139	4.134	(0.839)	323431	51.8627	51.863
* 32 Pentafluorobenzene	168	4.931	4.931	(1.000)	645095	50.0000	
$ 25 Dibromofluoromethane	111	4.529	4.530	(0.919)	235304	48.7812	48.781
$ 31 d4-1,2-Dichloroethane	65	4.936	4.937	(1.001)	242756	49.0187	49.019
30 Benzene	78	4.829	4.829	(0.908)	1202528	52.8937	52.894
* 35 1,4-Difluorobenzene	114	5.321	5.321	(1.000)	845311	50.0000	
34 Trichloroethene	95	5.281	5.282	(0.993)	347984	55.4028	55.403
$ 42 d8-Toluene	98	6.305	6.306	(1.185)	939824	49.0693	49.069
43 Toluene	92	6.339	6.340	(1.191)	828114	51.2574	51.257
44 Tetrachloroethene	166	6.611	6.611	(0.894)	462963	57.6845	57.685
* 52 d5-Chlorobenzene	117	7.397	7.398	(1.000)	738301	50.0000	

Compounds	QUANT SIG MASS	RT	EXP RT	REL RT	RESPONSE	CONCENTRATIONS ON-COLUMN (ug/Kg)	FINAL (ug/Kg)
54 Ethyl Benzene	91	7.437	7.437	(1.005)	1645428	54.3809	54.381
56 m,p-xylene	106	7.544	7.545	(1.020)	1364692	111.519	111.52
57 o-Xylene	106	7.850	7.850	(1.061)	604230	53.0037	53.004
$ 61 4-Bromofluorobenzene	95	8.274	8.274	(1.119)	328646	48.0615	48.061
* 75 d4-1,4-Dichlorobenzene	152	9.111	9.112	(1.000)	411685	50.0000	
$ 78 d4-1,2-Dichlorobenzene	152	9.434	9.434	(1.035)	357790	49.7171	49.717

Analytical Resources, Inc.

INTERNAL STANDARD COMPOUNDS
AREA AND RT SUMMARY

Instrument ID: nt9.i
Lab File ID: lcs1021a.d
Lab Smp Id: LCS1021
Analysis Type: VOA
Quant Type: ISTD
Operator: PB
Method File: /chem1/nt9.i/21OCT10.b/gasco.b/VO063010S.m
Misc Info: 10-

Calibration Date: 21-OCT-2010
Calibration Time: 10:46
Client Smp ID: LCS1021
Level: LOW
Sample Type: SOIL

Test Mode:
Use Initial Calibration Level 5.
If Continuing Cal. use Initial Cal. Level 5

COMPOUND	STANDARD	AREA LIMIT LOWER	AREA LIMIT UPPER	SAMPLE	%DIFF
32 Pentafluorobenzen	704281	352140	1408562	645095	-8.40
35 1,4-Difluorobenze	937745	468872	1875490	845311	-9.86
52 d5-Chlorobenzene	853013	426506	1706026	738301	-13.45
75 d4-1,4-Dichlorobe	503655	251828	1007310	411685	-18.26

COMPOUND	STANDARD	RT LIMIT LOWER	RT LIMIT UPPER	SAMPLE	%DIFF
32 Pentafluorobenzen	4.93	4.43	5.43	4.93	-0.01
35 1,4-Difluorobenze	5.32	4.82	5.82	5.32	-0.01
52 d5-Chlorobenzene	7.40	6.90	7.90	7.40	-0.01
75 d4-1,4-Dichlorobe	9.11	8.61	9.61	9.11	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.

Analytical Resources, Inc.

RECOVERY REPORT

Client Name:
Sample Matrix: SOLID
Lab Smp Id: LCS1021
Level: LOW
Data Type: MS DATA
SpikeList File: gasco.spk
Sublist File: gasco.sub
Method File: /chem1/nt9.i/21OCT10.b/gasco.b/VO063010S.m
Misc Info: 10-

Client SDG: 21OCT10
Fraction: VOA
Client Smp ID: LCS1021
Operator: PB
SampleType: LCSD
Quant Type: ISTD

SPIKE COMPOUND	CONC ADDED ug/Kg	CONC RECOVERED ug/Kg	% RECOVERED	LIMITS
3 Vinyl Chloride	50.000	54.532	109.06	63-137
7 1,1-Dichloroethene	50.000	58.792	117.58	75-126
15 Trans-1,2-Dichloro	50.000	52.838	105.68	80-120
20 Cis-1,2-Dichloroet	50.000	51.863	103.73	80-120
30 Benzene	50.000	52.894	105.79	80-120
34 Trichloroethene	50.000	55.403	110.81	80-120
43 Toluene	50.000	51.257	102.51	80-120
44 Tetrachloroethene	50.000	57.685	115.37	80-121
54 Ethyl Benzene	50.000	54.381	108.76	80-127
56 m,p-xylene	100.00	111.52	111.52	80-125
57 o-Xylene	50.000	53.004	106.01	78-120

SURROGATE COMPOUND	AMOUNT ADDED ug/Kg	AMOUNT RECOVERED ug/Kg	% RECOVERED	LIMITS
$ 25 Dibromofluorometha	50.000	48.781	97.56	30-160
$ 31 d4-1,2-Dichloroeth	50.000	49.019	98.04	75-152
$ 42 d8-Toluene	50.000	49.069	98.14	82-115
$ 61 4-Bromofluorobenze	50.000	48.061	96.12	64-120
$ 78 d4-1,2-Dichloroben	50.000	49.717	99.43	80-120

Data File: /chem1/nt9.i/21OCT10.b/gasco.b/lcs1021a.d

Date : 21-OCT-2010 11:51

Client ID: LCS1021

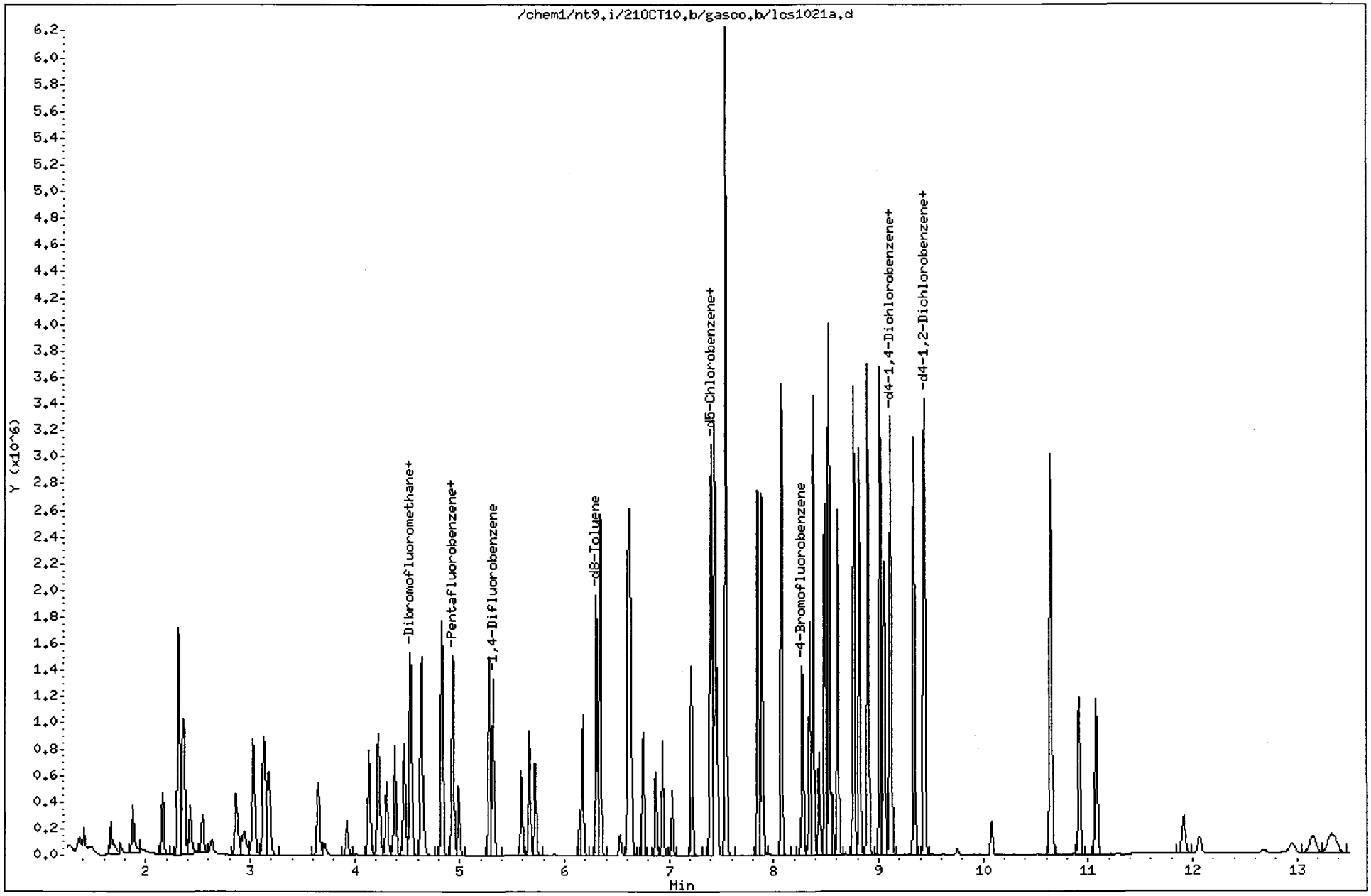
Sample Info: LCS1021,5,5,0

Column phase: RTX502.2

Instrument: nt9.i

Operator: PB

Column diameter: 0.18



RR33:00227

Analytical Resources, Inc.

8260C

Data file : /chem1/nt9.i/21OCT10.b/gasco.b/mb1021.d
Lab Smp Id: MB1021 Client Smp ID: MB1021
Inj Date : 21-OCT-2010 12:22
Operator : PB Inst ID: nt9.i
Smp Info : MB1021,5,5,0
Misc Info : 10-
Comment :
Method : /chem1/nt9.i/21OCT10.b/gasco.b/VO063010S.m
Meth Date : 27-Oct-2010 11:07 patrickb Quant Type: ISTD
Cal Date : 28-AUG-2010 13:21 Cal File: 2000828.d
Als bottle: 1 QC Sample: BLANK
Dil Factor: 1.00000
Integrator: HP RTE Compound Sublist: gasco.sub
Target Version: 3.50
Processing Host: cserv3

Concentration Formula: Amt * DF * Pv * 1 / (Sa * ((100 - M) / 100)) * CpndVaria

Name	Value	Description
DF	1.00000	Dilution Factor
Pv	5.00000	Purge Volume
Sa	5.00000	Sample Amount
M	0.00000	% Moisture (not decanted)

Cpnd Variable Local Compound Variable

Compounds	QUANT SIG MASS	RT	EXP RT	REL RT	RESPONSE	CONCENTRATIONS ON-COLUMN (ug/Kg)	FINAL (ug/Kg)
3 Vinyl Chloride	62	Compound Not Detected.					
7 1,1-Dichloroethene	96	Compound Not Detected.					
15 Trans-1,2-Dichloroethene	96	Compound Not Detected.					
20 Cis-1,2-Dichloroethene	96	Compound Not Detected.					
* 32 Pentafluorobenzene	168	4.931	4.931	(1.000)	701792	50.0000	
$ 25 Dibromofluoromethane	111	4.530	4.530	(0.919)	253487	48.3052	48.305
$ 31 d4-1,2-Dichloroethane	65	4.937	4.937	(1.001)	267399	49.6326	49.633
30 Benzene	78	Compound Not Detected.					
* 35 1,4-Difluorobenzene	114	5.322	5.321	(1.000)	916365	50.0000	
34 Trichloroethene	95	Compound Not Detected.					
$ 42 d8-Toluene	98	6.306	6.306	(1.185)	1028560	49.5383	49.538
43 Toluene	92	Compound Not Detected.					
44 Tetrachloroethene	166	Compound Not Detected.					
* 52 d5-Chlorobenzene	117	7.398	7.398	(1.000)	804718	50.0000	
54 Ethyl Benzene	91	Compound Not Detected.					

Compounds	QUANT SIG MASS	RT	EXP RT	REL RT	RESPONSE	CONCENTRATIONS ON-COLUMN (ug/Kg)	FINAL (ug/Kg)
56 m,p-xylene	106	Compound Not Detected.					
57 o-Xylene	106	Compound Not Detected.					
$ 61 4-Bromofluorobenzene	95	8.274	8.274	(1.119)	360931	48.4265	48.426
* 75 d4-1,4-Dichlorobenzene	152	9.112	9.112	(1.000)	446895	50.0000	
$ 78 d4-1,2-Dichlorobenzene	152	9.434	9.434	(1.035)	389766	49.8932	49.893

Analytical Resources, Inc.

INTERNAL STANDARD COMPOUNDS
AREA AND RT SUMMARY

Instrument ID: nt9.i
Lab File ID: mb1021.d
Lab Smp Id: MB1021
Analysis Type: VOA
Quant Type: ISTD
Operator: PB
Method File: /chem1/nt9.i/21OCT10.b/gasco.b/VO063010S.m
Misc Info: 10-

Calibration Date: 21-OCT-2010
Calibration Time: 10:46
Client Smp ID: MB1021
Level: LOW
Sample Type: SOIL

Test Mode:
Use Initial Calibration Level 5.
If Continuing Cal. use Initial Cal. Level 5

COMPOUND	STANDARD	AREA LIMIT LOWER	AREA LIMIT UPPER	SAMPLE	%DIFF
32 Pentafluorobenzen	704281	352140	1408562	701792	-0.35
35 1,4-Difluorobenze	937745	468872	1875490	916365	-2.28
52 d5-Chlorobenzene	853013	426506	1706026	804718	-5.66
75 d4-1,4-Dichlorobe	503655	251828	1007310	446895	-11.27

COMPOUND	STANDARD	RT LIMIT LOWER	RT LIMIT UPPER	SAMPLE	%DIFF
32 Pentafluorobenzen	4.93	4.43	5.43	4.93	0.00
35 1,4-Difluorobenze	5.32	4.82	5.82	5.32	0.00
52 d5-Chlorobenzene	7.40	6.90	7.90	7.40	0.00
75 d4-1,4-Dichlorobe	9.11	8.61	9.61	9.11	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.

Analytical Resources, Inc.

RECOVERY REPORT

Client Name:
Sample Matrix: SOLID
Lab Smp Id: MB1021
Level: LOW
Data Type: MS DATA
SpikeList File: all.spk
Sublist File: gasco.sub
Method File: /chem1/nt9.i/21OCT10.b/gasco.b/VO063010S.m
Misc Info: 10-

Client SDG: 21OCT10
Fraction: VOA
Client Smp ID: MB1021
Operator: PB
SampleType: BLANK
Quant Type: ISTD

SURROGATE COMPOUND	AMOUNT ADDED ug/Kg	AMOUNT RECOVERED ug/Kg	% RECOVERED	LIMITS
$ 25 Dibromofluorometha	50.000	48.305	96.61	30-160
$ 31 d4-1,2-Dichloroeth	50.000	49.633	99.27	75-152
$ 42 d8-Toluene	50.000	49.538	99.08	82-115
$ 61 4-Bromofluorobenze	50.000	48.426	96.85	64-120
$ 78 d4-1,2-Dichloroben	50.000	49.893	99.79	80-120

Data File: /chem1/nt9.i/21OCT10.b/gasco.b/mb1021.d

Date : 21-OCT-2010 12:22

Client ID: MB1021

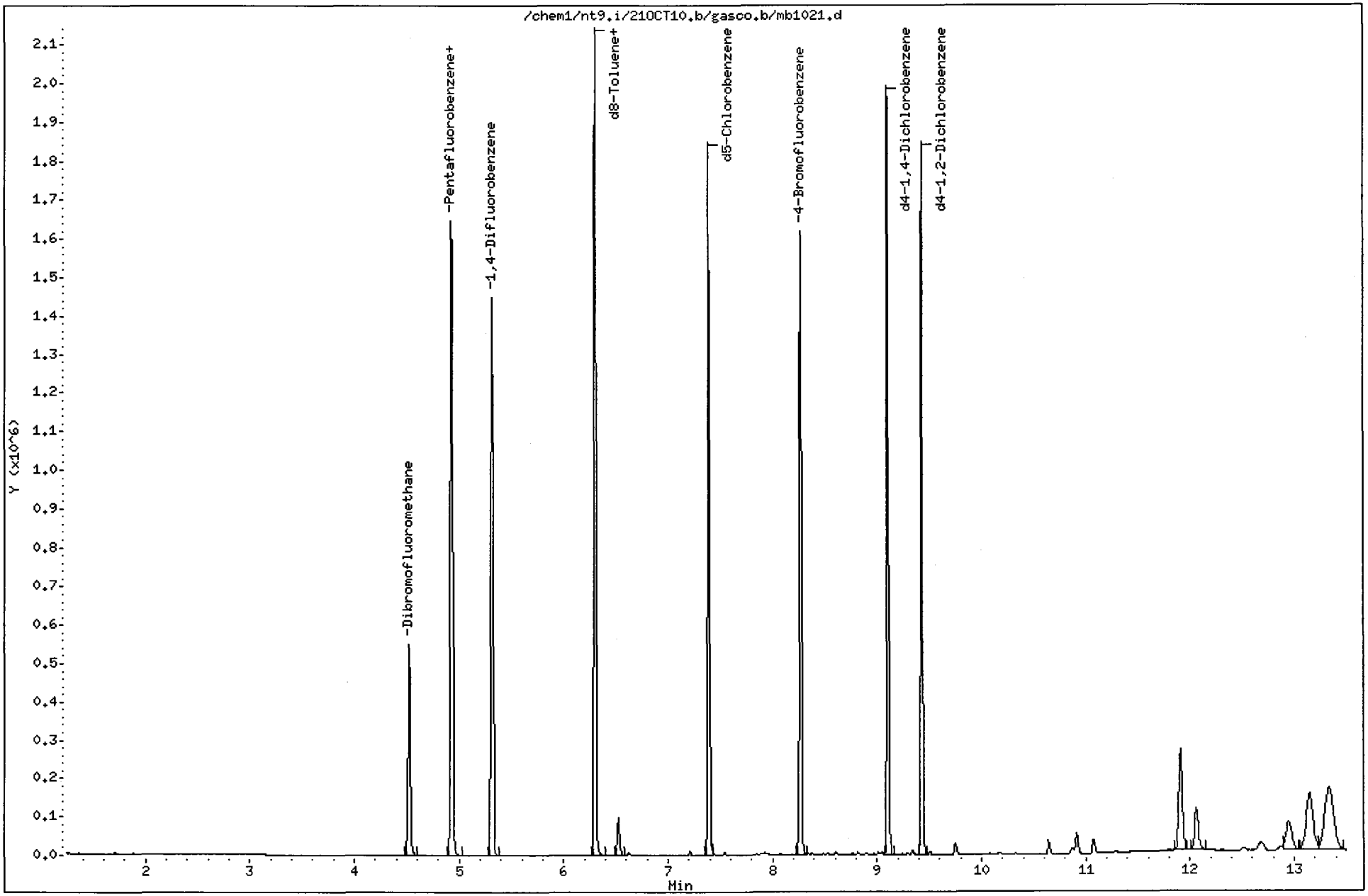
Sample Info: MB1021,5,5,0

Column phase: RTX502.2

Instrument: nt9.i

Operator: PB

Column diameter: 0.18



RR33:09232

Analytical Resources, Inc.

8260C

Data file : /chem1/nt9.i/21OCT10.b/gasco.b/rr33g.d
Lab Smp Id: RR33G Client Smp ID: DGS-36-066.7-101012
Inj Date : 21-OCT-2010 12:54
Operator : PB Inst ID: nt9.i
Smp Info : RR33G,5,5.68,0
Misc Info : 10-26425
Comment :
Method : /chem1/nt9.i/21OCT10.b/gasco.b/VO063010S.m
Meth Date : 27-Oct-2010 11:08 patrickb Quant Type: ISTD
Cal Date : 28-AUG-2010 13:21 Cal File: 2000828.d
Als bottle: 1
Dil Factor: 1.00000
Integrator: HP RTE Compound Sublist: gasco.sub
Target Version: 3.50
Processing Host: cserv3

Concentration Formula: Amt * DF * Pv * 1 / (Sa * ((100 - M) / 100)) * CpndVaria

Name	Value	Description
DF	1.00000	Dilution Factor
Pv	5.00000	Purge Volume
Sa	5.68000	Sample Amount
M	0.00000	% Moisture (not decanted)

Cpnd Variable Local Compound Variable

	Compounds	QUANT SIG MASS	RT	EXP RT	REL RT	RESPONSE	CONCENTRATIONS ON-COLUMN (ug/Kg)	FINAL (ug/Kg)
	3 Vinyl Chloride	62	Compound Not Detected.					
	7 1,1-Dichloroethene	96	Compound Not Detected.					
	15 Trans-1,2-Dichloroethene	96	Compound Not Detected.					
	20 Cis-1,2-Dichloroethene	96	Compound Not Detected.					
*	32 Pentafluorobenzene	168	4.930	4.931	(1.000)	538238	50.0000	
$	25 Dibromofluoromethane	111	4.529	4.530	(0.919)	205884	51.1558	45.031
$	31 d4-1,2-Dichloroethane	65	4.936	4.937	(1.001)	231924	56.1290	49.409
	30 Benzene	78	4.828	4.829	(0.908)	12509	0.63956	0.5630
*	35 1,4-Difluorobenzene	114	5.321	5.321	(1.000)	727217	50.0000	
	34 Trichloroethene	95	Compound Not Detected.					
$	42 d8-Toluene	98	6.305	6.306	(1.185)	803282	48.7510	42.915
	43 Toluene	92	6.339	6.340	(1.191)	6766	0.48680	0.4285
	44 Tetrachloroethene	166	Compound Not Detected.					
*	52 d5-Chlorobenzene	117	7.397	7.398	(1.000)	624032	50.0000	

Compounds	QUANT SIG MASS	RT	EXP RT	REL RT	RESPONSE	CONCENTRATIONS ON-COLUMN (ug/Kg)	FINAL (ug/Kg)
54 Ethyl Benzene	91	7.436	7.437	(1.005)	18954	0.74113	0.6524
56 m,p-xylene	106	7.544	7.545	(1.020)	3020	0.29158	0.2570
57 o-Xylene	106	7.849	7.850	(1.061)	3734	0.38753	0.3411(Q)
$ 61 4-Bromofluorobenzene	95	8.273	8.274	(1.119)	286717	49.6077	43.669
* 75 d4-1,4-Dichlorobenzene	152	9.111	9.112	(1.000)	318645	50.0000	(Q)
$ 78 d4-1,2-Dichlorobenzene	152	9.433	9.434	(1.035)	285399	51.2375	45.103(Q)

QC Flag Legend

Q - Qualifier signal failed the ratio test.

Analytical Resources, Inc.

INTERNAL STANDARD COMPOUNDS
AREA AND RT SUMMARY

Instrument ID: nt9.i
Lab File ID: rr33g.d
Lab Smp Id: RR33G
Analysis Type: VOA
Quant Type: ISTD
Operator: PB
Method File: /chem1/nt9.i/21OCT10.b/gasco.b/VO063010S.m
Misc Info: 10-26425

Calibration Date: 21-OCT-2010
Calibration Time: 10:46
Client Smp ID: DGS-36-066.7-101012
Level: LOW
Sample Type: Sediment

Test Mode:
Use Initial Calibration Level 5.
If Continuing Cal. use Initial Cal. Level 5

COMPOUND	STANDARD	AREA LIMIT LOWER	AREA LIMIT UPPER	SAMPLE	%DIFF
32 Pentafluorobenzen	704281	352140	1408562	538238	-23.58
35 1,4-Difluorobenze	937745	468872	1875490	727217	-22.45
52 d5-Chlorobenzene	853013	426506	1706026	624032	-26.84
75 d4-1,4-Dichlorobe	503655	251828	1007310	318645	-36.73

COMPOUND	STANDARD	RT LIMIT LOWER	RT LIMIT UPPER	SAMPLE	%DIFF
32 Pentafluorobenzen	4.93	4.43	5.43	4.93	-0.02
35 1,4-Difluorobenze	5.32	4.82	5.82	5.32	-0.02
52 d5-Chlorobenzene	7.40	6.90	7.90	7.40	-0.01
75 d4-1,4-Dichlorobe	9.11	8.61	9.61	9.11	-0.01

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.

Analytical Resources, Inc.

RECOVERY REPORT

Client Name: NW Natural
Sample Matrix: SOLID
Lab Smp Id: RR33G
Level: LOW
Data Type: MS DATA
SpikeList File: all.spk
Sublist File: gasco.sub
Method File: /chem1/nt9.i/21OCT10.b/gasco.b/VO063010S.m
Misc Info: 10-26425

Client SDG: RR33
Fraction: VOA
Client Smp ID: DGS-36-066.7-101012
Operator: PB
SampleType: SAMPLE
Quant Type: ISTD

SURROGATE COMPOUND	AMOUNT ADDED ug/Kg	AMOUNT RECOVERED ug/Kg	% RECOVERED	LIMITS
$ 25 Dibromofluorometha	50.000	51.156	102.31	30-160
$ 31 d4-1,2-Dichloroeth	50.000	56.129	112.26	75-152
$ 42 d8-Toluene	50.000	48.751	97.50	82-115
$ 61 4-Bromofluorobenze	50.000	49.608	99.22	64-120
$ 78 d4-1,2-Dichloroben	50.000	51.237	102.47	80-120

Data File: /chem1/nt9.i/21OCT10.b/gasco.b/rr33g.d

Date : 21-OCT-2010 12:54

Client ID: DGS-36-066.7-101012

Sample Info: RR33G,5,5.68,0

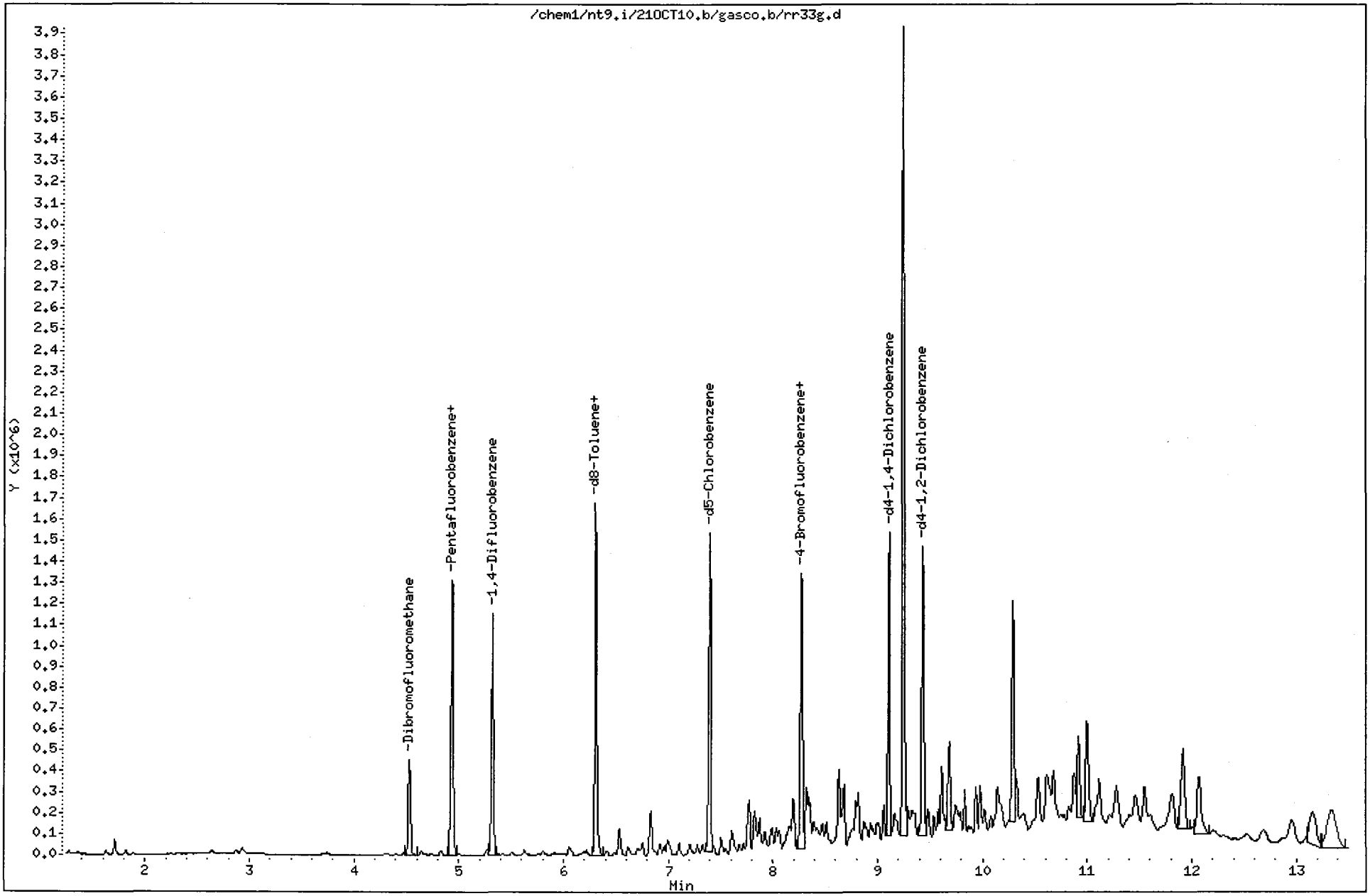
Column phase: RTX502.2

Instrument: nt9.i

Operator: PB

Column diameter: 0.18

RR33:09237



Analytical Resources, Inc.

8260C

Data file : /chem1/nt9.i/21OCT10.b/gasco.b/rr33h.d
Lab Smp Id: RR33H Client Smp ID: DGS-07-077.3-101012
Inj Date : 21-OCT-2010 13:24
Operator : PB Inst ID: nt9.i
Smp Info : RR33H,5,5.97,0
Misc Info : 10-26426
Comment :
Method : /chem1/nt9.i/21OCT10.b/gasco.b/VO063010S.m
Meth Date : 27-Oct-2010 11:08 patrickb Quant Type: ISTD
Cal Date : 28-AUG-2010 13:21 Cal File: 2000828.d
Als bottle: 1
Dil Factor: 1.00000
Integrator: HP RTE Compound Sublist: gasco.sub
Target Version: 3.50
Processing Host: cserv3

10/26

Concentration Formula: Amt * DF * Pv * 1 / (Sa * ((100 - M) / 100)) * CpndVaria

Name	Value	Description
DF	1.00000	Dilution Factor
Pv	5.00000	Purge Volume
Sa	5.97000	Sample Amount
M	0.00000	% Moisture (not decanted)

Cpnd Variable Local Compound Variable

Compounds	QUANT SIG MASS	RT	EXP RT	REL RT	RESPONSE	CONCENTRATIONS ON-COLUMN (ug/Kg)	FINAL (ug/Kg)
3 Vinyl Chloride	62	Compound Not Detected.					
7 1,1-Dichloroethene	96	Compound Not Detected.					
15 Trans-1,2-Dichloroethene	96	Compound Not Detected.					
20 Cis-1,2-Dichloroethene	96	Compound Not Detected.					
* 32 Pentafluorobenzene	168	4.931	4.931	(1.000)	713267	50.0000	
$ 25 Dibromofluoromethane	111	4.529	4.530	(0.919)	263252	49.3590	41.339
$ 31 d4-1,2-Dichloroethane	65	4.936	4.937	(1.001)	297072	54.2532	45.438
30 Benzene	78	4.829	4.829	(0.908)	620884	24.6960	20.683
* 35 1,4-Difluorobenzene	114	5.321	5.321	(1.000)	934778	50.0000	
34 Trichloroethene	95	Compound Not Detected.					
$ 42 d8-Toluene	98	6.305	6.306	(1.185)	1056602	49.8865	41.781
43 Toluene	92	6.345	6.340	(1.192)	35896	2.00919	1.683
44 Tetrachloroethene	166	Compound Not Detected.					
* 52 d5-Chlorobenzene	117	7.397	7.398	(1.000)	839958	50.0000	

Compounds	QUANT SIG MASS	RT	EXP RT	REL RT	RESPONSE	CONCENTRATIONS ON-COLUMN (ug/Kg)	FINAL (ug/Kg)
54 Ethyl Benzene	91	7.431	7.437	(1.005)	15379168	446.762	374.17 (QM) ES
56 m,p-xylene	106	7.544	7.545	(1.020)	89412	6.42220	5.379 (QM)
57 o-Xylene	106	7.850	7.850	(1.061)	175760	13.5519	11.350
$ 61 4-Bromofluorobenzene	95	8.274	8.274	(1.119)	438570	56.3746	47.215
* 75 d4-1,4-Dichlorobenzene	152	9.111	9.112	(1.000)	462938	50.0000	(QM) nlq
$ 78 d4-1,2-Dichlorobenzene	152	9.433	9.434	(1.035)	429526	53.0773	44.453 (QM)

QC Flag Legend

Q - Qualifier signal failed the ratio test.
M - Compound response manually integrated.

Analytical Resources, Inc.

INTERNAL STANDARD COMPOUNDS
AREA AND RT SUMMARY

Instrument ID: nt9.i
Lab File ID: rr33h.d
Lab Smp Id: RR33H
Analysis Type: VOA
Quant Type: ISTD
Operator: PB
Method File: /chem1/nt9.i/21OCT10.b/gasco.b/VO063010S.m
Misc Info: 10-26426

Calibration Date: 21-OCT-2010
Calibration Time: 10:46
Client Smp ID: DGS-07-077.3-101012
Level: LOW
Sample Type: Sediment

Test Mode:
Use Initial Calibration Level 5.
If Continuing Cal. use Initial Cal. Level 5

COMPOUND	STANDARD	AREA LIMIT LOWER	AREA LIMIT UPPER	SAMPLE	%DIFF
32 Pentafluorobenzen	704281	352140	1408562	713267	1.28
35 1,4-Difluorobenze	937745	468872	1875490	934778	-0.32
52 d5-Chlorobenzene	853013	426506	1706026	839958	-1.53
75 d4-1,4-Dichlorobe	503655	251828	1007310	462938	-8.08

COMPOUND	STANDARD	RT LIMIT LOWER	RT LIMIT UPPER	SAMPLE	%DIFF
32 Pentafluorobenzen	4.93	4.43	5.43	4.93	-0.01
35 1,4-Difluorobenze	5.32	4.82	5.82	5.32	-0.01
52 d5-Chlorobenzene	7.40	6.90	7.90	7.40	-0.01
75 d4-1,4-Dichlorobe	9.11	8.61	9.61	9.11	-0.01

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.

Analytical Resources, Inc.

RECOVERY REPORT

Client Name: NW Natural
Sample Matrix: SOLID
Lab Smp Id: RR33H
Level: LOW
Data Type: MS DATA
SpikeList File: all.spk
Sublist File: gasco.sub
Method File: /chem1/nt9.i/21OCT10.b/gasco.b/VO063010S.m
Misc Info: 10-26426

Client SDG: RR33
Fraction: VOA
Client Smp ID: DGS-07-077.3-101012
Operator: PB
SampleType: SAMPLE
Quant Type: ISTD

SURROGATE COMPOUND	AMOUNT ADDED ug/Kg	AMOUNT RECOVERED ug/Kg	% RECOVERED	LIMITS
$ 25 Dibromofluorometha	50.000	49.359	98.72	30-160
$ 31 d4-1,2-Dichloroeth	50.000	54.253	108.51	75-152
$ 42 d8-Toluene	50.000	49.886	99.77	82-115
$ 61 4-Bromofluorobenze	50.000	56.375	112.75	64-120
$ 78 d4-1,2-Dichloroben	50.000	53.077	106.15	80-120

Data File: /chem1/nt9.i/21OCT10.b/gasco.b/rr33h.d

Date : 21-OCT-2010 13:24

Client ID: DGS-07-077.3-101012

Sample Info: RR33H,5,5.97,0

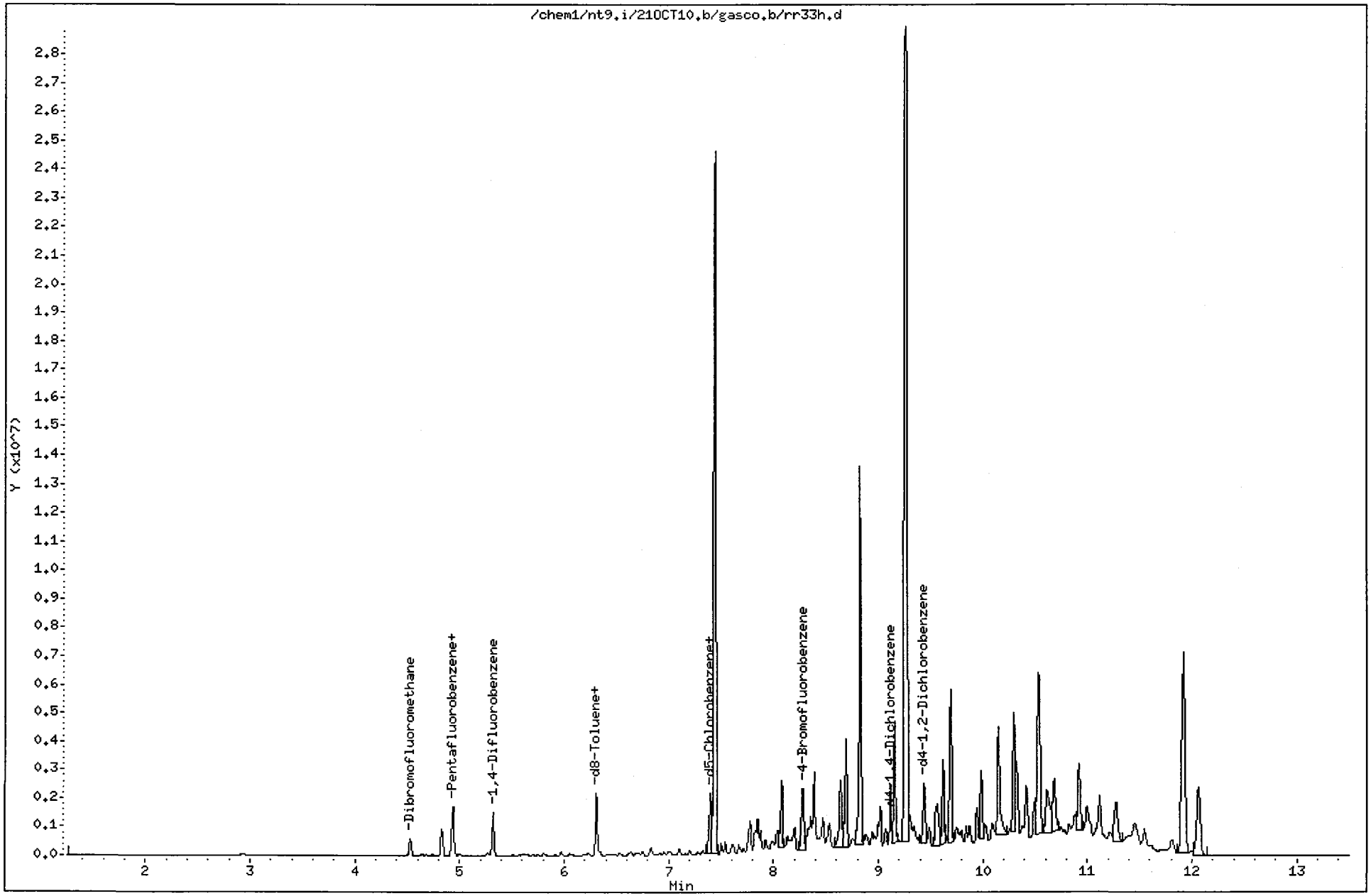
Column phase: RTX502.2

Instrument: nt9.i

Operator: PB

Column diameter: 0.18

RR33:002H2



Data File: /chem1/nt9.i/21OCT10.b/gasco.b/rr33h.d

Date : 21-OCT-2010 13:24

Client ID: DGS-07-077.3-101012

Instrument: nt9.i

Sample Info: RR33H,5,5.97,0

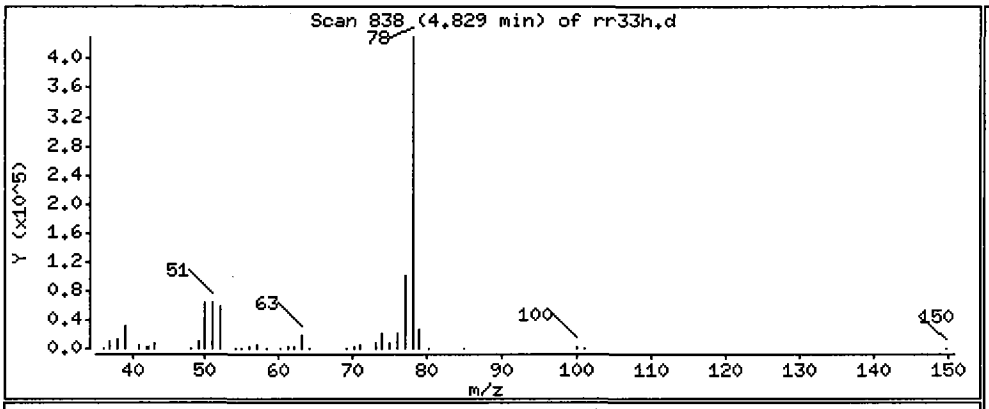
Operator: PB

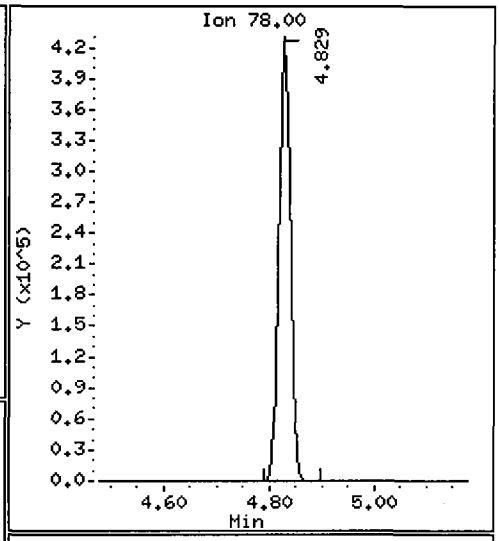
Column phase: RTX502.2

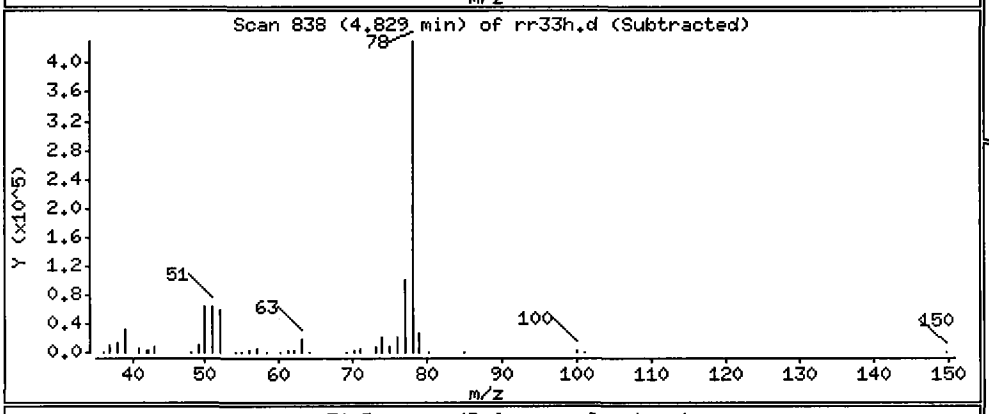
Column diameter: 0.18

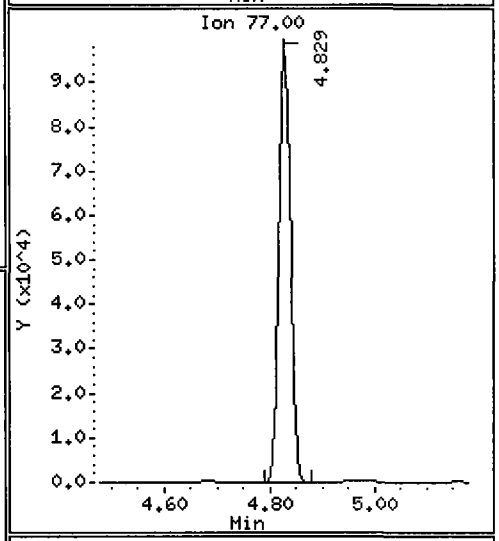
30 Benzene

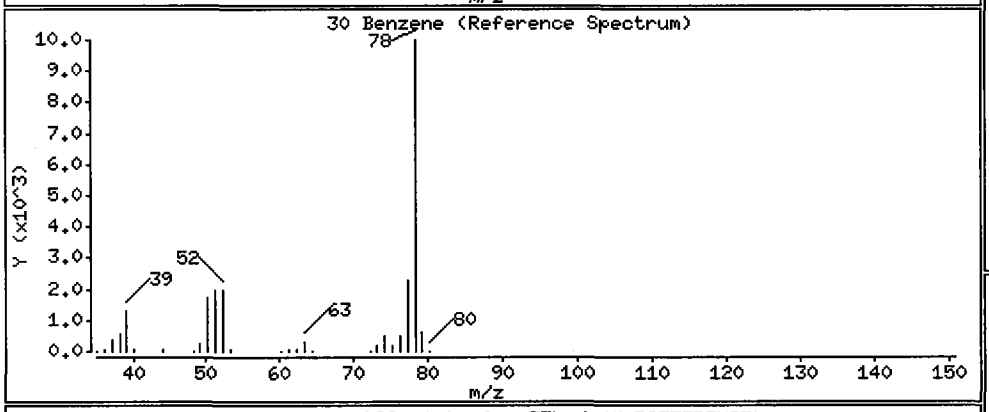
Concentration: 20.683 ug/Kg

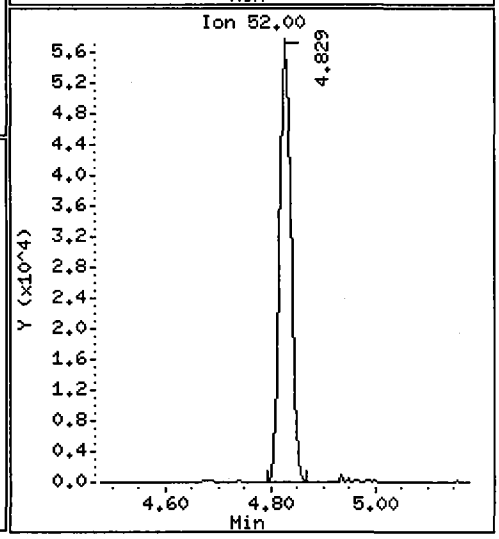


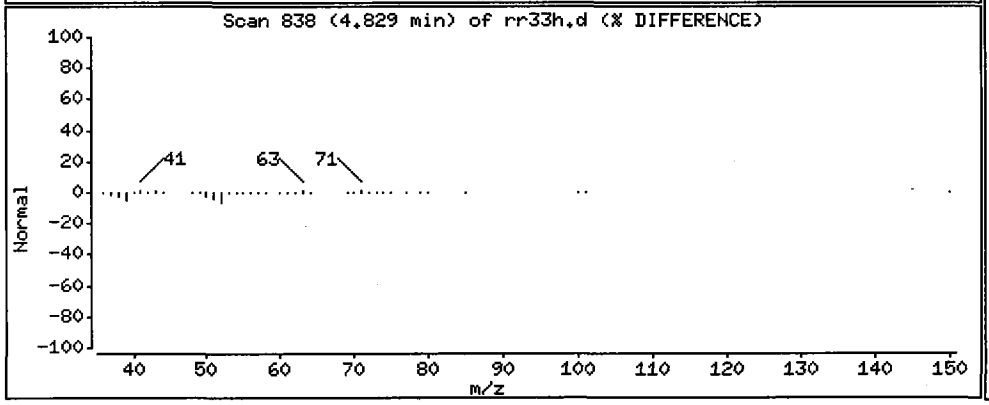












Data File: /chem1/nt9.i/21OCT10.b/gasco.b/rr33h.d

Date : 21-OCT-2010 13:24

Client ID: DGS-07-077.3-101012

Instrument: nt9.i

Sample Info: RR33H,5,5.97,0

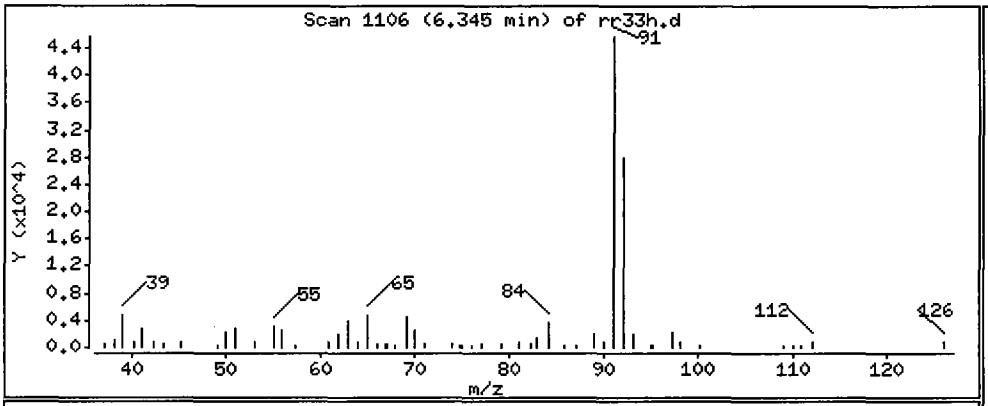
Operator: PB

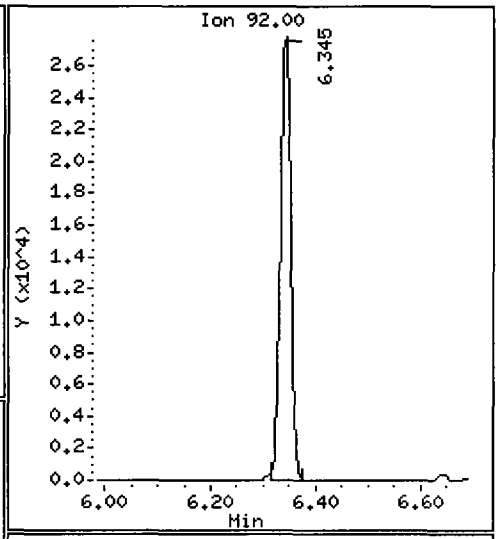
Column phase: RTX502.2

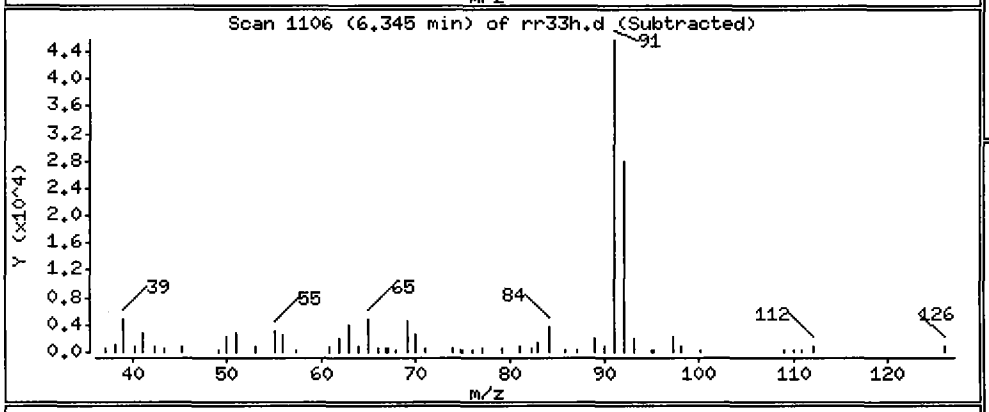
Column diameter: 0.18

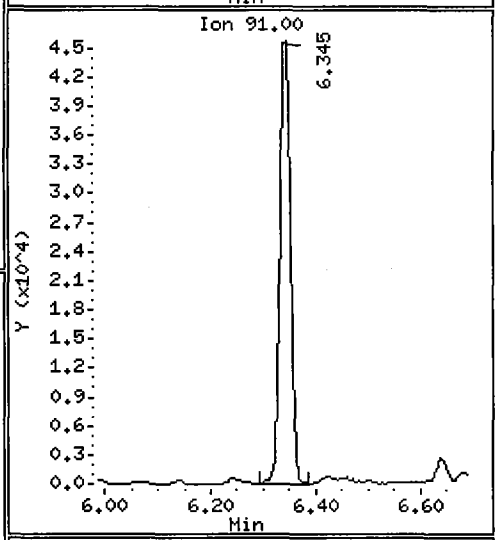
43 Toluene

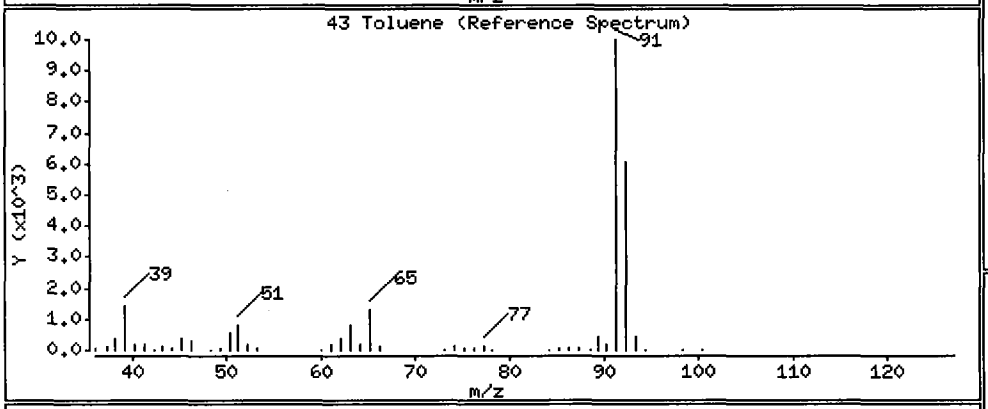
Concentration: 1.683 ug/Kg

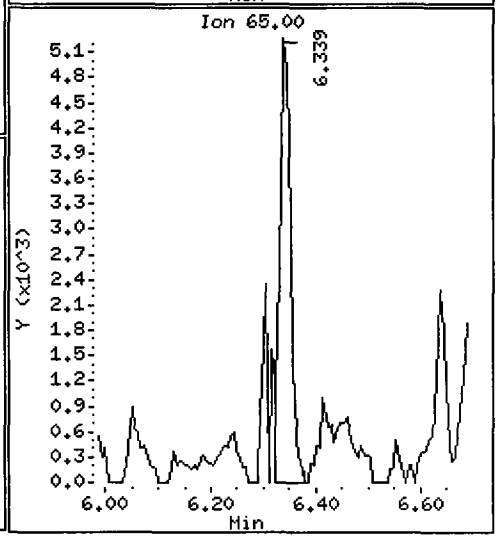


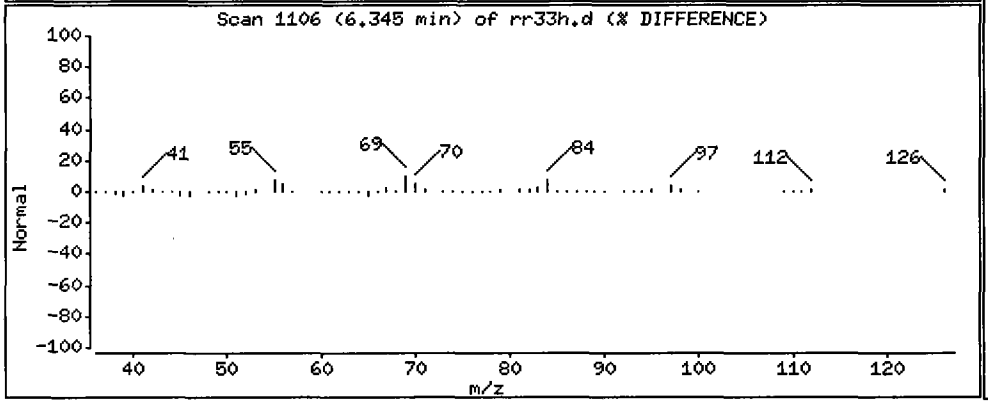












Data File: /chem1/nt9.i/21OCT10.b/gasco.b/rr33h.d

Date : 21-OCT-2010 13:24

Client ID: DGS-07-077.3-101012

Instrument: nt9.i

Sample Info: RR33H,5,5.97,0

Operator: PB

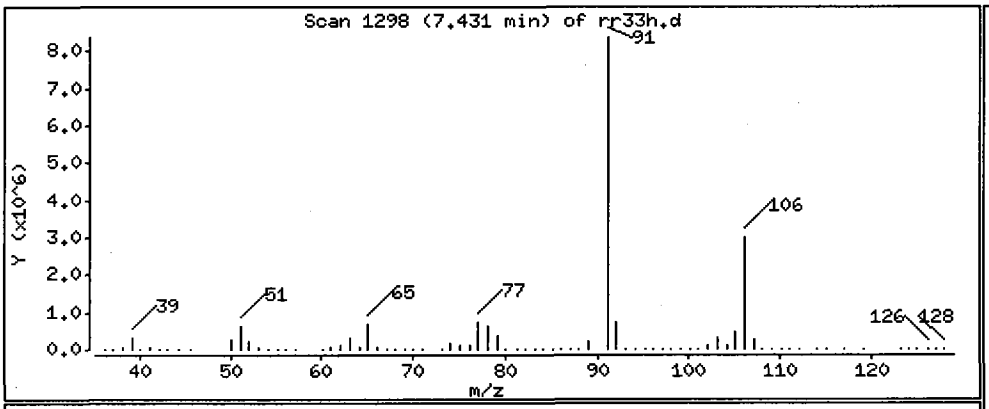
Column phase: RTX502.2

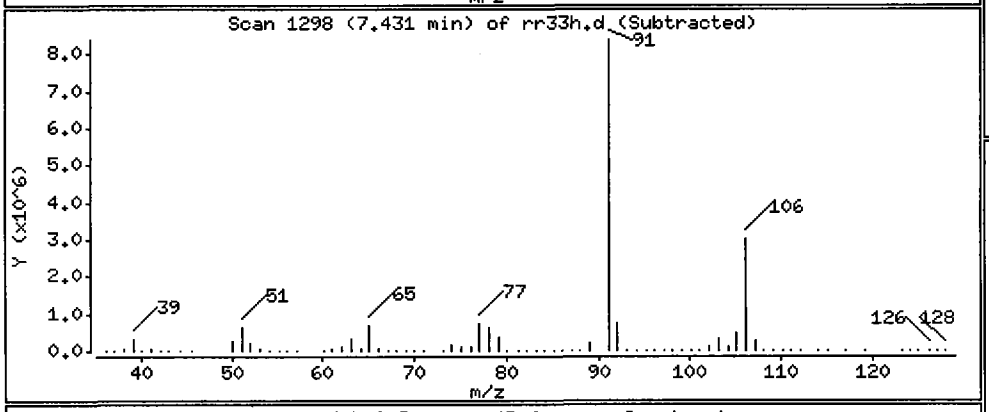
Column diameter: 0.18

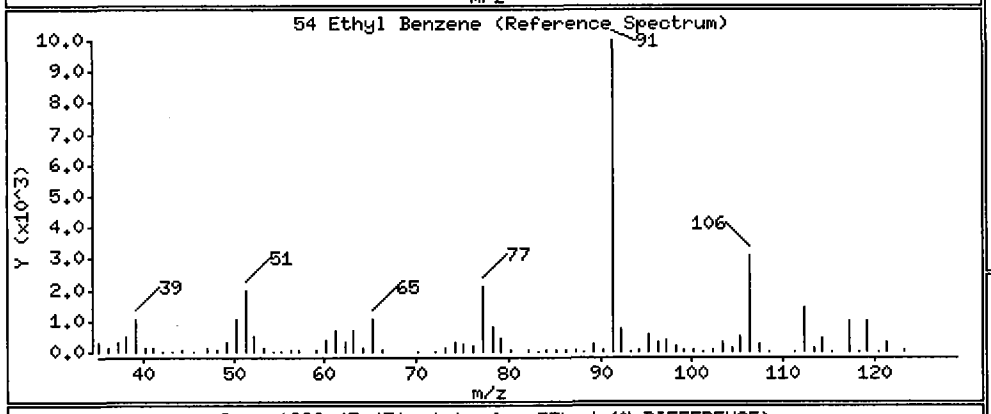
54 Ethyl Benzene

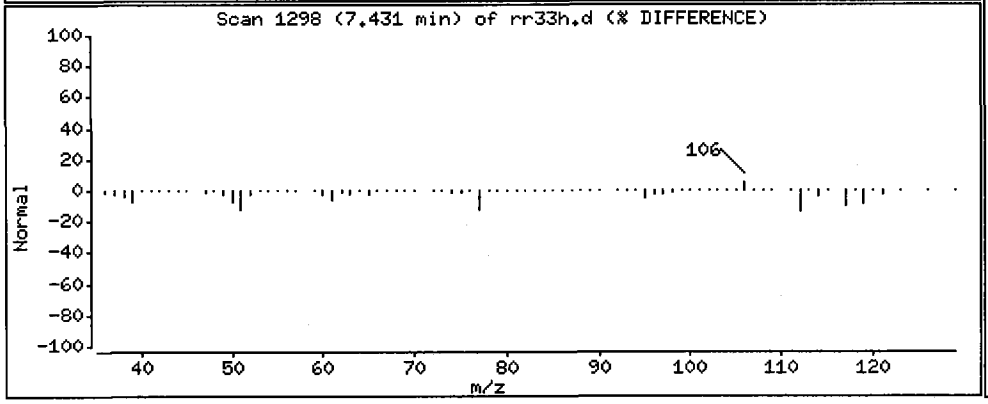
Concentration: 374.17 ug/Kg

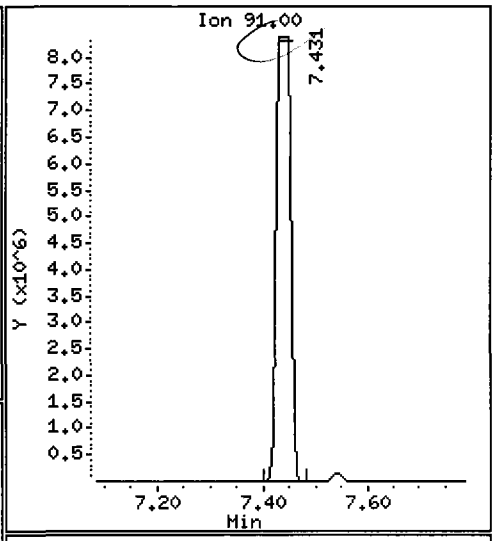
Est

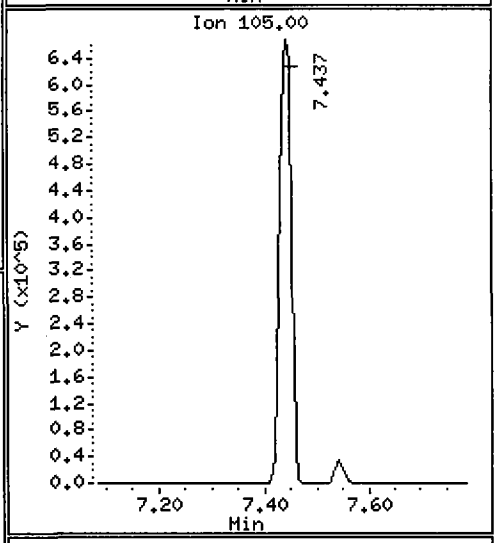


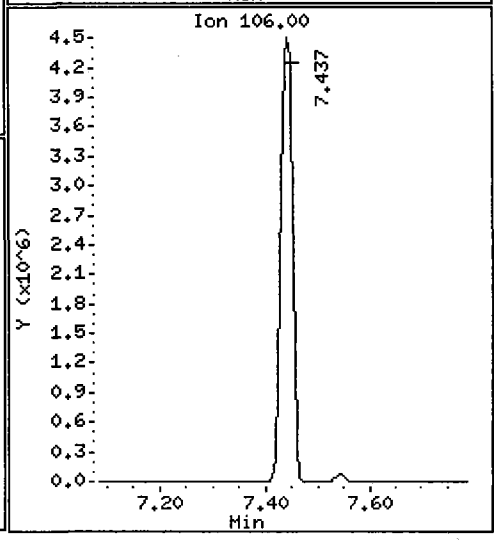












Data File: /chem1/nt9.i/21OCT10.b/gasco.b/rr33h.d

Date : 21-OCT-2010 13:24

Client ID: DGS-07-077.3-101012

Instrument: nt9.i

Sample Info: RR33H,5,5.97,0

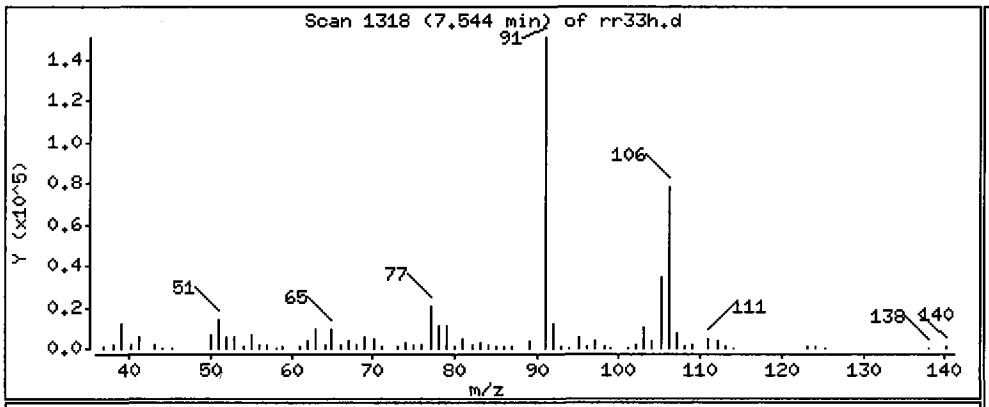
Operator: PB

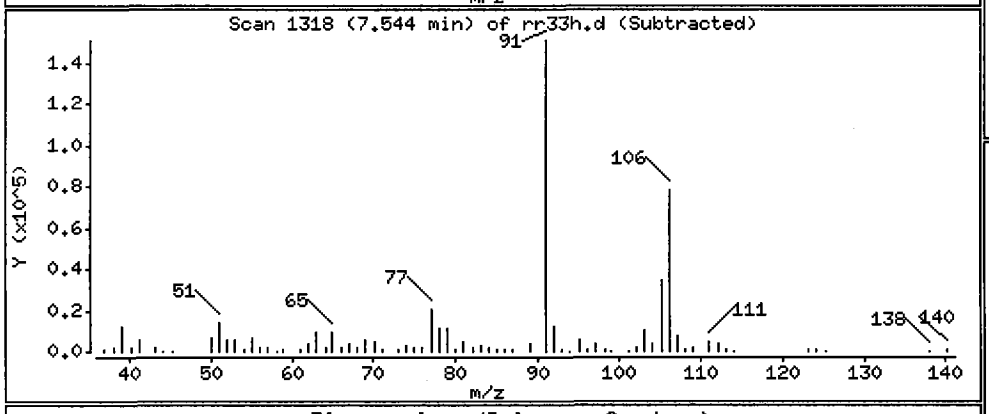
Column phase: RTX502.2

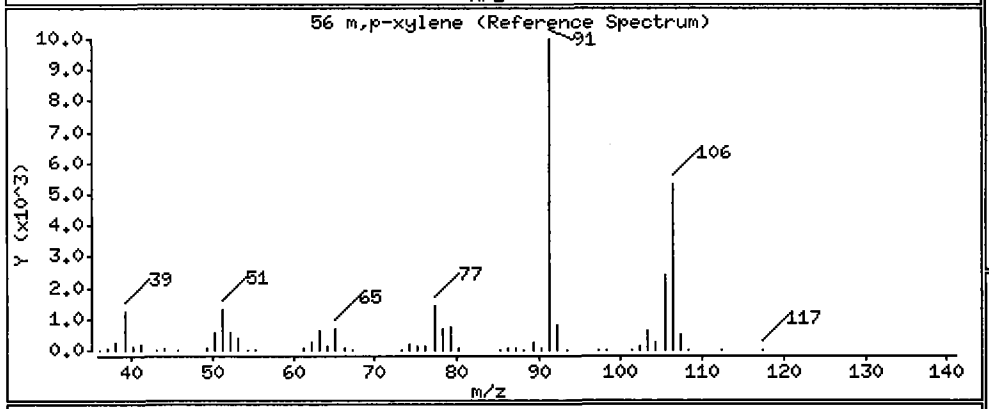
Column diameter: 0.18

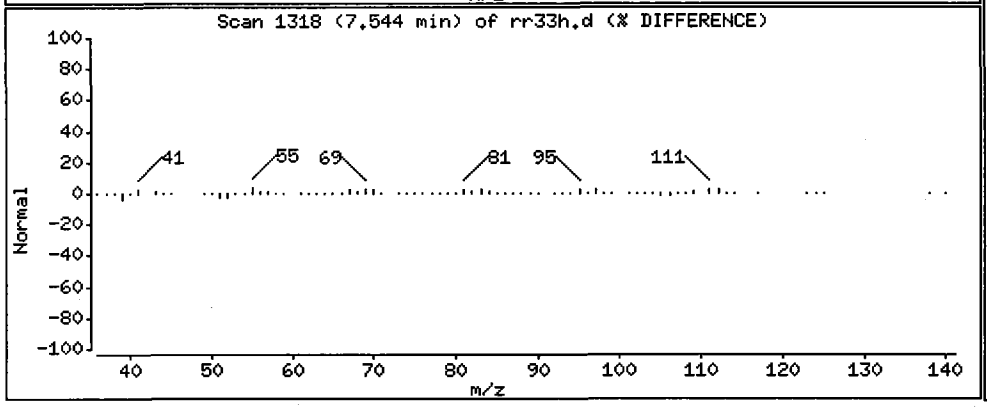
56 m,p-xylene

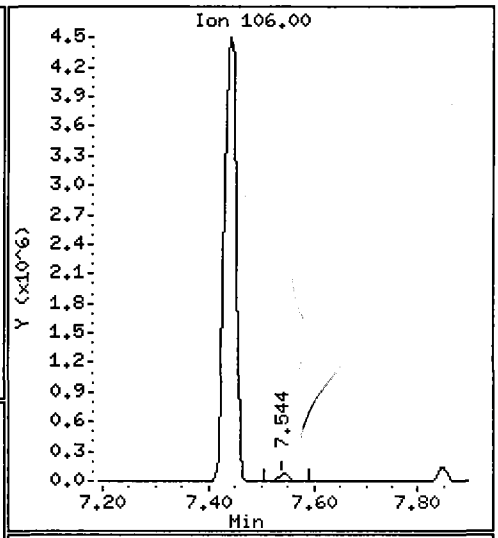
Concentration: 5.379 ug/Kg

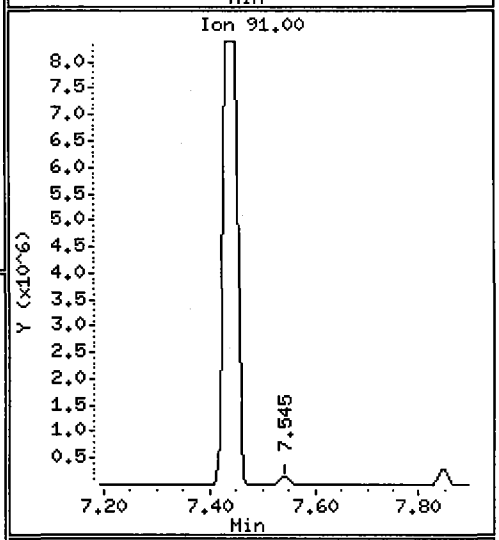


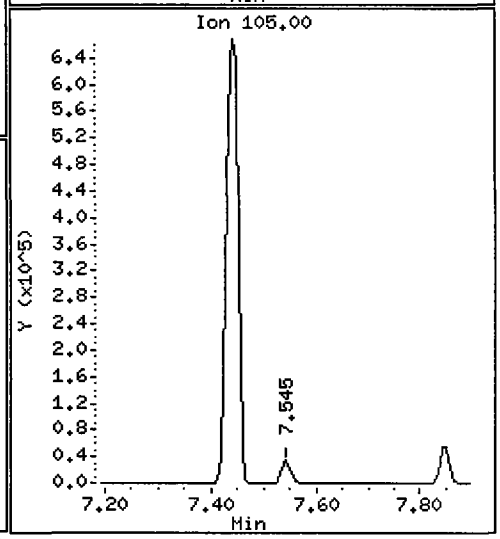












Data File: /chem1/nt9.i/21OCT10.b/gasco.b/rr33h.d

Date : 21-OCT-2010 13:24

Client ID: DGS-07-077.3-101012

Instrument: nt9.i

Sample Info: RR33H,5,5.97,0

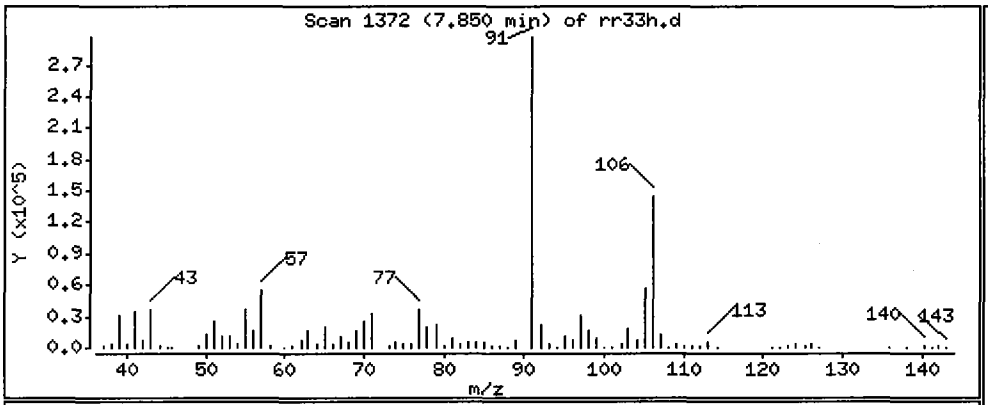
Operator: PB

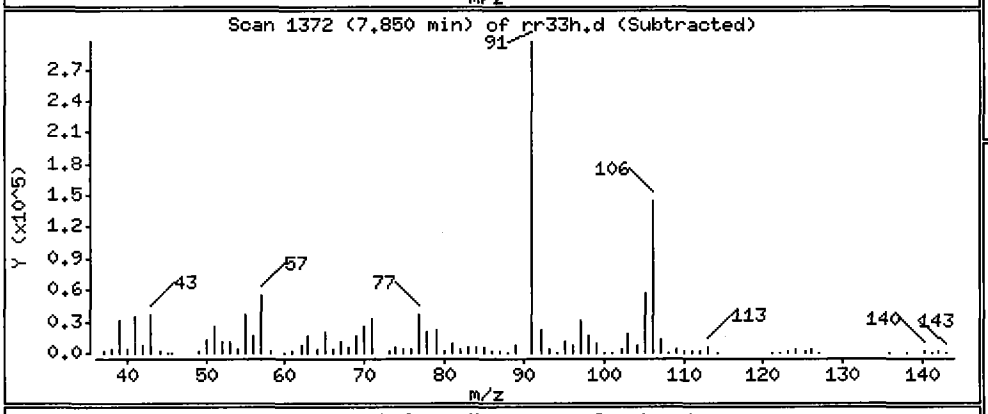
Column phase: RTX502.2

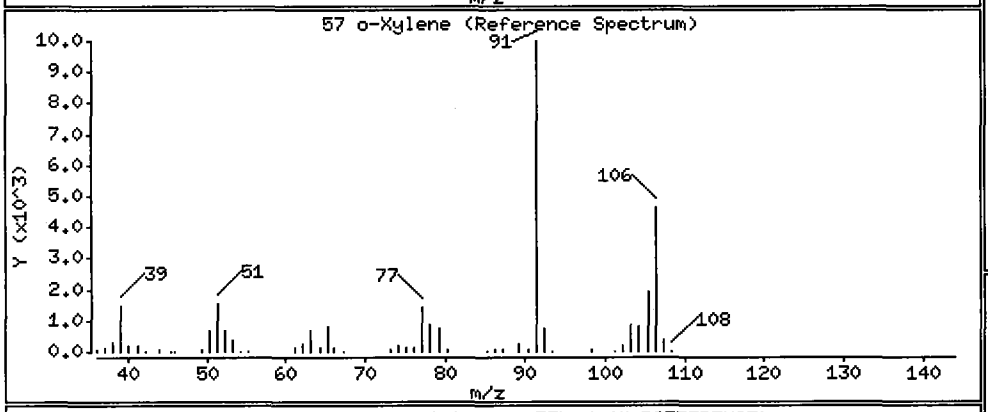
Column diameter: 0.18

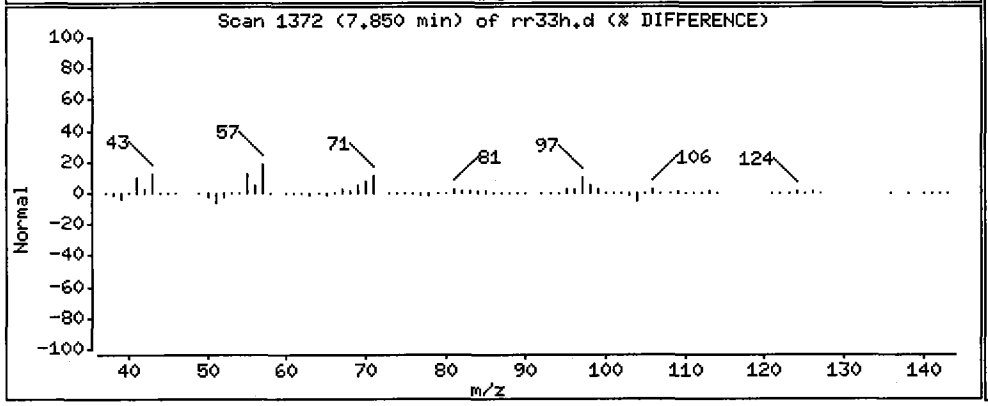
57 o-Xylene

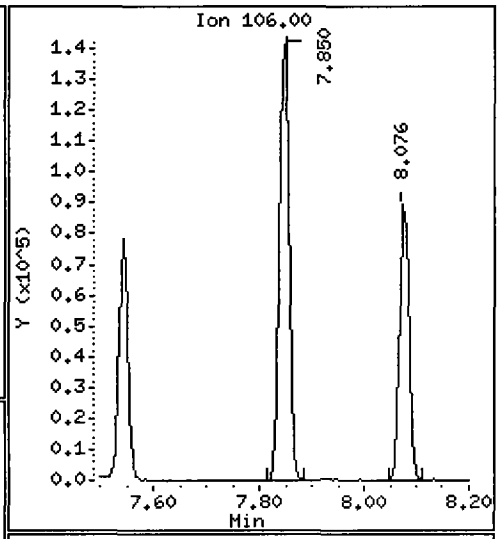
Concentration: 11.350 ug/Kg

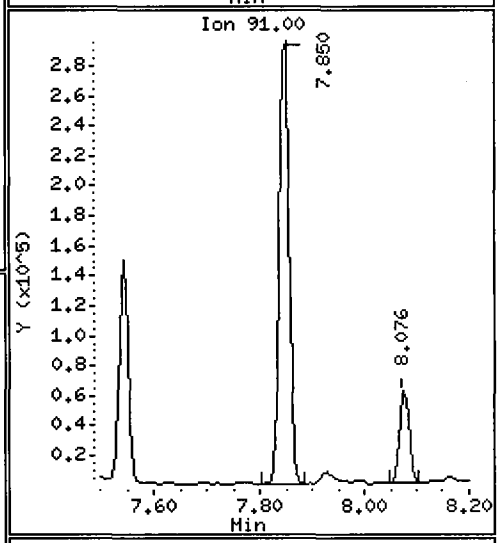


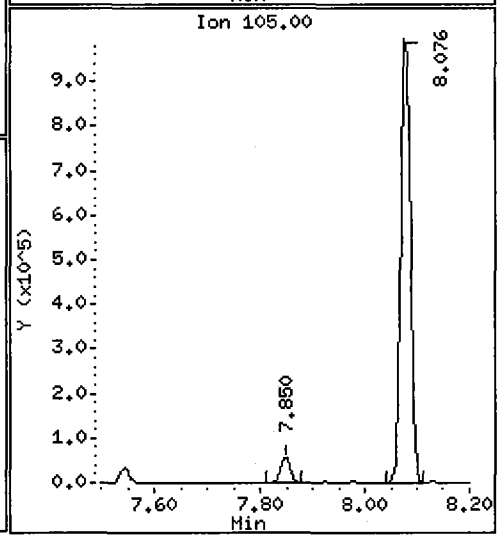






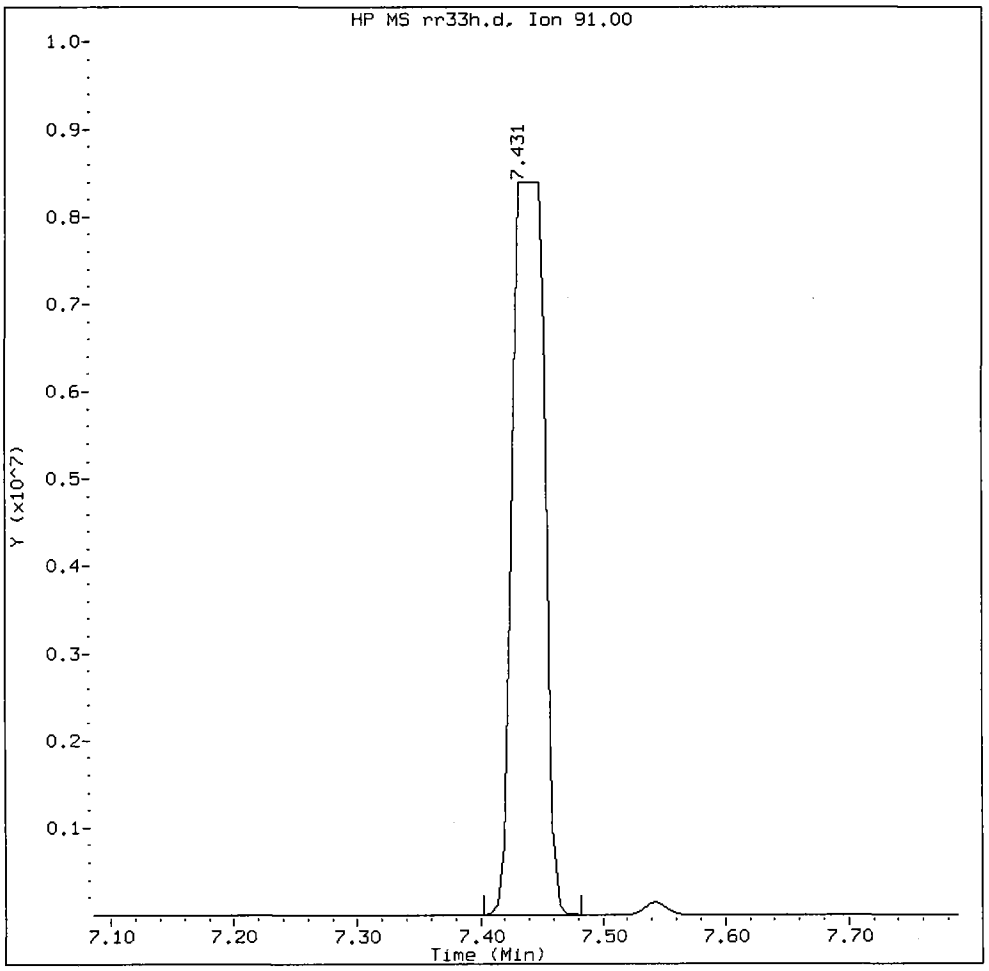






RR33H, /chem1/nt9.i/21OCT10.b/gasco.b/rr33h.d

Ethyl Benzene Amount: 446.76 Area: 15379168



MANUAL INTEGRATION for Ethyl Benzene

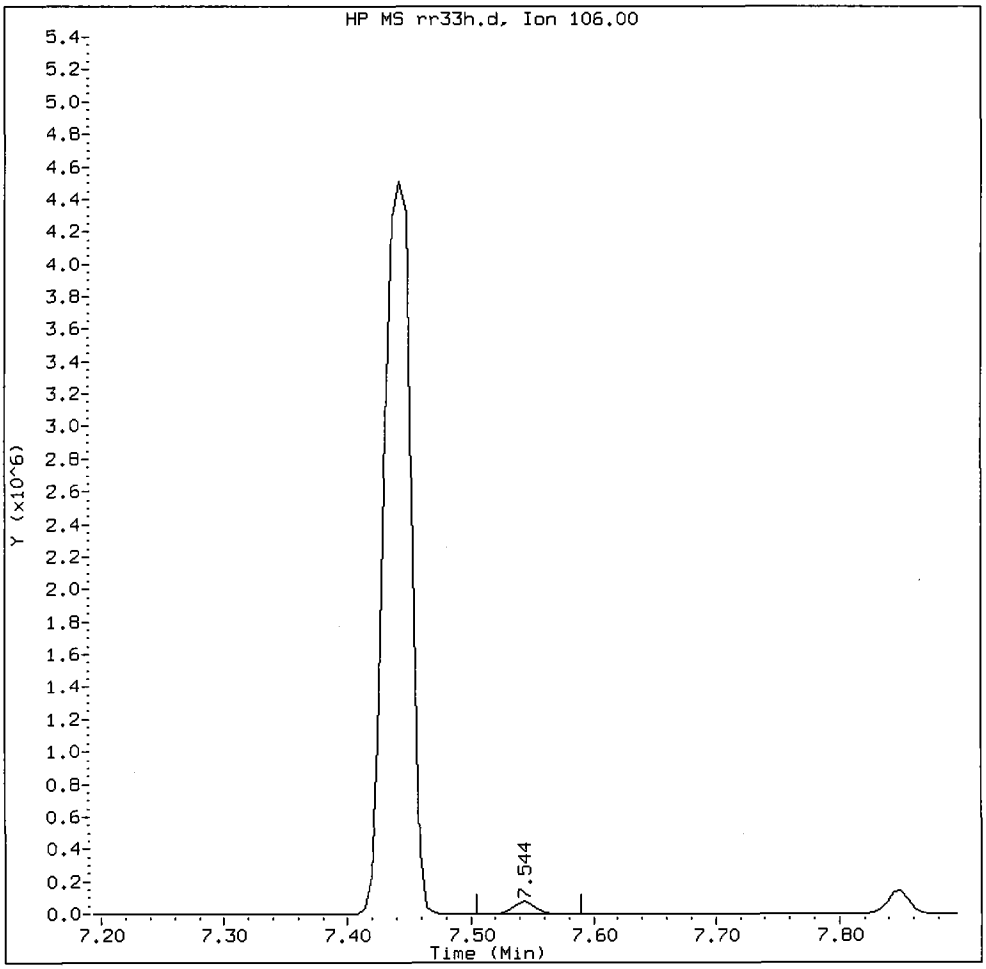
1. Baseline correction
2. Poor chromatography
3. Peak not found
4. Totals calculation

5. Other _____

Analyst: N Date: 10/21/10

RR33H, /chem1/nt9.i/21OCT10.b/gasco.b/rr33h.d

m,p-xylene Amount: 6.42 Area: 89412



MANUAL INTEGRATION for m,p-xylene

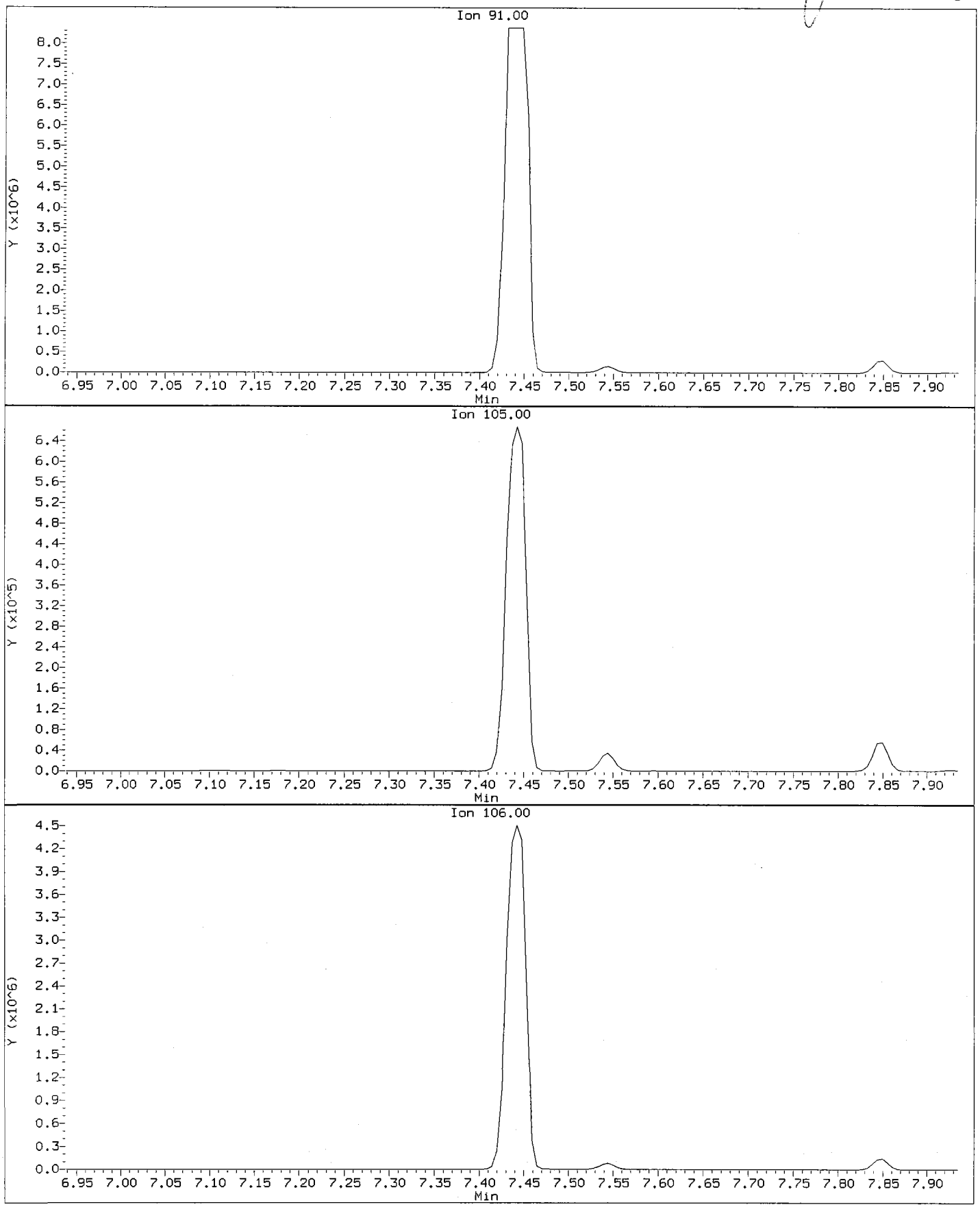
1. Baseline correction
2. Poor chromatography
3. Peak not found
4. Totals calculation

5. Other _____

Analyst: _____ Date: 10/26

Data File: /chem1/nt9.i/21OCT10.b/SampleInfo/rr33h.d
Injection Date: 21-OCT-2010 13:24
Instrument: nt9.i
Client Sample ID: DGS-07-077.3-101012

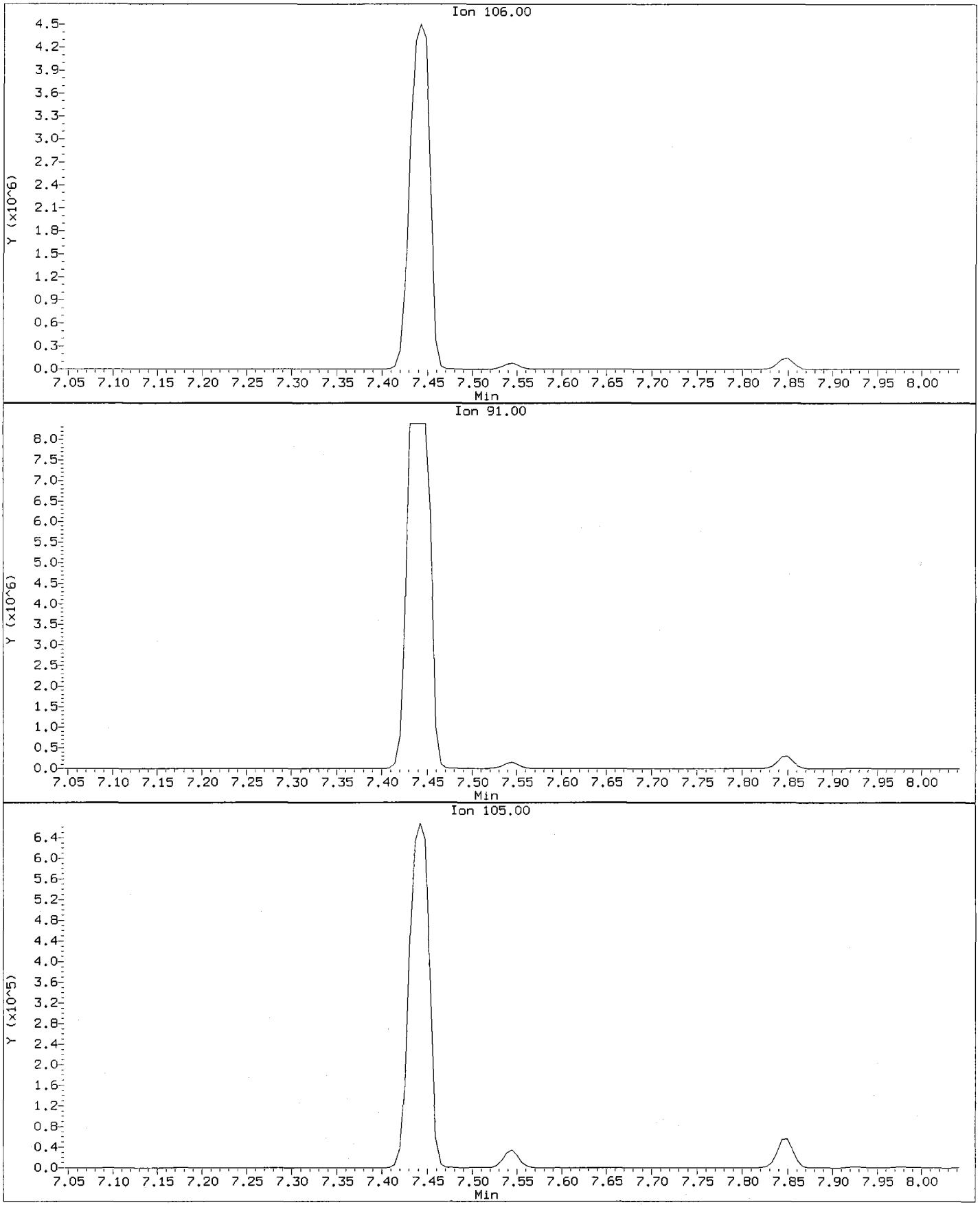
Compound: Ethyl Benzene
CAS Number:



Data File: /chem1/nt9.i/21OCT10.b/SampleInfo/rr33h.d
Injection Date: 21-OCT-2010 13:24
Instrument: nt9.i
Client Sample ID: DGS-07-077.3-101012

Compound: m,p-xylene
CAS Number:

11/3/2010



Analytical Resources, Inc.

8260C

Data file : /chem1/nt9.i/21OCT10.b/gasco.b/rr33i.d
Lab Smp Id: RR33I Client Smp ID: DGS-07-7.98.4-10101
Inj Date : 21-OCT-2010 13:54
Operator : PB Inst ID: nt9.i
Smp Info : RR33I,5,5.99,0
Misc Info : 10-26427
Comment :
Method : /chem1/nt9.i/21OCT10.b/gasco.b/VO063010S.m
Meth Date : 27-Oct-2010 11:08 patrickb Quant Type: ISTD
Cal Date : 28-AUG-2010 13:21 Cal File: 2000828.d
Als bottle: 1
Dil Factor: 1.00000
Integrator: HP RTE Compound Sublist: gasco.sub
Target Version: 3.50
Processing Host: cserv3

10/27/10

Concentration Formula: Amt * DF * Pv * 1 / (Sa * ((100 - M) / 100)) * CpndVaria

Name	Value	Description
DF	1.00000	Dilution Factor
Pv	5.00000	Purge Volume
Sa	5.99000	Sample Amount
M	0.00000	% Moisture (not decanted)

Cpnd Variable Local Compound Variable

Compounds	QUANT SIG MASS	RT	EXP RT	REL RT	RESPONSE	CONCENTRATIONS ON-COLUMN (ug/Kg)	FINAL (ug/Kg)
3 Vinyl Chloride	62	Compound Not Detected.					
7 1,1-Dichloroethene	96	Compound Not Detected.					
15 Trans-1,2-Dichloroethene	96	Compound Not Detected.					
20 Cis-1,2-Dichloroethene	96	Compound Not Detected.					
* 32 Pentafluorobenzene	168	4.936	4.931	(1.000)	659801	50.0000	
$ 25 Dibromofluoromethane	111	4.529	4.530	(0.917)	242816	49.2165	41.082
$ 31 d4-1,2-Dichloroethane	65	4.936	4.937	(1.000)	273177	53.9320	45.018
30 Benzene	78	4.829	4.829	(0.908)	124555	5.32979	4.449
* 35 1,4-Difluorobenzene	114	5.321	5.321	(1.000)	868914	50.0000	
34 Trichloroethene	95	Compound Not Detected.					
$ 42 d8-Toluene	98	6.305	6.306	(1.185)	969830	49.2605	41.119
43 Toluene	92	6.345	6.340	(1.192)	26486	1.59486	1.331
44 Tetrachloroethene	166	Compound Not Detected.					
* 52 d5-Chlorobenzene	117	7.397	7.398	(1.000)	760065	50.0000	

Compounds	QUANT SIG MASS	RT	EXP RT	REL RT	RESPONSE	CONCENTRATIONS ON-COLUMN (ug/Kg)	FINAL (ug/Kg)
54 Ethyl Benzene	91	7.436	7.437	(1.005)	13173215	422.905	353.01 E
56 m,p-xylene	106	7.544	7.545	(1.020)	20682	1.64168	1.370(QM)
57 o-Xylene	106	7.849	7.850	(1.061)	170381	14.5180	12.119
$ 61 4-Bromofluorobenzene	95	8.274	8.274	(1.119)	395298	56.1534	46.873
* 75 d4-1,4-Dichlorobenzene	152	9.111	9.112	(1.000)	412992	50.0000	(Q) only
$ 78 d4-1,2-Dichlorobenzene	152	9.433	9.434	(1.035)	369729	51.2135	42.749(Q)

QC Flag Legend

Q - Qualifier signal failed the ratio test.
M - Compound response manually integrated.

Analytical Resources, Inc.

INTERNAL STANDARD COMPOUNDS
AREA AND RT SUMMARY

Instrument ID: nt9.i
Lab File ID: rr33i.d
Lab Smp Id: RR33I
Analysis Type: VOA
Quant Type: ISTD
Operator: PB
Method File: /chem1/nt9.i/21OCT10.b/gasco.b/VO063010S.m
Misc Info: 10-26427

Calibration Date: 21-OCT-2010
Calibration Time: 10:46
Client Smp ID: DGS-07-7.98.4-10101
Level: LOW
Sample Type: Sediment

Test Mode:
Use Initial Calibration Level 5.
If Continuing Cal. use Initial Cal. Level 5

COMPOUND	STANDARD	AREA LIMIT LOWER	AREA LIMIT UPPER	SAMPLE	%DIFF
32 Pentafluorobenzen	704281	352140	1408562	659801	-6.32
35 1,4-Difluorobenze	937745	468872	1875490	868914	-7.34
52 d5-Chlorobenzene	853013	426506	1706026	760065	-10.90
75 d4-1,4-Dichlorobe	503655	251828	1007310	412992	-18.00

COMPOUND	STANDARD	RT LIMIT LOWER	RT LIMIT UPPER	SAMPLE	%DIFF
32 Pentafluorobenzen	4.93	4.43	5.43	4.94	0.10
35 1,4-Difluorobenze	5.32	4.82	5.82	5.32	-0.01
52 d5-Chlorobenzene	7.40	6.90	7.90	7.40	-0.01
75 d4-1,4-Dichlorobe	9.11	8.61	9.61	9.11	-0.01

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.

Analytical Resources, Inc.

RECOVERY REPORT

Client Name: NW Natural
Sample Matrix: SOLID
Lab Smp Id: RR33I
Level: LOW
Data Type: MS DATA
SpikeList File: all.spk
Sublist File: gasco.sub
Method File: /chem1/nt9.i/21OCT10.b/gasco.b/VO063010S.m
Misc Info: 10-26427

Client SDG: RR33
Fraction: VOA
Client Smp ID: DGS-07-7.98.4-10101
Operator: PB
SampleType: SAMPLE
Quant Type: ISTD

SURROGATE COMPOUND	AMOUNT ADDED ug/Kg	AMOUNT RECOVERED ug/Kg	% RECOVERED	LIMITS
$ 25 Dibromofluorometha	50.000	49.217	98.43	30-160
$ 31 d4-1,2-Dichloroeth	50.000	53.932	107.86	75-152
$ 42 d8-Toluene	50.000	49.260	98.52	82-115
$ 61 4-Bromofluorobenze	50.000	56.153	112.31	64-120
$ 78 d4-1,2-Dichloroben	50.000	51.213	102.43	80-120

Data File: /chem1/nt9.i/21OCT10.b/gasco.b/rr33i.d

Date : 21-OCT-2010 13:54

Client ID: DGS-07-7.98.4-10101

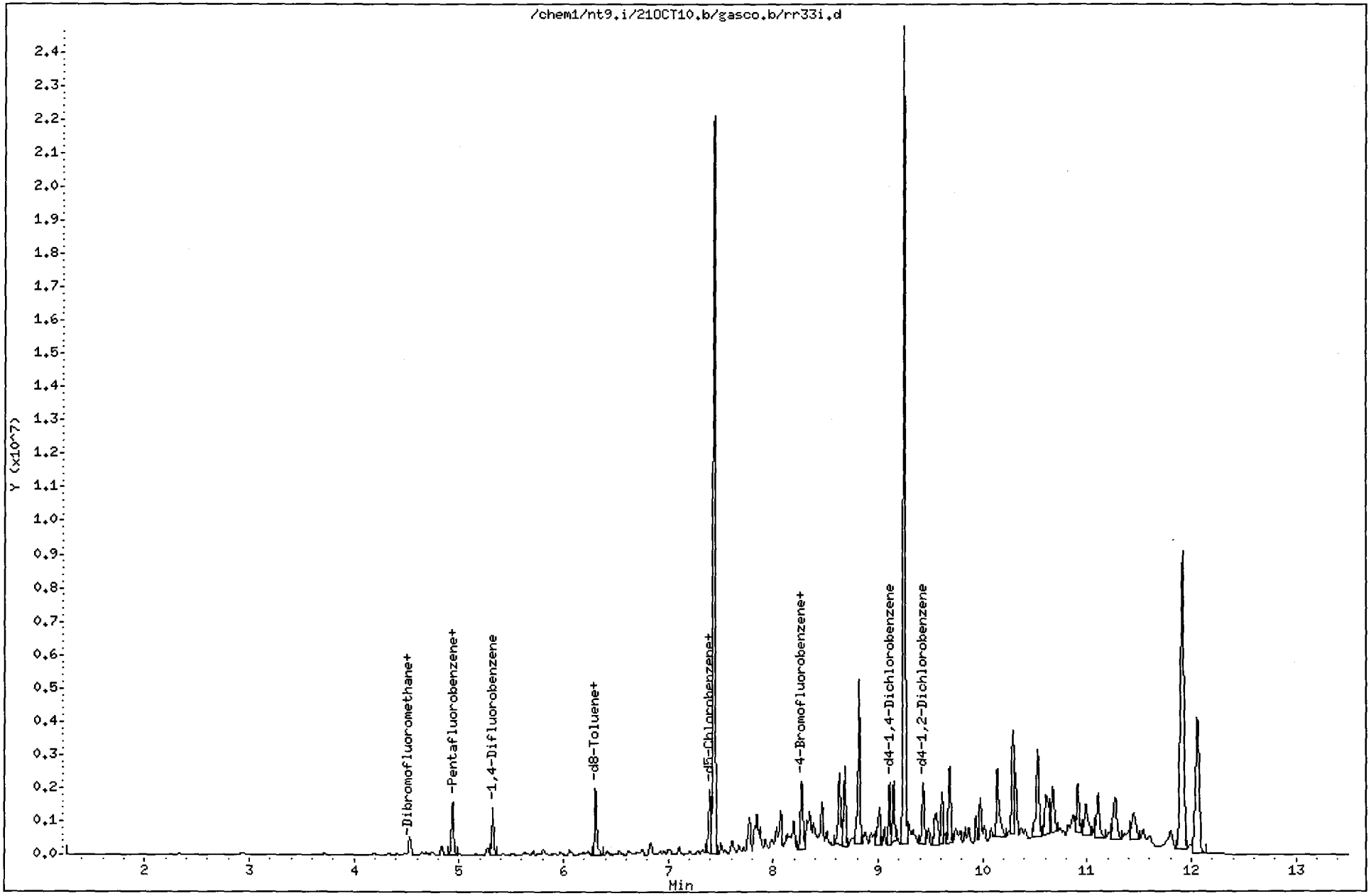
Sample Info: RR33I,5,5.99,0

Column phase: RTX502.2

Instrument: nt9.i

Operator: PB

Column diameter: 0.18



RR33 : 00256

Data File: /chem1/nt9.i/21OCT10.b/gasco.b/rr33i.d

Date : 21-OCT-2010 13:54

Client ID: DGS-07-7.98.4-10101

Instrument: nt9.i

Sample Info: RR33I,5,5.99,0

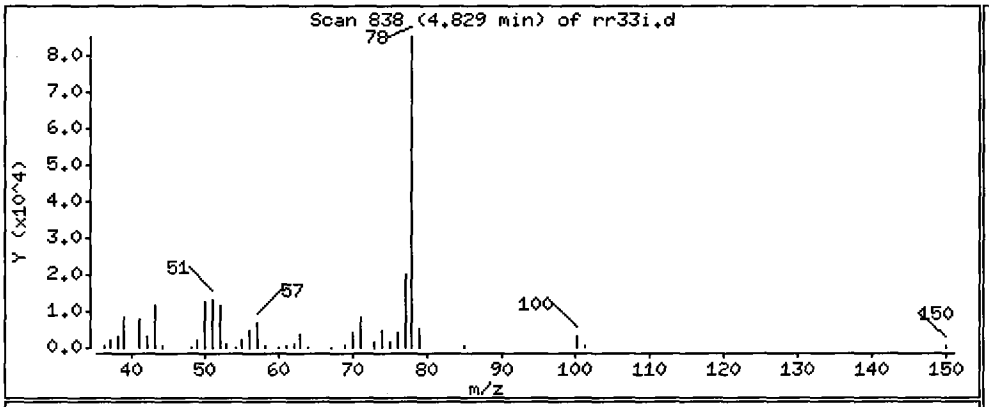
Operator: PB

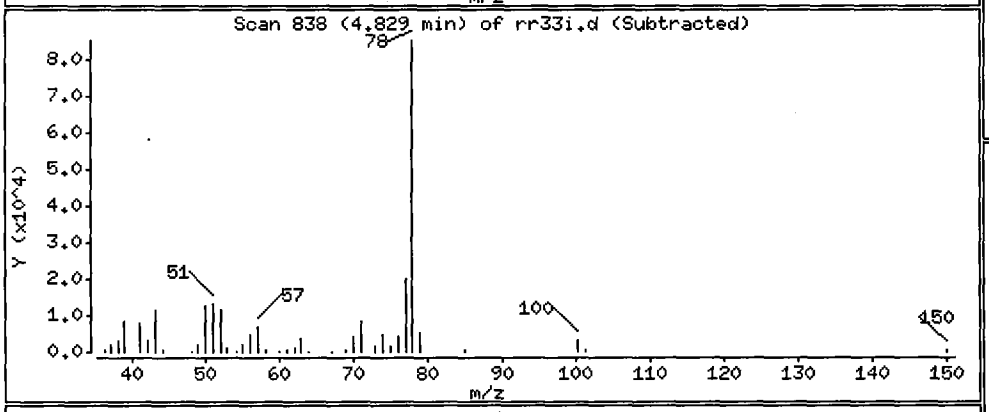
Column phase: RTX502.2

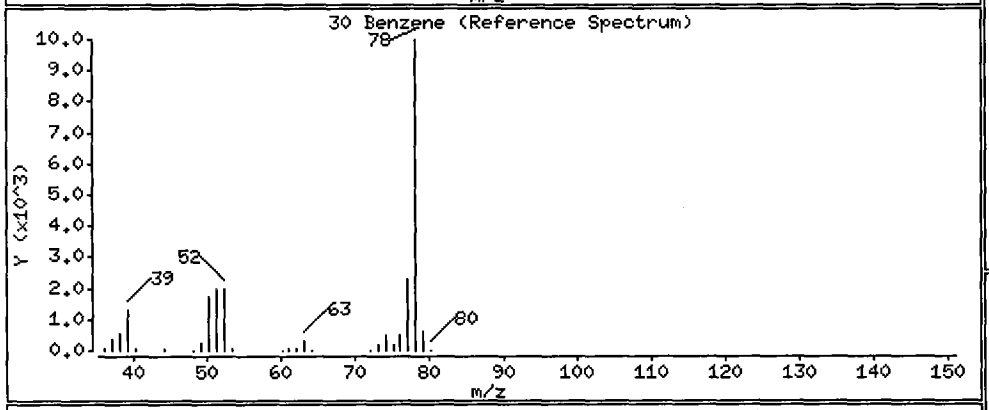
Column diameter: 0.18

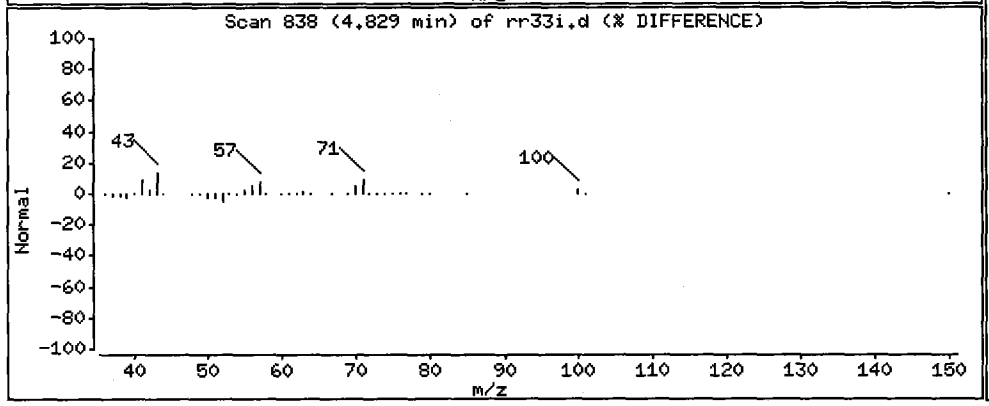
30 Benzene

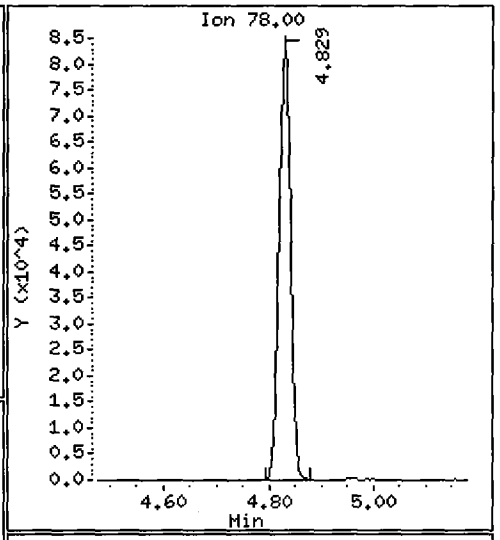
Concentration: 4.449 ug/Kg

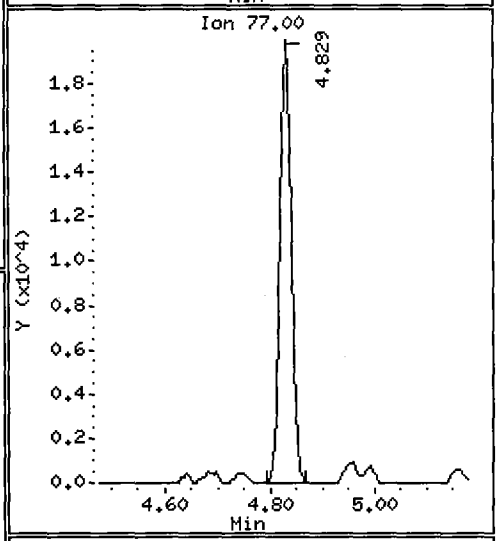


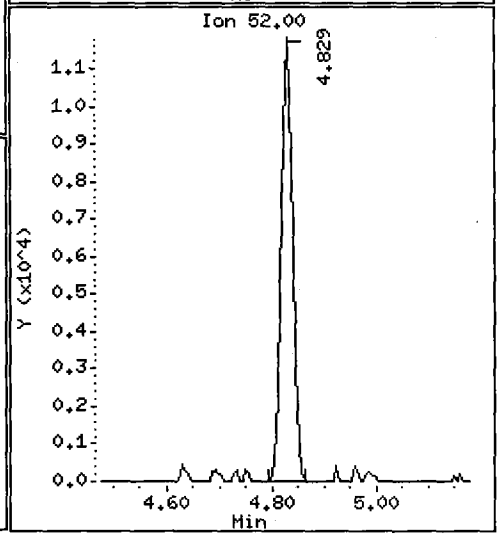












Data File: /chem1/nt9.i/21OCT10.b/gasco.b/rr33i.d

Date : 21-OCT-2010 13:54

Client ID: DGS-07-7.98.4-10101

Instrument: nt9.i

Sample Info: RR33I,5,5.99,0

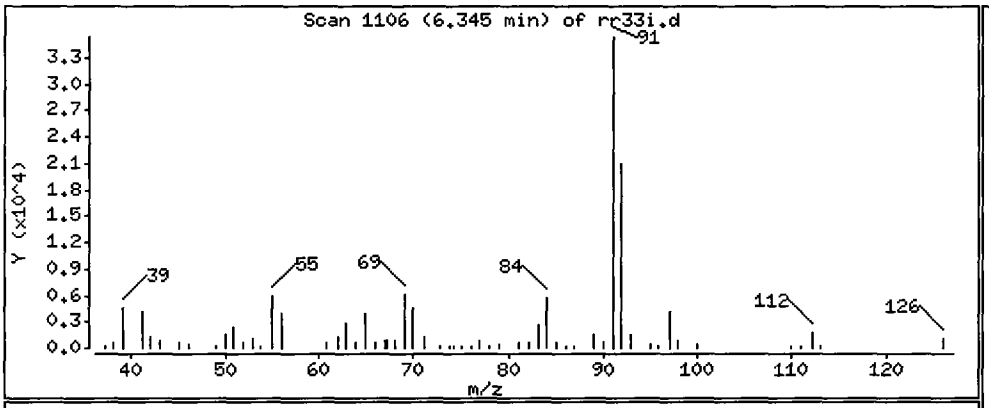
Operator: PB

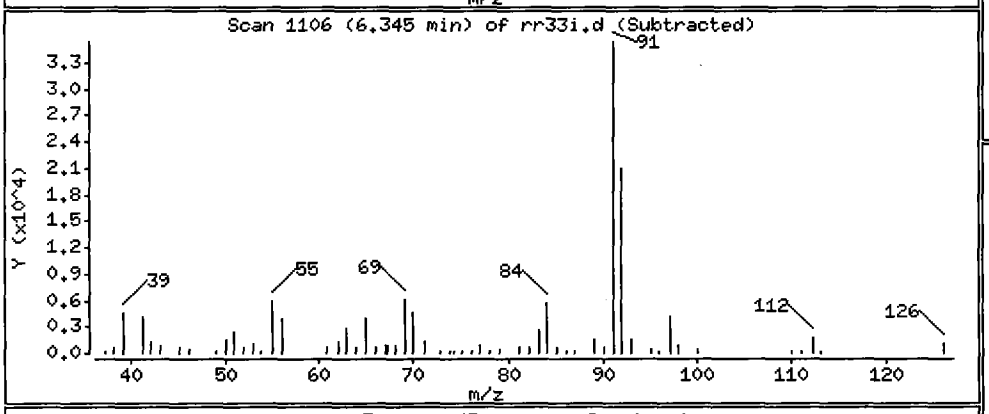
Column phase: RTX502.2

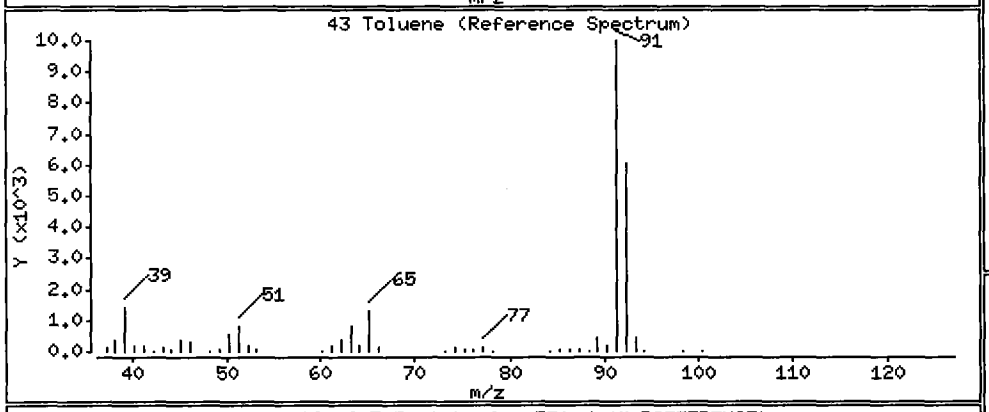
Column diameter: 0.18

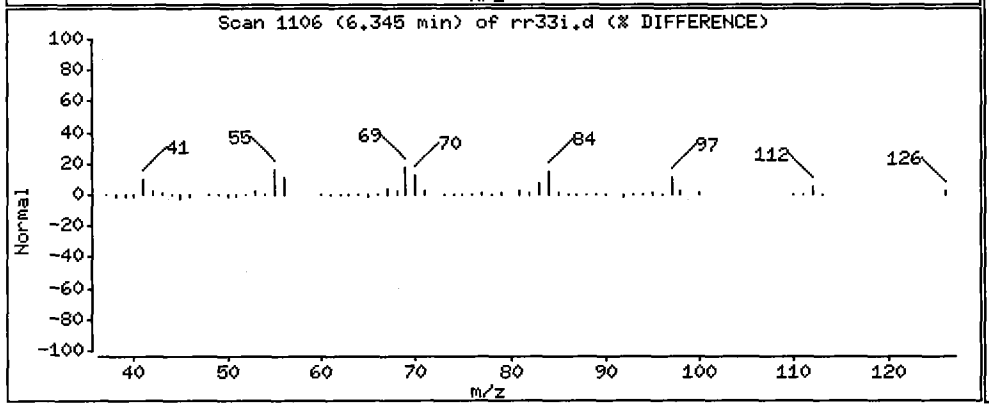
43 Toluene

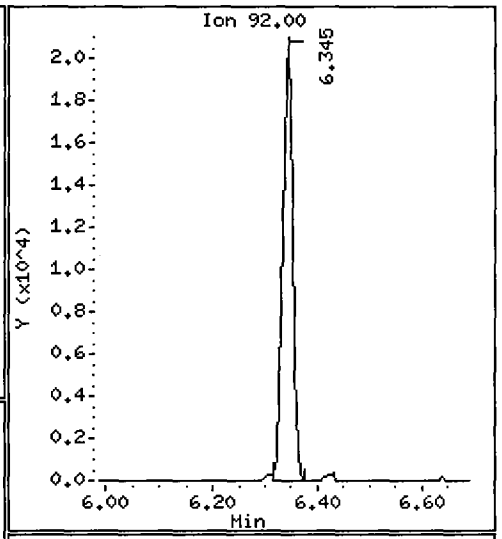
Concentration: 1.331 ug/Kg

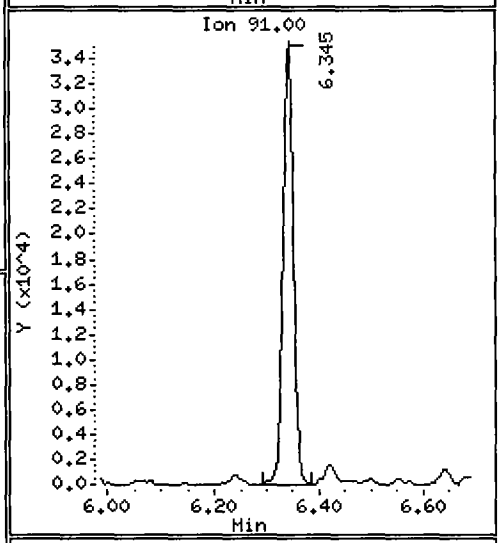


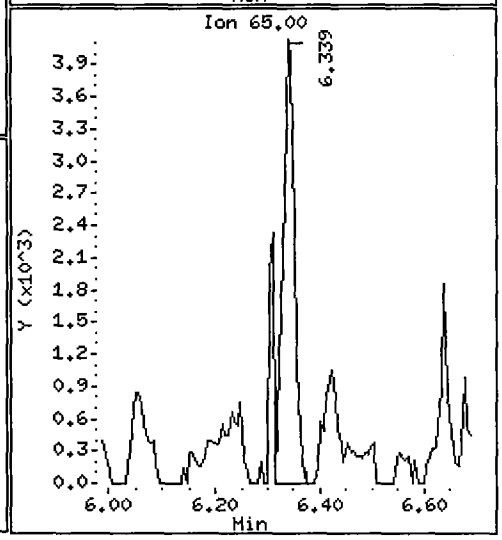












Data File: /chem1/nt9.i/21OCT10.b/gasco.b/rr33i.d

Date : 21-OCT-2010 13:54

Client ID: DGS-07-7.98.4-10101

Instrument: nt9.i

Sample Info: RR33I,5,5.99,0

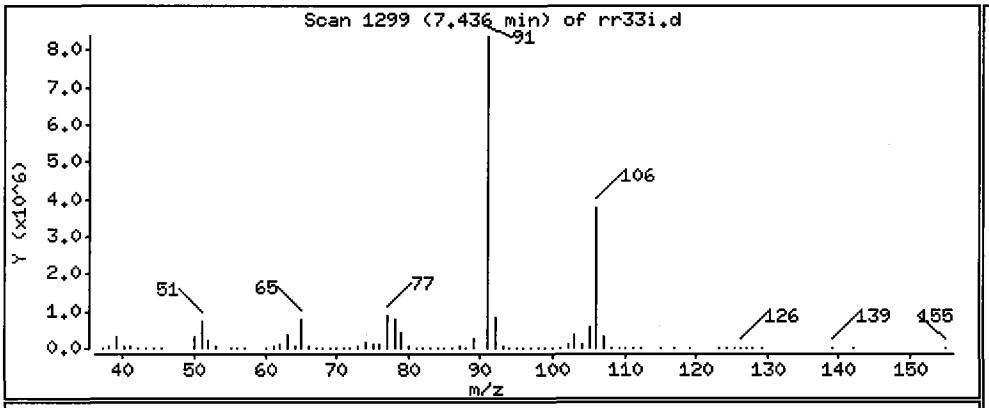
Operator: PB

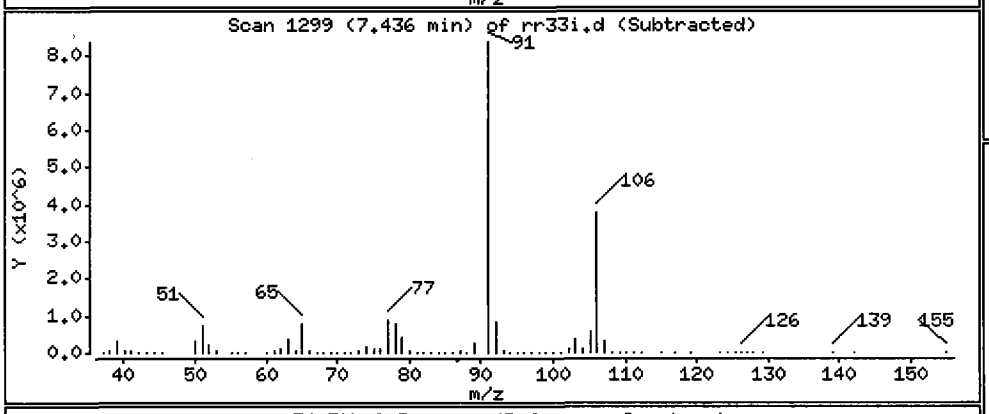
Column phase: RTX502.2

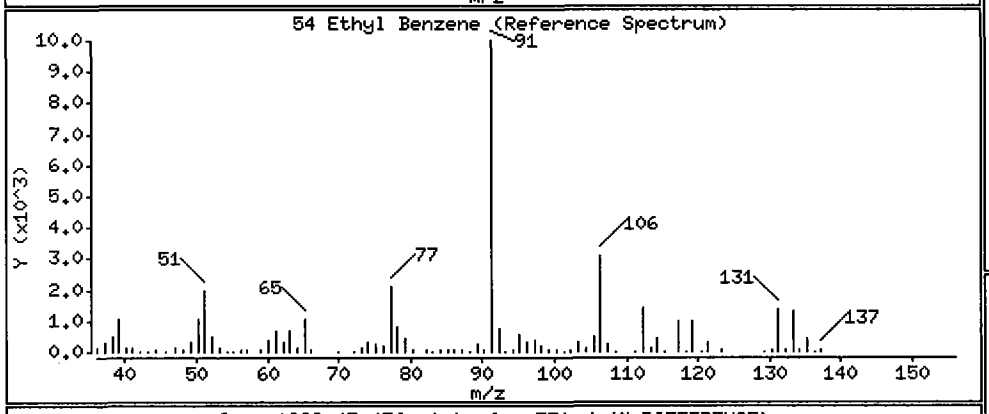
Column diameter: 0.18

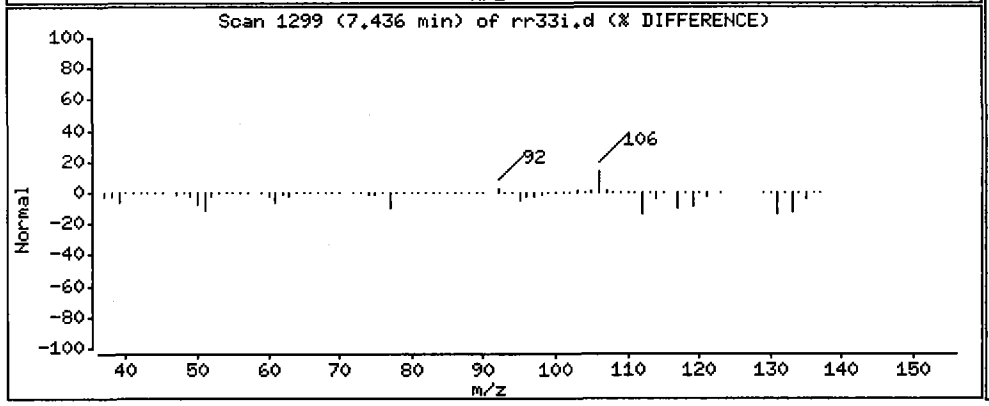
54 Ethyl Benzene

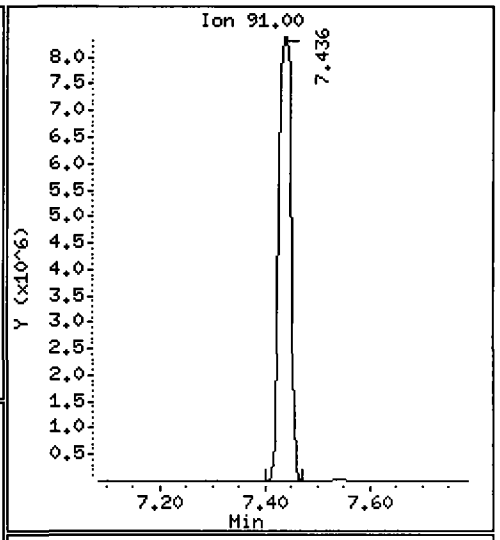
Concentration: 353.01 ug/Kg

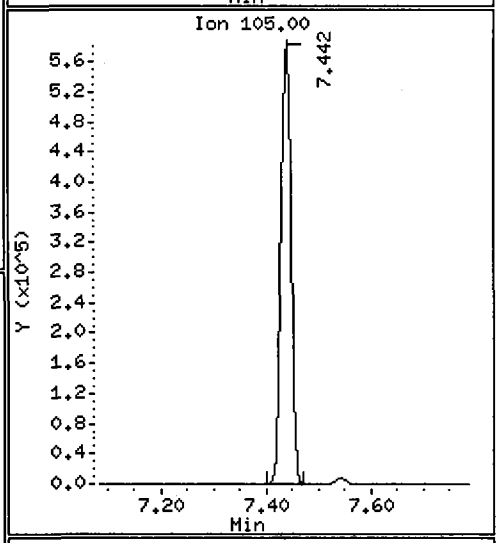


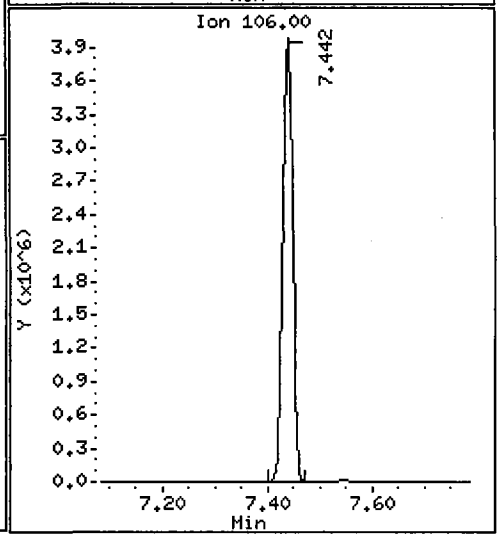












Data File: /chem1/nt9.i/21OCT10.b/gasco.b/rr33i.d

Date : 21-OCT-2010 13:54

Client ID: DGS-07-7.98.4-10101

Instrument: nt9.i

Sample Info: RR33I,5,5.99,0

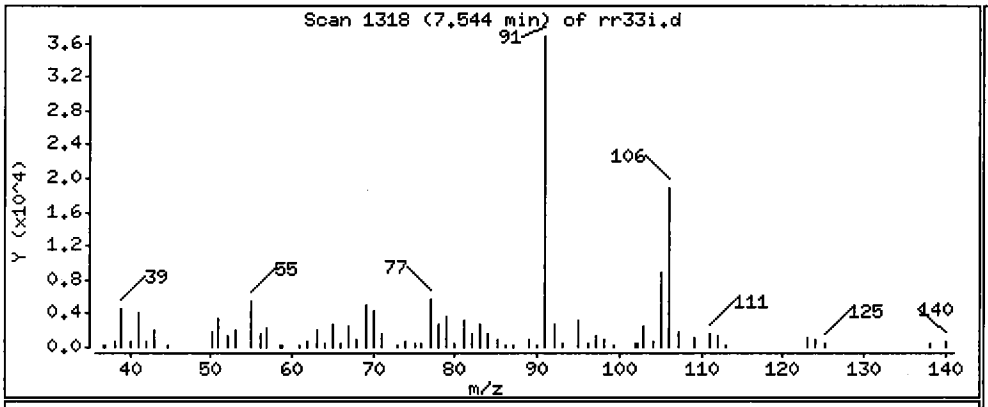
Operator: PB

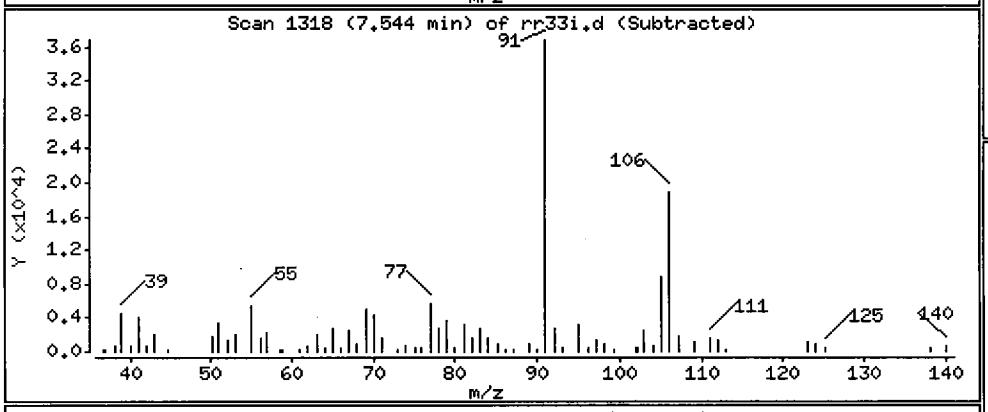
Column phase: RTX502.2

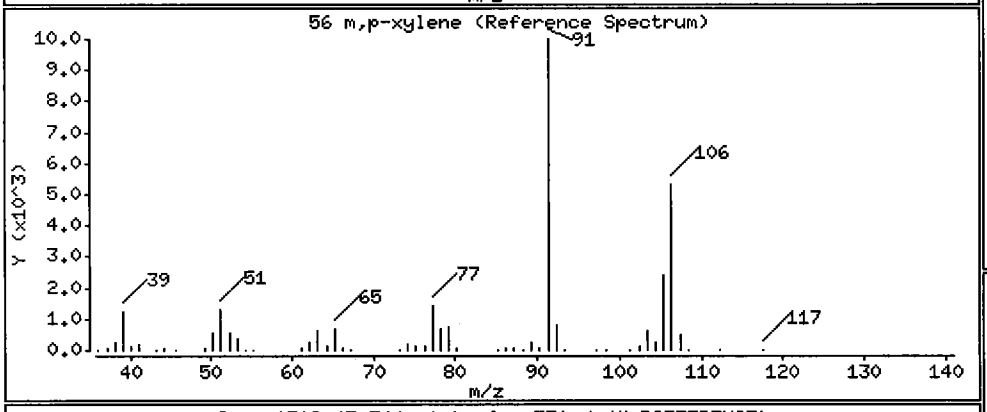
Column diameter: 0.18

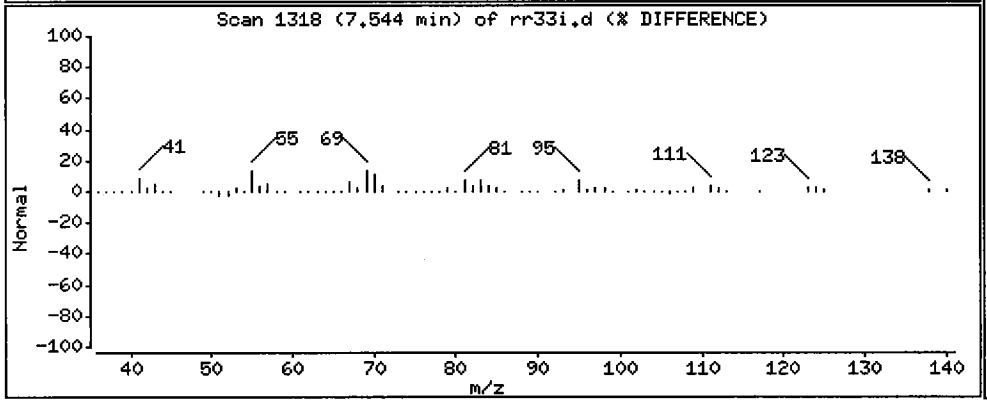
56 m,p-xylene

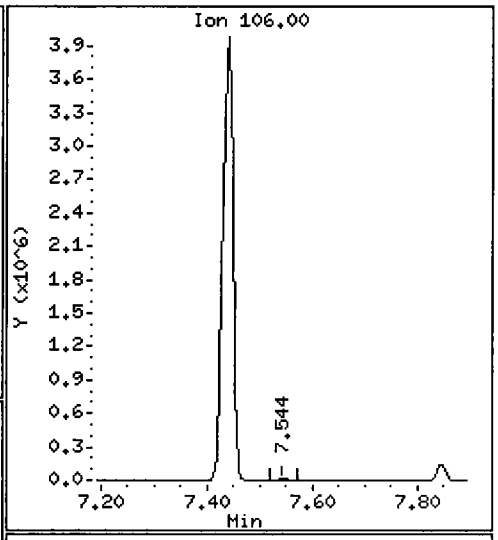
Concentration: 1.370 ug/Kg

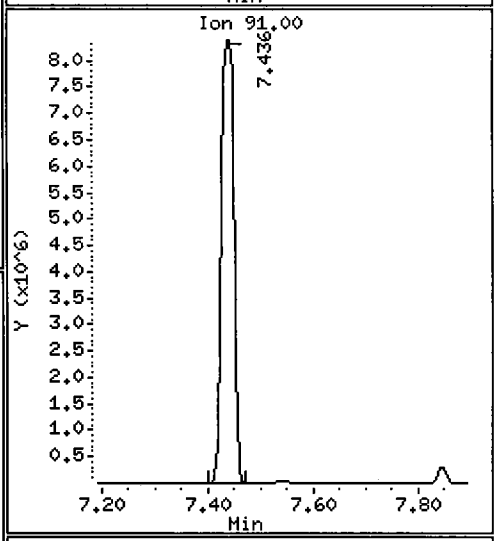


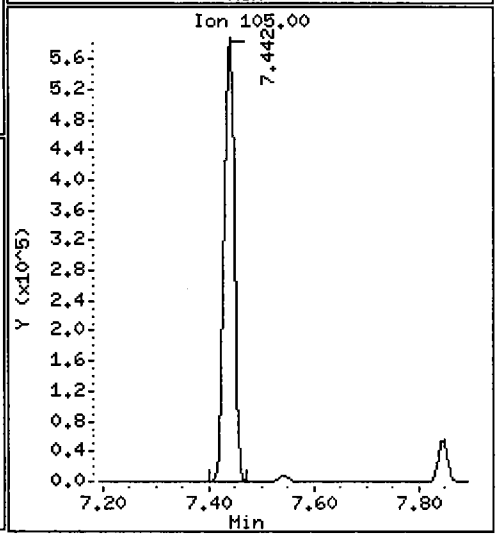












Data File: /chem1/nt9.i/21OCT10.b/gasco.b/rr33i.d

Date : 21-OCT-2010 13:54

Client ID: DGS-07-7.98.4-10101

Instrument: nt9.i

Sample Info: RR33I,5,5.99,0

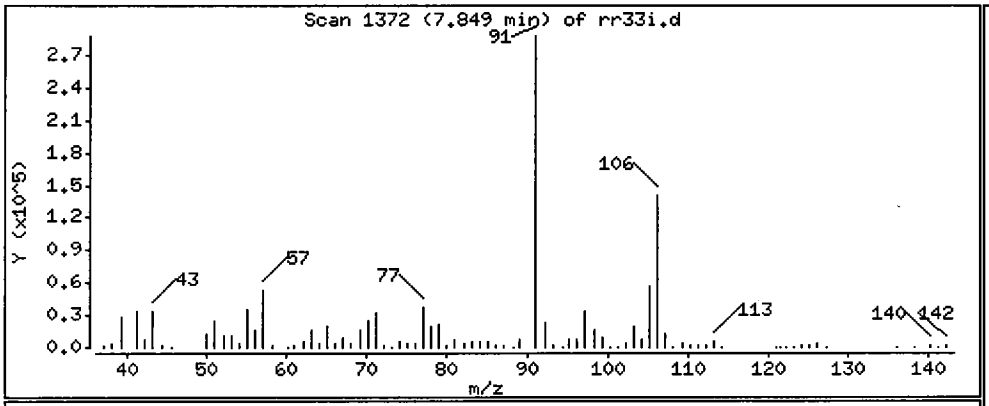
Operator: PB

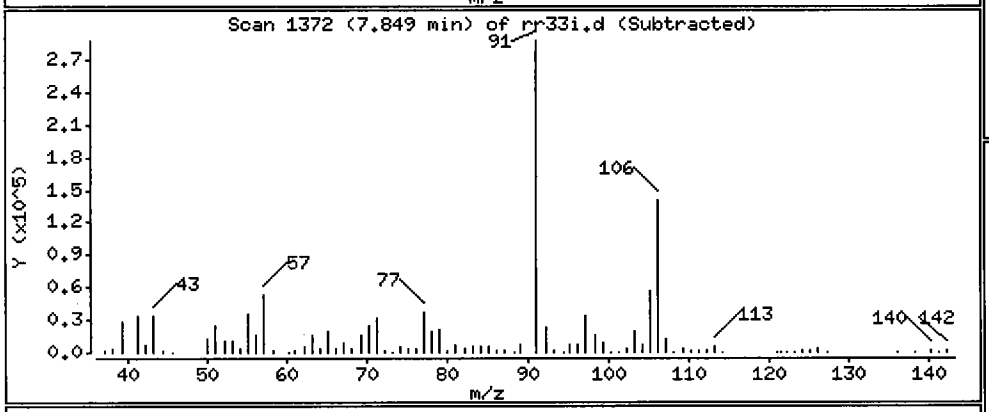
Column phase: RTX502.2

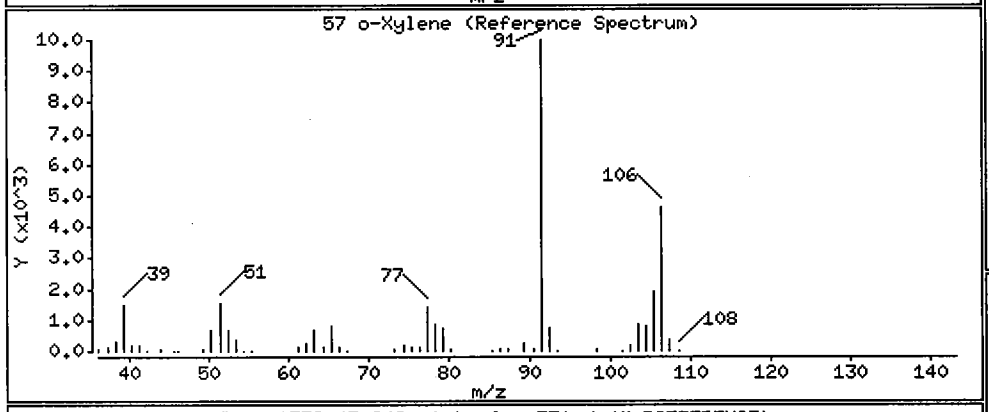
Column diameter: 0.18

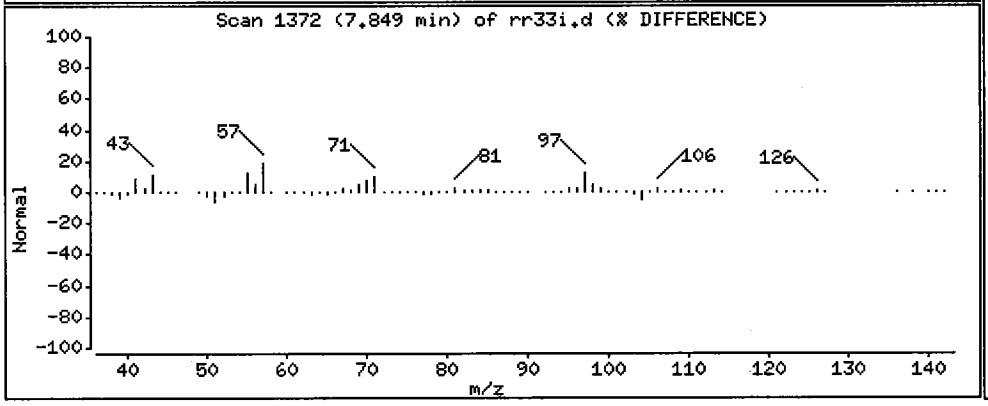
57 o-Xylene

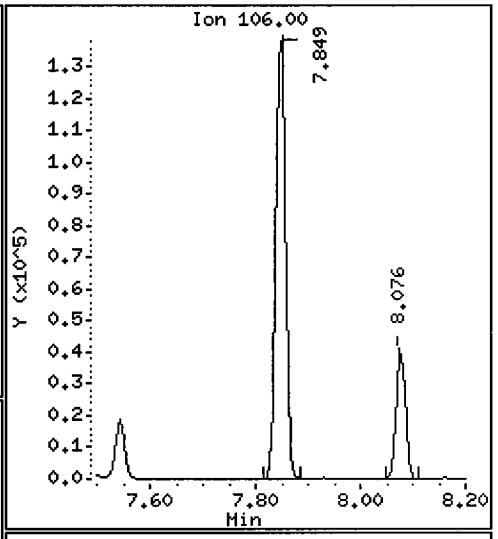
Concentration: 12.119 ug/Kg

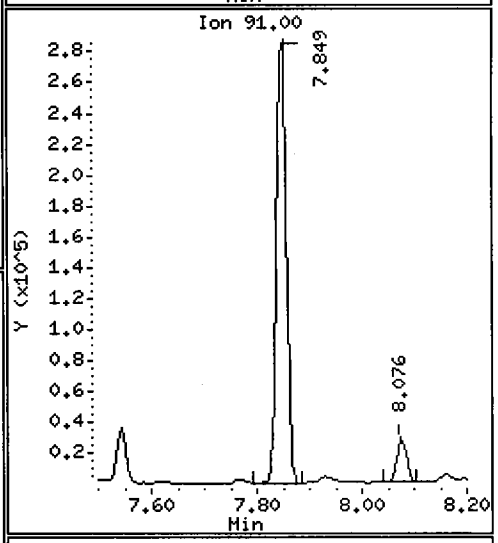


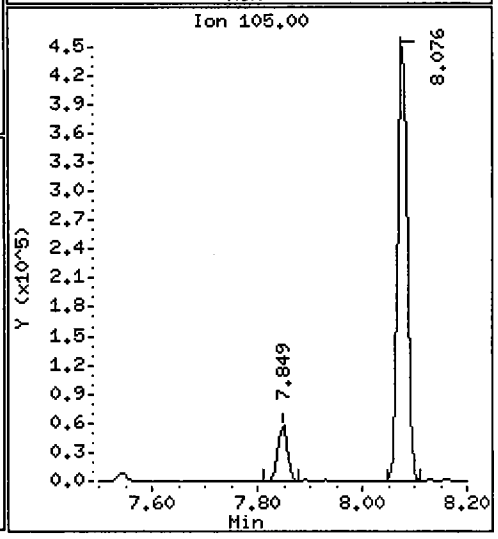






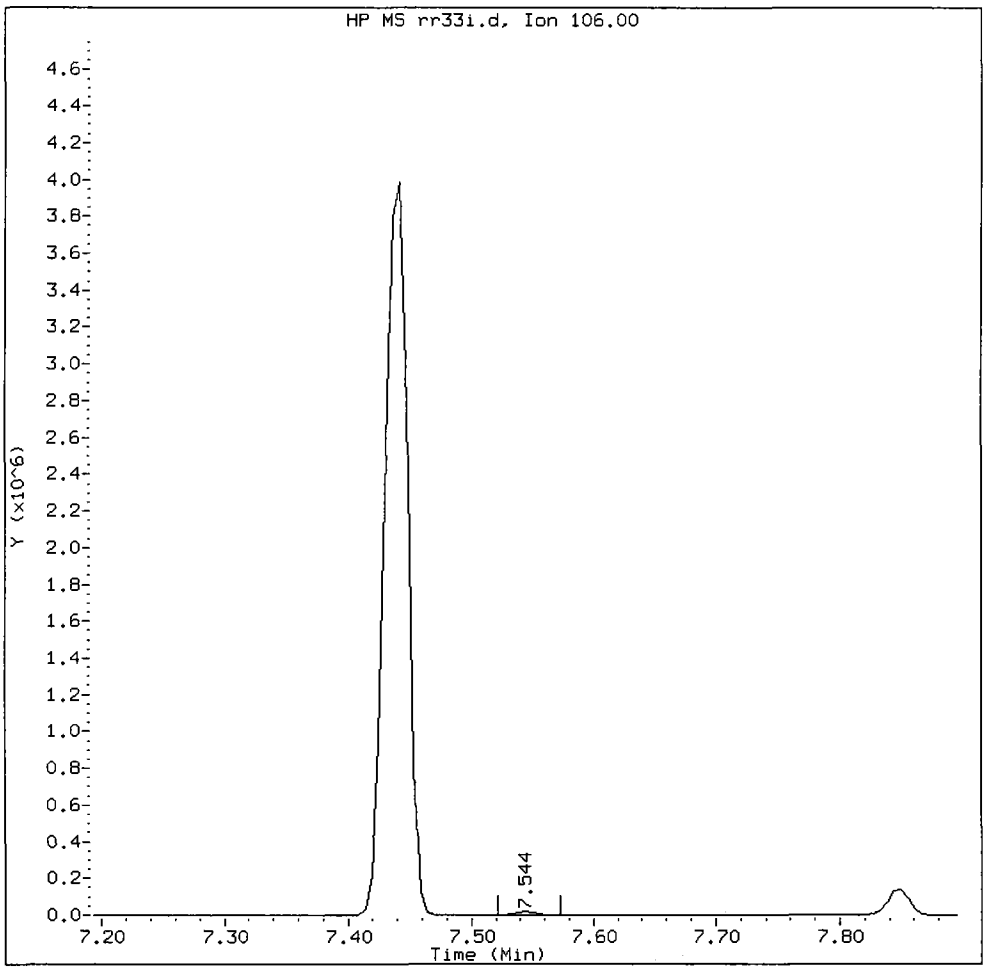






RR33I, /chem1/nt9.i/21OCT10.b/gasco.b/rr33i.d

m,p-xylene Amount: 1.64 Area: 20682



MANUAL INTEGRATION for m,p-xylene

1. Baseline correction
2. Poor chromatography
3. Peak not found
4. Totals calculation

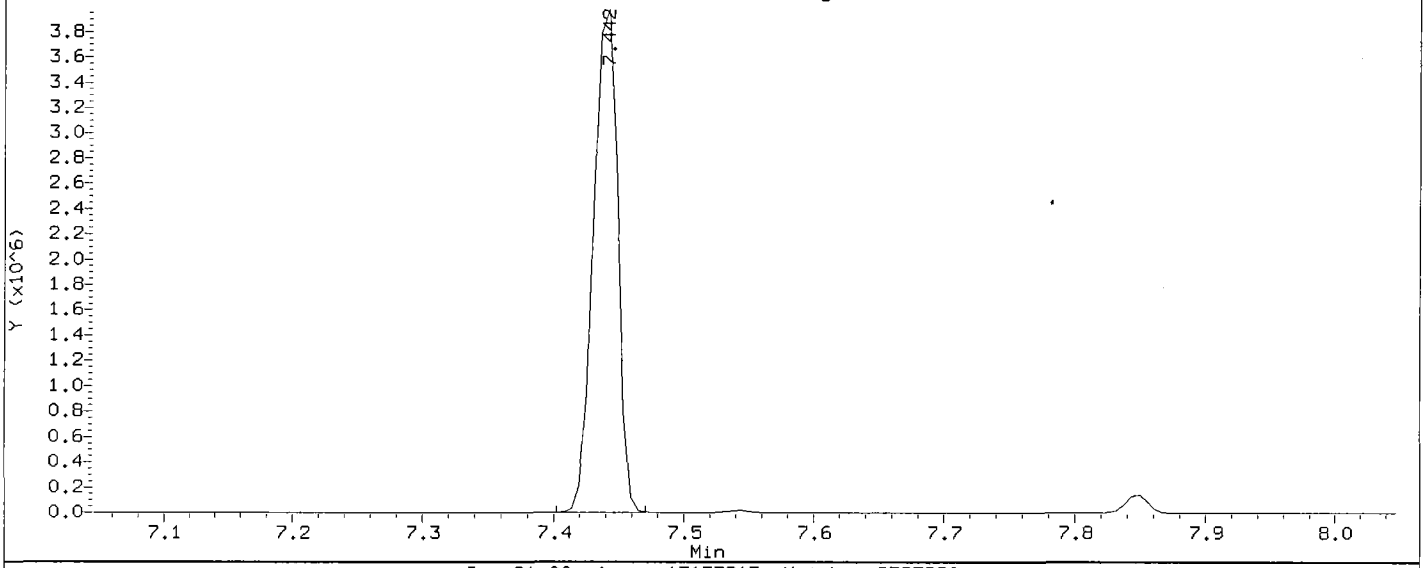
5. Other _____

Analyst: _____ Date: 10/27/10

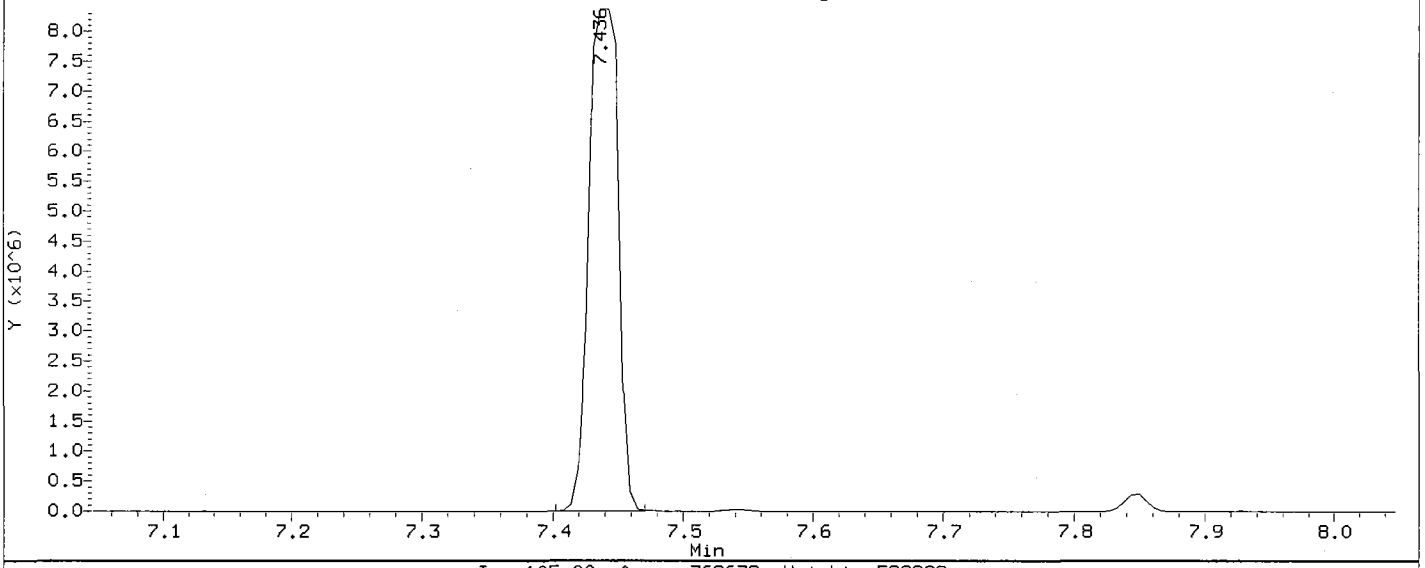
Data File: /chem1/nt9.i/21OCT10.b/SampleInfo/rr33i.d
Injection Date: 21-OCT-2010 13:54
Instrument: nt9.i
Client Sample ID: DGS-07-7.98.4-10101

Compound: m,p-xylene
CAS Number:

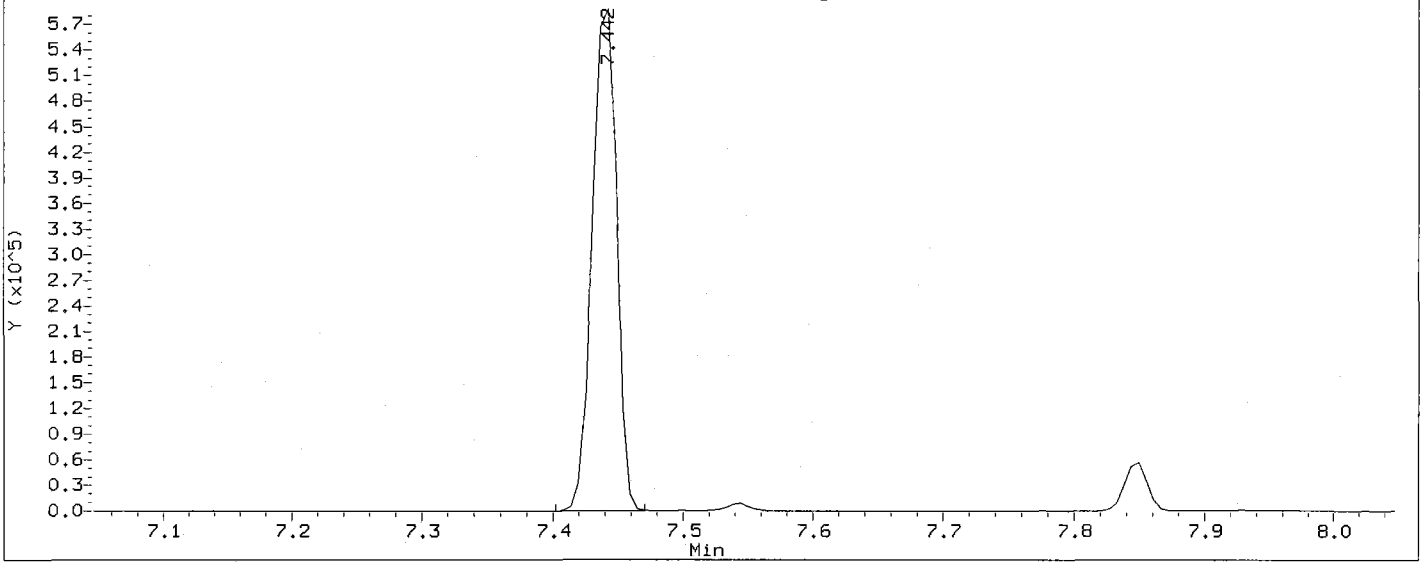
Ion 106.00: Area: 5164445 Height: 3980624



Ion 91.00: Area: 13173215 Height: 8385990



Ion 105.00: Area: 769639 Height: 588288



Analytical Resources, Inc.

8260C

Data file : /chem1/nt9.i/21OCT10.b/gasco.b/rr33j.d
Lab Smp Id: RR33J Client Smp ID: DGS-07-8.79.1-10101
Inj Date : 21-OCT-2010 14:25
Operator : PB Inst ID: nt9.i
Smp Info : RR33J,5,6.08,0
Misc Info : 10-26428
Comment :
Method : /chem1/nt9.i/21OCT10.b/gasco.b/VO063010S.m
Meth Date : 27-Oct-2010 11:08 patrickb Quant Type: ISTD
Cal Date : 28-AUG-2010 13:21 Cal File: 2000828.d
Als bottle: 1
Dil Factor: 1.00000
Integrator: HP RTE Compound Sublist: gasco.sub
Target Version: 3.50
Processing Host: cserv3

Concentration Formula: Amt * DF * Pv * 1 / (Sa * ((100 - M) / 100)) * CpndVaria

Name	Value	Description
DF	1.00000	Dilution Factor
Pv	5.00000	Purge Volume
Sa	6.08000	Sample Amount
M	0.00000	% Moisture (not decanted)

Cpnd Variable Local Compound Variable

Compounds	QUANT SIG MASS	RT	EXP RT	REL RT	RESPONSE	CONCENTRATIONS ON-COLUMN (ug/Kg)	FINAL (ug/Kg)
3 Vinyl Chloride	62	Compound Not Detected.					
7 1,1-Dichloroethene	96	Compound Not Detected.					
15 Trans-1,2-Dichloroethene	96	Compound Not Detected.					
20 Cis-1,2-Dichloroethene	96	Compound Not Detected.					
* 32 Pentafluorobenzene	168	4.936	4.931	(1.000)	728977	50.0000	
$ 25 Dibromofluoromethane	111	4.529	4.530	(0.917)	267383	49.0531	40.340
$ 31 d4-1,2-Dichloroethane	65	4.936	4.937	(1.000)	301368	53.8516	44.286
30 Benzene	78	4.829	4.829	(0.908)	882572	34.2433	28.161
* 35 1,4-Difluorobenzene	114	5.321	5.321	(1.000)	958296	50.0000	
34 Trichloroethene	95	Compound Not Detected.					
$ 42 d8-Toluene	98	6.305	6.306	(1.185)	1101455	50.7279	41.717
43 Toluene	92	6.345	6.340	(1.192)	73652	4.02131	3.307
44 Tetrachloroethene	166	Compound Not Detected.					
* 52 d5-Chlorobenzene	117	7.397	7.398	(1.000)	874560	50.0000	

Compounds	QUANT SIG MASS	RT	EXP RT	REL RT	RESPONSE	CONCENTRATIONS ON-COLUMN (ug/Kg)	FINAL (ug/Kg)
54 Ethyl Benzene	91	7.437	7.437	(1.005)	12731362	355.211	292.11
56 m,p-xylene	106	7.544	7.545	(1.020)	70322	4.85118	3.989(QM)
57 o-Xylene	106	7.850	7.850	(1.061)	901816	66.7830	54.920
$ 61 4-Bromofluorobenzene	95	8.274	8.274	(1.119)	467714	57.7422	47.485
* 75 d4-1,4-Dichlorobenzene	152	9.111	9.112	(1.000)	490531	50.0000	(QM)
$ 78 d4-1,2-Dichlorobenzene	152	9.433	9.434	(1.035)	447420	52.1785	42.910(QM)

QC Flag Legend

Q - Qualifier signal failed the ratio test.
M - Compound response manually integrated.

Analytical Resources, Inc.

INTERNAL STANDARD COMPOUNDS
AREA AND RT SUMMARY

Instrument ID: nt9.i
Lab File ID: rr33j.d
Lab Smp Id: RR33J
Analysis Type: VOA
Quant Type: ISTD
Operator: PB
Method File: /chem1/nt9.i/21OCT10.b/gasco.b/VO063010S.m
Misc Info: 10-26428

Calibration Date: 21-OCT-2010
Calibration Time: 10:46
Client Smp ID: DGS-07-8.79.1-10101
Level: LOW
Sample Type: Sediment

Test Mode:
Use Initial Calibration Level 5.
If Continuing Cal. use Initial Cal. Level 5

COMPOUND	STANDARD	AREA LIMIT LOWER	AREA LIMIT UPPER	SAMPLE	%DIFF
32 Pentafluorobenzen	704281	352140	1408562	728977	3.51
35 1,4-Difluorobenze	937745	468872	1875490	958296	2.19
52 d5-Chlorobenzene	853013	426506	1706026	874560	2.53
75 d4-1,4-Dichlorobe	503655	251828	1007310	490531	-2.61

COMPOUND	STANDARD	RT LIMIT LOWER	RT LIMIT UPPER	SAMPLE	%DIFF
32 Pentafluorobenzen	4.93	4.43	5.43	4.94	0.10
35 1,4-Difluorobenze	5.32	4.82	5.82	5.32	-0.01
52 d5-Chlorobenzene	7.40	6.90	7.90	7.40	-0.01
75 d4-1,4-Dichlorobe	9.11	8.61	9.61	9.11	-0.01

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.

Analytical Resources, Inc.

RECOVERY REPORT

Client Name: NW Natural
Sample Matrix: SOLID
Lab Smp Id: RR33J
Level: LOW
Data Type: MS DATA
SpikeList File: all.spk
Sublist File: gasco.sub
Method File: /chem1/nt9.i/21OCT10.b/gasco.b/VO063010S.m
Misc Info: 10-26428

Client SDG: RR33
Fraction: VOA
Client Smp ID: DGS-07-8.79.1-10101
Operator: PB
SampleType: SAMPLE
Quant Type: ISTD

SURROGATE COMPOUND	AMOUNT ADDED ug/Kg	AMOUNT RECOVERED ug/Kg	% RECOVERED	LIMITS
$ 25 Dibromofluorometha	50.000	49.053	98.11	30-160
$ 31 d4-1,2-Dichloroeth	50.000	53.852	107.70	75-152
$ 42 d8-Toluene	50.000	50.728	101.46	82-115
$ 61 4-Bromofluorobenze	50.000	57.742	115.48	64-120
$ 78 d4-1,2-Dichloroben	50.000	52.178	104.36	80-120

Data File: /chem1/nt9.i/21OCT10.b/gasco.b/rr33j.d

Date : 21-OCT-2010 14:25

Client ID: DGS-07-8.79.1-10101

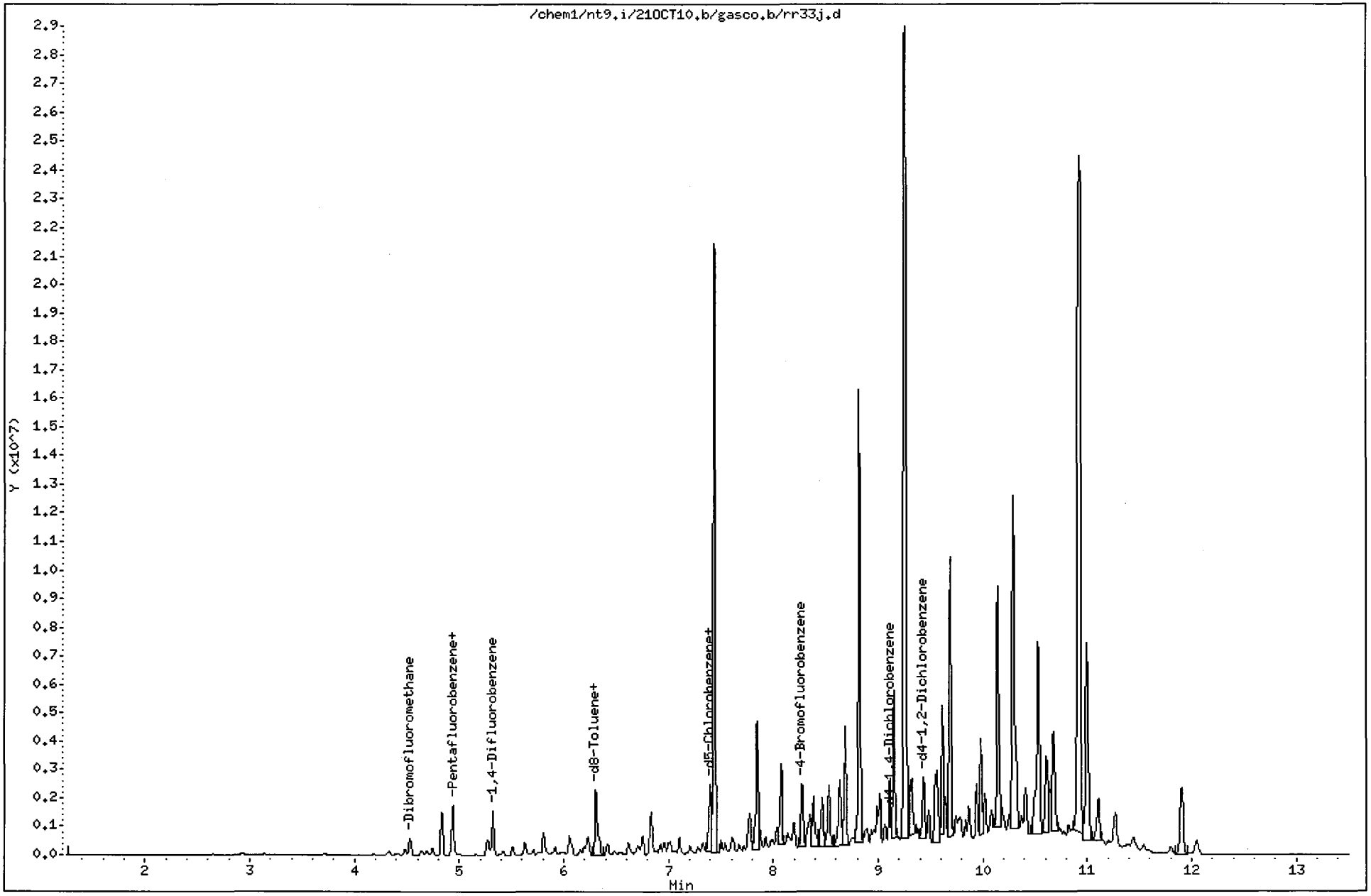
Instrument: nt9.i

Sample Info: RR33J,5,6.08,0

Operator: PB

Column phase: RTX502.2

Column diameter: 0.18



RR33:00268

Data File: /chem1/nt9.i/21OCT10.b/gasco.b/rr33j.d

Date : 21-OCT-2010 14:25

Client ID: DGS-07-8.79.1-10101

Instrument: nt9.i

Sample Info: RR33J,5,6.08,0

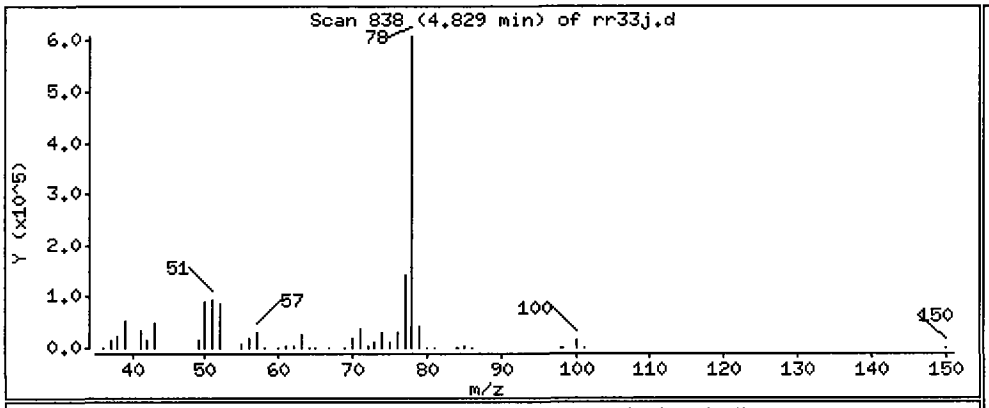
Operator: PB

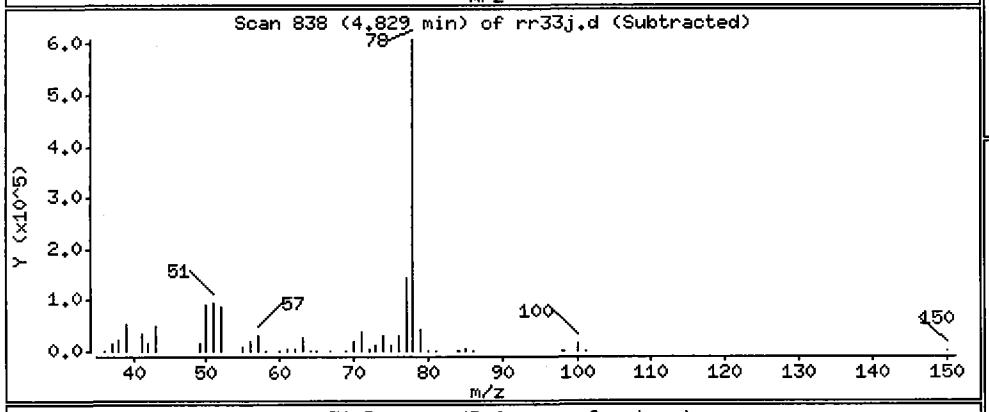
Column phase: RTX502.2

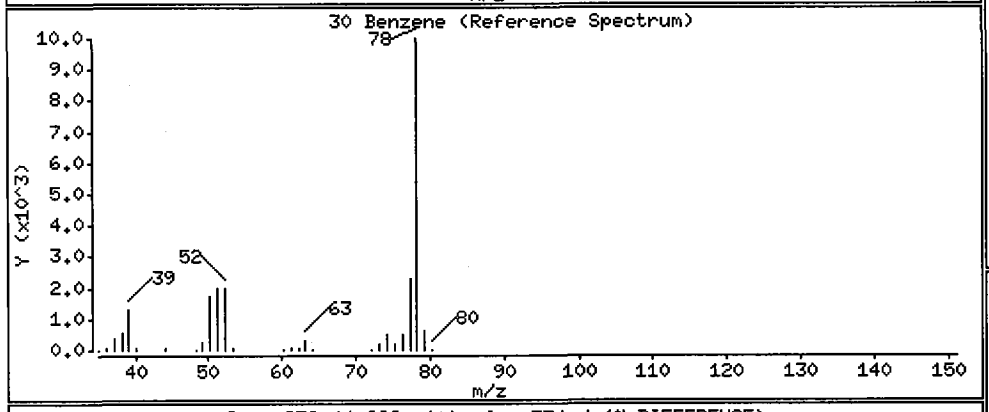
Column diameter: 0.18

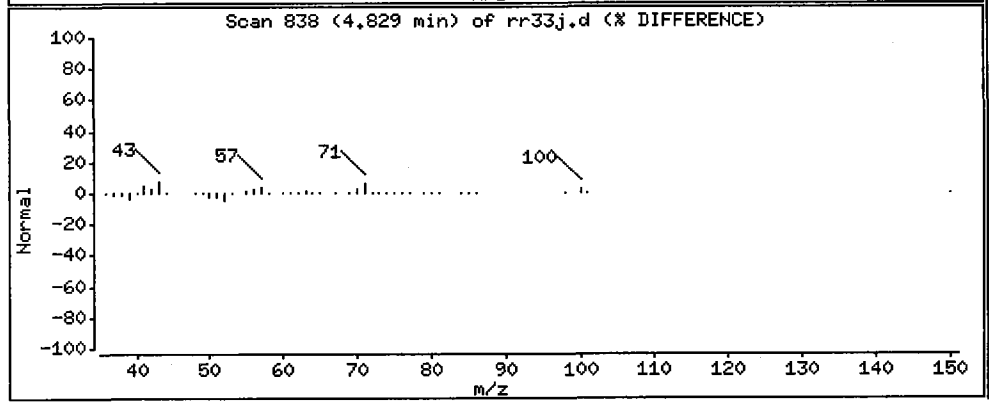
30 Benzene

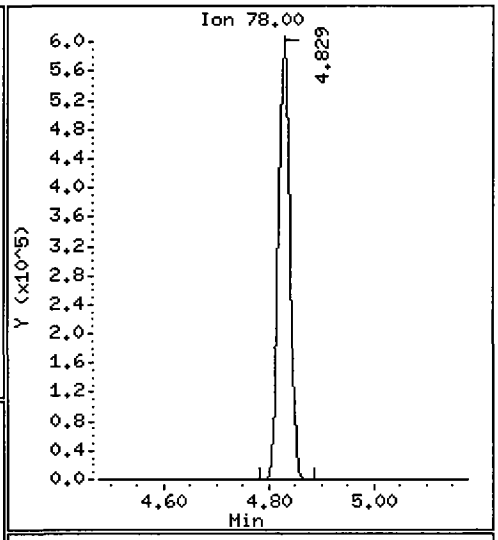
Concentration: 28.161 ug/Kg

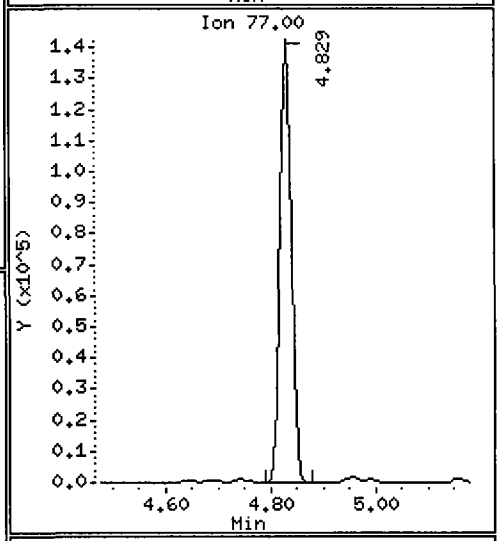


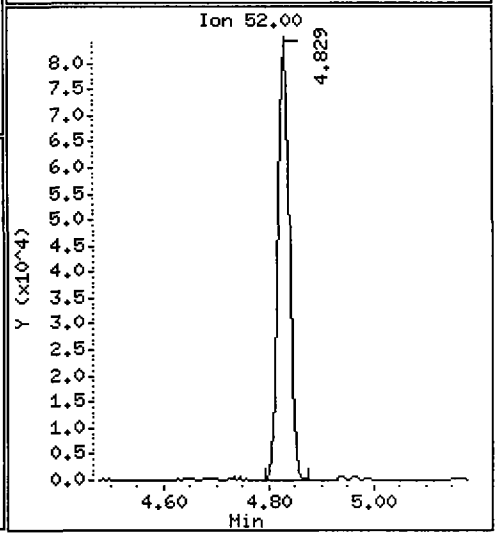












Data File: /chem1/nt9.i/21OCT10.b/gasco.b/rr33j.d

Date : 21-OCT-2010 14:25

Client ID: DGS-07-8.79.1-10101

Instrument: nt9.i

Sample Info: RR33J,5,6.08,0

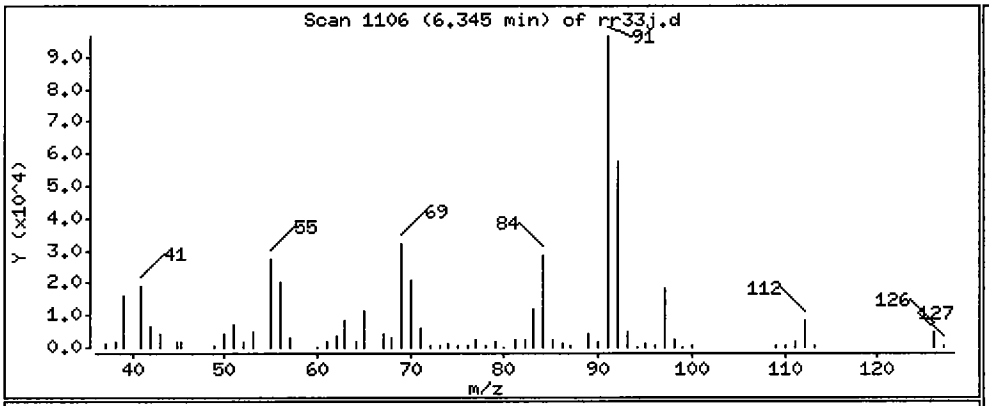
Operator: PB

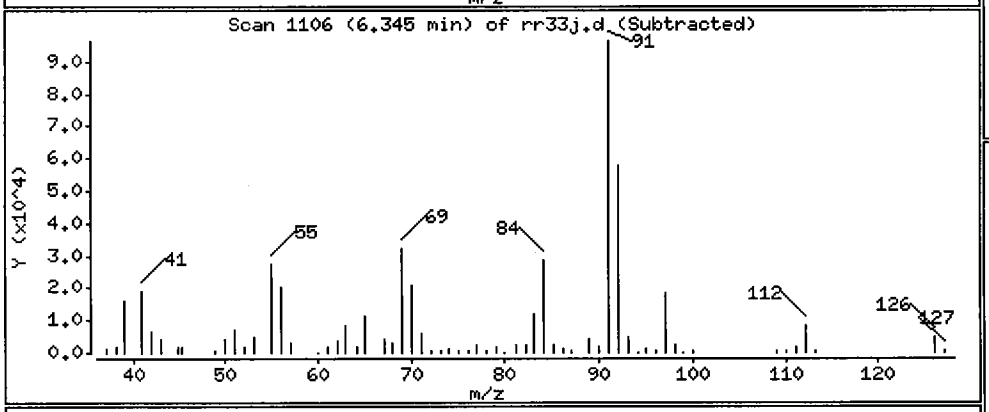
Column phase: RTX502.2

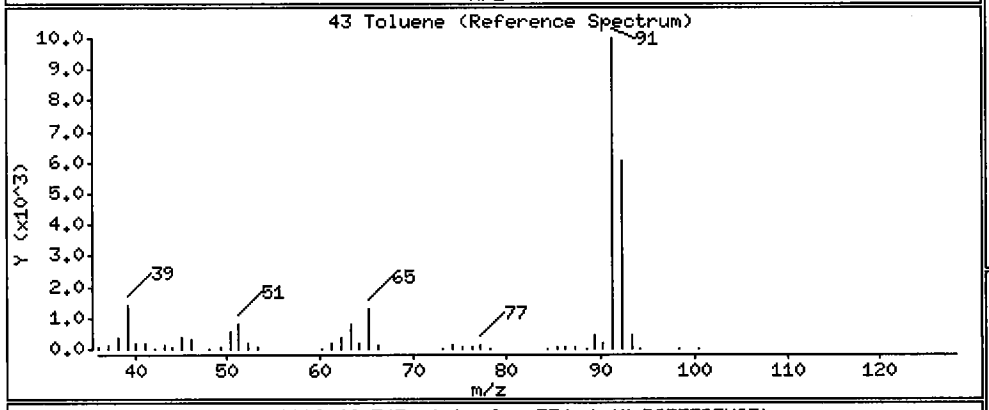
Column diameter: 0.18

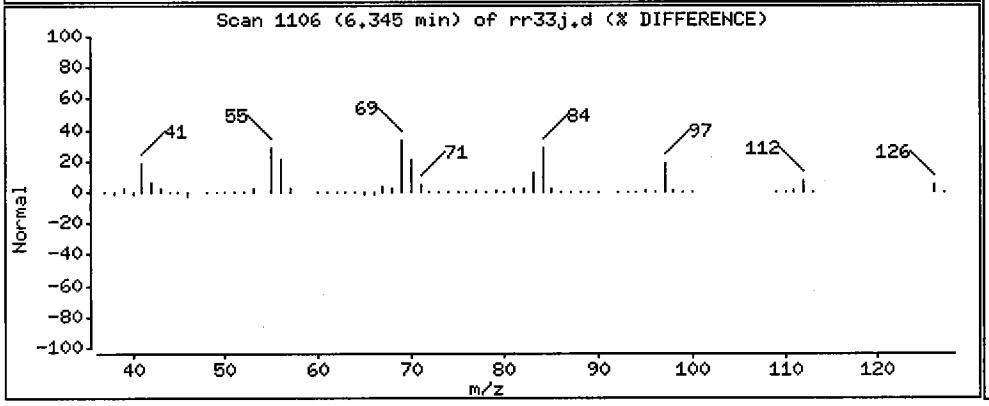
43 Toluene

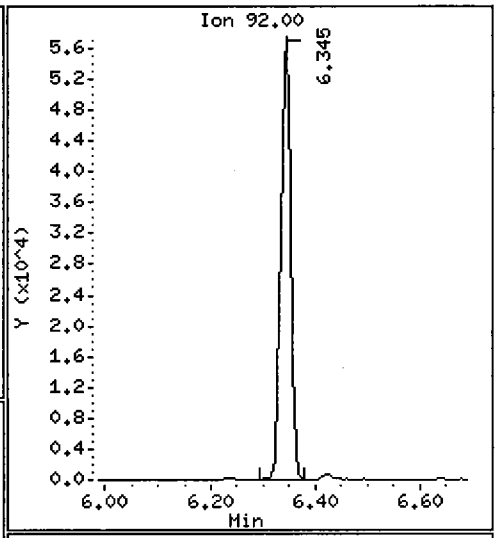
Concentration: 3.307 ug/Kg

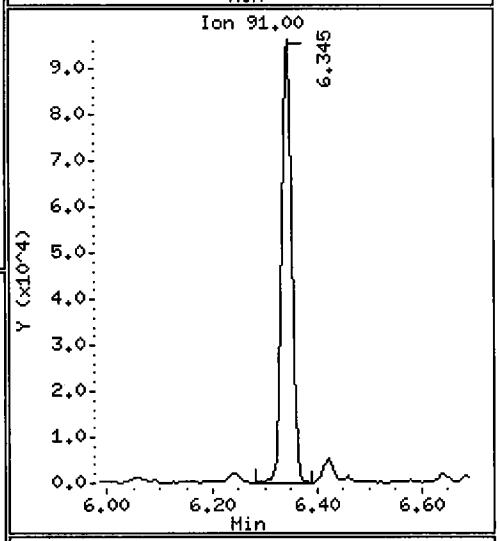


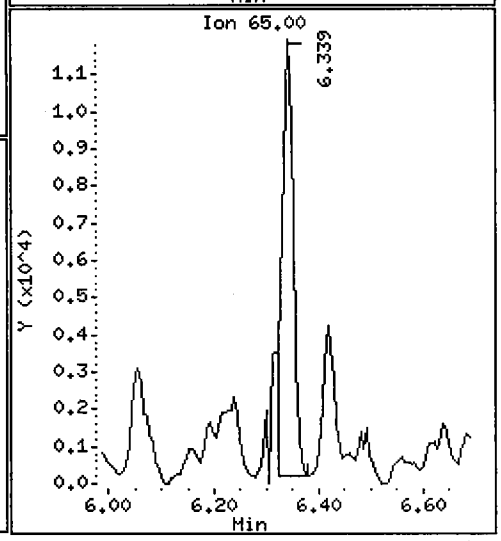












Data File: /chem1/nt9.i/21OCT10.b/gasco.b/rr33j.d

Date : 21-OCT-2010 14:25

Client ID: DGS-07-8.79.1-10101

Instrument: nt9.i

Sample Info: RR33J,5,6.08,0

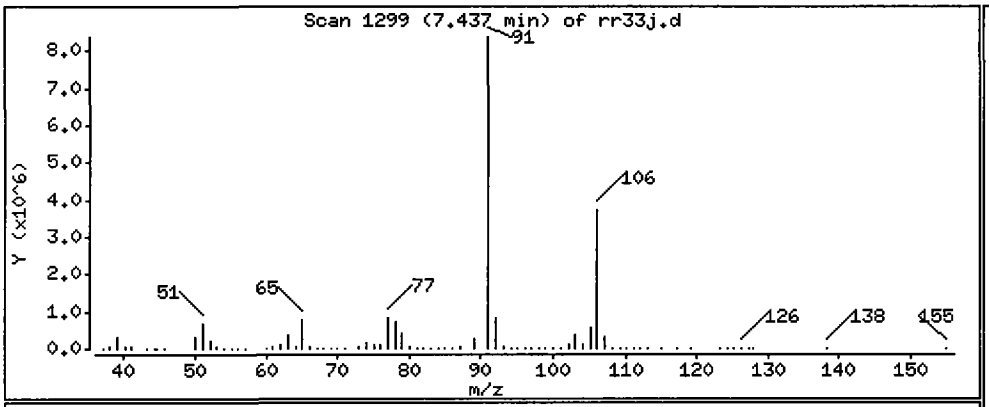
Operator: PB

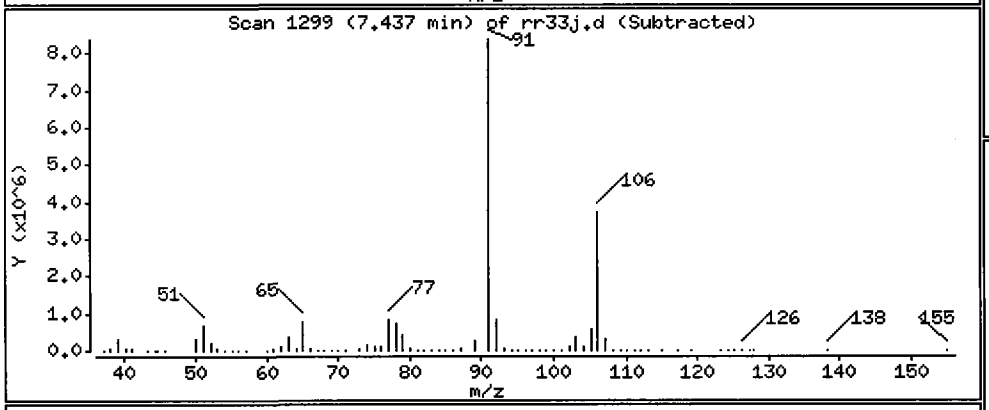
Column phase: RTX502.2

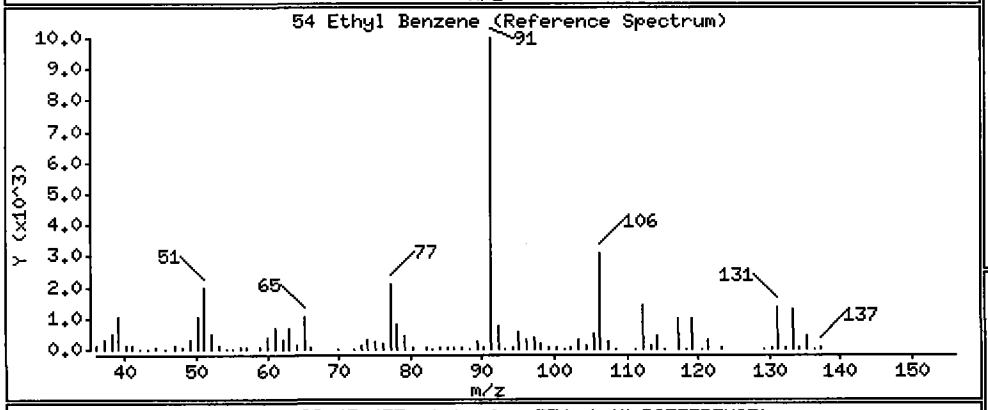
Column diameter: 0.18

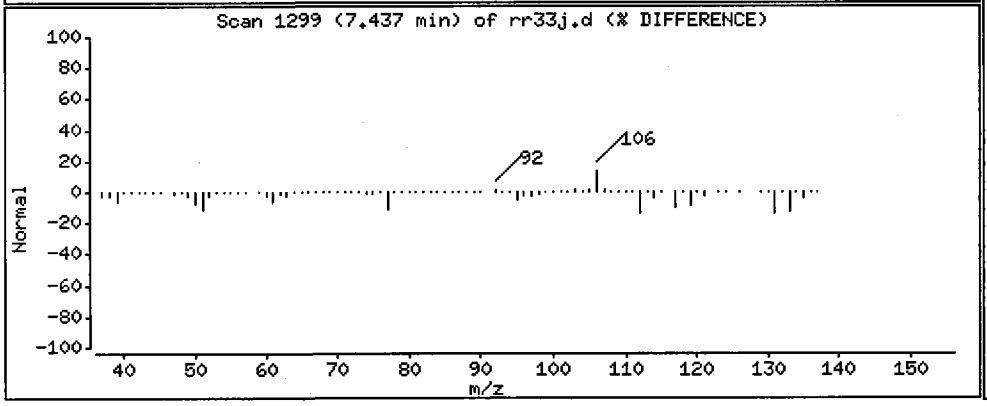
54 Ethyl Benzene

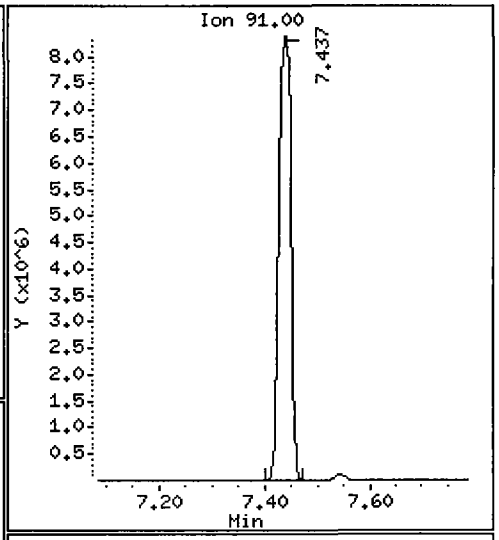
Concentration: 292.11 ug/Kg

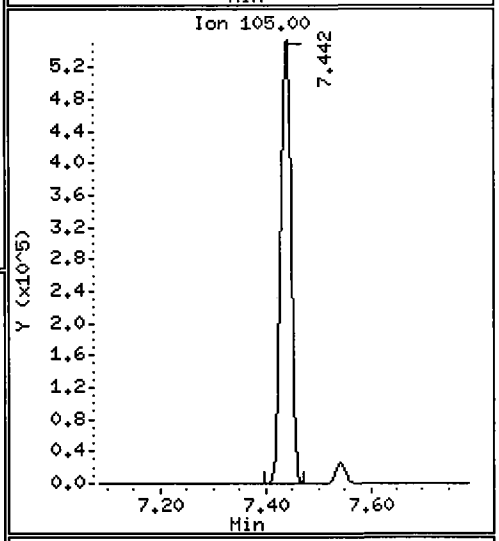


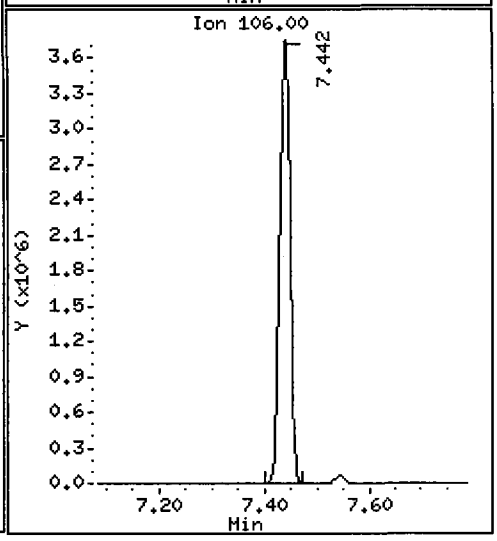












Data File: /chem1/nt9.i/21OCT10.b/gasco.b/rr33j.d

Date : 21-OCT-2010 14:25

Client ID: DGS-07-8.79.1-10101

Instrument: nt9.i

Sample Info: RR33J,5,6.08,0

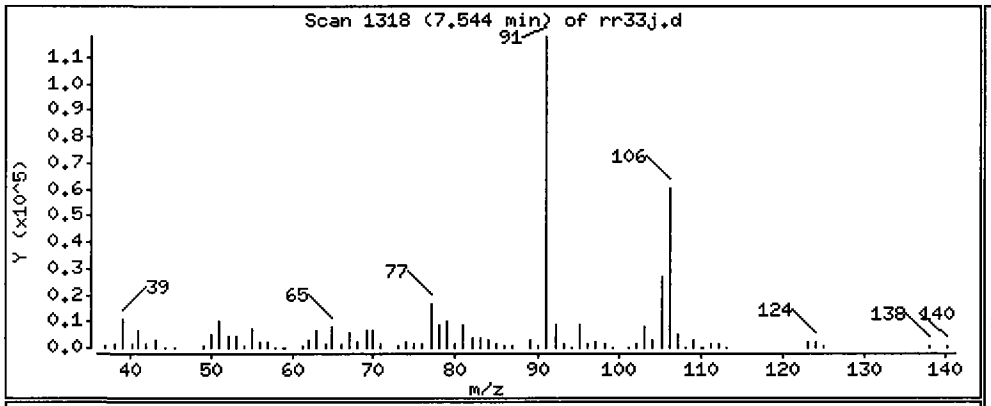
Operator: PB

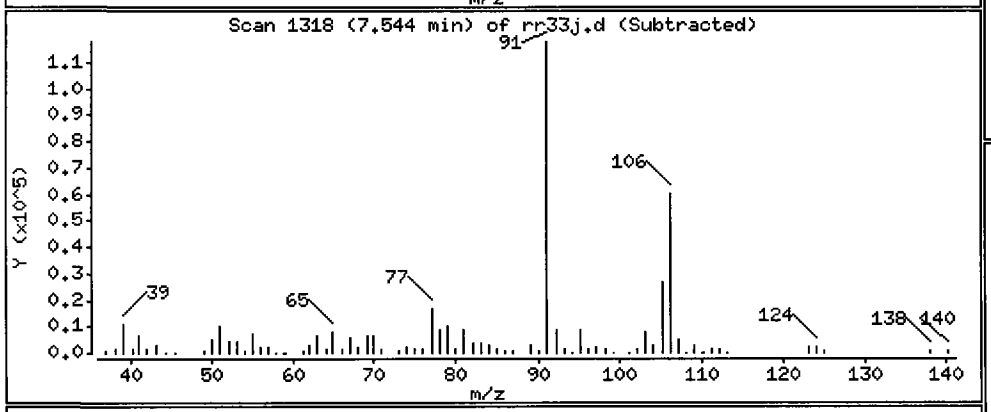
Column phase: RTX502.2

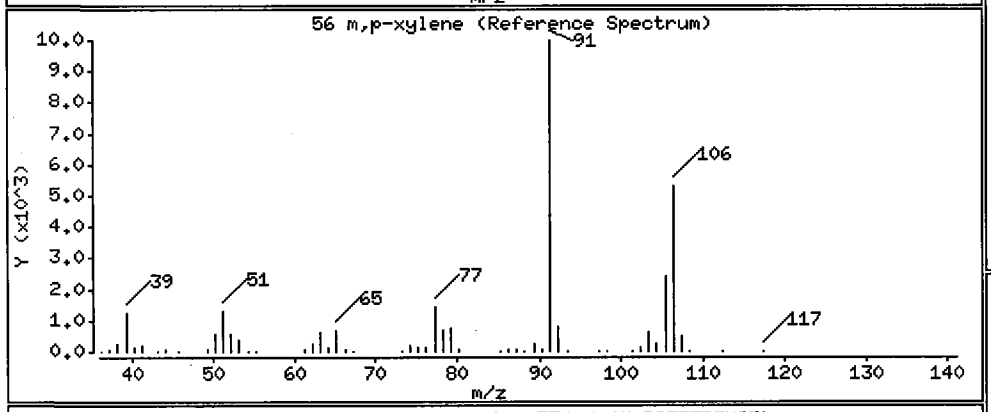
Column diameter: 0.18

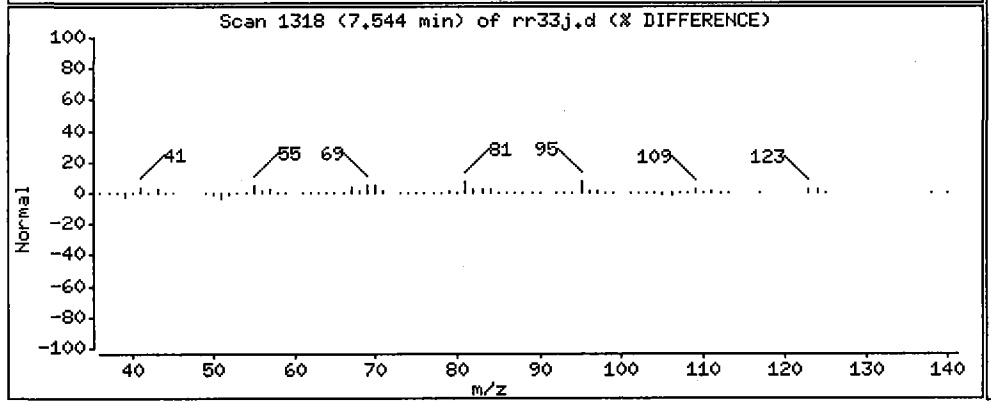
56 m,p-xylene

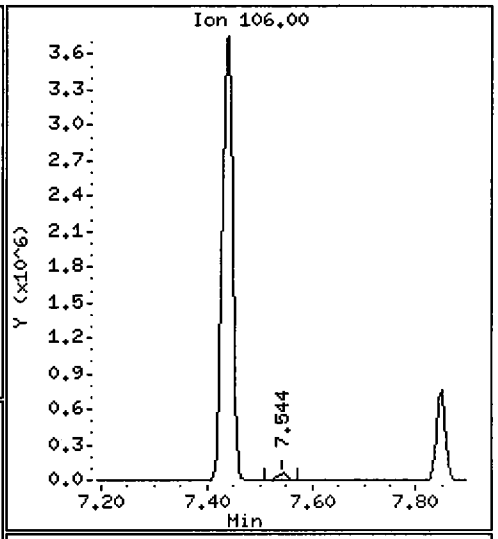
Concentration: 3.989 ug/Kg

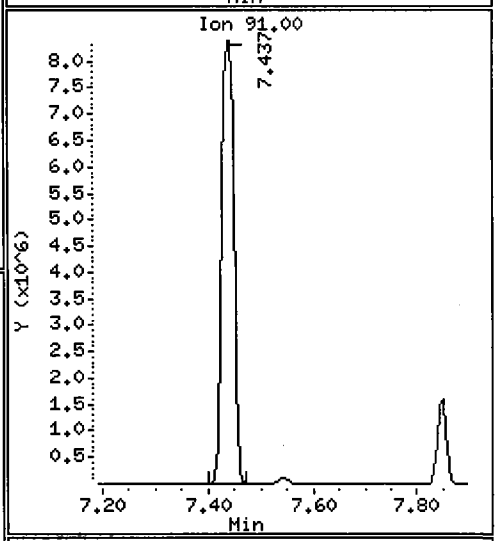


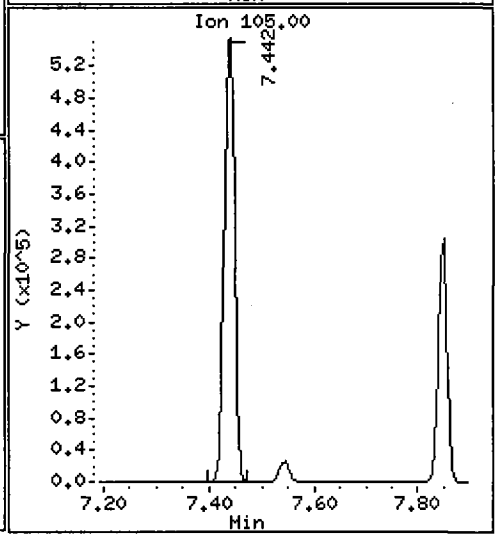












Data File: /chem1/nt9.i/21OCT10.b/gasco.b/rr33j.d

Date : 21-OCT-2010 14:25

Client ID: DGS-07-8.79.1-10101

Instrument: nt9.i

Sample Info: RR33J,5,6.08,0

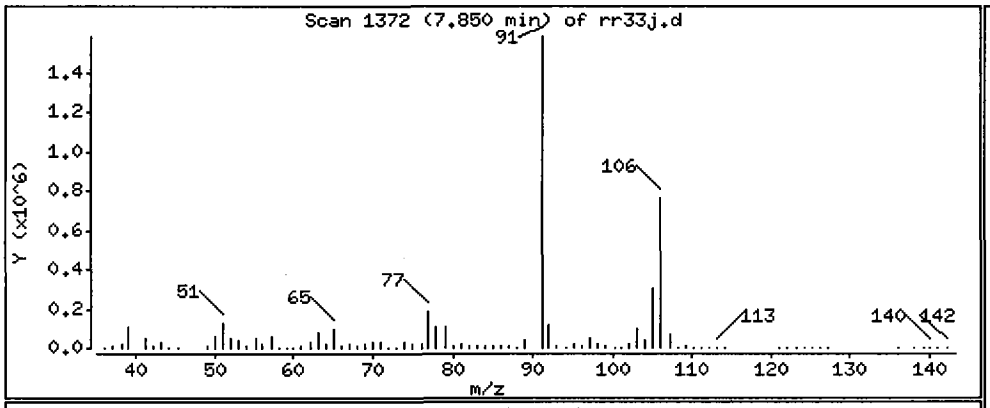
Operator: PB

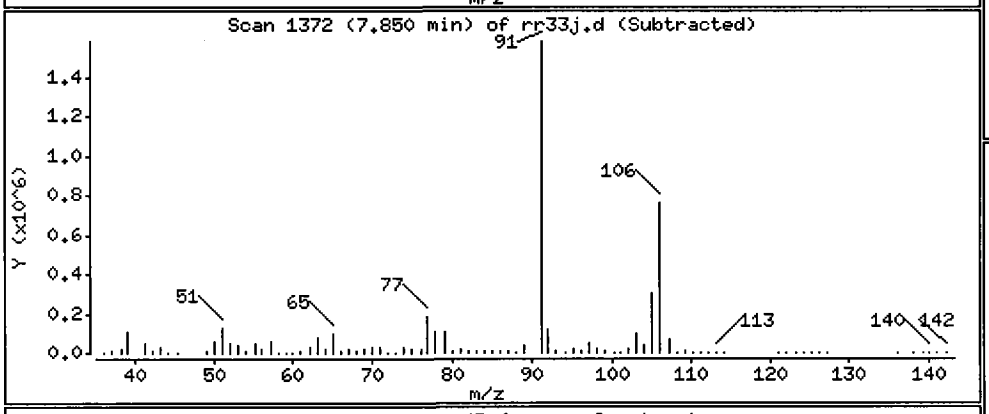
Column phase: RTX502.2

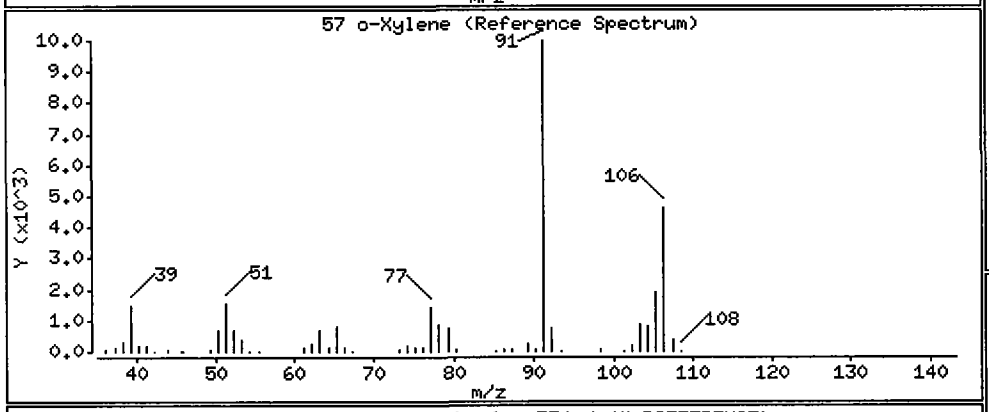
Column diameter: 0.18

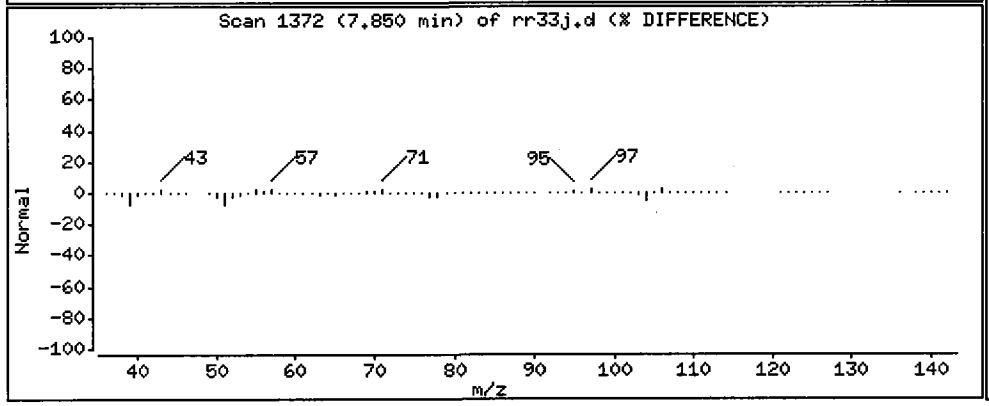
57 o-Xylene

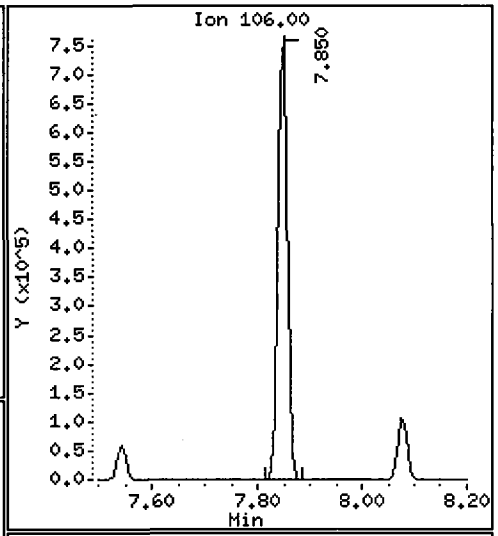
Concentration: 54.920 ug/Kg

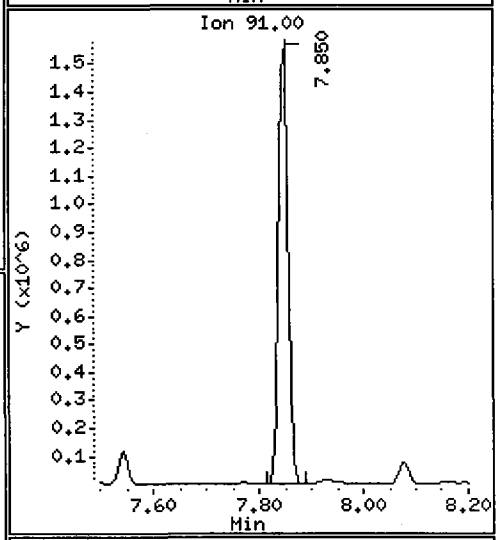


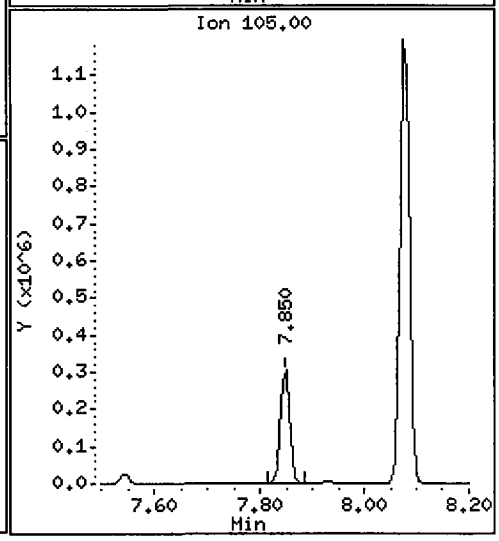






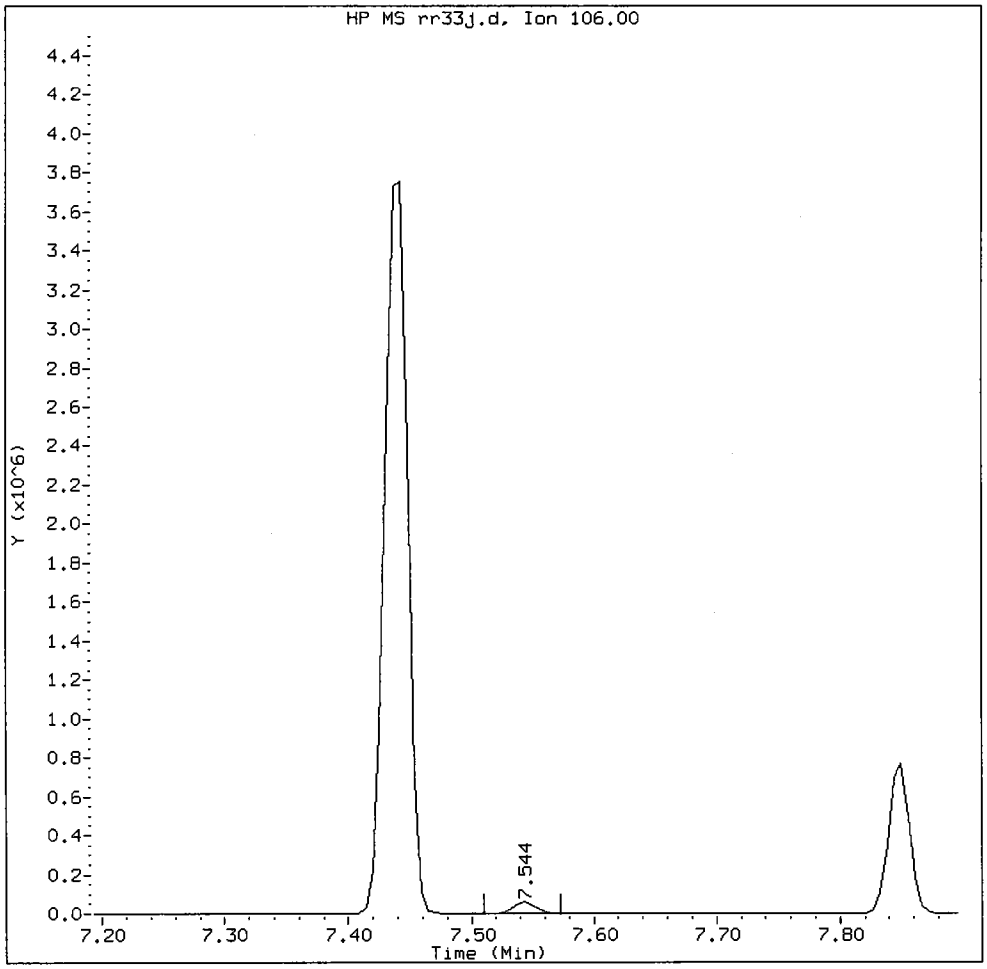






RR33J, /chem1/nt9.i/21OCT10.b/gasco.b/rr33j.d

m,p-xylene Amount: 4.85 Area: 70322



MANUAL INTEGRATION for m,p-xylene

1. Baseline correction
2. Poor chromatography
3. Peak not found
4. Totals calculation

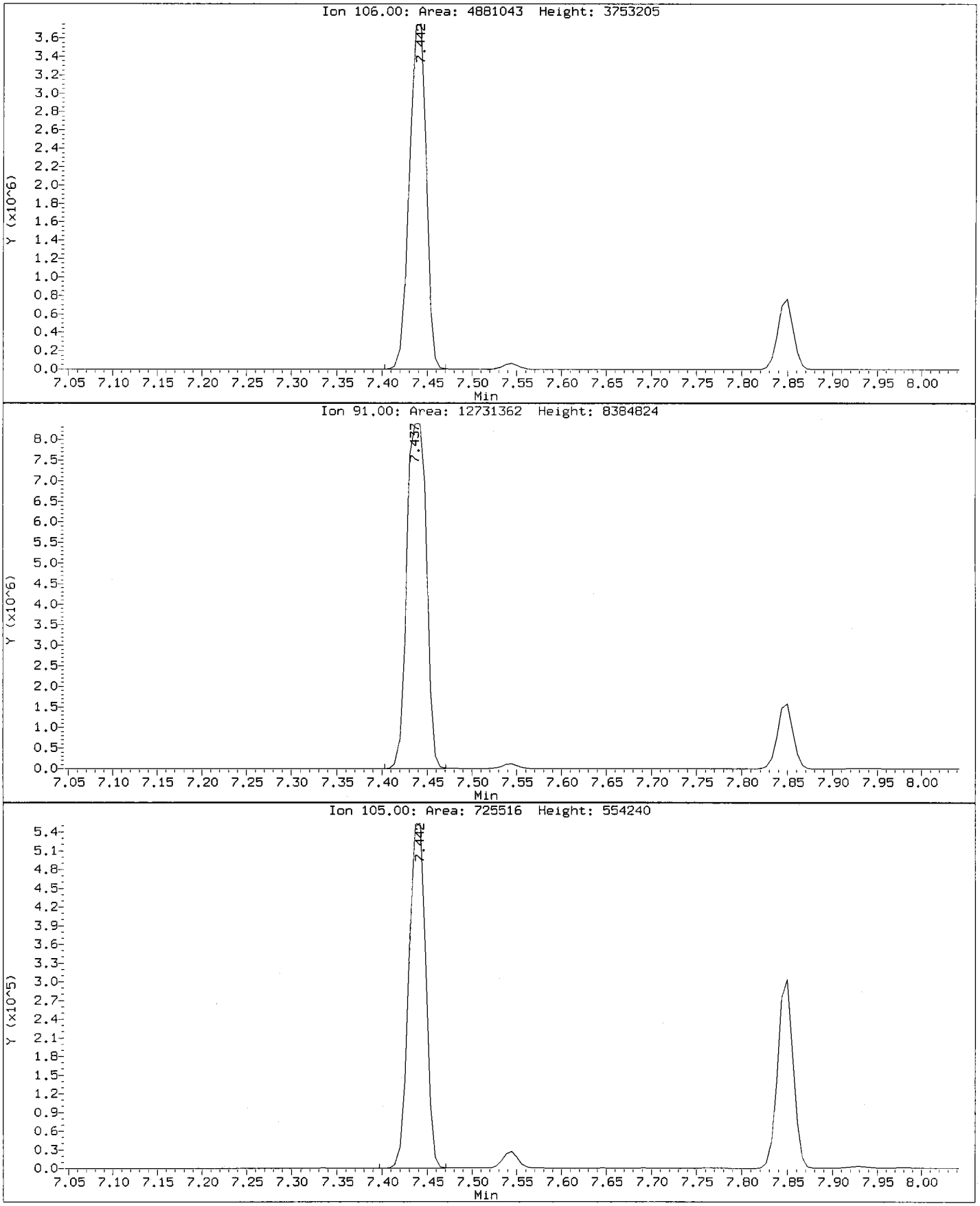
5. Other _____

Analyst: _____ Date: 10/27

Data File: /chem1/nt9.i/21OCT10.b/SampleInfo/rr33j.d
Injection Date: 21-OCT-2010 14:25
Instrument: nt9.i
Client Sample ID: DGS-07-8.79.1-10101

Compound: m,p-xylene
CAS Number:

11/0/2010



Analytical Resources, Inc.

8260C

Data file : /chem1/nt9.i/21OCT10.b/gasco.b/rr33k.d
Lab Smp Id: RR33K Client Smp ID: DGS-07-9.710-101012
Inj Date : 21-OCT-2010 14:55
Operator : PB Inst ID: nt9.i
Smp Info : RR33K,5,2.60,0
Misc Info : 10-26429
Comment :
Method : /chem1/nt9.i/21OCT10.b/gasco.b/VO063010S.m
Meth Date : 27-Oct-2010 11:08 patrickb Quant Type: ISTD
Cal Date : 28-AUG-2010 13:21 Cal File: 2000828.d
Als bottle: 1
Dil Factor: 1.00000
Integrator: HP RTE Compound Sublist: gasco.sub
Target Version: 3.50
Processing Host: cserv3

Concentration Formula: Amt * DF * Pv * 1 / (Sa * ((100 - M) / 100)) * CpndVaria

Name	Value	Description
DF	1.00000	Dilution Factor
Pv	5.00000	Purge Volume
Sa	2.60000	Sample Amount
M	0.00000	% Moisture (not decanted)

Cpnd Variable Local Compound Variable

Compounds	QUANT SIG MASS	RT	EXP RT	REL RT	RESPONSE	CONCENTRATIONS ON-COLUMN (ug/Kg)	FINAL (ug/Kg)
3 Vinyl Chloride	62	Compound Not Detected.					
7 1,1-Dichloroethene	96	Compound Not Detected.					
15 Trans-1,2-Dichloroethene	96	Compound Not Detected.					
20 Cis-1,2-Dichloroethene	96	Compound Not Detected.					
* 32 Pentafluorobenzene	168	4.934	4.931	(1.000)	338507	50.0000	
$ 25 Dibromofluoromethane	111	4.527	4.530	(0.917)	159210	62.8998	120.96
$ 31 d4-1,2-Dichloroethane	65	4.940	4.937	(1.001)	182362	70.1750	134.95
30 Benzene	78	4.832	4.829	(0.909)	3422980	245.902	472.89
* 35 1,4-Difluorobenzene	114	5.319	5.321	(1.000)	517568	50.0000	
34 Trichloroethene	95	Compound Not Detected.					
$ 42 d8-Toluene	98	6.308	6.306	(1.186)	516269	44.0239	84.661
43 Toluene	92	6.342	6.340	(1.192)	192215	19.4314	37.368
44 Tetrachloroethene	166	Compound Not Detected.					
* 52 d5-Chlorobenzene	117	7.400	7.398	(1.000)	374451	50.0000	

Compounds	QUANT SIG MASS	RT	EXP RT	REL RT	RESPONSE	CONCENTRATIONS ON-COLUMN (ug/Kg)	FINAL (ug/Kg)
54 Ethyl Benzene	91	7.434	7.437	(1.005)	18729552	1220.49	2347.1(M) E
56 m,p-xylene	106	7.547	7.545	(1.020)	1612467	259.801	499.62 E
57 o-Xylene	106	7.853	7.850	(1.061)	5420234	937.476	1802.8 E
$ 61 4-Bromofluorobenzene	95	8.277	8.274	(1.118)	561353	161.861	311.27(QR)
* 75 d4-1,4-Dichlorobenzene	152	9.126	9.112	(1.000)	165423	50.0000	(Q)
$ 78 d4-1,2-Dichlorobenzene	152	9.352	9.434	(1.025)	60475	20.9133	40.218(QR)

QC Flag Legend

Q - Qualifier signal failed the ratio test.
R - Spike/Surrogate failed recovery limits.
M - Compound response manually integrated.

Analytical Resources, Inc.

INTERNAL STANDARD COMPOUNDS
AREA AND RT SUMMARY

Instrument ID: nt9.i
Lab File ID: rr33k.d
Lab Smp Id: RR33K
Analysis Type: VOA
Quant Type: ISTD
Operator: PB
Method File: /chem1/nt9.i/21OCT10.b/gasco.b/VO063010S.m
Misc Info: 10-26429

Calibration Date: 21-OCT-2010
Calibration Time: 10:46
Client Smp ID: DGS-07-9.710-101012
Level: LOW
Sample Type: Sediment

Test Mode:
Use Initial Calibration Level 5.
If Continuing Cal. use Initial Cal. Level 5

COMPOUND	STANDARD	AREA LIMIT LOWER	AREA LIMIT UPPER	SAMPLE	%DIFF
32 Pentafluorobenzen	704281	352140	1408562	338507	-51.94
35 1,4-Difluorobenze	937745	468872	1875490	517568	-44.81
52 d5-Chlorobenzene	853013	426506	1706026	374451	-56.10
75 d4-1,4-Dichlorobe	503655	251828	1007310	165423	-67.16

COMPOUND	STANDARD	RT LIMIT LOWER	RT LIMIT UPPER	SAMPLE	%DIFF
32 Pentafluorobenzen	4.93	4.43	5.43	4.93	0.06
35 1,4-Difluorobenze	5.32	4.82	5.82	5.32	-0.06
52 d5-Chlorobenzene	7.40	6.90	7.90	7.40	0.04
75 d4-1,4-Dichlorobe	9.11	8.61	9.61	9.13	0.15

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.

Analytical Resources, Inc.

RECOVERY REPORT

Client Name: NW Natural
Sample Matrix: SOLID
Lab Smp Id: RR33K
Level: LOW
Data Type: MS DATA
SpikeList File: all.spk
Sublist File: gasco.sub
Method File: /chem1/nt9.i/21OCT10.b/gasco.b/VO063010S.m
Misc Info: 10-26429

Client SDG: RR33
Fraction: VOA
Client Smp ID: DGS-07-9.710-101012
Operator: PB
SampleType: SAMPLE
Quant Type: ISTD

SURROGATE COMPOUND	AMOUNT ADDED ug/Kg	AMOUNT RECOVERED ug/Kg	% RECOVERED	LIMITS
$ 25 Dibromofluorometha	50.000	62.900	125.80	30-160
$ 31 d4-1,2-Dichloroeth	50.000	70.175	140.35	75-152
$ 42 d8-Toluene	50.000	44.024	88.05	82-115
$ 61 4-Bromofluorobenze	50.000	161.86	323.72*	64-120
$ 78 d4-1,2-Dichloroben	50.000	20.913	41.83*	80-120

Data File: /chem1/nt9.i/21OCT10.b/gasco.b/rr33k.d

Date : 21-OCT-2010 14:55

Client ID: DGS-07-9.710-101012

Sample Info: RR33K,5,2.60,0

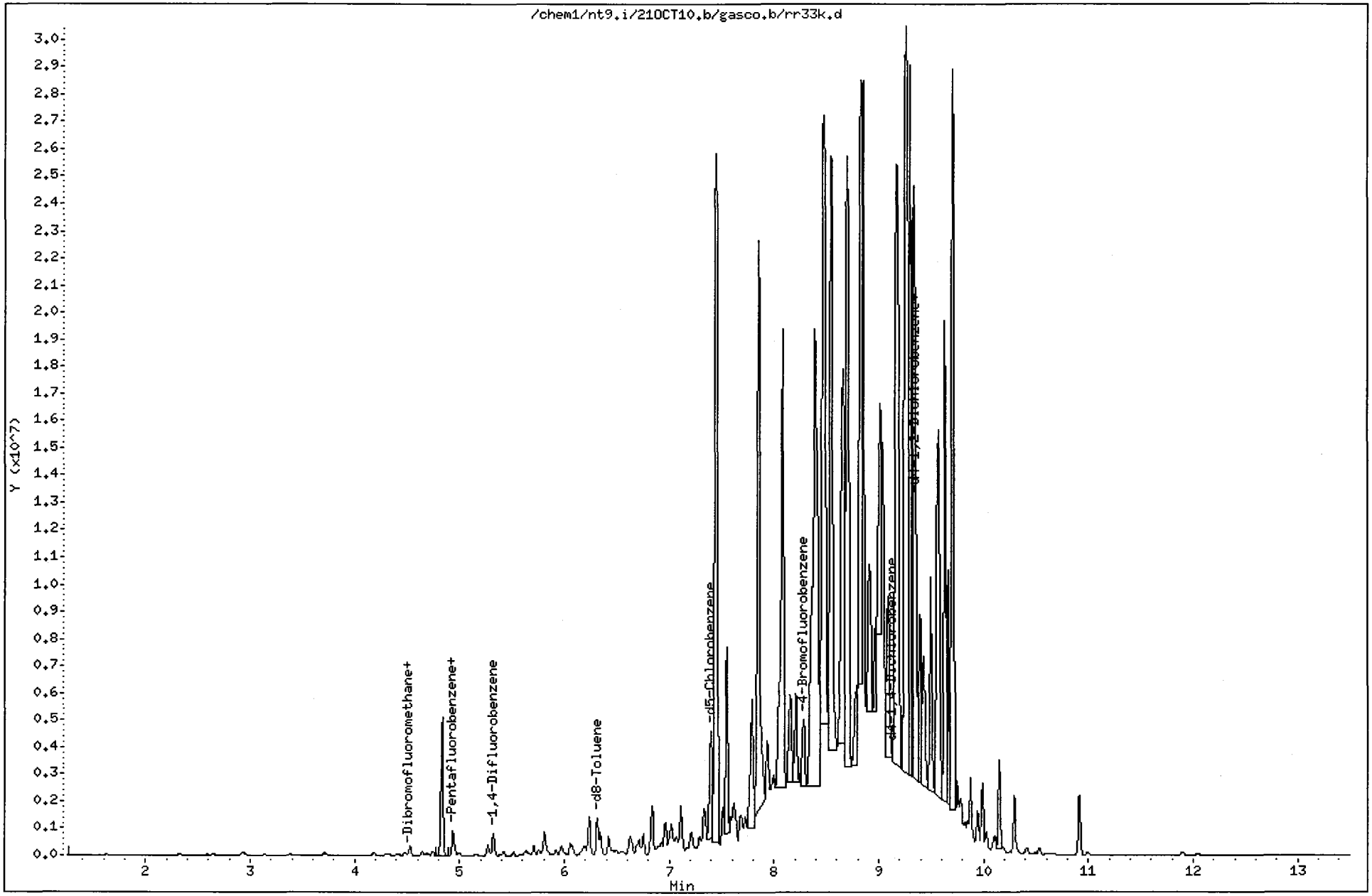
Column phase: RTX502.2

Instrument: nt9.i

Operator: PB

Column diameter: 0.18

RR33:00280



Data File: /chem1/nt9.i/21OCT10.b/gasco.b/rr33k.d

Date : 21-OCT-2010 14:55

Client ID: DGS-07-9.710-101012

Instrument: nt9.i

Sample Info: RR33K,5,2.60,0

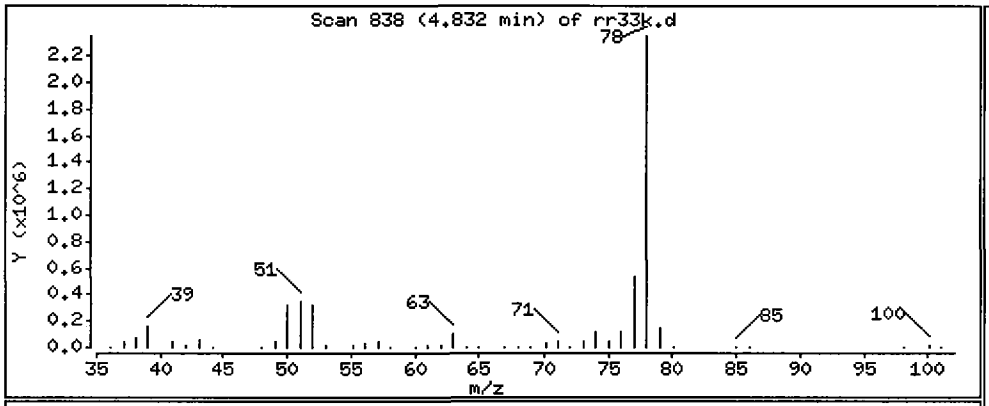
Operator: PB

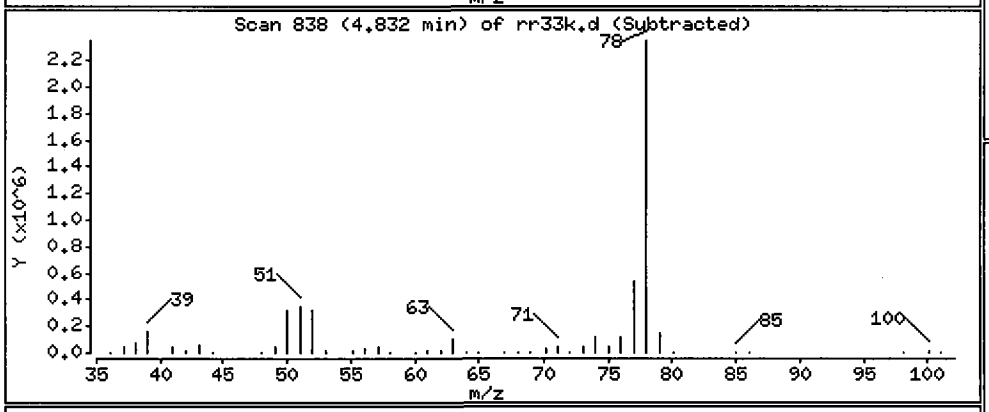
Column phase: RTX502.2

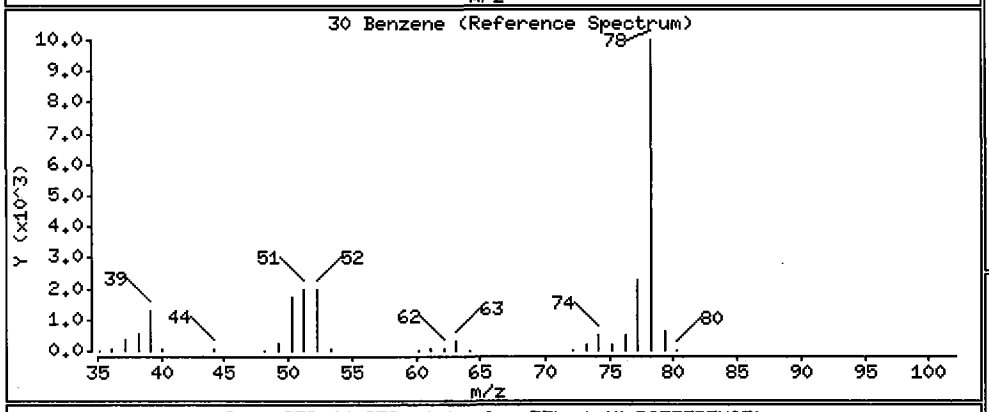
Column diameter: 0.18

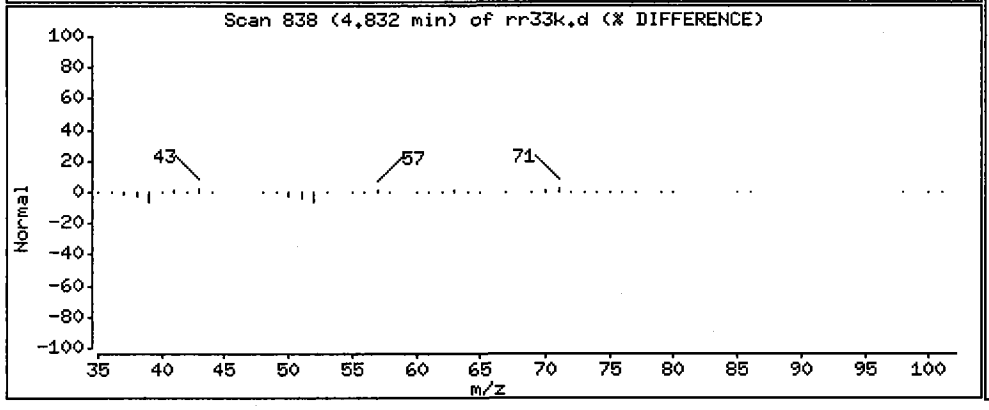
30 Benzene

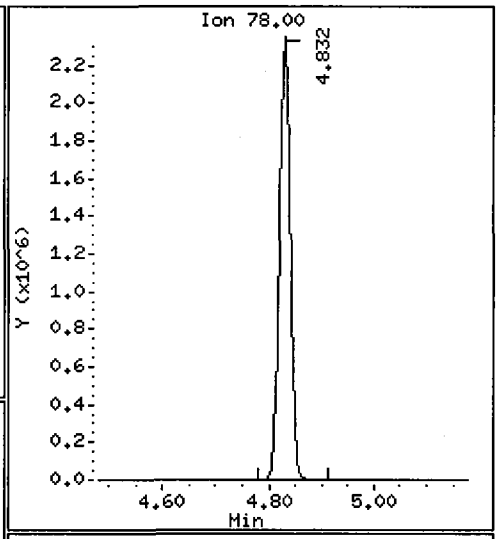
Concentration: 472.89 ug/Kg

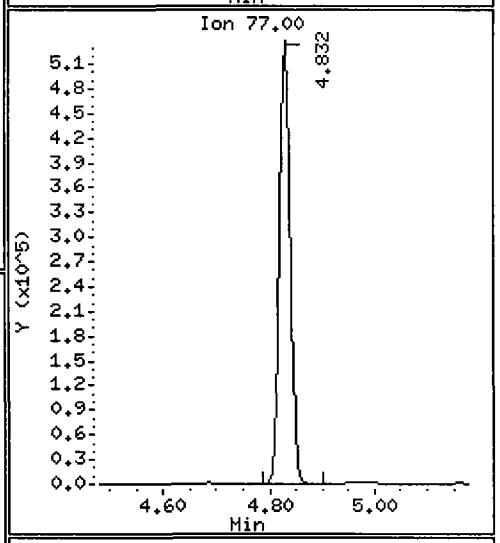


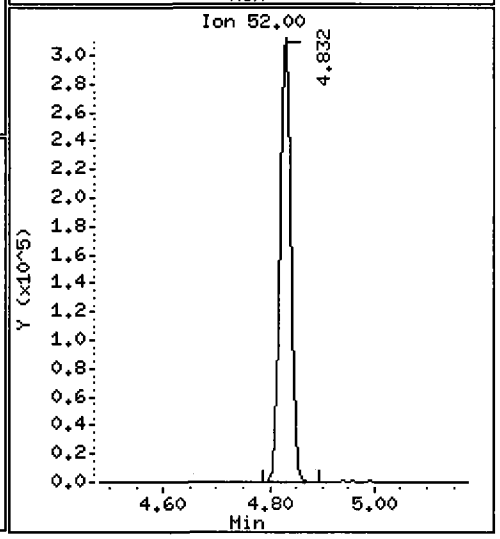












Data File: /chem1/nt9.i/21OCT10.b/gasco.b/rr33k.d

Date : 21-OCT-2010 14:55

Client ID: DGS-07-9.710-101012

Instrument: nt9.i

Sample Info: RR33K,5,2.60,0

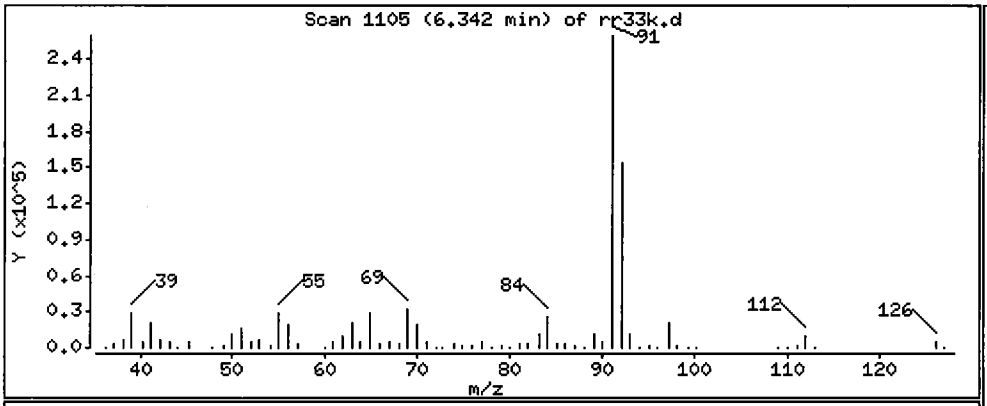
Operator: PB

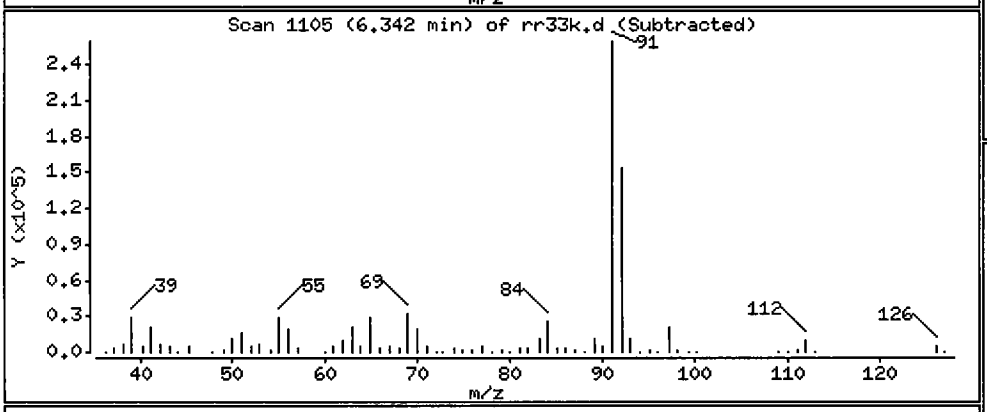
Column phase: RTX502.2

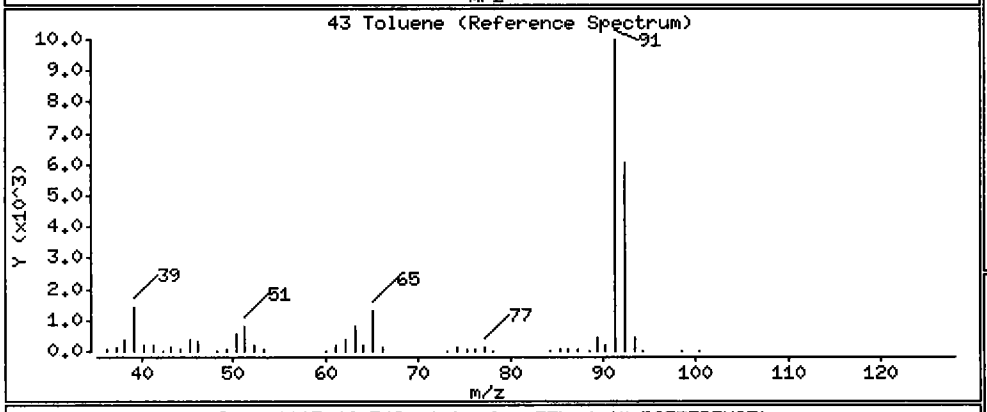
Column diameter: 0.18

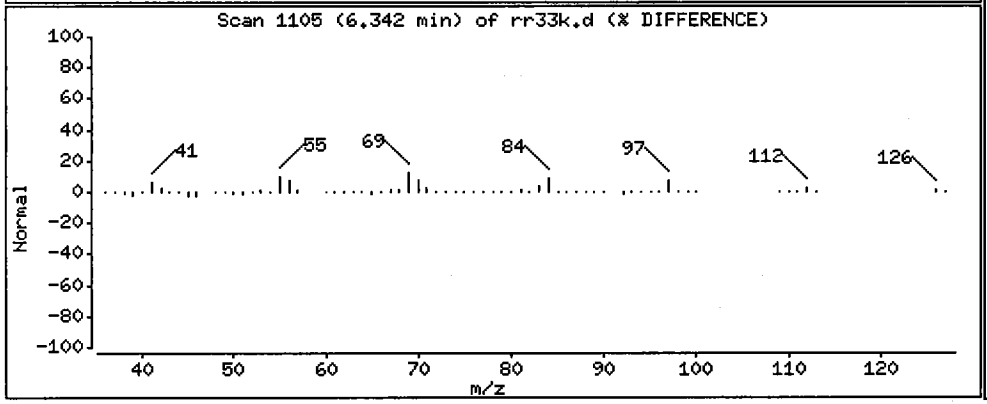
43 Toluene

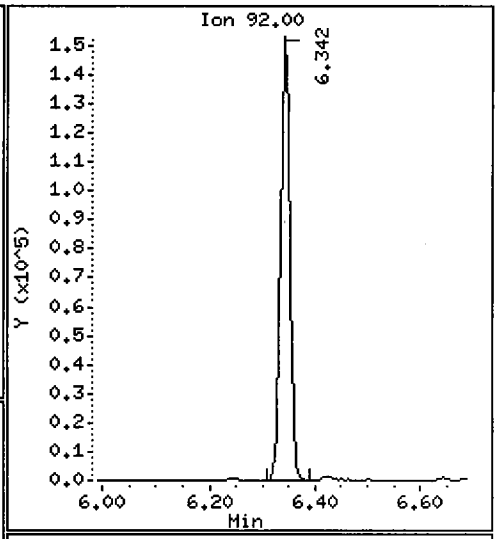
Concentration: 37.368 ug/Kg

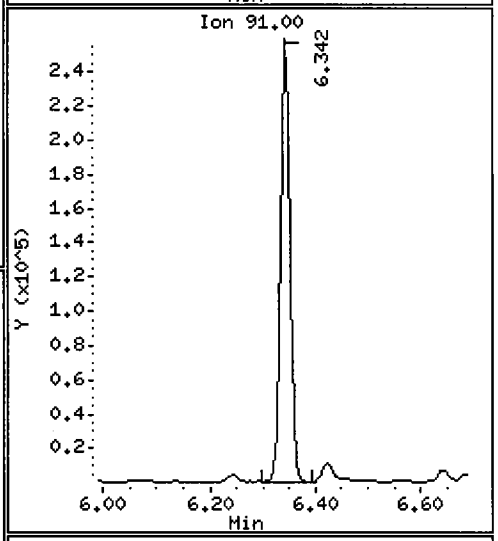


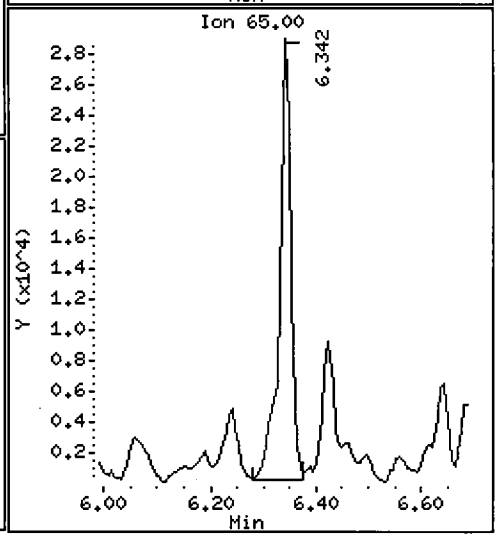












Data File: /chem1/nt9.i/21OCT10.b/gasco.b/rr33k.d

Date : 21-OCT-2010 14:55

Client ID: DGS-07-9.710-101012

Instrument: nt9.i

Sample Info: RR33K,5,2.60,0

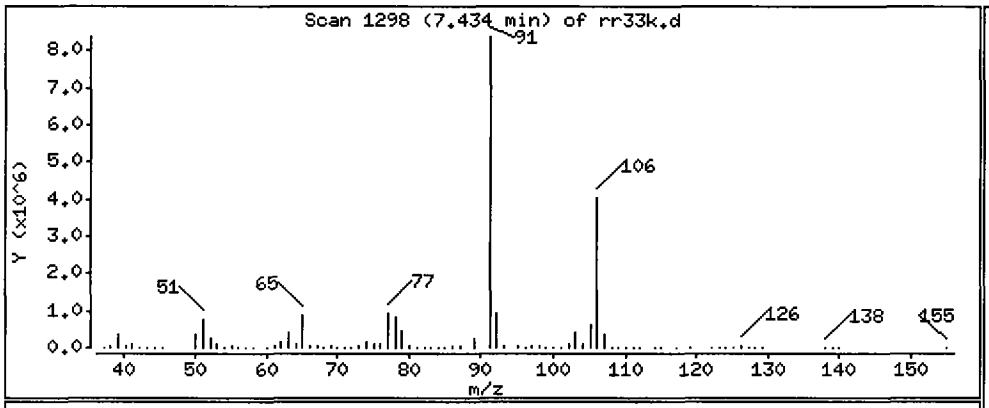
Operator: PB

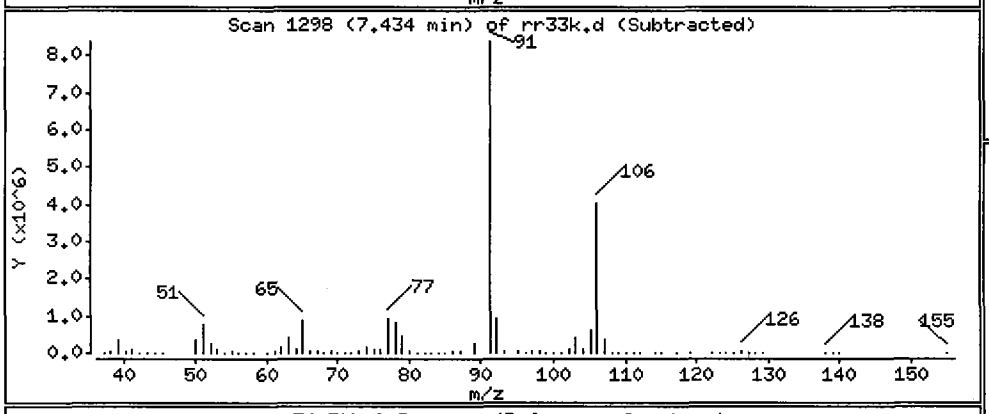
Column phase: RTX502.2

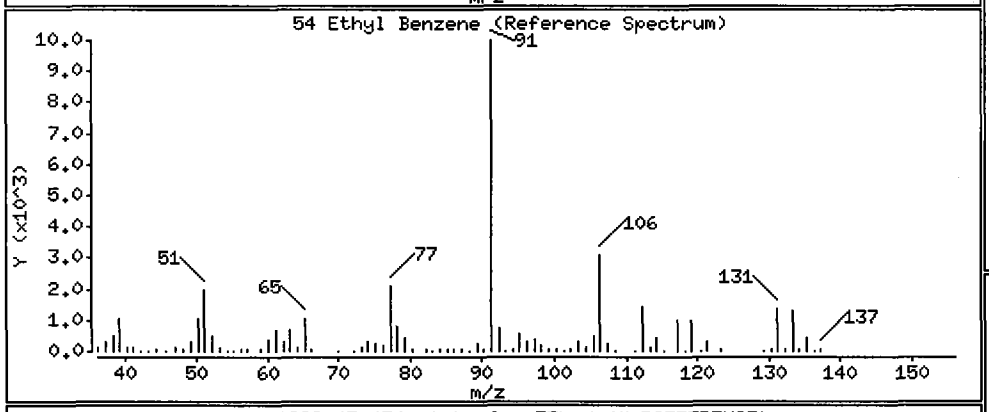
Column diameter: 0.18

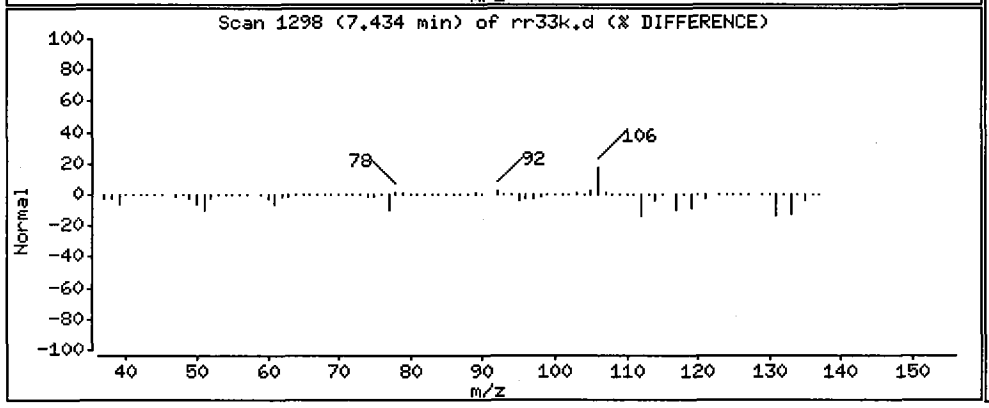
54 Ethyl Benzene

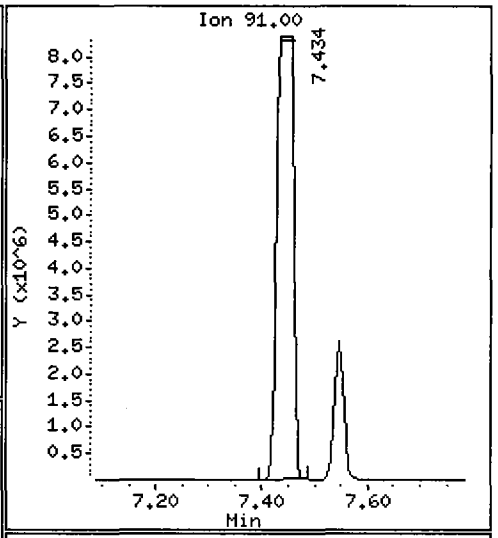
Concentration: 2347.1 ug/Kg

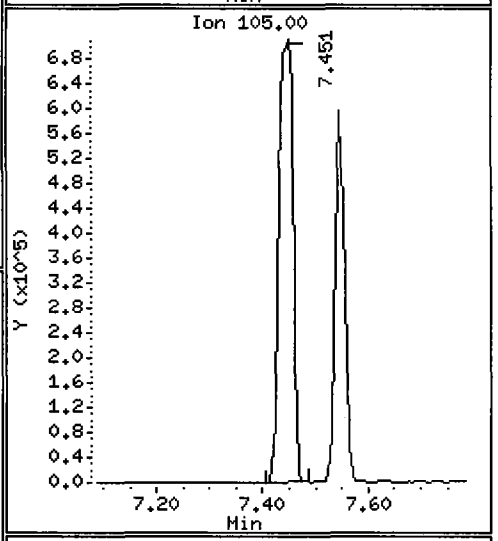


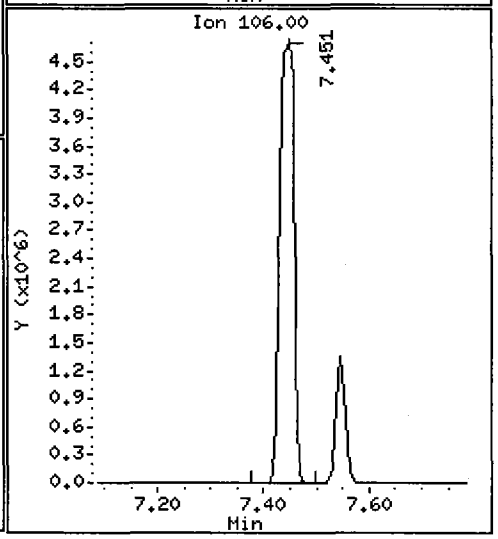












Data File: /chem1/nt9.i/21OCT10.b/gasco.b/rr33k.d

Date : 21-OCT-2010 14:55

Client ID: DGS-07-9.710-101012

Instrument: nt9.i

Sample Info: RR33K,5,2.60,0

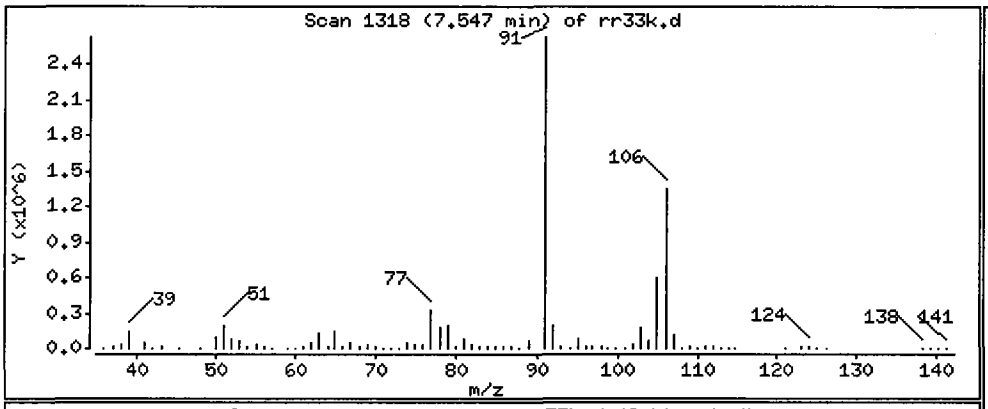
Operator: PB

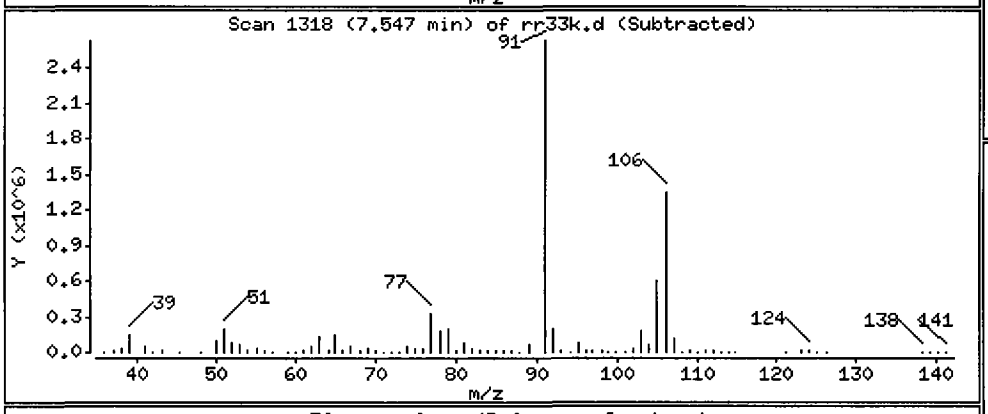
Column phase: RTX502.2

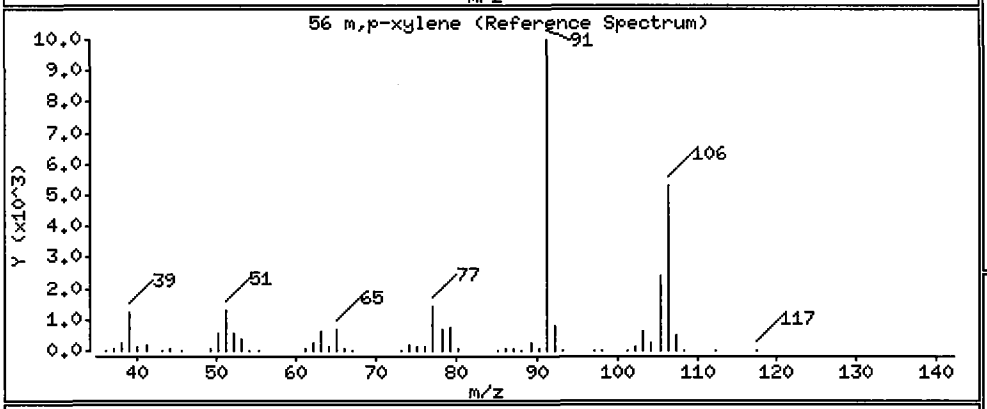
Column diameter: 0.18

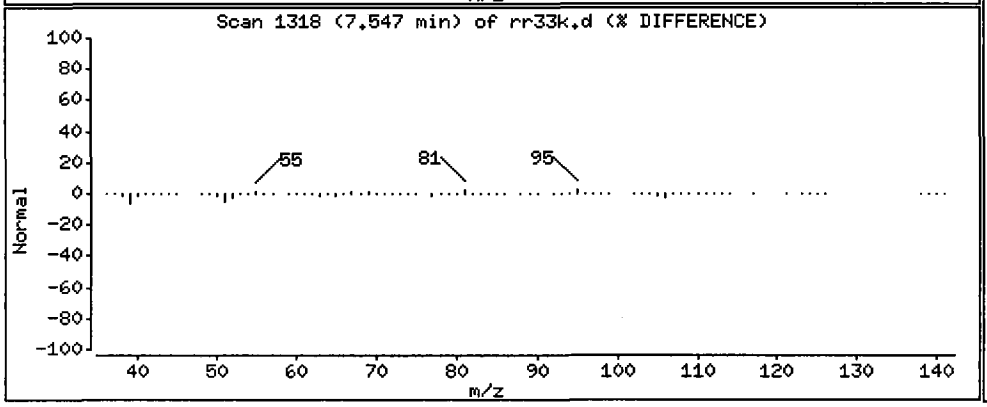
56 m,p-xylene

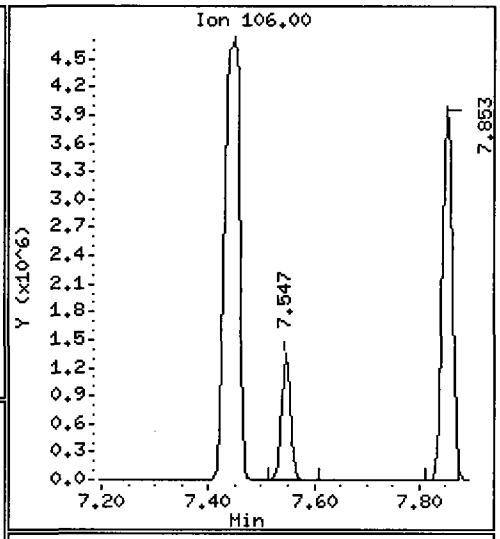
Concentration: 499.62 ug/Kg

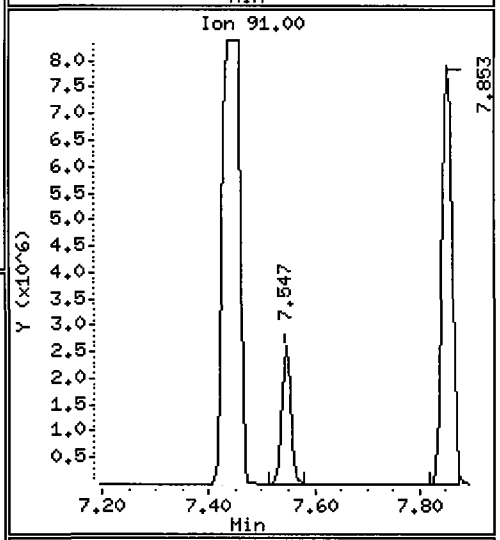


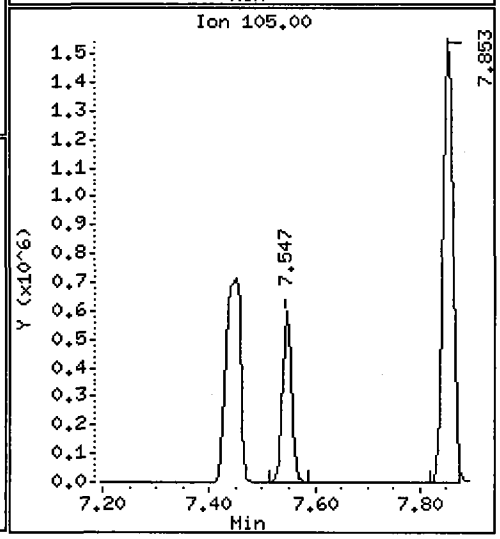












Data File: /chem1/nt9.i/21OCT10.b/gasco.b/rr33k.d

Date : 21-OCT-2010 14:55

Client ID: DGS-07-9.710-101012

Instrument: nt9.i

Sample Info: RR33K,5,2.60,0

Operator: PB

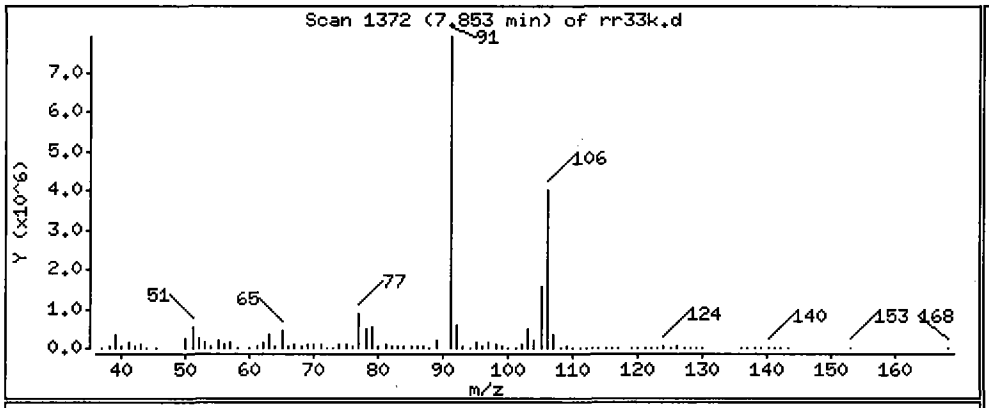
Column phase: RTX502.2

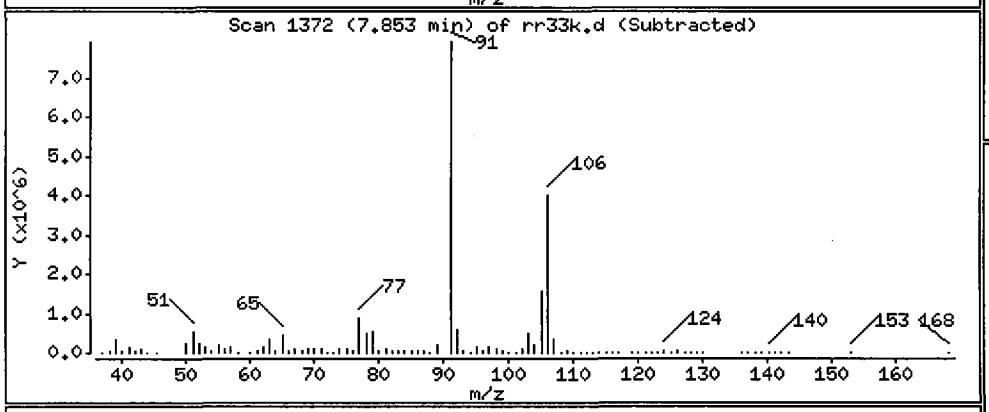
Column diameter: 0.18

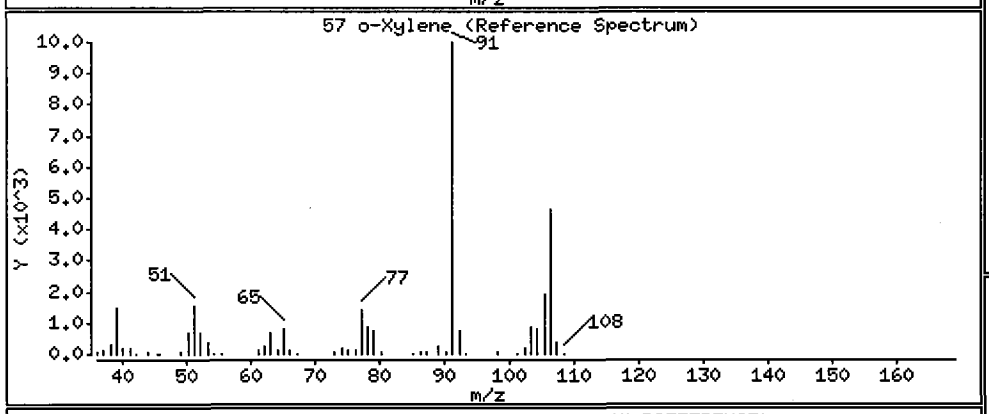
57 o-Xylene

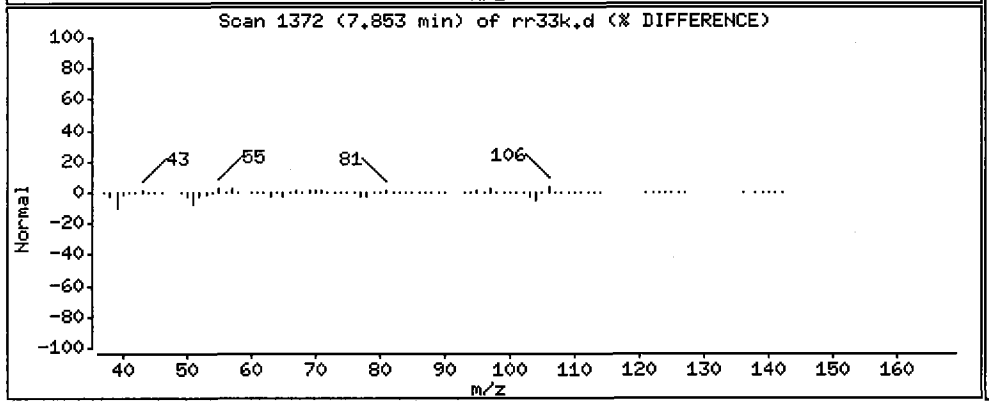
Concentration: 1802.8 ug/Kg

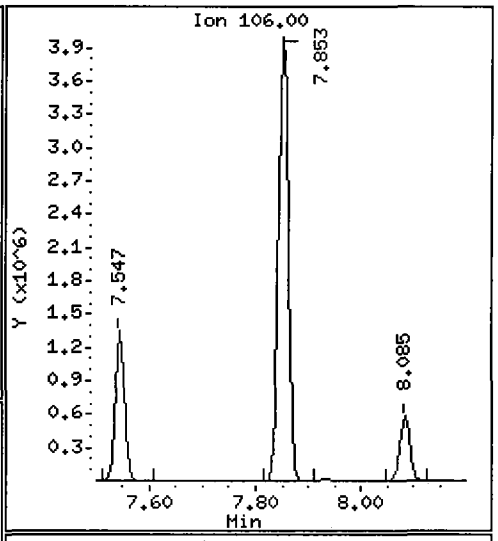
B

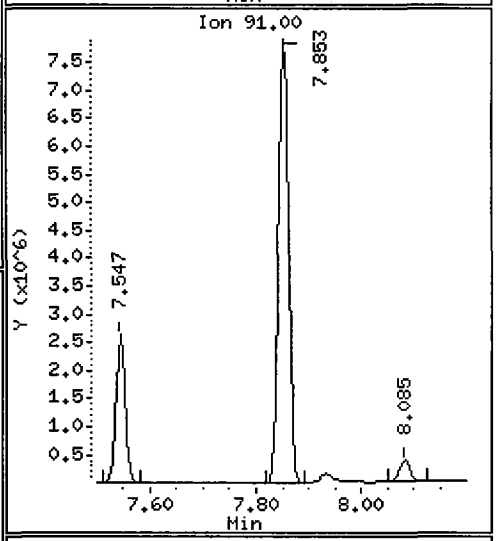


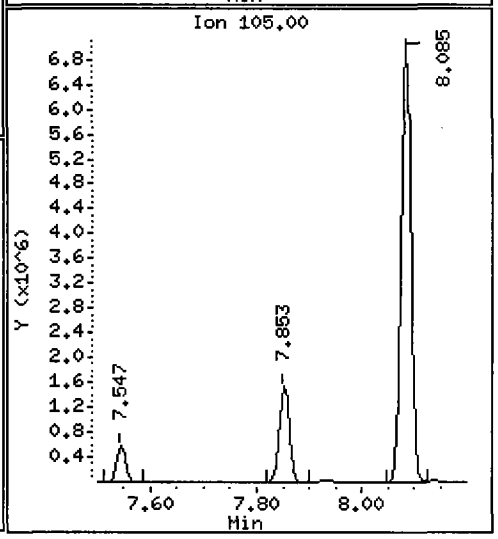






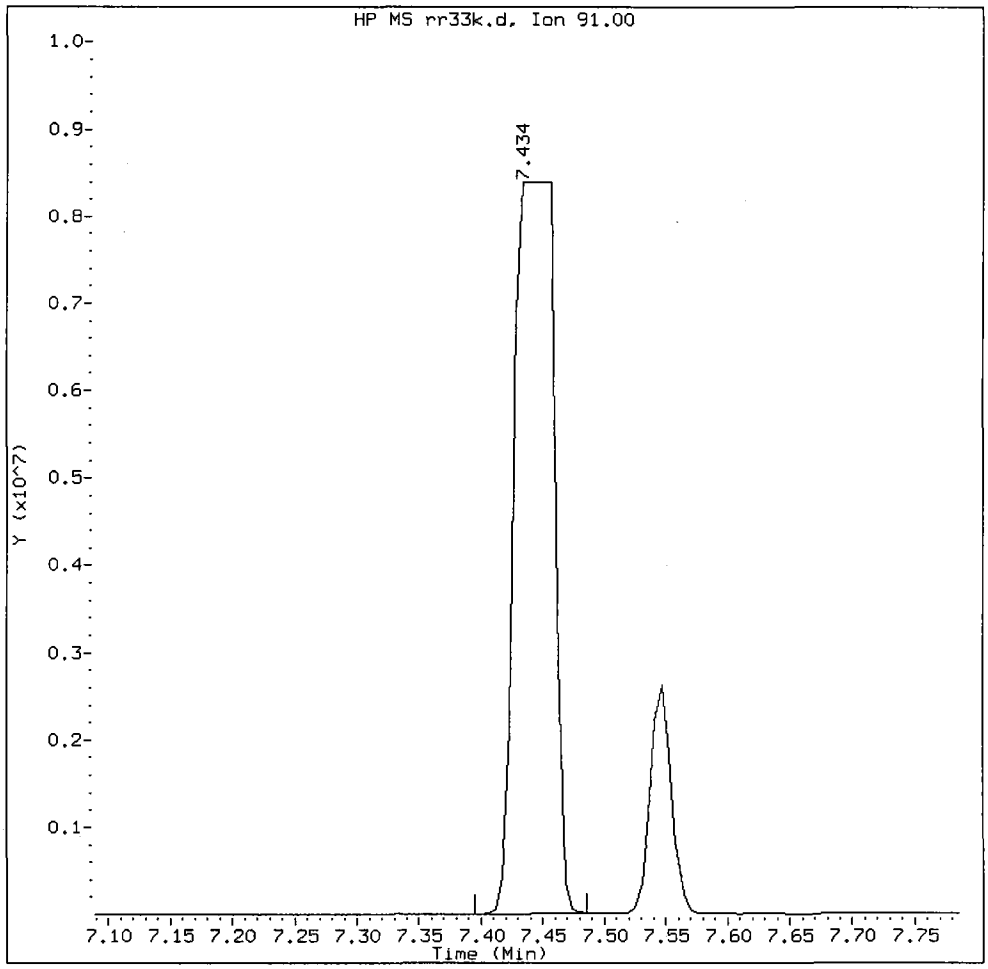






RR33K, /chem1/nt9.i/21OCT10.b/gasco.b/rr33k.d

Ethyl Benzene Amount: 1220.49 Area: 18729552



MANUAL INTEGRATION for Ethyl Benzene

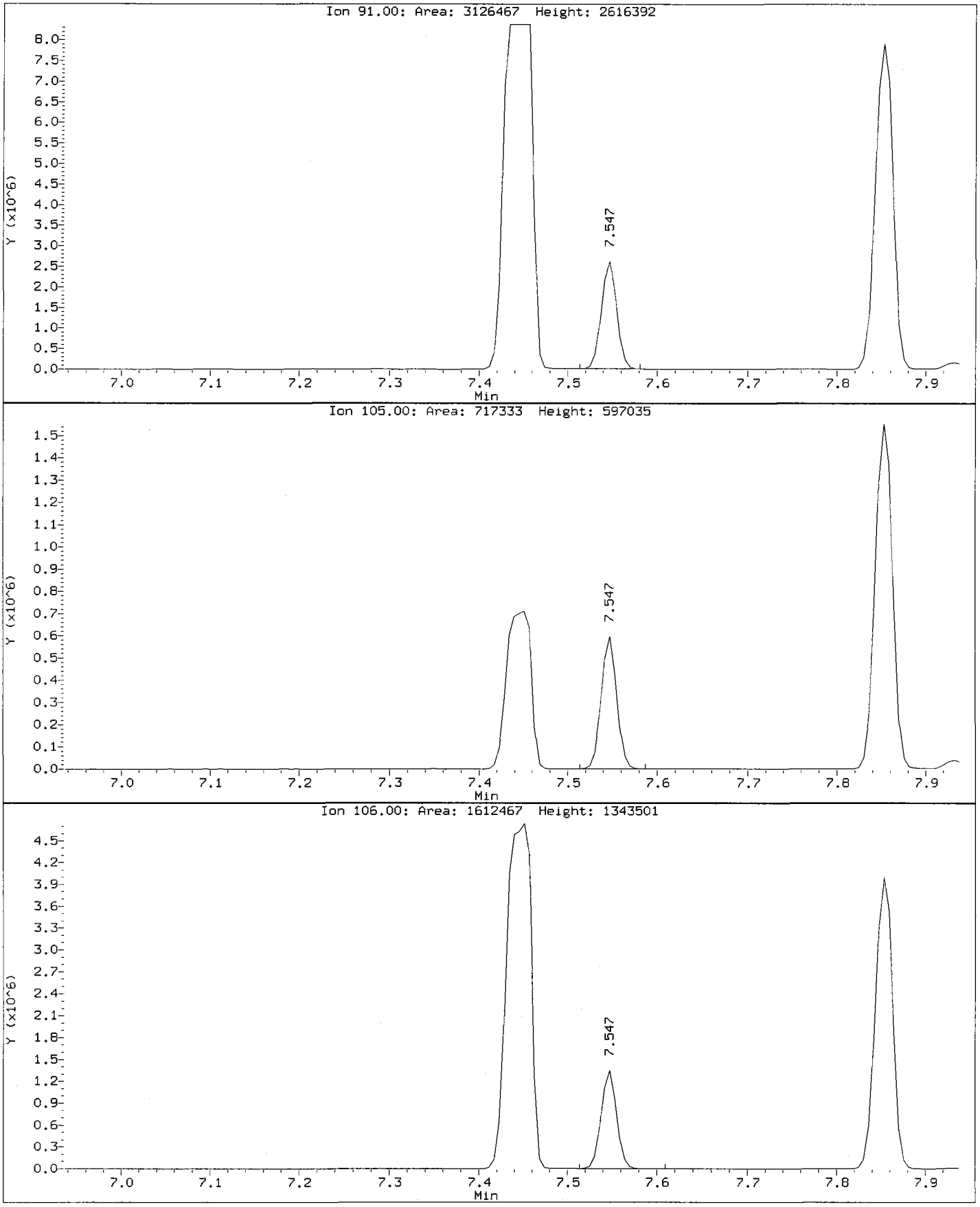
1. Baseline correction
2. Poor chromatography
3. Peak not found
4. Totals calculation

5. Other _____

Analyst: _____ Date: 10/27/10

Data File: /chem1/nt9.i/21OCT10.b/SampleInfo/rr33k.d
Injection Date: 21-OCT-2010 14:55
Instrument: nt9.i
Client Sample ID: DGS-07-9.710-101012

Compound: Ethyl Benzene
CAS Number:



Analytical Resources, Inc.

8260C

Data file : /chem1/nt9.i/21OCT10.b/gasco.b/rr33l.d
Lab Smp Id: RR33L Client Smp ID: DGS-07-10.610.9-101
Inj Date : 21-OCT-2010 15:25
Operator : PB Inst ID: nt9.i
Smp Info : RR33L,5,5.40,0
Misc Info : 10-26430
Comment :
Method : /chem1/nt9.i/21OCT10.b/gasco.b/VO063010S.m
Meth Date : 27-Oct-2010 11:08 patrickb Quant Type: ISTD
Cal Date : 28-AUG-2010 13:21 Cal File: 2000828.d
Als bottle: 1
Dil Factor: 1.00000
Integrator: HP RTE Compound Sublist: gasco.sub
Target Version: 3.50
Processing Host: cserv3

Concentration Formula: Amt * DF * Pv * 1 / (Sa * ((100 - M) / 100)) * CpndVaria

Name	Value	Description
DF	1.00000	Dilution Factor
Pv	5.00000	Purge Volume
Sa	5.40000	Sample Amount
M	0.00000	% Moisture (not decanted)

Cpnd Variable Local Compound Variable

Compounds	QUANT SIG MASS	RT	EXP RT	REL RT	RESPONSE	CONCENTRATIONS ON-COLUMN (ug/Kg)	FINAL (ug/Kg)
3 Vinyl Chloride	62	Compound Not Detected.					
7 1,1-Dichloroethene	96	Compound Not Detected.					
15 Trans-1,2-Dichloroethene	96	Compound Not Detected.					
20 Cis-1,2-Dichloroethene	96	Compound Not Detected.					
* 32 Pentafluorobenzene	168	4.933	4.931	(1.000)	637043	50.0000	
$ 25 Dibromofluoromethane	111	4.532	4.530	(0.919)	237728	49.9066	46.210
$ 31 d4-1,2-Dichloroethane	65	4.939	4.937	(1.001)	267265	54.6498	50.602
30 Benzene	78	4.831	4.829	(0.908)	2789486	122.552	113.47
* 35 1,4-Difluorobenzene	114	5.323	5.321	(1.000)	846308	50.0000	
34 Trichloroethene	95	Compound Not Detected.					
$ 42 d8-Toluene	98	6.308	6.306	(1.185)	954251	49.7638	46.078
43 Toluene	92	6.342	6.340	(1.191)	131703	8.14236	7.539
44 Tetrachloroethene	166	Compound Not Detected.					
* 52 d5-Chlorobenzene	117	7.399	7.398	(1.000)	743012	50.0000	

Compounds	QUANT SIG MASS	RT	EXP RT	REL RT	RESPONSE	CONCENTRATIONS ON-COLUMN (ug/Kg)	FINAL (ug/Kg)
54 Ethyl Benzene	91	7.433	7.437	(1.005)	12165895	399.530	369.94
56 m,p-xylene	106	7.541	7.545	(1.019)	447775	36.3588	33.666
57 o-Xylene	106	7.846	7.850	(1.060)	1367734	119.218	110.39
$ 61 4-Bromofluorobenzene	95	8.276	8.274	(1.118)	384572	55.8836	51.744
* 75 d4-1,4-Dichlorobenzene	152	9.114	9.112	(1.000)	384125	50.0000	(QM)
$ 78 d4-1,2-Dichlorobenzene	152	9.436	9.434	(1.035)	344805	51.3504	47.547 (QM)

QC Flag Legend

Q - Qualifier signal failed the ratio test.
M - Compound response manually integrated.

Analytical Resources, Inc.

INTERNAL STANDARD COMPOUNDS
AREA AND RT SUMMARY

Instrument ID: nt9.i
Lab File ID: rr33l.d
Lab Smp Id: RR33L
Analysis Type: VOA
Quant Type: ISTD
Operator: PB
Method File: /chem1/nt9.i/21OCT10.b/gasco.b/VO063010S.m
Misc Info: 10-26430

Calibration Date: 21-OCT-2010
Calibration Time: 10:46
Client Smp ID: DGS-07-10.610.9-101
Level: LOW
Sample Type: Sediment

Test Mode:
Use Initial Calibration Level 5.
If Continuing Cal. use Initial Cal. Level 5

COMPOUND	STANDARD	AREA LIMIT LOWER	AREA LIMIT UPPER	SAMPLE	%DIFF
32 Pentafluorobenzen	704281	352140	1408562	637043	-9.55
35 1,4-Difluorobenze	937745	468872	1875490	846308	-9.75
52 d5-Chlorobenzene	853013	426506	1706026	743012	-12.90
75 d4-1,4-Dichlorobe	503655	251828	1007310	384125	-23.73

COMPOUND	STANDARD	RT LIMIT LOWER	RT LIMIT UPPER	SAMPLE	%DIFF
32 Pentafluorobenzen	4.93	4.43	5.43	4.93	0.04
35 1,4-Difluorobenze	5.32	4.82	5.82	5.32	0.04
52 d5-Chlorobenzene	7.40	6.90	7.90	7.40	0.03
75 d4-1,4-Dichlorobe	9.11	8.61	9.61	9.11	0.02

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.

Analytical Resources, Inc.

RECOVERY REPORT

Client Name: NW Natural
Sample Matrix: SOLID
Lab Smp Id: RR33L
Level: LOW
Data Type: MS DATA
SpikeList File: all.spk
Sublist File: gasco.sub
Method File: /chem1/nt9.i/21OCT10.b/gasco.b/VO063010S.m
Misc Info: 10-26430

Client SDG: RR33
Fraction: VOA
Client Smp ID: DGS-07-10.610.9-101
Operator: PB
SampleType: SAMPLE
Quant Type: ISTD

SURROGATE COMPOUND	AMOUNT ADDED ug/Kg	AMOUNT RECOVERED ug/Kg	% RECOVERED	LIMITS
$ 25 Dibromofluorometha	50.000	49.907	99.81	30-160
$ 31 d4-1,2-Dichloroeth	50.000	54.650	109.30	75-152
$ 42 d8-Toluene	50.000	49.764	99.53	82-115
$ 61 4-Bromofluorobenze	50.000	55.884	111.77	64-120
$ 78 d4-1,2-Dichloroben	50.000	51.350	102.70	80-120

Data File: /chem1/nt9.i/21OCT10.b/gasco.b/rr33l.d

Date : 21-OCT-2010 15:25

Client ID: DGS-07-10.610.9-101

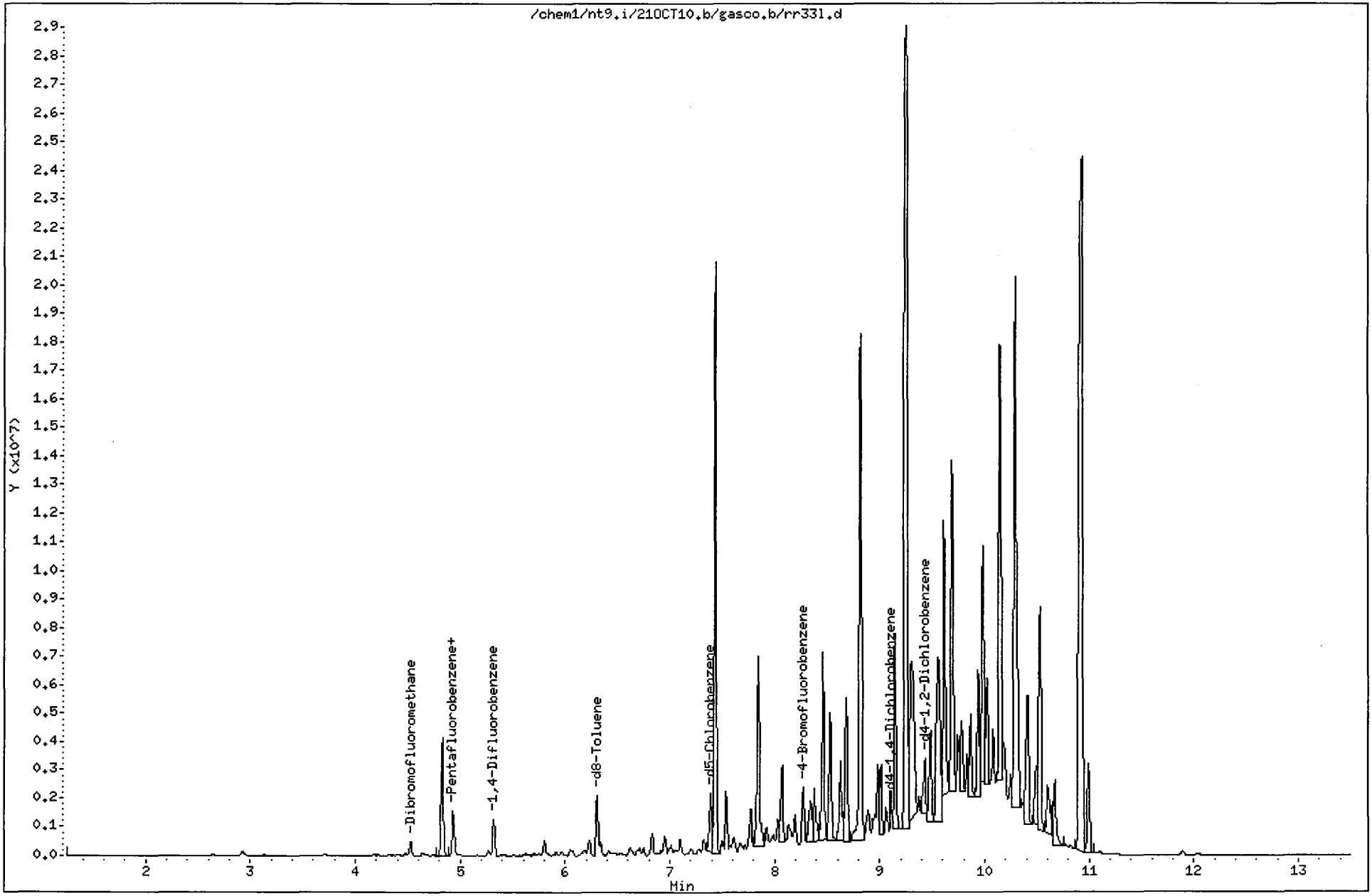
Sample Info: RR33L,5,5.40,0

Column phase: RTX502.2

Instrument: nt9.i

Operator: PB

Column diameter: 0.18



RR33 00292

Data File: /chem1/nt9.i/21OCT10.b/gasco.b/rr331.d

Date : 21-OCT-2010 15:25

Client ID: DGS-07-10.610.9-101

Instrument: nt9.i

Sample Info: RR33L,5,5.40,0

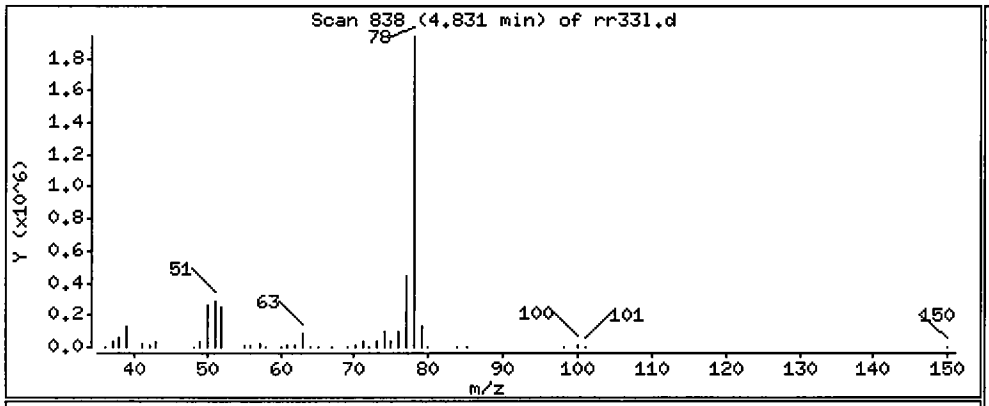
Operator: PB

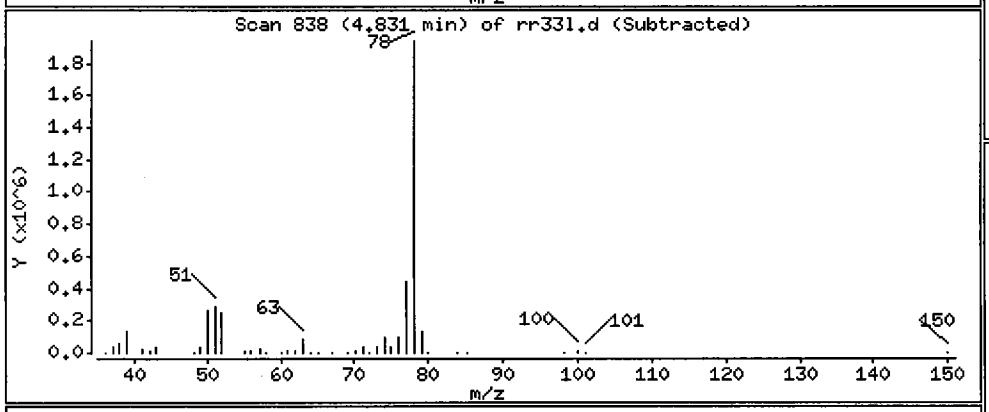
Column phase: RTX502.2

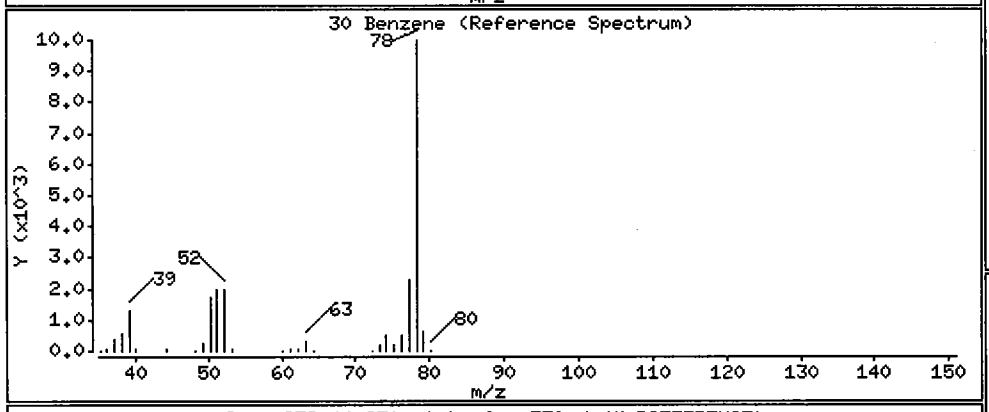
Column diameter: 0.18

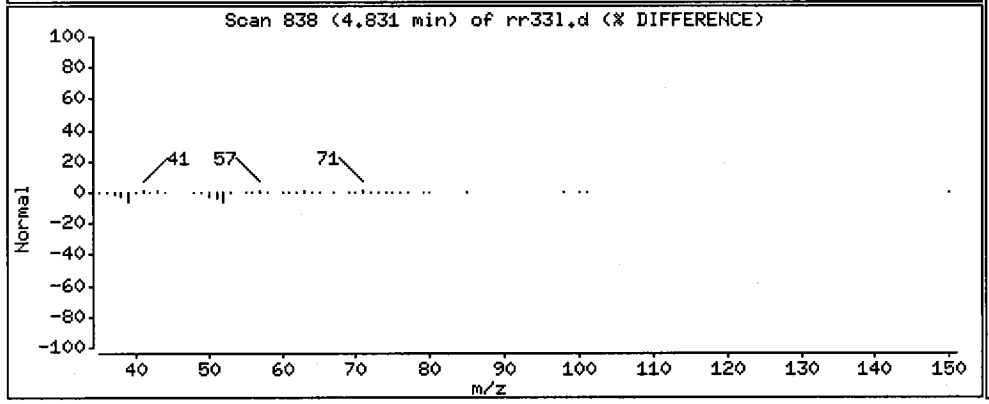
30 Benzene

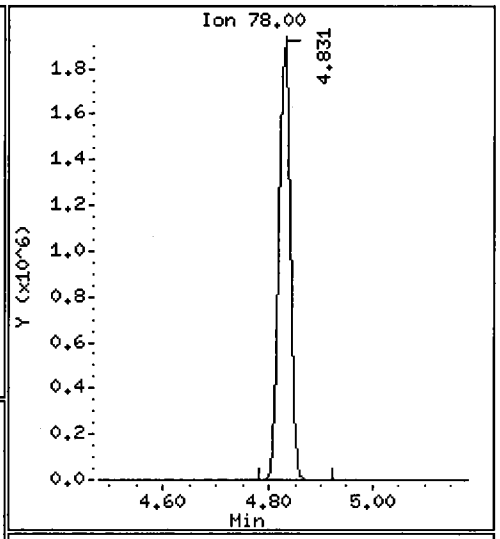
Concentration: 113.47 ug/Kg

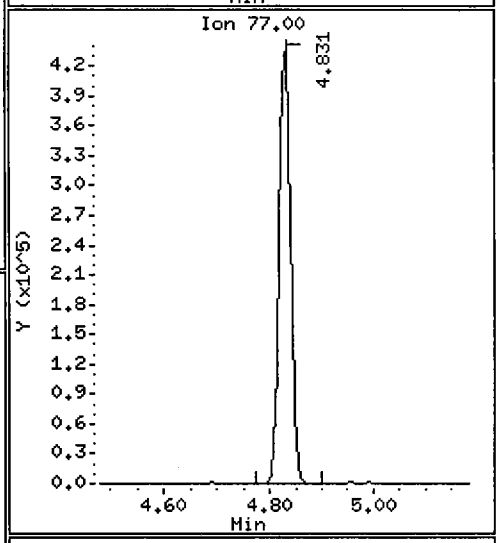


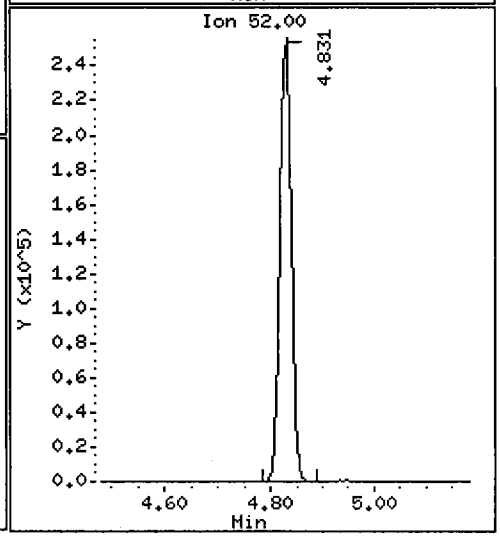












Data File: /chem1/nt9.i/21OCT10.b/gasco.b/rr331.d

Date : 21-OCT-2010 15:25

Client ID: DGS-07-10.610.9-101

Instrument: nt9.i

Sample Info: RR33L,5,5.40,0

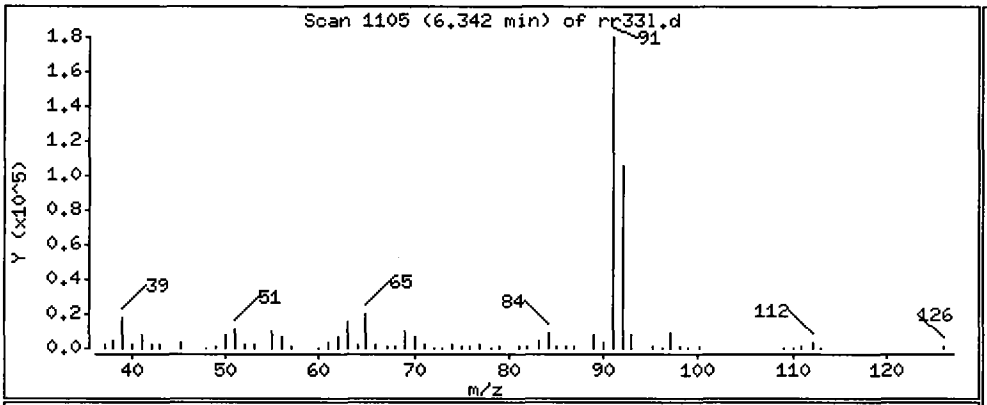
Operator: PB

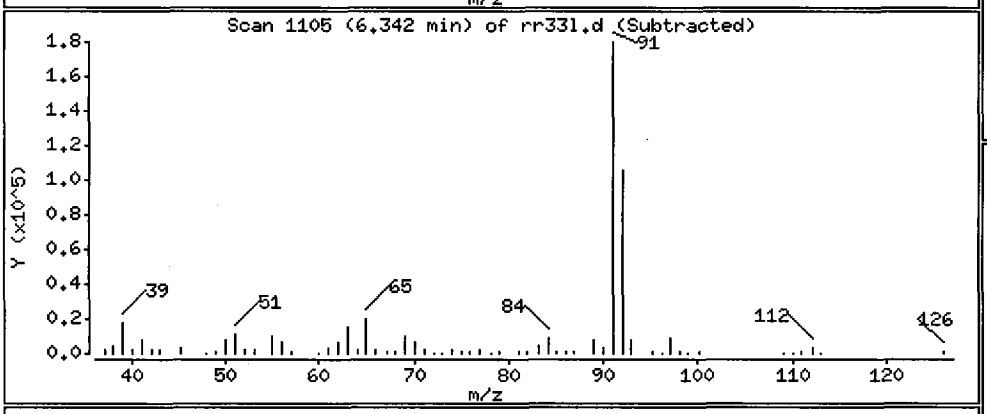
Column phase: RTX502.2

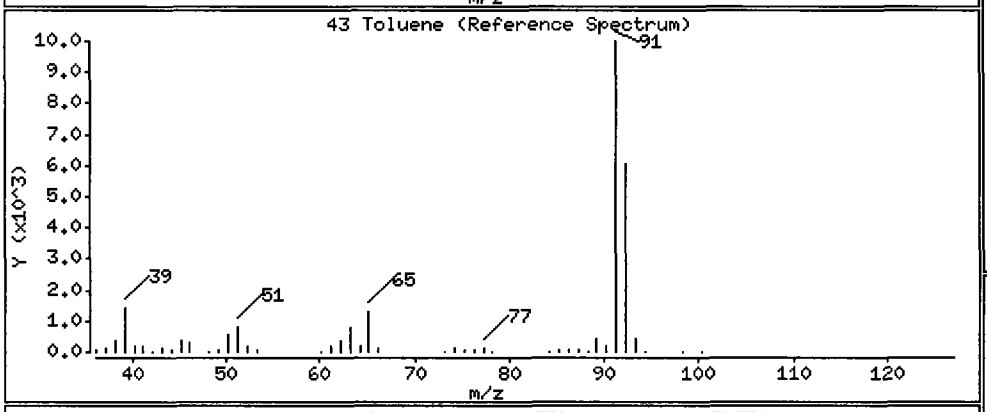
Column diameter: 0.18

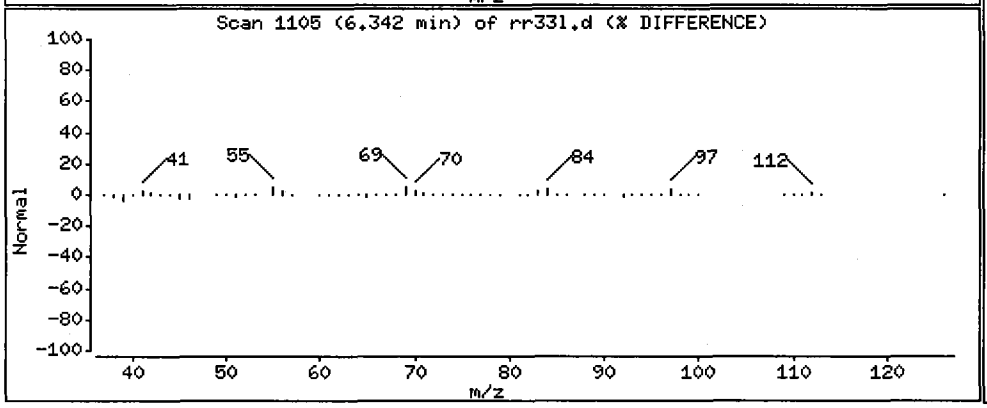
43 Toluene

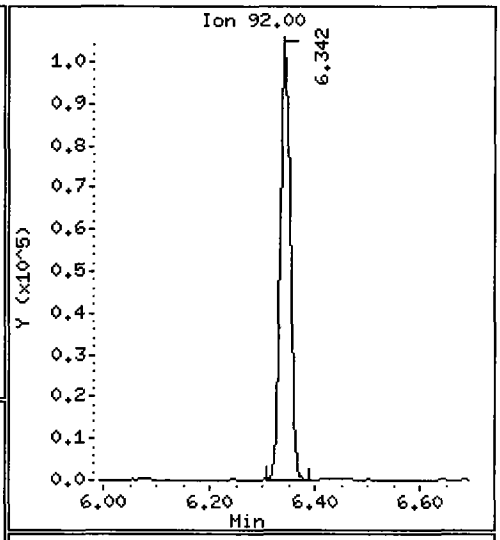
Concentration: 7.539 ug/Kg

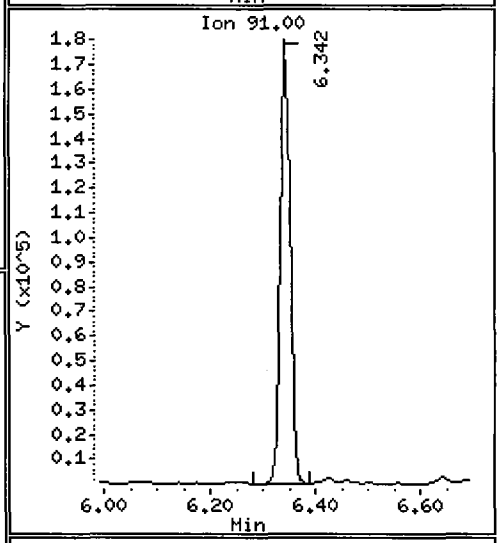


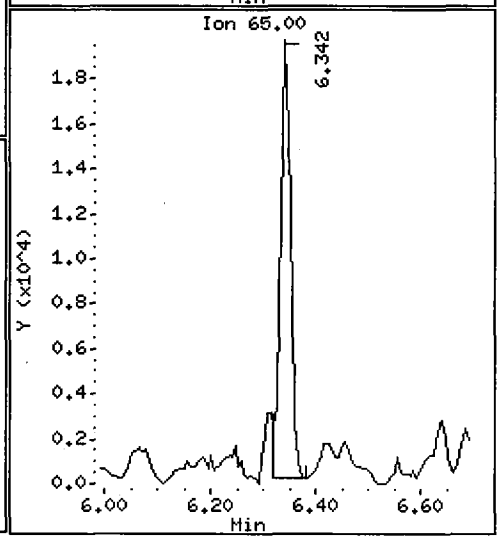












Data File: /chem1/nt9.i/21OCT10.b/gasco.b/rr331.d

Date : 21-OCT-2010 15:25

Client ID: DGS-07-10.610.9-101

Instrument: nt9.i

Sample Info: RR33L,5,5.40,0

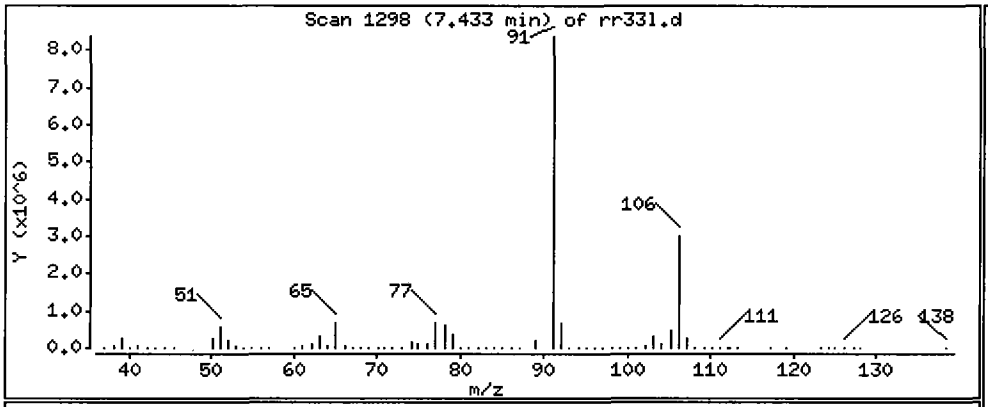
Operator: PB

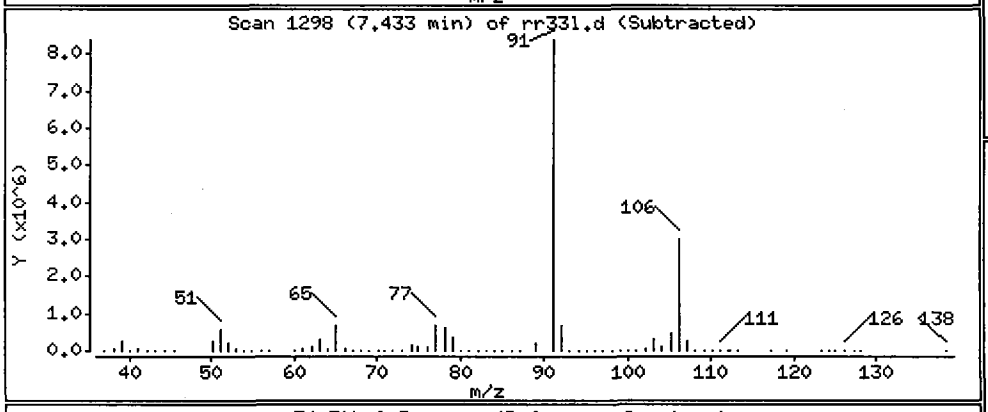
Column phase: RTX502.2

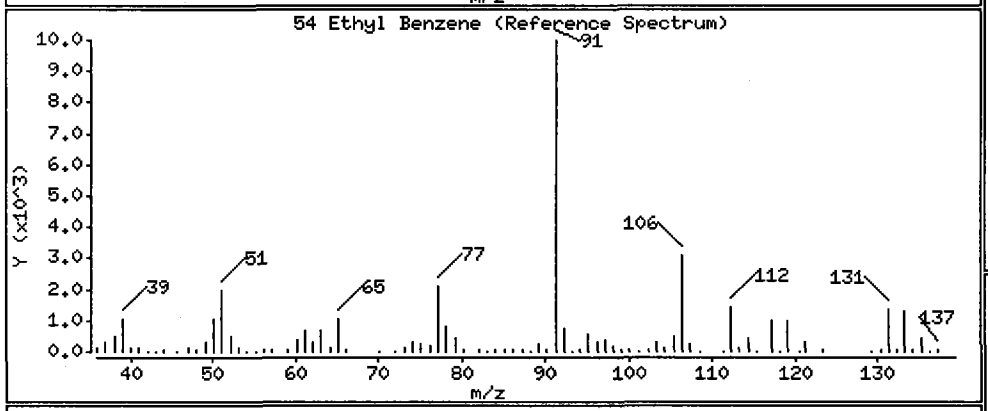
Column diameter: 0.18

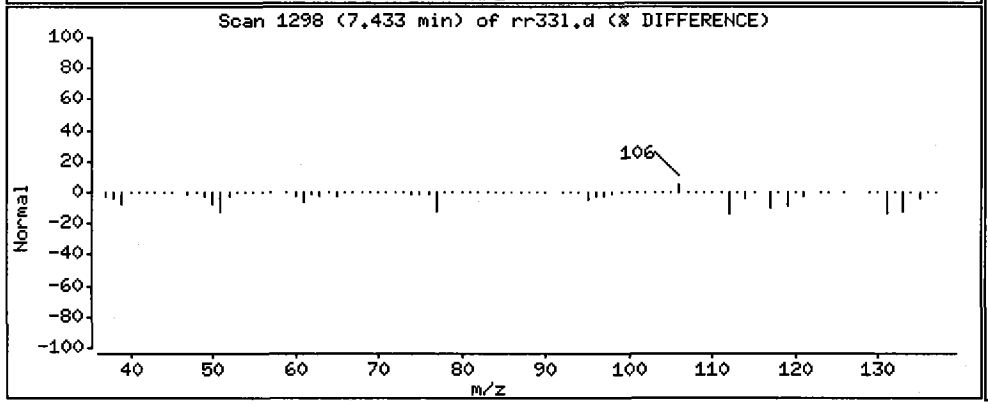
54 Ethyl Benzene

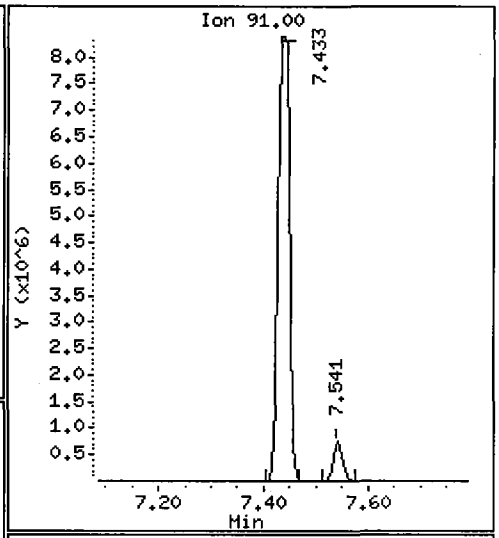
Concentration: 369.94 ug/Kg

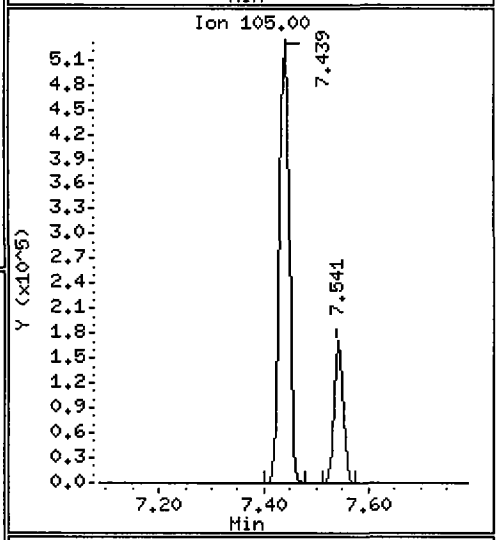


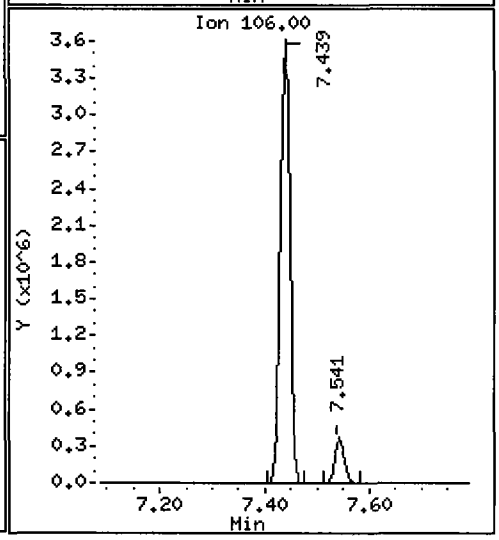












Data File: /chem1/nt9.i/21OCT10.b/gasco.b/rr331.d

Date : 21-OCT-2010 15:25

Client ID: DGS-07-10.610.9-101

Instrument: nt9.i

Sample Info: RR33L,5,5.40,0

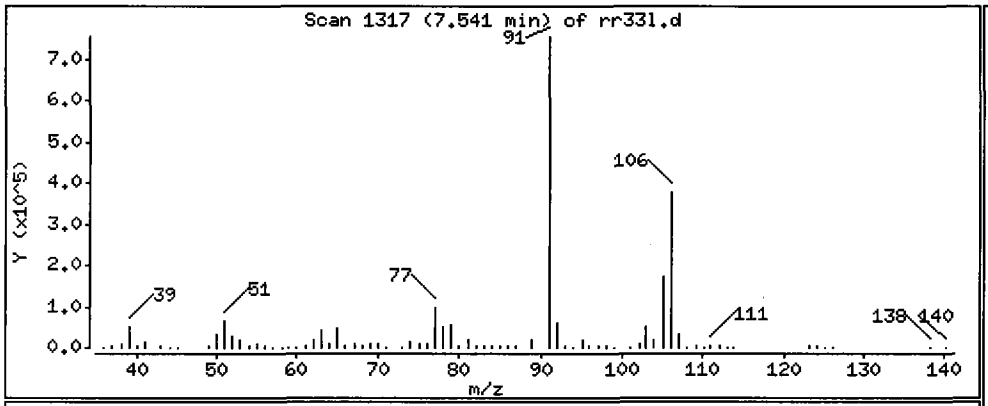
Operator: PB

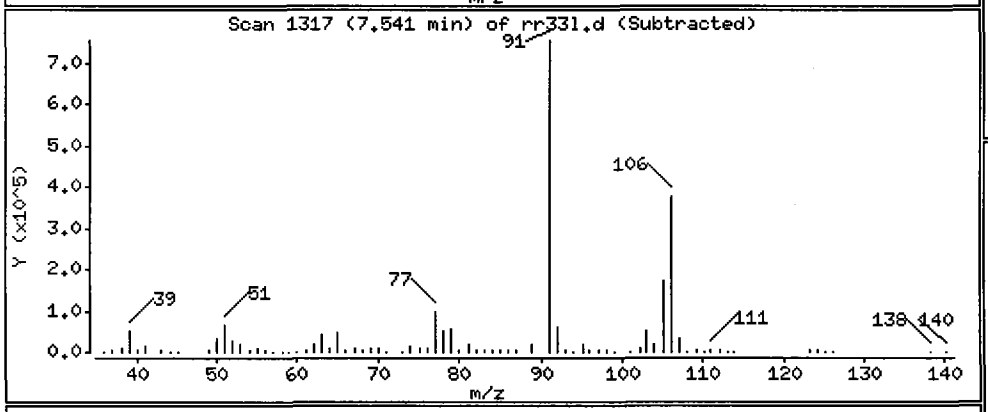
Column phase: RTX502.2

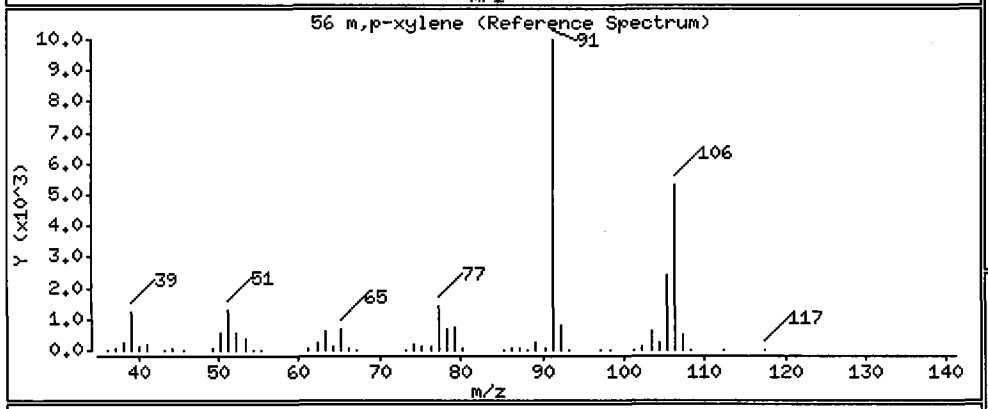
Column diameter: 0.18

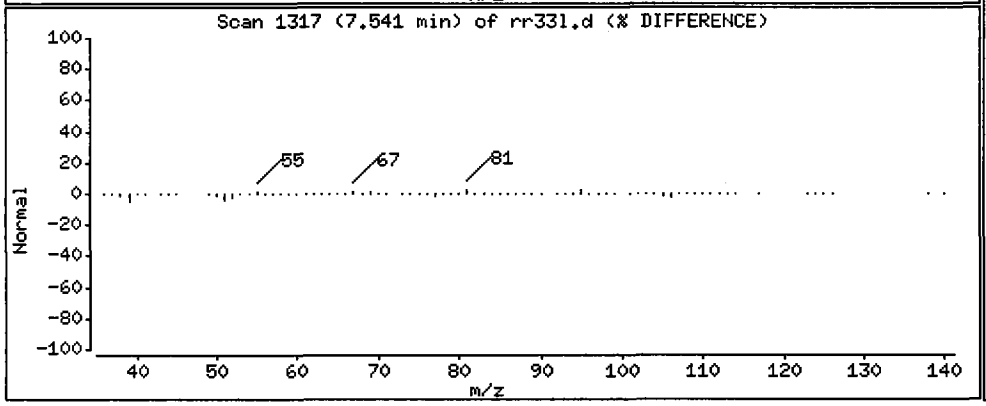
56 m,p-xylene

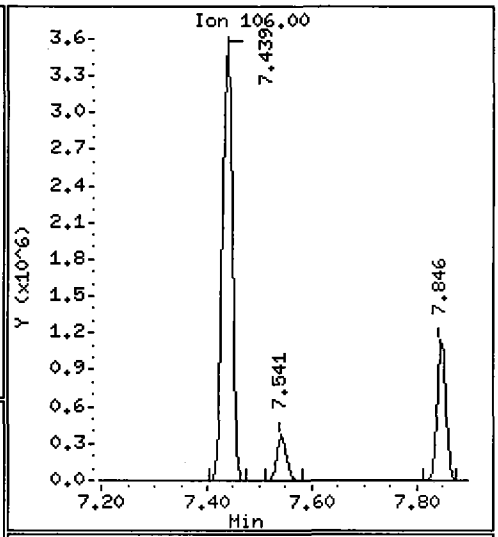
Concentration: 33.666 ug/Kg

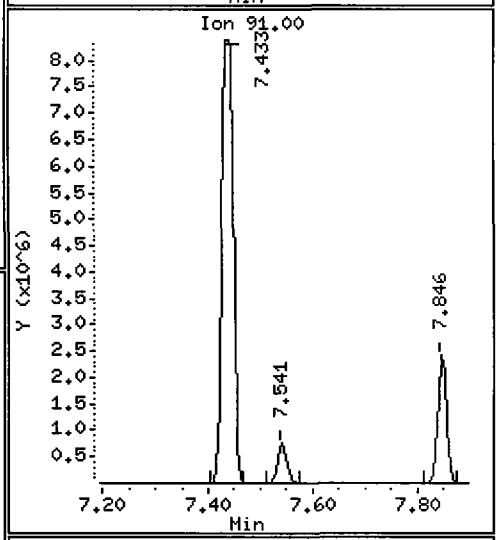


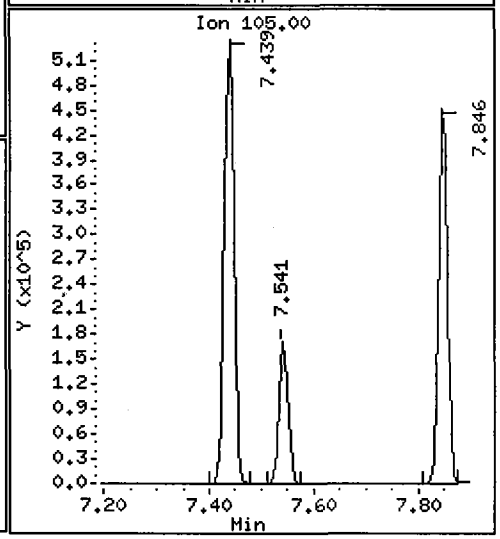












Data File: /chem1/nt9.i/21OCT10.b/gasco.b/rr331.d

Date : 21-OCT-2010 15:25

Client ID: DGS-07-10.610.9-101

Instrument: nt9.i

Sample Info: RR33L,5,5.40,0

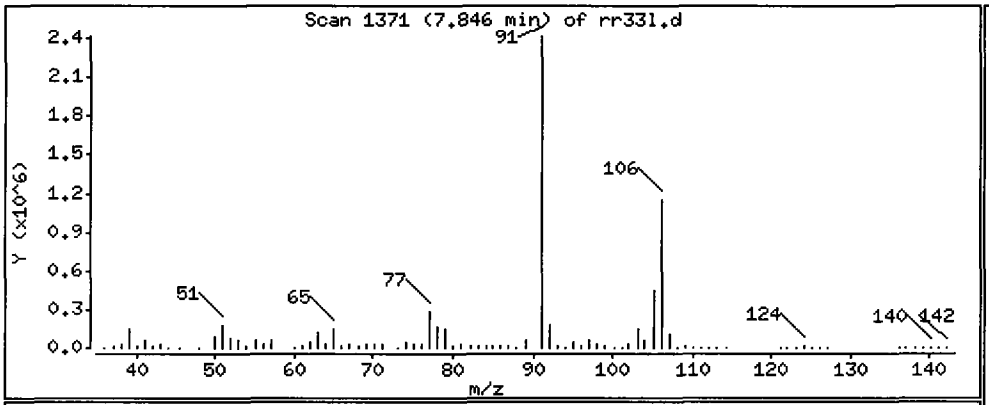
Operator: PB

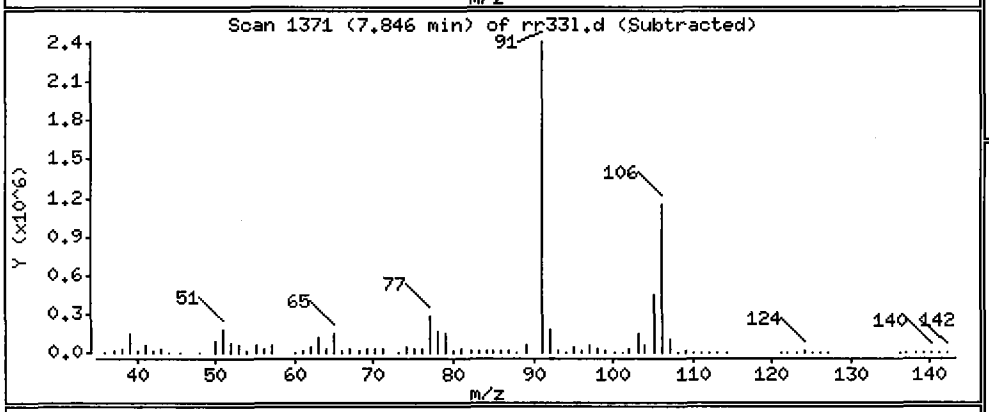
Column phase: RTX502.2

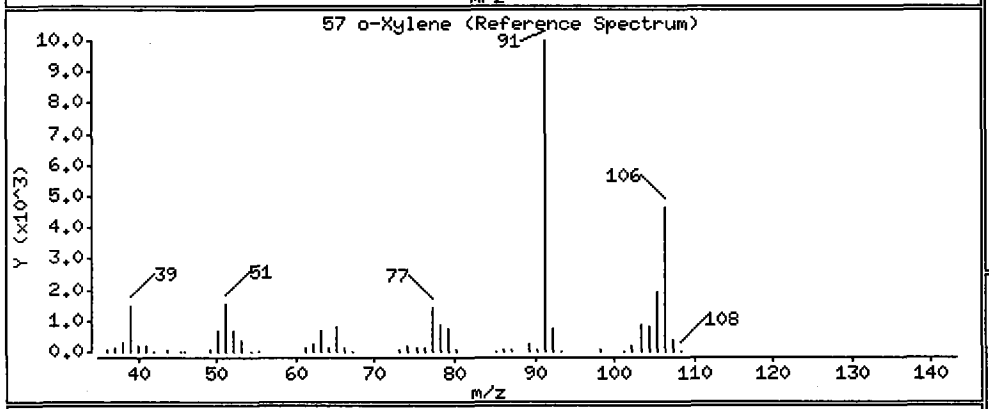
Column diameter: 0.18

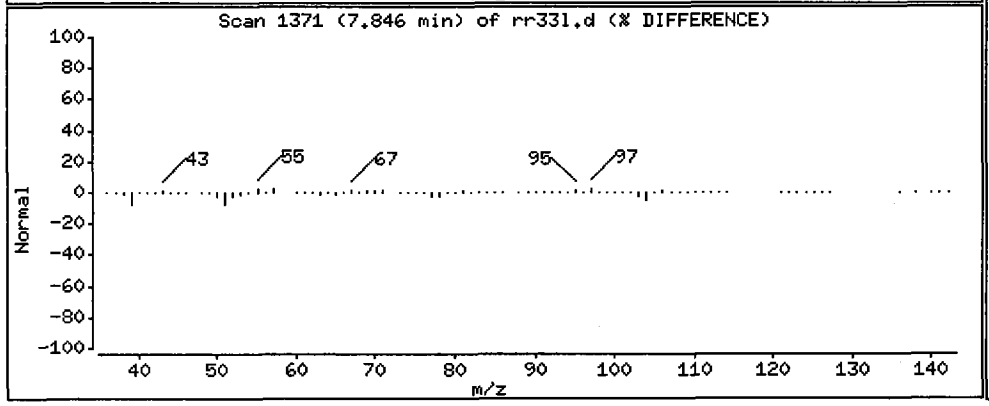
57 o-Xylene

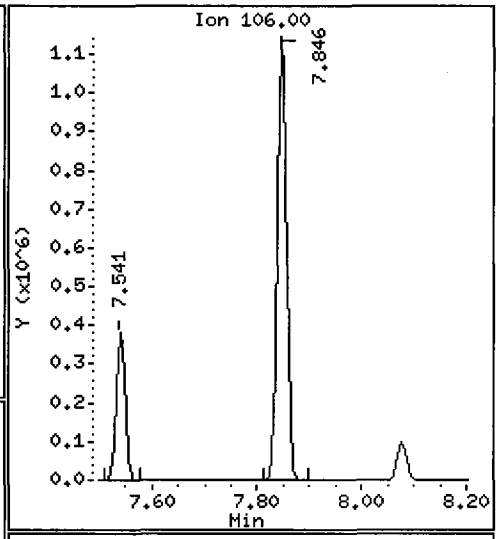
Concentration: 110.39 ug/Kg

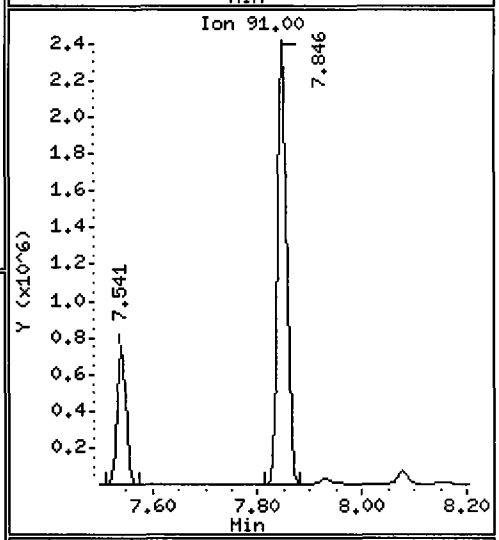


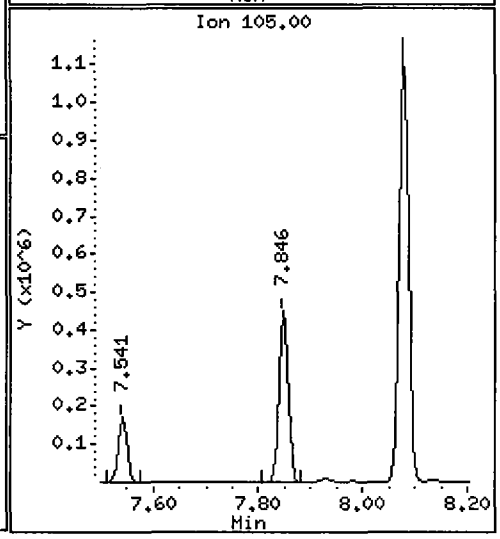












Analytical Resources, Inc.

8260C

Data file : /chem1/nt9.i/21OCT10.b/gasco.b/rr33m.d
Lab Smp Id: RR33M Client Smp ID: DGS-07-11.611.8-101
Inj Date : 21-OCT-2010 15:56
Operator : PB Inst ID: nt9.i
Smp Info : RR33M,5,5.79,0
Misc Info : 10-26431
Comment :
Method : /chem1/nt9.i/21OCT10.b/gasco.b/VO063010S.m
Meth Date : 27-Oct-2010 11:08 patrickb Quant Type: ISTD
Cal Date : 28-AUG-2010 13:21 Cal File: 2000828.d
Als bottle: 1
Dil Factor: 1.00000
Integrator: HP RTE Compound Sublist: gasco.sub

10/22W

Concentration Formula: Amt * DF * Pv * 1 / (Sa * ((100 - M) / 100)) * CpndVaria

Name	Value	Description
DF	1.00000	Dilution Factor
Pv	5.00000	Purge Volume
Sa	5.79000	Sample Amount
M	0.00000	% Moisture (not decanted)

Cpnd Variable Local Compound Variable

Compounds	QUANT SIG MASS	RT	EXP RT	REL RT	RESPONSE	CONCENTRATIONS ON-COLUMN (ug/Kg)	FINAL (ug/Kg)
3 Vinyl Chloride	62	Compound Not Detected.					
7 1,1-Dichloroethene	96	Compound Not Detected.					
15 Trans-1,2-Dichloroethene	96	Compound Not Detected.					
20 Cis-1,2-Dichloroethene	96	Compound Not Detected.					
* 32 Pentafluorobenzene	168	4.932	4.931	(1.000)	608447	50.0000	
$ 25 Dibromofluoromethane	111	4.530	4.530	(0.919)	235449	51.7512	44.690
$ 31 d4-1,2-Dichloroethane	65	4.938	4.937	(1.001)	272652	58.3716	50.407
30 Benzene	78	4.830	4.829	(0.908)	3622951	162.912	140.68
* 35 1,4-Difluorobenzene	114	5.322	5.321	(1.000)	826866	50.0000	
34 Trichloroethene	95	Compound Not Detected.					
$ 42 d8-Toluene	98	6.306	6.306	(1.185)	912350	48.6974	42.053
43 Toluene	92	6.340	6.340	(1.191)	149388	9.45287	8.163
44 Tetrachloroethene	166	Compound Not Detected.					
* 52 d5-Chlorobenzene	117	7.398	7.398	(1.000)	723848	50.0000	

Compounds	QUANT SIG MASS	RT	EXP RT	REL RT	RESPONSE	CONCENTRATIONS ON-COLUMN (ug/Kg)	FINAL (ug/Kg)
54 Ethyl Benzene	91	7.438	7.437	(1.005)	8995143	303.223	261.85
56 m,p-xylene	106	7.545	7.545	(1.020)	504569	42.0551	36.317
57 o-Xylene	106	7.851	7.850	(1.061)	1752713	156.820	135.42
$ 61 4-Bromofluorobenzene	95	8.275	8.274	(1.119)	451208	67.3026	58.120 (QR)
* 75 d4-1,4-Dichlorobenzene	152	9.112	9.112	(1.000)	312848	50.0000	(QM)
$ 78 d4-1,2-Dichlorobenzene	152	9.435	9.434	(1.035)	269298	49.2427	42.524 (QM)

QC Flag Legend

Q - Qualifier signal failed the ratio test.
R - Spike/Surrogate failed recovery limits.
M - Compound response manually integrated.

Analytical Resources, Inc.

INTERNAL STANDARD COMPOUNDS
AREA AND RT SUMMARY

Instrument ID: nt9.i
Lab File ID: rr33m.d
Lab Smp Id: RR33M
Analysis Type: VOA
Quant Type: ISTD
Operator: PB
Method File: /chem1/nt9.i/21OCT10.b/gasco.b/VO063010S.m
Misc Info: 10-26431

Calibration Date: 21-OCT-2010
Calibration Time: 10:46
Client Smp ID: DGS-07-11.611.8-101
Level: LOW
Sample Type: Sediment

Test Mode:
Use Initial Calibration Level 5.
If Continuing Cal. use Initial Cal. Level 5

COMPOUND	STANDARD	AREA LIMIT LOWER	AREA LIMIT UPPER	SAMPLE	%DIFF
32 Pentafluorobenzen	704281	352140	1408562	608447	-13.61
35 1,4-Difluorobenze	937745	468872	1875490	826866	-11.82
52 d5-Chlorobenzene	853013	426506	1706026	723848	-15.14
75 d4-1,4-Dichlorobe	503655	251828	1007310	312848	-37.88

COMPOUND	STANDARD	RT LIMIT LOWER	RT LIMIT UPPER	SAMPLE	%DIFF
32 Pentafluorobenzen	4.93	4.43	5.43	4.93	0.01
35 1,4-Difluorobenze	5.32	4.82	5.82	5.32	0.01
52 d5-Chlorobenzene	7.40	6.90	7.90	7.40	0.01
75 d4-1,4-Dichlorobe	9.11	8.61	9.61	9.11	0.01

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.

Analytical Resources, Inc.

RECOVERY REPORT

Client Name: NW Natural
Sample Matrix: SOLID
Lab Smp Id: RR33M
Level: LOW
Data Type: MS DATA
SpikeList File: all.spk
Sublist File: gasco.sub
Method File: /chem1/nt9.i/21OCT10.b/gasco.b/VO063010S.m
Misc Info: 10-26431

Client SDG: RR33
Fraction: VOA
Client Smp ID: DGS-07-11.611.8-101
Operator: PB
SampleType: SAMPLE
Quant Type: ISTD

SURROGATE COMPOUND	AMOUNT ADDED ug/Kg	AMOUNT RECOVERED ug/Kg	% RECOVERED	LIMITS
$ 25 Dibromofluorometha	50.000	51.751	103.50	30-160
$ 31 d4-1,2-Dichloroeth	50.000	58.372	116.74	75-152
$ 42 d8-Toluene	50.000	48.697	97.39	82-115
$ 61 4-Bromofluorobenze	50.000	67.303	134.61*	64-120
$ 78 d4-1,2-Dichloroben	50.000	49.243	98.49	80-120

Data File: /chem1/nt9.i/21OCT10.b/gasco.b/rr33m.d

Date : 21-OCT-2010 15:56

Client ID: DGS-07-11.611.8-101

Sample Info: RR33M,5,5.79,0

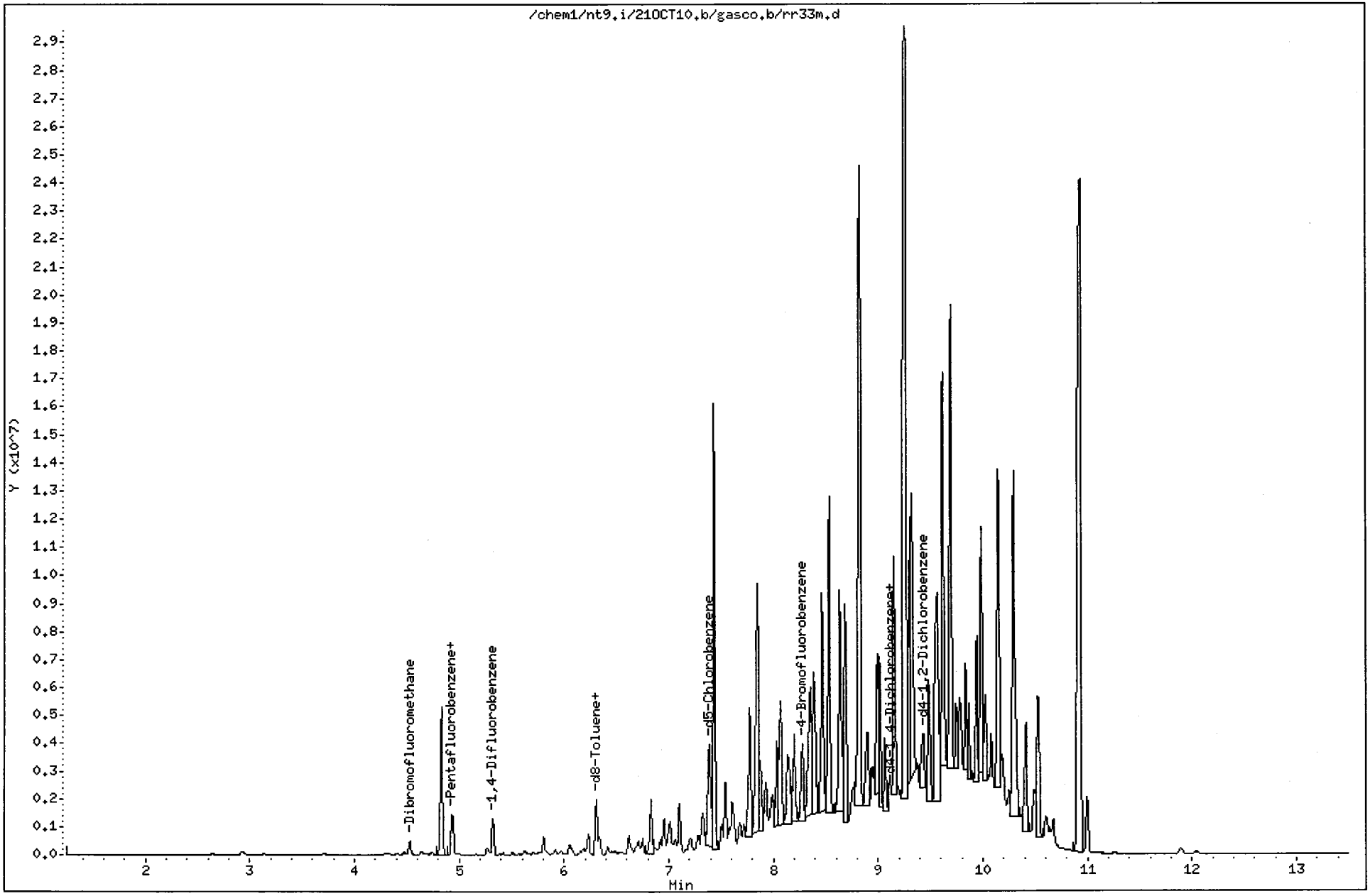
Column phase: RTX502.2

Instrument: nt9.i

Operator: PB

Column diameter: 0.18

RR33:00902



Data File: /chem1/nt9.i/21OCT10.b/gasco.b/rr33m.d

Date : 21-OCT-2010 15:56

Client ID: DGS-07-11.611.8-101

Instrument: nt9.i

Sample Info: RR33M,5,5.79,0

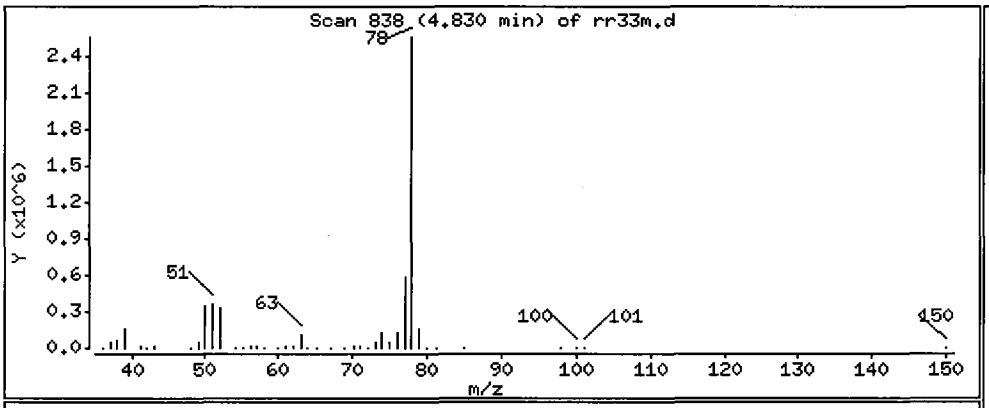
Operator: PB

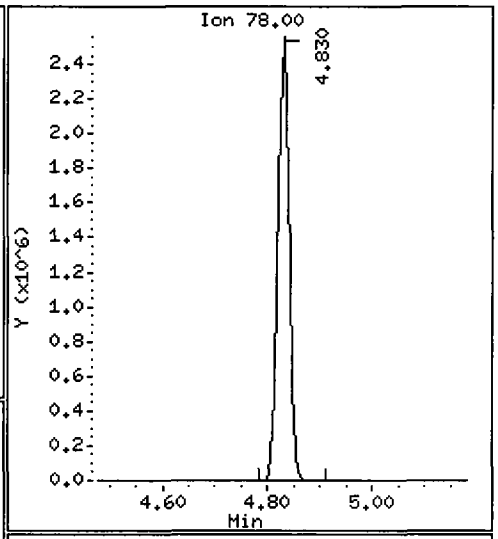
Column phase: RTX502.2

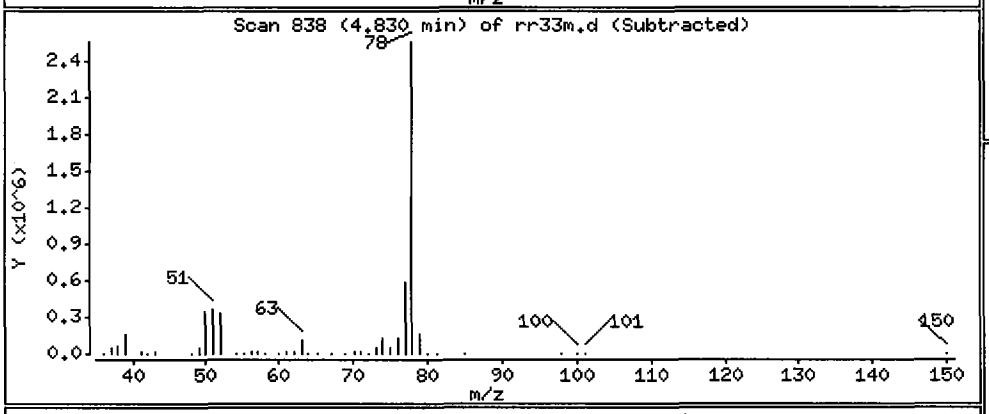
Column diameter: 0.18

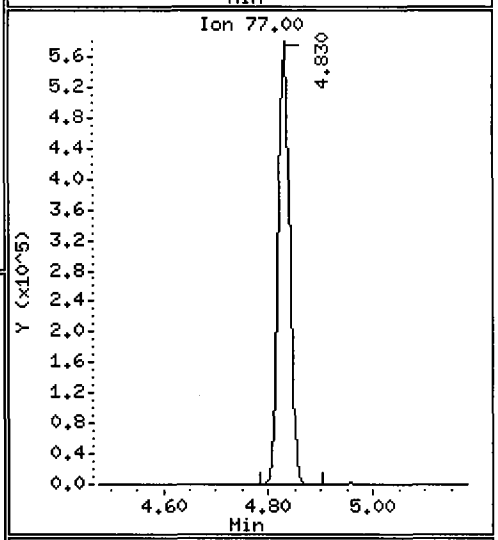
30 Benzene

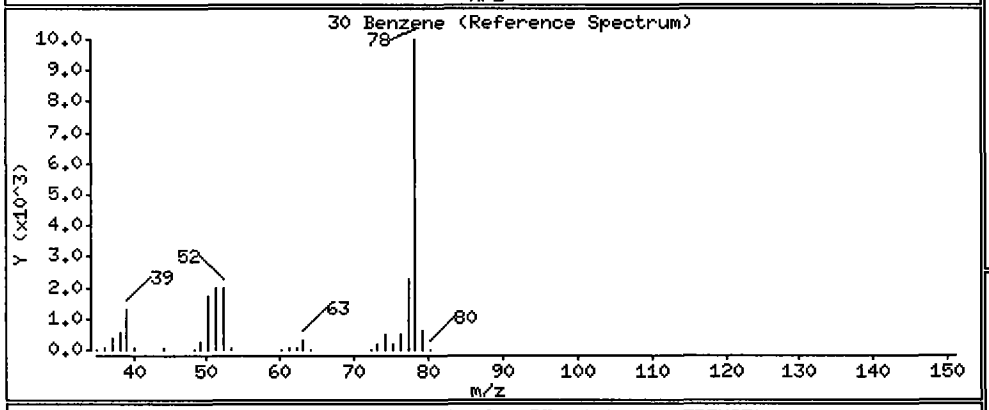
Concentration: 140.68 ug/Kg

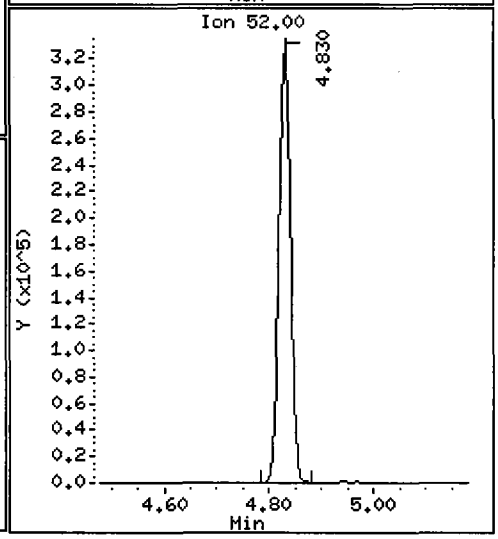


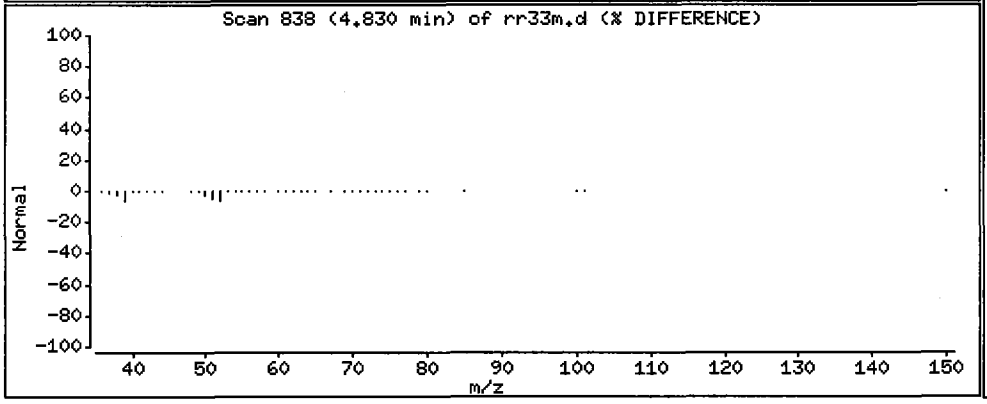












Data File: /chem1/nt9.i/21OCT10.b/gasco.b/rr33m.d

Date : 21-OCT-2010 15:56

Client ID: DGS-07-11.611.8-101

Instrument: nt9.i

Sample Info: RR33M,5,5.79,0

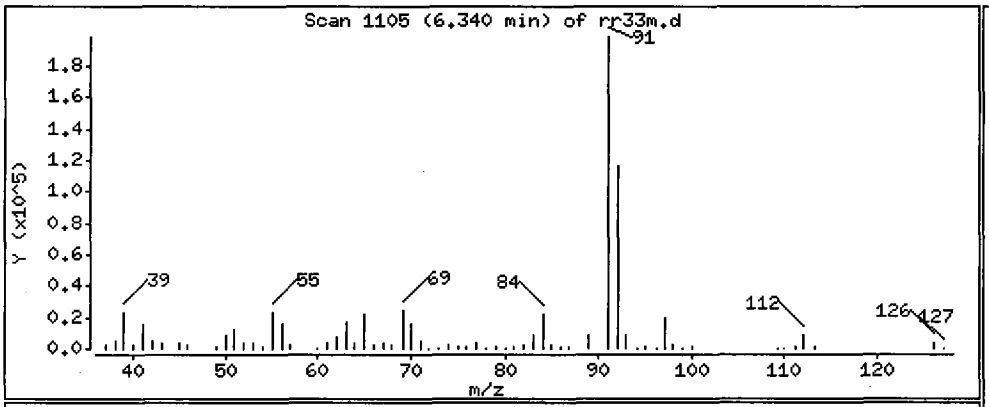
Operator: PB

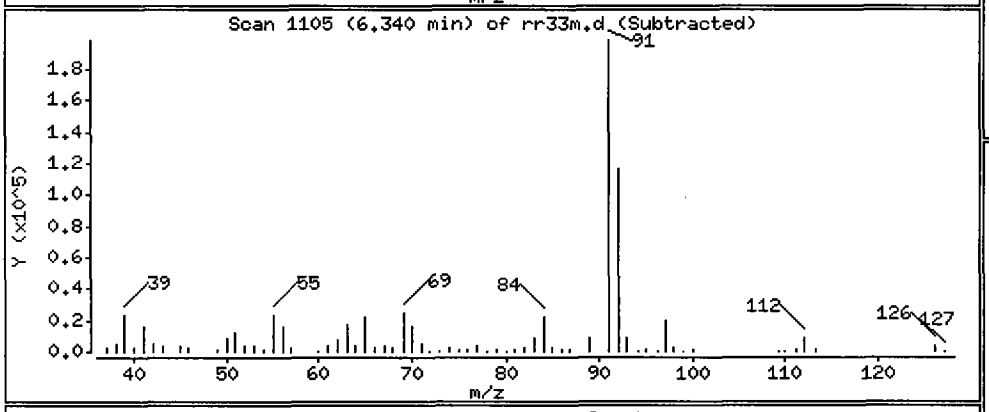
Column phase: RTX502.2

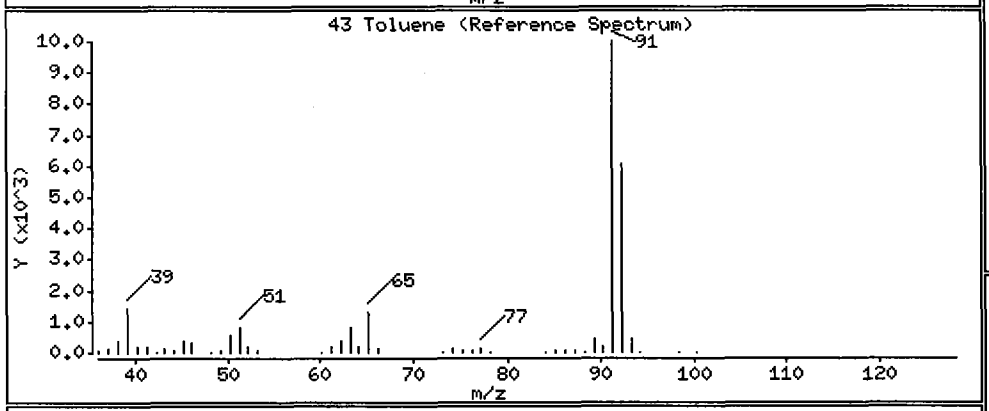
Column diameter: 0.18

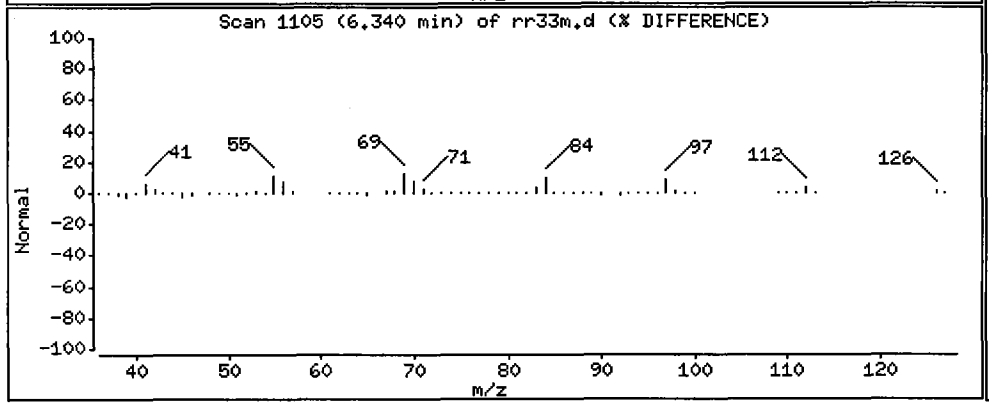
43 Toluene

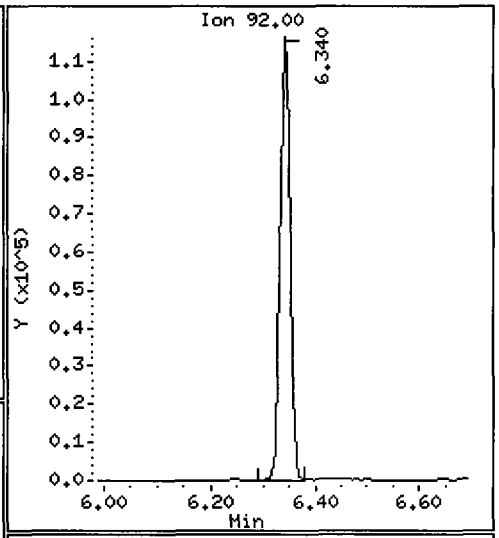
Concentration: 8.163 ug/Kg

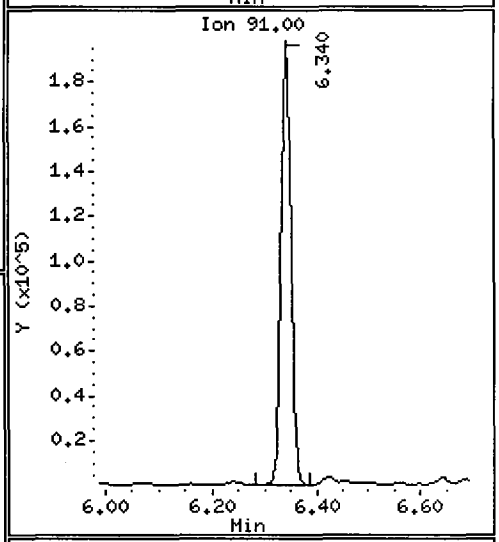


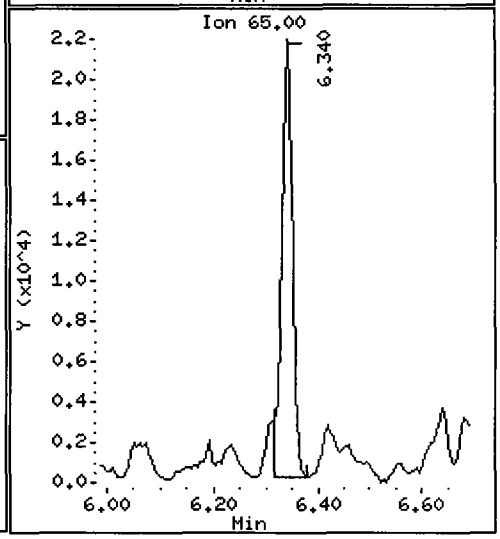












Data File: /chem1/nt9.i/21OCT10.b/gasco.b/rr33m.d

Date : 21-OCT-2010 15:56

Client ID: DGS-07-11.611.8-101

Instrument: nt9.i

Sample Info: RR33M,5,5.79,0

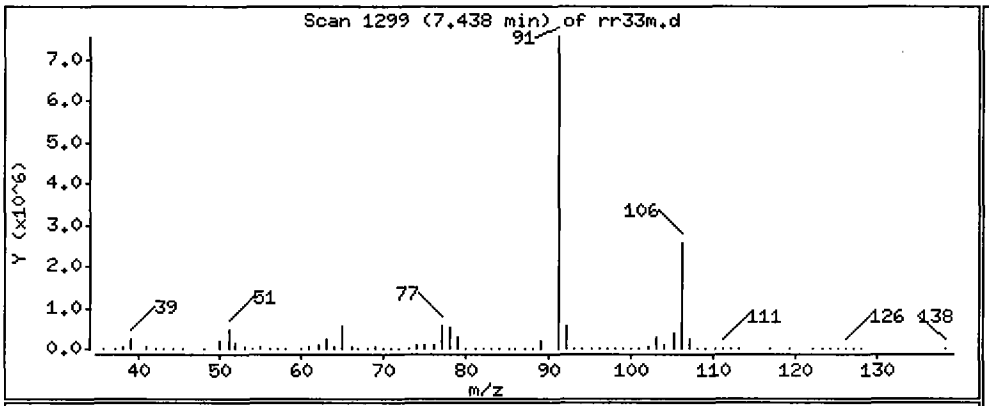
Operator: PB

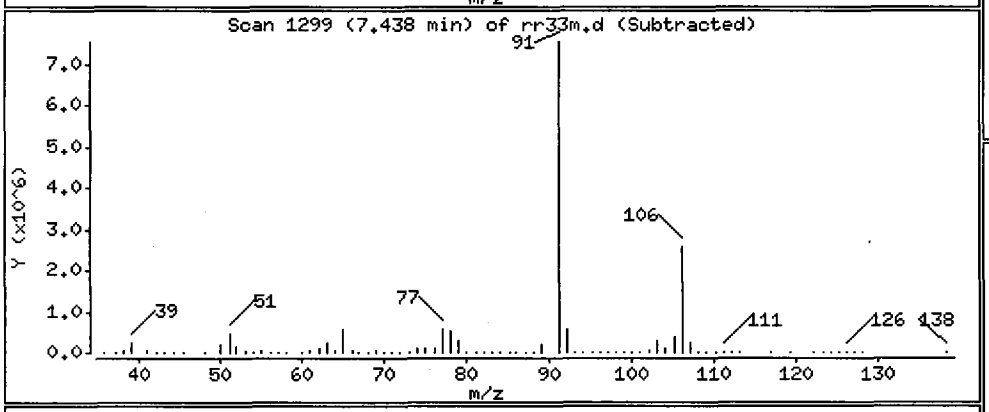
Column phase: RTX502.2

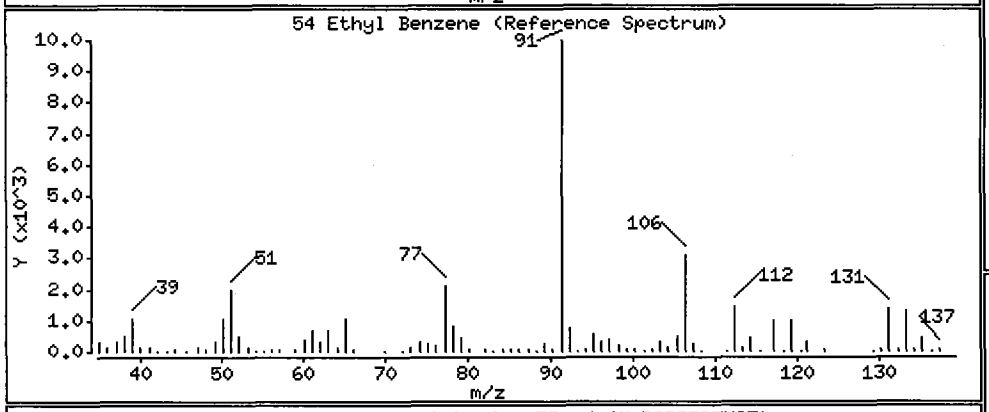
Column diameter: 0.18

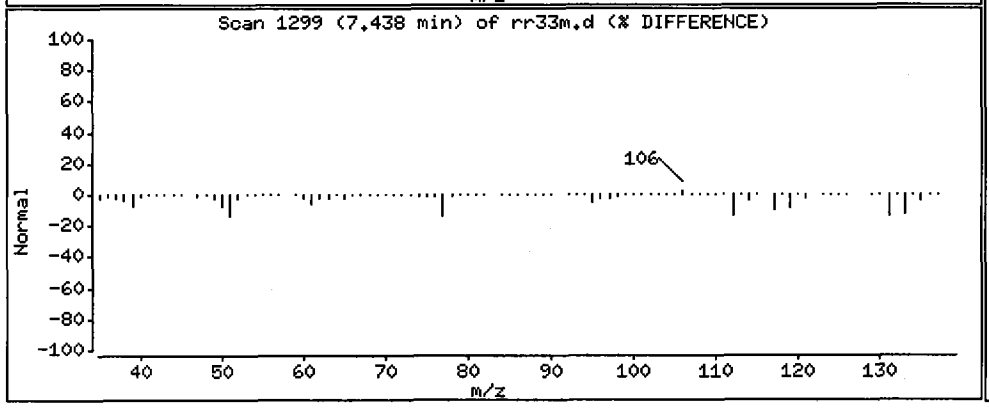
54 Ethyl Benzene

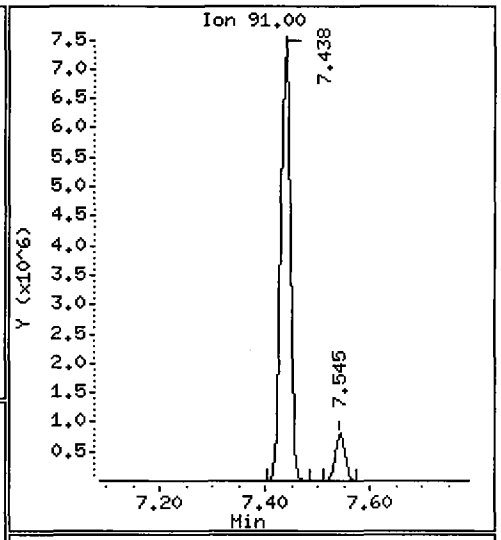
Concentration: 261.85 ug/Kg

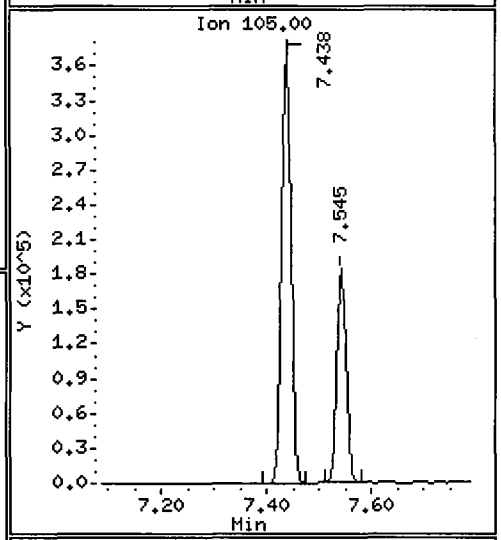


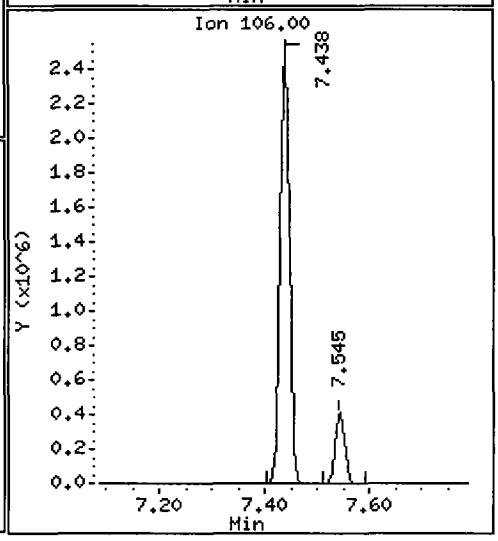












Data File: /chem1/nt9.i/21OCT10.b/gasco.b/rr33m.d

Date : 21-OCT-2010 15:56

Client ID: DGS-07-11.611.8-101

Instrument: nt9.i

Sample Info: RR33M,5,5.79,0

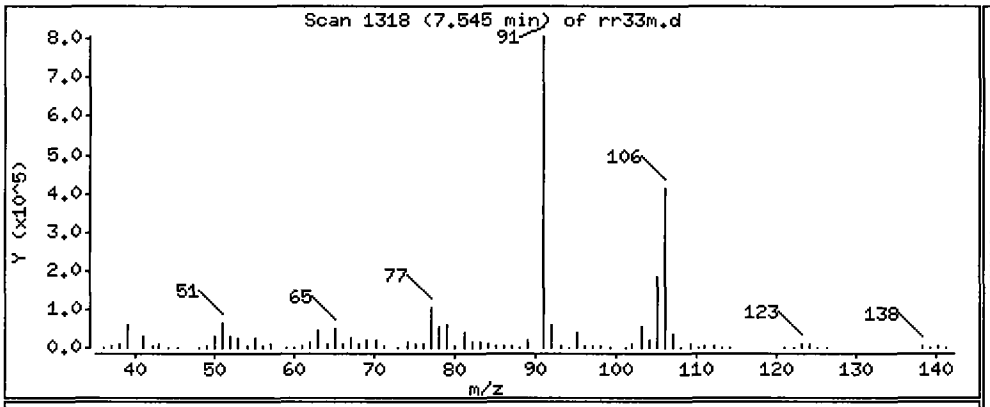
Operator: PB

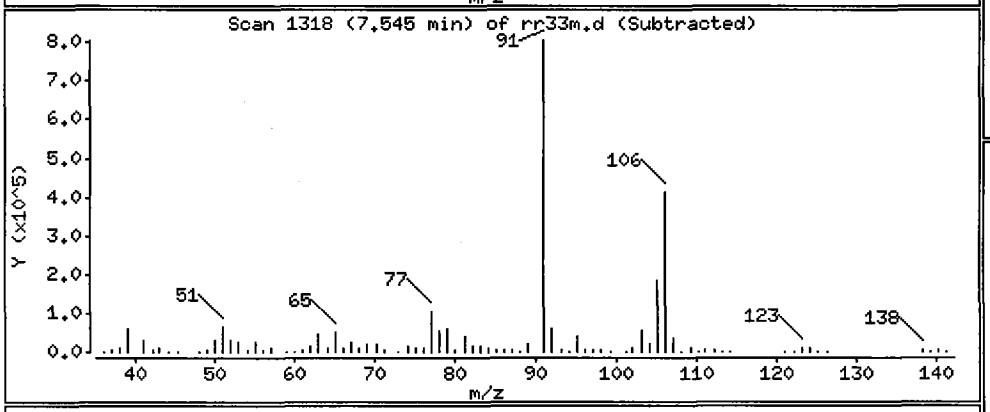
Column phase: RTX502.2

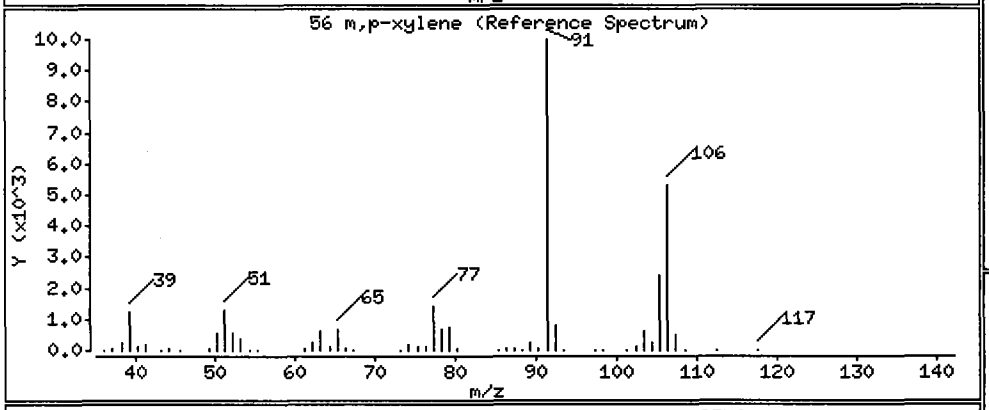
Column diameter: 0.18

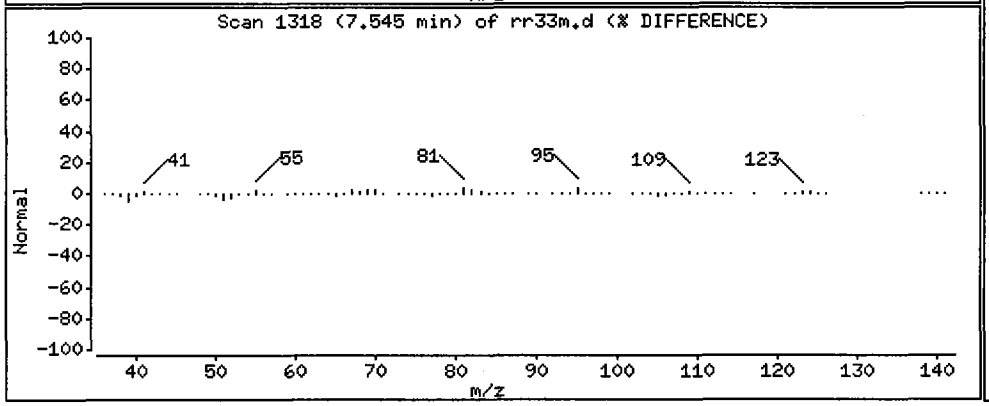
56 m,p-xylene

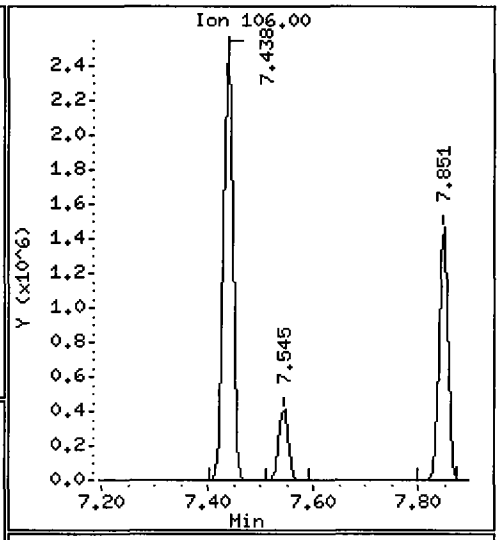
Concentration: 36.317 ug/Kg

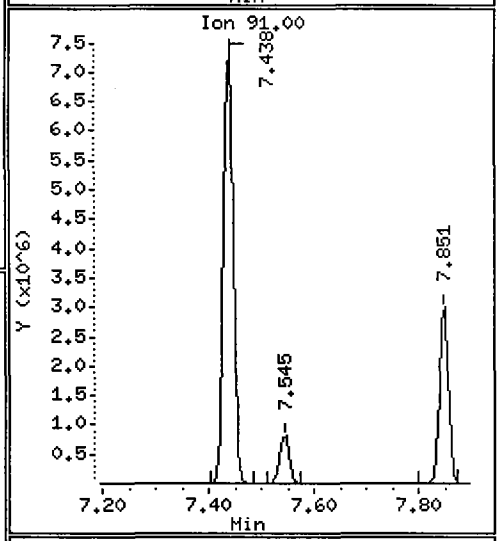


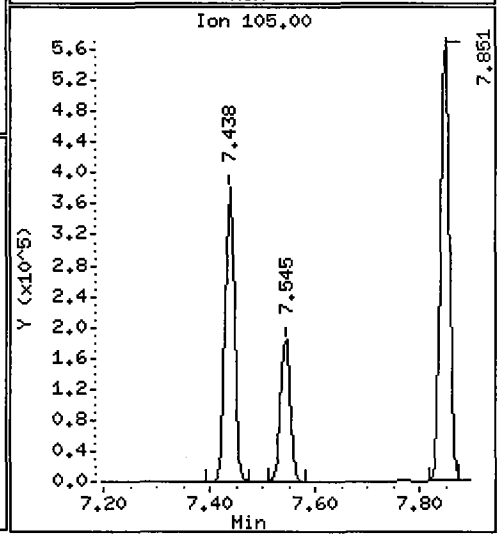












Data File: /chem1/nt9.i/21OCT10.b/gasco.b/rr33m.d

Date : 21-OCT-2010 15:56

Client ID: DGS-07-11.611.8-101

Instrument: nt9.i

Sample Info: RR33M,5,5.79,0

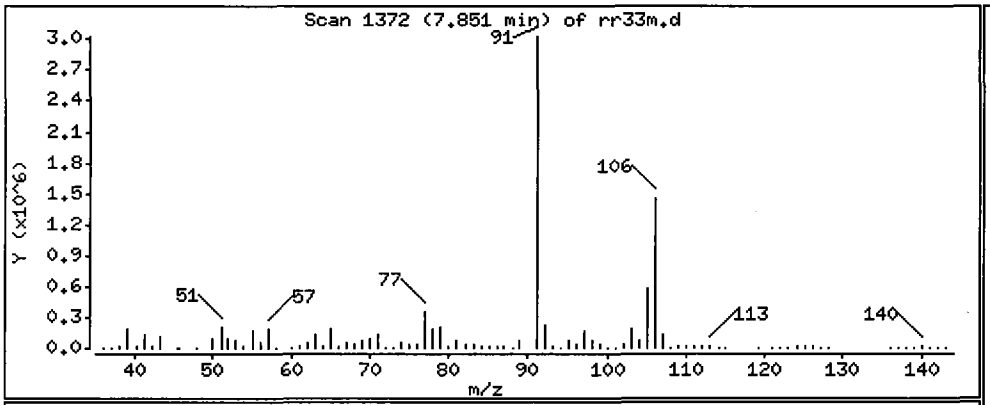
Operator: PB

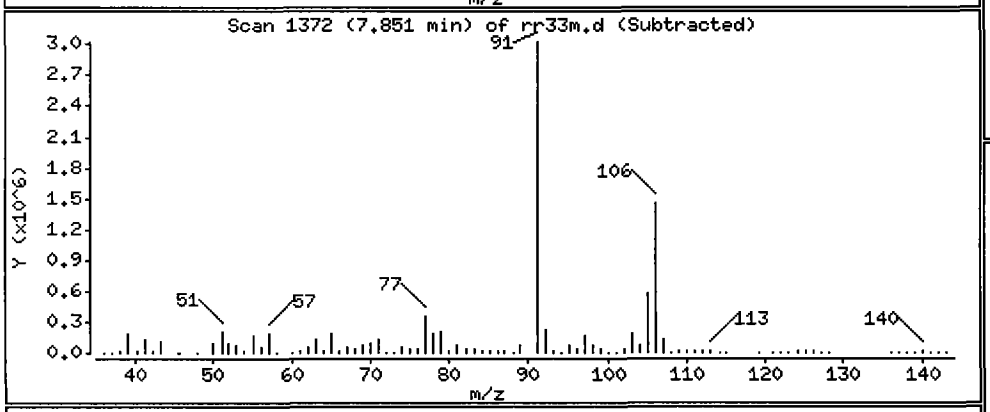
Column phase: RTX502.2

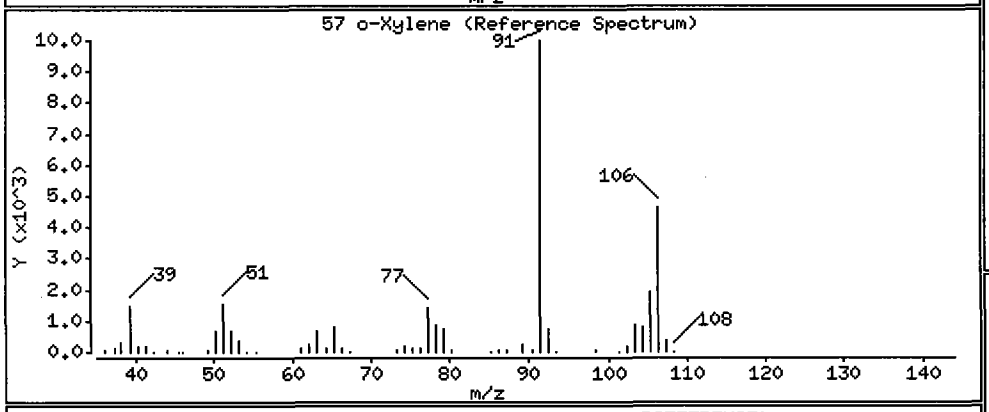
Column diameter: 0.18

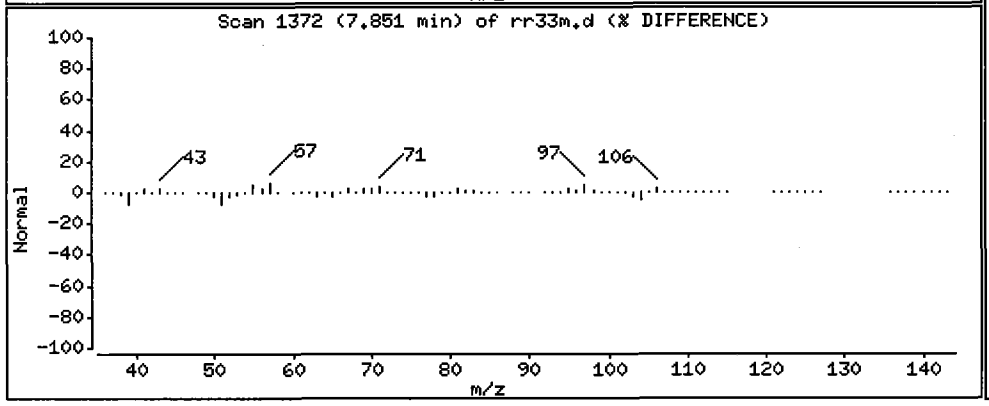
57 o-Xylene

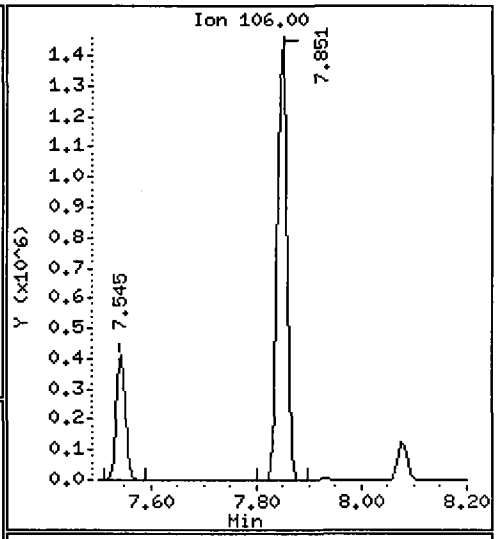
Concentration: 135.42 ug/Kg

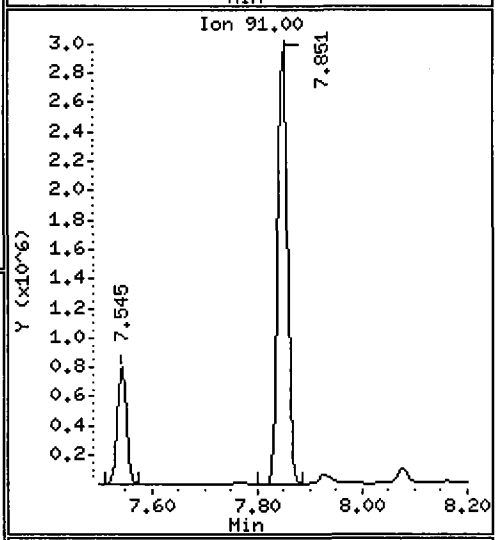


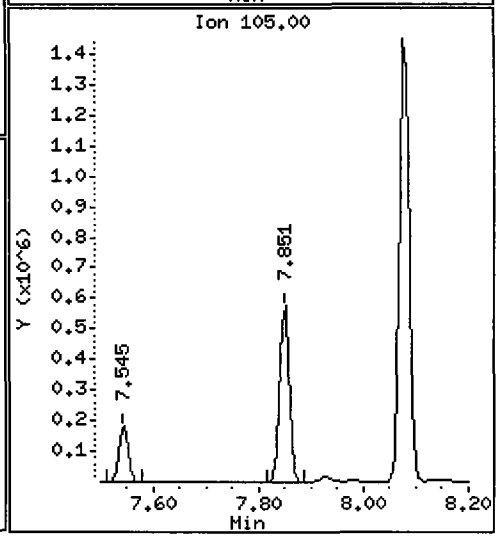












Analytical Resources, Inc.

8260C

Data file : /chem1/nt9.i/21OCT10.b/gasco.b/rr33b2.d
Lab Smp Id: RR33B Client Smp ID: DGS-07-011.3-101012
Inj Date : 21-OCT-2010 17:27
Operator : PB Inst ID: nt9.i
Smp Info : RR33B,5,5.28,0
Misc Info : 10-26420
Comment :
Method : /chem1/nt9.i/21OCT10.b/gasco.b/VO063010S.m
Meth Date : 27-Oct-2010 11:08 patrickb Quant Type: ISTD
Cal Date : 28-AUG-2010 13:21 Cal File: 2000828.d
Als bottle: 1
Dil Factor: 1.00000
Integrator: HP RTE Compound Sublist: gasco.sub
Target Version: 3.50
Processing Host: cserv3

Concentration Formula: Amt * DF * Pv * 1 / (Sa * ((100 - M) / 100)) * CpndVaria

Name	Value	Description
DF	1.00000	Dilution Factor
Pv	5.00000	Purge Volume
Sa	5.28000	Sample Amount
M	0.00000	% Moisture (not decanted)

Cpnd Variable Local Compound Variable

Compounds	QUANT SIG MASS	RT	EXP RT	REL RT	RESPONSE	CONCENTRATIONS ON-COLUMN (ug/Kg)	FINAL (ug/Kg)
3 Vinyl Chloride	62	Compound Not Detected.					
7 1,1-Dichloroethene	96	Compound Not Detected.					
15 Trans-1,2-Dichloroethene	96	Compound Not Detected.					
20 Cis-1,2-Dichloroethene	96	Compound Not Detected.					
* 32 Pentafluorobenzene	168	4.936	4.931	(1.000)	649998	50.0000	
$ 25 Dibromofluoromethane	111	4.528	4.530	(0.917)	229704	47.2610	44.755
$ 31 d4-1,2-Dichloroethane	65	4.936	4.937	(1.000)	264056	52.9175	50.111
30 Benzene	78	4.834	4.829	(0.909)	7033	0.30665	0.2904
* 35 1,4-Difluorobenzene	114	5.320	5.321	(1.000)	852756	50.0000	
34 Trichloroethene	95	Compound Not Detected.					
$ 42 d8-Toluene	98	6.305	6.306	(1.185)	953682	49.3581	46.741
43 Toluene	92	6.344	6.340	(1.192)	6803	0.41741	0.3953(Q)
44 Tetrachloroethene	166	Compound Not Detected.					
* 52 d5-Chlorobenzene	117	7.396	7.398	(1.000)	737120	50.0000	

Compounds	QUANT SIG MASS	RT	EXP RT	REL RT	RESPONSE	CONCENTRATIONS ON-COLUMN (ug/Kg)	FINAL (ug/Kg)
54 Ethyl Benzene	91	7.436	7.437	(1.005)	32556	1.07769	1.021
56 m,p-xylene	106	7.543	7.545	(1.020)	6000	0.49209	0.4650
57 o-Xylene	106	7.849	7.850	(1.061)	38271	3.36255	3.184
$ 61 4-Bromofluorobenzene	95	8.273	8.274	(1.119)	348755	51.0839	48.375
* 75 d4-1,4-Dichlorobenzene	152	9.110	9.112	(1.000)	389422	50.0000	
$ 78 d4-1,2-Dichlorobenzene	152	9.433	9.434	(1.035)	347016	50.9767	48.273(Q)

QC Flag Legend

Q - Qualifier signal failed the ratio test.

Analytical Resources, Inc.

INTERNAL STANDARD COMPOUNDS
AREA AND RT SUMMARY

Instrument ID: nt9.i
Lab File ID: rr33b2.d
Lab Smp Id: RR33B
Analysis Type: VOA
Quant Type: ISTD
Operator: PB
Method File: /chem1/nt9.i/21OCT10.b/gasco.b/VO063010S.m
Misc Info: 10-26420

Calibration Date: 21-OCT-2010
Calibration Time: 10:46
Client Smp ID: DGS-07-011.3-101012
Level: LOW
Sample Type: Sediment

Test Mode:
Use Initial Calibration Level 5.
If Continuing Cal. use Initial Cal. Level 5

COMPOUND	STANDARD	AREA LIMIT LOWER	AREA LIMIT UPPER	SAMPLE	%DIFF
32 Pentafluorobenzen	704281	352140	1408562	649998	-7.71
35 1,4-Difluorobenze	937745	468872	1875490	852756	-9.06
52 d5-Chlorobenzene	853013	426506	1706026	737120	-13.59
75 d4-1,4-Dichlorobe	503655	251828	1007310	389422	-22.68

COMPOUND	STANDARD	RT LIMIT LOWER	RT LIMIT UPPER	SAMPLE	%DIFF
32 Pentafluorobenzen	4.93	4.43	5.43	4.94	0.09
35 1,4-Difluorobenze	5.32	4.82	5.82	5.32	-0.02
52 d5-Chlorobenzene	7.40	6.90	7.90	7.40	-0.02
75 d4-1,4-Dichlorobe	9.11	8.61	9.61	9.11	-0.01

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.

Analytical Resources, Inc.

RECOVERY REPORT

Client Name: NW Natural
Sample Matrix: SOLID
Lab Smp Id: RR33B
Level: LOW
Data Type: MS DATA
SpikeList File: all.spk
Sublist File: gasco.sub
Method File: /chem1/nt9.i/21OCT10.b/gasco.b/VO063010S.m
Misc Info: 10-26420

Client SDG: RR33
Fraction: VOA
Client Smp ID: DGS-07-011.3-101012
Operator: PB
SampleType: SAMPLE
Quant Type: ISTD

SURROGATE COMPOUND	AMOUNT ADDED ug/Kg	AMOUNT RECOVERED ug/Kg	% RECOVERED	LIMITS
$ 25 Dibromofluorometha	50.000	47.261	94.52	30-160
$ 31 d4-1,2-Dichloroeth	50.000	52.918	105.84	75-152
$ 42 d8-Toluene	50.000	49.358	98.72	82-115
$ 61 4-Bromofluorobenze	50.000	51.084	102.17	64-120
$ 78 d4-1,2-Dichloroben	50.000	50.977	101.95	80-120

Data File: /chem1/nt9.i/21OCT10.b/gasco.b/rr33b2.d

Date : 21-OCT-2010 17:27

Client ID: DGS-07-011.3-101012

Sample Info: RR33B,5,5.28,0

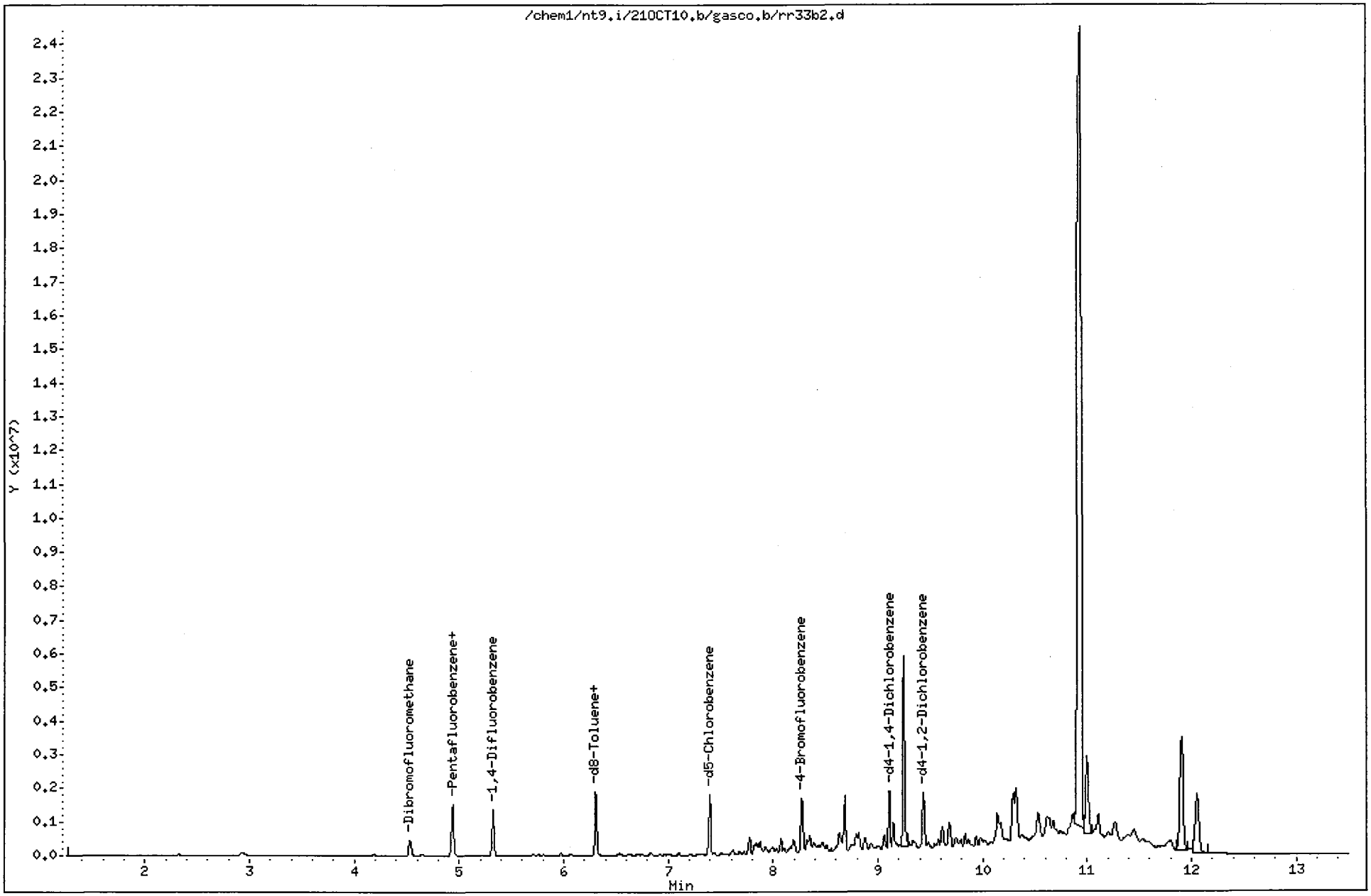
Column phase: RTX502.2

Instrument: nt9.i

Operator: PB

Column diameter: 0.18

RR33:00312



Data File: /chem1/nt9.i/21OCT10.b/gasco.b/rr33b2.d

Date : 21-OCT-2010 17:27

Client ID: DGS-07-011.3-101012

Instrument: nt9.i

Sample Info: RR33B,5,5.28,0

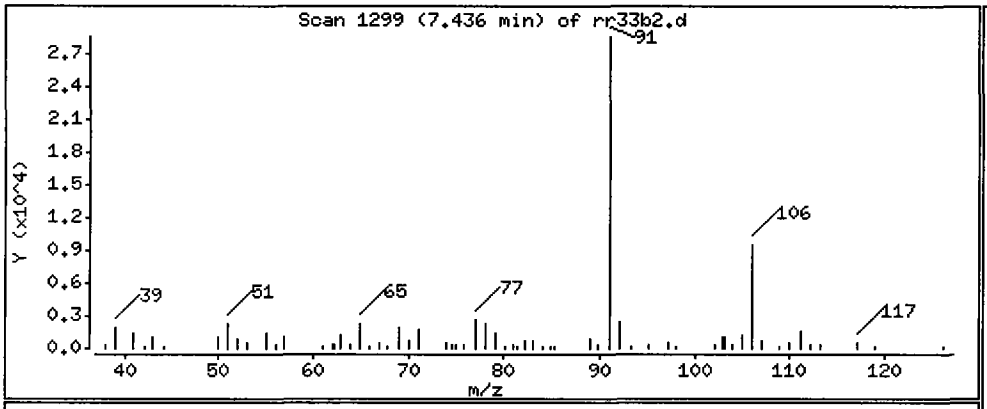
Operator: PB

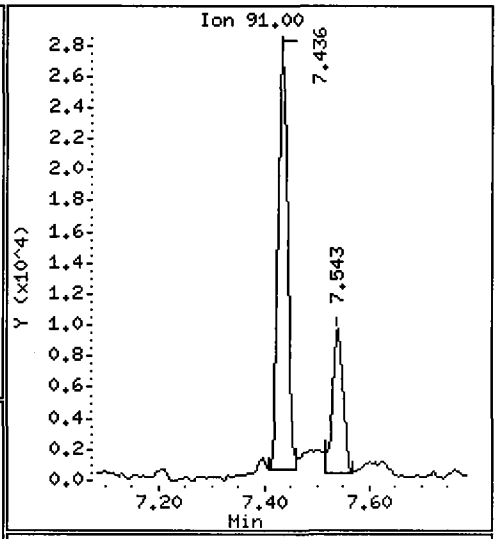
Column phase: RTX502.2

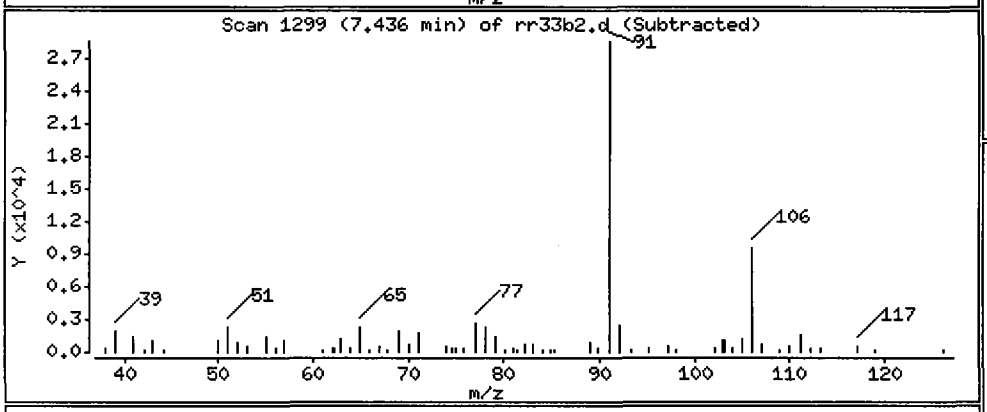
Column diameter: 0.18

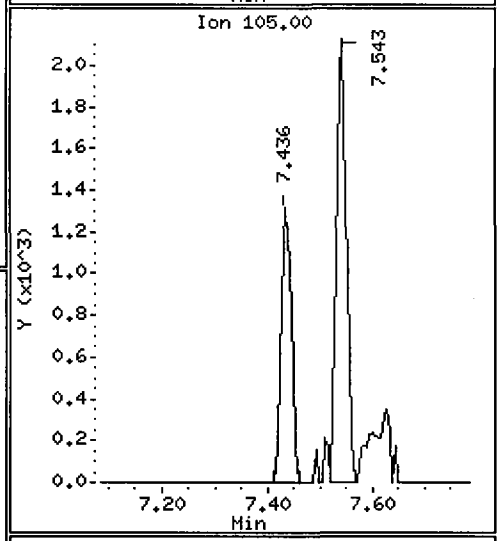
54 Ethyl Benzene

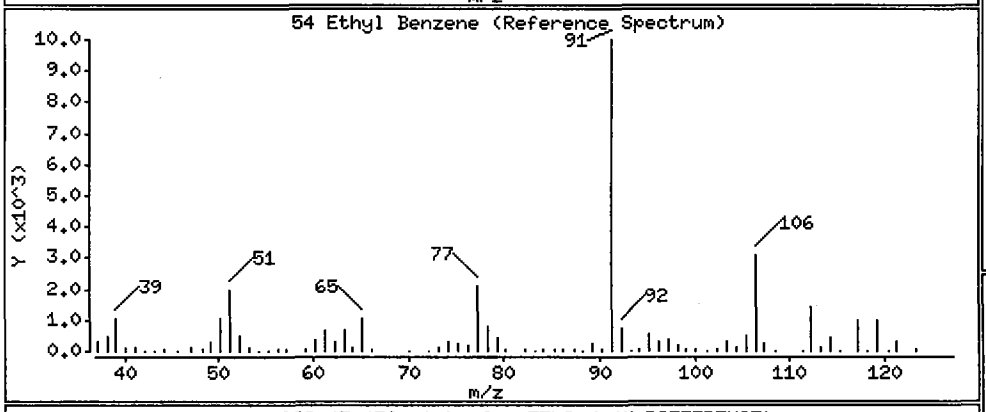
Concentration: 1.021 ug/Kg

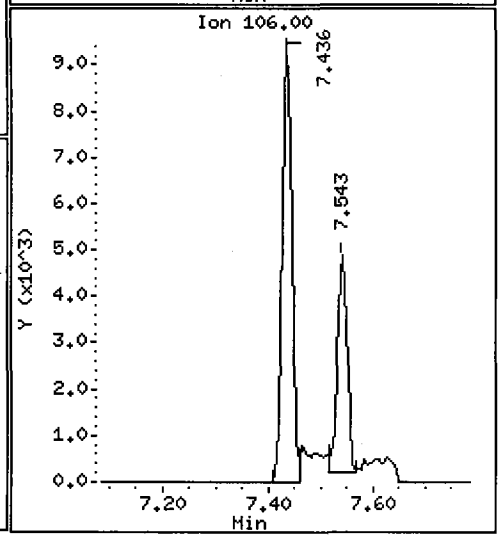


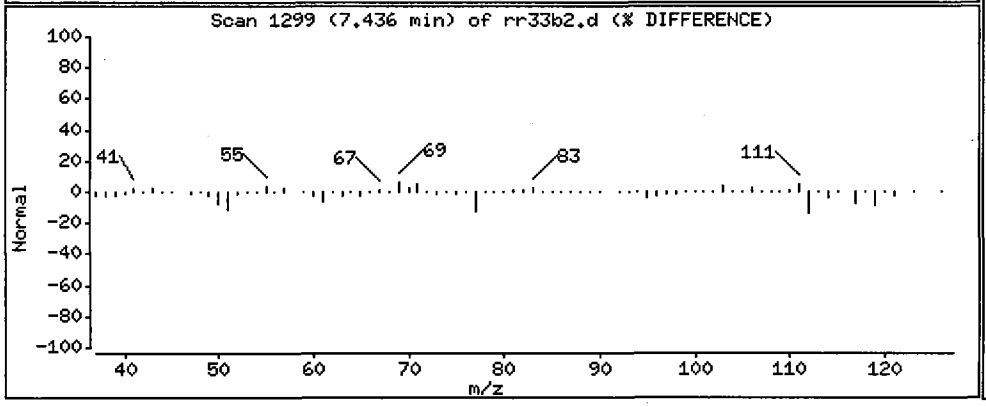












Data File: /chem1/nt9.i/21OCT10.b/gasco.b/rr33b2.d

Date : 21-OCT-2010 17:27

Client ID: DGS-07-011.3-101012

Instrument: nt9.i

Sample Info: RR33B,5,5.28,0

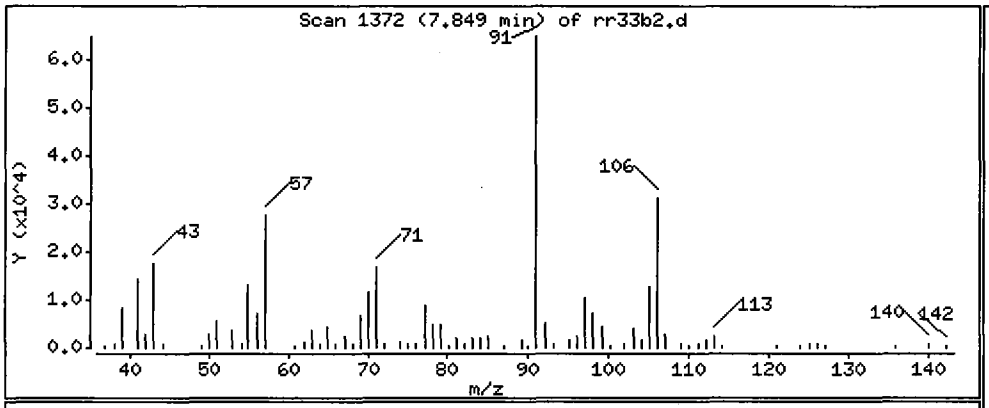
Operator: PB

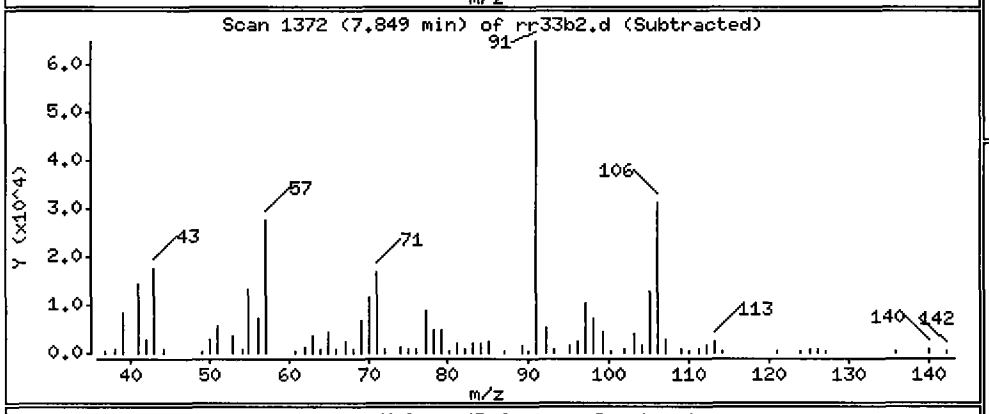
Column phase: RTX502.2

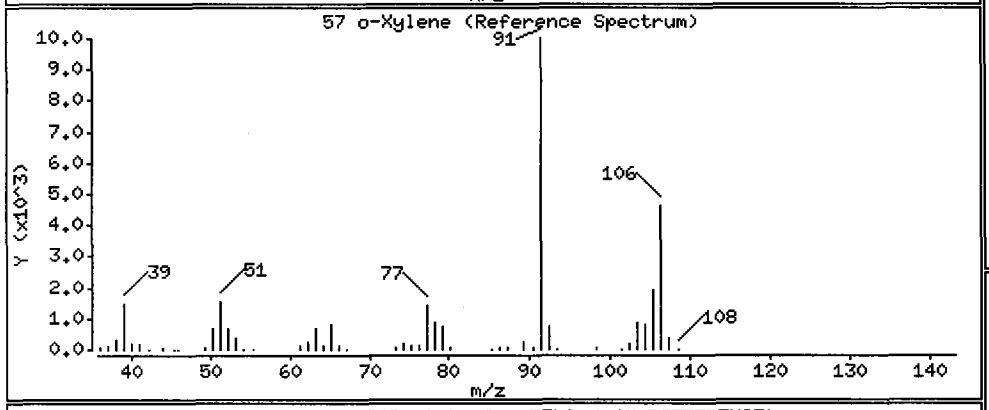
Column diameter: 0.18

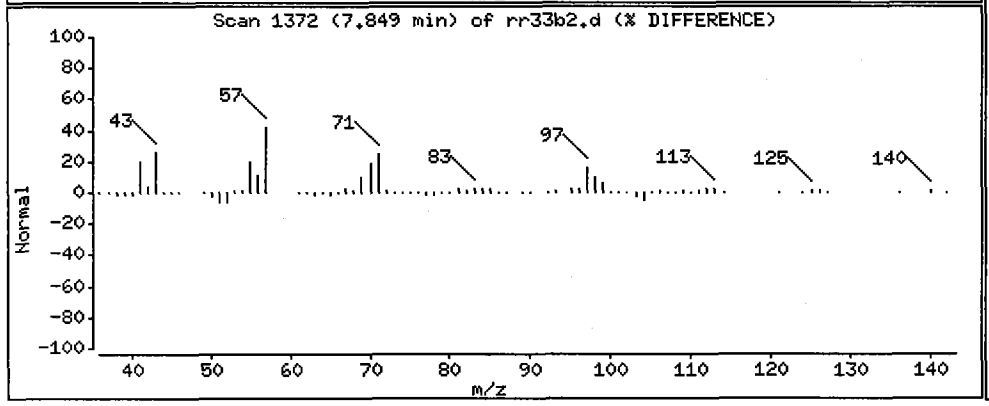
57 o-Xylene

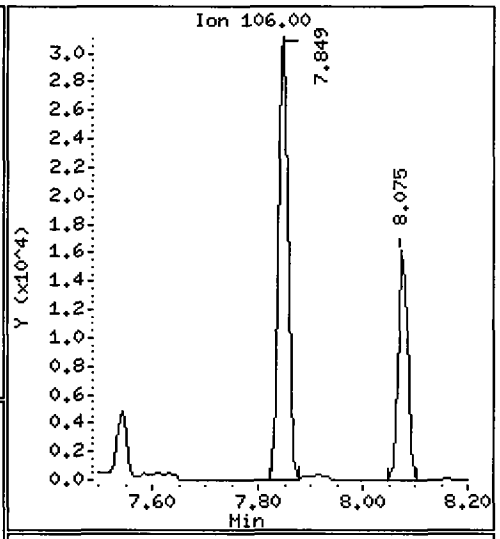
Concentration: 3.184 ug/Kg

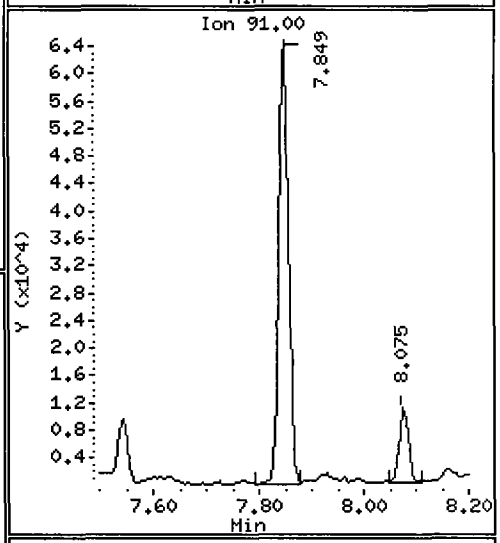


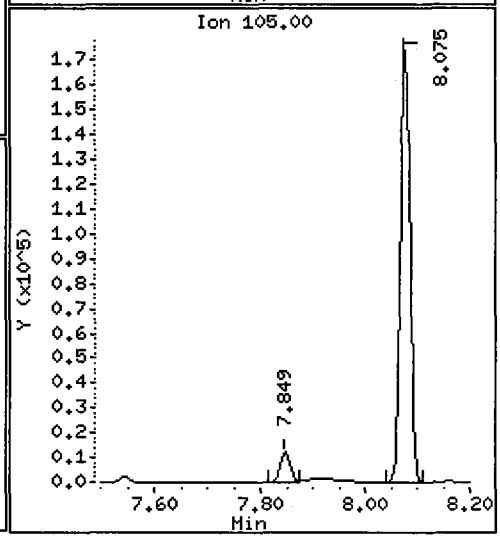












Analytical Resources, Inc.

8260C

Data file : /chem1/nt9.i/21OCT10.b/gasco.b/rr33d2.d
Lab Smp Id: RR33D Client Smp ID: DGS-07-034.2-101012
Inj Date : 21-OCT-2010 17:57
Operator : PB Inst ID: nt9.i
Smp Info : RR33D,5,5.68,0
Misc Info : 10-26422
Comment :
Method : /chem1/nt9.i/21OCT10.b/gasco.b/VO063010S.m
Meth Date : 27-Oct-2010 11:08 patrickb Quant Type: ISTD
Cal Date : 28-AUG-2010 13:21 Cal File: 2000828.d
Als bottle: 1
Dil Factor: 1.00000
Integrator: HP RTE Compound Sublist: gasco.sub
Target Version: 3.50
Processing Host: cserv3

10/26

Concentration Formula: Amt * DF * Pv * 1 / (Sa * ((100 - M) / 100)) * CpndVaria

Name	Value	Description
DF	1.00000	Dilution Factor
Pv	5.00000	Purge Volume
Sa	5.68000	Sample Amount
M	0.00000	% Moisture (not decanted)

Cpnd Variable Local Compound Variable

	Compounds	QUANT SIG MASS	RT	EXP RT	REL RT	RESPONSE	CONCENTRATIONS ON-COLUMN (ug/Kg)	FINAL (ug/Kg)
	3 Vinyl Chloride	62	Compound Not Detected.					
	7 1,1-Dichloroethene	96	Compound Not Detected.					
	15 Trans-1,2-Dichloroethene	96	Compound Not Detected.					
	20 Cis-1,2-Dichloroethene	96	Compound Not Detected.					
*	32 Pentafluorobenzene	168	4.931	4.931	(1.000)	658687	50.0000	
$	25 Dibromofluoromethane	111	4.529	4.530	(0.919)	247825	50.3167	44.293
$	31 d4-1,2-Dichloroethane	65	4.936	4.937	(1.001)	293545	58.0512	51.101
	30 Benzene	78	4.829	4.829	(0.908)	1650533	68.8263	60.587
*	35 1,4-Difluorobenzene	114	5.321	5.321	(1.000)	891652	50.0000	
	34 Trichloroethene	95	Compound Not Detected.					
$	42 d8-Toluene	98	6.305	6.306	(1.185)	997948	49.3960	43.482
	43 Toluene	92	6.345	6.340	(1.192)	274686	16.1185	14.189
	44 Tetrachloroethene	166	Compound Not Detected.					
*	52 d5-Chlorobenzene	117	7.397	7.398	(1.000)	777866	50.0000	

Compounds	QUANT SIG MASS	RT	EXP RT	REL RT	RESPONSE	CONCENTRATIONS ON-COLUMN (ug/Kg)	CONCENTRATIONS FINAL (ug/Kg)
54 Ethyl Benzene	91	7.431	7.437	(1.005)	15452779	484.734	426.70(QM)
56 m,p-xylene	106	7.544	7.545	(1.020)	560744	43.4916	38.285
57 o-Xylene	106	7.850	7.850	(1.061)	1148834	95.6511	84.200
$ 61 4-Bromofluorobenzene	95	8.274	8.274	(1.119)	422143	58.5945	51.580(Q)
* 75 d4-1,4-Dichlorobenzene	152	9.111	9.112	(1.000)	377937	50.0000	(QM)
$ 78 d4-1,2-Dichlorobenzene	152	9.434	9.434	(1.035)	335310	50.7539	44.678(QM)

QC Flag Legend

Q - Qualifier signal failed the ratio test.
M - Compound response manually integrated.

Analytical Resources, Inc.

INTERNAL STANDARD COMPOUNDS
AREA AND RT SUMMARY

Instrument ID: nt9.i
Lab File ID: rr33d2.d
Lab Smp Id: RR33D
Analysis Type: VOA
Quant Type: ISTD
Operator: PB
Method File: /chem1/nt9.i/21OCT10.b/gasco.b/VO063010S.m
Misc Info: 10-26422

Calibration Date: 21-OCT-2010
Calibration Time: 10:46
Client Smp ID: DGS-07-034.2-101012
Level: LOW
Sample Type: Sediment

Test Mode:
Use Initial Calibration Level 5.
If Continuing Cal. use Initial Cal. Level 5

COMPOUND	STANDARD	AREA LIMIT LOWER	AREA LIMIT UPPER	SAMPLE	%DIFF
32 Pentafluorobenzen	704281	352140	1408562	658687	-6.47
35 1,4-Difluorobenze	937745	468872	1875490	891652	-4.92
52 d5-Chlorobenzene	853013	426506	1706026	777866	-8.81
75 d4-1,4-Dichlorobe	503655	251828	1007310	377937	-24.96

COMPOUND	STANDARD	RT LIMIT LOWER	RT LIMIT UPPER	SAMPLE	%DIFF
32 Pentafluorobenzen	4.93	4.43	5.43	4.93	-0.01
35 1,4-Difluorobenze	5.32	4.82	5.82	5.32	-0.01
52 d5-Chlorobenzene	7.40	6.90	7.90	7.40	-0.01
75 d4-1,4-Dichlorobe	9.11	8.61	9.61	9.11	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.

Analytical Resources, Inc.

RECOVERY REPORT

Client Name: NW Natural
Sample Matrix: SOLID
Lab Smp Id: RR33D
Level: LOW
Data Type: MS DATA
SpikeList File: all.spk
Sublist File: gasco.sub
Method File: /chem1/nt9.i/21OCT10.b/gasco.b/VO063010S.m
Misc Info: 10-26422

Client SDG: RR33
Fraction: VOA
Client Smp ID: DGS-07-034.2-101012
Operator: PB
SampleType: SAMPLE
Quant Type: ISTD

SURROGATE COMPOUND	AMOUNT ADDED ug/Kg	AMOUNT RECOVERED ug/Kg	% RECOVERED	LIMITS
$ 25 Dibromofluorometha	50.000	50.317	100.63	30-160
$ 31 d4-1,2-Dichloroeth	50.000	58.051	116.10	75-152
$ 42 d8-Toluene	50.000	49.396	98.79	82-115
$ 61 4-Bromofluorobenze	50.000	58.595	117.19	64-120
$ 78 d4-1,2-Dichloroben	50.000	50.754	101.51	80-120

Data File: /chem1/nt9.i/21OCT10.b/gasco.b/rr33d2.d

Date : 21-OCT-2010 17:57

Client ID: DGS-07-034.2-101012

Sample Info: RR33D,5,5.68,0

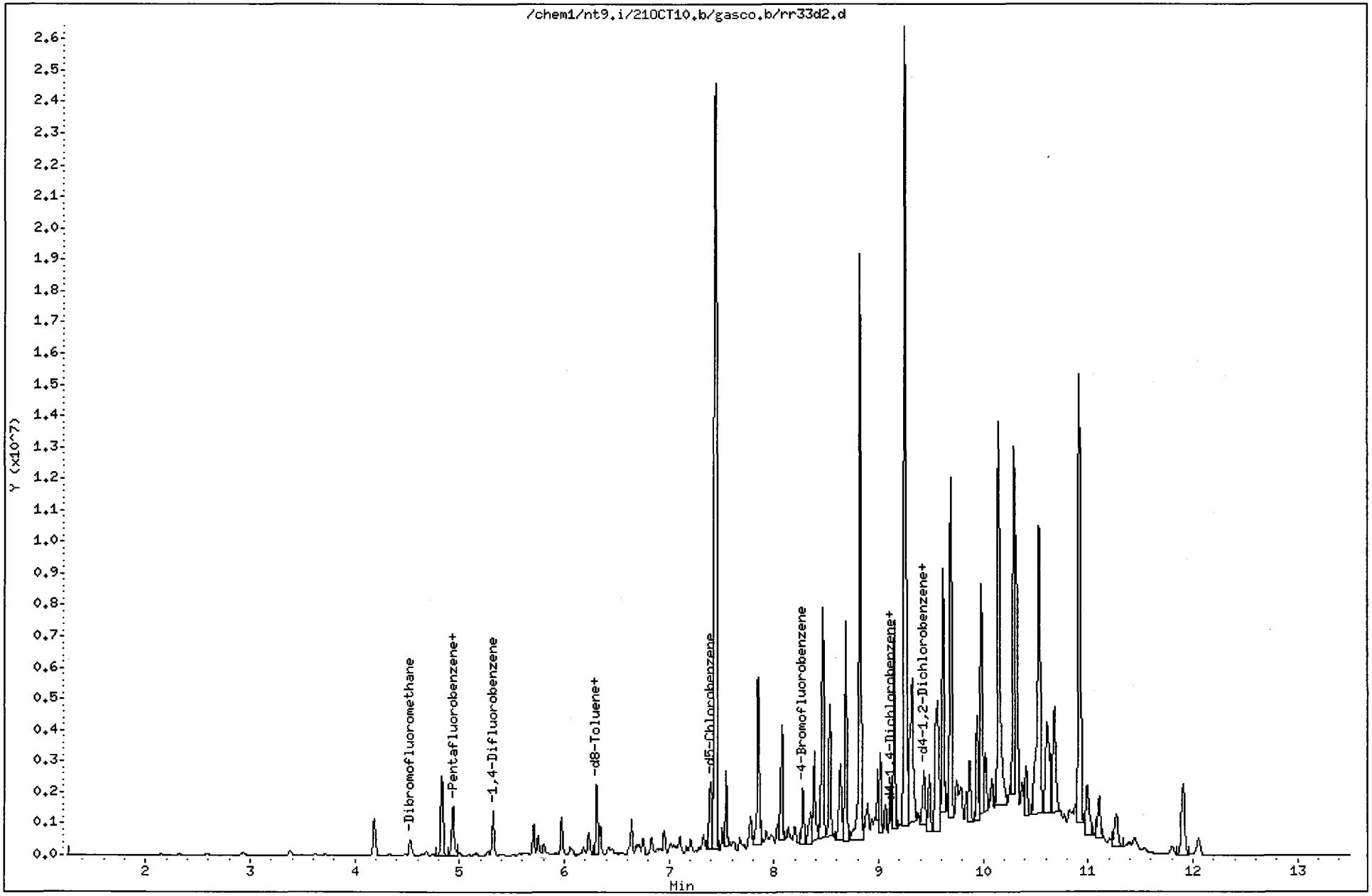
Column phase: RTX502.2

Instrument: nt9.i

Operator: PB

Column diameter: 0.18

RR33:00319



Data File: /chem1/nt9.i/21OCT10.b/gasco.b/rr33d2.d

Date : 21-OCT-2010 17:57

Client ID: DGS-07-034.2-101012

Instrument: nt9.i

Sample Info: RR33D,5,5.68,0

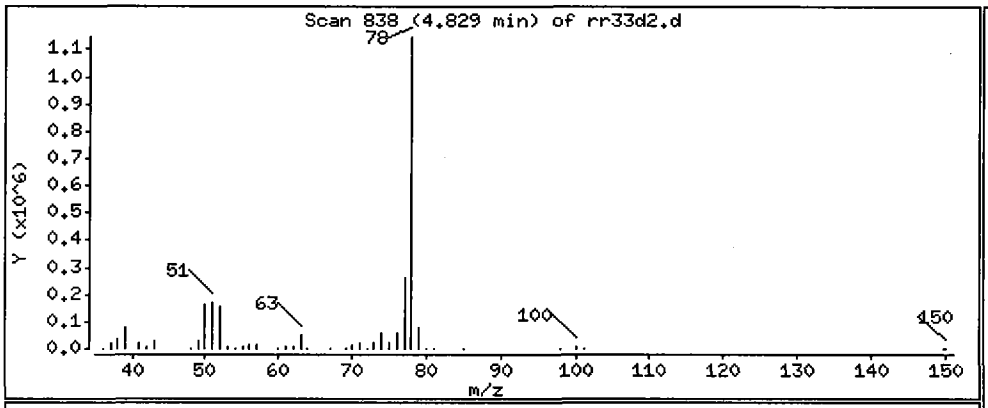
Operator: PB

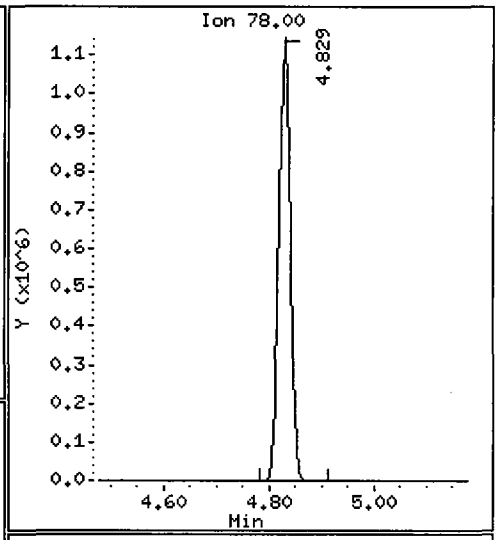
Column phase: RTX502.2

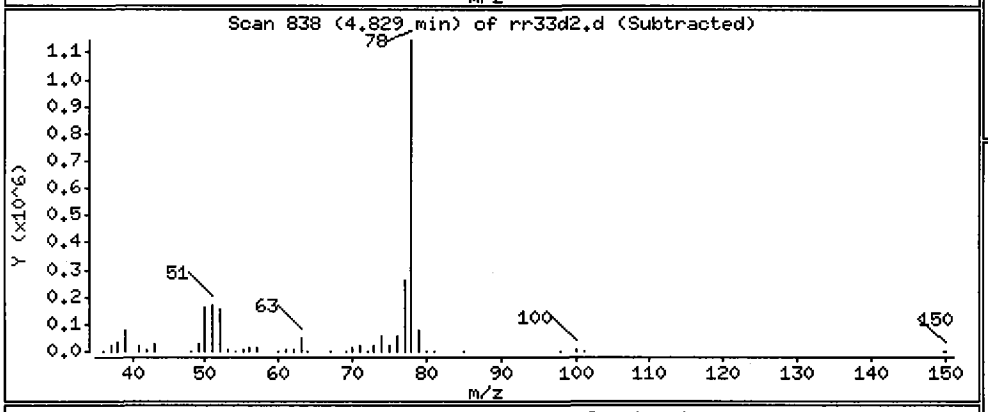
Column diameter: 0.18

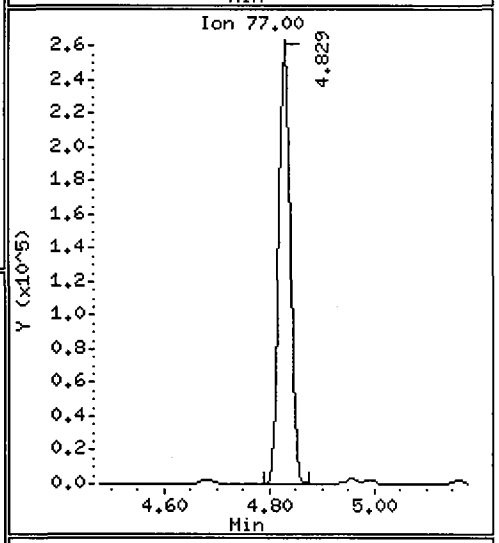
30 Benzene

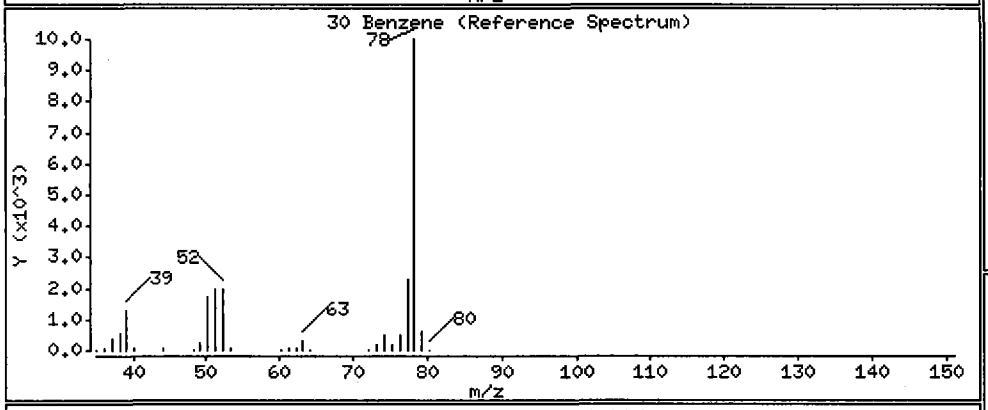
Concentration: 60.587 ug/Kg

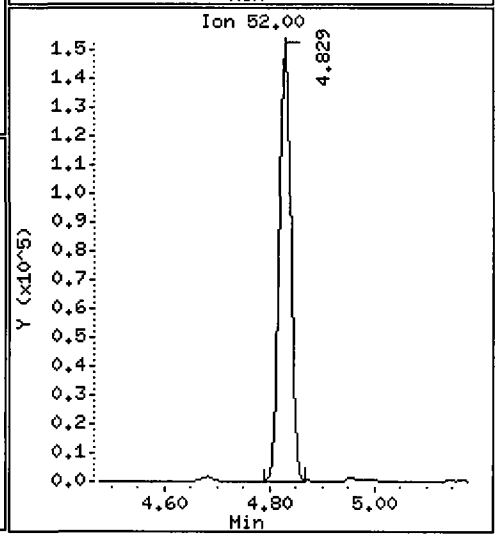


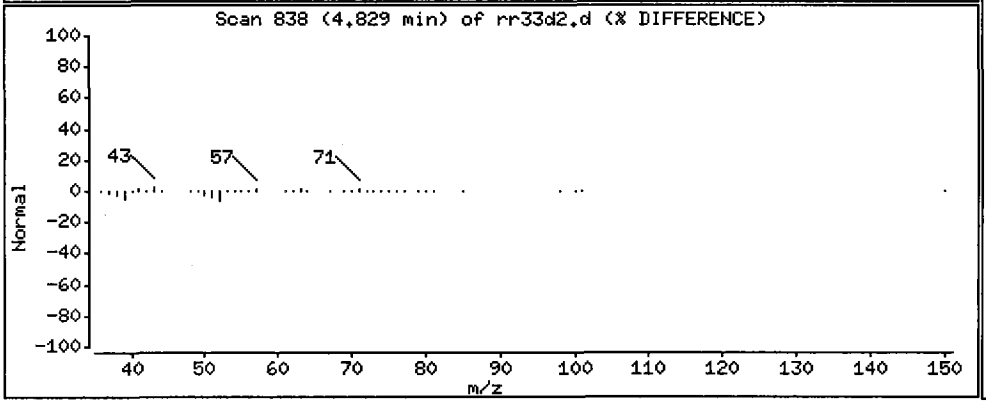












Data File: /chem1/nt9.i/21OCT10.b/gasco.b/rr33d2.d

Date : 21-OCT-2010 17:57

Client ID: DGS-07-034.2-101012

Instrument: nt9.i

Sample Info: RR33D,5,5.68,0

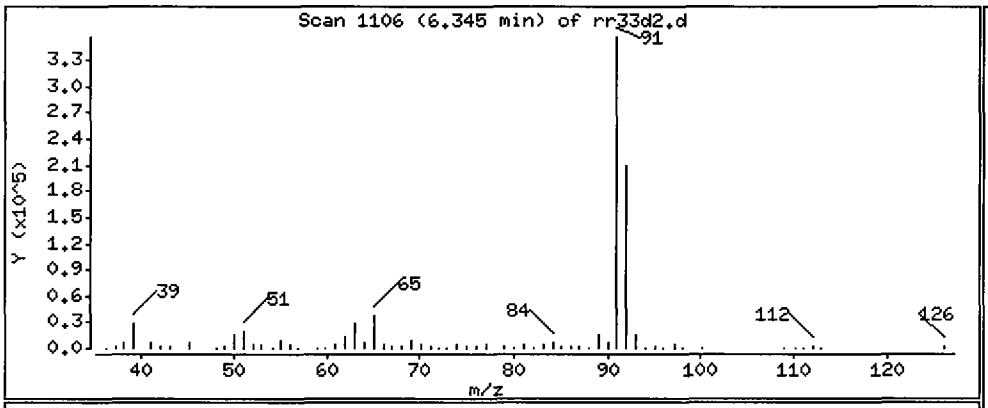
Operator: PB

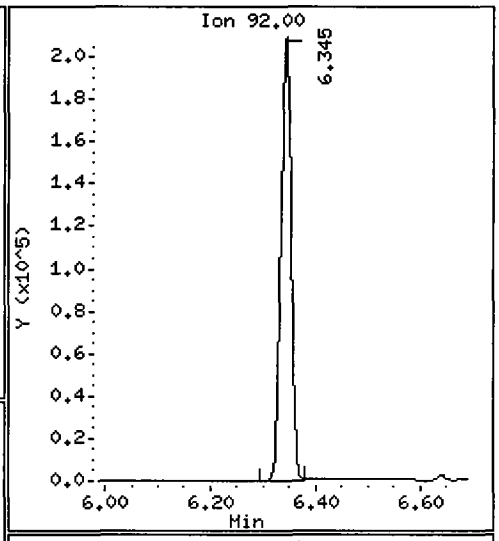
Column phase: RTX502.2

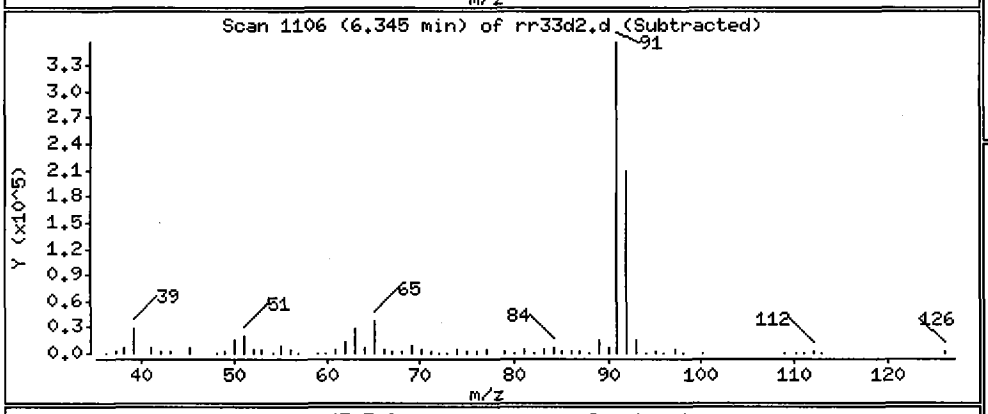
Column diameter: 0.18

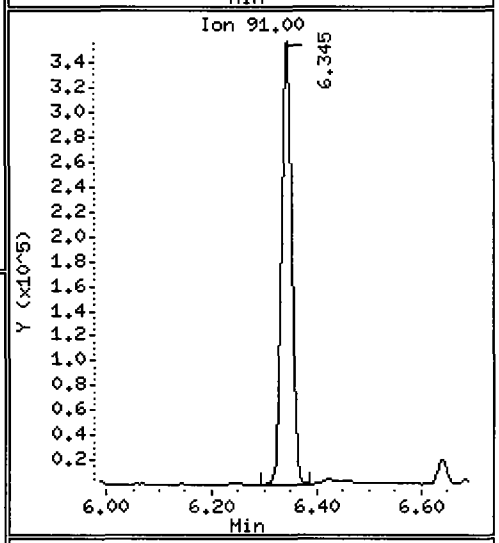
43 Toluene

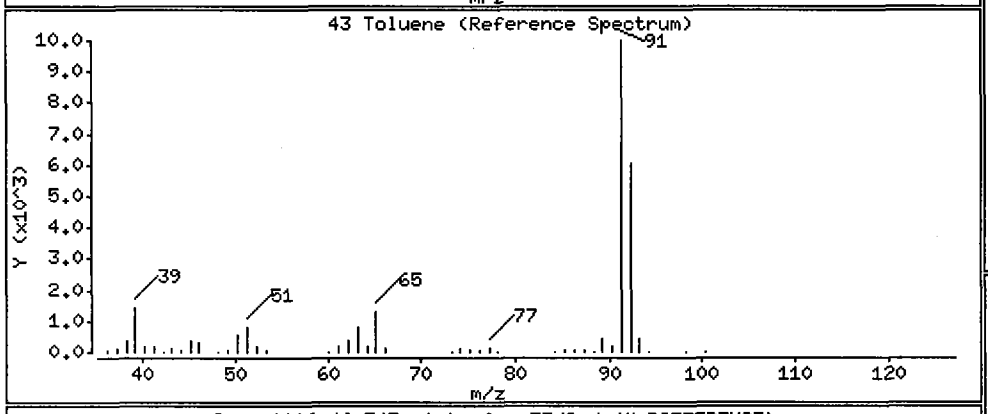
Concentration: 14.189 ug/Kg

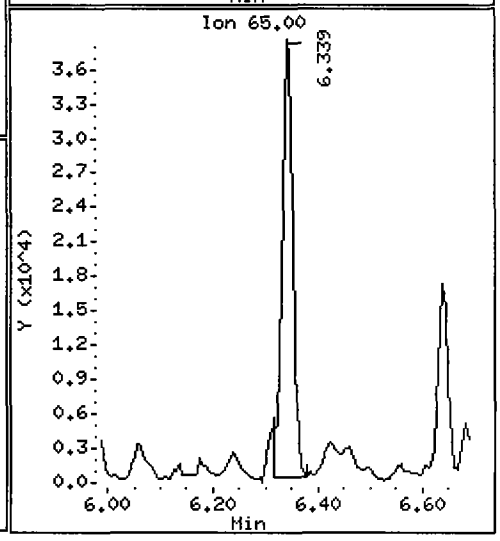


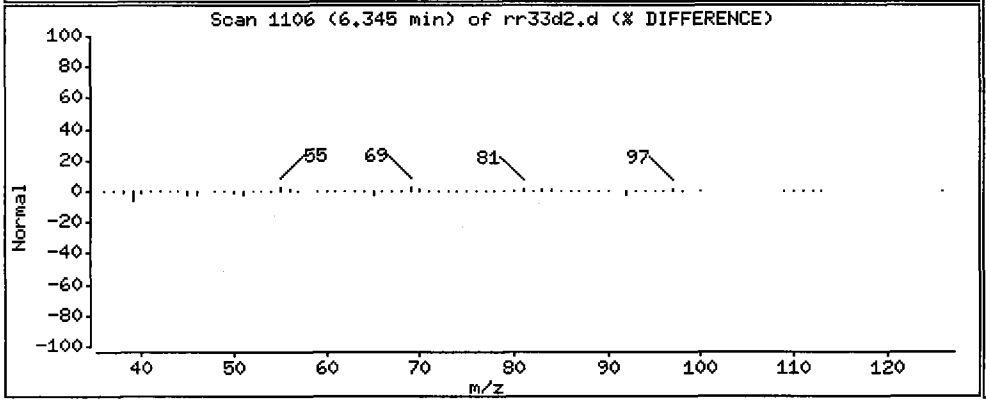












Data File: /chem1/nt9.i/21OCT10.b/gasco.b/rr33d2.d

Date : 21-OCT-2010 17:57

Client ID: DGS-07-034.2-101012

Instrument: nt9.i

Sample Info: RR33D,5,5.68,0

Operator: PB

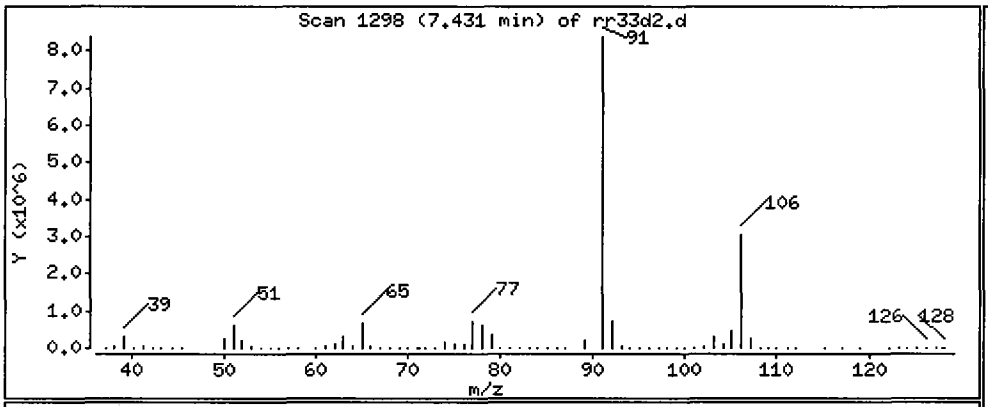
Column phase: RTX502.2

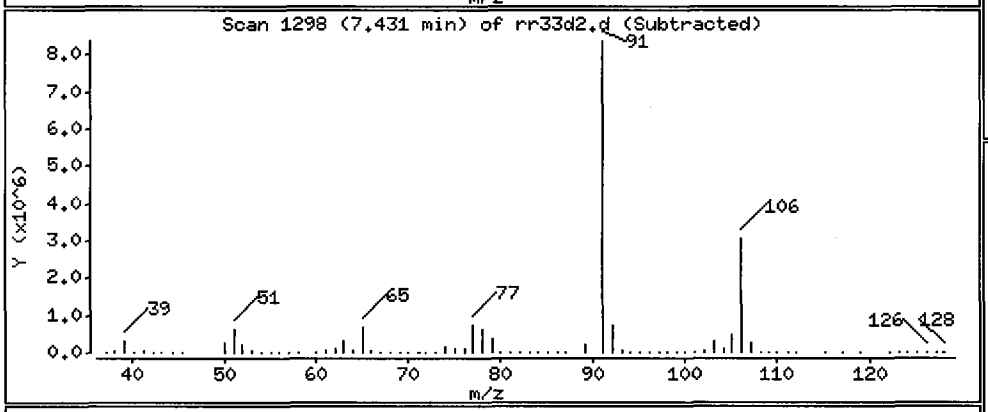
Column diameter: 0.18

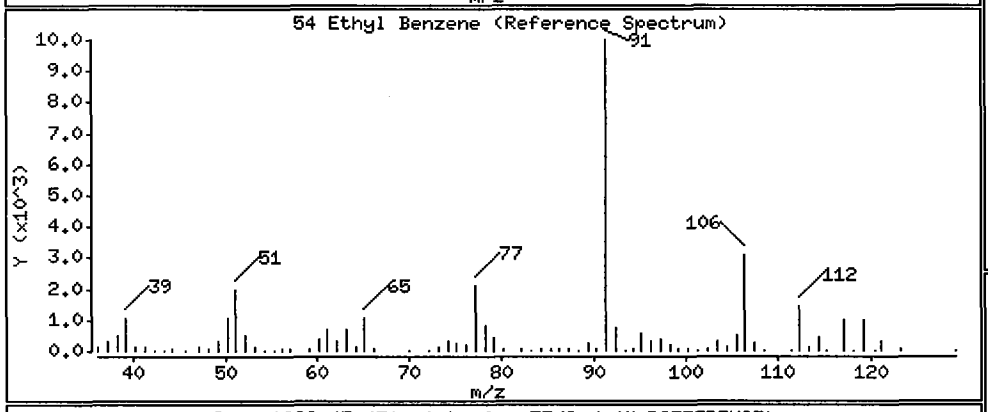
54 Ethyl Benzene

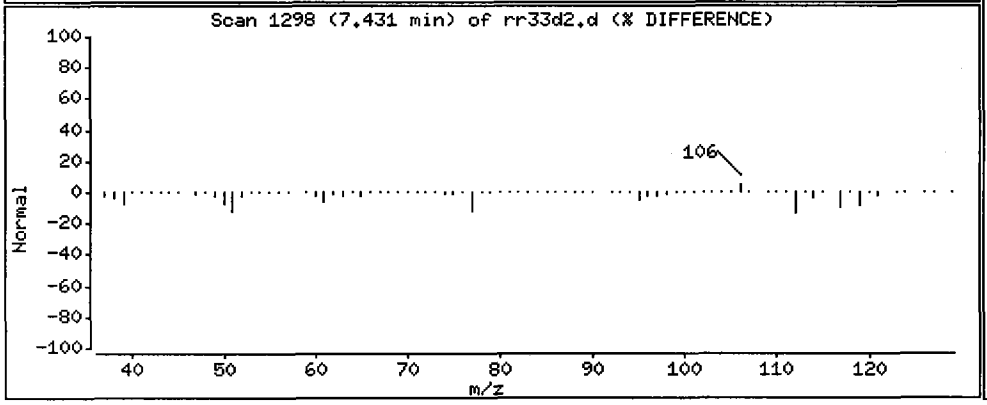
Concentration: 426.70 ug/Kg

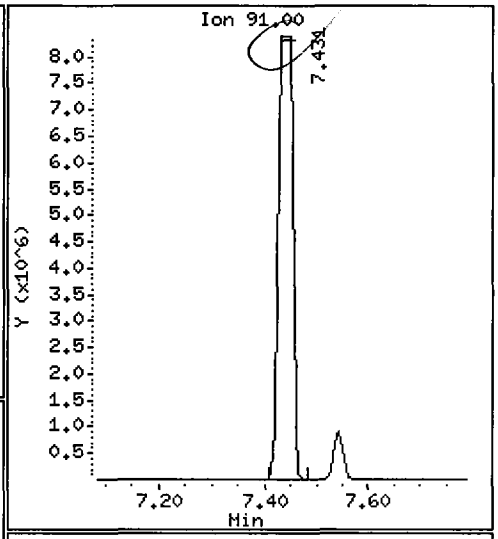
Est

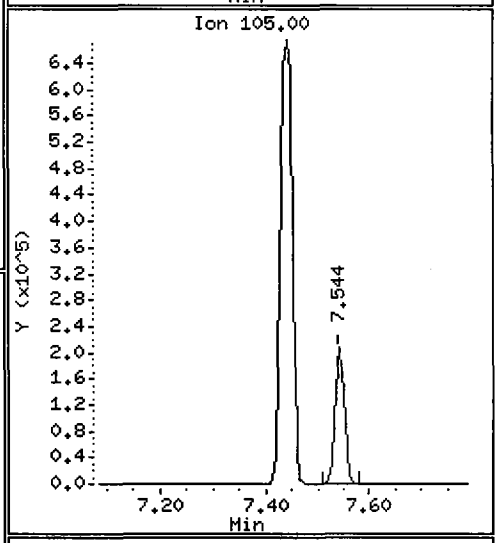


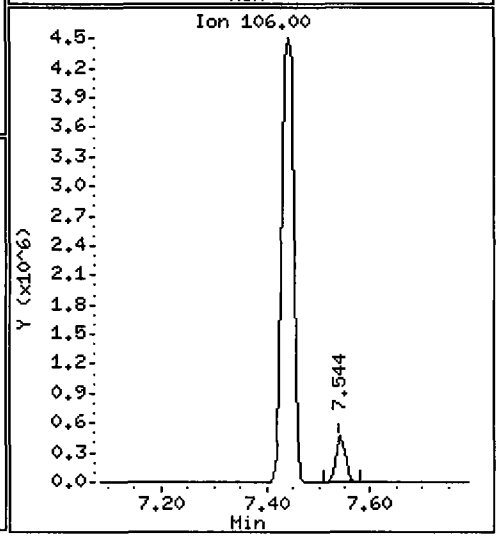












Data File: /chem1/nt9.i/21OCT10.b/gasco.b/rr33d2.d

Date : 21-OCT-2010 17:57

Client ID: DGS-07-034.2-101012

Instrument: nt9.i

Sample Info: RR33D,5,5.68,0

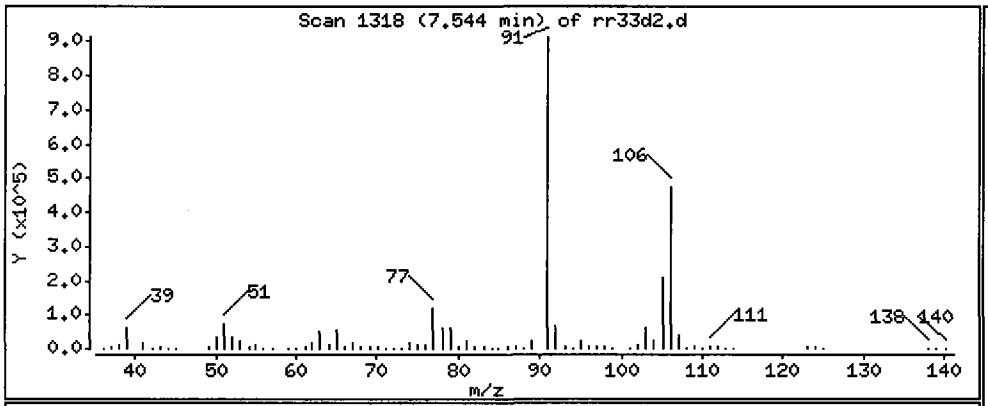
Operator: PB

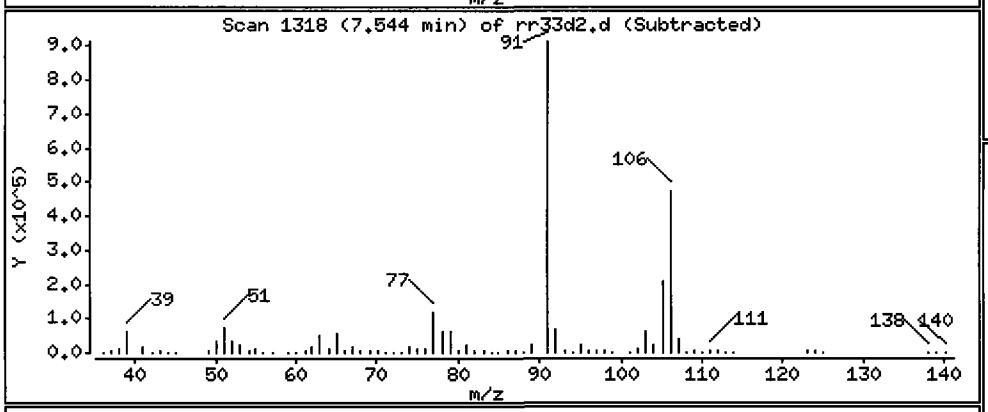
Column phase: RTX502.2

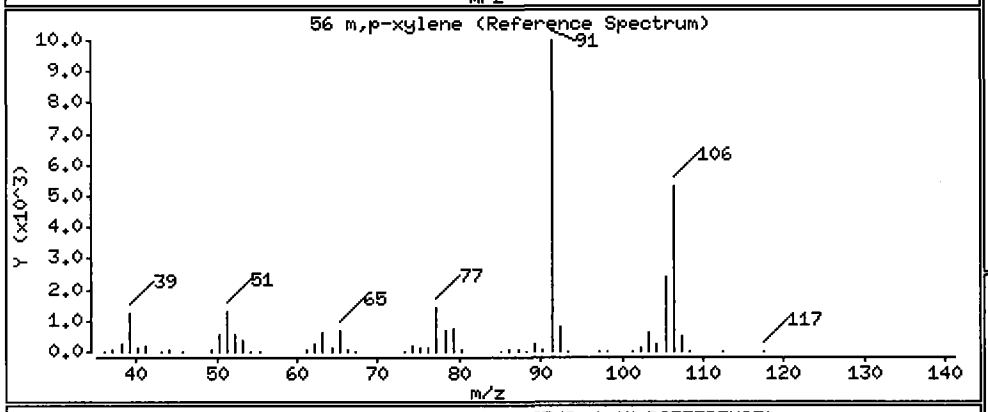
Column diameter: 0.18

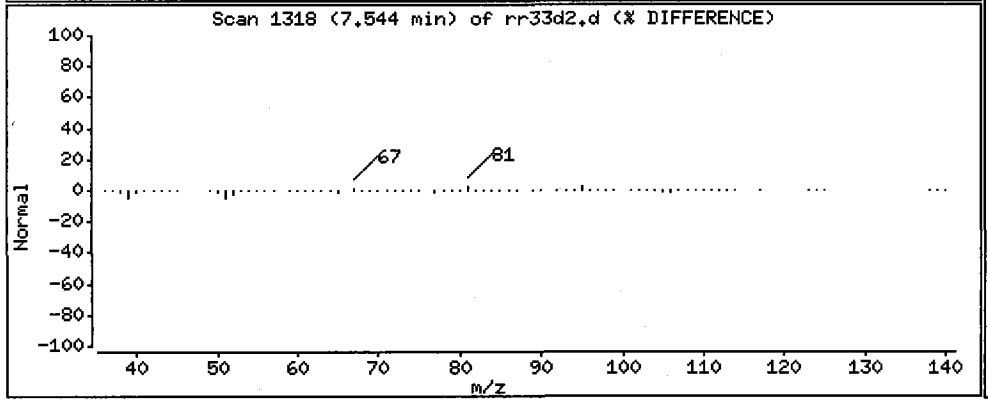
56 m,p-xylene

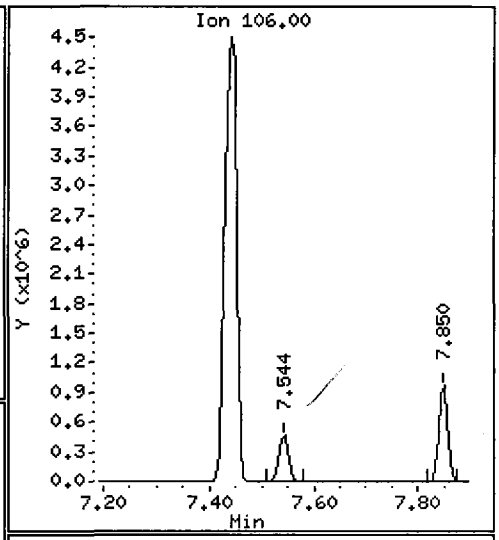
Concentration: 38.285 ug/Kg

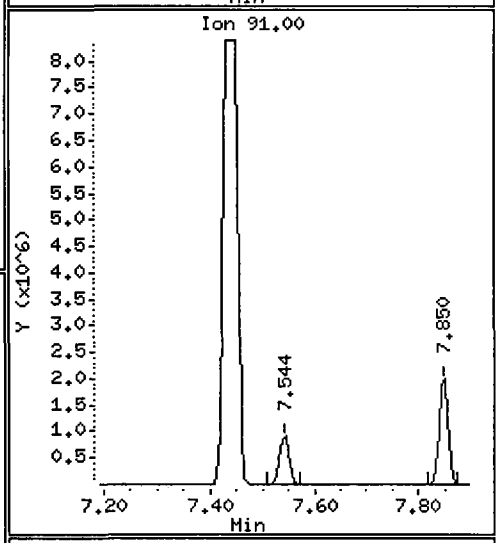


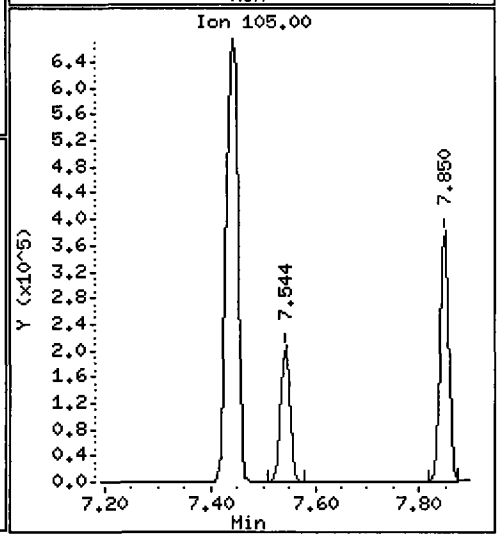












Data File: /chem1/nt9.i/21OCT10.b/gasco.b/rr33d2.d

Date : 21-OCT-2010 17:57

Client ID: DGS-07-034.2-101012

Instrument: nt9.i

Sample Info: RR33D,5,5.68,0

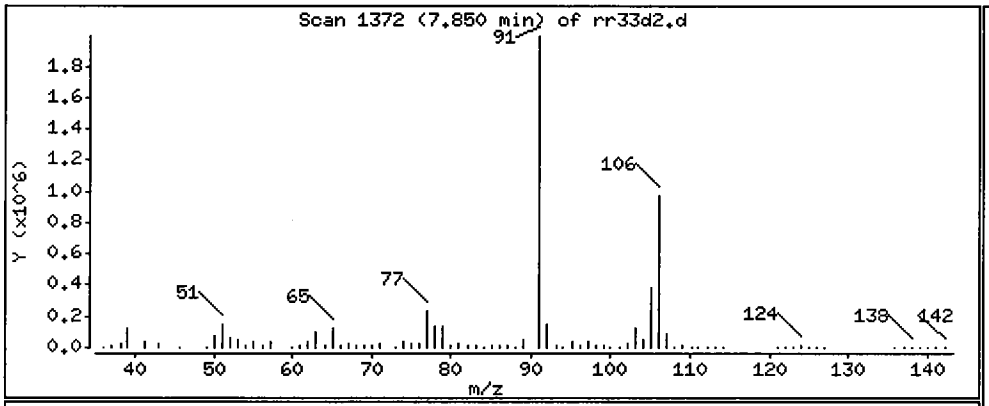
Operator: PB

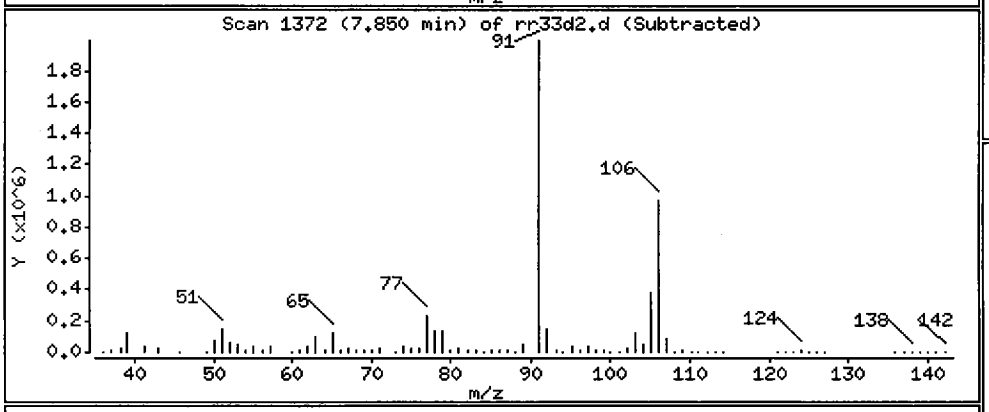
Column phase: RTX502.2

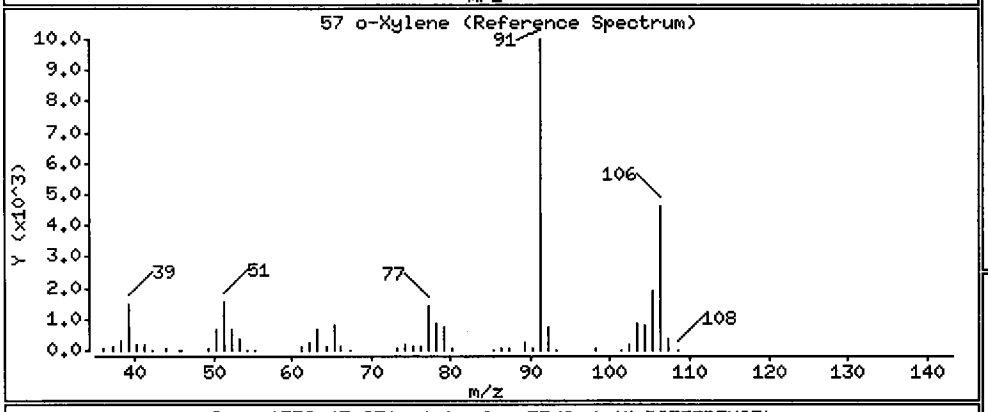
Column diameter: 0.18

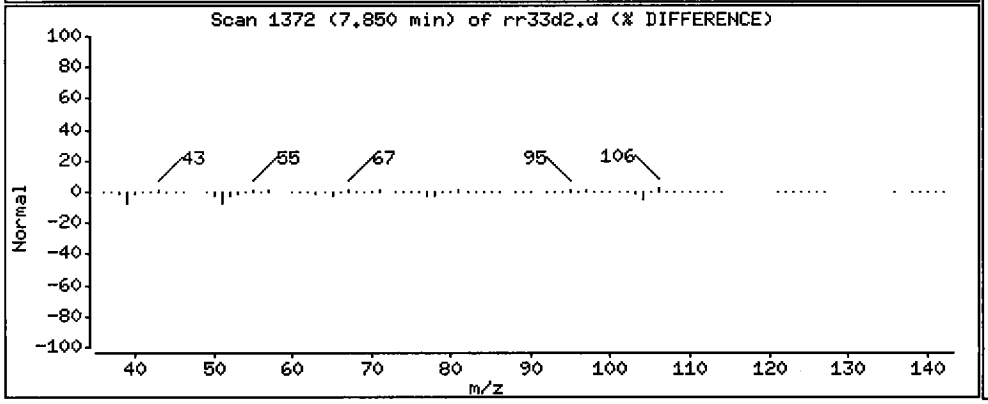
57 o-Xylene

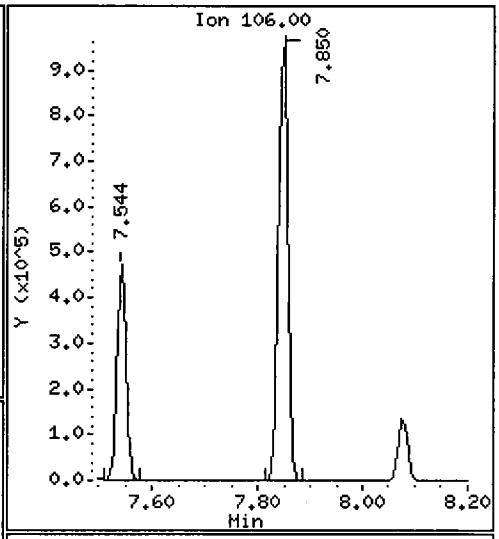
Concentration: 84.200 ug/Kg

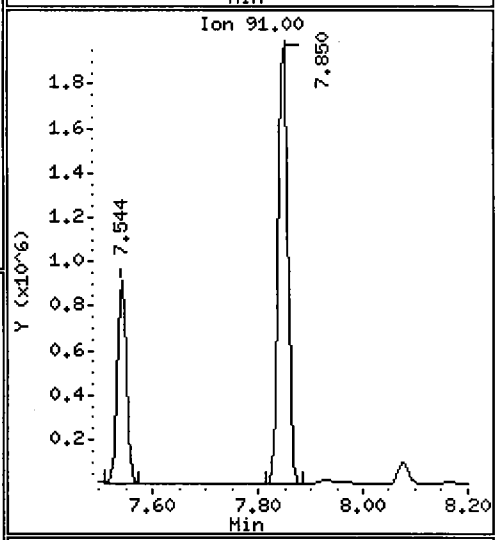


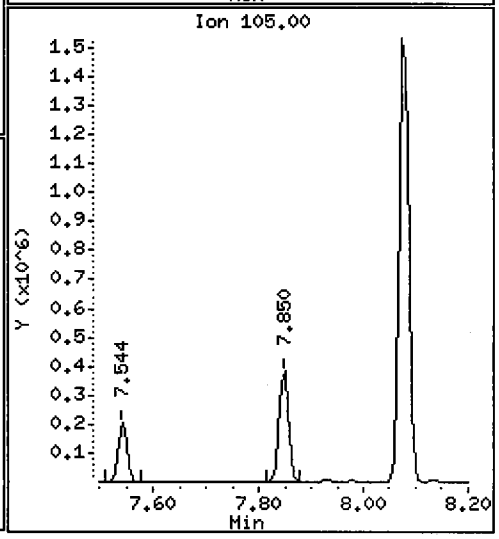






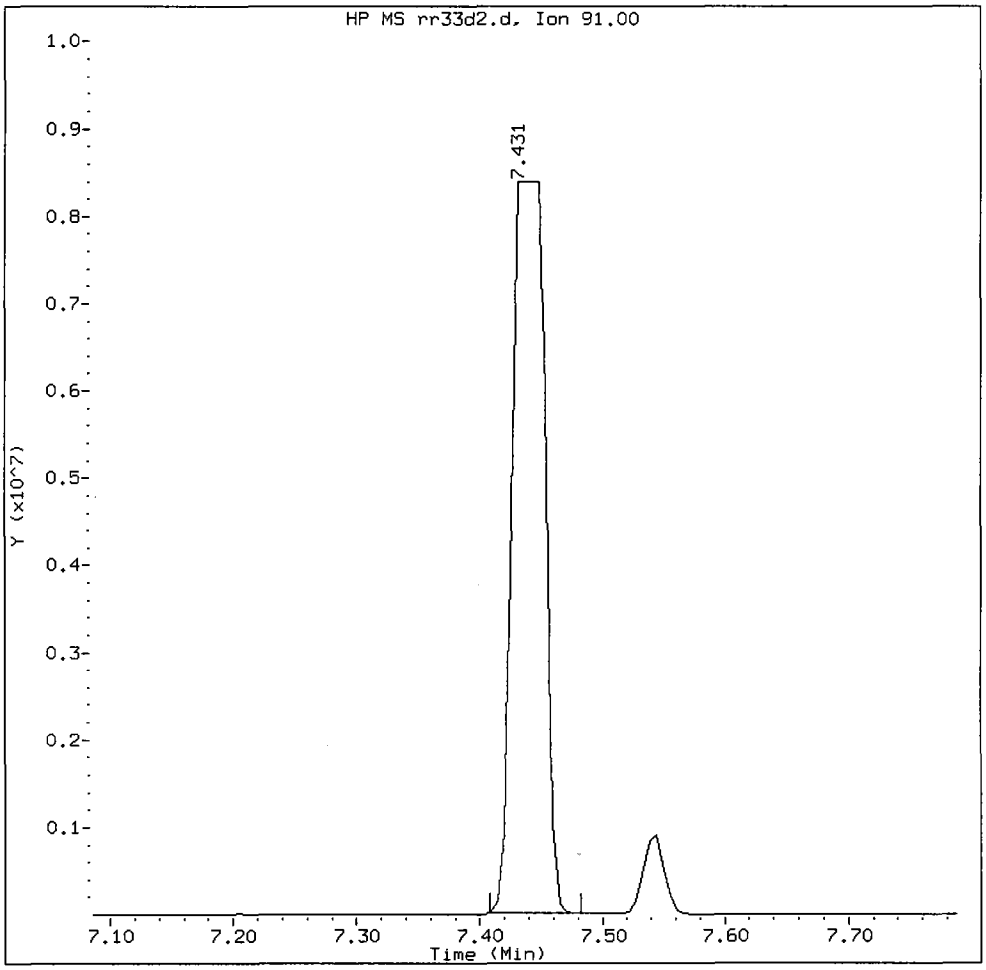






RR33D, /chem1/nt9.i/21OCT10.b/gasco.b/rr33d2.d

Ethyl Benzene Amount: 484.73 Area: 15452779



MANUAL INTEGRATION for Ethyl Benzene

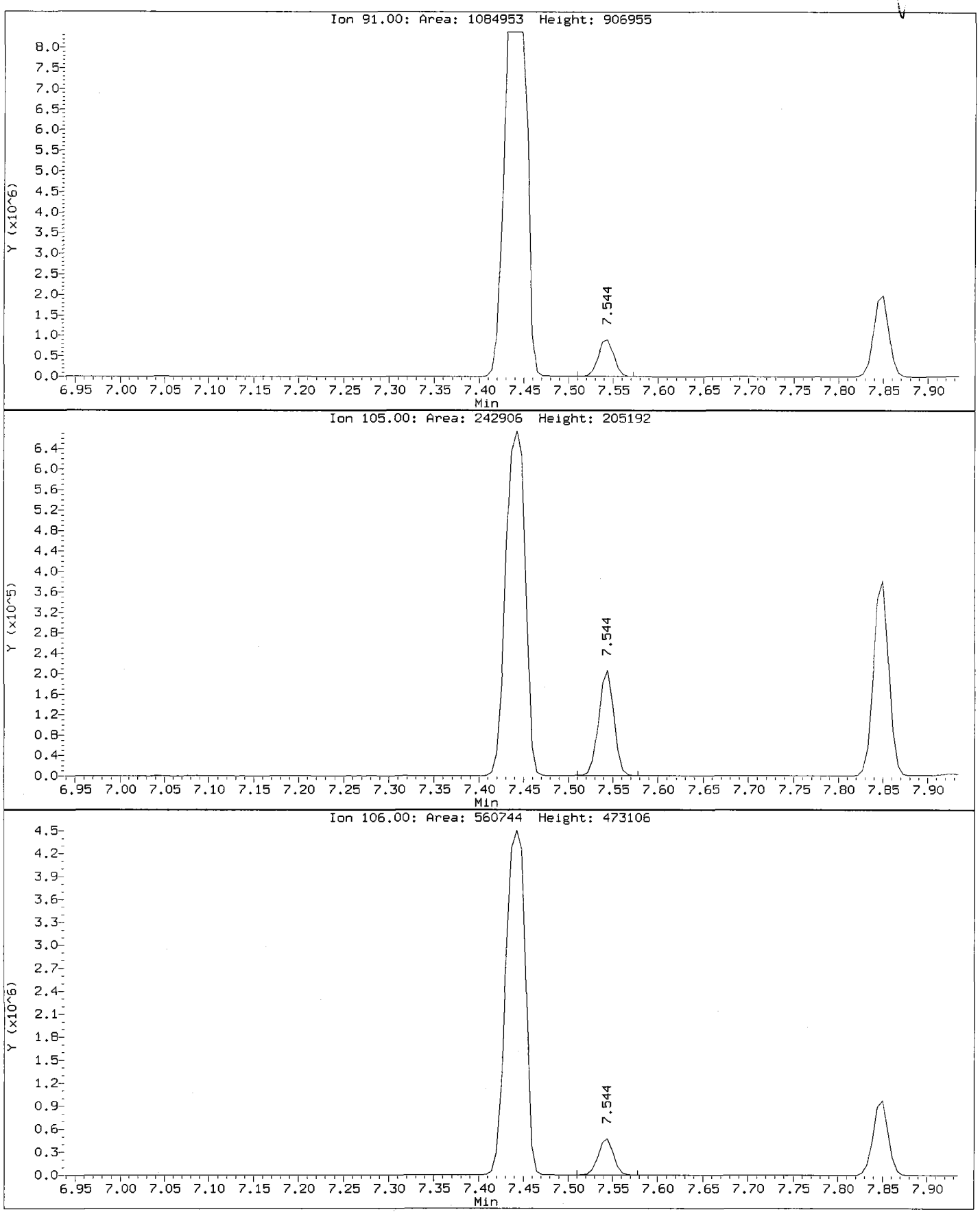
1. Baseline correction
2. Poor chromatography
3. Peak not found
4. Totals calculation

5. Other _____

Analyst: _____ Date: 10/27/10

Data File: /chem1/nt9.i/21OCT10.b/SampleInfo/rr33d2.d
Injection Date: 21-OCT-2010 17:57
Instrument: nt9.i
Client Sample ID: DGS-07-034.2-101012

Compound: Ethyl Benzene
CAS Number:



Analytical Resources, Inc.

8260C

Data file : /chem1/nt9.i/21OCT10.b/gasco.b/rr33n2.d
Lab Smp Id: RR33N Client Smp ID: DGS-07-12.713.2-101
Inj Date : 21-OCT-2010 21:29
Operator : PB Inst ID: nt9.i
Smp Info : RR33N,5,0.65,0
Misc Info : 10-26432
Comment :
Method : /chem1/nt9.i/21OCT10.b/gasco.b/VO063010S.m
Meth Date : 27-Oct-2010 11:08 patrickb Quant Type: ISTD
Cal Date : 28-AUG-2010 13:21 Cal File: 2000828.d
Als bottle: 1
Dil Factor: 1.00000
Integrator: HP RTE Compound Sublist: gasco.sub
Target Version: 3.50
Processing Host: cserv3

Concentration Formula: Amt * DF * Pv * 1 / (Sa * ((100 - M) / 100)) * CpndVaria

Name	Value	Description
DF	1.00000	Dilution Factor
Pv	5.00000	Purge Volume
Sa	0.65000	Sample Amount
M	0.00000	% Moisture (not decanted)

Cpnd Variable Local Compound Variable

Compounds	QUANT SIG MASS	RT	EXP RT	REL RT	RESPONSE	CONCENTRATIONS ON-COLUMN (ug/Kg)	FINAL (ug/Kg)
3 Vinyl Chloride	62	Compound Not Detected.					
7 1,1-Dichloroethene	96	Compound Not Detected.					
15 Trans-1,2-Dichloroethene	96	Compound Not Detected.					
20 Cis-1,2-Dichloroethene	96	Compound Not Detected.					
* 32 Pentafluorobenzene	168	4.933	4.931	(1.000)	745081	50.0000	
$ 25 Dibromofluoromethane	111	4.531	4.530	(0.919)	273867	49.1567	378.13
$ 31 d4-1,2-Dichloroethane	65	4.938	4.937	(1.001)	295630	51.6845	397.57
30 Benzene	78	4.831	4.829	(0.908)	755761	27.7423	213.40
* 35 1,4-Difluorobenzene	114	5.323	5.321	(1.000)	1012901	50.0000	
34 Trichloroethene	95	Compound Not Detected.					
$ 42 d8-Toluene	98	6.307	6.306	(1.185)	1109636	48.3496	371.92
43 Toluene	92	6.341	6.340	(1.191)	70650	3.64946	28.073
44 Tetrachloroethene	166	Compound Not Detected.					
* 52 d5-Chlorobenzene	117	7.399	7.398	(1.000)	848701	50.0000	

Compounds	QUANT SIG MASS	RT	EXP RT	REL RT	RESPONSE	CONCENTRATIONS ON-COLUMN (ug/Kg)	FINAL (ug/Kg)
54 Ethyl Benzene	91	7.439	7.437	(1.005)	6983834	200.789	1544.5
56 m,p-xylene	106	7.546	7.545	(1.020)	571599	40.6333	312.56
57 o-Xylene	106	7.851	7.850	(1.061)	1127236	86.0196	661.69
$ 61 4-Bromofluorobenzene	95	8.276	8.274	(1.119)	385671	49.0642	377.42
* 75 d4-1,4-Dichlorobenzene	152	9.113	9.112	(1.000)	346638	50.0000	(QM)
$ 78 d4-1,2-Dichlorobenzene	152	9.435	9.434	(1.035)	316511	52.2342	401.80 (QM)

QC Flag Legend

Q - Qualifier signal failed the ratio test.
M - Compound response manually integrated.

Analytical Resources, Inc.

INTERNAL STANDARD COMPOUNDS
AREA AND RT SUMMARY

Instrument ID: nt9.i
Lab File ID: rr33n2.d
Lab Smp Id: RR33N
Analysis Type: VOA
Quant Type: ISTD
Operator: PB
Method File: /chem1/nt9.i/21OCT10.b/gasco.b/VO063010S.m
Misc Info: 10-26432

Calibration Date: 21-OCT-2010
Calibration Time: 10:46
Client Smp ID: DGS-07-12.713.2-101
Level: LOW
Sample Type: Sediment

Test Mode:
Use Initial Calibration Level 5.
If Continuing Cal. use Initial Cal. Level 5

COMPOUND	STANDARD	AREA LIMIT LOWER	AREA LIMIT UPPER	SAMPLE	%DIFF
32 Pentafluorobenzen	704281	352140	1408562	745081	5.79
35 1,4-Difluorobenze	937745	468872	1875490	1012901	8.01
52 d5-Chlorobenzene	853013	426506	1706026	848701	-0.51
75 d4-1,4-Dichlorobe	503655	251828	1007310	346638	-31.18

COMPOUND	STANDARD	RT LIMIT LOWER	RT LIMIT UPPER	SAMPLE	%DIFF
32 Pentafluorobenzen	4.93	4.43	5.43	4.93	0.03
35 1,4-Difluorobenze	5.32	4.82	5.82	5.32	0.03
52 d5-Chlorobenzene	7.40	6.90	7.90	7.40	0.02
75 d4-1,4-Dichlorobe	9.11	8.61	9.61	9.11	0.02

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.

Analytical Resources, Inc.

RECOVERY REPORT

Client Name: NW Natural
Sample Matrix: SOLID
Lab Smp Id: RR33N
Level: LOW
Data Type: MS DATA
SpikeList File: all.spk
Sublist File: gasco.sub
Method File: /chem1/nt9.i/21OCT10.b/gasco.b/VO063010S.m
Misc Info: 10-26432

Client SDG: RR33
Fraction: VOA
Client Smp ID: DGS-07-12.713.2-101
Operator: PB
SampleType: SAMPLE
Quant Type: ISTD

SURROGATE COMPOUND	AMOUNT ADDED ug/Kg	AMOUNT RECOVERED ug/Kg	% RECOVERED	LIMITS
$ 25 Dibromofluorometha	50.000	49.157	98.31	30-160
$ 31 d4-1,2-Dichloroeth	50.000	51.685	103.37	75-152
$ 42 d8-Toluene	50.000	48.350	96.70	82-115
$ 61 4-Bromofluorobenze	50.000	49.064	98.13	64-120
$ 78 d4-1,2-Dichloroben	50.000	52.234	104.47	80-120

Data File: /chem1/nt9.i/21OCT10.b/gasco.b/rr33n2.d

Date : 21-OCT-2010 21:29

Client ID: DGS-07-12.713.2-101

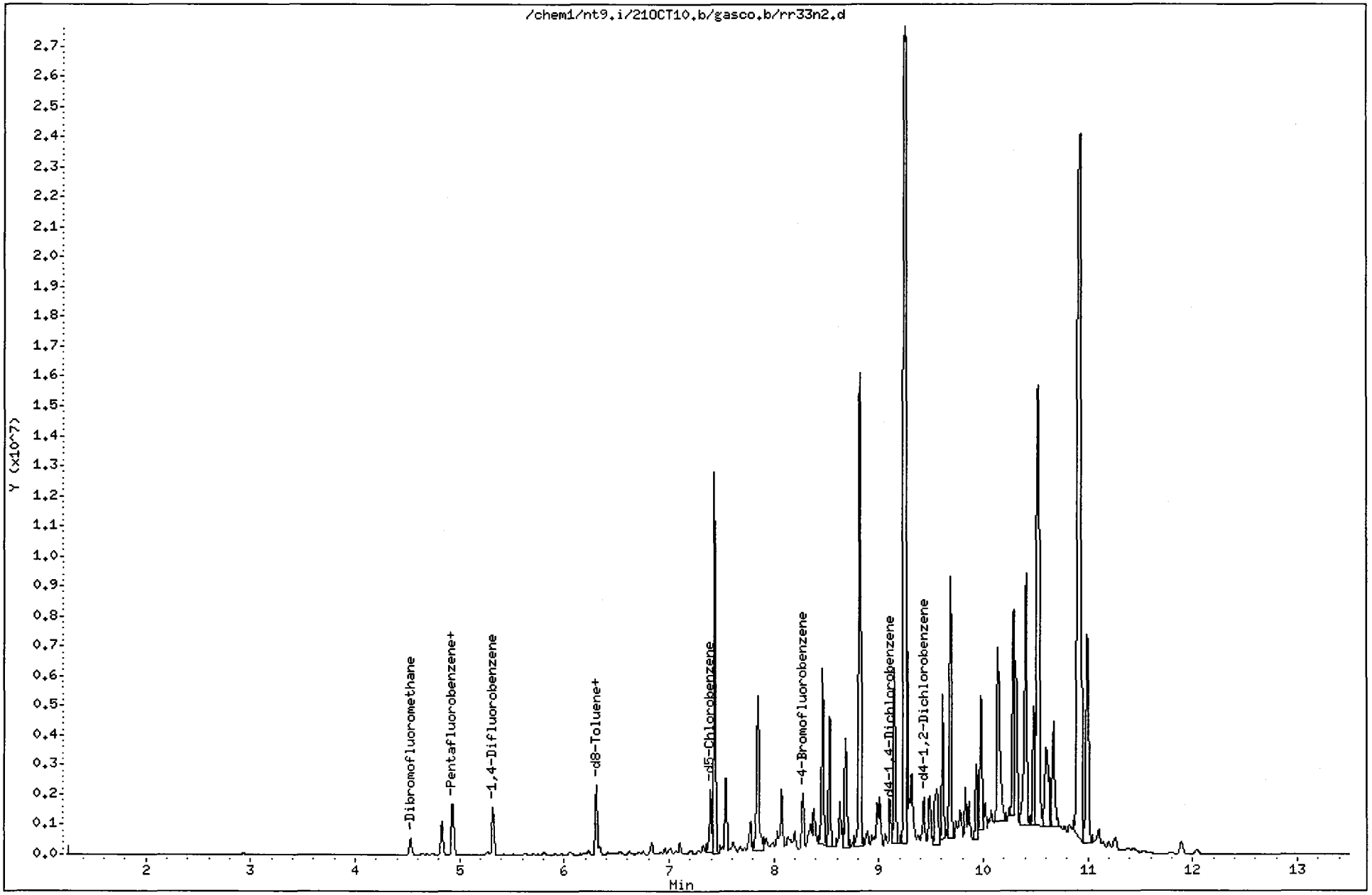
Sample Info: RR33N,5,0.65,0

Column phase: RTX502.2

Instrument: nt9.i

Operator: PB

Column diameter: 0.18



RR33:00331

Data File: /chem1/nt9.i/21OCT10.b/gasco.b/rr33n2.d

Date : 21-OCT-2010 21:29

Client ID: DGS-07-12.713.2-101

Instrument: nt9.i

Sample Info: RR33N,5,0.65,0

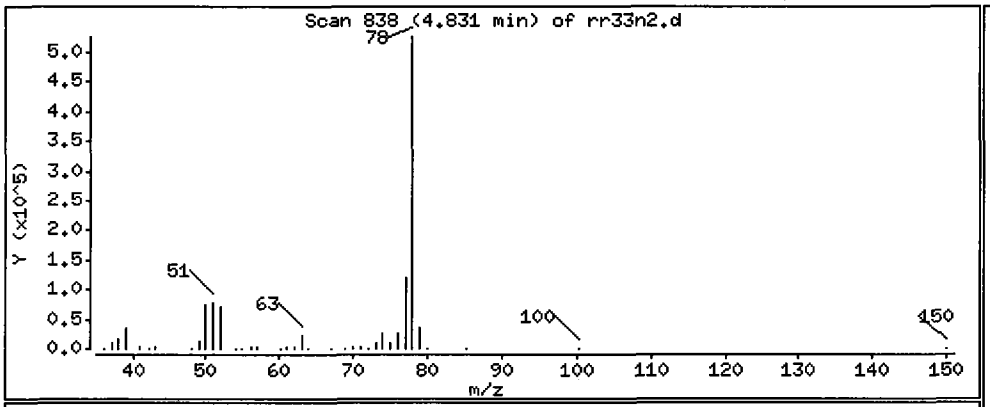
Operator: PB

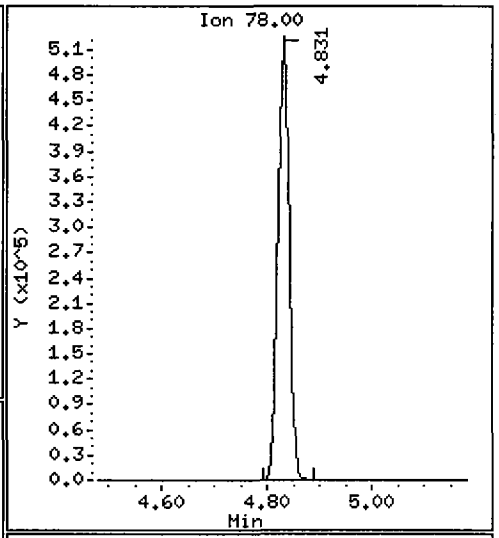
Column phase: RTX502.2

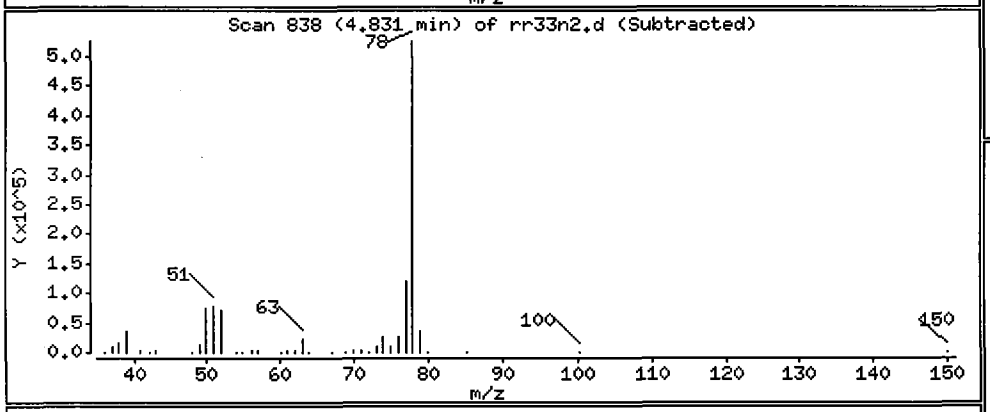
Column diameter: 0.18

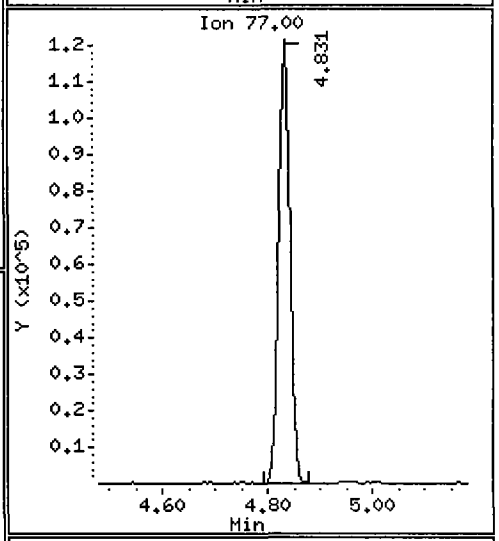
30 Benzene

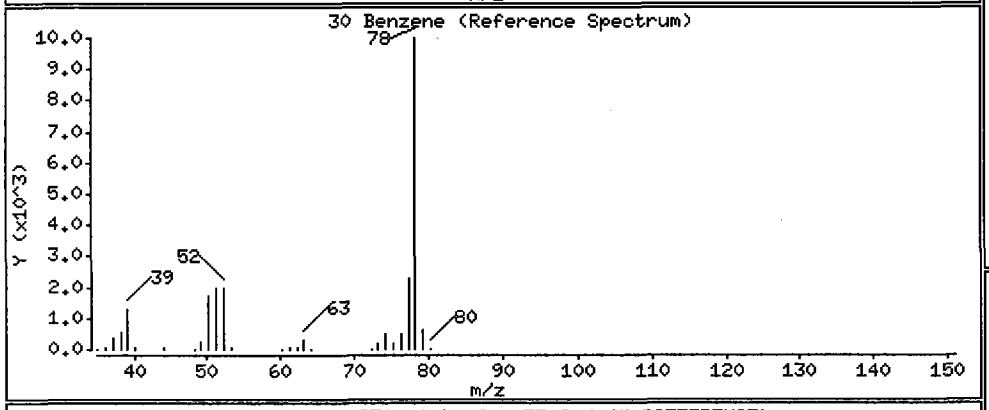
Concentration: 213.40 ug/Kg

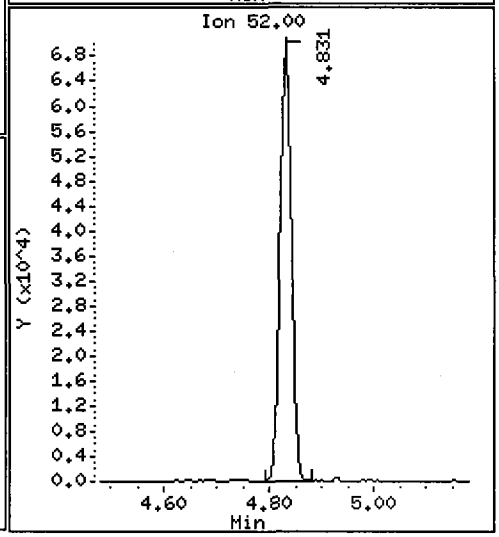


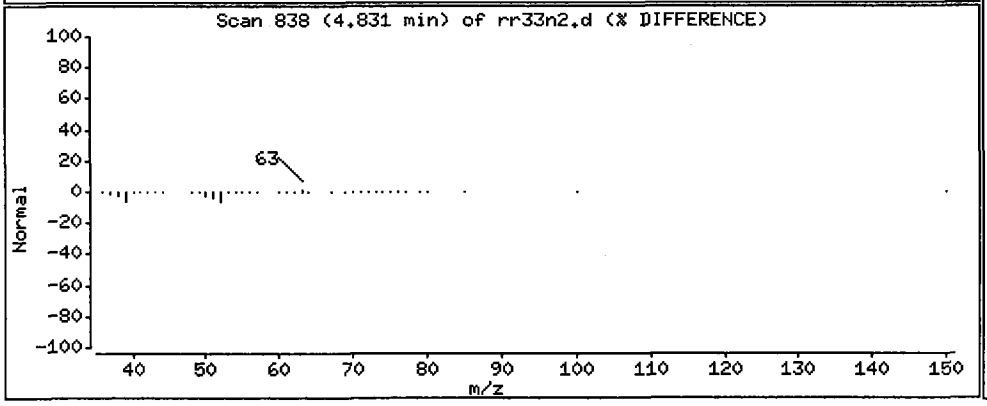












Data File: /chem1/nt9.i/21OCT10.b/gasco.b/rr33n2.d

Date : 21-OCT-2010 21:29

Client ID: DGS-07-12.713.2-101

Instrument: nt9.i

Sample Info: RR33N,5,0.65,0

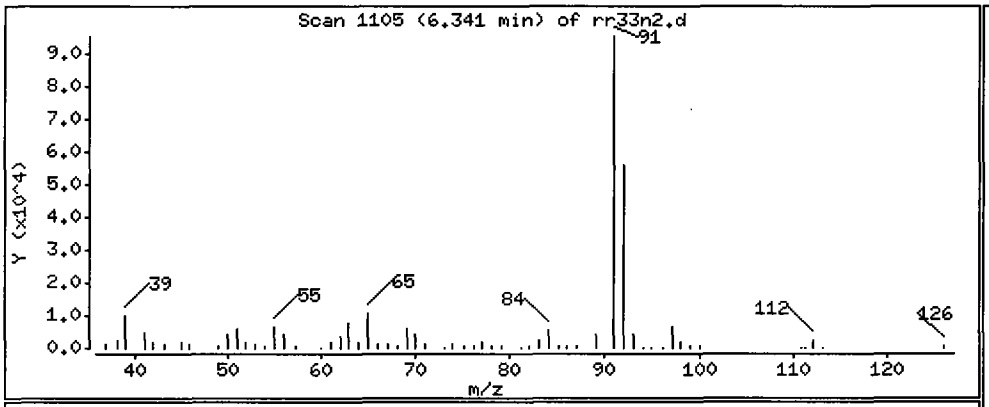
Operator: PB

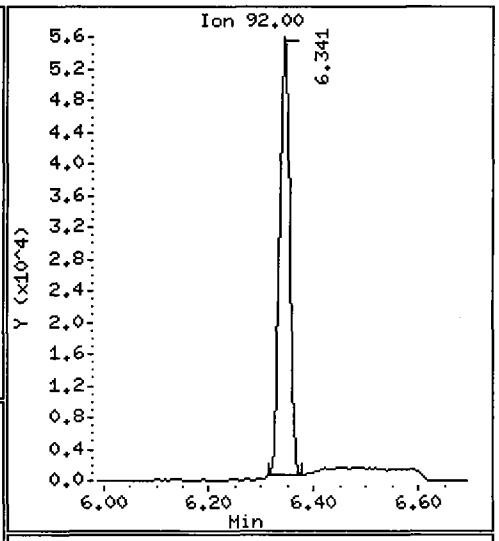
Column phase: RTX502.2

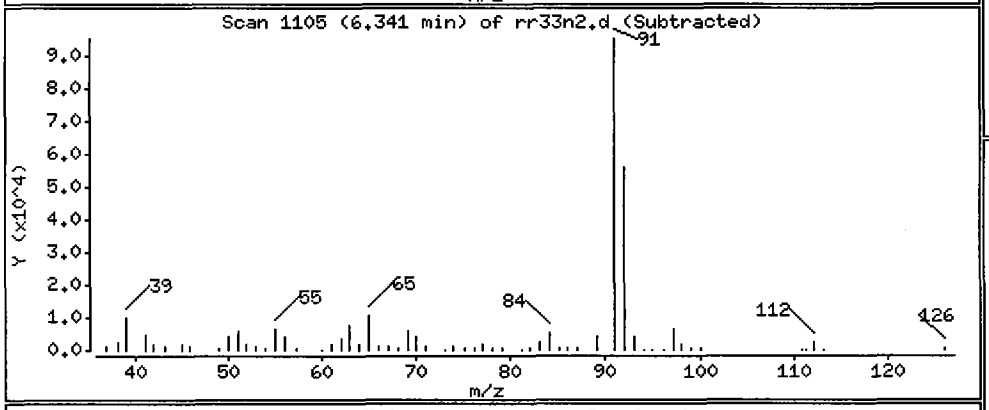
Column diameter: 0.18

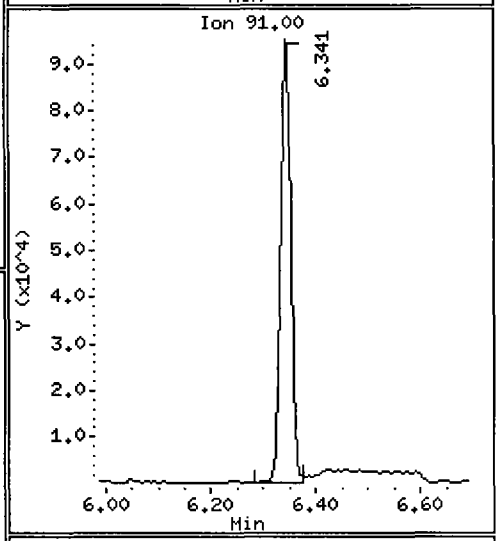
43 Toluene

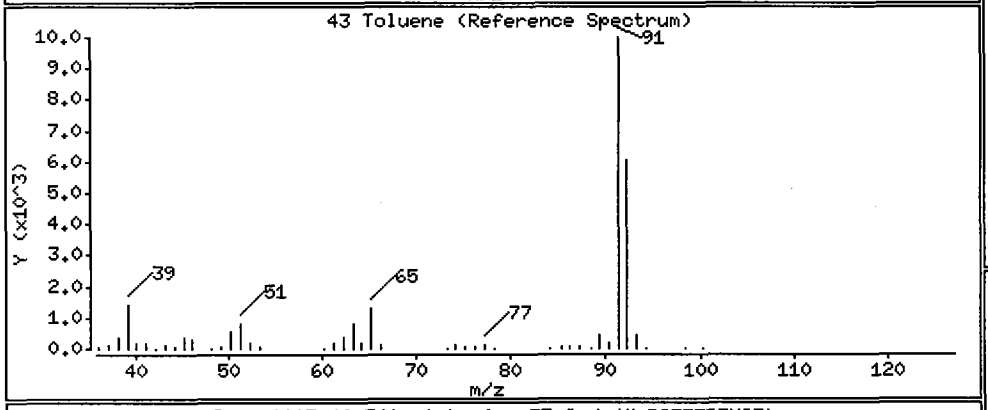
Concentration: 28.073 ug/Kg

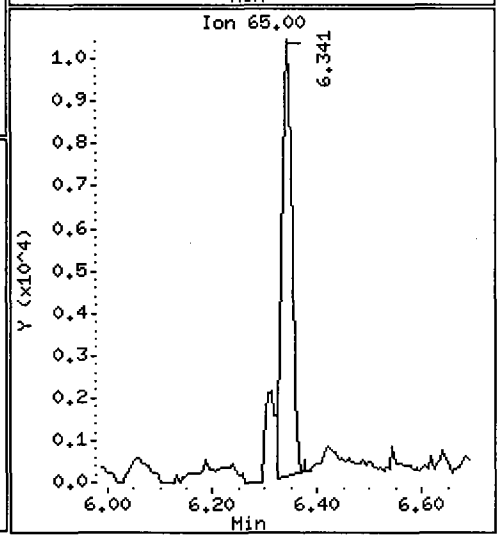


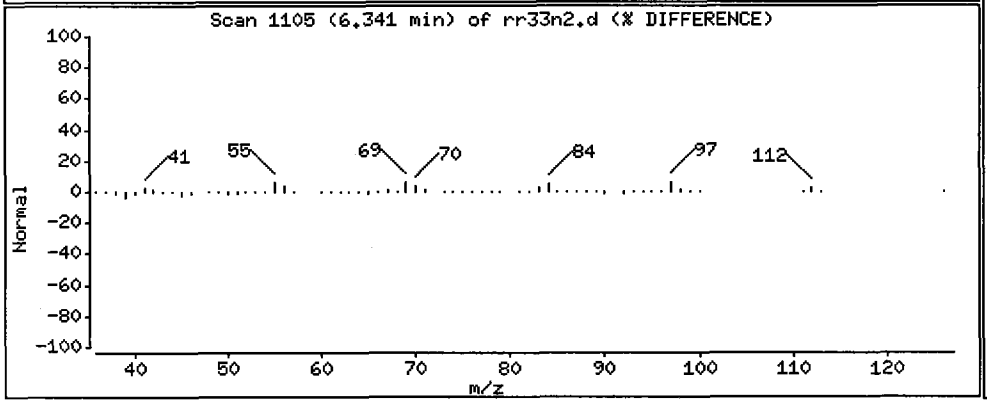












Data File: /chem1/nt9.i/21OCT10.b/gasco.b/rr33n2.d

Date : 21-OCT-2010 21:29

Client ID: DGS-07-12.713.2-101

Instrument: nt9.i

Sample Info: RR33N,5,0.65,0

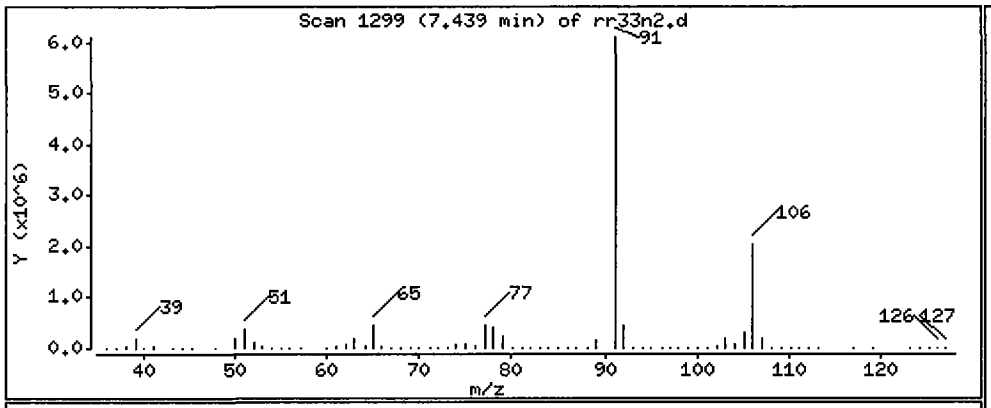
Operator: PB

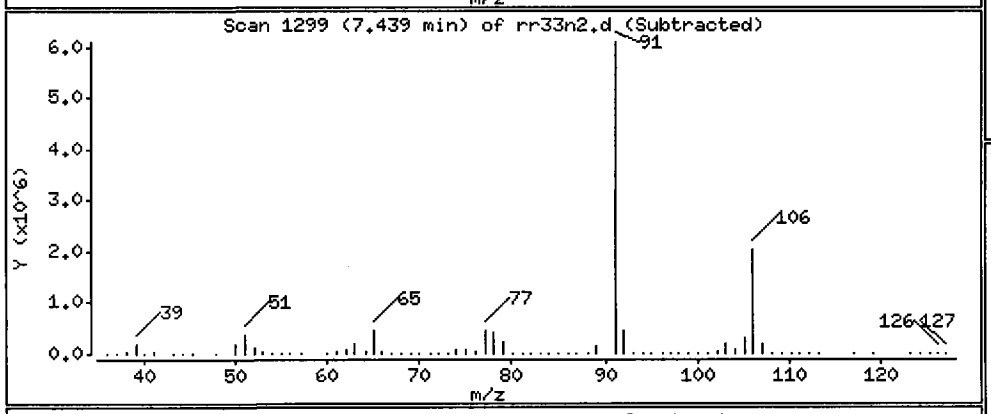
Column phase: RTX502.2

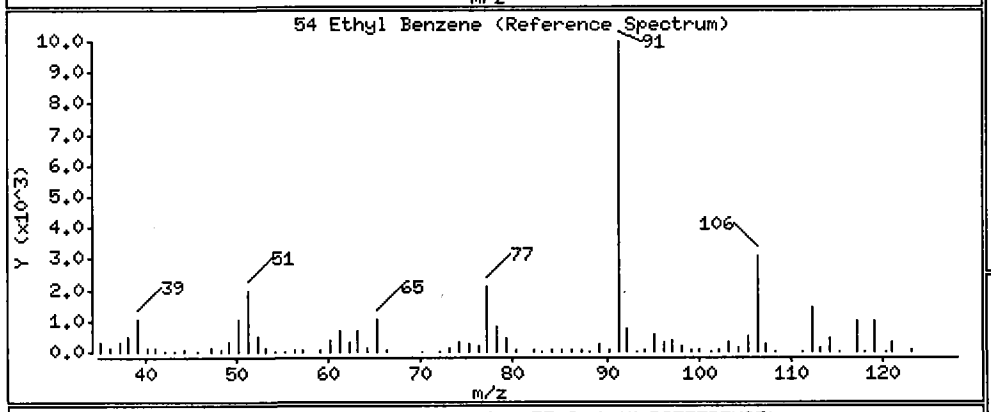
Column diameter: 0.18

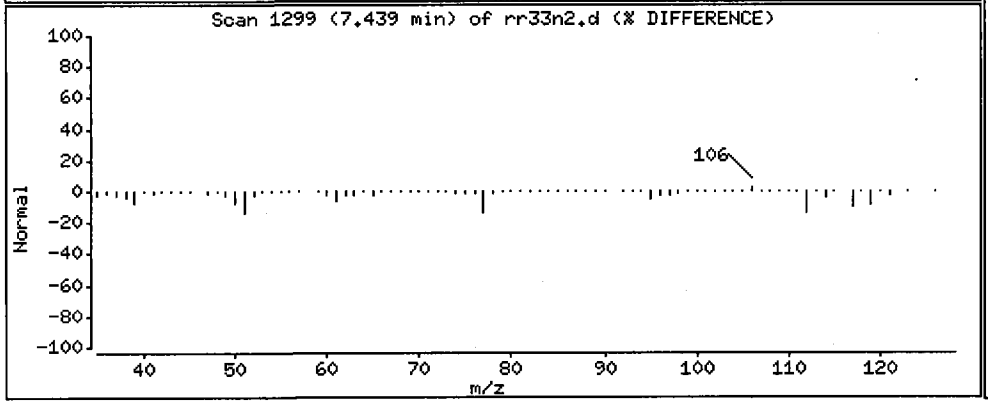
54 Ethyl Benzene

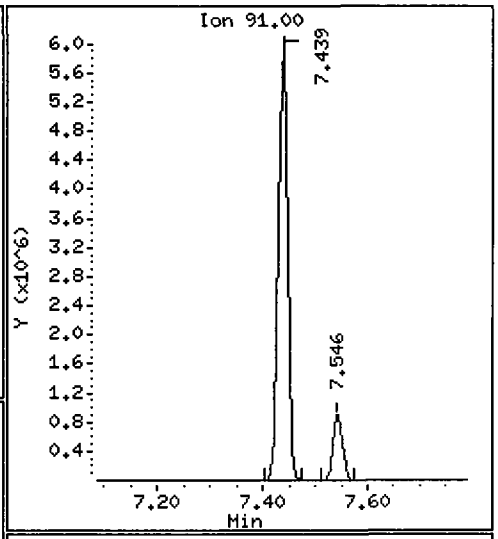
Concentration: 1544.5 ug/Kg

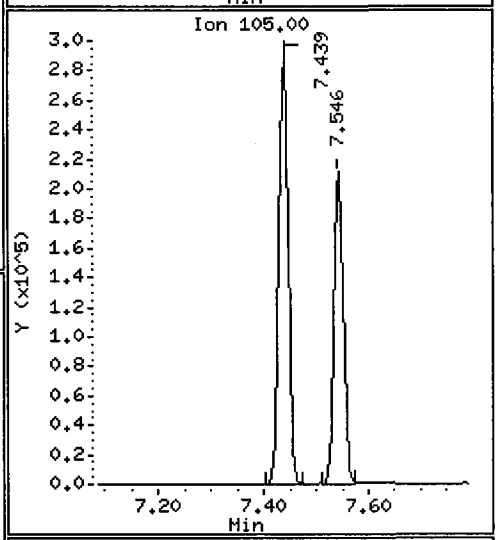


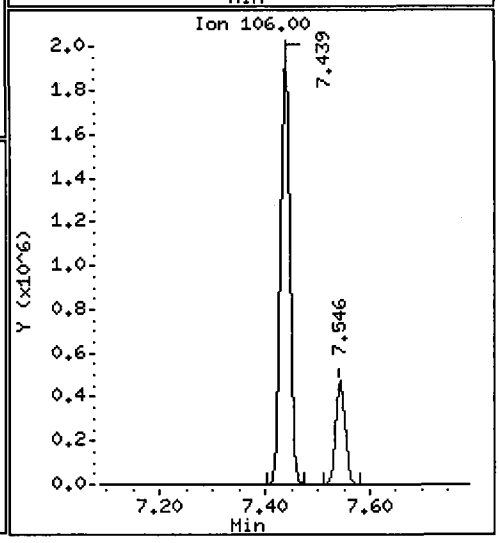












Data File: /chem1/nt9.i/21OCT10.b/gasco.b/rr33n2.d

Date : 21-OCT-2010 21:29

Client ID: DGS-07-12.713.2-101

Instrument: nt9.i

Sample Info: RR33N,5,0.65,0

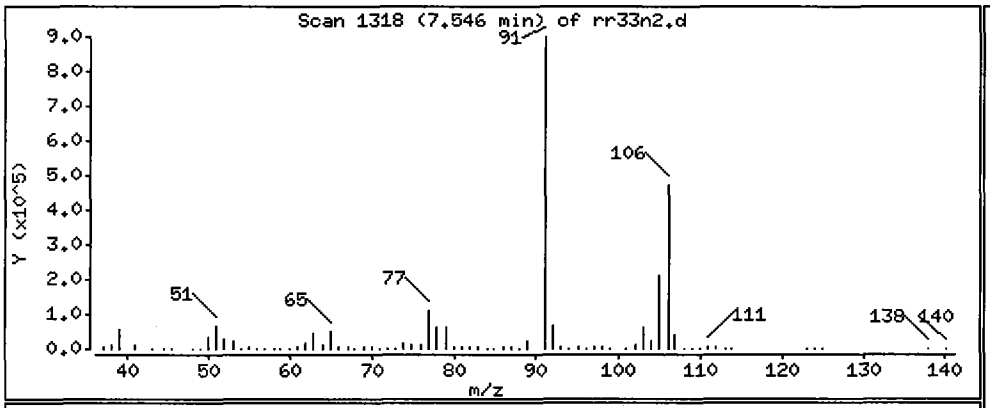
Operator: PB

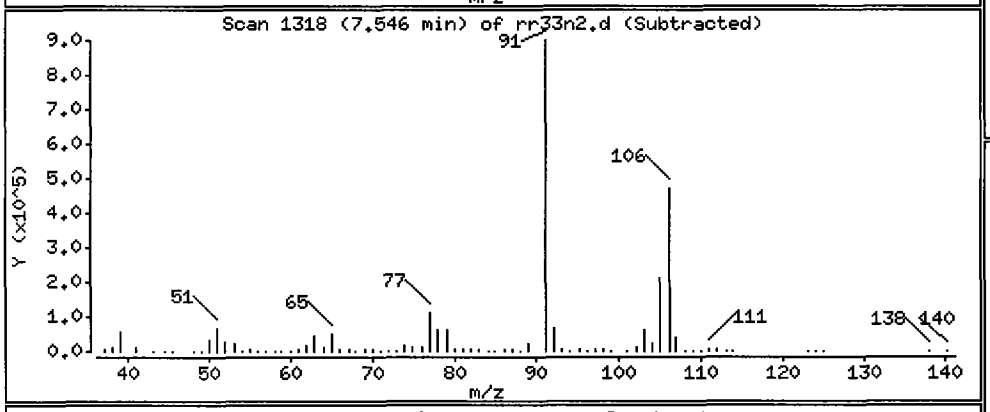
Column phase: RTX502.2

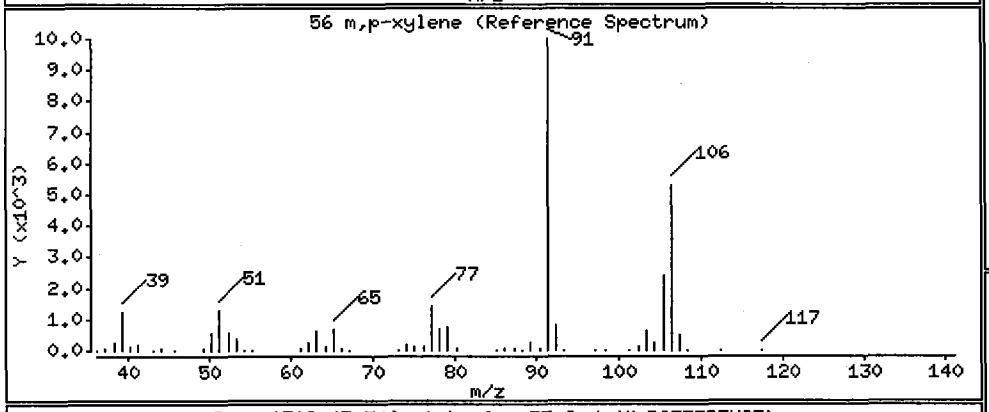
Column diameter: 0.18

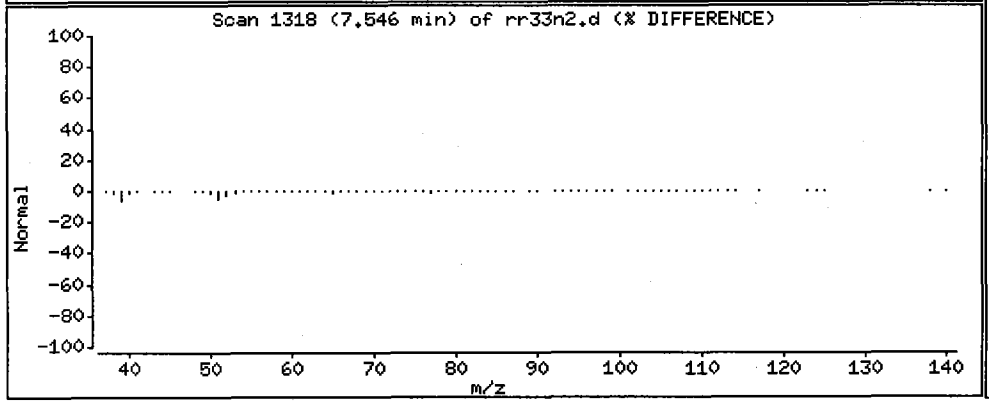
56 m,p-xylene

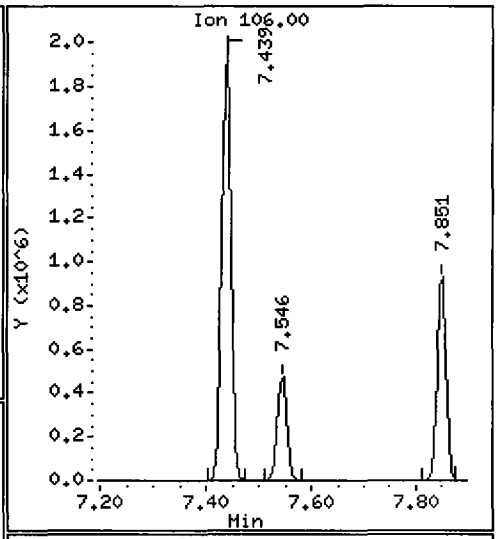
Concentration: 312.56 ug/Kg

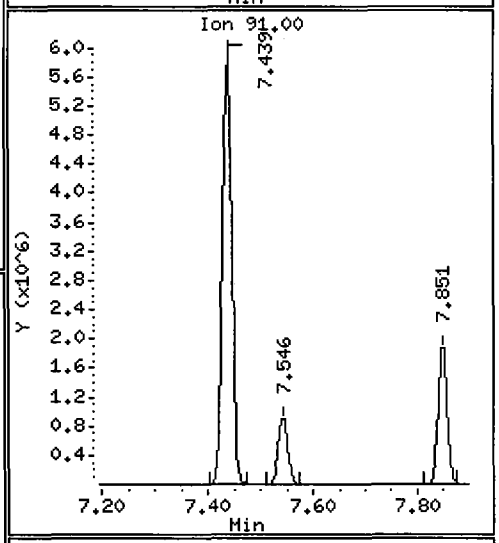


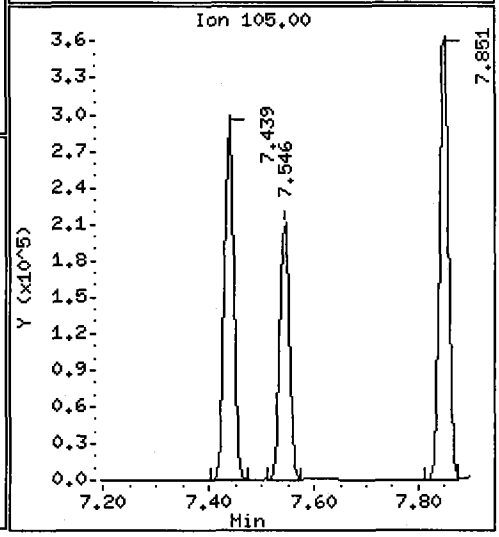












Data File: /chem1/nt9.i/21OCT10.b/gasco.b/rr33n2.d

Date : 21-OCT-2010 21:29

Client ID: DGS-07-12.713.2-101

Instrument: nt9.i

Sample Info: RR33N,5,0.65,0

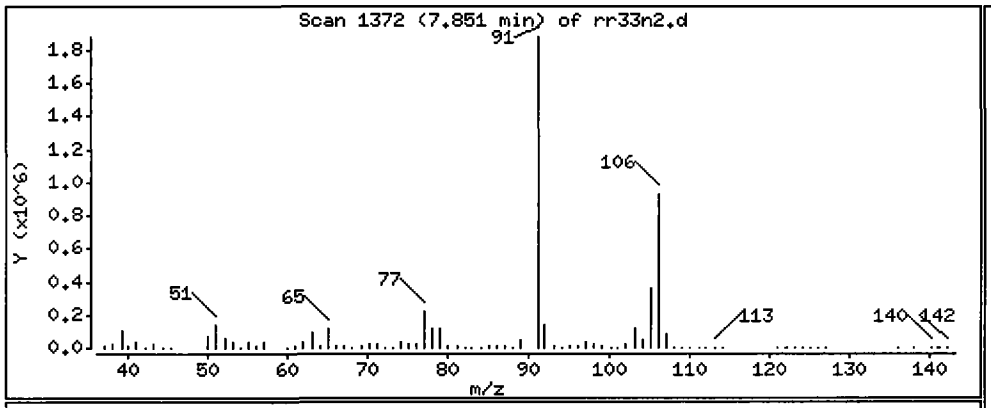
Operator: PB

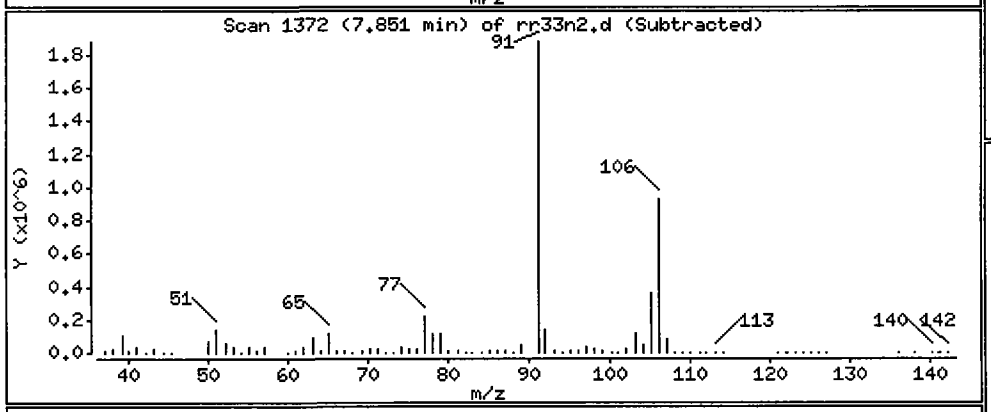
Column phase: RTX502.2

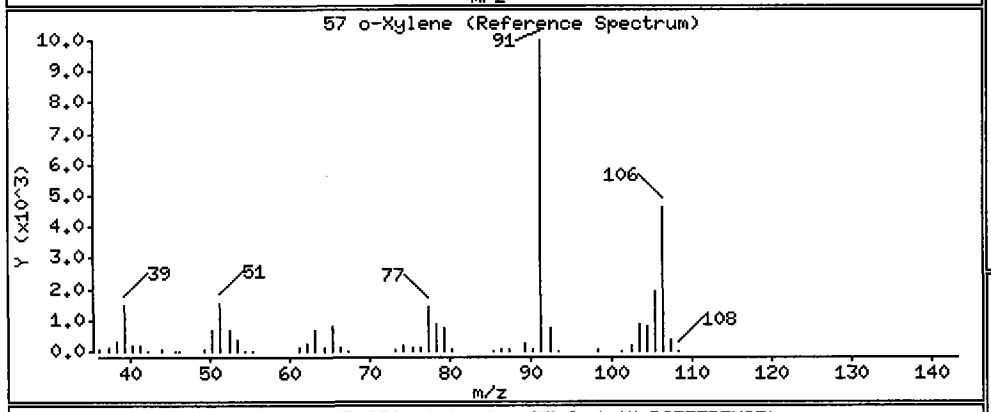
Column diameter: 0.18

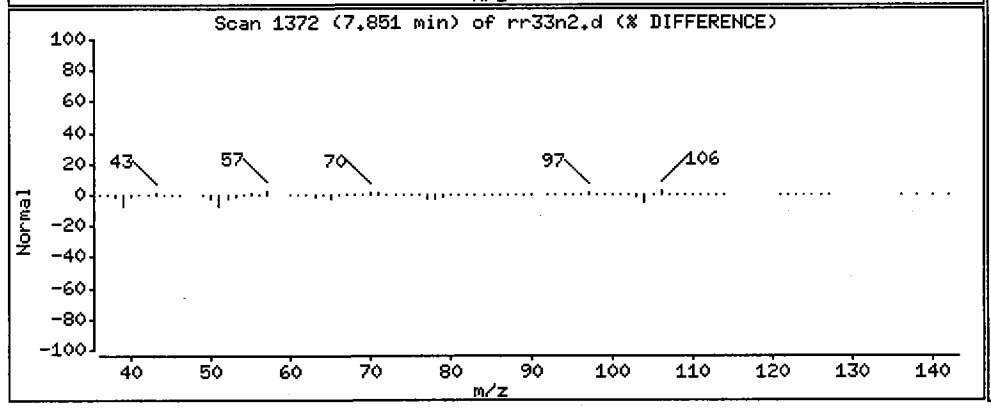
57 o-Xylene

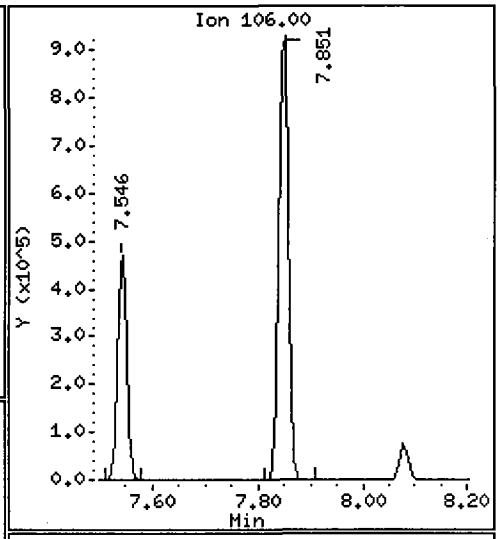
Concentration: 661.69 ug/Kg

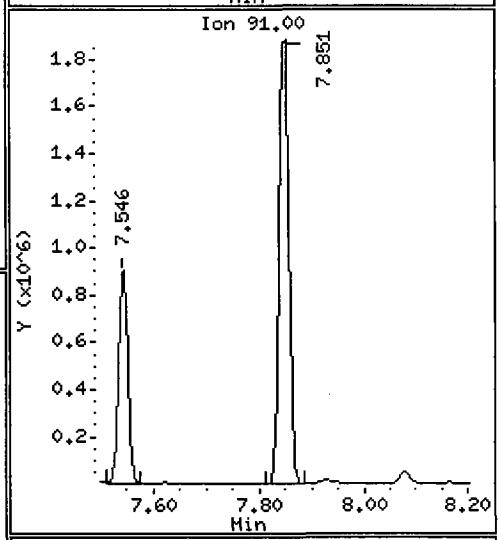


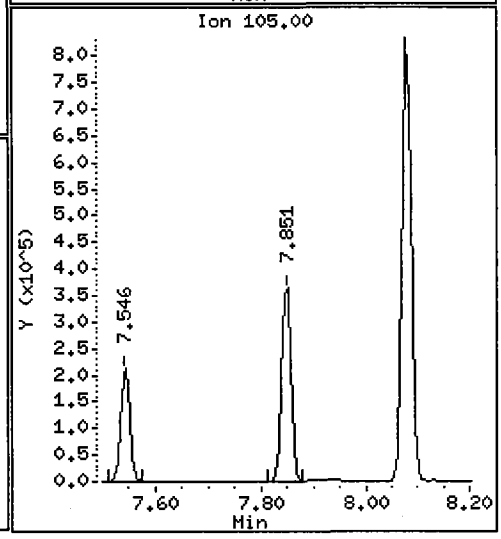












Analytical Resources, Incorporated
Analytical Chemists and Consultants

VOA Analyst Notes / Corrective Action Log

ARI Project ID: RR33 Client ID: NW Natural

ARI SOP: **404S**(Gas) **410S**(BTEX) **430S**(VPH) **700S**(8260C) **703S**(SIM) **706S**(524.2) **710S**(RSK-175)

Parameter(s): _____

Instrument: NT-3 NT-5 NT-7 NT-9 NT-10 PID-1 PID-2 PID-3 FID-6 FINN-5

Purge Volume (mL) 5 Curve Date: 8/28/10 Analysis Start Date: 10/2/10

pH ≤ 2.0	YES / NO / NA	Method Blank In Control?	YES / NO
BFB Tune Meets Criteria?	YES / NO / NA	LCS / LCSD Recovery In Control?	YES / NO
Internal Standard Meets Criteria?	YES / NO / NA	Surrogate Recovery In Control?	YES / NO
ICal acceptable?	YES / NO	CCal acceptable?	YES / NO
Q flag applied?	YES / NO / NA	Q flag applied?	YES / NO / NA
Manual Integrations for ICal?	YES / NO	Manual Integrations for Samples?	Yes /NO
Special Analysis Criteria Met?	YES / NO / NA		

Bubbles/Headspace: None SM (≤ 2mm •) PB (2-4mm) LG (> 4mm ●) Head Space

Detail problems, corrective actions and/or other pertinent information below (use reverse side when necessary):

Samples D, H - N rerun med level + QC on N

N_{mg}, N_{mid} - SS BFB out

Additional Details on Reverse: Yes / No

Analyst: _____ **Date:** 10/2/10

Reviewer: _____ **Date:** 10/2/10

Form 8042F Version 006 6/18/10

RR33 : 00337

Analytical Resources Inc.: Volatile Organics Instrument Log

NT-9 Serial No.:GC=US00021704, MS=US80230047

Date: 10/22/10 Analysis: GC/MS Analyst: M

GC Program: WA Column No: 562027 Column Type: MXW

Instrument Tune (.U or .CT.): bfb1022 EM Voltage: 1329

Calibration File: 0501022 Curve Date: 8/27/10

IS/SS	Ical/Ccal	LCS/ICV
W6T2-1	W6T2-2	W6T2-2

INTERNAL STANDARD SUMMARY FOR DATABATCH - /chem1/nt9.i/22OCT10.b

	Time	Filename	LabID	ClientID	WT											
1	0953	bfb1022.d	BFB1022	BFB1022	0.00											
2	1042	0501022.d	CC1022	VSTD050	5.00	4.93	749636	5.32	988585	7.40	874472	9.12	474992			
3	1112	lcs1022.d	LCS1022	LCS1022	5.00	4.93	671460	5.32	889910	7.40	784318	9.11	429666			
4	1142	lcs1022a.d	LCS1022	LCS1022	5.00	4.93	742968	5.32	975728	7.40	863418	9.11	480377			
5	1213	mb1022.d	MB1022	MB1022	5.00	4.93	625245	5.32	805904	7.40	683342	9.11	367078			
6	1244	rr38a.d	RR38A	GST-11SO-0-5-101011	5.00	4.93	802429	5.32	1069791	7.40	956554	9.11	533415			
7	1315	rr38b.d	RR38B	GST-11SO-39-44-1010	5.00	4.93	550284	5.32	724846	7.40	614015	9.11	311055			
8	1345	rr38c.d	RR38C	GST-61SO-39-44-1010	5.00	4.93	596407	5.32	788042	7.40	682834	9.11	352610			
9	1415	rr38d.d	RR38D	GST-13SO-0-5-101012	5.00	4.94	769275	5.32	1019950	7.40	902432	9.11	474353			
10	1445	rr38e.d	RR38E	GST-13SO-38-43-1010	5.00	4.93	597569	5.32	775438	7.40	681216	9.11	373330			
11	1516	rr38f.d	RR38F	GST-TBSO-101011 2	1	4.93	719105	5.32	946106	7.40	842491	9.11	467537			
12	1546	rr38g.d	RR38G	GST-TBSO-101012	1	4.94	735265	5.32	966937	7.40	855469	9.10	473123			
13	1617	rr33d3.d	RR33D	DGS-07-034.2-101012	5.00	4.93	804930	5.32	1064845	7.40	955933	9.11	546511			
14	1647	rr33h3.d	RR33H	DGS-07-077.3-101012	5.00	4.93	830873	5.32	1096087	7.40	976251	9.12	557694			
15	1717	rr33i3.d	RR33I	DGS-07-7.98.4-10101	5.00	4.93	787577	5.32	1041788	7.40	927399	9.12	527362			
16	1747	rr33j3.d	RR33J	DGS-07-8.79.1-10101	5.00	4.93	717444	5.32	953208	7.40	850784	9.12	478436			
17	1818	rr33k3.d	RR33K	DGS-07-9.710-101012	5.00	4.93	828616	5.32	1101628	7.40	985568	9.12	564232			
18	1848	rr33l3.d	RR33L	DGS-07-10.610.9-101	5.00	4.93	836608	5.32	1114177	7.40	998261	9.12	572936			
19	1919	rr33m3.d	RR33M	DGS-07-11.611.8-101	5.00	4.93	813286	5.32	1082097	7.40	970949	9.12	550403			
20	1949	rr33n3.d	RR33N	DGS-07-12.713.2-101	5.00	4.93	854368	5.32	1134660	7.40	1021069	9.12	577638			
21	2020	rr33nms.d	RR33NMS	DGS-07-12.713.2-MS	5.00	4.93	826114	5.32	1102180	7.40	1001838	9.12	561475			
22	2050	rr33nmsd.d	RR33NMSD	DGS-07-12.713.2-MSD	5.00	4.93	848310	5.32	1129553	7.40	1020377	9.12	571616			
23	2120	rr75a.d	RR75A	DGS-30SG-101012	5.00	4.94	794732	5.32	1060598	7.40	912583	9.11	448913			
24	2151	rr75b.d	RR75B	DGS-33SG-101012	5.00	4.94	804753	5.32	1067776	7.40	932650	9.11	490353			

Mai

Main

Every

MANUAL INTEGRATION SUMMARY FOR DATABATCH - /chem1/nt9.i/22OCT10.b/gasco.b

ARI Job No.: BFB1 Method: bfb8260.m Instrument: nt9.i Date: 22-OCT-2010

Time	Filename	LabID	ClientId	DF	Manually Integrated Compounds
0953	bfb1022.d	BFB1022	BFB1022	1	NO MANUAL INTEGRATION
1042	0501022.d	CC1022	VSTD050	1	NO MANUAL INTEGRATION
1112	lcs1022.d	LCS1022	LCS1022	1	NO MANUAL INTEGRATION
1142	lcs1022a.d	LCS1022	LCS1022	1	NO MANUAL INTEGRATION
1213	mb1022.d	MB1022	MB1022	1	NO MANUAL INTEGRATION
1617	rr33d3.d	RR33D	DGS-07-034	1	m,p-xylene,
1647	rr33h3.d	RR33H	DGS-07-077	1	m,p-xylene, o-Xylene,
1717	rr33i3.d	RR33I	DGS-07-7.9	1	NO MANUAL INTEGRATION
1747	rr33j3.d	RR33J	DGS-07-8.7	1	m,p-xylene,
1818	rr33k3.d	RR33K	DGS-07-9.7	1	NO MANUAL INTEGRATION
1848	rr33l3.d	RR33L	DGS-07-10.	1	NO MANUAL INTEGRATION
1919	rr33m3.d	RR33M	DGS-07-11.	1	NO MANUAL INTEGRATION
1949	rr33n3.d	RR33N	DGS-07-12.	1	NO MANUAL INTEGRATION
2020	rr33nms.d	RR33NMS	DGS-07-12.	1	NO MANUAL INTEGRATION
2050	rr33nmsd.d	RR33NMSD	DGS-07-12.	1	NO MANUAL INTEGRATION

RR33 : 00339

Q-FLAG SUMMARY FOR DATABATCH - /chem1/nt9.i/22OCT10.b/gasco.b

Instrument: nt9.i Date: 22-OCT-2010 Method: gasco.b/VO063010S.m

INITIAL CAL: 28-AUG-2010

Compound	%RSD or R^2
NO Q-FLAGS	

CONTINUING CAL: 22-OCT-2010

Compound	%D
NO Q-FLAGS	

Data File: /chem1/nt9.i/22OCT10.b/gasco.b/bfb1022.d

Date : 22-OCT-2010 09:53

Client ID: BFB1022

Instrument: nt9.i

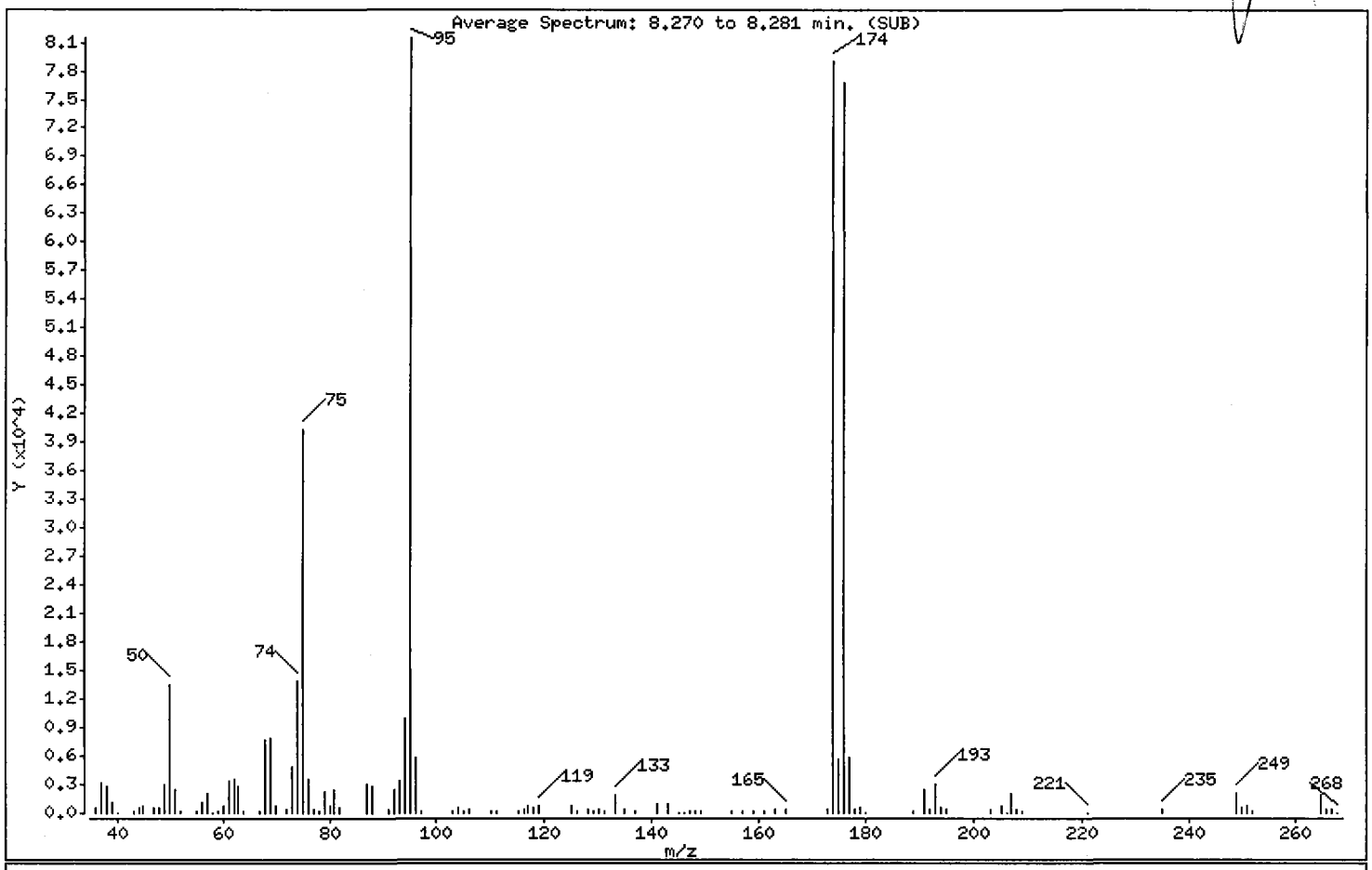
Sample Info: BFB1022,BFB1022,,1,22OCT10,,

Operator: PB

Column phase: RTX502.2

Column diameter: 0.18

1 Bromofluorobenzene



m/e	ION ABUNDANCE CRITERIA	% RELATIVE ABUNDANCE
95	Base Peak, 100% relative abundance	100.00
50	8.00 - 40.00% of mass 95	16.62
75	30.00 - 66.00% of mass 95	49.52
96	5.00 - 9.00% of mass 95	7.03
173	Less than 2.00% of mass 174	0.47 (0.48)
174	50.00 - 101.00% of mass 95	96.92
175	4.00 - 9.00% of mass 174	6.90 (7.12)
176	93.00 - 101.00% of mass 174	94.27 (97.26)
177	5.00 - 9.00% of mass 176	7.11 (7.54)

Data File: /chem1/nt9.i/22OCT10.b/gasco.b/bfb1022.d

Date : 22-OCT-2010 09:53

Client ID: BFB1022 Instrument: nt9.i

Sample Info: BFB1022,BFB1022,,1,22OCT10,,

Operator: PB

Column phase: RTX502.2 Column diameter: 0.18

Data File: bfb1022.d
Spectrum: Average Spectrum: 8.270 to 8.281 min. (SUB)
Location of Maximum: 95.00
Number of points: 111

m/z	Y	m/z	Y	m/z	Y	m/z	Y
36.00	528	72.00	412	117.00	677	176.00	76808
37.00	3123	73.00	4853	118.00	522	177.00	5792
38.00	2827	74.00	13961	119.00	778	178.00	374
39.00	1140	75.00	40352	125.00	764	179.00	611
40.00	63	76.00	3525	126.00	176	180.00	64
43.00	208	77.00	431	128.00	326	189.00	208
44.00	530	78.00	194	129.00	181	191.00	2407
45.00	839	79.00	2309	130.00	346	192.00	458
47.00	651	80.00	690	131.00	193	193.00	3012
48.00	520	81.00	2417	133.00	1936	194.00	499
49.00	2956	82.00	583	135.00	327	195.00	319
50.00	13539	87.00	3085	137.00	188	203.00	322
51.00	2414	88.00	2836	141.00	911	205.00	680
52.00	201	91.00	352	143.00	1003	206.00	85
55.00	235	92.00	2441	145.00	55	207.00	2042
56.00	1180	93.00	3473	146.00	57	208.00	430
57.00	2065	94.00	9938	147.00	272	209.00	193
58.00	72	95.00	81480	148.00	264	221.00	69
59.00	228	96.00	5729	149.00	141	235.00	295
60.00	721	97.00	222	155.00	214	249.00	2047
61.00	3464	103.00	256	157.00	132	250.00	506
62.00	3616	104.00	523	159.00	109	251.00	838
63.00	2770	105.00	124	161.00	268	252.00	95
64.00	131	106.00	428	163.00	326	265.00	1914
67.00	160	110.00	108	165.00	338	266.00	460
68.00	7748	111.00	148	173.00	379	267.00	442
69.00	7905	115.00	204	174.00	78976	268.00	88
70.00	673	116.00	347	175.00	5620		

Data File: /chem1/nt9.i/22OCT10.b/gasco.b/bfb1022.d

Date : 22-OCT-2010 09:53

Client ID: BFB1022

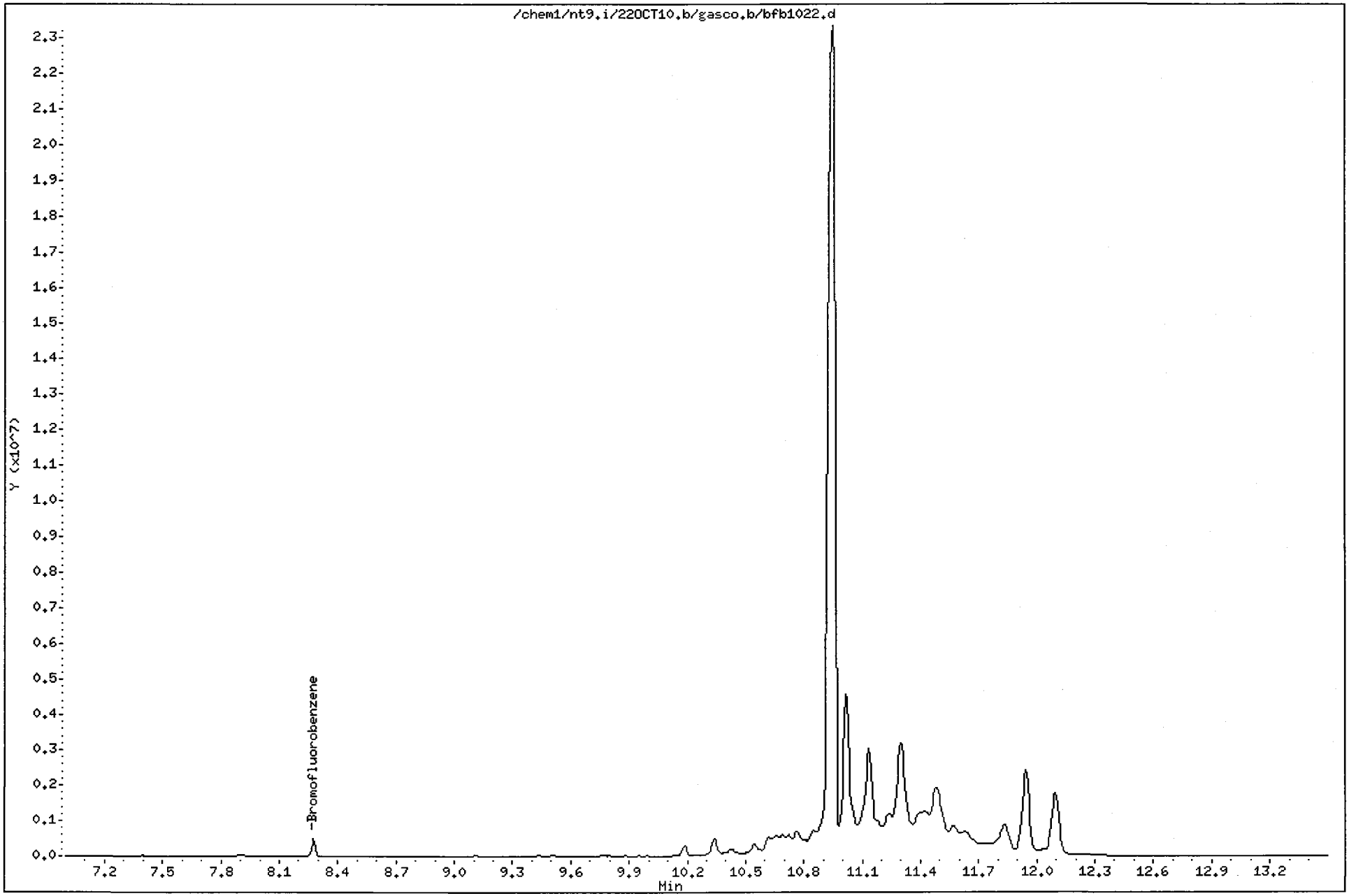
Instrument: nt9.i

Sample Info: BFB1022,BFB1022,,1,22OCT10,,

Operator: PB

Column phase: RTX502.2

Column diameter: 0.18



RR83-00345

Analytical Resources, Inc.

8260C

Data file : /chem1/nt9.i/22OCT10.b/gasco.b/0501022.d
Lab Smp Id: CC1022 Client Smp ID: VSTD050
Inj Date : 22-OCT-2010 10:42
Operator : PB Inst ID: nt9.i
Smp Info : CC1022,5,5,0
Misc Info : 10-
Comment :
Method : /chem1/nt9.i/22OCT10.b/gasco.b/VO063010S.m
Meth Date : 22-Oct-2010 12:32 patrickb Quant Type: ISTD
Cal Date : 28-AUG-2010 13:21 Cal File: 2000828.d
Als bottle: 1 Continuing Calibration Sample
Dil Factor: 1.00000
Integrator: HP RTE Compound Sublist: gasco.sub
Target Version: 3.50
Processing Host: cserv3

Concentration Formula: Amt * DF * Pv * 1 / (Sa * ((100 - M) / 100)) * CpndVaria

Name	Value	Description
DF	1.00000	Dilution Factor
Pv	5.00000	Purge Volume
Sa	5.00000	Sample Amount
M	0.00000	% Moisture (not decanted)

Cpnd Variable Local Compound Variable

Compounds	QUANT SIG MASS	RT	EXP RT	REL RT	RESPONSE	AMOUNTS CAL-AMT (ug/Kg)	ON-COL (ug/Kg)
3 Vinyl Chloride	62	1.407	1.407	(0.285)	286093	50.0000	42.721
7 1,1-Dichloroethene	96	2.312	2.312	(0.469)	313248	50.0000	47.329
15 Trans-1,2-Dichloroethene	96	3.031	3.031	(0.615)	350189	50.0000	45.787
20 Cis-1,2-Dichloroethene	96	4.134	4.134	(0.838)	330528	50.0000	45.609
* 32 Pentafluorobenzene	168	4.931	4.931	(1.000)	749636	50.0000	
$ 25 Dibromofluoromethane	111	4.530	4.530	(0.919)	276112	50.0000	49.259
$ 31 d4-1,2-Dichloroethane	65	4.937	4.937	(1.001)	277696	50.0000	48.254
30 Benzene	78	4.830	4.830	(0.908)	1192577	50.0000	44.854
* 35 1,4-Difluorobenzene	114	5.322	5.322	(1.000)	988585	50.0000	
34 Trichloroethene	95	5.282	5.282	(0.993)	327090	50.0000	44.529
$ 42 d8-Toluene	98	6.306	6.306	(1.185)	1100764	50.0000	49.143
43 Toluene	92	6.340	6.340	(1.191)	818322	50.0000	43.311
44 Tetrachloroethene	166	6.612	6.612	(0.894)	432685	50.0000	45.517
* 52 d5-Chlorobenzene	117	7.398	7.398	(1.000)	874472	50.0000	

Compounds	QUANT SIG MASS	RT	EXP RT	REL RT	RESPONSE	AMOUNTS CAL-AMT (ug/Kg)	AMOUNTS ON-COL (ug/Kg)
54 Ethyl Benzene	91	7.437	7.437	(1.005)	1579251	50.0000	44.066
56 m,p-xylene	106	7.545	7.545	(1.020)	1327462	100.000	91.585
57 o-Xylene	106	7.850	7.850	(1.061)	612623	50.0000	45.372
$ 61 4-Bromofluorobenzene	95	8.280	8.280	(1.119)	389527	50.0000	48.094
* 75 d4-1,4-Dichlorobenzene	152	9.118	9.118	(1.000)	474992	50.0000	
$ 78 d4-1,2-Dichlorobenzene	152	9.446	9.446	(1.036)	414101	50.0000	49.873

Analytical Resources, Inc.

INTERNAL STANDARD COMPOUNDS
AREA AND RT SUMMARY

Instrument ID: nt9.i
Lab File ID: 0501022.d
Lab Smp Id: CC1022
Analysis Type: VOA
Quant Type: ISTD
Operator: PB
Method File: /chem1/nt9.i/22OCT10.b/gasco.b/VO063010S.m
Misc Info: 10-

Calibration Date: 22-OCT-2010
Calibration Time: 10:42
Client Smp ID: VSTD050
Level: LOW
Sample Type: SOIL

Test Mode:
Use Initial Calibration Level 5.
If Continuing Cal. use Initial Cal. Level 5

COMPOUND	STANDARD	AREA LIMIT LOWER	AREA LIMIT UPPER	SAMPLE	%DIFF
32 Pentafluorobenzen	704281	352140	1408562	749636	6.44
35 1,4-Difluorobenze	937745	468872	1875490	988585	5.42
52 d5-Chlorobenzene	853013	426506	1706026	874472	2.52
75 d4-1,4-Dichlorobe	503655	251828	1007310	474992	-5.69

COMPOUND	STANDARD	RT LIMIT LOWER	RT LIMIT UPPER	SAMPLE	%DIFF
32 Pentafluorobenzen	4.94	4.44	5.44	4.93	-0.10
35 1,4-Difluorobenze	5.32	4.82	5.82	5.32	0.01
52 d5-Chlorobenzene	7.40	6.90	7.90	7.40	0.01
75 d4-1,4-Dichlorobe	9.11	8.61	9.61	9.12	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.

Analytical Resources, Inc.

CONTINUING CALIBRATION COMPOUNDS

Instrument ID: nt9.i
Lab File ID: 0501022.d
Analysis Type: SOIL
Lab Sample ID: CC1022
Method: /chem1/nt9.i/22OCT10.b/gasco.b/VO063010S.m

Injection Date: 22-OCT-2010 10:42
Init. Cal. Date(s): 28-AUG-2010 28-AUG-2010
Init. Cal. Times: 12:52 16:21
Quant Type: ISTD

COMPOUND	RRF / AMOUNT	RF50	CCAL RRF50	MIN RRF	%D / %DRIFT	MAX %D / %DRIFT	CURVE TYPE
3 Vinyl Chloride	0.44667	0.38164	0.38164	0.100	-14.55805	20.00000	Averaged
7 1,1-Dichloroethene	0.44145	0.41787	0.41787	0.100	-5.34184	20.00000	Averaged
15 Trans-1,2-Dichloroethene	0.51013	0.46715	0.46715	0.010	-8.42649	20.00000	Averaged
20 Cis-1,2-Dichloroethene	0.48336	0.44092	0.44092	0.010	-8.78109	20.00000	Averaged
$ 25 Dibromofluoromethane	0.37387	0.36833	0.36833	0.100	-1.48297	20.00000	Averaged
$ 31 d4-1,2-Dichloroethane	0.38384	0.37044	0.37044	0.010	-3.49167	20.00000	Averaged
30 Benzene	1.34476	1.20635	1.20635	0.100	-10.29269	20.00000	Averaged
34 Trichloroethene	0.37152	0.33087	0.33087	0.100	-10.94216	20.00000	Averaged
$ 42 d8-Toluene	1.13290	1.11347	1.11347	0.010	-1.71441	20.00000	Averaged
43 Toluene	0.95562	0.82777	0.82777	0.100	-13.37896	20.00000	Averaged
44 Tetrachloroethene	0.54353	0.49480	0.49480	0.100	-8.96627	20.00000	Averaged
54 Ethyl Benzene	2.04913	1.80595	1.80595	0.100	-11.86741	20.00000	Averaged
56 m,p-xylene	0.82875	0.75901	0.75901	0.100	-8.41550	20.00000	Averaged
57 o-Xylene	0.77203	0.70056	0.70056	0.100	-9.25668	20.00000	Averaged
$ 61 4-Bromofluorobenzene	0.46309	0.44544	0.44544	0.200	-3.81134	20.00000	Averaged
$ 78 d4-1,2-Dichlorobenzene	0.87403	0.87181	0.87181	0.010	-0.25469	20.00000	Averaged

Data File: /chem1/nt9.i/22OCT10.b/gasco.b/0501022.d

Date : 22-OCT-2010 10:42

Client ID: VSTD050

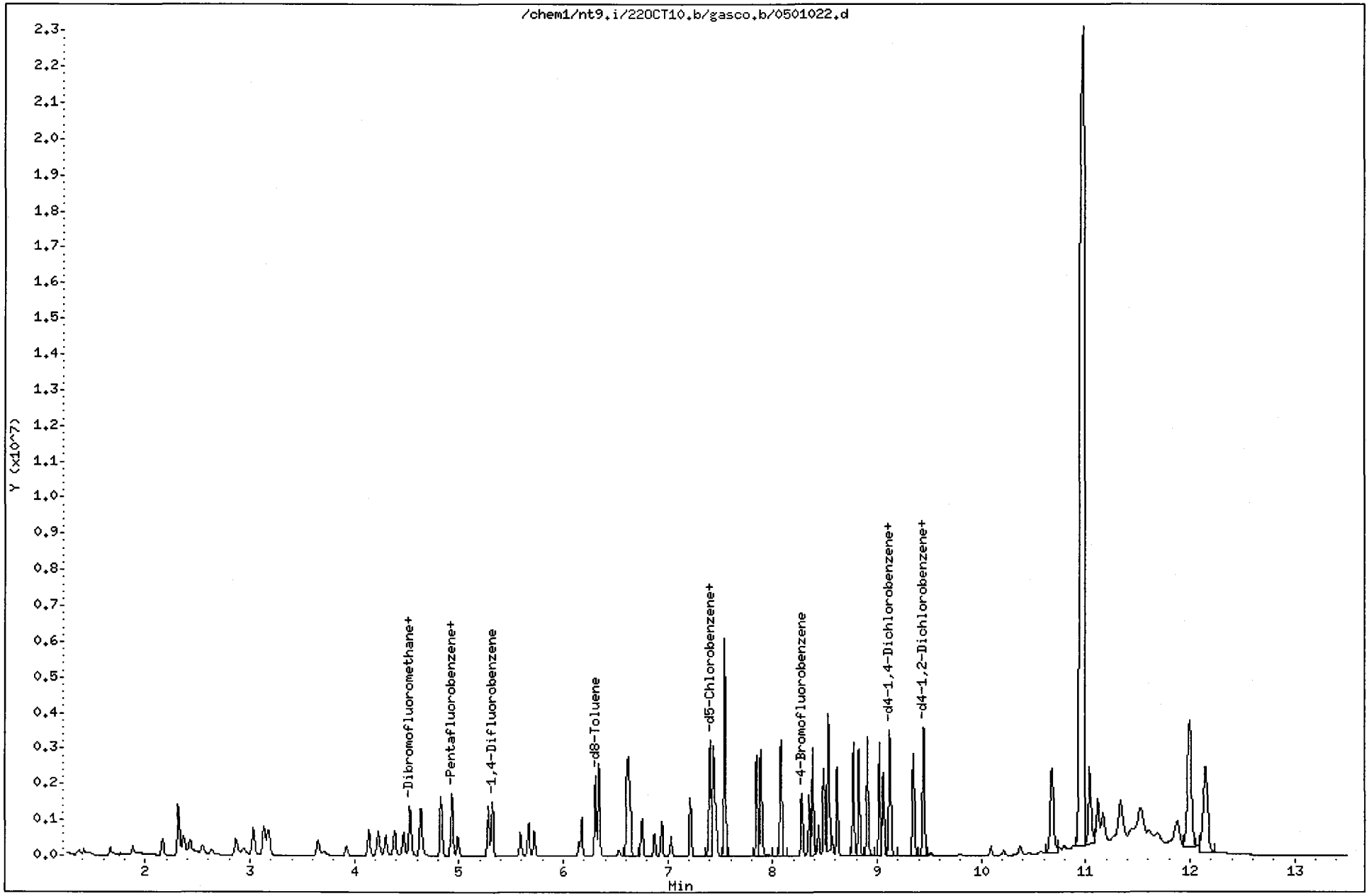
Sample Info: CC1022,5,5,0

Column phase: RTX502.2

Instrument: nt9.i

Operator: PB

Column diameter: 0.18



RR33:00318

Analytical Resources, Inc.

8260C

Data file : /chem1/nt9.i/22OCT10.b/gasco.b/lcs1022.d
Lab Smp Id: LCS1022 Client Smp ID: LCS1022
Inj Date : 22-OCT-2010 11:12
Operator : PB Inst ID: nt9.i
Smp Info : LCS1022,5,5,0
Misc Info : 10-
Comment :
Method : /chem1/nt9.i/22OCT10.b/gasco.b/VO063010S.m
Meth Date : 27-Oct-2010 11:21 patrickb Quant Type: ISTD
Cal Date : 28-AUG-2010 13:21 Cal File: 2000828.d
Als bottle: 1 QC Sample: LCS
Dil Factor: 1.00000
Integrator: HP RTE Compound Sublist: gasco.sub
Target Version: 3.50
Processing Host: cserv3

Concentration Formula: Amt * DF * Pv * 1 / (Sa * ((100 - M) / 100)) * CpndVaria

Name	Value	Description
DF	1.00000	Dilution Factor
Pv	5.00000	Purge Volume
Sa	5.00000	Sample Amount
M	0.00000	% Moisture (not decanted)

Cpnd Variable Local Compound Variable

Compounds	QUANT SIG MASS	RT	EXP RT	REL RT	RESPONSE	CONCENTRATIONS ON-COLUMN (ug/Kg)	FINAL (ug/Kg)
3 Vinyl Chloride	62	1.407	1.407	(0.285)	336204	56.0489	56.049
7 1,1-Dichloroethene	96	2.306	2.312	(0.468)	354227	59.7519	59.752
15 Trans-1,2-Dichloroethene	96	3.030	3.031	(0.615)	384611	56.1422	56.142
20 Cis-1,2-Dichloroethene	96	4.134	4.134	(0.838)	352085	54.2406	54.241
* 32 Pentafluorobenzene	168	4.931	4.931	(1.000)	671460	50.0000	
$ 25 Dibromofluoromethane	111	4.530	4.530	(0.919)	248525	49.4990	49.499
$ 31 d4-1,2-Dichloroethane	65	4.937	4.937	(1.001)	248258	48.1614	48.161
30 Benzene	78	4.829	4.830	(0.908)	1289759	53.8875	53.887
* 35 1,4-Difluorobenzene	114	5.321	5.322	(1.000)	889910	50.0000	
34 Trichloroethene	95	5.282	5.282	(0.993)	367968	55.6484	55.648
$ 42 d8-Toluene	98	6.306	6.306	(1.185)	990661	49.1313	49.131
43 Toluene	92	6.340	6.340	(1.191)	889814	52.3162	52.316
44 Tetrachloroethene	166	6.606	6.612	(0.893)	485806	56.9793	56.979
* 52 d5-Chlorobenzene	117	7.397	7.398	(1.000)	784318	50.0000	

Compounds	QUANT SIG MASS	RT	EXP RT	REL RT	RESPONSE	CONCENTRATIONS ON-COLUMN (ug/Kg)	FINAL (ug/Kg)
54 Ethyl Benzene	91	7.437	7.437	(1.005)	1739832	54.1273	54.127
56 m,p-xylene	106	7.545	7.545	(1.020)	1448736	111.440	111.44
57 o-Xylene	106	7.850	7.850	(1.061)	652448	53.8755	53.875
$ 61 4-Bromofluorobenzene	95	8.274	8.280	(1.119)	348575	47.9851	47.985
* 75 d4-1,4-Dichlorobenzene	152	9.112	9.118	(1.000)	429666	50.0000	
$ 78 d4-1,2-Dichlorobenzene	152	9.434	9.446	(1.035)	375559	50.0023	50.002

Analytical Resources, Inc.

INTERNAL STANDARD COMPOUNDS
AREA AND RT SUMMARY

Instrument ID: nt9.i
Lab File ID: lcs1022.d
Lab Smp Id: LCS1022
Analysis Type: VOA
Quant Type: ISTD
Operator: PB
Method File: /chem1/nt9.i/22OCT10.b/gasco.b/VO063010S.m
Misc Info: 10-

Calibration Date: 22-OCT-2010
Calibration Time: 10:42
Client Smp ID: LCS1022
Level: LOW
Sample Type: SOIL

Test Mode:
Use Initial Calibration Level 5.
If Continuing Cal. use Initial Cal. Level 5

COMPOUND	STANDARD	AREA LIMIT LOWER	AREA LIMIT UPPER	SAMPLE	%DIFF
32 Pentafluorobenzen	704281	352140	1408562	671460	-4.66
35 1,4-Difluorobenze	937745	468872	1875490	889910	-5.10
52 d5-Chlorobenzene	853013	426506	1706026	784318	-8.05
75 d4-1,4-Dichlorobe	503655	251828	1007310	429666	-14.69

COMPOUND	STANDARD	RT LIMIT LOWER	RT LIMIT UPPER	SAMPLE	%DIFF
32 Pentafluorobenzen	4.93	4.43	5.43	4.93	-0.01
35 1,4-Difluorobenze	5.32	4.82	5.82	5.32	-0.01
52 d5-Chlorobenzene	7.40	6.90	7.90	7.40	0.00
75 d4-1,4-Dichlorobe	9.12	8.62	9.62	9.11	-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.

Analytical Resources, Inc.

RECOVERY REPORT

Client Name:
Sample Matrix: SOLID
Lab Smp Id: LCS1022
Level: LOW
Data Type: MS DATA
SpikeList File: gasco.spk
Sublist File: gasco.sub
Method File: /chem1/nt9.i/22OCT10.b/gasco.b/VO063010S.m
Misc Info: 10-

Client SDG: 22OCT10
Fraction: VOA
Client Smp ID: LCS1022
Operator: PB
SampleType: LCS
Quant Type: ISTD

SPIKE COMPOUND	CONC ADDED ug/Kg	CONC RECOVERED ug/Kg	% RECOVERED	LIMITS
3 Vinyl Chloride	50.000	56.049	112.10	63-137
7 1,1-Dichloroethene	50.000	59.752	119.50	75-126
15 Trans-1,2-Dichloro	50.000	56.142	112.28	80-120
20 Cis-1,2-Dichloroet	50.000	54.241	108.48	80-120
30 Benzene	50.000	53.887	107.77	80-120
34 Trichloroethene	50.000	55.648	111.30	80-120
43 Toluene	50.000	52.316	104.63	80-120
44 Tetrachloroethene	50.000	56.979	113.96	80-121
54 Ethyl Benzene	50.000	54.127	108.25	80-127
56 m,p-xylene	100.00	111.44	111.44	80-125
57 o-Xylene	50.000	53.875	107.75	78-120

SURROGATE COMPOUND	AMOUNT ADDED ug/Kg	AMOUNT RECOVERED ug/Kg	% RECOVERED	LIMITS
$ 25 Dibromofluorometha	50.000	49.499	99.00	30-160
$ 31 d4-1,2-Dichloroeth	50.000	48.161	96.32	75-152
$ 42 d8-Toluene	50.000	49.131	98.26	82-115
$ 61 4-Bromofluorobenze	50.000	47.985	95.97	64-120
$ 78 d4-1,2-Dichloroben	50.000	50.002	100.00	80-120

Data File: /chem1/nt9.i/22OCT10.b/gasco.b/lcs1022.d

Date : 22-OCT-2010 11:12

Client ID: LCS1022

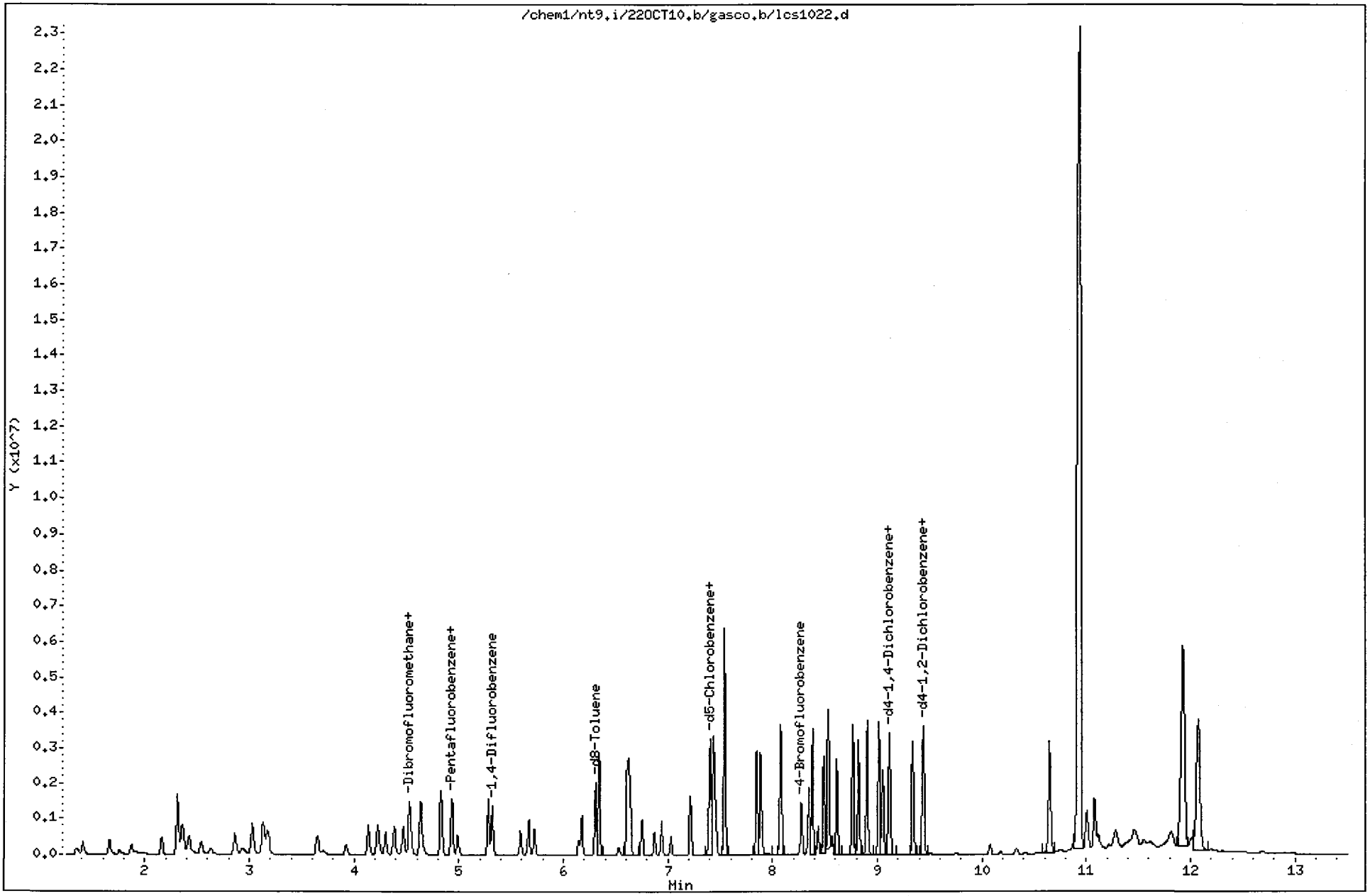
Sample Info: LCS1022,5,5,0

Column phase: RTX502.2

Instrument: nt9.i

Operator: PB

Column diameter: 0.18



RR33:00259

Analytical Resources, Inc.

8260C

Data file : /chem1/nt9.i/22OCT10.b/gasco.b/lcs1022a.d
Lab Smp Id: LCS1022 Client Smp ID: LCS1022
Inj Date : 22-OCT-2010 11:42
Operator : PB Inst ID: nt9.i
Smp Info : LCS1022,5,5,0
Misc Info : 10-
Comment :
Method : /chem1/nt9.i/22OCT10.b/gasco.b/VO063010S.m
Meth Date : 27-Oct-2010 11:21 patrickb Quant Type: ISTD
Cal Date : 28-AUG-2010 13:21 Cal File: 2000828.d
Als bottle: 1 QC Sample: LCSD
Dil Factor: 1.00000
Integrator: HP RTE Compound Sublist: gasco.sub
Target Version: 3.50
Processing Host: cserv3

Concentration Formula: Amt * DF * Pv * 1 / (Sa * ((100 - M) / 100)) * CpndVaria

Name	Value	Description
DF	1.00000	Dilution Factor
Pv	5.00000	Purge Volume
Sa	5.00000	Sample Amount
M	0.00000	% Moisture (not decanted)

Cpnd Variable Local Compound Variable

Compounds	QUANT SIG MASS	RT	EXP RT	REL RT	RESPONSE	CONCENTRATIONS ON-COLUMN (ug/Kg)	FINAL (ug/Kg)
3 Vinyl Chloride	62	1.407	1.407	(0.285)	369630	55.6905	55.691
7 1,1-Dichloroethene	96	2.306	2.312	(0.468)	384537	58.6217	58.622
15 Trans-1,2-Dichloroethene	96	3.030	3.031	(0.615)	422938	55.7949	55.795
20 Cis-1,2-Dichloroethene	96	4.134	4.134	(0.838)	388087	54.0326	54.033
* 32 Pentafluorobenzene	168	4.931	4.931	(1.000)	742968	50.0000	
$ 25 Dibromofluoromethane	111	4.530	4.530	(0.919)	272349	49.0233	49.023
$ 31 d4-1,2-Dichloroethane	65	4.937	4.937	(1.001)	275639	48.3266	48.327
30 Benzene	78	4.829	4.830	(0.908)	1425068	54.3041	54.304
* 35 1,4-Difluorobenzene	114	5.321	5.322	(1.000)	975728	50.0000	
34 Trichloroethene	95	5.282	5.282	(0.993)	404283	55.7629	55.763
$ 42 d8-Toluene	98	6.306	6.306	(1.185)	1088792	49.2488	49.249
43 Toluene	92	6.340	6.340	(1.191)	984963	52.8171	52.817
44 Tetrachloroethene	166	6.611	6.612	(0.894)	537669	57.2849	57.285
* 52 d5-Chlorobenzene	117	7.398	7.398	(1.000)	863418	50.0000	

Compounds	QUANT SIG MASS	RT	EXP RT	REL RT	RESPONSE	CONCENTRATIONS ON-COLUMN (ug/Kg)	FINAL (ug/Kg)
54 Ethyl Benzene	91	7.437	7.437	(1.005)	1930246	54.5498	54.550
56 m,p-xylene	106	7.545	7.545	(1.020)	1610607	112.542	112.54
57 o-Xylene	106	7.850	7.850	(1.061)	726872	54.5223	54.522
$ 61 4-Bromofluorobenzene	95	8.274	8.280	(1.119)	389304	48.6822	48.682
* 75 d4-1,4-Dichlorobenzene	152	9.112	9.118	(1.000)	480377	50.0000	
$ 78 d4-1,2-Dichlorobenzene	152	9.434	9.446	(1.035)	416030	49.5433	49.543

Analytical Resources, Inc.

INTERNAL STANDARD COMPOUNDS
AREA AND RT SUMMARY

Instrument ID: nt9.i
Lab File ID: lcs1022a.d
Lab Smp Id: LCS1022
Analysis Type: VOA
Quant Type: ISTD
Operator: PB
Method File: /chem1/nt9.i/22OCT10.b/gasco.b/VO063010S.m
Misc Info: 10-

Calibration Date: 22-OCT-2010
Calibration Time: 10:42
Client Smp ID: LCS1022
Level: LOW
Sample Type: SOIL

Test Mode:
Use Initial Calibration Level 5.
If Continuing Cal. use Initial Cal. Level 5

COMPOUND	STANDARD	AREA LIMIT LOWER	AREA LIMIT UPPER	SAMPLE	%DIFF
32 Pentafluorobenzen	704281	352140	1408562	742968	5.49
35 1,4-Difluorobenze	937745	468872	1875490	975728	4.05
52 d5-Chlorobenzene	853013	426506	1706026	863418	1.22
75 d4-1,4-Dichlorobe	503655	251828	1007310	480377	-4.62

COMPOUND	STANDARD	RT LIMIT LOWER	RT LIMIT UPPER	SAMPLE	%DIFF
32 Pentafluorobenzen	4.93	4.43	5.43	4.93	-0.01
35 1,4-Difluorobenze	5.32	4.82	5.82	5.32	-0.01
52 d5-Chlorobenzene	7.40	6.90	7.90	7.40	0.00
75 d4-1,4-Dichlorobe	9.12	8.62	9.62	9.11	-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.

Analytical Resources, Inc.

RECOVERY REPORT

Client Name:
Sample Matrix: SOLID
Lab Smp Id: LCS1022
Level: LOW
Data Type: MS DATA
SpikeList File: gasco.spk
Sublist File: gasco.sub
Method File: /chem1/nt9.i/22OCT10.b/gasco.b/VO063010S.m
Misc Info: 10-

Client SDG: 22OCT10
Fraction: VOA
Client Smp ID: LCS1022
Operator: PB
SampleType: LCSD
Quant Type: ISTD

SPIKE COMPOUND	CONC ADDED ug/Kg	CONC RECOVERED ug/Kg	% RECOVERED	LIMITS
3 Vinyl Chloride	50.000	55.691	111.38	63-137
7 1,1-Dichloroethene	50.000	58.622	117.24	75-126
15 Trans-1,2-Dichloro	50.000	55.795	111.59	80-120
20 Cis-1,2-Dichloroet	50.000	54.033	108.07	80-120
30 Benzene	50.000	54.304	108.61	80-120
34 Trichloroethene	50.000	55.763	111.53	80-120
43 Toluene	50.000	52.817	105.63	80-120
44 Tetrachloroethene	50.000	57.285	114.57	80-121
54 Ethyl Benzene	50.000	54.550	109.10	80-127
56 m,p-xylene	100.00	112.54	112.54	80-125
57 o-Xylene	50.000	54.522	109.04	78-120

SURROGATE COMPOUND	AMOUNT ADDED ug/Kg	AMOUNT RECOVERED ug/Kg	% RECOVERED	LIMITS
$ 25 Dibromofluorometha	50.000	49.023	98.05	30-160
$ 31 d4-1,2-Dichloroeth	50.000	48.327	96.65	75-152
$ 42 d8-Toluene	50.000	49.249	98.50	82-115
$ 61 4-Bromofluorobenze	50.000	48.682	97.36	64-120
$ 78 d4-1,2-Dichloroben	50.000	49.543	99.09	80-120

Data File: /chem1/nt9.i/22OCT10.b/gasco.b/lcs1022a.d

Date : 22-OCT-2010 11:42

Client ID: LCS1022

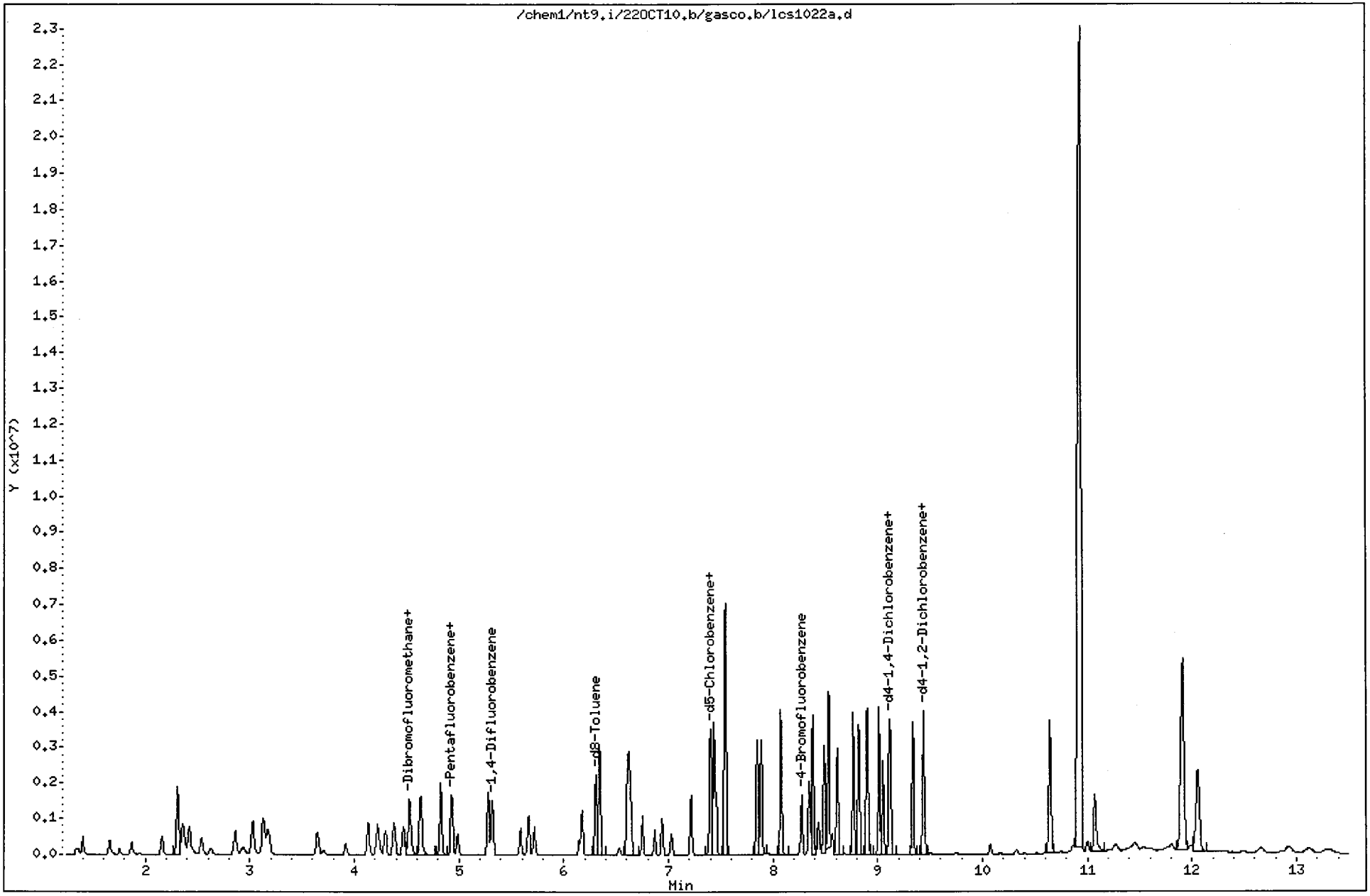
Instrument: nt9.i

Sample Info: LCS1022,5,5,0

Operator: PB

Column phase: RTX502.2

Column diameter: 0.18



RR33:00358

Analytical Resources, Inc.

8260C

Data file : /chem1/nt9.i/22OCT10.b/gasco.b/mb1022.d
Lab Smp Id: MB1022 Client Smp ID: MB1022
Inj Date : 22-OCT-2010 12:13
Operator : PB Inst ID: nt9.i
Smp Info : MB1022,5,5,0
Misc Info : 10-
Comment :
Method : /chem1/nt9.i/22OCT10.b/gasco.b/VO063010S.m
Meth Date : 27-Oct-2010 11:21 patrickb Quant Type: ISTD
Cal Date : 28-AUG-2010 13:21 Cal File: 2000828.d
Als bottle: 1 QC Sample: BLANK
Dil Factor: 1.00000
Integrator: HP RTE Compound Sublist: gasco.sub
Target Version: 3.50
Processing Host: cserv3

10/22/10

Concentration Formula: Amt * DF * Pv * 1 / (Sa * ((100 - M) / 100)) * CpndVaria

Name	Value	Description
DF	1.00000	Dilution Factor
Pv	5.00000	Purge Volume
Sa	5.00000	Sample Amount
M	0.00000	% Moisture (not decanted)

Cpnd Variable Local Compound Variable

Compounds	QUANT SIG MASS	RT	EXP RT	REL RT	RESPONSE	CONCENTRATIONS ON-COLUMN (ug/Kg)	FINAL (ug/Kg)
3 Vinyl Chloride	62	Compound Not Detected.					
7 1,1-Dichloroethene	96	Compound Not Detected.					
15 Trans-1,2-Dichloroethene	96	Compound Not Detected.					
20 Cis-1,2-Dichloroethene	96	Compound Not Detected.					
* 32 Pentafluorobenzene	168	4.933	4.931	(1.000)	625245	50.0000	
$ 25 Dibromofluoromethane	111	4.531	4.530	(0.919)	211550	45.2490	45.249
$ 31 d4-1,2-Dichloroethane	65	4.939	4.937	(1.001)	215249	44.8442	44.844
30 Benzene	78	Compound Not Detected.					
* 35 1,4-Difluorobenzene	114	5.323	5.322	(1.000)	805904	50.0000	
34 Trichloroethene	95	Compound Not Detected.					
$ 42 d8-Toluene	98	6.307	6.306	(1.185)	893248	48.9180	48.918
43 Toluene	92	Compound Not Detected.					
44 Tetrachloroethene	166	Compound Not Detected.					
* 52 d5-Chlorobenzene	117	7.399	7.398	(1.000)	683342	50.0000	
54 Ethyl Benzene	91	Compound Not Detected.					

Compounds	QUANT SIG MASS	RT	EXP RT	REL RT	RESPONSE	CONCENTRATIONS ON-COLUMN (ug/Kg)	FINAL (ug/Kg)
56 m,p-xylene	106	Compound Not Detected.					
57 o-Xylene	106	Compound Not Detected.					
$ 61 4-Bromofluorobenzene	95	8.276	8.280	(1.118)	304491	48.1104	48.110
* 75 d4-1,4-Dichlorobenzene	152	9.108	9.118	(1.000)	367078	50.0000	
$ 78 d4-1,2-Dichlorobenzene	152	9.430	9.446	(1.035)	315913	49.2325	49.232

Analytical Resources, Inc.

INTERNAL STANDARD COMPOUNDS
AREA AND RT SUMMARY

Instrument ID: nt9.i
Lab File ID: mb1022.d
Lab Smp Id: MB1022
Analysis Type: VOA
Quant Type: ISTD
Operator: PB
Method File: /chem1/nt9.i/22OCT10.b/gasco.b/VO063010S.m
Misc Info: 10-

Calibration Date: 22-OCT-2010
Calibration Time: 10:42
Client Smp ID: MB1022
Level: LOW
Sample Type: SOIL

Test Mode:
Use Initial Calibration Level 5.
If Continuing Cal. use Initial Cal. Level 5

COMPOUND	STANDARD	AREA LIMIT LOWER	AREA LIMIT UPPER	SAMPLE	%DIFF
32 Pentafluorobenzen	704281	352140	1408562	625245	-11.22
35 1,4-Difluorobenze	937745	468872	1875490	805904	-14.06
52 d5-Chlorobenzene	853013	426506	1706026	683342	-19.89
75 d4-1,4-Dichlorobe	503655	251828	1007310	367078	-27.12

COMPOUND	STANDARD	RT LIMIT LOWER	RT LIMIT UPPER	SAMPLE	%DIFF
32 Pentafluorobenzen	4.93	4.43	5.43	4.93	0.03
35 1,4-Difluorobenze	5.32	4.82	5.82	5.32	0.03
52 d5-Chlorobenzene	7.40	6.90	7.90	7.40	0.02
75 d4-1,4-Dichlorobe	9.12	8.62	9.62	9.11	-0.11

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.

Analytical Resources, Inc.

RECOVERY REPORT

Client Name:
Sample Matrix: SOLID
Lab Smp Id: MB1022
Level: LOW
Data Type: MS DATA
SpikeList File: all.spk
Sublist File: gasco.sub
Method File: /chem1/nt9.i/22OCT10.b/gasco.b/VO063010S.m
Misc Info: 10-

Client SDG: 22OCT10
Fraction: VOA
Client Smp ID: MB1022
Operator: PB
SampleType: BLANK
Quant Type: ISTD

SURROGATE COMPOUND	AMOUNT ADDED ug/Kg	AMOUNT RECOVERED ug/Kg	% RECOVERED	LIMITS
$ 25 Dibromofluorometha	50.000	45.249	90.50	30-160
$ 31 d4-1,2-Dichloroeth	50.000	44.844	89.69	75-152
$ 42 d8-Toluene	50.000	48.918	97.84	82-115
$ 61 4-Bromofluorobenze	50.000	48.110	96.22	64-120
$ 78 d4-1,2-Dichloroben	50.000	49.232	98.46	80-120

Data File: /chem1/nt9.i/22OCT10.b/gasco.b/mb1022.d

Date : 22-OCT-2010 12:13

Client ID: MB1022

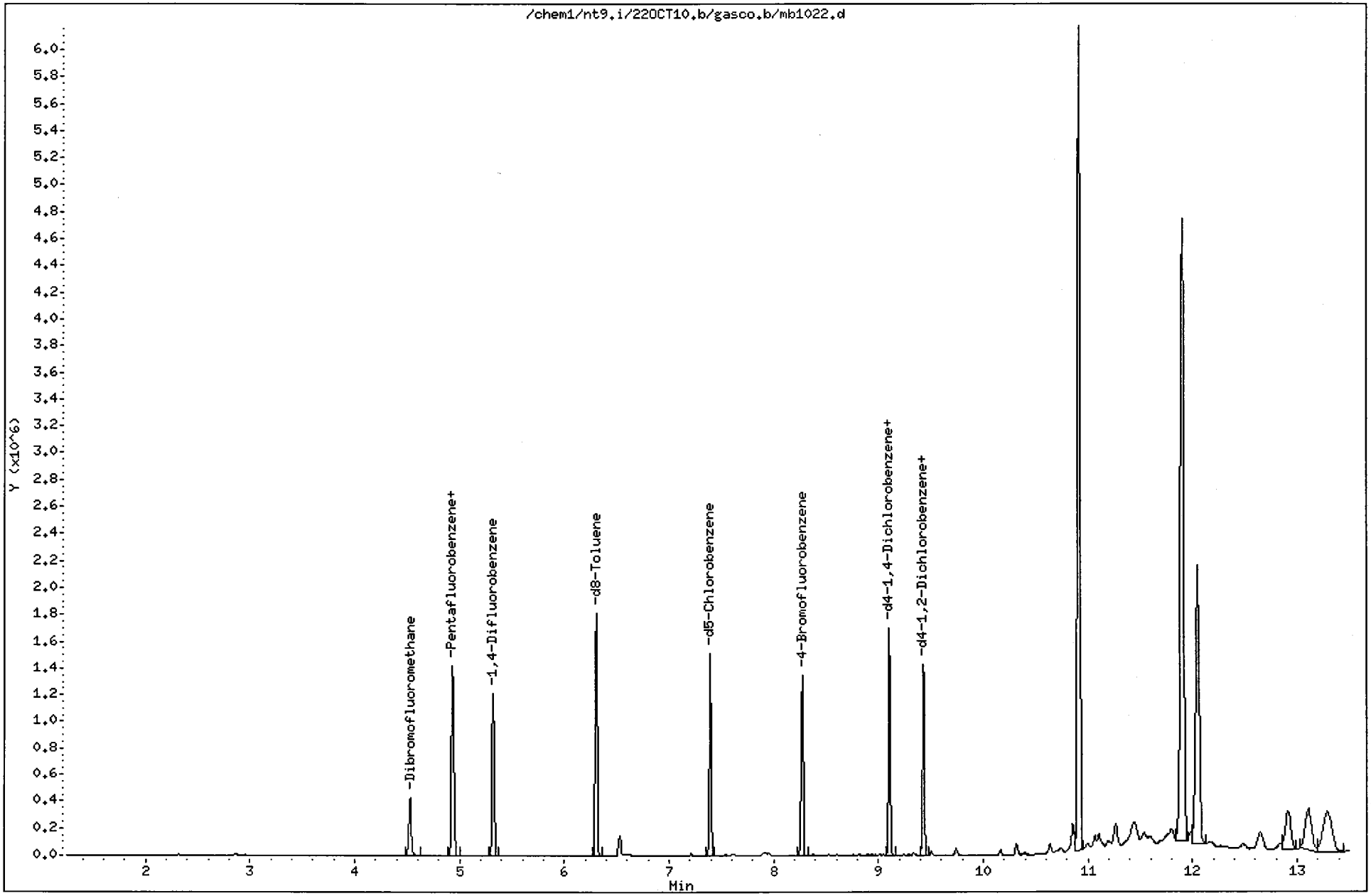
Instrument: nt9.i

Sample Info: MB1022,5,5,0

Operator: PB

Column phase: RTX502.2

Column diameter: 0.18



RR33:00359

Analytical Resources, Inc.

8260C

Data file : /chem1/nt9.i/22OCT10.b/gasco.b/rr33d3.d
Lab Smp Id: RR33D Client Smp ID: DGS-07-034.2-101012
Inj Date : 22-OCT-2010 16:17
Operator : PB Inst ID: nt9.i
Smp Info : RR33D,5,5.30,1,100UL 5.30G/5ML
Misc Info : 10-26422
Comment :
Method : /chem1/nt9.i/22OCT10.b/gasco.b/VO063010S.m
Meth Date : 27-Oct-2010 11:22 patrickb Quant Type: ISTD
Cal Date : 28-AUG-2010 13:21 Cal File: 2000828.d
Als bottle: 1
Dil Factor: 1.00000
Integrator: HP RTE Compound Sublist: gasco.sub
Target Version: 3.50
Processing Host: cserv3

10/22/10

d1

Concentration Formula: Amt * DF * Uf * 1/(Ws * (100 - M)/100) * CpndVariable

M	0.00000	% Moisture (not decanted)
Uf	1.00000	ng unit correction factor
Ws	5.00000	Weight of sample extracted (g)

Cpnd Variable Local Compound Variable

Compounds	QUANT SIG MASS	RT	EXP RT	REL RT	RESPONSE	CONCENTRATIONS ON-COLUMN (ug/Kg)	FINAL (ug/Kg)
3 Vinyl Chloride	62	Compound Not Detected.					
7 1,1-Dichloroethene	96	Compound Not Detected.					
15 Trans-1,2-Dichloroethene	96	Compound Not Detected.					
20 Cis-1,2-Dichloroethene	96	Compound Not Detected.					
* 32 Pentafluorobenzene	168	4.933	4.931	(1.000)	804930	50.0000	
$ 25 Dibromofluoromethane	111	4.525	4.530	(0.917)	282122	46.8733	9.375
$ 31 d4-1,2-Dichloroethane	65	4.938	4.937	(1.001)	308020	49.8467	9.969
30 Benzene	78	4.825	4.830	(0.907)	54848	1.91514	0.3830
* 35 1,4-Difluorobenzene	114	5.317	5.322	(1.000)	1064845	50.0000	
34 Trichloroethene	95	Compound Not Detected.					
$ 42 d8-Toluene	98	6.307	6.306	(1.186)	1200863	49.7722	9.954
43 Toluene	92	6.341	6.340	(1.193)	13896	0.68279	0.1366
44 Tetrachloroethene	166	Compound Not Detected.					
* 52 d5-Chlorobenzene	117	7.399	7.398	(1.000)	955933	50.0000	
54 Ethyl Benzene	91	7.433	7.437	(1.005)	1615275	41.2307	8.246
56 m,p-xylene	106	7.541	7.545	(1.019)	33865	2.13732	0.4275(QM)
57 o-Xylene	106	7.846	7.850	(1.060)	75806	5.13586	1.027
$ 61 4-Bromofluorobenzene	95	8.276	8.280	(1.119)	448602	50.6683	10.134

Compounds	QUANT SIG MASS	RT	EXP RT	REL RT	RESPONSE	CONCENTRATIONS ON-COLUMN (ug/Kg)	FINAL (ug/Kg)
* 75 d4-1,4-Dichlorobenzene	152	9.113	9.118	(1.000)	546511	50.0000	
$ 78 d4-1,2-Dichlorobenzene	152	9.441	9.446	(1.036)	479414	50.1827	10.037

QC Flag Legend

Q - Qualifier signal failed the ratio test.
M - Compound response manually integrated.

Analytical Resources, Inc.

INTERNAL STANDARD COMPOUNDS
AREA AND RT SUMMARY

Instrument ID: nt9.i
Lab File ID: rr33d3.d
Lab Smp Id: RR33D
Analysis Type: VOA
Quant Type: ISTD
Operator: PB
Method File: /chem1/nt9.i/22OCT10.b/gasco.b/VO063010S.m
Misc Info: 10-26422

Calibration Date: 22-OCT-2010
Calibration Time: 10:42
Client Smp ID: DGS-07-034.2-101012
Level: MED
Sample Type: Sediment

Test Mode:
Use Initial Calibration Level 5.
If Continuing Cal. use Initial Cal. Level 5

COMPOUND	STANDARD	AREA LIMIT LOWER	AREA LIMIT UPPER	SAMPLE	%DIFF
32 Pentafluorobenzen	704281	352140	1408562	804930	14.29
35 1,4-Difluorobenze	937745	468872	1875490	1064845	13.55
52 d5-Chlorobenzene	853013	426506	1706026	955933	12.07
75 d4-1,4-Dichlorobe	503655	251828	1007310	546511	8.51

COMPOUND	STANDARD	RT LIMIT LOWER	RT LIMIT UPPER	SAMPLE	%DIFF
32 Pentafluorobenzen	4.93	4.43	5.43	4.93	0.03
35 1,4-Difluorobenze	5.32	4.82	5.82	5.32	-0.08
52 d5-Chlorobenzene	7.40	6.90	7.90	7.40	0.02
75 d4-1,4-Dichlorobe	9.12	8.62	9.62	9.11	-0.05

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.

Analytical Resources, Inc.

RECOVERY REPORT

Client Name: NW Natural
Sample Matrix: SOLID
Lab Smp Id: RR33D
Level: MED
Data Type: MS DATA
SpikeList File: all.spk
Sublist File: gasco.sub
Method File: /chem1/nt9.i/22OCT10.b/gasco.b/VO063010S.m
Misc Info: 10-26422

Client SDG: RR33
Fraction: VOA
Client Smp ID: DGS-07-034.2-101012
Operator: PB
SampleType: SAMPLE
Quant Type: ISTD

SURROGATE COMPOUND	AMOUNT ADDED ug/Kg	AMOUNT RECOVERED ug/Kg	% RECOVERED	LIMITS
$ 25 Dibromofluorometha	50.000	46.873	93.75	30-160
$ 31 d4-1,2-Dichloroeth	50.000	49.847	99.69	75-152
$ 42 d8-Toluene	50.000	49.772	99.54	82-115
$ 61 4-Bromofluorobenze	50.000	50.668	101.34	64-120
$ 78 d4-1,2-Dichloroben	50.000	50.183	100.37	80-120

Data File: /chem1/nt9.i/22OCT10.b/gasco.b/rr33d3.d

Date : 22-OCT-2010 16:17

Client ID: DGS-07-034.2-101012

Sample Info: RR33D,5,5.30,1,100UL 5.30G/5ML

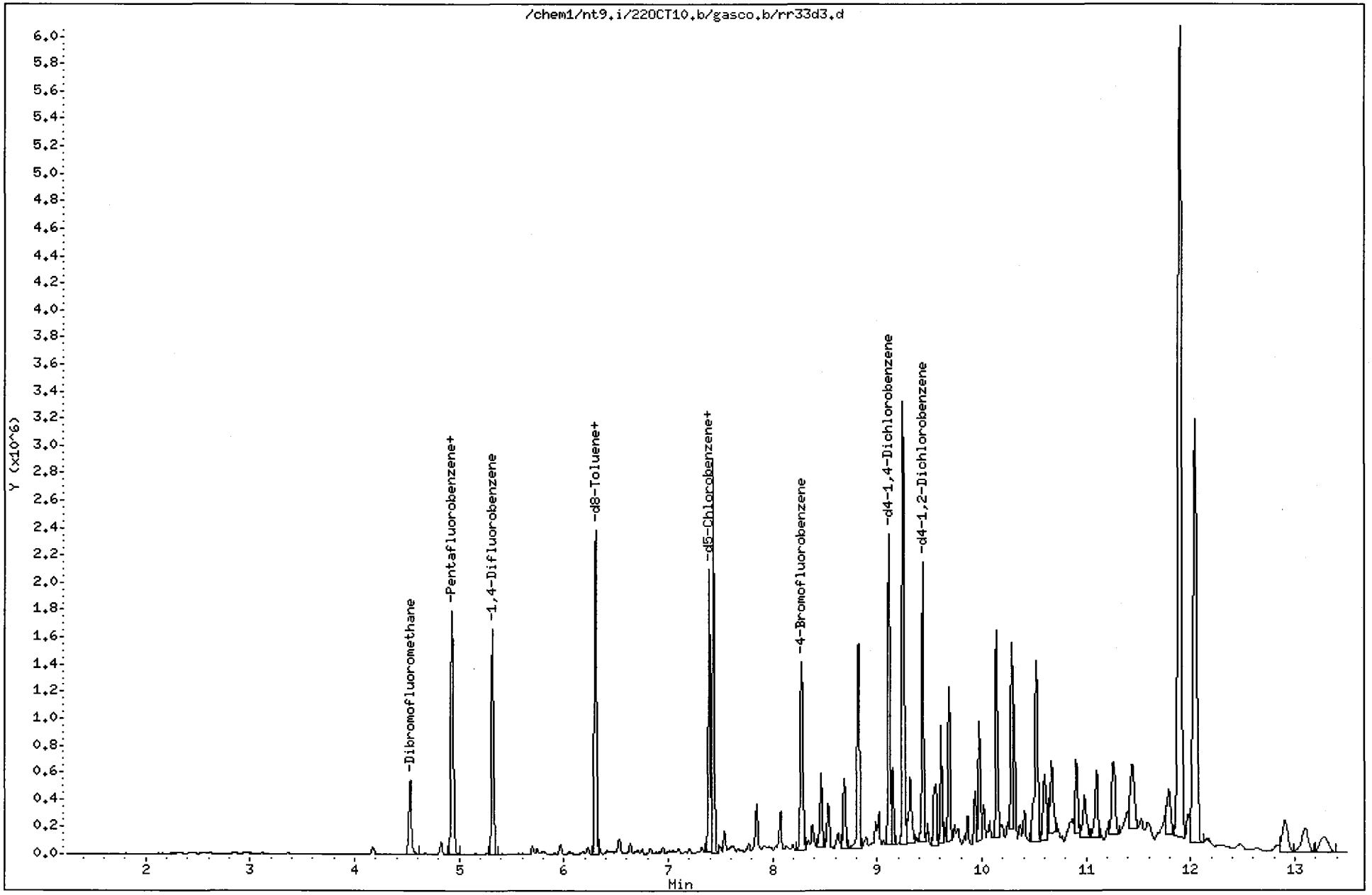
Column phase: RTX502.2

Instrument: nt9.i

Operator: PB

Column diameter: 0.18

RR33:00368



Data File: /chem1/nt9.i/22OCT10.b/gasco.b/rr33d3.d

Date : 22-OCT-2010 16:17

Client ID: DGS-07-034.2-101012

Instrument: nt9.i

Sample Info: RR33D,5,5.30,1,100UL 5.30G/5ML

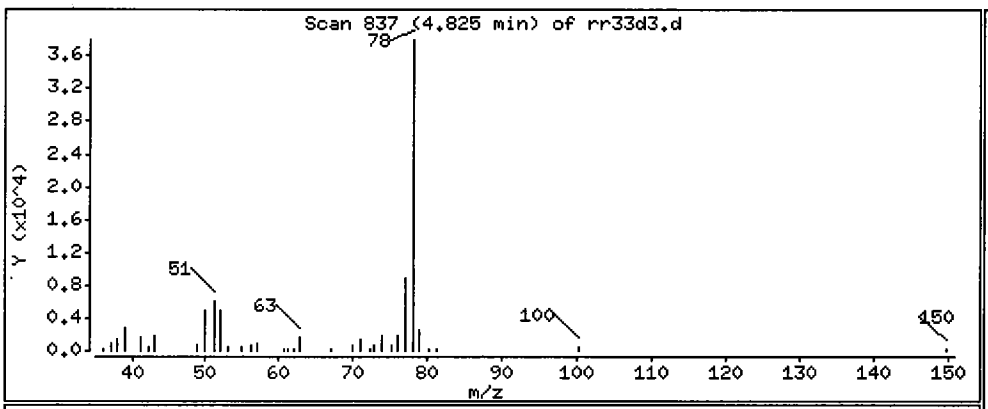
Operator: PB

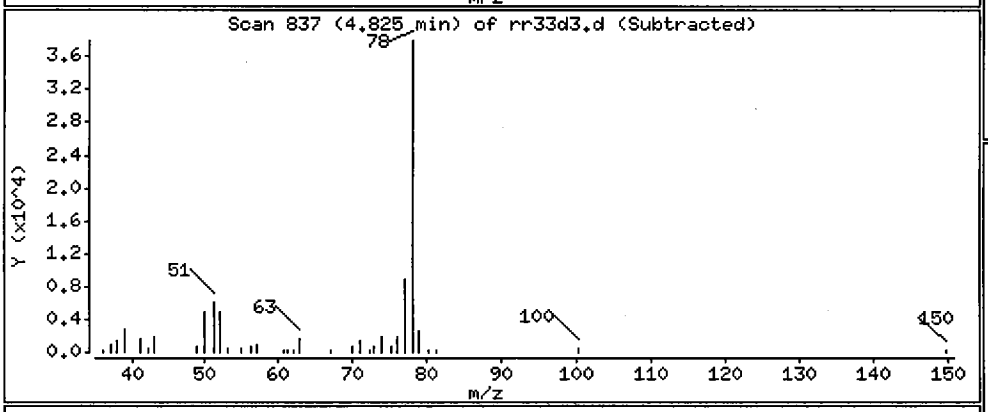
Column phase: RTX502.2

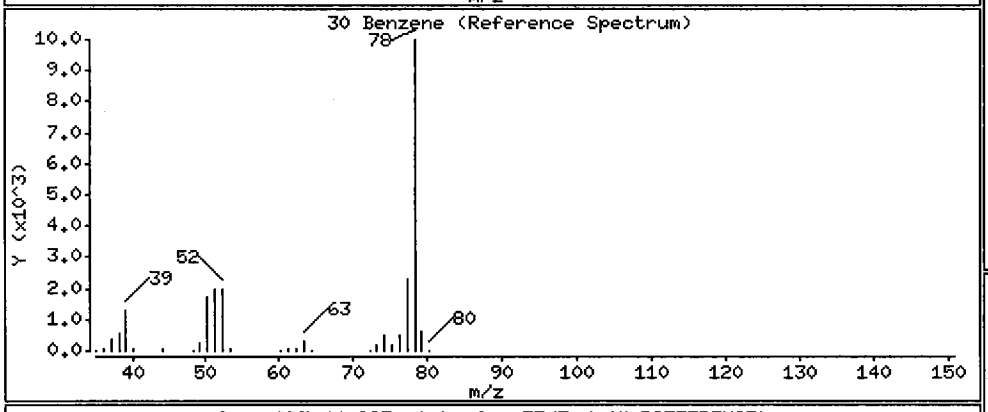
Column diameter: 0.18

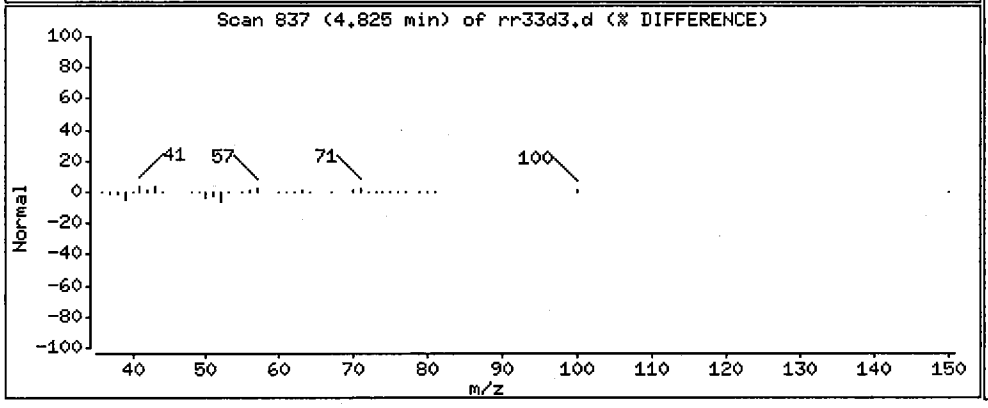
30 Benzene

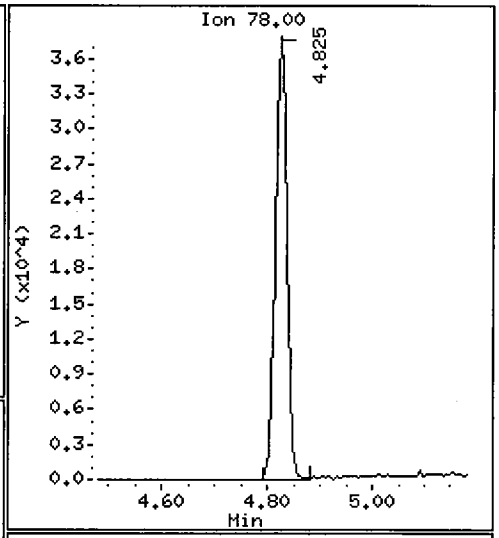
Concentration: 0.3830 ug/Kg

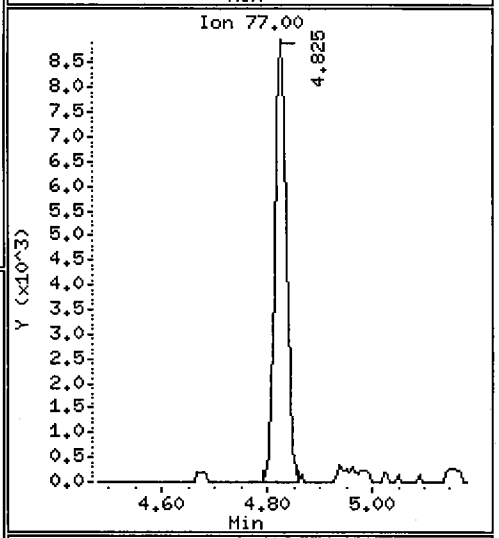


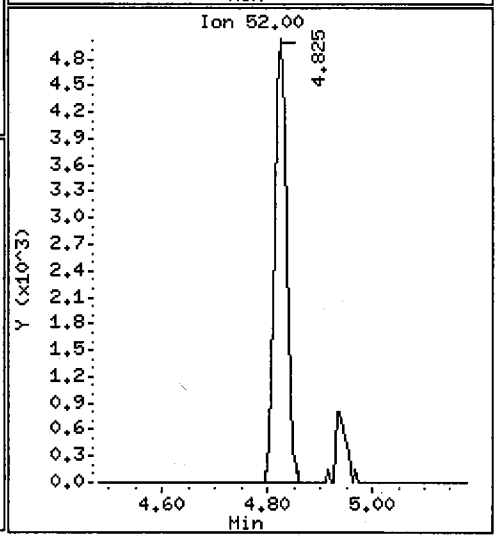












Data File: /chem1/nt9.i/22OCT10.b/gasco.b/rr33d3.d

Date : 22-OCT-2010 16:17

Client ID: DGS-07-034.2-101012

Instrument: nt9.i

Sample Info: RR33D,5,5.30,1,100UL 5.30G/5ML

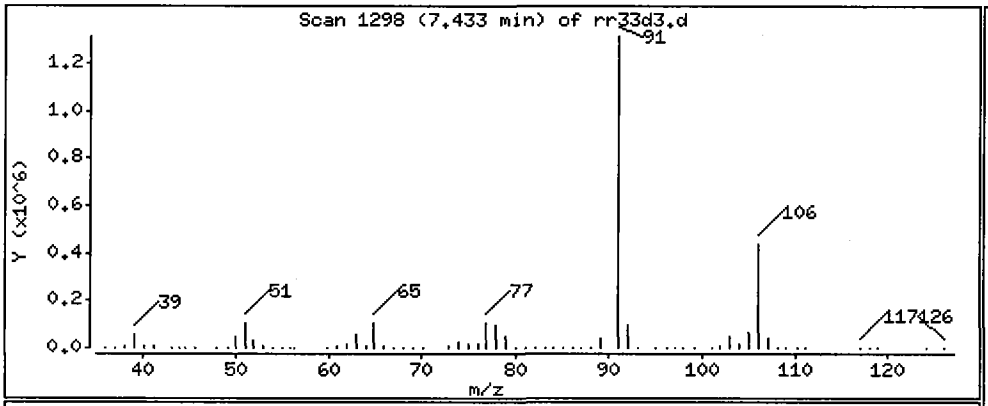
Operator: PB

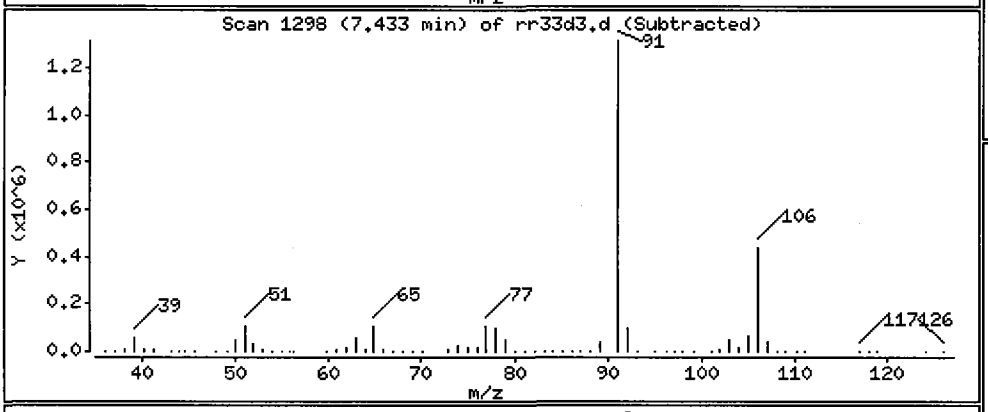
Column phase: RTX502.2

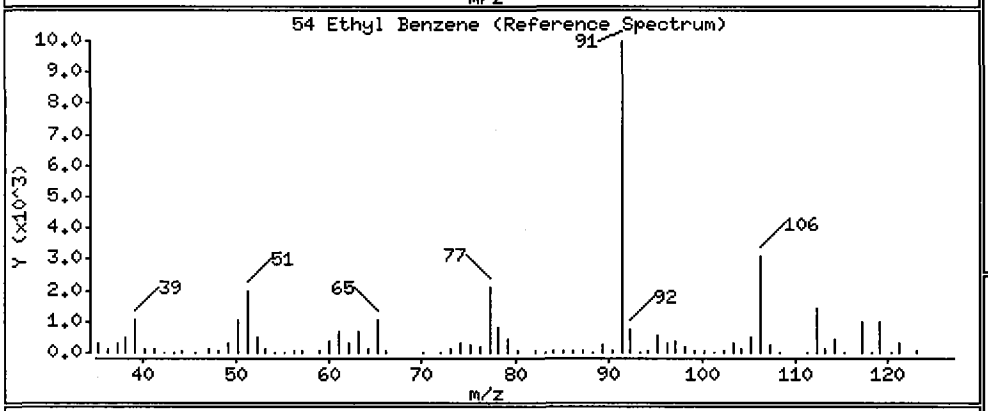
Column diameter: 0.18

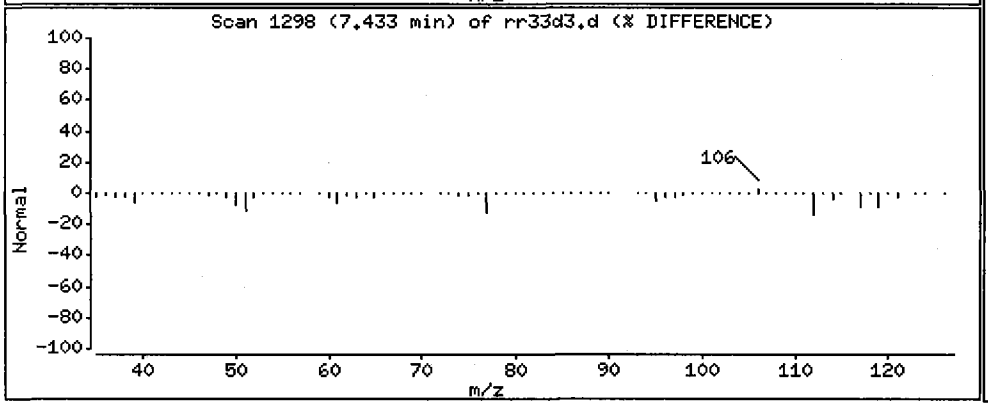
54 Ethyl Benzene

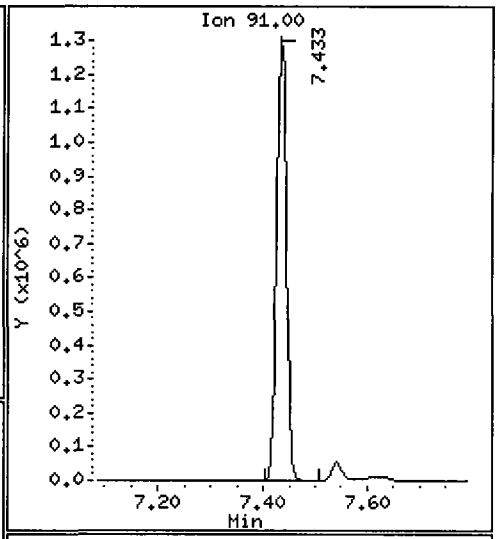
Concentration: 8.246 ug/Kg

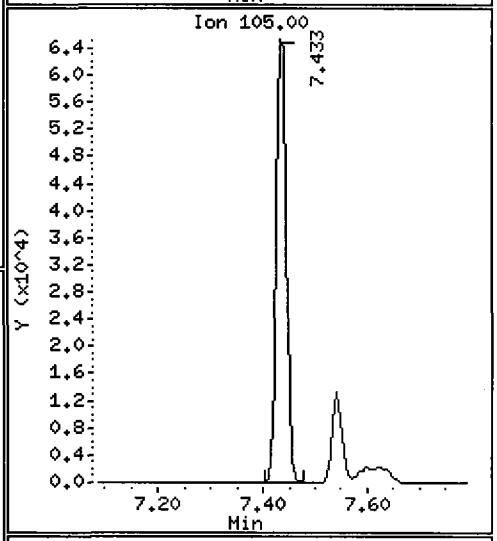


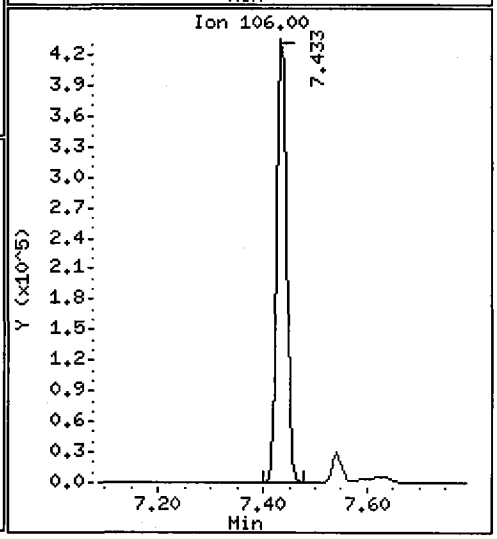












Data File: /chem1/nt9.i/22OCT10.b/gasco.b/rr33d3.d

Date : 22-OCT-2010 16:17

Client ID: DGS-07-034.2-101012

Instrument: nt9.i

Sample Info: RR33D,5,5.30,1,100UL 5.30G/5ML

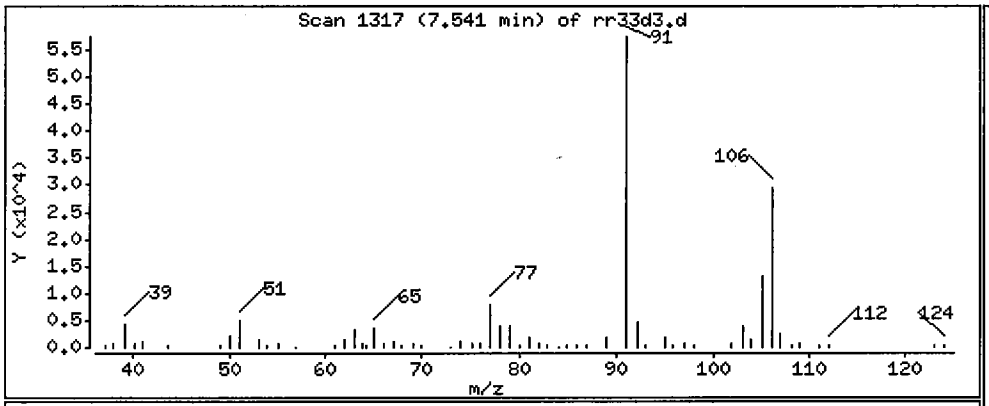
Operator: PB

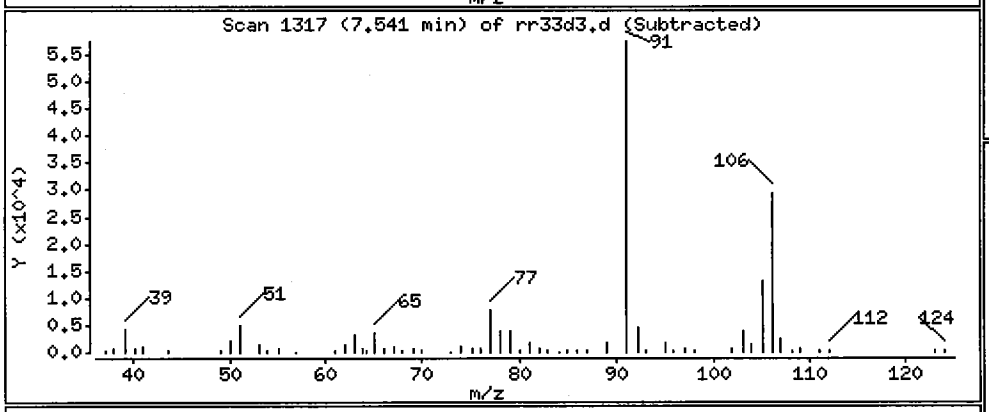
Column phase: RTX502.2

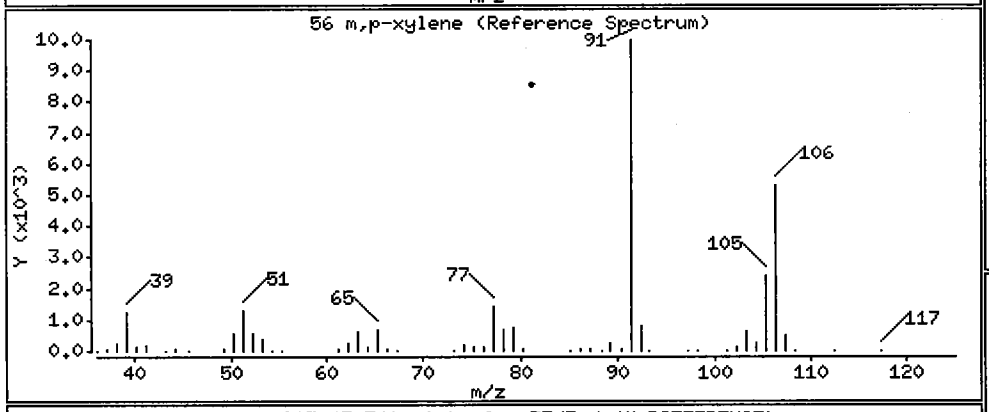
Column diameter: 0.18

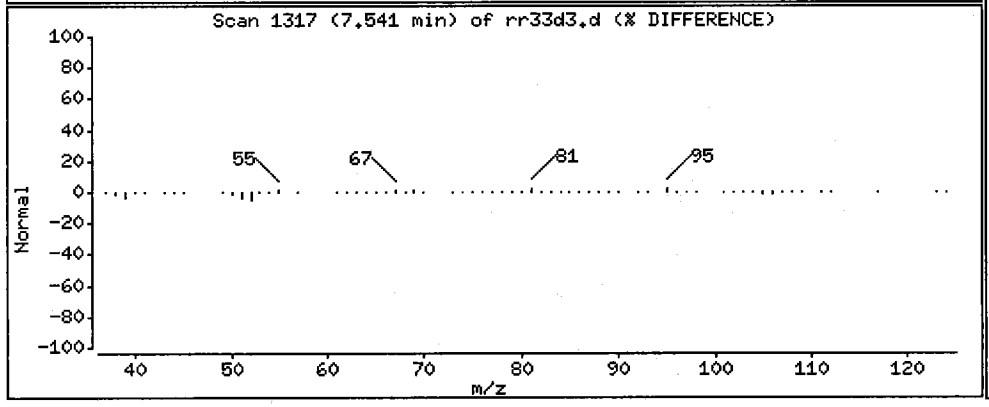
56 m,p-xylene

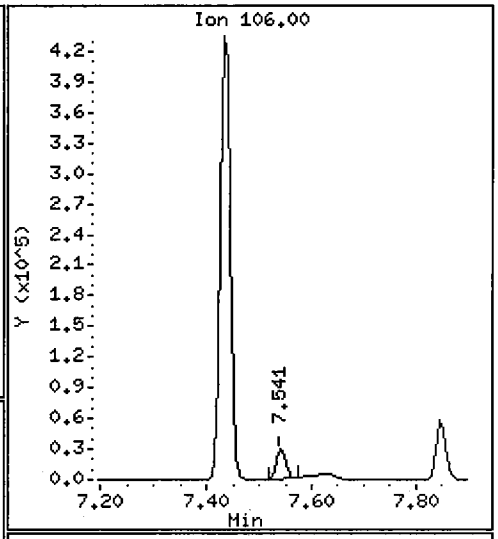
Concentration: 0.4275 ug/Kg

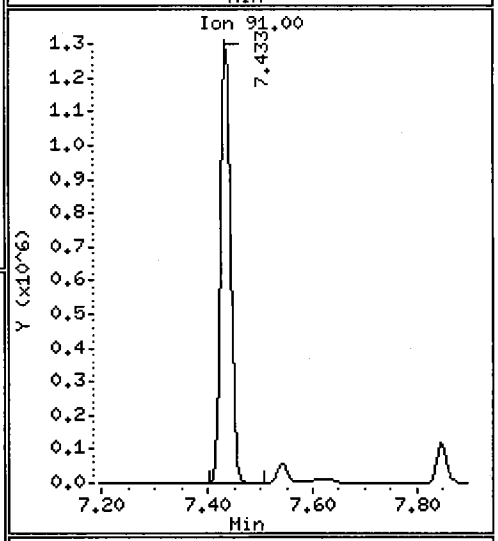


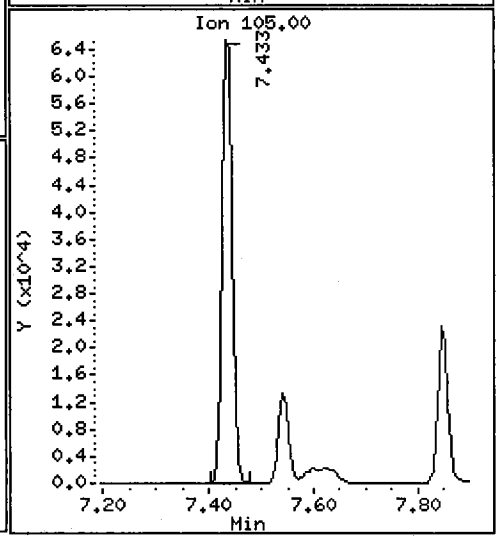












Data File: /chem1/nt9.i/22OCT10.b/gasco.b/rr33d3.d

Date : 22-OCT-2010 16:17

Client ID: DGS-07-034.2-101012

Instrument: nt9.i

Sample Info: RR33D,5,5.30,1,100UL 5.30G/5ML

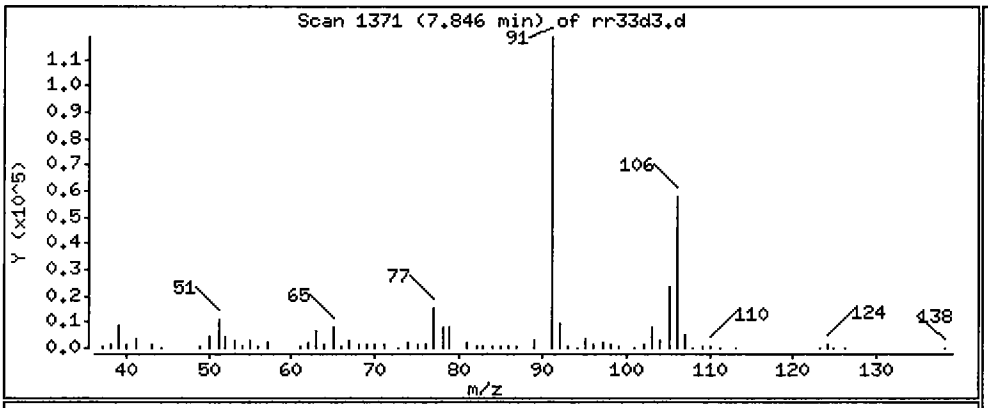
Operator: PB

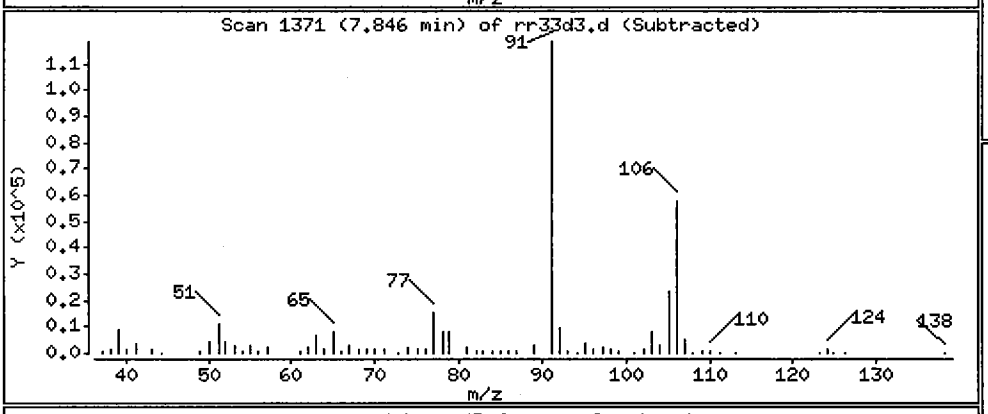
Column phase: RTX502.2

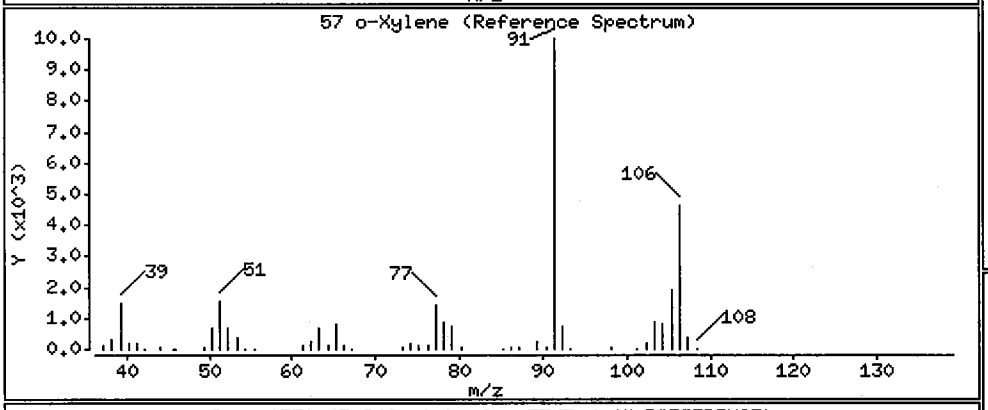
Column diameter: 0.18

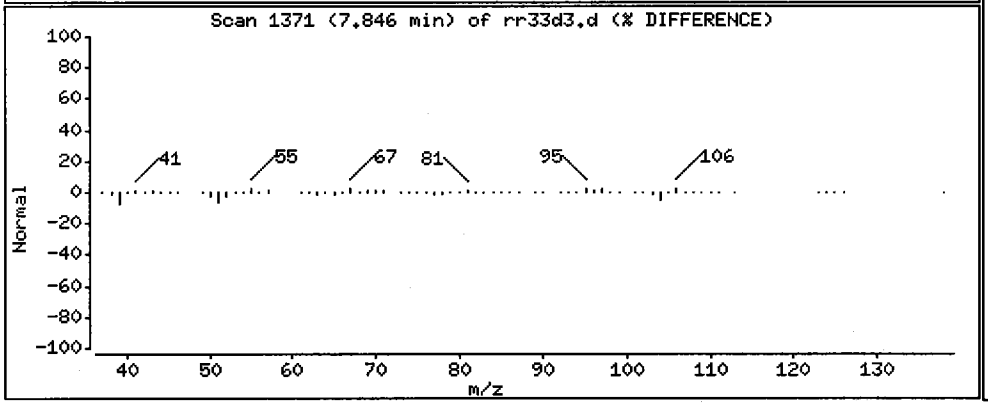
57 o-Xylene

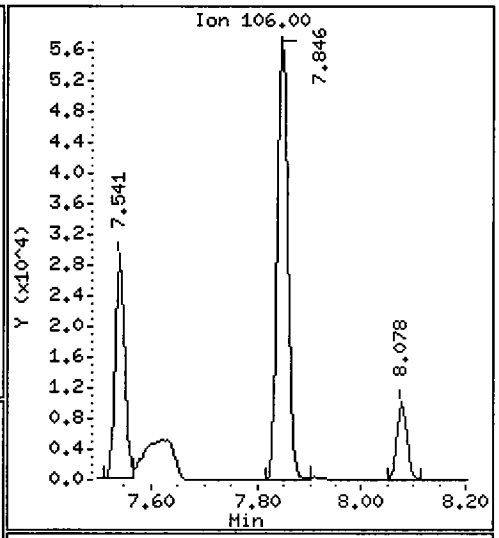
Concentration: 1.027 ug/Kg

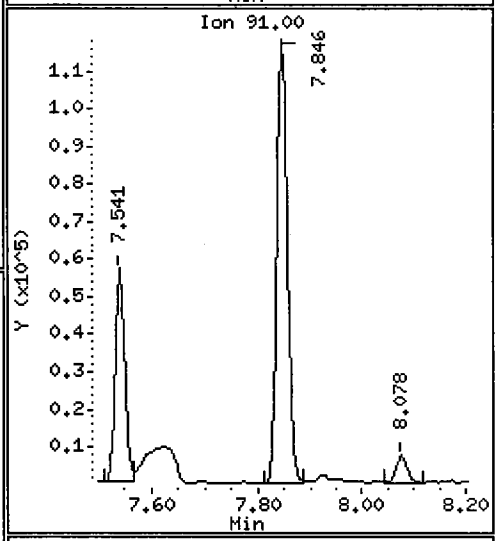


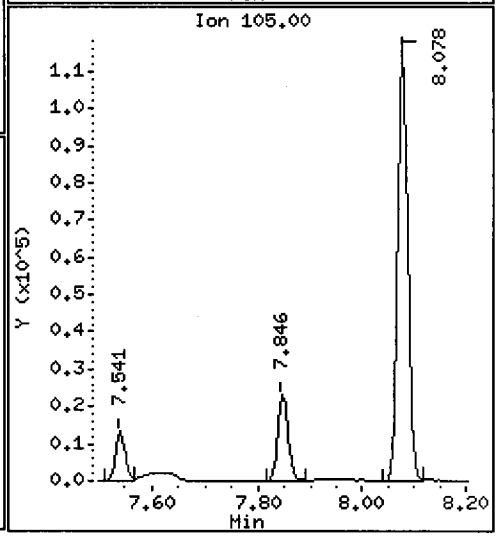






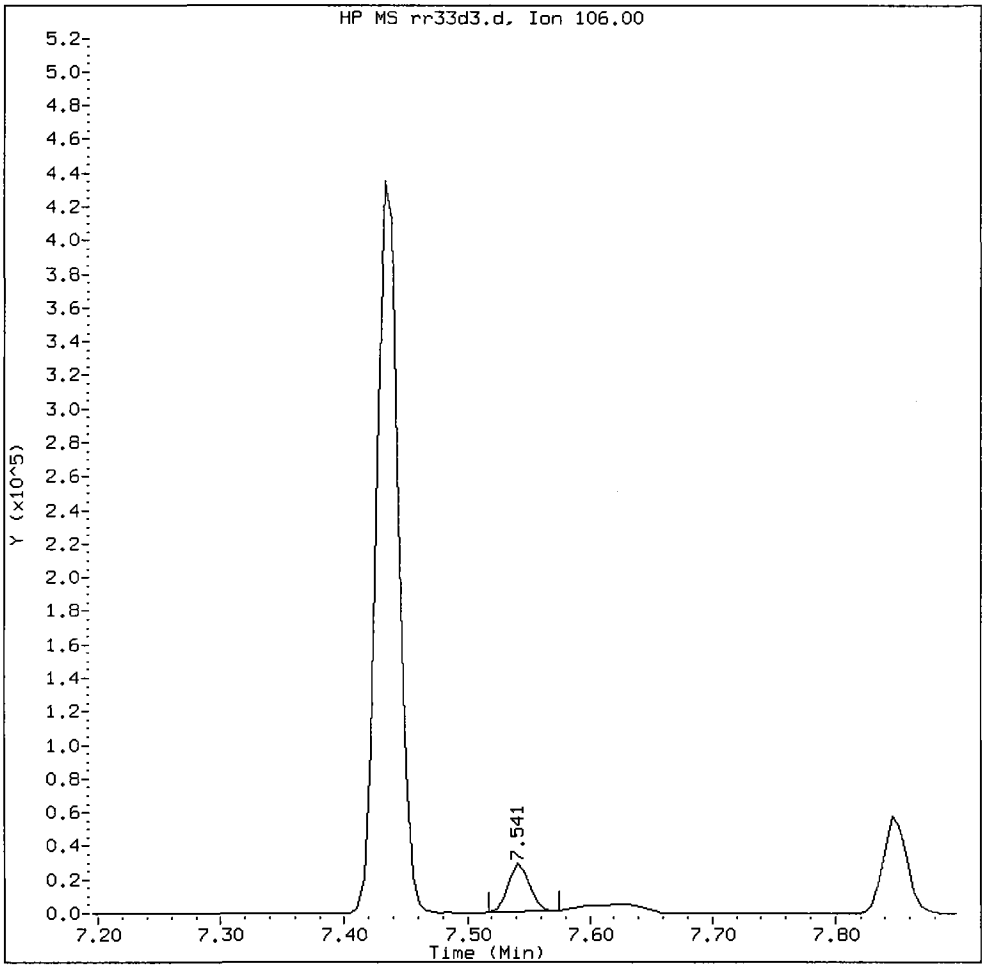






RR33D, /chem1/nt9.i/22OCT10.b/gasco.b/rr33d3.d

m,p-xylene Amount: 2.14 Area: 33865



MANUAL INTEGRATION for m,p-xylene

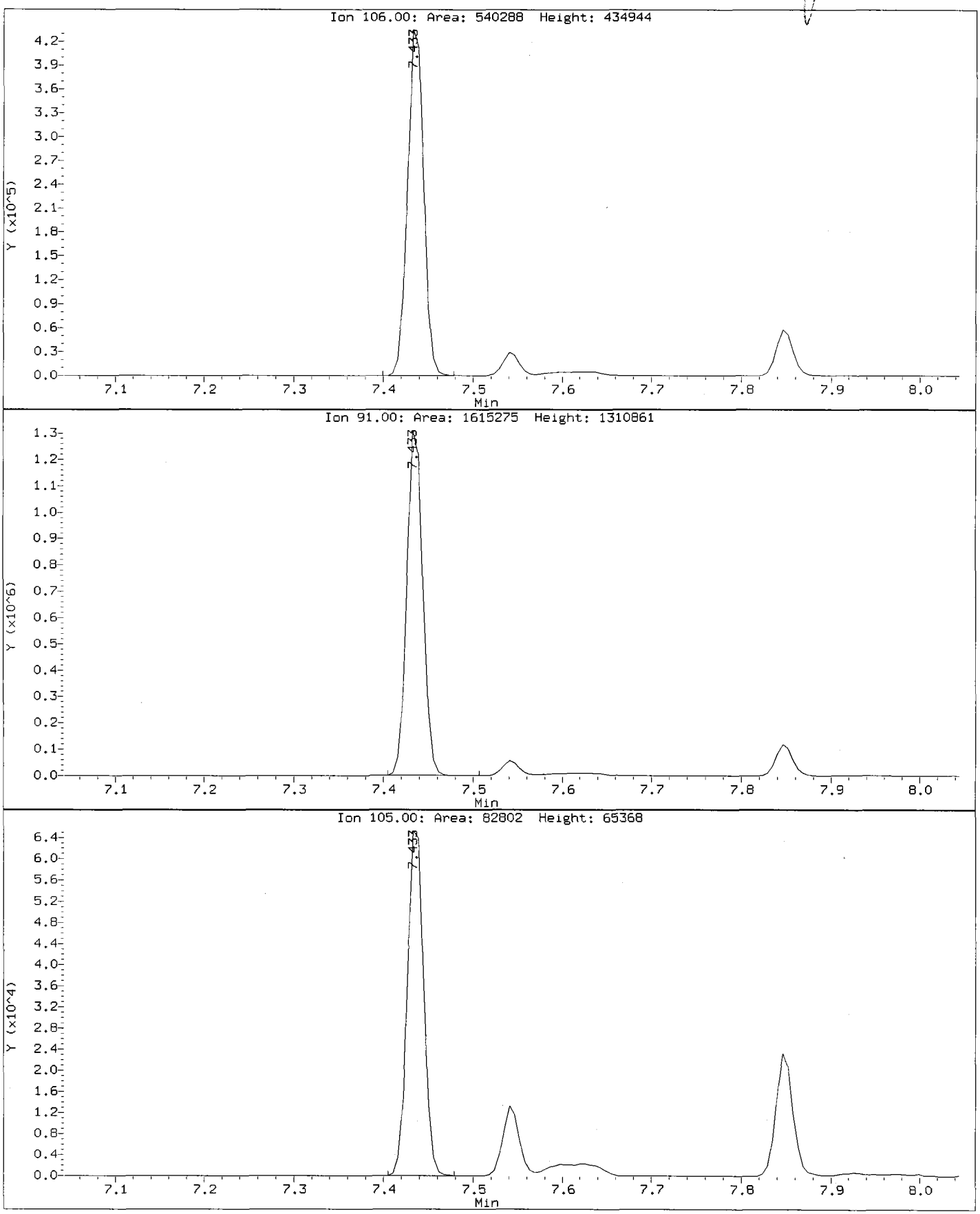
1. Baseline correction
2. Poor chromatography
3. Peak not found
4. Totals calculation

5. Other _____

Analyst: _____ Date: 10/27/10

Data File: /chem1/nt9.i/22OCT10.b/rr33d3.d
Injection Date: 22-OCT-2010 16:17
Instrument: nt9.i
Client Sample ID: DGS-07-034.2-101012

Compound: m,p-xylene
CAS Number:



Analytical Resources, Inc.

8260C

Data file : /chem1/nt9.i/22OCT10.b/gasco.b/rr33h3.d
Lab Smp Id: RR33H Client Smp ID: DGS-07-077.3-101012
Inj Date : 22-OCT-2010 16:47
Operator : PB Inst ID: nt9.i
Smp Info : RR33H,5,5.21,1,100UL 5.21G/5ML
Misc Info : 10-26426
Comment :
Method : /chem1/nt9.i/22OCT10.b/gasco.b/VO063010S.m
Meth Date : 27-Oct-2010 11:22 patrickb Quant Type: ISTD
Cal Date : 28-AUG-2010 13:21 Cal File: 2000828.d
Als bottle: 1
Dil Factor: 1.00000
Integrator: HP RTE Compound Sublist: gasco.sub
Target Version: 3.50
Processing Host: cserv3

Concentration Formula: Amt * DF * Uf * 1/(Ws * (100 - M)/100) * CpndVariable

M	0.00000	% Moisture (not decanted)
Uf	1.00000	ng unit correction factor
Ws	5.00000	Weight of sample extracted (g)

Cpnd Variable Local Compound Variable

Compounds	QUANT SIG MASS	RT	EXP RT	REL RT	RESPONSE	CONCENTRATIONS ON-COLUMN (ug/Kg)	FINAL (ug/Kg)
3 Vinyl Chloride	62	Compound Not Detected.					
7 1,1-Dichloroethene	96	Compound Not Detected.					
15 Trans-1,2-Dichloroethene	96	Compound Not Detected.					
20 Cis-1,2-Dichloroethene	96	Compound Not Detected.					
* 32 Pentafluorobenzene	168	4.931	4.931	(1.000)	830873	50.0000	
$ 25 Dibromofluoromethane	111	4.530	4.530	(0.919)	284248	45.7519	9.150
$ 31 d4-1,2-Dichloroethane	65	4.937	4.937	(1.001)	313487	49.1474	9.829
30 Benzene	78	4.824	4.830	(0.906)	23533	0.79828	0.1597
* 35 1,4-Difluorobenzene	114	5.322	5.322	(1.000)	1096087	50.0000	
34 Trichloroethene	95	Compound Not Detected.					
$ 42 d8-Toluene	98	6.306	6.306	(1.185)	1235292	49.7398	9.948
43 Toluene	92	Compound Not Detected.					
44 Tetrachloroethene	166	Compound Not Detected.					
* 52 d5-Chlorobenzene	117	7.398	7.398	(1.000)	976251	50.0000	
54 Ethyl Benzene	91	7.437	7.437	(1.005)	2127035	53.1636	10.633
56 m,p-xylene	106	7.545	7.545	(1.020)	7550	0.46659	0.09332(QM)
57 o-Xylene	106	7.845	7.850	(1.060)	18425	1.22232	0.2445(QM)
$ 61 4-Bromofluorobenzene	95	8.280	8.280	(1.119)	467697	51.7256	10.345

Compounds	QUANT SIG MASS	RT	EXP RT	REL RT	RESPONSE	CONCENTRATIONS ON-COLUMN (ug/Kg)	FINAL (ug/Kg)
* 75 d4-1,4-Dichlorobenzene	152	9.117	9.118	(1.000)	557694	50.0000	
$ 78 d4-1,2-Dichlorobenzene	152	9.440	9.446	(1.035)	490690	50.3331	10.067

QC Flag Legend

Q - Qualifier signal failed the ratio test.
M - Compound response manually integrated.

Analytical Resources, Inc.

INTERNAL STANDARD COMPOUNDS
AREA AND RT SUMMARY

Instrument ID: nt9.i
Lab File ID: rr33h3.d
Lab Smp Id: RR33H
Analysis Type: VOA
Quant Type: ISTD
Operator: PB
Method File: /chem1/nt9.i/22OCT10.b/gasco.b/VO063010S.m
Misc Info: 10-26426

Calibration Date: 22-OCT-2010
Calibration Time: 10:42
Client Smp ID: DGS-07-077.3-101012
Level: MED
Sample Type: Sediment

Test Mode:
Use Initial Calibration Level 5.
If Continuing Cal. use Initial Cal. Level 5

COMPOUND	STANDARD	AREA LIMIT LOWER	AREA LIMIT UPPER	SAMPLE	%DIFF
32 Pentafluorobenzen	704281	352140	1408562	830873	17.97
35 1,4-Difluorobenze	937745	468872	1875490	1096087	16.89
52 d5-Chlorobenzene	853013	426506	1706026	976251	14.45
75 d4-1,4-Dichlorobe	503655	251828	1007310	557694	10.73

COMPOUND	STANDARD	RT LIMIT LOWER	RT LIMIT UPPER	SAMPLE	%DIFF
32 Pentafluorobenzen	4.93	4.43	5.43	4.93	0.00
35 1,4-Difluorobenze	5.32	4.82	5.82	5.32	0.00
52 d5-Chlorobenzene	7.40	6.90	7.90	7.40	0.00
75 d4-1,4-Dichlorobe	9.12	8.62	9.62	9.12	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.

Analytical Resources, Inc.

RECOVERY REPORT

Client Name: NW Natural
Sample Matrix: SOLID
Lab Smp Id: RR33H
Level: MED
Data Type: MS DATA
SpikeList File: all.spk
Sublist File: gasco.sub
Method File: /chem1/nt9.i/22OCT10.b/gasco.b/VO063010S.m
Misc Info: 10-26426

Client SDG: RR33
Fraction: VOA
Client Smp ID: DGS-07-077.3-101012
Operator: PB
SampleType: SAMPLE
Quant Type: ISTD

SURROGATE COMPOUND	AMOUNT ADDED ug/Kg	AMOUNT RECOVERED ug/Kg	% RECOVERED	LIMITS
$ 25 Dibromofluorometha	50.000	45.752	91.50	30-160
$ 31 d4-1,2-Dichloroeth	50.000	49.147	98.29	75-152
$ 42 d8-Toluene	50.000	49.740	99.48	82-115
$ 61 4-Bromofluorobenze	50.000	51.726	103.45	64-120
$ 78 d4-1,2-Dichloroben	50.000	50.333	100.67	80-120

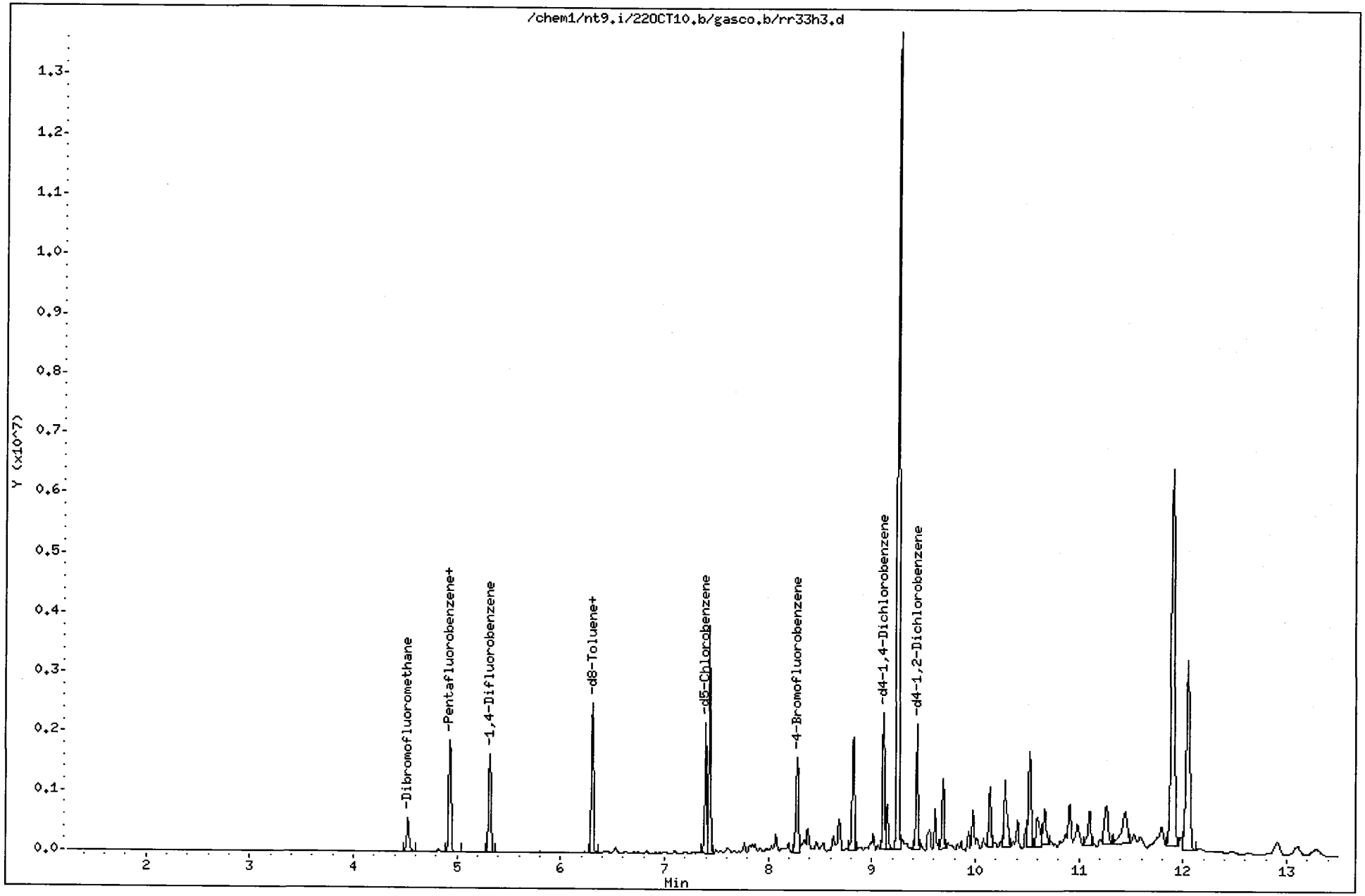
Data File: /chem1/nt9.i/22OCT10.b/gasco.b/rr33h3.d
Date : 22-OCT-2010 16:47
Client ID: DGS-07-077.3-101012
Sample Info: RR33H,5,5.21,1,100UL 5.21G/5ML

Column phase: RTX502.2

Instrument: nt9.i

Operator: PB
Column diameter: 0.18

RR33:00379



Data File: /chem1/nt9.i/22OCT10.b/gasco.b/rr33h3.d

Date : 22-OCT-2010 16:47

Client ID: DGS-07-077.3-101012

Instrument: nt9.i

Sample Info: RR33H,5,5.21,1,100UL 5.21G/5ML

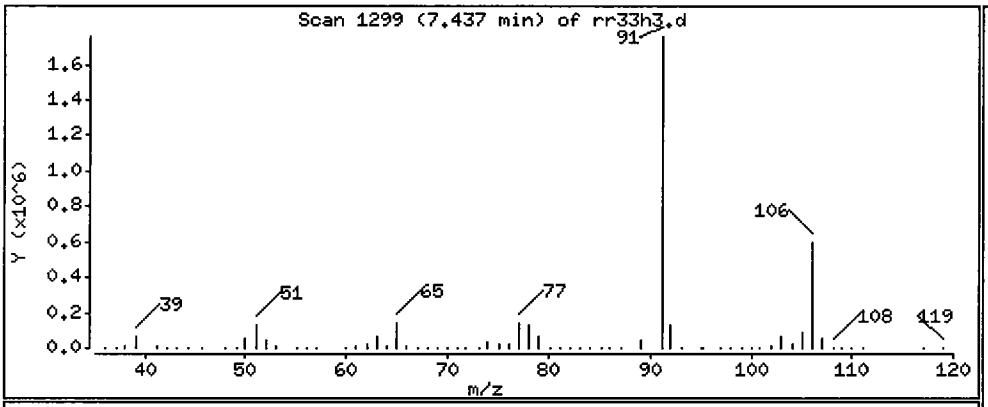
Operator: PB

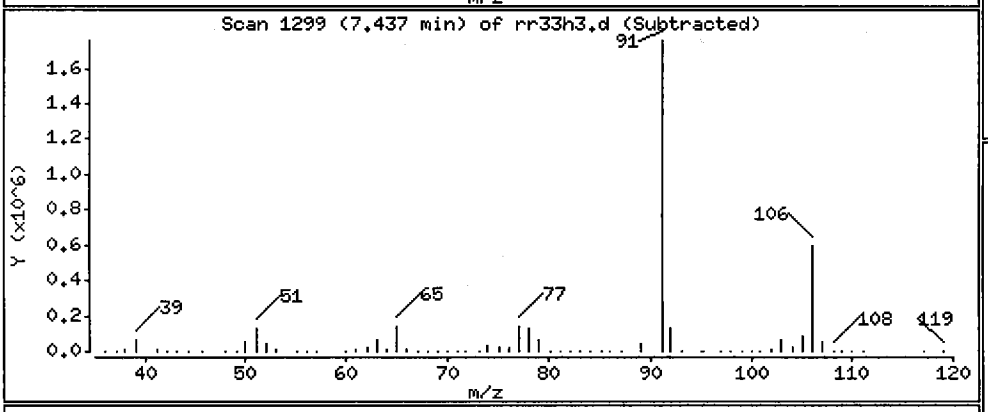
Column phase: RTX502.2

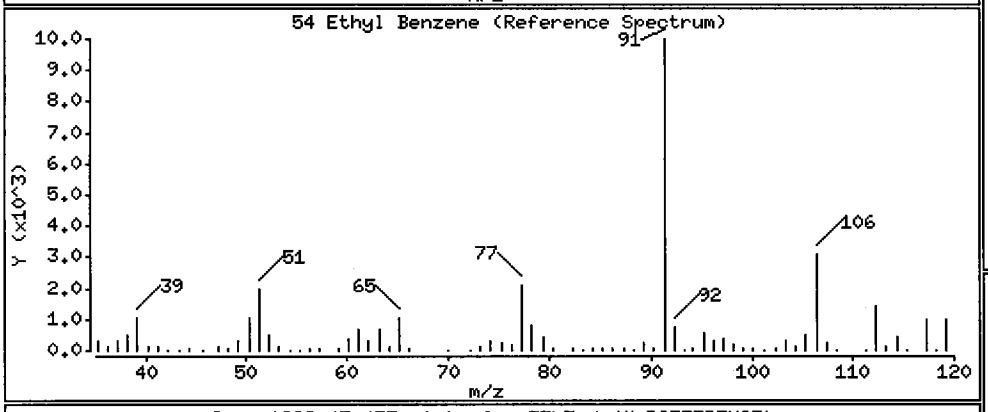
Column diameter: 0.18

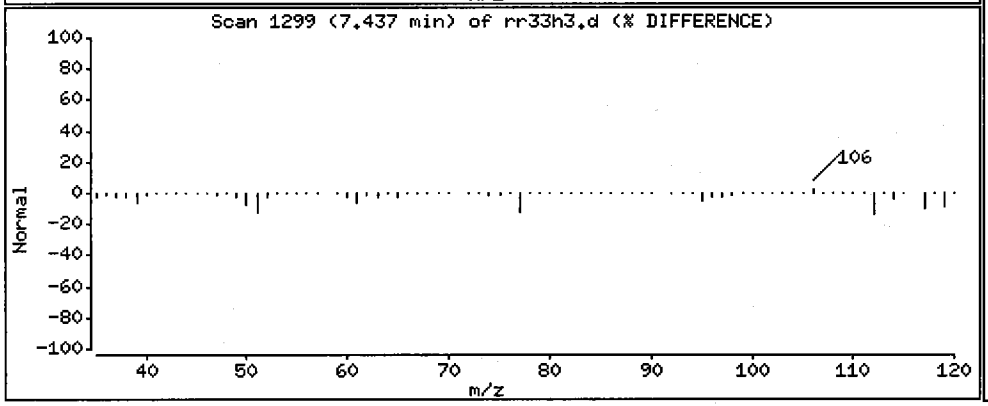
54 Ethyl Benzene

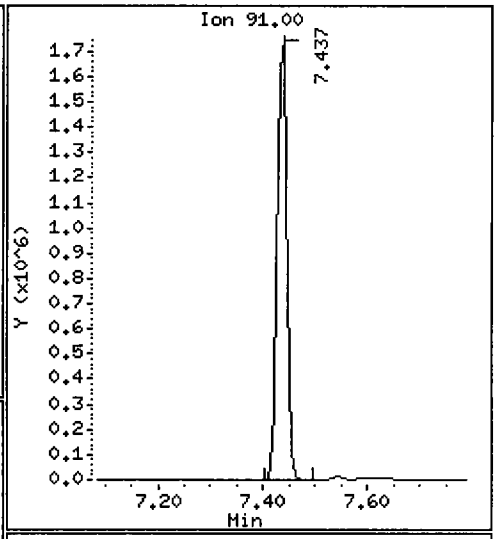
Concentration: 10.633 ug/Kg

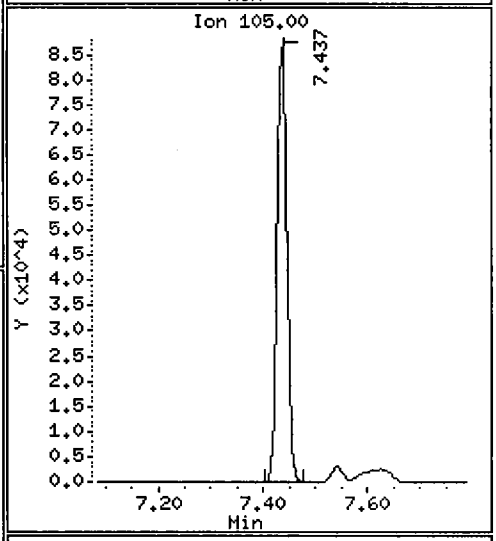


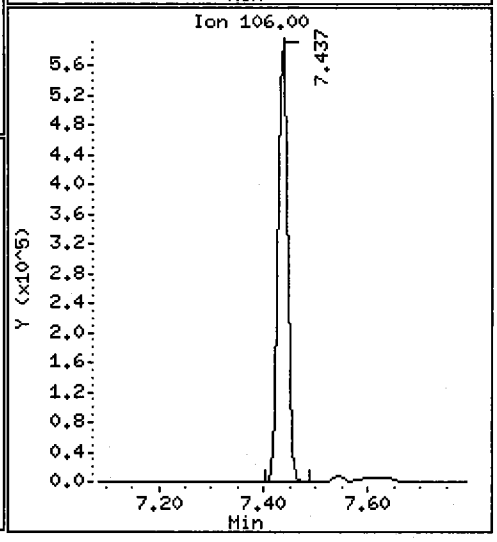












Data File: /chem1/nt9.i/22OCT10.b/gasco.b/rr33h3.d

Date : 22-OCT-2010 16:47

Client ID: DGS-07-077.3-101012

Instrument: nt9.i

Sample Info: RR33H,5,5.21,1,100UL 5.21G/5ML

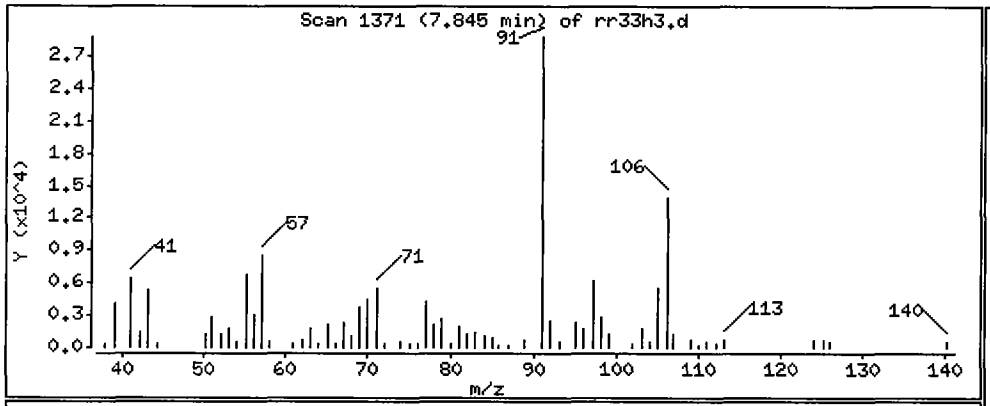
Operator: PB

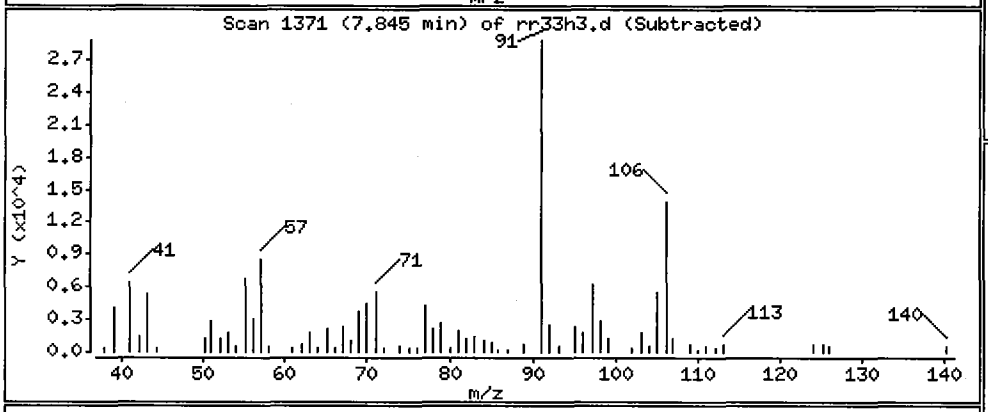
Column phase: RTX502.2

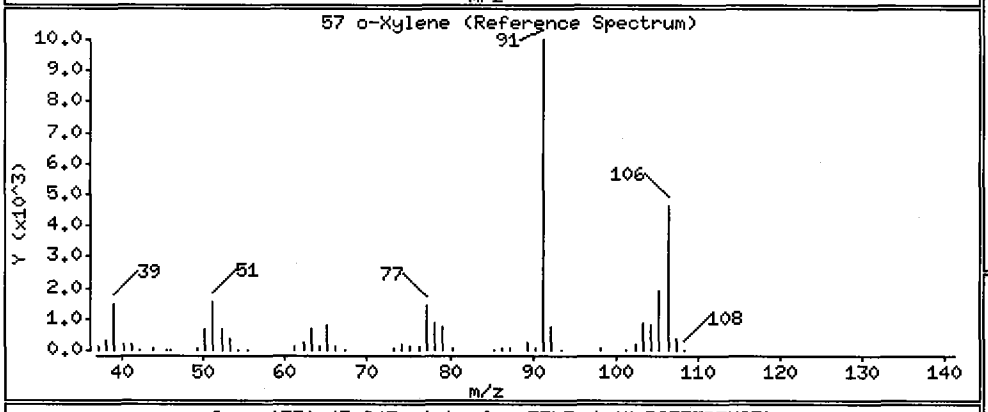
Column diameter: 0.18

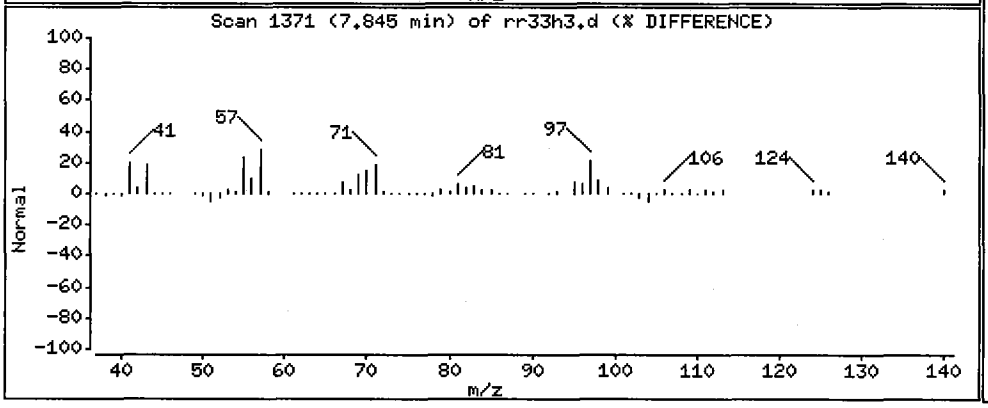
57 o-Xylene

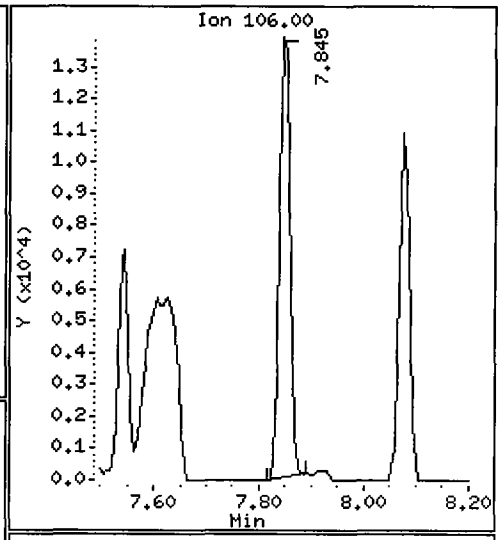
Concentration: 0.2445 ug/Kg

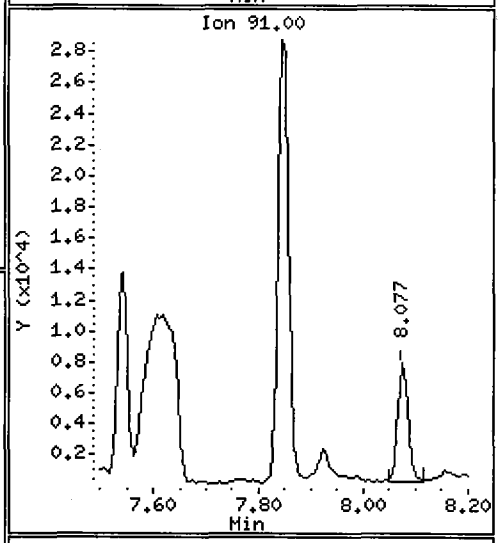


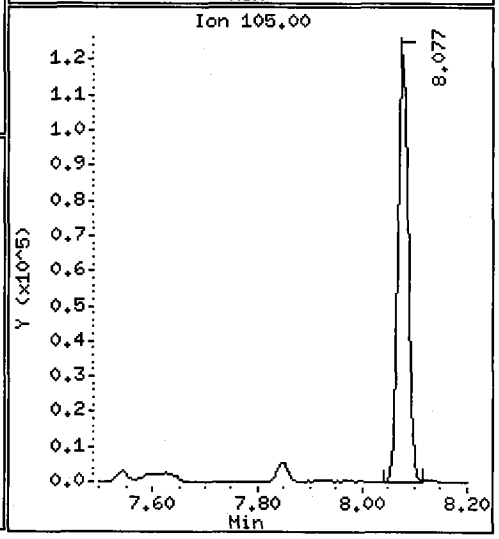






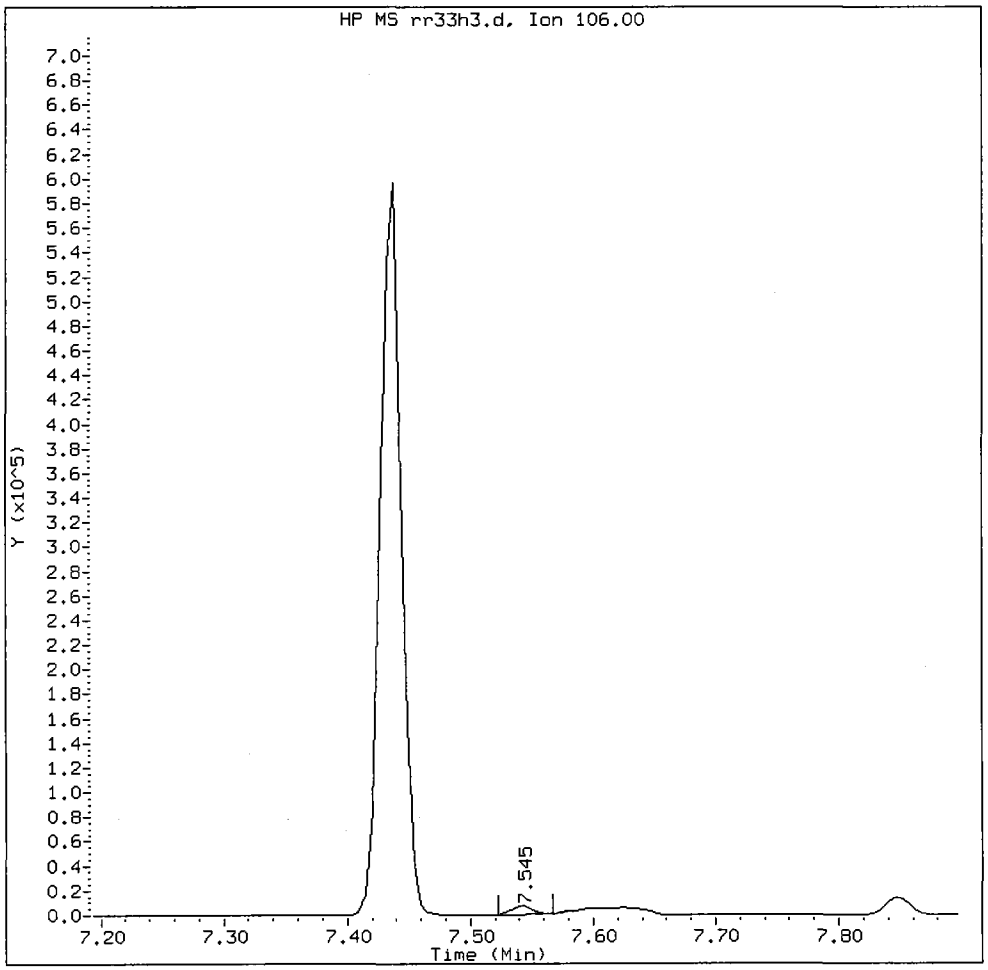






RR33H, /chem1/nt9.i/22OCT10.b/gasco.b/rr33h3.d

m,p-xylene Amount: 0.47 Area: 7550



MANUAL INTEGRATION for m,p-xylene

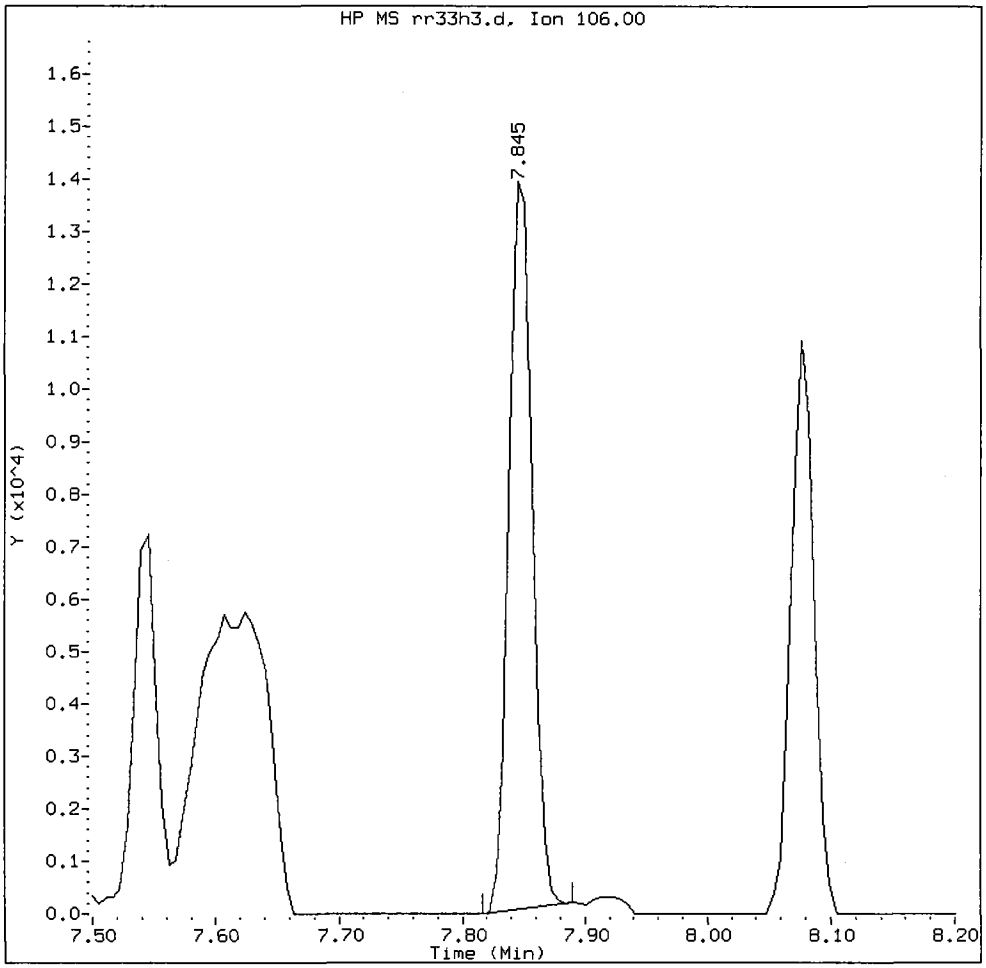
1. Baseline correction
2. Poor chromatography
3. Peak not found
4. Totals calculation

5. Other _____

Analyst: _____ Date: 10/22/10

RR33H, /chem1/nt9.i/22OCT10.b/gasco.b/rr33h3.d

o-Xylene Amount: 1.22 Area: 18425



MANUAL INTEGRATION for o-Xylene

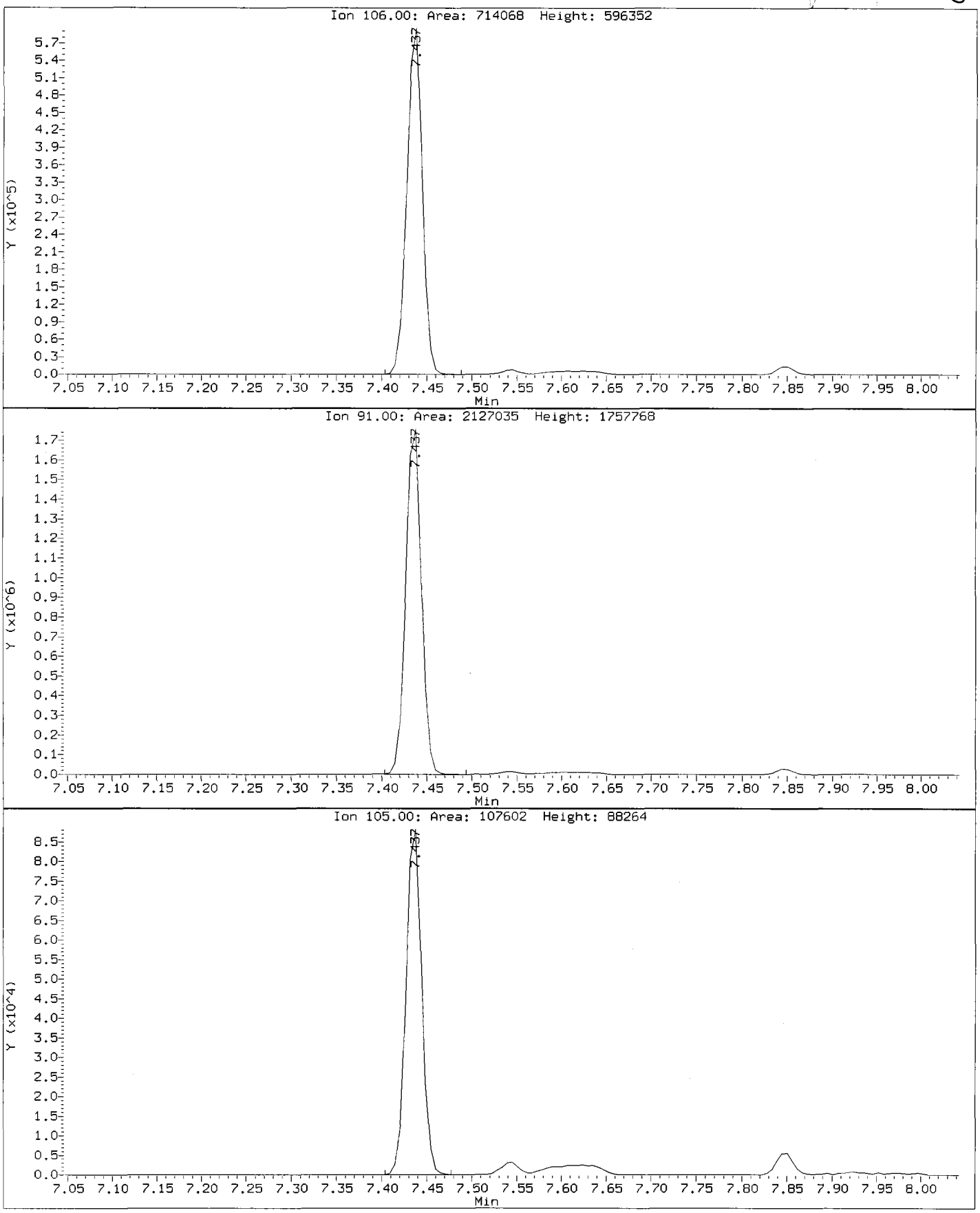
1. Baseline correction
2. Poor chromatography
3. Peak not found
4. Totals calculation

5. Other _____

Analyst: _____ Date: 10/22/10

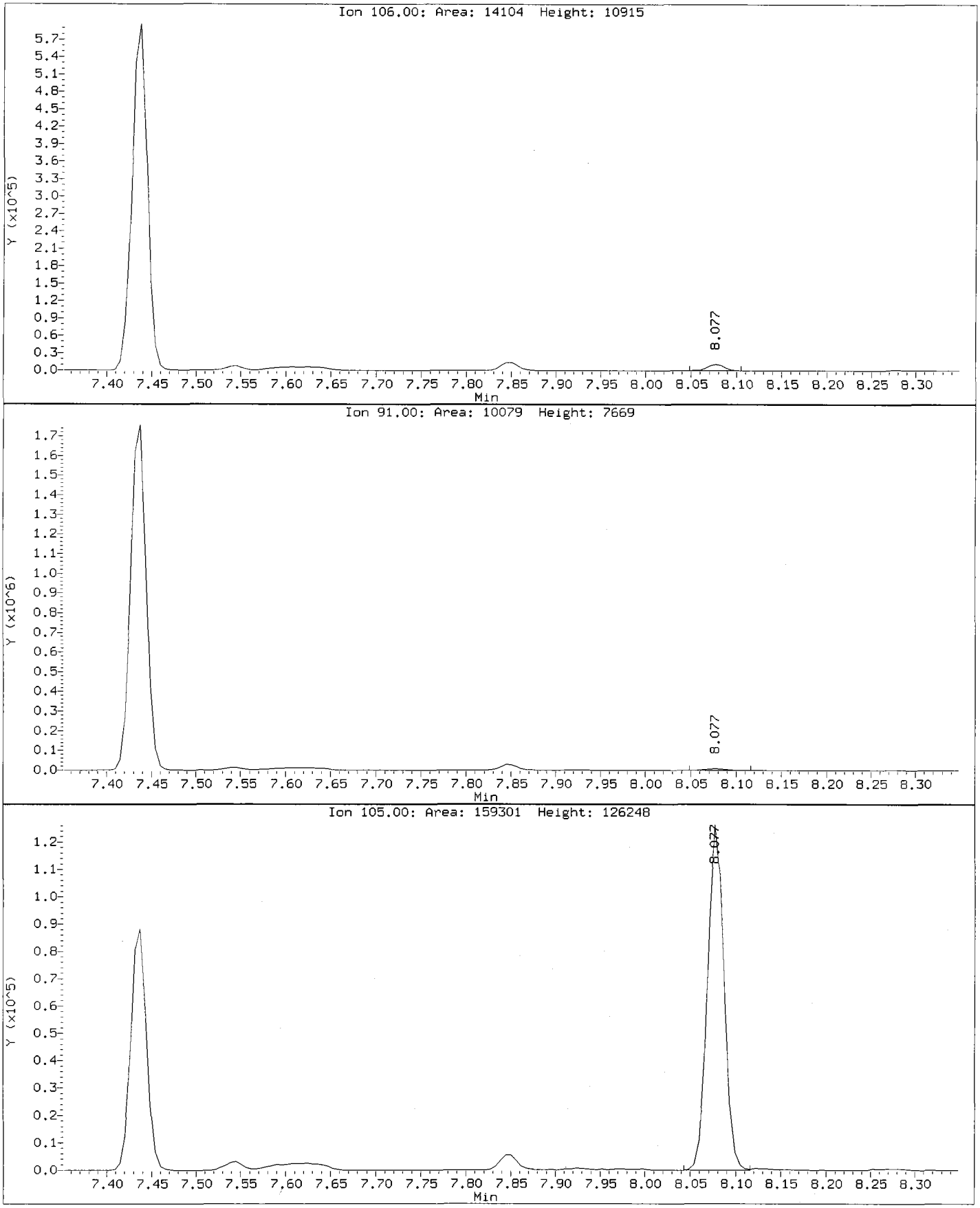
Data File: /chem1/nt9.i/22OCT10.b/rr33h3.d
Injection Date: 22-OCT-2010 16:47
Instrument: nt9.i
Client Sample ID: DGS-07-077.3-101012

Compound: m,p-xylene
CAS Number:



Data File: /chem1/nt9.i/22OCT10.b/rr33h3.d
Injection Date: 22-OCT-2010 16:47
Instrument: nt9.i
Client Sample ID: DGS-07-077.3-101012

Compound: o-Xylene
CAS Number:



Analytical Resources, Inc.

8260C

Data file : /chem1/nt9.i/22OCT10.b/gasco.b/rr33i3.d
Lab Smp Id: RR33I Client Smp ID: DGS-07-7.98.4-10101
Inj Date : 22-OCT-2010 17:17
Operator : PB Inst ID: nt9.i
Smp Info : RR33I,5,4.98,1,100UL 4.98G/5ML
Misc Info : 10-26427
Comment :
Method : /chem1/nt9.i/22OCT10.b/gasco.b/VO063010S.m
Meth Date : 27-Oct-2010 11:22 patrickb Quant Type: ISTD
Cal Date : 28-AUG-2010 13:21 Cal File: 2000828.d
Als bottle: 1
Dil Factor: 1.00000
Integrator: HP RTE Compound Sublist: gasco.sub
Target Version: 3.50
Processing Host: cserv3

Concentration Formula: Amt * DF * Uf * 1/(Ws * (100 - M)/100) * CpndVariable

M	0.00000	% Moisture (not decanted)
Uf	1.00000	ng unit correction factor
Ws	5.00000	Weight of sample extracted (g)

Cpnd Variable Local Compound Variable

Compounds	QUANT SIG MASS	RT	EXP RT	REL RT	RESPONSE	CONCENTRATIONS ON-COLUMN (ug/Kg)	FINAL (ug/Kg)
3 Vinyl Chloride	62	Compound Not Detected.					
7 1,1-Dichloroethene	96	Compound Not Detected.					
15 Trans-1,2-Dichloroethene	96	Compound Not Detected.					
20 Cis-1,2-Dichloroethene	96	Compound Not Detected.					
* 32 Pentafluorobenzene	168	4.927	4.931	(1.000)	787577	50.0000	
$ 25 Dibromofluoromethane	111	4.531	4.530	(0.920)	265595	45.0997	9.020
$ 31 d4-1,2-Dichloroethane	65	4.938	4.937	(1.002)	306185	50.6415	10.128
30 Benzene	78	Compound Not Detected.					
* 35 1,4-Difluorobenzene	114	5.317	5.322	(1.000)	1041788	50.0000	
34 Trichloroethene	95	Compound Not Detected.					
$ 42 d8-Toluene	98	6.307	6.306	(1.186)	1173765	49.7258	9.945
43 Toluene	92	Compound Not Detected.					
44 Tetrachloroethene	166	Compound Not Detected.					
* 52 d5-Chlorobenzene	117	7.399	7.398	(1.000)	927399	50.0000	
54 Ethyl Benzene	91	7.433	7.437	(1.005)	1116134	29.3664	5.873
56 m,p-xylene	106	7.433	7.545	(1.005)	375986	24.4597	4.892 (2)
57 o-Xylene	106	7.846	7.850	(1.060)	15855	1.10723	0.2214
$ 61 4-Bromofluorobenzene	95	8.282	8.280	(1.119)	449584	52.3415	10.468

Compounds	QUANT SIG MASS	RT	EXP RT	REL RT	RESPONSE	CONCENTRATIONS ON-COLUMN (ug/Kg)	FINAL (ug/Kg)
* 75 d4-1,4-Dichlorobenzene	152	9.119	9.118	(1.000)	527362	50.0000	
$ 78 d4-1,2-Dichlorobenzene	152	9.441	9.446	(1.035)	464382	50.3743	10.075

QC Flag Legend

Q - Qualifier signal failed the ratio test.

Analytical Resources, Inc.

INTERNAL STANDARD COMPOUNDS
AREA AND RT SUMMARY

Instrument ID: nt9.i
Lab File ID: rr33i3.d
Lab Smp Id: RR33I
Analysis Type: VOA
Quant Type: ISTD
Operator: PB
Method File: /chem1/nt9.i/22OCT10.b/gasco.b/VO063010S.m
Misc Info: 10-26427

Calibration Date: 22-OCT-2010
Calibration Time: 10:42
Client Smp ID: DGS-07-7.98.4-10101
Level: MED
Sample Type: Sediment

Test Mode:
Use Initial Calibration Level 5.
If Continuing Cal. use Initial Cal. Level 5

COMPOUND	STANDARD	AREA LIMIT LOWER	AREA LIMIT UPPER	SAMPLE	%DIFF
32 Pentafluorobenzen	704281	352140	1408562	787577	11.83
35 1,4-Difluorobenze	937745	468872	1875490	1041788	11.10
52 d5-Chlorobenzene	853013	426506	1706026	927399	8.72
75 d4-1,4-Dichlorobe	503655	251828	1007310	527362	4.71

COMPOUND	STANDARD	RT LIMIT LOWER	RT LIMIT UPPER	SAMPLE	%DIFF
32 Pentafluorobenzen	4.93	4.43	5.43	4.93	-0.09
35 1,4-Difluorobenze	5.32	4.82	5.82	5.32	-0.08
52 d5-Chlorobenzene	7.40	6.90	7.90	7.40	0.02
75 d4-1,4-Dichlorobe	9.12	8.62	9.62	9.12	0.01

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.

Analytical Resources, Inc.

RECOVERY REPORT

Client Name: NW Natural
Sample Matrix: SOLID
Lab Smp Id: RR33I
Level: MED
Data Type: MS DATA
SpikeList File: all.spk
Sublist File: gasco.sub
Method File: /chem1/nt9.i/22OCT10.b/gasco.b/VO063010S.m
Misc Info: 10-26427

Client SDG: RR33
Fraction: VOA
Client Smp ID: DGS-07-7.98.4-10101
Operator: PB
SampleType: SAMPLE
Quant Type: ISTD

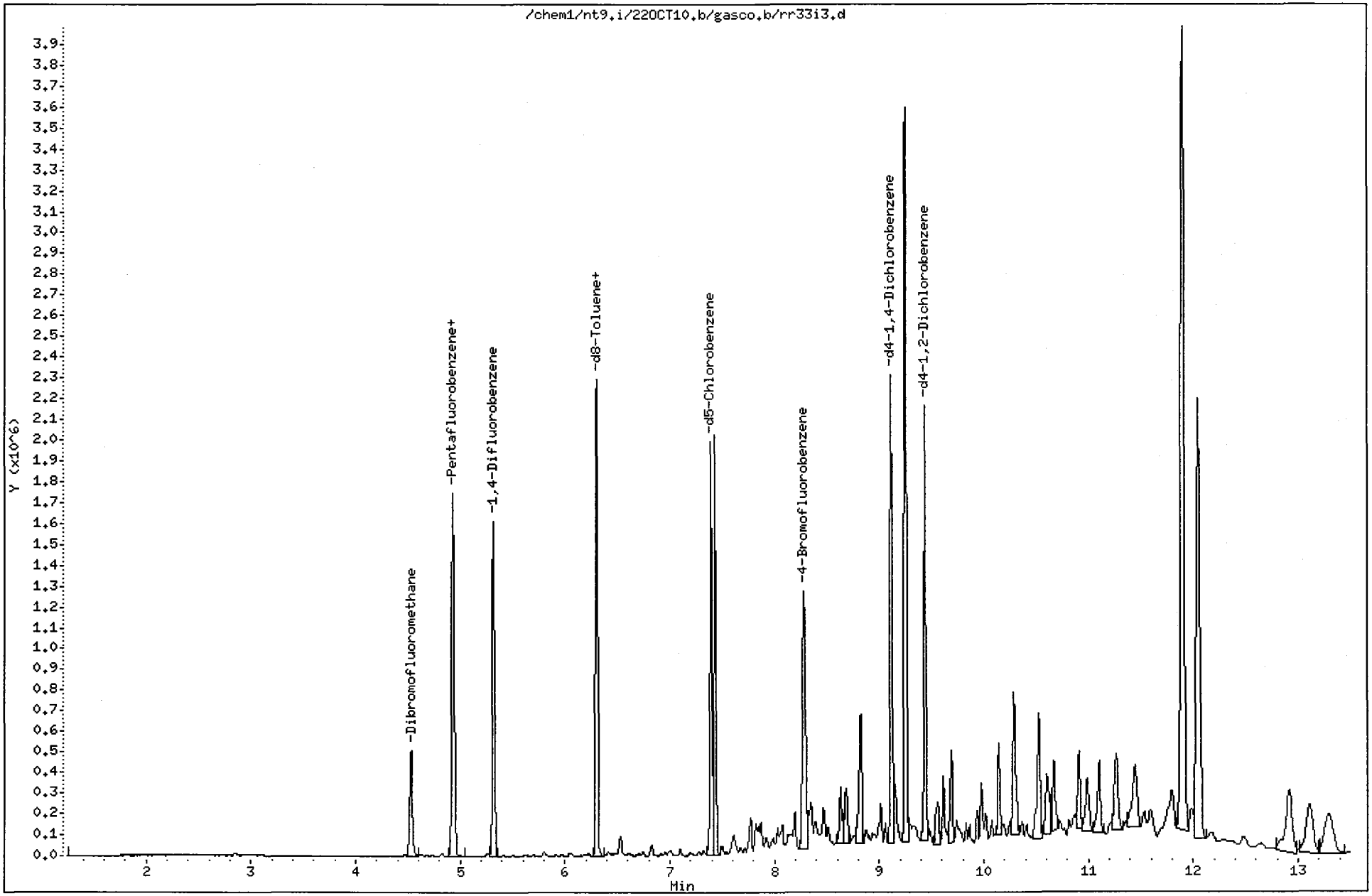
SURROGATE COMPOUND	AMOUNT ADDED ug/Kg	AMOUNT RECOVERED ug/Kg	% RECOVERED	LIMITS
$ 25 Dibromofluorometha	50.000	45.100	90.20	30-160
$ 31 d4-1,2-Dichloroeth	50.000	50.641	101.28	75-152
$ 42 d8-Toluene	50.000	49.726	99.45	82-115
$ 61 4-Bromofluorobenze	50.000	52.342	104.68	64-120
$ 78 d4-1,2-Dichloroben	50.000	50.374	100.75	80-120

Data File: /chem1/nt9.i/22OCT10.b/gasco.b/rr33i3.d
Date : 22-OCT-2010 17:17
Client ID: DGS-07-7.98.4-10101
Sample Info: RR33I,5,4.98,1,100UL 4.98G/5ML

Column phase: RTX502.2

Instrument: nt9.i

Operator: PB
Column diameter: 0.18



RR33:00350

Data File: /chem1/nt9.i/22OCT10.b/gasco.b/rr33i3.d

Date : 22-OCT-2010 17:17

Client ID: DGS-07-7.98.4-10101

Instrument: nt9.i

Sample Info: RR33I,5,4.98,1,100UL 4.98G/5ML

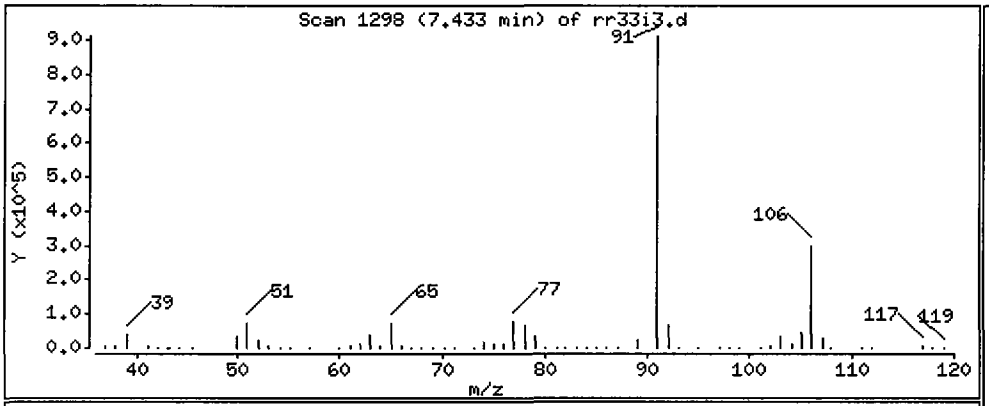
Operator: PB

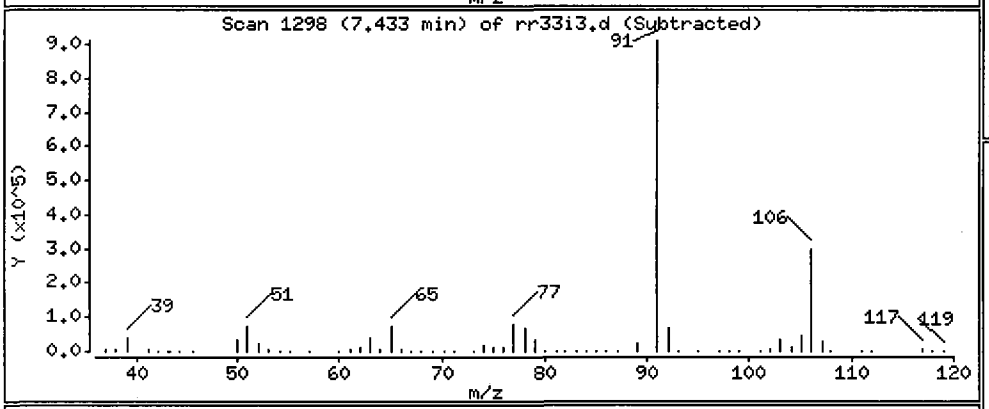
Column phase: RTX502.2

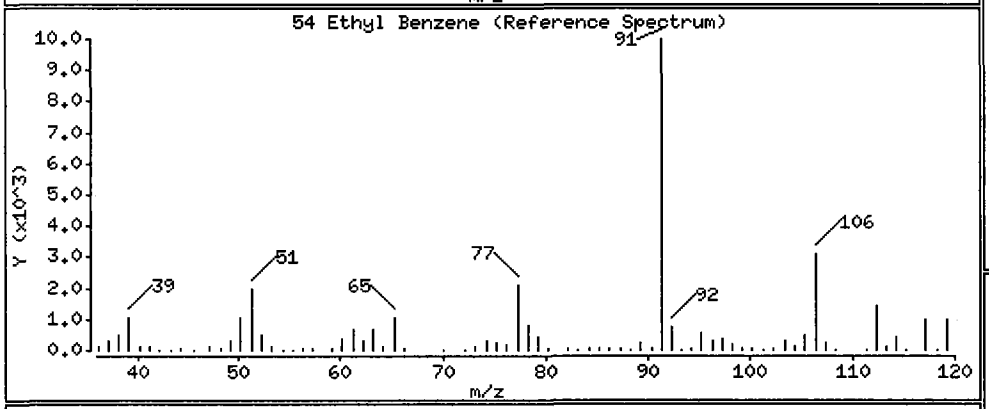
Column diameter: 0.18

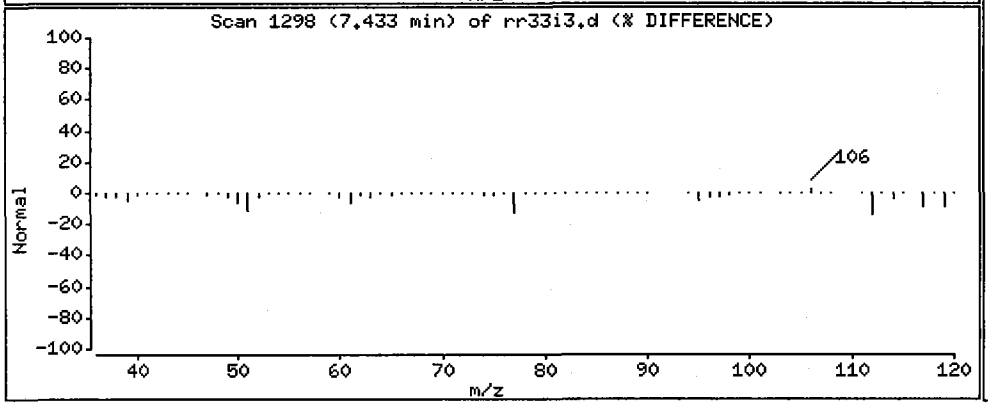
54 Ethyl Benzene

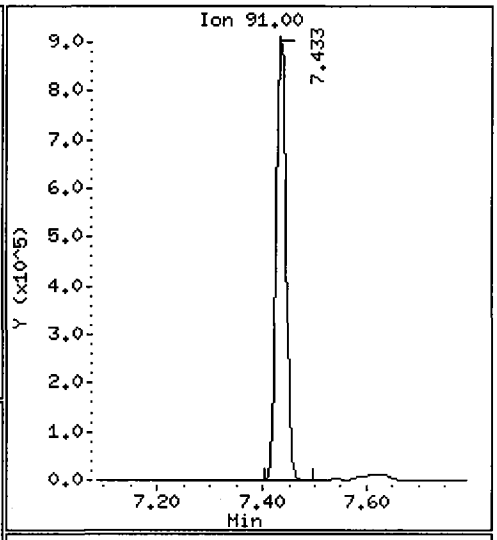
Concentration: 5.873 ug/Kg

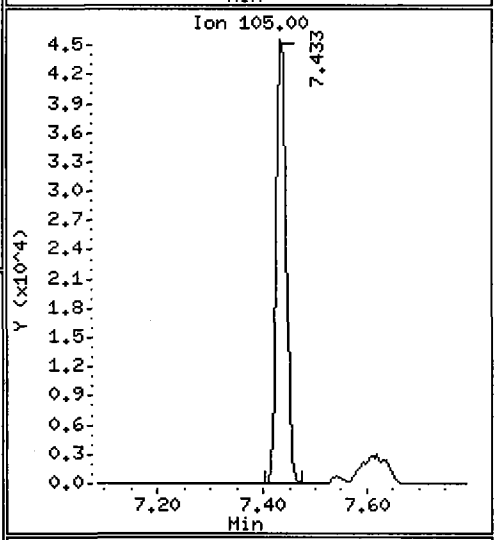


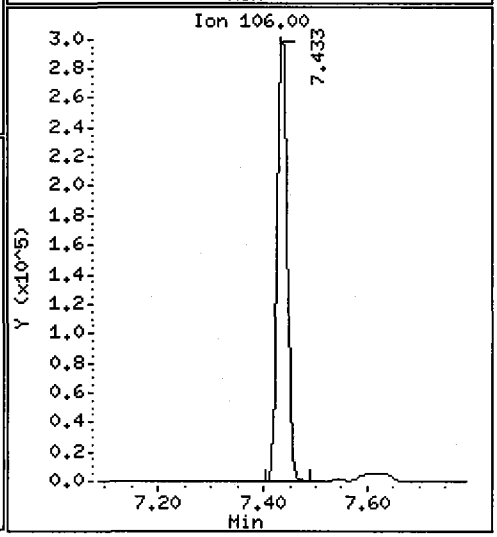












Data File: /chem1/nt9.i/22OCT10.b/gasco.b/rr33i3.d

Date : 22-OCT-2010 17:17

Client ID: DGS-07-7.98.4-10101

Instrument: nt9.i

Sample Info: RR33I,5,4.98,1,100UL 4.98G/5ML

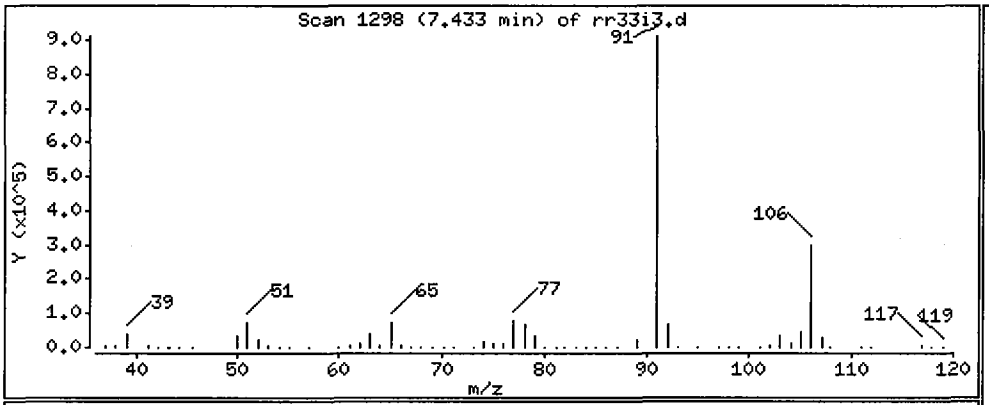
Operator: PB

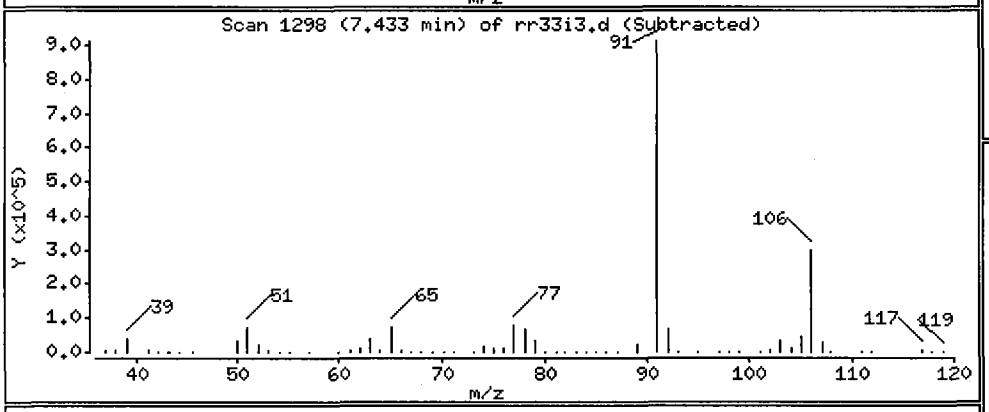
Column phase: RTX502.2

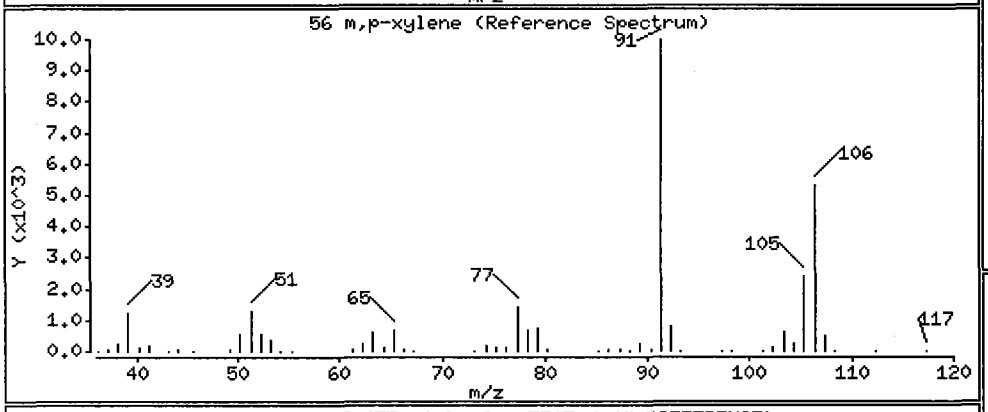
Column diameter: 0.18

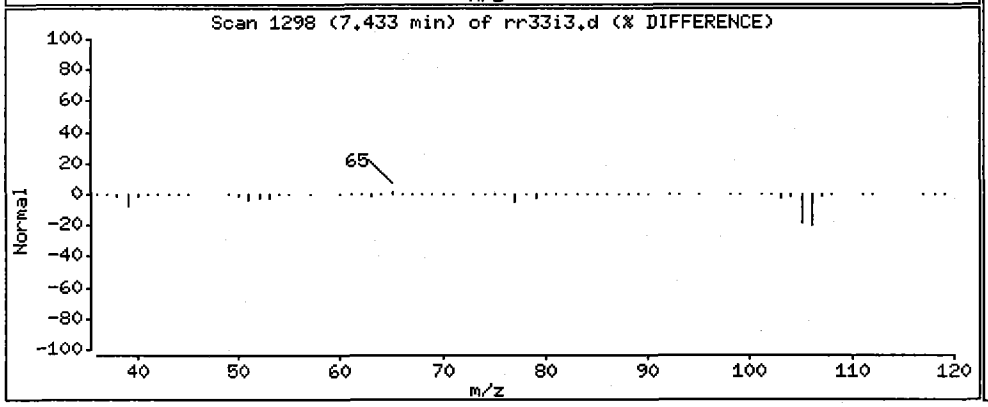
56 m,p-xylene

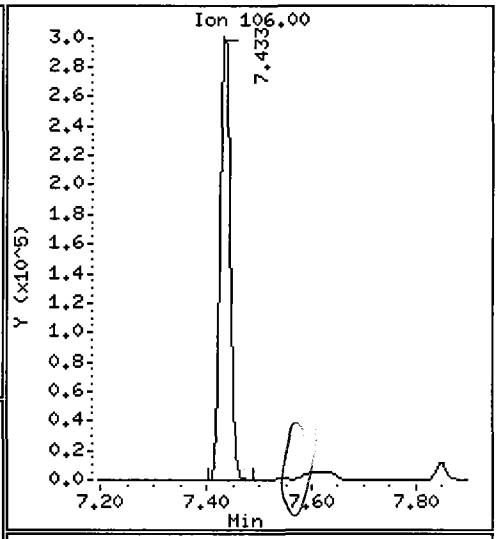
Concentration: 4.892 ug/Kg

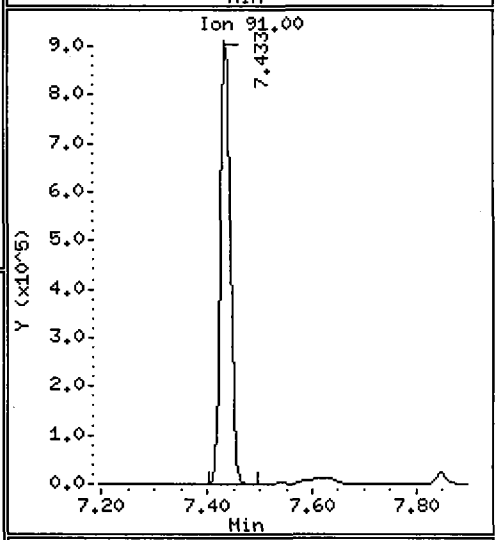


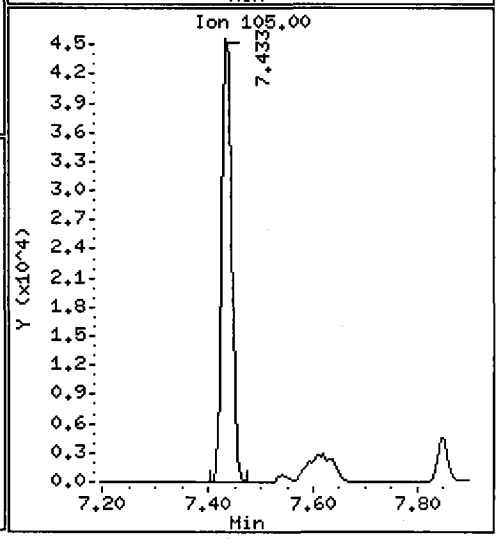












Data File: /chem1/nt9.i/22OCT10.b/gasco.b/rr33i3.d

Date : 22-OCT-2010 17:17

Client ID: DGS-07-7.98.4-10101

Instrument: nt9.i

Sample Info: RR33I,5,4.98,1,100UL 4.98G/5ML

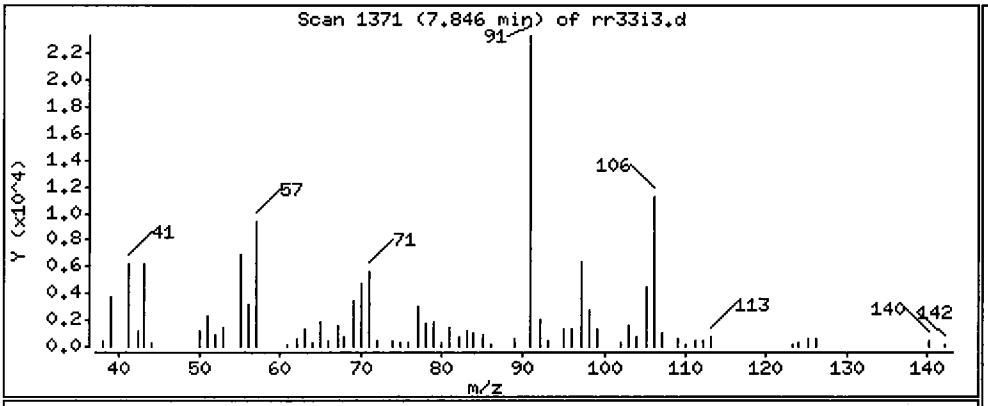
Operator: PB

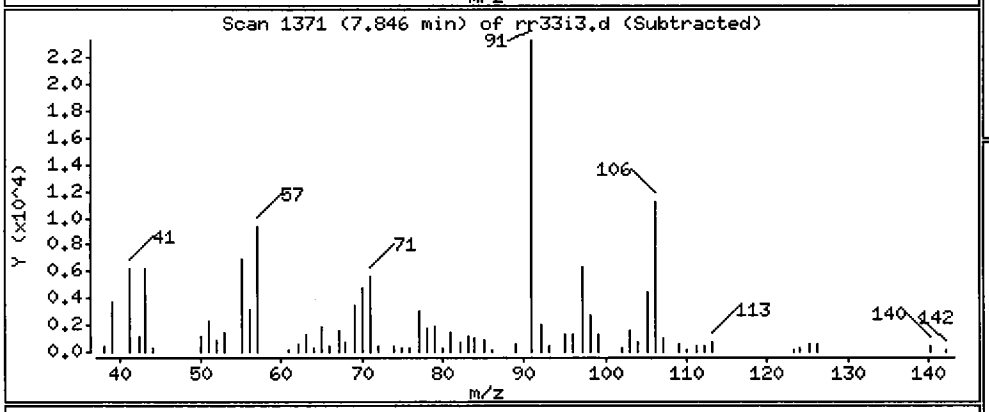
Column phase: RTX502.2

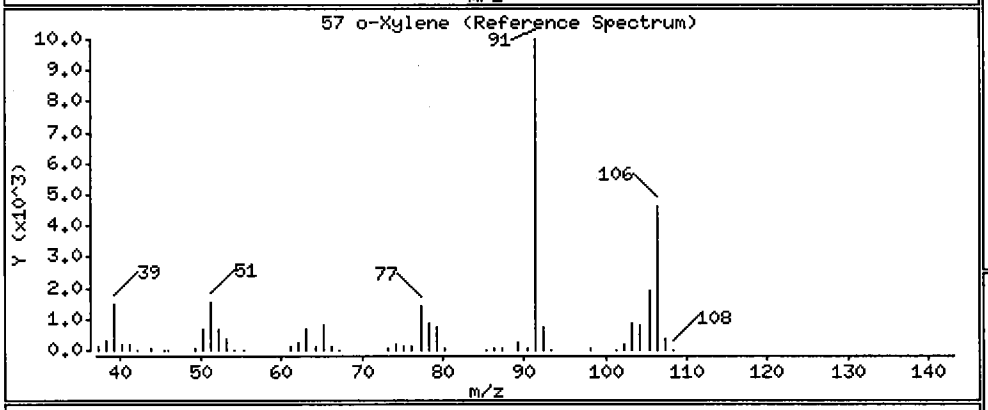
Column diameter: 0.18

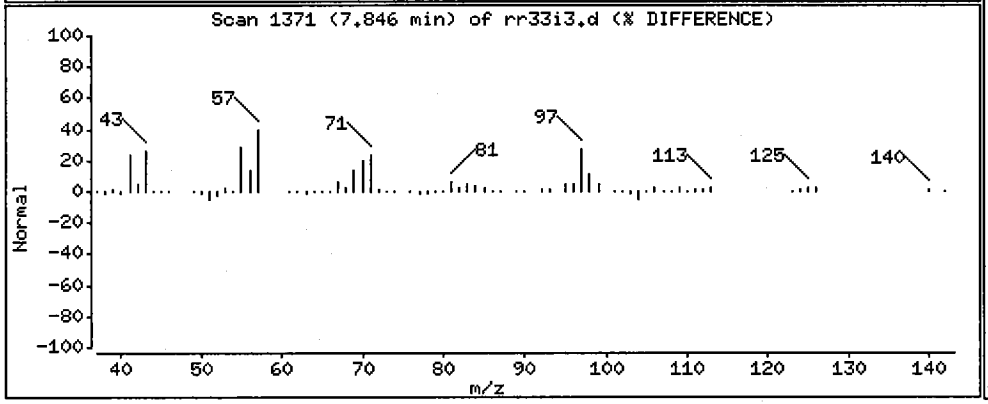
57 o-Xylene

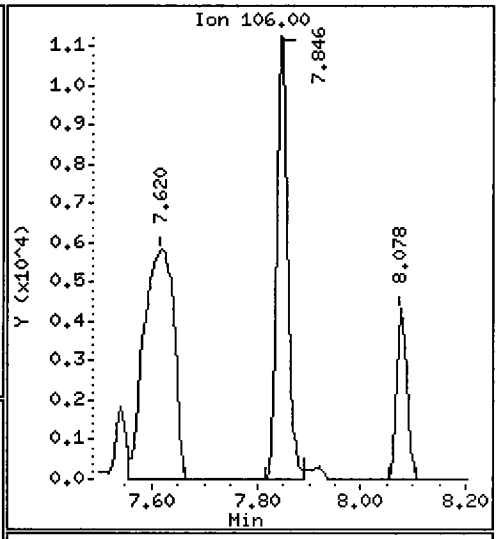
Concentration: 0.2214 ug/Kg

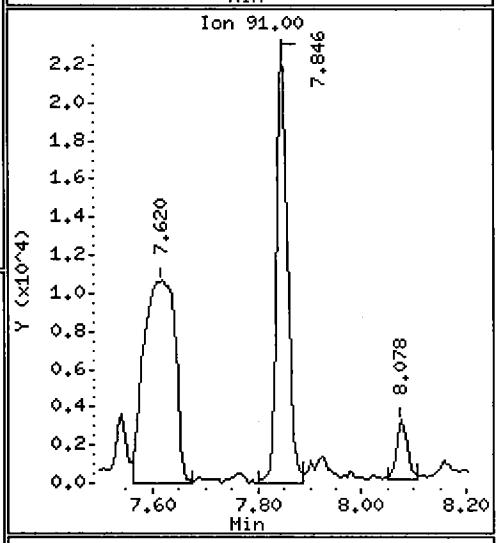


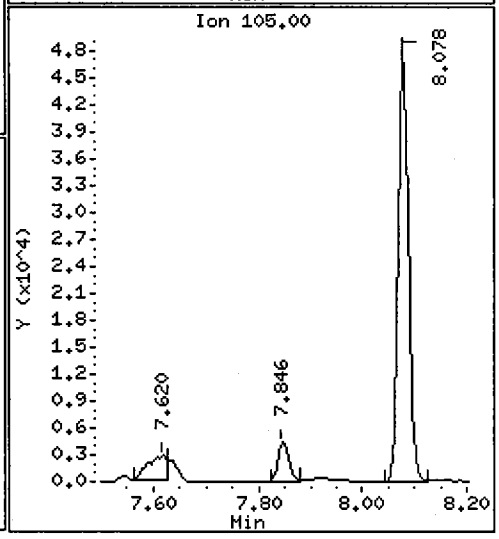












Analytical Resources, Inc.

8260C

Data file : /chem1/nt9.i/22OCT10.b/gasco.b/rr33j3.d
Lab Smp Id: RR33J Client Smp ID: DGS-07-8.79.1-10101
Inj Date : 22-OCT-2010 17:47
Operator : PB Inst ID: nt9.i
Smp Info : RR33J,5,5.34,1,100UL 5.34G/5ML
Misc Info : 10-26428
Comment :
Method : /chem1/nt9.i/22OCT10.b/gasco.b/VO063010S.m
Meth Date : 27-Oct-2010 11:22 patrickb Quant Type: ISTD
Cal Date : 28-AUG-2010 13:21 Cal File: 2000828.d
Als bottle: 1
Dil Factor: 1.00000
Integrator: HP RTE Compound Sublist: gasco.sub
Target Version: 3.50
Processing Host: cserv3

Concentration Formula: Amt * DF * Uf * 1/(Ws * (100 - M)/100) * CpndVariable

M	0.00000	% Moisture (not decanted)
Uf	1.00000	ng unit correction factor
Ws	5.00000	Weight of sample extracted (g)

Cpnd Variable Local Compound Variable

Compounds	QUANT SIG MASS	RT	EXP RT	REL RT	RESPONSE	CONCENTRATIONS ON-COLUMN (ug/Kg)	FINAL (ug/Kg)
3 Vinyl Chloride	62	Compound Not Detected.					
7 1,1-Dichloroethene	96	Compound Not Detected.					
15 Trans-1,2-Dichloroethene	96	Compound Not Detected.					
20 Cis-1,2-Dichloroethene	96	Compound Not Detected.					
* 32 Pentafluorobenzene	168	4.930	4.931	(1.000)	717444	50.0000	
$ 25 Dibromofluoromethane	111	4.529	4.530	(0.919)	237767	44.3210	8.864
$ 31 d4-1,2-Dichloroethane	65	4.936	4.937	(1.001)	274843	49.9014	9.980
30 Benzene	78	4.823	4.830	(0.906)	29984	1.16957	0.2339
* 35 1,4-Difluorobenzene	114	5.321	5.322	(1.000)	953208	50.0000	
34 Trichloroethene	95	Compound Not Detected.					
$ 42 d8-Toluene	98	6.305	6.306	(1.185)	1072764	49.6702	9.934
43 Toluene	92	Compound Not Detected.					
44 Tetrachloroethene	166	Compound Not Detected.					
* 52 d5-Chlorobenzene	117	7.397	7.398	(1.000)	850784	50.0000	
54 Ethyl Benzene	91	7.436	7.437	(1.005)	1607028	46.0899	9.218
56 m,p-xylene	106	7.544	7.545	(1.020)	8083	0.57319	0.1146(QM)
57 o-Xylene	106	7.849	7.850	(1.061)	115901	8.82277	1.765
$ 61 4-Bromofluorobenzene	95	8.279	8.280	(1.119)	409357	51.9499	10.390

Compounds	QUANT SIG MASS	RT	EXP RT	REL RT	RESPONSE	CONCENTRATIONS ON-COLUMN (ug/Kg)	FINAL (ug/Kg)
* 75 d4-1,4-Dichlorobenzene	152	9.117	9.118	(1.000)	478436	50.0000	
$ 78 d4-1,2-Dichlorobenzene	152	9.439	9.446	(1.035)	420216	50.2448	10.049

QC Flag Legend

Q - Qualifier signal failed the ratio test.
M - Compound response manually integrated.

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INTERNAL STANDARD COMPOUNDS
AREA AND RT SUMMARY

Instrument ID: nt9.i
Lab File ID: rr33j3.d
Lab Smp Id: RR33J
Analysis Type: VOA
Quant Type: ISTD
Operator: PB
Method File: /chem1/nt9.i/22OCT10.b/gasco.b/VO063010S.m
Misc Info: 10-26428

Calibration Date: 22-OCT-2010
Calibration Time: 10:42
Client Smp ID: DGS-07-8.79.1-10101
Level: MED
Sample Type: Sediment

Test Mode:
Use Initial Calibration Level 5.
If Continuing Cal. use Initial Cal. Level 5

COMPOUND	STANDARD	AREA LIMIT LOWER	AREA LIMIT UPPER	SAMPLE	%DIFF
32 Pentafluorobenzen	704281	352140	1408562	717444	1.87
35 1,4-Difluorobenze	937745	468872	1875490	953208	1.65
52 d5-Chlorobenzene	853013	426506	1706026	850784	-0.26
75 d4-1,4-Dichlorobe	503655	251828	1007310	478436	-5.01

COMPOUND	STANDARD	RT LIMIT LOWER	RT LIMIT UPPER	SAMPLE	%DIFF
32 Pentafluorobenzen	4.93	4.43	5.43	4.93	-0.02
35 1,4-Difluorobenze	5.32	4.82	5.82	5.32	-0.02
52 d5-Chlorobenzene	7.40	6.90	7.90	7.40	-0.01
75 d4-1,4-Dichlorobe	9.12	8.62	9.62	9.12	-0.01

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.

Analytical Resources, Inc.

RECOVERY REPORT

Client Name: NW Natural
Sample Matrix: SOLID
Lab Smp Id: RR33J
Level: MED
Data Type: MS DATA
SpikeList File: all.spk
Sublist File: gasco.sub
Method File: /chem1/nt9.i/22OCT10.b/gasco.b/VO063010S.m
Misc Info: 10-26428

Client SDG: RR33
Fraction: VOA
Client Smp ID: DGS-07-8.79.1-10101
Operator: PB
SampleType: SAMPLE
Quant Type: ISTD

SURROGATE COMPOUND	AMOUNT ADDED ug/Kg	AMOUNT RECOVERED ug/Kg	% RECOVERED	LIMITS
$ 25 Dibromofluorometha	50.000	44.321	88.64	30-160
$ 31 d4-1,2-Dichloroeth	50.000	49.901	99.80	75-152
$ 42 d8-Toluene	50.000	49.670	99.34	82-115
$ 61 4-Bromofluorobenze	50.000	51.950	103.90	64-120
$ 78 d4-1,2-Dichloroben	50.000	50.245	100.49	80-120

Data File: /chem1/nt9.i/22OCT10.b/gasco.b/rr33j3.d

Date : 22-OCT-2010 17:47

Client ID: DGS-07-8.79.1-10101

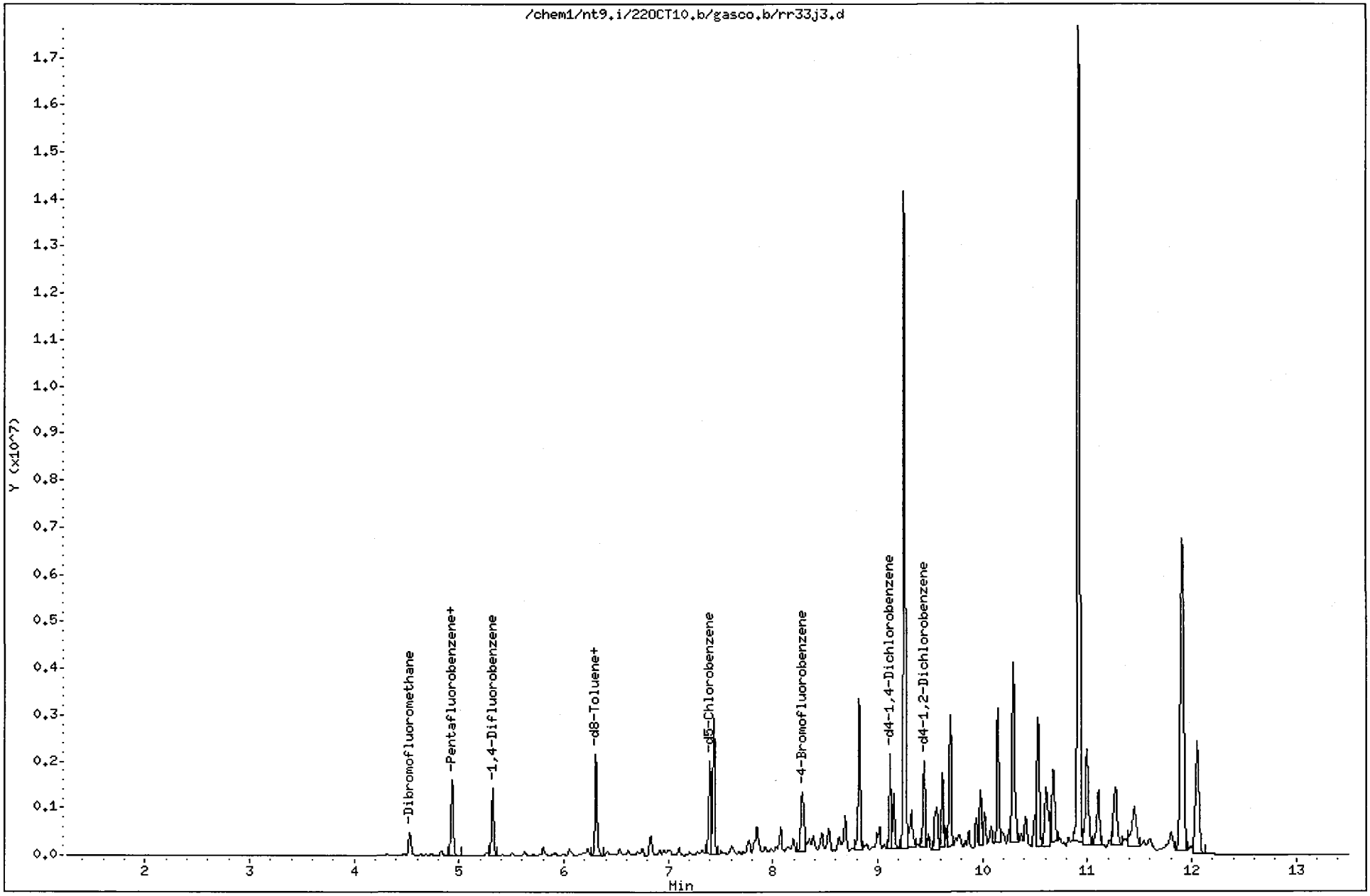
Sample Info: RR33J,5,5.34,1,100UL 5.34G/5ML

Column phase: RTX502.2

Instrument: nt9.i

Operator: PB

Column diameter: 0.18



RR33-00338

Data File: /chem1/nt9.i/22OCT10.b/gasco.b/rr33j3.d

Date : 22-OCT-2010 17:47

Client ID: DGS-07-8.79.1-10101

Instrument: nt9.i

Sample Info: RR33J,5,5.34,1,100UL 5.34G/5ML

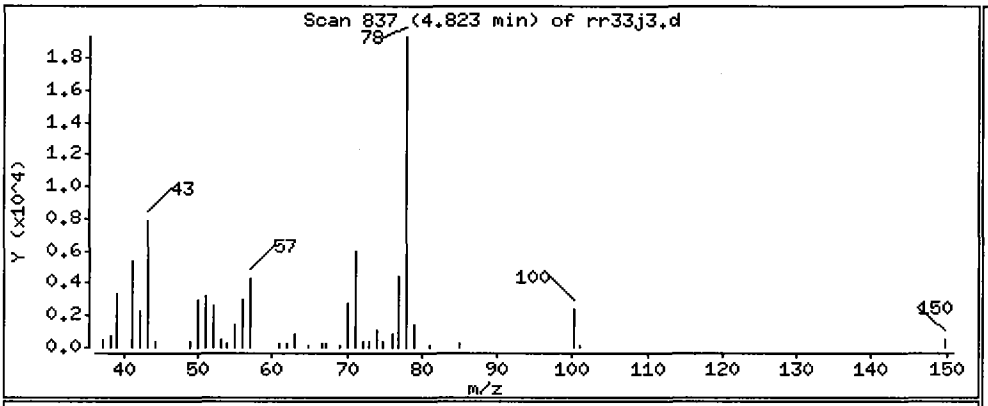
Operator: PB

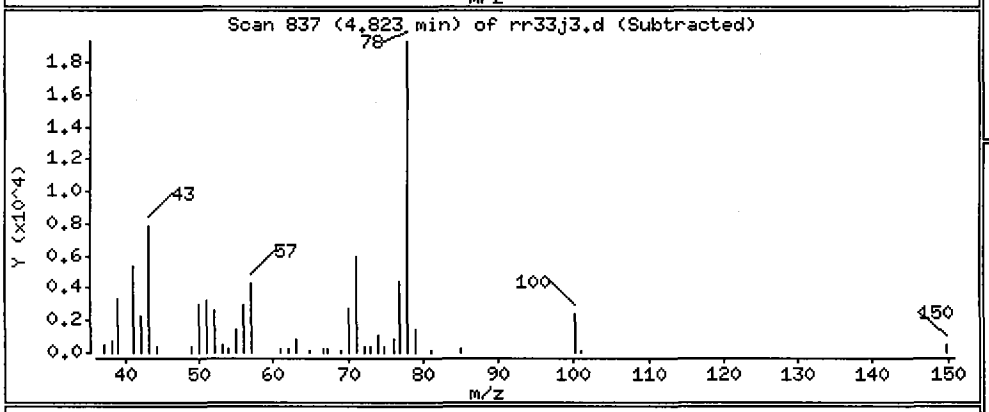
Column phase: RTX502.2

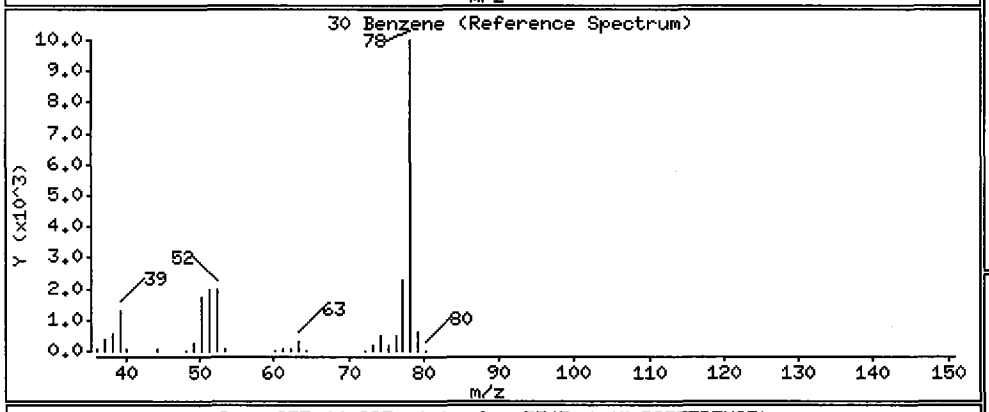
Column diameter: 0.18

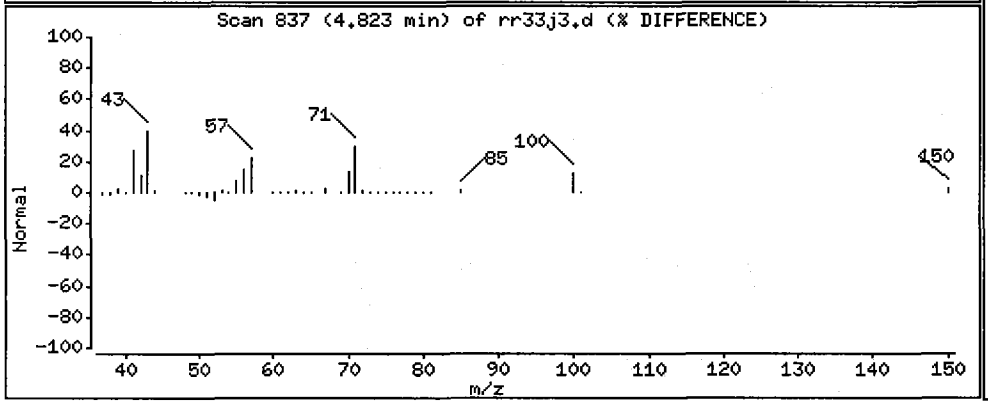
30 Benzene

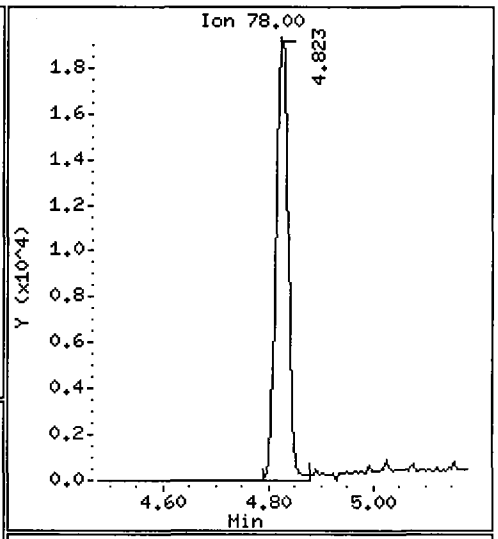
Concentration: 0.2339 ug/Kg

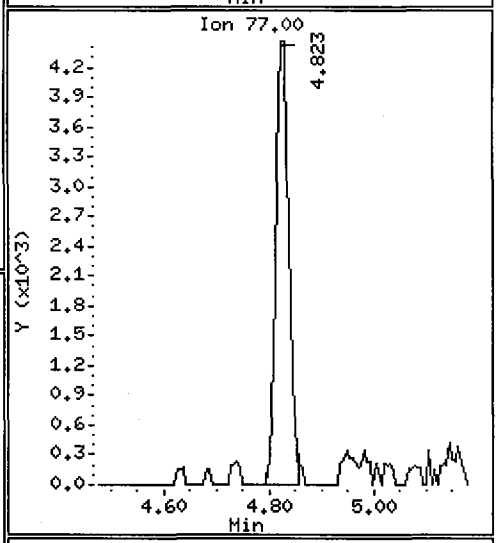


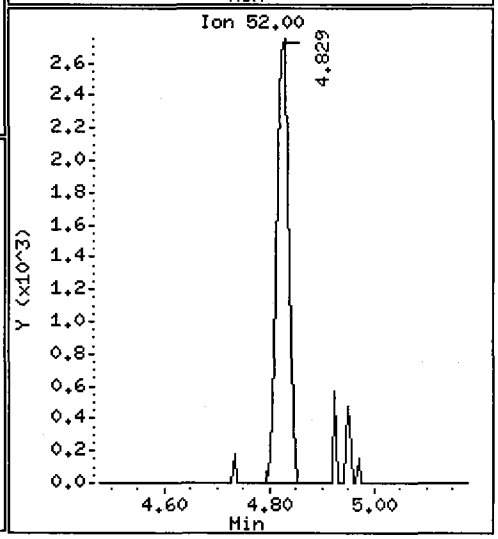












Data File: /chem1/nt9.i/22OCT10.b/gasco.b/rr33j3.d

Date : 22-OCT-2010 17:47

Client ID: DGS-07-8.79.1-10101

Instrument: nt9.i

Sample Info: RR33J,5,5.34,1,100UL 5.34G/5ML

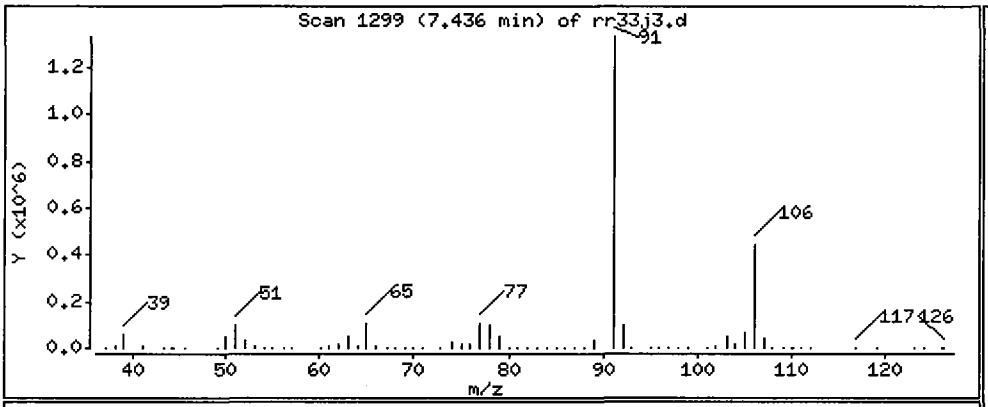
Operator: PB

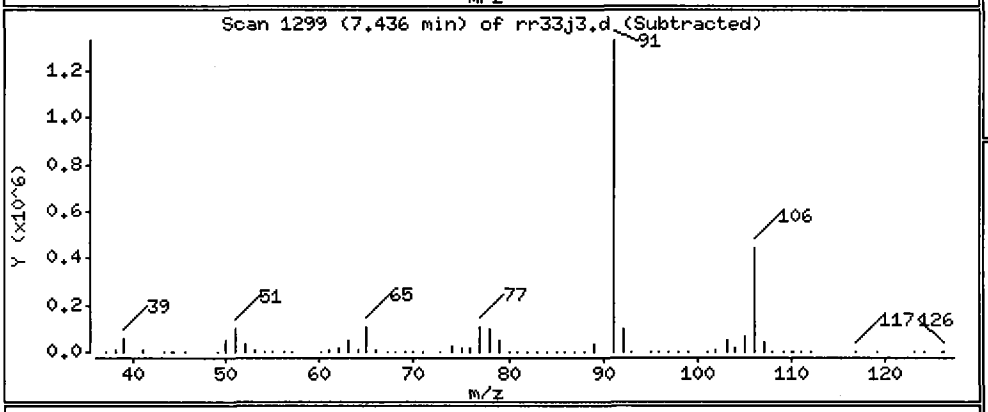
Column phase: RTX502.2

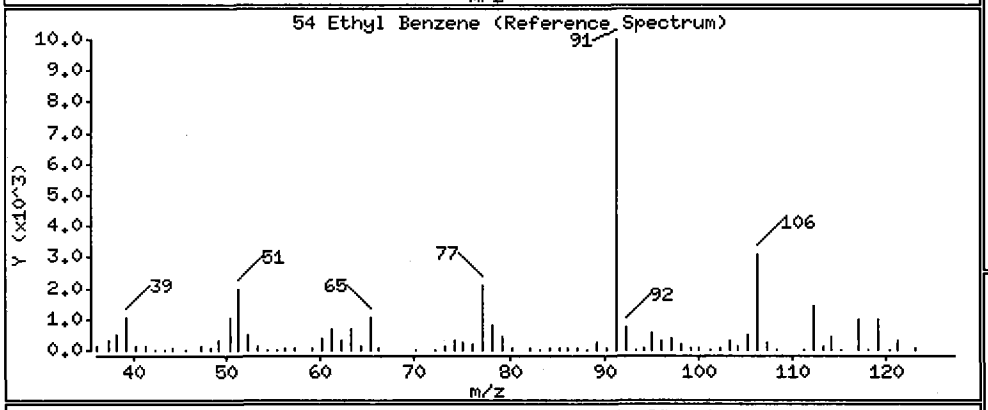
Column diameter: 0.18

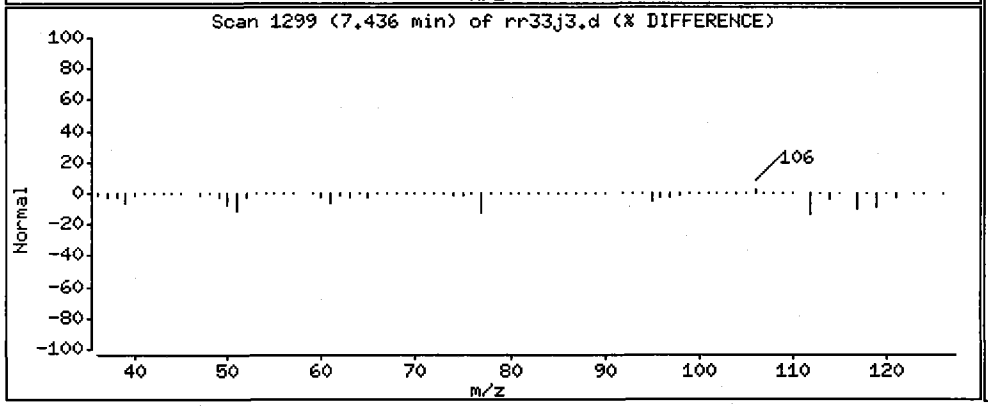
54 Ethyl Benzene

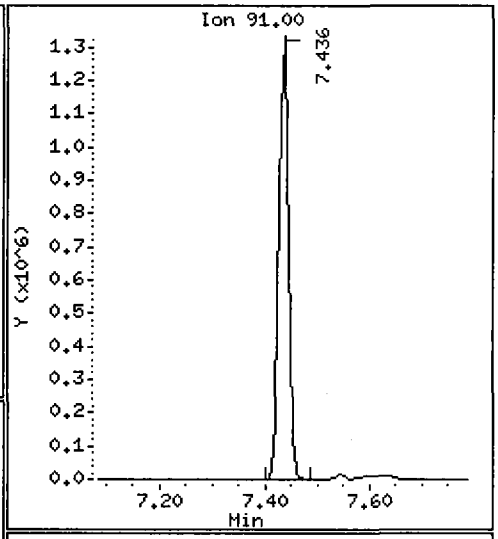
Concentration: 9.218 ug/Kg

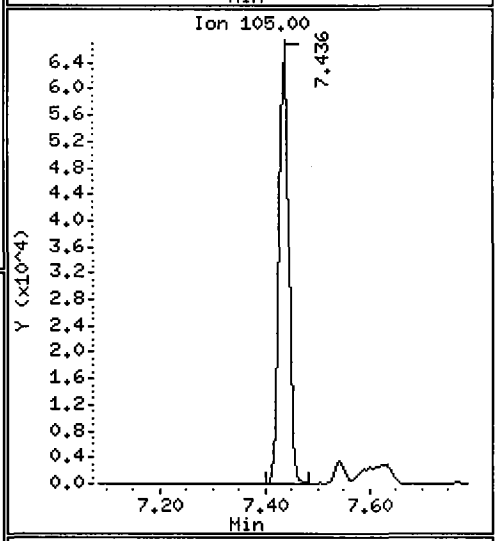


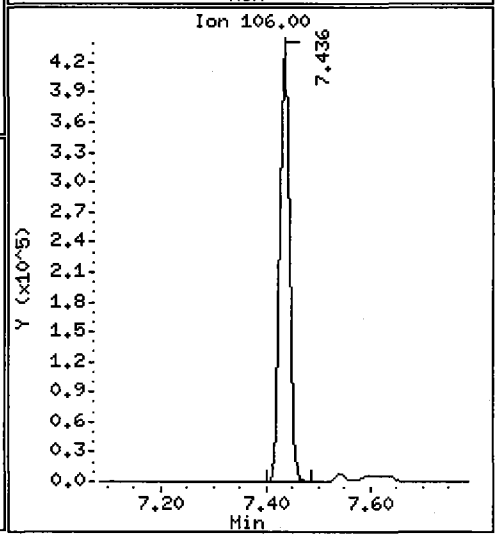












Data File: /chem1/nt9.i/22OCT10.b/gasco.b/rr33j3.d

Date : 22-OCT-2010 17:47

Client ID: DGS-07-8.79.1-10101

Instrument: nt9.i

Sample Info: RR33J,5,5.34,1,100UL 5.34G/5ML

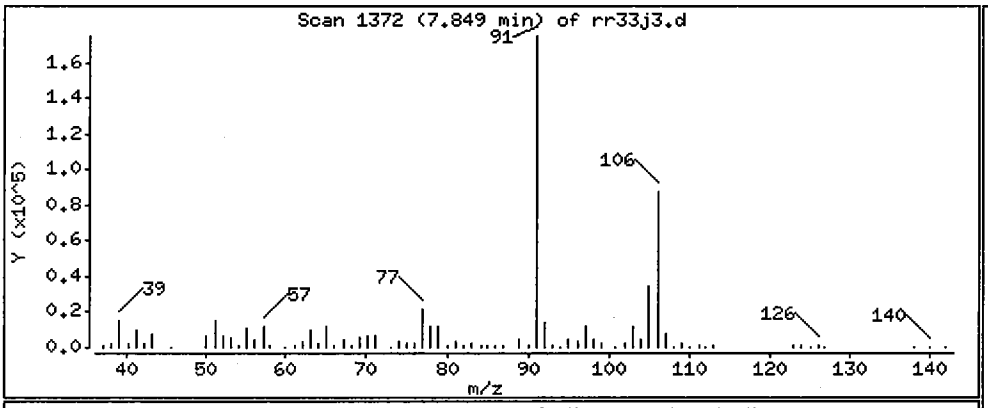
Operator: PB

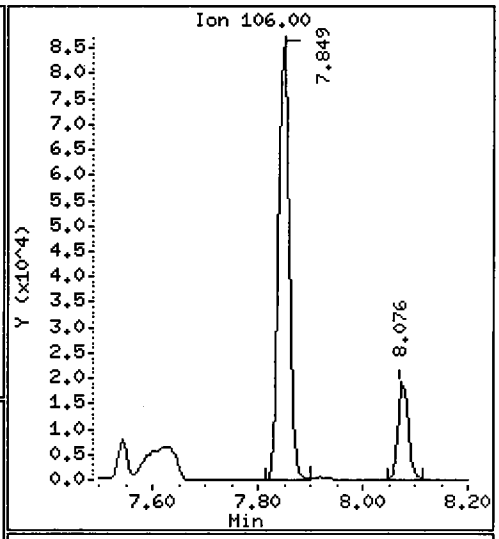
Column phase: RTX502.2

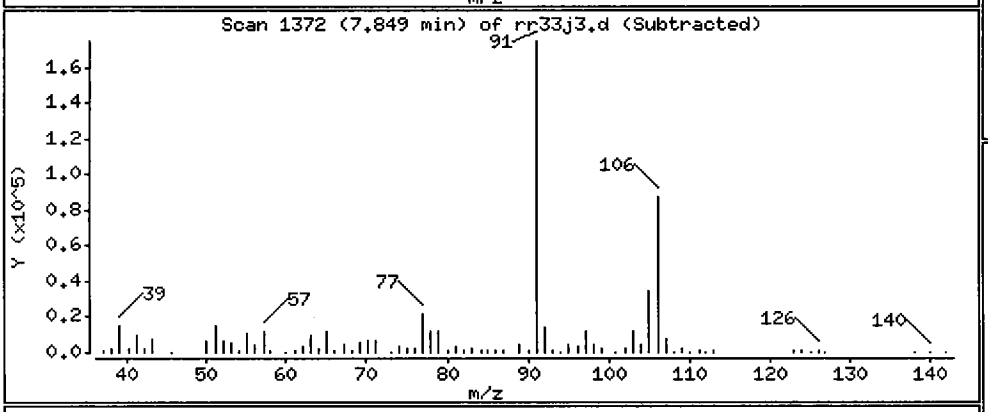
Column diameter: 0.18

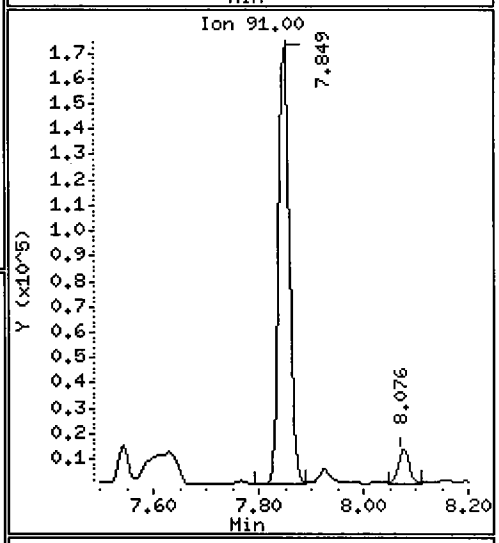
57 o-Xylene

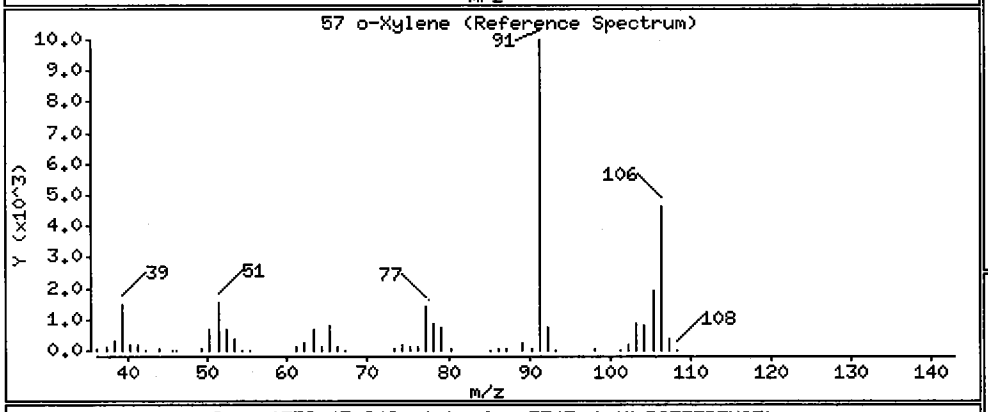
Concentration: 1.765 ug/Kg

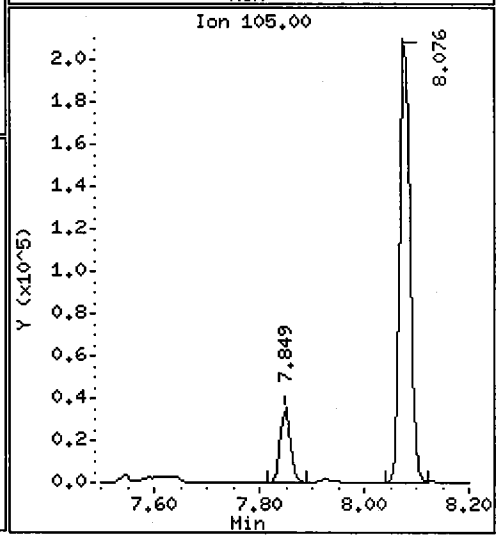


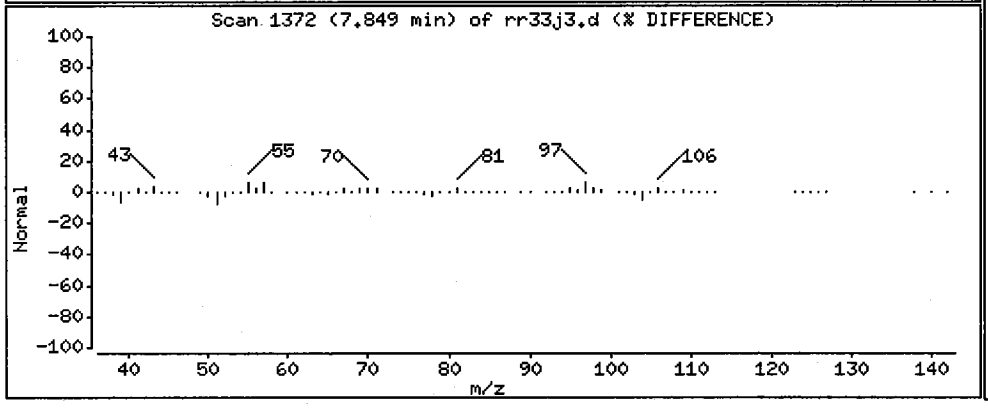






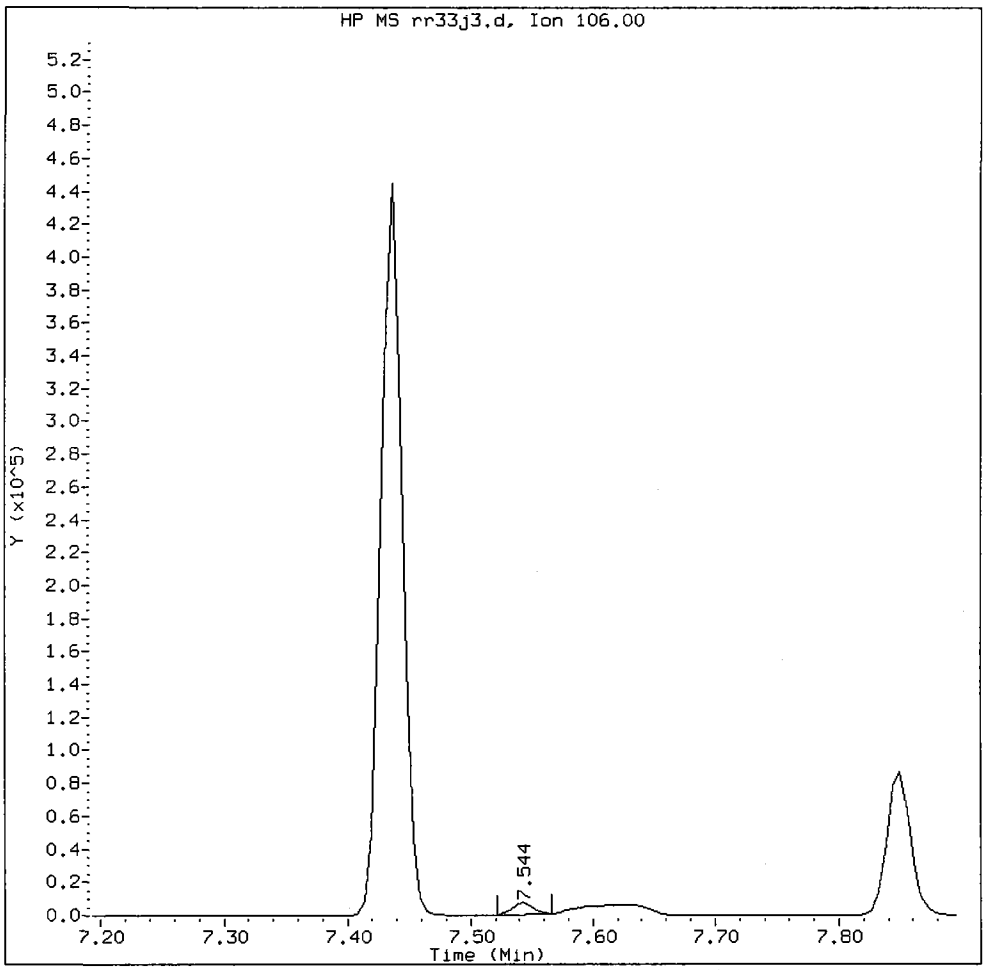






RR33J, /chem1/nt9.i/22OCT10.b/gasco.b/rr33j3.d

m,p-xylene Amount: 0.57 Area: 8083



MANUAL INTEGRATION for m,p-xylene

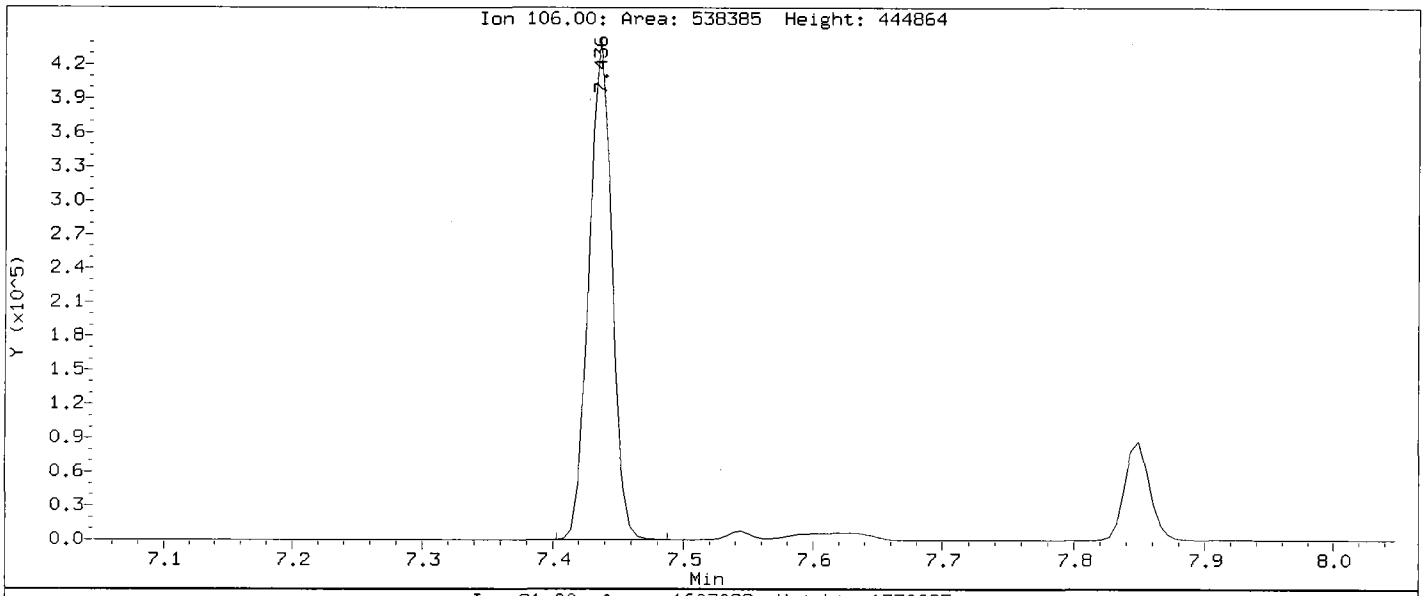
1. Baseline correction
2. Poor chromatography
3. Peak not found
4. Totals calculation

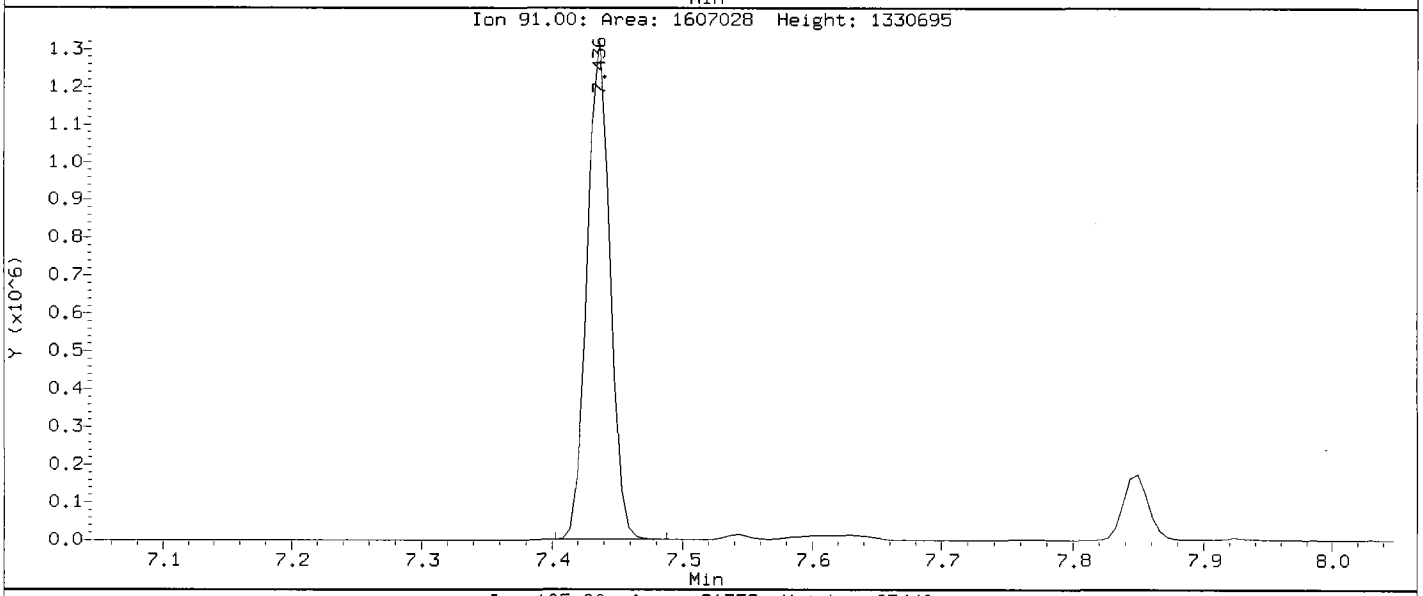
5. Other _____

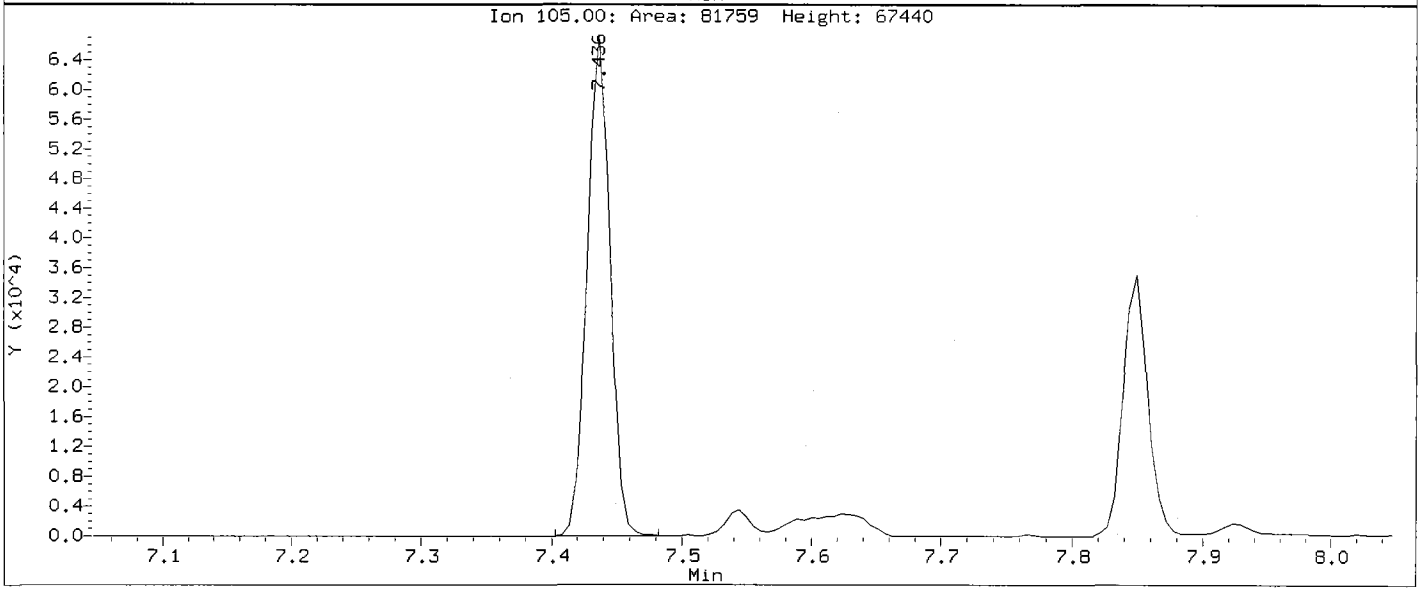
Analyst: _____ Date: 10/27/10

Data File: /chem1/nt9.i/22OCT10.b/rr33j3.d
Injection Date: 22-OCT-2010 17:47
Instrument: nt9.i
Client Sample ID: DGS-07-8.79.1-10101

Compound: m,p-xylene
CAS Number:







Analytical Resources, Inc.

8260C

Data file : /chem1/nt9.i/22OCT10.b/gasco.b/rr33k3.d
Lab Smp Id: RR33K Client Smp ID: DGS-07-9.710-101012
Inj Date : 22-OCT-2010 18:18
Operator : PB Inst ID: nt9.i
Smp Info : RR33K,5,5.00,1,100UL 5.00G/5ML
Misc Info : 10-26429
Comment :
Method : /chem1/nt9.i/22OCT10.b/gasco.b/VO063010S.m
Meth Date : 27-Oct-2010 11:22 patrickb Quant Type: ISTD
Cal Date : 28-AUG-2010 13:21 Cal File: 2000828.d
Als bottle: 1
Dil Factor: 1.00000
Integrator: HP RTE Compound Sublist: gasco.sub
Target Version: 3.50
Processing Host: cserv3

KW 10/27/10

d1

Concentration Formula: Amt * DF * Uf * 1/(Ws * (100 - M)/100) * CpndVariable

M	0.00000	% Moisture (not decanted)
Uf	1.00000	ng unit correction factor
Ws	5.00000	Weight of sample extracted (g)

Cpnd Variable Local Compound Variable

Compounds	QUANT SIG MASS	RT	EXP RT	REL RT	RESPONSE	CONCENTRATIONS ON-COLUMN (ug/Kg)	FINAL (ug/Kg)
3 Vinyl Chloride	62	Compound Not Detected.					
7 1,1-Dichloroethene	96	Compound Not Detected.					
15 Trans-1,2-Dichloroethene	96	Compound Not Detected.					
20 Cis-1,2-Dichloroethene	96	Compound Not Detected.					
* 32 Pentafluorobenzene	168	4.930	4.931	(1.000)	828616	50.0000	
$ 25 Dibromofluoromethane	111	4.528	4.530	(0.919)	276638	44.6483	8.930
$ 31 d4-1,2-Dichloroethane	65	4.936	4.937	(1.001)	321854	50.5966	10.119
30 Benzene	78	4.828	4.830	(0.907)	139912	4.72221	0.9444
* 35 1,4-Difluorobenzene	114	5.320	5.322	(1.000)	1101628	50.0000	
34 Trichloroethene	95	Compound Not Detected.					
$ 42 d8-Toluene	98	6.304	6.306	(1.185)	1243729	49.8277	9.966
43 Toluene	92	6.344	6.340	(1.192)	11021	0.52244	0.1047
44 Tetrachloroethene	166	Compound Not Detected.					
* 52 d5-Chlorobenzene	117	7.396	7.398	(1.000)	985568	50.0000	
54 Ethyl Benzene	91	7.436	7.437	(1.005)	3467752	85.8544	17.171
56 m,p-xylene	106	7.543	7.545	(1.020)	108559	6.64546	1.329
57 o-Xylene	106	7.849	7.850	(1.061)	419509	27.5672	5.513
$ 61 4-Bromofluorobenzene	95	8.279	8.280	(1.119)	493779	54.0939	10.819

Compounds	QUANT SIG MASS	RT	EXP RT	REL RT	RESPONSE	CONCENTRATIONS ON-COLUMN (ug/Kg)	FINAL (ug/Kg)
* 75 d4-1,4-Dichlorobenzene	152	9.116	9.118	(1.000)	564232	50.0000	
$ 78 d4-1,2-Dichlorobenzene	152	9.444	9.446	(1.036)	504093	51.1088	10.222

Analytical Resources, Inc.

INTERNAL STANDARD COMPOUNDS
AREA AND RT SUMMARY

Instrument ID: nt9.i
Lab File ID: rr33k3.d
Lab Smp Id: RR33K
Analysis Type: VOA
Quant Type: ISTD
Operator: PB
Method File: /chem1/nt9.i/22OCT10.b/gasco.b/VO063010S.m
Misc Info: 10-26429

Calibration Date: 22-OCT-2010
Calibration Time: 10:42
Client Smp ID: DGS-07-9.710-101012
Level: MED
Sample Type: Sediment

Test Mode:
Use Initial Calibration Level 5.
If Continuing Cal. use Initial Cal. Level 5

COMPOUND	STANDARD	AREA LIMIT LOWER	AREA LIMIT UPPER	SAMPLE	%DIFF
32 Pentafluorobenzen	704281	352140	1408562	828616	17.65
35 1,4-Difluorobenze	937745	468872	1875490	1101628	17.48
52 d5-Chlorobenzene	853013	426506	1706026	985568	15.54
75 d4-1,4-Dichlorobe	503655	251828	1007310	564232	12.03

COMPOUND	STANDARD	RT LIMIT LOWER	RT LIMIT UPPER	SAMPLE	%DIFF
32 Pentafluorobenzen	4.93	4.43	5.43	4.93	-0.03
35 1,4-Difluorobenze	5.32	4.82	5.82	5.32	-0.03
52 d5-Chlorobenzene	7.40	6.90	7.90	7.40	-0.02
75 d4-1,4-Dichlorobe	9.12	8.62	9.62	9.12	-0.02

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.

Analytical Resources, Inc.

RECOVERY REPORT

Client Name: NW Natural
Sample Matrix: SOLID
Lab Smp Id: RR33K
Level: MED
Data Type: MS DATA
SpikeList File: all.spk
Sublist File: gasco.sub
Method File: /chem1/nt9.i/22OCT10.b/gasco.b/VO063010S.m
Misc Info: 10-26429

Client SDG: RR33
Fraction: VOA
Client Smp ID: DGS-07-9.710-101012
Operator: PB
SampleType: SAMPLE
Quant Type: ISTD

SURROGATE COMPOUND	AMOUNT ADDED ug/Kg	AMOUNT RECOVERED ug/Kg	% RECOVERED	LIMITS
$ 25 Dibromofluorometha	50.000	44.648	89.30	30-160
$ 31 d4-1,2-Dichloroeth	50.000	50.597	101.19	75-152
$ 42 d8-Toluene	50.000	49.828	99.66	82-115
$ 61 4-Bromofluorobenze	50.000	54.094	108.19	64-120
$ 78 d4-1,2-Dichloroben	50.000	51.109	102.22	80-120

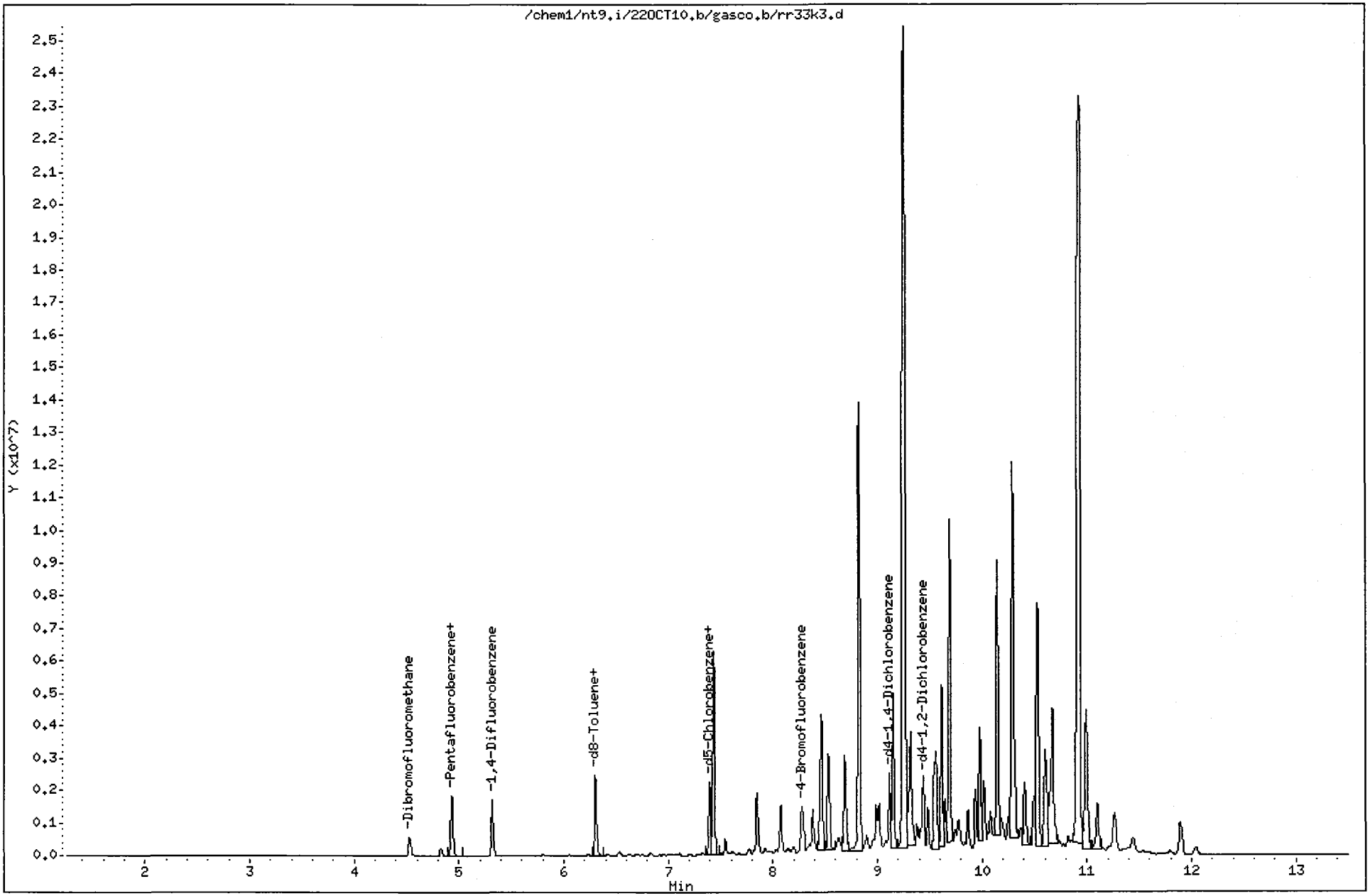
Data File: /chem1/nt9.i/22OCT10.b/gasco.b/rr33k3.d
Date : 22-OCT-2010 18:18
Client ID: DGS-07-9.710-101012
Sample Info: RR33K,5,5.00,1,100UL 5.00G/5ML

Instrument: nt9.i

Operator: PB

Column phase: RTX502.2

Column diameter: 0.18



RR33 : 00108

Data File: /chem1/nt9.i/22OCT10.b/gasco.b/rr33k3.d

Date : 22-OCT-2010 18:18

Client ID: DGS-07-9.710-101012

Instrument: nt9.i

Sample Info: RR33K,5,5.00,1,100UL 5.00G/5ML

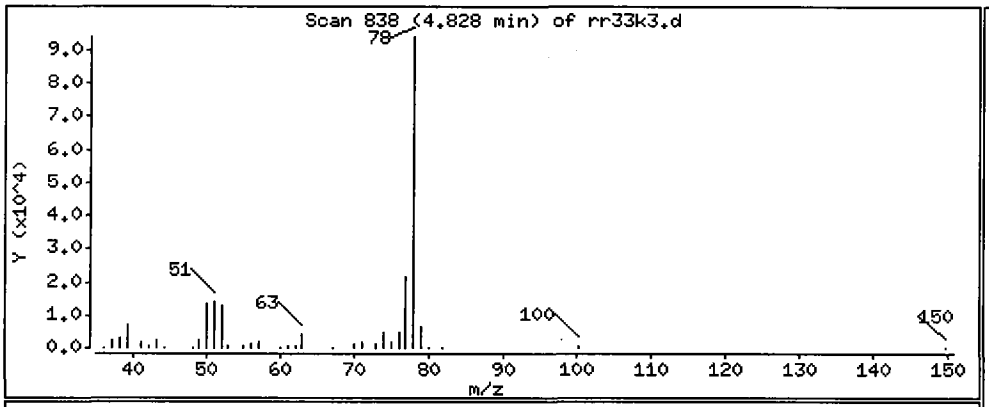
Operator: PB

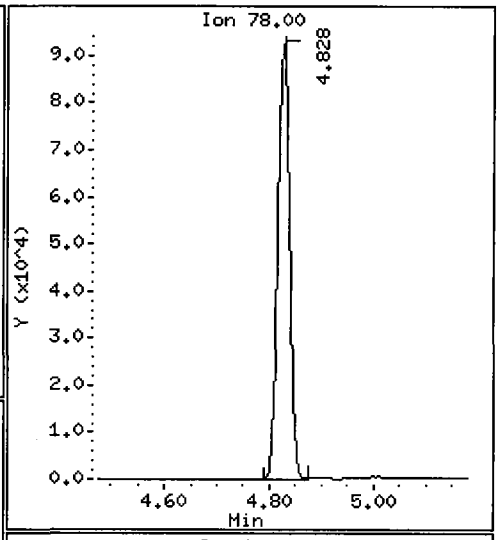
Column phase: RTX502.2

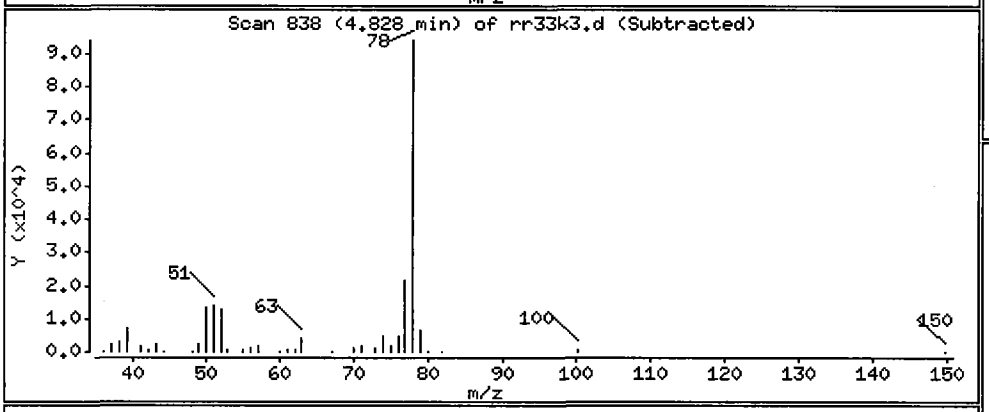
Column diameter: 0.18

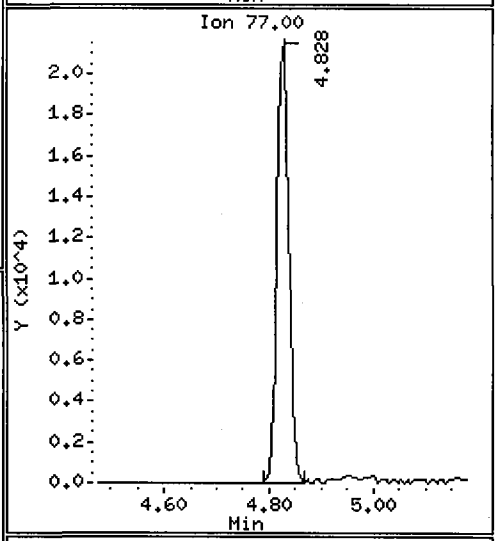
30 Benzene

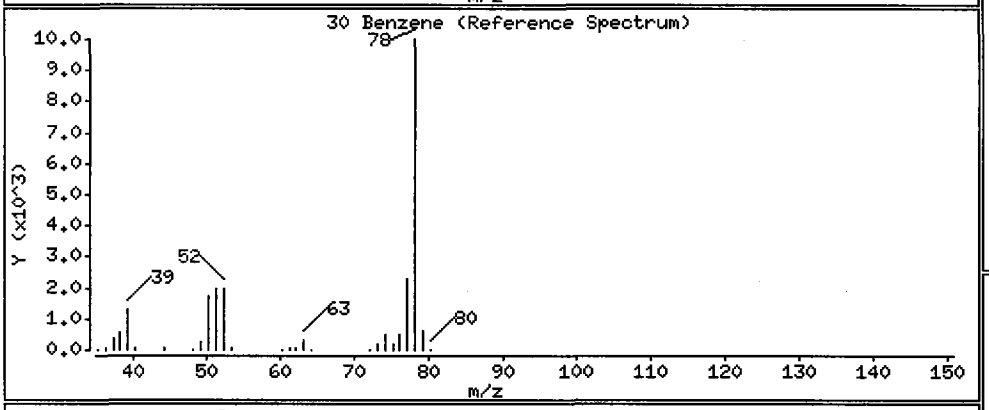
Concentration: 0.9444 ug/Kg

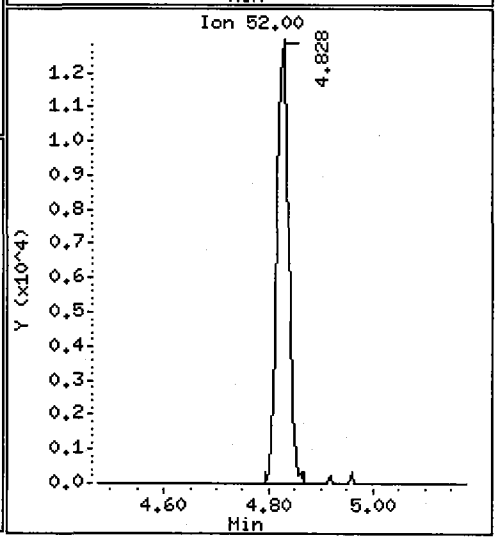


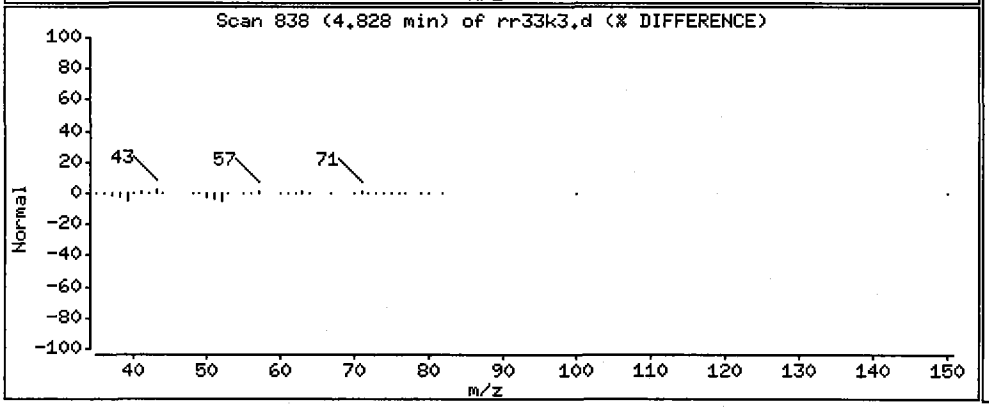












Data File: /chem1/nt9.i/22OCT10.b/gasco.b/rr33k3.d

Date : 22-OCT-2010 18:18

Client ID: DGS-07-9.710-101012

Instrument: nt9.i

Sample Info: RR33K,5,5.00,1,100UL 5.00G/5ML

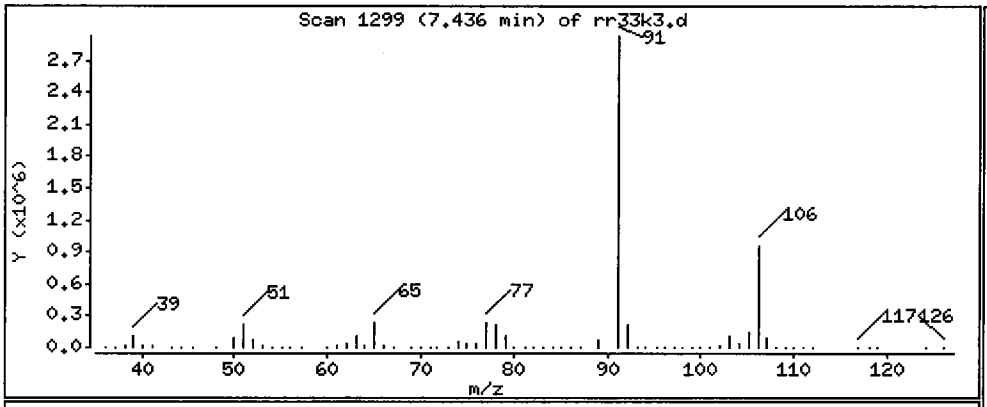
Operator: PB

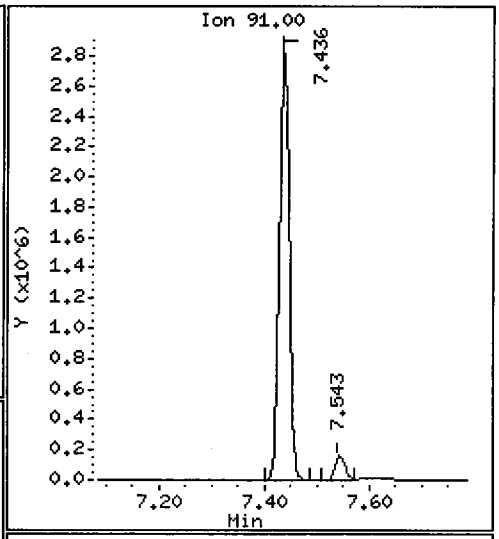
Column phase: RTX502.2

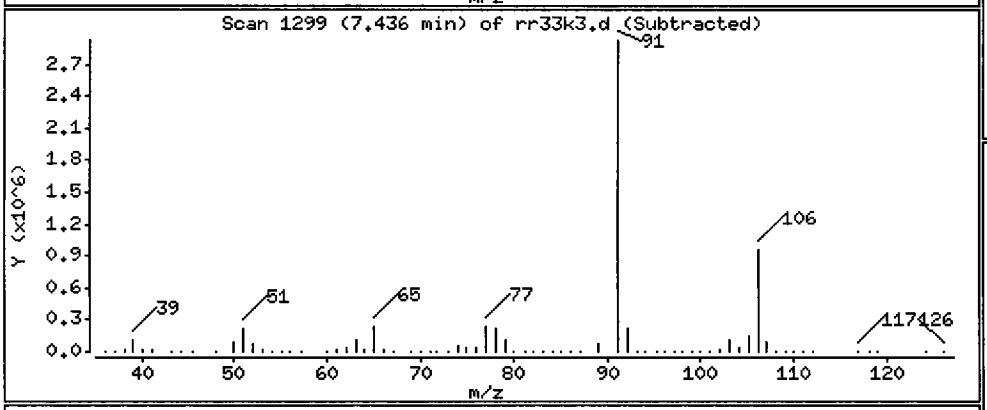
Column diameter: 0.18

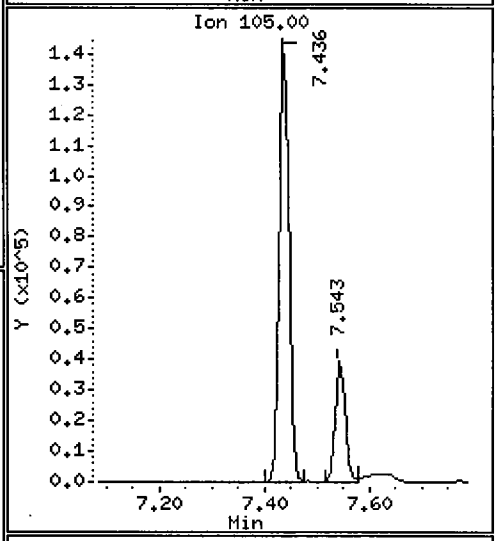
54 Ethyl Benzene

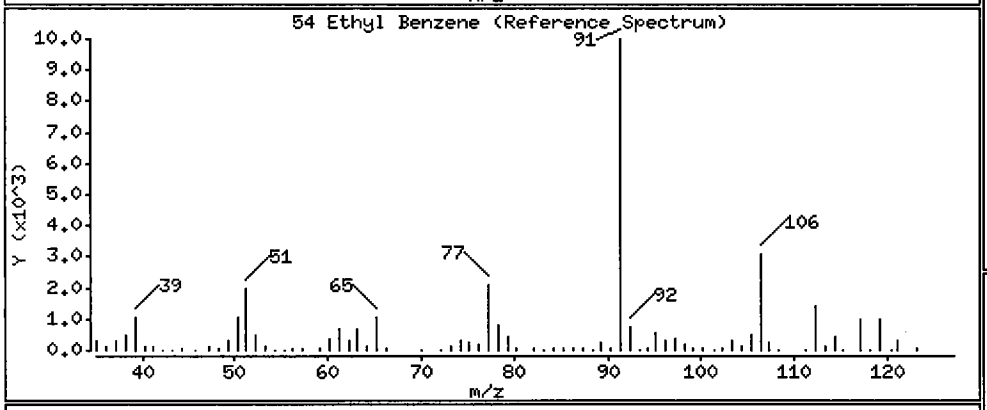
Concentration: 17.171 ug/Kg

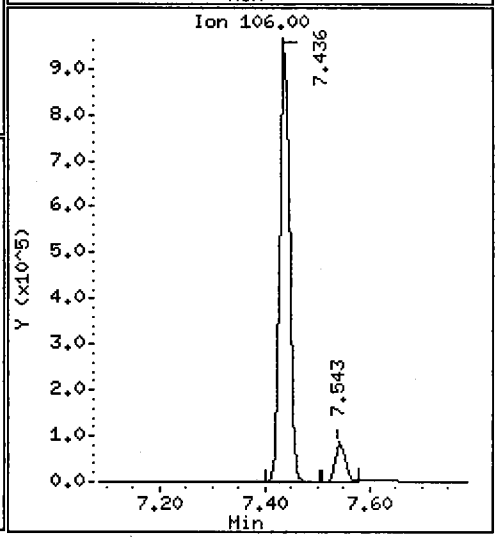


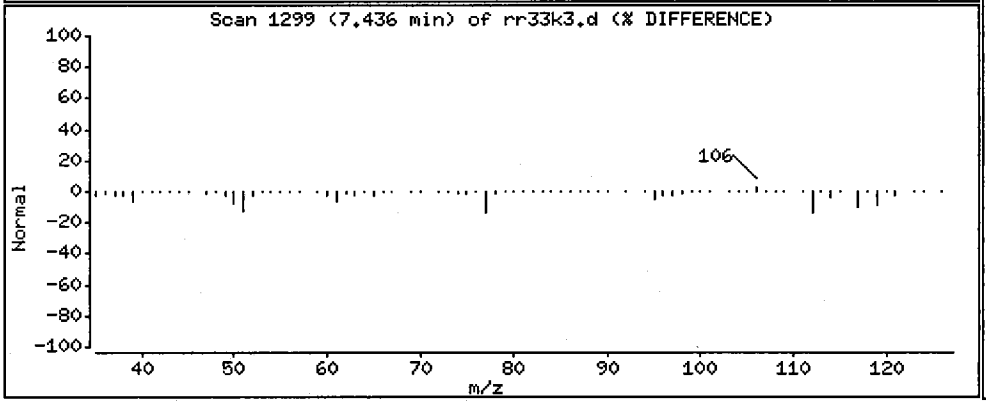












Data File: /chem1/nt9.i/22OCT10.b/gasco.b/rr33k3.d

Date : 22-OCT-2010 18:18

Client ID: DGS-07-9.710-101012

Instrument: nt9.i

Sample Info: RR33K,5,5.00,1,100UL 5.00G/5ML

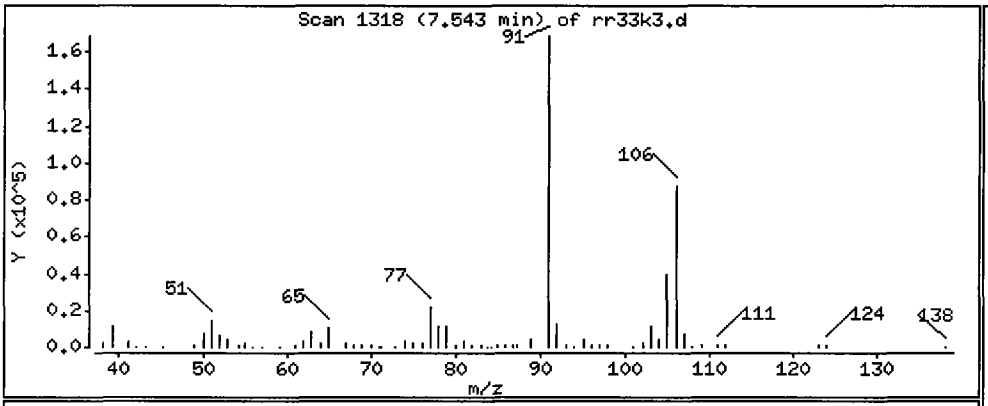
Operator: PB

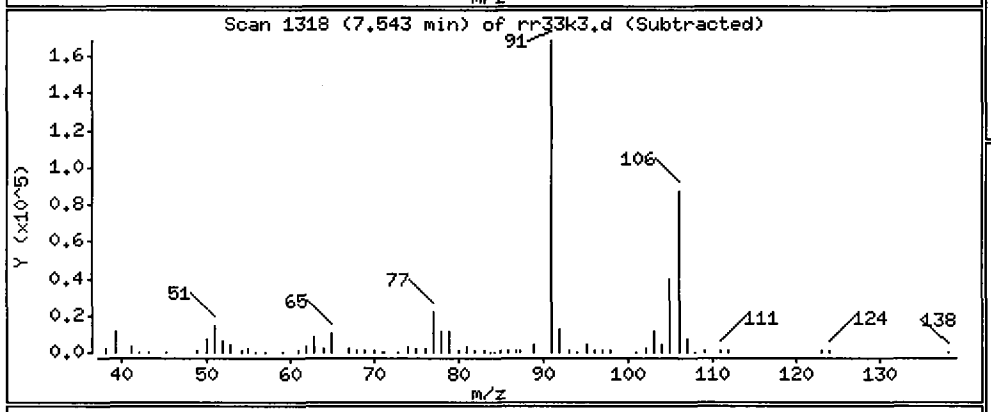
Column phase: RTX502.2

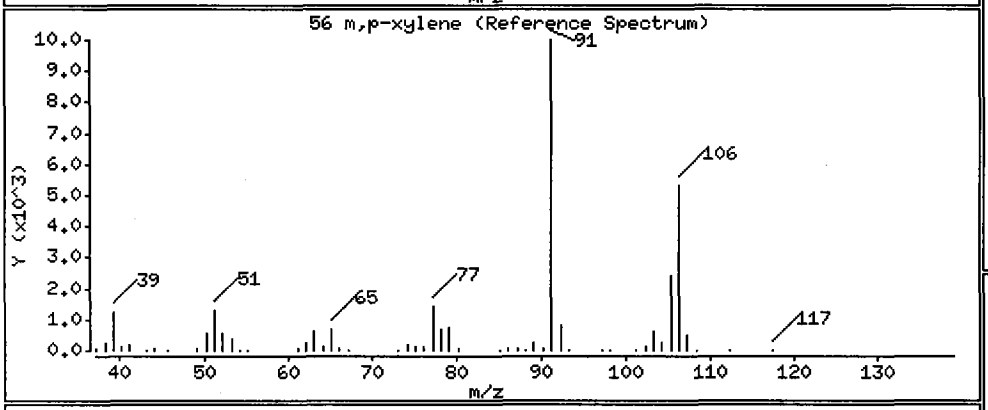
Column diameter: 0.18

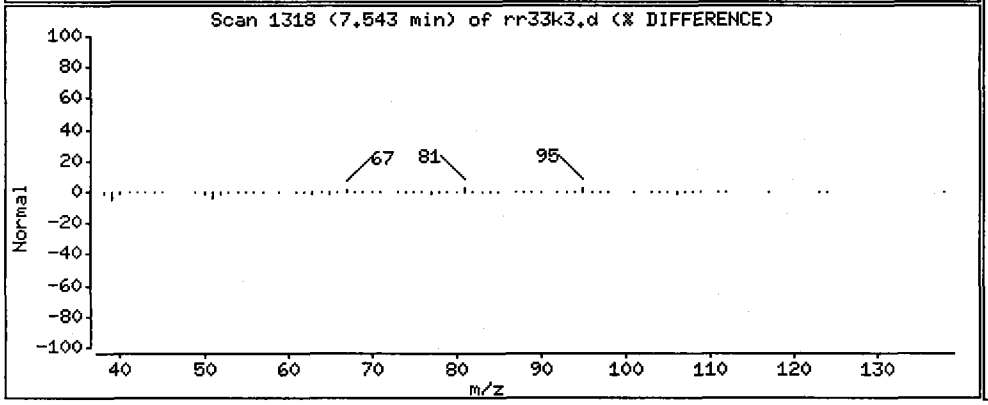
56 m,p-xylene

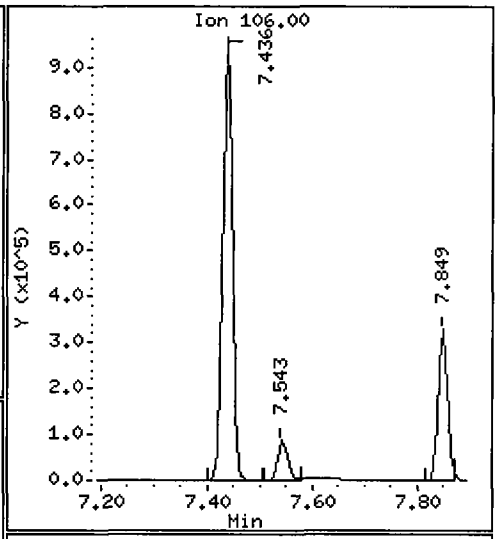
Concentration: 1.329 ug/Kg

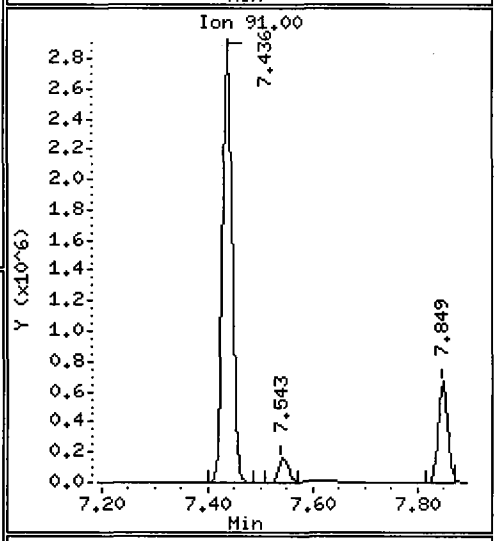


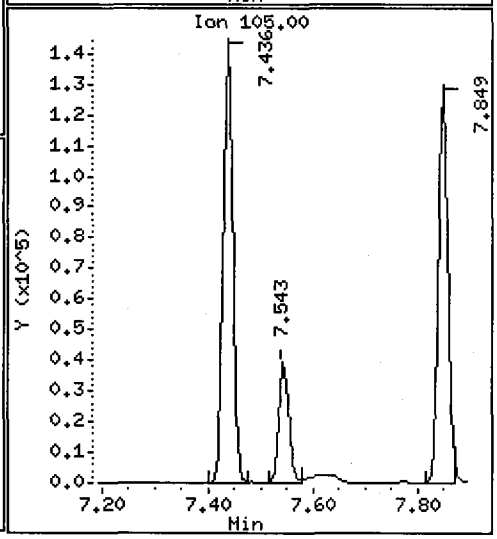












Data File: /chem1/nt9.i/22OCT10.b/gasco.b/rr33k3.d

Date : 22-OCT-2010 18:18

Client ID: DGS-07-9.710-101012

Instrument: nt9.i

Sample Info: RR33K,5,5.00,1,100UL 5.00G/5ML

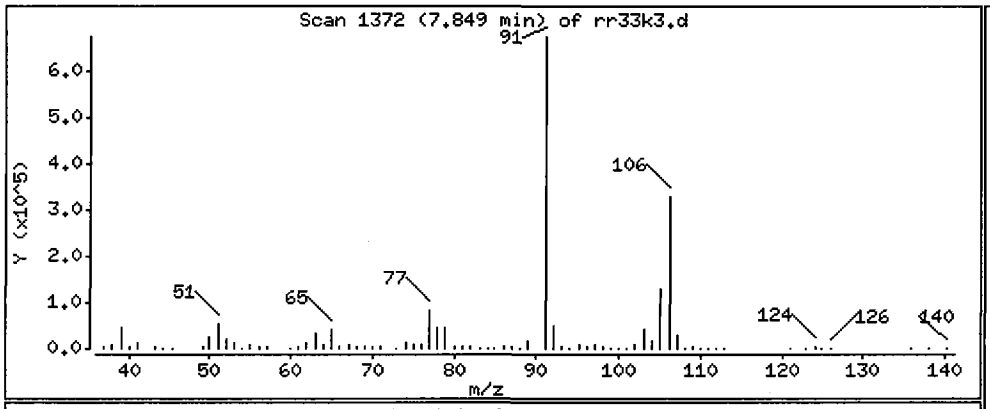
Operator: PB

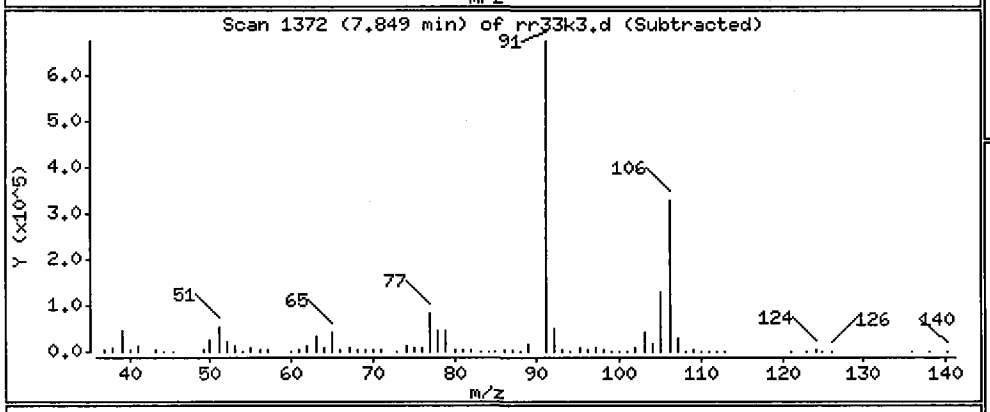
Column phase: RTX502.2

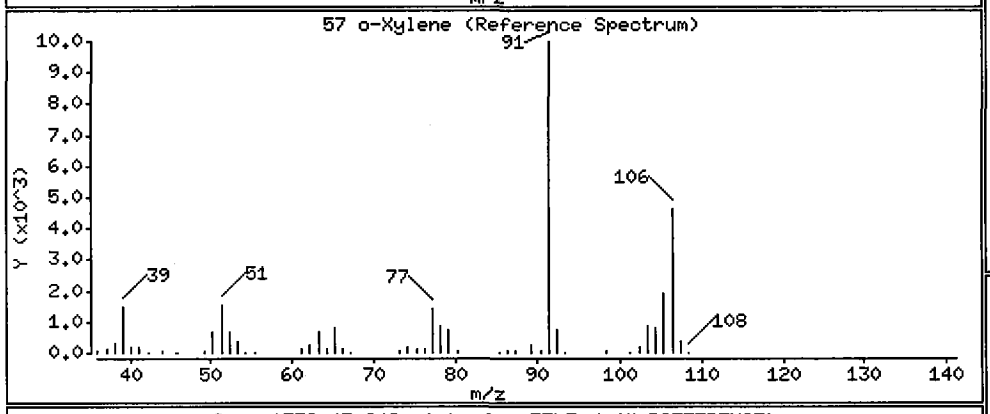
Column diameter: 0.18

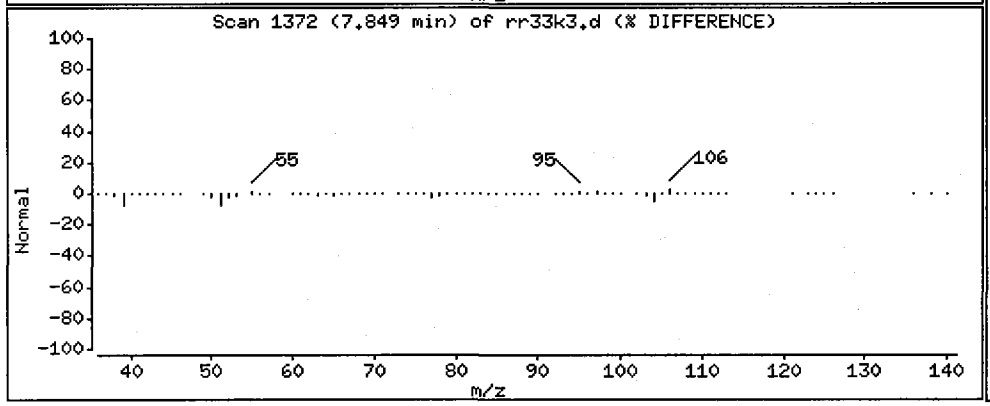
57 o-Xylene

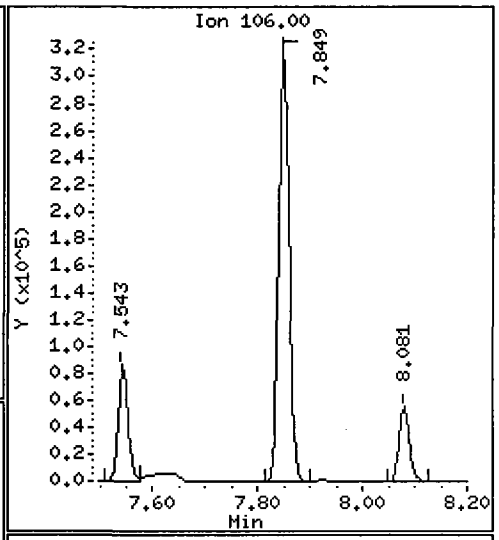
Concentration: 5.513 ug/Kg

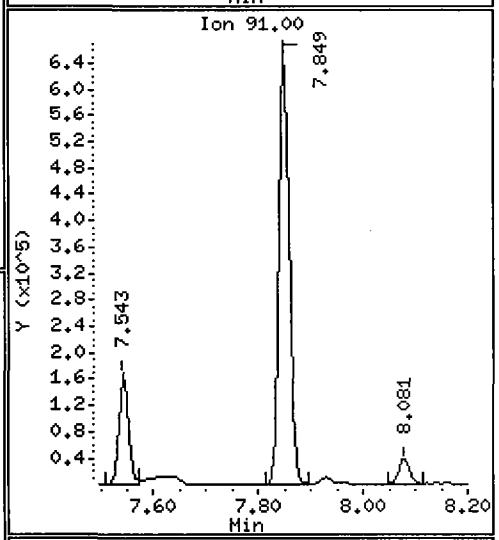


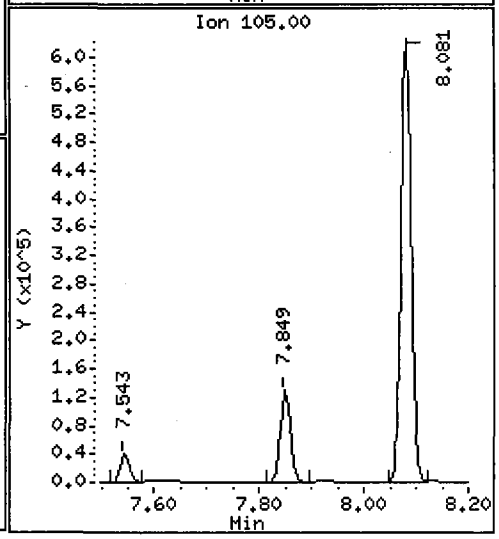












Analytical Resources, Inc.

8260C

Data file : /chem1/nt9.i/22OCT10.b/gasco.b/rr33l3.d
Lab Smp Id: RR33L Client Smp ID: DGS-07-10.610.9-101
Inj Date : 22-OCT-2010 18:48
Operator : PB Inst ID: nt9.i
Smp Info : RR33L,5,5.93,1,100UL 5.93G/5ML
Misc Info : 10-26430
Comment :
Method : /chem1/nt9.i/22OCT10.b/gasco.b/VO063010S.m
Meth Date : 27-Oct-2010 11:22 patrickb Quant Type: ISTD
Cal Date : 28-AUG-2010 13:21 Cal File: 2000828.d
Als bottle: 1
Dil Factor: 1.00000
Integrator: HP RTE Compound Sublist: gasco.sub
Target Version: 3.50
Processing Host: cserv3

10/27/10

d1

Concentration Formula: Amt * DF * Uf * 1/(Ws * (100 - M)/100) * CpndVariable

M	0.00000	% Moisture (not decanted)
Uf	1.00000	ng unit correction factor
Ws	5.00000	Weight of sample extracted (g)

Cpnd Variable Local Compound Variable

Compounds	QUANT SIG MASS	RT	EXP RT	REL RT	RESPONSE	CONCENTRATIONS ON-COLUMN (ug/Kg)	FINAL (ug/Kg)
3 Vinyl Chloride	62	Compound Not Detected.					
7 1,1-Dichloroethene	96	Compound Not Detected.					
15 Trans-1,2-Dichloroethene	96	Compound Not Detected.					
20 Cis-1,2-Dichloroethene	96	Compound Not Detected.					
* 32 Pentafluorobenzene	168	4.933	4.931	(1.000)	836608	50.0000	
$ 25 Dibromofluoromethane	111	4.531	4.530	(0.919)	277495	44.3588	8.872
$ 31 d4-1,2-Dichloroethane	65	4.939	4.937	(1.001)	322282	50.1799	10.036
30 Benzene	78	4.826	4.830	(0.906)	79535	2.65417	0.5308
* 35 1,4-Difluorobenzene	114	5.323	5.322	(1.000)	1114177	50.0000	
34 Trichloroethene	95	Compound Not Detected.					
$ 42 d8-Toluene	98	6.308	6.306	(1.185)	1257138	49.7976	9.960
43 Toluene	92	6.342	6.340	(1.191)	7004	0.32801	0.06578
44 Tetrachloroethene	166	Compound Not Detected.					
* 52 d5-Chlorobenzene	117	7.399	7.398	(1.000)	998261	50.0000	
54 Ethyl Benzene	91	7.439	7.437	(1.005)	1076658	26.3169	5.263
56 m,p-xylene	106	7.546	7.545	(1.020)	37516	2.26735	0.4535
57 o-Xylene	106	7.846	7.850	(1.060)	116797	7.57748	1.515
$ 61 4-Bromofluorobenzene	95	8.282	8.280	(1.119)	481330	52.0596	10.412

Compounds	QUANT SIG MASS	RT	EXP RT	REL RT	RESPONSE	CONCENTRATIONS ON-COLUMN (ug/Kg)	FINAL (ug/Kg)
* 75 d4-1,4-Dichlorobenzene	152	9.119	9.118	(1.000)	572936	50.0000	
$ 78 d4-1,2-Dichlorobenzene	152	9.441	9.446	(1.035)	503350	50.2581	10.052

Analytical Resources, Inc.

INTERNAL STANDARD COMPOUNDS
AREA AND RT SUMMARY

Instrument ID: nt9.i
Lab File ID: rr33l3.d
Lab Smp Id: RR33L
Analysis Type: VOA
Quant Type: ISTD
Operator: PB
Method File: /chem1/nt9.i/22OCT10.b/gasco.b/VO063010S.m
Misc Info: 10-26430

Calibration Date: 22-OCT-2010
Calibration Time: 10:42
Client Smp ID: DGS-07-10.610.9-101
Level: MED
Sample Type: Sediment

Test Mode:
Use Initial Calibration Level 5.
If Continuing Cal. use Initial Cal. Level 5

COMPOUND	STANDARD	AREA LIMIT LOWER	AREA LIMIT UPPER	SAMPLE	%DIFF
32 Pentafluorobenzen	704281	352140	1408562	836608	18.79
35 1,4-Difluorobenze	937745	468872	1875490	1114177	18.81
52 d5-Chlorobenzene	853013	426506	1706026	998261	17.03
75 d4-1,4-Dichlorobe	503655	251828	1007310	572936	13.76

COMPOUND	STANDARD	RT LIMIT LOWER	RT LIMIT UPPER	SAMPLE	%DIFF
32 Pentafluorobenzen	4.93	4.43	5.43	4.93	0.03
35 1,4-Difluorobenze	5.32	4.82	5.82	5.32	0.03
52 d5-Chlorobenzene	7.40	6.90	7.90	7.40	0.02
75 d4-1,4-Dichlorobe	9.12	8.62	9.62	9.12	0.02

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.

Analytical Resources, Inc.

RECOVERY REPORT

Client Name: NW Natural
Sample Matrix: SOLID
Lab Smp Id: RR33L
Level: MED
Data Type: MS DATA
SpikeList File: all.spk
Sublist File: gasco.sub
Method File: /chem1/nt9.i/22OCT10.b/gasco.b/VO063010S.m
Misc Info: 10-26430

Client SDG: RR33
Fraction: VOA
Client Smp ID: DGS-07-10.610.9-101
Operator: PB
SampleType: SAMPLE
Quant Type: ISTD

SURROGATE COMPOUND	AMOUNT ADDED ug/Kg	AMOUNT RECOVERED ug/Kg	% RECOVERED	LIMITS
$ 25 Dibromofluorometha	50.000	44.359	88.72	30-160
$ 31 d4-1,2-Dichloroeth	50.000	50.180	100.36	75-152
$ 42 d8-Toluene	50.000	49.798	99.60	82-115
$ 61 4-Bromofluorobenze	50.000	52.060	104.12	64-120
$ 78 d4-1,2-Dichloroben	50.000	50.258	100.52	80-120

Data File: /chem1/nt9.i/22OCT10.b/gasco.b/rr3313.d

Date : 22-OCT-2010 18:48

Client ID: DGS-07-10.610.9-101

Sample Info: RR33L,5,5.93,1,100UL 5.93G/5ML

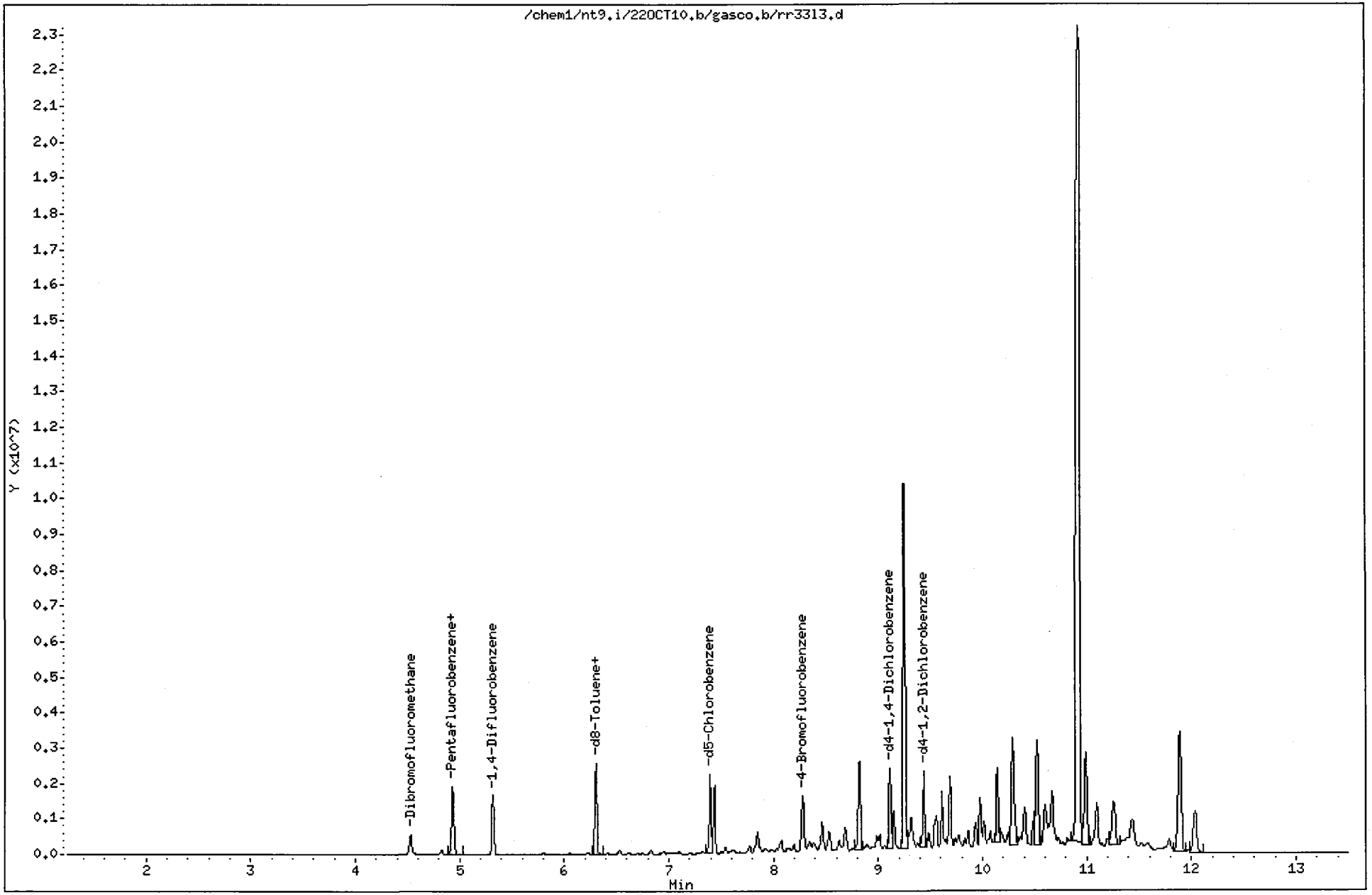
Column phase: RTX502.2

Instrument: nt9.i

Operator: PB

Column diameter: 0.18

RR33-09117



Data File: /chem1/nt9.i/22OCT10.b/gasco.b/rr3313.d

Date : 22-OCT-2010 18:48

Client ID: DGS-07-10.610.9-101

Instrument: nt9.i

Sample Info: RR33L,5,5.93,1,100UL 5.93G/5ML

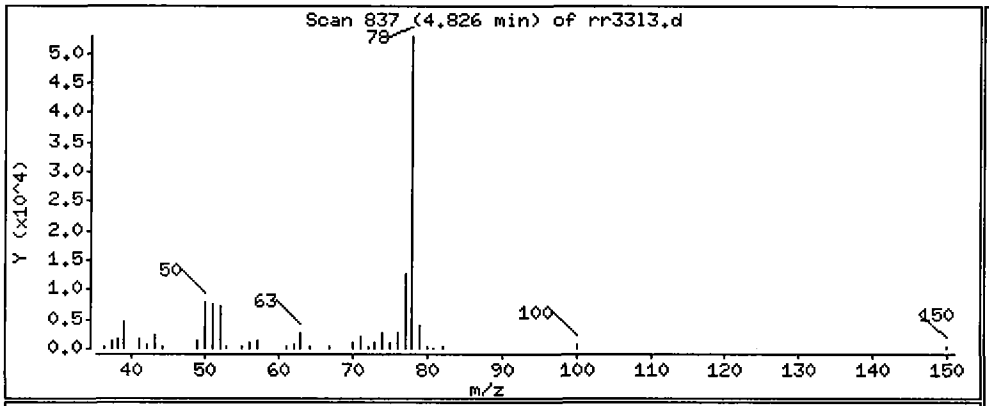
Operator: PB

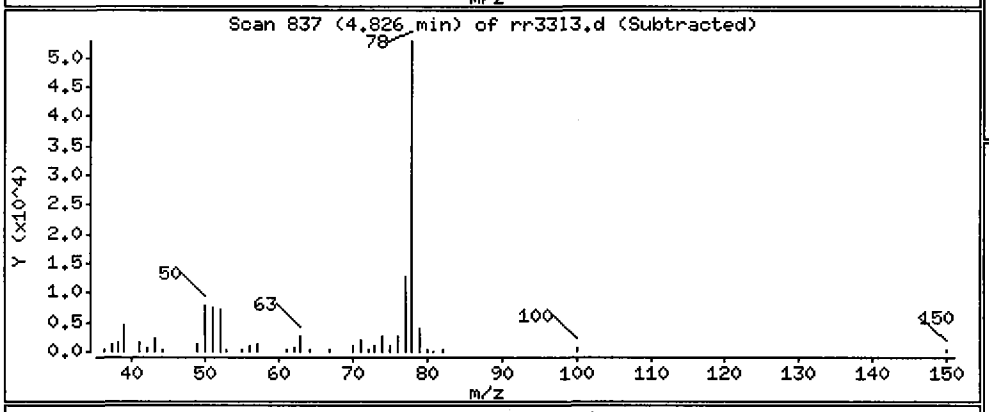
Column phase: RTX502.2

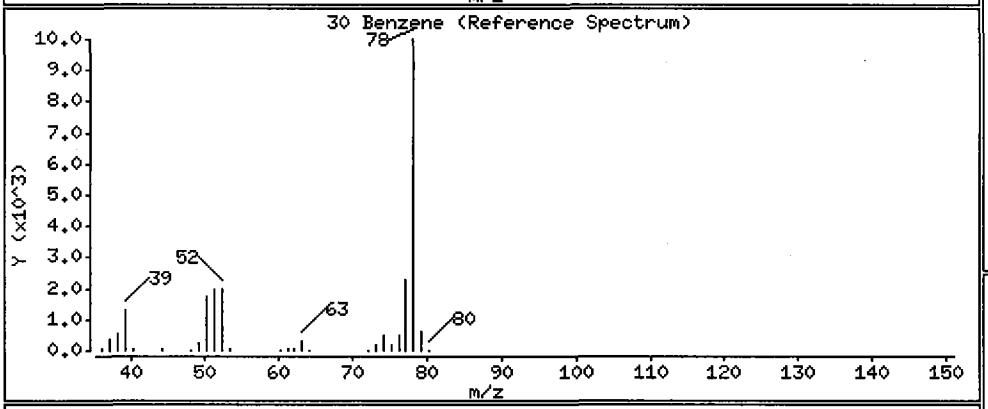
Column diameter: 0.18

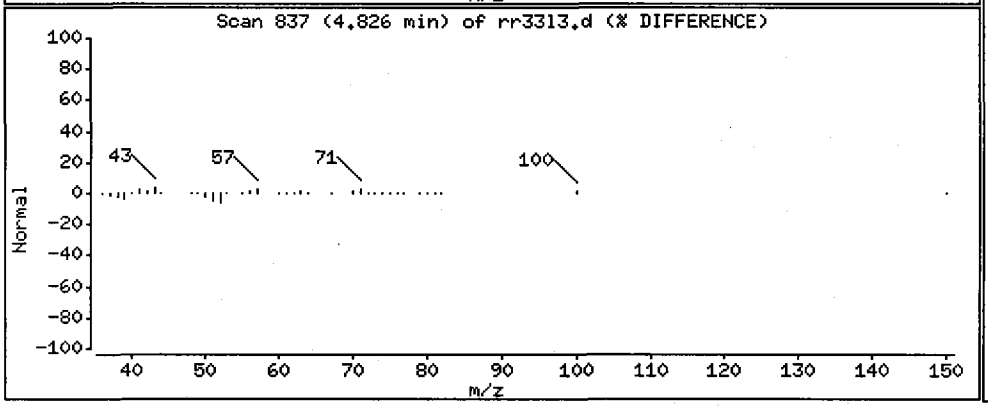
30 Benzene

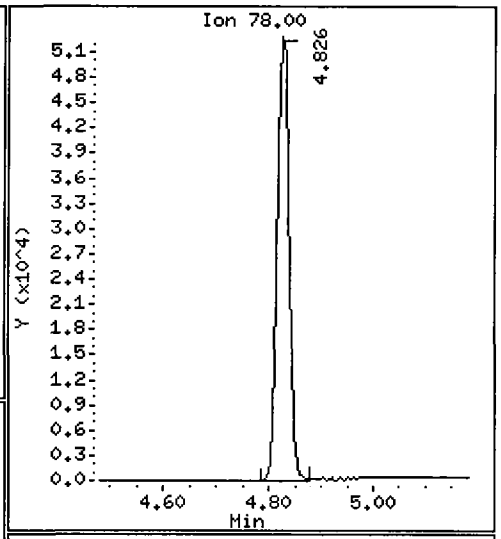
Concentration: 0.5308 ug/Kg

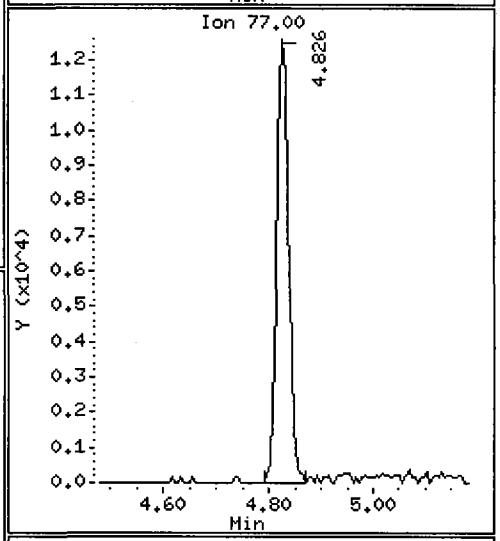


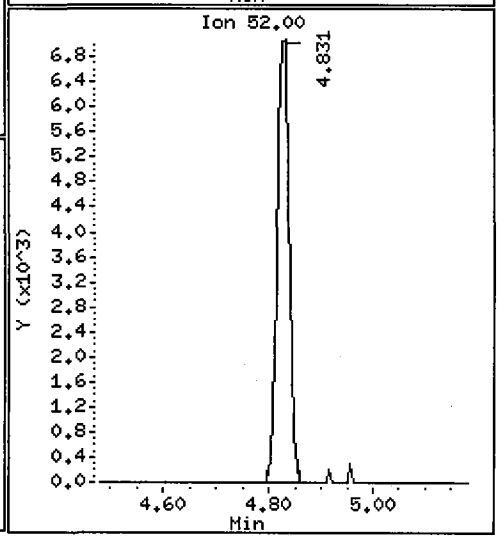












Data File: /chem1/nt9.i/22OCT10.b/gasco.b/rr3313.d

Date : 22-OCT-2010 18:48

Client ID: DGS-07-10.610.9-101

Instrument: nt9.i

Sample Info: RR33L,5,5.93,1,100UL 5.93G/5ML

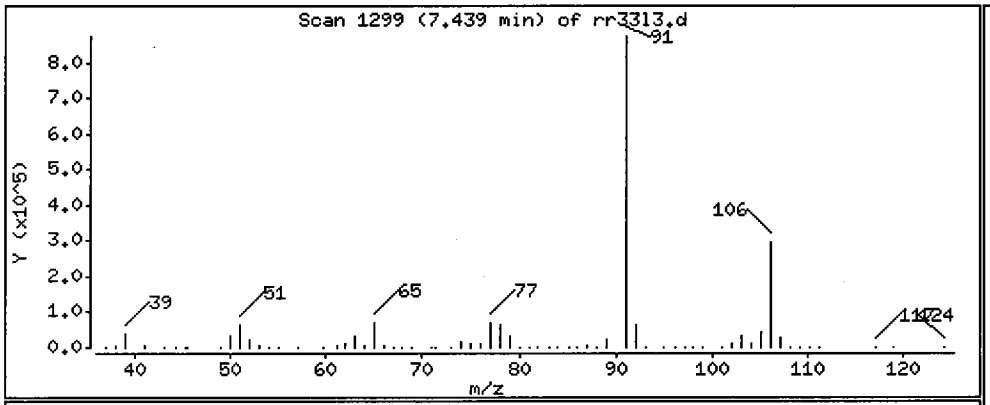
Operator: PB

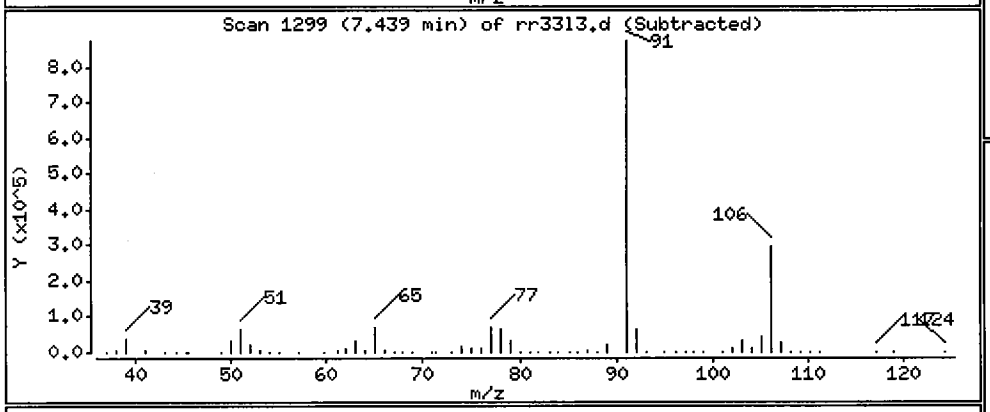
Column phase: RTX502.2

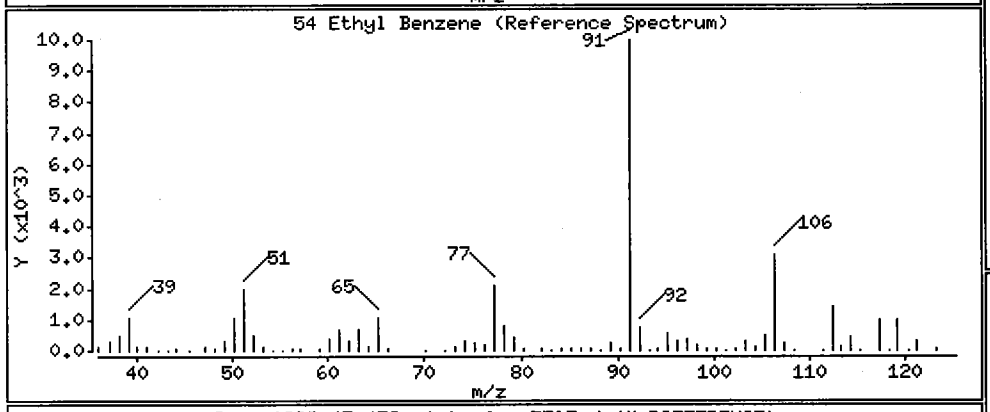
Column diameter: 0.18

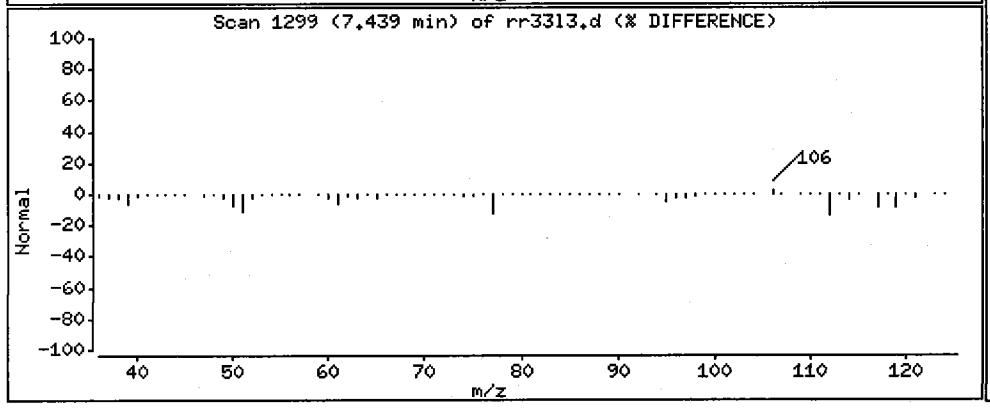
54 Ethyl Benzene

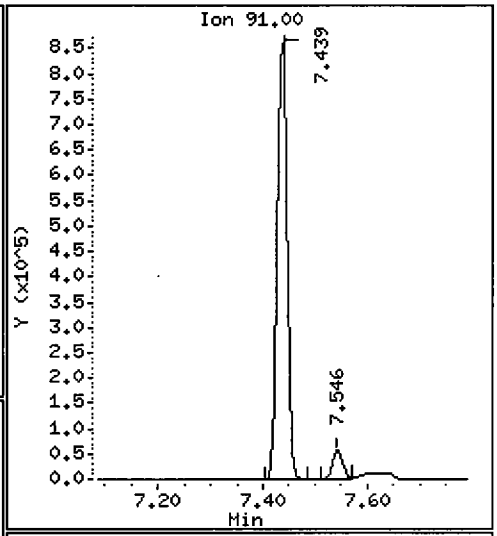
Concentration: 5.263 ug/Kg

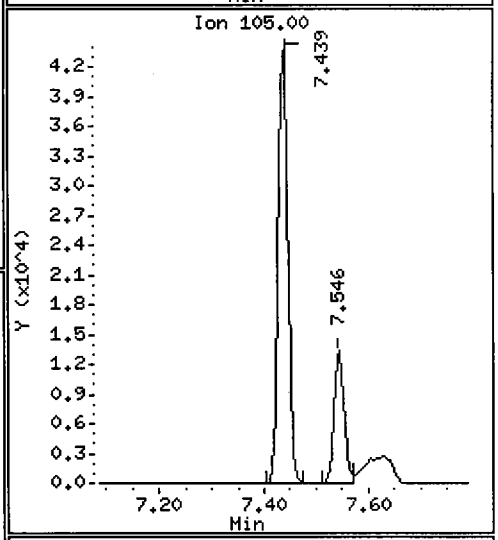


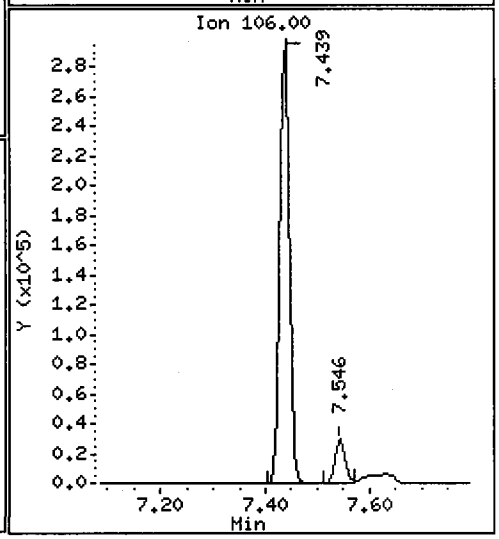












Data File: /chem1/nt9.i/22OCT10.b/gasco.b/rr3313.d

Date : 22-OCT-2010 18:48

Client ID: DGS-07-10.610.9-101

Instrument: nt9.i

Sample Info: RR33L,5,5.93,1,100UL 5.93G/5ML

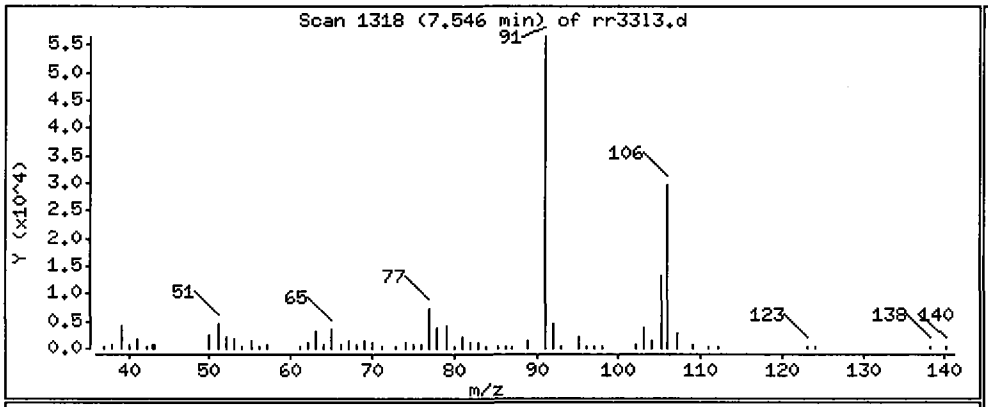
Operator: PB

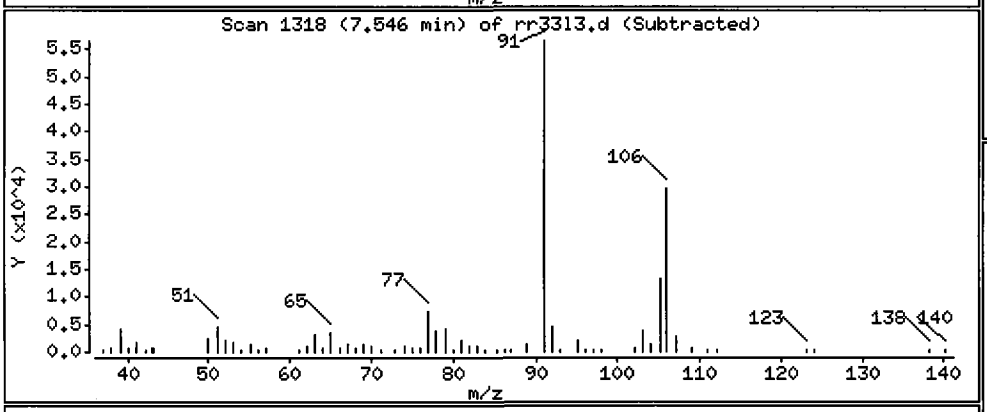
Column phase: RTX502.2

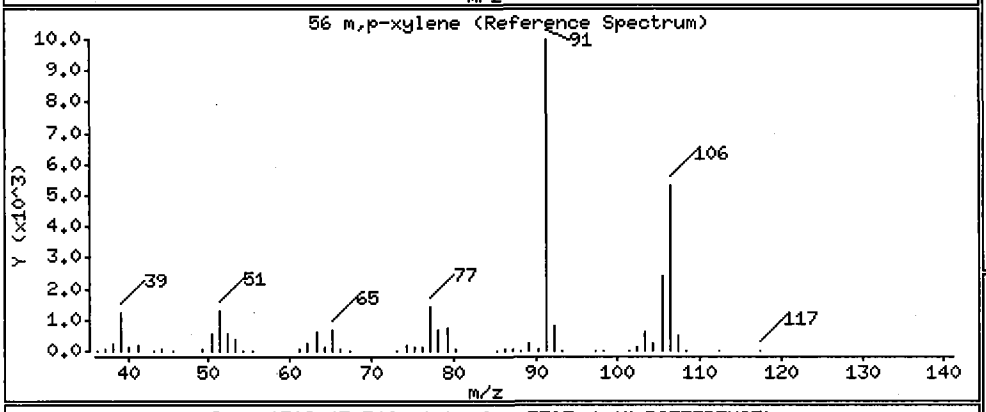
Column diameter: 0.18

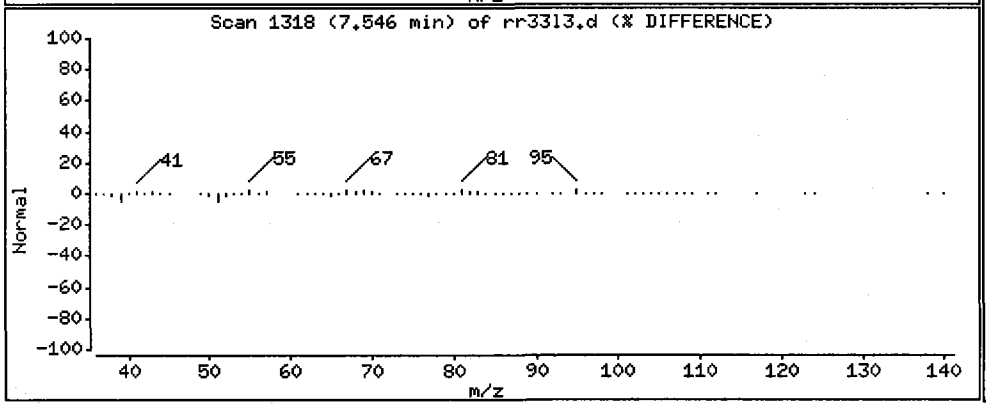
56 m,p-xylene

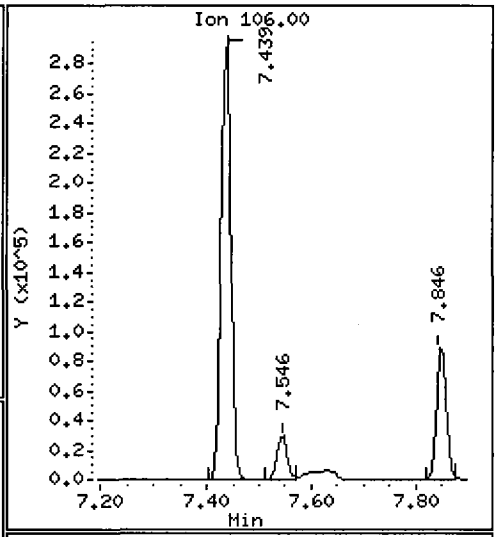
Concentration: 0.4535 ug/Kg

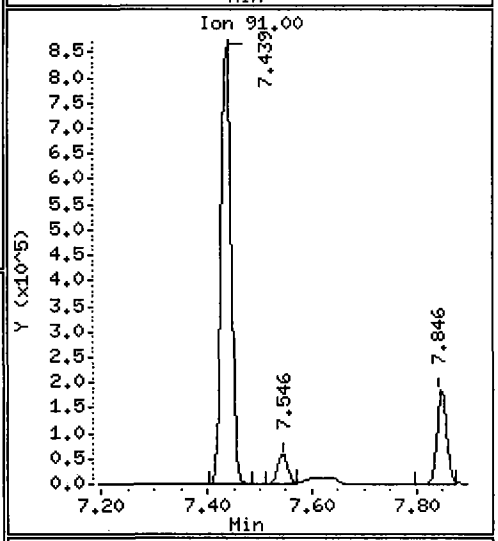


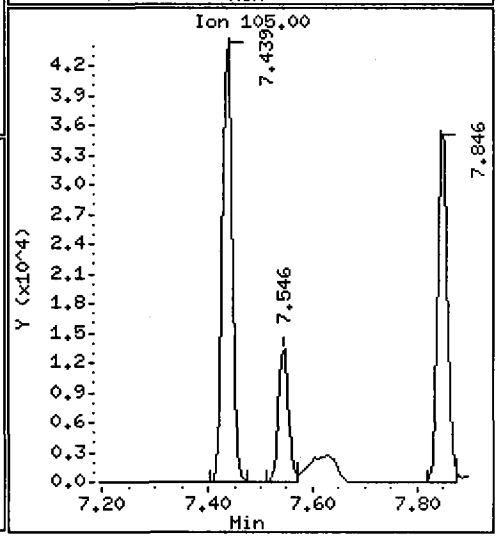












Data File: /chem1/nt9.i/22OCT10.b/gasco.b/rr3313.d

Date : 22-OCT-2010 18:48

Client ID: DGS-07-10.610.9-101

Instrument: nt9.i

Sample Info: RR33L,5,5.93,1,100UL 5.93G/5ML

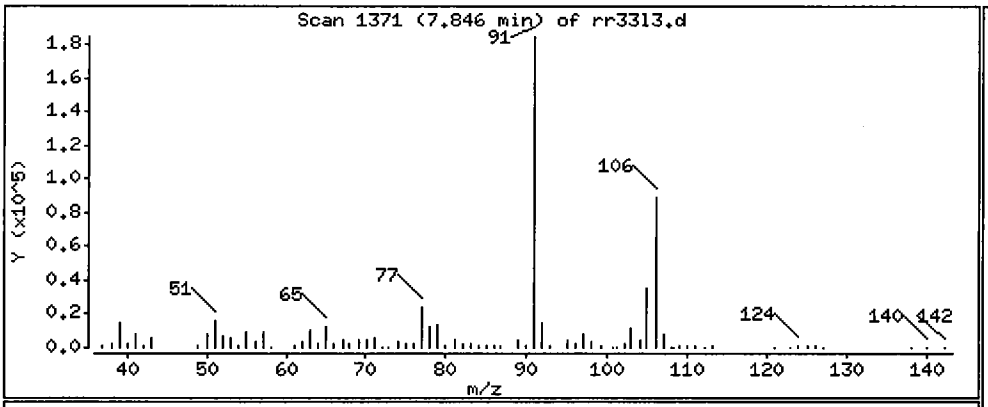
Operator: PB

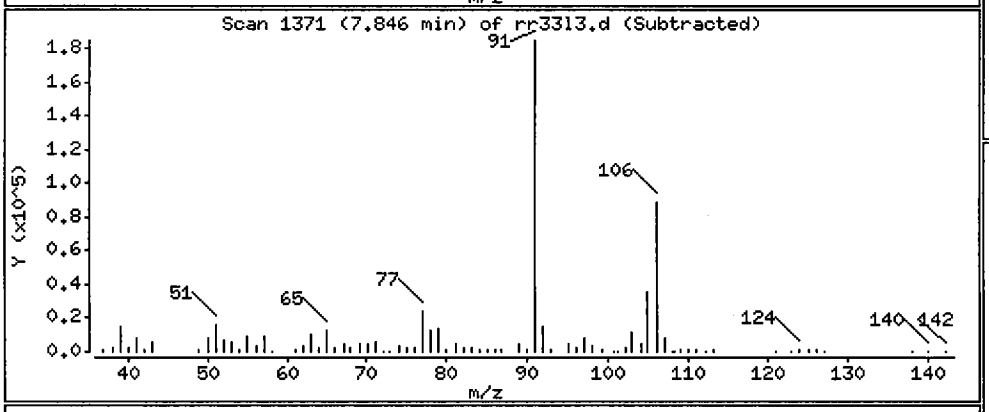
Column phase: RTX502.2

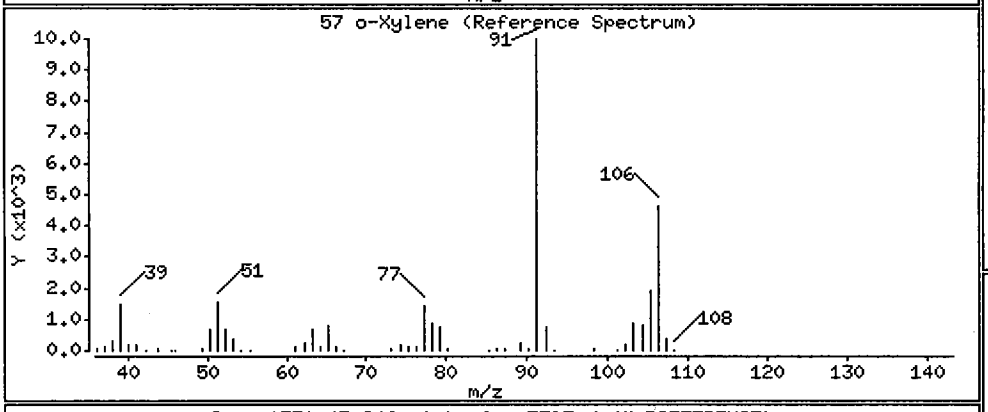
Column diameter: 0.18

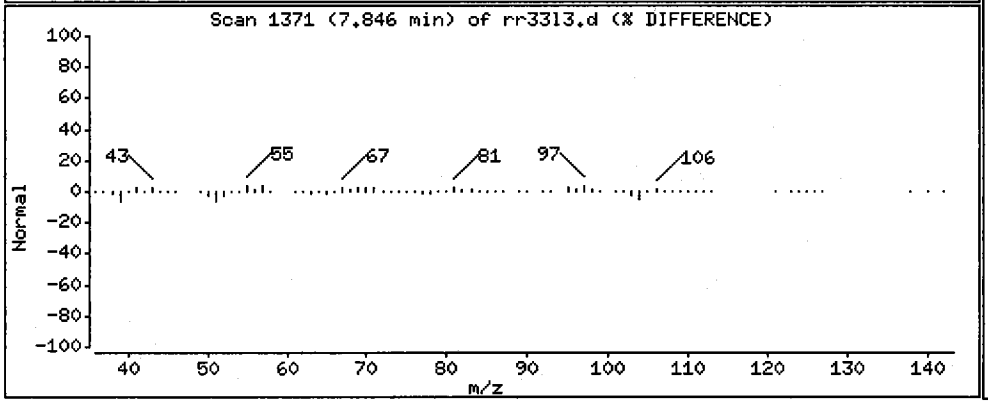
57 o-Xylene

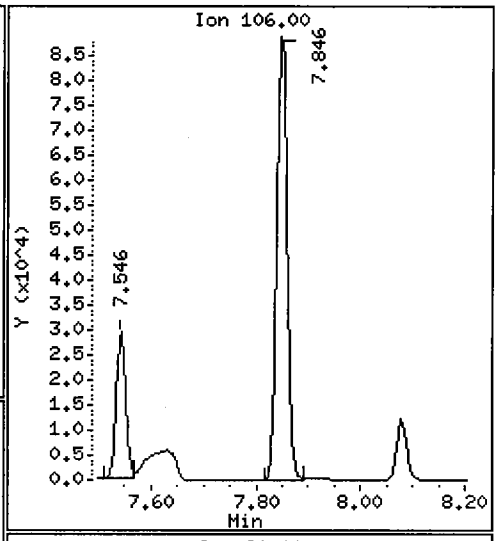
Concentration: 1.515 ug/Kg

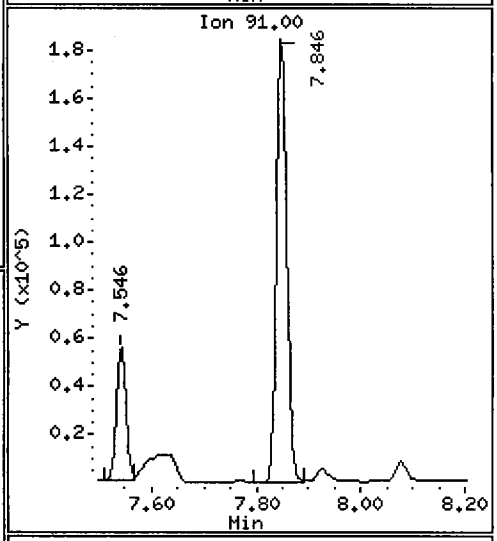


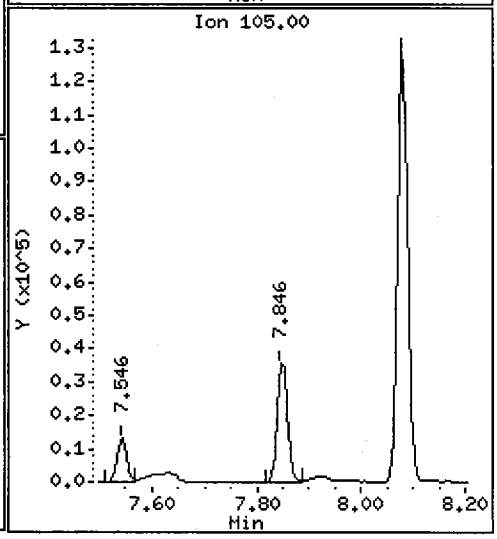












Analytical Resources, Inc.

8260C

Data file : /chem1/nt9.i/22OCT10.b/gasco.b/rr33m3.d
Lab Smp Id: RR33M Client Smp ID: DGS-07-11.611.8-101
Inj Date : 22-OCT-2010 19:19
Operator : PB Inst ID: nt9.i
Smp Info : RR33M,5,5.27,1,100UL 5.270G/5ML
Misc Info : 10-26431
Comment :
Method : /chem1/nt9.i/22OCT10.b/gasco.b/VO063010S.m
Meth Date : 27-Oct-2010 11:22 patrickb Quant Type: ISTD
Cal Date : 28-AUG-2010 13:21 Cal File: 2000828.d
Als bottle: 1
Dil Factor: 1.00000
Integrator: HP RTE Compound Sublist: gasco.sub
Target Version: 3.50
Processing Host: cserv3

10/27/10
d1

Concentration Formula: Amt * DF * Uf * 1/(Ws * (100 - M)/100) * CpndVariable

M	0.00000	% Moisture (not decanted)
Uf	1.00000	ng unit correction factor
Ws	5.00000	Weight of sample extracted (g)

Cpnd Variable Local Compound Variable

Compounds	QUANT SIG MASS	RT	EXP RT	REL RT	RESPONSE	CONCENTRATIONS ON-COLUMN (ug/Kg)	FINAL (ug/Kg)
3 Vinyl Chloride	62	Compound Not Detected.					
7 1,1-Dichloroethene	96	Compound Not Detected.					
15 Trans-1,2-Dichloroethene	96	Compound Not Detected.					
20 Cis-1,2-Dichloroethene	96	Compound Not Detected.					
* 32 Pentafluorobenzene	168	4.933	4.931	(1.000)	813286	50.0000	
$ 25 Dibromofluoromethane	111	4.532	4.530	(0.919)	265812	43.7097	8.742
$ 31 d4-1,2-Dichloroethane	65	4.939	4.937	(1.001)	316376	50.6729	10.135
30 Benzene	78	4.826	4.830	(0.907)	161539	5.55056	1.110
* 35 1,4-Difluorobenzene	114	5.318	5.322	(1.000)	1082097	50.0000	
34 Trichloroethene	95	Compound Not Detected.					
$ 42 d8-Toluene	98	6.308	6.306	(1.186)	1217549	49.6592	9.932
43 Toluene	92	6.342	6.340	(1.193)	12963	0.62679	0.1254
44 Tetrachloroethene	166	Compound Not Detected.					
* 52 d5-Chlorobenzene	117	7.400	7.398	(1.000)	970949	50.0000	
54 Ethyl Benzene	91	7.439	7.437	(1.005)	1067024	26.8151	5.363
56 m,p-xylene	106	7.547	7.545	(1.020)	65267	4.05549	0.8111
57 o-Xylene	106	7.846	7.850	(1.060)	224050	14.9447	2.989
$ 61 4-Bromofluorobenzene	95	8.282	8.280	(1.119)	479647	53.3369	10.667

Compounds	QUANT SIG MASS	RT	EXP RT	REL RT	RESPONSE	CONCENTRATIONS ON-COLUMN (ug/Kg)	FINAL (ug/Kg)
* 75 d4-1,4-Dichlorobenzene	152	9.119	9.118	(1.000)	550403	50.0000	
$ 78 d4-1,2-Dichlorobenzene	152	9.442	9.446	(1.035)	485938	50.5060	10.101

Analytical Resources, Inc.

INTERNAL STANDARD COMPOUNDS
AREA AND RT SUMMARY

Instrument ID: nt9.i
Lab File ID: rr33m3.d
Lab Smp Id: RR33M
Analysis Type: VOA
Quant Type: ISTD
Operator: PB
Method File: /chem1/nt9.i/22OCT10.b/gasco.b/VO063010S.m
Misc Info: 10-26431

Calibration Date: 22-OCT-2010
Calibration Time: 10:42
Client Smp ID: DGS-07-11.611.8-101
Level: MED
Sample Type: Sediment

Test Mode:
Use Initial Calibration Level 5.
If Continuing Cal. use Initial Cal. Level 5

COMPOUND	STANDARD	AREA LIMIT LOWER	AREA LIMIT UPPER	SAMPLE	%DIFF
32 Pentafluorobenzen	704281	352140	1408562	813286	15.48
35 1,4-Difluorobenze	937745	468872	1875490	1082097	15.39
52 d5-Chlorobenzene	853013	426506	1706026	970949	13.83
75 d4-1,4-Dichlorobe	503655	251828	1007310	550403	9.28

COMPOUND	STANDARD	RT LIMIT LOWER	RT LIMIT UPPER	SAMPLE	%DIFF
32 Pentafluorobenzen	4.93	4.43	5.43	4.93	0.04
35 1,4-Difluorobenze	5.32	4.82	5.82	5.32	-0.07
52 d5-Chlorobenzene	7.40	6.90	7.90	7.40	0.02
75 d4-1,4-Dichlorobe	9.12	8.62	9.62	9.12	0.02

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.

Analytical Resources, Inc.

RECOVERY REPORT

Client Name: NW Natural
Sample Matrix: SOLID
Lab Smp Id: RR33M
Level: MED
Data Type: MS DATA
SpikeList File: all.spk
Sublist File: gasco.sub
Method File: /chem1/nt9.i/22OCT10.b/gasco.b/VO063010S.m
Misc Info: 10-26431

Client SDG: RR33
Fraction: VOA
Client Smp ID: DGS-07-11.611.8-101
Operator: PB
SampleType: SAMPLE
Quant Type: ISTD

SURROGATE COMPOUND	AMOUNT ADDED ug/Kg	AMOUNT RECOVERED ug/Kg	% RECOVERED	LIMITS
$ 25 Dibromofluorometha	50.000	43.710	87.42	30-160
$ 31 d4-1,2-Dichloroeth	50.000	50.673	101.35	75-152
$ 42 d8-Toluene	50.000	49.659	99.32	82-115
$ 61 4-Bromofluorobenze	50.000	53.337	106.67	64-120
$ 78 d4-1,2-Dichloroben	50.000	50.506	101.01	80-120

Data File: /chem1/nt9.i/22OCT10.b/gasco.b/rr33m3.d

Date : 22-OCT-2010 19:19

Client ID: DGS-07-11.611.8-101

Sample Info: RR33M,5,5.27,1,100UL 5.270G/5ML

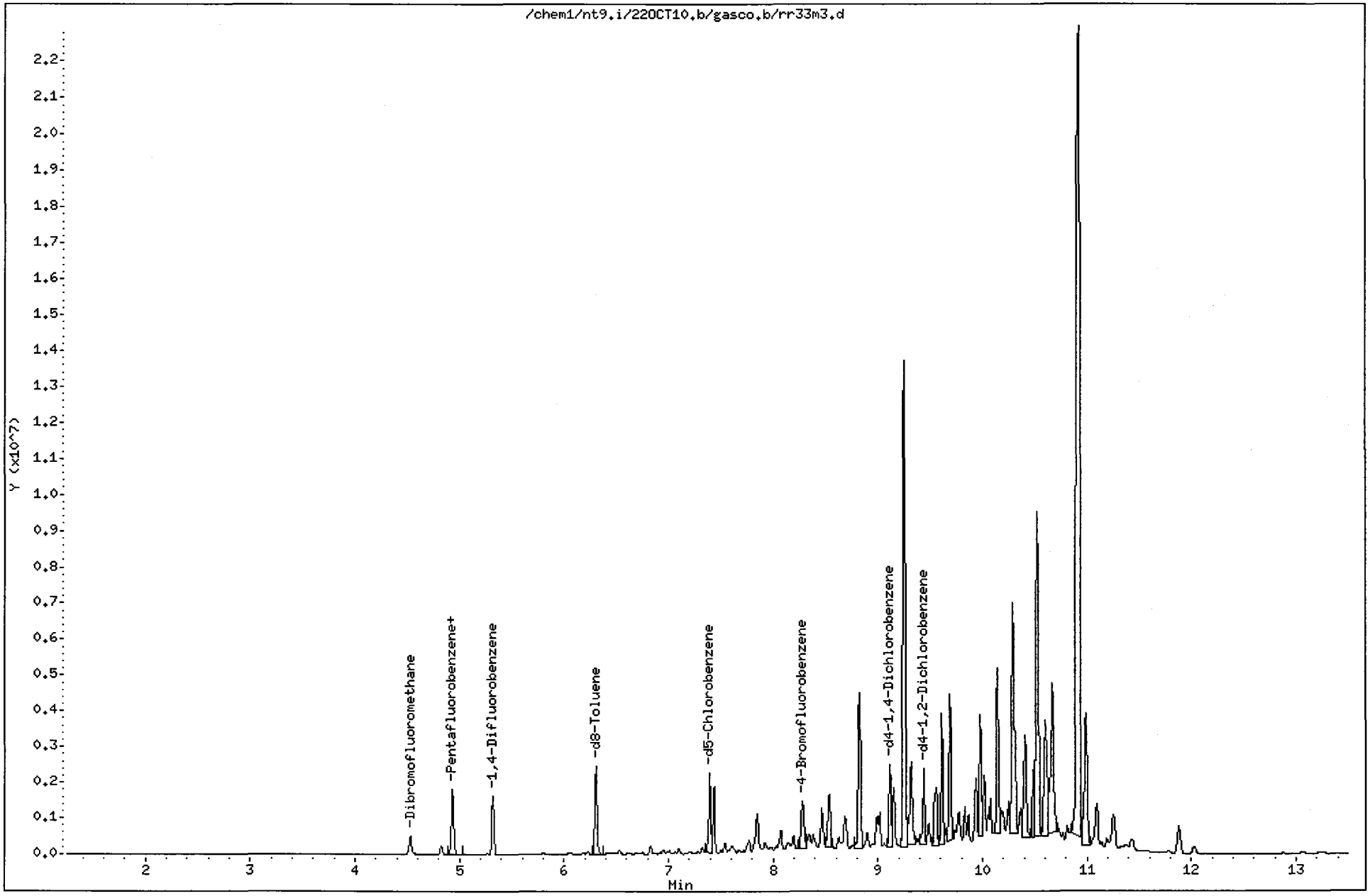
Column phase: RTX502.2

Instrument: nt9.i

Operator: PB

Column diameter: 0.18

RR33-09426



Data File: /chem1/nt9.i/22OCT10.b/gasco.b/rr33m3.d

Date : 22-OCT-2010 19:19

Client ID: DGS-07-11.611.8-101

Instrument: nt9.i

Sample Info: RR33M,5,5.27,1,100UL 5.270G/5ML

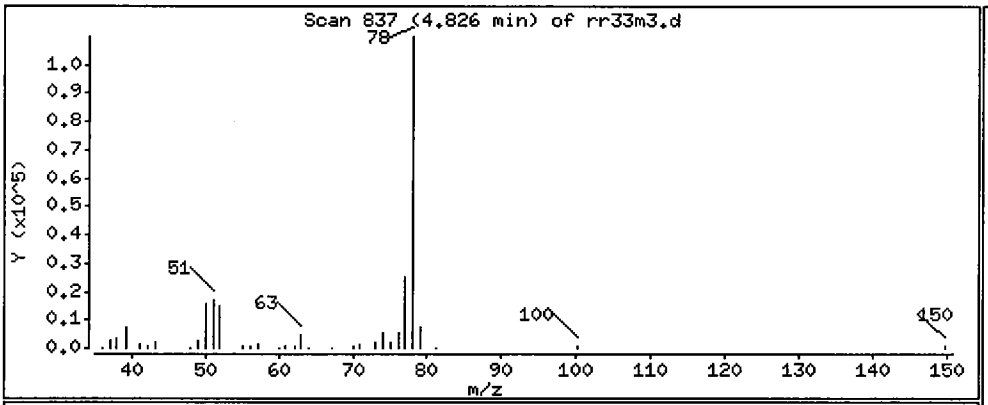
Operator: PB

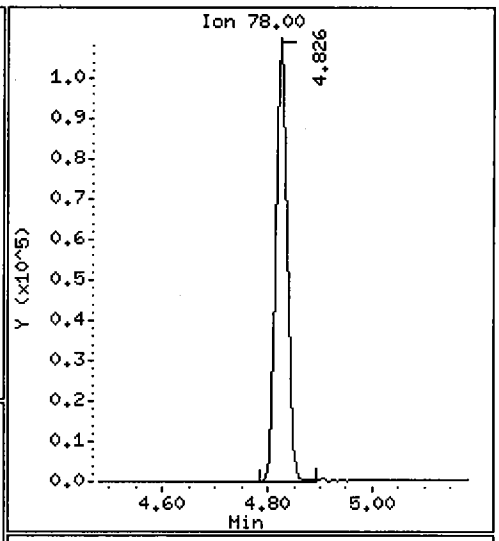
Column phase: RTX502.2

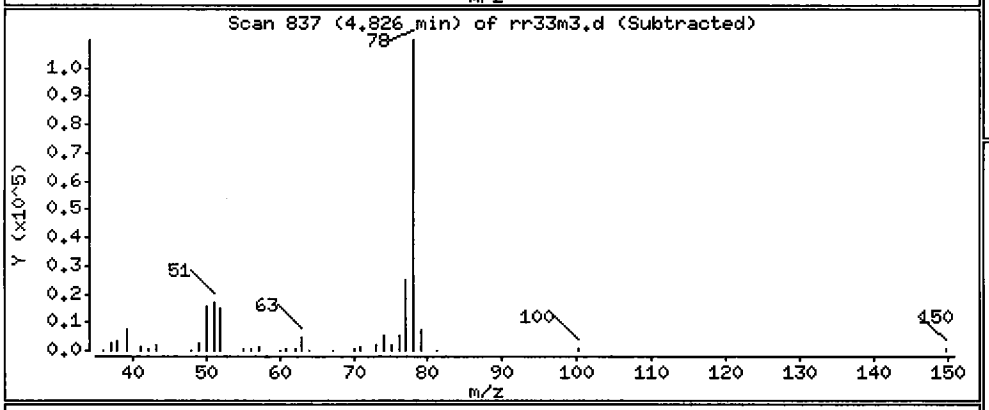
Column diameter: 0.18

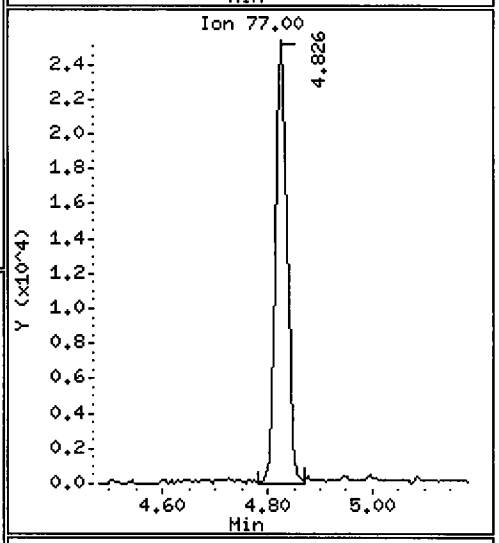
30 Benzene

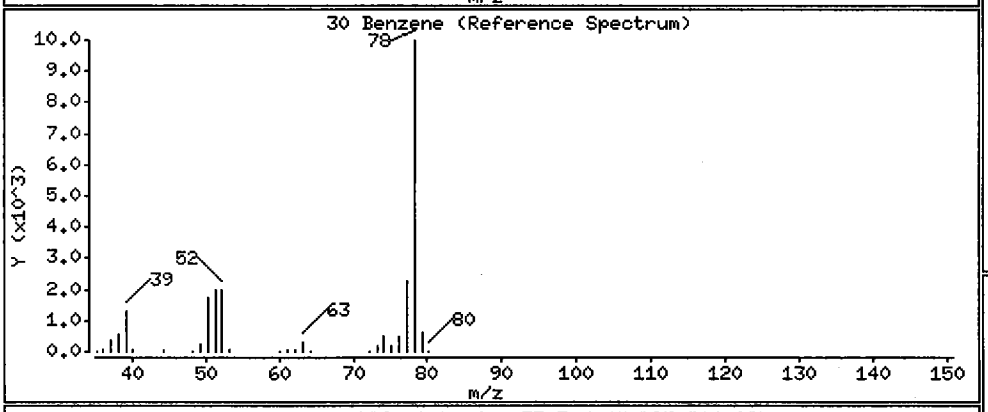
Concentration: 1.110 ug/Kg

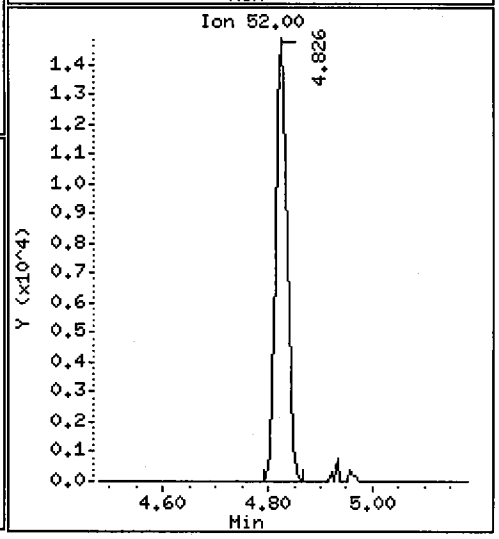


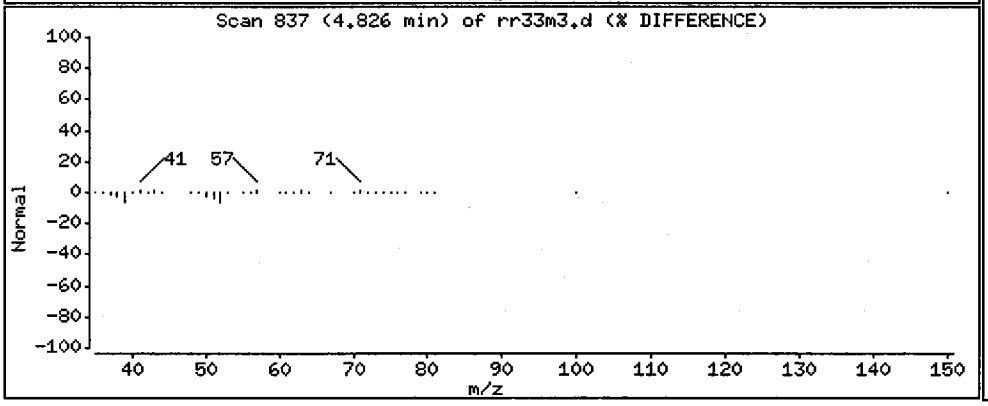












Data File: /chem1/nt9.i/22OCT10.b/gasco.b/rr33m3.d

Date : 22-OCT-2010 19:19

Client ID: DGS-07-11.611.8-101

Instrument: nt9.i

Sample Info: RR33M,5,5.27,1,100UL 5.270G/5ML

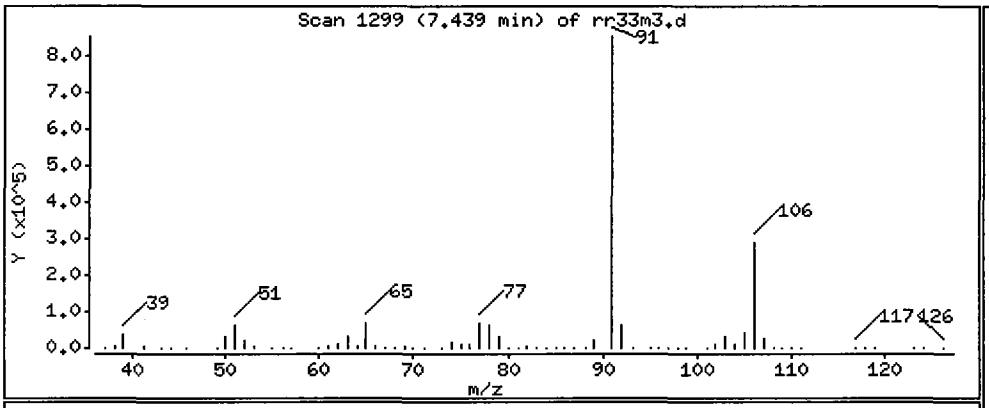
Operator: PB

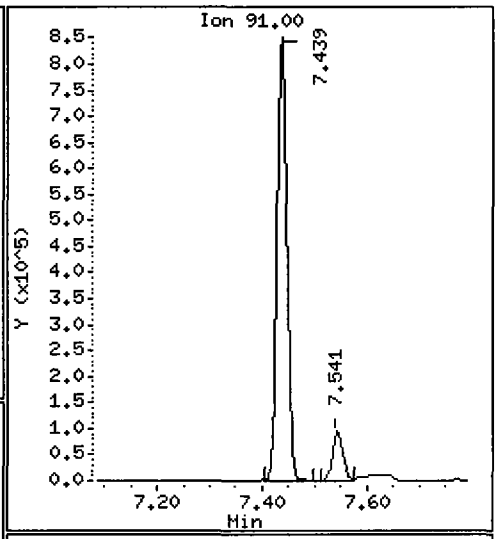
Column phase: RTX502.2

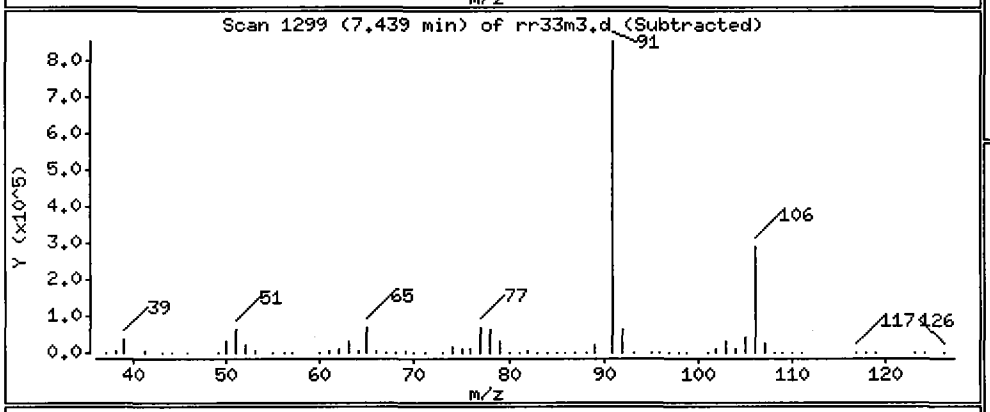
Column diameter: 0.18

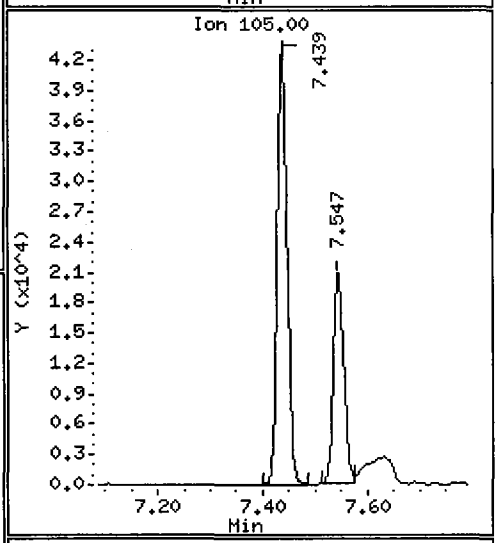
54 Ethyl Benzene

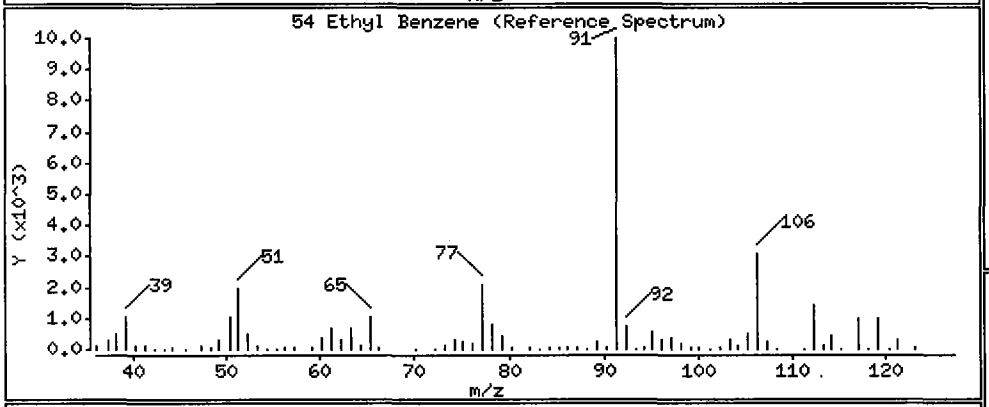
Concentration: 5.363 ug/Kg

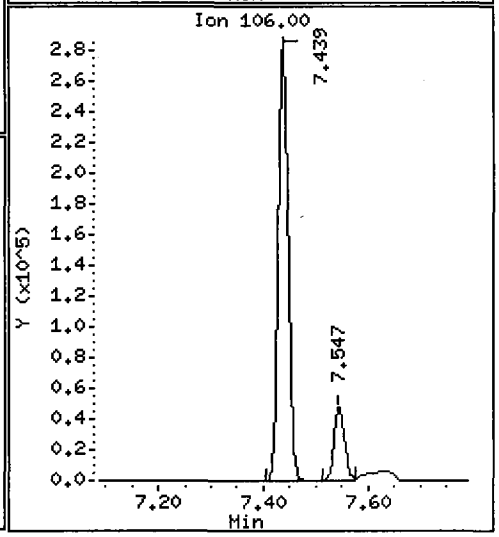


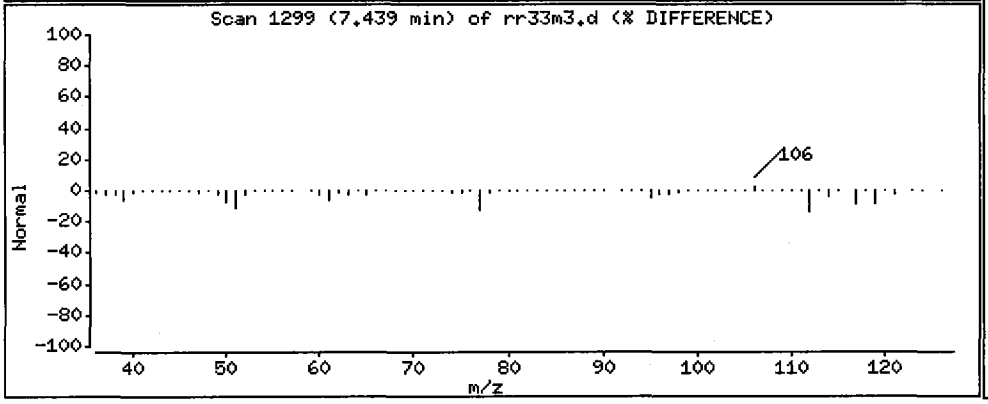












Data File: /chem1/nt9.i/22OCT10.b/gasco.b/rr33m3.d

Date : 22-OCT-2010 19:19

Client ID: DGS-07-11.611.8-101

Instrument: nt9.i

Sample Info: RR33M,5,5.27,1,100UL 5.270G/5ML

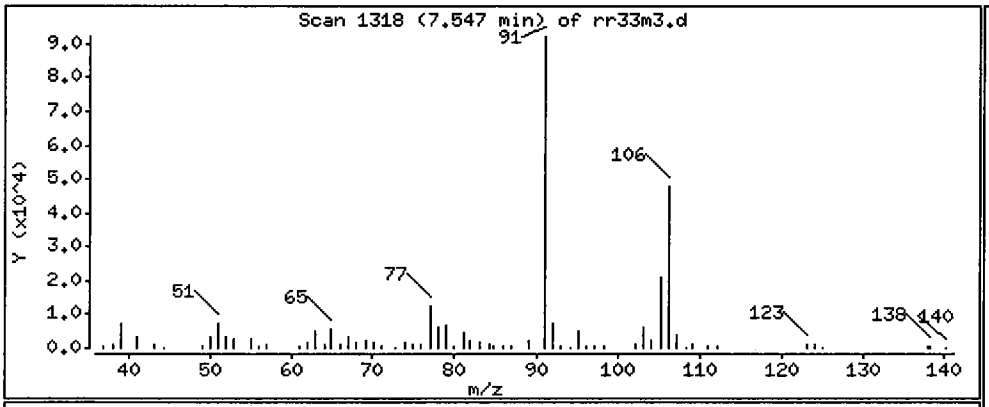
Operator: PB

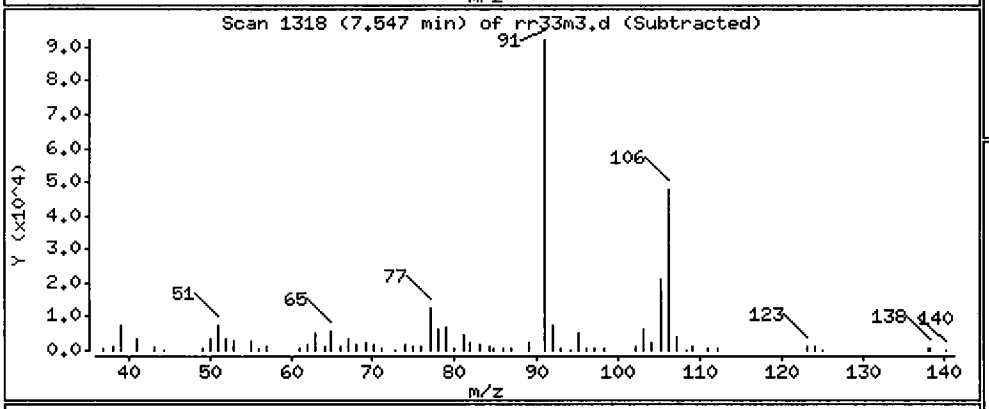
Column phase: RTX502.2

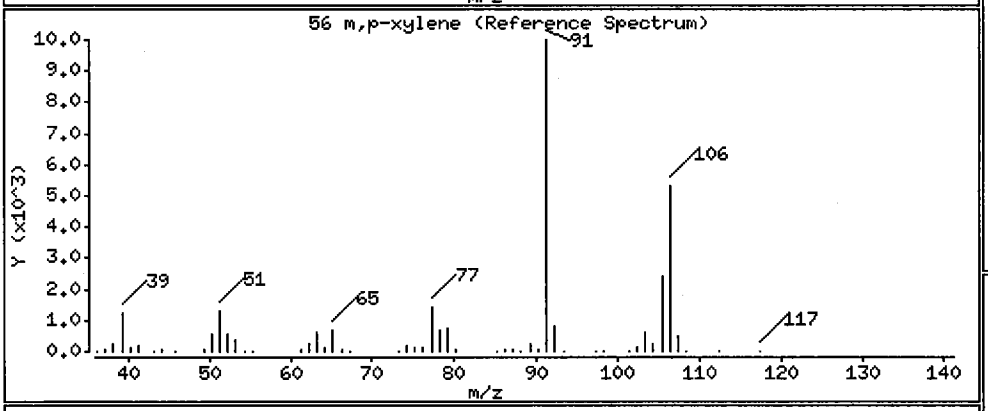
Column diameter: 0.18

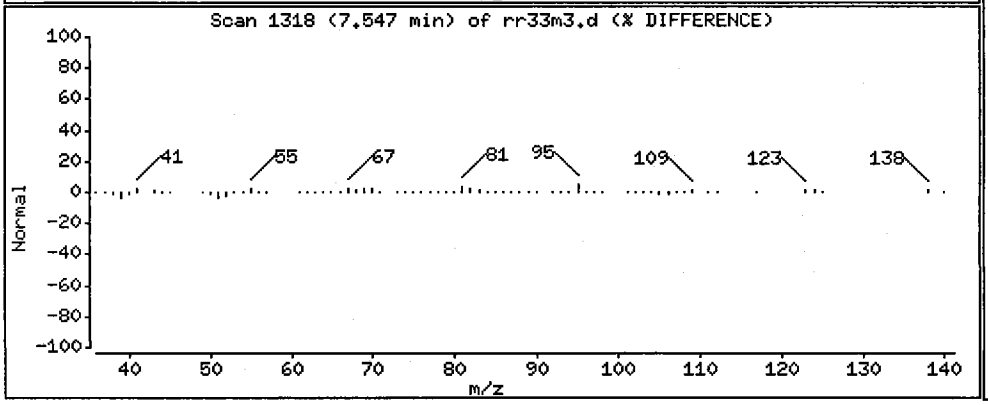
56 m,p-xylene

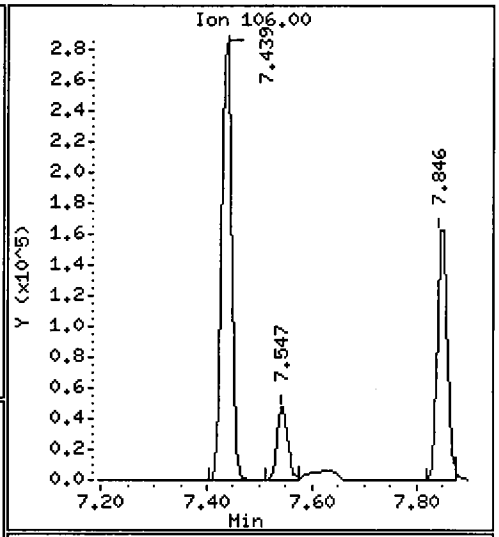
Concentration: 0.8111 ug/Kg

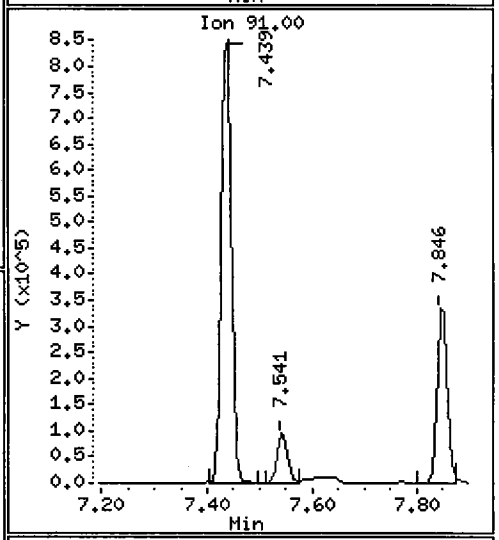


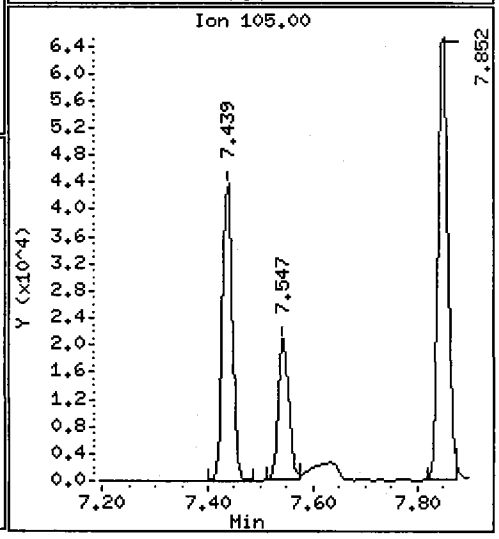












Data File: /chem1/nt9.i/22OCT10.b/gasco.b/rr33m3.d

Date : 22-OCT-2010 19:19

Client ID: DGS-07-11.611.8-101

Instrument: nt9.i

Sample Info: RR33M,5,5.27,1,100UL 5.270G/5ML

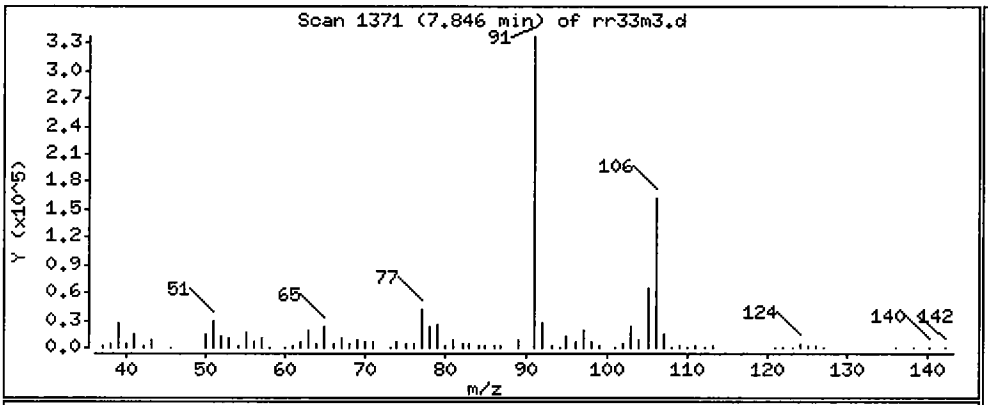
Operator: PB

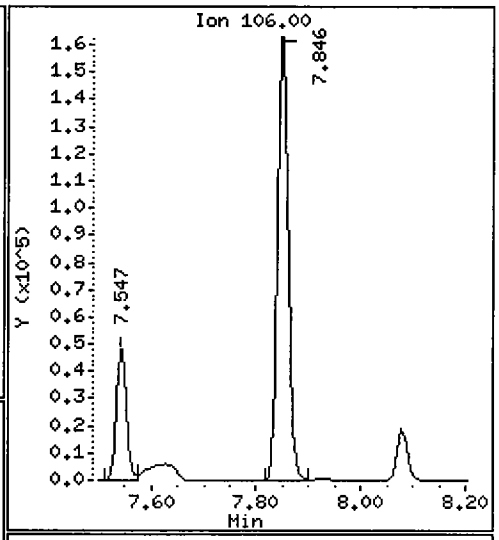
Column phase: RTX502.2

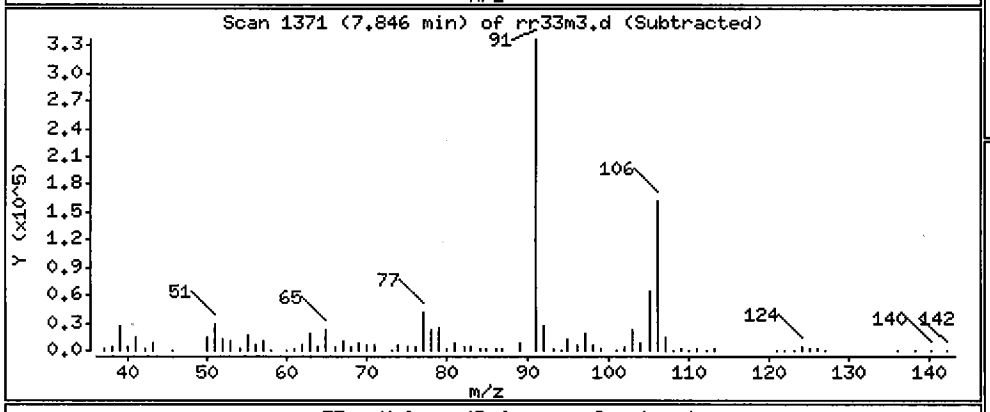
Column diameter: 0.18

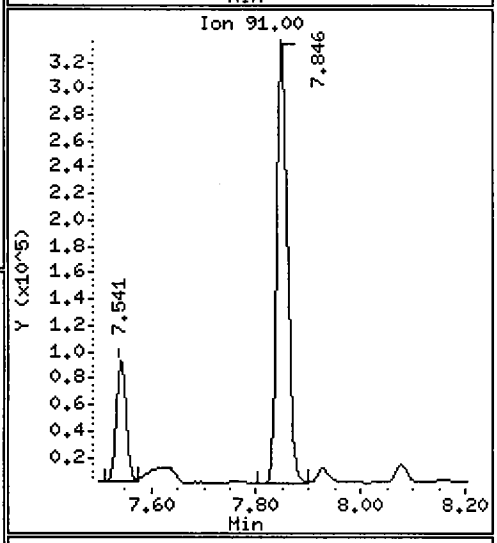
57 o-Xylene

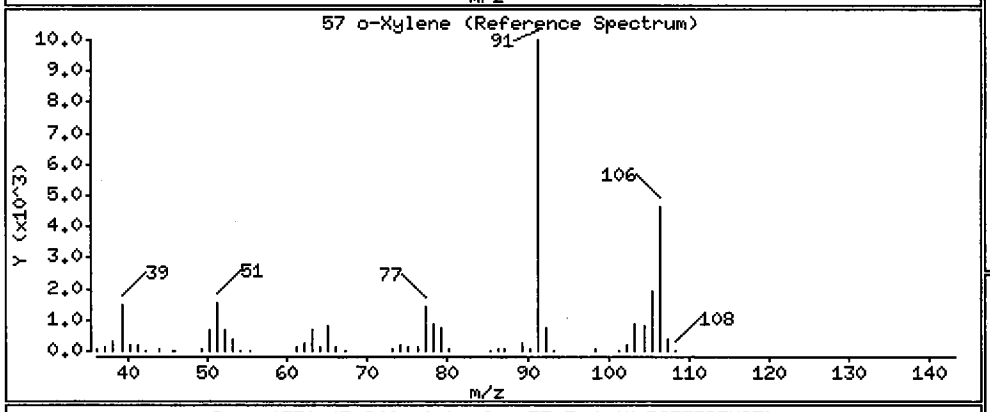
Concentration: 2.989 ug/Kg

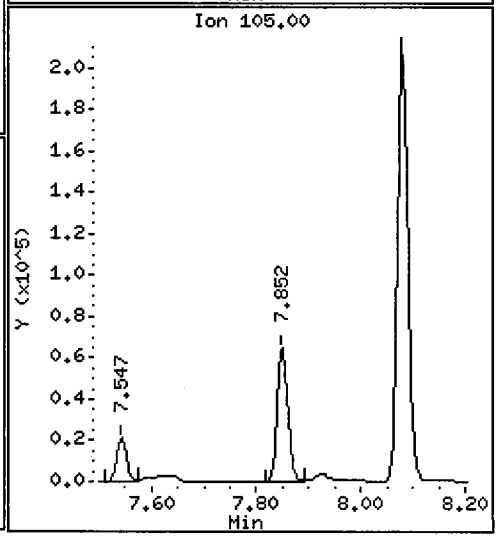


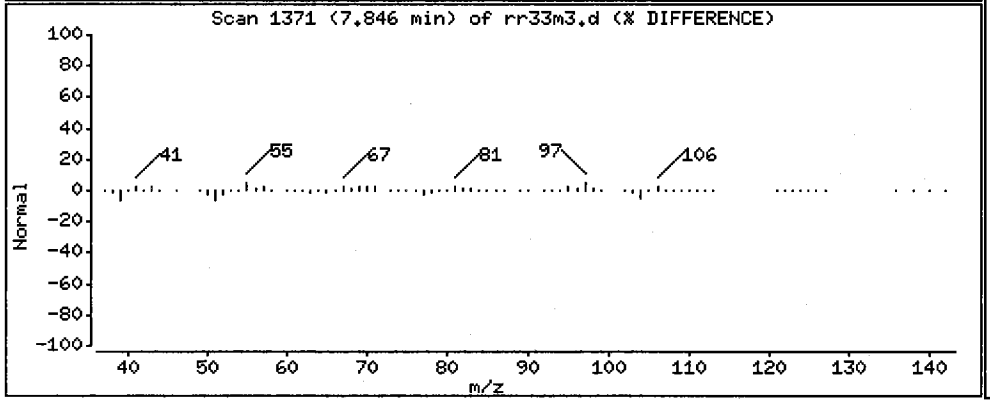












Analytical Resources, Inc.

8260C

Data file : /chem1/nt9.i/22OCT10.b/gasco.b/rr33n3.d
Lab Smp Id: RR33N Client Smp ID: DGS-07-12.713.2-101
Inj Date : 22-OCT-2010 19:49
Operator : PB Inst ID: nt9.i
Smp Info : RR33N,5,5.18,1,100UL 5.18G/5ML
Misc Info : 10-26432
Comment :
Method : /chem1/nt9.i/22OCT10.b/gasco.b/VO063010S.m
Meth Date : 27-Oct-2010 11:22 patrickb Quant Type: ISTD
Cal Date : 28-AUG-2010 13:21 Cal File: 2000828.d
Als bottle: 1
Dil Factor: 1.00000
Integrator: HP RTE Compound Sublist: gasco.sub
Target Version: 3.50
Processing Host: cserv3

Concentration Formula: Amt * DF * Uf * 1/(Ws * (100 - M)/100) * CpndVariable

M	0.00000	% Moisture (not decanted)
Uf	1.00000	ng unit correction factor
Ws	5.00000	Weight of sample extracted (g)

Cpnd Variable Local Compound Variable

Compounds	QUANT SIG MASS	RT	EXP RT	REL RT	RESPONSE	CONCENTRATIONS ON-COLUMN (ug/Kg)	FINAL (ug/Kg)
3 Vinyl Chloride	62	Compound Not Detected.					
7 1,1-Dichloroethene	96	Compound Not Detected.					
15 Trans-1,2-Dichloroethene	96	Compound Not Detected.					
20 Cis-1,2-Dichloroethene	96	Compound Not Detected.					
* 32 Pentafluorobenzene	168	4.931	4.931	(1.000)	854368	50.0000	
$ 25 Dibromofluoromethane	111	4.530	4.530	(0.919)	279818	43.8003	8.760
$ 31 d4-1,2-Dichloroethane	65	4.937	4.937	(1.001)	332888	50.7538	10.151
30 Benzene	78	4.829	4.830	(0.908)	83511	2.73655	0.5473
* 35 1,4-Difluorobenzene	114	5.321	5.322	(1.000)	1134660	50.0000	
34 Trichloroethene	95	Compound Not Detected.					
$ 42 d8-Toluene	98	6.306	6.306	(1.185)	1284938	49.9800	9.996
43 Toluene	92	6.345	6.340	(1.192)	9015	0.41570	0.08314
44 Tetrachloroethene	166	Compound Not Detected.					
* 52 d5-Chlorobenzene	117	7.398	7.398	(1.000)	1021069	50.0000	
54 Ethyl Benzene	91	7.437	7.437	(1.005)	772367	18.4574	3.691
56 m,p-xylene	106	7.545	7.545	(1.020)	67750	4.00313	0.8006
57 o-Xylene	106	7.850	7.850	(1.061)	132148	8.38191	1.676
$ 61 4-Bromofluorobenzene	95	8.280	8.280	(1.119)	504194	53.3144	10.663

Compounds	QUANT SIG MASS	RT	EXP RT	REL RT	RESPONSE	CONCENTRATIONS ON-COLUMN (ug/Kg)	CONCENTRATIONS FINAL (ug/Kg)
* 75 d4-1,4-Dichlorobenzene	152	9.117	9.118	(1.000)	577638	50.0000	
$ 78 d4-1,2-Dichlorobenzene	152	9.440	9.446	(1.035)	507174	50.2277	10.046

Analytical Resources, Inc.

INTERNAL STANDARD COMPOUNDS
AREA AND RT SUMMARY

Instrument ID: nt9.i
Lab File ID: rr33n3.d
Lab Smp Id: RR33N
Analysis Type: VOA
Quant Type: ISTD
Operator: PB
Method File: /chem1/nt9.i/22OCT10.b/gasco.b/VO063010S.m
Misc Info: 10-26432

Calibration Date: 22-OCT-2010
Calibration Time: 10:42
Client Smp ID: DGS-07-12.713.2-101
Level: MED
Sample Type: Sediment

Test Mode:
Use Initial Calibration Level 5.
If Continuing Cal. use Initial Cal. Level 5

COMPOUND	STANDARD	AREA LIMIT LOWER	AREA LIMIT UPPER	SAMPLE	%DIFF
32 Pentafluorobenzen	704281	352140	1408562	854368	21.31
35 1,4-Difluorobenze	937745	468872	1875490	1134660	21.00
52 d5-Chlorobenzene	853013	426506	1706026	1021069	19.70
75 d4-1,4-Dichlorobe	503655	251828	1007310	577638	14.69

COMPOUND	STANDARD	RT LIMIT LOWER	RT LIMIT UPPER	SAMPLE	%DIFF
32 Pentafluorobenzen	4.93	4.43	5.43	4.93	-0.01
35 1,4-Difluorobenze	5.32	4.82	5.82	5.32	-0.01
52 d5-Chlorobenzene	7.40	6.90	7.90	7.40	0.00
75 d4-1,4-Dichlorobe	9.12	8.62	9.62	9.12	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.

Analytical Resources, Inc.

RECOVERY REPORT

Client Name: NW Natural
Sample Matrix: SOLID
Lab Smp Id: RR33N
Level: MED
Data Type: MS DATA
SpikeList File: all.spk
Sublist File: gasco.sub
Method File: /chem1/nt9.i/22OCT10.b/gasco.b/VO063010S.m
Misc Info: 10-26432

Client SDG: RR33
Fraction: VOA
Client Smp ID: DGS-07-12.713.2-101
Operator: PB
SampleType: SAMPLE
Quant Type: ISTD

SURROGATE COMPOUND	AMOUNT ADDED ug/Kg	AMOUNT RECOVERED ug/Kg	% RECOVERED	LIMITS
$ 25 Dibromofluorometha	50.000	43.800	87.60	30-160
$ 31 d4-1,2-Dichloroeth	50.000	50.754	101.51	75-152
$ 42 d8-Toluene	50.000	49.980	99.96	82-115
$ 61 4-Bromofluorobenze	50.000	53.314	106.63	64-120
$ 78 d4-1,2-Dichloroben	50.000	50.228	100.46	80-120

Data File: /chem1/nt9.i/22OCT10.b/gasco.b/rr33n3.d

Date : 22-OCT-2010 19:49

Client ID: DGS-07-12.713.2-101

Sample Info: RR33N,5,5.18,1,100UL 5.18G/5ML

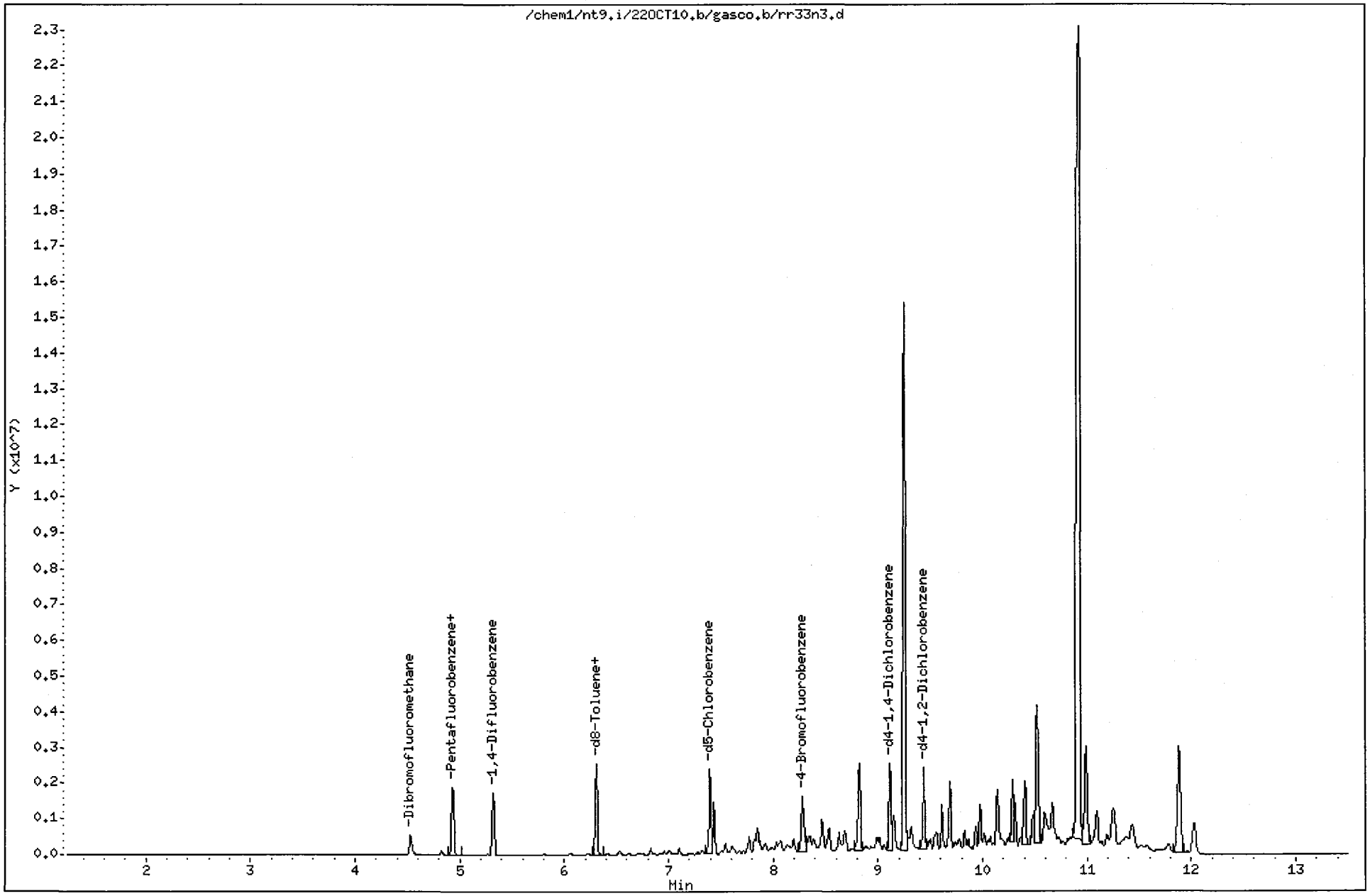
Column phase: RTX502.2

Instrument: nt9.i

Operator: PB

Column diameter: 0.18

RR33:00435



Data File: /chem1/nt9.i/22OCT10.b/gasco.b/rr33n3.d

Date : 22-OCT-2010 19:49

Client ID: DGS-07-12.713.2-101

Instrument: nt9.i

Sample Info: RR33N,5,5.18,1,100UL 5.18G/5ML

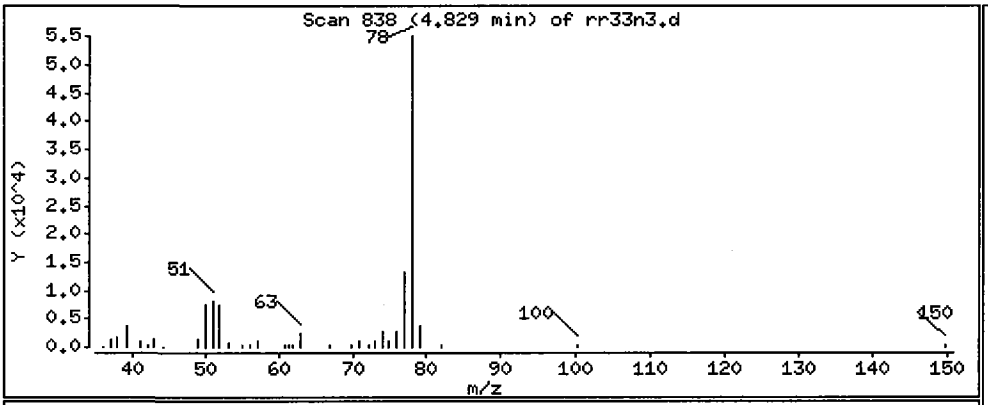
Operator: PB

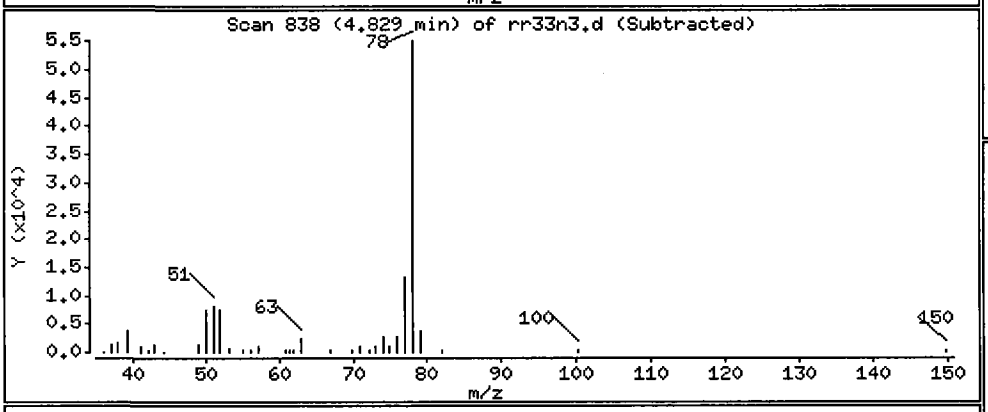
Column phase: RTX502.2

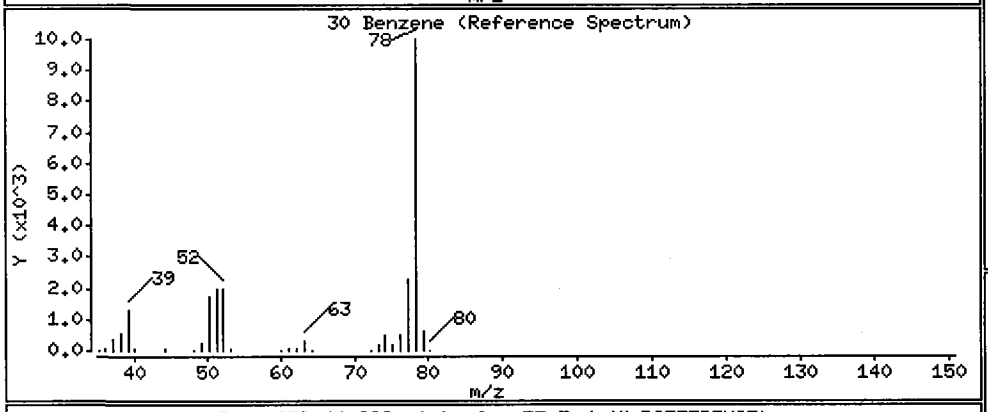
Column diameter: 0.18

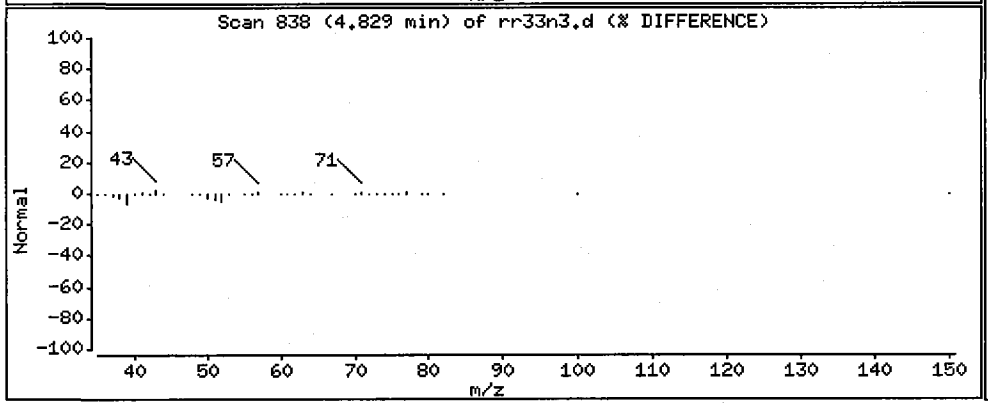
30 Benzene

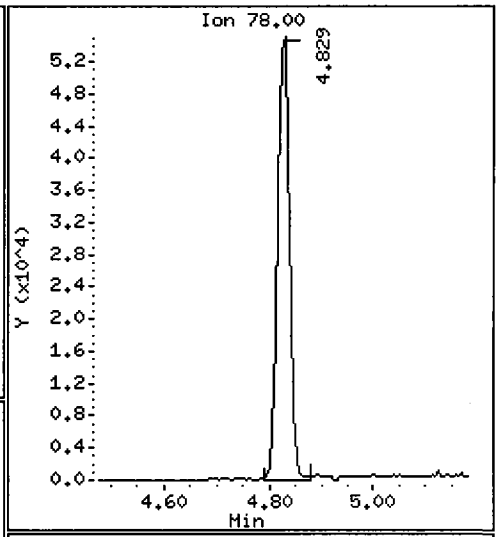
Concentration: 0.5473 ug/Kg

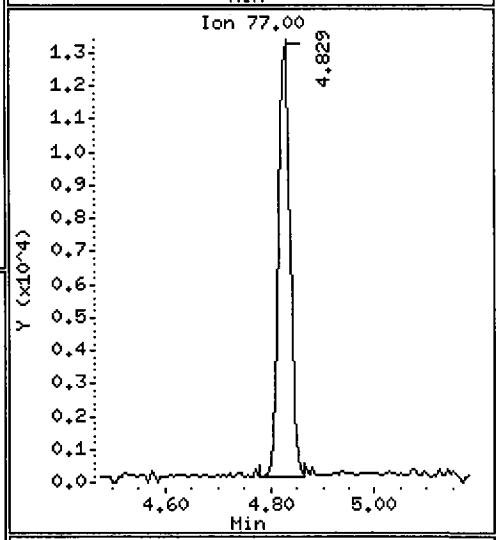


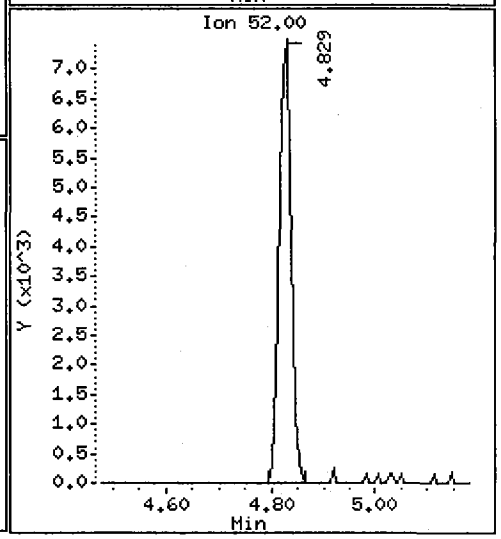












Data File: /chem1/nt9.i/22OCT10.b/gasco.b/rr33n3.d

Date : 22-OCT-2010 19:49

Client ID: DGS-07-12.713.2-101

Instrument: nt9.i

Sample Info: RR33N,5,5.18,1,100UL 5.18G/5ML

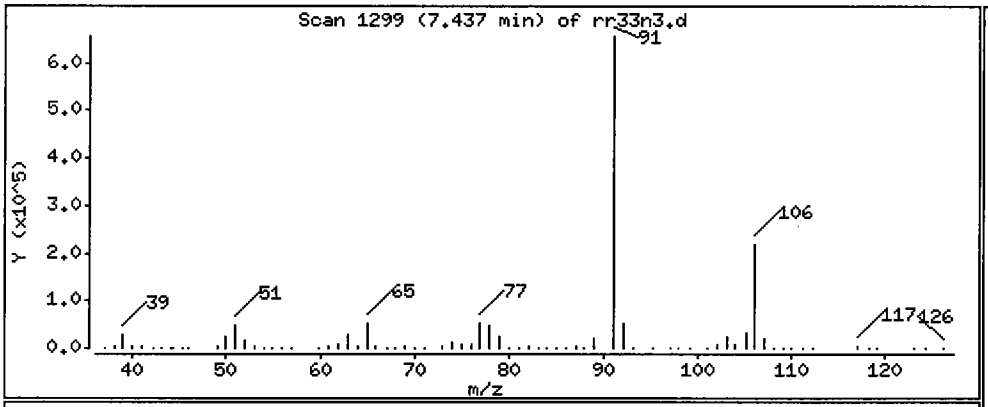
Operator: PB

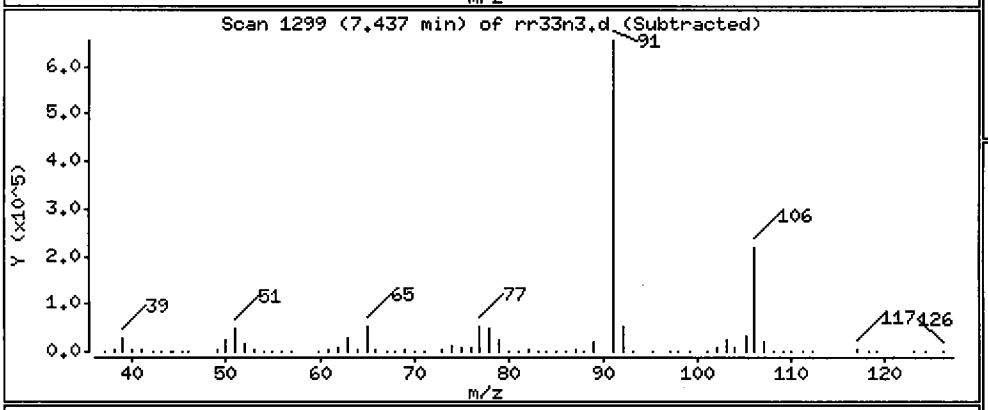
Column phase: RTX502.2

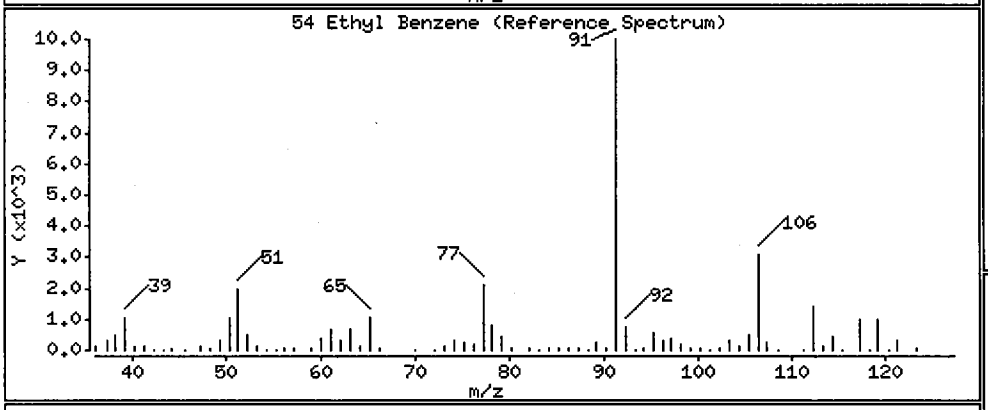
Column diameter: 0.18

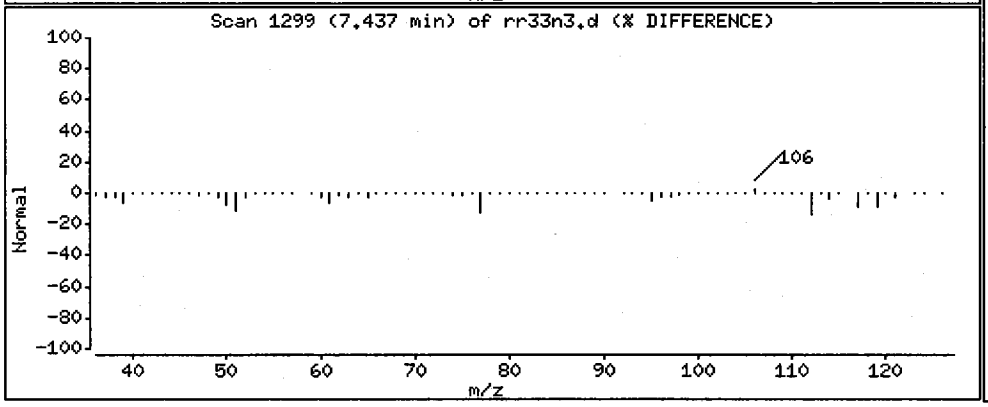
54 Ethyl Benzene

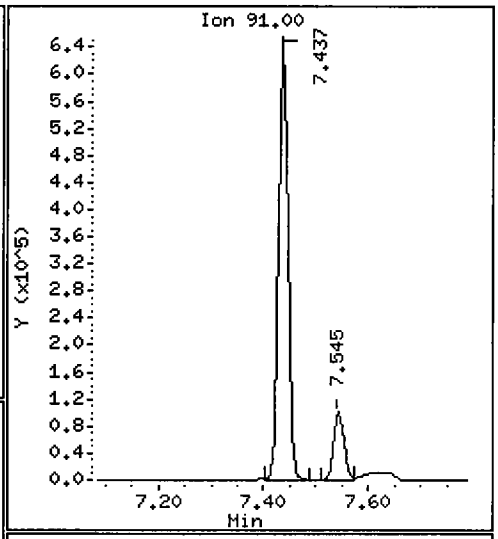
Concentration: 3.691 ug/Kg

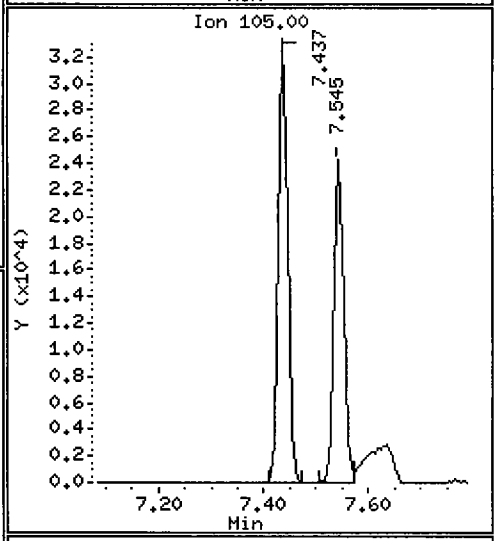


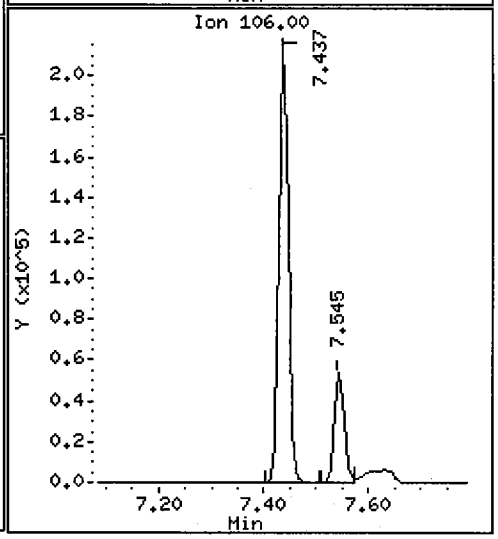












Data File: /chem1/nt9.i/22OCT10.b/gasco.b/rr33n3.d

Date : 22-OCT-2010 19:49

Client ID: DGS-07-12.713.2-101

Instrument: nt9.i

Sample Info: RR33N,5,5.18,1,100UL 5.18G/5ML

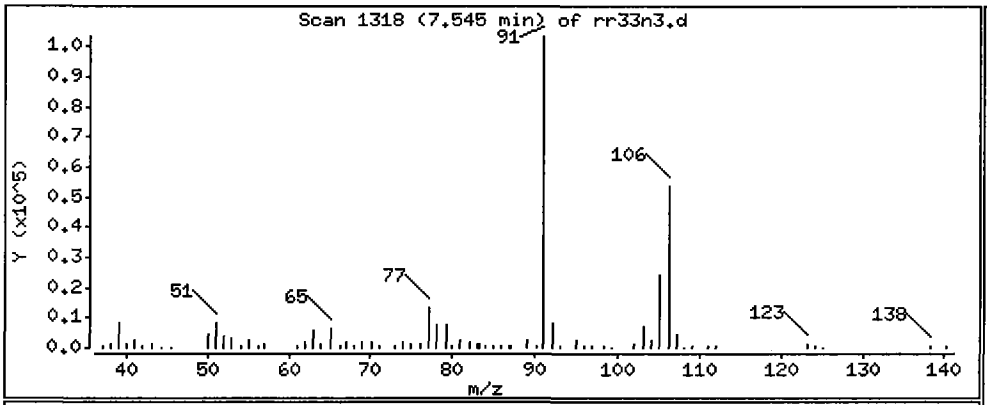
Operator: PB

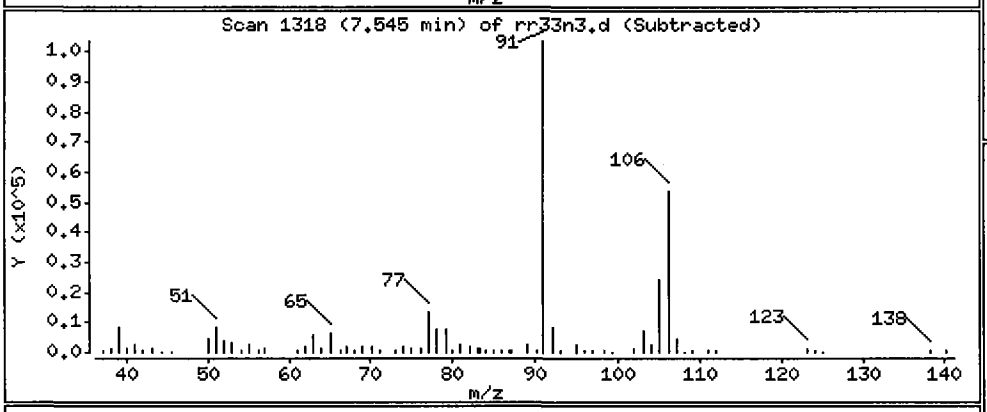
Column phase: RTX502.2

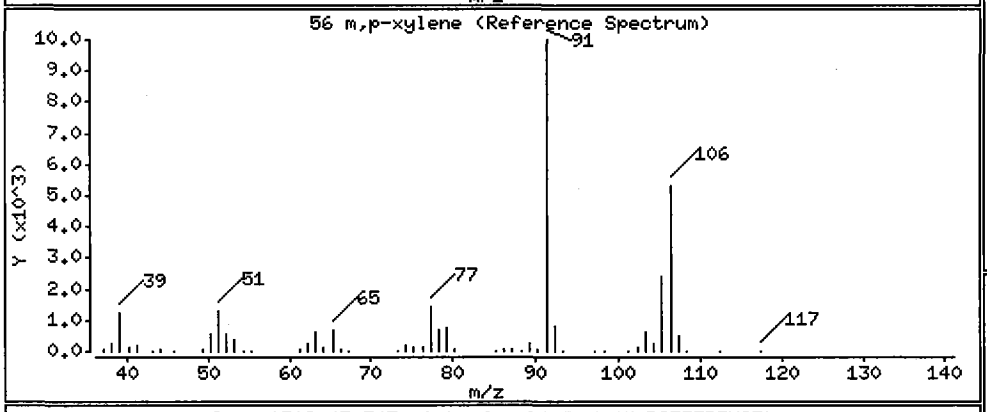
Column diameter: 0.18

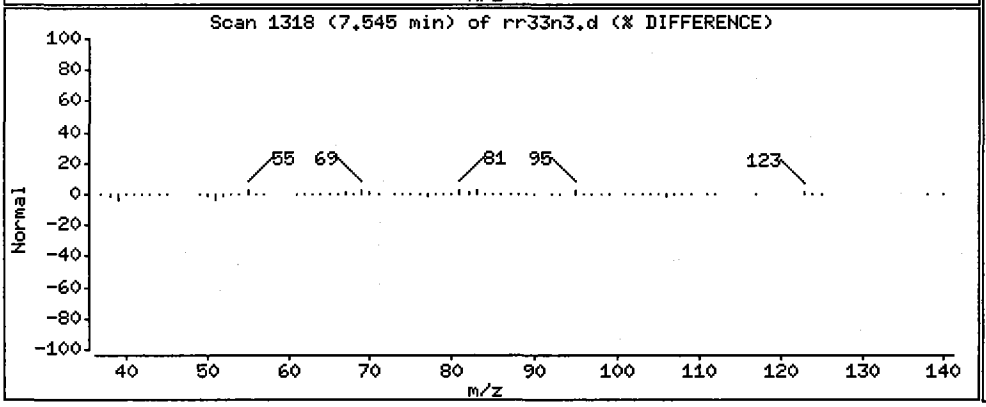
56 m,p-xylene

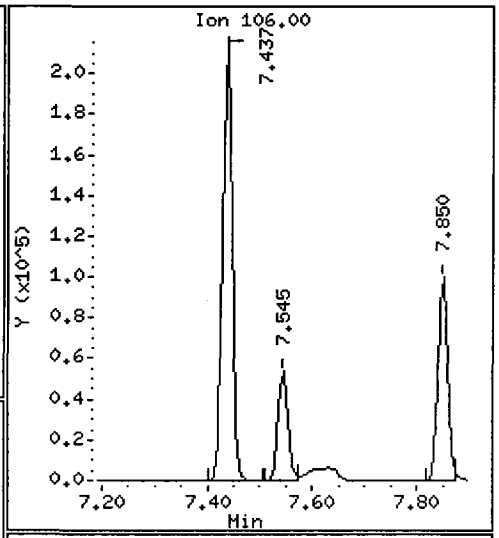
Concentration: 0.8006 ug/Kg

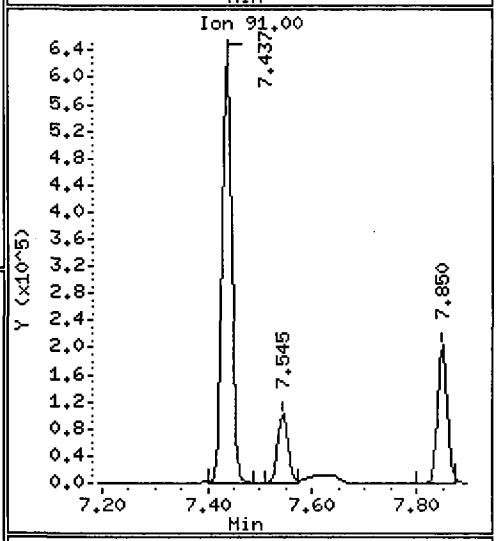


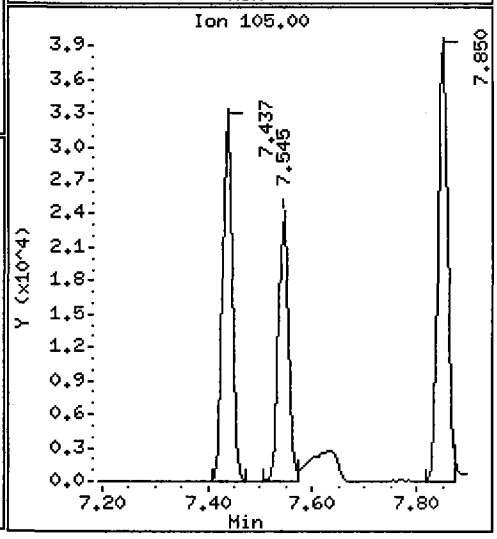












Data File: /chem1/nt9.i/22OCT10.b/gasco.b/rr33n3.d

Date : 22-OCT-2010 19:49

Client ID: DGS-07-12.713.2-101

Instrument: nt9.i

Sample Info: RR33N,5,5.18,1,100UL 5.18G/5ML

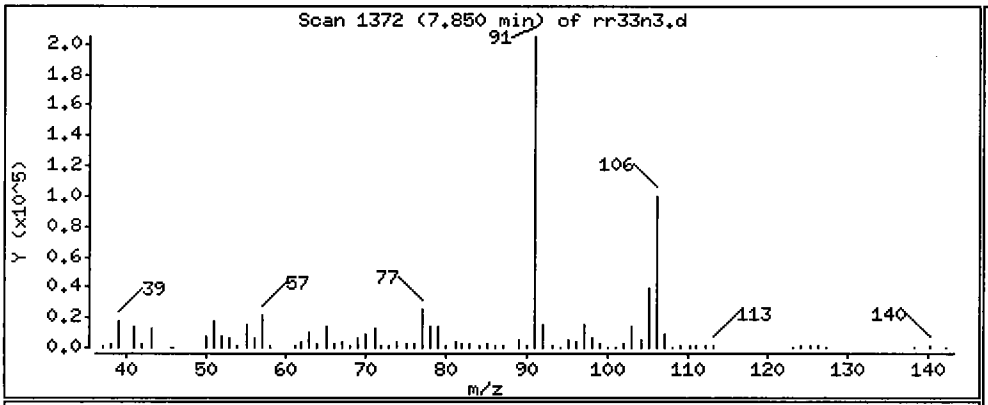
Operator: PB

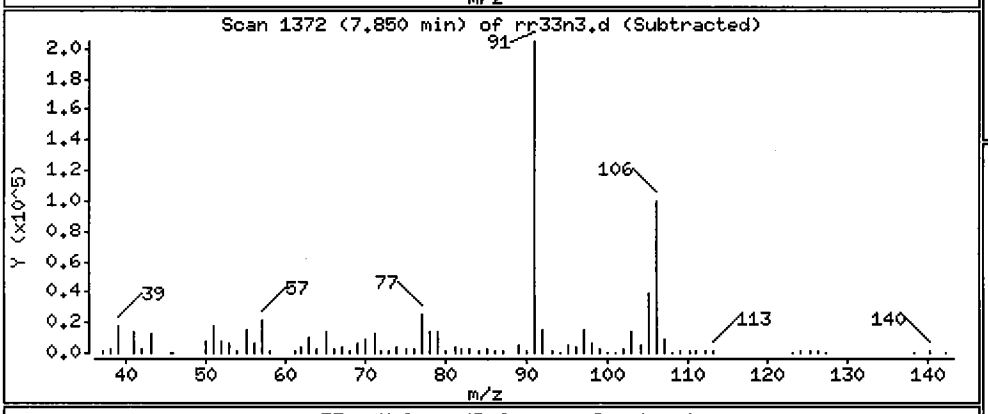
Column phase: RTX502.2

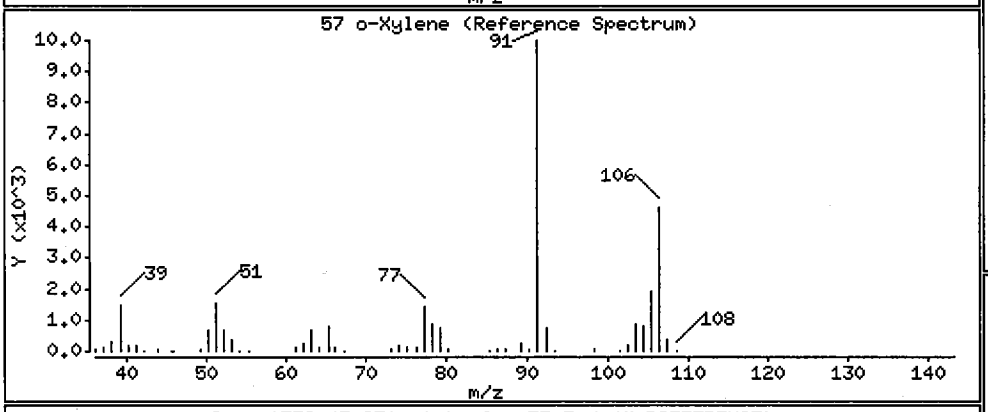
Column diameter: 0.18

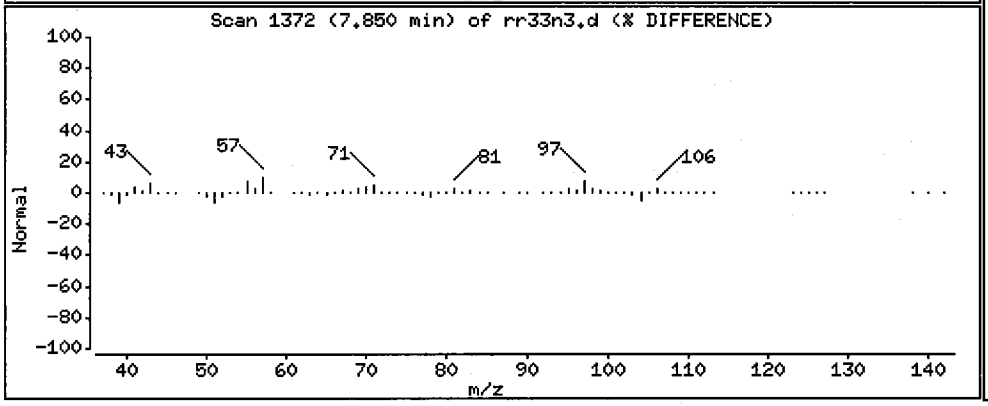
57 o-Xylene

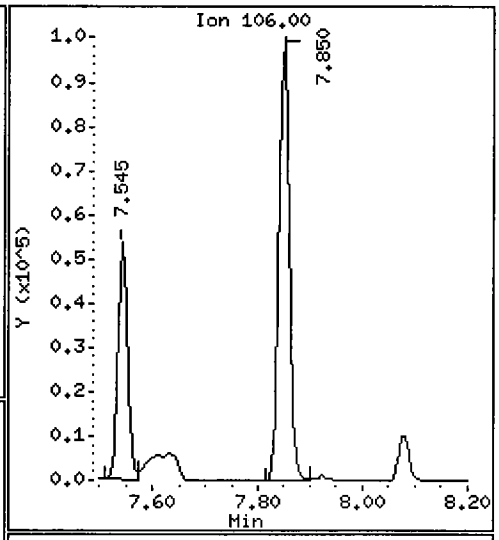
Concentration: 1.676 ug/Kg

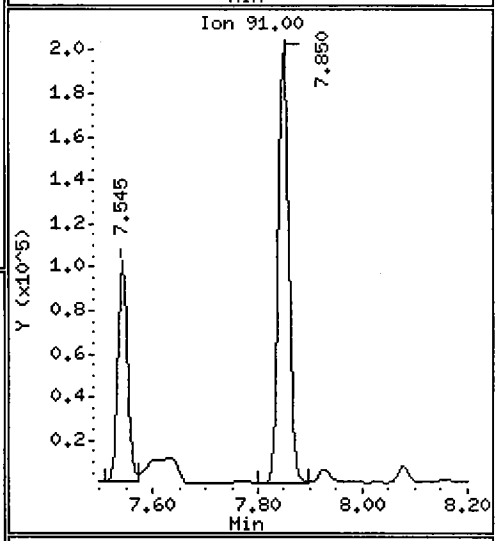


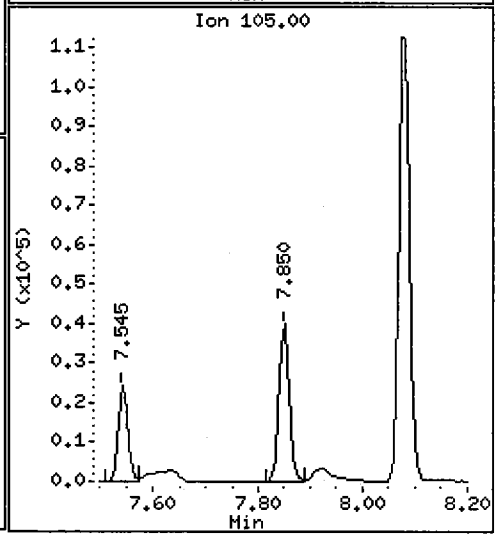












Analytical Resources, Inc.

8260C

Data file : /chem1/nt9.i/22OCT10.b/gasco.b/rr33nms.d
Lab Smp Id: RR33NMS Client Smp ID: DGS-07-12.713.2-MS
Inj Date : 22-OCT-2010 20:20
Operator : PB Inst ID: nt9.i
Smp Info : RR33NMS,5,5.18,1,100UL 5.18G/5ML
Misc Info : 10-26432
Comment :
Method : /chem1/nt9.i/22OCT10.b/gasco.b/VO063010S.m
Meth Date : 27-Oct-2010 11:21 patrickb Quant Type: ISTD
Cal Date : 28-AUG-2010 13:21 Cal File: 2000828.d
Als bottle: 1 QC Sample: MS
Dil Factor: 1.00000
Integrator: HP RTE Compound Sublist: gasco.sub
Target Version: 3.50
Processing Host: cserv3

Concentration Formula: Amt * DF * Uf * 1/(Ws * (100 - M)/100) * CpndVariable

M	0.00000	% Moisture (not decanted)
Uf	1.00000	ng unit correction factor
Ws	5.00000	Weight of sample extracted (g)

Cpnd Variable Local Compound Variable

Compounds	QUANT SIG MASS	RT	EXP RT	REL RT	RESPONSE	CONCENTRATIONS ON-COLUMN (ug/Kg)	FINAL (ug/Kg)
3 Vinyl Chloride	62	1.407	1.407	(0.285)	385274	52.2052	10.441
7 1,1-Dichloroethene	96	2.295	2.312	(0.465)	89412	12.2587	2.452(R)
15 Trans-1,2-Dichloroethene	96	3.013	3.031	(0.611)	421240	49.9778	9.996
20 Cis-1,2-Dichloroethene	96	4.133	4.134	(0.838)	417225	52.2429	10.449
* 32 Pentafluorobenzene	168	4.931	4.931	(1.000)	826114	50.0000	
$ 25 Dibromofluoromethane	111	4.529	4.530	(0.919)	300232	48.6030	9.721
$ 31 d4-1,2-Dichloroethane	65	4.936	4.937	(1.001)	324483	51.1644	10.233
30 Benzene	78	4.823	4.830	(0.906)	1606391	54.1906	10.838
* 35 1,4-Difluorobenzene	114	5.321	5.322	(1.000)	1102180	50.0000	
34 Trichloroethene	95	5.282	5.282	(0.993)	411118	50.1999	10.040
$ 42 d8-Toluene	98	6.305	6.306	(1.185)	1244886	49.8490	9.970
43 Toluene	92	6.345	6.340	(1.192)	1053030	49.9887	9.998
44 Tetrachloroethene	166	6.611	6.612	(0.894)	530131	48.6779	9.736
* 52 d5-Chlorobenzene	117	7.397	7.398	(1.000)	1001838	50.0000	
54 Ethyl Benzene	91	7.437	7.437	(1.005)	2835037	69.0498	13.810(R)
56 m,p-xylene	106	7.544	7.545	(1.020)	1739289	104.742	20.948
57 o-Xylene	106	7.850	7.850	(1.061)	923439	59.6964	11.939
$ 61 4-Bromofluorobenzene	95	8.280	8.280	(1.119)	230128	24.8013	4.960(R)

Compounds	QUANT SIG MASS	RT	EXP RT	REL RT	RESPONSE	CONCENTRATIONS ON-COLUMN (ug/Kg)	FINAL (ug/Kg)
* 75 d4-1,4-Dichlorobenzene	152	9.123	9.118	(1.000)	561475	50.0000	
$ 78 d4-1,2-Dichlorobenzene	152	9.445	9.446	(1.035)	493062	50.2358	10.047

QC Flag Legend

R - Spike/Surrogate failed recovery limits.

Analytical Resources, Inc.

INTERNAL STANDARD COMPOUNDS
AREA AND RT SUMMARY

Instrument ID: nt9.i
Lab File ID: rr33nms.d
Lab Smp Id: RR33NMS
Analysis Type: VOA
Quant Type: ISTD
Operator: PB
Method File: /chem1/nt9.i/22OCT10.b/gasco.b/VO063010S.m
Misc Info: 10-26432

Calibration Date: 22-OCT-2010
Calibration Time: 10:42
Client Smp ID: DGS-07-12.713.2-MS
Level: MED
Sample Type: Sediment

Test Mode:
Use Initial Calibration Level 5.
If Continuing Cal. use Initial Cal. Level 5

COMPOUND	STANDARD	AREA LIMIT LOWER	AREA LIMIT UPPER	SAMPLE	%DIFF
32 Pentafluorobenzen	704281	352140	1408562	826114	17.30
35 1,4-Difluorobenze	937745	468872	1875490	1102180	17.54
52 d5-Chlorobenzene	853013	426506	1706026	1001838	17.45
75 d4-1,4-Dichlorobe	503655	251828	1007310	561475	11.48

COMPOUND	STANDARD	RT LIMIT LOWER	RT LIMIT UPPER	SAMPLE	%DIFF
32 Pentafluorobenzen	4.93	4.43	5.43	4.93	-0.01
35 1,4-Difluorobenze	5.32	4.82	5.82	5.32	-0.01
52 d5-Chlorobenzene	7.40	6.90	7.90	7.40	-0.01
75 d4-1,4-Dichlorobe	9.12	8.62	9.62	9.12	0.05

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.

Analytical Resources, Inc.

RECOVERY REPORT

Client Name: NW Natural
Sample Matrix: SOLID
Lab Smp Id: RR33NMS
Level: MED
Data Type: MS DATA
SpikeList File: gasco.spk
Sublist File: gasco.sub
Method File: /chem1/nt9.i/22OCT10.b/gasco.b/VO063010S.m
Misc Info: 10-26432

Client SDG: RR33
Fraction: VOA
Client Smp ID: DGS-07-12.713.2-MS
Operator: PB
SampleType: MS
Quant Type: ISTD

SPIKE COMPOUND	CONC ADDED ug/Kg	CONC RECOVERED ug/Kg	% RECOVERED	LIMITS
3 Vinyl Chloride	10.000	10.441	104.41	63-137
7 1,1-Dichloroethene	10.000	2.452	24.52*	75-126
15 Trans-1,2-Dichloro	10.000	9.996	99.96	80-120
20 Cis-1,2-Dichloroet	10.000	10.449	104.49	80-120
30 Benzene	10.000	10.838	108.38	80-120
34 Trichloroethene	10.000	10.040	100.40	80-120
43 Toluene	10.000	9.998	99.98	80-120
44 Tetrachloroethene	10.000	9.736	97.36	80-121
54 Ethyl Benzene	10.000	13.810	138.10*	80-127
56 m,p-xylene	20.000	20.948	104.74	80-125
57 o-Xylene	10.000	11.939	119.39	78-120

SURROGATE COMPOUND	AMOUNT ADDED ug/Kg	AMOUNT RECOVERED ug/Kg	% RECOVERED	LIMITS
$ 25 Dibromofluorometha	50.000	48.603	97.21	30-160
$ 31 d4-1,2-Dichloroeth	50.000	51.164	102.33	75-152
$ 42 d8-Toluene	50.000	49.849	99.70	82-115
$ 61 4-Bromofluorobenze	50.000	24.801	49.60*	64-120
$ 78 d4-1,2-Dichloroben	50.000	50.236	100.47	80-120

Data File: /chem1/nt9.i/22OCT10.b/gasco.b/rr33nms.d

Date : 22-OCT-2010 20:20

Client ID: DGS-07-12.713.2-MS

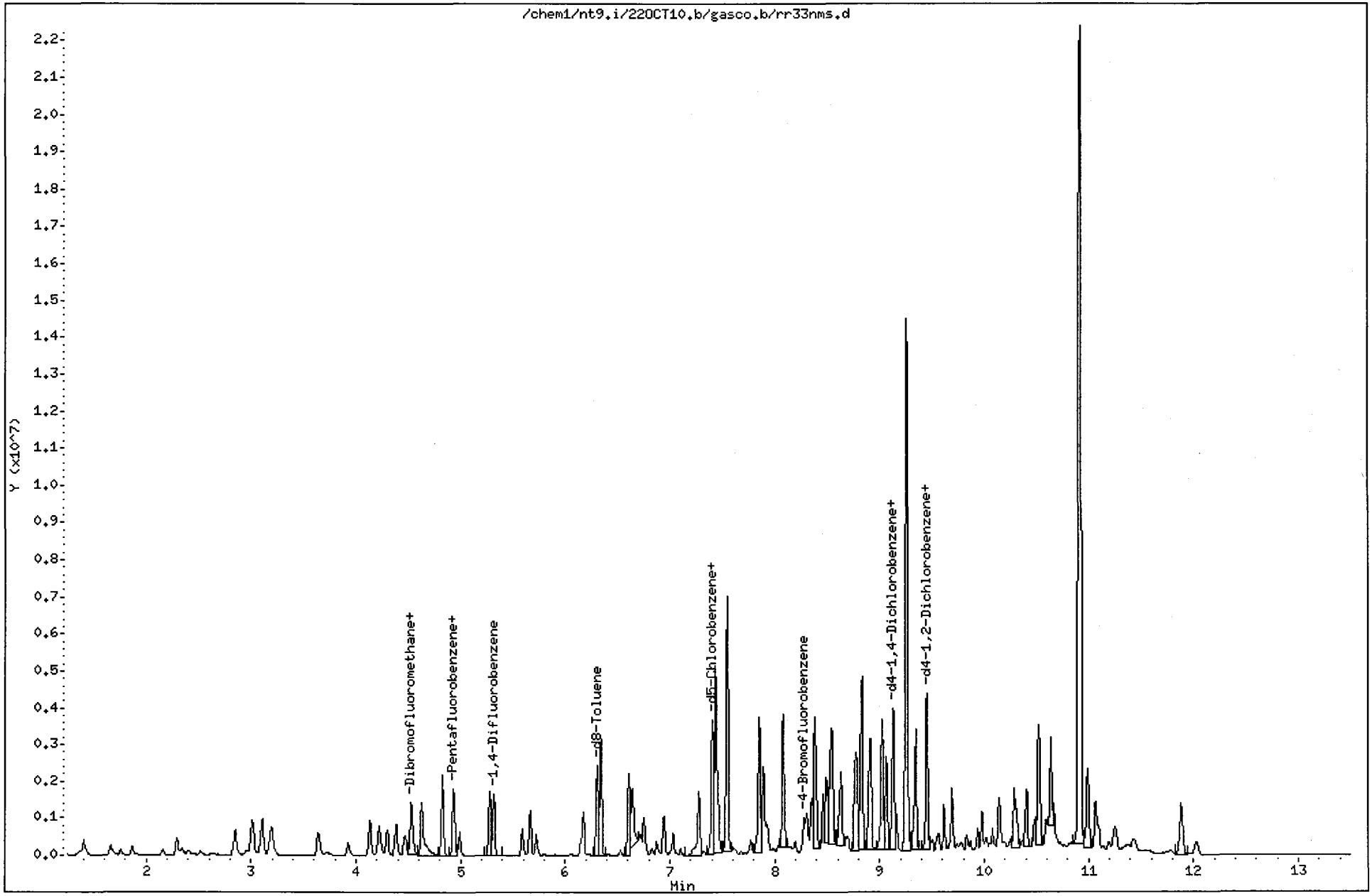
Sample Info: RR33NMS,5,5.18,1,100UL 5.18G/5ML

Column phase: RTX502.2

Instrument: nt9.i

Operator: PB

Column diameter: 0.18



RR33 : 00HH

Analytical Resources, Inc.

8260C

Data file : /chem1/nt9.i/22OCT10.b/gasco.b/rr33nmsd.d
Lab Smp Id: RR33NMSD Client Smp ID: DGS-07-12.713.2-MSD
Inj Date : 22-OCT-2010 20:50
Operator : PB Inst ID: nt9.i
Smp Info : RR33NMSD,5,5.18,1,100UL 5.18G/5ML
Misc Info : 10-26432
Comment :
Method : /chem1/nt9.i/22OCT10.b/gasco.b/VO063010S.m
Meth Date : 27-Oct-2010 11:21 patrickb Quant Type: ISTD
Cal Date : 28-AUG-2010 13:21 Cal File: 2000828.d
Als bottle: 1 QC Sample: MSD
Dil Factor: 1.00000
Integrator: HP RTE Compound Sublist: gasco.sub
Target Version: 3.50
Processing Host: cserv3

10/27/10

Concentration Formula: Amt * DF * Uf * 1/(Ws * (100 - M)/100) * CpndVariable

M	0.00000	% Moisture (not decanted)
Uf	1.00000	ng unit correction factor
Ws	5.00000	Weight of sample extracted (g)

Cpnd Variable Local Compound Variable

Compounds	QUANT SIG MASS	RT	EXP RT	REL RT	RESPONSE	CONCENTRATIONS ON-COLUMN (ug/Kg)	FINAL (ug/Kg)
3 Vinyl Chloride	62	1.409	1.407	(0.286)	395656	52.2093	10.442
7 1,1-Dichloroethene	96	2.291	2.312	(0.464)	91206	12.1775	2.436(QR)
15 Trans-1,2-Dichloroethene	96	3.016	3.031	(0.611)	437331	50.5293	10.106
20 Cis-1,2-Dichloroethene	96	4.136	4.134	(0.838)	429383	52.3585	10.472
* 32 Pentafluorobenzene	168	4.933	4.931	(1.000)	848310	50.0000	
$ 25 Dibromofluoromethane	111	4.532	4.530	(0.919)	310538	48.9561	9.791
$ 31 d4-1,2-Dichloroethane	65	4.939	4.937	(1.001)	328935	50.5093	10.102
30 Benzene	78	4.826	4.830	(0.907)	1639354	53.9624	10.792
* 35 1,4-Difluorobenzene	114	5.318	5.322	(1.000)	1129553	50.0000	
34 Trichloroethene	95	5.278	5.282	(0.993)	426318	50.7944	10.159
$ 42 d8-Toluene	98	6.308	6.306	(1.186)	1273924	49.7756	9.955
43 Toluene	92	6.342	6.340	(1.193)	1076353	49.8576	9.972
44 Tetrachloroethene	166	6.608	6.612	(0.893)	549308	49.5224	9.904
* 52 d5-Chlorobenzene	117	7.400	7.398	(1.000)	1020377	50.0000	
54 Ethyl Benzene	91	7.439	7.437	(1.005)	2921166	69.8549	13.971(R)
56 m,p-xylene	106	7.547	7.545	(1.020)	1775493	104.979	20.996
57 o-Xylene	106	7.852	7.850	(1.061)	947163	60.1176	12.024(R)
$ 61 4-Bromofluorobenzene	95	8.282	8.280	(1.119)	220232	23.3035	4.661(R)

Compounds	QUANT SIG MASS	RT	EXP RT	REL RT	RESPONSE	CONCENTRATIONS ON-COLUMN (ug/Kg)	FINAL (ug/Kg)
* 75 d4-1,4-Dichlorobenzene	152	9.125	9.118	(1.000)	571616	50.0000	
$ 78 d4-1,2-Dichlorobenzene	152	9.447	9.446	(1.035)	502574	50.2965	10.059

QC Flag Legend

Q - Qualifier signal failed the ratio test.
R - Spike/Surrogate failed recovery limits.

Analytical Resources, Inc.

INTERNAL STANDARD COMPOUNDS
AREA AND RT SUMMARY

Instrument ID: nt9.i
Lab File ID: rr33nmsd.d
Lab Smp Id: RR33NMSD
Analysis Type: VOA
Quant Type: ISTD
Operator: PB
Method File: /chem1/nt9.i/22OCT10.b/gasco.b/VO063010S.m
Misc Info: 10-26432

Calibration Date: 22-OCT-2010
Calibration Time: 10:42
Client Smp ID: DGS-07-12.713.2-MSD
Level: MED
Sample Type: Sediment

Test Mode:
Use Initial Calibration Level 5.
If Continuing Cal. use Initial Cal. Level 5

COMPOUND	STANDARD	AREA LIMIT LOWER	AREA LIMIT UPPER	SAMPLE	%DIFF
32 Pentafluorobenzen	704281	352140	1408562	848310	20.45
35 1,4-Difluorobenze	937745	468872	1875490	1129553	20.45
52 d5-Chlorobenzene	853013	426506	1706026	1020377	19.62
75 d4-1,4-Dichlorobe	503655	251828	1007310	571616	13.49

COMPOUND	STANDARD	RT LIMIT LOWER	RT LIMIT UPPER	SAMPLE	%DIFF
32 Pentafluorobenzen	4.93	4.43	5.43	4.93	0.04
35 1,4-Difluorobenze	5.32	4.82	5.82	5.32	-0.07
52 d5-Chlorobenzene	7.40	6.90	7.90	7.40	0.02
75 d4-1,4-Dichlorobe	9.12	8.62	9.62	9.12	0.08

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.

Analytical Resources, Inc.

RECOVERY REPORT

Client Name: NW Natural
Sample Matrix: SOLID
Lab Smp Id: RR33NMSD
Level: MED
Data Type: MS DATA
SpikeList File: gasco.spk
Sublist File: gasco.sub
Method File: /chem1/nt9.i/22OCT10.b/gasco.b/VO063010S.m
Misc Info: 10-26432

Client SDG: RR33
Fraction: VOA
Client Smp ID: DGS-07-12.713.2-MSD
Operator: PB
SampleType: MSD
Quant Type: ISTD

SPIKE COMPOUND	CONC ADDED ug/Kg	CONC RECOVERED ug/Kg	% RECOVERED	LIMITS
3 Vinyl Chloride	10.000	10.442	104.42	63-137
7 1,1-Dichloroethene	10.000	2.436	24.36*	75-126
15 Trans-1,2-Dichloro	10.000	10.106	101.06	80-120
20 Cis-1,2-Dichloroet	10.000	10.472	104.72	80-120
30 Benzene	10.000	10.792	107.92	80-120
34 Trichloroethene	10.000	10.159	101.59	80-120
43 Toluene	10.000	9.972	99.72	80-120
44 Tetrachloroethene	10.000	9.904	99.04	80-121
54 Ethyl Benzene	10.000	13.971	139.71*	80-127
56 m,p-xylene	20.000	20.996	104.98	80-125
57 o-Xylene	10.000	12.024	120.24*	78-120

SURROGATE COMPOUND	AMOUNT ADDED ug/Kg	AMOUNT RECOVERED ug/Kg	% RECOVERED	LIMITS
$ 25 Dibromofluorometha	50.000	48.956	97.91	30-160
$ 31 d4-1,2-Dichloroeth	50.000	50.509	101.02	75-152
$ 42 d8-Toluene	50.000	49.776	99.55	82-115
$ 61 4-Bromofluorobenze	50.000	23.304	46.61*	64-120
$ 78 d4-1,2-Dichloroben	50.000	50.297	100.59	80-120

Data File: /chem1/nt9.i/22OCT10.b/gasco.b/rr33nmsd.d

Date : 22-OCT-2010 20:50

Client ID: DGS-07-12.713.2-MSD

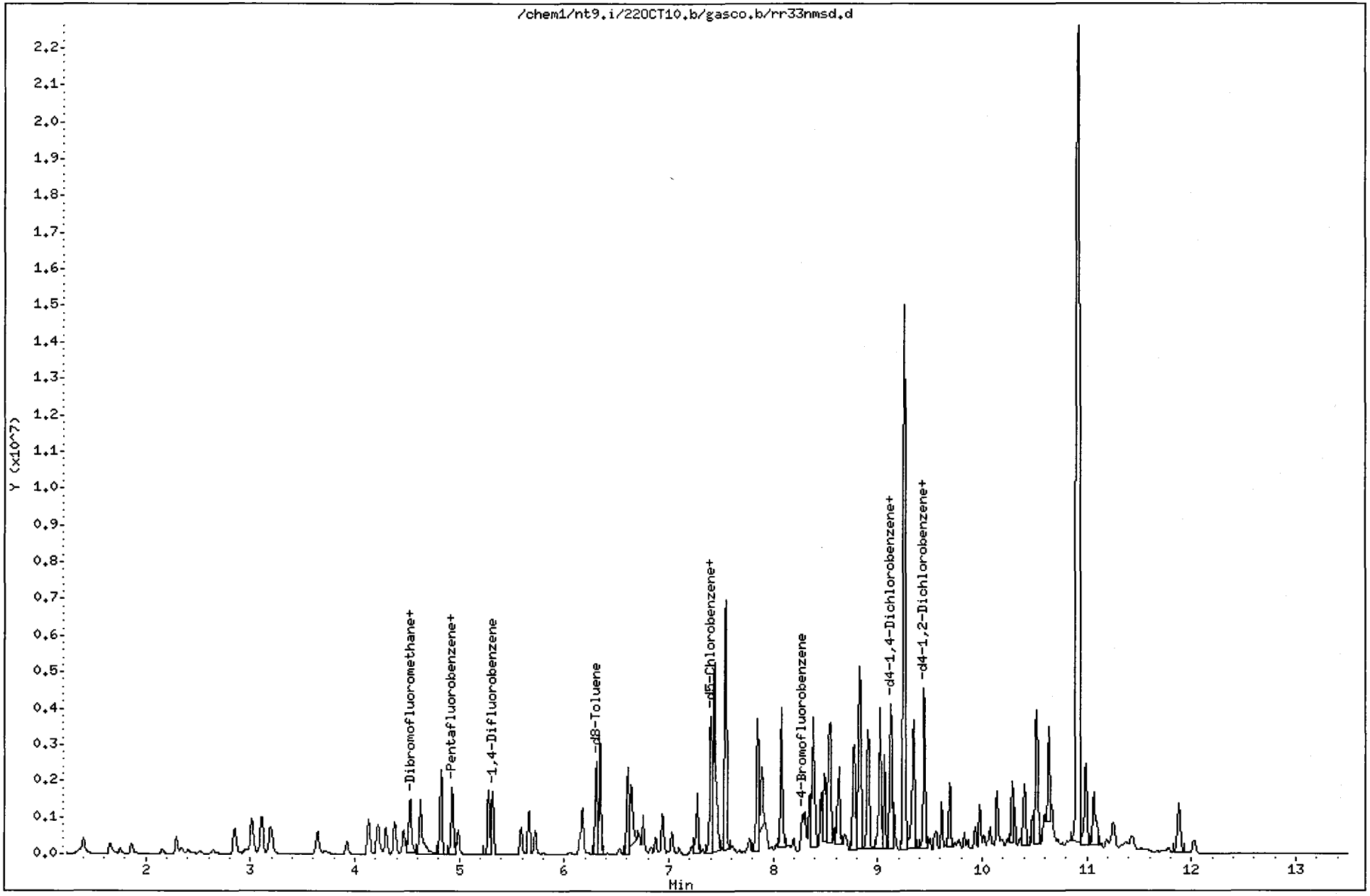
Sample Info: RR33NMSD,5,5.18,1,100UL 5.18G/5ML

Column phase: RTX502.2

Instrument: nt9.i

Operator: PB

Column diameter: 0.18



RR33 : 06115

Analytical Resources, Incorporated
Analytical Chemists and Consultants

VOA Analyst Notes / Corrective Action Log

ARI Project ID: RR33 Client ID: NW Natural

ARI SOP: **404S**(Gas) **410S**(BTEX) **430S**(VPH) **700S**(8260C) **703S**(SIM) **706S**(524.2) **710S**(RSK-175)

Parameter(s): _____

Instrument: NT-3 NT-5 NT-7 NT-9 NT-10 PID-1 PID-2 PID-3 FID-6 FINN-5

Purge Volume (mL) 5 Curve Date: 8/28/10 Analysis Start Date: 10/26/10

pH ≤ 2.0	YES / NO / NA	Method Blank In Control?	YES / NO
BFB Tune Meets Criteria?	YES / NO / NA	LCS / LCSD Recovery In Control?	YES / NO
Internal Standard Meets Criteria?	YES / NO / NA	Surrogate Recovery In Control?	YES / NO
ICal acceptable?	YES / NO	CCal acceptable?	YES / NO
Q flag applied?	YES / NO / NA	Q flag applied?	YES / NO / NA
Manual Integrations for ICal?	YES / NO	Manual Integrations for Samples?	Yes /NO
Special Analysis Criteria Met?	YES / NO / NA		

Bubbles/Headspace: None SM (≤ 2mm •) PB (2-4mm) LG (> 4mm ●) Head Space

Detail problems, corrective actions and/or other pertinent information below (use reverse side when necessary):

Samples C, E, F rerun mid level

Additional Details on Reverse: Yes / No

Analyst: _____ **Date:** 10/27/10

Reviewer: _____ **Date:** 10/27/10

Analytical Resources Inc.: Volatile Organics Instrument Log

NT-9 Serial No.:GC=US00021704, MS=US80230047

Date: 10/26/10 Analysis: SVOC Analyst: P

GC Program: VOA Column No: 562787 Column Type: MRSW

Instrument Tune (.U or .CT.): bfb0260 EM Voltage: 1349

Calibration File: 0500026 Curve Date: 8/26/10

IS/SS	Ical/Ccal	LCS/ICV
WG521	WG52-2	WG52-2

INTERNAL STANDARD SUMMARY FOR DATABATCH - /chem1/nt9.i/26OCT10.b

	Time	Filename	LabID	ClientID	WT											
1	0904	bfb10260.d	BFB1026	BFB1026	0.00											
2	0941	0501026.d	CC1026	VSTD050	5.00	4.93	604423	5.32	794191	7.40	699493	9.12	387121			
3	1019	lcs1026.d	LCS1026	LCS1026	5.00	4.93	581252	5.32	764778	7.40	674404	9.12	373587			
4	1049	lcs1026a.d	LCS1026	LCS1026	5.00	4.93	620312	5.32	816706	7.40	720181	9.11	382955			
5	1156	mb1026.d	MB1026	MB1026	5.00	4.93	560477	5.32	747008	7.40	660128	9.11	365128			
6	1228	rr35f3.d	RR35F	DGS-07-0104-101012	5.00	4.93	502222	5.32	663224	7.39	571325	9.11	310589			
7	1258	rr75h2.d	RR75H	DGS-26SG-101013	5.00	4.93	597626	5.31	560026	7.43	1376511	9.13	372352			
8	1328	rr75m2.d	RR75M	DGS-12SG-101013	5.00	4.93	473588	5.32	637963	7.40	544912	9.11	280407			
9	1404	rr76a.d	RR76A	DGS-08SG-101013	5.00	4.93	525336	5.32	698667	7.40	595834	9.11	300301			
10	1434	rr76b.d	RR76B	DGS-13SG-101013	5.00	4.93	227973	5.31	185506	7.38	704005	9.12	345079			
11	1504	rr76c.d	RR76C	DGS-09SG-101013	5.00	4.93	468863	5.32	641658	7.40	546854	9.11	267342			
12	1534	rr76d.d	RR76D	DGS-04SG-101013	5.00	4.93	473359	5.32	629610	7.40	561310	9.11	307577			
13	1604	rr76e.d	RR76E	DGS-02SG-101014	5.00	4.93	499361	5.32	659846	7.40	563330	9.11	285648			
14	1634	rr76f.d	RR76F	DGS-01SG-101014	5.00	4.93	671430	5.32	834233	7.40	679129	9.11	316131			
15	1704	rr76g.d	RR76G	DGS-05SG-101014	5.00	4.93	483563	5.32	660462	7.40	580907	9.11	304578			
16	1734	rr76h.d	RR76H	DGS-06SG-101014	5.00	5.15	143130	5.48	116907	7.39	711611	9.14	366780			
17	1805	rr76k.d	RR76K	U4Q-1-101014	5.00	4.93	486705	5.32	669514	7.40	567241	9.11	265927			
18	1835	rr33c2.d	RR33C	DGS-07-2.22.7-10101	5.00	4.93	620196	5.32	822814	7.39	733108	9.11	425524			
19	1905	rr33e2.d	RR33E	DGS-07-4.75.2-10101	5.00	4.93	660418	5.32	866228	7.40	757286	9.11	423169			
20	1936	rr33f2.d	RR33F	DGS-07-5.66.7-10101	5.00	4.93	626617	5.32	825361	7.40	713769	9.11	401308			
21	2006	rr76kms.d	RR76KMS	U4Q-1-101014 MS	5.00	4.96	32643	7.43	769116	9.12	372980					
22	2036	rr76kmsd.d	RR76KMSD	U4Q-1-101014 MSD	5.00	4.94	597880	5.32	789789	7.40	665719	9.11	317595			

M

Maintenance Verification (Identify ICal or CCal that demonstrates the instrument is in control):

Every line must contain information or be lined out. Make all entries legible. Start a new page for each QC period.

MANUAL INTEGRATION SUMMARY FOR DATABATCH - /chem1/nt9.i/26OCT10.b/gasco.b

ARI Job No.: BFB1 Method: bfb8260.m Instrument: nt9.i Date: 26-OCT-2010

Time	Filename	LabID	ClientId	DF	Manually Integrated Compounds
0904	bfb10260.d	BFB1026	BFB1026	1	NO MANUAL INTEGRATION
0941	0501026.d	CC1026	VSTD050	1	NO MANUAL INTEGRATION
1019	lcs1026.d	LCS1026	LCS1026	1	NO MANUAL INTEGRATION
1049	lcs1026a.d	LCS1026	LCS1026	1	NO MANUAL INTEGRATION
1156	mb1026.d	MB1026	MB1026	1	NO MANUAL INTEGRATION
1835	rr33c2.d	RR33C	DGS-07-2.2	1	m,p-xylene,
1905	rr33e2.d	RR33E	DGS-07-4.7	1	NO MANUAL INTEGRATION
1936	rr33f2.d	RR33F	DGS-07-5.6	1	m,p-xylene, o-Xylene,

RR33.001152

Q-FLAG SUMMARY FOR DATABATCH - /chem1/nt9.i/26OCT10.b/gasco.b

Instrument: nt9.i Date: 26-OCT-2010 Method: gasco.b/VO063010S.m

INITIAL CAL: 28-AUG-2010

Compound	%RSD or R^2
NO Q-FLAGS	

CONTINUING CAL: 26-OCT-2010

Compound	%D
NO Q-FLAGS	

Data File: /chem1/nt9.i/26OCT10.b/gasco.b/bfb10260.d

Date : 26-OCT-2010 09:04

Client ID: BFB1026

Instrument: nt9.i

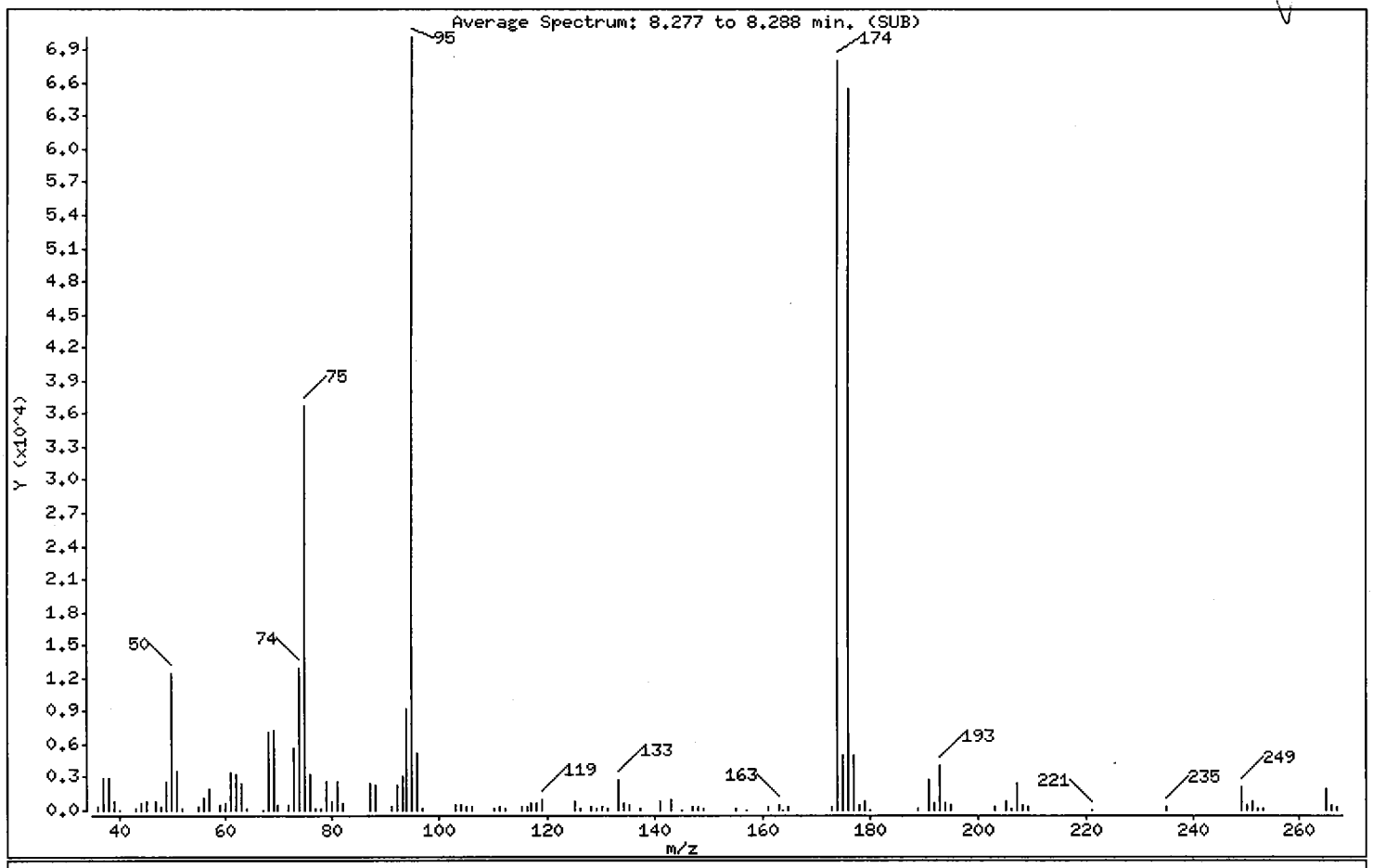
Sample Info: BFB1026,BFB1026,,1,26OCT10,,

Operator: PB

Column phase: RTX502.2

Column diameter: 0.18

1 Bromofluorobenzene



m/e	ION ABUNDANCE CRITERIA	% RELATIVE ABUNDANCE
95	Base Peak, 100% relative abundance	100.00
50	8.00 - 40.00% of mass 95	17.68
75	30.00 - 66.00% of mass 95	52.20
96	5.00 - 9.00% of mass 95	7.40
173	Less than 2.00% of mass 174	0.38 (0.40)
174	50.00 - 101.00% of mass 95	96.99
175	4.00 - 9.00% of mass 174	7.23 (7.46)
176	93.00 - 101.00% of mass 174	93.32 (96.22)
177	5.00 - 9.00% of mass 176	7.26 (7.78)

Data File: /chem1/nt9.i/26OCT10.b/gasco.b/bfb10260.d

Date : 26-OCT-2010 09:04

Client ID: BFB1026 Instrument: nt9.i

Sample Info: BFB1026,BFB1026,,1,26OCT10,,

Operator: PB

Column phase: RTX502.2 Column diameter: 0.18

Data File: bfb10260.d
Spectrum: Average Spectrum: 8.277 to 8.288 min. (SUB)
Location of Maximum: 95.00
Number of points: 111

m/z	Y	m/z	Y	m/z	Y	m/z	Y
36.00	393	73.00	5620	117.00	683	176.00	65488
37.00	2893	74.00	12982	118.00	600	177.00	5093
38.00	2903	75.00	36632	119.00	1017	178.00	433
39.00	747	76.00	3195	125.00	774	179.00	789
40.00	49	77.00	118	126.00	183	180.00	66
43.00	185	78.00	236	128.00	311	189.00	229
44.00	587	79.00	2532	129.00	117	191.00	2783
45.00	883	80.00	762	130.00	322	192.00	615
47.00	734	81.00	2602	131.00	186	193.00	3994
48.00	396	82.00	599	133.00	2804	194.00	694
49.00	2561	87.00	2445	134.00	576	195.00	407
50.00	12410	88.00	2338	135.00	413	203.00	380
51.00	3599	91.00	279	137.00	105	205.00	758
52.00	204	92.00	2286	141.00	876	206.00	212
55.00	266	93.00	3130	143.00	997	207.00	2435
56.00	1170	94.00	9244	145.00	69	208.00	480
57.00	1893	95.00	70176	147.00	386	209.00	303
59.00	439	96.00	5190	148.00	254	221.00	57
60.00	655	97.00	88	149.00	201	235.00	324
61.00	3323	103.00	548	155.00	141	249.00	2164
62.00	3270	104.00	500	157.00	80	250.00	541
63.00	2480	105.00	305	161.00	278	251.00	875
64.00	187	106.00	376	163.00	475	252.00	144
67.00	56	110.00	203	164.00	60	253.00	121
68.00	7035	111.00	257	165.00	371	265.00	1994
69.00	7314	112.00	115	173.00	269	266.00	533
70.00	456	115.00	296	174.00	68064	267.00	393
72.00	408	116.00	347	175.00	5076		

Data File: /chem1/nt9.i/26OCT10.b/gasco.b/bfb10260.d

Date : 26-OCT-2010 09:04

Client ID: BFB1026

Sample Info: BFB1026,BFB1026,,1,26OCT10,,

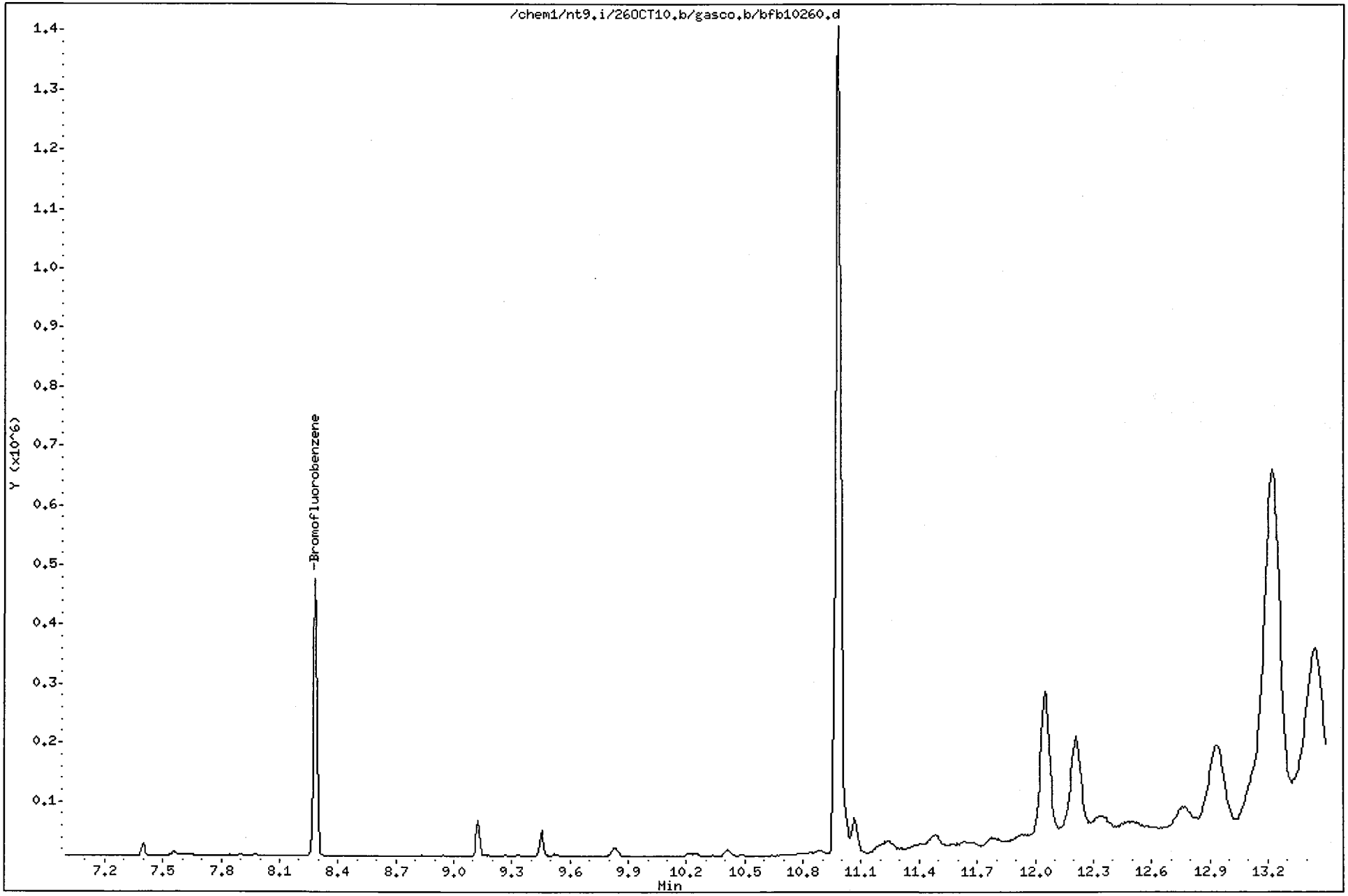
Column phase: RTX502.2

Page 1

Instrument: nt9.i

Operator: PB

Column diameter: 0.18



RR33:09455

Analytical Resources, Inc.

8260C

Data file : /chem1/nt9.i/26OCT10.b/gasco.b/0501026.d
Lab Smp Id: CC1026 Client Smp ID: VSTD050
Inj Date : 26-OCT-2010 09:41
Operator : PB Inst ID: nt9.i
Smp Info : CC1026,5,5,0
Misc Info : 10-
Comment :
Method : /chem1/nt9.i/26OCT10.b/gasco.b/VO063010S.m
Meth Date : 26-Oct-2010 10:32 patrickb Quant Type: ISTD
Cal Date : 28-AUG-2010 13:21 Cal File: 2000828.d
Als bottle: 1 Continuing Calibration Sample
Dil Factor: 1.00000
Integrator: HP RTE Compound Sublist: gasco.sub
Target Version: 3.50
Processing Host: cserv3

Concentration Formula: Amt * DF * Uf * 1/(Ws * (100 - M)/100) * CpndVariable

M	0.00000	% Moisture (not decanted)
Uf	1.00000	ng unit correction factor
Ws	5.00000	Weight of sample extracted (g)

Cpnd Variable Local Compound Variable

Compounds	QUANT SIG MASS	RT	EXP RT	REL RT	RESPONSE	AMOUNTS CAL-AMT (ug/Kg)	ON-COL (ug/Kg)
3 Vinyl Chloride	62	1.407	1.407	(0.285)	247352	50.0000	45.810
7 1,1-Dichloroethene	96	2.317	2.317	(0.470)	295303	50.0000	55.337
15 Trans-1,2-Dichloroethene	96	3.030	3.030	(0.615)	316841	50.0000	51.379
20 Cis-1,2-Dichloroethene	96	4.139	4.139	(0.839)	283579	50.0000	48.532
* 32 Pentafluorobenzene	168	4.931	4.931	(1.000)	604423	50.0000	
$ 25 Dibromofluoromethane	111	4.529	4.529	(0.919)	224240	50.0000	49.616
$ 31 d4-1,2-Dichloroethane	65	4.936	4.936	(1.001)	213961	50.0000	46.112
30 Benzene	78	4.829	4.829	(0.908)	1054590	50.0000	49.372
* 35 1,4-Difluorobenzene	114	5.321	5.321	(1.000)	794191	50.0000	
34 Trichloroethene	95	5.281	5.281	(0.993)	304145	50.0000	51.540
$ 42 d8-Toluene	98	6.305	6.305	(1.185)	887315	50.0000	49.310
43 Toluene	92	6.339	6.339	(1.191)	718121	50.0000	47.310
44 Tetrachloroethene	166	6.611	6.611	(0.894)	395983	50.0000	52.076
* 52 d5-Chlorobenzene	117	7.397	7.397	(1.000)	699493	50.0000	
54 Ethyl Benzene	91	7.437	7.437	(1.005)	1449351	50.0000	50.558
56 m,p-xylene	106	7.544	7.544	(1.020)	1214125	100.000	104.72
57 o-Xylene	106	7.850	7.850	(1.061)	541710	50.0000	50.156
$ 61 4-Bromofluorobenzene	95	8.280	8.280	(1.119)	312438	50.0000	48.226

Compounds	QUANT SIG MASS	RT	EXP RT	REL RT	RESPONSE	AMOUNTS CAL-AMT (ug/Kg)	AMOUNTS ON-COL (ug/Kg)
* 75 d4-1,4-Dichlorobenzene	152	9.117	9.117	(1.000)	387121	50.0000	
$ 78 d4-1,2-Dichlorobenzene	152	9.445	9.445	(1.036)	337077	50.0000	49.811

Data File: /chem1/nt9.i/26OCT10.b/gasco.b/0501026.d
Report Date: 26-Oct-2010 10:32

Analytical Resources, Inc.

INTERNAL STANDARD COMPOUNDS
AREA AND RT SUMMARY

Instrument ID: nt9.i
Lab File ID: 0501026.d
Lab Smp Id: CC1026
Analysis Type: VOA
Quant Type: ISTD
Operator: PB
Method File: /chem1/nt9.i/26OCT10.b/gasco.b/VO063010S.m
Misc Info: 10-

Calibration Date: 26-OCT-2010
Calibration Time: 09:41
Client Smp ID: VSTD050
Level: MED
Sample Type: SOIL

Test Mode:
Use Initial Calibration Level 5.
If Continuing Cal. use Initial Cal. Level 5

COMPOUND	STANDARD	AREA LIMIT LOWER	AREA LIMIT UPPER	SAMPLE	%DIFF
32 Pentafluorobenzen	704281	352140	1408562	604423	-14.18
35 1,4-Difluorobenze	937745	468872	1875490	794191	-15.31
52 d5-Chlorobenzene	853013	426506	1706026	699493	-18.00
75 d4-1,4-Dichlorobe	503655	251828	1007310	387121	-23.14

COMPOUND	STANDARD	RT LIMIT LOWER	RT LIMIT UPPER	SAMPLE	%DIFF
32 Pentafluorobenzen	4.94	4.44	5.44	4.93	-0.12
35 1,4-Difluorobenze	5.32	4.82	5.82	5.32	0.00
52 d5-Chlorobenzene	7.40	6.90	7.90	7.40	0.00
75 d4-1,4-Dichlorobe	9.11	8.61	9.61	9.12	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.

Data File: /chem1/nt9.i/26OCT10.b/gasco.b/0501026.d
Report Date: 26-Oct-2010 10:32

Analytical Resources, Inc.

CONTINUING CALIBRATION COMPOUNDS

Instrument ID: nt9.i
Lab File ID: 0501026.d
Analysis Type: SOIL
Lab Sample ID: CC1026
Method: /chem1/nt9.i/26OCT10.b/gasco.b/VO063010S.m

Injection Date: 26-OCT-2010 09:41
Init. Cal. Date(s): 28-AUG-2010 28-AUG-2010
Init. Cal. Times: 12:52 16:21
Quant Type: ISTD

COMPOUND	RRF / AMOUNT	RF50	CCAL RRF50	MIN RRF	%D / %DRIFT	MAX %D / %DRIFT	CURVE TYPE
3 Vinyl Chloride	0.44667	0.40924	0.40924	0.100	-8.38031	20.00000	Averaged
7 1,1-Dichloroethene	0.44145	0.48857	0.48857	0.100	10.67437	20.00000	Averaged
15 Trans-1,2-Dichloroethene	0.51013	0.52420	0.52420	0.010	2.75860	20.00000	Averaged
20 Cis-1,2-Dichloroethene	0.48336	0.46917	0.46917	0.010	-2.93557	20.00000	Averaged
$ 25 Dibromofluoromethane	0.37387	0.37100	0.37100	0.100	-0.76873	20.00000	Averaged
$ 31 d4-1,2-Dichloroethane	0.38384	0.35399	0.35399	0.010	-7.77700	20.00000	Averaged
30 Benzene	1.34476	1.32788	1.32788	0.100	-1.25523	20.00000	Averaged
34 Trichloroethene	0.37152	0.38296	0.38296	0.100	3.08005	20.00000	Averaged
$ 42 d8-Toluene	1.13290	1.11726	1.11726	0.010	-1.38056	20.00000	Averaged
43 Toluene	0.95562	0.90422	0.90422	0.100	-5.37936	20.00000	Averaged
44 Tetrachloroethene	0.54353	0.56610	0.56610	0.100	4.15247	20.00000	Averaged
54 Ethyl Benzene	2.04913	2.07200	2.07200	0.100	1.11637	20.00000	Averaged
56 m,p-xylene	0.82875	0.86786	0.86786	0.100	4.71908	20.00000	Averaged
57 o-Xylene	0.77203	0.77443	0.77443	0.100	0.31151	20.00000	Averaged
$ 61 4-Bromofluorobenzene	0.46309	0.44666	0.44666	0.200	-3.54768	20.00000	Averaged
$ 78 d4-1,2-Dichlorobenzene	0.87403	0.87073	0.87073	0.010	-0.37809	20.00000	Averaged

Data File: /chem1/nt9.i/26OCT10.b/gasco.b/0501026.d

Date : 26-OCT-2010 09:41

Client ID: VSTD050

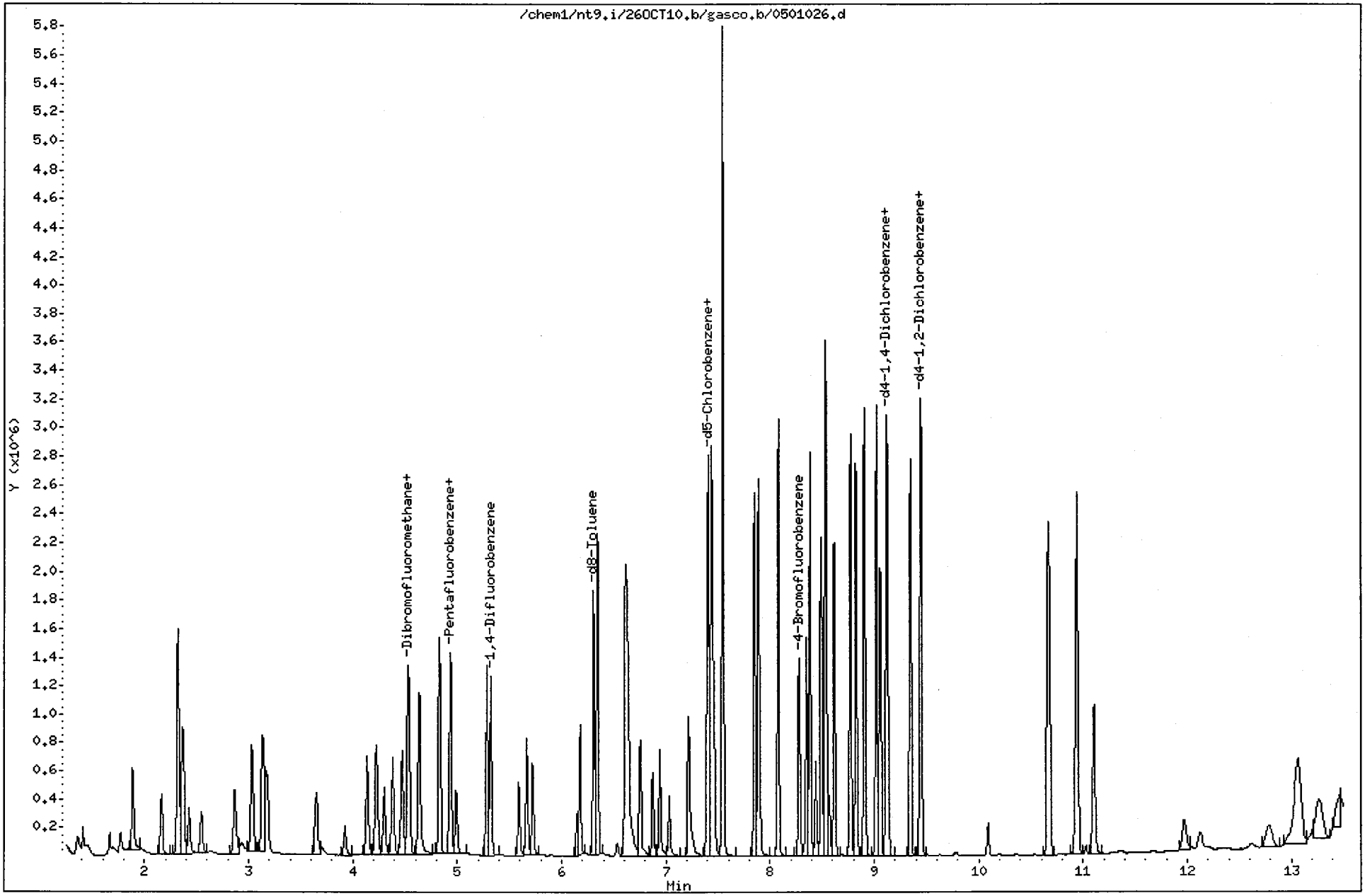
Sample Info: CC1026,5,5,0

Column phase: RTX502.2

Instrument: nt9.i

Operator: PB

Column diameter: 0.18



RR33:00461

Analytical Resources, Inc.

8260C

Data file : /chem1/nt9.i/26OCT10.b/gasco.b/lcs1026.d
Lab Smp Id: LCS1026 Client Smp ID: LCS1026
Inj Date : 26-OCT-2010 10:19
Operator : PB Inst ID: nt9.i
Smp Info : LCS1026,5,5,0
Misc Info : 10-
Comment :
Method : /chem1/nt9.i/26OCT10.b/gasco.b/VO063010S.m
Meth Date : 27-Oct-2010 11:36 patrickb Quant Type: ISTD
Cal Date : 28-AUG-2010 13:21 Cal File: 2000828.d
Als bottle: 1 QC Sample: LCS
Dil Factor: 1.00000
Integrator: HP RTE Compound Sublist: gasco.sub
Target Version: 3.50
Processing Host: cserv3

10/27/10

Concentration Formula: Amt * DF * Pv * 1 / (Sa * ((100 - M) / 100)) * CpndVaria

Name	Value	Description
DF	1.00000	Dilution Factor
Pv	5.00000	Purge Volume
Sa	5.00000	Sample Amount
M	0.00000	% Moisture (not decanted)

Cpnd Variable Local Compound Variable

Compounds	QUANT SIG MASS	RT	EXP RT	REL RT	RESPONSE	CONCENTRATIONS ON-COLUMN (ug/Kg)	FINAL (ug/Kg)
3 Vinyl Chloride	62	1.408	1.407	(0.285)	262170	50.4897	50.490
7 1,1-Dichloroethene	96	2.313	2.317	(0.469)	290188	56.5464	56.546
15 Trans-1,2-Dichloroethene	96	3.031	3.030	(0.615)	313073	52.7921	52.792
20 Cis-1,2-Dichloroethene	96	4.134	4.139	(0.838)	270412	48.1236	48.124
* 32 Pentafluorobenzene	168	4.932	4.931	(1.000)	581252	50.0000	
$ 25 Dibromofluoromethane	111	4.530	4.529	(0.919)	213079	49.0256	49.026
$ 31 d4-1,2-Dichloroethane	65	4.938	4.936	(1.001)	202189	45.3115	45.312
30 Benzene	78	4.830	4.829	(0.908)	1010740	49.1394	49.139
* 35 1,4-Difluorobenzene	114	5.322	5.321	(1.000)	764778	50.0000	
34 Trichloroethene	95	5.283	5.281	(0.993)	284834	50.1240	50.124
$ 42 d8-Toluene	98	6.307	6.305	(1.185)	857628	49.4929	49.493
43 Toluene	92	6.341	6.339	(1.191)	690933	47.2698	47.270
44 Tetrachloroethene	166	6.606	6.611	(0.893)	373109	50.8935	50.893
* 52 d5-Chlorobenzene	117	7.398	7.397	(1.000)	674404	50.0000	

Compounds	QUANT SIG MASS	RT	EXP RT	REL RT	RESPONSE	CONCENTRATIONS ON-COLUMN (ug/Kg)	FINAL (ug/Kg)
54 Ethyl Benzene	91	7.438	7.437	(1.005)	1373603	49.6984	49.698
56 m,p-xylene	106	7.545	7.544	(1.020)	1136002	101.626	101.63
57 o-Xylene	106	7.851	7.850	(1.061)	512839	49.2491	49.249
$ 61 4-Bromofluorobenzene	95	8.281	8.280	(1.119)	297796	47.6761	47.676
* 75 d4-1,4-Dichlorobenzene	152	9.118	9.117	(1.000)	373587	50.0000	
$ 78 d4-1,2-Dichlorobenzene	152	9.440	9.445	(1.035)	323532	49.5414	49.541

Analytical Resources, Inc.

INTERNAL STANDARD COMPOUNDS
AREA AND RT SUMMARY

Instrument ID: nt9.i
Lab File ID: lcs1026.d
Lab Smp Id: LCS1026
Analysis Type: VOA
Quant Type: ISTD
Operator: PB
Method File: /chem1/nt9.i/26OCT10.b/gasco.b/VO063010S.m
Misc Info: 10-

Calibration Date: 26-OCT-2010
Calibration Time: 09:41
Client Smp ID: LCS1026
Level: LOW
Sample Type: SOIL

Test Mode:
Use Initial Calibration Level 5.
If Continuing Cal. use Initial Cal. Level 5

COMPOUND	STANDARD	AREA LIMIT LOWER	AREA LIMIT UPPER	SAMPLE	%DIFF
32 Pentafluorobenzen	704281	352140	1408562	581252	-17.47
35 1,4-Difluorobenze	937745	468872	1875490	764778	-18.44
52 d5-Chlorobenzene	853013	426506	1706026	674404	-20.94
75 d4-1,4-Dichlorobe	503655	251828	1007310	373587	-25.82

COMPOUND	STANDARD	RT LIMIT LOWER	RT LIMIT UPPER	SAMPLE	%DIFF
32 Pentafluorobenzen	4.93	4.43	5.43	4.93	0.03
35 1,4-Difluorobenze	5.32	4.82	5.82	5.32	0.02
52 d5-Chlorobenzene	7.40	6.90	7.90	7.40	0.02
75 d4-1,4-Dichlorobe	9.12	8.62	9.62	9.12	0.01

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.

Analytical Resources, Inc.

RECOVERY REPORT

Client Name:
Sample Matrix: SOLID
Lab Smp Id: LCS1026
Level: LOW
Data Type: MS DATA
SpikeList File: gasco.spk
Sublist File: gasco.sub
Method File: /chem1/nt9.i/26OCT10.b/gasco.b/VO063010S.m
Misc Info: 10-

Client SDG: 26OCT10
Fraction: VOA
Client Smp ID: LCS1026
Operator: PB
SampleType: LCS
Quant Type: ISTD

SPIKE COMPOUND	CONC ADDED ug/Kg	CONC RECOVERED ug/Kg	% RECOVERED	LIMITS
3 Vinyl Chloride	50.000	50.490	100.98	63-137
7 1,1-Dichloroethene	50.000	56.546	113.09	75-126
15 Trans-1,2-Dichloro	50.000	52.792	105.58	80-120
20 Cis-1,2-Dichloroet	50.000	48.124	96.25	80-120
30 Benzene	50.000	49.139	98.28	80-120
34 Trichloroethene	50.000	50.124	100.25	80-120
43 Toluene	50.000	47.270	94.54	80-120
44 Tetrachloroethene	50.000	50.893	101.79	80-121
54 Ethyl Benzene	50.000	49.698	99.40	80-127
56 m,p-xylene	100.00	101.63	101.63	80-125
57 o-Xylene	50.000	49.249	98.50	78-120

SURROGATE COMPOUND	AMOUNT ADDED ug/Kg	AMOUNT RECOVERED ug/Kg	% RECOVERED	LIMITS
$ 25 Dibromofluorometha	50.000	49.026	98.05	30-160
$ 31 d4-1,2-Dichloroeth	50.000	45.312	90.62	75-152
$ 42 d8-Toluene	50.000	49.493	98.99	82-115
$ 61 4-Bromofluorobenze	50.000	47.676	95.35	64-120
$ 78 d4-1,2-Dichloroben	50.000	49.541	99.08	80-120

Data File: /chem1/nt9.i/26OCT10.b/gasco.b/lcs1026.d

Date : 26-OCT-2010 10:19

Client ID: LCS1026

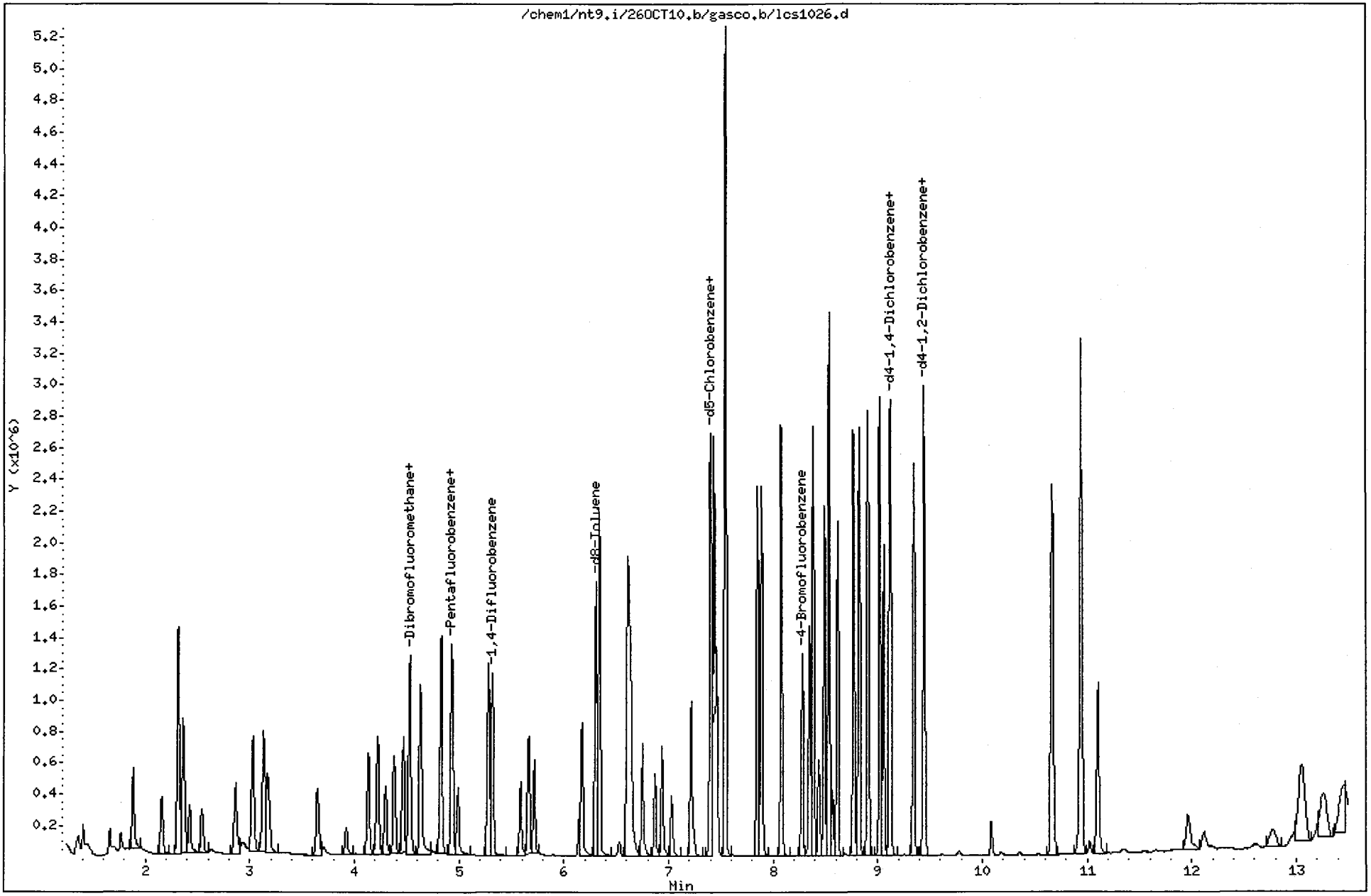
Sample Info: LCS1026,5,5,0

Column phase: RTX502.2

Instrument: nt9.i

Operator: PB

Column diameter: 0.18



RR33:00156

Analytical Resources, Inc.

8260C

Data file : /chem1/nt9.i/26OCT10.b/gasco.b/lcs1026a.d
Lab Smp Id: LCS1026 Client Smp ID: LCS1026
Inj Date : 26-OCT-2010 10:49
Operator : PB Inst ID: nt9.i
Smp Info : LCS1026,5,5,0
Misc Info : 10-
Comment :
Method : /chem1/nt9.i/26OCT10.b/gasco.b/VO063010S.m
Meth Date : 27-Oct-2010 11:36 patrickb Quant Type: ISTD
Cal Date : 28-AUG-2010 13:21 Cal File: 2000828.d
Als bottle: 1 QC Sample: LCSD
Dil Factor: 1.00000
Integrator: HP RTE Compound Sublist: gasco.sub
Target Version: 3.50
Processing Host: cserv3

11/27/10

Concentration Formula: Amt * DF * Pv * 1 / (Sa * ((100 - M) / 100)) * CpndVaria

Name	Value	Description
DF	1.00000	Dilution Factor
Pv	5.00000	Purge Volume
Sa	5.00000	Sample Amount
M	0.00000	% Moisture (not decanted)

Cpnd Variable Local Compound Variable

Compounds	QUANT SIG MASS	RT	EXP RT	REL RT	RESPONSE	CONCENTRATIONS ON-COLUMN (ug/Kg)	FINAL (ug/Kg)
3 Vinyl Chloride	62	1.420	1.407	(0.288)	289705	52.2793	52.279
7 1,1-Dichloroethene	96	2.314	2.317	(0.469)	248901	45.4471	45.447
15 Trans-1,2-Dichloroethene	96	3.032	3.030	(0.615)	341505	53.9603	53.960
20 Cis-1,2-Dichloroethene	96	4.141	4.139	(0.839)	297685	49.6414	49.641
* 32 Pentafluorobenzene	168	4.933	4.931	(1.000)	620312	50.0000	
$ 25 Dibromofluoromethane	111	4.532	4.529	(0.919)	225708	48.6612	48.661
$ 31 d4-1,2-Dichloroethane	65	4.939	4.936	(1.001)	239677	50.3306	50.331
30 Benzene	78	4.831	4.829	(0.908)	1103250	50.2266	50.227
* 35 1,4-Difluorobenzene	114	5.324	5.321	(1.000)	816706	50.0000	
34 Trichloroethene	95	5.284	5.281	(0.993)	320277	52.7775	52.778
$ 42 d8-Toluene	98	6.308	6.305	(1.185)	922558	49.8549	49.855
43 Toluene	92	6.342	6.339	(1.191)	748646	47.9616	47.962
44 Tetrachloroethene	166	6.608	6.611	(0.893)	401361	51.2672	51.267
* 52 d5-Chlorobenzene	117	7.400	7.397	(1.000)	720181	50.0000	

Compounds	QUANT SIG MASS	RT	EXP RT	REL RT	RESPONSE	CONCENTRATIONS ON-COLUMN (ug/Kg)	FINAL (ug/Kg)
54 Ethyl Benzene	91	7.439	7.437	(1.005)	1477826	50.0706	50.071
56 m,p-xylene	106	7.541	7.544	(1.019)	1224706	102.597	102.60
57 o-Xylene	106	7.846	7.850	(1.060)	555651	49.9687	49.969
$ 61 4-Bromofluorobenzene	95	8.276	8.280	(1.118)	314845	47.2017	47.202
* 75 d4-1,4-Dichlorobenzene	152	9.114	9.117	(1.000)	382955	50.0000	
$ 78 d4-1,2-Dichlorobenzene	152	9.436	9.445	(1.035)	330882	49.4274	49.427

Analytical Resources, Inc.

INTERNAL STANDARD COMPOUNDS
AREA AND RT SUMMARY

Instrument ID: nt9.i
Lab File ID: lcs1026a.d
Lab Smp Id: LCS1026
Analysis Type: VOA
Quant Type: ISTD
Operator: PB
Method File: /chem1/nt9.i/26OCT10.b/gasco.b/VO063010S.m
Misc Info: 10-

Calibration Date: 26-OCT-2010
Calibration Time: 09:41
Client Smp ID: LCS1026
Level: LOW
Sample Type: SOIL

Test Mode:
Use Initial Calibration Level 5.
If Continuing Cal. use Initial Cal. Level 5

COMPOUND	STANDARD	AREA LIMIT LOWER	AREA LIMIT UPPER	SAMPLE	%DIFF
32 Pentafluorobenzen	704281	352140	1408562	620312	-11.92
35 1,4-Difluorobenze	937745	468872	1875490	816706	-12.91
52 d5-Chlorobenzene	853013	426506	1706026	720181	-15.57
75 d4-1,4-Dichlorobe	503655	251828	1007310	382955	-23.96

COMPOUND	STANDARD	RT LIMIT LOWER	RT LIMIT UPPER	SAMPLE	%DIFF
32 Pentafluorobenzen	4.93	4.43	5.43	4.93	0.05
35 1,4-Difluorobenze	5.32	4.82	5.82	5.32	0.05
52 d5-Chlorobenzene	7.40	6.90	7.90	7.40	0.03
75 d4-1,4-Dichlorobe	9.12	8.62	9.62	9.11	-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.

Analytical Resources, Inc.

RECOVERY REPORT

Client Name:
Sample Matrix: SOLID
Lab Smp Id: LCS1026
Level: LOW
Data Type: MS DATA
SpikeList File: gasco.spk
Sublist File: gasco.sub
Method File: /chem1/nt9.i/26OCT10.b/gasco.b/VO063010S.m
Misc Info: 10-

Client SDG: 26OCT10
Fraction: VOA
Client Smp ID: LCS1026
Operator: PB
SampleType: LCSD
Quant Type: ISTD

SPIKE COMPOUND	CONC ADDED ug/Kg	CONC RECOVERED ug/Kg	% RECOVERED	LIMITS
3 Vinyl Chloride	50.000	52.279	104.56	63-137
7 1,1-Dichloroethene	50.000	45.447	90.89	75-126
15 Trans-1,2-Dichloro	50.000	53.960	107.92	80-120
20 Cis-1,2-Dichloroet	50.000	49.641	99.28	80-120
30 Benzene	50.000	50.227	100.45	80-120
34 Trichloroethene	50.000	52.778	105.56	80-120
43 Toluene	50.000	47.962	95.92	80-120
44 Tetrachloroethene	50.000	51.267	102.53	80-121
54 Ethyl Benzene	50.000	50.071	100.14	80-127
56 m,p-xylene	100.00	102.60	102.60	80-125
57 o-Xylene	50.000	49.969	99.94	78-120

SURROGATE COMPOUND	AMOUNT ADDED ug/Kg	AMOUNT RECOVERED ug/Kg	% RECOVERED	LIMITS
$ 25 Dibromofluorometha	50.000	48.661	97.32	30-160
$ 31 d4-1,2-Dichloroeth	50.000	50.331	100.66	75-152
$ 42 d8-Toluene	50.000	49.855	99.71	82-115
$ 61 4-Bromofluorobenze	50.000	47.202	94.40	64-120
$ 78 d4-1,2-Dichloroben	50.000	49.427	98.85	80-120

Data File: /chem1/nt9.i/26OCT10.b/gasco.b/lcs1026a.d

Date : 26-OCT-2010 10:49

Client ID: LCS1026

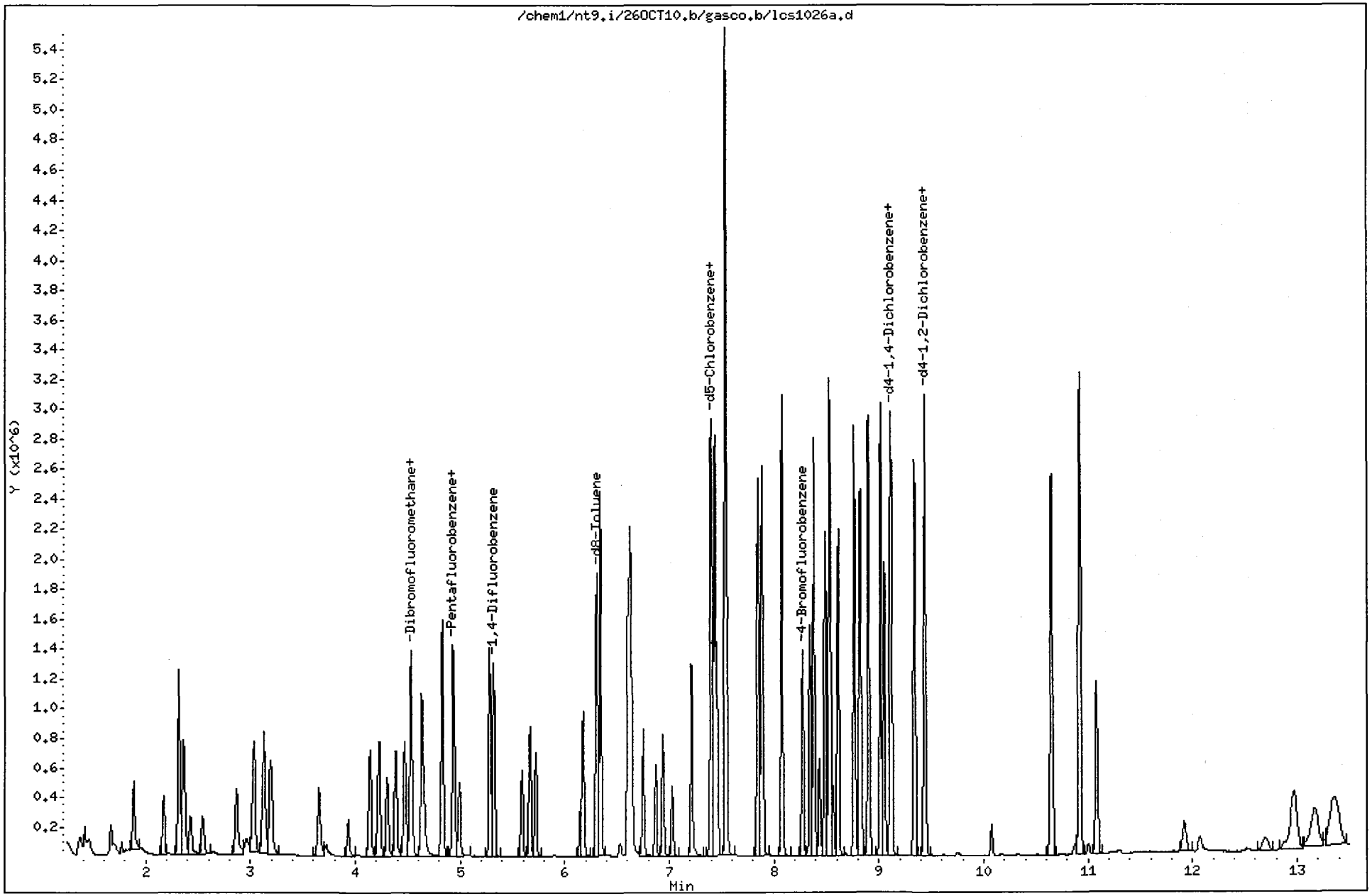
Sample Info: LCS1026,5,5,0

Column phase: RTX502.2

Instrument: nt9.i

Operator: PB

Column diameter: 0.18



RR39:09417

Analytical Resources, Inc.

8260C

Data file : /chem1/nt9.i/26OCT10.b/gasco.b/mb1026.d
Lab Smp Id: MB1026 Client Smp ID: MB1026
Inj Date : 26-OCT-2010 11:56
Operator : PB Inst ID: nt9.i
Smp Info : MB1026,5,5,0
Misc Info : 10-
Comment :
Method : /chem1/nt9.i/26OCT10.b/gasco.b/VO063010S.m
Meth Date : 27-Oct-2010 11:36 patrickb Quant Type: ISTD
Cal Date : 28-AUG-2010 13:21 Cal File: 2000828.d
Als bottle: 1 QC Sample: BLANK
Dil Factor: 1.00000
Integrator: HP RTE Compound Sublist: gasco.sub
Target Version: 3.50
Processing Host: cserv3

10/27/10

Concentration Formula: Amt * DF * Pv * 1 / (Sa * ((100 - M) / 100)) * CpndVaria

Name	Value	Description
DF	1.00000	Dilution Factor
Pv	5.00000	Purge Volume
Sa	5.00000	Sample Amount
M	0.00000	% Moisture (not decanted)

Cpnd Variable Local Compound Variable

	Compounds	QUANT SIG MASS	RT	EXP RT	REL RT	RESPONSE	CONCENTRATIONS ON-COLUMN (ug/Kg)	FINAL (ug/Kg)
	3 Vinyl Chloride	62	Compound Not Detected.					
	7 1,1-Dichloroethene	96	Compound Not Detected.					
	15 Trans-1,2-Dichloroethene	96	Compound Not Detected.					
	20 Cis-1,2-Dichloroethene	96	Compound Not Detected.					
*	32 Pentafluorobenzene	168	4.931	4.931	(1.000)	560477	50.0000	
$	25 Dibromofluoromethane	111	4.529	4.529	(0.919)	202305	48.2720	48.272
$	31 d4-1,2-Dichloroethane	65	4.936	4.936	(1.001)	216593	50.3387	50.339
	30 Benzene	78	Compound Not Detected.					
*	35 1,4-Difluorobenzene	114	5.321	5.321	(1.000)	747008	50.0000	
	34 Trichloroethene	95	Compound Not Detected.					
$	42 d8-Toluene	98	6.305	6.305	(1.185)	846099	49.9891	49.989
	43 Toluene	92	Compound Not Detected.					
	44 Tetrachloroethene	166	Compound Not Detected.					
*	52 d5-Chlorobenzene	117	7.397	7.397	(1.000)	660128	50.0000	
	54 Ethyl Benzene	91	Compound Not Detected.					

Compounds	QUANT SIG MASS	RT	EXP RT	REL RT	RESPONSE	CONCENTRATIONS ON-COLUMN (ug/Kg)	FINAL (ug/Kg)
56 m,p-xylene	106	Compound Not Detected.					
57 o-Xylene	106	7.544	7.850	(1.020)	2692	0.26411	0.2641
$ 61 4-Bromofluorobenzene	95	8.279	8.280	(1.119)	293959	48.0796	48.080
* 75 d4-1,4-Dichlorobenzene	152	9.111	9.117	(1.000)	365128	50.0000	
$ 78 d4-1,2-Dichlorobenzene	152	9.439	9.445	(1.036)	325129	50.9393	50.939

Analytical Resources, Inc.

INTERNAL STANDARD COMPOUNDS
AREA AND RT SUMMARY

Instrument ID: nt9.i
Lab File ID: mb1026.d
Lab Smp Id: MB1026
Analysis Type: VOA
Quant Type: ISTD
Operator: PB
Method File: /chem1/nt9.i/26OCT10.b/gasco.b/VO063010S.m
Misc Info: 10-

Calibration Date: 26-OCT-2010
Calibration Time: 09:41
Client Smp ID: MB1026
Level: LOW
Sample Type: SOIL

Test Mode:
Use Initial Calibration Level 5.
If Continuing Cal. use Initial Cal. Level 5

COMPOUND	STANDARD	AREA LIMIT LOWER	AREA LIMIT UPPER	SAMPLE	%DIFF
32 Pentafluorobenzen	704281	352140	1408562	560477	-20.42
35 1,4-Difluorobenze	937745	468872	1875490	747008	-20.34
52 d5-Chlorobenzene	853013	426506	1706026	660128	-22.61
75 d4-1,4-Dichlorobe	503655	251828	1007310	365128	-27.50

COMPOUND	STANDARD	RT LIMIT LOWER	RT LIMIT UPPER	SAMPLE	%DIFF
32 Pentafluorobenzen	4.93	4.43	5.43	4.93	0.00
35 1,4-Difluorobenze	5.32	4.82	5.82	5.32	0.00
52 d5-Chlorobenzene	7.40	6.90	7.90	7.40	0.00
75 d4-1,4-Dichlorobe	9.12	8.62	9.62	9.11	-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.

Analytical Resources, Inc.

RECOVERY REPORT

Client Name:
Sample Matrix: SOLID
Lab Smp Id: MB1026
Level: LOW
Data Type: MS DATA
SpikeList File: all.spk
Sublist File: gasco.sub
Method File: /chem1/nt9.i/26OCT10.b/gasco.b/VO063010S.m
Misc Info: 10-

Client SDG: 26OCT10
Fraction: VOA
Client Smp ID: MB1026
Operator: PB
SampleType: BLANK
Quant Type: ISTD

SURROGATE COMPOUND	AMOUNT ADDED ug/Kg	AMOUNT RECOVERED ug/Kg	% RECOVERED	LIMITS
$ 25 Dibromofluorometha	50.000	48.272	96.54	30-160
$ 31 d4-1,2-Dichloroeth	50.000	50.339	100.68	75-152
$ 42 d8-Toluene	50.000	49.989	99.98	82-115
$ 61 4-Bromofluorobenze	50.000	48.080	96.16	64-120
$ 78 d4-1,2-Dichloroben	50.000	50.939	101.88	80-120

Data File: /chem1/nt9.i/26OCT10.b/gasco.b/mb1026.d

Date : 26-OCT-2010 11:56

Client ID: MB1026

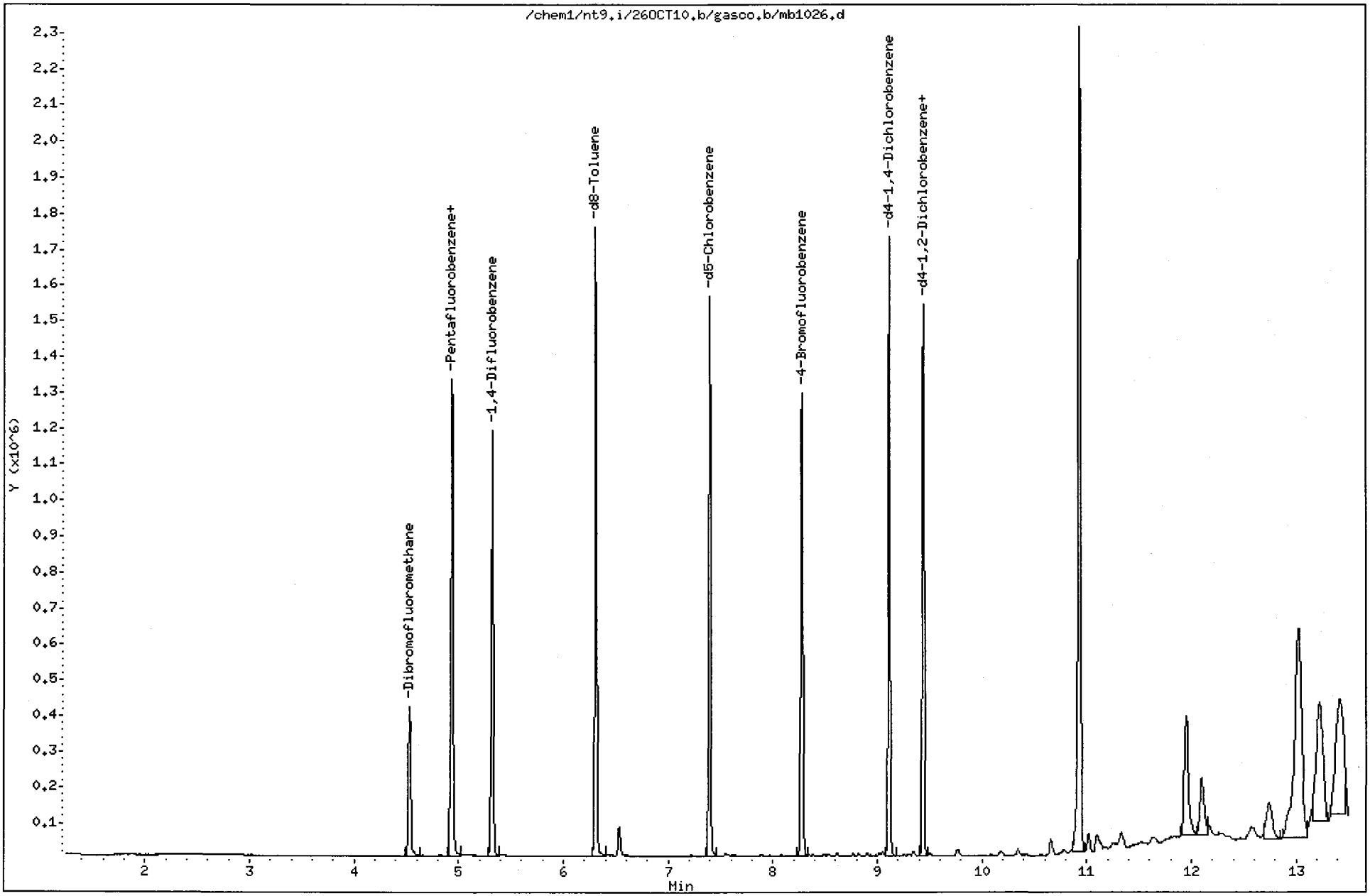
Instrument: nt9.i

Sample Info: MB1026,5,5,0

Operator: PB

Column phase: RTX502.2

Column diameter: 0.18



RR33:00176

Analytical Resources, Inc.

8260C

Data file : /chem1/nt9.i/26OCT10.b/gasco.b/rr33c2.d
Lab Smp Id: RR33C Client Smp ID: DGS-07-2.22.7-10101
Inj Date : 26-OCT-2010 18:35
Operator : PB Inst ID: nt9.i
Smp Info : RR33C,5,5.14,1,100UL 5.14G/5ML
Misc Info : 10-26421
Comment :
Method : /chem1/nt9.i/26OCT10.b/gasco.b/VO063010S.m
Meth Date : 27-Oct-2010 11:37 patrickb Quant Type: ISTD
Cal Date : 28-AUG-2010 13:21 Cal File: 2000828.d
Als bottle: 1
Dil Factor: 1.00000
Integrator: HP RTE Compound Sublist: gasco.sub
Target Version: 3.50
Processing Host: cserv3

10/27/10

Concentration Formula: Amt * DF * Uf * 1/(Ws * (100 - M)/100) * CpndVariable

M	50.10000	% Moisture (not decanted)
Uf	1.00000	ng unit correction factor
Ws	5.00000	Weight of sample extracted (g)

Cpnd Variable Local Compound Variable

Compounds	QUANT SIG MASS	RT	EXP RT	REL RT	RESPONSE	CONCENTRATIONS ON-COLUMN (ug/Kg)	FINAL (ug/Kg)
3 Vinyl Chloride	62	Compound Not Detected.					
7 1,1-Dichloroethene	96	Compound Not Detected.					
15 Trans-1,2-Dichloroethene	96	Compound Not Detected.					
20 Cis-1,2-Dichloroethene	96	Compound Not Detected.					
* 32 Pentafluorobenzene	168	4.934	4.931	(1.000)	620196	50.0000	
$ 25 Dibromofluoromethane	111	4.532	4.529	(0.919)	224554	48.4215	19.407
$ 31 d4-1,2-Dichloroethane	65	4.939	4.936	(1.001)	249979	52.5037	21.044
30 Benzene	78	4.832	4.829	(0.909)	10727	0.49473	0.1943
* 35 1,4-Difluorobenzene	114	5.318	5.321	(1.000)	822814	50.0000	
34 Trichloroethene	95	Compound Not Detected.					
$ 42 d8-Toluene	98	6.308	6.305	(1.186)	929309	49.8469	19.979
43 Toluene	92	6.342	6.339	(1.193)	5226	0.37232	0.1332
44 Tetrachloroethene	166	Compound Not Detected.					
* 52 d5-Chlorobenzene	117	7.394	7.397	(1.000)	733108	50.0000	
54 Ethyl Benzene	91	7.434	7.437	(1.005)	198570	6.60917	2.649
56 m,p-xylene	106	7.541	7.544	(1.020)	3816	0.31404	0.1259(QM)
57 o-Xylene	106	7.847	7.850	(1.061)	22916	2.02446	0.8114
$ 61 4-Bromofluorobenzene	95	8.277	8.280	(1.119)	332776	49.0102	19.643

Compounds	QUANT SIG MASS	RT	EXP RT	REL RT	RESPONSE	CONCENTRATIONS ON-COLUMN (ug/Kg)	FINAL (ug/Kg)
* 75 d4-1,4-Dichlorobenzene	152	9.108	9.117	(1.000)	425524	50.0000	
$ 78 d4-1,2-Dichlorobenzene	152	9.431	9.445	(1.035)	377177	50.7065	20.323

QC Flag Legend

Q - Qualifier signal failed the ratio test.
M - Compound response manually integrated.

Analytical Resources, Inc.

INTERNAL STANDARD COMPOUNDS
AREA AND RT SUMMARY

Instrument ID: nt9.i
Lab File ID: rr33c2.d
Lab Smp Id: RR33C
Analysis Type: VOA
Quant Type: ISTD
Operator: PB
Method File: /chem1/nt9.i/26OCT10.b/gasco.b/VO063010S.m
Misc Info: 10-26421

Calibration Date: 26-OCT-2010
Calibration Time: 09:41
Client Smp ID: DGS-07-2.22.7-10101
Level: MED
Sample Type: Sediment

Test Mode:
Use Initial Calibration Level 5.
If Continuing Cal. use Initial Cal. Level 5

COMPOUND	STANDARD	AREA LIMIT LOWER	AREA LIMIT UPPER	SAMPLE	%DIFF
32 Pentafluorobenzen	704281	352140	1408562	620196	-11.94
35 1,4-Difluorobenze	937745	468872	1875490	822814	-12.26
52 d5-Chlorobenzene	853013	426506	1706026	733108	-14.06
75 d4-1,4-Dichlorobe	503655	251828	1007310	425524	-15.51

COMPOUND	STANDARD	RT LIMIT LOWER	RT LIMIT UPPER	SAMPLE	%DIFF
32 Pentafluorobenzen	4.93	4.43	5.43	4.93	0.06
35 1,4-Difluorobenze	5.32	4.82	5.82	5.32	-0.05
52 d5-Chlorobenzene	7.40	6.90	7.90	7.39	-0.04
75 d4-1,4-Dichlorobe	9.12	8.62	9.62	9.11	-0.09

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.

Analytical Resources, Inc.

RECOVERY REPORT

Client Name: NW Natural
Sample Matrix: SOLID
Lab Smp Id: RR33C
Level: MED
Data Type: MS DATA
SpikeList File: all.spk
Sublist File: gasco.sub
Method File: /chem1/nt9.i/26OCT10.b/gasco.b/VO063010S.m
Misc Info: 10-26421

Client SDG: RR33
Fraction: VOA
Client Smp ID: DGS-07-2.22.7-10101
Operator: PB
SampleType: SAMPLE
Quant Type: ISTD

SURROGATE COMPOUND	AMOUNT ADDED ug/Kg	AMOUNT RECOVERED ug/Kg	% RECOVERED	LIMITS
$ 25 Dibromofluorometha	50.000	48.422	96.84	30-160
$ 31 d4-1,2-Dichloroeth	50.000	52.504	105.01	75-152
$ 42 d8-Toluene	50.000	49.847	99.69	82-115
$ 61 4-Bromofluorobenze	50.000	49.010	98.02	64-120
$ 78 d4-1,2-Dichloroben	50.000	50.706	101.41	80-120

Data File: /chem1/nt9.i/26OCT10.b/gasco.b/rr33c2.d

Date : 26-OCT-2010 18:35

Client ID: DGS-07-2.22.7-10101

Sample Info: RR33C,5,5.14,1,100UL 5.14G/5ML

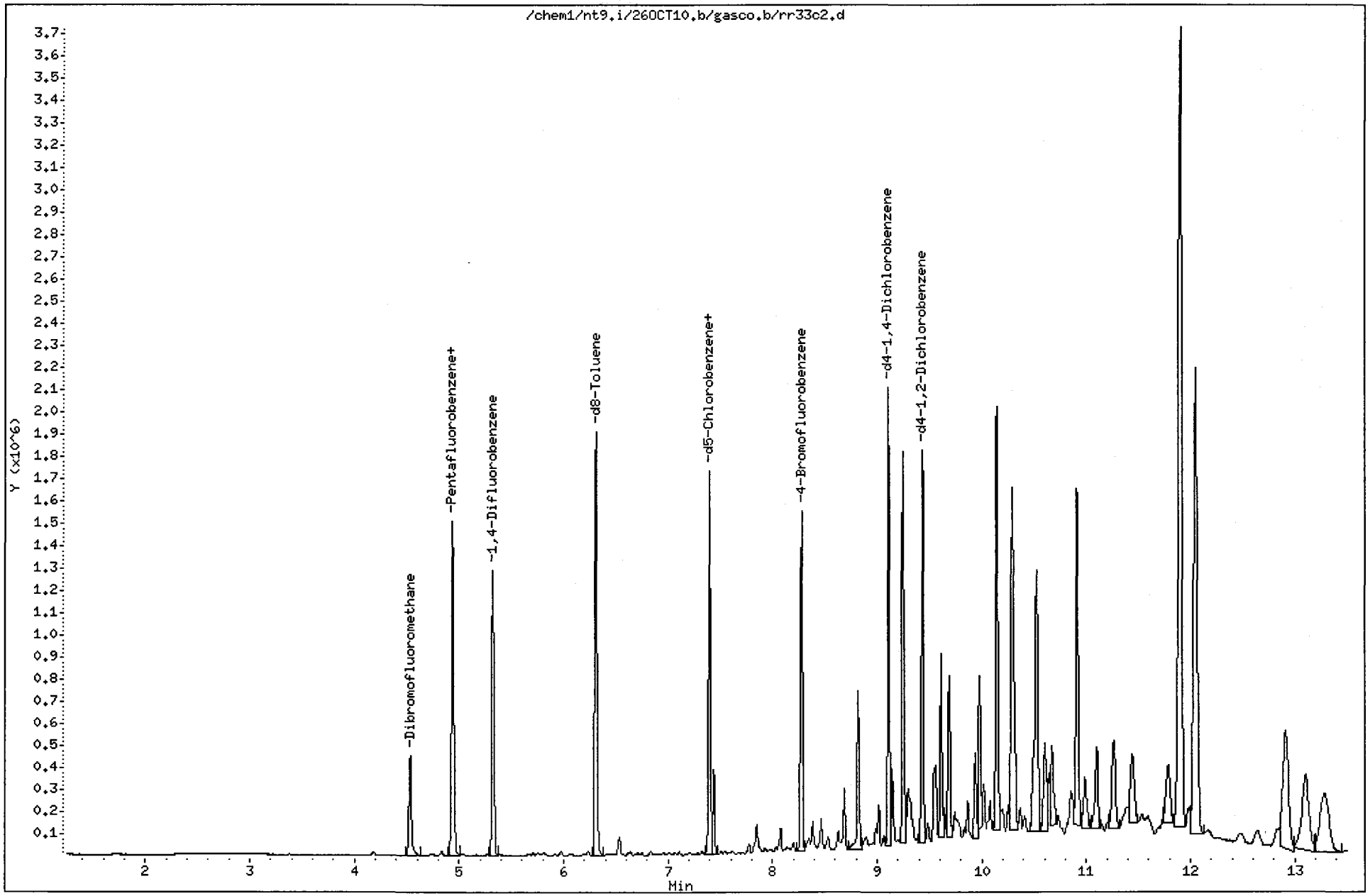
Column phase: RTX502.2

Instrument: nt9.i

Operator: PB

Column diameter: 0.18

RR33:00481



Data File: /chem1/nt9.i/26OCT10.b/gasco.b/rr33c2.d

Date : 26-OCT-2010 18:35

Client ID: DGS-07-2.22.7-10101

Instrument: nt9.i

Sample Info: RR33C,5,5.14,1,100UL 5.14G/5ML

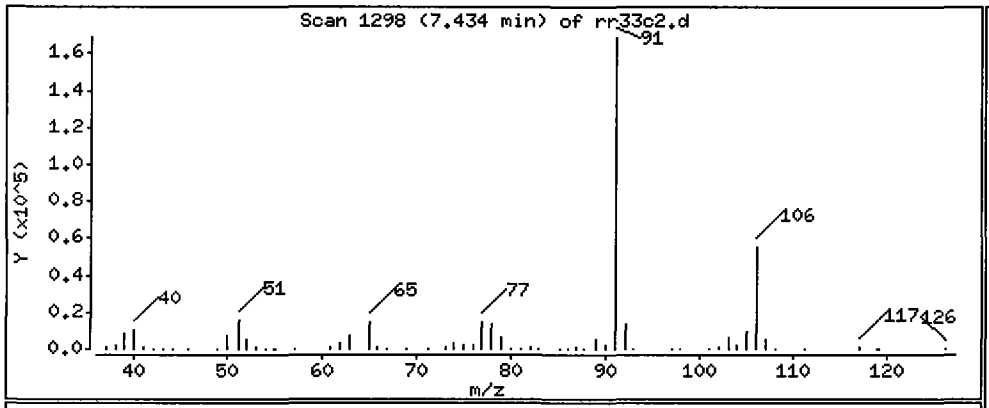
Operator: PB

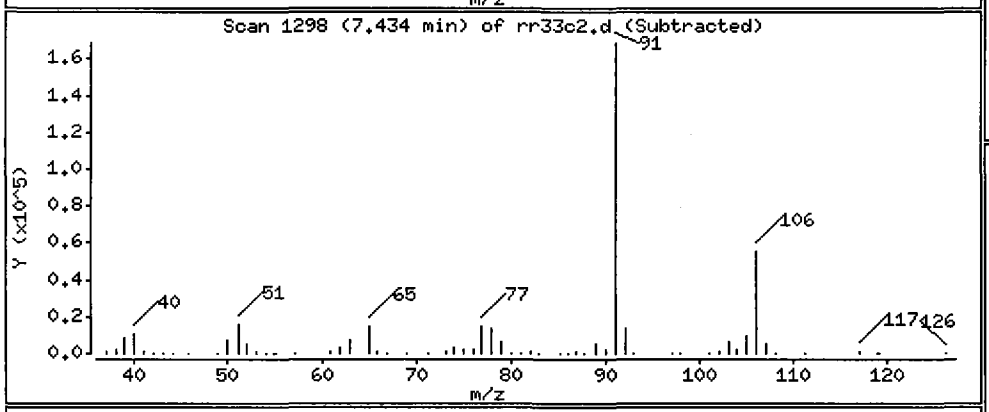
Column phase: RTX502.2

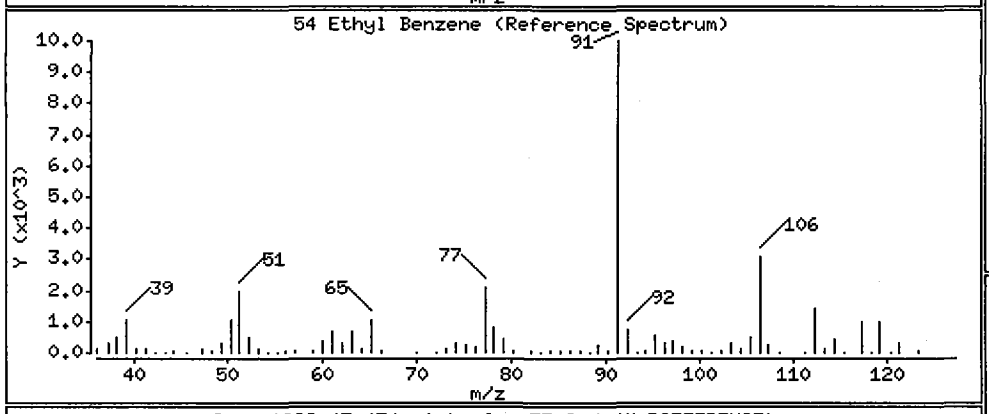
Column diameter: 0.18

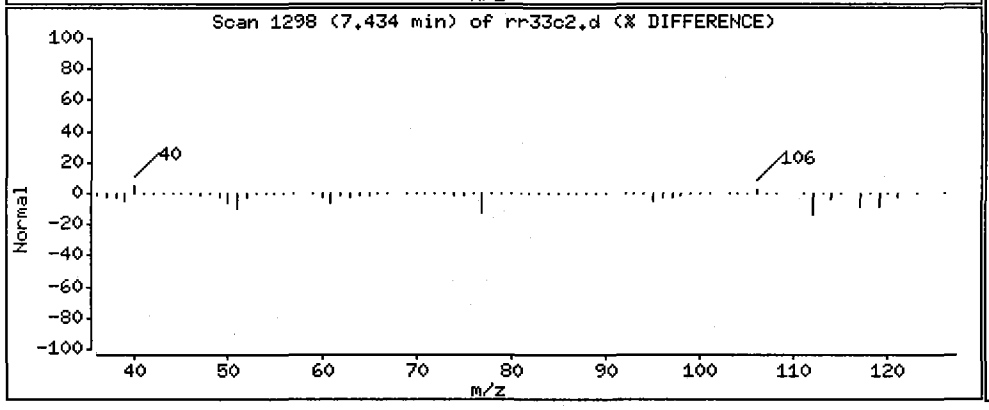
54 Ethyl Benzene

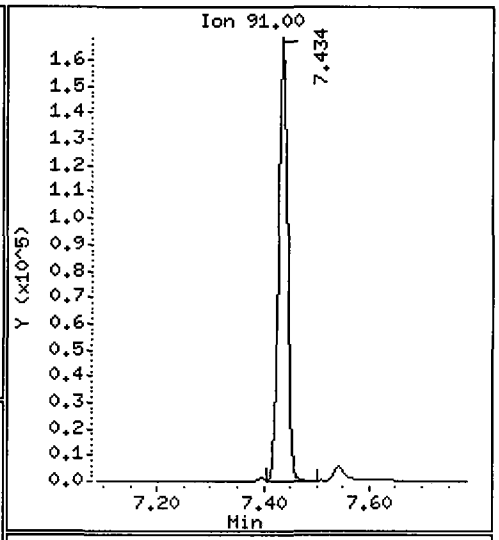
Concentration: 2.649 ug/Kg

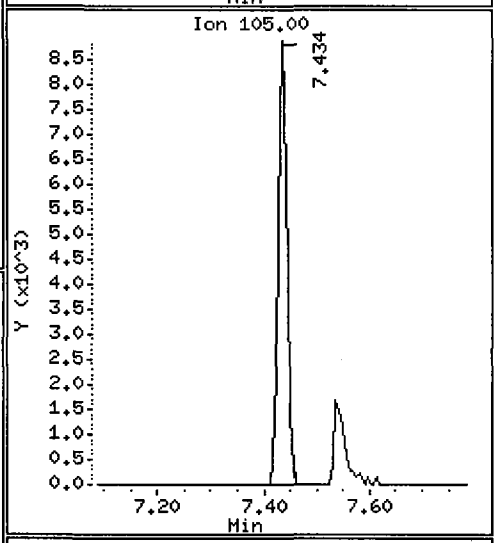


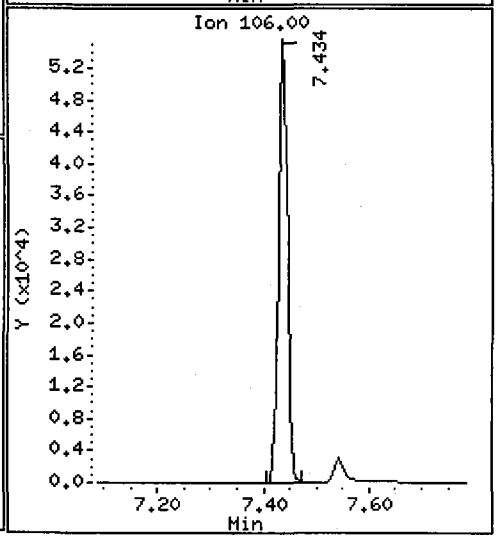












Data File: /chem1/nt9.i/26OCT10.b/gasco.b/rr33c2.d

Date : 26-OCT-2010 18:35

Client ID: DGS-07-2.22.7-10101

Instrument: nt9.i

Sample Info: RR33C,5,5.14,1,100UL 5.14G/5ML

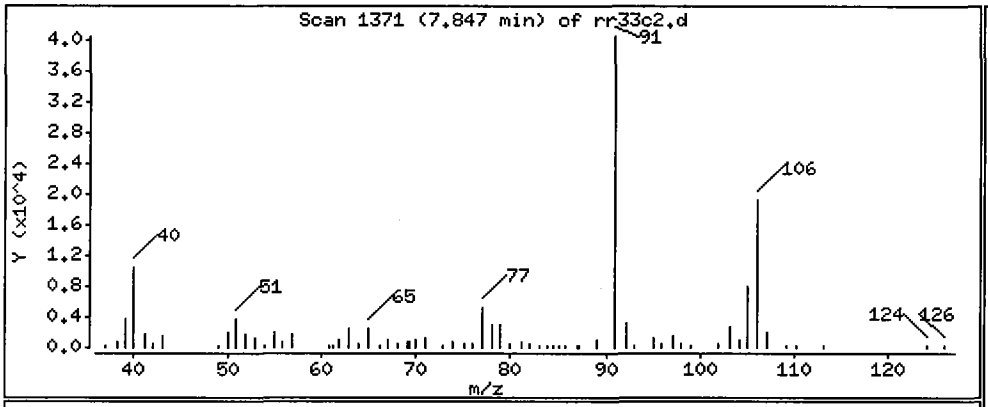
Operator: PB

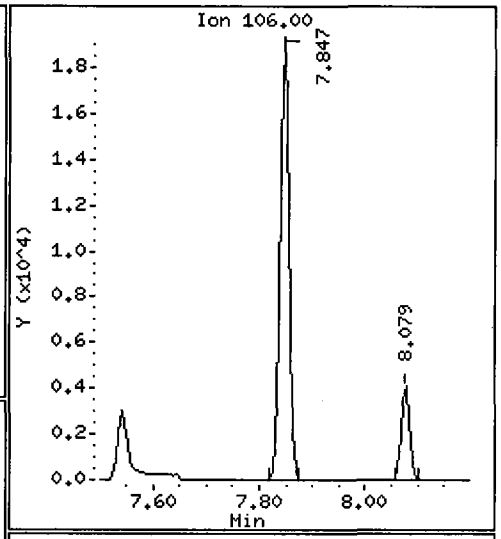
Column phase: RTX502.2

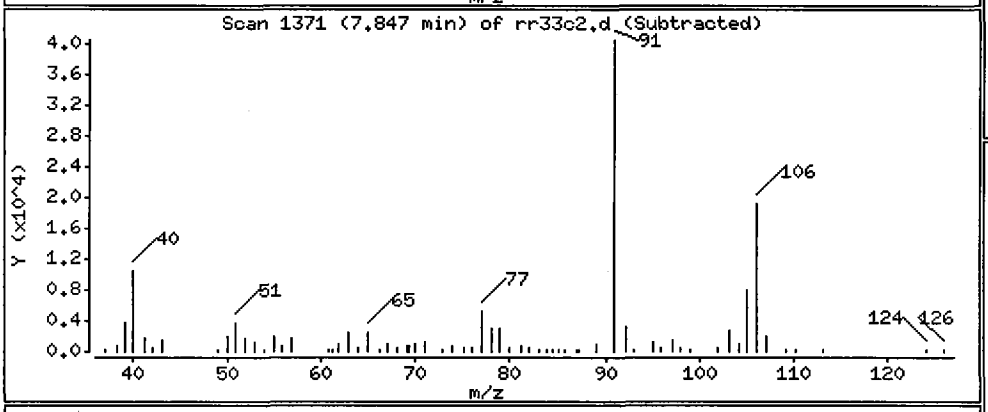
Column diameter: 0.18

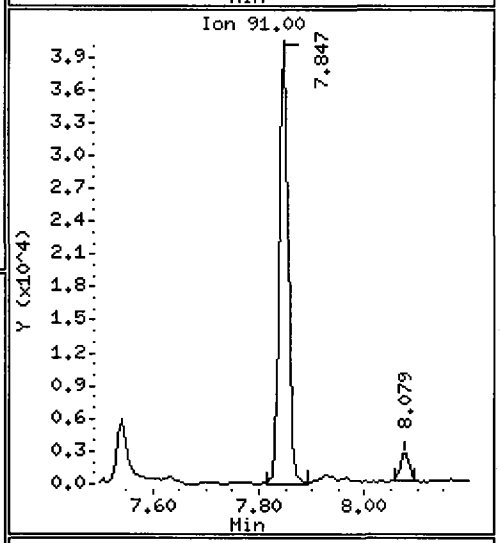
57 o-Xylene

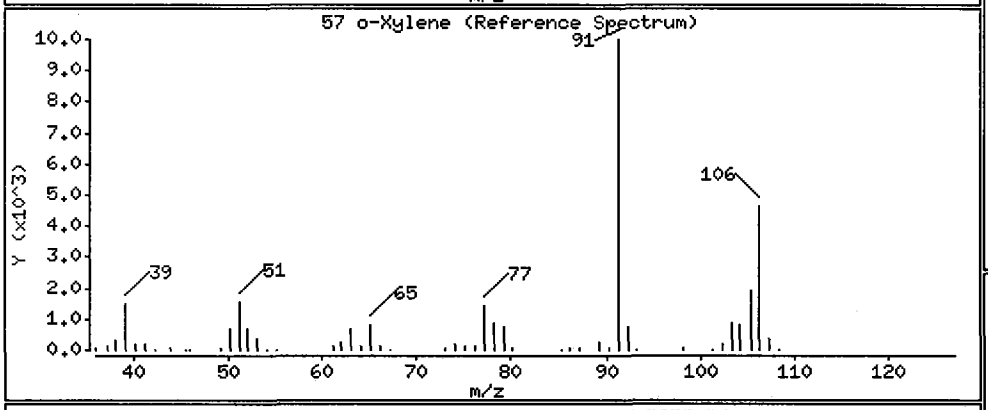
Concentration: 0.8114 ug/Kg

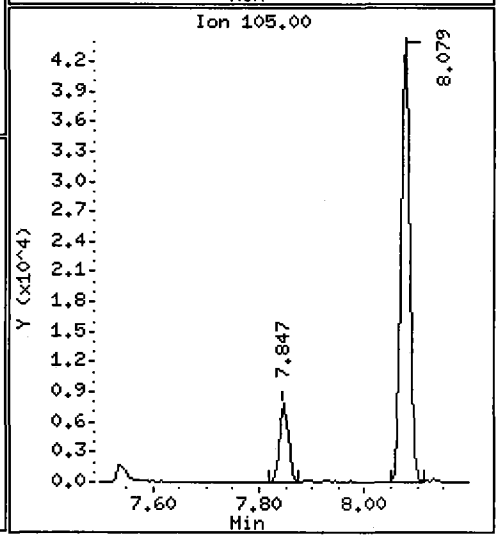


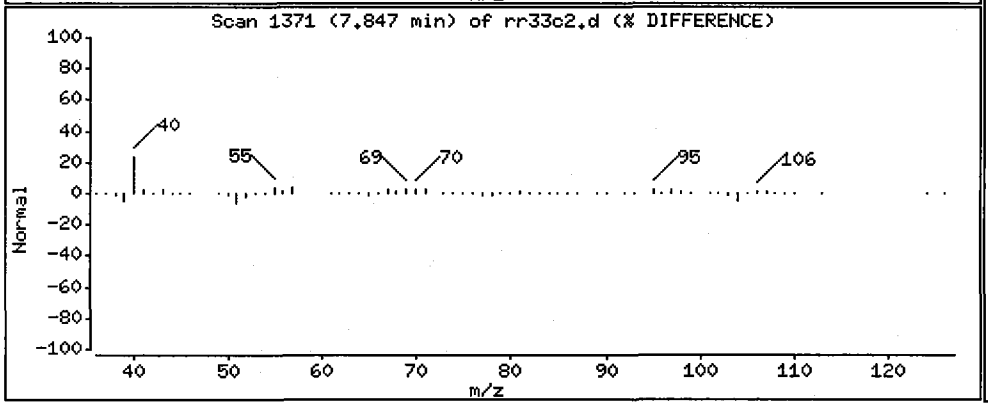






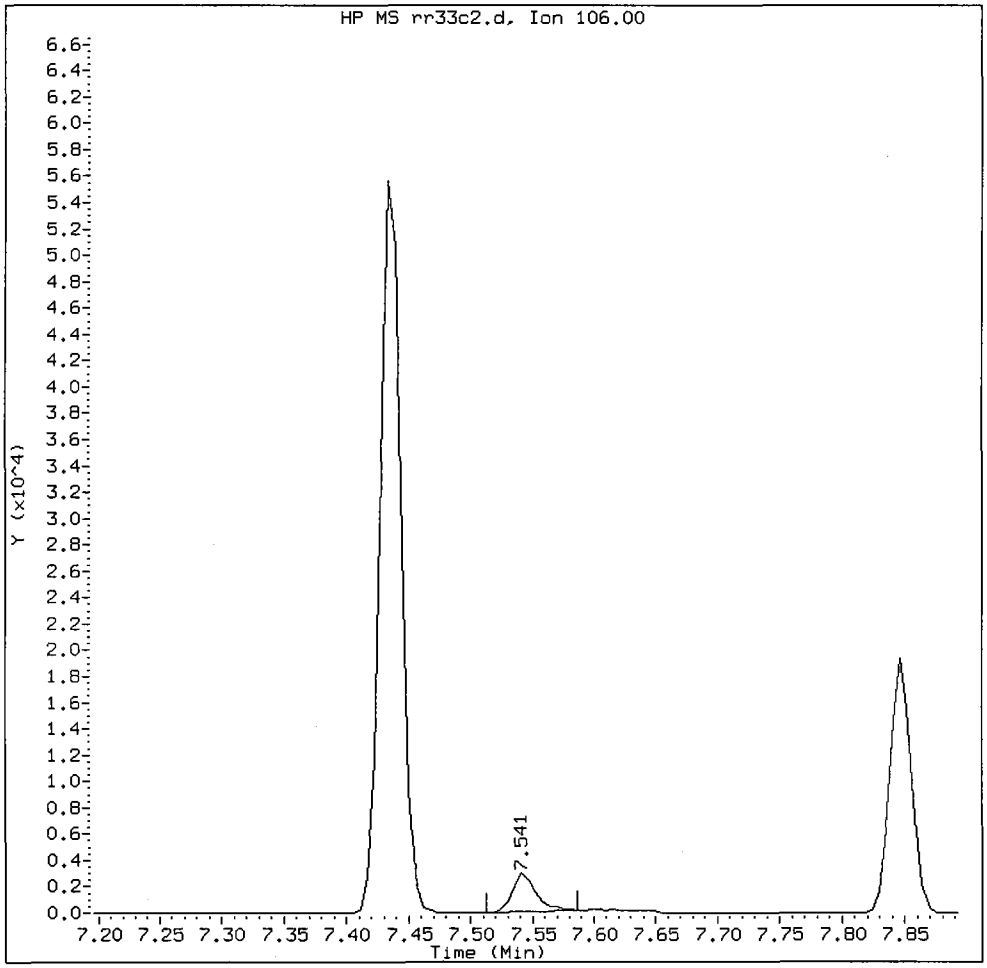






RR33C, /chem1/nt9.i/26OCT10.b/gasco.b/rr33c2.d

m,p-xylene Amount: 0.31 Area: 3816



MANUAL INTEGRATION for m,p-xylene

1. Baseline correction
2. Poor chromatography
3. Peak not found
4. Totals calculation

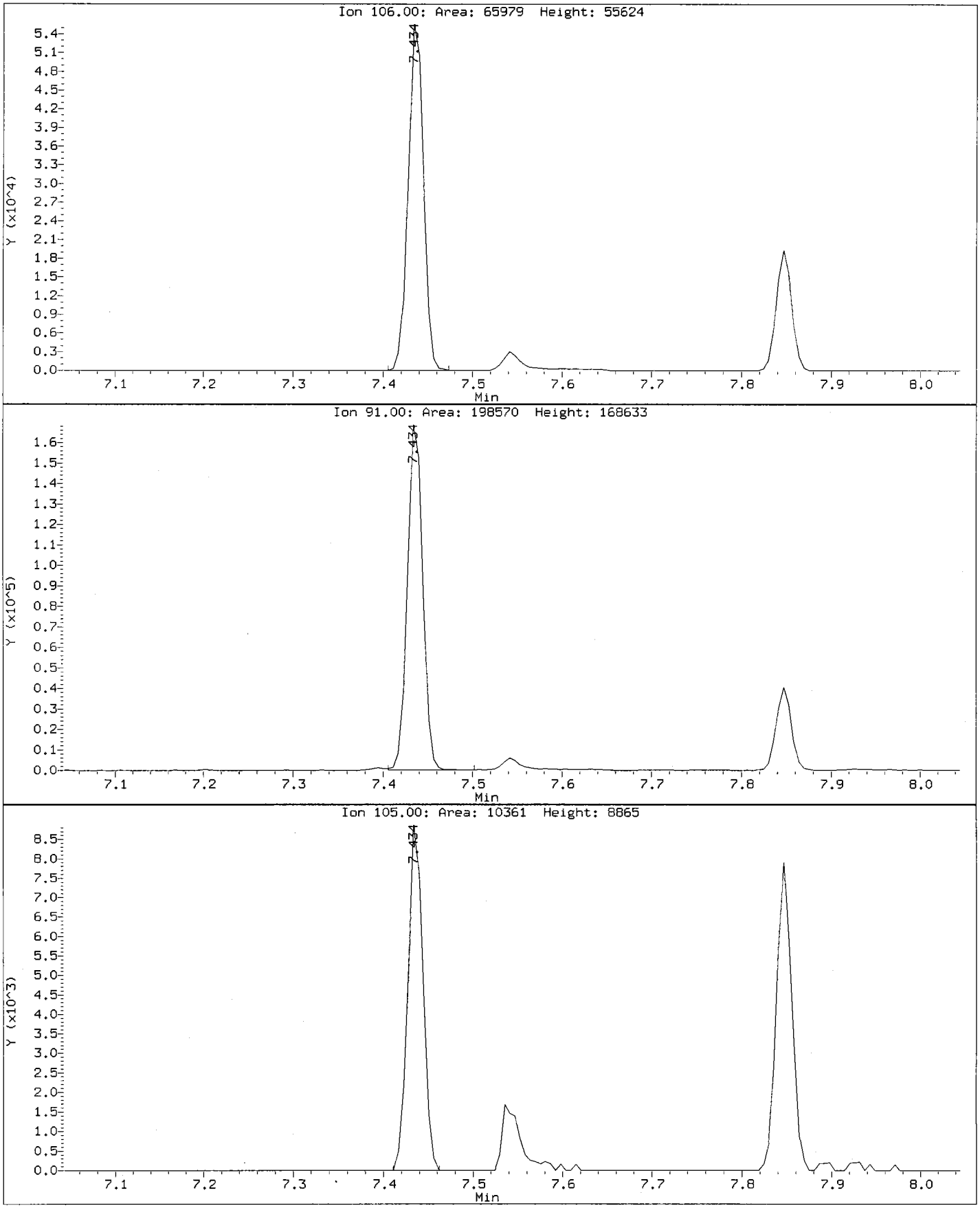
5. Other _____

Analyst: _____ Date: 10/27/10

Data File: /chem1/nt9.i/26OCT10.b/rr33c2.d
Injection Date: 26-OCT-2010 18:35
Instrument: nt9.i
Client Sample ID: DGS-07-2.22.7-10101

Compound: m,p-xylene
CAS Number:

10/27/10



Analytical Resources, Inc.

8260C

Data file : /chem1/nt9.i/26OCT10.b/gasco.b/rr33e2.d
Lab Smp Id: RR33E Client Smp ID: DGS-07-4.75.2-10101
Inj Date : 26-OCT-2010 19:05
Operator : PB Inst ID: nt9.i
Smp Info : RR33E,5,5.00,1,100UL 5.00G/5ML
Misc Info : 10-26423
Comment :
Method : /chem1/nt9.i/26OCT10.b/gasco.b/VO063010S.m
Meth Date : 27-Oct-2010 11:37 patrickb Quant Type: ISTD
Cal Date : 28-AUG-2010 13:21 Cal File: 2000828.d
Als bottle: 1
Dil Factor: 1.00000
Integrator: HP RTE Compound Sublist: gasco.sub
Target Version: 3.50
Processing Host: cserv3

W/27/10

d(

Concentration Formula: Amt * DF * Uf * 1/(Ws * (100 - M)/100) * CpndVariable

M	53.10000	% Moisture (not decanted)
Uf	1.00000	ng unit correction factor
Ws	5.00000	Weight of sample extracted (g)

Cpnd Variable Local Compound Variable

Compounds	QUANT SIG MASS	RT	EXP RT	REL RT	RESPONSE	CONCENTRATIONS ON-COLUMN (ug/Kg)	FINAL (ug/Kg)
3 Vinyl Chloride	62	Compound Not Detected.					
7 1,1-Dichloroethene	96	Compound Not Detected.					
15 Trans-1,2-Dichloroethene	96	Compound Not Detected.					
20 Cis-1,2-Dichloroethene	96	Compound Not Detected.					
* 32 Pentafluorobenzene	168	4.931	4.931	(1.000)	660418	50.0000	
$ 25 Dibromofluoromethane	111	4.530	4.529	(0.919)	230273	46.6306	19.885
$ 31 d4-1,2-Dichloroethane	65	4.937	4.936	(1.001)	263063	51.8868	22.127
30 Benzene	78	4.829	4.829	(0.908)	12263	0.52637	0.2245
* 35 1,4-Difluorobenzene	114	5.322	5.321	(1.000)	866228	50.0000	
34 Trichloroethene	95	Compound Not Detected.					
$ 42 d8-Toluene	98	6.306	6.305	(1.185)	972452	49.5468	21.129
43 Toluene	92	Compound Not Detected.					
44 Tetrachloroethene	166	Compound Not Detected.					
* 52 d5-Chlorobenzene	117	7.398	7.397	(1.000)	757286	50.0000	
54 Ethyl Benzene	91	7.437	7.437	(1.005)	1198080	38.6035	16.462
56 m,p-xylene	106	Compound Not Detected.					
57 o-Xylene	106	7.845	7.850	(1.060)	9204	0.78714	0.3357
$ 61 4-Bromofluorobenzene	95	8.274	8.280	(1.119)	345859	49.3107	21.028

Compounds	QUANT SIG MASS	RT	EXP RT	REL RT	RESPONSE	CONCENTRATIONS ON-COLUMN (ug/Kg)	FINAL (ug/Kg)
* 75 d4-1,4-Dichlorobenzene	152	9.112	9.117	(1.000)	423169	50.0000	
$ 78 d4-1,2-Dichlorobenzene	152	9.434	9.445	(1.035)	375612	50.7771	21.653

Analytical Resources, Inc.

INTERNAL STANDARD COMPOUNDS
AREA AND RT SUMMARY

Instrument ID: nt9.i
Lab File ID: rr33e2.d
Lab Smp Id: RR33E
Analysis Type: VOA
Quant Type: ISTD
Operator: PB
Method File: /chem1/nt9.i/26OCT10.b/gasco.b/VO063010S.m
Misc Info: 10-26423

Calibration Date: 26-OCT-2010
Calibration Time: 09:41
Client Smp ID: DGS-07-4.75.2-10101
Level: MED
Sample Type: Sediment

Test Mode:
Use Initial Calibration Level 5.
If Continuing Cal. use Initial Cal. Level 5

COMPOUND	STANDARD	AREA LIMIT LOWER	AREA LIMIT UPPER	SAMPLE	%DIFF
32 Pentafluorobenzen	704281	352140	1408562	660418	-6.23
35 1,4-Difluorobenze	937745	468872	1875490	866228	-7.63
52 d5-Chlorobenzene	853013	426506	1706026	757286	-11.22
75 d4-1,4-Dichlorobe	503655	251828	1007310	423169	-15.98

COMPOUND	STANDARD	RT LIMIT LOWER	RT LIMIT UPPER	SAMPLE	%DIFF
32 Pentafluorobenzen	4.93	4.43	5.43	4.93	0.01
35 1,4-Difluorobenze	5.32	4.82	5.82	5.32	0.01
52 d5-Chlorobenzene	7.40	6.90	7.90	7.40	0.01
75 d4-1,4-Dichlorobe	9.12	8.62	9.62	9.11	-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.

Analytical Resources, Inc.

RECOVERY REPORT

Client Name: NW Natural
Sample Matrix: SOLID
Lab Smp Id: RR33E
Level: MED
Data Type: MS DATA
SpikeList File: all.spk
Sublist File: gasco.sub
Method File: /chem1/nt9.i/26OCT10.b/gasco.b/VO063010S.m
Misc Info: 10-26423

Client SDG: RR33
Fraction: VOA
Client Smp ID: DGS-07-4.75.2-10101
Operator: PB
SampleType: SAMPLE
Quant Type: ISTD

SURROGATE COMPOUND	AMOUNT ADDED ug/Kg	AMOUNT RECOVERED ug/Kg	% RECOVERED	LIMITS
$ 25 Dibromofluorometha	50.000	46.631	93.26	30-160
$ 31 d4-1,2-Dichloroeth	50.000	51.887	103.77	75-152
$ 42 d8-Toluene	50.000	49.547	99.09	82-115
$ 61 4-Bromofluorobenze	50.000	49.311	98.62	64-120
$ 78 d4-1,2-Dichloroben	50.000	50.777	101.55	80-120

Data File: /chem1/nt9.i/26OCT10.b/gasco.b/rr33e2.d

Date : 26-OCT-2010 19:05

Client ID: DGS-07-4.75.2-10101

Sample Info: RR33E,5,5.00,1,100UL 5.00G/5ML

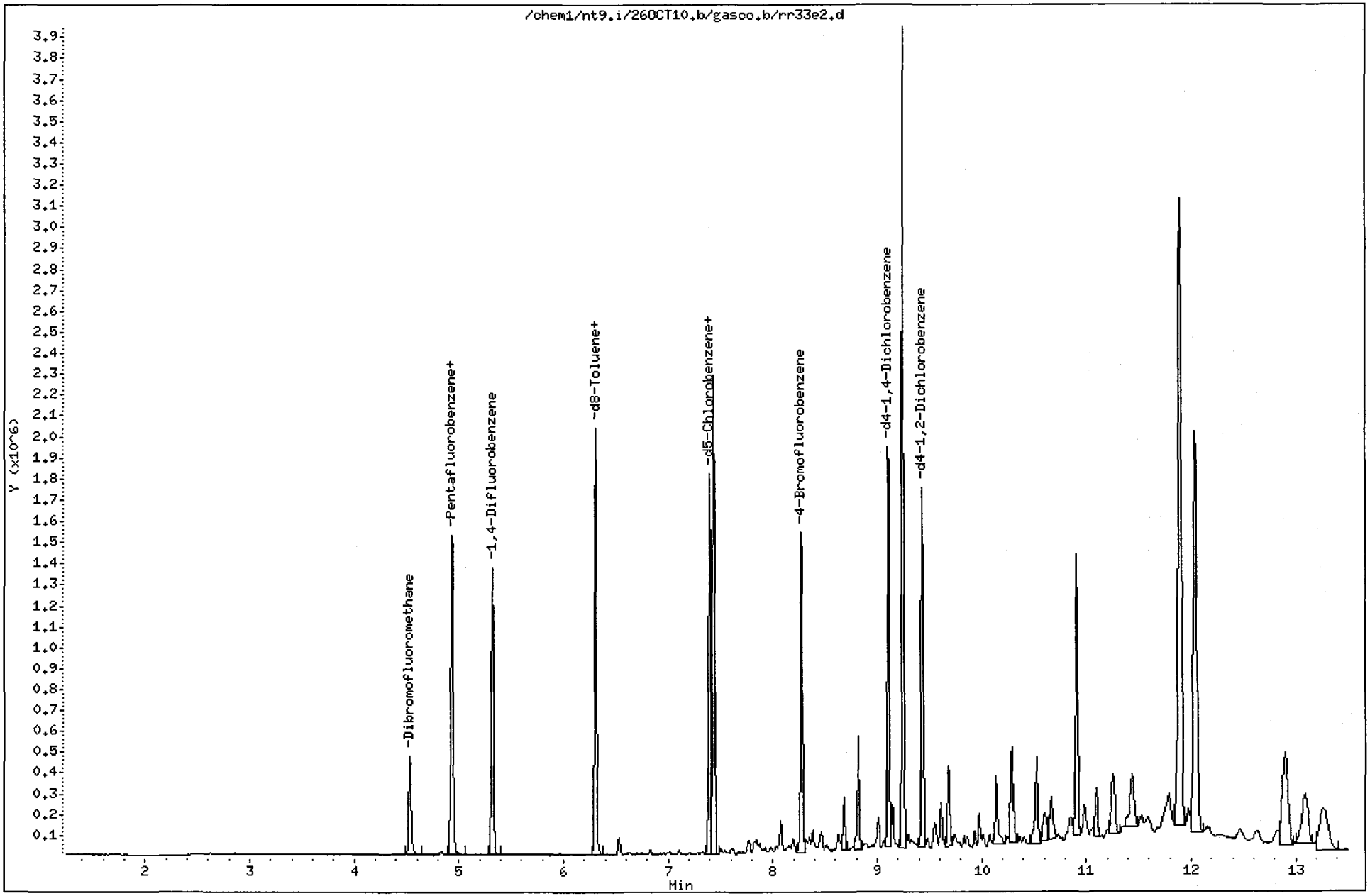
Column phase: RTX502.2

Instrument: nt9.i

Operator: PB

Column diameter: 0.18

RR33:00100



Data File: /chem1/nt9.i/26OCT10.b/gasco.b/rr33e2.d

Date : 26-OCT-2010 19:05

Client ID: DGS-07-4.75.2-10101

Instrument: nt9.i

Sample Info: RR33E,5,5.00,1,100UL 5.00G/5ML

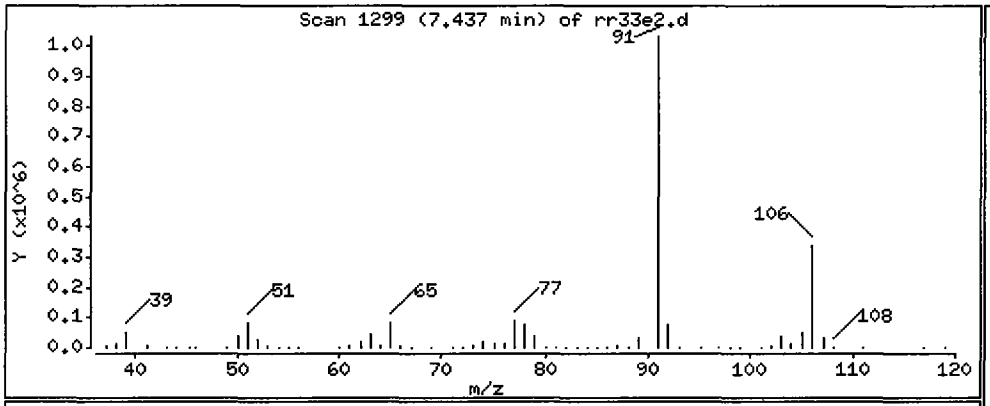
Operator: PB

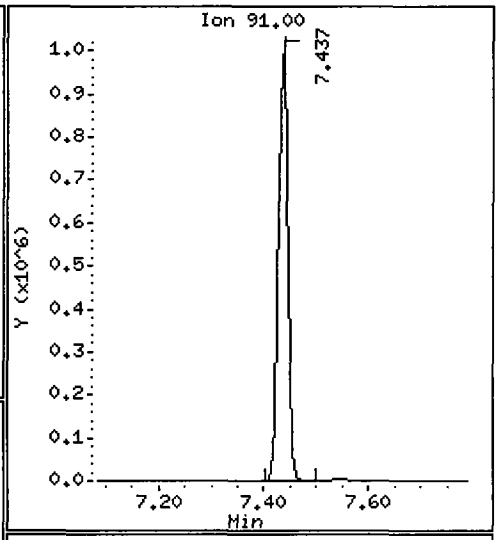
Column phase: RTX502.2

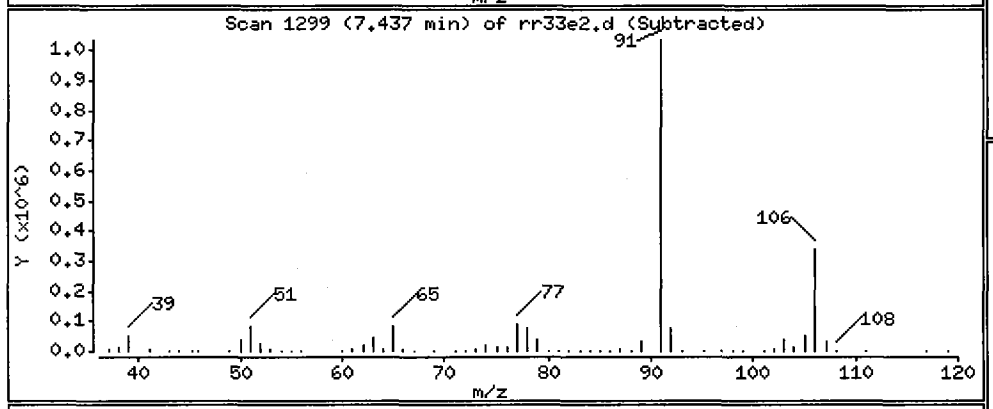
Column diameter: 0.18

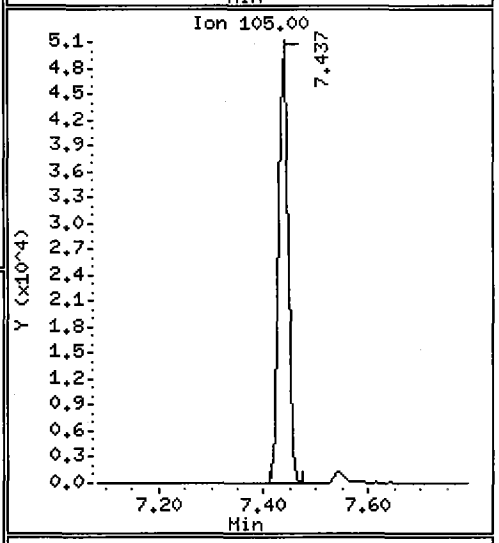
54 Ethyl Benzene

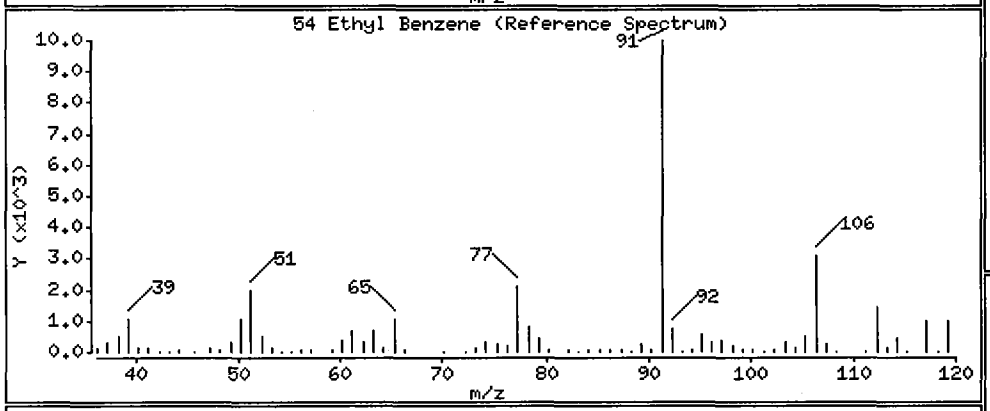
Concentration: 16.462 ug/Kg

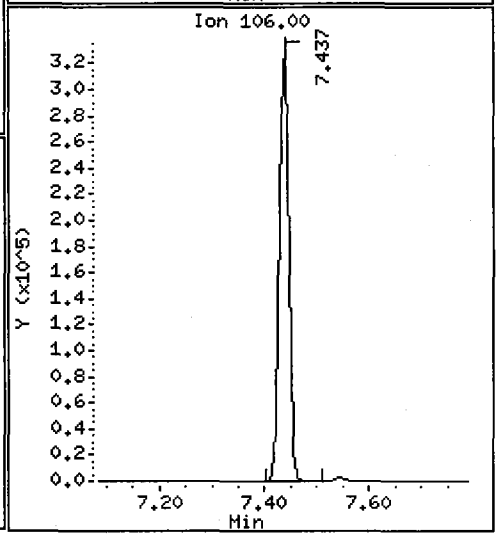


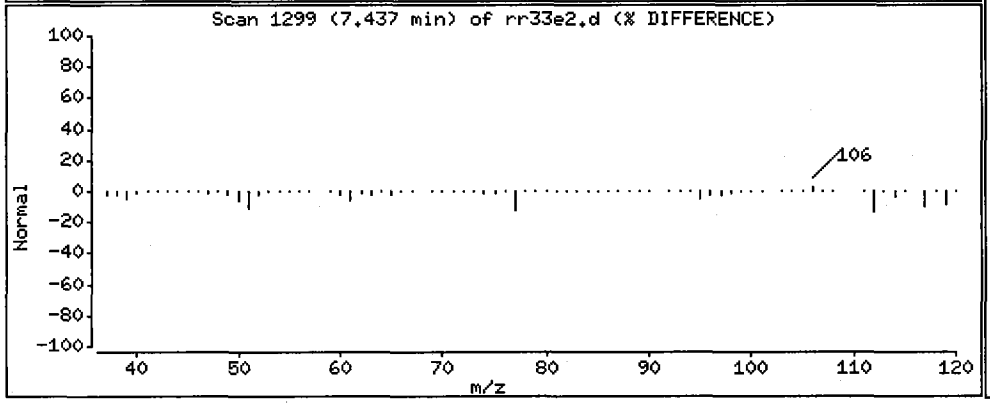












Analytical Resources, Inc.

8260C

Data file : /chem1/nt9.i/26OCT10.b/gasco.b/rr33f2.d
Lab Smp Id: RR33F Client Smp ID: DGS-07-5.66.7-10101
Inj Date : 26-OCT-2010 19:36
Operator : PB Inst ID: nt9.i
Smp Info : RR33F,5,5.92,1,100UL 5.92G/5ML
Misc Info : 10-26424
Comment :
Method : /chem1/nt9.i/26OCT10.b/gasco.b/VO063010S.m
Meth Date : 27-Oct-2010 11:37 patrickb Quant Type: ISTD
Cal Date : 28-AUG-2010 13:21 Cal File: 2000828.d
Als bottle: 1
Dil Factor: 1.00000
Integrator: HP RTE Compound Sublist: gasco.sub
Target Version: 3.50
Processing Host: cserv3

10/27/10

d1

Concentration Formula: Amt * DF * Uf * 1/(Ws * (100 - M)/100) * CpndVariable

M	43.40000	% Moisture (not decanted)
Uf	1.00000	ng unit correction factor
Ws	5.00000	Weight of sample extracted (g)

Cpnd Variable Local Compound Variable

Compounds	QUANT SIG MASS	RT	EXP RT	REL RT	RESPONSE	CONCENTRATIONS ON-COLUMN (ug/Kg)	FINAL (ug/Kg)
3 Vinyl Chloride	62	Compound Not Detected.					
7 1,1-Dichloroethene	96	Compound Not Detected.					
15 Trans-1,2-Dichloroethene	96	Compound Not Detected.					
20 Cis-1,2-Dichloroethene	96	Compound Not Detected.					
* 32 Pentafluorobenzene	168	4.931	4.931	(1.000)	626617	50.0000	
$ 25 Dibromofluoromethane	111	4.529	4.529	(0.919)	211649	45.1711	15.962
$ 31 d4-1,2-Dichloroethane	65	4.937	4.936	(1.001)	243295	50.5763	17.871
30 Benzene	78	4.829	4.829	(0.908)	19530	0.87980	0.3109
* 35 1,4-Difluorobenzene	114	5.321	5.321	(1.000)	825361	50.0000	
34 Trichloroethene	95	Compound Not Detected.					
$ 42 d8-Toluene	98	6.306	6.305	(1.185)	922617	49.3352	17.433
43 Toluene	92	Compound Not Detected.					
44 Tetrachloroethene	166	Compound Not Detected.					
* 52 d5-Chlorobenzene	117	7.397	7.397	(1.000)	713769	50.0000	
54 Ethyl Benzene	91	7.437	7.437	(1.005)	1347351	46.0600	16.276
56 m,p-xylene	106	7.545	7.544	(1.020)	9012	0.76174	0.2692(QM)
57 o-Xylene	106	7.850	7.850	(1.061)	11205	1.01670	0.3593(QM)
$ 61 4-Bromofluorobenzene	95	8.274	8.280	(1.119)	329294	49.8114	17.601

Compounds	QUANT SIG MASS	RT	EXP RT	REL RT	RESPONSE	CONCENTRATIONS ON-COLUMN (ug/Kg)	FINAL (ug/Kg)
* 75 d4-1,4-Dichlorobenzene	152	9.106	9.117	(1.000)	401308	50.0000	
$ 78 d4-1,2-Dichlorobenzene	152	9.434	9.445	(1.036)	355013	50.6068	17.882

QC Flag Legend

Q - Qualifier signal failed the ratio test.
M - Compound response manually integrated.

Analytical Resources, Inc.

INTERNAL STANDARD COMPOUNDS
AREA AND RT SUMMARY

Instrument ID: nt9.i
Lab File ID: rr33f2.d
Lab Smp Id: RR33F
Analysis Type: VOA
Quant Type: ISTD
Operator: PB
Method File: /chem1/nt9.i/26OCT10.b/gasco.b/VO063010S.m
Misc Info: 10-26424

Calibration Date: 26-OCT-2010
Calibration Time: 09:41
Client Smp ID: DGS-07-5.66.7-10101
Level: MED
Sample Type: Sediment

Test Mode:
Use Initial Calibration Level 5.
If Continuing Cal. use Initial Cal. Level 5

COMPOUND	STANDARD	AREA LIMIT LOWER	AREA LIMIT UPPER	SAMPLE	%DIFF
32 Pentafluorobenzen	704281	352140	1408562	626617	-11.03
35 1,4-Difluorobenze	937745	468872	1875490	825361	-11.98
52 d5-Chlorobenzene	853013	426506	1706026	713769	-16.32
75 d4-1,4-Dichlorobe	503655	251828	1007310	401308	-20.32

COMPOUND	STANDARD	RT LIMIT LOWER	RT LIMIT UPPER	SAMPLE	%DIFF
32 Pentafluorobenzen	4.93	4.43	5.43	4.93	0.01
35 1,4-Difluorobenze	5.32	4.82	5.82	5.32	0.01
52 d5-Chlorobenzene	7.40	6.90	7.90	7.40	0.01
75 d4-1,4-Dichlorobe	9.12	8.62	9.62	9.11	-0.12

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.

Analytical Resources, Inc.

RECOVERY REPORT

Client Name: NW Natural
Sample Matrix: SOLID
Lab Smp Id: RR33F
Level: MED
Data Type: MS DATA
SpikeList File: all.spk
Sublist File: gasco.sub
Method File: /chem1/nt9.i/26OCT10.b/gasco.b/VO063010S.m
Misc Info: 10-26424

Client SDG: RR33
Fraction: VOA
Client Smp ID: DGS-07-5.66.7-10101
Operator: PB
SampleType: SAMPLE
Quant Type: ISTD

SURROGATE COMPOUND	AMOUNT ADDED ug/Kg	AMOUNT RECOVERED ug/Kg	% RECOVERED	LIMITS
$ 25 Dibromofluorometha	50.000	45.171	90.34	30-160
$ 31 d4-1,2-Dichloroeth	50.000	50.576	101.15	75-152
$ 42 d8-Toluene	50.000	49.335	98.67	82-115
$ 61 4-Bromofluorobenze	50.000	49.811	99.62	64-120
$ 78 d4-1,2-Dichloroben	50.000	50.607	101.21	80-120

Data File: /chem1/nt9.i/26OCT10.b/gasco.b/rr33f2.d

Date : 26-OCT-2010 19:36

Client ID: DGS-07-5.66.7-10101

Sample Info: RR33F,5,5.92,1,100UL 5.92G/5ML

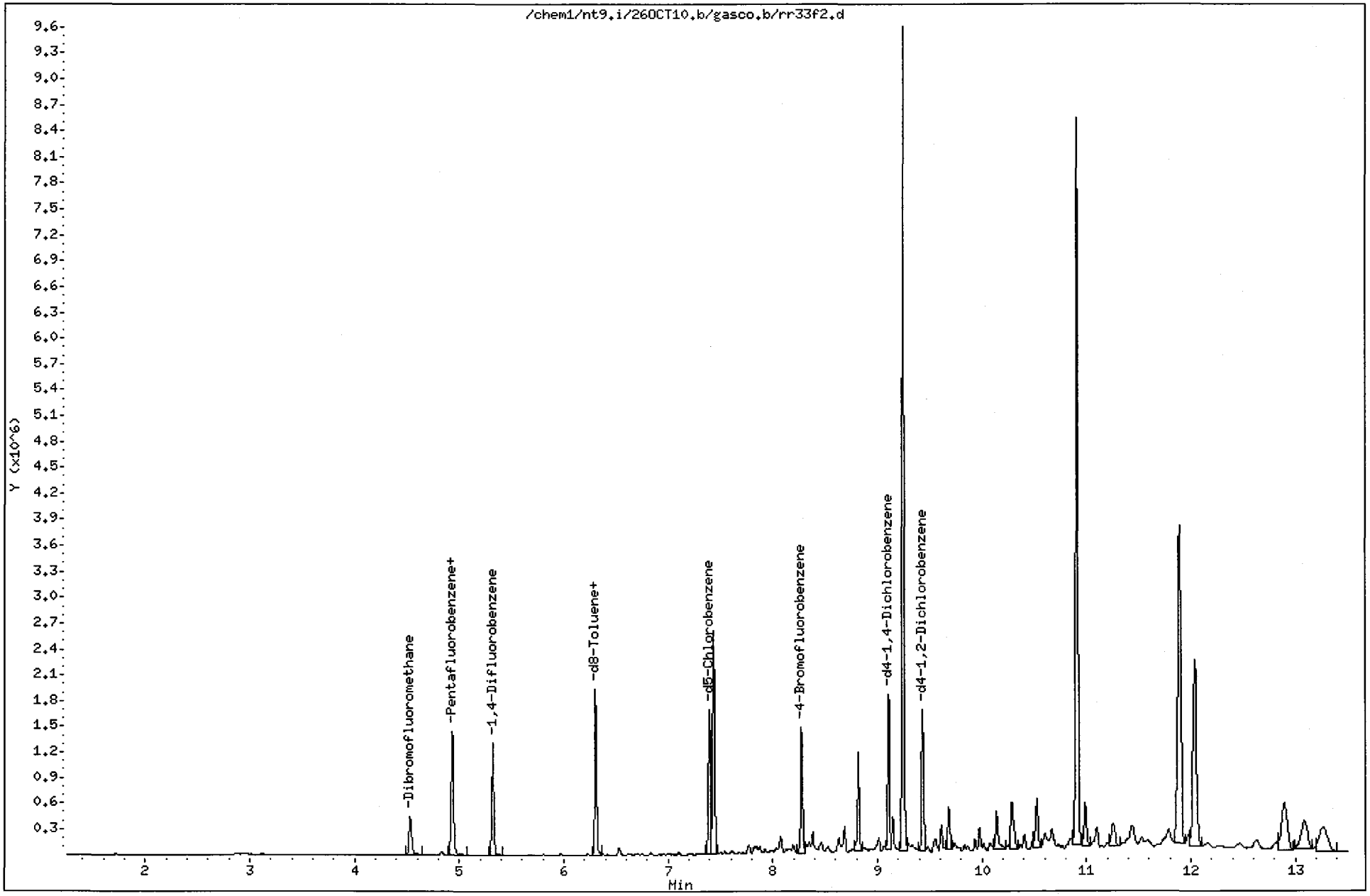
Column phase: RTX502.2

Instrument: nt9.i

Operator: PB

Column diameter: 0.18

RR33F 00195



Data File: /chem1/nt9.i/26OCT10.b/gasco.b/rr33f2.d

Date : 26-OCT-2010 19:36

Client ID: DGS-07-5.66.7-10101

Instrument: nt9.i

Sample Info: RR33F,5,5.92,1,100UL 5.92G/5ML

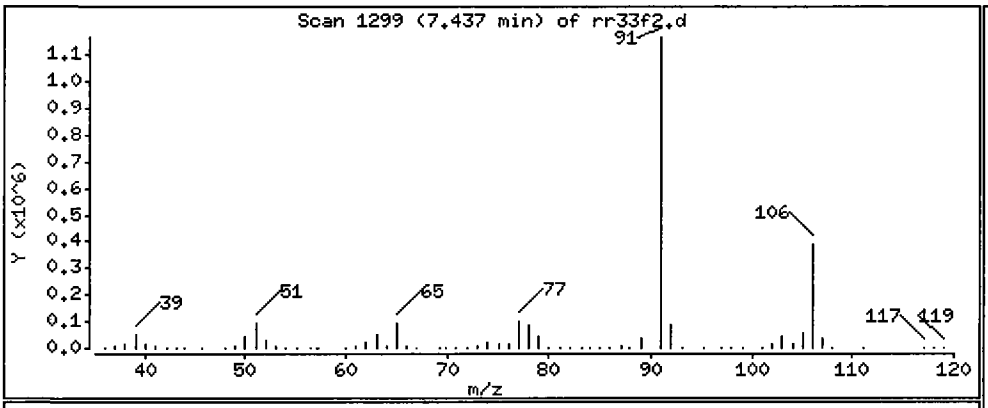
Operator: PB

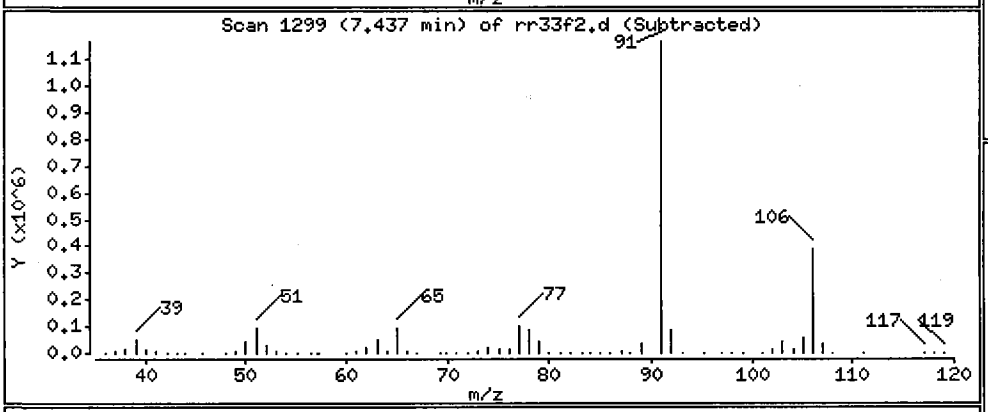
Column phase: RTX502.2

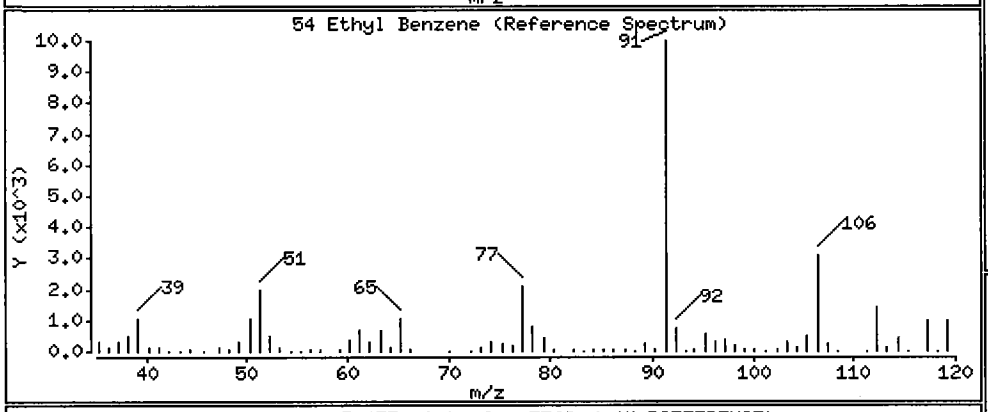
Column diameter: 0.18

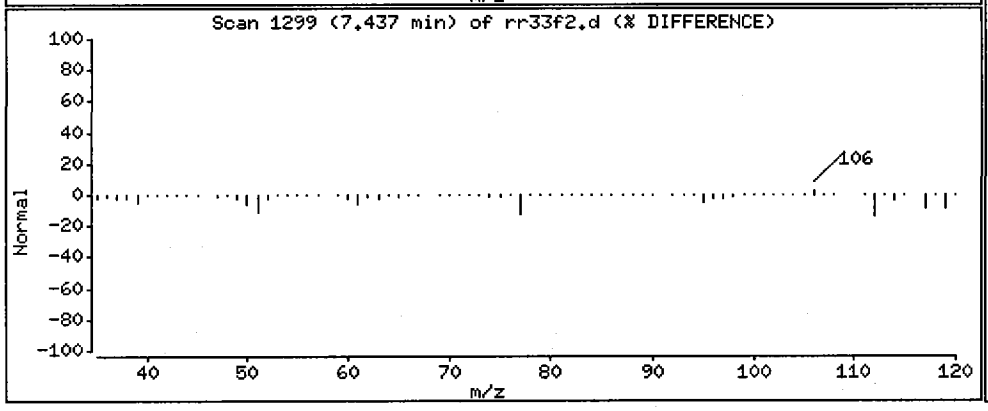
54 Ethyl Benzene

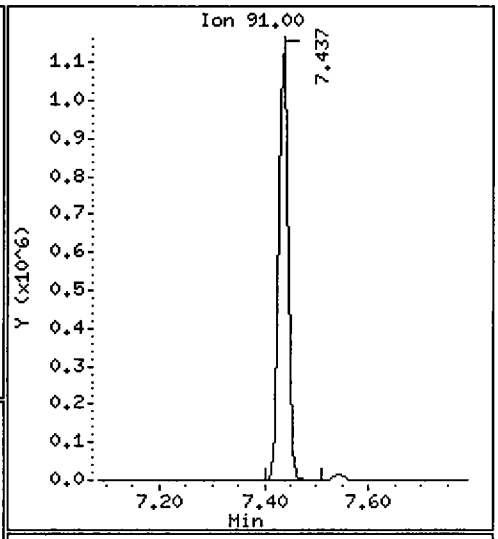
Concentration: 16.276 ug/Kg

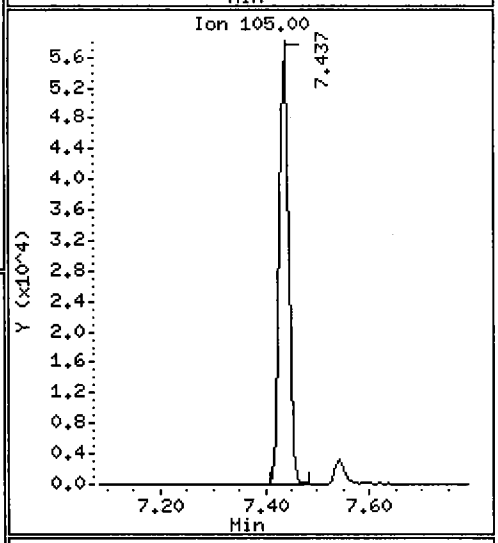


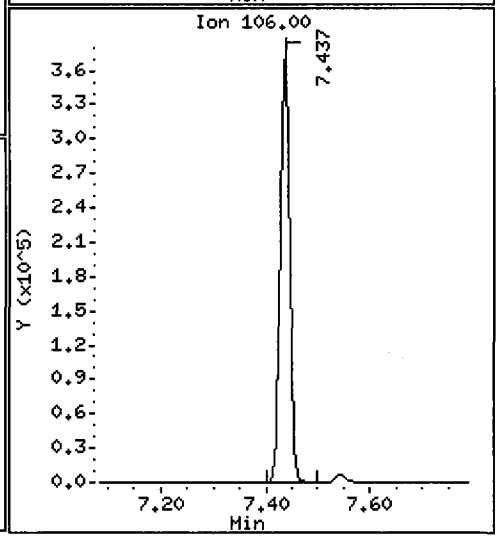












Data File: /chem1/nt9.i/26OCT10.b/gasco.b/rr33f2.d

Date : 26-OCT-2010 19:36

Client ID: DGS-07-5.66.7-10101

Instrument: nt9.i

Sample Info: RR33F,5,5.92,1,100UL 5.92G/5ML

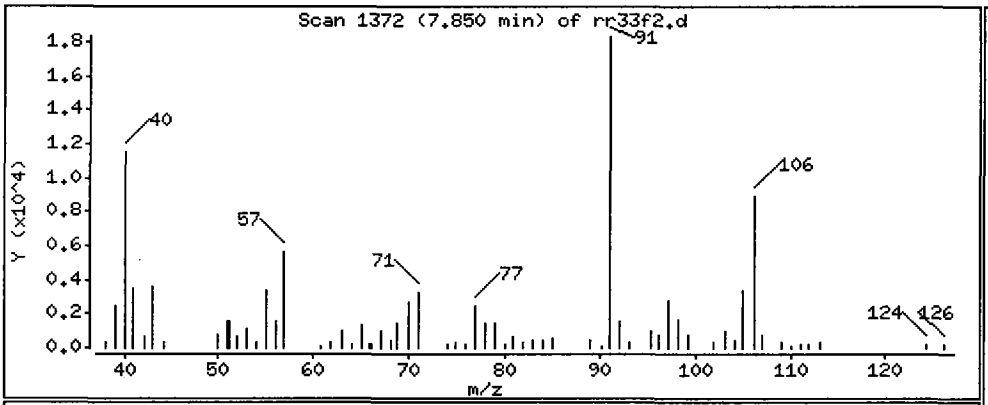
Operator: PB

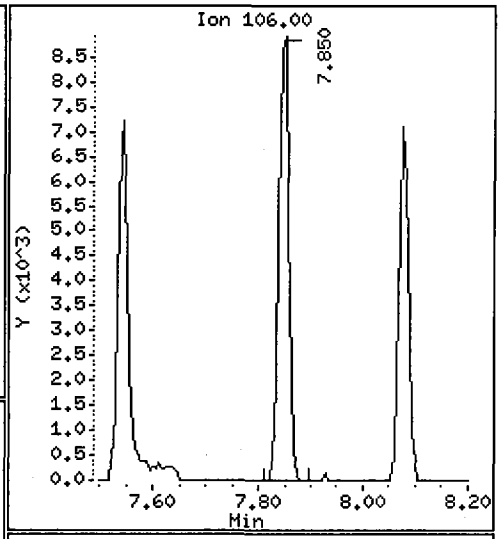
Column phase: RTX502.2

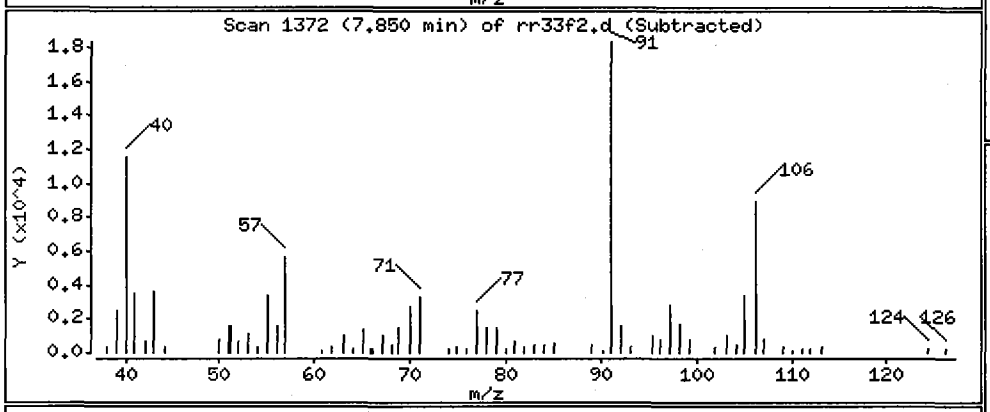
Column diameter: 0.18

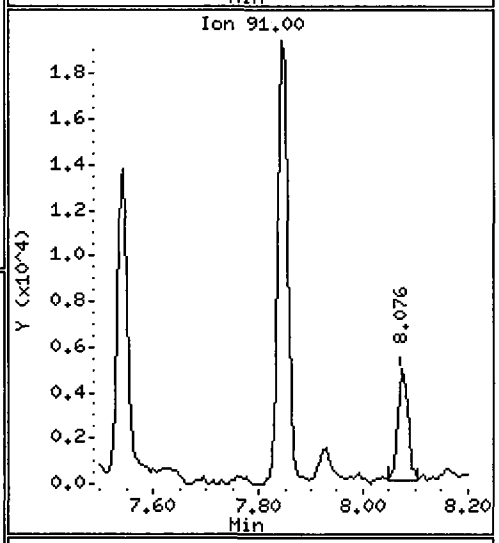
57 o-Xylene

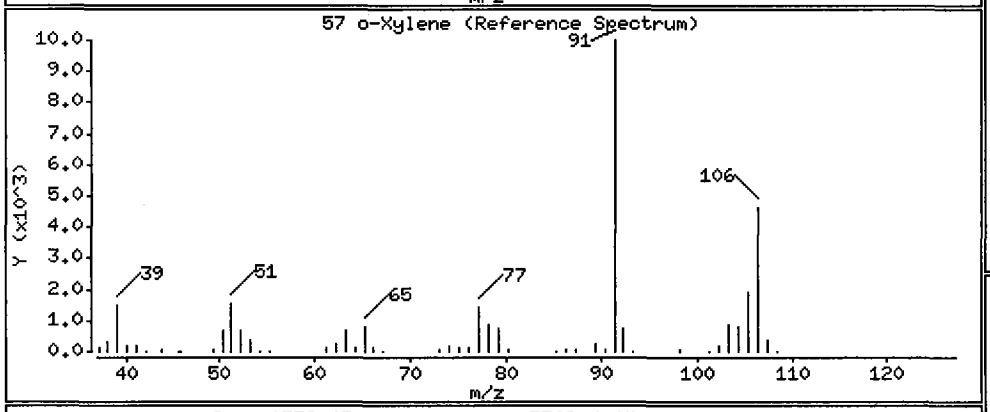
Concentration: 0.3593 ug/Kg

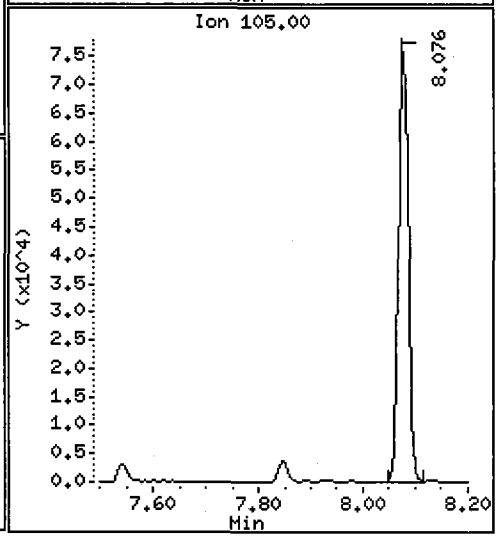


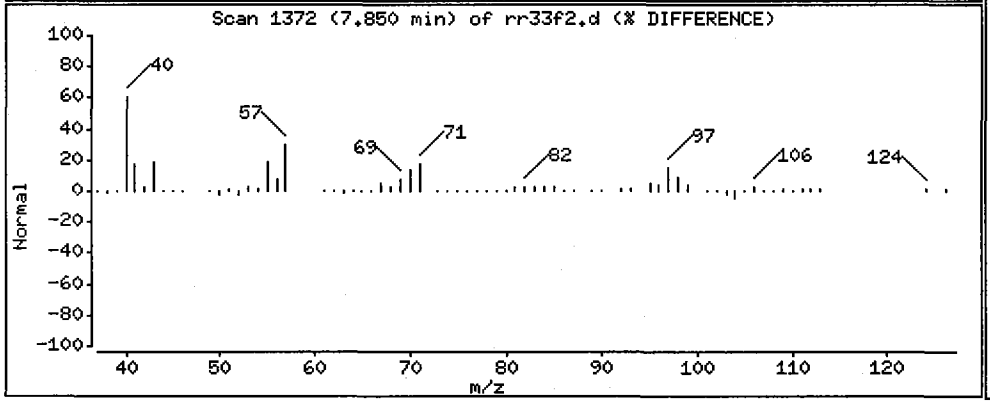






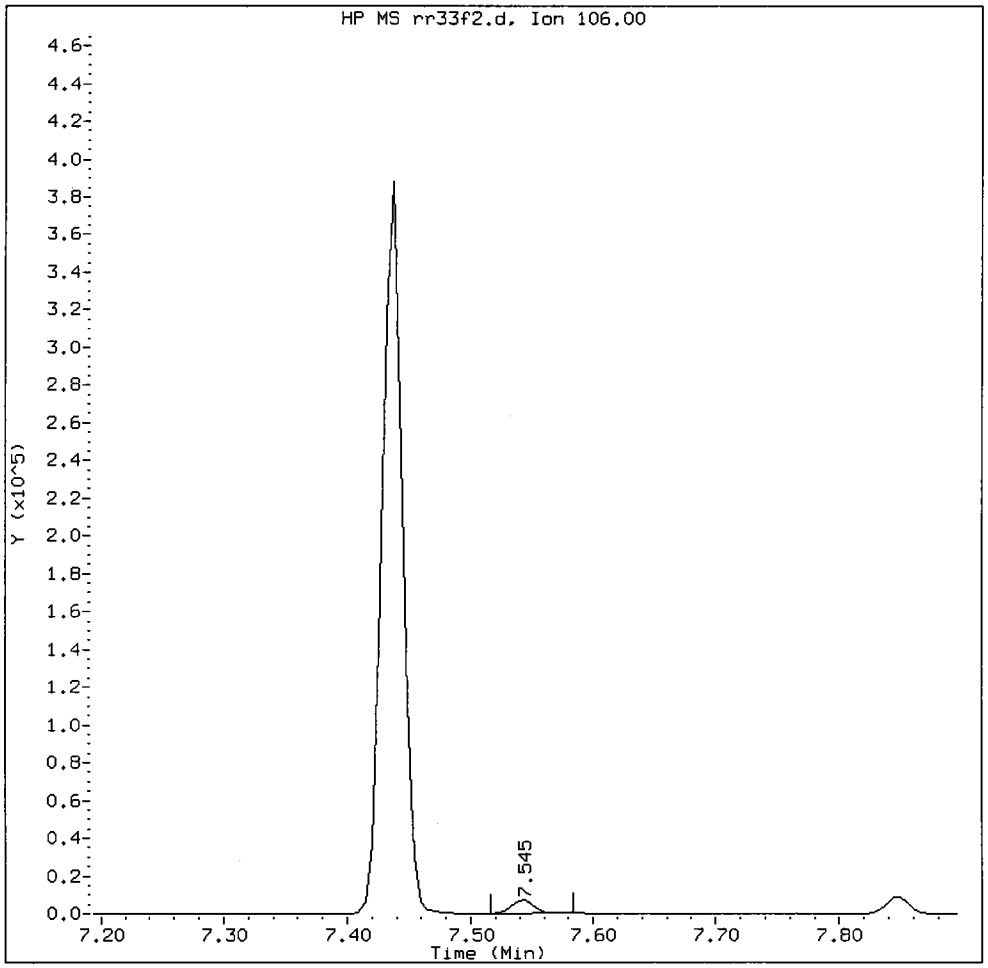






RR33F, /chem1/nt9.i/26OCT10.b/gasco.b/rr33f2.d

m,p-xylene Amount: 0.76 Area: 9012



MANUAL INTEGRATION for m,p-xylene

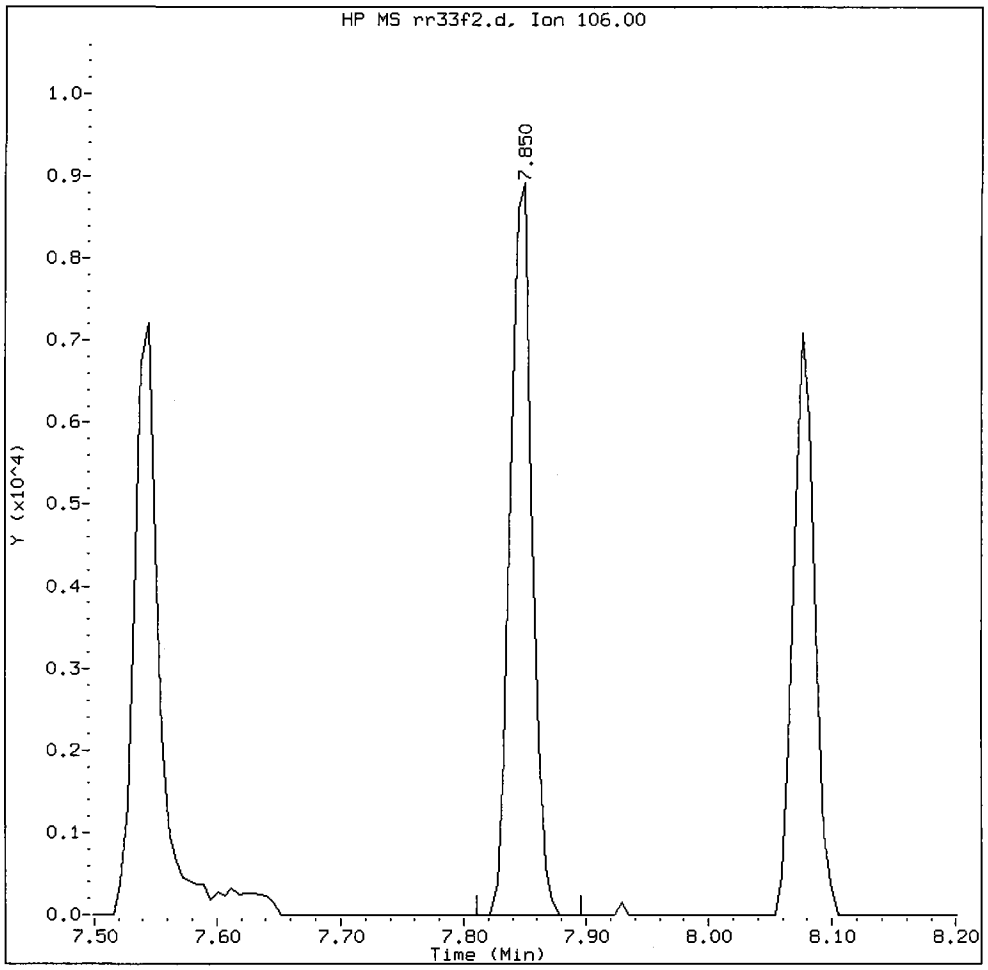
1. Baseline correction
2. Poor chromatography
3. Peak not found
4. Totals calculation

5. Other _____

Analyst: _____ Date: 10/27/10

RR33F, /chem1/nt9.i/26OCT10.b/gasco.b/rr33f2.d

o-Xylene Amount: 1.02 Area: 11205



MANUAL INTEGRATION for o-Xylene

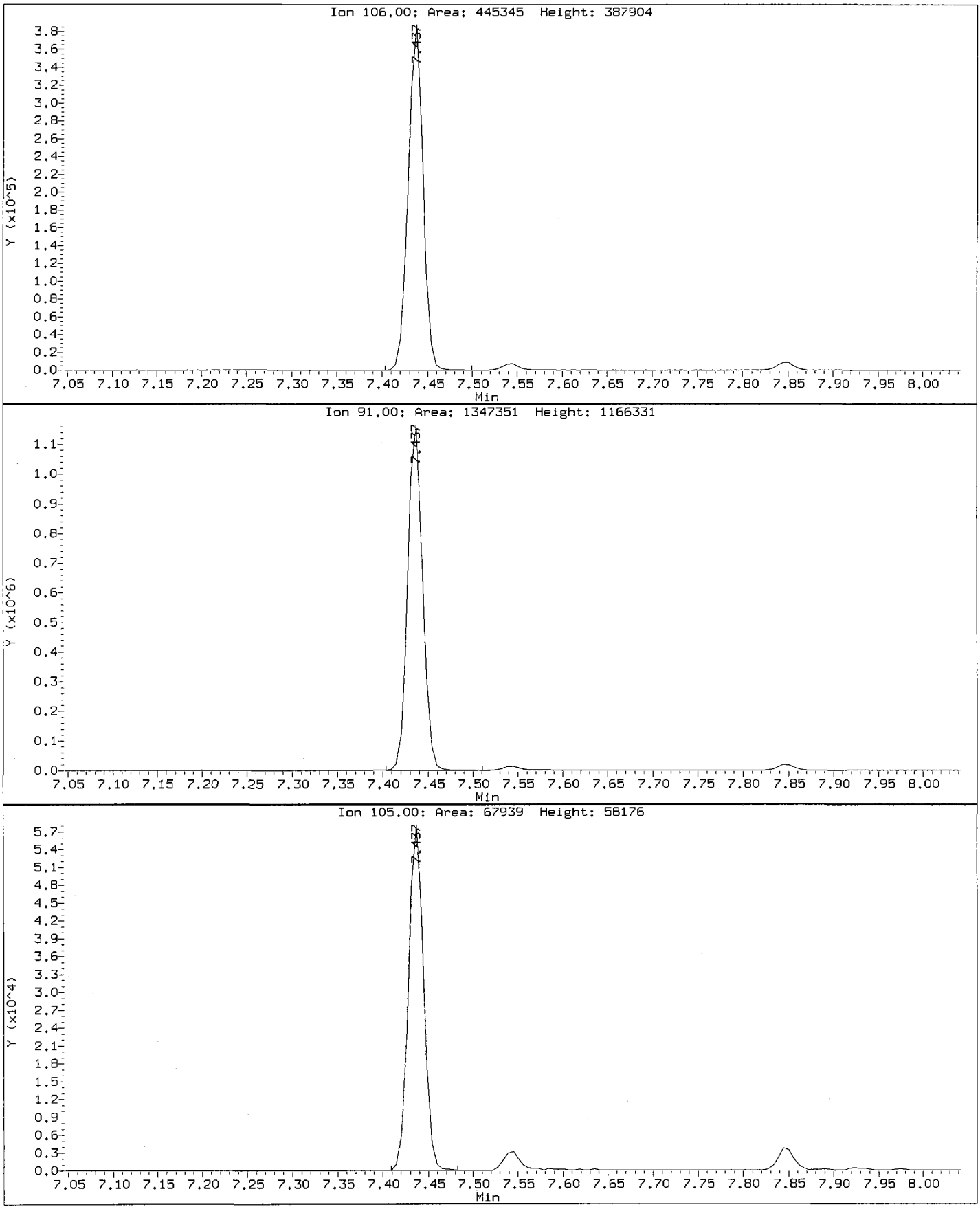
1. Baseline correction
2. Poor chromatography
3. Peak not found
4. Totals calculation

5. Other _____

Analyst: _____ Date: 10/27/

Data File: /chem1/nt9.i/26OCT10.b/rr33f2.d
Injection Date: 26-OCT-2010 19:36
Instrument: nt9.i
Client Sample ID: DGS-07-5.66.7-10101

Compound: m,p-xylene
CAS Number:



Data File: /chem1/nt9.i/26OCT10.b/rr33f2.d
Injection Date: 26-OCT-2010 19:36
Instrument: nt9.i
Client Sample ID: DGS-07-5.66.7-10101

Compound: o-Xylene
CAS Number:

11/18/22/w

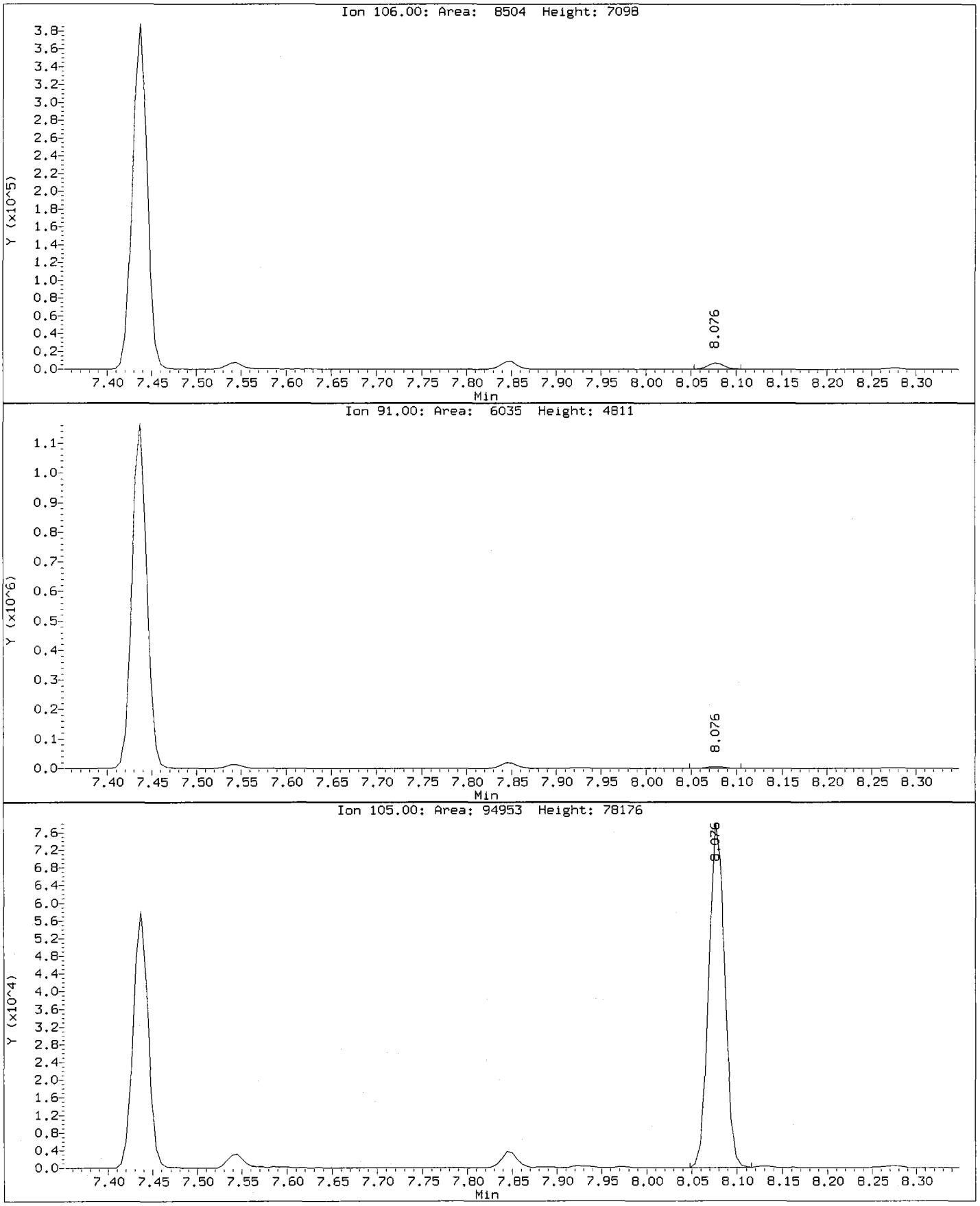


Table of Contents: ARI Job RS97

Client: NW Natural

Project: NWN-INS

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Signature

December-03-2010
Date

Analytical Resources, Incorporated
Analytical Chemists and Consultants

December 2, 2010

[redacted]

RE: Project: NWN-INS
ARI Job No: RS97

Dear [redacted]

Please find enclosed the original Chain-of-Custody (COC) records, sample receipt documentation, and the final data package for samples from the project referenced above.

Sample receipt and details of these analyses are discussed in the Case Narrative.

An electronic copy of this package will remain on file with ARI. Should you have any questions or problems, please feel free to contact me at your convenience.

Sincerely,

ANALYTICAL RESOURCES, INC.

Susan Dunnihoo
Director, Client Services
sue@arilabs.com
206-695-6207

Enclosures

cc: eFile RS97

SD/sdrd

4611 South 134th Place, Suite 100 • Tukwila WA 98168 • **206-695-6200** • **206-695-6201** fax

Chain of Custody Documentation

ARI Job ID: RS97

Subject: NWN-INS
From: [redacted]
Date: Thu, 21 Oct 2010 19:23:30 -0700
To: "'Sue Dunnihoo'" <sue@arilabs.com>

Sue,

I have been authorized to instruct ARI to proceed on the analyses of the following samples for selected parameters – full-scan GC/MS 8270 for reporting of PAHs, NWTPHD, and TOC. The PAH extract is NOT to be fractionated or cleaned for PAH's only. A simple extract without cleanup is requested. The GC run should be sufficiently long to cover analytes with MW 304 and 306. The IS for fluoranthene is the same as for pyrene (d12-chrysene). Attempt to run to allow the major PAH (usually fluoranthene and/or pyrene) to reach the extent of the calibration range inorder to allow me to inspect the minor constituents with ability to estimate levels. This means that some samples will be reporting ppm-level of target analytes. We are also requesting the GC and GC/MS binary files, in addition to the extracts following your completion of analyses.

Attempt to recover sufficient amount of sample for TOC analyses from the VOCs leftovers, if possible.

The samples are the following:

1025370-RP83A
1026013-RQ84B
1026014-RQ84C
1026015-RQ84D
1026016-RQ84E
1026010-RQ83A
1026425-RR33G
1026420-RR33B
1026421-RR33C
1026422-RR33D
1026423-RR33E
1026424-RR33F
1026426-RR33H
1026427-RR33I
1026428-RR33J
1026429-RR33K
1026430-RR33L
1026431-RR33M
1026432-RR33N

I will also have you perform an instrument run (GC/MS) of a standard solution I've prepared containing coronene (MW 300) so that I can estimate an RRF for it and determine an RRT on a single-point calibration. I will estimate the conc. in the extracts; you don't need to include it as an additional analyte.

Let me know if you should have any questions regarding this request.

Thanks much.

[redacted]

Chain of Custody Record & Laboratory Analysis Request RP07

CO CO COC#

ANCHOR QEA

Date: 9/29/10
Laboratory: ARI
Project Name: Gasco Data Gaps
Project Number: 000029.02.23
Project Manager: Ryan Barth
Phone Number: 206.287.9130
Shipment Method: courier

Analytical Parameters

Line	Field Sample ID	Collection Date/Time	Matrix	No. of Containers	TS,TOC,Cyanide	Metals	SVOC,PCB,Pest/TPH-D	VOC	CU-Triax	EPH Archive -10°C	VPH Archive Hold Do Not Freeze	Archive -10°C	Geotech - Hold - Do Not Freeze	TCLP (All tests Table 1-3)	TCLP (VOC/GRO Table 1-3)	Waste Charct. (Corr,Ignit,pH)(Spectra Sub)	TCP Bench Test Archive -10°C (16 oz)	TCLP Bencf Test Archive (2 oz) Hold No Freeze	TCLP Archive (16 oz) -10°C	PAHs (NW Natural addtl sample)	VOCs (NW Natur addtl samples)		Comments
1	GSM-07SO-0-5-100927	9/27/10 1200	SO	8	X	X	X	X		X	X	X	X										Hold Geotech Samples - Analysis to be determined at a later date
2	GSM-07SO-5-7.5-100927	1250	SO	1					X														
3	GSM-07SO-7.5-10-100927	1500	SO	1									X										
4	GSM-07SO-10-15-100927	1600	SO	1									X										
5	GSM-07SO-15-20-100927	1720	SO	1	X	X	X	X		X	X	X	X	X	X	X	X		X				2 oz Bench Test Archive for VOCs not collected
6	GSM-08SO-0-5-100928	9/28/10 1305	SO	8	X	X	X	X		X	X	X	X										
7	GSM-08SO-5-7.5-100928	1400	SO	2								X	X										
8	GSM-08SO-7.5-10-100928	1420	SO	1					X														
9	GSM-08SO-10-15-100928	1530	SO	14	X	X	X	X		X	X	X	X	X	X	X	X	X	X				
10	GSM-08SO-10-11-100928	1540	SO	2																X	X		
11	GSM-RB-100929	9/29/10 0830	W	10	X	X	X	X															
12	TB 1		W	3				X															

1 email sample confirmation report to labdata@anchorqea.com

2 See FSP for methods, analytes, and reporting limits

Additional notes/comments:

Relinquished By:	Company:	Received By:
Matt Wilson 9/29/10 1005 (Signature/Printed Name, Date/Time)	Anchor QEA LLC.	YARED LISANEWORK (YL #256) 09/29/10 10:05AM (Signature/Printed Name, Date/Time)
YARED LISANEWORK 09/29/10 1:15PM (Signature/Printed Name, Date/Time)	YL #256	9/29/10 1315 (Signature/Printed Name, Date/Time)

RS97 : 000004

Distribution: A copy will be made for the laboratory and client. The Project file will retain the original.

Chain of Custody Record & Laboratory Analysis Request

CO CO COC#

ANCHOR QEA

Date: 9/29/10
Laboratory : ARI
Project Name: Gasco Data Gaps
Project Number: 000029.02.23
Project Manager: Ryan Barth
Phone Number: 206.287.9130
Shipment Method: courier

Analytical Parameters

Line	Field Sample ID	Collection Date/Time	Matrix	Number of Containers	TS,TOC,Cyanide	Metals	SVOC,PCB,Pest/TPH-D	VOC	CU-Triax	EPH Archive -10°C	VPH Archive Hold Do Not Freeze	Archive -10°C	Geotech - Hold - Do Not Freeze	TCLP (All tests Table 1-3)	TCLP (VOC/GRO Table 1-3)	Waste Charct. (Corr,Ignit,pH)(Spectra Sub)	TCLP Bench Test Archive -10°C (16 oz)	TCLP Bench Test Archive (2 oz) Hold No Freeze	TCLP Archive (16 oz) -10°C	PAHs (NW Natural addtl sample)	VOCs (NW Natur addtl samples)	Comments
1	TB 2		W	3				X														Hold Geotech Samples - Analysis to be determined at a later date
2	TB 3		W	3				X														
3																						
4																						
5																						
6																						
7																						
8																						
9																						
10																						
11																						
12																						

1 email sample confirmation report to labdata@anchorqea.com

2 See FSP for methods, analytes, and reporting limits

Additional notes/comments:

Relinquished By:	Company:	Received By:
Matt Wilson	Anchor QEA LLC.	YARED LISANEWORK
Signature/Printed Name	Date/Time: 9/29/10 1005	Signature/Printed Name
		Date/Time: 09/28/10 10:05AM

Relinquished By:	Company:	Received By:
Signature/Printed Name	Date/Time	Signature/Printed Name
		Date/Time: 9/29/10 1315

R5897:000005

Distribution: A copy will be made for the laboratory and client. The Project file will retain the original.

Analytical Resources, Incorporated
Analytical Chemists and Consultants

Cooler Receipt Form

ARI Client: Anchor

Project Name: Gasco

COC No(s): _____ (NA)

Delivered by: Fed-Ex UPS (Courier) Hand Delivered Other: _____

Assigned ARI Job No: RP07, RP13, RP14

Tracking No: _____ (NA)

Preliminary Examination Phase:

Were intact, properly signed and dated custody seals attached to the outside of to 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): 0.6 5.6 0.6 DMB DMB

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

Temp Gun ID#: 90877952

Cooler Accepted by: AJ Date: 9/29/10 Time: 1315

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: _____			
Was sufficient ice used (if appropriate)?	NA	(YES)	NO
Were all bottles sealed in individual plastic bags?		YES	(NO)
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	9/22/10	

Was Sample Split by ARI : (NA) YES Date/Time: _____ Equipment: _____ Split by: _____

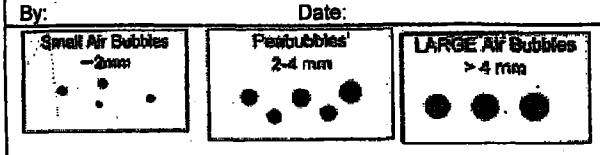
Samples Logged by: AJ Date: 9/29/10 Time: 1800

***** 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:



Small → "sm"
Peabubbles → "pb".
Large → "lg"
Headspace → "hs"

ANCHOR QEA 1423 3rd Ave., Suite 300 Seattle, WA 98101 Ph: 206-287-9130

ENVIRONMENTAL SAMPLE CHAIN OF CUSTODY

COC ID: COC-AARISPAH-101006-01
Sample Custodian: KH
Lab: ARISPAH

Client: NW Natural **Project:** Gasco Data Gaps

COC Sample Number	Field Sample ID	MS/MSD	Date Collected	Time Collected	Media*	# Containers	PAH (NW Natural) EPA 8270	VOC (NW Natural) EPA 8260														
001	DGS-30-0113.9-101006	N	10/06/2010	10:22	SE	2	☑	☑														HOT
002	DGS-19-3.34.1-101006	N	10/06/2010	16:59	SE	2	☑	☑														
003	DGS-19-4.48.2-101006	N	10/06/2010	16:59	SE	2	☑	☑														
004	DGS-19-10.210.9-101006	N	10/06/2010	16:59	SE	2	☑	☑														

Comments:

Relinquished by:	Received by:	Relinquished by:	Received by:	Relinquished by:	Received by:
Signature [illegible]	Signature [illegible]	Signature	Signature [illegible]	Signature	Signature
Print Name Amy Grp	Print Name YAREED Lounenink	Print Name	Print Name Jennifer Mills	Print Name	Print Name
Company Anchor QEA	Company YL #876	Company	Company ARI	Company	Company
Date/Time 10/7/10 1742	Date/Time 10/08 10:30AM	Date/Time	Date/Time 10/8/10 1400	Date/Time	Date/Time

Date Printed: 10/6/2010 * SE= SEDIMENT

PSST.00007

ANCHOR QEA
1423 3rd Ave., Suite 300
Seattle, WA 98101
Ph: 206-287-9130

ENVIRONMENTAL SAMPLE CHAIN OF CUSTODY

COC ID: COC-AARISPAH-101007-01
Sample Custodian: KH
Lab: ARISPAH

Client: NW Natural
Project: Gasco Data Gaps

COC Sample Number	Field Sample ID	MS/MSD	Date Collected	Time Collected	Media*	# Containers	PAH (NW Natural) EPA 8270	VOC (NW Natural) EPA 8260														
001	DGS-08-4.44.6-101007	N	10/07/2010	08:54	SE	2	☑	☑	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐

HOT

Comments:

Relinquished by:	Received by:	Relinquished by:	Received by:	Relinquished by:	Received by:
Signature	Signature	Signature	Signature	Signature	Signature
Print Name Amy Lord	Print Name Lisanne	Print Name	Print Name Jennifer Miltsch	Print Name	Print Name
Company Anchor QEA	Company	Company	Company ARI	Company	Company
Date/Time 10/7/10 1742	Date/Time 10/08/10 10:30 AM	Date/Time	Date/Time 10/8/10 1400	Date/Time	Date/Time

Date Printed: 10/7/2010 * SE= SEDIMENT **Page 1 of 1**

RSST 00008

Analytical Resources, Incorporated
Analytical Chemists and Consultants

Cooler Receipt Form

ARI Client: Anchor

Project Name: NWIV-INS

COC No(s): _____ NA

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

Assigned ARI Job No: R084

Tracking No: _____ NA

Preliminary Examination Phase:

Were intact, properly signed and dated custody seals attached to the outside of to 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)..... See below 25 coolers

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

Temp Gun ID#: 90877952

Cooler Accepted by: JM Date: 10/8/10 Time: 1400

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: _____			
Was sufficient ice used (if appropriate)?	NA	YES	NO
Were all bottles sealed in individual plastic bags?		YES	NO
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		

Was Sample Split by ARI : NA YES Date/Time: _____ Equipment: _____ Split by: _____

Samples Logged by: TTT Date: 10/12/10 Time: 0940

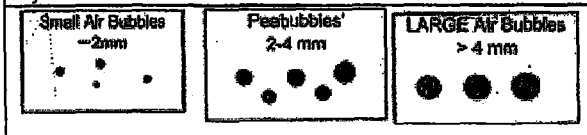
***** Notify Project Manager of discrepancies or concerns *****

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

Additional Notes, Discrepancies, & Resolutions:

4.9, 4.6, 1.6, 0.2, 2.3, 1.3, 1.9, 0.4, 1.4, 4.9, 1.2, 1.5, 3.8, 2.1, 0.3, 2.9, 1.4, 0.4, 4.8, 3.0, 0.1, 2.7, 5.9, 6.9, 2.4

By: Date:



Small → "sm"	
Peabubbles → "pb"	
Large → "lg"	
Headspace → "hs"	

RQ83.

Chain of Custody Record & Laboratory Analysis Request

COC#

ANCHOR QEA

Date: 10/08/10
Laboratory : ARI
Project Name: Gasco Data Gaps
Project Number: 000029.02.23
Project Manager: Ryan Barth
Phone Number: 206.287.9130
Shipment Method: courier

Analytical Parameters

Line	Field Sample ID	Collection Date/Time	Matrix	No. of Containers	TS,TOC,Cyanide	Metals	SVOC,PCB,Pest/TPH-D	VOC	CU-Triax	EPH Archive -10°C	VPH Archive Hold Do Not Freeze	Archive -10°C	Geotech - Hold - Do Not Freeze	TCLP (All tests Table 1-3)	TCLP (VOC/GRO Table 1-3)	Waste Charct. (Corr,Ignit,pH)(Spectra Sub)	TCLP Bench Test Archive -10°C (16 oz)	TCLP Bencl Test Archive (2 oz) Hold No Freeze	TCLP Archive (16 oz) -10°C	PARts Alu Natural Sample	VOCs		Comments
1	GST-0950-17-18-101008	10/08/10 0955	SO	2																X	X		~~Hold Geotech Samples - Analysis to be determined at a later date~~
2	GST-TBSO-2-101008		W	3				X															
3																							
4																							
5																							
6																							
7																							
8																							
9																							
10																							
11																							
12																							

1 email sample confirmation report to labdata@anchorqea.com

2 See FSP for methods, analytes, and reporting limits

Additional notes/comments:

Relinquished By:	Company: Anchor QEA LLC.	Received By:	ARI
Matt Wilson	10/11/10 0720	A. Volgardsen	10/11/10 1445
Signature/Printed Name	Date/Time	Signature/Printed Name	Date/Time

Relinquished By:	Company:	Received By:	
Signature/Printed Name	Date/Time	Signature/Printed Name	Date/Time

RSS7 : 00010

Distribution: A copy will be made for the laboratory and client. The Project file will retain the original.

Analytical Resources, Incorporated
Analytical Chemists and Consultants

Cooler Receipt Form

ARI Client: Northwest Natural

COC No(s): _____ (NA)

Assigned ARI Job No: RQ93

Project Name: MWN - INS

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

Tracking No: _____ NA

Preliminary Examination Phase:

Were intact, properly signed and dated custody seals attached to the outside of to 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)..... 0.9 ___ ___ ___ ___ ___

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

Temp Gun ID#: 90877952

Cooler Accepted by: AV Date: 10/11/10 Time: 1445

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: _____

Was sufficient ice used (if appropriate)?	NA	YES	NO
Were all bottles sealed in individual plastic bags?		YES	NO
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	9/22/10	

Was Sample Split by ARI : NA YES Date/Time: _____ Equipment: _____ Split by: _____

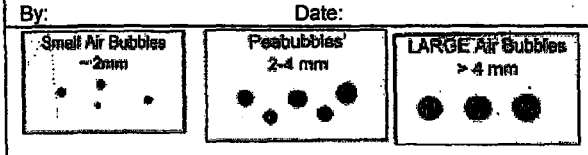
Samples Logged by: CMM Date: 10/12/10 Time: 0839.

***** 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:



Small → "sm"
Peabubbles → "pb"
Large → "lg"
Headspace → "hs"

ANCHOR QEA 1423 3rd Ave., Suite 300 Seattle, WA 98101 Ph: 206-287-9130

ENVIRONMENTAL SAMPLE CHAIN OF CUSTODY

RR33

COC ID: COC-AARISPAH-101012-01
Sample Custodian: KH
Lab: ARISPAH

Client: NW Natural **Project:** Gasco Data Gaps

COC Sample Number	Field Sample ID	MS/MSD	Date Collected	Time Collected	Media*	# Containers	PAH (NW Natural) EPA 8270	VOC (NW Natural) EPA 8260														
002	DGS-TB-101012-05	N	10/12/2010	13:04	W	3	☐	☑	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐
003	DGS-07-011.3-101012	N	10/12/2010	15:45	SE	2	☑	☑	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐
004	DGS-07-2.22.7-101012	N	10/12/2010	15:45	SE	2	☑	☑	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐
005	DGS-07-034.2-101012	N	10/12/2010	15:45	SE	2	☑	☑	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐
006	DGS-07-4.75.2-101012	N	10/12/2010	15:45	SE	2	☑	☑	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐
007	DGS-07-5.66.7-101012	N	10/12/2010	15:45	SE	2	☑	☑	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐
001	DGS-36-066.7-101012	N	10/12/2010	11:50	SE	2	☑	☑	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐
008	DGS-07-077.3-101012	N	10/12/2010	15:45	SE	2	☑	☑	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐
009	DGS-07-7.98.4-101012	N	10/12/2010	15:45	SE	2	☑	☑	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐
010	DGS-07-8.79.1-101012	N	10/12/2010	15:45	SE	2	☑	☑	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐
011	DGS-07-9.710-101012	N	10/12/2010	15:45	SE	2	☑	☑	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐
012	DGS-07-10.610.9-101012	N	10/12/2010	15:45	SE	2	☑	☑	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐

HOT

Comments:

Relinquished by:	Received by:	Relinquished by:	Received by:	Relinquished by:	Received by:
Signature [signature]	Signature [signature]	Signature	Signature [signature]	Signature	Signature
Print Name Amy Corp	Print Name Vaneza Lisarowone	Print Name	Print Name Jennifer Millsap	Print Name	Print Name
Company Anchor QEA	Company YL #756	Company	Company ARI	Company	Company
Date/Time 10/13/10 1000	Date/Time 10/13/10 10:30	Date/Time	Date/Time 10/13/10 1400	Date/Time	Date/Time

Date Printed: 10/12/2010 * SE= SEDIMENT

RS97.00612

ANCHOR QEA
1423 3rd Ave., Suite 300
Seattle, WA 98101
Ph: 206-287-9130

ENVIRONMENTAL SAMPLE CHAIN OF CUSTODY

COC ID: COC-AARISPAH-101012-01
Sample Custodian: KH
Lab: ARISPAH

Client: NW Natural
Project: Gasco Data Gaps

COC Sample Number	Field Sample ID	MS/MSD	Date Collected	Time Collected	Media*	# Containers	PAH (NW Natural) EPA 8270	VOC (NW Natural) EPA 8260															
013	DGS-07-11.611.8-101012	N	10/12/2010	15:45	SE	2	☑	☑	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐	HOT
014	DGS-07-12.713.2-101012	N	10/12/2010	15:45	SE	2	☑	☑	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐	HOT

Comments:

Relinquished by:	Received by:	Relinquished by:	Received by:	Relinquished by:	Received by:
Signature [illegible]	Signature [illegible]	Signature	Signature [illegible]	Signature	Signature
Print Name Amy Corp	Print Name [illegible] Lisowski	Print Name	Print Name Jennifer Milsap	Print Name	Print Name
Company Anchor QEA	Company YC #751	Company	Company ARI	Company	Company
Date/Time 10/13/10 1000	Date/Time 10/13/10 1030	Date/Time	Date/Time 10/13/10 1400	Date/Time	Date/Time

Date Printed: 10/12/2010 * SE= SEDIMENT

RS97:00013

Analytical Resources, Incorporated
Analytical Chemists and Consultants

Cooler Receipt Form

ARI Client: Anchor

Project Name: Gasco Data Gaps

COC No(s): _____ (NA)

Delivered by: Fed-Ex UPS (Courier) Hand Delivered Other: _____

Assigned ARI Job No: RR33

Tracking No: _____ NA

Preliminary Examination Phase:

Were intact, properly signed and dated custody seals attached to the outside of to 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)..... 1.3 2.5 4.9 0.7 4.6 5.4 (see back

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

Temp Gun ID#: _____

Cooler Accepted by: JM Date: 10/13/10 Time: 1400

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: _____

Was sufficient ice used (if appropriate)? ..... NA (YES) NO

Were all bottles sealed in individual plastic bags? ..... YES (NO)

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 _____

Was Sample Split by ARI : (NA) YES Date/Time: _____ Equipment: _____ Split by: _____

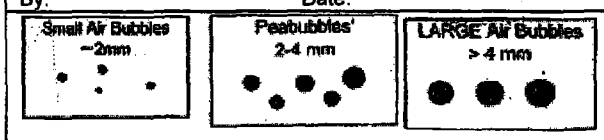
Samples Logged by: BC Cy 6.5 Date: 10/14/10 Time: 1150

***** 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: temps = 0.9, 5.3, 5.5, 0.3 + 2 boxes + 2 soil sleeves.

By: Date:



Small → "sm"	
Peabubbles → "pb"	
Large → "lg"	
Headspace → "hs"	

Subject: RE: rs97-NW natural
From: [redacted]
Date: Tue, 16 Nov 2010 15:47:33 -0800
To: "'Van Spohn'" <van@arilabs.com>

Van,

Thanks much. Whatever you are comfortable. I don't intend to be unreasonable. If you can run them to the point of just overloading (poor chromatography) on the major fellows (like fluoranthene/pyrene), I believe that will get me what I need on the minors. I really do appreciate your patience and understanding on this matter. No damage to the instruments is permitted however.

It's OK to filter for particulates on the final extracts. Maybe you are already doing so. I do appreciate the observation that precipitates have formed. But according to the chromatography and levels reported thus far, they do not appear to be [GC] chromatographable materials. Perhaps sulfides or other solvent soluble salts that were extracted in the initial extracts.

Thanks again.

Very much appreciative,
[redacted]

-----Original Message-----
From: Van Spohn [mailto:van@arilabs.com]
Sent: Tuesday, November 16, 2010 3:34 PM
[redacted]
Cc: Jim Hawk; Brianb@arilabs.com
Subject: rs97-NW natural

[redacted]
I can speak with Jim tomorrow about further reducing the final volumes for the rs97 job. I suspect with all the particles we may wind up with a variety of final volumes in the end. I will attempt to run them as strong as possible until I actually see damage done to the instrument. It may result in me having to replace/clean inlet parts, plumbing, and possibly the column itself. I can ignore the column overloading for the main constituents like Pyrene so that you can see the smaller stuff underneath. I will run them all at once if possible so there may be some cumulative degradation to the chromatography as the run progresses. Hopefully this will be enough to help you complete your project. Thank you-Van

Case Narrative, Data Qualifiers, Control Limits

ARI Job ID: RS97

Case Narrative

Client: NW Natural
Project: NWN-INS
ARI Job No.: RS97

Sample receipt

One soil sample was received September 29, 2010, under ARI job RP07 as part of a larger shipment. Cooler temperatures recorded by IR thermometer following ARI SOP were between 0.6 and 5.6°C for chemistry samples. For further details regarding sample receipt, please refer to the Cooler Receipt Form.

One soil sample and a trip blank were received October 11, 2010, under ARI job RQ83. The cooler temperature recorded by IR thermometer following ARI SOP was 0.9°C for chemistry samples. For details regarding sample receipt, refer to the Cooler Receipt Form.

Five soil samples were received October 8, 2010, under ARI job RQ84. The cooler temperature recorded by IR thermometer following ARI SOP was 0.2°C for chemistry samples. For details regarding sample receipt, please refer to the Cooler Receipt Form.

Fourteen soil samples were received October 13, 2010, under ARI job RR33. The cooler temperature recorded by IR thermometer following ARI SOP was 0.2°C for chemistry samples. For details regarding sample receipt, please refer to the Cooler Receipt Form.

For all samples, PAH aliquots were placed on hold.

On October 21, ARI was instructed to pull archived samples and analyze for PAH with no cleanups, NWTPHDx with no cleanups and TOC.

Semivolatile by SW8270D

The samples were initially screened to determine if there was a response that would require modification of the extraction process. Based on the screen, the extraction weight was slightly reduced several samples. The samples and associated laboratory QC were extracted and analyzed within the method recommended holding times.

The initial calibration was within method requirements. The 11/10/10 continuing calibration had Benzo(g,h,i)Perylene outside the 20% window. The 11/11/10 continuing calibration had Indeno(1,2,3-cd)pyrene, Dibenz(a,h)anthracene and Benzo(g,h,i)Perylene outside the 20% window. Positive results have been "Q"-flagged.

Internal standard areas were within control limits.

The surrogate percent recoveries were within the control limits, with results diluted below detection for several of the dilution samples.

The method blank was clean at the reporting limit. The LCS percent recoveries were within limits.

The matrix spike and matrix spike duplicate percent recoveries several compounds were outside limits, attributed to concentrations in the parent samples. No corrective action is required for matrix QC.

Note that the Benzofluoranthenes have been reported as "Total" as separation between the isomers does not meet SW846 criteria. This "Total" includes both the target Benzo(b) and Benzo(k)fluoranthene, as well as any response from the Benzo(j)fluoranthene isomer.

NWTPH-Dx

The samples and associated laboratory QC were extracted and analyzed within the method recommended holding times. Samples were taken only to a 10 mL final effective volume due to the color and consistency of the initial samples.

The initial and continuing calibrations were within method requirements.

The surrogate percent recoveries were within the control limits, with the surrogate for **GST-09SO-17-18-10100810** diluted below detection.

The method blank was clean at the reporting limit. The LCS percent recovery was high of limits. No action was taken as the MS/MSD recoveries were within limits.

The matrix spike and matrix spike duplicate percent recoveries and RPD were within the advisory control limits.

General Chemistry (TOC/TS)

The samples and associated laboratory QC were prepared and analyzed within the method recommended holding times.

The method blank was clean at the reporting limits. The LCS percent recovery was within control limits.

The matrix spike percent recovery and replicate RPD were within control limits.

The SRM percent recoveries were within limits.

Analytical Resources, Incorporated
Analytical Chemists and Consultants

Data Reporting Qualifiers

Effective 7/10/2009

Inorganic Data

U Indicates that the target analyte was not detected at the reported concentration

* Duplicate RPD is not within established control limits

B Reported value is less than the CRDL but ≥ the Reporting Limit

N Matrix Spike recovery not within established control limits

NA Not Applicable, analyte not spiked

H The natural concentration of the spiked element is so much greater than the concentration spiked that an accurate determination of spike recovery is not possible

L Analyte concentration is ≤5 times the Reporting Limit and the replicate control limit defaults to ±1 RL instead of the normal 20% RPD

Organic Data

U Indicates that the target analyte was not detected at the reported concentration

* Flagged value is not within established control limits

B Analyte detected in an associated Method Blank at a concentration greater than one-half of ARI's Reporting Limit or 5% of the regulatory limit or 5% of the analyte concentration in the sample.

J Estimated concentration when the value is less than ARI's established reporting limits

D The spiked compound was not detected due to sample extract dilution

E Estimated concentration calculated for an analyte response above the valid instrument calibration range. A dilution is required to obtain an accurate quantification of the analyte.

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).

S Indicates an analyte response that has saturated the detector. The calculated concentration is not valid; a dilution is required to obtain valid quantification of the analyte

RS97 : 00019

Data Reporting Qualifiers

Effective 7/10/2009

NA The flagged analyte was not analyzed for

NR Spiked compound recovery is not reported due to chromatographic interference

NS The flagged analyte was not spiked into the sample

M Estimated value for an analyte detected and confirmed by an analyst but with low spectral match parameters. This flag is used only for GC-MS analyses

M2 The sample contains PCB congeners that do not match any standard Aroclor pattern. The PCBs are identified and quantified as the Aroclor whose pattern most closely matches that of the sample. The reported value is an estimate.

N The analysis indicates the presence of an analyte for which there is presumptive evidence to make a "tentative identification"

Y The analyte is not detected at or above the reported concentration. The reporting limit is raised due to chromatographic interference. The Y flag is equivalent to the U flag with a raised reporting limit.

C The analyte was positively identified on only one of two chromatographic columns. Chromatographic interference prevented a positive identification on the second column

P The analyte was detected on both chromatographic columns but the quantified values differ by ≥40% RPD with no obvious chromatographic interference

Geotechnical Data

A The total of all fines fractions. This flag is used to report total fines when only sieve analysis is requested and balances total grain size with sample weight.

F Samples were frozen prior to particle size determination

SM Sample matrix was not appropriate for the requested analysis. This normally refers to samples contaminated with an organic product that interferes with the sieving process and/or moisture content, porosity and saturation calculations

SS Sample did not contain the proportion of "fines" required to perform the pipette portion of the grain size analysis

W Weight of sample in some pipette aliquots was below the level required for accurate weighting

RS97 : 00020

SURR SOLUTIONS

LABEL	SOLN ID	TEST	CONC. UG/ML	SOLVENT	EXP.
A	1769-2	ABN	100/150	MEOH	07/22/11
B	1771-1	SIM PNA	15/75	ACETONE	10/05/11
C	1705-4	SIM ABN	25/37.5	MEOH	03/08/11
D	1772-2	LOW PCB	0.2	ACETONE	12/29/10
E	1771-3	HERB	62.5	MEOH	10/06/11
F	1778-1	PCP	12.5	ACETONE	12/09/10
G	1758-4	1,4DIOXANE	100	MEOH	02/11/11
H	1723-2	OP-PEST	25	MEOH	04/02/11
I	1771-2	LOW S. PNA	1.5	ACETONE	10/05/11
J	1681-2	TBT-PORE	0.125	MECL2	12/01/10
K	1689-1	MED PCB	20	ACETONE	12/29/10
L	1681-1	TBT	2.5	MECL2	12/01/10
M	1767-1	EPH	1500	MECL2	06/02/11
N	1770-3	PCB	2	ACETONE	12/10/10
O	1773-4	TPH	450	MECL2	08/05/11
P	1768-1	HCID	2250	MECL2	08/05/11
Q	NA	EDB	1	MEOH	NA
R	1757-3	RESIN ACID	250	ACETONE	08/14/11
S*	1568-5	PBDE	.25	MEOH	01/13/11
T	1768-2	ALKYL PNA	10	MEOH	07/22/11
U	1633-1	CONGENER	2.5	ACETONE	08/11/10
V					
*reverified solution					

LCS SOLUTIONS

11/06/10

LABL	SOLN ID	TEST	CONC. UG/ML	SOLVENT	EXP.
1	1767-3	PCB 1660	20	ACETONE	09/28/11
2#		BCOC PEST	10	ACETONE	NA
3	1705-3	PEST	02/04/20	ACETONE	03/08/11
4	1744-3	LOW PEST	0.2/0.4/2	ACETONE	03/08/11
5	1677-1	EPH	1500	MECL2	11/12/10
6	1702-2	PCP	12.5/125	ACETONE	02/18/11
7	1769-1	ABN	100	MEOH	04/01/11
8	1681-4	TBT	2.5	MECL2	12/01/10
9	1682-2	PORE TBT	.125/.25	MECL2	12/01/10
10	1766-1	ABN ACID	100/200	MEOH	02/01/11
11	1777-2	TPHD	15000	ACETONE	11/01/11
12	1766-2	ABN BASE	200	MEOH	01/29/11
13	1716-2	LOW PCB	2	ACETONE	03/30/11
14	1753-3	LOW ABN ACID	10/20	MEOH	01/28/11
15	1771-4	SIM PNA	15/75	MEOH	01/29/11
16	1776-2	DIOXANE	100	MEOH	04/09/11
17	1772-3	1248 PCB	10	ACETONE	05/01/11
18	1771-5	LOW SIM PNA	1.5	ACETONE	01/29/11
19	1746-3	AK103	7500	ACETONE	12/01/10
20	1775-3	PNA	100	ACETONE	08/14/11
21	1725-1	SKY/BHT	100	MEOH	03/18/11
22	1728-1	HERB	12.5/12500	MEOH	10/20/10
23	1753-4	LW ABN BASE	20	MEOH	01/29/11
24	1758-2	LOW ABN	10	ACETONE	01/13/11
25#		DIPHENYL	100	MEOH	NA
26	1723-3	OP-PEST	25	MEOH	11/20/10
27	1668-3	STEROLS	200	MEOH	10/30/10
28#	1750-2	ADD. PEST	4	ACETONE	09/03/10
29#		DECANES	100	MEOH	NA
30	NA	EDB/DBCP	0.2	MEOH	NA

RS97 : 00022

LCS SOLUTIONS

11/06/10

31	1707-3	TERPINEOL	100	MEOH	03/19/11
32	1758-1	GUAIACOL	50-200	ACETONE	01/08/11
33	1639-3	RETENE	100	MEOH	09/03/10
34	1633-1	CONGENERS	2.5	ACETONE	08/11/10
35	1674-3	ALKYL PNA A	10	MEOH	10/28/10
36	1601-3	ALKYL PNA B	10	MEOH	05/13/10
37	1773-1	CAR/PERY	100	ACETONE	10/14/11
50	1757-4	FULL RESIN	250	ACETONE	08/14/11
51	1772-1	DDTS	0.01	ACETONE	04/24/11
52	1613-5	1232 PCB	20	ACETONE	06/16/10
53	1703-3	DALAPON	50	MEOH	09/11/10
54	1753-1	T-CHLORDANE	10	ACETONE	07/21/11
55	1753-2	TOXAPHENE	50	ACETONE	07/21/11
56	1774-2	PNA QLS	0.05	ACETONE	01/29/11
#=PROJECT SPECIFIC SOLUTION					
*=REVERIFIED SOLUTION					

RS97 : 00023

Summary of Laboratory Control Limits

Default limits of 30-160% recovery and 30% RPD apply for all organic analytes when laboratory generated control limits are not available on ARI's web site. Default limits for all inorganic analytes are 75-125% recovery and 25% RPD.

ARI's laboratory generated Quality Control Limits may be superseded by project specific data quality objectives (DQO) provided by ARI's clients. The use of project specific DQO must be approved by ARI's Laboratory and QA Program Managers.

Analytical Resources,Incorporated
Analytical Chemists and Consultants

Spike Recovery Control Limits Hydrocarbon Identification (NWTPH-HCID) and Diesel Range Petroleum Hydrocarbons (NWTPH-D & AK-102) [1]

Effective 10/4/10

Control limits are updated periodically. Assure that you have ARI's current control limits by downloading the files at the time of use. http://www.arilabs.com/portal/downloads/ARI-CLs.zip

Method:	NWTPH-HCID [2]	NWTPH-D		AK102 [2]
Sample Matrix:	Water& Soil	Water [3]	Soil[4]	Water & Soil
Preparation:	500 to 1 mL	500 to 1 mL	10g to 1 mL	500 to 1 mL or 10g to 1 mL
LCS Spike Recovery [5]				
Diesel	-	60 - 111	64 - 116	75 - 125
Diesel with Acid & Silica Clean-up	-	49 - 107	59 - 108	(6)
Diesel with Silica Clean-up		49 - 107	59 - 108	75 - 125
Method Blank/LCS Surrogate Recovery				
o-Terphenyl	-	56 - 130	64 - 134	60 - 120
o-Terphenyl with Acid & Silica Clean-up	-	53 - 123	59 - 134	(6)
o-Terphenyl Silica Clean-up		53 - 123	59 - 134	60 - 120
Sample Surrogate Recovery				
o-Terphenyl	50 - 150	52 - 134	52 - 130	50 - 150
o-Terphenyl with Acid & Silica Clean-up	-	49 - 118	43 - 137	(6)
o-Terphenyl with Silica Clean-up	-	49 - 118	43 - 137	50 - 150

1. Control Limits calculated using all data generated 1/1/10 through 9/1/10
2. Method specified, non-prescriptive limits. The NWTPH-HCID Method does not include LCS or MS analyses.
3. Separatory Funnel Extraction – EPA Method 3510C
4. Microwave Extraction – EPA Method 3546
5. Laboratory Control Sample (LCS) spike recovery control limits also used as advisory control limits for sample matrix spike (MS) analyzes. MS recovery values are advisory and not used to assess the acceptability of an analytical batch.
6. Alaska State UST Methods do not allow acid cleanup of sample extracts.

RS97 : 00025

Analytical Resources,Incorporated
Analytical Chemists and Consultants

Spike Recovery Control Limits for Polycyclic Aromatic Hydrocarbons
EPA Method SW-846-8270D [1,2]

Effective 5/1/09

Control limits are updated periodically. Assure that you have ARI's current control limits by downloading the files at the time of use. http://www.arilabs.com/portal/downloads/ARI-CLs.zip

Sample Matrix	**Water**		**Soil**	
Sample Volume / Final Volume	**500 mL to 0.5 mL**		**7.5 g / 0.5 mL**	
LCS Spike Recovery [6]	**Control Limits**	**ME Limits [3]**	**Control Limits**	**ME Limits [3]**
Napthalene	30 - **100**	21 - **100**	37 - **100**	31 - **100**
2-Methylnapthalene	33 - 108	21 - 121	43 - 101	33 - 111
1-Methylnapthalene	34 - **100**	26 - **100**	39 - **100**	32 - **100**
Acenaphthylene	45 - **100**	38 - **100**	44 - **100**	37 - **100**
Acenapthene	40 - **100**	32 - **100**	41 - **100**	35 - **100**
Dibenzofuran	45 - **100**	37 - **100**	44 - **100**	37 - **100**
Fluorene	45 - **100**	37 - 105	49 - **100**	43 - **100**
Phenanthrene	47 - 101	38 - 110	48 - **100**	42 - **100**
Anthracene	47 - **100**	38 - 108	50 - **100**	44 - **100**
Fluoranthene	48 - 110	38 - 120	54 - **100**	47 - 107
Pyrene	48 - 109	38 - 119	41 - 105	30 - 116
Benz(a)anthracene	44 - 105	34 - 115	49 - **100**	42 - 102
Chyrsene	50 - 103	41 - 112	50 - **100**	43 - 101
Benzofluoranthene(s) (Total)	30 - 160[7]	30 - 160[7]	30 - 160[7]	30 - 160[7]
Benzo(a)pyrene	44 - 107	34 - 118	50 - **100**	42 - 105
Indeno(1,2,3-cd)pyrene	30 - 106	17 - 119	33 - 101	22 - 112
Dibenzo(a,h)anthracene	42 - 103	32 - 113	37 - 104	26 - 115
Benzo(g,h,i)Perylene	42 - 102	32 - 112	33 - 107	21 - 119
MB / LCS Surrogate Recovery		-		
d14-p-Terphenyl	52 - 110	(5)	47 - 112	(5)
2-Fluorobiphenyl	36 - **100**	(5)	40 - **100**	(5)
Sample Surrogate Recovery				
d14-p-Terphenyl	23 - 120	(5)	35 - 112	(5)
2-Fluorobiphenyl	38 - **100**	(5)	34 - **100**	(5)

(1) Control limits calculated using all available spike recovery data from 7/1/07 through 2/27/09.
(2) Highlighted control limits (**bold font**) adjusted to demonstrate that ARI does not use control limits < 10 for the lower limit or < 100 for the upper limit.
(3) **ME** = A marginal exceedance defined in the NELAC Standard (4) as beyond the LCS-CL but still within the ME limits. ME limits are between 3 and 4 standard deviations around the mean. A maximum of one marginal exceedance is acceptable. Two or more marginal exceedances require corrective action.
(4) **2003 NELAC Standard (EPA/600/R-04/003), July 2003**, Chapter 5, pages 251-252.
(5) Marginal Exceedances are not allowed for surrogate standards.
(6) Laboratory Control Sample (LCS) spike recovery control limits also used as advisory control limits for sample matrix spike (MS) analyzes. MS recovery values are advisory and not used to assess the acceptability of an analytical batch.
(7) Default limits pending generation of historic limits for total benzofluoranthrenes (7/29/10)

RS97 : 00026

Analytical Resources,Incorporated
Analytical Chemists and Consultants

Spike Recovery Control Limits for Conventional Wet Chemistry

Effective 5/1/09

Control limits are updated periodically. Assure that you have ARI's current control limits by downloading the files at the time of use. http://www.arilabs.com/portal/downloads/ARI-CLs.zip

	ARI's Control Limits	
Sample Matrix:	Water	Soil / Sediment
Matrix Spike Recoveries	% Recovery	% Recovery
Ammonia	75 - 125	75 - 125
Bromide	75 125	75 - 125
Chloride	75 125	75 - 125
Cyanide	75 - 125	75 - 125
Ferrous Iron	75 - 125	75 - 125
Fluoride	75 - 125	75 - 125
Formaldehyde	75 - 125	75 - 125
Hexane Extractable Material	-- - --	78 - 114
Hexavalent Chromium	75 - 125	75 - 125
Nitrate/Nitrite	75 - 125	75 - 125
Oil and Grease	75 - 125	75 - 125
Phenol	75 - 125	75 - 125
Phosphorous	75 - 125	75 - 125
Sulfate	75 - 125	75 - 125
Sulfide	75 - 125	75 - 125
Total Kjeldahl Nitrogen	75 - 125	75 - 125
Total Organic Carbon	75 - 125	75 - 125
Duplicate RPDs		
Acidity	±20%	±20%
Alkalinity	±20%	±20%
BOD	±20%	±20%
Cation Exchange	±20%	±20%
COD	±20%	±20%
Conductivity	±20%	±20%
Salinity	±20%	±20%
Solids	±20%	±20%
Turbidity	±20%	±20%

RS97 : 00027

Semivolatile PAH Analysis
Report and Summary QC Forms

ARI Job ID: RS97

ANALYTICAL RESOURCES INCORPORATED

ORGANICS ANALYSIS DATA SHEET
PNAs by SW8270D GC/MS

Sample ID: GSM-08SO-10-11-100928
SAMPLE

Lab Sample ID: RS97A
LIMS ID: 10-27417
Matrix: Soil
Data Release Authorized:
Reported: 11/12/10

QC Report No: RS97-NW Natural
Project: NWN-INS

Date Sampled: 09/28/10
Date Received: 09/29/10

Date Extracted: 11/03/10
Date Analyzed: 11/09/10 18:28
Instrument/Analyst: NT12/VTS
GPC Cleanup: No
Alumina: No
Silica Gel: No

Sample Amount: 3.69 g-dry-wt
Final Extract Volume: 10 mL
Dilution Factor: 3.00
Percent Moisture: 31.2%

CAS Number	Analyte	RL	Result
91-20-3	Naphthalene	8,100	1,100,000 E
91-57-6	2-Methylnaphthalene	8,100	240,000
90-12-0	1-Methylnaphthalene	8,100	110,000
208-96-8	Acenaphthylene	8,100	9,000
83-32-9	Acenaphthene	8,100	240,000
86-73-7	Fluorene	8,100	110,000
85-01-8	Phenanthrene	8,100	700,000 E
120-12-7	Anthracene	8,100	100,000
206-44-0	Fluoranthene	8,100	330,000
129-00-0	Pyrene	8,100	390,000
56-55-3	Benzo(a)anthracene	8,100	79,000
218-01-9	Chrysene	8,100	94,000
50-32-8	Benzo(a)pyrene	8,100	110,000
193-39-5	Indeno(1,2,3-cd)pyrene	8,100	52,000
53-70-3	Dibenz(a,h)anthracene	8,100	13,000
191-24-2	Benzo(g,h,i)perylene	8,100	82,000
132-64-9	Dibenzofuran	8,100	15,000
TOTBFA	Total Benzofluoranthenes	8,100	120,000

Reported in µg/kg (ppb)

Semivolatile Surrogate Recovery

d14-p-Terphenyl	56.4%
2-Fluorobiphenyl	58.8%

FORM I

ANALYTICAL RESOURCES INCORPORATED

ORGANICS ANALYSIS DATA SHEET
PNAs by SW8270D GC/MS

Sample ID: GSM-08SO-10-11-100928
DILUTION

Lab Sample ID: RS97A
LIMS ID: 10-27417
Matrix: Soil
Data Release Authorized:
Reported: 11/12/10

QC Report No: RS97-NW Natural
Project: NWN-INS

Date Sampled: 09/28/10
Date Received: 09/29/10

Date Extracted: 11/03/10
Date Analyzed: 11/10/10 20:18
Instrument/Analyst: NT12/VTS
GPC Cleanup: No
Alumina: No
Silica Gel: No

Sample Amount: 3.69 g-dry-wt
Final Extract Volume: 10 mL
Dilution Factor: 10.0
Percent Moisture: 31.2%

CAS Number	Analyte	RL	Result	
91-20-3	**Naphthalene**	**27,000**	**1,100,000**	
91-57-6	**2-Methylnaphthalene**	**27,000**	**250,000**	
90-12-0	**1-Methylnaphthalene**	**27,000**	**130,000**	
208-96-8	Acenaphthylene	27,000	< 27,000	U
83-32-9	**Acenaphthene**	**27,000**	**240,000**	
86-73-7	**Fluorene**	**27,000**	**110,000**	
85-01-8	**Phenanthrene**	**27,000**	**670,000**	
120-12-7	**Anthracene**	**27,000**	**100,000**	
206-44-0	**Fluoranthene**	**27,000**	**280,000**	
129-00-0	**Pyrene**	**27,000**	**350,000**	
56-55-3	**Benzo(a)anthracene**	**27,000**	**84,000**	
218-01-9	**Chrysene**	**27,000**	**110,000**	
50-32-8	**Benzo(a)pyrene**	**27,000**	**120,000**	
193-39-5	**Indeno(1,2,3-cd)pyrene**	**27,000**	**48,000**	
53-70-3	Dibenz(a,h)anthracene	27,000	< 27,000	U
191-24-2	**Benzo(g,h,i)perylene**	**27,000**	**72,000**	**Q**
132-64-9	Dibenzofuran	27,000	< 27,000	U
TOTBFA	**Total Benzofluoranthenes**	**27,000**	**120,000**	

Reported in µg/kg (ppb)

Semivolatile Surrogate Recovery

d14-p-Terphenyl	D
2-Fluorobiphenyl	D

ANALYTICAL RESOURCES INCORPORATED

ORGANICS ANALYSIS DATA SHEET
PNAs by SW8270D GC/MS

Sample ID: DGS-19-3.34.1-101006
SAMPLE

Lab Sample ID: RS97B
LIMS ID: 10-27418
Matrix: Sediment
Data Release Authorized:
Reported: 11/12/10

QC Report No: RS97-NW Natural
Project: NWN-INS

Date Sampled: 10/06/10
Date Received: 10/08/10

Date Extracted: 11/03/10
Date Analyzed: 11/09/10 18:51
Instrument/Analyst: NT12/VTS
GPC Cleanup: No
Alumina: No
Silica Gel: No

Sample Amount: 3.71 g-dry-wt
Final Extract Volume: 10 mL
Dilution Factor: 3.00
Percent Moisture: 29.7%

CAS Number	Analyte	RL	Result
91-20-3	Naphthalene	8,100	2,600,000 ES
91-57-6	2-Methylnaphthalene	8,100	510,000
90-12-0	1-Methylnaphthalene	8,100	230,000
208-96-8	Acenaphthylene	8,100	15,000
83-32-9	Acenaphthene	8,100	540,000
86-73-7	Fluorene	8,100	170,000
85-01-8	Phenanthrene	8,100	1,000,000 E
120-12-7	Anthracene	8,100	150,000
206-44-0	Fluoranthene	8,100	440,000
129-00-0	Pyrene	8,100	540,000
56-55-3	Benzo(a)anthracene	8,100	110,000
218-01-9	Chrysene	8,100	130,000
50-32-8	Benzo(a)pyrene	8,100	160,000
193-39-5	Indeno(1,2,3-cd)pyrene	8,100	74,000
53-70-3	Dibenz(a,h)anthracene	8,100	17,000
191-24-2	Benzo(g,h,i)perylene	8,100	110,000
132-64-9	Dibenzofuran	8,100	23,000
TOTBFA	Total Benzofluoranthenes	8,100	160,000

Reported in µg/kg (ppb)

Semivolatile Surrogate Recovery

d14-p-Terphenyl	62.4%
2-Fluorobiphenyl	62.4%

FORM I

ANALYTICAL RESOURCES INCORPORATED

ORGANICS ANALYSIS DATA SHEET
PNAs by SW8270D GC/MS

Sample ID: DGS-19-3.34.1-101006
DILUTION

Lab Sample ID: RS97B
LIMS ID: 10-27418
Matrix: Sediment
Data Release Authorized:
Reported: 11/12/10

QC Report No: RS97-NW Natural
Project: NWN-INS

Date Sampled: 10/06/10
Date Received: 10/08/10

Date Extracted: 11/03/10
Date Analyzed: 11/10/10 20:42
Instrument/Analyst: NT12/VTS
GPC Cleanup: No
Alumina: No
Silica Gel: No

Sample Amount: 3.71 g-dry-wt
Final Extract Volume: 10 mL
Dilution Factor: 25.0
Percent Moisture: 29.7%

CAS Number	Analyte	RL	Result
91-20-3	**Naphthalene**	**67,000**	**3,200,000**
91-57-6	**2-Methylnaphthalene**	**67,000**	**530,000**
90-12-0	**1-Methylnaphthalene**	**67,000**	**280,000**
208-96-8	Acenaphthylene	67,000	< 67,000 U
83-32-9	**Acenaphthene**	**67,000**	**490,000**
86-73-7	**Fluorene**	**67,000**	**160,000**
85-01-8	**Phenanthrene**	**67,000**	**860,000**
120-12-7	**Anthracene**	**67,000**	**150,000**
206-44-0	**Fluoranthene**	**67,000**	**370,000**
129-00-0	**Pyrene**	**67,000**	**460,000**
56-55-3	**Benzo(a)anthracene**	**67,000**	**120,000**
218-01-9	**Chrysene**	**67,000**	**140,000**
50-32-8	**Benzo(a)pyrene**	**67,000**	**160,000**
193-39-5	Indeno(1,2,3-cd)pyrene	67,000	< 67,000 U
53-70-3	Dibenz(a,h)anthracene	67,000	< 67,000 U
191-24-2	**Benzo(g,h,i)perylene**	**67,000**	**96,000 Q**
132-64-9	Dibenzofuran	67,000	< 67,000 U
TOTBFA	**Total Benzofluoranthenes**	**67,000**	**170,000**

Reported in µg/kg (ppb)

Semivolatile Surrogate Recovery

d14-p-Terphenyl	D
2-Fluorobiphenyl	D

FORM I

ANALYTICAL RESOURCES INCORPORATED

ORGANICS ANALYSIS DATA SHEET
PNAs by SW8270D GC/MS

Sample ID: DGS-19-4.48.2-101006
SAMPLE

Lab Sample ID: RS97C
LIMS ID: 10-27419
Matrix: Sediment
Data Release Authorized:
Reported: 11/12/10

QC Report No: RS97-NW Natural
Project: NWN-INS

Date Sampled: 10/06/10
Date Received: 10/08/10

Date Extracted: 11/03/10
Date Analyzed: 11/09/10 19:15
Instrument/Analyst: NT12/VTS
GPC Cleanup: No
Alumina: No
Silica Gel: No

Sample Amount: 3.74 g-dry-wt
Final Extract Volume: 10 mL
Dilution Factor: 3.00
Percent Moisture: 29.6%

CAS Number	Analyte	RL	Result
91-20-3	**Naphthalene**	**8,000**	**510,000**
91-57-6	**2-Methylnaphthalene**	**8,000**	**120,000**
90-12-0	**1-Methylnaphthalene**	**8,000**	**62,000**
208-96-8	Acenaphthylene	8,000	< 8,000 U
83-32-9	**Acenaphthene**	**8,000**	**120,000**
86-73-7	**Fluorene**	**8,000**	**45,000**
85-01-8	**Phenanthrene**	**8,000**	**260,000**
120-12-7	**Anthracene**	**8,000**	**48,000**
206-44-0	**Fluoranthene**	**8,000**	**120,000**
129-00-0	**Pyrene**	**8,000**	**150,000**
56-55-3	**Benzo(a)anthracene**	**8,000**	**33,000**
218-01-9	**Chrysene**	**8,000**	**51,000**
50-32-8	**Benzo(a)pyrene**	**8,000**	**46,000**
193-39-5	**Indeno(1,2,3-cd)pyrene**	**8,000**	**22,000**
53-70-3	Dibenz(a,h)anthracene	8,000	< 8,000 U
191-24-2	**Benzo(g,h,i)perylene**	**8,000**	**31,000**
132-64-9	Dibenzofuran	8,000	< 8,000 U
TOTBFA	**Total Benzofluoranthenes**	**8,000**	**49,000**

Reported in µg/kg (ppb)

Semivolatile Surrogate Recovery	
d14-p-Terphenyl	66.0%
2-Fluorobiphenyl	66.0%

ANALYTICAL RESOURCES INCORPORATED

ORGANICS ANALYSIS DATA SHEET
PNAs by SW8270D GC/MS

Sample ID: DGS-19-10.210.9-101006
SAMPLE

Lab Sample ID: RS97D
LIMS ID: 10-27420
Matrix: Sediment
Data Release Authorized:
Reported: 11/12/10

QC Report No: RS97-NW Natural
Project: NWN-INS

Date Sampled: 10/06/10
Date Received: 10/08/10

Date Extracted: 11/03/10
Date Analyzed: 11/10/10 14:17
Instrument/Analyst: NT12/VTS
GPC Cleanup: No
Alumina: No
Silica Gel: No

Sample Amount: 4.05 g-dry-wt
Final Extract Volume: 10 mL
Dilution Factor: 1.00
Percent Moisture: 22.3%

CAS Number	Analyte	RL	Result
91-20-3	Naphthalene	2,500	< 2,500 U
91-57-6	**2-Methylnaphthalene**	**2,500**	**12,000**
90-12-0	**1-Methylnaphthalene**	**2,500**	**17,000**
208-96-8	Acenaphthylene	2,500	< 2,500 U
83-32-9	**Acenaphthene**	**2,500**	**35,000**
86-73-7	**Fluorene**	**2,500**	**22,000**
85-01-8	**Phenanthrene**	**2,500**	**150,000**
120-12-7	**Anthracene**	**2,500**	**21,000**
206-44-0	**Fluoranthene**	**2,500**	**42,000**
129-00-0	**Pyrene**	**2,500**	**56,000**
56-55-3	**Benzo(a)anthracene**	**2,500**	**14,000**
218-01-9	**Chrysene**	**2,500**	**17,000**
50-32-8	**Benzo(a)pyrene**	**2,500**	**15,000**
193-39-5	**Indeno(1,2,3-cd)pyrene**	**2,500**	**5,500**
53-70-3	Dibenz(a,h)anthracene	2,500	< 2,500 U
191-24-2	**Benzo(g,h,i)perylene**	**2,500**	**8,200 Q**
132-64-9	**Dibenzofuran**	**2,500**	**3,300**
TOTBFA	**Total Benzofluoranthenes**	**2,500**	**15,000**

Reported in µg/kg (ppb)

Semivolatile Surrogate Recovery	
d14-p-Terphenyl	60.4%
2-Fluorobiphenyl	64.4%

FORM I

ANALYTICAL RESOURCES INCORPORATED

ORGANICS ANALYSIS DATA SHEET
PNAs by SW8270D GC/MS

Sample ID: DGS-08-4.44.6-101007
SAMPLE

Lab Sample ID: RS97E
LIMS ID: 10-27421
Matrix: Sediment
Data Release Authorized:
Reported: 11/12/10

QC Report No: RS97-NW Natural
Project: NWN-INS

Date Sampled: 10/07/10
Date Received: 10/08/10

Date Extracted: 11/03/10
Date Analyzed: 11/09/10 20:02
Instrument/Analyst: NT12/VTS
GPC Cleanup: No
Alumina: No
Silica Gel: No

Sample Amount: 3.94 g-dry-wt
Final Extract Volume: 10 mL
Dilution Factor: 3.00
Percent Moisture: 23.9%

CAS Number	Analyte	RL	Result
91-20-3	Naphthalene	7,600	2,500,000 ES
91-57-6	2-Methylnaphthalene	7,600	850,000 E
90-12-0	1-Methylnaphthalene	7,600	390,000
208-96-8	Acenaphthylene	7,600	12,000
83-32-9	Acenaphthene	7,600	620,000 E
86-73-7	Fluorene	7,600	250,000
85-01-8	Phenanthrene	7,600	1,300,000 E
120-12-7	Anthracene	7,600	180,000
206-44-0	Fluoranthene	7,600	520,000
129-00-0	Pyrene	7,600	660,000 E
56-55-3	Benzo(a)anthracene	7,600	140,000
218-01-9	Chrysene	7,600	160,000
50-32-8	Benzo(a)pyrene	7,600	180,000
193-39-5	Indeno(1,2,3-cd)pyrene	7,600	78,000
53-70-3	Dibenz(a,h)anthracene	7,600	21,000
191-24-2	Benzo(g,h,i)perylene	7,600	120,000
132-64-9	Dibenzofuran	7,600	35,000
TOTBFA	Total Benzofluoranthenes	7,600	180,000

Reported in µg/kg (ppb)

Semivolatile Surrogate Recovery

d14-p-Terphenyl	68.4%
2-Fluorobiphenyl	75.6%

FORM I

ANALYTICAL RESOURCES INCORPORATED

ORGANICS ANALYSIS DATA SHEET
PNAs by SW8270D GC/MS

Sample ID: DGS-08-4.44.6-101007
DILUTION

Lab Sample ID: RS97E
LIMS ID: 10-27421
Matrix: Sediment
Data Release Authorized:
Reported: 11/12/10

QC Report No: RS97-NW Natural
Project: NWN-INS

Date Sampled: 10/07/10
Date Received: 10/08/10

Date Extracted: 11/03/10
Date Analyzed: 11/10/10 21:05
Instrument/Analyst: NT12/VTS
GPC Cleanup: No
Alumina: No
Silica Gel: No

Sample Amount: 3.94 g-dry-wt
Final Extract Volume: 10 mL
Dilution Factor: 25.0
Percent Moisture: 23.9%

CAS Number	Analyte	RL	Result	
91-20-3	**Naphthalene**	**64,000**	**3,000,000**	
91-57-6	**2-Methylnaphthalene**	**64,000**	**840,000**	
90-12-0	**1-Methylnaphthalene**	**64,000**	**410,000**	
208-96-8	Acenaphthylene	64,000	< 64,000	U
83-32-9	**Acenaphthene**	**64,000**	**530,000**	
86-73-7	**Fluorene**	**64,000**	**230,000**	
85-01-8	**Phenanthrene**	**64,000**	**1,100,000**	
120-12-7	**Anthracene**	**64,000**	**180,000**	
206-44-0	**Fluoranthene**	**64,000**	**410,000**	
129-00-0	**Pyrene**	**64,000**	**540,000**	
56-55-3	**Benzo(a)anthracene**	**64,000**	**130,000**	
218-01-9	**Chrysene**	**64,000**	**150,000**	
50-32-8	**Benzo(a)pyrene**	**64,000**	**170,000**	
193-39-5	**Indeno(1,2,3-cd)pyrene**	**64,000**	**72,000**	
53-70-3	Dibenz(a,h)anthracene	64,000	< 64,000	U
191-24-2	**Benzo(g,h,i)perylene**	**64,000**	**110,000**	**Q**
132-64-9	Dibenzofuran	64,000	< 64,000	U
TOTBFA	**Total Benzofluoranthenes**	**64,000**	**180,000**	

Reported in µg/kg (ppb)

Semivolatile Surrogate Recovery

d14-p-Terphenyl	D
2-Fluorobiphenyl	D

FORM I

ANALYTICAL RESOURCES INCORPORATED

ORGANICS ANALYSIS DATA SHEET
PNAs by SW8270D GC/MS

Sample ID: GST-09SO-17-18-101008
SAMPLE

Lab Sample ID: RS97F
LIMS ID: 10-27422
Matrix: Soil
Data Release Authorized:
Reported: 11/12/10

QC Report No: RS97-NW Natural
Project: NWN-INS

Date Sampled: 10/08/10
Date Received: 10/11/10

Date Extracted: 11/03/10
Date Analyzed: 11/09/10 20:26
Instrument/Analyst: NT12/VTS
GPC Cleanup: No
Alumina: No
Silica Gel: No

Sample Amount: 4.20 g-dry-wt
Final Extract Volume: 10 mL
Dilution Factor: 3.00
Percent Moisture: 17.3%

CAS Number	Analyte	RL	Result
91-20-3	Naphthalene	7,100	3,800,000 ES
91-57-6	2-Methylnaphthalene	7,100	1,300,000 E
90-12-0	1-Methylnaphthalene	7,100	660,000 E
208-96-8	Acenaphthylene	7,100	650,000 E
83-32-9	Acenaphthene	7,100	1,300,000 E
86-73-7	Fluorene	7,100	890,000 E
85-01-8	Phenanthrene	7,100	3,800,000 ES
120-12-7	Anthracene	7,100	760,000 E
206-44-0	Fluoranthene	7,100	2,000,000 ES
129-00-0	Pyrene	7,100	2,400,000 ES
56-55-3	Benzo(a)anthracene	7,100	640,000 E
218-01-9	Chrysene	7,100	860,000 E
50-32-8	Benzo(a)pyrene	7,100	1,000,000 E
193-39-5	Indeno(1,2,3-cd)pyrene	7,100	370,000
53-70-3	Dibenz(a,h)anthracene	7,100	100,000
191-24-2	Benzo(g,h,i)perylene	7,100	520,000
132-64-9	Dibenzofuran	7,100	100,000
TOTBFA	Total Benzofluoranthenes	7,100	1,100,000 E

Reported in µg/kg (ppb)

Semivolatile Surrogate Recovery

d14-p-Terphenyl	46.8%
2-Fluorobiphenyl	66.0%

FORM I

ANALYTICAL RESOURCES INCORPORATED

ORGANICS ANALYSIS DATA SHEET
PNAs by SW8270D GC/MS

Sample ID: GST-09SO-17-18-101008
DILUTION

Lab Sample ID: RS97F
LIMS ID: 10-27422
Matrix: Soil
Data Release Authorized:
Reported: 11/12/10

QC Report No: RS97-NW Natural
Project: NWN-INS

Date Sampled: 10/08/10
Date Received: 10/11/10

Date Extracted: 11/03/10
Date Analyzed: 11/11/10 13:25
Instrument/Analyst: NT12/VTS
GPC Cleanup: No
Alumina: No
Silica Gel: No

Sample Amount: 4.20 g-dry-wt
Final Extract Volume: 10 mL
Dilution Factor: 100
Percent Moisture: 17.3%

CAS Number	Analyte	RL	Result	
91-20-3	**Naphthalene**	**240,000**	**10,000,000**	
91-57-6	**2-Methylnaphthalene**	**240,000**	**1,700,000**	
90-12-0	**1-Methylnaphthalene**	**240,000**	**860,000**	
208-96-8	**Acenaphthylene**	**240,000**	**630,000**	
83-32-9	**Acenaphthene**	**240,000**	**1,100,000**	
86-73-7	**Fluorene**	**240,000**	**810,000**	
85-01-8	**Phenanthrene**	**240,000**	**4,900,000**	
120-12-7	**Anthracene**	**240,000**	**860,000**	
206-44-0	**Fluoranthene**	**240,000**	**2,200,000**	
129-00-0	**Pyrene**	**240,000**	**2,700,000**	
56-55-3	**Benzo(a)anthracene**	**240,000**	**640,000**	
218-01-9	**Chrysene**	**240,000**	**820,000**	
50-32-8	**Benzo(a)pyrene**	**240,000**	**870,000**	
193-39-5	**Indeno(1,2,3-cd)pyrene**	**240,000**	**310,000**	**Q**
53-70-3	Dibenz(a,h)anthracene	240,000	< 240,000	U
191-24-2	**Benzo(g,h,i)perylene**	**240,000**	**460,000**	**Q**
132-64-9	Dibenzofuran	240,000	< 240,000	U
TOTBFA	**Total Benzofluoranthenes**	**240,000**	**990,000**	

Reported in µg/kg (ppb)

Semivolatile Surrogate Recovery

d14-p-Terphenyl	D
2-Fluorobiphenyl	D

FORM I

ANALYTICAL RESOURCES INCORPORATED

ORGANICS ANALYSIS DATA SHEET
PNAs by SW8270D GC/MS

Sample ID: DGS-36-066.7-101012
SAMPLE

Lab Sample ID: RS97G
LIMS ID: 10-27423
Matrix: Sediment
Data Release Authorized:
Reported: 11/12/10

QC Report No: RS97-NW Natural
Project: NWN-INS

Date Sampled: 10/12/10
Date Received: 10/13/10

Date Extracted: 11/03/10
Date Analyzed: 11/10/10 14:40
Instrument/Analyst: NT12/VTS
GPC Cleanup: No
Alumina: No
Silica Gel: No

Sample Amount: 3.34 g-dry-wt
Final Extract Volume: 10 mL
Dilution Factor: 1.00
Percent Moisture: 33.5%

CAS Number	Analyte	RL	Result
91-20-3	**Naphthalene**	**3,000**	**4,500**
91-57-6	2-Methylnaphthalene	3,000	< 3,000 U
90-12-0	1-Methylnaphthalene	3,000	< 3,000 U
208-96-8	Acenaphthylene	3,000	< 3,000 U
83-32-9	**Acenaphthene**	**3,000**	**10,000**
86-73-7	**Fluorene**	**3,000**	**7,200**
85-01-8	**Phenanthrene**	**3,000**	**69,000**
120-12-7	**Anthracene**	**3,000**	**13,000**
206-44-0	**Fluoranthene**	**3,000**	**54,000**
129-00-0	**Pyrene**	**3,000**	**68,000**
56-55-3	**Benzo(a)anthracene**	**3,000**	**16,000**
218-01-9	**Chrysene**	**3,000**	**18,000**
50-32-8	**Benzo(a)pyrene**	**3,000**	**26,000**
193-39-5	**Indeno(1,2,3-cd)pyrene**	**3,000**	**12,000**
53-70-3	Dibenz(a,h)anthracene	3,000	< 3,000 U
191-24-2	**Benzo(g,h,i)perylene**	**3,000**	**19,000 Q**
132-64-9	Dibenzofuran	3,000	< 3,000 U
TOTBFA	**Total Benzofluoranthenes**	**3,000**	**27,000**

Reported in µg/kg (ppb)

Semivolatile Surrogate Recovery	
d14-p-Terphenyl	66.0%
2-Fluorobiphenyl	65.6%

FORM I

ANALYTICAL RESOURCES INCORPORATED

ORGANICS ANALYSIS DATA SHEET
PNAs by SW8270D GC/MS

Sample ID: DGS-07-011.3-101012
SAMPLE

Lab Sample ID: RS97H
LIMS ID: 10-27424
Matrix: Sediment
Data Release Authorized:
Reported: 11/12/10

QC Report No: RS97-NW Natural
Project: NWN-INS

Date Sampled: 10/12/10
Date Received: 10/13/10

Date Extracted: 11/03/10
Date Analyzed: 11/11/10 16:09
Instrument/Analyst: NT12/VTS
GPC Cleanup: No
Alumina: No
Silica Gel: No

Sample Amount: 2.56 g-dry-wt
Final Extract Volume: 2.0 mL
Dilution Factor: 1.00
Percent Moisture: 49.9%

CAS Number	Analyte	RL	Result	
91-20-3	Naphthalene	780	2,600	
91-57-6	2-Methylnaphthalene	780	1,600	
90-12-0	1-Methylnaphthalene	780	1,100	
208-96-8	Acenaphthylene	780	< 780	U
83-32-9	Acenaphthene	780	2,500	
86-73-7	Fluorene	780	1,600	
85-01-8	Phenanthrene	780	19,000	
120-12-7	Anthracene	780	4,600	
206-44-0	Fluoranthene	780	28,000	
129-00-0	Pyrene	780	42,000	
56-55-3	Benzo(a)anthracene	780	14,000	
218-01-9	Chrysene	780	19,000	
50-32-8	Benzo(a)pyrene	780	20,000	
193-39-5	Indeno(1,2,3-cd)pyrene	780	9,300	Q
53-70-3	Dibenz(a,h)anthracene	780	3,400	Q
191-24-2	Benzo(g,h,i)perylene	780	14,000	Q
132-64-9	Dibenzofuran	780	< 780	U
TOTBFA	Total Benzofluoranthenes	780	21,000	

Reported in µg/kg (ppb)

Semivolatile Surrogate Recovery

d14-p-Terphenyl	70.6%
2-Fluorobiphenyl	57.8%

FORM I

ANALYTICAL RESOURCES INCORPORATED

ORGANICS ANALYSIS DATA SHEET
PNAs by SW8270D GC/MS

Sample ID: DGS-07-2.22.7-101012
SAMPLE

Lab Sample ID: RS97I
LIMS ID: 10-27425
Matrix: Sediment
Data Release Authorized:
Reported: 11/12/10

QC Report No: RS97-NW Natural
Project: NWN-INS

Date Sampled: 10/12/10
Date Received: 10/13/10

Date Extracted: 11/03/10
Date Analyzed: 11/10/10 16:24
Instrument/Analyst: NT12/VTS
GPC Cleanup: No
Alumina: No
Silica Gel: No

Sample Amount: 2.53 g-dry-wt
Final Extract Volume: 10 mL
Dilution Factor: 1.00
Percent Moisture: 52.3%

CAS Number	Analyte	RL	Result
91-20-3	Naphthalene	4,000	6,800
91-57-6	2-Methylnaphthalene	4,000	31,000
90-12-0	1-Methylnaphthalene	4,000	16,000
208-96-8	Acenaphthylene	4,000	< 4,000 U
83-32-9	Acenaphthene	4,000	12,000
86-73-7	Fluorene	4,000	14,000
85-01-8	Phenanthrene	4,000	140,000
120-12-7	Anthracene	4,000	24,000
206-44-0	Fluoranthene	4,000	74,000
129-00-0	Pyrene	4,000	130,000
56-55-3	Benzo(a)anthracene	4,000	60,000
218-01-9	Chrysene	4,000	82,000
50-32-8	Benzo(a)pyrene	4,000	70,000
193-39-5	Indeno(1,2,3-cd)pyrene	4,000	23,000
53-70-3	Dibenz(a,h)anthracene	4,000	12,000
191-24-2	Benzo(g,h,i)perylene	4,000	38,000 Q
132-64-9	Dibenzofuran	4,000	< 4,000 U
TOTBFA	Total Benzofluoranthenes	4,000	62,000

Reported in µg/kg (ppb)

Semivolatile Surrogate Recovery	
d14-p-Terphenyl	67.2%
2-Fluorobiphenyl	64.0%

FORM I

ANALYTICAL RESOURCES INCORPORATED

ORGANICS ANALYSIS DATA SHEET
PNAs by SW8270D GC/MS

Sample ID: DGS-07-034.2-101012
SAMPLE

Lab Sample ID: RS97J
LIMS ID: 10-27426
Matrix: Sediment
Data Release Authorized:
Reported: 11/12/10

QC Report No: RS97-NW Natural
Project: NWN-INS

Date Sampled: 10/12/10
Date Received: 10/13/10

Date Extracted: 11/03/10
Date Analyzed: 11/10/10 16:48
Instrument/Analyst: NT12/VTS
GPC Cleanup: No
Alumina: No
Silica Gel: No

Sample Amount: 2.62 g-dry-wt
Final Extract Volume: 10 mL
Dilution Factor: 3.00
Percent Moisture: 48.5%

CAS Number	Analyte	RL	Result
91-20-3	**Naphthalene**	**12,000**	**17,000**
91-57-6	**2-Methylnaphthalene**	**12,000**	**63,000**
90-12-0	**1-Methylnaphthalene**	**12,000**	**41,000**
208-96-8	Acenaphthylene	12,000	< 12,000 U
83-32-9	**Acenaphthene**	**12,000**	**54,000**
86-73-7	**Fluorene**	**12,000**	**46,000**
85-01-8	**Phenanthrene**	**12,000**	**340,000**
120-12-7	**Anthracene**	**12,000**	**76,000**
206-44-0	**Fluoranthene**	**12,000**	**220,000**
129-00-0	**Pyrene**	**12,000**	**320,000**
56-55-3	**Benzo(a)anthracene**	**12,000**	**130,000**
218-01-9	**Chrysene**	**12,000**	**170,000**
50-32-8	**Benzo(a)pyrene**	**12,000**	**170,000**
193-39-5	**Indeno(1,2,3-cd)pyrene**	**12,000**	**65,000**
53-70-3	**Dibenz(a,h)anthracene**	**12,000**	**26,000**
191-24-2	**Benzo(g,h,i)perylene**	**12,000**	**96,000 Q**
132-64-9	Dibenzofuran	12,000	< 12,000 U
TOTBFA	**Total Benzofluoranthenes**	**12,000**	**180,000**

Reported in µg/kg (ppb)

Semivolatile Surrogate Recovery

d14-p-Terphenyl	55.2%
2-Fluorobiphenyl	63.6%

FORM I

ANALYTICAL RESOURCES INCORPORATED

ORGANICS ANALYSIS DATA SHEET
PNAs by SW8270D GC/MS

Sample ID: DGS-07-4.75.2-101012
SAMPLE

Lab Sample ID: RS97K
LIMS ID: 10-27427
Matrix: Sediment
Data Release Authorized:
Reported: 11/12/10

QC Report No: RS97-NW Natural
Project: NWN-INS

Date Sampled: 10/12/10
Date Received: 10/13/10

Date Extracted: 11/03/10
Date Analyzed: 11/11/10 15:46
Instrument/Analyst: NT12/VTS
GPC Cleanup: No
Alumina: No
Silica Gel: No

Sample Amount: 2.67 g-dry-wt
Final Extract Volume: 10 mL
Dilution Factor: 1.00
Percent Moisture: 48.6%

CAS Number	Analyte	RL	Result	
91-20-3	Naphthalene	3,800	15,000	
91-57-6	2-Methylnaphthalene	3,800	34,000	
90-12-0	1-Methylnaphthalene	3,800	22,000	
208-96-8	Acenaphthylene	3,800	< 3,800	U
83-32-9	Acenaphthene	3,800	42,000	
86-73-7	Fluorene	3,800	24,000	
85-01-8	Phenanthrene	3,800	210,000	
120-12-7	Anthracene	3,800	42,000	
206-44-0	Fluoranthene	3,800	200,000	
129-00-0	Pyrene	3,800	310,000	E
56-55-3	Benzo(a)anthracene	3,800	120,000	
218-01-9	Chrysene	3,800	160,000	
50-32-8	Benzo(a)pyrene	3,800	170,000	
193-39-5	Indeno(1,2,3-cd)pyrene	3,800	68,000	Q
53-70-3	Dibenz(a,h)anthracene	3,800	29,000	Q
191-24-2	Benzo(g,h,i)perylene	3,800	100,000	Q
132-64-9	Dibenzofuran	3,800	< 3,800	U
TOTBFA	Total Benzofluoranthenes	3,800	170,000	

Reported in µg/kg (ppb)

Semivolatile Surrogate Recovery

d14-p-Terphenyl	63.2%
2-Fluorobiphenyl	56.0%

FORM I

ANALYTICAL RESOURCES INCORPORATED

ORGANICS ANALYSIS DATA SHEET
PNAs by SW8270D GC/MS

Sample ID: DGS-07-4.75.2-101012
DILUTION

Lab Sample ID: RS97K
LIMS ID: 10-27427
Matrix: Sediment
Data Release Authorized:
Reported: 11/12/10

QC Report No: RS97-NW Natural
Project: NWN-INS

Date Sampled: 10/12/10
Date Received: 10/13/10

Date Extracted: 11/03/10
Date Analyzed: 11/12/10 10:57
Instrument/Analyst: NT12/VTS
GPC Cleanup: No
Alumina: No
Silica Gel: No

Sample Amount: 2.67 g-dry-wt
Final Extract Volume: 10 mL
Dilution Factor: 3.00
Percent Moisture: 48.6%

CAS Number	Analyte	RL	Result
91-20-3	Naphthalene	11,000	14,000
91-57-6	2-Methylnaphthalene	11,000	31,000
90-12-0	1-Methylnaphthalene	11,000	19,000
208-96-8	Acenaphthylene	11,000	< 11,000 U
83-32-9	Acenaphthene	11,000	40,000
86-73-7	Fluorene	11,000	24,000
85-01-8	Phenanthrene	11,000	180,000
120-12-7	Anthracene	11,000	41,000
206-44-0	Fluoranthene	11,000	160,000
129-00-0	Pyrene	11,000	250,000
56-55-3	Benzo(a)anthracene	11,000	110,000
218-01-9	Chrysene	11,000	140,000
50-32-8	Benzo(a)pyrene	11,000	150,000
193-39-5	Indeno(1,2,3-cd)pyrene	11,000	63,000
53-70-3	Dibenz(a,h)anthracene	11,000	28,000
191-24-2	Benzo(g,h,i)perylene	11,000	95,000
132-64-9	Dibenzofuran	11,000	< 11,000 U
TOTBFA	Total Benzofluoranthenes	11,000	150,000

Reported in µg/kg (ppb)

Semivolatile Surrogate Recovery

d14-p-Terphenyl	55.2%
2-Fluorobiphenyl	54.0%

FORM I

ANALYTICAL RESOURCES INCORPORATED

ORGANICS ANALYSIS DATA SHEET
PNAs by SW8270D GC/MS

Sample ID: DGS-07-5.66.7-101012
SAMPLE

Lab Sample ID: RS97L
LIMS ID: 10-27428
Matrix: Sediment
Data Release Authorized:
Reported: 11/12/10

QC Report No: RS97-NW Natural
Project: NWN-INS

Date Sampled: 10/12/10
Date Received: 10/13/10

Date Extracted: 11/03/10
Date Analyzed: 11/10/10 17:11
Instrument/Analyst: NT12/VTS
GPC Cleanup: No
Alumina: No
Silica Gel: No

Sample Amount: 2.96 g-dry-wt
Final Extract Volume: 10 mL
Dilution Factor: 1.00
Percent Moisture: 42.6%

CAS Number	Analyte	RL	Result
91-20-3	Naphthalene	3,400	350,000 E
91-57-6	2-Methylnaphthalene	3,400	88,000
90-12-0	1-Methylnaphthalene	3,400	48,000
208-96-8	Acenaphthylene	3,400	7,000
83-32-9	Acenaphthene	3,400	52,000
86-73-7	Fluorene	3,400	42,000
85-01-8	Phenanthrene	3,400	270,000
120-12-7	Anthracene	3,400	37,000
206-44-0	Fluoranthene	3,400	120,000
129-00-0	Pyrene	3,400	160,000
56-55-3	Benzo(a)anthracene	3,400	41,000
218-01-9	Chrysene	3,400	54,000
50-32-8	Benzo(a)pyrene	3,400	58,000
193-39-5	Indeno(1,2,3-cd)pyrene	3,400	24,000
53-70-3	Dibenz(a,h)anthracene	3,400	6,900
191-24-2	Benzo(g,h,i)perylene	3,400	36,000 Q
132-64-9	Dibenzofuran	3,400	4,700
TOTBFA	Total Benzofluoranthenes	3,400	62,000

Reported in µg/kg (ppb)

Semivolatile Surrogate Recovery

d14-p-Terphenyl	58.4%
2-Fluorobiphenyl	62.4%

FORM I

ANALYTICAL RESOURCES INCORPORATED

ORGANICS ANALYSIS DATA SHEET
PNAs by SW8270D GC/MS

Sample ID: DGS-07-5.66.7-101012
DILUTION

Lab Sample ID: RS97L
LIMS ID: 10-27428
Matrix: Sediment
Data Release Authorized:
Reported: 11/12/10

QC Report No: RS97-NW Natural
Project: NWN-INS

Date Sampled: 10/12/10
Date Received: 10/13/10

Date Extracted: 11/03/10
Date Analyzed: 11/12/10 11:20
Instrument/Analyst: NT12/VTS
GPC Cleanup: No
Alumina: No
Silica Gel: No

Sample Amount: 2.96 g-dry-wt
Final Extract Volume: 10 mL
Dilution Factor: 3.00
Percent Moisture: 42.6%

CAS Number	Analyte	RL	Result
91-20-3	**Naphthalene**	**10,000**	**300,000**
91-57-6	**2-Methylnaphthalene**	**10,000**	**77,000**
90-12-0	**1-Methylnaphthalene**	**10,000**	**44,000**
208-96-8	Acenaphthylene	10,000	< 10,000 U
83-32-9	**Acenaphthene**	**10,000**	**44,000**
86-73-7	**Fluorene**	**10,000**	**37,000**
85-01-8	**Phenanthrene**	**10,000**	**220,000**
120-12-7	**Anthracene**	**10,000**	**34,000**
206-44-0	**Fluoranthene**	**10,000**	**110,000**
129-00-0	**Pyrene**	**10,000**	**140,000**
56-55-3	**Benzo(a)anthracene**	**10,000**	**39,000**
218-01-9	**Chrysene**	**10,000**	**47,000**
50-32-8	**Benzo(a)pyrene**	**10,000**	**50,000**
193-39-5	**Indeno(1,2,3-cd)pyrene**	**10,000**	**24,000**
53-70-3	Dibenz(a,h)anthracene	10,000	< 10,000 U
191-24-2	**Benzo(g,h,i)perylene**	**10,000**	**35,000**
132-64-9	Dibenzofuran	10,000	< 10,000 U
TOTBFA	**Total Benzofluoranthenes**	**10,000**	**51,000**

Reported in µg/kg (ppb)

Semivolatile Surrogate Recovery

d14-p-Terphenyl	54.0%
2-Fluorobiphenyl	58.8%

ANALYTICAL RESOURCES INCORPORATED

ORGANICS ANALYSIS DATA SHEET
PNAs by SW8270D GC/MS

Sample ID: DGS-07-077.3-101012
SAMPLE

Lab Sample ID: RS97M
LIMS ID: 10-27429
Matrix: Sediment
Data Release Authorized:
Reported: 11/12/10

QC Report No: RS97-NW Natural
Project: NWN-INS

Date Sampled: 10/12/10
Date Received: 10/13/10

Date Extracted: 11/03/10
Date Analyzed: 11/10/10 17:34
Instrument/Analyst: NT12/VTS
GPC Cleanup: No
Alumina: No
Silica Gel: No

Sample Amount: 2.72 g-dry-wt
Final Extract Volume: 10 mL
Dilution Factor: 1.00
Percent Moisture: 49.6%

CAS Number	Analyte	RL	Result
91-20-3	**Naphthalene**	**3,700**	**6,600**
91-57-6	**2-Methylnaphthalene**	**3,700**	**33,000**
90-12-0	**1-Methylnaphthalene**	**3,700**	**18,000**
208-96-8	Acenaphthylene	3,700	< 3,700 U
83-32-9	**Acenaphthene**	**3,700**	**16,000**
86-73-7	**Fluorene**	**3,700**	**16,000**
85-01-8	**Phenanthrene**	**3,700**	**100,000**
120-12-7	**Anthracene**	**3,700**	**19,000**
206-44-0	**Fluoranthene**	**3,700**	**56,000**
129-00-0	**Pyrene**	**3,700**	**69,000**
56-55-3	**Benzo(a)anthracene**	**3,700**	**15,000**
218-01-9	**Chrysene**	**3,700**	**19,000**
50-32-8	**Benzo(a)pyrene**	**3,700**	**18,000**
193-39-5	**Indeno(1,2,3-cd)pyrene**	**3,700**	**8,200**
53-70-3	Dibenz(a,h)anthracene	3,700	< 3,700 U
191-24-2	**Benzo(g,h,i)perylene**	**3,700**	**12,000 Q**
132-64-9	Dibenzofuran	3,700	< 3,700 U
TOTBFA	**Total Benzofluoranthenes**	**3,700**	**21,000**

Reported in µg/kg (ppb)

Semivolatile Surrogate Recovery

d14-p-Terphenyl	60.4%
2-Fluorobiphenyl	56.8%

FORM I

ANALYTICAL RESOURCES INCORPORATED

ORGANICS ANALYSIS DATA SHEET
PNAs by SW8270D GC/MS

Sample ID: DGS-07-7.98.4-101012
SAMPLE

Lab Sample ID: RS97N
LIMS ID: 10-27430
Matrix: Sediment
Data Release Authorized:
Reported: 11/12/10

QC Report No: RS97-NW Natural
Project: NWN-INS

Date Sampled: 10/12/10
Date Received: 10/13/10

Date Extracted: 11/03/10
Date Analyzed: 11/10/10 17:58
Instrument/Analyst: NT12/VTS
GPC Cleanup: No
Alumina: No
Silica Gel: No

Sample Amount: 2.91 g-dry-wt
Final Extract Volume: 10 mL
Dilution Factor: 1.00
Percent Moisture: 44.0%

CAS Number	Analyte	RL	Result
91-20-3	**Naphthalene**	**3,400**	**8,400**
91-57-6	**2-Methylnaphthalene**	**3,400**	**18,000**
90-12-0	**1-Methylnaphthalene**	**3,400**	**11,000**
208-96-8	Acenaphthylene	3,400	< 3,400 U
83-32-9	**Acenaphthene**	**3,400**	**19,000**
86-73-7	**Fluorene**	**3,400**	**16,000**
85-01-8	**Phenanthrene**	**3,400**	**110,000**
120-12-7	**Anthracene**	**3,400**	**28,000**
206-44-0	**Fluoranthene**	**3,400**	**64,000**
129-00-0	**Pyrene**	**3,400**	**78,000**
56-55-3	**Benzo(a)anthracene**	**3,400**	**17,000**
218-01-9	**Chrysene**	**3,400**	**22,000**
50-32-8	**Benzo(a)pyrene**	**3,400**	**20,000**
193-39-5	**Indeno(1,2,3-cd)pyrene**	**3,400**	**10,000**
53-70-3	Dibenz(a,h)anthracene	3,400	< 3,400 U
191-24-2	**Benzo(g,h,i)perylene**	**3,400**	**15,000 Q**
132-64-9	Dibenzofuran	3,400	< 3,400 U
TOTBFA	**Total Benzofluoranthenes**	**3,400**	**26,000**

Reported in µg/kg (ppb)

Semivolatile Surrogate Recovery

d14-p-Terphenyl	62.4%
2-Fluorobiphenyl	61.2%

FORM I

ANALYTICAL RESOURCES INCORPORATED

ORGANICS ANALYSIS DATA SHEET
PNAs by SW8270D GC/MS

Sample ID: DGS-07-8.79.1-101012
SAMPLE

Lab Sample ID: RS97O
LIMS ID: 10-27431
Matrix: Sediment
Data Release Authorized:
Reported: 11/12/10

QC Report No: RS97-NW Natural
Project: NWN-INS

Date Sampled: 10/12/10
Date Received: 10/13/10

Date Extracted: 11/03/10
Date Analyzed: 11/10/10 18:21
Instrument/Analyst: NT12/VTS
GPC Cleanup: No
Alumina: No
Silica Gel: No

Sample Amount: 2.75 g-dry-wt
Final Extract Volume: 10 mL
Dilution Factor: 3.00
Percent Moisture: 47.2%

CAS Number	Analyte	RL	Result
91-20-3	**Naphthalene**	**11,000**	**89,000**
91-57-6	**2-Methylnaphthalene**	**11,000**	**120,000**
90-12-0	**1-Methylnaphthalene**	**11,000**	**70,000**
208-96-8	Acenaphthylene	11,000	< 11,000 U
83-32-9	**Acenaphthene**	**11,000**	**120,000**
86-73-7	**Fluorene**	**11,000**	**72,000**
85-01-8	**Phenanthrene**	**11,000**	**530,000**
120-12-7	**Anthracene**	**11,000**	**93,000**
206-44-0	**Fluoranthene**	**11,000**	**220,000**
129-00-0	**Pyrene**	**11,000**	**260,000**
56-55-3	**Benzo(a)anthracene**	**11,000**	**57,000**
218-01-9	**Chrysene**	**11,000**	**76,000**
50-32-8	**Benzo(a)pyrene**	**11,000**	**56,000**
193-39-5	**Indeno(1,2,3-cd)pyrene**	**11,000**	**22,000**
53-70-3	Dibenz(a,h)anthracene	11,000	< 11,000 U
191-24-2	**Benzo(g,h,i)perylene**	**11,000**	**30,000 Q**
132-64-9	Dibenzofuran	11,000	< 11,000 U
TOTBFA	**Total Benzofluoranthenes**	**11,000**	**65,000**

Reported in µg/kg (ppb)

Semivolatile Surrogate Recovery	
d14-p-Terphenyl	58.8%
2-Fluorobiphenyl	56.4%

ANALYTICAL RESOURCES INCORPORATED

ORGANICS ANALYSIS DATA SHEET
PNAs by SW8270D GC/MS

Sample ID: DGS-07-9.710-101012
SAMPLE

Lab Sample ID: RS97P
LIMS ID: 10-27432
Matrix: Sediment
Data Release Authorized:
Reported: 11/12/10

QC Report No: RS97-NW Natural
Project: NWN-INS

Date Sampled: 10/12/10
Date Received: 10/13/10

Date Extracted: 11/03/10
Date Analyzed: 11/10/10 18:45
Instrument/Analyst: NT12/VTS
GPC Cleanup: No
Alumina: No
Silica Gel: No

Sample Amount: 2.57 g-dry-wt
Final Extract Volume: 10 mL
Dilution Factor: 3.00
Percent Moisture: 48.8%

CAS Number	Analyte	RL	Result	
91-20-3	Naphthalene	12,000	520,000	
91-57-6	2-Methylnaphthalene	12,000	500,000	
90-12-0	1-Methylnaphthalene	12,000	280,000	
208-96-8	Acenaphthylene	12,000	12,000	
83-32-9	Acenaphthene	12,000	440,000	
86-73-7	Fluorene	12,000	250,000	
85-01-8	Phenanthrene	12,000	1,700,000	E
120-12-7	Anthracene	12,000	230,000	
206-44-0	Fluoranthene	12,000	720,000	
129-00-0	Pyrene	12,000	860,000	
56-55-3	Benzo(a)anthracene	12,000	170,000	
218-01-9	Chrysene	12,000	210,000	
50-32-8	Benzo(a)pyrene	12,000	180,000	
193-39-5	Indeno(1,2,3-cd)pyrene	12,000	74,000	
53-70-3	Dibenz(a,h)anthracene	12,000	21,000	
191-24-2	Benzo(g,h,i)perylene	12,000	100,000	Q
132-64-9	Dibenzofuran	12,000	31,000	
TOTBFA	Total Benzofluoranthenes	12,000	210,000	

Reported in µg/kg (ppb)

Semivolatile Surrogate Recovery

d14-p-Terphenyl	70.8%
2-Fluorobiphenyl	63.6%

ANALYTICAL RESOURCES INCORPORATED

ORGANICS ANALYSIS DATA SHEET
PNAs by SW8270D GC/MS

Sample ID: DGS-07-9.710-101012
DILUTION

Lab Sample ID: RS97P
LIMS ID: 10-27432
Matrix: Sediment
Data Release Authorized:
Reported: 11/12/10

QC Report No: RS97-NW Natural
Project: NWN-INS

Date Sampled: 10/12/10
Date Received: 10/13/10

Date Extracted: 11/03/10
Date Analyzed: 11/11/10 13:48
Instrument/Analyst: NT12/VTS
GPC Cleanup: No
Alumina: No
Silica Gel: No

Sample Amount: 2.57 g-dry-wt
Final Extract Volume: 10 mL
Dilution Factor: 10.0
Percent Moisture: 48.8%

CAS Number	Analyte	RL	Result	
91-20-3	**Naphthalene**	**39,000**	**530,000**	
91-57-6	**2-Methylnaphthalene**	**39,000**	**500,000**	
90-12-0	**1-Methylnaphthalene**	**39,000**	**280,000**	
208-96-8	Acenaphthylene	39,000	< 39,000	U
83-32-9	**Acenaphthene**	**39,000**	**440,000**	
86-73-7	**Fluorene**	**39,000**	**250,000**	
85-01-8	**Phenanthrene**	**39,000**	**1,600,000**	
120-12-7	**Anthracene**	**39,000**	**240,000**	
206-44-0	**Fluoranthene**	**39,000**	**680,000**	
129-00-0	**Pyrene**	**39,000**	**820,000**	
56-55-3	**Benzo(a)anthracene**	**39,000**	**180,000**	
218-01-9	**Chrysene**	**39,000**	**220,000**	
50-32-8	**Benzo(a)pyrene**	**39,000**	**200,000**	
193-39-5	**Indeno(1,2,3-cd)pyrene**	**39,000**	**70,000**	**Q**
53-70-3	Dibenz(a,h)anthracene	39,000	< 39,000	U
191-24-2	**Benzo(g,h,i)perylene**	**39,000**	**110,000**	**Q**
132-64-9	Dibenzofuran	39,000	< 39,000	U
TOTBFA	**Total Benzofluoranthenes**	**39,000**	**220,000**	

Reported in µg/kg (ppb)

Semivolatile Surrogate Recovery

d14-p-Terphenyl	D
2-Fluorobiphenyl	D

ANALYTICAL RESOURCES INCORPORATED

ORGANICS ANALYSIS DATA SHEET
PNAs by SW8270D GC/MS

Sample ID: DGS-07-10.610.9-101012
SAMPLE

Lab Sample ID: RS97Q
LIMS ID: 10-27433
Matrix: Sediment
Data Release Authorized:
Reported: 11/12/10

QC Report No: RS97-NW Natural
Project: NWN-INS

Date Sampled: 10/12/10
Date Received: 10/13/10

Date Extracted: 11/03/10
Date Analyzed: 11/10/10 19:08
Instrument/Analyst: NT12/VTS
GPC Cleanup: No
Alumina: No
Silica Gel: No

Sample Amount: 2.82 g-dry-wt
Final Extract Volume: 10 mL
Dilution Factor: 1.00
Percent Moisture: 44.2%

CAS Number	Analyte	RL	Result	
91-20-3	Naphthalene	3,600	240,000	
91-57-6	2-Methylnaphthalene	3,600	110,000	
90-12-0	1-Methylnaphthalene	3,600	60,000	
208-96-8	Acenaphthylene	3,600	3,800	
83-32-9	Acenaphthene	3,600	130,000	
86-73-7	Fluorene	3,600	70,000	
85-01-8	Phenanthrene	3,600	530,000	E
120-12-7	Anthracene	3,600	84,000	
206-44-0	Fluoranthene	3,600	310,000	E
129-00-0	Pyrene	3,600	380,000	E
56-55-3	Benzo(a)anthracene	3,600	80,000	
218-01-9	Chrysene	3,600	93,000	
50-32-8	Benzo(a)pyrene	3,600	110,000	
193-39-5	Indeno(1,2,3-cd)pyrene	3,600	45,000	
53-70-3	Dibenz(a,h)anthracene	3,600	12,000	
191-24-2	Benzo(g,h,i)perylene	3,600	63,000	Q
132-64-9	Dibenzofuran	3,600	7,700	
TOTBFA	Total Benzofluoranthenes	3,600	110,000	

Reported in µg/kg (ppb)

Semivolatile Surrogate Recovery

d14-p-Terphenyl	64.8%
2-Fluorobiphenyl	62.8%

FORM I

ANALYTICAL RESOURCES INCORPORATED

ORGANICS ANALYSIS DATA SHEET
PNAs by SW8270D GC/MS

Sample ID: DGS-07-10.610.9-101012
DILUTION

Lab Sample ID: RS97Q
LIMS ID: 10-27433
Matrix: Sediment
Data Release Authorized:
Reported: 11/12/10

QC Report No: RS97-NW Natural
Project: NWN-INS

Date Sampled: 10/12/10
Date Received: 10/13/10

Date Extracted: 11/03/10
Date Analyzed: 11/11/10 14:12
Instrument/Analyst: NT12/VTS
GPC Cleanup: No
Alumina: No
Silica Gel: No

Sample Amount: 2.82 g-dry-wt
Final Extract Volume: 10 mL
Dilution Factor: 3.00
Percent Moisture: 44.2%

CAS Number	Analyte	RL	Result
91-20-3	**Naphthalene**	**11,000**	**210,000**
91-57-6	**2-Methylnaphthalene**	**11,000**	**98,000**
90-12-0	**1-Methylnaphthalene**	**11,000**	**53,000**
208-96-8	Acenaphthylene	11,000	< 11,000 U
83-32-9	**Acenaphthene**	**11,000**	**110,000**
86-73-7	**Fluorene**	**11,000**	**61,000**
85-01-8	**Phenanthrene**	**11,000**	**440,000**
120-12-7	**Anthracene**	**11,000**	**75,000**
206-44-0	**Fluoranthene**	**11,000**	**240,000**
129-00-0	**Pyrene**	**11,000**	**300,000**
56-55-3	**Benzo(a)anthracene**	**11,000**	**69,000**
218-01-9	**Chrysene**	**11,000**	**80,000**
50-32-8	**Benzo(a)pyrene**	**11,000**	**95,000**
193-39-5	**Indeno(1,2,3-cd)pyrene**	**11,000**	**38,000 Q**
53-70-3	Dibenz(a,h)anthracene	11,000	< 11,000 U
191-24-2	**Benzo(g,h,i)perylene**	**11,000**	**54,000 Q**
132-64-9	Dibenzofuran	11,000	< 11,000 U
TOTBFA	**Total Benzofluoranthenes**	**11,000**	**110,000**

Reported in µg/kg (ppb)

Semivolatile Surrogate Recovery

d14-p-Terphenyl	57.6%
2-Fluorobiphenyl	54.0%

FORM I

ANALYTICAL RESOURCES INCORPORATED

ORGANICS ANALYSIS DATA SHEET
PNAs by SW8270D GC/MS

Sample ID: DGS-07-11.611.8-101012
SAMPLE

Lab Sample ID: RS97R
LIMS ID: 10-27434
Matrix: Sediment
Data Release Authorized:
Reported: 11/12/10

QC Report No: RS97-NW Natural
Project: NWN-INS

Date Sampled: 10/12/10
Date Received: 10/13/10

Date Extracted: 11/03/10
Date Analyzed: 11/10/10 19:31
Instrument/Analyst: NT12/VTS
GPC Cleanup: No
Alumina: No
Silica Gel: No

Sample Amount: 2.78 g-dry-wt
Final Extract Volume: 10 mL
Dilution Factor: 1.00
Percent Moisture: 44.9%

CAS Number	Analyte	RL	Result	
91-20-3	Naphthalene	3,600	190,000	
91-57-6	2-Methylnaphthalene	3,600	430,000	E
90-12-0	1-Methylnaphthalene	3,600	210,000	
208-96-8	Acenaphthylene	3,600	6,800	
83-32-9	Acenaphthene	3,600	290,000	E
86-73-7	Fluorene	3,600	180,000	
85-01-8	Phenanthrene	3,600	1,000,000	ES
120-12-7	Anthracene	3,600	180,000	
206-44-0	Fluoranthene	3,600	560,000	ES
129-00-0	Pyrene	3,600	680,000	ES
56-55-3	Benzo(a)anthracene	3,600	160,000	
218-01-9	Chrysene	3,600	190,000	
50-32-8	Benzo(a)pyrene	3,600	220,000	
193-39-5	Indeno(1,2,3-cd)pyrene	3,600	85,000	
53-70-3	Dibenz(a,h)anthracene	3,600	23,000	
191-24-2	Benzo(g,h,i)perylene	3,600	120,000	Q
132-64-9	Dibenzofuran	3,600	21,000	
TOTBFA	Total Benzofluoranthenes	3,600	230,000	

Reported in µg/kg (ppb)

Semivolatile Surrogate Recovery

d14-p-Terphenyl	52.4%
2-Fluorobiphenyl	62.4%

FORM I

ANALYTICAL RESOURCES INCORPORATED

ORGANICS ANALYSIS DATA SHEET
PNAs by SW8270D GC/MS

Sample ID: DGS-07-11.611.8-101012
DILUTION

Lab Sample ID: RS97R
LIMS ID: 10-27434
Matrix: Sediment
Data Release Authorized:
Reported: 11/12/10

QC Report No: RS97-NW Natural
Project: NWN-INS

Date Sampled: 10/12/10
Date Received: 10/13/10

Date Extracted: 11/03/10
Date Analyzed: 11/11/10 14:35
Instrument/Analyst: NT12/VTS
GPC Cleanup: No
Alumina: No
Silica Gel: No

Sample Amount: 2.78 g-dry-wt
Final Extract Volume: 10 mL
Dilution Factor: 10.0
Percent Moisture: 44.9%

CAS Number	Analyte	RL	Result	
91-20-3	**Naphthalene**	**36,000**	**180,000**	
91-57-6	**2-Methylnaphthalene**	**36,000**	**360,000**	
90-12-0	**1-Methylnaphthalene**	**36,000**	**180,000**	
208-96-8	Acenaphthylene	36,000	< 36,000	U
83-32-9	**Acenaphthene**	**36,000**	**240,000**	
86-73-7	**Fluorene**	**36,000**	**150,000**	
85-01-8	**Phenanthrene**	**36,000**	**1,100,000**	
120-12-7	**Anthracene**	**36,000**	**190,000**	
206-44-0	**Fluoranthene**	**36,000**	**490,000**	
129-00-0	**Pyrene**	**36,000**	**600,000**	
56-55-3	**Benzo(a)anthracene**	**36,000**	**150,000**	
218-01-9	**Chrysene**	**36,000**	**170,000**	
50-32-8	**Benzo(a)pyrene**	**36,000**	**200,000**	
193-39-5	**Indeno(1,2,3-cd)pyrene**	**36,000**	**72,000**	**Q**
53-70-3	Dibenz(a,h)anthracene	36,000	< 36,000	U
191-24-2	**Benzo(g,h,i)perylene**	**36,000**	**110,000**	**Q**
132-64-9	Dibenzofuran	36,000	< 36,000	U
TOTBFA	**Total Benzofluoranthenes**	**36,000**	**230,000**	

Reported in µg/kg (ppb)

Semivolatile Surrogate Recovery

d14-p-Terphenyl	D
2-Fluorobiphenyl	D

FORM I

ANALYTICAL RESOURCES INCORPORATED

ORGANICS ANALYSIS DATA SHEET
PNAs by SW8270D GC/MS

Sample ID: DGS-07-12.713.2-101012
SAMPLE

Lab Sample ID: RS97S
LIMS ID: 10-27435
Matrix: Sediment
Data Release Authorized:
Reported: 11/12/10

QC Report No: RS97-NW Natural
Project: NWN-INS

Date Sampled: 10/12/10
Date Received: 10/13/10

Date Extracted: 11/03/10
Date Analyzed: 11/10/10 19:55
Instrument/Analyst: NT12/VTS
GPC Cleanup: No
Alumina: No
Silica Gel: No

Sample Amount: 2.82 g-dry-wt
Final Extract Volume: 10 mL
Dilution Factor: 1.00
Percent Moisture: 43.7%

CAS Number	Analyte	RL	Result	
91-20-3	Naphthalene	3,600	250,000	
91-57-6	2-Methylnaphthalene	3,600	94,000	
90-12-0	1-Methylnaphthalene	3,600	47,000	
208-96-8	Acenaphthylene	3,600	< 3,600	U
83-32-9	Acenaphthene	3,600	100,000	
86-73-7	Fluorene	3,600	57,000	
85-01-8	Phenanthrene	3,600	440,000	E
120-12-7	Anthracene	3,600	86,000	
206-44-0	Fluoranthene	3,600	240,000	
129-00-0	Pyrene	3,600	320,000	E
56-55-3	Benzo(a)anthracene	3,600	57,000	
218-01-9	Chrysene	3,600	60,000	
50-32-8	Benzo(a)pyrene	3,600	84,000	
193-39-5	Indeno(1,2,3-cd)pyrene	3,600	35,000	
53-70-3	Dibenz(a,h)anthracene	3,600	8,200	
191-24-2	Benzo(g,h,i)perylene	3,600	56,000	Q
132-64-9	Dibenzofuran	3,600	4,900	
TOTBFA	Total Benzofluoranthenes	3,600	84,000	

Reported in µg/kg (ppb)

Semivolatile Surrogate Recovery

d14-p-Terphenyl	57.6%
2-Fluorobiphenyl	61.6%

FORM I

ANALYTICAL RESOURCES INCORPORATED

ORGANICS ANALYSIS DATA SHEET
PNAs by SW8270D GC/MS

Sample ID: DGS-07-12.713.2-101012
DILUTION

Lab Sample ID: RS97S
LIMS ID: 10-27435
Matrix: Sediment
Data Release Authorized:
Reported: 11/12/10

QC Report No: RS97-NW Natural
Project: NWN-INS

Date Sampled: 10/12/10
Date Received: 10/13/10

Date Extracted: 11/03/10
Date Analyzed: 11/11/10 14:59
Instrument/Analyst: NT12/VTS
GPC Cleanup: No
Alumina: No
Silica Gel: No

Sample Amount: 2.82 g-dry-wt
Final Extract Volume: 10 mL
Dilution Factor: 3.00
Percent Moisture: 43.7%

CAS Number	Analyte	RL	Result	
91-20-3	**Naphthalene**	**11,000**	**220,000**	
91-57-6	**2-Methylnaphthalene**	**11,000**	**86,000**	
90-12-0	**1-Methylnaphthalene**	**11,000**	**43,000**	
208-96-8	Acenaphthylene	11,000	< 11,000	U
83-32-9	**Acenaphthene**	**11,000**	**85,000**	
86-73-7	**Fluorene**	**11,000**	**50,000**	
85-01-8	**Phenanthrene**	**11,000**	**370,000**	
120-12-7	**Anthracene**	**11,000**	**79,000**	
206-44-0	**Fluoranthene**	**11,000**	**190,000**	
129-00-0	**Pyrene**	**11,000**	**250,000**	
56-55-3	**Benzo(a)anthracene**	**11,000**	**52,000**	
218-01-9	**Chrysene**	**11,000**	**54,000**	
50-32-8	**Benzo(a)pyrene**	**11,000**	**75,000**	
193-39-5	**Indeno(1,2,3-cd)pyrene**	**11,000**	**28,000**	**Q**
53-70-3	Dibenz(a,h)anthracene	11,000	< 11,000	U
191-24-2	**Benzo(g,h,i)perylene**	**11,000**	**45,000**	**Q**
132-64-9	Dibenzofuran	11,000	< 11,000	U
TOTBFA	**Total Benzofluoranthenes**	**11,000**	**82,000**	

Reported in µg/kg (ppb)

Semivolatile Surrogate Recovery

d14-p-Terphenyl	54.0%
2-Fluorobiphenyl	56.4%

ANALYTICAL RESOURCES INCORPORATED

SW8270 PNA SURROGATE RECOVERY SUMMARY

Matrix: Soil

QC Report No: RS97-NW Natural
Project: NWN-INS

Client ID	TER	FBP	TOT OUT
GSM-08SO-10-11-100928	56.4%	58.8%	0
GSM-08SO-10-11-100928 DL	D	D	0
DGS-19-3.34.1-101006	62.4%	62.4%	0
DGS-19-3.34.1-101006 DL	D	D	0
DGS-19-4.48.2-101006	66.0%	66.0%	0
DGS-19-10.210.9-101006	60.4%	64.4%	0
DGS-08-4.44.6-101007	68.4%	75.6%	0
DGS-08-4.44.6-101007 DL	D	D	0
GST-09SO-17-18-101008	46.8%	66.0%	0
GST-09SO-17-18-101008 DL	D	D	0
DGS-36-066.7-101012	66.0%	65.6%	0
MB-110310	66.0%	64.4%	0
LCS-110310	71.6%	67.6%	0
DGS-07-011.3-101012	70.6%	57.8%	0
DGS-07-011.3-101012 MS	73.4%	57.4%	0
DGS-07-011.3-101012 MSD	69.3%	54.2%	0
DGS-07-2.22.7-101012	67.2%	64.0%	0
DGS-07-034.2-101012	55.2%	63.6%	0
DGS-07-4.75.2-101012	63.2%	56.0%	0
DGS-07-4.75.2-101012 DL	55.2%	54.0%	0
DGS-07-5.66.7-101012	58.4%	62.4%	0
DGS-07-5.66.7-101012 DL	54.0%	58.8%	0
DGS-07-077.3-101012	60.4%	56.8%	0
DGS-07-7.98.4-101012	62.4%	61.2%	0
DGS-07-8.79.1-101012	58.8%	56.4%	0
DGS-07-9.710-101012	70.8%	63.6%	0
DGS-07-9.710-101012 DL	D	D	0
DGS-07-10.610.9-101012	64.8%	62.8%	0
DGS-07-10.610.9-101012	57.6%	54.0%	0
DGS-07-11.611.8-101012	52.4%	62.4%	0
DGS-07-11.611.8-101012 DL	D	D	0
DGS-07-12.713.2-101012	57.6%	61.6%	0
DGS-07-12.713.2-101012	54.0%	56.4%	0

	LCS/MB LIMITS	QC LIMITS
(TER) = d14-p-Terphenyl	(30-160)	(30-160)
(FBP) = 2-Fluorobiphenyl	(30-160)	(30-160)

Prep Method: SW3546
Log Number Range: 10-27417 to 10-27435

FORM-II SW8270 PNA

ANALYTICAL RESOURCES INCORPORATED

ORGANICS ANALYSIS DATA SHEET
PNAs by SW8270D GC/MS

Sample ID: DGS-07-011.3-101012
MS/MSD

Lab Sample ID: RS97H
LIMS ID: 10-27424
Matrix: Sediment
Data Release Authorized:
Reported: 11/12/10

QC Report No: RS97-NW Natural
Project: NWN-INS

Date Sampled: 10/12/10
Date Received: 10/13/10

Date Extracted MS/MSD: 11/03/10

Date Analyzed MS: 11/11/10 16:33
MSD: 11/11/10 16:57
Instrument/Analyst MS: NT12/VTS
MSD: NT12/VTS
GPC Cleanup: No
Silica Gel Cleanup: No

Sample Amount MS: 2.54 g-dry-wt
MSD: 2.54 g-dry-wt
Final Extract Volume MS: 2.0 mL
MSD: 2.0 mL
Dilution Factor MS: 1.00
MSD: 1.00
Alumina Cleanup: No

Analyte	Sample	MS	Spike Added-MS	MS Recovery	MSD	Spike Added-MSD	MSD Recovery	RPD
Naphthalene	2550	8060	9840	56.0%	8200	9840	57.4%	1.7%
2-Methylnaphthalene	1560	7880	9840	64.2%	7750	9840	62.9%	1.7%
1-Methylnaphthalene	1060	8950	9840	80.2%	9110	9840	81.8%	1.8%
Acenaphthylene	< 781	7170	9840	72.9%	7350	9840	74.7%	2.5%
Acenaphthene	2500	7970	9840	55.6%	8020	9840	56.1%	0.6%
Fluorene	1550	8350	9840	69.1%	8410	9840	69.7%	0.7%
Phenanthrene	18800	22500	9840	37.6%	24500	9840	57.9%	8.5%
Anthracene	4590	10800	9840	63.1%	11600	9840	71.2%	7.1%
Fluoranthene	27700	35800	9840	82.3%	36700	9840	91.5%	2.5%
Pyrene	41900	46400	9840	45.7%	49000	9840	72.2%	5.5%
Benzo(a)anthracene	13800	17700	9840	39.6%	17500	9840	37.6%	1.1%
Chrysene	18900	21700	9840	28.5%	21700	9840	28.5%	0.0%
Benzo(a)pyrene	20200	22700	9840	25.4%	22200	9840	20.3%	2.2%
Indeno(1,2,3-cd)pyrene	9310	14400	9840	51.7%	14200	9840	49.7%	1.4%
Dibenz(a,h)anthracene	3380	9280	9840	60.0%	8960	9840	56.7%	3.5%
Benzo(g,h,i)perylene	13900	18300	9840	44.7%	18100	9840	42.7%	1.1%
Dibenzofuran	< 781	6650	9840	67.6%	6550	9840	66.6%	1.5%
Total Benzofluoranthenes	21400	32100	19700	54.3%	31700	19700	52.3%	1.3%

Results reported in µg/kg
RPD calculated using sample concentrations per SW846.

ANALYTICAL RESOURCES INCORPORATED

ORGANICS ANALYSIS DATA SHEET
PNAs by SW8270D GC/MS

Sample ID: DGS-07-011.3-101012
MATRIX SPIKE

Lab Sample ID: RS97H
LIMS ID: 10-27424
Matrix: Sediment
Data Release Authorized:
Reported: 11/12/10

QC Report No: RS97-NW Natural
Project: NWN-INS

Date Sampled: 10/12/10
Date Received: 10/13/10

Date Extracted: 11/03/10
Date Analyzed: 11/11/10 16:33
Instrument/Analyst: NT12/VTS
GPC Cleanup: No
Alumina: No
Silica Gel: No

Sample Amount: 2.54 g-dry-wt
Final Extract Volume: 2.0 mL
Dilution Factor: 1.00
Percent Moisture: 49.9%

CAS Number	Analyte	RL	Result
91-20-3	Naphthalene	790	---
91-57-6	2-Methylnaphthalene	790	---
90-12-0	1-Methylnaphthalene	790	---
208-96-8	Acenaphthylene	790	---
83-32-9	Acenaphthene	790	---
86-73-7	Fluorene	790	---
85-01-8	Phenanthrene	790	---
120-12-7	Anthracene	790	---
206-44-0	Fluoranthene	790	---
129-00-0	Pyrene	790	---
56-55-3	Benzo(a)anthracene	790	---
218-01-9	Chrysene	790	---
50-32-8	Benzo(a)pyrene	790	---
193-39-5	Indeno(1,2,3-cd)pyrene	790	---
53-70-3	Dibenz(a,h)anthracene	790	---
191-24-2	Benzo(g,h,i)perylene	790	---
132-64-9	Dibenzofuran	790	---
TOTBFA	Total Benzofluoranthenes	790	---

Reported in µg/kg (ppb)

Semivolatile Surrogate Recovery

d14-p-Terphenyl	73.4%
2-Fluorobiphenyl	57.4%

FORM I

ANALYTICAL RESOURCES INCORPORATED

ORGANICS ANALYSIS DATA SHEET
PNAs by SW8270D GC/MS

Sample ID: DGS-07-011.3-101012
MATRIX SPIKE DUPLICATE

Lab Sample ID: RS97H
LIMS ID: 10-27424
Matrix: Sediment
Data Release Authorized:
Reported: 11/12/10

QC Report No: RS97-NW Natural
Project: NWN-INS

Date Sampled: 10/12/10
Date Received: 10/13/10

Date Extracted: 11/03/10
Date Analyzed: 11/11/10 16:57
Instrument/Analyst: NT12/VTS
GPC Cleanup: No
Alumina: No
Silica Gel: No

Sample Amount: 2.54 g-dry-wt
Final Extract Volume: 2.0 mL
Dilution Factor: 1.00
Percent Moisture: 49.9%

CAS Number	Analyte	RL	Result
91-20-3	Naphthalene	790	---
91-57-6	2-Methylnaphthalene	790	---
90-12-0	1-Methylnaphthalene	790	---
208-96-8	Acenaphthylene	790	---
83-32-9	Acenaphthene	790	---
86-73-7	Fluorene	790	---
85-01-8	Phenanthrene	790	---
120-12-7	Anthracene	790	---
206-44-0	Fluoranthene	790	---
129-00-0	Pyrene	790	---
56-55-3	Benzo(a)anthracene	790	---
218-01-9	Chrysene	790	---
50-32-8	Benzo(a)pyrene	790	---
193-39-5	Indeno(1,2,3-cd)pyrene	790	---
53-70-3	Dibenz(a,h)anthracene	790	---
191-24-2	Benzo(g,h,i)perylene	790	---
132-64-9	Dibenzofuran	790	---
TOTBFA	Total Benzofluoranthenes	790	---

Reported in µg/kg (ppb)

Semivolatile Surrogate Recovery

d14-p-Terphenyl	69.3%
2-Fluorobiphenyl	54.2%

FORM I

ANALYTICAL RESOURCES INCORPORATED

ORGANICS ANALYSIS DATA SHEET
PNAs by SW8270D GC/MS

Sample ID: LCS-110310
LAB CONTROL

Lab Sample ID: LCS-110310
LIMS ID: 10-27424
Matrix: Sediment
Data Release Authorized:
Reported: 11/12/10

QC Report No: RS97-NW Natural
Project: NWN-INS

Date Sampled: NA
Date Received: 10/13/10

Date Extracted: 11/03/10
Date Analyzed: 11/09/10 18:04
Instrument/Analyst: NT12/VTS
GPC Cleanup: No
Silica Gel Cleanup: No

Sample Amount: 7.50 g-dry-wt
Final Extract Volume: 10. mL
Dilution Factor: 1.00
Alumina Cleanup: No

Analyte	Lab Control	Spike Added	Recovery
Naphthalene	2760	3330	82.9%
2-Methylnaphthalene	2550	3330	76.6%
1-Methylnaphthalene	3450	3330	104%
Acenaphthylene	2560	3330	76.9%
Acenaphthene	2710	3330	81.4%
Fluorene	2710	3330	81.4%
Phenanthrene	3050	3330	91.6%
Anthracene	2930	3330	88.0%
Fluoranthene	2870	3330	86.2%
Pyrene	2890	3330	86.8%
Benzo(a)anthracene	2920	3330	87.7%
Chrysene	2760	3330	82.9%
Benzo(a)pyrene	2920	3330	87.7%
Indeno(1,2,3-cd)pyrene	2450	3330	73.6%
Dibenz(a,h)anthracene	2370	3330	71.2%
Benzo(g,h,i)perylene	2630	3330	79.0%
Dibenzofuran	2480	3330	74.5%
Total Benzofluoranthenes	6250	6670	93.7%

Semivolatile Surrogate Recovery

d14-p-Terphenyl	71.6%
2-Fluorobiphenyl	67.6%

Results reported in µg/kg

FORM III

4B
SEMIVOLATILE METHOD BLANK SUMMARY

BLANK NO.

RS97MBS1

Lab Name: ANALYTICAL RESOURCES, INC

Client: NW NATURAL

ARI Job No: RS97

Project: NWN-INS

Lab File ID: RS97MB

Date Extracted: 11/03/10

Instrument ID: NT12

Date Analyzed: 11/09/10

Matrix: SOLID

Time Analyzed: 1741

THIS METHOD BLANK APPLIES TO THE FOLLOWING SAMPLES, MS and MSD:

	CLIENT SAMPLE NO.	LAB SAMPLE ID	LAB FILE ID	DATE ANALYZED
01	RS97LCSS1	RS97LCSS1	RS97SB	11/09/10
02	GSM-08SO-10-11-1	RS97A	RS97A	11/09/10
03	DGS-19-3.34.1-10	RS97B	RS97B	11/09/10
04	DGS-19-4.48.2-10	RS97C	RS97C	11/09/10
05	DGS-19-10.210.9-	RS97D	RS97D	11/09/10
06	DGS-08-4.44.6-10	RS97E	RS97E	11/09/10
07	GST-09SO-17-18-1	RS97F	RS97F	11/09/10
08	DGS-36-066.7-101	RS97G	RS97G	11/09/10
09	DGS-07-2.22.7-10	RS97I	RS97I	11/09/10
10	DGS-19-10.210.9-	RS97D	RS97D	11/10/10
11	DGS-36-066.7-101	RS97G	RS97G	11/10/10
12	DGS-07-2.22.7-10	RS97I	RS97I	11/10/10
13	DGS-07-034.2-101	RS97J	RS97J	11/10/10
14	DGS-07-5.66.7-10	RS97L	RS97L	11/10/10
15	DGS-07-077.3-101	RS97M	RS97M	11/10/10
16	DGS-07-7.98.4-10	RS97N	RS97N	11/10/10
17	DGS-07-8.79.1-10	RS97O	RS97O	11/10/10
18	DGS-07-9.710-101	RS97P	RS97P	11/10/10
19	DGS-07-10.610.9-	RS97Q	RS97Q	11/10/10
20	DGS-07-11.611.8-	RS97R	RS97R	11/10/10
21	DGS-07-12.713.2-	RS97S	RS97S	11/10/10
22	GSM-08SO-10-11-1	RS97A	RS97ADL	11/10/10
23	DGS-19-3.34.1-10	RS97B	RS97BDL	11/10/10
24	DGS-08-4.44.6-10	RS97E	RS97EDL	11/10/10
25	GST-09SO-17-18-1	RS97F	RS97FDL	11/11/10
26	DGS-07-9.710-101	RS97P	RS97PDL	11/11/10
27	DGS-07-10.610.9-	RS97Q	RS97QDL	11/11/10
28	DGS-07-11.611.8-	RS97R	RS97RDL	11/11/10
29	DGS-07-12.713.2-	RS97S	RS97SDL	11/11/10
30	DGS-07-034.2-101	RS97J	RS97J	11/11/10

FORM IV SV

4B
SEMIVOLATILE METHOD BLANK SUMMARY

BLANK NO.

RS97MBS1

Lab Name: ANALYTICAL RESOURCES, INC

Client: NW NATURAL

ARI Job No: RS97

Project: NWN-INS

Lab File ID: RS97MB

Date Extracted: 11/03/10

Instrument ID: NT12

Date Analyzed: 11/09/10

Matrix: SOLID

Time Analyzed: 1741

THIS METHOD BLANK APPLIES TO THE FOLLOWING SAMPLES, MS and MSD:

	CLIENT SAMPLE NO.	LAB SAMPLE ID	LAB FILE ID	DATE ANALYZED
01	DGS-07-4.75.2-10	RS97K	RS97K	11/11/10
02	DGS-07-011.3-101	RS97H	RS97H	11/11/10
03	DGS-07-011.3-10	RS97HMS	RS97HMS	11/11/10
04	DGS-07-011.3-10	RS97HMSD	RS97HMSD	11/11/10
05	DGS-07-4.75.2-10	RS97K	RS97KDL	11/12/10
06	DGS-07-5.66.7-10	RS97L	RS97LDL	11/12/10
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FORM IV SV

ANALYTICAL RESOURCES INCORPORATED

ORGANICS ANALYSIS DATA SHEET
PNAs by SW8270D GC/MS

Sample ID: MB-110310
METHOD BLANK

Lab Sample ID: MB-110310
LIMS ID: 10-27424
Matrix: Sediment
Data Release Authorized:
Reported: 11/12/10

QC Report No: RS97-NW Natural
Project: NWN-INS

Date Sampled: NA
Date Received: NA

Date Extracted: 11/03/10
Date Analyzed: 11/09/10 17:41
Instrument/Analyst: NT12/VTS
GPC Cleanup: No
Alumina: No
Silica Gel: No

Sample Amount: 7.50 g
Final Extract Volume: 10 mL
Dilution Factor: 1.00
Percent Moisture: NA

CAS Number	Analyte	RL	Result
91-20-3	Naphthalene	1,300	< 1,300 U
91-57-6	2-Methylnaphthalene	1,300	< 1,300 U
90-12-0	1-Methylnaphthalene	1,300	< 1,300 U
208-96-8	Acenaphthylene	1,300	< 1,300 U
83-32-9	Acenaphthene	1,300	< 1,300 U
86-73-7	Fluorene	1,300	< 1,300 U
85-01-8	Phenanthrene	1,300	< 1,300 U
120-12-7	Anthracene	1,300	< 1,300 U
206-44-0	Fluoranthene	1,300	< 1,300 U
129-00-0	Pyrene	1,300	< 1,300 U
56-55-3	Benzo(a)anthracene	1,300	< 1,300 U
218-01-9	Chrysene	1,300	< 1,300 U
50-32-8	Benzo(a)pyrene	1,300	< 1,300 U
193-39-5	Indeno(1,2,3-cd)pyrene	1,300	< 1,300 U
53-70-3	Dibenz(a,h)anthracene	1,300	< 1,300 U
191-24-2	Benzo(g,h,i)perylene	1,300	< 1,300 U
132-64-9	Dibenzofuran	1,300	< 1,300 U
TOTBFA	Total Benzofluoranthenes	1,300	< 1,300 U

Reported in µg/kg (ppb)

Semivolatile Surrogate Recovery

d14-p-Terphenyl	66.0%
2-Fluorobiphenyl	64.4%

5B

SEMIVOLATILE ORGANIC INSTRUMENT PERFORMANCE CHECK
DECAFLUOROTRIPHENYLPHOSPHINE (DFTPP)

Lab Name: ANALYTICAL RESOURCES, INC Client: MW NATURAL

Instrument ID: NT12 Project: NWN-INS

DFTPP Injection Date: 10/30/10 DFTPP Injection Time: 1105

m/e	ION ABUNDANCE CRITERIA	% RELATIVE ABUNDANCE
51	10.0 - 80.0% of mass 198	22.9
68	Less than 2.0% of mass 69	0.3 (0.4)1
69	Mass 69 relative abundance	65.2
70	Less than 2.0% of mass 69	0.5 (0.7)1
127	10.0 - 80.0% of mass 198	50.2
197	Less than 2.0% of mass 198	0.0
198	Base Peak, 100% relative abundance	100.0
199	5.0 to 9.0% of mass 198	7.0
275	10.0 - 60.0% of mass 198	27.4
365	Greater than 1.0% of mass 198	4.66
441	0.0 - 24.0% of mass 442	11.1 (15.2)2
442	50.0 - 200.0% of mass 198	72.7
443	15.0 - 24.0% of mass 442	13.7 (18.9)2

1-Value is % mass 69 2-Value is % mass 442

THIS CHECK APPLIES TO THE FOLLOWING SAMPLES, MS, MSD, BLANKS, AND STANDARDS:

	CLIENT SAMPLE NO.	LAB SAMPLE ID	LAB FILE ID	DATE ANALYZED	TIME ANALYZED
01		IC1030A	IC1030A	10/30/10	1127
02		IC1030B	IC1030B	10/30/10	1149
03		IC1030C	IC1030C	10/30/10	1211
04		IC1030D	IC1030D	10/30/10	1235
05		IC1030E	IC1030E	10/30/10	1257
06		IC1030F	IC1030F	10/30/10	1319
07					
08					
09					
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22					

FORM V SV

5B

SEMIVOLATILE ORGANIC INSTRUMENT PERFORMANCE CHECK
DECAFLUOROTRIPHENYLPHOSPHINE (DFTPP)

Lab Name: ANALYTICAL RESOURCES, INC Client: MW NATURAL

Instrument ID: NT12 Project: NWN-INS

DFTPP Injection Date: 11/09/10 DFTPP Injection Time: 1040

m/e	ION ABUNDANCE CRITERIA	% RELATIVE ABUNDANCE
51	10.0 - 80.0% of mass 198	26.1
68	Less than 2.0% of mass 69	0.8 (1.2)1
69	Mass 69 relative abundance	67.7
70	Less than 2.0% of mass 69	0.5 (0.7)1
127	10.0 - 80.0% of mass 198	54.5
197	Less than 2.0% of mass 198	0.0
198	Base Peak, 100% relative abundance	100.0
199	5.0 to 9.0% of mass 198	6.8
275	10.0 - 60.0% of mass 198	26.7
365	Greater than 1.0% of mass 198	4.17
441	0.0 - 24.0% of mass 442	10.3 (15.4)2
442	50.0 - 200.0% of mass 198	67.1
443	15.0 - 24.0% of mass 442	12.5 (18.7)2

1-Value is % mass 69 2-Value is % mass 442

THIS CHECK APPLIES TO THE FOLLOWING SAMPLES, MS, MSD, BLANKS, AND STANDARDS:

	CLIENT SAMPLE NO.	LAB SAMPLE ID	LAB FILE ID	DATE ANALYZED	TIME ANALYZED
01		CC1109	CC1109	11/09/10	1104
02	RS97MBS1	RS97MBS1	RS97MB	11/09/10	1741
03	RS97LCSS1	RS97LCSS1	RS97SB	11/09/10	1804
04	GSM-08SO-10-11-1	RS97A	RS97A	11/09/10	1828
05	DGS-19-3.34.1-10	RS97B	RS97B	11/09/10	1851
06	DGS-19-4.48.2-10	RS97C	RS97C	11/09/10	1915
07	DGS-19-10.210.9-	RS97D	RS97D	11/09/10	1939
08	DGS-08-4.44.6-10	RS97E	RS97E	11/09/10	2002
09	GST-09SO-17-18-1	RS97F	RS97F	11/09/10	2026
10	DGS-36-066.7-101	RS97G	RS97G	11/09/10	2049
11	DGS-07-2.22.7-10	RS97I	RS97I	11/09/10	2223
12					
13					
14					
15					
16					
17					
18					
19					
20					
21					
22					

FORM V SV

5B
SEMIVOLATILE ORGANIC INSTRUMENT PERFORMANCE CHECK
DECAFLUOROTRIPHENYLPHOSPHINE (DFTPP)

Lab Name: ANALYTICAL RESOURCES, INC Client: MW NATURAL

Instrument ID: NT12 Project: NWN-INS

DFTPP Injection Date: 11/10/10 DFTPP Injection Time: 1306

m/e	ION ABUNDANCE CRITERIA	% RELATIVE ABUNDANCE
51	10.0 - 80.0% of mass 198	25.5
68	Less than 2.0% of mass 69	0.0 (0.0)1
69	Mass 69 relative abundance	71.4
70	Less than 2.0% of mass 69	0.5 (0.8)1
127	10.0 - 80.0% of mass 198	53.1
197	Less than 2.0% of mass 198	0.0
198	Base Peak, 100% relative abundance	100.0
199	5.0 to 9.0% of mass 198	7.3
275	10.0 - 60.0% of mass 198	26.5
365	Greater than 1.0% of mass 198	4.28
441	0.0 - 24.0% of mass 442	9.3 (16.2)2
442	50.0 - 200.0% of mass 198	57.4
443	15.0 - 24.0% of mass 442	11.0 (19.1)2

1-Value is % mass 69 2-Value is % mass 442

THIS CHECK APPLIES TO THE FOLLOWING SAMPLES, MS, MSD, BLANKS, AND STANDARDS:

	CLIENT SAMPLE NO.	LAB SAMPLE ID	LAB FILE ID	DATE ANALYZED	TIME ANALYZED
01		CC1110	CC1110	11/10/10	1329
02	DGS-19-10.210.9-	RS97D	RS97D	11/10/10	1417
03	DGS-36-066.7-101	RS97G	RS97G	11/10/10	1440
04	DGS-07-2.22.7-10	RS97I	RS97I	11/10/10	1624
05	DGS-07-034.2-101	RS97J	RS97J	11/10/10	1648
06	DGS-07-5.66.7-10	RS97L	RS97L	11/10/10	1711
07	DGS-07-077.3-101	RS97M	RS97M	11/10/10	1734
08	DGS-07-7.98.4-10	RS97N	RS97N	11/10/10	1758
09	DGS-07-8.79.1-10	RS97O	RS97O	11/10/10	1821
10	DGS-07-9.710-101	RS97P	RS97P	11/10/10	1845
11	DGS-07-10.610.9-	RS97Q	RS97Q	11/10/10	1908
12	DGS-07-11.611.8-	RS97R	RS97R	11/10/10	1931
13	DGS-07-12.713.2-	RS97S	RS97S	11/10/10	1955
14	GSM-08SO-10-11-1	RS97A	RS97ADL	11/10/10	2018
15	DGS-19-3.34.1-10	RS97B	RS97BDL	11/10/10	2042
16	DGS-08-4.44.6-10	RS97E	RS97EDL	11/10/10	2105
17					
18					
19					
20					
21					
22					

FORM V SV

5B
SEMIVOLATILE ORGANIC INSTRUMENT PERFORMANCE CHECK
DECAFLUOROTRIPHENYLPHOSPHINE (DFTPP)

Lab Name: ANALYTICAL RESOURCES, INC Client: MW NATURAL

Instrument ID: NT12 Project: NWN-INS

DFTPP Injection Date: 11/11/10 DFTPP Injection Time: 1157

m/e	ION ABUNDANCE CRITERIA	% RELATIVE ABUNDANCE
51	10.0 - 80.0% of mass 198	26.7
68	Less than 2.0% of mass 69	1.2 (1.6)1
69	Mass 69 relative abundance	72.1
70	Less than 2.0% of mass 69	0.5 (0.7)1
127	10.0 - 80.0% of mass 198	53.4
197	Less than 2.0% of mass 198	0.3
198	Base Peak, 100% relative abundance	100.0
199	5.0 to 9.0% of mass 198	6.9
275	10.0 - 60.0% of mass 198	27.1
365	Greater than 1.0% of mass 198	4.20
441	0.0 - 24.0% of mass 442	9.9 (16.6)2
442	50.0 - 200.0% of mass 198	59.4
443	15.0 - 24.0% of mass 442	11.7 (19.7)2

1-Value is % mass 69 2-Value is % mass 442

THIS CHECK APPLIES TO THE FOLLOWING SAMPLES, MS, MSD, BLANKS, AND STANDARDS:

	CLIENT SAMPLE NO.	LAB SAMPLE ID	LAB FILE ID	DATE ANALYZED	TIME ANALYZED
01		CC1111	CC1111	11/11/10	1220
02	GST-09SO-17-18-1	RS97F	RS97FDL	11/11/10	1325
03	DGS-07-9.710-101	RS97P	RS97PDL	11/11/10	1348
04	DGS-07-10.610.9-	RS97Q	RS97QDL	11/11/10	1412
05	DGS-07-11.611.8-	RS97R	RS97RDL	11/11/10	1435
06	DGS-07-12.713.2-	RS97S	RS97SDL	11/11/10	1459
07	DGS-07-034.2-101	RS97J	RS97J	11/11/10	1522
08	DGS-07-4.75.2-10	RS97K	RS97K	11/11/10	1546
09	DGS-07-011.3-101	RS97H	RS97H	11/11/10	1609
10	DGS-07-011.3-10	RS97HMS	RS97HMS	11/11/10	1633
11	DGS-07-011.3-10	RS97HMSD	RS97HMSD	11/11/10	1657
12					
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19					
20					
21					
22					

FORM V SV

5B

SEMIVOLATILE ORGANIC INSTRUMENT PERFORMANCE CHECK
DECAFLUOROTRIPHENYLPHOSPHINE (DFTPP)

Lab Name: ANALYTICAL RESOURCES, INC Client: MW NATURAL

Instrument ID: NT12 Project: NWN-INS

DFTPP Injection Date: 11/12/10 DFTPP Injection Time: 0942

m/e	ION ABUNDANCE CRITERIA	% RELATIVE ABUNDANCE
51	10.0 - 80.0% of mass 198	24.3
68	Less than 2.0% of mass 69	0.4 (0.6)1
69	Mass 69 relative abundance	69.5
70	Less than 2.0% of mass 69	0.4 (0.6)1
127	10.0 - 80.0% of mass 198	49.7
197	Less than 2.0% of mass 198	0.0
198	Base Peak, 100% relative abundance	100.0
199	5.0 to 9.0% of mass 198	6.6
275	10.0 - 60.0% of mass 198	26.9
365	Greater than 1.0% of mass 198	5.06
441	0.0 - 24.0% of mass 442	9.0 (14.7)2
442	50.0 - 200.0% of mass 198	61.0
443	15.0 - 24.0% of mass 442	12.3 (20.1)2

1-Value is % mass 69 2-Value is % mass 442

THIS CHECK APPLIES TO THE FOLLOWING SAMPLES, MS, MSD, BLANKS, AND STANDARDS:

	CLIENT SAMPLE NO.	LAB SAMPLE ID	LAB FILE ID	DATE ANALYZED	TIME ANALYZED
01		CC1112	CC1112	11/12/10	1005
02	DGS-07-4.75.2-10	RS97K	RS97KDL	11/12/10	1057
03	DGS-07-5.66.7-10	RS97L	RS97LDL	11/12/10	1120
04					
05					
06					
07					
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22					

FORM V SV

6B

SEMIVOLATILE 8270-D INITIAL CALIBRATION DATA

Lab Name: ANALYTICAL RESOURCES, INC — Client: MW NATURAL

ARI Job No: RS97 — Project: NWN-INS

Instrument ID: NT12 — Calibration Date: 10/30/10

LAB FILE ID: RRF1 =IC1030C RRF5 =IC1030E RRF10 =IC1030F
RRF25 =IC1030A RRF40 =IC1030D RRF80 =IC1030B

COMPOUND	RRF 1	RRF 5	RRF 10	RRF 25	RRF 40	RRF 80	___ RRF	%RSD /R^2
Naphthalene	1.154	1.194	1.113	1.152	1.154	1.061	1.138	4.0
2-Methylnaphthalene	0.513	0.633	0.606	0.644	0.635	0.614	0.608	7.9
Acenaphthylene	2.023	2.067	1.998	2.026	1.988	1.914	2.003	2.6
Acenaphthene	1.277	1.259	1.207	1.208	1.230	1.198	1.230	2.6
Dibenzofuran	1.845	1.937	1.867	1.911	1.916	1.841	1.886	2.1
Fluorene	1.337	1.397	1.400	1.438	1.438	1.439	1.408	2.8
Phenanthrene	1.102	1.079	1.046	1.070	1.068	1.000	1.061	3.3
Anthracene	1.148	1.110	1.092	1.109	1.104	1.016	1.096	4.0
Fluoranthene	1.222	1.242	1.175	1.200	1.215	1.150	1.201	2.8
Pyrene	1.311	1.359	1.334	1.460	1.497	1.354	1.386	5.4
Benzo(a)anthracene	1.185	1.161	1.096	1.108	1.117	1.073	1.123	3.7
Chrysene	1.200	1.112	1.008	1.038	0.986	0.955	1.050	8.6
Benzo(a)pyrene	1.082	1.126	1.079	1.107	1.106	1.065	1.094	2.0
Indeno(1,2,3-cd)pyrene	1.378	1.546	1.536	1.714	1.828	1.745	1.624	10.3
Dibenzo(a,h)anthracene	1.177	1.266	1.241	1.377	1.489	1.475	1.338	9.7
Benzo(g,h,i)perylene	1.287	1.327	1.248	1.377	1.457	1.312	1.335	5.5
1-methylnaphthalene	0.636	0.656	0.596	0.633	0.628	0.610	0.626	3.4
Total Benzofluoranthenes	1.184	1.223	1.178	1.186	1.211	1.164	1.191	1.8
Carbazole	0.890	0.863	0.893	0.887	0.899	0.876	0.885	1.5
Perylene	1.196	1.172	1.142	1.167	1.158	1.148	1.164	1.7
Terphenyl-d14	0.775	0.836	0.828	0.913	0.984	0.969	0.884	9.5
2-Fluorobiphenyl	1.281	1.618	1.566	1.598	1.624	1.545	1.539	8.4

<- Outside QC limits: %RSD <20% or R^2 > 0.990

FORM VI SV-1

7B

SEMIVOLATILE 8270-D CONTINUING CALIBRATION CHECK

Lab Name: ANALYTICAL RESOURCES, INC — Client: MW NATURAL

ARI Job No: RS97 — Project: NWN-INS

Instrument ID: NT12 — Cont. Calib. Date: 11/09/10

Init. Calib. Date: 10/30/10 — Cont. Calib. Time: 1104

COMPOUND	CalAmt or ARF	CC Amt or RF	MIN RRF	CURVE TYPE	%D or Drift
Naphthalene	1.138	1.175	0.700	AVRG	3.2
2-Methylnaphthalene	0.608	0.646	0.400	AVRG	6.2
Acenaphthylene	2.003	2.025	0.900	AVRG	1.1
Acenaphthene	1.230	1.237	0.900	AVRG	0.6
Dibenzofuran	1.886	1.951	0.800	AVRG	3.4
Fluorene	1.408	1.448	0.900	AVRG	2.8
Phenanthrene	1.061	1.091	0.700	AVRG	2.8
Anthracene	1.096	1.106	0.700	AVRG	0.9
Fluoranthene	1.397	1.405	0.600	AVRG	0.6
Pyrene	1.386	1.375	0.600	AVRG	-0.8
Benzo(a)anthracene	1.123	1.148	0.800	AVRG	2.2
Chrysene	1.050	0.998	0.700	AVRG	-5.0
Benzo(a)pyrene	1.094	1.138	0.700	AVRG	4.0
Indeno(1,2,3-cd)pyrene	1.624	1.369	0.500	AVRG	-15.7
Dibenzo(a,h)anthracene	1.338	1.106	0.400	AVRG	-17.3
Benzo(g,h,i)perylene	1.335	1.143	0.500	AVRG	-14.4
1-methylnaphthalene	0.626	0.644	0.010	AVRG	2.9
Total Benzofluoranthenes	1.191	1.318	0.010	AVRG	10.7
Carbazole	0.885	0.940	0.010	AVRG	6.2
Perylene	1.164	1.144	0.010	AVRG	-1.7
Terphenyl-d14	0.884	0.895	0.010	AVRG	1.2
2-Fluorobiphenyl	1.539	1.594	0.010	AVRG	3.6

<- Exceeds QC limit of 20% D
* RF less than minimum RF

FORM VII SV-1

7B

SEMIVOLATILE 8270-D CONTINUING CALIBRATION CHECK

Lab Name: ANALYTICAL RESOURCES, INC — Client: MW NATURAL

ARI Job No: RS97 — Project: NWN-INS

Instrument ID: NT12 — Cont. Calib. Date: 11/10/10

Init. Calib. Date: 10/30/10 — Cont. Calib. Time: 1329

COMPOUND	CalAmt or ARF	CC Amt or RF	MIN RRF	CURVE TYPE	%D or Drift	
Naphthalene	1.138	1.186	0.700	AVRG	4.2	
2-Methylnaphthalene	0.608	0.656	0.400	AVRG	7.9	
Acenaphthylene	2.003	2.025	0.900	AVRG	1.1	
Acenaphthene	1.230	1.236	0.900	AVRG	0.5	
Dibenzofuran	1.886	1.923	0.800	AVRG	2.0	
Fluorene	1.408	1.447	0.900	AVRG	2.8	
Phenanthrene	1.061	1.106	0.700	AVRG	4.2	
Anthracene	1.096	1.124	0.700	AVRG	2.6	
Fluoranthene	1.397	1.323	0.600	AVRG	-5.3	
Pyrene	1.386	1.302	0.600	AVRG	-6.1	
Benzo(a)anthracene	1.123	1.147	0.800	AVRG	2.1	
Chrysene	1.050	1.007	0.700	AVRG	-4.1	
Benzo(a)pyrene	1.094	1.124	0.700	AVRG	2.7	
Indeno(1,2,3-cd)pyrene	1.624	1.342	0.500	AVRG	-17.4	
Dibenzo(a,h)anthracene	1.338	1.105	0.400	AVRG	-17.4	
Benzo(g,h,i)perylene	1.335	1.042	0.500	AVRG	-21.9	<-
1-methylnaphthalene	0.626	0.654	0.010	AVRG	4.5	
Total Benzofluoranthenes	1.191	1.281	0.010	AVRG	7.6	
Carbazole	0.885	0.906	0.010	AVRG	2.4	
Perylene	1.164	1.142	0.010	AVRG	-1.9	
Terphenyl-d14	0.884	0.840	0.010	AVRG	-5.0	
2-Fluorobiphenyl	1.539	1.590	0.010	AVRG	3.3	

<- Exceeds QC limit of 20% D
* RF less than minimum RF

FORM VII SV-1

7B

SEMIVOLATILE 8270-D CONTINUING CALIBRATION CHECK

Lab Name: ANALYTICAL RESOURCES, INC — Client: MW NATURAL

ARI Job No: RS97 — Project: NWN-INS

Instrument ID: NT12 — Cont. Calib. Date: 11/11/10

Init. Calib. Date: 10/30/10 — Cont. Calib. Time: 1220

COMPOUND	CalAmt or ARF	CC Amt or RF	MIN RRF	CURVE TYPE	%D or Drift	
Naphthalene	1.138	1.188	0.700	AVRG	4.4	
2-Methylnaphthalene	0.608	0.658	0.400	AVRG	8.2	
Acenaphthylene	2.003	2.039	0.900	AVRG	1.8	
Acenaphthene	1.230	1.234	0.900	AVRG	0.3	
Dibenzofuran	1.886	1.970	0.800	AVRG	4.4	
Fluorene	1.408	1.500	0.900	AVRG	6.5	
Phenanthrene	1.061	1.094	0.700	AVRG	3.1	
Anthracene	1.096	1.099	0.700	AVRG	0.3	
Fluoranthene	1.397	1.327	0.600	AVRG	-5.0	
Pyrene	1.386	1.300	0.600	AVRG	-6.2	
Benzo(a)anthracene	1.123	1.164	0.800	AVRG	3.6	
Chrysene	1.050	1.027	0.700	AVRG	-2.2	
Benzo(a)pyrene	1.094	1.139	0.700	AVRG	4.1	
Indeno(1,2,3-cd)pyrene	1.624	1.240	0.500	AVRG	-23.6	<-
Dibenzo(a,h)anthracene	1.338	1.016	0.400	AVRG	-24.1	<-
Benzo(g,h,i)perylene	1.335	0.960	0.500	AVRG	-28.1	<-
1-methylnaphthalene	0.626	0.653	0.010	AVRG	4.3	
Total Benzofluoranthenes	1.191	1.373	0.010	AVRG	15.3	
Carbazole	0.885	0.952	0.010	AVRG	7.6	
Perylene	1.164	1.148	0.010	AVRG	-1.4	
Terphenyl-d14	0.884	0.830	0.010	AVRG	-6.1	
2-Fluorobiphenyl	1.539	1.582	0.010	AVRG	2.8	

<- Exceeds QC limit of 20% D

* RF less than minimum RF

FORM VII SV-1

7B

SEMIVOLATILE 8270-D CONTINUING CALIBRATION CHECK

Lab Name: ANALYTICAL RESOURCES, INC — Client: MW NATURAL

ARI Job No: RS97 — Project: NWN-INS

Instrument ID: NT12 — Cont. Calib. Date: 11/12/10

Init. Calib. Date: 10/30/10 — Cont. Calib. Time: 1005

COMPOUND	CalAmt or ARF	CC Amt or RF	MIN RRF	CURVE TYPE	%D or Drift
Naphthalene	1.138	1.175	0.700	AVRG	3.2
2-Methylnaphthalene	0.608	0.646	0.400	AVRG	6.2
Acenaphthylene	2.003	2.062	0.900	AVRG	2.9
Acenaphthene	1.230	1.237	0.900	AVRG	0.6
Dibenzofuran	1.886	1.924	0.800	AVRG	2.0
Fluorene	1.408	1.436	0.900	AVRG	2.0
Phenanthrene	1.061	1.099	0.700	AVRG	3.6
Anthracene	1.096	1.121	0.700	AVRG	2.3
Fluoranthene	1.397	1.427	0.600	AVRG	2.1
Pyrene	1.386	1.409	0.600	AVRG	1.6
Benzo(a)anthracene	1.123	1.149	0.800	AVRG	2.3
Chrysene	1.050	1.023	0.700	AVRG	-2.6
Benzo(a)pyrene	1.094	1.102	0.700	AVRG	0.7
Indeno(1,2,3-cd)pyrene	1.624	1.468	0.500	AVRG	-9.6
Dibenzo(a,h)anthracene	1.338	1.183	0.400	AVRG	-11.6
Benzo(g,h,i)perylene	1.335	1.192	0.500	AVRG	-10.7
1-methylnaphthalene	0.626	0.646	0.010	AVRG	3.2
Total Benzofluoranthenes	1.191	1.223	0.010	AVRG	2.7
Carbazole	0.885	0.896	0.010	AVRG	1.2
Perylene	1.164	1.153	0.010	AVRG	-0.9
Terphenyl-d14	0.884	0.867	0.010	AVRG	-1.9
2-Fluorobiphenyl	1.539	1.602	0.010	AVRG	4.1

<- Exceeds QC limit of 20% D
* RF less than minimum RF

FORM VII SV-1

8B

SEMIVOLATILE INTERNAL STANDARD AREA AND RT SUMMARY

Lab Name: ANALYTICAL RESOURCES, INC — Client: MW NATURAL

ARI Job No: RS97 — Project: NWN-INS

Ical Midpoint ID: IC1030A — Ical Date: 10/30/10

Instrument ID: NT12 — Cont. Cal Date: 11/09/10

		IS1(NPT) AREA #	RT #	IS2(ANT) AREA #	RT #	IS3(PHN) AREA #	RT #
	ICAL MIDPT	237664	4.92	143363	7.03	245437	8.80
	UPPER LIMIT	475328		286726		490874	
	LOWER LIMIT	118832		71682		122718	
	CCAL	180585	4.89	112208	6.99	205783	8.77
	UPPER LIMIT		5.39		7.49		9.27
	LOWER LIMIT		4.39		6.49		8.27
01	RS97MBS1	179301	4.89	114446	6.99	208746	8.77
02	RS97LCSS1	189261	4.89	121041	6.99	209217	8.76
03	GSM-08SO-10-	186824	4.89	108846	6.99	191541	8.77
04	DGS-19-3.34.	207521	4.90	108592	6.99	191561	8.77
05	DGS-19-4.48.	183938	4.89	112128	6.99	200472	8.77
06	DGS-19-10.21	175379	4.89	109999	6.99	191411	8.76
07	DGS-08-4.44.	206003	4.90	106812	6.99	181935	8.77
08	GST-09SO-17-	277504	4.93	107458	7.00	213712	8.80
09	DGS-36-066.7	178132	4.89	112175	6.99	198183	8.76
10	DGS-07-2.22.	178437	4.89	112138	6.99	198249	8.76
11							
12							
13							
14							
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23							
24							
25							

IS1 = Naphthalene-d8
IS2 = Acenaphthene-d10
IS3 = Phenanthrene-d10

AREA UPPER LIMIT = +100% of internal standard area from Ical midpoint
AREA LOWER LIMIT = - 50% of internal standard area from Ical midpoint
RT UPPER LIMIT = + 0.50 minutes of internal standard RT from Cont. Cal
RT LOWER LIMIT = - 0.50 minutes of internal standard RT from Cont. Cal

* Values outside of QC limits.

FORM VIII SV-1

8B

SEMIVOLATILE INTERNAL STANDARD AREA AND RT SUMMARY

Lab Name: ANALYTICAL RESOURCES, INC — Client: MW NATURAL

ARI Job No: RS97 — Project: NWN-INS

Ical Midpoint ID: IC1030A — Ical Date: 10/30/10

Instrument ID: NT12 — Cont. Cal Date: 11/09/10

		IS4(CRY) AREA #	RT #	IS5(PRY) AREA #	RT #	AREA #	RT #
	ICAL MIDPT	199260	12.04	197636	13.65		
	UPPER LIMIT	398520		395272			
	LOWER LIMIT	99630		98818			
	CCAL	195439	11.99	134112	13.61		
	UPPER LIMIT		12.49		14.11		
	LOWER LIMIT		11.49		13.11		
01	RS97MBS1	215748	11.99	160984	13.61		
02	RS97LCSS1	209918	11.99	153173	13.61		
03	GSM-08SO-10-	168670	11.99	142046	13.61		
04	DGS-19-3.34.	163503	11.99	151971	13.61		
05	DGS-19-4.48.	179278	11.99	160199	13.61		
06	DGS-19-10.21	176075	11.99	161469	13.61		
07	DGS-08-4.44.	151531	11.99	149600	13.62		
08	GST-09SO-17-	190112	12.01	157507	13.63		
09	DGS-36-066.7	187858	11.99	167001	13.61		
10	DGS-07-2.22.	174550	11.99	161737	13.61		
11							
12							
13							
14							
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21							
22							
23							
24							
25							

IS4 = Chrysene-d12
IS5 = Perylene-d12

AREA UPPER LIMIT = +100% of internal standard area from Ical midpoint
AREA LOWER LIMIT = - 50% of internal standard area from Ical midpoint
RT UPPER LIMIT = + 0.50 minutes of internal standard RT from Cont. Cal
RT LOWER LIMIT = - 0.50 minutes of internal standard RT from Cont. Cal

* Values outside of QC limits.

FORM VIII SV-2

8B

SEMIVOLATILE INTERNAL STANDARD AREA AND RT SUMMARY

Lab Name: ANALYTICAL RESOURCES, INC — Client: MW NATURAL

ARI Job No: RS97 — Project: NWN-INS

Ical Midpoint ID: IC1030A — Ical Date: 10/30/10

Instrument ID: NT12 — Cont. Cal Date: 11/10/10

		IS1(NPT) AREA #	RT #	IS2(ANT) AREA #	RT #	IS3(PHN) AREA #	RT #
	ICAL MIDPT	237664	4.92	143363	7.03	245437	8.80
	UPPER LIMIT	475328		286726		490874	
	LOWER LIMIT	118832		71682		122718	
	CCAL	201233	4.89	126996	6.99	222782	8.76
	UPPER LIMIT		5.39		7.49		9.26
	LOWER LIMIT		4.39		6.49		8.26
01	DGS-19-10.21	227218	4.89	142597	6.99	241604	8.77
02	DGS-36-066.7	214669	4.89	137859	6.99	232928	8.76
03	DGS-07-2.22.	223061	4.89	138099	6.99	236287	8.77
04	DGS-07-034.2	173847	4.89	106323	6.99	185869	8.76
05	DGS-07-5.66.	205463	4.89	120477	6.99	213377	8.77
06	DGS-07-077.3	235974	4.89	149328	6.99	268127	8.76
07	DGS-07-7.98.	223897	4.89	141260	6.99	254144	8.76
08	DGS-07-8.79.	193302	4.89	120276	6.99	211863	8.76
09	DGS-07-9.710	191343	4.89	113722	6.99	208882	8.77
10	DGS-07-10.61	224906	4.89	133772	6.99	251864	8.77
11	DGS-07-11.61	228249	4.89	141339	7.00	287042	8.78
12	DGS-07-12.71	230304	4.89	137988	6.99	249698	8.77
13	GSM-08SO-10-	192645	4.89	120097	6.99	213167	8.76
14	DGS-19-3.34.	189471	4.89	115675	6.99	209393	8.76
15	DGS-08-4.44.	196057	4.89	120175	6.99	212428	8.76
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IS1 = Naphthalene-d8
IS2 = Acenaphthene-d10
IS3 = Phenanthrene-d10

AREA UPPER LIMIT = +100% of internal standard area from Ical midpoint
AREA LOWER LIMIT = - 50% of internal standard area from Ical midpoint
RT UPPER LIMIT = + 0.50 minutes of internal standard RT from Cont. Cal
RT LOWER LIMIT = - 0.50 minutes of internal standard RT from Cont. Cal

* Values outside of QC limits.

FORM VIII SV-1

8B

SEMIVOLATILE INTERNAL STANDARD AREA AND RT SUMMARY

Lab Name: ANALYTICAL RESOURCES, INC — Client: MW NATURAL

ARI Job No: RS97 — Project: NWN-INS

Ical Midpoint ID: IC1030A — Ical Date: 10/30/10

Instrument ID: NT12 — Cont. Cal Date: 11/10/10

		IS4(CRY) AREA #	RT #	IS5(PRY) AREA #	RT #	AREA #	RT #
	ICAL MIDPT	199260	12.04	197636	13.65		
	UPPER LIMIT	398520		395272			
	LOWER LIMIT	99630		98818			
	CCAL	227886	11.99	171390	13.61		
	UPPER LIMIT		12.49		14.11		
	LOWER LIMIT		11.49		13.11		
01	DGS-19-10.21	239422	11.99	193619	13.61		
02	DGS-36-066.7	210930	11.99	157301	13.61		
03	DGS-07-2.22.	225838	11.99	199918	13.62		
04	DGS-07-034.2	188575	11.99	165309	13.61		
05	DGS-07-5.66.	210112	11.99	179614	13.61		
06	DGS-07-077.3	249207	11.99	190539	13.61		
07	DGS-07-7.98.	234667	11.99	178712	13.61		
08	DGS-07-8.79.	205712	11.99	168798	13.61		
09	DGS-07-9.710	188419	11.99	163219	13.61		
10	DGS-07-10.61	212659	11.99	182597	13.62		
11	DGS-07-11.61	240694	12.00	197110	13.62		
12	DGS-07-12.71	227074	11.99	190561	13.62		
13	GSM-08SO-10-	223178	11.99	198354	13.61		
14	DGS-19-3.34.	216862	11.99	206746	13.61		
15	DGS-08-4.44.	217158	11.99	202927	13.61		
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IS4 = Chrysene-d12
IS5 = Perylene-d12

AREA UPPER LIMIT = +100% of internal standard area from Ical midpoint
AREA LOWER LIMIT = - 50% of internal standard area from Ical midpoint
RT UPPER LIMIT = + 0.50 minutes of internal standard RT from Cont. Cal
RT LOWER LIMIT = - 0.50 minutes of internal standard RT from Cont. Cal

* Values outside of QC limits.

FORM VIII SV-2

8B

SEMIVOLATILE INTERNAL STANDARD AREA AND RT SUMMARY

Lab Name: ANALYTICAL RESOURCES, INC — Client: MW NATURAL

ARI Job No: RS97 — Project: NWN-INS

Ical Midpoint ID: IC1030A — Ical Date: 10/30/10

Instrument ID: NT12 — Cont. Cal Date: 11/11/10

		IS1(NPT) AREA #	RT #	IS2(ANT) AREA #	RT #	IS3(PHN) AREA #	RT #
	ICAL MIDPT	237664	4.92	143363	7.03	245437	8.80
	UPPER LIMIT	475328		286726		490874	
	LOWER LIMIT	118832		71682		122718	
	CCAL	239106	4.87	150916	6.98	283286	8.74
	UPPER LIMIT		5.37		7.48		9.24
	LOWER LIMIT		4.37		6.48		8.24
01	GST-09SO-17-	210402	4.87	124049	6.98	230998	8.75
02	DGS-07-9.710	208131	4.87	127328	6.98	230583	8.75
03	DGS-07-10.61	219438	4.87	133878	6.98	247029	8.74
04	DGS-07-11.61	204343	4.87	126492	6.98	230900	8.74
05	DGS-07-12.71	228532	4.87	142788	6.98	257335	8.74
06	DGS-07-034.2	172225	4.87	110018	6.98	192476	8.74
07	DGS-07-4.75.	251335	4.87	160196	6.98	282581	8.75
08	DGS-07-011.3	246109	4.87	155332	6.98	287621	8.75
09	DGS-07-011.3	229854	4.87	142143	6.98	256533	8.75
10	DGS-07-011.3	210551	4.87	131245	6.98	243292	8.75
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IS1 = Naphthalene-d8
IS2 = Acenaphthene-d10
IS3 = Phenanthrene-d10

AREA UPPER LIMIT = +100% of internal standard area from Ical midpoint
AREA LOWER LIMIT = - 50% of internal standard area from Ical midpoint
RT UPPER LIMIT = + 0.50 minutes of internal standard RT from Cont. Cal
RT LOWER LIMIT = - 0.50 minutes of internal standard RT from Cont. Cal

* Values outside of QC limits.

FORM VIII SV-1

8B

SEMIVOLATILE INTERNAL STANDARD AREA AND RT SUMMARY

Lab Name: ANALYTICAL RESOURCES, INC — Client: MW NATURAL

ARI Job No: RS97 — Project: NWN-INS

Ical Midpoint ID: IC1030A — Ical Date: 10/30/10

Instrument ID: NT12 — Cont. Cal Date: 11/11/10

		IS4(CRY) AREA #	RT #	IS5(PRY) AREA #	RT #	AREA #	RT #
	ICAL MIDPT	199260	12.04	197636	13.65		
	UPPER LIMIT	398520		395272			
	LOWER LIMIT	99630		98818			
	CCAL	295366	11.98	209515	13.60		
	UPPER LIMIT		12.48		14.10		
	LOWER LIMIT		11.48		13.10		
01	GST-09SO-17-	236982	11.97	172042	13.59		
02	DGS-07-9.710	215632	11.97	152628	13.59		
03	DGS-07-10.61	232786	11.97	156655	13.59		
04	DGS-07-11.61	234908	11.97	162046	13.59		
05	DGS-07-12.71	266150	11.97	186139	13.59		
06	DGS-07-034.2	165824	11.97	136685	13.59		
07	DGS-07-4.75.	235815	11.98	210978	13.61		
08	DGS-07-011.3	220552	11.98	190707	13.60		
09	DGS-07-011.3	186761	11.98	154847	13.60		
10	DGS-07-011.3	184326	11.98	156150	13.60		
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IS4 = Chrysene-d12
IS5 = Perylene-d12

AREA UPPER LIMIT = +100% of internal standard area from Ical midpoint
AREA LOWER LIMIT = - 50% of internal standard area from Ical midpoint
RT UPPER LIMIT = + 0.50 minutes of internal standard RT from Cont. Cal
RT LOWER LIMIT = - 0.50 minutes of internal standard RT from Cont. Cal

* Values outside of QC limits.

FORM VIII SV-2

8B

SEMIVOLATILE INTERNAL STANDARD AREA AND RT SUMMARY

Lab Name: ANALYTICAL RESOURCES, INC — Client: MW NATURAL

ARI Job No: RS97 — Project: NWN-INS

Ical Midpoint ID: IC1030A — Ical Date: 10/30/10

Instrument ID: NT12 — Cont. Cal Date: 11/12/10

		IS1(NPT) AREA #	RT #	IS2(ANT) AREA #	RT #	IS3(PHN) AREA #	RT #
	ICAL MIDPT	237664	4.92	143363	7.03	245437	8.80
	UPPER LIMIT	475328		286726		490874	
	LOWER LIMIT	118832		71682		122718	
	CCAL	193132	4.86	117075	6.96	203634	8.73
	UPPER LIMIT		5.36		7.46		9.23
	LOWER LIMIT		4.36		6.46		8.23
01	DGS-07-4.75.	200787	4.86	122606	6.96	205625	8.73
02	DGS-07-5.66.	206523	4.86	128146	6.96	218929	8.73
03							
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IS1 = Naphthalene-d8
IS2 = Acenaphthene-d10
IS3 = Phenanthrene-d10

AREA UPPER LIMIT = +100% of internal standard area from Ical midpoint
AREA LOWER LIMIT = - 50% of internal standard area from Ical midpoint
RT UPPER LIMIT = + 0.50 minutes of internal standard RT from Cont. Cal
RT LOWER LIMIT = - 0.50 minutes of internal standard RT from Cont. Cal

* Values outside of QC limits.

FORM VIII SV-1

8B

SEMIVOLATILE INTERNAL STANDARD AREA AND RT SUMMARY

Lab Name: ANALYTICAL RESOURCES, INC — Client: MW NATURAL

ARI Job No: RS97 — Project: NWN-INS

Ical Midpoint ID: IC1030A — Ical Date: 10/30/10

Instrument ID: NT12 — Cont. Cal Date: 11/12/10

		IS4(CRY) AREA #	RT #	IS5(PRY) AREA #	RT #	AREA #	RT #
	ICAL MIDPT	199260	12.04	197636	13.65		
	UPPER LIMIT	398520		395272			
	LOWER LIMIT	99630		98818			
	CCAL	184274	11.96	153925	13.58		
	UPPER LIMIT		12.46		14.08		
	LOWER LIMIT		11.46		13.08		
01	DGS-07-4.75.	184343	11.96	175861	13.58		
02	DGS-07-5.66.	198748	11.96	169235	13.58		
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IS4 = Chrysene-d12
IS5 = Perylene-d12

AREA UPPER LIMIT = +100% of internal standard area from Ical midpoint
AREA LOWER LIMIT = - 50% of internal standard area from Ical midpoint
RT UPPER LIMIT = + 0.50 minutes of internal standard RT from Cont. Cal
RT LOWER LIMIT = - 0.50 minutes of internal standard RT from Cont. Cal

* Values outside of QC limits.

FORM VIII SV-2

TPHD Analysis
Report and Summary QC Forms

ARI Job ID: RS97

ANALYTICAL RESOURCES INCORPORATED

ORGANICS ANALYSIS DATA SHEET
TOTAL DIESEL RANGE HYDROCARBONS
NWTPHD by GC/FID

Matrix: Soil

QC Report No: RS97-NW Natural
Project: NWN-INS

Date Received: 09/29/10

Data Release Authorized:
Reported: 11/16/10

ARI ID	Sample ID	Extraction Date	Analysis Date	EFV DL	Range	RL	Result
RS97A	GSM-08SO-10-11-100928	10/29/10	11/04/10	10.0	**Diesel**	**360**	**6,700**
10-27417	HC ID: **DIESEL/MOTOR OIL**		FID3B	5.0	**Motor Oil**	**720**	**3,200**
					o-Terphenyl		105%
RS97B	DGS-19-3.34.1-101006	10/29/10	11/04/10	10.0	**Diesel**	**700**	**11,000**
10-27418	HC ID: **DIESEL/MOTOR OIL**		FID3B	10	**Motor Oil**	**1,400**	**4,400**
					o-Terphenyl		92.1%
RS97C	DGS-19-4.48.2-101006	10/29/10	11/04/10	10.0	**Diesel**	**140**	**2,300**
10-27419	HC ID: **DIESEL/MOTOR OIL**		FID3B	2.0	**Motor Oil**	**280**	**1,000**
					o-Terphenyl		67.1%
RS97D	DGS-19-10.210.9-101000	10/29/10	11/04/10	10.0	**Diesel**	**130**	**2,000**
10-27420	HC ID: **DIESEL/MOTOR OIL**		FID3B	2.0	**Motor Oil**	**260**	**880**
					o-Terphenyl		69.3%
RS97E	DGS-08-4.44.6-101007	10/29/10	11/04/10	10.0	**Diesel**	**660**	**12,000**
10-27421	HC ID: **DIESEL/MOTOR OIL**		FID3B	10	**Motor Oil**	**1,300**	**5,200**
					o-Terphenyl		90.2%
RS97F	GST-09SO-17-18-101008	10/29/10	11/04/10	10.0	**Diesel**	**3,000**	**42,000**
10-27422	HC ID: **DIESEL/MOTOR OIL**		FID3B	50	**Motor Oil**	**6,000**	**20,000**
					o-Terphenyl		D
RS97G	DGS-36-066.7-101012	10/29/10	11/04/10	10.0	**Diesel**	**370**	**1,800**
10-27423	HC ID: **DIESEL/MOTOR OIL**		FID3B	5.0	**Motor Oil**	**740**	**1,800**
					o-Terphenyl		63.9%
MB-102910	Method Blank	10/29/10	11/04/10	10.0	Diesel	50	< 50 U
10-27424	HC ID: ---		FID3B	1.0	Motor Oil	100	< 100 U
					o-Terphenyl		90.6%
RS97H	DGS-07-011.3-101012	10/29/10	11/04/10	10.0	**Diesel**	**200**	**980**
10-27424	HC ID: **DIESEL/MOTOR OIL**		FID3B	2.0	**Motor Oil**	**400**	**1,400**
					o-Terphenyl		71.0%
RS97I	DGS-07-2.22.7-101012	10/29/10	11/05/10	10.0	**Diesel**	**1,000**	**4,200**
10-27425	HC ID: **DIESEL/MOTOR OIL**		FID3B	10	**Motor Oil**	**2,100**	**6,000**
					o-Terphenyl		97.6%
RS97J	DGS-07-034.2-101012	10/29/10	11/05/10	10.0	**Diesel**	**960**	**5,700**
10-27426	HC ID: **DIESEL/MOTOR OIL**		FID3B	10	**Motor Oil**	**1,900**	**7,700**
					o-Terphenyl		88.4%
RS97K	DGS-07-4.75.2-101012	10/29/10	11/05/10	10.0	**Diesel**	**970**	**6,000**
10-27427	HC ID: **DIESEL/MOTOR OIL**		FID3B	10	**Motor Oil**	**1,900**	**12,000**
					o-Terphenyl		59.7%
RS97L	DGS-07-5.66.7-101012	10/29/10	11/05/10	10.0	**Diesel**	**430**	**3,900**
10-27428	HC ID: **DIESEL/MOTOR OIL**		FID3B	5.0	**Motor Oil**	**870**	**2,800**
					o-Terphenyl		84.4%

ANALYTICAL RESOURCES INCORPORATED

ORGANICS ANALYSIS DATA SHEET
TOTAL DIESEL RANGE HYDROCARBONS
NWTPHD by GC/FID

Matrix: Sediment

QC Report No: RS97-NW Natural
Project: NWN-INS

Date Received: 10/13/10

Data Release Authorized:
Reported: 11/16/10

ARI ID	Sample ID	Extraction Date	Analysis Date	EFV DL	Range	RL	Result
RS97M	DGS-07-077.3-101012	10/29/10	11/05/10	10.0	**Diesel**	**490**	**2,400**
10-27429	HC ID: **DIESEL/MOTOR OIL**		FID3B	5.0	**Motor Oil**	**970**	**2,300**
					o-Terphenyl		64.3%
RS97N	DGS-07-7.98.4-101012	10/29/10	11/05/10	10.0	**Diesel**	**180**	**1,700**
10-27430	HC ID: **DIESEL/MOTOR OIL**		FID3B	2.0	**Motor Oil**	**350**	**1,300**
					o-Terphenyl		72.8%
RS97O	DGS-07-8.79.1-101012	10/29/10	11/05/10	10.0	**Diesel**	**470**	**5,700**
10-27431	HC ID: **DIESEL/MOTOR OIL**		FID3B	5.0	**Motor Oil**	**940**	**3,200**
					o-Terphenyl		86.7%
RS97P	DGS-07-9.710-101012	10/29/10	11/05/10	10.0	**Diesel**	**980**	**14,000**
10-27432	HC ID: **DIESEL/MOTOR OIL**		FID3B	10	**Motor Oil**	**2,000**	**5,400**
					o-Terphenyl		96.1%
RS97Q	DGS-07-10.610.9-1010	110/29/10	11/05/10	10.0	**Diesel**	**870**	**5,300**
10-27433	HC ID: **DIESEL/MOTOR OIL**		FID3B	10	**Motor Oil**	**1,800**	**3,200**
					o-Terphenyl		95.3%
RS97R	DGS-07-11.611.8-1010	110/29/10	11/05/10	10.0	**Diesel**	**900**	**11,000**
10-27434	HC ID: **DIESEL/MOTOR OIL**		FID3B	10	**Motor Oil**	**1,800**	**5,000**
					o-Terphenyl		90.0%
RS97S	DGS-07-12.713.2-1010	110/29/10	11/05/10	10.0	**Diesel**	**430**	**4,500**
10-27435	HC ID: **DIESEL/MOTOR OIL**		FID3B	5.0	**Motor Oil**	**870**	**2,600**
					o-Terphenyl		89.0%

Reported in mg/kg (ppm)

EFV-Effective Final Volume in mL.
DL-Dilution of extract prior to analysis.
RL-Reporting limit.

Diesel quantitation on total peaks in the range from C12 to C24.
Motor Oil quantitation on total peaks in the range from C24 to C38.
HC ID: DRO/RRO indicates results of organics or additional hydrocarbons in ranges are not identifiable.

ANALYTICAL RESOURCES INCORPORATED

TPHD SURROGATE RECOVERY SUMMARY

Matrix: Soil

QC Report No: RS97-NW Natural
Project: NWN-INS

Client ID	OTER	TOT OUT
GSM-08SO-10-11-100928	105%	0
DGS-19-3.34.1-101006	92.1%	0
DGS-19-4.48.2-101006	67.1%	0
DGS-19-10.210.9-101006	69.3%	0
DGS-08-4.44.6-101007	90.2%	0
GST-09SO-17-18-101008	D	0
DGS-36-066.7-101012	63.9%	0
102910MBS	90.6%	0
102910LCS	98.6%	0
DGS-07-011.3-101012	71.0%	0
DGS-07-011.3-101012 MS	79.1%	0
DGS-07-011.3-101012 MSD	77.8%	0
DGS-07-2.22.7-101012	97.6%	0
DGS-07-034.2-101012	88.4%	0
DGS-07-4.75.2-101012	59.7%	0
DGS-07-5.66.7-101012	84.4%	0
DGS-07-077.3-101012	64.3%	0
DGS-07-7.98.4-101012	72.8%	0
DGS-07-8.79.1-101012	86.7%	0
DGS-07-9.710-101012	96.1%	0
DGS-07-10.610.9-101012	95.3%	0
DGS-07-11.611.8-101012	90.0%	0
DGS-07-12.713.2-101012	89.0%	0

	LCS/MB LIMITS	QC LIMITS
(OTER) = o-Terphenyl	(64-134)	(52-130)

Prep Method: SW3546
Log Number Range: 10-27417 to 10-27435

FORM-II TPHD

ANALYTICAL RESOURCES INCORPORATED

ORGANICS ANALYSIS DATA SHEET
NWTPHD by GC/FID

Sample ID: DGS-07-011.3-101012
MS/MSD

Lab Sample ID: RS97H
LIMS ID: 10-27424
Matrix: Sediment
Data Release Authorized:
Reported: 11/16/10

QC Report No: RS97-NW Natural
Project: NWN-INS

Date Sampled: 10/12/10
Date Received: 10/13/10

Date Extracted MS/MSD: 10/29/10

Date Analyzed MS: 11/04/10 23:17
MSD: 11/04/10 23:34
Instrument/Analyst MS: FID3B/MS
MSD: FID3B/MS

Sample Amount MS: 5.10 g-dry-wt
MSD: 5.02 g-dry-wt
Final Extract Volume MS: 10 mL
MSD: 10 mL
Dilution Factor MS: 2.00
MSD: 2.00
Percent Moisture: 49.9%

Range	Sample	MS	Spike Added-MS	MS Recovery	MSD	Spike Added-MSD	MSD Recovery	RPD
Diesel	980	4,110	2,940	106%	4,250	2,990	109%	3.3%

TPHD Surrogate Recovery

	MS	MSD
o-Terphenyl	79.1%	77.8%

Results reported in mg/kg
RPD calculated using sample concentrations per SW846.

ANALYTICAL RESOURCES INCORPORATED

ORGANICS ANALYSIS DATA SHEET
NWTPHD by GC/FID

Sample ID: LCS-102910
LAB CONTROL

Lab Sample ID: LCS-102910
LIMS ID: 10-27424
Matrix: Sediment
Data Release Authorized:
Reported: 11/16/10

QC Report No: RS97-NW Natural
Project: NWN-INS

Date Sampled: NA
Date Received: NA

Date Extracted: 10/29/10
Date Analyzed: 11/04/10 20:39
Instrument/Analyst: FID3B/MS

Sample Amount: 10.0 g
Final Extract Volume: 10 mL
Dilution Factor: 1.00

Range	Lab Control	Spike Added	Recovery
Diesel	1,970	1,500	131%

TPHD Surrogate Recovery

o-Terphenyl	98.6%

Results reported in mg/kg

ANALYTICAL RESOURCES INCORPORATED

TOTAL DIESEL RANGE HYDROCARBONS-EXTRACTION REPORT

ARI Job: RS97
Project: NWN-INS

Matrix: Soil
Date Received: 09/29/10

ARI ID	Client ID	Client Amt	Final Vol	Basis	Prep Date
10-27417-RS97A	GSM-08SO-10-11-10	096.93 g	10.0 mL	D	10/29/10
10-27418-RS97B	DGS-19-3.34.1-101	007.11 g	10.0 mL	D	10/29/10
10-27419-RS97C	DGS-19-4.48.2-101	007.18 g	10.0 mL	D	10/29/10
10-27420-RS97D	DGS-19-10.210.9-101	7.82 g	10.0 mL	D	10/29/10
10-27421-RS97E	DGS-08-4.44.6-101	007.63 g	10.0 mL	D	10/29/10
10-27422-RS97F	GST-09SO-17-18-10	108.29 g	10.0 mL	D	10/29/10
10-27423-RS97G	DGS-36-066.7-1010	126.78 g	10.0 mL	D	10/29/10
10-27424-102910MB1	Method Blank	10.0 g	10.0 mL	-	10/29/10
10-27424-102910LCS1	Lab Control	10.0 g	10.0 mL	-	10/29/10
10-27424-RS97H	DGS-07-011.3-1010	125.04 g	10.0 mL	D	10/29/10
10-27424-RS97HMS	DGS-07-011.3-1010	125.10 g	10.0 mL	D	10/29/10
10-27424-RS97HMSD	DGS-07-011.3-1010	125.02 g	10.0 mL	D	10/29/10
10-27425-RS97I	DGS-07-2.22.7-101	014.77 g	10.0 mL	D	10/29/10
10-27426-RS97J	DGS-07-034.2-1010	125.22 g	10.0 mL	D	10/29/10
10-27427-RS97K	DGS-07-4.75.2-101	015.17 g	10.0 mL	D	10/29/10
10-27428-RS97L	DGS-07-5.66.7-101	015.76 g	10.0 mL	D	10/29/10
10-27429-RS97M	DGS-07-077.3-1010	125.14 g	10.0 mL	D	10/29/10
10-27430-RS97N	DGS-07-7.98.4-101	015.65 g	10.0 mL	D	10/29/10
10-27431-RS97O	DGS-07-8.79.1-101	015.29 g	10.0 mL	D	10/29/10
10-27432-RS97P	DGS-07-9.710-1010	125.13 g	10.0 mL	D	10/29/10
10-27433-RS97Q	DGS-07-10.610.9-101	5.73 g	10.0 mL	D	10/29/10
10-27434-RS97R	DGS-07-11.611.8-101	5.58 g	10.0 mL	D	10/29/10
10-27435-RS97S	DGS-07-12.713.2-101	5.77 g	10.0 mL	D	10/29/10

Basis: D=Dry Weight W=As Received

TPH METHOD BLANK SUMMARY

BLANK NO.

RS97MBS1

Lab Name: ANALYTICAL RESOURCES, INC

Client: NW NATURAL

SDG No.: RS97

Project No.: NWN-INS

Date Extracted: 10/29/10

Matrix: SOLID

Date Analyzed : 11/04/10

Instrument ID : FID3B

Time Analyzed : 2021

THIS METHOD BLANK APPLIES TO THE FOLLOWING SAMPLES, MS, and MSD:

	CLIENT SAMPLE NO.	LAB SAMPLE ID	DATE ANALYZED
01	RS97LCSS1	RS97LCSS1	11/04/10
02	GSM-08SO-10-	RS97A	11/04/10
03	DGS-19-3.34.	RS97B	11/04/10
04	DGS-19-4.48.	RS97C	11/04/10
05	DGS-19-10.21	RS97D	11/04/10
06	DGS-08-4.44.	RS97E	11/04/10
07	GST-09SO-17-	RS97F	11/04/10
08	DGS-36-066.7	RS97G	11/04/10
09	DGS-07-011.3	RS97H	11/04/10
10	DGS-07-011.3	RS97HMS	11/04/10
11	DGS-07-011.3	RS97HMSD	11/04/10
12	DGS-07-2.22.	RS97I	11/05/10
13	DGS-07-034.2	RS97J	11/05/10
14	DGS-07-4.75.	RS97K	11/05/10
15	DGS-07-5.66.	RS97L	11/05/10
16	DGS-07-077.3	RS97M	11/05/10
17	DGS-07-7.98.	RS97N	11/05/10
18	DGS-07-8.79.	RS97O	11/05/10
19	DGS-07-9.710	RS97P	11/05/10
20	DGS-07-10.61	RS97Q	11/05/10
21	DGS-07-11.61	RS97R	11/05/10
22	DGS-07-12.71	RS97S	11/05/10
23			
24			
25			
26			
27			
28			
29			
30			

FORM IV TPH

6a

NW DIESEL INITIAL CALIBRATION

Lab Name: ANALYTICAL RESOURCES, INC. Client: NW NATURAL

Instrument: FID3B.I Project: NWN-INS

Calibration Date: 01-NOV-2010 SDG No.: RS97

Diesel Range	RF1 50	RF2 100	RF3 250	RF4 500	RF5 1000	RF6 2500	Ave RF	%RSD
WA Diesel	19356	18589	18380	17942	17731	17392	18232	3.8
AK Diesel	22672	21271	20867	20225	19958	19512	20751	5.5
OR Diesel	22866	21422	21006	20502	20086	19641	20920	5.5
o-Terph	18795	17409	16385	16044	16582	16687	16984	5.9

<- Indicates %RSD outside limits
Surrogate areas are not included in Diesel RF calculation.

Quant Ranges : WA Diesel C12-C24 (3.376-5.531)
AK Diesel C10-C25 (2.719-5.688)
OR Diesel C10-C28 (2.719-6.167)

Calibration Files	Analysis Time
1101b005.d	01-NOV-2010 18:51
1101b006.d	01-NOV-2010 19:08
1101b007.d	01-NOV-2010 19:26
1101b008.d	01-NOV-2010 19:43
1101b009.d	01-NOV-2010 20:01
1101b010.d	01-NOV-2010 20:18

NW MOTOR OIL RANGE INITIAL CALIBRATION

Lab Name: ANALYTICAL RESOURCES, INC. Client: NW NATURAL

Instrument: FID3B.I Project: NWN-INS

Calibration Date: 16-OCT-2010 SDG No.: RS97

Product Range	RF1 100	RF2 250	RF3 500	RF4 1000	RF5 2500	RF6 5000	Ave RF	%RSD
WA M.Oil C24-C38	12434	11245	10982	11684	11580	11655	11596	4.2
Triac Surr	14855	14564	15284	16775	16844	17083	15901	7.1

<- Indicates %RSD outside limits
Surrogate areas are not included in Motor Oil RF calculation.

Calibration Files	Analysis Time
1015b026.d	16-OCT-2010 01:42
1015b027.d	16-OCT-2010 01:59
1015b028.d	16-OCT-2010 02:16
1015b029.d	16-OCT-2010 02:33
1015b030.d	16-OCT-2010 02:50
1015b031.d	16-OCT-2010 03:07

7a

DIESEL CONTINUING CALIBRATION VERIFICATION

Lab Name: ANALYTICAL RESOURCES, INC.
ICal Date: 01-NOV-2010
CCal Date: 04-NOV-2010
Analysis Time: 19:46
Instrument: FID3B.I

Client: NW NATURAL
Project: NWN-INS
SDG No.: RS97
Lab ID: DIESEL#1
Lab File Name: 1104b005.d

Diesel Range	Area*	CalcAmnt	NomAmnt	% D
WADies(C12-C24)	4403085	241.5	250	-3.4
AK102 (C10-C25)	4931537	237.7	250	-4.9
Terphenyl	725607	42.7	45	-5.1

* Surrogate areas are subtracted from range areas
<- Indicates a %D outside QC limits

Quant Ranges : WA Diesel C12-C24
AK Diesel C10-C25

FORM VII-Diesel

7a

MOTOR OIL CONTINUING CALIBRATION VERIFICATION

Lab Name: ANALYTICAL RESOURCES, INC.
ICal Date: 15-OCT-2010
CCal Date: 04-NOV-2010
Analysis Time: 20:03
Instrument: FID3B.I

Client: NW NATURAL
Project: NWN-INS
SDG No.: RS97
Lab ID: MOIL#1
Lab File Name: 1104b006.d

M.oil Range	Area*	CalcAmnt	NomAmnt	% D
WAMoil(C24-C38)	5094009	439.3	500	-12.1
AK103 (C25-C36)	4468109	512.0	500	2.4
n-Triacontane	722146	45.4	45	0.9

* Surrogate areas are subtracted from range areas
<- Indicates a %D outside QC limits

Quant Ranges : WA M.Oil C24-C38
AK M.Oil C25-C36

FORM VII-Diesel

7a

DIESEL CONTINUING CALIBRATION VERIFICATION

Lab Name: ANALYTICAL RESOURCES, INC.
ICal Date: 01-NOV-2010
CCal Date: 04-NOV-2010
Analysis Time: 23:52
Instrument: FID3B.I

Client: NW NATURAL
Project: NWN-INS
SDG No.: RS97
Lab ID: DIESEL#2
Lab File Name: 1104b019.d

Diesel Range	Area*	CalcAmnt	NomAmnt	% D
WADies(C12-C24)	4477756	245.6	250	-1.8
AK102 (C10-C25)	5022242	242.0	250	-3.2
Terphenyl	706303	41.6	45	-7.6

* Surrogate areas are subtracted from range areas
<- Indicates a %D outside QC limits

Quant Ranges : WA Diesel C12-C24
AK Diesel C10-C25

FORM VII-Diesel

7a

MOTOR OIL CONTINUING CALIBRATION VERIFICATION

Lab Name: ANALYTICAL RESOURCES, INC.
Client: NW NATURAL

ICal Date: 15-OCT-2010
Project: NWN-INS

CCal Date: 05-NOV-2010
SDG No.: RS97

Analysis Time: 00:09
Lab ID: MOIL#2

Instrument: FID3B.I
Lab File Name: 1104b020.d

M.oil Range	Area*	CalcAmnt	NomAmnt	% D
WAMoil(C24-C38)	5049622	435.4	500	-12.9
AK103 (C25-C36)	4463382	511.4	500	2.3
n-Triacontane	713858	44.9	45	-0.2

* Surrogate areas are subtracted from range areas
<- Indicates a %D outside QC limits

Quant Ranges : WA M.Oil C24-C38
AK M.Oil C25-C36

FORM VII-Diesel

7a
DIESEL CONTINUING CALIBRATION VERIFICATION

Lab Name: ANALYTICAL RESOURCES, INC.
Client: NW NATURAL

ICal Date: 01-NOV-2010
Project: NWN-INS

CCal Date: 05-NOV-2010
SDG No.: RS97

Analysis Time: 03:39
Lab ID: DIESEL#3

Instrument: FID3B.I
Lab File Name: 1104b032.d

Diesel Range	Area*	CalcAmnt	NomAmnt	% D
WADies(C12-C24)	4465775	244.9	250	-2.0
AK102 (C10-C25)	5016061	241.7	250	-3.3
Terphenyl	707929	41.7	45	-7.4

* Surrogate areas are subtracted from range areas
<- Indicates a %D outside QC limits

Quant Ranges : WA Diesel C12-C24
AK Diesel C10-C25

FORM VII-Diesel

7a

MOTOR OIL CONTINUING CALIBRATION VERIFICATION

Lab Name: ANALYTICAL RESOURCES, INC.
ICal Date: 15-OCT-2010
CCal Date: 05-NOV-2010
Analysis Time: 03:56
Instrument: FID3B.I

Client: NW NATURAL
Project: NWN-INS
SDG No.: RS97
Lab ID: MOIL#3
Lab File Name: 1104b033.d

M.oil Range	Area*	CalcAmnt	NomAmnt	% D
WAMoil(C24-C38)	5235688	451.5	500	-9.7
AK103 (C25-C36)	4592893	526.3	500	5.3
n-Triacontane	732029	46.0	45	2.3

* Surrogate areas are subtracted from range areas
<- Indicates a %D outside QC limits

Quant Ranges : WA M.Oil C24-C38
AK M.Oil C25-C36

FORM VII-Diesel

TPH ANALYTICAL SEQUENCE

Lab Name: ANALYTICAL RESOURCES, INC Client: NW NATURAL

SDG No.: RS97 Project: NWN-INS

Instrument ID: FID3B GC Column: ZB-1HT

Run Date: 10/16/10

THE ANALYTICAL SEQUENCE OF BLANKS, SAMPLES, AND STANDARDS, IS GIVEN BELOW:

SURROGATE RT FROM DAILY STANDARD
TERPH: 4.69 TRIAC: 6.50

	CLIENT SAMPLE NO.	LAB SAMPLE ID	DATE ANALYZED	TIME ANALYZED	TERPH RT #	TRIAC RT #
01	RT	RT	10/15/10	2251	4.69	6.50
02	IB	IB	10/15/10	2308	4.69	6.50
03	DIESEL 50	DIESEL 50	10/15/10	2325	4.68	6.50
04	DIESEL 100	DIESEL 100	10/15/10	2342	4.69	6.50
05	DIESEL 250	DIESEL 250	10/15/10	2359	4.69	6.50
06	DIESEL 500	DIESEL 500	10/16/10	0017	4.70	6.50
07	DIESEL 1000	DIESEL 1000	10/16/10	0034	4.70	6.50
08	DIESEL 2500	DIESEL 2500	10/16/10	0051	4.72	6.50
09	DIESEL ICV	DIESEL ICV	10/16/10	0108	4.69	6.50
10	RINSE	RINSE	10/16/10	0125	4.69	6.50
11	MOIL 100	MOIL 100	10/16/10	0142	4.69	6.49
12	MOIL 250	MOIL 250	10/16/10	0159	4.69	6.49
13	MOIL 500	MOIL 500	10/16/10	0216	4.69	6.50
14	MOIL 1000	MOIL 1000	10/16/10	0233	4.68	6.50
15	MOIL 2500	MOIL 2500	10/16/10	0250	4.68	6.52
16	MOIL 5000	MOIL 5000	10/16/10	0307	4.69	6.55*
17	MOIL ICV	MOIL ICV	10/16/10	0324	4.69	6.50

	QC LIMITS
TERPH = o-terph	(+/- 0.05 MINUTES)
TRIAC = Triacon Surr	(+/- 0.05 MINUTES)

* Values outside of QC limits.

FORM VIII TPH

TPH ANALYTICAL SEQUENCE

Lab Name: ANALYTICAL RESOURCES, INC Client: NW NATURAL

SDG No.: RS97 Project: NWS-INS

Instrument ID: FID3B GC Column: ZB-1HT

Run Date: 11/01/10

THE ANALYTICAL SEQUENCE OF BLANKS, SAMPLES, AND STANDARDS, IS GIVEN BELOW:

SURROGATE RT FROM DAILY STANDARD
TERPH: 4.68 TRIAC: 6.48

	CLIENT SAMPLE NO.	LAB SAMPLE ID	DATE ANALYZED	TIME ANALYZED	TERPH RT #	TRIAC RT #
01	RT	RT	11/01/10	1816	4.68	6.48
02	IB	IB	11/01/10	1833	4.69	6.48
03		DIESEL 50	11/01/10	1851	4.68	6.48
04		DIESEL 100	11/01/10	1908	4.68	6.48
05		DIESEL 250	11/01/10	1926	4.68	6.48
06		DIESEL 500	11/01/10	1943	4.69	6.49
07		DIESEL 1000	11/01/10	2001	4.69	6.48
08		DIESEL 2500	11/01/10	2018	4.71	6.49
09		DIESEL ICV	11/01/10	2036	4.69	6.48

	QC LIMITS
TERPH = o-terph	(+/- 0.05 MINUTES)
TRIAC = Triacon Surr	(+/- 0.05 MINUTES)

* Values outside of QC limits.

FORM VIII TPH

TPH ANALYTICAL SEQUENCE

Lab Name: ANALYTICAL RESOURCES, INC Client: NW NATURAL

SDG No.: RS97 Project: NWN-INS

Instrument ID: FID3B GC Column: ZB-1HT

Run Date: 11/04/10

THE ANALYTICAL SEQUENCE OF BLANKS, SAMPLES, AND STANDARDS, IS GIVEN BELOW:

SURROGATE RT FROM DAILY STANDARD
TERPH: 4.69 TRIAC: 6.48

	CLIENT SAMPLE NO.	LAB SAMPLE ID	DATE ANALYZED	TIME ANALYZED	TERPH RT #	TRIAC RT #
01	ZZZZZ	ZZZZZ	11/04/10	1837	4.68	6.48
02	ZZZZZ	ZZZZZ	11/04/10	1854	4.68	6.48
03	RT	RT	11/04/10	1911	4.69	6.48
04	IB	IB	11/04/10	1928	4.68	6.48
05	NWN-INS	DIESEL#1	11/04/10	1946	4.68	6.48
06	NWN-INS	MOIL#1	11/04/10	2003	4.69	6.48
07	RS97MBS1	RS97MBS1	11/04/10	2021	4.69	6.48
08	RS97LCSS1	RS97LCSS1	11/04/10	2039	4.69	6.48
09	GSM-08SO-10-	RS97A	11/04/10	2056	4.68	6.48
10	DGS-19-3.34.	RS97B	11/04/10	2114	4.68	6.47
11	DGS-19-4.48.	RS97C	11/04/10	2131	4.69	6.48
12	DGS-19-10.21	RS97D	11/04/10	2149	4.68	6.48
13	DGS-08-4.44.	RS97E	11/04/10	2206	4.68	6.48
14	GST-09SO-17-	RS97F	11/04/10	2224		
15	DGS-36-066.7	RS97G	11/04/10	2242	4.69	6.48
16	DGS-07-011.3	RS97H	11/04/10	2259	4.68	6.48
17	DGS-07-011.3	RS97HMS	11/04/10	2317	4.69	6.48
18	DGS-07-011.3	RS97HMSD	11/04/10	2334	4.68	6.48
19	NWN-INS	DIESEL#2	11/04/10	2352	4.68	6.48
20	NWN-INS	MOIL#2	11/05/10	0009	4.69	6.48
21	DGS-07-2.22.	RS97I	11/05/10	0027	4.68	6.47
22	DGS-07-034.2	RS97J	11/05/10	0044	4.68	6.47
23	DGS-07-4.75.	RS97K	11/05/10	0102	4.68	6.48
24	DGS-07-5.66.	RS97L	11/05/10	0119	4.68	6.48
25	DGS-07-077.3	RS97M	11/05/10	0137	4.69	6.48
26	DGS-07-7.98.	RS97N	11/05/10	0154	4.68	6.48
27	DGS-07-8.79.	RS97O	11/05/10	0211	4.68	6.47
28	DGS-07-9.710	RS97P	11/05/10	0229	4.68	6.47
29	DGS-07-10.61	RS97Q	11/05/10	0246	4.68	6.47
30	DGS-07-11.61	RS97R	11/05/10	0304	4.68	6.47
31	DGS-07-12.71	RS97S	11/05/10	0321	4.68	6.47
32	NWN-INS	DIESEL#3	11/05/10	0339	4.68	6.48

QC LIMITS

TERPH = o-terph (+/- 0.05 MINUTES)
TRIAC = Triacon Surr (+/- 0.05 MINUTES)

* Values outside of QC limits.

FORM VIII TPH

TPH ANALYTICAL SEQUENCE

Lab Name: ANALYTICAL RESOURCES, INC Client: NW NATURAL

SDG No.: RS97 Project: NWN-INS

Instrument ID: FID3B GC Column: ZB-1HT

Run Date: 11/04/10

THE ANALYTICAL SEQUENCE OF BLANKS, SAMPLES, AND STANDARDS, IS GIVEN BELOW:

SURROGATE RT FROM DAILY STANDARD
TERPH: 4.69 TRIAC: 6.48

	CLIENT SAMPLE NO.	LAB SAMPLE ID	DATE ANALYZED	TIME ANALYZED	TERPH RT #	TRIAC RT #
01	NWN-INS	MOIL#3	11/05/10	0356	4.68	6.48

TERPH = o-terph QC LIMITS (+/- 0.05 MINUTES)
TRIAC = Triacon Surr (+/- 0.05 MINUTES)

* Values outside of QC limits.

FORM VIII TPH

General Chemistry Analysis
Report and Summary QC Forms

ARI Job ID: RS97

SAMPLE RESULTS-CONVENTIONALS
RS97-NW Natural

ANALYTICAL RESOURCES INCORPORATED

Matrix: Soil
Data Release Authorized:
Reported: 11/09/10

Project: NWN-INS
Event: NA
Date Sampled: 09/28/10
Date Received: 09/29/10

Client ID: GSM-08SO-10-11-100928
ARI ID: 10-27417 RS97A

Analyte	Date	Method	Units	RL	Sample
Total Solids	11/01/10 110110#1	EPA 160.3	Percent	0.01	73.70
Total Organic Carbon	11/05/10 110510#1	Plumb,1981	Percent	0.200	3.59

RL Analytical reporting limit
U Undetected at reported detection limit

SAMPLE RESULTS-CONVENTIONALS
RS97-NW Natural

ANALYTICAL RESOURCES INCORPORATED

Matrix: Sediment
Data Release Authorized:
Reported: 11/09/10

Project: NWN-INS
Event: NA
Date Sampled: 10/06/10
Date Received: 10/08/10

Client ID: DGS-19-3.34.1-101006
ARI ID: 10-27418 RS97B

Analyte	Date	Method	Units	RL	Sample
Total Solids	11/01/10 110110#1	EPA 160.3	Percent	0.01	75.90
Total Organic Carbon	11/05/10 110510#1	Plumb,1981	Percent	0.176	3.96

RL Analytical reporting limit
U Undetected at reported detection limit

SAMPLE RESULTS-CONVENTIONALS
RS97-NW Natural

ANALYTICAL RESOURCES INCORPORATED

Matrix: Sediment
Data Release Authorized:
Reported: 11/09/10

Project: NWN-INS
Event: NA
Date Sampled: 10/06/10
Date Received: 10/08/10

Client ID: DGS-19-4.48.2-101006
ARI ID: 10-27419 RS97C

Analyte	Date	Method	Units	RL	Sample
Total Solids	11/01/10 110110#1	EPA 160.3	Percent	0.01	67.40
Total Organic Carbon	11/05/10 110510#1	Plumb,1981	Percent	0.172	8.03

RL Analytical reporting limit
U Undetected at reported detection limit

SAMPLE RESULTS-CONVENTIONALS
RS97-NW Natural

ANALYTICAL RESOURCES INCORPORATED

Matrix: Sediment
Data Release Authorized:
Reported: 11/09/10

Project: NWN-INS
Event: NA
Date Sampled: 10/06/10
Date Received: 10/08/10

Client ID: DGS-19-10.210.9-101006
ARI ID: 10-27420 RS97D

Analyte	Date	Method	Units	RL	Sample
Total Solids	11/01/10 110110#1	EPA 160.3	Percent	0.01	79.90
Total Organic Carbon	11/05/10 110510#1	Plumb,1981	Percent	0.188	4.24

RL Analytical reporting limit
U Undetected at reported detection limit

SAMPLE RESULTS-CONVENTIONALS
RS97-NW Natural

ANALYTICAL RESOURCES INCORPORATED

Matrix: Sediment
Data Release Authorized:
Reported: 11/09/10

Project: NWN-INS
Event: NA
Date Sampled: 10/07/10
Date Received: 10/08/10

Client ID: DGS-08-4.44.6-101007
ARI ID: 10-27421 RS97E

Analyte	Date	Method	Units	RL	Sample
Total Solids	11/01/10 110110#1	EPA 160.3	Percent	0.01	78.10
Total Organic Carbon	11/05/10 110510#1	Plumb,1981	Percent	0.206	12.9

RL Analytical reporting limit
U Undetected at reported detection limit

SAMPLE RESULTS-CONVENTIONALS
RS97-NW Natural

ANALYTICAL RESOURCES INCORPORATED

Matrix: Soil
Data Release Authorized:
Reported: 11/09/10

Project: NWN-INS
Event: NA
Date Sampled: 10/08/10
Date Received: 10/11/10

Client ID: GST-09SO-17-18-101008
ARI ID: 10-27422 RS97F

Analyte	Date	Method	Units	RL	Sample
Total Solids	11/01/10 110110#1	EPA 160.3	Percent	0.01	83.90
Total Organic Carbon	11/05/10 110510#1	Plumb,1981	Percent	0.206	30.1

RL Analytical reporting limit
U Undetected at reported detection limit

SAMPLE RESULTS-CONVENTIONALS
RS97-NW Natural

ANALYTICAL RESOURCES INCORPORATED

Matrix: Sediment
Data Release Authorized:
Reported: 11/09/10

Project: NWN-INS
Event: NA
Date Sampled: 10/12/10
Date Received: 10/13/10

Client ID: DGS-36-066.7-101012
ARI ID: 10-27423 RS97G

Analyte	Date	Method	Units	RL	Sample
Total Solids	11/01/10 110110#1	EPA 160.3	Percent	0.01	70.30
Total Organic Carbon	11/05/10 110510#1	Plumb,1981	Percent	0.020	2.57

RL Analytical reporting limit
U Undetected at reported detection limit

SAMPLE RESULTS-CONVENTIONALS
RS97-NW Natural

ANALYTICAL RESOURCES INCORPORATED

Matrix: Sediment
Data Release Authorized:
Reported: 11/09/10

Project: NWN-INS
Event: NA
Date Sampled: 10/12/10
Date Received: 10/13/10

Client ID: DGS-07-011.3-101012
ARI ID: 10-27424 RS97H

Analyte	Date	Method	Units	RL	Sample
Total Solids	11/01/10 110110#1	EPA 160.3	Percent	0.01	49.30
Total Organic Carbon	11/05/10 110510#1	Plumb,1981	Percent	0.020	4.15

RL Analytical reporting limit
U Undetected at reported detection limit

SAMPLE RESULTS-CONVENTIONALS
RS97-NW Natural

ANALYTICAL RESOURCES INCORPORATED

Matrix: Sediment
Data Release Authorized:
Reported: 11/09/10

Project: NWN-INS
Event: NA
Date Sampled: 10/12/10
Date Received: 10/13/10

Client ID: DGS-07-2.22.7-101012
ARI ID: 10-27425 RS97I

Analyte	Date	Method	Units	RL	Sample
Total Solids	11/01/10 110110#1	EPA 160.3	Percent	0.01	49.60
Total Organic Carbon	11/05/10 110510#1	Plumb,1981	Percent	0.020	6.62

RL Analytical reporting limit
U Undetected at reported detection limit

SAMPLE RESULTS-CONVENTIONALS
RS97-NW Natural

ANALYTICAL RESOURCES INCORPORATED

Matrix: Sediment
Data Release Authorized:
Reported: 11/09/10

Project: NWN-INS
Event: NA
Date Sampled: 10/12/10
Date Received: 10/13/10

Client ID: DGS-07-034.2-101012
ARI ID: 10-27426 RS97J

Analyte	Date	Method	Units	RL	Sample
Total Solids	11/01/10 110110#1	EPA 160.3	Percent	0.01	50.60
Total Organic Carbon	11/05/10 110510#1	Plumb,1981	Percent	0.020	6.19

RL Analytical reporting limit
U Undetected at reported detection limit

SAMPLE RESULTS-CONVENTIONALS
RS97-NW Natural

ANALYTICAL RESOURCES INCORPORATED

Matrix: Sediment
Data Release Authorized:
Reported: 11/09/10

Project: NWN-INS
Event: NA
Date Sampled: 10/12/10
Date Received: 10/13/10

Client ID: DGS-07-4.75.2-101012
ARI ID: 10-27427 RS97K

Analyte	Date	Method	Units	RL	Sample
Total Solids	11/01/10 110110#1	EPA 160.3	Percent	0.01	48.10
Total Organic Carbon	11/05/10 110510#1	Plumb,1981	Percent	0.020	4.35

RL Analytical reporting limit
U Undetected at reported detection limit

SAMPLE RESULTS-CONVENTIONALS
RS97-NW Natural

ANALYTICAL RESOURCES INCORPORATED

Matrix: Sediment
Data Release Authorized:
Reported: 11/09/10

Project: NWN-INS
Event: NA
Date Sampled: 10/12/10
Date Received: 10/13/10

Client ID: DGS-07-5.66.7-101012
ARI ID: 10-27428 RS97L

Analyte	Date	Method	Units	RL	Sample
Total Solids	11/01/10 110110#1	EPA 160.3	Percent	0.01	51.30
Total Organic Carbon	11/05/10 110510#1	Plumb,1981	Percent	0.020	5.42

RL Analytical reporting limit
U Undetected at reported detection limit

SAMPLE RESULTS-CONVENTIONALS
RS97-NW Natural

ANALYTICAL RESOURCES INCORPORATED

Matrix: Sediment
Data Release Authorized:
Reported: 11/09/10

Project: NWN-INS
Event: NA
Date Sampled: 10/12/10
Date Received: 10/13/10

Client ID: DGS-07-077.3-101012
ARI ID: 10-27429 RS97M

Analyte	Date	Method	Units	RL	Sample
Total Solids	11/01/10 110110#1	EPA 160.3	Percent	0.01	50.70
Total Organic Carbon	11/05/10 110510#1	Plumb,1981	Percent	0.020	3.07

RL Analytical reporting limit
U Undetected at reported detection limit

SAMPLE RESULTS-CONVENTIONALS
RS97-NW Natural

ANALYTICAL RESOURCES INCORPORATED

Matrix: Sediment
Data Release Authorized:
Reported: 11/09/10

Project: NWN-INS
Event: NA
Date Sampled: 10/12/10
Date Received: 10/13/10

Client ID: DGS-07-7.98.4-101012
ARI ID: 10-27430 RS97N

Analyte	Date	Method	Units	RL	Sample
Total Solids	11/01/10 110110#1	EPA 160.3	Percent	0.01	55.90
Total Organic Carbon	11/05/10 110510#1	Plumb,1981	Percent	0.020	4.18

RL Analytical reporting limit
U Undetected at reported detection limit

SAMPLE RESULTS-CONVENTIONALS
RS97-NW Natural

ANALYTICAL RESOURCES INCORPORATED

Matrix: Sediment
Data Release Authorized:
Reported: 11/09/10

Project: NWN-INS
Event: NA
Date Sampled: 10/12/10
Date Received: 10/13/10

Client ID: DGS-07-8.79.1-101012
ARI ID: 10-27431 RS97O

Analyte	Date	Method	Units	RL	Sample
Total Solids	11/01/10 110110#1	EPA 160.3	Percent	0.01	51.30
Total Organic Carbon	11/05/10 110510#1	Plumb,1981	Percent	0.020	7.65

RL Analytical reporting limit
U Undetected at reported detection limit

SAMPLE RESULTS-CONVENTIONALS
RS97-NW Natural

ANALYTICAL RESOURCES INCORPORATED

Matrix: Sediment
Data Release Authorized:
Reported: 11/09/10

Project: NWN-INS
Event: NA
Date Sampled: 10/12/10
Date Received: 10/13/10

Client ID: DGS-07-9.710-101012
ARI ID: 10-27432 RS97P

Analyte	Date	Method	Units	RL	Sample
Total Solids	11/01/10 110110#1	EPA 160.3	Percent	0.01	49.90
Total Organic Carbon	11/05/10 110510#1	Plumb,1981	Percent	0.020	8.46

RL Analytical reporting limit
U Undetected at reported detection limit

SAMPLE RESULTS-CONVENTIONALS
RS97-NW Natural

ANALYTICAL RESOURCES INCORPORATED

Matrix: Sediment
Data Release Authorized:
Reported: 11/09/10

Project: NWN-INS
Event: NA
Date Sampled: 10/12/10
Date Received: 10/13/10

Client ID: DGS-07-10.610.9-101012
ARI ID: 10-27433 RS97Q

Analyte	Date	Method	Units	RL	Sample
Total Solids	11/01/10 110110#1	EPA 160.3	Percent	0.01	53.10
Total Organic Carbon	11/05/10 110510#1	Plumb,1981	Percent	0.020	8.53

RL Analytical reporting limit
U Undetected at reported detection limit

SAMPLE RESULTS-CONVENTIONALS
RS97-NW Natural

ANALYTICAL RESOURCES INCORPORATED

Matrix: Sediment
Data Release Authorized:
Reported: 11/09/10

Project: NWN-INS
Event: NA
Date Sampled: 10/12/10
Date Received: 10/13/10

Client ID: DGS-07-11.611.8-101012
ARI ID: 10-27434 RS97R

Analyte	Date	Method	Units	RL	Sample
Total Solids	11/01/10 110110#1	EPA 160.3	Percent	0.01	54.70
Total Organic Carbon	11/05/10 110510#1	Plumb,1981	Percent	0.020	17.1

RL Analytical reporting limit
U Undetected at reported detection limit

SAMPLE RESULTS-CONVENTIONALS
RS97-NW Natural

ANALYTICAL RESOURCES INCORPORATED

Matrix: Sediment
Data Release Authorized:
Reported: 11/09/10

Project: NWN-INS
Event: NA
Date Sampled: 10/12/10
Date Received: 10/13/10

Client ID: DGS-07-12.713.2-101012
ARI ID: 10-27435 RS97S

Analyte	Date	Method	Units	RL	Sample
Total Solids	11/01/10 110110#1	EPA 160.3	Percent	0.01	55.80
Total Organic Carbon	11/05/10 110510#1	Plumb,1981	Percent	0.020	8.82

RL Analytical reporting limit
U Undetected at reported detection limit

METHOD BLANK RESULTS-CONVENTIONALS
RS97-NW Natural

ANALYTICAL RESOURCES INCORPORATED

Matrix: Sediment
Data Release Authorized:
Reported: 11/09/10

Project: NWN-INS
Event: NA
Date Sampled: NA
Date Received: NA

Analyte	Date	Units	Blank
Total Solids	11/01/10	Percent	< 0.01 U
Total Organic Carbon	11/05/10	Percent	< 0.020 U

LAB CONTROL RESULTS-CONVENTIONALS
RS97-NW Natural

ANALYTICAL RESOURCES INCORPORATED

Matrix: Sediment
Data Release Authorized:
Reported: 11/09/10

Project: NWN-INS
Event: NA
Date Sampled: NA
Date Received: NA

Analyte/Method	QC ID	Date	Units	LCS	Spike Added	Recovery
Total Organic Carbon Plumb,1981	ICVL	11/05/10	Percent	0.101	0.100	101.0%

STANDARD REFERENCE RESULTS-CONVENTIONALS
RS97-NW Natural

ANALYTICAL RESOURCES INCORPORATED

Matrix: Sediment
Data Release Authorized:
Reported: 11/09/10

Project: NWN-INS
Event: NA
Date Sampled: NA
Date Received: NA

Analyte/SRM ID	Date	Units	SRM	True Value	Recovery
Total Organic Carbon NIST #8704	11/05/10	Percent	3.72	3.35	111.0%

REPLICATE RESULTS-CONVENTIONALS
RS97-NW Natural

ANALYTICAL RESOURCES INCORPORATED

Matrix: Soil
Data Release Authorized:
Reported: 11/09/10

Project: NWN-INS
Event: NA
Date Sampled: 09/28/10
Date Received: 09/29/10

Analyte	Date	Units	Sample	Replicate(s)	RPD/RSD
ARI ID: RS97A Client ID: GSM-08SO-10-11-100928					
Total Solids	11/01/10	Percent	73.70	73.80 74.50	0.6%
Total Organic Carbon	11/05/10	Percent	3.59	3.31 3.57	4.5%

MS/MSD RESULTS-CONVENTIONALS
RS97-NW Natural

ANALYTICAL RESOURCES INCORPORATED

Matrix: Soil
Data Release Authorized:
Reported: 11/09/10

Project: NWN-INS
Event: NA
Date Sampled: 09/28/10
Date Received: 09/29/10

Analyte	Date	Units	Sample	Spike	Spike Added	Recovery
ARI ID: RS97A Client ID: GSM-08SO-10-11-100928						
Total Organic Carbon	11/05/10	Percent	3.59	13.4	10.8	90.6%

Total Solids

ARI Job ID: RS97

Extractions Total Solids-extts
Data By: Woo suk Chang
Created: 10/27/10

Worklist: 1111
Analyst: RVR
Comments:

Oven ID:_____

Balance ID:_____

Samples In: Date:_____ Time:_____ Temp:_____ Analyst:_____

Samples Out: Date:_____ Time:_____ Temp:_____ Analyst:_____

	ARI ID CLIENT ID	Tare Wt (g)	Wet Wt (g)	Dry Wt (g)	% Solids	pH
1.	RS97A 10-27417 GSM-08SO-10-11-100928	1.17	11.91	8.56	68.8	NR
2.	RS97B 10-27418 DGS-19-3.34.1-101006	1.18	11.79	8.64	70.3	NR
3.	RS97C 10-27419 DGS-19-4.48.2-101006	1.17	11.92	8.74	70.4	NR
4.	RS97D 10-27420 DGS-19-10.210.9-101006	1.17	11.61	9.28	77.7	NR
5.	RS97E 10-27421 DGS-08-4.44.6-101007	1.18	11.87	9.32	76.1	NR
6.	RS97F 10-27422 GST-09SO-17-18-101008	1.18	11.91	10.05	82.7	NR
7.	RS97G 10-27423 DGS-36-066.7-101012	1.17	11.41	7.98	66.5	NR
8.	RS97H 10-27424 DGS-07-011.3-101012	1.17	11.35	6.27	50.1	NR
9.	RS97I 10-27425 DGS-07-2.22.7-101012	1.18	12.12	6.40	47.7	NR
10.	RS97J 10-27426 DGS-07-034.2-101012	1.18	12.22	6.87	51.5	NR
11.	RS97K 10-27427 DGS-07-4.75.2-101012	1.18	11.22	6.34	51.4	NR
12.	RS97L 10-27428 DGS-07-5.66.7-101012	1.17	11.17	6.91	57.4	NR
13.	RS97M 10-27429 DGS-07-077.3-101012	1.18	12.29	6.78	50.4	NR

Extractions Total Solids-extts
Data By: Woo suk Chang
Created: 10/27/10

Worklist: 1111
Analyst: RVR
Comments:

Oven ID:_____

Balance ID:_____

Samples In: Date:_____ Time:_____ Temp:_____ Analyst:_____

Samples Out: Date:_____ Time:_____ Temp:_____ Analyst:_____

	ARI ID CLIENT ID	Tare Wt (g)	Wet Wt (g)	Dry Wt (g)	% Solids	pH
14.	RS97N 10-27430 DGS-07-7.98.4-101012	1.18	11.88	7.17	56.0	NR
15.	RS97O 10-27431 DGS-07-8.79.1-101012	1.18	12.76	7.30	52.8	NR
16.	RS97P 10-27432 DGS-07-9.710-101012	1.17	11.72	6.57	51.2	NR
17.	RS97Q 10-27433 DGS-07-10.610.9-101012	1.18	12.08	7.26	55.8	NR
18.	RS97R 10-27434 DGS-07-11.611.8-101012	1.17	11.86	7.06	55.1	NR
19.	RS97S 10-27435 DGS-07-12.713.2-101012	1.18	11.54	7.01	56.3	NR

Extractions Total Solids-extts
Data By: Woo suk Chang
Created: 10/27/10

Worklist: 1111
Analyst: WC
Comments:

Oven ID: 015

Balance ID: 24150347

Samples In: Date: 10/27/10 Time: 15:20 Temp: 100°C Analyst: WC

Samples Out: Date: 10/28/10 Time: 06:10 Temp: 100° Analyst: KR

	ARI ID CLIENT ID	Tare Wt (g)	Wet Wt (g)	Dry Wt (g)	% Solids	pH
1.	RS97A 10-27417 GSM-08SO-10-11-100928	1.17g	11.91g	8.56		NR
2.	RS97B 10-27418 DGS-19-3.34.1-101006	1.18g	11.79g	8.64		NR
3.	RS97C 10-27419 DGS-19-4.48.2-101006	1.17g	11.92g	8.74		NR
4.	RS97D 10-27420 DGS-19-10.210.9-101006	1.17g	11.61g	9.28		NR
5.	RS97E 10-27421 DGS-08-4.44.6-101007	1.18g	11.87g	9.32		NR
6.	RS97F 10-27422 GST-09SO-17-18-101008	1.18g	11.91g	10.05		NR
7.	RS97G 10-27423 DGS-36-066.7-101012	1.17g	11.41g	7.98		NR
8.	RS97H 10-27424 DGS-07-011.3-101012	1.17g	11.35g	6.27		NR
9.	RS97I 10-27425 DGS-07-2.22.7-101012	1.18g	12.12g	6.40		NR
10.	RS97J 10-27426 DGS-07-034.2-101012	1.18g	12.22g	6.87		NR
11.	RS97K 10-27427 DGS-07-4.75.2-101012	1.18g	11.22g	6.34		NR
12.	RS97L 10-27428 DGS-07-5.66.7-101012	1.17g	11.17g	6.91		NR
13.	RS97M 10-27429 DGS-07-077.3-101012	1.18g	12.29g	6.78		NR

Extractions Total Solids-extts
Data By: Woo suk Chang
Created: 10/27/10

Worklist: 1111
Analyst: WC
Comments:

Oven ID:_____

Balance ID:_____

Samples In: Date:_____ Time:_____ Temp:_____ Analyst:_____

Samples Out: Date:_____ Time:_____ Temp:_____ Analyst:_____

	ARI ID CLIENT ID	Tare Wt (g)	Wet Wt (g)	Dry Wt (g)	% Solids	pH
14.	RS97N 10-27430 DGS-07-7.98.4-101012	1.18g	11.88g	7.17		NR
15.	RS97O 10-27431 DGS-07-8.79.1-101012	1.18g	12.76g	7.30		NR
16.	RS97P 10-27432 DGS-07-9.710-101012	1.17g	11.72g	6.57		NR
17.	RS97Q 10-27433 DGS-07-10.610.9-101012	1.18g	12.08g	7.26		NR
18.	RS97R 10-27434 DGS-07-11.611.8-101012	1.17g	11.86g	7.06		NR
19.	RS97S 10-27435 DGS-07-12.713.2-101012	1.18g	11.54g	7.01		NR

Semivolatile PAH Raw Data
Extraction Bench Sheets and Notes

ARI Job ID: RS97

Analytical Resources, Incorporated
Analytical Chemists and Consultants

Organic Extractions Benchsheet

(8270) PNA-Soil/Sediment
Microwave (3546) (SOP # 3304S)

Preparation Test PNA # 4
ARI Job No(s) R597

In-House (67ppb)
Batch set up by: JH

Bottle #	Extraction Requirements	Verify Client ID	Volume Extracted (dry wt)	Turbo Vap 1 2 3 **Exchange 5mL Hexane**	~~(Opt)~~ Silica Gel Clean (1:1) Y / N	TurboVap 1 2 3	Final Effective Volume	Volume to Lab	Comments
	R597 MBS	Date 11/03/10	7.50g	↓			~~0.5mL~~ 1mL	~~0.5mL~~ 1mL	
	↓ SBS	↓	↓	↓			↓	↓	
	~~SBS Dup.~~		↓				↓	↓	
	R597 A	checked	5.36						
	B		5.28						
	C		5.31						
	D		5.21						
	E		5.18						
	F		5.08						
	G		5.03						
	H		5.10						
	Hms		5.06						
	Hmsd		5.07						
	I		5.30						
	J		5.08						
	K		5.19						
	L		5.15						
	M		5.39						
	N		5.19						
	O		5.21						
	P		5.03						
	Q		5.05						
	R		5.05						
	↓ S	↓	5.00	↓			↓	↓	
Analyst/Date:	AR 11/03/10 →			JW 11/9/10			JW 11/9/10	JW 11/9/10	

Standard	Standard ID	Volume	Expiration Date	Analyst	Witness
BAN Surrogate	A	25µL ~~125µL~~	7/22/11	AR	AC
8270 PNA Spike	20	25µL ~~125µL~~	3/14/11	AR	AC
Extraction Time: 13:30			Balance ID:		

SPECIAL INSTRUCTIONS: 1. Weigh into 100mL beakers-dry with Sodium Sulfate. 2. Transfer to microwave vessel. 3. Add 20mL DCM to the vessel (if needed-Add 5mL increments until solvent is 1" above soil layer). 4. Add surr/spike. 5. Mix samples thoroughly before microwaving. 6. Microwave on appropriate power setting determined by # of samples. 7. After microwave-let cool 10-15 min. 8. Collect into turbo tube with sm. funnel containing glasswool and 1" sodium sulfate. 9. Add (2) 10mL DCM rinses to vessel and transfer to turbo tube. 10. TurboVap to 4mL then Add 5mL Hexane and TurboVap. 11. Silica Clean-up (~~Alumina~~ none) Y / N 12. ~~TurboVap (if Silica Clean)~~. 13. Vial in DCM.
A. Need Total Solids Y / N ~~B. Archive~~/Freeze Y / N

Analytical Resources, Incorporated
Analytical Chemists and Consultants

Organic Extractions Benchsheet

(8270) PNA-Soil/Sediment
Microwave (3546) (SOP # 3304S)

Preparation Test PNA # 4
ARI Job No(s) R597

In-House (67ppb)
Batch set up by: JH

Bottle #	Extraction Requirements	Verify Client ID	Volume Extracted (dry wt)	Turbo Vap 1 2 3 **Exchange 5mL Hexane**	~~(Opt)~~ Silica Gel Clean (1:1) Y / N	TurboVap 1 2 3	Final Effective Volume	Volume to Lab	Comments
	R597 MBS	Date 11/03/10	7.50g				~~0.5mL~~	~~0.5mL~~	0.5mL ALL FILTERED
	SBS								
	~~SBS Dup.~~								
	R597 A	checked	5.36						
	B		5.28						
	C		5.31						
	D		5.21						
	E		5.19						
	F		5.08						1.0mL
	G		5.03						0.5mL
	H		5.10						W 11/17/10
	Hms		5.06						
	Hmsd		5.07						
	I		5.30						0.5mL
	J		5.08						
	K		5.19						1.0mL
	L		5.15						0.5mL
	M		5.39						
	N		5.19						
	O		5.21						
	P		5.02						
	Q		5.05						
	R		5.05						
	S		5.00						
Analyst/Date:		AR 11/03/10		JW 11/9/10			JW 11/9/10	JW 11/9/10	W 11/17/10

Standard	Standard ID	Volume	Expiration Date	Analyst	Witness
BAN Surrogate	**A**	~~25µL~~ **125µL**	7/22/11	AR	AC
8270 PNA Spike	**20**	~~25µL~~ **125µL**	3/14/11	AR	AC
Extraction Time: 13:30			**Balance ID:**		

SPECIAL INSTRUCTIONS: 1. Weigh into 100mL beakers-dry with Sodium Sulfate. 2. Transfer to microwave vessel. 3. Add 20mL DCM to the vessel (if needed-Add 5mL increments until solvent is 1" above soil layer). 4. Add surr/spike. 5. Mix samples thoroughly before microwaving. 6. Microwave on appropriate power setting determined by # of samples. 7. After microwave-let cool 10-15 min. 8. Collect into turbo tube with sm. funnel containing glasswool and 1" sodium sulfate. 9. Add (2) 10mL DCM rinses to vessel and transfer to turbo tube. 10. TurboVap to 4mL then Add 5mL Hexane and TurboVap. 11. Silica Clean-up (~~All~~ none) Y / N 12. ~~TurboVap (if Silica Clean)~~. 13. Vial in DCM.
A. Need Total Solids Y / N ~~B. Archive~~/Freeze Y / N

Analytical Resources, Incorporated
Analytical Chemists and Consultants

Organic Extractions Laboratory Analyst Notes

ARI Job No.: RS 97 Client ID: NW Natural

Parameter: 8270 PNA Client Project: NWN- INS

Note problems, concerns, corrective actions	Analyst/Date
Screens: Soil/Sediment/Solid/Other: sediment	WC 10/27/10
☐ No Anomalies (standard soil/sediment)	
☐ Wet sediment/sludge=	
☐ Standing Water Decanted=	
☐ Standing Water Homogenized (Shared samples)=	
☐ Clay (Difficult to homogenize/Mixed with Kitchen Aid)=	
☐ Rocks/Organics=	
☒ Oily, obvious fuel/sulfur odors= fuel odor (A-S)	WC 10/27/10
☐ Other (Details)=	
Aqueous:	
☐ No Anomalies	
☐ Turbid/Color=	
☐ Particulates=	
☐ Emulsions=	
☐ Other (Details)=	
☒ Other Notes/Comments= Extracted all Samples 5g wet to	
a 10ML final Volume as per GCMS Supervisor.	
Project Was surrogated for a 1ML final Volume, giving	
an effective 10x dilution as per GCMS Supervisor.	JT 11/12/10
1ML split for ARI, 4ML ~~sent~~ sent out to client, and 5mL archived	JW 11/9/10

3056F

Revision 007
02/25/10

RS97:00137

Semivolatile PAH Raw Data
Initial Calibration

ARI Job ID: RS97

Analytical Resources, Incorporated
Analytical Chemists and Consultants

GC/MS SVOA Analyst Notes / Corrective Action Log

ARI Project ID: CurvB Client ID: _____

ARI SOP: **801S**(SIM-PNA) **802S**(Butyl Tins) **804S**(SVOA-8270D) **805S**(op-Pest)

Parameter(s): PNA 5

Instrument: NT-2 NT-4 NT-6 NT-8 NT11 NT12

Curve Date: 10.30.10 Analysis Start Date: _____

DFTPP Tune Meets Criteria?	YES / NO	Internal Standard Meets Criteria?	YES / NO
DDT Breakdown <20%?	YES / NO / NA	Method Blank In Control?	YES / NO
Peak Tailing Factor ≤2?	YES / NO / NA	LCS / LCSD Recovery In Control?	YES / NO
ICal acceptable?	YES / NO	CCal acceptable?	YES / NO
Q flag applied?	YES / NO	Q flag applied?	YES / NO
Surrogate Recovery in Control?	YES / NO	Special Analysis Criteria Met?	YES / NO / NA
Manual Integrations for ICal?	YES / NO	Manual Integrations for Samples?	Yes /NO

Detail problems, corrective actions and/or other pertinent information below (use reverse side when necessary):

- All targets <20% RSD
- pyrene and fluoranthene both using d12-Chrysene as an internal standard.

Additional Details on Reverse: Yes / No

Analyst: VB **Date:** 11.12.10

Reviewer: [signature] **Date:** 11/12/10

Analytical Resources Inc.: Volatile Organics Instrument Log

NT-12 Serial No.:GC=US00032558, MS= US01180091

Date: 10·30·10 Analysis: PNP Analyst: VTS

GC Program: PNP Column No: 181984 Column Type: ZB-5ms

Instrument Tune (.U or .CT.): 101030.U EM Voltage: 1800

Calibration File: dF1030D Curve Date: 10·30·10

IS/SS	Ical/Ccal	LCS/ICV
1752-1	1770-1 1753-5	1760-1
	1773-3	1667-2

INTERNAL STANDARD SUMMARY FOR DATABATCH - /chem1/nt12.i/20101030.b

	Time	Filename	LabID	ClientId	DF										
1	1105	df1030a.d			1	NO ISTDS FOUND									
2	1127	ic1030a.d	IC1030A		1	4.92	237664	7.03	143363	8.80	245437	12.04	199260	13.65	197636
3	1149	ic1030b.d	IC1030B		1	4.92	305060	7.04	181935	8.81	339592	12.05	282636	13.66	244531
4	1211	ic1030c.d	IC1030C		1	4.92	232157	7.03	142519	8.80	233159	12.04	219691	13.65	228756
5	1235	ic1030d.d	IC1030D		1	4.92	260760	7.03	156637	8.81	270652	12.04	212741	13.65	185930
6	1257	ic1030e.d	IC1030E		1	4.92	229968	7.03	140757	8.80	235425	12.04	218304	13.65	222190
7	1319	ic1030f.d	IC1030F		1	4.92	233940	7.03	137619	8.80	236772	12.04	207765	13.65	211915
8	1341	icv1030.d	ICV1030		1	4.93	273160	7.04	170880	8.81	318881	12.04	316633	13.66	222800
9	1403	rr00ndl.d	RR00N	DGS-18-0001-	50	4.92	231724	7.03	136636	8.81	217818	12.04	205653	13.65	218543
10	1425	rr00odl.d	RR00O	DGS-18-0104-	20	4.92	232692	7.03	135318	8.80	216420	12.04	195655	13.65	205561
11	1447	rr00pdl.d	RR00P	DGS-18-0408-	10	4.92	225468	7.03	136944	8.81	213767	12.03	198506	13.65	212389
12	1513	icv1030a.d	ICV1030		1	4.93	280286	7.04	177980	8.81	325158	12.04	318062	13.66	226694
13	1535	rr38d.d	RR38D	GST-13SO-0-5	1	4.92	231166	7.03	133235	8.80	203292	12.04	181742	13.66	186673
14	1557	rr80mb.d	RR80MBW1	RR80MBW1	1	4.92	268473	7.03	167909	8.80	292126	12.04	238450	13.65	190977
15	1619	rr80sb.d	RR80LCSW1	RR80LCSW1	1	4.92	253955	7.03	156012	8.81	279195	12.04	246693	13.65	200096
16	1641	rr80sbd.d	RR80LCSDW1	RR80LCSDW1	1	4.92	261532	7.03	159447	8.80	293125	12.04	259721	13.65	208173
17	1703	rr80a.d	RR80A	DGS-03-0006-	1	4.92	272318	7.04	171370	8.81	305755	12.04	253778	13.65	191441
18	1725	rr87a.d	RR87A	DGS-13-0006-	1	4.92	236912	7.03	141167	8.81	227597	12.03	202799	13.65	203171
19	1747	rs03a.d	RS03A	DGS-13-0006-	1	4.92	252241	7.03	151980	8.81	257340	12.04	214347	13.65	194929
20	1809	rs08a.d	RS08A	DGS-13-0006-	1	4.92	277927	7.04	174115	8.81	309371	12.04	293618	13.65	222622
21	1831	rs40a.d	RS40A	DGS-11-1.58.	5	4.95	288254	7.03	136319	8.81	222313	12.03	195564	13.65	215656
22	1853	rs40b.d	RS40B	DGS-11-1.58.	1	4.99	413413	7.04	176083	8.81	317104	12.04	262872	13.65	225290
23	1915	rt92mb.d	RT92MBS1	RT92MBS1	1	4.92	265606	7.03	165887	8.80	297139	12.04	274534	13.65	228552
24	1937	rt92sb.d	RT92LCSS1	RT92LCSS1	1	4.92	283727	7.03	173788	8.80	317502	12.04	298924	13.65	234059
25	1959	rt92c.d	RT92C	SD-1-CB-5	1	4.92	277220	7.03	167320	8.81	283632	12.05	242304	13.67	246066
26	2020	rt92d.d	RT92D	SD-2-CA-5	1	4.93	290508	7.04	182413	8.81	320779	12.04	203641	13.66	222666
27	2042	rt92e.d	RT92E	SD6-CA-5	1	4.93	277232	7.03	164618	8.82	280929	12.06	317216	13.70	327640
28	2104	rt92f.d	RT92F	SD4-CB-5	1	4.93	269492	7.04	168344	8.81	291543	12.04	178416	13.66	193161
29	2126	rt92fms.d	RT92FMS	SD4-CB-5 MS	1	4.92	263294	7.03	160134	8.81	273212	12.04	215137	13.66	188961
30	2148	rt92fmsd.d	RT92FMSD	SD4-CB-5 MSD	1	4.92	284413	7.04	174923	8.81	305919	12.04	252930	13.66	206445

Main

Main

Every period.

New liner / New septum

11.2.10 VTS

IC1030A

RS97 : 00140

MANUAL INTEGRATION SUMMARY FOR DATABATCH - /chem1/nt12.i/20101030.b

ARI Job No.: IC10 Method: PNA.m Instrument: nt12.i Date: 30-OCT-2010

Time	Filename	LabID	ClientId	DF	Manually Integrated Compounds
1127	ic1030a.d	IC1030A		1	NO MANUAL INTEGRATION
1149	ic1030b.d	IC1030B		1	NO MANUAL INTEGRATION
1211	ic1030c.d	IC1030C		1	NO MANUAL INTEGRATION
1235	ic1030d.d	IC1030D		1	NO MANUAL INTEGRATION
1257	ic1030e.d	IC1030E		1	NO MANUAL INTEGRATION
1319	ic1030f.d	IC1030F		1	NO MANUAL INTEGRATION
1341	icv1030.d	ICV1030		1	NO MANUAL INTEGRATION

RS97 : 001 11

Data File: /chem1/nt12.i/20101030.b/df1030a.d

Date : 30-OCT-2010 11:05

Client ID:

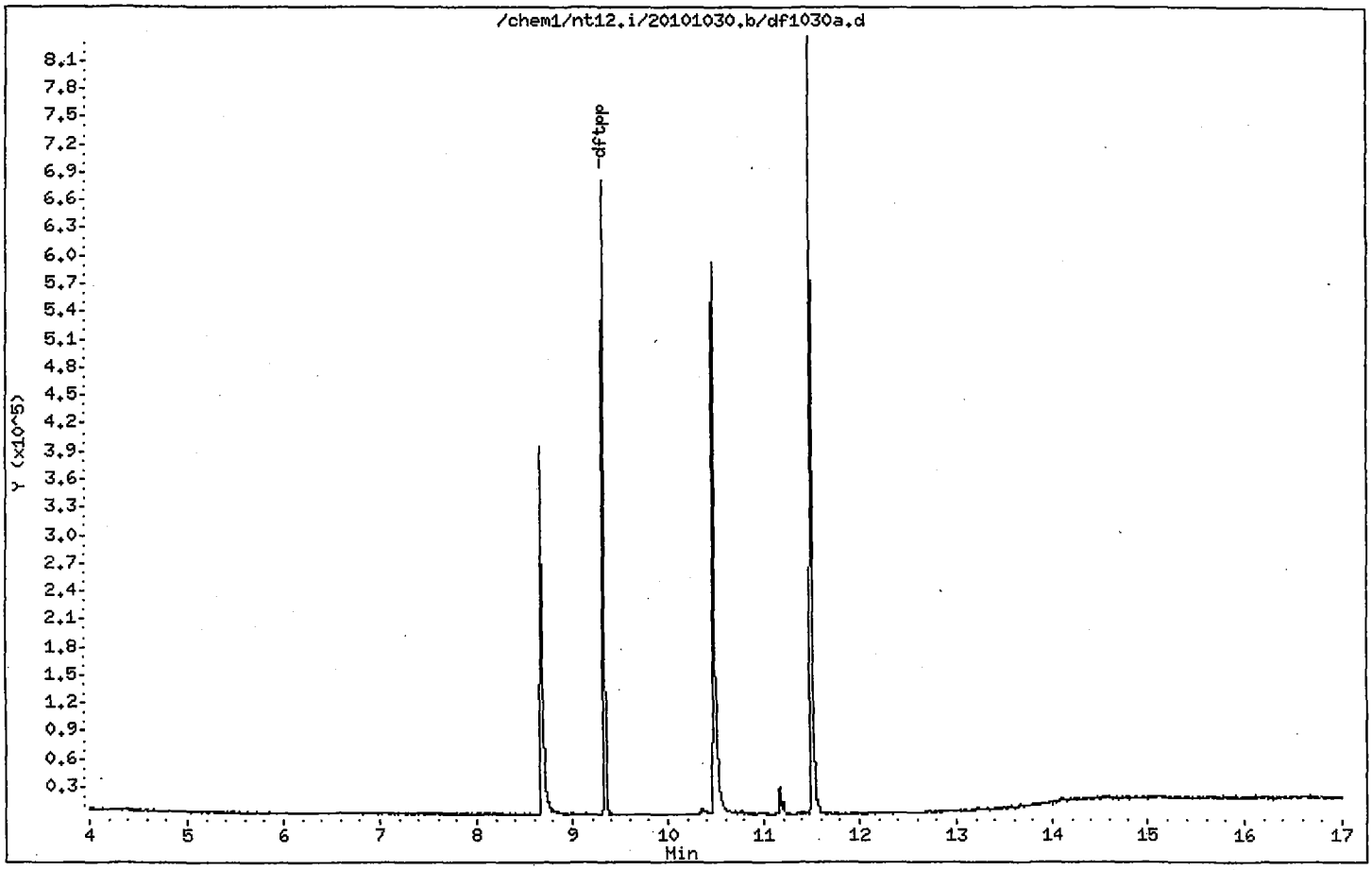
Instrument: nt12.i

Sample Info: DF1030A

Operator: VTS

Column phase: ZB-5msi

Column diameter: 0.32



Data File: /chem1/nt12.i/20101030.b/df1030a.d

Date : 30-OCT-2010 11:05

Client ID:

Instrument: nt12.i

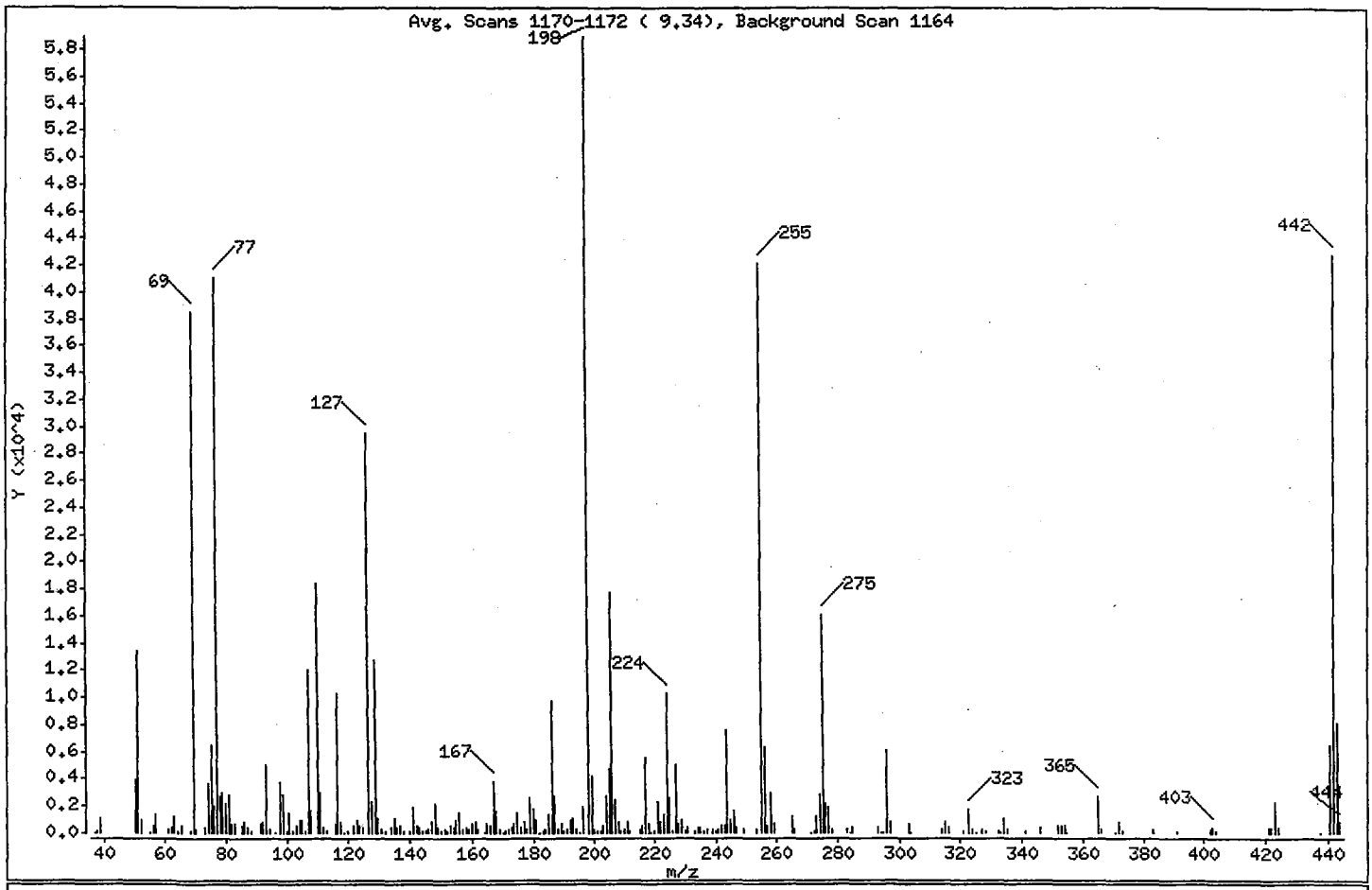
Sample Info: DF1030A

Operator: VTS

Column phase: ZB-5msi

Column diameter: 0.32

1 dftpp



m/e	ION ABUNDANCE CRITERIA	% RELATIVE ABUNDANCE
198	Base Peak, 100% relative abundance	100.00
51	10.00 - 80.00% of mass 198	22.87
68	Less than 2.00% of mass 69	0.28 (0.44)
69	Mass 69 relative abundance	65.19
70	Less than 2.00% of mass 69	0.48 (0.74)
127	10.00 - 80.00% of mass 198	50.21
197	Less than 2.00% of mass 198	0.00
199	5.00 - 9.00% of mass 198	7.02
275	10.00 - 60.00% of mass 198	27.37
365	Greater than 1.00% of mass 198	4.66
441	0.01 - 24.00% of mass 442	11.09 (15.25)
442	50.00 - 200.00% of mass 198	72.71
443	15.00 - 24.00% of mass 442	13.72 (18.86)

Data File: /chem1/nt12.i/20101030.b/df1030a.d

Date : 30-OCT-2010 11:05

Client ID:

Instrument: nt12.i

Sample Info: DF1030A

Operator: VTS

Column phase: ZB-5msi

Column diameter: 0.32

Data File: df1030a.d

Spectrum: Avg. Scans 1170-1172 (9.34), Background Scan 1164

Location of Maximum: 198.00

Number of points: 239

m/z	Y	m/z	Y	m/z	Y	m/z	Y
37.00	50	125.00	426	189.00	730	259.00	666
38.00	179	127.00	29608	190.00	104	265.00	1229
39.00	1145	128.00	2349	191.00	310	266.00	291
50.00	3970	129.00	12734	192.00	901	271.00	67
51.00	13487	130.00	1091	193.00	1075	272.00	150
52.00	903	131.00	307	194.00	213	273.00	1282
55.00	67	132.00	94	195.00	51	274.00	2890
56.00	581	134.00	399	196.00	1916	275.00	16142
57.00	1388	135.00	1098	198.00	58976	276.00	2210
61.00	331	136.00	365	199.00	4143	277.00	1833
62.00	427	137.00	497	200.00	326	278.00	260
63.00	1230	138.00	144	201.00	77	283.00	241
64.00	195	140.00	113	202.00	94	284.00	58
65.00	597	141.00	1880	203.00	600	285.00	363
68.00	168	142.00	485	204.00	2706	293.00	348
69.00	38440	143.00	376	205.00	4745	294.00	52
70.00	284	144.00	70	206.00	17824	295.00	54
73.00	375	145.00	70	207.00	2479	296.00	6131
74.00	3709	146.00	328	208.00	818	297.00	843
75.00	6494	147.00	813	209.00	203	303.00	711
76.00	1966	148.00	2105	210.00	337	304.00	50
77.00	41072	149.00	402	211.00	755	314.00	318
78.00	2752	150.00	165	212.00	136	315.00	769
79.00	3029	151.00	205	215.00	268	316.00	353
80.00	2130	152.00	143	216.00	560	321.00	155
81.00	2859	153.00	585	217.00	5597	323.00	1748
82.00	730	154.00	428	218.00	671	324.00	310
83.00	677	155.00	959	219.00	50	325.00	52
85.00	571	156.00	1481	220.00	118	327.00	308
86.00	848	157.00	221	221.00	2284	328.00	198
87.00	401	158.00	348	222.00	829	332.00	116
88.00	136	159.00	308	223.00	1306	333.00	63
91.00	706	160.00	693	224.00	10319	334.00	1146
92.00	753	161.00	802	225.00	2579	335.00	296
93.00	5069	162.00	278	226.00	199	341.00	155

Data File: /chem1/nt12.i/20101030.b/df1030a.d

Date : 30-OCT-2010 11:05

Client ID:

Instrument: nt12.i

Sample Info: DF1030A

Operator: VTS

Column phase: ZB-5msi

Column diameter: 0.32

Data File: df1030a.d

Spectrum: Avg. Scans 1170-1172 (9.34), Background Scan 1164

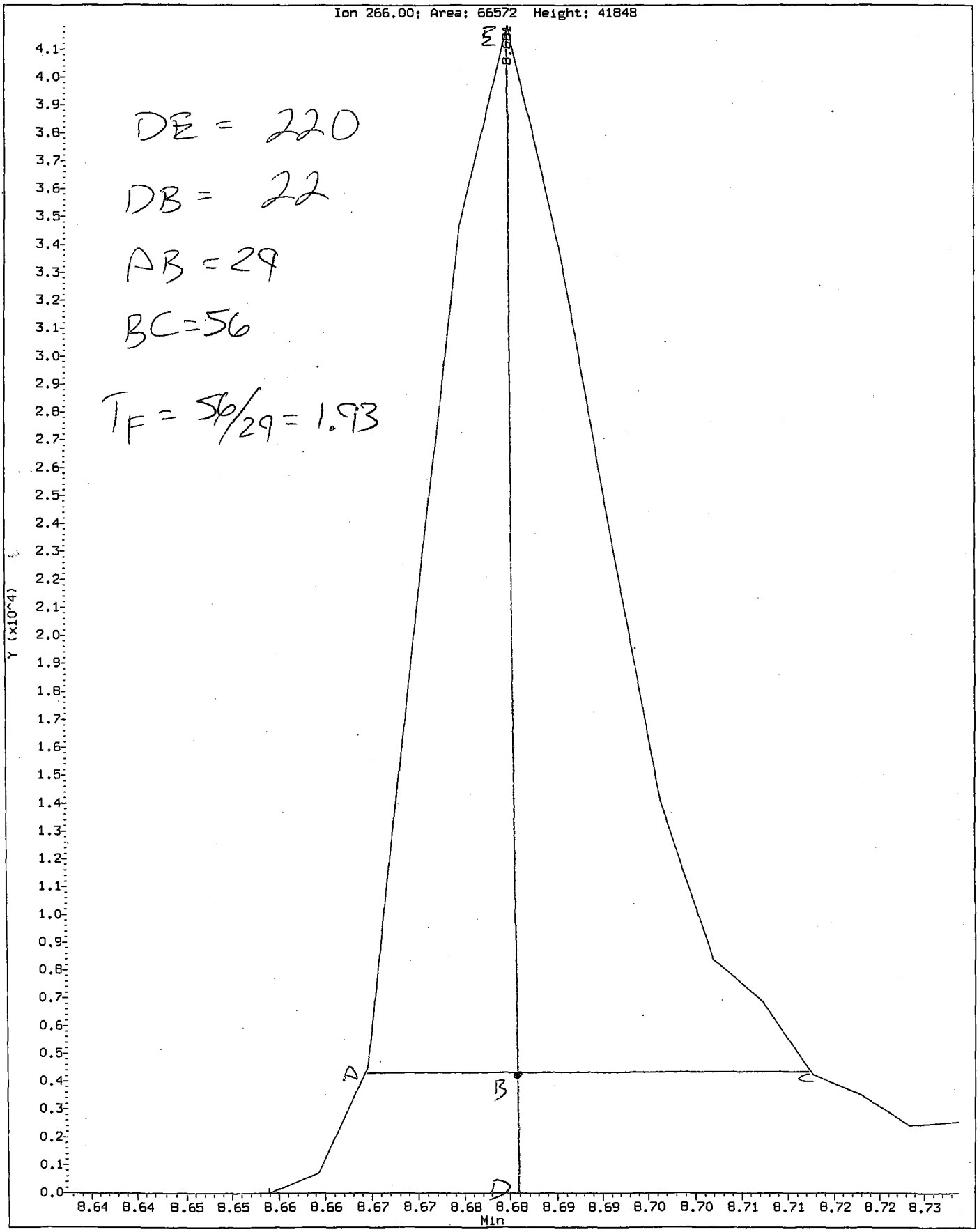
Location of Maximum: 198.00

Number of points: 239

m/z	Y	m/z	Y	m/z	Y	m/z	Y
94.00	308	164.00	62	227.00	4986	346.00	384
96.00	66	165.00	744	228.00	623	352.00	500
98.00	3781	166.00	583	229.00	908	353.00	556
99.00	2858	167.00	3737	230.00	89	354.00	565
100.00	178	168.00	1618	231.00	441	355.00	62
101.00	1529	169.00	335	233.00	131	365.00	2747
102.00	112	170.00	60	234.00	393	366.00	314
103.00	584	171.00	139	235.00	445	371.00	55
104.00	981	172.00	295	236.00	191	372.00	872
105.00	958	173.00	430	237.00	332	373.00	152
106.00	144	174.00	737	239.00	255	383.00	260
107.00	12091	175.00	1429	240.00	95	391.00	117
108.00	1685	176.00	366	241.00	326	402.00	328
110.00	18440	177.00	760	242.00	565	403.00	452
111.00	2967	178.00	278	243.00	609	404.00	171
112.00	377	179.00	2621	244.00	7582	421.00	391
113.00	141	180.00	1727	245.00	948	422.00	462
116.00	634	181.00	915	246.00	1664	423.00	2362
117.00	10264	182.00	62	247.00	397	424.00	383
118.00	866	183.00	107	249.00	292	438.00	53
119.00	66	184.00	215	253.00	230	441.00	6539
120.00	73	185.00	1414	255.00	42136	442.00	42880
122.00	584	186.00	9714	256.00	6417	443.00	8089
123.00	973	187.00	2721	257.00	531	444.00	776
124.00	548	188.00	309	258.00	3012		

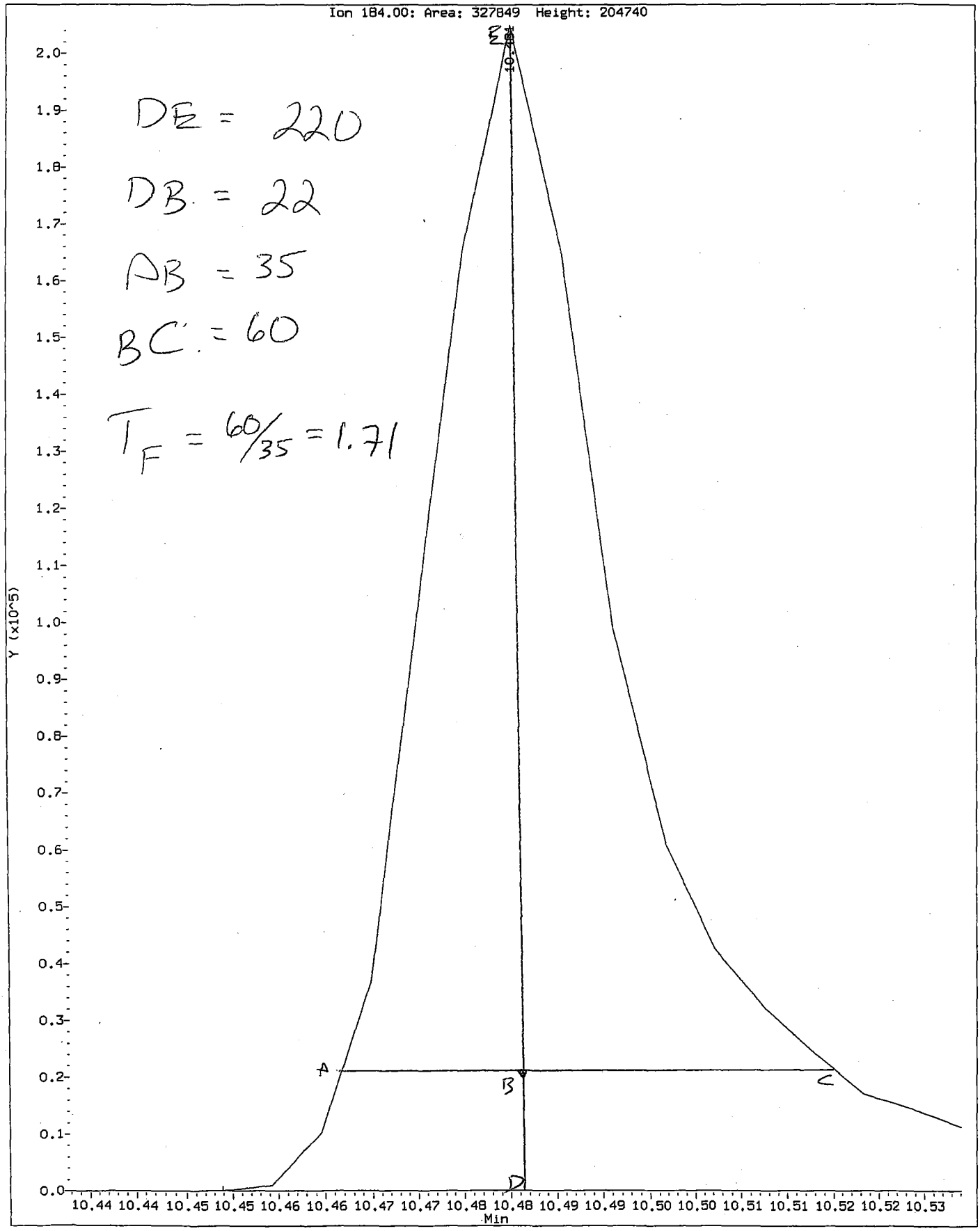
Data File: /chem1/nt12.i/20101030.b/ddt.b/df1030a.d
Injection Date: 30-OCT-2010 11:05
Instrument: nt12.i
Client Sample ID:

Compound: Pentachlorophenol
CAS Number: 87-86-5



Data File: /chem1/nt12.i/20101030.b/ddt.b/df1030a.d
Injection Date: 30-OCT-2010 11:05
Instrument: nt12.i
Client Sample ID:

Compound: Benzidine
CAS Number:



Analytical Resources Inc.
ABN by sw846 8270C
DDT Breakdown Report

Data file: /chem1/nt12.i/20101030.b/ddt.b/df1030a.d ARI ID:
Method: /chem1/nt12.i/20101030.b/ddt.b/sw846ddt.m Misc:
Analysis Date: 30-OCT-2010 11:05 Instrument: nt12.i

COMPOUND	RT	AREA
Pentachlorophenol	8.681	66572
Benzidine	10.481	327849
4,4'-DDE	10.769	524
4,4'-DDD	11.165	7879
4,4'-DDT	11.512	195029

$$\text{DDT Percent Breakdown} = \frac{(\text{DDE Area} + \text{DDD Area}) * 100}{(\text{DDE Area} + \text{DDD Area} + \text{DDT Area})}$$

$$\text{DDT Percent Breakdown} = \frac{(524 + 7879) * 100}{(524 + 7879 + 195029)}$$

DDT Percent Breakdown = 4.1 %

Analytical Resources, Inc.
RETENTION TIME SUMMARY REPORT

Method File: /chem1/nt12.i/20101030.b/PNA.m
Batch File: /chem1/nt12.i/20101030.b
Inst ID: nt12.i

	Compound	RT01	RT02	RT03	RT04	RT05	RT06	EXPEC RT	RT WINDOW	AVG RT	STD DEV
	6 2-Chlorophenol	+++++	+++++	+++++	+++++	+++++	+++++	7.755	4.755-10.755	+++++	+++++
	7 1,3-Dichlorobenzene	+++++	+++++	+++++	+++++	+++++	+++++	7.969	4.969-10.969	+++++	+++++
*	8 1,4-Dichlorobenzene-d4	8.835	8.841	+++++	8.835	8.830	8.830	8.835	5.835-11.835	8.834	0.005
	9 1,4-Dichlorobenzene	+++++	+++++	+++++	+++++	+++++	+++++	8.060	5.060-11.060	+++++	+++++
$	10 1,2-Dichlorobenzene-d4	+++++	+++++	+++++	+++++	+++++	+++++	8.332	5.332-11.332	+++++	+++++
	11 Benzyl alcohol	+++++	+++++	+++++	+++++	+++++	+++++	8.321	5.321-11.321	+++++	+++++
	12 1,2-Dichlorobenzene	+++++	+++++	+++++	+++++	+++++	+++++	8.353	5.353-11.353	+++++	+++++
	13 2-Methylphenol	+++++	+++++	+++++	+++++	+++++	+++++	8.556	5.556-11.556	+++++	+++++
	14 2,2'-oxybis(1-Chloropr	+++++	+++++	+++++	+++++	+++++	+++++	8.583	5.583-11.583	+++++	+++++
	15 4-Methylphenol	+++++	+++++	+++++	+++++	+++++	+++++	8.791	5.791-11.791	+++++	+++++
	16 N-Nitroso-di-n-propyla	+++++	+++++	+++++	+++++	+++++	+++++	8.802	5.802-11.802	+++++	+++++
	17 Hexachloroethane	+++++	+++++	+++++	+++++	+++++	+++++	8.845	5.845-11.845	+++++	+++++
$	18 Nitrobenzene-d5	+++++	+++++	+++++	+++++	+++++	+++++	8.968	5.968-11.968	+++++	+++++
	19 Nitrobenzene	+++++	+++++	+++++	+++++	+++++	+++++	9.000	6.000-12.000	+++++	+++++
	20 Isophorone	+++++	+++++	+++++	+++++	+++++	+++++	9.384	6.384-12.384	+++++	+++++
	21 2-Nitrophenol	+++++	+++++	+++++	+++++	+++++	+++++	9.518	6.518-12.518	+++++	+++++
	22 2,4-Dimethylphenol	+++++	+++++	+++++	+++++	+++++	+++++	9.630	6.630-12.630	+++++	+++++
	23 Bis(2-Chloroethoxy)met	+++++	+++++	+++++	+++++	+++++	+++++	9.779	6.779-12.779	+++++	+++++
	24 Benzoic acid	+++++	+++++	+++++	+++++	+++++	+++++	9.870	6.870-12.870	+++++	+++++
	25 2,4-Dichlorophenol	+++++	+++++	+++++	+++++	+++++	+++++	9.902	6.902-12.902	+++++	+++++
	26 1,2,4-Trichlorobenzene	+++++	+++++	+++++	+++++	+++++	+++++	10.030	7.030-13.030	+++++	+++++
*	27 Naphthalene-d8	4.925	4.925	4.925	4.925	4.925	4.925	4.925	1.925-7.925	4.925	0.000
	28 Naphthalene	4.946	4.952	4.946	4.951	4.946	4.946	4.946	1.946-7.946	4.948	0.003
	29 4-Chloroaniline	+++++	+++++	+++++	+++++	+++++	+++++	10.266	7.266-13.266	+++++	+++++

VB 10.30.10

AB 11/12/10

8597.0591

Analytical Resources, Inc.
RETENTION TIME SUMMARY REPORT

Method File: /chem1/nt12.i/20101030.b/PNA.m
Batch File: /chem1/nt12.i/20101030.b
Inst ID: nt12.i

Compound	RT01	RT02	RT03	RT04	RT05	RT06	EXPEC RT	RT WINDOW	AVG RT	STD DEV
30 Hexachlorobutadiene	+++++	+++++	+++++	+++++	+++++	+++++	10.442	7.442-13.442	+++++	+++++
31 4-Chloro-3-methylpheno	+++++	+++++	+++++	+++++	+++++	+++++	11.077	8.077-14.077	+++++	+++++
32 2-Methylnaphthalene	5.769	5.774	5.769	5.769	5.769	5.763	5.769	2.769-8.769	5.769	0.003
33 Hexachlorocyclopentadi	+++++	+++++	+++++	+++++	+++++	+++++	11.633	8.633-14.633	+++++	+++++
34 2,4,6-Trichlorophenol	+++++	+++++	+++++	+++++	+++++	+++++	11.761	8.761-14.761	+++++	+++++
35 2,4,5-Trichlorophenol	+++++	+++++	+++++	+++++	+++++	+++++	11.820	8.820-14.820	+++++	+++++
$ 36 2-Fluorobiphenyl	6.239	6.244	6.244	6.244	6.239	6.239	6.239	3.239-9.239	6.242	0.003
37 2-Chloronaphthalene	+++++	+++++	+++++	+++++	+++++	+++++	12.028	9.028-15.028	+++++	+++++
38 2-Nitroaniline	+++++	+++++	+++++	+++++	+++++	+++++	12.263	9.263-15.263	+++++	+++++
39 Dimethylphthalate	+++++	+++++	+++++	+++++	+++++	+++++	12.642	9.642-15.642	+++++	+++++
40 Acenaphthylene	6.843	6.853	6.848	6.848	6.843	6.843	6.843	3.843-9.843	6.846	0.004
41 2,6-Dinitrotoluene	+++++	+++++	+++++	+++++	+++++	+++++	12.733	9.733-15.733	+++++	+++++
* 42 Acenaphthene-d10	7.030	7.035	7.030	7.035	7.030	7.030	7.030	4.030-10.030	7.031	0.003
43 3-Nitroaniline	+++++	+++++	+++++	+++++	+++++	+++++	12.947	9.947-15.947	+++++	+++++
44 Acenaphthene	7.072	7.078	7.067	7.072	7.067	7.067	7.072	4.072-10.072	7.071	0.004
45 2,4-Dinitrophenol	+++++	+++++	+++++	+++++	+++++	+++++	13.107	10.107-16.107	+++++	+++++
46 Dibenzofuran	7.265	7.275	7.270	7.270	7.265	7.265	7.265	4.265-10.265	7.268	0.004
47 4-Nitrophenol	+++++	+++++	+++++	+++++	+++++	+++++	13.251	10.251-16.251	+++++	+++++
48 2,4-Dinitrotoluene	+++++	+++++	+++++	+++++	+++++	+++++	13.363	10.363-16.363	+++++	+++++
49 Fluorene	7.681	7.687	7.681	7.687	7.681	7.681	7.681	4.681-10.681	7.683	0.003
50 Diethylphthalate	+++++	+++++	+++++	+++++	+++++	+++++	13.801	10.801-16.801	+++++	+++++
51 4-Chlorophenyl-phenyle	+++++	+++++	+++++	+++++	+++++	+++++	13.860	10.860-16.860	+++++	+++++
52 4-Nitroaniline	+++++	+++++	+++++	+++++	+++++	+++++	13.945	10.945-16.945	+++++	+++++
53 4,6-Dinitro-2-methylph	+++++	+++++	+++++	+++++	+++++	+++++	14.020	11.020-17.020	+++++	+++++

05198.7658

Analytical Resources, Inc.
RETENTION TIME SUMMARY REPORT

Method File: /chem1/nt12.i/20101030.b/PNA.m
Batch File: /chem1/nt12.i/20101030.b
Inst ID: nt12.i

	Compound	RT01	RT02	RT03	RT04	RT05	RT06	EXPEC RT	RT WINDOW	AVG RT	STD DEV
	54 N-Nitrosodiphenylamine	+++++	+++++	+++++	+++++	+++++	+++++	14.068	11.068-17.068	+++++	+++++
$	55 2,4,6-Tribromophenol	+++++	+++++	+++++	+++++	+++++	+++++	14.261	11.261-17.261	+++++	+++++
	56 4-Bromophenyl-phenylet	+++++	+++++	+++++	+++++	+++++	+++++	14.645	11.645-17.645	+++++	+++++
	57 Hexachlorobenzene	+++++	+++++	+++++	+++++	+++++	+++++	14.864	11.864-17.864	+++++	+++++
	58 Pentachlorophenol	+++++	+++++	+++++	+++++	+++++	+++++	15.163	12.163-18.163	+++++	+++++
*	59 Phenanthrene-d10	8.803	8.809	8.803	8.809	8.803	8.803	8.803	5.803-11.803	8.805	0.003
	60 Phenanthrene	8.835	8.841	8.830	8.835	8.830	8.830	8.835	5.835-11.835	8.833	0.004
	61 Anthracene	8.889	8.900	8.894	8.894	8.889	8.889	8.889	5.889-11.889	8.892	0.004
	62 Carbazole	9.108	9.119	9.124	9.108	9.113	9.108	9.108	6.108-12.108	9.113	0.007
	63 Di-n-butylphthalate	+++++	+++++	+++++	+++++	+++++	+++++	16.461	13.461-19.461	+++++	+++++
	64 Fluoranthene	10.283	10.294	10.288	10.283	10.283	10.283	10.283	7.283-13.283	10.286	0.005
	65 Pyrene	10.550	10.561	10.550	10.550	10.550	10.545	10.550	7.550-13.550	10.551	0.005
$	66 Terphenyl-d14	10.785	10.791	10.785	10.785	10.785	10.780	10.785	7.785-13.785	10.785	0.003
	67 Butylbenzylphthalate	+++++	+++++	+++++	+++++	+++++	+++++	18.886	15.886-21.886	+++++	+++++
	68 Benzo(a)anthracene	12.014	12.025	12.014	12.019	12.014	12.014	12.014	9.014-15.014	12.017	0.005
*	69 Chrysene-d12	12.035	12.046	12.035	12.035	12.035	12.035	12.035	9.035-15.035	12.037	0.004
	70 3,3'-Dichlorobenzidine	+++++	+++++	+++++	+++++	+++++	+++++	19.660	16.660-22.660	+++++	+++++
	71 Chrysene	12.062	12.078	12.062	12.067	12.062	12.062	12.062	9.062-15.062	12.066	0.007
	72 bis(2-Ethylhexyl)phtha	+++++	+++++	+++++	+++++	+++++	+++++	19.885	16.885-22.885	+++++	+++++
	73 Di-n-octylphthalate	+++++	+++++	+++++	+++++	+++++	+++++	20.830	17.830-23.830	+++++	+++++
	74 Benzo(b)fluoranthene	+++++	+++++	+++++	+++++	+++++	+++++	13.139	10.139-16.139	+++++	+++++
	75 Benzo(k)fluoranthene	+++++	+++++	+++++	+++++	+++++	+++++	13.139	10.139-16.139	+++++	+++++
	76 Benzo(a)pyrene	13.595	13.606	13.595	13.601	13.595	13.595	13.595	10.595-16.595	13.598	0.005
*	77 Perylene-d12	13.654	13.665	13.654	13.654	13.654	13.654	13.654	10.654-16.654	13.656	0.004

DS97 : 09151

Analytical Resources, Inc.
RETENTION TIME SUMMARY REPORT

Method File: /chem1/nt12.i/20101030.b/PNA.m
Batch File: /chem1/nt12.i/20101030.b
Inst ID: nt12.i

Compound	RT01	RT02	RT03	RT04	RT05	RT06	EXPEC RT	RT WINDOW	AVG RT	STD DEV
78 Indeno(1,2,3-cd)pyrene	14.771	14.813	14.781	14.781	14.771	14.770	14.771	11.771-17.771	14.781	0.017
79 Dibenzo(a,h)anthracene	14.781	14.813	14.781	14.787	14.776	14.776	14.781	11.781-17.781	14.786	0.014
80 Benzo(g,h,i)perylene	15.075	15.107	15.080	15.080	15.070	15.070	15.075	12.075-18.075	15.080	0.014
$ 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	+++++	+++++	+++++	+++++	+++++	+++++	3.333	0.333-6.333	+++++	+++++
91 Aniline	+++++	+++++	+++++	+++++	+++++	+++++	7.584	4.584-10.584	+++++	+++++
92 1,2-Diphenylhydrazine	+++++	+++++	+++++	+++++	+++++	+++++	56.160	53.160-59.160	+++++	+++++
93 Benzidine	+++++	+++++	+++++	+++++	+++++	+++++	17.577	14.577-20.577	+++++	+++++
$ 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	+++++	+++++	+++++	+++++	+++++	+++++	18.245	15.245-21.245	+++++	+++++
99 Perylene	13.681	13.697	13.681	13.686	13.675	13.675	13.681	10.681-16.681	13.682	0.008
100 3-beta-Coprostanol	+++++	+++++	+++++	+++++	+++++	+++++	18.717	15.717-21.717	+++++	+++++
101 Cholesterol	+++++	+++++	+++++	+++++	+++++	+++++	22.964	19.964-25.964	+++++	+++++
102 beta-Sitosterol	+++++	+++++	+++++	+++++	+++++	+++++	79.550	76.550-82.550	+++++	+++++
103 Pyridine	+++++	+++++	+++++	+++++	+++++	+++++	3.301	0.301-6.301	+++++	+++++
187 Total Benzofluoranthen	13.285	13.302	13.280	13.285	13.280	13.259	13.285	10.285-16.285	13.282	0.014

PS97.09152

Analytical Resources, Inc.

INITIAL CALIBRATION DATA

Start Cal Date : 30-OCT-2010 11:27
End Cal Date : 30-OCT-2010 13:19
Quant Method : ISTD
Origin : Disabled
Target Version : 3.50
Integrator : HP RTE
Method file : /chem1/nt12.i/20101030.b/DMD.b/PNADMD.m
Cal Date : 06-Nov-2010 11:48 van
Curve Type : Average

Calibration File Names:
Level 1: /chem1/nt12.i/20101030.b/DMD.b/ic1030c.d
Level 2: /chem1/nt12.i/20101030.b/DMD.b/ic1030e.d
Level 3: /chem1/nt12.i/20101030.b/DMD.b/ic1030f.d
Level 4: /chem1/nt12.i/20101030.b/DMD.b/ic1030a.d
Level 5: /chem1/nt12.i/20101030.b/DMD.b/ic1030d.d
Level 6: /chem1/nt12.i/20101030.b/DMD.b/ic1030b.d

Compound	1.000 Level 1	5.000 Level 2	10.000 Level 3	25.000 Level 4	40.000 Level 5	80.000 Level 6	RRF	% RSD	
186 Carbaryl	+++++	+++++	+++++	+++++	+++++	+++++	+++++	+++++	<-
179 n-Decane	+++++	+++++	+++++	+++++	+++++	+++++	+++++	+++++	<-
180 n-Octadecane	+++++	+++++	+++++	+++++	+++++	+++++	+++++	+++++	<-
169 4-tert-Butylphenol	+++++	+++++	+++++	+++++	+++++	+++++	+++++	+++++	
170 N,N-Dimethylaniline	+++++	+++++	+++++	+++++	+++++	+++++	+++++	+++++	
171 2,3-Dimethylaniline	+++++	+++++	+++++	+++++	+++++	+++++	+++++	+++++	
172 2,4-Dimethylaniline	+++++	+++++	+++++	+++++	+++++	+++++	+++++	+++++	
173 2,5-Dimethylaniline	+++++	+++++	+++++	+++++	+++++	+++++	+++++	+++++	
174 2,6-Dimethylaniline	+++++	+++++	+++++	+++++	+++++	+++++	+++++	+++++	
175 3,4-Dimethylaniline	+++++	+++++	+++++	+++++	+++++	+++++	+++++	+++++	
176 3,5-Dimethylaniline	+++++	+++++	+++++	+++++	+++++	+++++	+++++	+++++	
177 p-Benzoquinone	+++++	+++++	+++++	+++++	+++++	+++++	+++++	+++++	
168 Pentachlorobenzene	+++++	+++++	+++++	+++++	+++++	+++++	+++++	+++++	<-
145 4,4'-DDE	+++++	+++++	+++++	+++++	+++++	+++++	+++++	+++++	
146 4,4'-DDD	+++++	+++++	+++++	+++++	+++++	+++++	+++++	+++++	
147 4,4'-DDT	+++++	+++++	+++++	+++++	+++++	+++++	+++++	+++++	
148 Dieldrin	+++++	+++++	+++++	+++++	+++++	+++++	+++++	+++++	
149 TCMX	+++++	+++++	+++++	+++++	+++++	+++++	+++++	+++++	
150 DCBP	+++++	+++++	+++++	+++++	+++++	+++++	+++++	+++++	
138 Chlorobenzilate	+++++	+++++	+++++	+++++	+++++	+++++	+++++	+++++	
139 Isodrin	+++++	+++++	+++++	+++++	+++++	+++++	+++++	+++++	

Analytical Resources, Inc.

INITIAL CALIBRATION DATA

Start Cal Date : 30-OCT-2010 11:27
End Cal Date : 30-OCT-2010 13:19
Quant Method : ISTD
Origin : Disabled
Target Version : 3.50
Integrator : HP RTE
Method file : /chem1/nt12.i/20101030.b/DMD.b/PNADMD.m
Cal Date : 06-Nov-2010 11:48 van
Curve Type : Average

Compound	1.000 Level 1	5.000 Level 2	10.000 Level 3	25.000 Level 4	40.000 Level 5	80.000 Level 6	___ RRF	% RSD	
140 Diallate A	++++++	++++++	++++++	++++++	++++++	++++++	++++++	++++++	
141 Diallate B	++++++	++++++	++++++	++++++	++++++	++++++	++++++	++++++	
142 1,2-Dibromo-3-Chloropropane	++++++	++++++	++++++	++++++	++++++	++++++	++++++	++++++	
135 2,3,5,6-Tetrachlorophenol	++++++	++++++	++++++	++++++	++++++	++++++	++++++	++++++	
136 2,3,4,5-tetrachlorophenol	++++++	++++++	++++++	++++++	++++++	++++++	++++++	++++++	
133 Butylatedhydroxytoluene	++++++	++++++	++++++	++++++	++++++	++++++	++++++	++++++	<-
132 3,6-Dimethylphenanthrene	++++++	++++++	++++++	++++++	++++++	++++++	++++++	++++++	
131 1-Methylphenanthrene	++++++	++++++	++++++	++++++	++++++	++++++	++++++	++++++	
130 Dibenzothiophene	++++++	++++++	++++++	++++++	++++++	++++++	++++++	++++++	
129 1-Methylfluorene	++++++	++++++	++++++	++++++	++++++	++++++	++++++	++++++	
128 N-Hexadecane	++++++	++++++	++++++	++++++	++++++	++++++	++++++	++++++	
127 2-Isopropylnaphthalene	++++++	++++++	++++++	++++++	++++++	++++++	++++++	++++++	
126 N-Tetradecane	++++++	++++++	++++++	++++++	++++++	++++++	++++++	++++++	
144 alpha-Terpineol	++++++	++++++	++++++	++++++	++++++	++++++	++++++	++++++	<-
125 Safrole	++++++	++++++	++++++	++++++	++++++	++++++	++++++	++++++	
124 3,4-Dimethylphenol	++++++	++++++	++++++	++++++	++++++	++++++	++++++	++++++	
123 Acetophenone	++++++	++++++	++++++	++++++	++++++	++++++	++++++	++++++	<-
122 Furfuraldehyde	++++++	++++++	++++++	++++++	++++++	++++++	++++++	++++++	
143 1,4-Dioxane	++++++	++++++	++++++	++++++	++++++	++++++	++++++	++++++	<-
121 Quinoline	++++++	++++++	++++++	++++++	++++++	++++++	++++++	++++++	
120 2,3,4,6-Tetrachlorophenol	++++++	++++++	++++++	++++++	++++++	++++++	++++++	++++++	<-
178 2-Benzyl-4-Chlorophenol	++++++	++++++	++++++	++++++	++++++	++++++	++++++	++++++	
119 7,12-Dimethylbenz(a)anthracen	++++++	++++++	++++++	++++++	++++++	++++++	++++++	++++++	
118 Triphenyl Phosphate	++++++	++++++	++++++	++++++	++++++	++++++	++++++	++++++	<-
117 Butyl Diphenyl Phosphate	++++++	++++++	++++++	++++++	++++++	++++++	++++++	++++++	<-
116 Dibutyl Phenyl Phosphate	++++++	++++++	++++++	++++++	++++++	++++++	++++++	++++++	<-
115 Tributyl Phosphate	++++++	++++++	++++++	++++++	++++++	++++++	++++++	++++++	<-
114 Beta-Pinene	++++++	++++++	++++++	++++++	++++++	++++++	++++++	++++++	
113 Diphenyl Oxide	++++++	++++++	++++++	++++++	++++++	++++++	++++++	++++++	<-

Analytical Resources, Inc.

INITIAL CALIBRATION DATA

Start Cal Date : 30-OCT-2010 11:27
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Quant Method : ISTD
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Target Version : 3.50
Integrator : HP RTE
Method file : /chem1/nt12.i/20101030.b/DMD.b/PNADMD.m
Cal Date : 06-Nov-2010 11:48 van
Curve Type : Average

Compound	1.000 Level 1	5.000 Level 2	10.000 Level 3	25.000 Level 4	40.000 Level 5	80.000 Level 6	___ RRF	% RSD	
112 Biphenyl	++++++	++++++	++++++	++++++	++++++	++++++	++++++	++++++	<-
111 Azobenzene (1,2-DP-Hydrazine)	++++++	++++++	++++++	++++++	++++++	++++++	++++++	++++++	<-
110 Tetrachloroguaiacol	++++++	++++++	++++++	++++++	++++++	++++++	++++++	++++++	<-
109 3,4,5-Trichloroguaiacol	++++++	++++++	++++++	++++++	++++++	++++++	++++++	++++++	<-
181 3,4,6-Trichloroguaiacol	++++++	++++++	++++++	++++++	++++++	++++++	++++++	++++++	<-
108 4,5,6-Trichloroguaiacol	++++++	++++++	++++++	++++++	++++++	++++++	++++++	++++++	<-
184 3,4-Dichloroguaiacol	++++++	++++++	++++++	++++++	++++++	++++++	++++++	++++++	<-
107 4,5-Dichloroguaiacol	++++++	++++++	++++++	++++++	++++++	++++++	++++++	++++++	<-
182 4,6-Dichloroguaiacol	++++++	++++++	++++++	++++++	++++++	++++++	++++++	++++++	<-
185 4-Chloroguaiacol	++++++	++++++	++++++	++++++	++++++	++++++	++++++	++++++	<-
106 Guaiacol	++++++	++++++	++++++	++++++	++++++	++++++	++++++	++++++	<-
105 1-methylnaphthalene	0.63604	0.65600	0.59555	0.63300	0.62760	0.61057	0.62646	3.361	
151 1,2,4,5-Tetrachlorobenzene	++++++	++++++	++++++	++++++	++++++	++++++	++++++	++++++	<-
152 Benzo(e)pyrene	++++++	++++++	++++++	++++++	++++++	++++++	++++++	++++++	
153 Chlorpyrifos	++++++	++++++	++++++	++++++	++++++	++++++	++++++	++++++	
154 Diazinon	++++++	++++++	++++++	++++++	++++++	++++++	++++++	++++++	
155 Kelthane	++++++	++++++	++++++	++++++	++++++	++++++	++++++	++++++	
156 Methyl Parathion	++++++	++++++	++++++	++++++	++++++	++++++	++++++	++++++	
157 Ethyl Parathion	++++++	++++++	++++++	++++++	++++++	++++++	++++++	++++++	
158 Ethion	++++++	++++++	++++++	++++++	++++++	++++++	++++++	++++++	
159 4-Nonylphenol	++++++	++++++	++++++	++++++	++++++	++++++	++++++	++++++	
160 Tetraethyl Tin	++++++	++++++	++++++	++++++	++++++	++++++	++++++	++++++	
161 1,2,3-Trichloronaphthalene	++++++	++++++	++++++	++++++	++++++	++++++	++++++	++++++	
162 1,2,3,4-Tetrachloronapthalene	++++++	++++++	++++++	++++++	++++++	++++++	++++++	++++++	
163 1,2,3,5,8-Pentachloronaphthal	++++++	++++++	++++++	++++++	++++++	++++++	++++++	++++++	
164 1,2,3,4,6,7-Hexachloronaphtha	++++++	++++++	++++++	++++++	++++++	++++++	++++++	++++++	
165 1,2,3,4,5,6,7-Heptachloronaph	++++++	++++++	++++++	++++++	++++++	++++++	++++++	++++++	
166 Octachloronaphthalene	++++++	++++++	++++++	++++++	++++++	++++++	++++++	++++++	
167 2,2',4,4',5-Pentabromobipheny	++++++	++++++	++++++	++++++	++++++	++++++	++++++	++++++	

Analytical Resources, Inc.

INITIAL CALIBRATION DATA

Start Cal Date : 30-OCT-2010 11:27
End Cal Date : 30-OCT-2010 13:19
Quant Method : ISTD
Origin : Disabled
Target Version : 3.50
Integrator : HP RTE
Method file : /chem1/nt12.i/20101030.b/DMD.b/PNADMD.m
Cal Date : 06-Nov-2010 11:48 van
Curve Type : Average

Compound	1.000 Level 1	5.000 Level 2	10.000 Level 3	25.000 Level 4	40.000 Level 5	80.000 Level 6	RRF	% RSD	
3 Phenol	+++++	+++++	+++++	+++++	+++++	+++++	+++++	+++++	<-
4 Bis(2-Chloroethyl)ether	+++++	+++++	+++++	+++++	+++++	+++++	+++++	+++++	<-
6 2-Chlorophenol	+++++	+++++	+++++	+++++	+++++	+++++	+++++	+++++	<-
7 1,3-Dichlorobenzene	+++++	+++++	+++++	+++++	+++++	+++++	+++++	+++++	<-
9 1,4-Dichlorobenzene	+++++	+++++	+++++	+++++	+++++	+++++	+++++	+++++	<-
11 Benzyl alcohol	+++++	+++++	+++++	+++++	+++++	+++++	+++++	+++++	<-
12 1,2-Dichlorobenzene	+++++	+++++	+++++	+++++	+++++	+++++	+++++	+++++	<-
13 2-Methylphenol	+++++	+++++	+++++	+++++	+++++	+++++	+++++	+++++	<-
14 2,2'-oxybis(1-Chloropropane)	+++++	+++++	+++++	+++++	+++++	+++++	+++++	+++++	<-
15 4-Methylphenol	+++++	+++++	+++++	+++++	+++++	+++++	+++++	+++++	<-
16 N-Nitroso-di-n-propylamine	+++++	+++++	+++++	+++++	+++++	+++++	+++++	+++++	<-
17 Hexachloroethane	+++++	+++++	+++++	+++++	+++++	+++++	+++++	+++++	<-
19 Nitrobenzene	+++++	+++++	+++++	+++++	+++++	+++++	+++++	+++++	<-
20 Isophorone	+++++	+++++	+++++	+++++	+++++	+++++	+++++	+++++	<-
21 2-Nitrophenol	+++++	+++++	+++++	+++++	+++++	+++++	+++++	+++++	<-
22 2,4-Dimethylphenol	+++++	+++++	+++++	+++++	+++++	+++++	+++++	+++++	<-
23 Bis(2-Chloroethoxy)methane	+++++	+++++	+++++	+++++	+++++	+++++	+++++	+++++	<-
24 Benzoic acid	+++++	+++++	+++++	+++++	+++++	+++++	+++++	+++++	<-
25 2,4-Dichlorophenol	+++++	+++++	+++++	+++++	+++++	+++++	+++++	+++++	<-
26 1,2,4-Trichlorobenzene	+++++	+++++	+++++	+++++	+++++	+++++	+++++	+++++	<-
28 Naphthalene	1.15456	1.19377	1.11342	1.15248	1.15417	1.06134	1.13829	3.994	
29 4-Chloroaniline	+++++	+++++	+++++	+++++	+++++	+++++	+++++	+++++	<-
30 Hexachlorobutadiene	+++++	+++++	+++++	+++++	+++++	+++++	+++++	+++++	<-
31 4-Chloro-3-methylphenol	+++++	+++++	+++++	+++++	+++++	+++++	+++++	+++++	<-
32 2-Methylnaphthalene	0.51336	0.63301	0.60569	0.64423	0.63499	0.61414	0.60757	7.950	
33 Hexachlorocyclopentadiene	+++++	+++++	+++++	+++++	+++++	+++++	+++++	+++++	<-
34 2,4,6-Trichlorophenol	+++++	+++++	+++++	+++++	+++++	+++++	+++++	+++++	<-
35 2,4,5-Trichlorophenol	+++++	+++++	+++++	+++++	+++++	+++++	+++++	+++++	<-
37 2-Chloronaphthalene	+++++	+++++	+++++	+++++	+++++	+++++	+++++	+++++	<-

Analytical Resources, Inc.

INITIAL CALIBRATION DATA

Start Cal Date : 30-OCT-2010 11:27
End Cal Date : 30-OCT-2010 13:19
Quant Method : ISTD
Origin : Disabled
Target Version : 3.50
Integrator : HP RTE
Method file : /chem1/nt12.i/20101030.b/DMD.b/PNADMD.m
Cal Date : 06-Nov-2010 11:48 van
Curve Type : Average

Compound	1.000 Level 1	5.000 Level 2	10.000 Level 3	25.000 Level 4	40.000 Level 5	80.000 Level 6	RRF	% RSD	
38 2-Nitroaniline	+++++	+++++	+++++	+++++	+++++	+++++	+++++	+++++	<-
39 Dimethylphthalate	+++++	+++++	+++++	+++++	+++++	+++++	+++++	+++++	<-
40 Acenaphthylene	2.02261	2.06748	1.99852	2.02562	1.98831	1.91387	2.00273	2.569	
41 2,6-Dinitrotoluene	+++++	+++++	+++++	+++++	+++++	+++++	+++++	+++++	<-
43 3-Nitroaniline	+++++	+++++	+++++	+++++	+++++	+++++	+++++	+++++	<-
44 Acenaphthene	1.27744	1.25948	1.20671	1.20850	1.22982	1.19802	1.23000	2.608	
45 2,4-Dinitrophenol	+++++	+++++	+++++	+++++	+++++	+++++	+++++	+++++	<-
46 Dibenzofuran	1.84481	1.93713	1.86727	1.91127	1.91551	1.84080	1.88613	2.149	
47 4-Nitrophenol	+++++	+++++	+++++	+++++	+++++	+++++	+++++	+++++	<-
48 2,4-Dinitrotoluene	+++++	+++++	+++++	+++++	+++++	+++++	+++++	+++++	<-
49 Fluorene	1.33737	1.39670	1.40050	1.43789	1.43815	1.43916	1.40830	2.831	
50 Diethylphthalate	+++++	+++++	+++++	+++++	+++++	+++++	+++++	+++++	<-
51 4-Chlorophenyl-phenylether	+++++	+++++	+++++	+++++	+++++	+++++	+++++	+++++	<-
52 4-Nitroaniline	+++++	+++++	+++++	+++++	+++++	+++++	+++++	+++++	<-
53 4,6-Dinitro-2-methylphenol	+++++	+++++	+++++	+++++	+++++	+++++	+++++	+++++	<-
54 N-Nitrosodiphenylamine	+++++	+++++	+++++	+++++	+++++	+++++	+++++	+++++	<-
56 4-Bromophenyl-phenylether	+++++	+++++	+++++	+++++	+++++	+++++	+++++	+++++	<-
57 Hexachlorobenzene	+++++	+++++	+++++	+++++	+++++	+++++	+++++	+++++	<-
58 Pentachlorophenol	+++++	+++++	+++++	+++++	+++++	+++++	+++++	+++++	<-
60 Phenanthrene	1.10242	1.07865	1.04637	1.06954	1.06858	1.00053	1.06102	3.272	
61 Anthracene	1.14780	1.11042	1.09238	1.10904	1.10427	1.01561	1.09658	3.997	
62 Carbazole	0.88969	0.86309	0.89297	0.88670	0.89887	0.87644	0.88463	1.460	
63 Di-n-butylphthalate	+++++	+++++	+++++	+++++	+++++	+++++	+++++	+++++	<-
64 Fluoranthene	1.29682	1.33971	1.33947	1.47880	1.54575	1.38162	1.39703	6.842	
65 Pyrene	1.31075	1.35939	1.33450	1.46039	1.49679	1.35391	1.38595	5.386	
67 Butylbenzylphthalate	+++++	+++++	+++++	+++++	+++++	+++++	+++++	+++++	<-
68 Benzo(a)anthracene	1.18475	1.16104	1.09555	1.10793	1.11670	1.07303	1.12317	3.731	
70 3,3'-Dichlorobenzidine	+++++	+++++	+++++	+++++	+++++	+++++	+++++	+++++	<-
71 Chrysene	1.19996	1.11206	1.00852	1.03817	0.98624	0.95543	1.05006	8.646	

Analytical Resources, Inc.

INITIAL CALIBRATION DATA

Start Cal Date : 30-OCT-2010 11:27
End Cal Date : 30-OCT-2010 13:19
Quant Method : ISTD
Origin : Disabled
Target Version : 3.50
Integrator : HP RTE
Method file : /chem1/nt12.i/20101030.b/DMD.b/PNADMD.m
Cal Date : 06-Nov-2010 11:48 van
Curve Type : Average

Compound	1.000 Level 1	5.000 Level 2	10.000 Level 3	25.000 Level 4	40.000 Level 5	80.000 Level 6	___ RRF	% RSD	
72 bis(2-Ethylhexyl)phthalate	+++++	+++++	+++++	+++++	+++++	+++++	+++++	+++++	<-
73 Di-n-octylphthalate	+++++	+++++	+++++	+++++	+++++	+++++	+++++	+++++	<-
74 Benzo(b)fluoranthene	+++++	+++++	+++++	+++++	+++++	+++++	+++++	+++++	<-
75 Benzo(k)fluoranthene	+++++	+++++	+++++	+++++	+++++	+++++	+++++	+++++	<-
76 Benzo(a)pyrene	1.08246	1.12610	1.07909	1.10698	1.10576	1.06547	1.09431	2.046	
78 Indeno(1,2,3-cd)pyrene	1.37797	1.54594	1.53636	1.71405	1.82850	1.74524	1.62468	10.260	
79 Dibenzo(a,h)anthracene	1.17715	1.26618	1.24137	1.37679	1.48910	1.47489	1.33758	9.658	
80 Benzo(g,h,i)perylene	1.28714	1.32715	1.24759	1.37746	1.45681	1.31203	1.33470	5.522	
90 N-Nitrosodimethylamine	+++++	+++++	+++++	+++++	+++++	+++++	+++++	+++++	<-
91 Aniline	+++++	+++++	+++++	+++++	+++++	+++++	+++++	+++++	<-
92 1,2-Diphenylhydrazine	+++++	+++++	+++++	+++++	+++++	+++++	+++++	+++++	
93 Benzidine	+++++	+++++	+++++	+++++	+++++	+++++	+++++	+++++	<-
96 p-Cymene	+++++	+++++	+++++	+++++	+++++	+++++	+++++	+++++	
97 Caffeine	+++++	+++++	+++++	+++++	+++++	+++++	+++++	+++++	
98 Retene	+++++	+++++	+++++	+++++	+++++	+++++	+++++	+++++	<-
99 Perylene	1.19603	1.17199	1.14159	1.16693	1.15755	1.14800	1.16368	1.674	
100 3-beta-Coprostanol	+++++	+++++	+++++	+++++	+++++	+++++	+++++	+++++	
101 Cholesterol	+++++	+++++	+++++	+++++	+++++	+++++	+++++	+++++	
102 beta-Sitosterol	+++++	+++++	+++++	+++++	+++++	+++++	+++++	+++++	
103 Pyridine	+++++	+++++	+++++	+++++	+++++	+++++	+++++	+++++	<-
187 Total Benzofluoranthenes	1.18423	1.22294	1.17837	1.18651	1.21088	1.16452	1.19124	1.817	
$ 1 2-Fluorophenol	+++++	+++++	+++++	+++++	+++++	+++++	+++++	+++++	<-
$ 137 d8-1,4-Dioxane	+++++	+++++	+++++	+++++	+++++	+++++	+++++	+++++	<-
$ 2 Phenol-d5	+++++	+++++	+++++	+++++	+++++	+++++	+++++	+++++	<-
$ 5 2-Chlorophenol-d4	+++++	+++++	+++++	+++++	+++++	+++++	+++++	+++++	<-
$ 10 1,2-Dichlorobenzene-d4	+++++	+++++	+++++	+++++	+++++	+++++	+++++	+++++	<-
$ 18 Nitrobenzene-d5	+++++	+++++	+++++	+++++	+++++	+++++	+++++	+++++	<-
$ 36 2-Fluorobiphenyl	1.28067	1.61765	1.56619	1.59777	1.62430	1.54541	1.53867	8.445	

Analytical Resources, Inc.

INITIAL CALIBRATION DATA

Start Cal Date : 30-OCT-2010 11:27
End Cal Date : 30-OCT-2010 13:19
Quant Method : ISTD
Origin : Disabled
Target Version : 3.50
Integrator : HP RTE
Method file : /chem1/nt12.i/20101030.b/DMD.b/PNADMD.m
Cal Date : 06-Nov-2010 11:48 van
Curve Type : Average

Compound	1.000 Level 1	5.000 Level 2	10.000 Level 3	25.000 Level 4	40.000 Level 5	80.000 Level 6	___ RRF	% RSD	
$ 55 2,4,6-Tribromophenol	++++++	++++++	++++++	++++++	++++++	++++++	++++++	++++++	<-
$ 66 Terphenyl-d14	0.77527	0.83555	0.82859	0.91275	0.98381	0.96882	0.88413	9.493	
$ 85 p-Cresol-d4	++++++	++++++	++++++	++++++	++++++	++++++	++++++	++++++	
$ 86 Anthracene-d10	++++++	++++++	++++++	++++++	++++++	++++++	++++++	++++++	
$ 87 Fluoranthene-d10	++++++	++++++	++++++	++++++	++++++	++++++	++++++	++++++	
$ 88 Dibenz(a,h)anthracene-d14	++++++	++++++	++++++	++++++	++++++	++++++	++++++	++++++	
$ 89 Diphenyl-d10	++++++	++++++	++++++	++++++	++++++	++++++	++++++	++++++	
$ 95 D10-1-methylnaphthalene	++++++	++++++	++++++	++++++	++++++	++++++	++++++	++++++	

Analytical Resources, Inc.

Semivolatile Report SW846 Method 8270D

Data file : /chem1/nt12.i/20101030.b/DMD.b/ic1030a.d
Lab Smp Id: IC1030A
Inj Date : 30-OCT-2010 11:27
Operator : VTS Inst ID: nt12.i
Smp Info : IC1030A
Misc Info : 10-
Comment : 1ul Injection
Method : /chem1/nt12.i/20101030.b/DMD.b/PNADMD.m
Meth Date : 06-Nov-2010 11:48 van Quant Type: ISTD
Cal Date : 30-OCT-2010 13:19 Cal File: ic1030f.d
Als bottle: 2 Calibration Sample, Level: 4
Dil Factor: 1.00000
Integrator: HP RTE Compound Sublist: pnas.sub
Target Version: 3.50
Processing Host: cserv3

Compounds	QUANT SIG MASS	RT	EXP RT	REL RT	RESPONSE	AMOUNTS CAL-AMT (ug/mL)	AMOUNTS ON-COL (ug/mL)
* 27 Naphthalene-d8	136	4.925	4.925	(1.000)	237664	20.0000	
28 Naphthalene	128	4.946	4.946	(1.004)	342378	25.0000	25.31
32 2-Methylnaphthalene	141	5.769	5.763	(1.171)	191388	25.0000	26.51
105 1-methylnaphthalene	141	5.892	5.892	(1.196)	188052	25.0000	25.26
$ 36 2-Fluorobiphenyl	172	6.239	6.239	(0.888)	286327	25.0000	25.96
40 Acenaphthylene	152	6.843	6.843	(0.973)	362998	25.0000	25.29
* 42 Acenaphthene-d10	164	7.030	7.030	(1.000)	143363	20.0000	
44 Acenaphthene	153	7.072	7.067	(1.006)	216568	25.0000	24.56
46 Dibenzofuran	168	7.265	7.265	(1.033)	342507	25.0000	25.33
49 Fluorene	166	7.681	7.681	(1.093)	257675	25.0000	25.53
* 59 Phenanthrene-d10	188	8.803	8.803	(1.000)	245437	20.0000	
60 Phenanthrene	178	8.835	8.830	(1.004)	328131	25.0000	25.20
61 Anthracene	178	8.889	8.889	(1.010)	340248	25.0000	25.28
62 Carbazole	167	9.108	9.108	(1.035)	272037	25.0000	25.06
64 Fluoranthene	202	10.283	10.283	(1.168)	368333	25.0000	26.46
65 Pyrene	202	10.550	10.545	(0.877)	363747	25.0000	26.34
$ 66 Terphenyl-d14	244	10.785	10.780	(0.896)	227343	25.0000	25.81
68 Benzo(a)anthracene	228	12.014	12.014	(0.998)	275957	25.0000	24.66
* 69 Chrysene-d12	240	12.035	12.035	(1.000)	199260	20.0000	
71 Chrysene	228	12.062	12.062	(1.002)	258581	25.0000	24.72
187 Total Benzofluoranthenes	252	13.285	13.259	(0.973)	586242	50.0000	49.80
76 Benzo(a)pyrene	252	13.595	13.595	(0.996)	273475	25.0000	25.29
* 77 Perylene-d12	264	13.654	13.654	(1.000)	197636	20.0000	
99 Perylene	252	13.681	13.675	(1.002)	288285	25.0000	25.07
78 Indeno(1,2,3-cd)pyrene	276	14.771	14.770	(1.082)	423447	25.0000	26.38
79 Dibenzo(a,h)anthracene	278	14.781	14.776	(1.083)	340130	25.0000	25.73

Compounds	QUANT SIG MASS	RT	EXP RT	REL RT	RESPONSE	AMOUNTS CAL-AMT (ug/mL)	AMOUNTS ON-COL (ug/mL)
80 Benzo(g,h,i)perylene	276	15.075	15.070	(1.104)	340294	25.0000	25.80

VB
11.12.10

Analytical Resources, Inc.

INTERNAL STANDARD COMPOUNDS
AREA AND RT SUMMARY

Instrument ID: nt12.i
Lab File ID: ic1030a.d
Lab Smp Id: IC1030A
Analysis Type: SV
Quant Type: ISTD
Operator: VTS
Method File: /chem1/nt12.i/20101030.b/DMD.b/PNADMD.m
Misc Info: 10-

Calibration Date: 30-OCT-2010
Calibration Time: 11:27

Level:
Sample Type:

Test Mode:
Use Initial Calibration Level 4.

COMPOUND	STANDARD	AREA LIMIT LOWER	AREA LIMIT UPPER	SAMPLE	%DIFF
27 Naphthalene-d8	237664	118832	475328	237664	0.00
42 Acenaphthene-d10	143363	71682	286726	143363	0.00
59 Phenanthrene-d10	245437	122718	490874	245437	0.00
69 Chrysene-d12	199260	99630	398520	199260	0.00
77 Perylene-d12	197636	98818	395272	197636	0.00

COMPOUND	STANDARD	RT LIMIT LOWER	RT LIMIT UPPER	SAMPLE	%DIFF
27 Naphthalene-d8	4.92	4.42	5.42	4.92	0.00
42 Acenaphthene-d10	7.03	6.53	7.53	7.03	0.00
59 Phenanthrene-d10	8.80	8.30	9.30	8.80	0.00
69 Chrysene-d12	12.04	11.54	12.54	12.04	0.00
77 Perylene-d12	13.65	13.15	14.15	13.65	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.

Data File: /chem1/nt12.i/20101030.b/DMD.b/ic1030a.d

Date : 30-OCT-2010 11:27

Client ID:

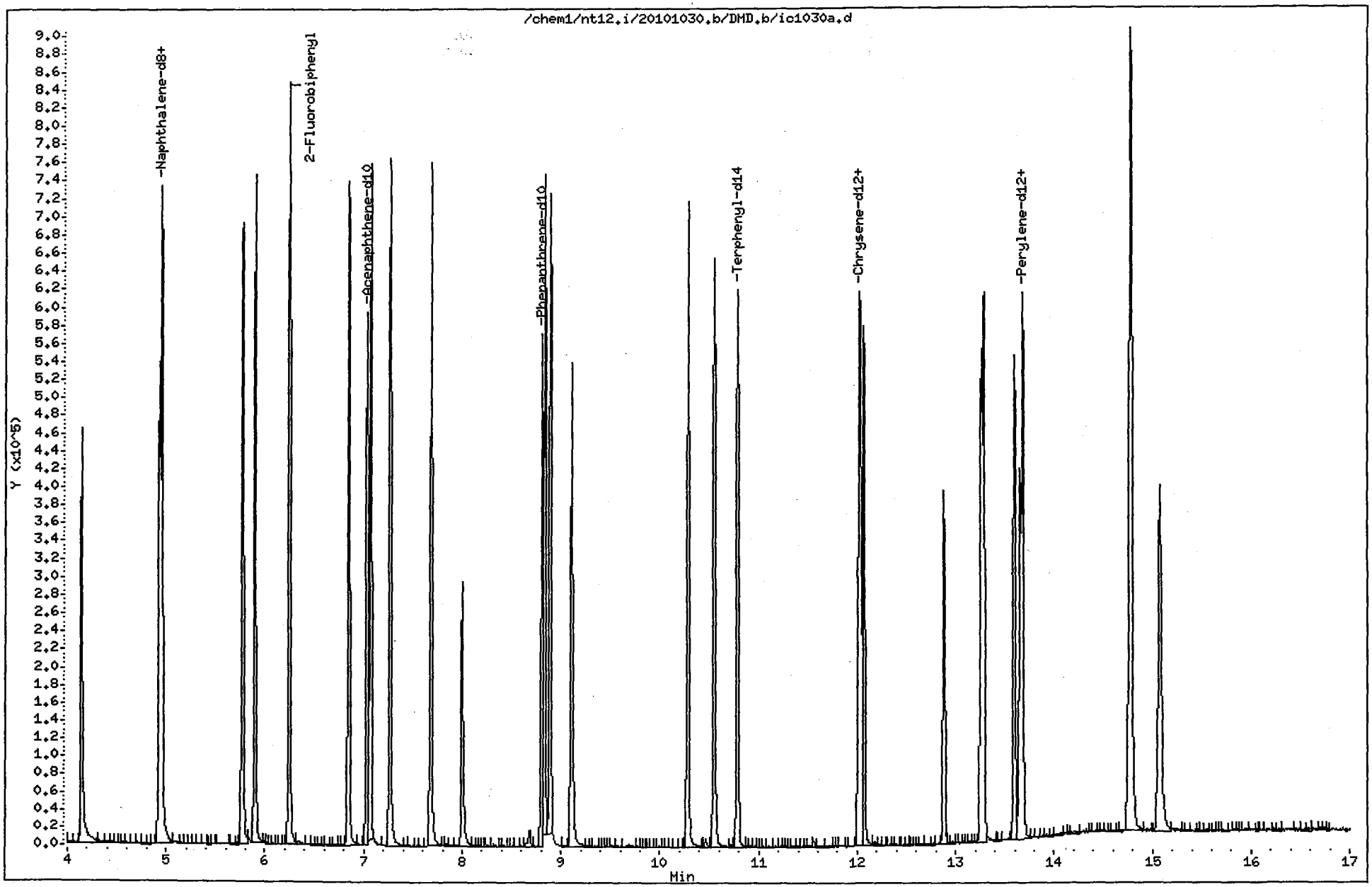
Sample Info: IC1030A

Column phase: ZB-5msi

Instrument: nt12.i

Operator: VTS

Column diameter: 0.32



RS97:9158

Analytical Resources, Inc.

Semivolatile Report SW846 Method 8270D

Data file : /chem1/nt12.i/20101030.b/DMD.b/ic1030b.d
Lab Smp Id: IC1030B
Inj Date : 30-OCT-2010 11:49
Operator : VTS Inst ID: nt12.i
Smp Info : IC1030B
Misc Info : 10-
Comment : 1ul Injection
Method : /chem1/nt12.i/20101030.b/DMD.b/PNADMD.m
Meth Date : 06-Nov-2010 11:48 van Quant Type: ISTD
Cal Date : 30-OCT-2010 13:19 Cal File: ic1030f.d
Als bottle: 3 Calibration Sample, Level: 6
Dil Factor: 1.00000
Integrator: HP RTE Compound Sublist: pnas.sub
Target Version: 3.50
Processing Host: cserv3

Compounds	QUANT SIG MASS	RT	EXP RT	REL RT	RESPONSE	AMOUNTS CAL-AMT (ug/mL)	AMOUNTS ON-COL (ug/mL)
* 27 Naphthalene-d8	136	4.925	4.925	(1.000)	305060	20.0000	
28 Naphthalene	128	4.952	4.946	(1.005)	1295085	80.0000	74.59
32 2-Methylnaphthalene	141	5.774	5.763	(1.172)	749393	80.0000	80.86
105 1-methylnaphthalene	141	5.897	5.892	(1.197)	745045	80.0000	77.97
$ 36 2-Fluorobiphenyl	172	6.244	6.239	(0.888)	1124657	80.0000	80.35
40 Acenaphthylene	152	6.853	6.843	(0.974)	1392803	80.0000	76.45
* 42 Acenaphthene-d10	164	7.035	7.030	(1.000)	181935	20.0000	
44 Acenaphthene	153	7.078	7.067	(1.006)	871849	80.0000	77.92
46 Dibenzofuran	168	7.275	7.265	(1.034)	1339622	80.0000	78.08
49 Fluorene	166	7.687	7.681	(1.093)	1047332	80.0000	81.75
* 59 Phenanthrene-d10	188	8.809	8.803	(1.000)	339592	20.0000	
60 Phenanthrene	178	8.841	8.830	(1.004)	1359093	80.0000	75.44
61 Anthracene	178	8.900	8.889	(1.010)	1379570	80.0000	74.09
62 Carbazole	167	9.119	9.108	(1.035)	1190526	80.0000	79.26
64 Fluoranthene	202	10.294	10.283	(1.169)	1561983	80.0000	79.12
65 Pyrene	202	10.561	10.545	(0.877)	1530650	80.0000	78.15
$ 66 Terphenyl-d14	244	10.791	10.780	(0.896)	1095296	80.0000	87.66
68 Benzo(a)anthracene	228	12.025	12.014	(0.998)	1213111	80.0000	76.43
* 69 Chrysene-d12	240	12.046	12.035	(1.000)	282636	20.0000	
71 Chrysene	228	12.078	12.062	(1.003)	1080156	80.0000	72.79
187 Total Benzofluoranthenes	252	13.302	13.259	(0.973)	2278085	160.000	156.4
76 Benzo(a)pyrene	252	13.606	13.595	(0.996)	1042157	80.0000	77.89
* 77 Perylene-d12	264	13.665	13.654	(1.000)	244531	20.0000	
99 Perylene	252	13.697	13.675	(1.002)	1122890	80.0000	78.92
78 Indeno(1,2,3-cd)pyrene	276	14.813	14.770	(1.084)	1707061	80.0000	85.94
79 Dibenzo(a,h)anthracene	278	14.813	14.776	(1.084)	1442627	80.0000	88.21

Compounds	QUANT SIG MASS	RT	EXP RT	REL RT	RESPONSE	AMOUNTS CAL-AMT (ug/mL)	AMOUNTS ON-COL (ug/mL)
80 Benzo(g,h,i)perylene	276	15.107	15.070	(1.106)	1283328	80.0000	78.64

VJS
11-12-10

Analytical Resources, Inc.

INTERNAL STANDARD COMPOUNDS
AREA AND RT SUMMARY

Instrument ID: nt12.i
Lab File ID: ic1030b.d
Lab Smp Id: IC1030B
Analysis Type: SV
Quant Type: ISTD
Operator: VTS
Method File: /chem1/nt12.i/20101030.b/DMD.b/PNADMD.m
Misc Info: 10-

Calibration Date: 30-OCT-2010
Calibration Time: 11:27

Level:
Sample Type:

Test Mode:
Use Initial Calibration Level 4.

COMPOUND	STANDARD	AREA LIMIT LOWER	AREA LIMIT UPPER	SAMPLE	%DIFF
27 Naphthalene-d8	237664	118832	475328	305060	28.36
42 Acenaphthene-d10	143363	71682	286726	181935	26.91
59 Phenanthrene-d10	245437	122718	490874	339592	38.36
69 Chrysene-d12	199260	99630	398520	282636	41.84
77 Perylene-d12	197636	98818	395272	244531	23.73

COMPOUND	STANDARD	RT LIMIT LOWER	RT LIMIT UPPER	SAMPLE	%DIFF
27 Naphthalene-d8	4.92	4.42	5.42	4.92	0.00
42 Acenaphthene-d10	7.03	6.53	7.53	7.04	0.08
59 Phenanthrene-d10	8.80	8.30	9.30	8.81	0.06
69 Chrysene-d12	12.04	11.54	12.54	12.05	0.09
77 Perylene-d12	13.65	13.15	14.15	13.66	0.08

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.

Data File: /chem1/nt12.i/20101030.b/DMD.b/ic1030b.d

Date : 30-OCT-2010 11:49

Client ID:

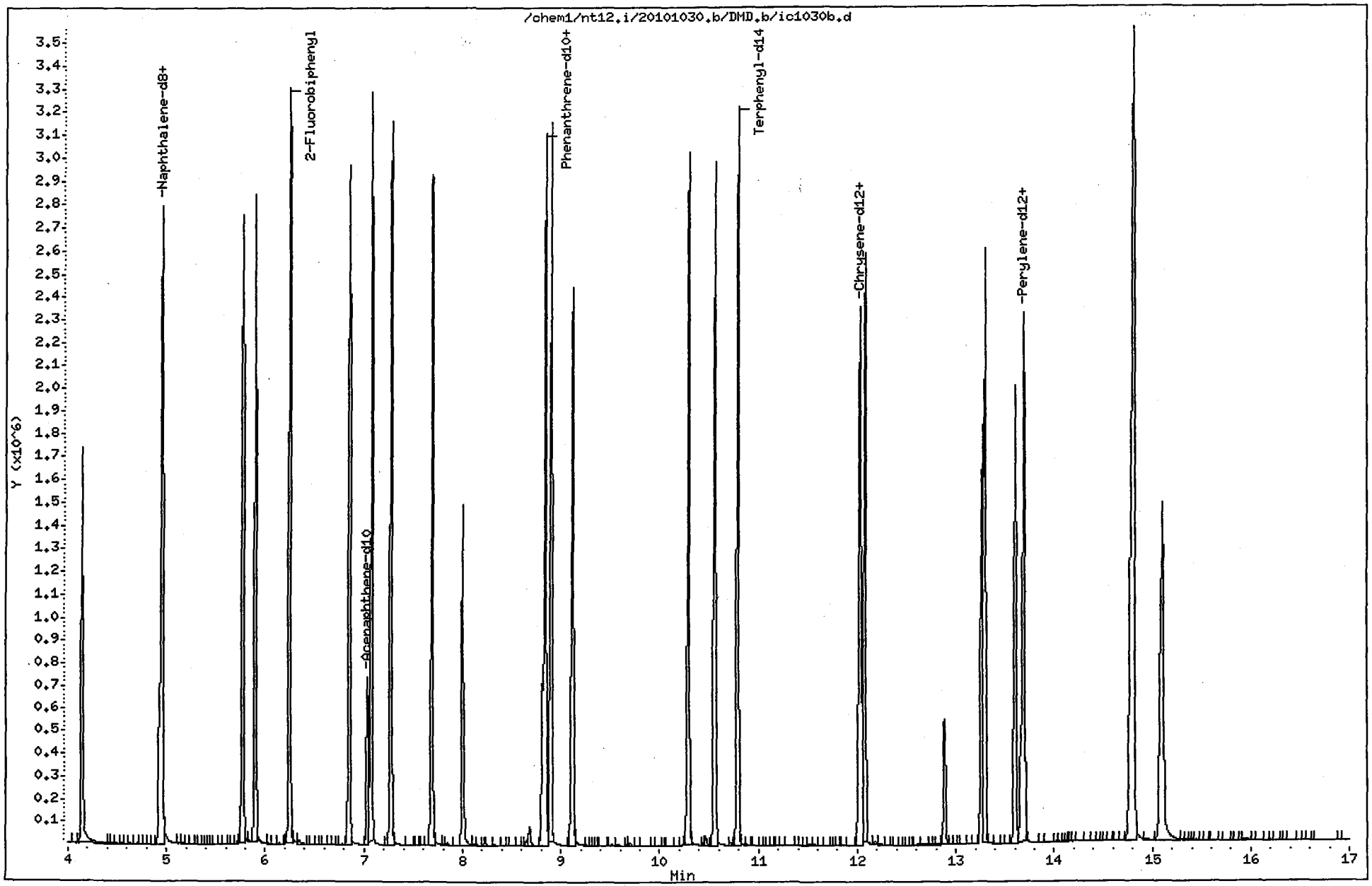
Sample Info: IC1030B

Column phase: ZB-5msi

Instrument: nt12.i

Operator: VTS

Column diameter: 0.32



RS57.0015

Analytical Resources, Inc.

Semivolatile Report SW846 Method 8270D

Data file : /chem1/nt12.i/20101030.b/DMD.b/ic1030c.d
Lab Smp Id: IC1030C
Inj Date : 30-OCT-2010 12:11
Operator : VTS Inst ID: nt12.i
Smp Info : IC1030C
Misc Info : 10-
Comment : 1ul Injection
Method : /chem1/nt12.i/20101030.b/DMD.b/PNADMD.m
Meth Date : 06-Nov-2010 11:48 van Quant Type: ISTD
Cal Date : 30-OCT-2010 13:19 Cal File: ic1030f.d
Als bottle: 4 Calibration Sample, Level: 1
Dil Factor: 1.00000
Integrator: HP RTE Compound Sublist: pnas.sub
Target Version: 3.50
Processing Host: cserv3

Compounds	QUANT SIG MASS	RT	EXP RT	REL RT	RESPONSE	AMOUNTS CAL-AMT (ug/mL)	AMOUNTS ON-COL (ug/mL)
* 27 Naphthalene-d8	136	4.925	4.925	(1.000)	232157	20.0000	
28 Naphthalene	128	4.946	4.946	(1.004)	13402	1.00000	1.014
32 2-Methylnaphthalene	141	5.769	5.763	(1.171)	5959	1.00000	0.8449
105 1-methylnaphthalene	141	5.892	5.892	(1.196)	7383	1.00000	1.015
$ 36 2-Fluorobiphenyl	172	6.244	6.239	(0.888)	9126	1.00000	0.8323
40 Acenaphthylene	152	6.848	6.843	(0.974)	14413	1.00000	1.010
* 42 Acenaphthene-d10	164	7.030	7.030	(1.000)	142519	20.0000	
44 Acenaphthene	153	7.067	7.067	(1.005)	9103	1.00000	1.039
46 Dibenzofuran	168	7.270	7.265	(1.034)	13146	1.00000	0.9781
49 Fluorene	166	7.681	7.681	(1.093)	9530	1.00000	0.9496
* 59 Phenanthrene-d10	188	8.803	8.803	(1.000)	233159	20.0000	
60 Phenanthrene	178	8.830	8.830	(1.003)	12852	1.00000	1.039
61 Anthracene	178	8.894	8.889	(1.010)	13381	1.00000	1.047
62 Carbazole	167	9.124	9.108	(1.036)	10372	1.00000	1.006
64 Fluoranthene	202	10.288	10.283	(1.169)	14245	1.00000	0.9283
65 Pyrene	202	10.550	10.545	(0.877)	14398	1.00000	0.9457
$ 66 Terphenyl-d14	244	10.785	10.780	(0.896)	8516	1.00000	0.8769
68 Benzo(a)anthracene	228	12.014	12.014	(0.998)	13014	1.00000	1.055
* 69 Chrysene-d12	240	12.035	12.035	(1.000)	219691	20.0000	
71 Chrysene	228	12.062	12.062	(1.002)	13181	1.00000	1.143
187 Total Benzofluoranthenes	252	13.280	13.259	(0.973)	27090	2.00000	1.988
76 Benzo(a)pyrene	252	13.595	13.595	(0.996)	12381	1.00000	0.9892
* 77 Perylene-d12	264	13.654	13.654	(1.000)	228756	20.0000	
99 Perylene	252	13.681	13.675	(1.002)	13680	1.00000	1.028
78 Indeno(1,2,3-cd)pyrene	276	14.781	14.770	(1.083)	15761	1.00000	0.8482
79 Dibenzo(a,h)anthracene	278	14.781	14.776	(1.083)	13464	1.00000	0.8801

Compounds	QUANT SIG MASS	RT	EXP RT	REL RT	RESPONSE	AMOUNTS CAL-AMT (ug/mL)	AMOUNTS ON-COL (ug/mL)
80 Benzo(g,h,i)perylene	276	15.080	15.070	(1.104)	14722	1.00000	0.9644

VJ3
11.12.10

Analytical Resources, Inc.

INTERNAL STANDARD COMPOUNDS
AREA AND RT SUMMARY

Instrument ID: nt12.i
Lab File ID: ic1030c.d
Lab Smp Id: IC1030C
Analysis Type: SV
Quant Type: ISTD
Operator: VTS
Method File: /chem1/nt12.i/20101030.b/DMD.b/PNADMD.m
Misc Info: 10-

Calibration Date: 30-OCT-2010
Calibration Time: 11:27

Level:
Sample Type:

Test Mode:
Use Initial Calibration Level 4.

COMPOUND	STANDARD	AREA LIMIT LOWER	AREA LIMIT UPPER	SAMPLE	%DIFF
27 Naphthalene-d8	237664	118832	475328	232157	-2.32
42 Acenaphthene-d10	143363	71682	286726	142519	-0.59
59 Phenanthrene-d10	245437	122718	490874	233159	-5.00
69 Chrysene-d12	199260	99630	398520	219691	10.25
77 Perylene-d12	197636	98818	395272	228756	15.75

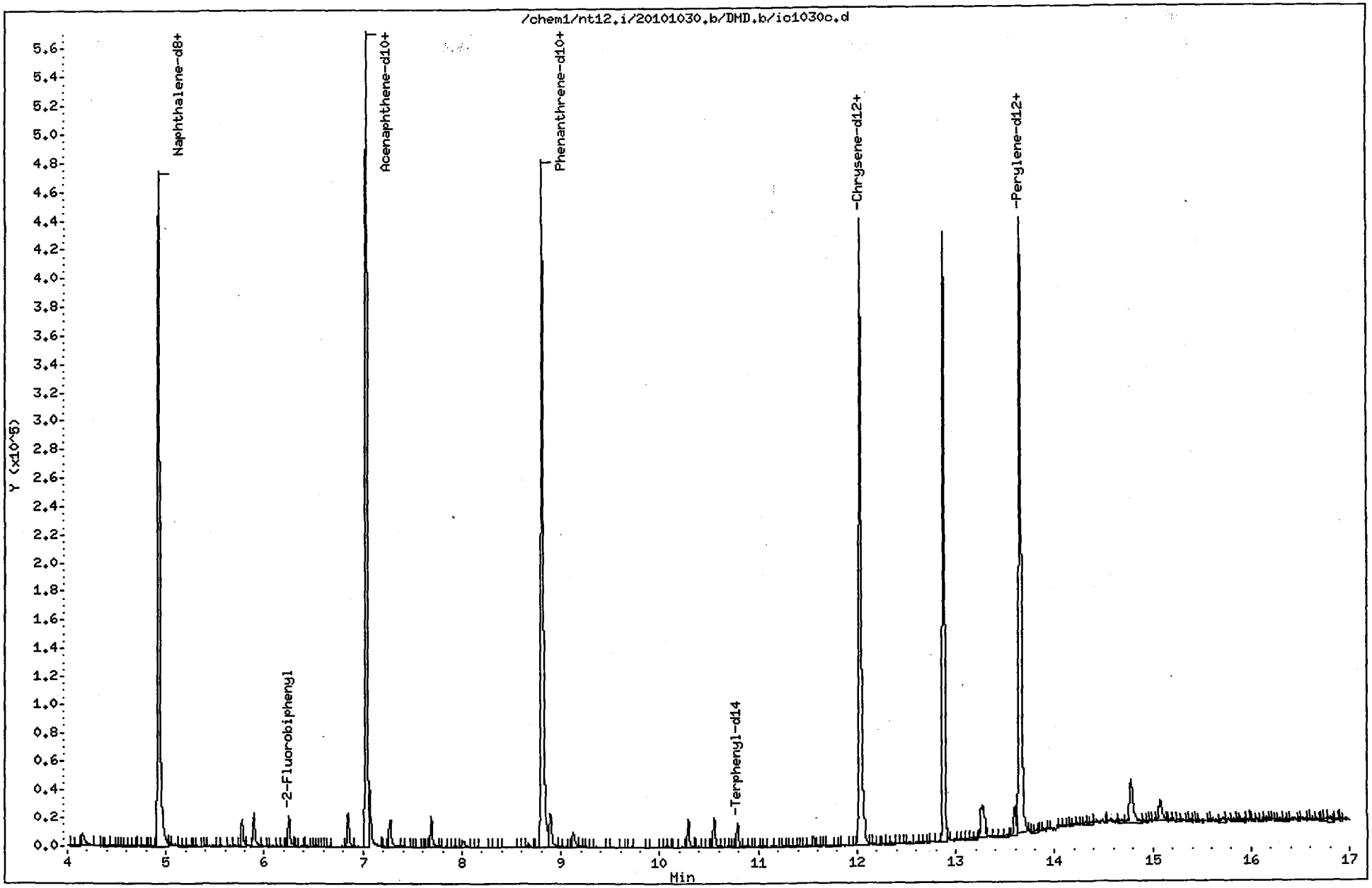
COMPOUND	STANDARD	RT LIMIT LOWER	RT LIMIT UPPER	SAMPLE	%DIFF
27 Naphthalene-d8	4.92	4.42	5.42	4.92	0.00
42 Acenaphthene-d10	7.03	6.53	7.53	7.03	0.00
59 Phenanthrene-d10	8.80	8.30	9.30	8.80	0.00
69 Chrysene-d12	12.04	11.54	12.54	12.04	0.00
77 Perylene-d12	13.65	13.15	14.15	13.65	0.00

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.

Data File: /chem1/nt12.i/20101030.b/DMD.b/ic1030c.d
Date : 30-OCT-2010 12:11
Client ID:
Sample Info: IC1030C

Instrument: nt12.i

Operator: VTS
Column phase: ZB-5msi
Column diameter: 0.32



RS97.0017

Analytical Resources, Inc.

Semivolatile Report SW846 Method 8270D

Data file : /chem1/nt12.i/20101030.b/DMD.b/ic1030d.d
Lab Smp Id: IC1030D
Inj Date : 30-OCT-2010 12:35
Operator : VTS Inst ID: nt12.i
Smp Info : IC1030D
Misc Info : 10-
Comment : 1ul Injection
Method : /chem1/nt12.i/20101030.b/DMD.b/PNADMD.m
Meth Date : 06-Nov-2010 11:48 van Quant Type: ISTD
Cal Date : 30-OCT-2010 13:19 Cal File: ic1030f.d
Als bottle: 5 Calibration Sample, Level: 5
Dil Factor: 1.00000
Integrator: HP RTE Compound Sublist: pnas.sub
Target Version: 3.50
Processing Host: cserv3

Compounds	QUANT SIG MASS	RT	EXP RT	REL RT	RESPONSE	AMOUNTS CAL-AMT (ug/mL)	AMOUNTS ON-COL (ug/mL)
* 27 Naphthalene-d8	136	4.925	4.925	(1.000)	260760	20.0000	
28 Naphthalene	128	4.951	4.946	(1.005)	601925	40.0000	40.56
32 2-Methylnaphthalene	141	5.769	5.763	(1.171)	331158	40.0000	41.81
105 1-methylnaphthalene	141	5.897	5.892	(1.197)	327304	40.0000	40.07
$ 36 2-Fluorobiphenyl	172	6.244	6.239	(0.888)	508850	40.0000	42.23
40 Acenaphthylene	152	6.848	6.843	(0.973)	622885	40.0000	39.71
* 42 Acenaphthene-d10	164	7.035	7.030	(1.000)	156637	20.0000	
44 Acenaphthene	153	7.072	7.067	(1.005)	385272	40.0000	39.99
46 Dibenzofuran	168	7.270	7.265	(1.033)	600081	40.0000	40.62
49 Fluorene	166	7.687	7.681	(1.093)	450535	40.0000	40.85
* 59 Phenanthrene-d10	188	8.809	8.803	(1.000)	270652	20.0000	
60 Phenanthrene	178	8.835	8.830	(1.003)	578426	40.0000	40.29
61 Anthracene	178	8.894	8.889	(1.010)	597747	40.0000	40.28
62 Carbazole	167	9.108	9.108	(1.034)	486563	40.0000	40.64
64 Fluoranthene	202	10.283	10.283	(1.167)	657690	40.0000	44.26
65 Pyrene	202	10.550	10.545	(0.877)	636859	40.0000	43.20
$ 66 Terphenyl-d14	244	10.785	10.780	(0.896)	418595	40.0000	44.51
68 Benzo(a)anthracene	228	12.019	12.014	(0.999)	475137	40.0000	39.77
* 69 Chrysene-d12	240	12.035	12.035	(1.000)	212741	20.0000	
71 Chrysene	228	12.067	12.062	(1.003)	419628	40.0000	37.57
187 Total Benzofluoranthenes	252	13.285	13.259	(0.973)	900554	80.0000	81.32
76 Benzo(a)pyrene	252	13.601	13.595	(0.996)	411188	40.0000	40.42
* 77 Perylene-d12	264	13.654	13.654	(1.000)	185930	20.0000	
99 Perylene	252	13.686	13.675	(1.002)	430448	40.0000	39.79
78 Indeno(1,2,3-cd)pyrene	276	14.781	14.770	(1.083)	679946	40.0000	45.02
79 Dibenzo(a,h)anthracene	278	14.787	14.776	(1.083)	553737	40.0000	44.53

Compounds	QUANT SIG MASS	RT	EXP RT	REL RT	RESPONSE	AMOUNTS CAL-AMT (ug/mL)	AMOUNTS ON-COL (ug/mL)
80 Benzo(g,h,i)perylene	276	15.080	15.070	(1.104)	541731	40.0000	43.66

VB
11.12.10

Analytical Resources, Inc.

INTERNAL STANDARD COMPOUNDS
AREA AND RT SUMMARY

Instrument ID: nt12.i
Lab File ID: ic1030d.d
Lab Smp Id: IC1030D
Analysis Type: SV
Quant Type: ISTD
Operator: VTS
Method File: /chem1/nt12.i/20101030.b/DMD.b/PNADMD.m
Misc Info: 10-

Calibration Date: 30-OCT-2010
Calibration Time: 11:27

Level:
Sample Type:

Test Mode:
Use Initial Calibration Level 4.

COMPOUND	STANDARD	AREA LIMIT LOWER	AREA LIMIT UPPER	SAMPLE	%DIFF
27 Naphthalene-d8	237664	118832	475328	260760	9.72
42 Acenaphthene-d10	143363	71682	286726	156637	9.26
59 Phenanthrene-d10	245437	122718	490874	270652	10.27
69 Chrysene-d12	199260	99630	398520	212741	6.77
77 Perylene-d12	197636	98818	395272	185930	-5.92

COMPOUND	STANDARD	RT LIMIT LOWER	RT LIMIT UPPER	SAMPLE	%DIFF
27 Naphthalene-d8	4.92	4.42	5.42	4.92	0.00
42 Acenaphthene-d10	7.03	6.53	7.53	7.03	0.08
59 Phenanthrene-d10	8.80	8.30	9.30	8.81	0.06
69 Chrysene-d12	12.04	11.54	12.54	12.04	0.00
77 Perylene-d12	13.65	13.15	14.15	13.65	0.00

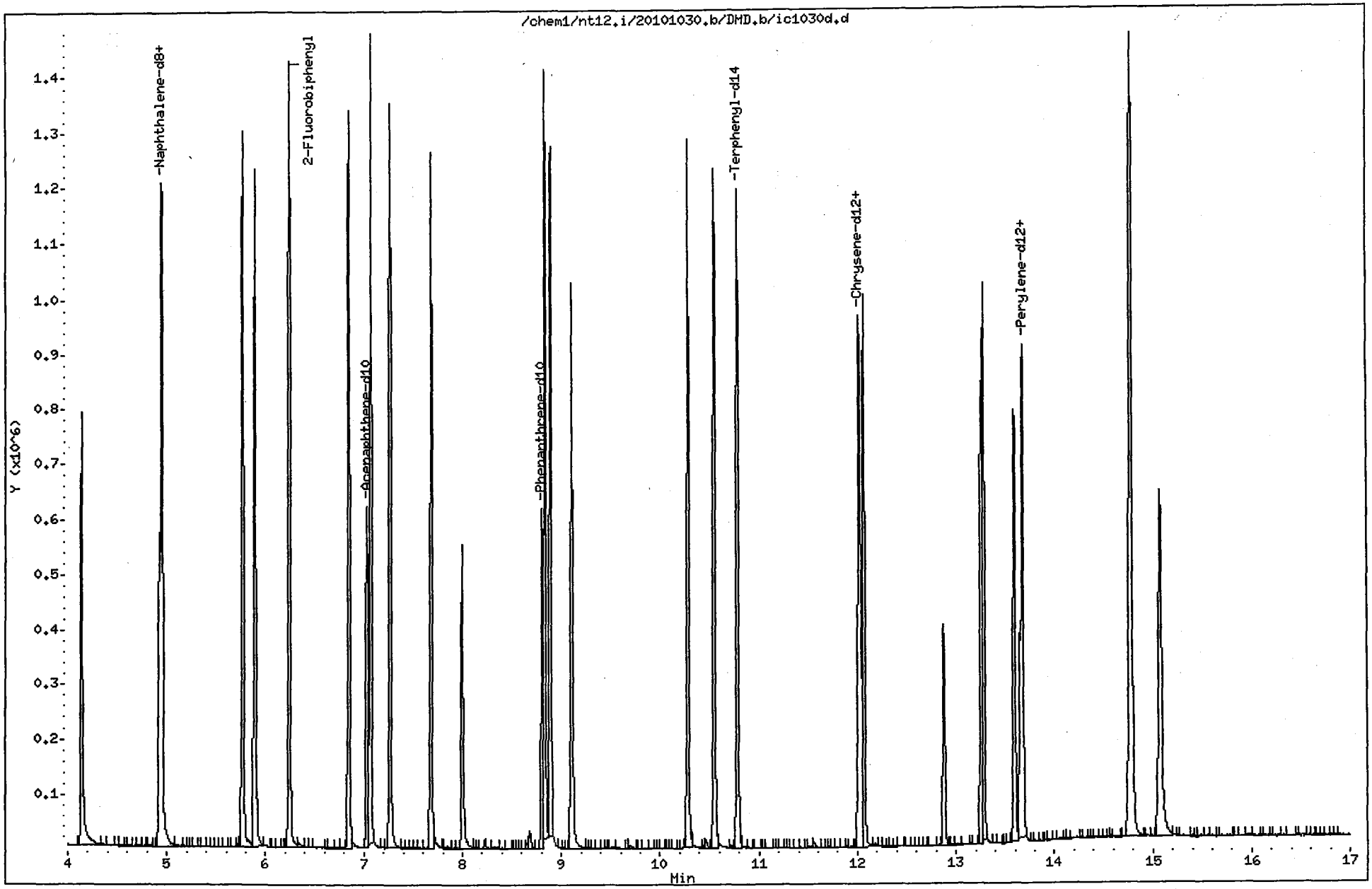
AREA UPPER LIMIT = +100% of internal standard area.
AREA LOWER LIMIT = - 50% of internal standard area.
RT UPPER LIMIT = + 0.50 minutes of internal standard RT.
RT LOWER LIMIT = - 0.50 minutes of internal standard RT.

Data File: /chem1/nt12.i/20101030.b/DMD.b/ic1030d.d
Date : 30-OCT-2010 12:35
Client ID:
Sample Info: IC1030D

Instrument: nt12.i

Operator: VTS
Column diameter: 0.32

Column phase: ZB-5msi



RS97.00175

Analytical Resources, Inc.

Semivolatile Report SW846 Method 8270D

Data file : /chem1/nt12.i/20101030.b/DMD.b/ic1030e.d
Lab Smp Id: IC1030E
Inj Date : 30-OCT-2010 12:57
Operator : VTS Inst ID: nt12.i
Smp Info : IC1030E
Misc Info : 10-
Comment : 1ul Injection
Method : /chem1/nt12.i/20101030.b/DMD.b/PNADMD.m
Meth Date : 06-Nov-2010 11:48 van Quant Type: ISTD
Cal Date : 30-OCT-2010 13:19 Cal File: ic1030f.d
Als bottle: 6 Calibration Sample, Level: 2
Dil Factor: 1.00000
Integrator: HP RTE Compound Sublist: pnas.sub
Target Version: 3.50
Processing Host: cserv3

Compounds	QUANT SIG MASS	RT	EXP RT	REL RT	RESPONSE	AMOUNTS CAL-AMT (ug/mL)	AMOUNTS ON-COL (ug/mL)
* 27 Naphthalene-d8	136	4.925	4.925	(1.000)	229968	20.0000	
28 Naphthalene	128	4.946	4.946	(1.004)	68632	5.00000	5.244
32 2-Methylnaphthalene	141	5.769	5.763	(1.171)	36393	5.00000	5.209
105 1-methylnaphthalene	141	5.892	5.892	(1.196)	37715	5.00000	5.236
$ 36 2-Fluorobiphenyl	172	6.239	6.239	(0.888)	56924	5.00000	5.257
40 Acenaphthylene	152	6.843	6.843	(0.973)	72753	5.00000	5.162
* 42 Acenaphthene-d10	164	7.030	7.030	(1.000)	140757	20.0000	
44 Acenaphthene	153	7.067	7.067	(1.005)	44320	5.00000	5.120
46 Dibenzofuran	168	7.265	7.265	(1.033)	68166	5.00000	5.135
49 Fluorene	166	7.681	7.681	(1.093)	49149	5.00000	4.959
* 59 Phenanthrene-d10	188	8.803	8.803	(1.000)	235425	20.0000	
60 Phenanthrene	178	8.830	8.830	(1.003)	63485	5.00000	5.083
61 Anthracene	178	8.889	8.889	(1.010)	65355	5.00000	5.063
62 Carbazole	167	9.113	9.108	(1.035)	50798	5.00000	4.878
64 Fluoranthene	202	10.283	10.283	(1.168)	73116	5.00000	4.795
65 Pyrene	202	10.550	10.545	(0.877)	74190	5.00000	4.904
$ 66 Terphenyl-d14	244	10.785	10.780	(0.896)	45601	5.00000	4.725
68 Benzo(a)anthracene	228	12.014	12.014	(0.998)	63365	5.00000	5.169
* 69 Chrysene-d12	240	12.035	12.035	(1.000)	218304	20.0000	
71 Chrysene	228	12.062	12.062	(1.002)	60692	5.00000	5.295
187 Total Benzofluoranthenes	252	13.280	13.259	(0.973)	135862	10.0000	10.27
76 Benzo(a)pyrene	252	13.595	13.595	(0.996)	62552	5.00000	5.145
* 77 Perylene-d12	264	13.654	13.654	(1.000)	222190	20.0000	
99 Perylene	252	13.675	13.675	(1.002)	65101	5.00000	5.036
78 Indeno(1,2,3-cd)pyrene	276	14.771	14.770	(1.082)	85873	5.00000	4.758
79 Dibenzo(a,h)anthracene	278	14.776	14.776	(1.082)	70333	5.00000	4.733

Compounds	QUANT SIG MASS	RT	EXP RT	REL RT	RESPONSE	AMOUNTS CAL-AMT (ug/mL)	AMOUNTS ON-COL (ug/mL)
80 Benzo(g,h,i)perylene	276	15.070	15.070	(1.104)	73720	5.00000	4.972

VTS
11-12-10

Analytical Resources, Inc.

INTERNAL STANDARD COMPOUNDS
AREA AND RT SUMMARY

Instrument ID: nt12.i
Lab File ID: ic1030e.d
Lab Smp Id: IC1030E
Analysis Type: SV
Quant Type: ISTD
Operator: VTS
Method File: /chem1/nt12.i/20101030.b/DMD.b/PNADMD.m
Misc Info: 10-

Calibration Date: 30-OCT-2010
Calibration Time: 11:27

Level:
Sample Type:

Test Mode:
Use Initial Calibration Level 4.

COMPOUND	STANDARD	AREA LIMIT LOWER	AREA LIMIT UPPER	SAMPLE	%DIFF
27 Naphthalene-d8	237664	118832	475328	229968	-3.24
42 Acenaphthene-d10	143363	71682	286726	140757	-1.82
59 Phenanthrene-d10	245437	122718	490874	235425	-4.08
69 Chrysene-d12	199260	99630	398520	218304	9.56
77 Perylene-d12	197636	98818	395272	222190	12.42

COMPOUND	STANDARD	RT LIMIT LOWER	RT LIMIT UPPER	SAMPLE	%DIFF
27 Naphthalene-d8	4.92	4.42	5.42	4.92	0.00
42 Acenaphthene-d10	7.03	6.53	7.53	7.03	0.00
59 Phenanthrene-d10	8.80	8.30	9.30	8.80	0.00
69 Chrysene-d12	12.04	11.54	12.54	12.04	0.00
77 Perylene-d12	13.65	13.15	14.15	13.65	0.00

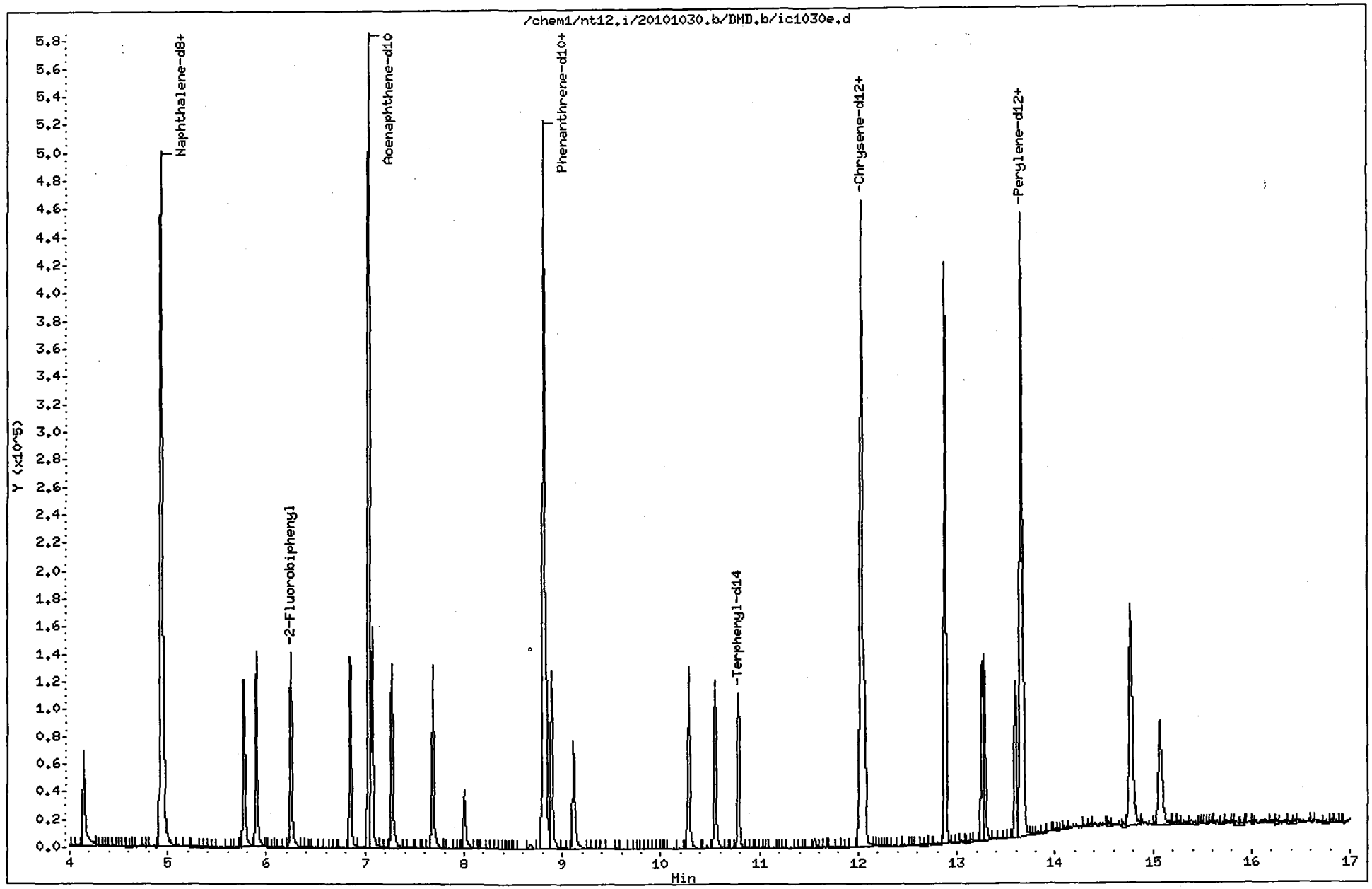
AREA UPPER LIMIT = +100% of internal standard area.
AREA LOWER LIMIT = - 50% of internal standard area.
RT UPPER LIMIT = + 0.50 minutes of internal standard RT.
RT LOWER LIMIT = - 0.50 minutes of internal standard RT.

Data File: /chem1/nt12.i/20101030.b/DMD.b/ic1030e.d
Date : 30-OCT-2010 12:57
Client ID:
Sample Info: IC1030E

Instrument: nt12.i

Operator: VTS
Column diameter: 0.32

Column phase: ZB-5msi



PC5971.0917

Analytical Resources, Inc.

Semivolatile Report SW846 Method 8270D

Data file : /chem1/nt12.i/20101030.b/DMD.b/ic1030f.d
Lab Smp Id: IC1030F
Inj Date : 30-OCT-2010 13:19
Operator : VTS Inst ID: nt12.i
Smp Info : IC1030F
Misc Info : 10-
Comment : 1ul Injection
Method : /chem1/nt12.i/20101030.b/DMD.b/PNADMD.m
Meth Date : 06-Nov-2010 11:48 van Quant Type: ISTD
Cal Date : 30-OCT-2010 13:19 Cal File: ic1030f.d
Als bottle: 7 Calibration Sample, Level: 3
Dil Factor: 1.00000
Integrator: HP RTE Compound Sublist: pnas.sub
Target Version: 3.50
Processing Host: cserv3

Compounds	QUANT SIG MASS	RT	EXP RT	REL RT	RESPONSE	AMOUNTS CAL-AMT (ug/mL)	AMOUNTS ON-COL (ug/mL)
* 27 Naphthalene-d8	136	4.925	4.925	(1.000)	233940	20.0000	
28 Naphthalene	128	4.946	4.946	(1.004)	130237	10.0000	9.782
32 2-Methylnaphthalene	141	5.763	5.763	(1.170)	70847	10.0000	9.969
105 1-methylnaphthalene	141	5.892	5.892	(1.196)	69661	10.0000	9.507
$ 36 2-Fluorobiphenyl	172	6.239	6.239	(0.888)	107769	10.0000	10.18
40 Acenaphthylene	152	6.843	6.843	(0.973)	137517	10.0000	9.979
* 42 Acenaphthene-d10	164	7.030	7.030	(1.000)	137619	20.0000	
44 Acenaphthene	153	7.067	7.067	(1.005)	83033	10.0000	9.811
46 Dibenzofuran	168	7.265	7.265	(1.033)	128486	10.0000	9.900
49 Fluorene	166	7.681	7.681	(1.093)	96368	10.0000	9.945
* 59 Phenanthrene-d10	188	8.803	8.803	(1.000)	236772	20.0000	
60 Phenanthrene	178	8.830	8.830	(1.003)	123876	10.0000	9.862
61 Anthracene	178	8.889	8.889	(1.010)	129322	10.0000	9.962
62 Carbazole	167	9.108	9.108	(1.035)	105715	10.0000	10.09
64 Fluoranthene	202	10.283	10.283	(1.168)	139148	10.0000	9.588
65 Pyrene	202	10.545	10.545	(0.876)	138631	10.0000	9.629
$ 66 Terphenyl-d14	244	10.780	10.780	(0.896)	86076	10.0000	9.372
68 Benzo(a)anthracene	228	12.014	12.014	(0.998)	113808	10.0000	9.754
* 69 Chrysene-d12	240	12.035	12.035	(1.000)	207765	20.0000	
71 Chrysene	228	12.062	12.062	(1.002)	104768	10.0000	9.604
187 Total Benzofluoranthenes	252	13.259	13.259	(0.971)	249714	20.0000	19.78
76 Benzo(a)pyrene	252	13.595	13.595	(0.996)	114338	10.0000	9.861
* 77 Perylene-d12	264	13.654	13.654	(1.000)	211915	20.0000	
99 Perylene	252	13.675	13.675	(1.002)	120960	10.0000	9.810
78 Indeno(1,2,3-cd)pyrene	276	14.770	14.770	(1.082)	162789	10.0000	9.456
79 Dibenzo(a,h)anthracene	278	14.776	14.776	(1.082)	131532	10.0000	9.281

Compounds	QUANT SIG MASS	RT	EXP RT	REL RT	RESPONSE	AMOUNTS CAL-AMT (ug/mL)	AMOUNTS ON-COL (ug/mL)
80 Benzo(g,h,i)perylene	276	15.070	15.070	(1.104)	132192	10.0000	9.347

VJB
11-12-10

Analytical Resources, Inc.

INTERNAL STANDARD COMPOUNDS
AREA AND RT SUMMARY

Instrument ID: nt12.i
Lab File ID: ic1030f.d
Lab Smp Id: IC1030F
Analysis Type: SV
Quant Type: ISTD
Operator: VTS
Method File: /chem1/nt12.i/20101030.b/DMD.b/PNADMD.m
Misc Info: 10-

Calibration Date: 30-OCT-2010
Calibration Time: 11:27

Level:
Sample Type:

Test Mode:
Use Initial Calibration Level 4.

COMPOUND	STANDARD	AREA LIMIT LOWER	AREA LIMIT UPPER	SAMPLE	%DIFF
27 Naphthalene-d8	237664	118832	475328	233940	-1.57
42 Acenaphthene-d10	143363	71682	286726	137619	-4.01
59 Phenanthrene-d10	245437	122718	490874	236772	-3.53
69 Chrysene-d12	199260	99630	398520	207765	4.27
77 Perylene-d12	197636	98818	395272	211915	7.22

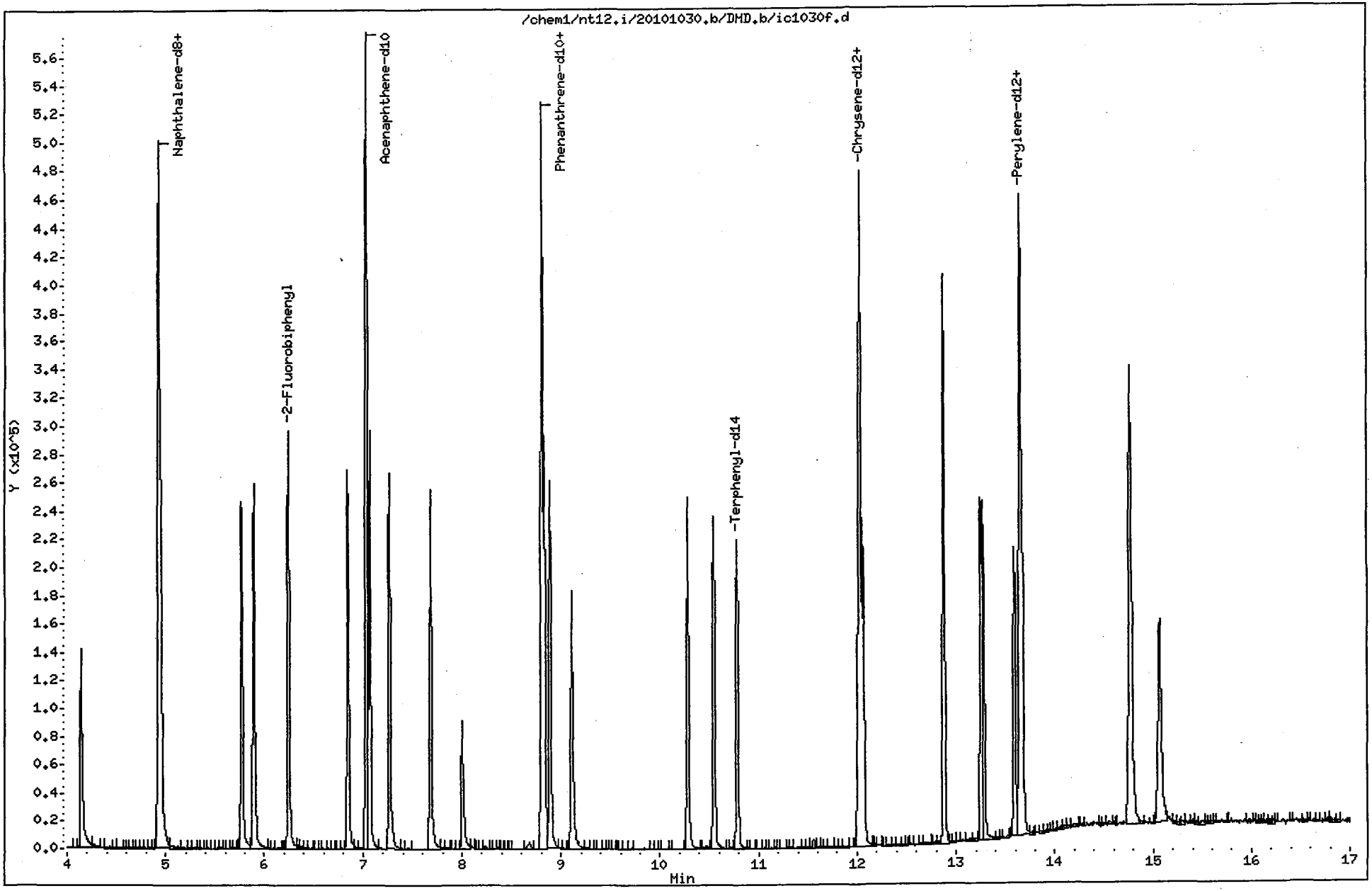
COMPOUND	STANDARD	RT LIMIT LOWER	RT LIMIT UPPER	SAMPLE	%DIFF
27 Naphthalene-d8	4.92	4.42	5.42	4.92	0.00
42 Acenaphthene-d10	7.03	6.53	7.53	7.03	0.00
59 Phenanthrene-d10	8.80	8.30	9.30	8.80	0.00
69 Chrysene-d12	12.04	11.54	12.54	12.04	0.00
77 Perylene-d12	13.65	13.15	14.15	13.65	0.00

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.

Data File: /chem1/nt12.i/20101030.b/DMD.b/ic1030f.d
Date : 30-OCT-2010 13:19
Client ID:
Sample Info: IC1030F

Instrument: nt12.i

Operator: VTS
Column phase: ZB-5msi
Column diameter: 0.32



RS97 00183

Analytical Resources, Inc.

Semivolatile Report SW846 Method 8270D

Data file : /chem1/nt12.i/20101030.b/DMD.b/icv1030.d
Lab Smp Id: ICV1030
Inj Date : 30-OCT-2010 13:41
Operator : VTS Inst ID: nt12.i
Smp Info : ICV1030
Misc Info : 10-
Comment : 1ul Injection
Method : /chem1/nt12.i/20101030.b/PNA.m
Meth Date : 02-Nov-2010 10:02 van Quant Type: ISTD
Cal Date : 30-OCT-2010 13:19 Cal File: ic1030f.d
Als bottle: 8 QC Sample: LCS
Dil Factor: 1.00000
Integrator: HP RTE Compound Sublist: pnas.sub
Target Version: 3.50
Processing Host: cserv3

Concentration Formula: Amt * DF * Vt/Vo * CpndVariable

Name	Value	Description
DF	1.00000	Dilution Factor
Vt	500.00000	Volume of final extract (uL)
Vo	500.00000	Volume of sample extracted (mL)

Cpnd Variable Local Compound Variable

Compounds	QUANT SIG MASS	RT	EXP RT	REL RT	RESPONSE	CONCENTRATIONS ON-COLUMN (ug/mL)	FINAL (ug/L)
* 27 Naphthalene-d8	136	4.930	4.925	(1.000)	273160	20.0000	
28 Naphthalene	128	4.952	4.946	(1.004)	777813	50.0305	50.03(R)
32 2-Methylnaphthalene	141	5.769	5.769	(1.170)	221742	26.7218	26.72
105 1-methylnaphthalene	141	5.897	5.892	(1.196)	433281	50.6395	50.64(R)
$ 36 2-Fluorobiphenyl	172	Compound Not Detected.					
40 Acenaphthylene	152	6.848	6.843	(0.973)	823572	48.1301	48.13
* 42 Acenaphthene-d10	164	7.035	7.030	(1.000)	170880	20.0000	
44 Acenaphthene	153	7.078	7.072	(1.006)	525511	50.0054	50.01(R)
46 Dibenzofuran	168	7.270	7.265	(1.033)	361911	22.4579	22.46(R)
49 Fluorene	166	7.687	7.681	(1.093)	618272	51.3836	51.38(R)
* 59 Phenanthrene-d10	188	8.809	8.803	(1.000)	318881	20.0000	
60 Phenanthrene	178	8.841	8.835	(1.004)	824937	48.7641	48.76
61 Anthracene	178	8.894	8.889	(1.010)	868885	49.6960	49.70
62 Carbazole	167	9.113	9.108	(1.035)	792795	56.2085	56.21
64 Fluoranthene	202	10.289	10.283	(1.168)	1031264	53.8623	53.86

	Compounds	QUANT SIG MASS	RT	EXP RT	REL RT	RESPONSE	CONCENTRATIONS ON-COLUMN (ug/mL)	FINAL (ug/L)
	65 Pyrene	202	10.556	10.550	(0.877)	1043755	47.5689	47.57
$	66 Terphenyl-d14	244	Compound Not Detected.					
	68 Benzo(a)anthracene	228	12.025	12.014	(0.999)	873947	49.1490	49.15
*	69 Chrysene-d12	240	12.041	12.035	(1.000)	316633	20.0000	
	71 Chrysene	228	12.073	12.062	(1.003)	808465	48.6317	48.63
	187 Total Benzofluoranthenes	252	13.291	13.285	(0.973)	1422153	107.167	107.2
	76 Benzo(a)pyrene	252	13.606	13.595	(0.996)	682453	55.9818	55.98(R)
*	77 Perylene-d12	264	13.660	13.654	(1.000)	222800	20.0000	
	99 Perylene	252	13.686	13.681	(1.002)	311314	24.0148	24.01
	78 Indeno(1,2,3-cd)pyrene	276	14.792	14.771	(1.083)	928761	51.3159	51.32
	79 Dibenzo(a,h)anthracene	278	14.797	14.781	(1.083)	775868	52.0694	52.07(R)
	80 Benzo(g,h,i)perylene	276	15.086	15.075	(1.104)	720411	48.4521	48.45

QC Flag Legend

R - Spike/Surrogate failed recovery limits.

VJB
11-12-10

Analytical Resources, Inc.

INTERNAL STANDARD COMPOUNDS
AREA AND RT SUMMARY

Instrument ID: nt12.i
Lab File ID: icv1030.d
Lab Smp Id: ICV1030
Analysis Type: SV
Quant Type: ISTD
Operator: VTS
Method File: /chem1/nt12.i/20101030.b/PNA.m
Misc Info: 10-

Calibration Date: 30-OCT-2010
Calibration Time: 11:27

Level: LOW
Sample Type: WATER

Test Mode:
Use Initial Calibration Level 4.

COMPOUND	STANDARD	AREA LIMIT LOWER	AREA LIMIT UPPER	SAMPLE	%DIFF
27 Naphthalene-d8	237664	118832	475328	273160	14.94
42 Acenaphthene-d10	143363	71682	286726	170880	19.19
59 Phenanthrene-d10	245437	122718	490874	318881	29.92
69 Chrysene-d12	199260	99630	398520	316633	58.90
77 Perylene-d12	197636	98818	395272	222800	12.73

COMPOUND	STANDARD	RT LIMIT LOWER	RT LIMIT UPPER	SAMPLE	%DIFF
27 Naphthalene-d8	4.92	4.42	5.42	4.93	0.11
42 Acenaphthene-d10	7.03	6.53	7.53	7.04	0.08
59 Phenanthrene-d10	8.80	8.30	9.30	8.81	0.06
69 Chrysene-d12	12.04	11.54	12.54	12.04	0.05
77 Perylene-d12	13.65	13.15	14.15	13.66	0.04

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.

Analytical Resources, Inc.

RECOVERY REPORT

Client Name:
Sample Matrix: LIQUID
Lab Smp Id: ICV1030
Level: LOW
Data Type: MS DATA
SpikeList File: pnalcsw.spk
Sublist File: pnas.sub
Method File: /chem1/nt12.i/20101030.b/PNA.m
Misc Info: 10-

Client SDG:
Fraction: SV

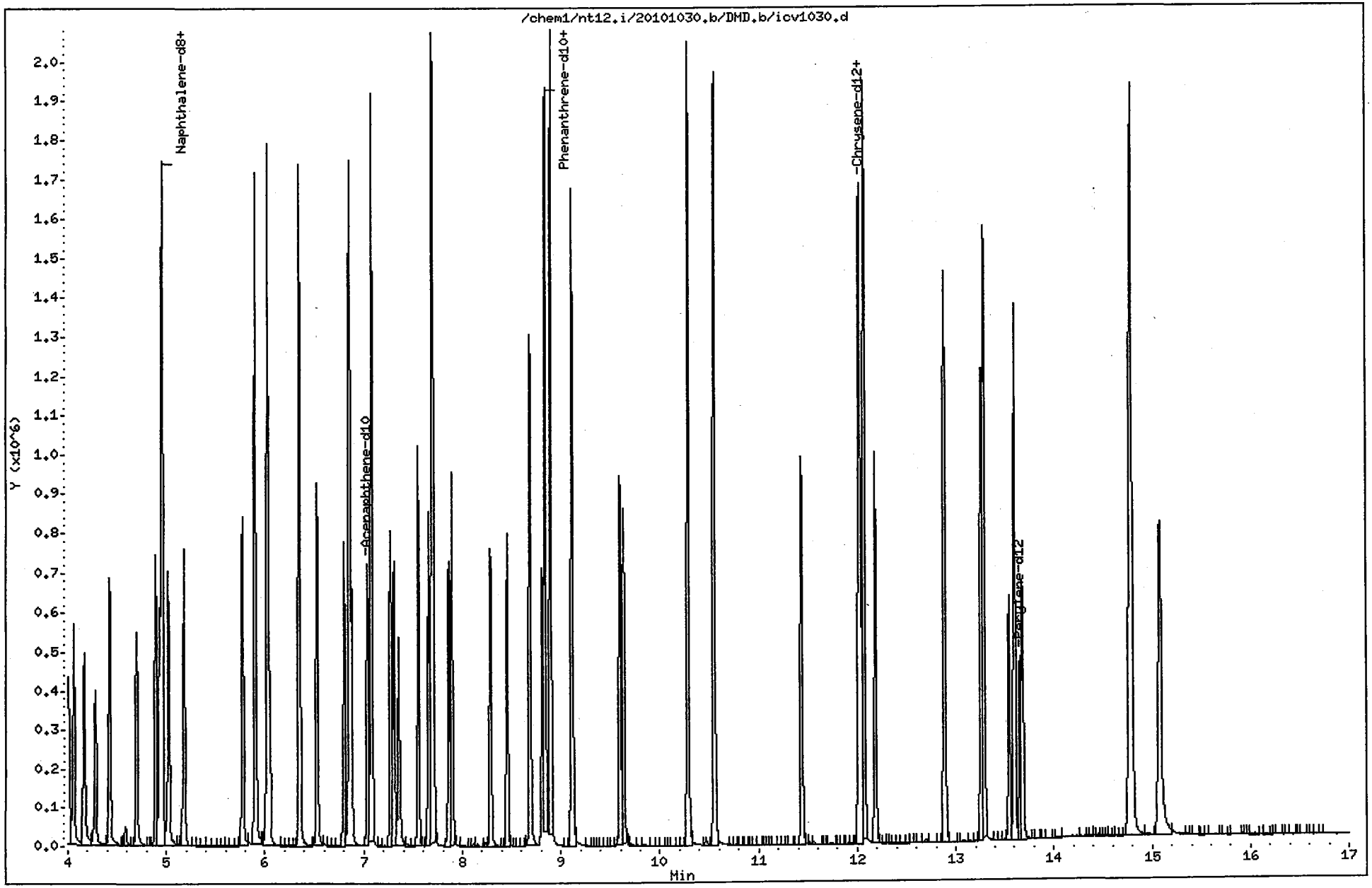
Operator: VTS
SampleType: LCS
Quant Type: ISTD

SPIKE COMPOUND	CONC ADDED ug/L	CONC RECOVERED ug/L	% RECOVERED	LIMITS
28 Naphthalene	50.00	50.03	100.06*	30-100
32 2-Methylnaphthalen	25 ~~50.00~~	26.72	106 ~~53.44~~	33-108
105 1-methylnaphthalen	50.00	50.64	101.28*	34-100
40 Acenaphthylene	50.00	48.13	96.26	45-100
44 Acenaphthene	50.00	50.01	100.01*	40-100
46 Dibenzofuran	25 ~~50.00~~	22.46	88 ~~44.92*~~	45-100
49 Fluorene	50.00	51.38	102.77*	45-100
60 Phenanthrene	50.00	48.76	97.53	47-101
61 Anthracene	50.00	49.70	99.39	47-100
~~64 Fluoranthene~~	50.00	53.86	107.72	48-110
65 Pyrene	50.00	47.57	95.14	48-109
68 Benzo(a)anthracene	50.00	49.15	98.30	44-105
71 Chrysene	50.00	48.63	97.26	50-103
74 Benzo(b)fluoranth	50.00	0.000	*	43-115
75 Benzo(k)fluoranth	50.00	0.000	*	51-110
76 Benzo(a)pyrene	50.00	55.98	111.96*	44-107
78 Indeno(1,2,3-cd)py	50.00	51.32	102.63	30-106
79 Dibenzo(a,h)anthra	50.00	52.07	104.14*	42-103
80 Benzo(g,h,i)peryle	50.00	48.45	96.90	42-102

SURROGATE COMPOUND	CONC ADDED ug/L	CONC RECOVERED ug/L	% RECOVERED	LIMITS
$ 36 2-Fluorobiphenyl	25.00	0.000	*	38-100
$ 66 Terphenyl-d14	25.00	0.000	*	23-120

Data File: /chem1/nt12.i/20101030.b/DMD.b/icv1030.d
Date : 30-OCT-2010 13:41
Client ID:
Sample Info: ICV1030
Volume Injected (uL): 1.0
Column phase: ZB-5msi

Instrument: nt12.i
Operator: VTS
Column diameter: 0.32



RS97:00188

Semivolatile PAH Raw Data
Run Logs, Continuing Calibrations, and Raw Data

ARI Job ID: RS97

Analytical Resources, Incorporated
Analytical Chemists and Consultants

GC/MS SVOA Analyst Notes / Corrective Action Log

ARI Project ID: RS97 Client ID: [redacted] / NW Natural

ARI SOP: **801S**(SIM-PNA) **802S**(Butyl Tins) **804S**(SVOA-8270D) **805S**(op-Pest)

Parameter(s): PWD's

Instrument: NT-2 NT-4 NT-6 NT-8 NT11 NT12

Curve Date: 10.30.10 Analysis Start Date: 11.9.10

DFTPP Tune Meets Criteria?	YES / NO	Internal Standard Meets Criteria?	YES / NO
DDT Breakdown <20%?	YES / NO / NA	Method Blank In Control?	YES / NO
Peak Tailing Factor ≤2?	YES / NO / NA	LCS / LCSD Recovery In Control?	YES / NO
ICal acceptable?	YES / NO	CCal acceptable?	YES / NO
Q flag applied?	YES / NO	Q flag applied?	YES / NO
Surrogate Recovery in Control?	YES / NO	Special Analysis Criteria Met?	YES / NO / NA
Manual Integrations for ICal?	YES / NO	Manual Integrations for Samples?	Yes / NO

Detail problems, corrective actions and/or other pertinent information below (use reverse side when necessary):

- Many samples run at 3X initially due to extract appearance. See dilution runs for many samples.
- H, HMC, HMSD Archive at 5mL blown down to 1mL to give 2mL E.F.V. in order to give better R.L's.
- Full packet.
- pyrene, Fluoranthene Quantitated from d12-Chrysene

Additional Details on Reverse: Yes / No

Analyst: VB **Date:** 11.12.10

Reviewer: [signature] **Date:** 11/12/10

Analytical Resources Inc.: Volatile Organics Instrument Log

NT-12 Serial No.:GC=US00032558, MS= US01180091

Date: 11·9·10 Analysis: PNA Analyst: VTS

GC Program: PNA Column No: 181984 Column Type: ZB·5ms

Instrument Tune (.U or .CT.): 101030.U EM Voltage: 1753

Calibration File: dF1109 Curve Date: 10·10·30

IS/SS	Ical/Ccal	LCS/ICV
1752-1	1770-1 1753-5	
	1773-3	

INTERNAL STANDARD SUMMARY FOR DATABATCH - /chem1/nt12.i/20101109.b

	Time	Filename	LabID	ClientId	DF											
1	1040	df1109.d			1	NO ISTDS FOUND										
2	1104	cc1109.d	CC1109		1	4.89	180585	6.99	112208	8.77	205783	11.99	195439	13.61	134112	
3	1131	177802.d	177802		1	NO ISTDS FOUND										
4	1212	rr32adl.d	RR32A	Ksr-1A	5	4.89	184528	6.99	114147	8.77	197923	12.00	151917	13.62	123688	
5	1235	rr32cdl.d	RR32C	Ksr-2A	50	4.89	184374	6.99	114420	8.77	205251	11.99	186137	13.61	143029	
6	1259	rr32ddl.d	RR32D	Ksr-2B	25	4.89	187054	6.99	116841	8.77	204777	11.99	178668	13.61	146263	
7	1322	rr32edl.d	RR32E	Ksr-2C	50	4.89	185577	6.99	117194	8.77	204302	11.99	182313	13.61	147542	
8	1346	rr32fdl.d	RR32F	Ksr-3A	50	4.89	179727	6.99	116236	8.77	204866	11.99	183228	13.61	149953	
9	1409	rr32g.d	RR32G	Ksr-3B	10	4.89	179073	6.99	109970	8.82	279452	12.07	366728	13.66	178143	
10	1450	rr32h.d	RR32H	Ksr-3C	10	4.89	180630	7.00	104655	8.86	287097	12.09	402131	13.68	191550	
11	1514	rr32i.d	RR32I	Ksr-3D	10	4.89	169330	7.00	101243	8.86	280702	12.09	404041	13.68	194821	
12	1537	nt12rin.d	NT12RIN		1	4.89	171235	6.99	108962	8.76	194213	11.99	185222	13.61	161377	
13	1601	rr32gdl.d	RR32G	Ksr-3B	200	4.89	174215	6.99	106844	8.77	188760	11.99	172621	13.61	157353	
14	1630	rr32gdl2.d	RR32G	Ksr-3B	500	4.89	179815	6.99	110708	8.77	192734	11.99	178056	13.61	163540	
15	1654	rr32hdl.d	RR32H	Ksr-3C	500	4.89	174533	6.99	109562	8.77	191753	11.99	173427	13.61	160257	
16	1717	rr32idl.d	RR32I	Ksr-3D	500	4.89	175576	6.99	110014	8.77	190509	11.99	174997	13.61	159022	
17	1741	rs97mb.d	RS97MBS1	RS97MBS1	1	4.89	179301	6.99	114446	8.77	208746	11.99	215748	13.61	160984	
18	1804	rs97sb.d	RS97LCSS1	RS97LCSS1	1	4.89	189261	6.99	121041	8.76	209217	11.99	209918	13.61	153173	
19	1828	rs97a.d	RS97A	GSM-08SO-10-	3	4.89	186824	6.99	108846	8.77	191541	11.99	168670	13.61	142046	
20	1851	rs97b.d	RS97B	DGS-19-3.34.	3	4.90	207521	6.99	108592	8.77	191561	11.99	163503	13.61	151971	
21	1915	rs97c.d	RS97C	DGS-19-4.48.	3	4.89	183938	6.99	112128	8.77	200472	11.99	179278	13.61	160199	
22	1939	rs97d.d	RS97D	DGS-19-10.21	3	4.89	175379	6.99	109999	8.76	191411	11.99	176075	13.61	161469	
23	2002	rs97e.d	RS97E	DGS-08-4.44.	3	4.90	206003	6.99	106812	8.77	181935	11.99	151531	13.62	149600	
24	2026	rs97f.d	RS97F	GST-09SO-17-	3	4.93	277504	7.00	107458	8.80	213712	12.01	190112	13.63	157507	
25	2049	rs97g.d	RS97G	DGS-36-066.7	3	4.89	178132	6.99	112175	8.76	198183	11.99	187858	13.61	167001	
26	2113	rs97h.d	RS97H	DGS-07-011.3	3	4.89	176594	6.99	109772	8.76	199721	11.99	183169	13.61	168360	
27	2136	rs97hms.d	RS97HMS	DGS-07-011.3	3	4.89	180161	6.99	111971	8.76	200174	11.99	188919	13.61	174542	
28	2200	rs97hmsd.d	RS97HMSD	DGS-07-011.3	3	4.89	177899	6.99	114185	8.76	201151	11.99	187763	13.61	168955	
29	2223	rs97i.d	RS97I	DGS-07-2.22.	3	4.89	178437	6.99	112138	8.76	198249	11.99	174550	13.61	161737	
30	2247	rs97j.d	RS97J	DGS-07-034.2	3	4.88	176345	6.99	109934	8.77	191678	11.99	168032	13.61	160618	

Ma

Ma

Eve

period.

out of 12hr QC

11/10/10 VTS

Q-FLAG SUMMARY FOR DATABATCH - /chem1/nt12.i/20101109.b

Instrument: nt12.i Date: 09-NOV-2010 Method: PNADMD.m

INITIAL CAL: 30-OCT-2010

Compound	%RSD or R^2
NO Q-FLAGS	

CONTINUING CAL: 09-NOV-2010

Compound	%D
NO Q-FLAGS	

MANUAL INTEGRATION SUMMARY FOR DATABATCH - /chem1/nt12.i/20101109.b

ARI Job No.: 1778 Method: PNADMD.m Instrument: nt12.i Date: 09-NOV-2010

Time	Filename	LabID	ClientId	DF	Manually Integrated Compounds
1131	177802.d	177802		1	NO MANUAL INTEGRATION
1104	cc1109.d	CC1109		1	NO MANUAL INTEGRATION
1040	df1109.d			1	NO MANUAL INTEGRATION
1828	rs97a.d	RS97A	GSM-08SO-1	3	Acenaphthylene,
1851	rs97b.d	RS97B	DGS-19-3.3	3	Acenaphthylene,
1915	rs97c.d	RS97C	DGS-19-4.4	3	NO MANUAL INTEGRATION
1939	rs97d.d	RS97D	DGS-19-10.	3	NO MANUAL INTEGRATION
2002	rs97e.d	RS97E	DGS-08-4.4	3	Acenaphthylene,
2026	rs97f.d	RS97F	GST-09SO-1	3	NO MANUAL INTEGRATION
2049	rs97g.d	RS97G	DGS-36-066	3	NO MANUAL INTEGRATION
2113	rs97h.d	RS97H	DGS-07-011	3	NO MANUAL INTEGRATION
2136	rs97hms.d	RS97HMS	DGS-07-011	3	NO MANUAL INTEGRATION
2200	rs97hmsd.d	RS97HMSD	DGS-07-011	3	NO MANUAL INTEGRATION
2223	rs97i.d	RS97I	DGS-07-2.2	3	NO MANUAL INTEGRATION
2247	rs97j.d	RS97J	DGS-07-034	3	NO MANUAL INTEGRATION
2310	rs97k.d	RS97K	DGS-07-4.7	3	NO MANUAL INTEGRATION
2334	rs97l.d	RS97L	DGS-07-5.6	3	Acenaphthylene, Dibenzo(a,h)anthracene,
2357	rs97m.d	RS97M	DGS-07-077	3	NO MANUAL INTEGRATION
1741	rs97mb.d	RS97MBS1	RS97MBS1	1	NO MANUAL INTEGRATION
2021	rs97n.d	RS97N	DGS-07-7.9	3	NO MANUAL INTEGRATION
1804	rs97sb.d	RS97LCSS1	RS97LCSS1	1	NO MANUAL INTEGRATION

Data File: /chem1/nt12.i/20101109.b/df1109.d

Date : 09-NOV-2010 10:40

Client ID:

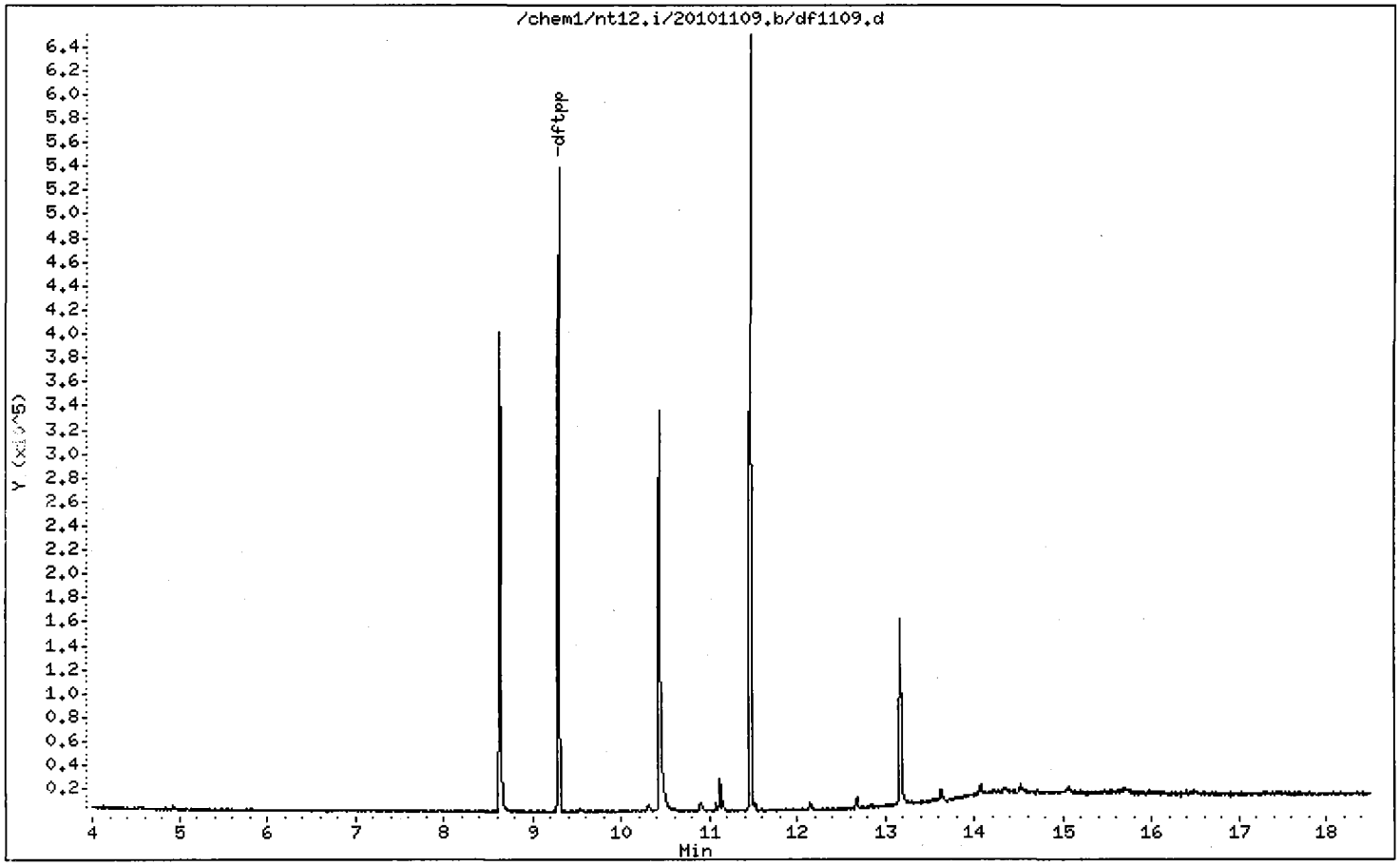
Instrument: nt12.i

Sample Info: DF1109

Operator: jr

Column phase: ZB-5msi

Column diameter: 0.32



Data File: /chem1/nt12.i/20101109.b/df1109.d

Date : 09-NOV-2010 10:40

Client ID:

Instrument: nt12.i

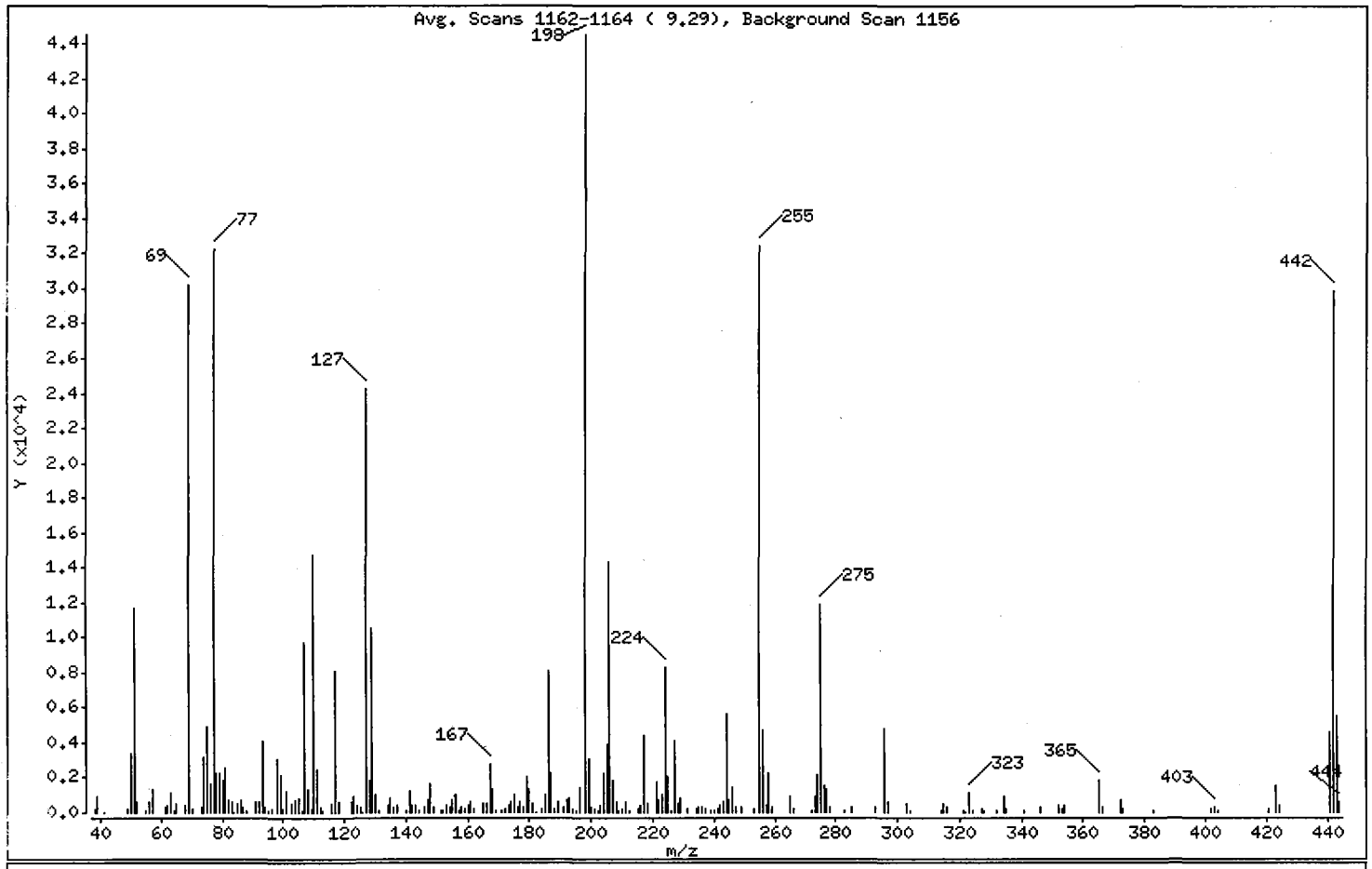
Sample Info: DF1109

Operator: jr

Column phase: ZB-5msi

Column diameter: 0.32

1 dftpp



m/e	ION ABUNDANCE CRITERIA	% RELATIVE ABUNDANCE
198	Base Peak, 100% relative abundance	100.00
51	10.00 - 80.00% of mass 198	26.14
68	Less than 2.00% of mass 69	0.83 (1.22)
69	Mass 69 relative abundance	67.72
70	Less than 2.00% of mass 69	0.48 (0.71)
127	10.00 - 80.00% of mass 198	54.46
197	Less than 2.00% of mass 198	0.00
199	5.00 - 9.00% of mass 198	6.80
275	10.00 - 60.00% of mass 198	26.72
365	Greater than 1.00% of mass 198	4.17
441	0.01 - 24.00% of mass 442	10.31 (15.36)
442	50.00 - 200.00% of mass 198	67.12
443	15.00 - 24.00% of mass 442	12.52 (18.65)

Data File: /chem1/nt12.i/20101109.b/df1109.d

Date : 09-NOV-2010 10:40

Client ID:

Instrument: nt12.i

Sample Info: DF1109

Operator: jr

Column phase: ZB-5msi

Column diameter: 0.32

Data File: df1109.d
Spectrum: Avg. Scans 1162-1164 (9.29), Background Scan 1156
Location of Maximum: 198.00
Number of points: 219

m/z	Y	m/z	Y	m/z	Y	m/z	Y
38.00	191	116.00	514	184.00	221	253.00	209
39.00	900	117.00	8041	185.00	990	255.00	32480
41.00	51	118.00	647	186.00	8095	256.00	4745
49.00	217	122.00	650	187.00	2202	257.00	418
50.00	3335	123.00	928	188.00	184	258.00	2265
51.00	11639	124.00	447	189.00	595	259.00	287
52.00	598	125.00	355	191.00	275	265.00	916
55.00	131	126.00	51	192.00	757	266.00	175
56.00	584	127.00	24248	193.00	852	272.00	68
57.00	1347	128.00	1854	194.00	175	273.00	905
61.00	279	129.00	10528	195.00	55	274.00	2192
62.00	363	130.00	1050	196.00	1437	275.00	11900
63.00	1084	131.00	142	198.00	44528	276.00	1503
64.00	119	134.00	390	199.00	3030	277.00	1309
65.00	488	135.00	846	200.00	310	278.00	337
68.00	369	136.00	306	201.00	216	283.00	133
69.00	30152	137.00	409	202.00	59	285.00	323
70.00	213	140.00	59	203.00	447	293.00	288
73.00	293	141.00	1265	204.00	2237	296.00	4860
74.00	3125	142.00	409	205.00	3928	297.00	623
75.00	4925	143.00	366	206.00	14371	303.00	546
76.00	1606	144.00	73	207.00	1867	304.00	150
77.00	32200	146.00	263	208.00	584	314.00	145
78.00	2249	147.00	687	209.00	63	315.00	477
79.00	2257	148.00	1624	210.00	239	316.00	292
80.00	1823	149.00	328	211.00	609	321.00	57
81.00	2556	151.00	125	212.00	63	322.00	50
82.00	694	152.00	117	215.00	189	323.00	1129
83.00	592	153.00	369	216.00	380	324.00	147
84.00	27	154.00	347	217.00	4402	327.00	234
85.00	469	155.00	710	218.00	539	328.00	68
86.00	676	156.00	1041	221.00	1750	332.00	58
87.00	337	157.00	130	222.00	711	334.00	971
88.00	79	158.00	262	223.00	988	335.00	247
91.00	598	159.00	217	224.00	8320	341.00	58

Data File: /chem1/nt12.i/20101109.b/df1109.d

Date : 09-NOV-2010 10:40

Client ID:

Instrument: nt12.i

Sample Info: DF1109

Operator: jr

Column phase: ZB-5msi

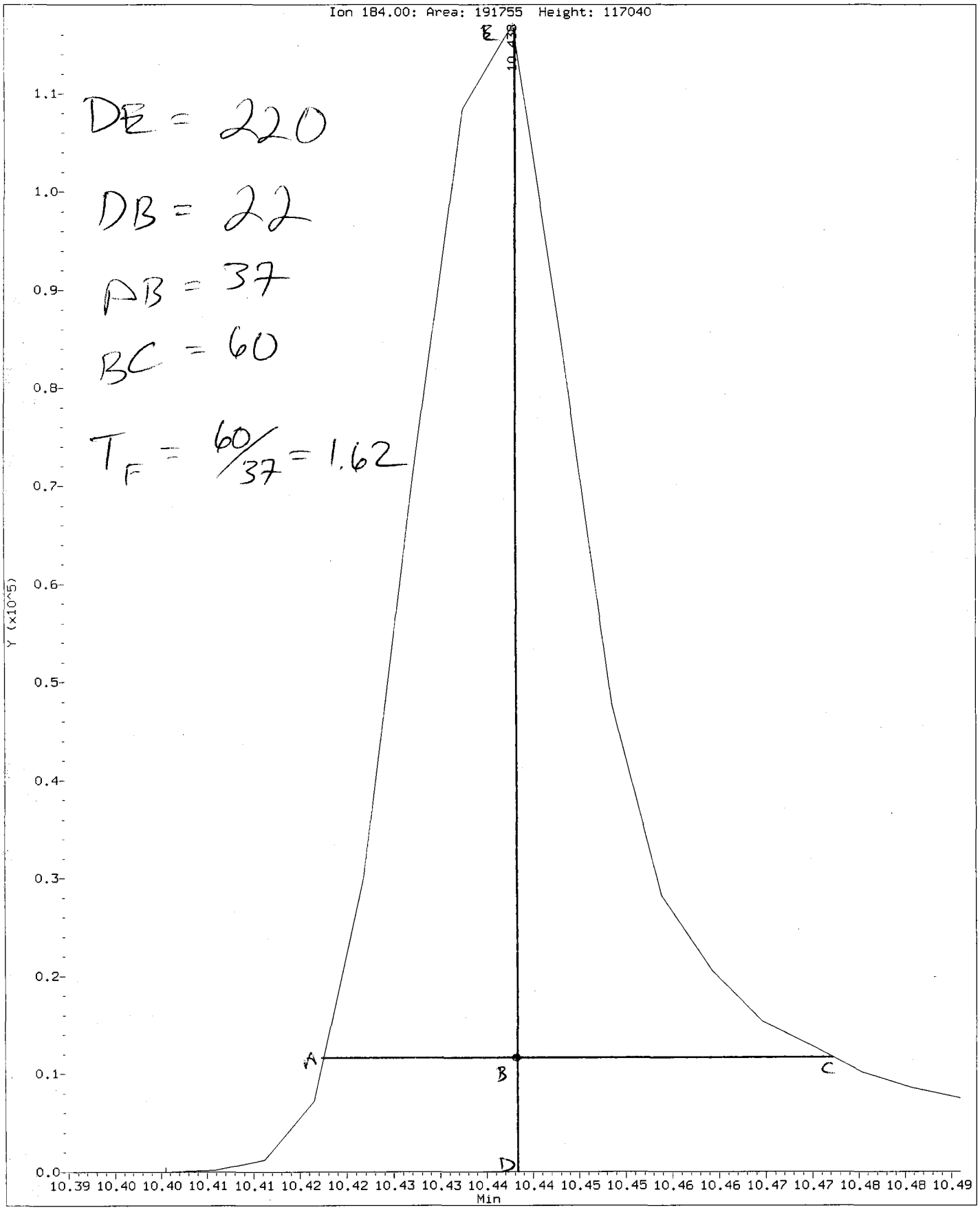
Column diameter: 0.32

Data File: df1109.d
Spectrum: Avg. Scans 1162-1164 (9.29), Background Scan 1156
Location of Maximum: 198.00
Number of points: 219

m/z	Y	m/z	Y	m/z	Y	m/z	Y
92.00	586	160.00	445	225.00	2060	346.00	329
93.00	4129	161.00	636	226.00	133	352.00	390
94.00	293	162.00	172	227.00	4058	353.00	233
95.00	57	165.00	537	228.00	471	354.00	366
96.00	174	166.00	498	229.00	834	365.00	1857
98.00	3038	167.00	2743	231.00	250	366.00	328
99.00	2099	168.00	1338	234.00	251	372.00	766
100.00	243	169.00	76	235.00	317	373.00	163
101.00	1196	171.00	64	236.00	257	383.00	57
103.00	462	172.00	190	237.00	251	402.00	185
104.00	691	173.00	436	239.00	78	403.00	352
105.00	770	174.00	616	240.00	112	404.00	56
106.00	75	175.00	1074	241.00	220	421.00	169
107.00	9741	176.00	275	242.00	452	423.00	1568
108.00	1366	177.00	607	243.00	610	424.00	362
109.00	233	178.00	292	244.00	5606	441.00	4589
110.00	14697	179.00	2087	245.00	698	442.00	29880
111.00	2475	180.00	1301	246.00	1388	443.00	5575
112.00	268	181.00	539	247.00	285	444.00	564
113.00	59	182.00	50	249.00	336		

Data File: /chem1/nt12.i/20101109.b/ddt.b/df1109.d
Injection Date: 09-NOV-2010 10:40
Instrument: nt12.i
Client Sample ID:

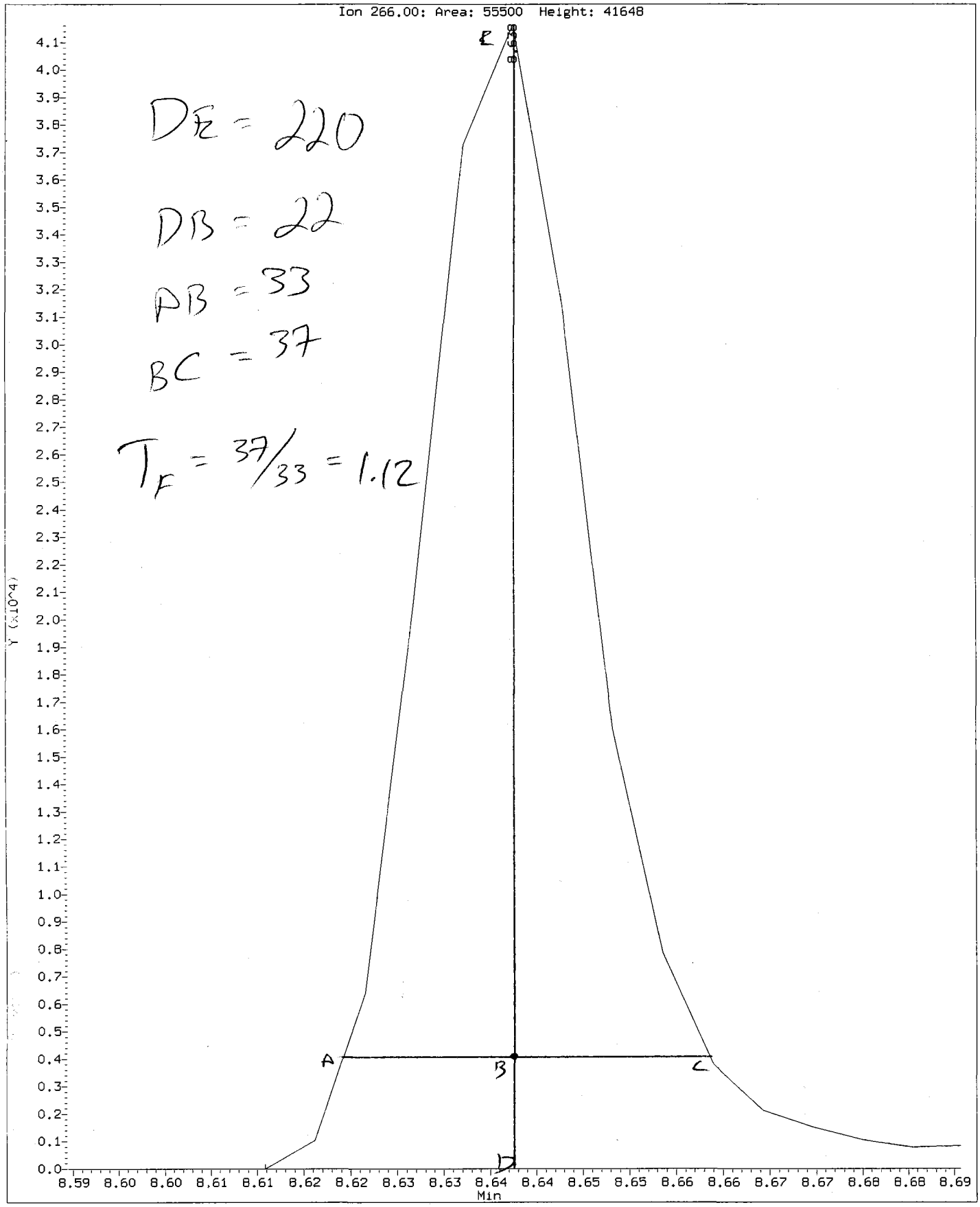
Compound: Benzidine
CAS Number:



RS97:00198

Data File: /chem1/nt12.i/20101109.b/ddt.b/df1109.d
Injection Date: 09-NOV-2010 10:40
Instrument: nt12.i
Client Sample ID:

Compound: Pentachlorophenol
CAS Number: 87-86-5



Analytical Resources Inc.
ABN by sw846 8270C
DDT Breakdown Report

Data file: /chem1/nt12.i/20101109.b/ddt.b/df1109.d ARI ID:
Method: /chem1/nt12.i/20101109.b/ddt.b/sw846ddt.m Misc:
Analysis Date: 09-NOV-2010 10:40 Instrument: nt12.i

COMPOUND	RT	AREA
Pentachlorophenol	8.638	55500
Benzidine	10.438	191755
4,4'-DDE	10.721	316
4,4'-DDD	11.122	6110
4,4'-DDT	11.474	144072

$$\text{DDT Percent Breakdown} = \frac{(\text{DDE Area} + \text{DDD Area}) * 100}{(\text{DDE Area} + \text{DDD Area} + \text{DDT Area})}$$

$$\text{DDT Percent Breakdown} = \frac{(316 + 6110) * 100}{(316 + 6110 + 144072)}$$

DDT Percent Breakdown = 4.3 %

Analytical Resources, Inc.

Semivolatile Report SW846 Method 8270D

Data file : /chem1/nt12.i/20101109.b/cc1109.d
Lab Smp Id: CC1109
Inj Date : 09-NOV-2010 11:04
Operator : VTS Inst ID: nt12.i
Smp Info : CC1109
Misc Info : 10-
Comment : 1ul Injection
Method : /chem1/nt12.i/20101109.b/PNADMD.m
Meth Date : 09-Nov-2010 11:48 van Quant Type: ISTD
Cal Date : 30-OCT-2010 13:19 Cal File: ic1030f.d
Als bottle: 3 Continuing Calibration Sample
Dil Factor: 1.00000
Integrator: HP RTE Compound Sublist: pnas.sub
Target Version: 3.50
Processing Host: cserv3

Compounds	QUANT SIG MASS	RT	EXP RT	REL RT	RESPONSE	AMOUNTS CAL-AMT (ug/mL)	AMOUNTS ON-COL (ug/mL)
* 27 Naphthalene-d8	136	4.888	4.888	(1.000)	180585	20.0000	
28 Naphthalene	128	4.909	4.909	(1.004)	265231	25.0000	25.81
32 2-Methylnaphthalene	141	5.726	5.726	(1.172)	145930	25.0000	26.60
105 1-methylnaphthalene	141	5.854	5.854	(1.198)	145371	25.0000	25.70
$ 36 2-Fluorobiphenyl	172	6.202	6.202	(0.887)	223505	25.0000	25.89
40 Acenaphthylene	152	6.805	6.805	(0.973)	284078	25.0000	25.28
* 42 Acenaphthene-d10	164	6.992	6.992	(1.000)	112208	20.0000	
44 Acenaphthene	153	7.030	7.030	(1.005)	173452	25.0000	25.14
46 Dibenzofuran	168	7.227	7.227	(1.034)	273691	25.0000	25.86
49 Fluorene	166	7.644	7.644	(1.093)	203090	25.0000	25.70
* 59 Phenanthrene-d10	188	8.766	8.766	(1.000)	205783	20.0000	
60 Phenanthrene	178	8.793	8.793	(1.003)	280617	25.0000	25.70
61 Anthracene	178	8.851	8.851	(1.010)	284537	25.0000	25.22
62 Carbazole	167	9.065	9.065	(1.034)	241908	25.0000	26.58
64 Fluoranthene	202	10.240	10.240	(0.854)	343154	25.0000	25.14
65 Pyrene	202	10.508	10.508	(0.876)	335915	25.0000	24.80
$ 66 Terphenyl-d14	244	10.743	10.743	(0.896)	218728	25.0000	25.32
68 Benzo(a)anthracene	228	11.977	11.977	(0.999)	280558	25.0000	25.56
* 69 Chrysene-d12	240	11.993	11.993	(1.000)	195439	20.0000	
71 Chrysene	228	12.025	12.025	(1.003)	243748	25.0000	23.75
187 Total Benzofluoranthenes	252	13.243	13.243	(0.973)	441884	50.0000	55.32
76 Benzo(a)pyrene	252	13.553	13.553	(0.996)	190751	25.0000	25.99
* 77 Perylene-d12	264	13.611	13.611	(1.000)	134112	20.0000	
99 Perylene	252	13.643	13.643	(1.002)	191797	25.0000	24.58
78 Indeno(1,2,3-cd)pyrene	276	14.717	14.717	(1.081)	229496	25.0000	21.07
79 Dibenzo(a,h)anthracene	278	14.728	14.728	(1.082)	185486	25.0000	20.68

Compounds	QUANT SIG MASS	RT	EXP RT	REL RT	RESPONSE	AMOUNTS CAL-AMT (ug/mL)	AMOUNTS ON-COL (ug/mL)
80 Benzo(g,h,i)perylene	276	15.011	15.011	(1.103)	191580	25.0000	21.41

VR
11-10-10

Analytical Resources, Inc.

INTERNAL STANDARD COMPOUNDS
AREA AND RT SUMMARY

Instrument ID: nt12.i
Lab File ID: cc1109.d
Lab Smp Id: CC1109
Analysis Type: SV
Quant Type: ISTD
Operator: VTS
Method File: /chem1/nt12.i/20101109.b/PNADMD.m
Misc Info: 10-

Calibration Date: 09-NOV-2010
Calibration Time: 11:04

Level:
Sample Type:

Test Mode:
Use Initial Calibration Level 4.

COMPOUND	STANDARD	AREA LIMIT LOWER	AREA LIMIT UPPER	SAMPLE	%DIFF
27 Naphthalene-d8	237664	118832	475328	180585	-24.02
42 Acenaphthene-d10	143363	71682	286726	112208	-21.73
59 Phenanthrene-d10	245437	122718	490874	205783	-16.16
69 Chrysene-d12	199260	99630	398520	195439	-1.92
77 Perylene-d12	197636	98818	395272	134112	-32.14

COMPOUND	STANDARD	RT LIMIT LOWER	RT LIMIT UPPER	SAMPLE	%DIFF
27 Naphthalene-d8	4.89	4.39	5.39	4.89	0.00
42 Acenaphthene-d10	6.99	6.49	7.49	6.99	0.00
59 Phenanthrene-d10	8.77	8.27	9.27	8.77	0.00
69 Chrysene-d12	11.99	11.49	12.49	11.99	0.00
77 Perylene-d12	13.61	13.11	14.11	13.61	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.

Analytical Resources, Inc.

CONTINUING CALIBRATION COMPOUNDS

Instrument ID: nt12.i
Lab File ID: cc1109.d
Analysis Type:
Lab Sample ID: CC1109
Method: /chem1/nt12.i/20101109.b/PNADMD.m

Injection Date: 09-NOV-2010 11:04
Init. Cal. Date(s): 30-OCT-2010 30-OCT-2010
Init. Cal. Times: 11:27 13:19
Quant Type: ISTD

COMPOUND	RRF / AMOUNT	RF25	MIN RRF	%D / %DRIFT	MAX %D / %DRIFT	CURVE TYPE
28 Naphthalene	1.13829	1.17499	0.010	3.22375	20.00000	Averaged
32 2-Methylnaphthalene	0.60757	0.64648	0.010	6.40430	20.00000	Averaged
105 1-methylnaphthalene	0.62646	0.64400	0.010	2.80029	20.00000	Averaged
$ 36 2-Fluorobiphenyl	1.53867	1.59349	0.010	3.56328	20.00000	Averaged
40 Acenaphthylene	2.00273	2.02535	0.010	1.12934	20.00000	Averaged
44 Acenaphthene	1.23000	1.23664	0.010	0.53994	20.00000	Averaged
46 Dibenzofuran	1.88613	1.95130	0.010	3.45509	20.00000	Averaged
49 Fluorene	1.40830	1.44795	0.010	2.81570	20.00000	Averaged
60 Phenanthrene	1.06102	1.09092	0.010	2.81844	20.00000	Averaged
61 Anthracene	1.09658	1.10616	0.010	0.87338	20.00000	Averaged
62 Carbazole	0.88463	0.94044	0.010	6.30887	20.00000	Averaged
64 Fluoranthene	1.39703	1.40465	0.010	0.54518	20.00000	Averaged
65 Pyrene	1.38595	1.37501	0.010	-0.78941	20.00000	Averaged
$ 66 Terphenyl-d14	0.88413	0.89533	0.010	1.26640	20.00000	Averaged
68 Benzo(a)anthracene	1.12317	1.14842	0.010	2.24845	20.00000	Averaged
71 Chrysene	1.05006	0.99775	0.010	-4.98236	20.00000	Averaged
187 Total Benzofluoranthenes	1.19124	1.31795	0.010	10.63705	20.00000	Averaged
76 Benzo(a)pyrene	1.09431	1.13786	0.010	3.97980	20.00000	Averaged
99 Perylene	1.16368	1.14410	0.010	-1.68304	20.00000	Averaged
78 Indeno(1,2,3-cd)pyrene	1.62468	1.36898	0.010	-15.73845	20.00000	Averaged
79 Dibenzo(a,h)anthracene	1.33758	1.10646	0.010	-17.27925	20.00000	Averaged
80 Benzo(g,h,i)perylene	1.33470	1.14280	0.010	-14.37727	20.00000	Averaged

Data File: /chem1/nt12.i/20101109.b/cc1109.d

Date : 09-NOV-2010 11:04

Client ID:

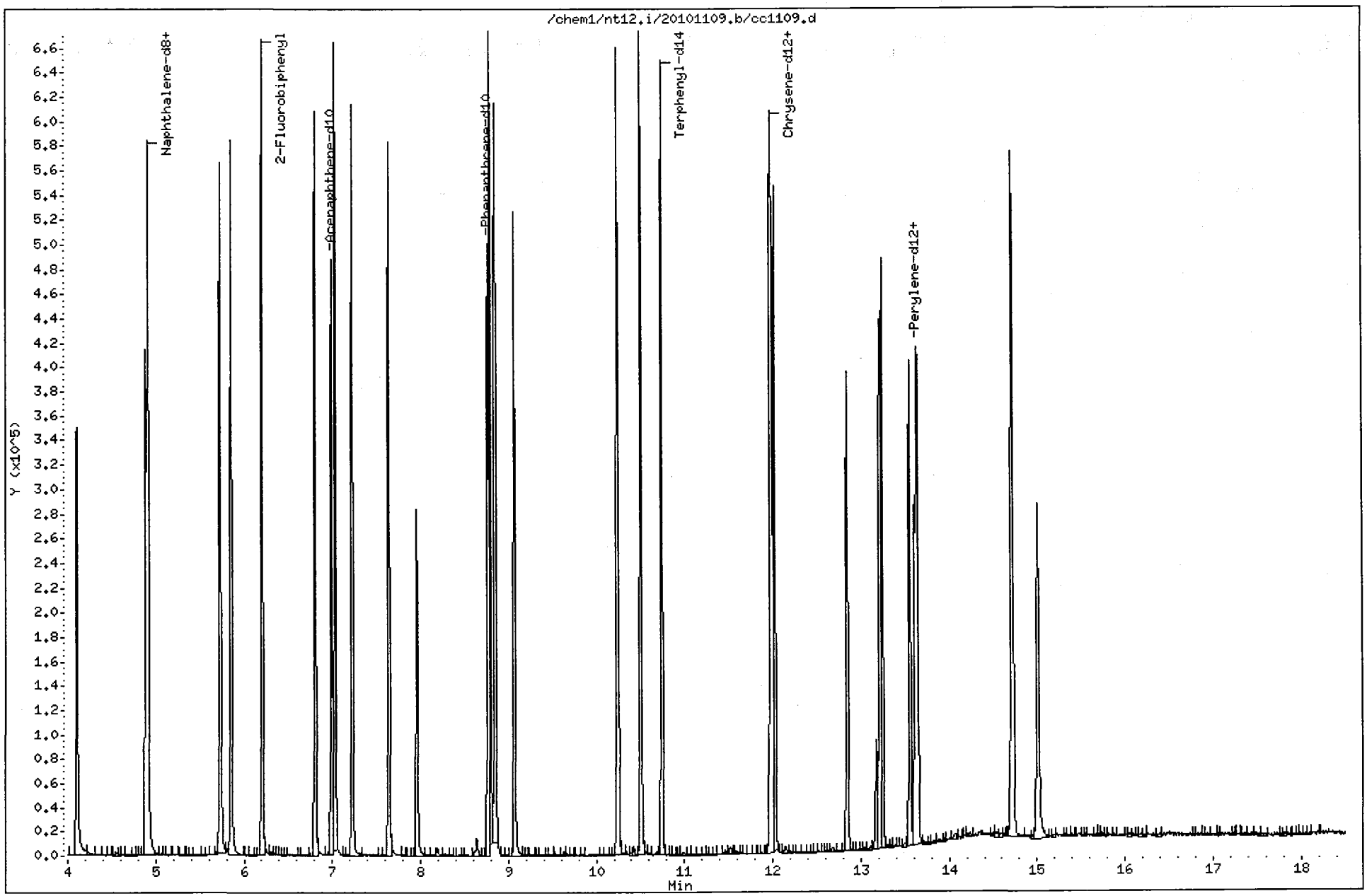
Sample Info: CC1109

Column phase: ZB-5msi

Instrument: nt12.i

Operator: VTS

Column diameter: 0.32

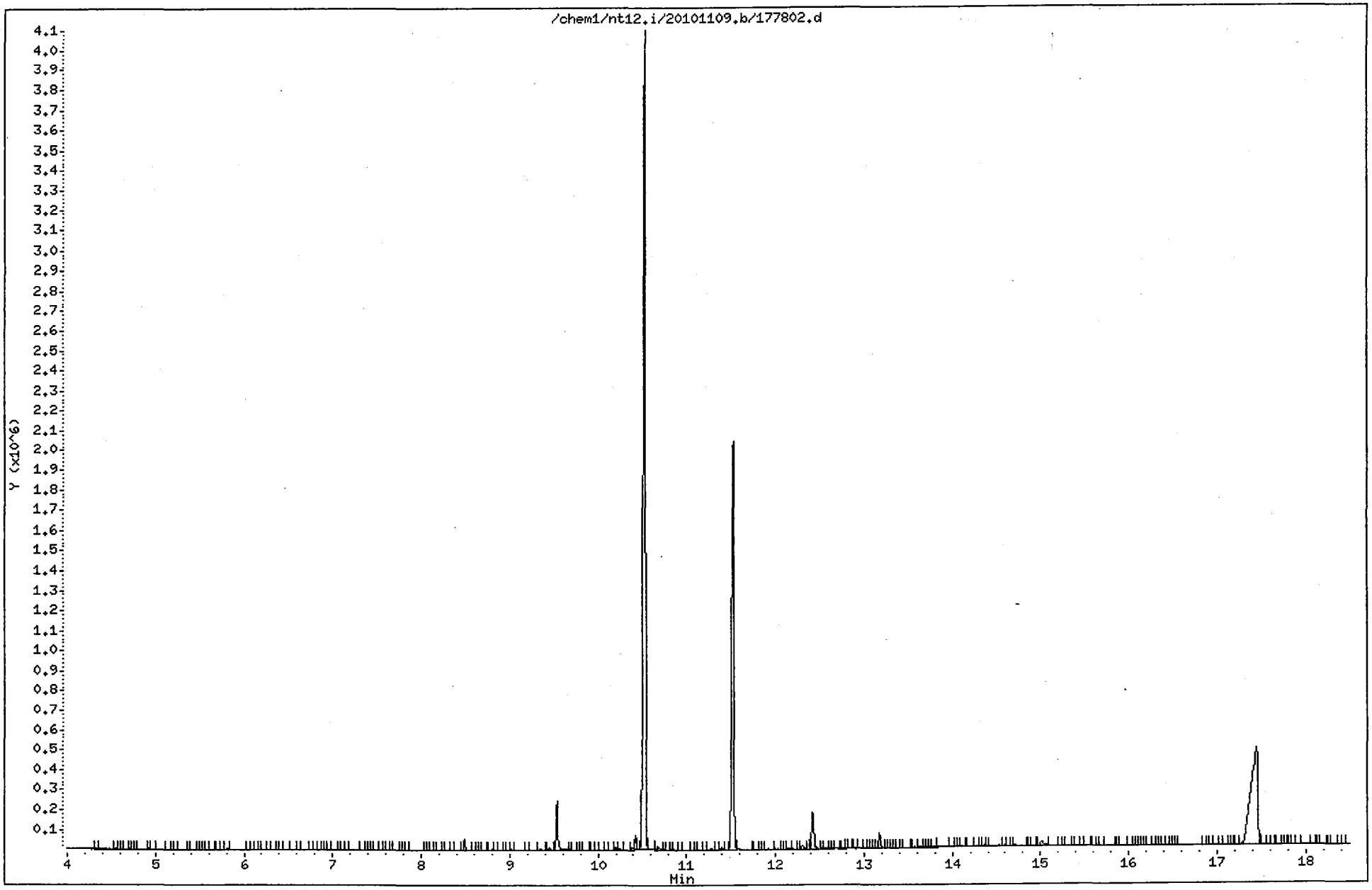


RS97:00295

Data File: /chem1/nt12.i/20101109.b/177802.d
Date : 09-NOV-2010 11:31
Client ID:
Sample Info: 177802
Volume Injected (uL): 1.0
Column phase: ZB-5msi

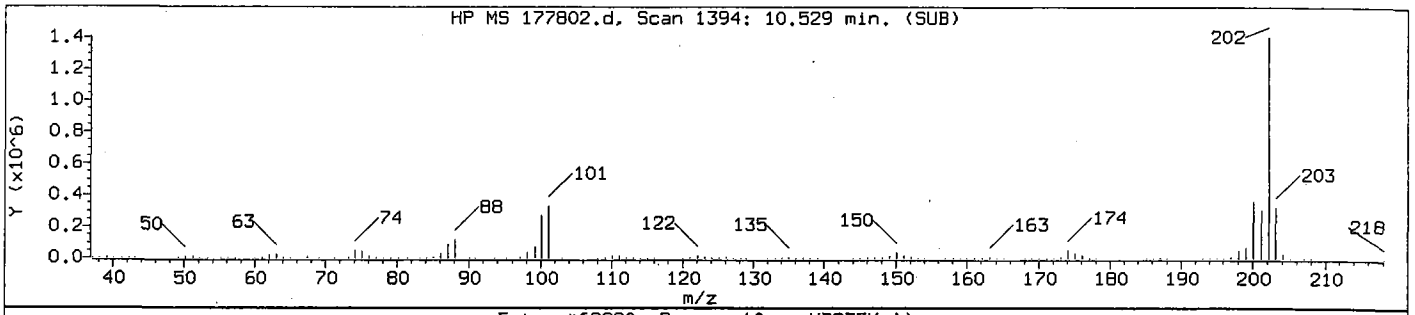
Instrument: nt12.i

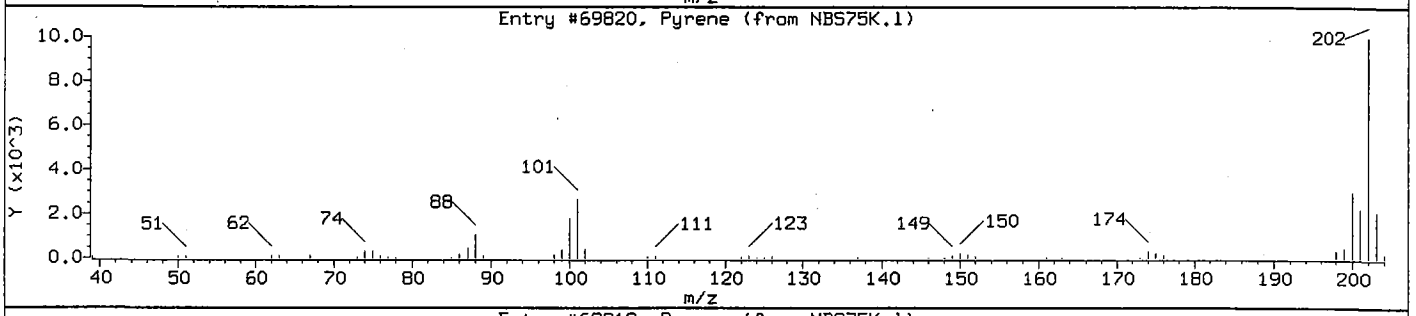
Operator: VTS
Column diameter: 0.32

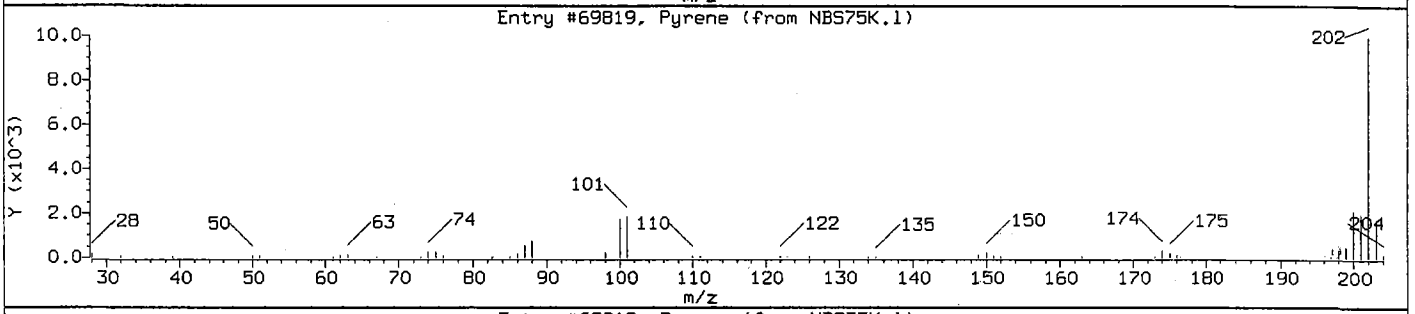


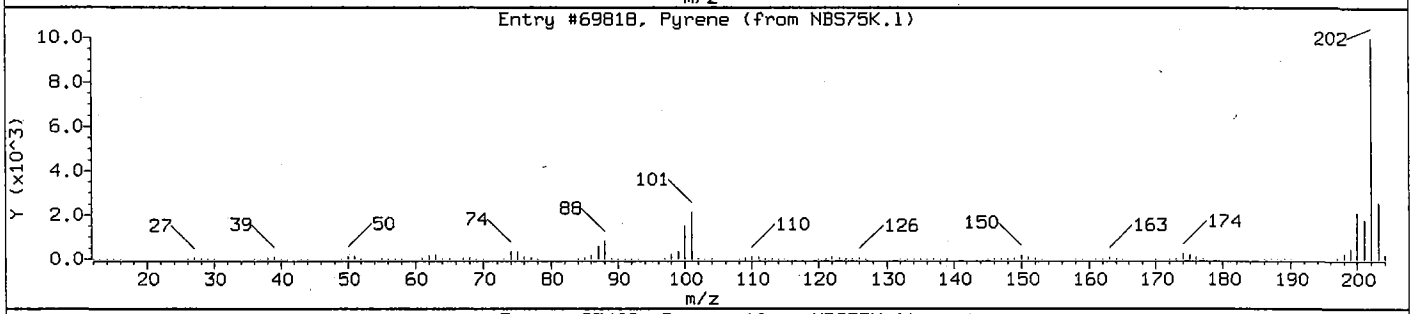
RS97 : 00296

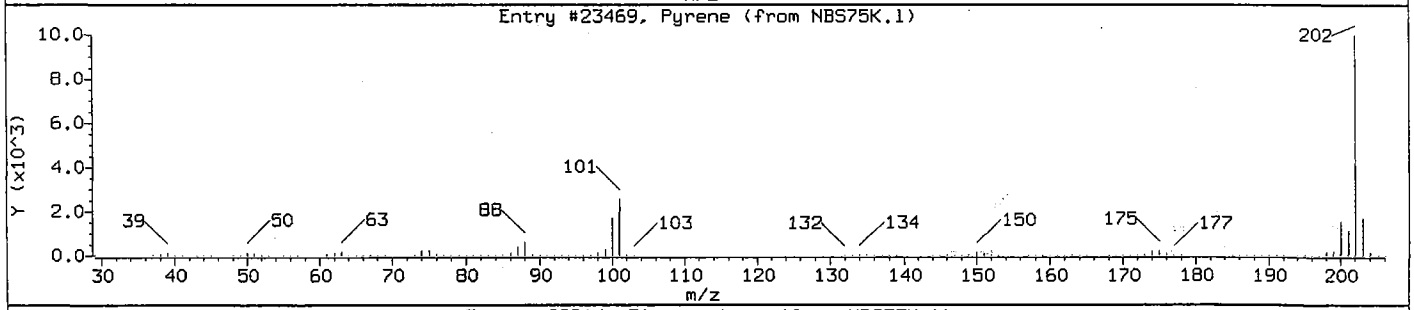
Data File: /chem1/nt12.i/20101109.b/177802.d
Injection Date: 09-NOV-2010 11:31
Instrument: nt12.i
Client Sample ID:

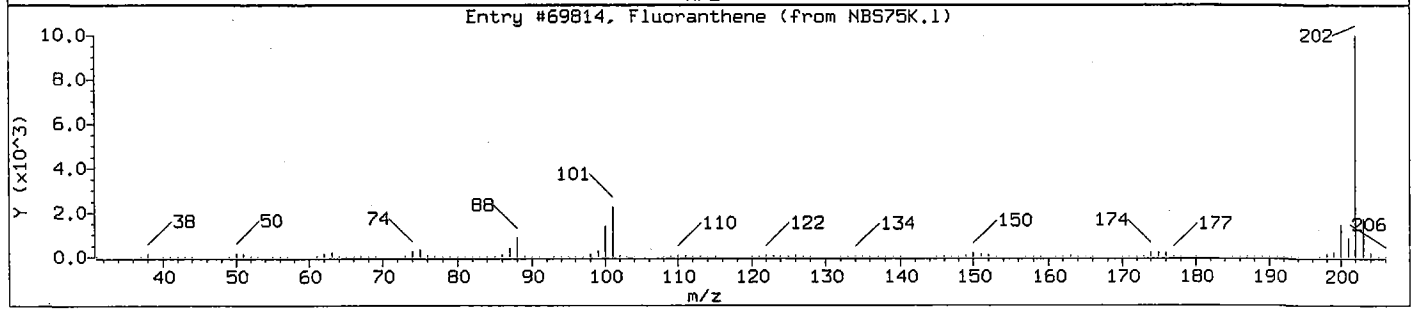












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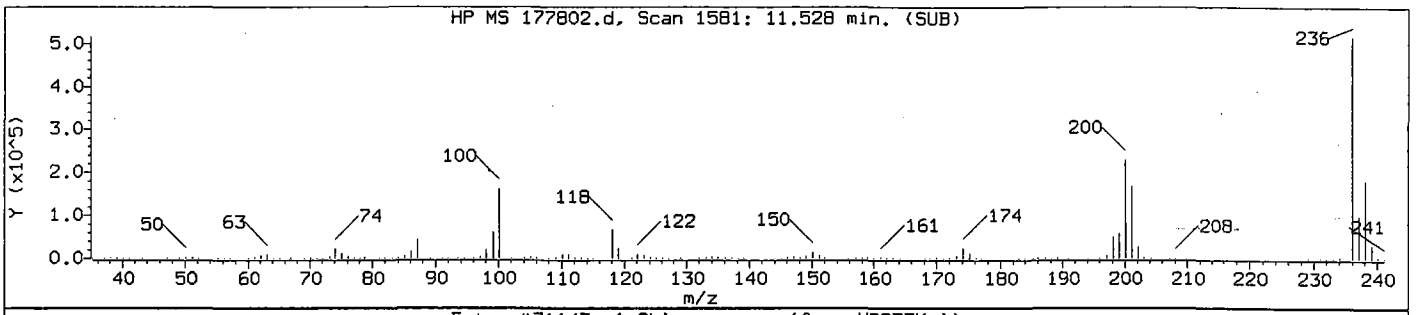
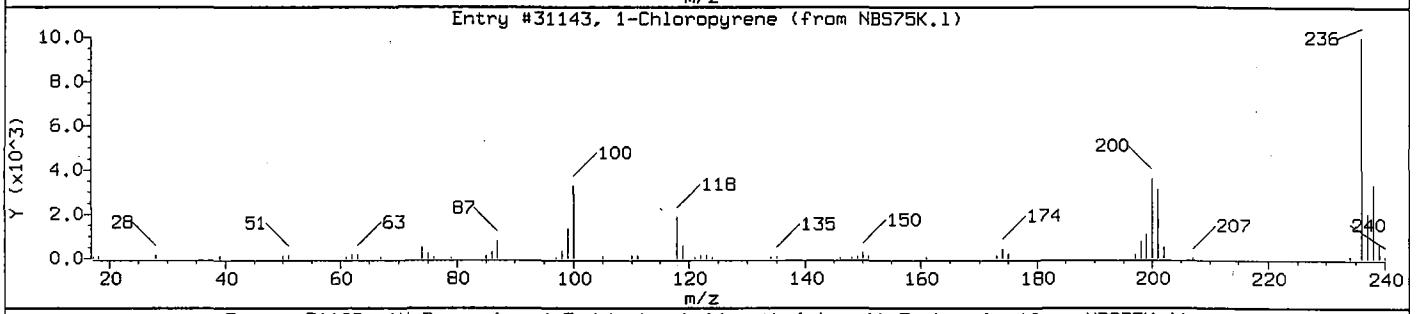
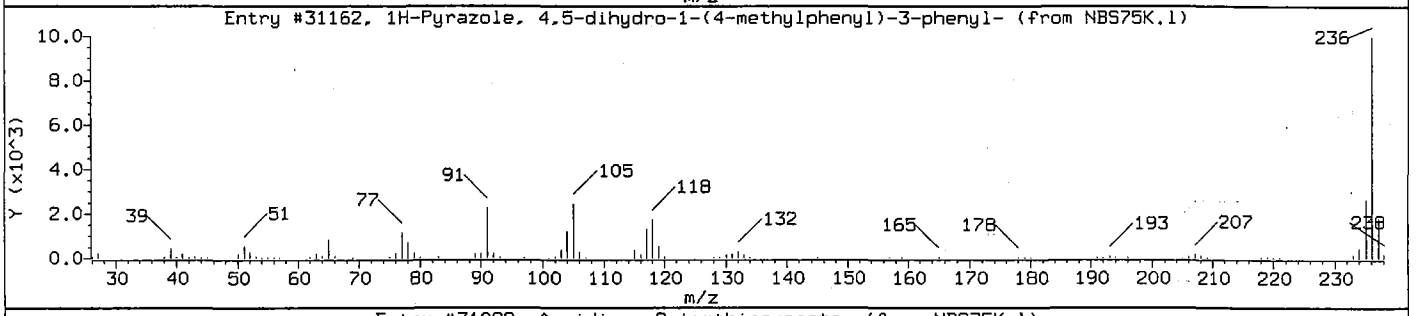
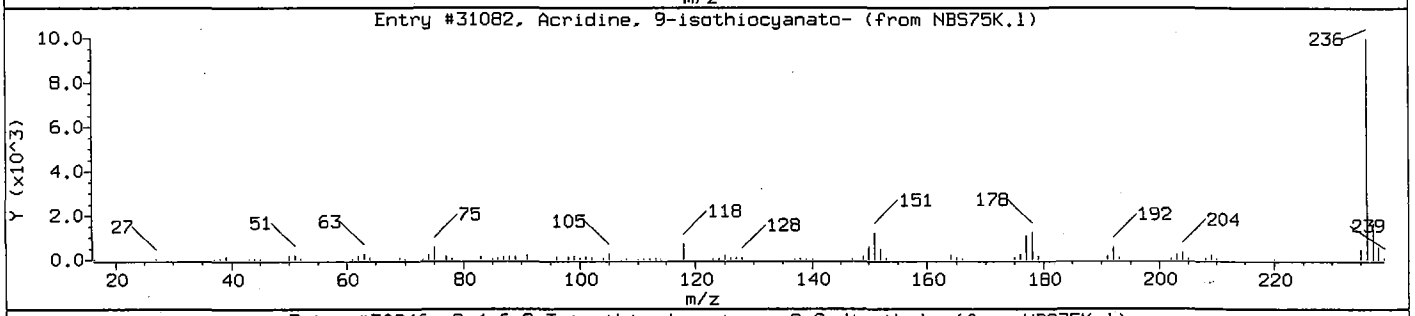
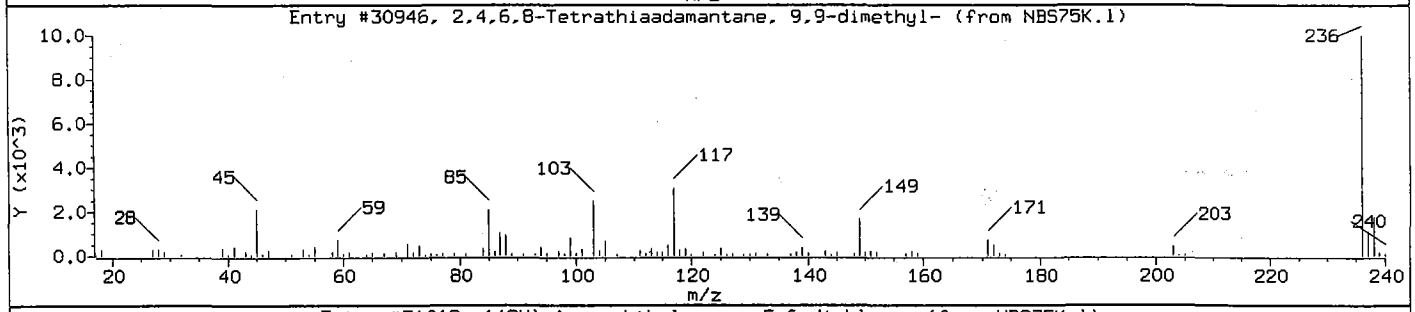
Injection Date: 09-NOV-2010 11:31
Instrument: nt12.i
Client Sample ID:

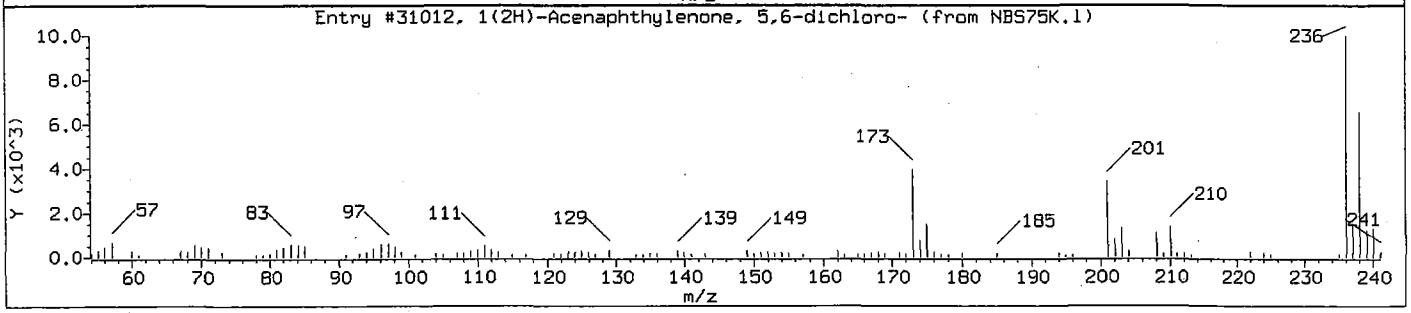




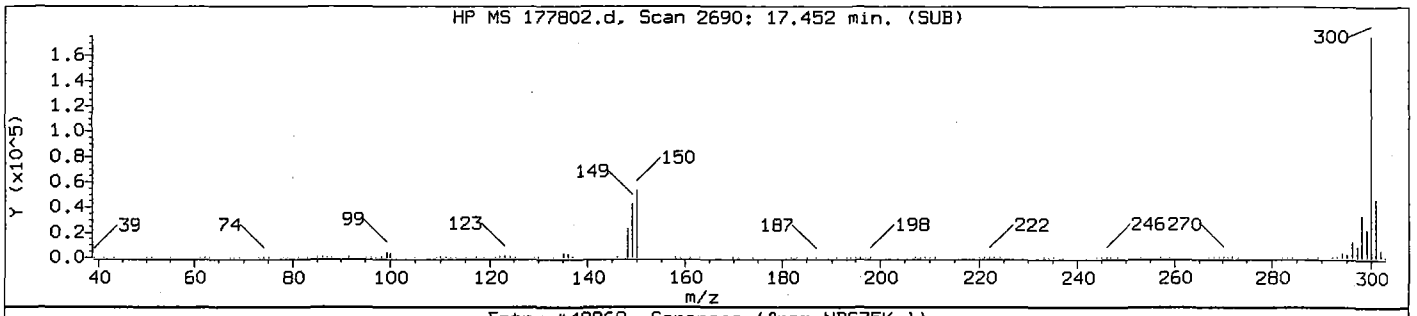


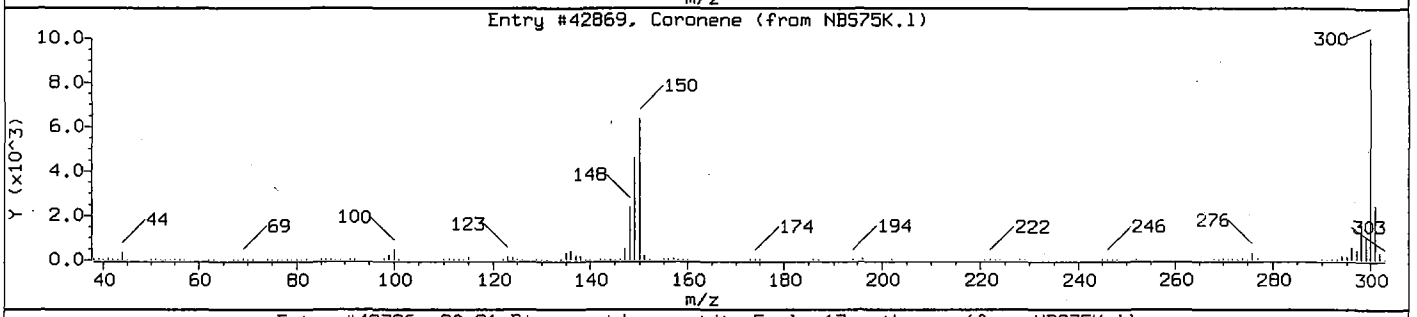


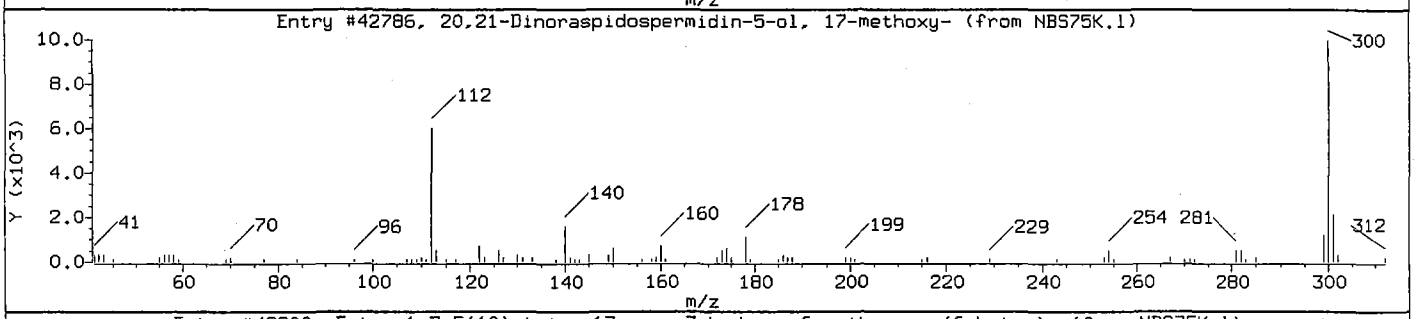


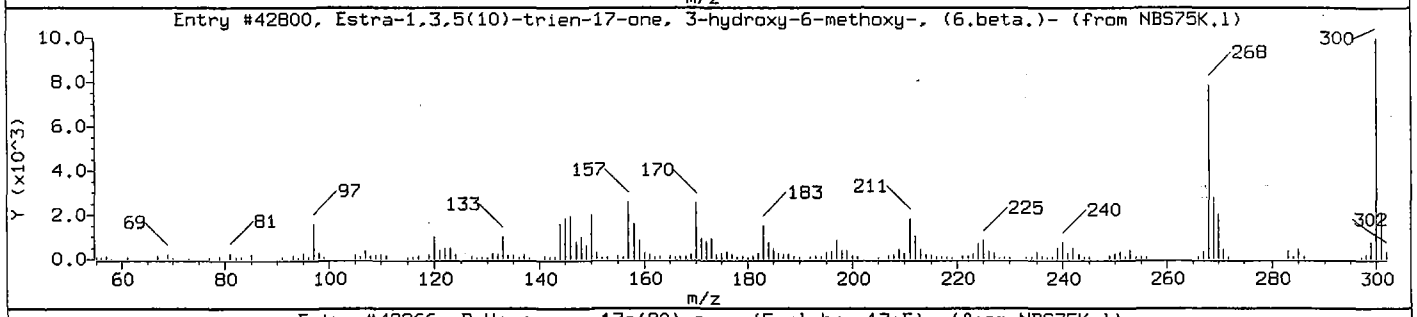


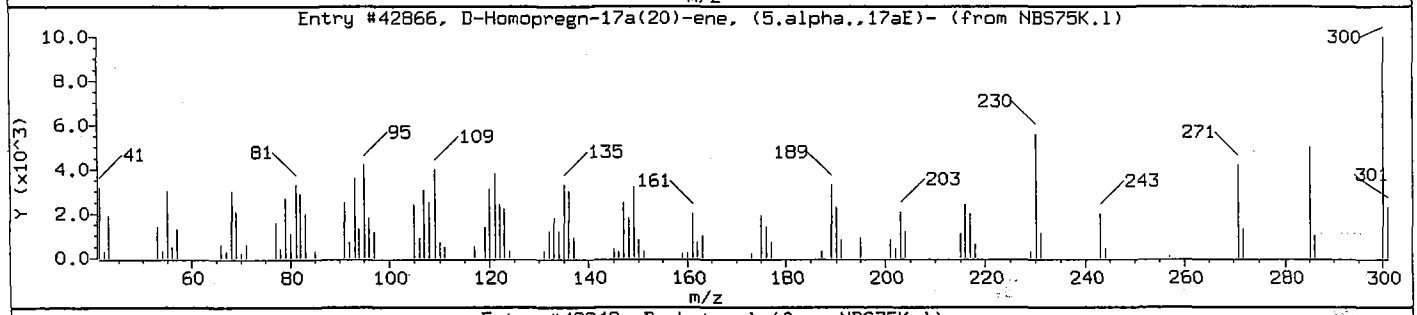
Data File: /chem1/nt12.i/20101109.b/177802.d
Injection Date: 09-NOV-2010 11:31
Instrument: nt12.i
Client Sample ID:

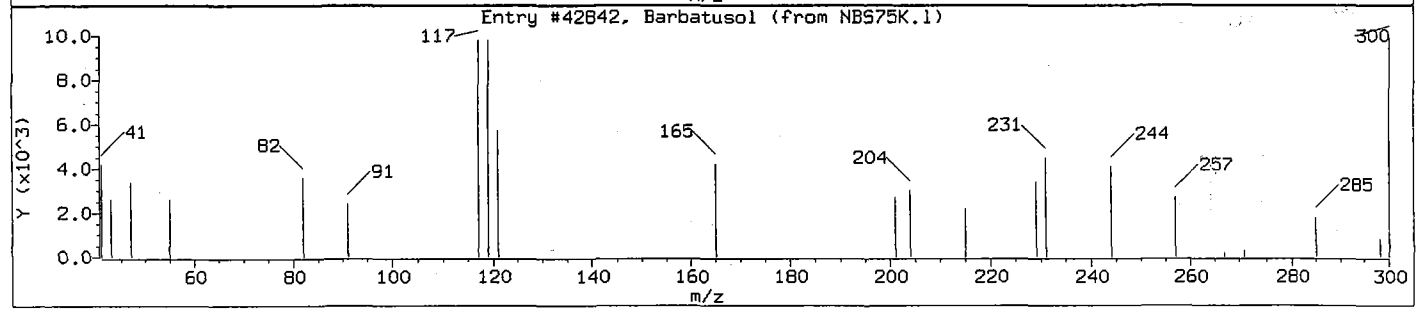












RS97:00209

Analytical Resources, Inc.

Semivolatile Report SW846 Method 8270D

Data file : /chem1/nt12.i/20101109.b/rs97mb.d
Lab Smp Id: RS97MBS1 Client Smp ID: RS97MBS1
Inj Date : 09-NOV-2010 17:41
Operator : VTS Inst ID: nt12.i
Smp Info : RS97MBS1
Misc Info : 10-27424
Comment : 1ul Injection
Method : /chem1/nt12.i/20101109.b/PNADMD.m
Meth Date : 09-Nov-2010 11:48 van Quant Type: ISTD
Cal Date : 30-OCT-2010 13:19 Cal File: ic1030f.d
Als bottle: 18 QC Sample: BLANK
Dil Factor: 1.00000
Integrator: HP RTE Compound Sublist: pnas.sub
Target Version: 3.50
Processing Host: cserv3

Concentration Formula: Amt * DF * Vt/(Ws * (100 - M)/100) * CpndVariable

Name	Value	Description
DF	1.00000	Dilution Factor
Vt	10000.00000	Volume of final extract (uL)
Ws	7.50000	Weight of sample extracted (g)
M	0.00000	% Moisture

Cpnd Variable Local Compound Variable

Compounds	QUANT SIG MASS	RT	EXP RT	REL RT	RESPONSE	CONCENTRATIONS ON-COLUMN (ug/mL)	FINAL (ug/kg)
* 27 Naphthalene-d8	136	4.887	4.888	(1.000)	179301	20.0000	
28 Naphthalene	128	Compound Not Detected.					
32 2-Methylnaphthalene	141	Compound Not Detected.					
105 1-methylnaphthalene	141	Compound Not Detected.					
$ 36 2-Fluorobiphenyl	172	6.207	6.202	(0.888)	14168	1.60914	2146
40 Acenaphthylene	152	Compound Not Detected.					
* 42 Acenaphthene-d10	164	6.992	6.992	(1.000)	114446	20.0000	
44 Acenaphthene	153	Compound Not Detected.					
46 Dibenzofuran	168	Compound Not Detected.					
49 Fluorene	166	Compound Not Detected.					
* 59 Phenanthrene-d10	188	8.766	8.766	(1.000)	208746	20.0000	
60 Phenanthrene	178	Compound Not Detected.					
61 Anthracene	178	Compound Not Detected.					
62 Carbazole	167	Compound Not Detected.					

Compounds	QUANT SIG MASS	RT	EXP RT	REL RT	RESPONSE	CONCENTRATIONS ON-COLUMN (ug/mL)	FINAL (ug/kg)
64 Fluoranthene	202	Compound Not Detected.					
65 Pyrene	202	Compound Not Detected.					
$ 66 Terphenyl-d14	244	10.742	10.743	(0.896)	15766	1.65305	2204
68 Benzo(a)anthracene	228	Compound Not Detected.					
* 69 Chrysene-d12	240	11.993	11.993	(1.000)	215748	20.0000	
71 Chrysene	228	Compound Not Detected.					
187 Total Benzofluoranthenes	252	Compound Not Detected.					
76 Benzo(a)pyrene	252	Compound Not Detected.					
* 77 Perylene-d12	264	13.611	13.611	(1.000)	160984	20.0000	
99 Perylene	252	Compound Not Detected.					
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.					

VB
11-10-10

Analytical Resources, Inc.

INTERNAL STANDARD COMPOUNDS
AREA AND RT SUMMARY

Instrument ID: nt12.i
Lab File ID: rs97mb.d
Lab Smp Id: RS97MBS1
Analysis Type: SV
Quant Type: ISTD
Operator: VTS
Method File: /chem1/nt12.i/20101109.b/PNADMD.m
Misc Info: 10-27424

Calibration Date: 09-NOV-2010
Calibration Time: 11:04
Client Smp ID: RS97MBS1
Level: LOW
Sample Type: Solid

Test Mode:
Use Initial Calibration Level 4.

COMPOUND	STANDARD	AREA LIMIT LOWER	AREA LIMIT UPPER	SAMPLE	%DIFF
27 Naphthalene-d8	237664	118832	475328	179301	-24.56
42 Acenaphthene-d10	143363	71682	286726	114446	-20.17
59 Phenanthrene-d10	245437	122718	490874	208746	-14.95
69 Chrysene-d12	199260	99630	398520	215748	8.27
77 Perylene-d12	197636	98818	395272	160984	-18.55

COMPOUND	STANDARD	RT LIMIT LOWER	RT LIMIT UPPER	SAMPLE	%DIFF
27 Naphthalene-d8	4.89	4.39	5.39	4.89	0.00
42 Acenaphthene-d10	6.99	6.49	7.49	6.99	0.00
59 Phenanthrene-d10	8.77	8.27	9.27	8.77	0.00
69 Chrysene-d12	11.99	11.49	12.49	11.99	0.00
77 Perylene-d12	13.61	13.11	14.11	13.61	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.

Analytical Resources, Inc.

RECOVERY REPORT

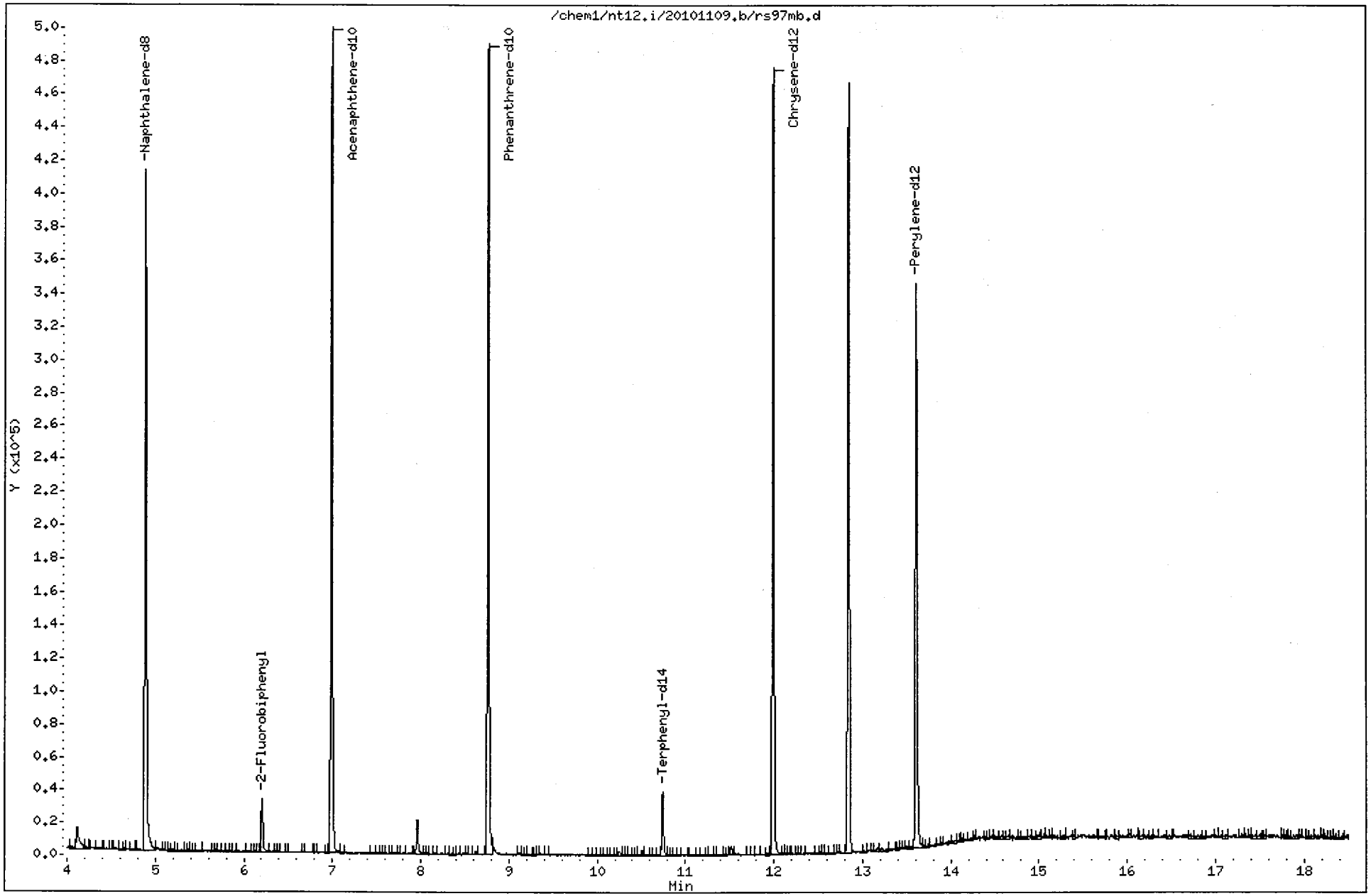
Client Name: NW Natural
Sample Matrix: SOLID
Lab Smp Id: RS97MBS1
Level: LOW
Data Type: MS DATA
SpikeList File: SONICLCS.spk
Sublist File: pnas.sub
Method File: /chem1/nt12.i/20101109.b/PNADMD.m
Misc Info: 10-27424

Client SDG: RS97
Fraction: SV
Client Smp ID: RS97MBS1
Operator: VTS
SampleType: BLANK
Quant Type: ISTD

SURROGATE COMPOUND	CONC ADDED ug/kg	CONC RECOVERED ug/kg	% RECOVERED	LIMITS
$ 36 2-Fluorobiphenyl	3333	2146	64.37	34-100
$ 66 Terphenyl-d14	3333	2204	66.12	35-112

Data File: /chem1/nt12.i/20101109.b/rs97mb.d
Date : 09-NOV-2010 17:41
Client ID: RS97MBS1
Sample Info: RS97MBS1
Volume Injected (uL): 1.0
Column phase: ZB-5msi

Instrument: nt12.i
Operator: VTS
Column diameter: 0.32



RS97 00214

Analytical Resources, Inc.

Semivolatile Report SW846 Method 8270D

Data file : /chem1/nt12.i/20101109.b/rs97sb.d
Lab Smp Id: RS97LCSS1 Client Smp ID: RS97LCSS1
Inj Date : 09-NOV-2010 18:04
Operator : VTS Inst ID: nt12.i
Smp Info : RS97LCSS1
Misc Info : 10-27424
Comment : 1ul Injection
Method : /chem1/nt12.i/20101109.b/PNADMD.m
Meth Date : 09-Nov-2010 11:48 van Quant Type: ISTD
Cal Date : 30-OCT-2010 13:19 Cal File: ic1030f.d
Als bottle: 19 QC Sample: LCS
Dil Factor: 1.00000
Integrator: HP RTE Compound Sublist: pnas.sub
Target Version: 3.50
Processing Host: cserv3

Concentration Formula: Amt * DF * Vt/(Ws * (100 - M)/100) * CpndVariable

Name	Value	Description
DF	1.00000	Dilution Factor
Vt	10000.00000	Volume of final extract (uL)
Ws	7.50000	Weight of sample extracted (g)
M	0.00000	% Moisture

Cpnd Variable Local Compound Variable

Compounds	QUANT SIG MASS	RT	EXP RT	REL RT	RESPONSE	CONCENTRATIONS ON-COLUMN (ug/mL)	FINAL (ug/kg)
* 27 Naphthalene-d8	136	4.888	4.888	(1.000)	189261	20.0000	
28 Naphthalene	128	4.909	4.909	(1.004)	22295	2.06978	2760
32 2-Methylnaphthalene	141	5.732	5.726	(1.173)	10988	1.91114	2548
105 1-methylnaphthalene	141	5.854	5.854	(1.198)	15367	2.59218	3456(R)
$ 36 2-Fluorobiphenyl	172	6.207	6.202	(0.888)	15724	1.68856	2251
40 Acenaphthylene	152	6.805	6.805	(0.973)	23241	1.91747	2557
* 42 Acenaphthene-d10	164	6.992	6.992	(1.000)	121041	20.0000	
44 Acenaphthene	153	7.030	7.030	(1.005)	15078	2.02552	2701
46 Dibenzofuran	168	7.227	7.227	(1.034)	21202	1.85739	2477
49 Fluorene	166	7.644	7.644	(1.093)	17289	2.02849	2705
* 59 Phenanthrene-d10	188	8.761	8.766	(1.000)	209217	20.0000	
60 Phenanthrene	178	8.787	8.793	(1.003)	25428	2.29099	3055
61 Anthracene	178	8.846	8.851	(1.010)	25211	2.19776	2930
62 Carbazole	167	Compound Not Detected.					

Compounds	QUANT SIG MASS	RT	EXP RT	REL RT	RESPONSE	CONCENTRATIONS ON-COLUMN (ug/mL)	FINAL (ug/kg)
64 Fluoranthene	202	10.240	10.240	(0.854)	31511	2.14900	2865
65 Pyrene	202	10.502	10.508	(0.876)	31574	2.17051	2894
$ 66 Terphenyl-d14	244	10.743	10.743	(0.896)	16642	1.79336	2391
68 Benzo(a)anthracene	228	11.971	11.977	(0.999)	25834	2.19143	2922
* 69 Chrysene-d12	240	11.987	11.993	(1.000)	209918	20.0000	
71 Chrysene	228	12.019	12.025	(1.003)	22847	2.07297	2764
187 Total Benzofluoranthenes	252	13.237	13.243	(0.973)	42822	4.69370	6258
76 Benzo(a)pyrene	252	13.553	13.553	(0.996)	18327	2.18675	2916
* 77 Perylene-d12	264	13.611	13.611	(1.000)	153173	20.0000	
99 Perylene	252	Compound Not Detected.					
78 Indeno(1,2,3-cd)pyrene	276	14.712	14.717	(1.081)	22892	1.83977	2453
79 Dibenzo(a,h)anthracene	278	14.723	14.728	(1.082)	18238	1.78035	2374
80 Benzo(g,h,i)perylene	276	15.011	15.011	(1.103)	20167	1.97291	2631

QC Flag Legend

R - Spike/Surrogate failed recovery limits.

VB
11-10-10

Analytical Resources, Inc.

INTERNAL STANDARD COMPOUNDS
AREA AND RT SUMMARY

Instrument ID: nt12.i
Lab File ID: rs97sb.d
Lab Smp Id: RS97LCSS1
Analysis Type: SV
Quant Type: ISTD
Operator: VTS
Method File: /chem1/nt12.i/20101109.b/PNADMD.m
Misc Info: 10-27424

Calibration Date: 09-NOV-2010
Calibration Time: 11:04
Client Smp ID: RS97LCSS1
Level: LOW
Sample Type: Solid

Test Mode:
Use Initial Calibration Level 4.

COMPOUND	STANDARD	AREA LIMIT LOWER	AREA LIMIT UPPER	SAMPLE	%DIFF
27 Naphthalene-d8	237664	118832	475328	189261	-20.37
42 Acenaphthene-d10	143363	71682	286726	121041	-15.57
59 Phenanthrene-d10	245437	122718	490874	209217	-14.76
69 Chrysene-d12	199260	99630	398520	209918	5.35
77 Perylene-d12	197636	98818	395272	153173	-22.50

COMPOUND	STANDARD	RT LIMIT LOWER	RT LIMIT UPPER	SAMPLE	%DIFF
27 Naphthalene-d8	4.89	4.39	5.39	4.89	0.00
42 Acenaphthene-d10	6.99	6.49	7.49	6.99	0.00
59 Phenanthrene-d10	8.77	8.27	9.27	8.76	-0.06
69 Chrysene-d12	11.99	11.49	12.49	11.99	-0.04
77 Perylene-d12	13.61	13.11	14.11	13.61	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.

Data File: /chem1/nt12.i/20101109.b/rs97sb.d
Report Date: 10-Nov-2010 12:25

Analytical Resources, Inc.

RECOVERY REPORT

Client Name: NW Natural
Sample Matrix: SOLID
Lab Smp Id: RS97LCSS1
Level: LOW
Data Type: MS DATA
SpikeList File: pnaslcss.spk
Sublist File: pnas.sub
Method File: /chem1/nt12.i/20101109.b/PNADMD.m
Misc Info: 10-27424

Client SDG: RS97
Fraction: SV
Client Smp ID: RS97LCSS1
Operator: VTS
SampleType: LCS
Quant Type: ISTD

SPIKE COMPOUND	CONC ADDED ug/kg	CONC RECOVERED ug/kg	% RECOVERED	LIMITS
28 Naphthalene	3333	2760	82.79	37-100
32 2-Methylnaphthalen	3333	2548	76.45	43-101
105 1-methylnaphthalen	3333	3456	MS 32-100 103.69*	39-100
40 Acenaphthylene	3333	2557	76.70	44-100
44 Acenaphthene	3333	2701	81.02	41-100
46 Dibenzofuran	3333	2477	74.30	44-100
49 Fluorene	3333	2705	81.14	49-100
60 Phenanthrene	3333	3055	91.64	48-100
61 Anthracene	3333	2930	87.91	50-100
64 Fluoranthene	3333	2865	85.96	54-100
65 Pyrene	3333	2894	86.82	41-105
68 Benzo(a)anthracene	3333	2922	87.66	49-100
71 Chrysene	3333	2764	82.92	50-100
187 Total Benzofluoran	6667	6258	93.87	30-160
76 Benzo(a)pyrene	3333	2916	87.47	50-100
78 Indeno(1,2,3-cd)py	3333	2453	73.59	33-101
79 Dibenzo(a,h)anthra	3333	2374	71.21	37-104
80 Benzo(g,h,i)peryle	3333	2631	78.92	33-107

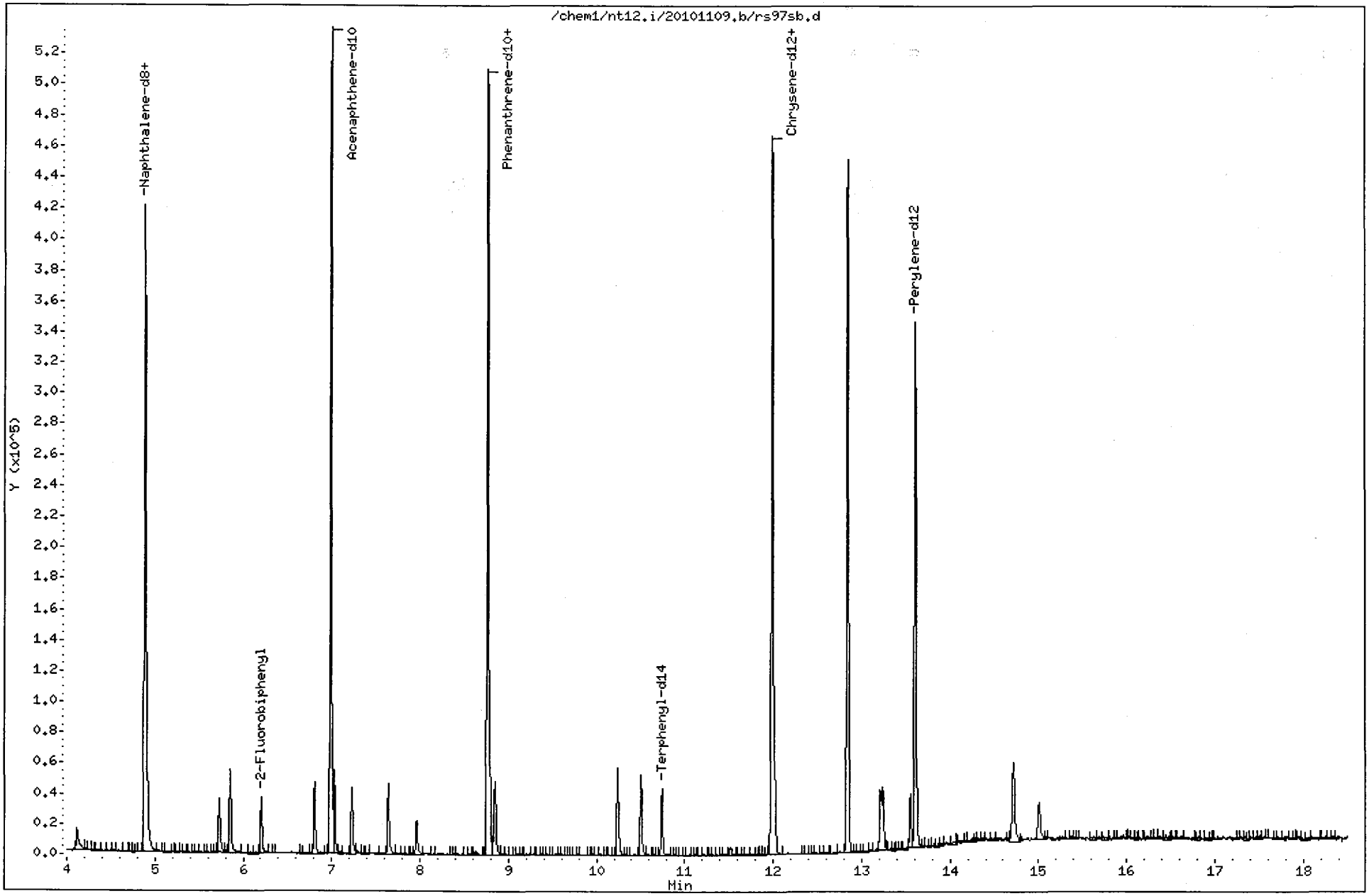
SURROGATE COMPOUND	CONC ADDED ug/kg	CONC RECOVERED ug/kg	% RECOVERED	LIMITS
$ 36 2-Fluorobiphenyl	3333	2251	67.54	34-100
$ 66 Terphenyl-d14	3333	2391	71.73	35-112

Data File: /chem1/nt12.i/20101109.b/rs97sb.d
Date : 09-NOV-2010 18:04
Client ID: RS97LCSS1
Sample Info: RS97LCSS1
Volume Injected (uL): 1.0
Column phase: ZB-5msi

Instrument: nt12.i

Operator: VTS
Column diameter: 0.32

RS97:00219



Analytical Resources, Inc.

Semivolatile Report SW846 Method 8270D

Data file : /chem1/nt12.i/20101109.b/rs97a.d
Lab Smp Id: RS97A
Client Smp ID: GSM-08SO-10-11-1009
Inj Date : 09-NOV-2010 18:28
Operator : VTS
Inst ID: nt12.i
Smp Info : RS97A,3
Misc Info : 10-27417
Comment : 1ul Injection
Method : /chem1/nt12.i/20101109.b/PNADMD.m
Meth Date : 09-Nov-2010 11:48 van
Quant Type: ISTD
Cal Date : 30-OCT-2010 13:19
Cal File: ic1030f.d
Als bottle: 20
Dil Factor: 3.00000
Integrator: HP RTE
Compound Sublist: pnas.sub
Target Version: 3.50
Processing Host: cserv3

Concentration Formula: Amt * DF * Vt/(Ws * (100 - M)/100) * CpndVariable

Name	Value	Description
DF	3.00000	Dilution Factor
Vt	10000.00000	Volume of final extract (uL)
Ws	5.36000	Weight of sample extracted (g)
M	31.20000	% Moisture

Cpnd Variable Local Compound Variable

Compounds	QUANT SIG MASS	RT	EXP RT	REL RT	RESPONSE	CONCENTRATIONS ON-COLUMN (ug/mL)	FINAL (ug/kg)
* 27 Naphthalene-d8	136	4.887	4.888	(1.000)	186824	20.0000	
28 Naphthalene	128	4.919	4.909	(1.007)	1413596	132.944	1082000 E
32 2-Methylnaphthalene	141	5.726	5.726	(1.172)	163963	28.8901	235000
105 1-methylnaphthalene	141	5.854	5.854	(1.198)	81065	13.8528	112700
$ 36 2-Fluorobiphenyl	172	6.207	6.202	(0.888)	4113	0.49117	3996
40 Acenaphthylene	152	6.811	6.805	(0.974)	12115	1.11154	9043 (M)
* 42 Acenaphthene-d10	164	6.992	6.992	(1.000)	108846	20.0000	
44 Acenaphthene	153	7.030	7.030	(1.005)	195856	29.2584	238000
46 Dibenzofuran	168	7.227	7.227	(1.034)	18663	1.81814	14790
49 Fluorene	166	7.639	7.644	(1.092)	106597	13.9081	113100
* 59 Phenanthrene-d10	188	8.766	8.766	(1.000)	191541	20.0000	
60 Phenanthrene	178	8.798	8.793	(1.004)	880439	86.6454	704900 E
61 Anthracene	178	8.846	8.851	(1.009)	130093	12.3874	100800
62 Carbazole	167	9.070	9.065	(1.035)	23664	2.79316	22720

	Compounds	QUANT SIG MASS	RT	EXP RT	REL RT	RESPONSE	CONCENTRATIONS ON-COLUMN (ug/mL)	CONCENTRATIONS FINAL (ug/kg)
	64 Fluoranthene	202	10.246	10.240	(0.854)	472084	40.0687	326000
	65 Pyrene	202	10.507	10.508	(0.876)	566929	48.5034	394600
$	66 Terphenyl-d14	244	10.743	10.743	(0.896)	3512	0.47101	3832
	68 Benzo(a)anthracene	228	11.977	11.977	(0.999)	92287	9.74290	79260
*	69 Chrysene-d12	240	11.993	11.993	(1.000)	168670	20.0000	
	71 Chrysene	228	12.019	12.025	(1.002)	102732	11.6006	94370
	187 Total Benzofluoranthenes	252	13.221	13.243	(0.971)	121860	14.4033	117200
	76 Benzo(a)pyrene	252	13.553	13.553	(0.996)	109192	14.0492	114300
*	77 Perylene-d12	264	13.611	13.611	(1.000)	142046	20.0000	
	99 Perylene	252	13.638	13.643	(1.002)	27066	3.27484	26640 NP
	78 Indeno(1,2,3-cd)pyrene	276	14.712	14.717	(1.081)	74263	6.43586	52360
	79 Dibenzo(a,h)anthracene	278	14.723	14.728	(1.082)	15301	1.61065	13100
	80 Benzo(g,h,i)perylene	276	15.006	15.011	(1.102)	95447	10.0689	81910

QC Flag Legend

M - Compound response manually integrated.

VJS
11-10-10

Analytical Resources, Inc.

INTERNAL STANDARD COMPOUNDS
AREA AND RT SUMMARY

Instrument ID: nt12.i
Lab File ID: rs97a.d
Lab Smp Id: RS97A
Analysis Type: SV
Quant Type: ISTD
Operator: VTS
Method File: /chem1/nt12.i/20101109.b/PNADMD.m
Misc Info: 10-27417

Calibration Date: 09-NOV-2010
Calibration Time: 11:04
Client Smp ID: GSM-08SO-10-11-1
Level: LOW
Sample Type: Soil

Test Mode:
Use Initial Calibration Level 4.

COMPOUND	STANDARD	AREA LIMIT LOWER	AREA LIMIT UPPER	SAMPLE	%DIFF
27 Naphthalene-d8	237664	118832	475328	186824	-21.39
42 Acenaphthene-d10	143363	71682	286726	108846	-24.08
59 Phenanthrene-d10	245437	122718	490874	191541	-21.96
69 Chrysene-d12	199260	99630	398520	168670	-15.35
77 Perylene-d12	197636	98818	395272	142046	-28.13

COMPOUND	STANDARD	RT LIMIT LOWER	RT LIMIT UPPER	SAMPLE	%DIFF
27 Naphthalene-d8	4.89	4.39	5.39	4.89	0.00
42 Acenaphthene-d10	6.99	6.49	7.49	6.99	0.00
59 Phenanthrene-d10	8.77	8.27	9.27	8.77	0.00
69 Chrysene-d12	11.99	11.49	12.49	11.99	0.00
77 Perylene-d12	13.61	13.11	14.11	13.61	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.

Analytical Resources, Inc.

RECOVERY REPORT

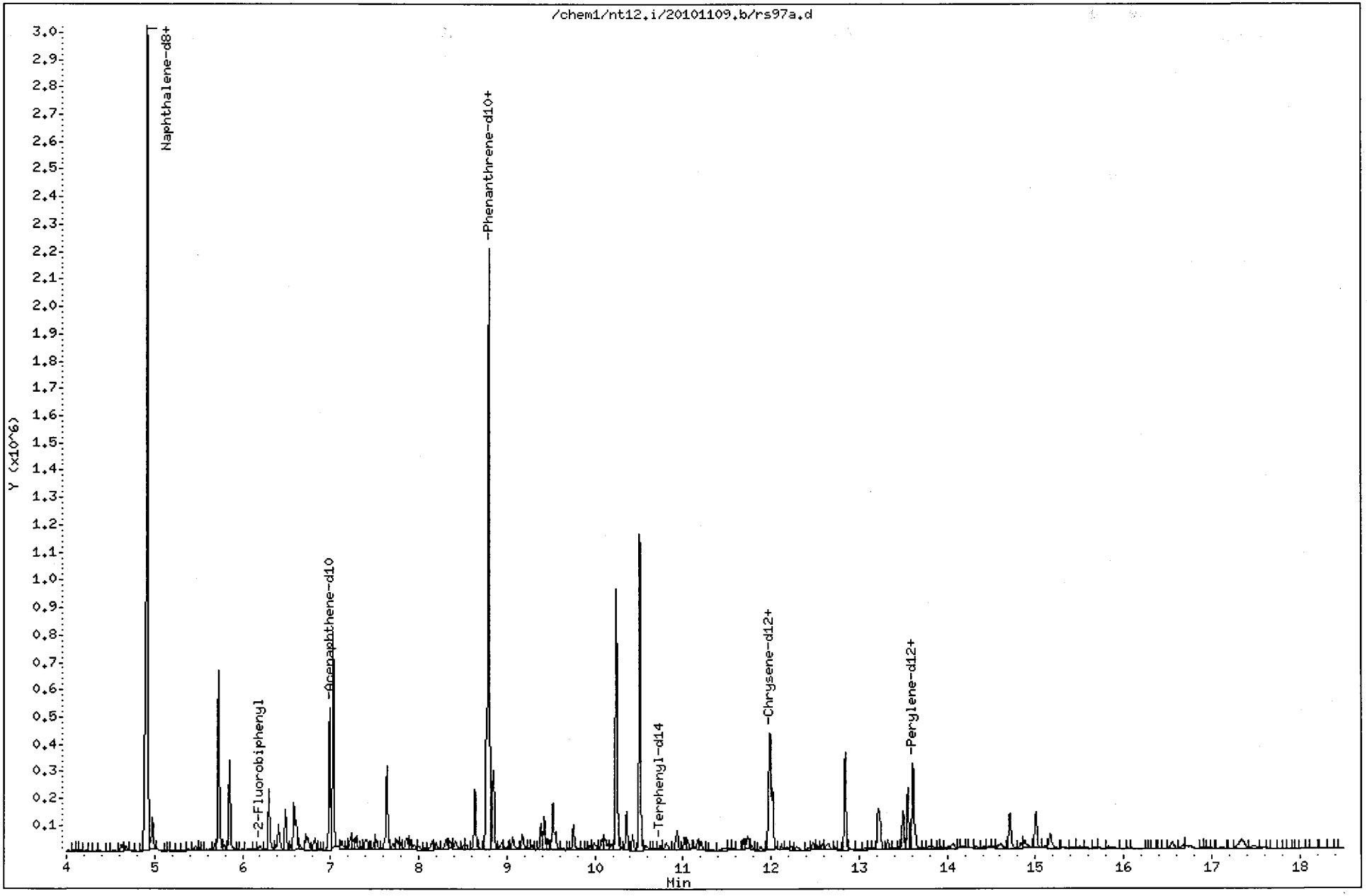
Client Name: NW Natural
Sample Matrix: SOLID
Lab Smp Id: RS97A
Level: LOW
Data Type: MS DATA
SpikeList File: SONICLCS.spk
Sublist File: pnas.sub
Method File: /chem1/nt12.i/20101109.b/PNADMD.m
Misc Info: 10-27417

Client SDG: RS97
Fraction: SV
Client Smp ID: GSM-08SO-10-11-1009
Operator: VTS
SampleType: SAMPLE
Quant Type: ISTD

SURROGATE COMPOUND	CONC ADDED ug/kg	CONC RECOVERED ug/kg	% RECOVERED	LIMITS
$ 36 2-Fluorobiphenyl	6779	3996	58.94	34-100
$ 66 Terphenyl-d14	6779	3832	56.52	35-112

Data File: /chem1/nt12.i/20101109.b/rs97a.d
Date : 09-NOV-2010 18:28
Client ID: GSM-08SO-10-11-1009
Sample Info: RS97A,3
Volume Injected (uL): 1.0
Column phase: ZB-5msi

Instrument: nt12.i
Operator: VTS
Column diameter: 0.32



RS97:00224

Data File: /chem1/nt12.i/20101109.b/rs97a.d

Date : 09-NOV-2010 18:28

Client ID: GSM-08SO-10-11-1009

Instrument: nt12.i

Sample Info: RS97A,3

Volume Injected (uL): 1.0

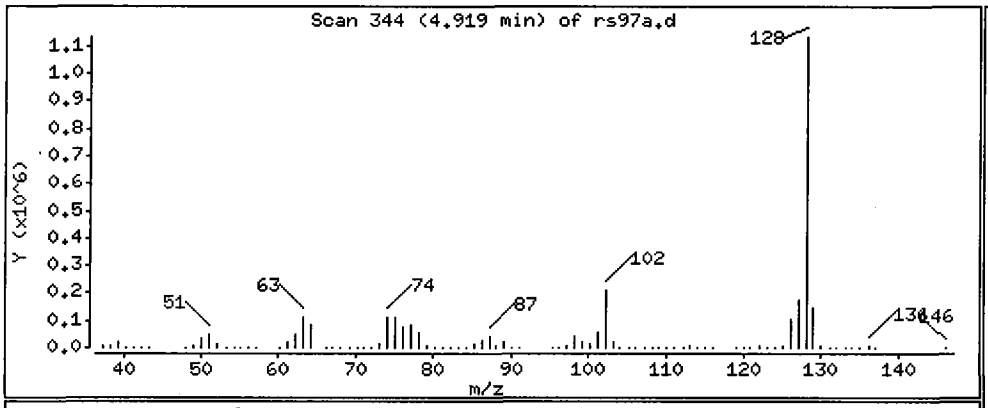
Operator: VTS

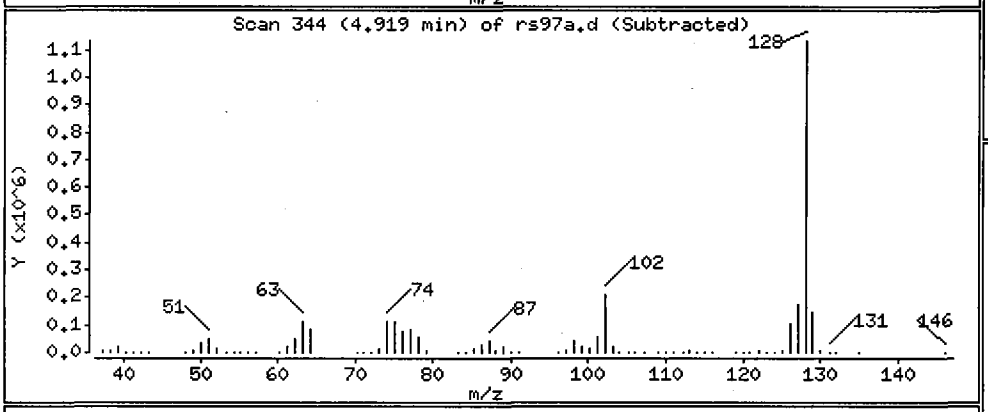
Column phase: ZB-5msi

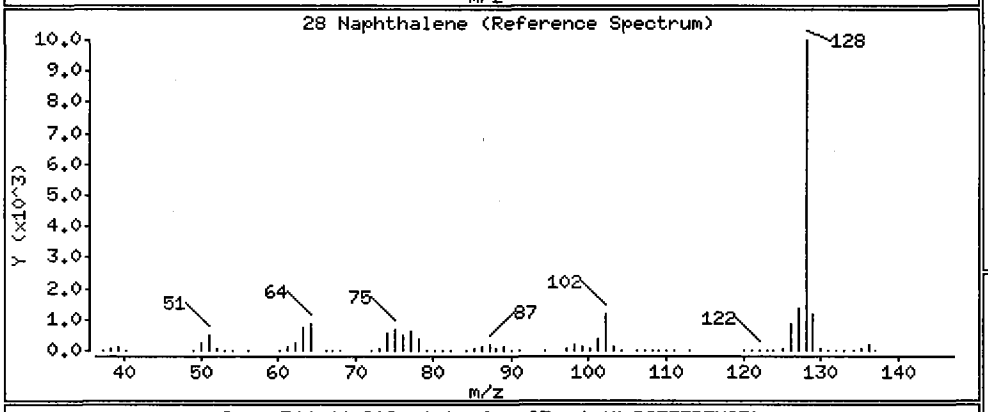
Column diameter: 0.32

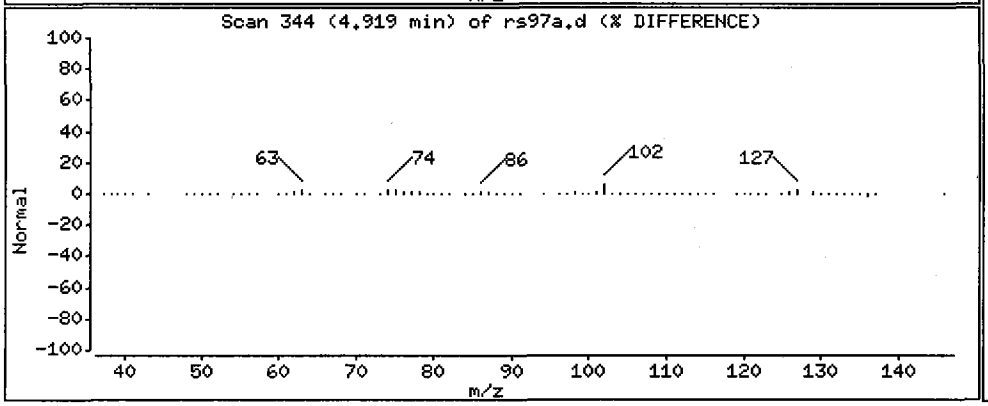
28 Naphthalene

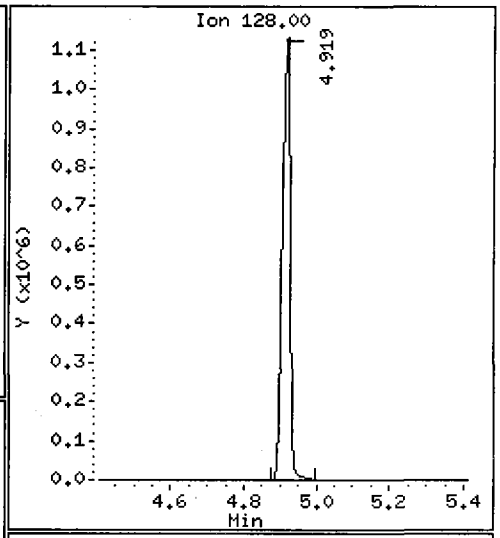
Concentration: 1082000 ug/kg

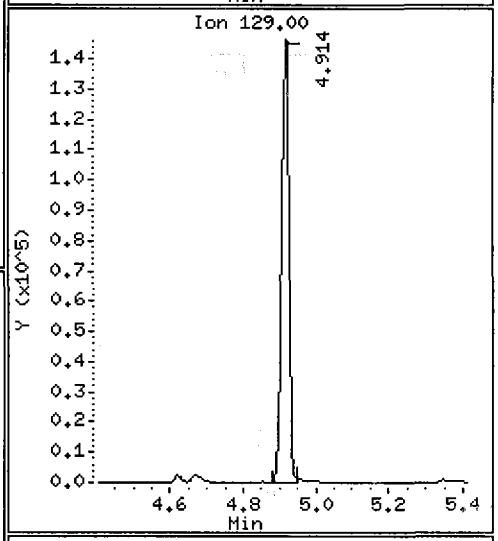


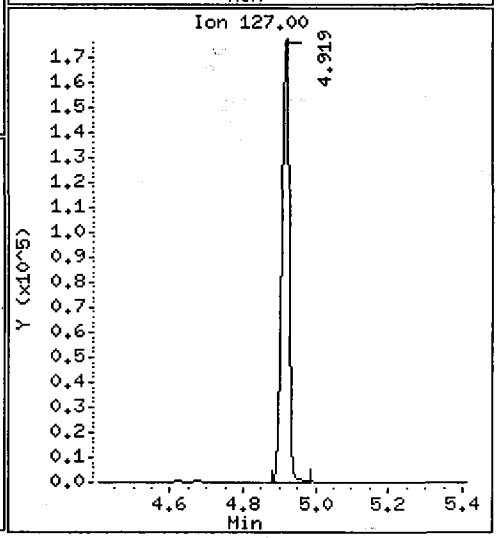












Data File: /chem1/nt12.i/20101109.b/rs97a.d

Date : 09-NOV-2010 18:28

Client ID: GSM-08SO-10-11-1009

Instrument: nt12.i

Sample Info: RS97A,3

Volume Injected (uL): 1.0

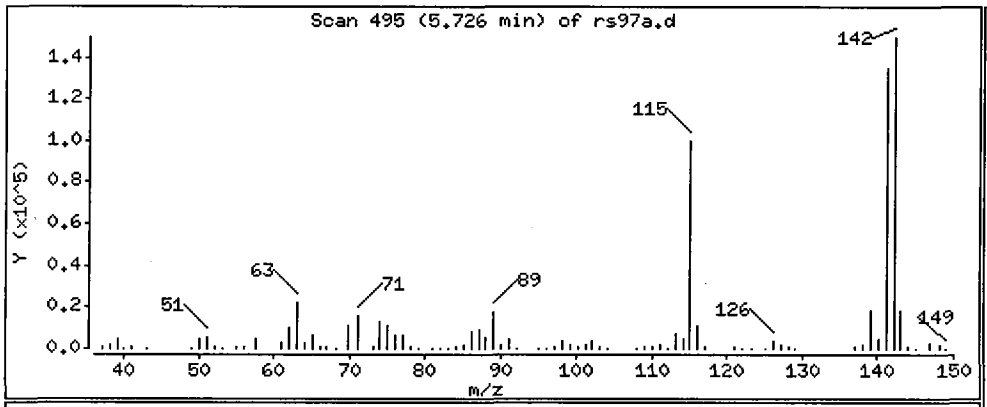
Operator: VTS

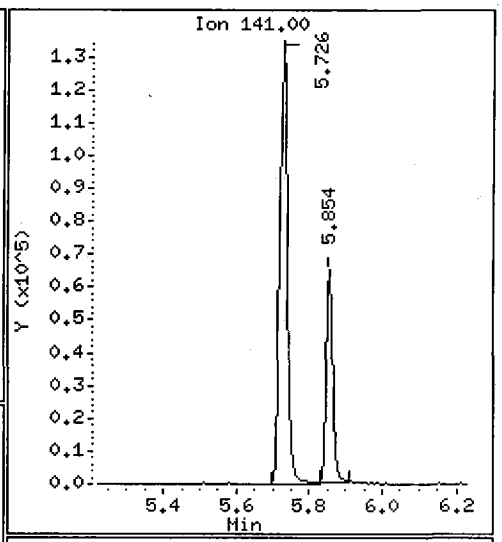
Column phase: ZB-5msi

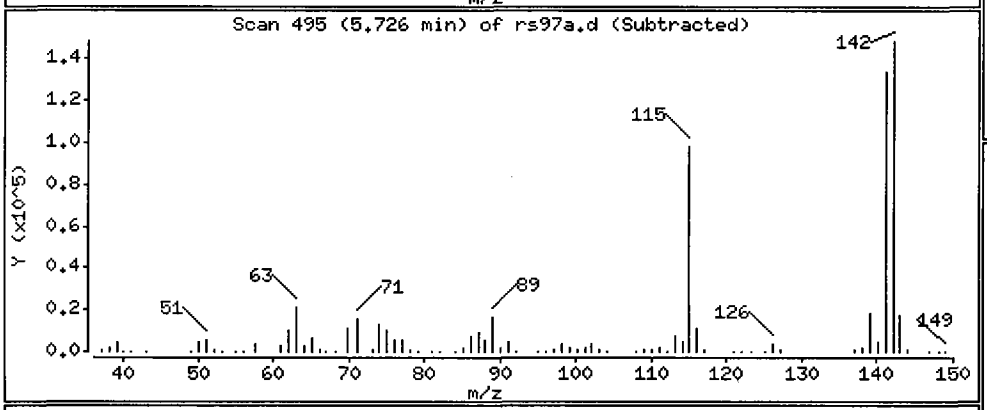
Column diameter: 0.32

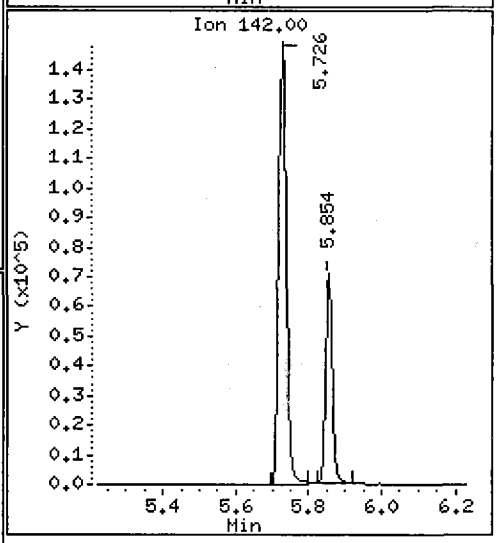
32 2-Methylnaphthalene

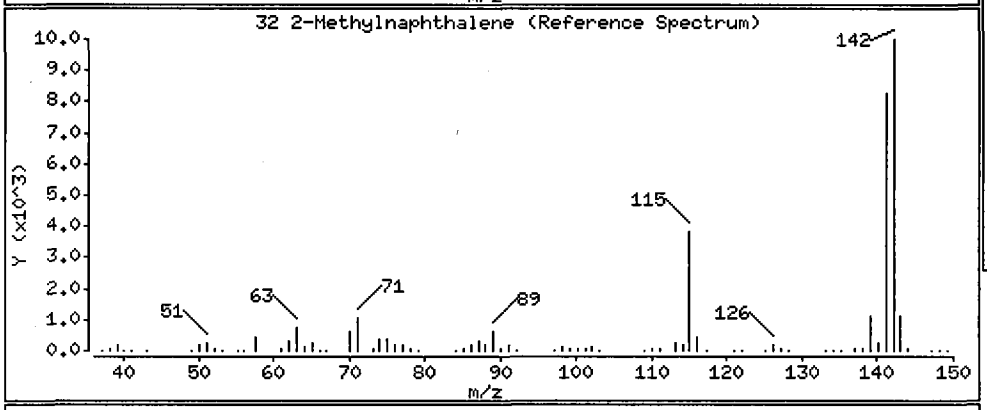
Concentration: 235000 ug/kg

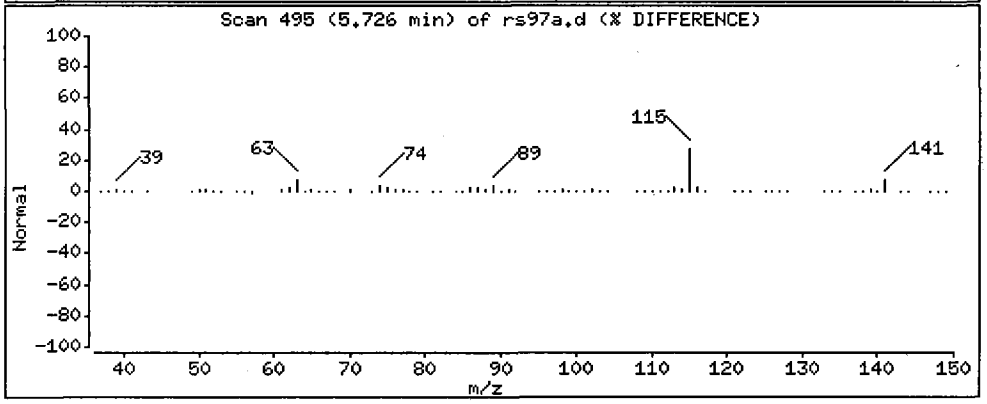












Data File: /chem1/nt12.i/20101109.b/rs97a.d

Date : 09-NOV-2010 18:28

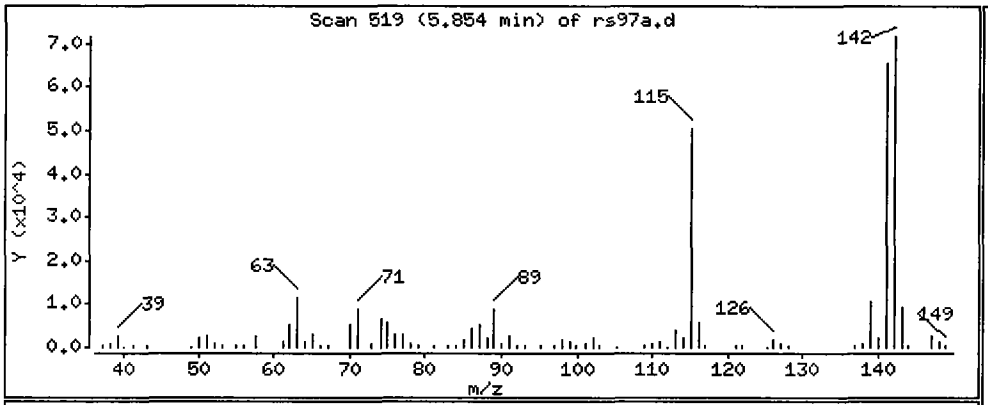
Client ID: GSM-08SO-10-11-1009 Instrument: nt12.i

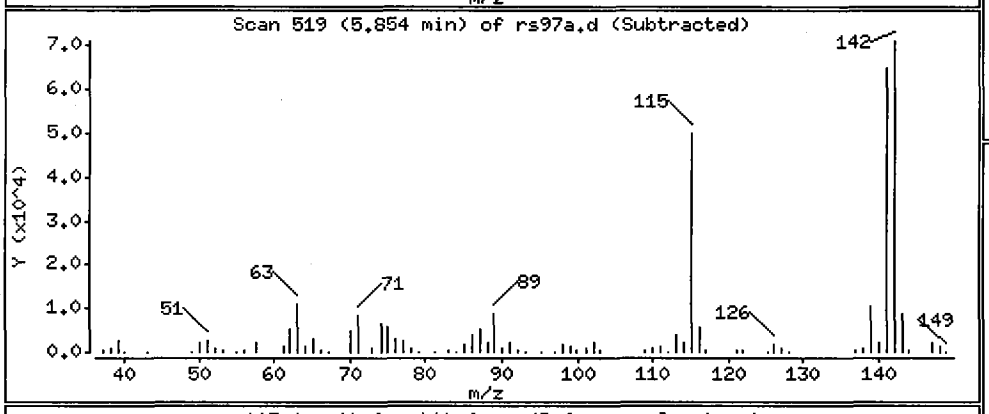
Sample Info: RS97A,3

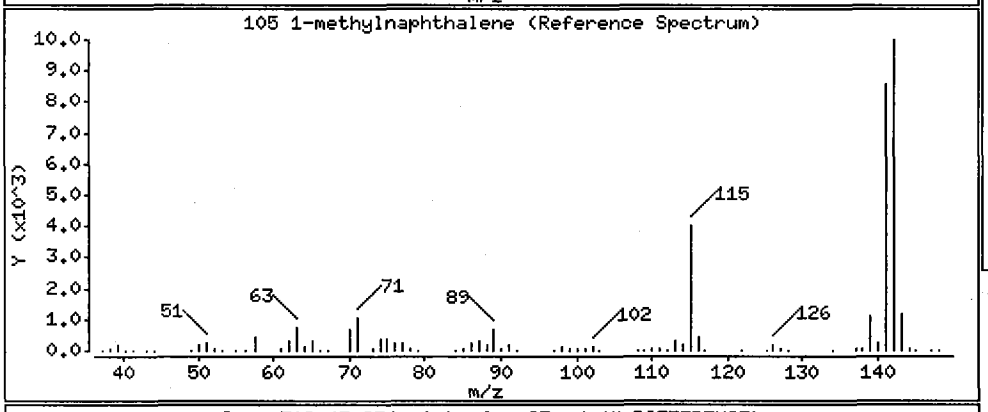
Volume Injected (uL): 1.0 Operator: VTS

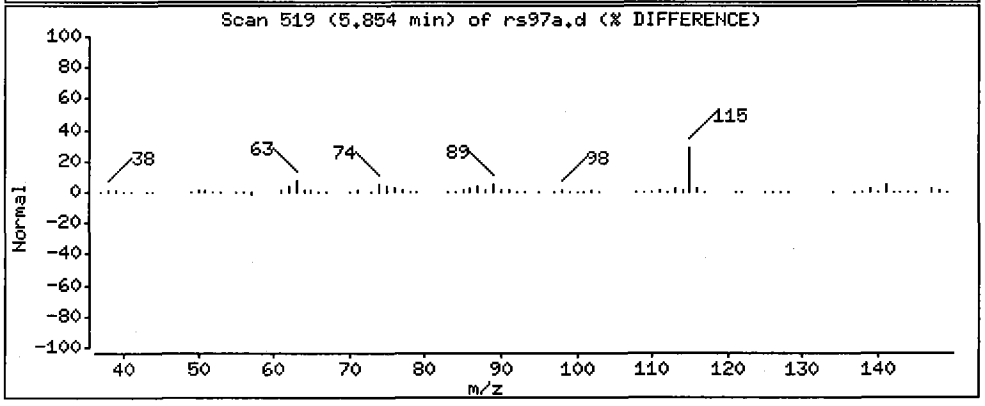
Column phase: ZB-5msi Column diameter: 0.32

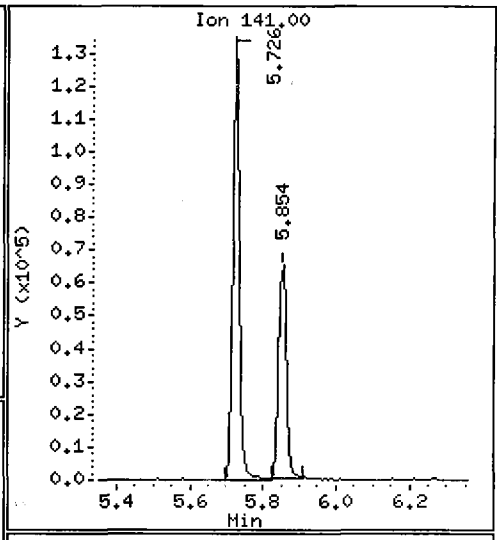
105 1-methylnaphthalene Concentration: 112700 ug/kg

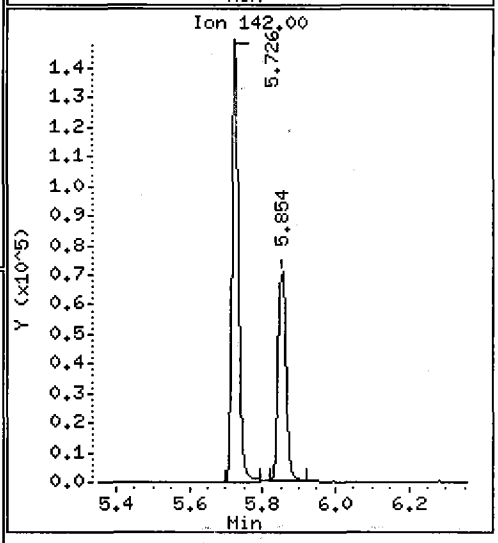












Data File: /chem1/nt12.i/20101109.b/rs97a.d

Date : 09-NOV-2010 18:28

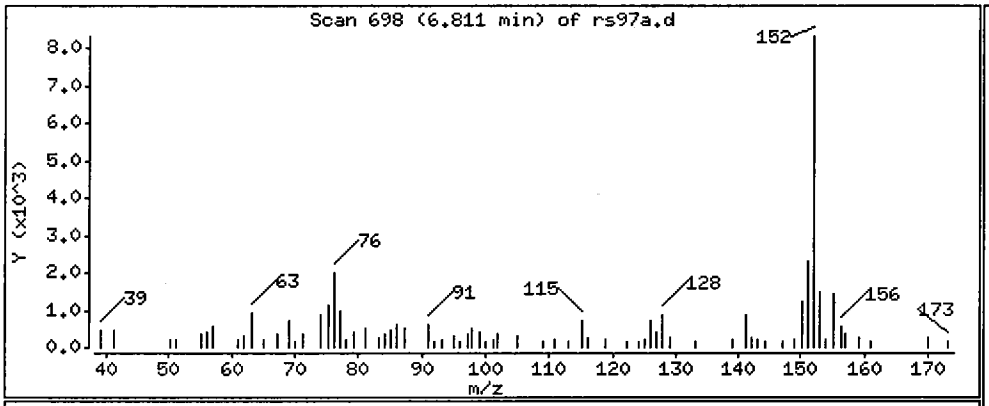
Client ID: GSM-08SO-10-11-1009 Instrument: nt12.i

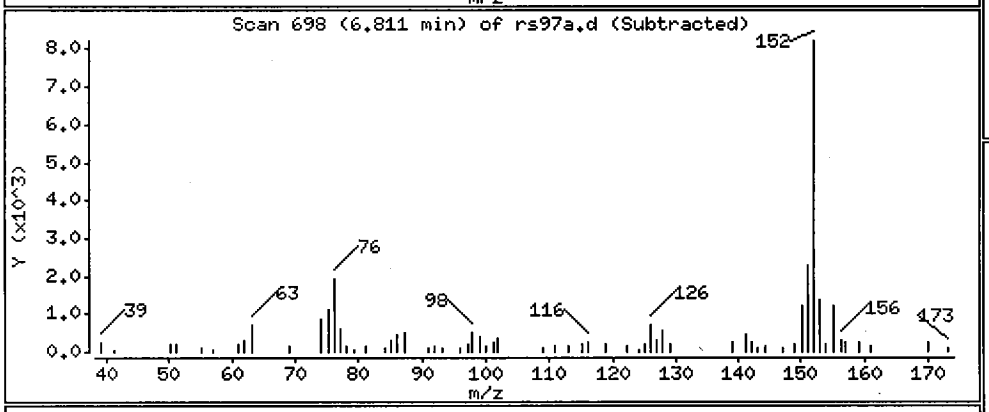
Sample Info: RS97A,3

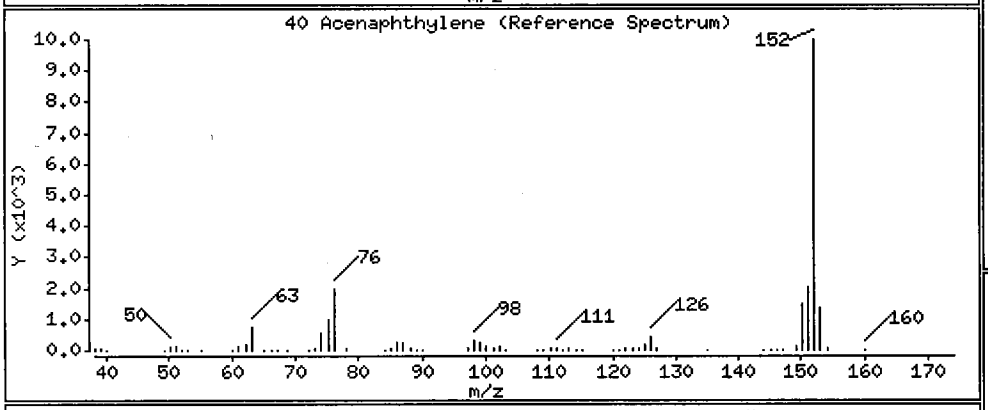
Volume Injected (uL): 1.0 Operator: VTS

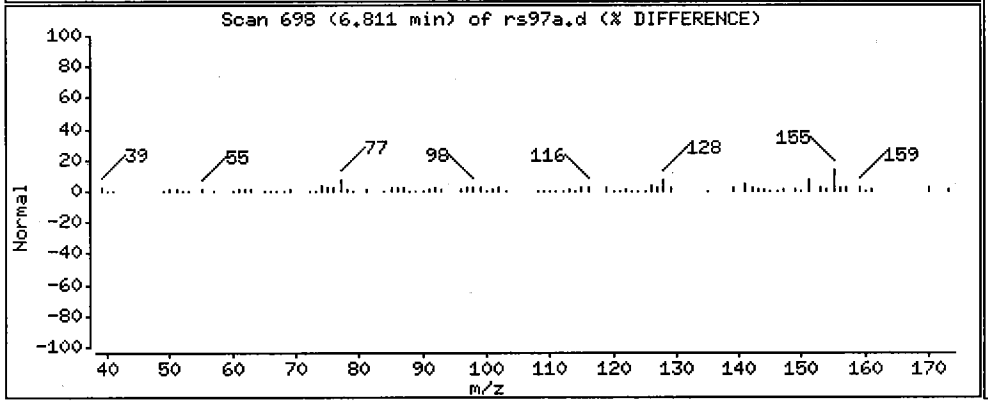
Column phase: ZB-5msi Column diameter: 0.32

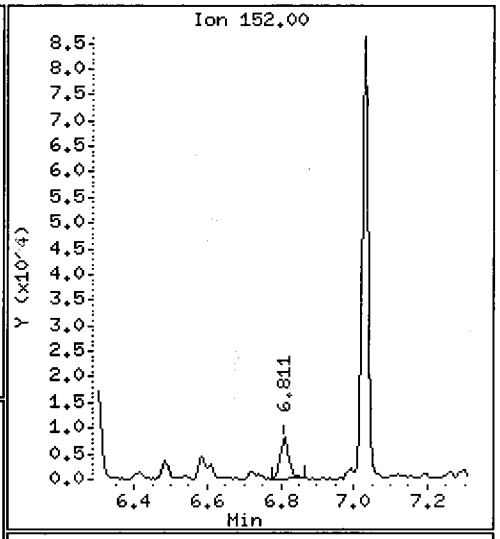
40 Acenaphthylene Concentration: 9043 ug/kg

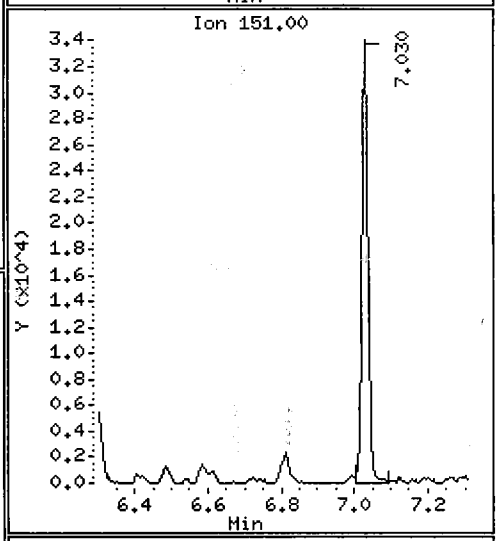


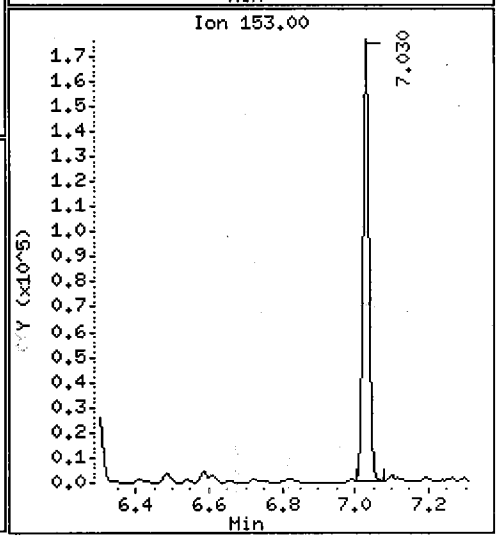












Data File: /chem1/nt12.i/20101109.b/rs97a.d

Date : 09-NOV-2010 18:28

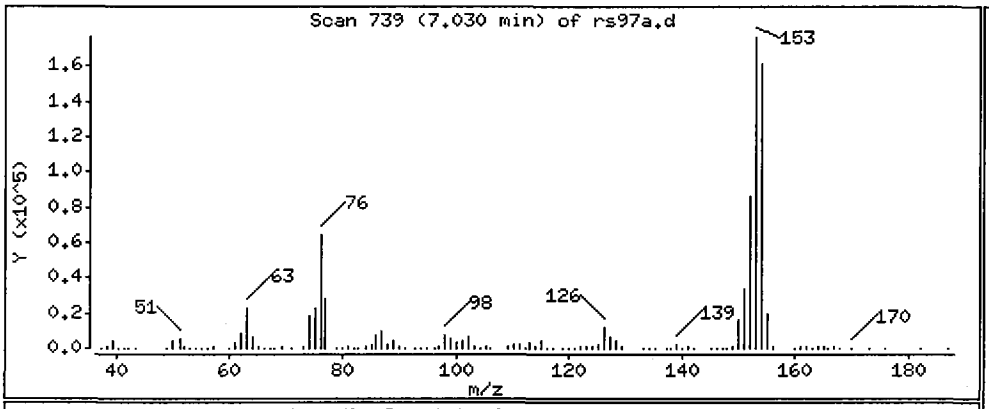
Client ID: GSM-08SO-10-11-1009 Instrument: nt12.i

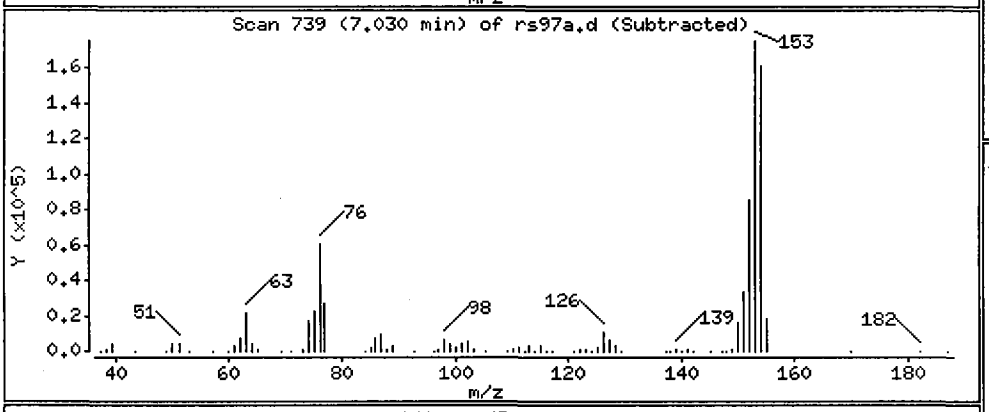
Sample Info: RS97A,3

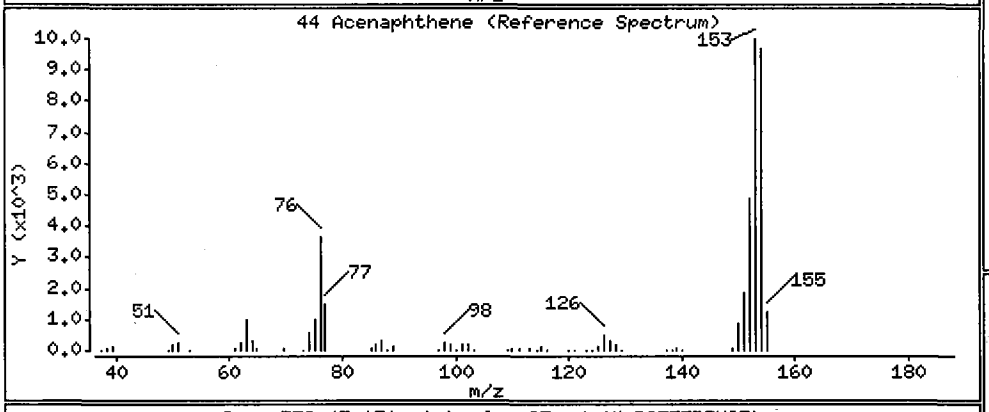
Volume Injected (uL): 1.0 Operator: VTS

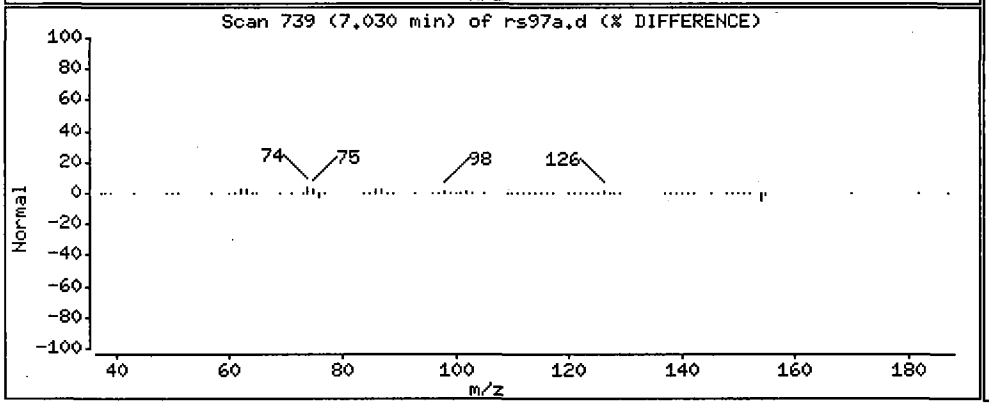
Column phase: ZB-5msi Column diameter: 0.32

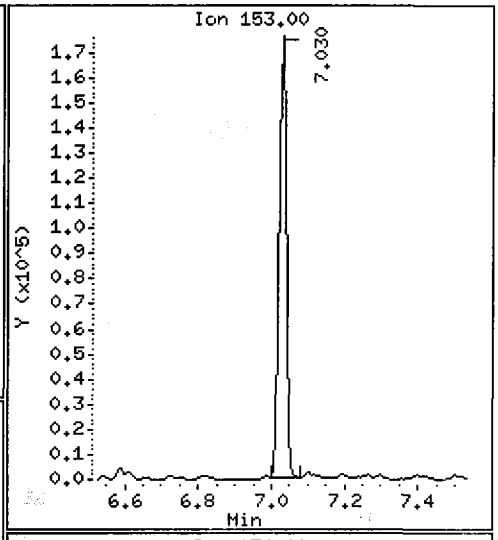
44 Acenaphthene Concentration: 238000 ug/kg

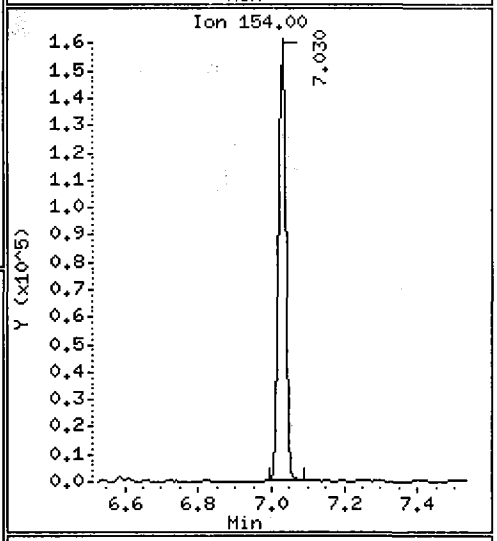


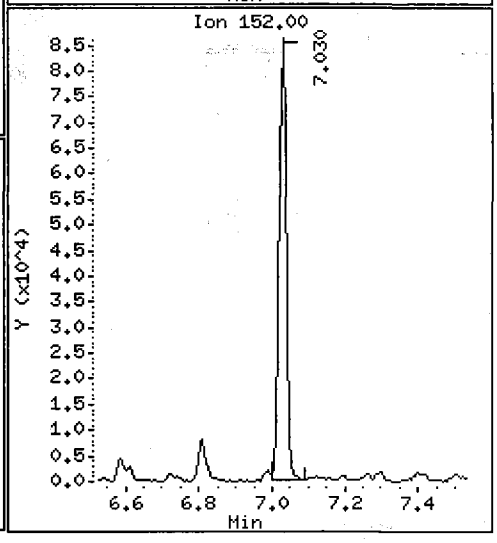












Data File: /chem1/nt12.i/20101109.b/rs97a.d

Date : 09-NOV-2010 18:28

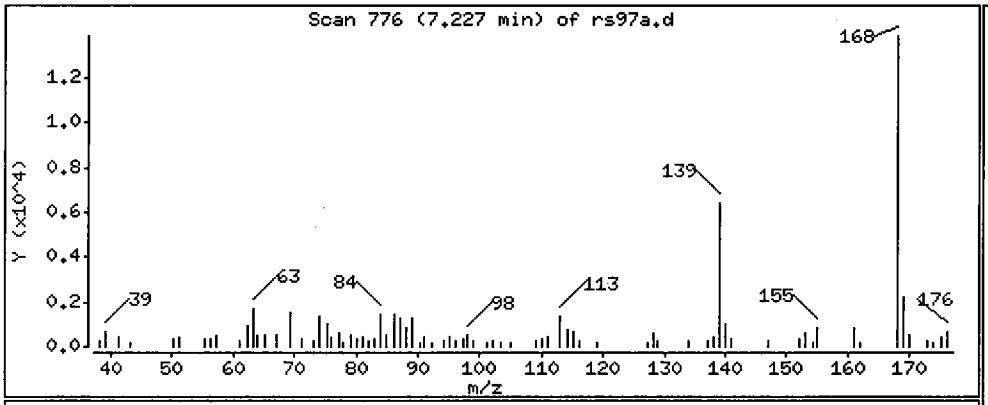
Client ID: GSM-08SO-10-11-1009 Instrument: nt12.i

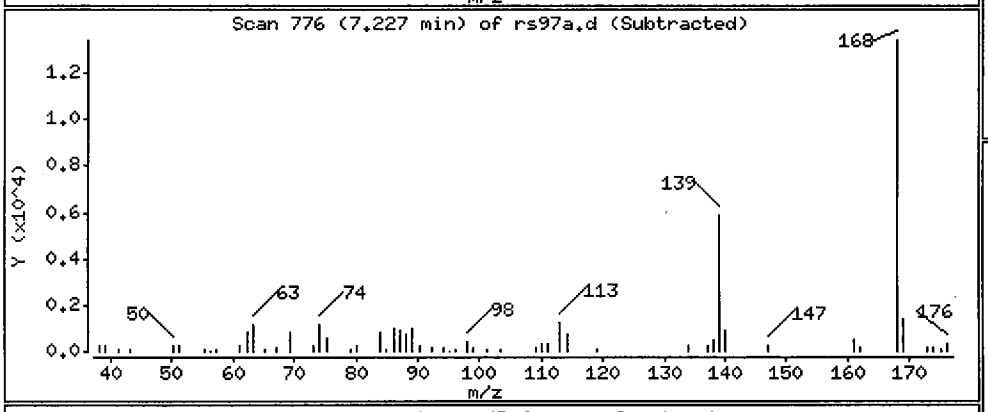
Sample Info: RS97A,3

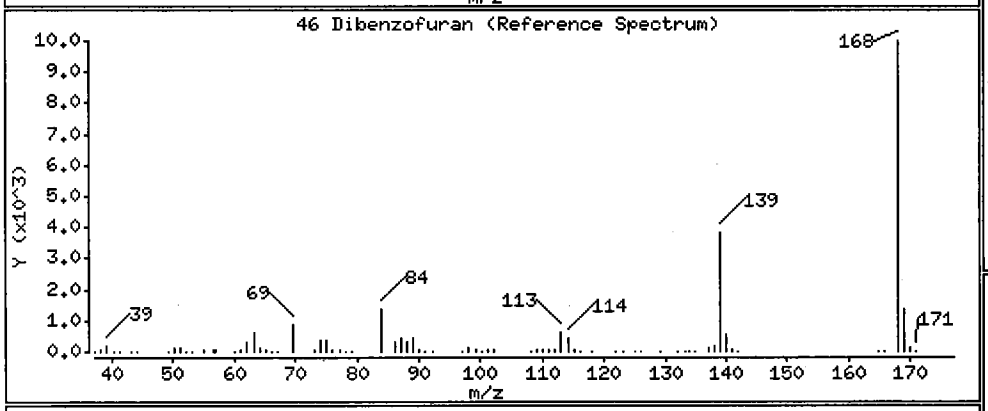
Volume Injected (uL): 1.0 Operator: VTS

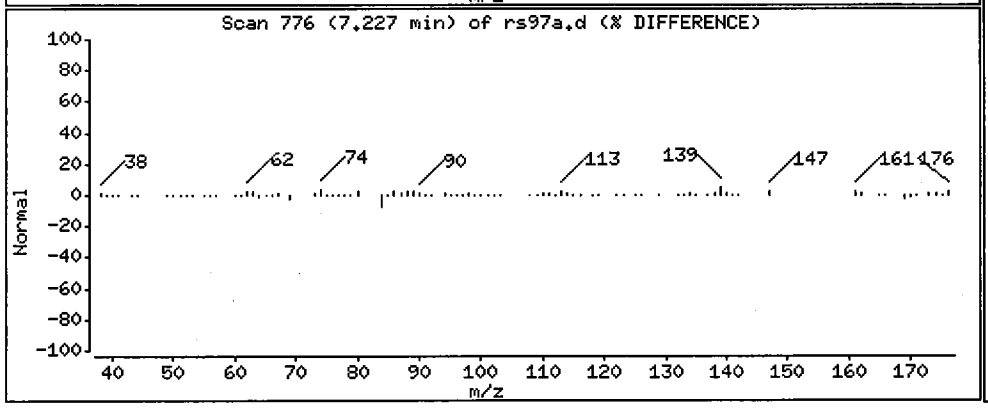
Column phase: ZB-5msi Column diameter: 0.32

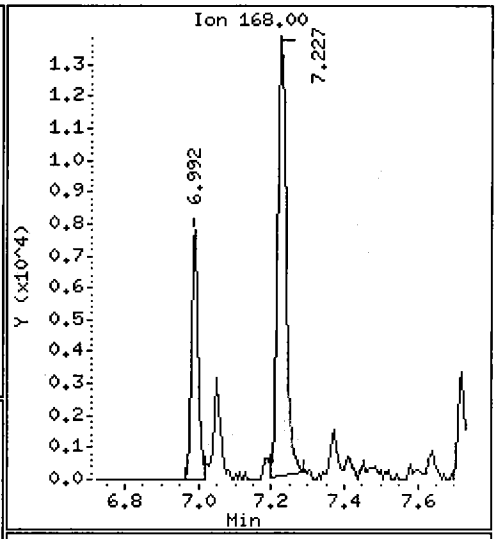
46 Dibenzofuran Concentration: 14790 ug/kg

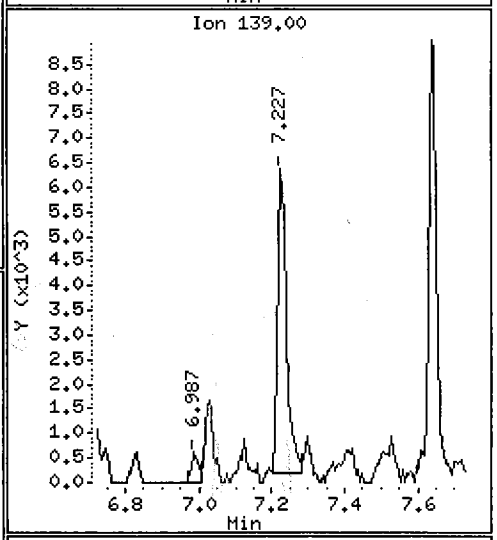


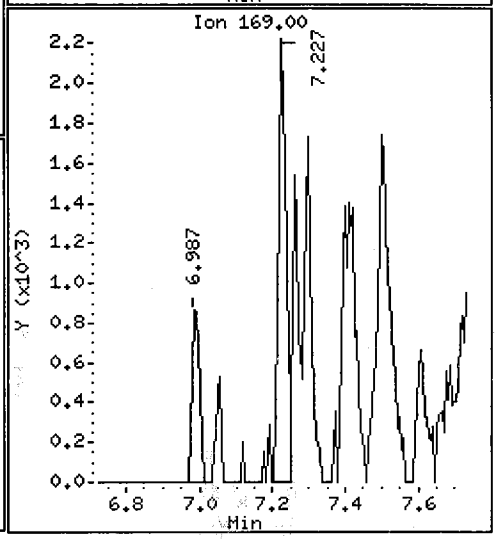












Data File: /chem1/nt12.i/20101109.b/rs97a.d

Date : 09-NOV-2010 18:28

Client ID: GSM-08SO-10-11-1009

Instrument: nt12.i

Sample Info: RS97A,3

Volume Injected (uL): 1.0

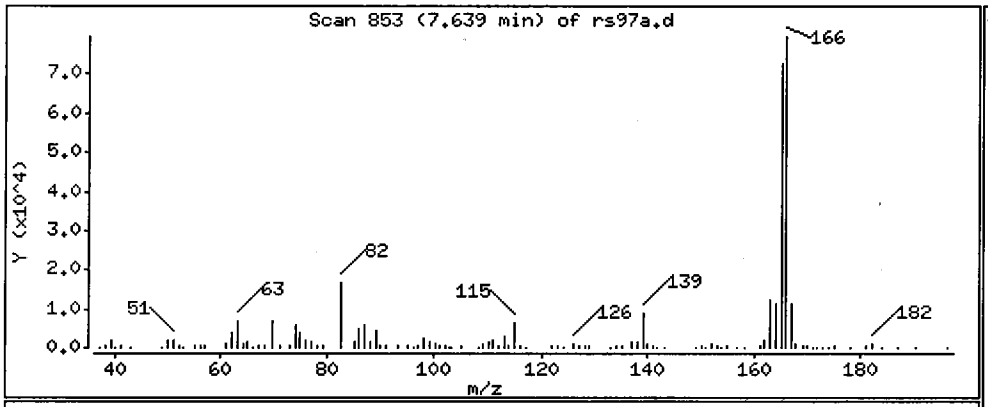
Operator: VTS

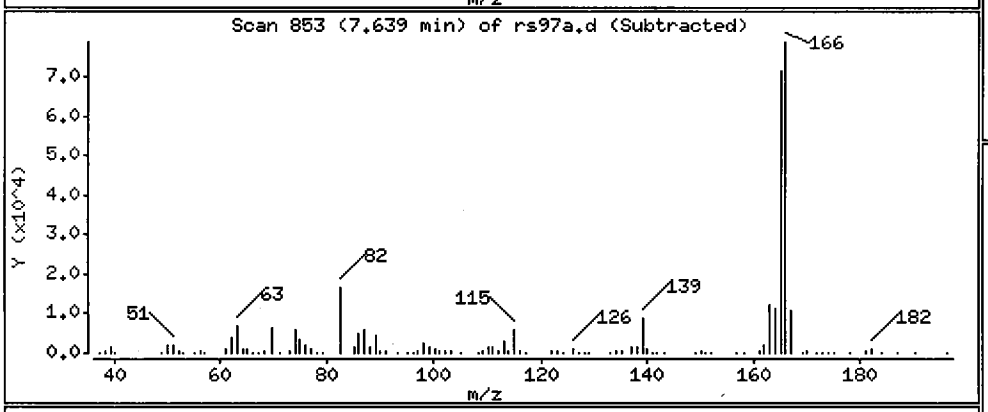
Column phase: ZB-5msi

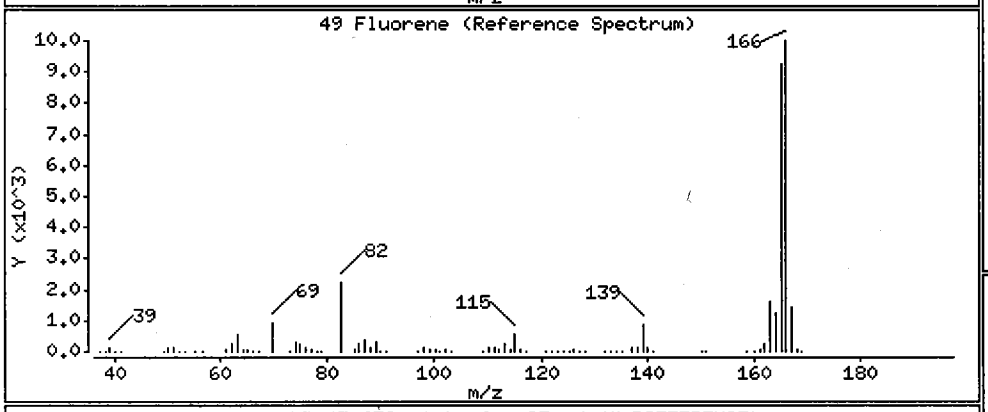
Column diameter: 0.32

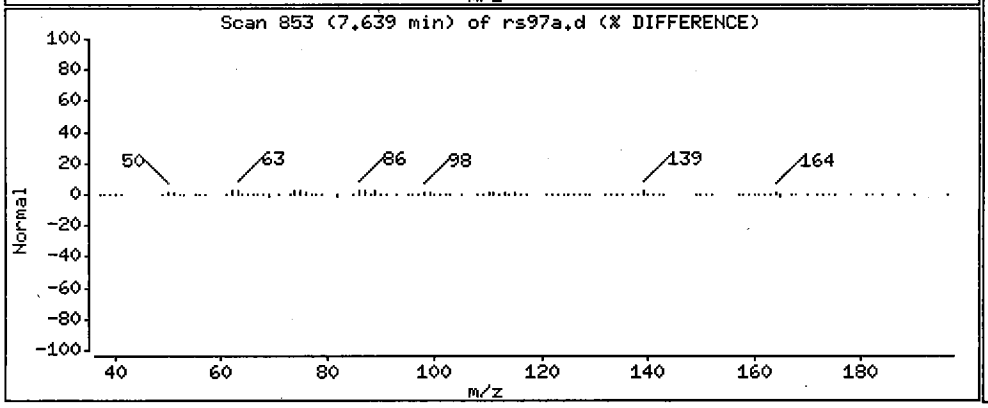
49 Fluorene

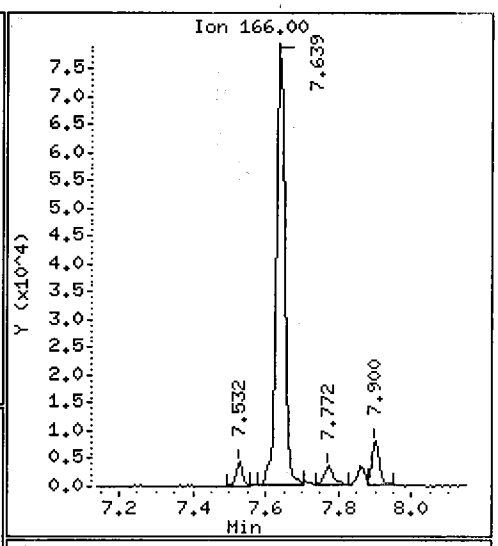
Concentration: 113100 ug/kg

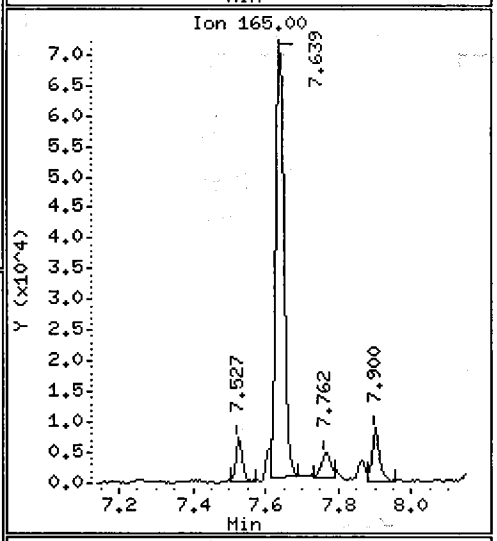


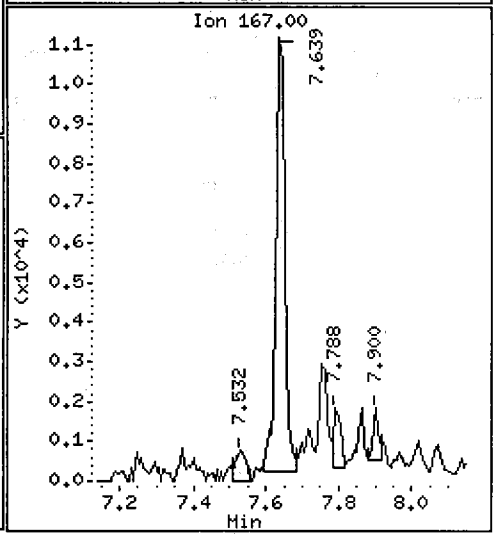












Data File: /chem1/nt12.i/20101109.b/rs97a.d

Date : 09-NOV-2010 18:28

Client ID: GSM-08SO-10-11-1009

Instrument: nt12.i

Sample Info: RS97A,3

Volume Injected (uL): 1.0

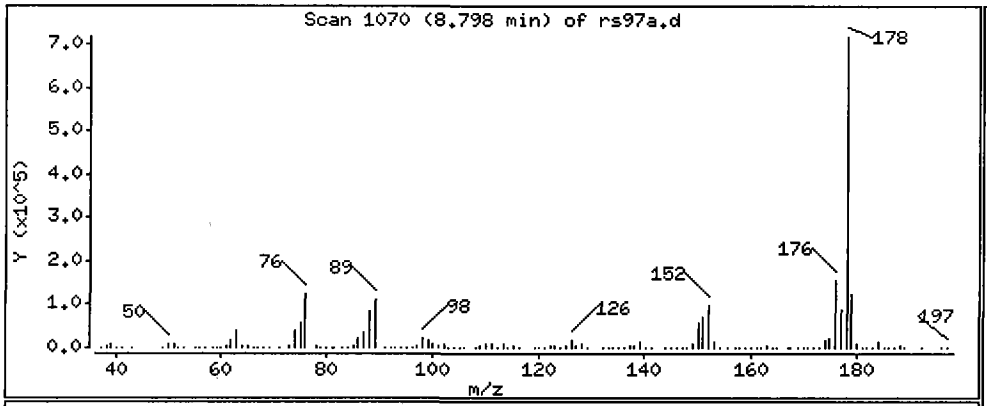
Operator: VTS

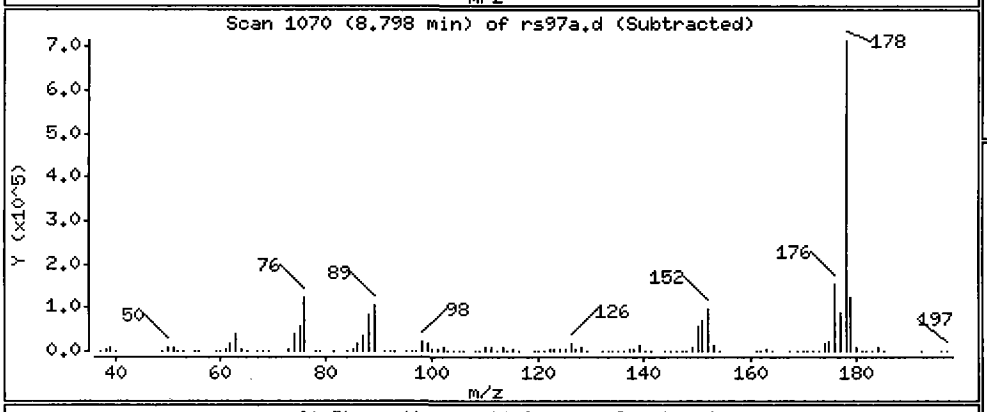
Column phase: ZB-5msi

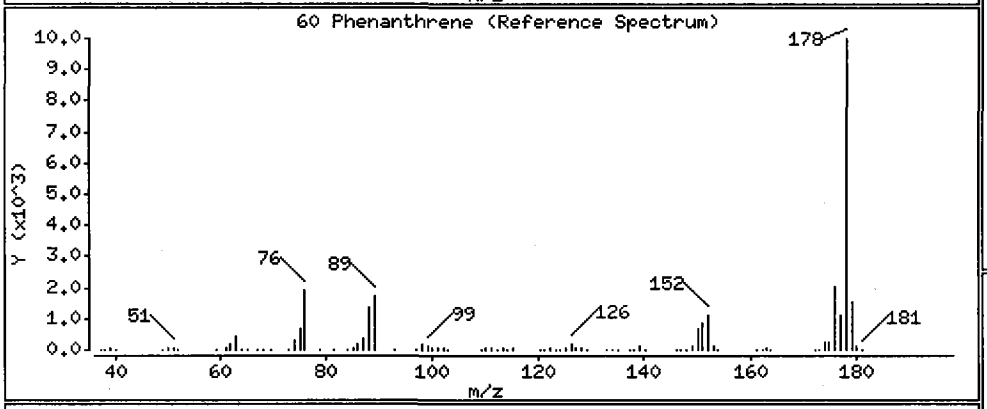
Column diameter: 0.32

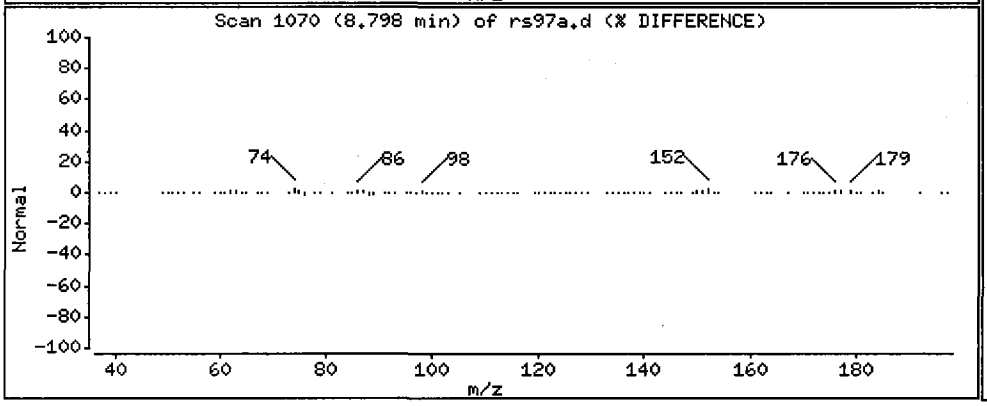
60 Phenanthrene

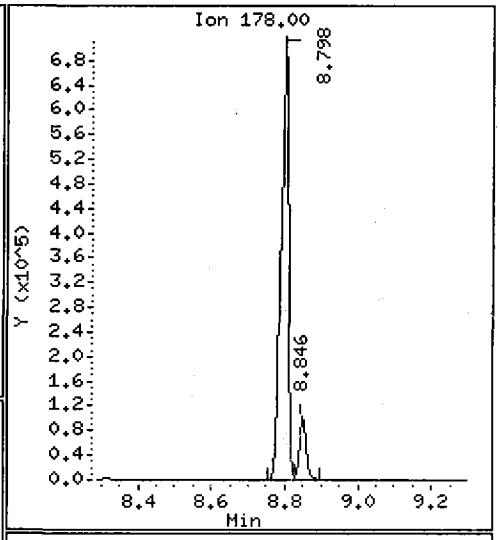
Concentration: 704900 ug/kg

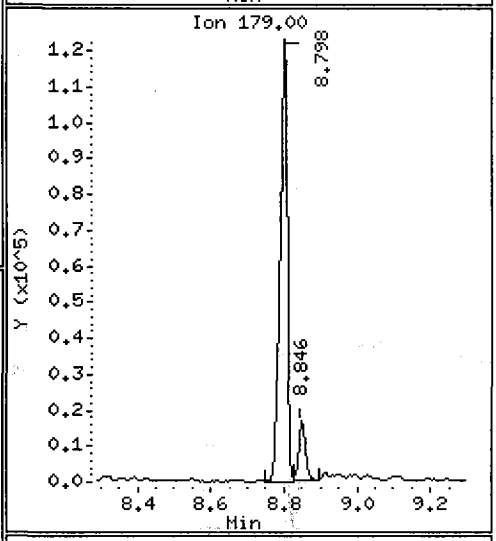


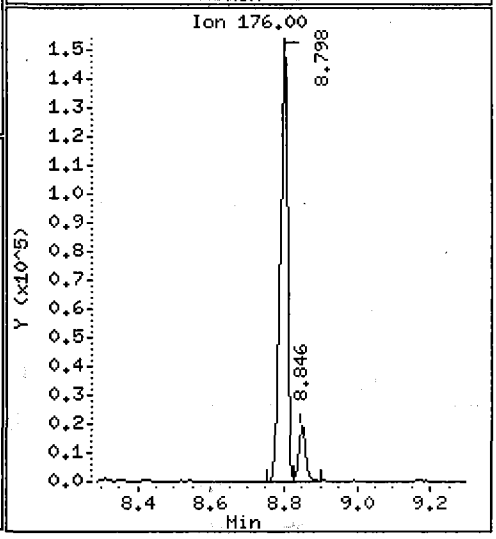












Data File: /chem1/nt12.i/20101109.b/rs97a.d

Date : 09-NOV-2010 18:28

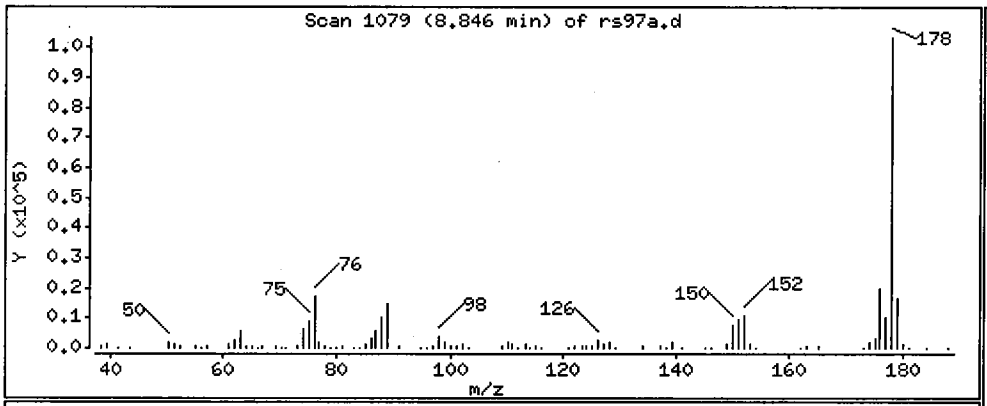
Client ID: GSM-08SO-10-11-1009 Instrument: nt12.i

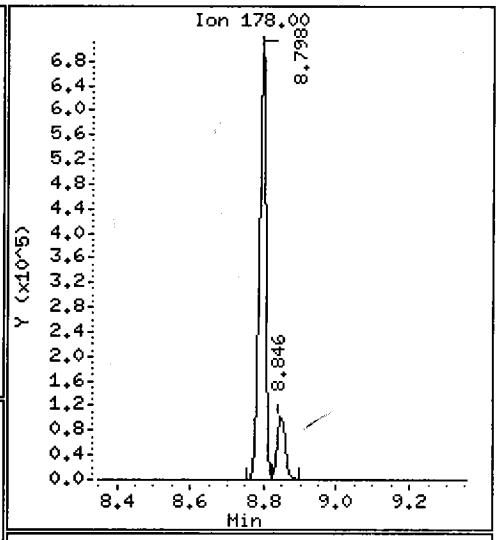
Sample Info: RS97A,3

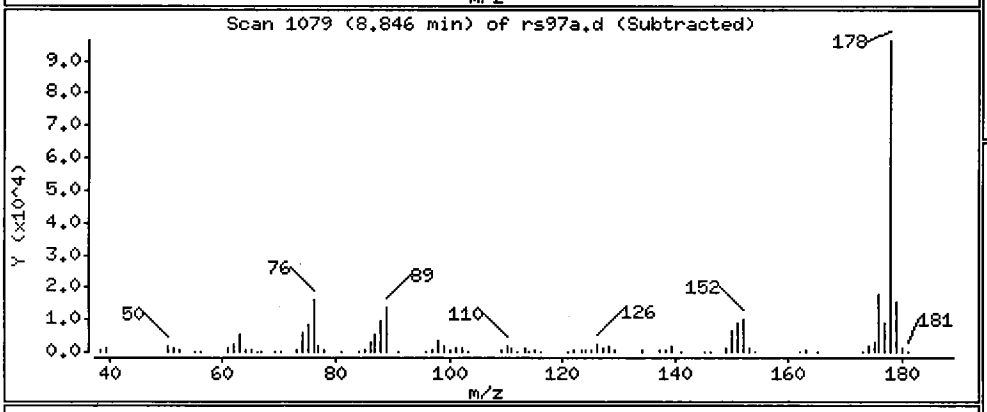
Volume Injected (uL): 1.0 Operator: VTS

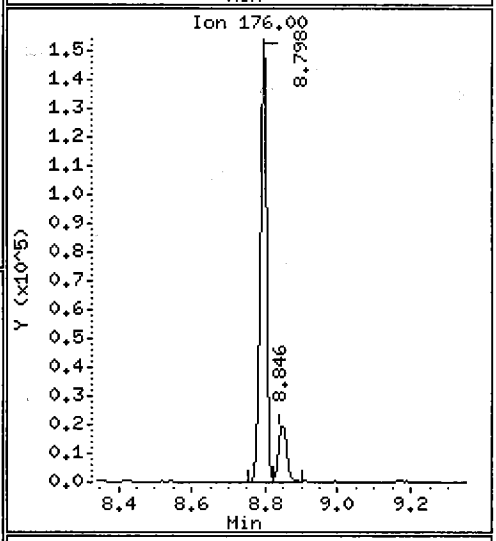
Column phase: ZB-5msi Column diameter: 0.32

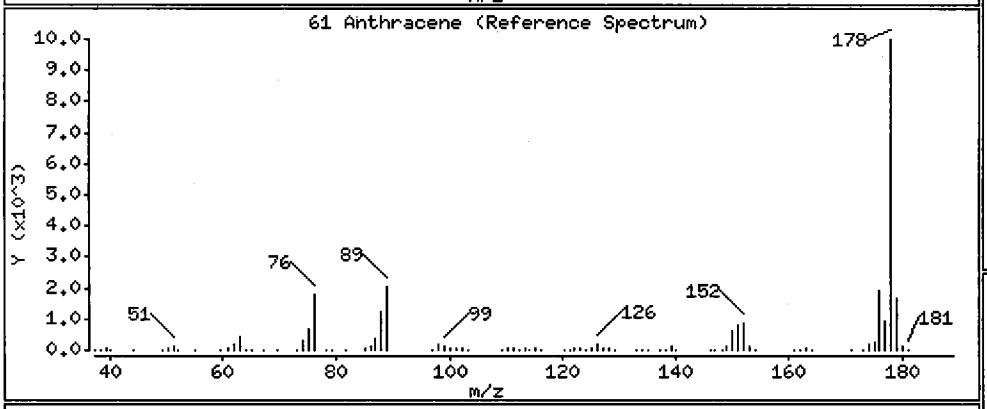
61 Anthracene Concentration: 100800 ug/kg

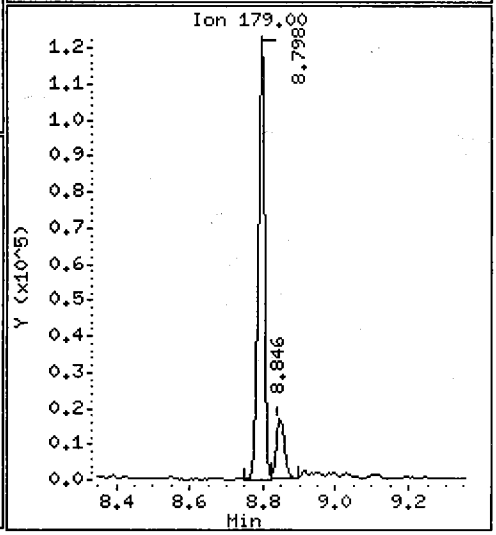


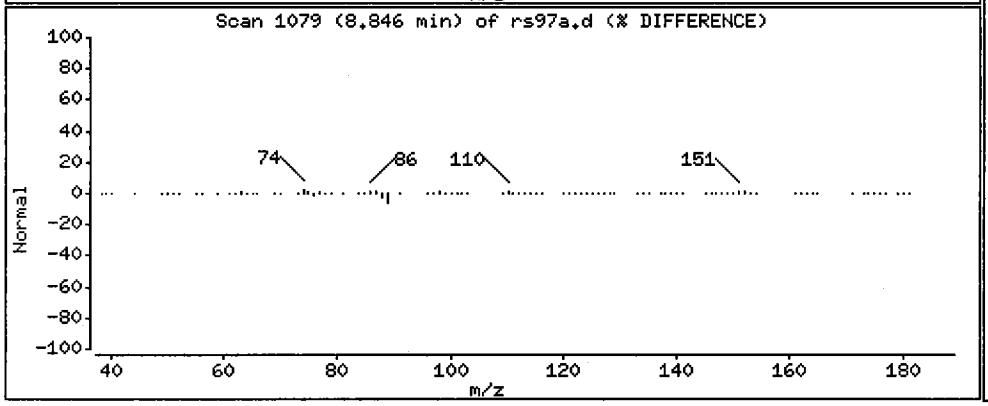












Data File: /chem1/nt12.i/20101109.b/rs97a.d

Date : 09-NOV-2010 18:28

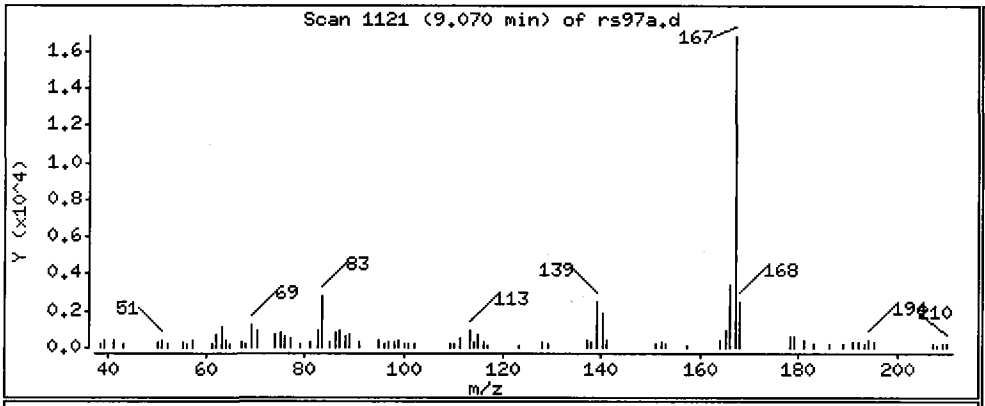
Client ID: GSM-08SO-10-11-1009 Instrument: nt12.i

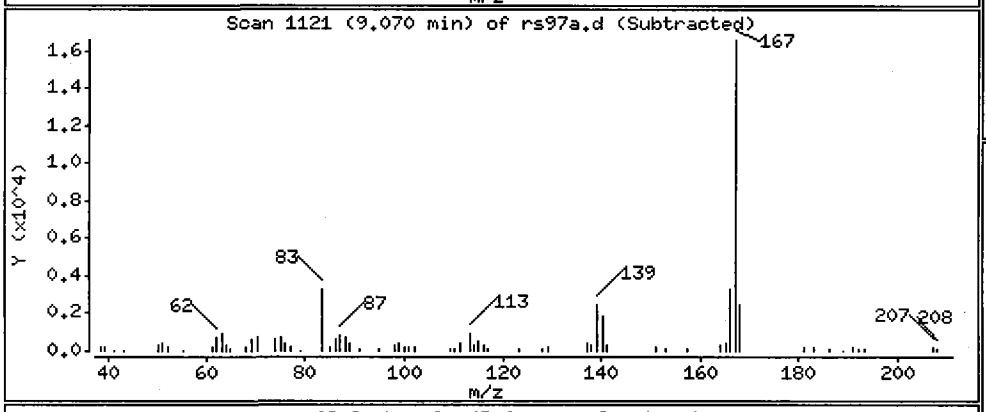
Sample Info: RS97A,3

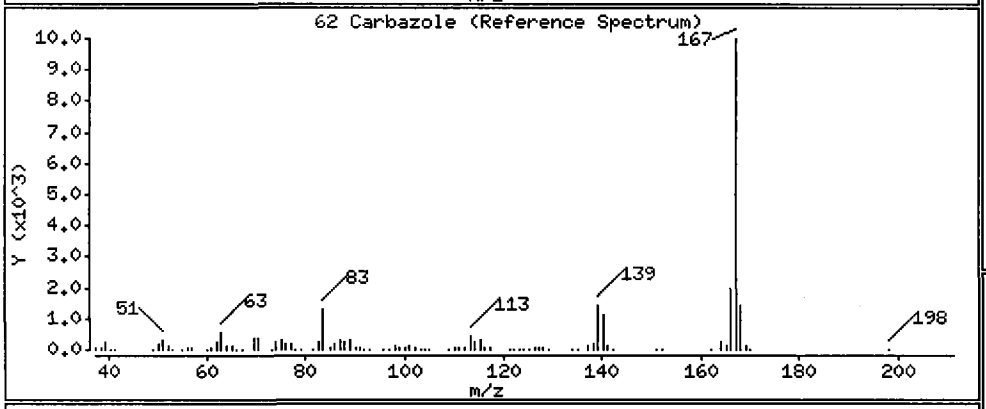
Volume Injected (uL): 1.0 Operator: VTS

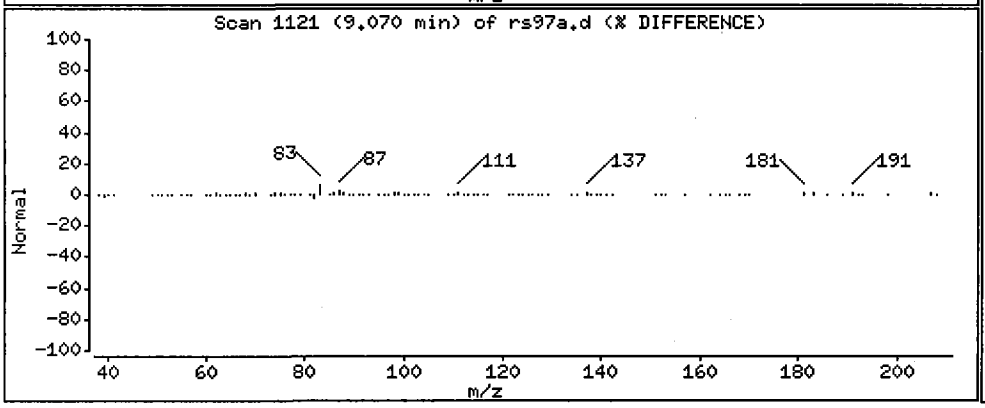
Column phase: ZB-5msi Column diameter: 0.32

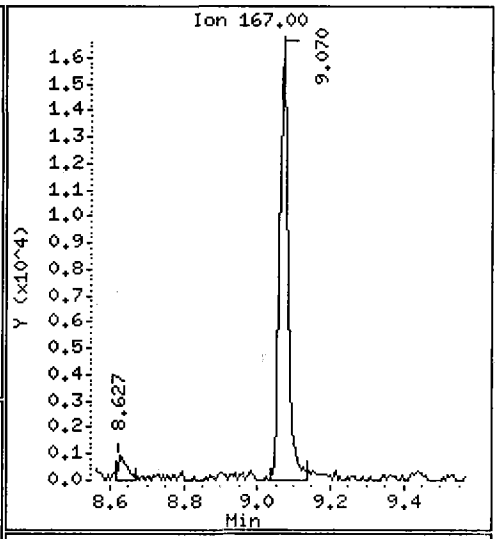
62 Carbazole Concentration: 22720 ug/kg

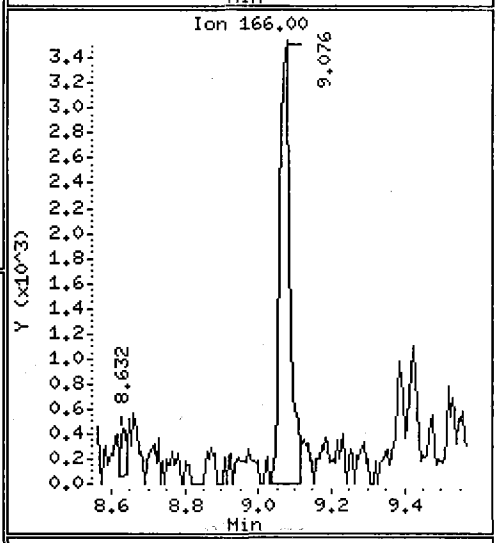


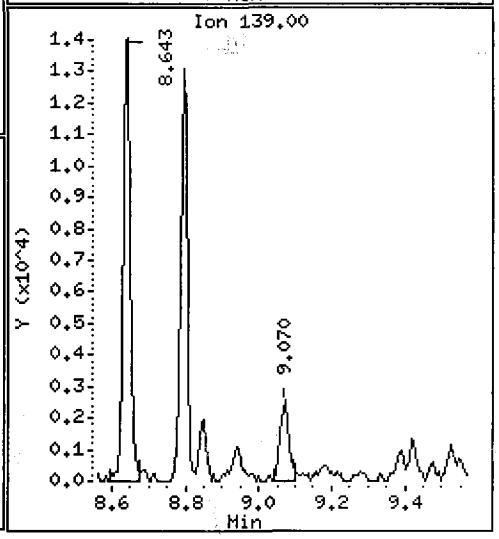












Data File: /chem1/nt12.i/20101109.b/rs97a.d

Date : 09-NOV-2010 18:28

Client ID: GSM-08SO-10-11-1009

Instrument: nt12.i

Sample Info: RS97A,3

Volume Injected (uL): 1.0

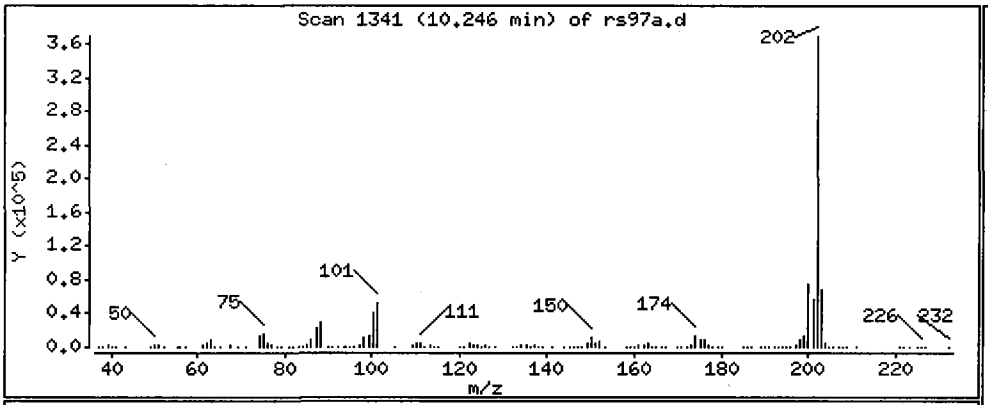
Operator: VTS

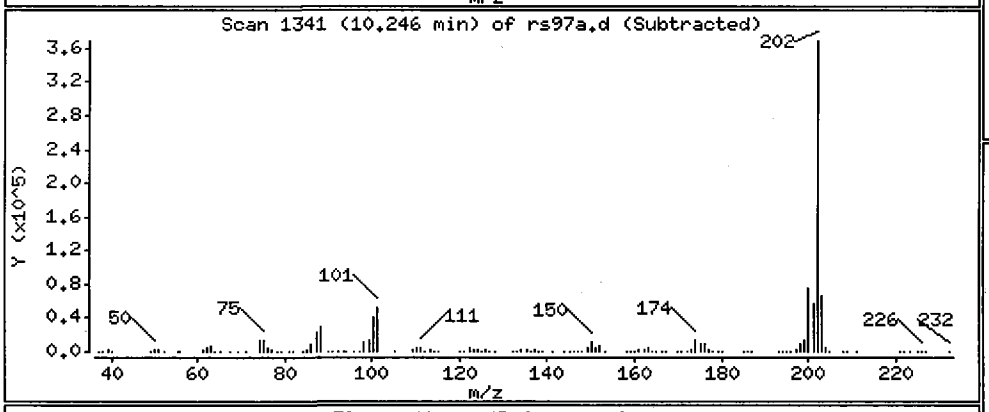
Column phase: ZB-5msi

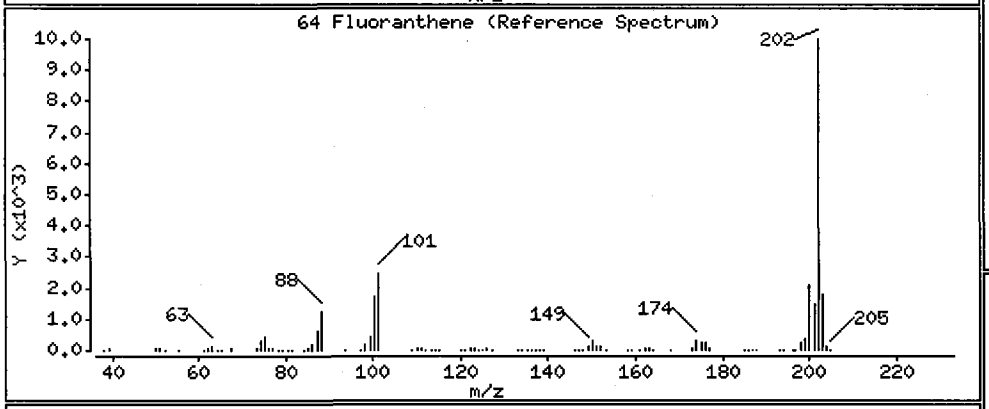
Column diameter: 0.32

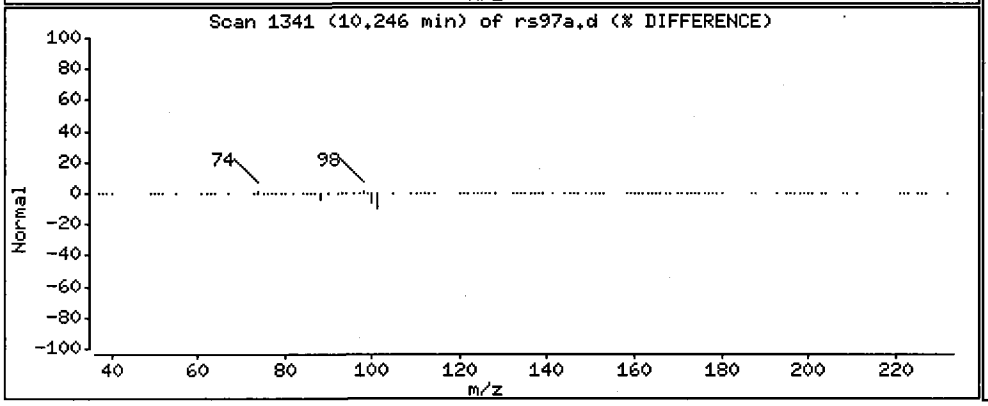
64 Fluoranthene

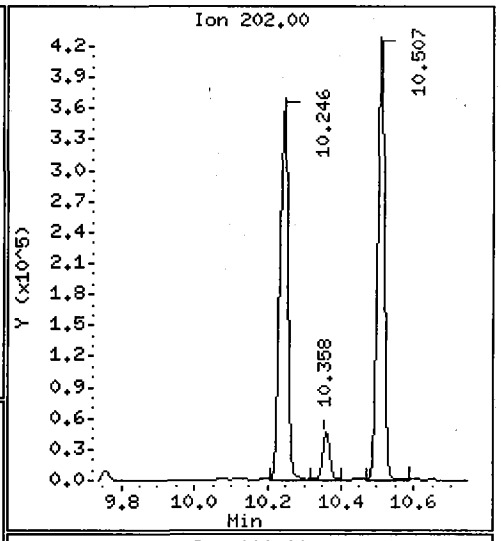
Concentration: 326000 ug/kg

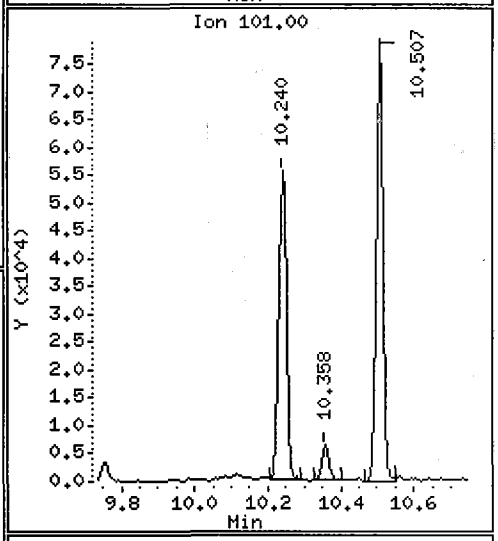


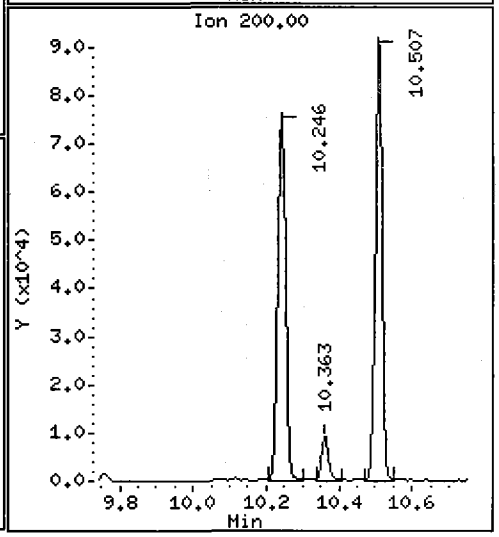












Data File: /chem1/nt12.i/20101109.b/rs97a.d

Date : 09-NOV-2010 18:28

Client ID: GSM-08SO-10-11-1009

Instrument: nt12.i

Sample Info: RS97A,3

Volume Injected (uL): 1.0

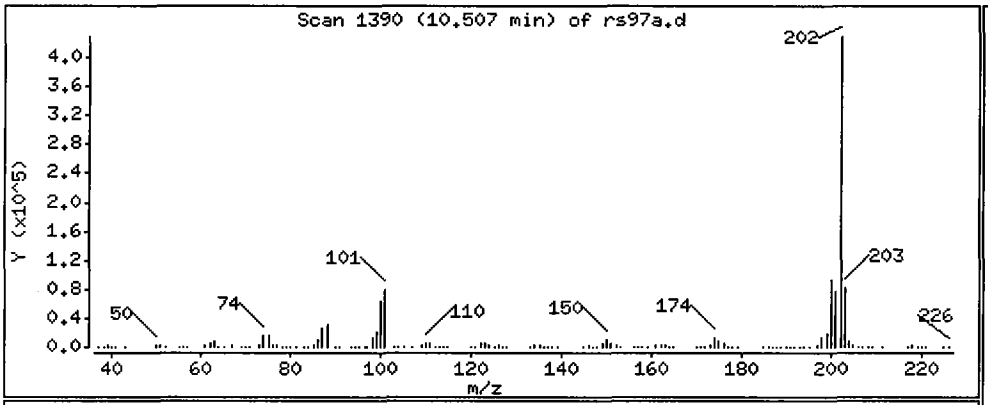
Operator: VTS

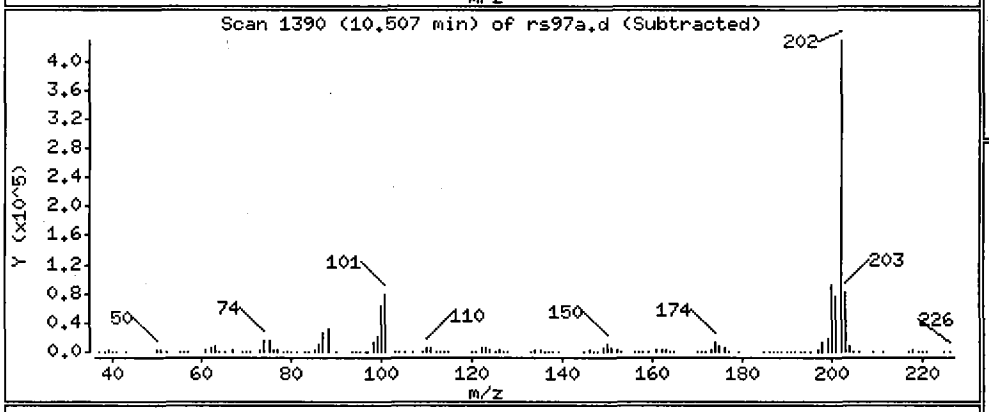
Column phase: ZB-5msi

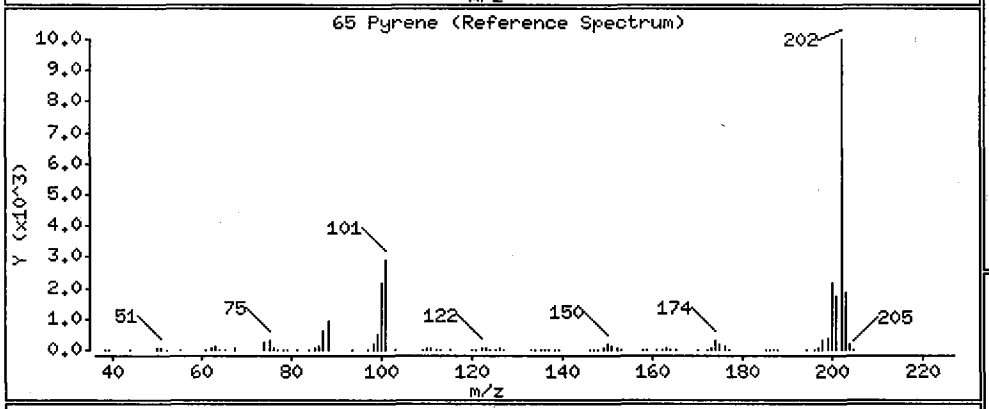
Column diameter: 0.32

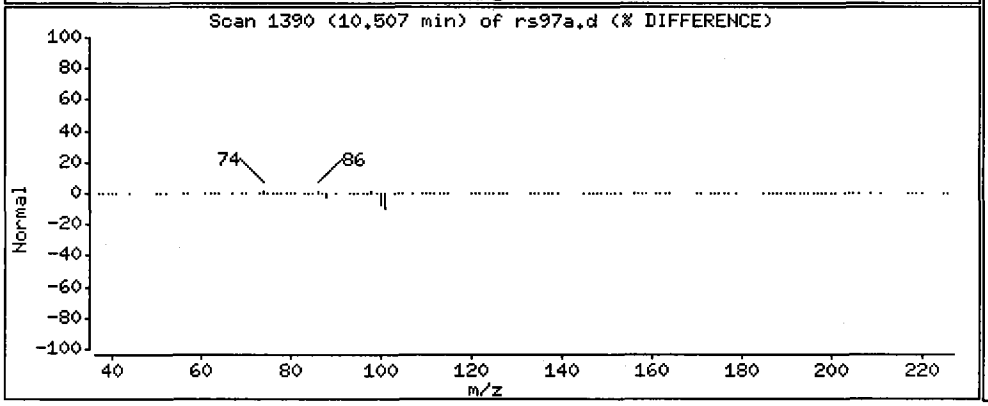
65 Pyrene

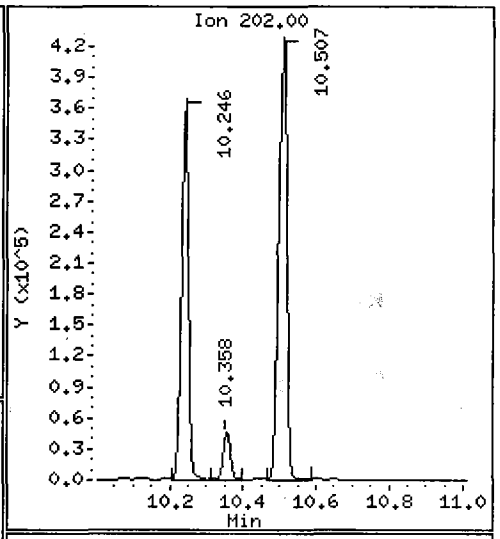
Concentration: 394600 ug/kg

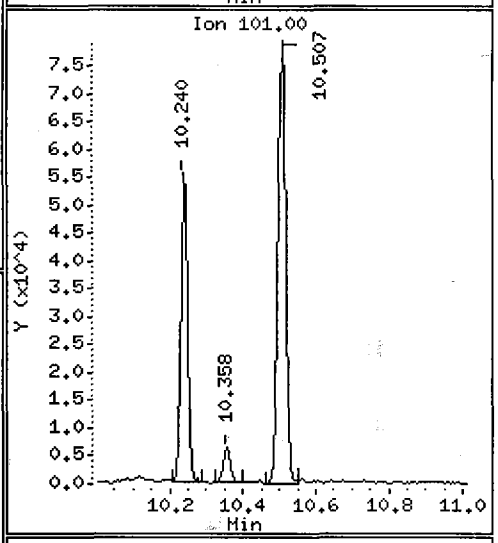


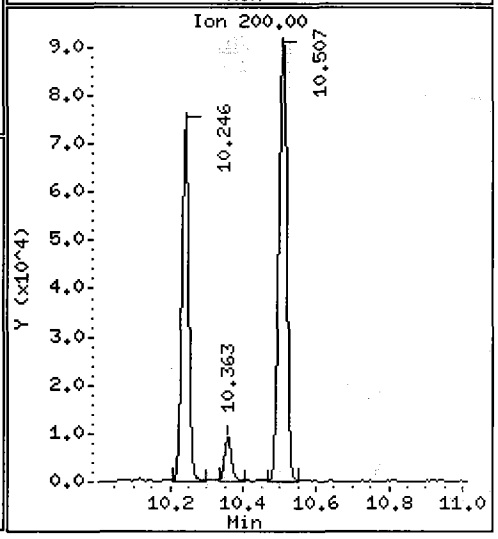












Data File: /chem1/nt12.i/20101109.b/rs97a.d

Date : 09-NOV-2010 18:28

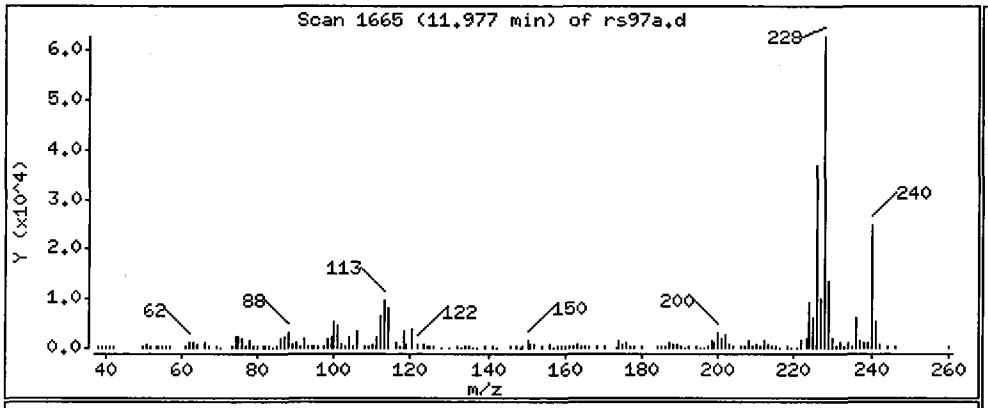
Client ID: GSM-08SO-10-11-1009 Instrument: nt12.i

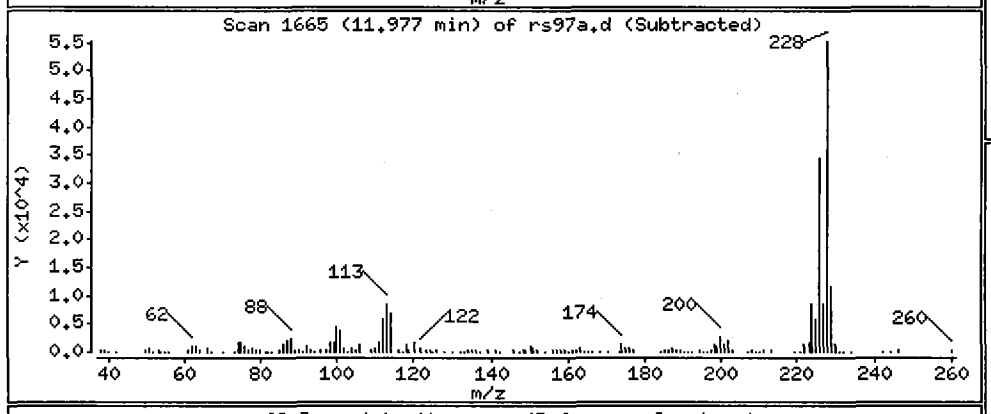
Sample Info: RS97A,3

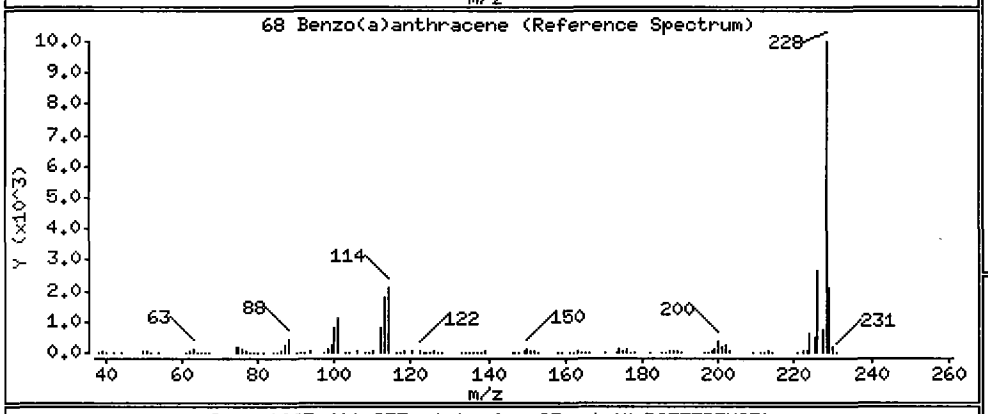
Volume Injected (uL): 1.0 Operator: VTS

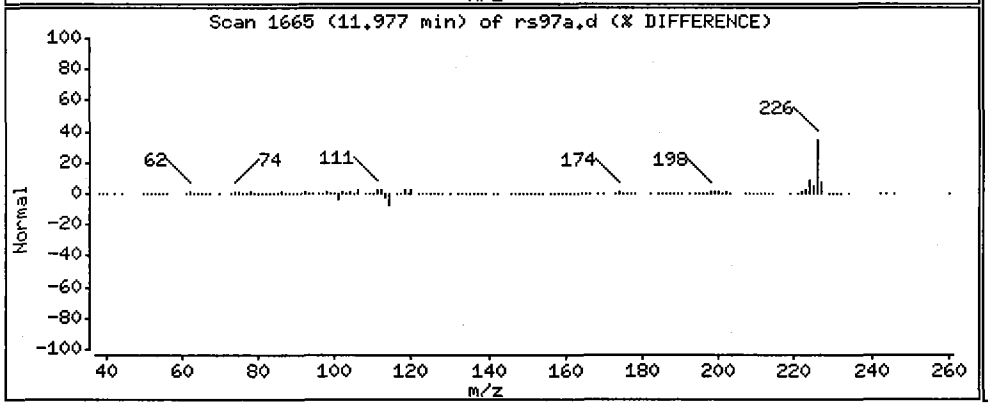
Column phase: ZB-5msi Column diameter: 0.32

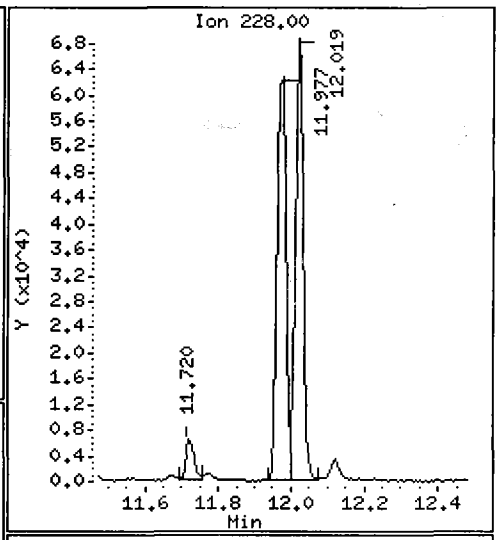
68 Benzo(a)anthracene Concentration: 79260 ug/kg

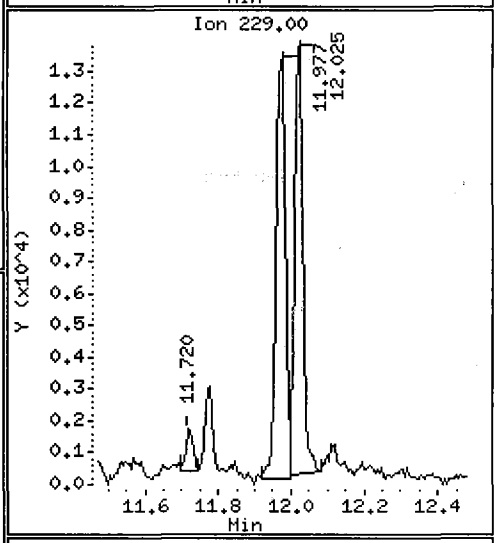


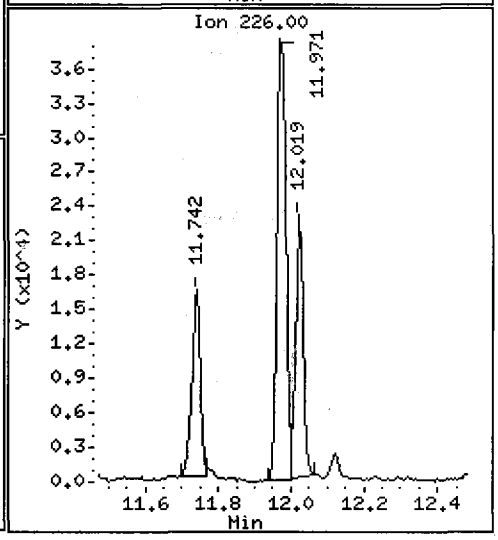












Data File: /chem1/nt12.i/20101109.b/rs97a.d

Date : 09-NOV-2010 18:28

Client ID: GSM-08SO-10-11-1009

Instrument: nt12.i

Sample Info: RS97A,3

Volume Injected (uL): 1.0

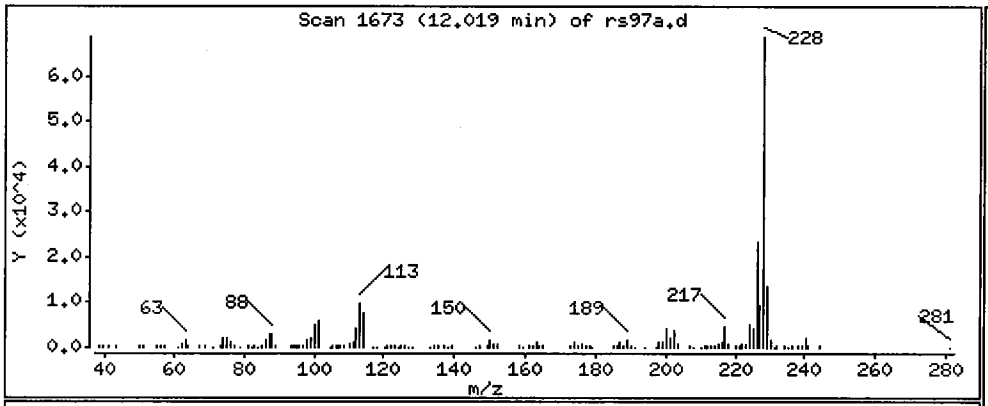
Operator: VTS

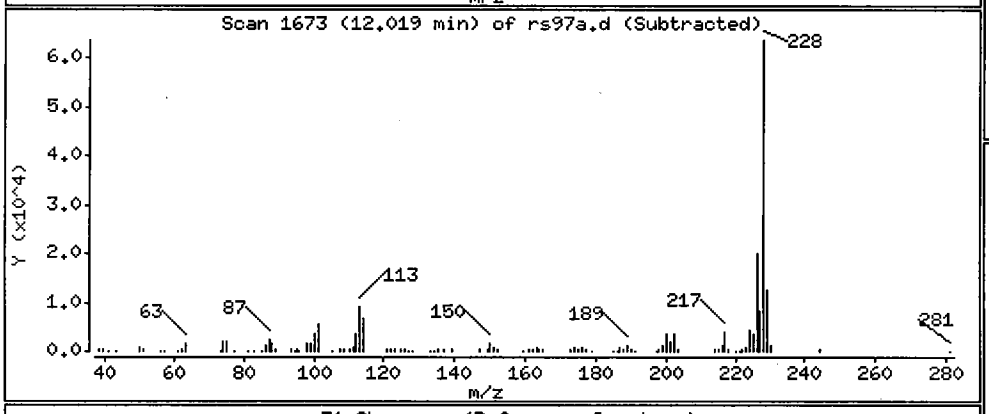
Column phase: ZB-5msi

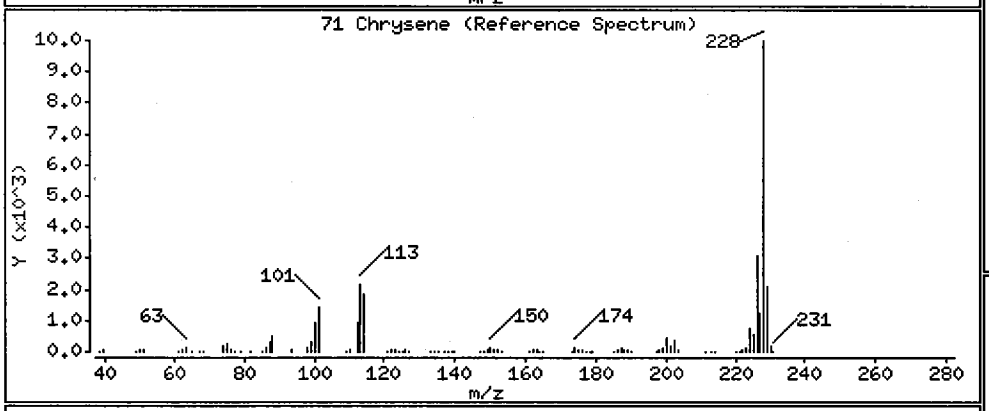
Column diameter: 0.32

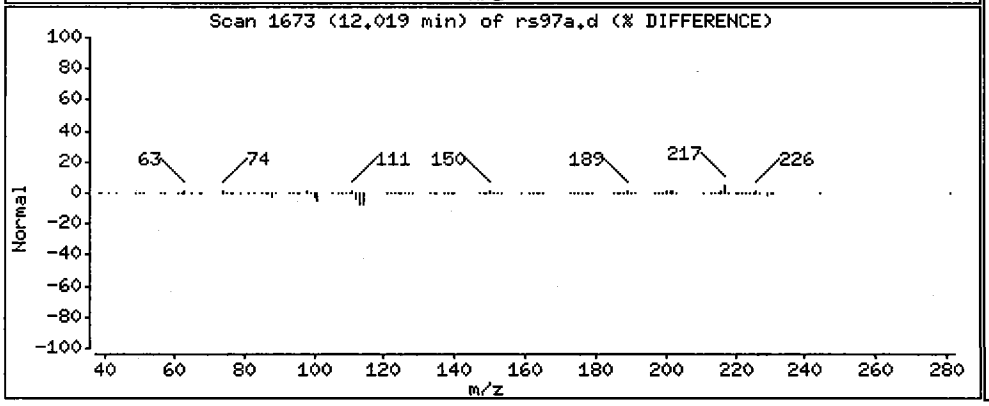
71 Chrysene

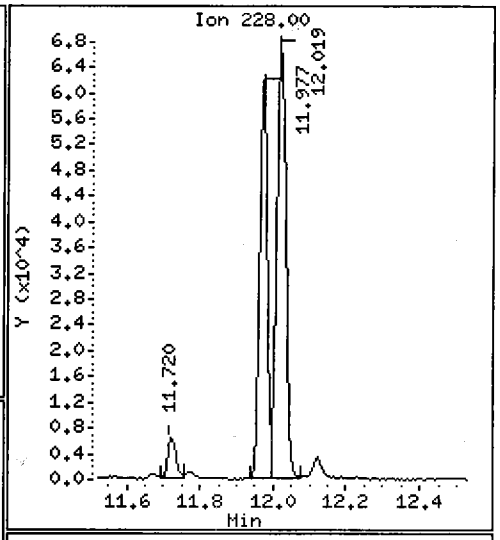
Concentration: 94370 ug/kg

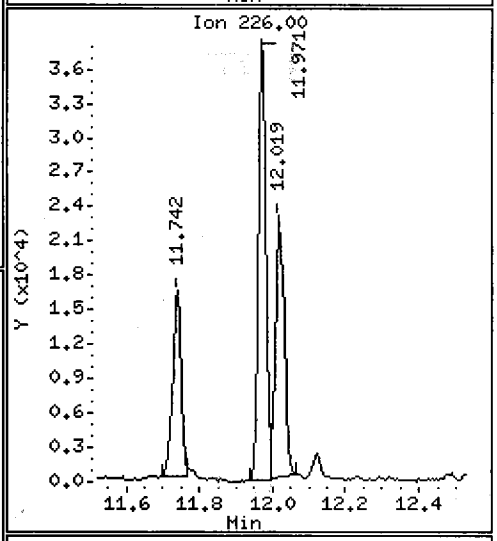


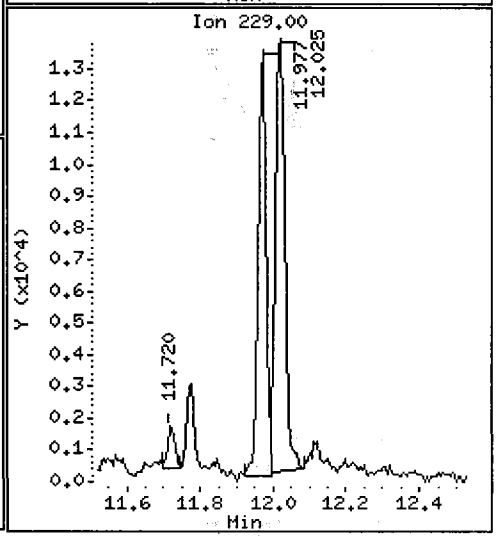












Data File: /chem1/nt12.i/20101109.b/rs97a.d

Date : 09-NOV-2010 18:28

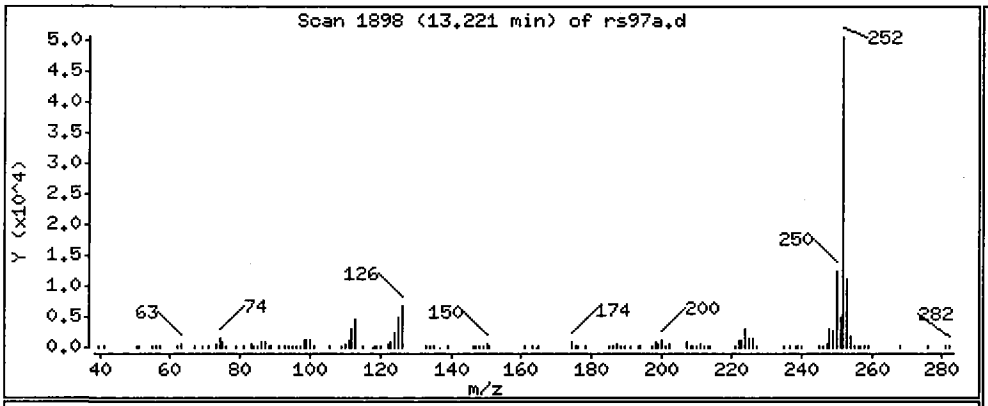
Client ID: GSM-08SO-10-11-1009 Instrument: nt12.i

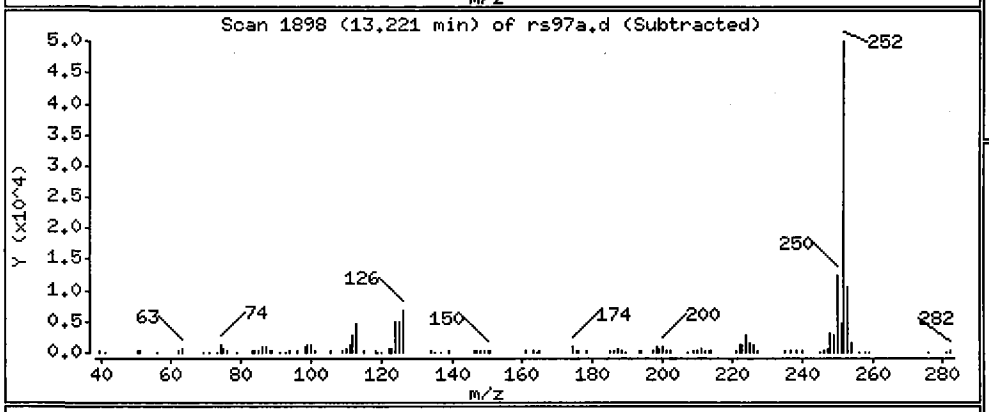
Sample Info: RS97A,3

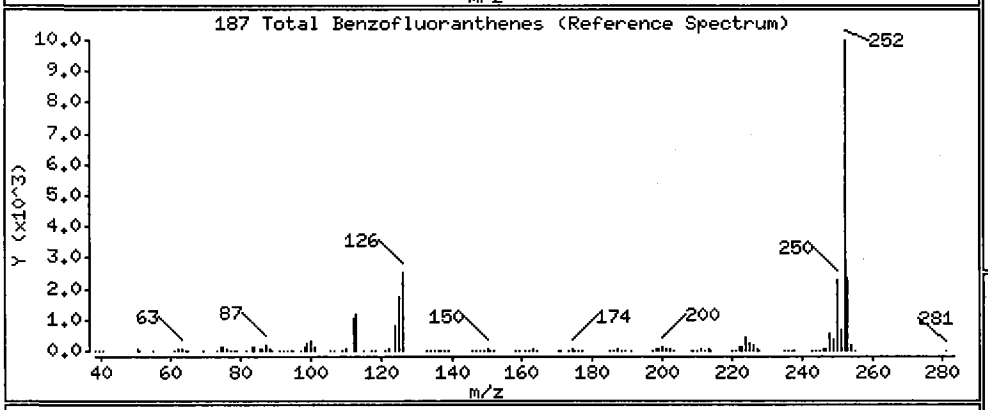
Volume Injected (uL): 1.0 Operator: VTS

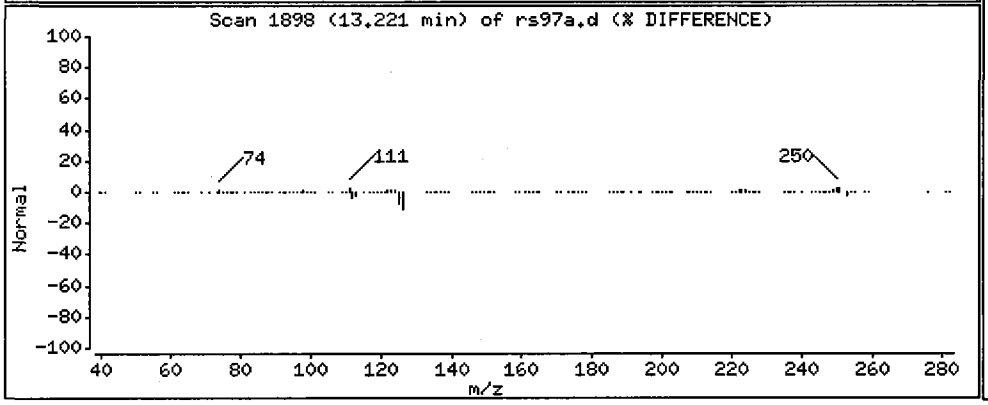
Column phase: ZB-5msi Column diameter: 0.32

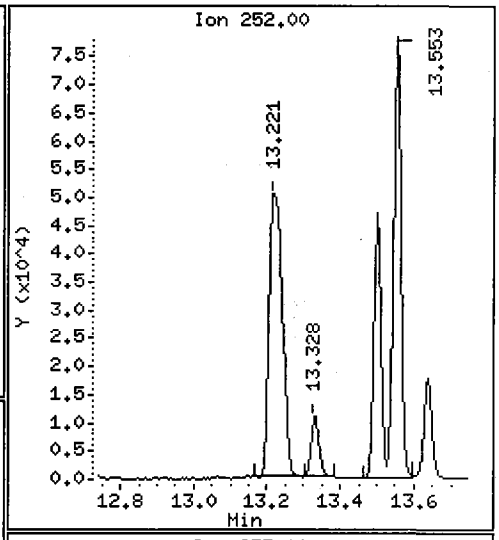
187 Total Benzofluoranthenes Concentration: 117200 ug/kg

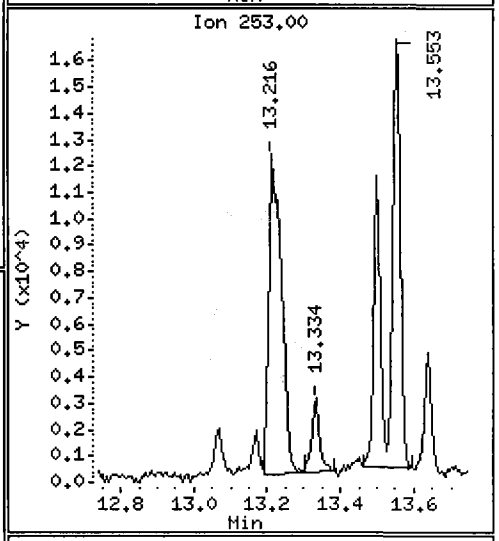


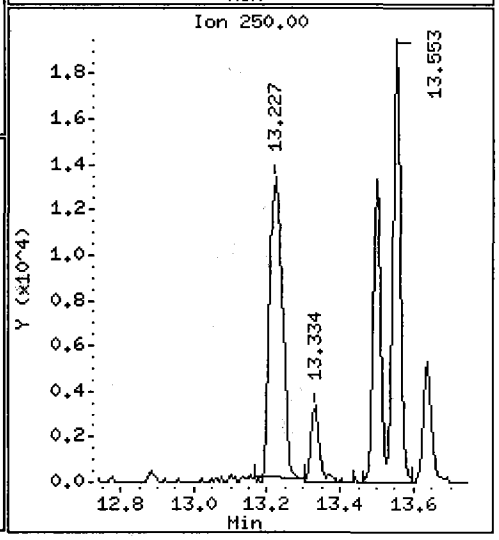












Data File: /chem1/nt12.i/20101109.b/rs97a.d

Date : 09-NOV-2010 18:28

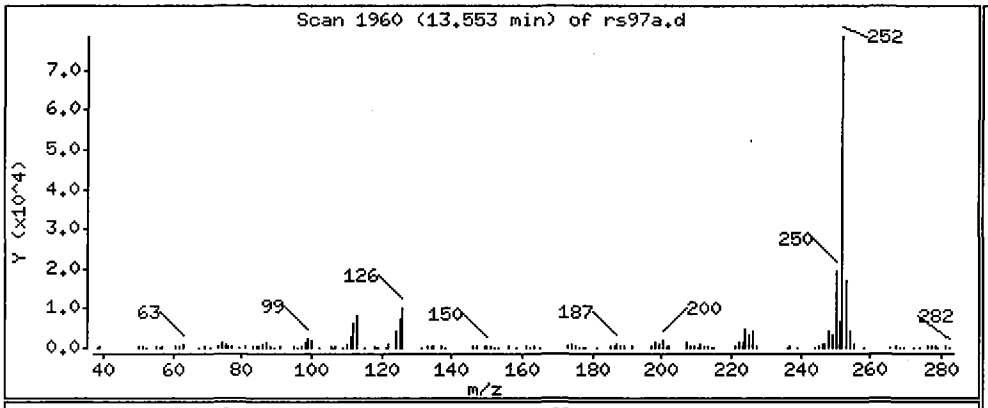
Client ID: GSM-08SO-10-11-1009 Instrument: nt12.i

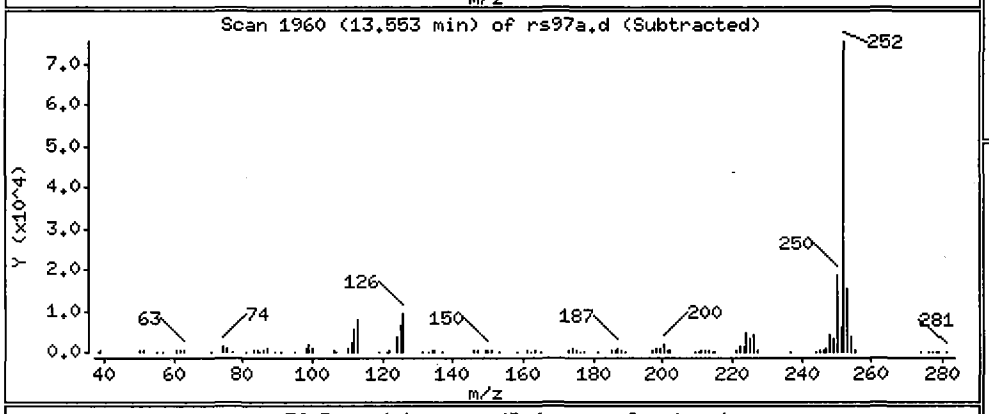
Sample Info: RS97A,3

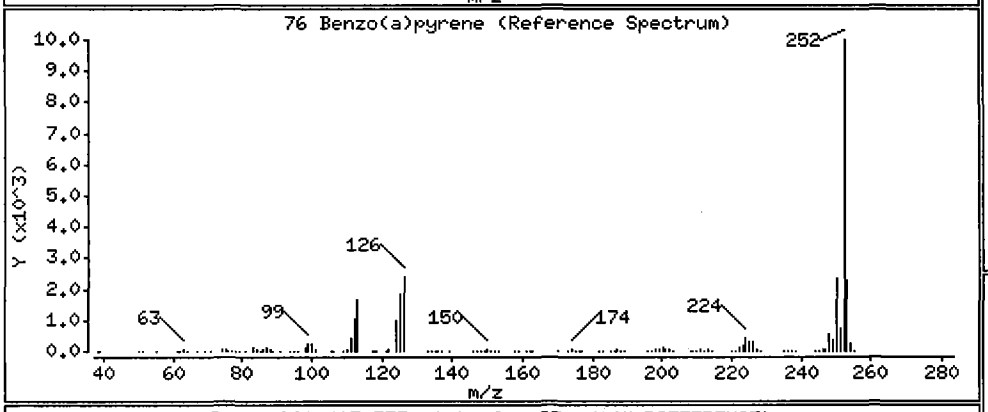
Volume Injected (uL): 1.0 Operator: VTS

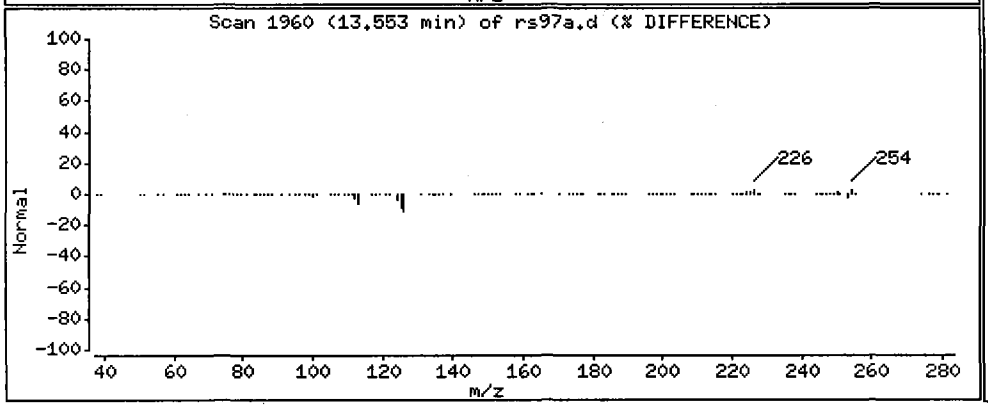
Column phase: ZB-5msi Column diameter: 0.32

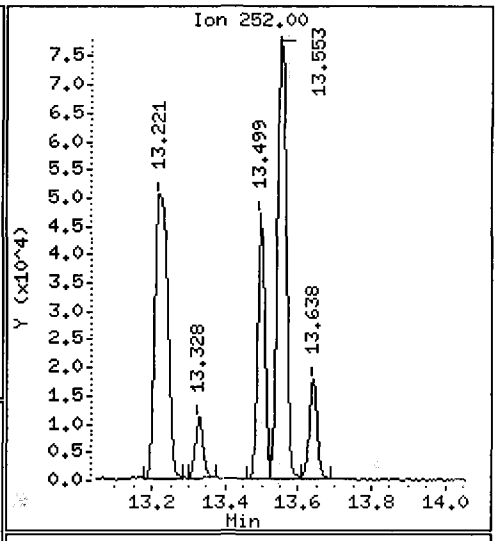
76 Benzo(a)pyrene Concentration: 114300 ug/kg

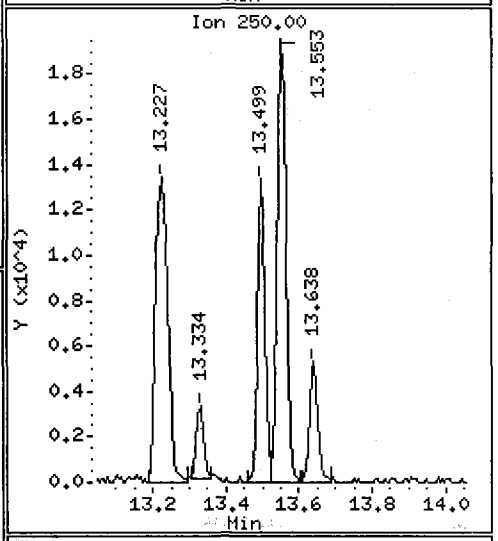


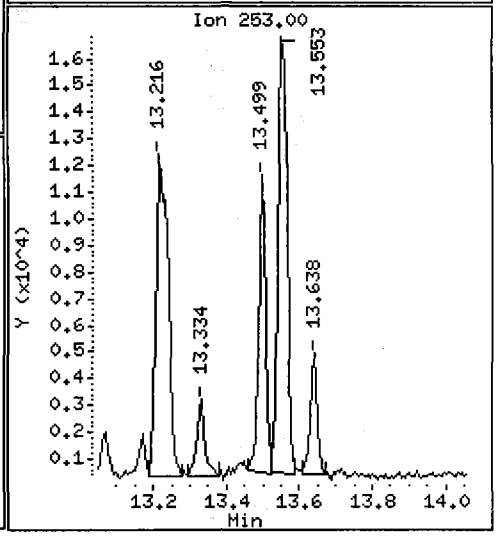












Data File: /chem1/nt12.i/20101109.b/rs97a.d

Date : 09-NOV-2010 18:28

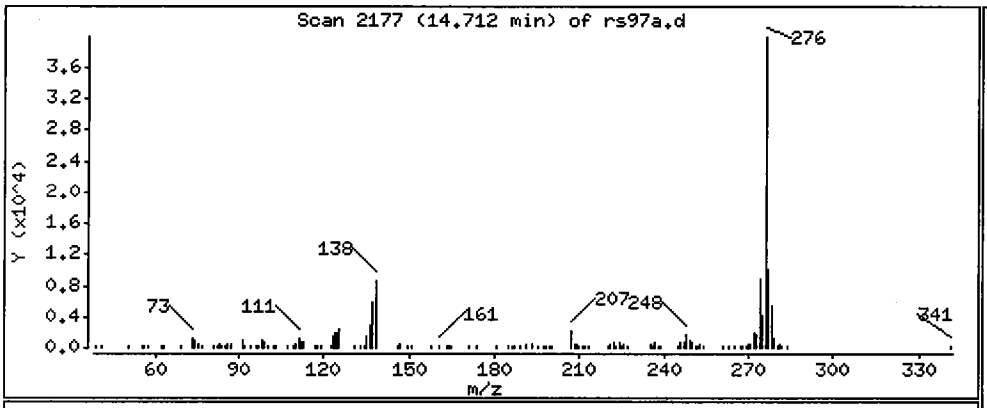
Client ID: GSM-08SO-10-11-1009 Instrument: nt12.i

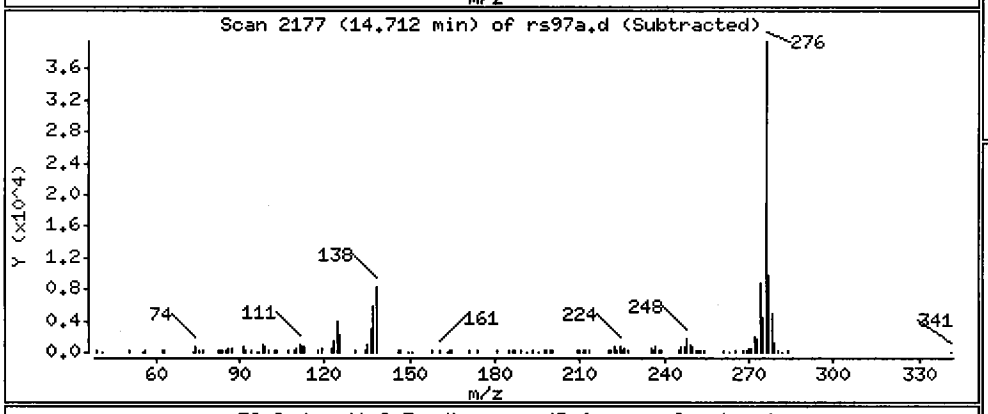
Sample Info: RS97A,3

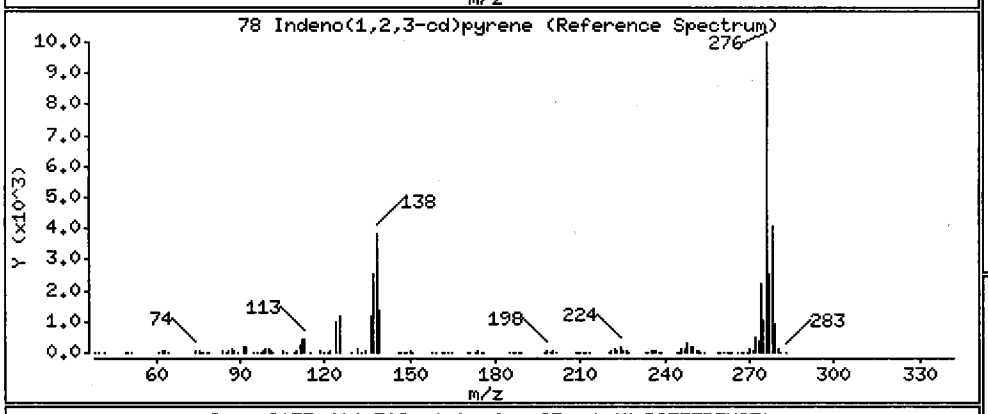
Volume Injected (uL): 1.0 Operator: VTS

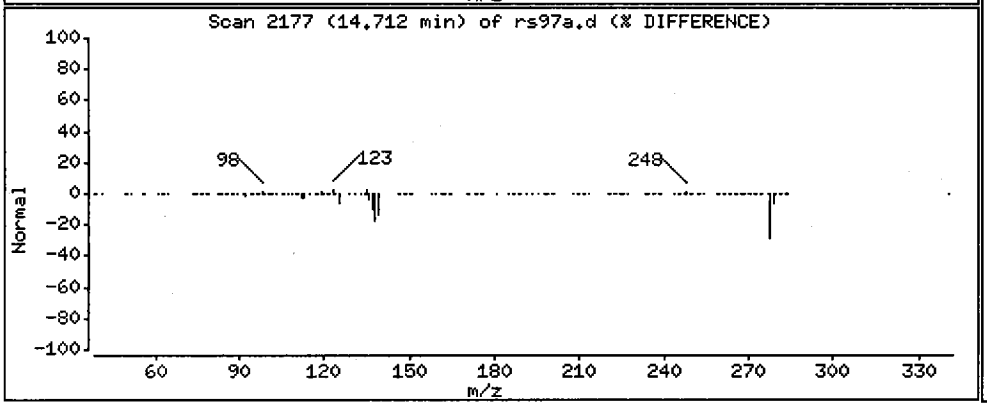
Column phase: ZB-5msi Column diameter: 0.32

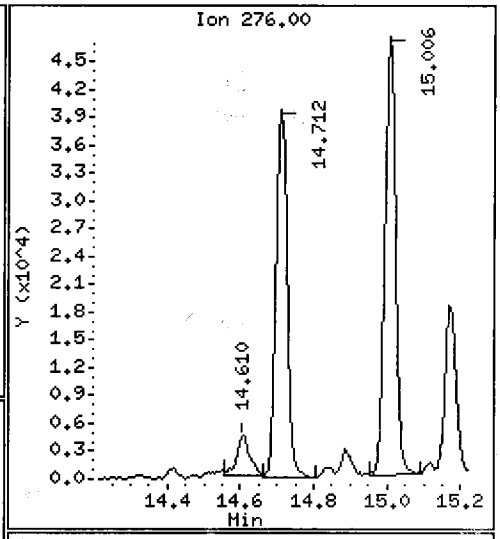
78 Indeno(1,2,3-cd)pyrene Concentration: 52360 ug/kg

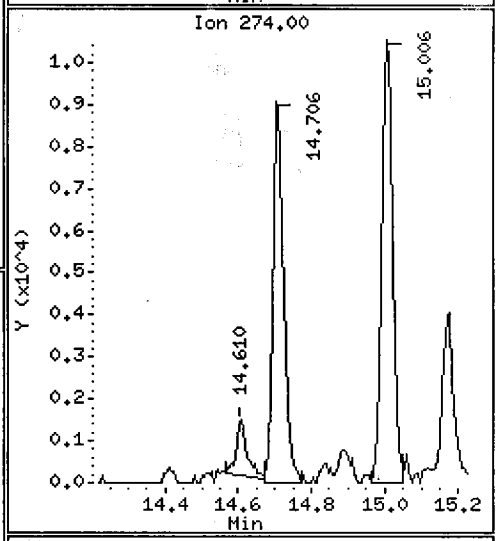


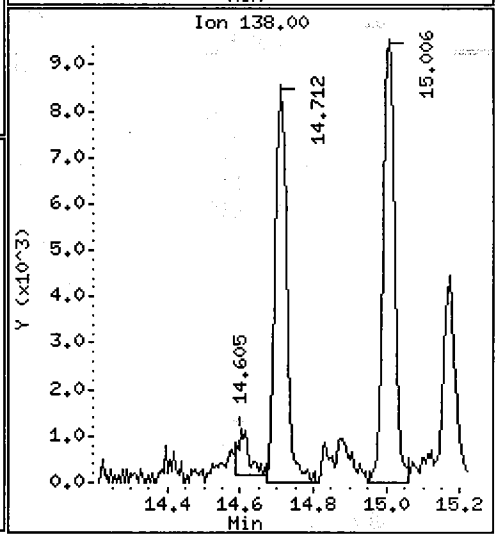












Data File: /chem1/nt12.i/20101109.b/rs97a.d

Date : 09-NOV-2010 18:28

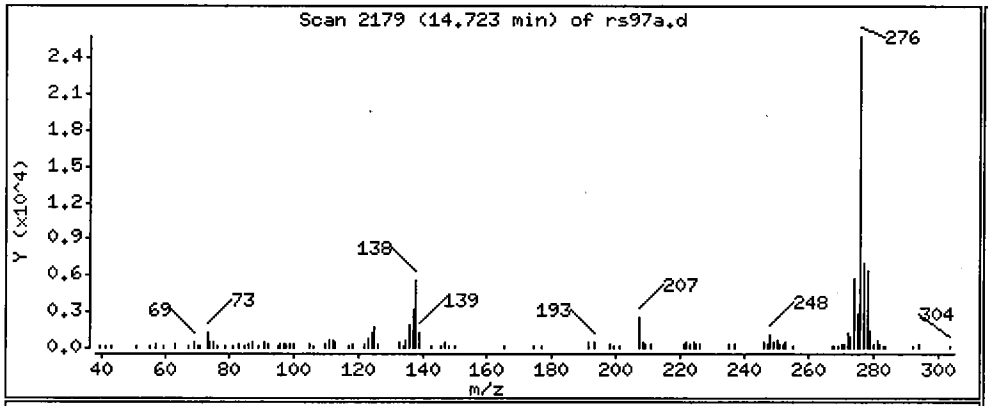
Client ID: GSM-08SO-10-11-1009 Instrument: nt12.i

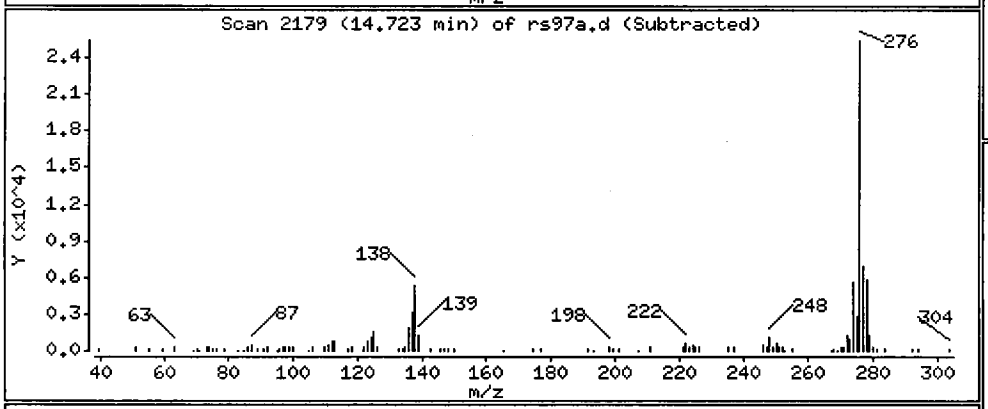
Sample Info: RS97A,3

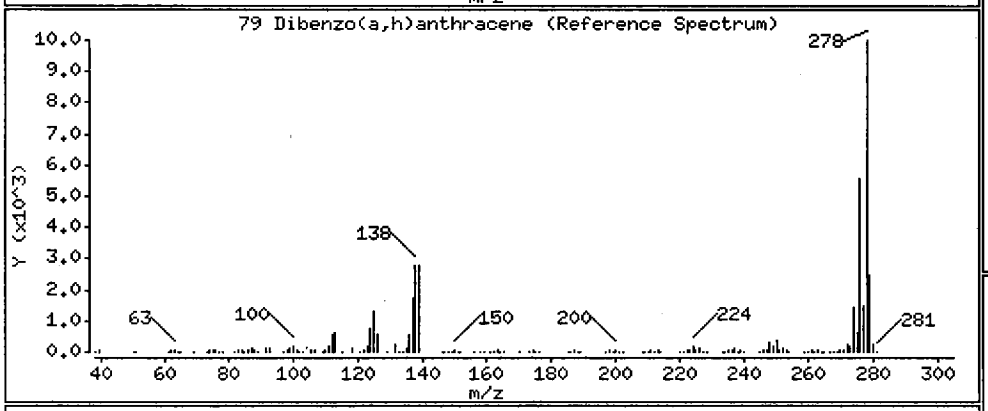
Volume Injected (uL): 1.0 Operator: VTS

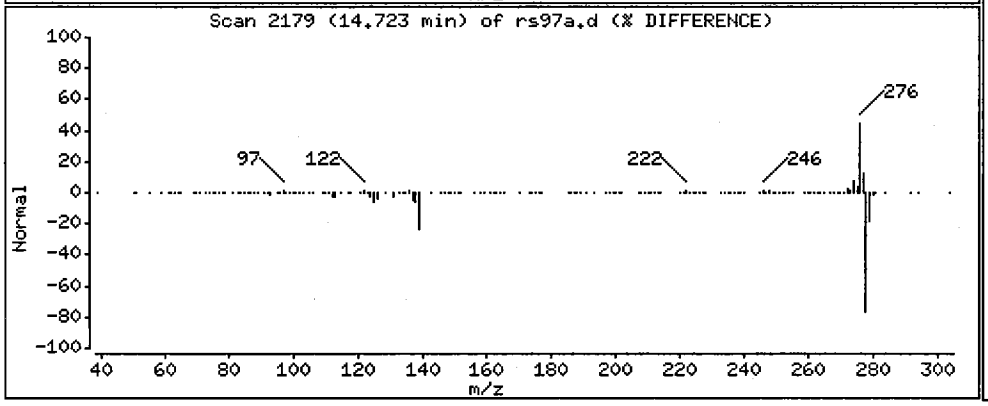
Column phase: ZB-5msi Column diameter: 0.32

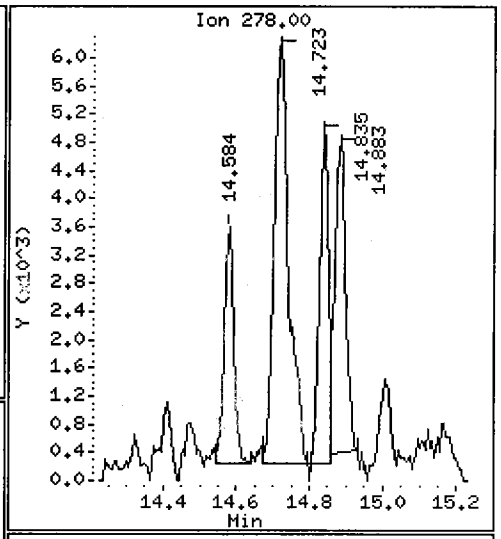
79 Dibenzo(a,h)anthracene Concentration: 13100 ug/kg

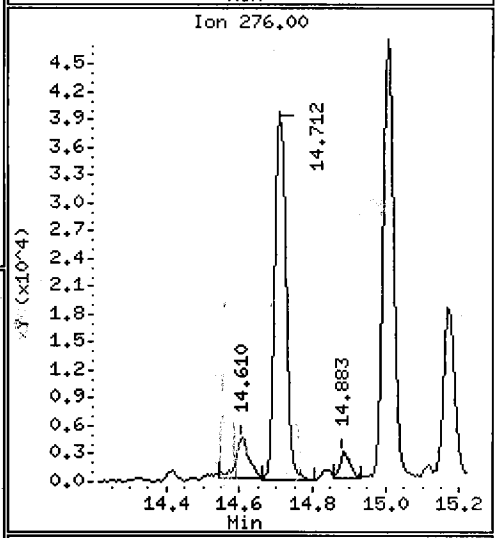


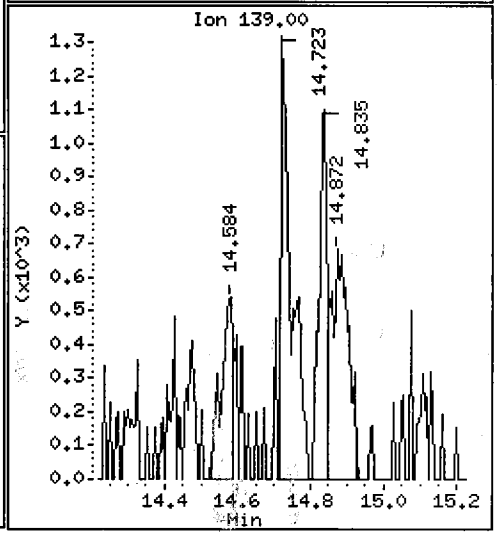












Data File: /chem1/nt12.i/20101109.b/rs97a.d

Date : 09-NOV-2010 18:28

Client ID: GSM-08SO-10-11-1009

Instrument: nt12.i

Sample Info: RS97A,3

Volume Injected (uL): 1.0

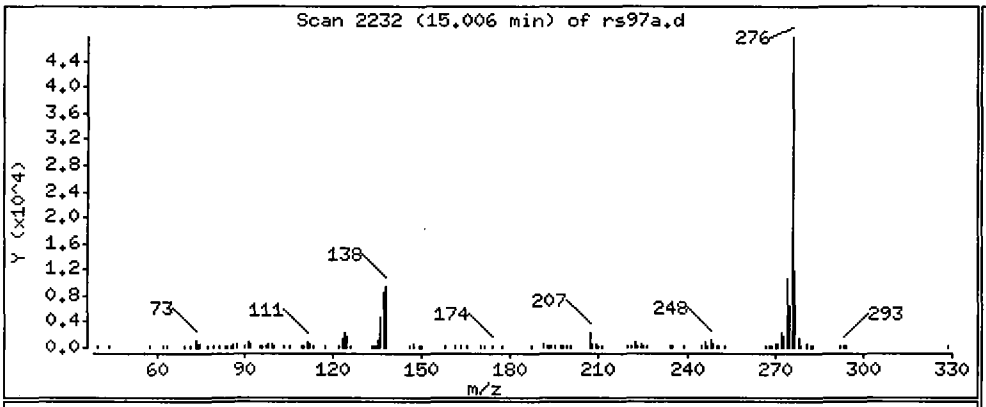
Operator: VTS

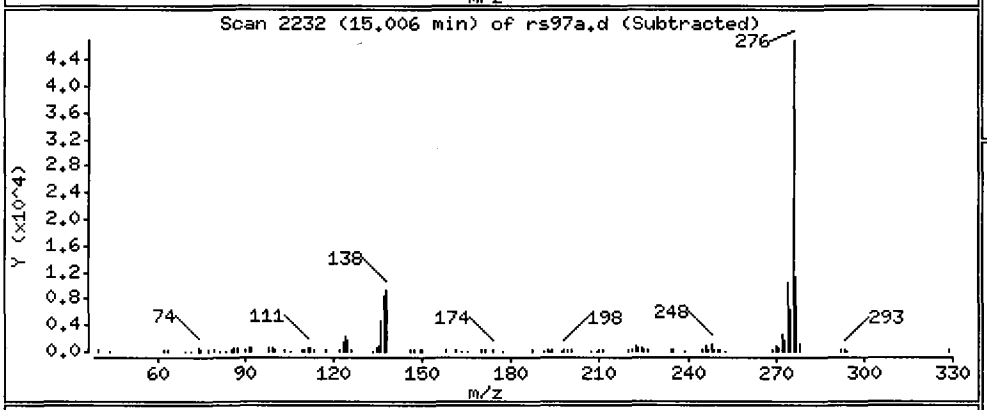
Column phase: ZB-5msi

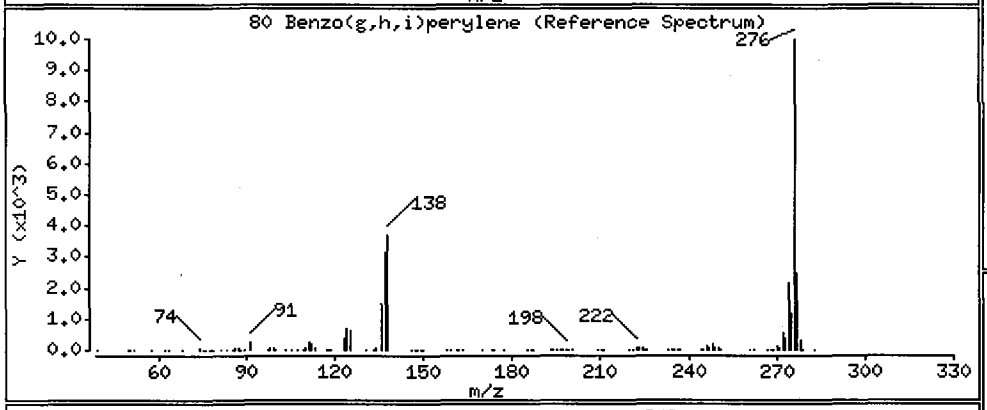
Column diameter: 0.32

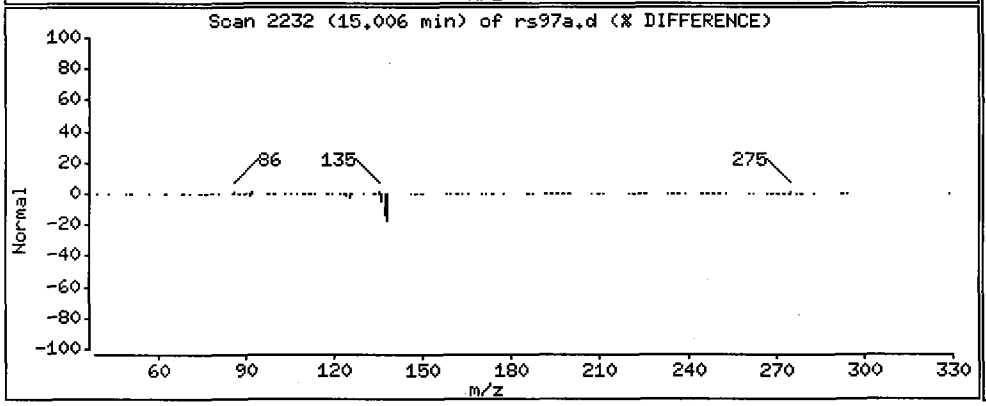
80 Benzo(g,h,i)perylene

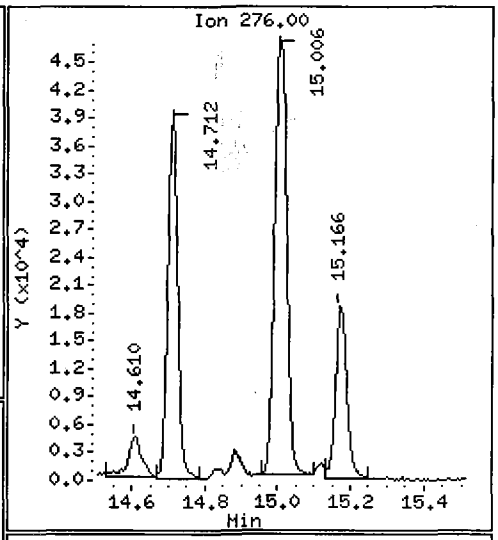
Concentration: 81910 ug/kg

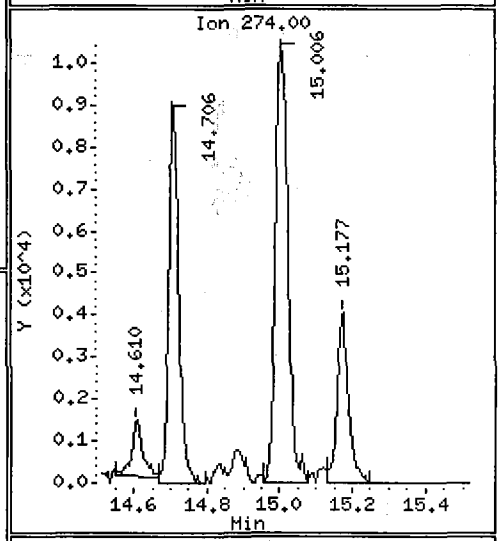


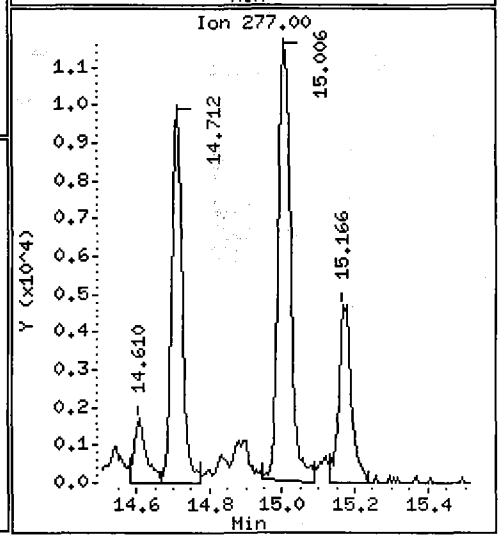








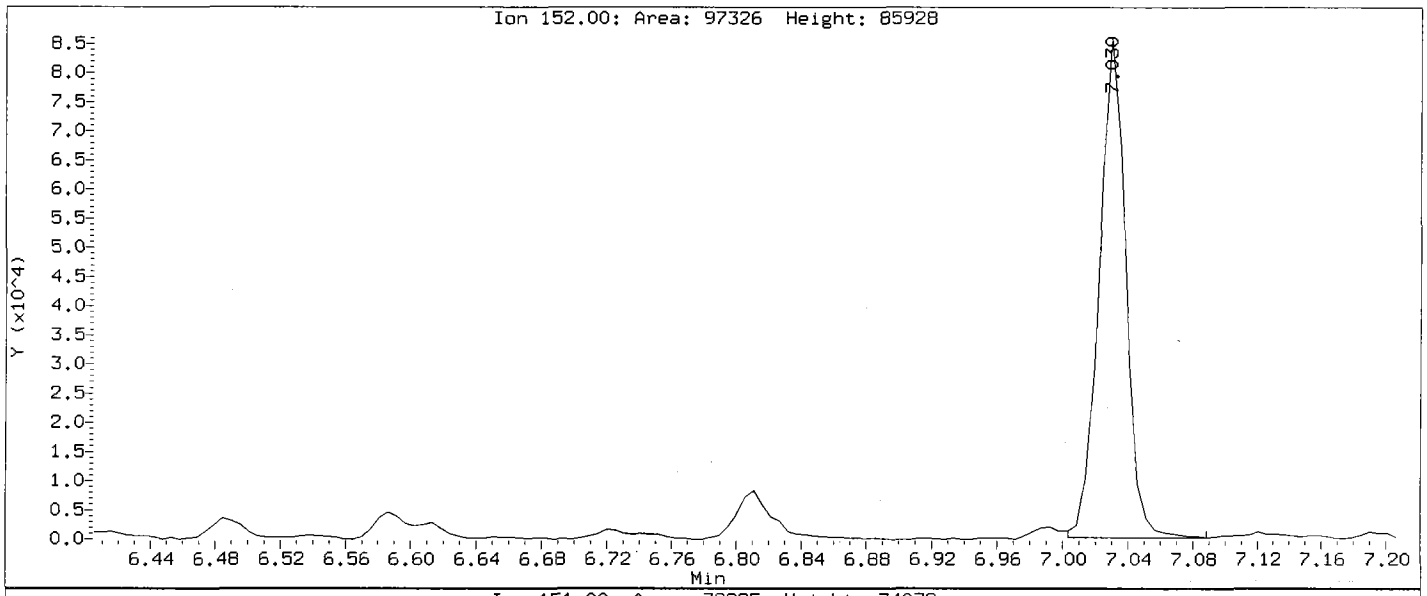


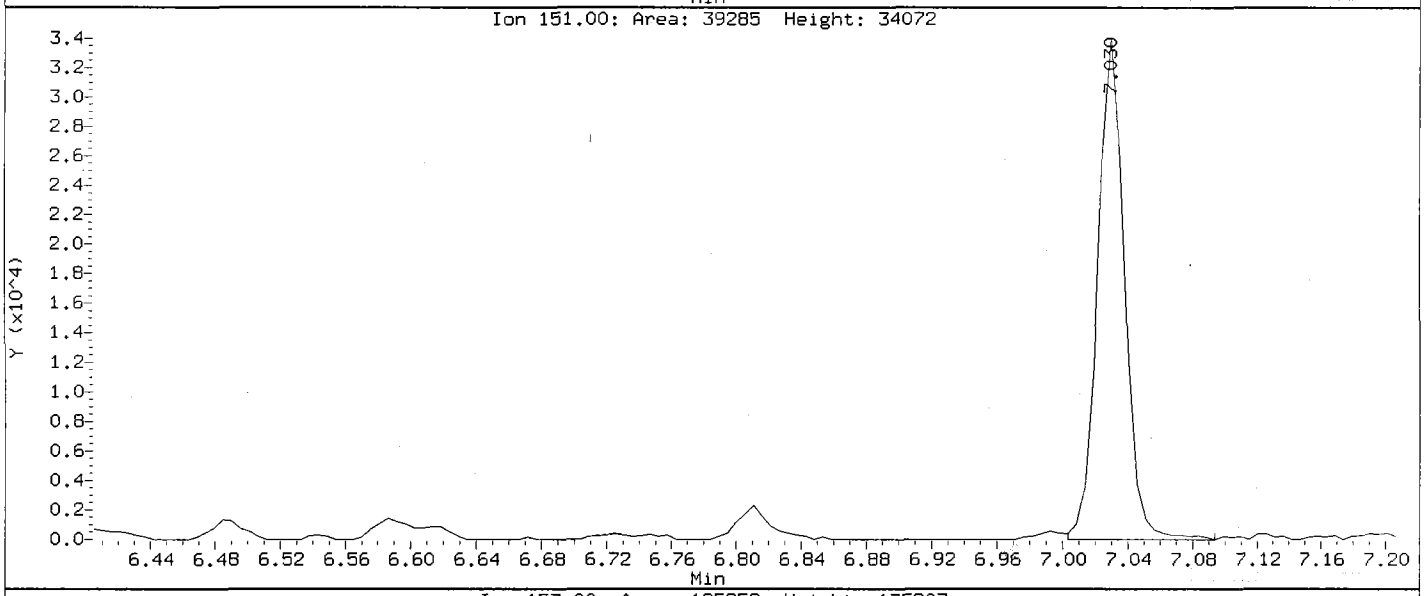


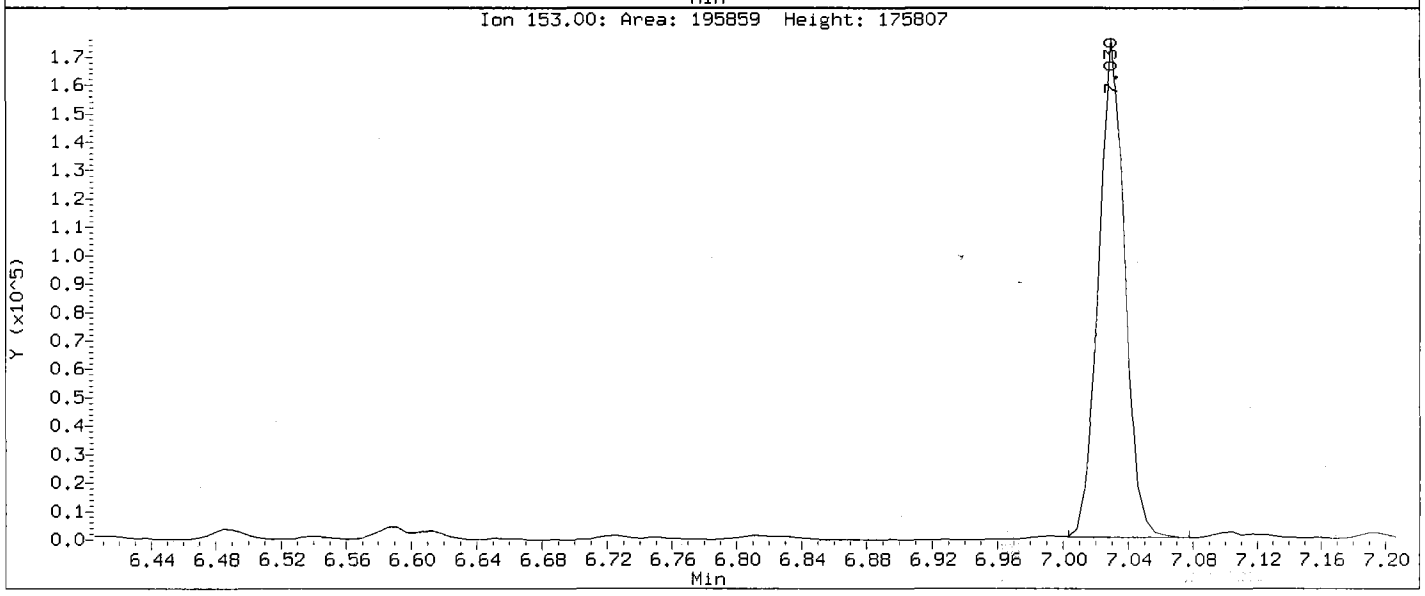
Data File: /chem1/nt12.i/20101109.b/rs97a.d
Injection Date: 09-NOV-2010 18:28
Instrument: nt12.i
Client Sample ID: GSM-0850-10-11-1009

VJS 11-10-10

Compound: Acenaphthylene
CAS Number: 208-96-8

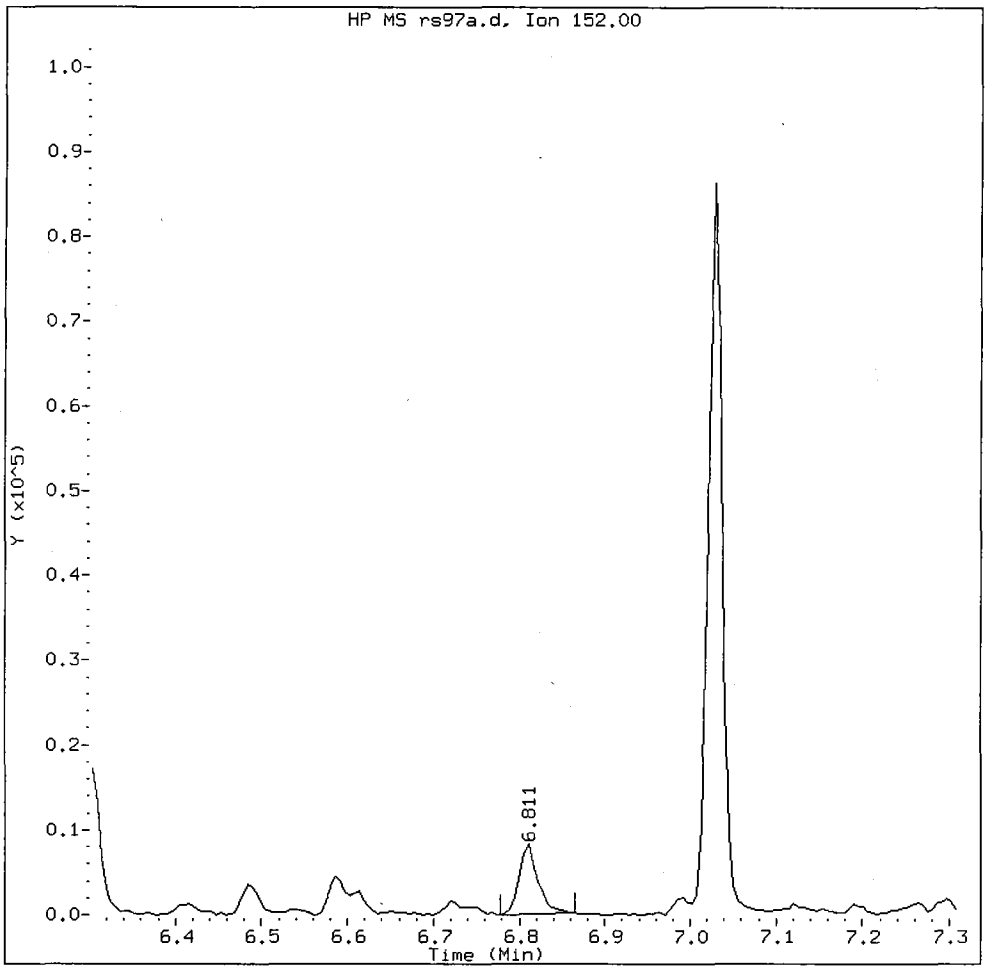






RS97A, /chem1/nt12.i/20101109.b/rs97a.d

Acenaphthylene Amount: 1.11 Area: 12115



MANUAL INTEGRATION for Acenaphthylene

1. Baseline correction
2. Poor chromatography
3. Peak not found
4. Totals calculation

5. Other _____

Analyst: VB Date: 11-10-10

Analytical Resources, Inc.

Semivolatile Report SW846 Method 8270D

Data file : /chem1/nt12.i/20101109.b/rs97b.d
Lab Smp Id: RS97B
Client Smp ID: DGS-19-3.34.1-10100
Inj Date : 09-NOV-2010 18:51
Operator : VTS
Inst ID: nt12.i
Smp Info : RS97B,3
Misc Info : 10-27418
Comment : 1ul Injection
Method : /chem1/nt12.i/20101109.b/PNADMD.m
Meth Date : 09-Nov-2010 11:48 van
Quant Type: ISTD
Cal Date : 30-OCT-2010 13:19
Cal File: ic1030f.d
Als bottle: 21
Dil Factor: 3.00000
Integrator: HP RTE
Compound Sublist: pnas.sub
Target Version: 3.50
Processing Host: cserv3

Concentration Formula: Amt * DF * Vt/(Ws * (100 - M)/100) * CpndVariable

Name	Value	Description
DF	3.00000	Dilution Factor
Vt	10000.00000	Volume of final extract (uL)
Ws	5.28000	Weight of sample extracted (g)
M	29.70000	% Moisture

Cpnd Variable Local Compound Variable

Compounds	QUANT SIG MASS	RT	EXP RT	REL RT	RESPONSE	CONCENTRATIONS ON-COLUMN (ug/mL)	FINAL (ug/kg)
* 27 Naphthalene-d8	136	4.898	4.888	(1.000)	207521	20.0000	
28 Naphthalene	128	4.936	4.909	(1.008)	3728052	315.644	2551000 E5
32 2-Methylnaphthalene	141	5.732	5.726	(1.170)	394450	62.5699	505700
105 1-methylnaphthalene	141	5.854	5.854	(1.195)	188079	28.9345	233900
$ 36 2-Fluorobiphenyl	172	6.202	6.202	(0.887)	4320	0.51710	4179
40 Acenaphthylene	152	6.805	6.805	(0.973)	19990	1.83841	14860 (M)
* 42 Acenaphthene-d10	164	6.992	6.992	(1.000)	108592	20.0000	
44 Acenaphthene	153	7.035	7.030	(1.006)	444749	66.5953	538200
46 Dibenzofuran	168	7.227	7.227	(1.034)	29625	2.89280	23380
49 Fluorene	166	7.639	7.644	(1.092)	159108	20.8080	168200
* 59 Phenanthrene-d10	188	8.766	8.766	(1.000)	191561	20.0000	
60 Phenanthrene	178	8.803	8.793	(1.004)	1252100	123.208	995800 E
61 Anthracene	178	8.851	8.851	(1.010)	192386	18.3170	148000
62 Carbazole	167	9.065	9.065	(1.034)	38474	4.54078	36700

Compounds	QUANT SIG MASS	RT	EXP RT	REL RT	RESPONSE	CONCENTRATIONS ON-COLUMN (ug/mL)	FINAL (ug/kg)
64 Fluoranthene	202	10.246	10.240	(0.854)	619317	54.2265	438300
65 Pyrene	202	10.513	10.508	(0.877)	764214	67.4482	545100
$ 66 Terphenyl-d14	244	10.743	10.743	(0.896)	3763	0.52062	4208
68 Benzo(a)anthracene	228	11.977	11.977	(0.999)	128560	14.0012	113200
* 69 Chrysene-d12	240	11.993	11.993	(1.000)	163503	20.0000	
71 Chrysene	228	12.019	12.025	(1.002)	136085	15.8525	128100
187 Total Benzofluoranthenes	252	13.221	13.243	(0.971)	180282	19.9169	161000
76 Benzo(a)pyrene	252	13.553	13.553	(0.996)	164447	19.7767	159800
* 77 Perylene-d12	264	13.611	13.611	(1.000)	151971	20.0000	
99 Perylene	252	13.638	13.643	(1.002)	41466	~~4.68~~950	37900 NP
78 Indeno(1,2,3-cd)pyrene	276	14.712	14.717	(1.081)	112619	9.12250	73730
79 Dibenzo(a,h)anthracene	278	14.717	14.728	(1.081)	21221	2.08793	16880
80 Benzo(g,h,i)perylene	276	15.011	15.011	(1.103)	141004	13.9033	112400

QC Flag Legend

M - Compound response manually integrated.

VJS
11-10-10

Analytical Resources, Inc.

INTERNAL STANDARD COMPOUNDS
AREA AND RT SUMMARY

Instrument ID: nt12.i
Lab File ID: rs97b.d
Lab Smp Id: RS97B
Analysis Type: SV
Quant Type: ISTD
Operator: VTS
Method File: /chem1/nt12.i/20101109.b/PNADMD.m
Misc Info: 10-27418

Calibration Date: 09-NOV-2010
Calibration Time: 11:04
Client Smp ID: DGS-19-3.34.1-1C
Level: LOW
Sample Type: Sediment

Test Mode:
Use Initial Calibration Level 4.

COMPOUND	STANDARD	AREA LIMIT LOWER	AREA LIMIT UPPER	SAMPLE	%DIFF
27 Naphthalene-d8	237664	118832	475328	207521	-12.68
42 Acenaphthene-d10	143363	71682	286726	108592	-24.25
59 Phenanthrene-d10	245437	122718	490874	191561	-21.95
69 Chrysene-d12	199260	99630	398520	163503	-17.94
77 Perylene-d12	197636	98818	395272	151971	-23.11

COMPOUND	STANDARD	RT LIMIT LOWER	RT LIMIT UPPER	SAMPLE	%DIFF
27 Naphthalene-d8	4.89	4.39	5.39	4.90	0.22
42 Acenaphthene-d10	6.99	6.49	7.49	6.99	0.00
59 Phenanthrene-d10	8.77	8.27	9.27	8.77	0.00
69 Chrysene-d12	11.99	11.49	12.49	11.99	0.00
77 Perylene-d12	13.61	13.11	14.11	13.61	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.

Analytical Resources, Inc.

RECOVERY REPORT

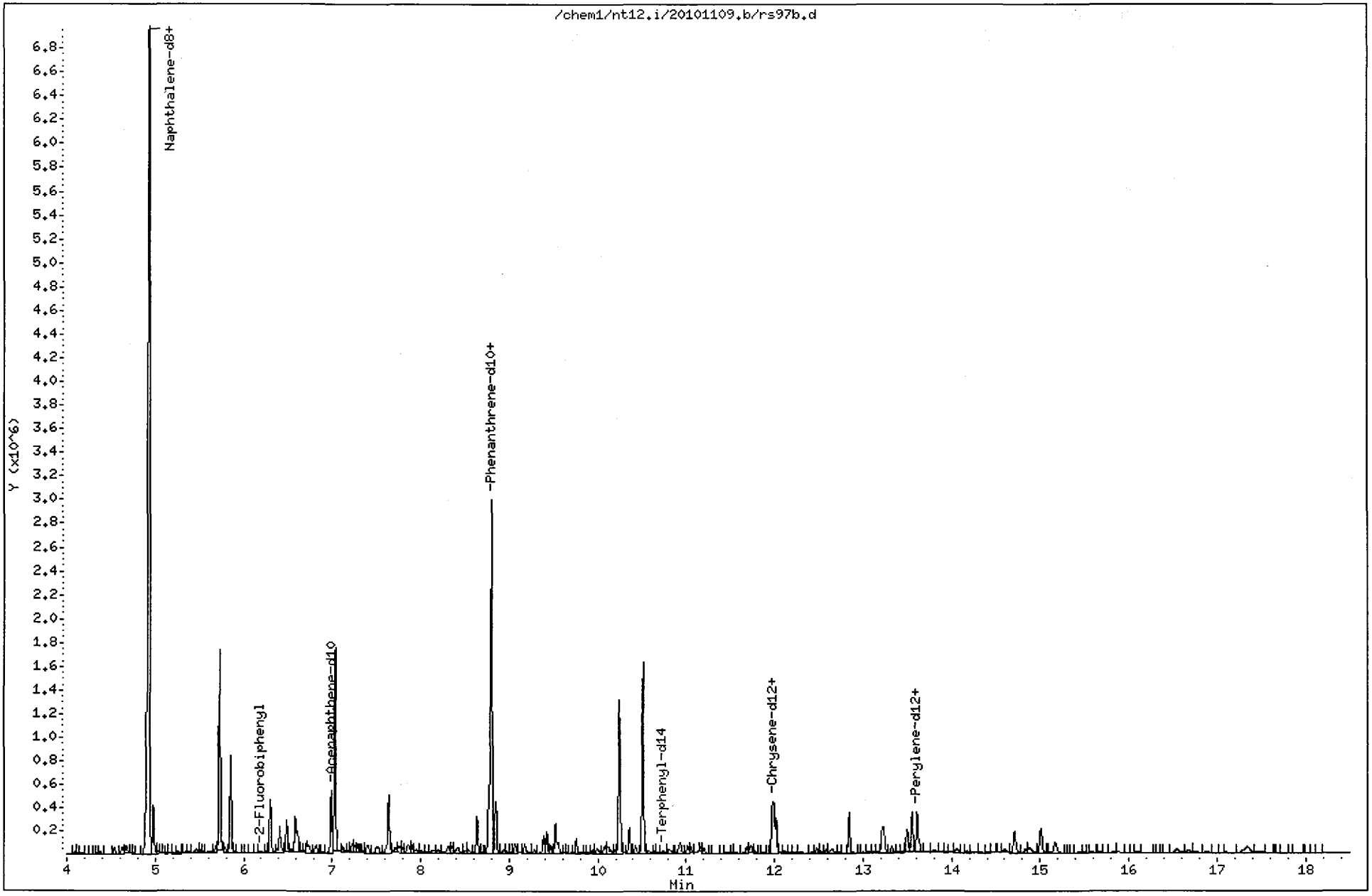
Client Name: NW Natural
Sample Matrix: SOLID
Lab Smp Id: RS97B
Level: LOW
Data Type: MS DATA
SpikeList File: SONICLCS.spk
Sublist File: pnas.sub
Method File: /chem1/nt12.i/20101109.b/PNADMD.m
Misc Info: 10-27418

Client SDG: RS97
Fraction: SV
Client Smp ID: DGS-19-3.34.1-10100
Operator: VTS
SampleType: SAMPLE
Quant Type: ISTD

SURROGATE COMPOUND	CONC ADDED ug/kg	CONC RECOVERED ug/kg	% RECOVERED	LIMITS
$ 36 2-Fluorobiphenyl	6735	4179	62.05	34-100
$ 66 Terphenyl-d14	6735	4208	62.47	35-112

Data File: /chem1/nt12.i/20101109.b/rs97b.d
Date : 09-NOV-2010 18:51
Client ID: DGS-19-3.34.1-10100
Sample Info: RS97B,3
Volume Injected (uL): 1.0
Column phase: ZB-5msi

Instrument: nt12.i
Operator: VTS
Column diameter: 0.32



RS97:00250

Data File: /chem1/nt12.i/20101109.b/rs97b.d

Date : 09-NOV-2010 18:51

Client ID: DGS-19-3.34.1-10100

Instrument: nt12.i

Sample Info: RS97B,3

Volume Injected (uL): 1.0

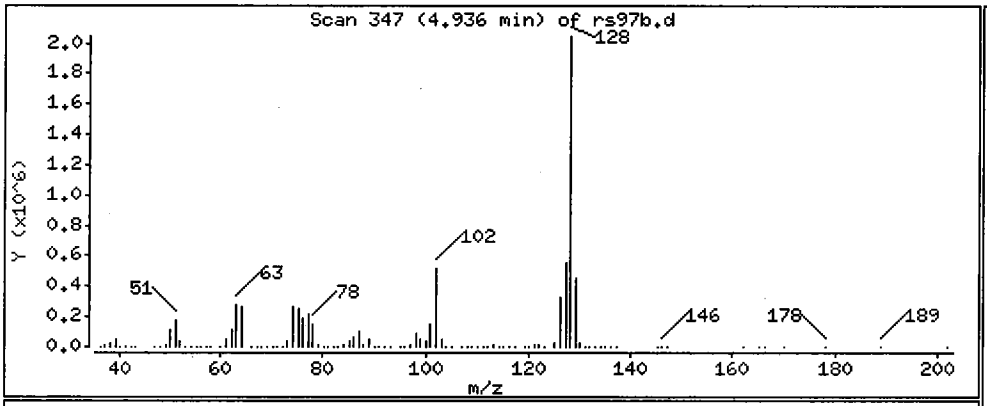
Operator: VTS

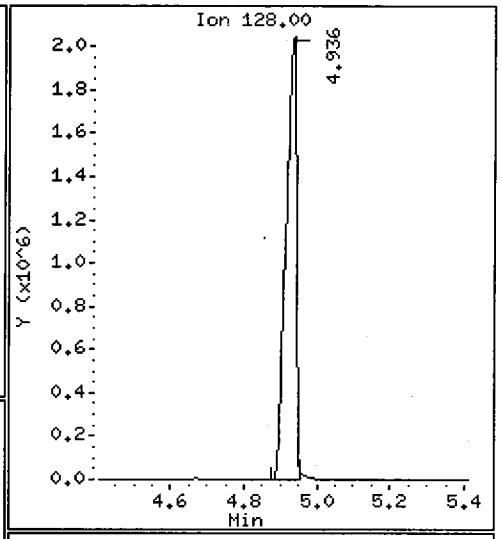
Column phase: ZB-5msi

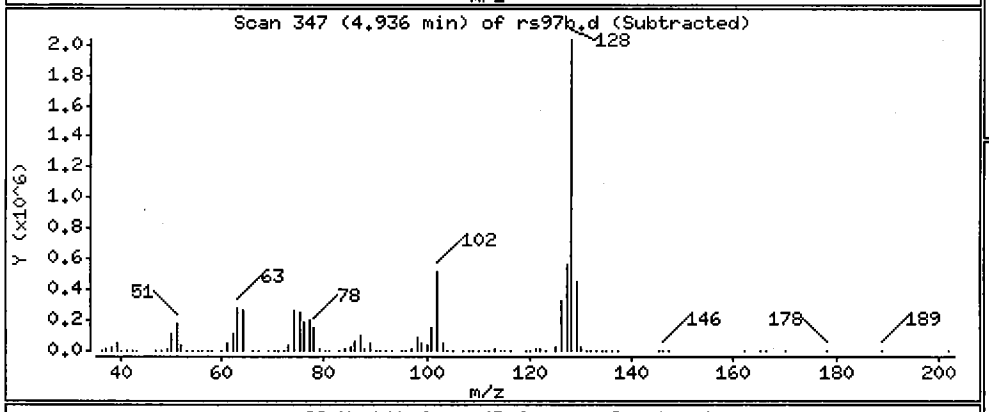
Column diameter: 0.32

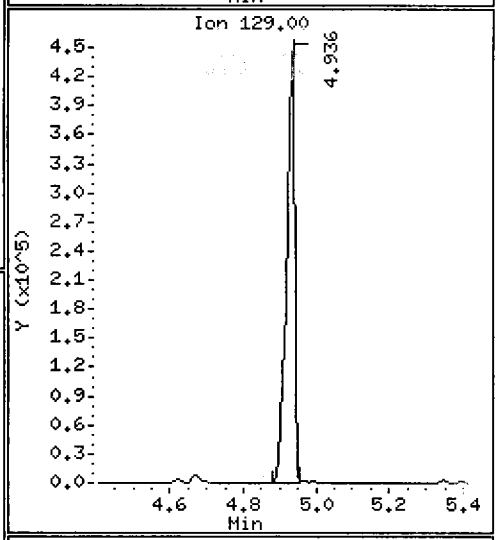
28 Naphthalene

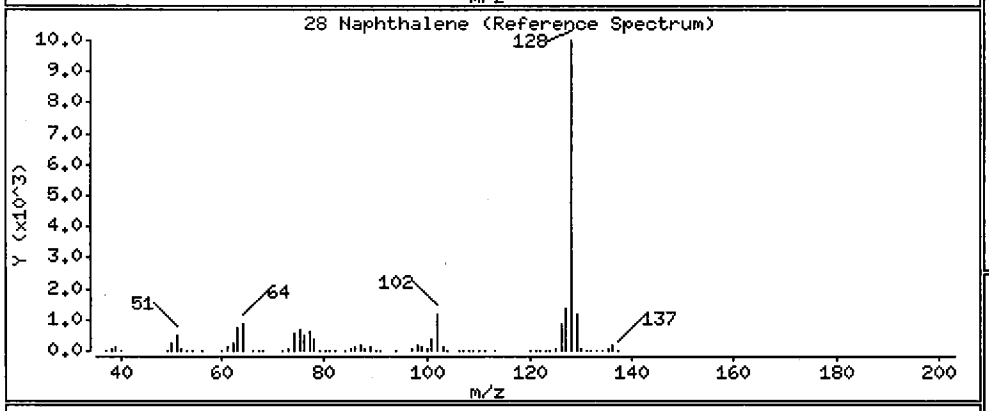
Concentration: 2551000 ug/kg

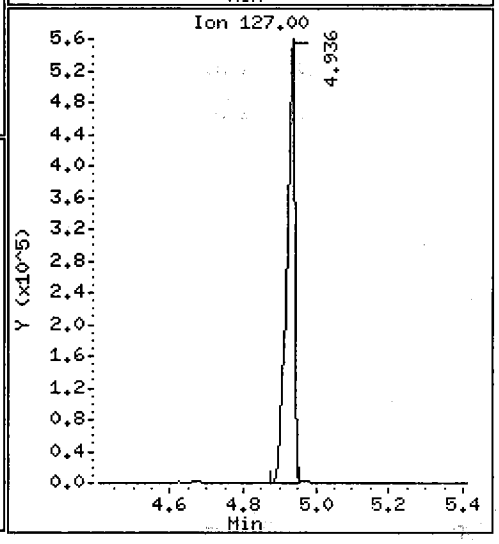


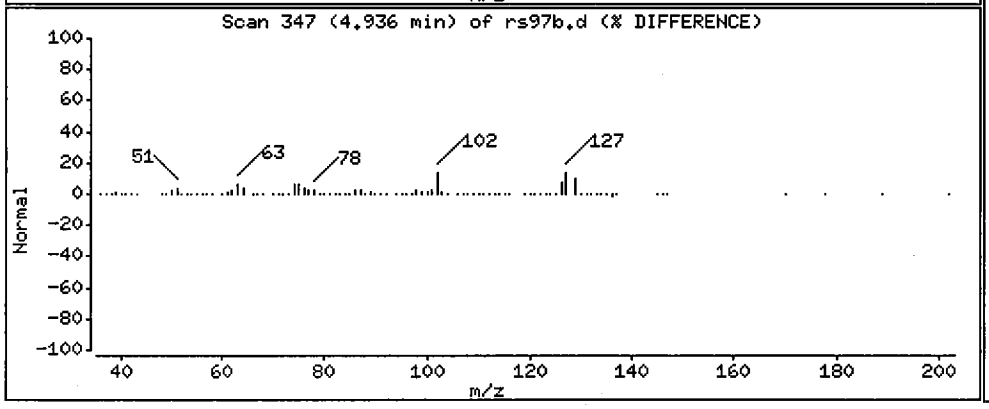












Data File: /chem1/nt12.i/20101109.b/rs97b.d

Date : 09-NOV-2010 18:51

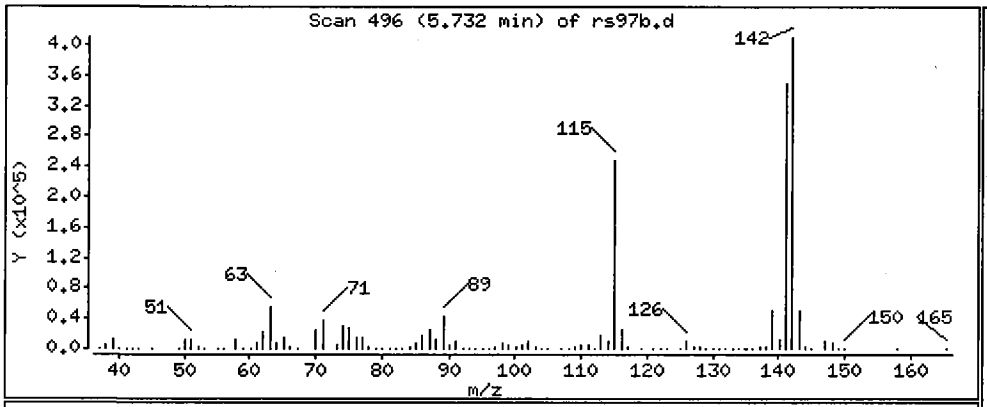
Client ID: DGS-19-3.34.1-10100 Instrument: nt12.i

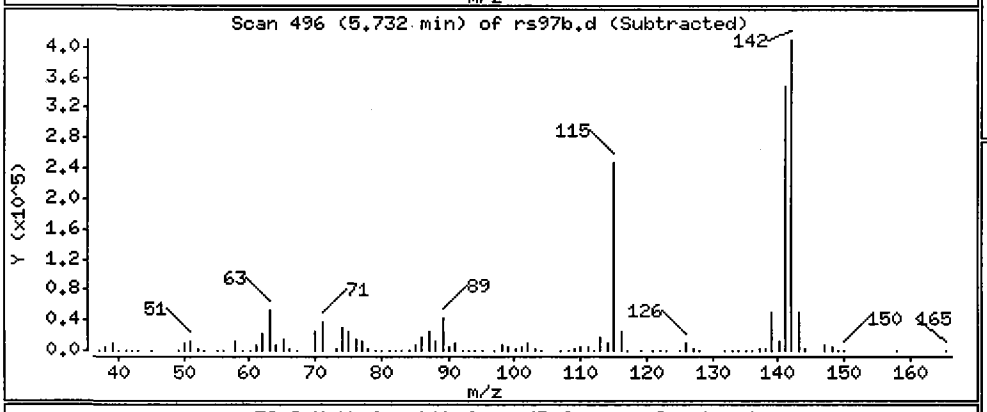
Sample Info: RS97B,3

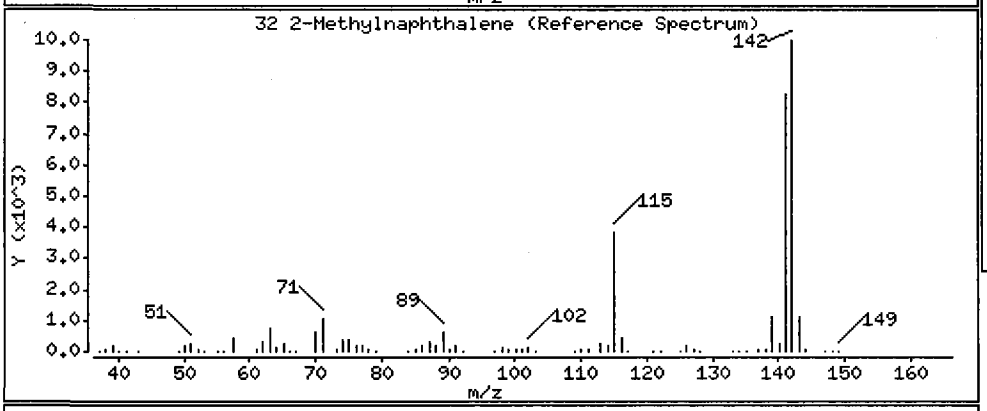
Volume Injected (uL): 1.0 Operator: VTS

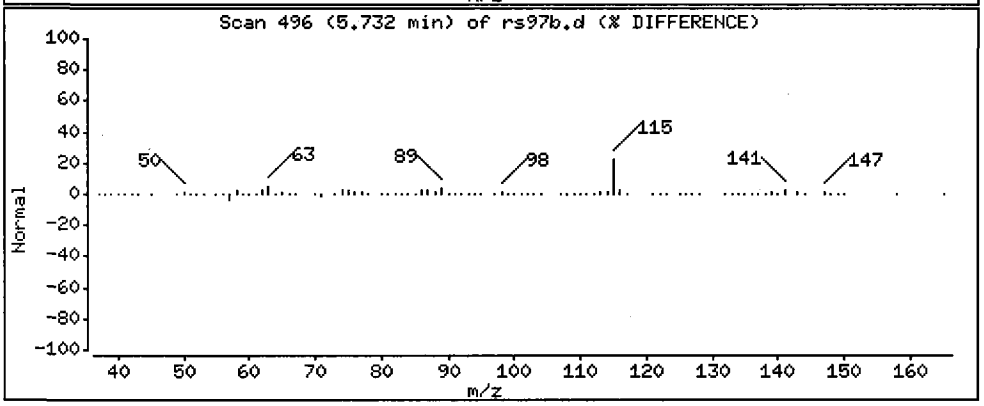
Column phase: ZB-5msi Column diameter: 0.32

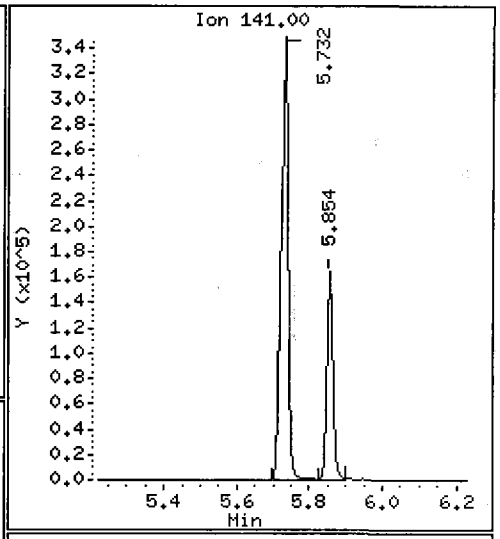
32 2-Methylnaphthalene Concentration: 505700 ug/kg

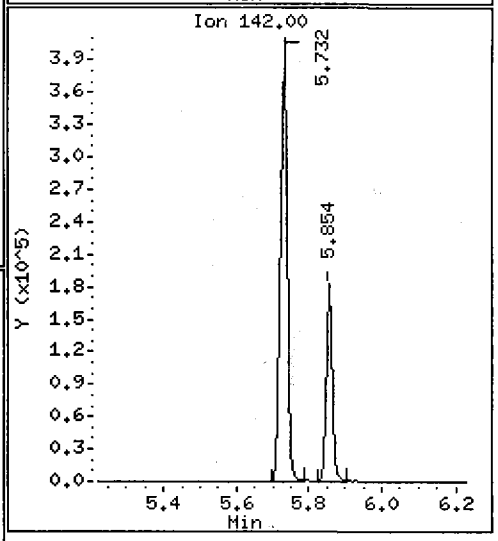












Data File: /chem1/nt12.i/20101109.b/rs97b.d

Date : 09-NOV-2010 18:51

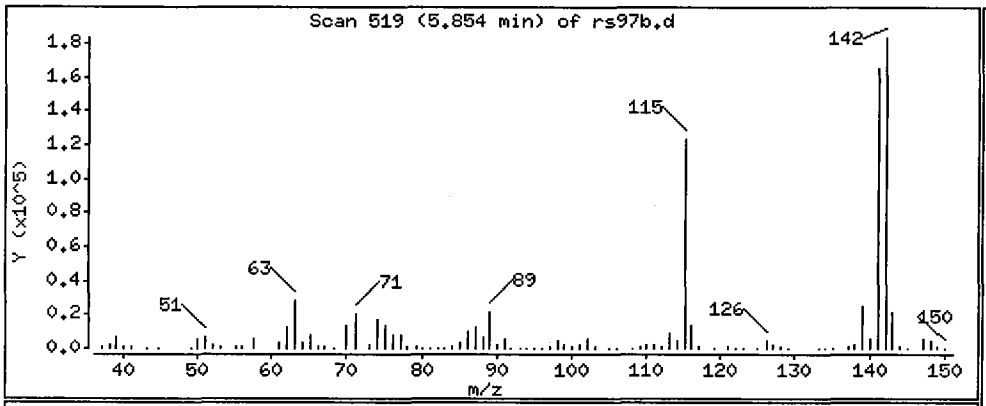
Client ID: DGS-19-3.34.1-10100 Instrument: nt12.i

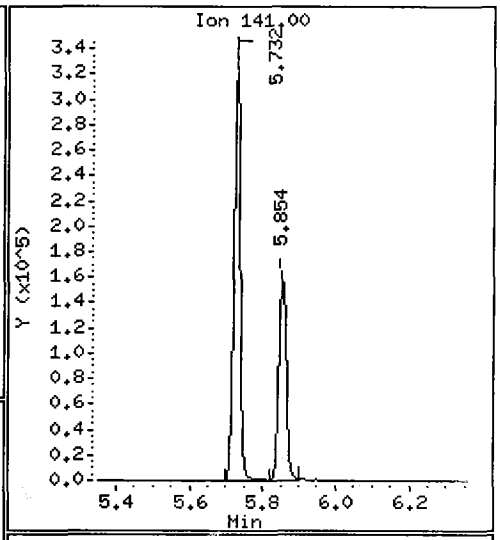
Sample Info: RS97B,3

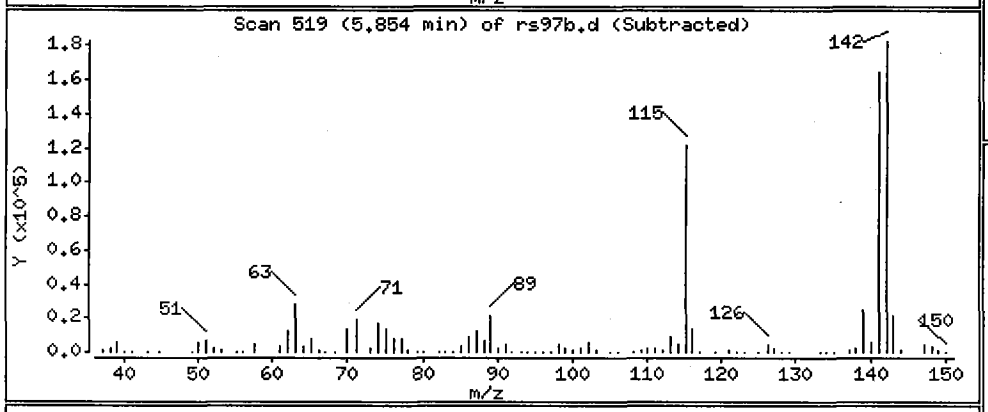
Volume Injected (uL): 1.0 Operator: VTS

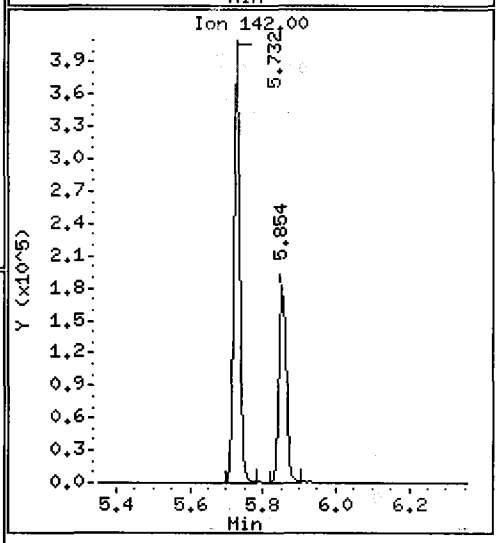
Column phase: ZB-5msi Column diameter: 0.32

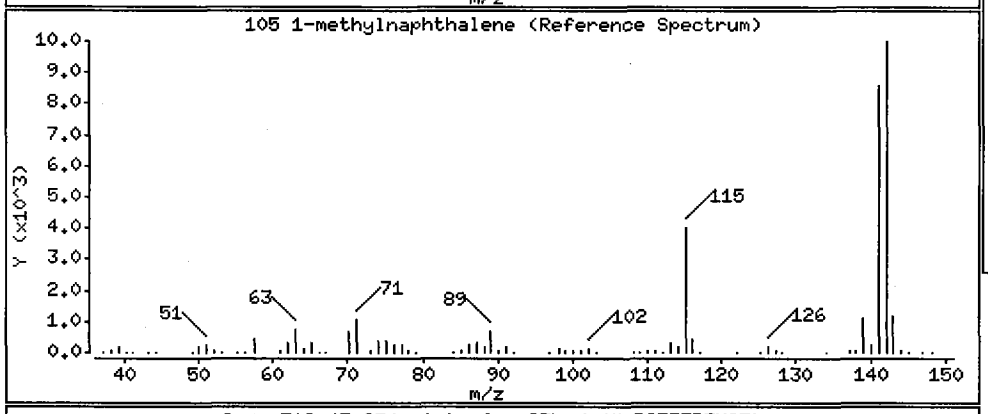
105 1-methylnaphthalene Concentration: 233900 ug/kg

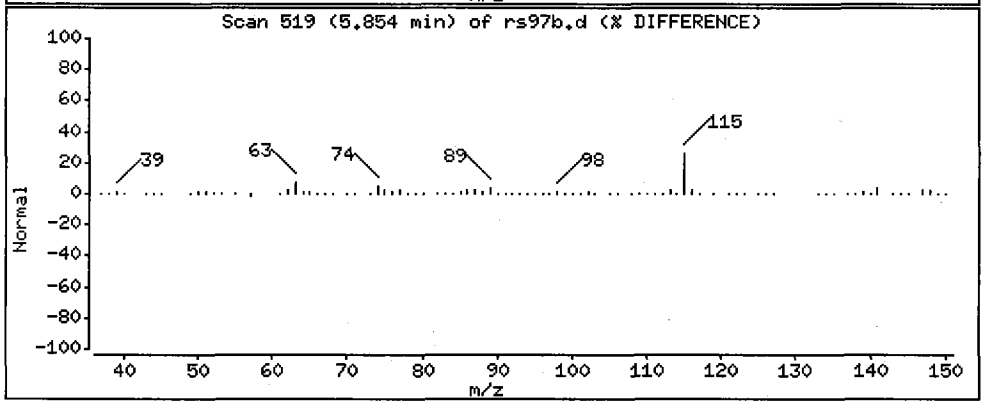












Data File: /chem1/nt12.i/20101109.b/rs97b.d

Date : 09-NOV-2010 18:51

Client ID: DGS-19-3.34.1-10100

Instrument: nt12.i

Sample Info: RS97B,3

Volume Injected (uL): 1.0

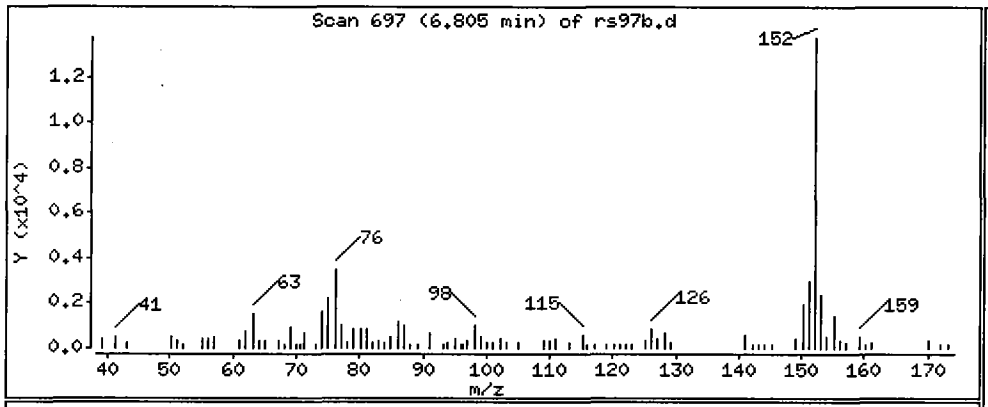
Operator: VTS

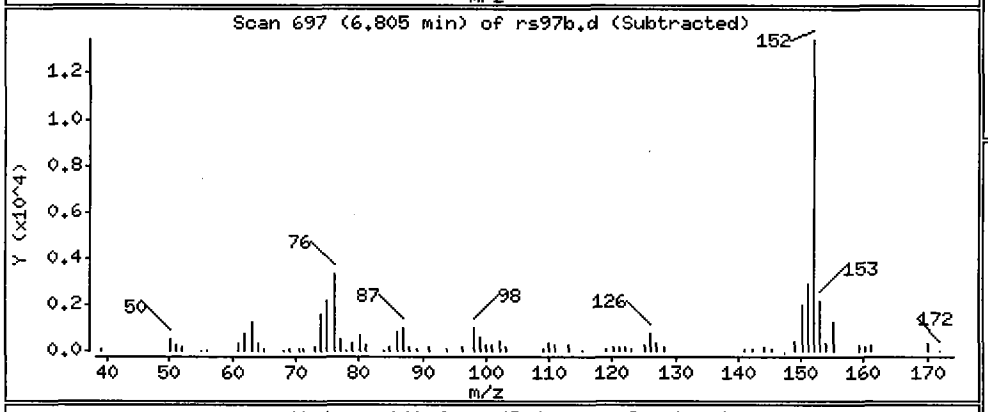
Column phase: ZB-5msi

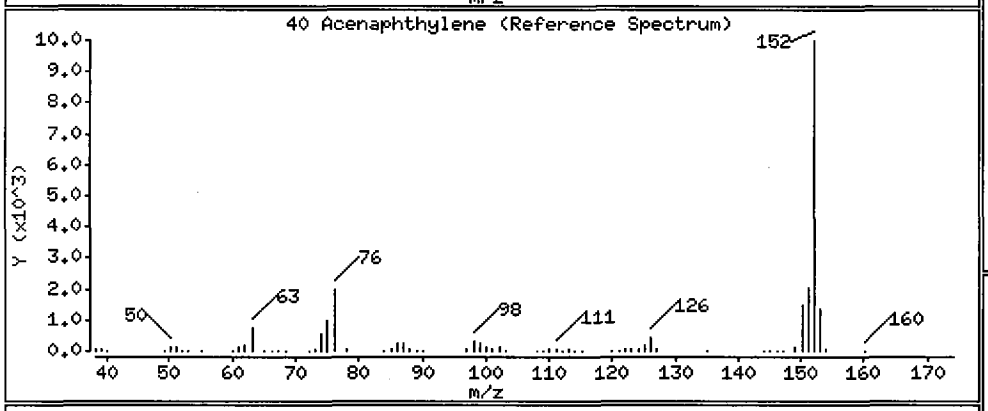
Column diameter: 0.32

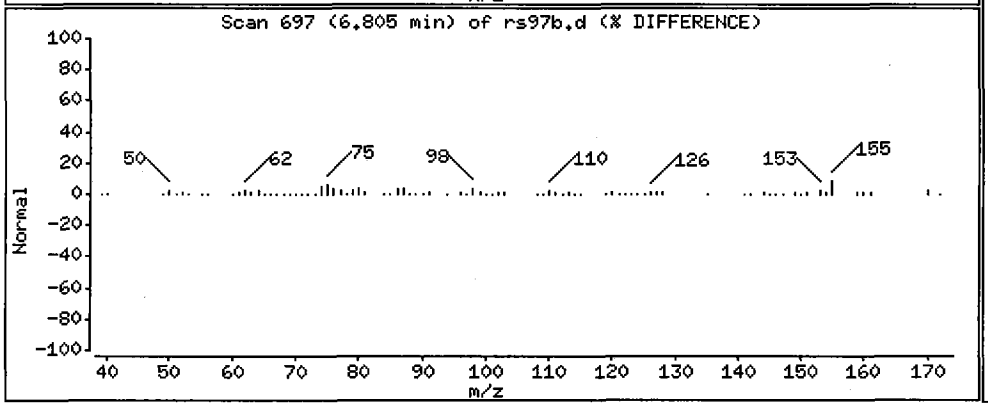
40 Acenaphthylene

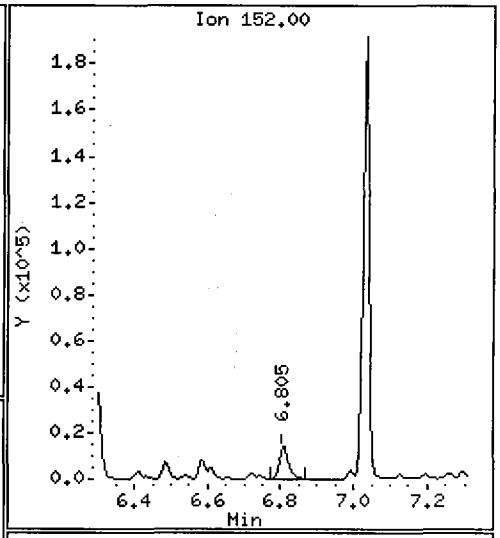
Concentration: 14860 ug/kg

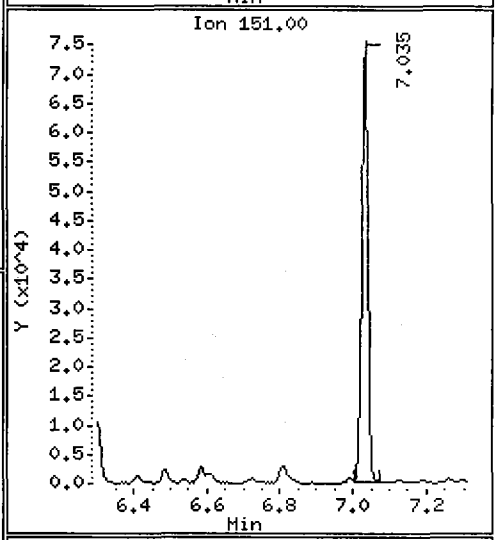


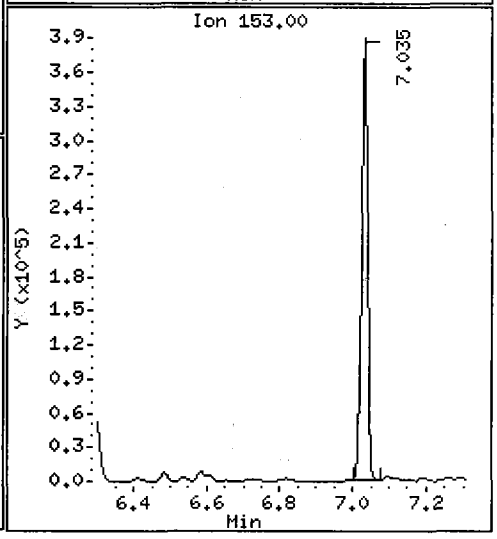












Data File: /chem1/nt12.i/20101109.b/rs97b.d

Date : 09-NOV-2010 18:51

Client ID: DGS-19-3.34.1-10100

Instrument: nt12.i

Sample Info: RS97B,3

Volume Injected (uL): 1.0

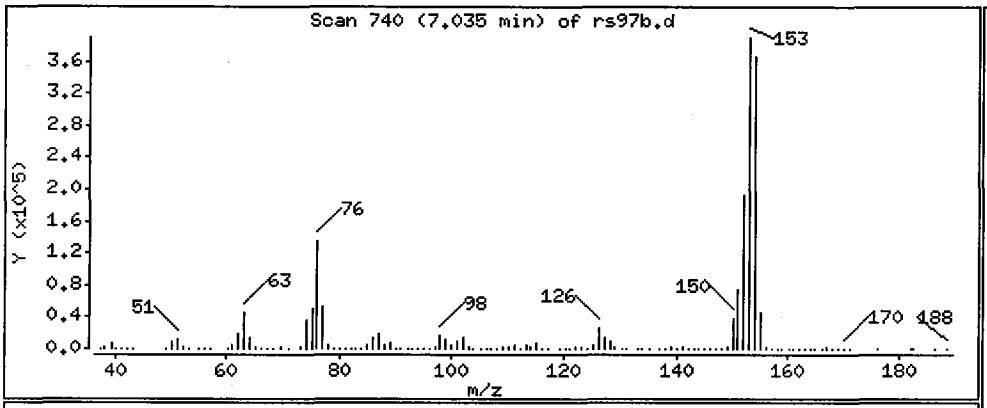
Operator: VTS

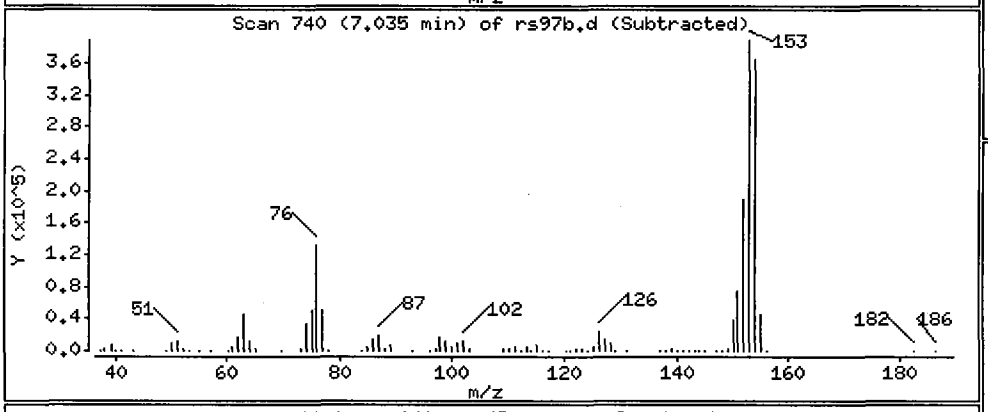
Column phase: ZB-5msi

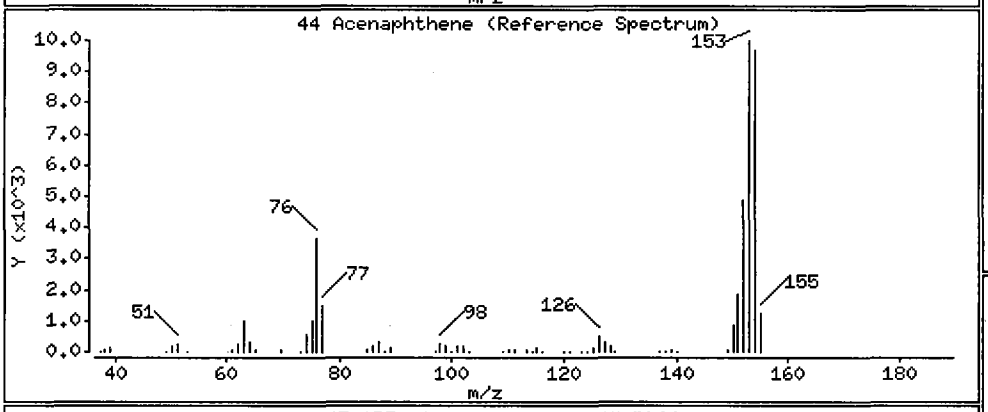
Column diameter: 0.32

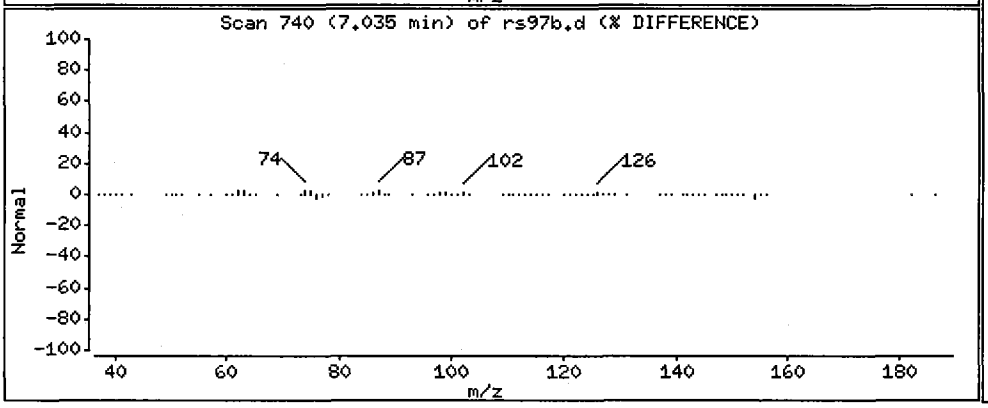
44 Acenaphthene

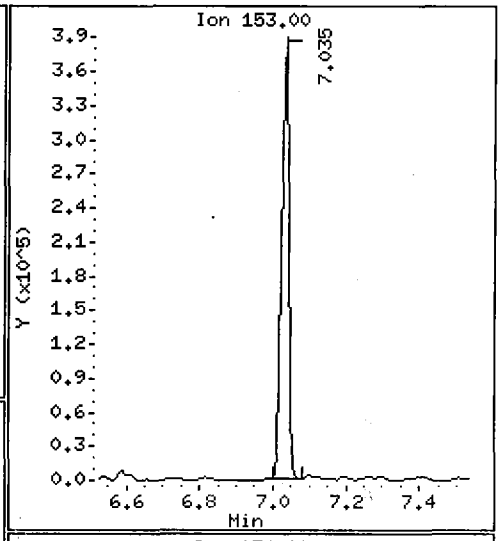
Concentration: 538200 ug/kg

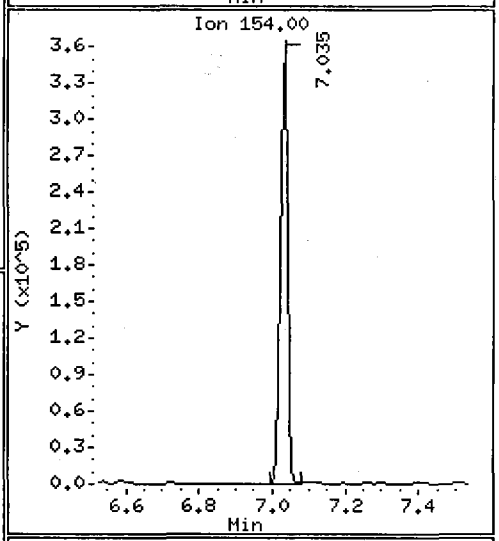


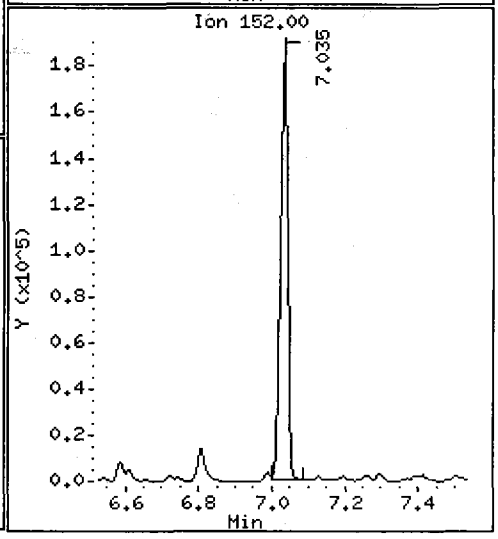












Data File: /chem1/nt12.i/20101109.b/rs97b.d

Date : 09-NOV-2010 18:51

Client ID: DGS-19-3.34.1-10100

Instrument: nt12.i

Sample Info: RS97B,3

Volume Injected (uL): 1.0

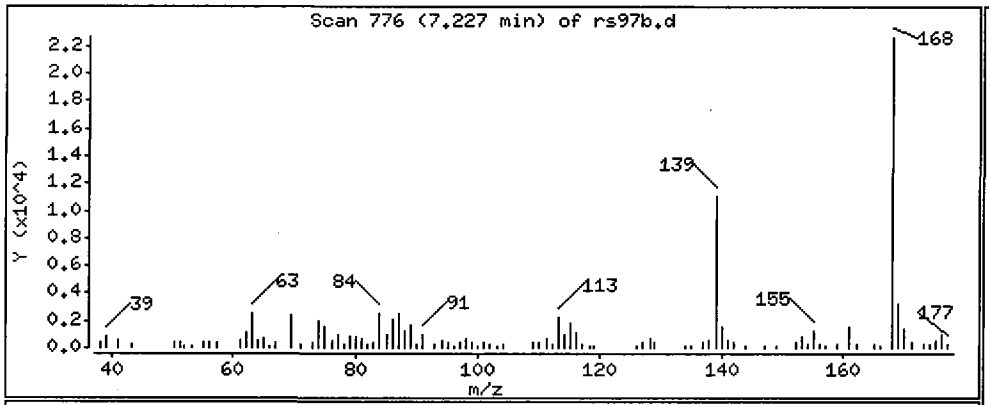
Operator: VTS

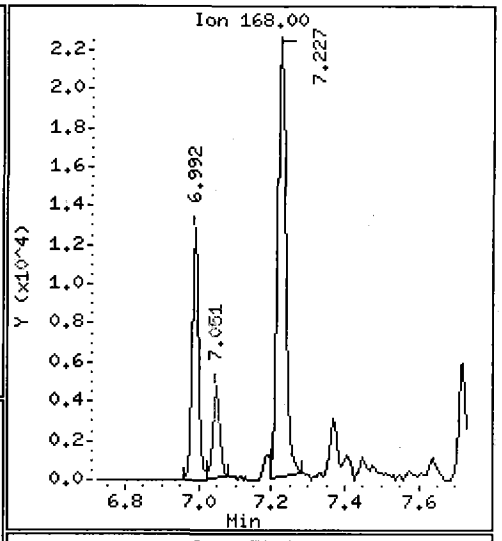
Column phase: ZB-5msi

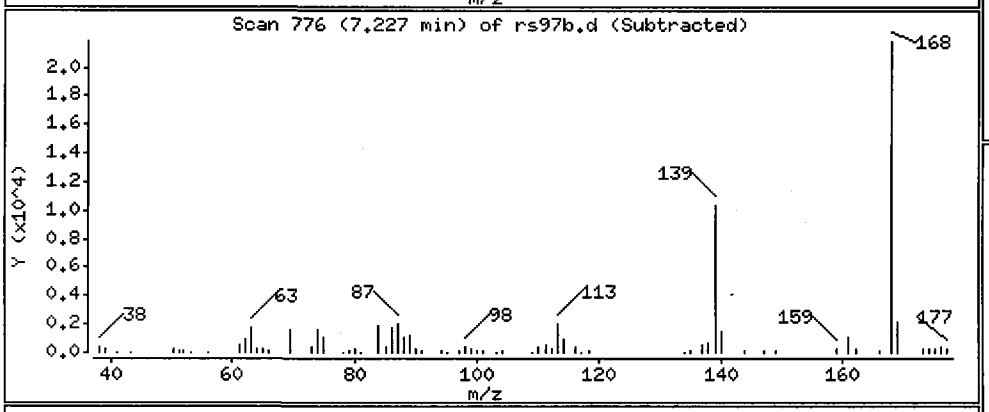
Column diameter: 0.32

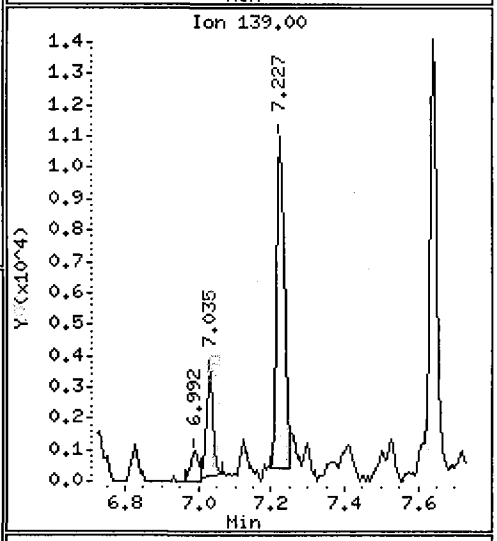
46 Dibenzofuran

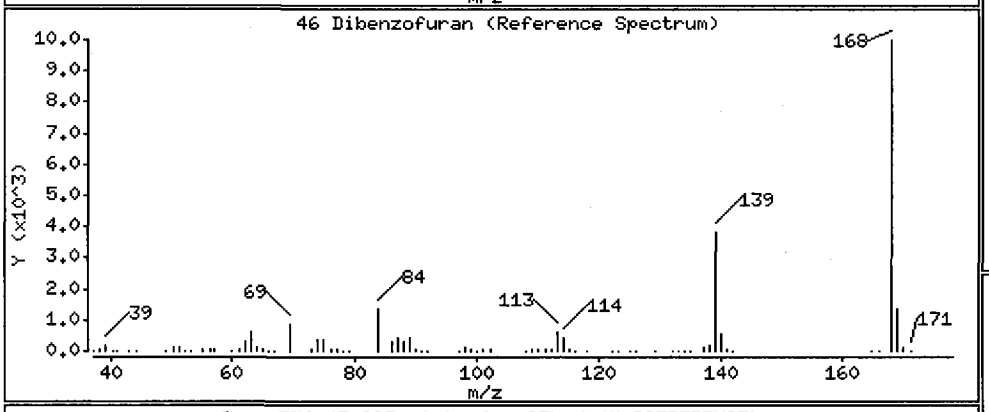
Concentration: 23380 ug/kg

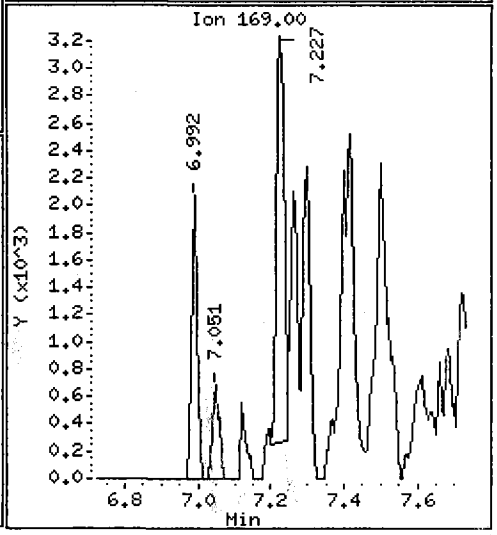


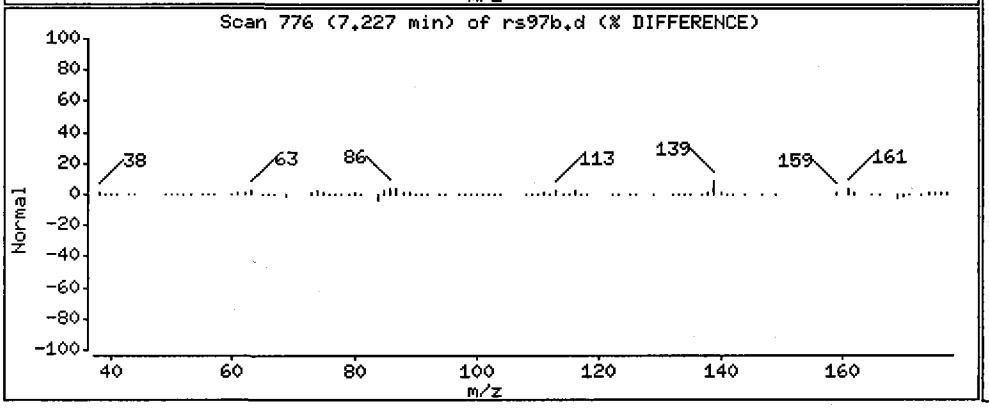












Data File: /chem1/nt12.i/20101109.b/rs97b.d

Date : 09-NOV-2010 18:51

Client ID: DGS-19-3.34.1-10100

Instrument: nt12.i

Sample Info: RS97B,3

Volume Injected (uL): 1.0

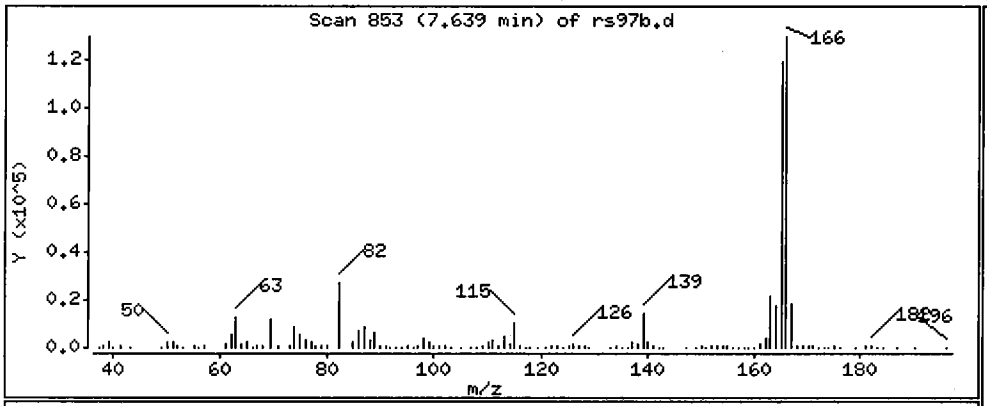
Operator: VTS

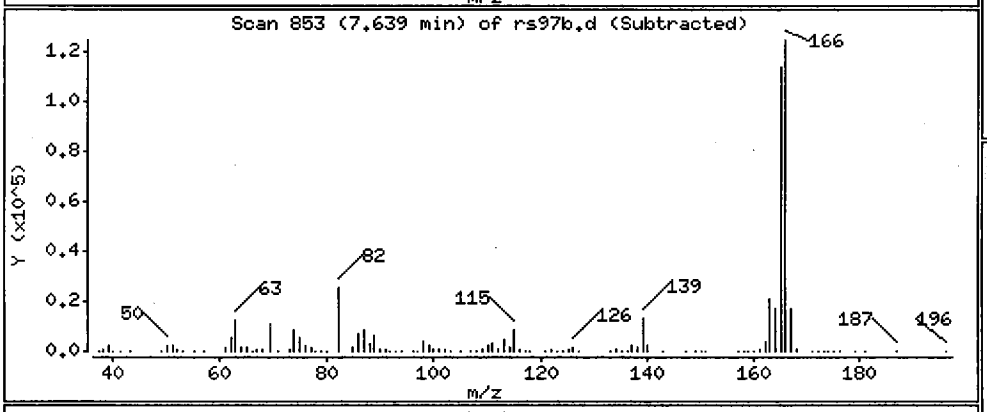
Column phase: ZB-5msi

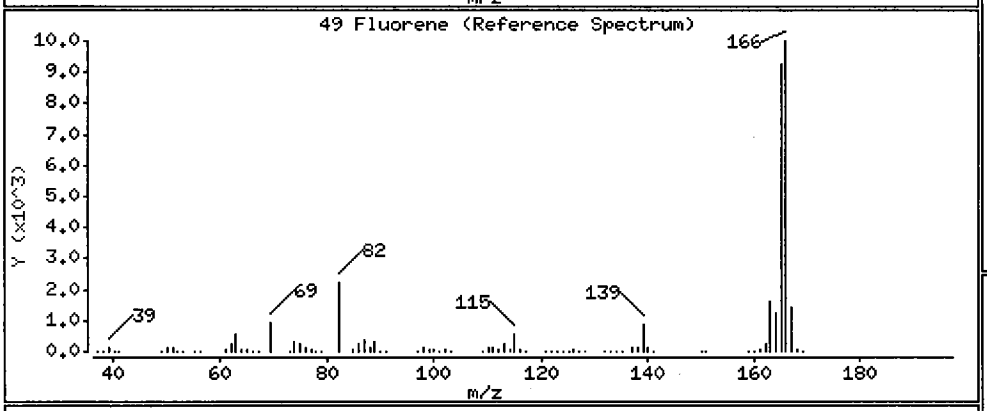
Column diameter: 0.32

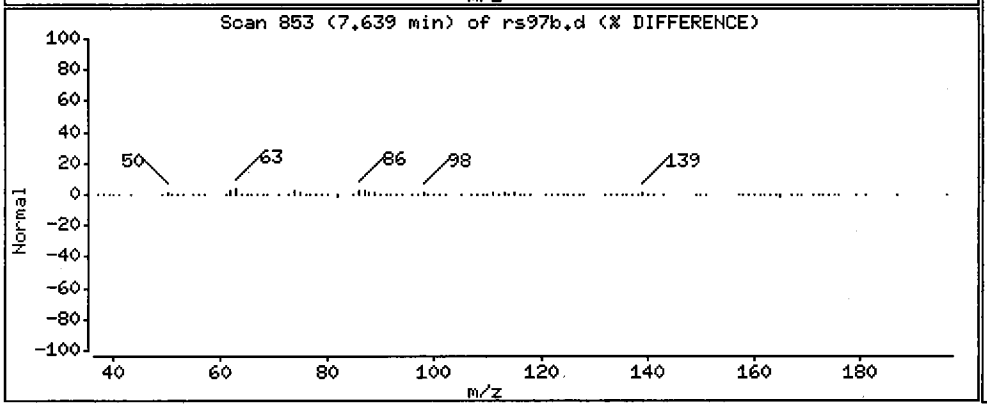
49 Fluorene

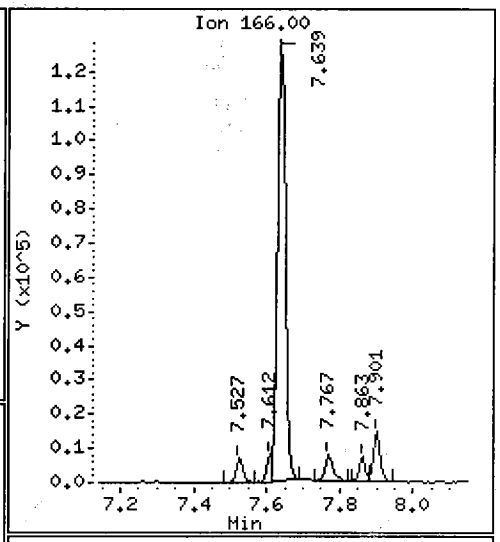
Concentration: 168200 ug/kg

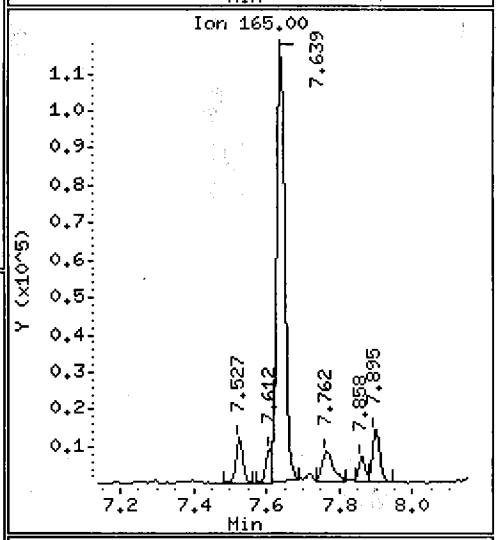


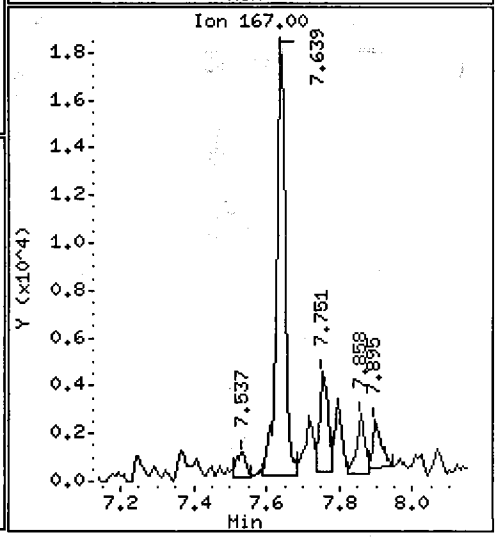












Data File: /chem1/nt12.i/20101109.b/rs97b.d

Date : 09-NOV-2010 18:51

Client ID: DGS-19-3.34.1-10100

Instrument: nt12.i

Sample Info: RS97B,3

Volume Injected (uL): 1.0

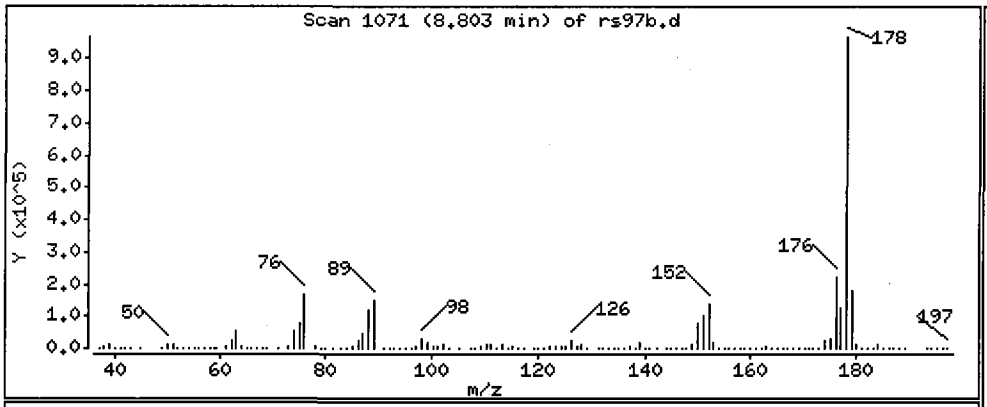
Operator: VTS

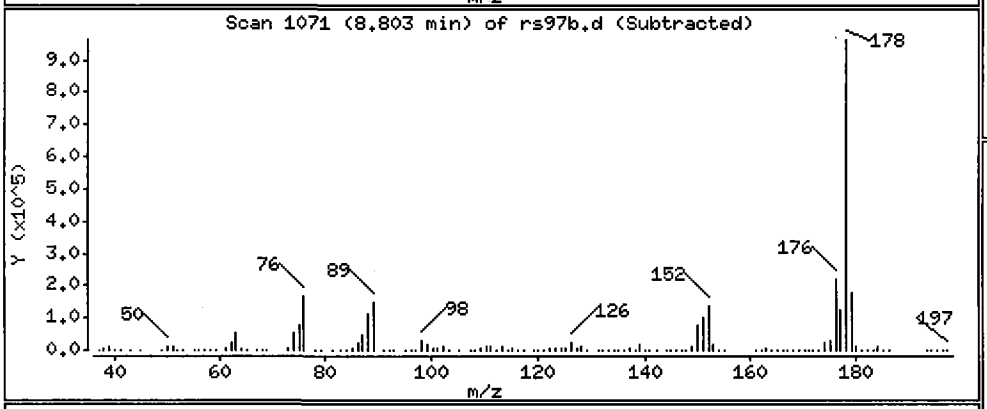
Column phase: ZB-5msi

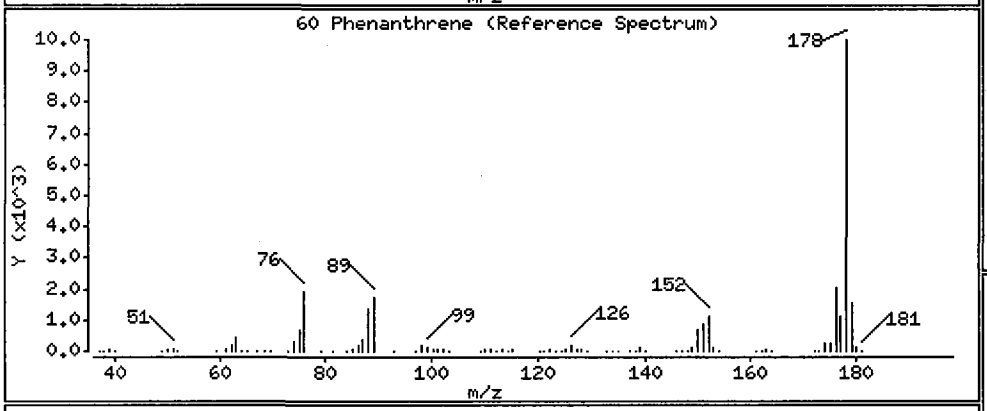
Column diameter: 0.32

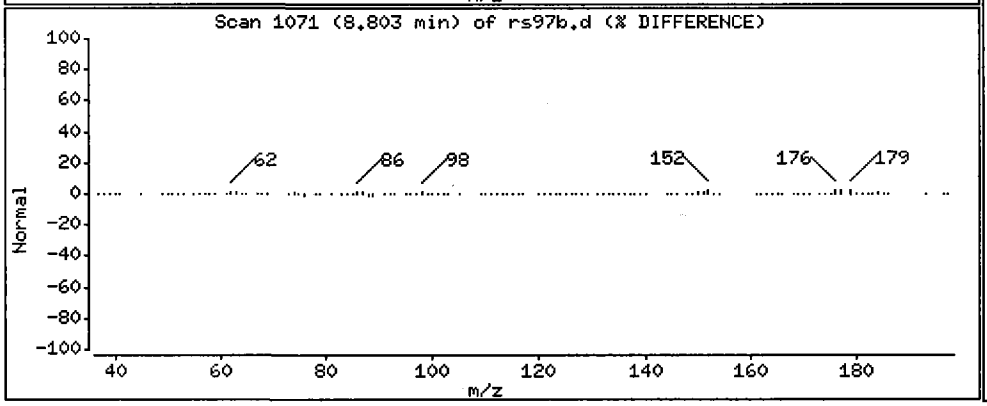
60 Phenanthrene

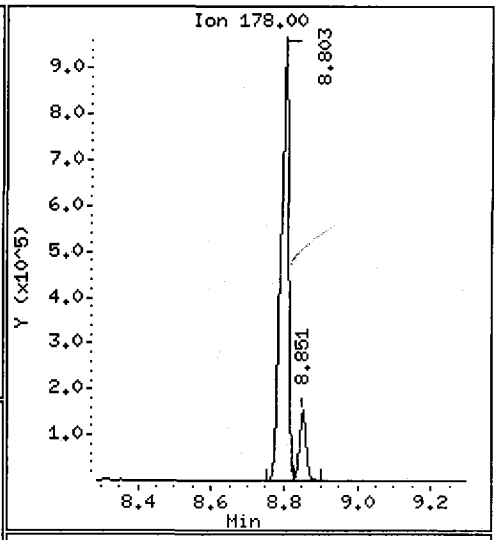
Concentration: 995800 ug/kg

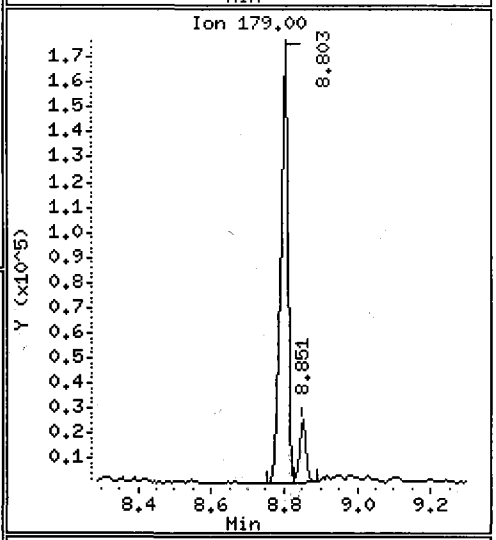


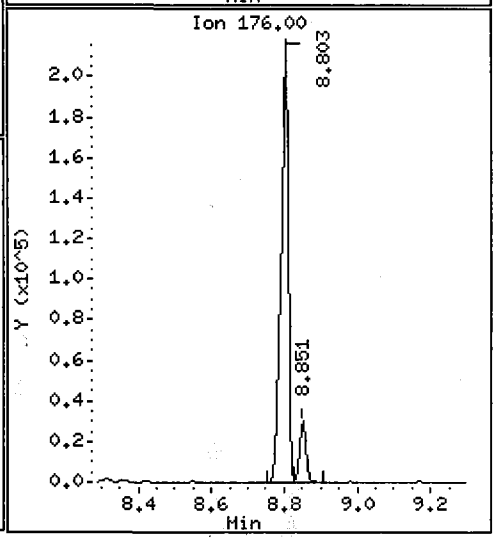












Data File: /chem1/nt12.i/20101109.b/rs97b.d

Date : 09-NOV-2010 18:51

Client ID: DGS-19-3.34.1-10100

Instrument: nt12.i

Sample Info: RS97B,3

Volume Injected (uL): 1.0

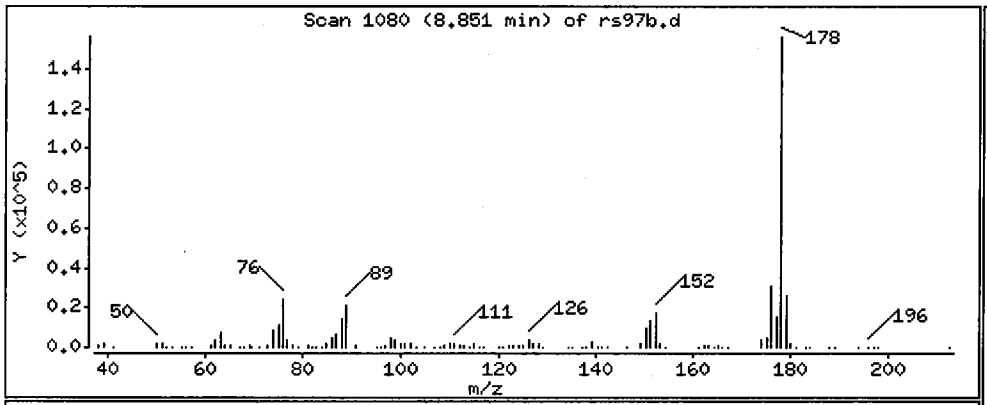
Operator: VTS

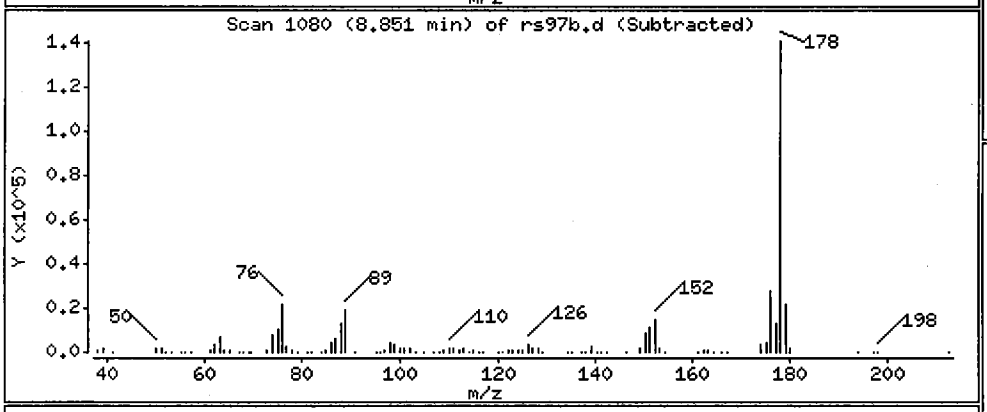
Column phase: ZB-5msi

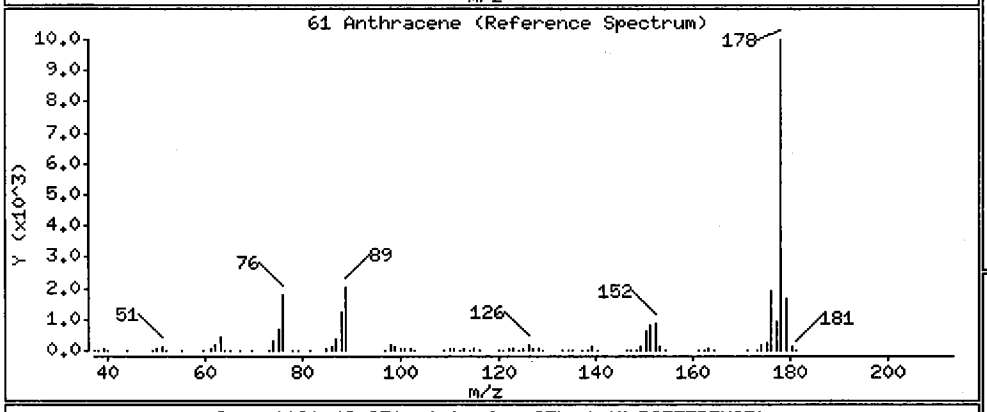
Column diameter: 0.32

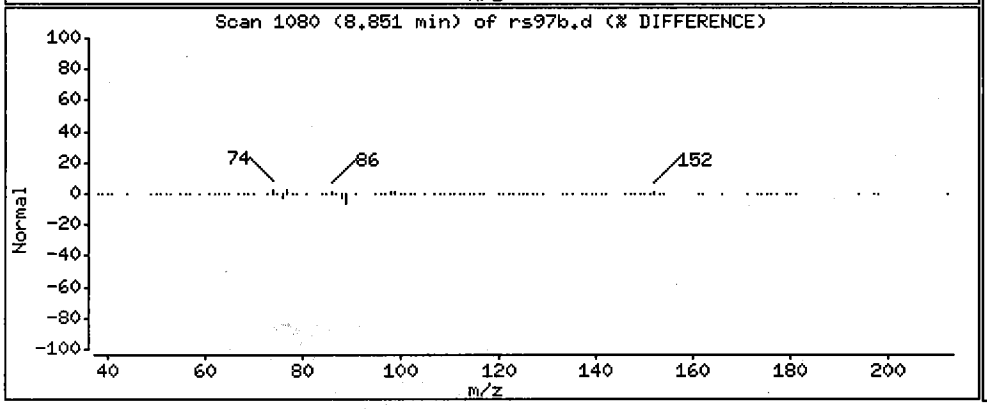
61 Anthracene

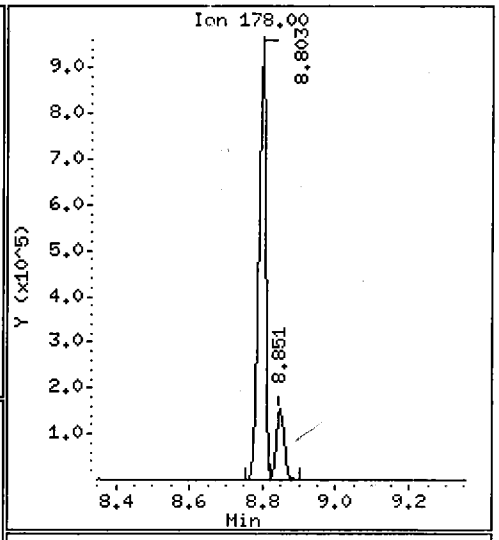
Concentration: 148000 ug/kg

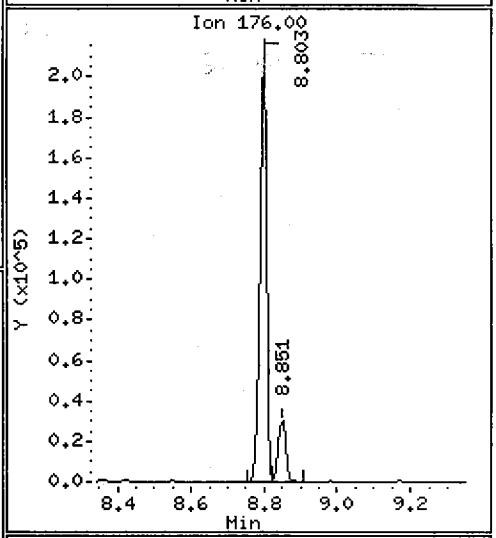


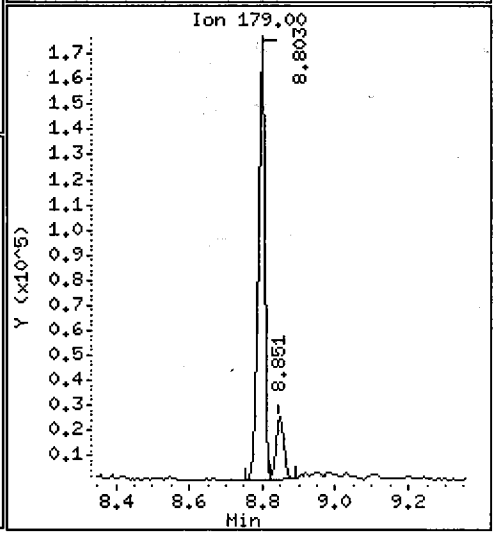












Data File: /chem1/nt12.i/20101109.b/rs97b.d

Date : 09-NOV-2010 18:51

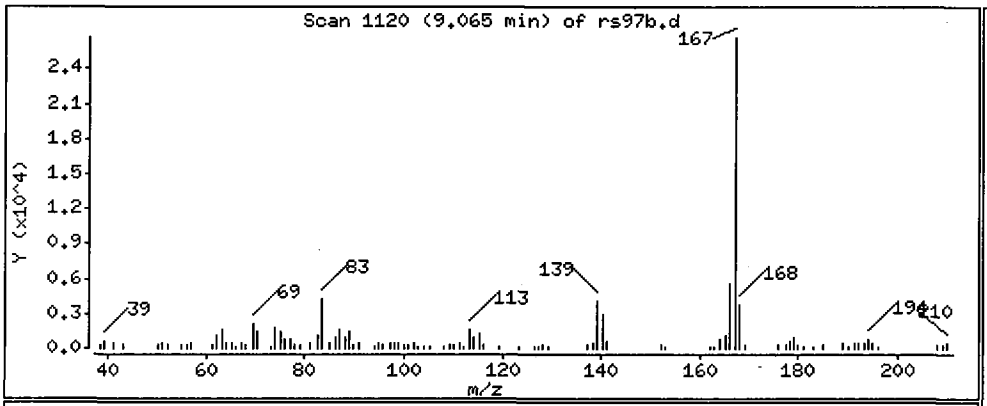
Client ID: DGS-19-3.34.1-10100 Instrument: nt12.i

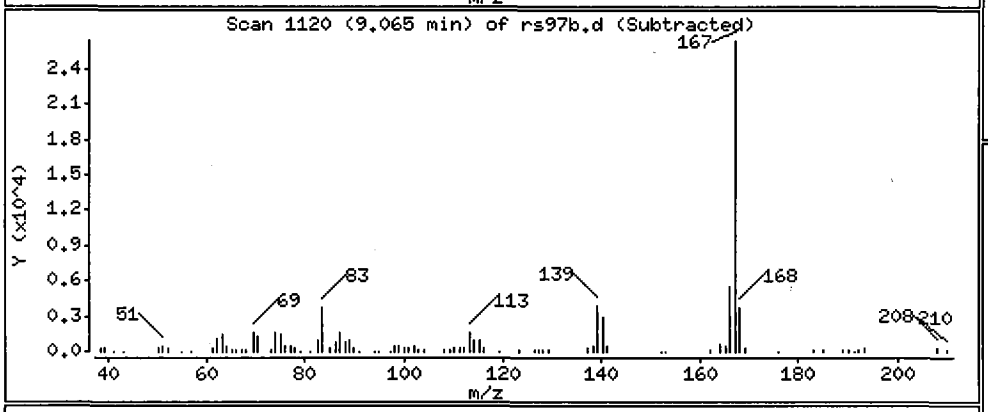
Sample Info: RS97B,3

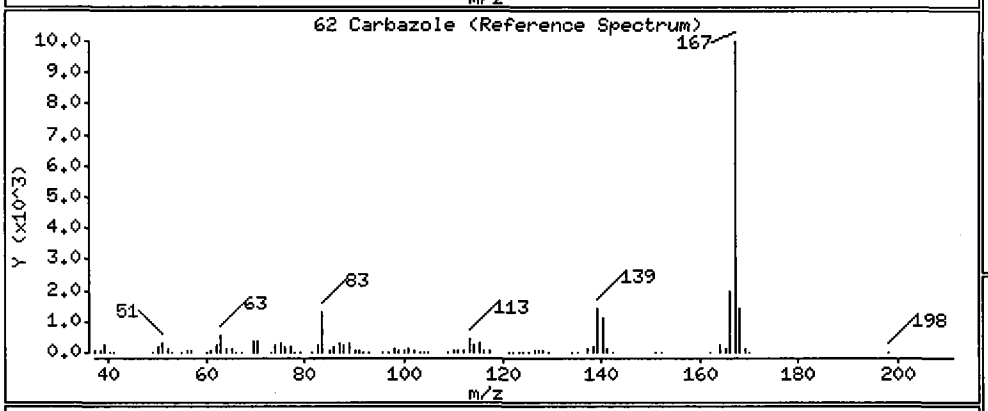
Volume Injected (uL): 1.0 Operator: VTS

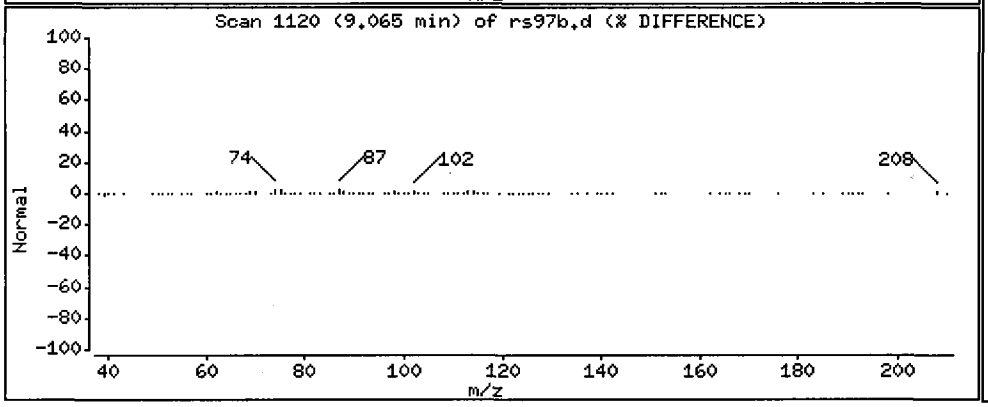
Column phase: ZB-5msi Column diameter: 0.32

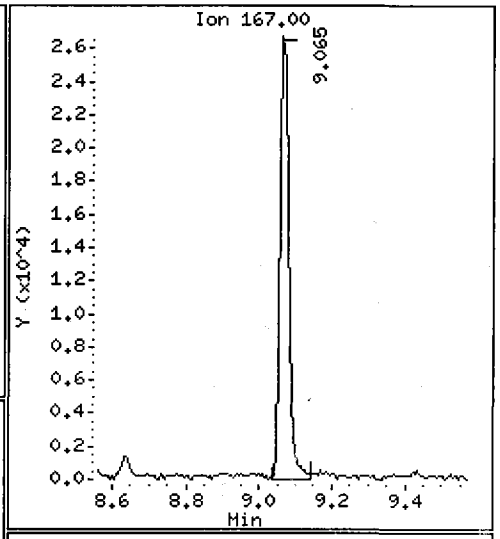
62 Carbazole Concentration: 36700 ug/kg

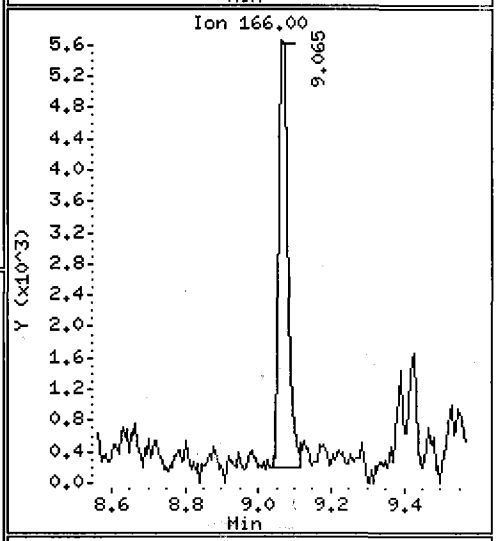


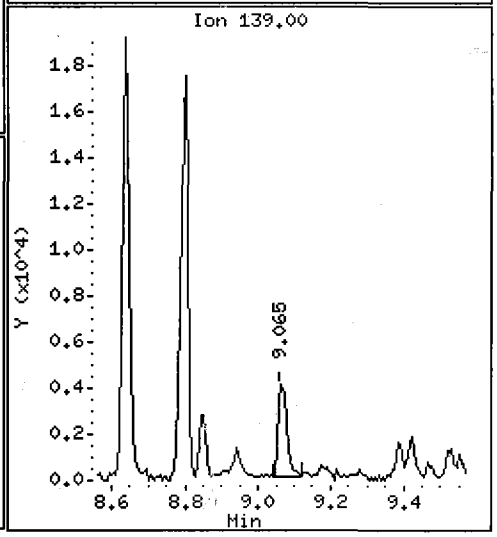












Data File: /chem1/nt12.i/20101109.b/rs97b.d

Date : 09-NOV-2010 18:51

Client ID: DGS-19-3.34.1-10100

Instrument: nt12.i

Sample Info: RS97B,3

Volume Injected (uL): 1.0

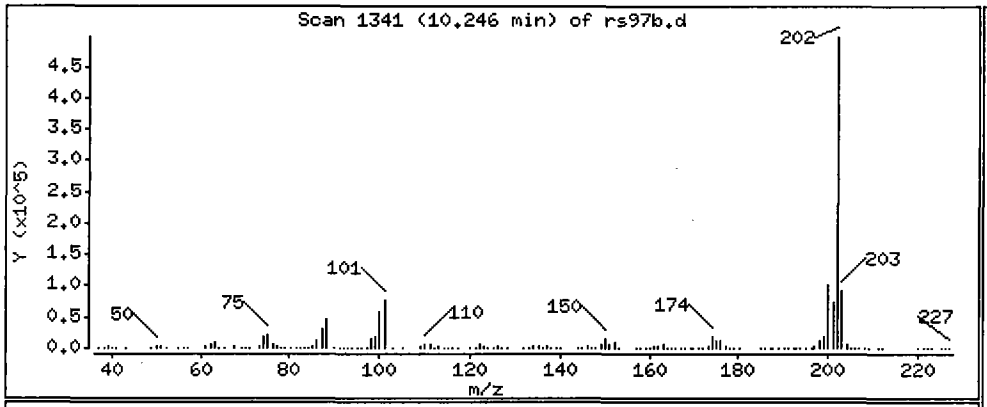
Operator: VTS

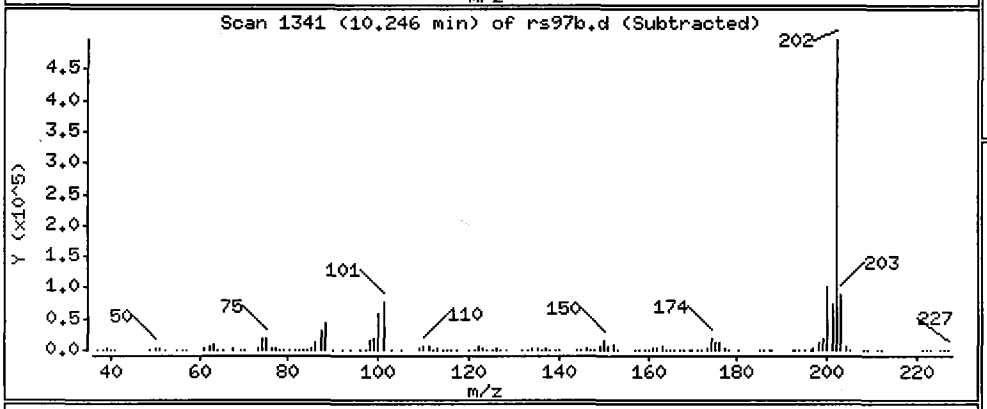
Column phase: ZB-5msi

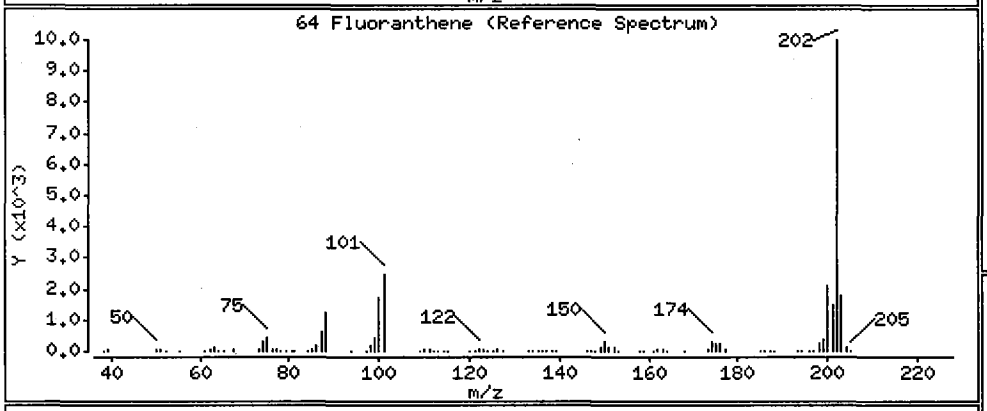
Column diameter: 0.32

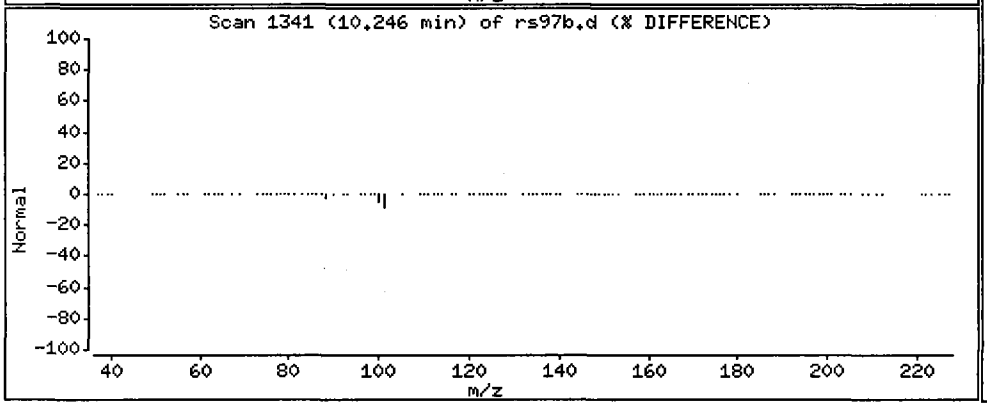
64 Fluoranthene

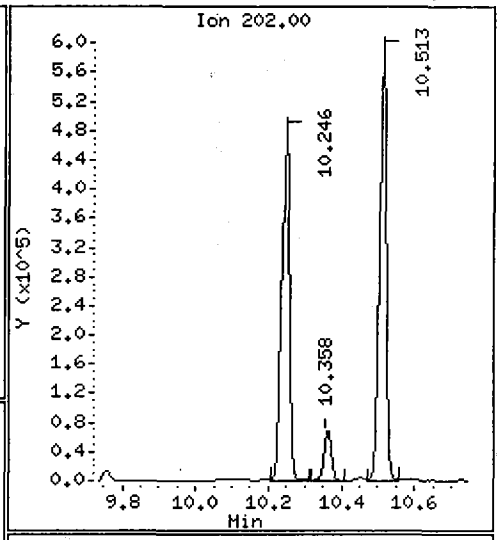
Concentration: 438300 ug/kg

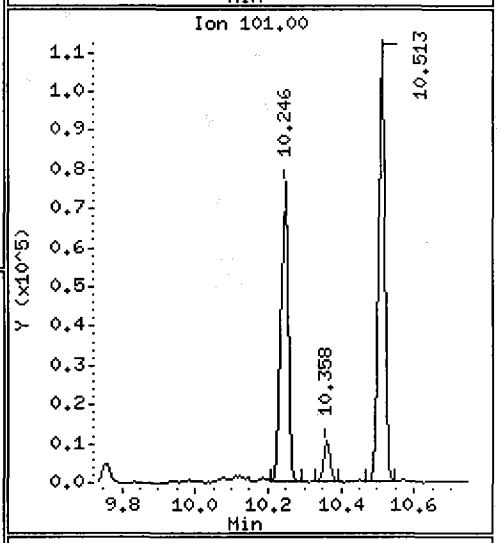


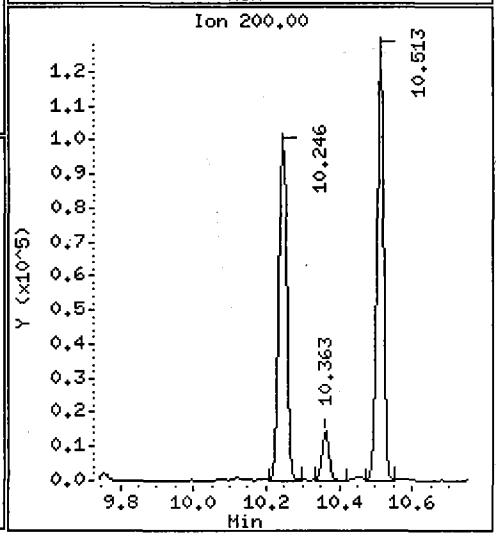












Data File: /chem1/nt12.i/20101109.b/rs97b.d

Date : 09-NOV-2010 18:51

Client ID: DGS-19-3.34.1-10100

Instrument: nt12.i

Sample Info: RS97B,3

Volume Injected (uL): 1.0

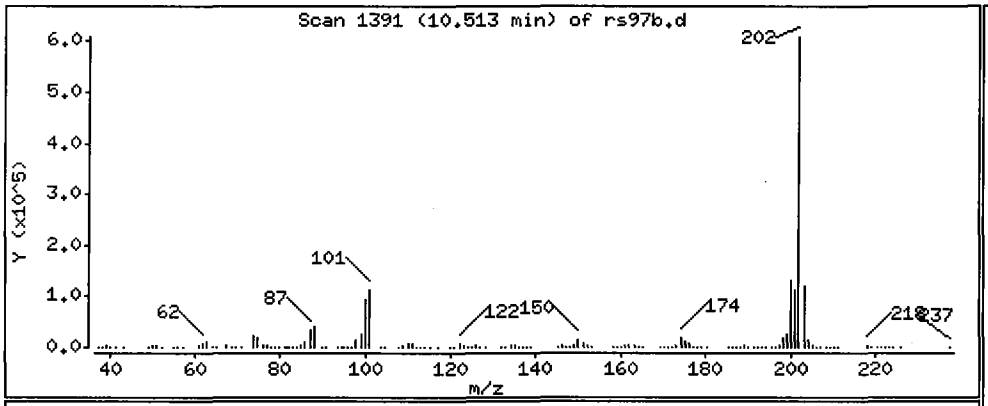
Operator: VTS

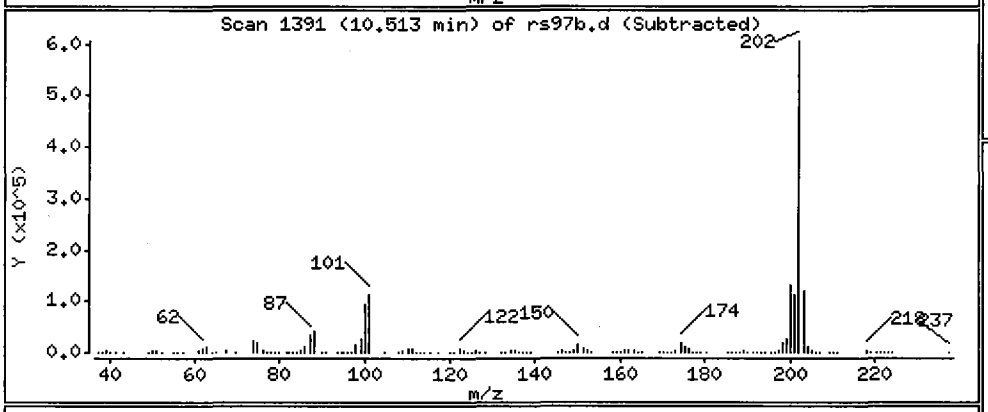
Column phase: ZB-5msi

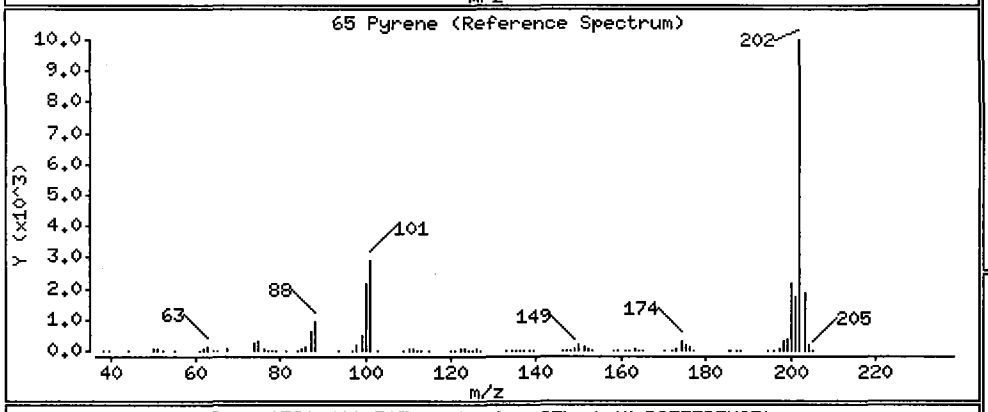
Column diameter: 0.32

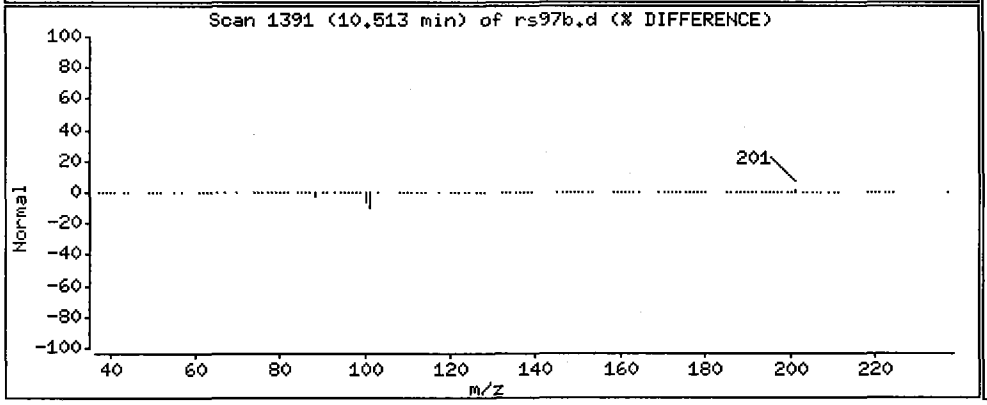
65 Pyrene

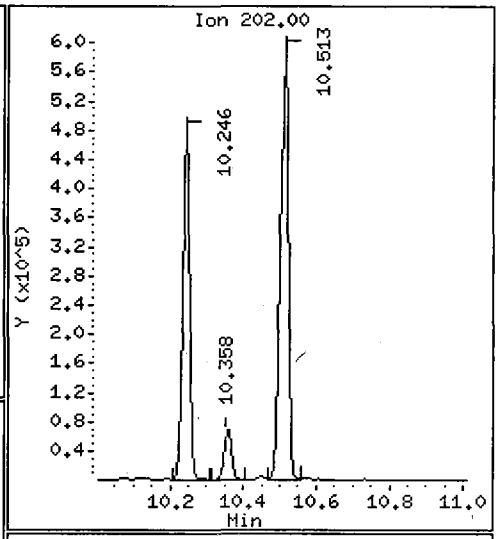
Concentration: 545100 ug/kg

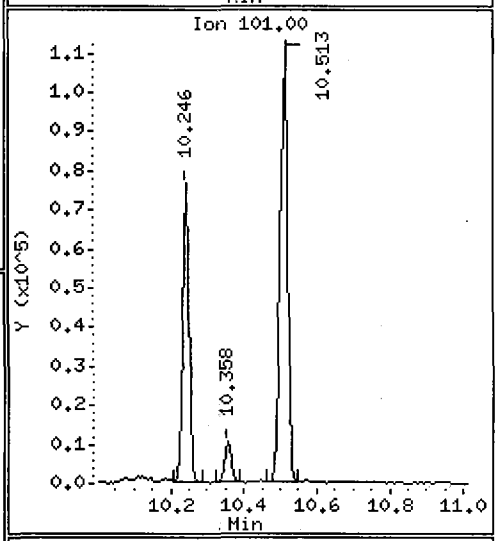


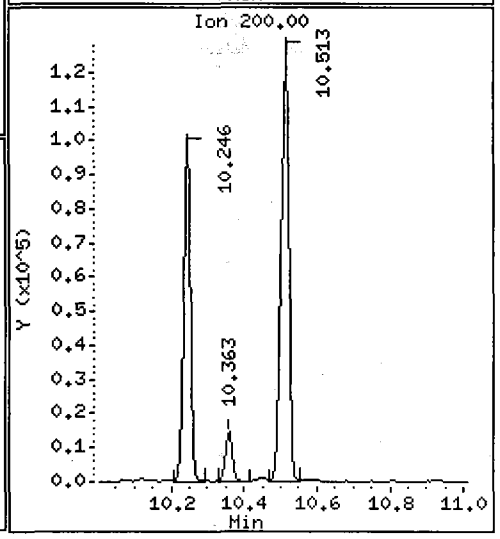












Data File: /chem1/nt12.i/20101109.b/rs97b.d

Date : 09-NOV-2010 18:51

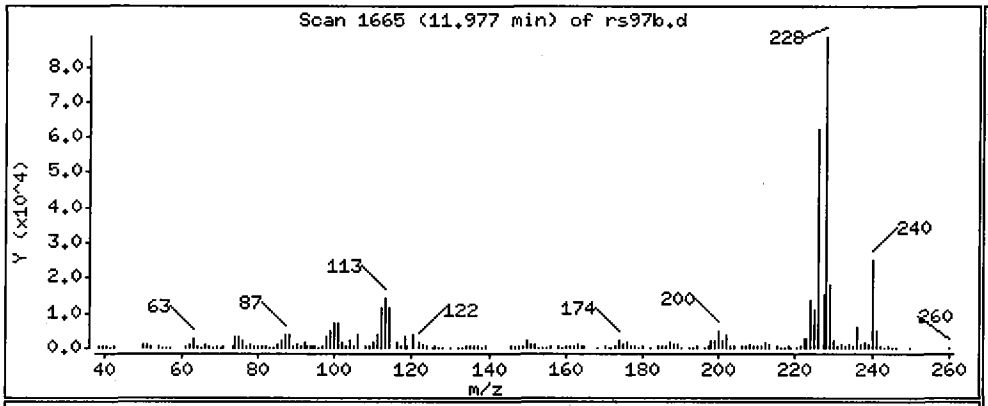
Client ID: DGS-19-3.34.1-10100 Instrument: nt12.i

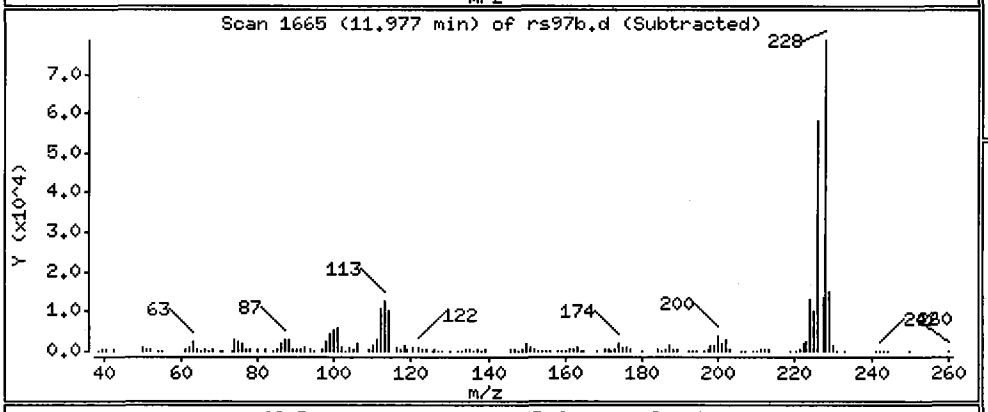
Sample Info: RS97B,3

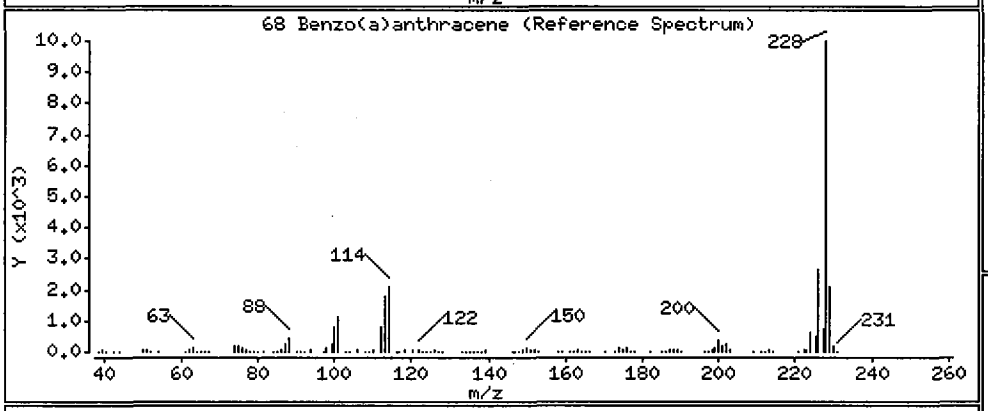
Volume Injected (uL): 1.0 Operator: VTS

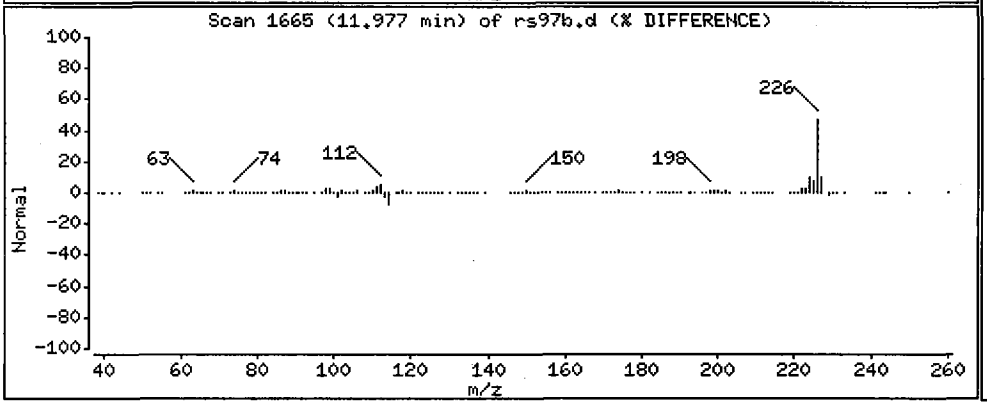
Column phase: ZB-5msi Column diameter: 0.32

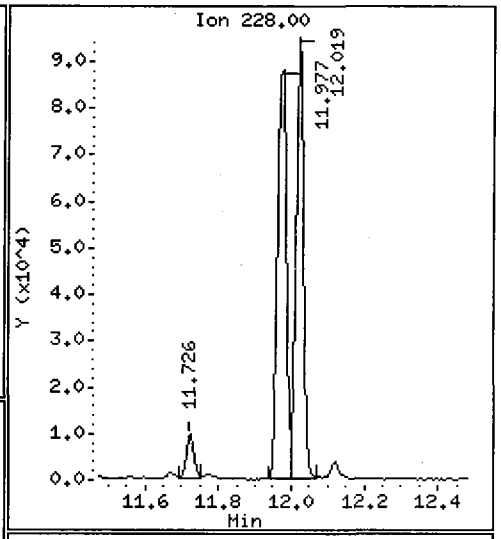
68 Benzo(a)anthracene Concentration: 113200 ug/kg

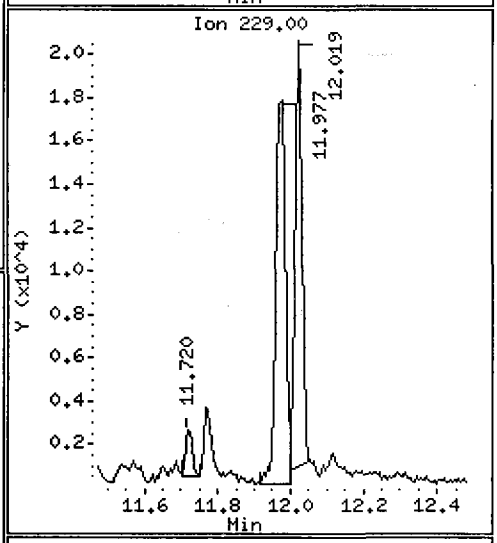


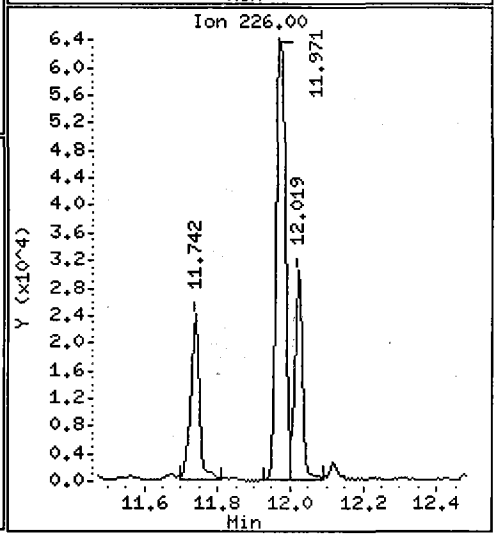












Data File: /chem1/nt12.i/20101109.b/rs97b.d

Date : 09-NOV-2010 18:51

Client ID: DGS-19-3.34.1-10100

Instrument: nt12.i

Sample Info: RS97B,3

Volume Injected (uL): 1.0

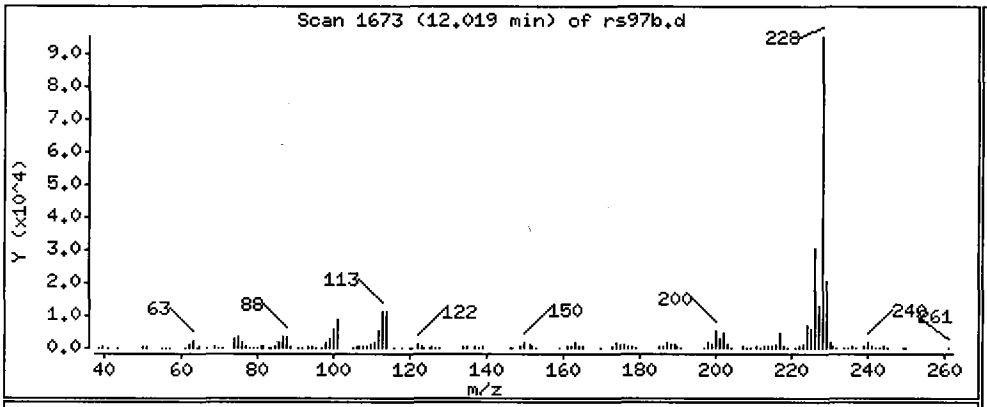
Operator: VTS

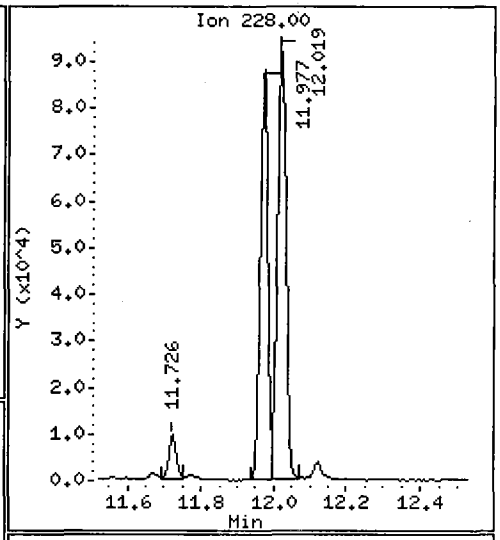
Column phase: ZB-5msi

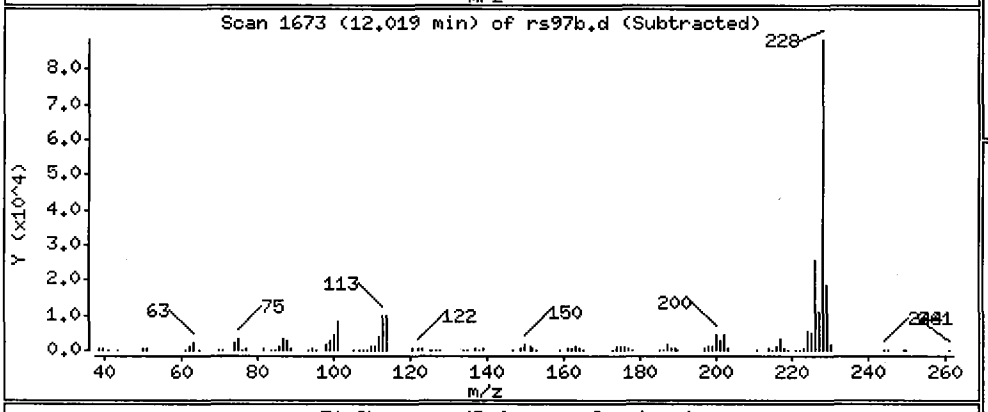
Column diameter: 0.32

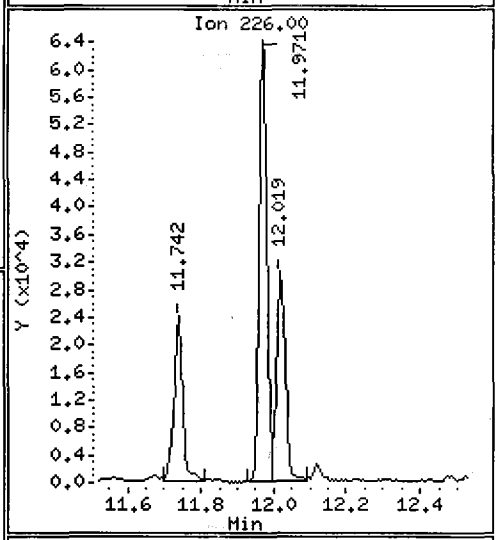
71 Chrysene

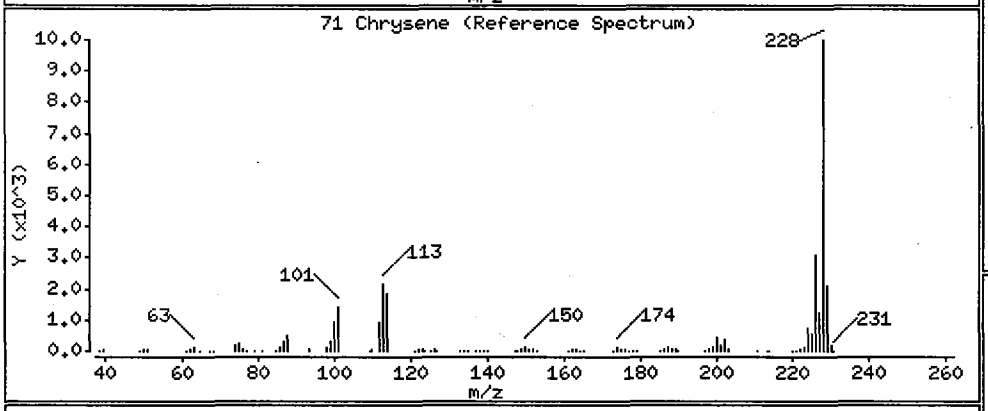
Concentration: 128100 ug/kg

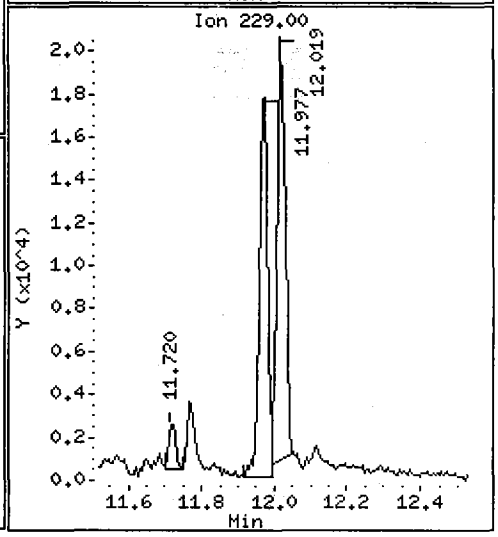


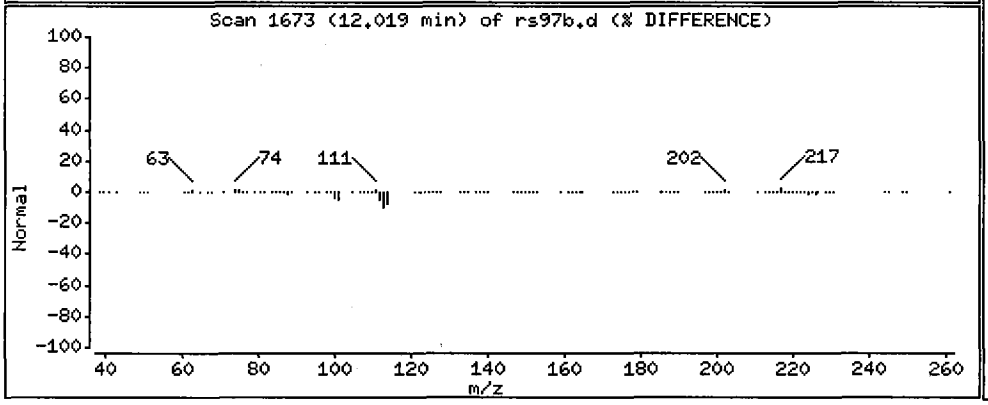












Data File: /chem1/nt12.i/20101109.b/rs97b.d

Date : 09-NOV-2010 18:51

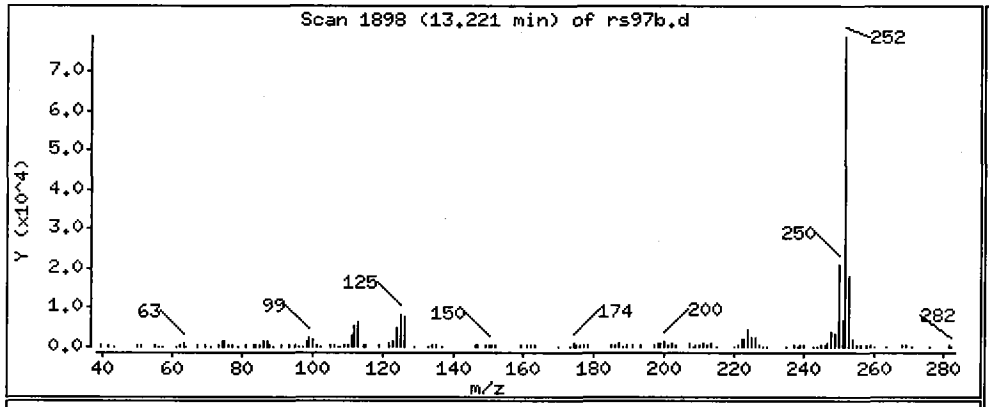
Client ID: DGS-19-3.34.1-10100 Instrument: nt12.i

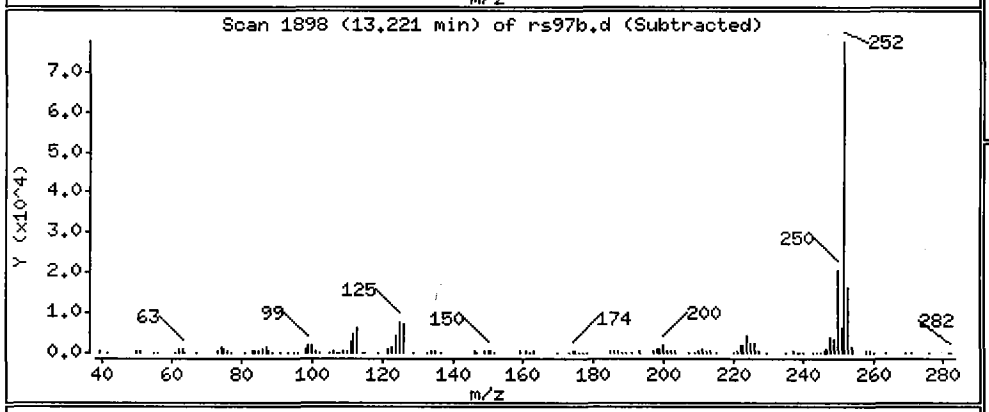
Sample Info: RS97B,3

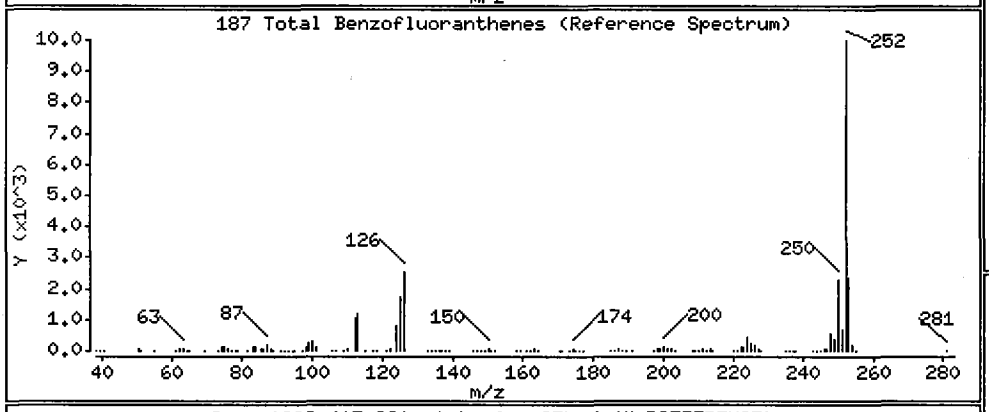
Volume Injected (uL): 1.0 Operator: VTS

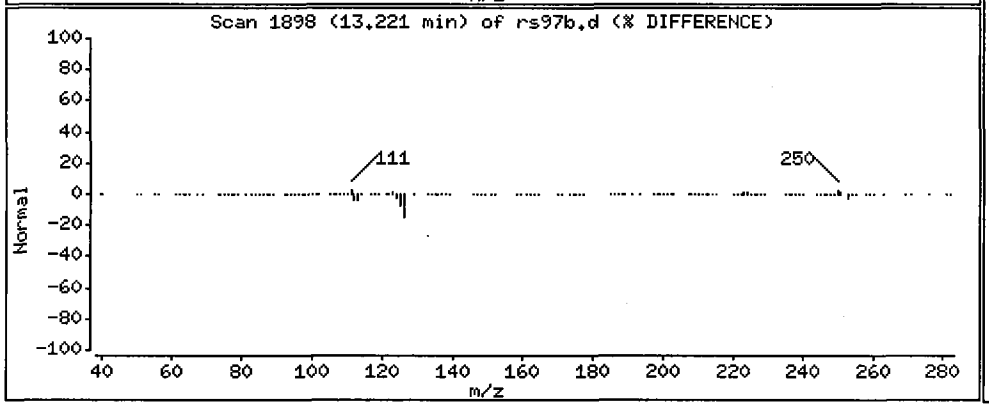
Column phase: ZB-5msi Column diameter: 0.32

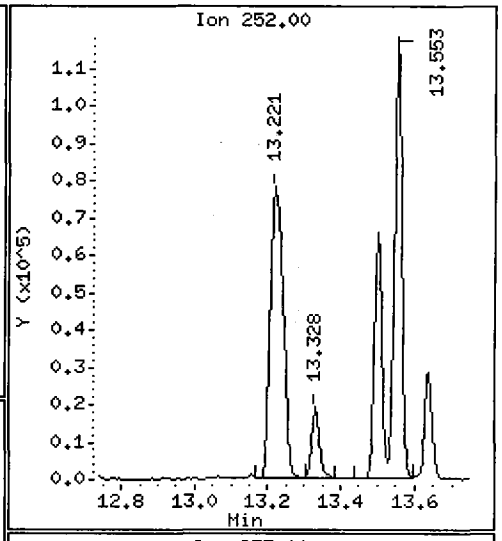
187 Total Benzofluoranthenes Concentration: 161000 ug/kg

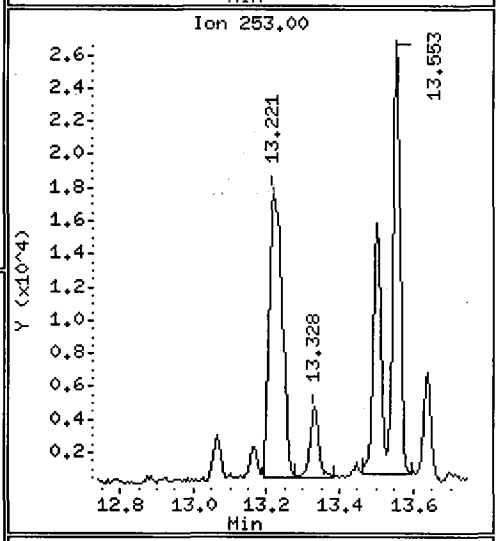


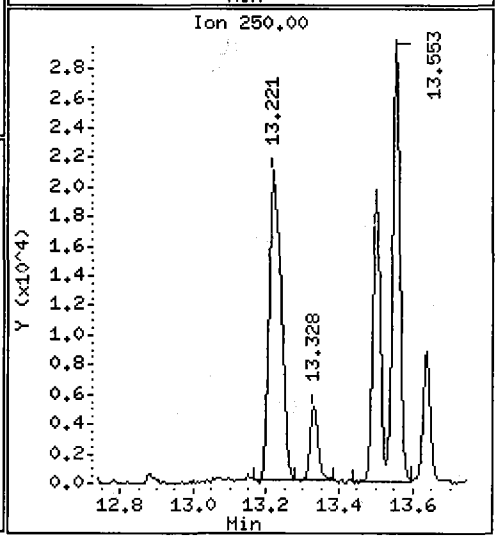












Data File: /chem1/nt12.i/20101109.b/rs97b.d

Date : 09-NOV-2010 18:51

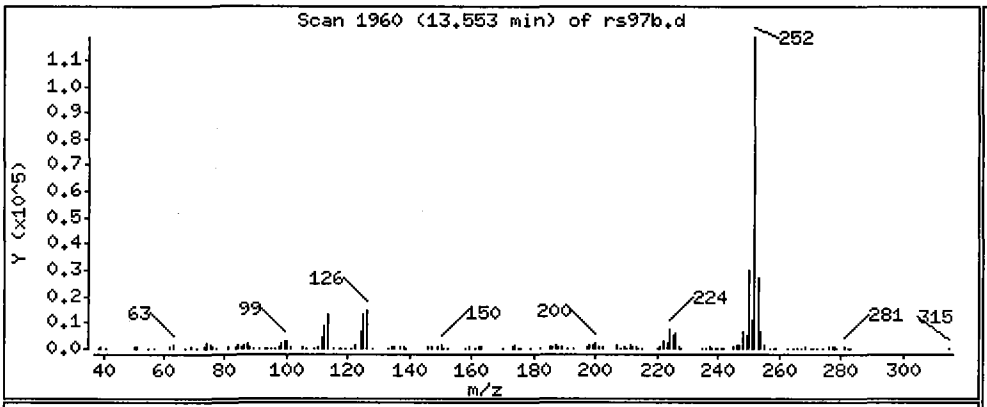
Client ID: DGS-19-3.34.1-10100 | Instrument: nt12.i

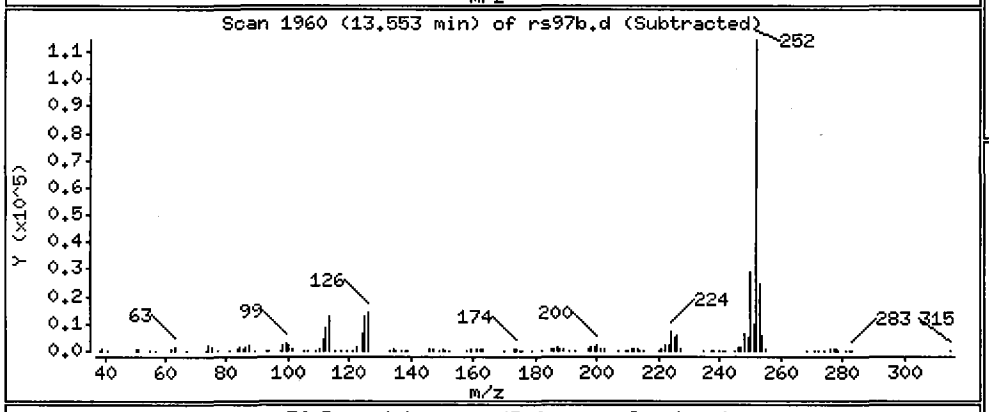
Sample Info: RS97B,3

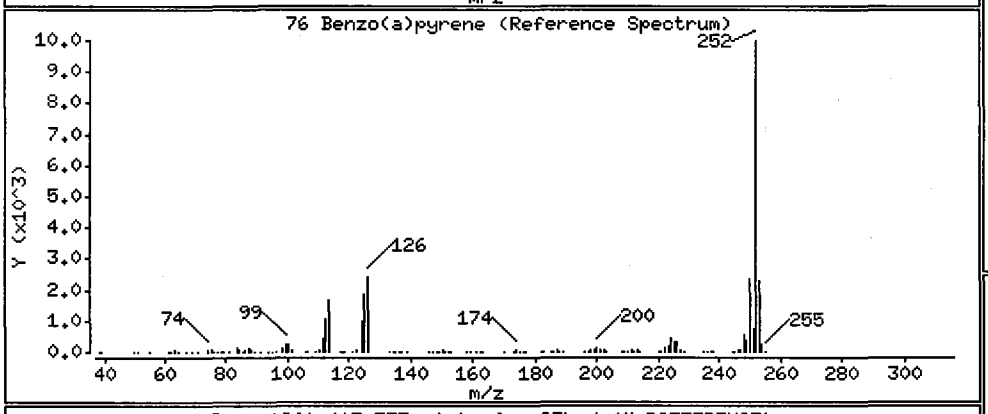
Volume Injected (uL): 1.0 | Operator: VTS

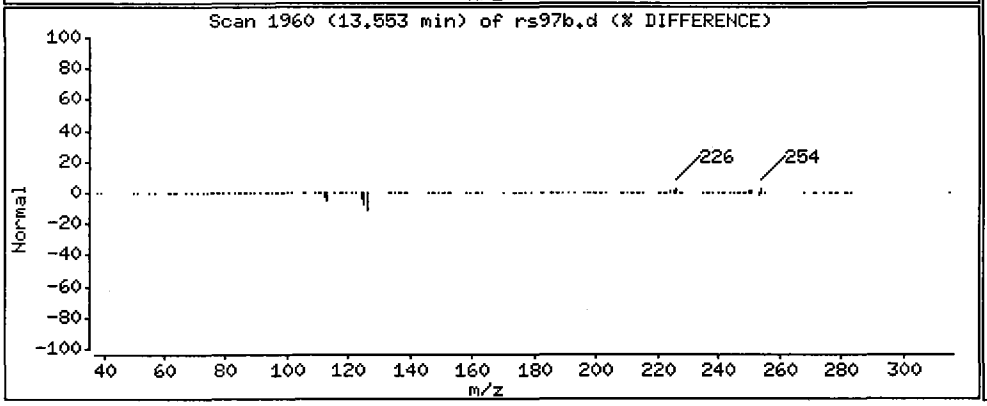
Column phase: ZB-5msi | Column diameter: 0.32

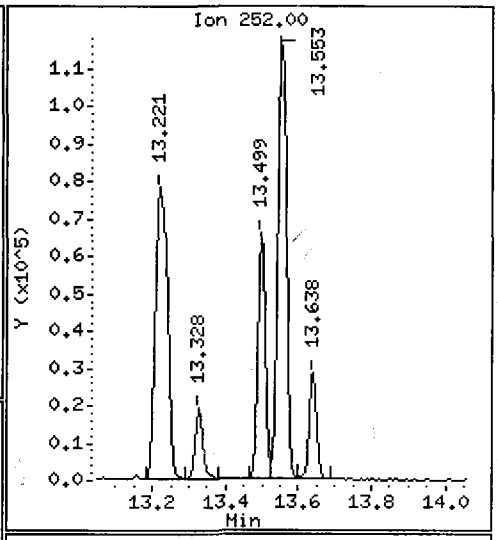
76 Benzo(a)pyrene | Concentration: 159800 ug/kg

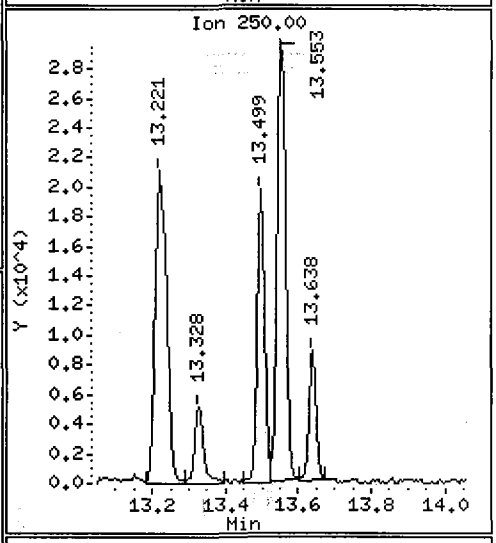


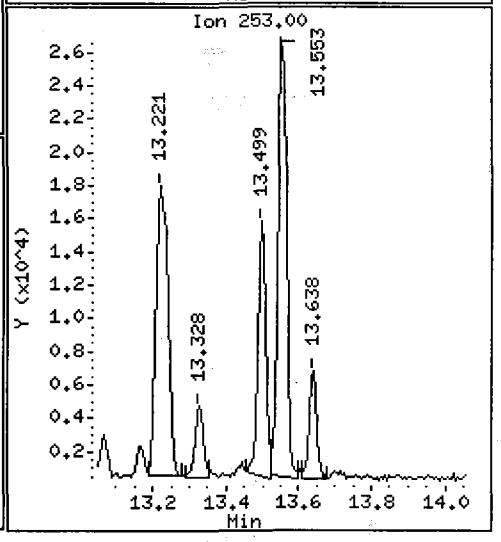












Data File: /chem1/nt12.i/20101109.b/rs97b.d

Date : 09-NOV-2010 18:51

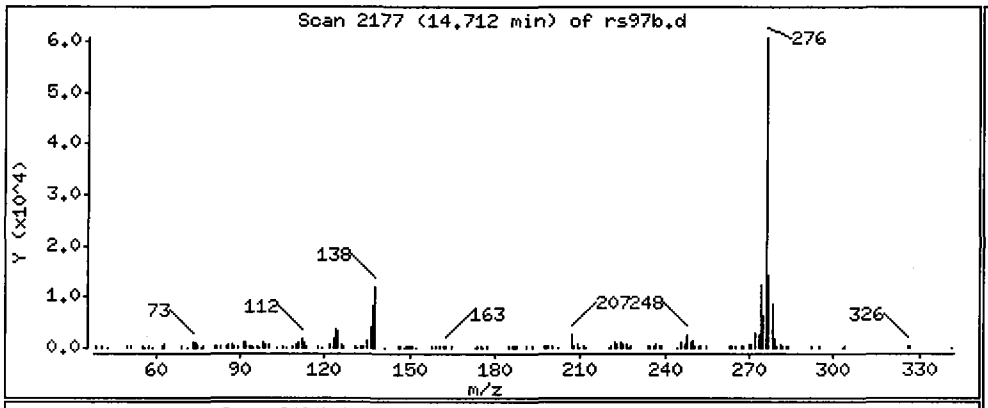
Client ID: DGS-19-3.34.1-10100 Instrument: nt12.i

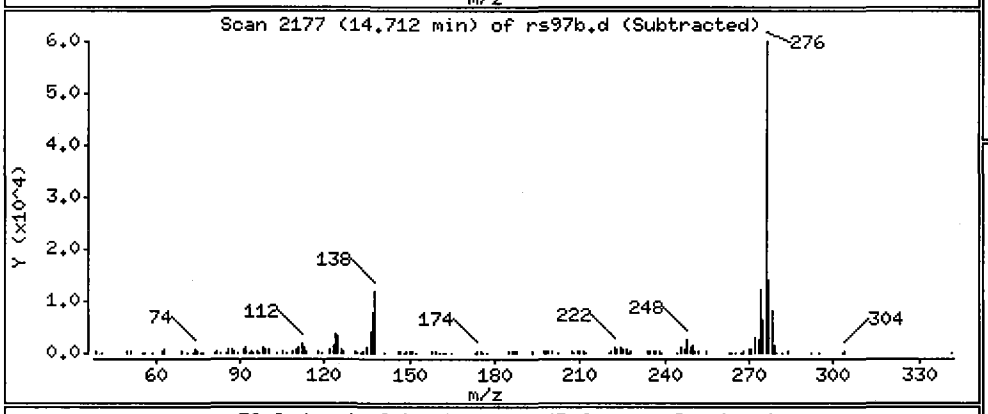
Sample Info: RS97B,3

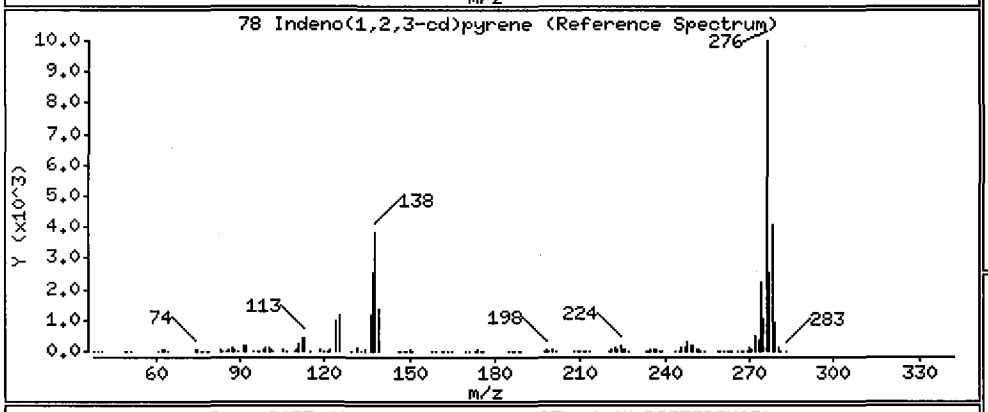
Volume Injected (uL): 1.0 Operator: VTS

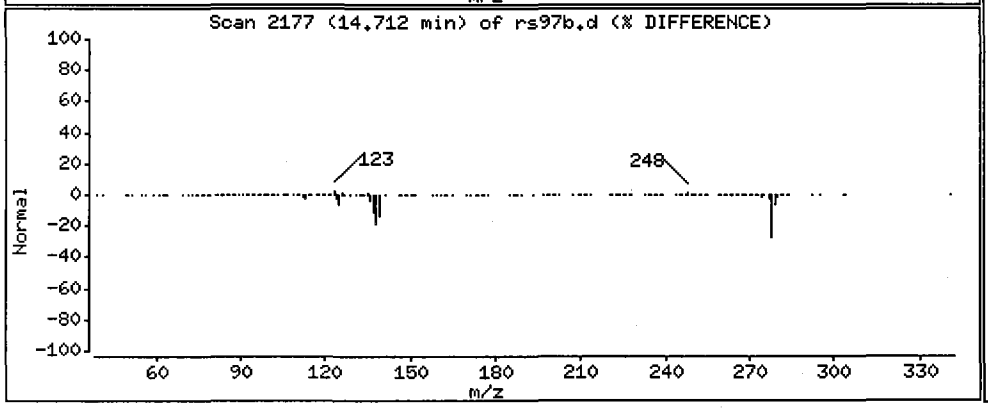
Column phase: ZB-5msi Column diameter: 0.32

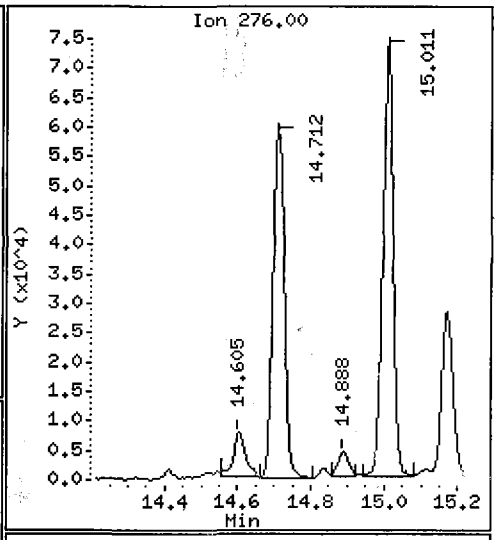
78 Indeno(1,2,3-cd)pyrene Concentration: 73730 ug/kg

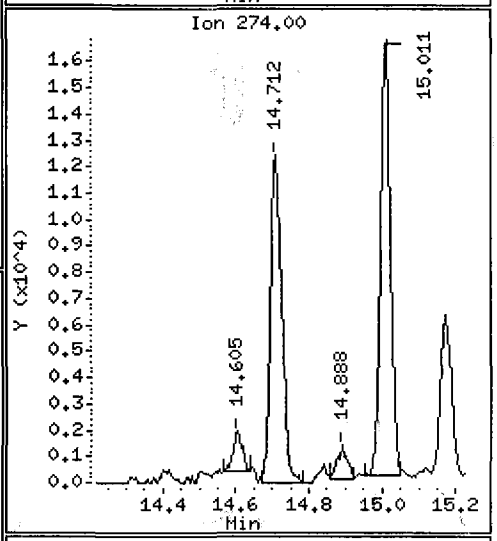


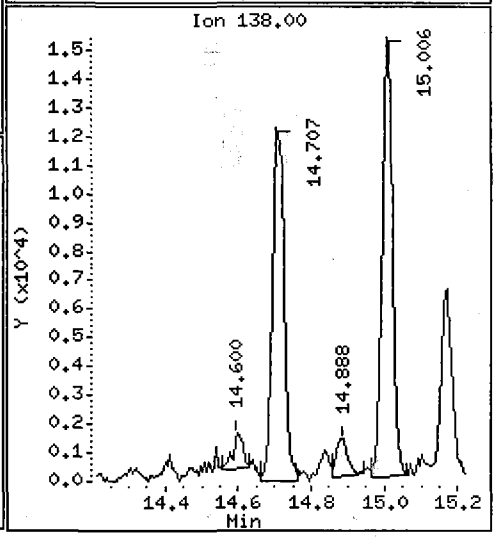












Data File: /chem1/nt12.i/20101109.b/rs97b.d

Date : 09-NOV-2010 18:51

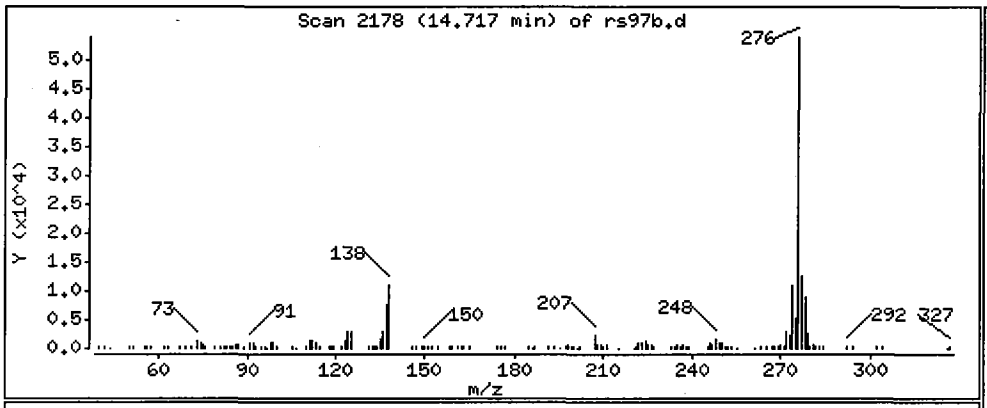
Client ID: DGS-19-3.34.1-10100 Instrument: nt12.i

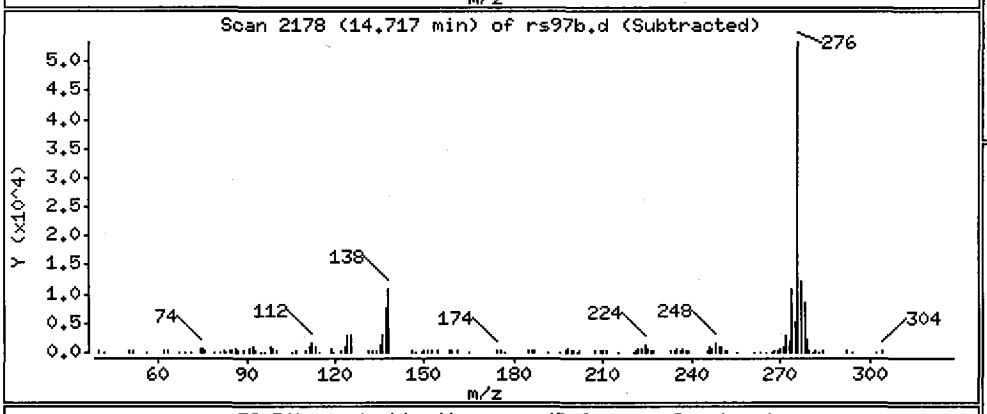
Sample Info: RS97B,3

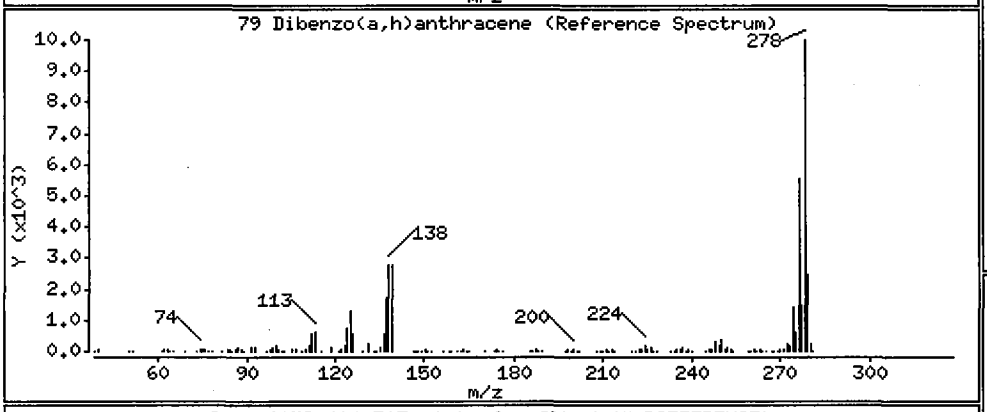
Volume Injected (uL): 1.0 Operator: VTS

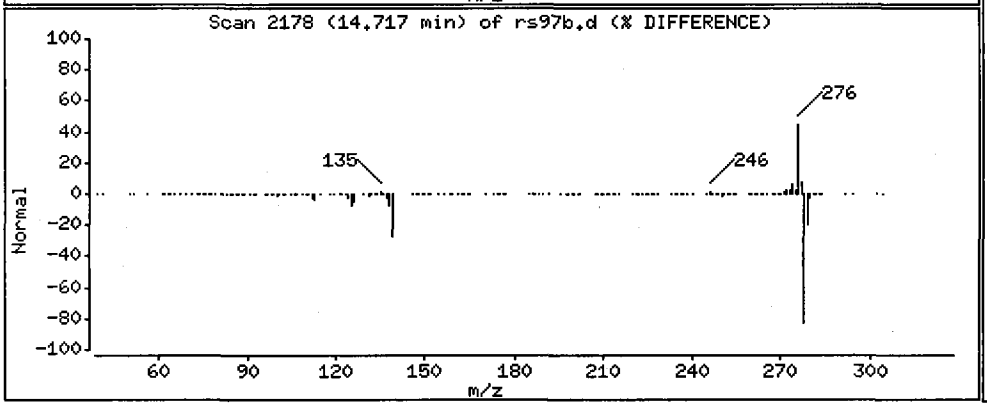
Column phase: ZB-5msi Column diameter: 0.32

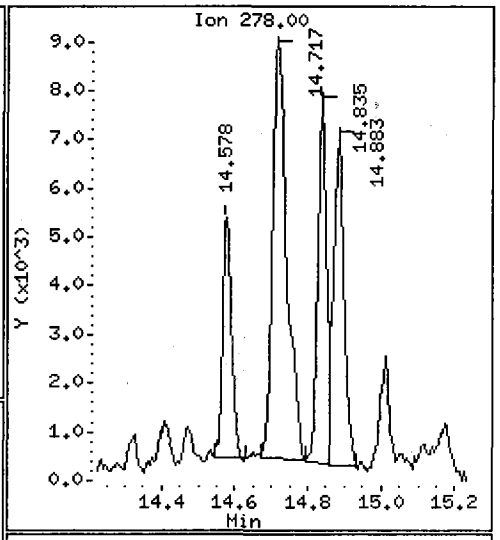
79 Dibenzo(a,h)anthracene Concentration: 16880 ug/kg

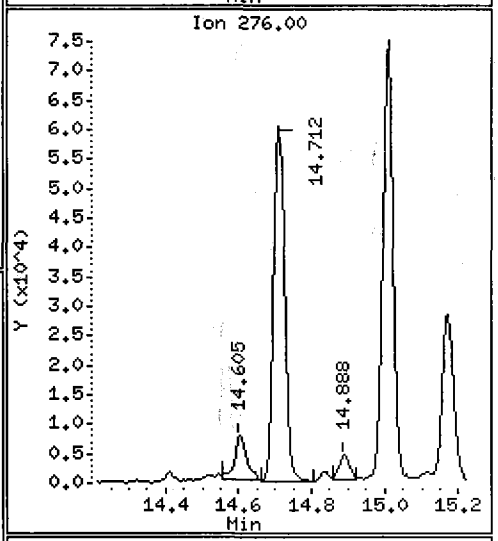


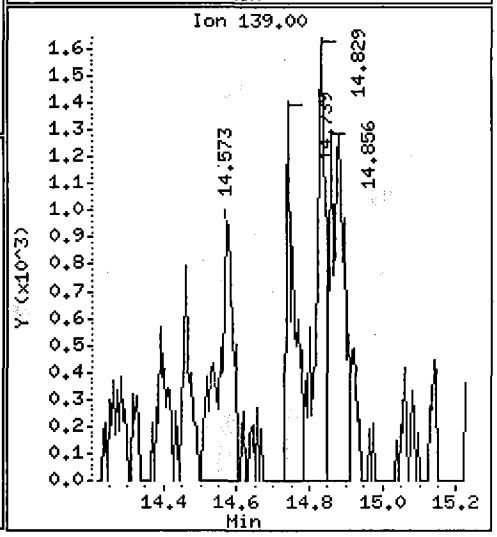












Data File: /chem1/nt12.i/20101109.b/rs97b.d

Date : 09-NOV-2010 18:51

Client ID: DGS-19-3.34.1-10100

Instrument: nt12.i

Sample Info: RS97B,3

Volume Injected (uL): 1.0

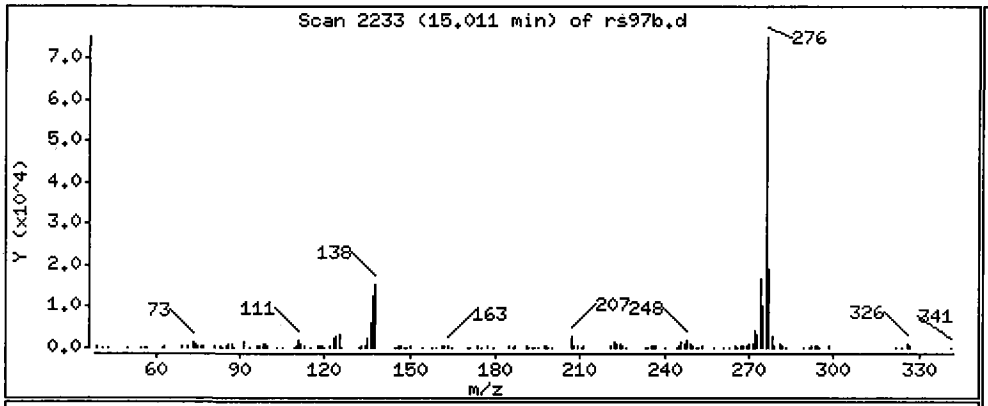
Operator: VTS

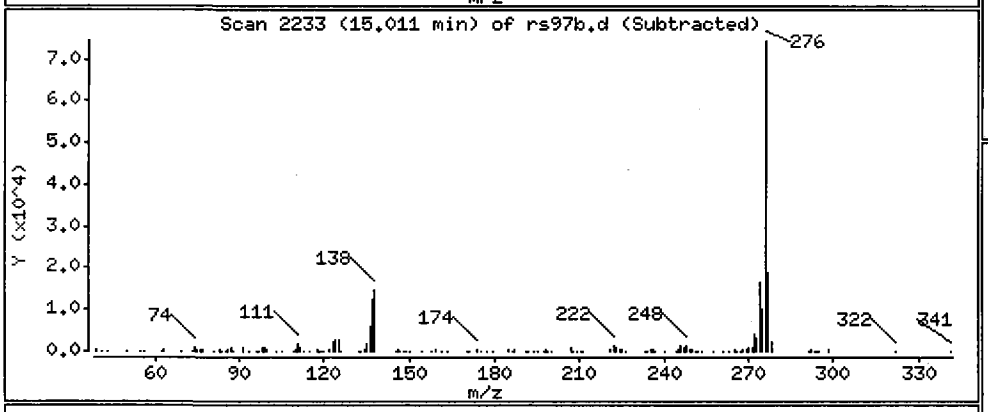
Column phase: ZB-5msi

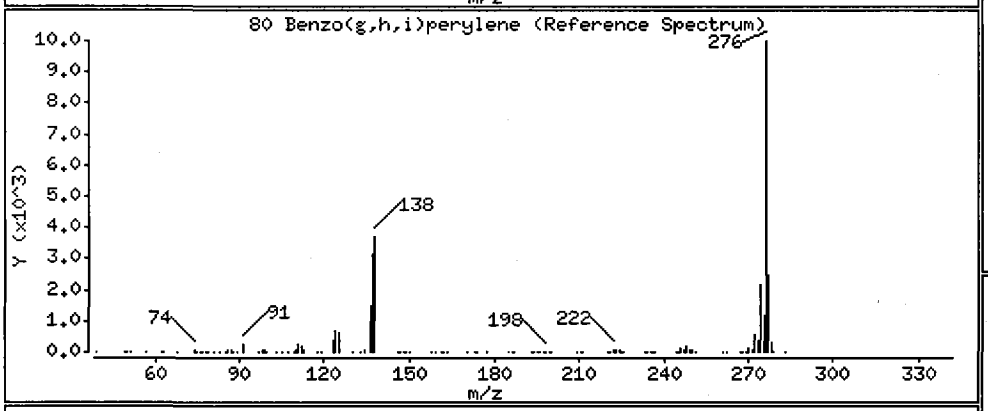
Column diameter: 0.32

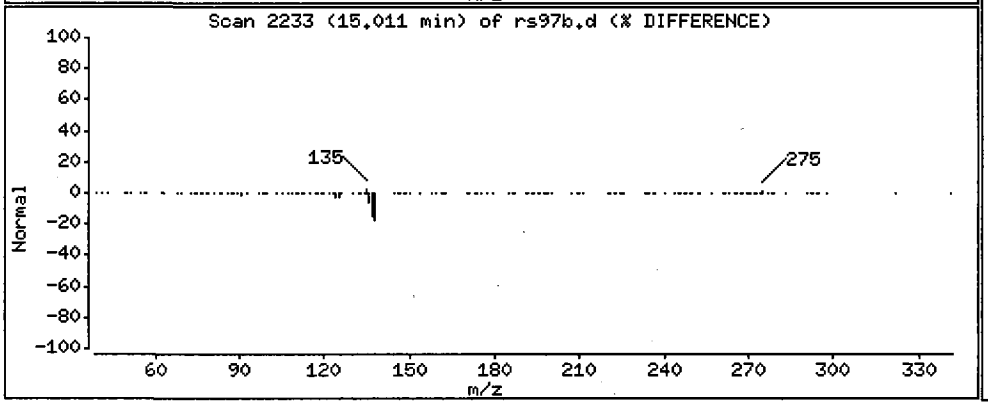
80 Benzo(g,h,i)perylene

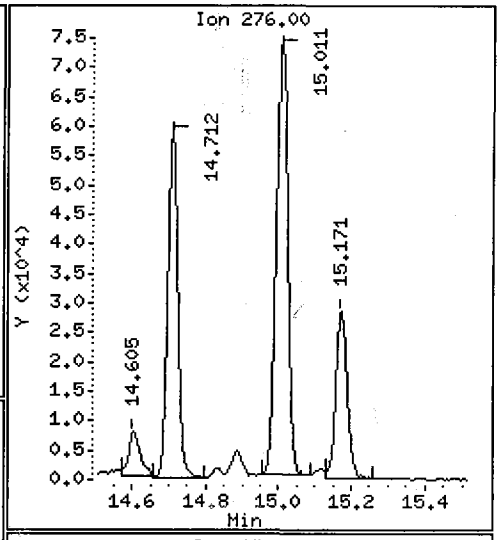
Concentration: 112400 ug/kg

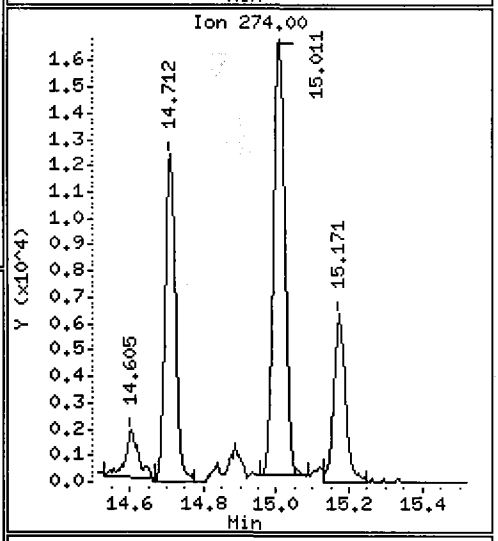


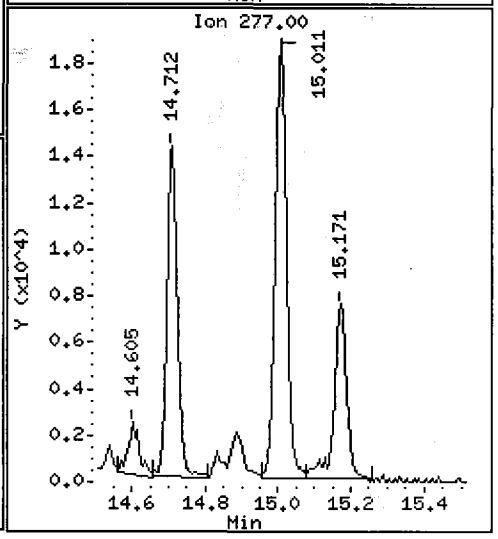








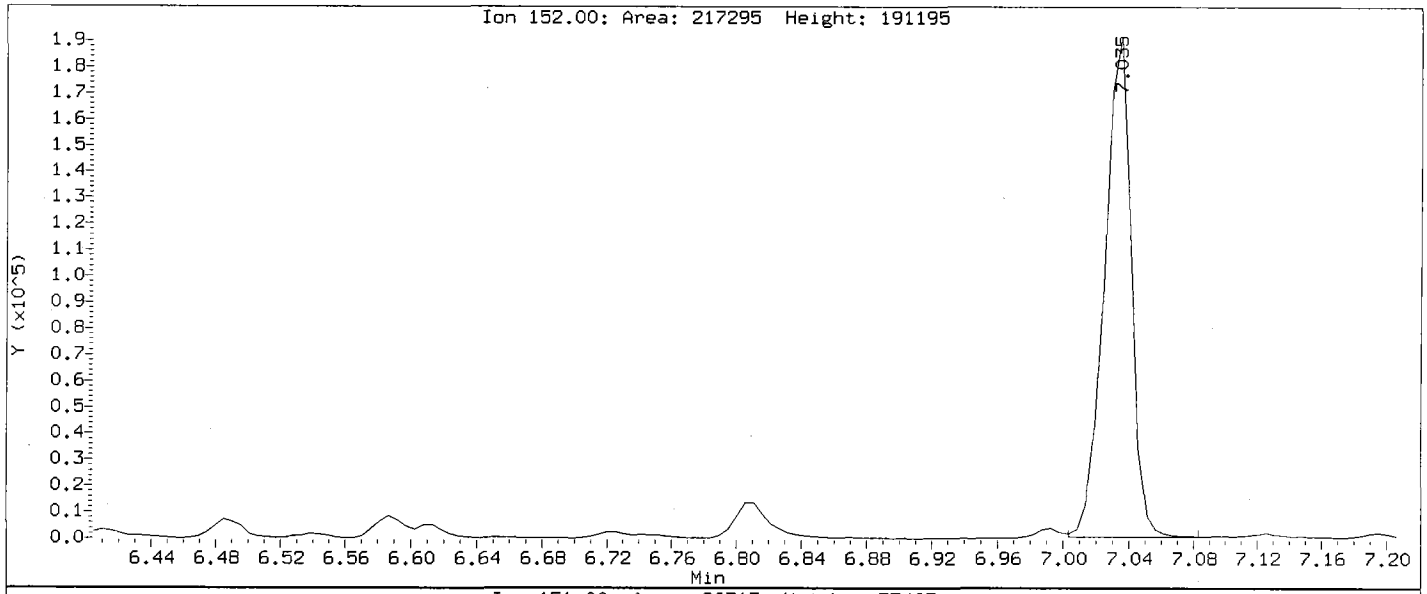


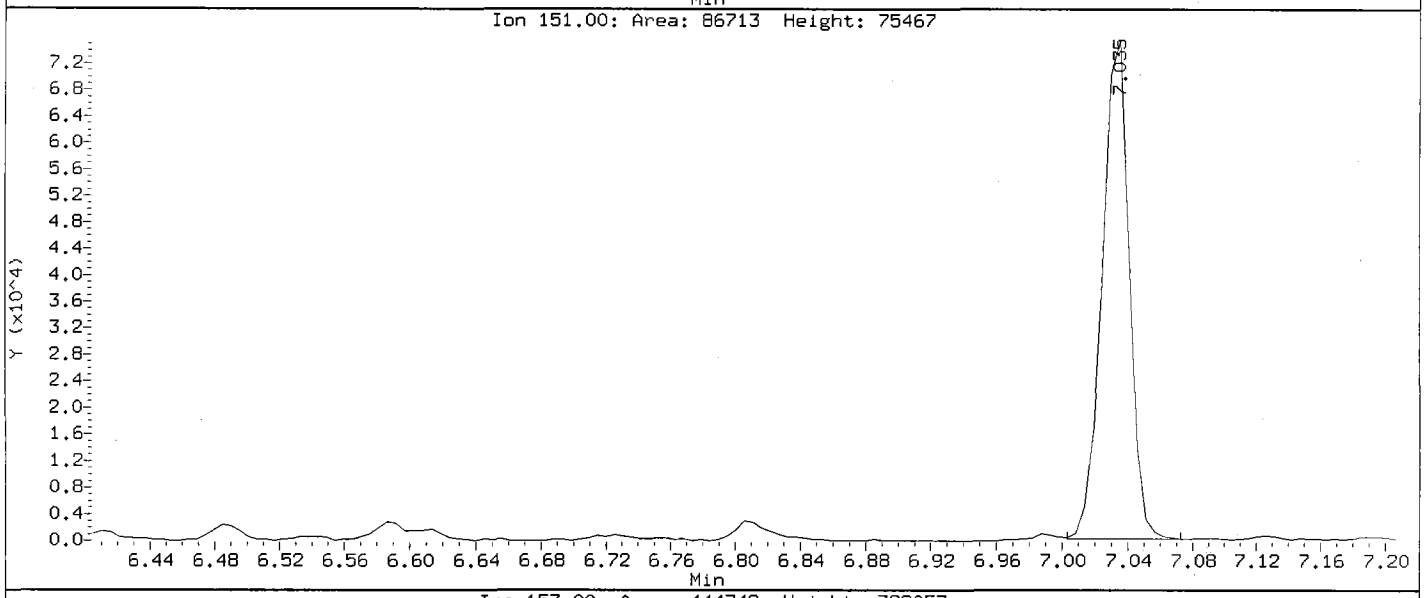


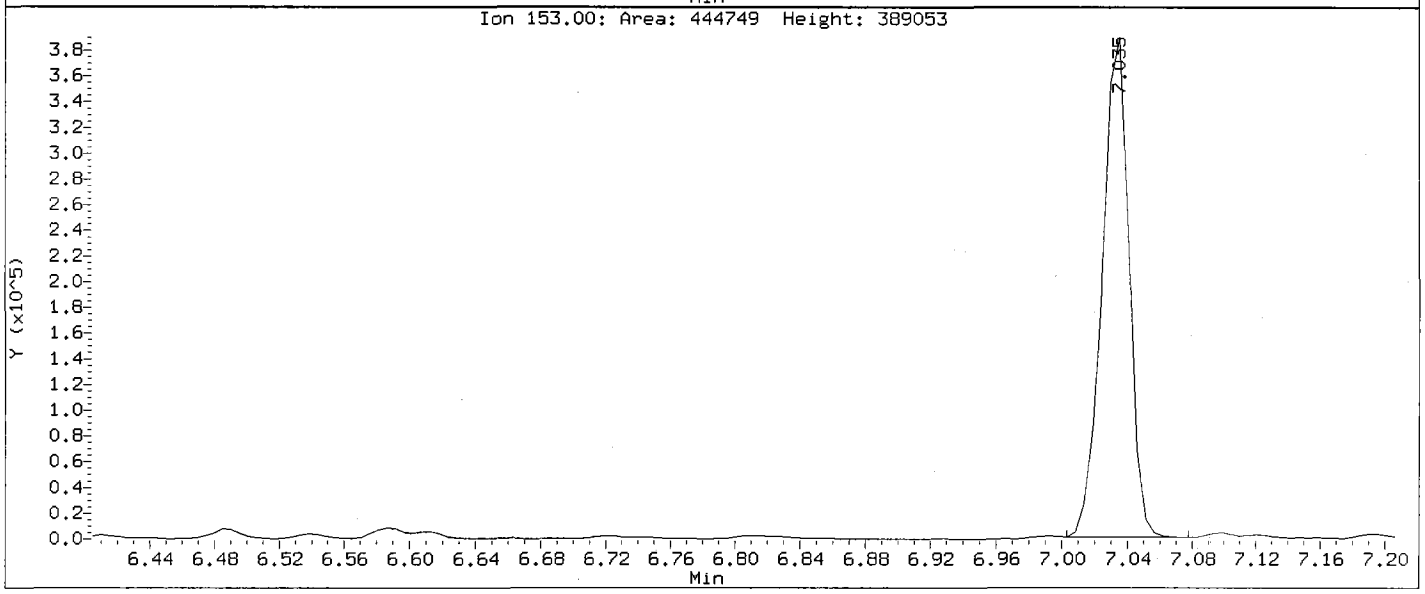
Data File: /chem1/nt12.i/20101109.b/rs97b.d
Injection Date: 09-NOV-2010 18:51
Instrument: nt12.i
Client Sample ID: DGS-19-3.34.1-10100

11-10-10 VJ

Compound: Acenaphthylene
CAS Number: 208-96-8

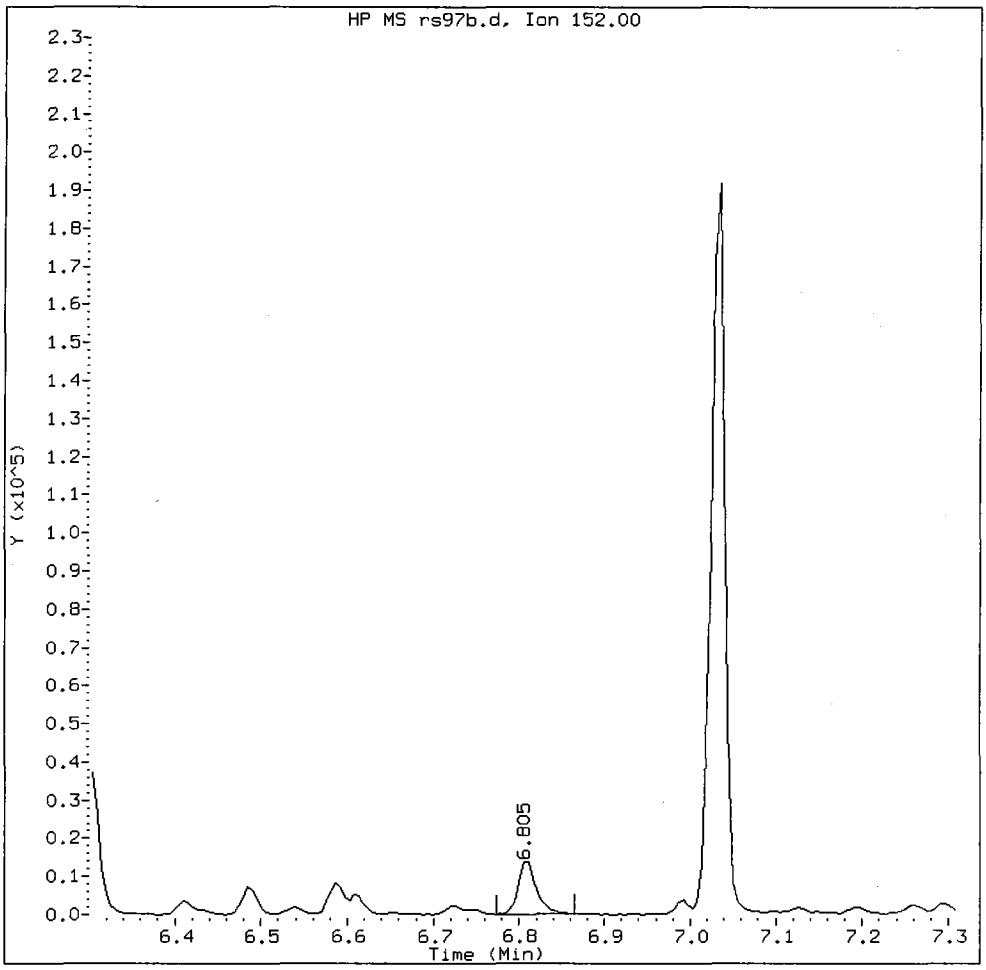






RS97B, /chem1/nt12.i/20101109.b/rs97b.d

Acenaphthylene Amount: 1.84 Area: 19990



MANUAL INTEGRATION for Acenaphthylene

1. Baseline correction
2. Poor chromatography
3. Peak not found
4. Totals calculation

5. Other _____

Analyst: VB Date: 11-10-10

Analytical Resources, Inc.

Semivolatile Report SW846 Method 8270D

Data file : /chem1/nt12.i/20101109.b/rs97c.d
Lab Smp Id: RS97C Client Smp ID: DGS-19-4.48.2-10100
Inj Date : 09-NOV-2010 19:15
Operator : VTS Inst ID: nt12.i
Smp Info : RS97C,3
Misc Info : 10-27419
Comment : 1ul Injection
Method : /chem1/nt12.i/20101109.b/PNADMD.m
Meth Date : 09-Nov-2010 11:48 van Quant Type: ISTD
Cal Date : 30-OCT-2010 13:19 Cal File: ic1030f.d
Als bottle: 22
Dil Factor: 3.00000
Integrator: HP RTE Compound Sublist: pnas.sub
Target Version: 3.50
Processing Host: cserv3

Concentration Formula: Amt * DF * Vt/(Ws * (100 - M)/100) * CpndVariable

Name	Value	Description
DF	3.00000	Dilution Factor
Vt	10000.00000	Volume of final extract (uL)
Ws	5.31000	Weight of sample extracted (g)
M	29.60000	% Moisture

Cpnd Variable Local Compound Variable

Compounds	QUANT SIG MASS	RT	EXP RT	REL RT	RESPONSE	CONCENTRATIONS ON-COLUMN (ug/mL)	FINAL (ug/kg)
* 27 Naphthalene-d8	136	4.887	4.888	(1.000)	183938	20.0000	
28 Naphthalene	128	4.914	4.909	(1.005)	659926	63.0378	505900
32 2-Methylnaphthalene	141	5.726	5.726	(1.172)	83326	14.9123	119700
105 1-methylnaphthalene	141	5.854	5.854	(1.198)	44242	7.67893	61620
$ 36 2-Fluorobiphenyl	172	6.207	6.202	(0.888)	4783	0.55446	4450
40 Acenaphthylene	152	Compound Not Detected.					
* 42 Acenaphthene-d10	164	6.992	6.992	(1.000)	112128	20.0000	
44 Acenaphthene	153	7.030	7.030	(1.005)	107364	15.5694	124900
46 Dibenzofuran	168	7.227	7.227	(1.034)	8885	0.84024	6743
49 Fluorene	166	7.639	7.644	(1.092)	44471	5.63247	45200
* 59 Phenanthrene-d10	188	8.766	8.766	(1.000)	200472	20.0000	
60 Phenanthrene	178	8.792	8.793	(1.003)	345351	32.4725	260600
61 Anthracene	178	8.846	8.851	(1.009)	66100	6.01361	48260
62 Carbazole	167	9.070	9.065	(1.035)	11405	1.28621	10320

Compounds	QUANT SIG MASS	RT	EXP RT	REL RT	RESPONSE	CONCENTRATIONS ON-COLUMN (ug/mL)	FINAL (ug/kg)
64 Fluoranthene	202	10.240	10.240	(0.854)	191042	15.2555	122400
65 Pyrene	202	10.502	10.508	(0.876)	230748	18.5734	149100
$ 66 Terphenyl-d14	244	10.742	10.743	(0.896)	4358	0.54989	4413
68 Benzo(a)anthracene	228	11.971	11.977	(0.998)	41519	4.12387	33090
* 69 Chrysene-d12	240	11.992	11.993	(1.000)	179278	20.0000	
71 Chrysene	228	12.019	12.025	(1.002)	59535	6.32499	50760
187 Total Benzofluoranthenes	252	13.227	13.243	(0.972)	57963	6.07466	48750
76 Benzo(a)pyrene	252	13.552	13.553	(0.996)	50407	5.75069	46150
* 77 Perylene-d12	264	13.611	13.611	(1.000)	160199	20.0000	
99 Perylene	252	13.633	13.643	(1.002)	13574	1.45627	11690 NP
78 Indeno(1,2,3-cd)pyrene	276	14.712	14.717	(1.081)	35488	2.72700	21880
79 Dibenzo(a,h)anthracene	278	14.712	14.728	(1.081)	7765	0.72476	5816 J
80 Benzo(g,h,i)perylene	276	15.000	15.011	(1.102)	41098	3.84422	30850

VB
11-10-10

Analytical Resources, Inc.

INTERNAL STANDARD COMPOUNDS
AREA AND RT SUMMARY

Instrument ID: nt12.i
Lab File ID: rs97c.d
Lab Smp Id: RS97C
Analysis Type: SV
Quant Type: ISTD
Operator: VTS
Method File: /chem1/nt12.i/20101109.b/PNADMD.m
Misc Info: 10-27419

Calibration Date: 09-NOV-2010
Calibration Time: 11:04
Client Smp ID: DGS-19-4.48.2-10
Level: LOW
Sample Type: Sediment

Test Mode:
Use Initial Calibration Level 4.

COMPOUND	STANDARD	AREA LIMIT LOWER	AREA LIMIT UPPER	SAMPLE	%DIFF
27 Naphthalene-d8	237664	118832	475328	183938	-22.61
42 Acenaphthene-d10	143363	71682	286726	112128	-21.79
59 Phenanthrene-d10	245437	122718	490874	200472	-18.32
69 Chrysene-d12	199260	99630	398520	179278	-10.03
77 Perylene-d12	197636	98818	395272	160199	-18.94

COMPOUND	STANDARD	RT LIMIT LOWER	RT LIMIT UPPER	SAMPLE	%DIFF
27 Naphthalene-d8	4.89	4.39	5.39	4.89	0.00
42 Acenaphthene-d10	6.99	6.49	7.49	6.99	0.00
59 Phenanthrene-d10	8.77	8.27	9.27	8.77	0.00
69 Chrysene-d12	11.99	11.49	12.49	11.99	0.00
77 Perylene-d12	13.61	13.11	14.11	13.61	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.

Analytical Resources, Inc.

RECOVERY REPORT

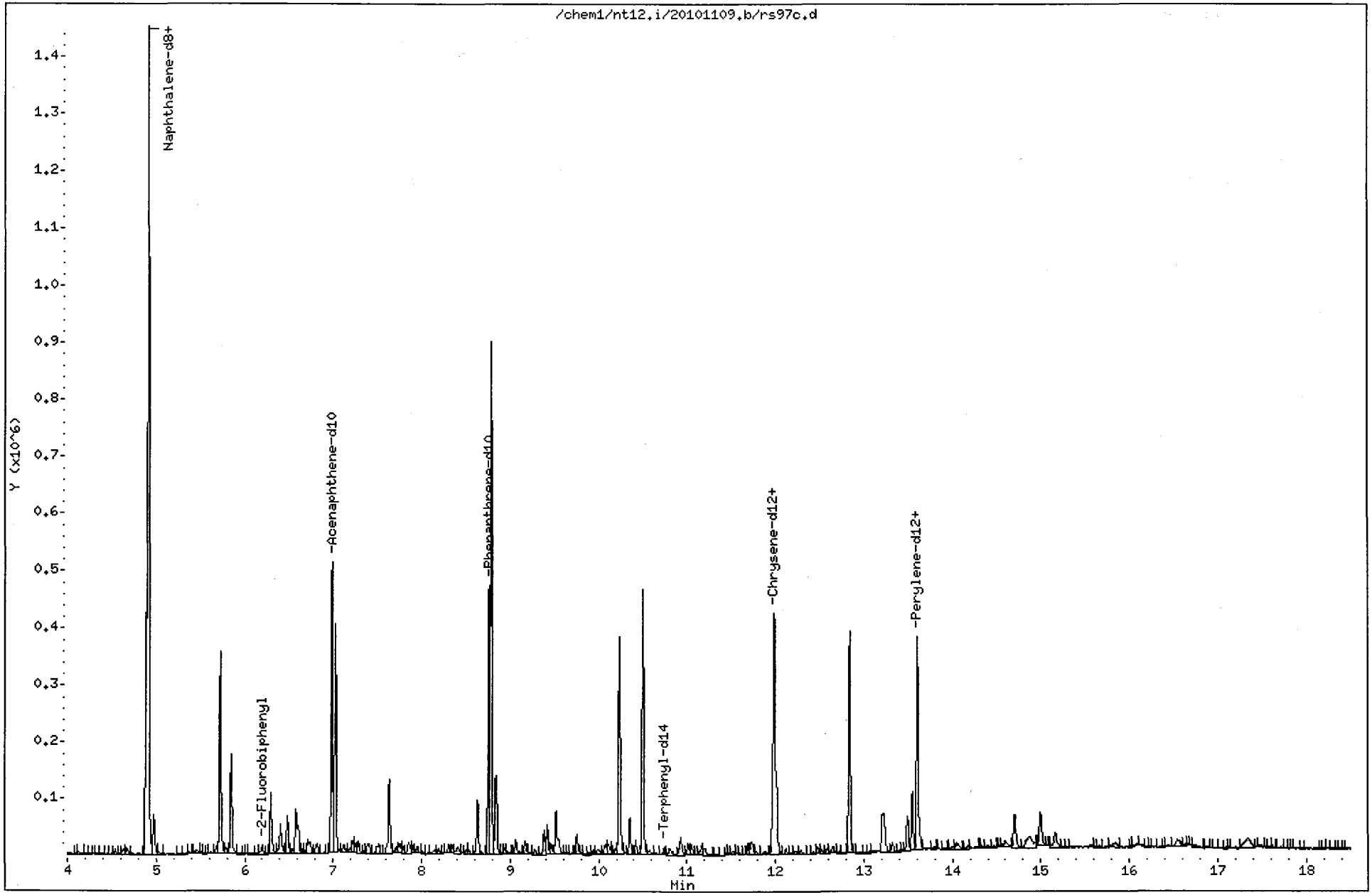
Client Name: NW Natural
Sample Matrix: SOLID
Lab Smp Id: RS97C
Level: LOW
Data Type: MS DATA
SpikeList File: SONICLCS.spk
Sublist File: pnas.sub
Method File: /chem1/nt12.i/20101109.b/PNADMD.m
Misc Info: 10-27419

Client SDG: RS97
Fraction: SV
Client Smp ID: DGS-19-4.48.2-10100
Operator: VTS
SampleType: SAMPLE
Quant Type: ISTD

SURROGATE COMPOUND	CONC ADDED ug/kg	CONC RECOVERED ug/kg	% RECOVERED	LIMITS
$ 36 2-Fluorobiphenyl	6688	4450	66.54	34-100
$ 66 Terphenyl-d14	6688	4413	65.99	35-112

Data File: /chem1/nt12.i/20101109.b/rs97c.d
Date : 09-NOV-2010 19:15
Client ID: DGS-19-4.48.2-10100
Sample Info: RS97C,3
Volume Injected (uL): 1.0
Column phase: ZB-5msi

Instrument: nt12.i
Operator: VTS
Column diameter: 0.32



RS97:00275

Data File: /chem1/nt12.i/20101109.b/rs97c.d

Date : 09-NOV-2010 19:15

Client ID: DGS-19-4.48.2-10100

Instrument: nt12.i

Sample Info: RS97C,3

Volume Injected (uL): 1.0

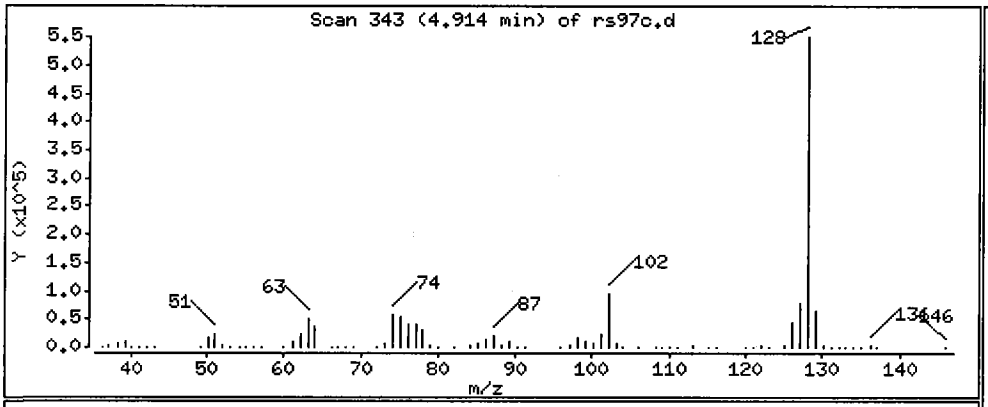
Operator: VTS

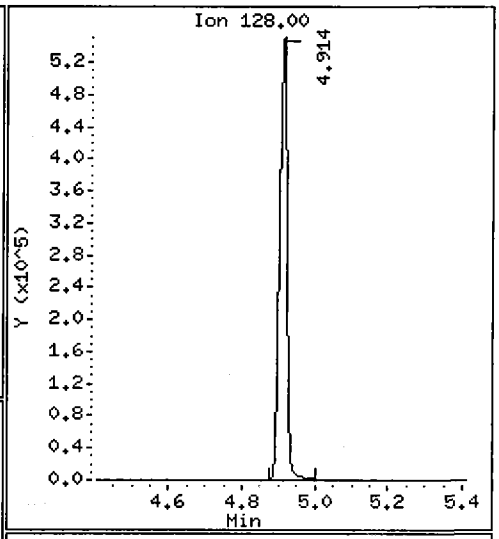
Column phase: ZB-5msi

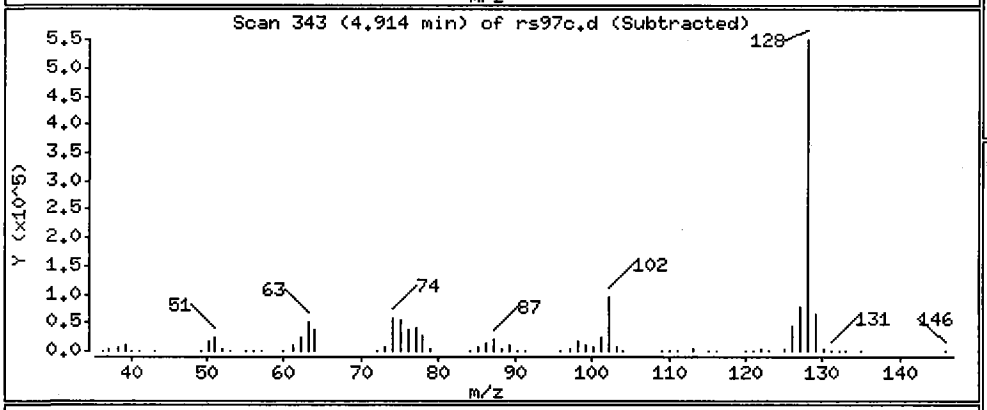
Column diameter: 0.32

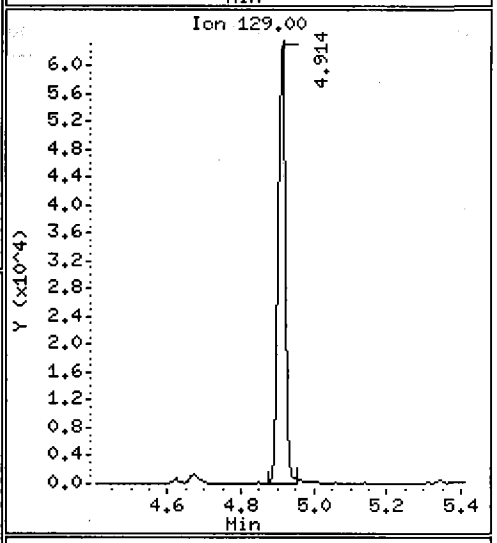
28 Naphthalene

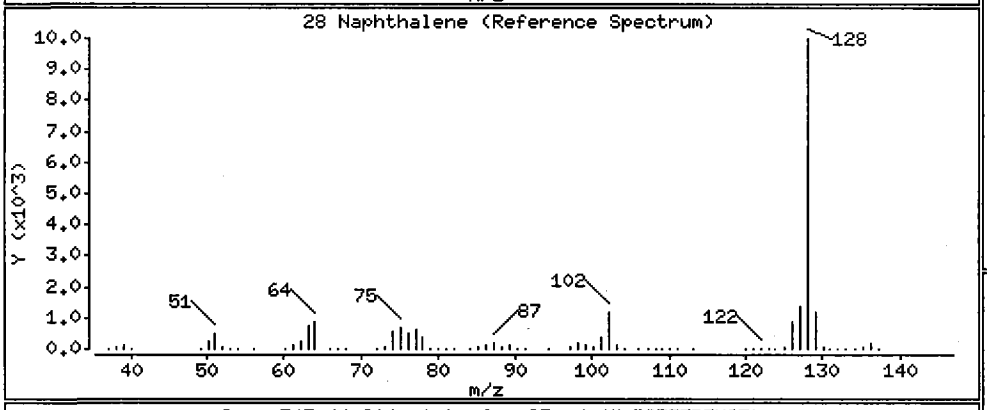
Concentration: 505900 ug/kg

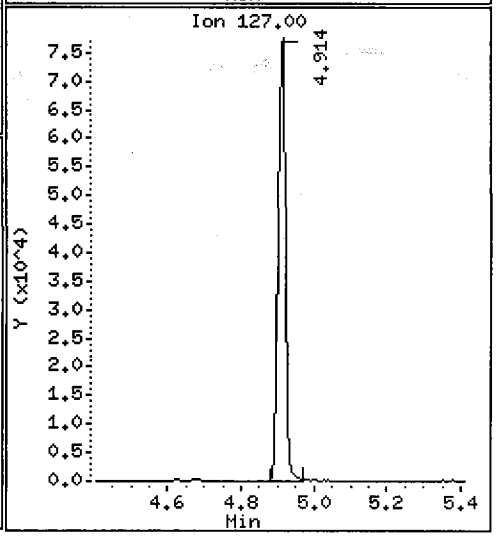


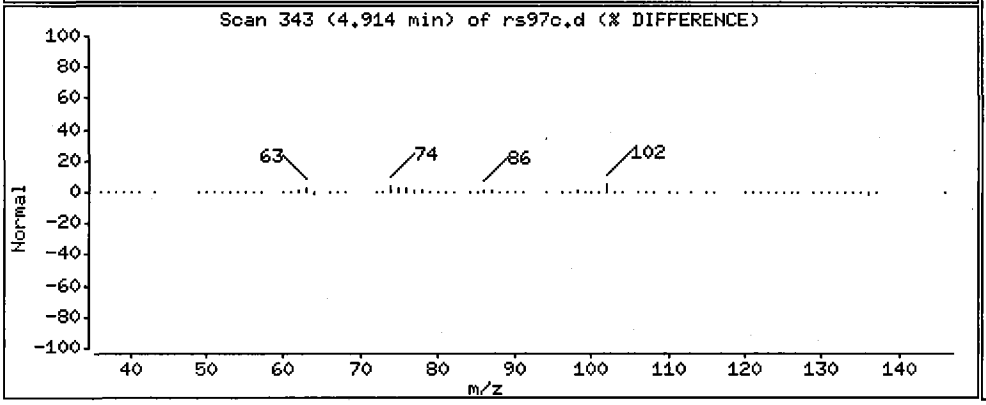












Data File: /chem1/nt12.i/20101109.b/rs97c.d

Date : 09-NOV-2010 19:15

Client ID: DGS-19-4.48.2-10100

Instrument: nt12.i

Sample Info: RS97C,3

Volume Injected (uL): 1.0

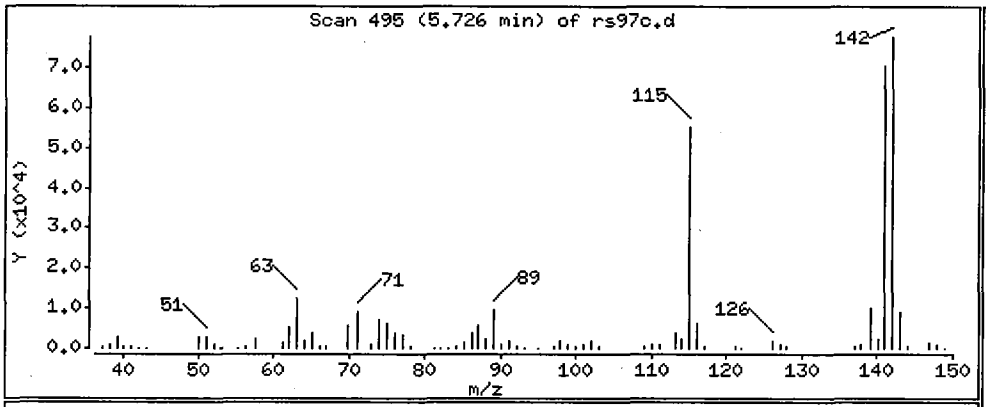
Operator: VTS

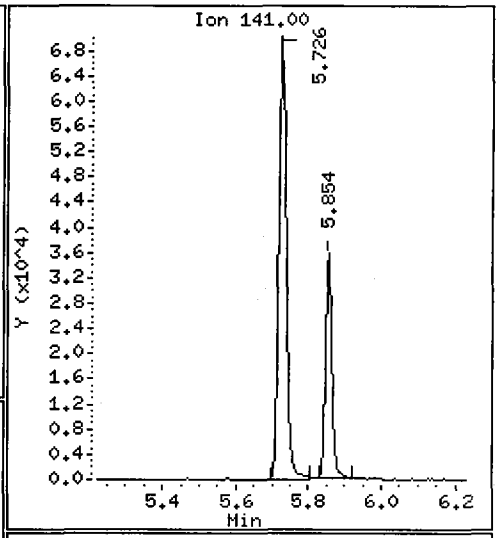
Column phase: ZB-5msi

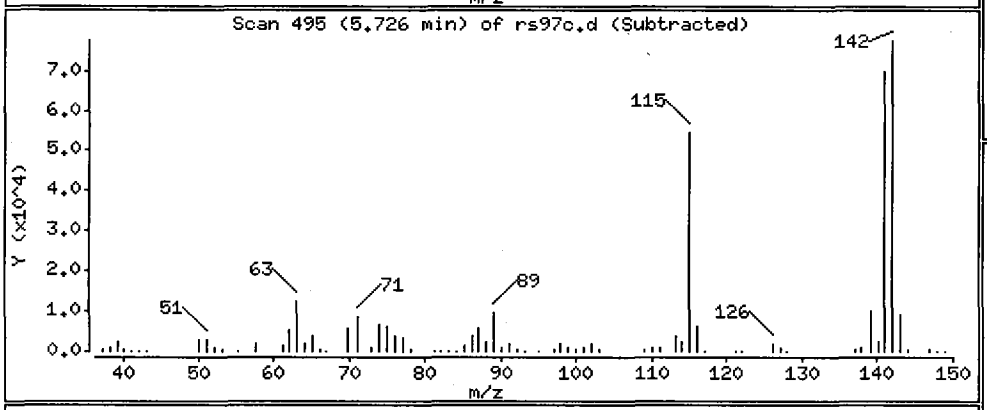
Column diameter: 0.32

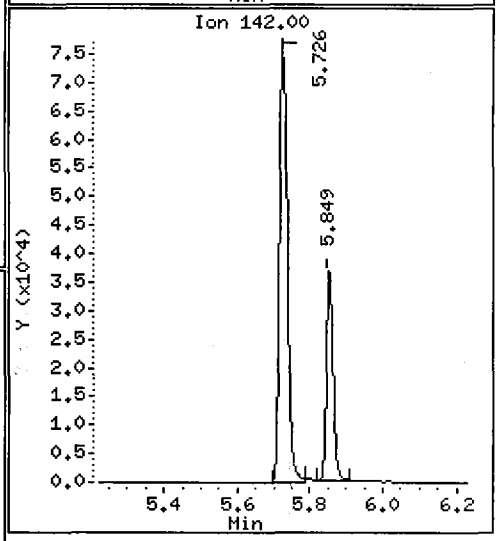
32 2-Methylnaphthalene

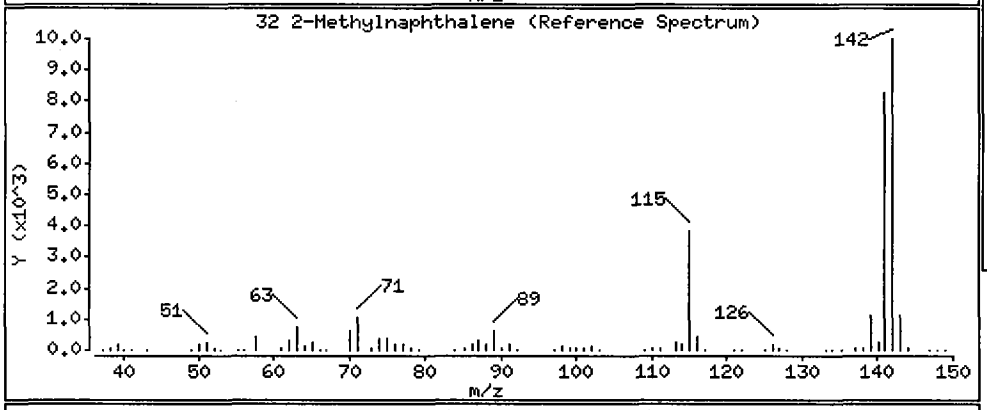
Concentration: 119700 ug/kg

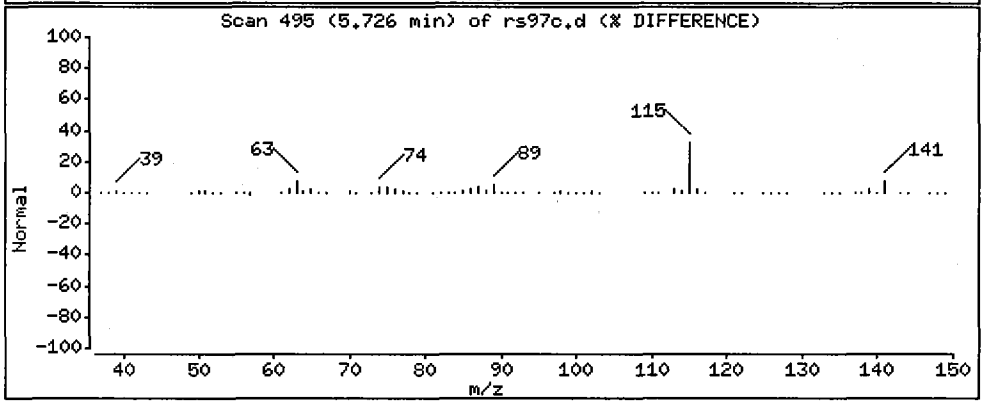












Data File: /chem1/nt12.i/20101109.b/rs97c.d

Date : 09-NOV-2010 19:15

Client ID: DGS-19-4.48.2-10100

Instrument: nt12.i

Sample Info: RS97C,3

Volume Injected (uL): 1.0

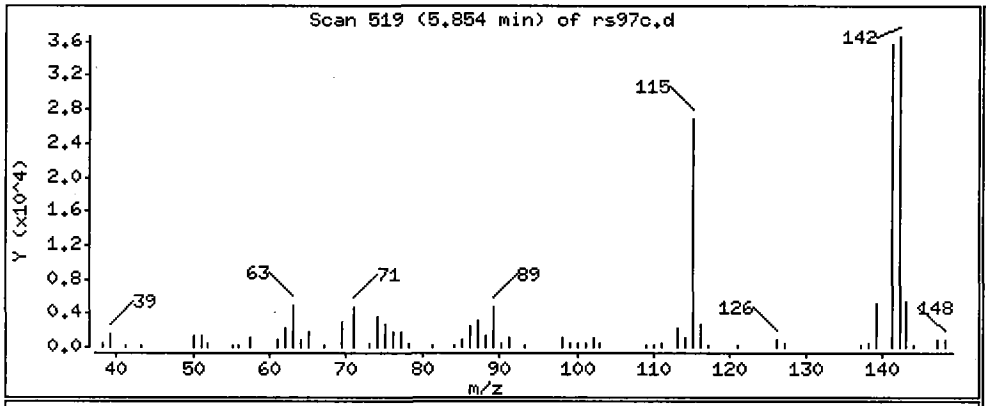
Operator: VTS

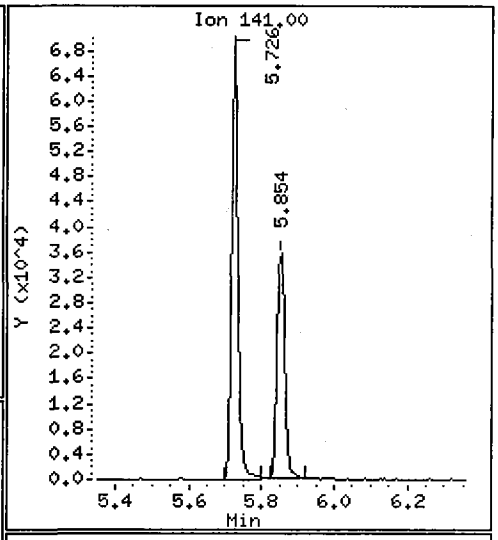
Column phase: ZB-5msi

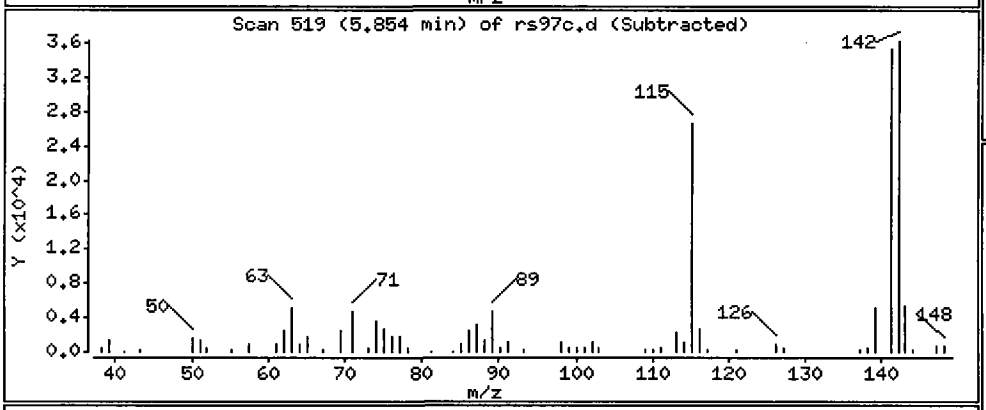
Column diameter: 0.32

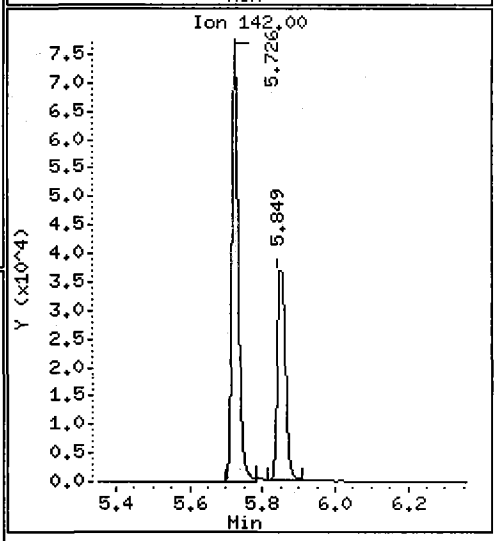
105 1-methylnaphthalene

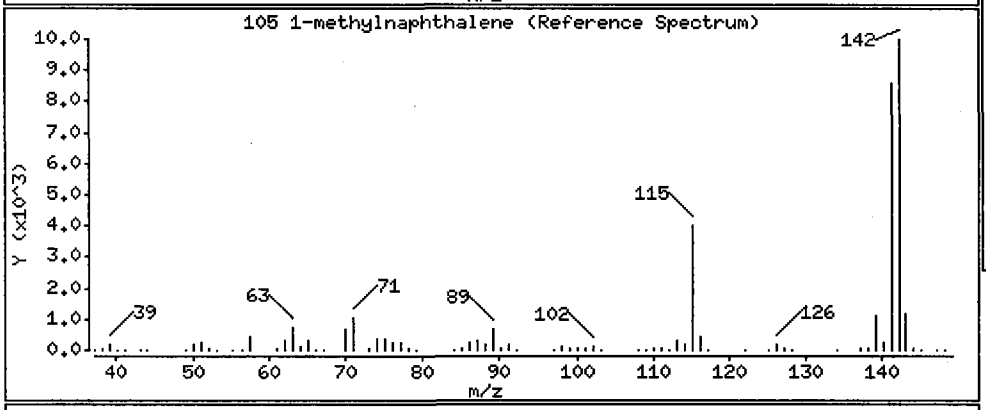
Concentration: 61620 ug/kg

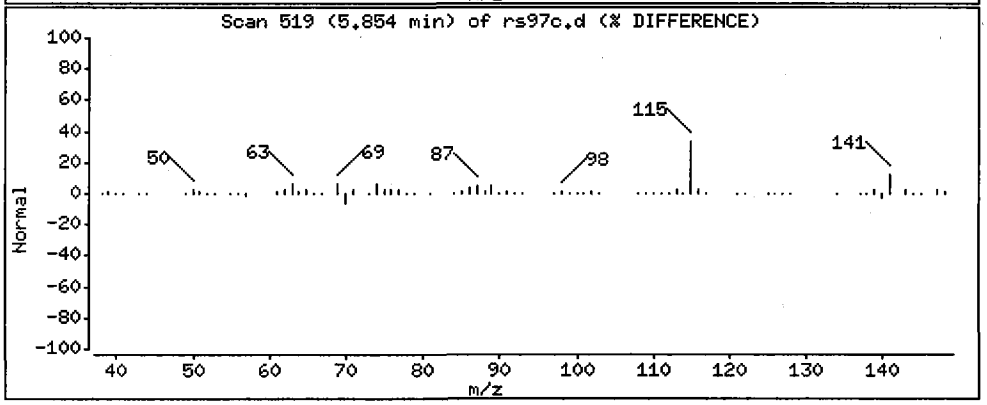












Data File: /chem1/nt12.i/20101109.b/rs97c.d

Date : 09-NOV-2010 19:15

Client ID: DGS-19-4.48.2-10100

Instrument: nt12.i

Sample Info: RS97C,3

Volume Injected (uL): 1.0

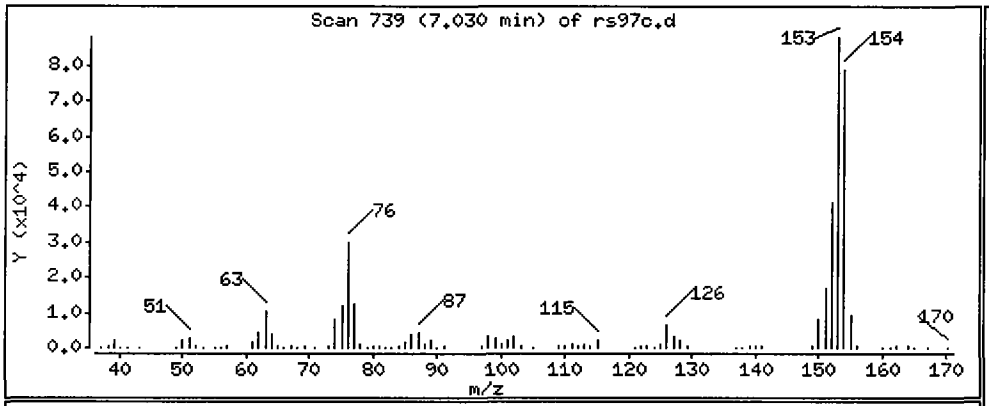
Operator: VTS

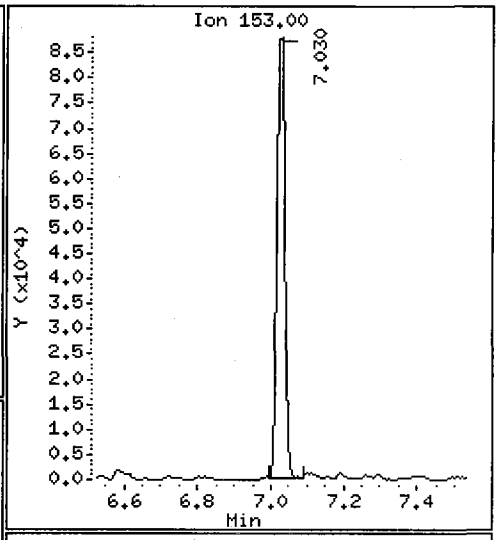
Column phase: ZB-5msi

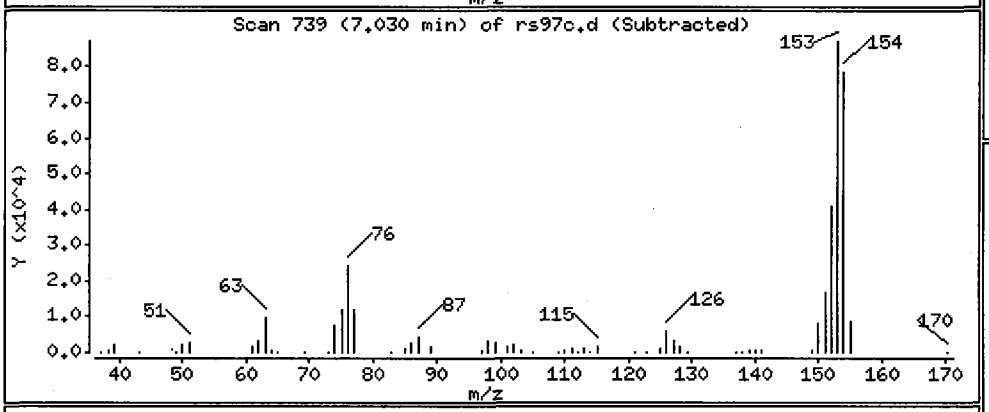
Column diameter: 0.32

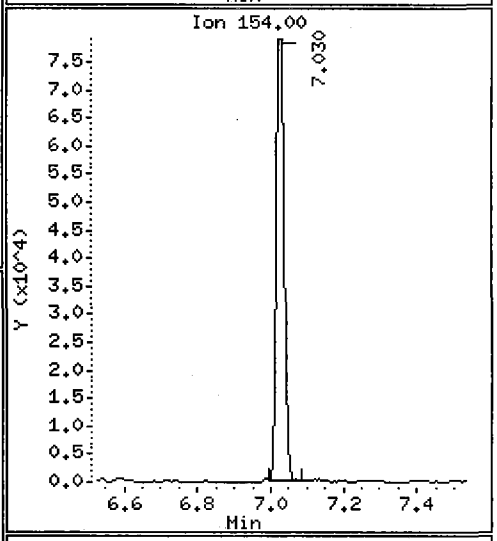
44 Acenaphthene

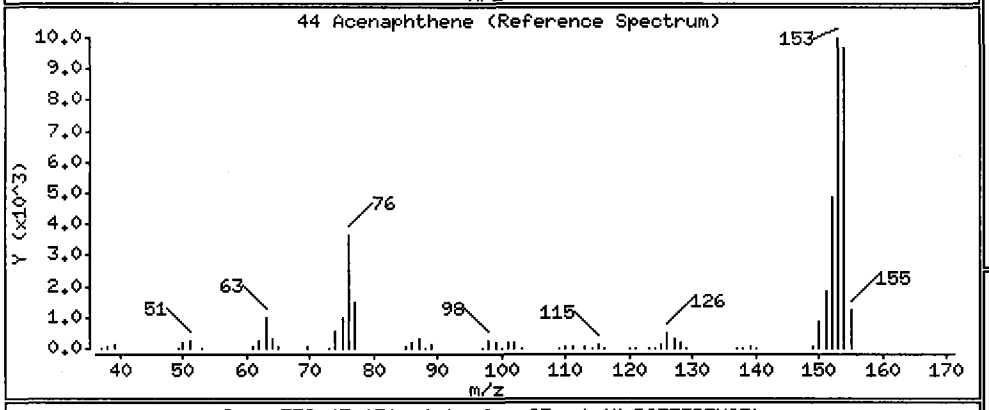
Concentration: 124900 ug/kg

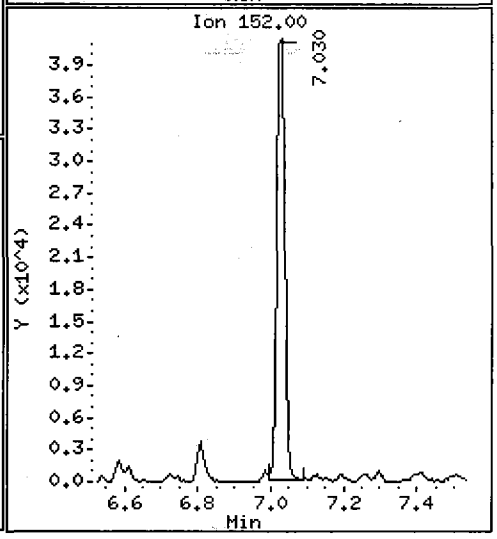


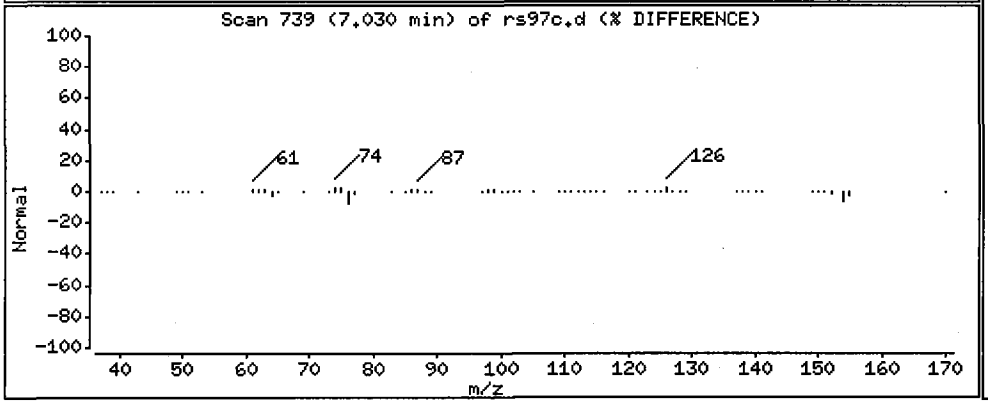












Data File: /chem1/nt12.i/20101109.b/rs97c.d

Date : 09-NOV-2010 19:15

Client ID: DGS-19-4.48.2-10100

Instrument: nt12.i

Sample Info: RS97C,3

Volume Injected (uL): 1.0

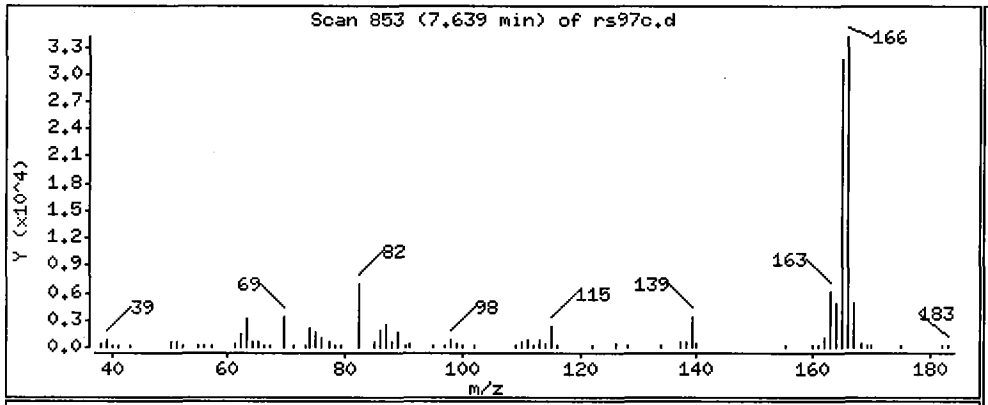
Operator: VTS

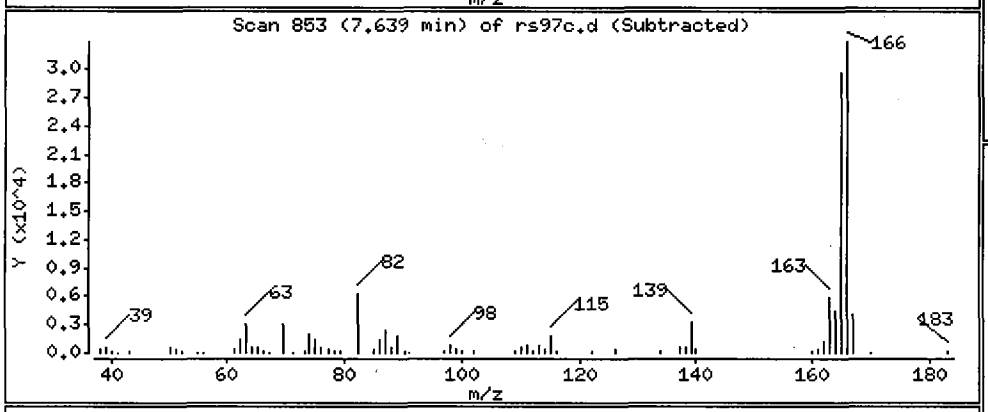
Column phase: ZB-5msi

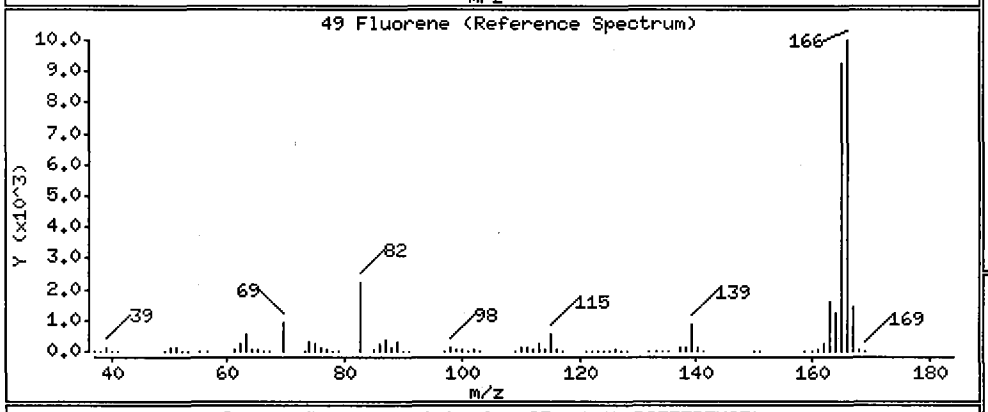
Column diameter: 0.32

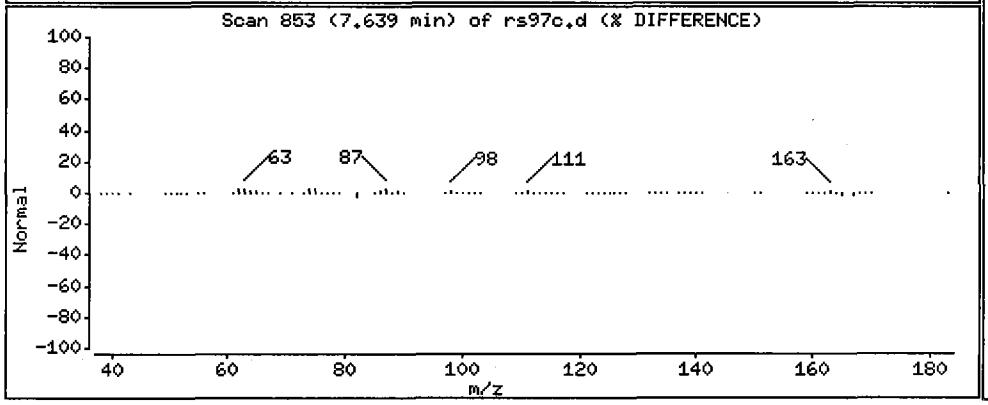
49 Fluorene

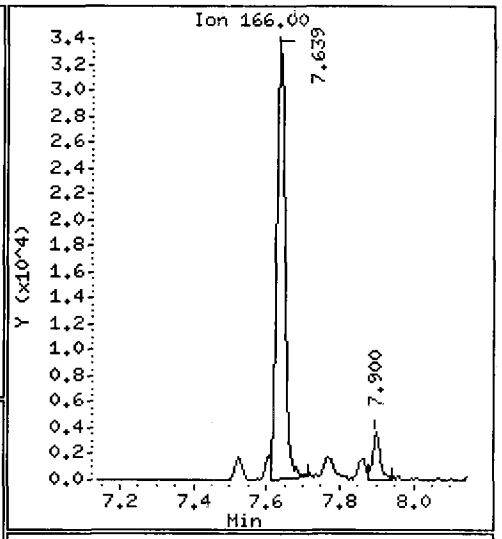
Concentration: 45200 ug/kg

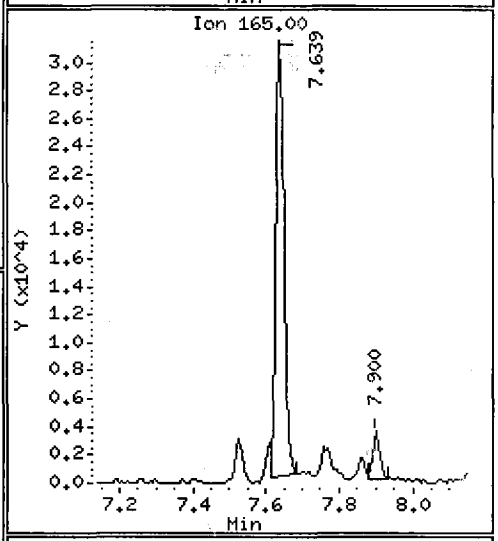


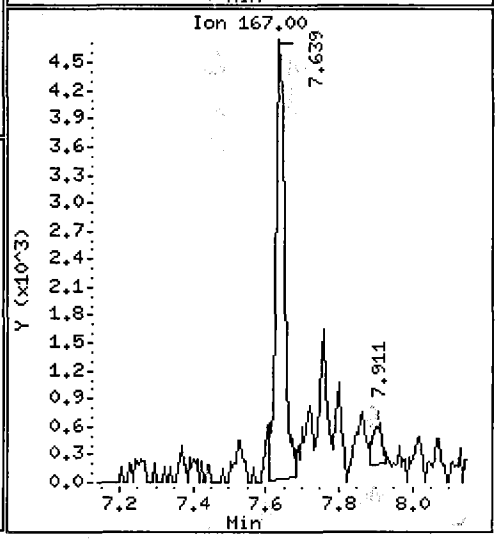












Data File: /chem1/nt12.i/20101109.b/rs97c.d

Date : 09-NOV-2010 19:15

Client ID: DGS-19-4.48.2-10100

Instrument: nt12.i

Sample Info: RS97C,3

Volume Injected (uL): 1.0

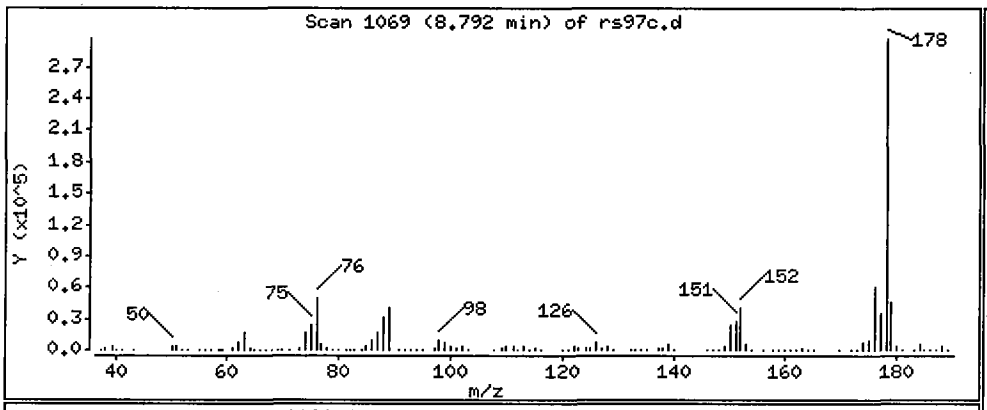
Operator: VTS

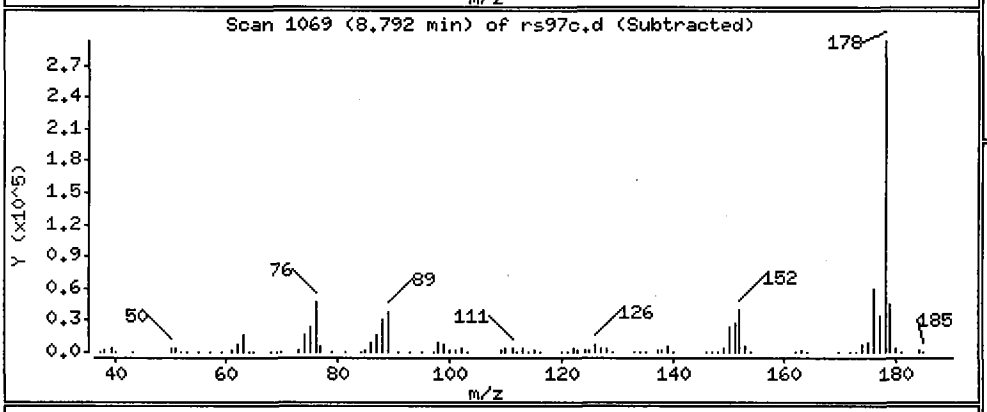
Column phase: ZB-5msi

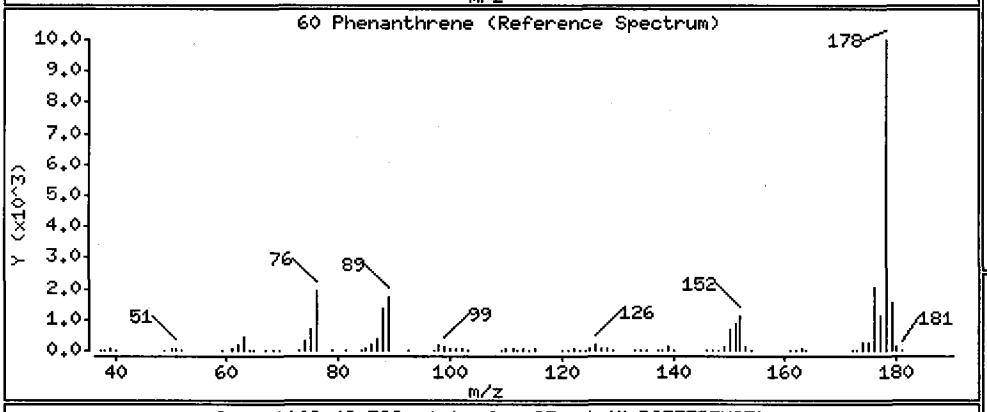
Column diameter: 0.32

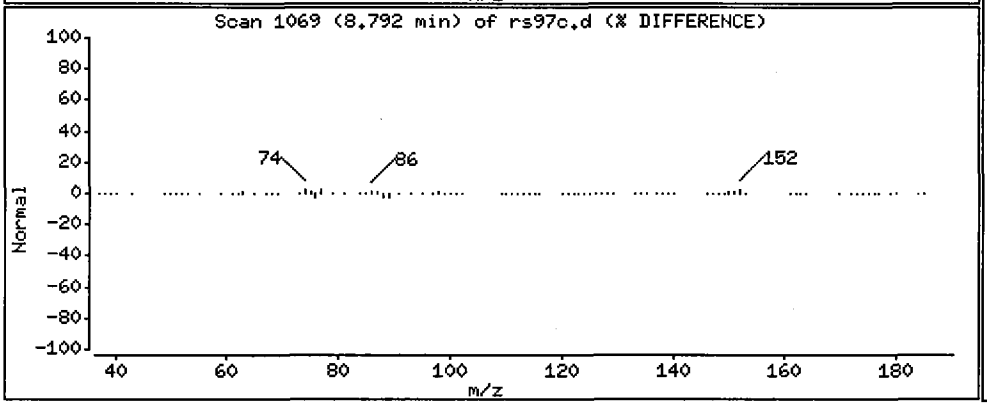
60 Phenanthrene

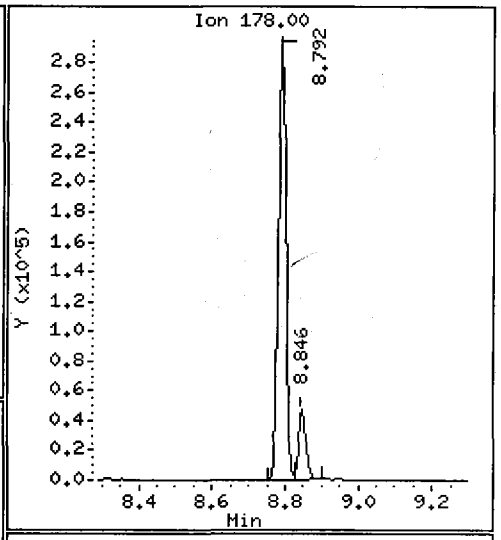
Concentration: 260600 ug/kg

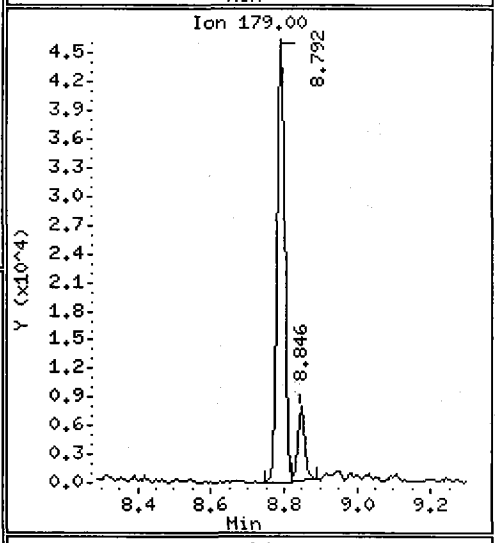


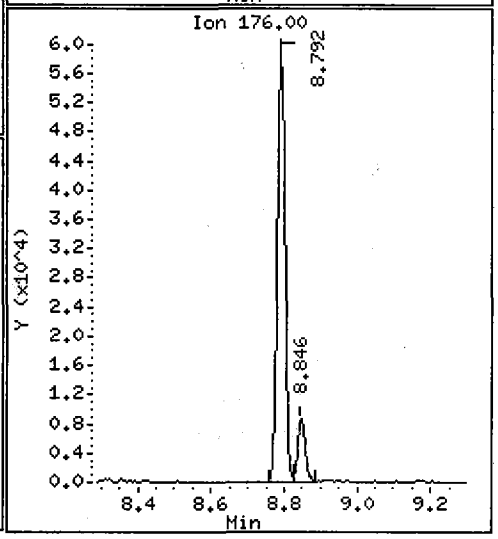












Data File: /chem1/nt12.i/20101109.b/rs97c.d

Date : 09-NOV-2010 19:15

Client ID: DGS-19-4.48.2-10100

Instrument: nt12.i

Sample Info: RS97C,3

Volume Injected (uL): 1.0

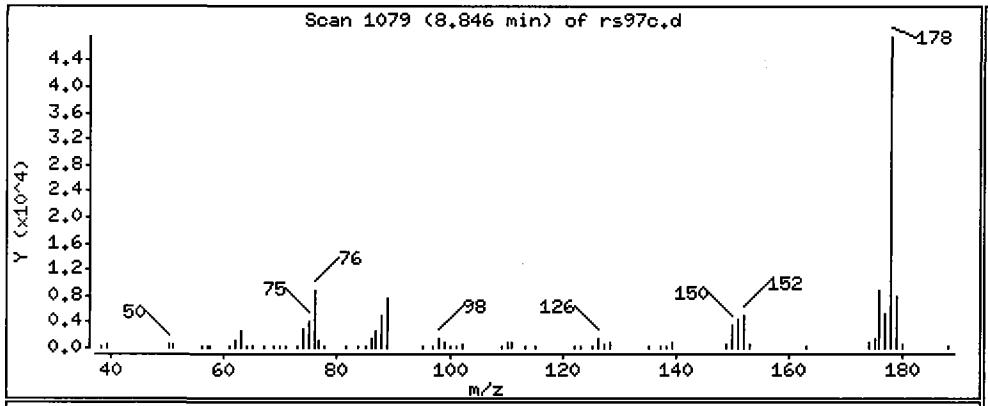
Operator: VTS

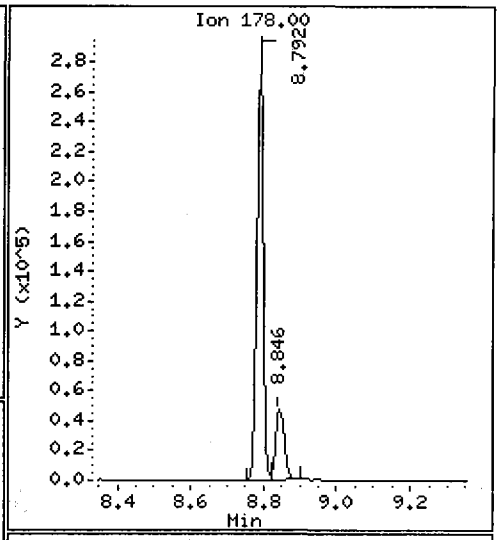
Column phase: ZB-5msi

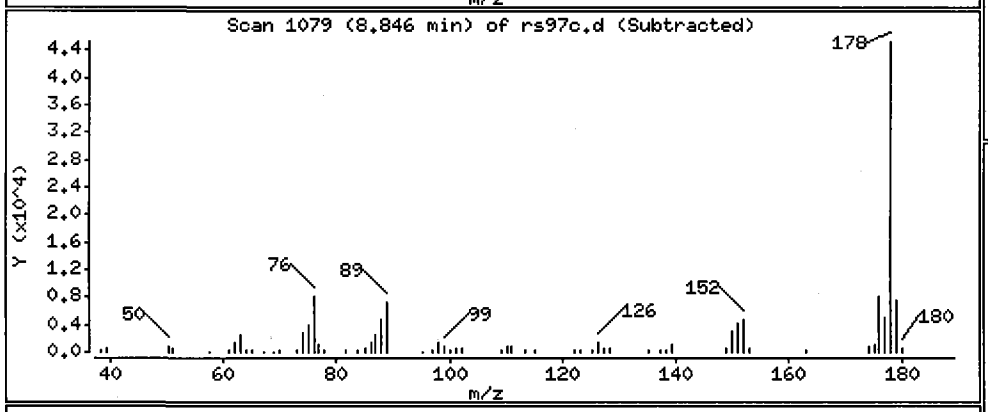
Column diameter: 0.32

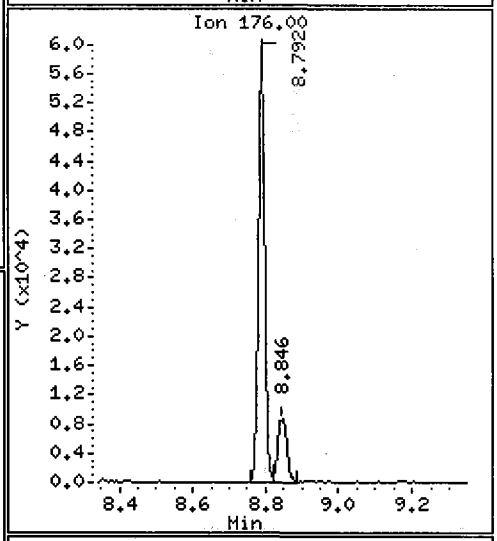
61 Anthracene

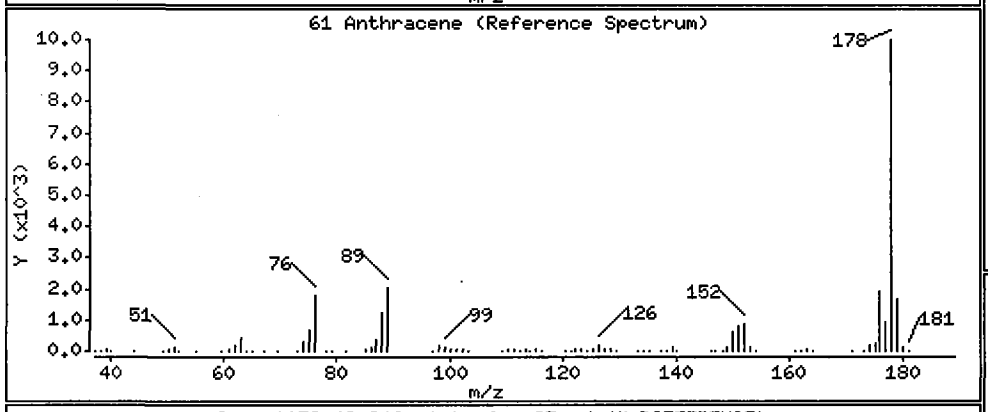
Concentration: 48260 ug/kg

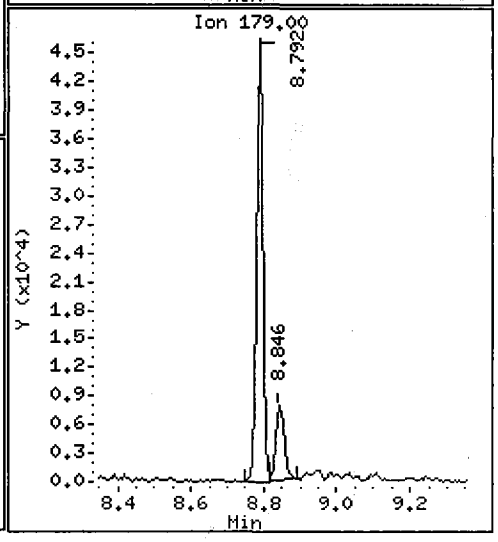


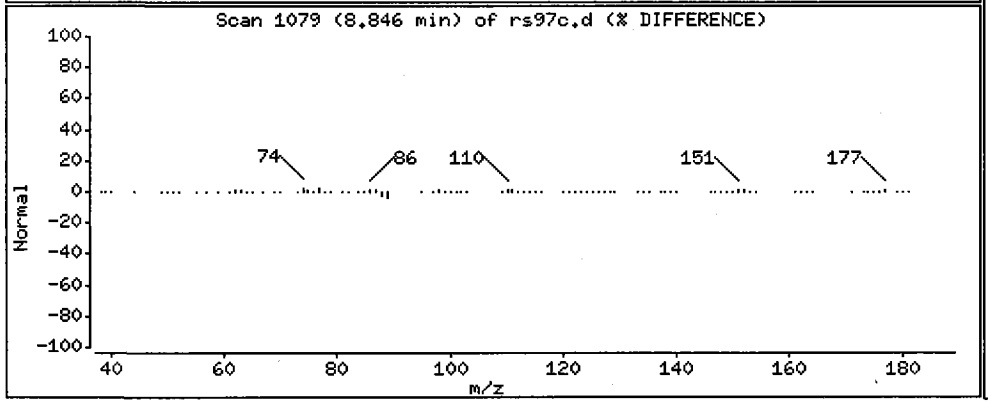












Data File: /chem1/nt12.i/20101109.b/rs97c.d

Date : 09-NOV-2010 19:15

Client ID: DGS-19-4.48.2-10100

Instrument: nt12.i

Sample Info: RS97C,3

Volume Injected (uL): 1.0

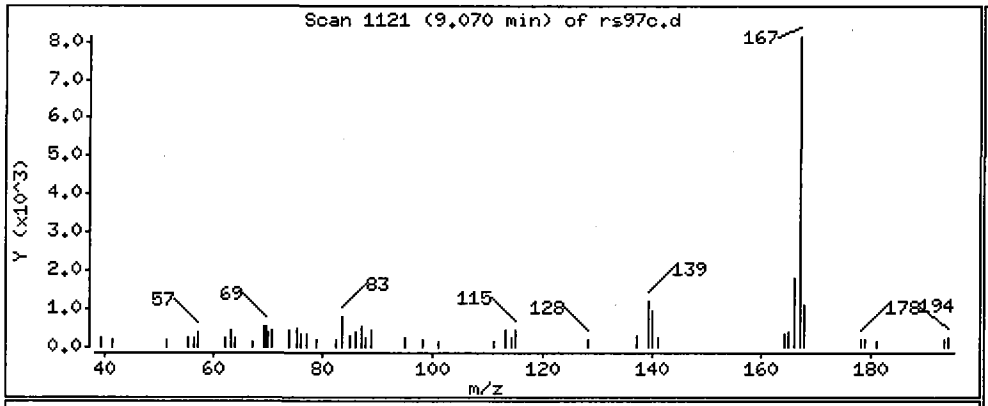
Operator: VTS

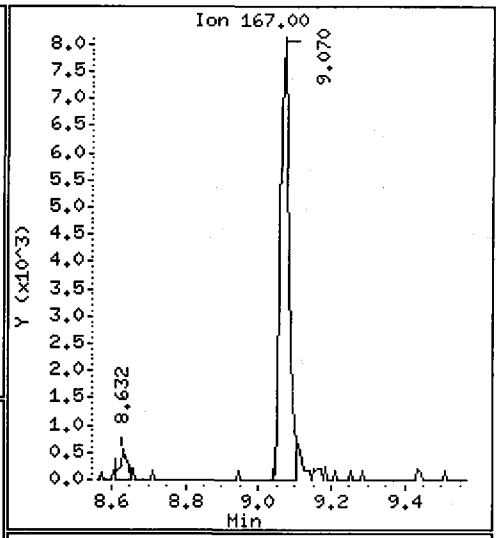
Column phase: ZB-5msi

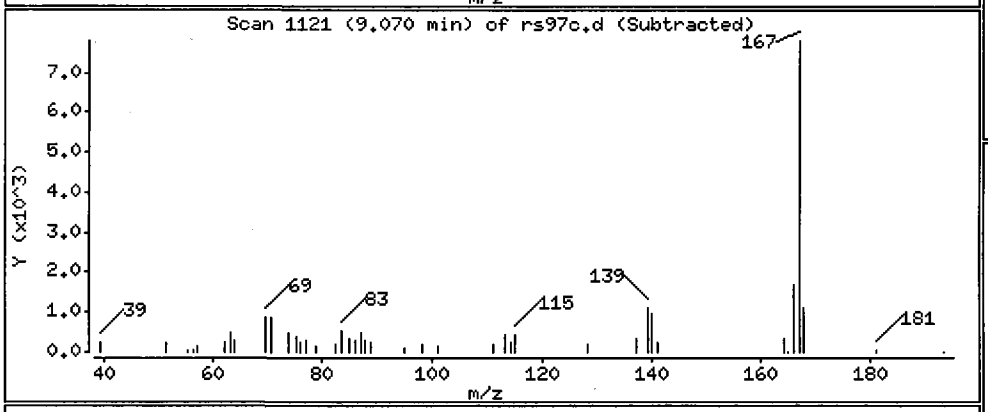
Column diameter: 0.32

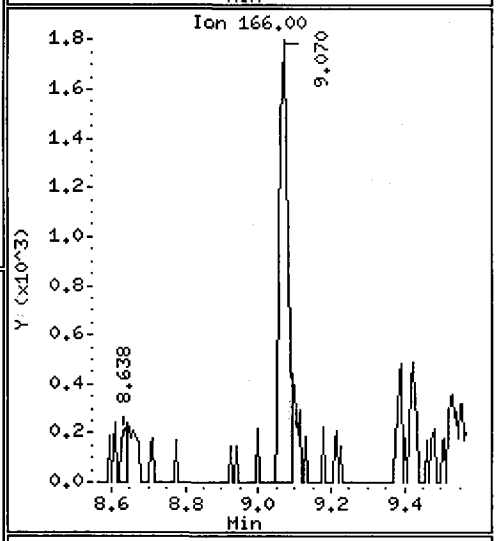
62 Carbazole

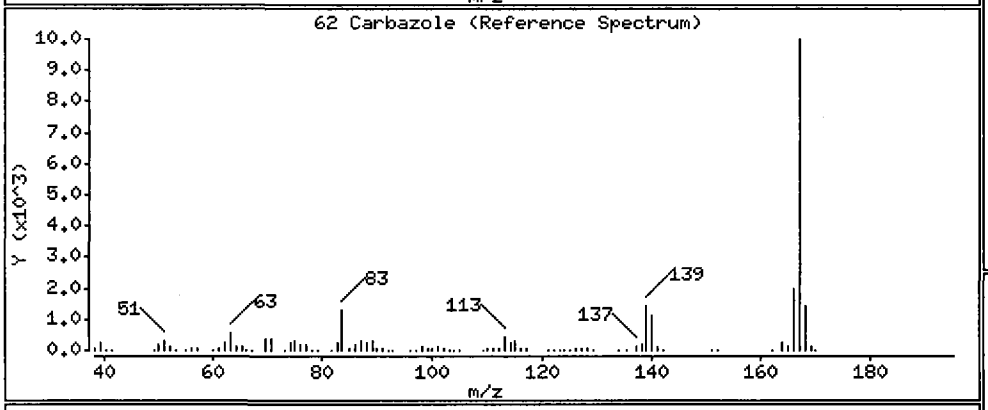
Concentration: 10320 ug/kg

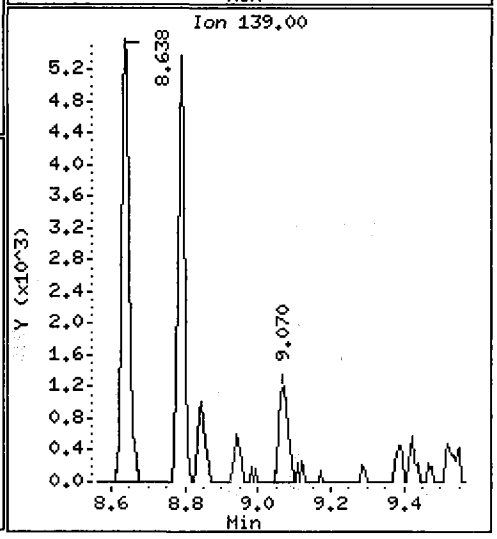


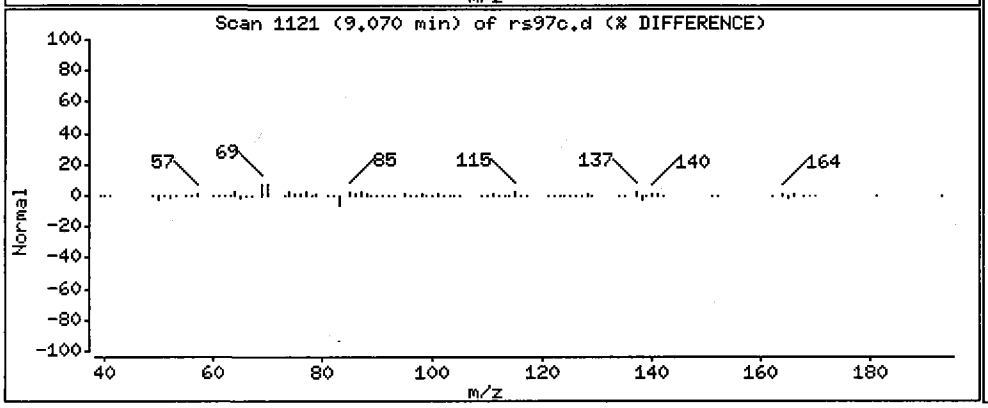












Data File: /chem1/nt12.i/20101109.b/rs97c.d

Date : 09-NOV-2010 19:15

Client ID: DGS-19-4.48.2-10100

Instrument: nt12.i

Sample Info: RS97C,3

Volume Injected (uL): 1.0

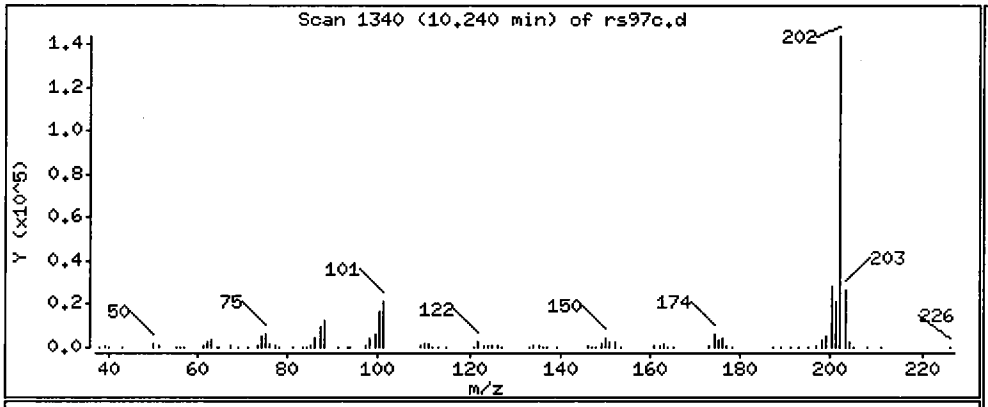
Operator: VTS

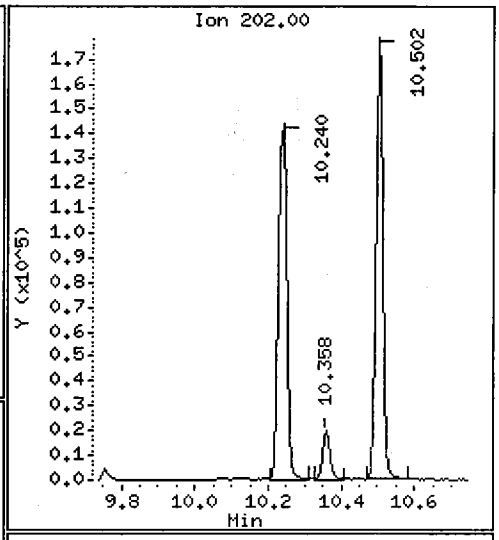
Column phase: ZB-5msi

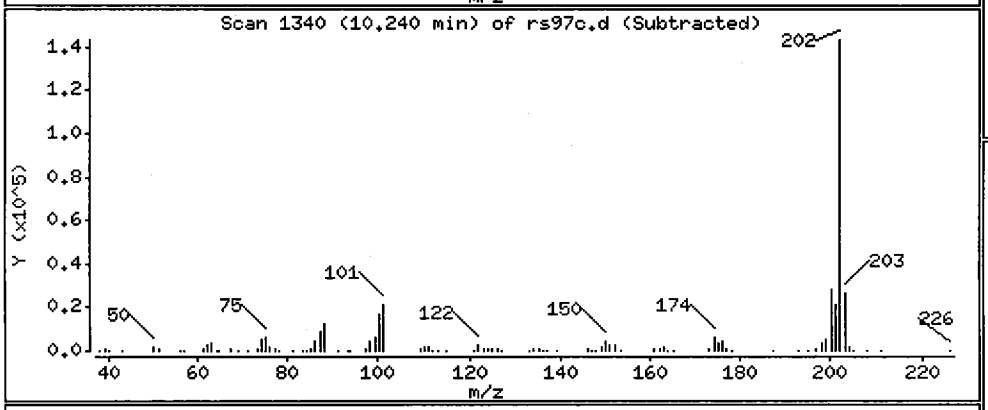
Column diameter: 0.32

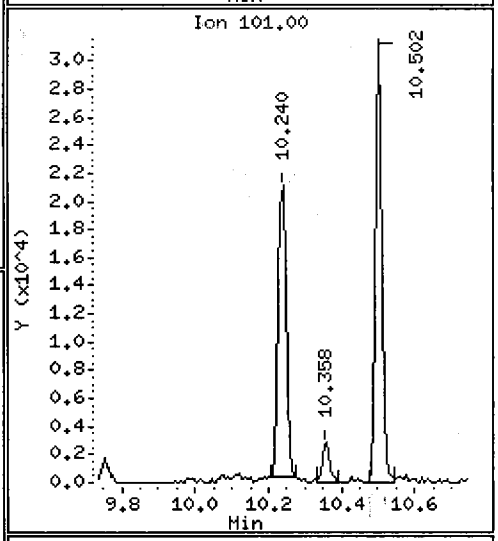
64 Fluoranthene

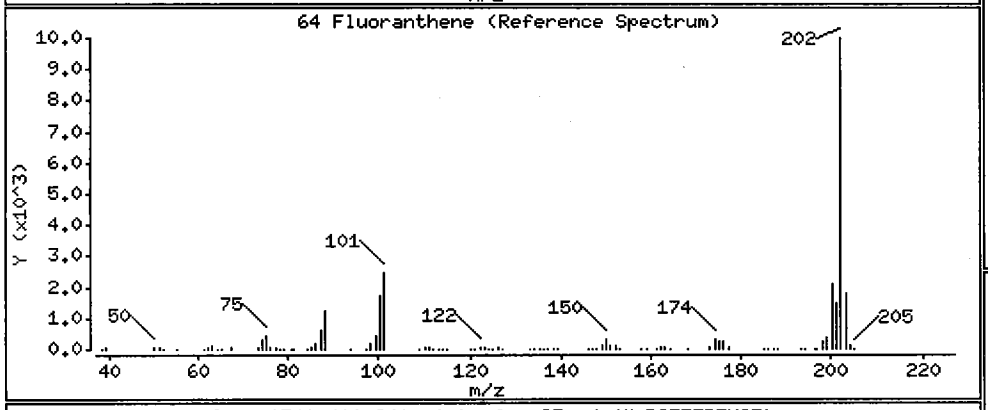
Concentration: 122400 ug/kg

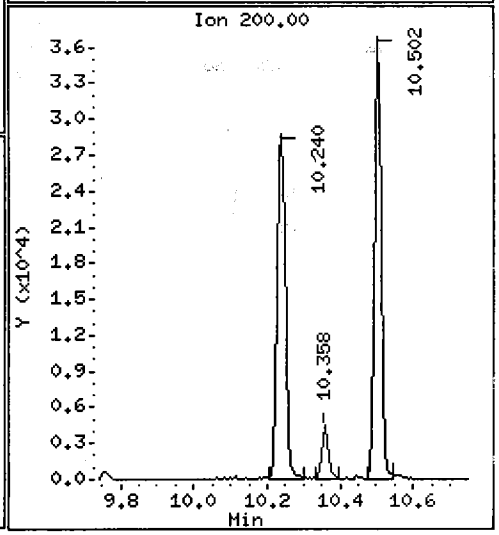


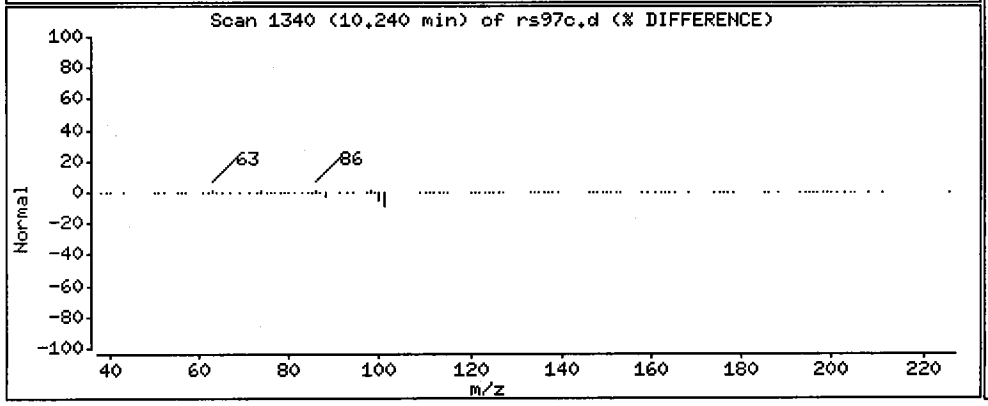












Data File: /chem1/nt12.i/20101109.b/rs97c.d

Date : 09-NOV-2010 19:15

Client ID: DGS-19-4.48.2-10100

Instrument: nt12.i

Sample Info: RS97C,3

Volume Injected (uL): 1.0

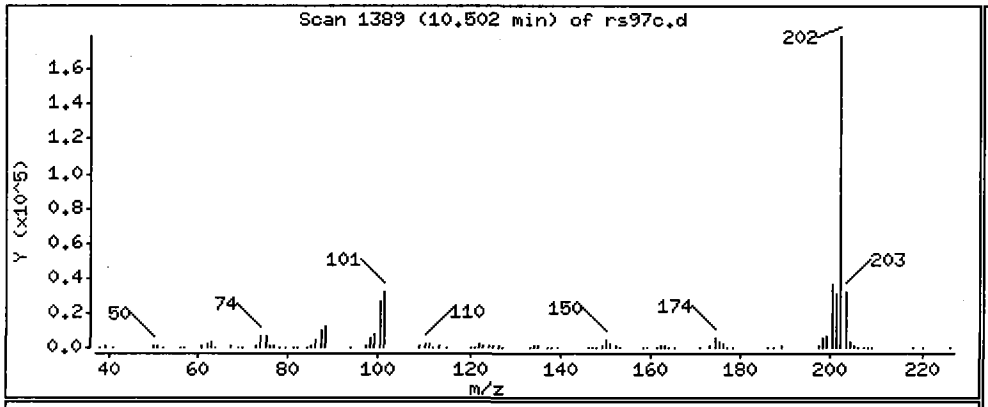
Operator: VTS

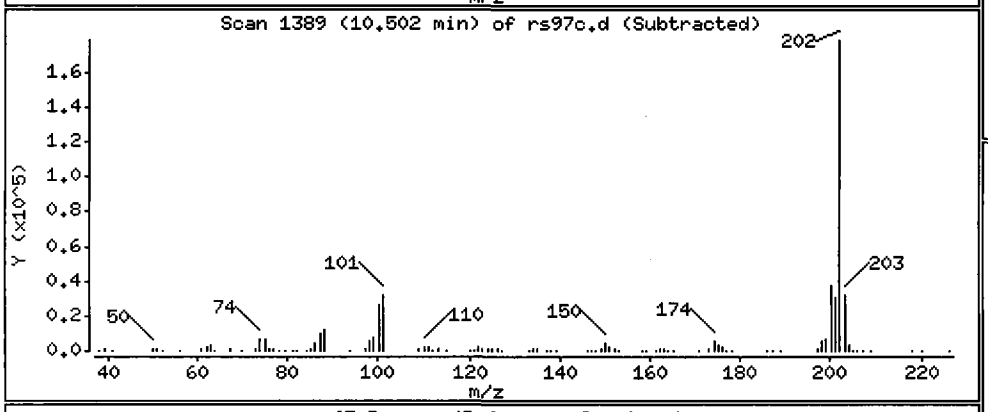
Column phase: ZB-5msi

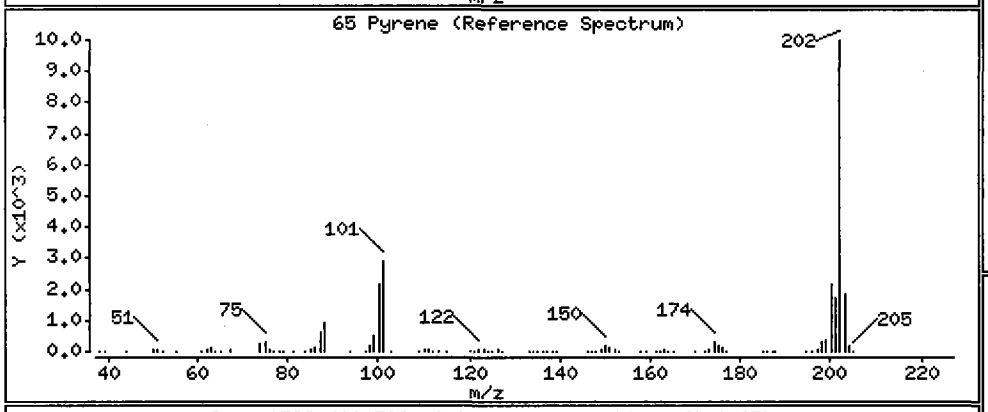
Column diameter: 0.32

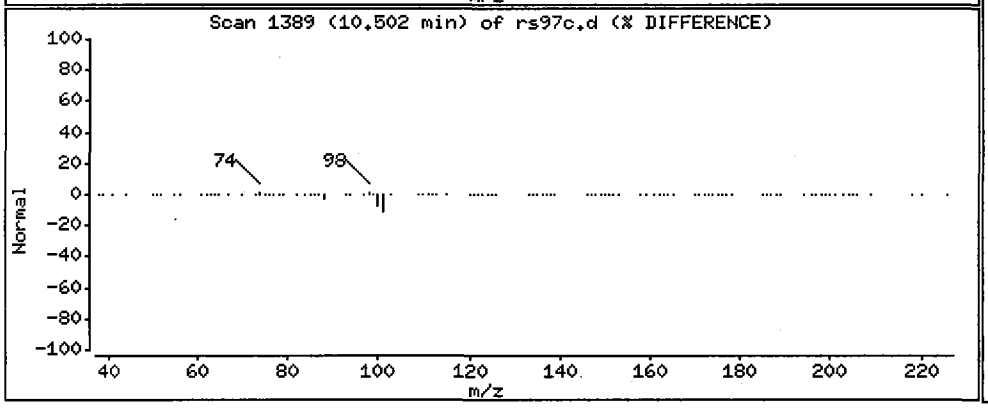
65 Pyrene

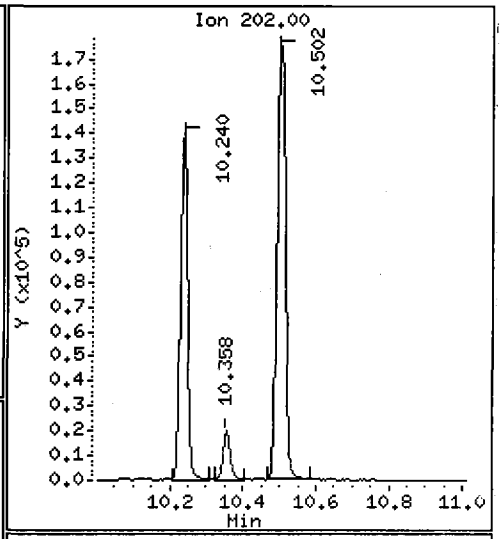
Concentration: 149100 ug/kg

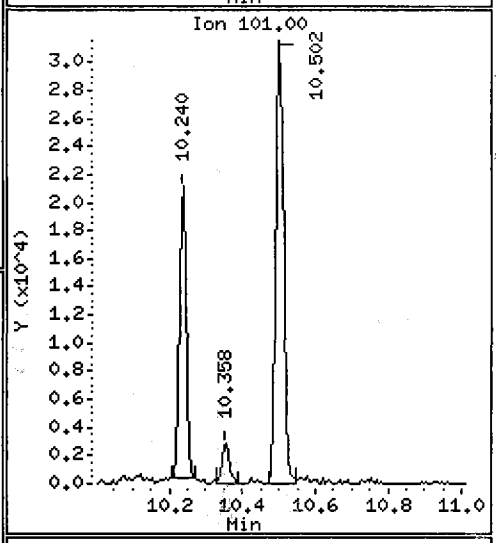


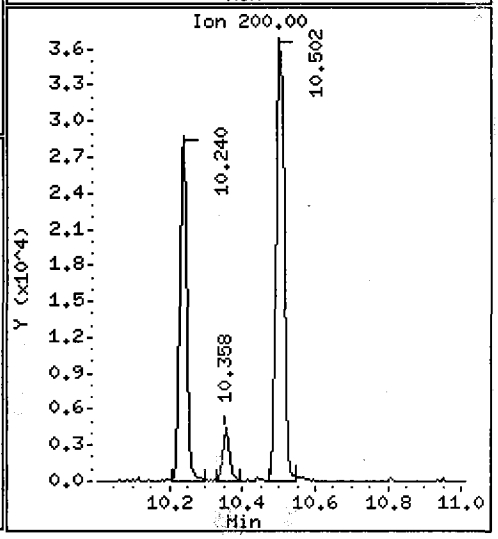












Data File: /chem1/nt12.i/20101109.b/rs97c.d

Date : 09-NOV-2010 19:15

Client ID: DGS-19-4.48.2-10100

Instrument: nt12.i

Sample Info: RS97C,3

Volume Injected (uL): 1.0

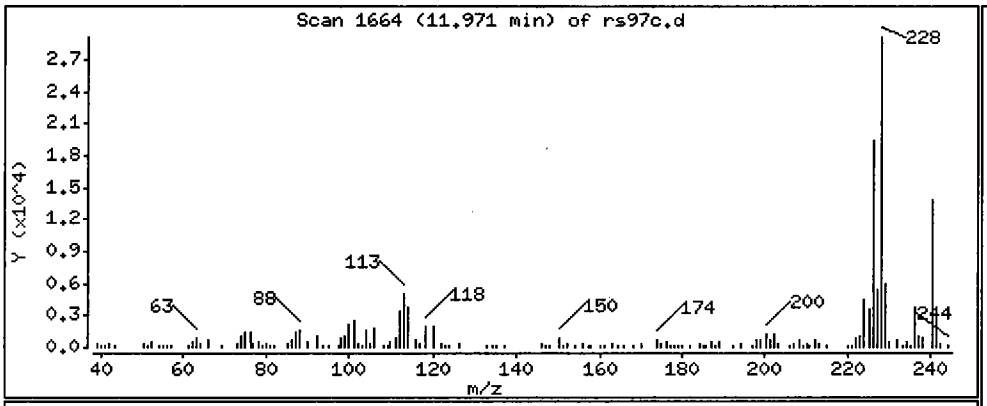
Operator: VTS

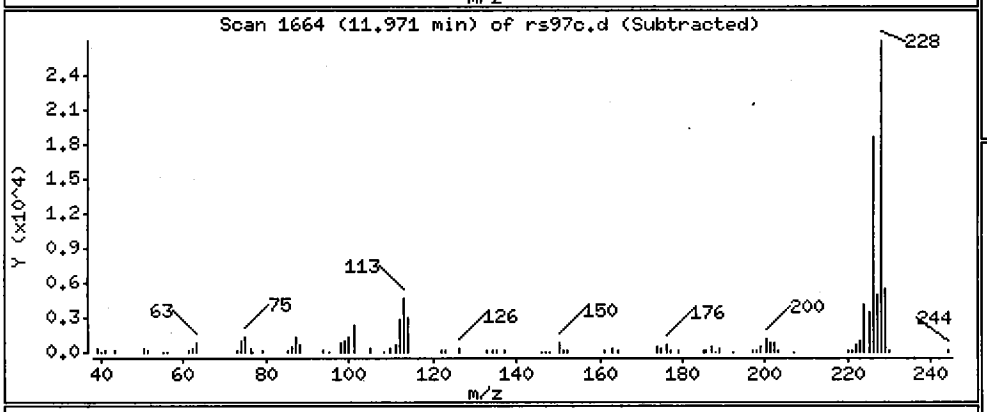
Column phase: ZB-5msi

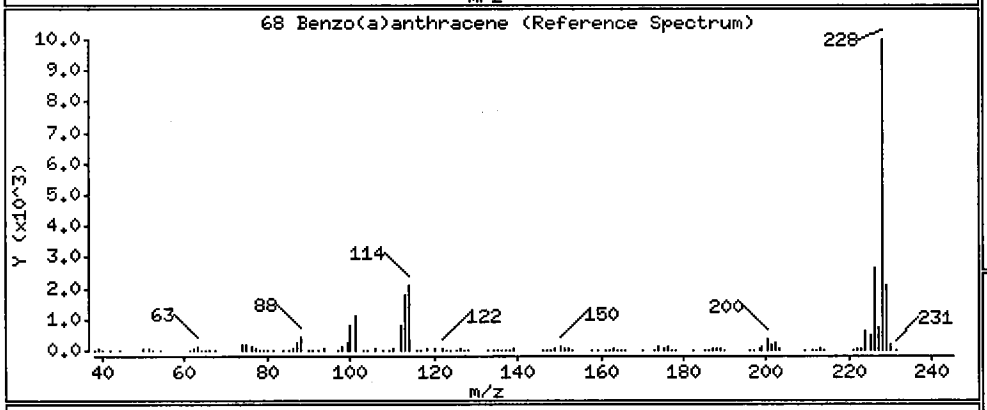
Column diameter: 0.32

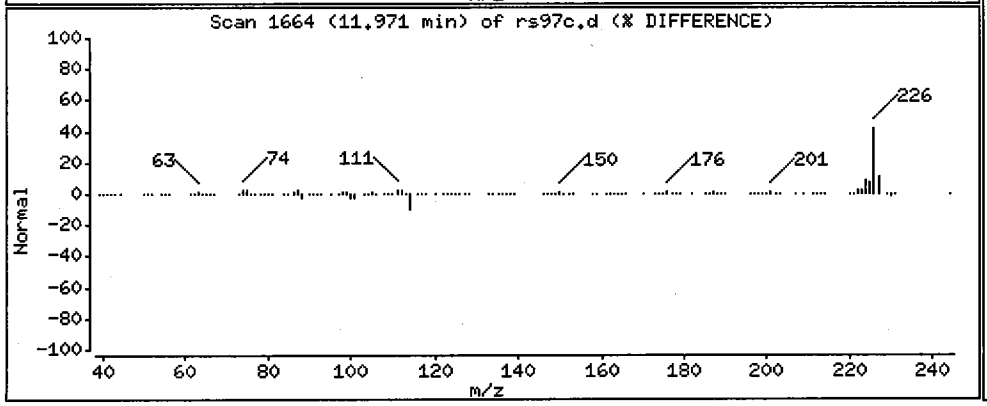
68 Benzo(a)anthracene

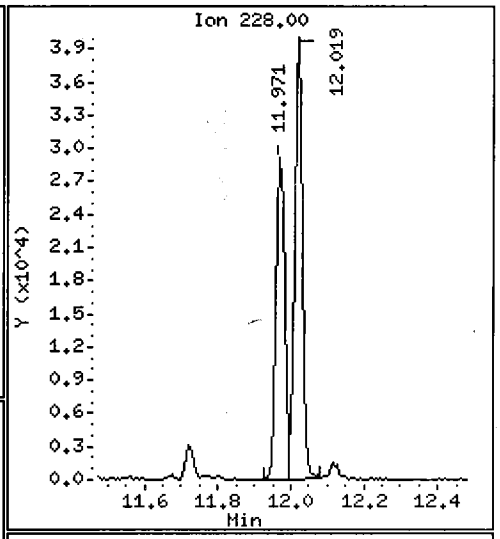
Concentration: 33090 ug/kg

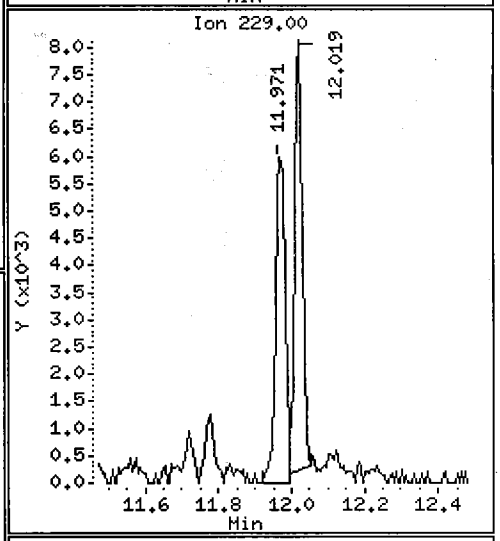


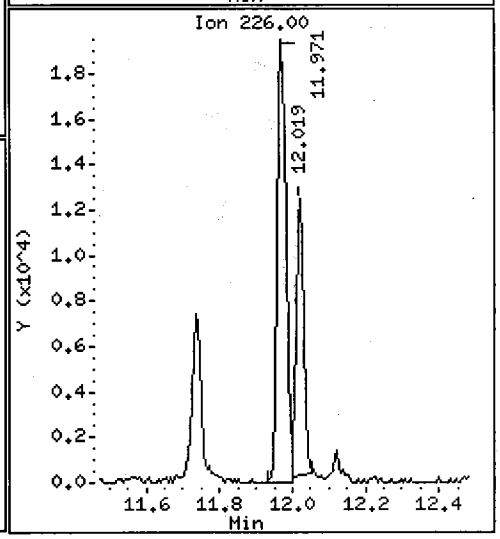












Data File: /chem1/nt12.i/20101109.b/rs97c.d

Date : 09-NOV-2010 19:15

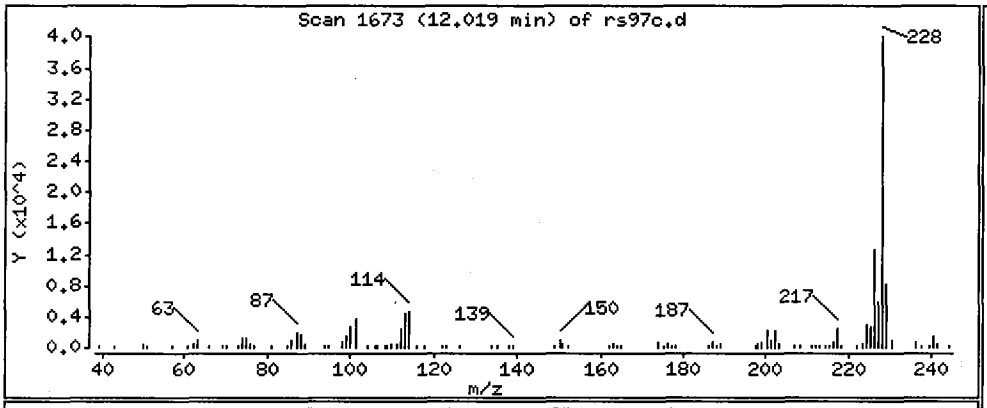
Client ID: DGS-19-4.48.2-10100 Instrument: nt12.i

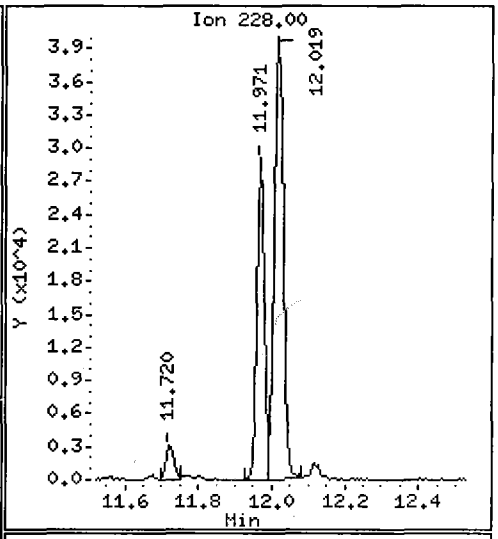
Sample Info: RS97C,3

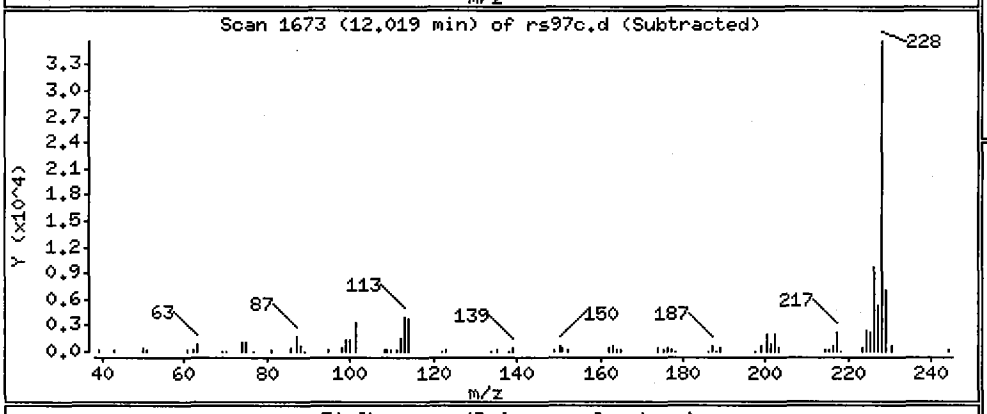
Volume Injected (uL): 1.0 Operator: VTS

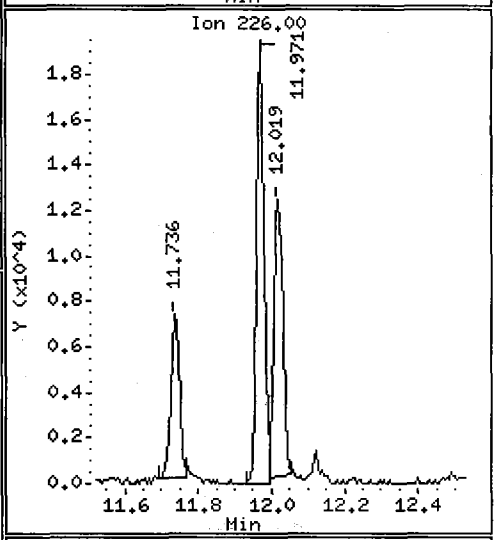
Column phase: ZB-5msi Column diameter: 0.32

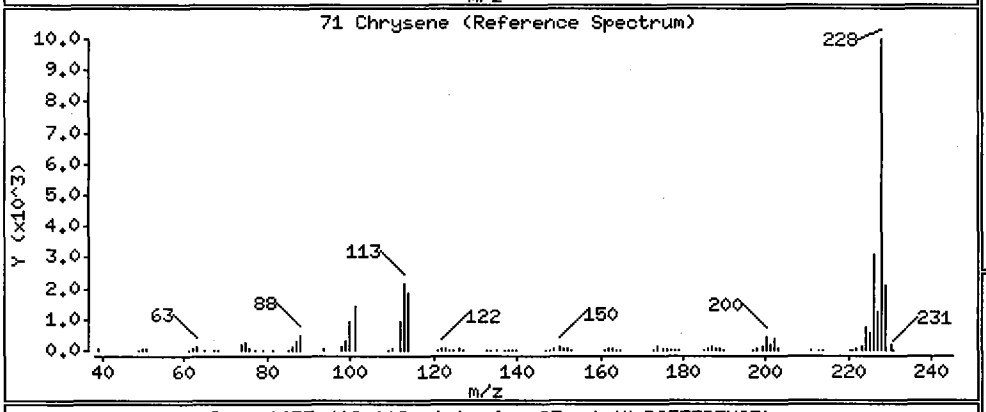
71 Chrysene Concentration: 50760 ug/kg

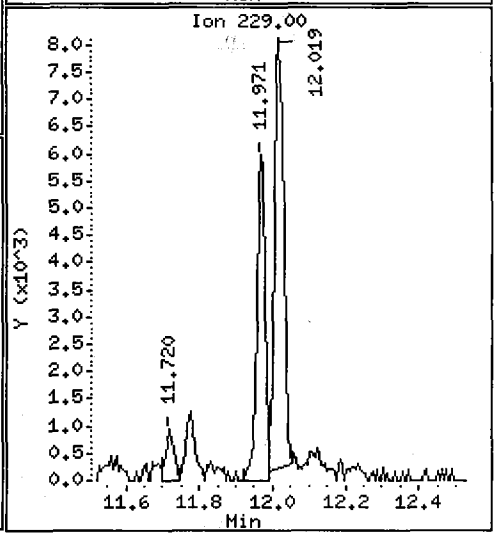


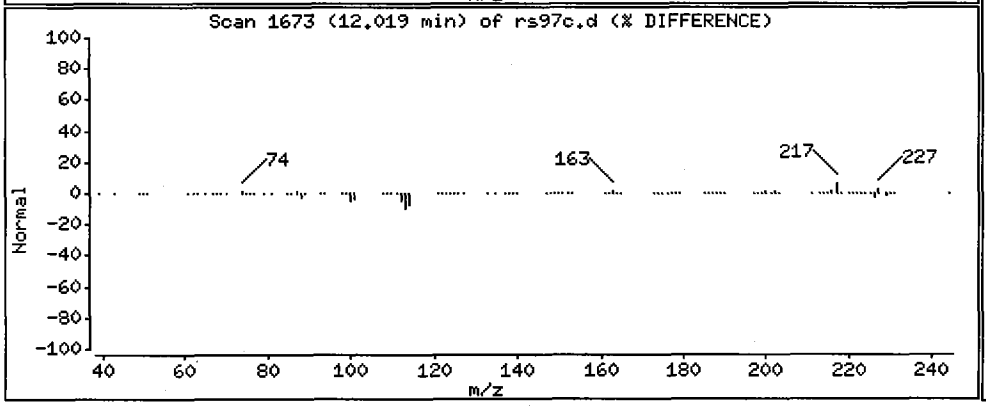












Data File: /chem1/nt12.i/20101109.b/rs97c.d

Date : 09-NOV-2010 19:15

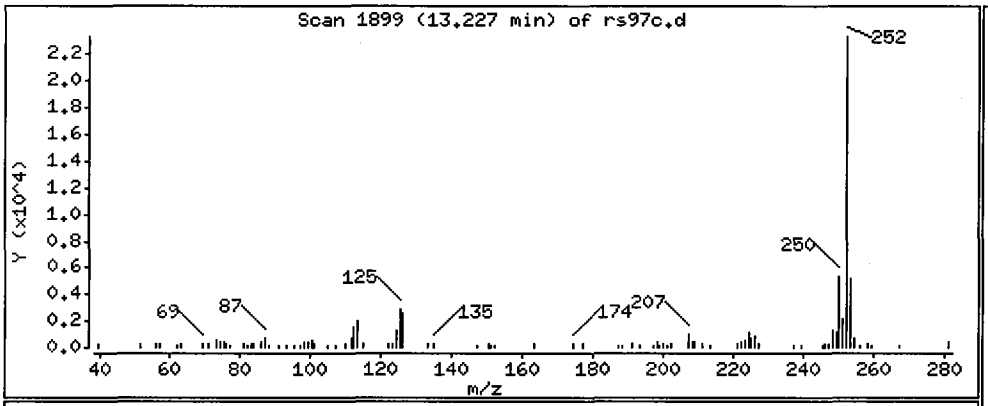
Client ID: DGS-19-4.48.2-10100 Instrument: nt12.i

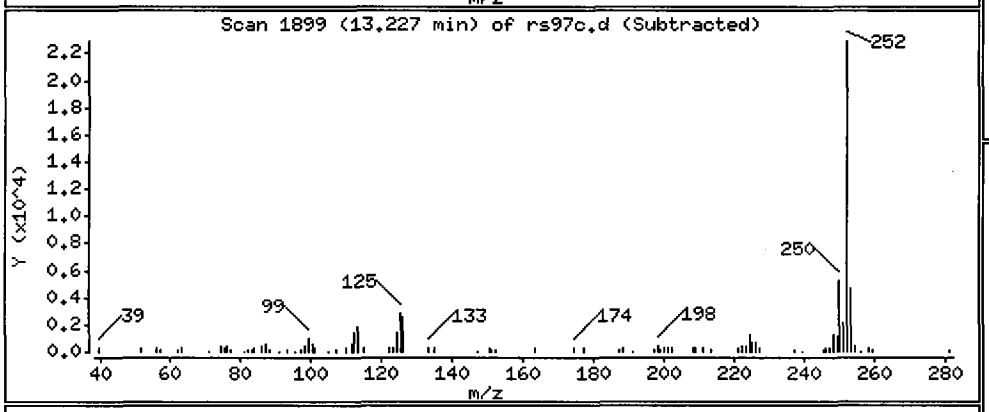
Sample Info: RS97C,3

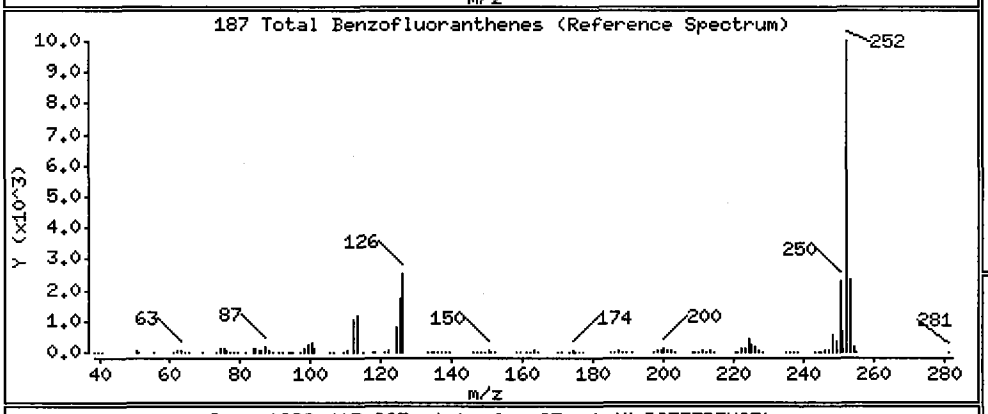
Volume Injected (uL): 1.0 Operator: VTS

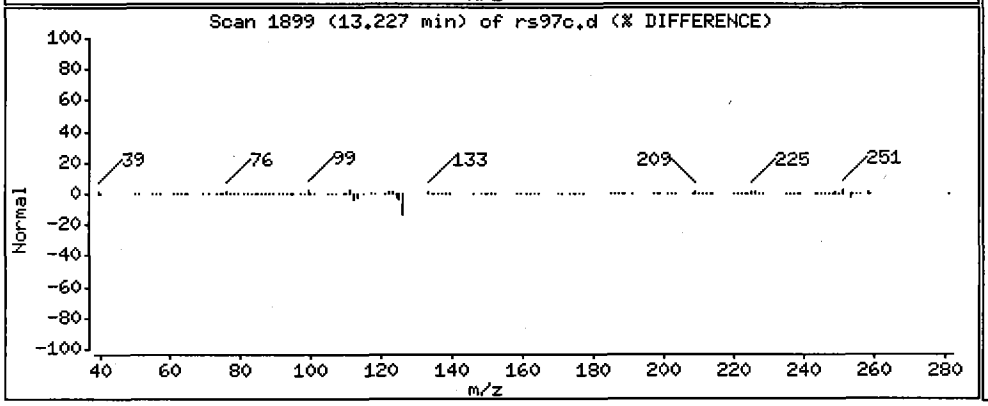
Column phase: ZB-5msi Column diameter: 0.32

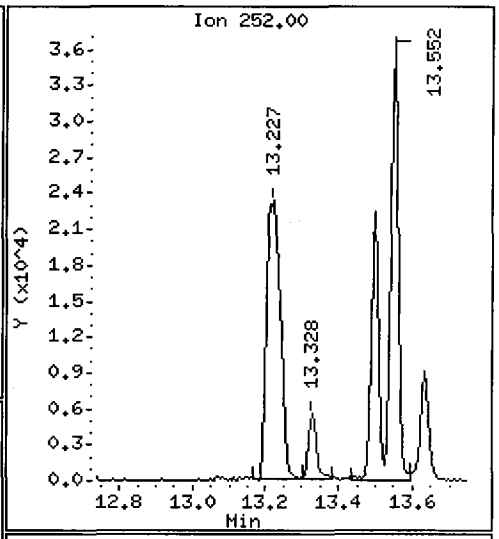
187 Total Benzofluoranthenes Concentration: 48750 ug/kg

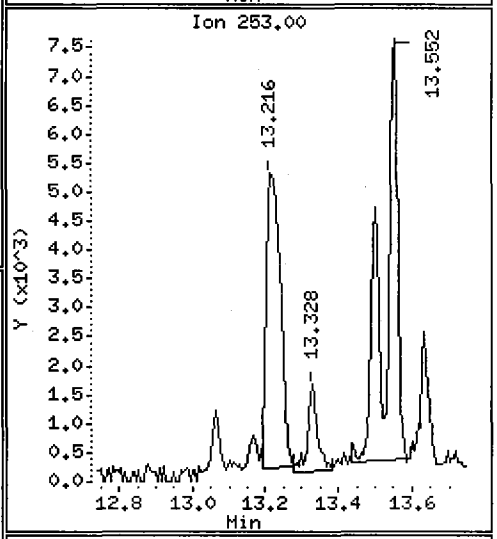


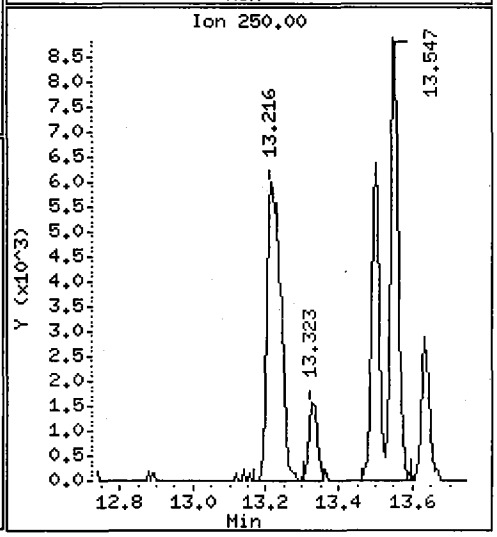












Data File: /chem1/nt12.i/20101109.b/rs97c.d

Date : 09-NOV-2010 19:15

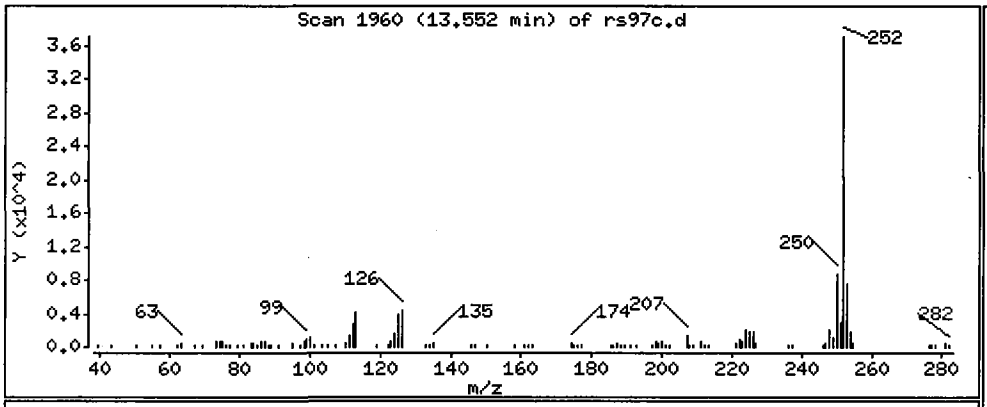
Client ID: DGS-19-4.48.2-10100 Instrument: nt12.i

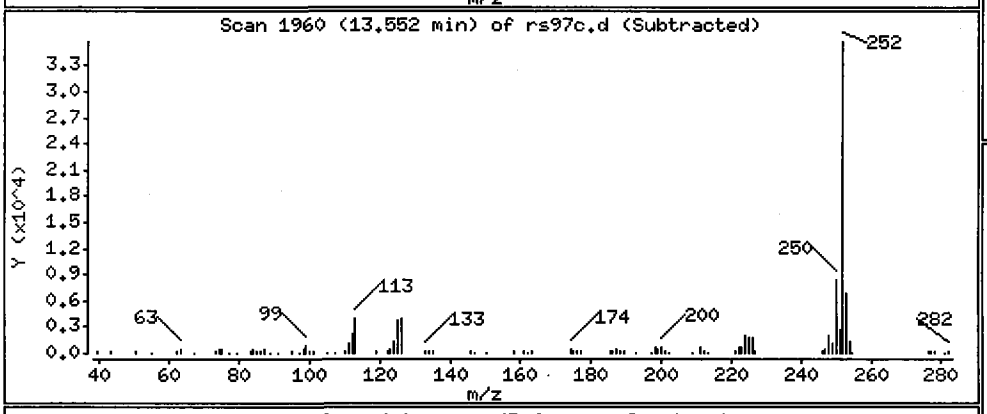
Sample Info: RS97C,3

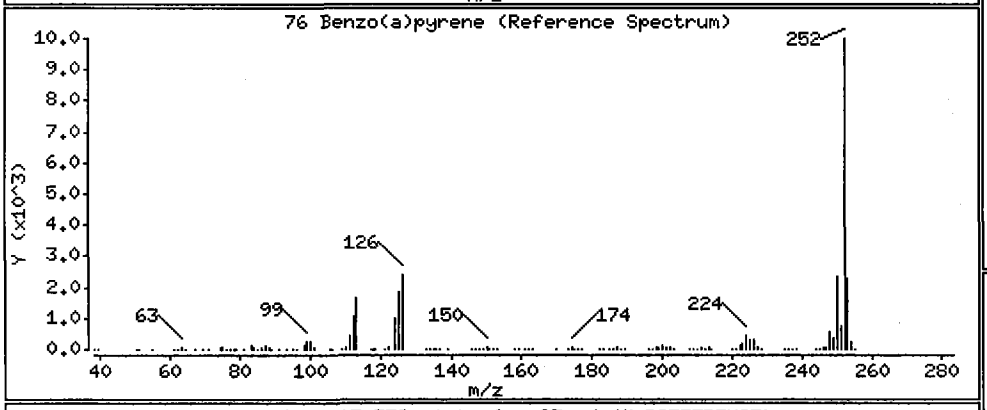
Volume Injected (uL): 1.0 Operator: VTS

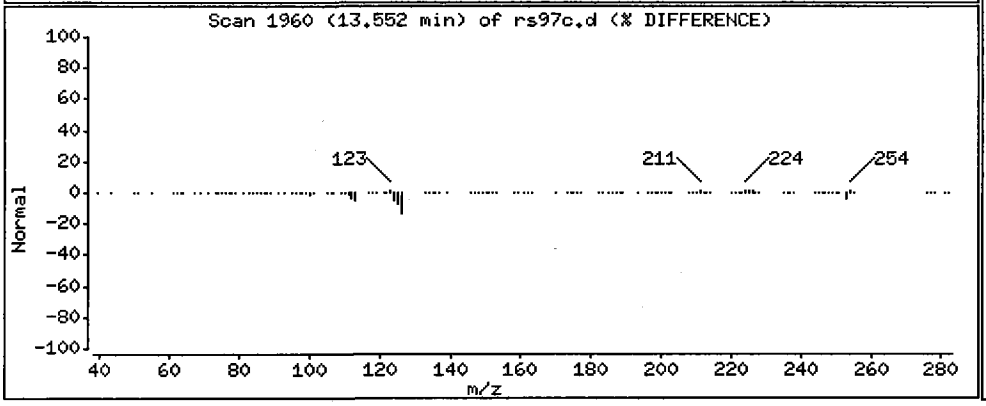
Column phase: ZB-5msi Column diameter: 0.32

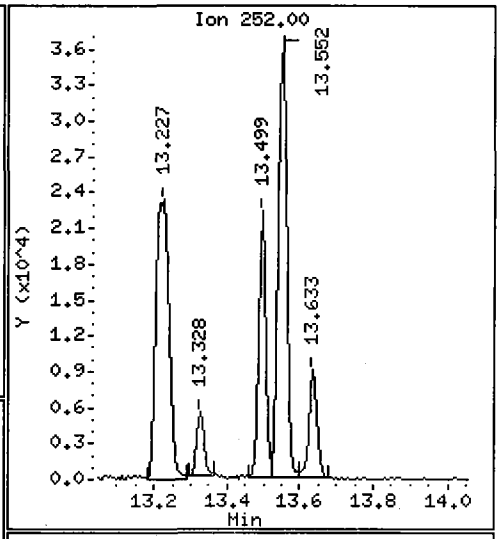
76 Benzo(a)pyrene Concentration: 46150 ug/kg

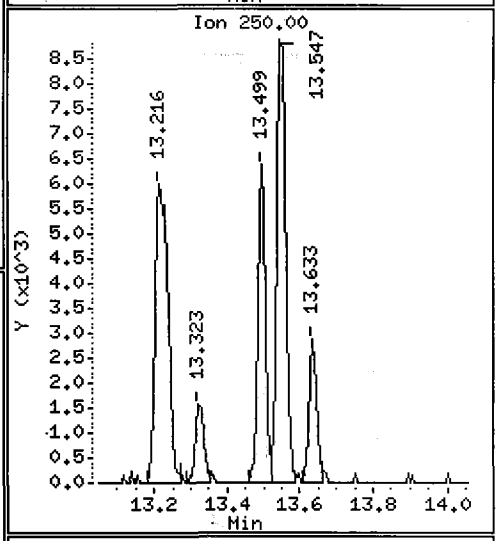


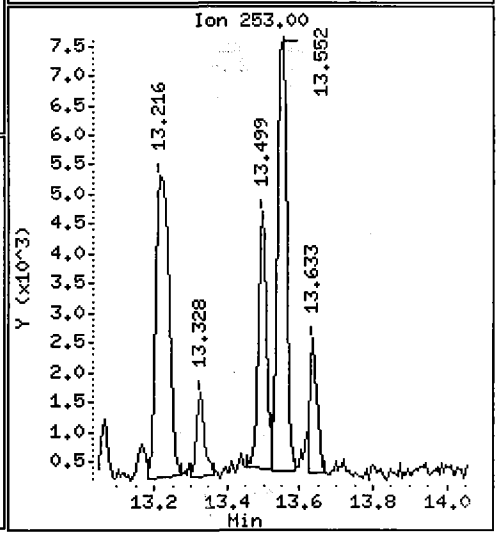












Data File: /chem1/nt12.i/20101109.b/rs97c.d

Date : 09-NOV-2010 19:15

Client ID: DGS-19-4.48.2-10100

Instrument: nt12.i

Sample Info: RS97C,3

Volume Injected (uL): 1.0

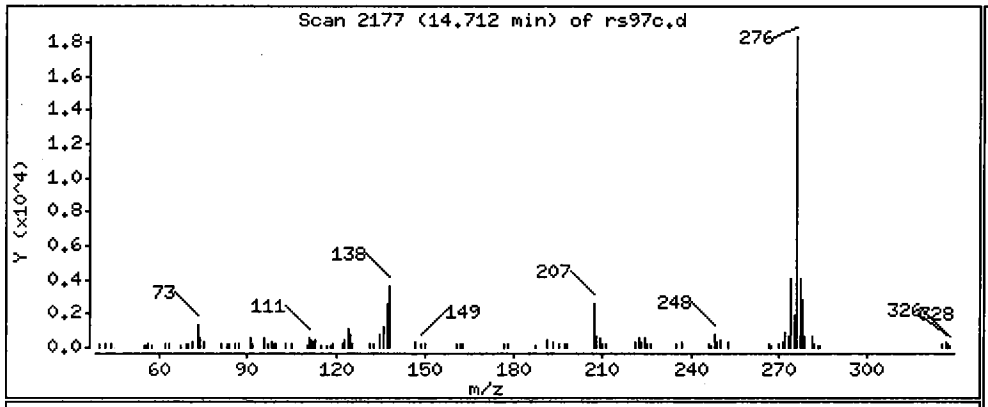
Operator: VTS

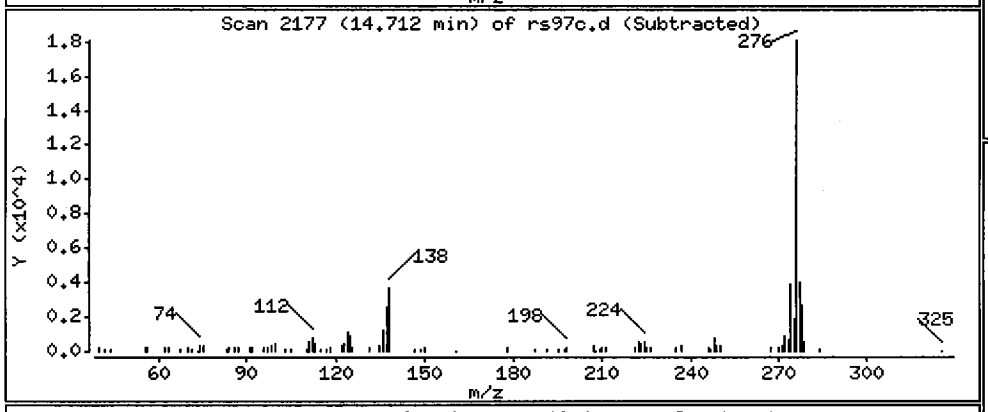
Column phase: ZB-5msi

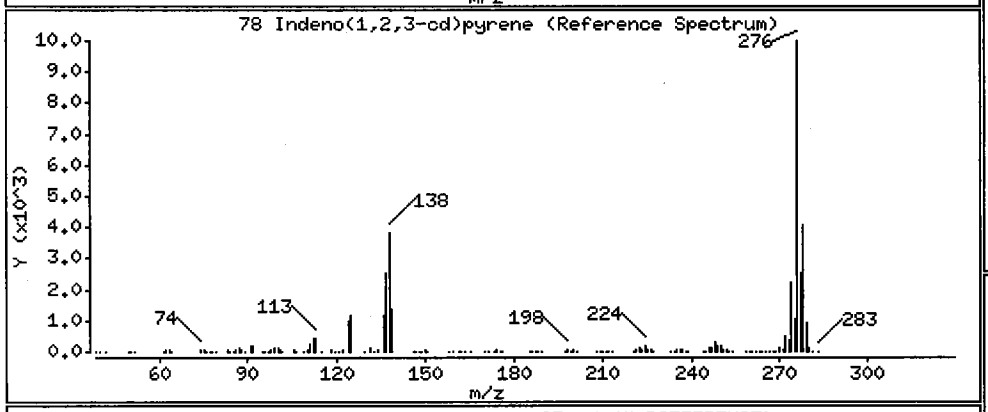
Column diameter: 0.32

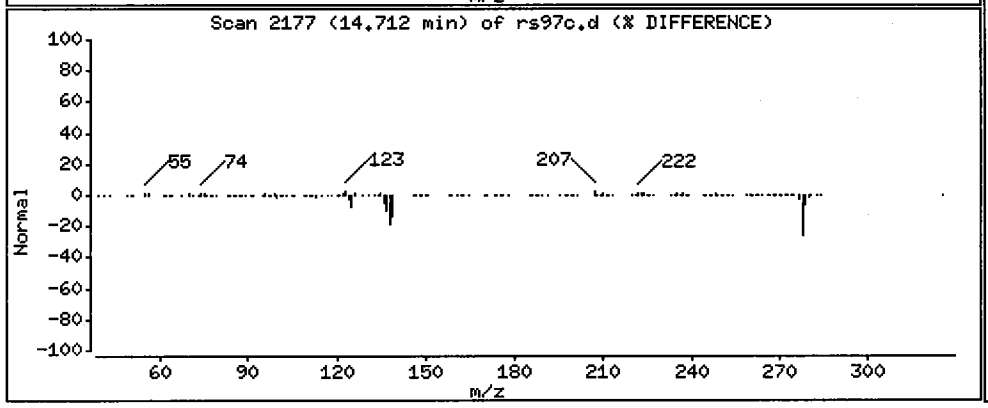
78 Indeno(1,2,3-cd)pyrene

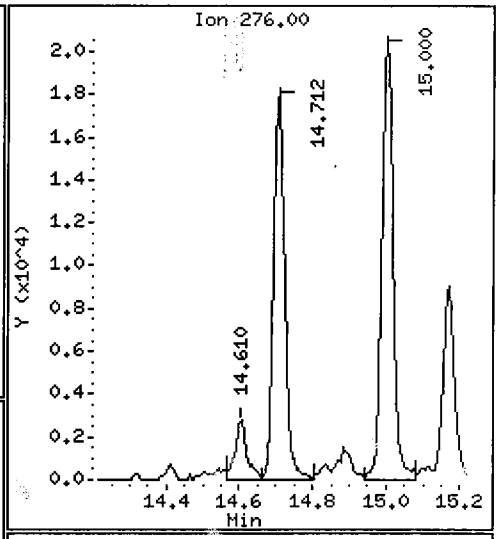
Concentration: 21880 ug/kg

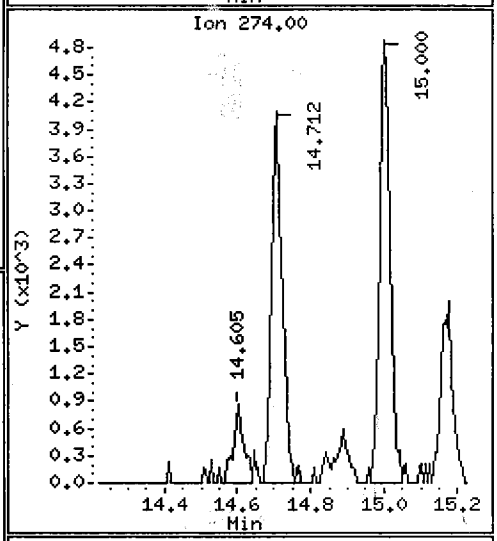


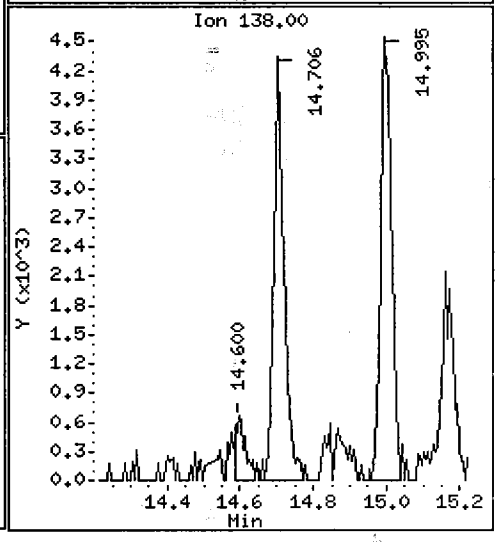












Data File: /chem1/nt12.i/20101109.b/rs97c.d

Date : 09-NOV-2010 19:15

Client ID: DGS-19-4.48.2-10100

Instrument: nt12.i

Sample Info: RS97C,3

Volume Injected (uL): 1.0

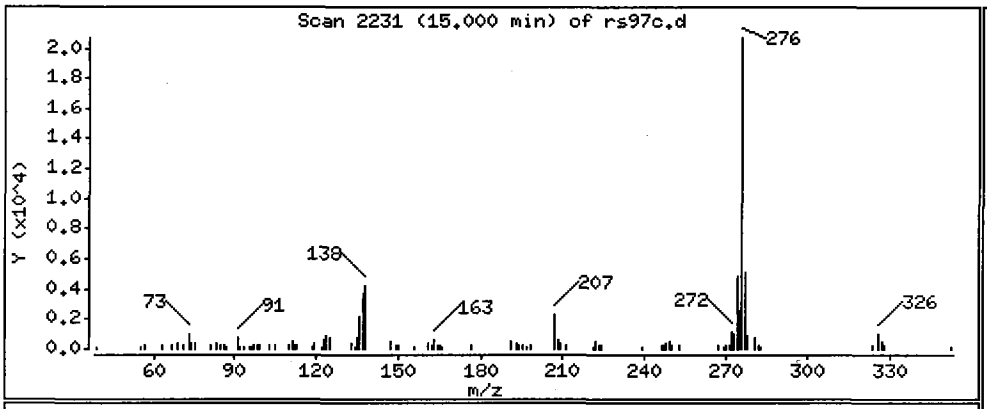
Operator: VTS

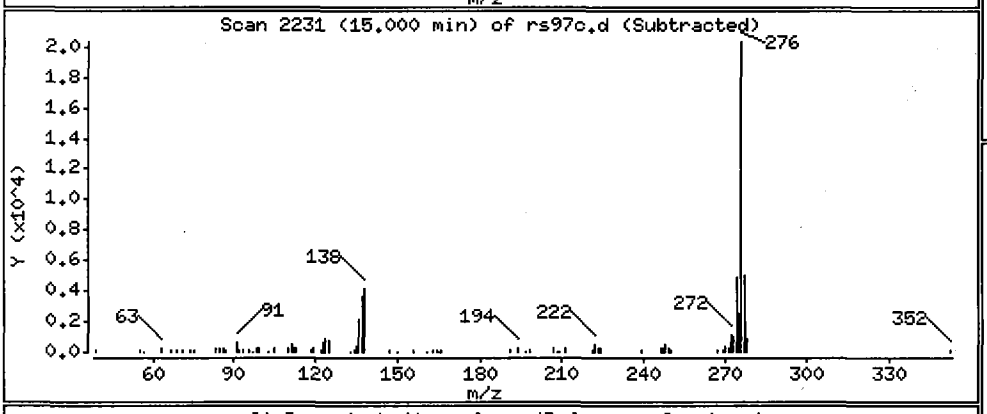
Column phase: ZB-5msi

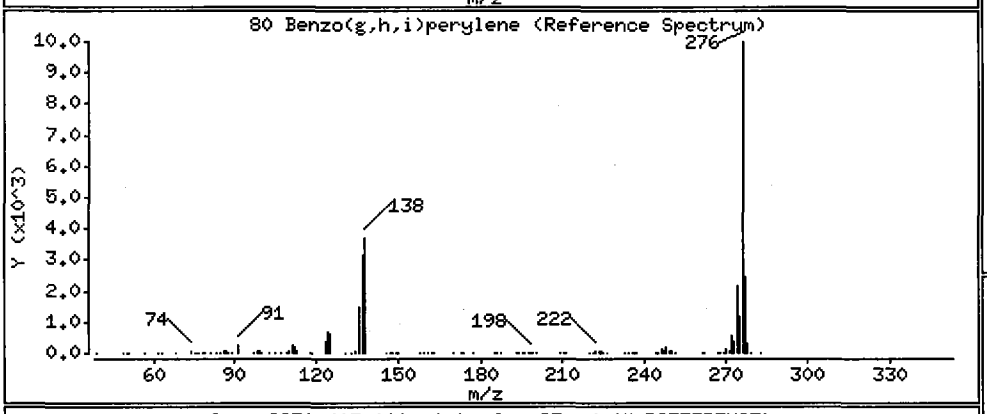
Column diameter: 0.32

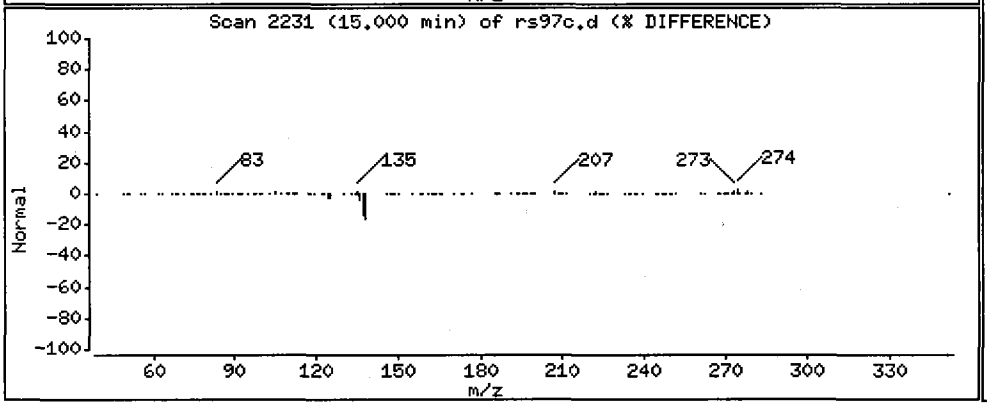
80 Benzo(g,h,i)perylene

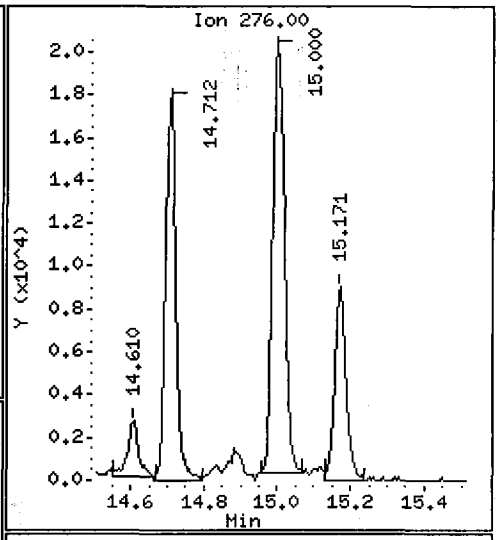
Concentration: 30850 ug/kg

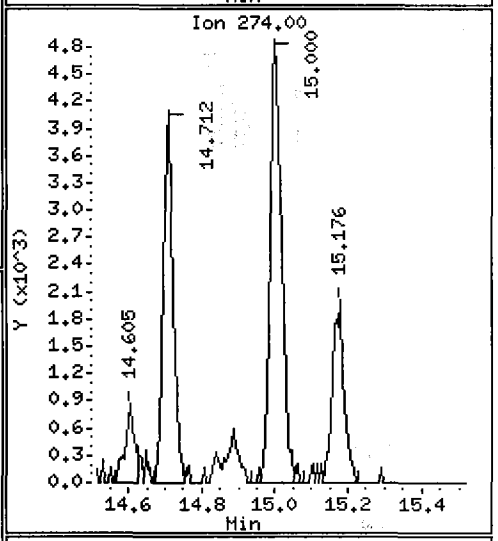


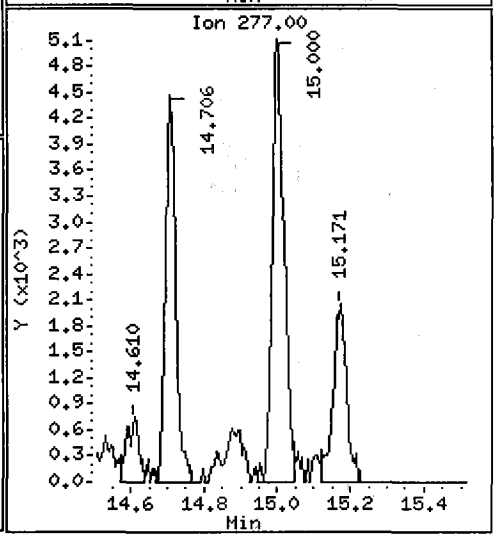












Data File: /chem1/nt12.i/20101109.b/rs97c.d

Date : 09-NOV-2010 19:15

Client ID: DGS-19-4.48.2-10100

Instrument: nt12.i

Sample Info: RS97C,3

Volume Injected (uL): 1.0

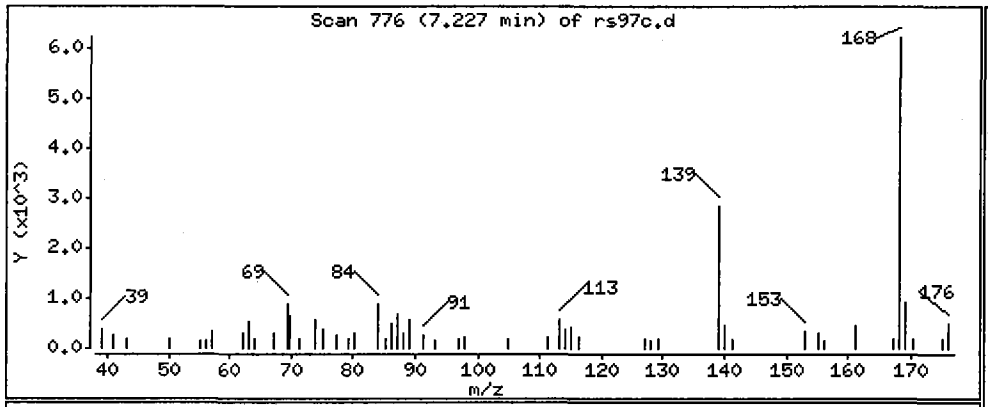
Operator: VTS

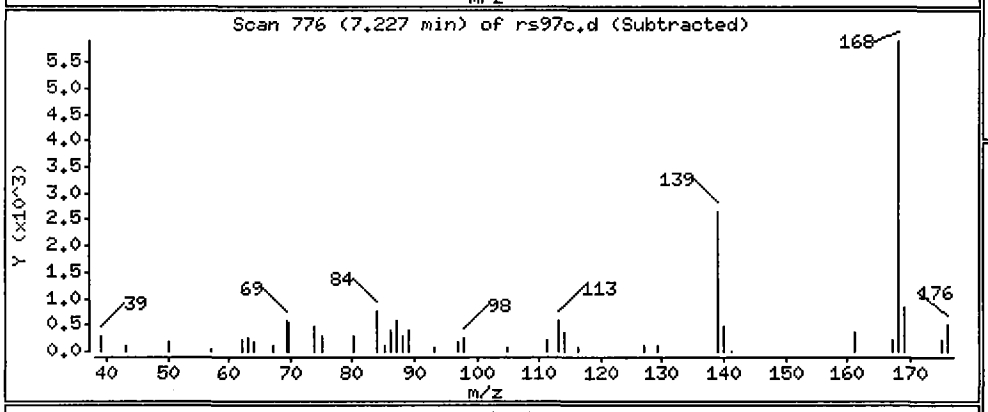
Column phase: ZB-5msi

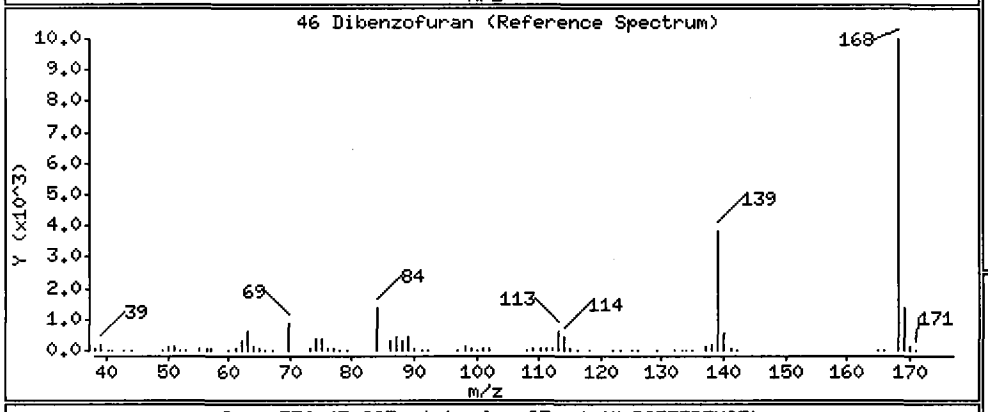
Column diameter: 0.32

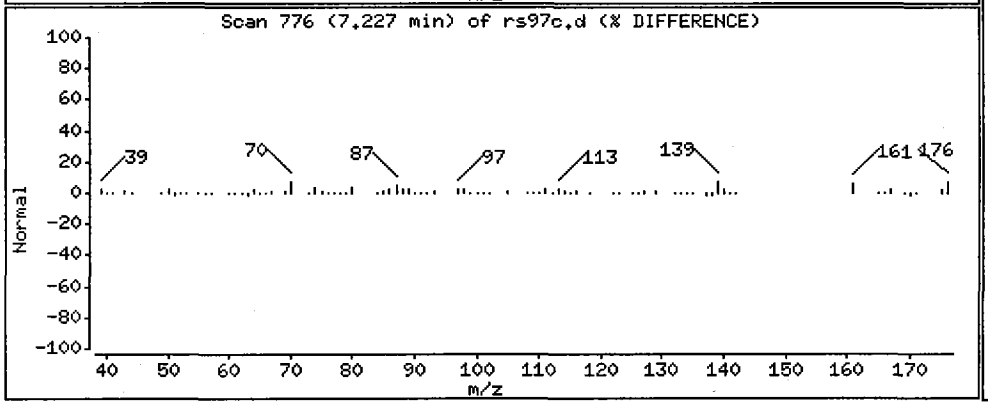
46 Dibenzofuran

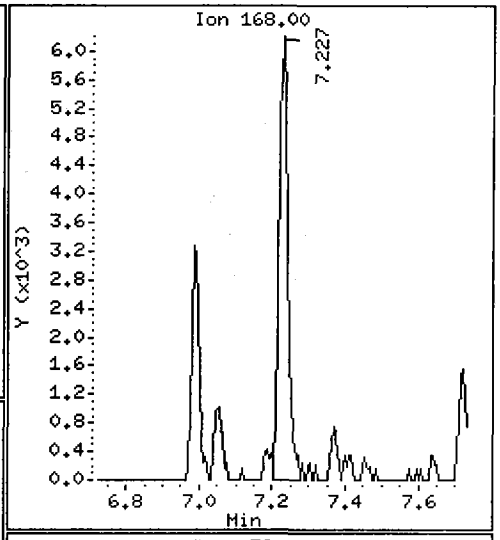
Concentration: 6743 ug/kg

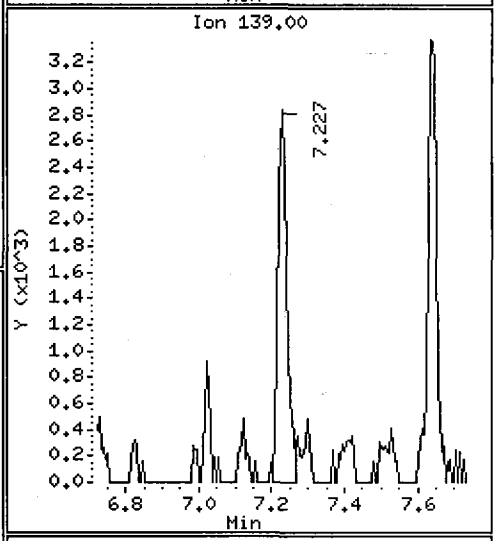


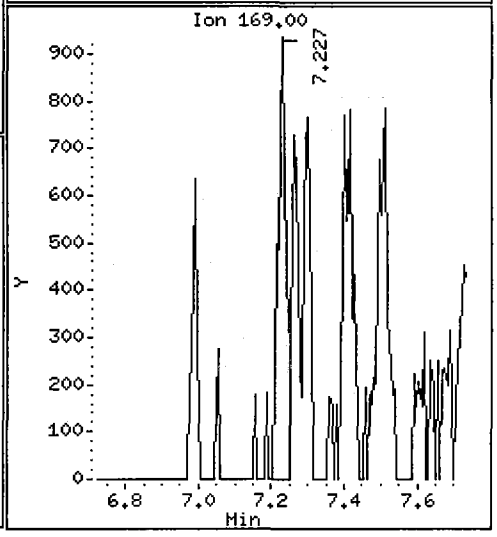












Data File: /chem1/nt12.i/20101109.b/rs97c.d

Date : 09-NOV-2010 19:15

Client ID: DGS-19-4.48.2-10100

Instrument: nt12.i

Sample Info: RS97C,3

Volume Injected (uL): 1.0

Operator: VTS

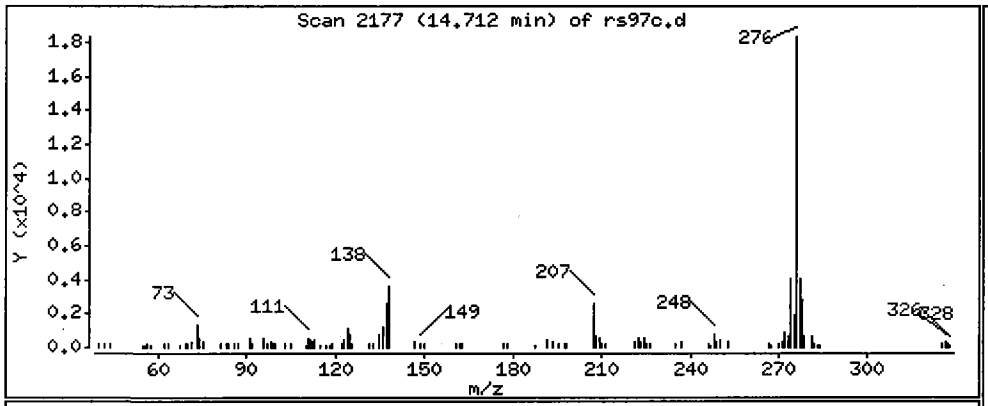
Column phase: ZB-5msi

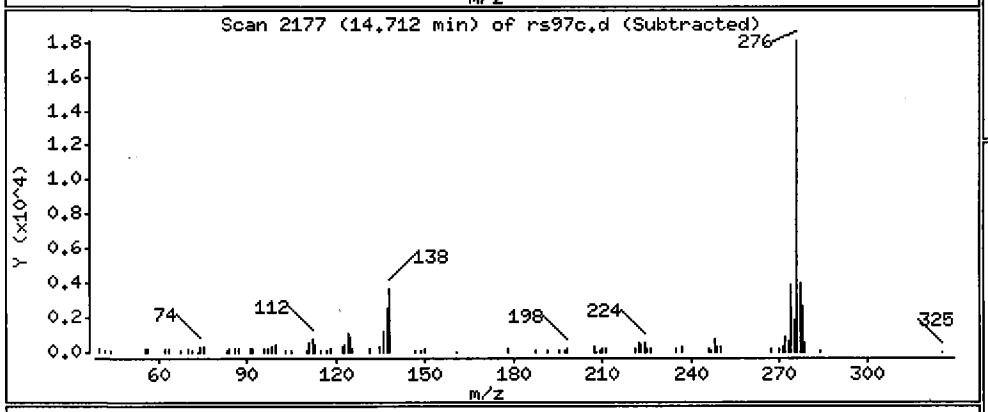
Column diameter: 0.32

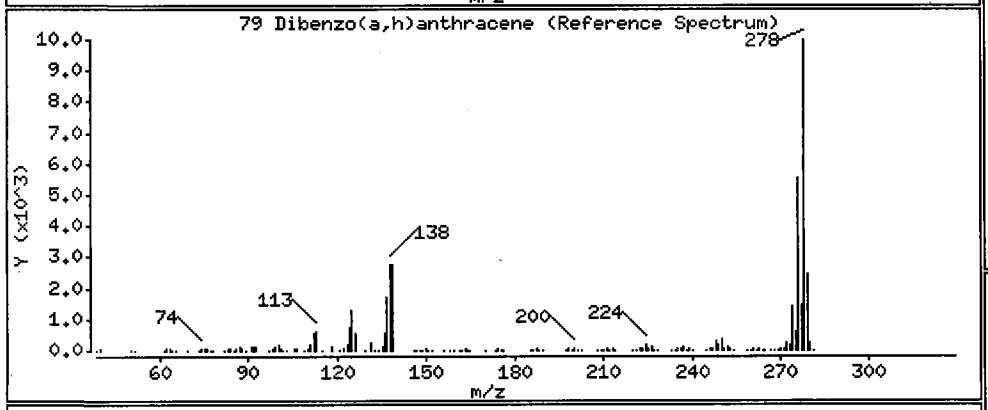
CAL

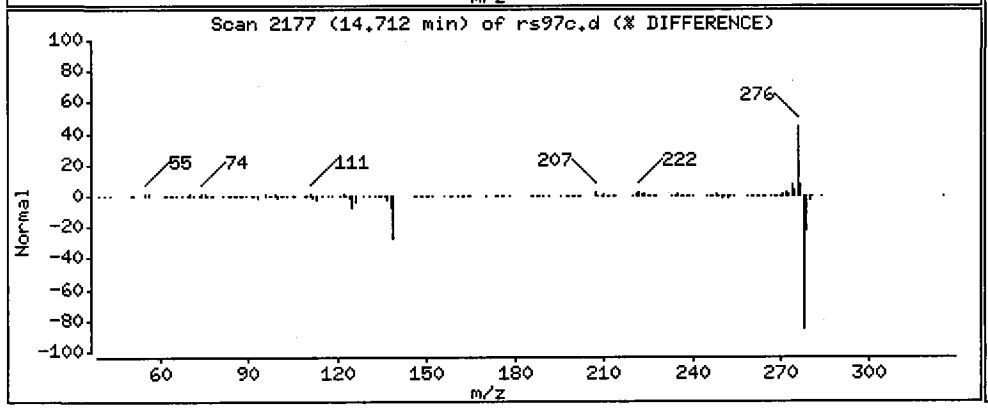
79 Dibenzo(a,h)anthracene

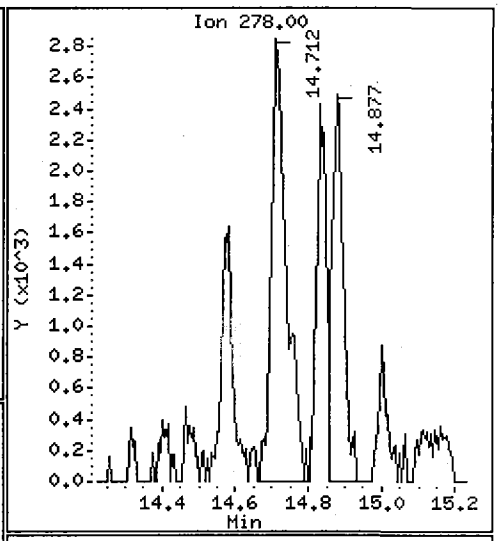
Concentration: 5816 ug/kg

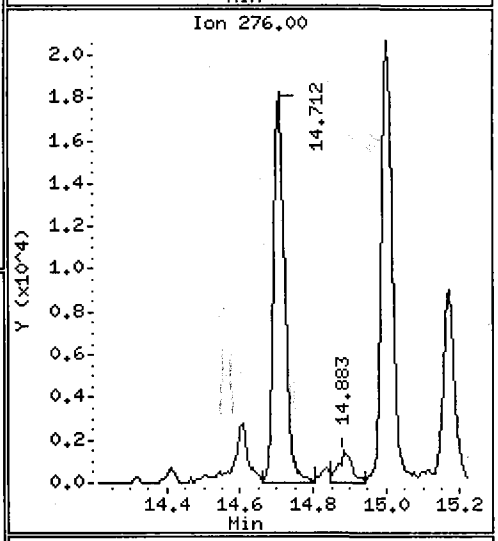


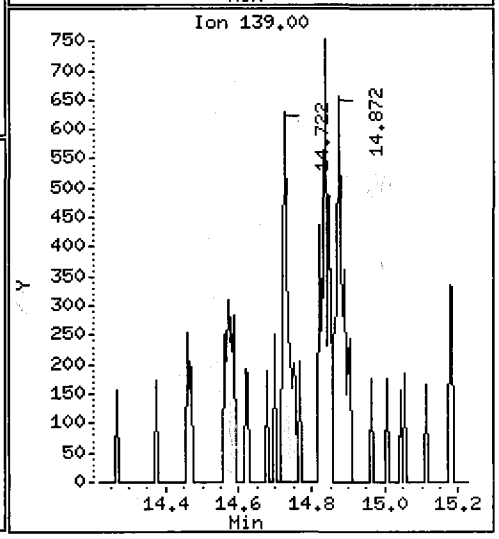












Analytical Resources, Inc.

Semivolatile Report SW846 Method 8270D

Data file : /chem1/nt12.i/20101109.b/rs97e.d
Lab Smp Id: RS97E
Client Smp ID: DGS-08-4.44.6-10100
Inj Date : 09-NOV-2010 20:02
Operator : VTS
Inst ID: nt12.i
Smp Info : RS97E,3
Misc Info : 10-27421
Comment : 1ul Injection
Method : /chem1/nt12.i/20101109.b/PNADMD.m
Meth Date : 09-Nov-2010 11:48 van
Quant Type: ISTD
Cal Date : 30-OCT-2010 13:19
Cal File: ic1030f.d
Als bottle: 24
Dil Factor: 3.00000
Integrator: HP RTE
Compound Sublist: pnas.sub
Target Version: 3.50
Processing Host: cserv3

Concentration Formula: Amt * DF * Vt/(Ws * (100 - M)/100) * CpndVariable

Name	Value	Description
DF	3.00000	Dilution Factor
Vt	10000.00000	Volume of final extract (uL)
Ws	5.18000	Weight of sample extracted (g)
M	23.90000	% Moisture

Cpnd Variable Local Compound Variable

Compounds	QUANT SIG MASS	RT	EXP RT	REL RT	RESPONSE	CONCENTRATIONS ON-COLUMN (ug/mL)	FINAL (ug/kg)
* 27 Naphthalene-d8	136	4.898	4.888	(1.000)	206003	20.0000	
28 Naphthalene	128	4.935	4.909	(1.008)	3822948	326.063	2481000
32 2-Methylnaphthalene	141	5.737	5.726	(1.171)	698754	111.657	849800
105 1-methylnaphthalene	141	5.860	5.854	(1.196)	329564	51.0744	388700
$ 36 2-Fluorobiphenyl	172	6.207	6.202	(0.888)	5179	0.63025	4796
40 Acenaphthylene	152	6.811	6.805	(0.974)	16625	1.55442	11830 (M)
* 42 Acenaphthene-d10	164	6.992	6.992	(1.000)	106812	20.0000	
44 Acenaphthene	153	7.035	7.030	(1.006)	537665	81.8499	622900
46 Dibenzofuran	168	7.227	7.227	(1.034)	46850	4.65101	35400
49 Fluorene	166	7.644	7.644	(1.093)	248261	33.0084	251200
* 59 Phenanthrene-d10	188	8.771	8.766	(1.000)	181935	20.0000	
60 Phenanthrene	178	8.809	8.793	(1.004)	1687428	174.830	1331000
61 Anthracene	178	8.851	8.851	(1.009)	234448	23.5027	178900
62 Carbazole	167	9.065	9.065	(1.033)	38754	4.81582	36650

Compounds	QUANT SIG MASS	RT	EXP RT	REL RT	RESPONSE	CONCENTRATIONS ON-COLUMN (ug/mL)	FINAL (ug/kg)
64 Fluoranthene	202	10.246	10.240	(0.854)	718459	67.8773	516600
65 Pyrene	202	10.513	10.508	(0.877)	908553	86.5226	658500 E
$ 66 Terphenyl-d14	244	10.742	10.743	(0.896)	3793	0.56623	4309
68 Benzo(a)anthracene	228	11.976	11.977	(0.999)	150575	17.6944	134700
* 69 Chrysene-d12	240	11.993	11.993	(1.000)	151531	20.0000	
71 Chrysene	228	12.025	12.025	(1.003)	163187	20.5115	156100
187 Total Benzofluoranthenes	252	13.221	13.243	(0.971)	213711	23.9842	182500
76 Benzo(a)pyrene	252	13.558	13.553	(0.996)	197729	24.1562	183800
* 77 Perylene-d12	264	13.617	13.611	(1.000)	149600	20.0000	
99 Perylene	252	13.638	13.643	(1.002)	48583	~~5.58146~~	42480 NR
78 Indeno(1,2,3-cd)pyrene	276	14.712	14.717	(1.080)	124172	10.2177	77760
79 Dibenzo(a,h)anthracene	278	14.722	14.728	(1.081)	27751	2.77369	21110
80 Benzo(g,h,i)perylene	276	15.011	15.011	(1.102)	156809	15.7068	119500

QC Flag Legend

M - Compound response manually integrated.

VB
11-10-10

Analytical Resources, Inc.

INTERNAL STANDARD COMPOUNDS
AREA AND RT SUMMARY

Instrument ID: nt12.i
Lab File ID: rs97e.d
Lab Smp Id: RS97E
Analysis Type: SV
Quant Type: ISTD
Operator: VTS
Method File: /chem1/nt12.i/20101109.b/PNADMD.m
Misc Info: 10-27421

Calibration Date: 09-NOV-2010
Calibration Time: 11:04
Client Smp ID: DGS-08-4.44.6-10
Level: LOW
Sample Type: Sediment

Test Mode:
Use Initial Calibration Level 4.

COMPOUND	STANDARD	AREA LIMIT LOWER	AREA LIMIT UPPER	SAMPLE	%DIFF
27 Naphthalene-d8	237664	118832	475328	206003	-13.32
42 Acenaphthene-d10	143363	71682	286726	106812	-25.50
59 Phenanthrene-d10	245437	122718	490874	181935	-25.87
69 Chrysene-d12	199260	99630	398520	151531	-23.95
77 Perylene-d12	197636	98818	395272	149600	-24.31

COMPOUND	STANDARD	RT LIMIT LOWER	RT LIMIT UPPER	SAMPLE	%DIFF
27 Naphthalene-d8	4.89	4.39	5.39	4.90	0.21
42 Acenaphthene-d10	6.99	6.49	7.49	6.99	0.00
59 Phenanthrene-d10	8.77	8.27	9.27	8.77	0.06
69 Chrysene-d12	11.99	11.49	12.49	11.99	0.00
77 Perylene-d12	13.61	13.11	14.11	13.62	0.04

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.

Analytical Resources, Inc.

RECOVERY REPORT

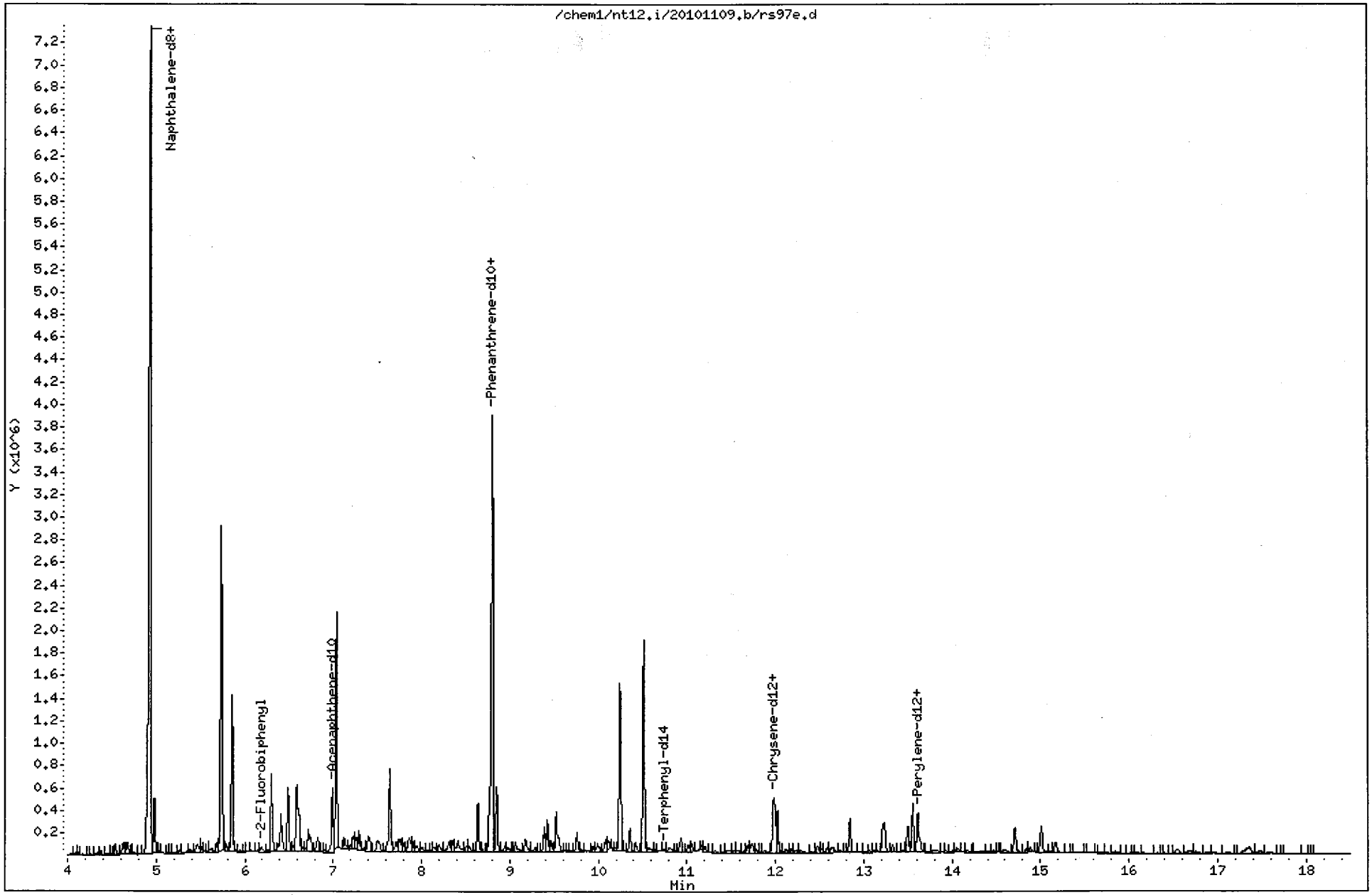
Client Name: NW Natural
Sample Matrix: SOLID
Lab Smp Id: RS97E
Level: LOW
Data Type: MS DATA
SpikeList File: SONICLCS.spk
Sublist File: pnas.sub
Method File: /chem1/nt12.i/20101109.b/PNADMD.m
Misc Info: 10-27421

Client SDG: RS97
Fraction: SV
Client Smp ID: DGS-08-4.44.6-10100
Operator: VTS
SampleType: SAMPLE
Quant Type: ISTD

SURROGATE COMPOUND	CONC ADDED ug/kg	CONC RECOVERED ug/kg	% RECOVERED	LIMITS
$ 36 2-Fluorobiphenyl	6342	4796	75.63	34-100
$ 66 Terphenyl-d14	6342	4309	67.95	35-112

Data File: /chem1/nt12.i/20101109.b/rs97e.d
Date : 09-NOV-2010 20:02
Client ID: DGS-08-4.44.6-10100
Sample Info: RS97E,3
Volume Injected (uL): 1.0
Column phase: ZB-5msi

Instrument: nt12.i
Operator: VTS
Column diameter: 0.32



RS97:00295

Data File: /chem1/nt12.i/20101109.b/rs97e.d

Date : 09-NOV-2010 20:02

Client ID: DGS-08-4.44.6-10100

Instrument: nt12.i

Sample Info: RS97E,3

Volume Injected (uL): 1.0

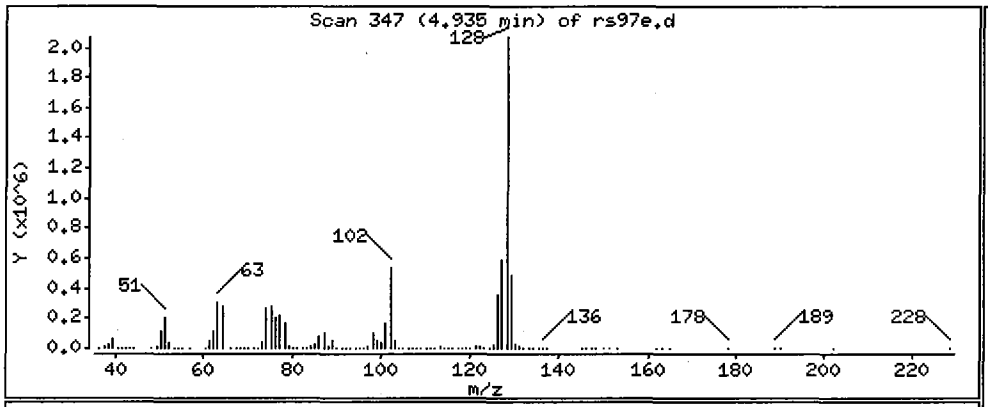
Operator: VTS

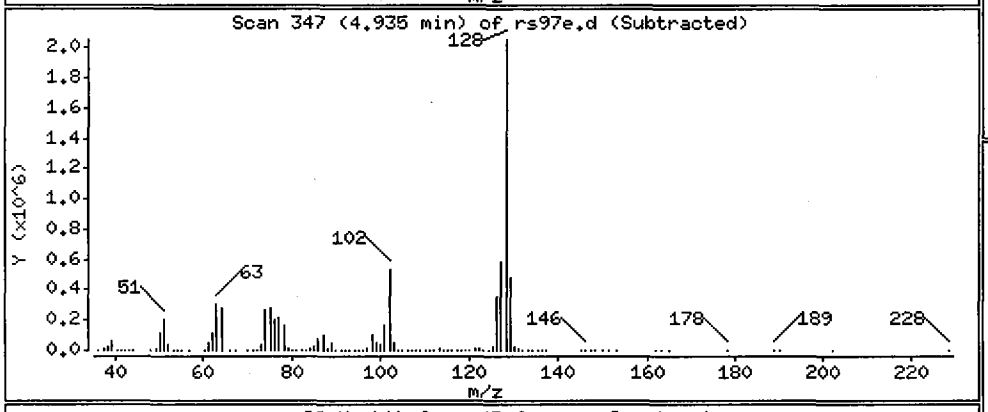
Column phase: ZB-5msi

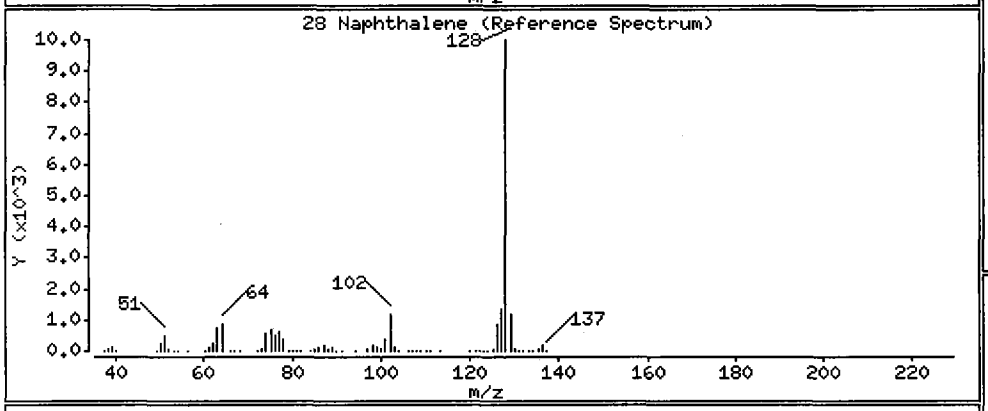
Column diameter: 0.32

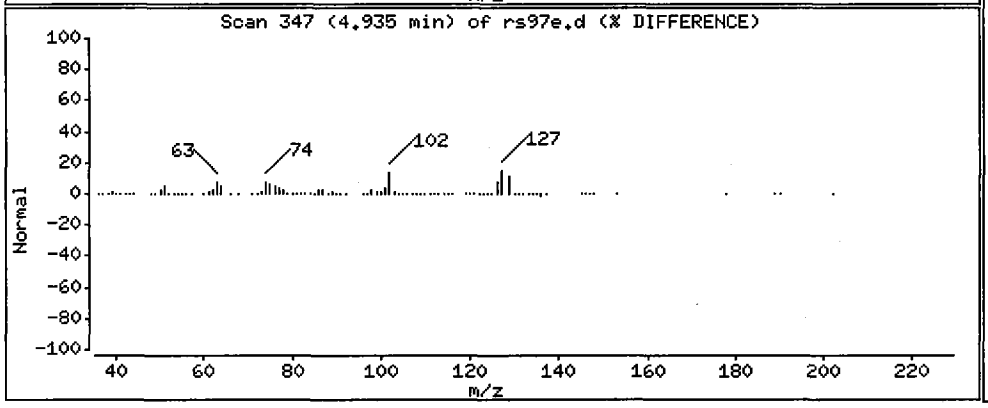
28 Naphthalene

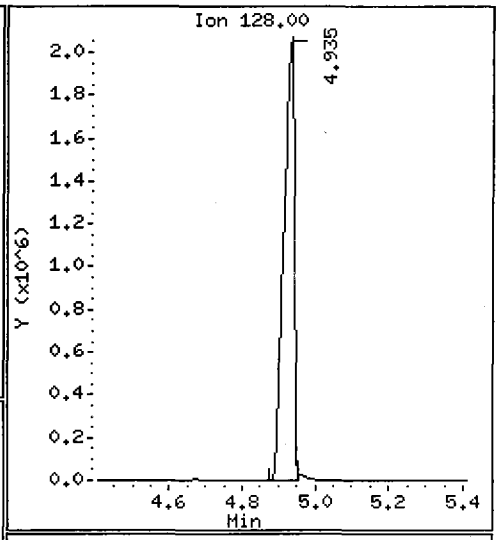
Concentration: 2481000 ug/kg

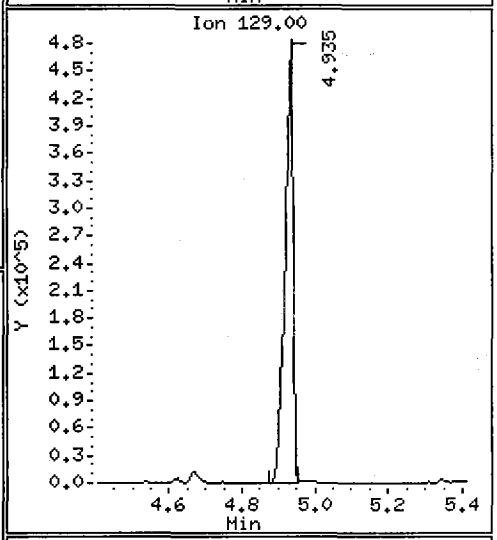


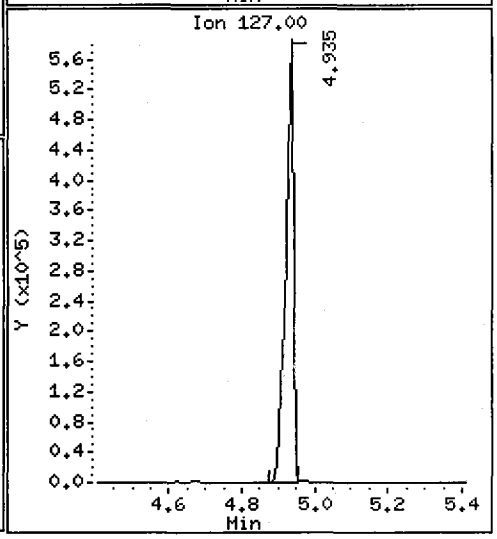












Data File: /chem1/nt12.i/20101109.b/rs97e.d

Date : 09-NOV-2010 20:02

Client ID: DGS-08-4.44.6-10100

Instrument: nt12.i

Sample Info: RS97E,3

Volume Injected (uL): 1.0

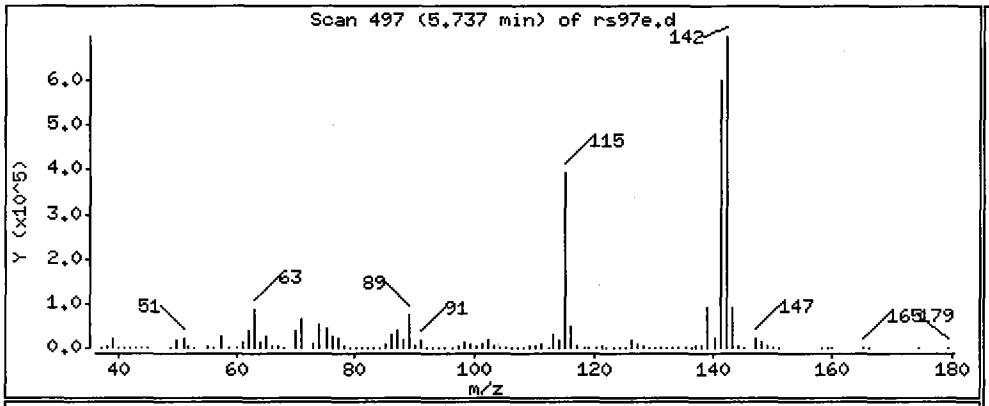
Operator: VTS

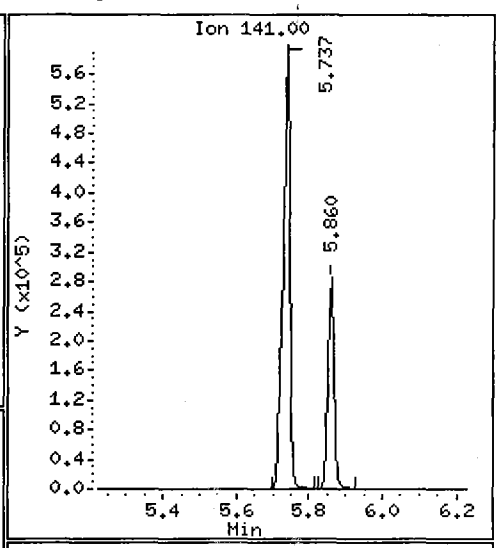
Column phase: ZB-5msi

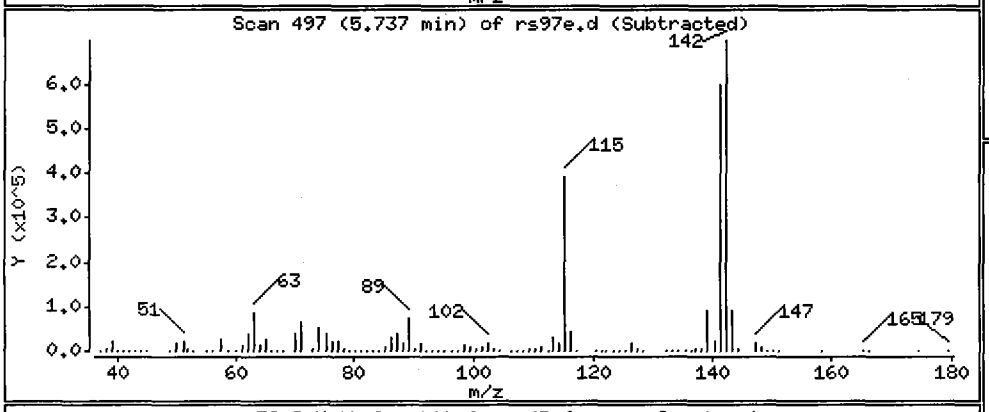
Column diameter: 0.32

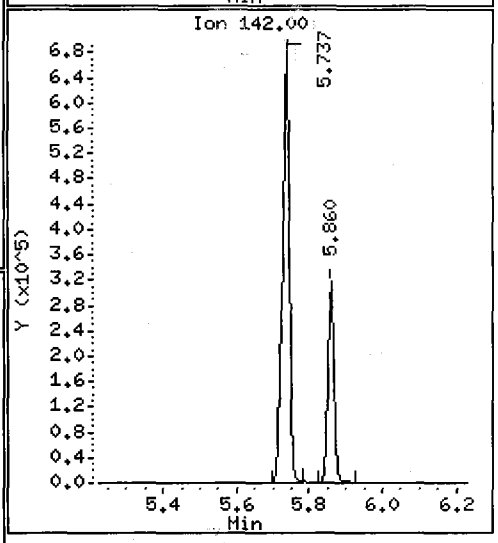
32 2-Methylnaphthalene

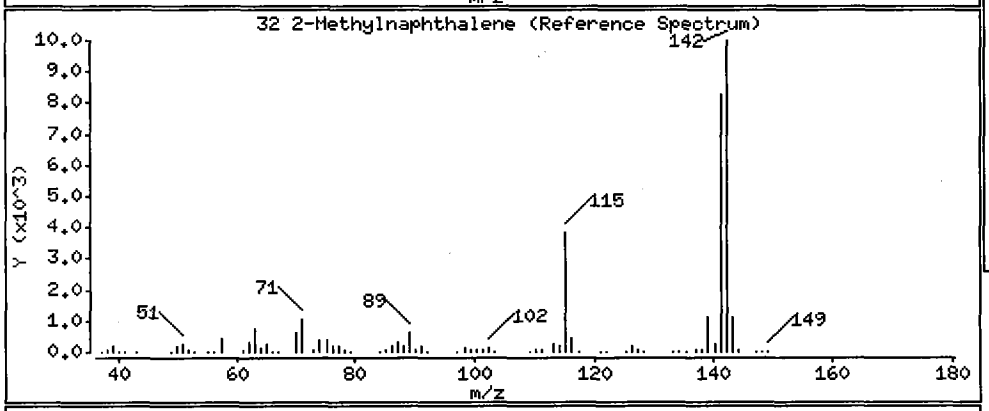
Concentration: 849800 ug/kg

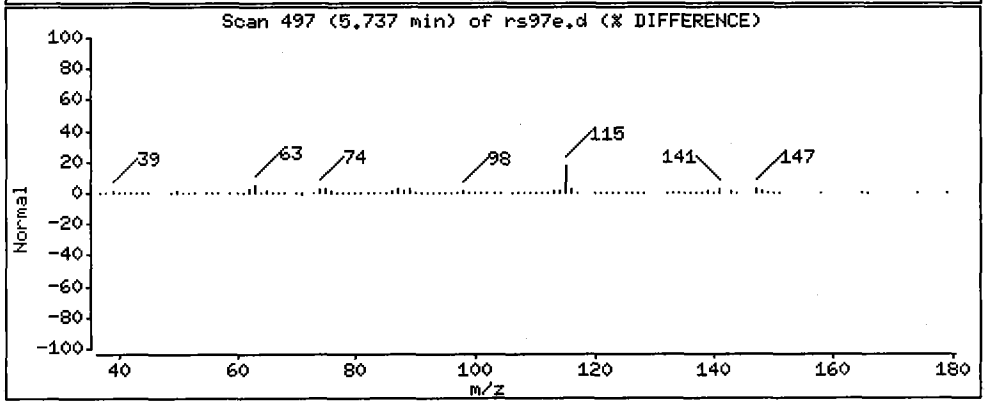












Data File: /chem1/nt12.i/20101109.b/rs97e.d

Date : 09-NOV-2010 20:02

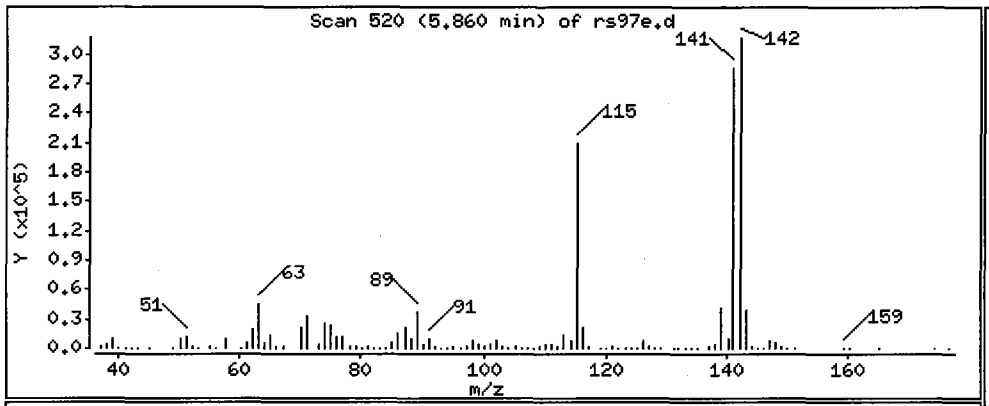
Client ID: DGS-08-4.44.6-10100 Instrument: nt12.i

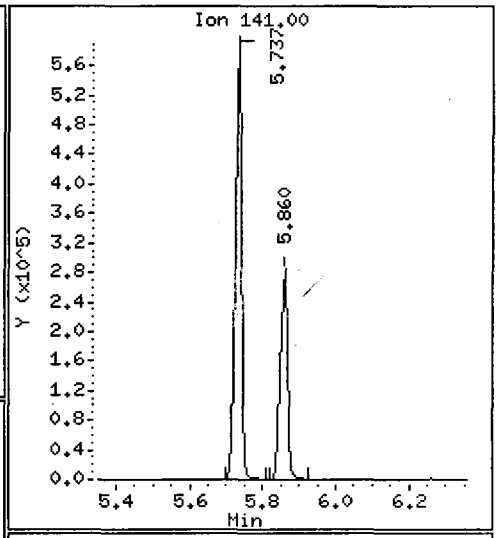
Sample Info: RS97E,3

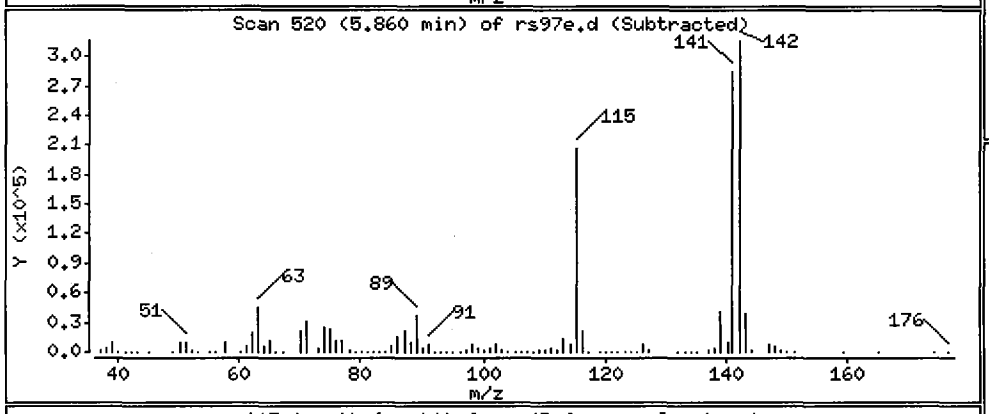
Volume Injected (uL): 1.0 Operator: VTS

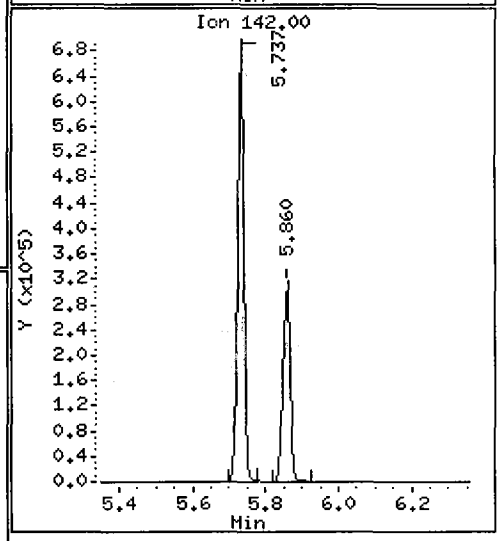
Column phase: ZB-5msi Column diameter: 0.32

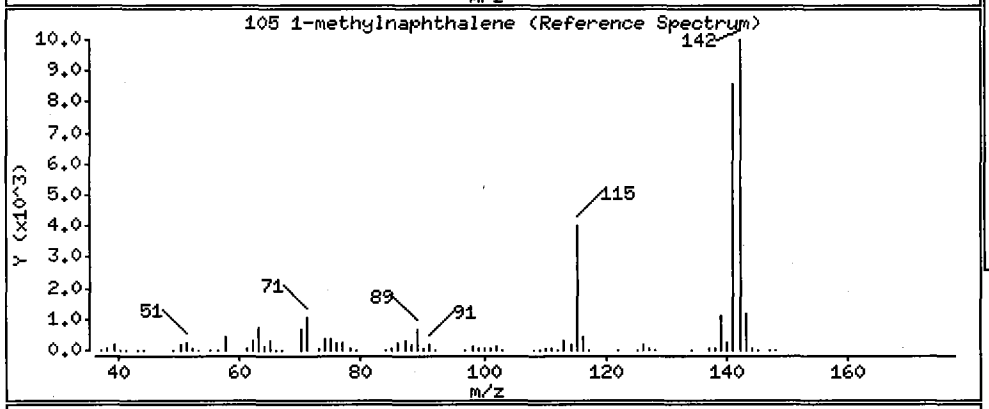
105 1-methylnaphthalene Concentration: 388700 ug/kg

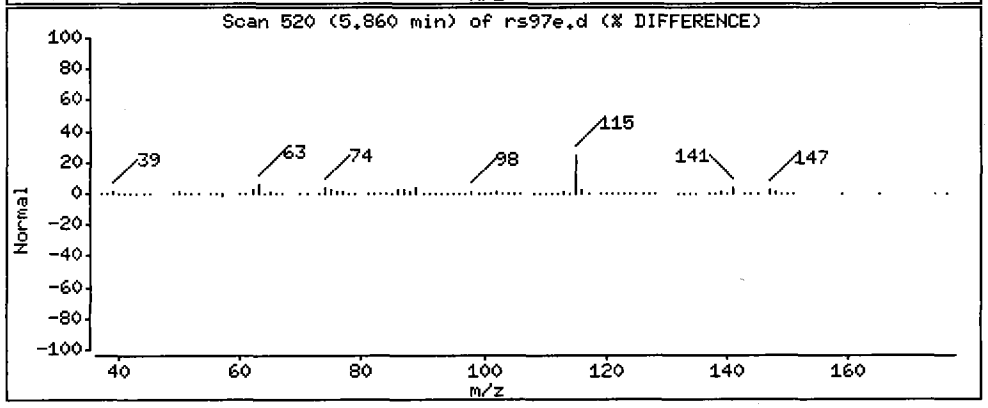












Data File: /chem1/nt12.i/20101109.b/rs97e.d

Date : 09-NOV-2010 20:02

Client ID: DGS-08-4.44.6-10100

Instrument: nt12.i

Sample Info: RS97E,3

Volume Injected (uL): 1.0

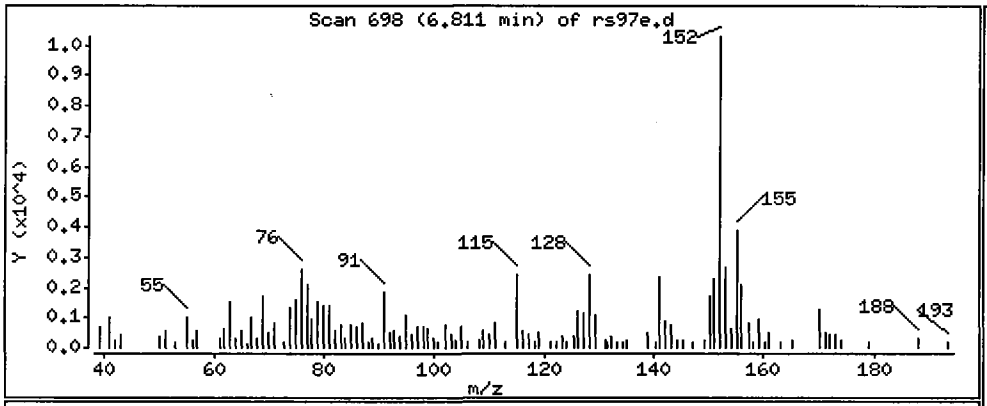
Operator: VTS

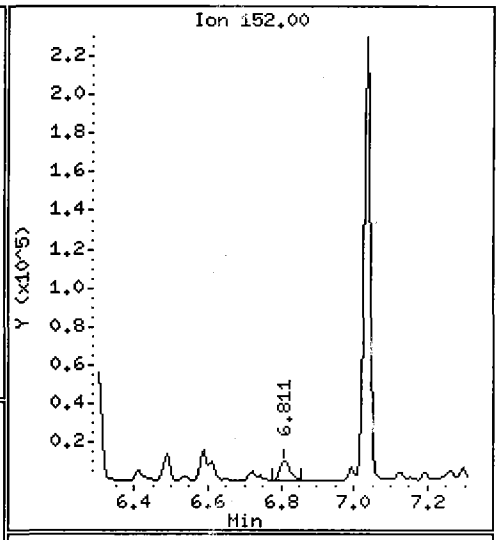
Column phase: ZB-5msi

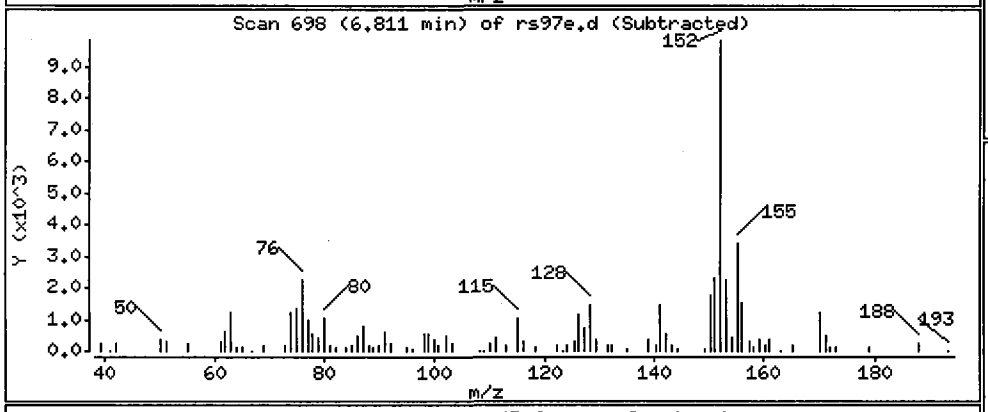
Column diameter: 0.32

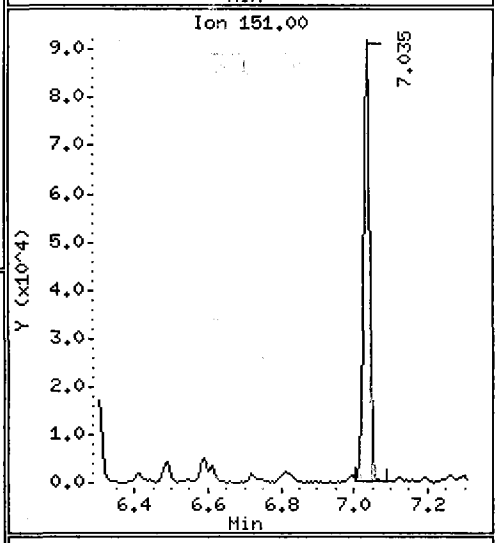
40 Acenaphthylene

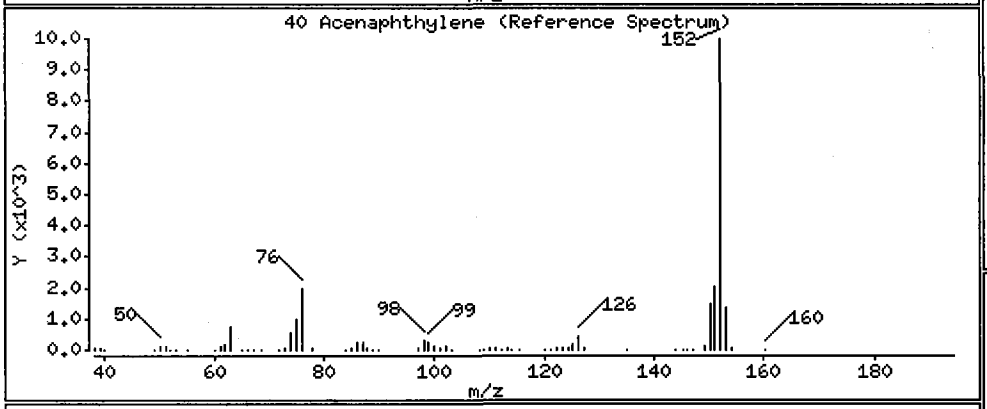
Concentration: 11830 ug/kg

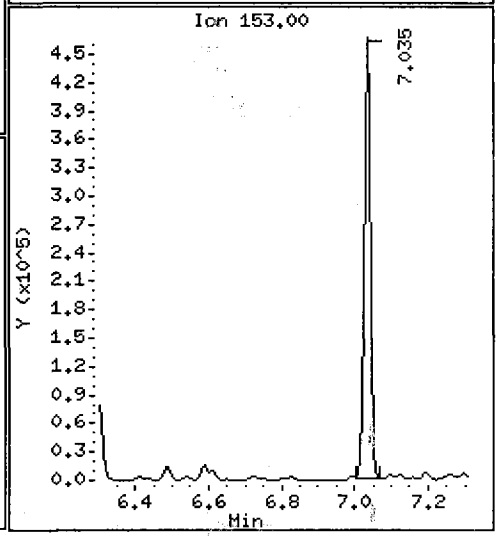


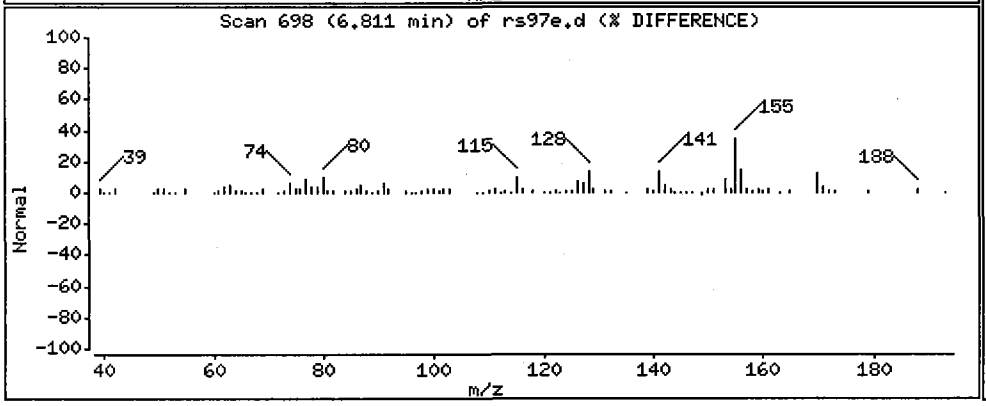












Data File: /chem1/nt12.i/20101109.b/rs97e.d

Date : 09-NOV-2010 20:02

Client ID: DGS-08-4.44.6-10100

Instrument: nt12.i

Sample Info: RS97E,3

Volume Injected (uL): 1.0

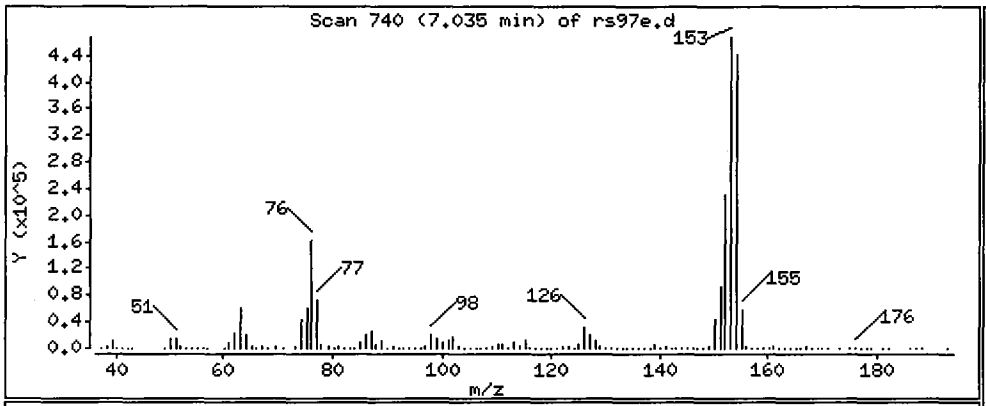
Operator: VTS

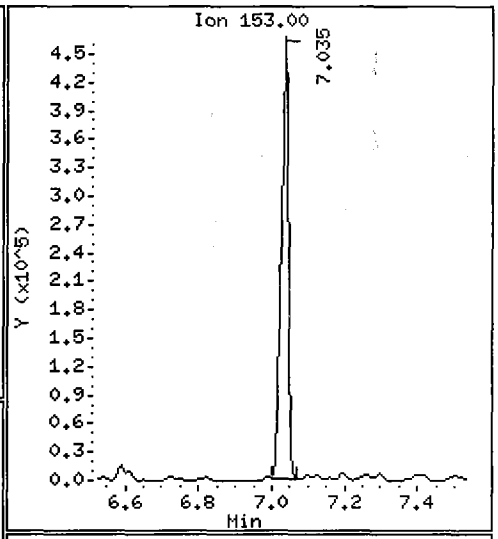
Column phase: ZB-5msi

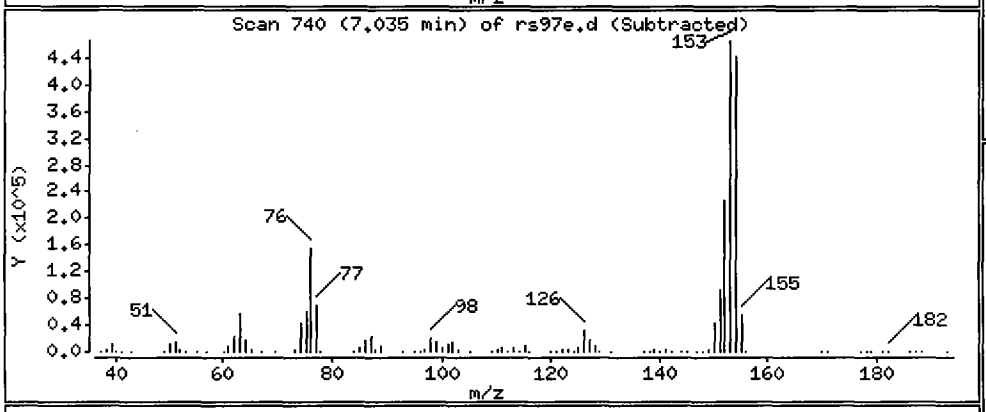
Column diameter: 0.32

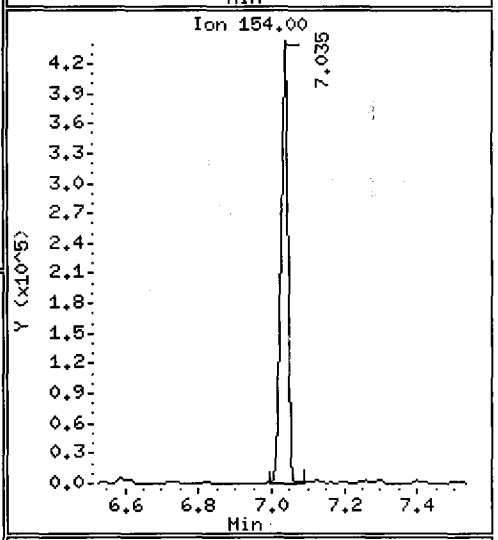
44 Acenaphthene

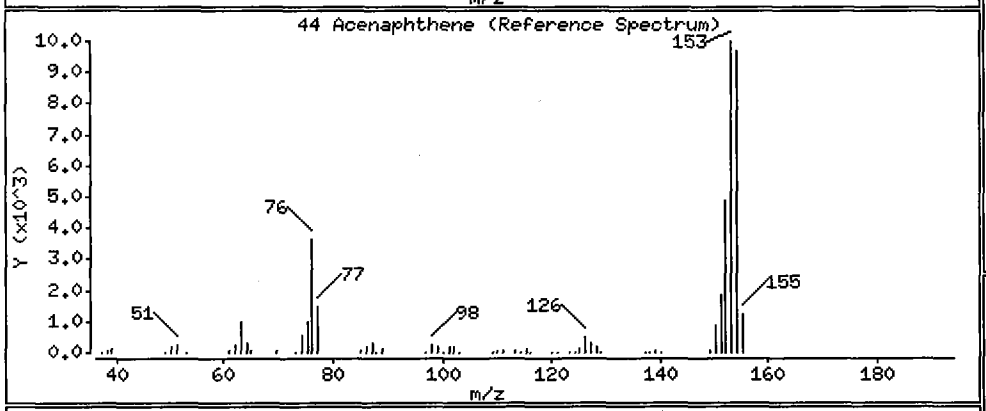
Concentration: 622900 ug/kg

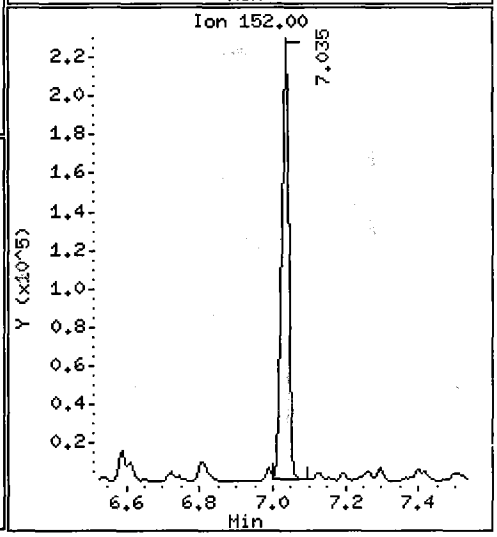


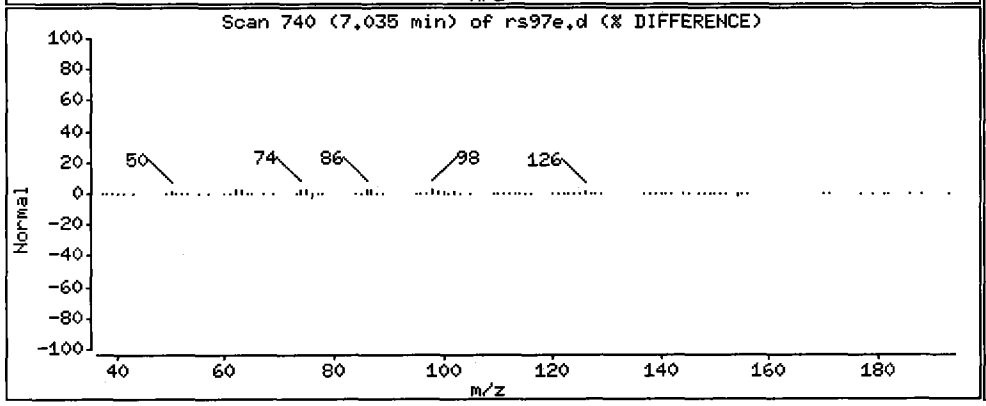












Data File: /chem1/nt12.i/20101109.b/rs97e.d

Date : 09-NOV-2010 20:02

Client ID: DGS-08-4.44.6-10100

Instrument: nt12.i

Sample Info: RS97E,3

Volume Injected (uL): 1.0

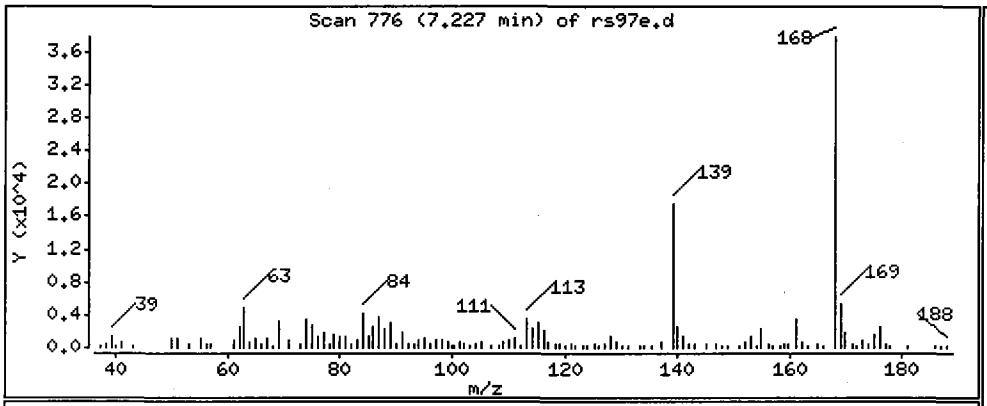
Operator: VTS

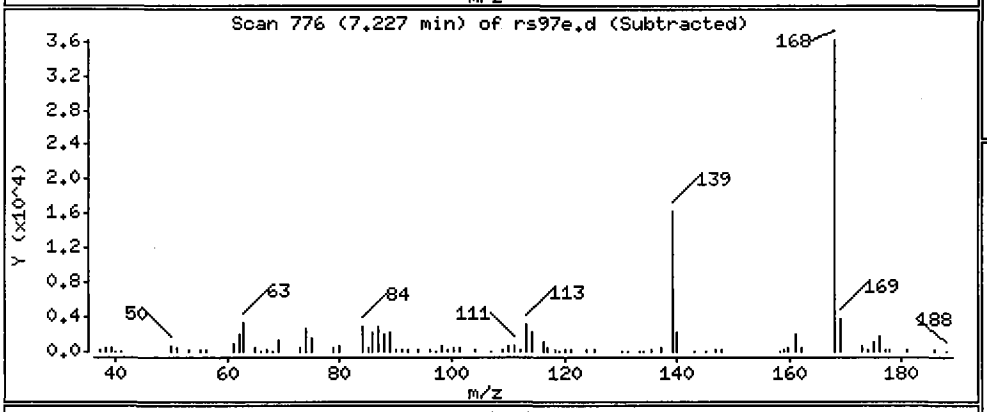
Column phase: ZB-5msi

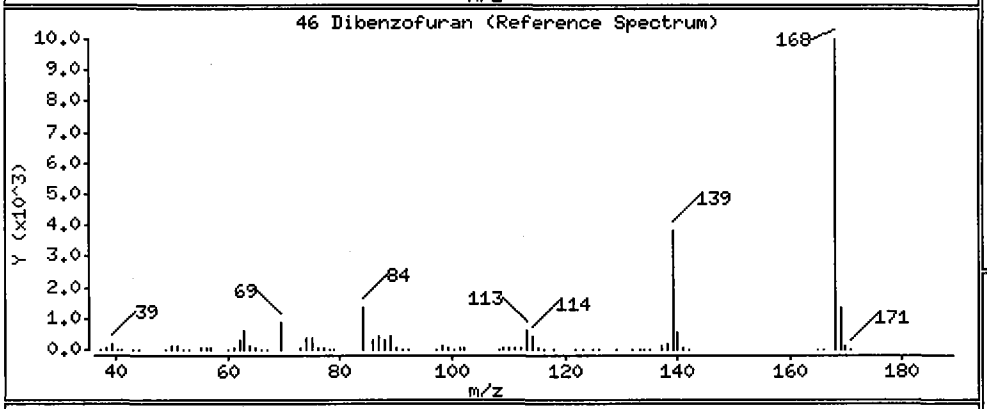
Column diameter: 0.32

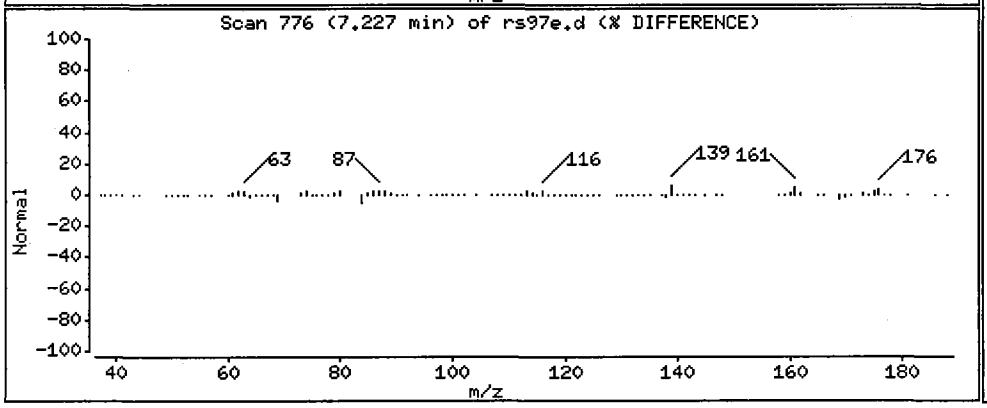
46 Dibenzofuran

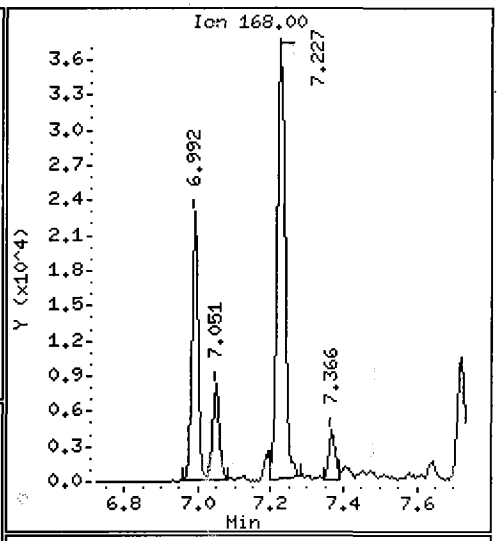
Concentration: 35400 ug/kg

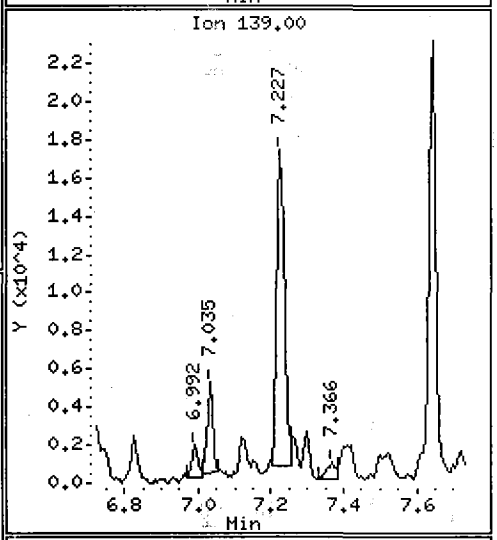


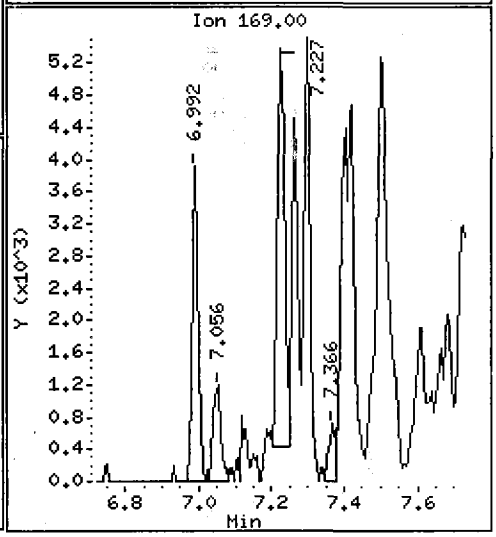












Data File: /chem1/nt12.i/20101109.b/rs97e.d

Date : 09-NOV-2010 20:02

Client ID: DGS-08-4.44.6-10100

Instrument: nt12.i

Sample Info: RS97E,3

Volume Injected (uL): 1.0

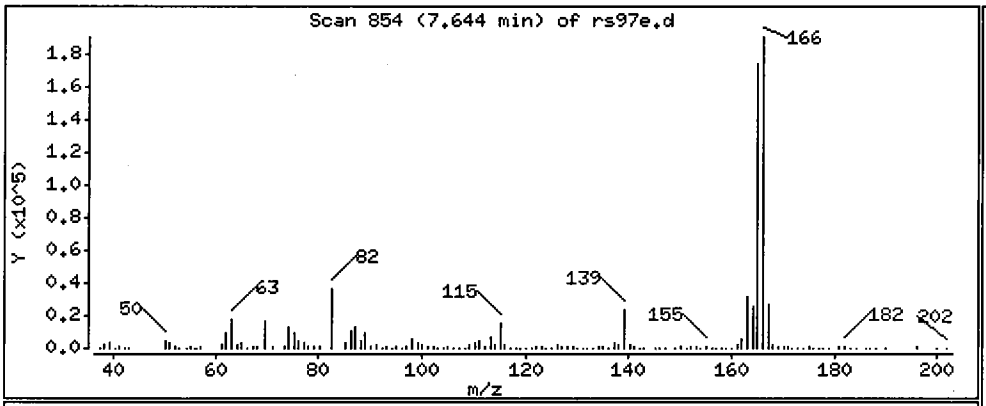
Operator: VTS

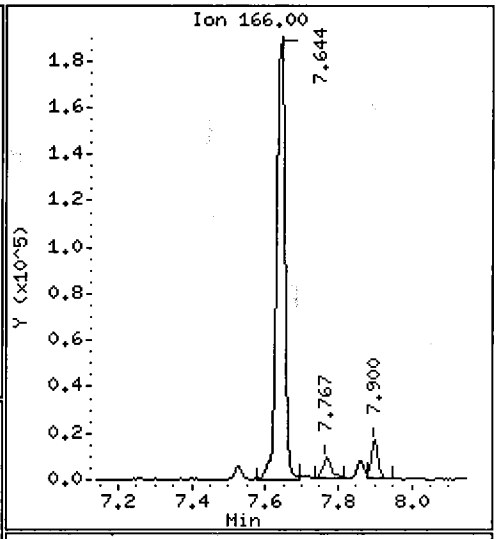
Column phase: ZB-5msi

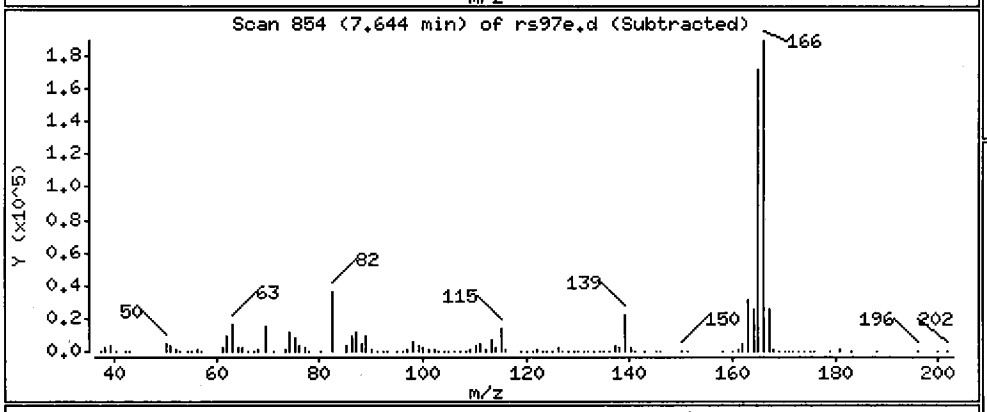
Column diameter: 0.32

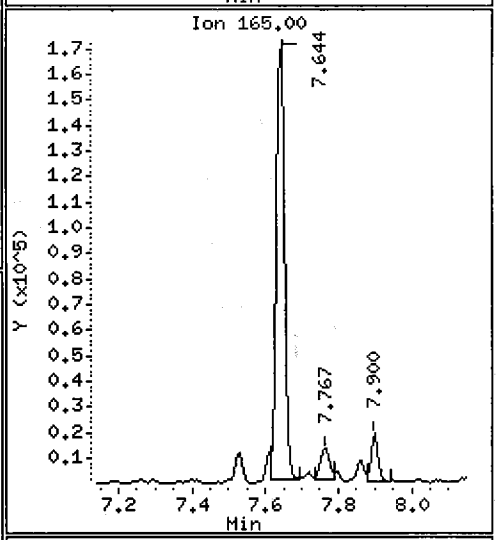
49 Fluorene

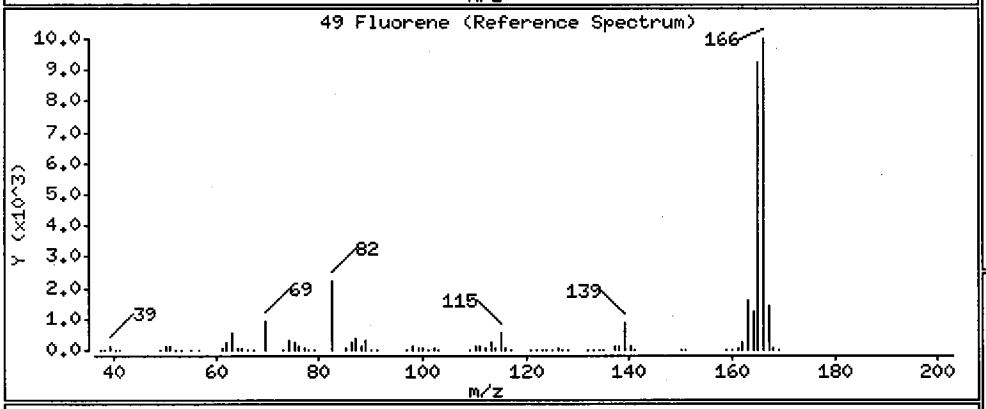
Concentration: 251200 ug/kg

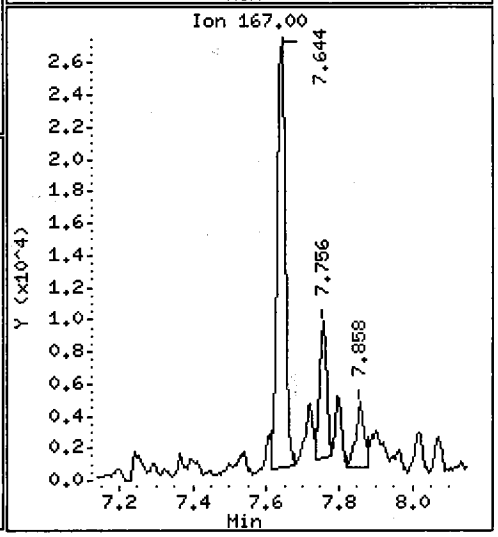


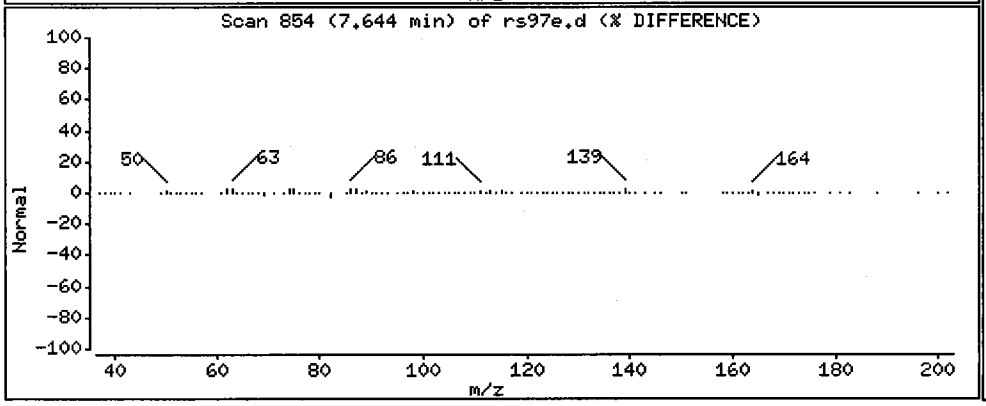












Data File: /chem1/nt12.i/20101109.b/rs97e.d

Date : 09-NOV-2010 20:02

Client ID: DGS-08-4.44.6-10100

Instrument: nt12.i

Sample Info: RS97E,3

Volume Injected (uL): 1.0

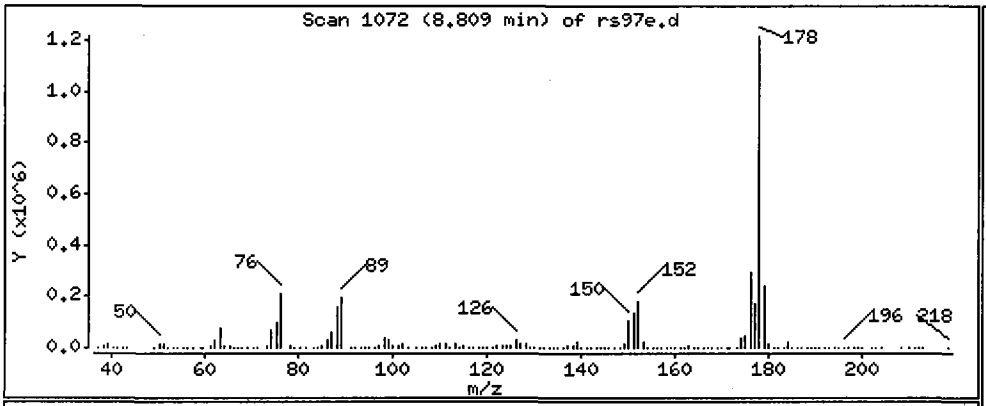
Operator: VTS

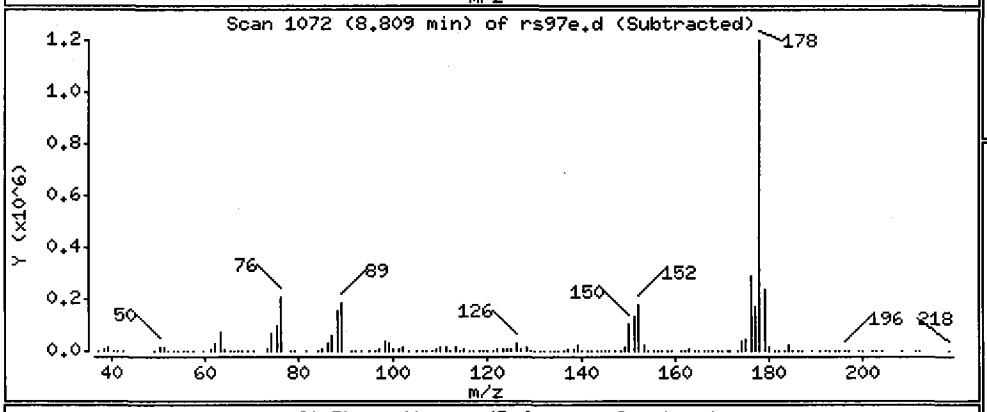
Column phase: ZB-5msi

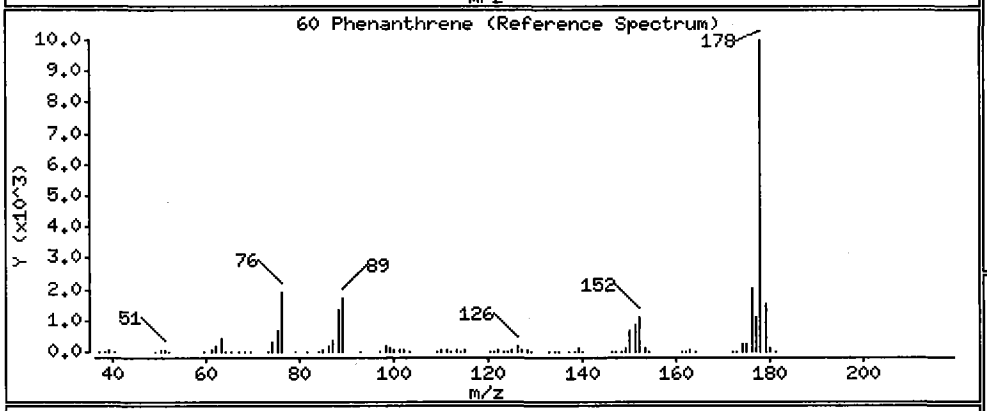
Column diameter: 0.32

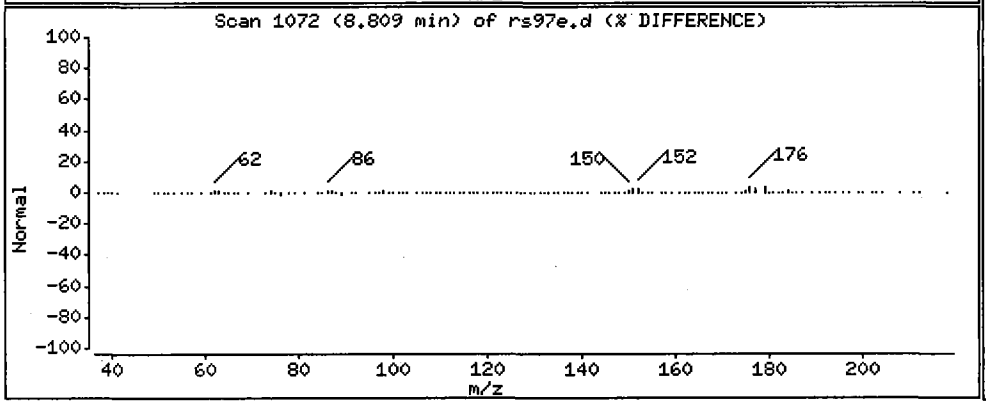
60 Phenanthrene

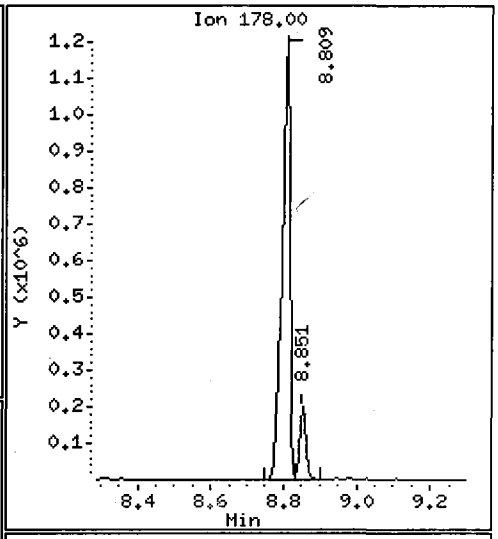
Concentration: 1331000 ug/kg

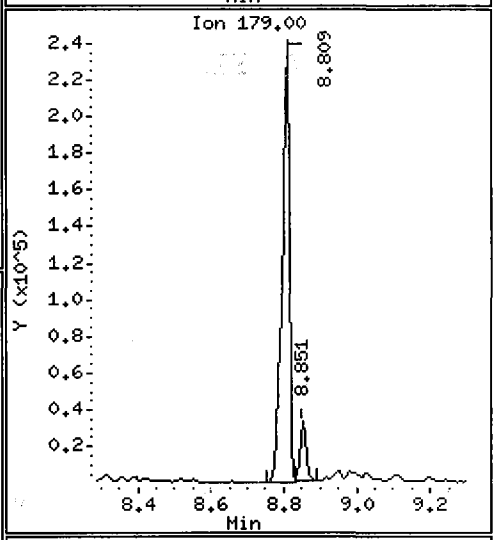


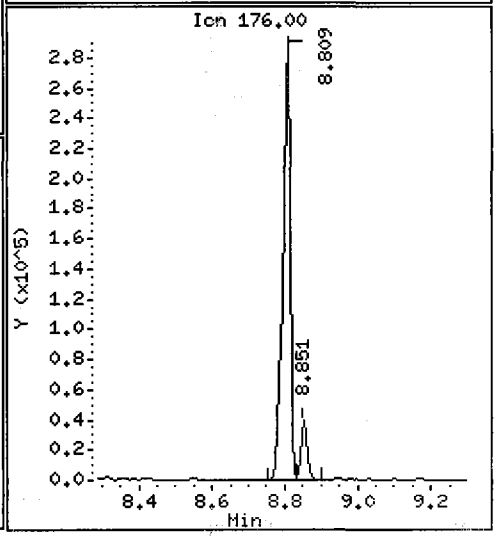












Data File: /chem1/nt12.i/20101109.b/rs97e.d

Date : 09-NOV-2010 20:02

Client ID: DGS-08-4.44.6-10100

Instrument: nt12.i

Sample Info: RS97E,3

Volume Injected (uL): 1.0

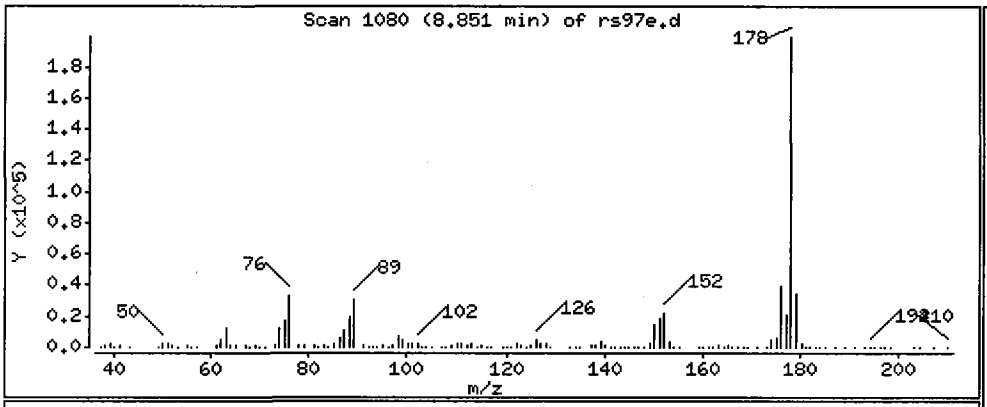
Operator: VTS

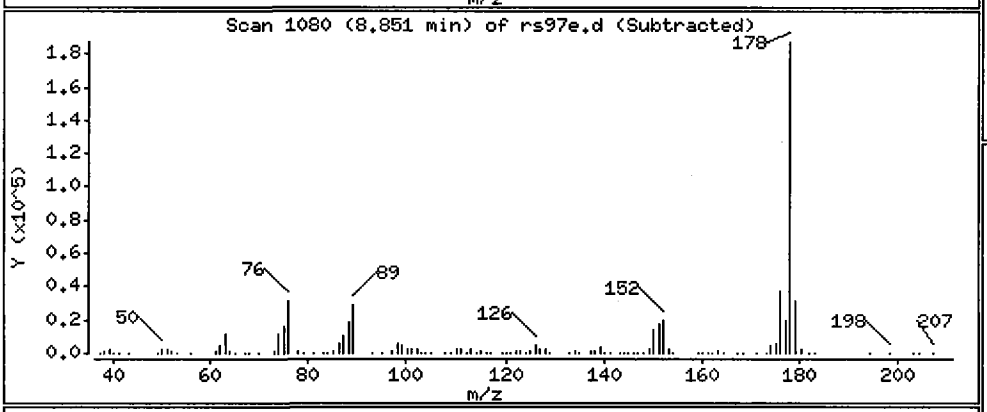
Column phase: ZB-5msi

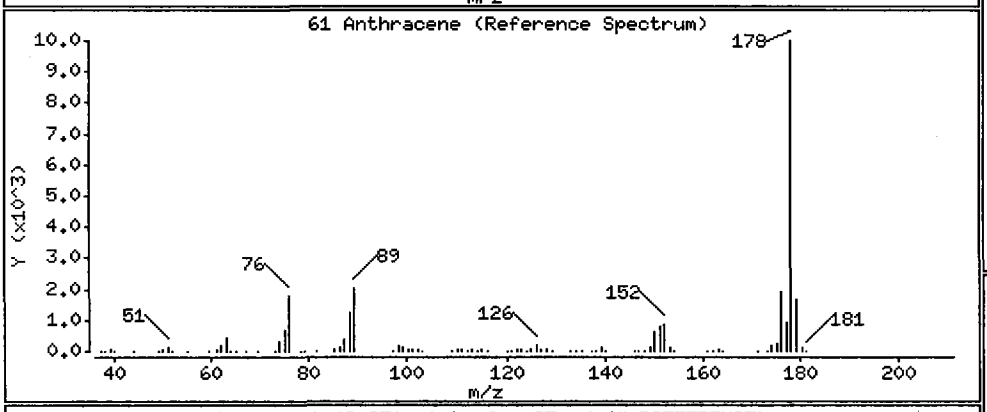
Column diameter: 0.32

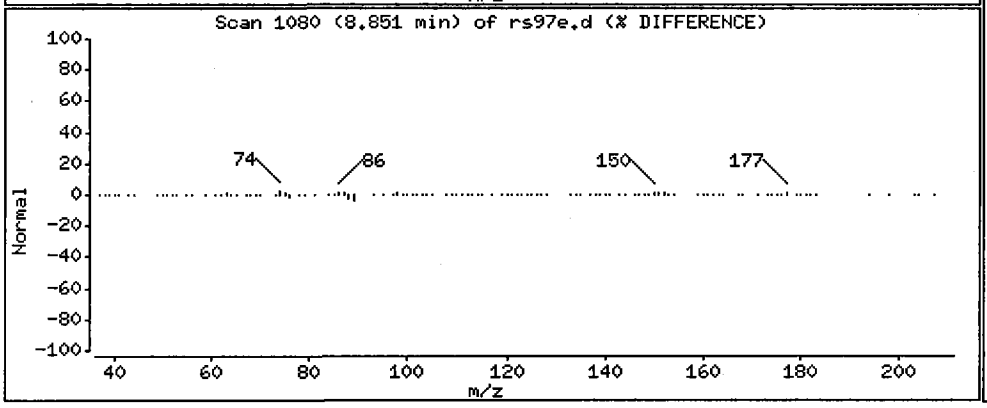
61 Anthracene

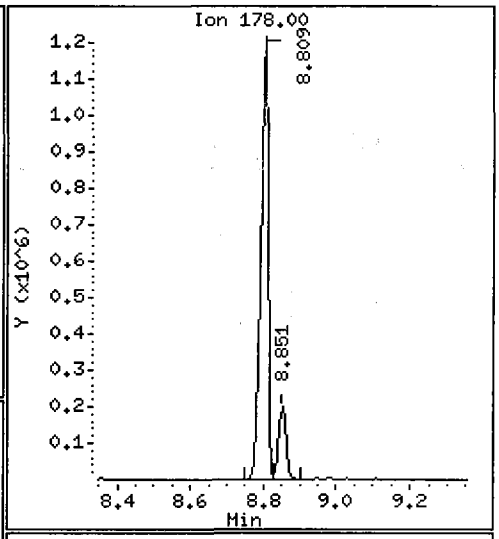
Concentration: 178900 ug/kg

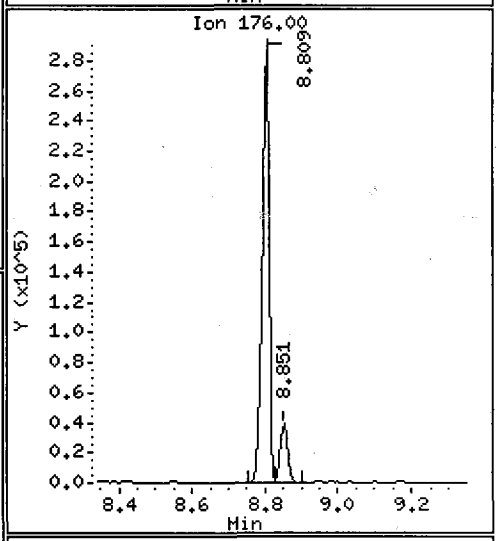


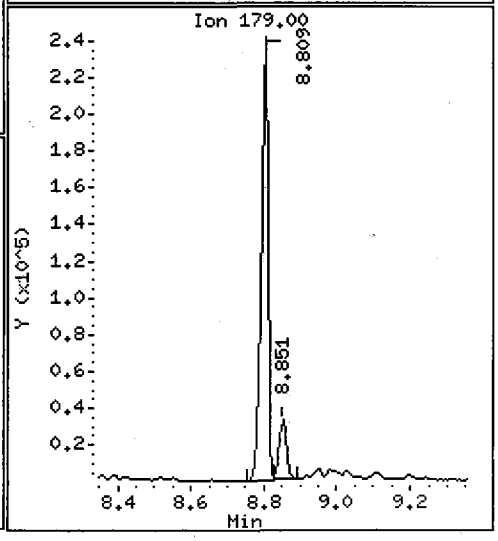












Data File: /chem1/nt12.i/20101109.b/rs97e.d

Date : 09-NOV-2010 20:02

Client ID: DGS-08-4.44.6-10100

Instrument: nt12.i

Sample Info: RS97E,3

Volume Injected (uL): 1.0

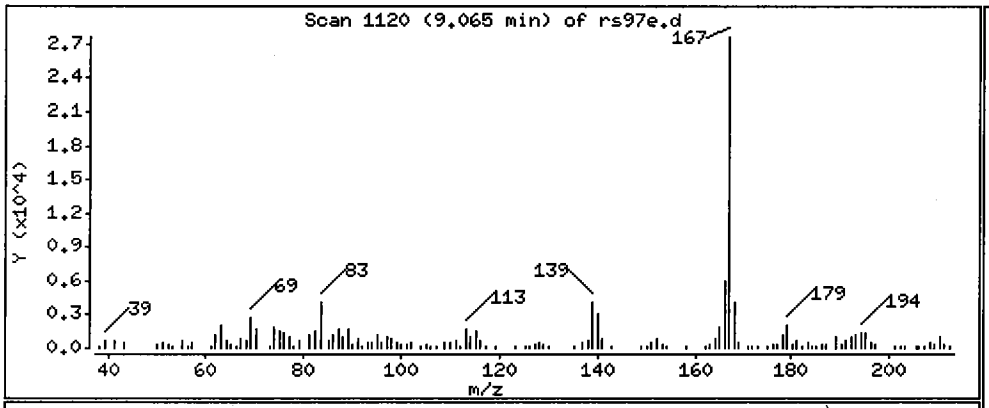
Operator: VTS

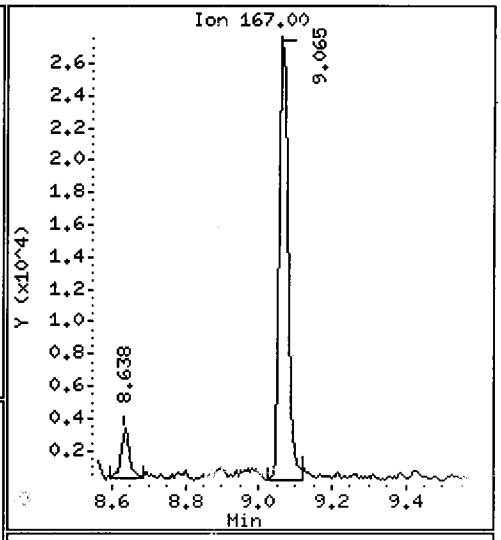
Column phase: ZB-5msi

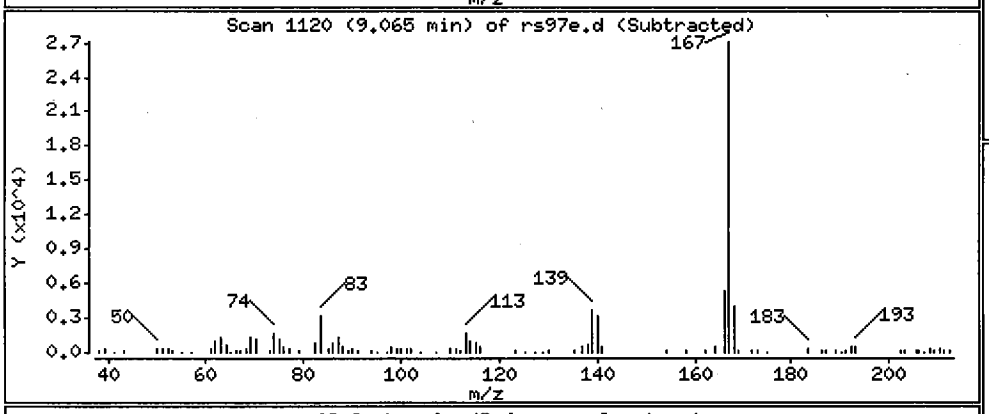
Column diameter: 0.32

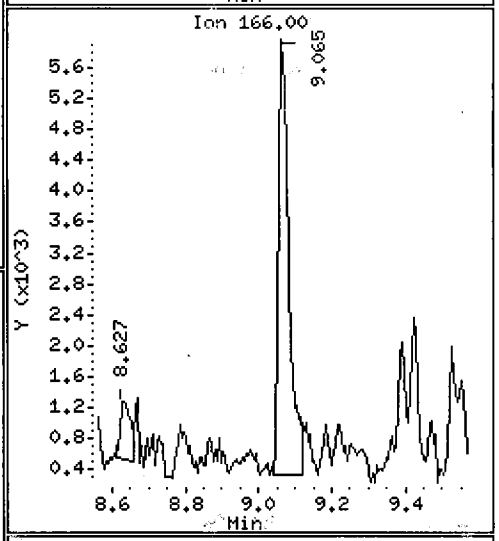
62 Carbazole

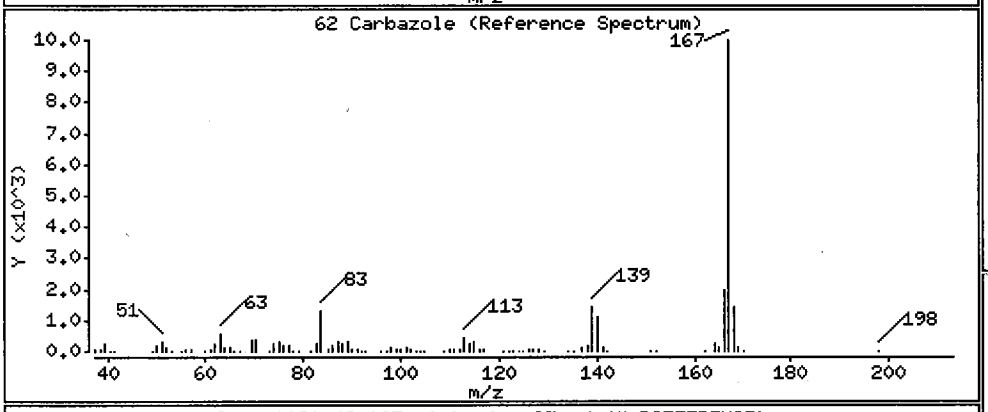
Concentration: 36650 ug/kg

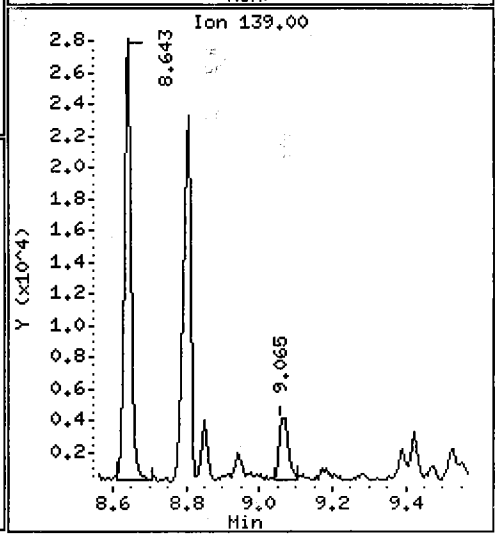


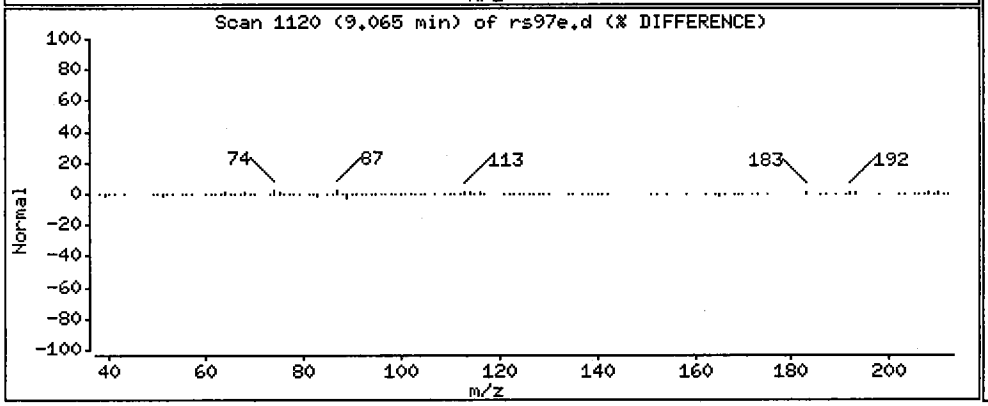












Data File: /chem1/nt12.i/20101109.b/rs97e.d

Date : 09-NOV-2010 20:02

Client ID: DGS-08-4.44.6-10100

Instrument: nt12.i

Sample Info: RS97E,3

Volume Injected (uL): 1.0

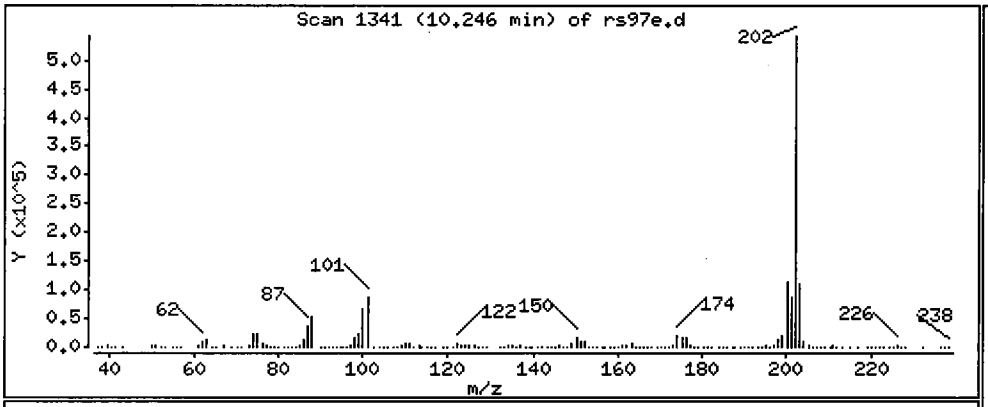
Operator: VTS

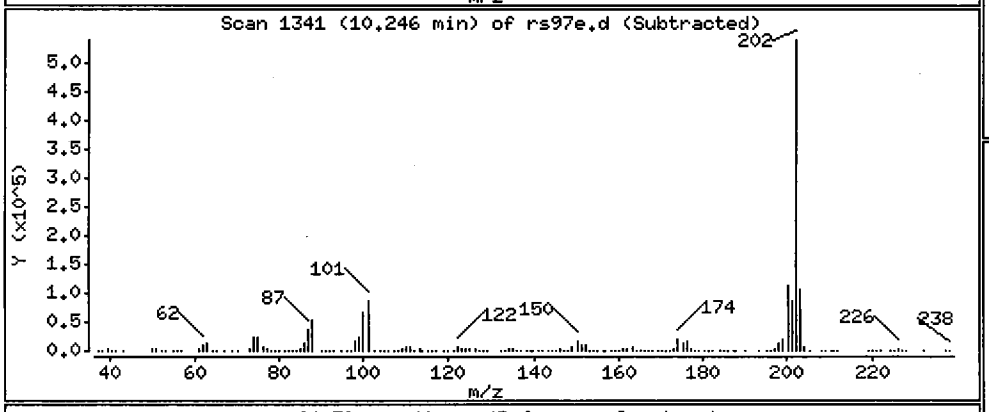
Column phase: ZB-5msi

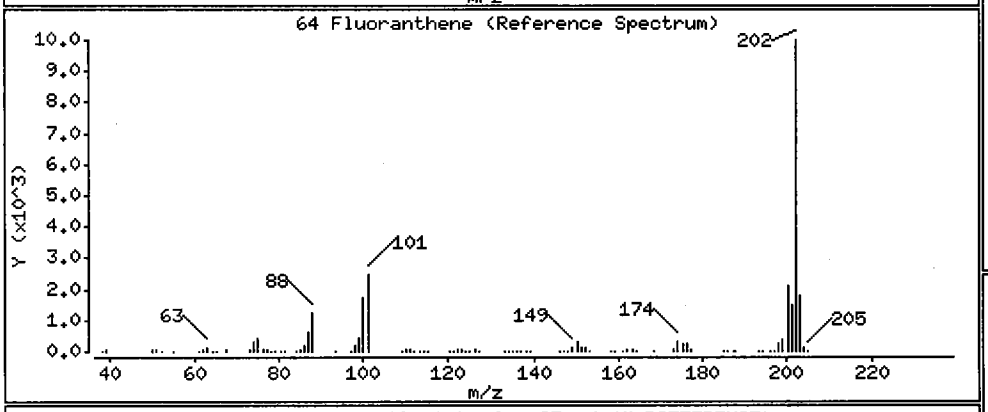
Column diameter: 0.32

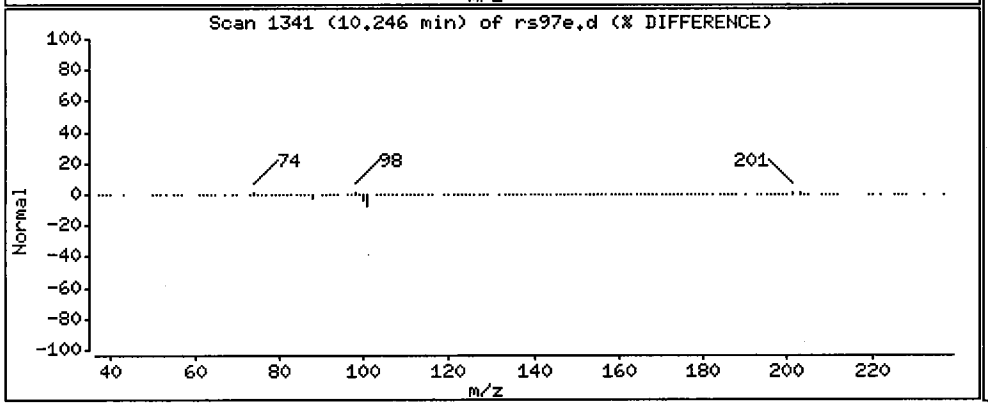
64 Fluoranthene

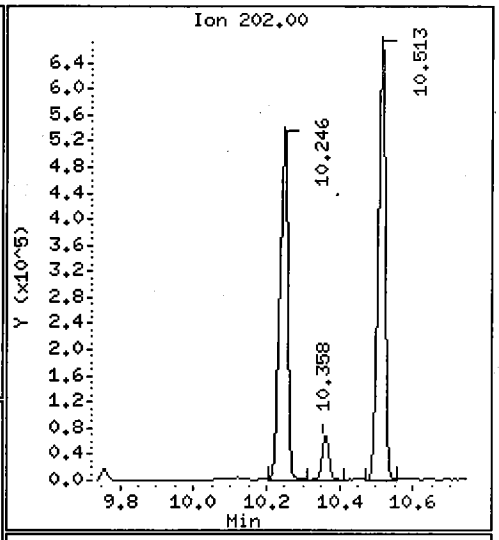
Concentration: 516600 ug/kg

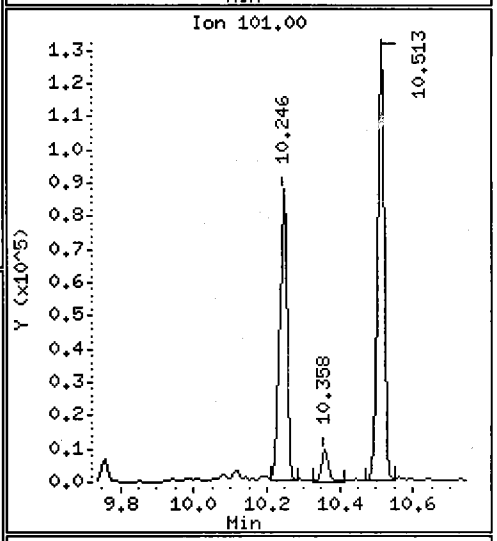


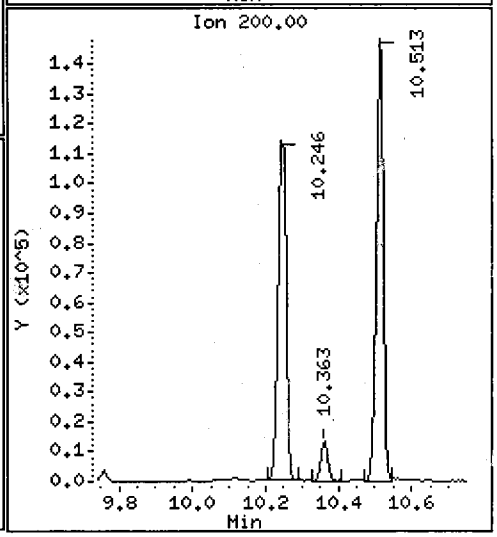












Data File: /chem1/nt12.i/20101109.b/rs97e.d

Date : 09-NOV-2010 20:02

Client ID: DGS-08-4.44.6-10100

Instrument: nt12.i

Sample Info: RS97E,3

Volume Injected (uL): 1.0

Operator: VTS

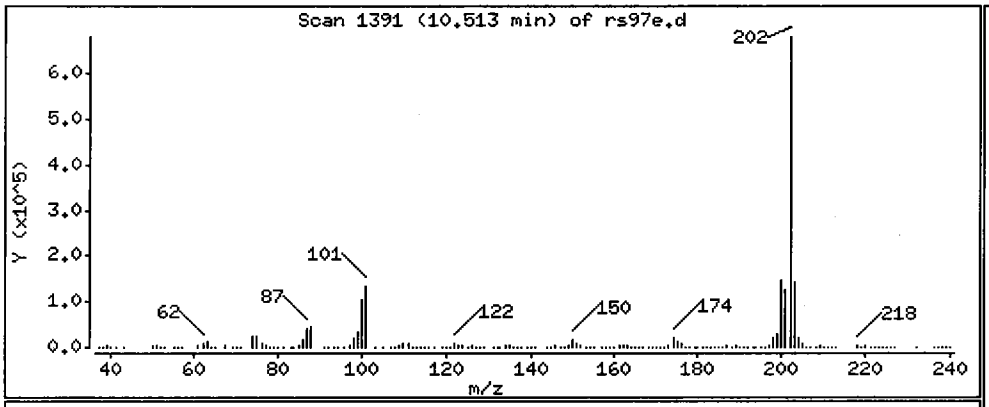
Column phase: ZB-5msi

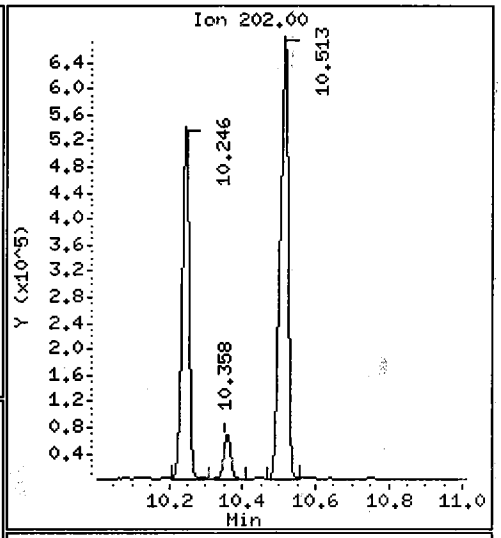
Column diameter: 0.32

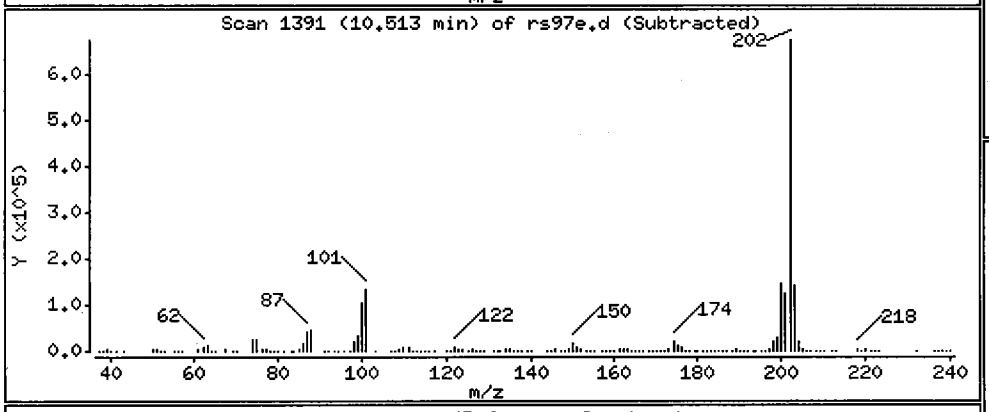
65 Pyrene

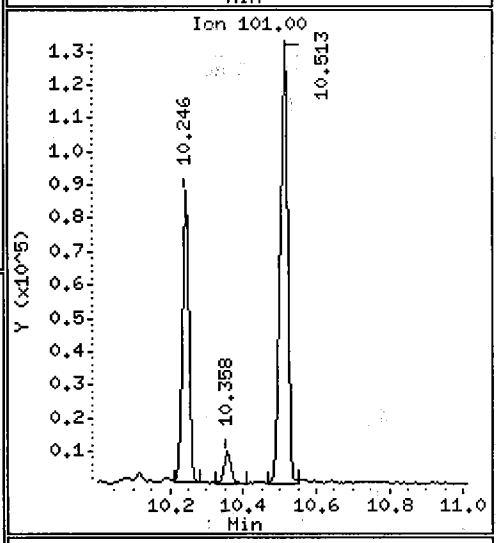
Concentration: 658500 ug/kg

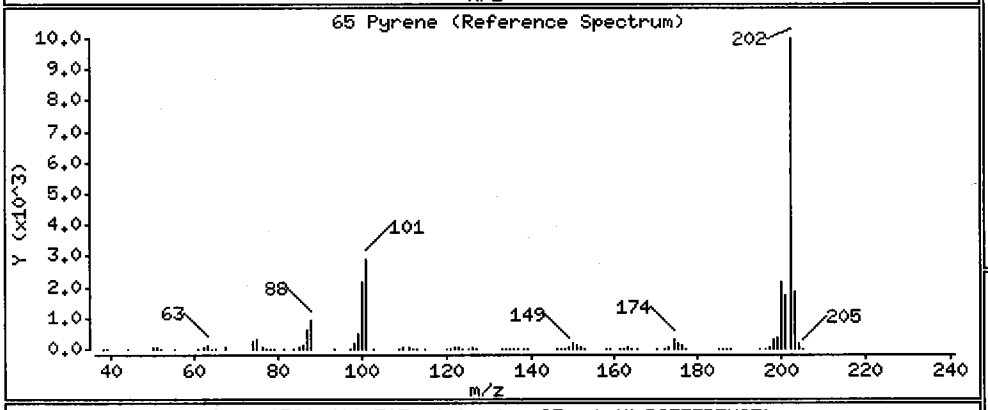
E

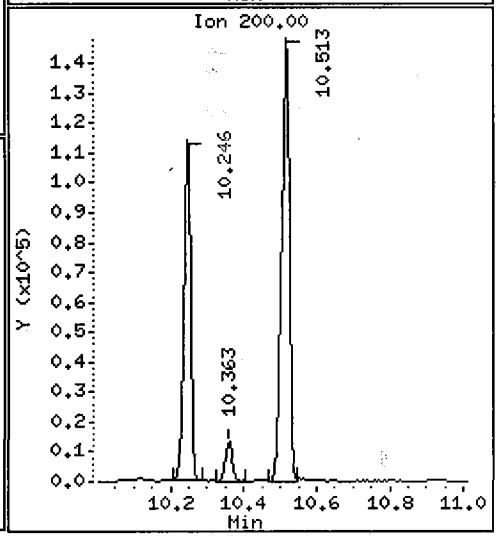


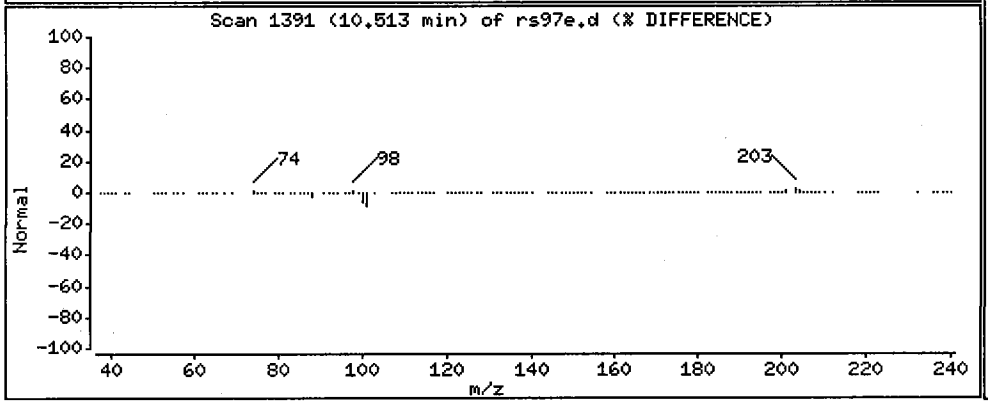












Data File: /chem1/nt12.i/20101109.b/rs97e.d

Date : 09-NOV-2010 20:02

Client ID: DGS-08-4.44.6-10100

Instrument: nt12.i

Sample Info: RS97E,3

Volume Injected (uL): 1.0

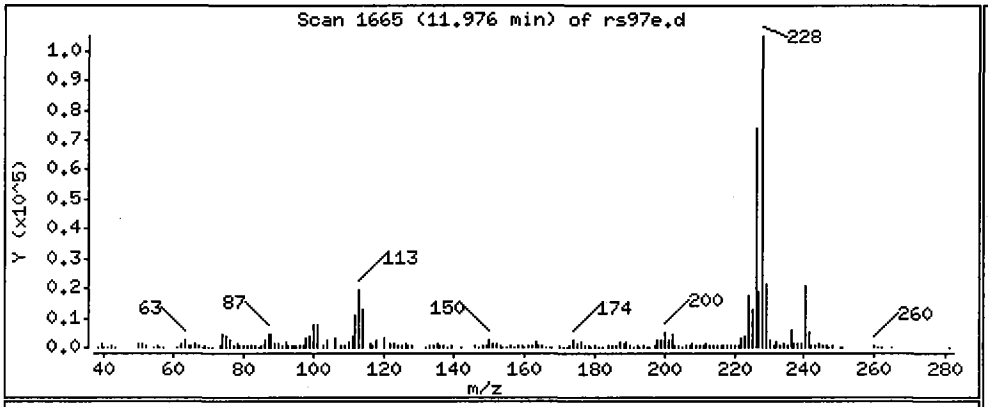
Operator: VTS

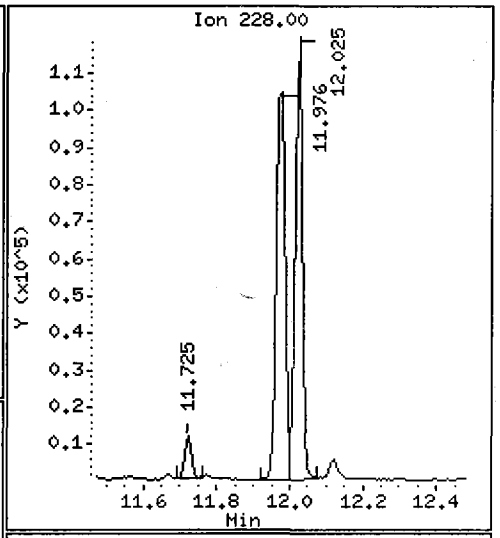
Column phase: ZB-5msi

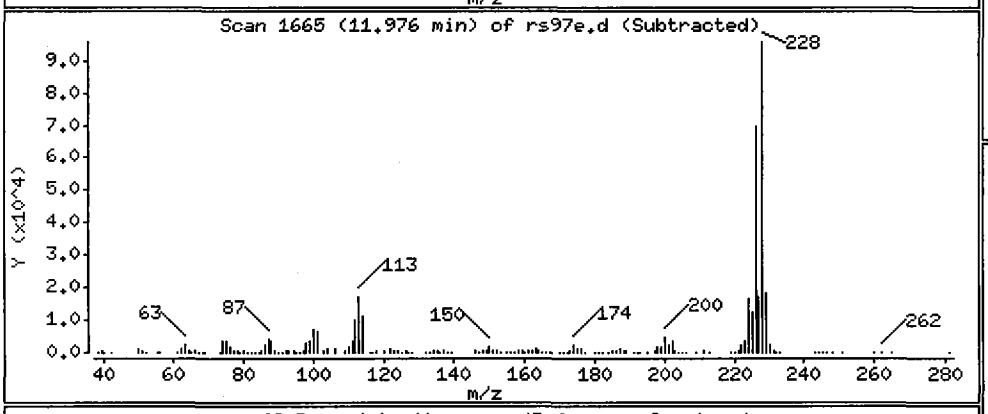
Column diameter: 0.32

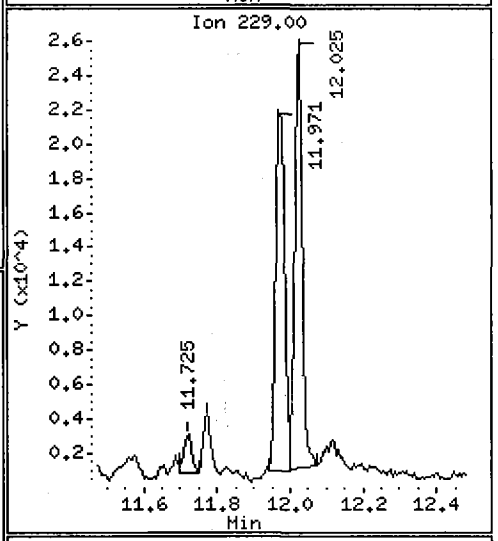
68 Benzo(a)anthracene

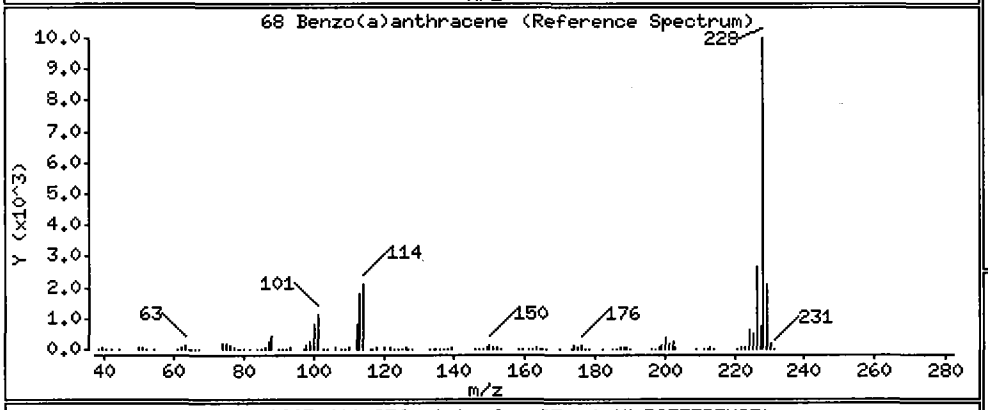
Concentration: 134700 ug/kg

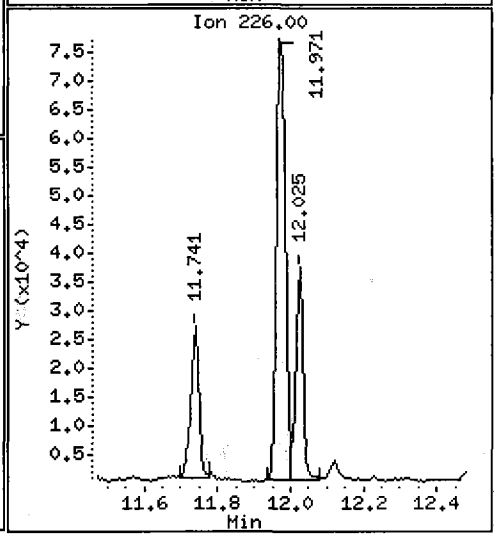


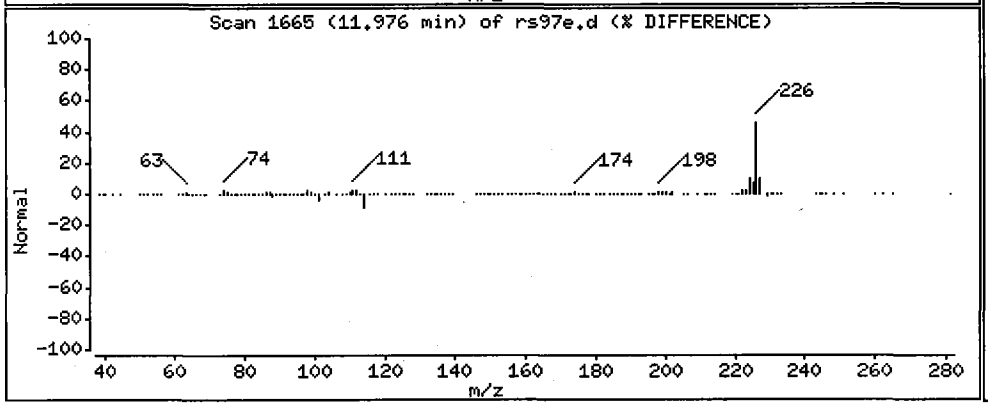












Data File: /chem1/nt12.i/20101109.b/rs97e.d

Date : 09-NOV-2010 20:02

Client ID: DGS-08-4.44.6-10100

Instrument: nt12.i

Sample Info: RS97E,3

Volume Injected (uL): 1.0

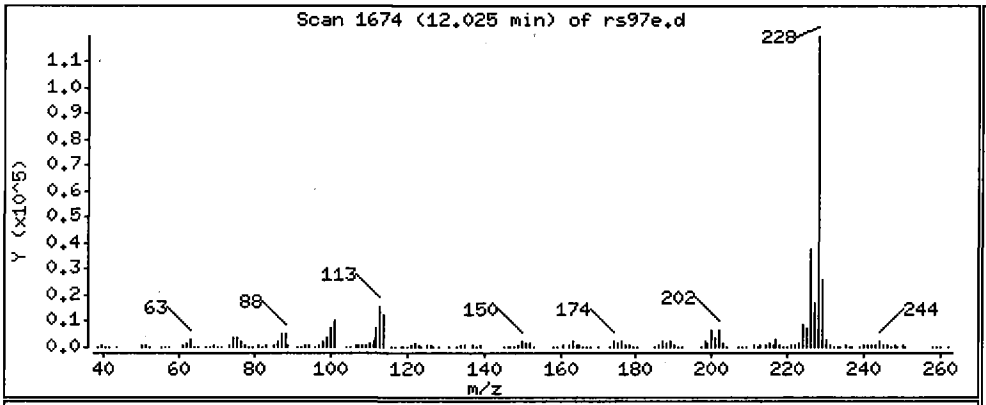
Operator: VTS

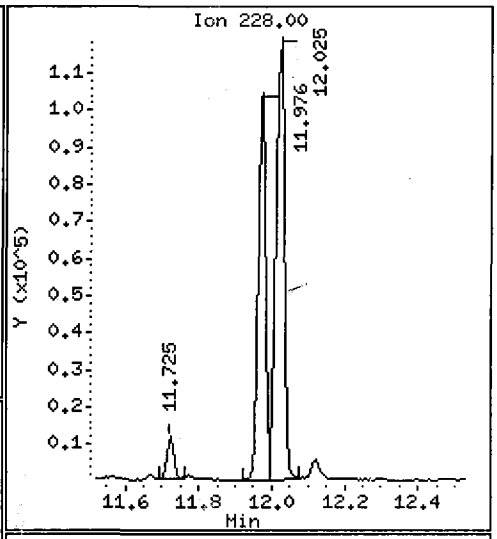
Column phase: ZB-5msi

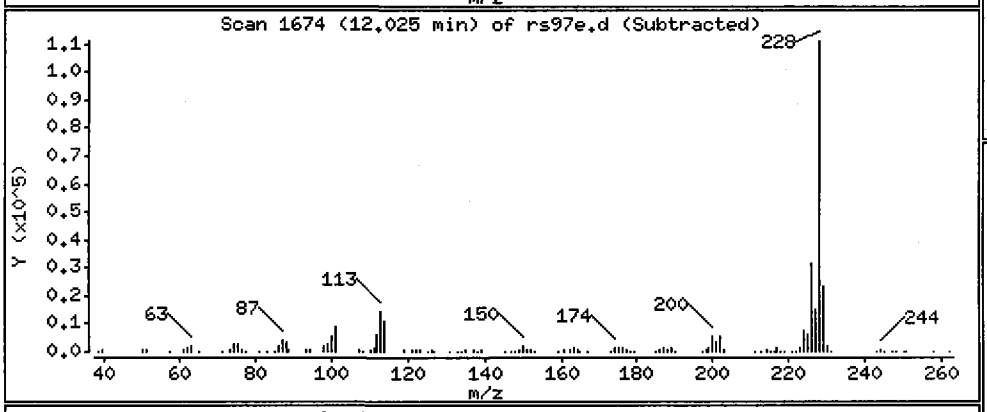
Column diameter: 0.32

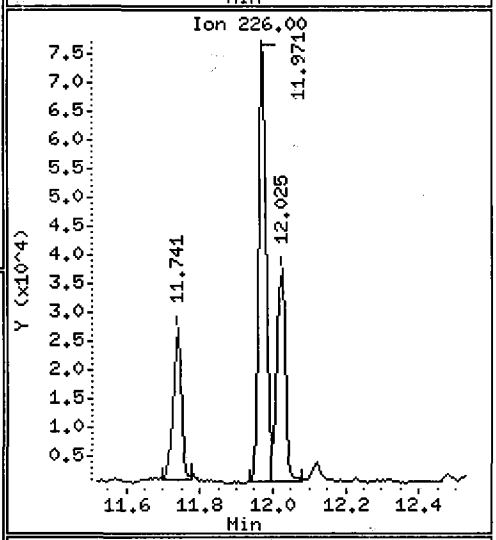
71 Chrysene

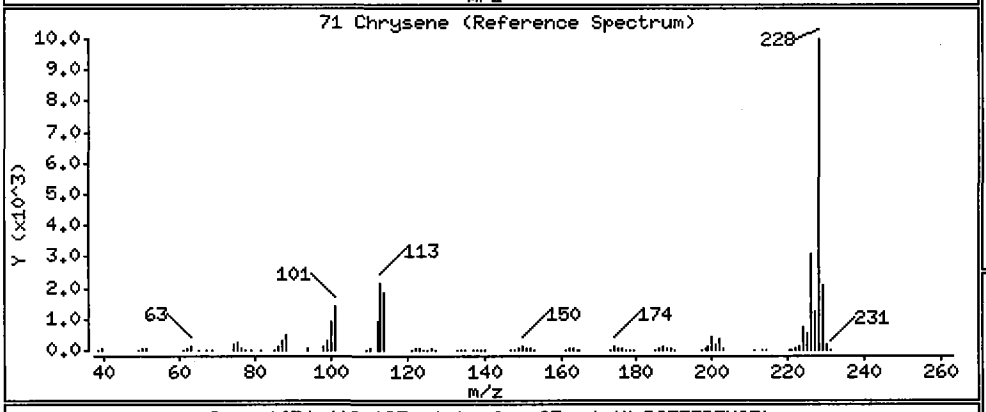
Concentration: 156100 ug/kg

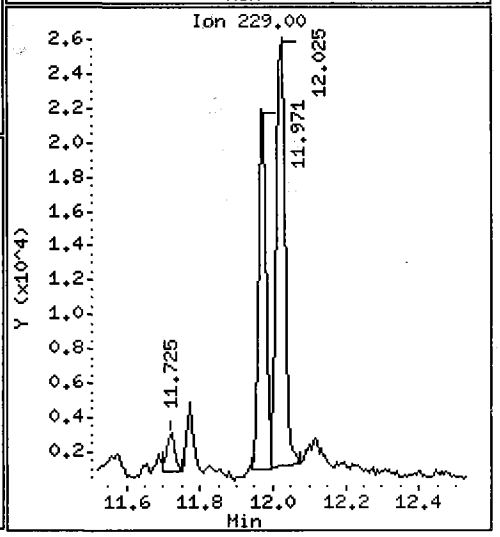


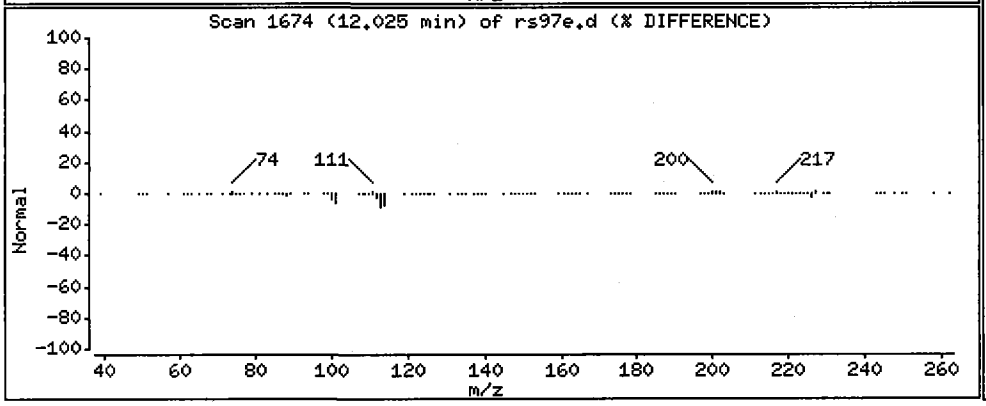












Data File: /chem1/nt12.i/20101109.b/rs97e.d

Date : 09-NOV-2010 20:02

Client ID: DGS-08-4.44.6-10100

Instrument: nt12.i

Sample Info: RS97E,3

Volume Injected (uL): 1.0

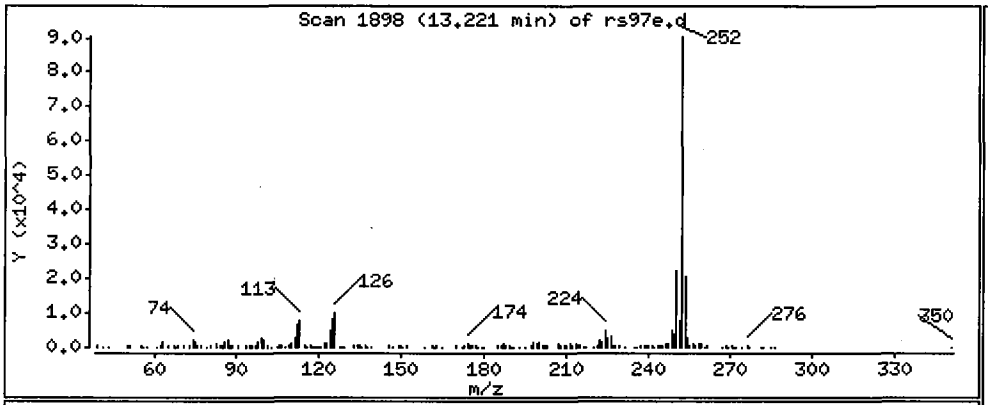
Operator: VTS

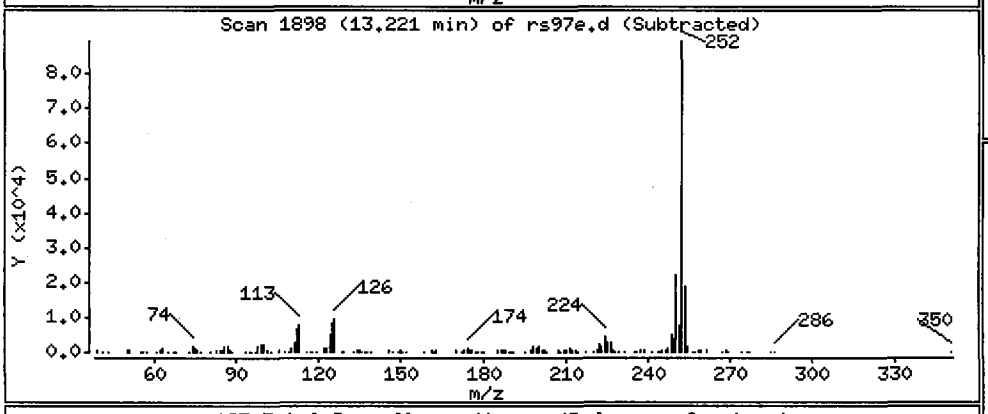
Column phase: ZB-5msi

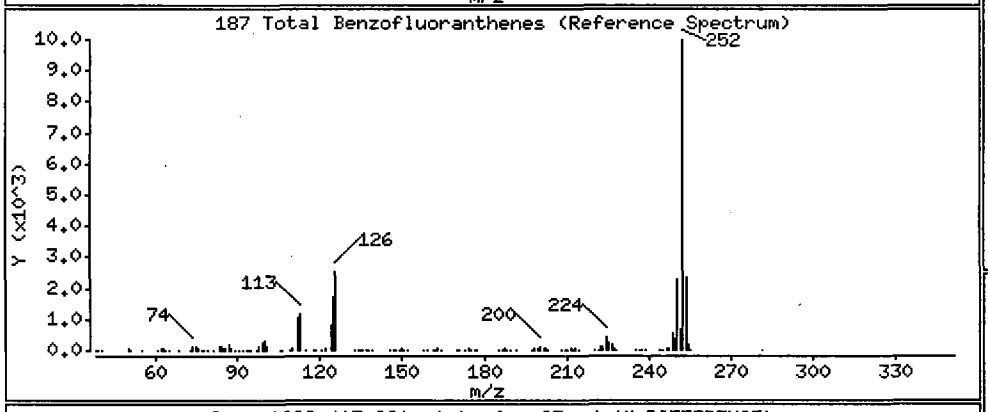
Column diameter: 0.32

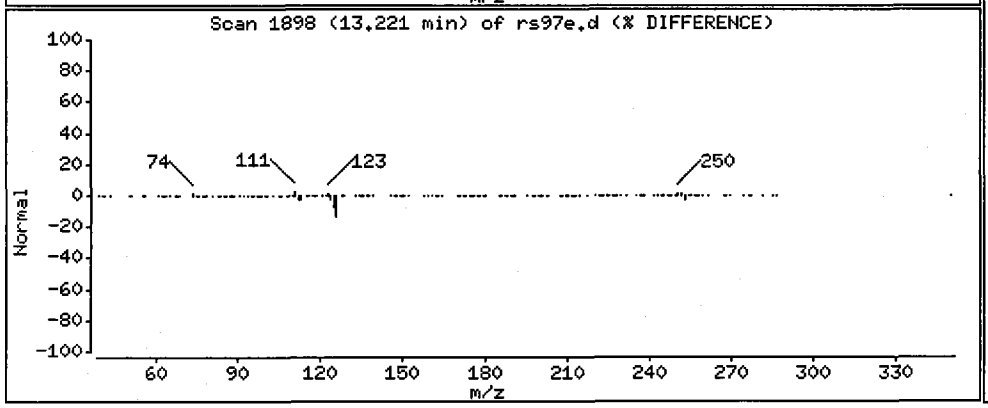
187 Total Benzofluoranthenes

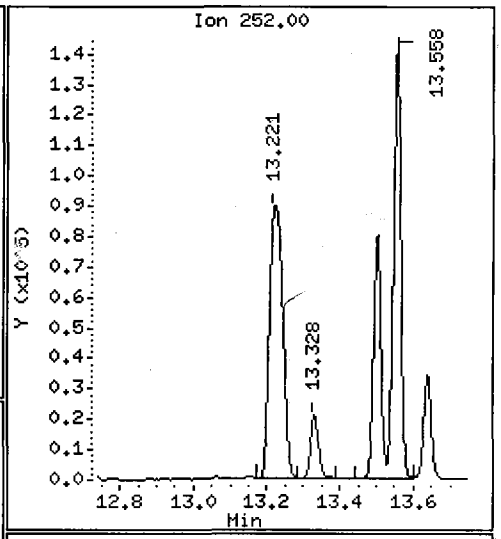
Concentration: 182500 ug/kg

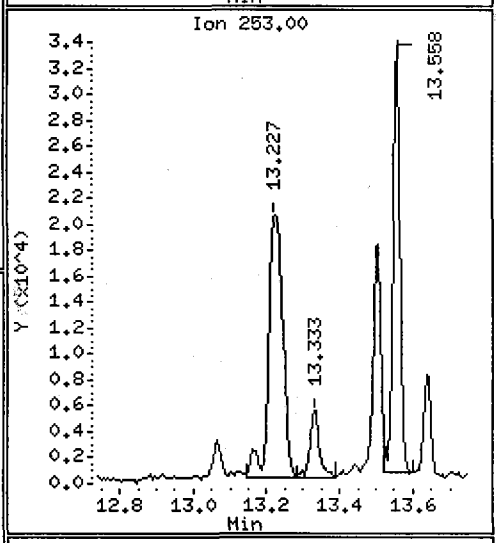


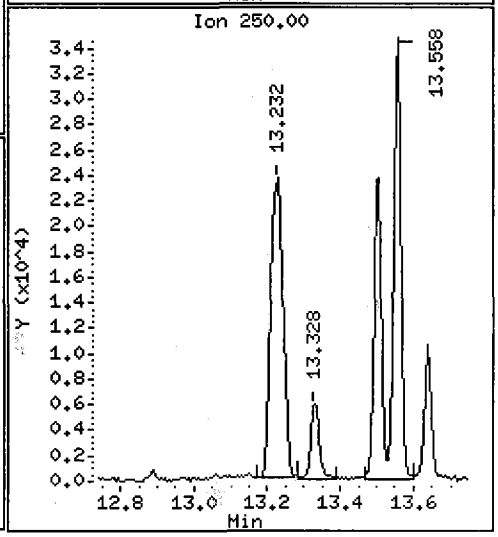












Data File: /chem1/nt12.i/20101109.b/rs97e.d

Date : 09-NOV-2010 20:02

Client ID: DGS-08-4.44.6-10100

Instrument: nt12.i

Sample Info: RS97E,3

Volume Injected (uL): 1.0

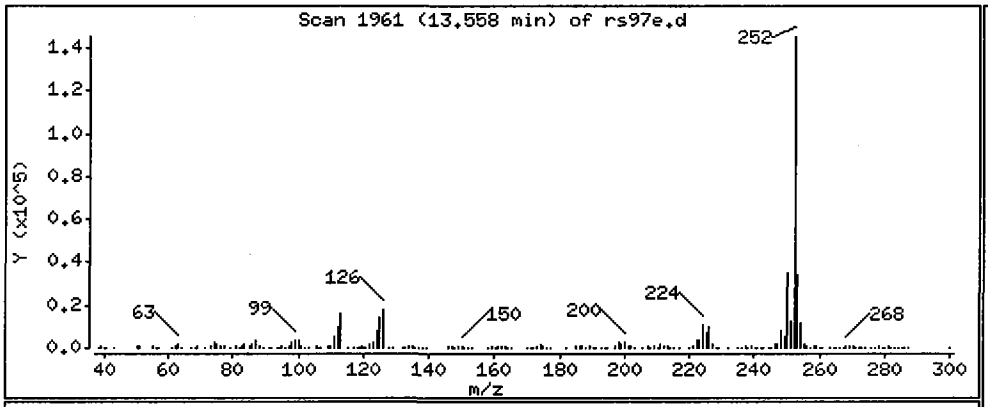
Operator: VTS

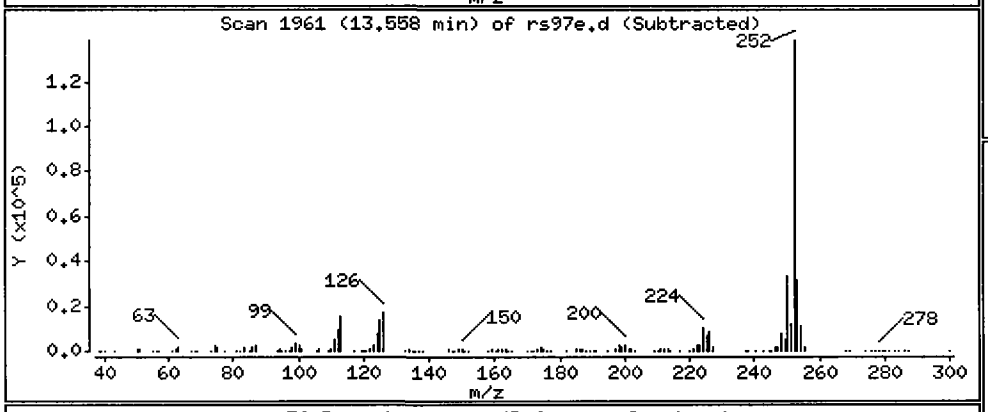
Column phase: ZB-5msi

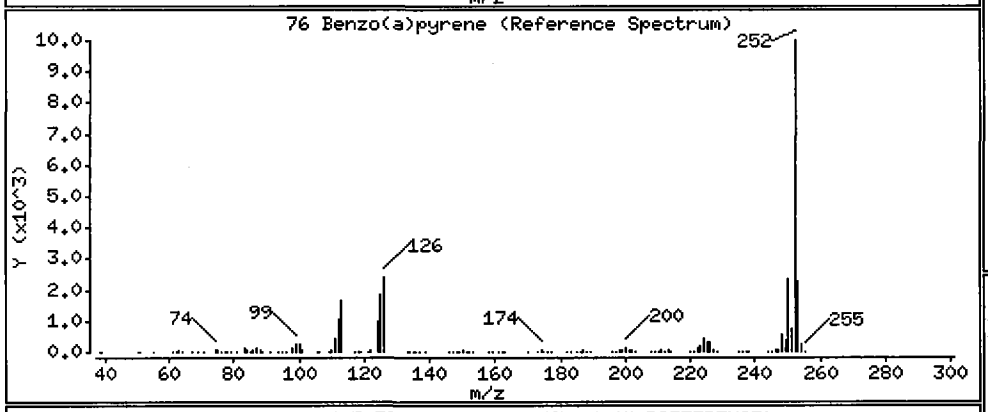
Column diameter: 0.32

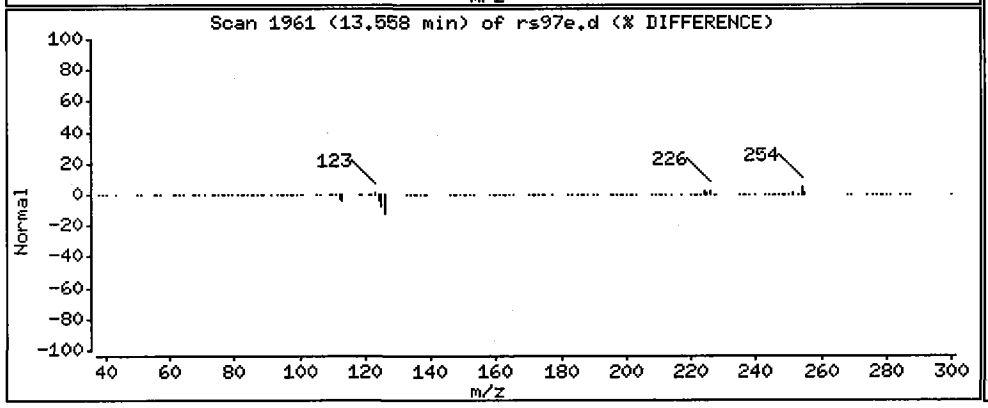
76 Benzo(a)pyrene

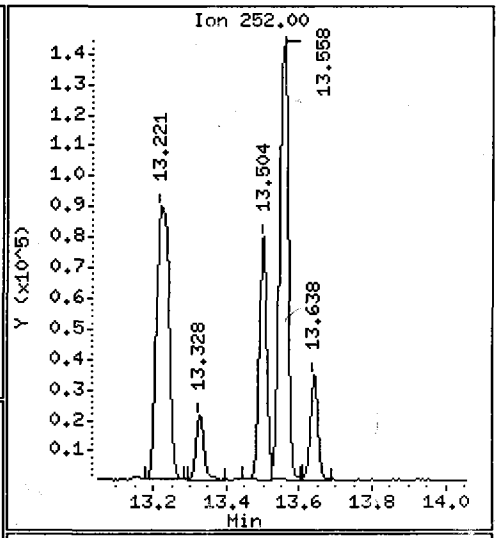
Concentration: 183800 ug/kg

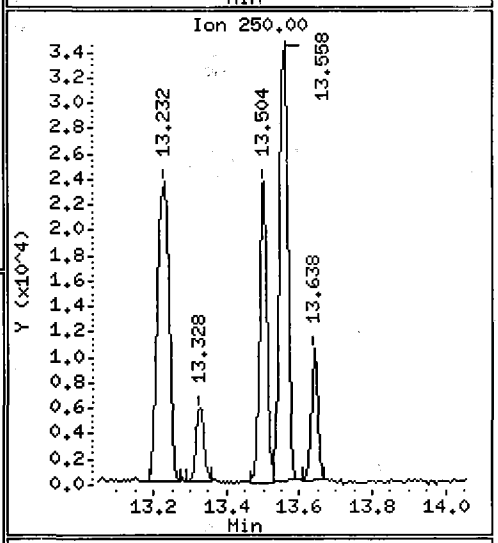


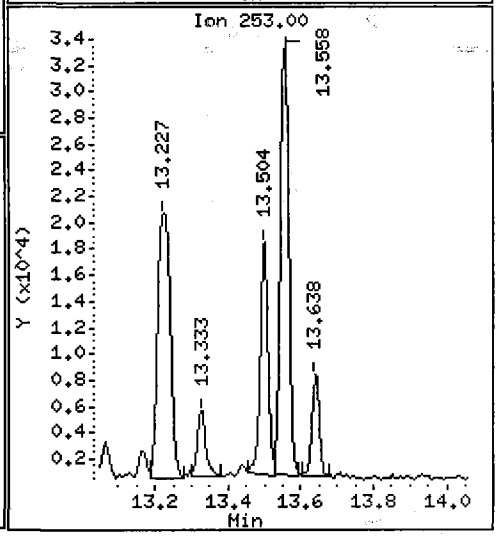












Data File: /chem1/nt12.i/20101109.b/rs97e.d

Date : 09-NOV-2010 20:02

Client ID: DGS-08-4.44.6-10100

Instrument: nt12.i

Sample Info: RS97E,3

Volume Injected (uL): 1.0

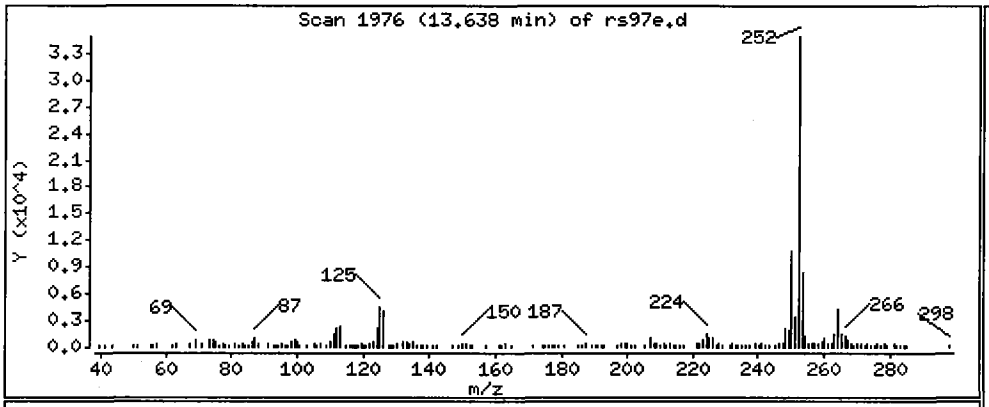
Operator: VTS

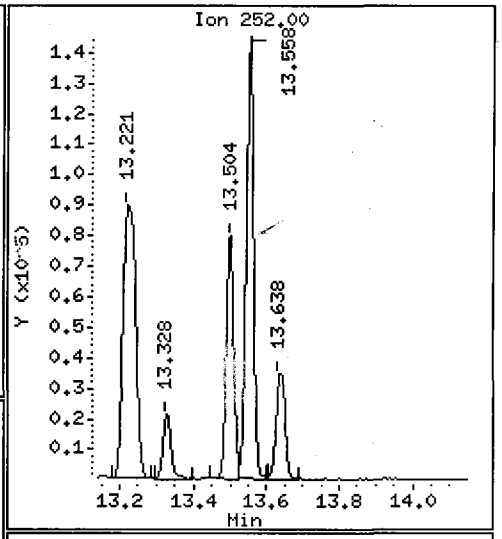
Column phase: ZB-5msi

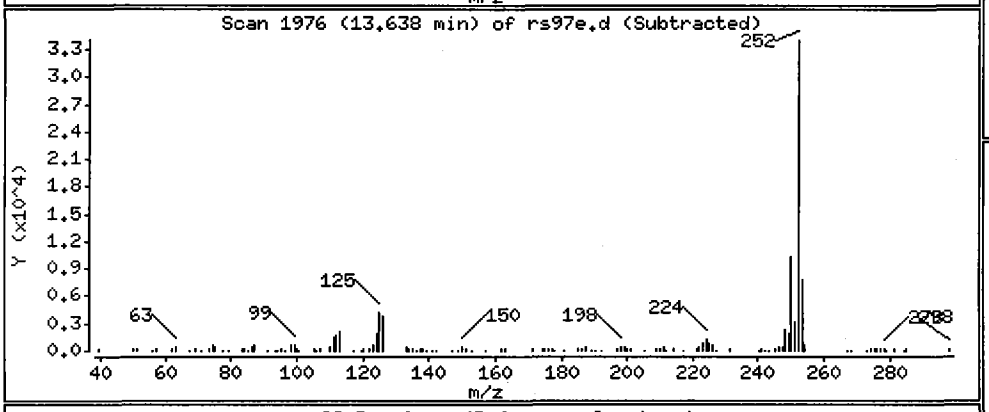
Column diameter: 0.32

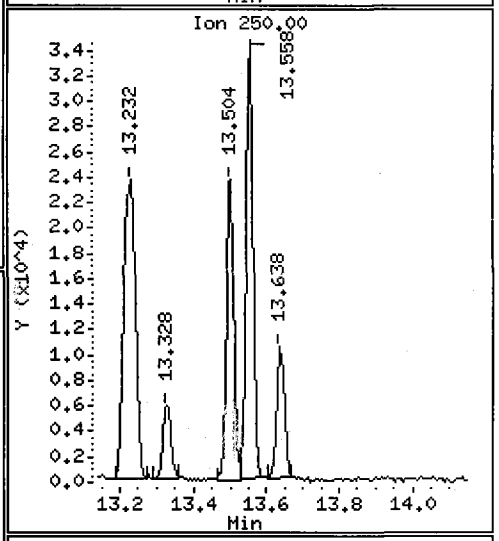
99 Perylene

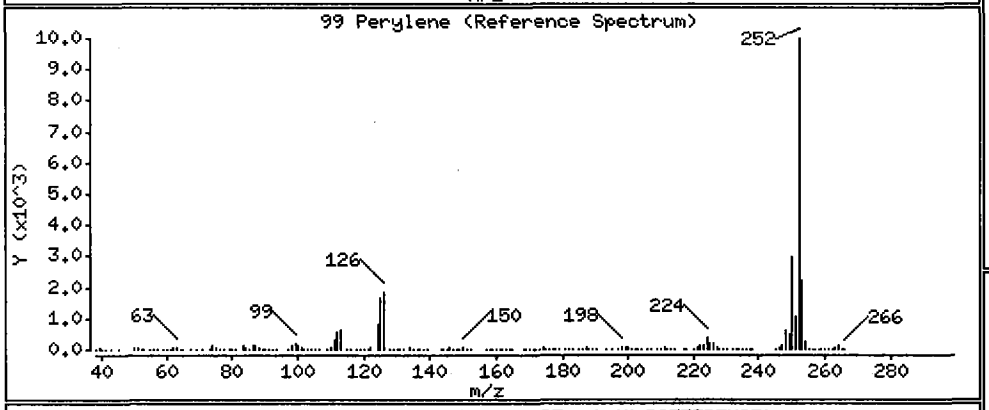
Concentration: 42480 ug/kg

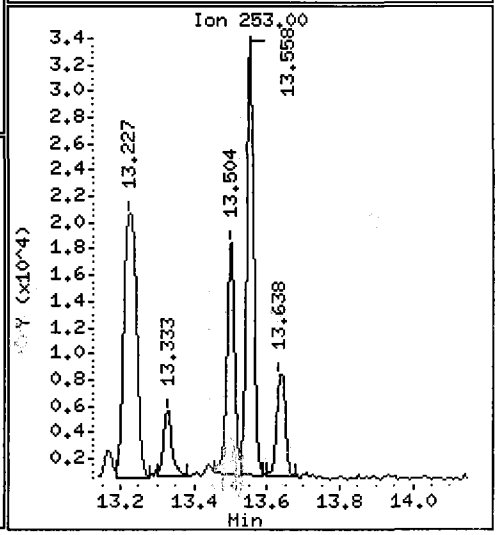


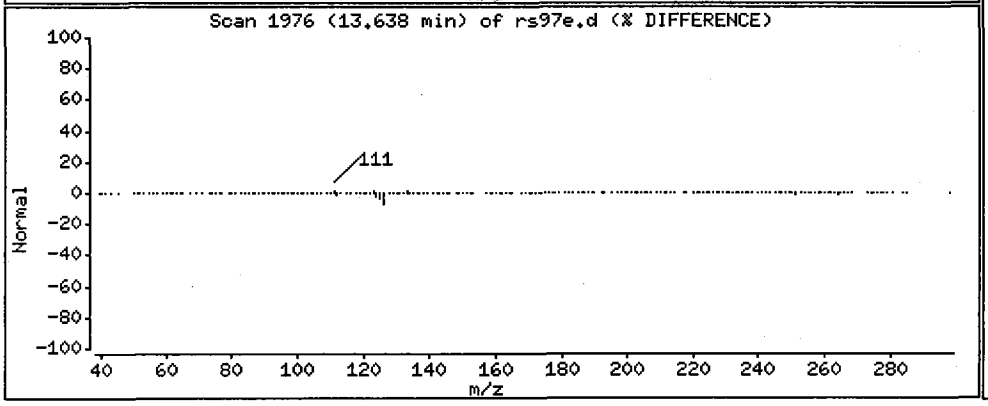












Data File: /chem1/nt12.i/20101109.b/rs97e.d

Date : 09-NOV-2010 20:02

Client ID: DGS-08-4.44.6-10100

Instrument: nt12.i

Sample Info: RS97E,3

Volume Injected (uL): 1.0

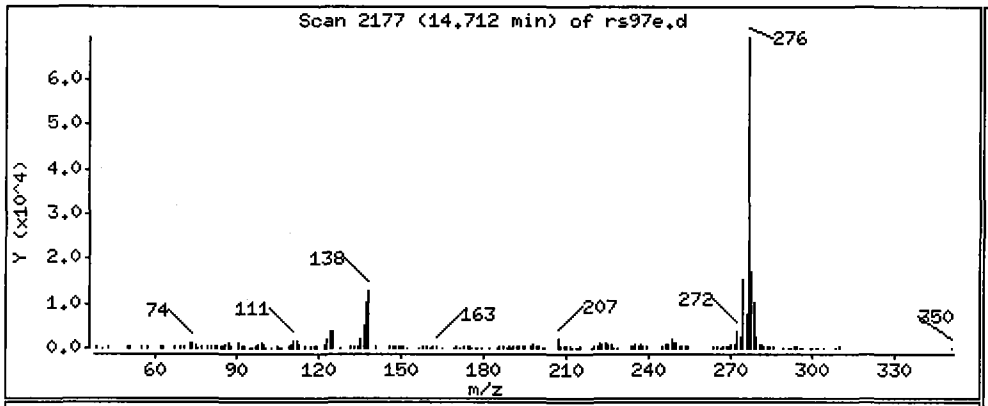
Operator: VTS

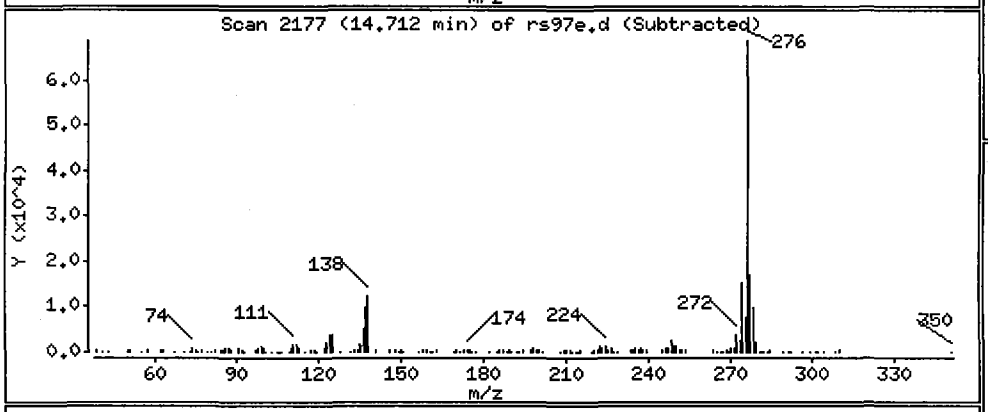
Column phase: ZB-5msi

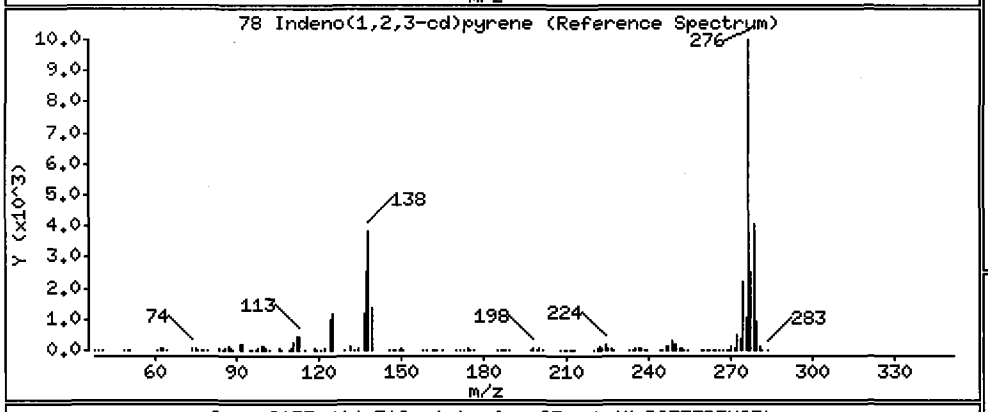
Column diameter: 0.32

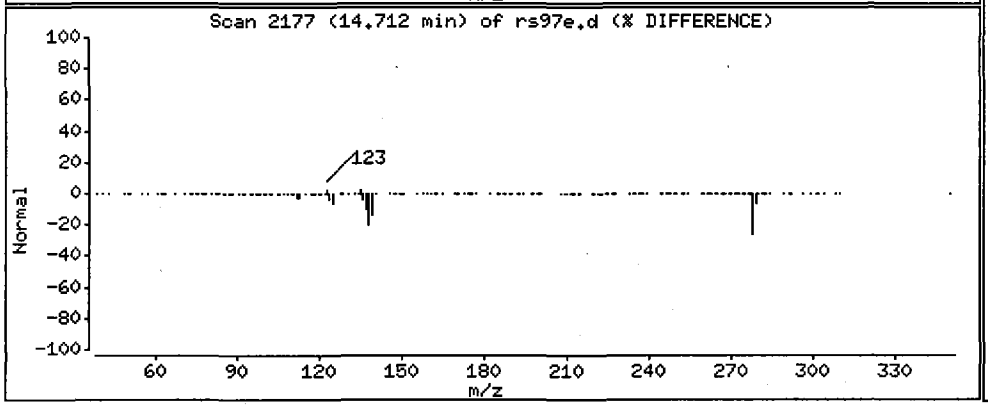
78 Indeno(1,2,3-cd)pyrene

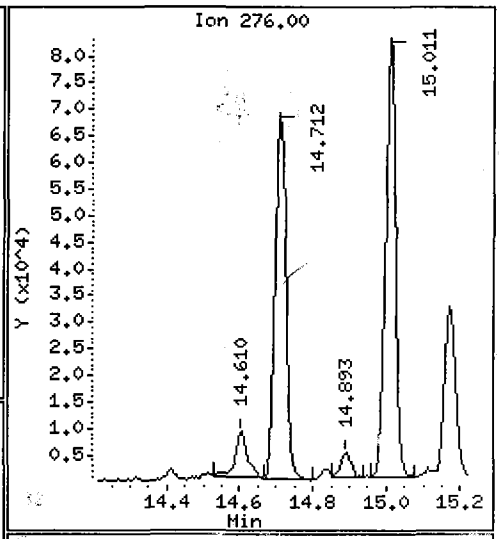
Concentration: 77760 ug/kg

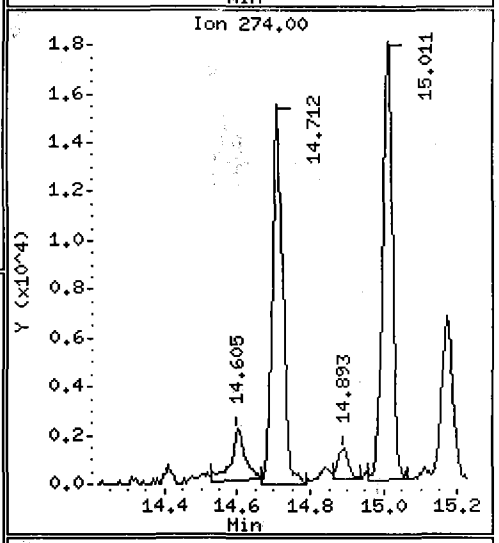


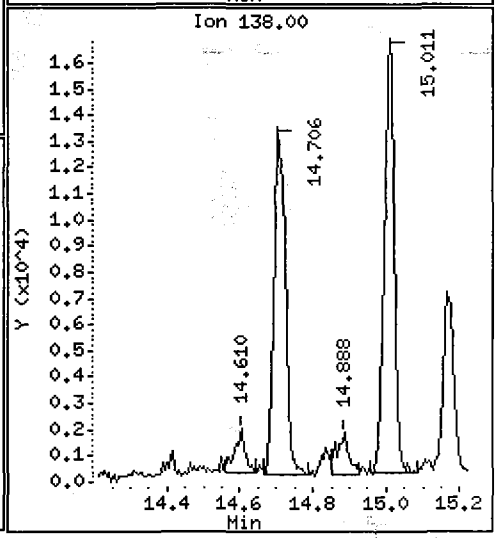












Data File: /chem1/nt12.i/20101109.b/rs97e.d

Date : 09-NOV-2010 20:02

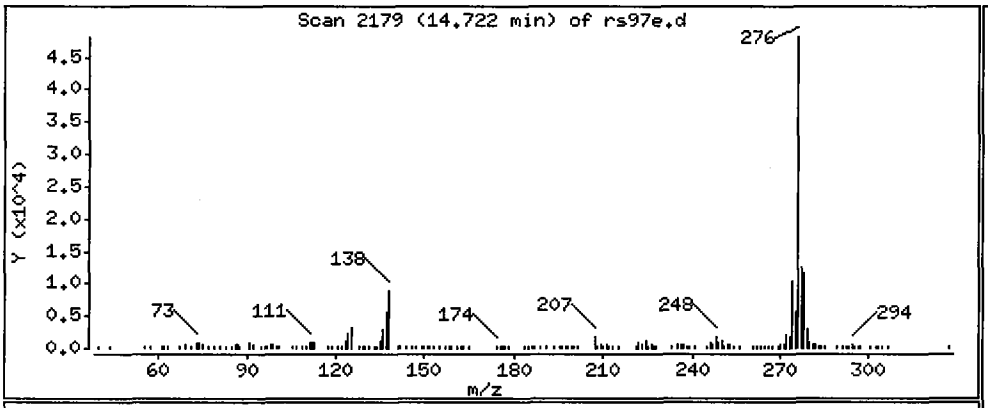
Client ID: DGS-08-4.44.6-10100 Instrument: nt12.i

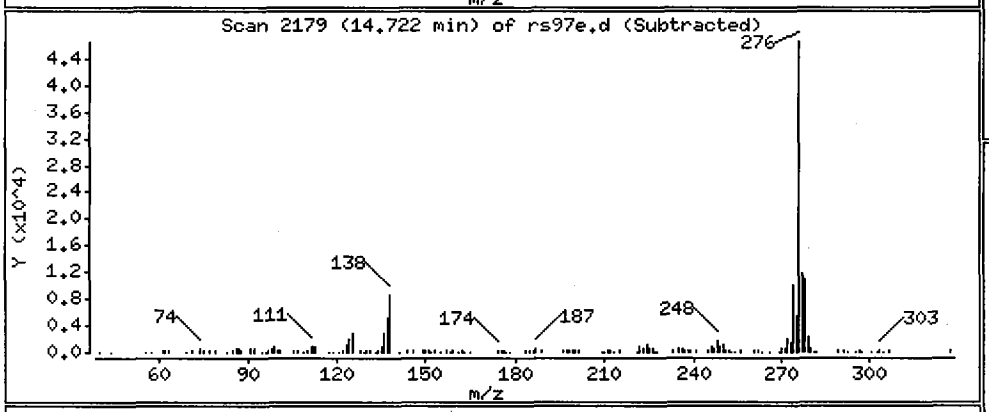
Sample Info: RS97E,3

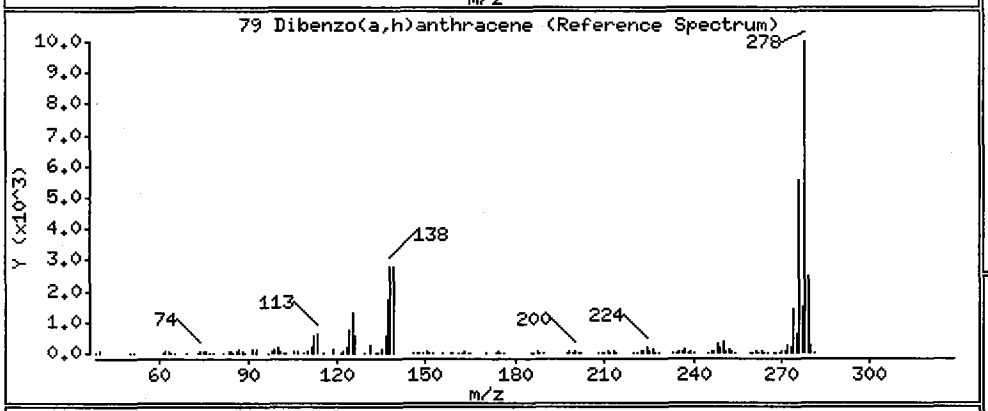
Volume Injected (uL): 1.0 Operator: VTS

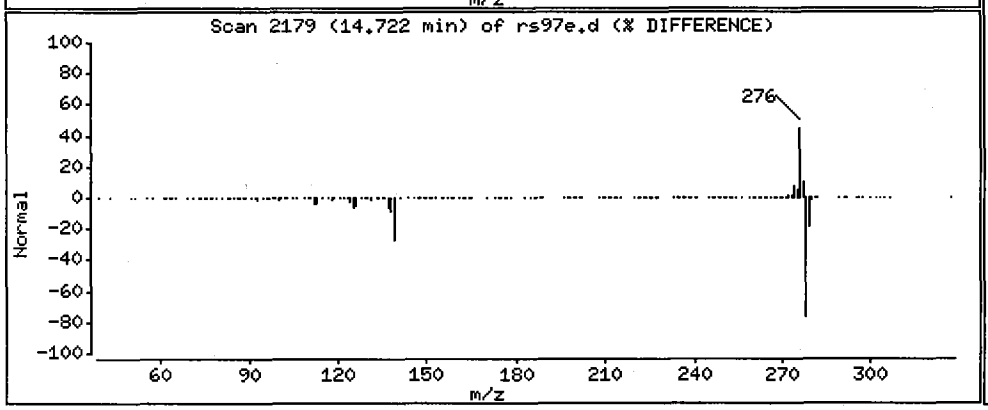
Column phase: ZB-5msi Column diameter: 0.32

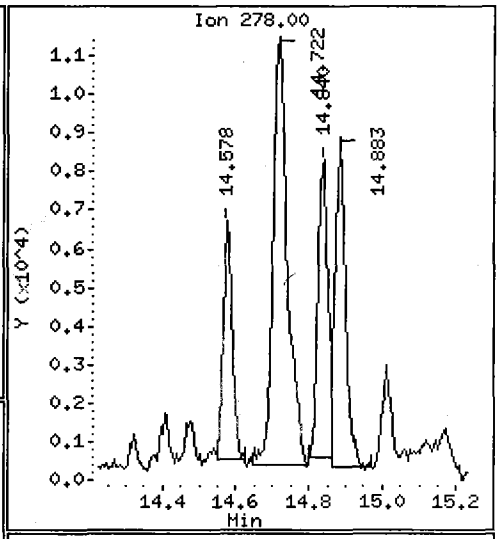
79 Dibenzo(a,h)anthracene Concentration: 21110 ug/kg

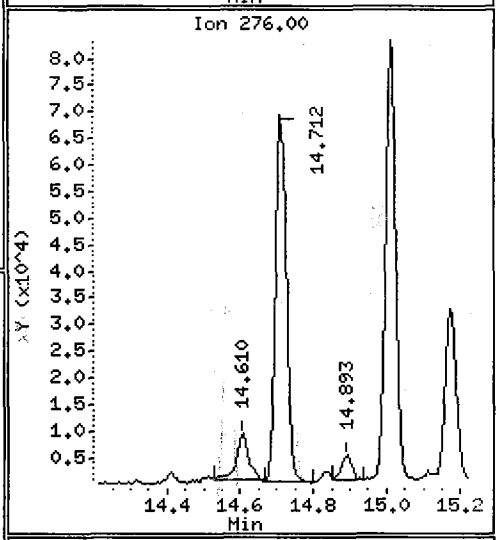


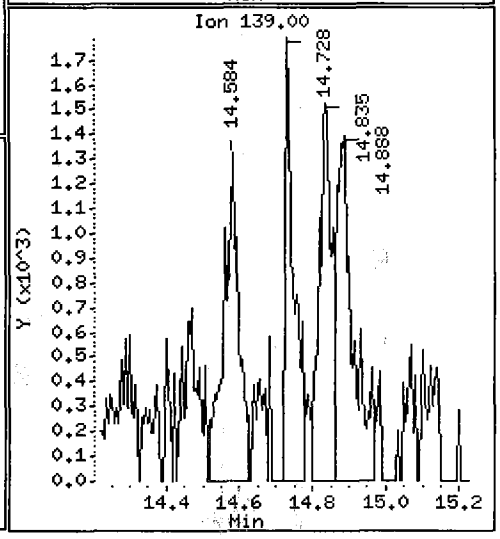












Data File: /chem1/nt12.i/20101109.b/rs97e.d

Date : 09-NOV-2010 20:02

Client ID: DGS-08-4.44.6-10100

Instrument: nt12.i

Sample Info: RS97E,3

Volume Injected (uL): 1.0

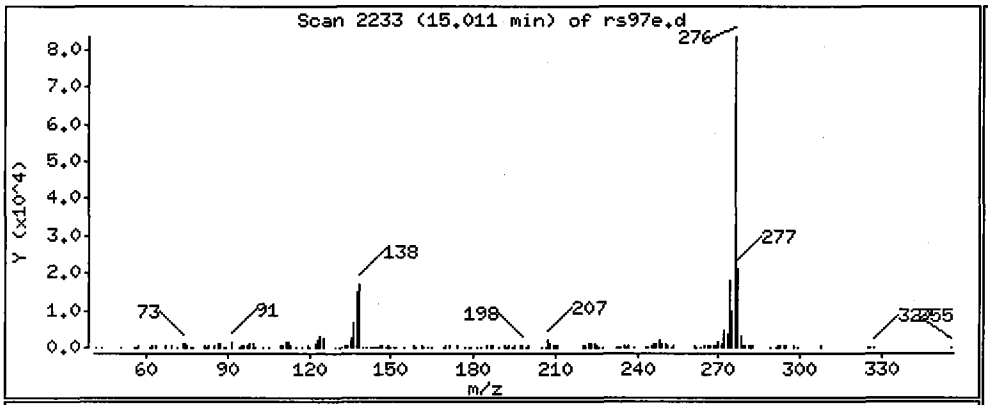
Operator: VTS

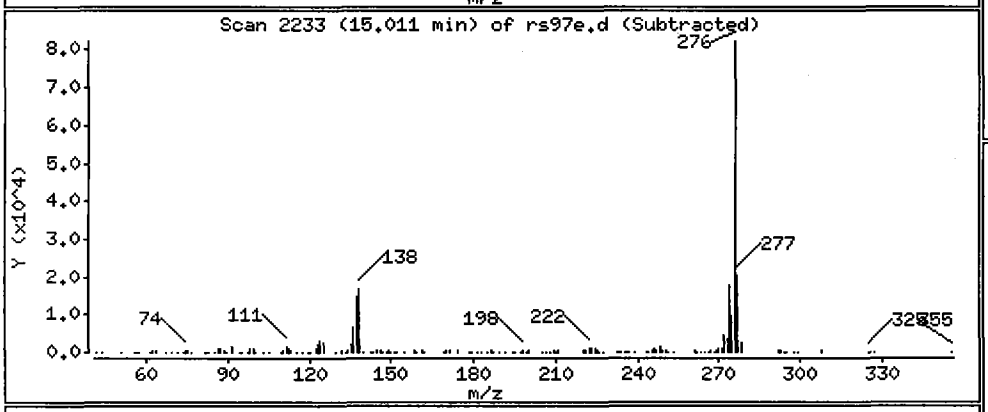
Column phase: ZB-5msi

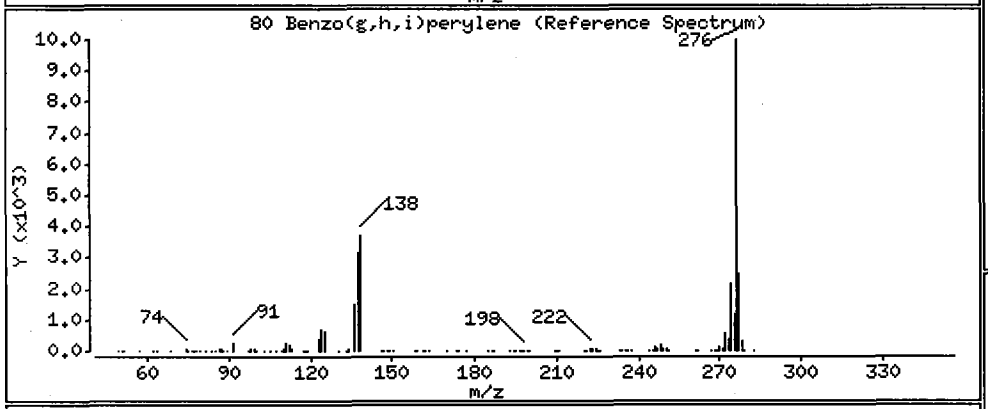
Column diameter: 0.32

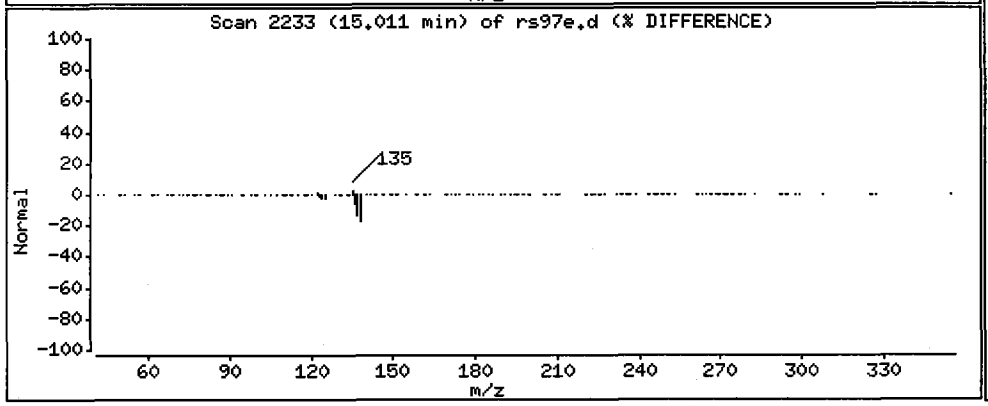
80 Benzo(g,h,i)perylene

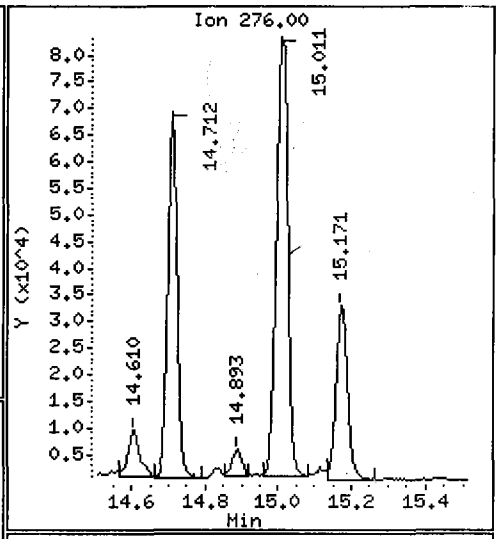
Concentration: 119500 ug/kg

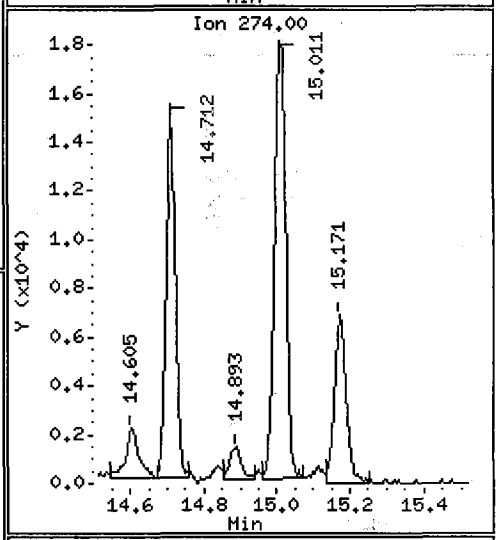


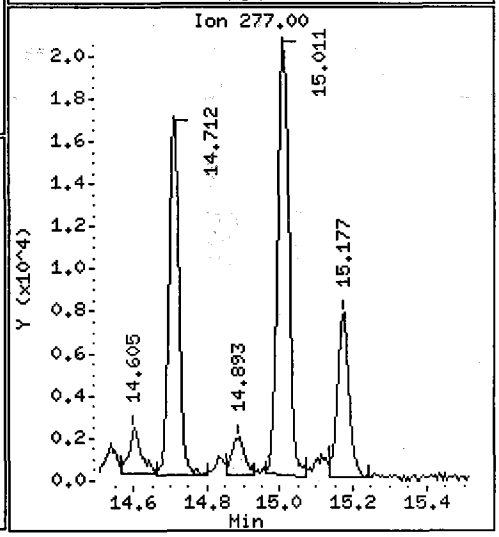








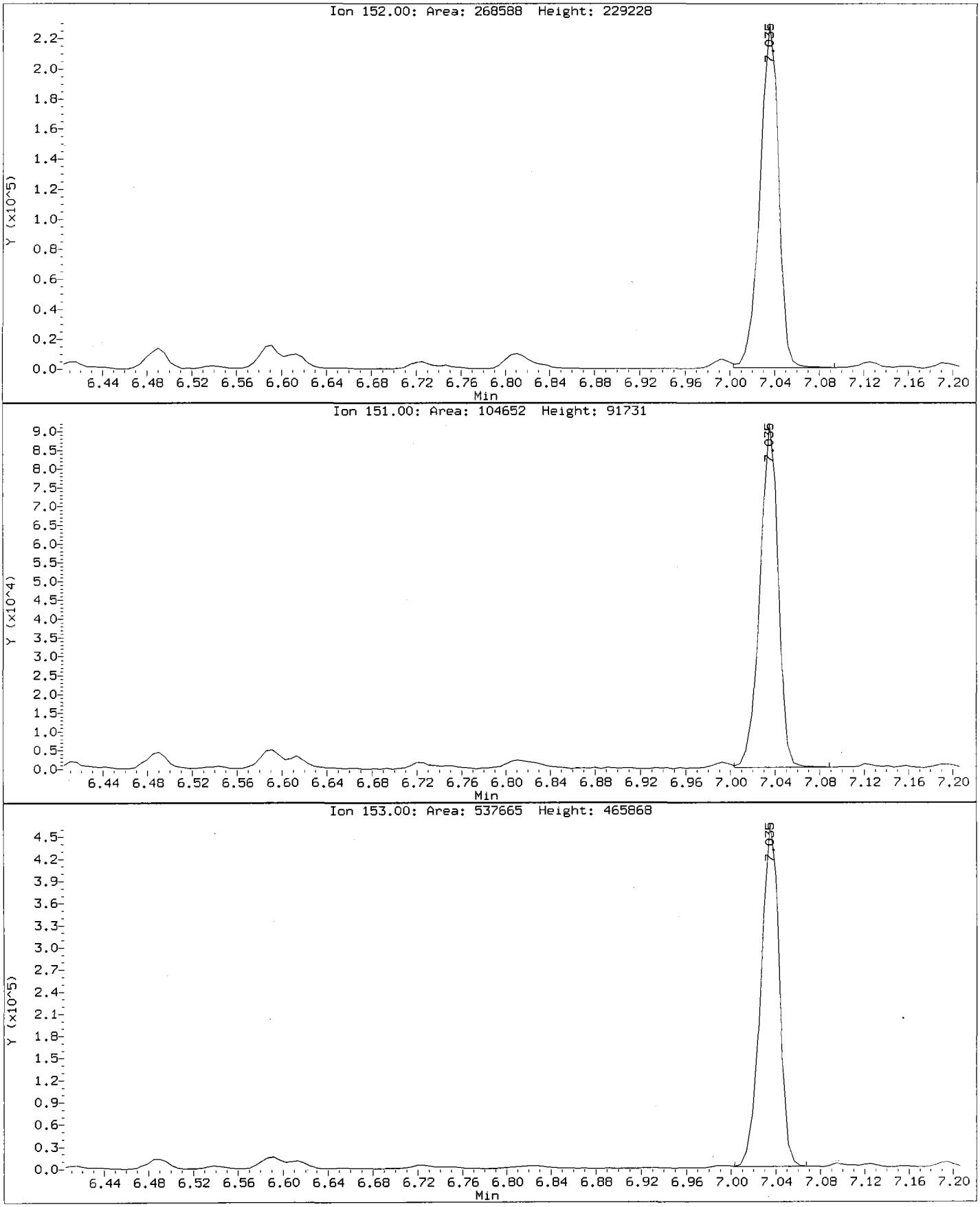




Data File: /chem1/nt12.i/20101109.b/rs97e.d
Injection Date: 09-NOV-2010 20:02
Instrument: nt12.i
Client Sample ID: DGS-08-4.44.6-10100

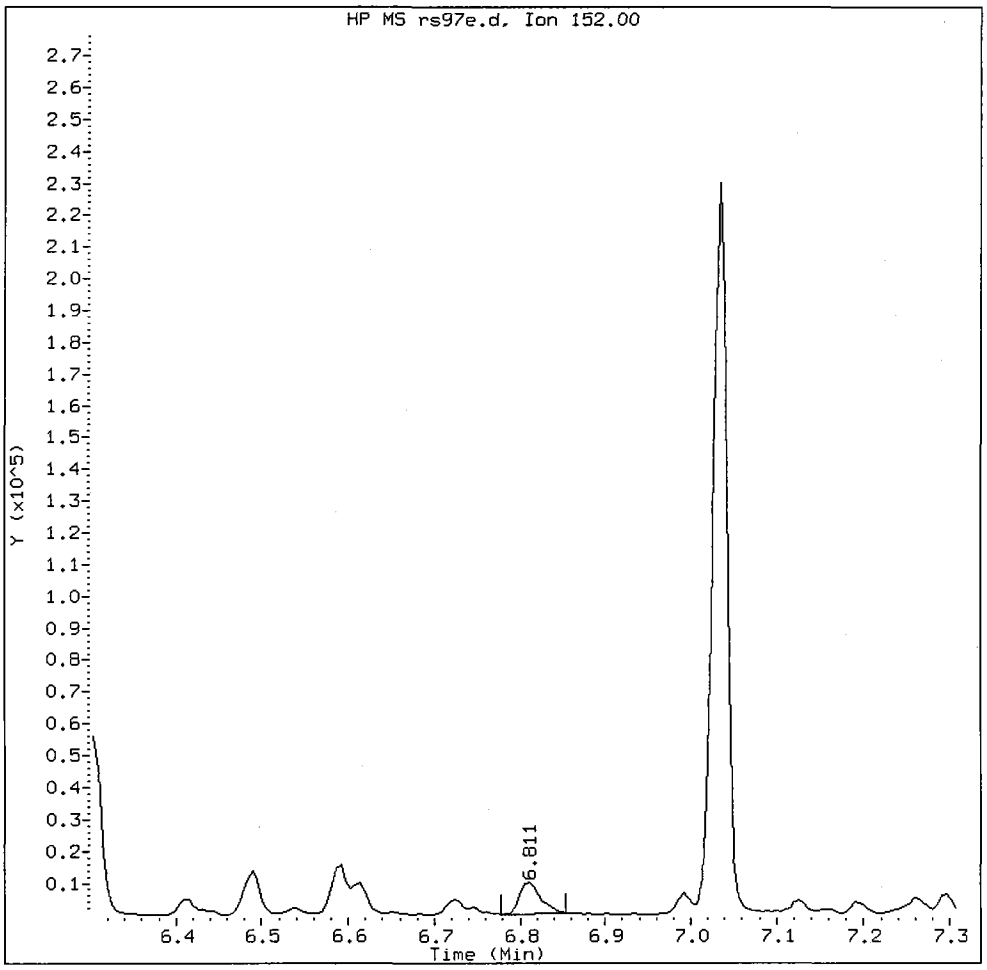
Compound: Acenaphthylene
CAS Number: 208-96-8

11.10.10



RS97E, /chem1/nt12.i/20101109.b/rs97e.d

Acenaphthylene Amount: 1.55 Area: 16625



MANUAL INTEGRATION for Acenaphthylene

1. Baseline correction
2. Poor chromatography
3. Peak not found
4. Totals calculation

5. Other _____

Analyst: VB Date: 11.10.10

Analytical Resources, Inc.

Semivolatile Report SW846 Method 8270D

Data file : /chem1/nt12.i/20101109.b/rs97f.d
Lab Smp Id: RS97F
Client Smp ID: GST-09SO-17-18-1010
Inj Date : 09-NOV-2010 20:26
Operator : VTS
Inst ID: nt12.i
Smp Info : RS97F,3
Misc Info : 10-27422
Comment : 1ul Injection
Method : /chem1/nt12.i/20101109.b/PNADMD.m
Meth Date : 09-Nov-2010 11:48 van
Quant Type: ISTD
Cal Date : 30-OCT-2010 13:19
Cal File: ic1030f.d
Als bottle: ~~25~~
Dil Factor: 3.00000
Integrator: ~~HP RTE~~
Compound Sublist: pnas.sub
Target Version: 3.50
Processing Host: cserv3

Concentration Formula: Amt * DF * Vt/(Ws * (100 - M)/100) * CpndVariable

Name	Value	Description
DF	3.00000	Dilution Factor
Vt	10000.00000	Volume of final extract (uL)
Ws	5.08000	Weight of sample extracted (g)
M	17.30000	% Moisture

Cpnd Variable Local Compound Variable

Compounds	QUANT SIG MASS	RT	EXP RT	REL RT	RESPONSE	CONCENTRATIONS ON-COLUMN (ug/mL)	FINAL (ug/kg)
* 27 Naphthalene-d8	136	4.930	4.888	(1.000)	277504	20.0000	
28 Naphthalene	128	4.967	4.909	(1.008)	8517245	539.271	3851000 E,S
32 2-Methylnaphthalene	141	5.747	5.726	(1.166)	1567922	185.990	1328000 E
105 1-methylnaphthalene	141	5.865	5.854	(1.190)	803220	92.4065	659900 E
$ 36 2-Fluorobiphenyl	172	6.207	6.202	(0.887)	4542	0.54941	3923
40 Acenaphthylene	152	6.816	6.805	(0.974)	978984	90.9795	649700 E
* 42 Acenaphthene-d10	164	6.998	6.992	(1.000)	107458	20.0000	
44 Acenaphthene	153	7.046	7.030	(1.007)	1200014	181.582	1297000 E
46 Dibenzofuran	168	7.227	7.227	(1.033)	142166	14.0286	100200
49 Fluorene	166	7.655	7.644	(1.094)	943954	124.752	890800 E
* 59 Phenanthrene-d10	188	8.798	8.766	(1.000)	213712	20.0000	
60 Phenanthrene	178	8.846	8.793	(1.005)	6110193	538.932	3848000 E,S
61 Anthracene	178	8.883	8.851	(1.010)	1249619	106.644	761500 E
62 Carbazole	167	9.070	9.065	(1.031)	213993	22.6381	161700

Compounds	QUANT SIG MASS	RT	EXP RT	REL RT	RESPONSE	CONCENTRATIONS ON-COLUMN (ug/mL)	CONCENTRATIONS FINAL (ug/kg)
64 Fluoranthene	202	10.283	10.240	(0.856)	3715774	279.810	1998000
65 Pyrene	202	10.555	10.508	(0.879)	4420529	335.541	2396000
$ 66 Terphenyl-d14	244	10.742	10.743	(0.895)	3238	0.38528	2751
68 Benzo(a)anthracene	228	11.992	11.977	(0.999)	961567	90.0649	643100
* 69 Chrysene-d12	240	12.009	11.993	(1.000)	190112	20.0000	
71 Chrysene	228	12.051	12.025	(1.004)	1206143	120.838	862900
187 Total Benzofluoranthenes	252	13.248	13.243	(0.972)	1429548	152.381	1088000
76 Benzo(a)pyrene	252	13.590	13.553	(0.997)	1259805	146.182	1044000
* 77 Perylene-d12	264	13.633	13.611	(1.000)	157507	20.0000	
99 Perylene	252	13.659	13.643	(1.002)	254513	~~27.7~~719	198300
78 Indeno(1,2,3-cd)pyrene	276	14.749	14.717	(1.082)	667207	52.1463	372400
79 Dibenzo(a,h)anthracene	278	14.749	14.728	(1.082)	151890	14.4191	103000
80 Benzo(g,h,i)perylene	276	15.059	15.011	(1.105)	763907	72.6755	519000

11-10-10

Analytical Resources, Inc.

INTERNAL STANDARD COMPOUNDS
AREA AND RT SUMMARY

Instrument ID: nt12.i
Lab File ID: rs97f.d
Lab Smp Id: RS97F
Analysis Type: SV
Quant Type: ISTD
Operator: VTS
Method File: /chem1/nt12.i/20101109.b/PNADMD.m
Misc Info: 10-27422

Calibration Date: 09-NOV-2010
Calibration Time: 11:04
Client Smp ID: GST-09SO-17-18-1
Level: LOW
Sample Type: Soil

Test Mode:
Use Initial Calibration Level 4.

COMPOUND	STANDARD	AREA LIMIT LOWER	AREA LIMIT UPPER	SAMPLE	%DIFF
27 Naphthalene-d8	237664	118832	475328	277504	16.76
42 Acenaphthene-d10	143363	71682	286726	107458	-25.04
59 Phenanthrene-d10	245437	122718	490874	213712	-12.93
69 Chrysene-d12	199260	99630	398520	190112	-4.59
77 Perylene-d12	197636	98818	395272	157507	-20.30

COMPOUND	STANDARD	RT LIMIT LOWER	RT LIMIT UPPER	SAMPLE	%DIFF
27 Naphthalene-d8	4.89	4.39	5.39	4.93	0.87
42 Acenaphthene-d10	6.99	6.49	7.49	7.00	0.07
59 Phenanthrene-d10	8.77	8.27	9.27	8.80	0.36
69 Chrysene-d12	11.99	11.49	12.49	12.01	0.13
77 Perylene-d12	13.61	13.11	14.11	13.63	0.16

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.

Analytical Resources, Inc.

RECOVERY REPORT

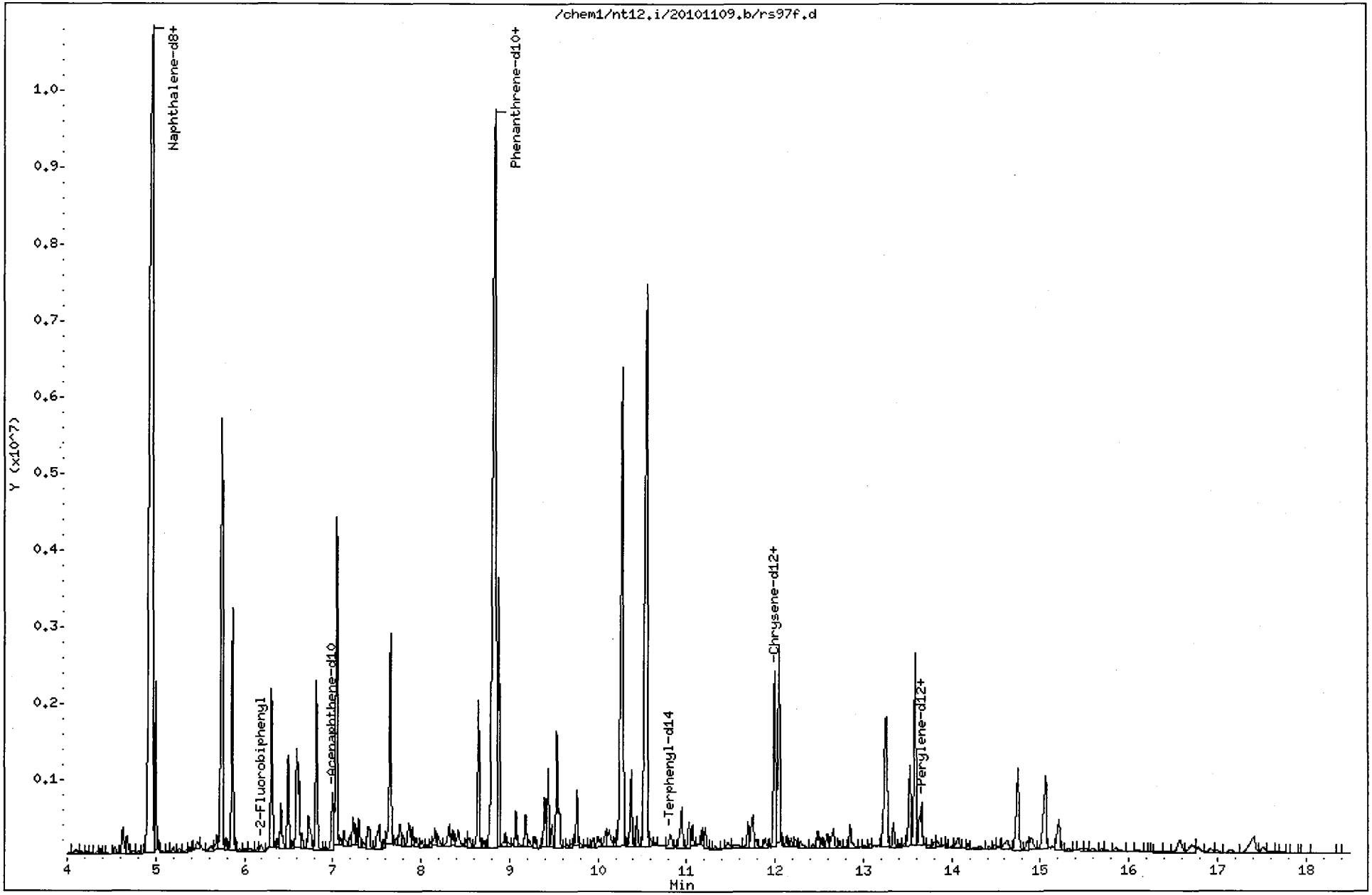
Client Name: NW Natural
Sample Matrix: SOLID
Lab Smp Id: RS97F
Level: LOW
Data Type: MS DATA
SpikeList File: SONICLCS.spk
Sublist File: pnas.sub
Method File: /chem1/nt12.i/20101109.b/PNADMD.m
Misc Info: 10-27422

Client SDG: RS97
Fraction: SV
Client Smp ID: GST-09SO-17-18-1010
Operator: VTS
SampleType: SAMPLE
Quant Type: ISTD

SURROGATE COMPOUND	CONC ADDED ug/kg	CONC RECOVERED ug/kg	% RECOVERED	LIMITS
$ 36 2-Fluorobiphenyl	5951	3923	65.93	34-100
$ 66 Terphenyl-d14	5951	2751	46.23	35-112

Data File: /chem1/nt12.i/20101109.b/rs97f.d
Date : 09-NOV-2010 20:26
Client ID: GST-09SO-17-18-1010
Sample Info: RS97F,3
Volume Injected (uL): 1.0
Column phase: ZB-5msi

Instrument: nt12.i
Operator: VTS
Column diameter: 0.32



RS97:00326

Data File: /chem1/nt12.i/20101109.b/rs97f.d

Date : 09-NOV-2010 20:26

Client ID: GST-09SO-17-18-1010

Instrument: nt12.i

Sample Info: RS97F,3

Volume Injected (uL): 1.0

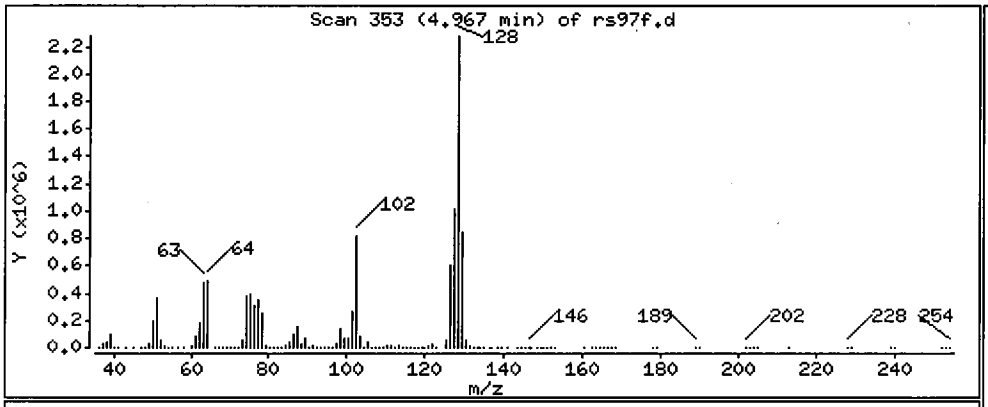
Operator: VTS

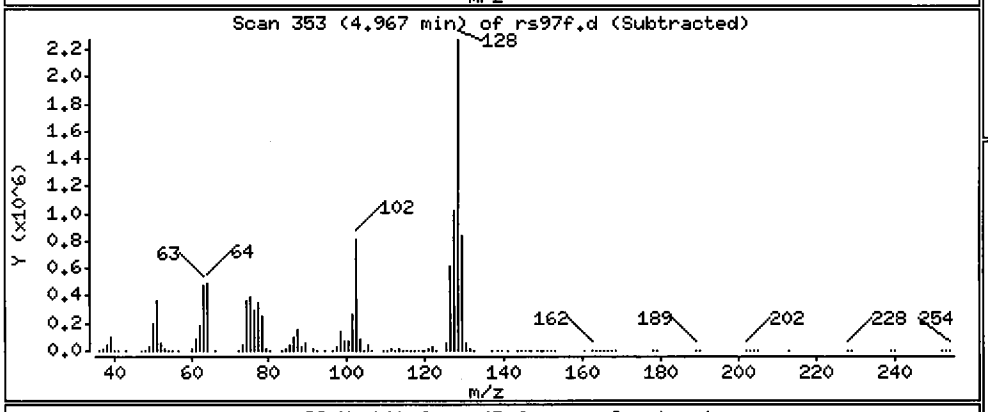
Column phase: ZB-5msi

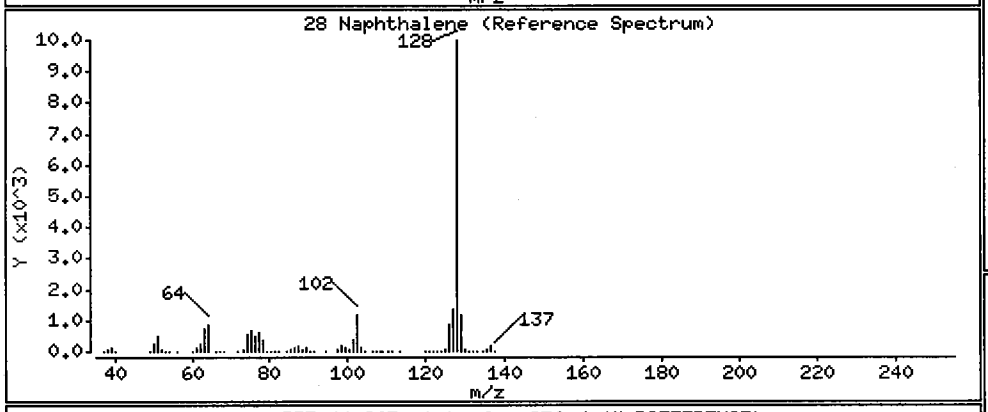
Column diameter: 0.32

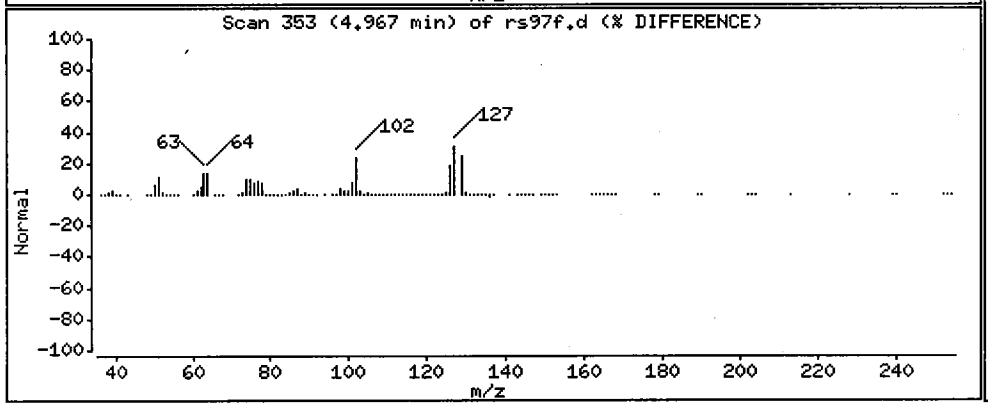
28 Naphthalene

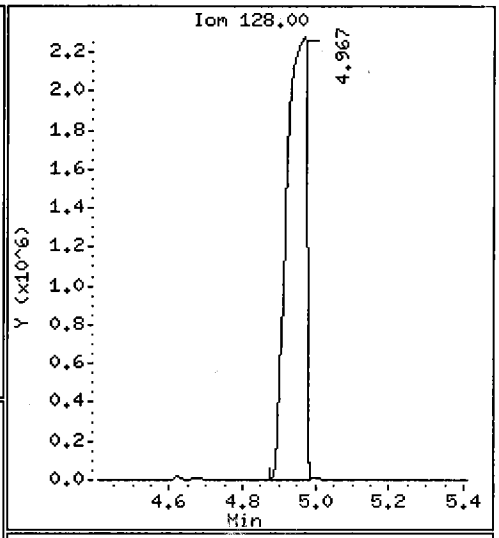
Concentration: 3851000 ug/kg

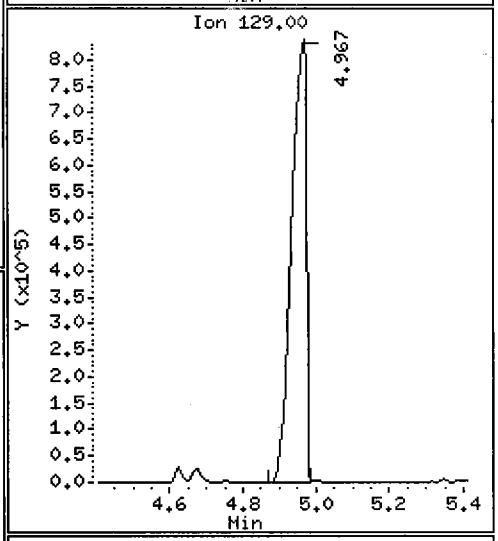


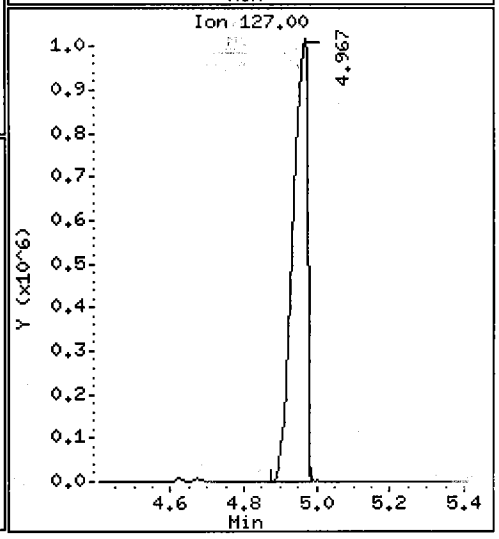












Data File: /chem1/nt12.i/20101109.b/rs97f.d

Date : 09-NOV-2010 20:26

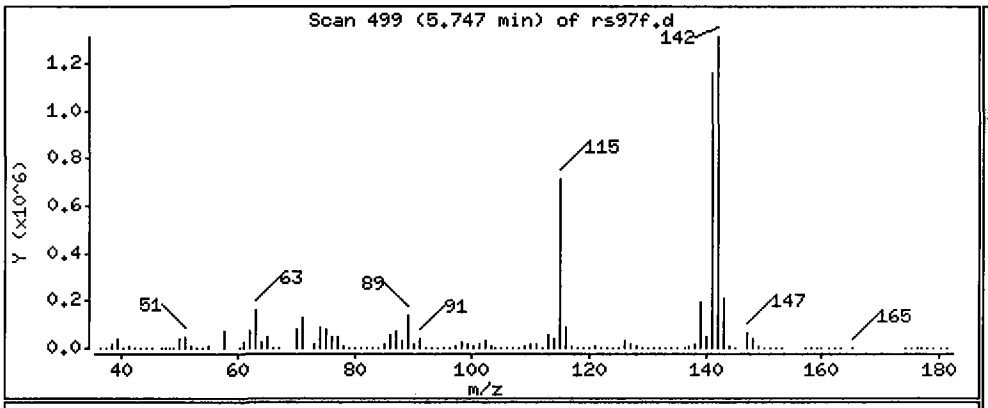
Client ID: GST-09SO-17-18-1010 Instrument: nt12.i

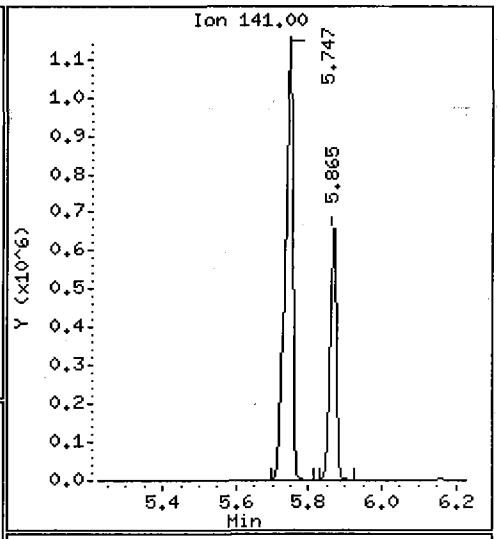
Sample Info: RS97F,3

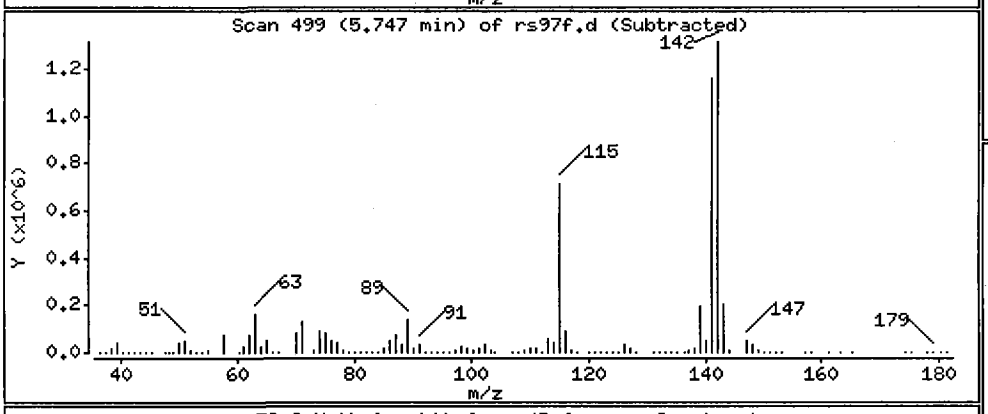
Volume Injected (uL): 1.0 Operator: VTS

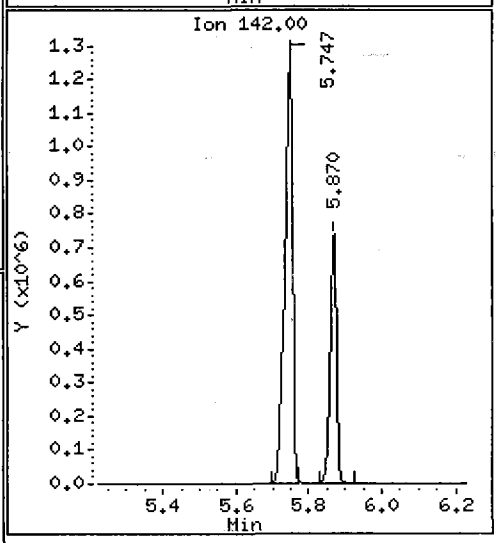
Column phase: ZB-5msi Column diameter: 0.32

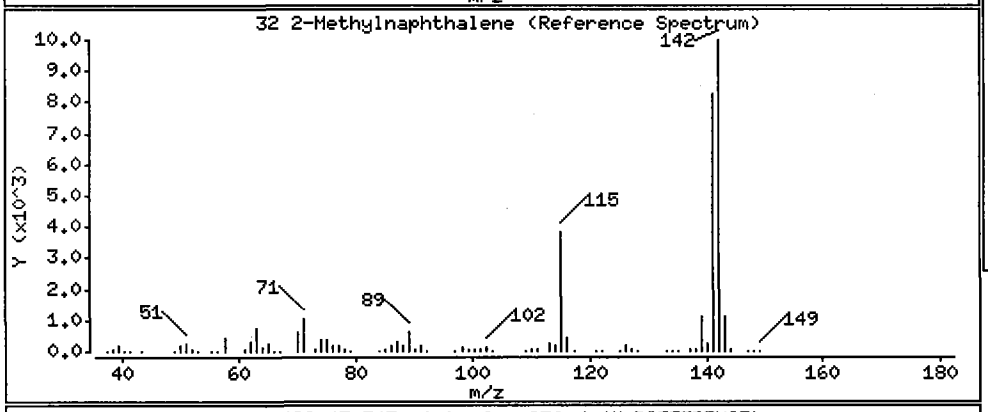
32 2-Methylnaphthalene Concentration: 1328000 ug/kg

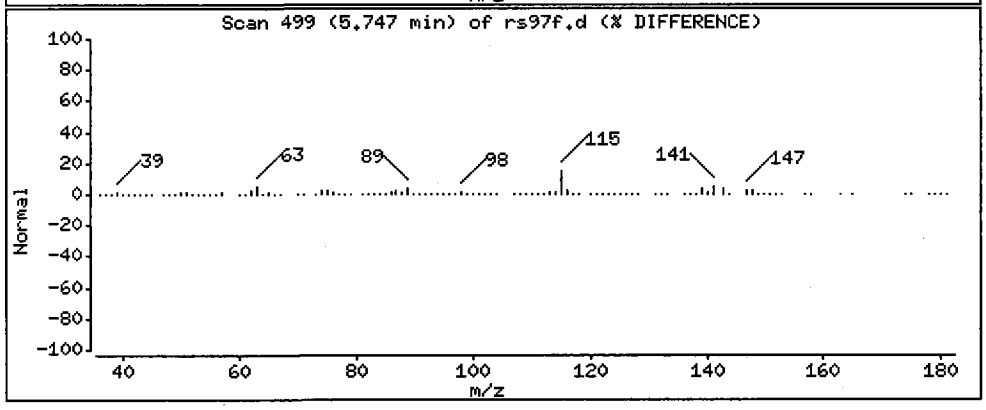












Data File: /chem1/nt12.i/20101109.b/rs97f.d

Date : 09-NOV-2010 20:26

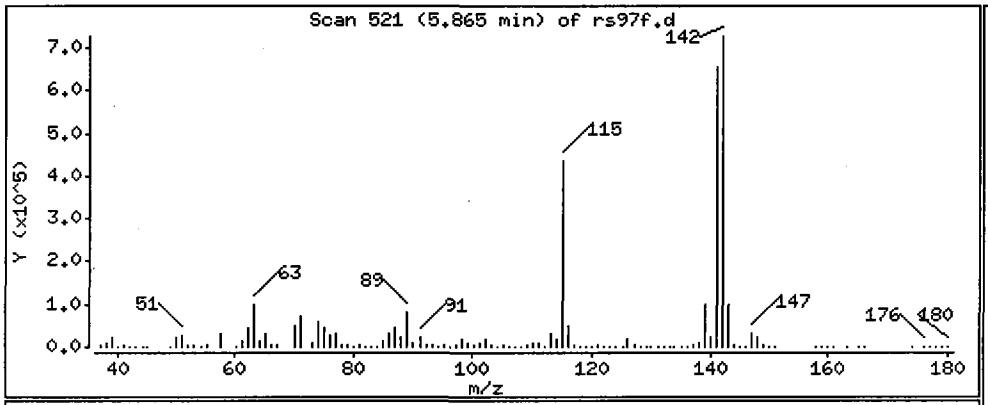
Client ID: GST-09SO-17-18-1010 Instrument: nt12.i

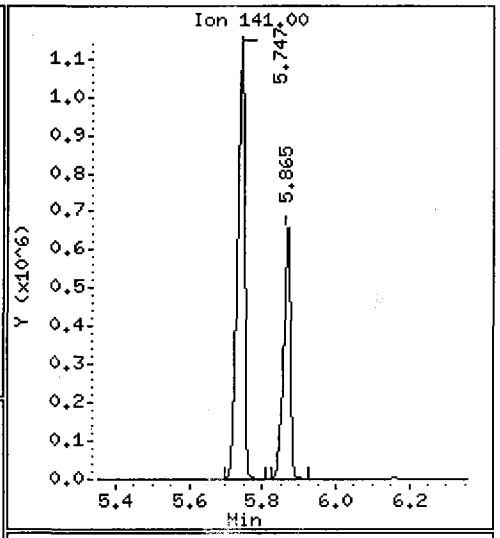
Sample Info: RS97F,3

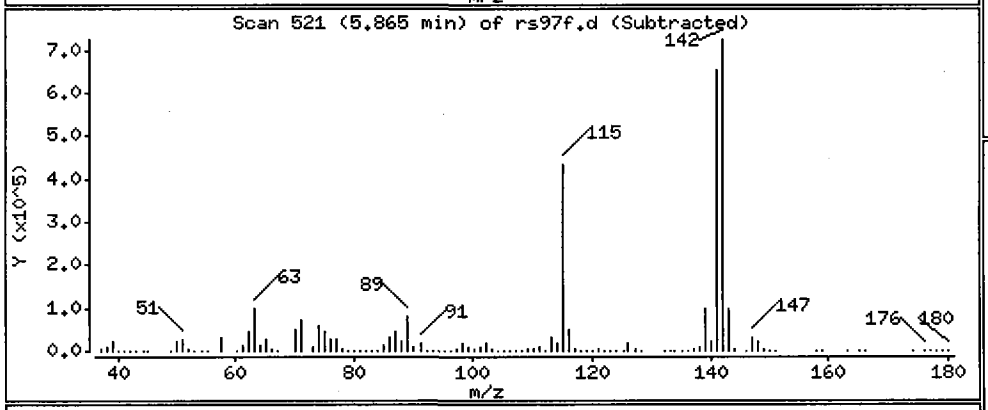
Volume Injected (uL): 1.0 Operator: VTS

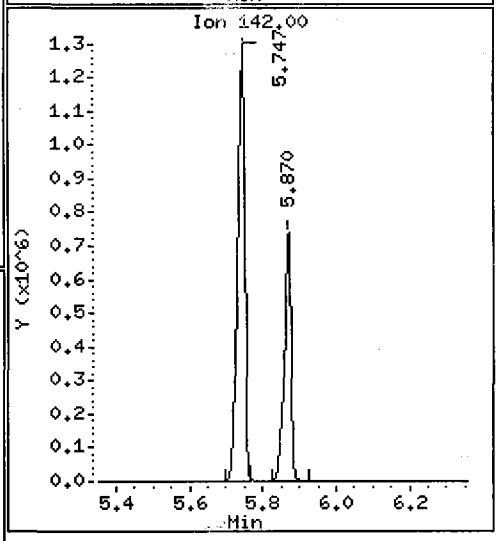
Column phase: ZB-5msi Column diameter: 0.32

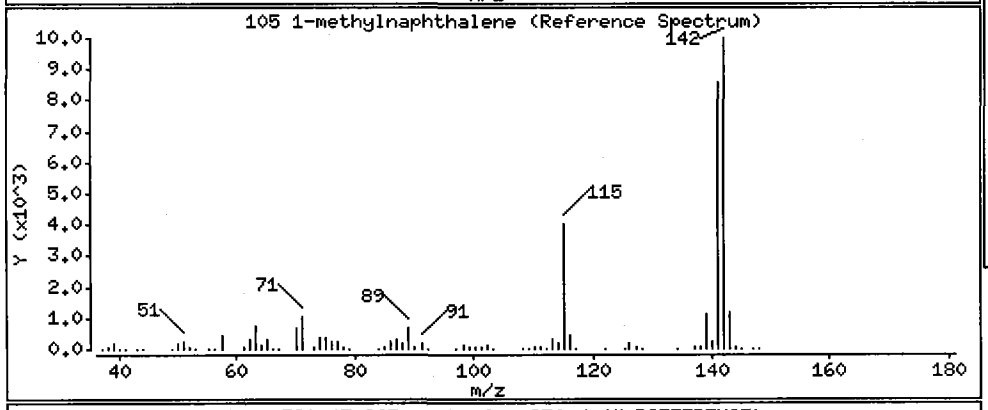
105 1-methylnaphthalene Concentration: 659900 ug/kg

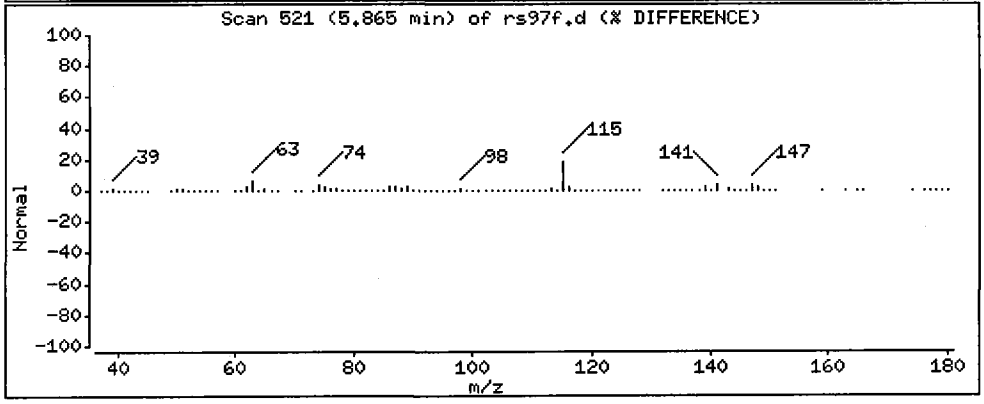












Data File: /chem1/nt12.i/20101109.b/rs97f.d

Date : 09-NOV-2010 20:26

Client ID: GST-09SO-17-18-1010 Instrument: nt12.i

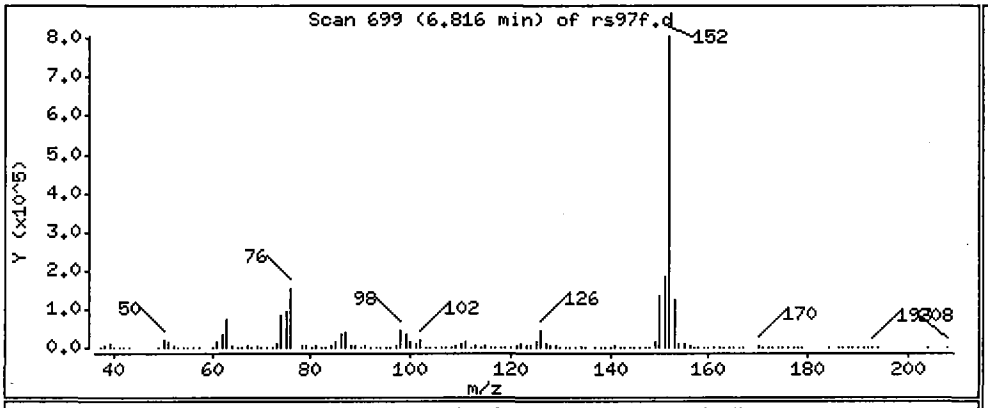
Sample Info: RS97F,3

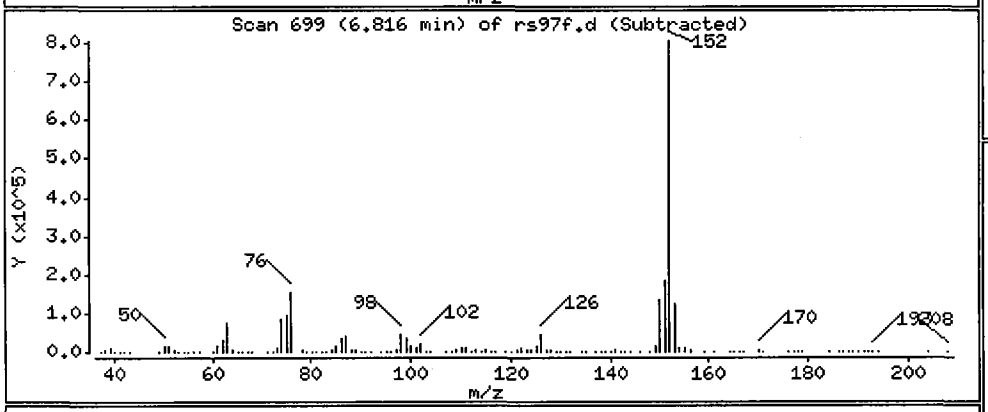
Volume Injected (uL): 1.0 Operator: VTS

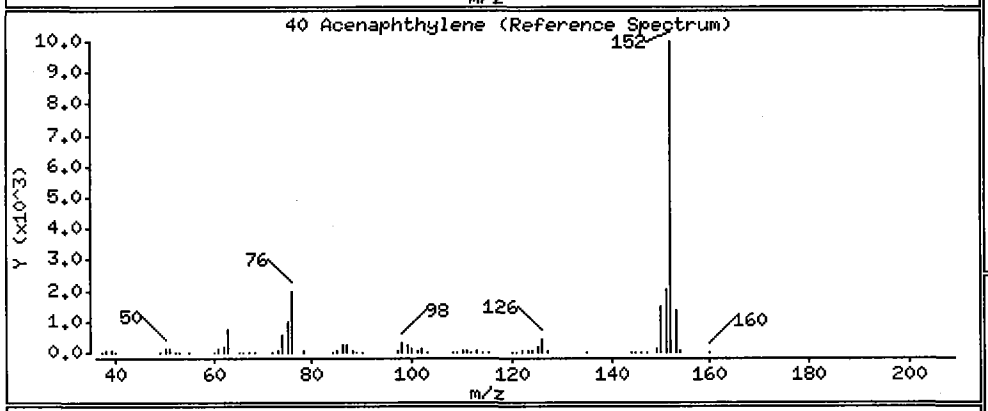
Column phase: ZB-5msi Column diameter: 0.32

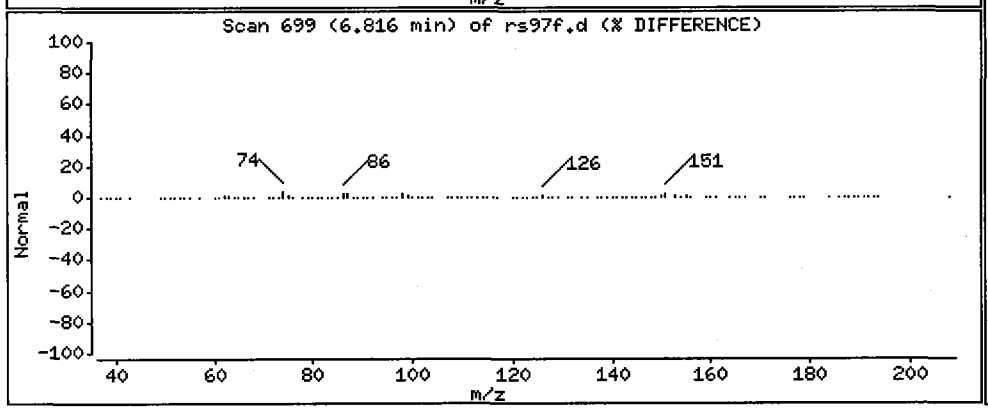
40 Acenaphthylene Concentration: 649700 ug/kg

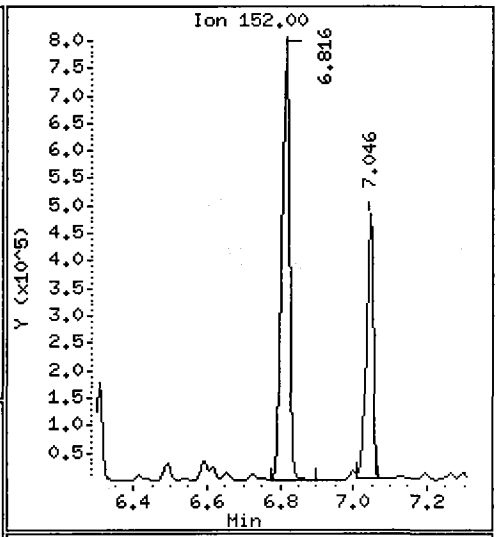
E

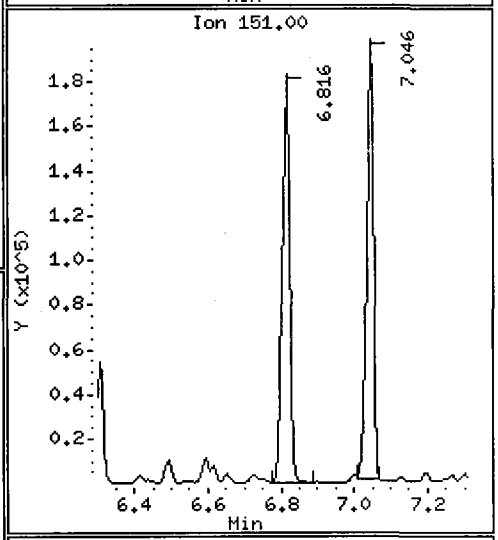


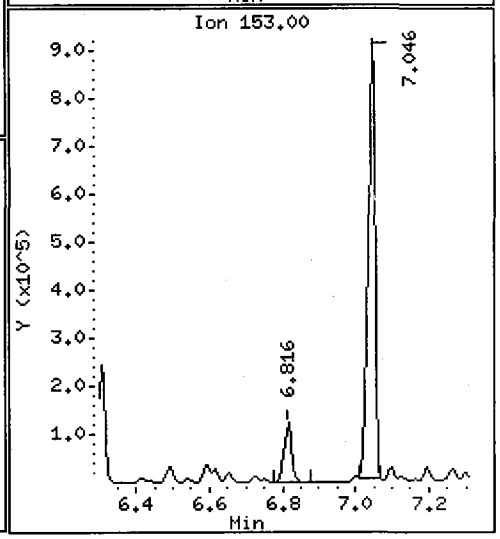












Data File: /chem1/nt12.i/20101109.b/rs97f.d

Date : 09-NOV-2010 20:26

Client ID: GST-09SO-17-18-1010

Instrument: nt12.i

Sample Info: RS97F,3

Volume Injected (uL): 1.0

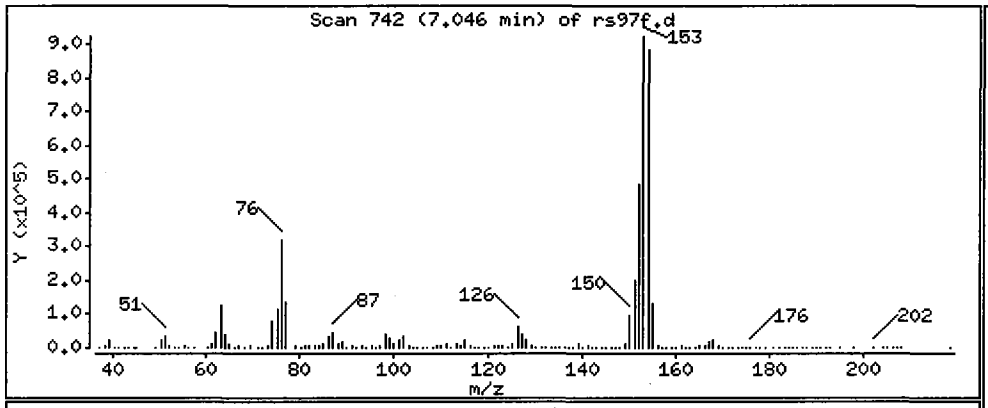
Operator: VTS

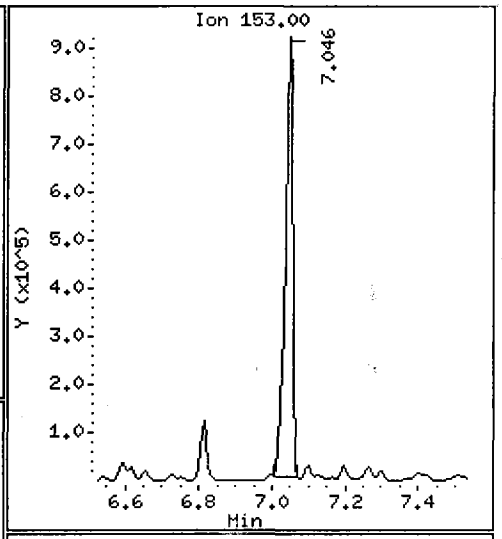
Column phase: ZB-5msi

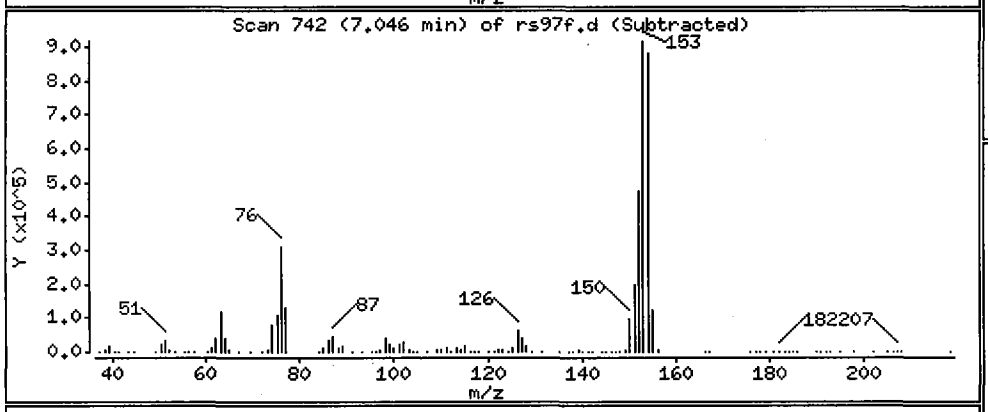
Column diameter: 0.32

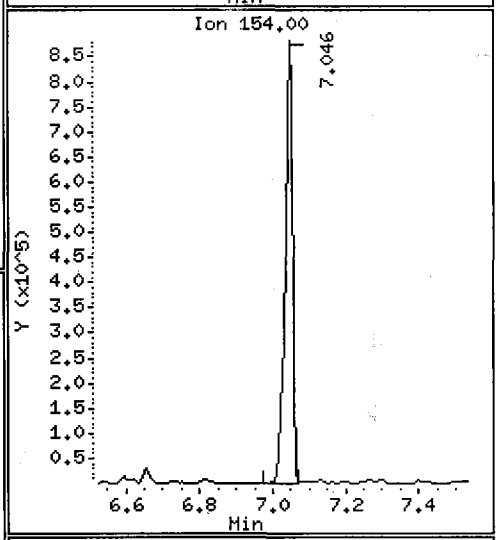
44 Acenaphthene

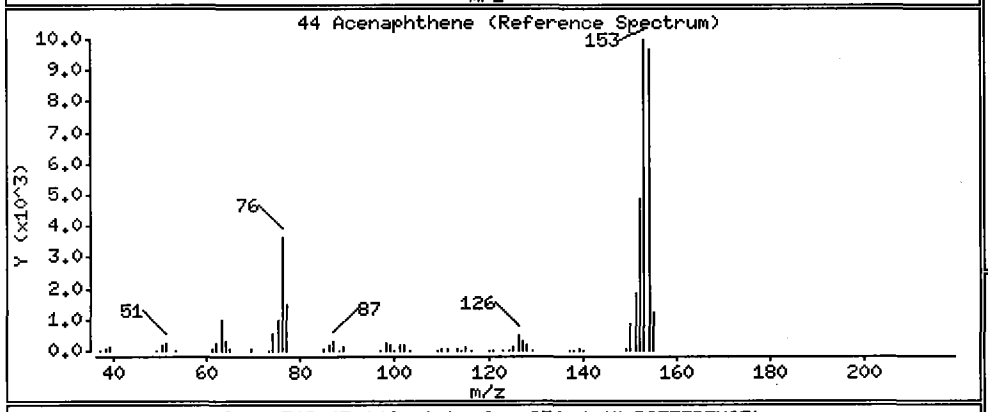
Concentration: 1297000 ug/kg

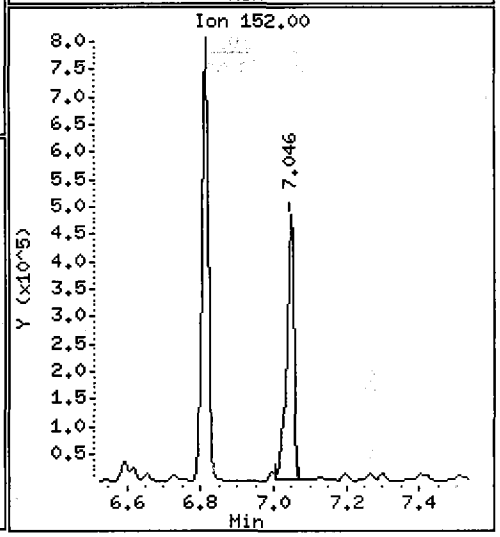


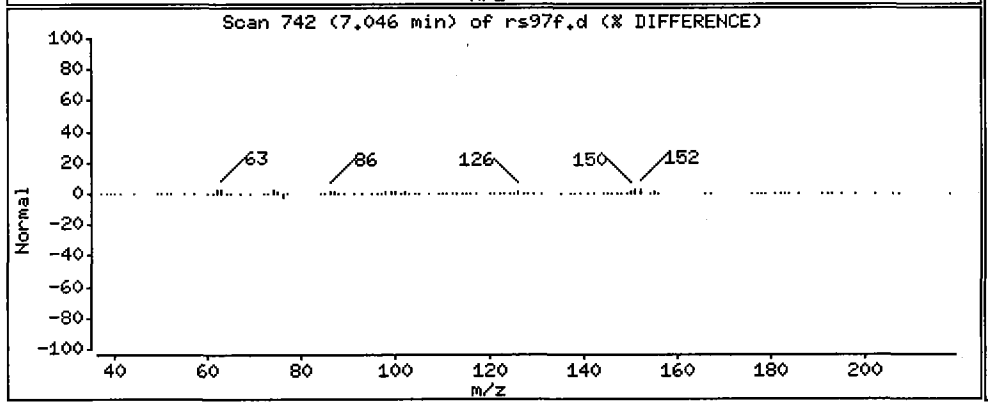












Data File: /chem1/nt12.i/20101109.b/rs97f.d

Date : 09-NOV-2010 20:26

Client ID: GST-09SO-17-18-1010

Instrument: nt12.i

Sample Info: RS97F,3

Volume Injected (uL): 1.0

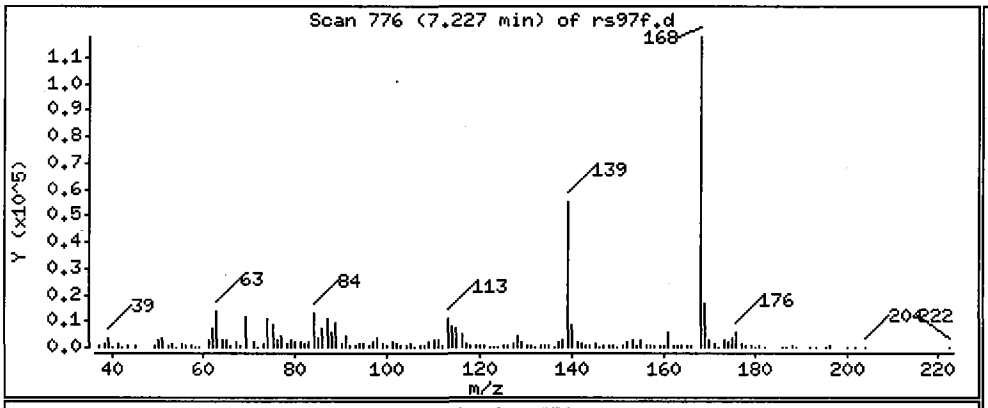
Operator: VTS

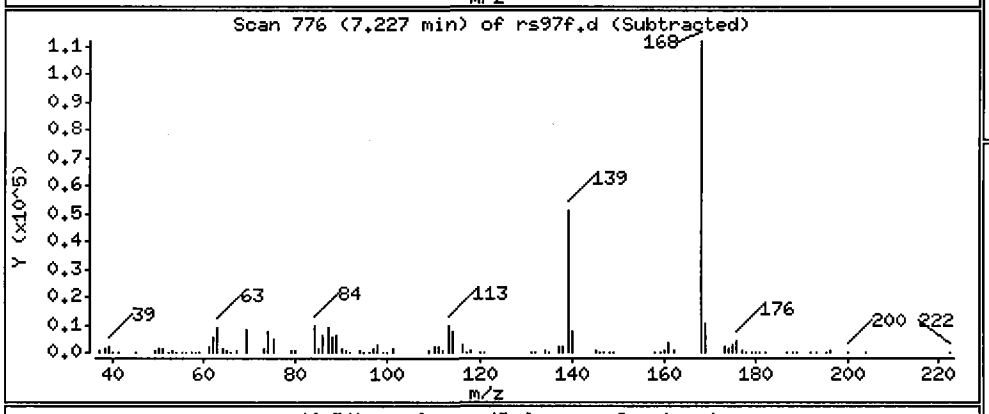
Column phase: ZB-5msi

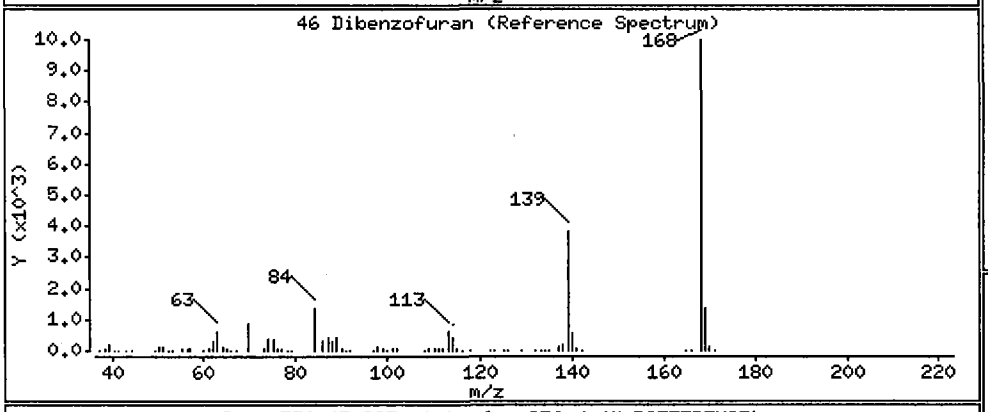
Column diameter: 0.32

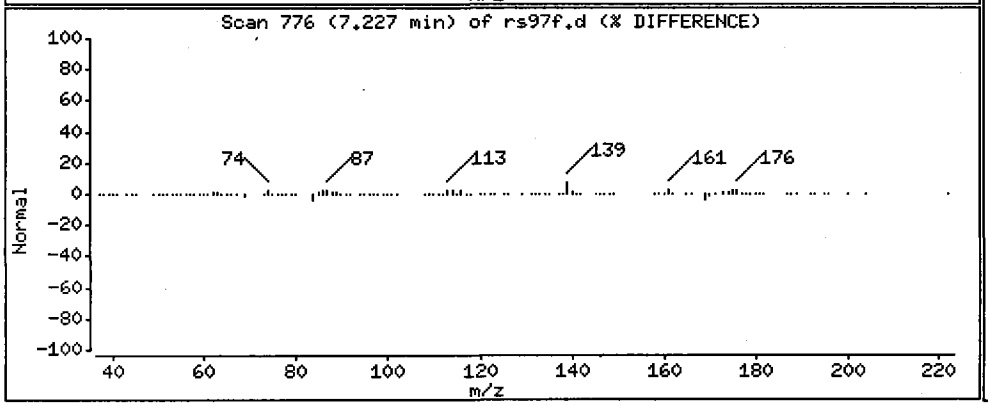
46 Dibenzofuran

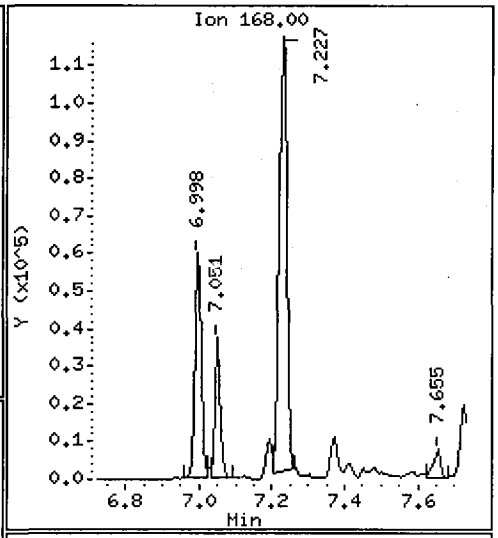
Concentration: 100200 ug/kg

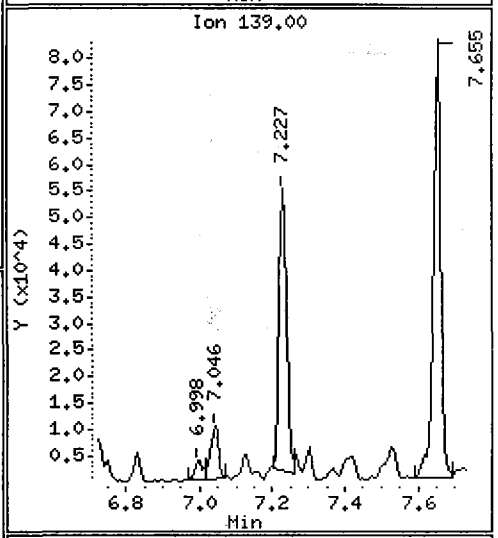


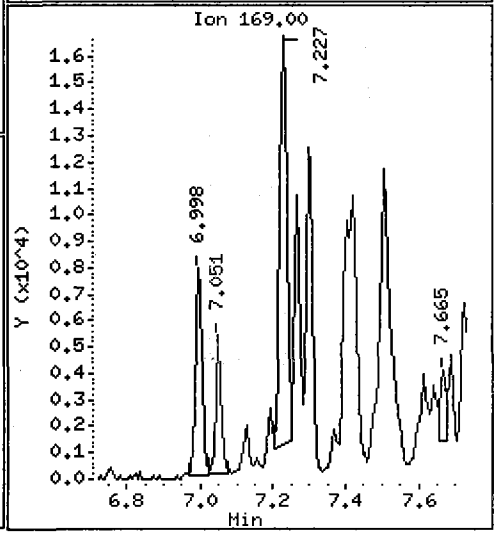












Data File: /chem1/nt12.i/20101109.b/rs97f.d

Date : 09-NOV-2010 20:26

Client ID: GST-09SO-17-18-1010 Instrument: nt12.i

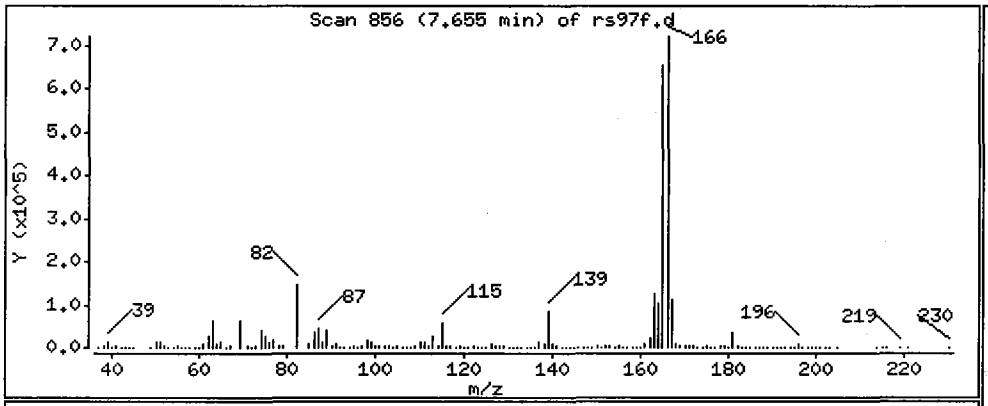
Sample Info: RS97F,3

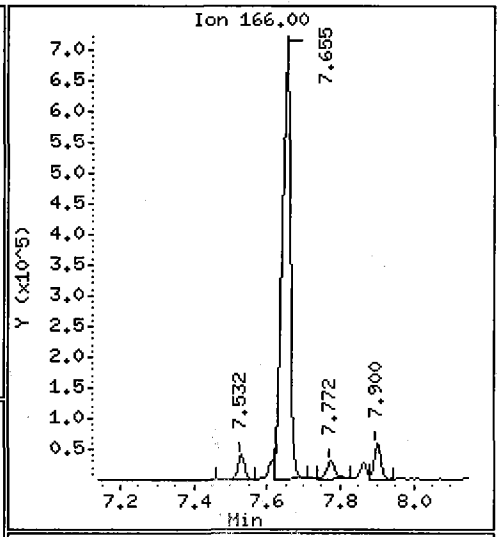
Volume Injected (uL): 1.0 Operator: VTS

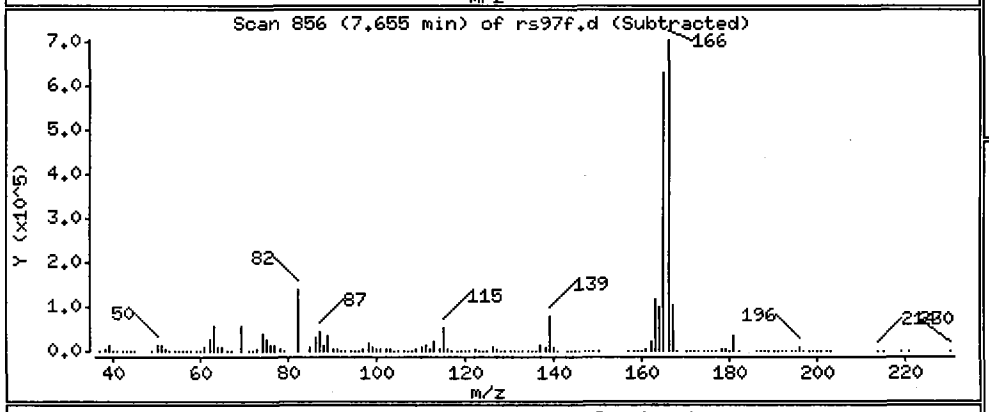
Column phase: ZB-5msi Column diameter: 0.32

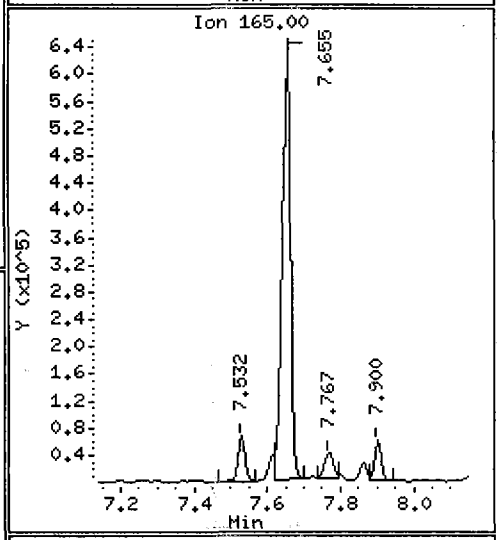
49 Fluorene Concentration: 890800 ug/kg

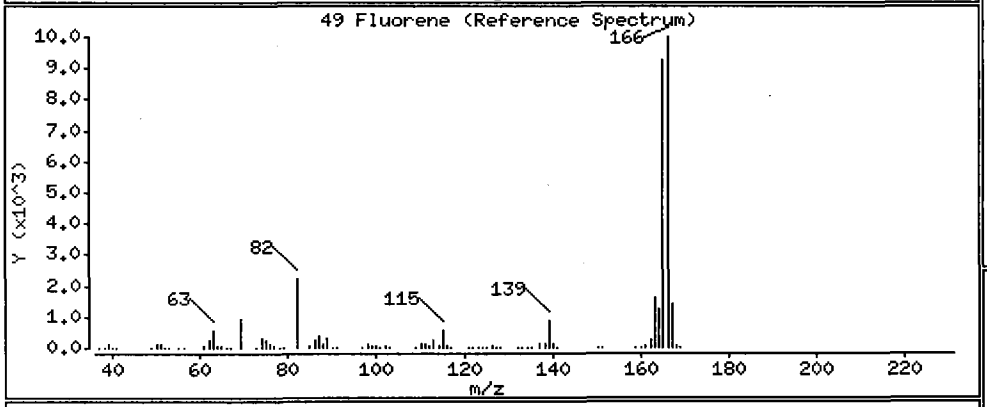
E

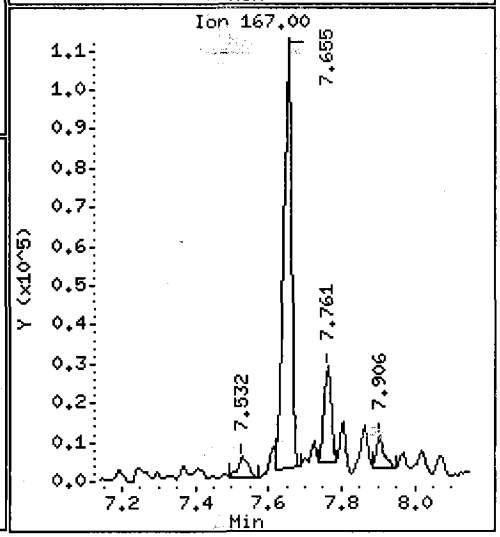


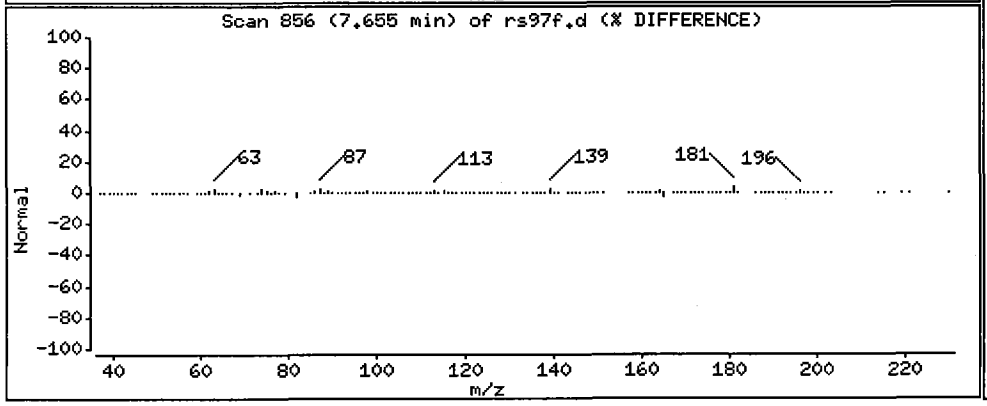












Data File: /chem1/nt12.i/20101109.b/rs97f.d

Date : 09-NOV-2010 20:26

Client ID: GST-09SO-17-18-1010 Instrument: nt12.i

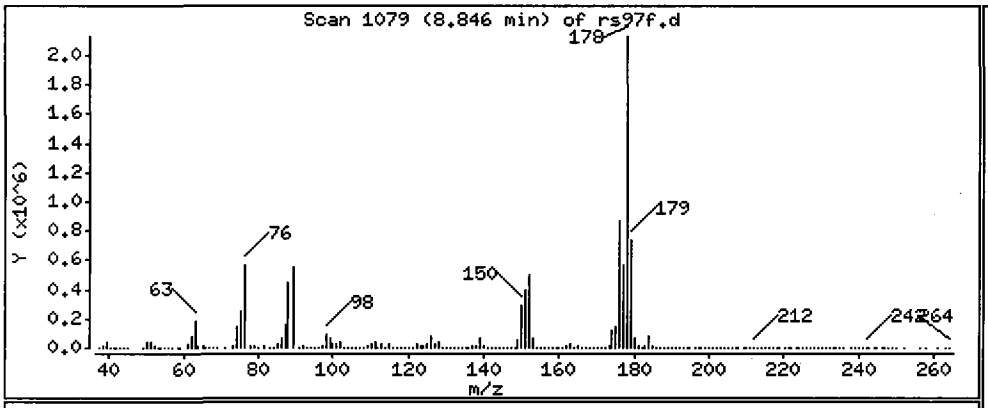
Sample Info: RS97F,3

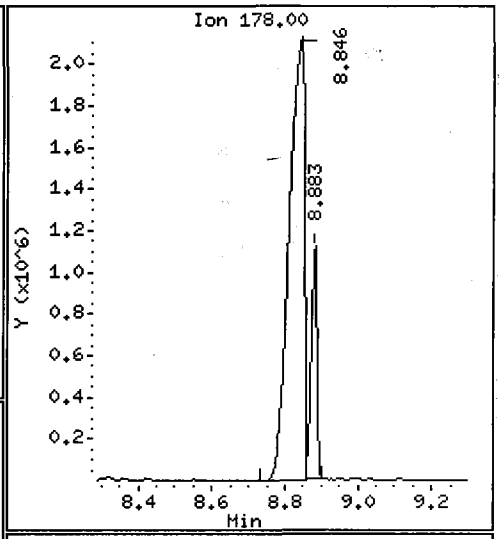
Volume Injected (uL): 1.0 Operator: VTS

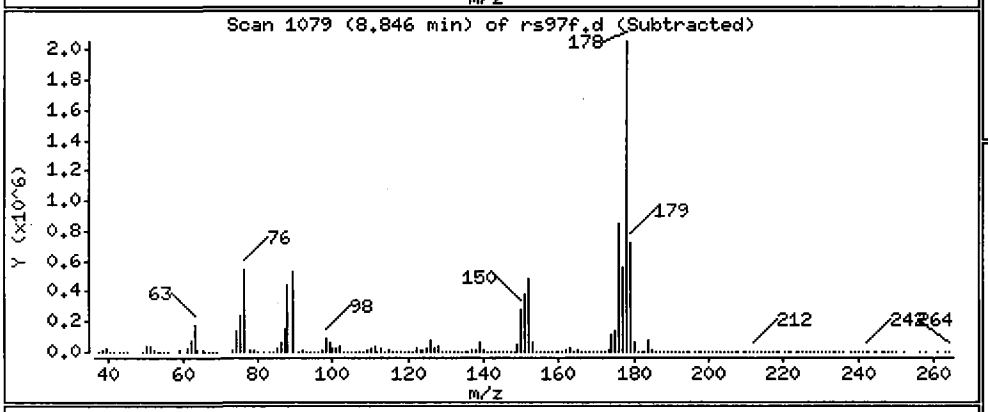
Column phase: ZB-5msi Column diameter: 0.32

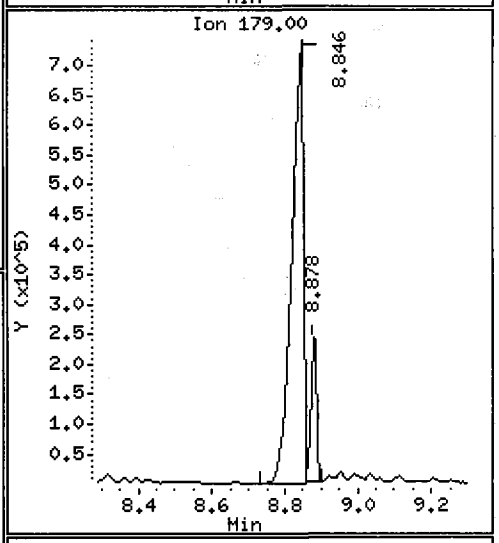
Esat

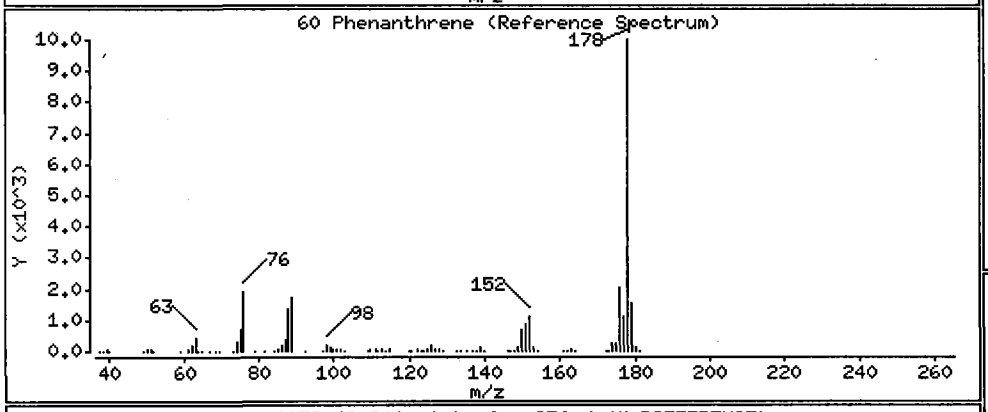
60 Phenanthrene Concentration: 3848000 ug/kg

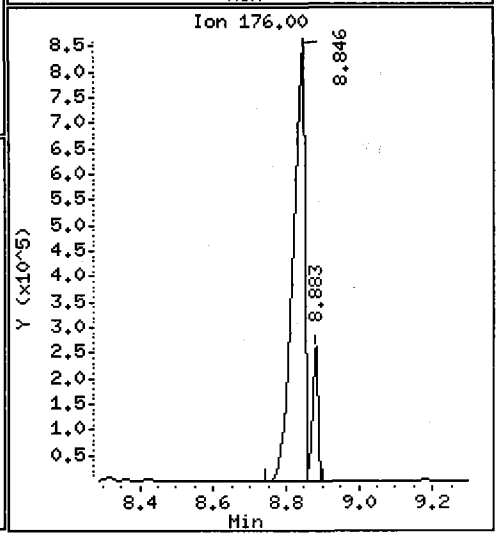


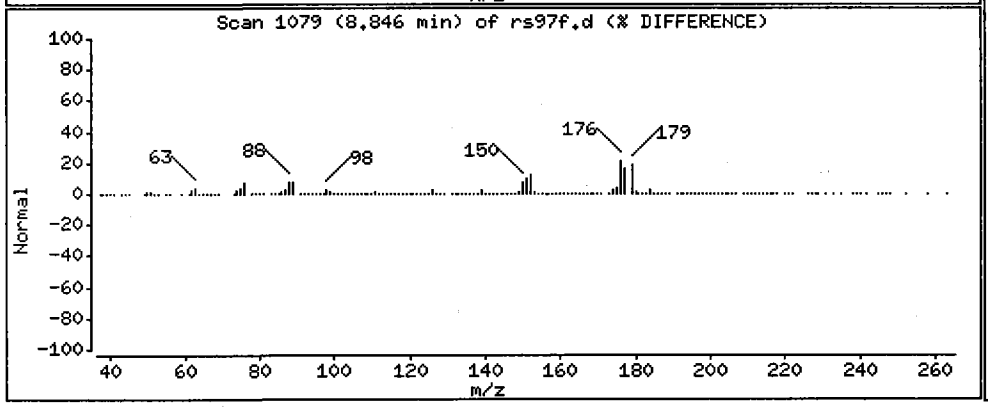












Data File: /chem1/nt12.i/20101109.b/rs97f.d

Date : 09-NOV-2010 20:26

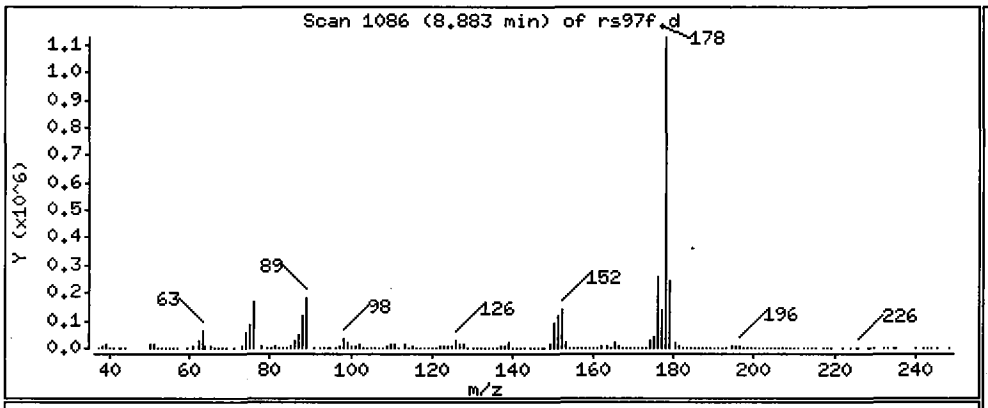
Client ID: GST-09SO-17-18-1010 Instrument: nt12.i

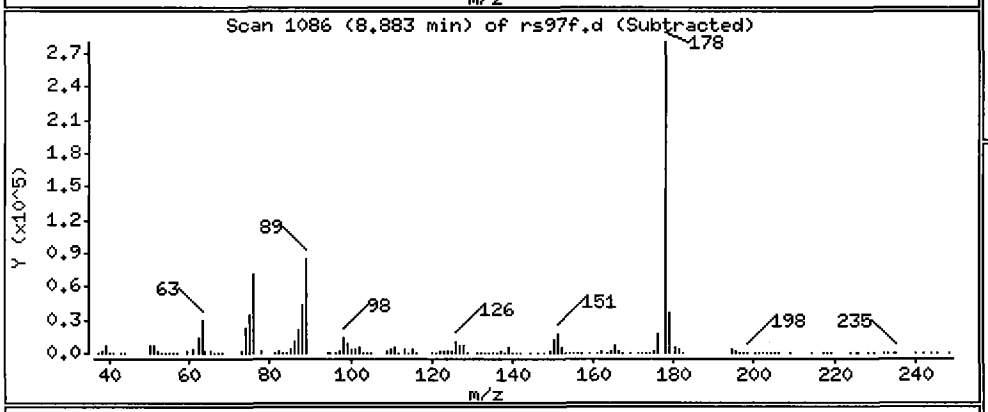
Sample Info: RS97F,3

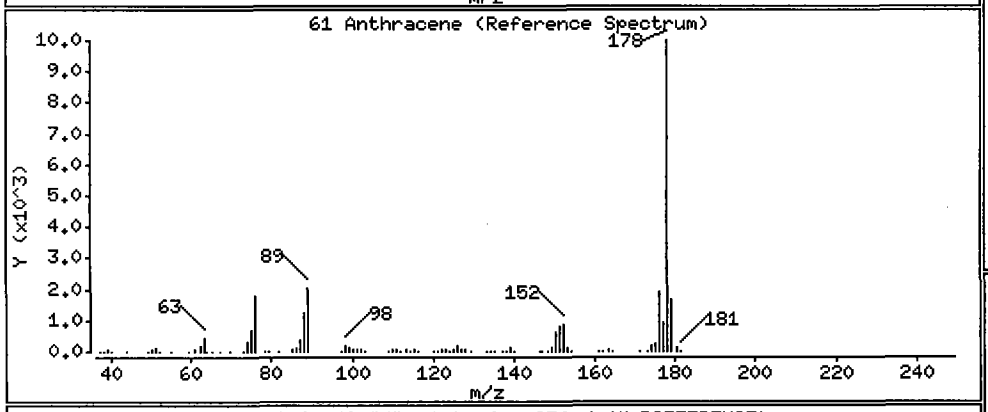
Volume Injected (uL): 1.0 Operator: VTS

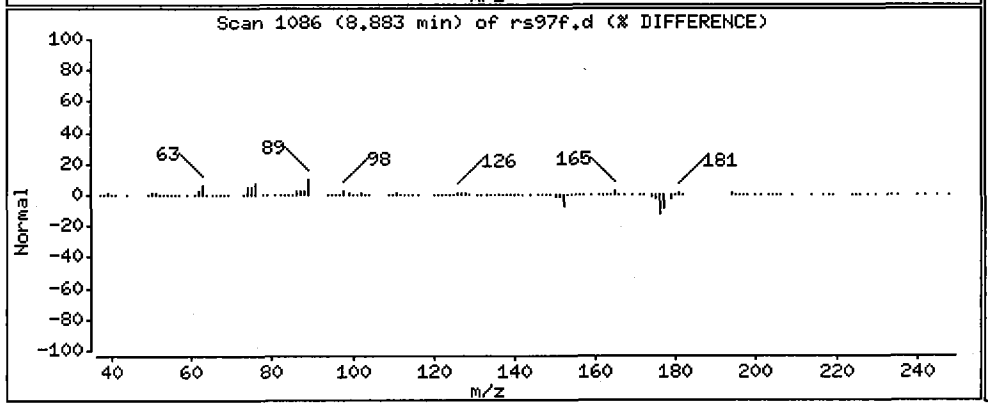
Column phase: ZB-5msi Column diameter: 0.32

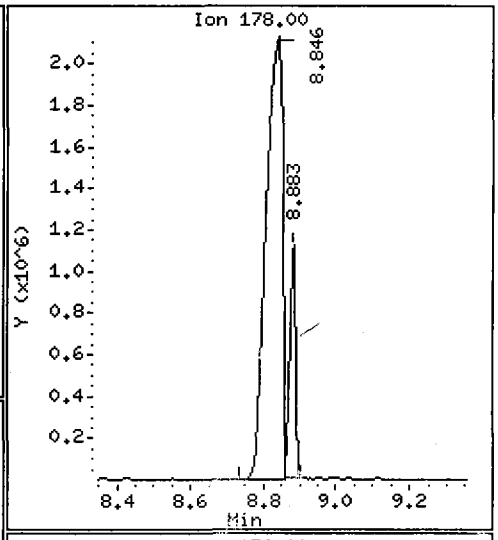
61 Anthracene Concentration: 761500 ug/kg

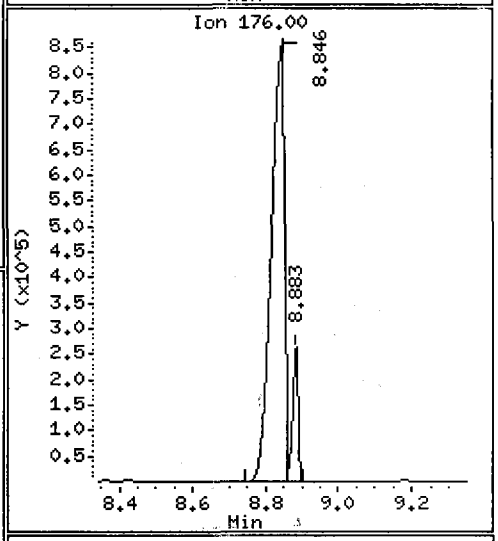


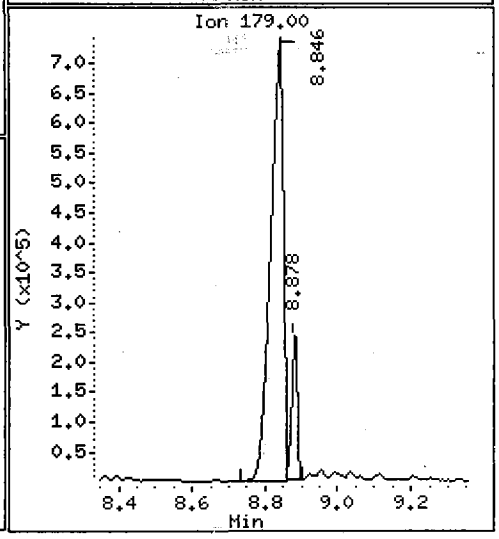












Data File: /chem1/nt12.i/20101109.b/rs97f.d

Date : 09-NOV-2010 20:26

Client ID: GST-09SO-17-18-1010

Instrument: nt12.i

Sample Info: RS97F,3

Volume Injected (uL): 1.0

Operator: VTS

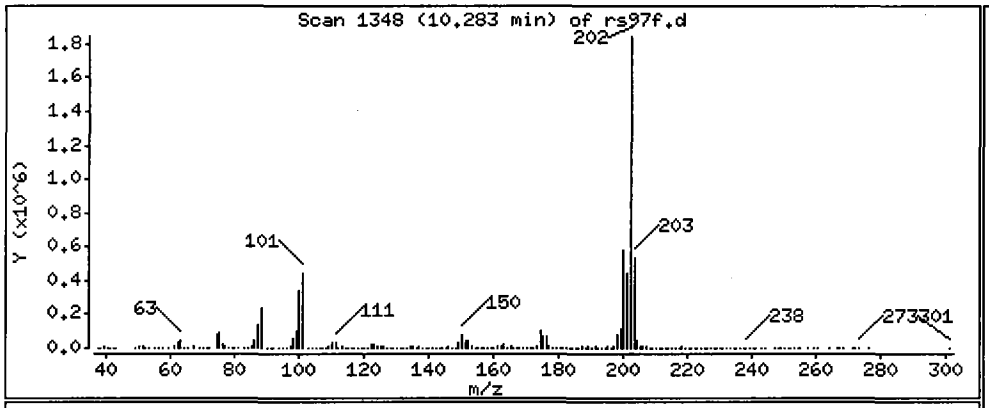
Column phase: ZB-5msi

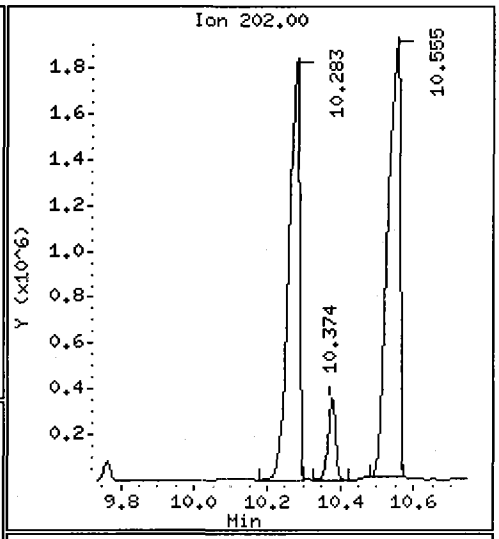
Column diameter: 0.32

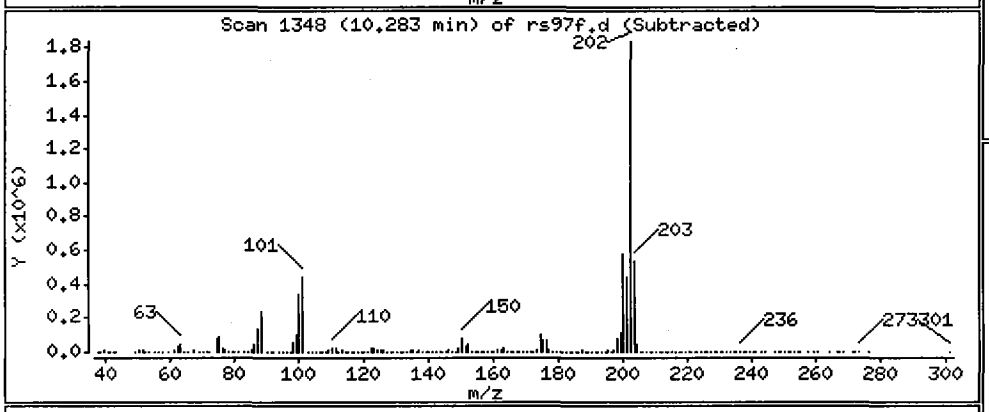
64 Fluoranthene

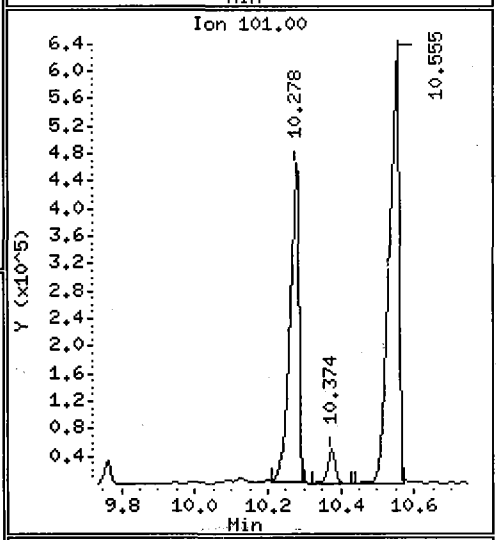
Concentration: 1998000 ug/kg

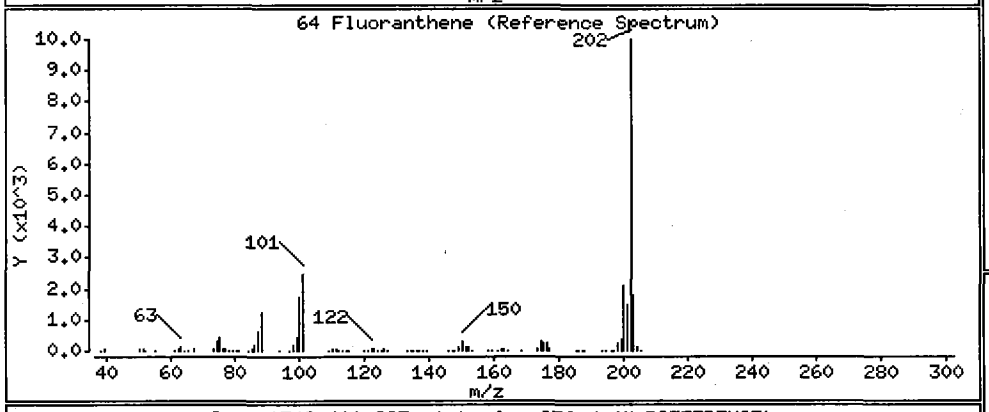
Fail

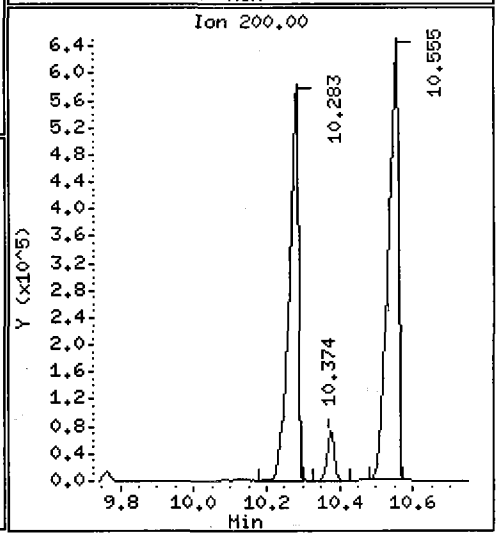


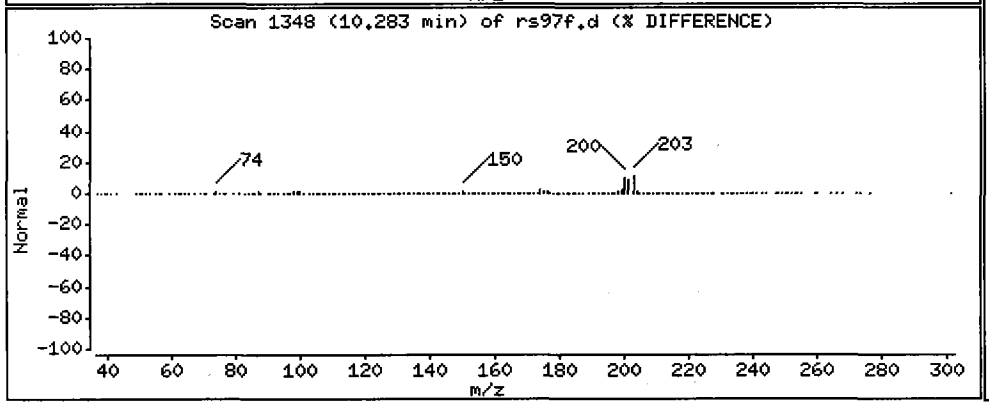












Data File: /chem1/nt12.i/20101109.b/rs97f.d

Date : 09-NOV-2010 20:26

Client ID: GST-09SO-17-18-1010

Instrument: nt12.i

Sample Info: RS97F,3

Volume Injected (uL): 1.0

Operator: VTS

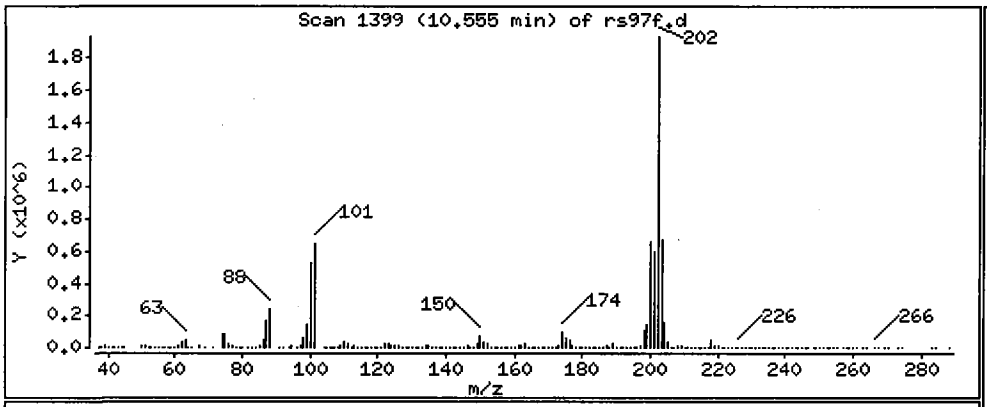
Column phase: ZB-5msi

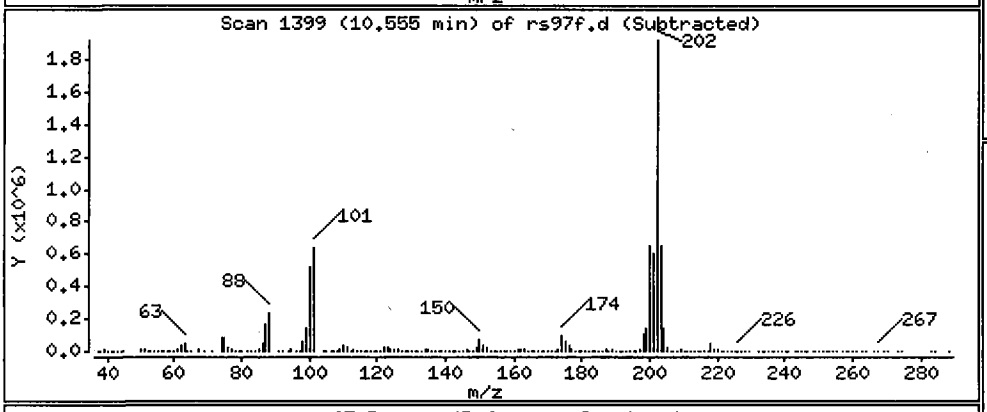
Column diameter: 0.32

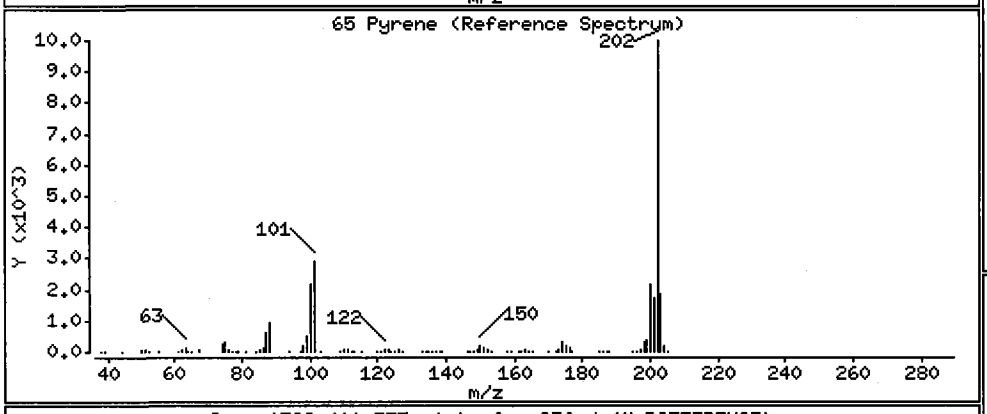
65 Pyrene

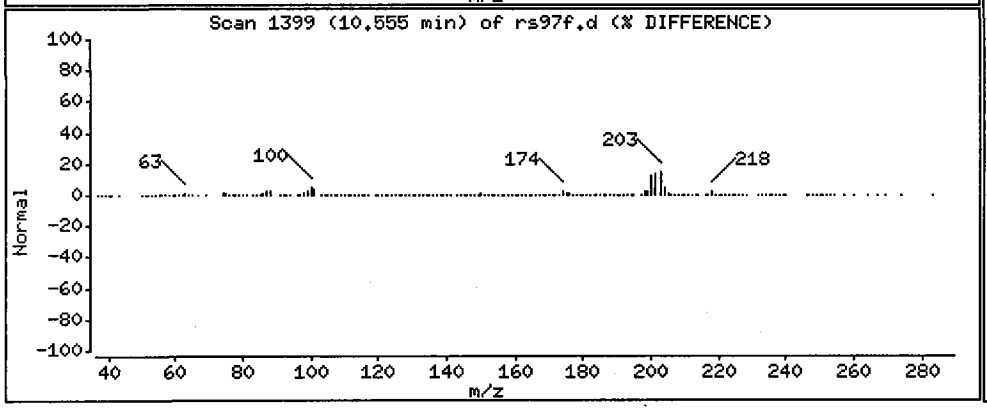
Concentration: 2396000 ug/kg

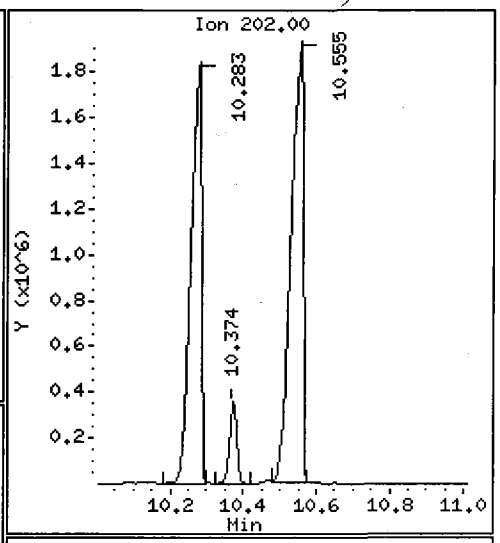
Egut

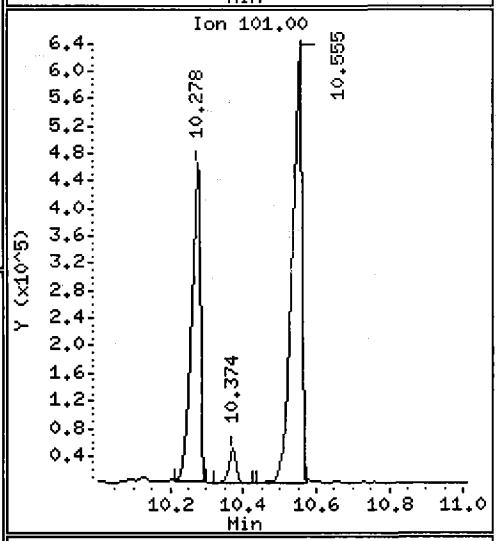


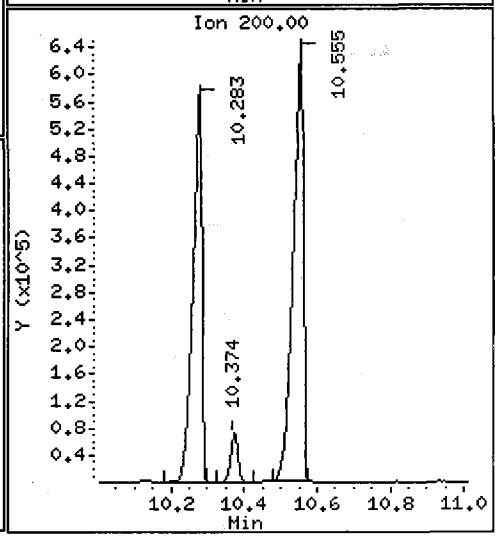












Data File: /chem1/nt12.i/20101109.b/rs97f.d

Date : 09-NOV-2010 20:26

Client ID: GST-09SO-17-18-1010

Instrument: nt12.i

Sample Info: RS97F,3

Volume Injected (uL): 1.0

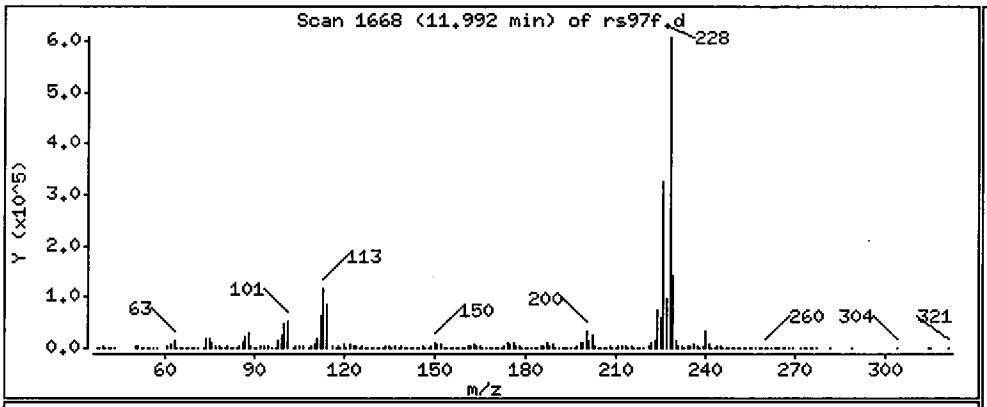
Operator: VTS

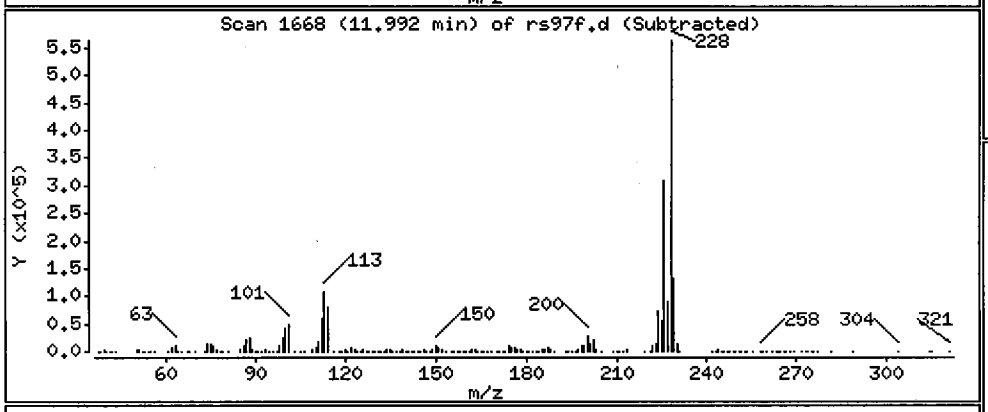
Column phase: ZB-5msi

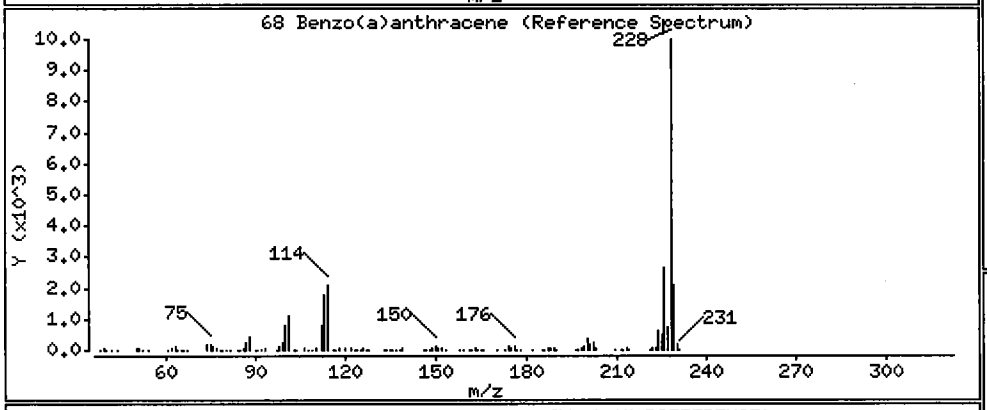
Column diameter: 0.32

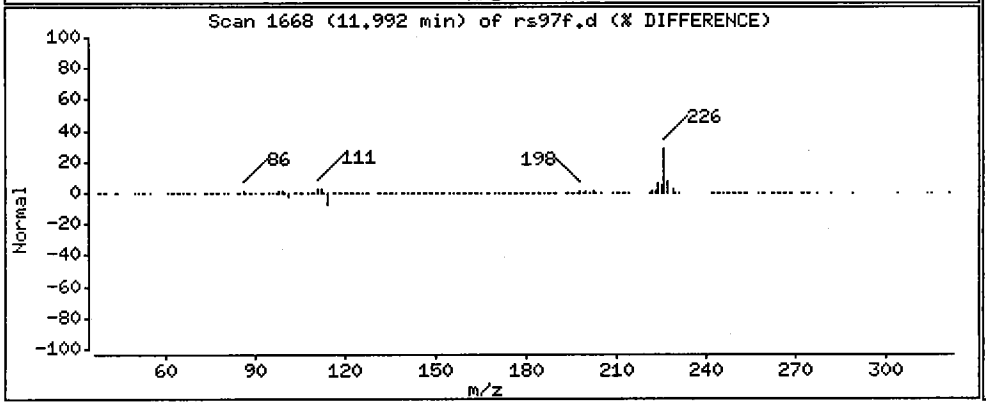
68 Benzo(a)anthracene

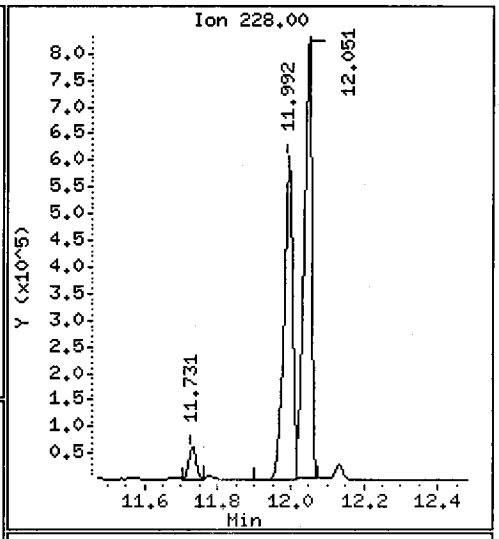
Concentration: 643100 ug/kg

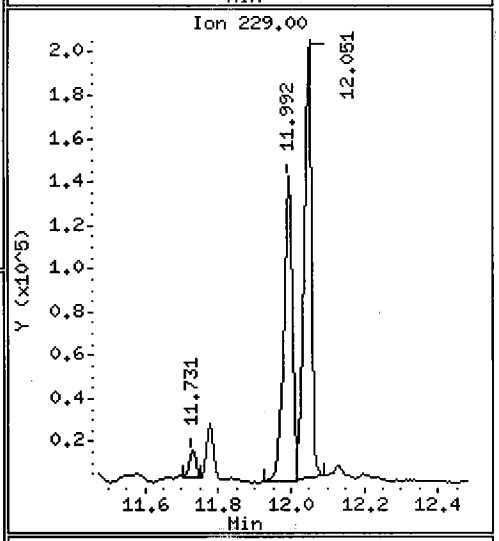


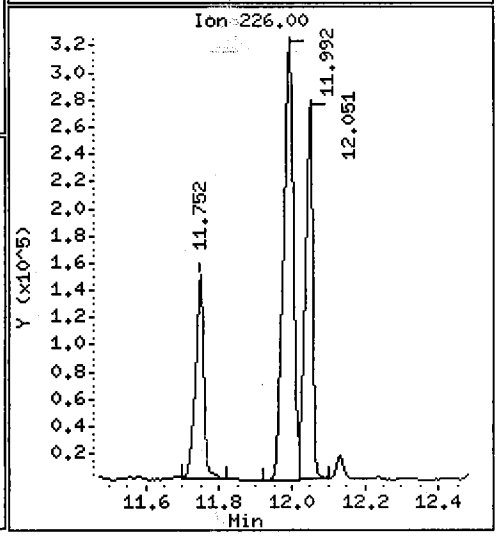












Data File: /chem1/nt12.i/20101109.b/rs97f.d

Date : 09-NOV-2010 20:26

Client ID: GST-09SO-17-18-1010

Instrument: nt12.i

Sample Info: RS97F,3

Volume Injected (uL): 1.0

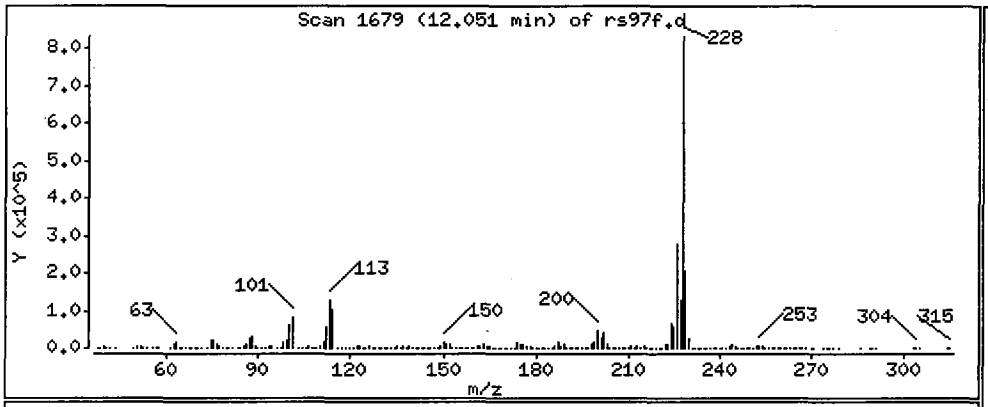
Operator: VTS

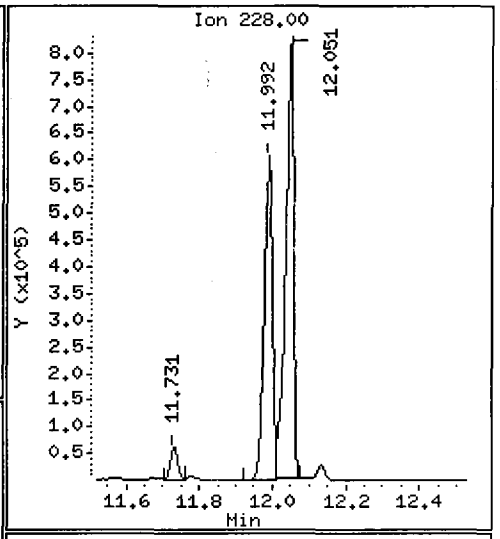
Column phase: ZB-5msi

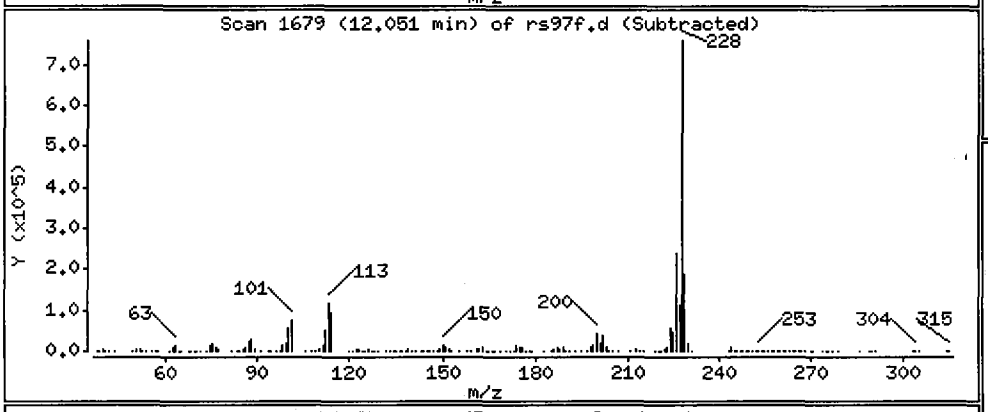
Column diameter: 0.32

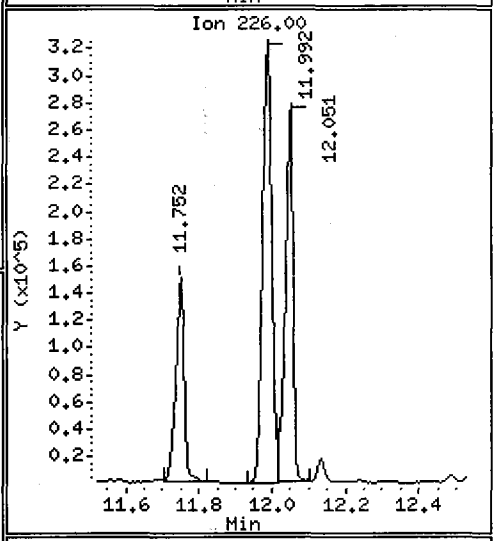
71 Chrysene

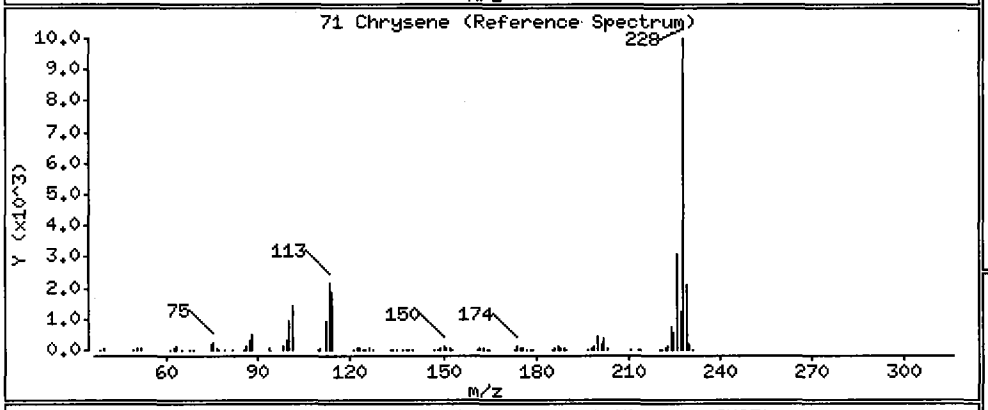
Concentration: 862900 ug/kg

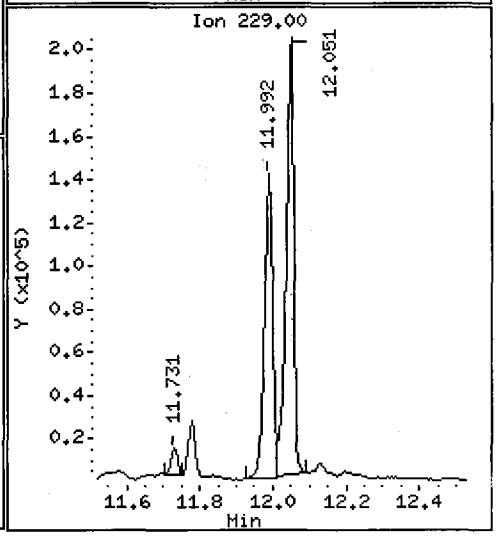


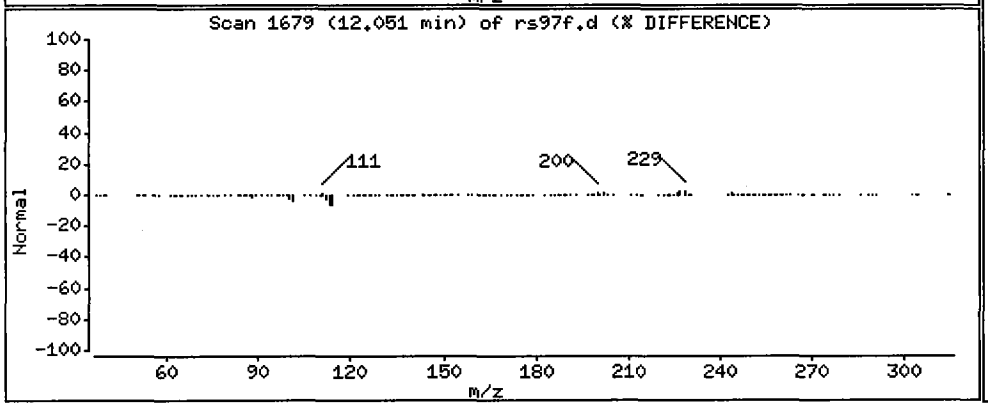












Data File: /chem1/nt12.i/20101109.b/rs97f.d

Date : 09-NOV-2010 20:26

Client ID: GST-09SO-17-18-1010

Instrument: nt12.i

Sample Info: RS97F,3

Volume Injected (uL): 1.0

Operator: VTS

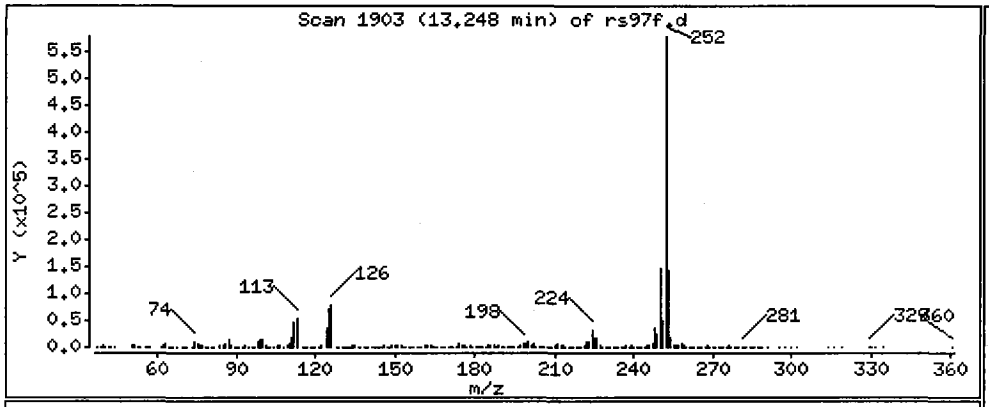
Column phase: ZB-5msi

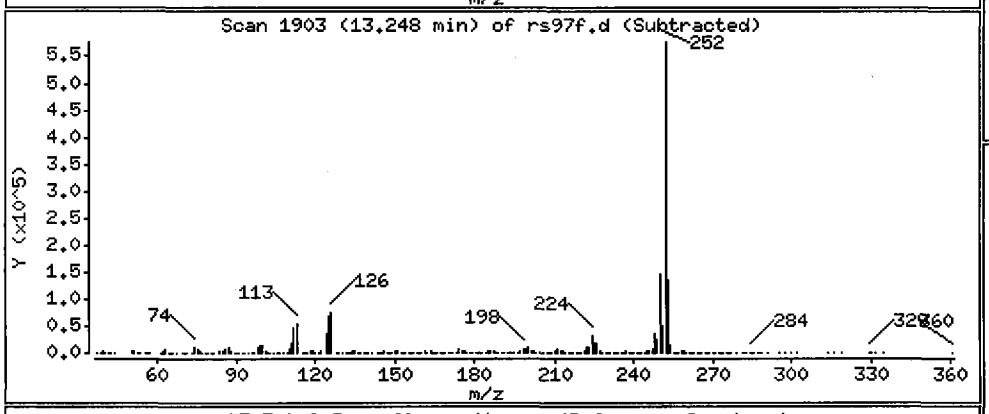
Column diameter: 0.32

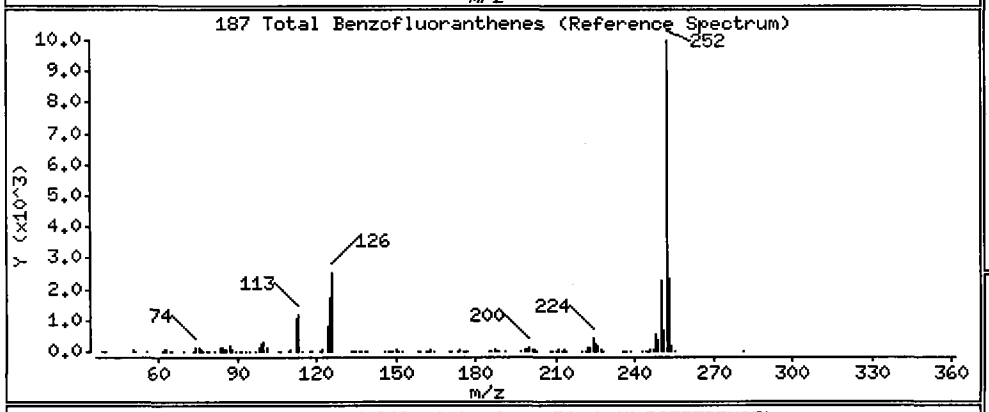
187 Total Benzofluoranthenes

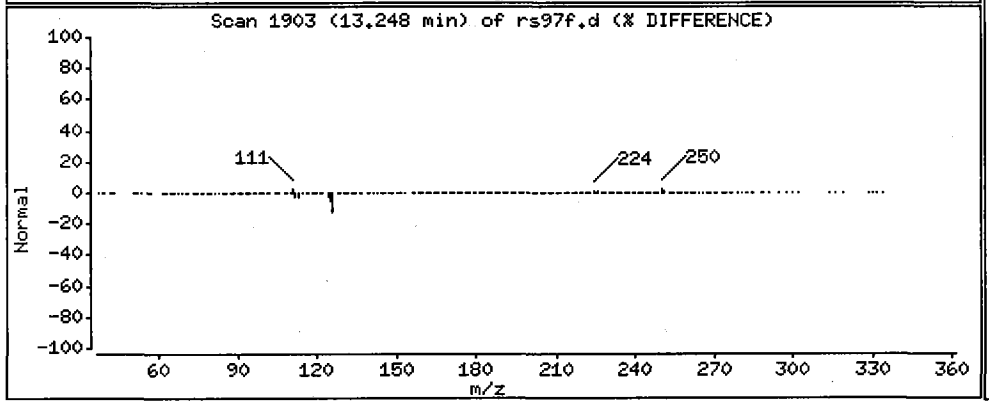
Concentration: 1088000 ug/kg

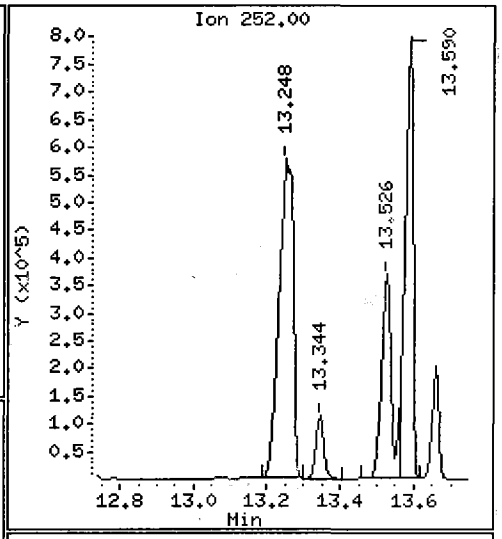
E

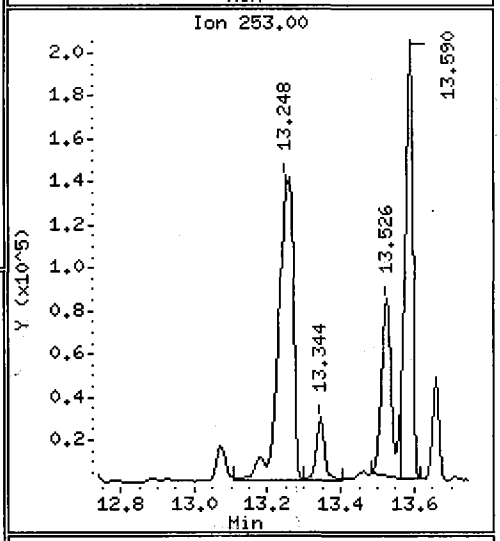


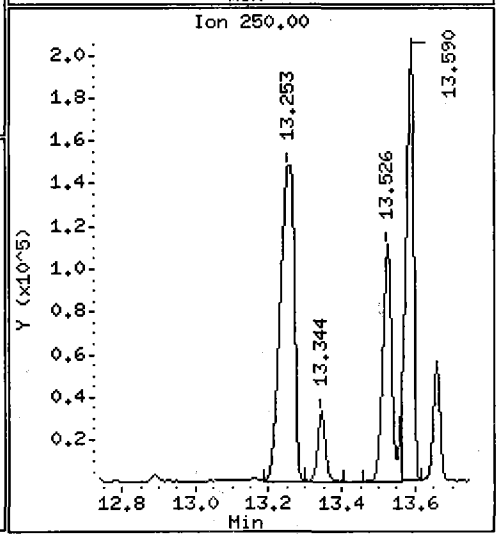












Data File: /chem1/nt12.i/20101109.b/rs97f.d

Date : 09-NOV-2010 20:26

Client ID: GST-09SO-17-18-1010

Instrument: nt12.i

Sample Info: RS97F,3

Volume Injected (uL): 1.0

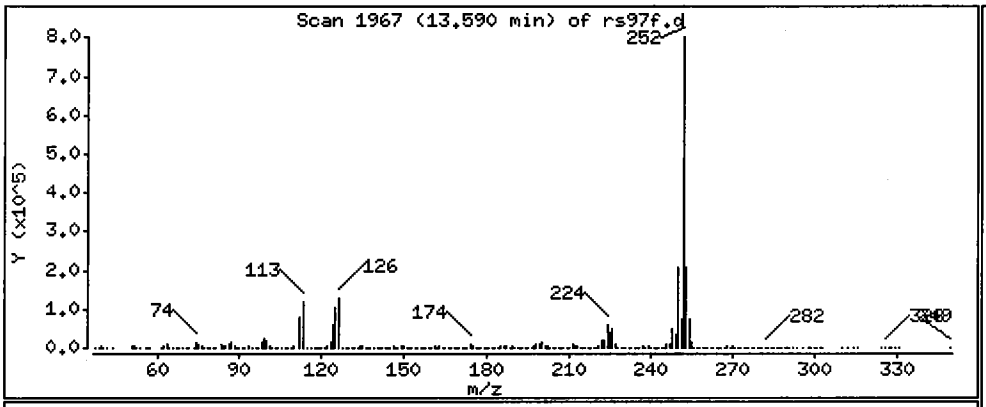
Operator: VTS

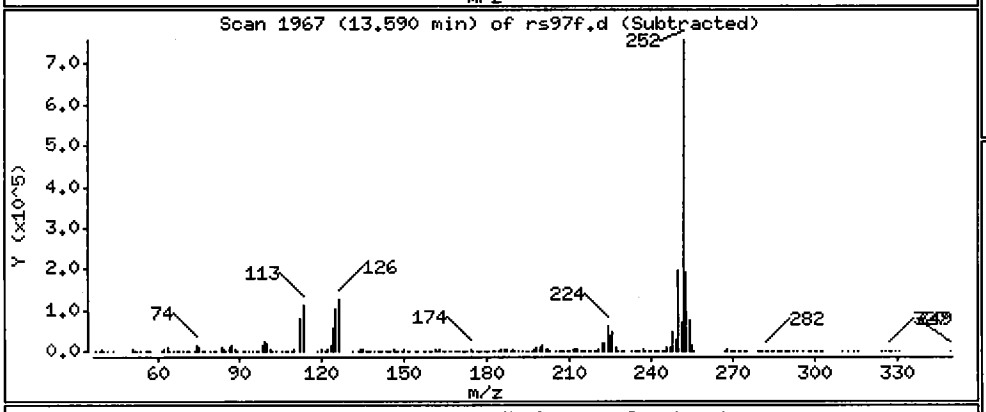
Column phase: ZB-5msi

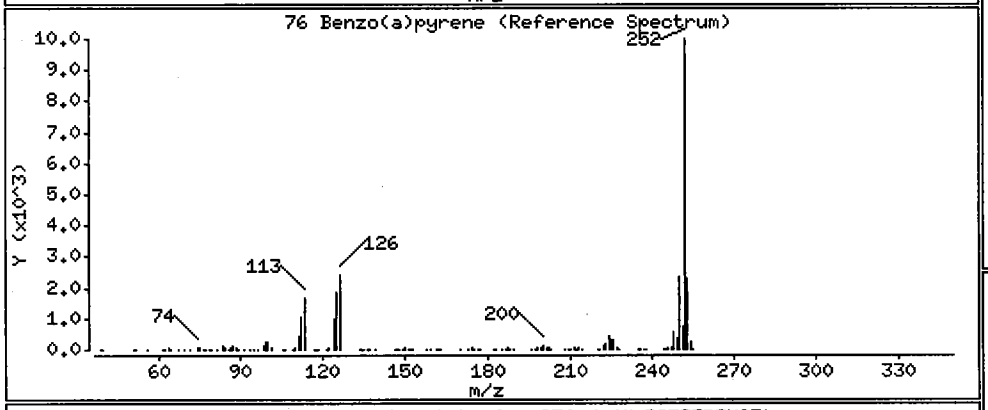
Column diameter: 0.32

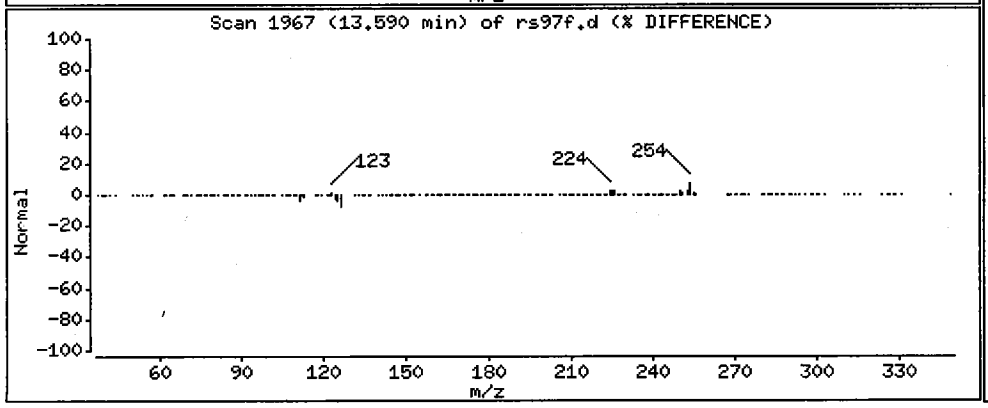
76 Benzo(a)pyrene

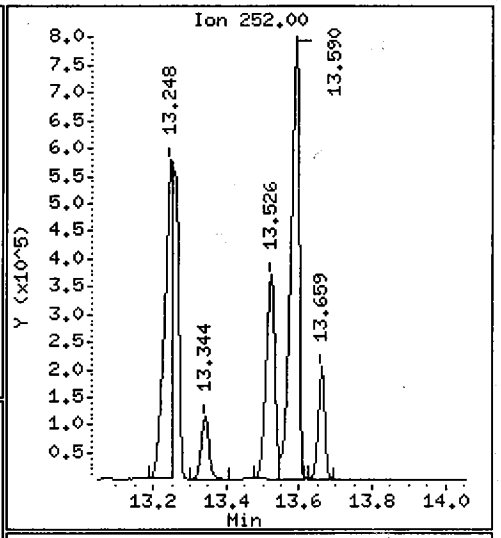
Concentration: 1044000 ug/kg

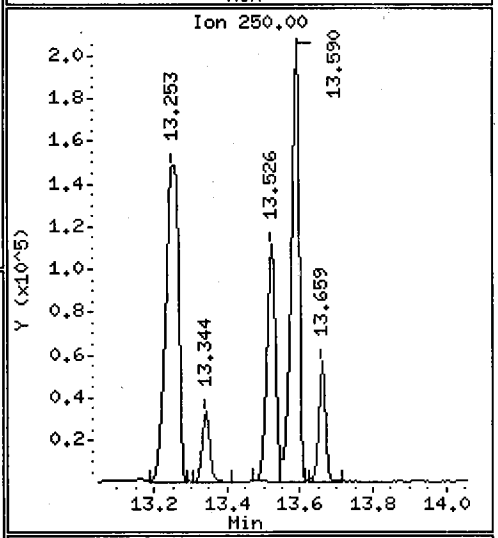


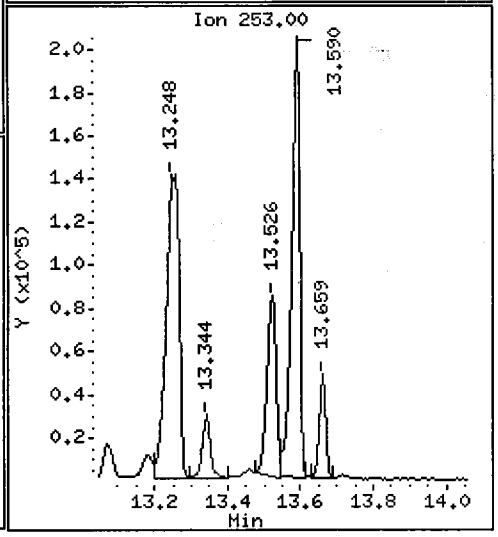












Data File: /chem1/nt12.i/20101109.b/rs97f.d

Date : 09-NOV-2010 20:26

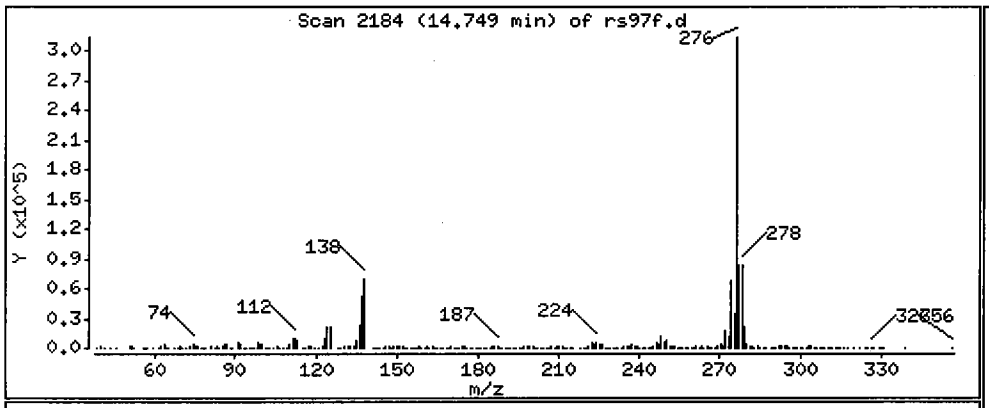
Client ID: GST-09SO-17-18-1010 Instrument: nt12.i

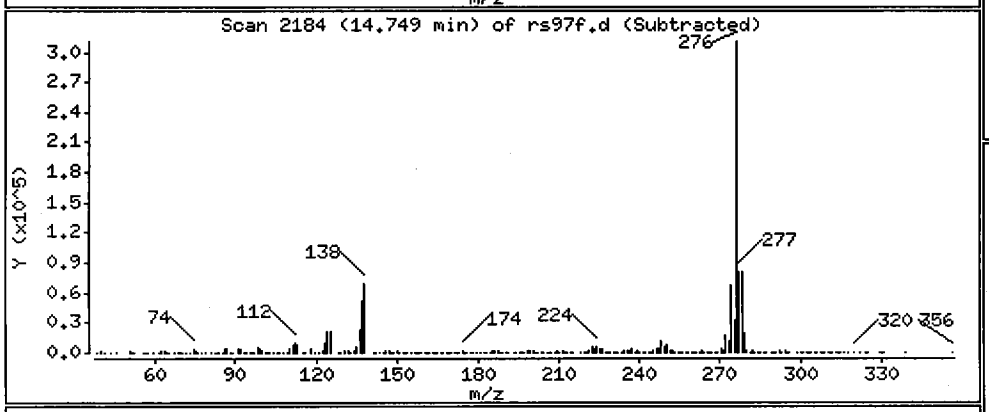
Sample Info: RS97F,3

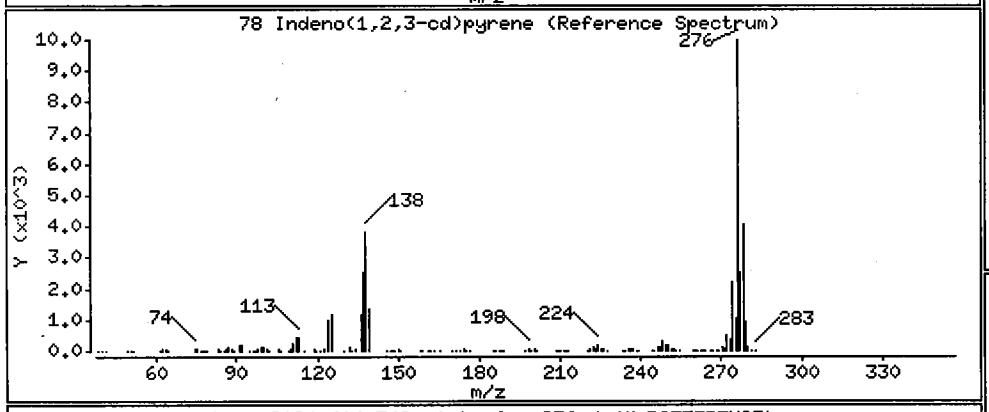
Volume Injected (uL): 1.0 Operator: VTS

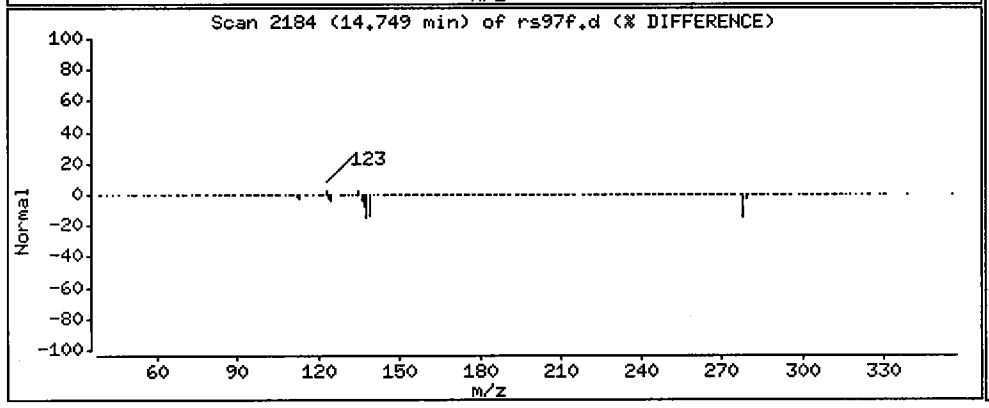
Column phase: ZB-5msi Column diameter: 0.32

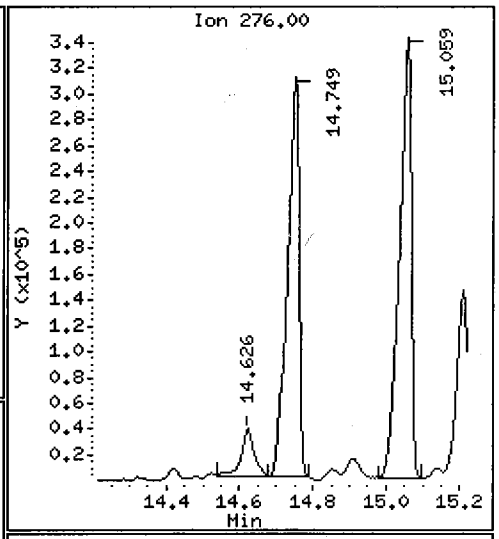
78 Indeno(1,2,3-cd)pyrene Concentration: 372400 ug/kg

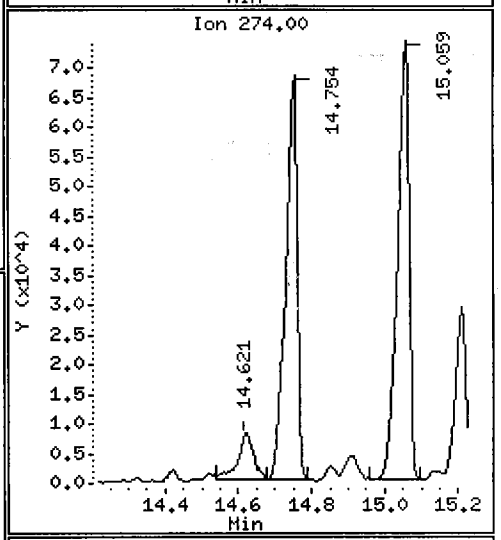


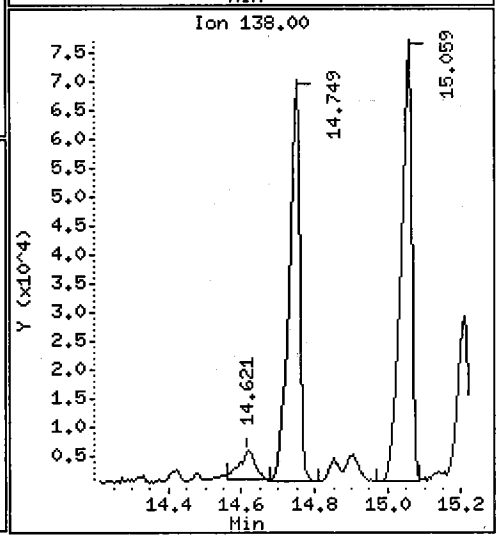












Data File: /chem1/nt12.i/20101109.b/rs97f.d

Date : 09-NOV-2010 20:26

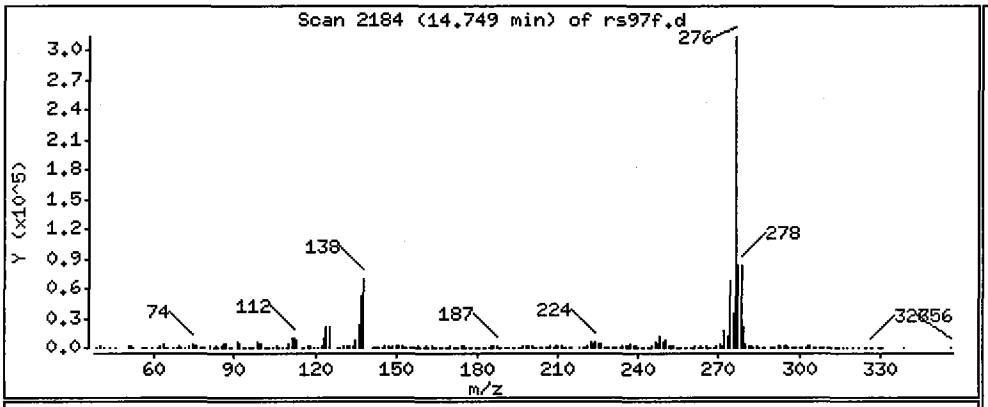
Client ID: GST-09SO-17-18-1010 Instrument: nt12.i

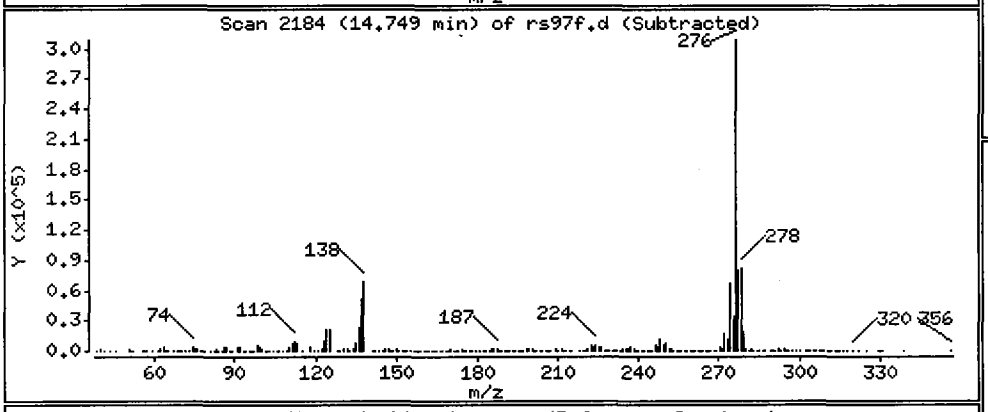
Sample Info: RS97F,3

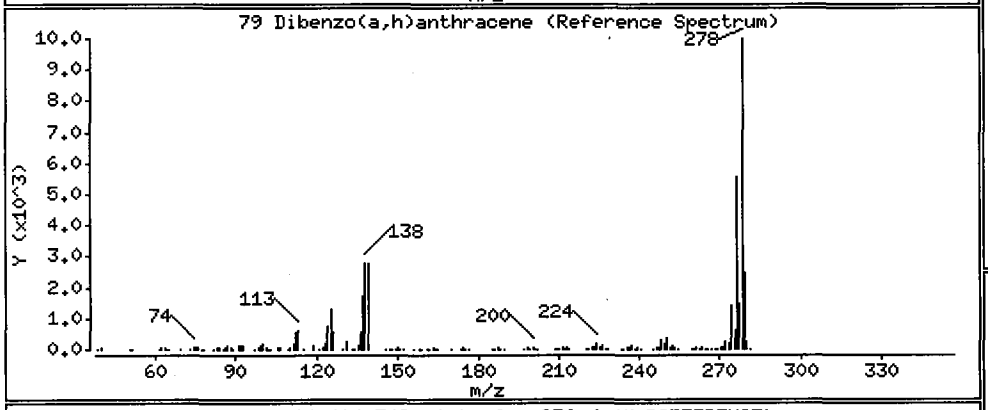
Volume Injected (uL): 1.0 Operator: VTS

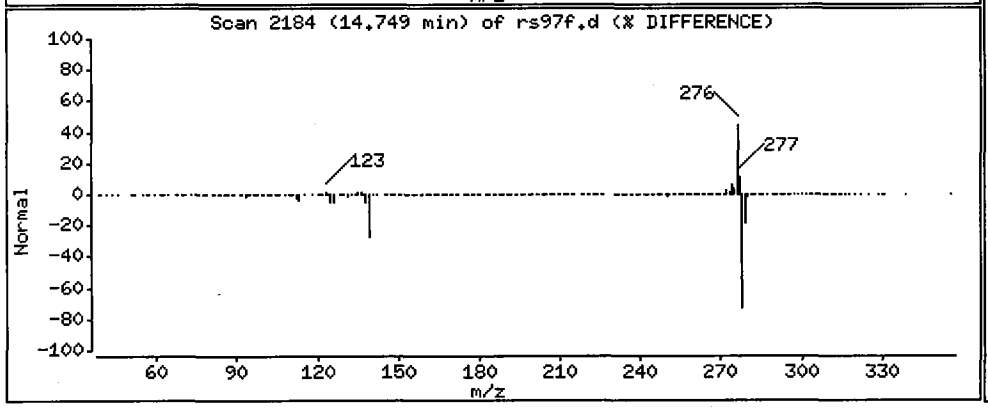
Column phase: ZB-5msi Column diameter: 0.32

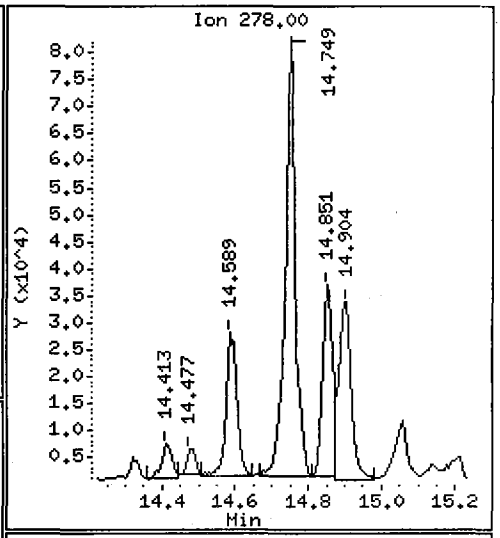
79 Dibenzo(a,h)anthracene Concentration: 103000 ug/kg

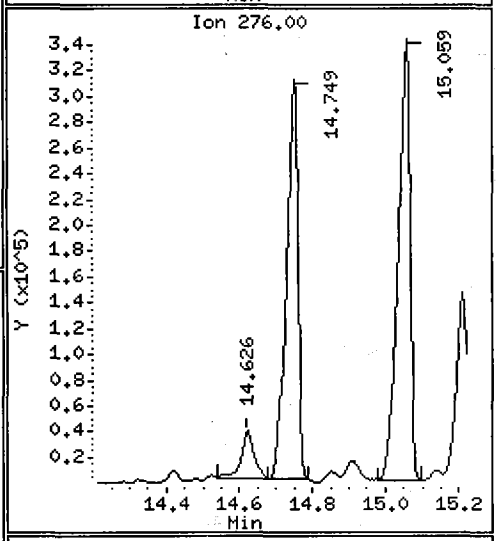


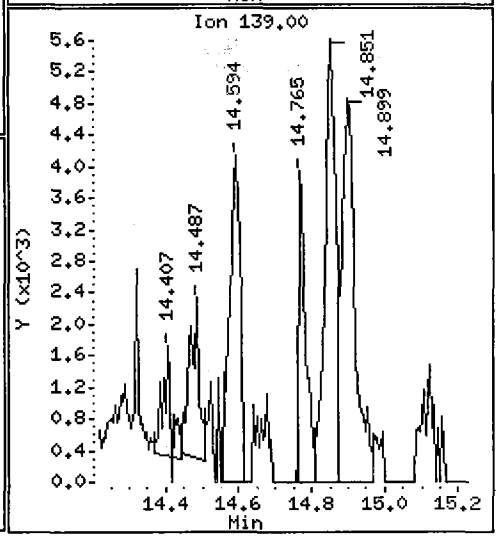












Data File: /chem1/nt12.i/20101109.b/rs97f.d

Date : 09-NOV-2010 20:26

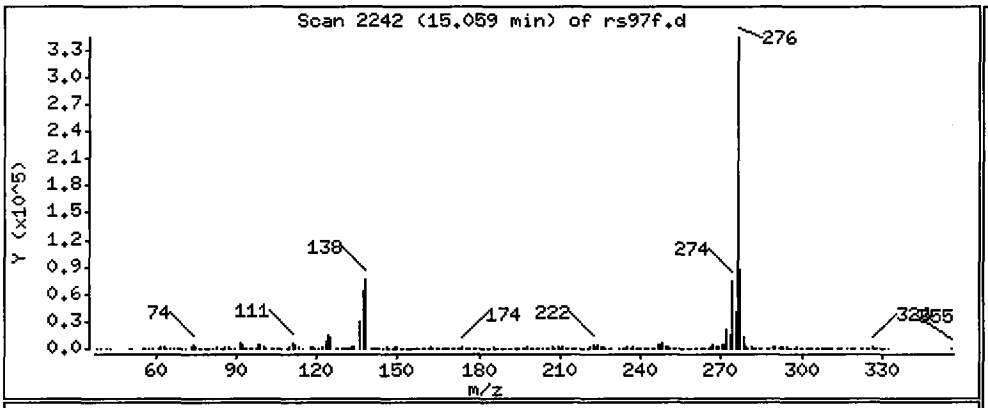
Client ID: GST-09SO-17-18-1010 Instrument: nt12.i

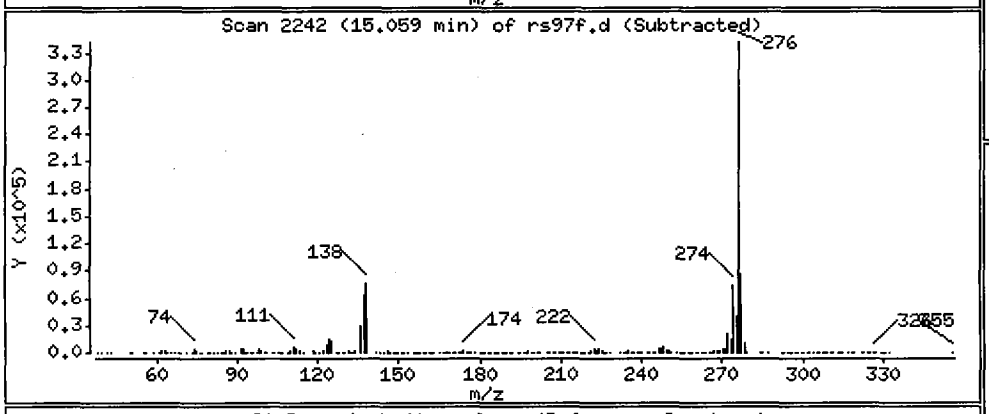
Sample Info: RS97F,3

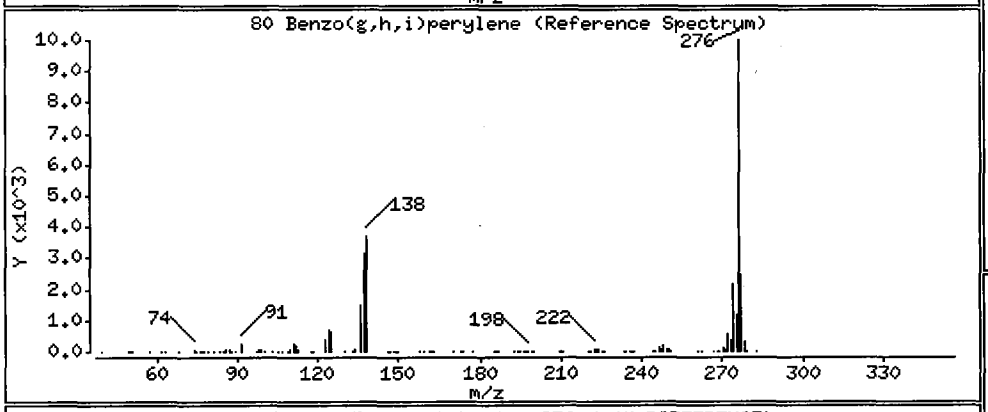
Volume Injected (uL): 1.0 Operator: VTS

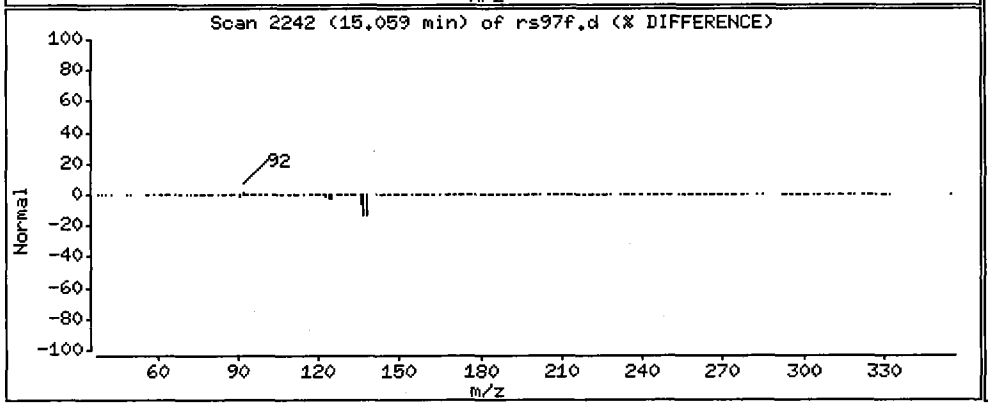
Column phase: ZB-5msi Column diameter: 0.32

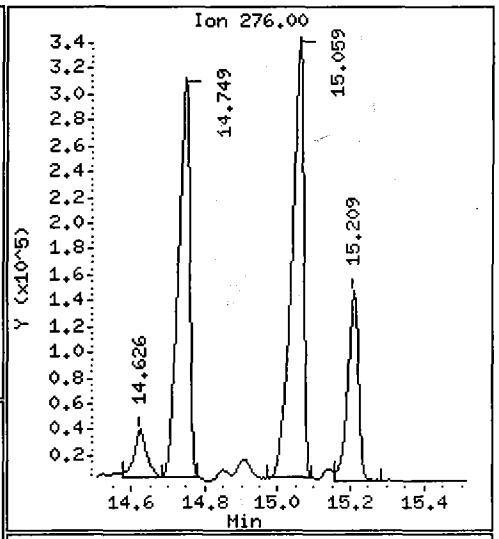
80 Benzo(g,h,i)perylene Concentration: 519000 ug/kg

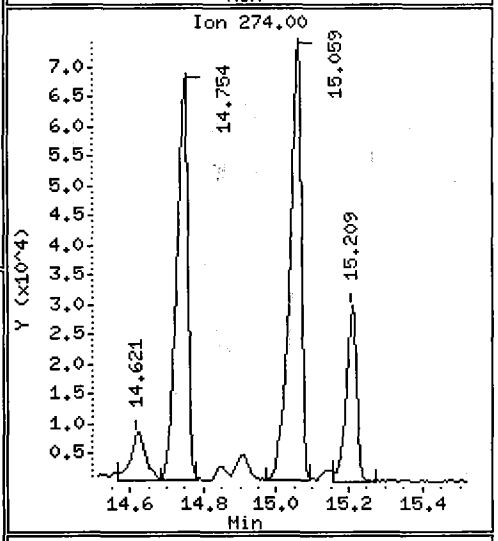


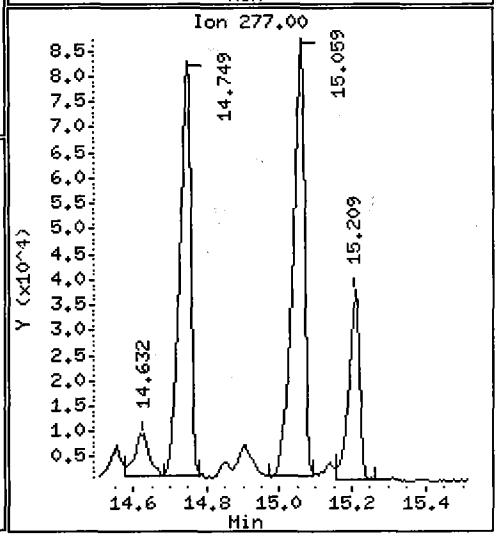












Analytical Resources Inc.: Volatile Organics Instrument Log

NT-12 Serial No.:GC=US00032558, MS= US01180091

Date: 11.10.10 Analysis: PNA Analyst: VJS

GC Program: PNA Column No: 181984 Column Type: ZB-5ms

Instrument Tune (.U or .CT.): 101030.U EM Voltage: 1753

Calibration File: df1110 Curve Date: 10.10.30

IS/SS	Ical/Ccal	LCS/ICV
1752-1	1770-1 1753-5 1773-3	

INTERNAL STANDARD SUMMARY FOR DATABATCH - /chem1/nt12.i/20101110.b

	Time	Filename	LabID	ClientId	DF											
1	1306	df1110.d			1	|NO ISTDS FOUND||										
2	1329	cc1110.d	CC1110		1	| 4.89	201233	|| 6.99	126996	|| 8.76	222782	||11.99	227886	||13.61	171390	
3	1353	177802.d	177802		1	|NO ISTDS FOUND||										
4	1417	rs97d.d	RS97D	DGS-19-10.21	1	| 4.89	227218	|| 6.99	142597	|| 8.77	241604	||11.99	239422	||13.61	193619	
5	1440	rs97g.d	RS97G	DGS-36-066.7	1	| 4.89	214669	|| 6.99	137859	|| 8.76	232928	||11.99	210930	||13.61	157301	
6	1504	rs97h.d	RS97H	DGS-07-011.3	1	| 4.89	226374	|| 6.99	145685	|| 8.76	248443	||11.99	249493	||13.61	186738	
7	1527	rs97hms.d	RS97HMS	DGS-07-011.3	1	| 4.89	226810	|| 6.99	149079	|| 8.76	258284	||11.99	242373	||13.61	175061	
8	1551	rs97hmsd.d	RS97HMSD	DGS-07-011.3	1	| 4.89	202953	|| 6.99	126445	|| 8.76	227465	||11.99	227775	||13.61	168803	
9	1624	rs97i.d	RS97I	DGS-07-2.22.	1	| 4.89	223061	|| 6.99	138099	|| 8.77	236287	||11.99	225838	||13.62	199918	
10	1648	rs97j.d	RS97J	DGS-07-034.2	3	| 4.89	173847	|| 6.99	106323	|| 8.76	185869	||11.99	188575	||13.61	165309	
11	1711	rs97l.d	RS97L	DGS-07-5.66.	1	| 4.89	205463	|| 6.99	120477	|| 8.77	213377	||11.99	210112	||13.61	179614	
12	1734	rs97m.d	RS97M	DGS-07-077.3	1	| 4.89	235974	|| 6.99	149328	|| 8.76	268127	||11.99	249207	||13.61	190539	
13	1758	rs97n.d	RS97N	DGS-07-7.98.	1	| 4.89	223897	|| 6.99	141260	|| 8.76	254144	||11.99	234667	||13.61	178712	
14	1821	rs97o.d	RS97O	DGS-07-8.79.	3	| 4.89	193302	|| 6.99	120276	|| 8.76	211863	||11.99	205712	||13.61	168798	
15	1845	rs97p.d	RS97P	DGS-07-9.710	3	| 4.89	191343	|| 6.99	113722	|| 8.77	208882	||11.99	188419	||13.61	163219	
16	1908	rs97q.d	RS97Q	DGS-07-10.61	1	| 4.89	224906	|| 6.99	133772	|| 8.77	251864	||11.99	212659	||13.62	182597	
17	1931	rs97r.d	RS97R	DGS-07-11.61	1	| 4.89	228249	|| 7.00	141339	|| 8.78	287042	||12.00	240694	||13.62	197110	
18	1955	rs97s.d	RS97S	DGS-07-12.71	1	| 4.89	230304	|| 6.99	137988	|| 8.77	249698	||11.99	227074	||13.62	190561	
19	2018	rs97adl.d	RS97A	GSM-08SO-10-	10	| 4.89	192645	|| 6.99	120097	|| 8.76	213167	||11.99	223178	||13.61	198354	
20	2042	rs97bdl.d	RS97B	DGS-19-3.34.	25	| 4.89	189471	|| 6.99	115675	|| 8.76	209393	||11.99	216862	||13.61	206746	
21	2105	rs97edl.d	RS97E	DGS-08-4.44.	25	| 4.89	196057	|| 6.99	120175	|| 8.76	212428	||11.99	217158	||13.61	202927	
22	2129	rs97fdl.d	RS97F	GST-09SO-17-	50	| 4.89	203052	|| 6.99	121296	|| 8.76	215830	||11.99	216384	||13.61	201984	

Maintenance Verification (Identify ICal or CCal that demonstrates the instrument is in control): CC1110

Every line must contain information or be lined out. Make all entries legible. Start a new page for each QC period.

New line / New Septum

11.12.10 VJS

MANUAL INTEGRATION SUMMARY FOR DATABATCH - /chem1/nt12.i/20101110.b

ARI Job No.: 1778 Method: PNADMD.m Instrument: nt12.i Date: 10-NOV-2010

Time	Filename	LabID	ClientId	DF	Manually Integrated Compounds
1353	177802.d	177802		1	NO MANUAL INTEGRATION
1329	cc1110.d	CC1110		1	NO MANUAL INTEGRATION
1306	df1110.d			1	NO MANUAL INTEGRATION
1225	rinse1.d	RINSE1		1	NO MANUAL INTEGRATION
2018	rs97adl.d	RS97A	GSM-08SO-1	10	NO MANUAL INTEGRATION
2042	rs97bdl.d	RS97B	DGS-19-3.3	25	NO MANUAL INTEGRATION
1417	rs97d.d	RS97D	DGS-19-10.	1	Acenaphthylene,
2105	rs97edl.d	RS97E	DGS-08-4.4	25	NO MANUAL INTEGRATION
2129	rs97fdl.d	RS97F	GST-09SO-1	50	NO MANUAL INTEGRATION
1440	rs97g.d	RS97G	DGS-36-066	1	NO MANUAL INTEGRATION
1504	rs97h.d	RS97H	DGS-07-011	1	NO MANUAL INTEGRATION
1527	rs97hms.d	RS97HMS	DGS-07-011	1	NO MANUAL INTEGRATION
1551	rs97hmsd.d	RS97HMSD	DGS-07-011	1	NO MANUAL INTEGRATION
1624	rs97i.d	RS97I	DGS-07-2.2	1	NO MANUAL INTEGRATION
1648	rs97j.d	RS97J	DGS-07-034	3	NO MANUAL INTEGRATION
1711	rs97l.d	RS97L	DGS-07-5.6	1	Acenaphthylene,
1734	rs97m.d	RS97M	DGS-07-077	1	NO MANUAL INTEGRATION
1758	rs97n.d	RS97N	DGS-07-7.9	1	NO MANUAL INTEGRATION
1821	rs97o.d	RS97O	DGS-07-8.7	3	NO MANUAL INTEGRATION
1845	rs97p.d	RS97P	DGS-07-9.7	3	Acenaphthylene,
1908	rs97q.d	RS97Q	DGS-07-10.	1	Acenaphthylene,

1931	rs97r.d	RS97R	DGS-07-11.	1	Acenaphthylene, Carbazole,

RS97: 00347

MANUAL INTEGRATION SUMMARY FOR DATABATCH - /chem1/nt12.i/20101110.b

Time	Filename	LabID	ClientId	DF	Manually Integrated Compounds
1955	rs97s.d	RS97S	DGS-07-12.	1	Acenaphthylene, Carbazole,

RS97:00348

Q-FLAG SUMMARY FOR DATABATCH - /chem1/nt12.i/20101110.b

Instrument: nt12.i Date: 10-NOV-2010 Method: PNADMD.m

INITIAL CAL: 30-OCT-2010

Compound	%RSD or R^2
NO Q-FLAGS	

CONTINUING CAL: 10-NOV-2010

Compound	%D
Benzo(g,h,i)perylene	-21.9

Data File: /chem1/nt12.i/20101110.b/df1110.d

Date : 10-NOV-2010 13:06

Client ID:

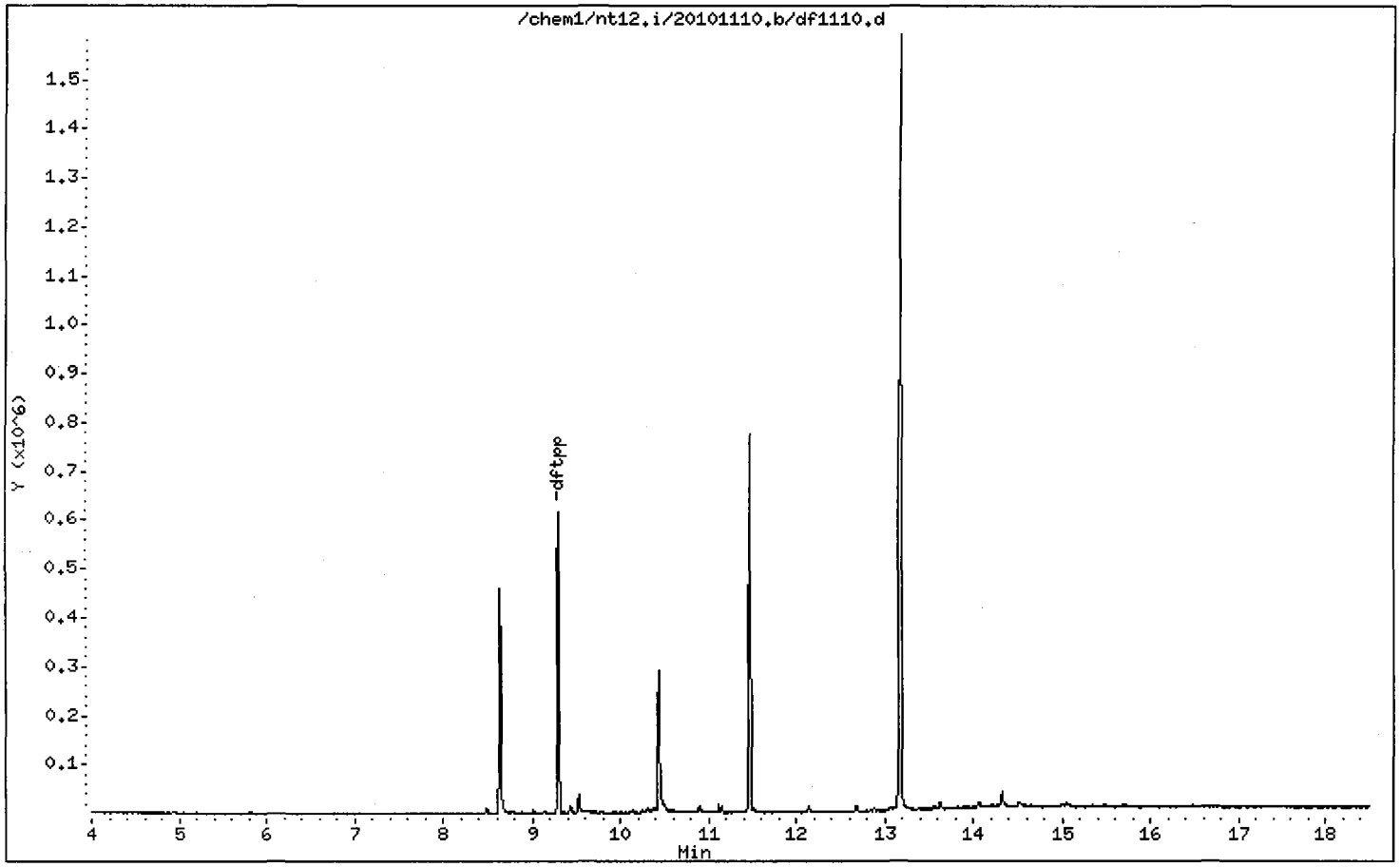
Instrument: nt12.i

Sample Info: DF1110

Operator: jr

Column phase: ZB-5msi

Column diameter: 0.32



Data File: /chem1/nt12.i/20101110.b/df1110.d

Date : 10-NOV-2010 13:06

Client ID:

Instrument: nt12.i

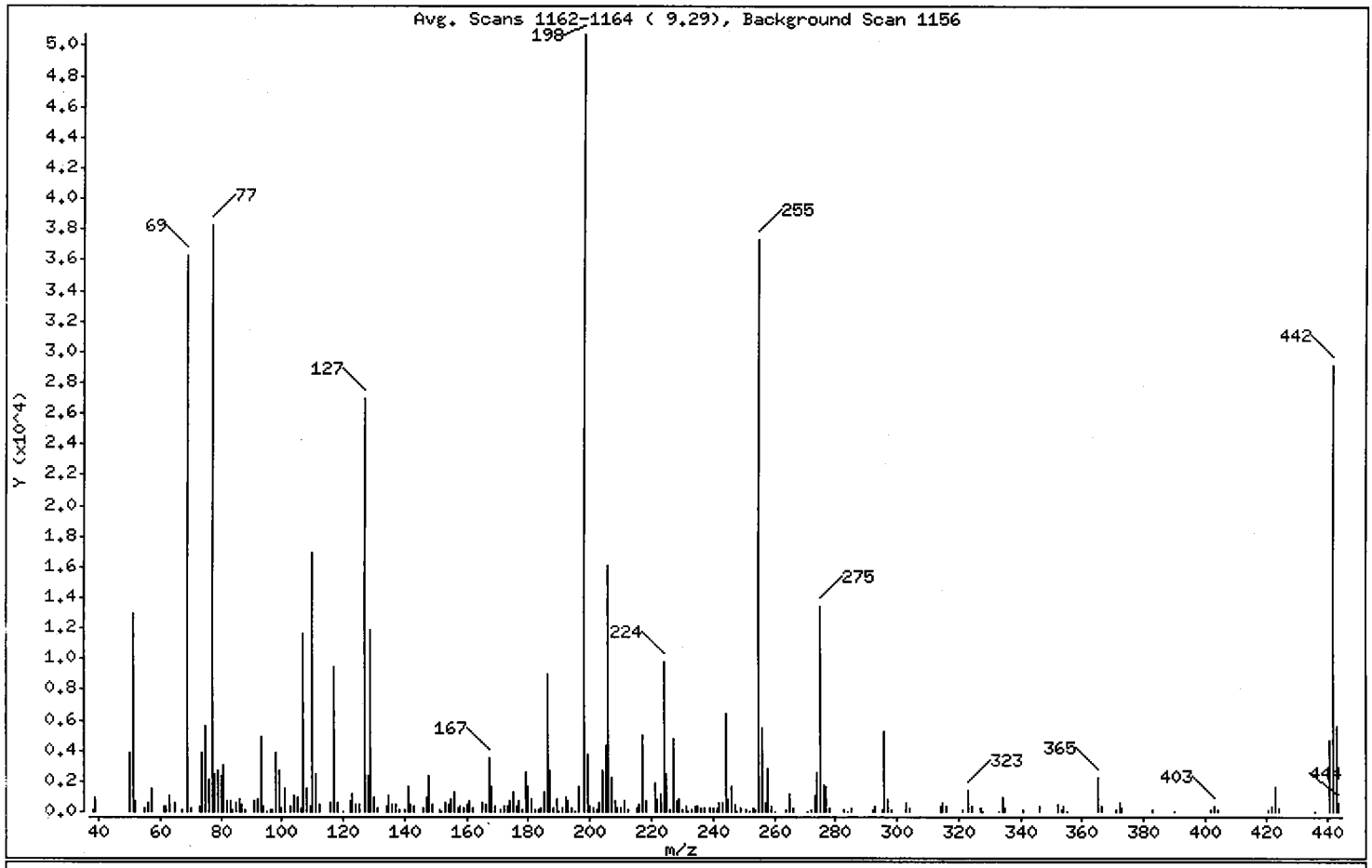
Sample Info: DF1110

Operator: jr

Column phase: ZB-5msi

Column diameter: 0.32

1 dftpp



m/e	ION ABUNDANCE CRITERIA	% RELATIVE ABUNDANCE
198	Base Peak, 100% relative abundance	100.00
51	10.00 - 80.00% of mass 198	25.51
68	Less than 2.00% of mass 69	0.00 (0.00)
69	Mass 69 relative abundance	71.38
70	Less than 2.00% of mass 69	0.55 (0.76)
127	10.00 - 80.00% of mass 198	53.10
197	Less than 2.00% of mass 198	0.00
199	5.00 - 9.00% of mass 198	7.29
275	10.00 - 60.00% of mass 198	26.51
365	Greater than 1.00% of mass 198	4.28
441	0.01 - 24.00% of mass 442	9.28 (16.17)
442	50.00 - 200.00% of mass 198	57.42
443	15.00 - 24.00% of mass 442	10.96 (19.10)

Data File: /chem1/nt12.i/20101110.b/df1110.d

Date : 10-NOV-2010 13:06

Client ID:

Instrument: nt12.i

Sample Info: DF1110

Operator: jr

Column phase: ZB-5msi

Column diameter: 0.32

Data File: df1110.d
Spectrum: Avg. Scans 1162-1164 (9.29), Background Scan 1156
Location of Maximum: 198.00
Number of points: 236

m/z	Y	m/z	Y	m/z	Y	m/z	Y
38.00	148	127.00	26944	196.00	1605	266.00	222
39.00	987	128.00	2278	198.00	50744	271.00	55
50.00	3804	129.00	11851	199.00	3700	272.00	68
51.00	12946	130.00	989	200.00	405	273.00	1028
52.00	705	131.00	271	201.00	211	274.00	2585
55.00	208	134.00	359	202.00	90	275.00	13453
56.00	635	135.00	993	203.00	589	276.00	1784
57.00	1494	136.00	427	204.00	2674	277.00	1687
61.00	323	137.00	437	205.00	4300	278.00	228
62.00	400	138.00	75	206.00	16108	283.00	150
63.00	1078	140.00	167	207.00	2263	284.00	56
65.00	602	141.00	1626	208.00	664	285.00	230
67.00	60	142.00	505	209.00	266	292.00	62
69.00	36224	143.00	374	210.00	279	293.00	303
70.00	277	146.00	291	211.00	722	295.00	68
73.00	318	147.00	890	212.00	63	296.00	5238
74.00	3867	148.00	2308	215.00	251	297.00	805
75.00	5552	149.00	483	216.00	457	298.00	61
76.00	2064	151.00	147	217.00	4997	303.00	543
77.00	38280	152.00	50	218.00	738	304.00	219
78.00	2500	153.00	555	221.00	1912	314.00	298
79.00	2664	154.00	418	222.00	780	315.00	630
80.00	2379	155.00	864	223.00	1203	316.00	361
81.00	3021	156.00	1314	224.00	9833	321.00	88
82.00	733	157.00	183	225.00	2440	323.00	1429
83.00	656	158.00	353	226.00	64	324.00	294
84.00	167	159.00	186	227.00	4778	327.00	286
85.00	535	160.00	481	228.00	729	328.00	54
86.00	775	161.00	750	229.00	770	333.00	55
87.00	505	162.00	227	230.00	147	334.00	921
88.00	122	165.00	625	231.00	392	335.00	260
91.00	723	166.00	524	232.00	56	341.00	129
92.00	828	167.00	3520	233.00	63	346.00	351
93.00	4930	168.00	1641	234.00	315	352.00	458
94.00	301	169.00	332	235.00	394	353.00	169

Data File: /chem1/nt12.i/20101110.b/df1110.d

Date : 10-NOV-2010 13:06

Client ID:

Instrument: nt12.i

Sample Info: DF1110

Operator: jr

Column phase: ZB-5msi

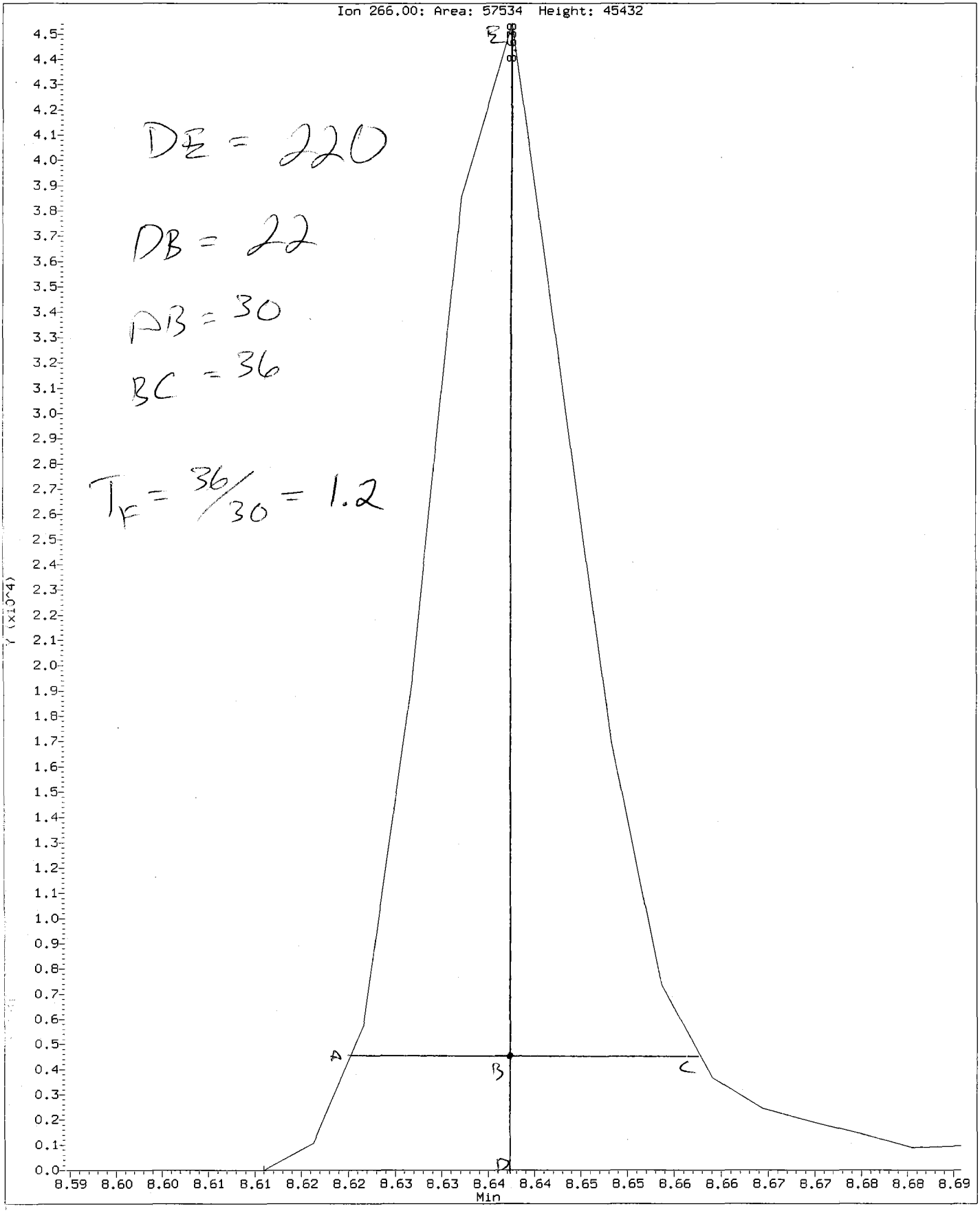
Column diameter: 0.32

Data File: df1110.d
Spectrum: Avg. Scans 1162-1164 (9.29), Background Scan 1156
Location of Maximum: 198.00
Number of points: 236

m/z	Y	m/z	Y	m/z	Y	m/z	Y
95.00	52	171.00	140	236.00	264	354.00	402
96.00	143	172.00	349	237.00	258	355.00	56
97.00	133	173.00	345	239.00	184	365.00	2173
98.00	3884	174.00	703	240.00	184	366.00	342
99.00	2637	175.00	1318	241.00	245	371.00	120
100.00	243	176.00	357	242.00	623	372.00	585
101.00	1523	177.00	720	243.00	637	373.00	189
103.00	356	178.00	155	244.00	6449	383.00	153
104.00	1103	179.00	2611	245.00	862	390.00	53
105.00	928	180.00	1629	246.00	1629	402.00	168
106.00	231	181.00	794	247.00	428	403.00	320
107.00	11694	182.00	123	248.00	51	404.00	147
108.00	1560	183.00	73	249.00	222	421.00	145
109.00	374	184.00	193	251.00	61	422.00	309
110.00	16968	185.00	1273	252.00	53	423.00	1651
111.00	2507	186.00	8990	253.00	215	424.00	284
112.00	417	187.00	2728	254.00	92	436.00	51
116.00	638	188.00	275	255.00	37368	441.00	4712
117.00	9482	189.00	860	256.00	5499	442.00	29136
118.00	628	190.00	57	257.00	532	443.00	5564
120.00	52	191.00	229	258.00	2764	444.00	639
122.00	695	192.00	987	259.00	405		
123.00	1119	193.00	756	260.00	51		
124.00	501	194.00	214	264.00	83		
125.00	424	195.00	50	265.00	1175		

Data File: /chem1/nt12.i/20101110.b/ddt.b/df1110.d
Injection Date: 10-NOV-2010 13:06
Instrument: nt12.i
Client Sample ID:

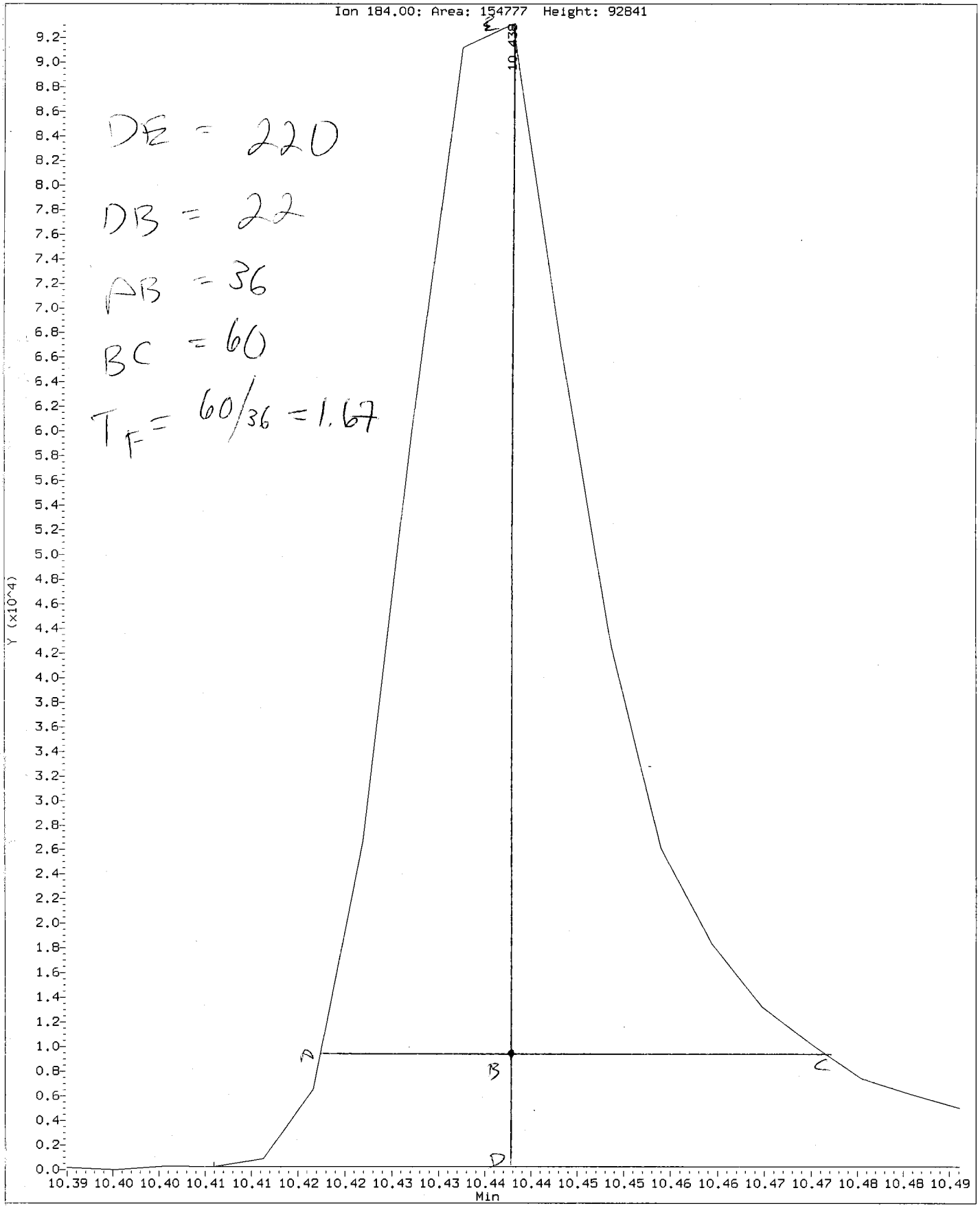
Compound: Pentachlorophenol
CAS Number: 87-86-5



RS97:00354

Data File: /chem1/nt12.i/20101110.b/ddt.b/df1110.d
Injection Date: 10-NOV-2010 13:06
Instrument: nt12.i
Client Sample ID:

Compound: Benzidine
CAS Number:



RS97:00355

Analytical Resources Inc.
ABN by sw846 8270C
DDT Breakdown Report

Data file: /chem1/nt12.i/20101110.b/ddt.b/df1110.d ARI ID:
Method: /chem1/nt12.i/20101110.b/ddt.b/sw846ddt.m Misc:
Analysis Date: 10-NOV-2010 13:06 Instrument: nt12.i

COMPOUND	RT	AREA
Pentachlorophenol	8.638	57534
Benzidine	10.438	154777
4,4'-DDE	10.710	353
4,4'-DDD	11.122	3539
4,4'-DDT	11.469	159923

$$\text{DDT Percent Breakdown} = \frac{(\text{DDE Area} + \text{DDD Area}) * 100}{(\text{DDE Area} + \text{DDD Area} + \text{DDT Area})}$$

$$\text{DDT Percent Breakdown} = \frac{(353 + 3539) * 100}{(353 + 3539 + 159923)}$$

DDT Percent Breakdown = 2.4 %

Analytical Resources, Inc.

Semivolatile Report SW846 Method 8270D

Data file : /chem1/nt12.i/20101110.b/cc1110.d
Lab Smp Id: CC1110
Inj Date : 10-NOV-2010 13:29
Operator : VTS Inst ID: nt12.i
Smp Info : CC1110
Misc Info : 10-
Comment : 1ul Injection
Method : /chem1/nt12.i/20101110.b/PNADMD.m
Meth Date : 10-Nov-2010 14:46 van Quant Type: ISTD
Cal Date : 30-OCT-2010 13:19 Cal File: ic1030f.d
Als bottle: 2 Continuing Calibration Sample
Dil Factor: 1.00000
Integrator: HP RTE Compound Sublist: pnas.sub
Target Version: 3.50
Processing Host: cserv3

Compounds	QUANT SIG MASS	RT	EXP RT	REL RT	RESPONSE	AMOUNTS CAL-AMT (ug/mL)	AMOUNTS ON-COL (ug/mL)
* 27 Naphthalene-d8	136	4.888	4.888	(1.000)	201233	20.0000	
28 Naphthalene	128	4.909	4.909	(1.004)	298265	25.0000	26.04
32 2-Methylnaphthalene	141	5.726	5.726	(1.172)	164923	25.0000	26.98
105 1-methylnaphthalene	141	5.854	5.854	(1.198)	164637	25.0000	26.12
$ 36 2-Fluorobiphenyl	172	6.202	6.202	(0.887)	252386	25.0000	25.83
40 Acenaphthylene	152	6.805	6.805	(0.973)	321424	25.0000	25.28
* 42 Acenaphthene-d10	164	6.992	6.992	(1.000)	126996	20.0000	
44 Acenaphthene	153	7.030	7.030	(1.005)	196191	25.0000	25.12
46 Dibenzofuran	168	7.222	7.222	(1.033)	305252	25.0000	25.49
49 Fluorene	166	7.639	7.639	(1.092)	229698	25.0000	25.69
* 59 Phenanthrene-d10	188	8.761	8.761	(1.000)	222782	20.0000	
60 Phenanthrene	178	8.787	8.787	(1.003)	307992	25.0000	26.06
61 Anthracene	178	8.846	8.846	(1.010)	313090	25.0000	25.63
62 Carbazole	167	9.065	9.065	(1.035)	252204	25.0000	25.59
64 Fluoranthene	202	10.235	10.235	(0.853)	376777	25.0000	23.67
65 Pyrene	202	10.502	10.502	(0.876)	370915	25.0000	23.49
$ 66 Terphenyl-d14	244	10.737	10.737	(0.895)	239390	25.0000	23.76
68 Benzo(a)anthracene	228	11.971	11.971	(0.998)	326870	25.0000	25.54
* 69 Chrysene-d12	240	11.993	11.993	(1.000)	227886	20.0000	
71 Chrysene	228	12.019	12.019	(1.002)	286934	25.0000	23.98
187 Total Benzofluoranthenes	252	13.243	13.243	(0.973)	549054	50.0000	53.78
76 Benzo(a)pyrene	252	13.553	13.553	(0.996)	240803	25.0000	25.68
* 77 Perylene-d12	264	13.611	13.611	(1.000)	171390	20.0000	
99 Perylene	252	13.638	13.638	(1.002)	244767	25.0000	24.54
78 Indeno(1,2,3-cd)pyrene	276	14.712	14.712	(1.081)	287430	25.0000	20.64
79 Dibenzo(a,h)anthracene	278	14.723	14.723	(1.082)	236809	25.0000	20.66

Compounds	QUANT SIG MASS	RT	EXP RT	REL RT	RESPONSE	AMOUNTS CAL-AMT (ug/mL)	AMOUNTS ON-COL (ug/mL)
80 Benzo(g,h,i)perylene	276	15.006	15.006	(1.102)	223273	25.0000	19.52

VB
11-10-10

Analytical Resources, Inc.

INTERNAL STANDARD COMPOUNDS
AREA AND RT SUMMARY

Instrument ID: nt12.i
Lab File ID: cc1110.d
Lab Smp Id: CC1110
Analysis Type: SV
Quant Type: ISTD
Operator: VTS
Method File: /chem1/nt12.i/20101110.b/PNADMD.m
Misc Info: 10-

Calibration Date: 10-NOV-2010
Calibration Time: 12:25

Level:
Sample Type:

Test Mode:
Use Initial Calibration Level 4.

COMPOUND	STANDARD	AREA LIMIT LOWER	AREA LIMIT UPPER	SAMPLE	%DIFF
27 Naphthalene-d8	237664	118832	475328	201233	-15.33
42 Acenaphthene-d10	143363	71682	286726	126996	-11.42
59 Phenanthrene-d10	245437	122718	490874	222782	-9.23
69 Chrysene-d12	199260	99630	398520	227886	14.37
77 Perylene-d12	197636	98818	395272	171390	-13.28

COMPOUND	STANDARD	RT LIMIT LOWER	RT LIMIT UPPER	SAMPLE	%DIFF
27 Naphthalene-d8	4.89	4.39	5.39	4.89	0.00
42 Acenaphthene-d10	6.99	6.49	7.49	6.99	0.00
59 Phenanthrene-d10	8.76	8.26	9.26	8.76	0.00
69 Chrysene-d12	11.99	11.49	12.49	11.99	0.00
77 Perylene-d12	13.61	13.11	14.11	13.61	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.

Analytical Resources, Inc.

CONTINUING CALIBRATION COMPOUNDS

Instrument ID: nt12.i
Lab File ID: cc1110.d
Analysis Type:
Lab Sample ID: CC1110
Method: /chem1/nt12.i/20101110.b/PNADMD.m

Injection Date: 10-NOV-2010 13:29
Init. Cal. Date(s): 30-OCT-2010 30-OCT-2010
Init. Cal. Times: 11:27 13:19
Quant Type: ISTD

COMPOUND	RRF / AMOUNT	RF25	MIN RRF	%D / %DRIFT	MAX %D / %DRIFT	CURVE TYPE
28 Naphthalene	1.13829	1.18575	0.010	4.16954	20.00000	Averaged
32 2-Methylnaphthalene	0.60757	0.65565	0.010	7.91384	20.00000	Averaged
105 1-methylnaphthalene	0.62646	0.65451	0.010	4.47845	20.00000	Averaged
$ 36 2-Fluorobiphenyl	1.53867	1.58988	0.010	3.32831	20.00000	Averaged
40 Acenaphthylene	2.00273	2.02477	0.010	1.10044	20.00000	Averaged
44 Acenaphthene	1.23000	1.23588	0.010	0.47860	20.00000	Averaged
46 Dibenzofuran	1.88613	1.92290	0.010	1.94942	20.00000	Averaged
49 Fluorene	1.40830	1.44696	0.010	2.74534	20.00000	Averaged
60 Phenanthrene	1.06102	1.10598	0.010	4.23822	20.00000	Averaged
61 Anthracene	1.09658	1.12429	0.010	2.52642	20.00000	Averaged
62 Carbazole	0.88463	0.90565	0.010	2.37684	20.00000	Averaged
64 Fluoranthene	1.39703	1.32268	0.010	-5.32178	20.00000	Averaged
65 Pyrene	1.38595	1.30211	0.010	-6.04992	20.00000	Averaged
$ 66 Terphenyl-d14	0.88413	0.84039	0.010	-4.94803	20.00000	Averaged
68 Benzo(a)anthracene	1.12317	1.14749	0.010	2.16510	20.00000	Averaged
71 Chrysene	1.05006	1.00729	0.010	-4.07369	20.00000	Averaged
187 Total Benzofluoranthenes	1.19124	1.28141	0.010	7.56970	20.00000	Averaged
76 Benzo(a)pyrene	1.09431	1.12400	0.010	2.71293	20.00000	Averaged
99 Perylene	1.16368	1.14250	0.010	-1.82027	20.00000	Averaged
78 Indeno(1,2,3-cd)pyrene	1.62468	1.34164	0.010	-17.42095	20.00000	Averaged
79 Dibenzo(a,h)anthracene	1.33758	1.10536	0.010	-17.36148	20.00000	Averaged
80 Benzo(g,h,i)perylene	1.33470	1.04218	0.010	-21.91670	20.00000	Averaged <-

Data File: /chem1/nt12.i/20101110.b/cc1110.d

Date : 10-NOV-2010 13:29

Client ID:

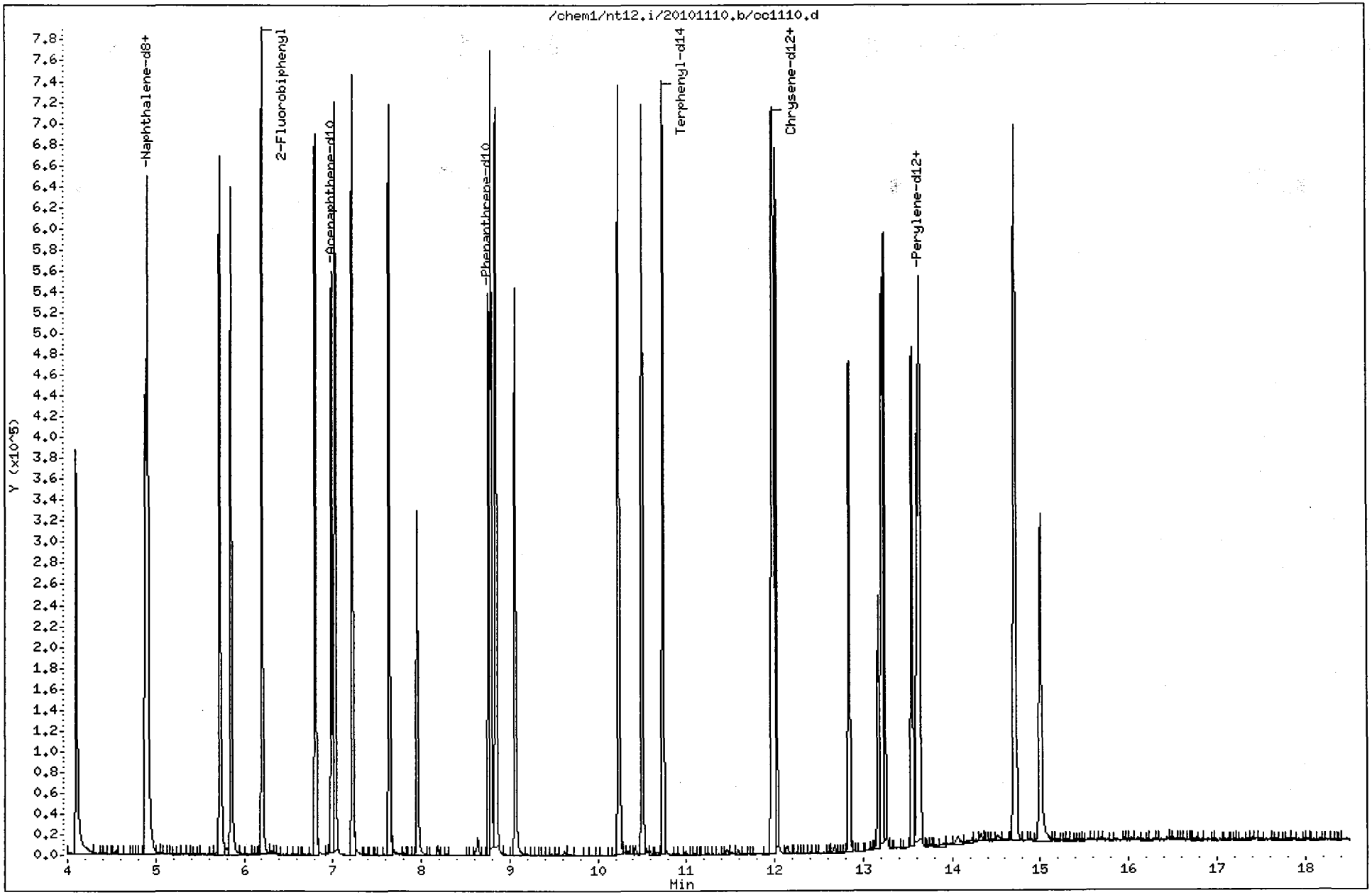
Sample Info: CC1110

Column phase: ZB-5msi

Instrument: nt12.i

Operator: VTS

Column diameter: 0.32

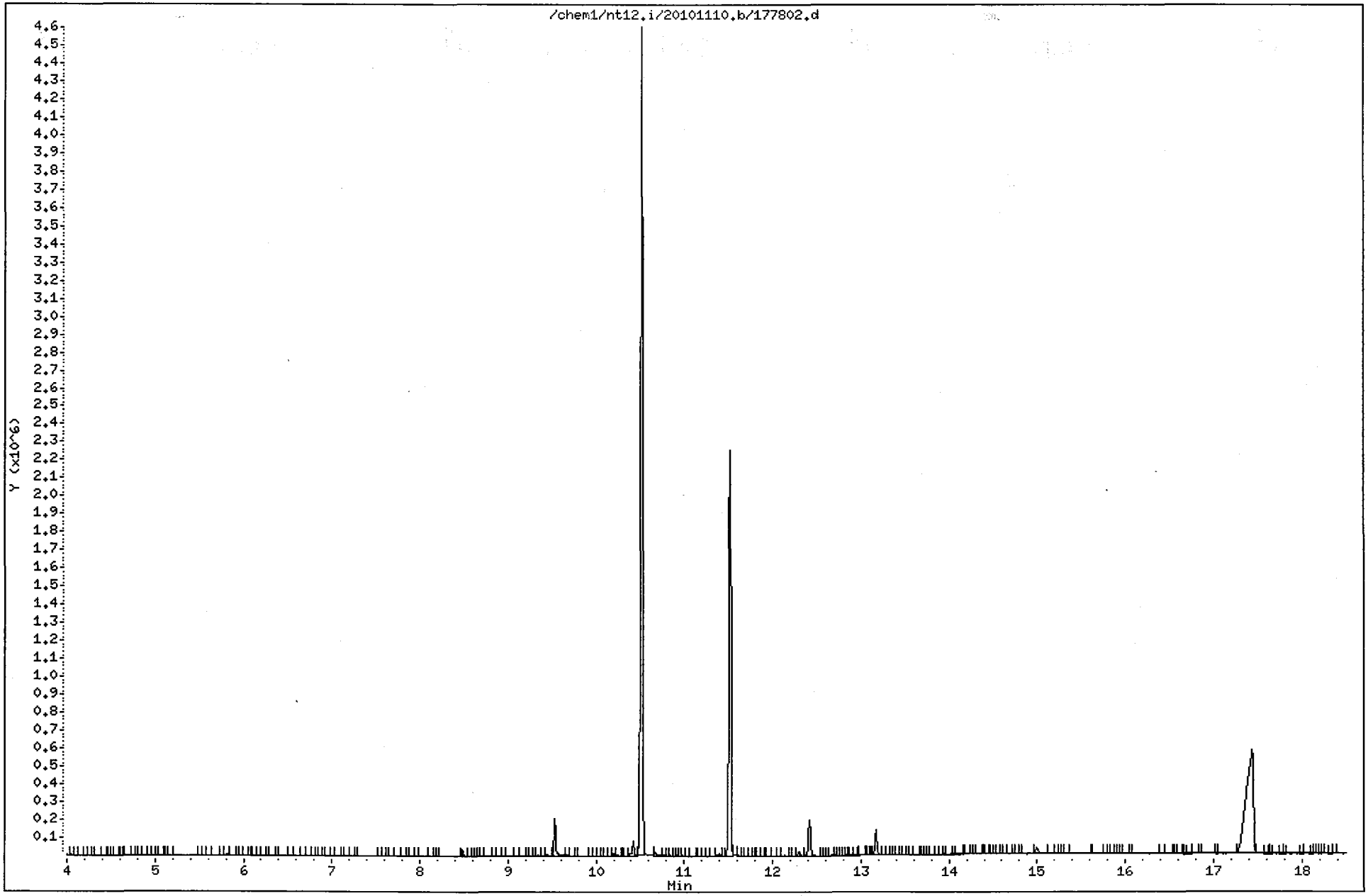


RS97.00361

Data File: /chem1/nt12.i/20101110.b/177802.d
Date : 10-NOV-2010 13:53
Client ID:
Sample Info: 177802
Volume Injected (uL): 1.0
Column phase: ZB-5msi

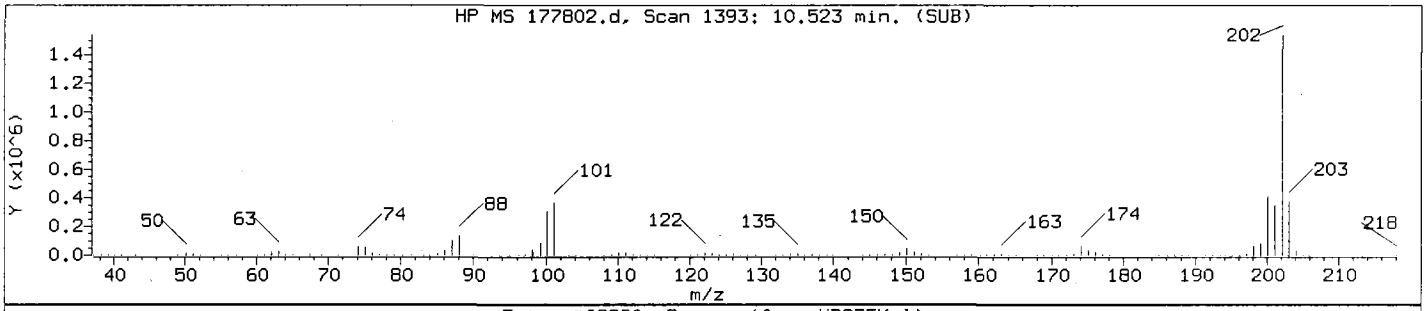
Instrument: nt12.i

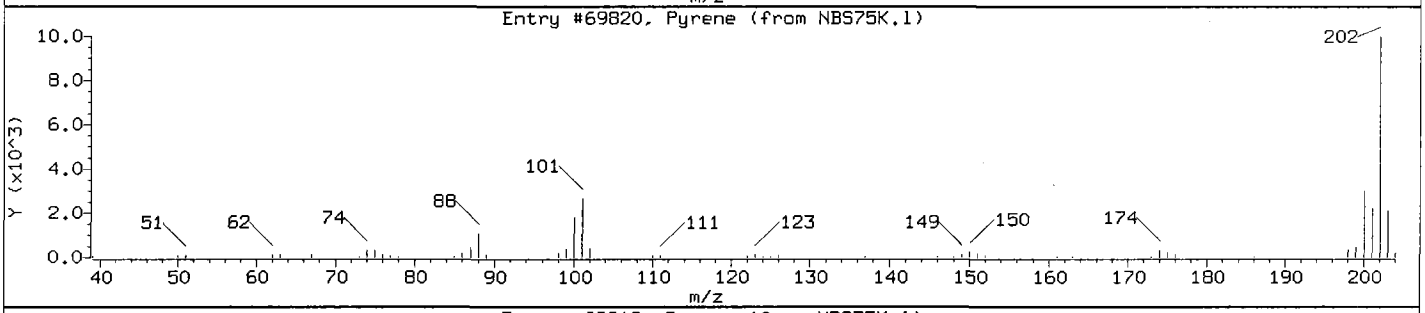
Operator: VTS
Column diameter: 0.32

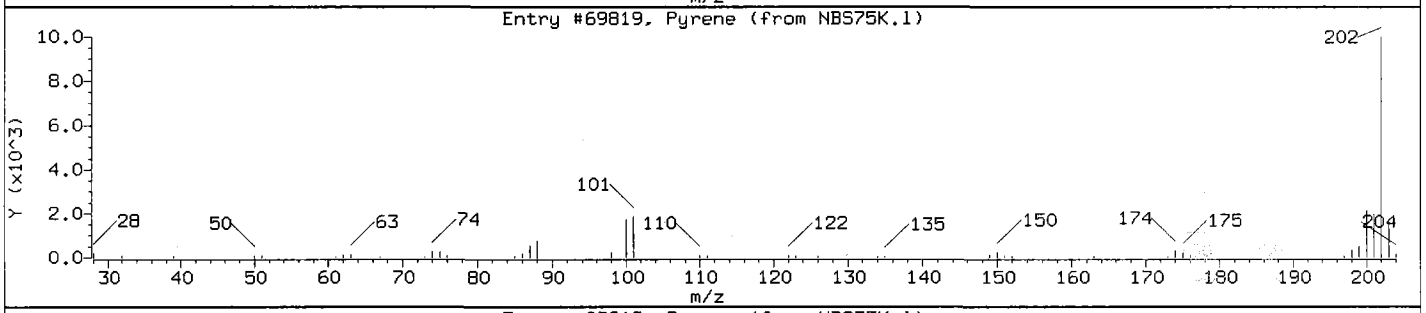


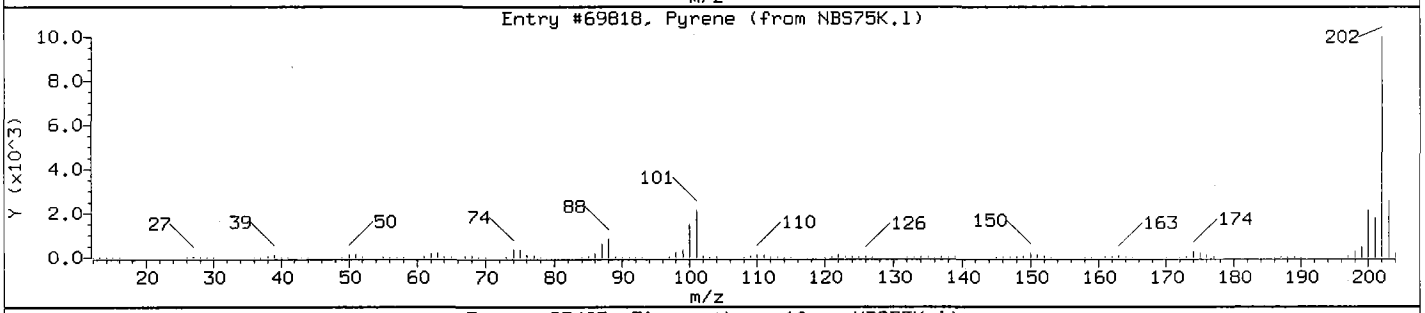
RS97 00362

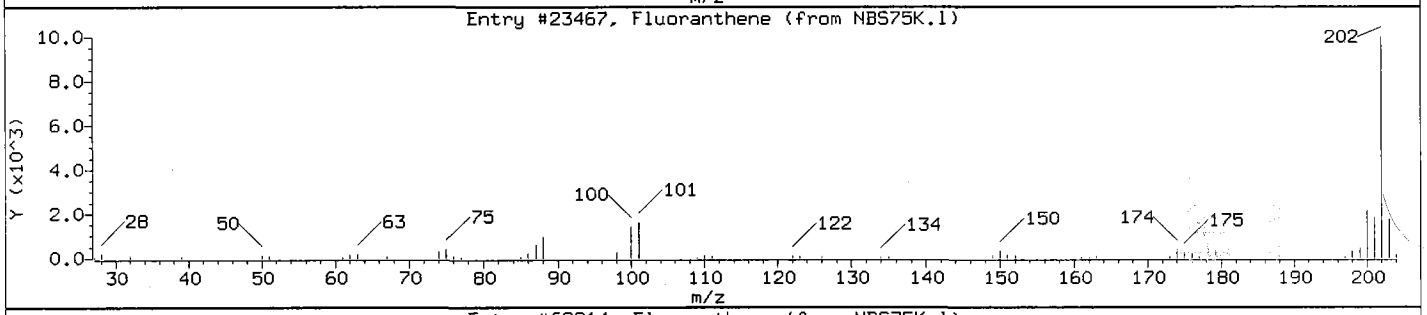
Data File: /chem1/nt12.i/20101110.b/177802.d
Injection Date: 10-NOV-2010 13:53
Instrument: nt12.i
Client Sample ID:

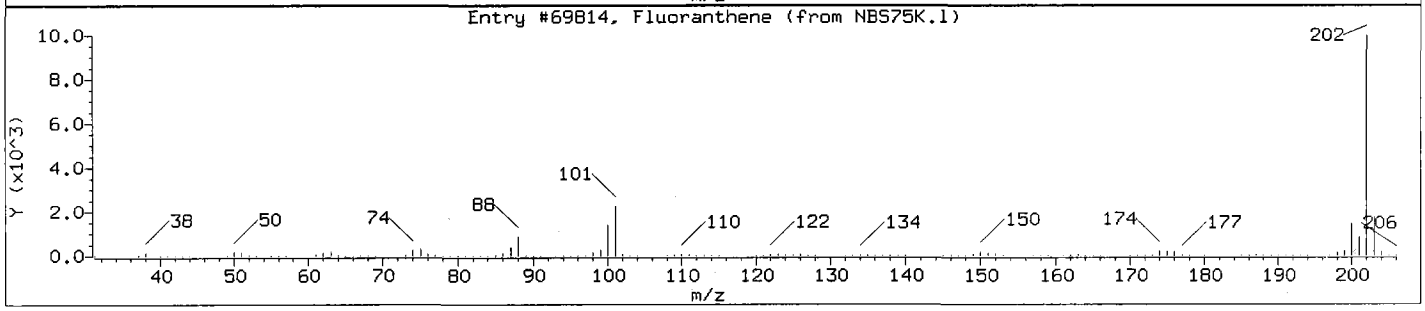






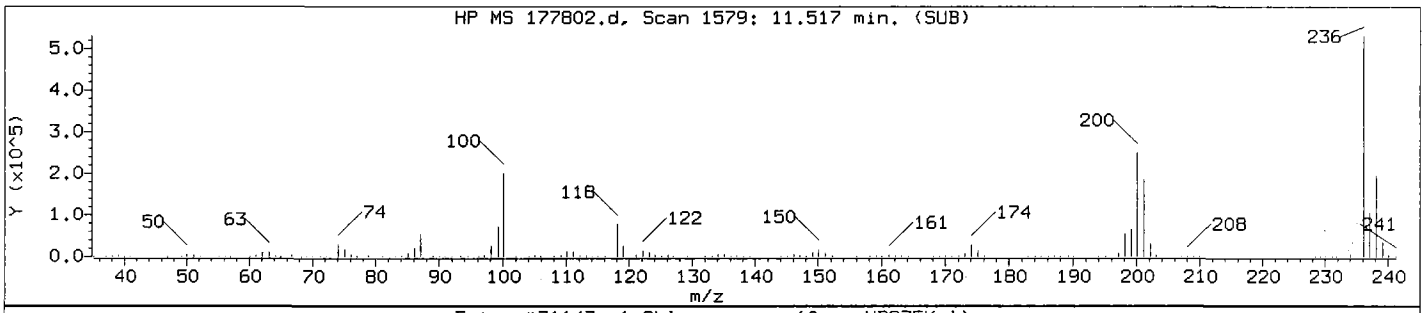


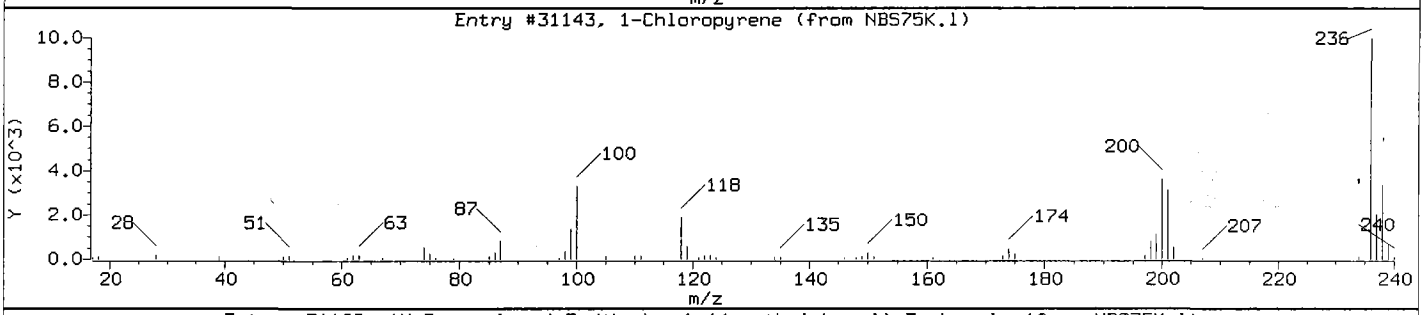


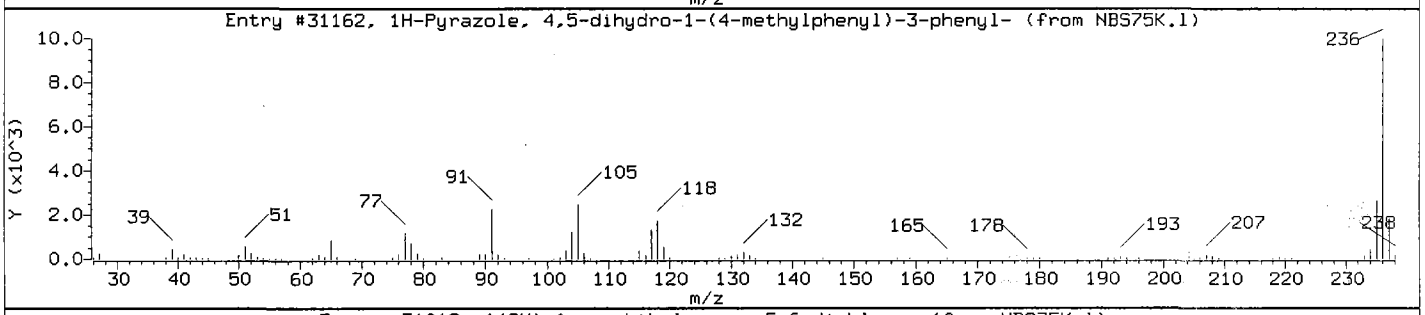


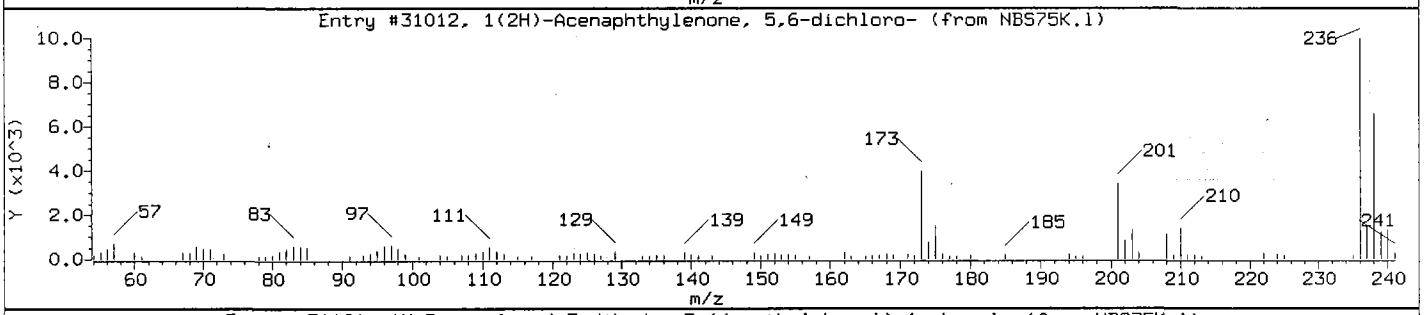
RS97:00363

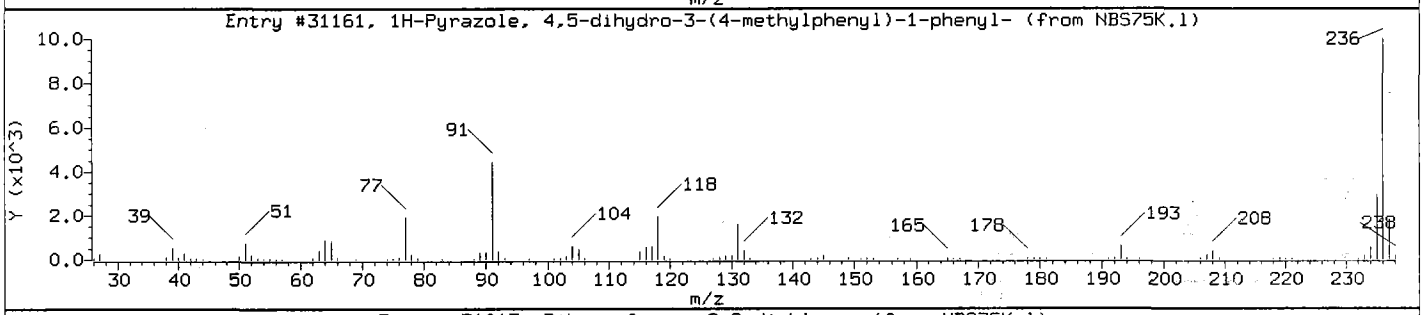
Data File: /chem1/nt12.i/20101110.b/177802.d
Injection Date: 10-NOV-2010 13:53
Instrument: nt12.i
Client Sample ID:

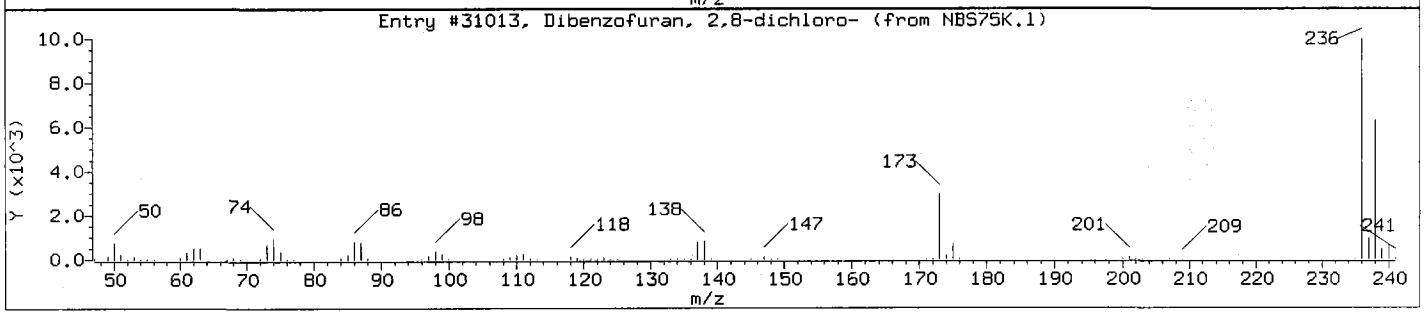






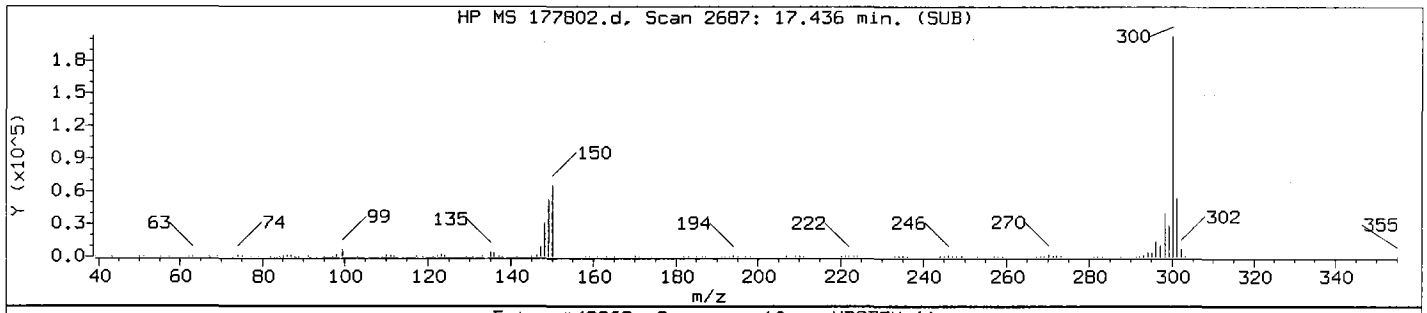


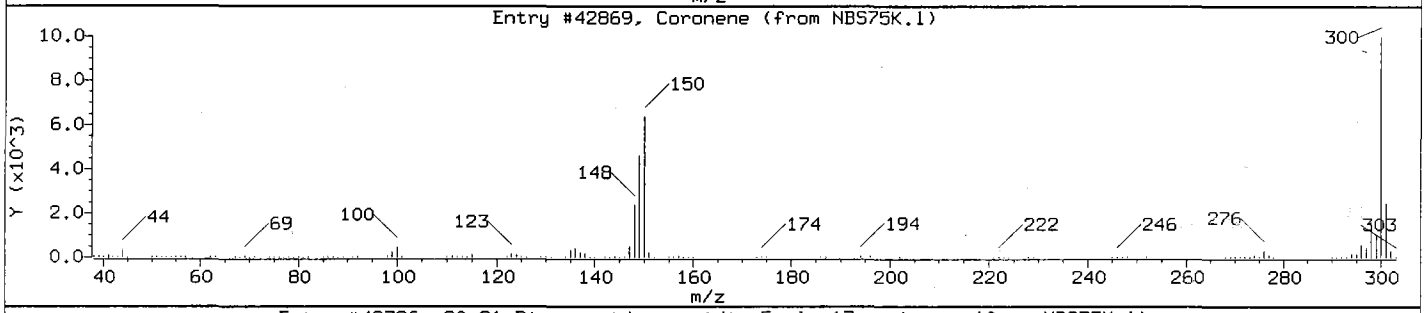


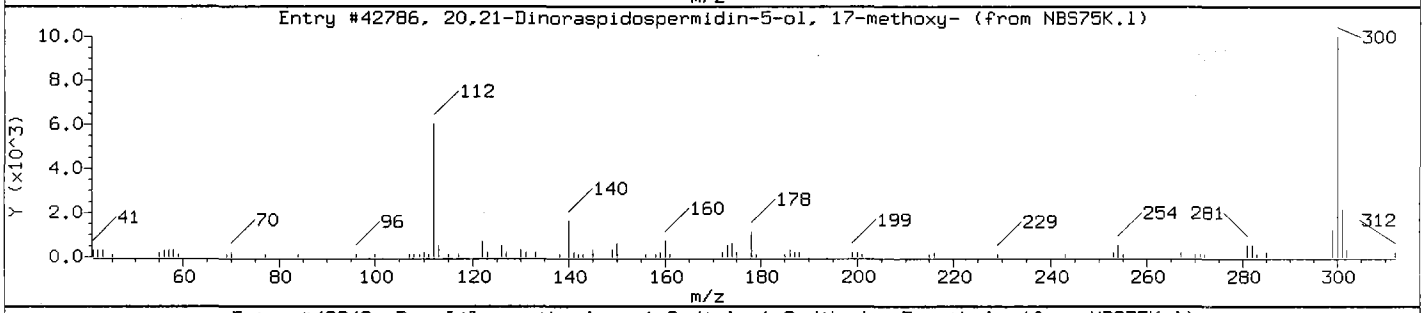


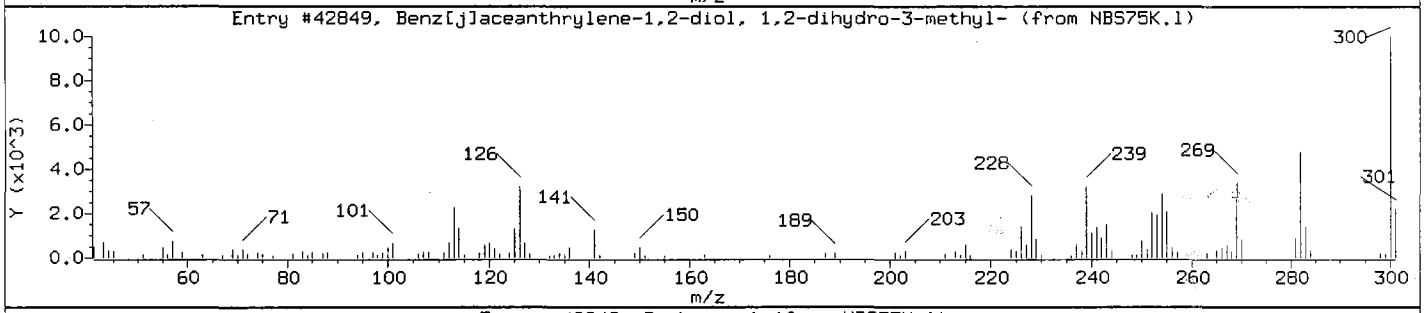
RS97:00364

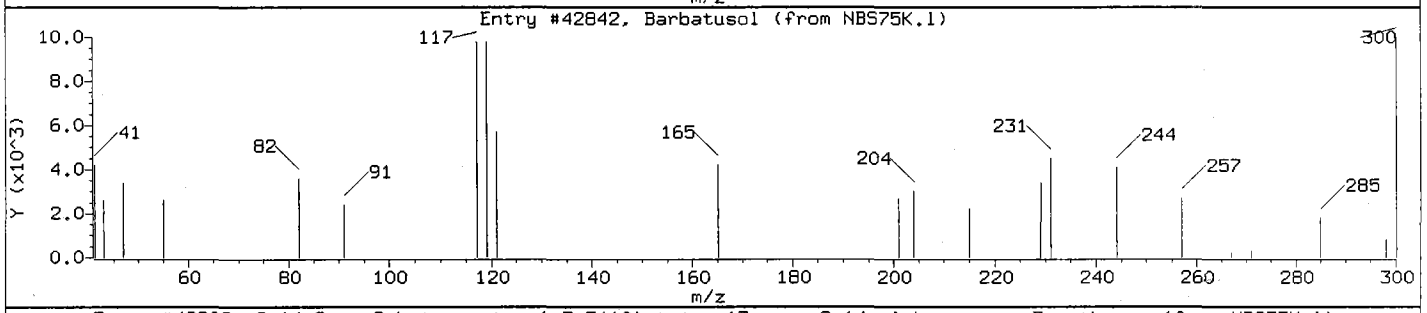
Data File: /chem1/nt12.i/20101110.b/177802.d
Injection Date: 10-NOV-2010 13:53
Instrument: nt12.i
Client Sample ID:

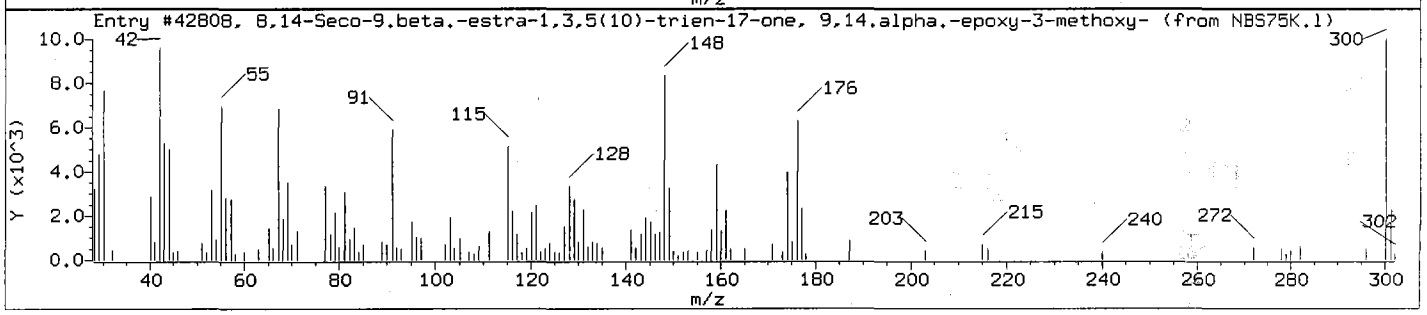












RS97:00365

Analytical Resources, Inc.

Semivolatile Report SW846 Method 8270D

Data file : /chem1/nt12.i/20101110.b/rs97d.d
Lab Smp Id: RS97D
Client Smp ID: DGS-19-10.210.9-101
Inj Date : 10-NOV-2010 14:17
Operator : VTS
Inst ID: nt12.i
Smp Info : RS97D
Misc Info : 10-27420
Comment : 1ul Injection
Method : /chem1/nt12.i/20101110.b/PNADMD.m
Meth Date : 10-Nov-2010 14:46 van
Quant Type: ISTD
Cal Date : 30-OCT-2010 13:19
Cal File: ic1030f.d
Als bottle: 4
Dil Factor: 1.00000
Integrator: HP RTE
Compound Sublist: pnas.sub
Target Version: 3.50
Processing Host: cserv3

Concentration Formula: Amt * DF * Vt/(Ws * (100 - M)/100) * CpndVariable

Name	Value	Description
DF	1.00000	Dilution Factor
Vt	10000.00000	Volume of final extract (uL)
Ws	5.21000	Weight of sample extracted (g)
M	22.30000	% Moisture

Cpnd Variable Local Compound Variable

Compounds	QUANT SIG MASS	RT	EXP RT	REL RT	RESPONSE	CONCENTRATIONS ON-COLUMN (ug/mL)	FINAL (ug/kg)
* 27 Naphthalene-d8	136	4.888	4.888	(1.000)	227218	20.0000	
28 Naphthalene	128	Compound Not Detected.					
32 2-Methylnaphthalene	141	5.726	5.726	(1.172)	32242	4.67105	11540
105 1-methylnaphthalene	141	5.849	5.854	(1.197)	48498	6.81425	16830
$ 36 2-Fluorobiphenyl	172	6.202	6.202	(0.888)	17633	1.60732	3970
40 Acenaphthylene	152	6.806	6.805	(0.974)	10302	0.72152	1782 (M)
* 42 Acenaphthene-d10	164	6.987	6.992	(1.000)	142597	20.0000	
44 Acenaphthene	153	7.025	7.030	(1.005)	125750	14.3392	35420
46 Dibenzofuran	168	7.222	7.222	(1.034)	17827	1.32564	3275
49 Fluorene	166	7.639	7.639	(1.093)	89920	8.95534	22120
* 59 Phenanthrene-d10	188	8.766	8.761	(1.000)	241604	20.0000	
60 Phenanthrene	178	8.798	8.787	(1.004)	776666	60.5952	149700
61 Anthracene	178	8.846	8.846	(1.009)	113443	8.56370	21150
62 Carbazole	167	Compound Not Detected.					

Compounds	QUANT SIG MASS	RT	EXP RT	REL RT	RESPONSE	CONCENTRATIONS ON-COLUMN (ug/mL)	CONCENTRATIONS FINAL (ug/kg)
64 Fluoranthene	202	10.241	10.235	(0.854)	285327	17.0609	42140
65 Pyrene	202	10.502	10.502	(0.876)	376247	22.6772	56020
$ 66 Terphenyl-d14	244	10.737	10.737	(0.896)	16033	1.51483	3742
68 Benzo(a)anthracene	228	11.972	11.971	(0.999)	75729	5.63227	13910
* 69 Chrysene-d12	240	11.988	11.993	(1.000)	239422	20.0000	
71 Chrysene	228	12.020	12.019	(1.003)	87590	6.96795	17210
187 Total Benzofluoranthenes	252	13.222	13.243	(0.971)	72052	6.24782	15430
76 Benzo(a)pyrene	252	13.548	13.553	(0.995)	63646	6.00776	14840
* 77 Perylene-d12	264	13.612	13.611	(1.000)	193619	20.0000	
99 Perylene	252	13.633	13.638	(1.002)	15983	~~1.41~~875	3505 NA
78 Indeno(1,2,3-cd)pyrene	276	14.701	14.712	(1.080)	35157	2.23525	5522
79 Dibenzo(a,h)anthracene	278	14.712	14.723	(1.081)	8817	0.68090	1682 J
80 Benzo(g,h,i)perylene	276	15.001	15.006	(1.102)	42765	3.30969	8176

QC Flag Legend

M - Compound response manually integrated.

UJ

11-11-10

Analytical Resources, Inc.

INTERNAL STANDARD COMPOUNDS
AREA AND RT SUMMARY

Instrument ID: nt12.i
Lab File ID: rs97d.d
Lab Smp Id: RS97D
Analysis Type: SV
Quant Type: ISTD
Operator: VTS
Method File: /chem1/nt12.i/20101110.b/PNADMD.m
Misc Info: 10-27420

Calibration Date: 10-NOV-2010
Calibration Time: 13:29
Client Smp ID: DGS-19-10.210.9-
Level: LOW
Sample Type: Sediment

Test Mode:
Use Initial Calibration Level 4.

COMPOUND	STANDARD	AREA LIMIT LOWER	AREA LIMIT UPPER	SAMPLE	%DIFF
27 Naphthalene-d8	237664	118832	475328	227218	-4.40
42 Acenaphthene-d10	143363	71682	286726	142597	-0.53
59 Phenanthrene-d10	245437	122718	490874	241604	-1.56
69 Chrysene-d12	199260	99630	398520	239422	20.16
77 Perylene-d12	197636	98818	395272	193619	-2.03

COMPOUND	STANDARD	RT LIMIT LOWER	RT LIMIT UPPER	SAMPLE	%DIFF
27 Naphthalene-d8	4.89	4.39	5.39	4.89	0.00
42 Acenaphthene-d10	6.99	6.49	7.49	6.99	-0.07
59 Phenanthrene-d10	8.76	8.26	9.26	8.77	0.06
69 Chrysene-d12	11.99	11.49	12.49	11.99	-0.04
77 Perylene-d12	13.61	13.11	14.11	13.61	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.

Analytical Resources, Inc.

RECOVERY REPORT

Client Name: NW Natural
Sample Matrix: SOLID
Lab Smp Id: RS97D
Level: LOW
Data Type: MS DATA
SpikeList File: SONICLCS.spk
Sublist File: pnas.sub
Method File: /chem1/nt12.i/20101110.b/PNADMD.m
Misc Info: 10-27420

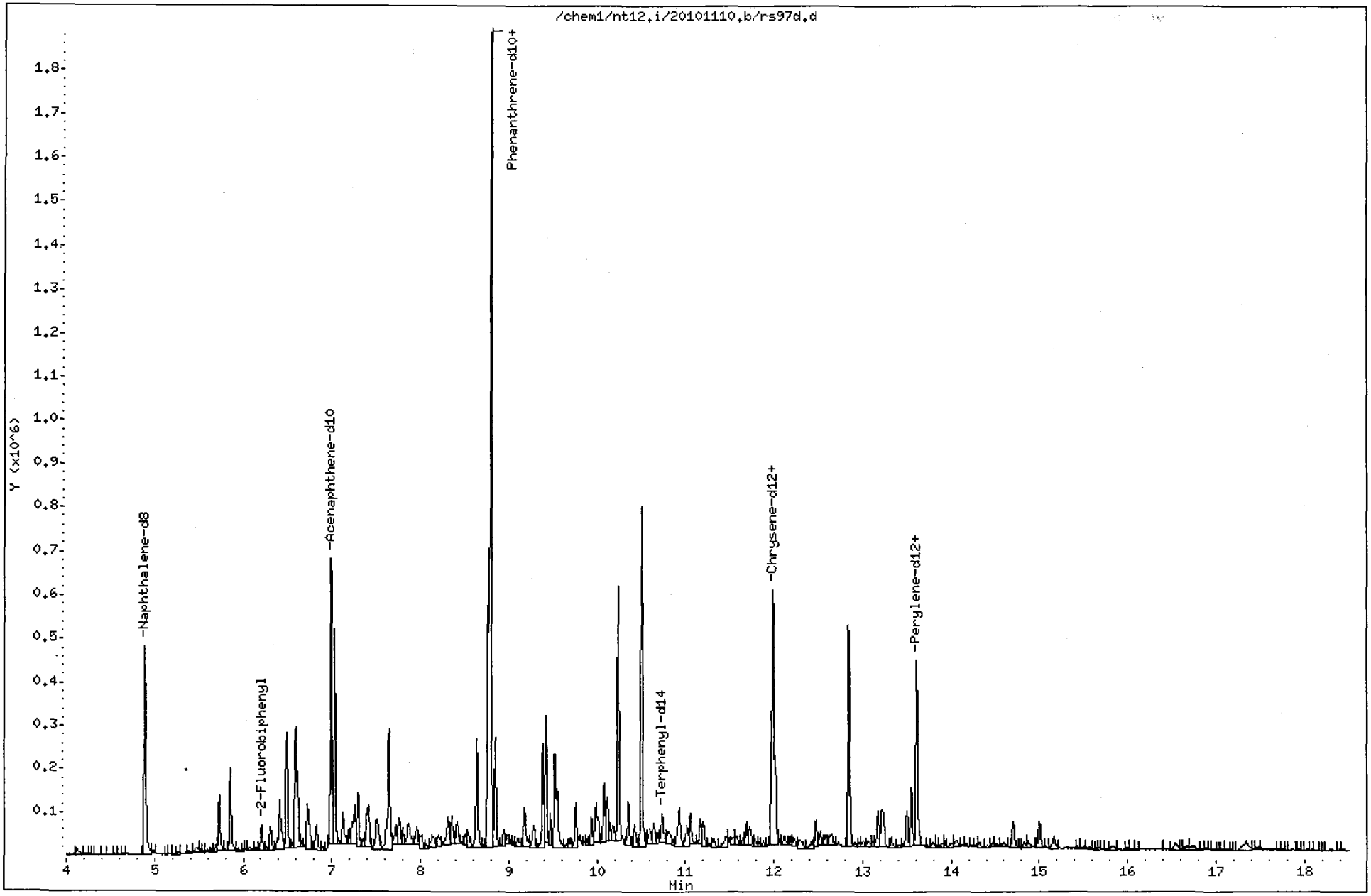
Client SDG: RS97
Fraction: SV
Client Smp ID: DGS-19-10.210.9-101
Operator: VTS
SampleType: SAMPLE
Quant Type: ISTD

SURROGATE COMPOUND	CONC ADDED ug/kg	CONC RECOVERED ug/kg	% RECOVERED	LIMITS
$ 36 2-Fluorobiphenyl	6176	3970	64.29	34-100
$ 66 Terphenyl-d14	6176	3742	60.59	35-112

Data File: /chem1/nt12.i/20101110.b/rs97d.d
Date : 10-NOV-2010 14:17
Client ID: DGS-19-10.210.9-101
Sample Info: RS97D
Volume Injected (uL): 1.0
Column phase: ZB-5msi

Instrument: nt12.i

Operator: VTS
Column diameter: 0.32



RS97:00876

Data File: /chem1/nt12.i/20101110.b/rs97d.d

Date : 10-NOV-2010 14:17

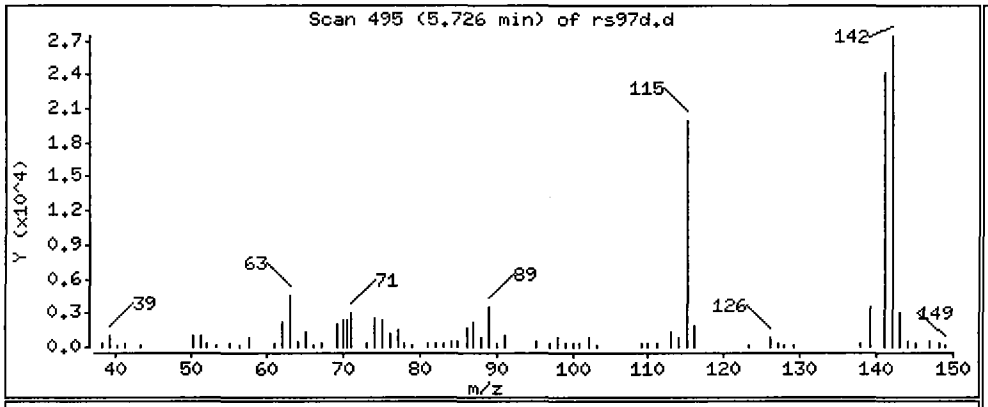
Client ID: DGS-19-10.210.9-101 Instrument: nt12.i

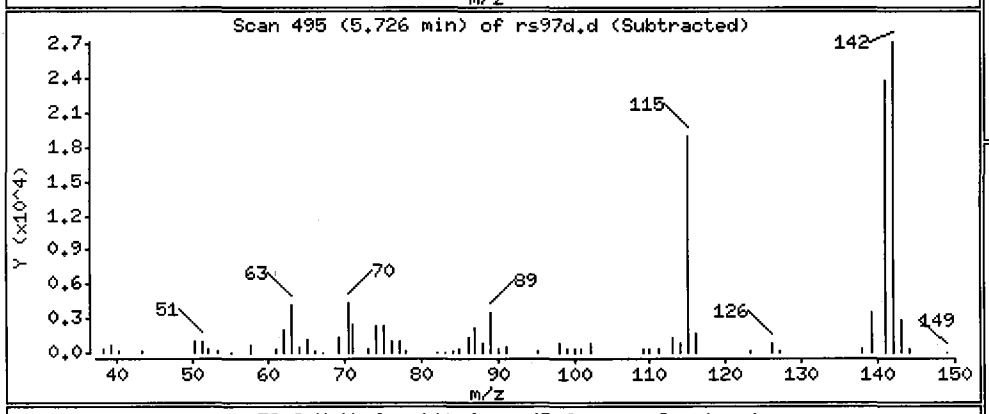
Sample Info: RS97D

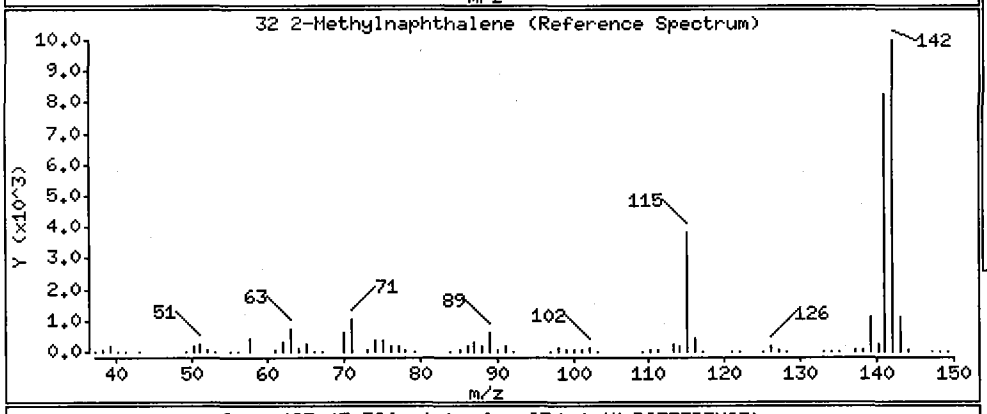
Volume Injected (uL): 1.0 Operator: VTS

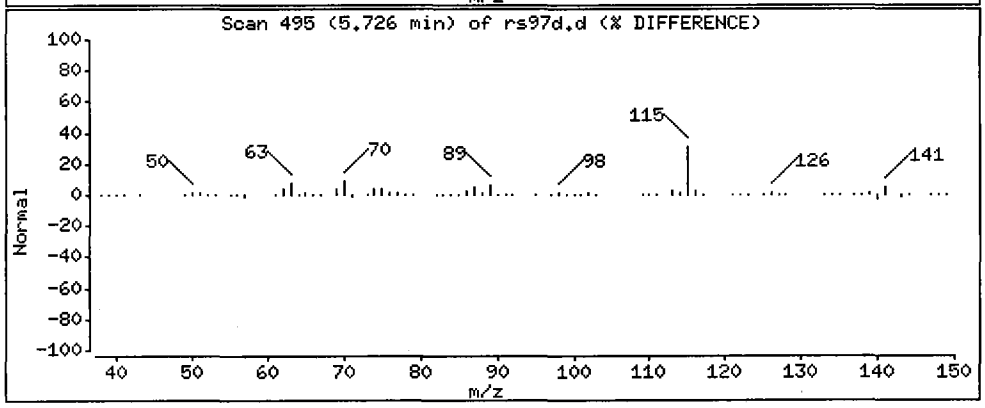
Column phase: ZB-5msi Column diameter: 0.32

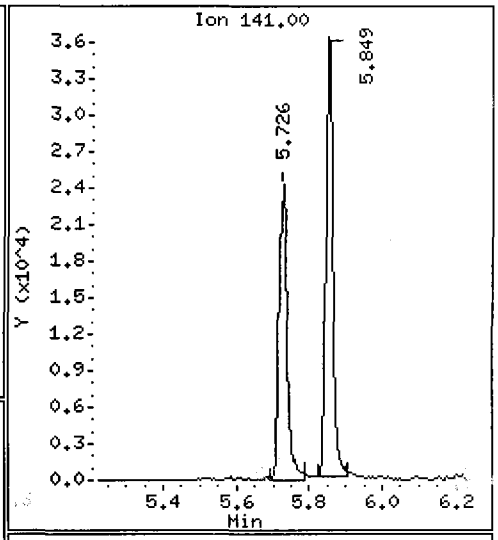
32 2-Methylnaphthalene Concentration: 11540 ug/kg

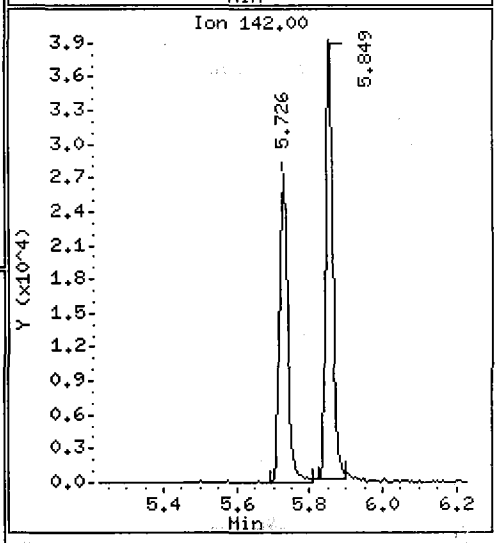












Data File: /chem1/nt12.i/20101110.b/rs97d.d

Date : 10-NOV-2010 14:17

Client ID: DGS-19-10.210.9-101

Instrument: nt12.i

Sample Info: RS97D

Volume Injected (uL): 1.0

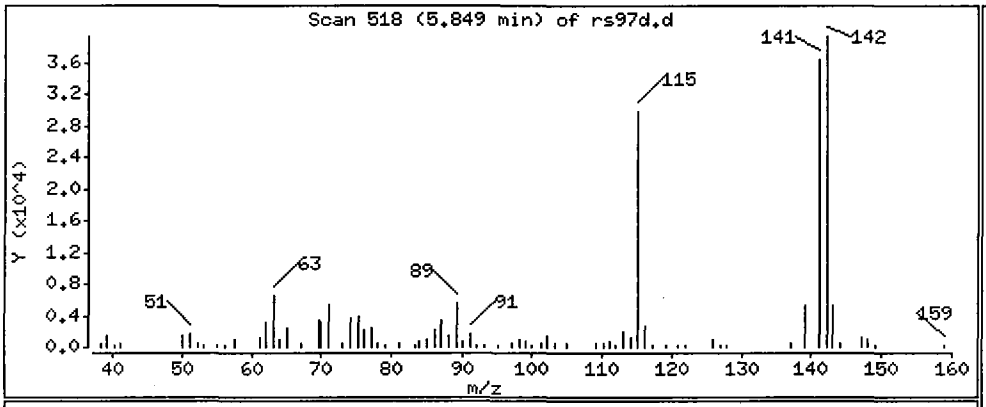
Operator: VTS

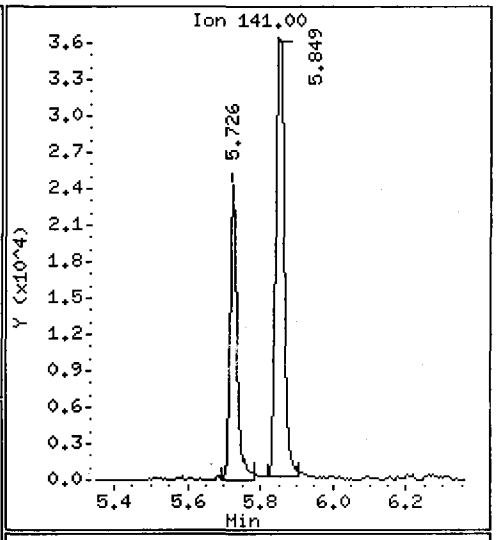
Column phase: ZB-5msi

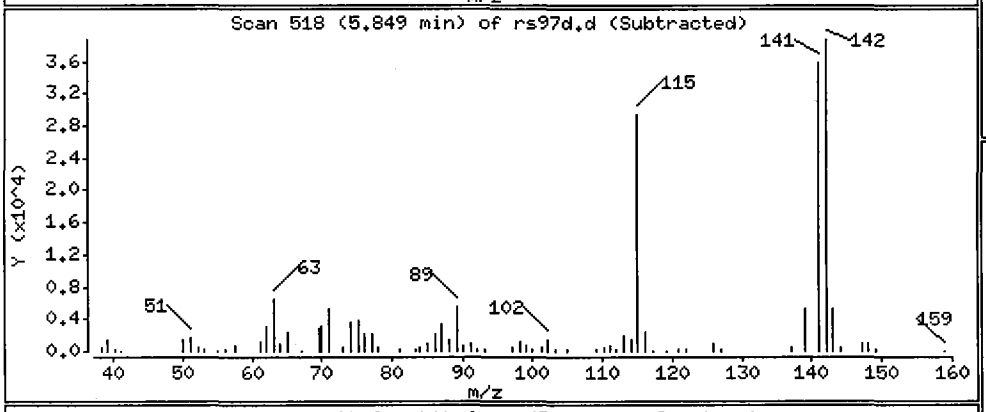
Column diameter: 0.32

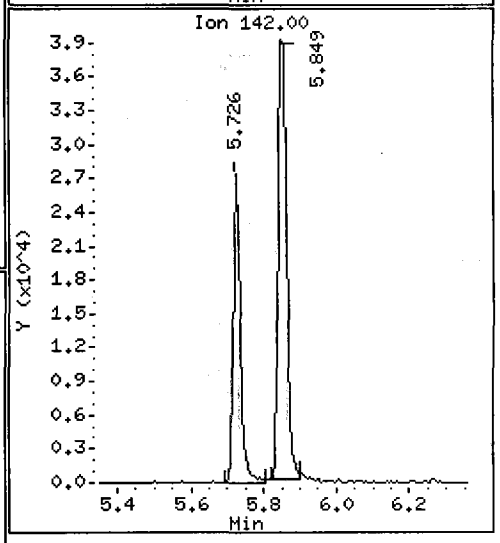
105 1-methylnaphthalene

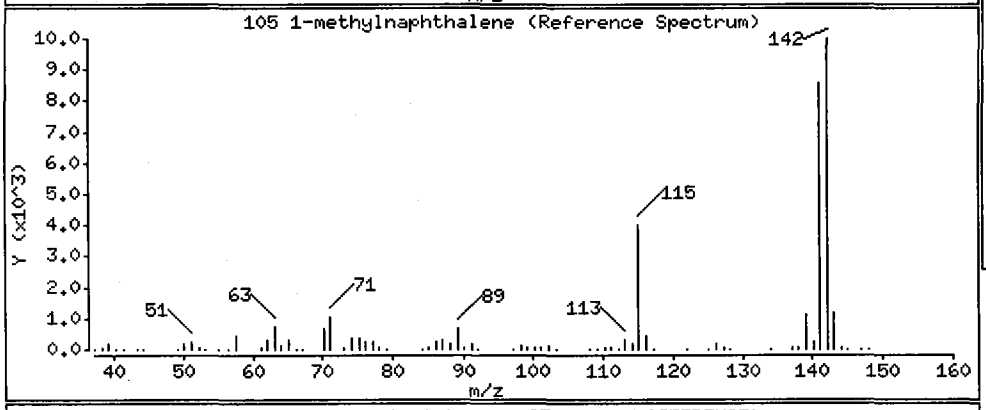
Concentration: 16830 ug/kg

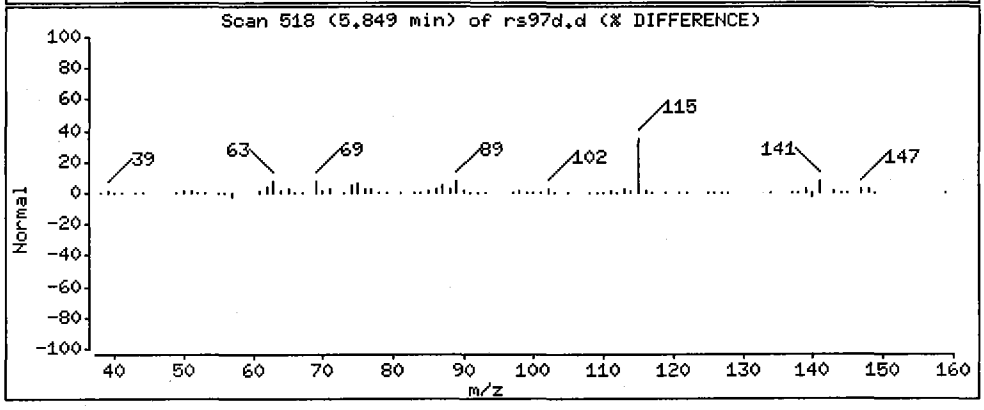












Data File: /chem1/nt12.i/20101110.b/rs97d.d

Date : 10-NOV-2010 14:17

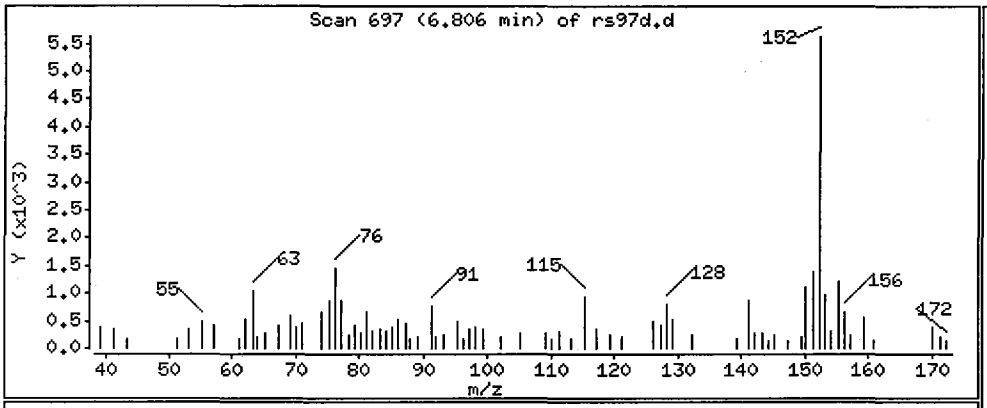
Client ID: DGS-19-10.210.9-101 Instrument: nt12.i

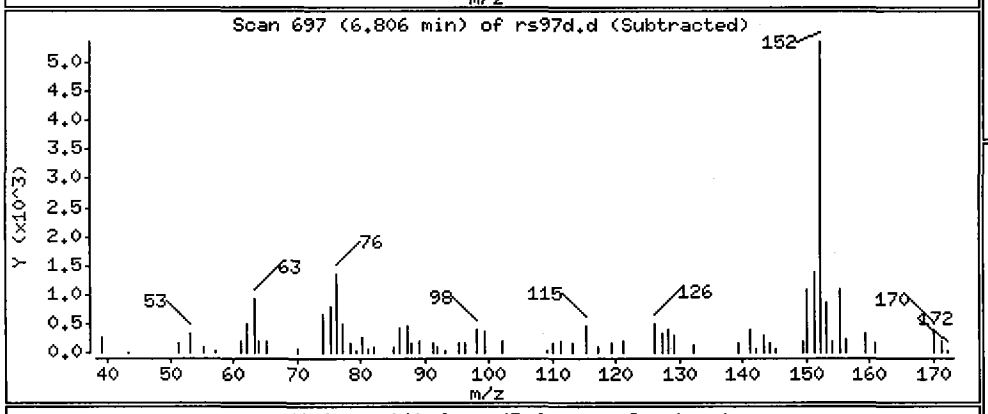
Sample Info: RS97D

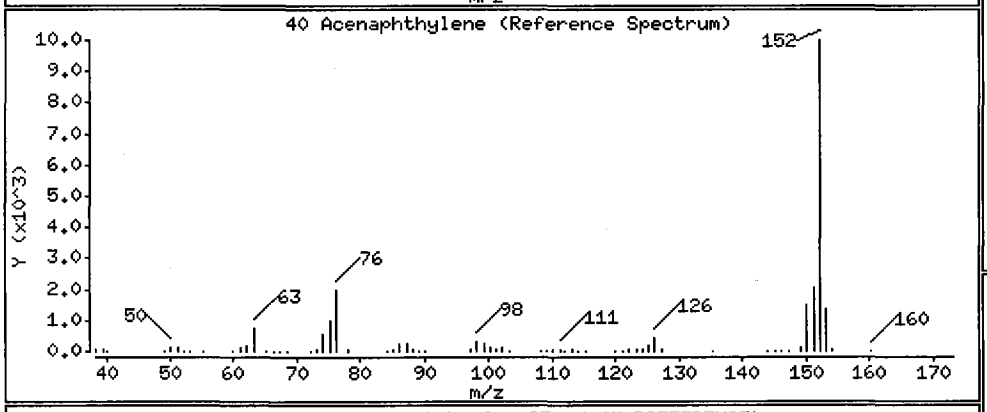
Volume Injected (uL): 1.0 Operator: VTS

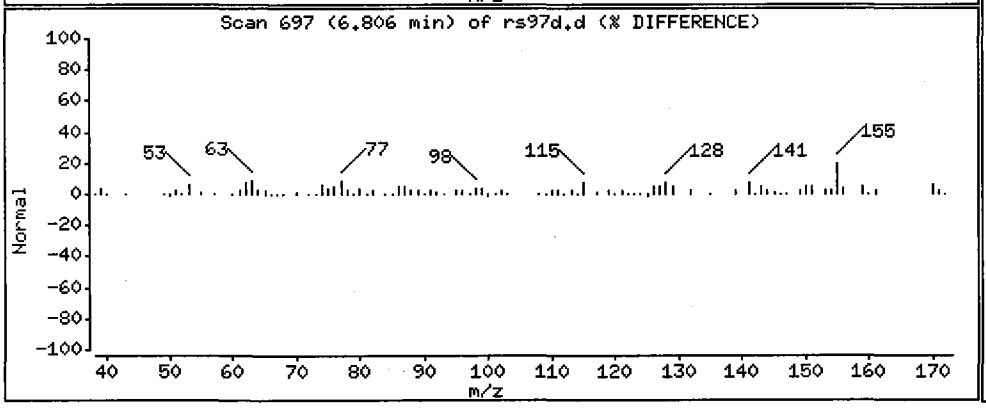
Column phase: ZB-5msi Column diameter: 0.32

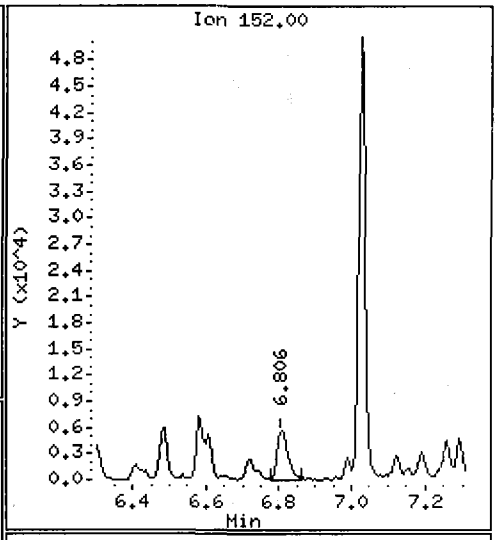
40 Acenaphthylene Concentration: 1782 ug/kg

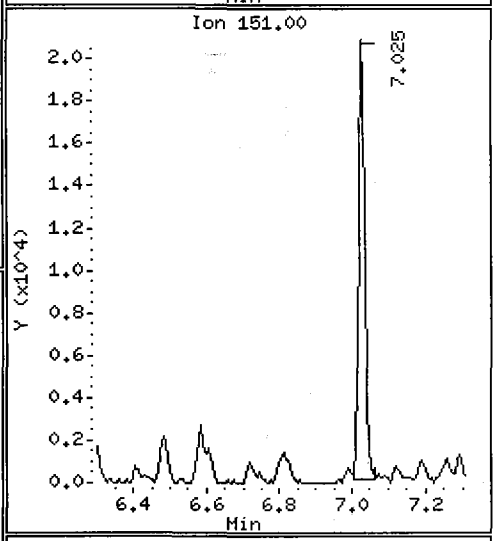


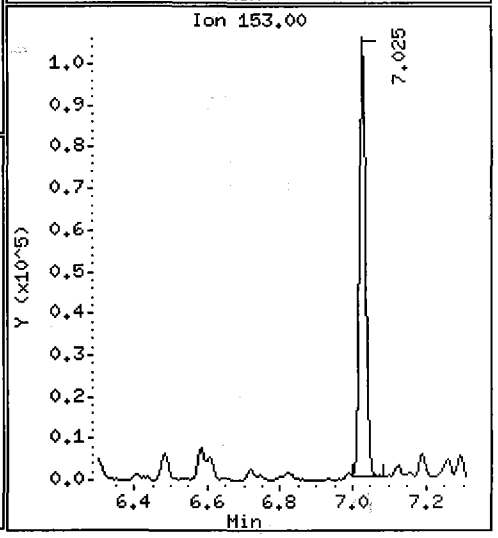












Data File: /chem1/nt12.i/20101110.b/rs97d.d

Date : 10-NOV-2010 14:17

Client ID: DGS-19-10.210.9-101

Instrument: nt12.i

Sample Info: RS97D

Volume Injected (uL): 1.0

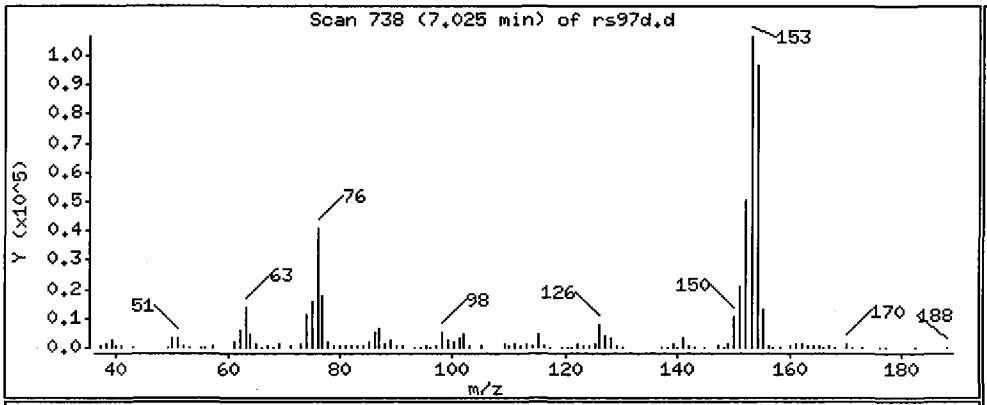
Operator: VTS

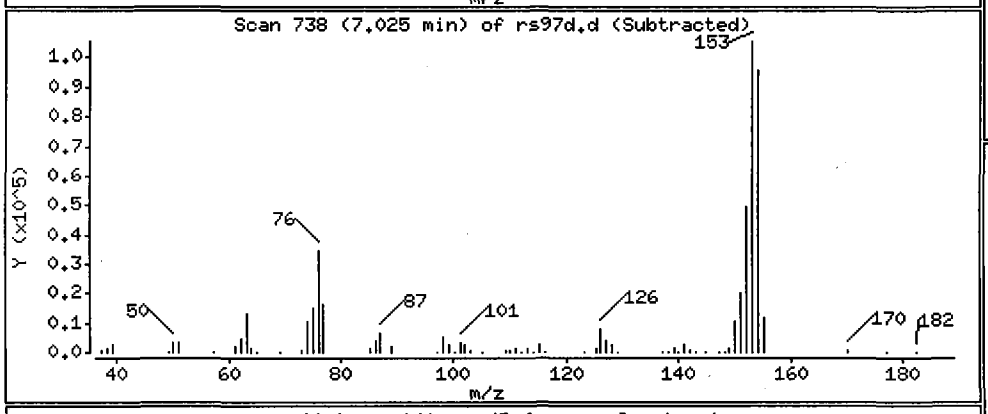
Column phase: ZB-5msi

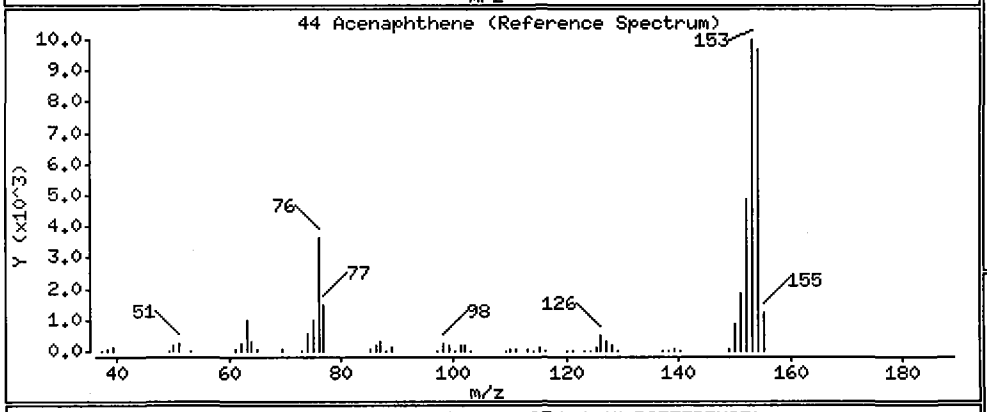
Column diameter: 0.32

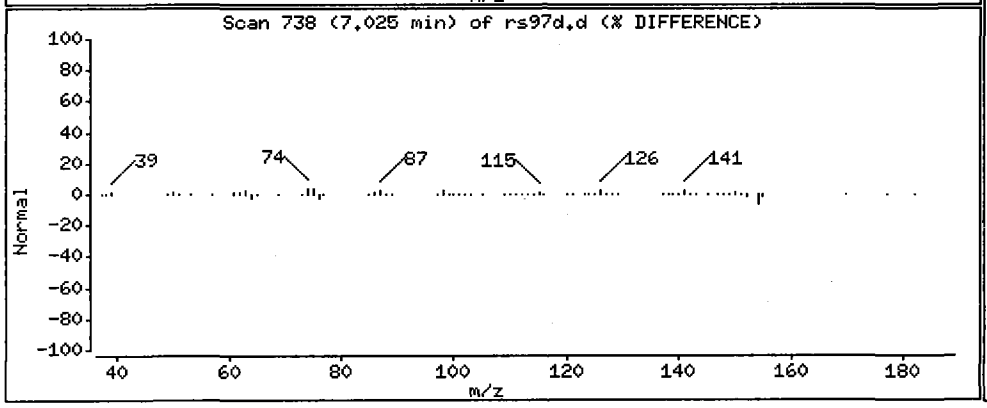
44 Acenaphthene

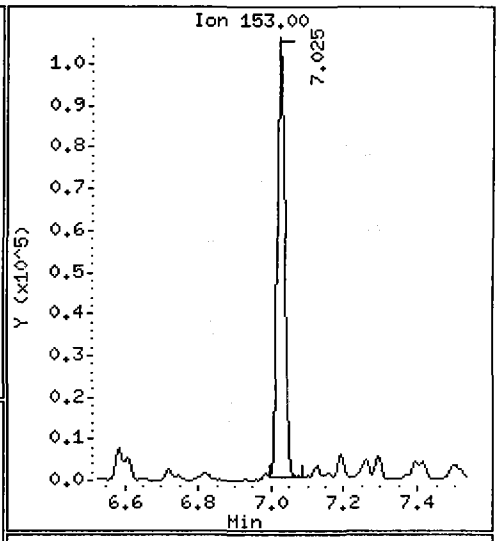
Concentration: 35420 ug/kg

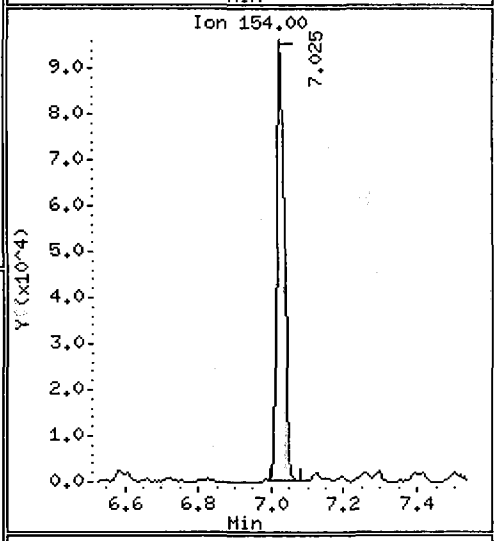


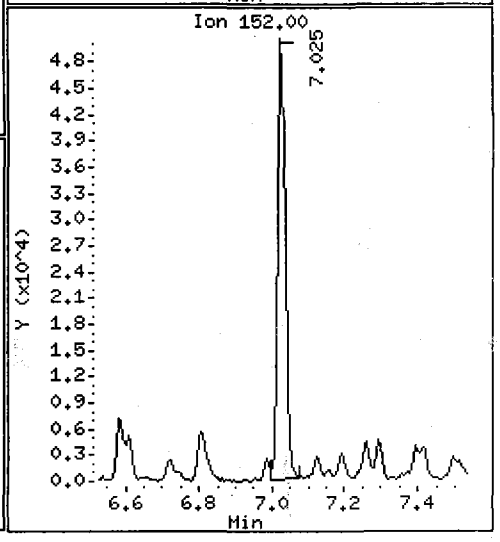












Data File: /chem1/nt12.i/20101110.b/rs97d.d

Date : 10-NOV-2010 14:17

Client ID: DGS-19-10.210.9-101

Instrument: nt12.i

Sample Info: RS97D

Volume Injected (uL): 1.0

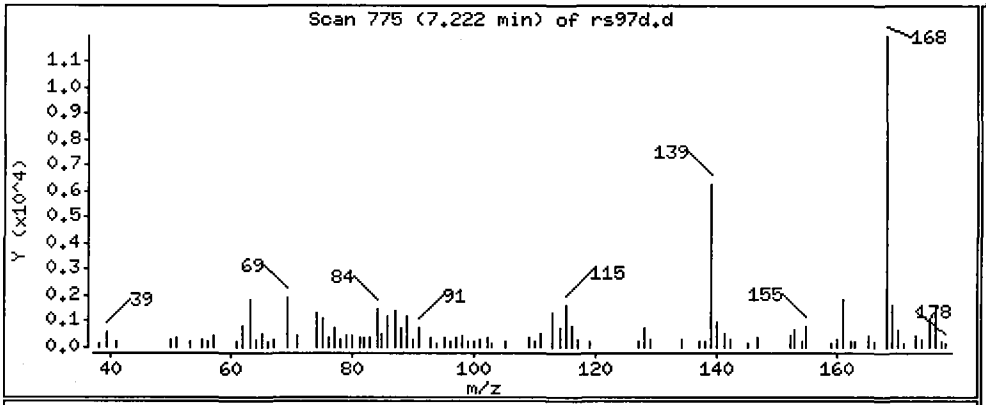
Operator: VTS

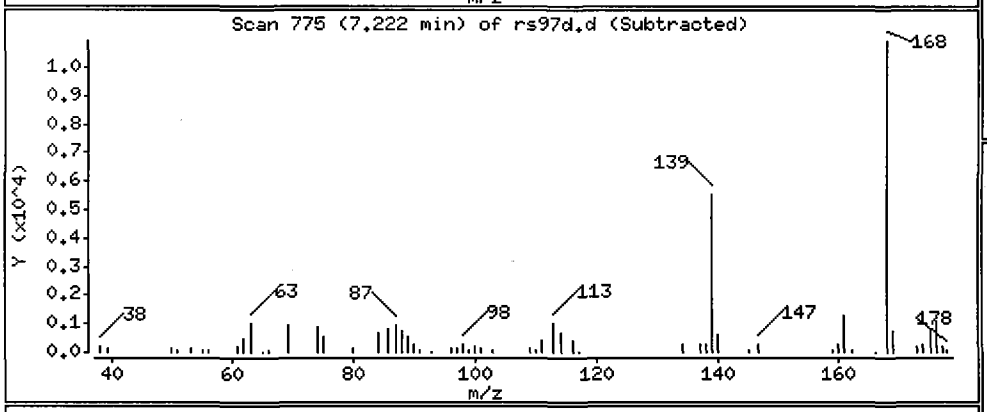
Column phase: ZB-5msi

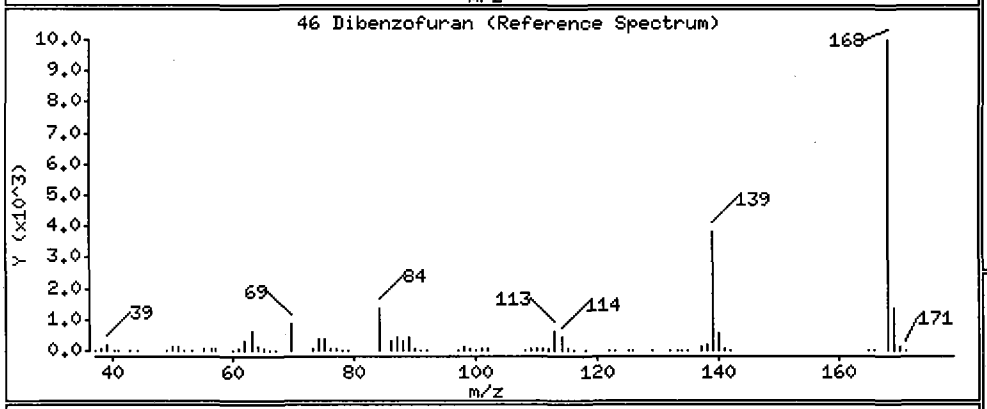
Column diameter: 0.32

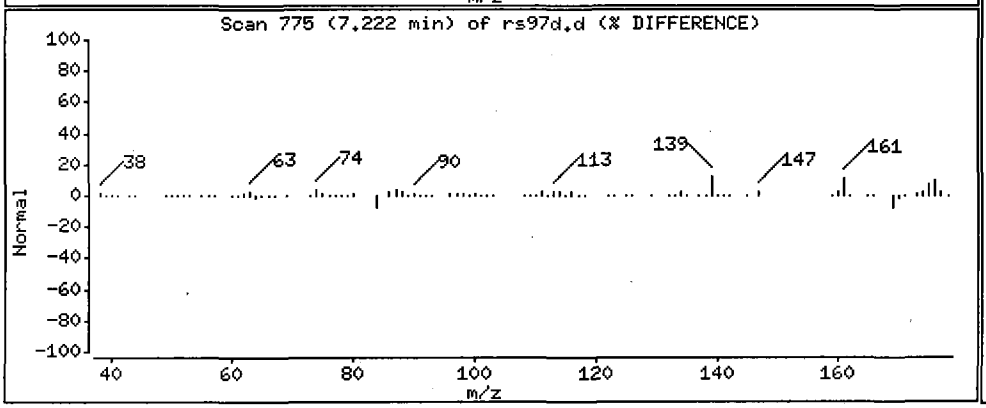
46 Dibenzofuran

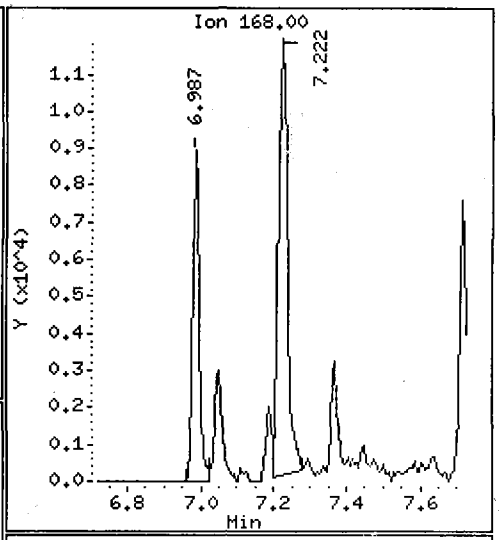
Concentration: 3275 ug/kg

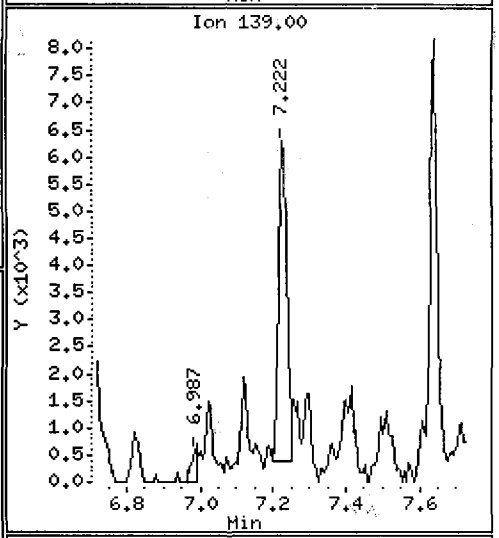


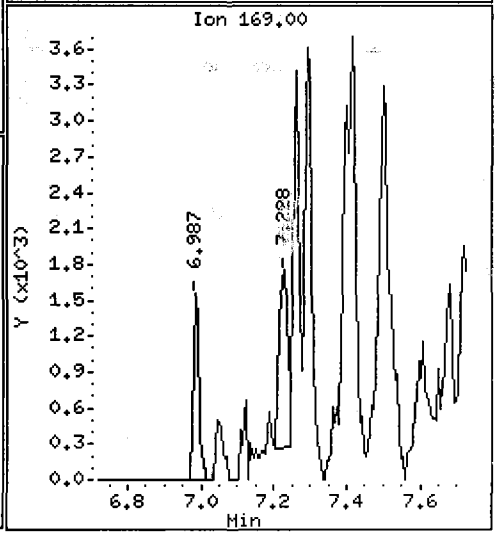












Data File: /chem1/nt12.i/20101110.b/rs97d.d

Date : 10-NOV-2010 14:17

Client ID: DGS-19-10.210.9-101

Instrument: nt12.i

Sample Info: RS97D

Volume Injected (uL): 1.0

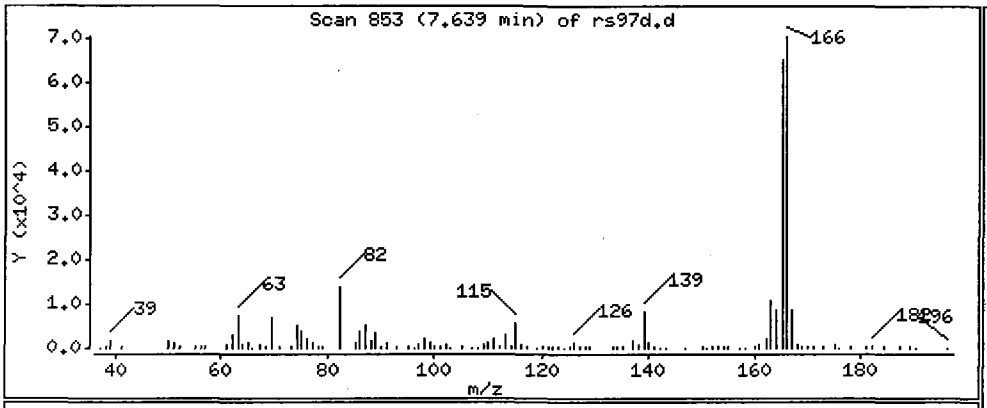
Operator: VTS

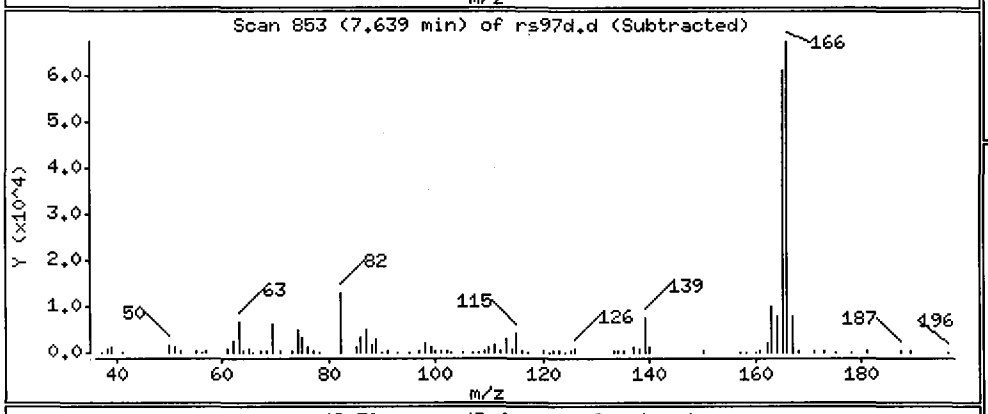
Column phase: ZB-5msi

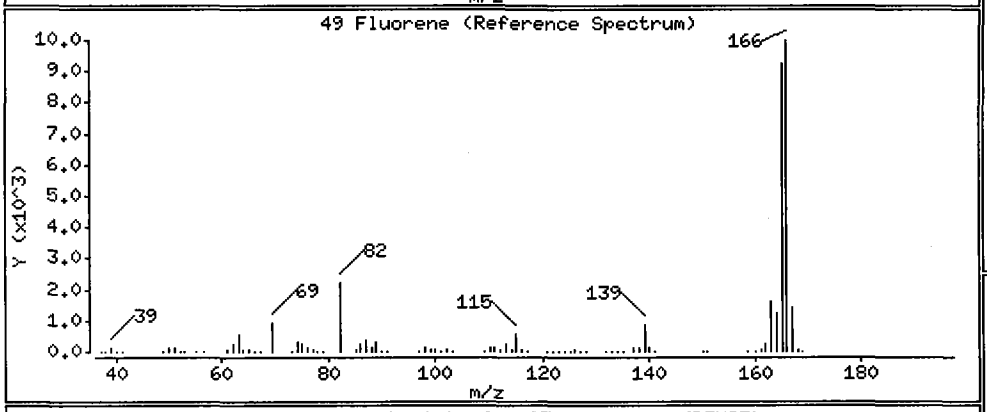
Column diameter: 0.32

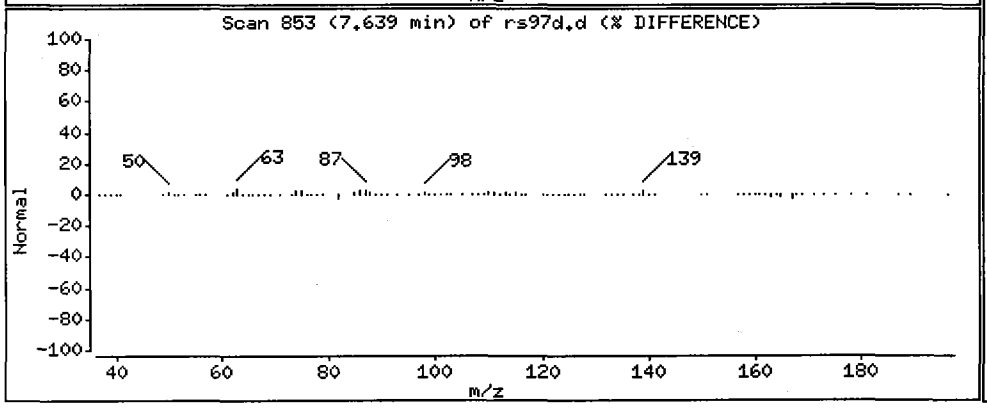
49 Fluorene

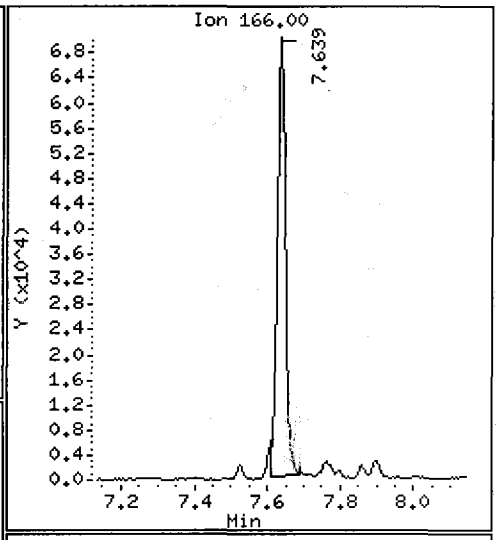
Concentration: 22120 ug/kg

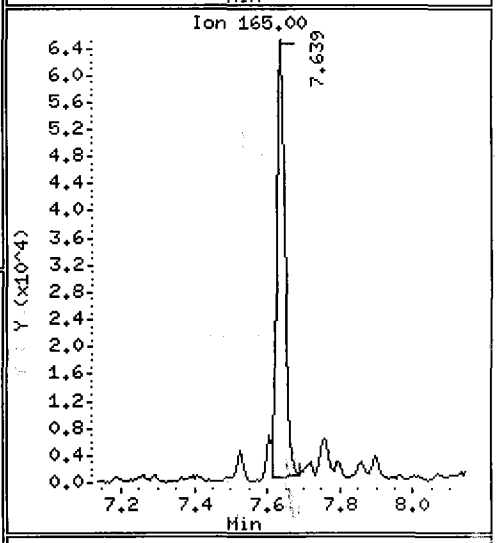


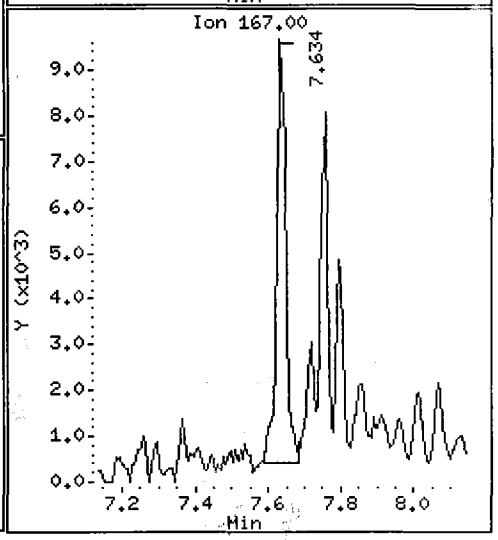












Data File: /chem1/nt12.i/20101110.b/rs97d.d

Date : 10-NOV-2010 14:17

Client ID: DGS-19-10.210.9-101

Instrument: nt12.i

Sample Info: RS97D

Volume Injected (uL): 1.0

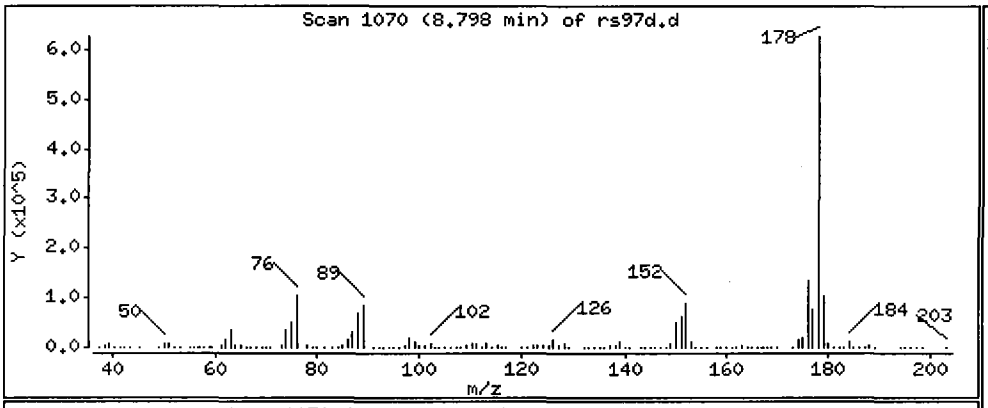
Operator: VTS

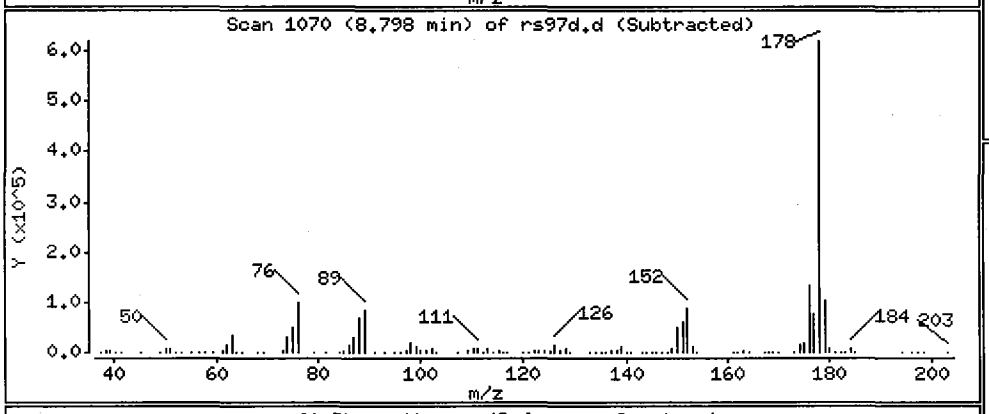
Column phase: ZB-5msi

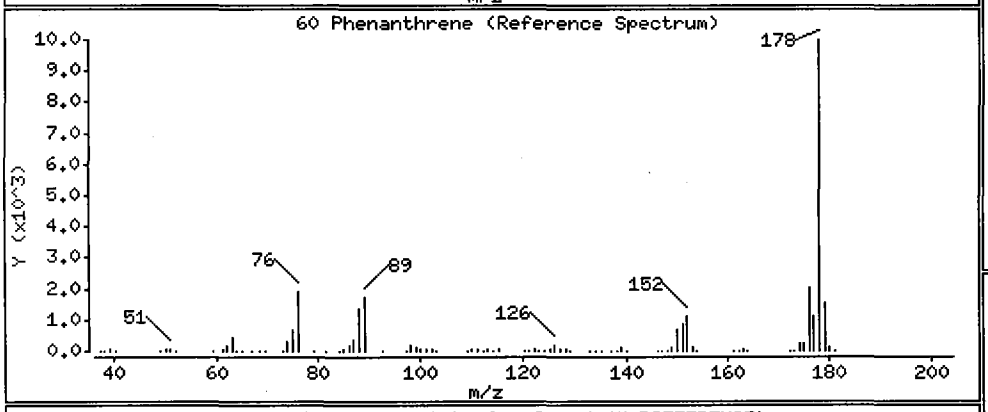
Column diameter: 0.32

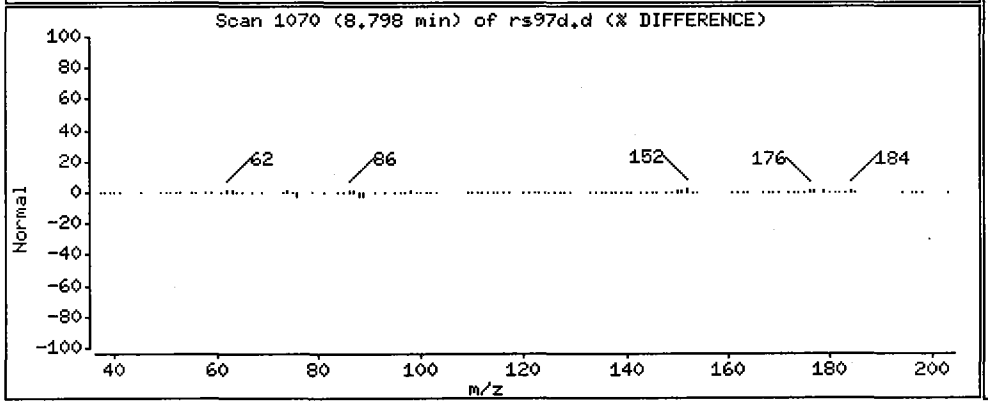
60 Phenanthrene

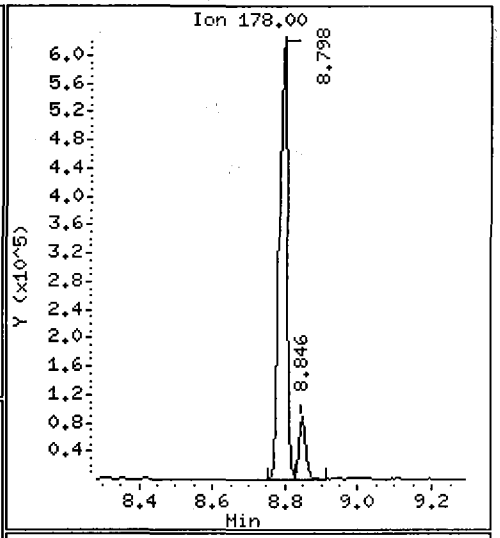
Concentration: 149700 ug/kg

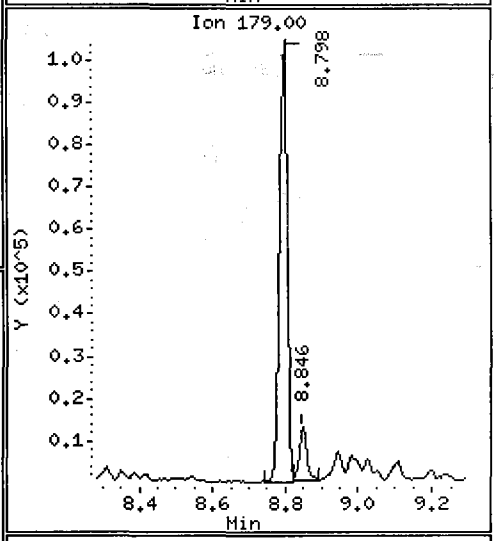


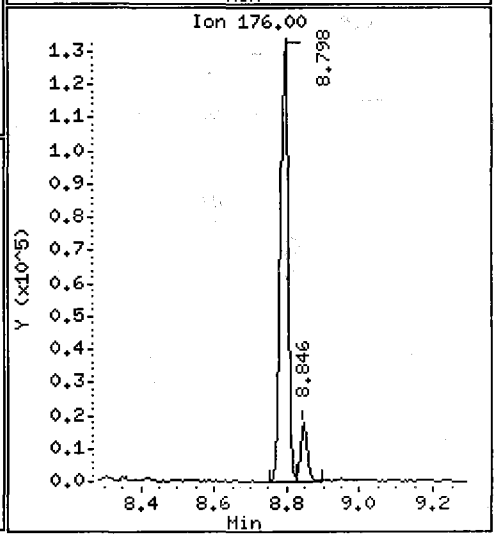












Data File: /chem1/nt12.i/20101110.b/rs97d.d

Date : 10-NOV-2010 14:17

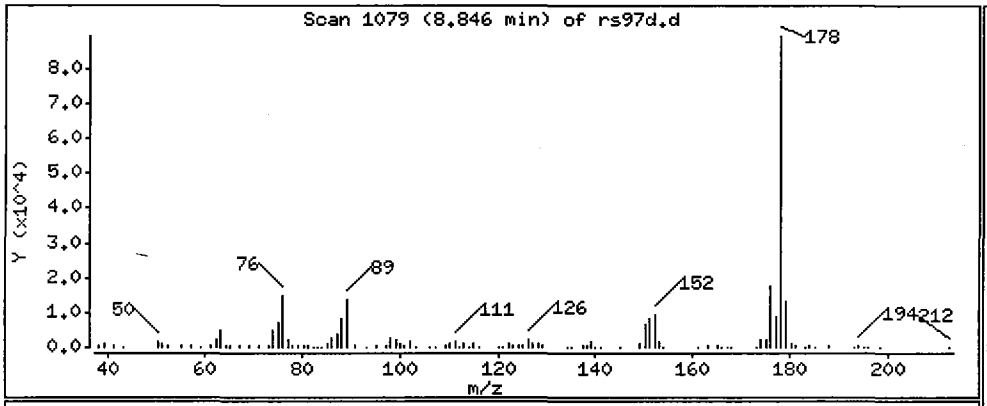
Client ID: DGS-19-10.210.9-101 Instrument: nt12.i

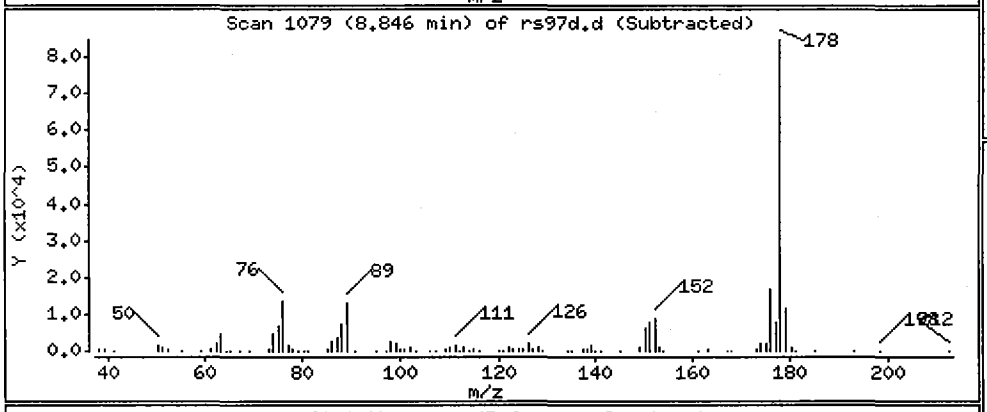
Sample Info: RS97D

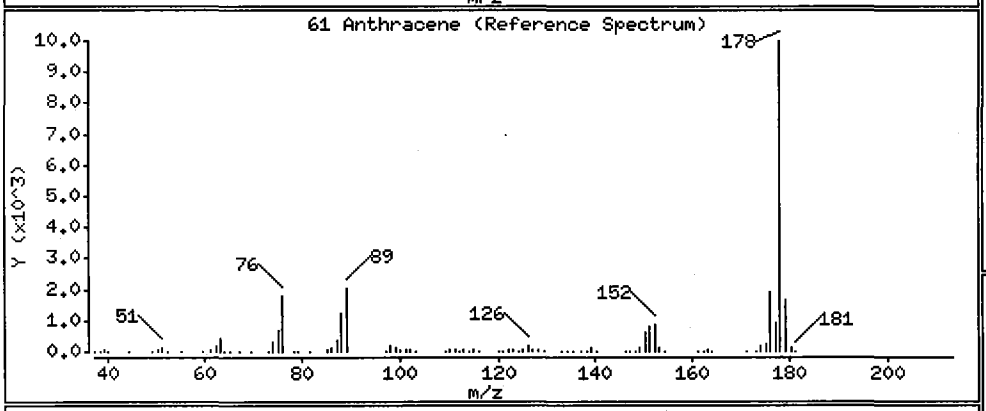
Volume Injected (uL): 1.0 Operator: VTS

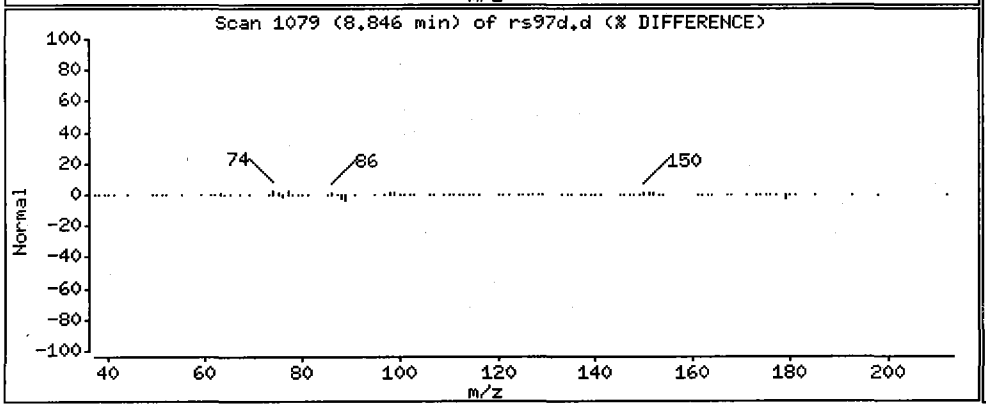
Column phase: ZB-5msi Column diameter: 0.32

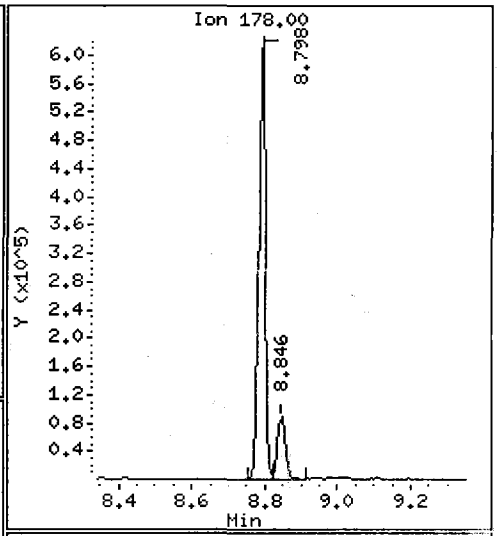
61 Anthracene Concentration: 21150 ug/kg

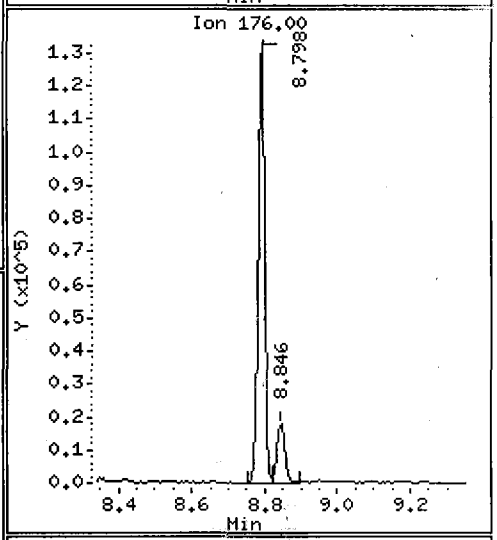


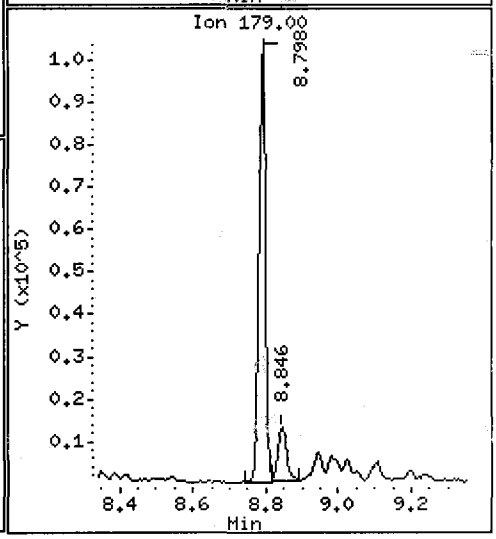












Data File: /chem1/nt12.i/20101110.b/rs97d.d

Date : 10-NOV-2010 14:17

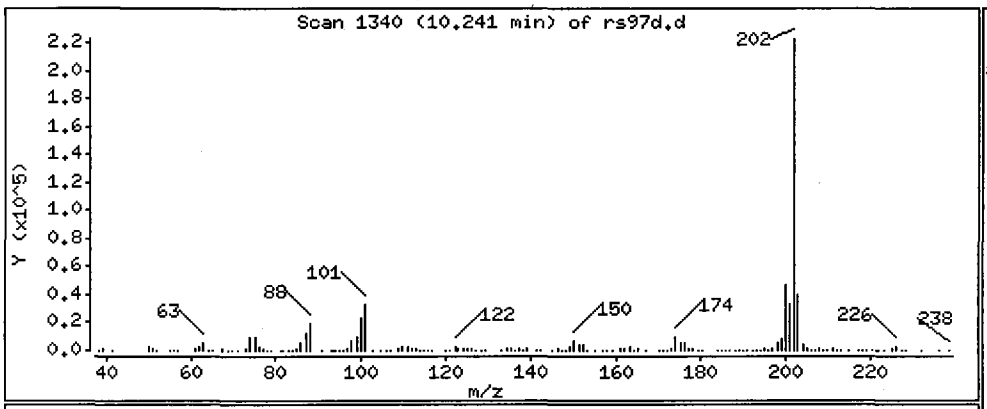
Client ID: DGS-19-10.210.9-101 Instrument: nt12.i

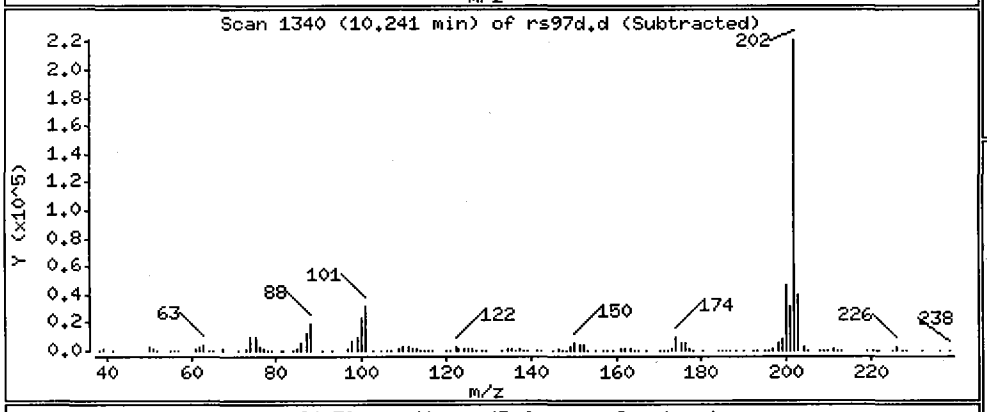
Sample Info: RS97D

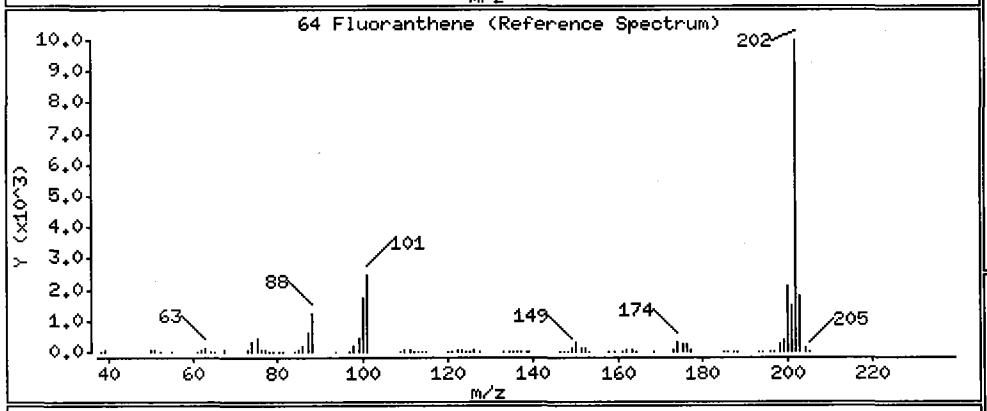
Volume Injected (uL): 1.0 Operator: VTS

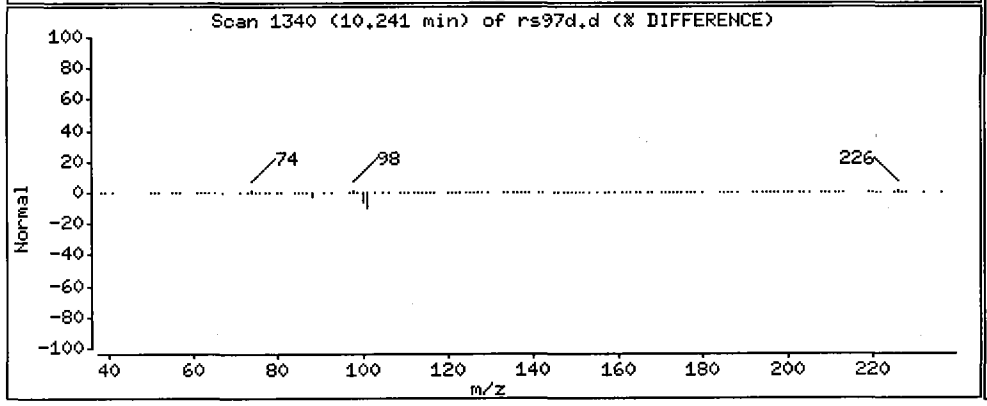
Column phase: ZB-5msi Column diameter: 0.32

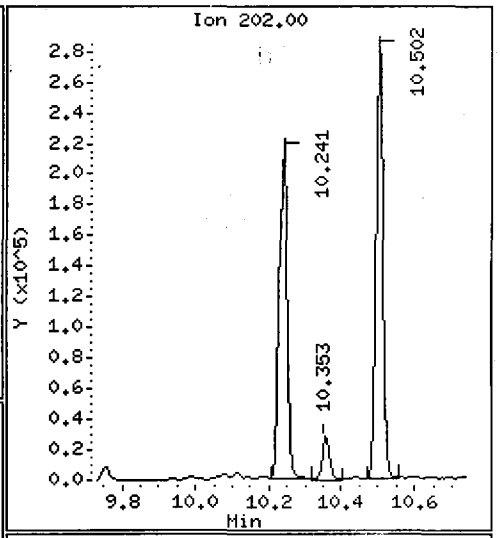
64 Fluoranthene Concentration: 42140 ug/kg

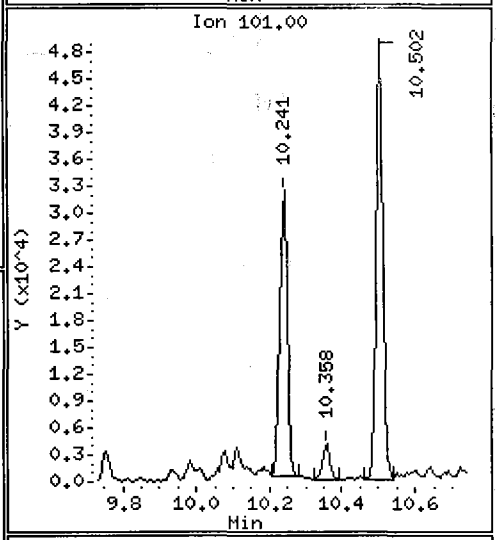


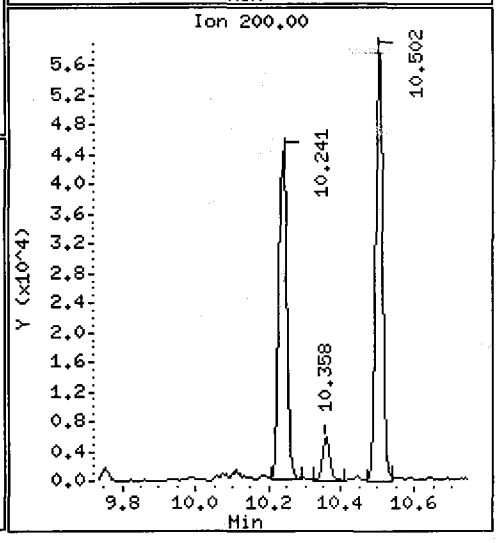












Data File: /chem1/nt12.i/20101110.b/rs97d.d

Date : 10-NOV-2010 14:17

Client ID: DGS-19-10.210.9-101

Instrument: nt12.i

Sample Info: RS97D

Volume Injected (uL): 1.0

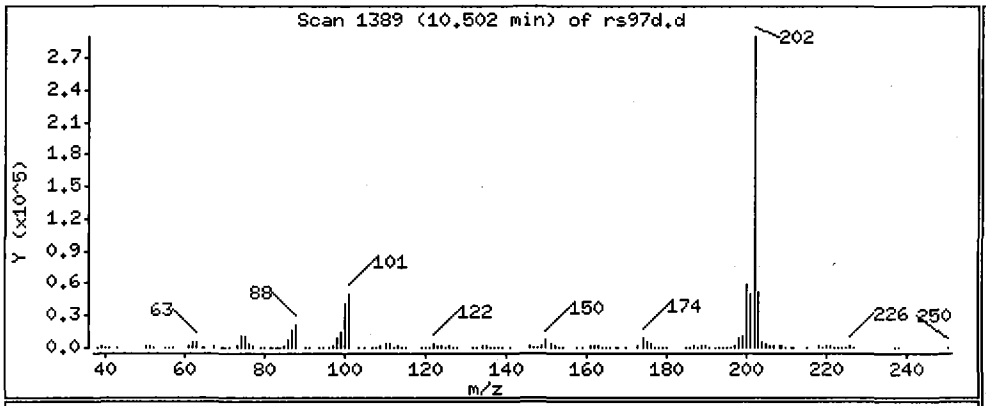
Operator: VTS

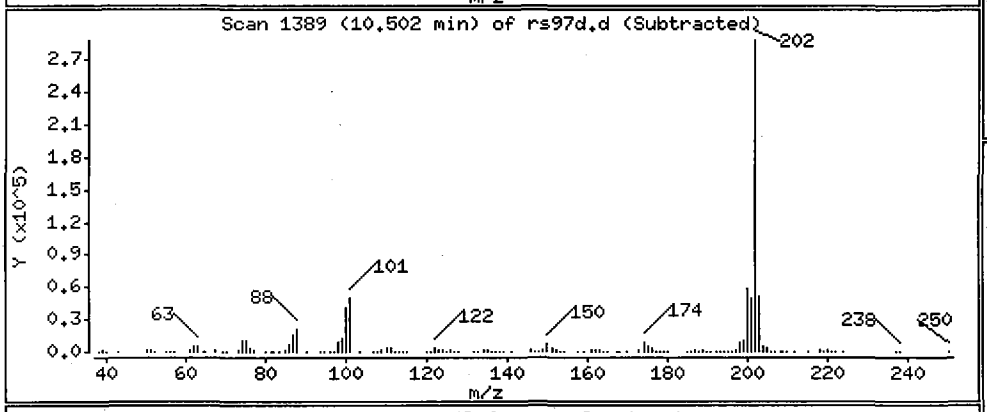
Column phase: ZB-5msi

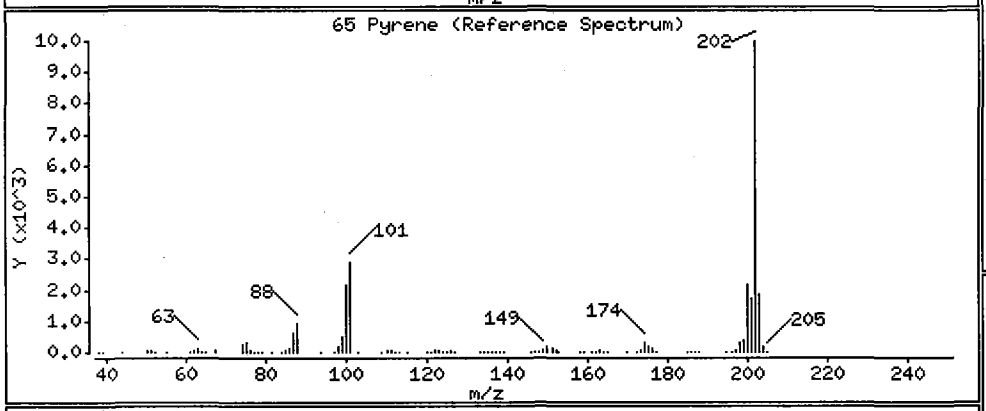
Column diameter: 0.32

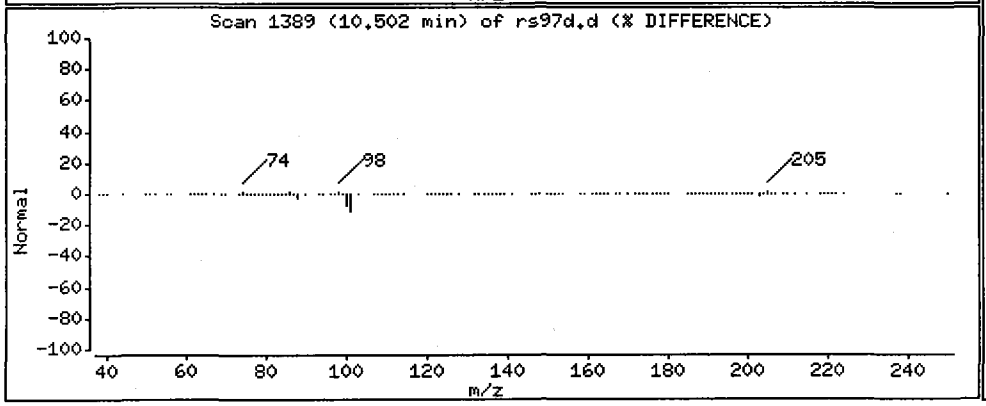
65 Pyrene

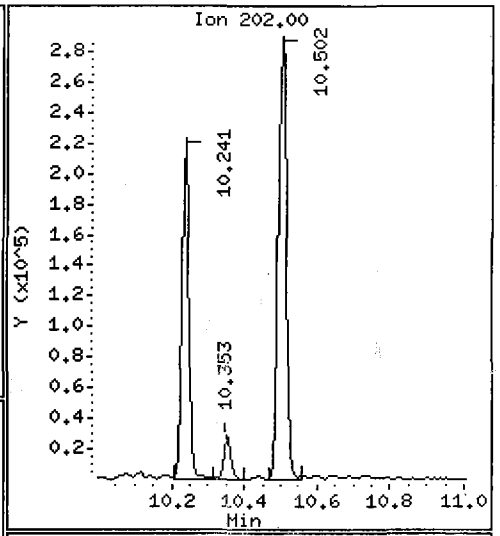
Concentration: 56020 ug/kg

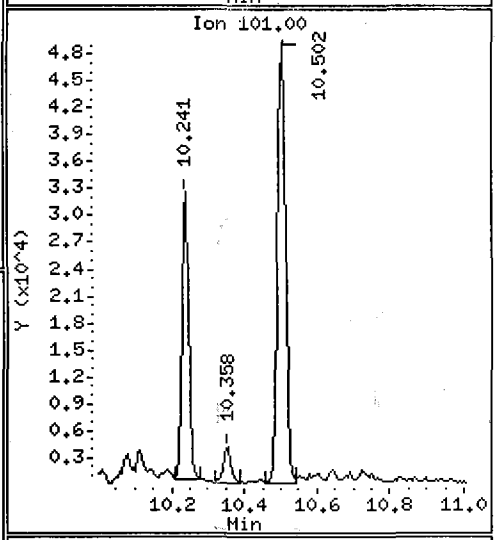


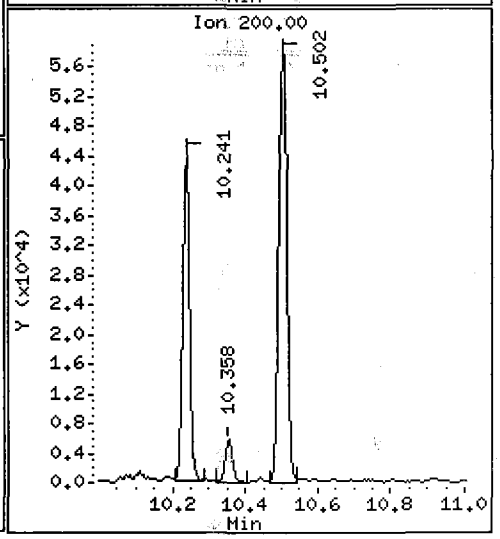












Data File: /chem1/nt12.i/20101110.b/rs97d.d

Date : 10-NOV-2010 14:17

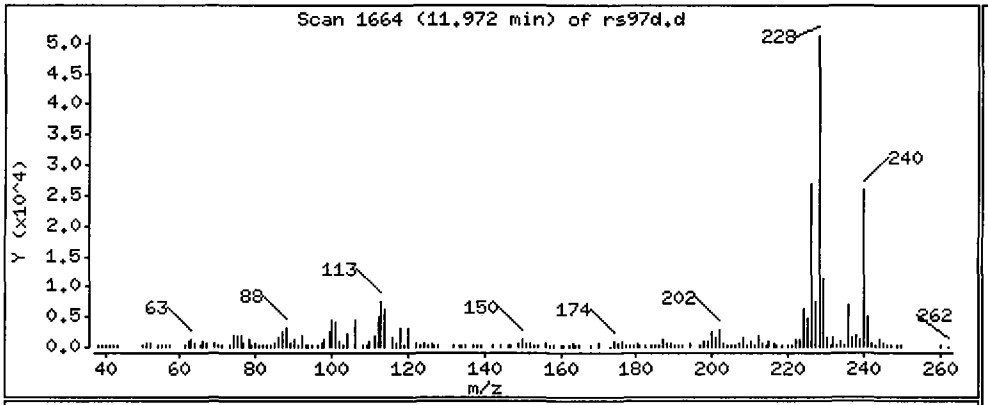
Client ID: DGS-19-10.210.9-101 Instrument: nt12.i

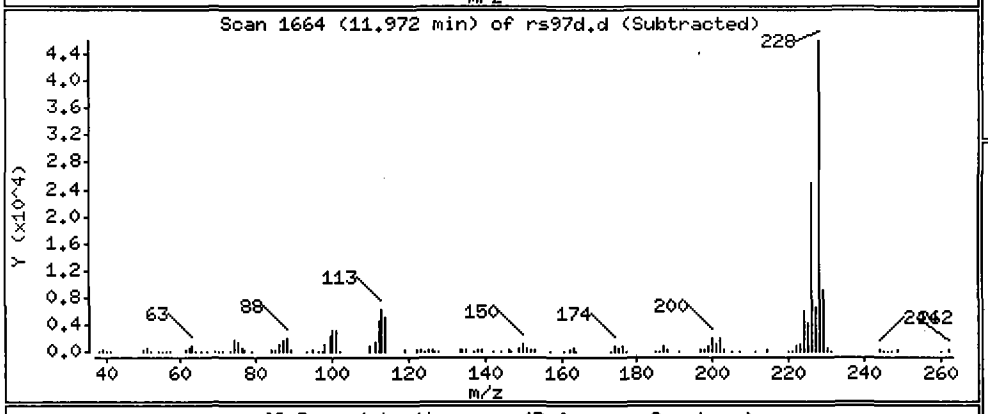
Sample Info: RS97D

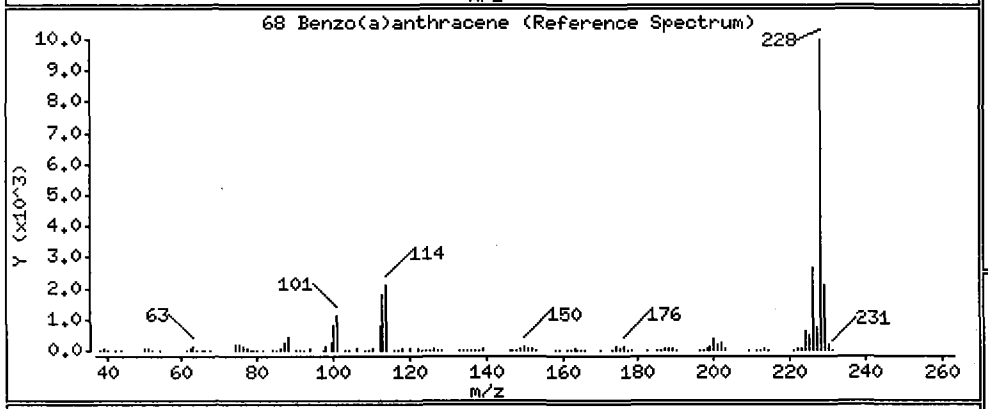
Volume Injected (uL): 1.0 Operator: VTS

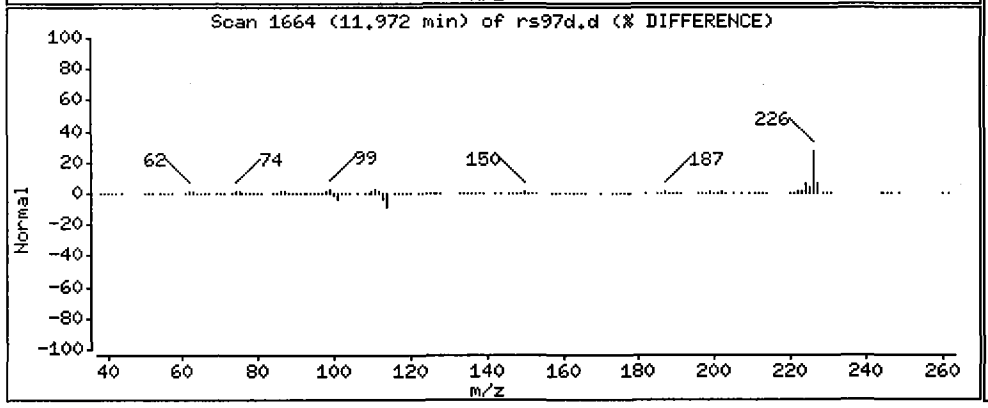
Column phase: ZB-5msi Column diameter: 0.32

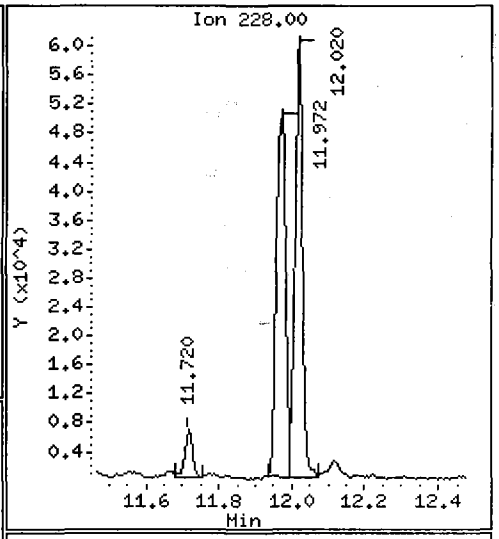
68 Benzo(a)anthracene Concentration: 13910 ug/kg

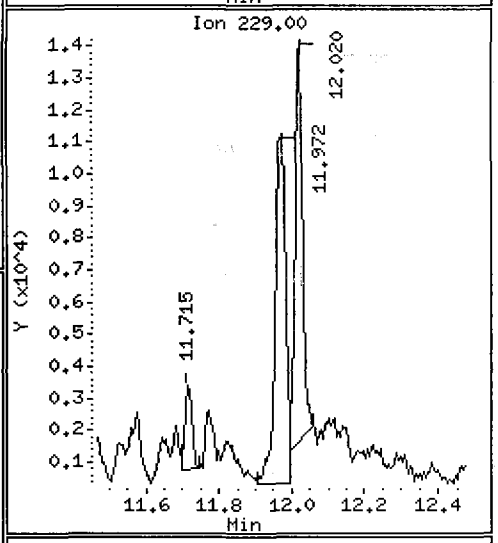


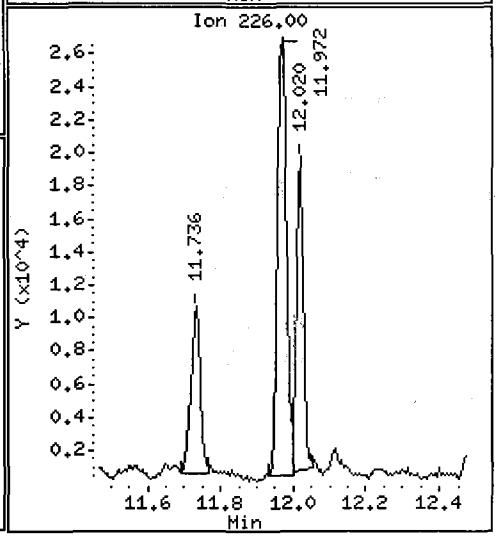












Data File: /chem1/nt12.i/20101110.b/rs97d.d

Date : 10-NOV-2010 14:17

Client ID: DGS-19-10.210.9-101

Instrument: nt12.i

Sample Info: RS97D

Volume Injected (uL): 1.0

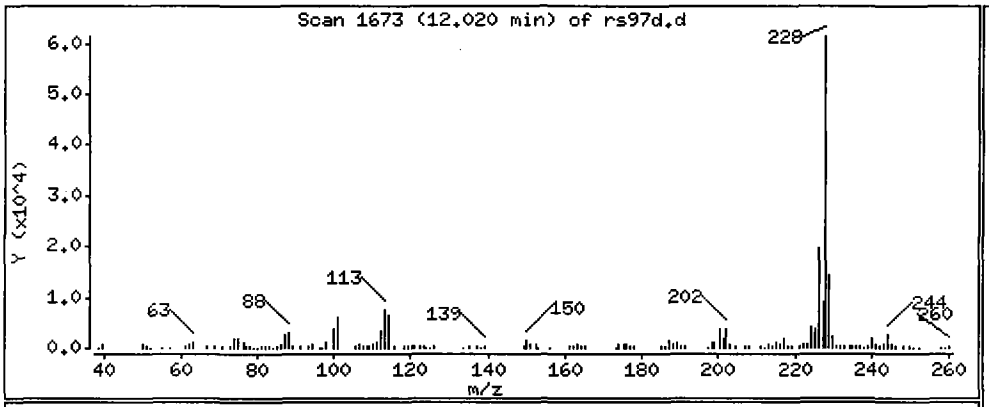
Operator: VTS

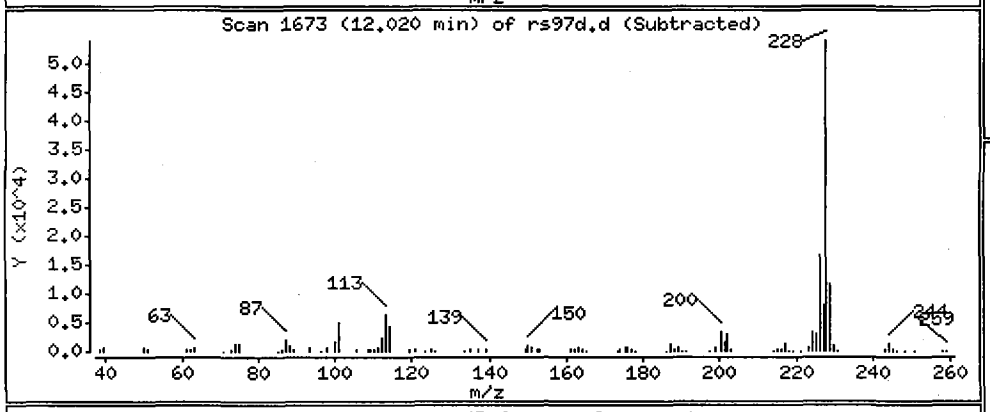
Column phase: ZB-5msi

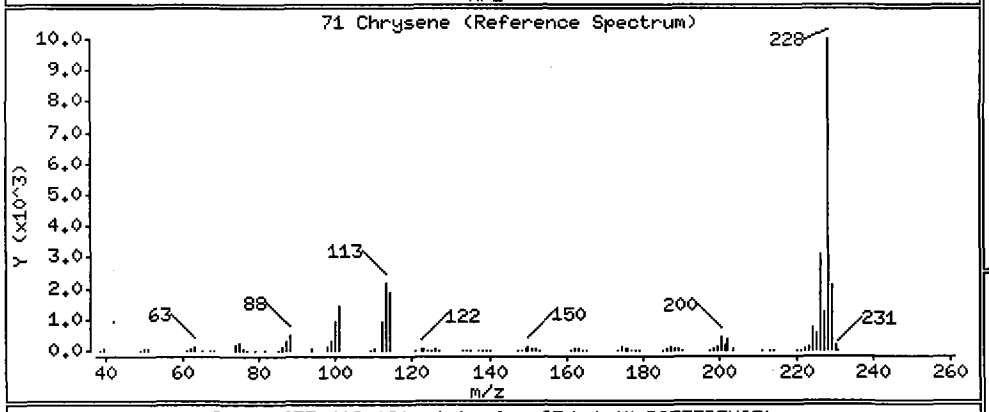
Column diameter: 0.32

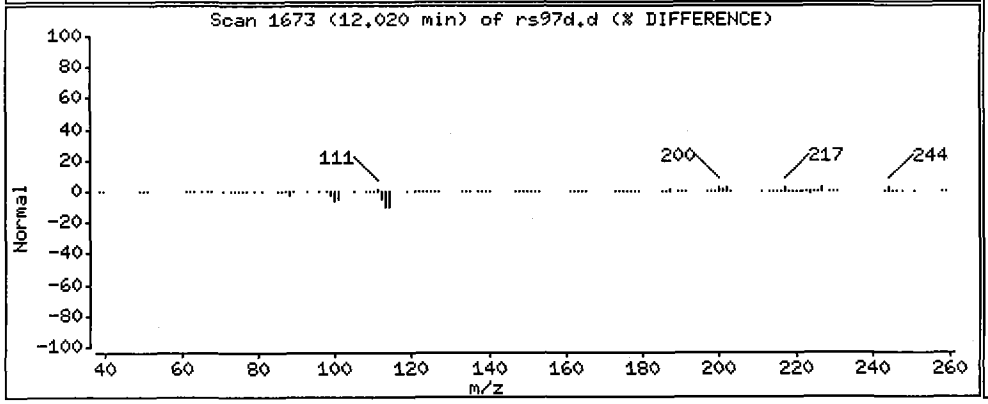
71 Chrysene

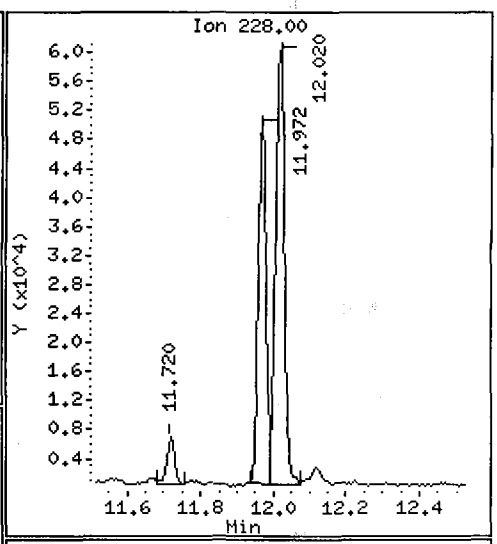
Concentration: 17210 ug/kg

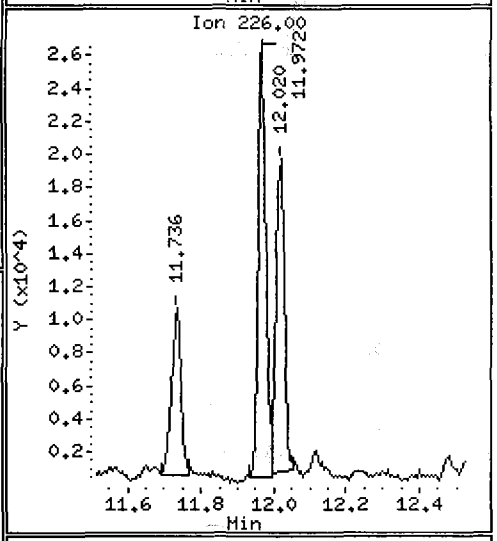


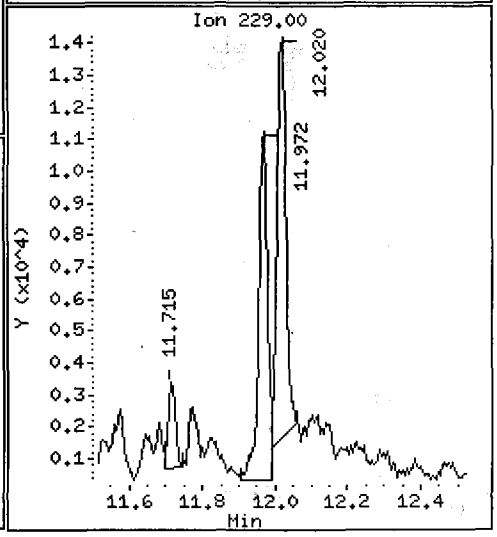












Data File: /chem1/nt12.i/20101110.b/rs97d.d

Date : 10-NOV-2010 14:17

Client ID: DGS-19-10.210.9-101

Instrument: nt12.i

Sample Info: RS97D

Volume Injected (uL): 1.0

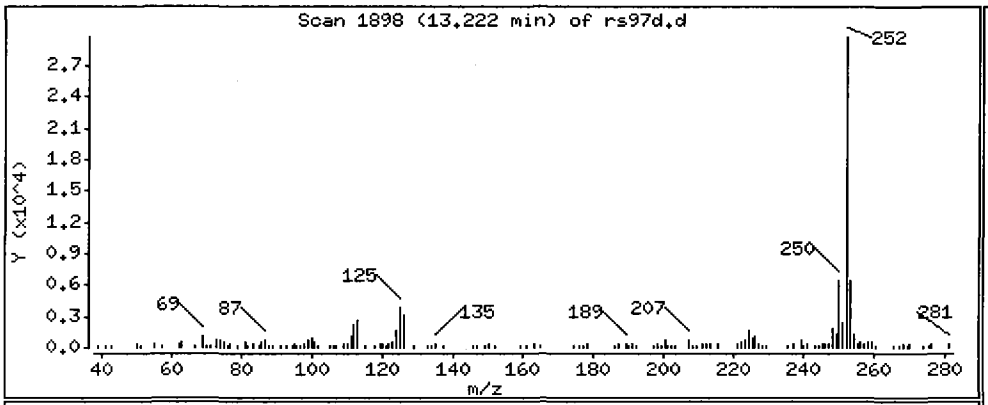
Operator: VTS

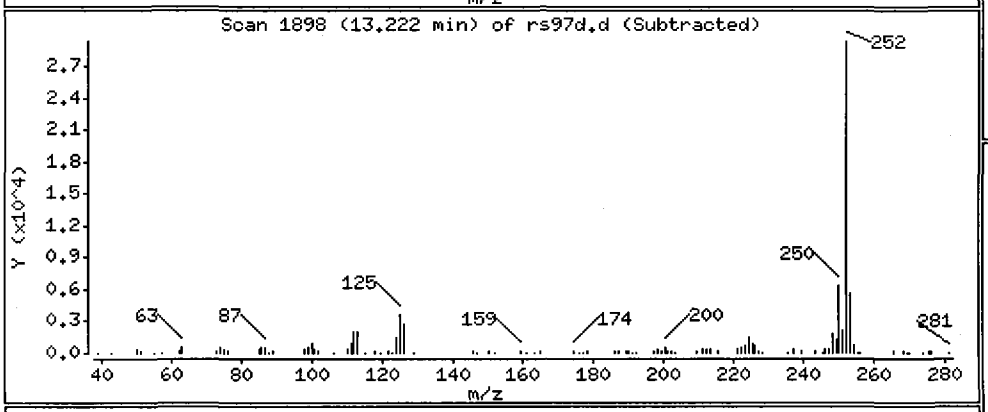
Column phase: ZB-5msi

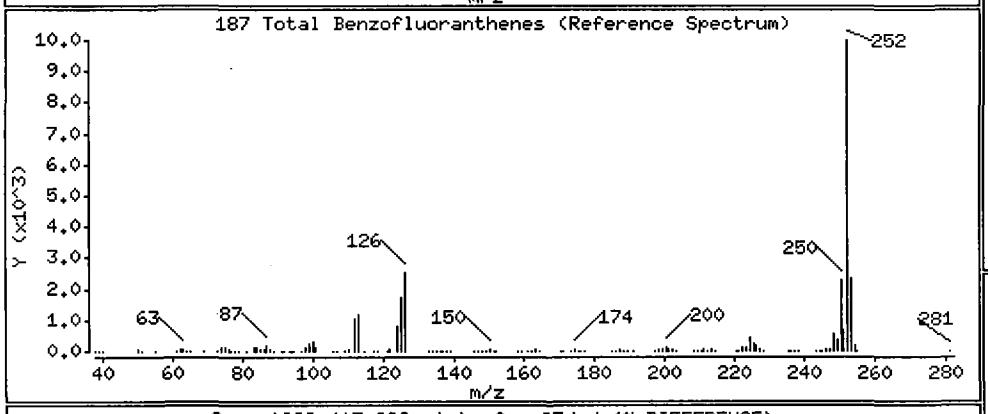
Column diameter: 0.32

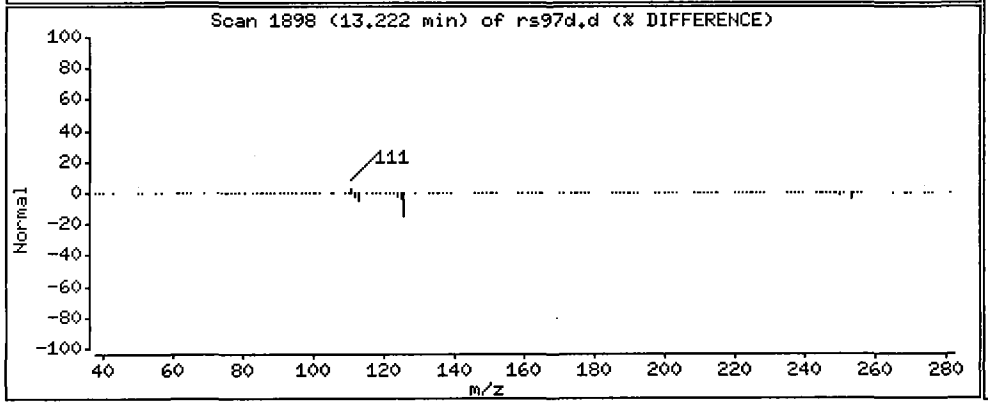
187 Total Benzofluoranthenes

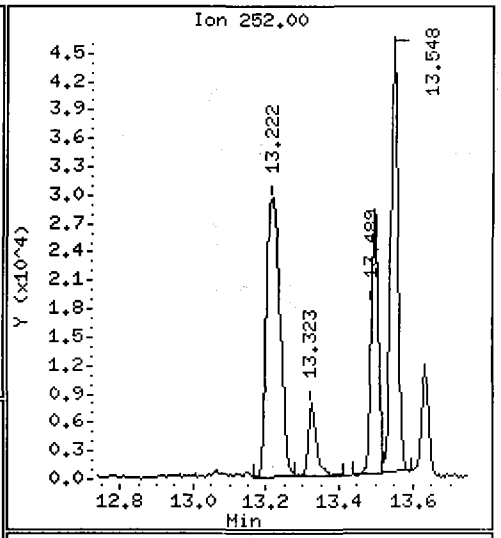
Concentration: 15430 ug/kg

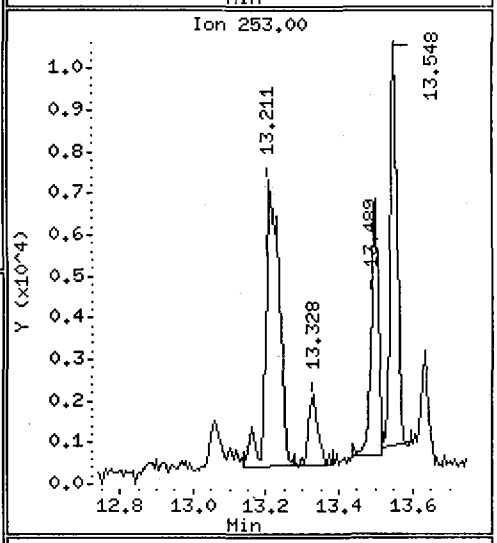


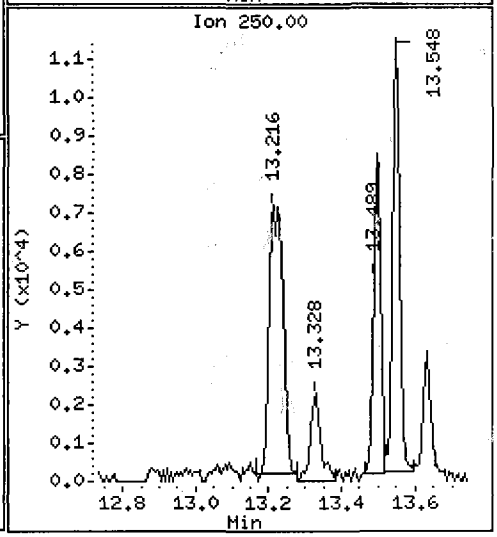












Data File: /chem1/nt12.i/20101110.b/rs97d.d

Date : 10-NOV-2010 14:17

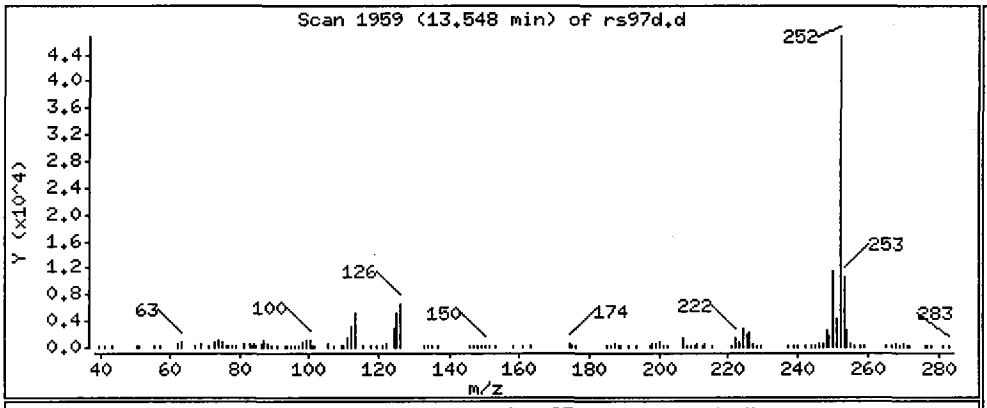
Client ID: DGS-19-10.210.9-101 Instrument: nt12.i

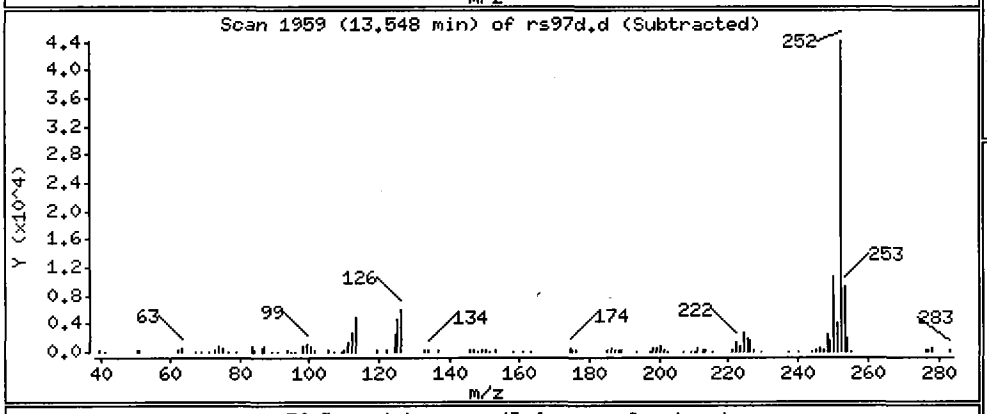
Sample Info: RS97D

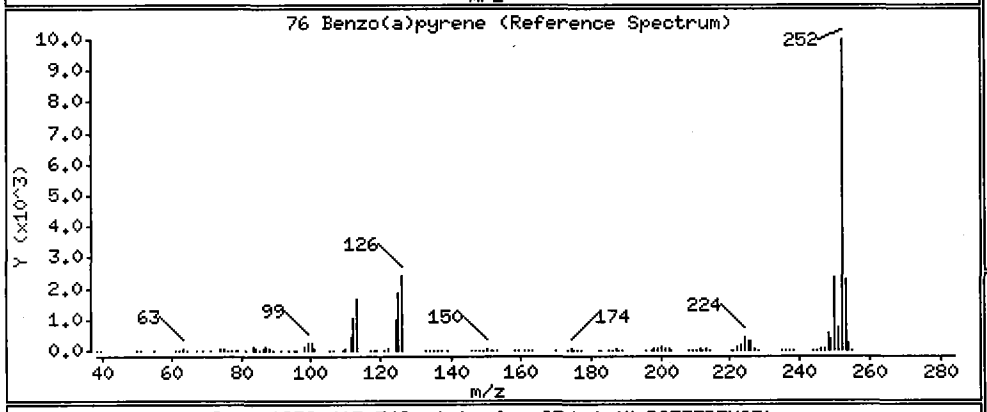
Volume Injected (uL): 1.0 Operator: VTS

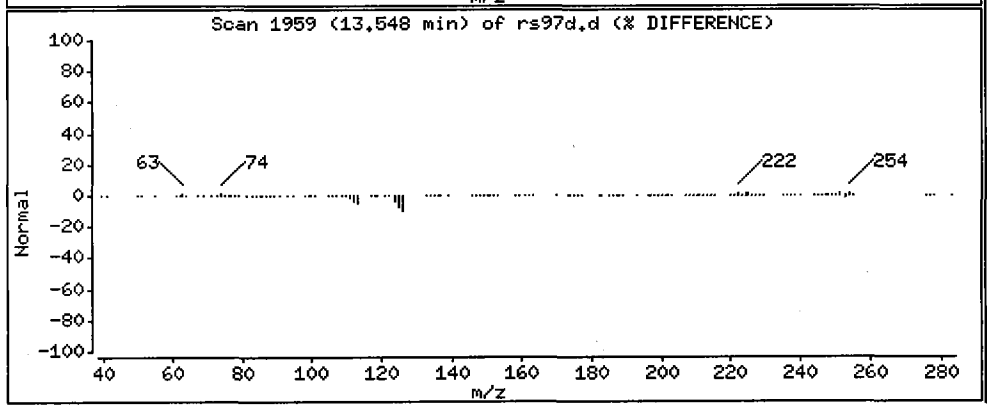
Column phase: ZB-5msi Column diameter: 0.32

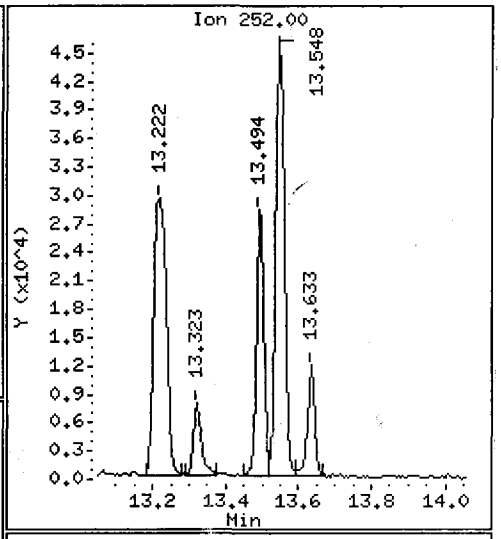
76 Benzo(a)pyrene Concentration: 14840 ug/kg

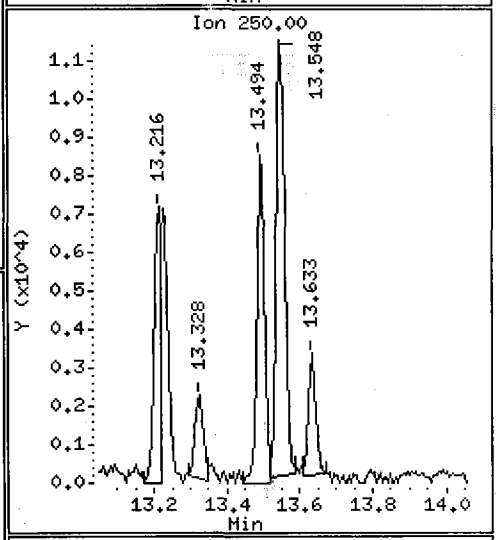


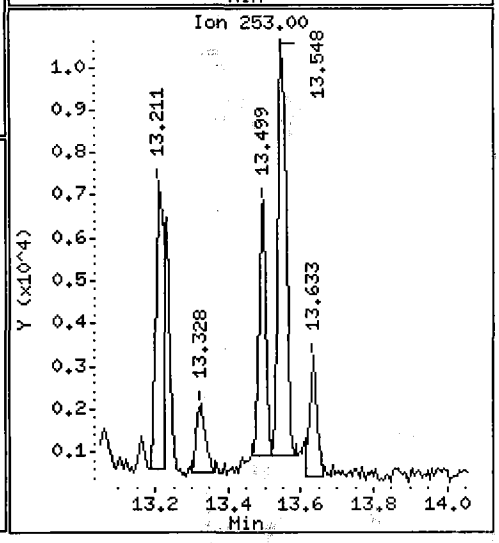












Data File: /chem1/nt12.i/20101110.b/rs97d.d

Date : 10-NOV-2010 14:17

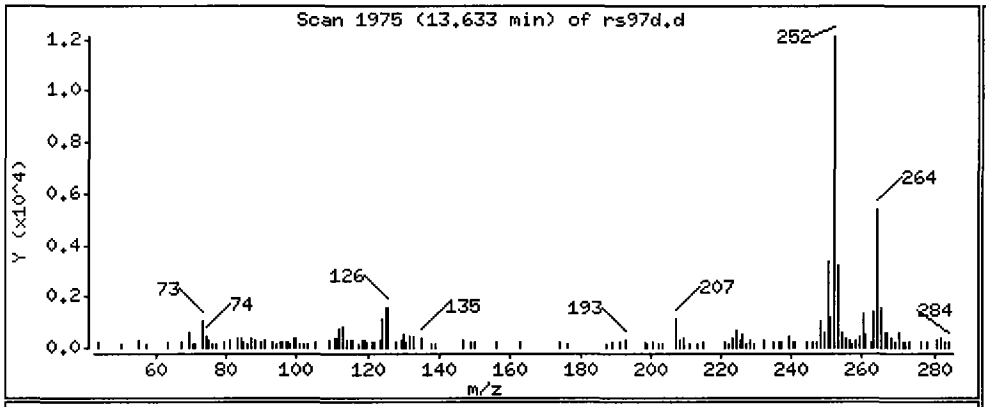
Client ID: DGS-19-10.210.9-101 Instrument: nt12.i

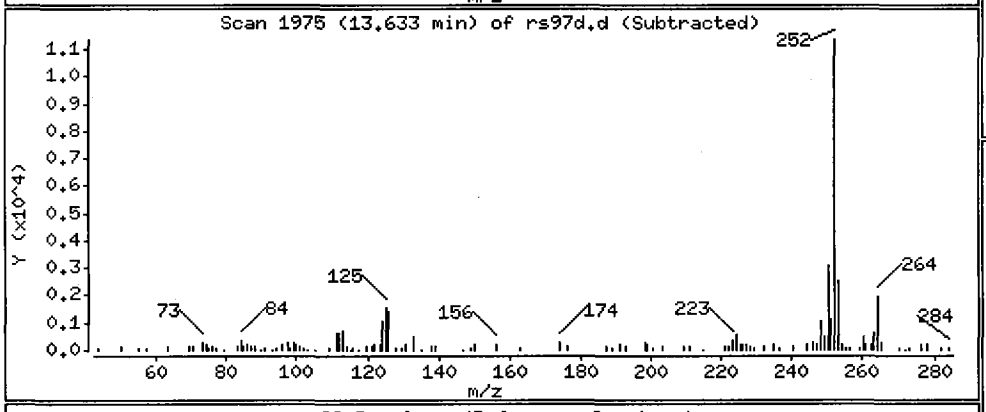
Sample Info: RS97D

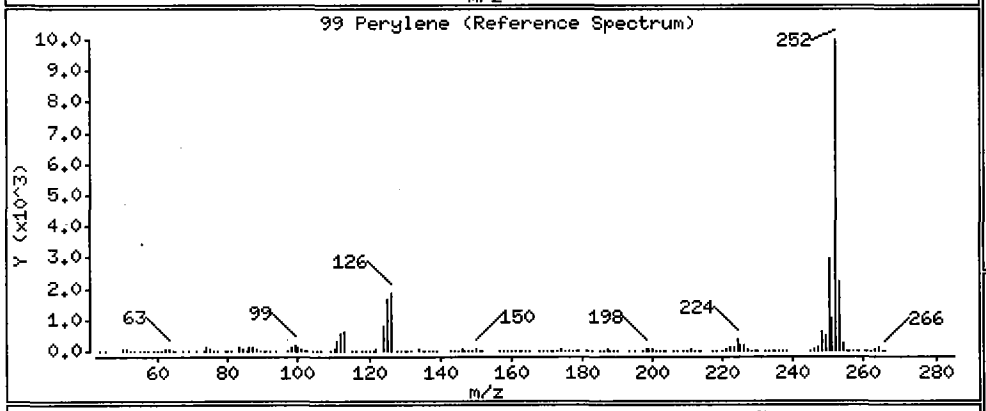
Volume Injected (uL): 1.0 Operator: VTS

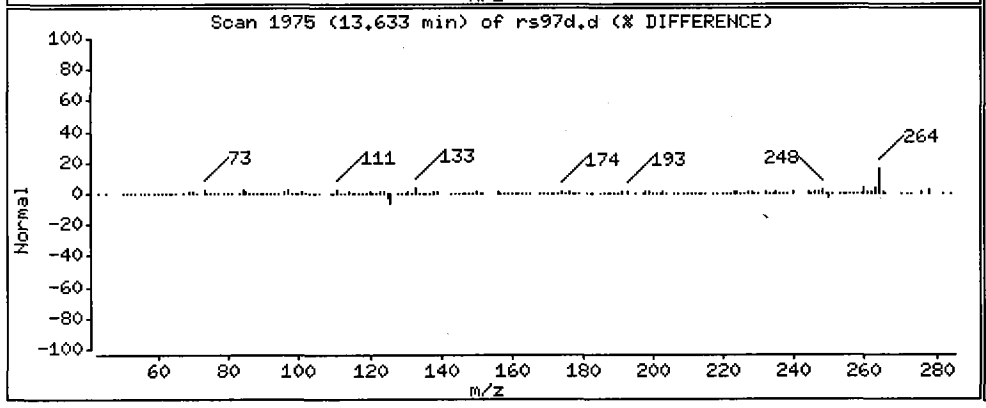
Column phase: ZB-5msi Column diameter: 0.32

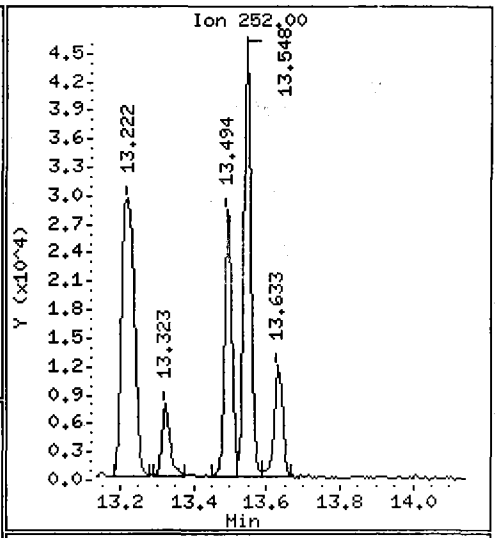
99 Perylene Concentration: 3505 ug/kg

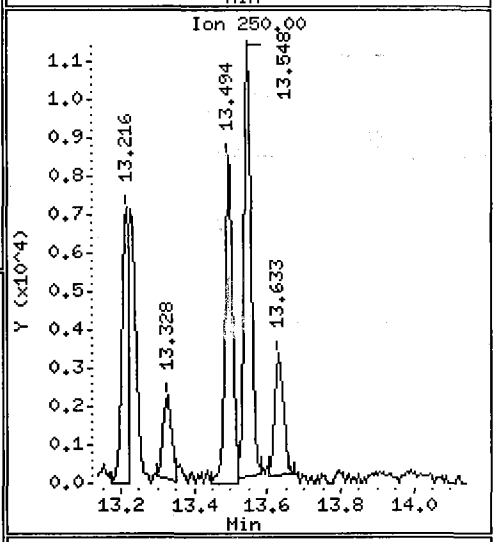


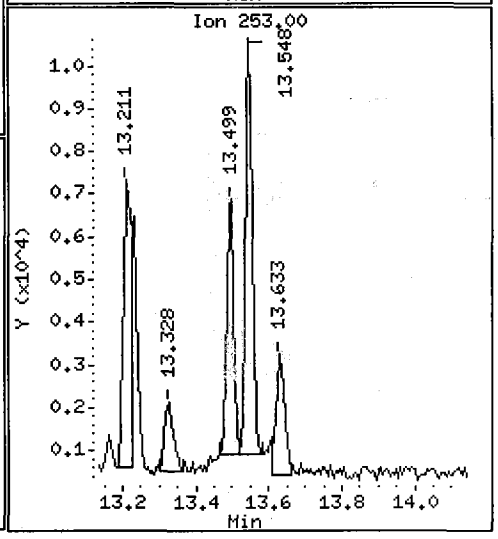












Data File: /chem1/nt12.i/20101110.b/rs97d.d

Date : 10-NOV-2010 14:17

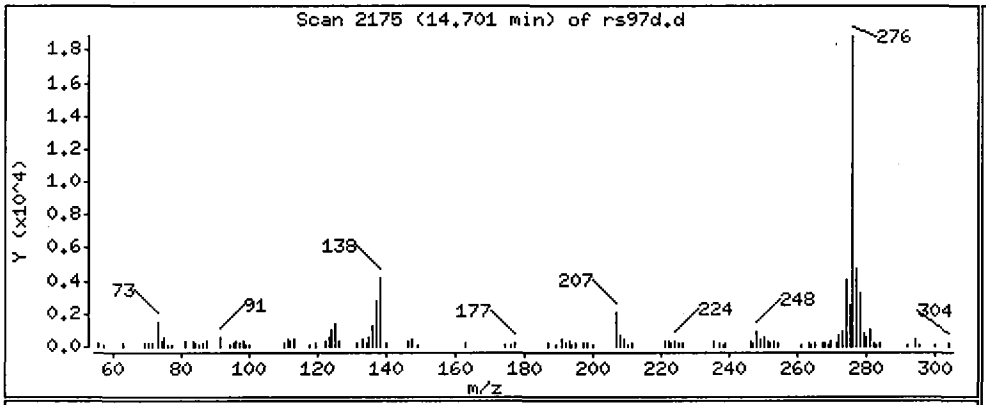
Client ID: DGS-19-10.210.9-101 Instrument: nt12.i

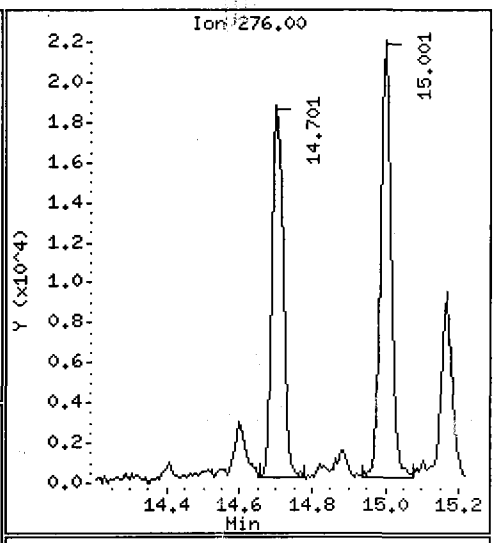
Sample Info: RS97D

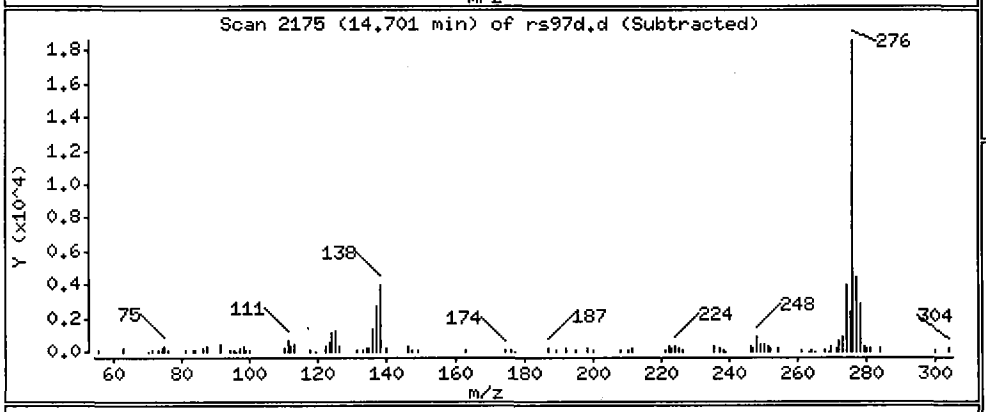
Volume Injected (uL): 1.0 Operator: VTS

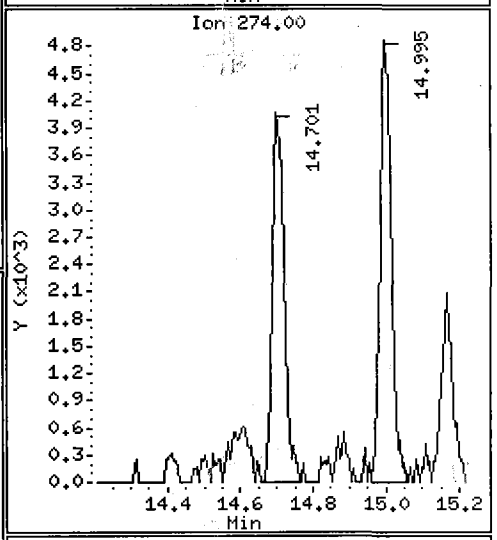
Column phase: ZB-5msi Column diameter: 0.32

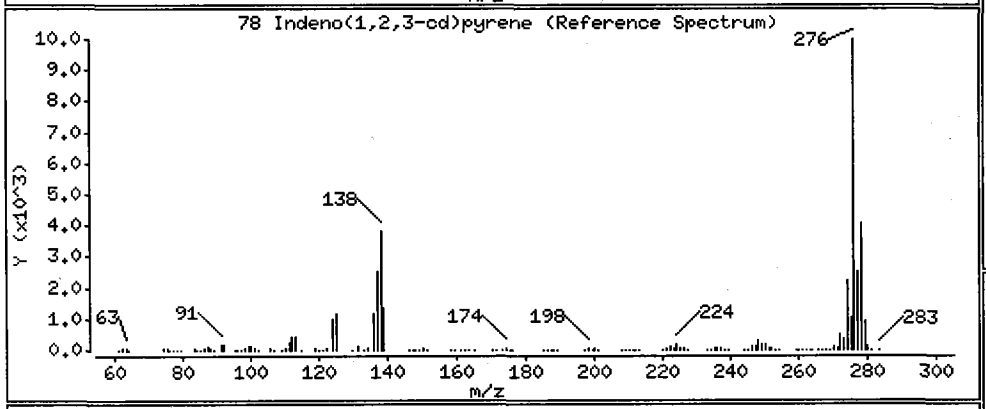
78 Indeno(1,2,3-cd)pyrene Concentration: 5522 ug/kg

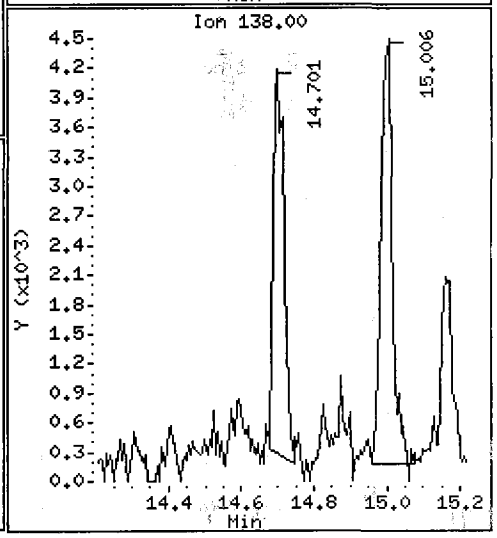


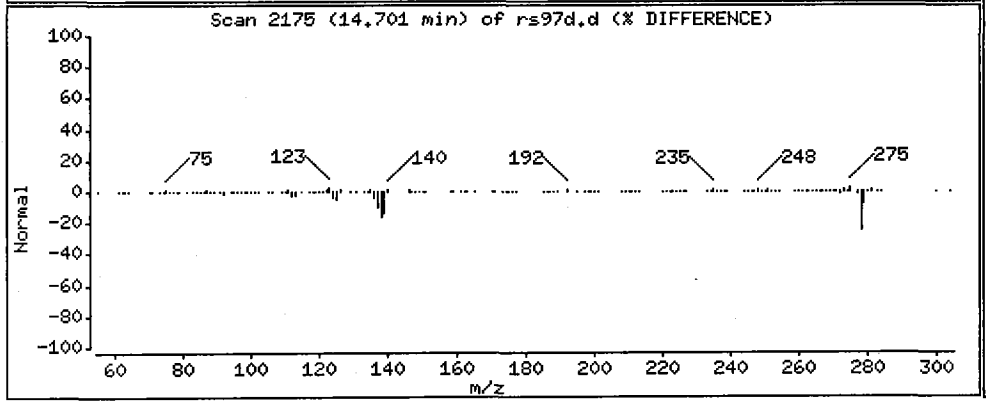












Data File: /chem1/nt12.i/20101110.b/rs97d.d

Date : 10-NOV-2010 14:17

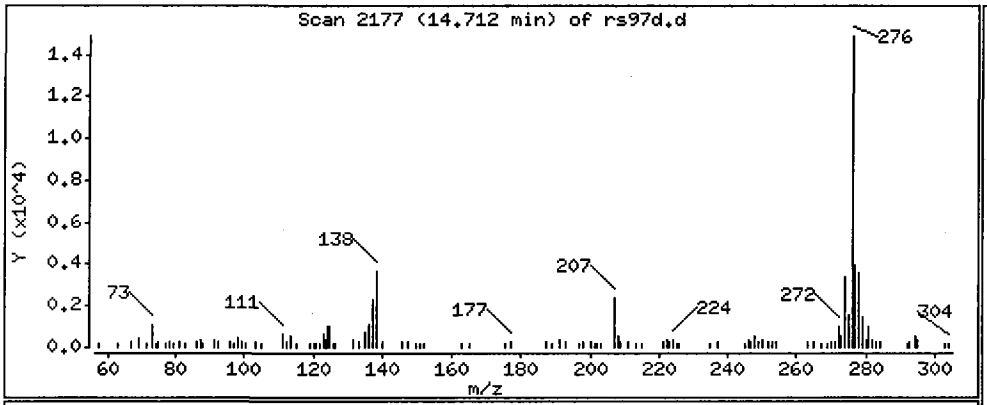
Client ID: DGS-19-10.210.9-101 Instrument: nt12.i

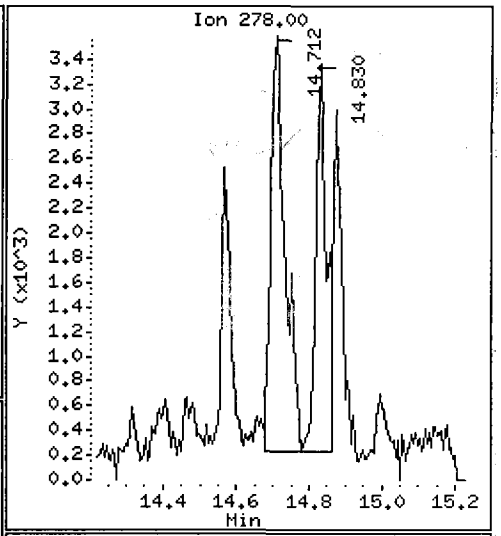
Sample Info: RS97D

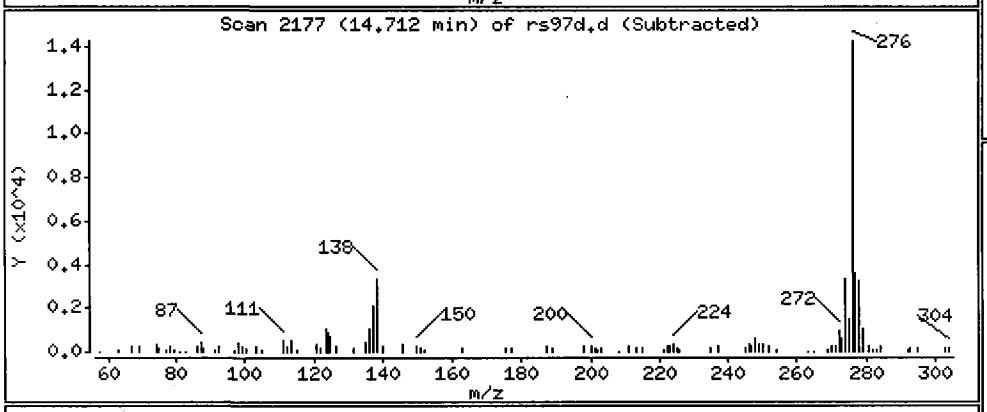
Volume Injected (uL): 1.0 Operator: VTS

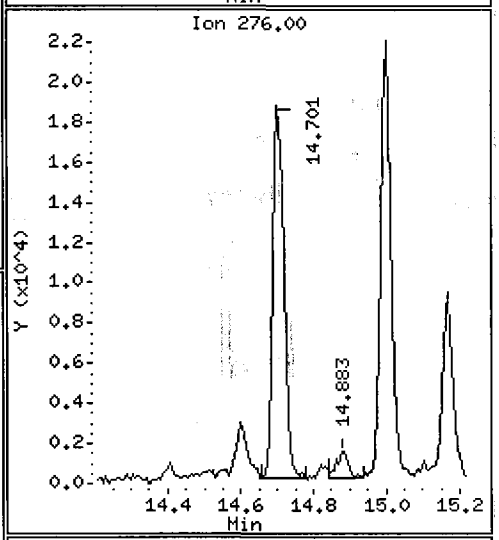
Column phase: ZB-5msi Column diameter: 0.32

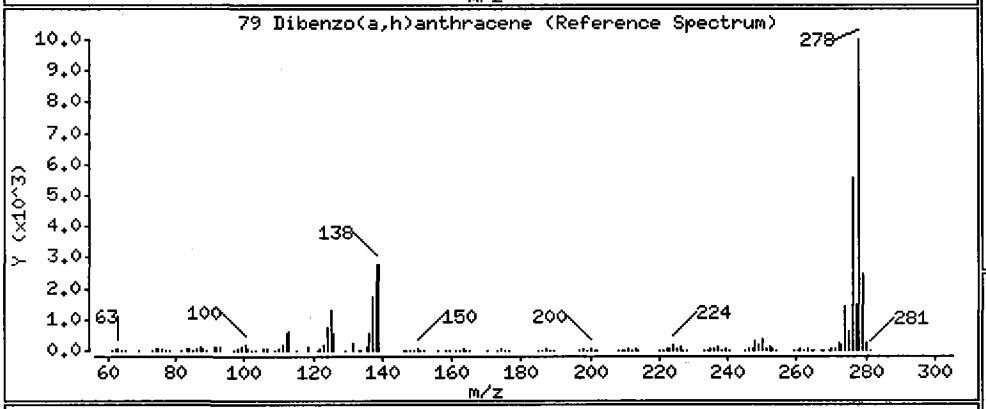
79 Dibenzo(a,h)anthracene Concentration: 1682 ug/kg

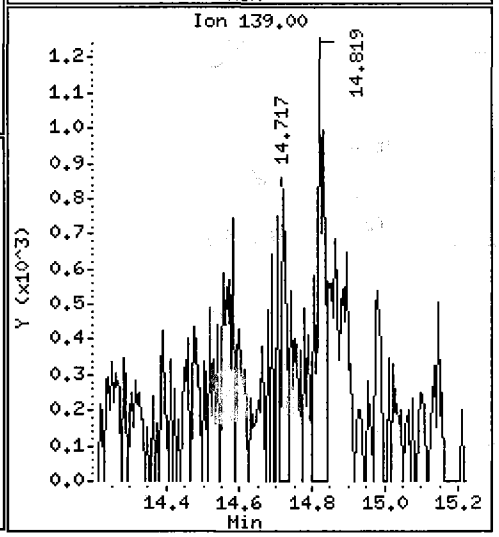


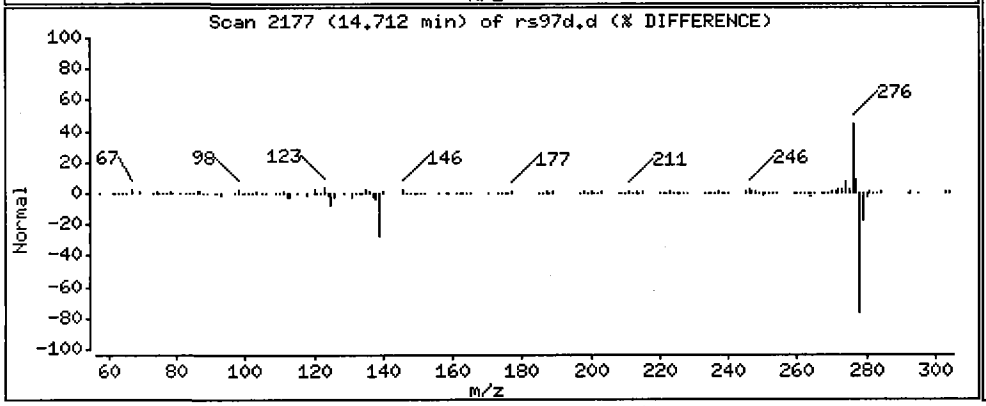












Data File: /chem1/nt12.i/20101110.b/rs97d.d

Date : 10-NOV-2010 14:17

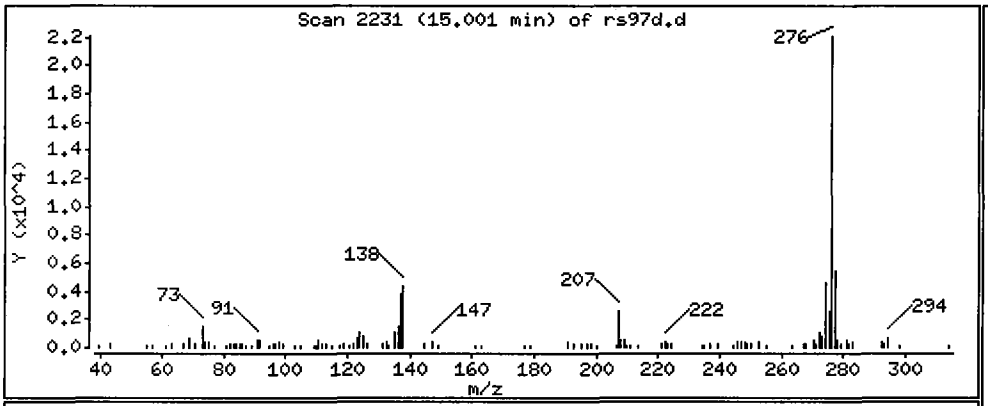
Client ID: DGS-19-10.210.9-101 Instrument: nt12.i

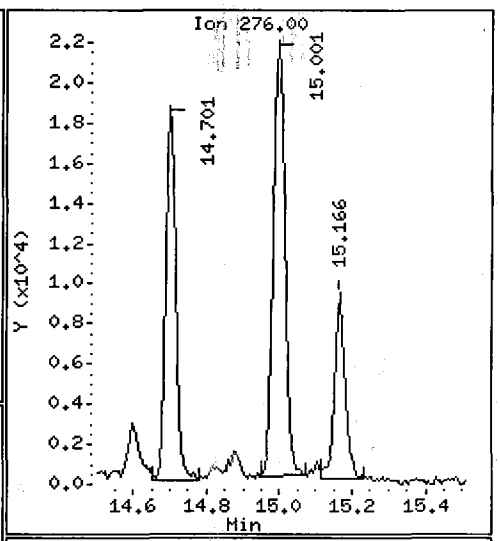
Sample Info: RS97D

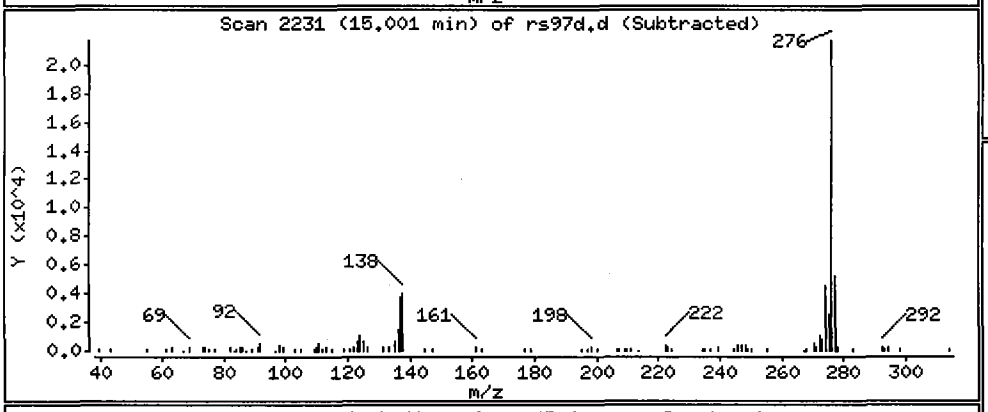
Volume Injected (uL): 1.0 Operator: VTS

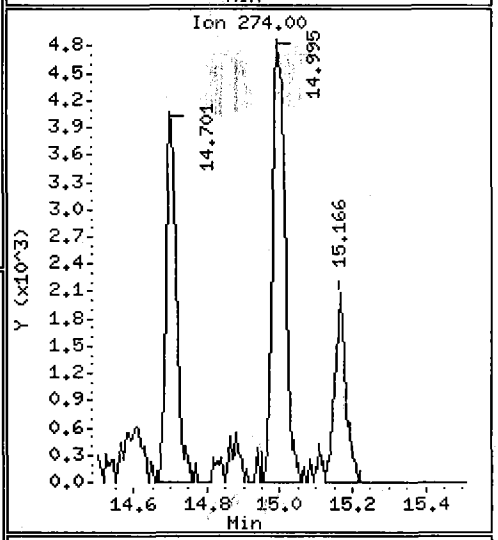
Column phase: ZB-5msi Column diameter: 0.32

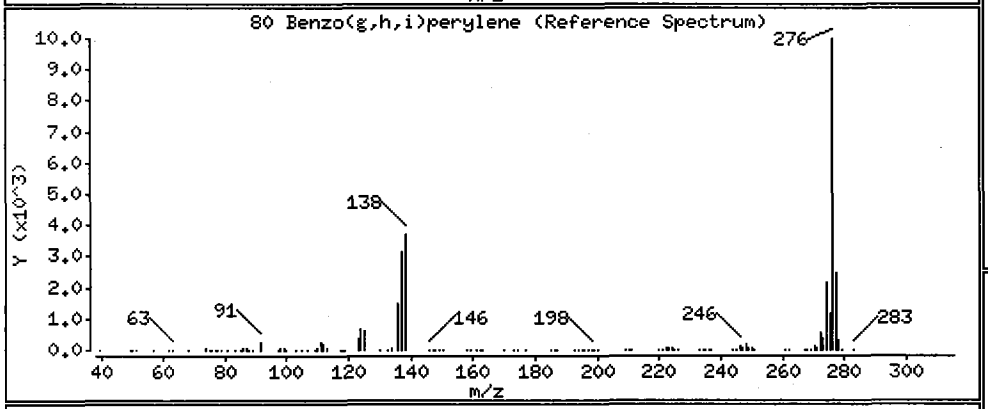
80 Benzo(g,h,i)perylene Concentration: 8176 ug/kg

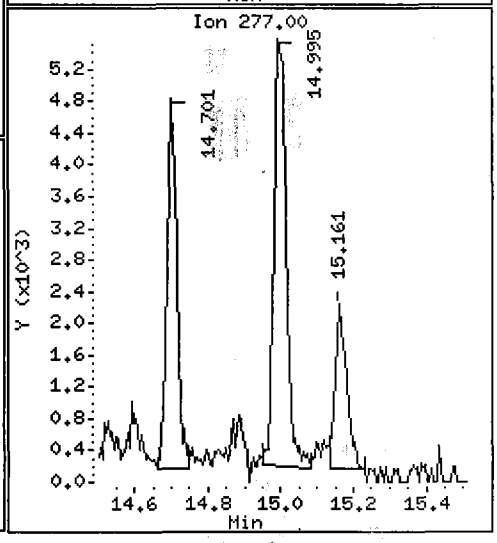


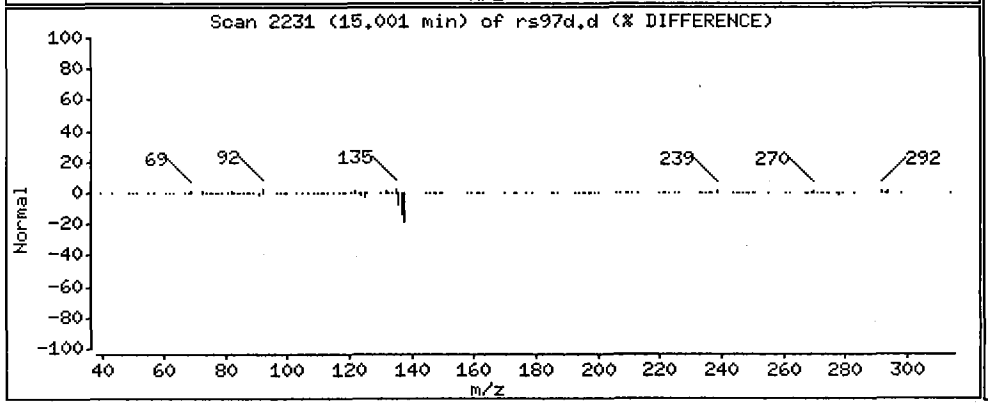








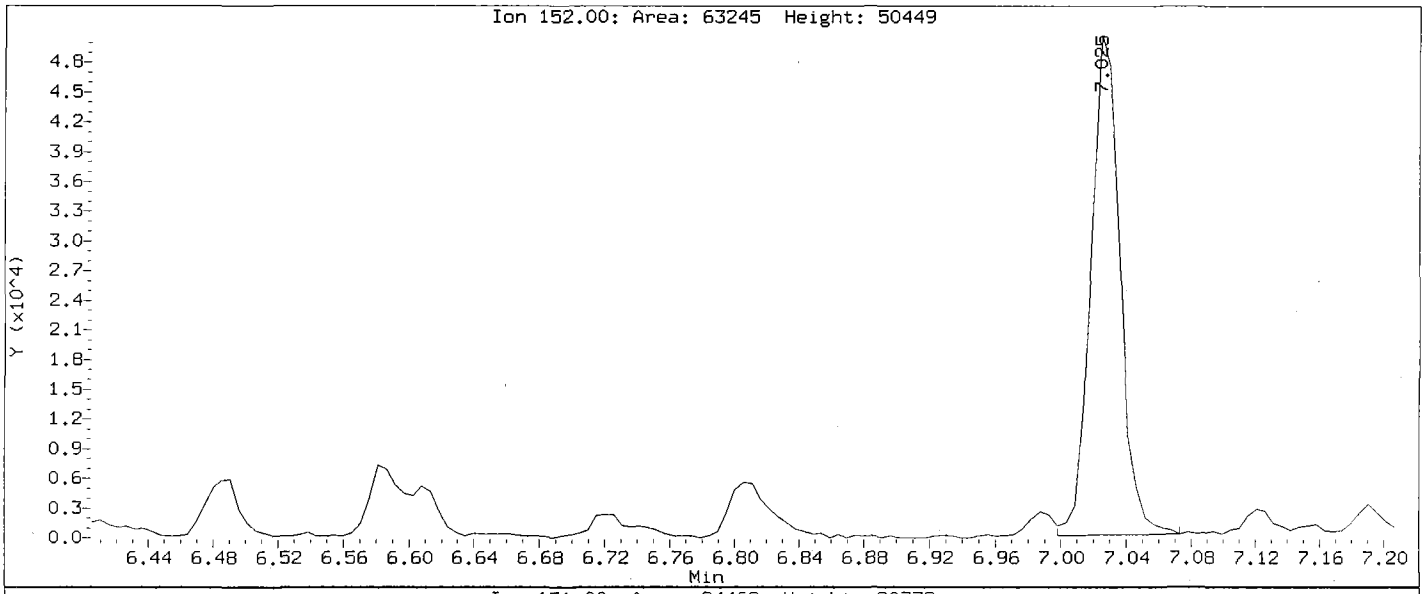


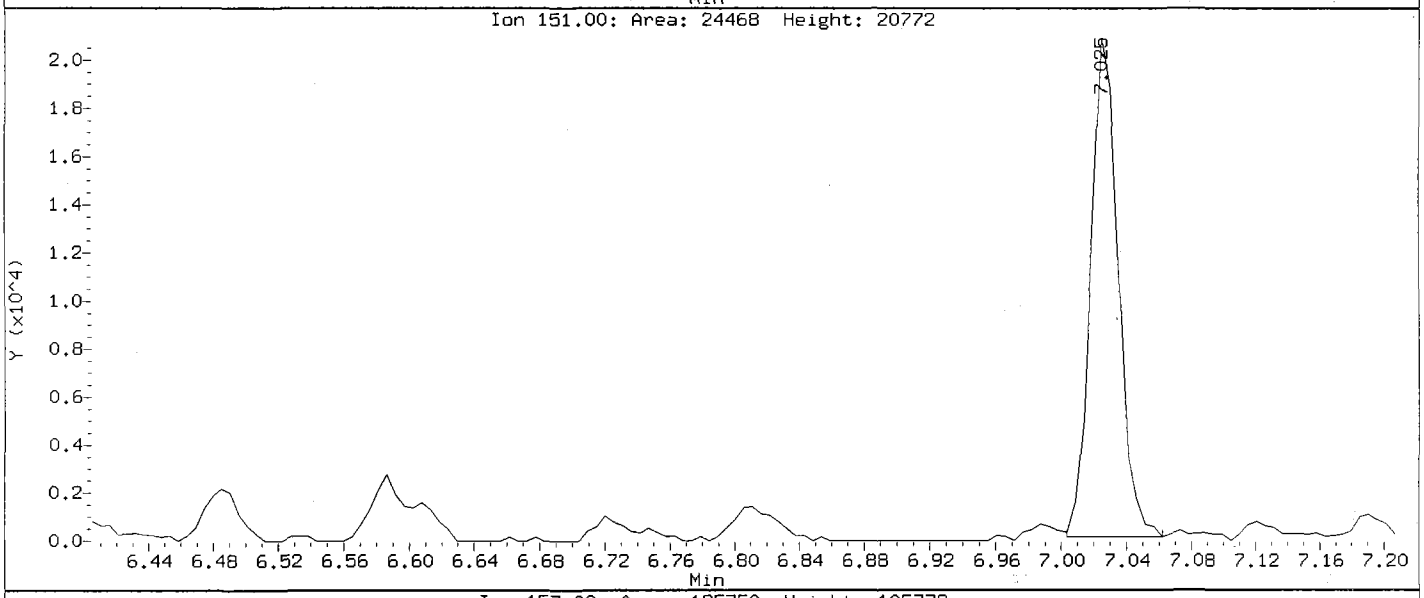


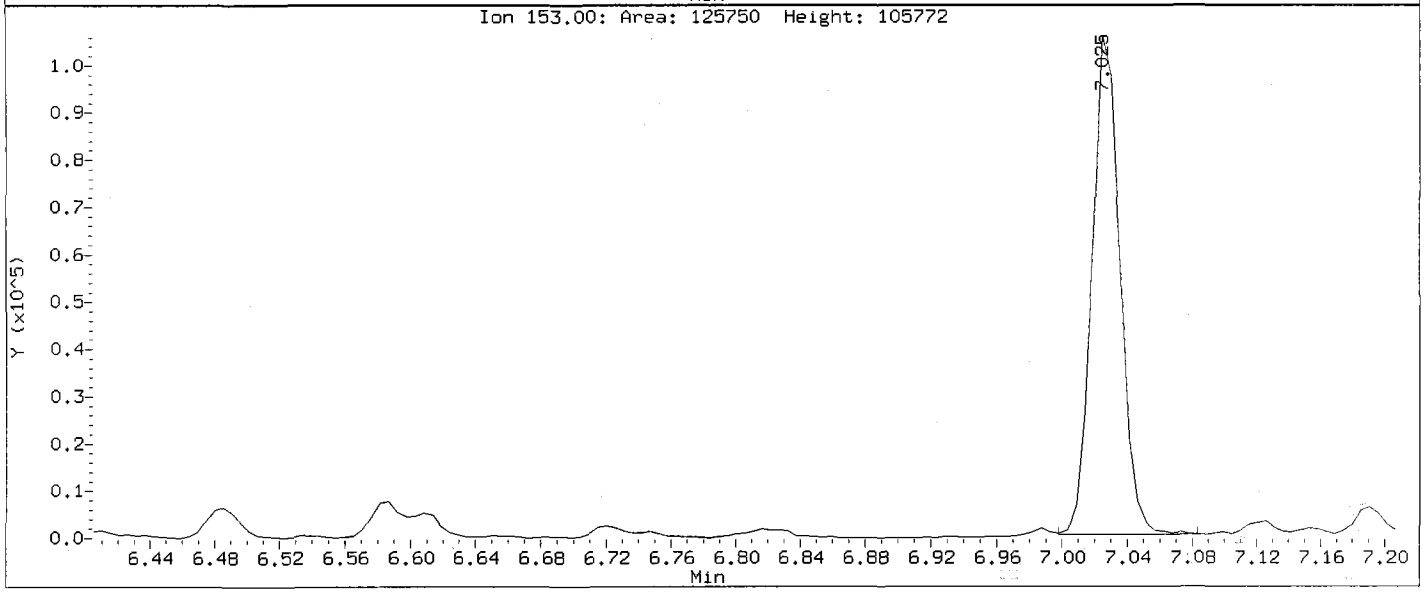
Data File: /chem1/nt12.i/20101110.b/rs97d.d
Injection Date: 10-NOV-2010 14:17
Instrument: nt12.i
Client Sample ID: DGS-19-10.210.9-101

Compound: Acenaphthylene
CAS Number: 208-96-8

11.11.10

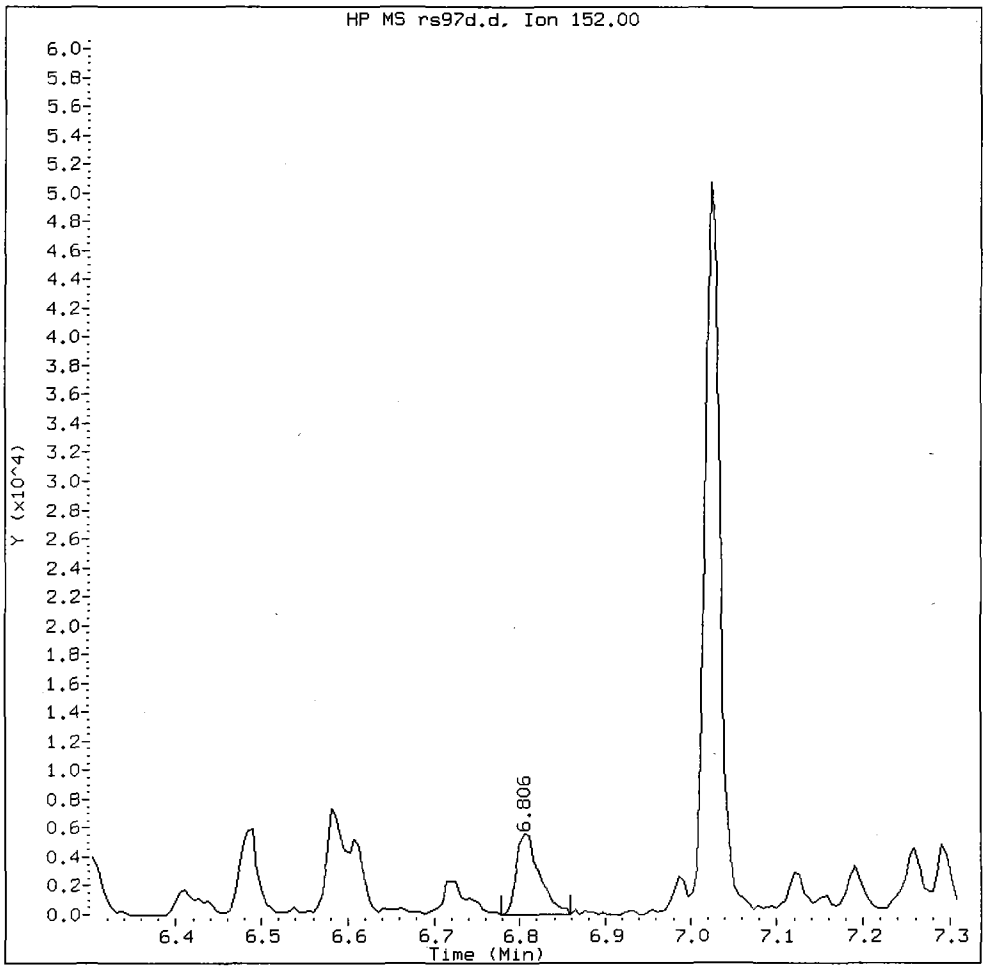






RS97D, /chem1/nt12.i/20101110.b/rs97d.d

Acenaphthylene Amount: 0.72 Area: 10302



MANUAL INTEGRATION for Acenaphthylene

1. Baseline correction
2. Poor chromatography
3. Peak not found
4. Totals calculation

5. Other _____

Analyst: WB Date: 11-11-10

Analytical Resources, Inc.

Semivolatile Report SW846 Method 8270D

Data file : /chem1/nt12.i/20101110.b/rs97g.d
Lab Smp Id: RS97G
Client Smp ID: DGS-36-066.7-101012
Inj Date : 10-NOV-2010 14:40
Operator : VTS
Inst ID: nt12.i
Smp Info : RS97G
Misc Info : 10-27423
Comment : 1ul Injection
Method : /chem1/nt12.i/20101110.b/PNADMD.m
Meth Date : 10-Nov-2010 14:46 van
Quant Type: ISTD
Cal Date : 30-OCT-2010 13:19
Cal File: ic1030f.d
Als bottle: 5
Dil Factor: 1.00000
Integrator: HP RTE
Compound Sublist: pnas.sub
Target Version: 3.50
Processing Host: cserv3

Concentration Formula: Amt * DF * Vt/(Ws * (100 - M)/100) * CpndVariable

Name	Value	Description
DF	1.00000	Dilution Factor
Vt	10000.00000	Volume of final extract (uL)
Ws	5.02000	Weight of sample extracted (g)
M	33.50000	% Moisture

Cpnd Variable Local Compound Variable

Compounds	QUANT SIG MASS	RT	EXP RT	REL RT	RESPONSE	CONCENTRATIONS ON-COLUMN (ug/mL)	FINAL (ug/kg)
* 27 Naphthalene-d8	136	4.887	4.888	(1.000)	214669	20.0000	
28 Naphthalene	128	4.909	4.909	(1.004)	18148	1.48538	4449
32 2-Methylnaphthalene	141	Compound Not Detected.					
105 1-methylnaphthalene	141	5.854	5.854	(1.198)	4879	0.72560	2174
$ 36 2-Fluorobiphenyl	172	6.201	6.202	(0.888)	17345	1.63540	4899
40 Acenaphthylene	152	Compound Not Detected.					
* 42 Acenaphthene-d10	164	6.987	6.992	(1.000)	137859	20.0000	
44 Acenaphthene	153	7.024	7.030	(1.005)	28879	3.40622	10200
46 Dibenzofuran	168	Compound Not Detected.					
49 Fluorene	166	7.639	7.639	(1.093)	23203	2.39026	7160
* 59 Phenanthrene-d10	188	8.760	8.761	(1.000)	232928	20.0000	
60 Phenanthrene	178	8.787	8.787	(1.003)	283220	22.9198	68660
61 Anthracene	178	8.841	8.846	(1.009)	56983	4.46181	13370
62 Carbazole	167	Compound Not Detected.					

Compounds	QUANT SIG MASS	RT	EXP RT	REL RT	RESPONSE	CONCENTRATIONS ON-COLUMN (ug/mL)	FINAL (ug/kg)
64 Fluoranthene	202	10.240	10.235	(0.854)	266646	18.0976	54210
65 Pyrene	202	10.502	10.502	(0.876)	332992	22.7812	68240
$ 66 Terphenyl-d14	244	10.737	10.737	(0.896)	15386	1.65006	4943
68 Benzo(a)anthracene	228	11.971	11.971	(0.999)	63087	5.32583	15950
* 69 Chrysene-d12	240	11.987	11.993	(1.000)	210930	20.0000	
71 Chrysene	228	12.019	12.019	(1.003)	68576	6.19224	18550
187 Total Benzofluoranthenes	252	13.216	13.243	(0.971)	83913	8.95630	26830
76 Benzo(a)pyrene	252	13.547	13.553	(0.996)	74057	8.60447	25770
* 77 Perylene-d12	264	13.606	13.611	(1.000)	157301	20.0000	
99 Perylene	252	13.633	13.638	(1.002)	18100	~~1.~~97762	5924 NP
78 Indeno(1,2,3-cd)pyrene	276	14.706	14.712	(1.081)	49306	3.85861	11560
79 Dibenzo(a,h)anthracene	278	14.706	14.723	(1.081)	9403	0.89381	2677 T
80 Benzo(g,h,i)perylene	276	15.000	15.006	(1.102)	65702	6.25885	18750

VB
11-11-10

Analytical Resources, Inc.

INTERNAL STANDARD COMPOUNDS
AREA AND RT SUMMARY

Instrument ID: nt12.i
Lab File ID: rs97g.d
Lab Smp Id: RS97G
Analysis Type: SV
Quant Type: ISTD
Operator: VTS
Method File: /chem1/nt12.i/20101110.b/PNADMD.m
Misc Info: 10-27423

Calibration Date: 10-NOV-2010
Calibration Time: 13:29
Client Smp ID: DGS-36-066.7-101
Level: LOW
Sample Type: Sediment

Test Mode:
Use Initial Calibration Level 4.

COMPOUND	STANDARD	AREA LIMIT LOWER	AREA LIMIT UPPER	SAMPLE	%DIFF
27 Naphthalene-d8	237664	118832	475328	214669	-9.68
42 Acenaphthene-d10	143363	71682	286726	137859	-3.84
59 Phenanthrene-d10	245437	122718	490874	232928	-5.10
69 Chrysene-d12	199260	99630	398520	210930	5.86
77 Perylene-d12	197636	98818	395272	157301	-20.41

COMPOUND	STANDARD	RT LIMIT LOWER	RT LIMIT UPPER	SAMPLE	%DIFF
27 Naphthalene-d8	4.89	4.39	5.39	4.89	0.00
42 Acenaphthene-d10	6.99	6.49	7.49	6.99	-0.08
59 Phenanthrene-d10	8.76	8.26	9.26	8.76	0.00
69 Chrysene-d12	11.99	11.49	12.49	11.99	-0.05
77 Perylene-d12	13.61	13.11	14.11	13.61	-0.04

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.

Analytical Resources, Inc.

RECOVERY REPORT

Client Name: NW Natural
Sample Matrix: SOLID
Lab Smp Id: RS97G
Level: LOW
Data Type: MS DATA
SpikeList File: SONICLCS.spk
Sublist File: pnas.sub
Method File: /chem1/nt12.i/20101110.b/PNADMD.m
Misc Info: 10-27423

Client SDG: RS97
Fraction: SV
Client Smp ID: DGS-36-066.7-101012
Operator: VTS
SampleType: SAMPLE
Quant Type: ISTD

SURROGATE COMPOUND	CONC ADDED ug/kg	CONC RECOVERED ug/kg	% RECOVERED	LIMITS
$ 36 2-Fluorobiphenyl	7489	4899	65.42	34-100
$ 66 Terphenyl-d14	7489	4943	66.00	35-112

Data File: /chem1/nt12.i/20101110.b/rs97g.d

Date : 10-NOV-2010 14:40

Client ID: DGS-36-066.7-101012

Sample Info: RS97G

Volume Injected (uL): 1.0

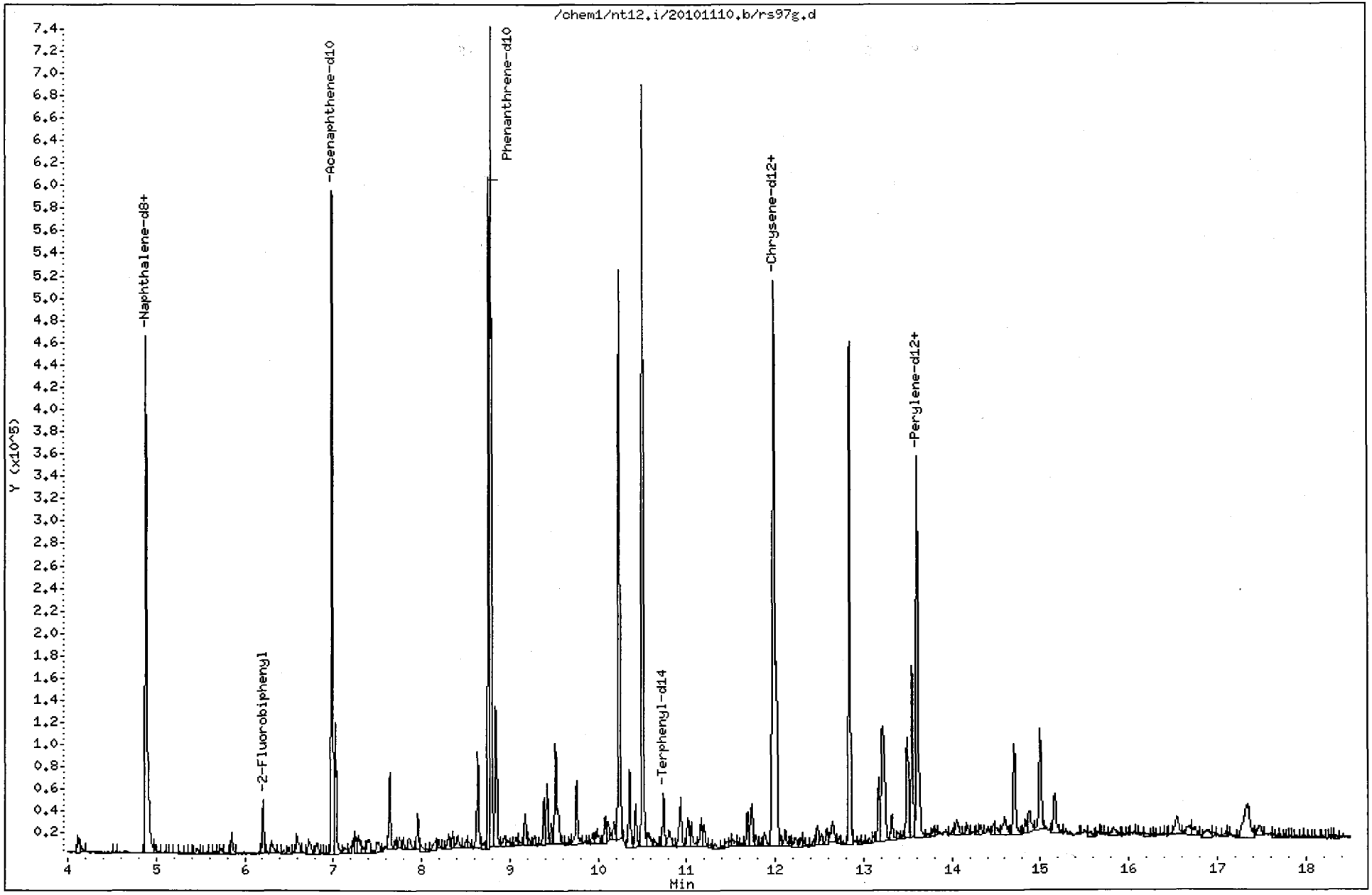
Column phase: ZB-5msi

Instrument: nt12.i

Operator: VTS

Column diameter: 0.32

RS97:00395



Data File: /chem1/nt12.i/20101110.b/rs97g.d

Date : 10-NOV-2010 14:40

Client ID: DGS-36-066.7-101012

Instrument: nt12.i

Sample Info: RS97G

Volume Injected (uL): 1.0

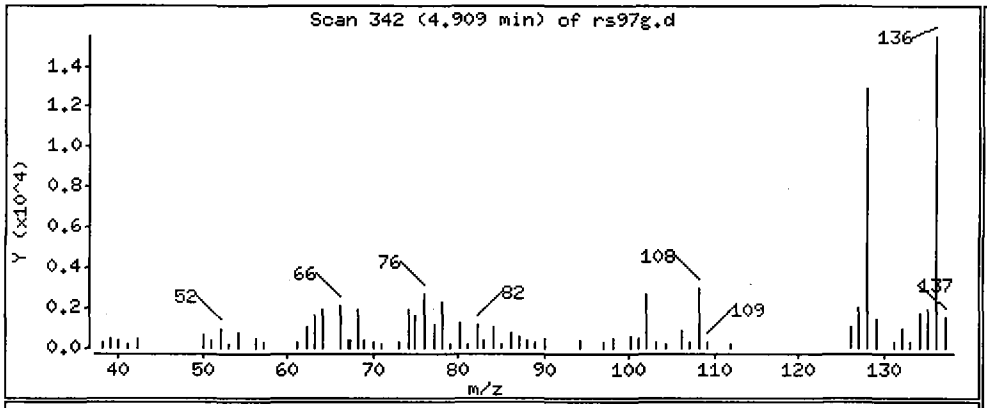
Operator: VTS

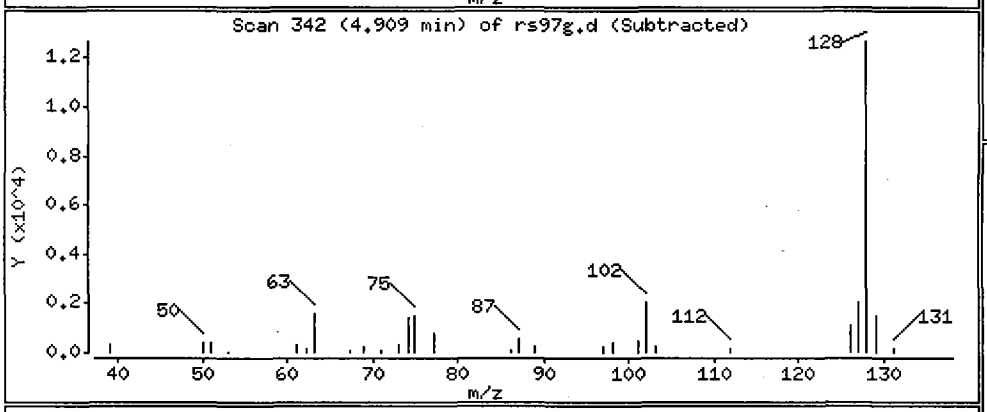
Column phase: ZB-5msi

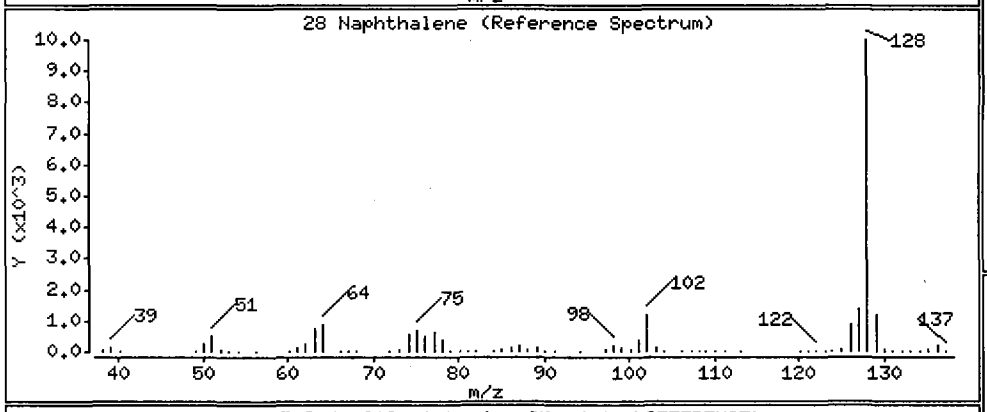
Column diameter: 0.32

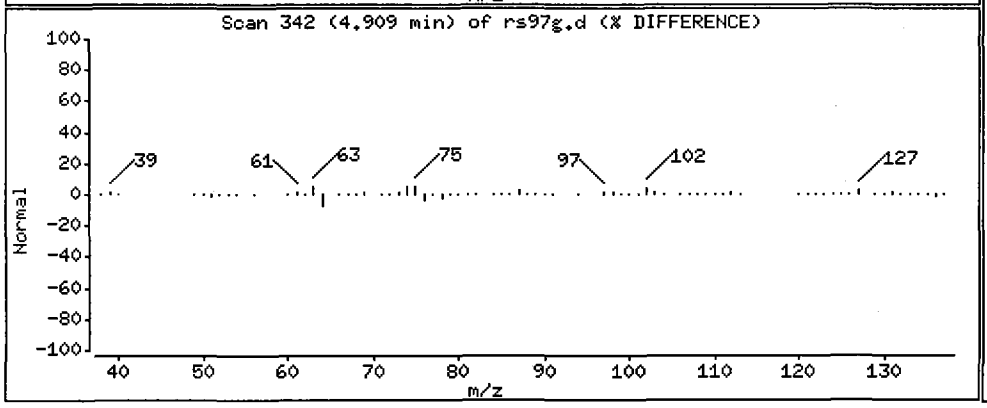
28 Naphthalene

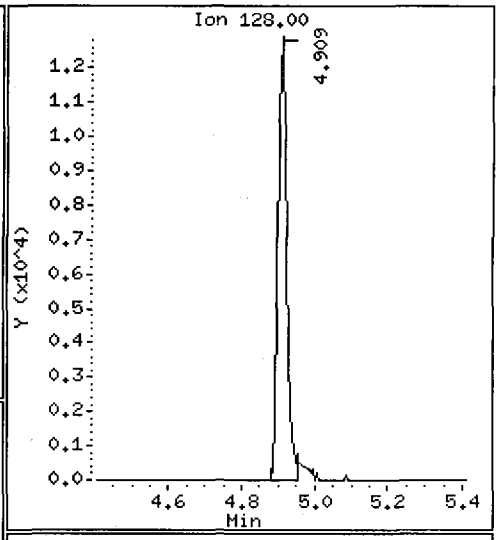
Concentration: 4449 ug/kg

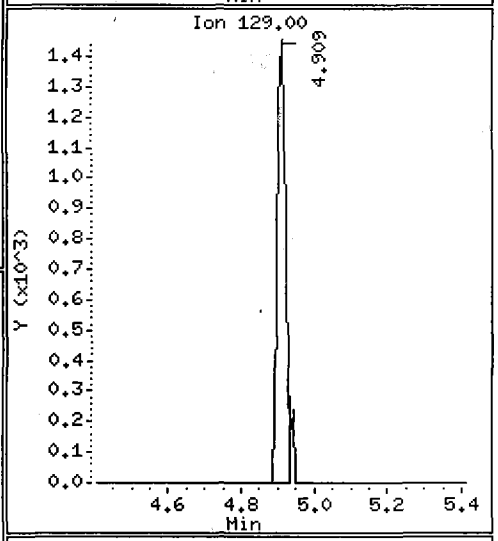


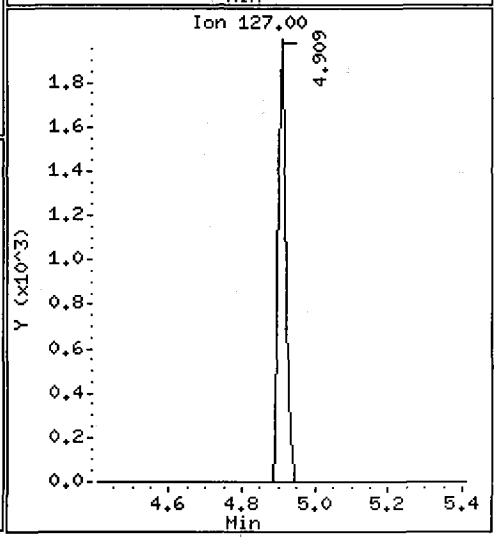












Data File: /chem1/nt12.i/20101110.b/rs97g.d

Date : 10-NOV-2010 14:40

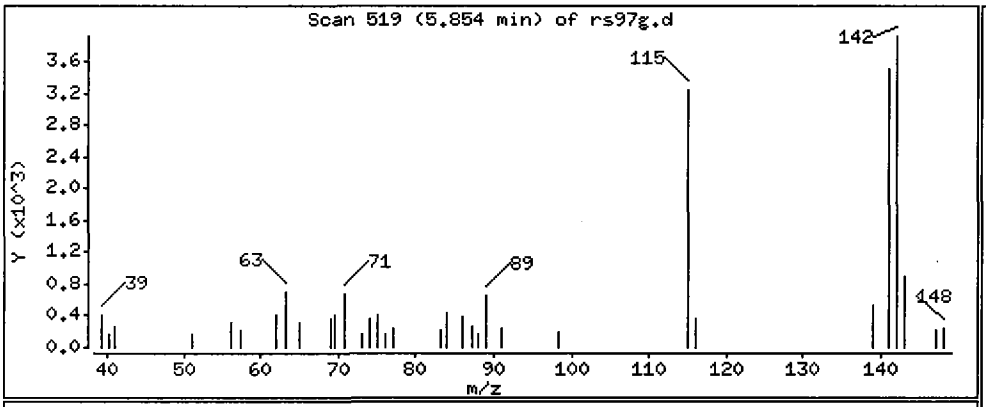
Client ID: DGS-36-066.7-101012 Instrument: nt12.i

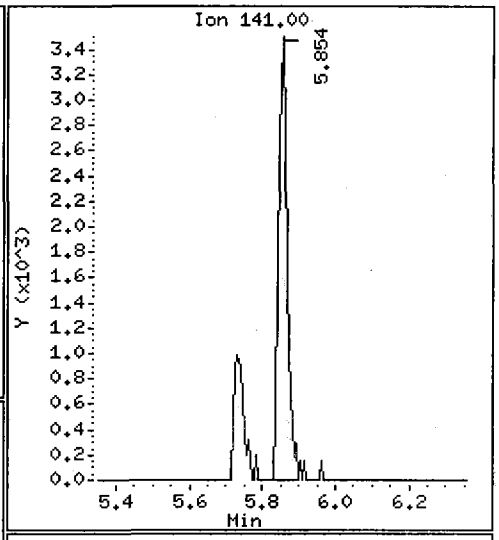
Sample Info: RS97G

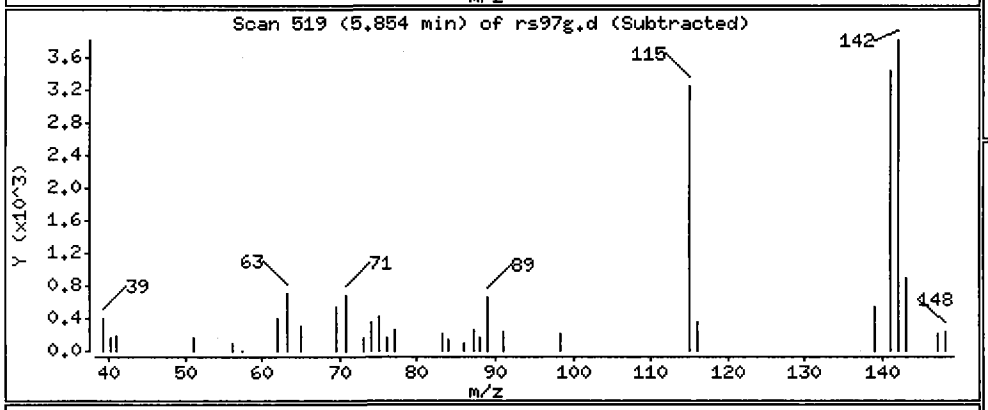
Volume Injected (uL): 1.0 Operator: VTS

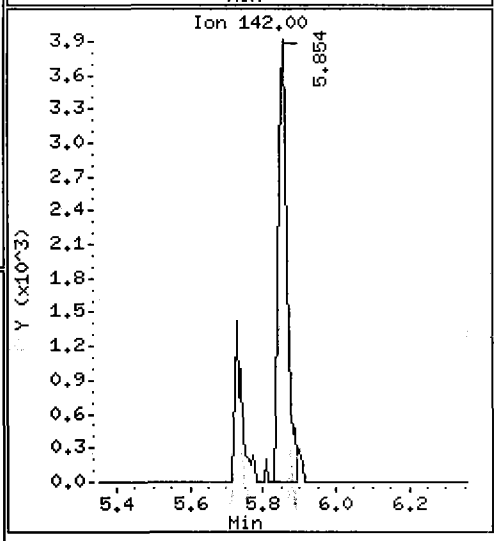
Column phase: ZB-5msi Column diameter: 0.32

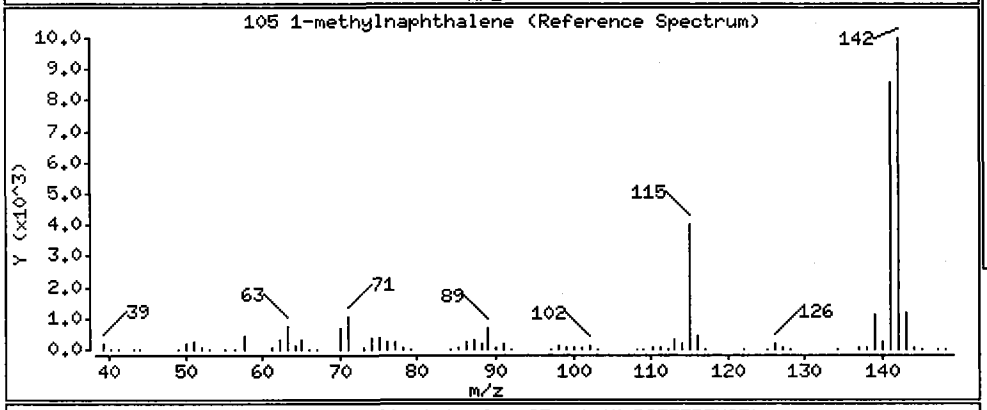
105 1-methylnaphthalene Concentration: 2174 ug/kg

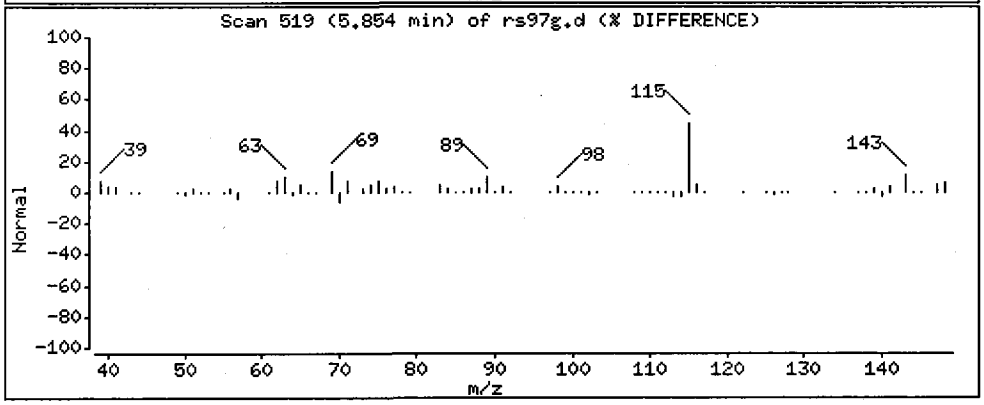












Data File: /chem1/nt12.i/20101110.b/rs97g.d

Date : 10-NOV-2010 14:40

Client ID: DGS-36-066.7-101012

Instrument: nt12.i

Sample Info: RS97G

Volume Injected (uL): 1.0

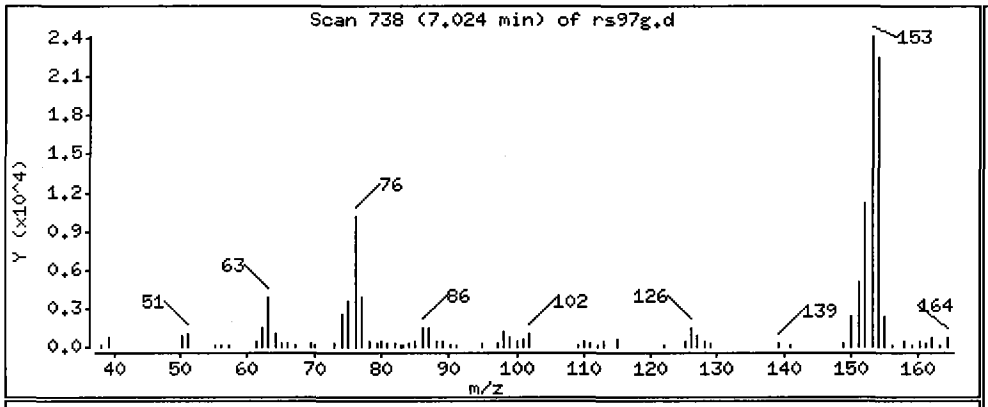
Operator: VTS

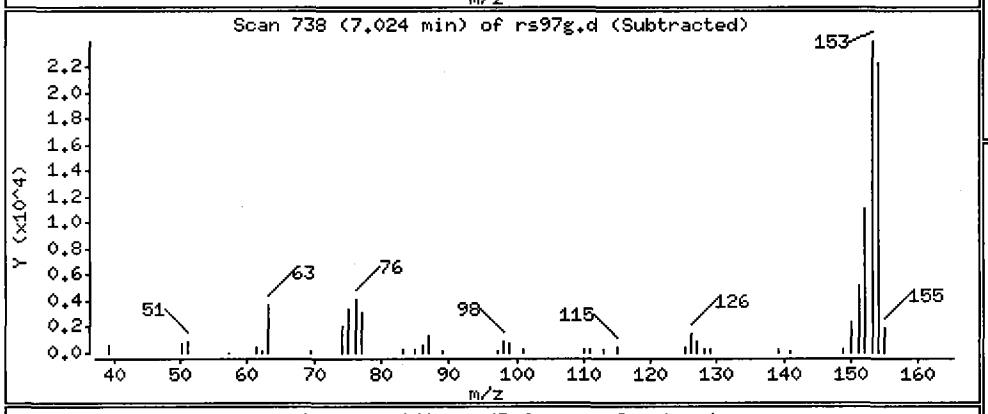
Column phase: ZB-5msi

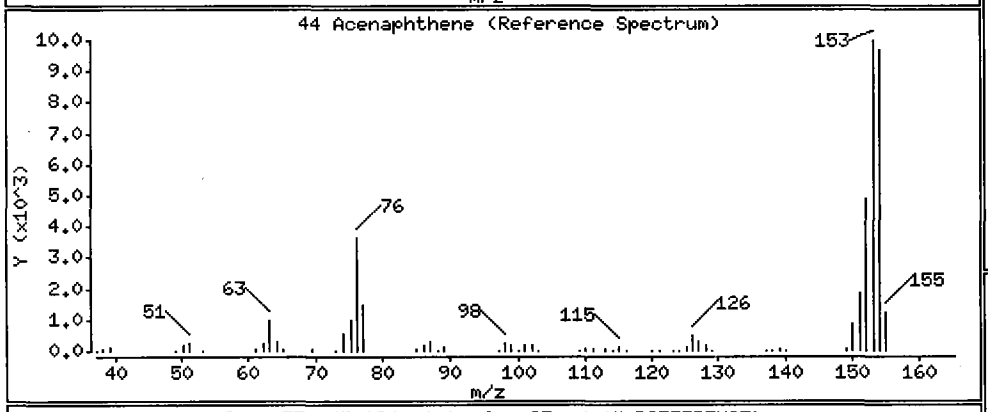
Column diameter: 0.32

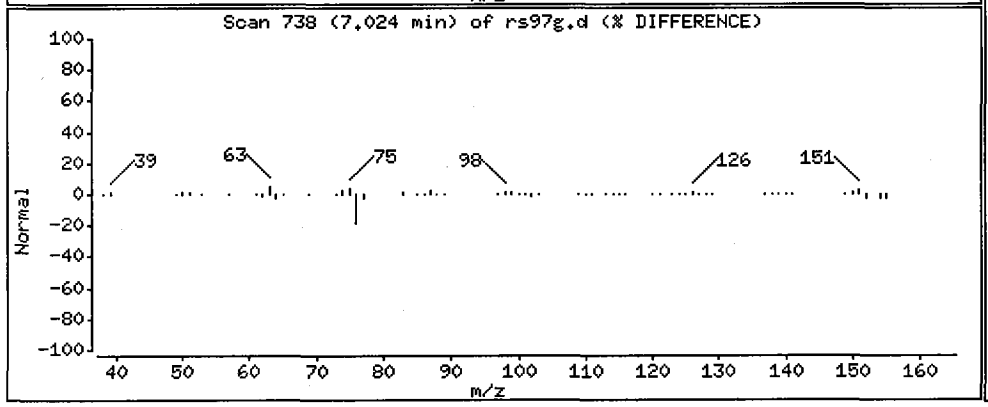
44 Acenaphthene

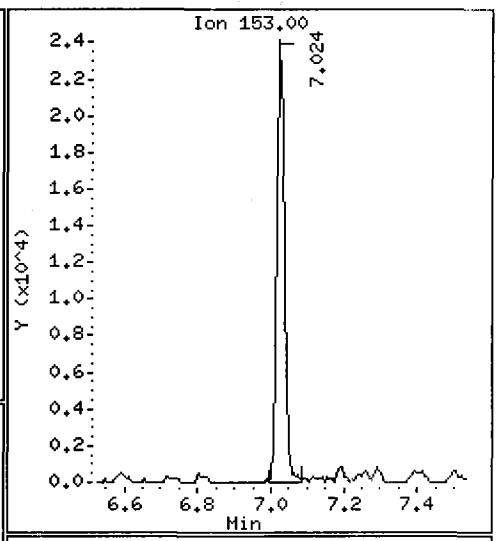
Concentration: 10200 ug/kg

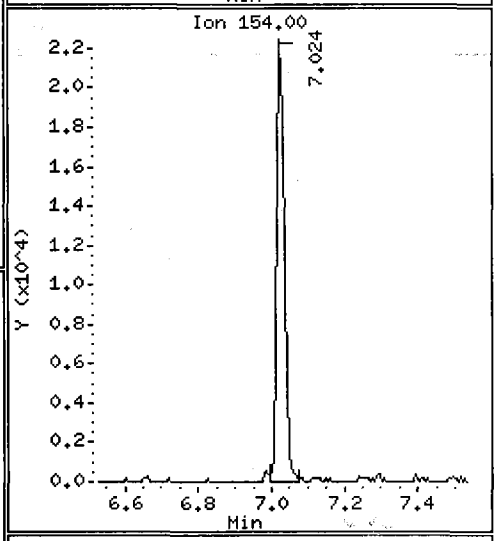


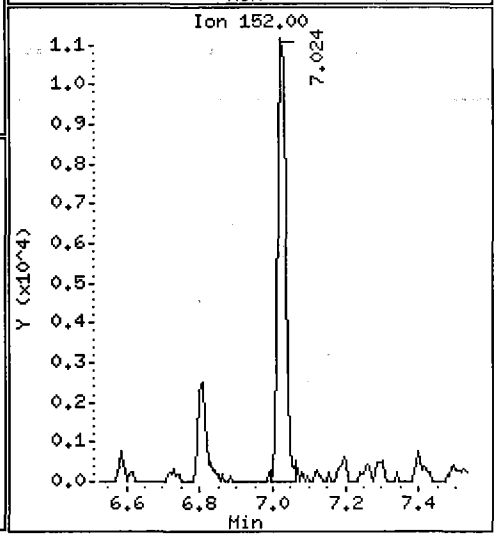












Data File: /chem1/nt12.i/20101110.b/rs97g.d

Date : 10-NOV-2010 14:40

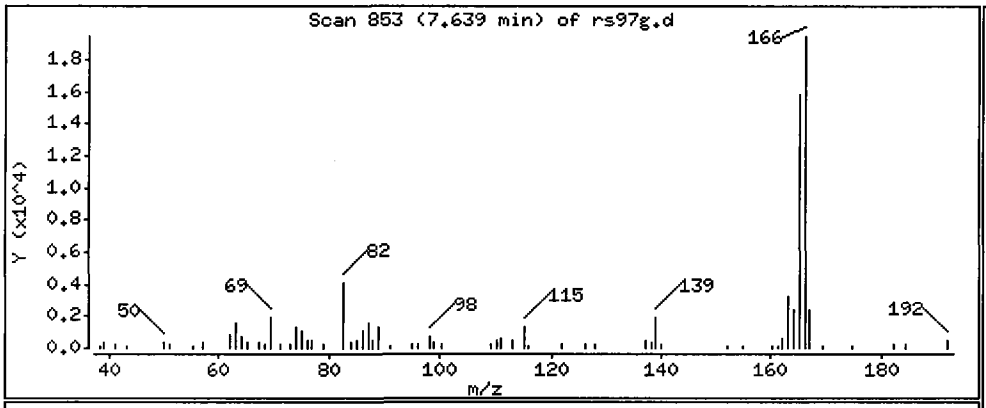
Client ID: DGS-36-066.7-101012 Instrument: nt12.i

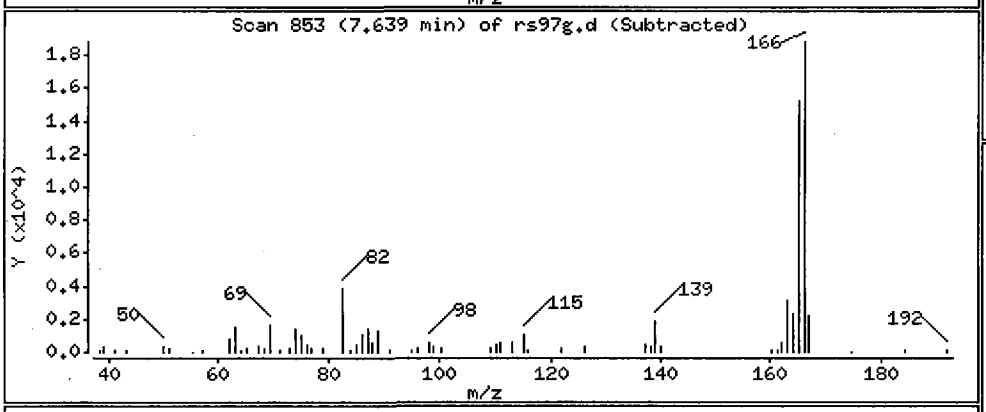
Sample Info: RS97G

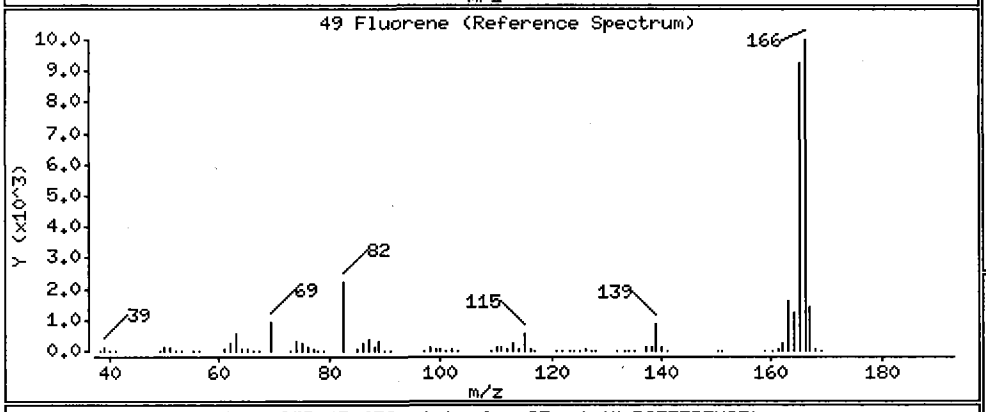
Volume Injected (uL): 1.0 Operator: VTS

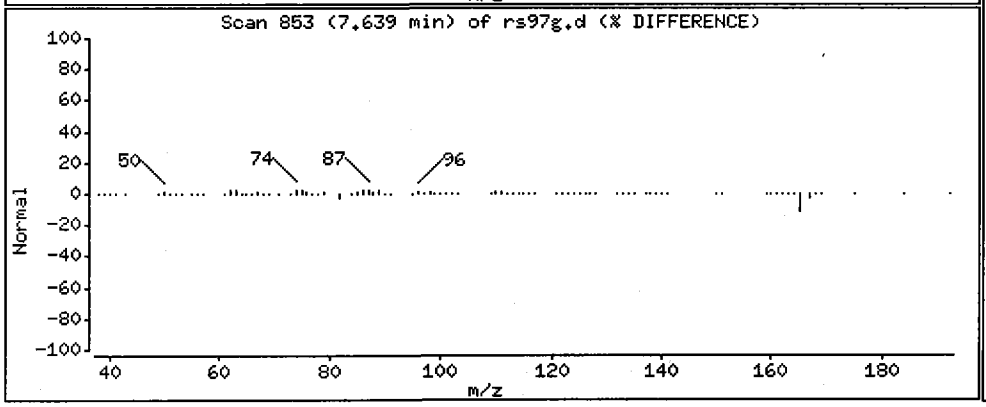
Column phase: ZB-5msi Column diameter: 0.32

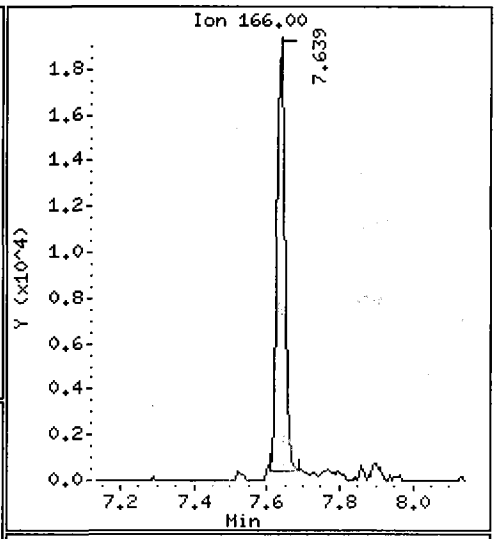
49 Fluorene Concentration: 7160 ug/kg

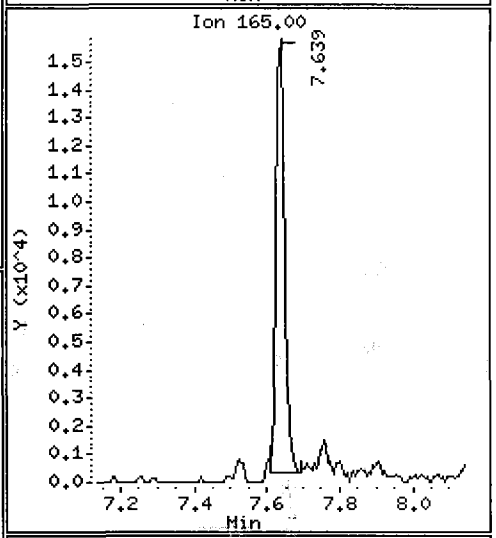


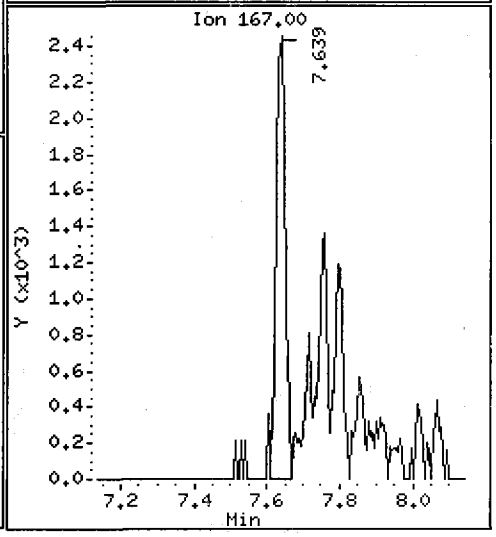












Data File: /chem1/nt12.i/20101110.b/rs97g.d

Date : 10-NOV-2010 14:40

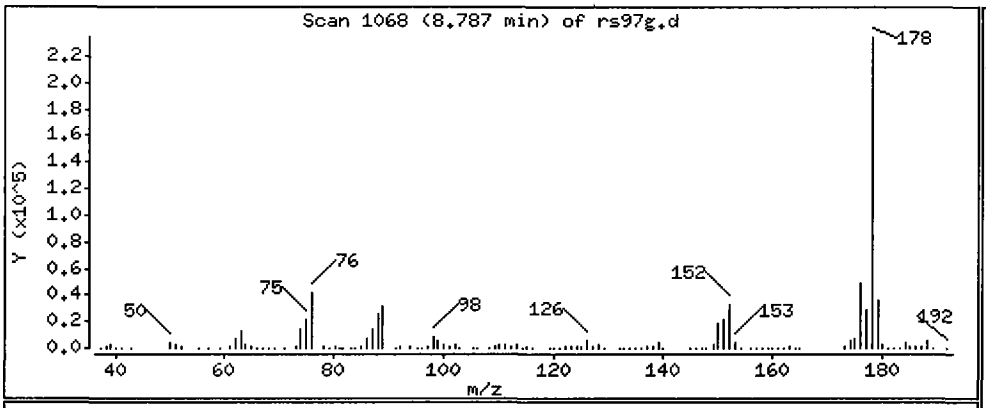
Client ID: DGS-36-066.7-101012 Instrument: nt12.i

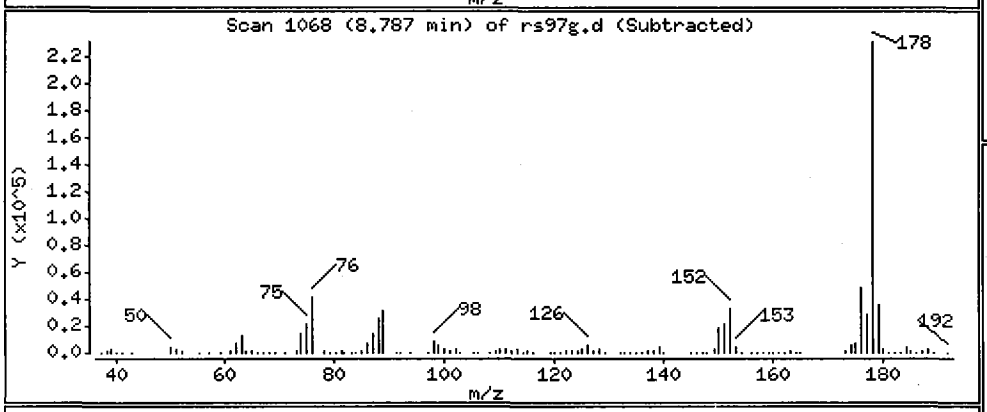
Sample Info: RS97G

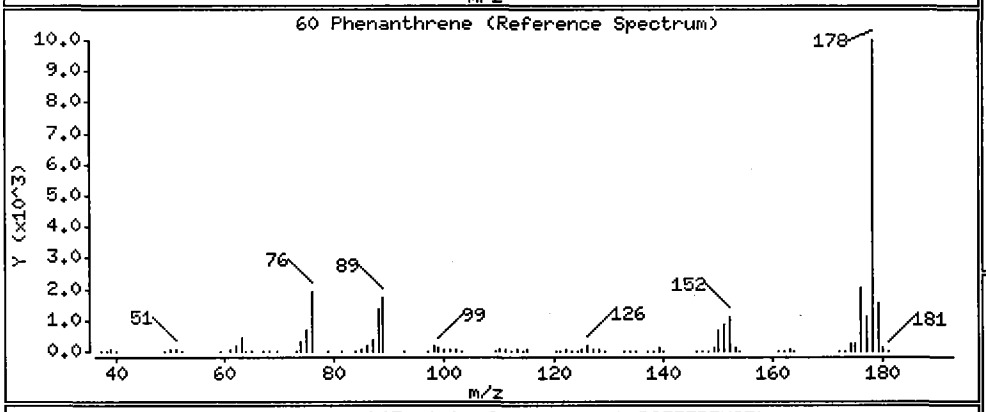
Volume Injected (uL): 1.0 Operator: VTS

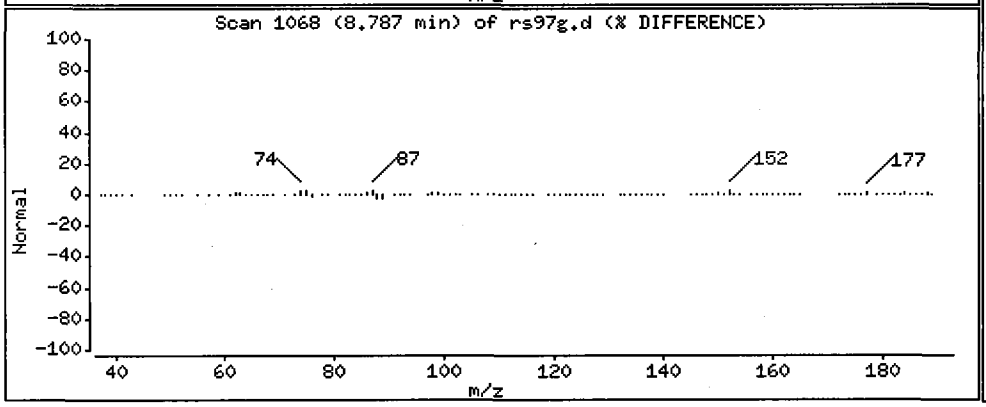
Column phase: ZB-5msi Column diameter: 0.32

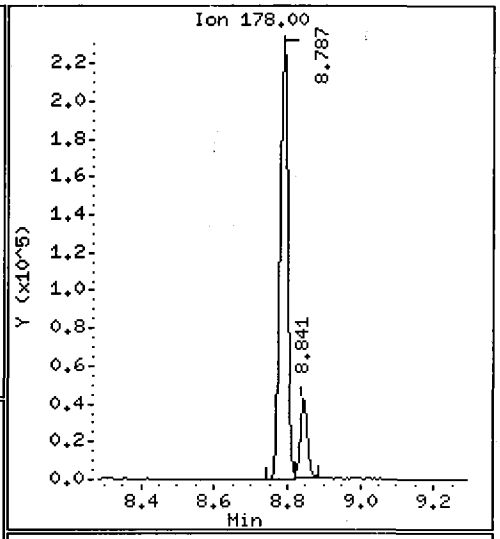
60 Phenanthrene Concentration: 68660 ug/kg

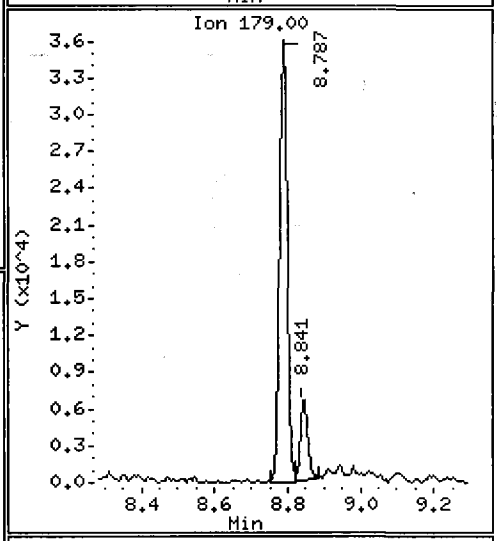


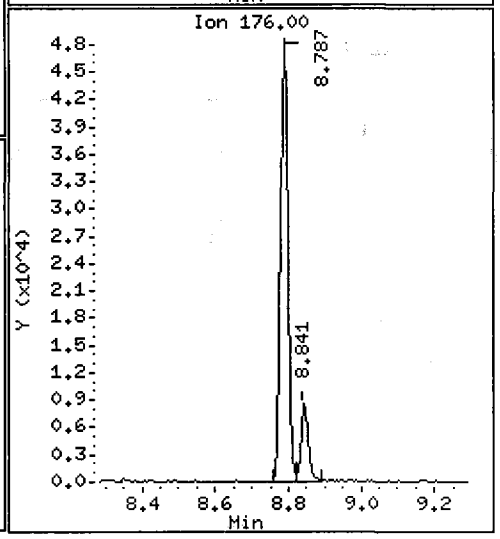












Data File: /chem1/nt12.i/20101110.b/rs97g.d

Date : 10-NOV-2010 14:40

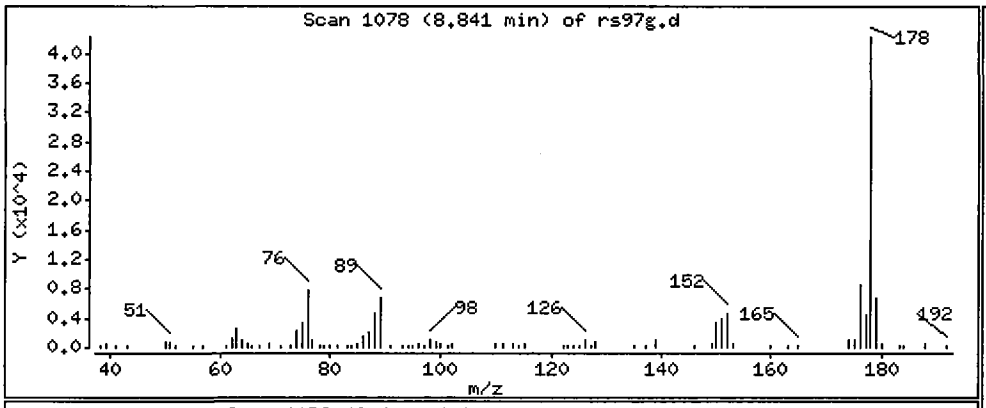
Client ID: DGS-36-066.7-101012 Instrument: nt12.i

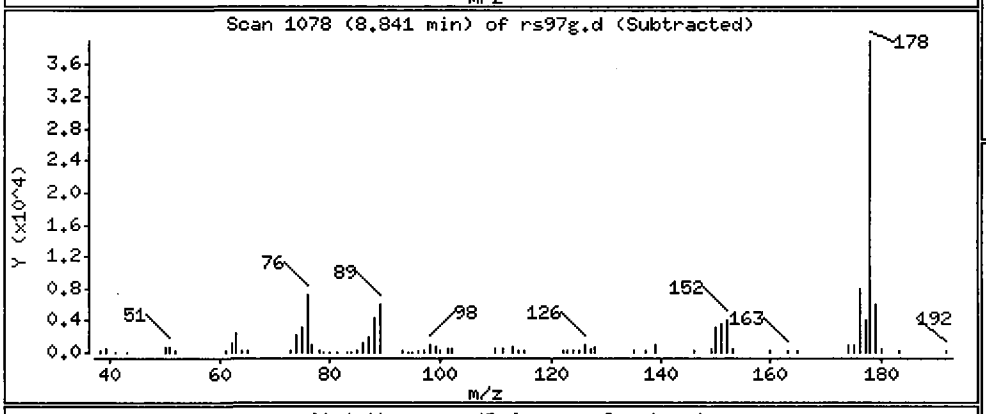
Sample Info: RS97G

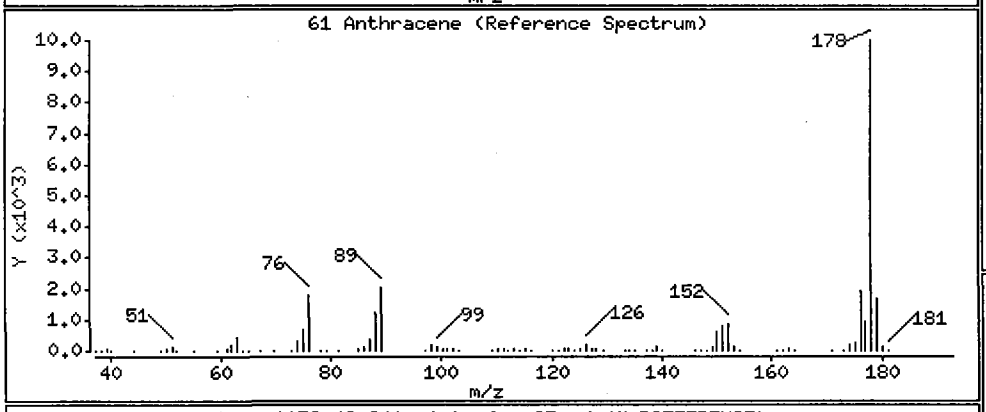
Volume Injected (uL): 1.0 Operator: VTS

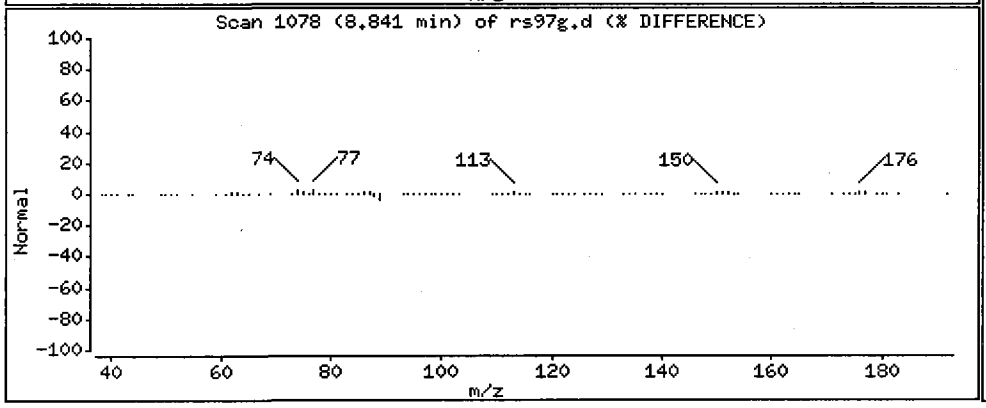
Column phase: ZB-5msi Column diameter: 0.32

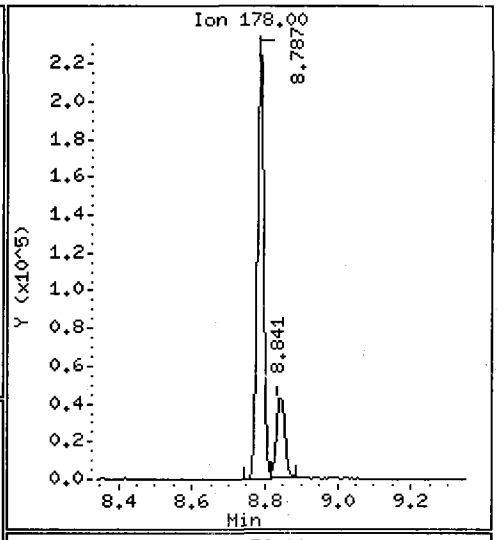
61 Anthracene Concentration: 13370 ug/kg

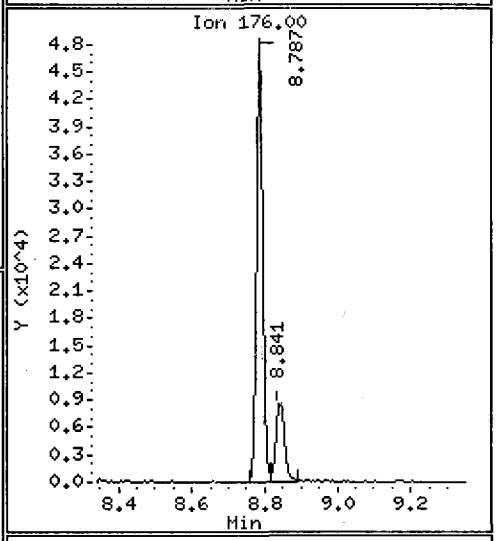


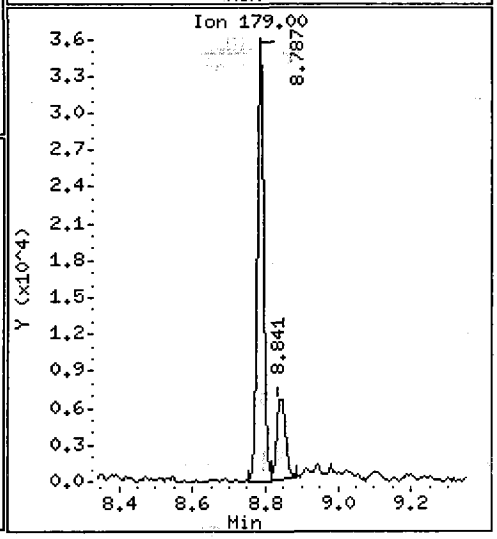












Data File: /chem1/nt12.i/20101110.b/rs97g.d

Date : 10-NOV-2010 14:40

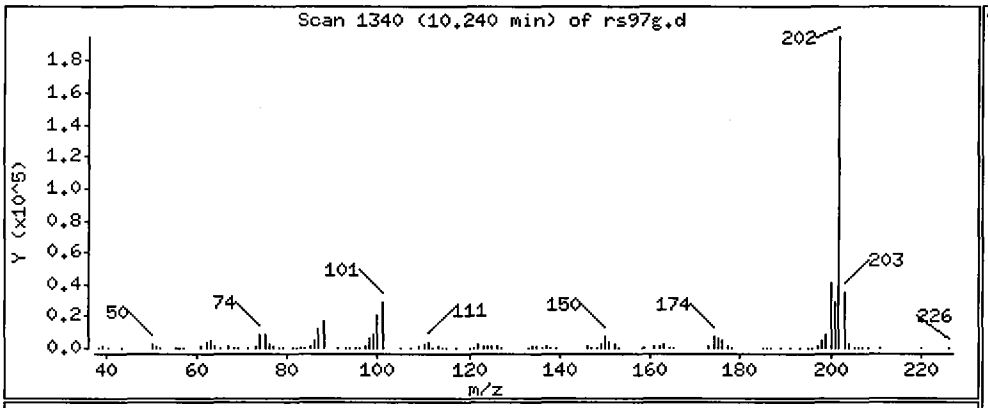
Client ID: DGS-36-066.7-101012 | Instrument: nt12.i

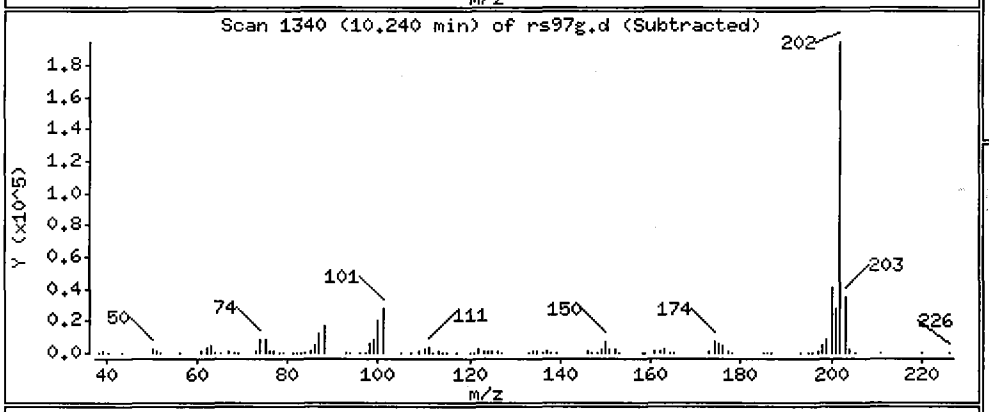
Sample Info: RS97G

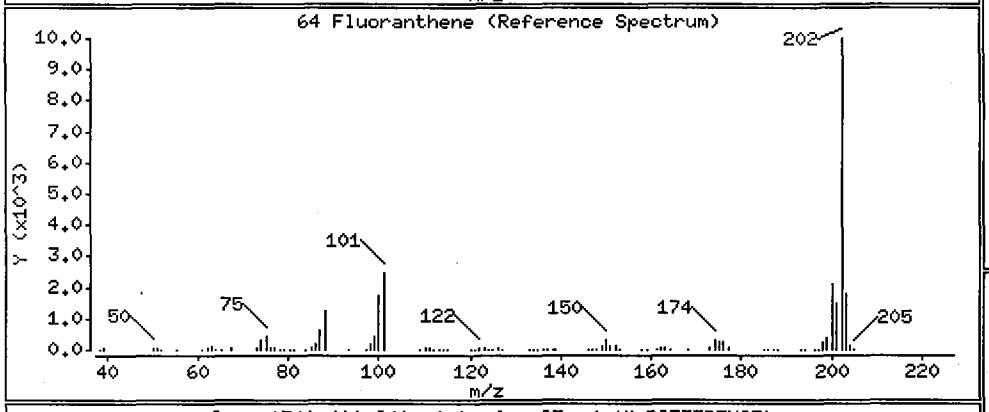
Volume Injected (uL): 1.0 | Operator: VTS

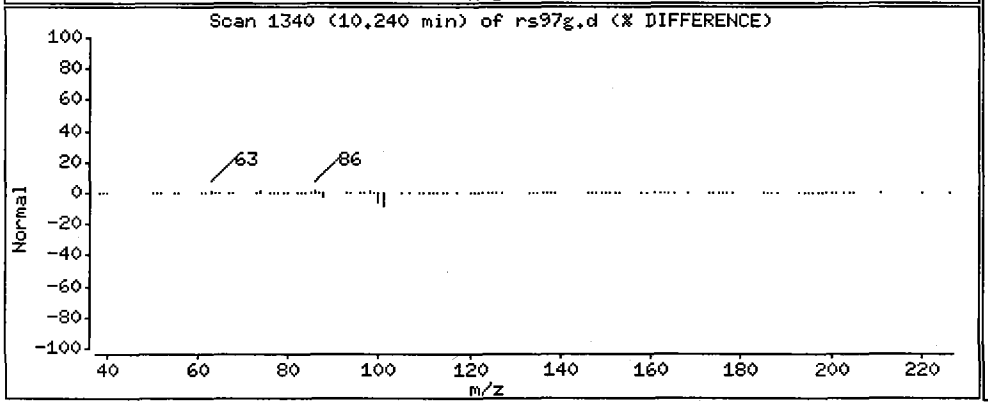
Column phase: ZB-5msi | Column diameter: 0.32

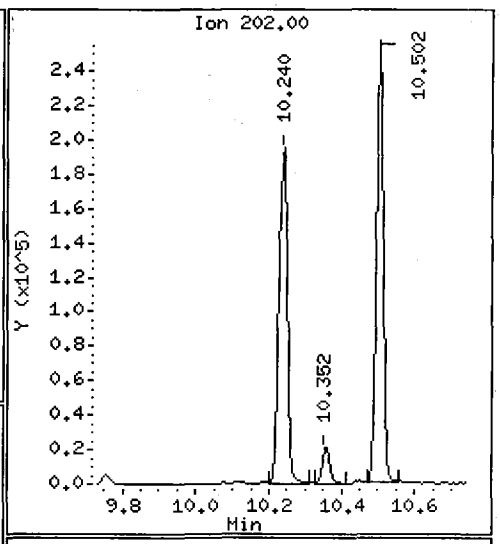
64 Fluoranthene | Concentration: 54210 ug/kg

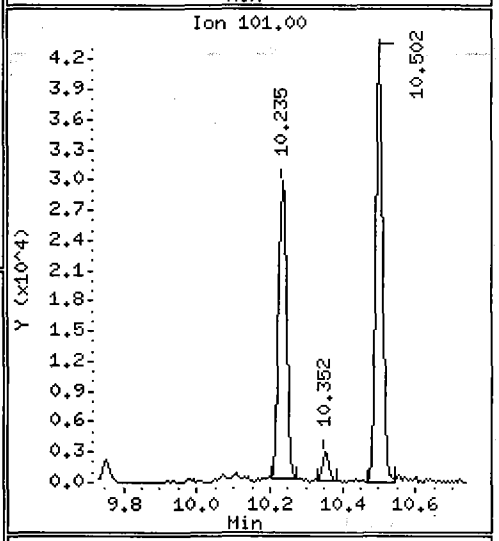


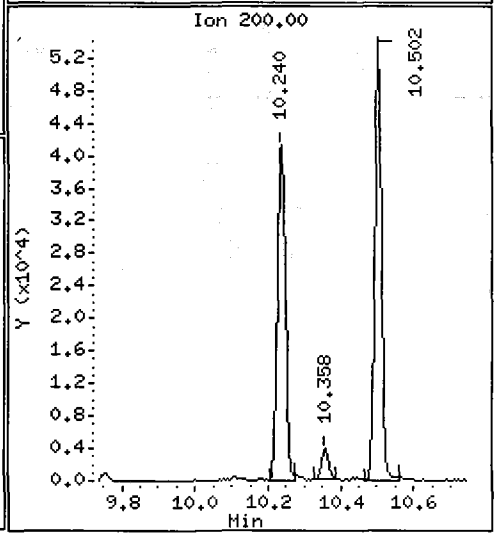












Data File: /chem1/nt12.i/20101110.b/rs97g.d

Date : 10-NOV-2010 14:40

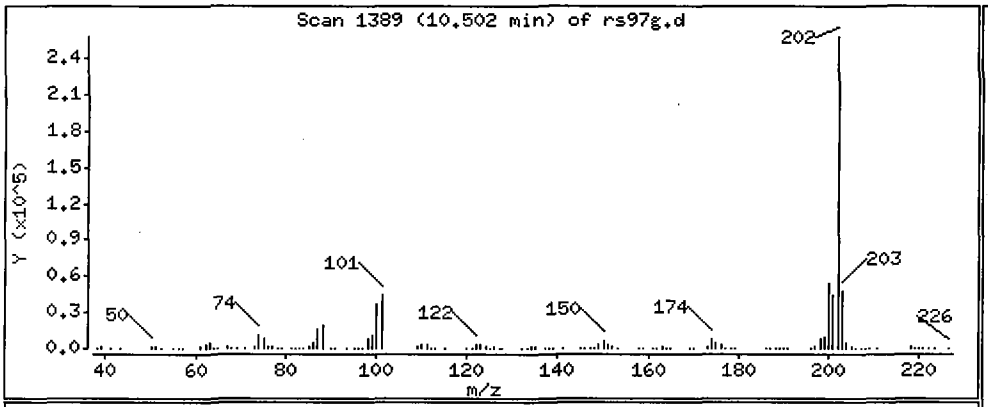
Client ID: DGS-36-066.7-101012 Instrument: nt12.i

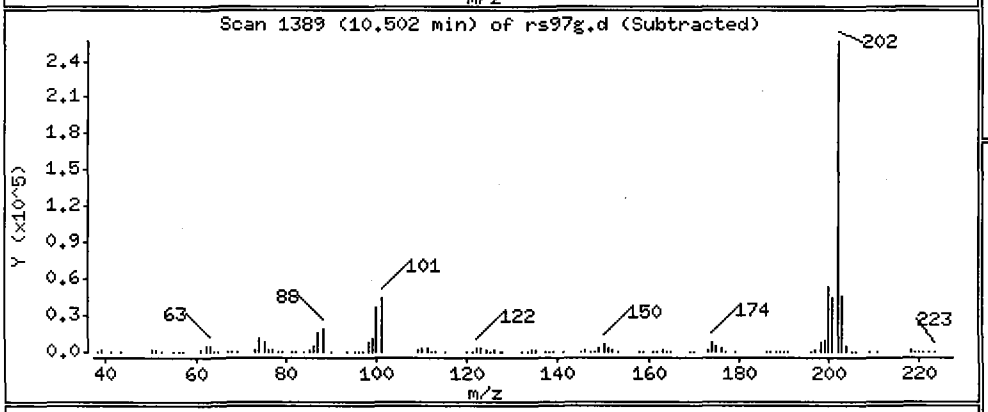
Sample Info: RS97G

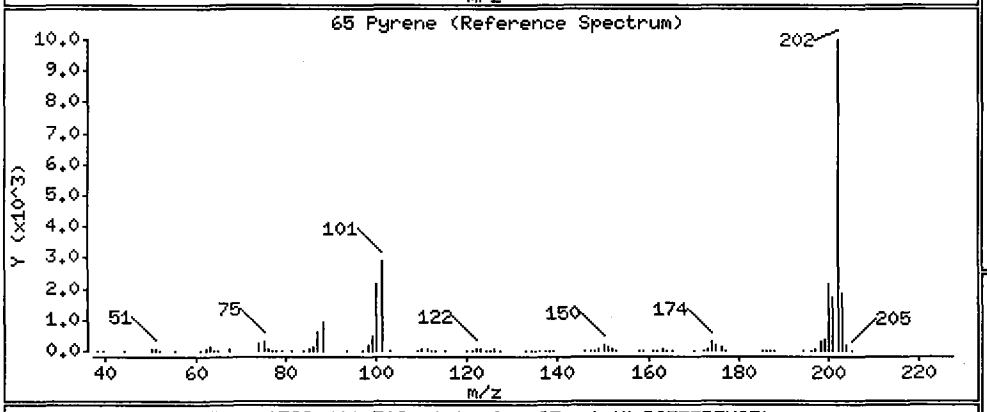
Volume Injected (uL): 1.0 Operator: VTS

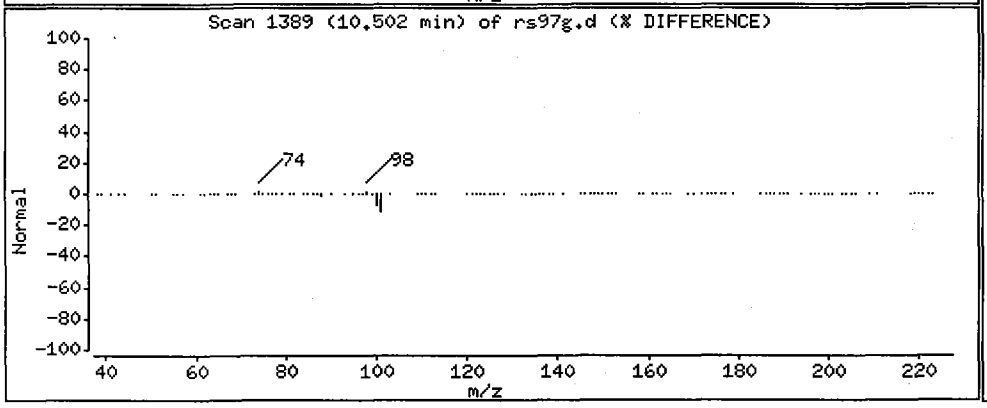
Column phase: ZB-5msi Column diameter: 0.32

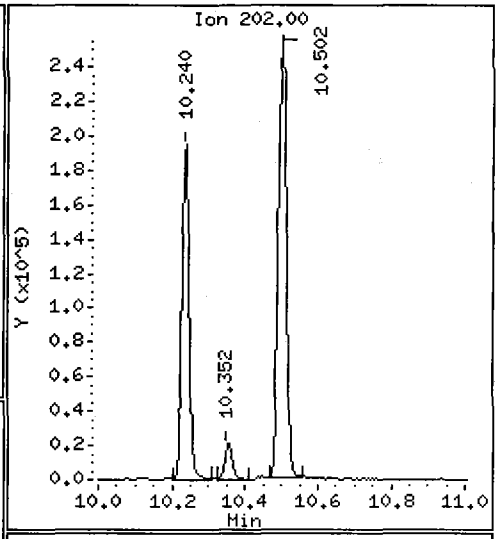
65 Pyrene Concentration: 68240 ug/kg

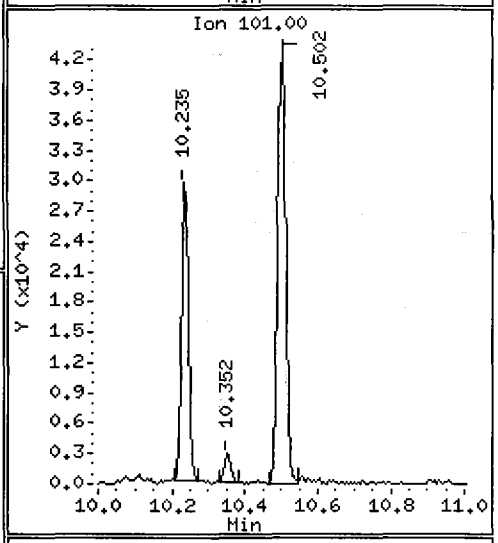


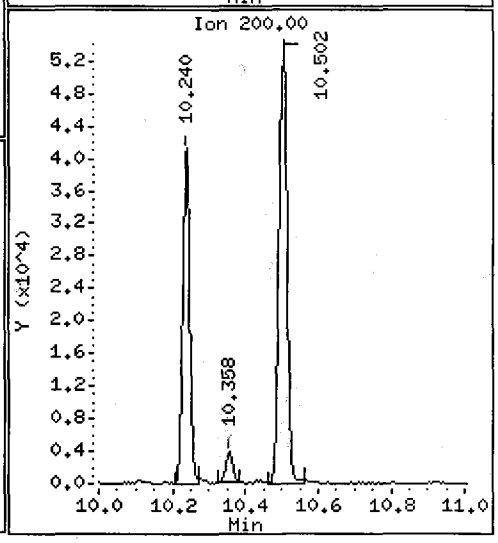












Data File: /chem1/nt12.i/20101110.b/rs97g.d

Date : 10-NOV-2010 14:40

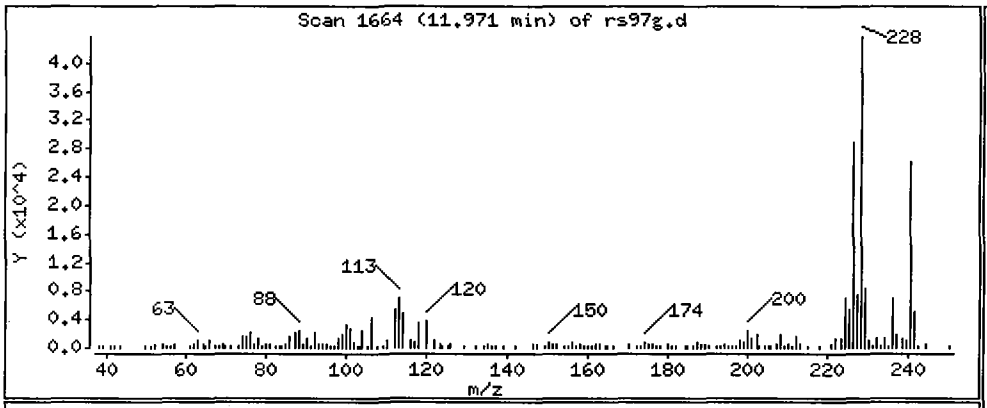
Client ID: DGS-36-066.7-101012 Instrument: nt12.i

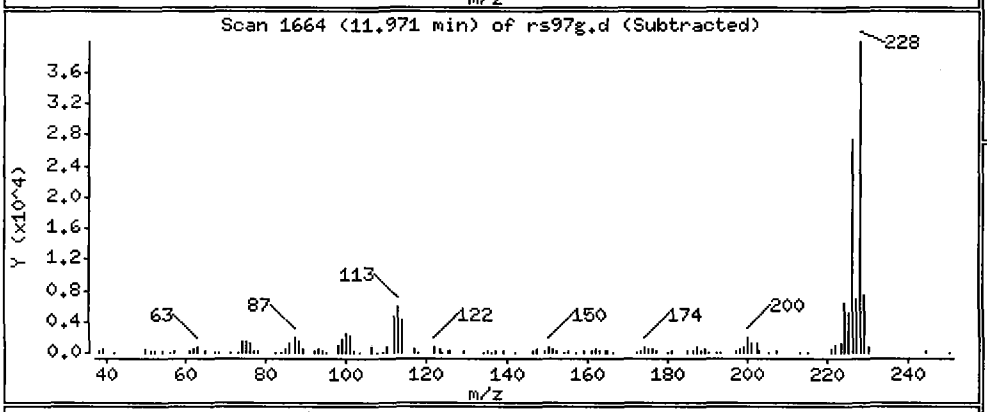
Sample Info: RS97G

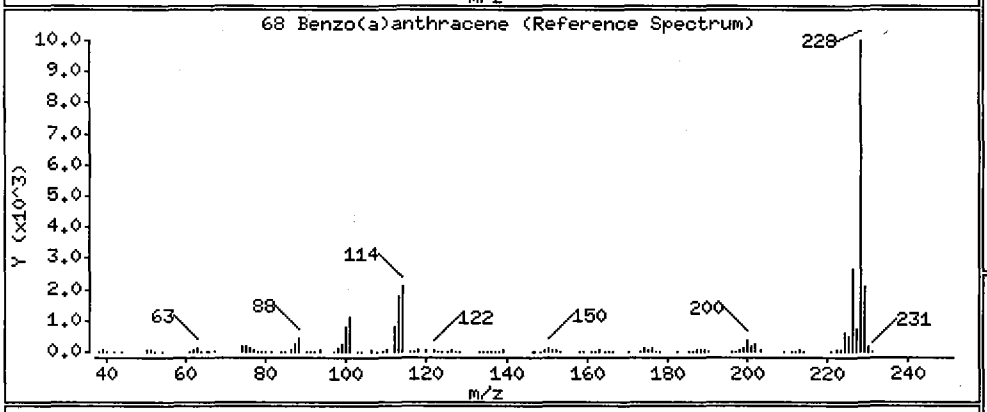
Volume Injected (uL): 1.0 Operator: VTS

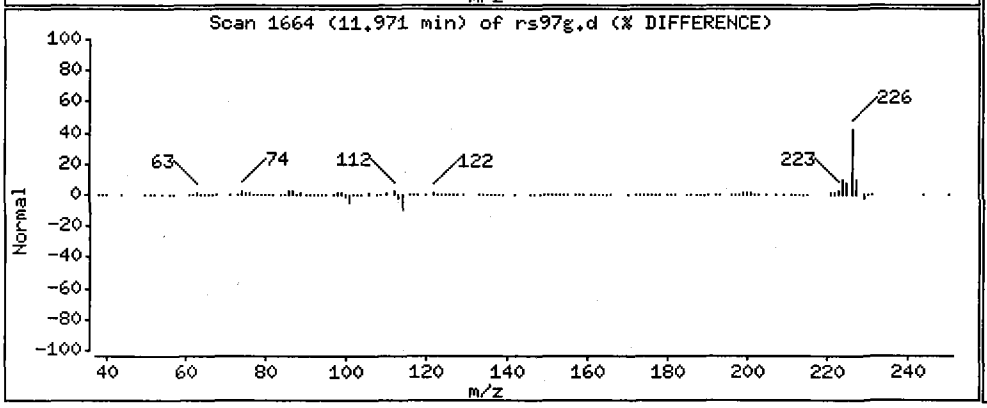
Column phase: ZB-5msi Column diameter: 0.32

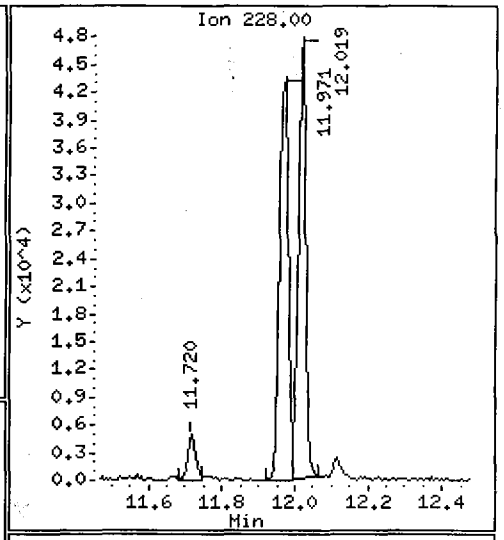
68 Benzo(a)anthracene Concentration: 15950 ug/kg

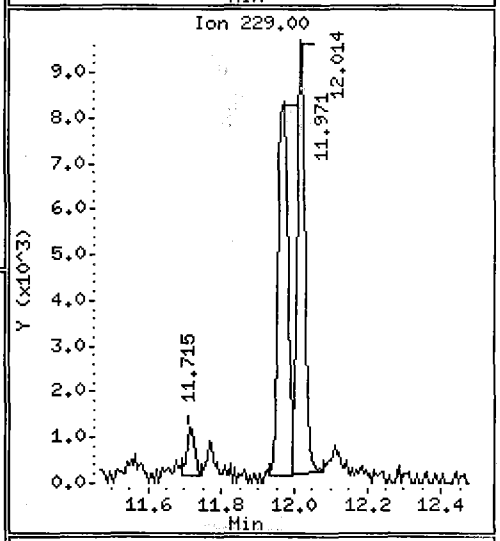


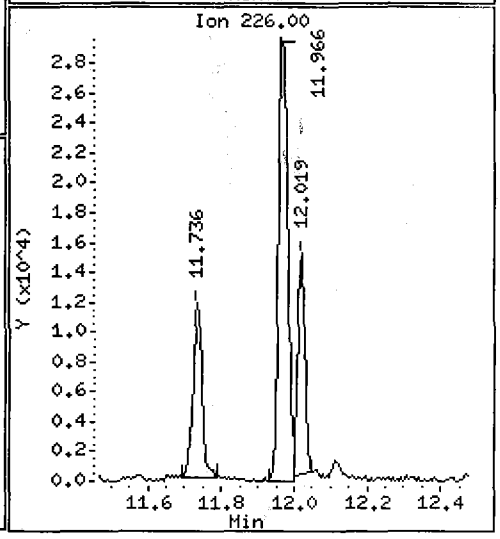












Data File: /chem1/nt12.i/20101110.b/rs97g.d

Date : 10-NOV-2010 14:40

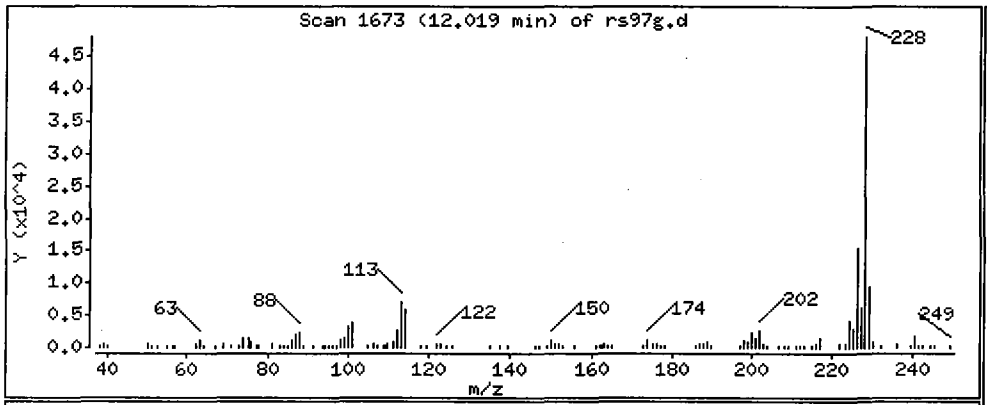
Client ID: DGS-36-066.7-101012 | Instrument: nt12.i

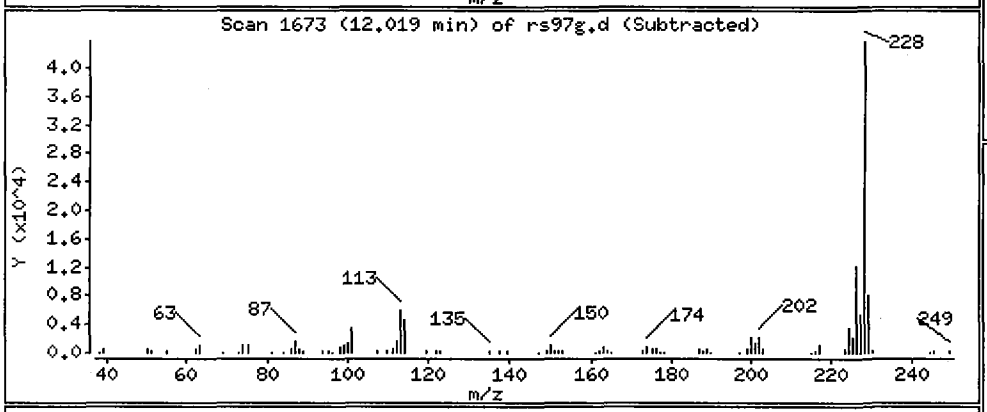
Sample Info: RS97G

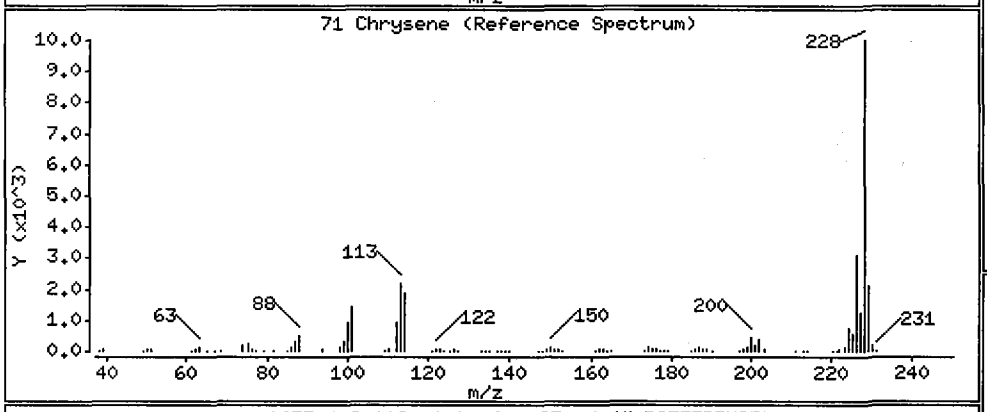
Volume Injected (uL): 1.0 | Operator: VTS

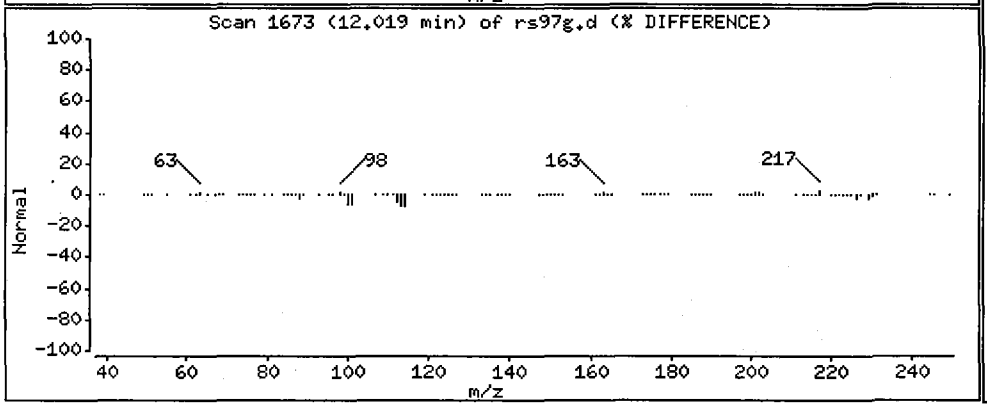
Column phase: ZB-5msi | Column diameter: 0.32

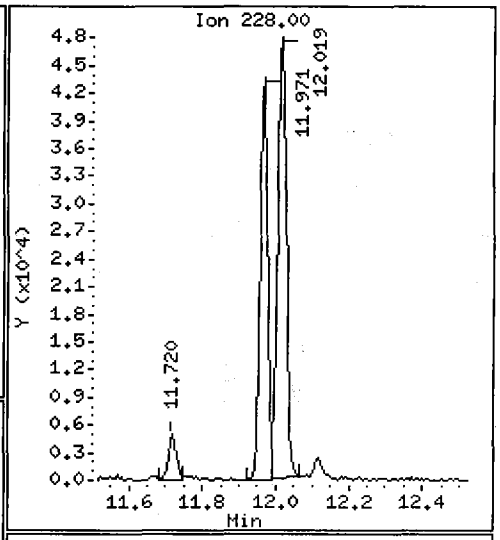
71 Chrysene | Concentration: 18550 ug/kg

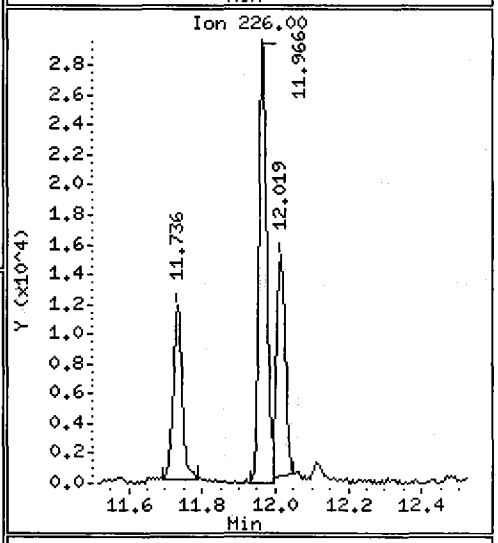


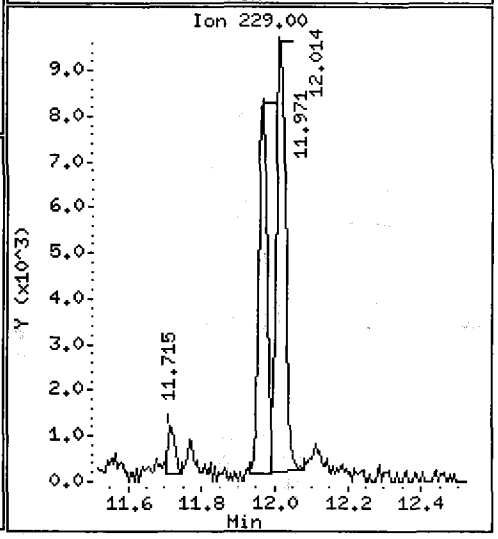












Data File: /chem1/nt12.i/20101110.b/rs97g.d

Date : 10-NOV-2010 14:40

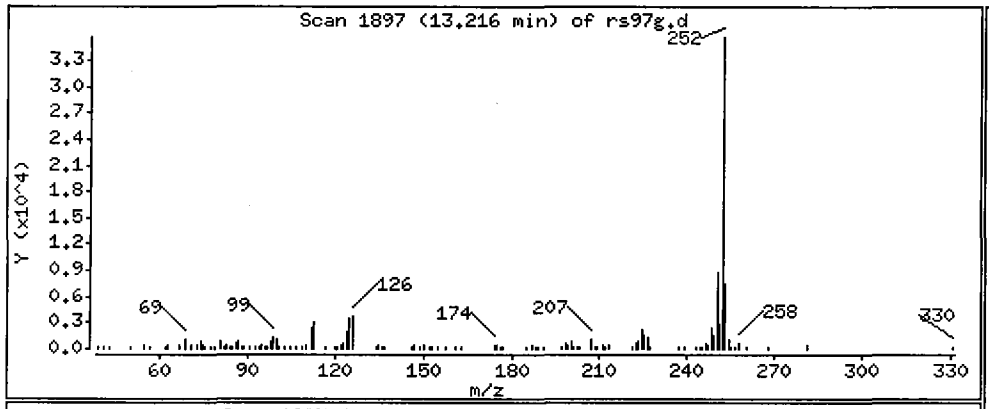
Client ID: DGS-36-066.7-101012 Instrument: nt12.i

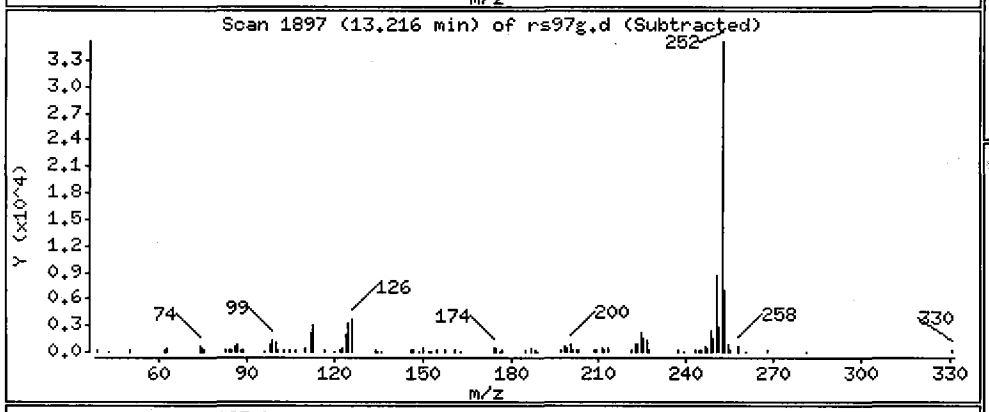
Sample Info: RS97G

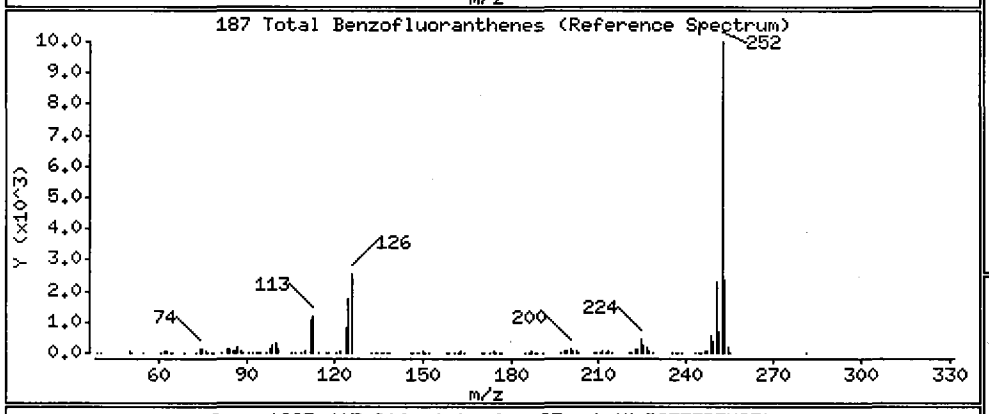
Volume Injected (uL): 1.0 Operator: VTS

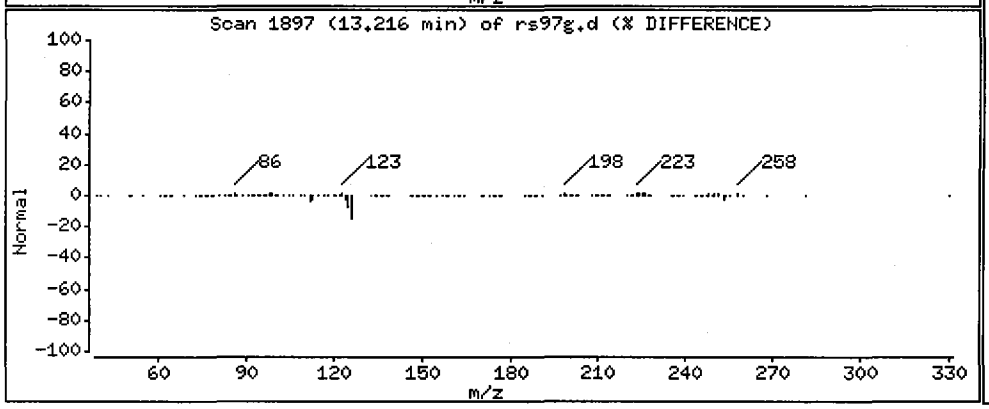
Column phase: ZB-5msi Column diameter: 0.32

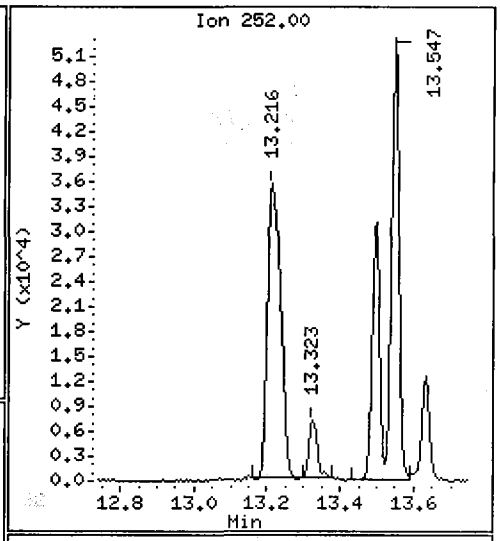
187 Total Benzofluoranthenes Concentration: 26830 ug/kg

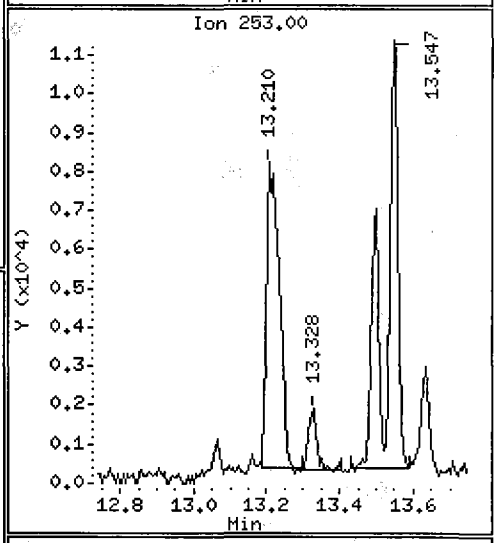


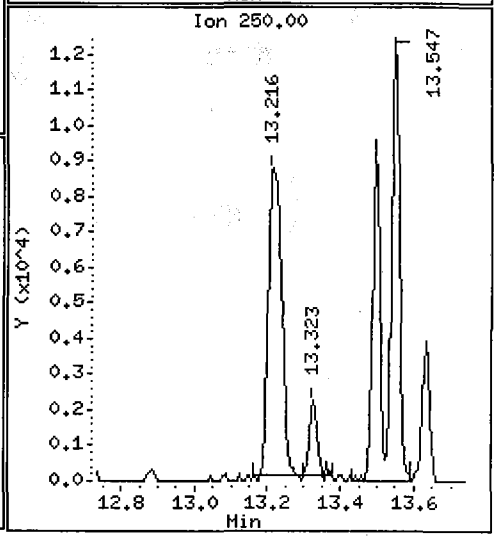












Data File: /chem1/nt12.i/20101110.b/rs97g.d

Date : 10-NOV-2010 14:40

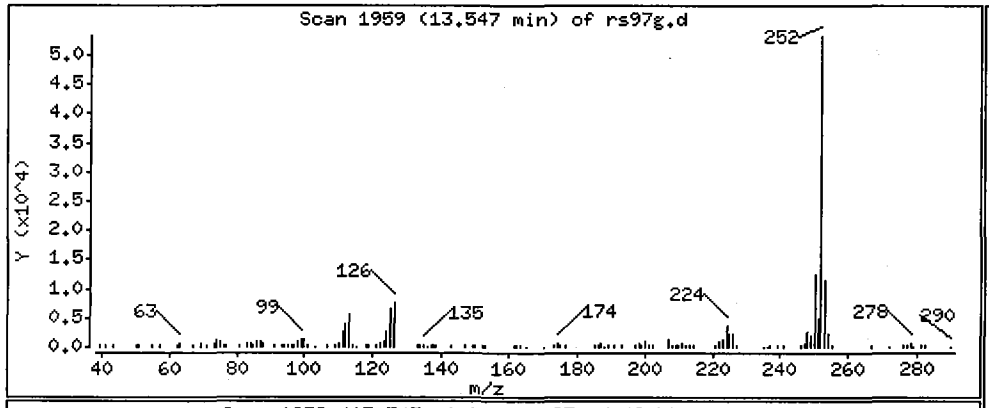
Client ID: DGS-36-066.7-101012 Instrument: nt12.i

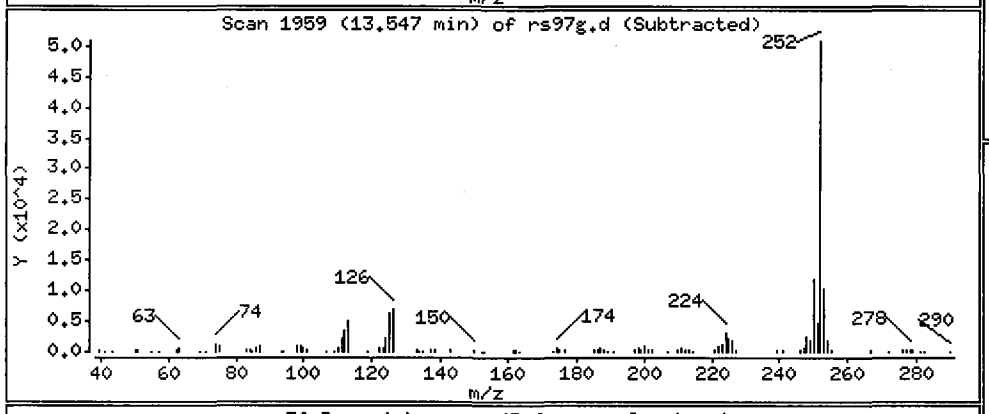
Sample Info: RS97G

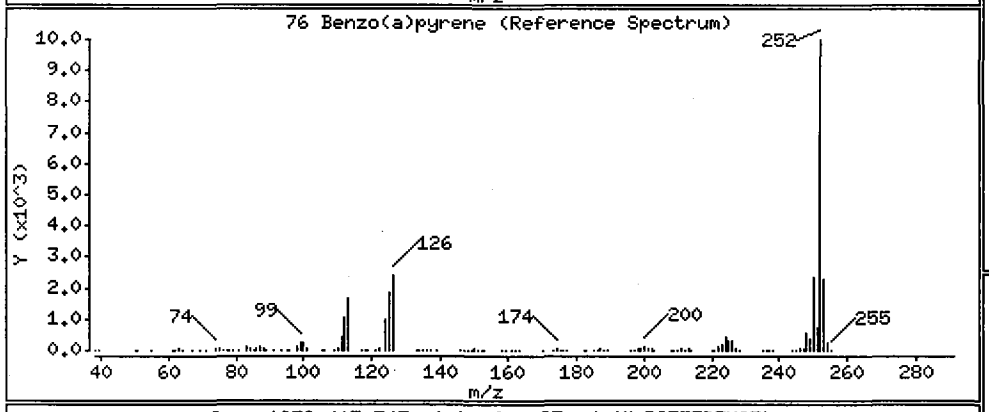
Volume Injected (uL): 1.0 Operator: VTS

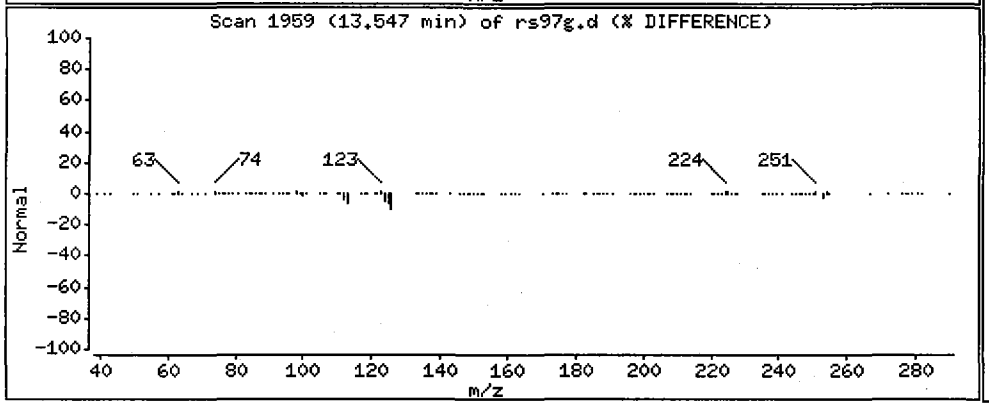
Column phase: ZB-5msi Column diameter: 0.32

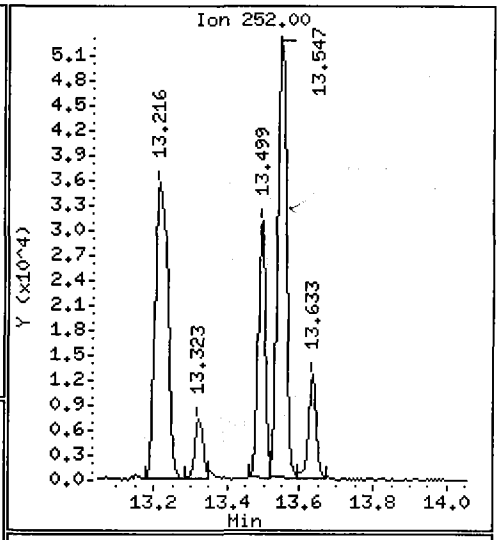
76 Benzo(a)pyrene Concentration: 25770 ug/kg

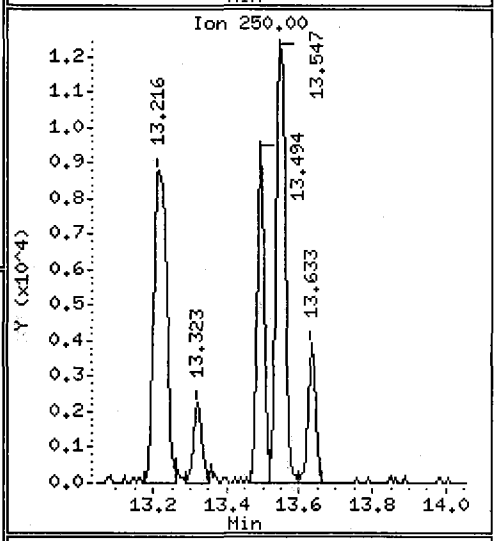


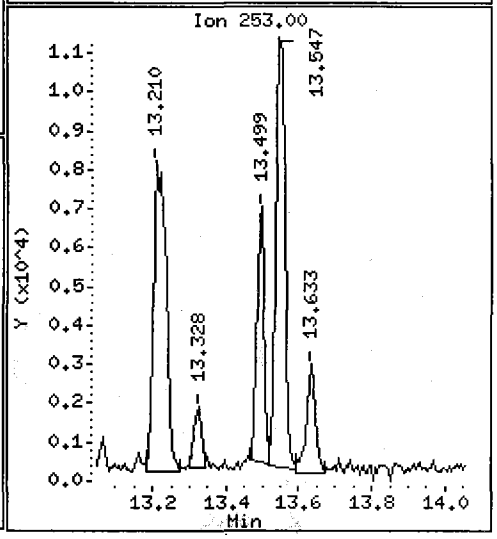












Data File: /chem1/nt12.i/20101110.b/rs97g.d

Date : 10-NOV-2010 14:40

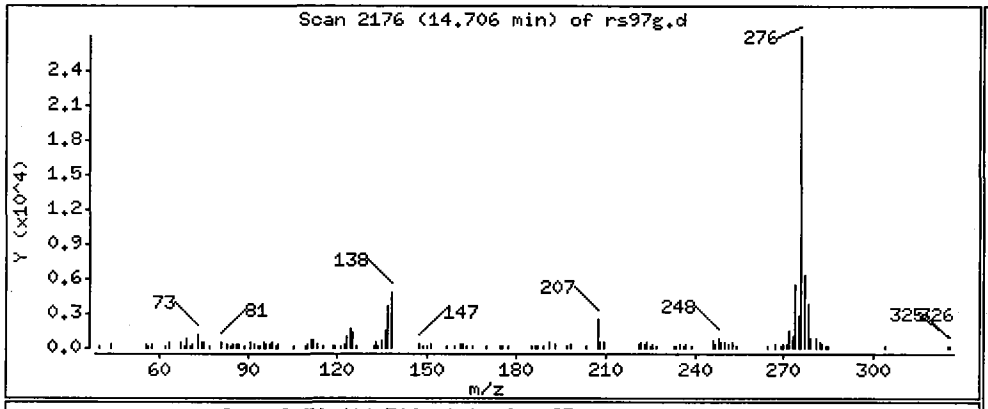
Client ID: DGS-36-066.7-101012 Instrument: nt12.i

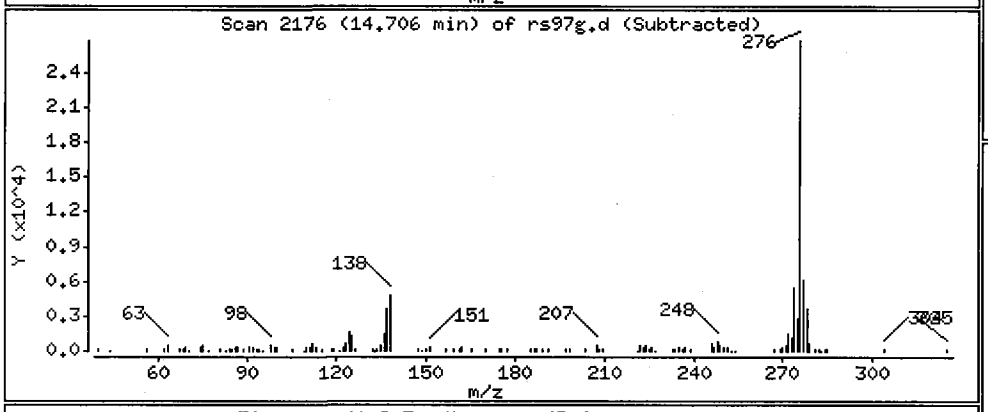
Sample Info: RS97G

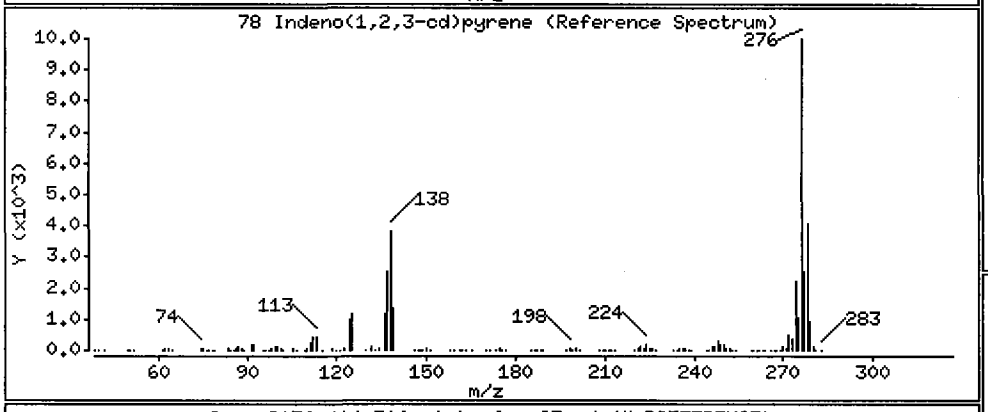
Volume Injected (uL): 1.0 Operator: VTS

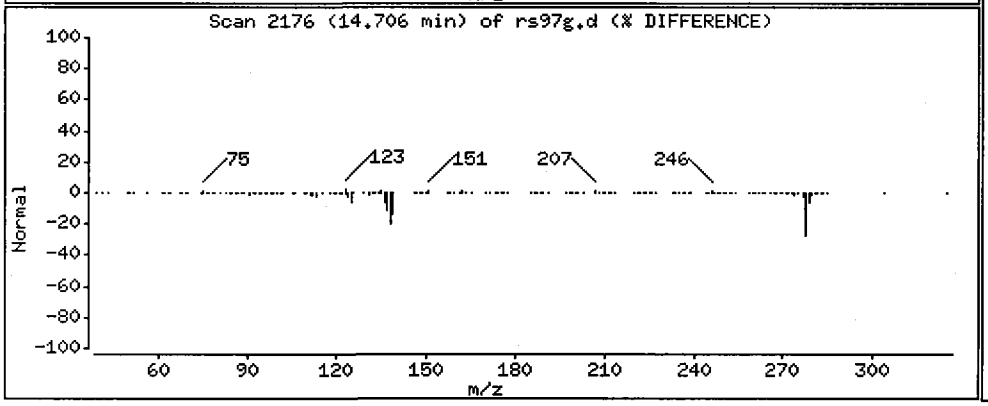
Column phase: ZB-5msi Column diameter: 0.32

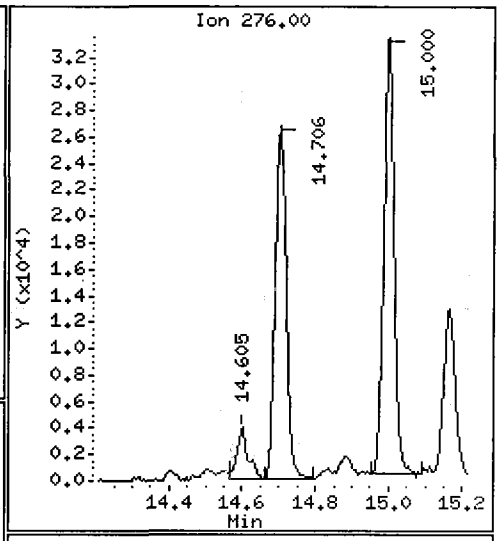
78 Indeno(1,2,3-cd)pyrene Concentration: 11560 ug/kg

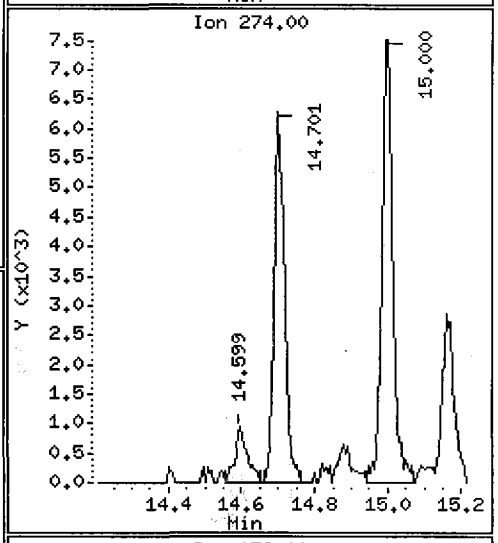


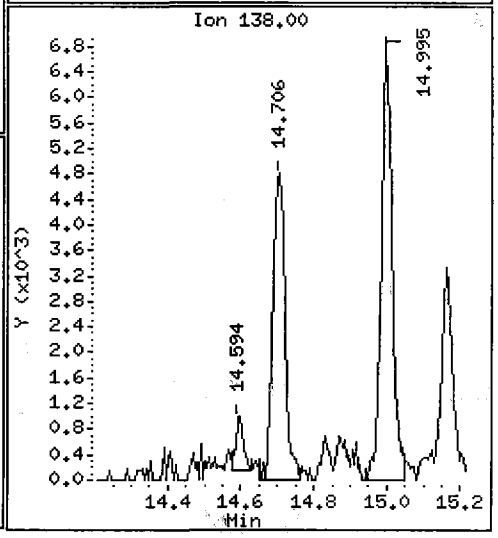












Data File: /chem1/nt12.i/20101110.b/rs97g.d

Date : 10-NOV-2010 14:40

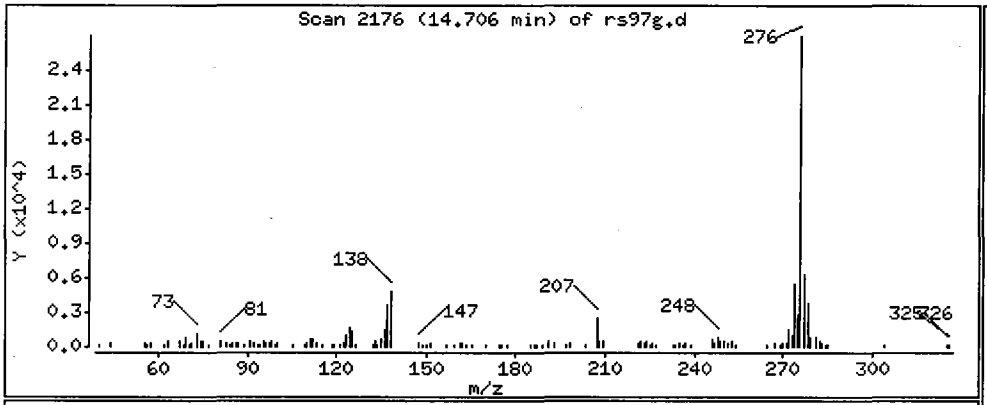
Client ID: DGS-36-066.7-101012 Instrument: nt12.i

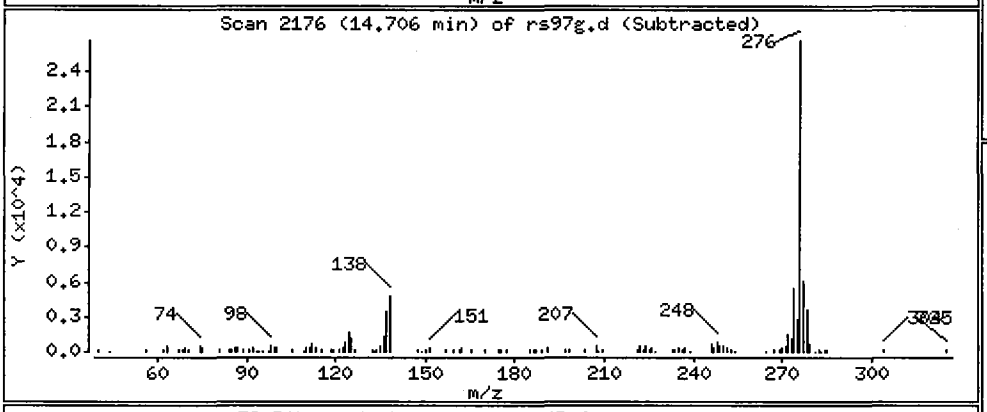
Sample Info: RS97G

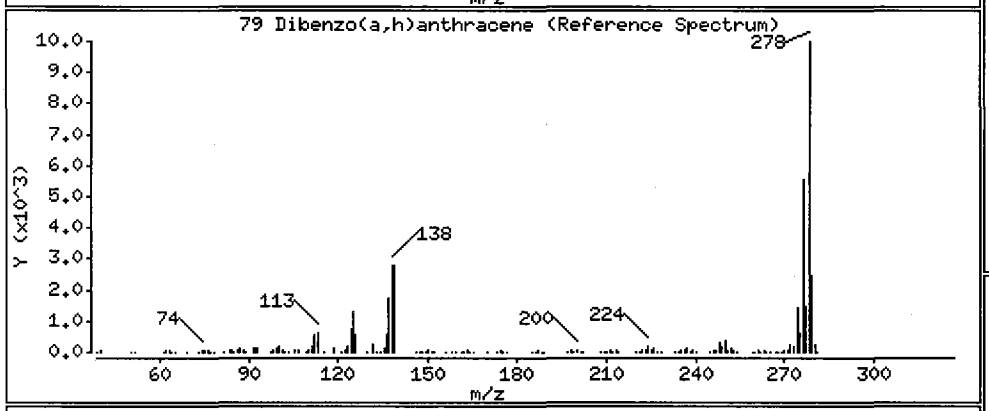
Volume Injected (uL): 1.0 Operator: VTS

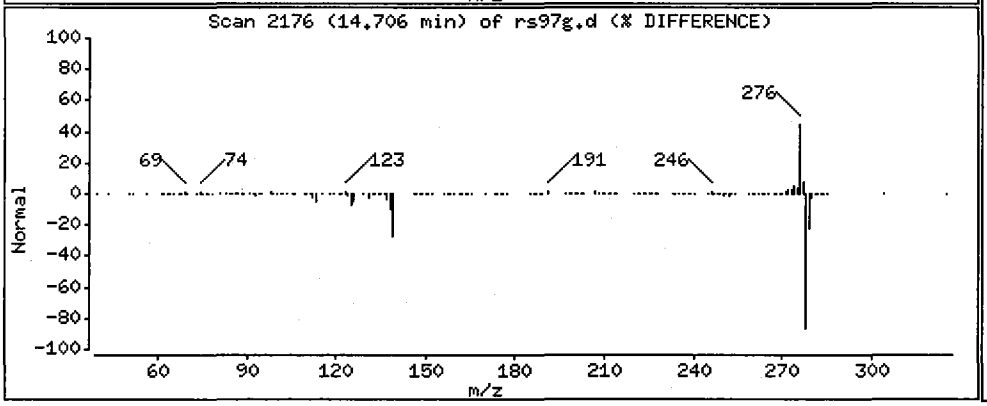
Column phase: ZB-5msi Column diameter: 0.32

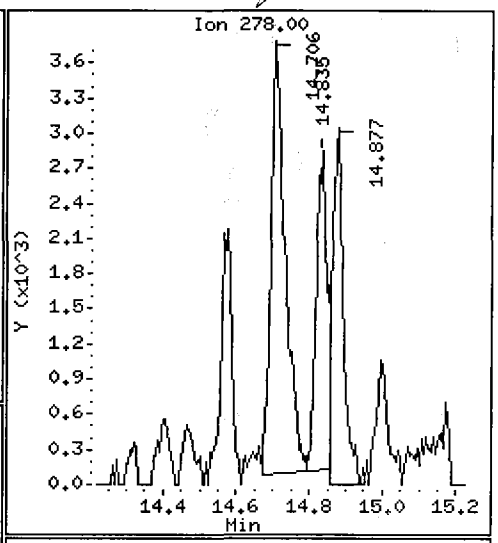
79 Dibenzo(a,h)anthracene Concentration: 2677 ug/kg

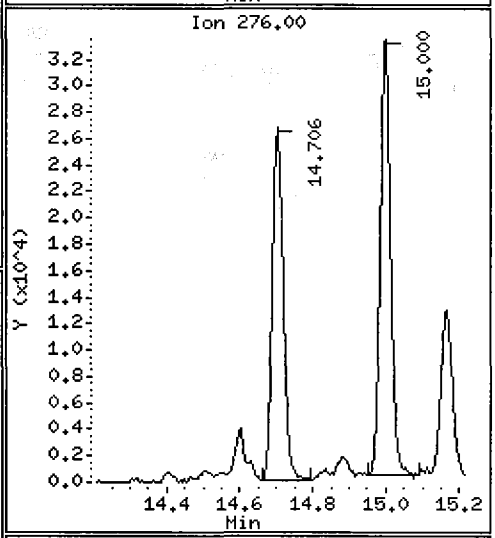


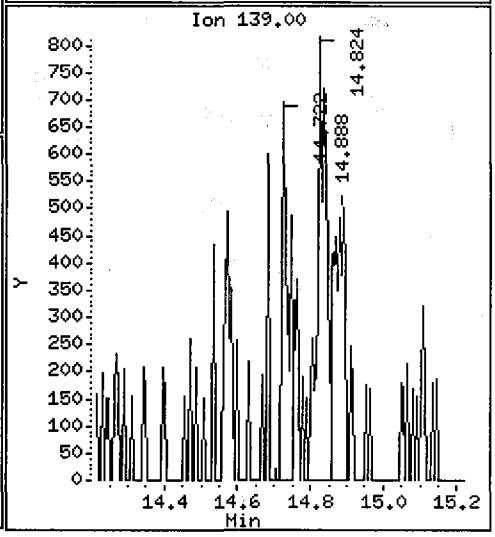












Data File: /chem1/nt12.i/20101110.b/rs97g.d

Date : 10-NOV-2010 14:40

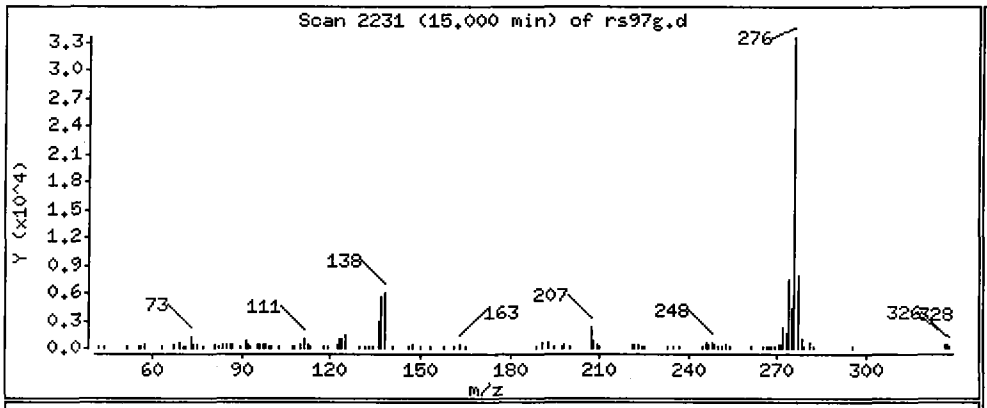
Client ID: DGS-36-066.7-101012 Instrument: nt12.i

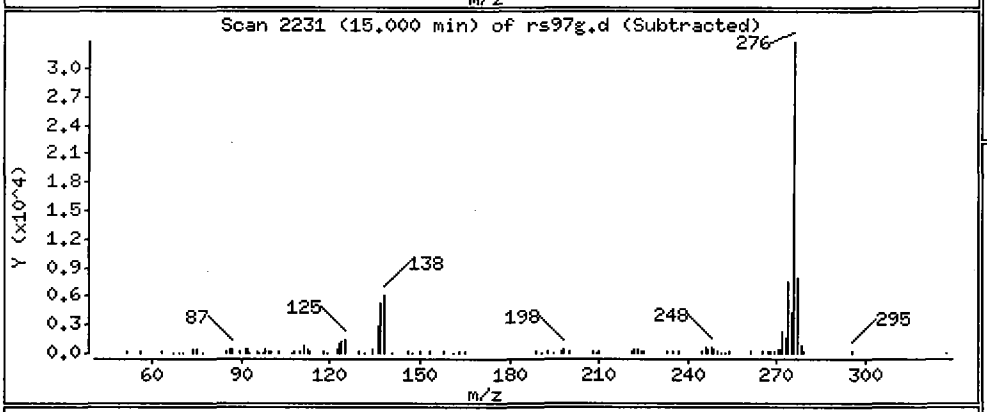
Sample Info: RS97G

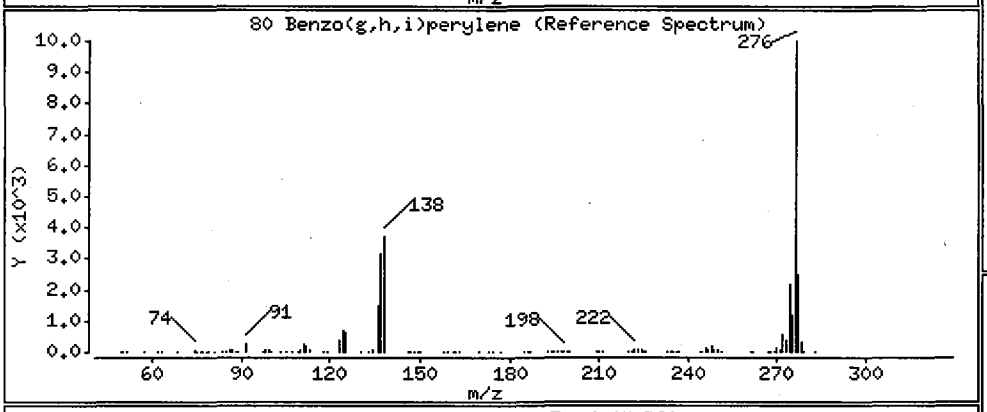
Volume Injected (uL): 1.0 Operator: VTS

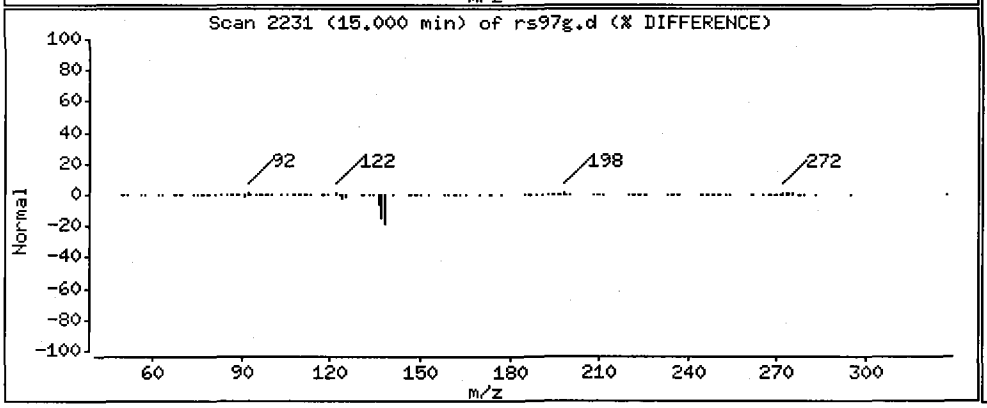
Column phase: ZB-5msi Column diameter: 0.32

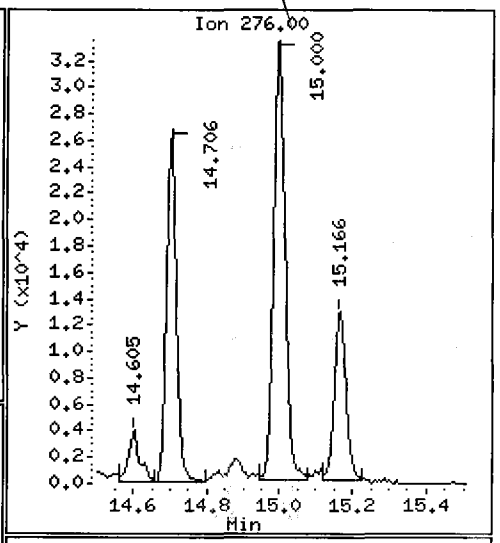
80 Benzo(g,h,i)perylene Concentration: 18750 ug/kg

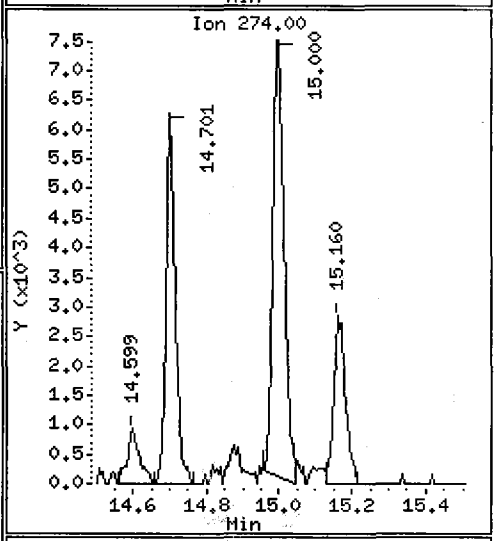


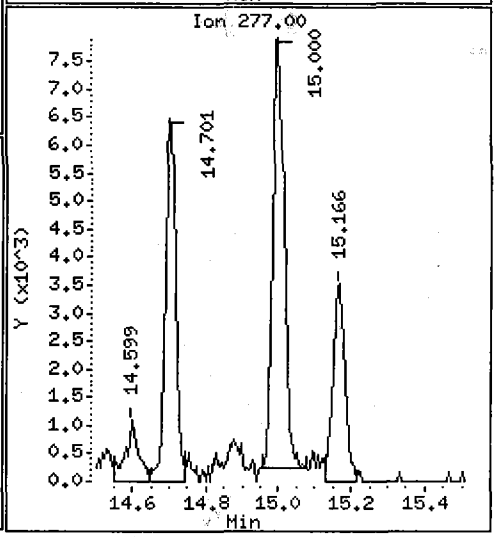












Analytical Resources, Inc.

Semivolatile Report SW846 Method 8270D

Data file : /chem1/nt12.i/20101110.b/rs97i.d
Lab Smp Id: RS97I
Client Smp ID: DGS-07-2.22.7-10101
Inj Date : 10-NOV-2010 16:24
Operator : VTS
Inst ID: nt12.i
Smp Info : RS97I
Misc Info : 10-27425
Comment : 1ul Injection
Method : /chem1/nt12.i/20101110.b/PNADMD.m
Meth Date : 10-Nov-2010 14:46 van
Quant Type: ISTD
Cal Date : 30-OCT-2010 13:19
Cal File: ic1030f.d
Als bottle: 9
Dil Factor: 1.00000
Integrator: HP RTE
Compound Sublist: pnas.sub
Target Version: 3.50
Processing Host: cserv3

Concentration Formula: Amt * DF * Vt/(Ws * (100 - M)/100) * CpndVariable

Name	Value	Description
DF	1.00000	Dilution Factor
Vt	10000.00000	Volume of final extract (uL)
Ws	5.30000	Weight of sample extracted (g)
M	52.30000	% Moisture

Cpnd Variable Local Compound Variable

Compounds	QUANT SIG MASS	RT	EXP RT	REL RT	RESPONSE	CONCENTRATIONS ON-COLUMN (ug/mL)	FINAL (ug/kg)
* 27 Naphthalene-d8	136	4.887	4.888	(1.000)	223061	20.0000	
28 Naphthalene	128	4.909	4.909	(1.004)	21723	1.71109	6768
32 2-Methylnaphthalene	141	5.726	5.726	(1.172)	53292	7.86454	31110
105 1-methylnaphthalene	141	5.854	5.854	(1.198)	28201	4.03625	15970
$ 36 2-Fluorobiphenyl	172	6.207	6.202	(0.888)	16949	1.59529	6310
40 Acenaphthylene	152	Compound Not Detected.					
* 42 Acenaphthene-d10	164	6.992	6.992	(1.000)	138099	20.0000	
44 Acenaphthene	153	7.030	7.030	(1.005)	26419	3.11066	12300
46 Dibenzofuran	168	7.227	7.222	(1.034)	6823	0.52389	2072
49 Fluorene	166	7.639	7.639	(1.092)	35345	3.63474	14380
* 59 Phenanthrene-d10	188	8.766	8.761	(1.000)	236287	20.0000	
60 Phenanthrene	178	8.793	8.787	(1.003)	443346	35.3680	139900
61 Anthracene	178	8.846	8.846	(1.009)	79168	6.11079	24170
62 Carbazole	167	9.065	9.065	(1.034)	13571	~~1.298~~50	5136

NR

Compounds	QUANT SIG MASS	RT	EXP RT	REL RT	RESPONSE	CONCENTRATIONS ON-COLUMN (ug/mL)	FINAL (ug/kg)
64 Fluoranthene	202	10.246	10.235	(0.854)	293441	18.6015	73580
65 Pyrene	202	10.507	10.502	(0.876)	501112	32.0198	126700
$ 66 Terphenyl-d14	244	10.742	10.737	(0.896)	16777	1.68047	6647
68 Benzo(a)anthracene	228	11.976	11.971	(0.999)	191290	15.0828	59660
* 69 Chrysene-d12	240	11.993	11.993	(1.000)	225838	20.0000	
71 Chrysene	228	12.025	12.019	(1.003)	247153	20.8441	82450
187 Total Benzofluoranthenes	252	13.221	13.243	(0.971)	187865	15.7770	62410
76 Benzo(a)pyrene	252	13.558	13.553	(0.996)	194021	17.7372	70160
* 77 Perylene-d12	264	13.617	13.611	(1.000)	199918	20.0000	
99 Perylene	252	13.643	13.638	(1.002)	41301	3.55062	14040 NP
78 Indeno(1,2,3-cd)pyrene	276	14.717	14.712	(1.081)	93822	5.77718	22850
79 Dibenzo(a,h)anthracene	278	14.722	14.723	(1.081)	41089	3.07315	12160
80 Benzo(g,h,i)perylene	276	15.016	15.006	(1.103)	127934	9.58918	37930

VB
11-11-10

Analytical Resources, Inc.

INTERNAL STANDARD COMPOUNDS
AREA AND RT SUMMARY

Instrument ID: nt12.i
Lab File ID: rs97i.d
Lab Smp Id: RS97I
Analysis Type: SV
Quant Type: ISTD
Operator: VTS
Method File: /chem1/nt12.i/20101110.b/PNADMD.m
Misc Info: 10-27425

Calibration Date: 10-NOV-2010
Calibration Time: 13:29
Client Smp ID: DGS-07-2.22.7-10
Level: LOW
Sample Type: Sediment

Test Mode:
Use Initial Calibration Level 4.

COMPOUND	STANDARD	AREA LIMIT LOWER	AREA LIMIT UPPER	SAMPLE	%DIFF
27 Naphthalene-d8	237664	118832	475328	223061	-6.14
42 Acenaphthene-d10	143363	71682	286726	138099	-3.67
59 Phenanthrene-d10	245437	122718	490874	236287	-3.73
69 Chrysene-d12	199260	99630	398520	225838	13.34
77 Perylene-d12	197636	98818	395272	199918	1.15

COMPOUND	STANDARD	RT LIMIT LOWER	RT LIMIT UPPER	SAMPLE	%DIFF
27 Naphthalene-d8	4.89	4.39	5.39	4.89	0.00
42 Acenaphthene-d10	6.99	6.49	7.49	6.99	0.00
59 Phenanthrene-d10	8.76	8.26	9.26	8.77	0.06
69 Chrysene-d12	11.99	11.49	12.49	11.99	0.00
77 Perylene-d12	13.61	13.11	14.11	13.62	0.04

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.

Analytical Resources, Inc.

RECOVERY REPORT

Client Name: NW Natural
Sample Matrix: SOLID
Lab Smp Id: RS97I
Level: LOW
Data Type: MS DATA
SpikeList File: SONICLCS.spk
Sublist File: pnas.sub
Method File: /chem1/nt12.i/20101110.b/PNADMD.m
Misc Info: 10-27425

Client SDG: RS97
Fraction: SV
Client Smp ID: DGS-07-2.22.7-10101
Operator: VTS
SampleType: SAMPLE
Quant Type: ISTD

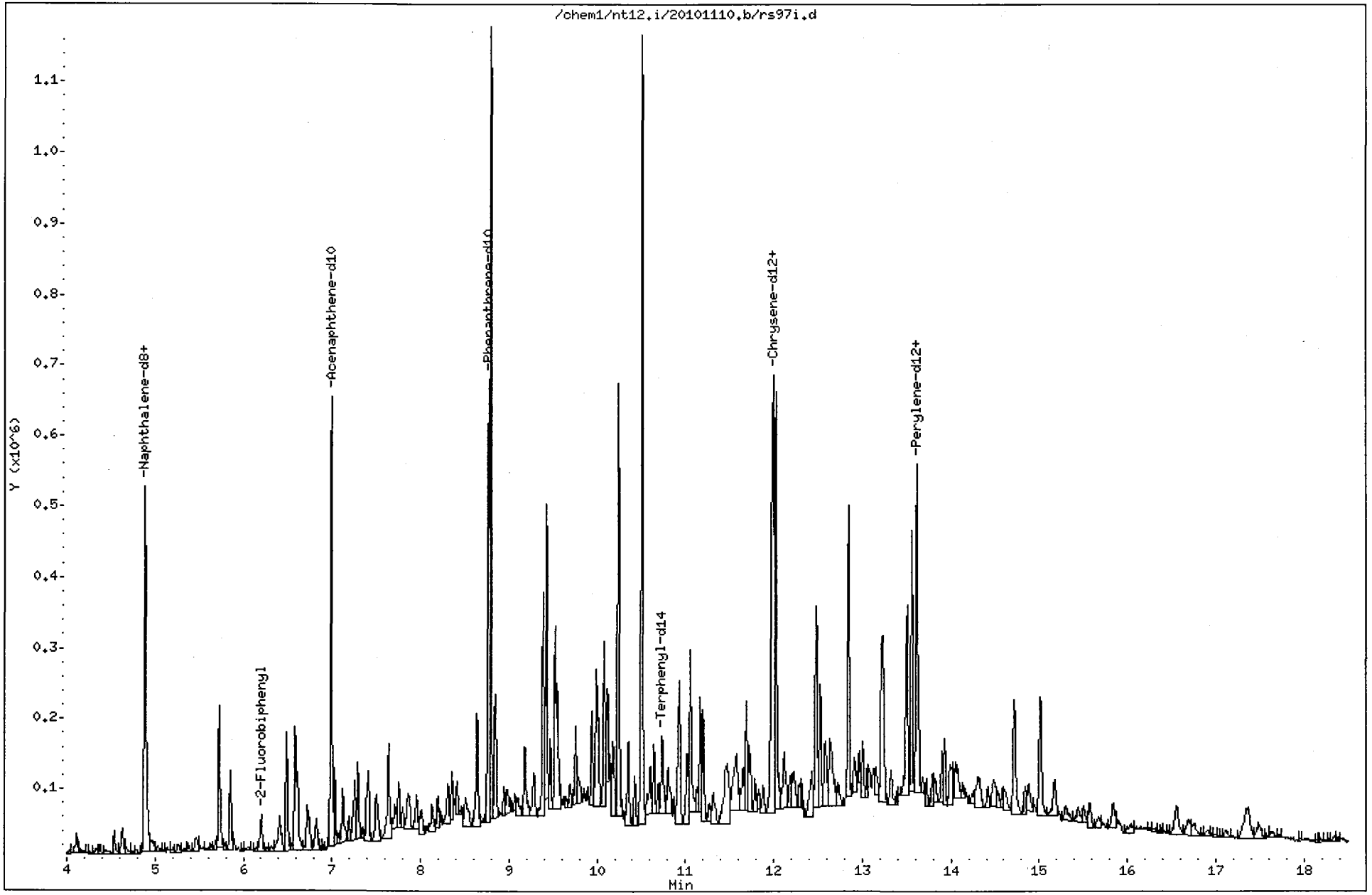
SURROGATE COMPOUND	CONC ADDED ug/kg	CONC RECOVERED ug/kg	% RECOVERED	LIMITS
$ 36 2-Fluorobiphenyl	9889	6310	63.81	34-100
$ 66 Terphenyl-d14	9889	6647	67.22	35-112

Data File: /chem1/nt12.i/20101110.b/rs97i.d
Date : 10-NOV-2010 16:24
Client ID: DGS-07-2.22.7-10101
Sample Info: RS97I
Volume Injected (uL): 1.0
Column phase: ZB-5msi

Instrument: nt12.i

Operator: VTS
Column diameter: 0.32

RS97 00415



Data File: /chem1/nt12.i/20101110.b/rs97i.d

Date : 10-NOV-2010 16:24

Client ID: DGS-07-2.22.7-10101

Instrument: nt12.i

Sample Info: RS97I

Volume Injected (uL): 1.0

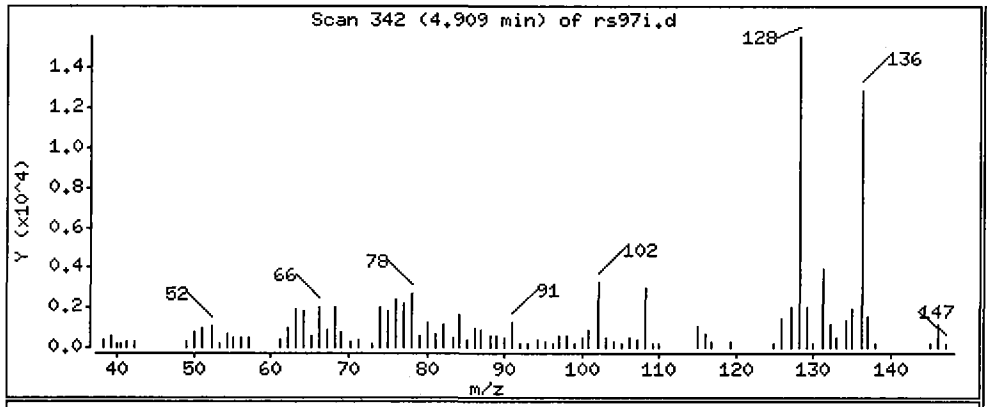
Operator: VTS

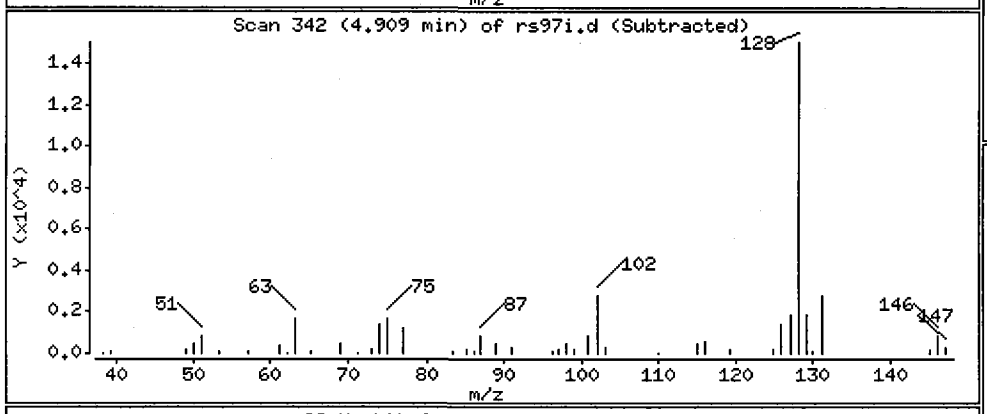
Column phase: ZB-5msi

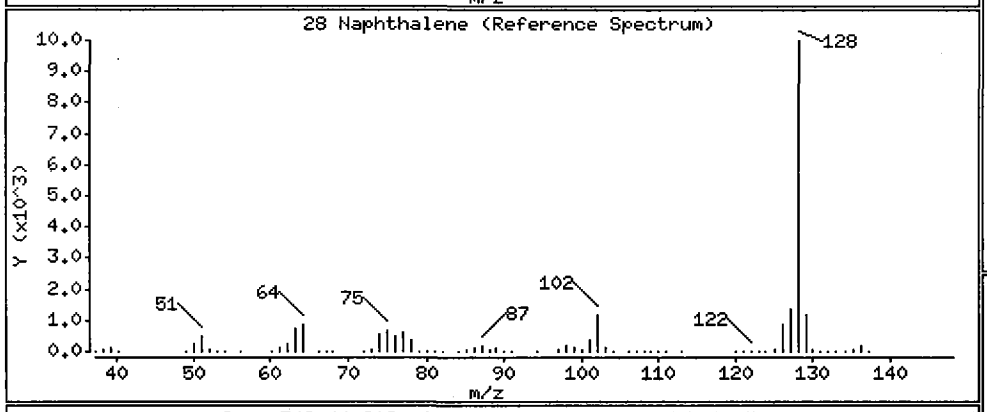
Column diameter: 0.32

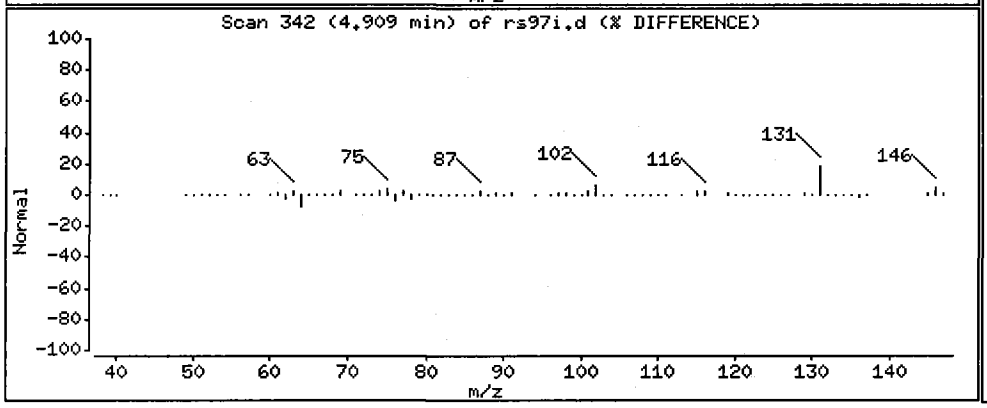
28 Naphthalene

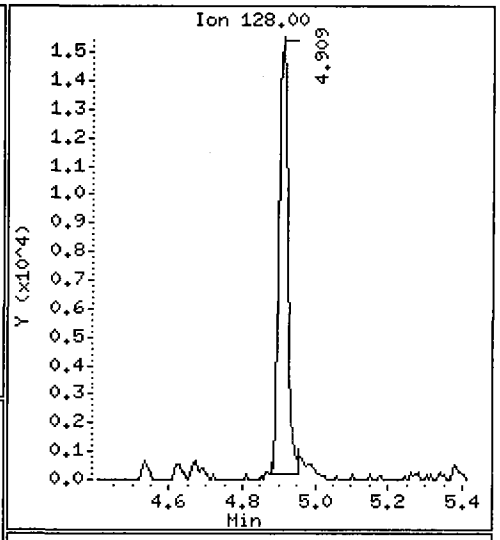
Concentration: 6768 ug/kg

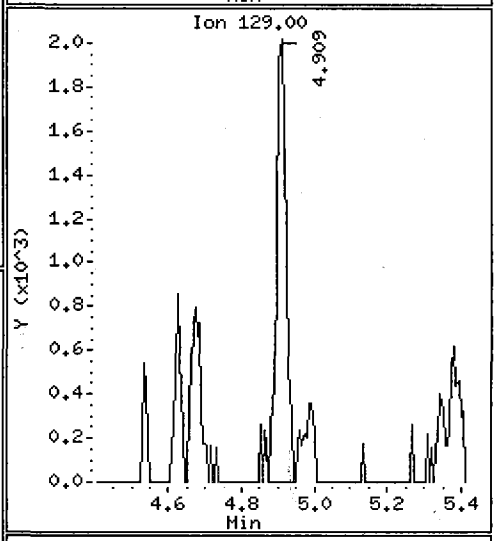


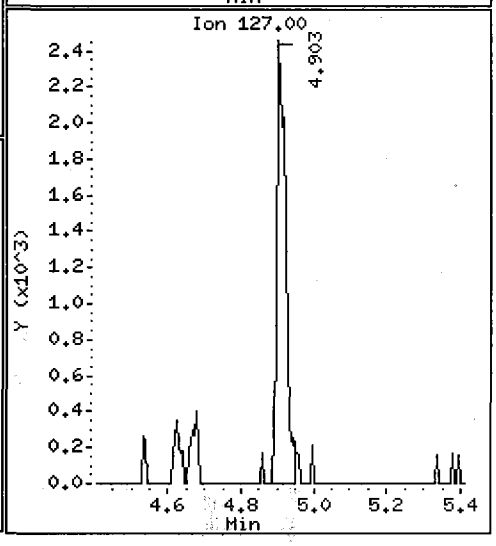












Data File: /chem1/nt12.i/20101110.b/rs97i.d

Date : 10-NOV-2010 16:24

Client ID: DGS-07-2.22.7-10101

Instrument: nt12.i

Sample Info: RS97I

Volume Injected (uL): 1.0

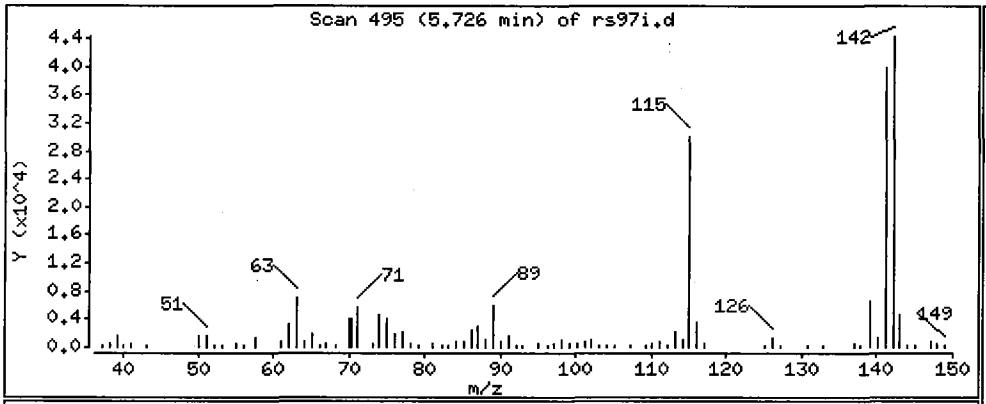
Operator: VTS

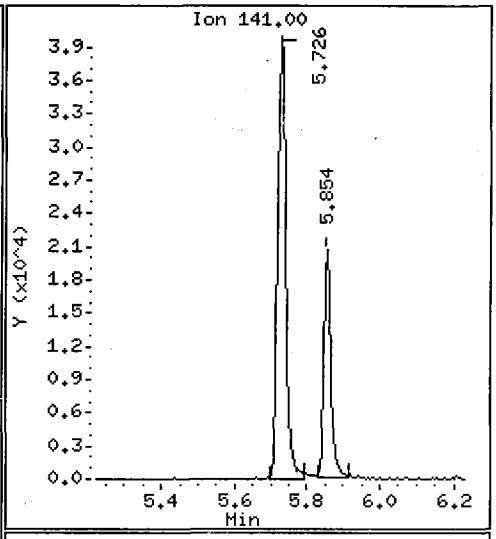
Column phase: ZB-5msi

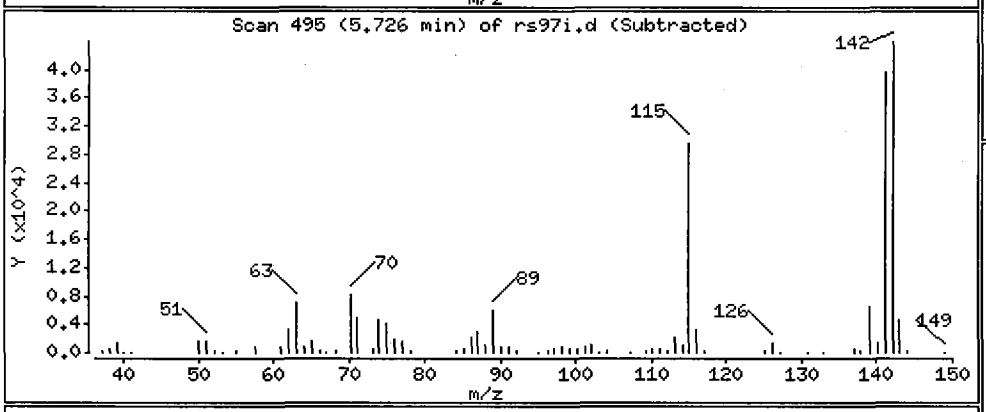
Column diameter: 0.32

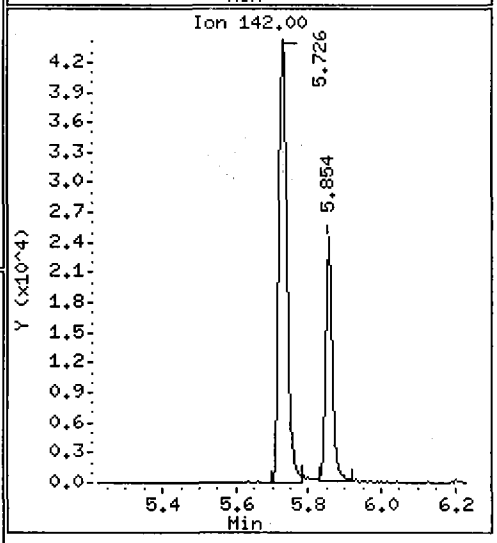
32 2-Methylnaphthalene

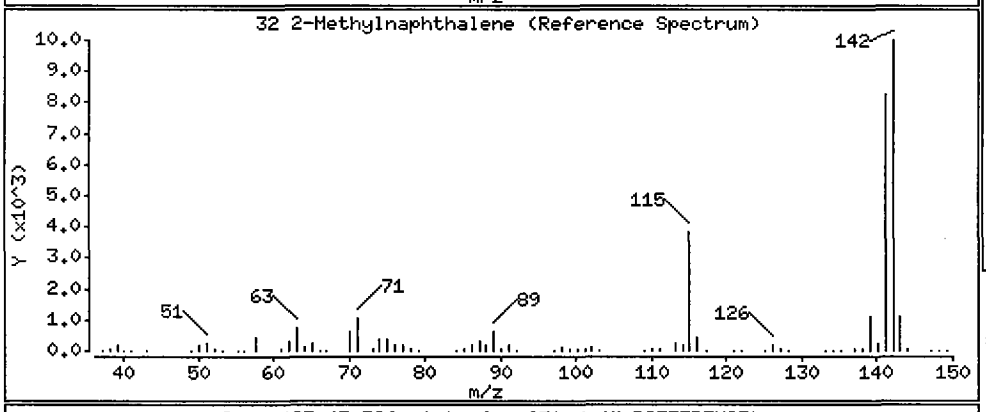
Concentration: 31110 ug/kg

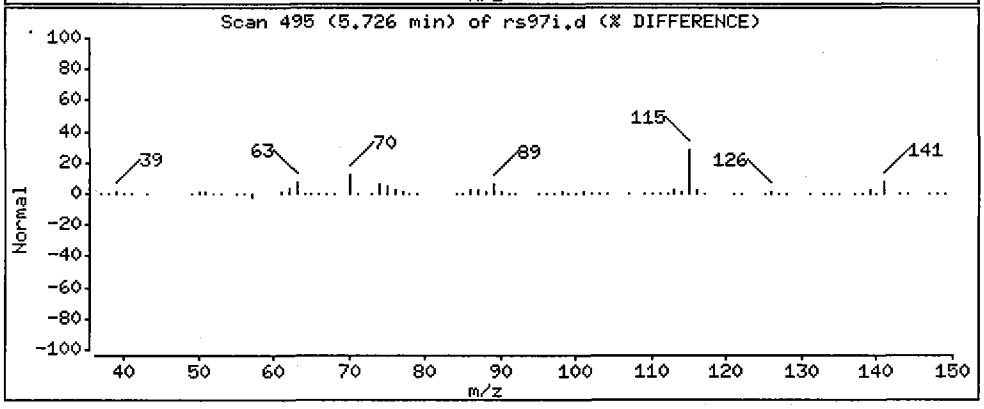












Data File: /chem1/nt12.i/20101110.b/rs97i.d

Date : 10-NOV-2010 16:24

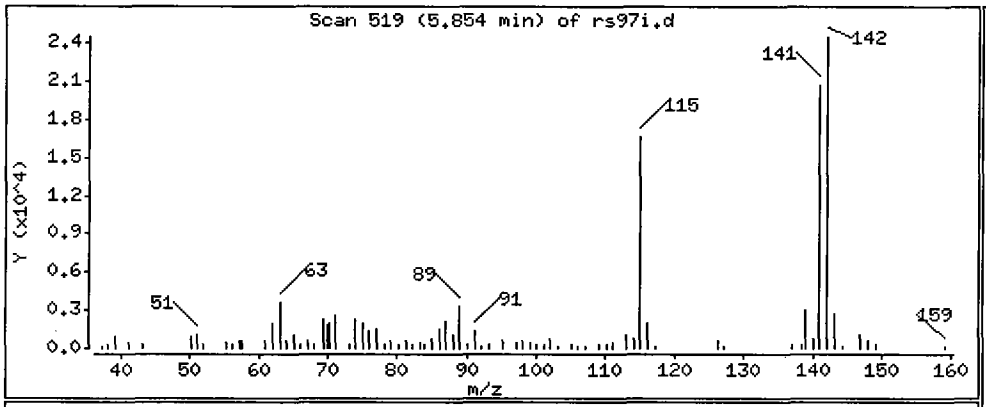
Client ID: DGS-07-2.22.7-10101 Instrument: nt12.i

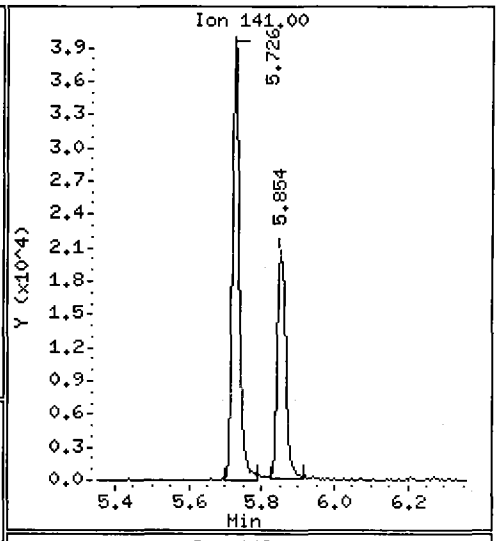
Sample Info: RS97I

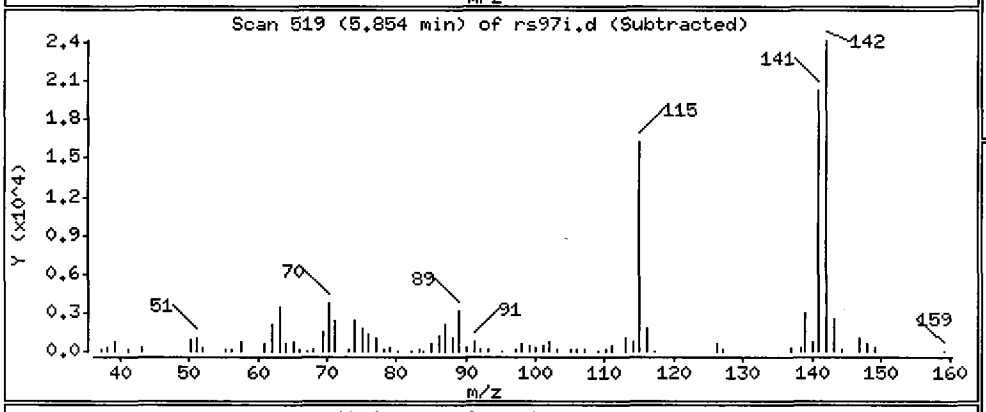
Volume Injected (uL): 1.0 Operator: VTS

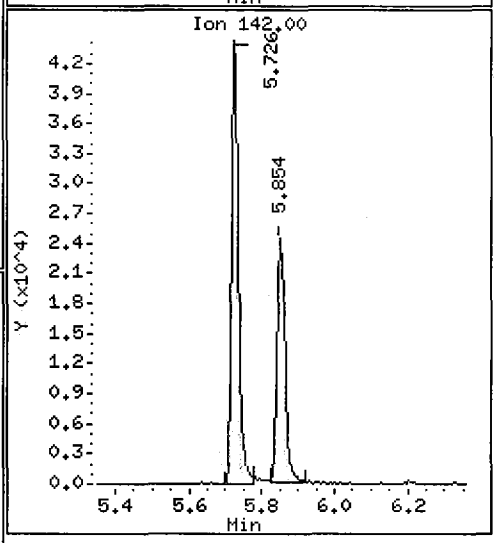
Column phase: ZB-5msi Column diameter: 0.32

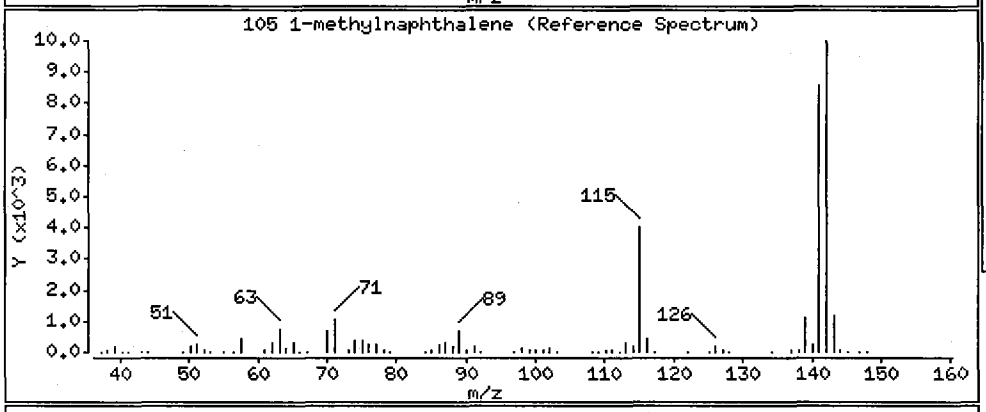
105 1-methylnaphthalene Concentration: 15970 ug/kg

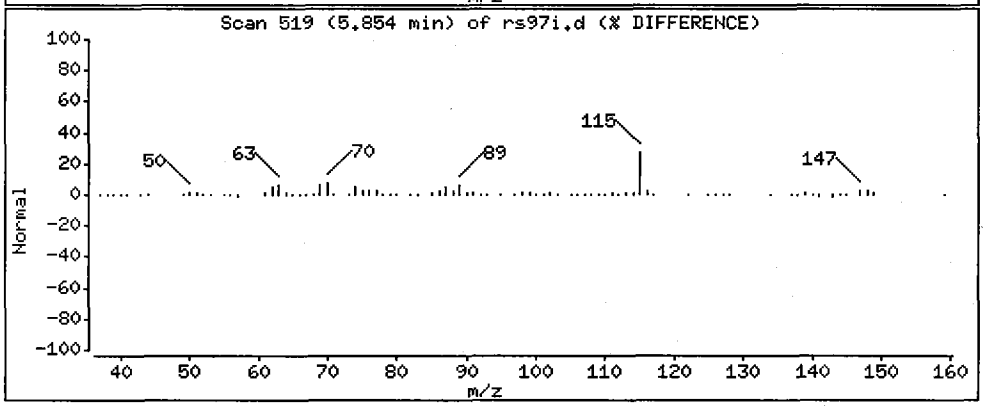












Data File: /chem1/nt12.i/20101110.b/rs97i.d

Date : 10-NOV-2010 16:24

Client ID: DGS-07-2.22.7-10101

Instrument: nt12.i

Sample Info: RS97I

Volume Injected (uL): 1.0

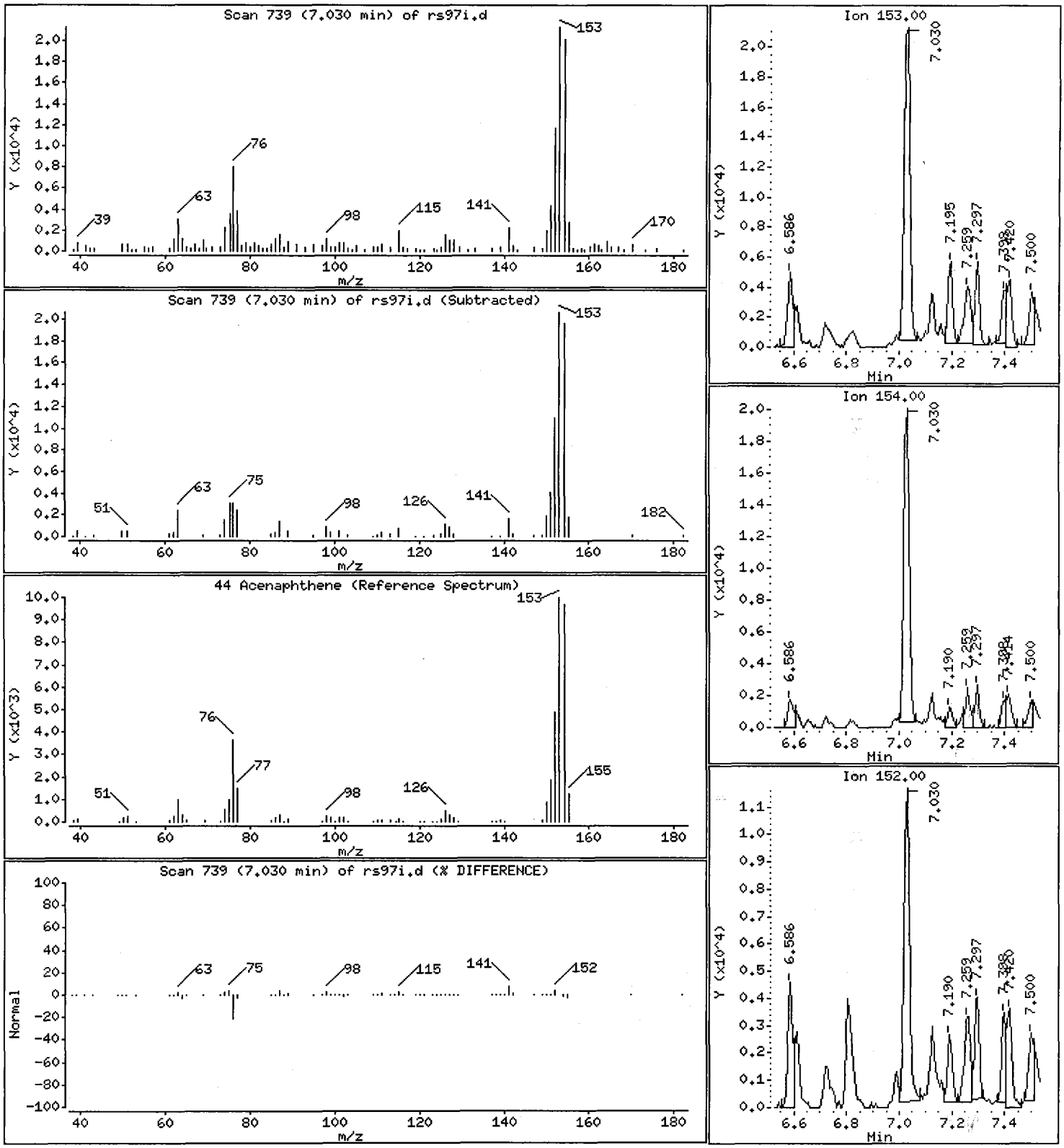
Operator: VTS

Column phase: ZB-5msi

Column diameter: 0.32

44 Acenaphthene

Concentration: 12300 ug/kg



Data File: /chem1/nt12.i/20101110.b/rs97i.d

Date : 10-NOV-2010 16:24

Client ID: DGS-07-2.22.7-10101

Instrument: nt12.i

Sample Info: RS97I

Volume Injected (uL): 1.0

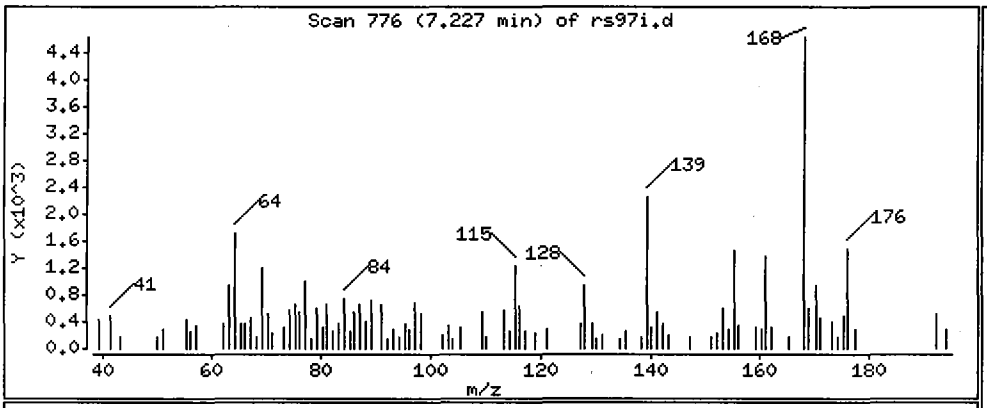
Operator: VTS

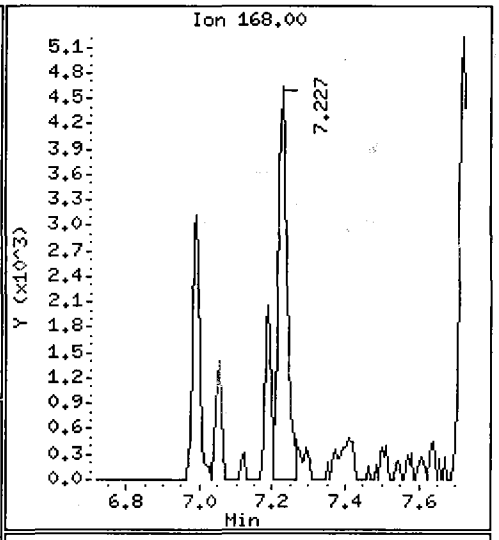
Column phase: ZB-5msi

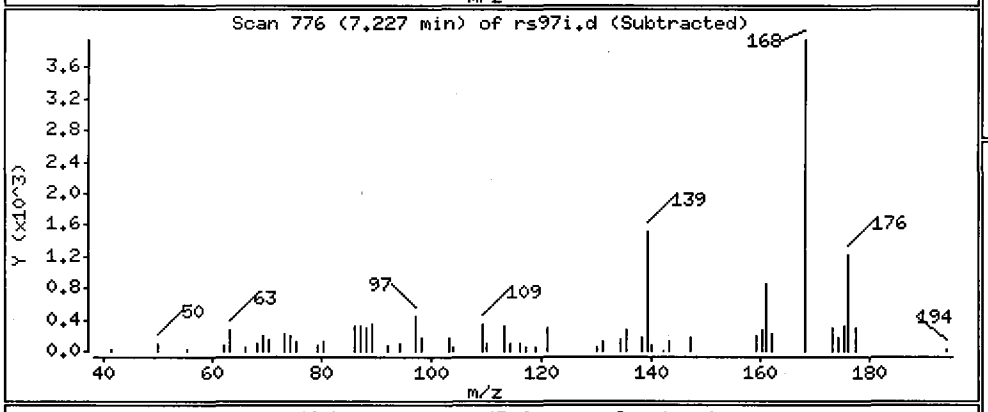
Column diameter: 0.32

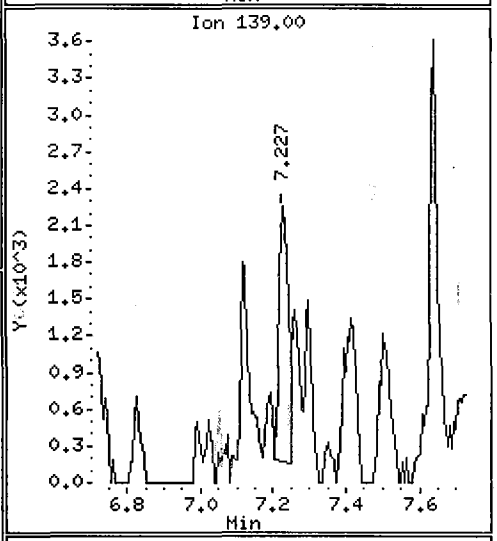
46 Dibenzofuran

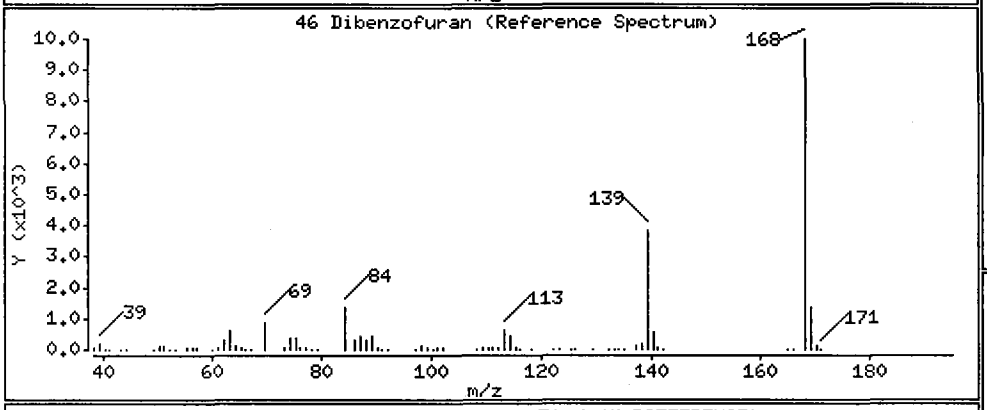
Concentration: 2072 ug/kg

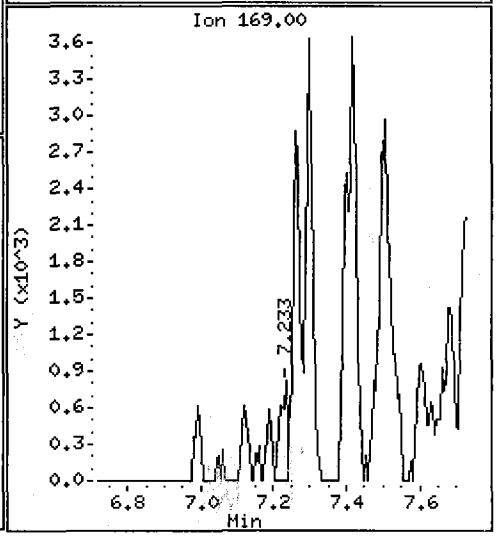


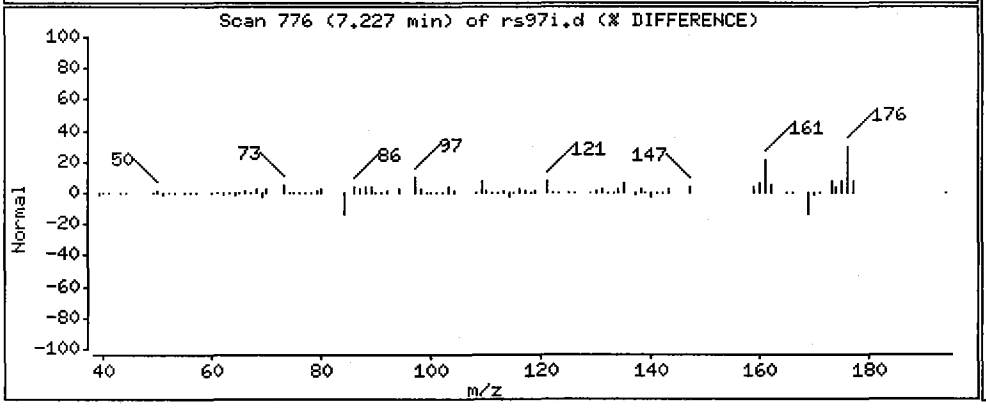












Data File: /chem1/nt12.i/20101110.b/rs97i.d

Date : 10-NOV-2010 16:24

Client ID: DGS-07-2.22.7-10101

Instrument: nt12.i

Sample Info: RS97I

Volume Injected (uL): 1.0

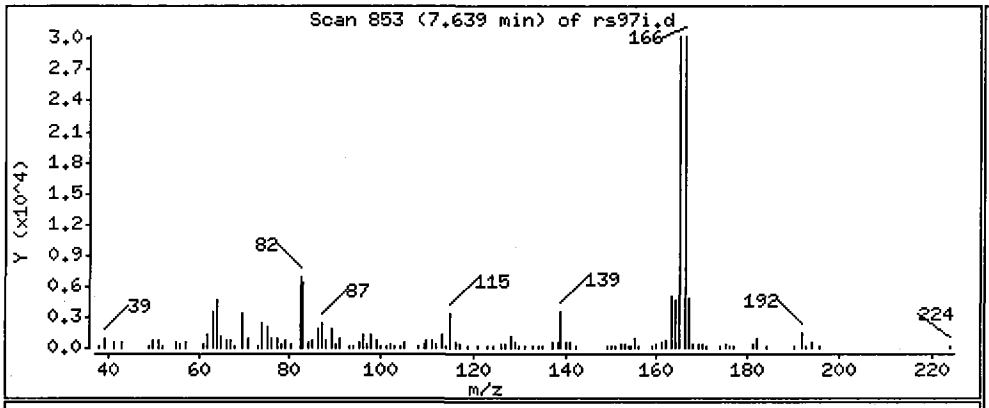
Operator: VTS

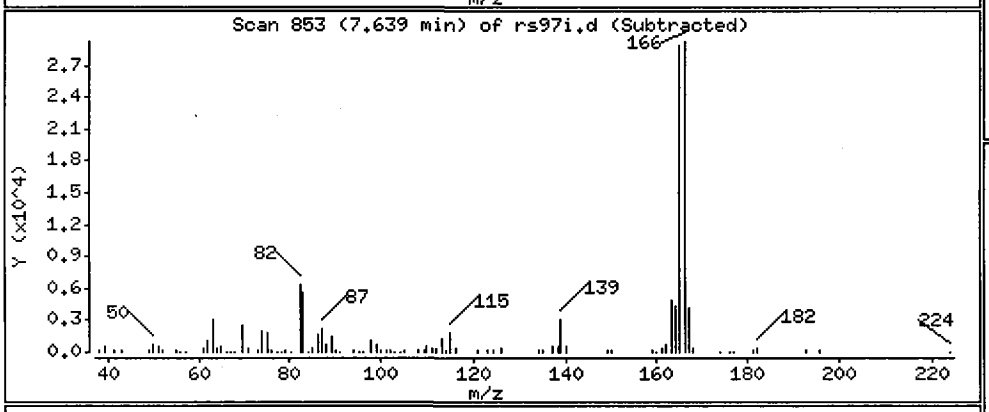
Column phase: ZB-5msi

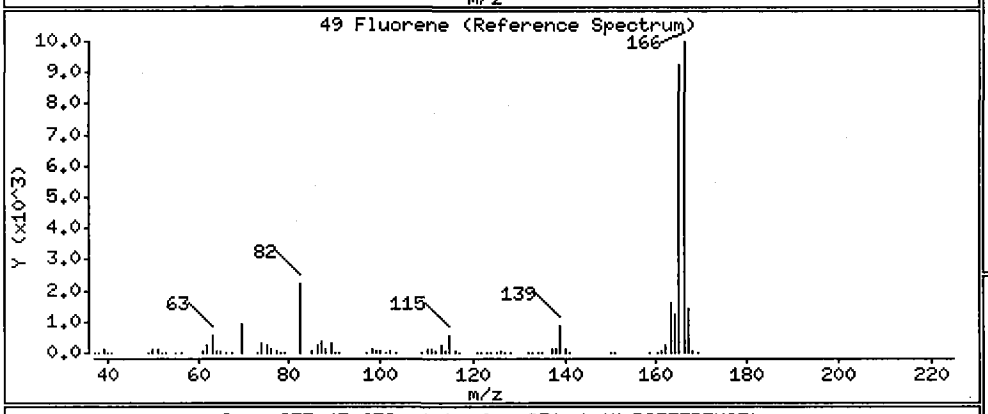
Column diameter: 0.32

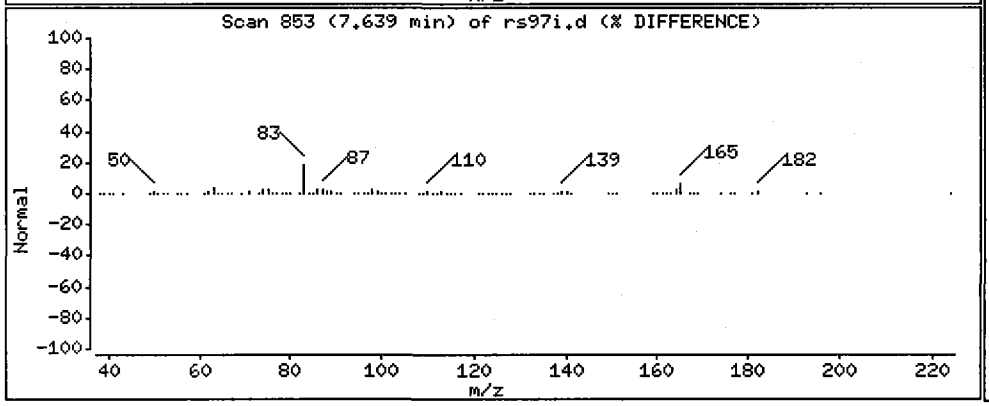
49 Fluorene

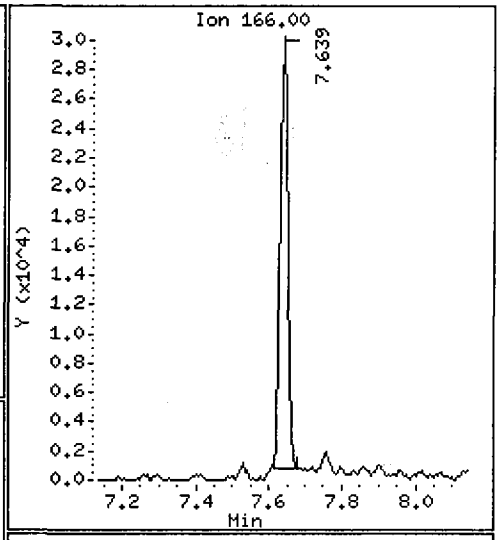
Concentration: 14380 ug/kg

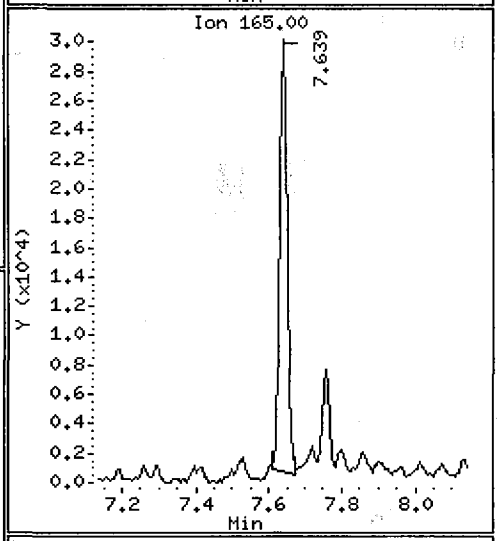


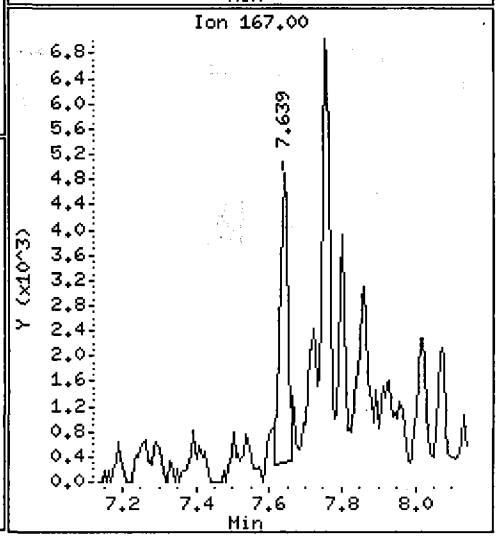












Data File: /chem1/nt12.i/20101110.b/rs97i.d

Date : 10-NOV-2010 16:24

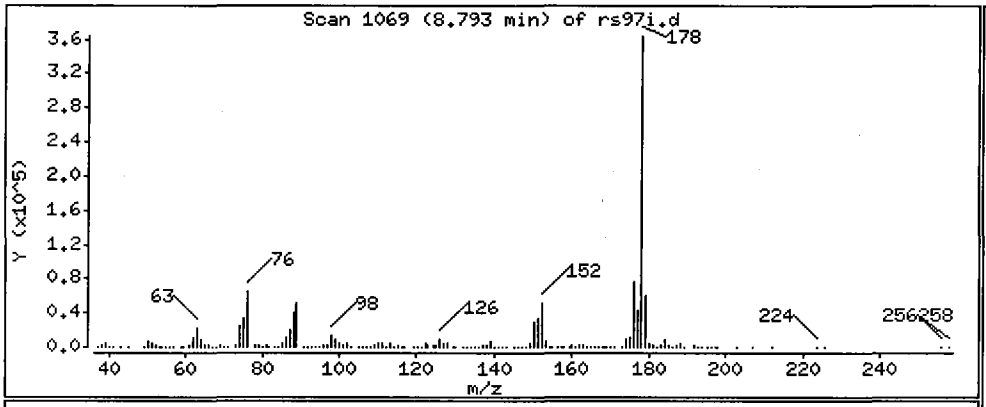
Client ID: DGS-07-2.22.7-10101 Instrument: nt12.i

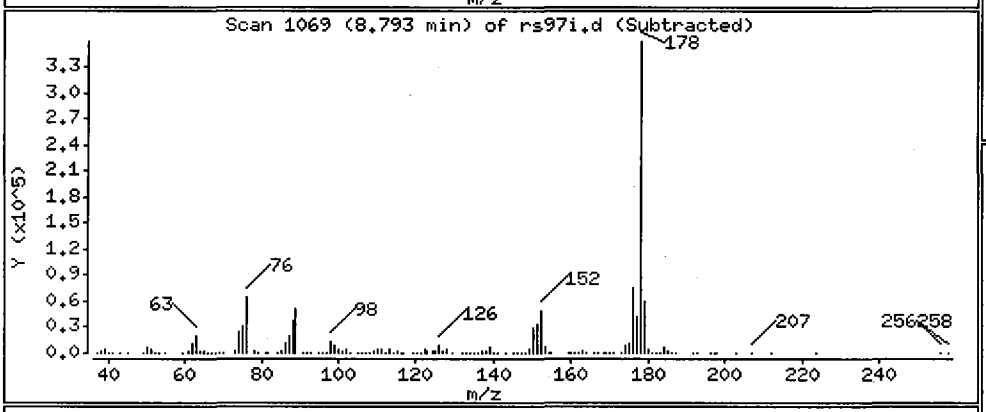
Sample Info: RS97I

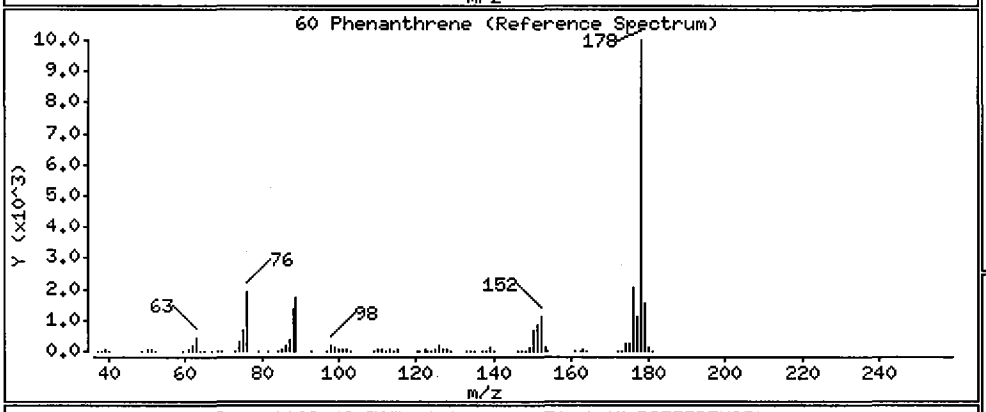
Volume Injected (uL): 1.0 Operator: VTS

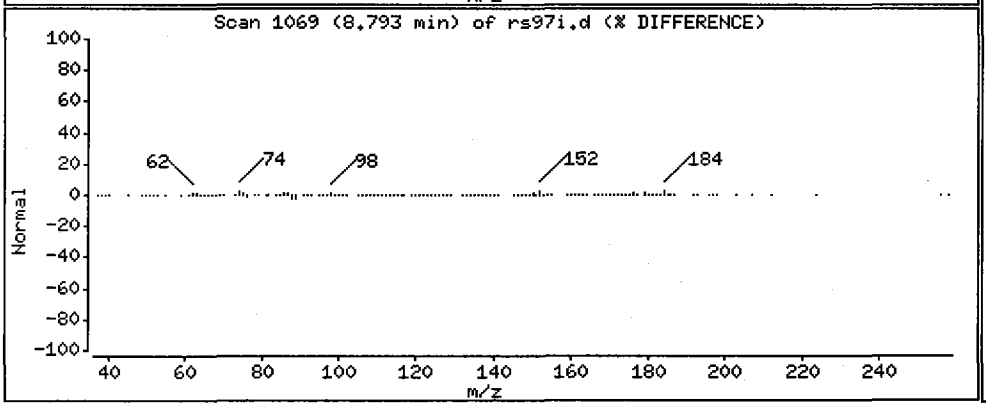
Column phase: ZB-5msi Column diameter: 0.32

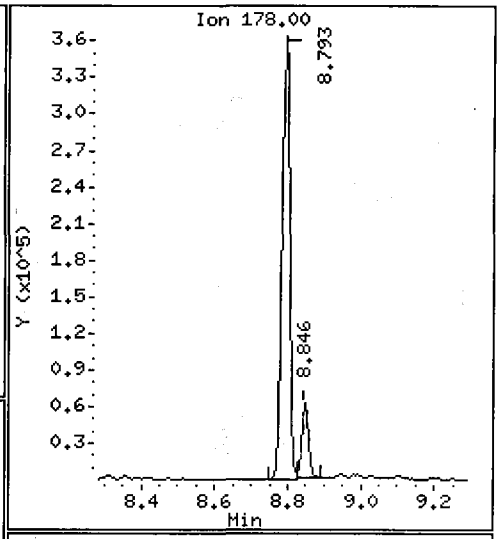
60 Phenanthrene Concentration: 139900 ug/kg

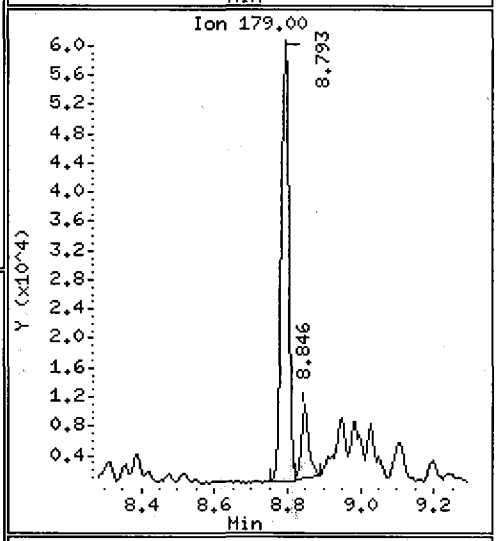


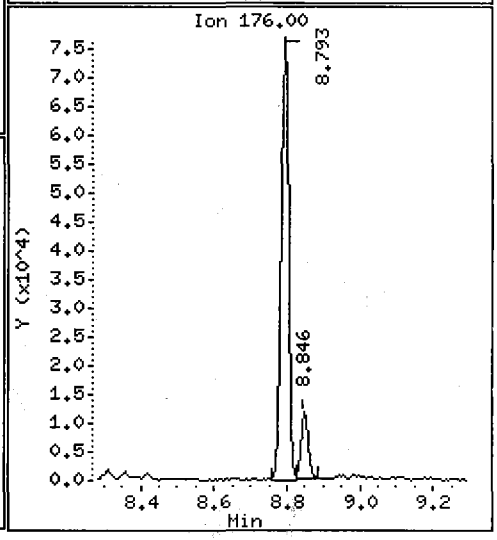












Data File: /chem1/nt12.i/20101110.b/rs97i.d

Date : 10-NOV-2010 16:24

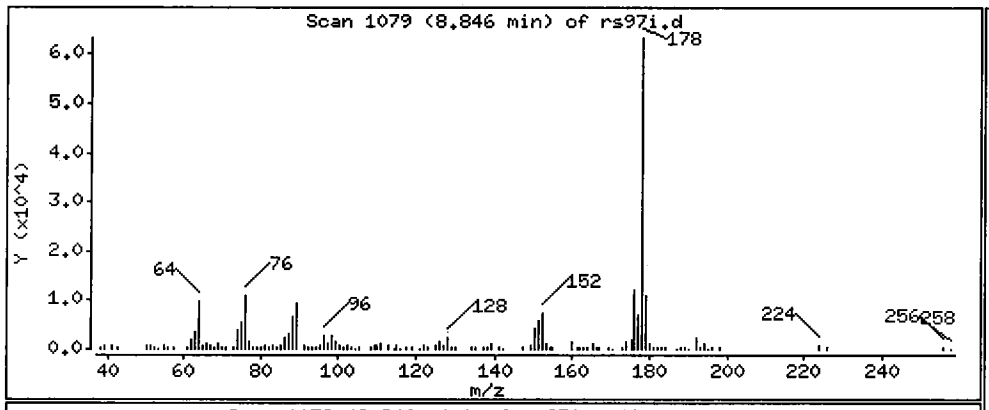
Client ID: DGS-07-2.22.7-10101 Instrument: nt12.i

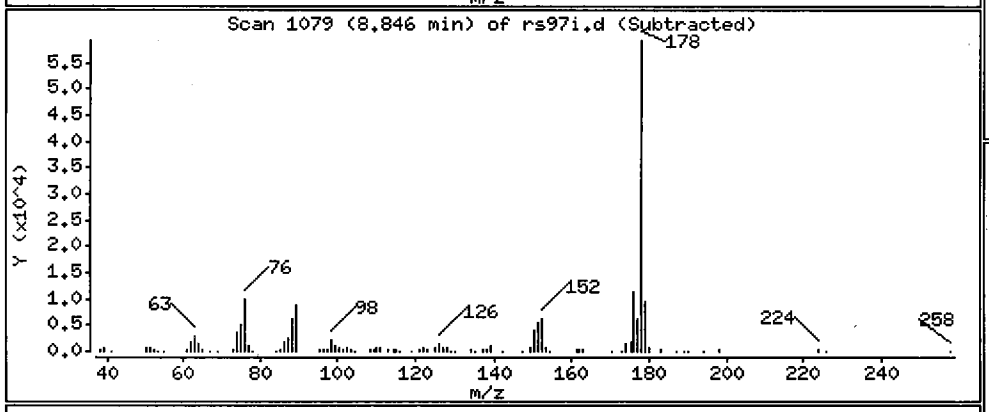
Sample Info: RS97I

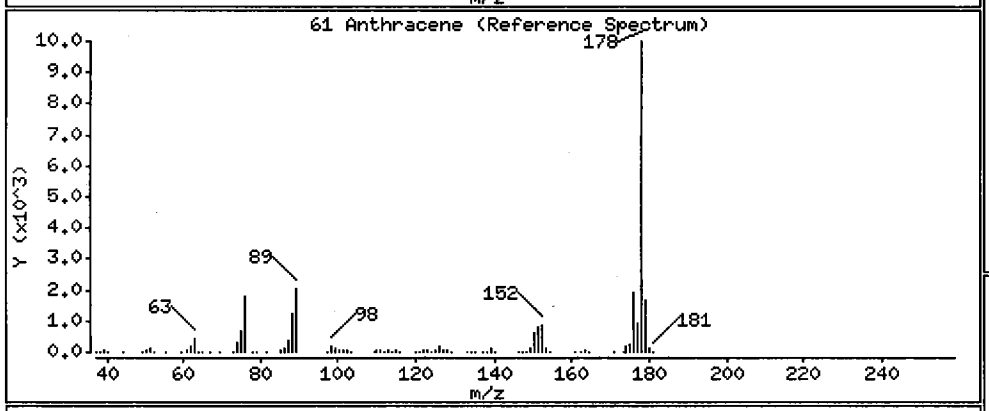
Volume Injected (uL): 1.0 Operator: VTS

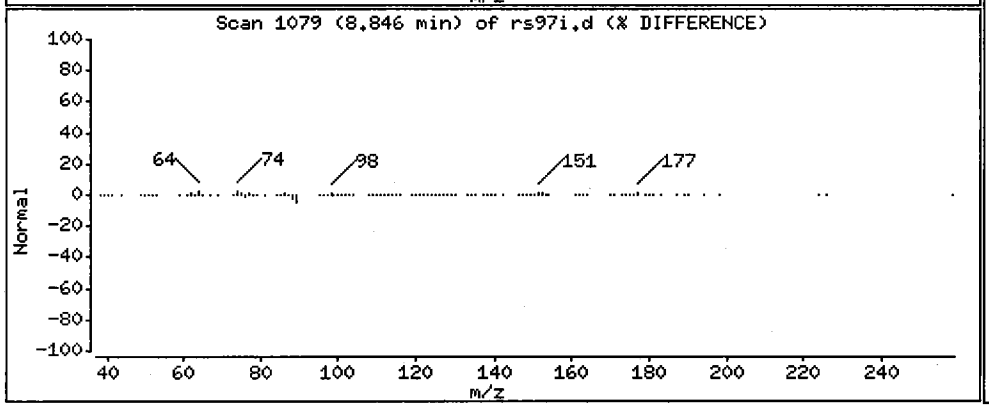
Column phase: ZB-5msi Column diameter: 0.32

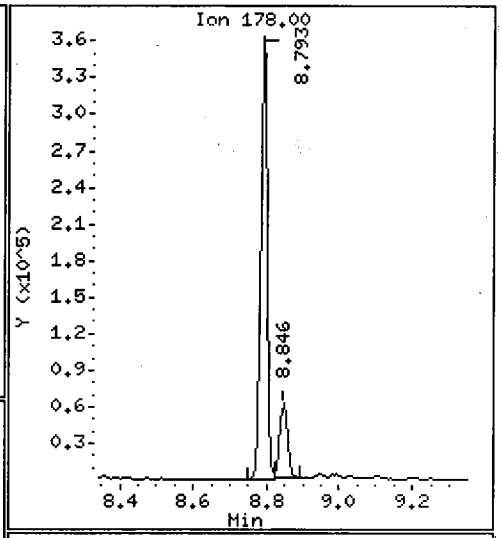
61 Anthracene Concentration: 24170 ug/kg

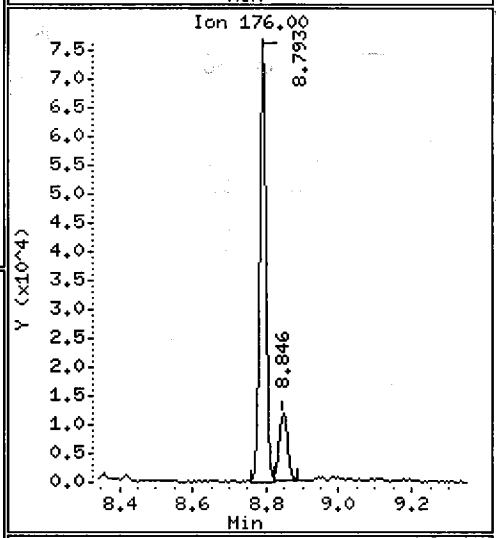


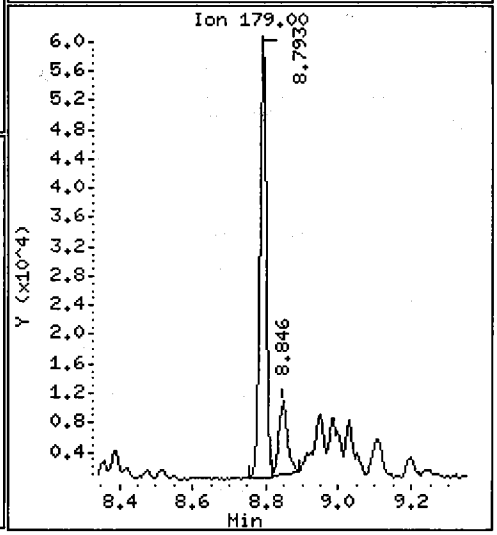












Data File: /chem1/nt12.i/20101110.b/rs97i.d

Date : 10-NOV-2010 16:24

Client ID: DGS-07-2.22.7-10101

Instrument: nt12.i

Sample Info: RS97I

Volume Injected (uL): 1.0

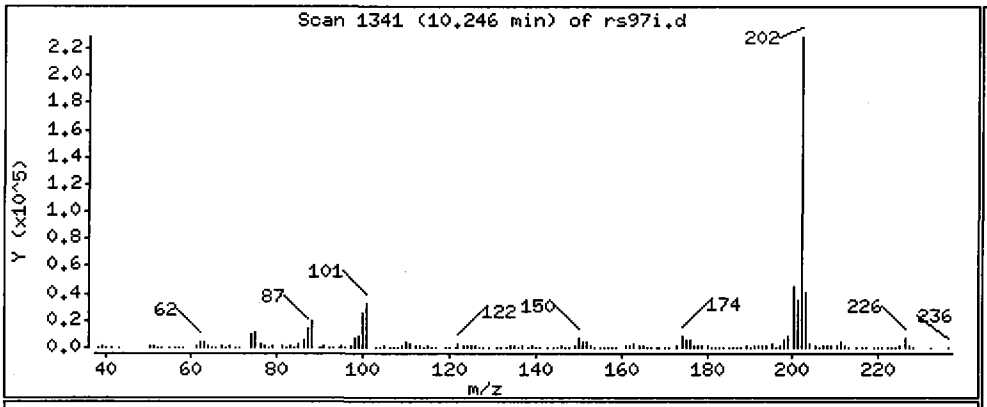
Operator: VTS

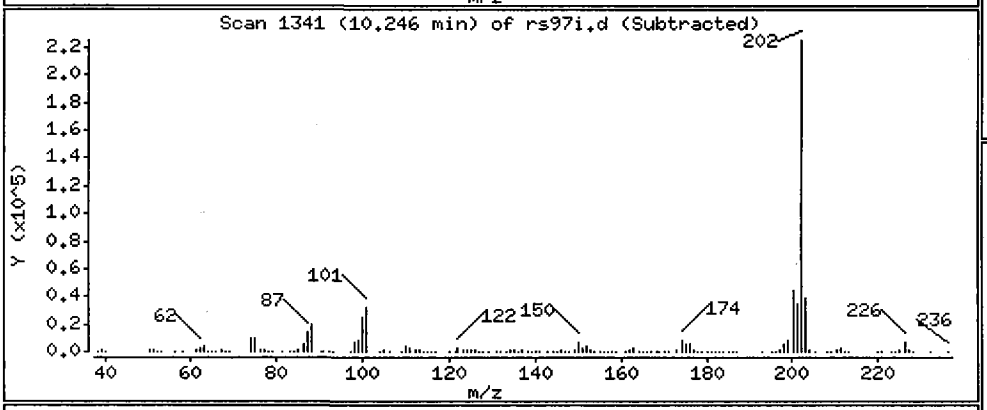
Column phase: ZB-5msi

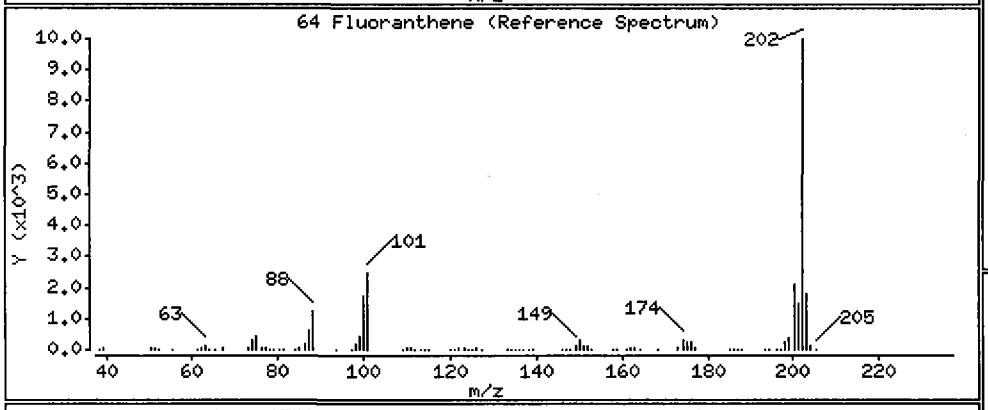
Column diameter: 0.32

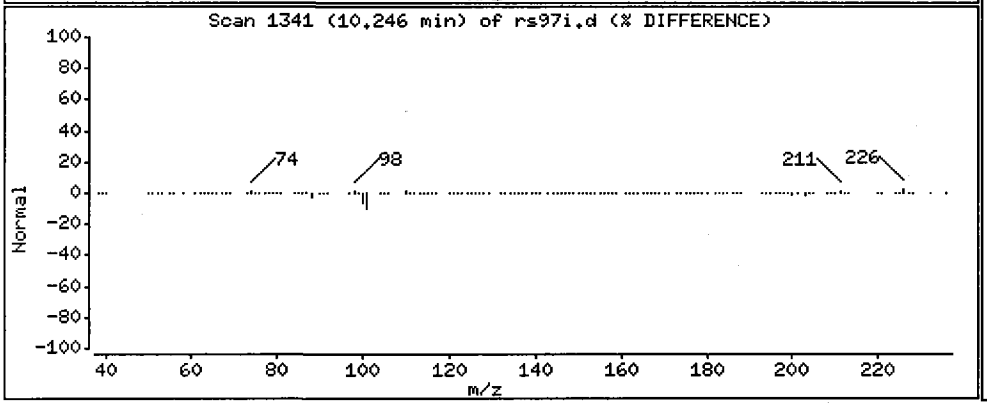
64 Fluoranthene

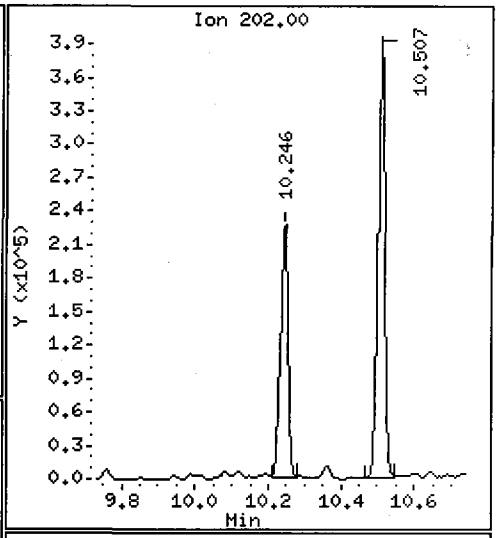
Concentration: 73580 ug/kg

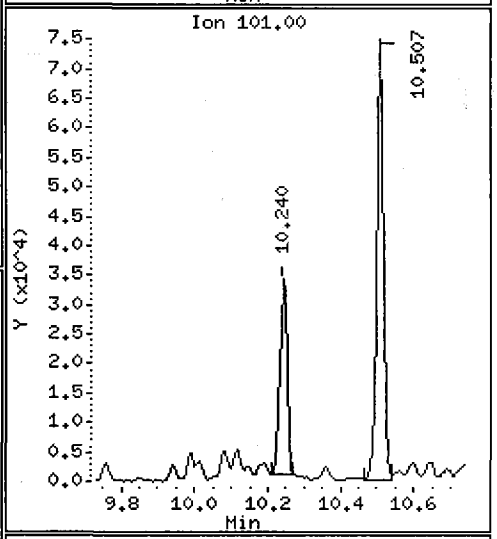


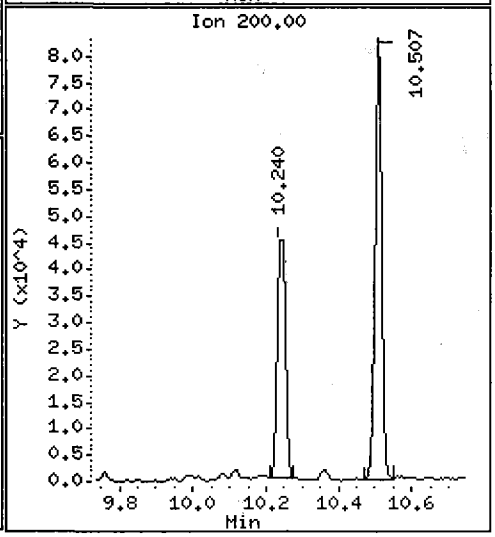












Data File: /chem1/nt12.i/20101110.b/rs97i.d

Date : 10-NOV-2010 16:24

Client ID: DGS-07-2.22.7-10101

Instrument: nt12.i

Sample Info: RS97I

Volume Injected (uL): 1.0

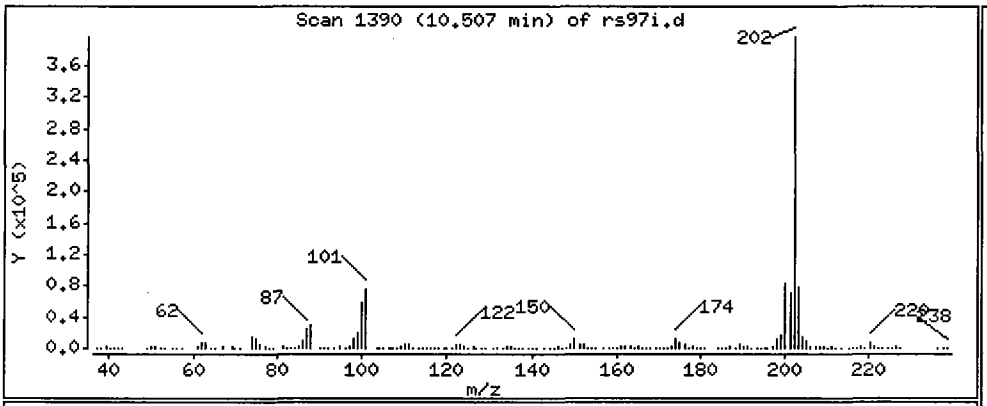
Operator: VTS

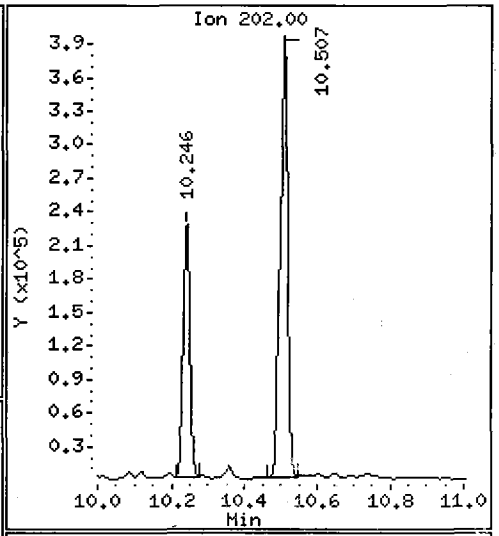
Column phase: ZB-5msi

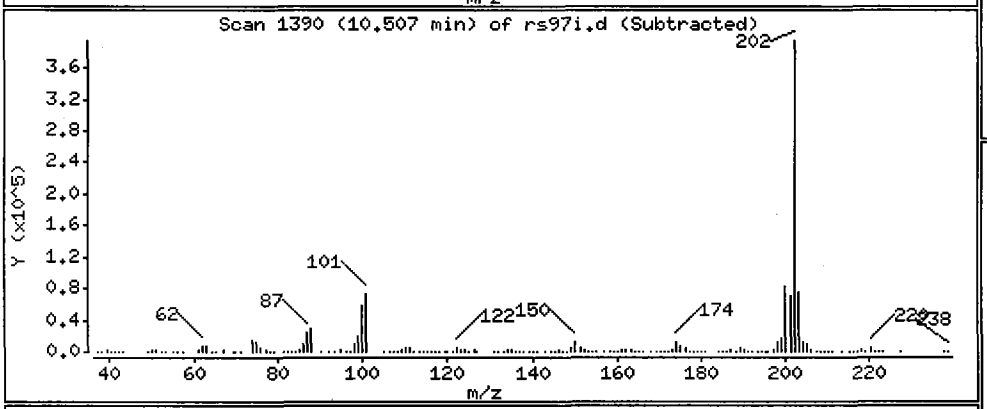
Column diameter: 0.32

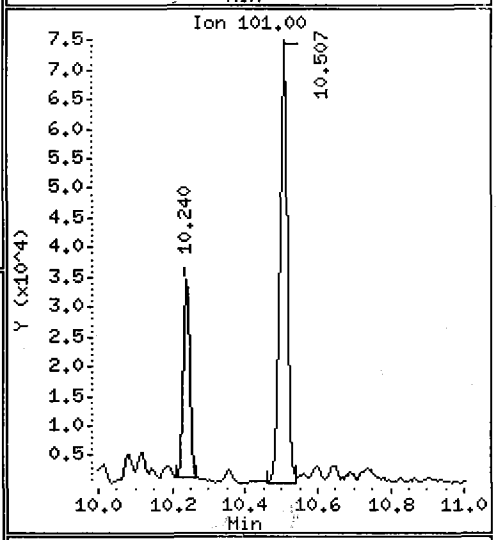
65 Pyrene

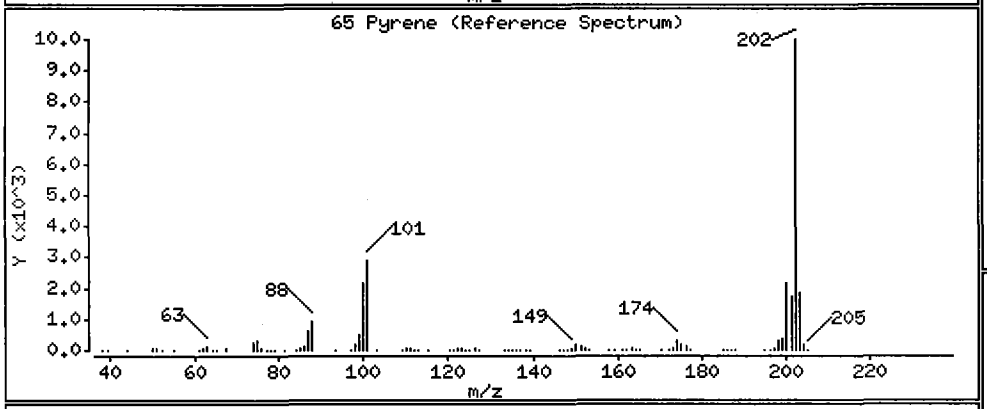
Concentration: 126700 ug/kg

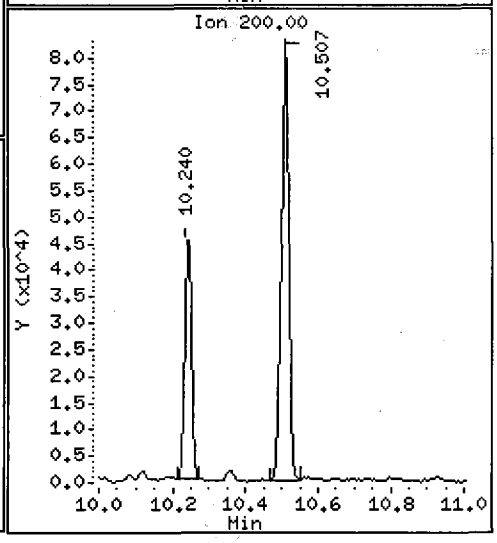


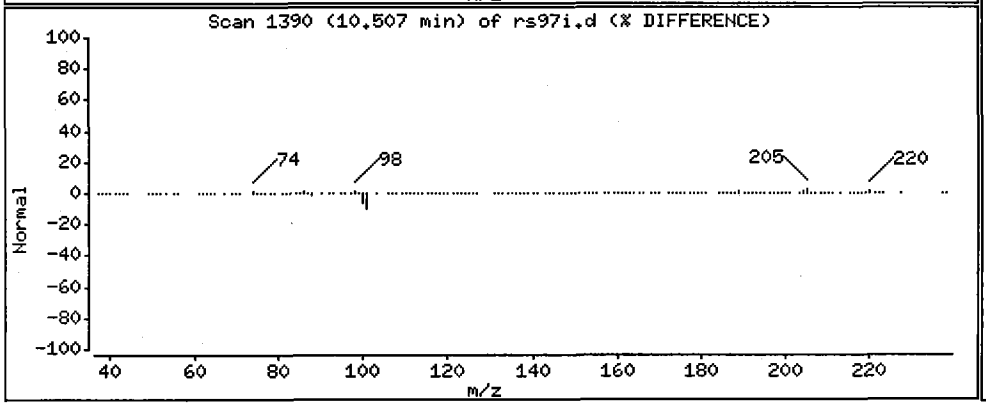












Data File: /chem1/nt12.i/20101110.b/rs97i.d

Date : 10-NOV-2010 16:24

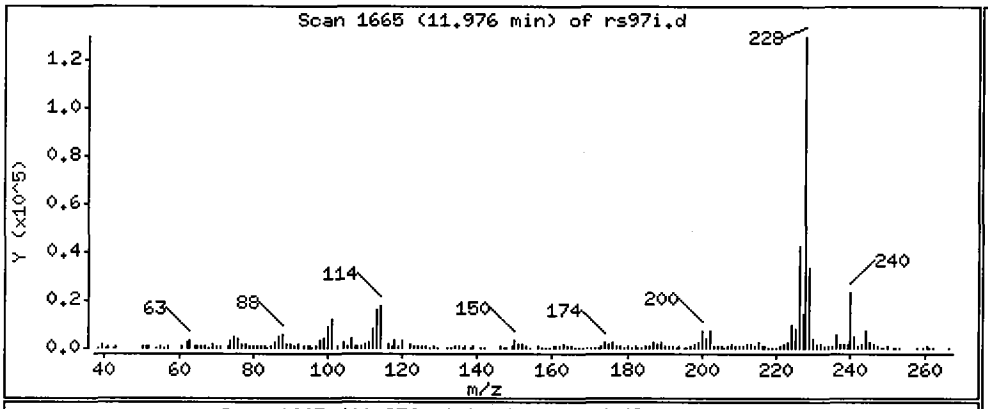
Client ID: DGS-07-2.22.7-10101 Instrument: nt12.i

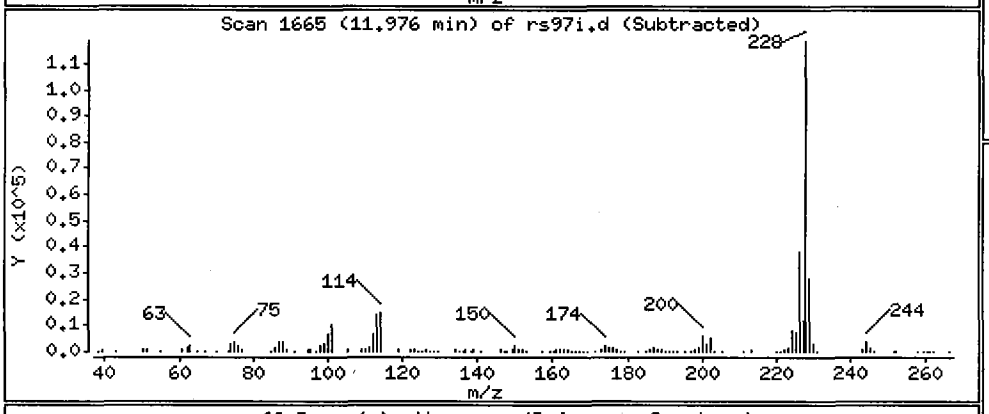
Sample Info: RS97I

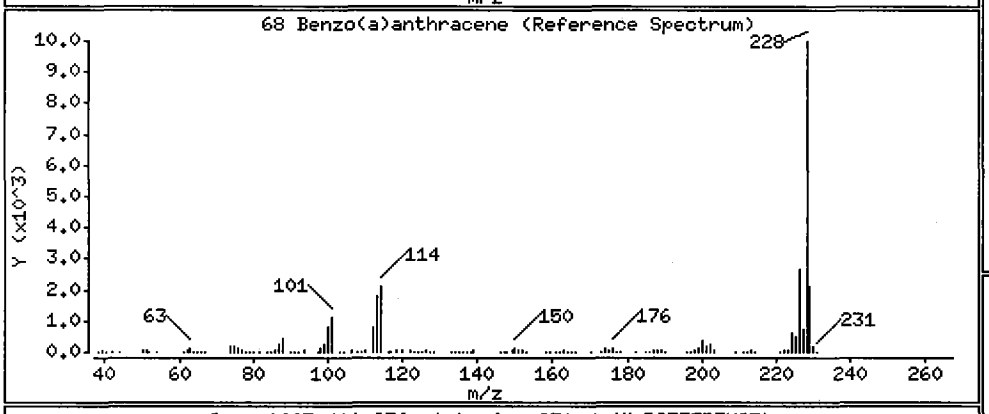
Volume Injected (uL): 1.0 Operator: VTS

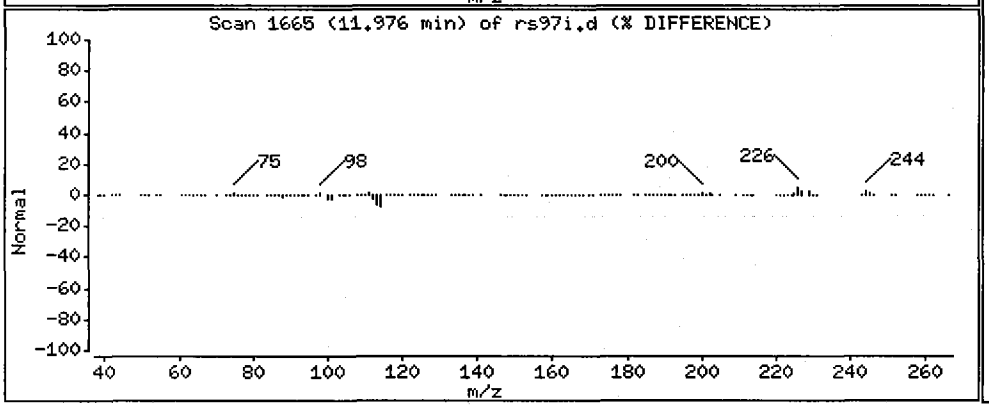
Column phase: ZB-5msi Column diameter: 0.32

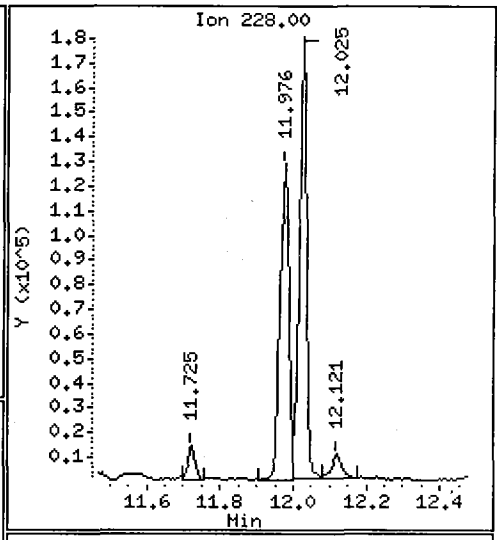
68 Benzo(a)anthracene Concentration: 59660 ug/kg

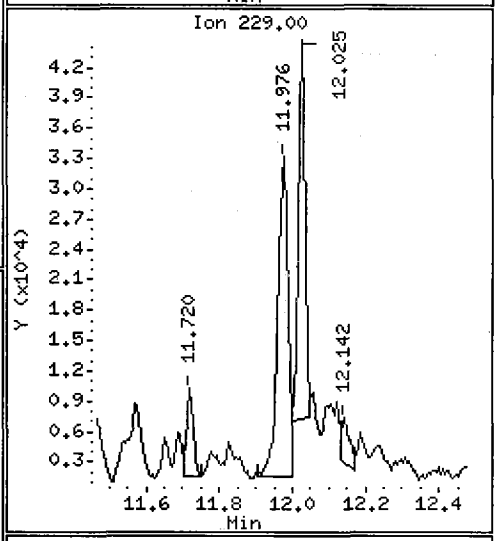


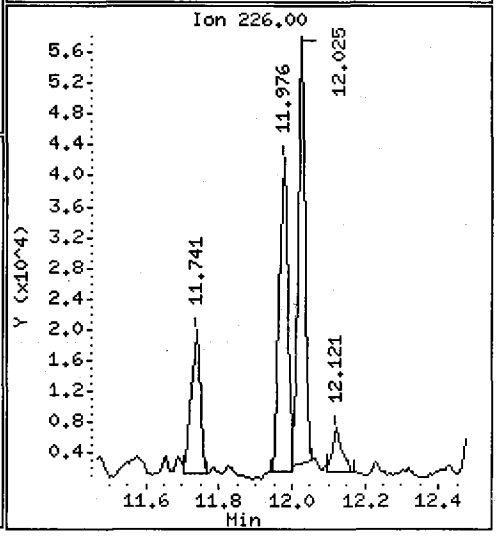












Data File: /chem1/nt12.i/20101110.b/rs97i.d

Date : 10-NOV-2010 16:24

Client ID: DGS-07-2.22.7-10101

Instrument: nt12.i

Sample Info: RS97I

Volume Injected (uL): 1.0

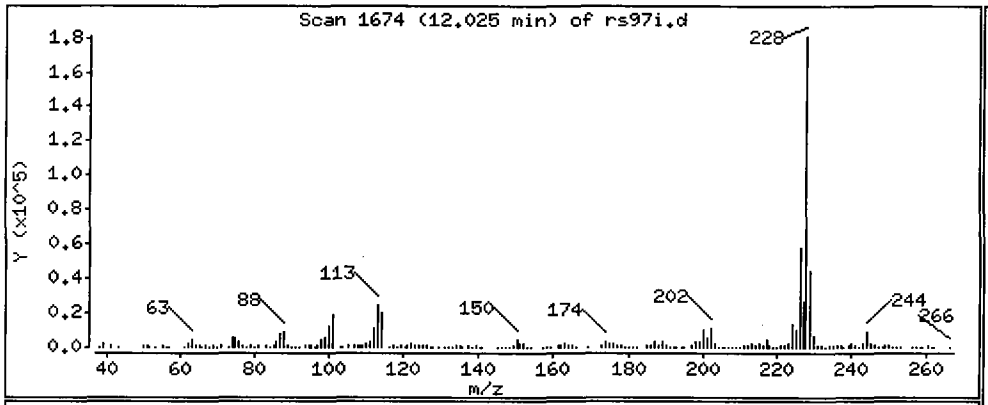
Operator: VTS

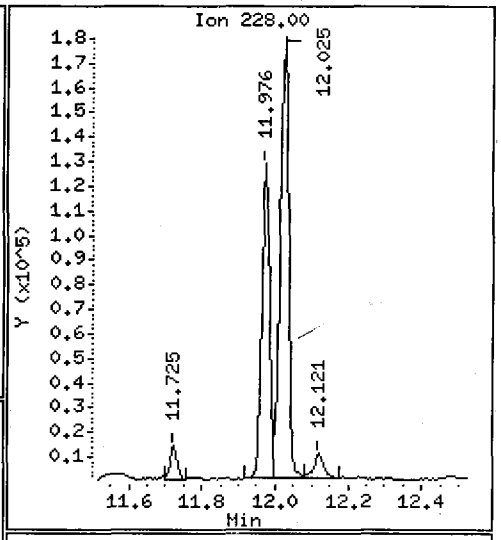
Column phase: ZB-5msi

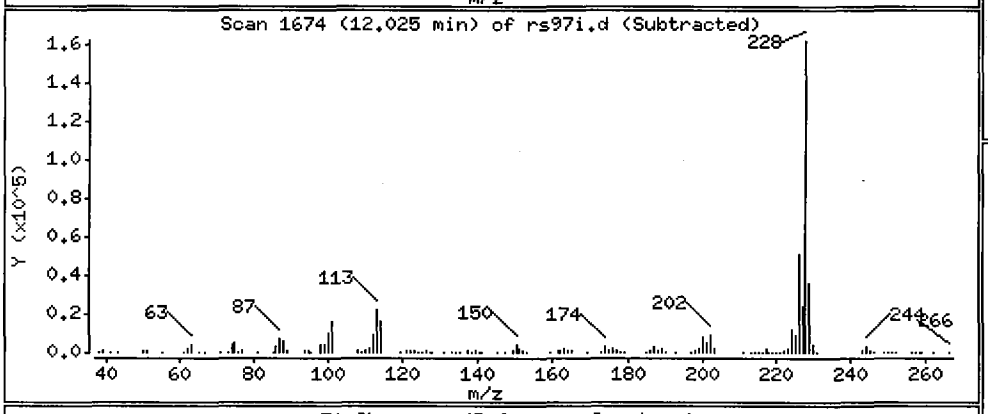
Column diameter: 0.32

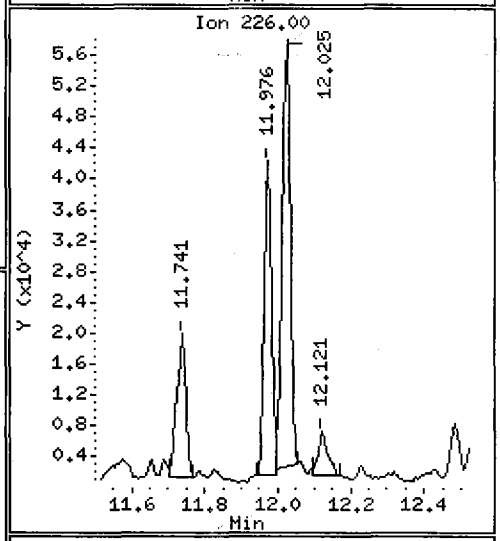
71 Chrysene

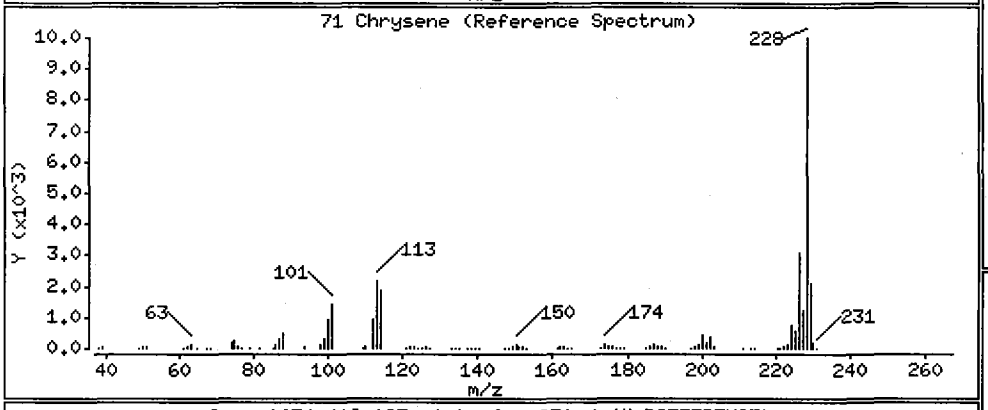
Concentration: 82450 ug/kg

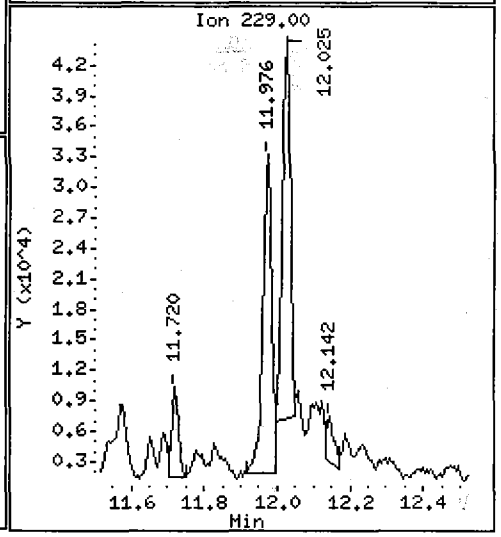


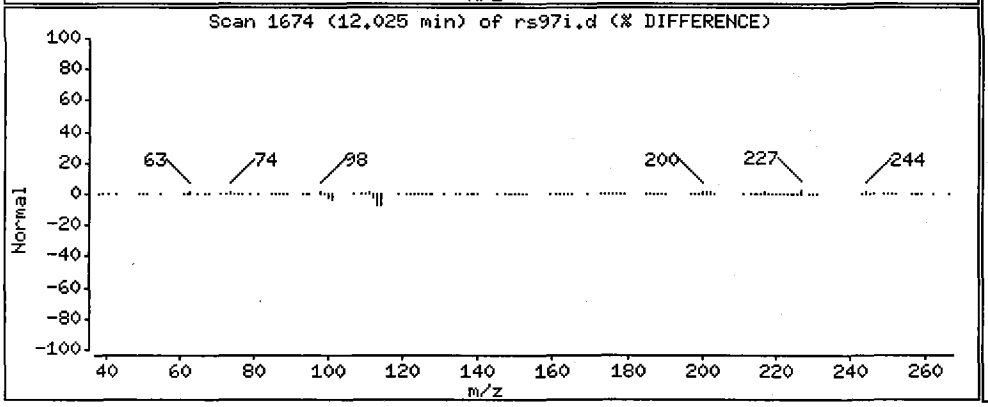












Data File: /chem1/nt12.i/20101110.b/rs97i.d

Date : 10-NOV-2010 16:24

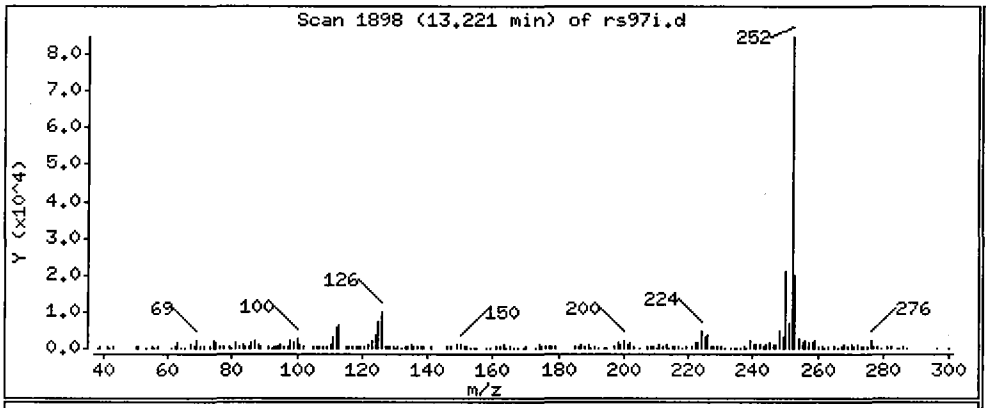
Client ID: DGS-07-2.22.7-10101 Instrument: nt12.i

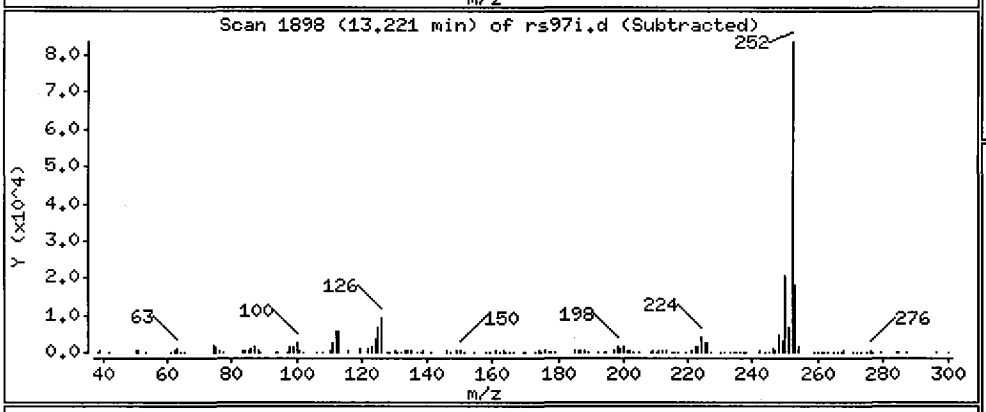
Sample Info: RS97I

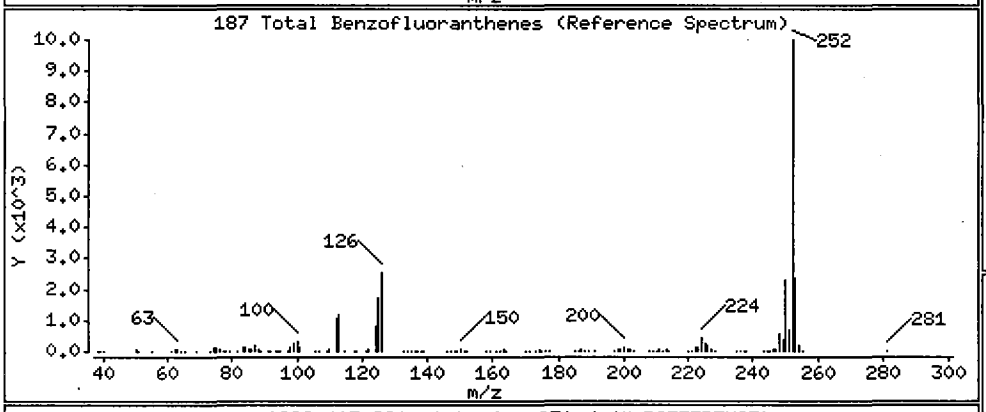
Volume Injected (uL): 1.0 Operator: VTS

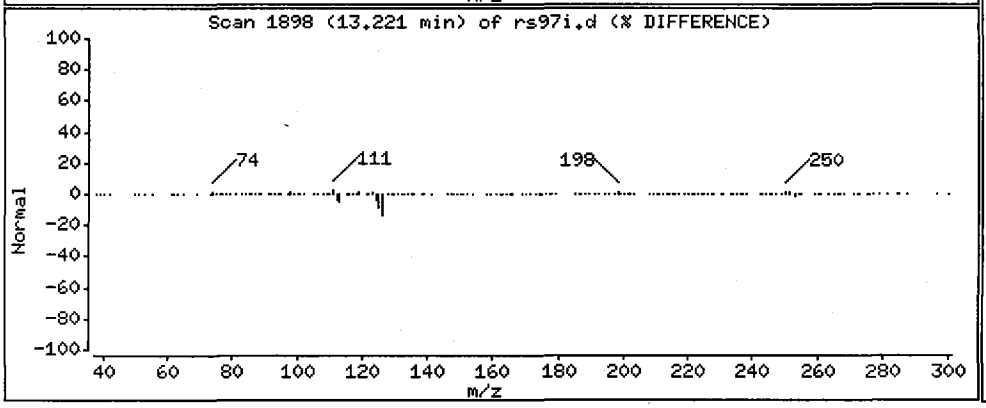
Column phase: ZB-5msi Column diameter: 0.32

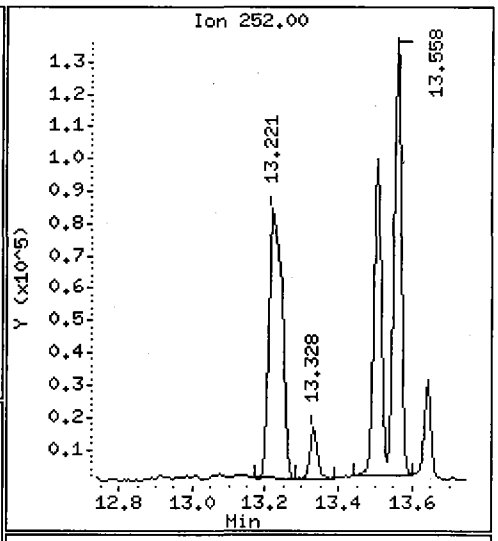
187 Total Benzofluoranthenes Concentration: 62410 ug/kg

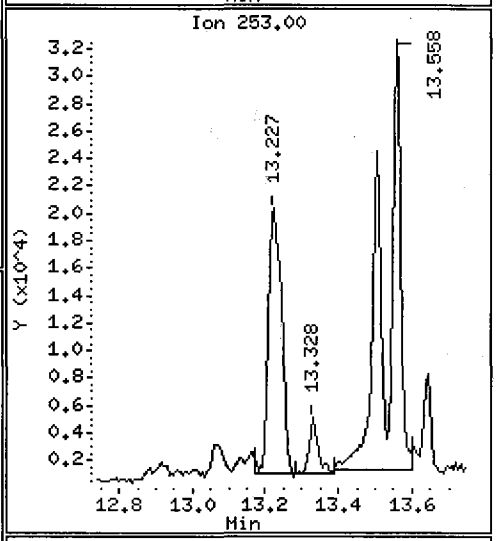


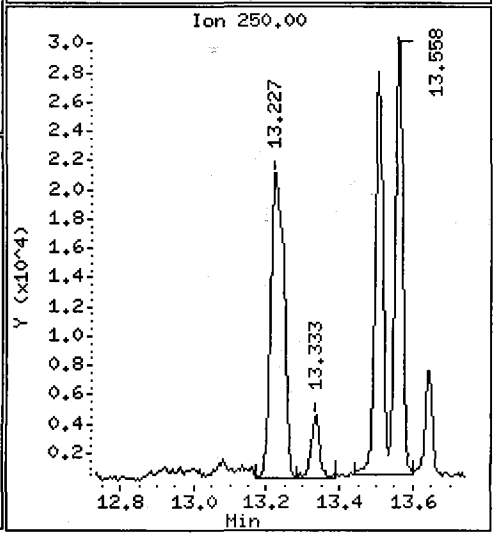












Data File: /chem1/nt12.i/20101110.b/rs97i.d

Date : 10-NOV-2010 16:24

Client ID: DGS-07-2.22.7-10101

Instrument: nt12.i

Sample Info: RS97I

Volume Injected (uL): 1.0

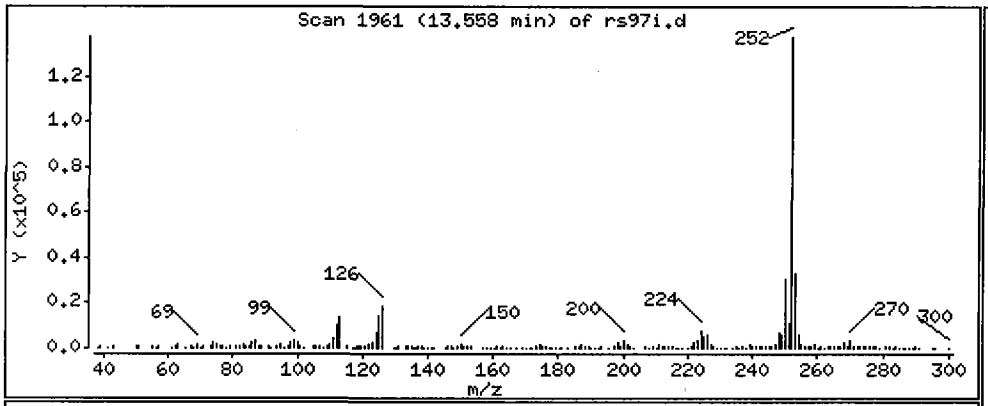
Operator: VTS

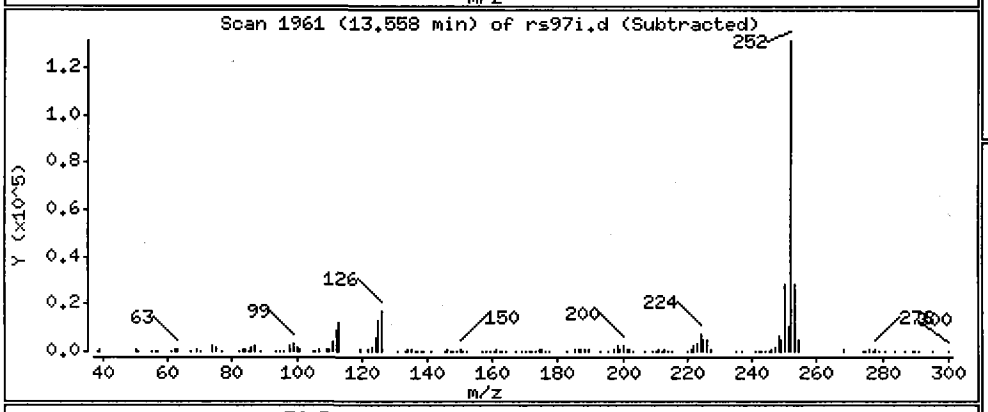
Column phase: ZB-5msi

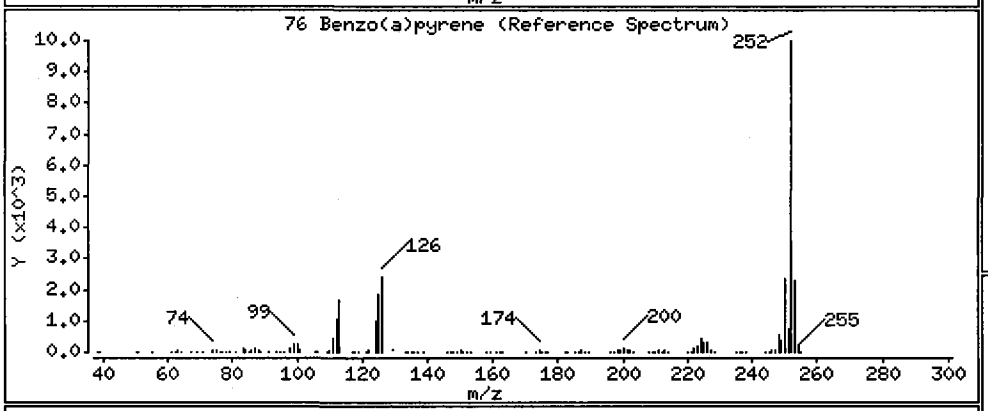
Column diameter: 0.32

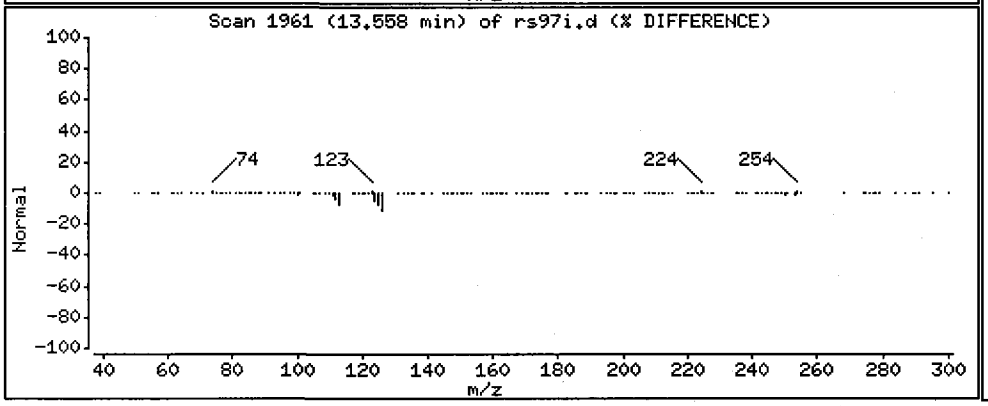
76 Benzo(a)pyrene

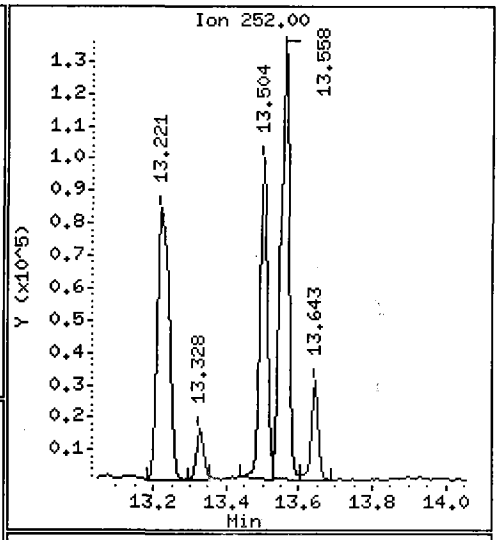
Concentration: 70160 ug/kg

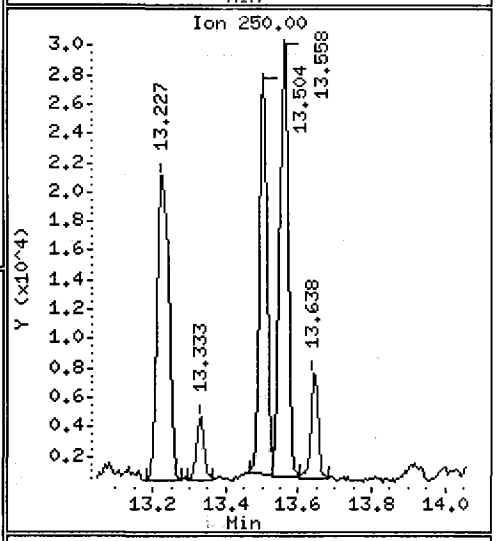


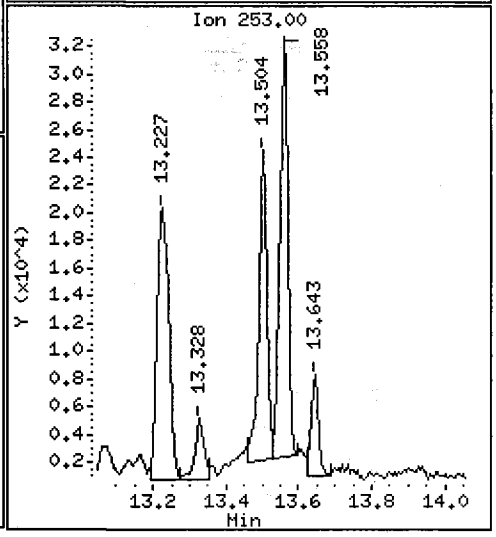












Data File: /chem1/nt12.i/20101110.b/rs97i.d

Date : 10-NOV-2010 16:24

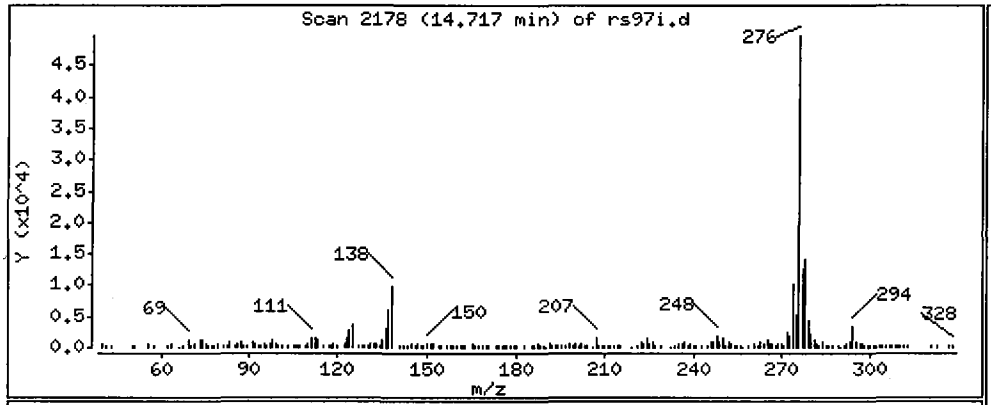
Client ID: DGS-07-2.22.7-10101 Instrument: nt12.i

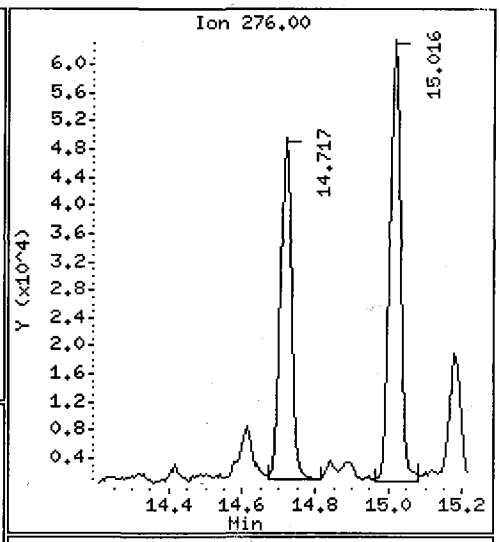
Sample Info: RS97I

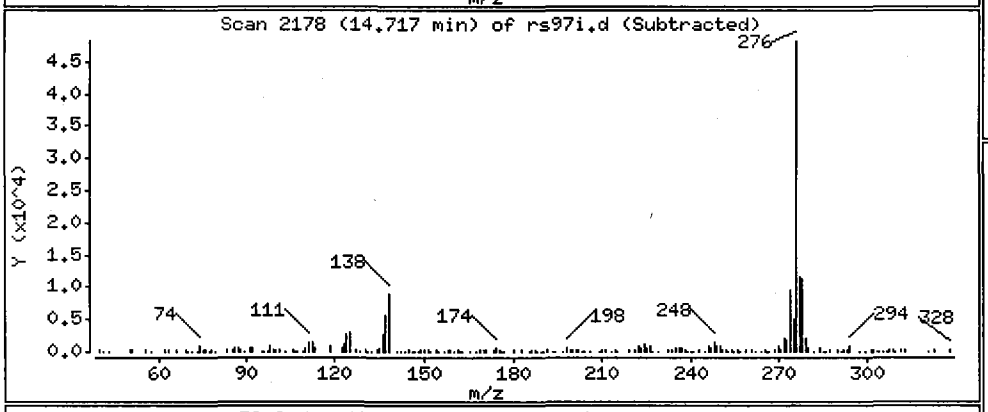
Volume Injected (uL): 1.0 Operator: VTS

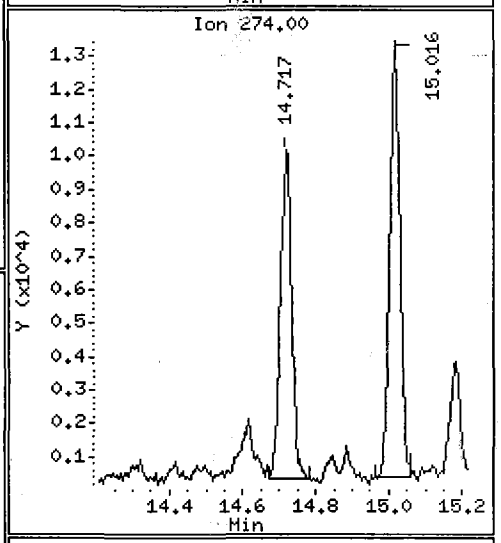
Column phase: ZB-5msi Column diameter: 0.32

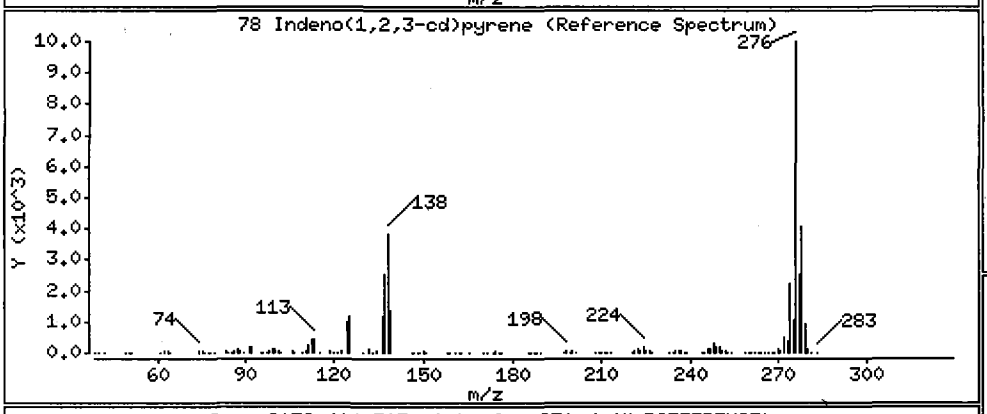
78 Indeno(1,2,3-cd)pyrene Concentration: 22850 ug/kg

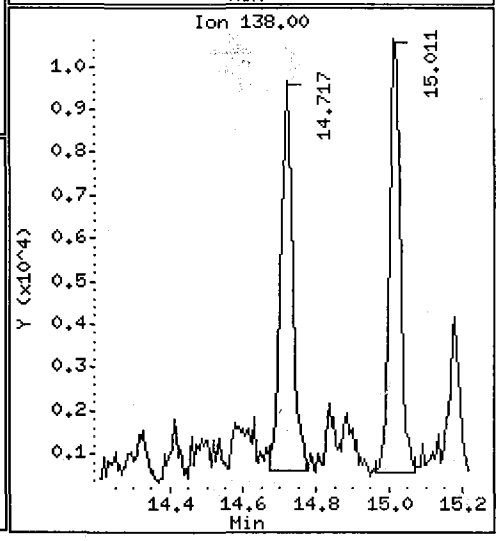


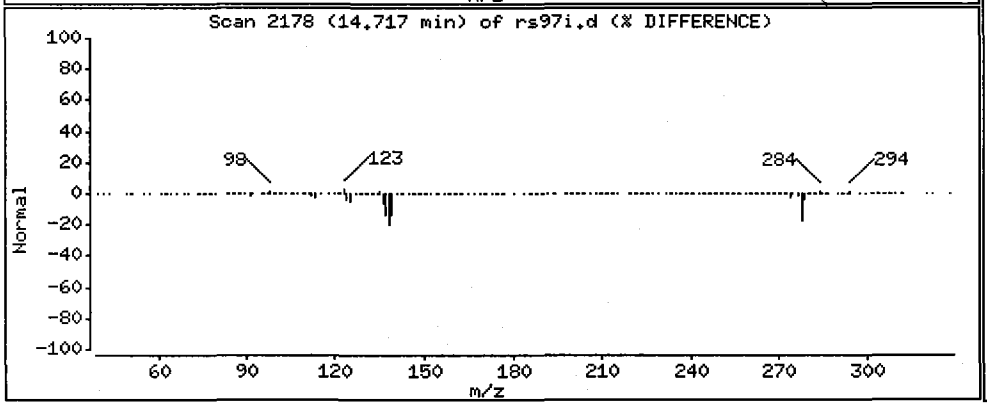












Data File: /chem1/nt12.i/20101110.b/rs97i.d

Date : 10-NOV-2010 16:24

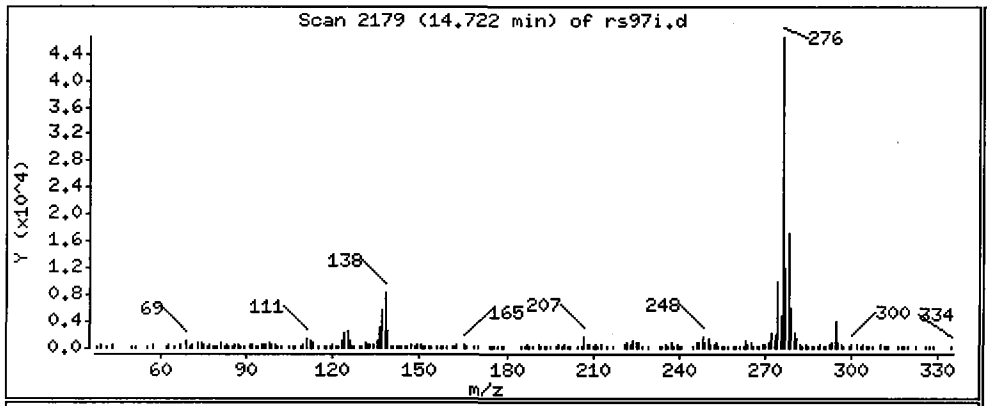
Client ID: DGS-07-2.22.7-10101 Instrument: nt12.i

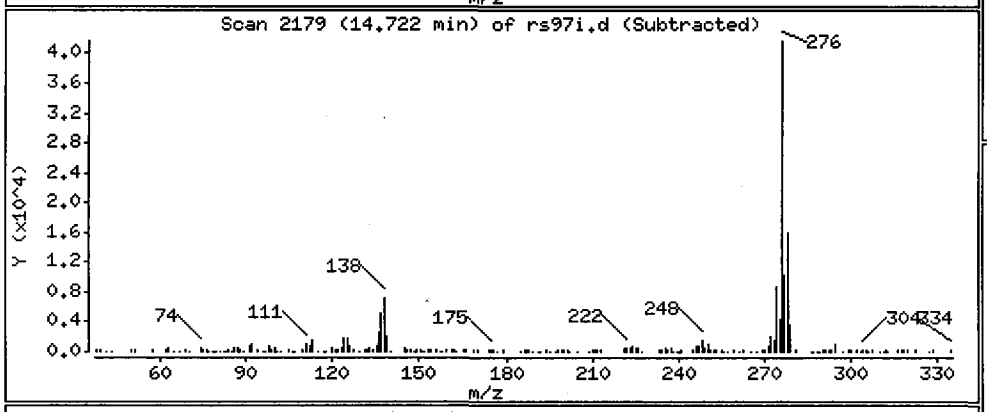
Sample Info: RS97I

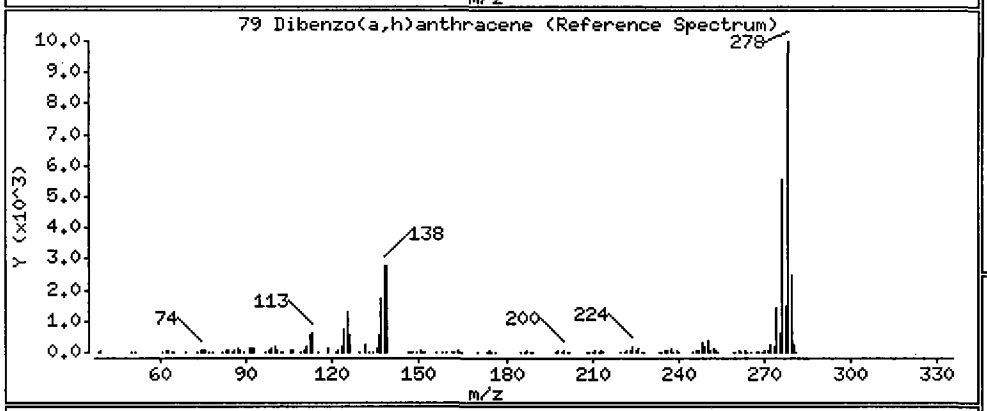
Volume Injected (uL): 1.0 Operator: VTS

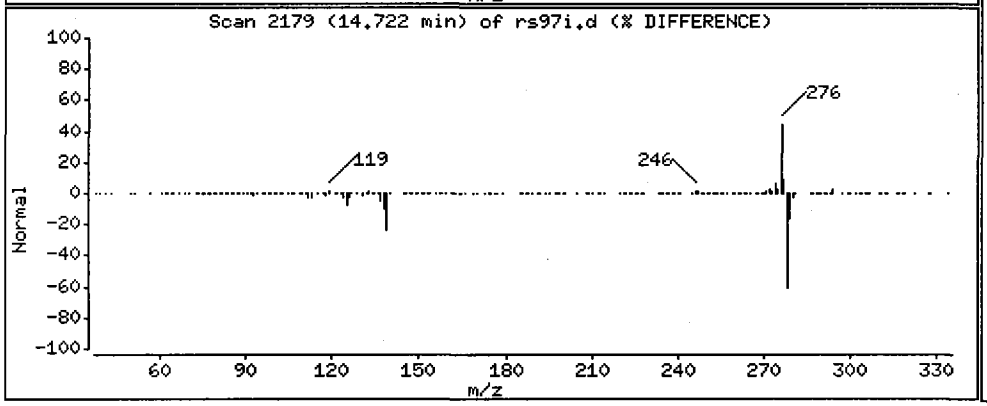
Column phase: ZB-5msi Column diameter: 0.32

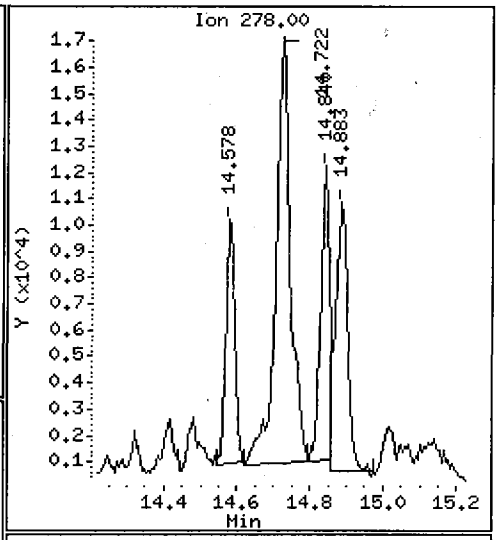
79 Dibenzo(a,h)anthracene Concentration: 12160 ug/kg

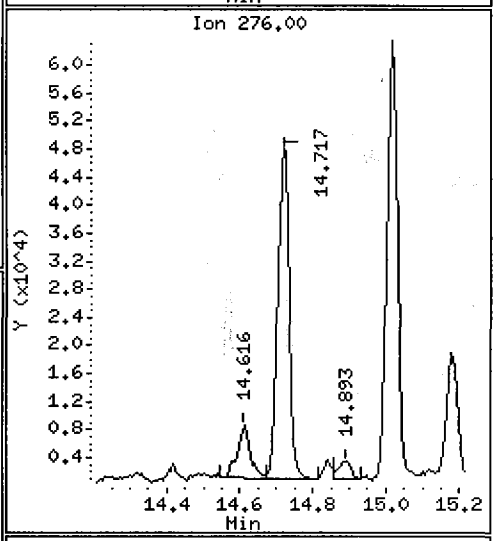


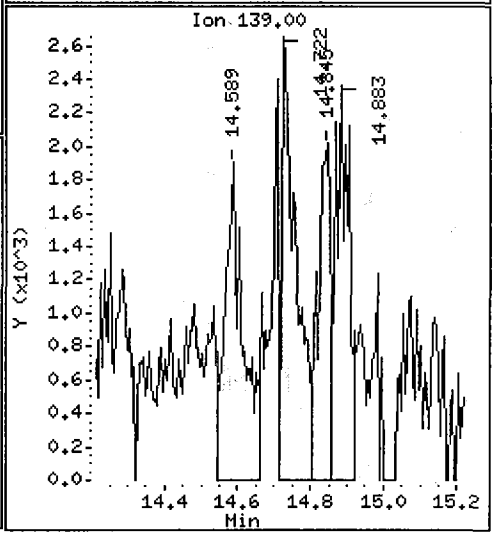












Data File: /chem1/nt12.i/20101110.b/rs97i.d

Date : 10-NOV-2010 16:24

Client ID: DGS-07-2.22.7-10101

Instrument: nt12.i

Sample Info: RS97I

Volume Injected (uL): 1.0

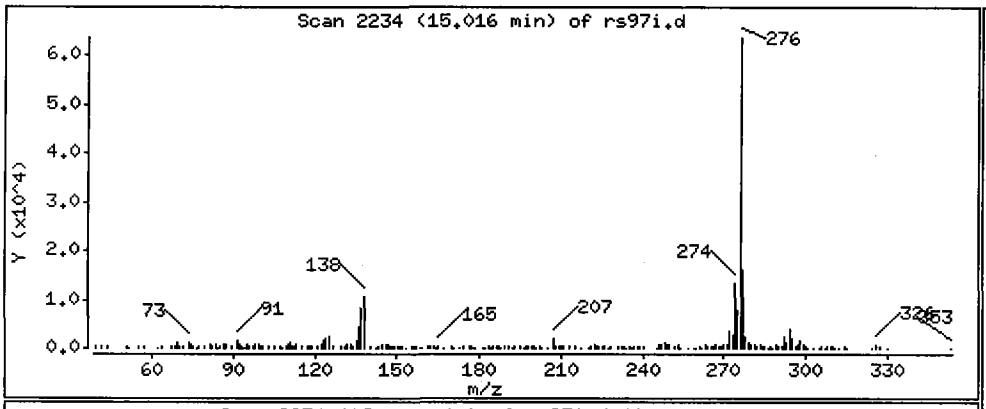
Operator: VTS

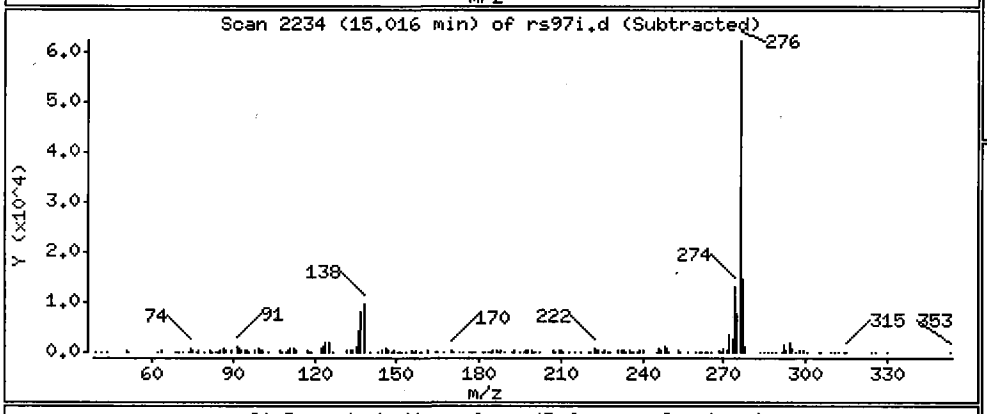
Column phase: ZB-5msi

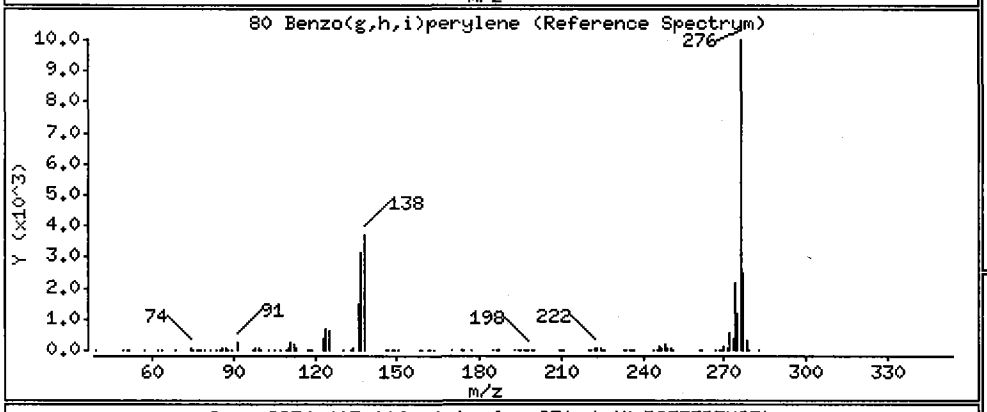
Column diameter: 0.32

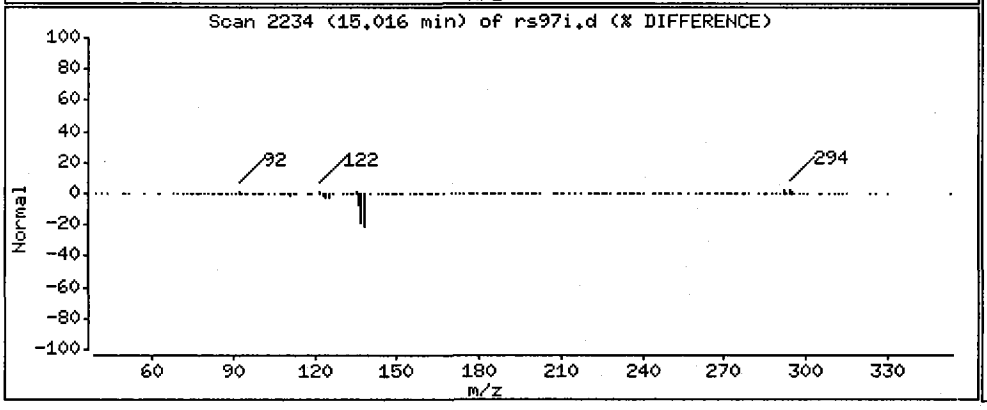
80 Benzo(g,h,i)perylene

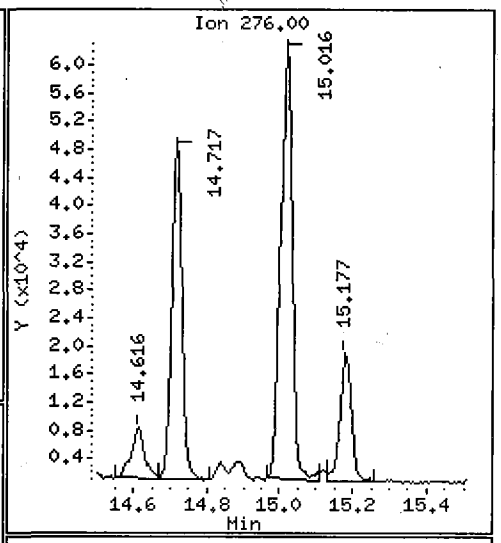
Concentration: 37930 ug/kg

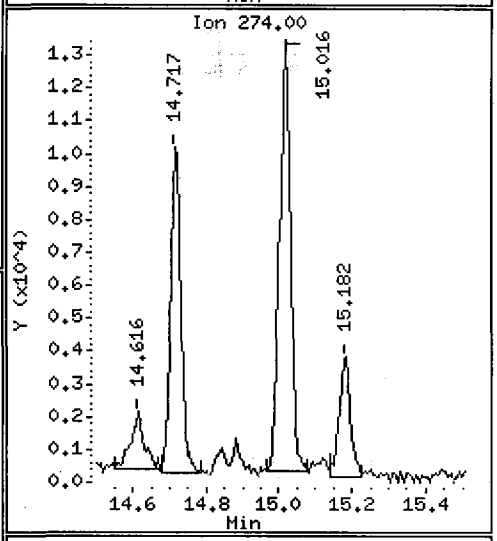


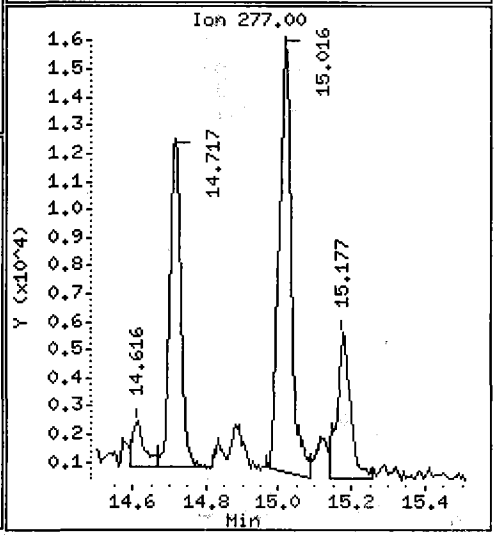












Analytical Resources, Inc.

Semivolatile Report SW846 Method 8270D

Data file : /chem1/nt12.i/20101110.b/rs97j.d
Lab Smp Id: RS97J Client Smp ID: DGS-07-034.2-101012
Inj Date : 10-NOV-2010 16:48
Operator : VTS Inst ID: nt12.i
Smp Info : RS97J,3
Misc Info : 10-27426
Comment : 1ul Injection
Method : /chem1/nt12.i/20101110.b/PNADMD.m
Meth Date : 10-Nov-2010 14:46 van Quant Type: ISTD
Cal Date : 30-OCT-2010 13:19 Cal File: ic1030f.d
Als bottle: 10
Dil Factor: 3.00000
Integrator: HP RTE Compound Sublist: pnas.sub
Target Version: 3.50
Processing Host: cserv3

Concentration Formula: Amt * DF * Vt/(Ws * (100 - M)/100) * CpndVariable

Name	Value	Description
DF	3.00000	Dilution Factor
Vt	10000.00000	Volume of final extract (uL)
Ws	5.09000	Weight of sample extracted (g)
M	48.50000	% Moisture

Cpnd Variable Local Compound Variable

Compounds	QUANT SIG MASS	RT	EXP RT	REL RT	RESPONSE	CONCENTRATIONS ON-COLUMN (ug/mL)	FINAL (ug/kg)
* 27 Naphthalene-d8	136	4.887	4.888	(1.000)	173847	20.0000	
28 Naphthalene	128	4.909	4.909	(1.004)	14713	1.48700	17020
32 2-Methylnaphthalene	141	5.726	5.726	(1.172)	29157	5.52091	63180
105 1-methylnaphthalene	141	5.849	5.854	(1.197)	19443	3.57053	40860
$ 36 2-Fluorobiphenyl	172	6.202	6.202	(0.888)	4341	0.53070	6074
40 Acenaphthylene	152	Compound Not Detected.					
* 42 Acenaphthene-d10	164	6.987	6.992	(1.000)	106323	20.0000	
44 Acenaphthene	153	7.024	7.030	(1.005)	30715	4.69731	53760
46 Dibenzofuran	168	7.222	7.222	(1.034)	5411	0.53965	6176
49 Fluorene	166	7.639	7.639	(1.093)	30164	4.02901	46110
* 59 Phenanthrene-d10	188	8.761	8.761	(1.000)	185869	20.0000	
60 Phenanthrene	178	8.787	8.787	(1.003)	290577	29.4688	337300
61 Anthracene	178	8.846	8.846	(1.010)	67434	6.61698	75730
62 Carbazole	167	9.065	9.065	(1.035)	11592	~~1.41~~001	16140 NA

Compounds	QUANT SIG MASS	RT	EXP RT	REL RT	RESPONSE	CONCENTRATIONS ON-COLUMN (ug/mL)	FINAL (ug/kg)
64 Fluoranthene	202	10.240	10.235	(0.854)	249746	18.9600	217000
65 Pyrene	202	10.502	10.502	(0.876)	368830	28.2243	323000
$ 66 Terphenyl-d14	244	10.737	10.737	(0.896)	3799	0.45572	5215
68 Benzo(a)anthracene	228	11.971	11.971	(0.999)	118752	11.2135	128300
* 69 Chrysene-d12	240	11.987	11.993	(1.000)	188575	20.0000	
71 Chrysene	228	12.019	12.019	(1.003)	146162	14.7627	169000
187 Total Benzofluoranthenes	252	13.227	13.243	(0.972)	152148	15.4526	176800
76 Benzo(a)pyrene	252	13.553	13.553	(0.996)	137640	15.2173	174200
* 77 Perylene-d12	264	13.611	13.611	(1.000)	165309	20.0000	
99 Perylene	252	13.638	13.638	(1.002)	28794	~~2.99~~365	34260 NR
78 Indeno(1,2,3-cd)pyrene	276	14.706	14.712	(1.080)	76481	5.69534	65180
79 Dibenzo(a,h)anthracene	278	14.717	14.723	(1.081)	25156	2.27539	26040
80 Benzo(g,h,i)perylene	276	15.006	15.006	(1.102)	92699	8.40283	96170

VB
11-11-10

Analytical Resources, Inc.

INTERNAL STANDARD COMPOUNDS
AREA AND RT SUMMARY

Instrument ID: nt12.i
Lab File ID: rs97j.d
Lab Smp Id: RS97J
Analysis Type: SV
Quant Type: ISTD
Operator: VTS
Method File: /chem1/nt12.i/20101110.b/PNADMD.m
Misc Info: 10-27426

Calibration Date: 10-NOV-2010
Calibration Time: 13:29
Client Smp ID: DGS-07-034.2-101
Level: LOW
Sample Type: Sediment

Test Mode:
Use Initial Calibration Level 4.

COMPOUND	STANDARD	AREA LIMIT LOWER	AREA LIMIT UPPER	SAMPLE	%DIFF
27 Naphthalene-d8	237664	118832	475328	173847	-26.85
42 Acenaphthene-d10	143363	71682	286726	106323	-25.84
59 Phenanthrene-d10	245437	122718	490874	185869	-24.27
69 Chrysene-d12	199260	99630	398520	188575	-5.36
77 Perylene-d12	197636	98818	395272	165309	-16.36

COMPOUND	STANDARD	RT LIMIT LOWER	RT LIMIT UPPER	SAMPLE	%DIFF
27 Naphthalene-d8	4.89	4.39	5.39	4.89	0.00
42 Acenaphthene-d10	6.99	6.49	7.49	6.99	-0.08
59 Phenanthrene-d10	8.76	8.26	9.26	8.76	0.00
69 Chrysene-d12	11.99	11.49	12.49	11.99	-0.05
77 Perylene-d12	13.61	13.11	14.11	13.61	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.

Analytical Resources, Inc.

RECOVERY REPORT

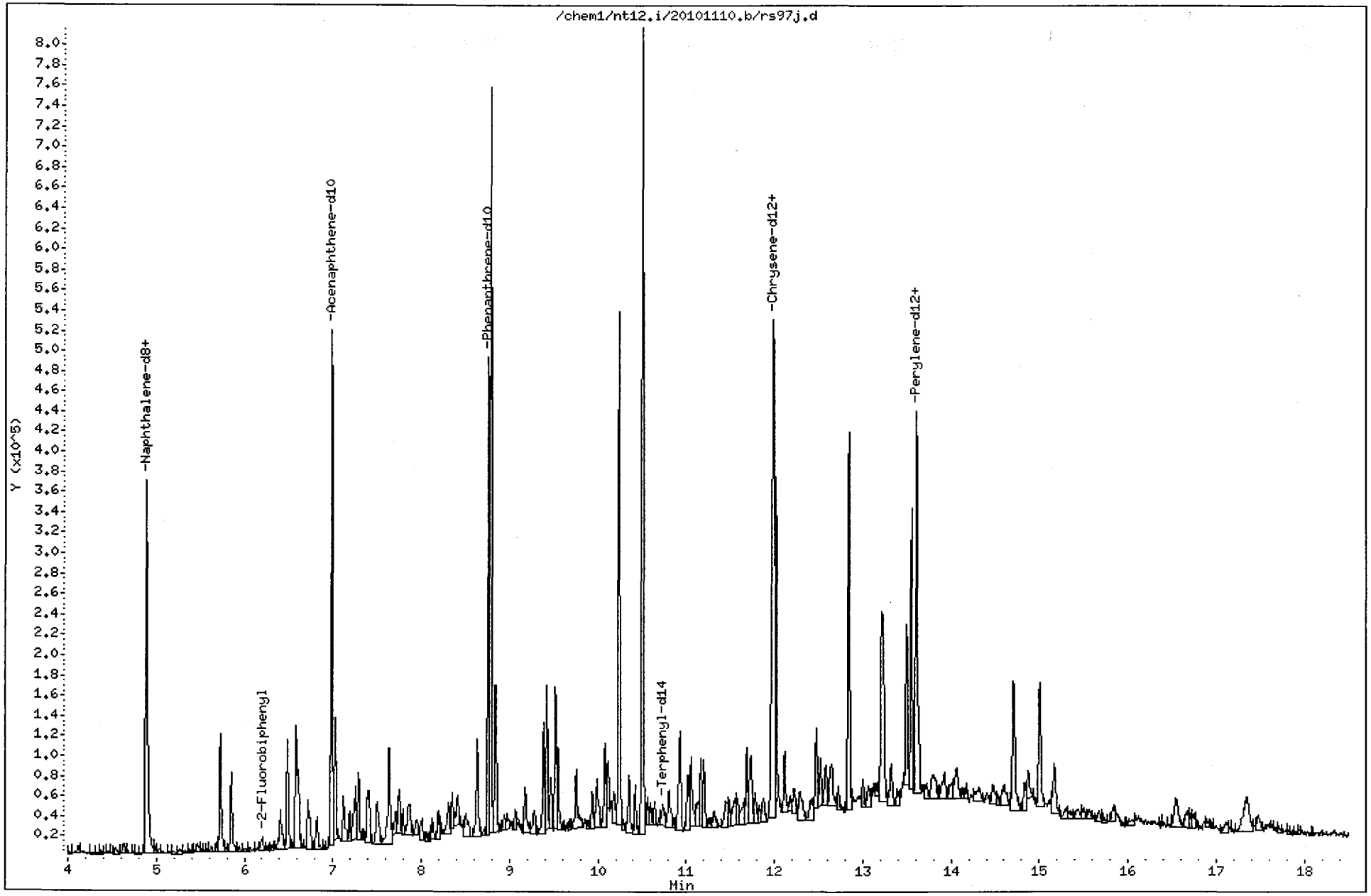
Client Name: NW Natural
Sample Matrix: SOLID
Lab Smp Id: RS97J
Level: LOW
Data Type: MS DATA
SpikeList File: SONICLCS.spk
Sublist File: pnas.sub
Method File: /chem1/nt12.i/20101110.b/PNADMD.m
Misc Info: 10-27426

Client SDG: RS97
Fraction: SV
Client Smp ID: DGS-07-034.2-101012
Operator: VTS
SampleType: SAMPLE
Quant Type: ISTD

SURROGATE COMPOUND	CONC ADDED ug/kg	CONC RECOVERED ug/kg	% RECOVERED	LIMITS
$ 36 2-Fluorobiphenyl	9537	6074	63.68	34-100
$ 66 Terphenyl-d14	9537	5215	54.69	35-112

Data File: /chem1/nt12.i/20101110.b/rs97j.d
Date : 10-NOV-2010 16:48
Client ID: DGS-07-034.2-101012
Sample Info: RS97J,3
Volume Injected (uL): 1.0
Column phase: ZB-5msi

Instrument: nt12.i
Operator: VTS
Column diameter: 0.32



RS97J00137

Data File: /chem1/nt12.i/20101110.b/rs97j.d

Date : 10-NOV-2010 16:48

Client ID: DGS-07-034.2-101012

Instrument: nt12.i

Sample Info: RS97J,3

Volume Injected (uL): 1.0

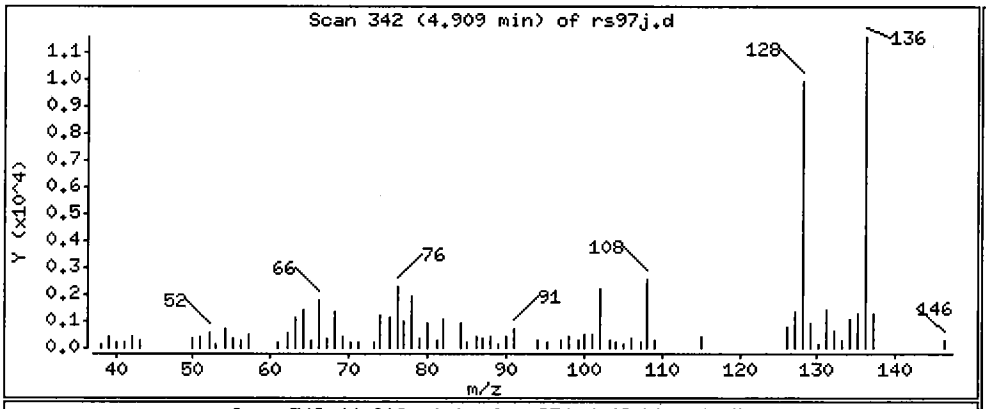
Operator: VTS

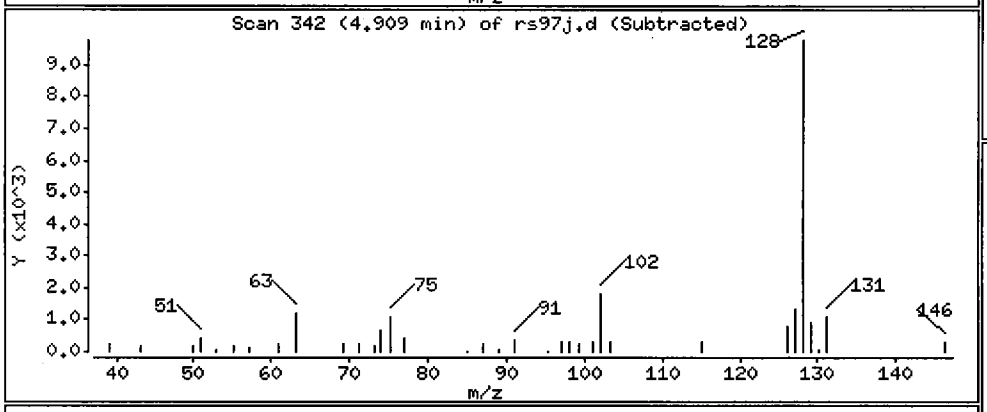
Column phase: ZB-5msi

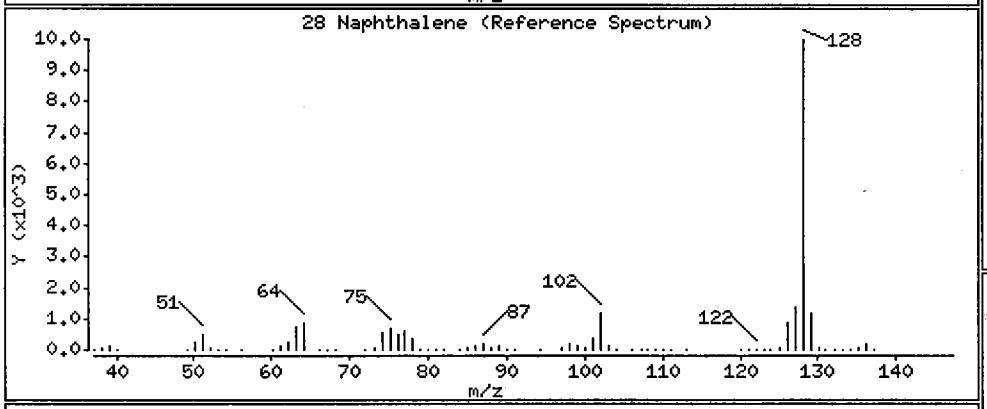
Column diameter: 0.32

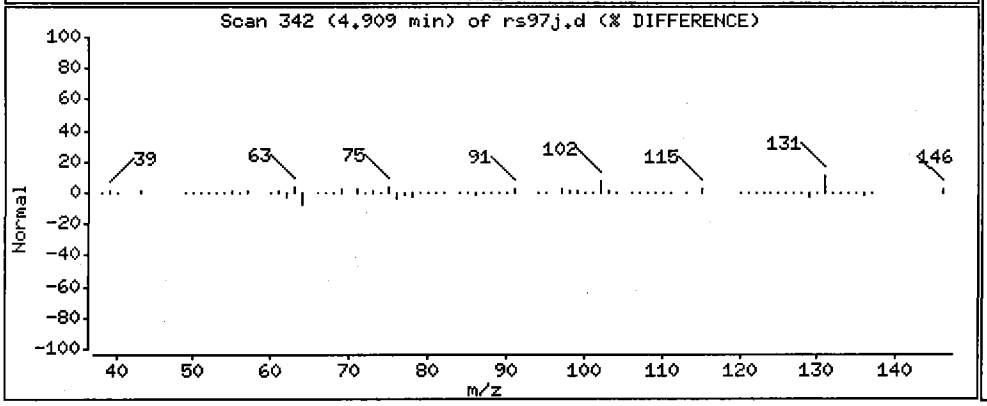
28 Naphthalene

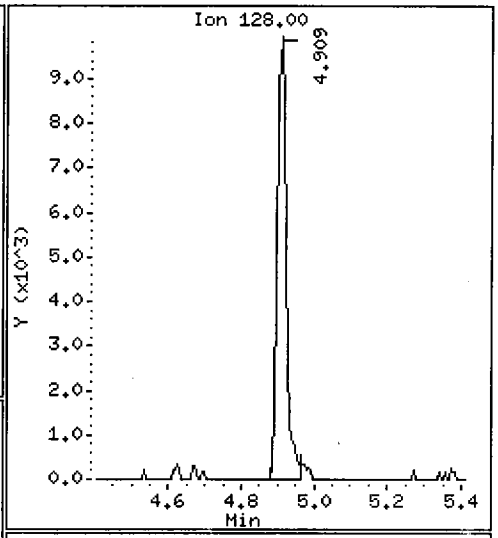
Concentration: 17020 ug/kg

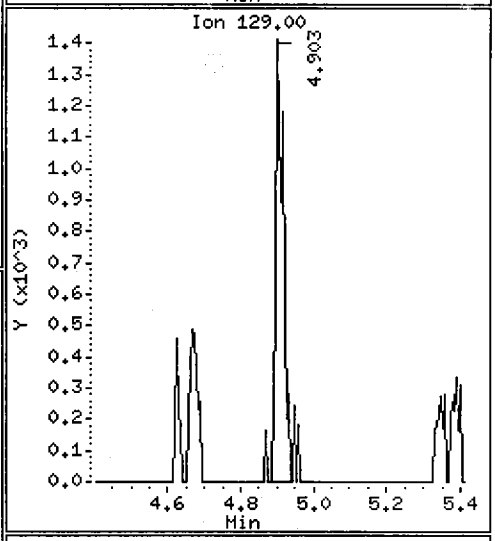


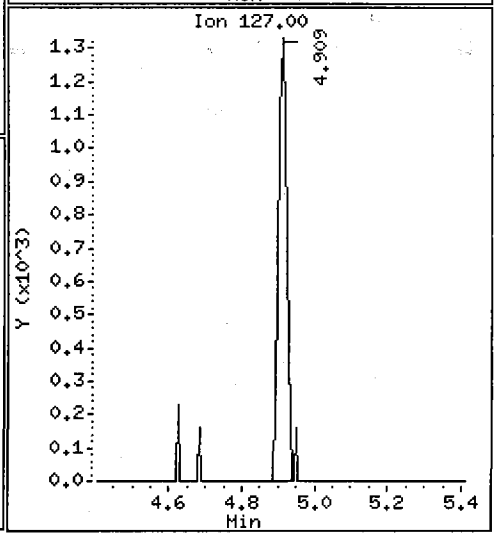












Data File: /chem1/nt12.i/20101110.b/rs97j.d

Date : 10-NOV-2010 16:48

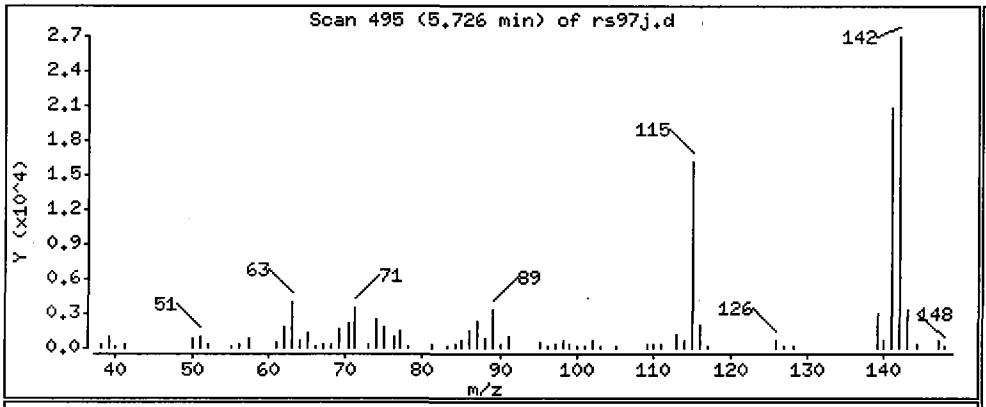
Client ID: DGS-07-034.2-101012 Instrument: nt12.i

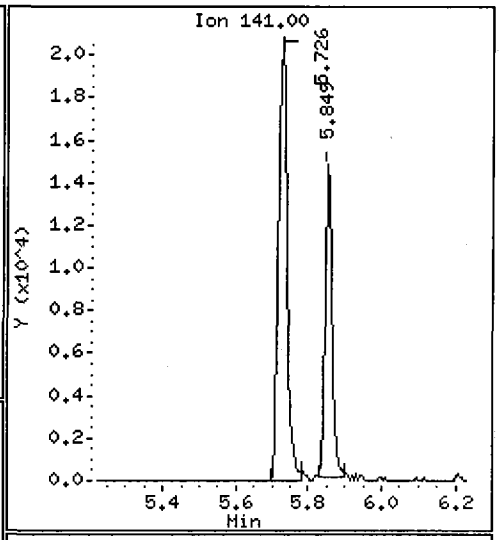
Sample Info: RS97J,3

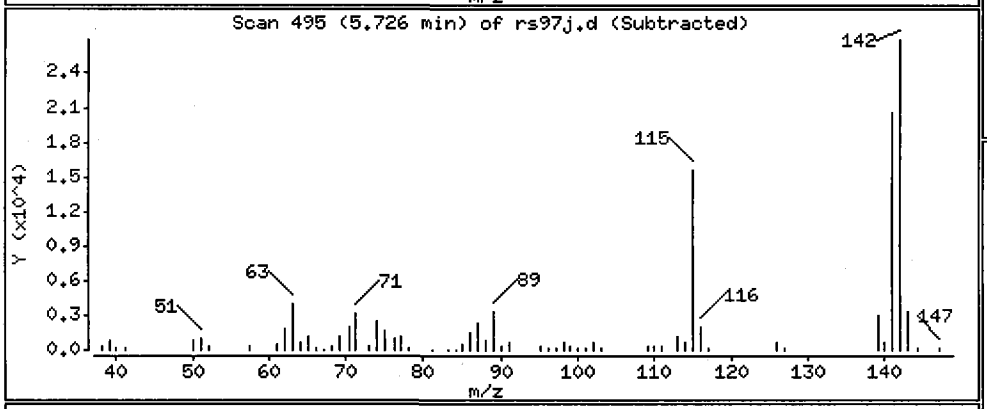
Volume Injected (uL): 1.0 Operator: VTS

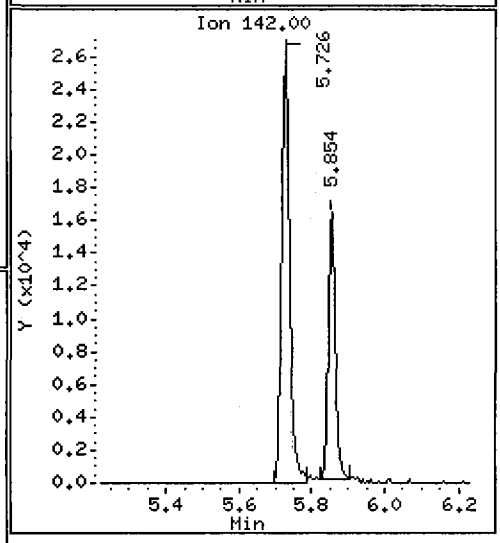
Column phase: ZB-5msi Column diameter: 0.32

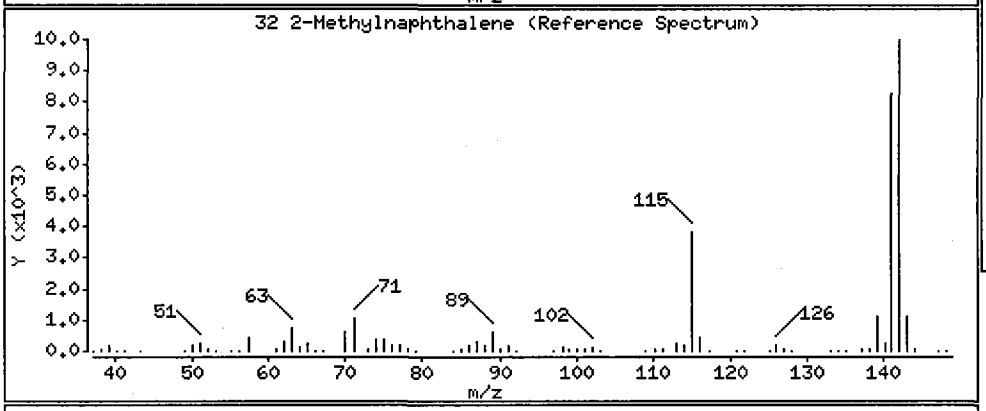
32 2-Methylnaphthalene Concentration: 63180 ug/kg

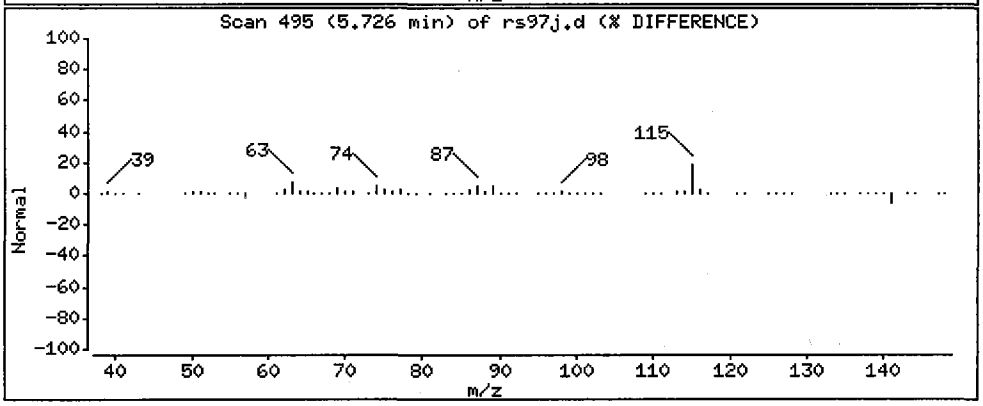












Data File: /chem1/nt12.i/20101110.b/rs97j.d

Date : 10-NOV-2010 16:48

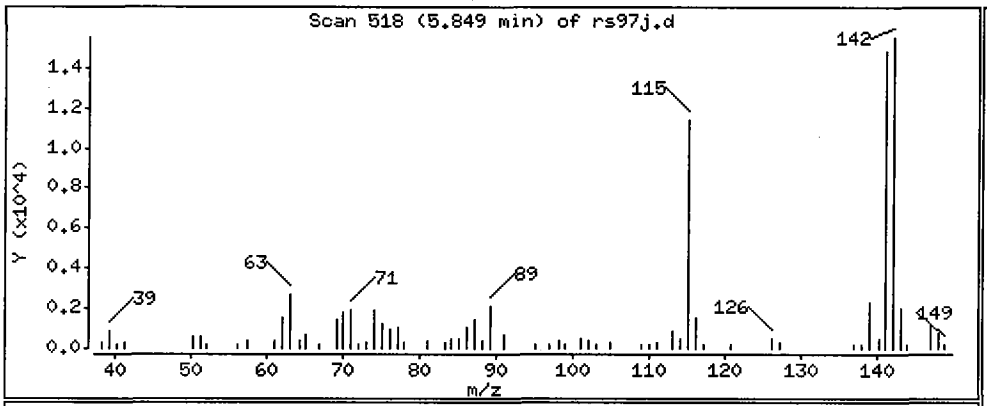
Client ID: DGS-07-034.2-101012 Instrument: nt12.i

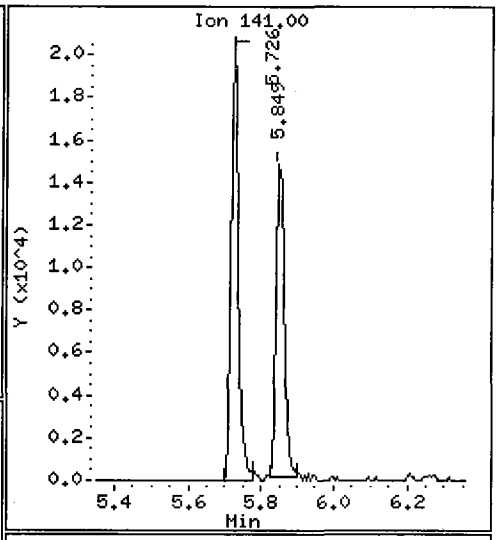
Sample Info: RS97J,3

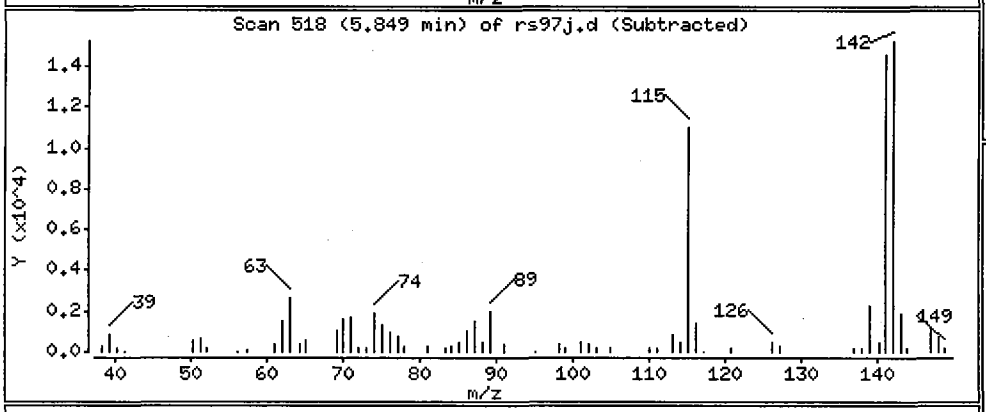
Volume Injected (uL): 1.0 Operator: VTS

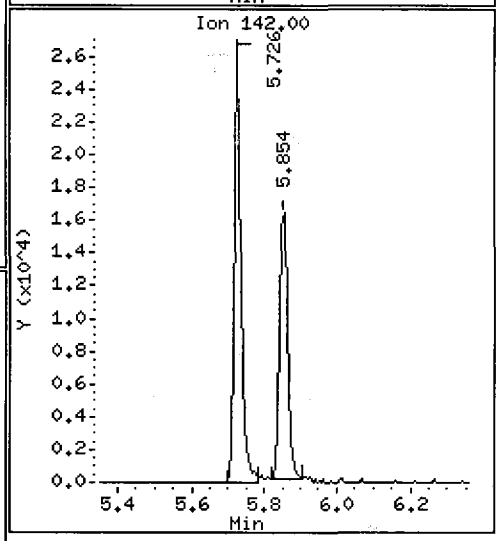
Column phase: ZB-5msi Column diameter: 0.32

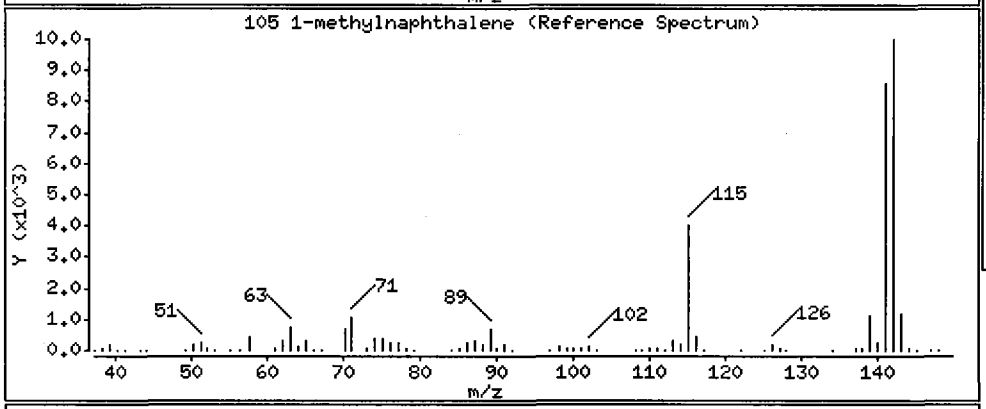
105 1-methylnaphthalene Concentration: 40860 ug/kg

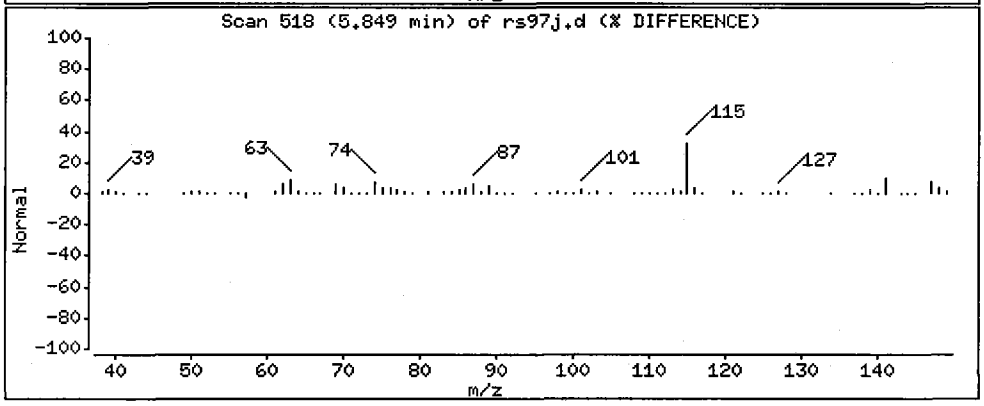












Data File: /chem1/nt12.i/20101110.b/rs97j.d

Date : 10-NOV-2010 16:48

Client ID: DGS-07-034.2-101012

Instrument: nt12.i

Sample Info: RS97J,3

Volume Injected (uL): 1.0

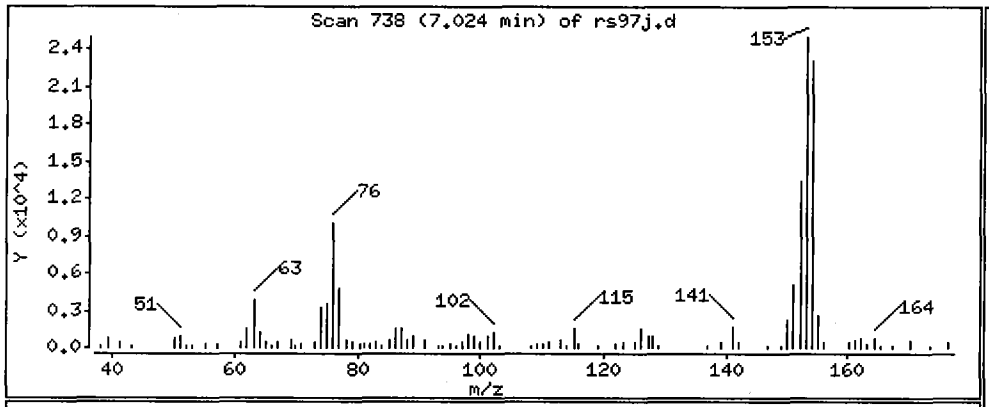
Operator: VTS

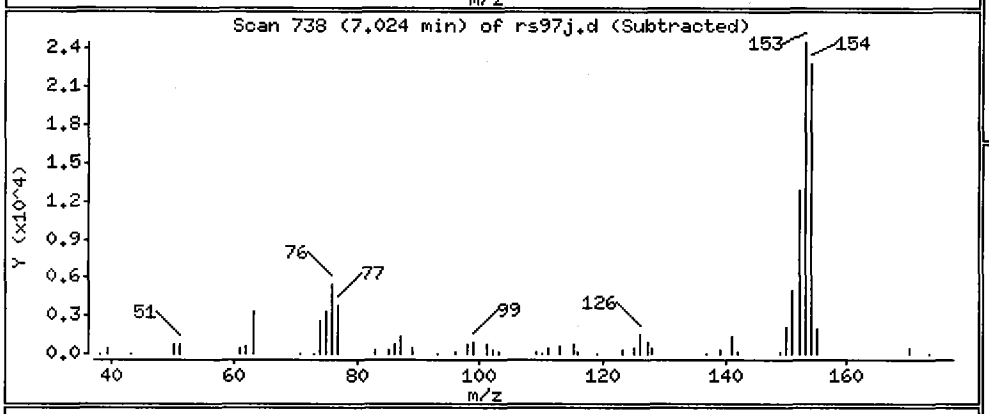
Column phase: ZB-5msi

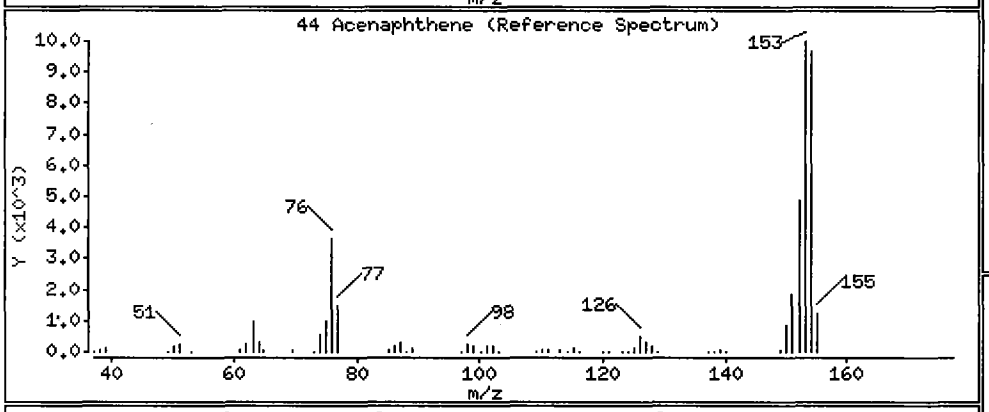
Column diameter: 0.32

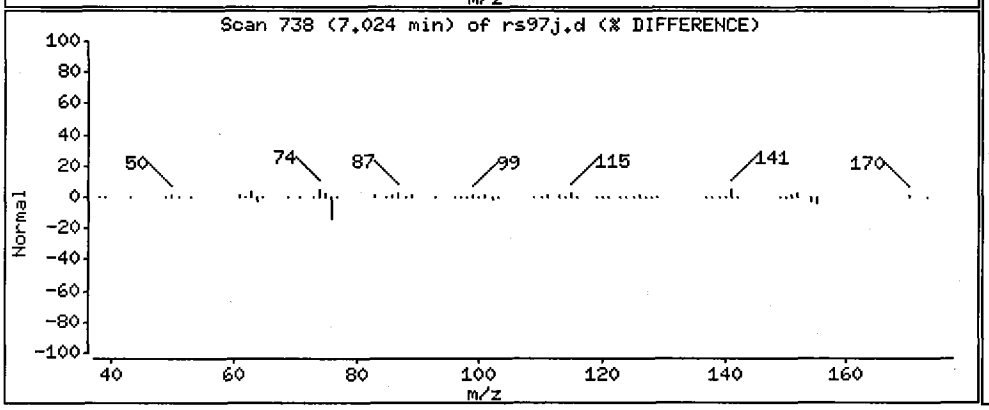
44 Acenaphthene

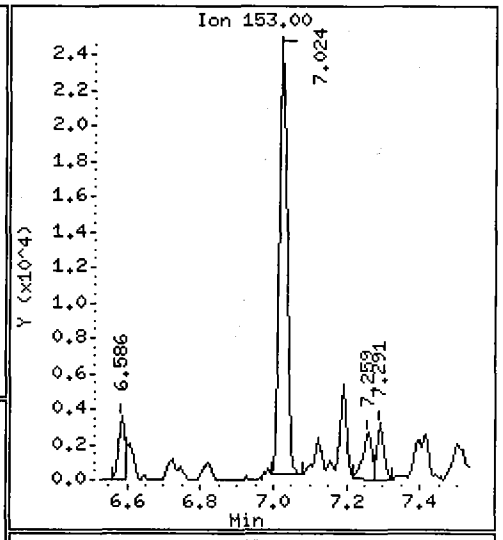
Concentration: 53760 ug/kg

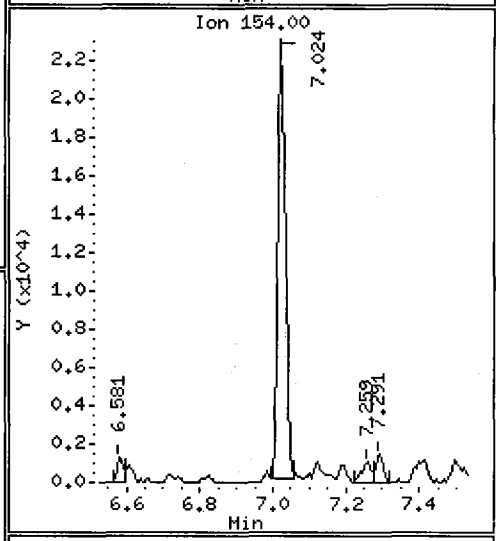


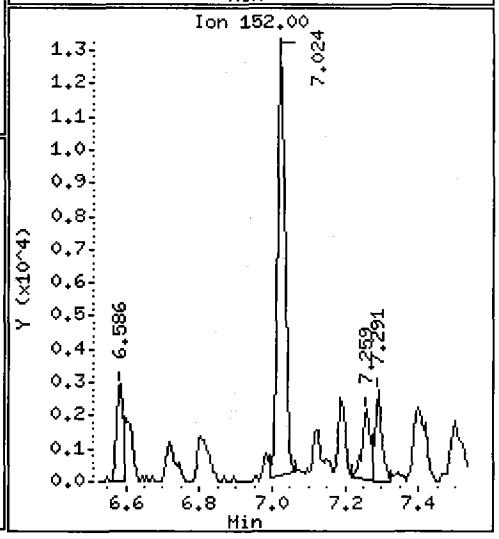












Data File: /chem1/nt12.i/20101110.b/rs97j.d

Date : 10-NOV-2010 16:48

Client ID: DGS-07-034.2-101012

Instrument: nt12.i

Sample Info: RS97J,3

Volume Injected (uL): 1.0

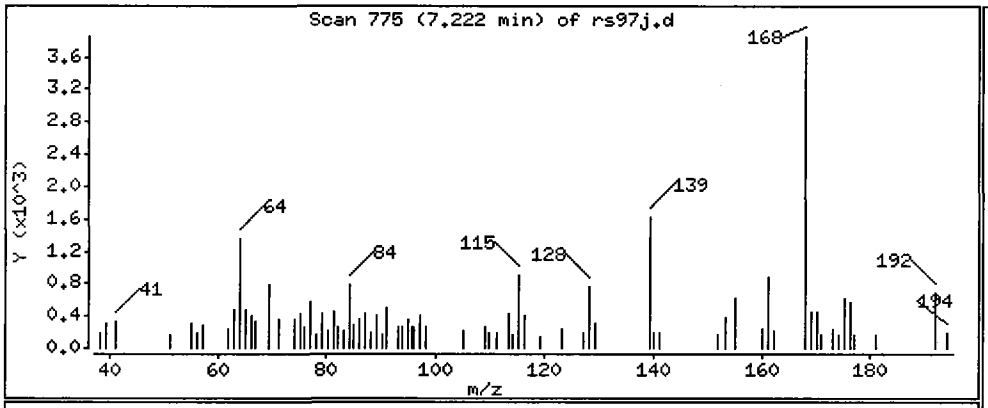
Operator: VTS

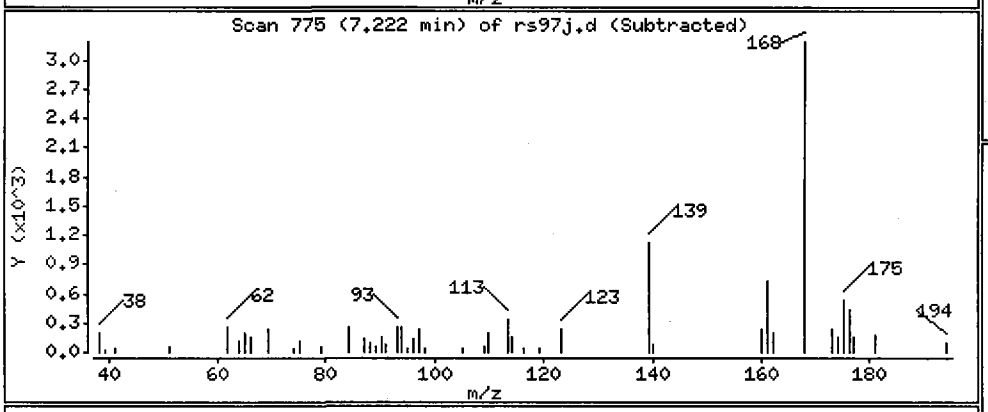
Column phase: ZB-5msi

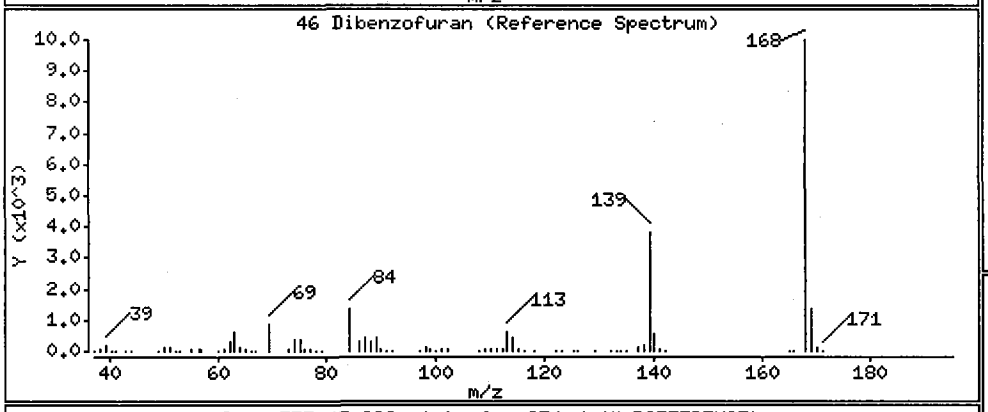
Column diameter: 0.32

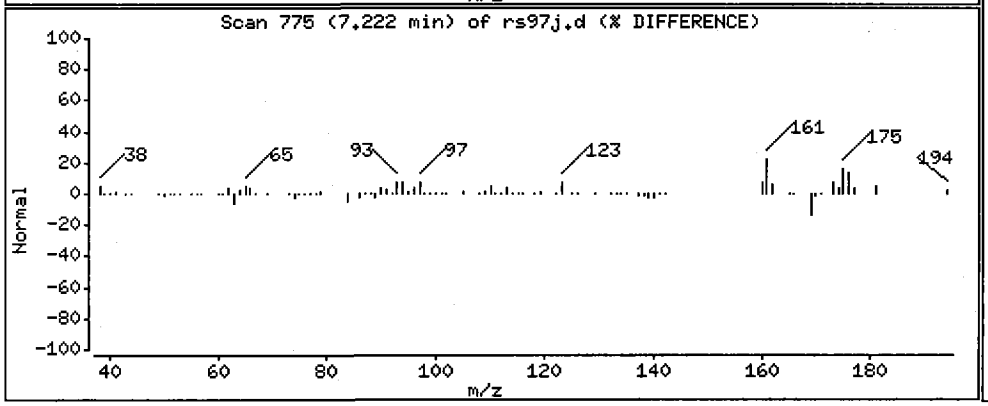
46 Dibenzofuran

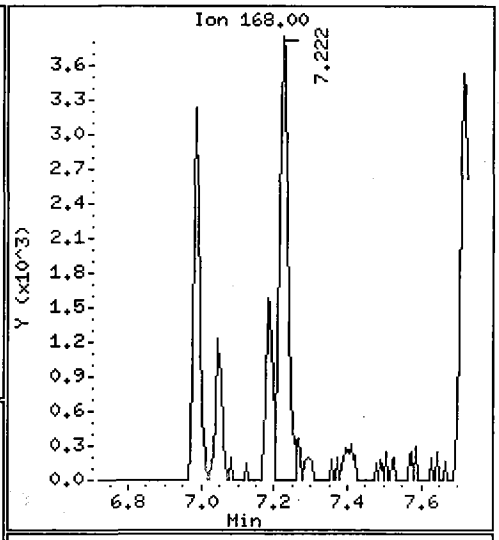
Concentration: 6176 ug/kg

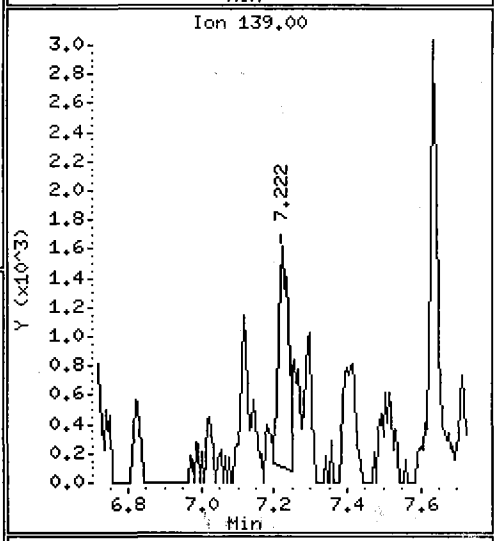


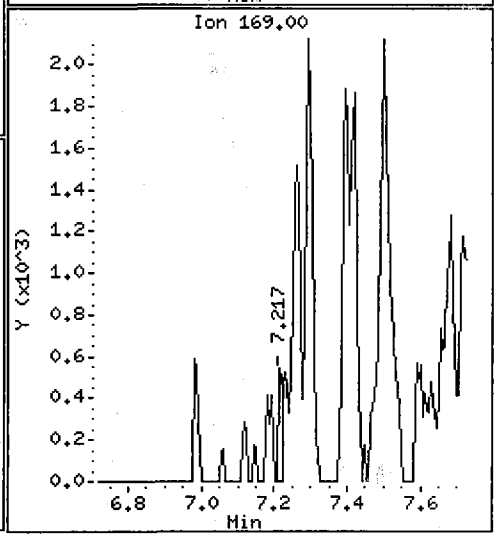












Data File: /chem1/nt12.i/20101110.b/rs97j.d

Date : 10-NOV-2010 16:48

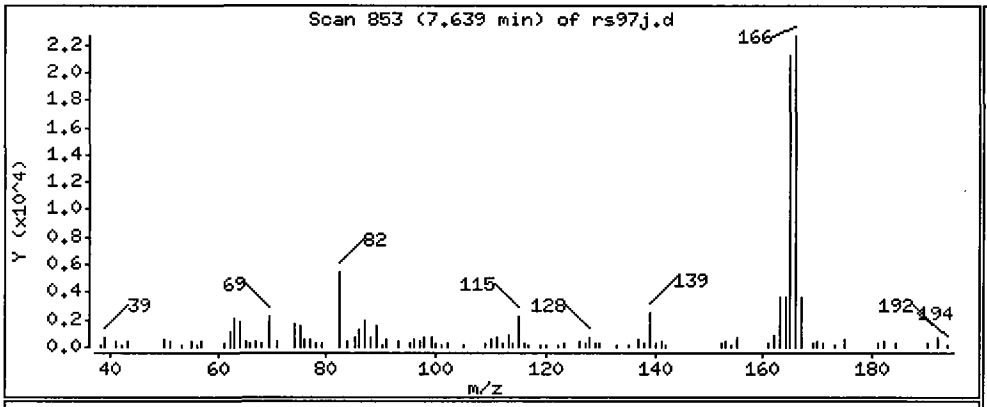
Client ID: DGS-07-034.2-101012 Instrument: nt12.i

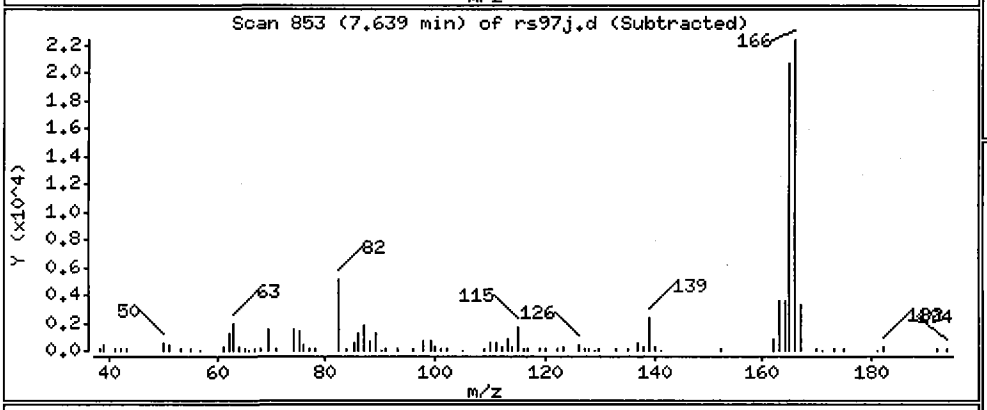
Sample Info: RS97J,3

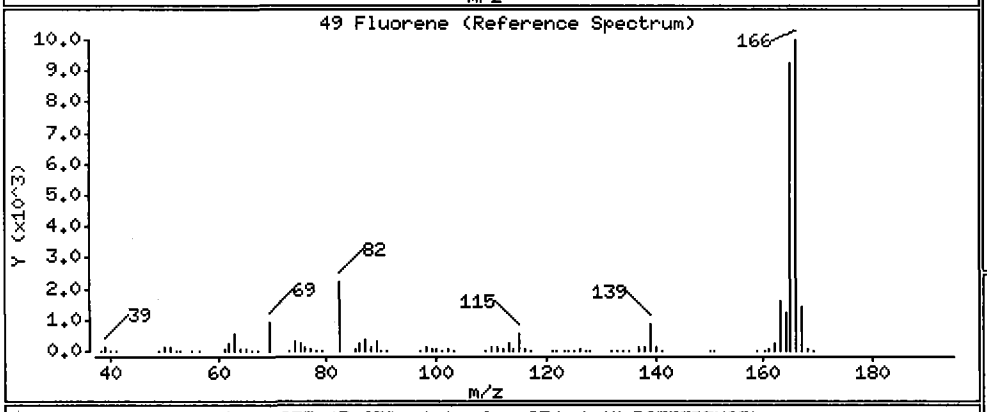
Volume Injected (uL): 1.0 Operator: VTS

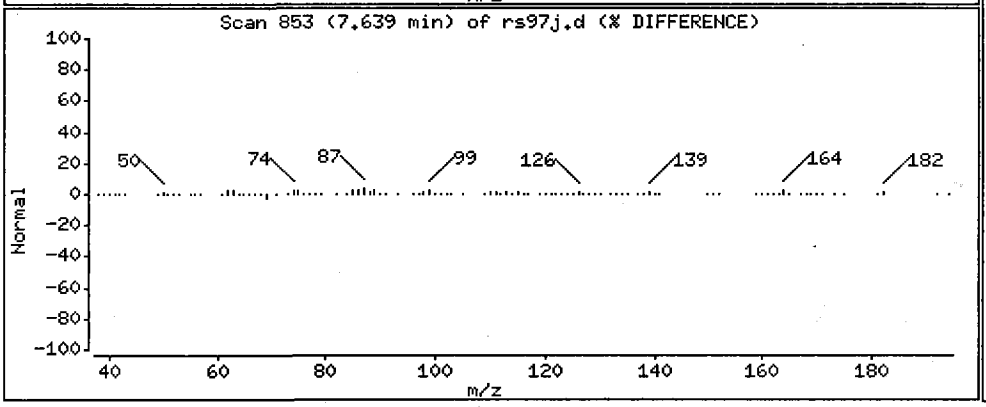
Column phase: ZB-5msi Column diameter: 0.32

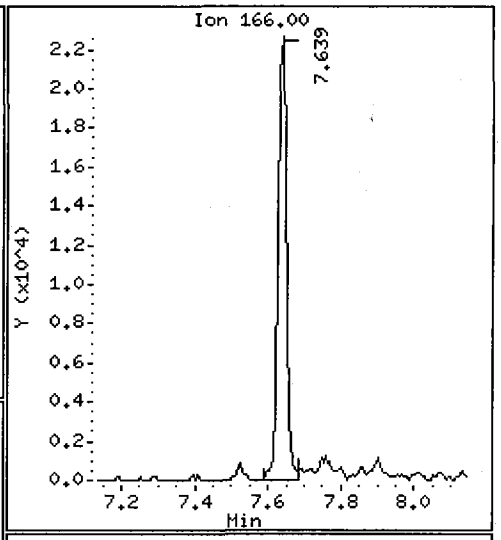
49 Fluorene Concentration: 46110 ug/kg

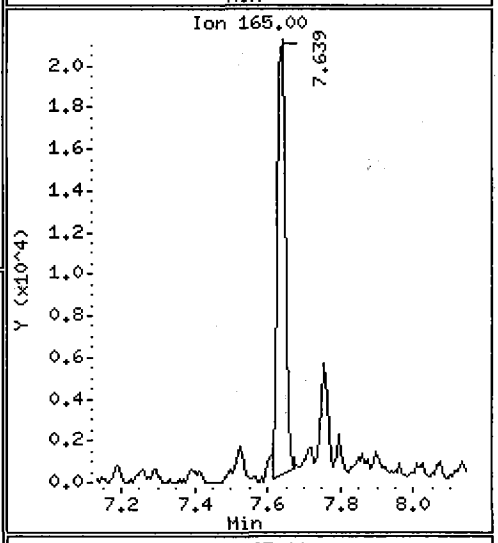


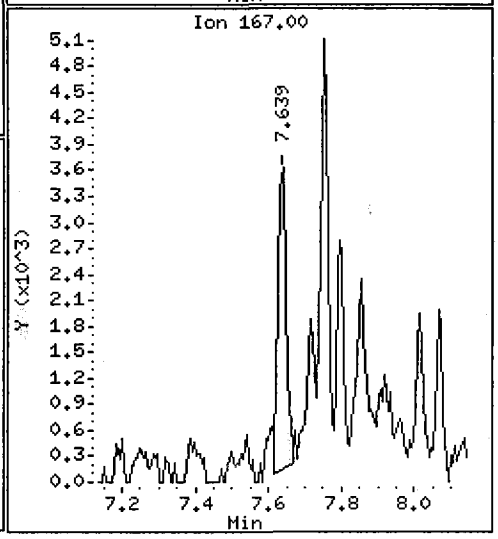












Data File: /chem1/nt12.i/20101110.b/rs97j.d

Date : 10-NOV-2010 16:48

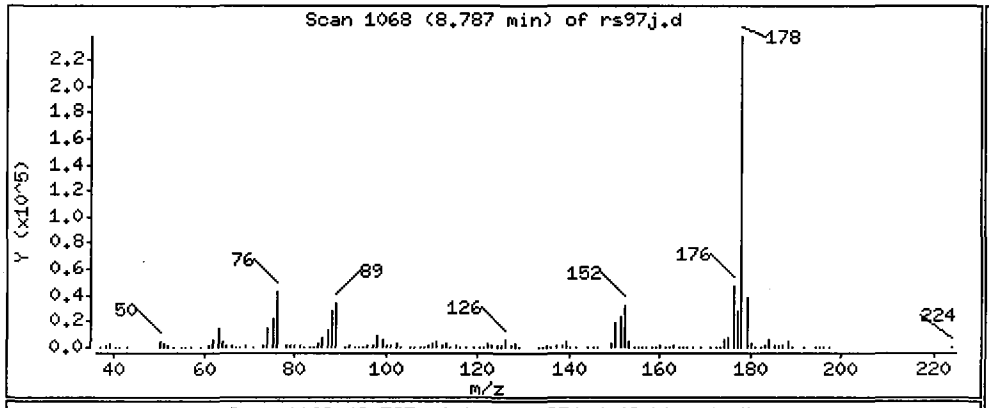
Client ID: DGS-07-034.2-101012 Instrument: nt12.i

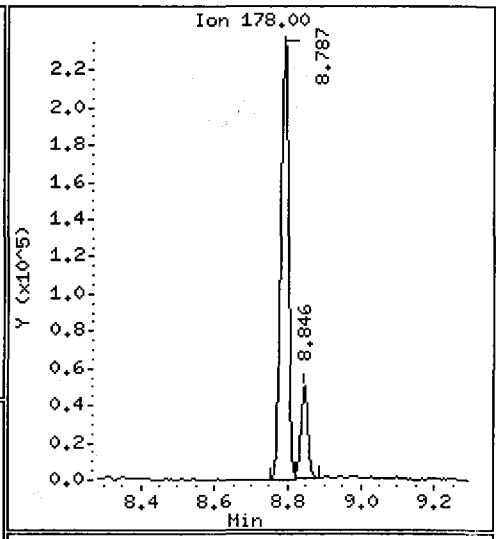
Sample Info: RS97J,3

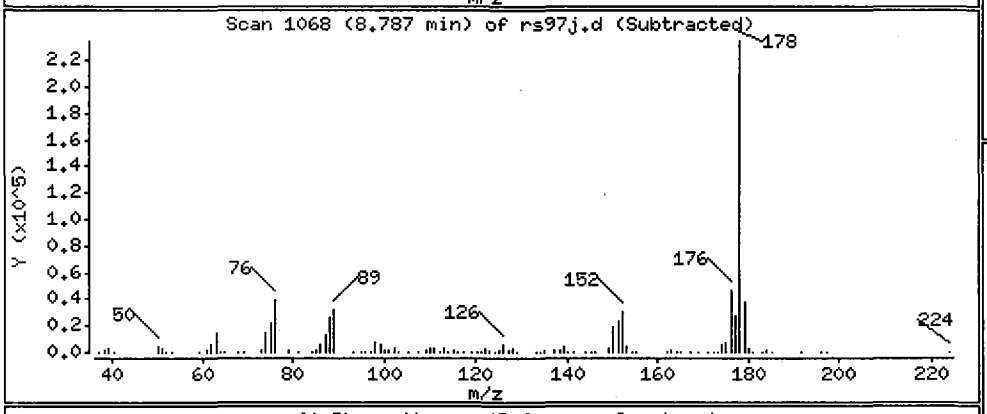
Volume Injected (uL): 1.0 Operator: VTS

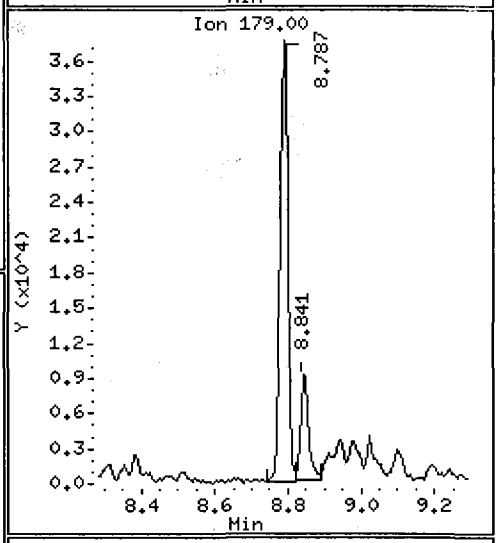
Column phase: ZB-5msi Column diameter: 0.32

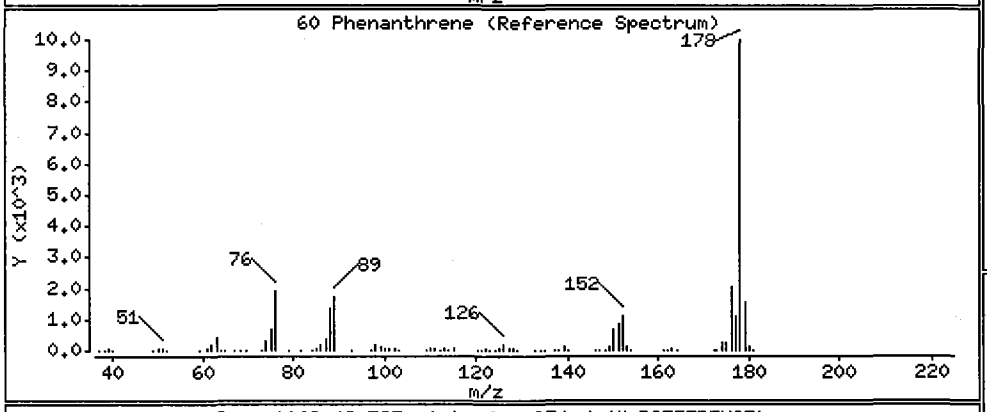
60 Phenanthrene Concentration: 337300 ug/kg

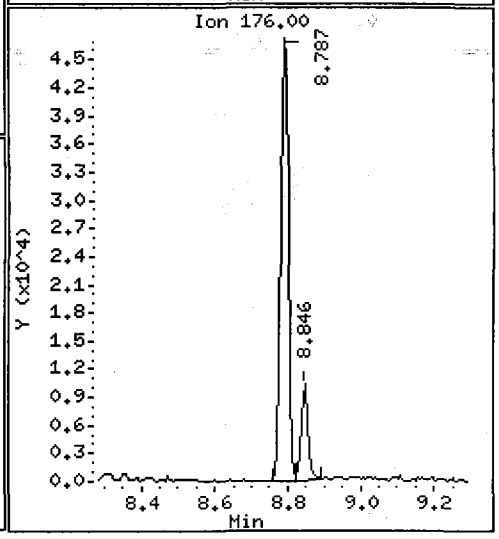


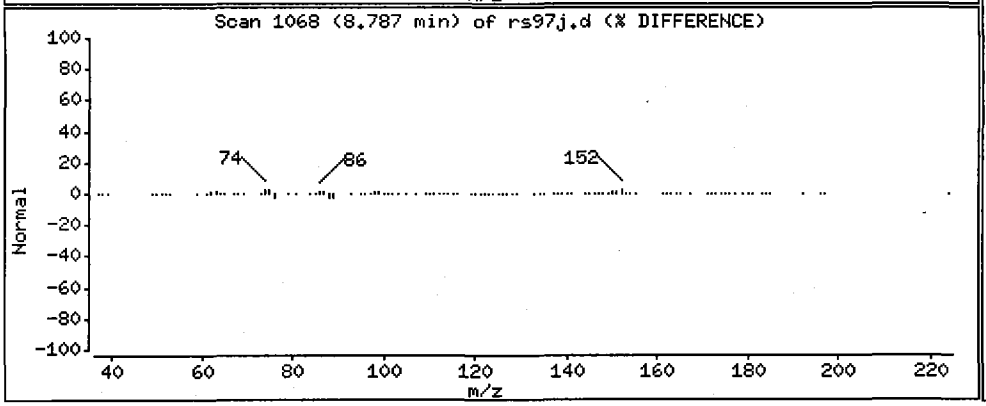












Data File: /chem1/nt12.i/20101110.b/rs97j.d

Date : 10-NOV-2010 16:48

Client ID: DGS-07-034.2-101012

Instrument: nt12.i

Sample Info: RS97J,3

Volume Injected (uL): 1.0

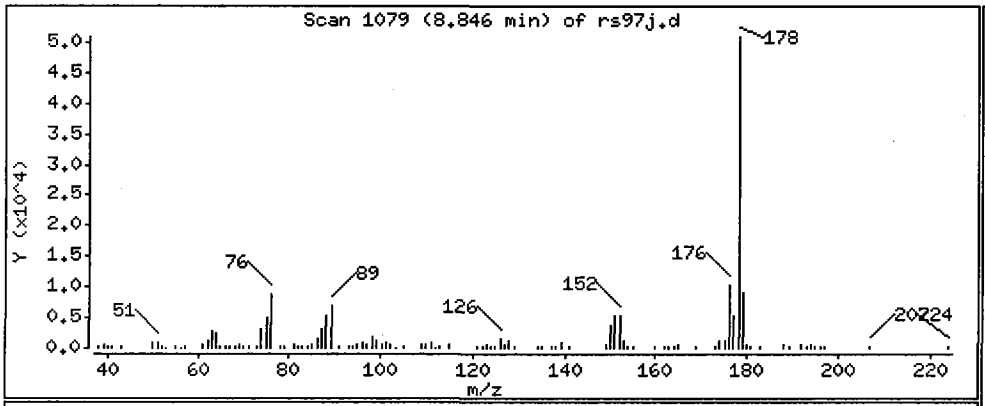
Operator: VTS

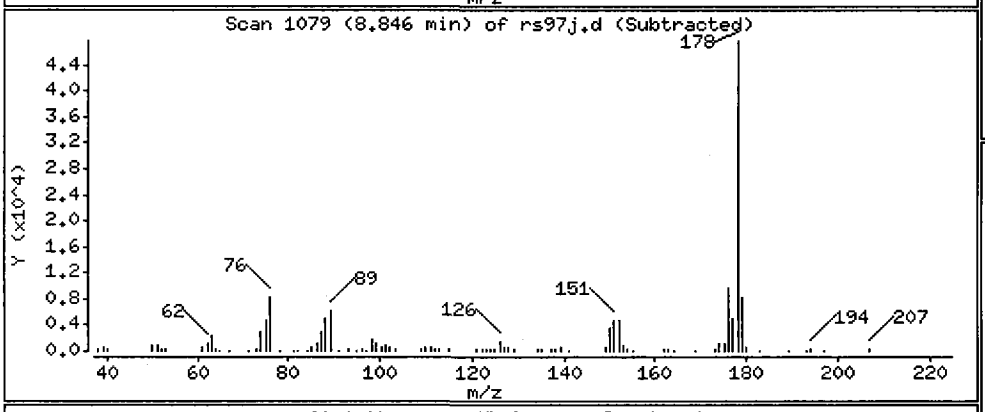
Column phase: ZB-5msi

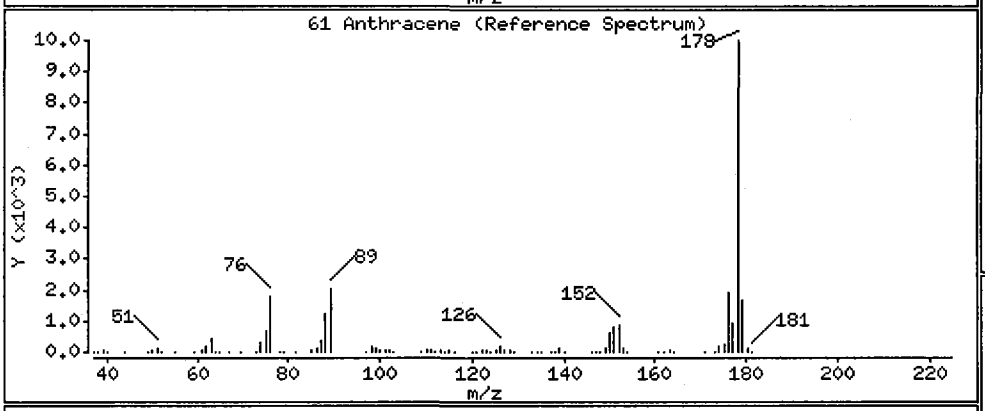
Column diameter: 0.32

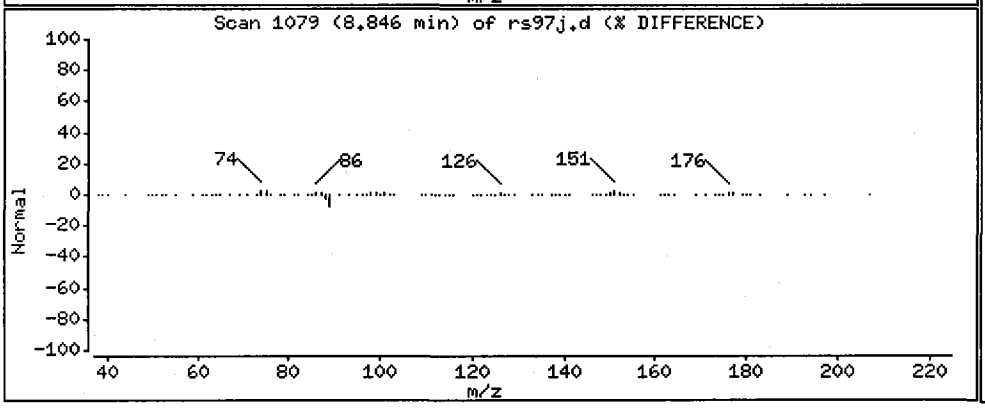
61 Anthracene

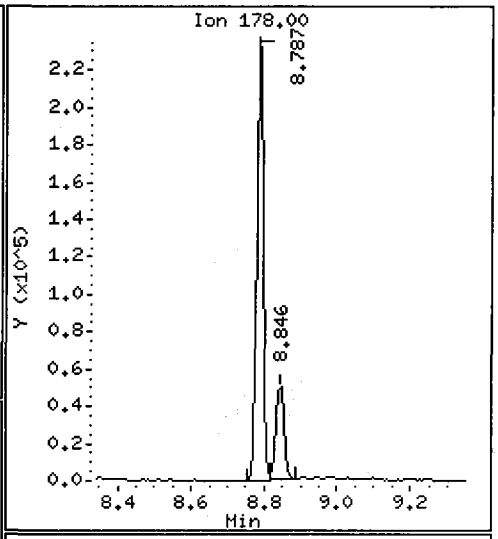
Concentration: 75730 ug/kg

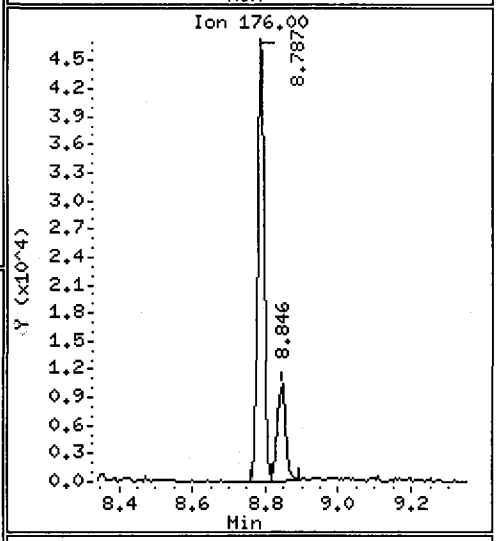


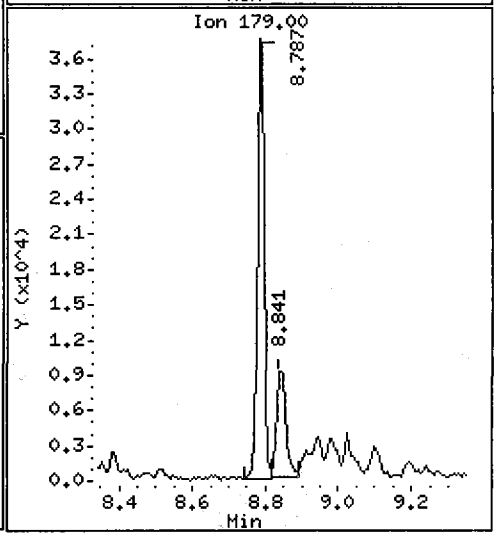












Data File: /chem1/nt12.i/20101110.b/rs97j.d

Date : 10-NOV-2010 16:48

Client ID: DGS-07-034.2-101012

Instrument: nt12.i

Sample Info: RS97J,3

Volume Injected (uL): 1.0

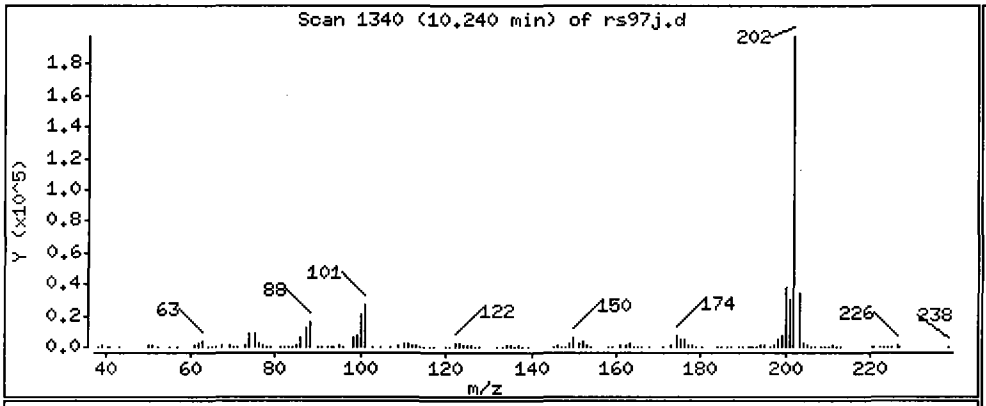
Operator: VTS

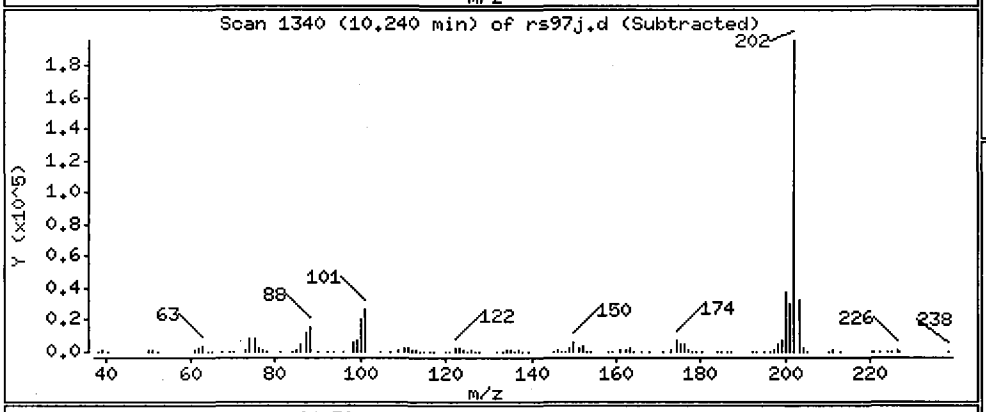
Column phase: ZB-5msi

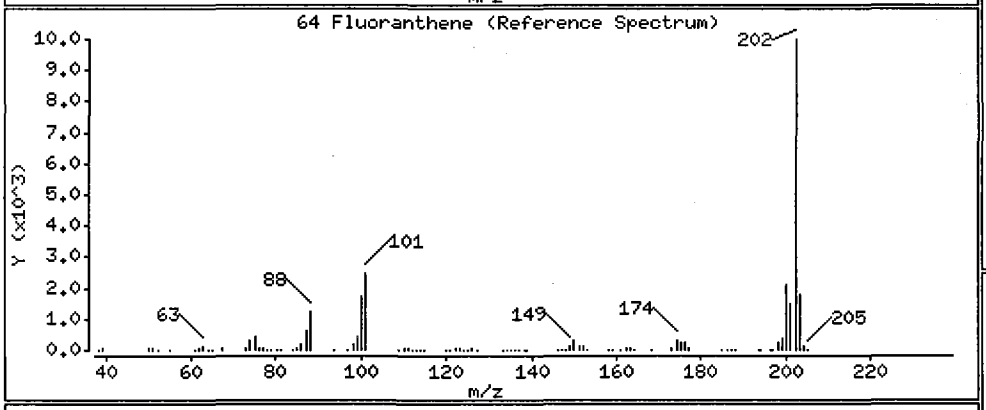
Column diameter: 0.32

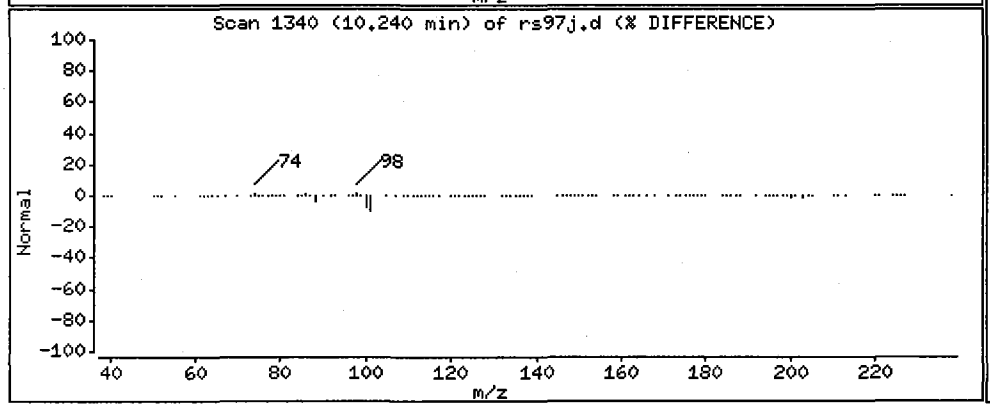
64 Fluoranthene

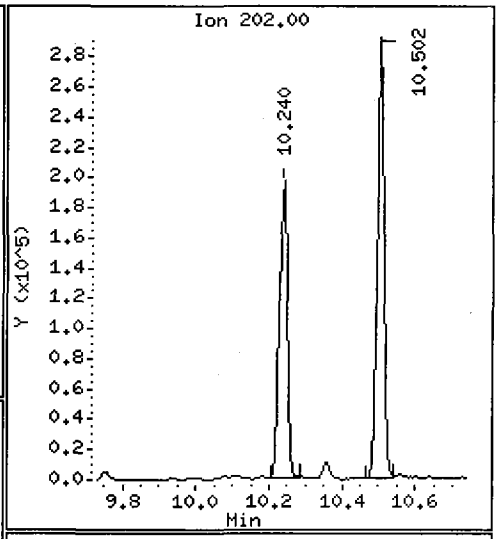
Concentration: 217000 ug/kg

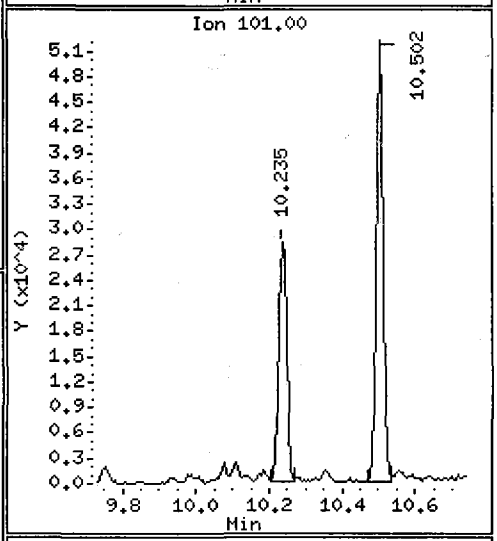


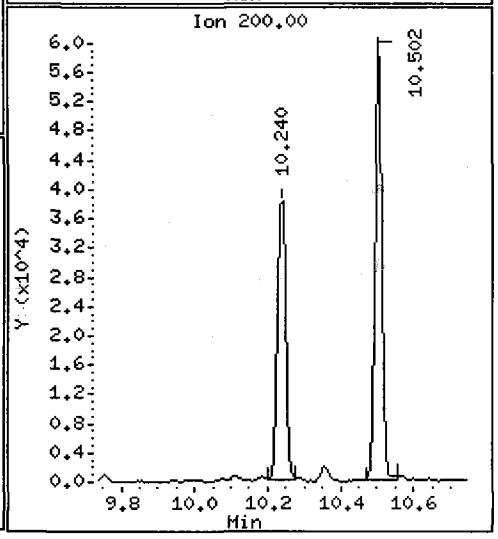












Data File: /chem1/nt12.i/20101110.b/rs97j.d

Date : 10-NOV-2010 16:48

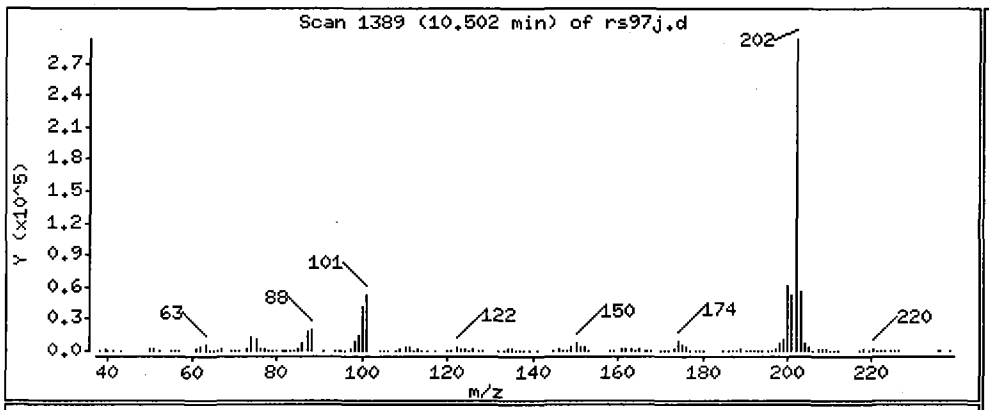
Client ID: DGS-07-034.2-101012 Instrument: nt12.i

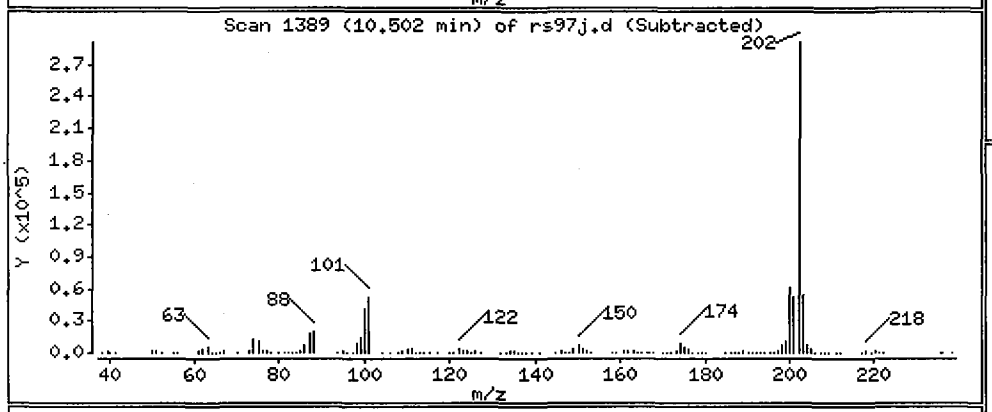
Sample Info: RS97J,3

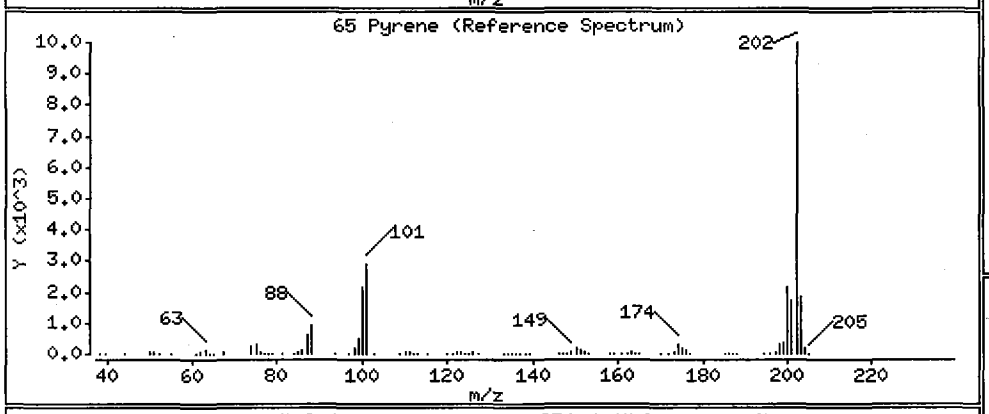
Volume Injected (uL): 1.0 Operator: VTS

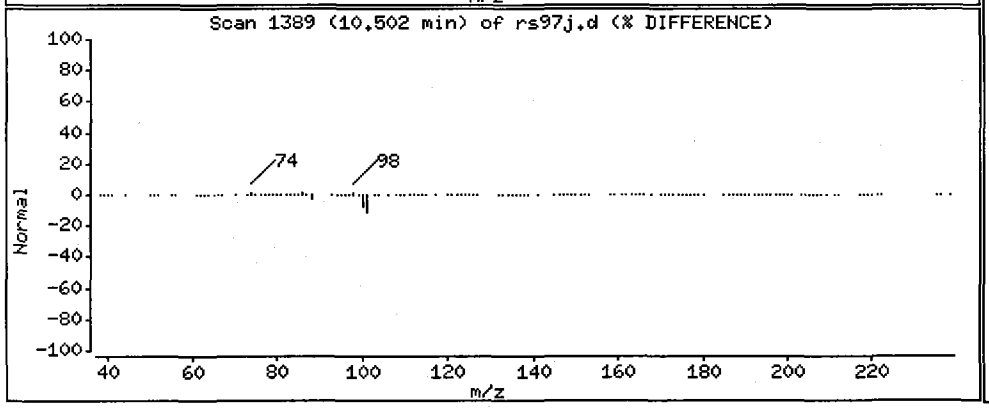
Column phase: ZB-5msi Column diameter: 0.32

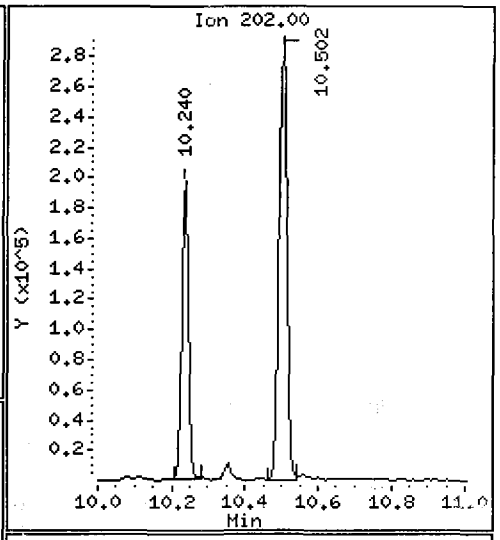
65 Pyrene Concentration: 323000 ug/kg

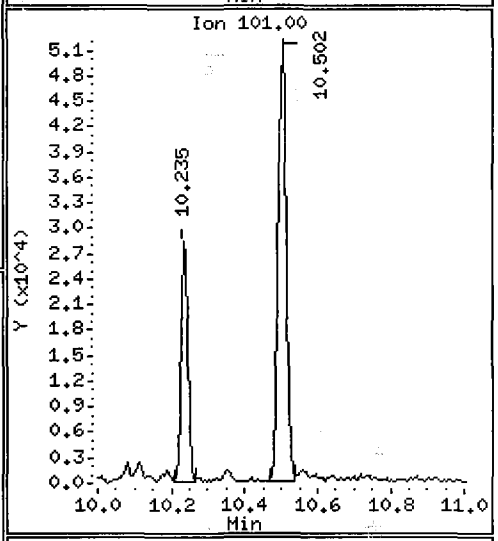


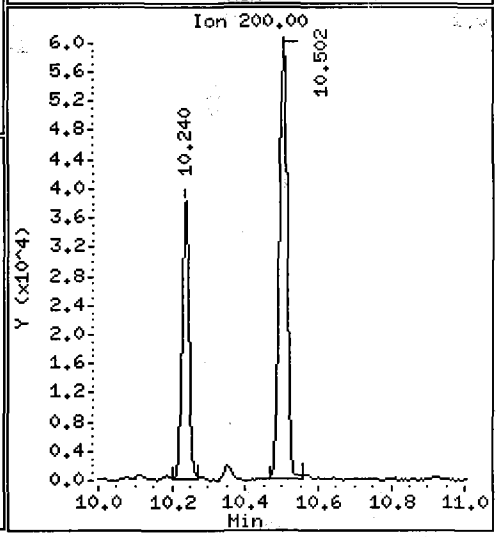












Data File: /chem1/nt12.i/20101110.b/rs97j.d

Date : 10-NOV-2010 16:48

Client ID: DGS-07-034.2-101012

Instrument: nt12.i

Sample Info: RS97J,3

Volume Injected (uL): 1.0

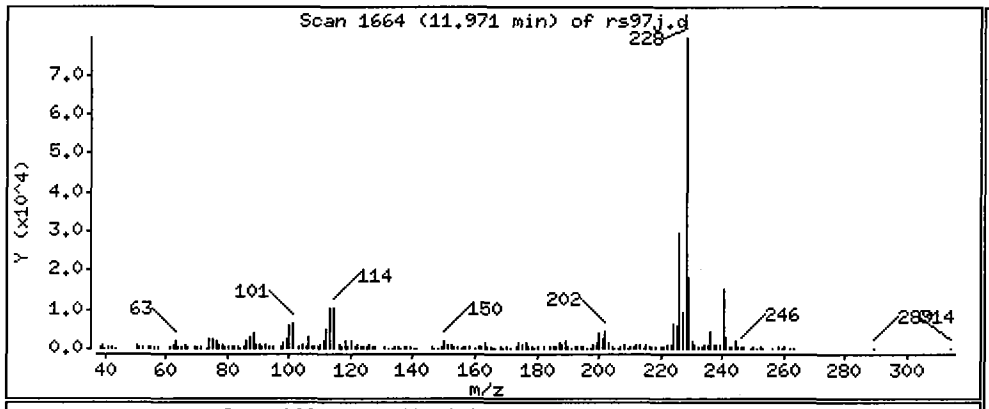
Operator: VTS

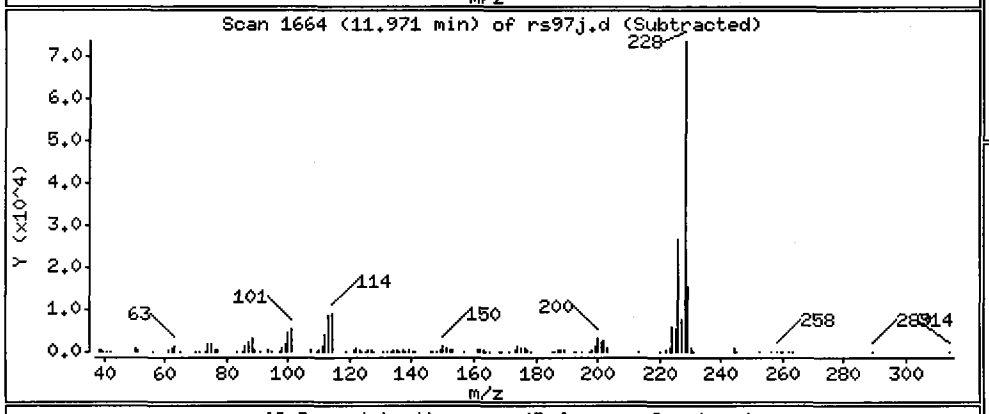
Column phase: ZB-5msi

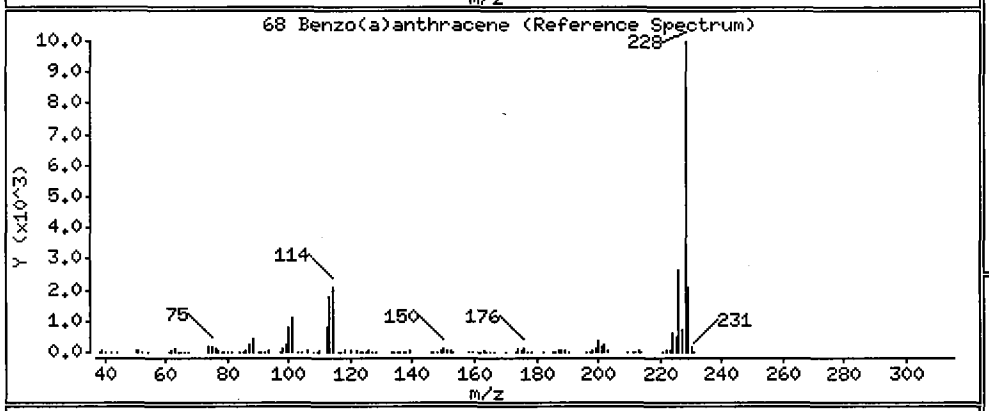
Column diameter: 0.32

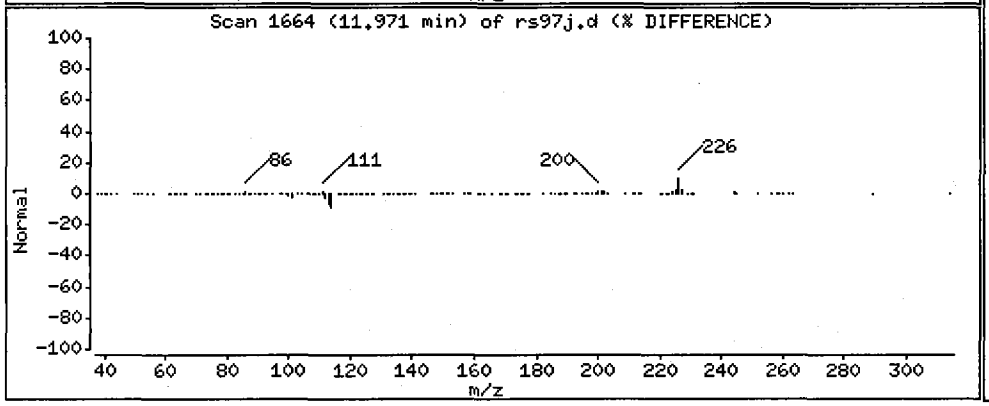
68 Benzo(a)anthracene

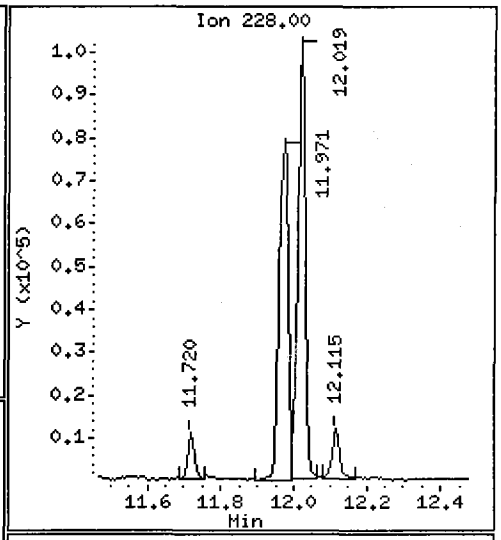
Concentration: 128300 ug/kg

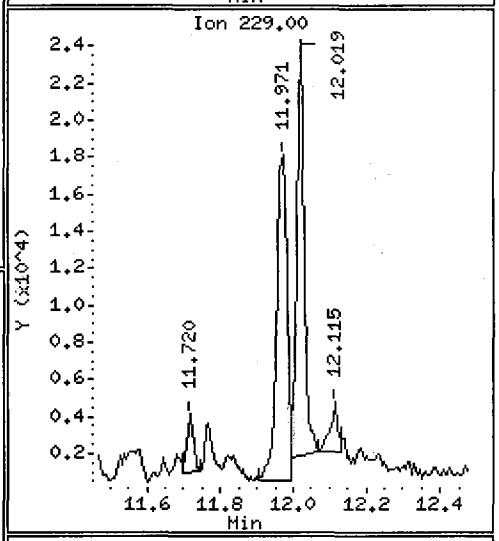


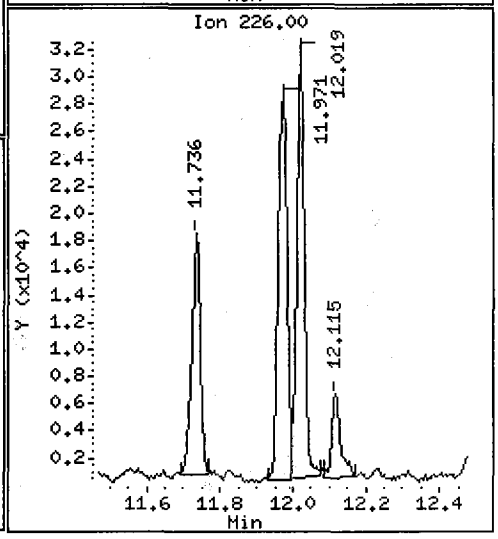












Data File: /chem1/nt12.i/20101110.b/rs97j.d

Date : 10-NOV-2010 16:48

Client ID: DGS-07-034.2-101012

Instrument: nt12.i

Sample Info: RS97J,3

Volume Injected (uL): 1.0

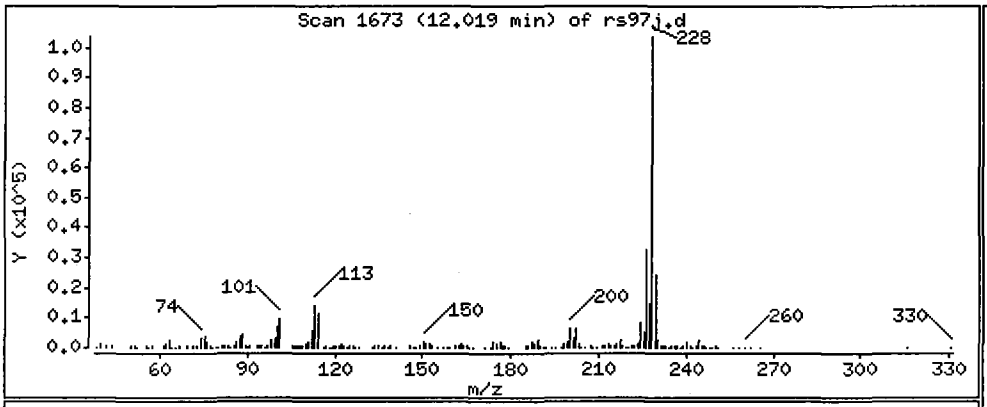
Operator: VTS

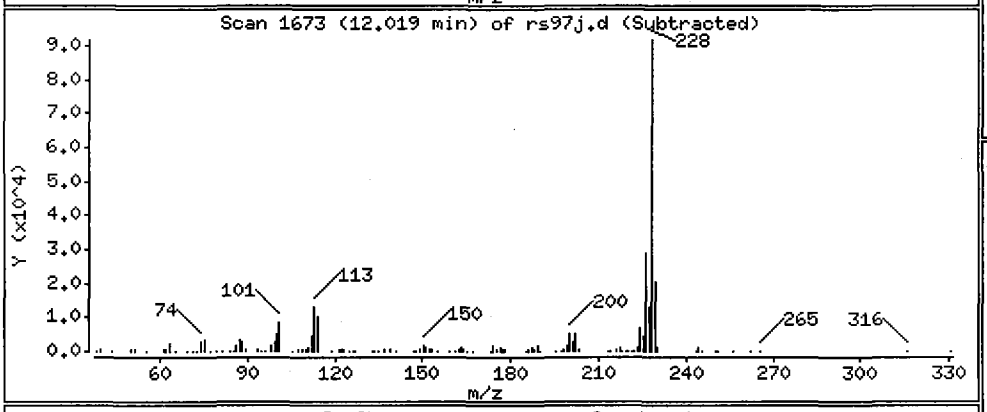
Column phase: ZB-5msi

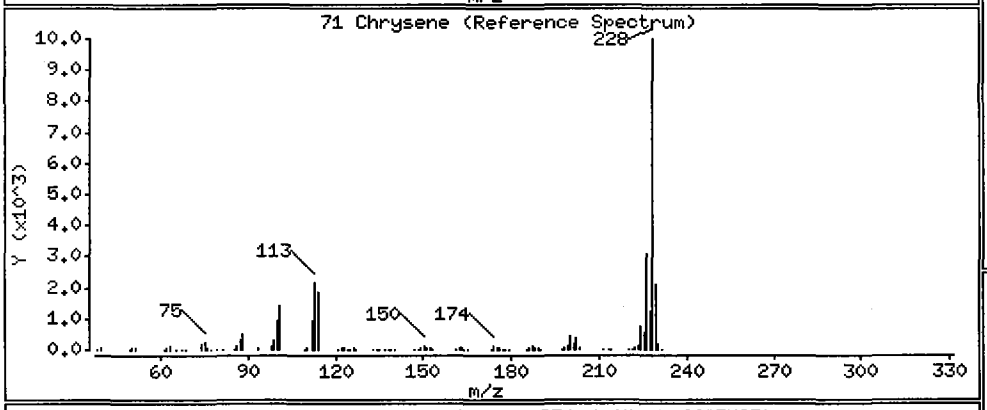
Column diameter: 0.32

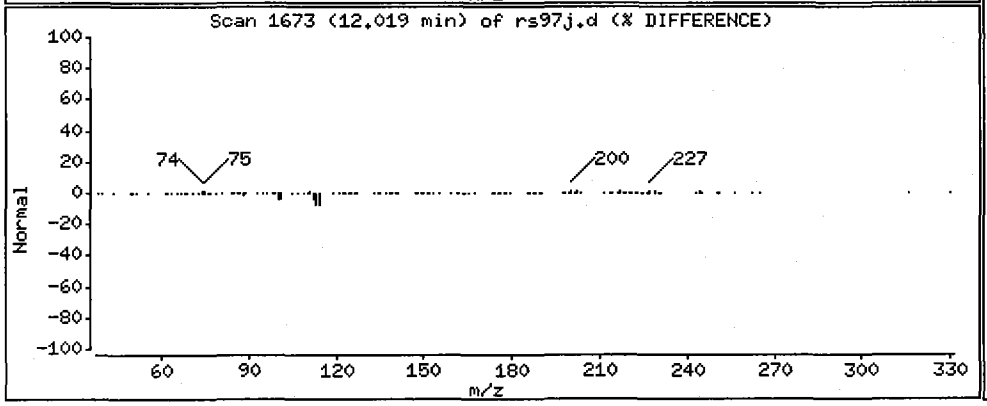
71 Chrysene

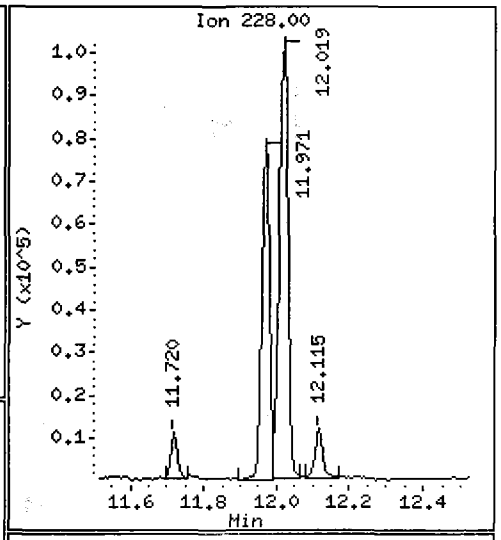
Concentration: 169000 ug/kg

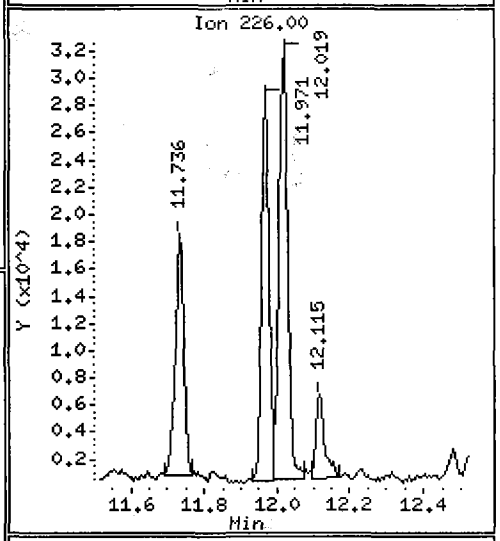


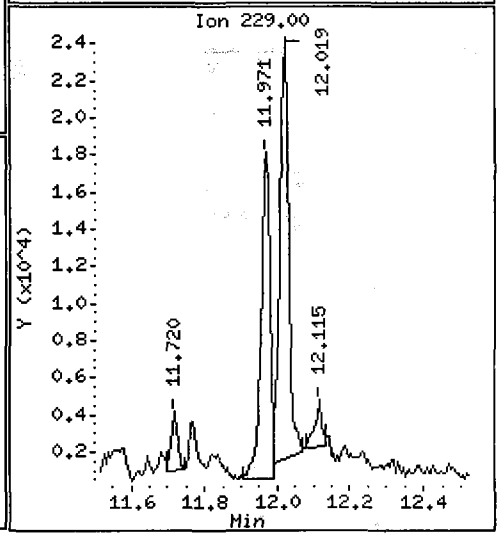












Data File: /chem1/nt12.i/20101110.b/rs97j.d

Date : 10-NOV-2010 16:48

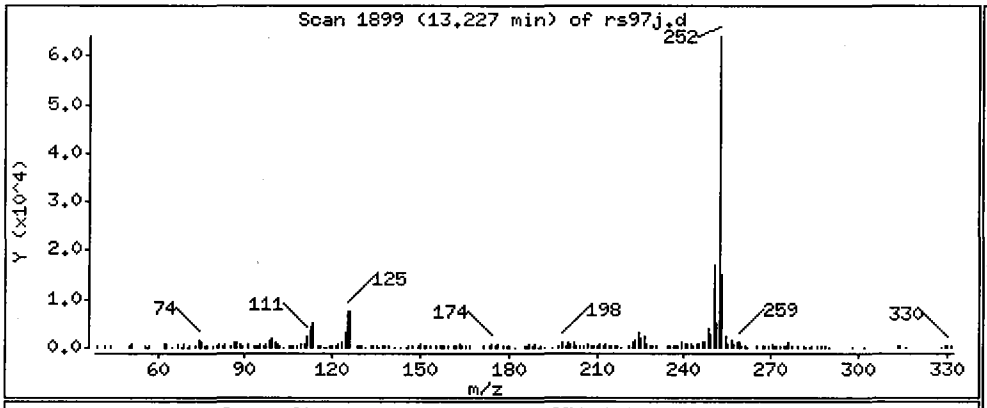
Client ID: DGS-07-034.2-101012 Instrument: nt12.i

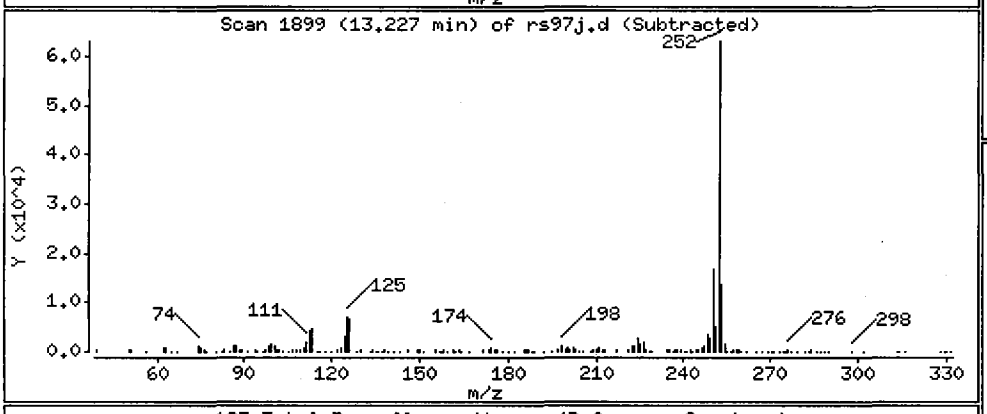
Sample Info: RS97J,3

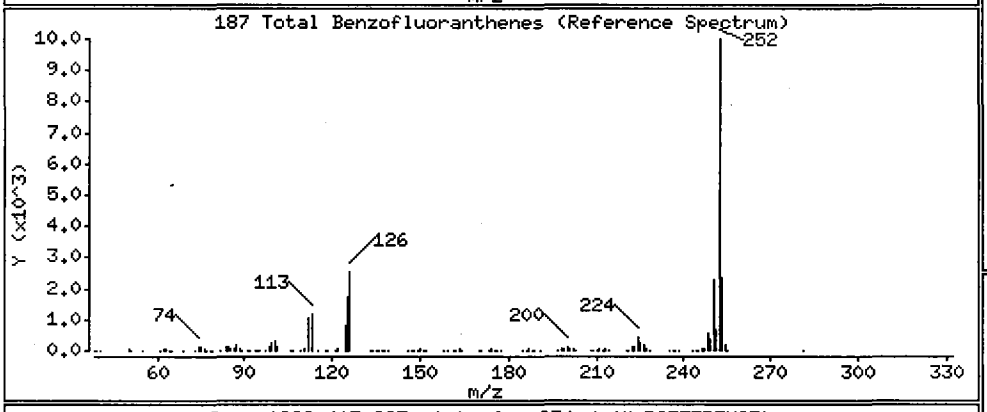
Volume Injected (uL): 1.0 Operator: VTS

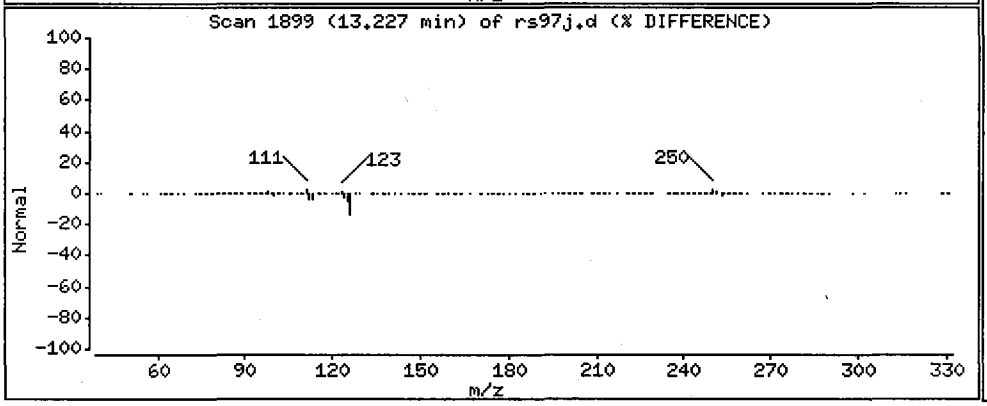
Column phase: ZB-5msi Column diameter: 0.32

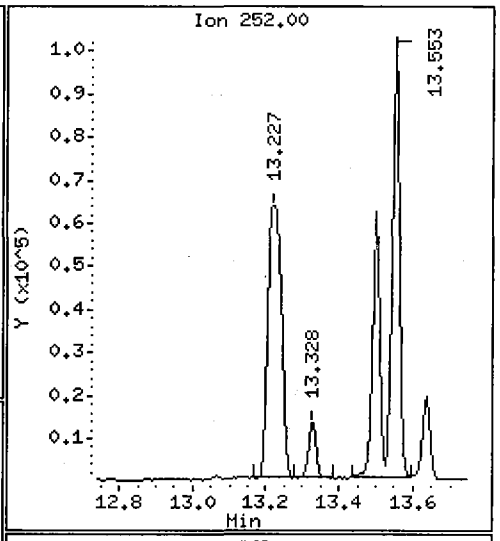
187 Total Benzofluoranthenes Concentration: 176800 ug/kg

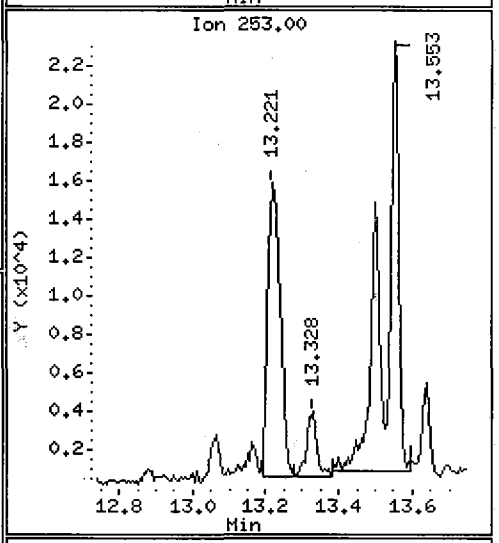


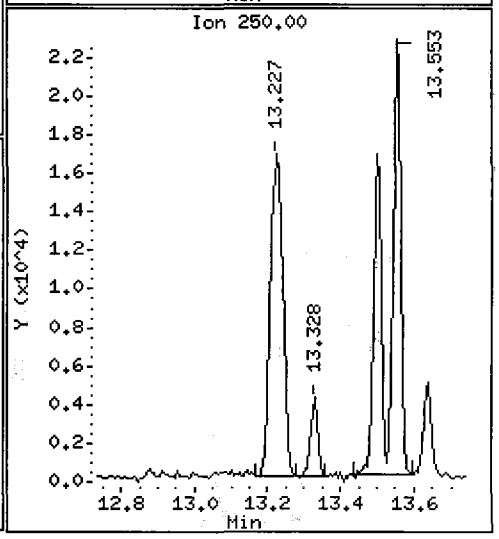












Data File: /chem1/nt12.i/20101110.b/rs97j.d

Date : 10-NOV-2010 16:48

Client ID: DGS-07-034.2-101012

Instrument: nt12.i

Sample Info: RS97J,3

Volume Injected (uL): 1.0

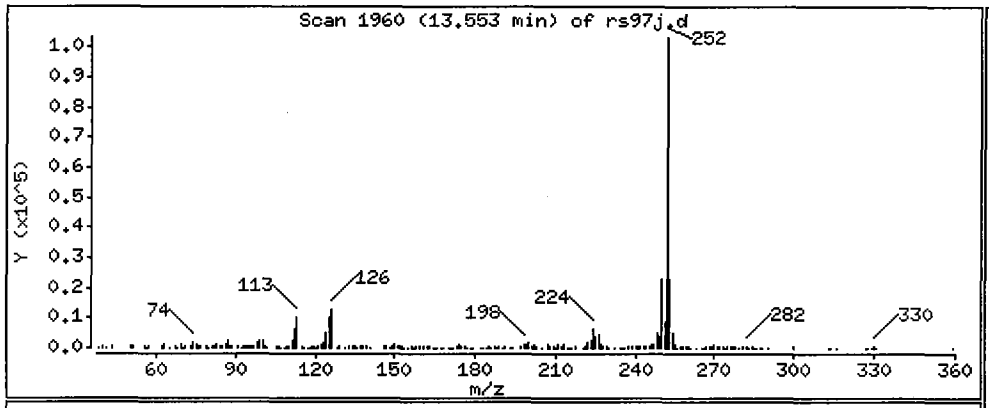
Operator: VTS

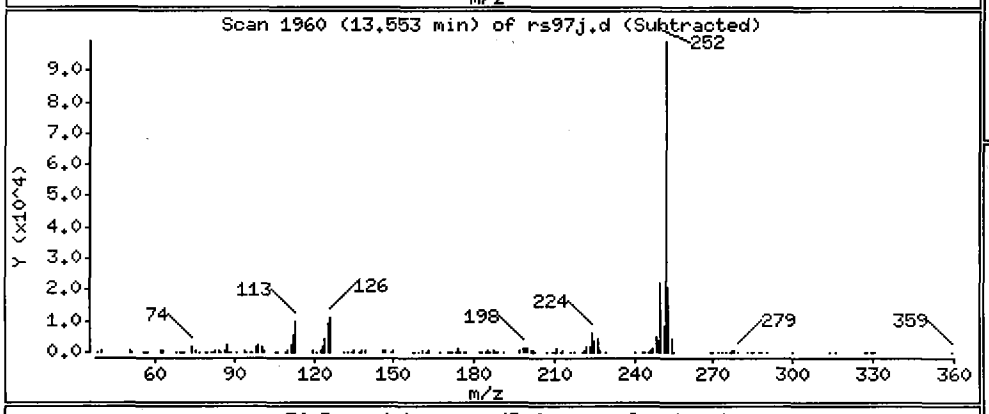
Column phase: ZB-5msi

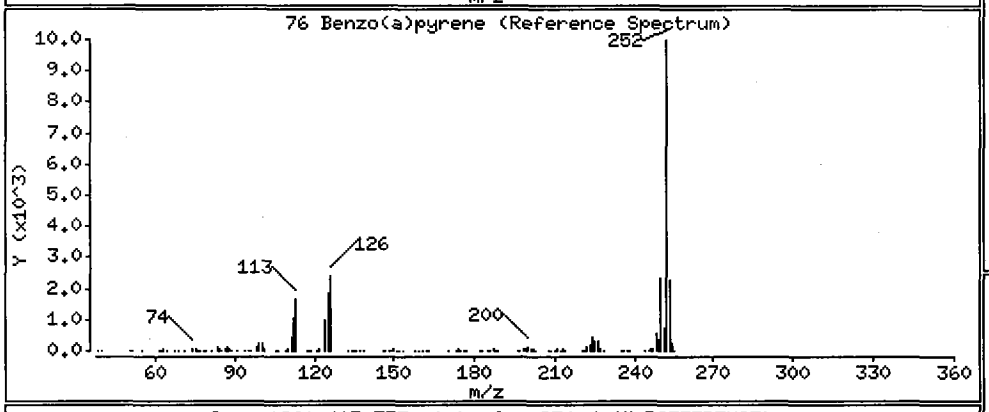
Column diameter: 0.32

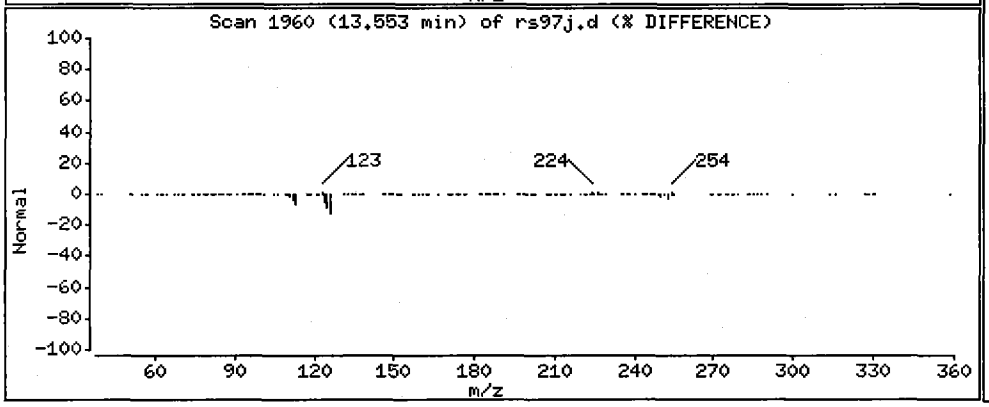
76 Benzo(a)pyrene

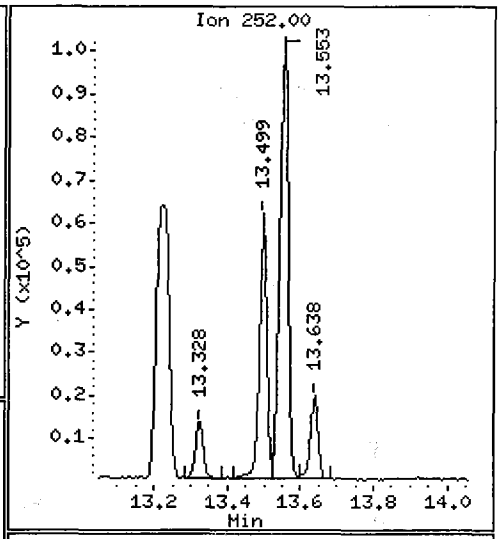
Concentration: 174200 ug/kg

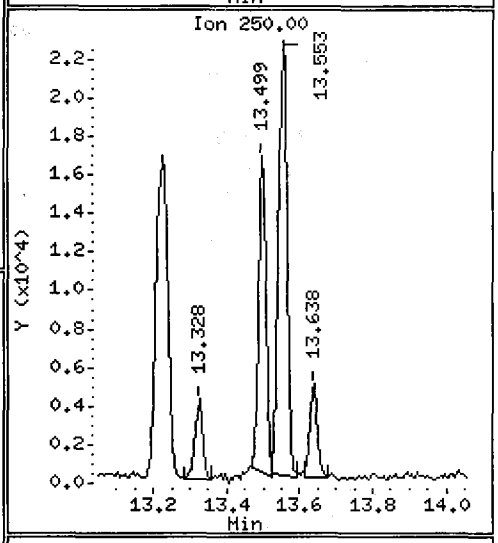


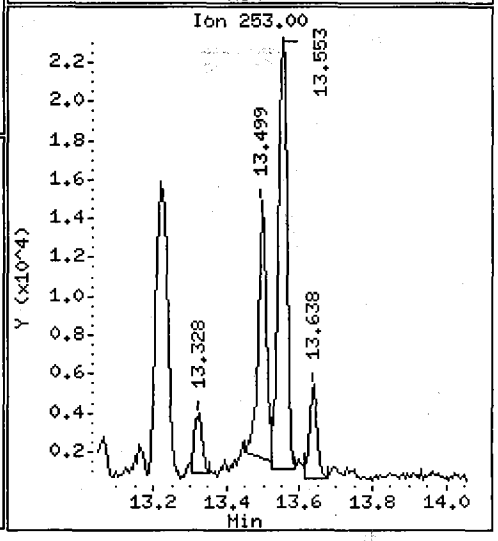












Data File: /chem1/nt12.i/20101110.b/rs97j.d

Date : 10-NOV-2010 16:48

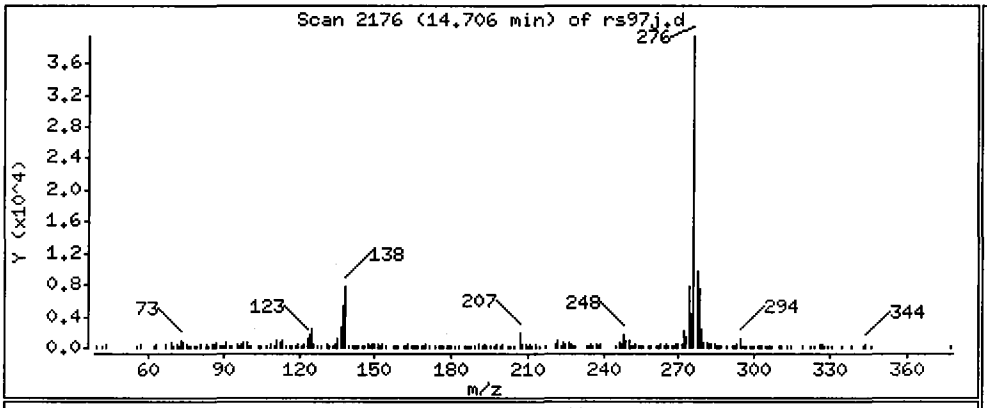
Client ID: DGS-07-034.2-101012 Instrument: nt12.i

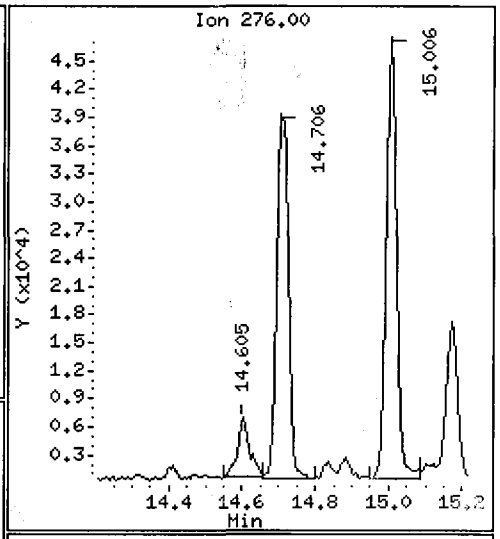
Sample Info: RS97J,3

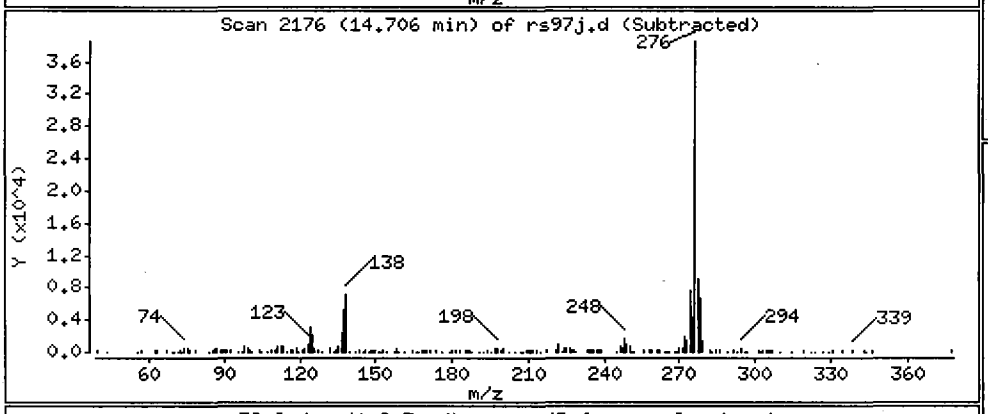
Volume Injected (uL): 1.0 Operator: VTS

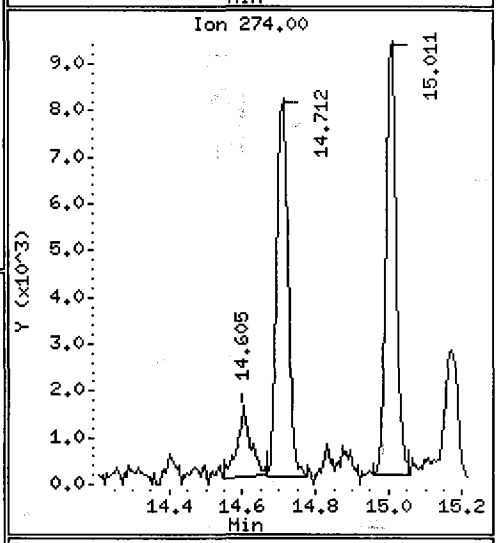
Column phase: ZB-5msi Column diameter: 0.32

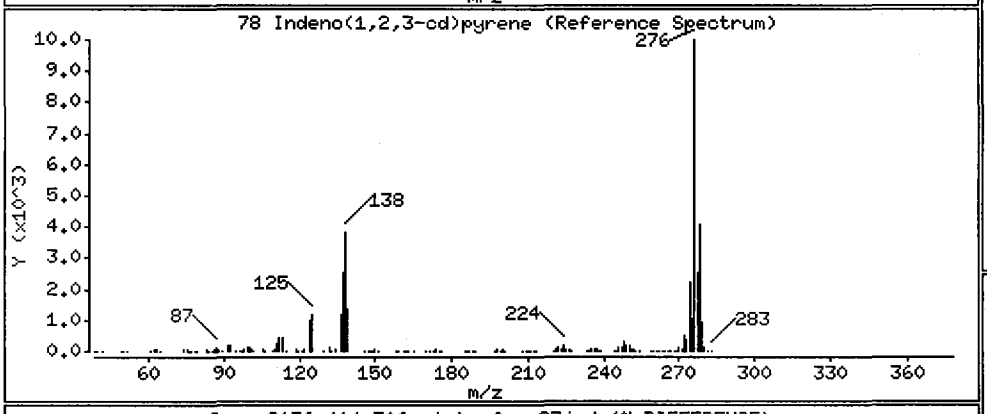
78 Indeno(1,2,3-cd)pyrene Concentration: 65180 ug/kg

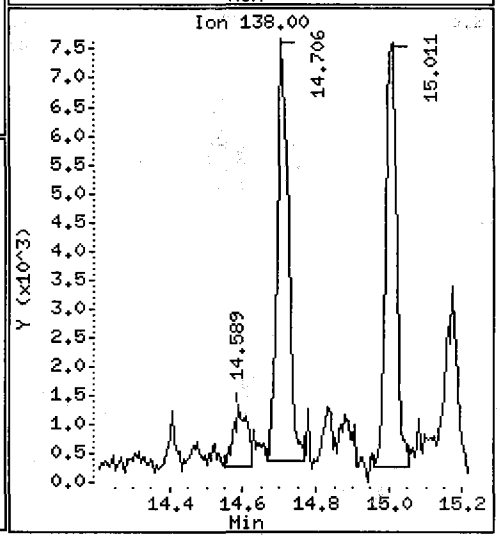


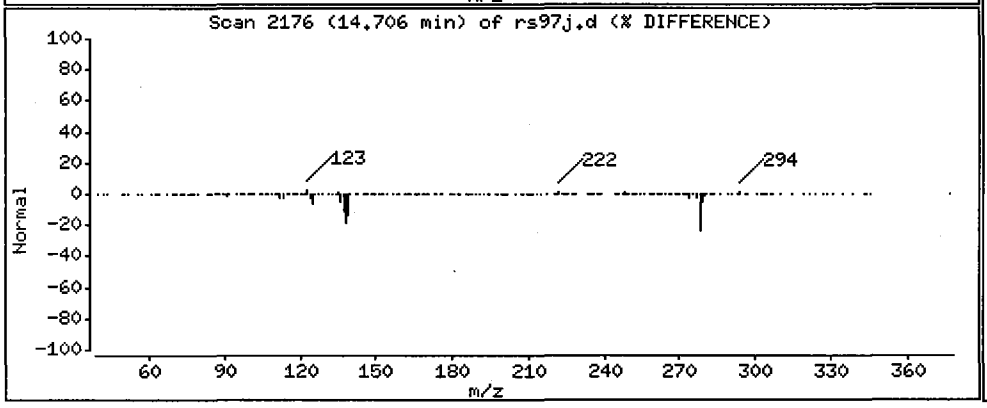












Data File: /chem1/nt12.i/20101110.b/rs97j.d

Date : 10-NOV-2010 16:48

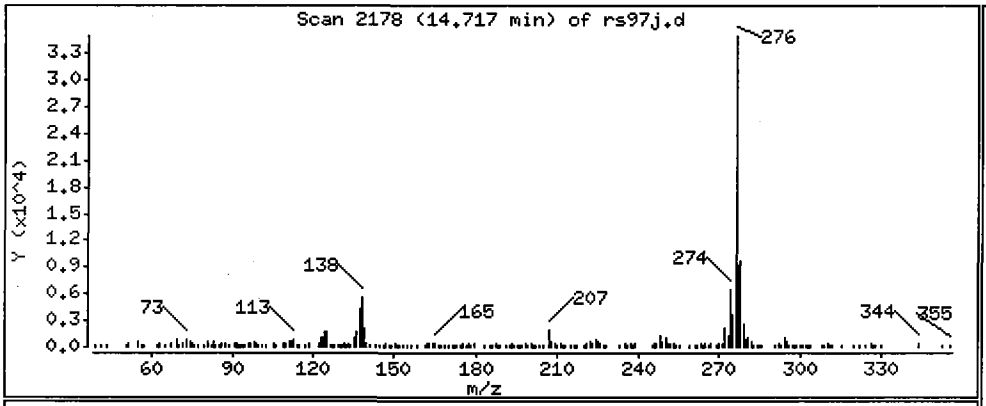
Client ID: DGS-07-034.2-101012 Instrument: nt12.i

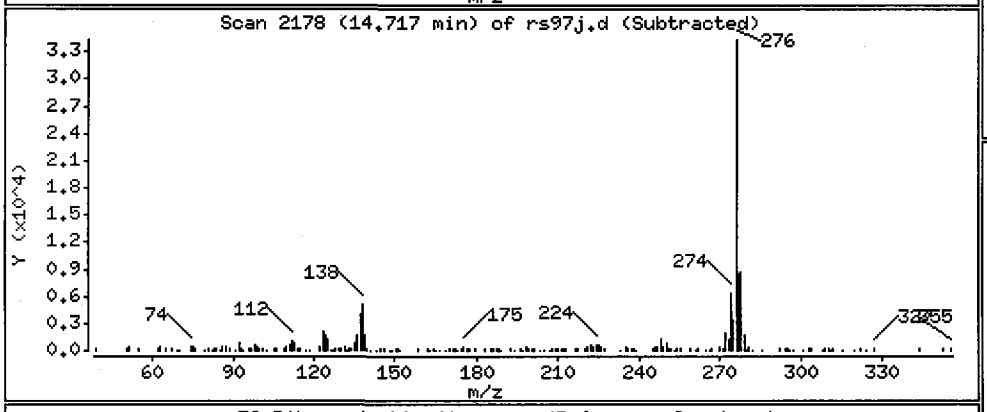
Sample Info: RS97J,3

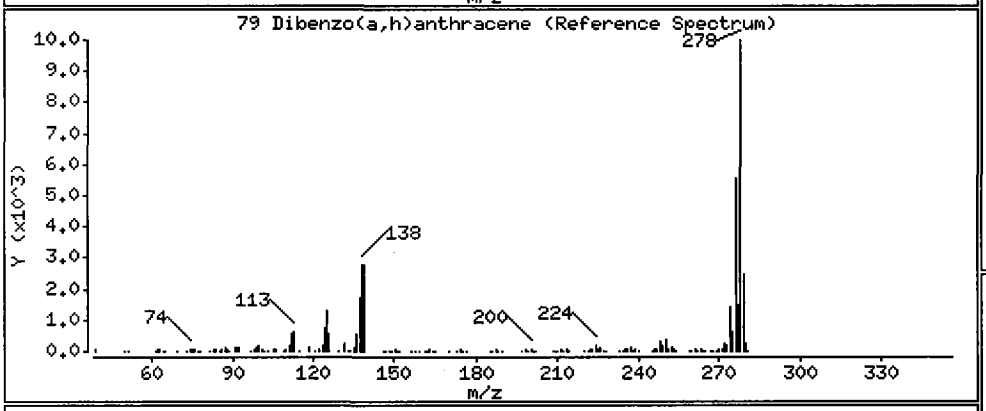
Volume Injected (uL): 1.0 Operator: VTS

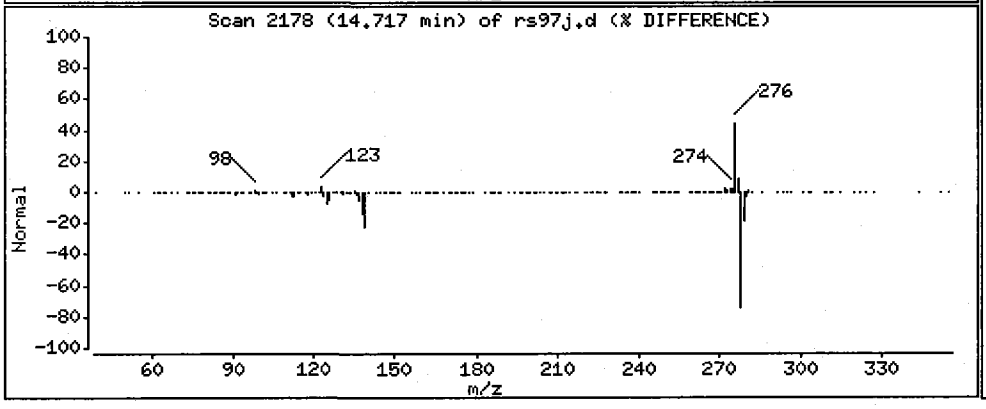
Column phase: ZB-5msi Column diameter: 0.32

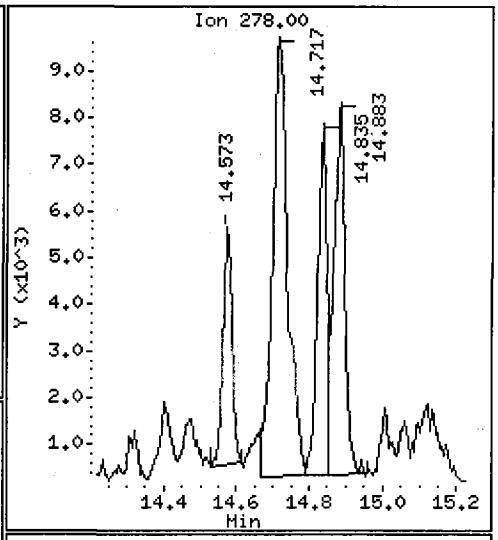
79 Dibenzo(a,h)anthracene Concentration: 26040 ug/kg

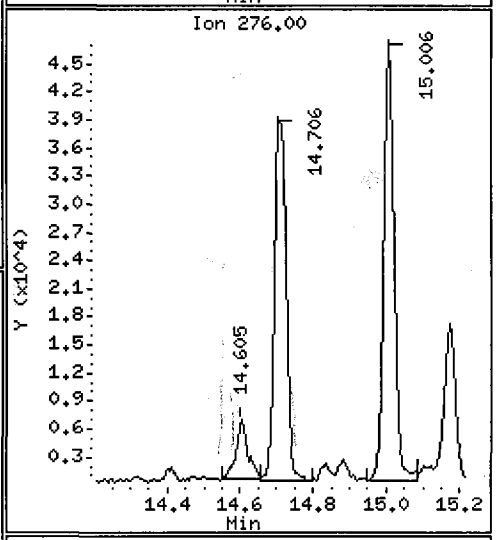


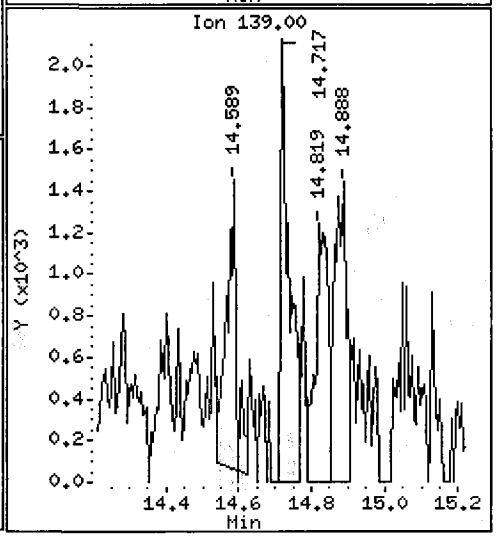












Data File: /chem1/nt12.i/20101110.b/rs97j.d

Date : 10-NOV-2010 16:48

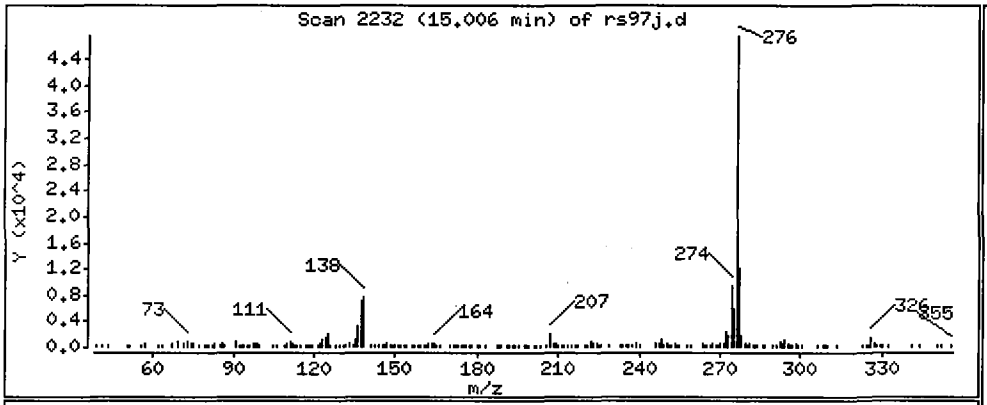
Client ID: DGS-07-034.2-101012 Instrument: nt12.i

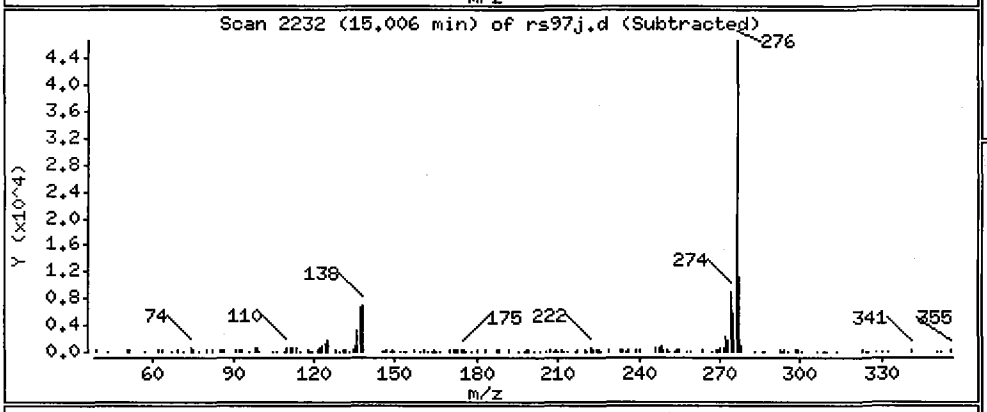
Sample Info: RS97J,3

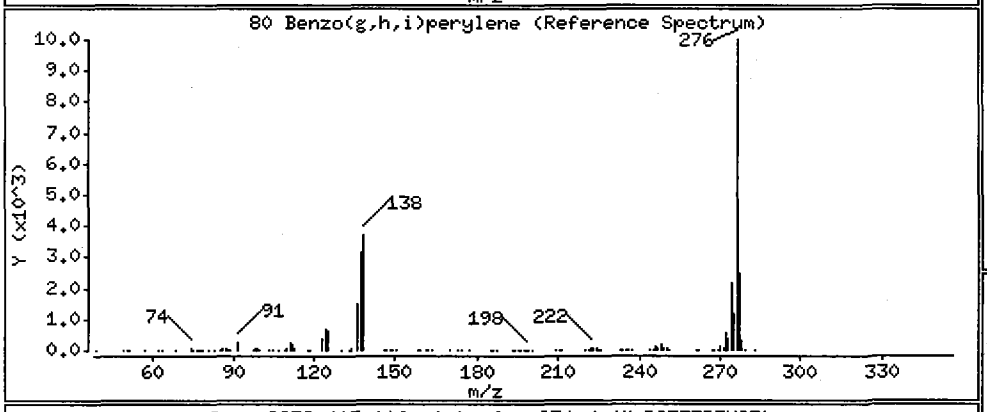
Volume Injected (uL): 1.0 Operator: VTS

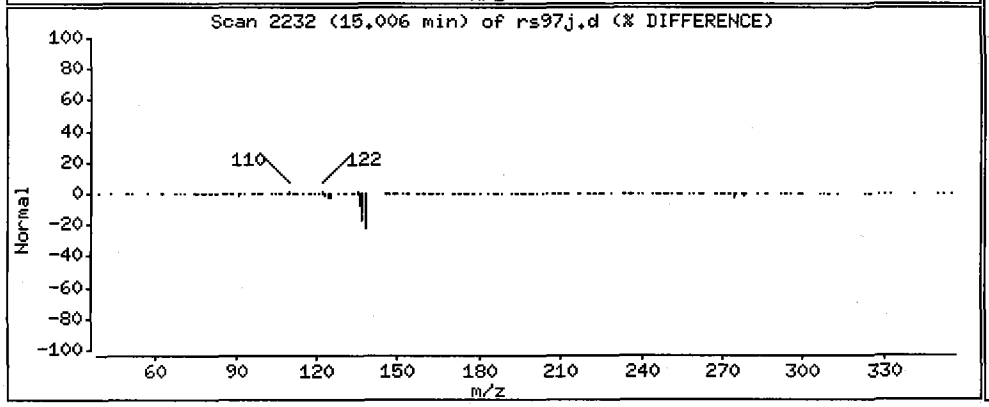
Column phase: ZB-5msi Column diameter: 0.32

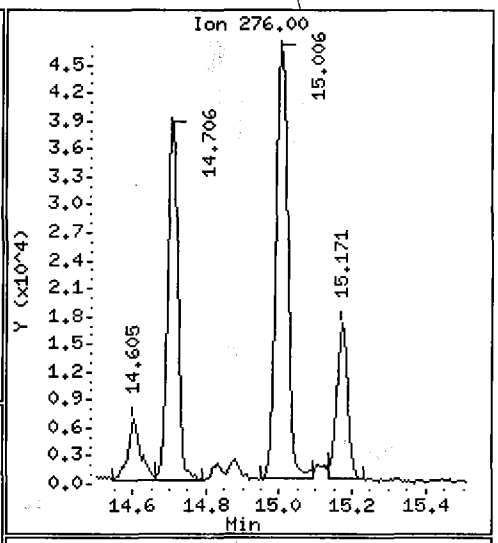
80 Benzo(g,h,i)perylene Concentration: 96170 ug/kg

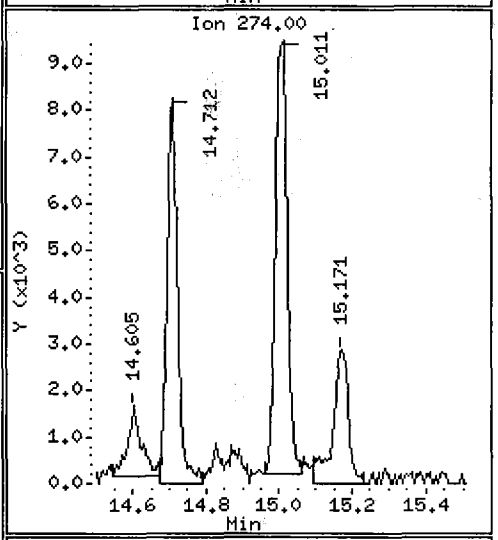


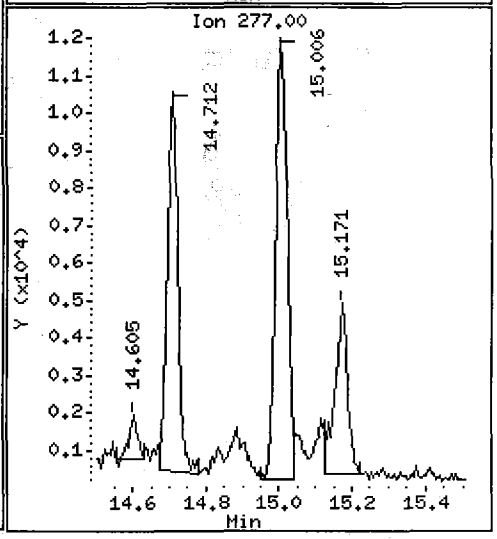












Analytical Resources, Inc.

Semivolatile Report SW846 Method 8270D

Data file : /chem1/nt12.i/20101110.b/rs97l.d
Lab Smp Id: RS97L Client Smp ID: DGS-07-5.66.7-10101
Inj Date : 10-NOV-2010 17:11
Operator : VTS Inst ID: nt12.i
Smp Info : RS97L
Misc Info : 10-27428
Comment : 1ul Injection
Method : /chem1/nt12.i/20101110.b/PNADMD.m
Meth Date : 10-Nov-2010 14:46 van Quant Type: ISTD
Cal Date : 30-OCT-2010 13:19 Cal File: ic1030f.d
Als bottle: 11
Dil Factor: 1.00000
Integrator: HP RTE Compound Sublist: pnas.sub
Target Version: 3.50
Processing Host: cserv3

Concentration Formula: Amt * DF * Vt/(Ws * (100 - M)/100) * CpndVariable

Name	Value	Description
DF	1.00000	Dilution Factor
Vt	10000.00000	Volume of final extract (uL)
Ws	5.16000	Weight of sample extracted (g)
M	42.60000	% Moisture

Cpnd Variable Local Compound Variable

Compounds	QUANT SIG MASS	RT	EXP RT	REL RT	RESPONSE	CONCENTRATIONS ON-COLUMN (ug/mL)	FINAL (ug/kg)
* 27 Naphthalene-d8	136	4.887	4.888	(1.000)	205463	20.0000	
28 Naphthalene	128	4.914	4.909	(1.005)	1198231	102.467	346000 E
32 2-Methylnaphthalene	141	5.726	5.726	(1.172)	162049	25.9626	87660
105 1-methylnaphthalene	141	5.849	5.854	(1.197)	90445	14.0536	47450
$ 36 2-Fluorobiphenyl	172	6.202	6.202	(0.887)	14466	1.56074	5269
40 Acenaphthylene	152	6.805	6.805	(0.973)	25028	2.07465	7005 (M)
* 42 Acenaphthene-d10	164	6.992	6.992	(1.000)	120477	20.0000	
44 Acenaphthene	153	7.024	7.030	(1.005)	113788	15.3574	51850
46 Dibenzofuran	168	7.222	7.222	(1.033)	15896	1.39908	4724
49 Fluorene	166	7.639	7.639	(1.092)	106206	12.5193	42270
* 59 Phenanthrene-d10	188	8.766	8.761	(1.000)	213377	20.0000	
60 Phenanthrene	178	8.798	8.787	(1.004)	891165	78.7261	265800
61 Anthracene	178	8.846	8.846	(1.009)	128969	11.0237	37220
62 Carbazole	167	9.065	9.065	(1.034)	32424	~~3.43~~549	11600 NA

Compounds	QUANT SIG MASS	RT	EXP RT	REL RT	RESPONSE	CONCENTRATIONS ON-COLUMN (ug/mL)	FINAL (ug/kg)
64 Fluoranthene	202	10.246	10.235	(0.854)	542224	36.9447	124700
65 Pyrene	202	10.507	10.502	(0.876)	674236	46.3065	156300
$ 66 Terphenyl-d14	244	10.737	10.737	(0.895)	13552	1.45903	4926
68 Benzo(a)anthracene	228	11.971	11.971	(0.998)	144619	12.2563	41380
* 69 Chrysene-d12	240	11.993	11.993	(1.000)	210112	20.0000	
71 Chrysene	228	12.019	12.019	(1.002)	175027	15.8660	53570
187 Total Benzofluoranthenes	252	13.227	13.243	(0.972)	194936	18.2214	61520
76 Benzo(a)pyrene	252	13.552	13.553	(0.996)	168058	17.1005	57740
* 77 Perylene-d12	264	13.611	13.611	(1.000)	179614	20.0000	
99 Perylene	252	13.638	13.638	(1.002)	35375	~~3.38~~494	11430 NR
78 Indeno(1,2,3-cd)pyrene	276	14.706	14.712	(1.080)	104888	7.18867	24270
79 Dibenzo(a,h)anthracene	278	14.712	14.723	(1.081)	24614	2.04905	6918
80 Benzo(g,h,i)perylene	276	15.006	15.006	(1.102)	127142	10.6071	35810

QC Flag Legend

M - Compound response manually integrated.

VB
11-11-10

Analytical Resources, Inc.

INTERNAL STANDARD COMPOUNDS
AREA AND RT SUMMARY

Instrument ID: nt12.i
Lab File ID: rs97l.d
Lab Smp Id: RS97L
Analysis Type: SV
Quant Type: ISTD
Operator: VTS
Method File: /chem1/nt12.i/20101110.b/PNADMD.m
Misc Info: 10-27428

Calibration Date: 10-NOV-2010
Calibration Time: 13:29
Client Smp ID: DGS-07-5.66.7-10
Level: LOW
Sample Type: Sediment

Test Mode:
Use Initial Calibration Level 4.

COMPOUND	STANDARD	AREA LIMIT LOWER	AREA LIMIT UPPER	SAMPLE	%DIFF
27 Naphthalene-d8	237664	118832	475328	205463	-13.55
42 Acenaphthene-d10	143363	71682	286726	120477	-15.96
59 Phenanthrene-d10	245437	122718	490874	213377	-13.06
69 Chrysene-d12	199260	99630	398520	210112	5.45
77 Perylene-d12	197636	98818	395272	179614	-9.12

COMPOUND	STANDARD	RT LIMIT LOWER	RT LIMIT UPPER	SAMPLE	%DIFF
27 Naphthalene-d8	4.89	4.39	5.39	4.89	0.00
42 Acenaphthene-d10	6.99	6.49	7.49	6.99	0.00
59 Phenanthrene-d10	8.76	8.26	9.26	8.77	0.06
69 Chrysene-d12	11.99	11.49	12.49	11.99	0.00
77 Perylene-d12	13.61	13.11	14.11	13.61	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.

Analytical Resources, Inc.

RECOVERY REPORT

Client Name: NW Natural
Sample Matrix: SOLID
Lab Smp Id: RS97L
Level: LOW
Data Type: MS DATA
SpikeList File: SONICLCS.spk
Sublist File: pnas.sub
Method File: /chem1/nt12.i/20101110.b/PNADMD.m
Misc Info: 10-27428

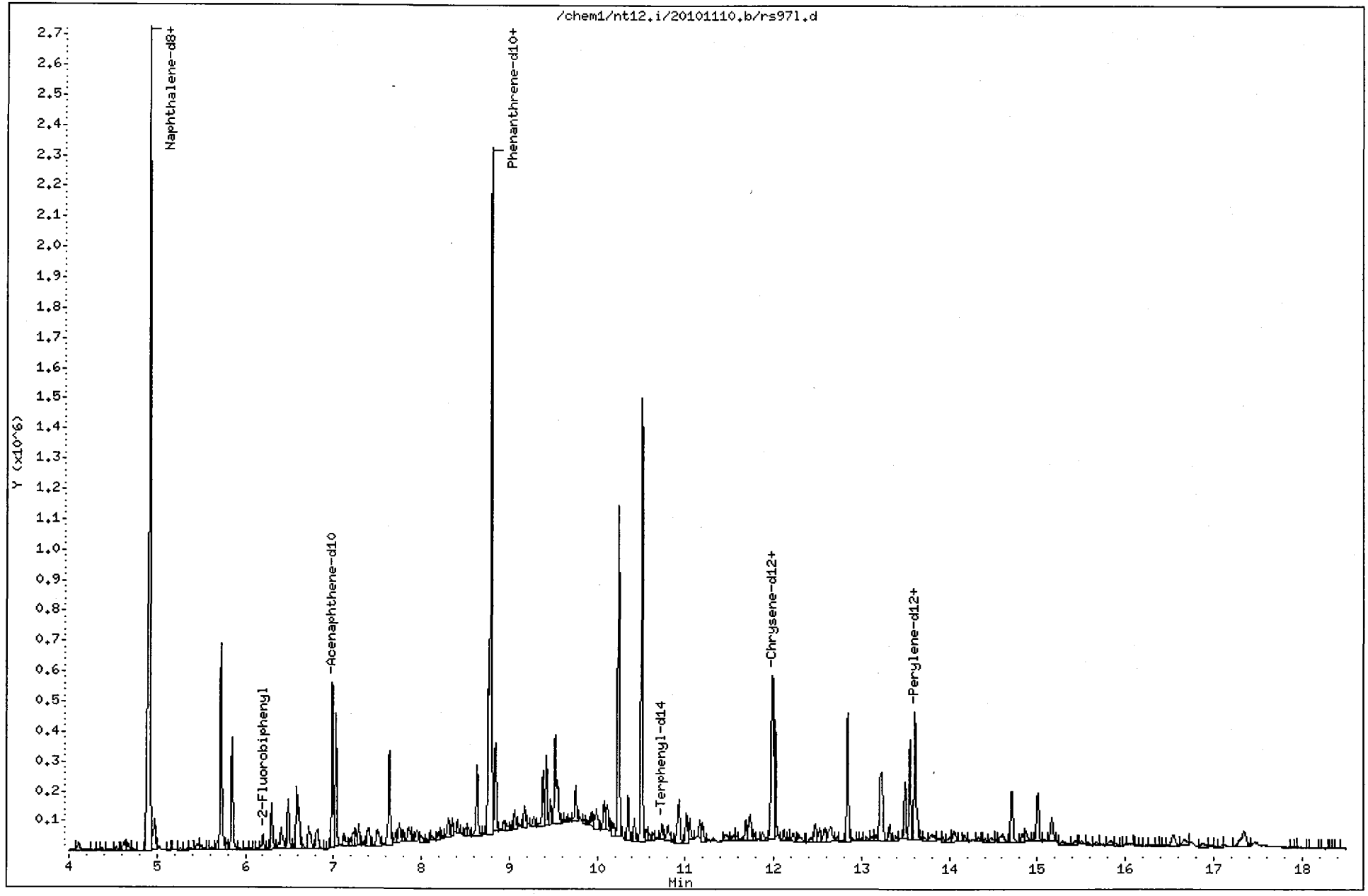
Client SDG: RS97
Fraction: SV
Client Smp ID: DGS-07-5.66.7-10101
Operator: VTS
SampleType: SAMPLE
Quant Type: ISTD

SURROGATE COMPOUND	CONC ADDED ug/kg	CONC RECOVERED ug/kg	% RECOVERED	LIMITS
$ 36 2-Fluorobiphenyl	8441	5269	62.43	34-100
$ 66 Terphenyl-d14	8441	4926	58.36	35-112

Data File: /chem1/nt12.i/20101110.b/rs97l.d
Date : 10-NOV-2010 17:11
Client ID: DGS-07-5.66.7-10101
Sample Info: RS97L
Volume Injected (uL): 1.0
Column phase: ZB-5msi

Instrument: nt12.i

Operator: VTS
Column diameter: 0.32



RS97L 00159

Data File: /chem1/nt12.i/20101110.b/rs971.d

Date : 10-NOV-2010 17:11

Client ID: DGS-07-5.66.7-10101

Instrument: nt12.i

Sample Info: RS97L

Volume Injected (uL): 1.0

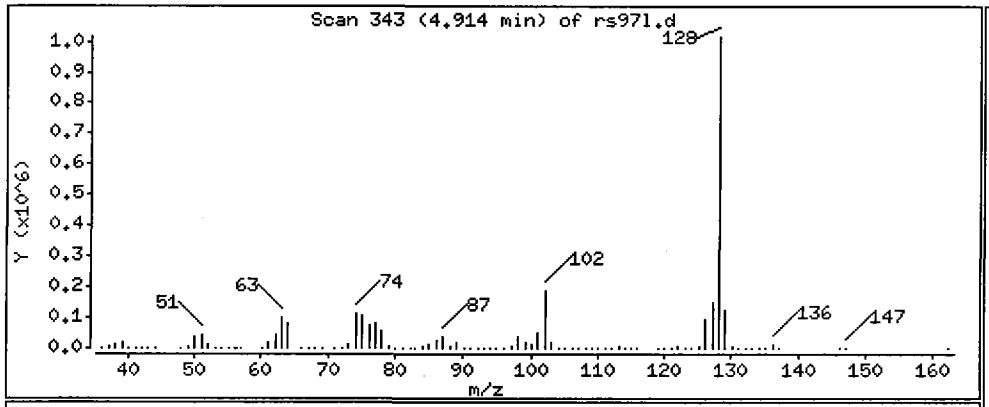
Operator: VTS

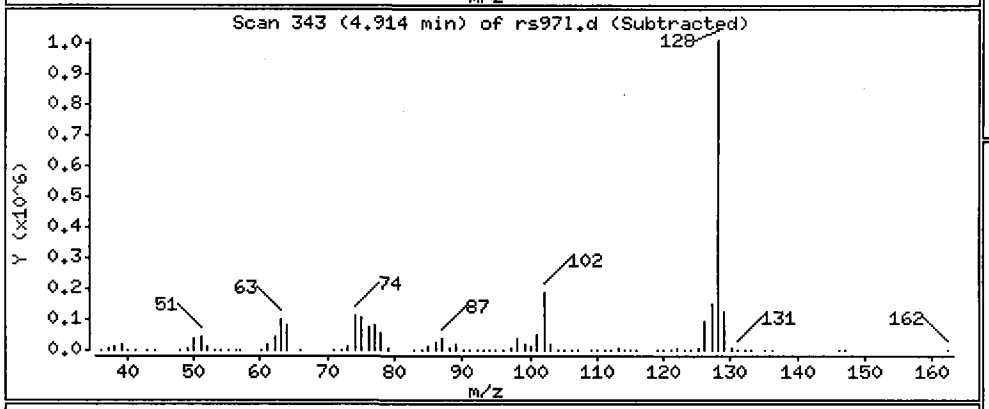
Column phase: ZB-5msi

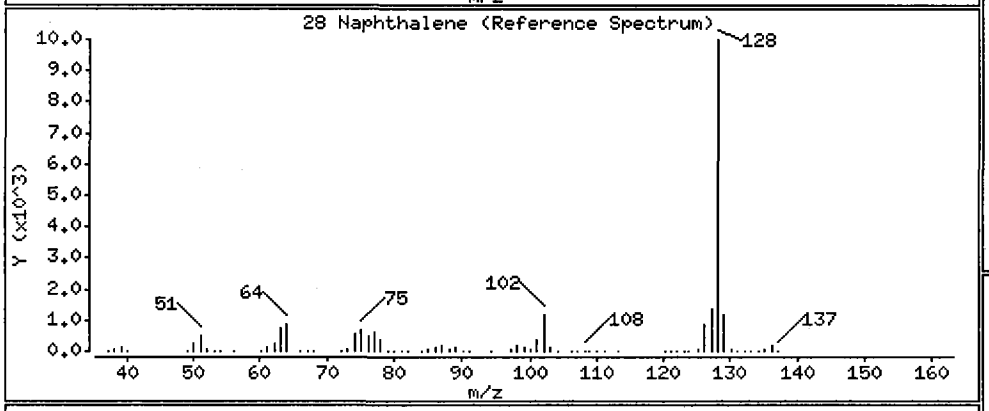
Column diameter: 0.32

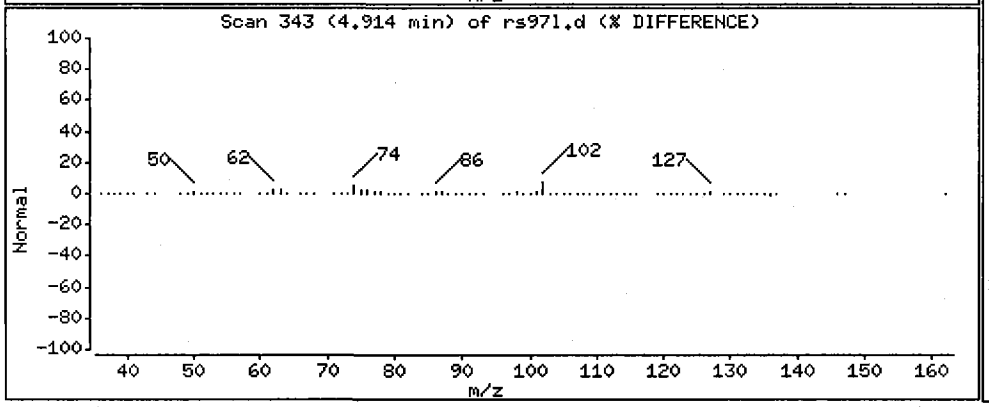
28 Naphthalene

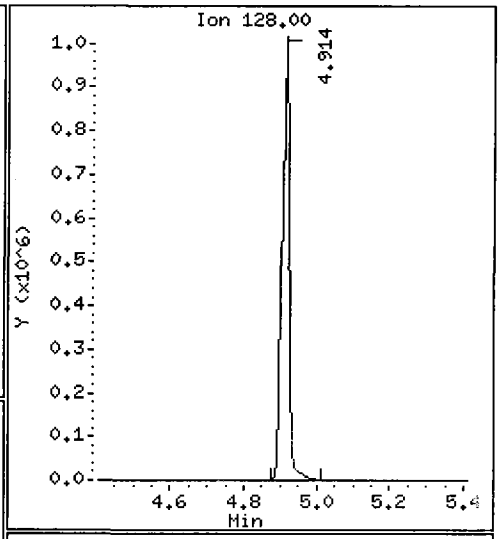
Concentration: 346000 ug/kg

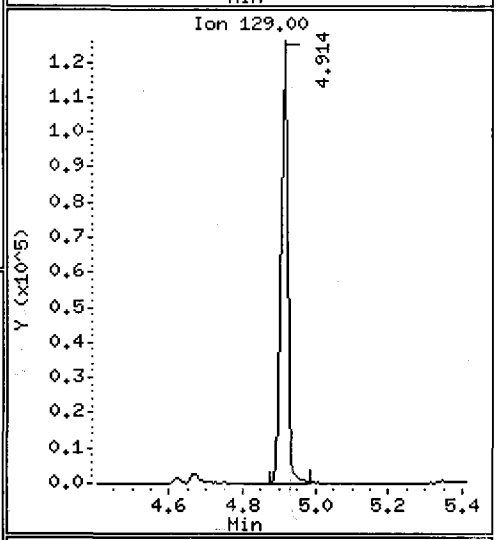


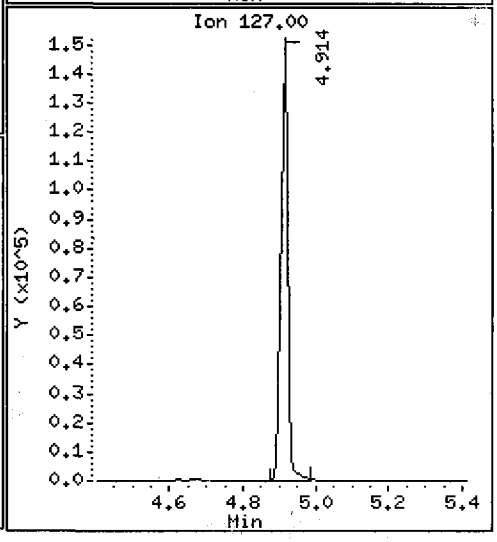












Data File: /chem1/nt12.i/20101110.b/rs971.d

Date : 10-NOV-2010 17:11

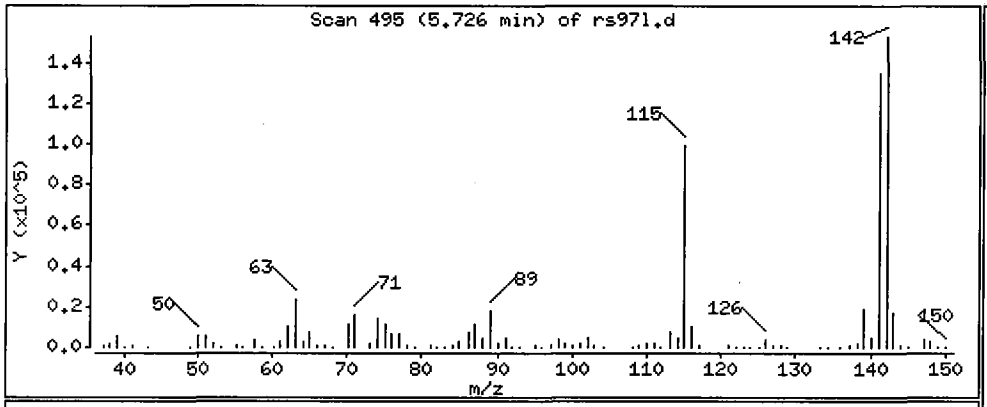
Client ID: DGS-07-5.66.7-10101 Instrument: nt12.i

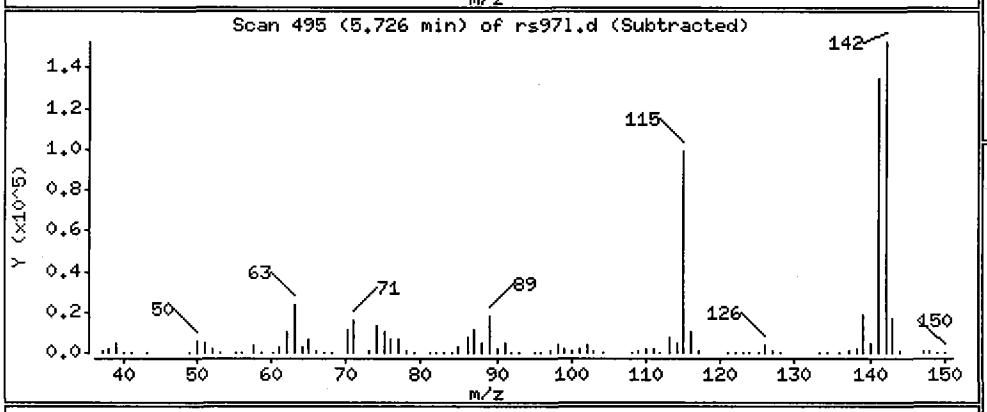
Sample Info: RS97L

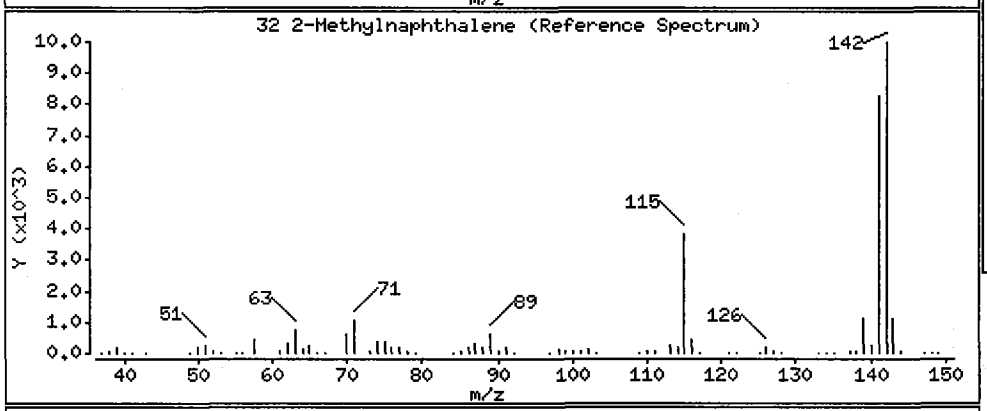
Volume Injected (uL): 1.0 Operator: VTS

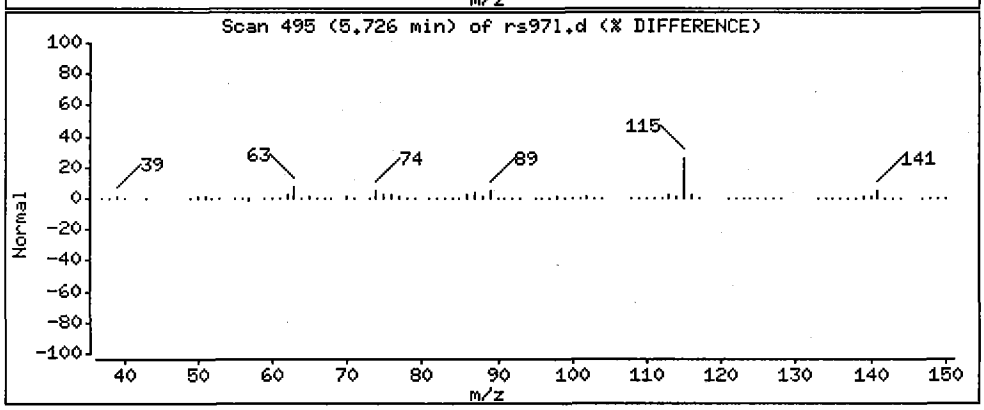
Column phase: ZB-5msi Column diameter: 0.32

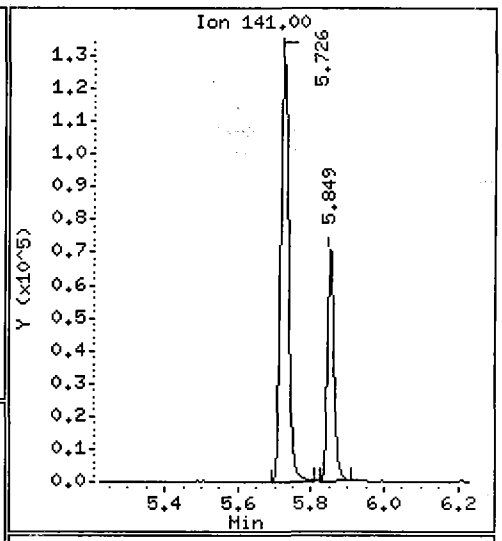
32 2-Methylnaphthalene Concentration: 87660 ug/kg

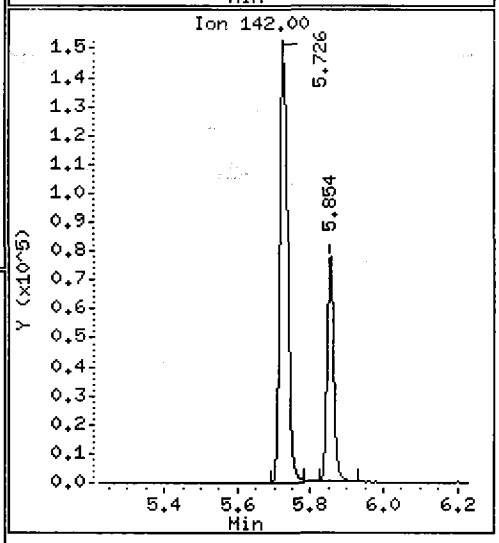












Data File: /chem1/nt12.i/20101110.b/rs971.d

Date : 10-NOV-2010 17:11

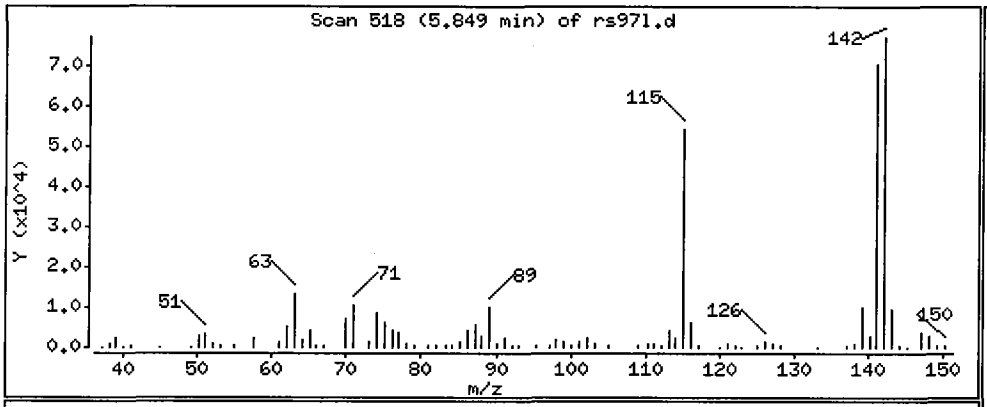
Client ID: DGS-07-5.66.7-10101 Instrument: nt12.i

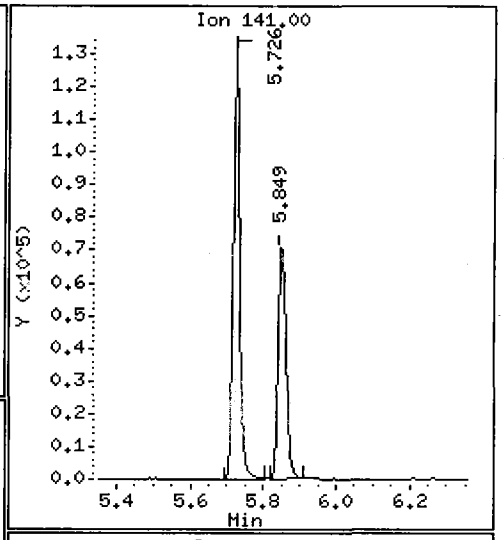
Sample Info: RS97L

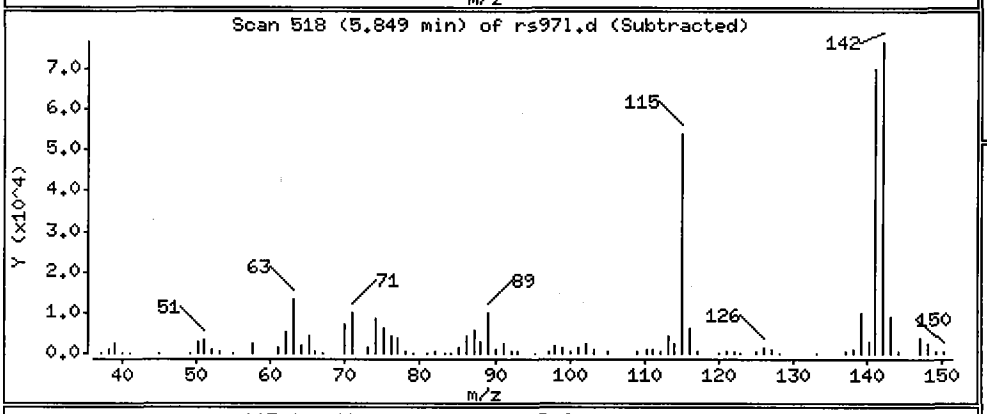
Volume Injected (uL): 1.0 Operator: VTS

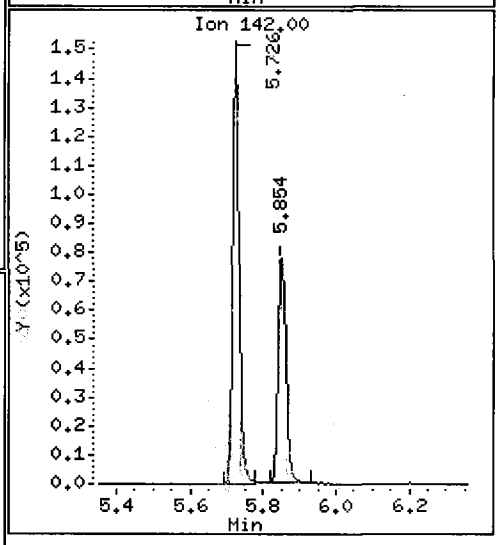
Column phase: ZB-5msi Column diameter: 0.32

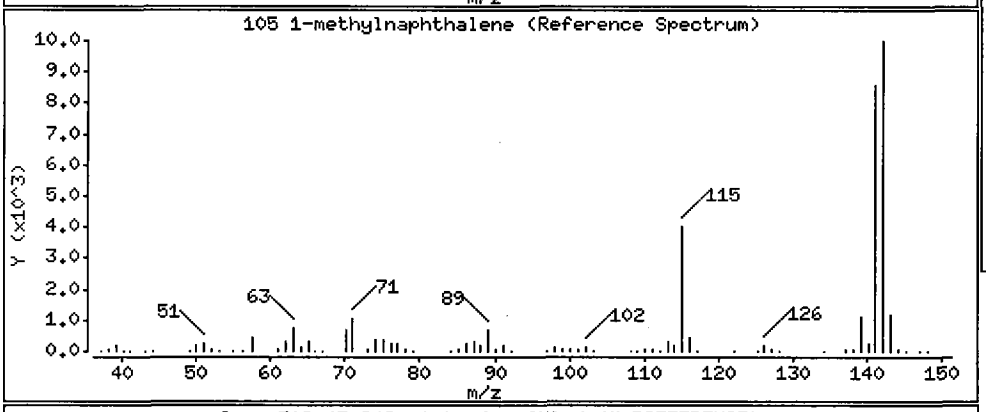
105 1-methylnaphthalene Concentration: 47450 ug/kg

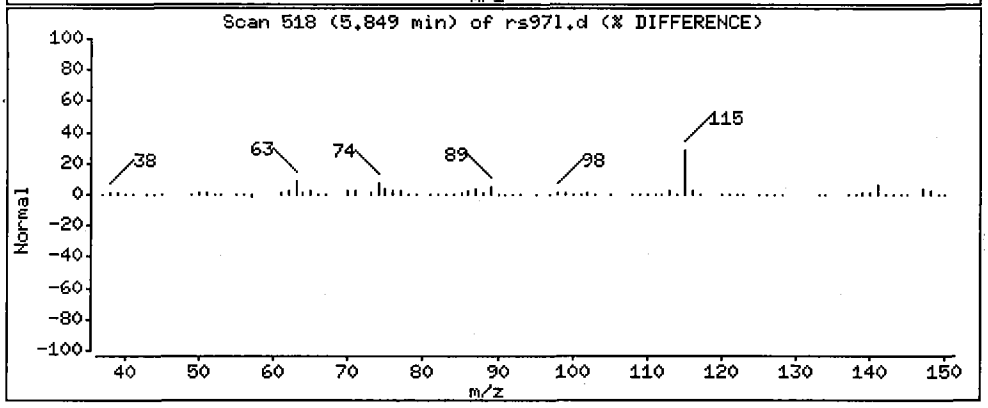












Data File: /chem1/nt12.i/20101110.b/rs971.d

Date : 10-NOV-2010 17:11

Client ID: DGS-07-5.66.7-10101

Instrument: nt12.i

Sample Info: RS97L

Volume Injected (uL): 1.0

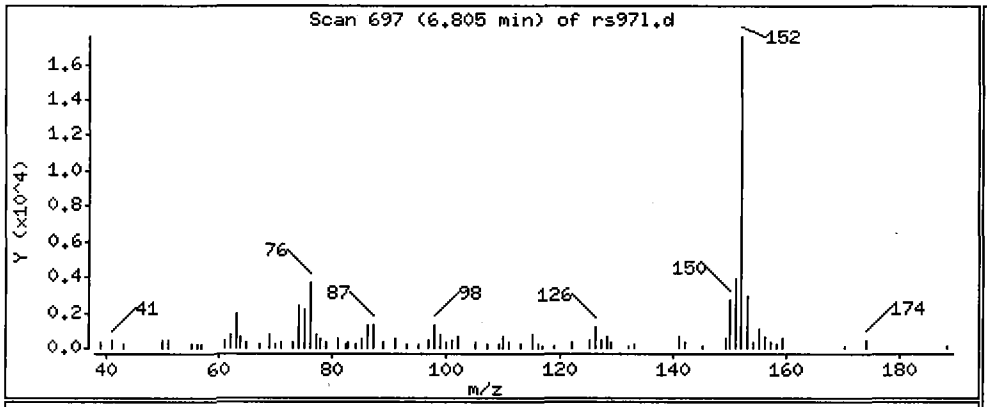
Operator: VTS

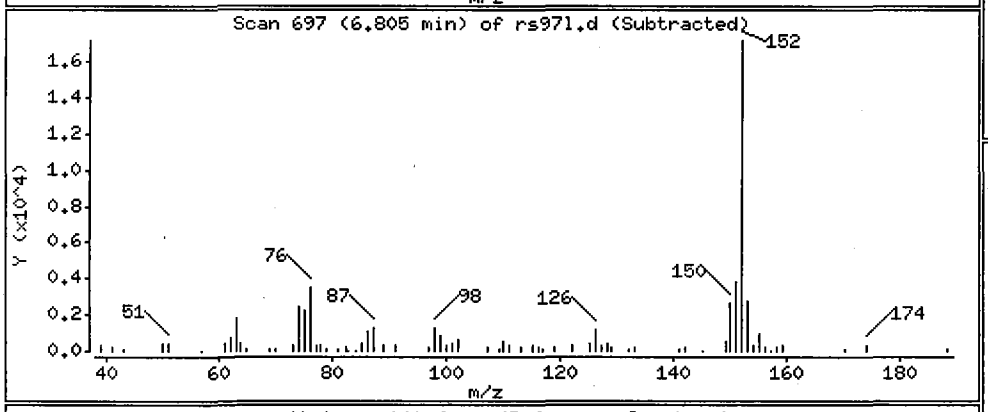
Column phase: ZB-5msi

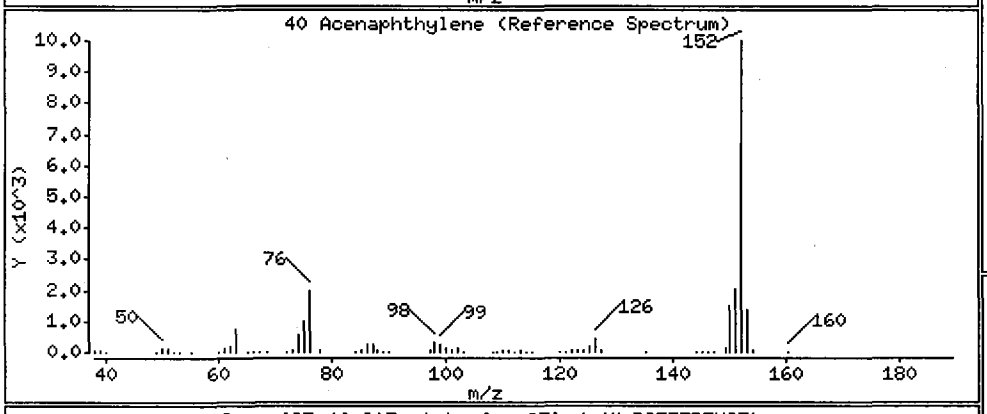
Column diameter: 0.32

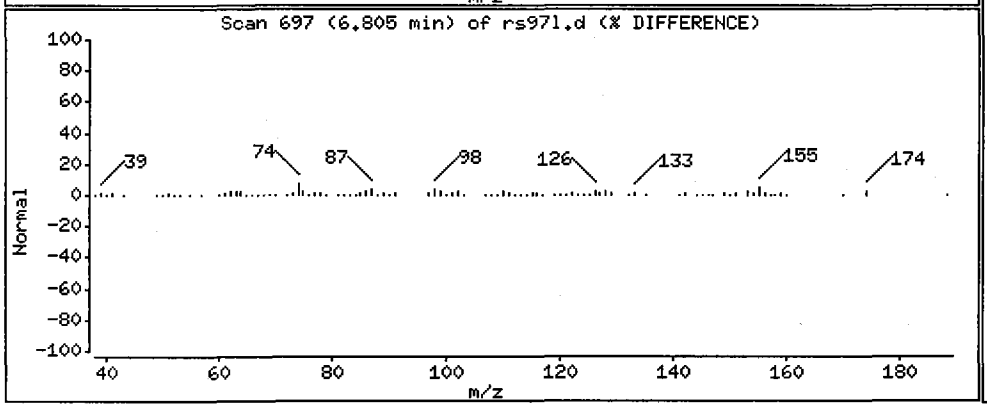
40 Acenaphthylene

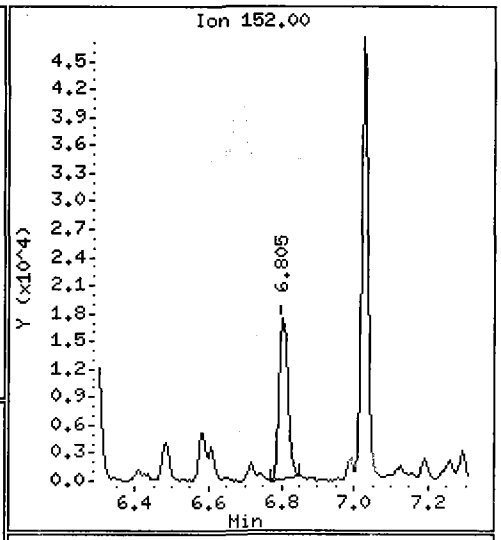
Concentration: 7005 ug/kg

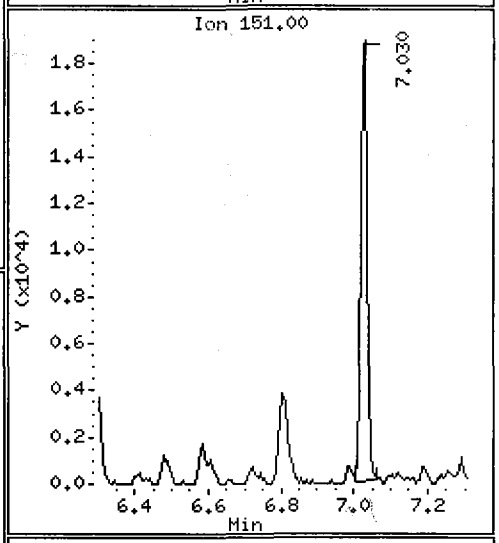


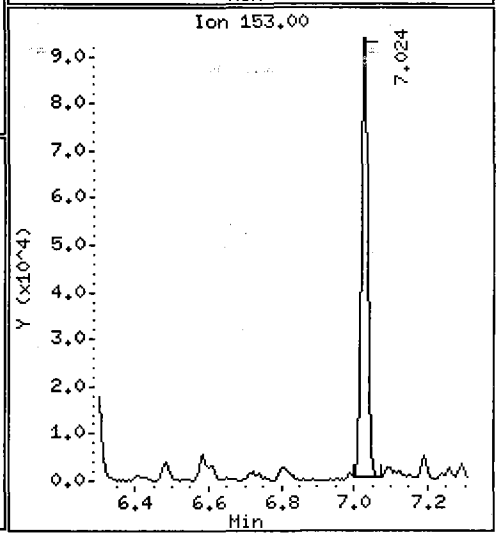












Data File: /chem1/nt12.i/20101110.b/rs971.d

Date : 10-NOV-2010 17:11

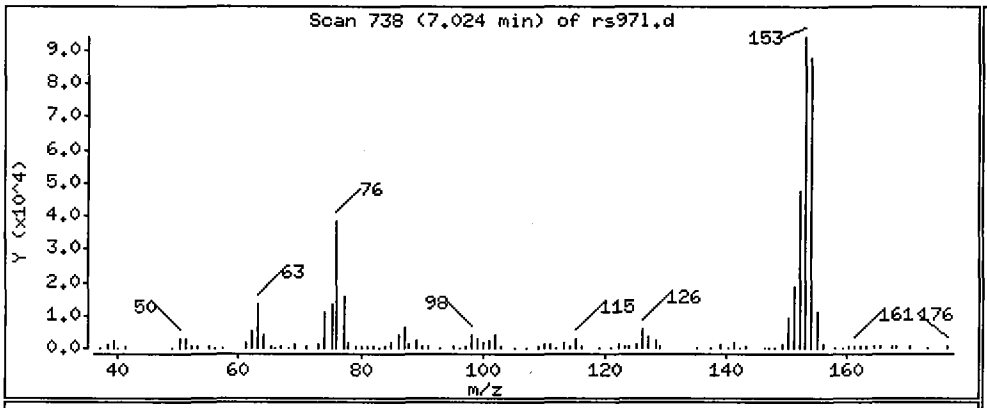
Client ID: DGS-07-5.66.7-10101 Instrument: nt12.i

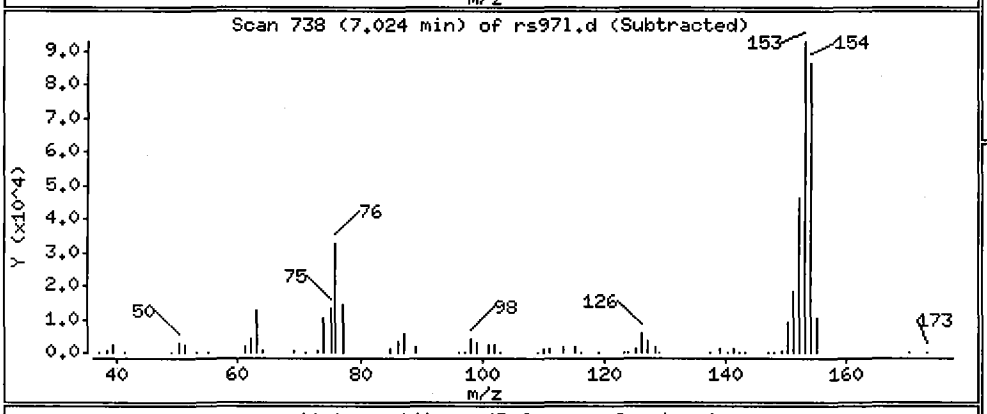
Sample Info: RS97L

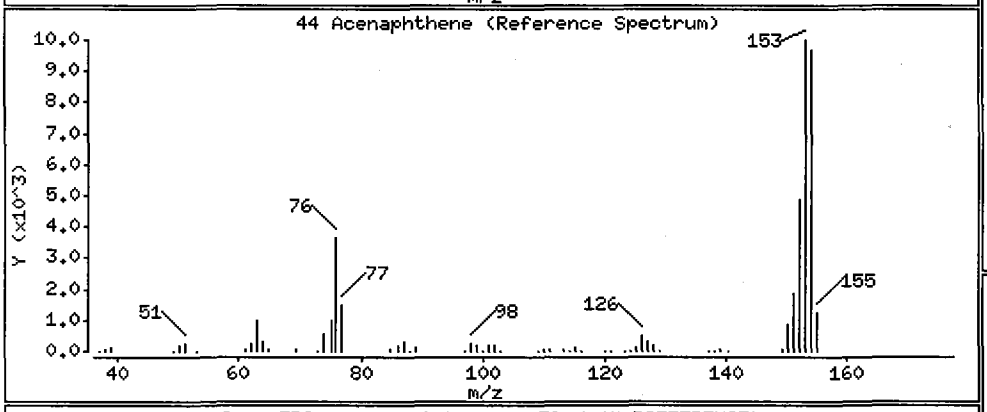
Volume Injected (uL): 1.0 Operator: VTS

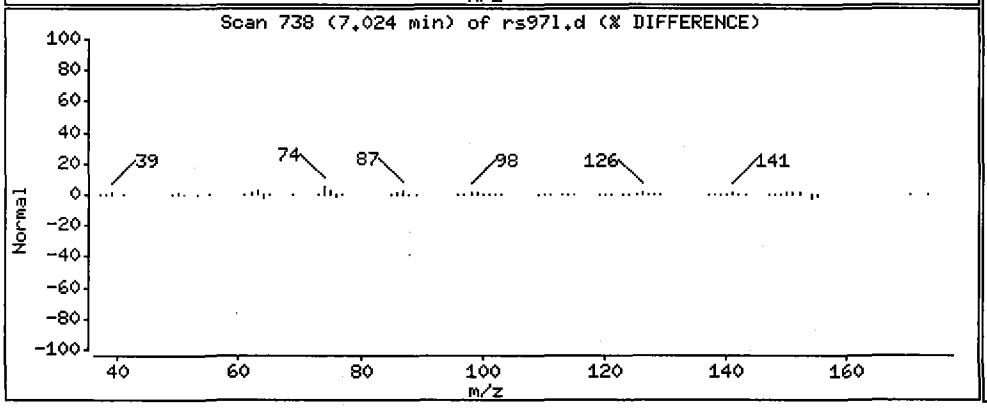
Column phase: ZB-5msi Column diameter: 0.32

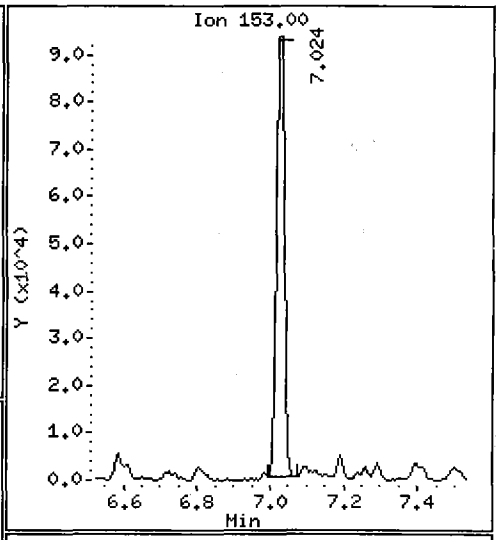
44 Acenaphthene Concentration: 51850 ug/kg

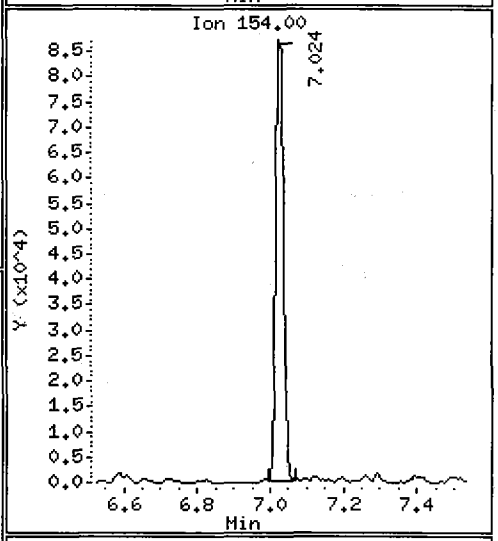


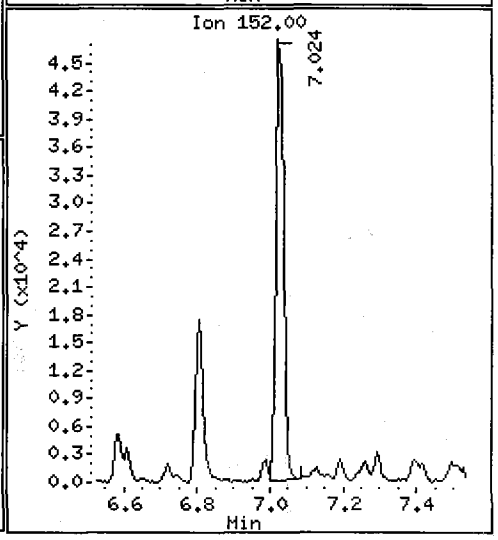












Data File: /chem1/nt12.i/20101110.b/rs971.d

Date : 10-NOV-2010 17:11

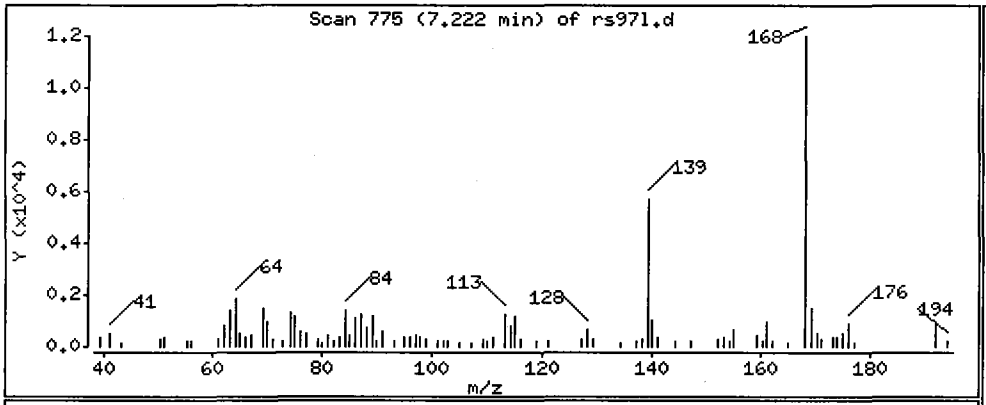
Client ID: DGS-07-5.66.7-10101 Instrument: nt12.i

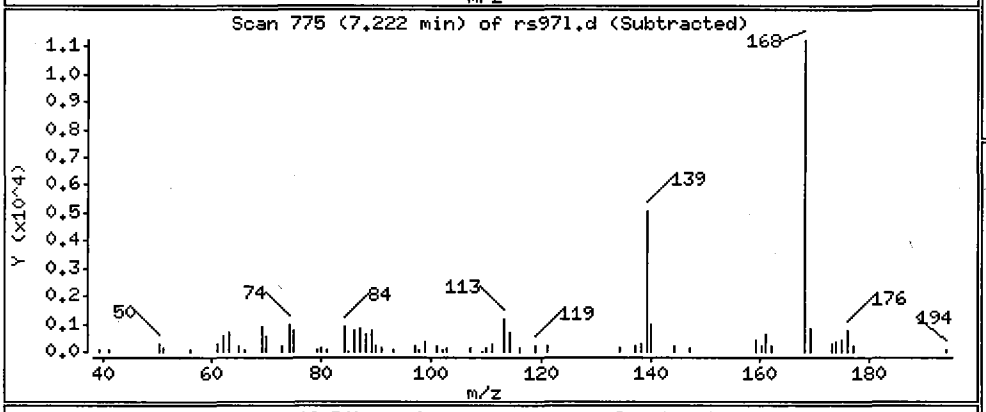
Sample Info: RS97L

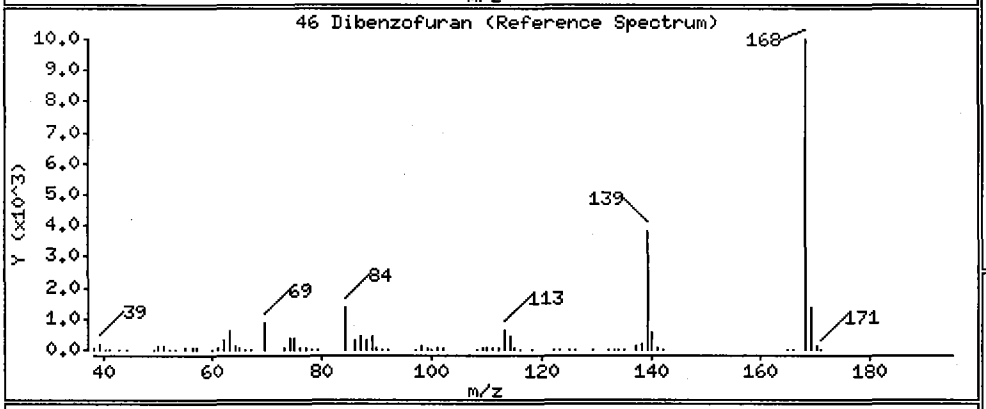
Volume Injected (uL): 1.0 Operator: VTS

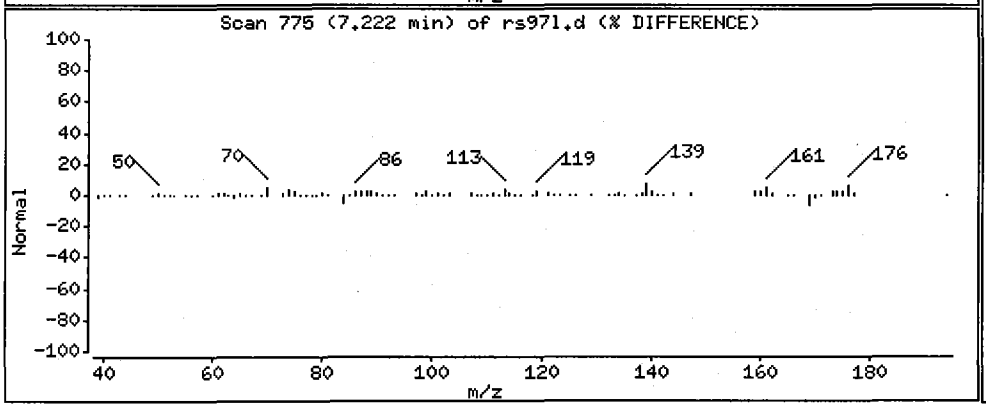
Column phase: ZB-5msi Column diameter: 0.32

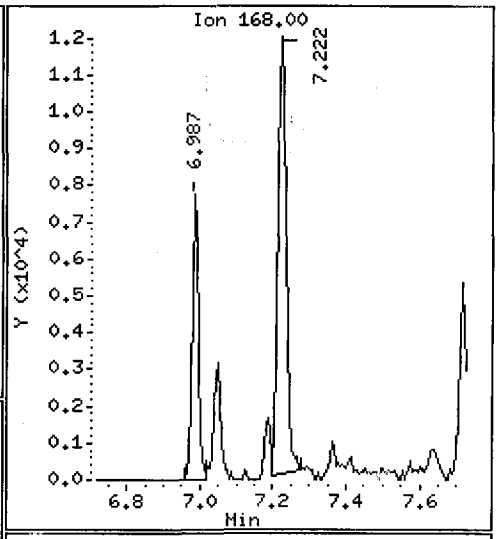
46 Dibenzofuran Concentration: 4724 ug/kg

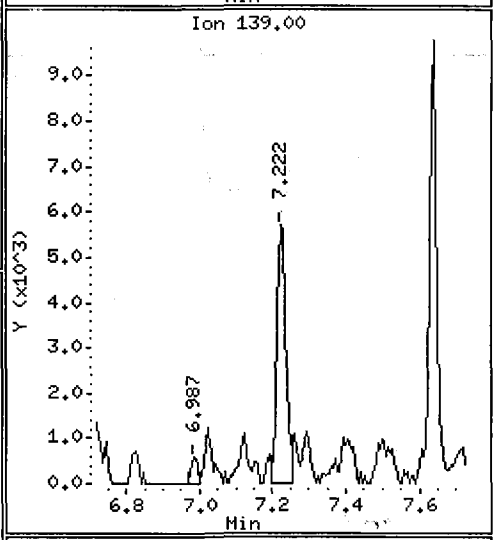


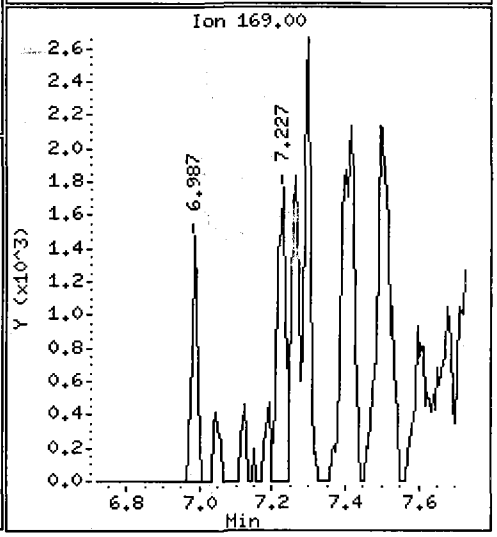












Data File: /chem1/nt12.i/20101110.b/rs971.d

Date : 10-NOV-2010 17:11

Client ID: DGS-07-5.66.7-10101

Instrument: nt12.i

Sample Info: RS97L

Volume Injected (uL): 1.0

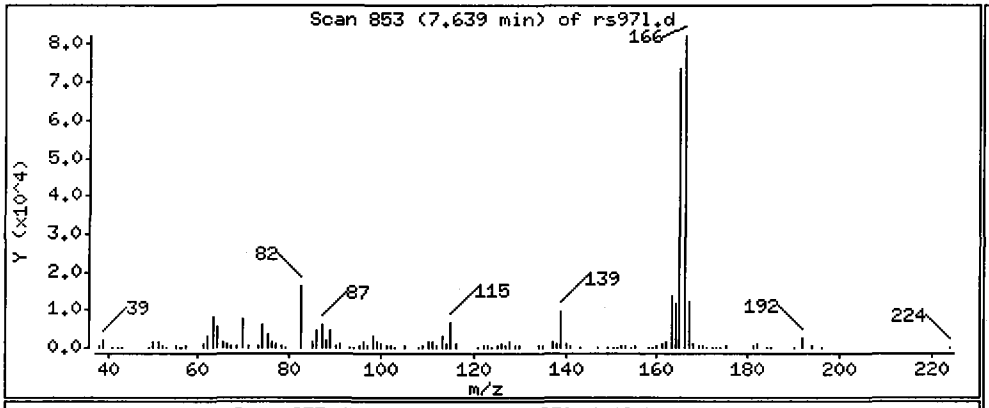
Operator: VTS

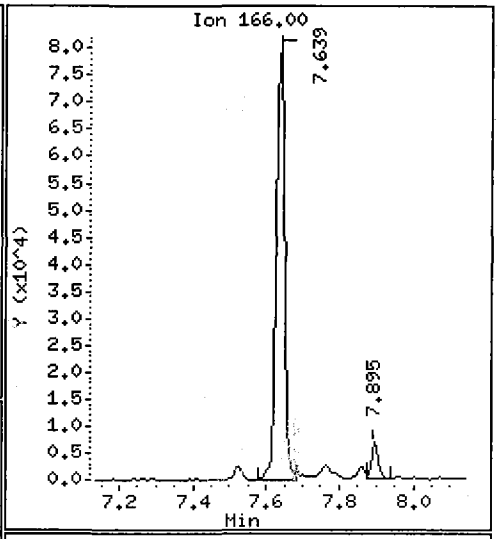
Column phase: ZB-5msi

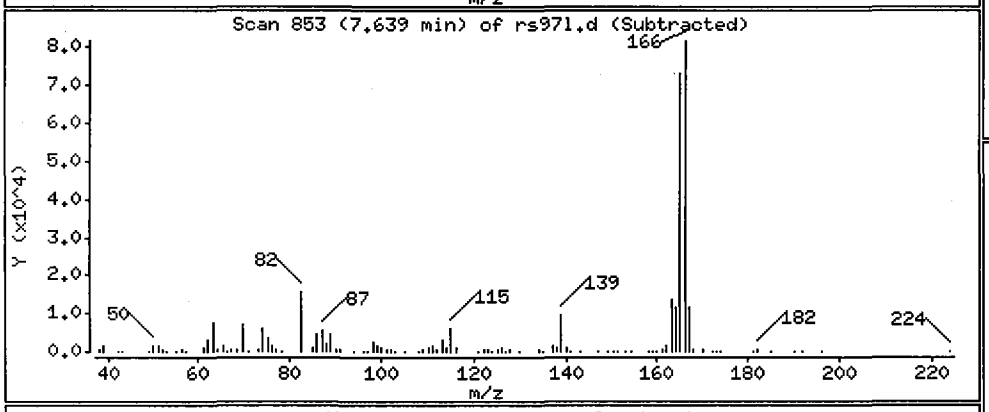
Column diameter: 0.32

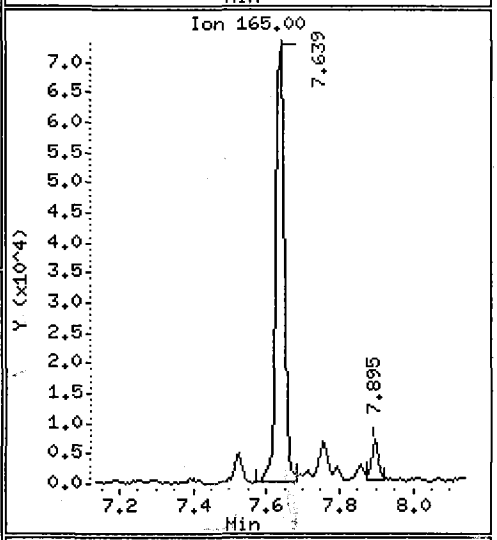
49 Fluorene

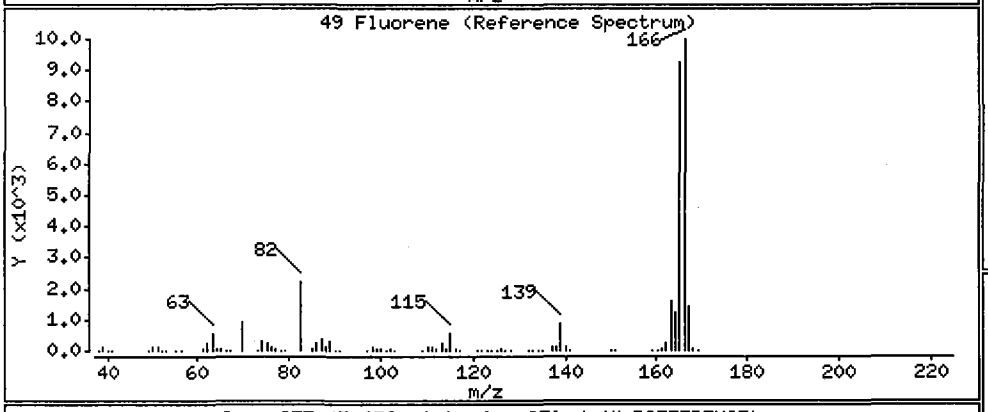
Concentration: 42270 ug/kg

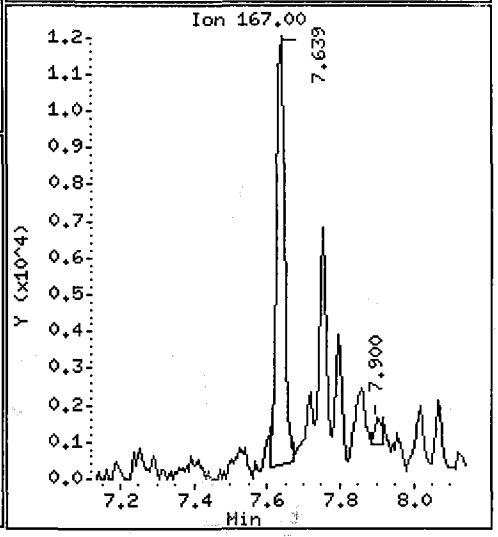


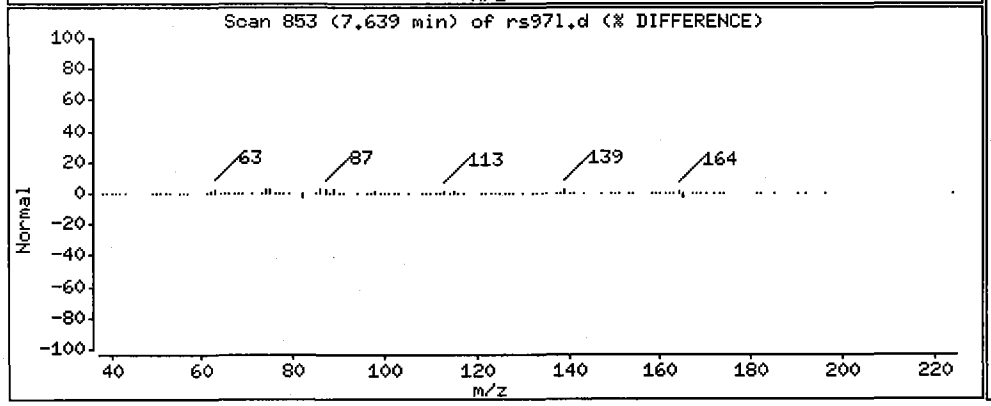












Data File: /chem1/nt12.i/20101110.b/rs971.d

Date : 10-NOV-2010 17:11

Client ID: DGS-07-5.66.7-10101

Instrument: nt12.i

Sample Info: RS97L

Volume Injected (uL): 1.0

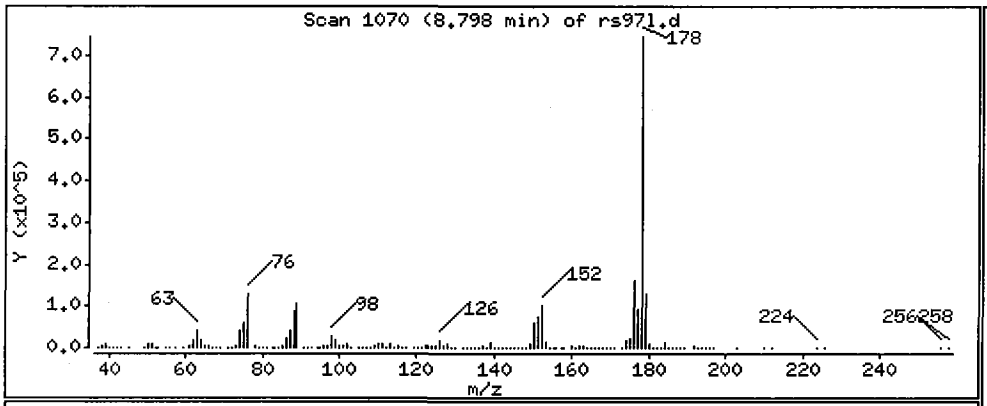
Operator: VTS

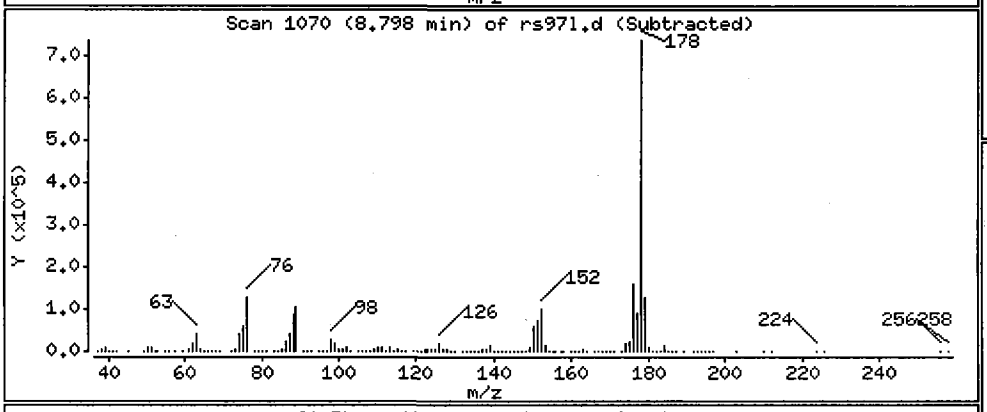
Column phase: ZB-5msi

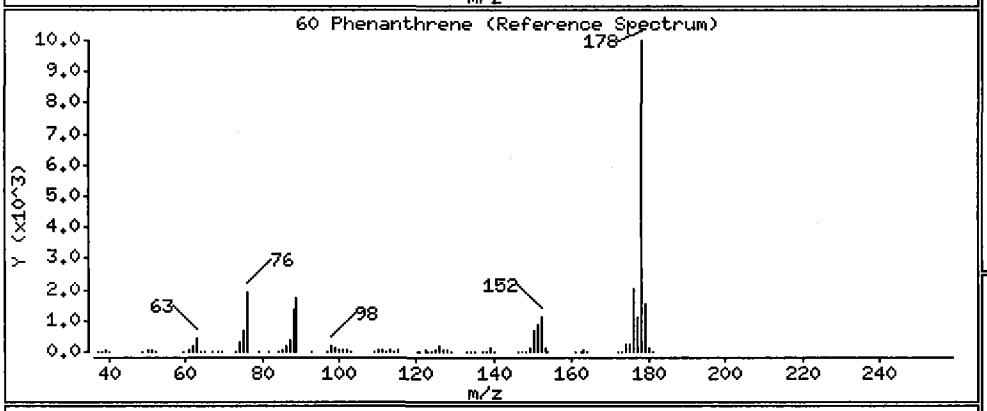
Column diameter: 0.32

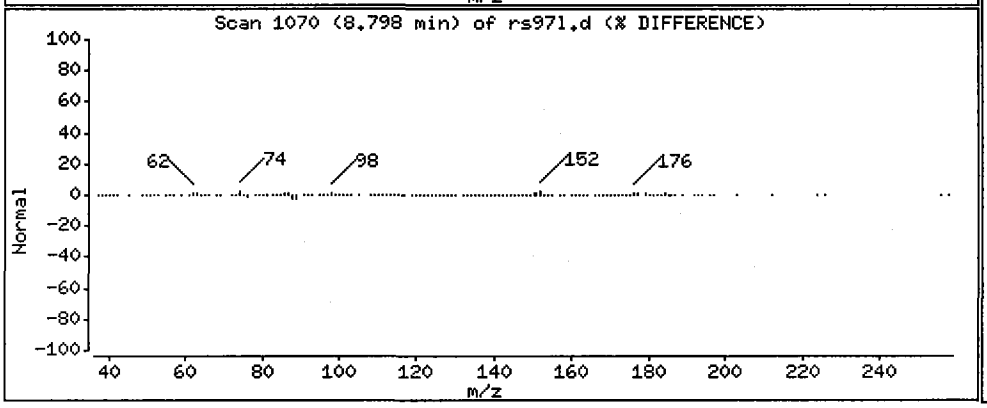
60 Phenanthrene

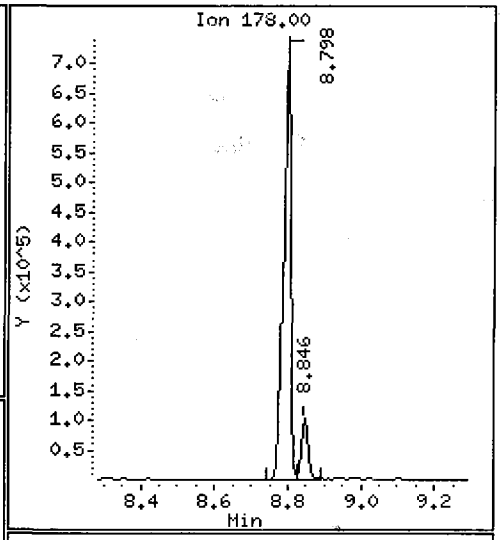
Concentration: 265800 ug/kg

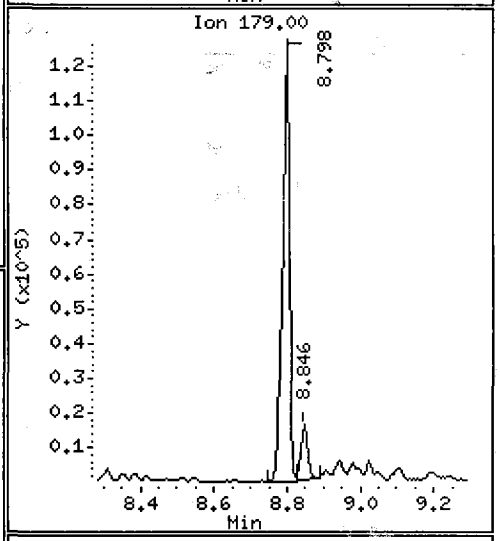


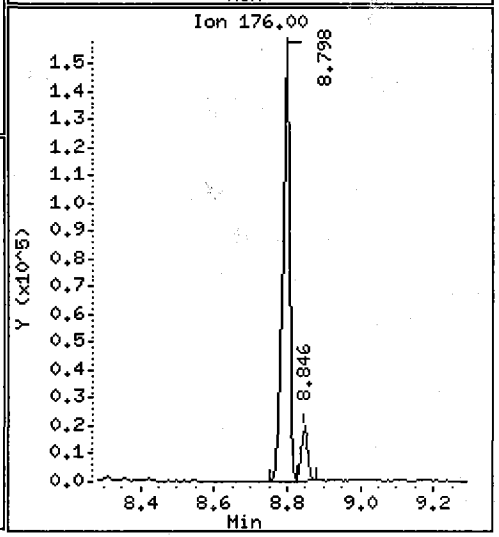












Data File: /chem1/nt12.i/20101110.b/rs971.d

Date : 10-NOV-2010 17:11

Client ID: DGS-07-5.66.7-10101

Instrument: nt12.i

Sample Info: RS97L

Volume Injected (uL): 1.0

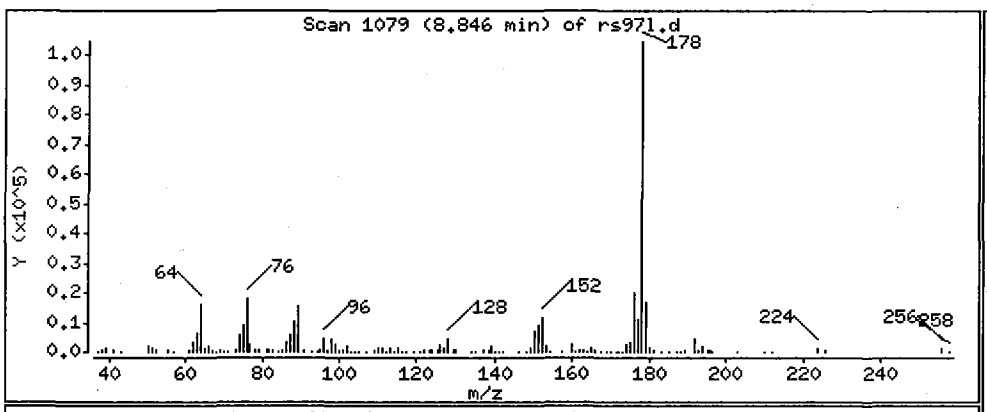
Operator: VTS

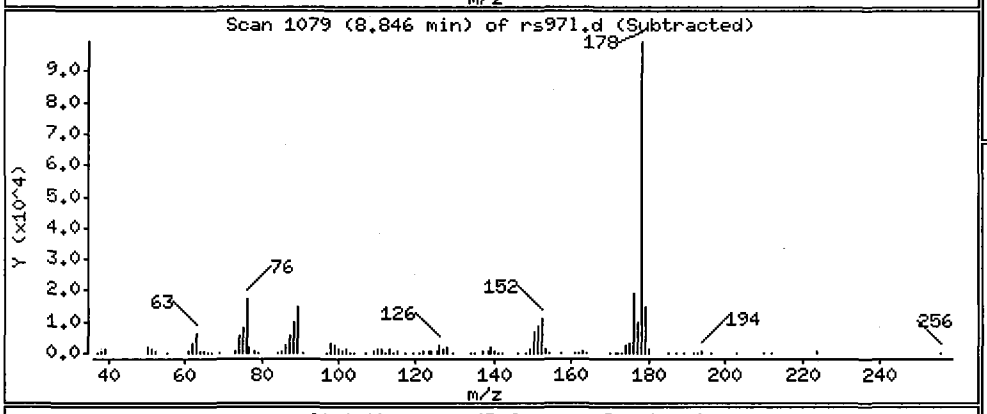
Column phase: ZB-5msi

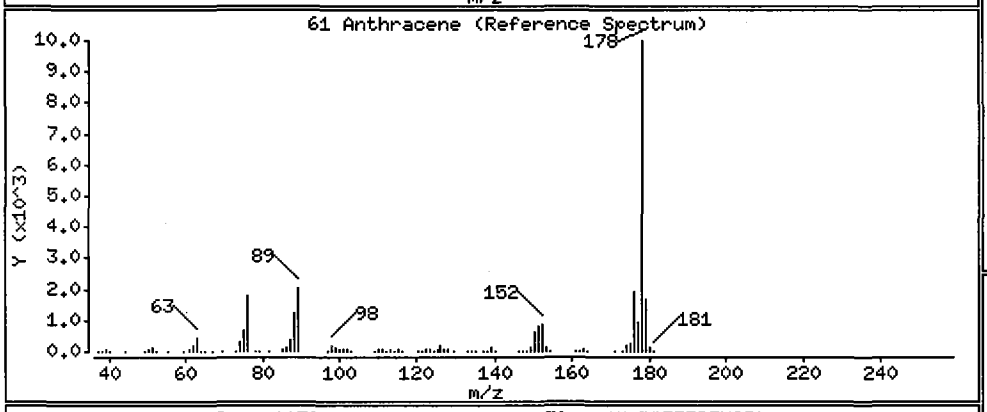
Column diameter: 0.32

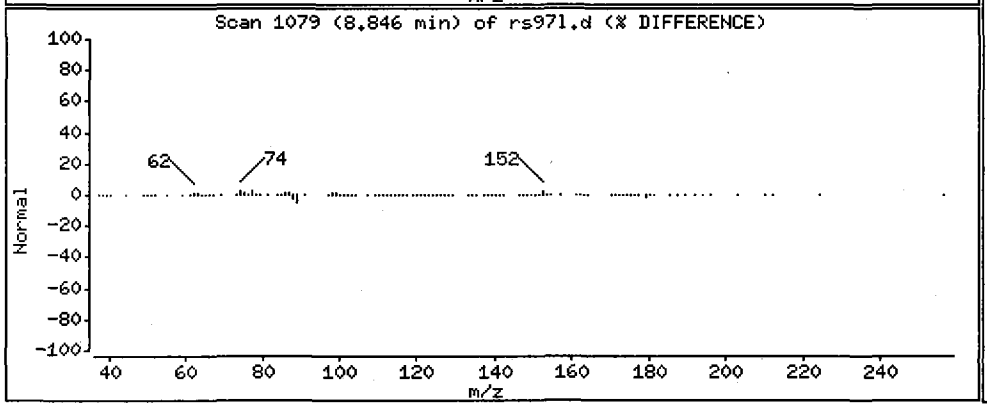
61 Anthracene

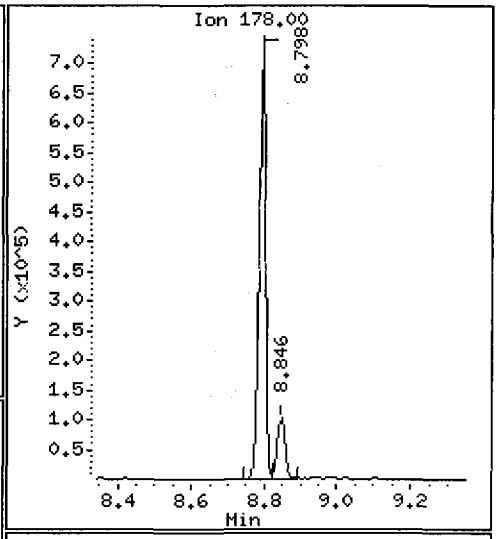
Concentration: 37220 ug/kg

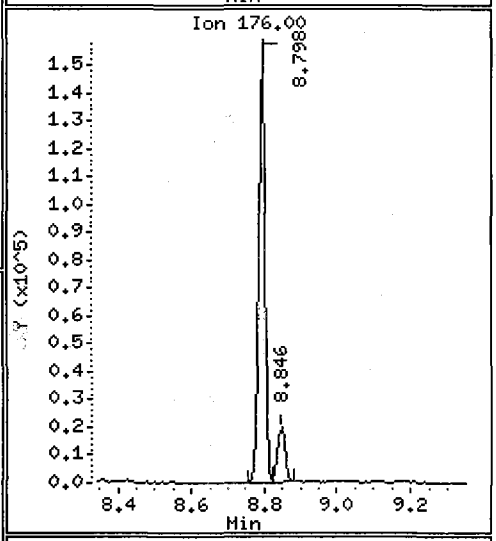


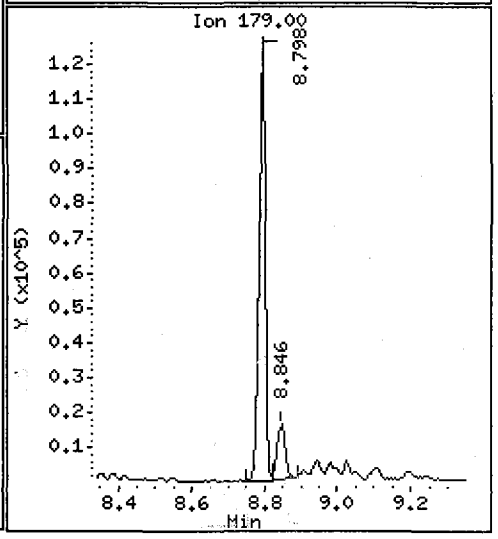












Data File: /chem1/nt12.i/20101110.b/rs971.d

Date : 10-NOV-2010 17:11

Client ID: DGS-07-5.66.7-10101

Instrument: nt12.i

Sample Info: RS97L

Volume Injected (uL): 1.0

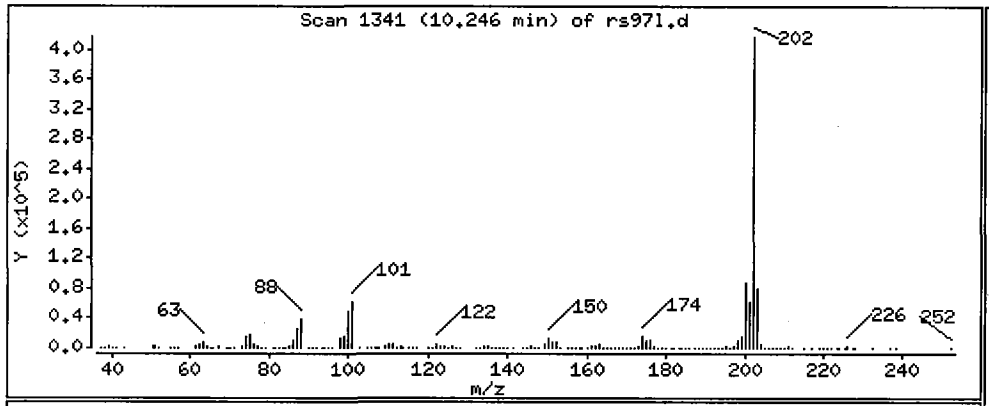
Operator: VTS

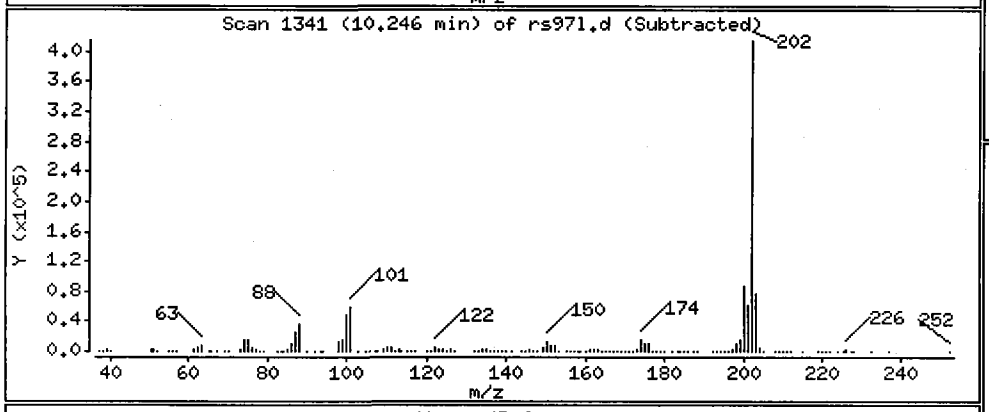
Column phase: ZB-5msi

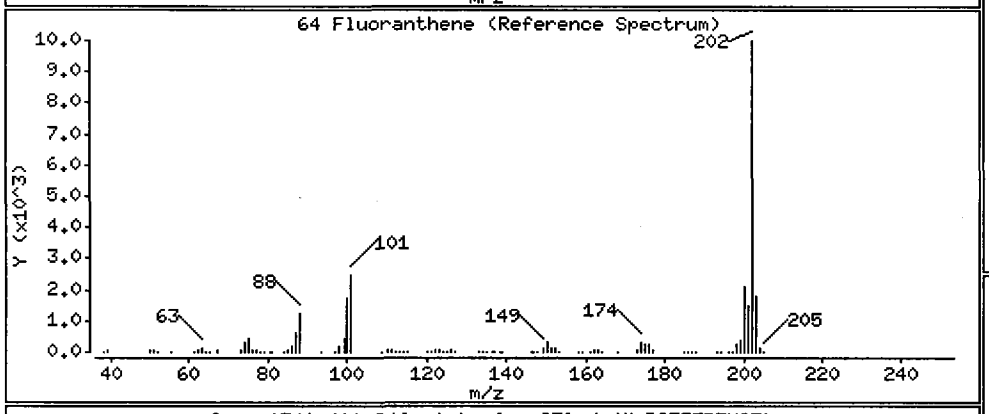
Column diameter: 0.32

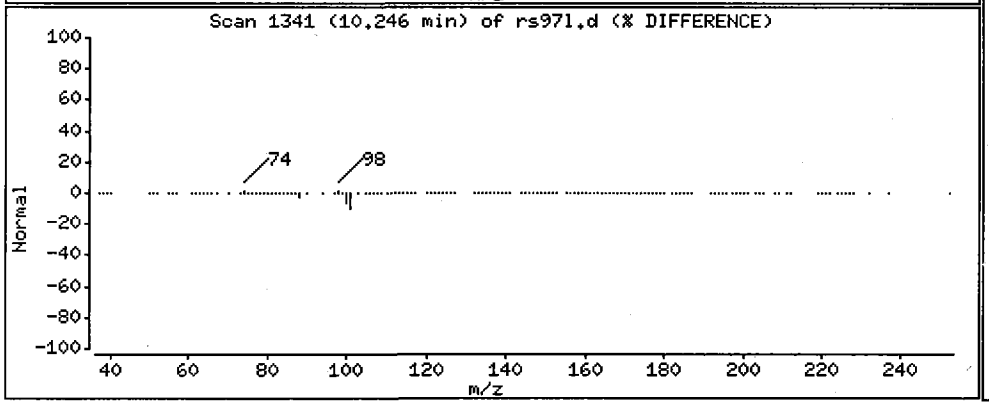
64 Fluoranthene

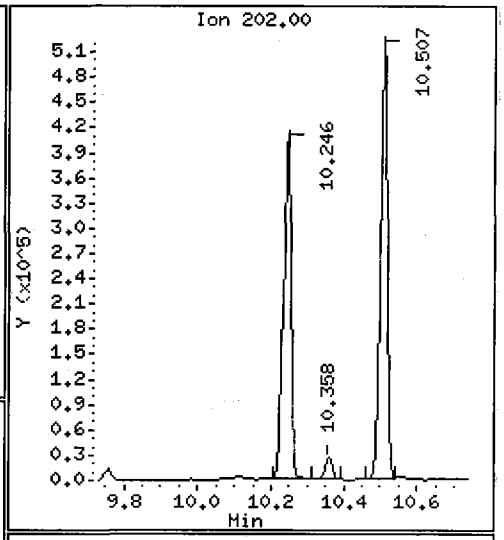
Concentration: 124700 ug/kg

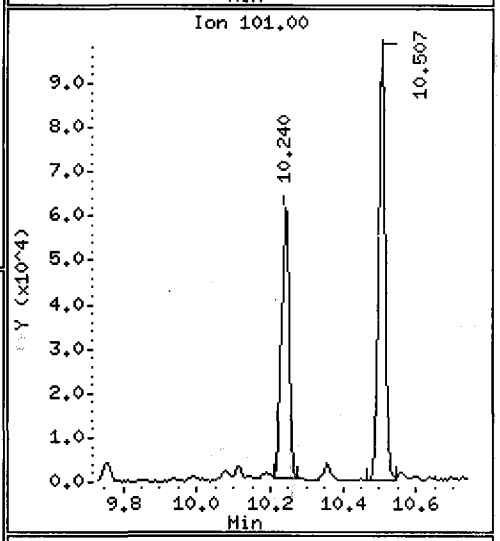


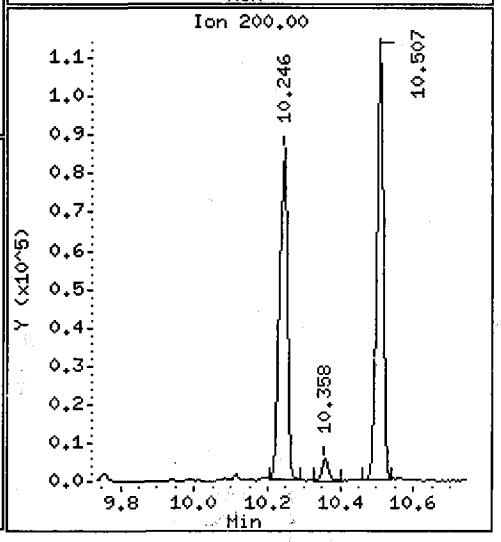












Data File: /chem1/nt12.i/20101110.b/rs971.d

Date : 10-NOV-2010 17:11

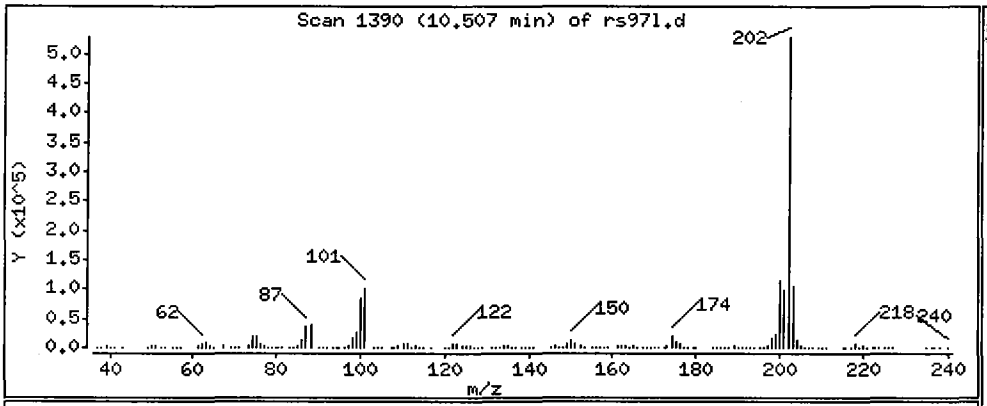
Client ID: DGS-07-5.66.7-10101 Instrument: nt12.i

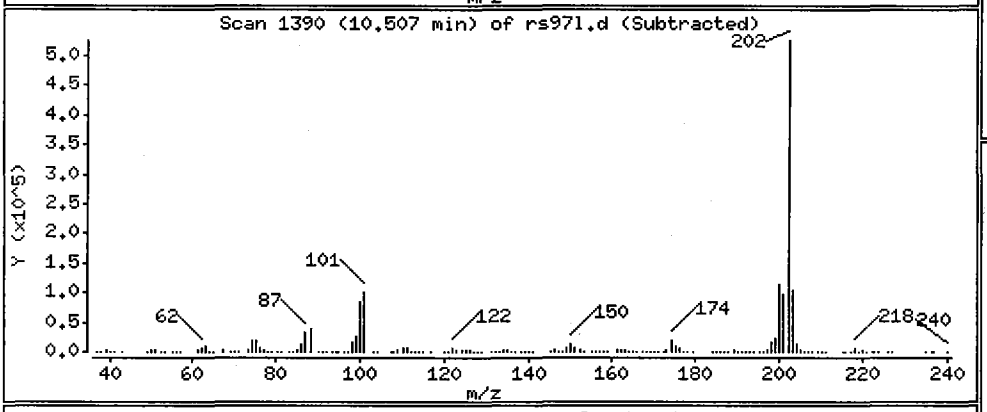
Sample Info: RS97L

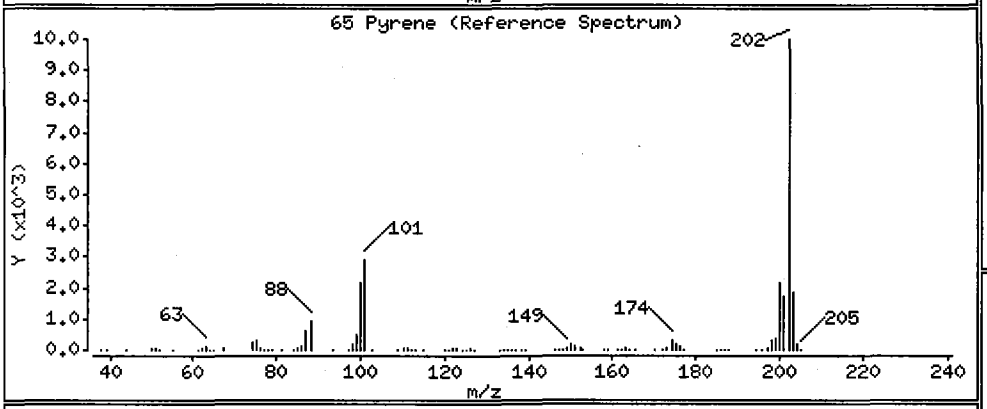
Volume Injected (uL): 1.0 Operator: VTS

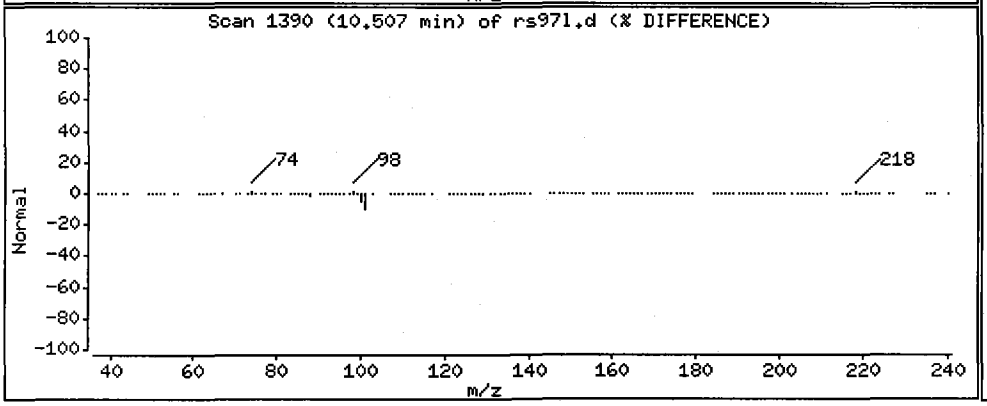
Column phase: ZB-5msi Column diameter: 0.32

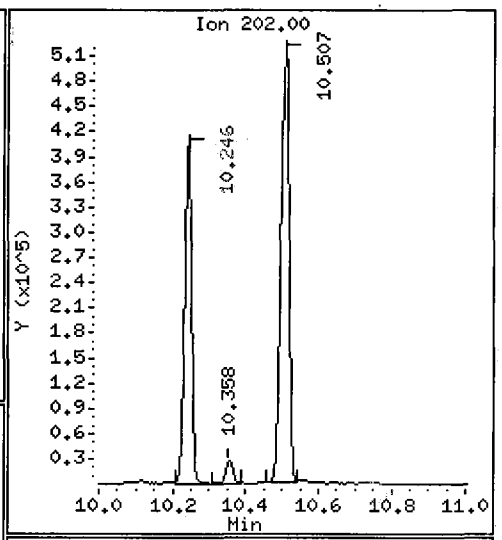
65 Pyrene Concentration: 156300 ug/kg

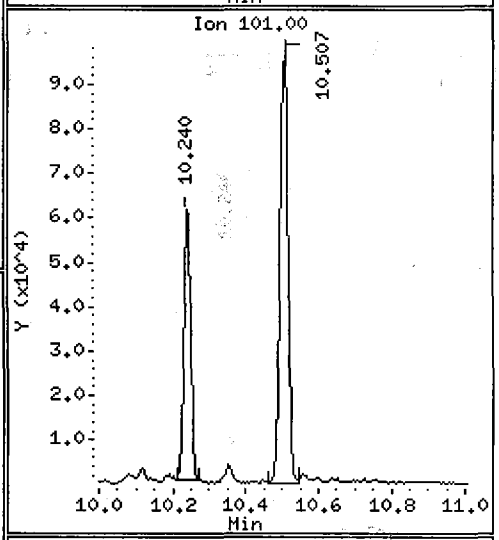


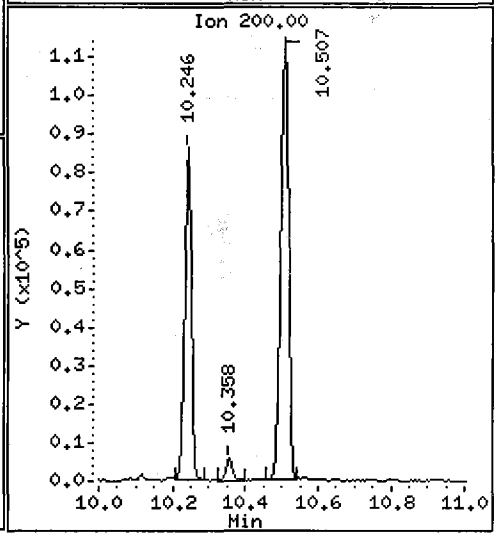












Data File: /chem1/nt12.i/20101110.b/rs971.d

Date : 10-NOV-2010 17:11

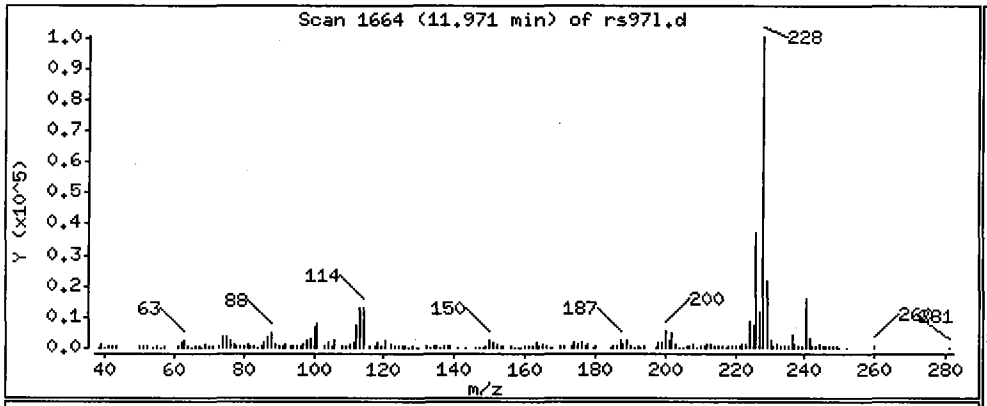
Client ID: DGS-07-5.66.7-10101 Instrument: nt12.i

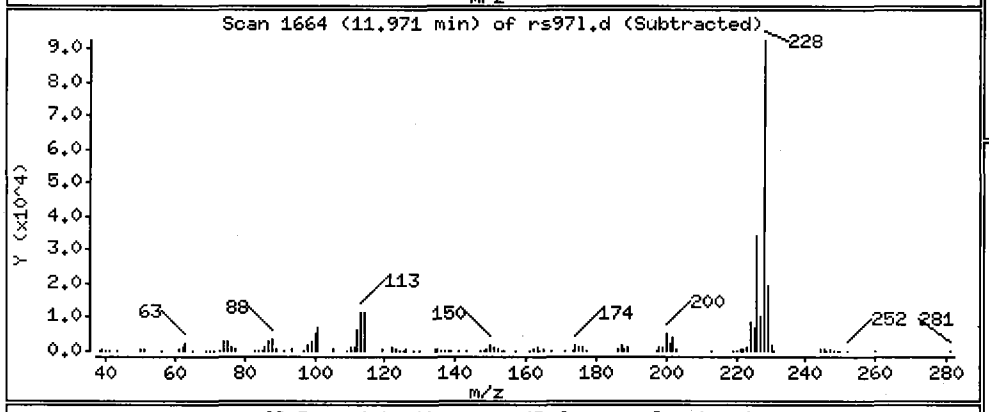
Sample Info: RS97L

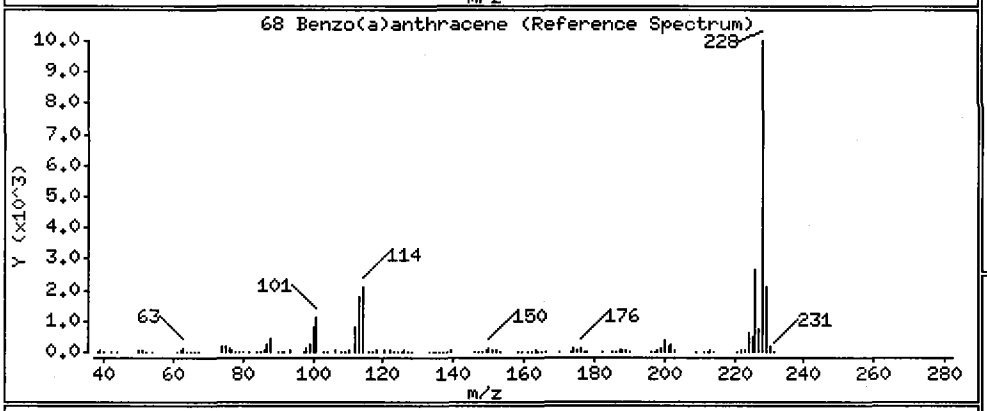
Volume Injected (uL): 1.0 Operator: VTS

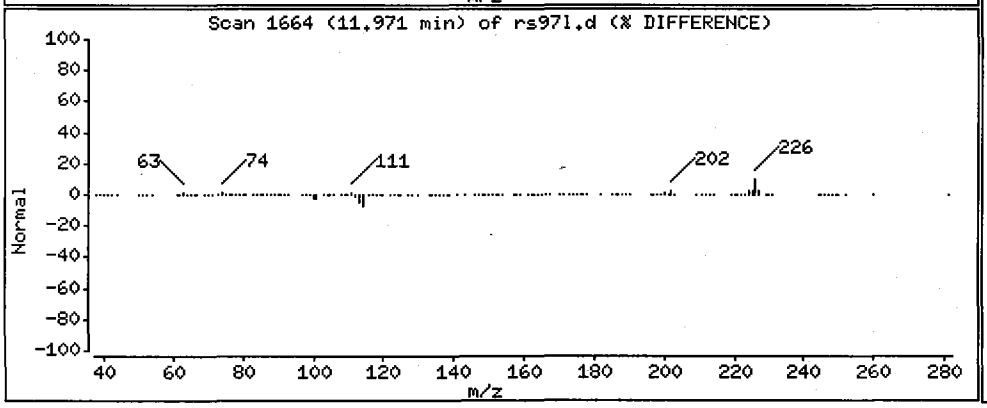
Column phase: ZB-5msi Column diameter: 0.32

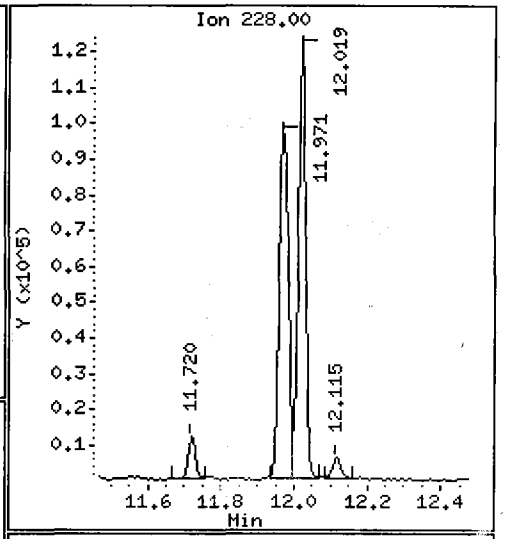
68 Benzo(a)anthracene Concentration: 41380 ug/kg

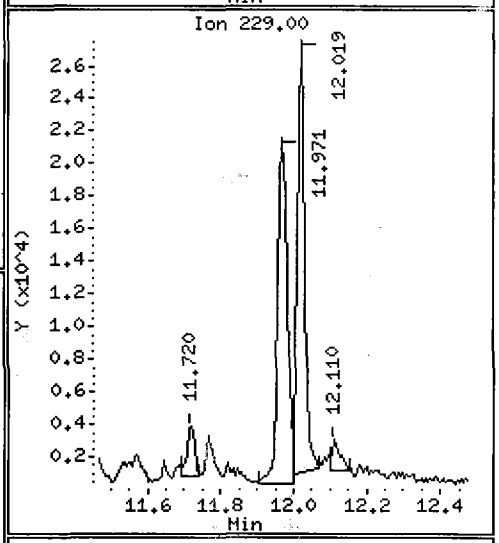


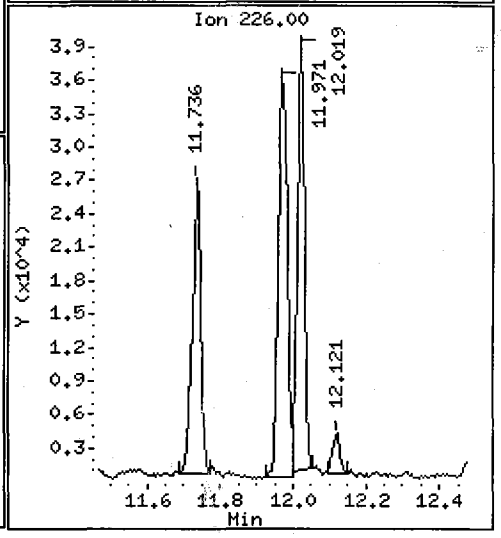












Data File: /chem1/nt12.i/20101110.b/rs971.d

Date : 10-NOV-2010 17:11

Client ID: DGS-07-5.66.7-10101

Instrument: nt12.i

Sample Info: RS97L

Volume Injected (uL): 1.0

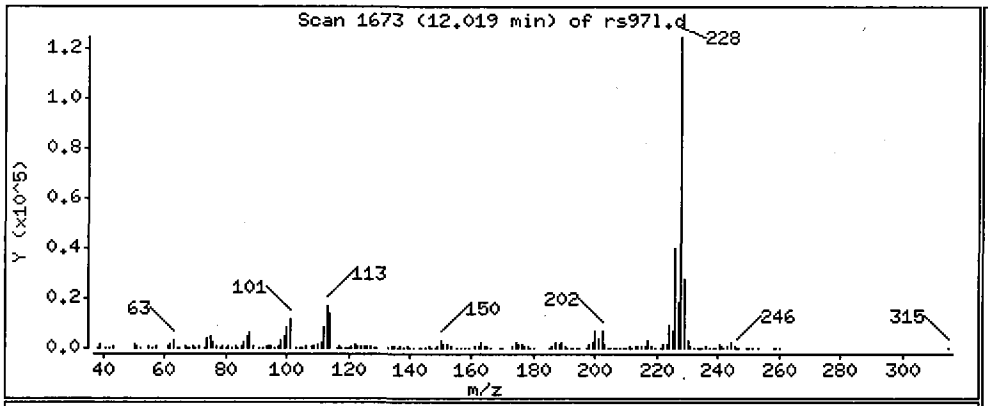
Operator: VTS

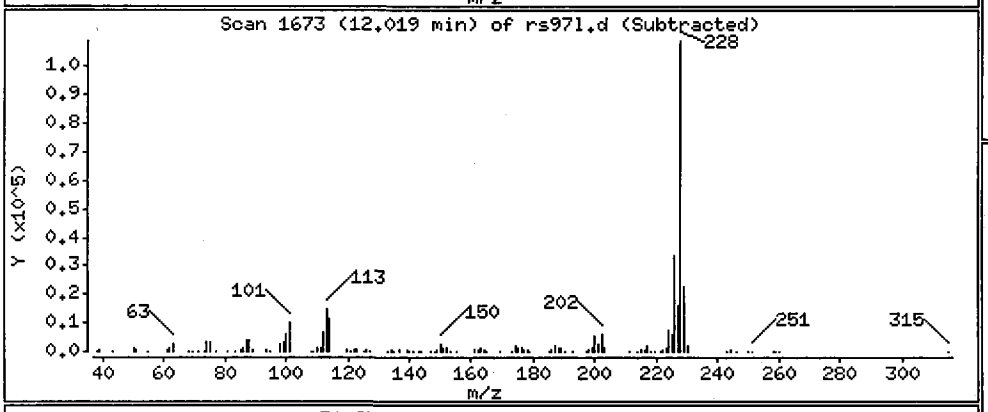
Column phase: ZB-5msi

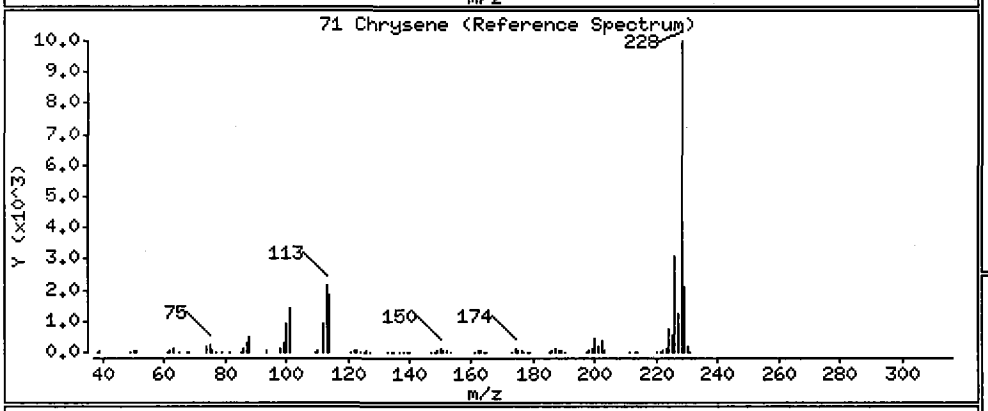
Column diameter: 0.32

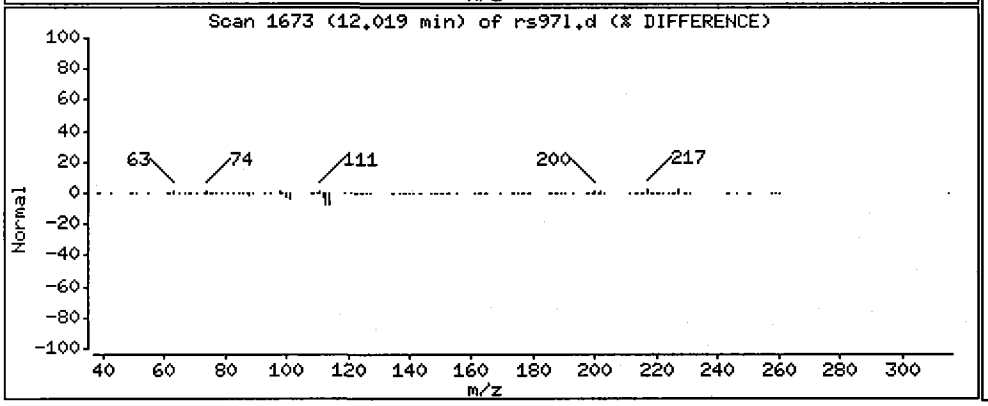
71 Chrysene

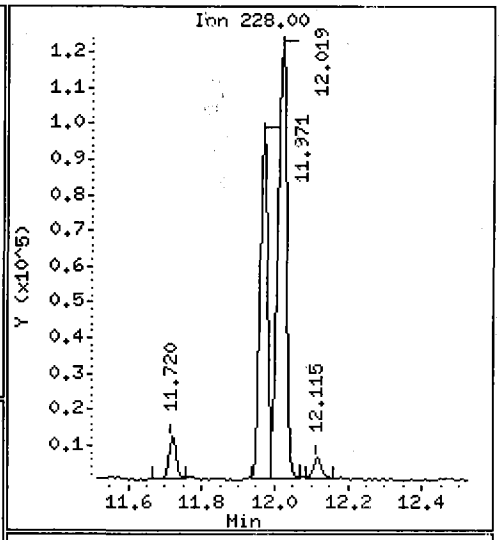
Concentration: 53570 ug/kg

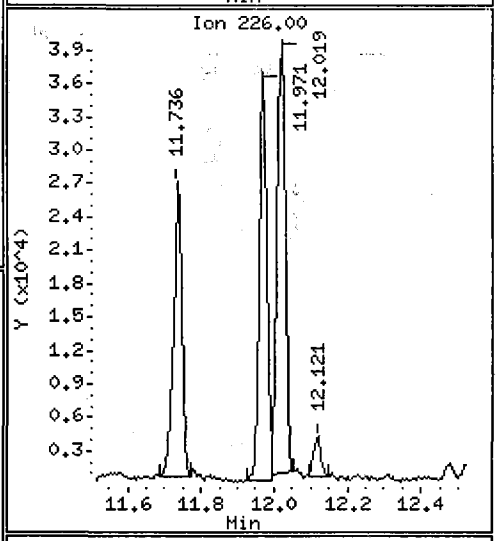


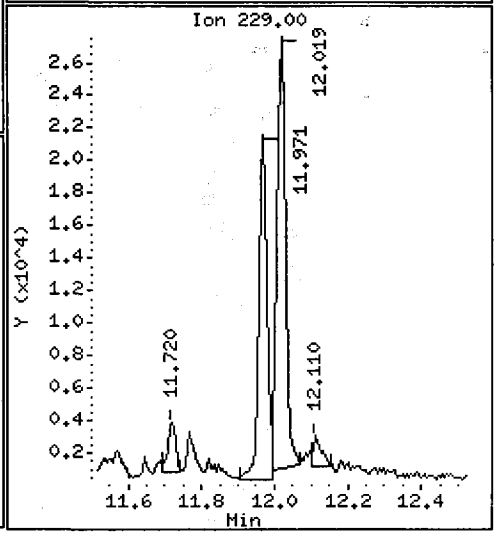












Data File: /chem1/nt12.i/20101110.b/rs971.d

Date : 10-NOV-2010 17:11

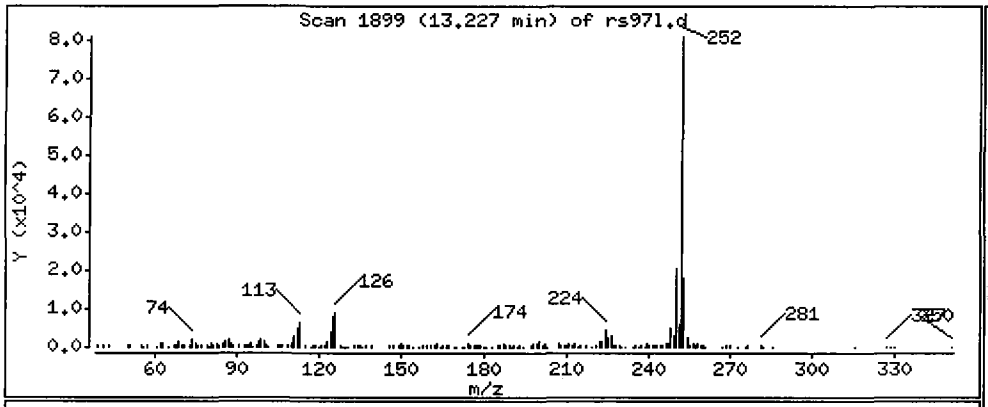
Client ID: DGS-07-5.66.7-10101 Instrument: nt12.i

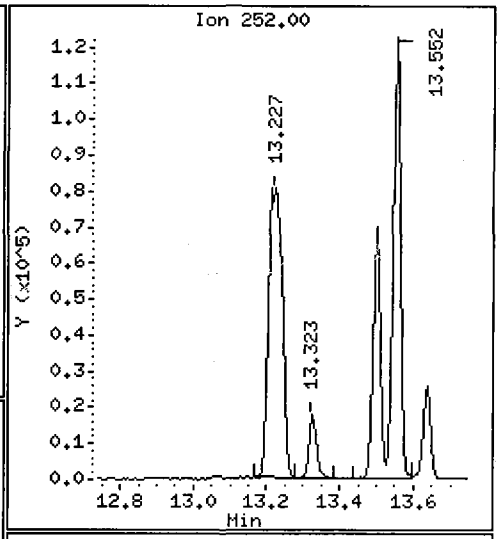
Sample Info: RS97L

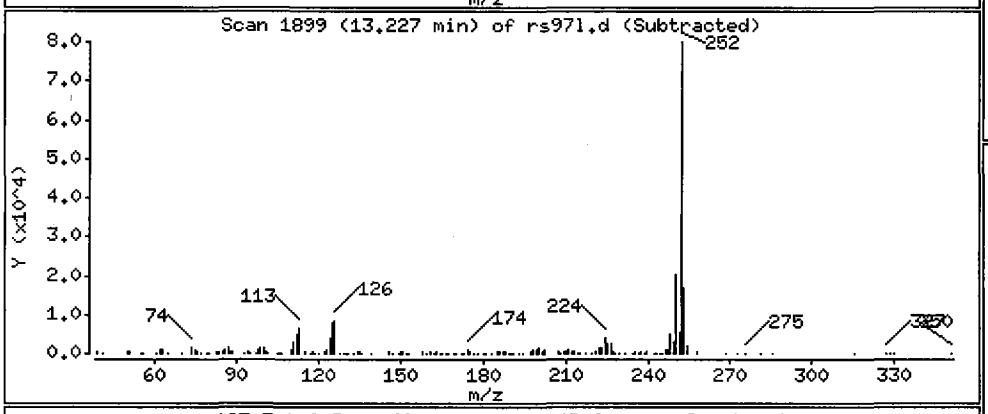
Volume Injected (uL): 1.0 Operator: VTS

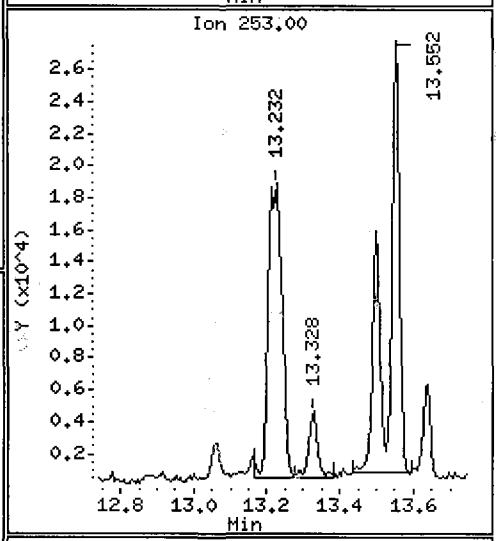
Column phase: ZB-5msi Column diameter: 0.32

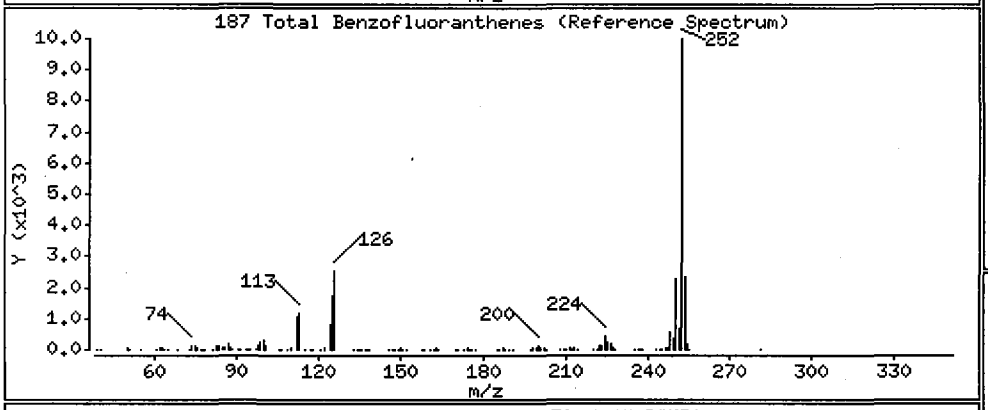
187 Total Benzofluoranthenes Concentration: 61520 ug/kg

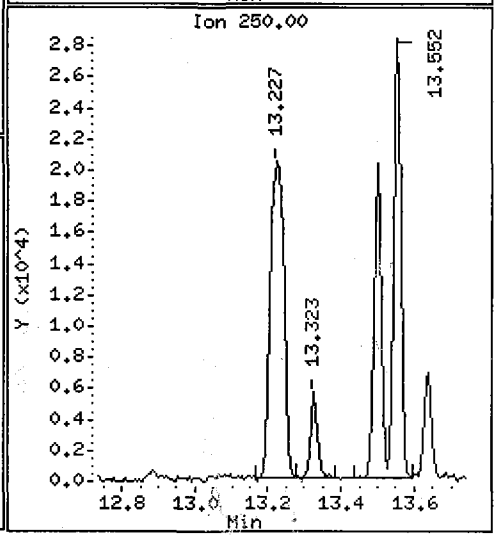


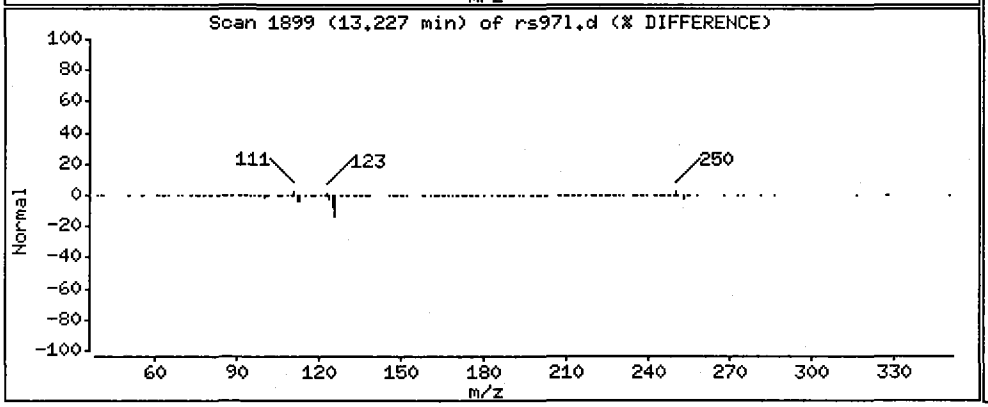












Data File: /chem1/nt12.i/20101110.b/rs971.d

Date : 10-NOV-2010 17:11

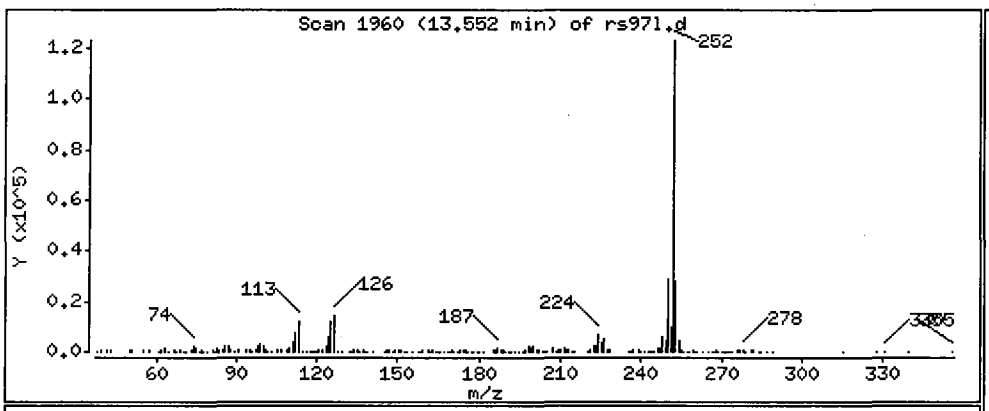
Client ID: DGS-07-5.66.7-10101 Instrument: nt12.i

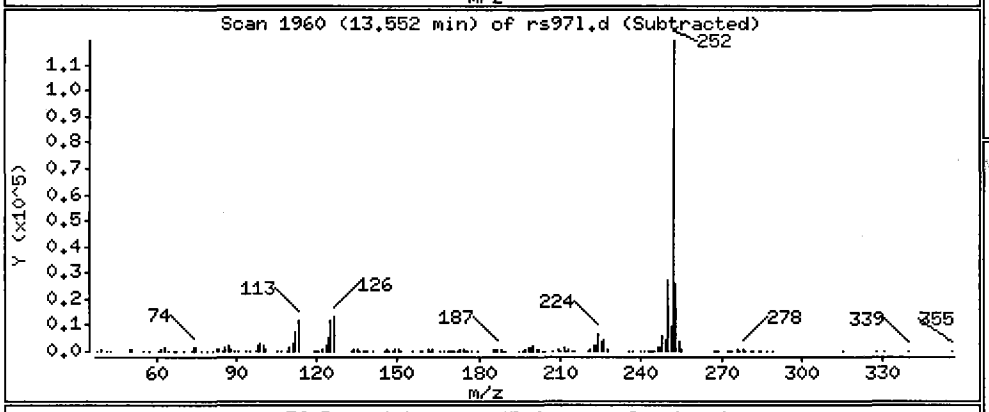
Sample Info: RS97L

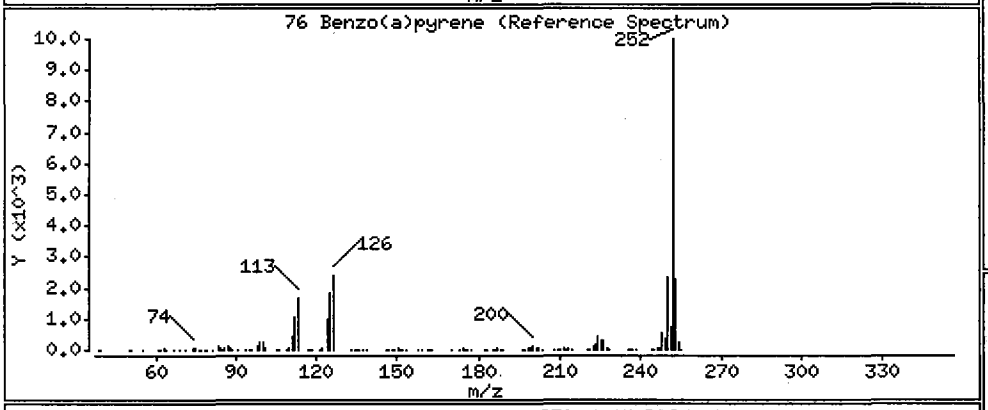
Volume Injected (uL): 1.0 Operator: VTS

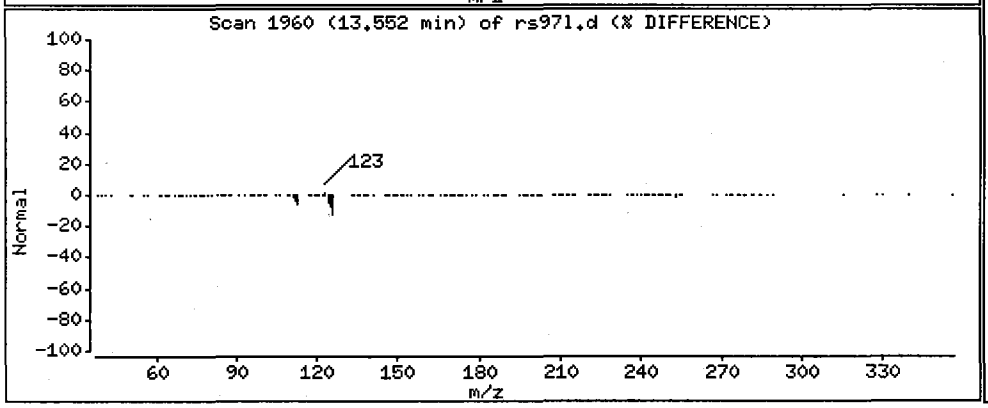
Column phase: ZB-5msi Column diameter: 0.32

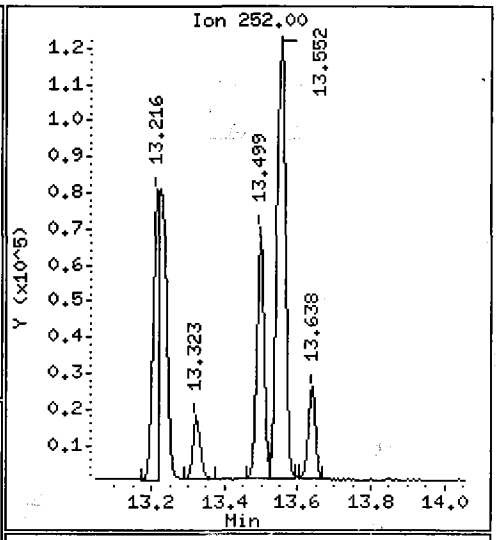
76 Benzo(a)pyrene Concentration: 57740 ug/kg

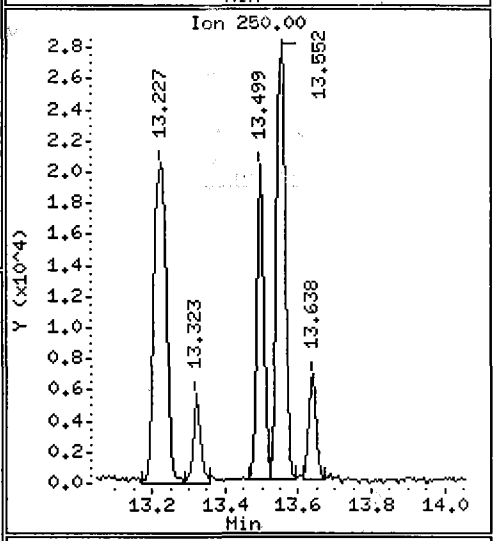


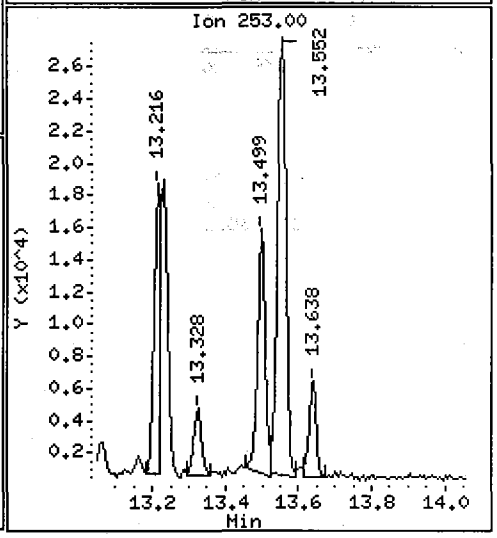












Data File: /chem1/nt12.i/20101110.b/rs971.d

Date : 10-NOV-2010 17:11

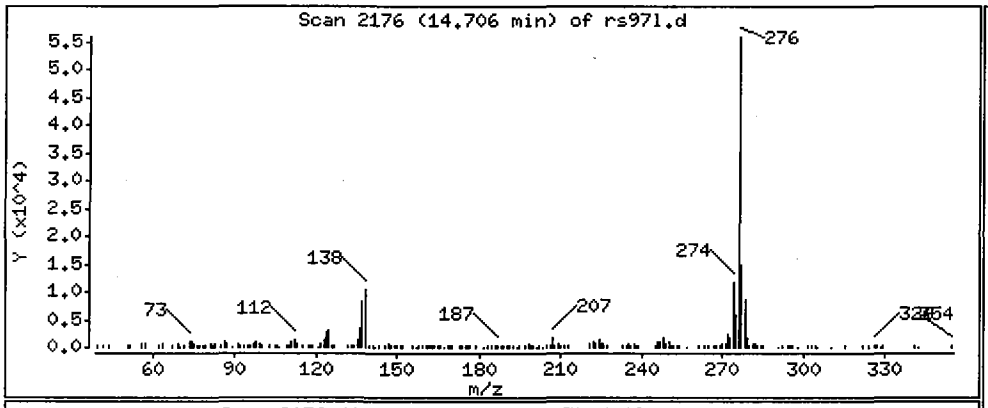
Client ID: DGS-07-5.66.7-10101 Instrument: nt12.i

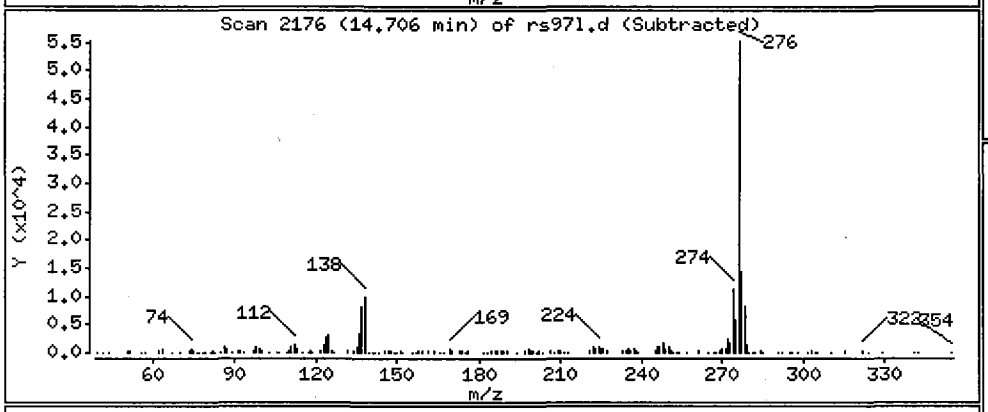
Sample Info: RS97L

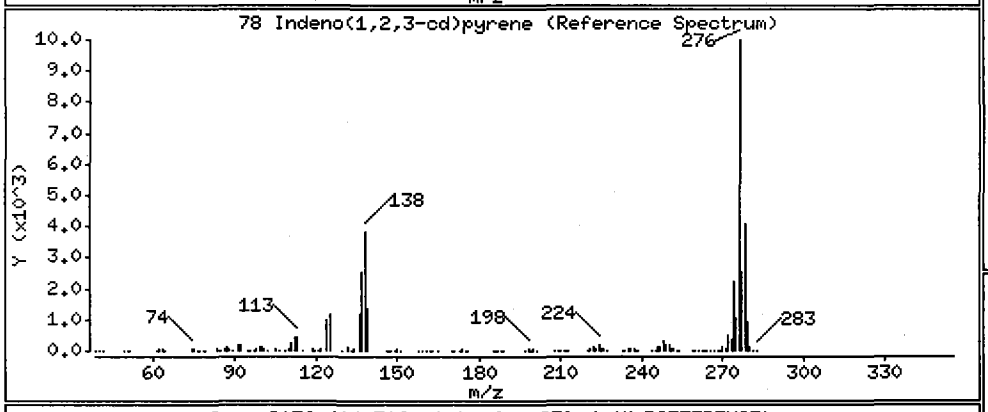
Volume Injected (uL): 1.0 Operator: VTS

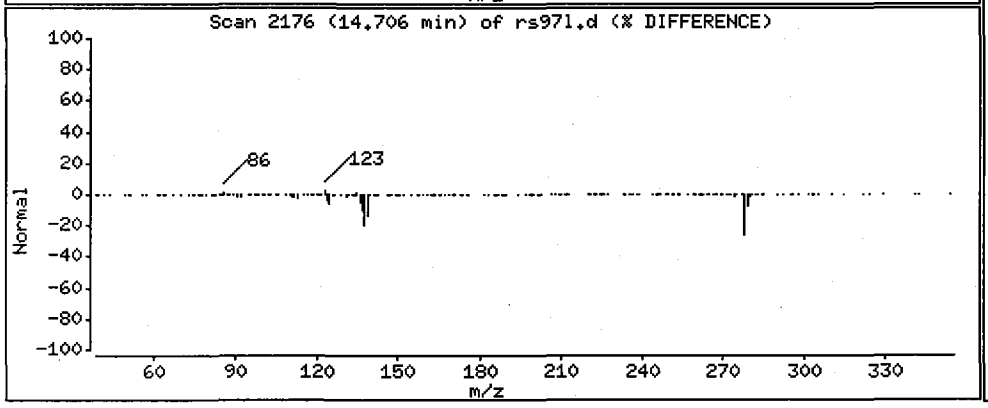
Column phase: ZB-5msi Column diameter: 0.32

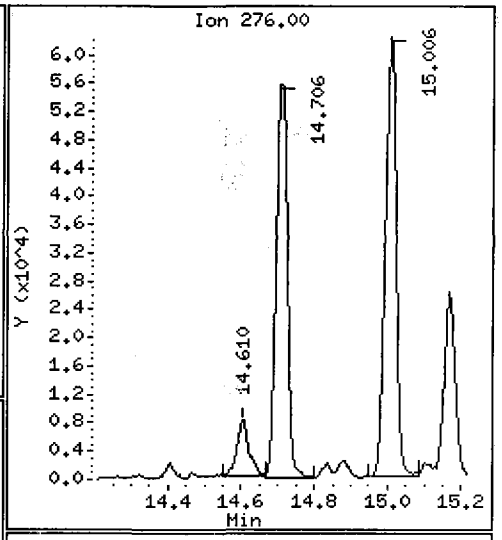
78 Indeno(1,2,3-cd)pyrene Concentration: 24270 ug/kg

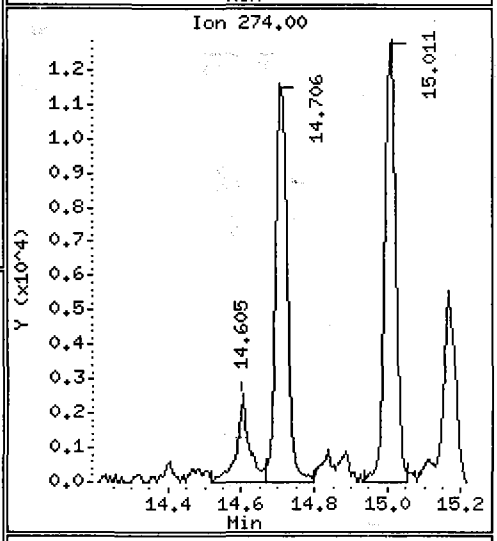


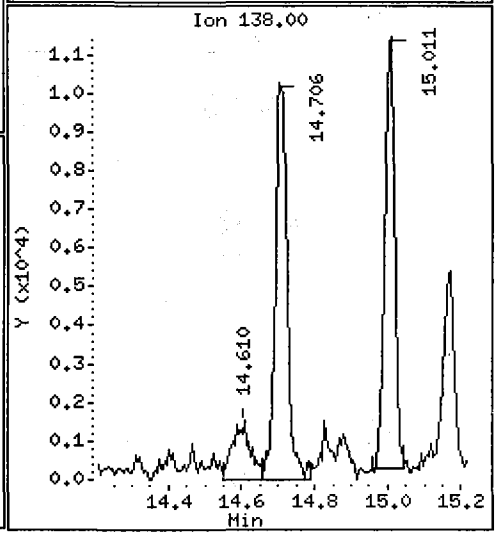












Data File: /chem1/nt12.i/20101110.b/rs971.d

Date : 10-NOV-2010 17:11

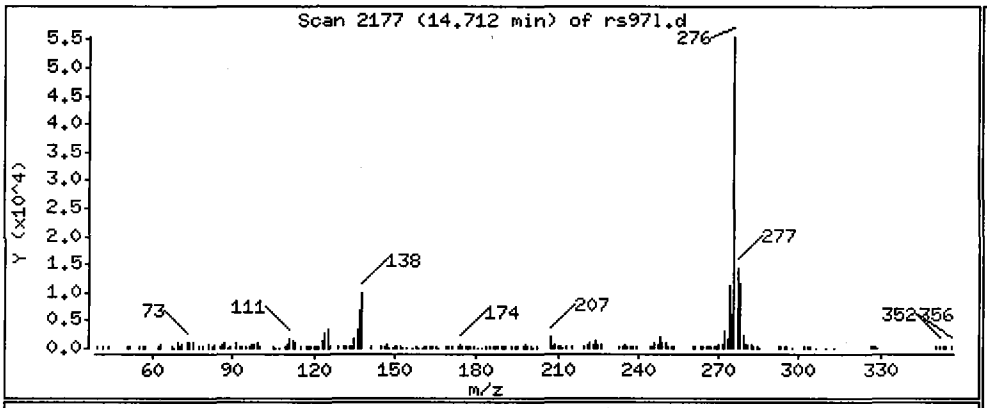
Client ID: DGS-07-5.66.7-10101 Instrument: nt12.i

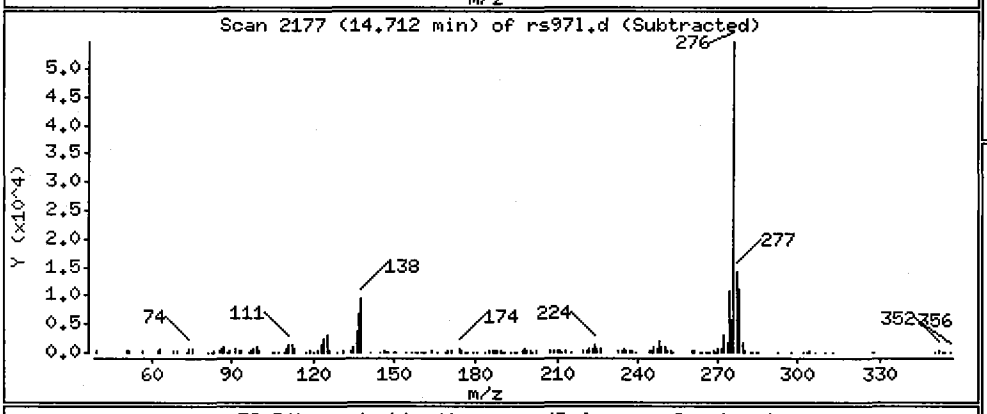
Sample Info: RS97L

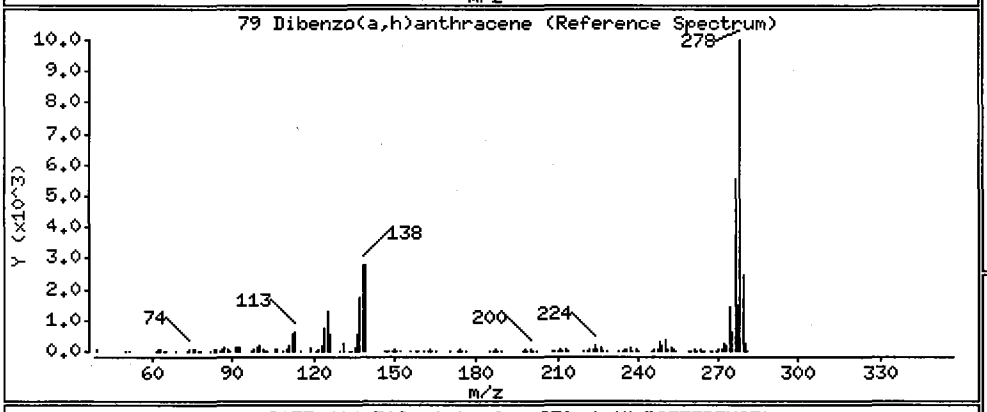
Volume Injected (uL): 1.0 Operator: VTS

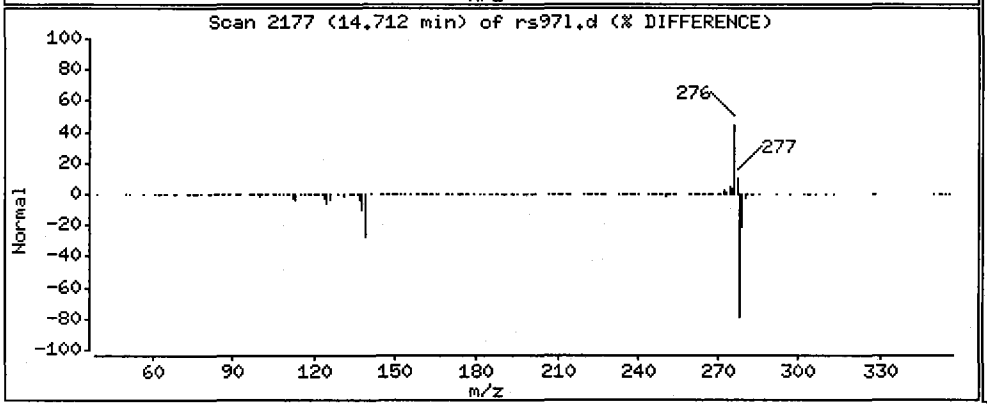
Column phase: ZB-5msi Column diameter: 0.32

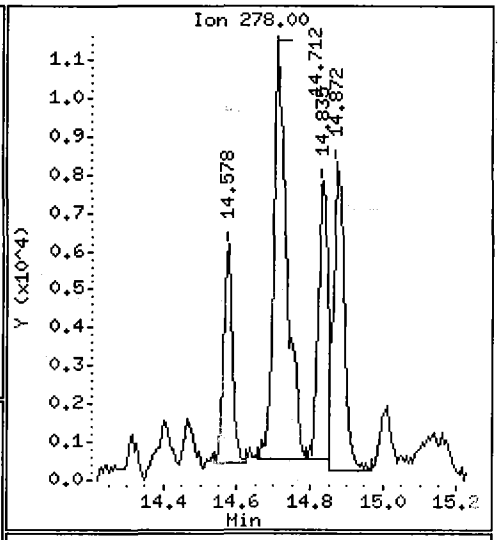
79 Dibenzo(a,h)anthracene Concentration: 6918 ug/kg

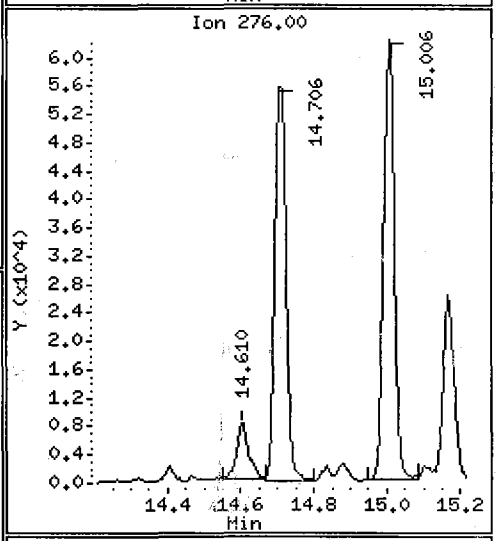


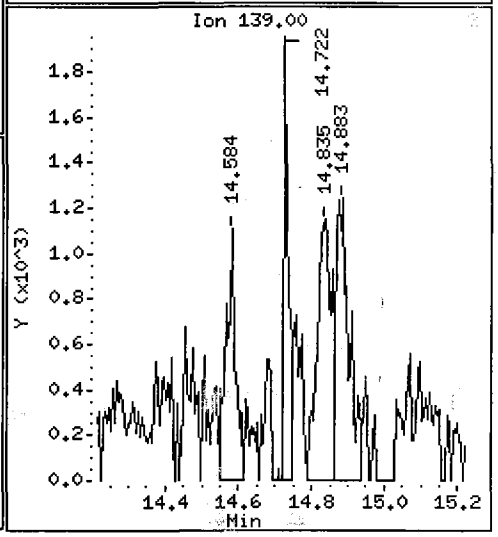












Data File: /chem1/nt12.i/20101110.b/rs971.d

Date : 10-NOV-2010 17:11

Client ID: DGS-07-5.66.7-10101

Instrument: nt12.i

Sample Info: RS97L

Volume Injected (uL): 1.0

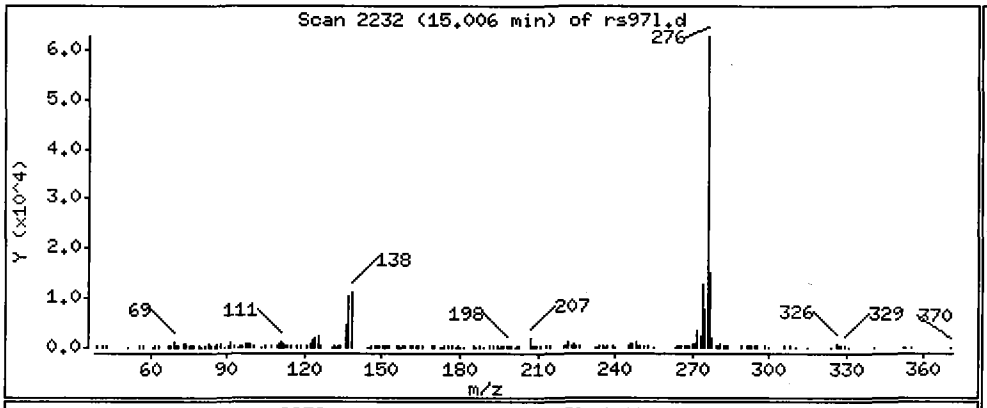
Operator: VTS

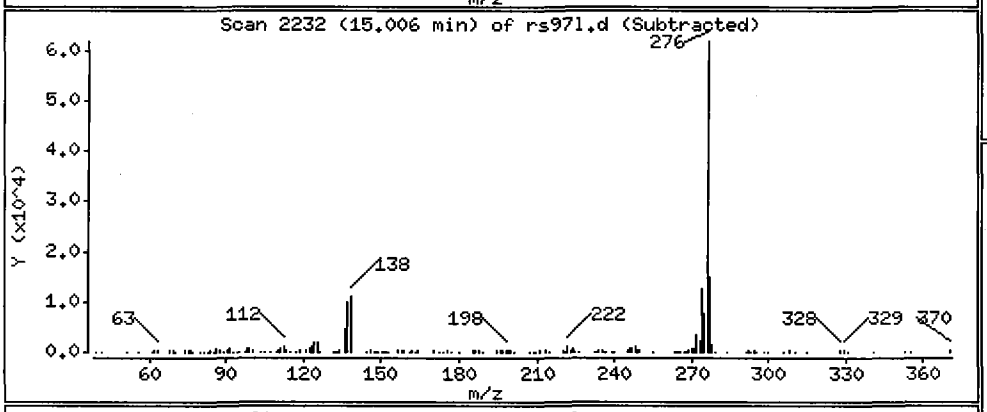
Column phase: ZB-5msi

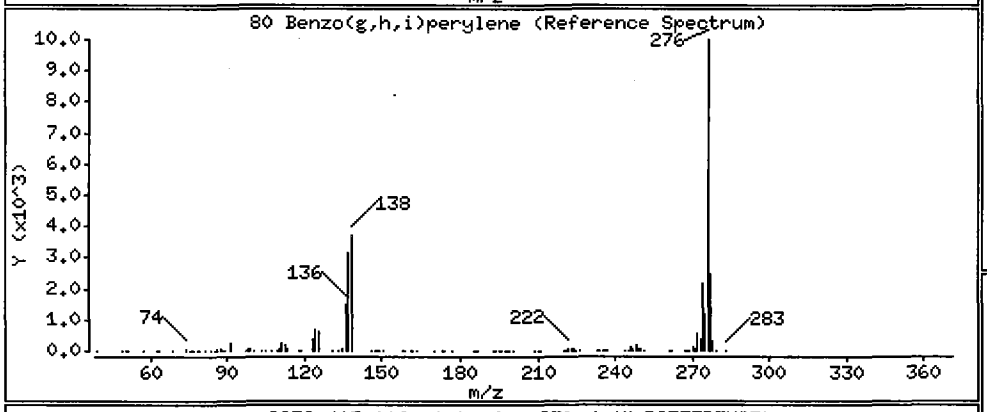
Column diameter: 0.32

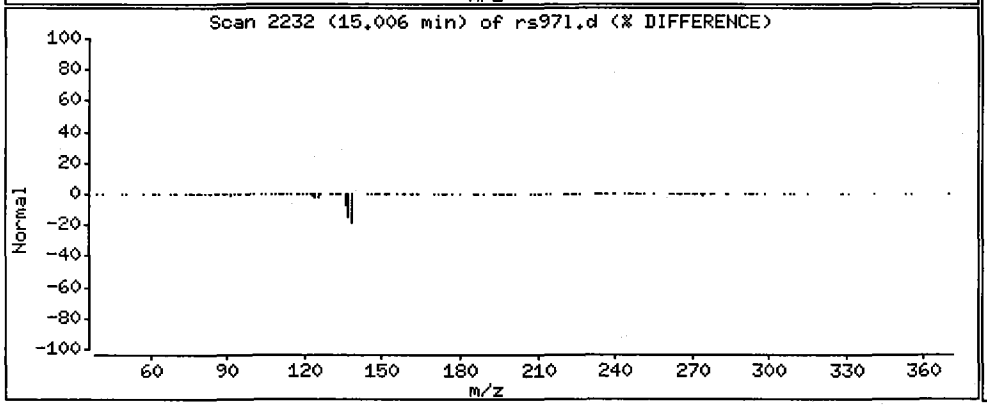
80 Benzo(g,h,i)perylene

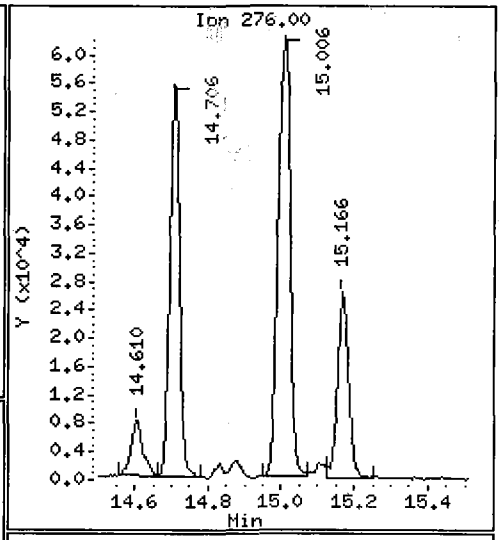
Concentration: 35810 ug/kg

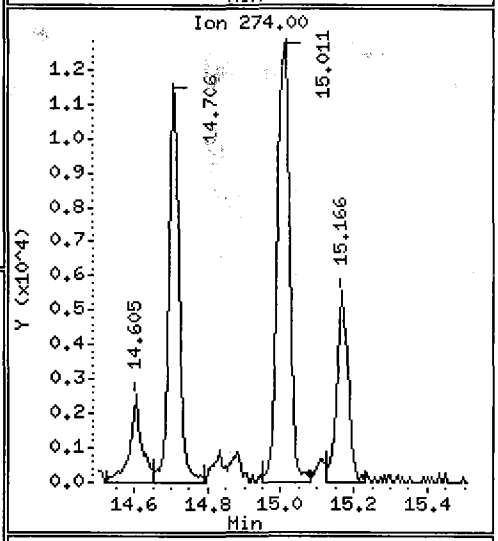


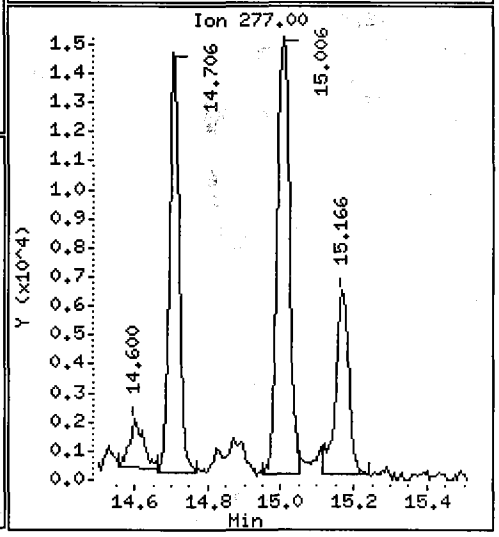






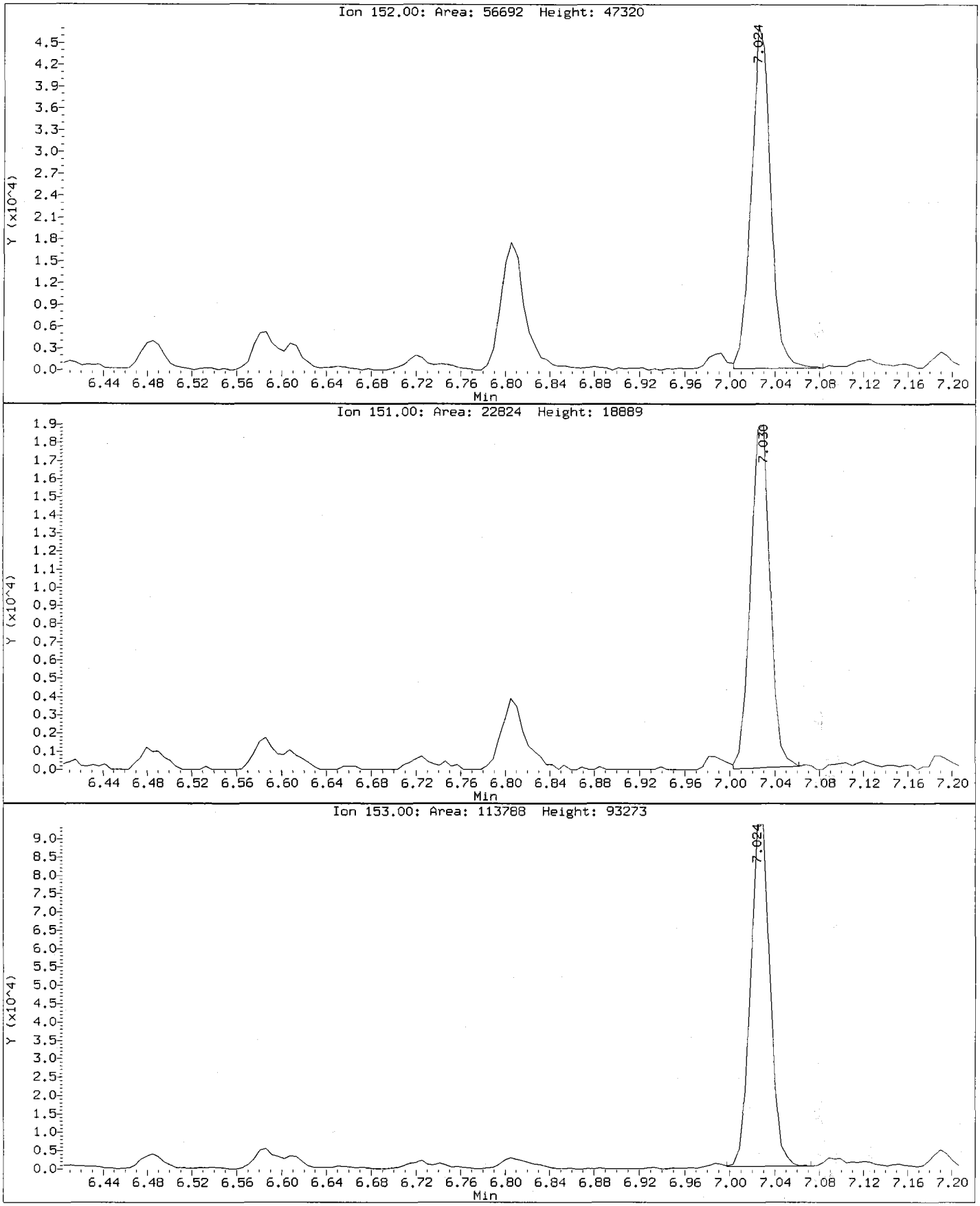






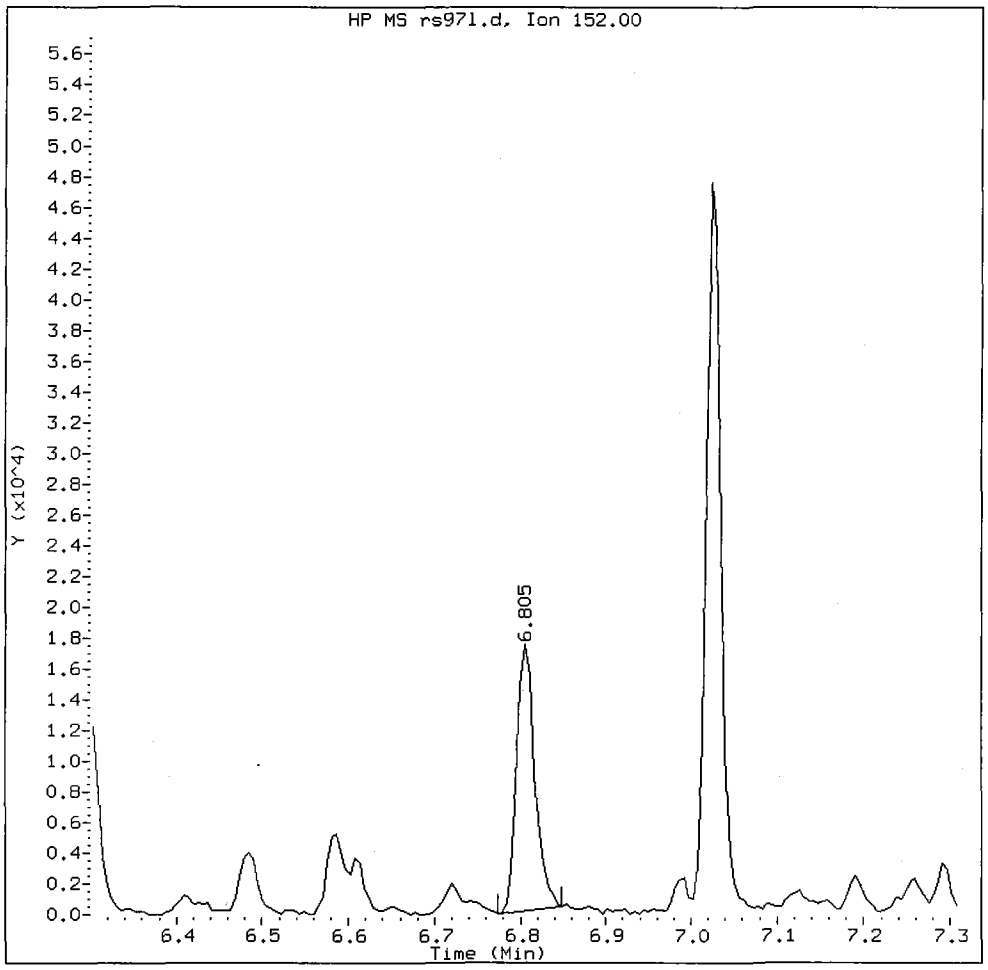
Data File: /chem1/nt12.i/20101110.b/rs971.d
Injection Date: 10-NOV-2010 17:11
Instrument: nt12.i
Client Sample ID: DGS-07-5.66.7-10101

Compound: Acenaphthylene
CAS Number: 208-96-8



RS97L, /chem1/nt12.i/20101110.b/rs97l.d

Acenaphthylene Amount: 2.07 Area: 25028



MANUAL INTEGRATION for Acenaphthylene

1. Baseline correction
2. Poor chromatography
3. Peak not found
4. Totals calculation

5. Other _____

Analyst: VB Date: 11-11-10

Analytical Resources, Inc.

Semivolatile Report SW846 Method 8270D

Data file : /chem1/nt12.i/20101110.b/rs97m.d
Lab Smp Id: RS97M
Client Smp ID: DGS-07-077.3-101012
Inj Date : 10-NOV-2010 17:34
Operator : VTS
Inst ID: nt12.i
Smp Info : RS97M
Misc Info : 10-27429
Comment : 1ul Injection
Method : /chem1/nt12.i/20101110.b/PNADMD.m
Meth Date : 10-Nov-2010 14:46 van
Quant Type: ISTD
Cal Date : 30-OCT-2010 13:19
Cal File: ic1030f.d
Als bottle: 12
Dil Factor: 1.00000
Integrator: HP RTE
Compound Sublist: pnas.sub
Target Version: 3.50
Processing Host: cserv3

Concentration Formula: Amt * DF * Vt/(Ws * (100 - M)/100) * CpndVariable

Name	Value	Description
DF	1.00000	Dilution Factor
Vt	10000.00000	Volume of final extract (uL)
Ws	5.40000	Weight of sample extracted (g)
M	49.60000	% Moisture

Cpnd Variable Local Compound Variable

Compounds	QUANT SIG MASS	RT	EXP RT	REL RT	RESPONSE	CONCENTRATIONS ON-COLUMN (ug/mL)	FINAL (ug/kg)
* 27 Naphthalene-d8	136	4.887	4.888	(1.000)	235974	20.0000	
28 Naphthalene	128	4.909	4.909	(1.004)	24296	1.80904	6647
32 2-Methylnaphthalene	141	5.726	5.726	(1.172)	64496	8.99713	33060
105 1-methylnaphthalene	141	5.849	5.854	(1.197)	36602	4.95197	18200
$ 36 2-Fluorobiphenyl	172	6.202	6.202	(0.888)	16360	1.42406	5232
40 Acenaphthylene	152	Compound Not Detected.					
* 42 Acenaphthene-d10	164	6.987	6.992	(1.000)	149328	20.0000	
44 Acenaphthene	153	7.024	7.030	(1.005)	40858	4.44900	16350
46 Dibenzofuran	168	7.227	7.222	(1.034)	8018	0.56935	2092 T
49 Fluorene	166	7.639	7.639	(1.093)	46980	4.46795	16420
* 59 Phenanthrene-d10	188	8.761	8.761	(1.000)	268127	20.0000	
60 Phenanthrene	178	8.793	8.787	(1.004)	386882	27.1986	99940
61 Anthracene	178	8.846	8.846	(1.010)	75189	5.11448	18790
62 Carbazole	167	9.065	9.065	(1.035)	12362	~~1.04~~236	3830 NN

Compounds	QUANT SIG MASS	RT	EXP RT	REL RT	RESPONSE	CONCENTRATIONS ON-COLUMN (ug/mL)	FINAL (ug/kg)
64 Fluoranthene	202	10.240	10.235	(0.854)	262795	15.0967	55470
65 Pyrene	202	10.508	10.502	(0.876)	325377	18.8412	69230
$ 66 Terphenyl-d14	244	10.737	10.737	(0.895)	16649	1.51126	5553
68 Benzo(a)anthracene	228	11.971	11.971	(0.998)	57111	4.08080	14990
* 69 Chrysene-d12	240	11.993	11.993	(1.000)	249207	20.0000	
71 Chrysene	228	12.019	12.019	(1.002)	67489	5.15807	18950
187 Total Benzofluoranthenes	252	13.211	13.243	(0.971)	65926	5.80903	21340
76 Benzo(a)pyrene	252	13.547	13.553	(0.995)	50903	4.88257	17940
* 77 Perylene-d12	264	13.611	13.611	(1.000)	190539	20.0000	
99 Perylene	252	13.633	13.638	(1.002)	11061	~~0.99771~~	3666(a) NP
78 Indeno(1,2,3-cd)pyrene	276	14.707	14.712	(1.080)	34568	2.23333	8206
79 Dibenzo(a,h)anthracene	278	14.712	14.723	(1.081)	8033	0.63038	2316 J
80 Benzo(g,h,i)perylene	276	15.000	15.006	(1.102)	41017	3.22572	11850

QC Flag Legend

a - Target compound detected but, quantitated amount Below Limit Of Quantitation(BLOQ).

VB
11-11-10

Analytical Resources, Inc.

INTERNAL STANDARD COMPOUNDS
AREA AND RT SUMMARY

Instrument ID: nt12.i
Lab File ID: rs97m.d
Lab Smp Id: RS97M
Analysis Type: SV
Quant Type: ISTD
Operator: VTS
Method File: /chem1/nt12.i/20101110.b/PNADMD.m
Misc Info: 10-27429

Calibration Date: 10-NOV-2010
Calibration Time: 13:29
Client Smp ID: DGS-07-077.3-101
Level: LOW
Sample Type: Sediment

Test Mode:
Use Initial Calibration Level 4.

COMPOUND	STANDARD	AREA LIMIT LOWER	AREA LIMIT UPPER	SAMPLE	%DIFF
27 Naphthalene-d8	237664	118832	475328	235974	-0.71
42 Acenaphthene-d10	143363	71682	286726	149328	4.16
59 Phenanthrene-d10	245437	122718	490874	268127	9.24
69 Chrysene-d12	199260	99630	398520	249207	25.07
77 Perylene-d12	197636	98818	395272	190539	-3.59

COMPOUND	STANDARD	RT LIMIT LOWER	RT LIMIT UPPER	SAMPLE	%DIFF
27 Naphthalene-d8	4.89	4.39	5.39	4.89	0.00
42 Acenaphthene-d10	6.99	6.49	7.49	6.99	-0.08
59 Phenanthrene-d10	8.76	8.26	9.26	8.76	0.00
69 Chrysene-d12	11.99	11.49	12.49	11.99	0.00
77 Perylene-d12	13.61	13.11	14.11	13.61	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.

Analytical Resources, Inc.

RECOVERY REPORT

Client Name: NW Natural
Sample Matrix: SOLID
Lab Smp Id: RS97M
Level: LOW
Data Type: MS DATA
SpikeList File: SONICLCS.spk
Sublist File: pnas.sub
Method File: /chem1/nt12.i/20101110.b/PNADMD.m
Misc Info: 10-27429

Client SDG: RS97
Fraction: SV
Client Smp ID: DGS-07-077.3-101012
Operator: VTS
SampleType: SAMPLE
Quant Type: ISTD

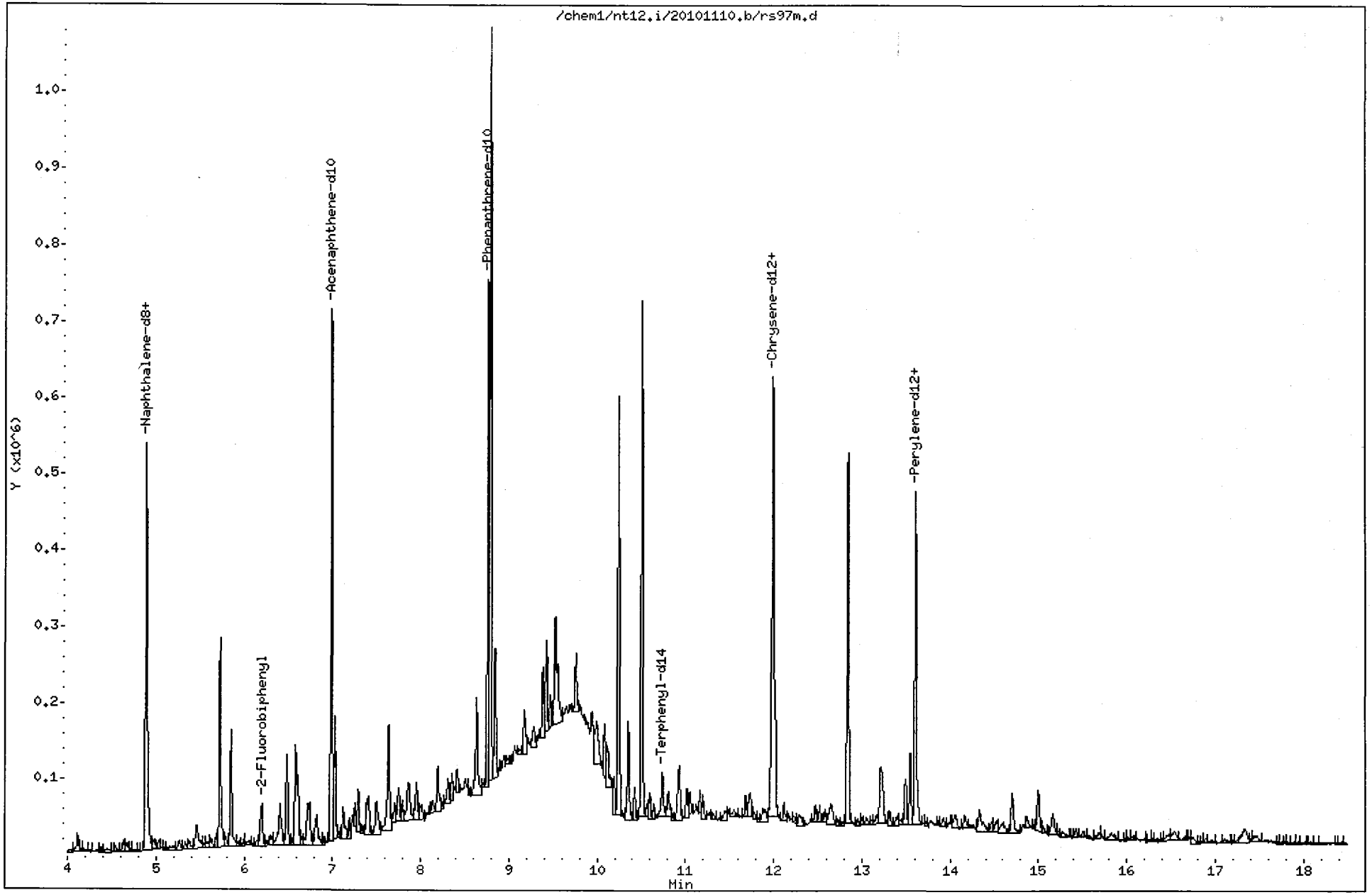
SURROGATE COMPOUND	CONC ADDED ug/kg	CONC RECOVERED ug/kg	% RECOVERED	LIMITS
$ 36 2-Fluorobiphenyl	9186	5232	56.96	34-100
$ 66 Terphenyl-d14	9186	5553	60.45	35-112

Data File: /chem1/nt12.i/20101110.b/rs97m.d
Date : 10-NOV-2010 17:34
Client ID: DGS-07-077.3-101012
Sample Info: RS97M
Volume Injected (uL): 1.0
Column phase: ZB-5msi

Instrument: nt12.i

Operator: VTS
Column diameter: 0.32

RS97 00191



Data File: /chem1/nt12.i/20101110.b/rs97m.d

Date : 10-NOV-2010 17:34

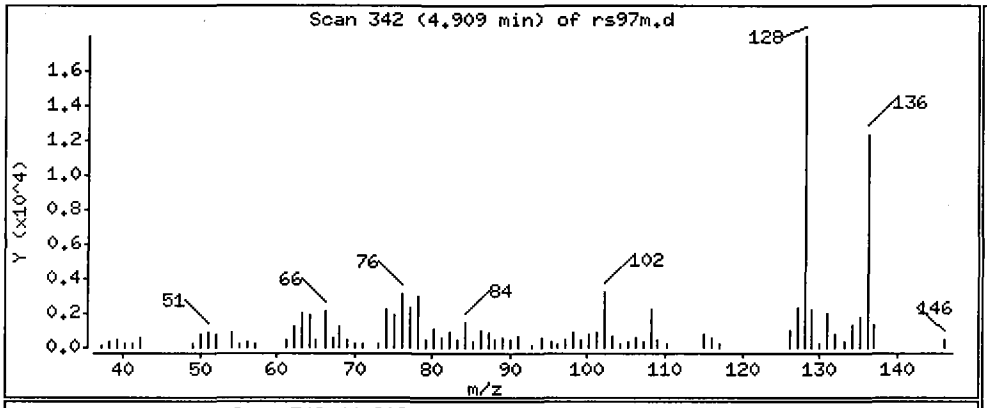
Client ID: DGS-07-077.3-101012 Instrument: nt12.i

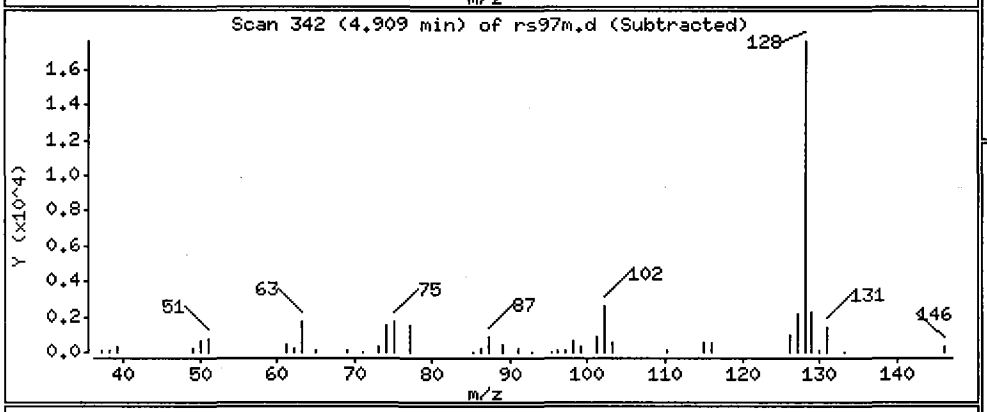
Sample Info: RS97M

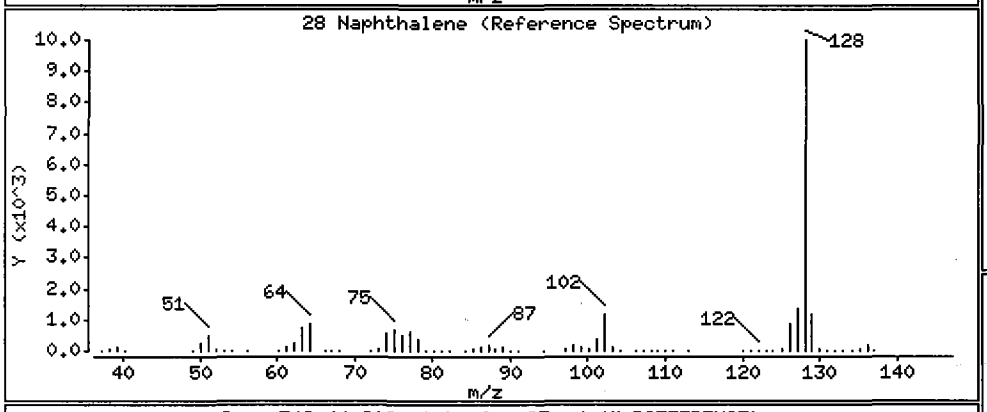
Volume Injected (uL): 1.0 Operator: VTS

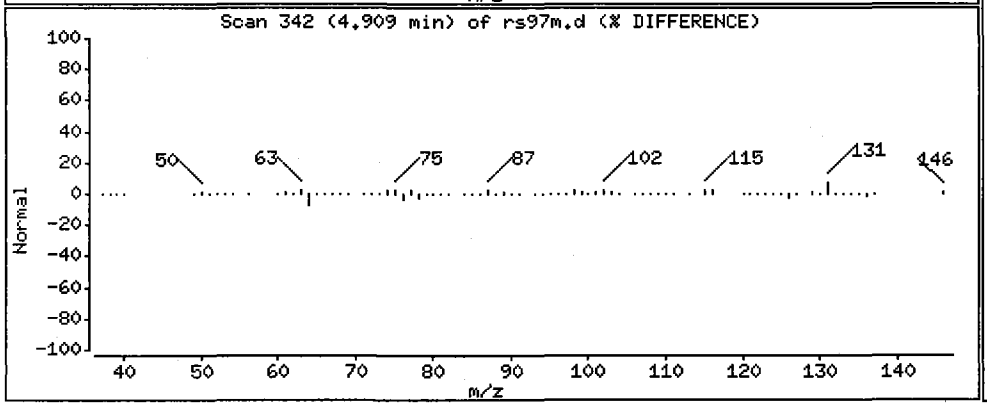
Column phase: ZB-5msi Column diameter: 0.32

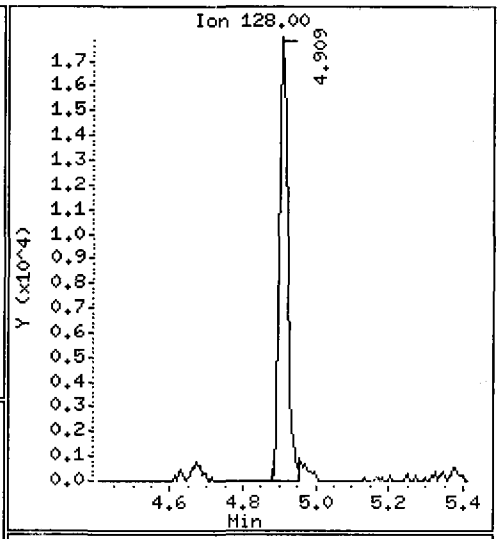
28 Naphthalene Concentration: 6647 ug/kg

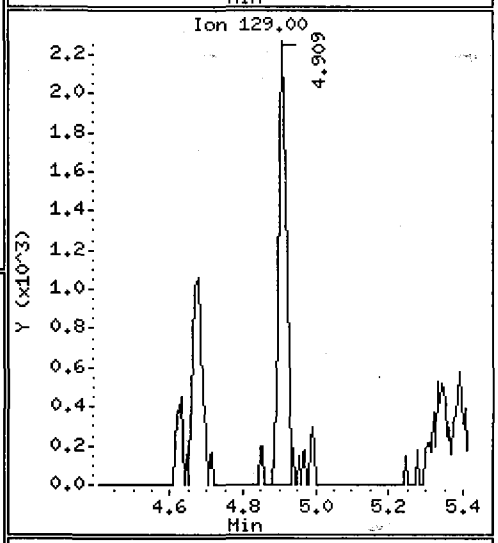


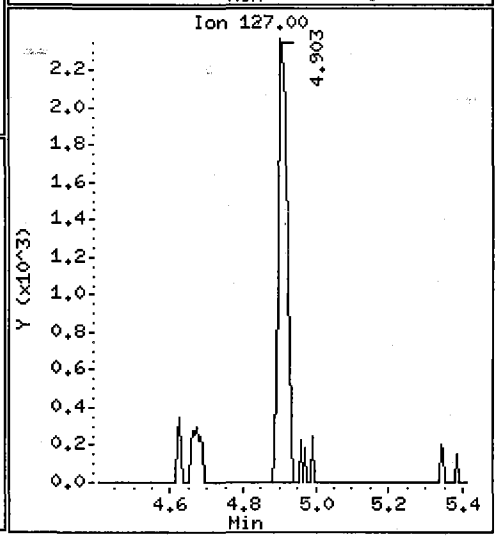












Data File: /chem1/nt12.i/20101110.b/rs97m.d

Date : 10-NOV-2010 17:34

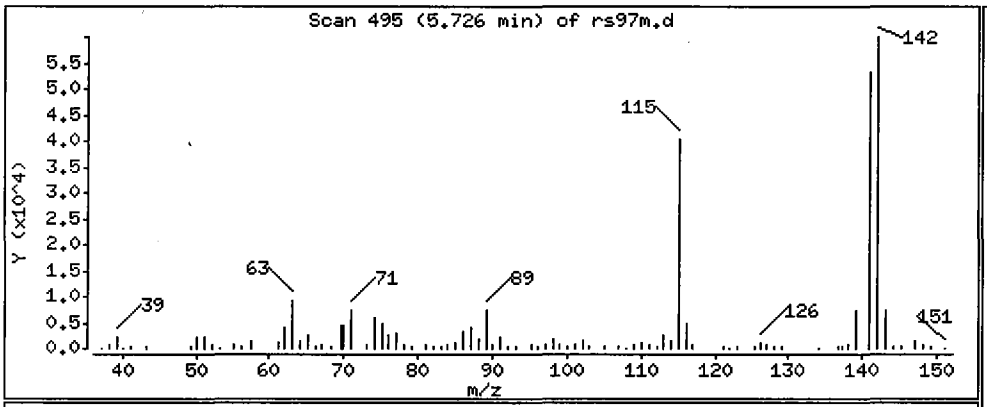
Client ID: DGS-07-077.3-101012 Instrument: nt12.i

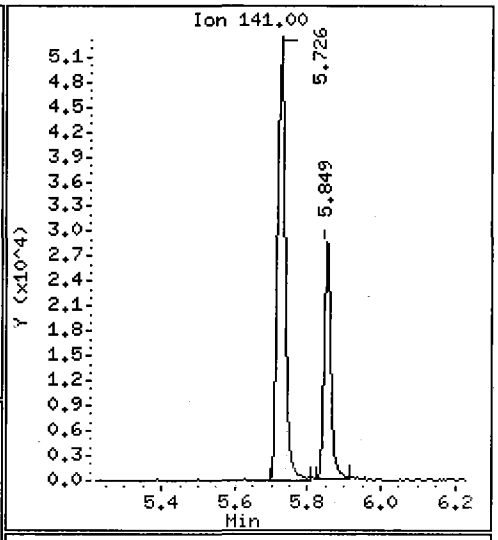
Sample Info: RS97M

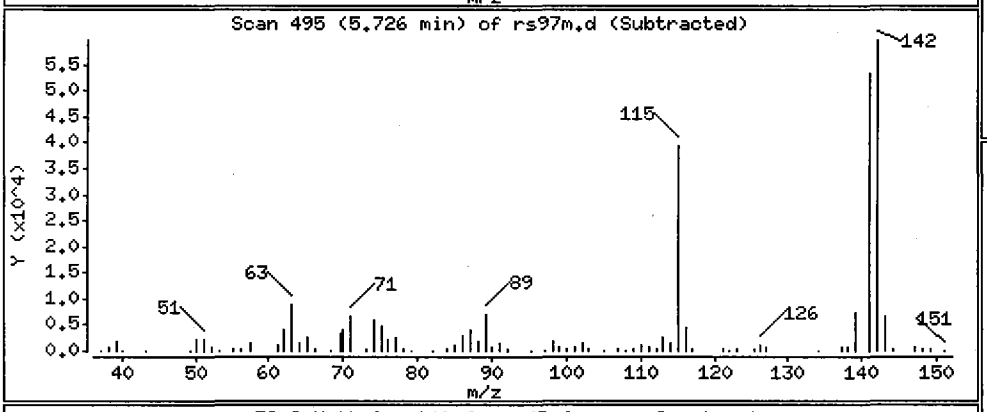
Volume Injected (uL): 1.0 Operator: VTS

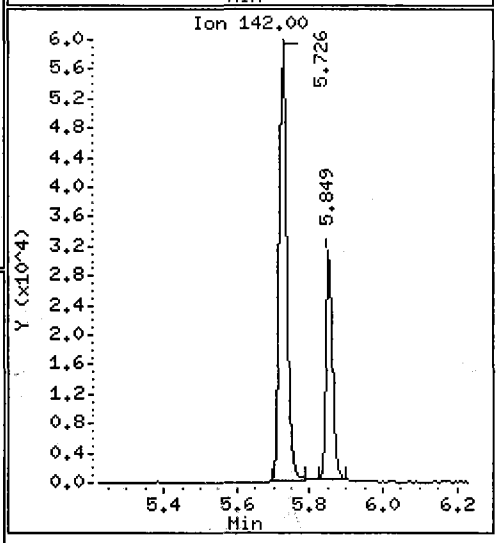
Column phase: ZB-5msi Column diameter: 0.32

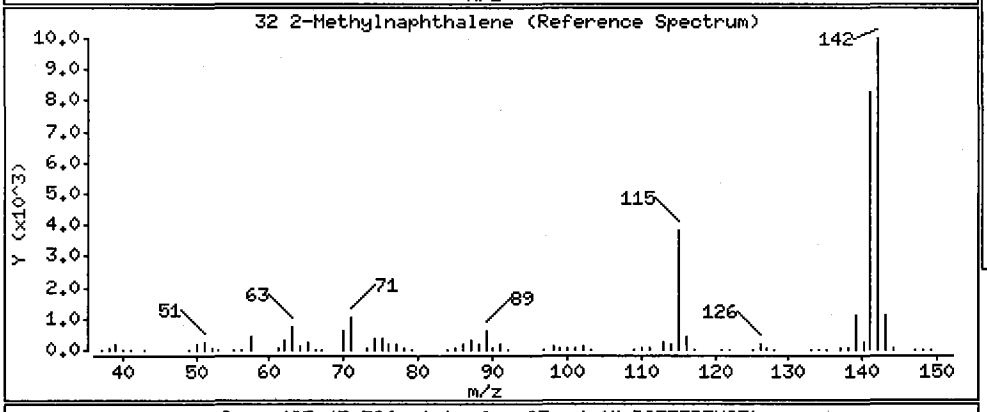
32 2-Methylnaphthalene Concentration: 33060 ug/kg

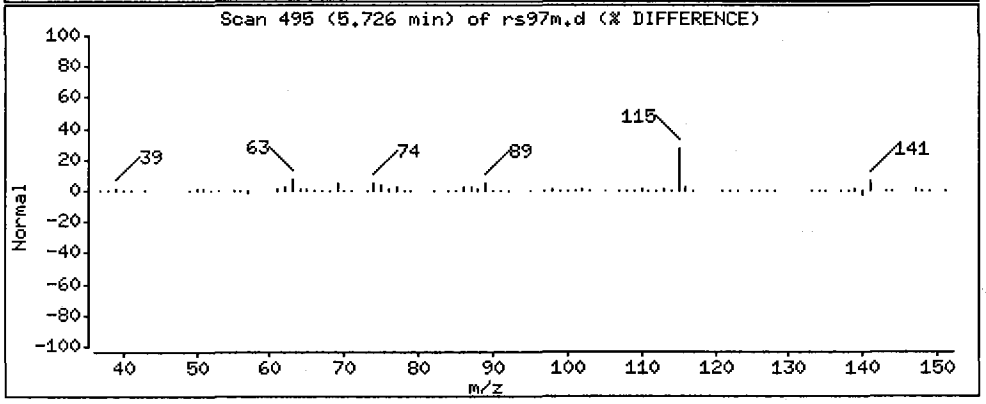












Data File: /chem1/nt12.i/20101110.b/rs97m.d

Date : 10-NOV-2010 17:34

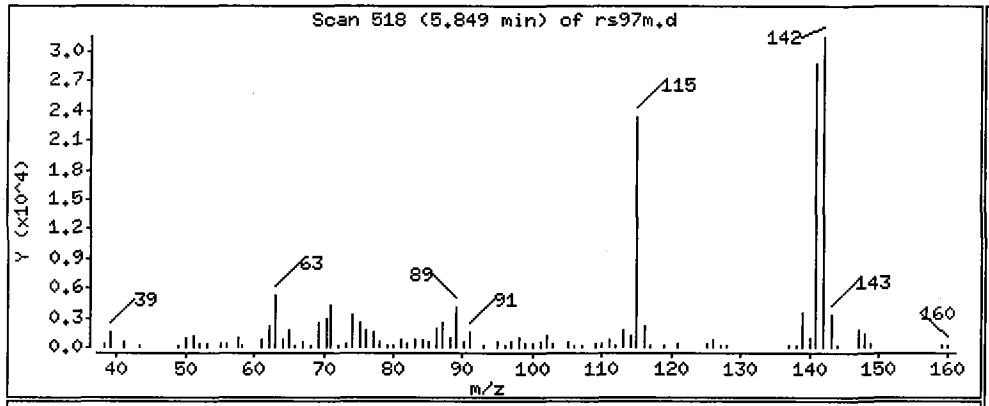
Client ID: DGS-07-077.3-101012 Instrument: nt12.i

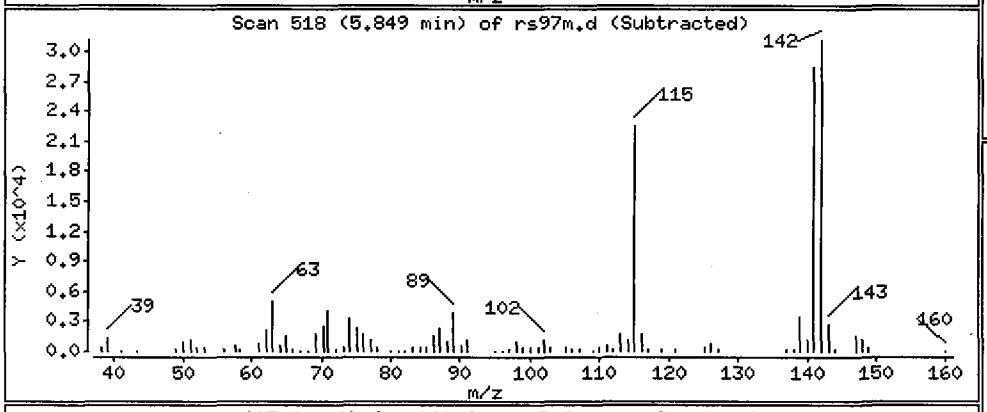
Sample Info: RS97M

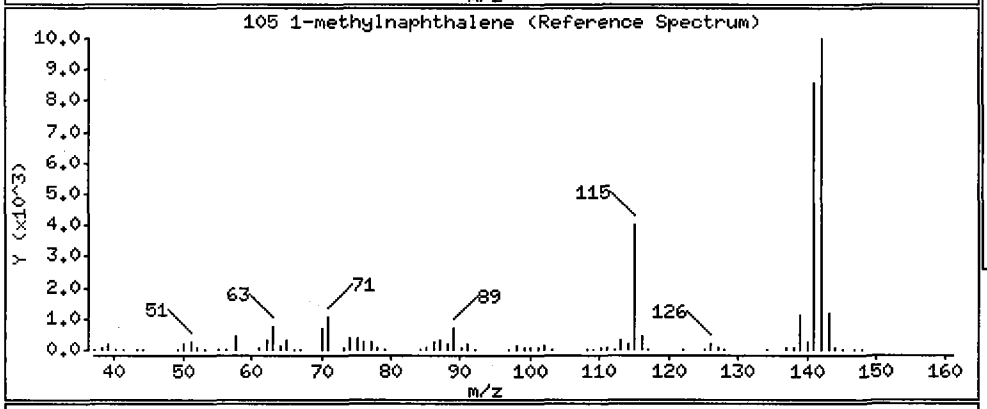
Volume Injected (uL): 1.0 Operator: VTS

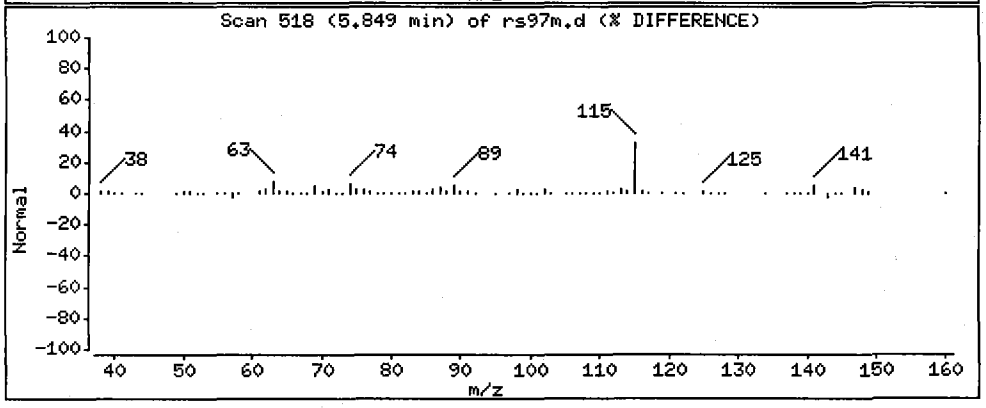
Column phase: ZB-5msi Column diameter: 0.32

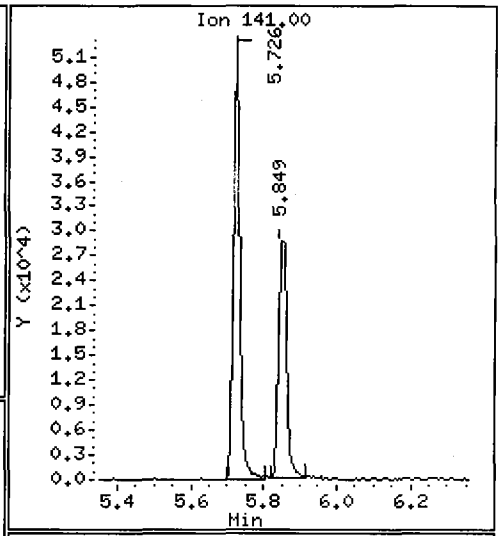
105 1-methylnaphthalene Concentration: 18200 ug/kg

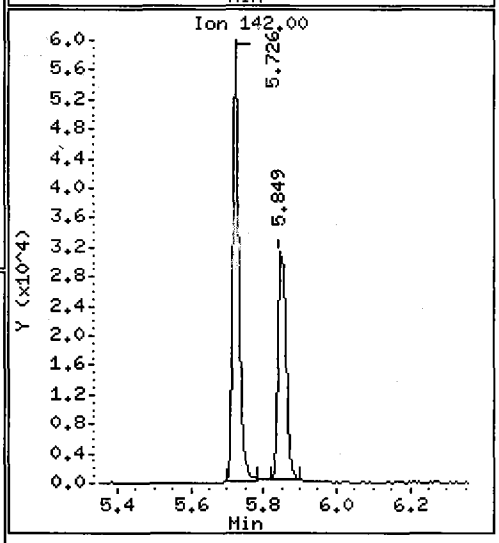












Data File: /chem1/nt12.i/20101110.b/rs97m.d

Date : 10-NOV-2010 17:34

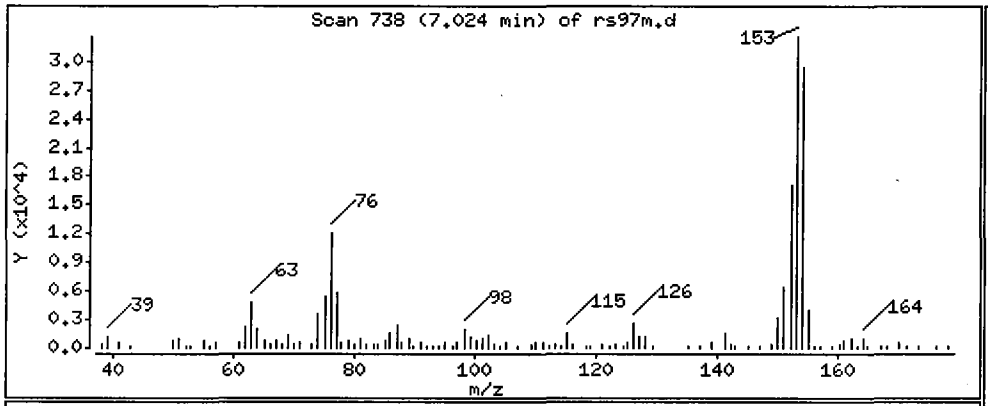
Client ID: DGS-07-077.3-101012 Instrument: nt12.i

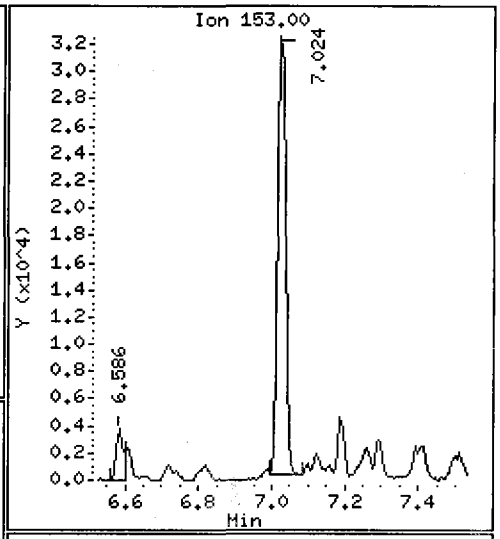
Sample Info: RS97M

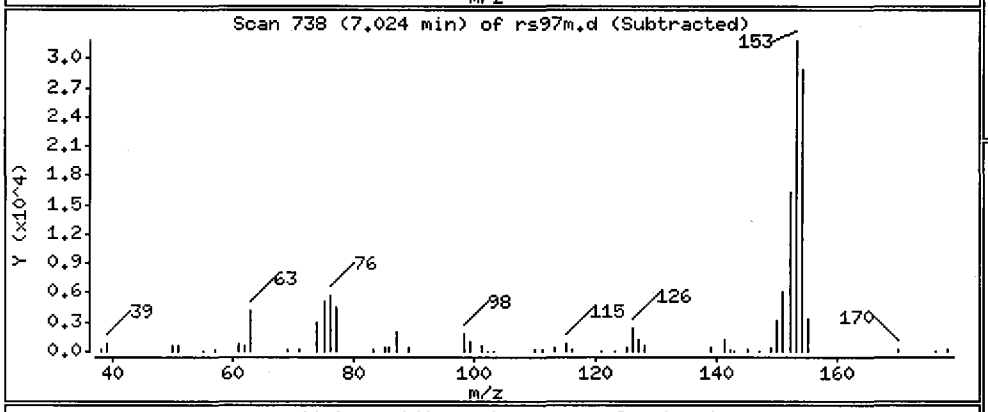
Volume Injected (uL): 1.0 Operator: VTS

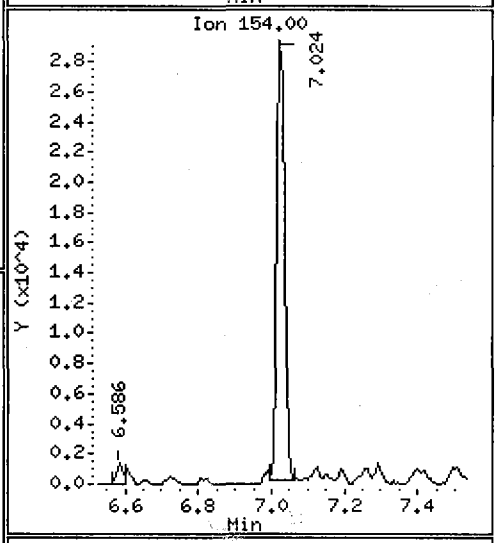
Column phase: ZB-5msi Column diameter: 0.32

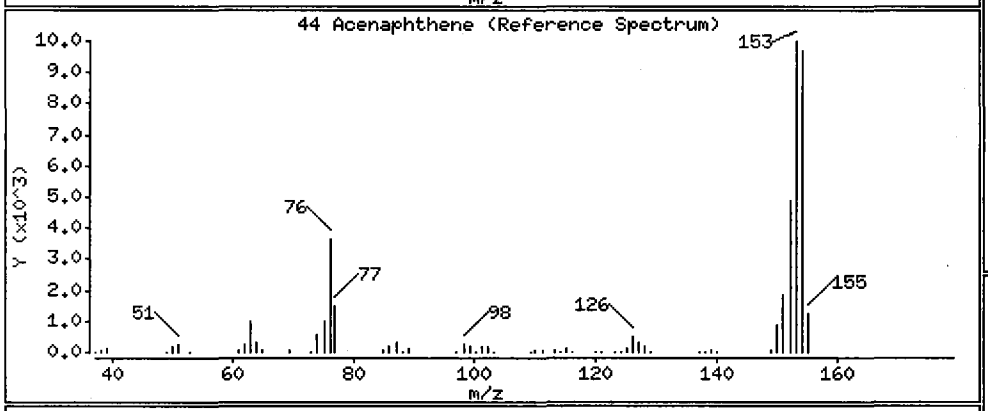
44 Acenaphthene Concentration: 16350 ug/kg

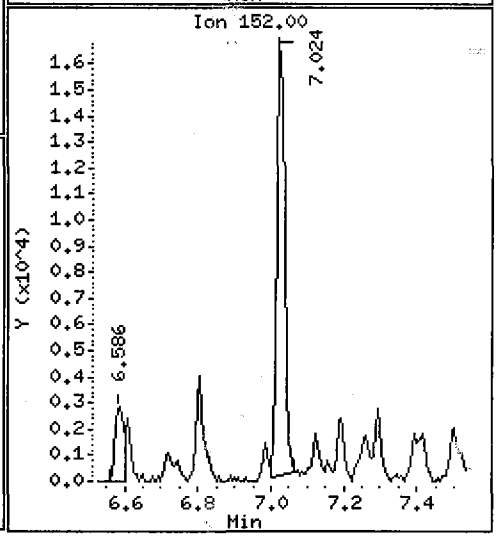


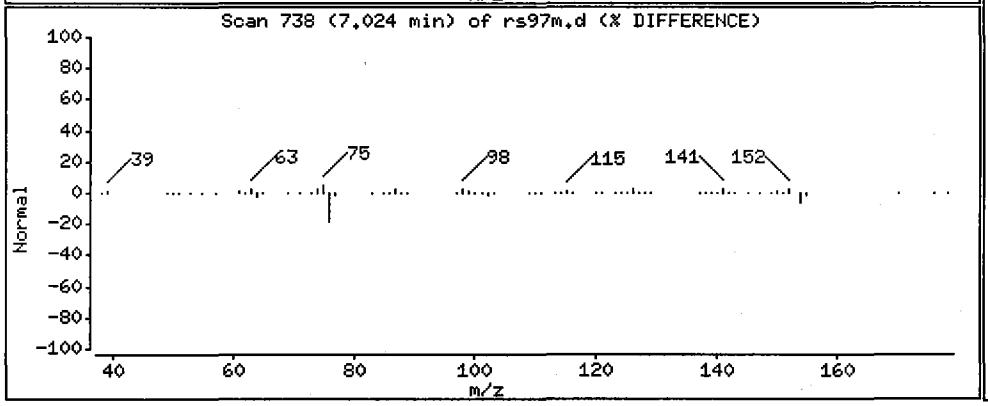












Data File: /chem1/nt12.i/20101110.b/rs97m.d

Date : 10-NOV-2010 17:34

Client ID: DGS-07-077.3-101012

Instrument: nt12.i

Sample Info: RS97M

Volume Injected (uL): 1.0

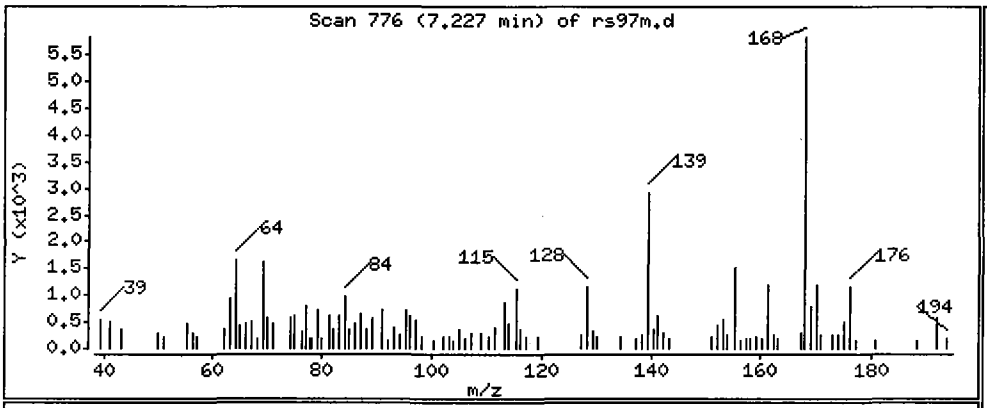
Operator: VTS

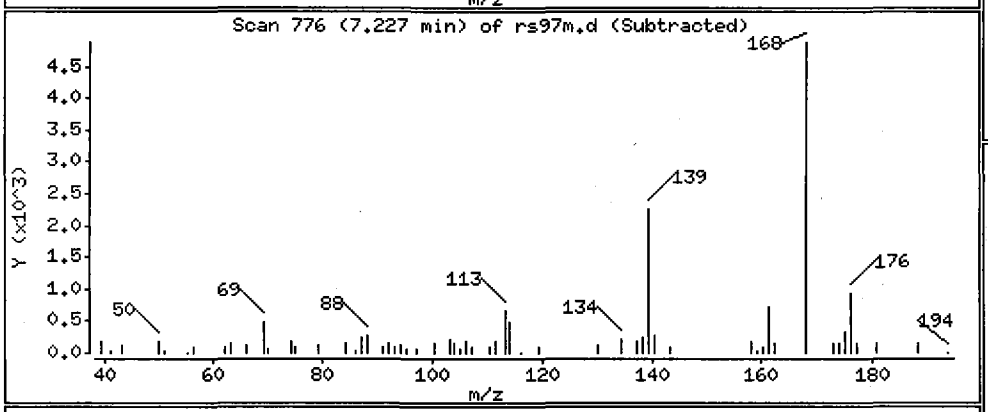
Column phase: ZB-5msi

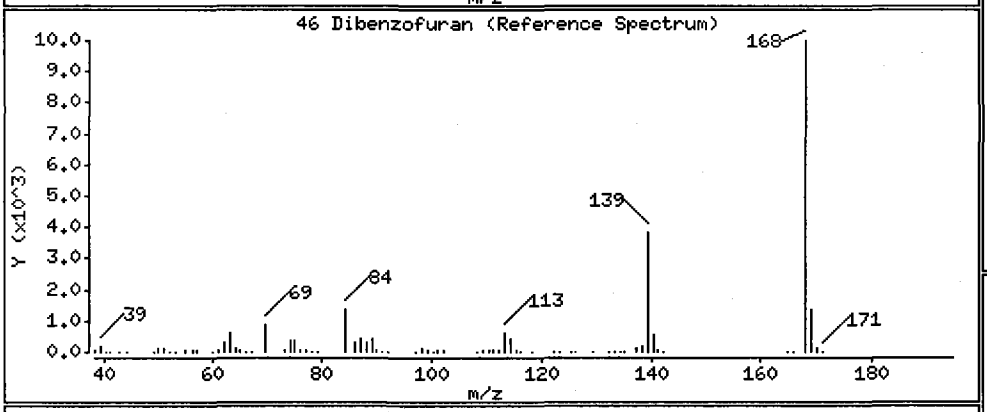
Column diameter: 0.32

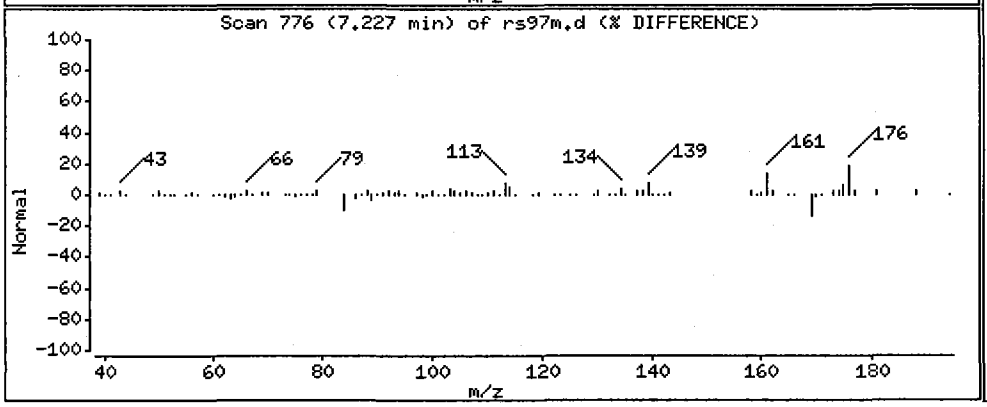
46 Dibenzofuran

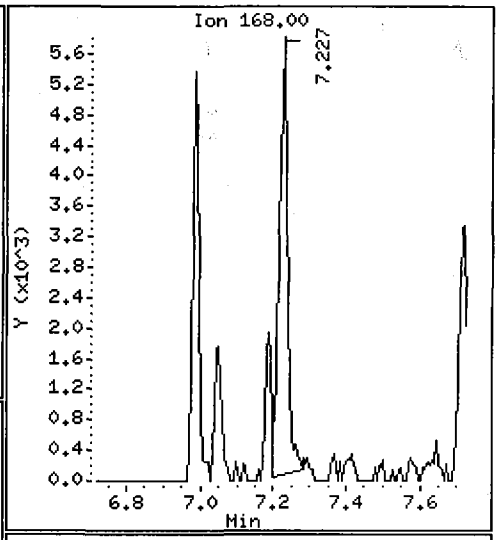
Concentration: 2092 ug/kg

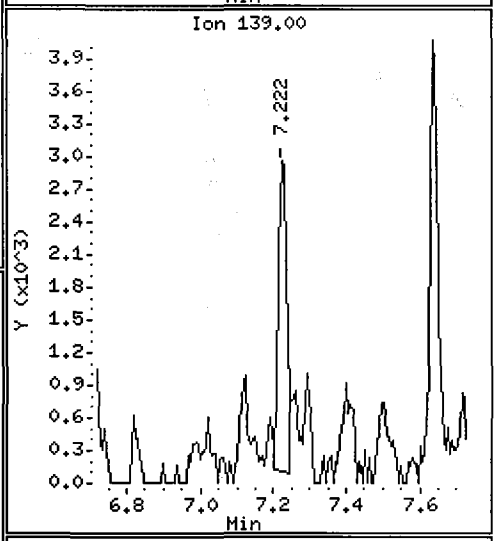


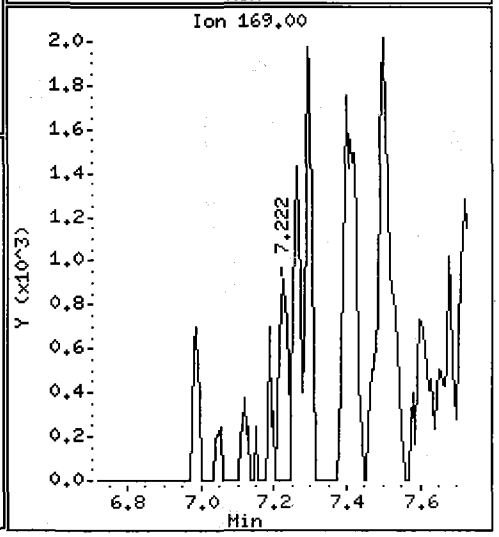












Data File: /chem1/nt12.i/20101110.b/rs97m.d

Date : 10-NOV-2010 17:34

Client ID: DGS-07-077.3-101012

Instrument: nt12.i

Sample Info: RS97M

Volume Injected (uL): 1.0

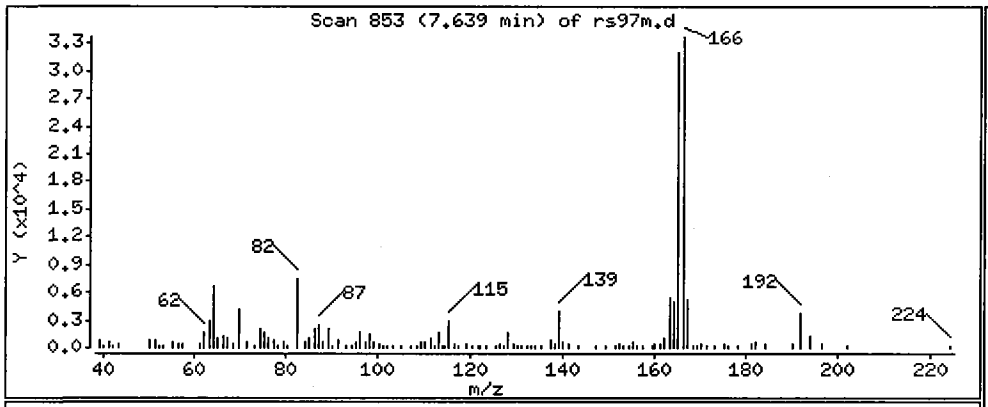
Operator: VTS

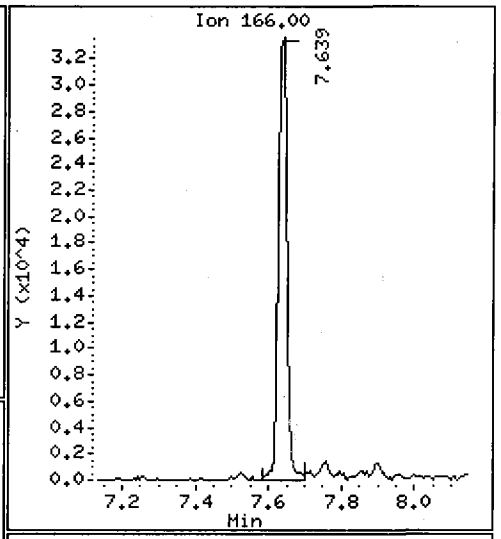
Column phase: ZB-5msi

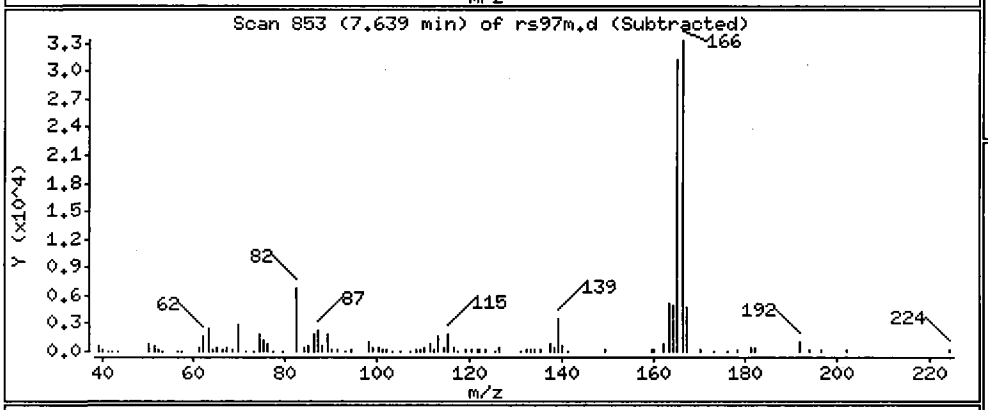
Column diameter: 0.32

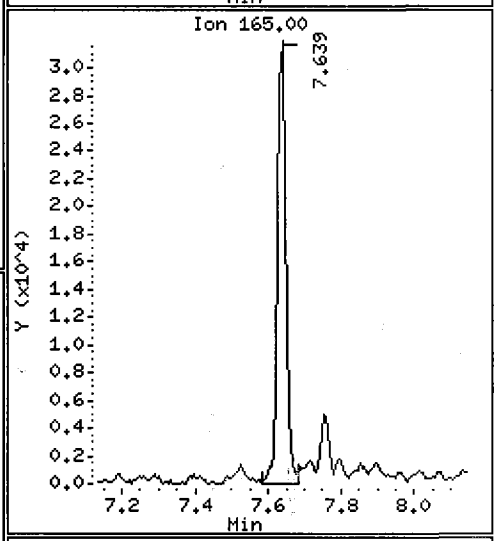
49 Fluorene

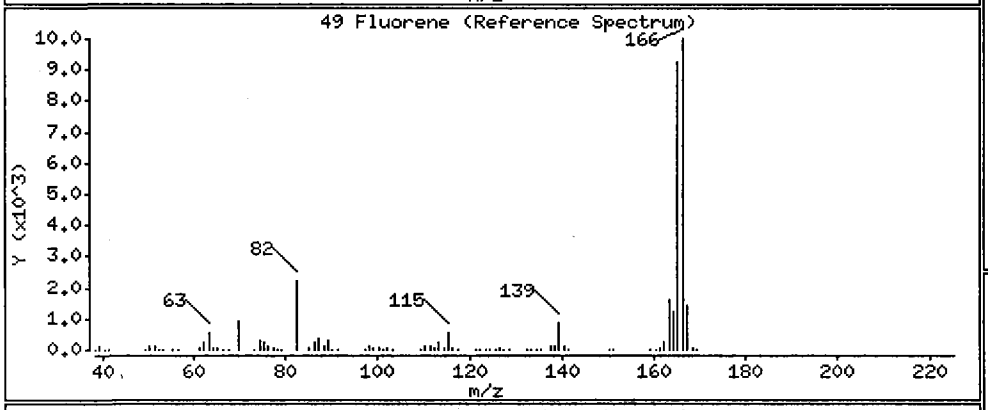
Concentration: 16420 ug/kg

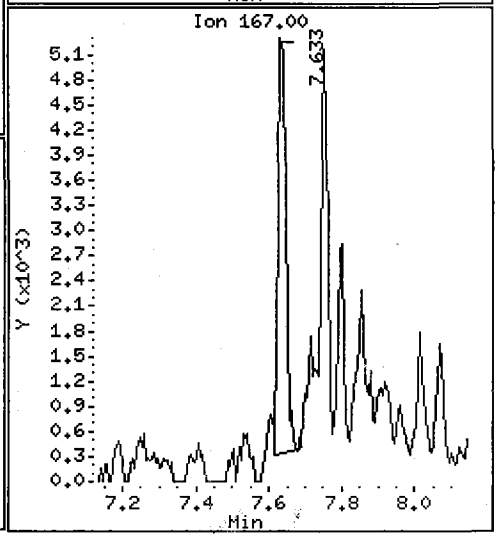


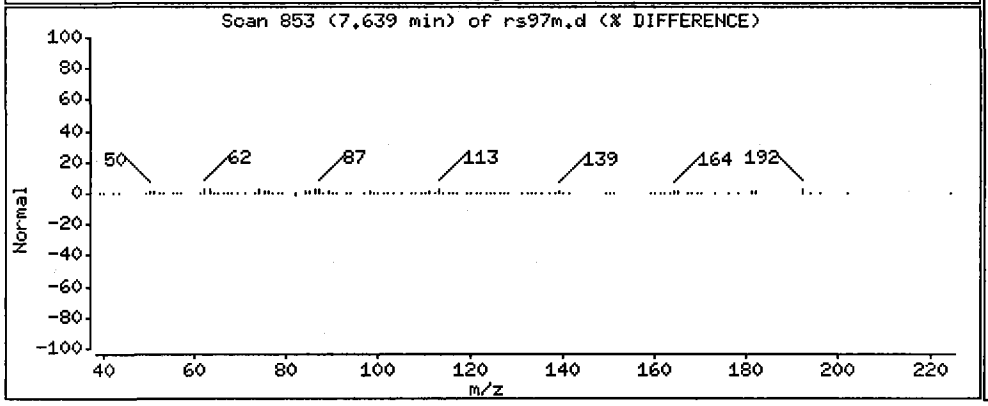












Data File: /chem1/nt12.i/20101110.b/rs97m.d

Date : 10-NOV-2010 17:34

Client ID: DGS-07-077.3-101012

Instrument: nt12.i

Sample Info: RS97M

Volume Injected (uL): 1.0

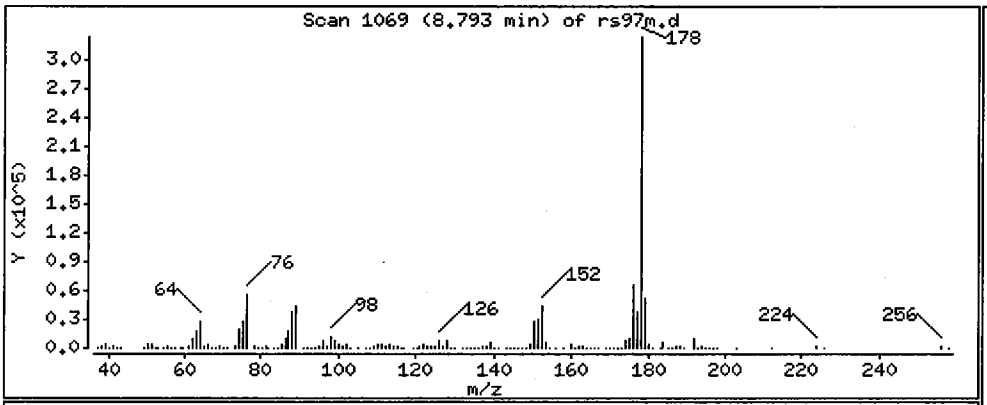
Operator: VTS

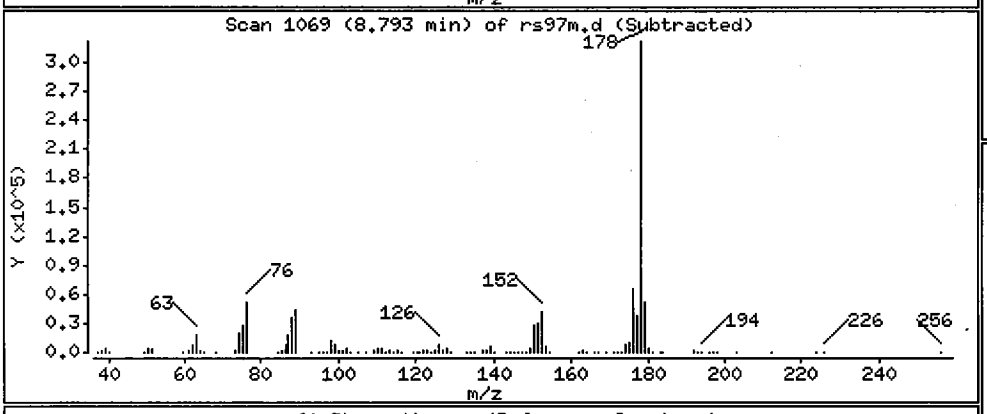
Column phase: ZB-5msi

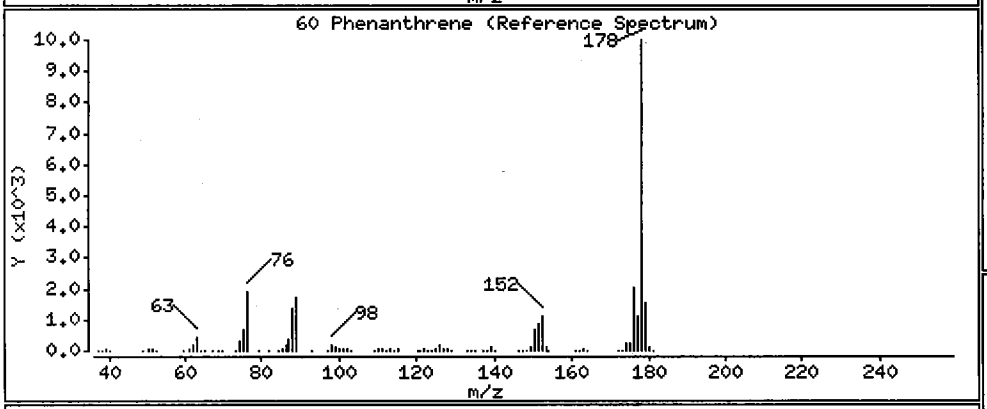
Column diameter: 0.32

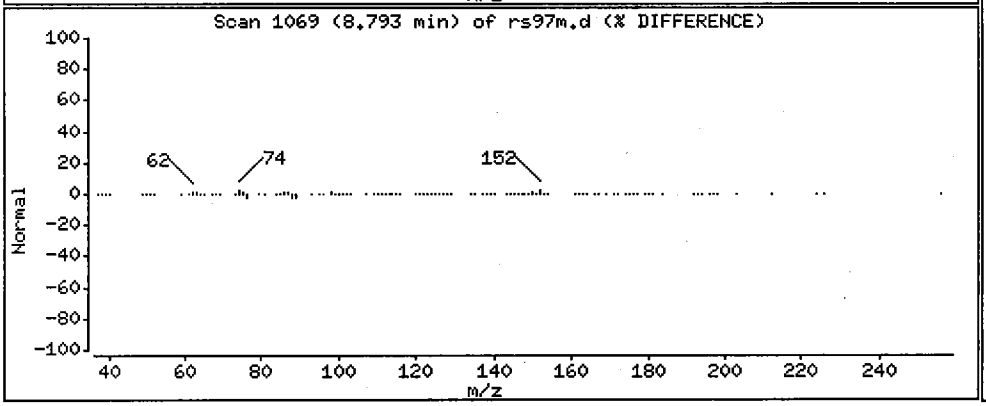
60 Phenanthrene

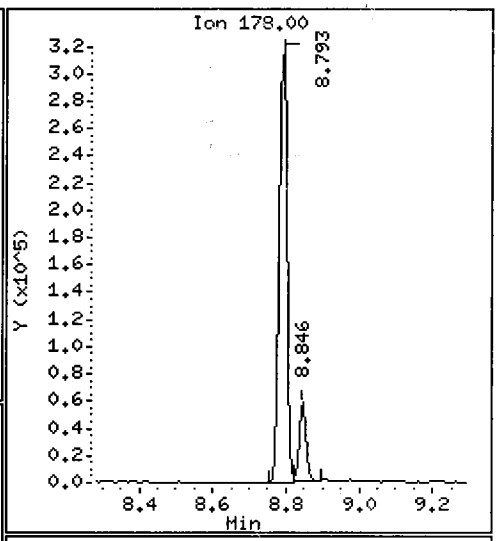
Concentration: 99940 ug/kg

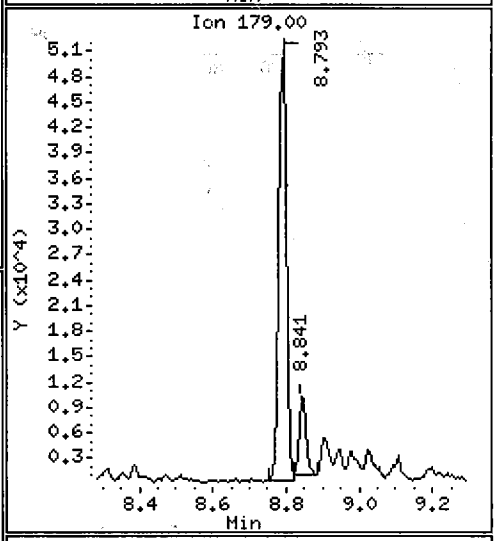


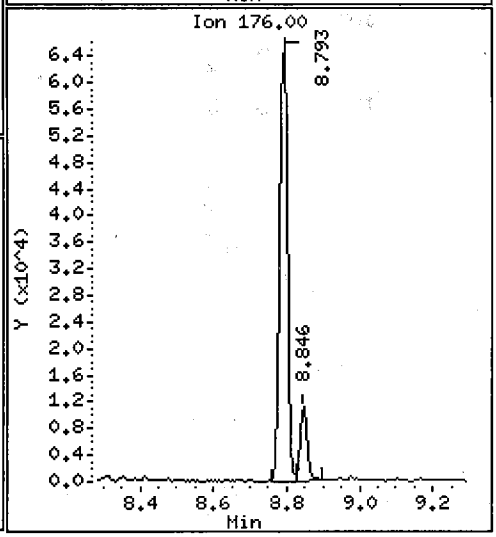












Data File: /chem1/nt12.i/20101110.b/rs97m.d

Date : 10-NOV-2010 17:34

Client ID: DGS-07-077.3-101012

Instrument: nt12.i

Sample Info: RS97M

Volume Injected (uL): 1.0

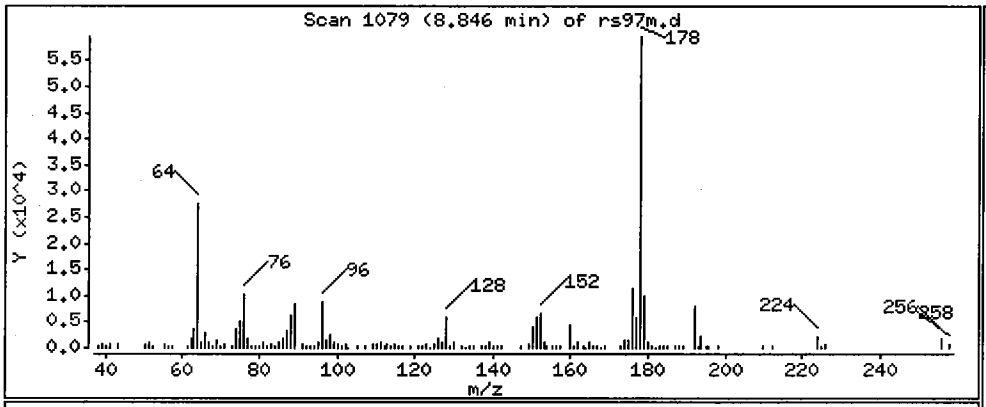
Operator: VTS

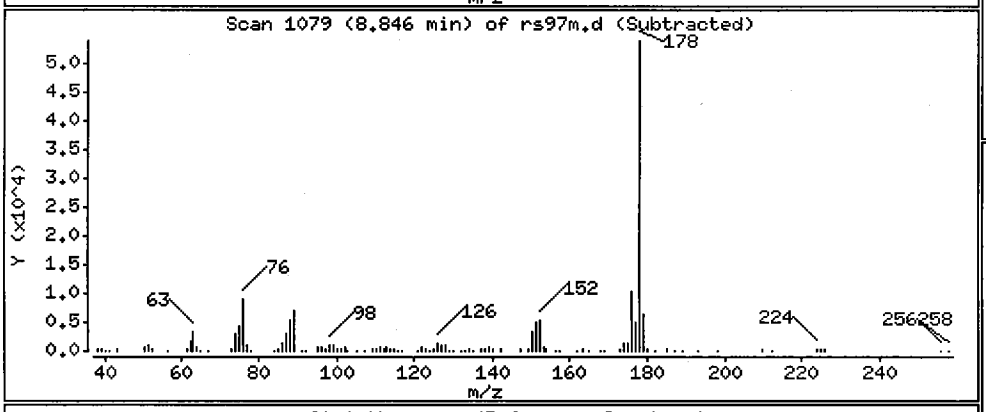
Column phase: ZB-5msi

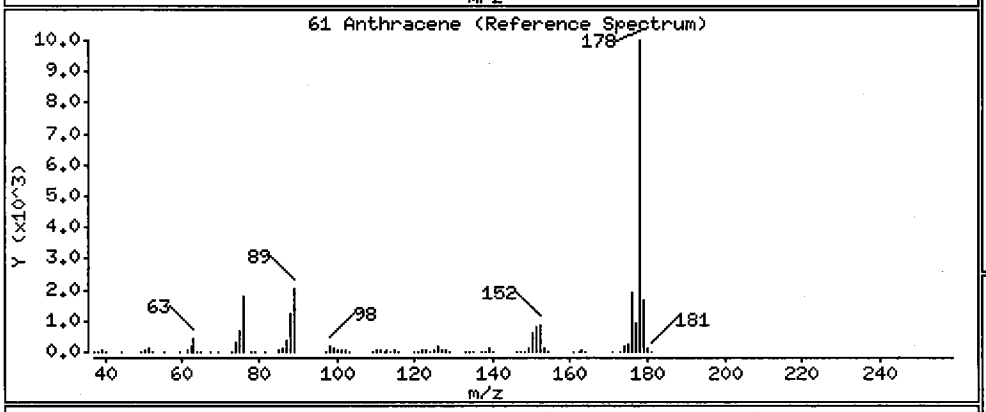
Column diameter: 0.32

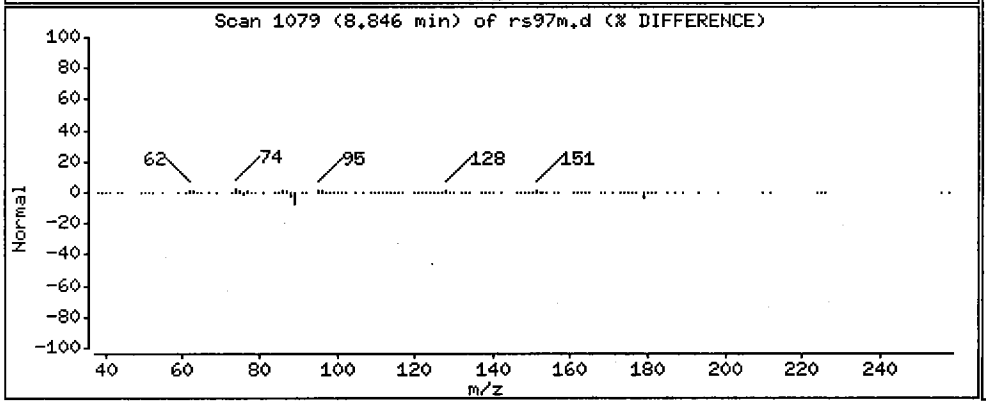
61 Anthracene

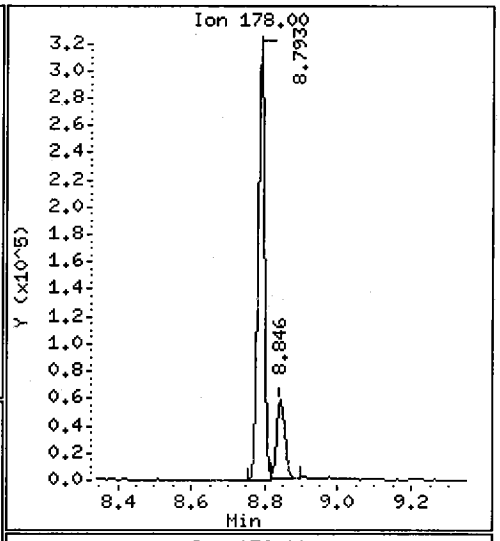
Concentration: 18790 ug/kg

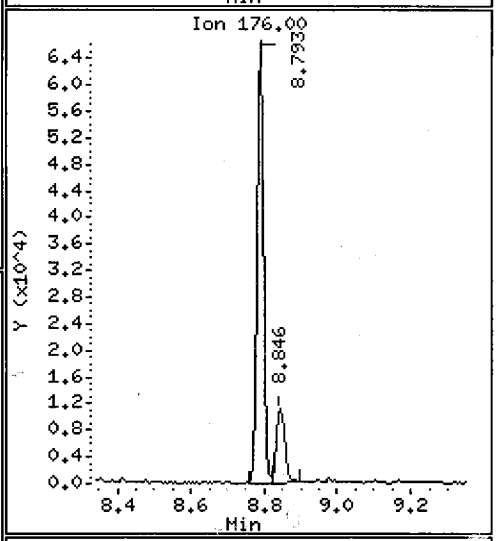


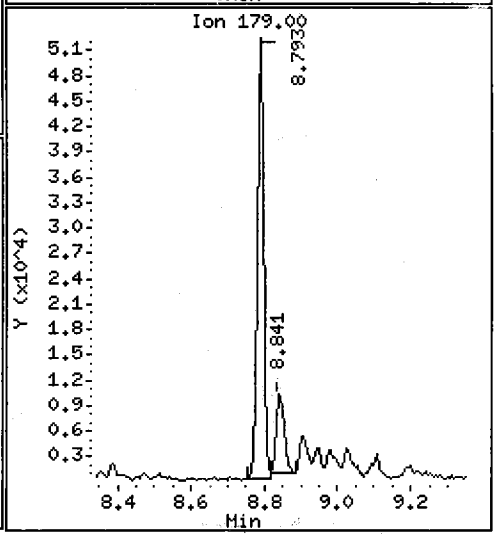












Data File: /chem1/nt12.i/20101110.b/rs97m.d

Date : 10-NOV-2010 17:34

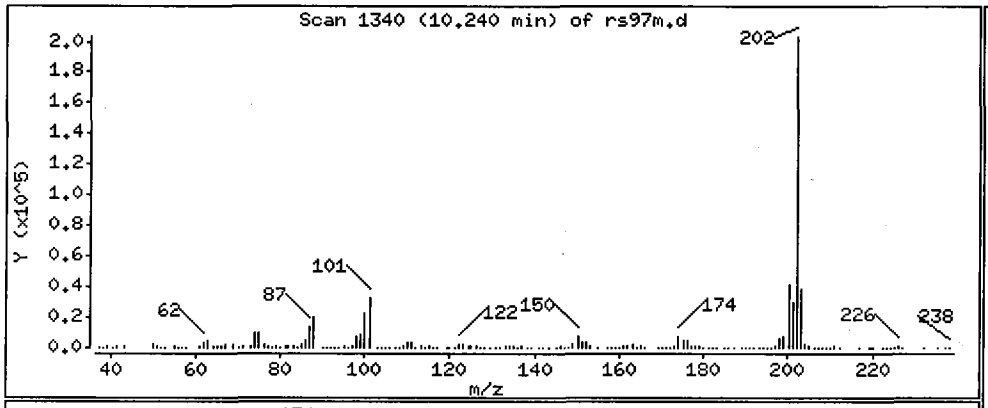
Client ID: DGS-07-077.3-101012 Instrument: nt12.i

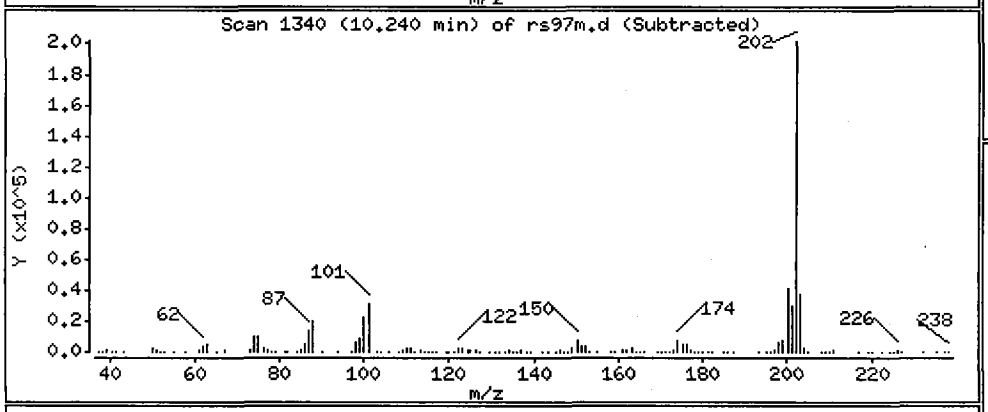
Sample Info: RS97M

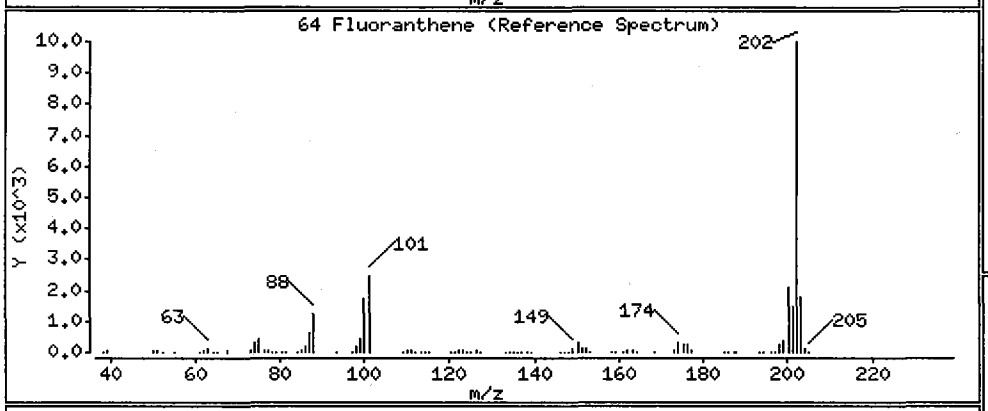
Volume Injected (uL): 1.0 Operator: VTS

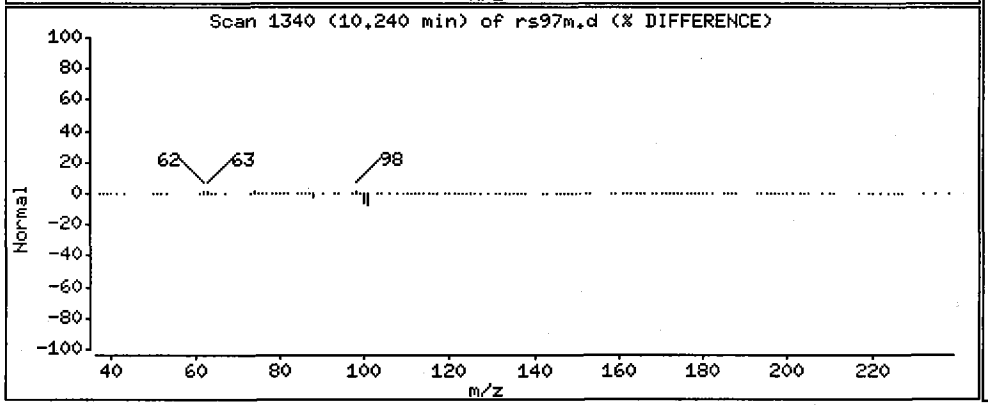
Column phase: ZB-5msi Column diameter: 0.32

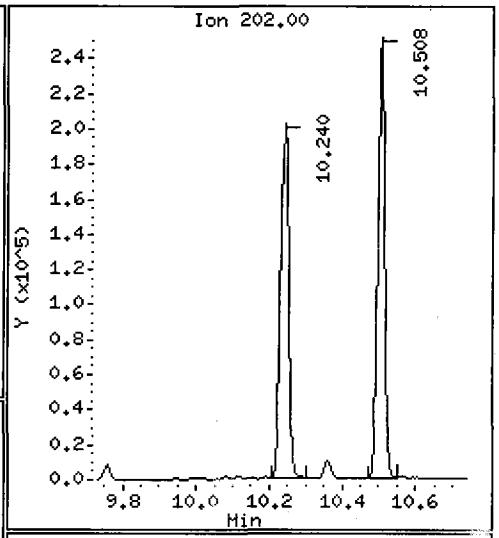
64 Fluoranthene Concentration: 55470 ug/kg

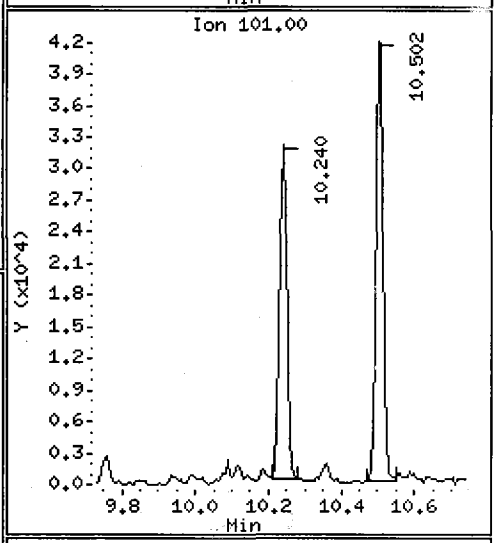


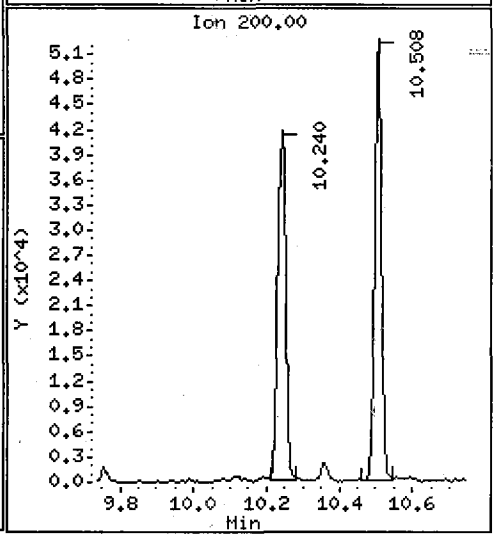












Data File: /chem1/nt12.i/20101110.b/rs97m.d

Date : 10-NOV-2010 17:34

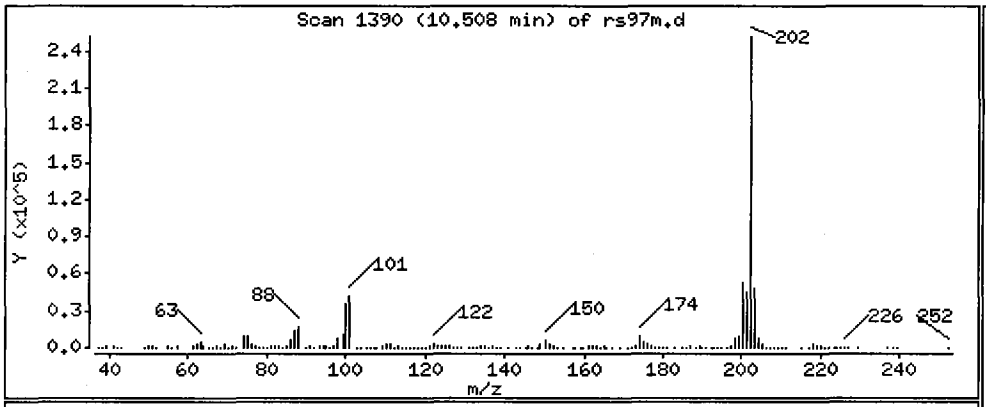
Client ID: DGS-07-077.3-101012 Instrument: nt12.i

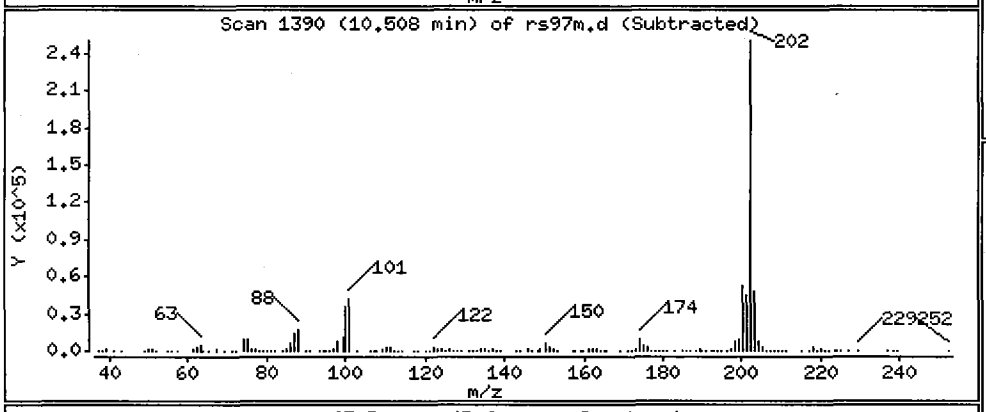
Sample Info: RS97M

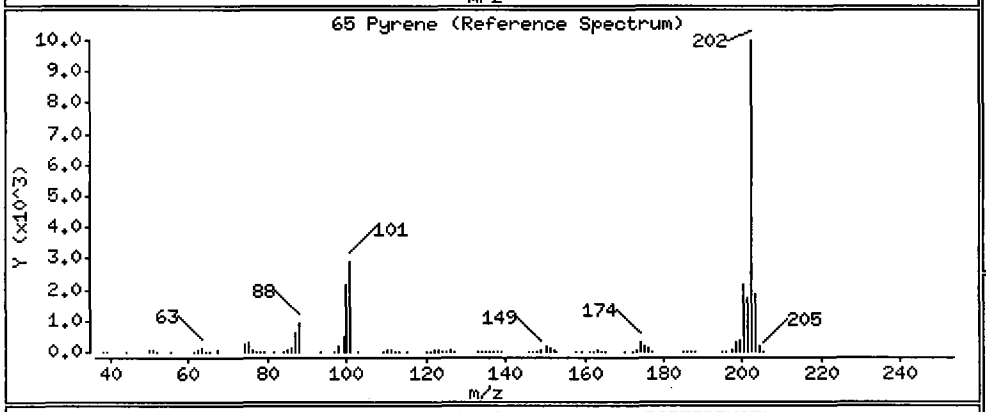
Volume Injected (uL): 1.0 Operator: VTS

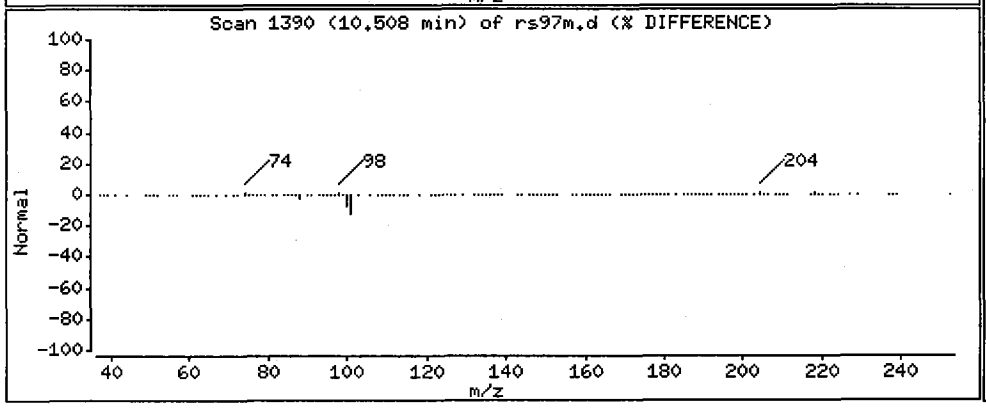
Column phase: ZB-5msi Column diameter: 0.32

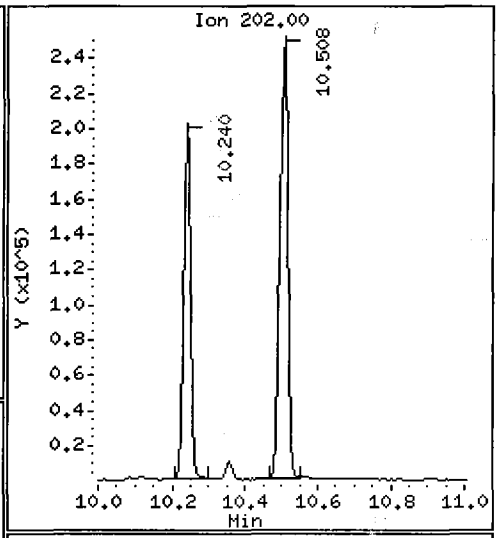
65 Pyrene Concentration: 69230 ug/kg

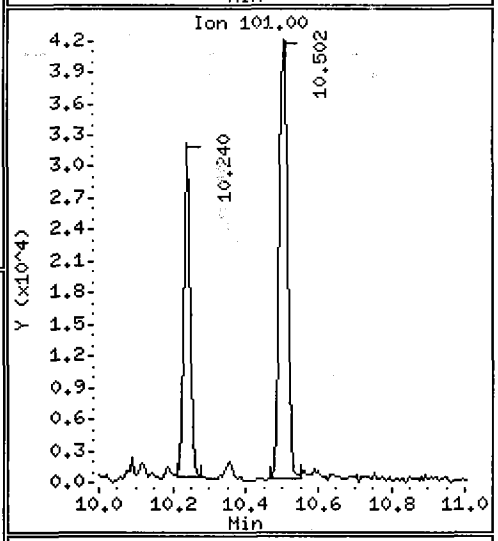


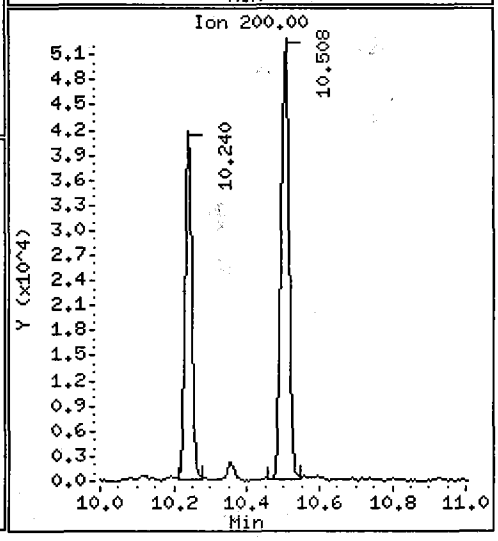












Data File: /chem1/nt12.i/20101110.b/rs97m.d

Date : 10-NOV-2010 17:34

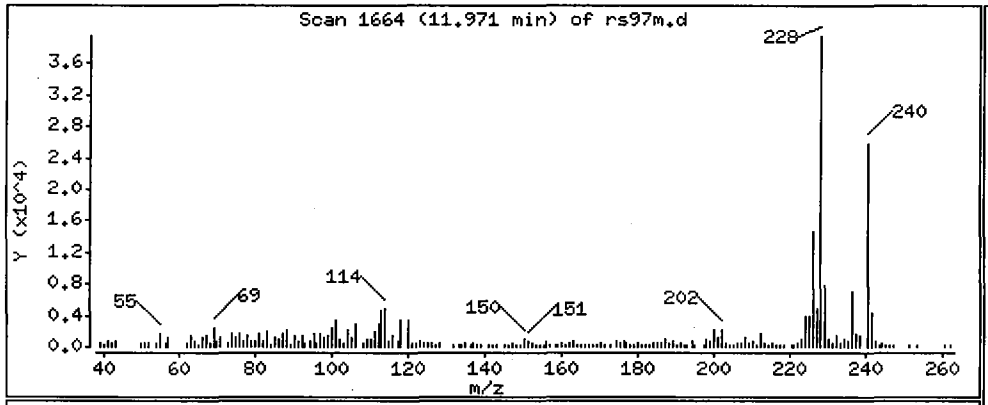
Client ID: DGS-07-077.3-101012 Instrument: nt12.i

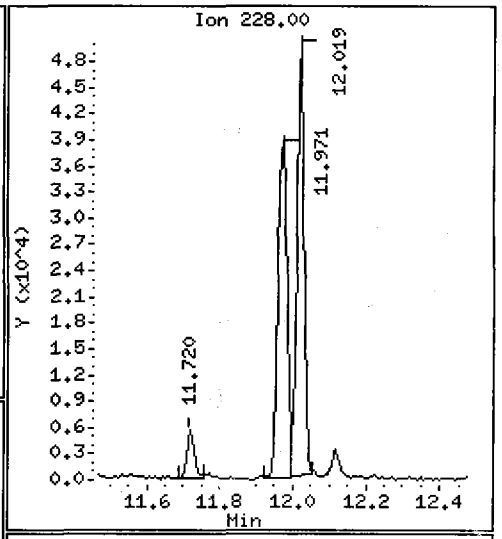
Sample Info: RS97M

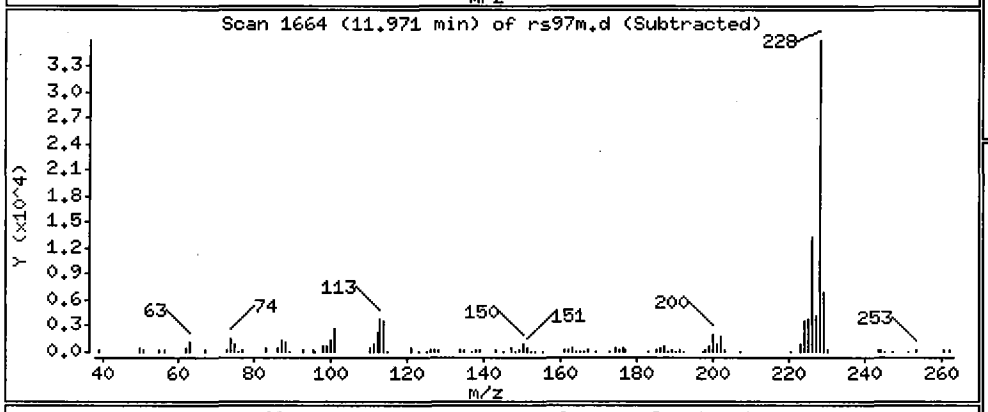
Volume Injected (uL): 1.0 Operator: VTS

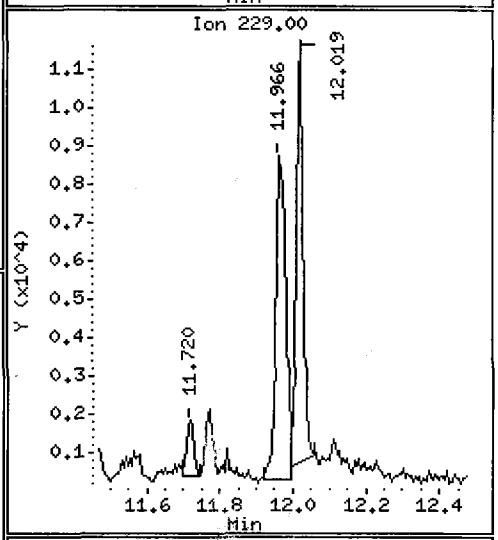
Column phase: ZB-5msi Column diameter: 0.32

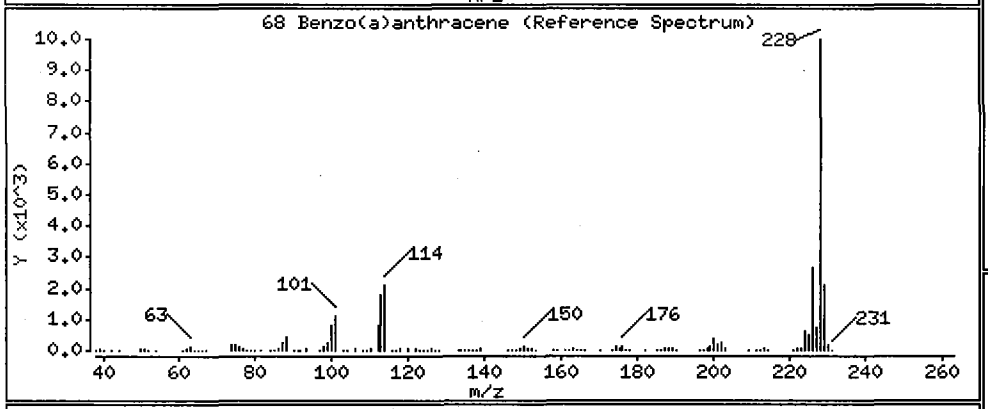
68 Benzo(a)anthracene Concentration: 14990 ug/kg

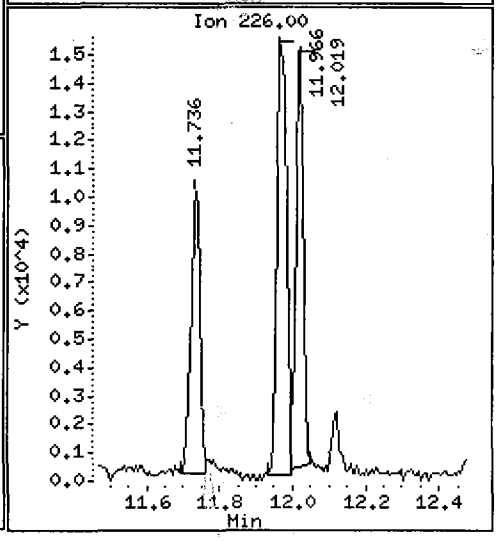


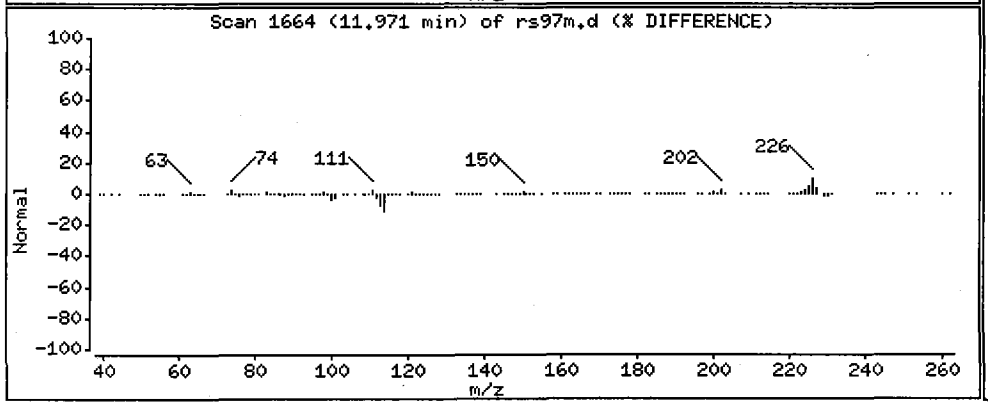












Data File: /chem1/nt12.i/20101110.b/rs97m.d

Date : 10-NOV-2010 17:34

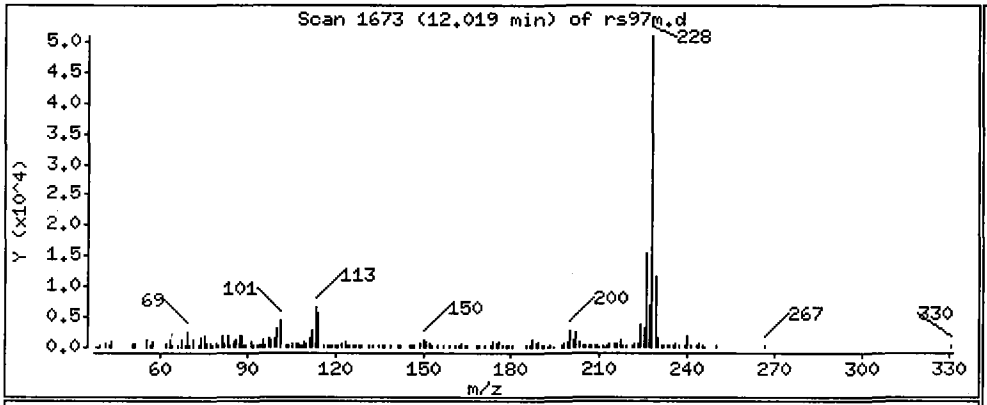
Client ID: DGS-07-077.3-101012 Instrument: nt12.i

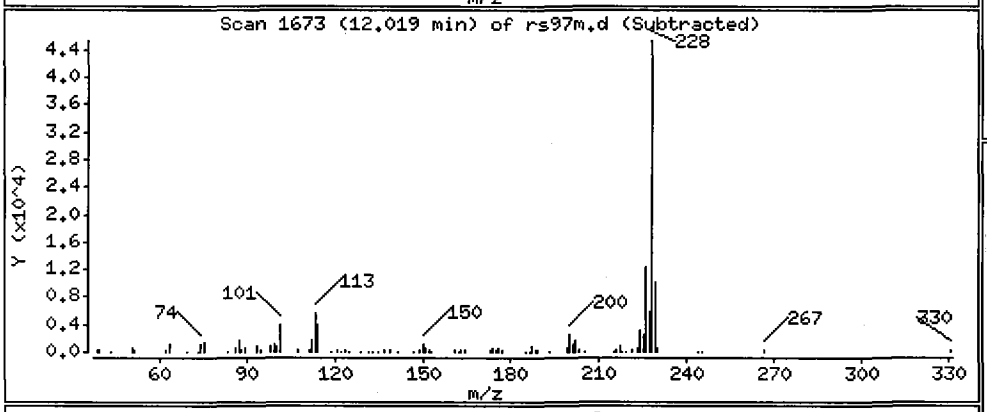
Sample Info: RS97M

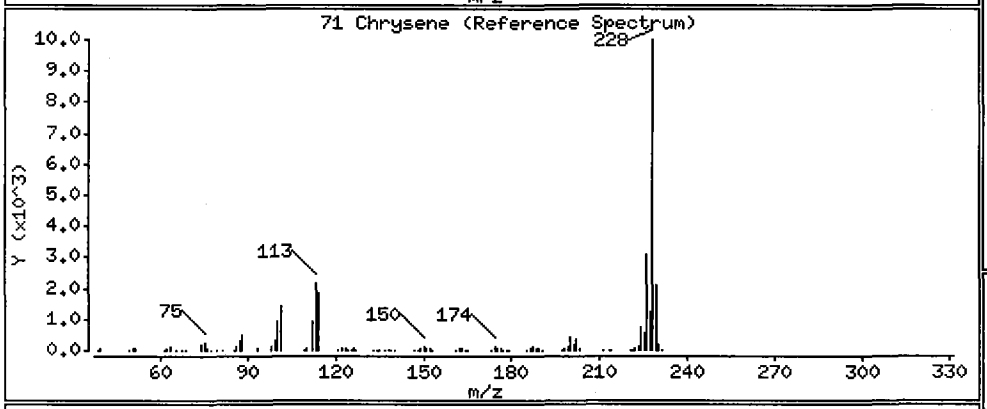
Volume Injected (uL): 1.0 Operator: VTS

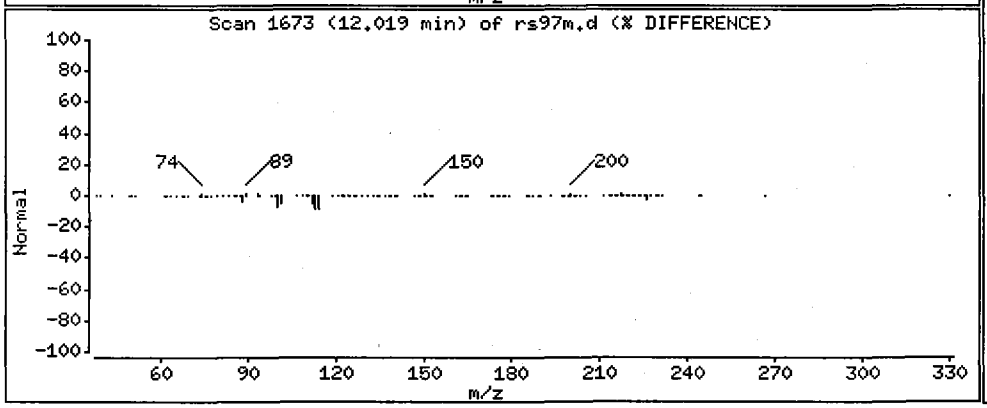
Column phase: ZB-5msi Column diameter: 0.32

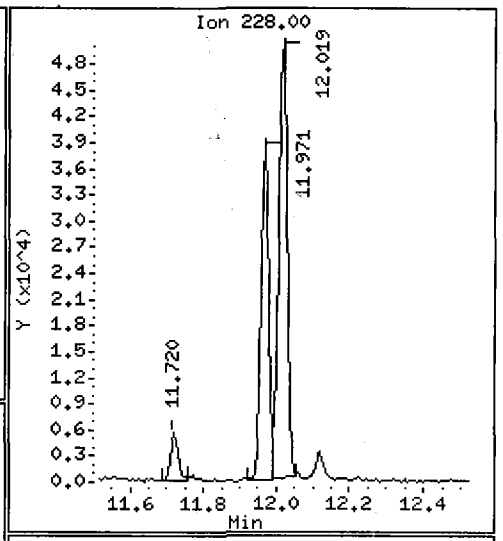
71 Chrysene Concentration: 18950 ug/kg

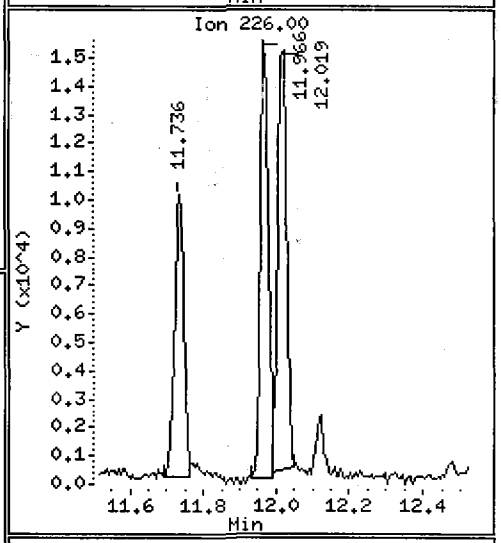


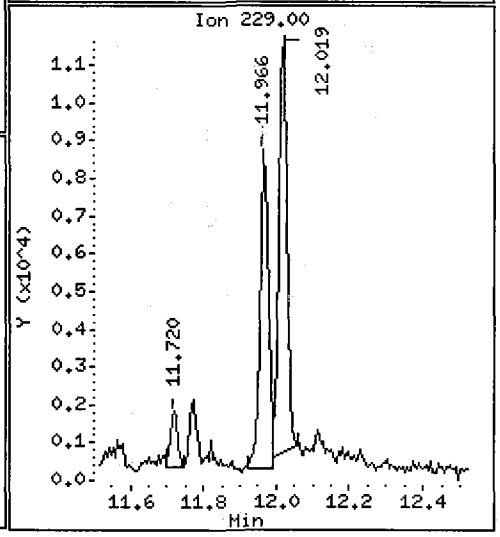












Data File: /chem1/nt12.i/20101110.b/rs97m.d

Date : 10-NOV-2010 17:34

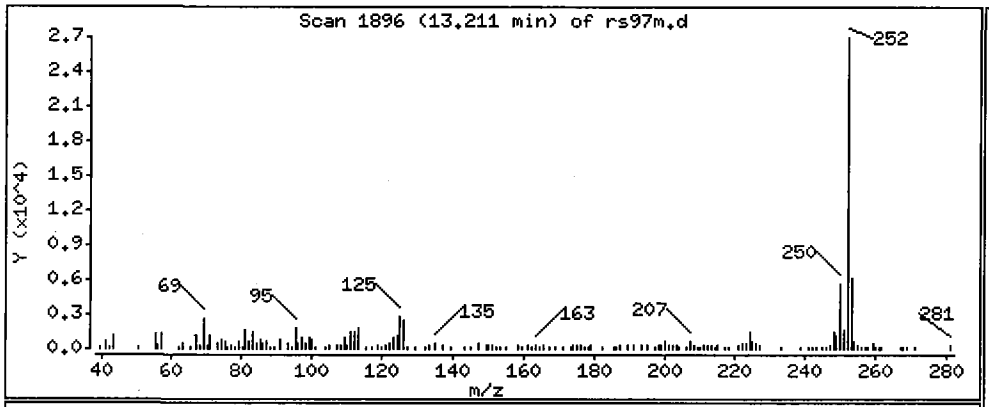
Client ID: DGS-07-077.3-101012 Instrument: nt12.i

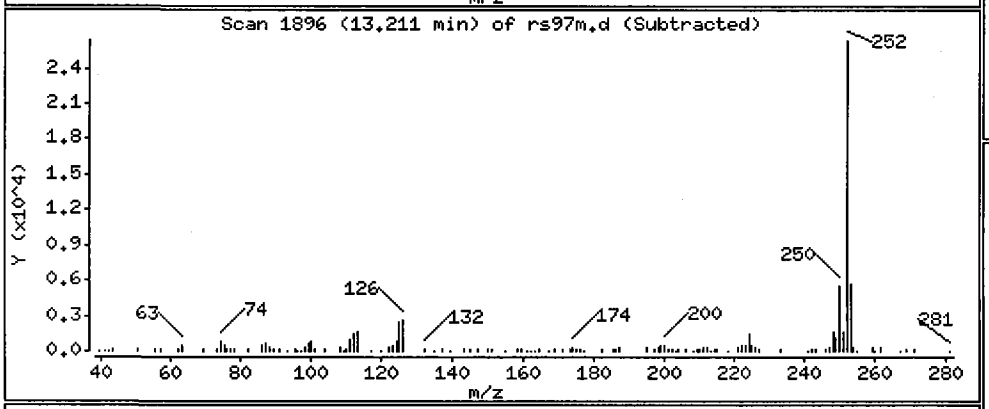
Sample Info: RS97M

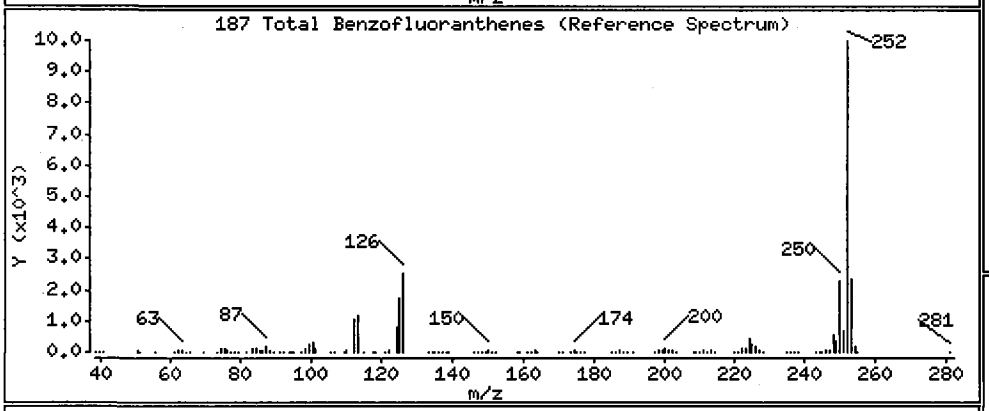
Volume Injected (uL): 1.0 Operator: VTS

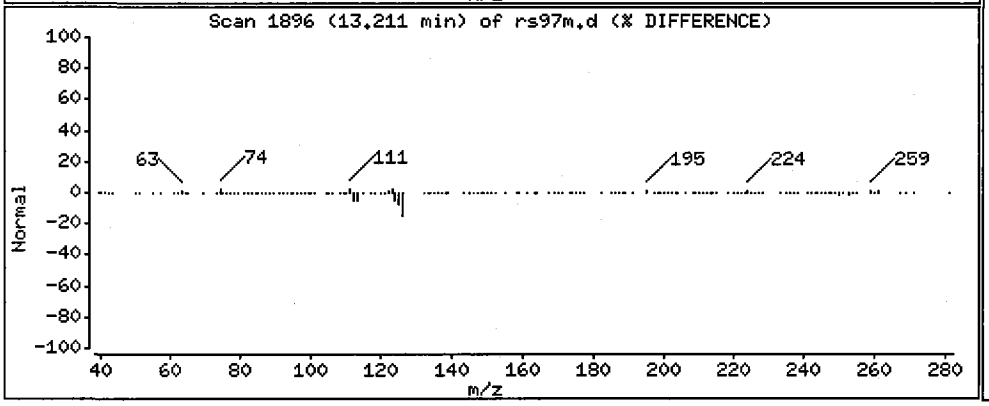
Column phase: ZB-5msi Column diameter: 0.32

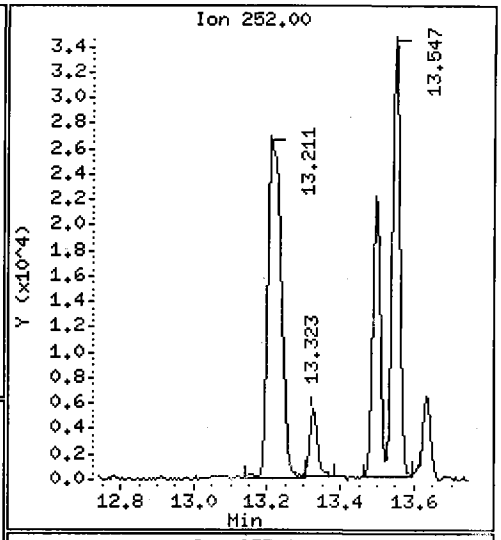
187 Total Benzofluoranthenes Concentration: 21340 ug/kg

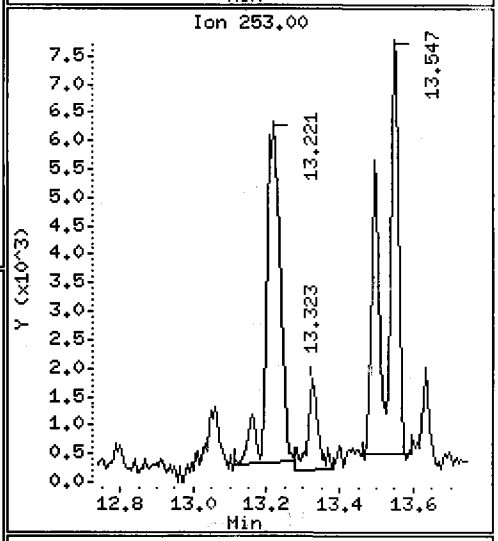


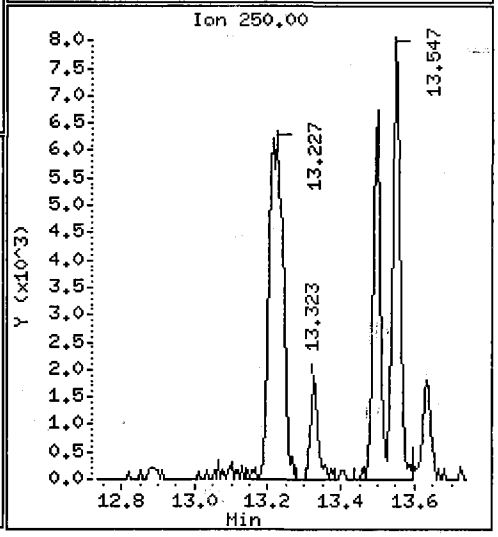












Data File: /chem1/nt12.i/20101110.b/rs97m.d

Date : 10-NOV-2010 17:34

Client ID: DGS-07-077.3-101012

Instrument: nt12.i

Sample Info: RS97M

Volume Injected (uL): 1.0

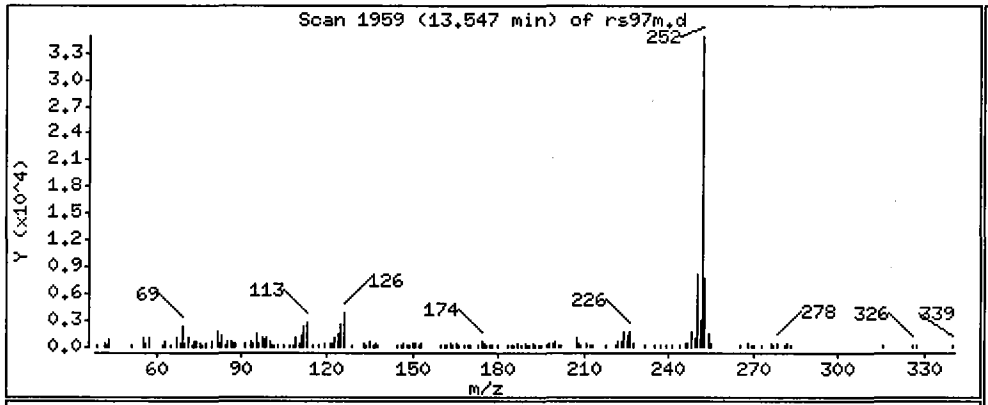
Operator: VTS

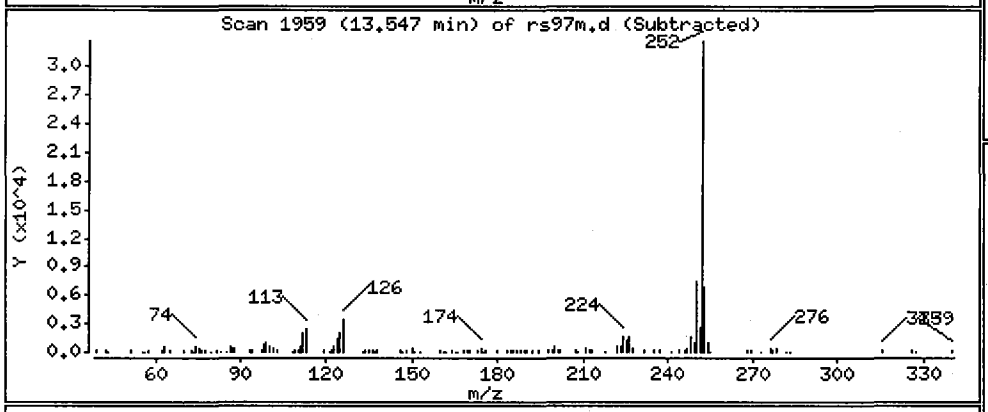
Column phase: ZB-5msi

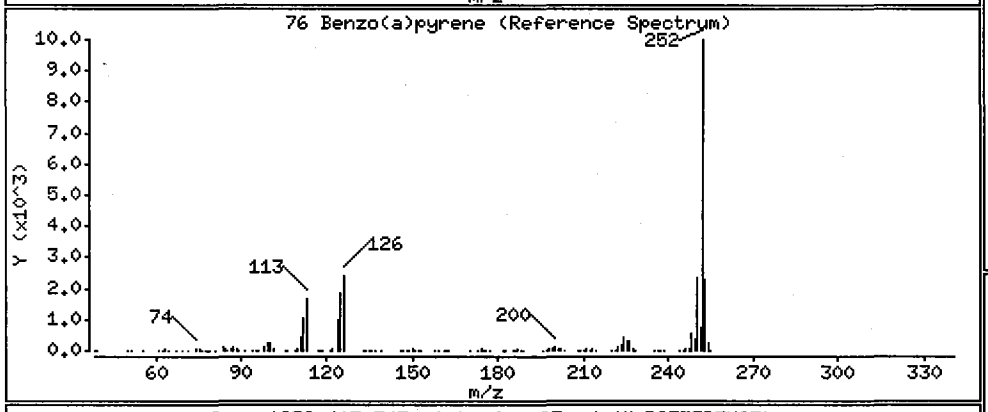
Column diameter: 0.32

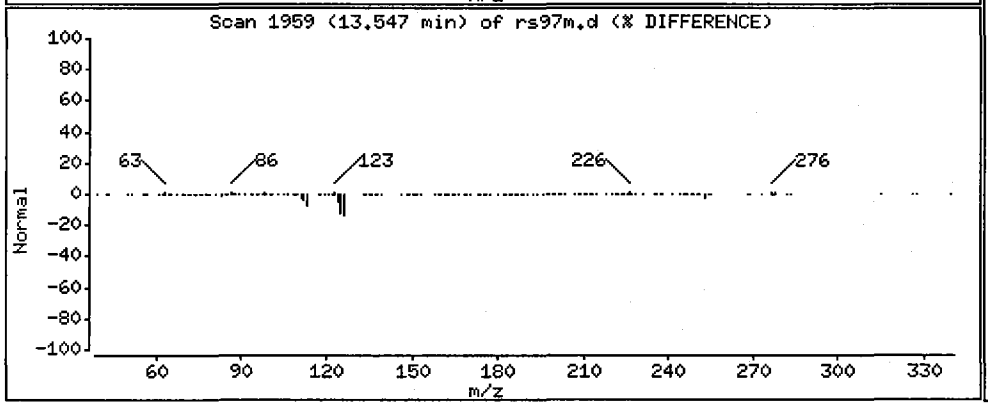
76 Benzo(a)pyrene

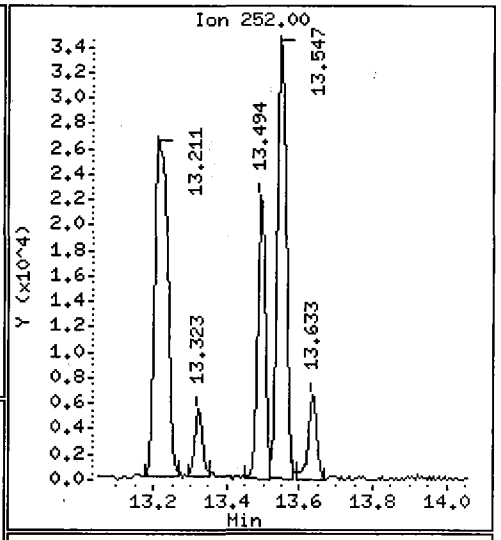
Concentration: 17940 ug/kg

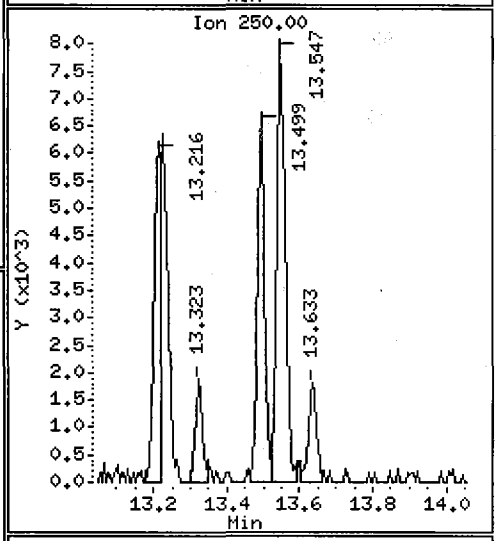


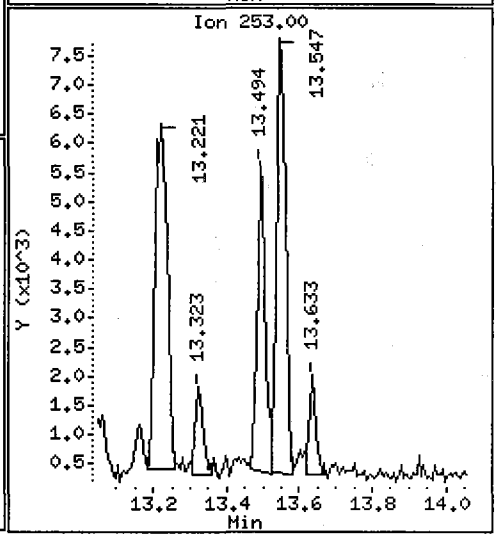












Data File: /chem1/nt12.i/20101110.b/rs97m.d

Date : 10-NOV-2010 17:34

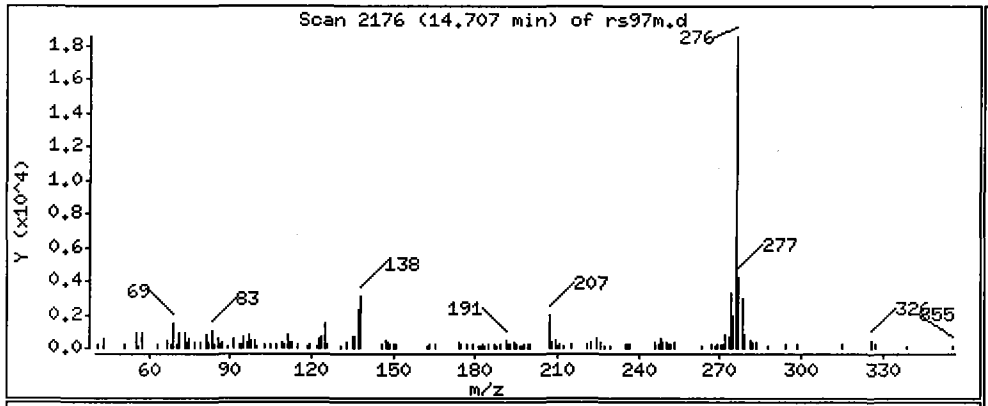
Client ID: DGS-07-077.3-101012 Instrument: nt12.i

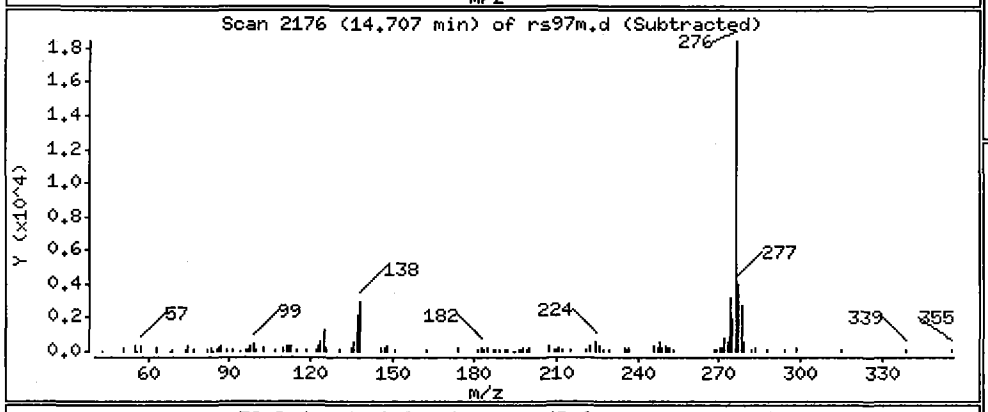
Sample Info: RS97M

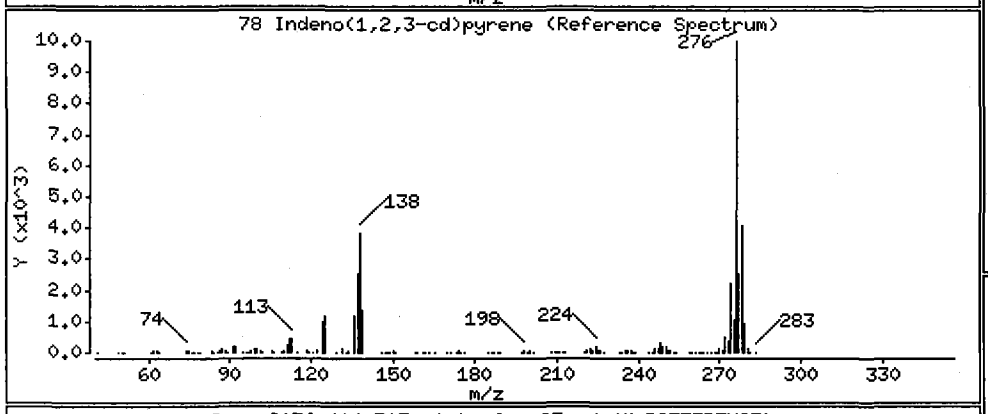
Volume Injected (uL): 1.0 Operator: VTS

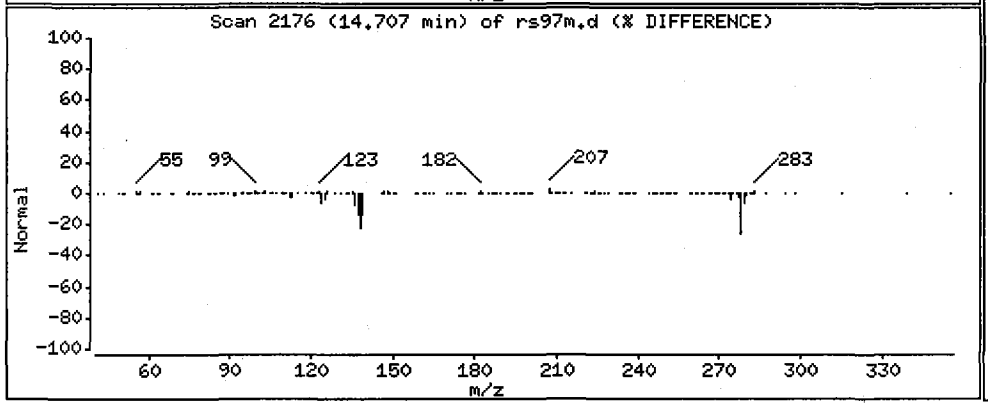
Column phase: ZB-5msi Column diameter: 0.32

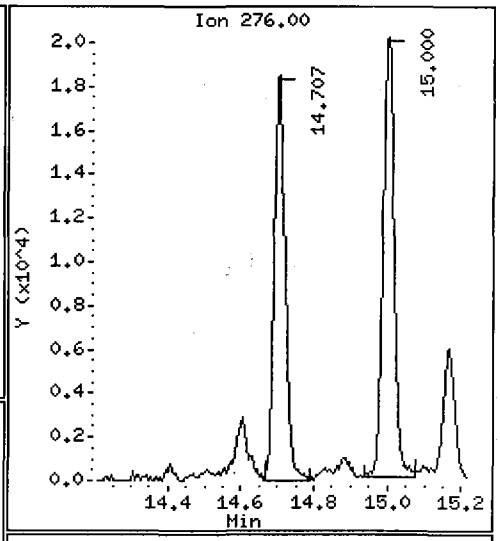
78 Indeno(1,2,3-cd)pyrene Concentration: 8206 ug/kg

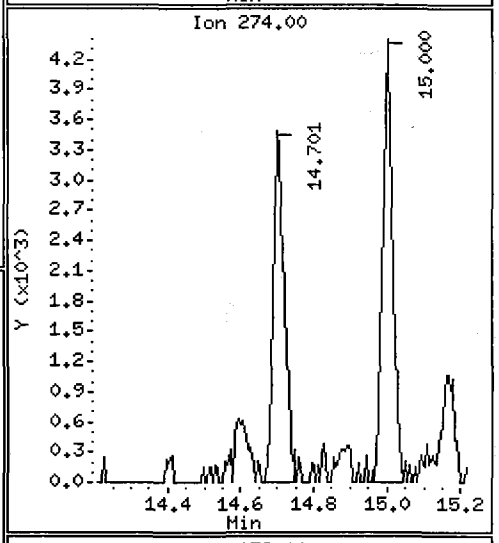


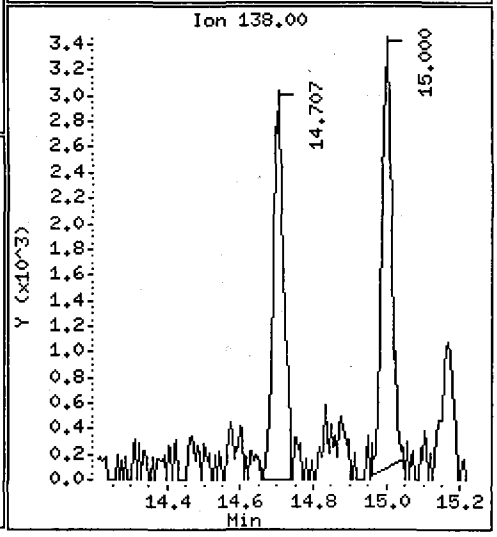












Data File: /chem1/nt12.i/20101110.b/rs97m.d

Date : 10-NOV-2010 17:34

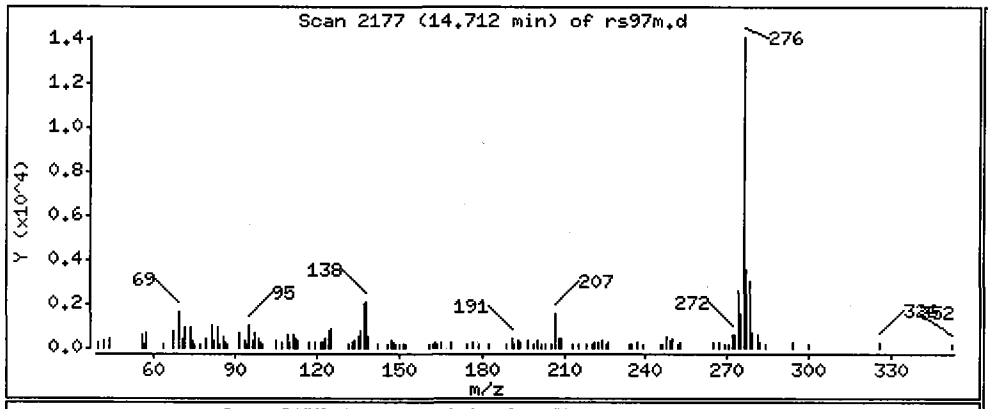
Client ID: DGS-07-077.3-101012 Instrument: nt12.i

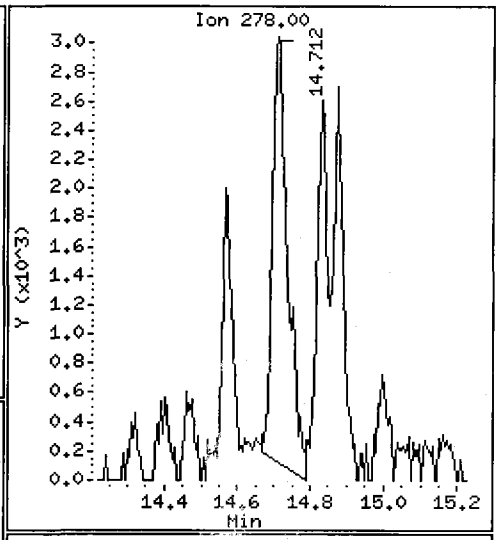
Sample Info: RS97M

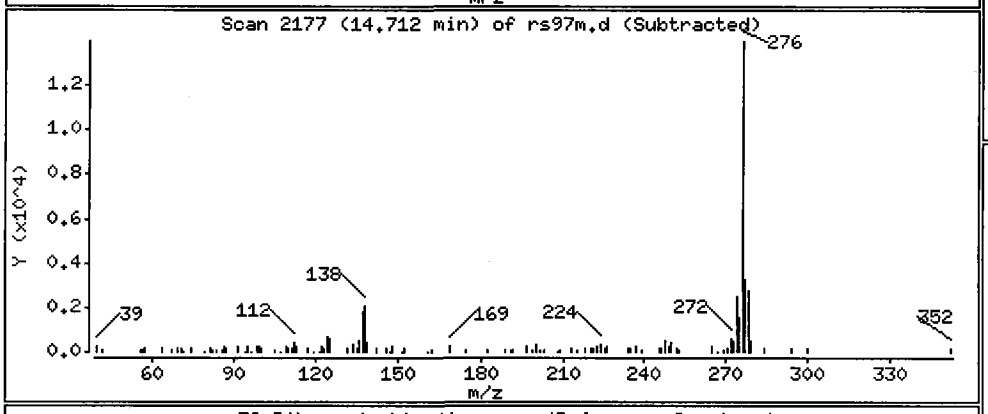
Volume Injected (uL): 1.0 Operator: VTS

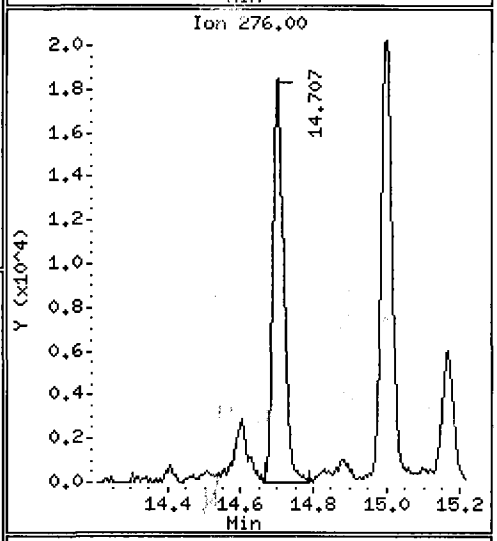
Column phase: ZB-5msi Column diameter: 0.32

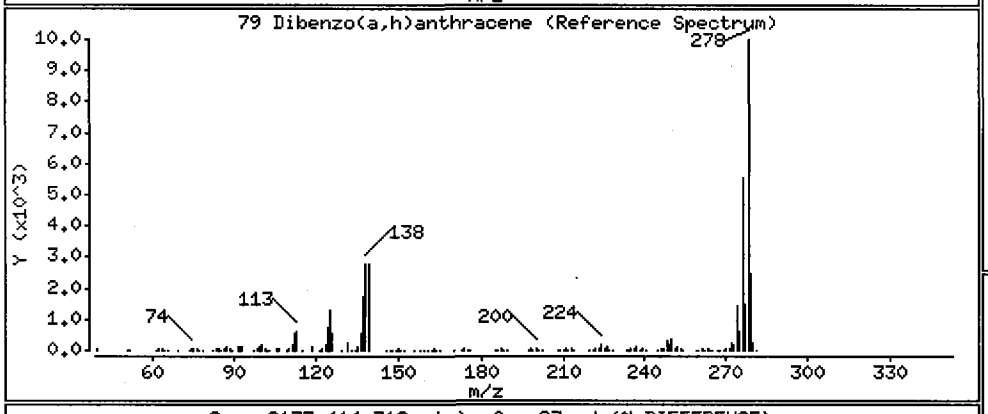
79 Dibenzo(a,h)anthracene Concentration: 2316 ug/kg

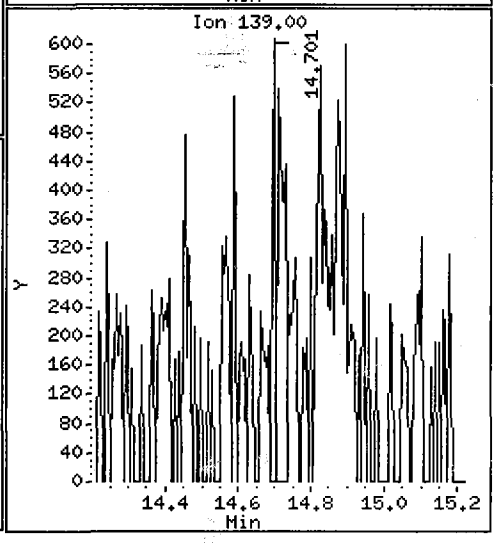


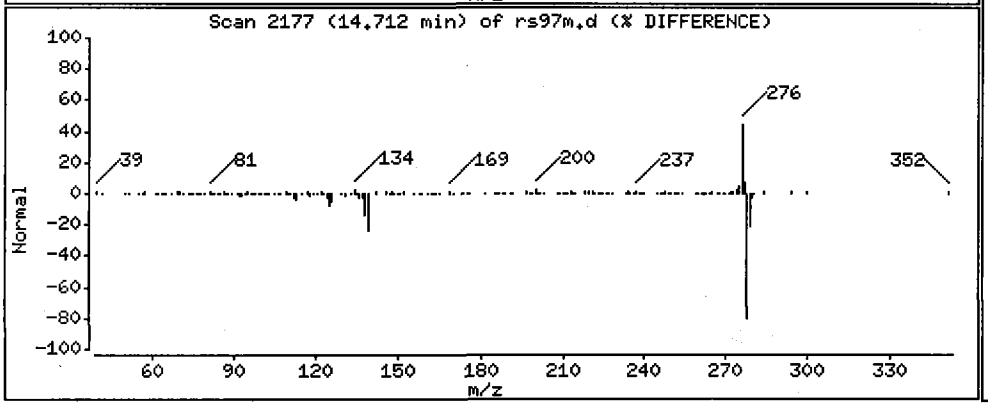












Data File: /chem1/nt12.i/20101110.b/rs97m.d

Date : 10-NOV-2010 17:34

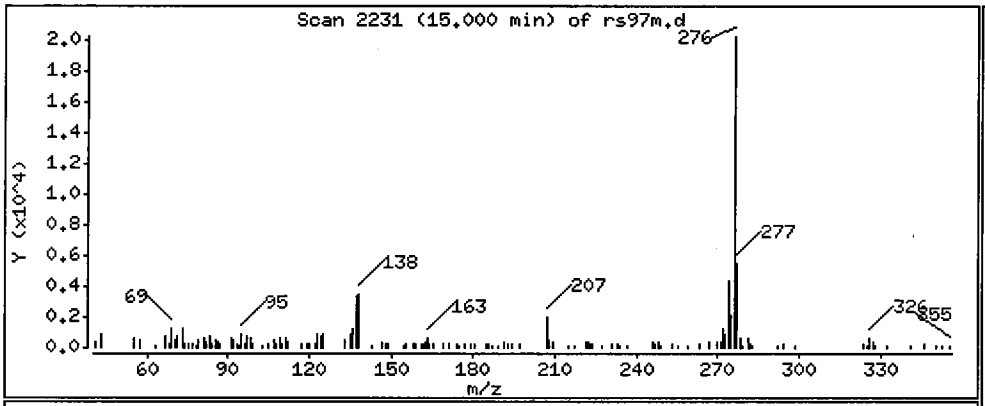
Client ID: DGS-07-077.3-101012 Instrument: nt12.i

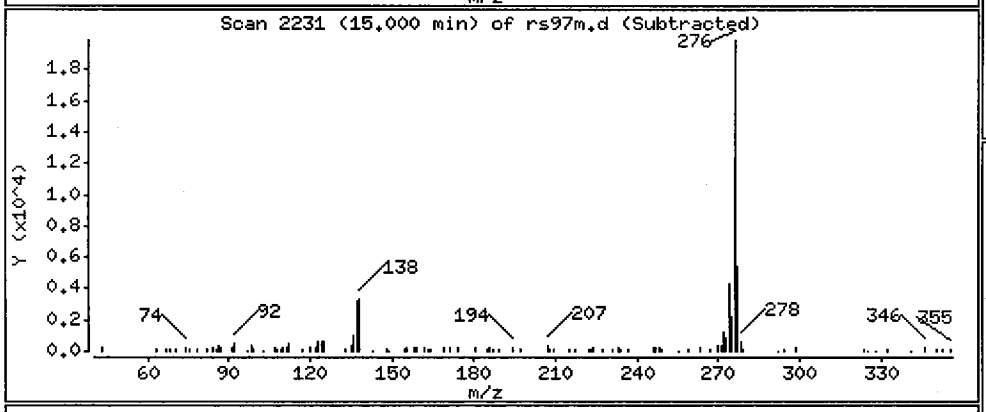
Sample Info: RS97M

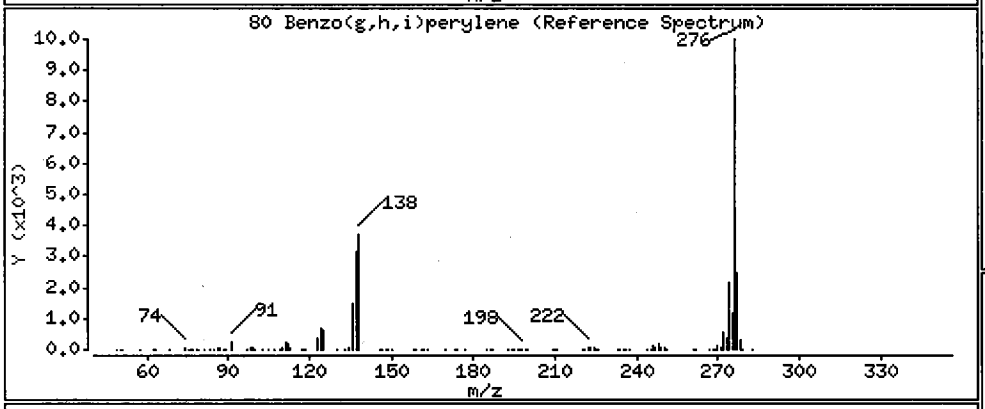
Volume Injected (uL): 1.0 Operator: VTS

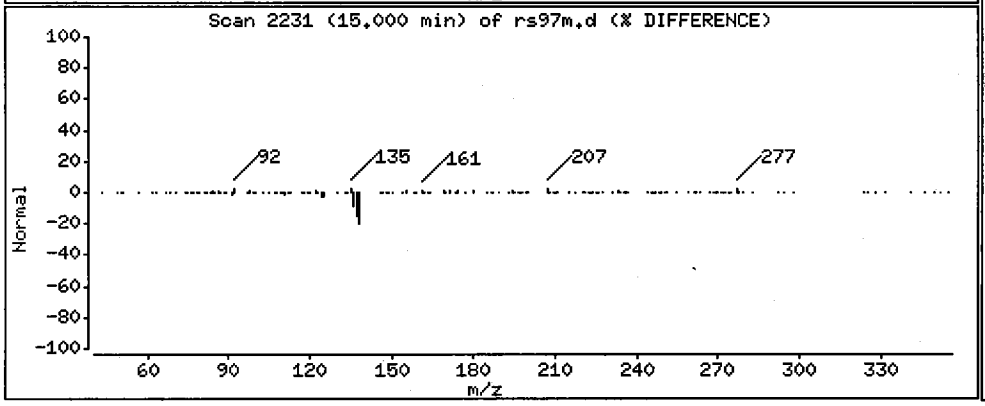
Column phase: ZB-5msi Column diameter: 0.32

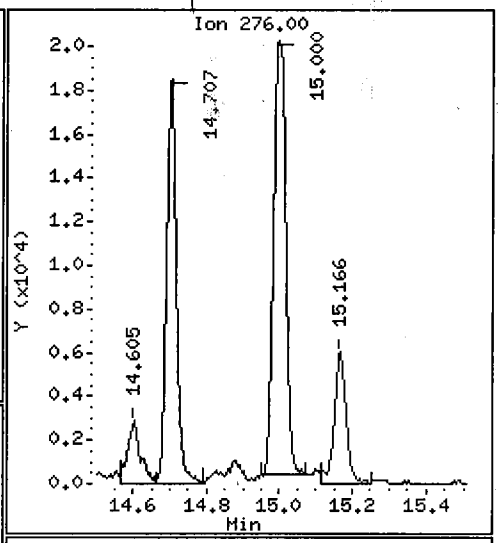
80 Benzo(g,h,i)perylene Concentration: 11850 ug/kg

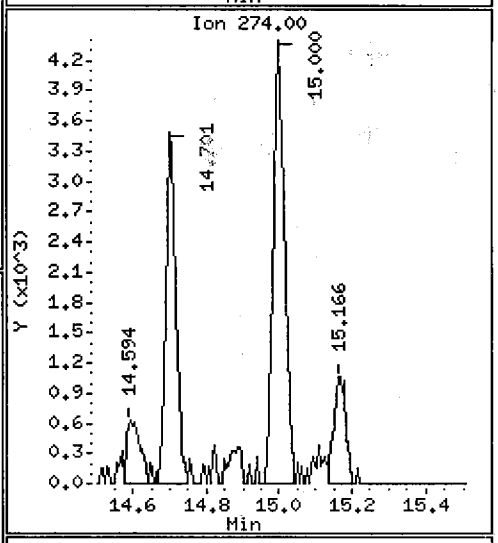


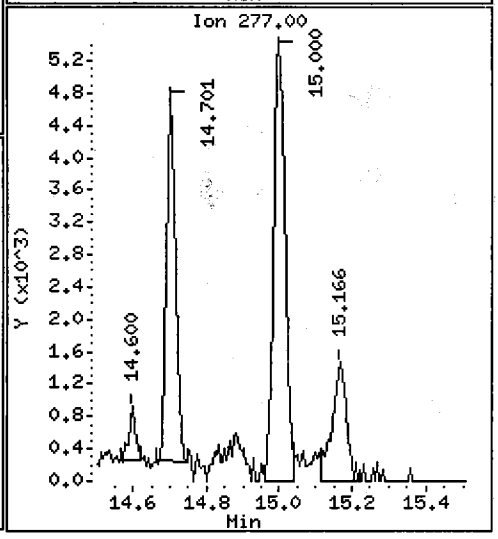












Analytical Resources, Inc.

Semivolatile Report SW846 Method 8270D

Data file : /chem1/nt12.i/20101110.b/rs97n.d
Lab Smp Id: RS97N Client Smp ID: DGS-07-7.98.4-10101
Inj Date : 10-NOV-2010 17:58
Operator : VTS Inst ID: nt12.i
Smp Info : RS97N
Misc Info : 10-27430
Comment : 1ul Injection
Method : /chem1/nt12.i/20101110.b/PNADMD.m
Meth Date : 10-Nov-2010 14:46 van Quant Type: ISTD
Cal Date : 30-OCT-2010 13:19 Cal File: ic1030f.d
Als bottle: 13
Dil Factor: 1.00000
Integrator: HP RTE Compound Sublist: pnas.sub
Target Version: 3.50
Processing Host: cserv3

Concentration Formula: Amt * DF * Vt/(Ws * (100 - M)/100) * CpndVariable

Name	Value	Description
DF	1.00000	Dilution Factor
Vt	10000.00000	Volume of final extract (uL)
Ws	5.20000	Weight of sample extracted (g)
M	44.00000	% Moisture

Cpnd Variable Local Compound Variable

Compounds	QUANT SIG MASS	RT	EXP RT	REL RT	RESPONSE	CONCENTRATIONS ON-COLUMN (ug/mL)	CONCENTRATIONS FINAL (ug/kg)
* 27 Naphthalene-d8	136	4.887	4.888	(1.000)	223897	20.0000	
28 Naphthalene	128	4.909	4.909	(1.004)	31147	2.44425	8394
32 2-Methylnaphthalene	141	5.726	5.726	(1.172)	36489	5.36474	18420
105 1-methylnaphthalene	141	5.849	5.854	(1.197)	21730	3.09848	10640
$ 36 2-Fluorobiphenyl	172	6.202	6.202	(0.888)	16575	1.52518	5238
40 Acenaphthylene	152	Compound Not Detected.					
* 42 Acenaphthene-d10	164	6.987	6.992	(1.000)	141260	20.0000	
44 Acenaphthene	153	7.024	7.030	(1.005)	47219	5.43530	18670
46 Dibenzofuran	168	7.222	7.222	(1.034)	7134	0.53552	1839
49 Fluorene	166	7.639	7.639	(1.093)	44930	4.51704	15510
* 59 Phenanthrene-d10	188	8.761	8.761	(1.000)	254144	20.0000	
60 Phenanthrene	178	8.793	8.787	(1.004)	446577	33.1226	113700
61 Anthracene	178	8.846	8.846	(1.010)	115478	8.28719	28460
62 Carbazole	167	9.060	9.065	(1.034)	21648	~~1.92~~579	6613

NP

	Compounds	QUANT SIG MASS	RT	EXP RT	REL RT	RESPONSE	CONCENTRATIONS ON-COLUMN (ug/mL)	FINAL (ug/kg)
	64 Fluoranthene	202	10.240	10.235	(0.854)	305790	18.6550	64060
	65 Pyrene	202	10.502	10.502	(0.876)	369567	22.7260	78040
$	66 Terphenyl-d14	244	10.737	10.737	(0.895)	16202	1.56181	5363
	68 Benzo(a)anthracene	228	11.971	11.971	(0.998)	63930	4.85108	16660
*	69 Chrysene-d12	240	11.993	11.993	(1.000)	234667	20.0000	
	71 Chrysene	228	12.019	12.019	(1.002)	80386	6.52443	22410
	187 Total Benzofluoranthenes	252	13.216	13.243	(0.971)	79935	7.50955	25790
	76 Benzo(a)pyrene	252	13.547	13.553	(0.995)	57240	5.85376	20100
*	77 Perylene-d12	264	13.611	13.611	(1.000)	178712	20.0000	
	99 Perylene	252	13.633	13.638	(1.002)	14659	~~1.40~~976	4841 NR
	78 Indeno(1,2,3-cd)pyrene	276	14.707	14.712	(1.080)	43343	2.98558	10250
	79 Dibenzo(a,h)anthracene	278	14.707	14.723	(1.080)	9312	0.77911	2676
	80 Benzo(g,h,i)perylene	276	15.000	15.006	(1.102)	50610	4.24355	14570

LB
11-11-10

Analytical Resources, Inc.

INTERNAL STANDARD COMPOUNDS
AREA AND RT SUMMARY

Instrument ID: nt12.i
Lab File ID: rs97n.d
Lab Smp Id: RS97N
Analysis Type: SV
Quant Type: ISTD
Operator: VTS
Method File: /chem1/nt12.i/20101110.b/PNADMD.m
Misc Info: 10-27430

Calibration Date: 10-NOV-2010
Calibration Time: 13:29
Client Smp ID: DGS-07-7.98.4-10
Level: LOW
Sample Type: Sediment

Test Mode:
Use Initial Calibration Level 4.

COMPOUND	STANDARD	AREA LIMIT LOWER	AREA LIMIT UPPER	SAMPLE	%DIFF
27 Naphthalene-d8	237664	118832	475328	223897	-5.79
42 Acenaphthene-d10	143363	71682	286726	141260	-1.47
59 Phenanthrene-d10	245437	122718	490874	254144	3.55
69 Chrysene-d12	199260	99630	398520	234667	17.77
77 Perylene-d12	197636	98818	395272	178712	-9.58

COMPOUND	STANDARD	RT LIMIT LOWER	RT LIMIT UPPER	SAMPLE	%DIFF
27 Naphthalene-d8	4.89	4.39	5.39	4.89	0.00
42 Acenaphthene-d10	6.99	6.49	7.49	6.99	-0.08
59 Phenanthrene-d10	8.76	8.26	9.26	8.76	0.00
69 Chrysene-d12	11.99	11.49	12.49	11.99	0.00
77 Perylene-d12	13.61	13.11	14.11	13.61	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.

Analytical Resources, Inc.

RECOVERY REPORT

Client Name: NW Natural
Sample Matrix: SOLID
Lab Smp Id: RS97N
Level: LOW
Data Type: MS DATA
SpikeList File: SONICLCS.spk
Sublist File: pnas.sub
Method File: /chem1/nt12.i/20101110.b/PNADMD.m
Misc Info: 10-27430

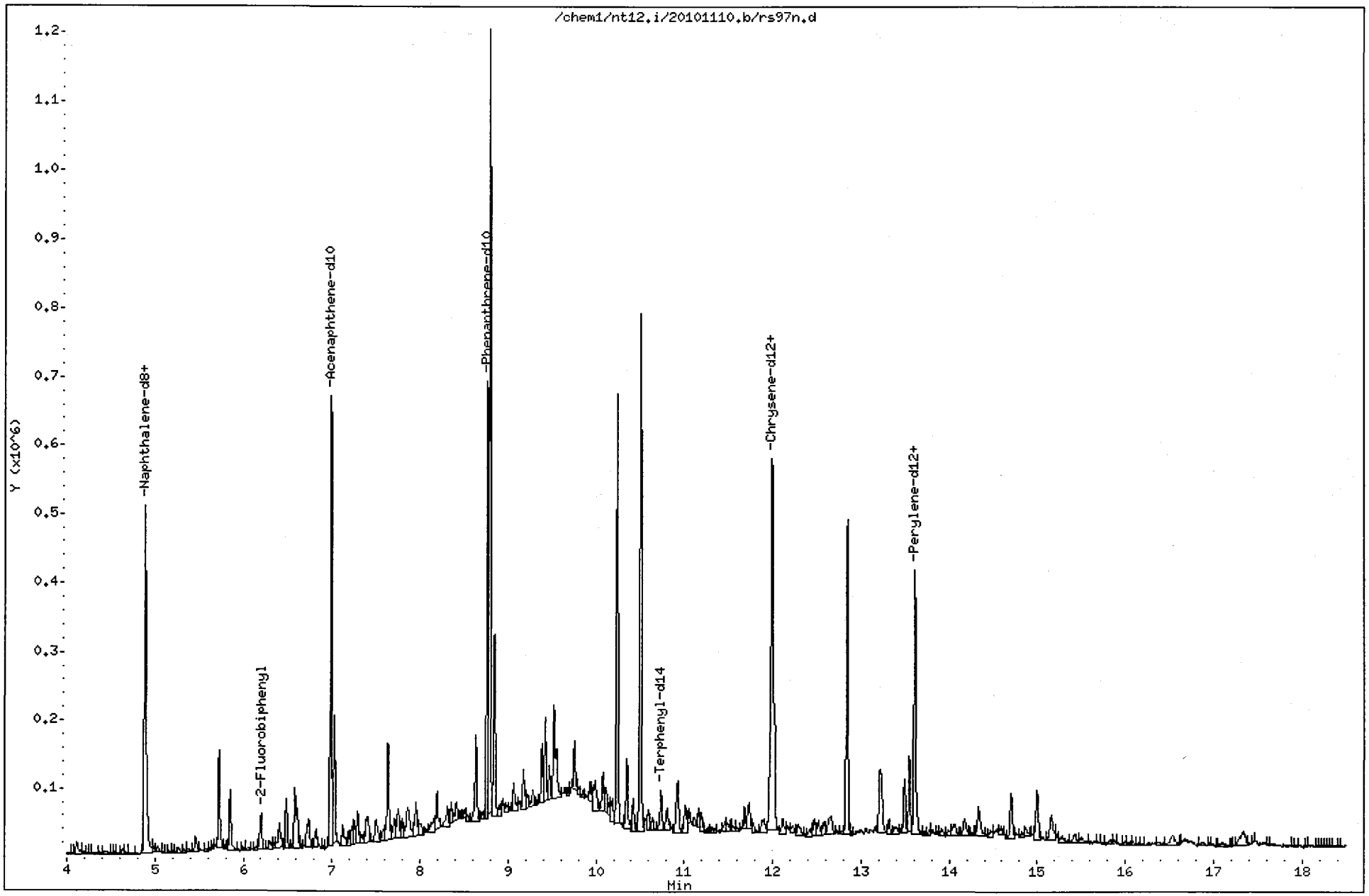
Client SDG: RS97
Fraction: SV
Client Smp ID: DGS-07-7.98.4-10101
Operator: VTS
SampleType: SAMPLE
Quant Type: ISTD

SURROGATE COMPOUND	CONC ADDED ug/kg	CONC RECOVERED ug/kg	% RECOVERED	LIMITS
$ 36 2-Fluorobiphenyl	8585	5238	61.01	34-100
$ 66 Terphenyl-d14	8585	5363	62.47	35-112

Data File: /chem1/nt12.i/20101110.b/rs97n.d
Date : 10-NOV-2010 17:58
Client ID: DGS-07-7.98.4-10101
Sample Info: RS97N
Volume Injected (uL): 1.0
Column phase: ZB-5msi

Instrument: nt12.i

Operator: VTS
Column diameter: 0.32



RS97:00566

Data File: /chem1/nt12.i/20101110.b/rs97n.d

Date : 10-NOV-2010 17:58

Client ID: DGS-07-7.98.4-10101

Instrument: nt12.i

Sample Info: RS97N

Volume Injected (uL): 1.0

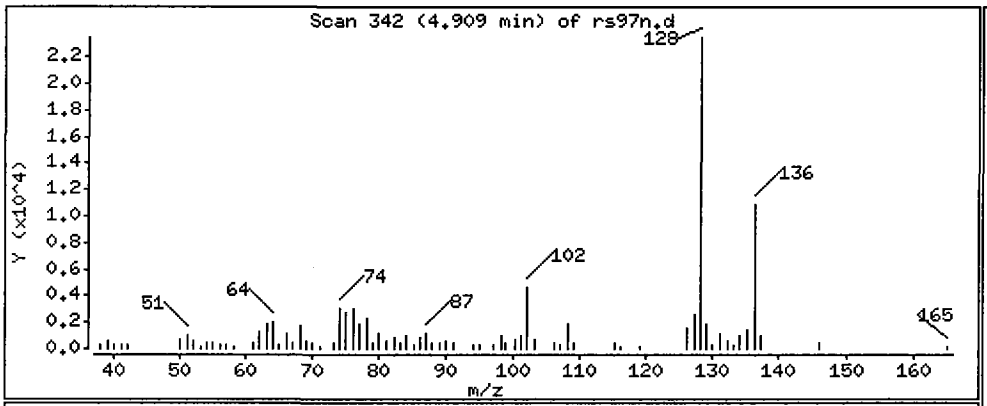
Operator: VTS

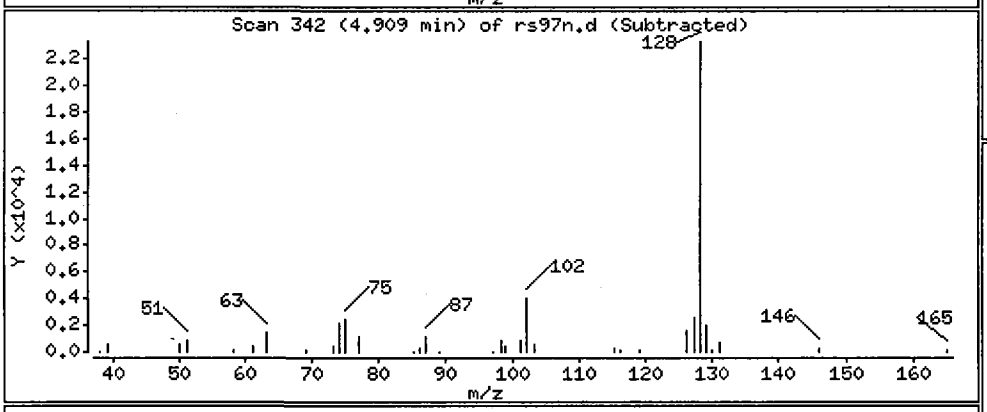
Column phase: ZB-5msi

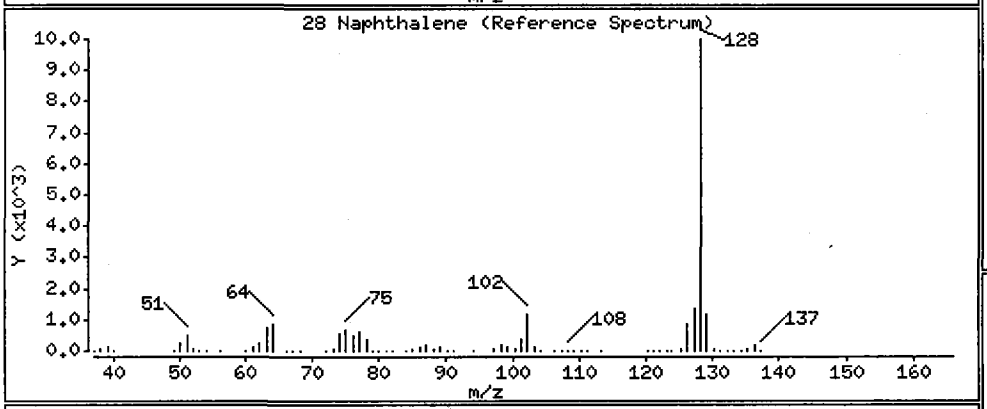
Column diameter: 0.32

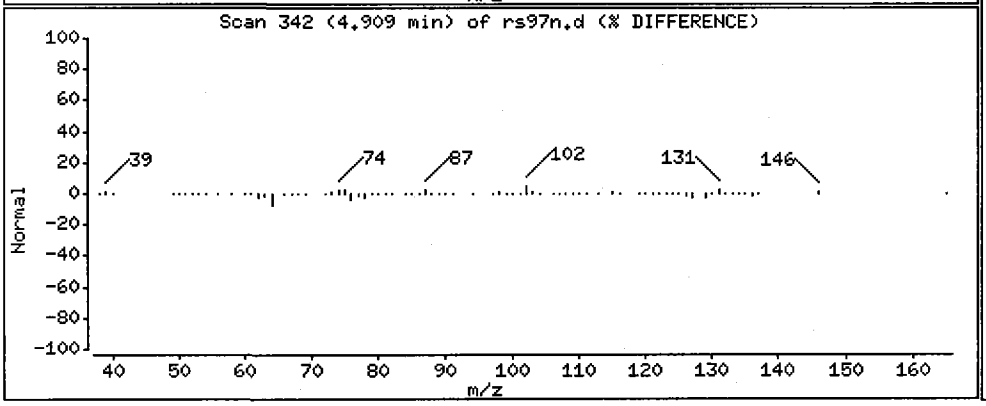
28 Naphthalene

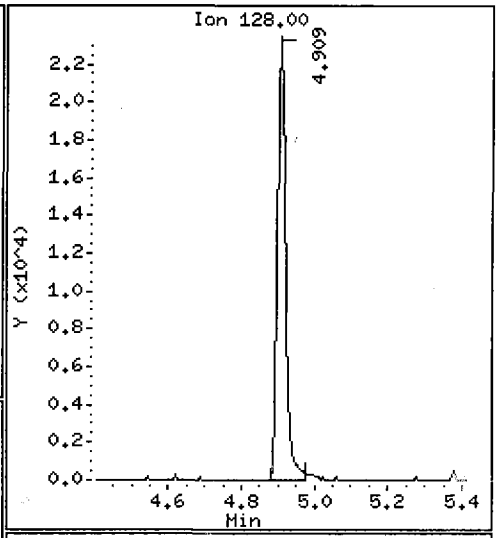
Concentration: 8394 ug/kg

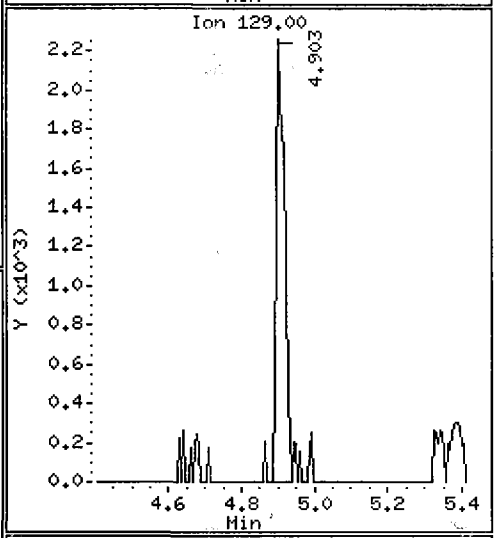


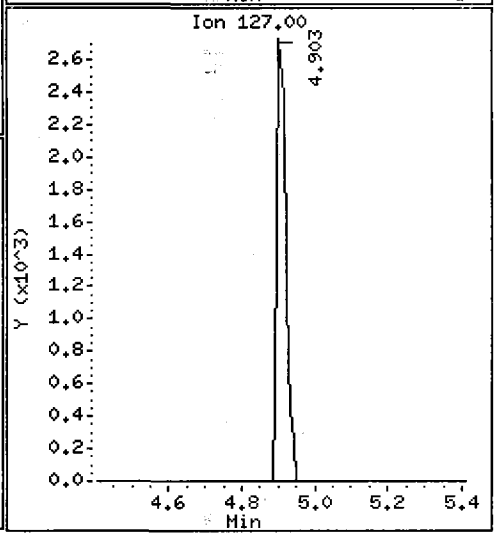












Data File: /chem1/nt12.i/20101110.b/rs97n.d

Date : 10-NOV-2010 17:58

Client ID: DGS-07-7.98.4-10101

Instrument: nt12.i

Sample Info: RS97N

Volume Injected (uL): 1.0

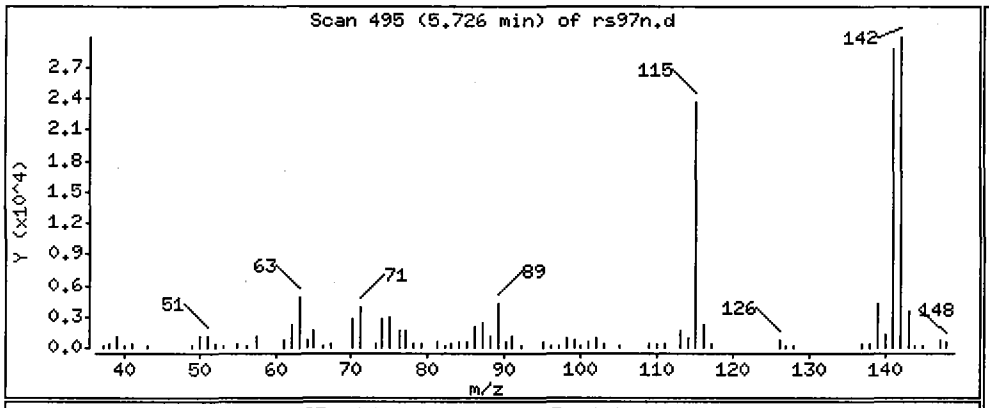
Operator: VTS

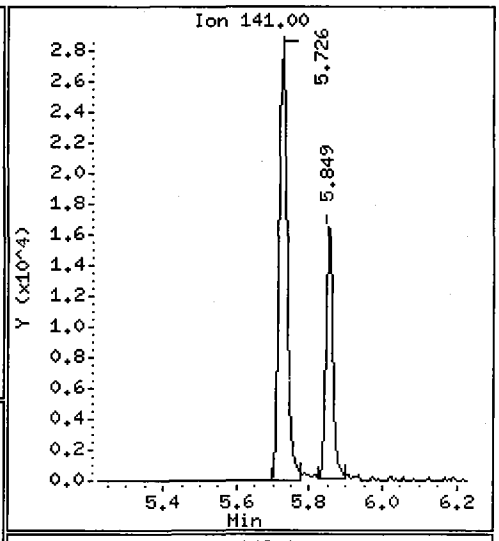
Column phase: ZB-5msi

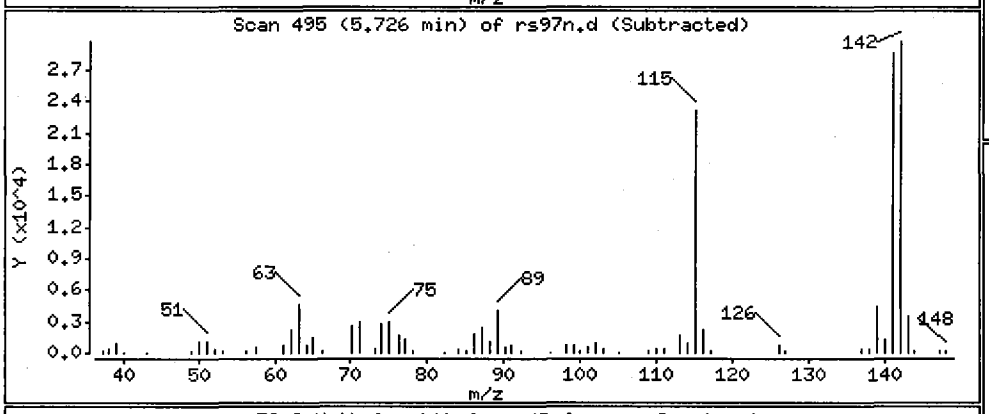
Column diameter: 0.32

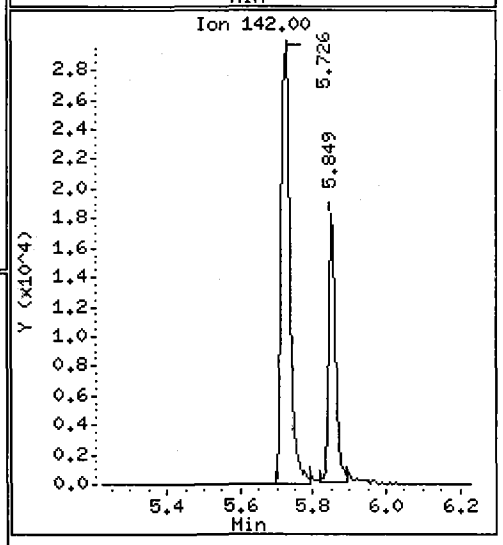
32 2-Methylnaphthalene

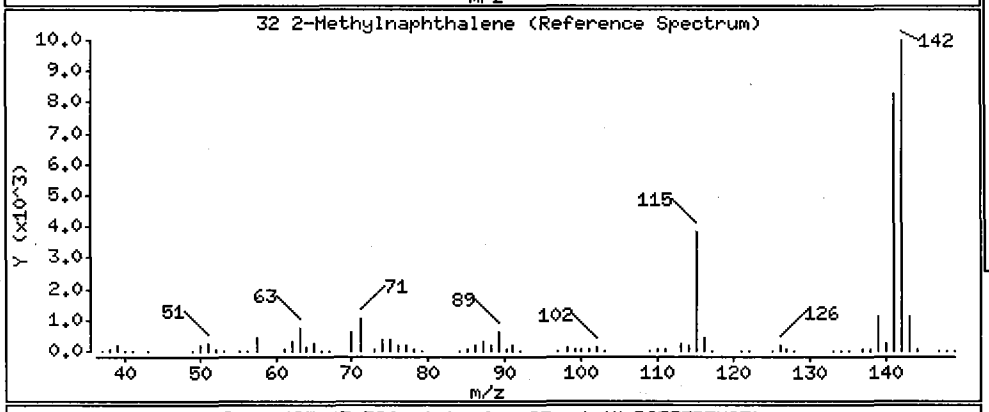
Concentration: 18420 ug/kg

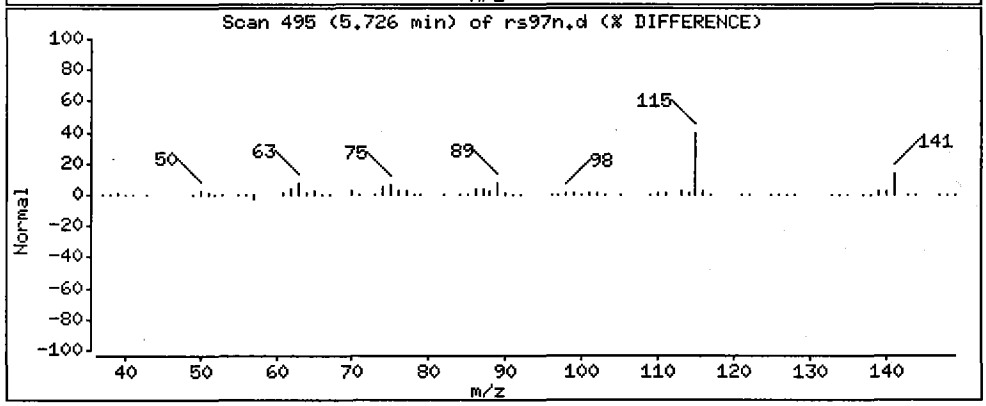












Data File: /chem1/nt12.i/20101110.b/rs97n.d

Date : 10-NOV-2010 17:58

Client ID: DGS-07-7.98.4-10101

Instrument: nt12.i

Sample Info: RS97N

Volume Injected (uL): 1.0

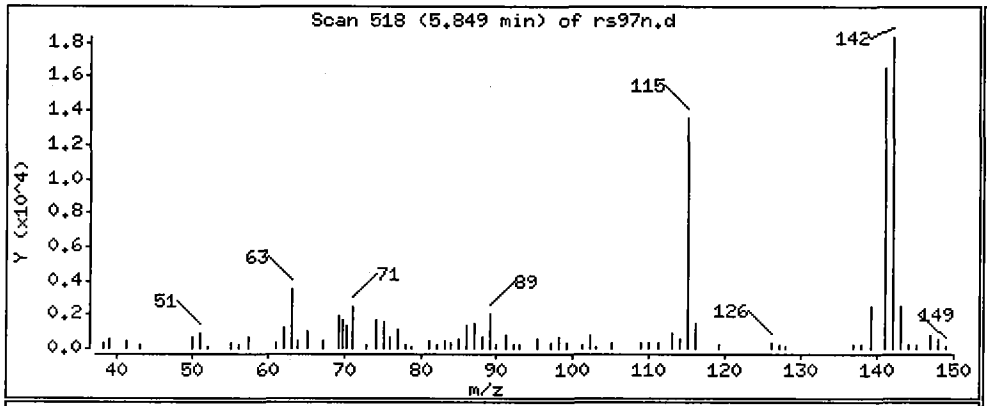
Operator: VTS

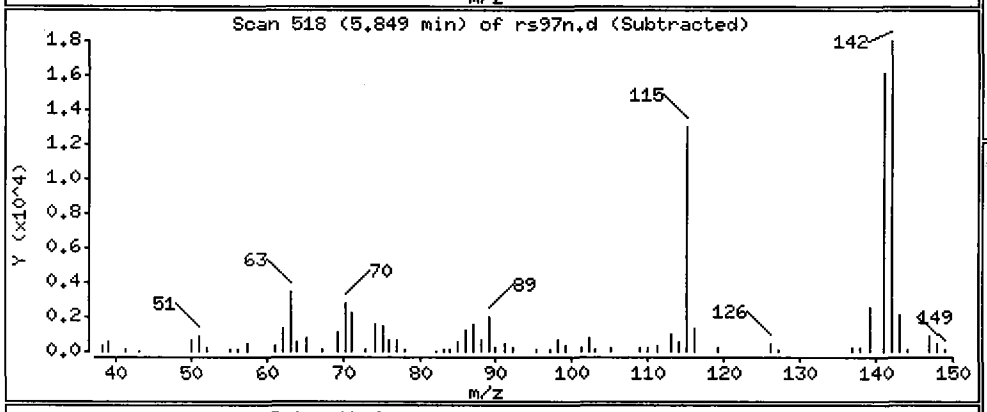
Column phase: ZB-5msi

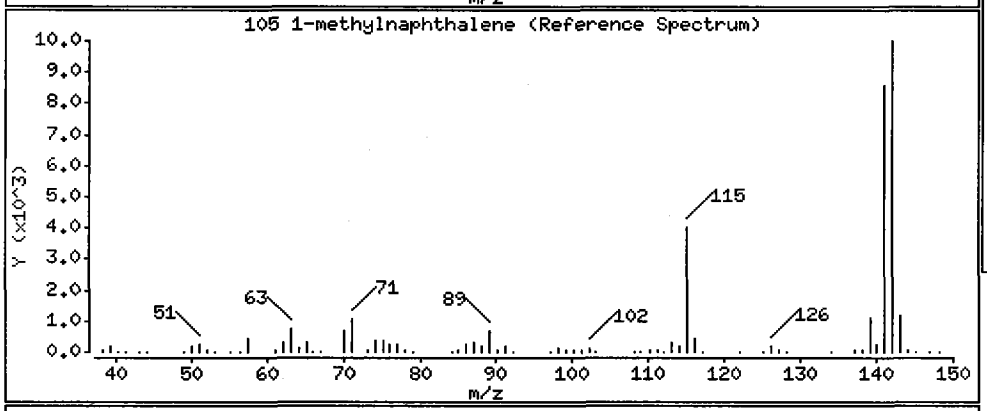
Column diameter: 0.32

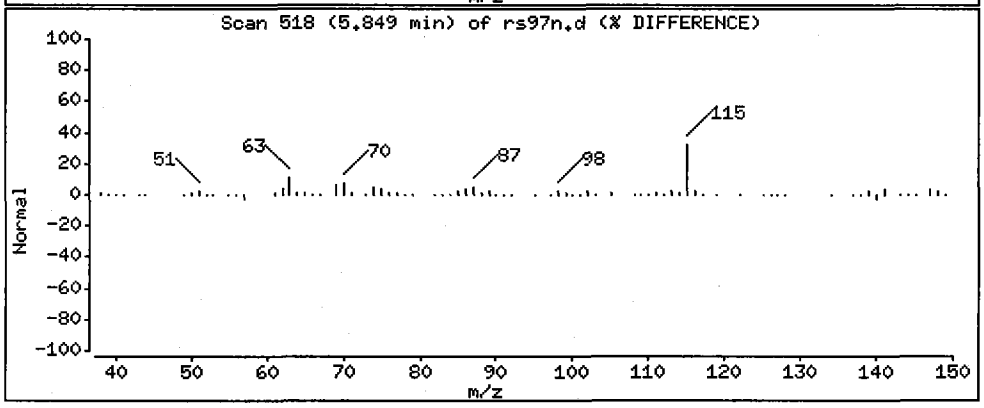
105 1-methylnaphthalene

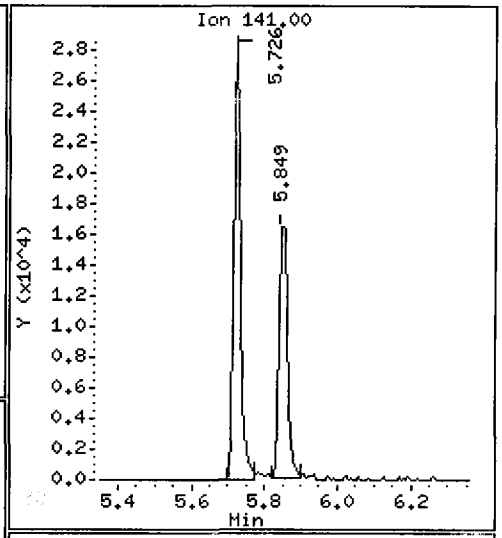
Concentration: 10640 ug/kg

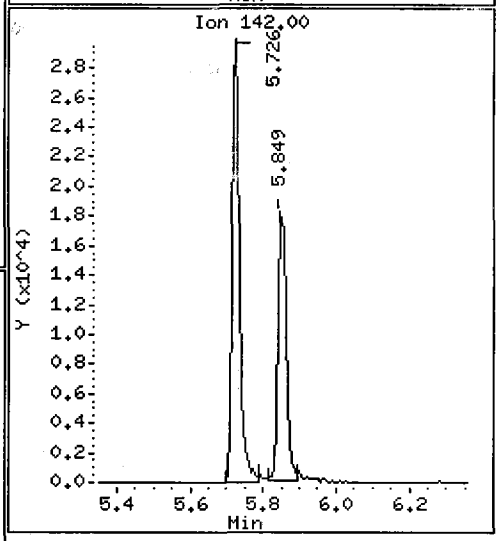












Data File: /chem1/nt12.i/20101110.b/rs97n.d

Date : 10-NOV-2010 17:58

Client ID: DGS-07-7.98.4-10101

Instrument: nt12.i

Sample Info: RS97N

Volume Injected (uL): 1.0

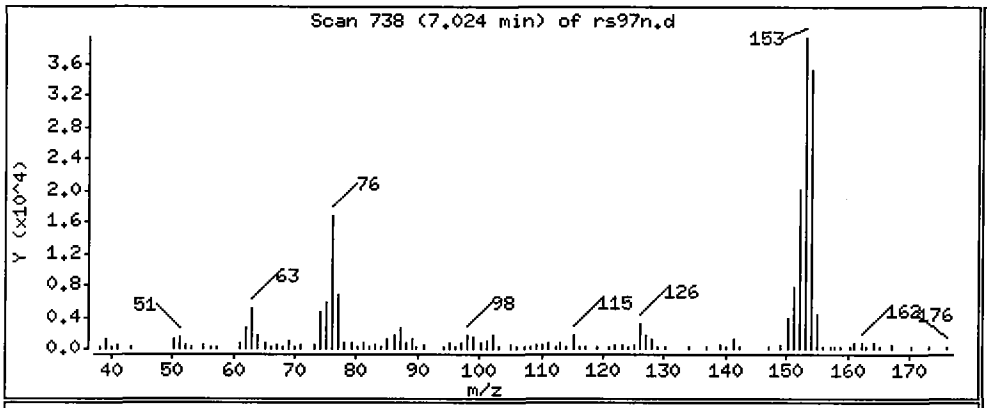
Operator: VTS

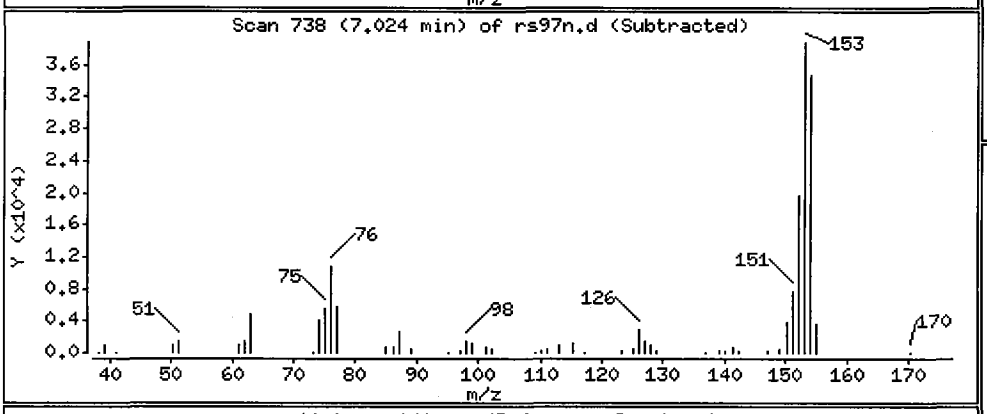
Column phase: ZB-5msi

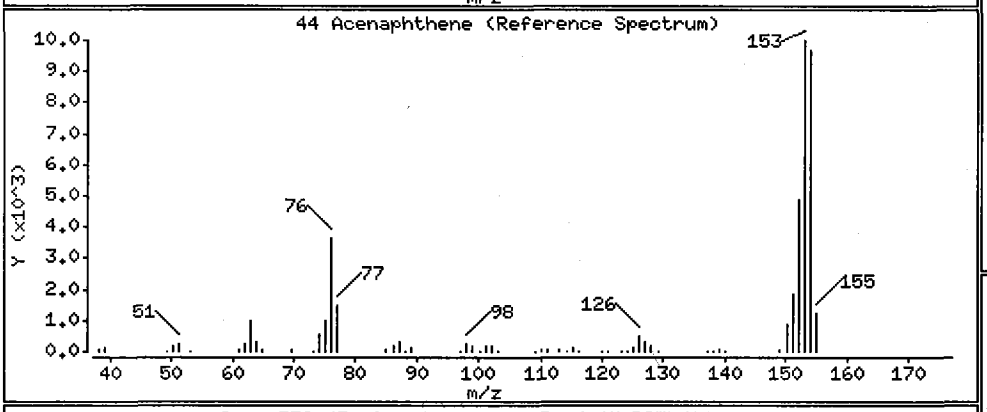
Column diameter: 0.32

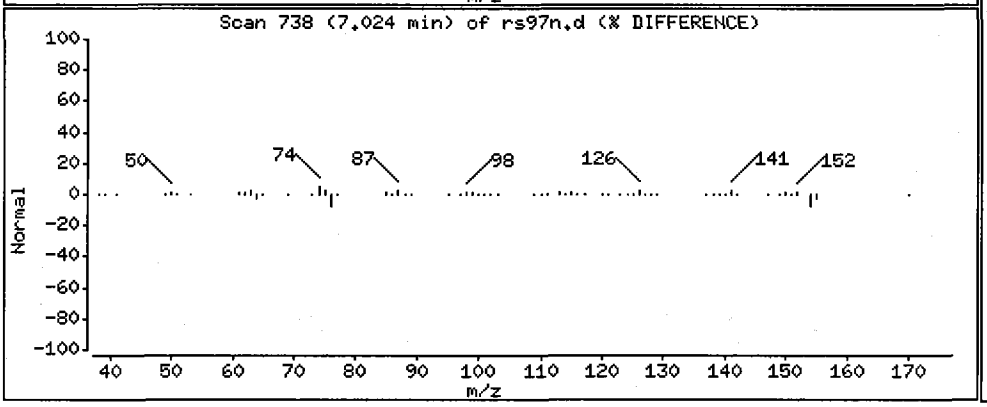
44 Acenaphthene

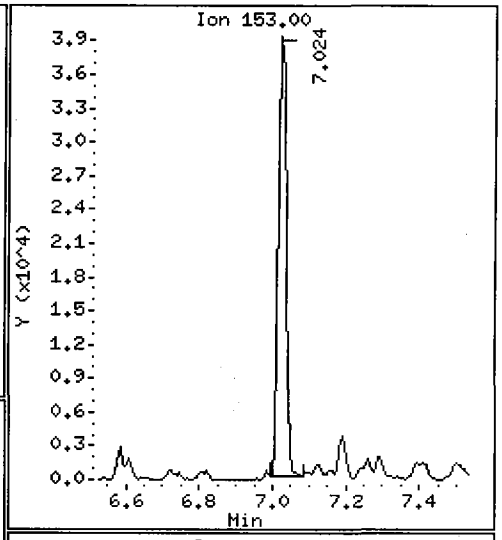
Concentration: 18670 ug/kg

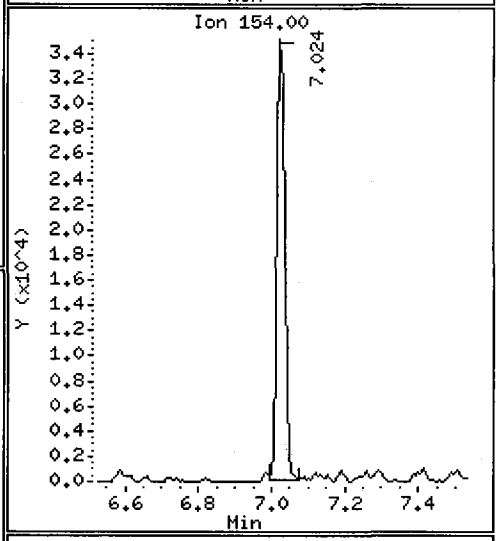


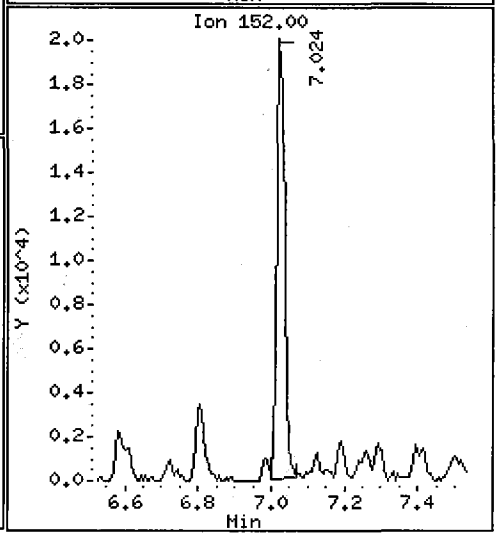












Data File: /chem1/nt12.i/20101110.b/rs97n.d

Date : 10-NOV-2010 17:58

Client ID: DGS-07-7.98.4-10101

Instrument: nt12.i

Sample Info: RS97N

Volume Injected (uL): 1.0

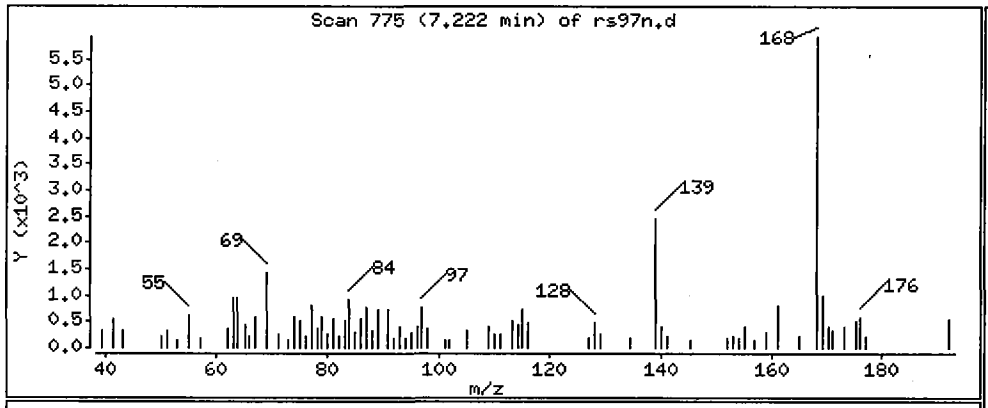
Operator: VTS

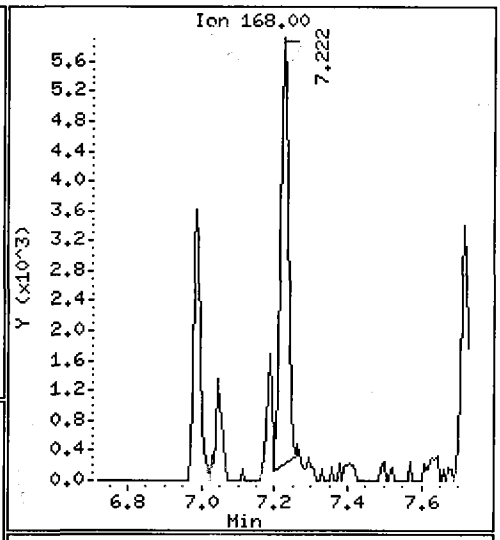
Column phase: ZB-5msi

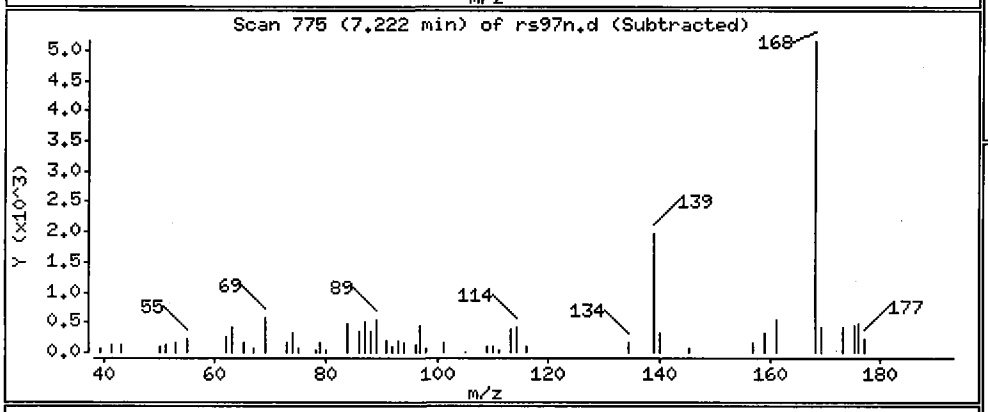
Column diameter: 0.32

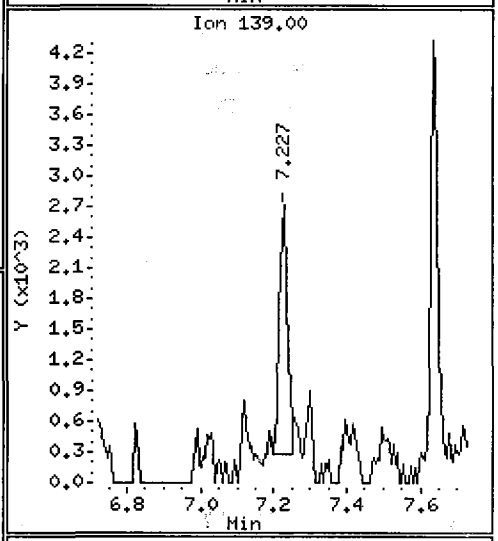
46 Dibenzofuran

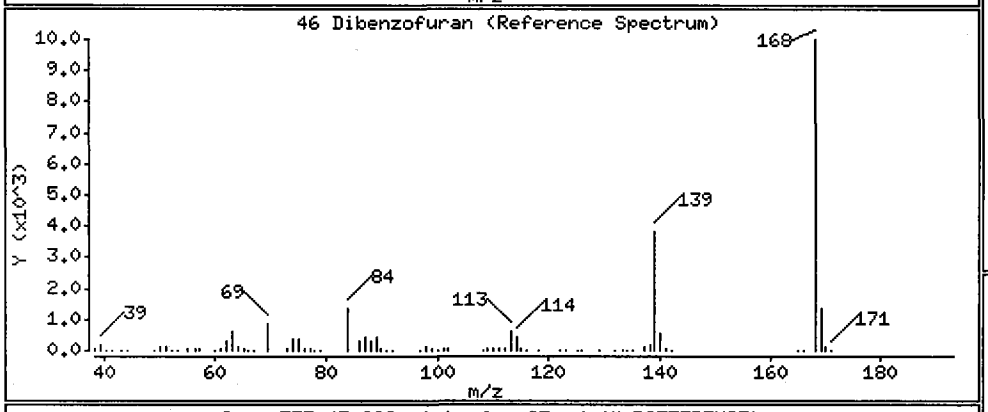
Concentration: 1839 ug/kg

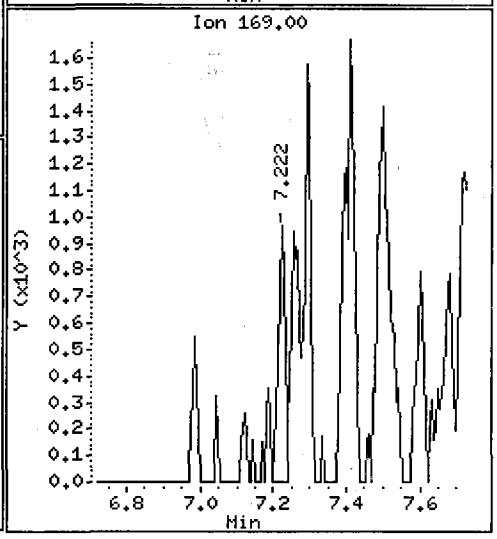


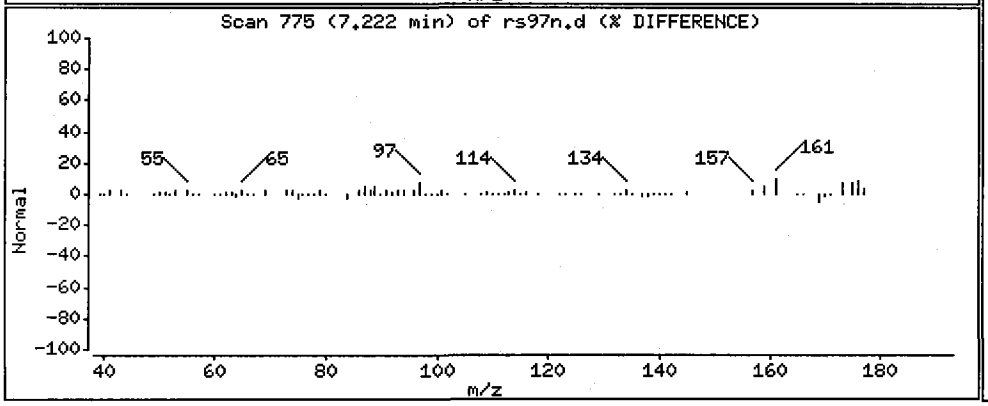












Data File: /chem1/nt12.i/20101110.b/rs97n.d

Date : 10-NOV-2010 17:58

Client ID: DGS-07-7.98.4-10101

Instrument: nt12.i

Sample Info: RS97N

Volume Injected (uL): 1.0

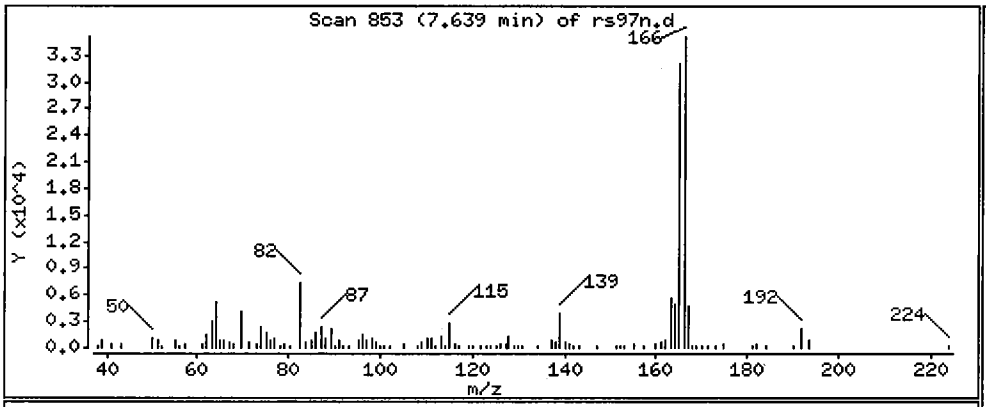
Operator: VTS

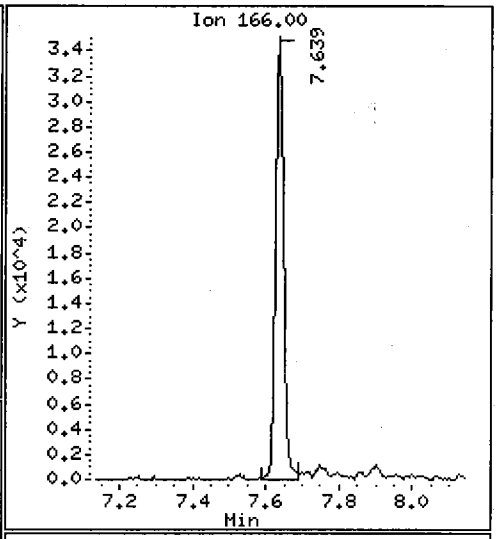
Column phase: ZB-5msi

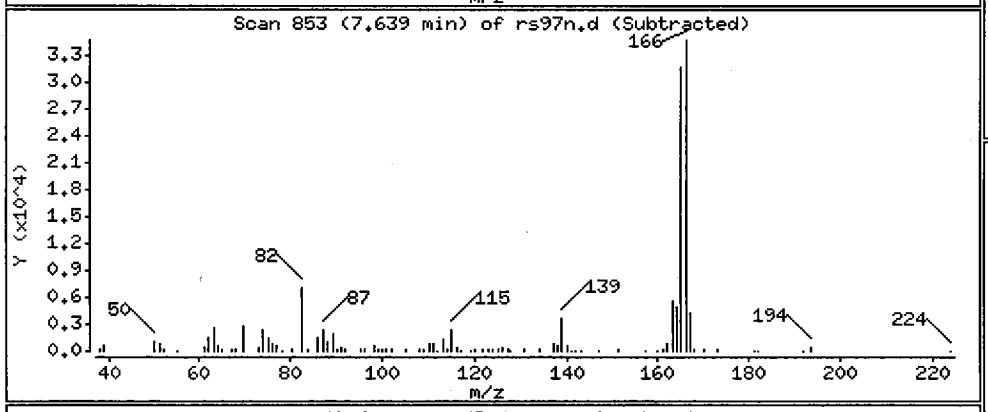
Column diameter: 0.32

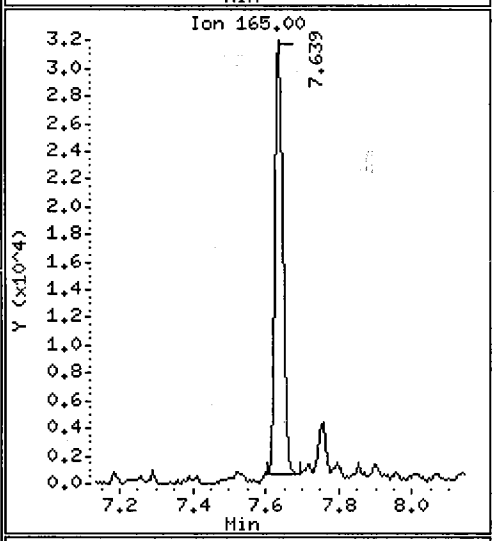
49 Fluorene

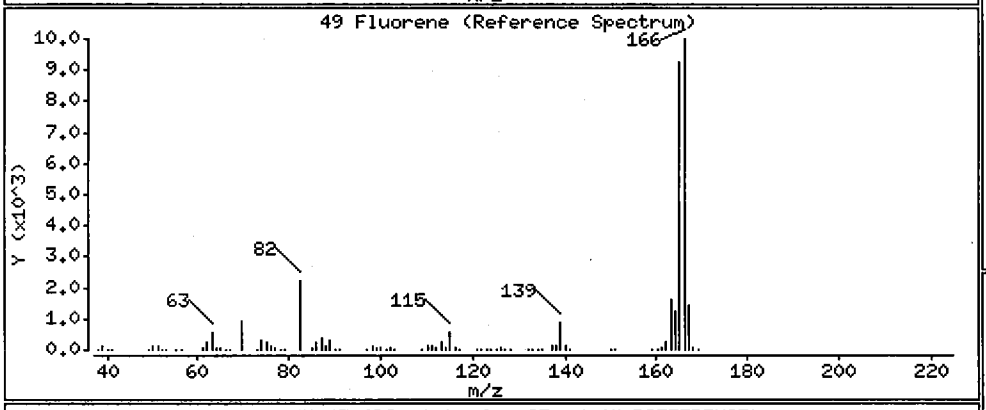
Concentration: 15510 ug/kg

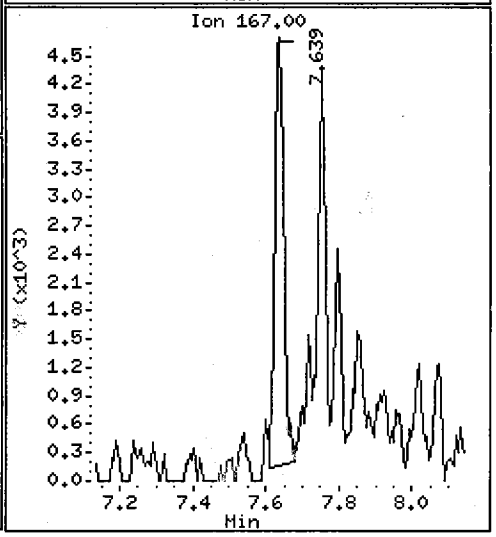


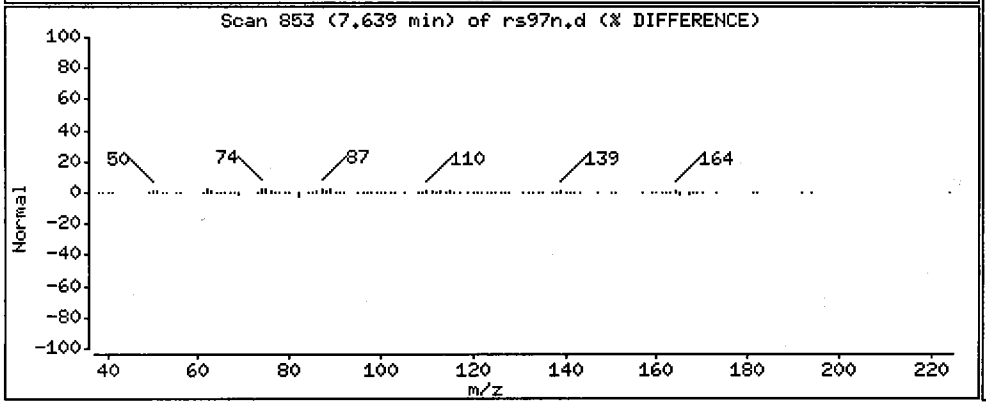












Data File: /chem1/nt12.i/20101110.b/rs97n.d

Date : 10-NOV-2010 17:58

Client ID: DGS-07-7.98.4-10101

Instrument: nt12.i

Sample Info: RS97N

Volume Injected (uL): 1.0

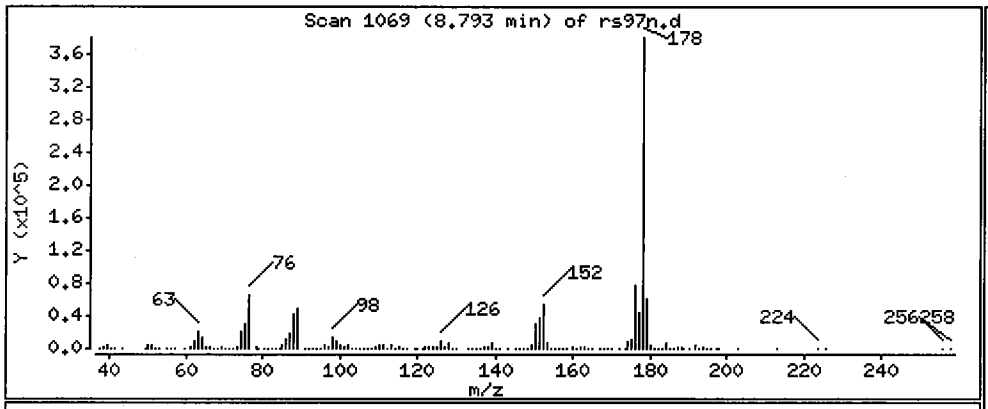
Operator: VTS

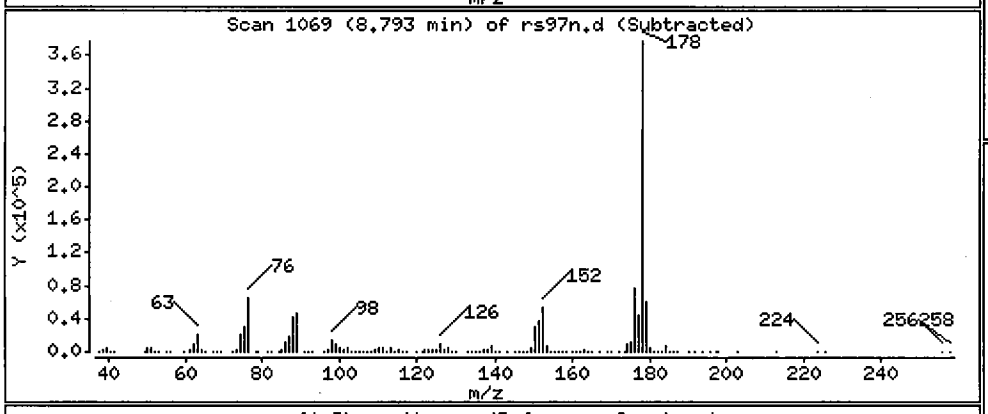
Column phase: ZB-5msi

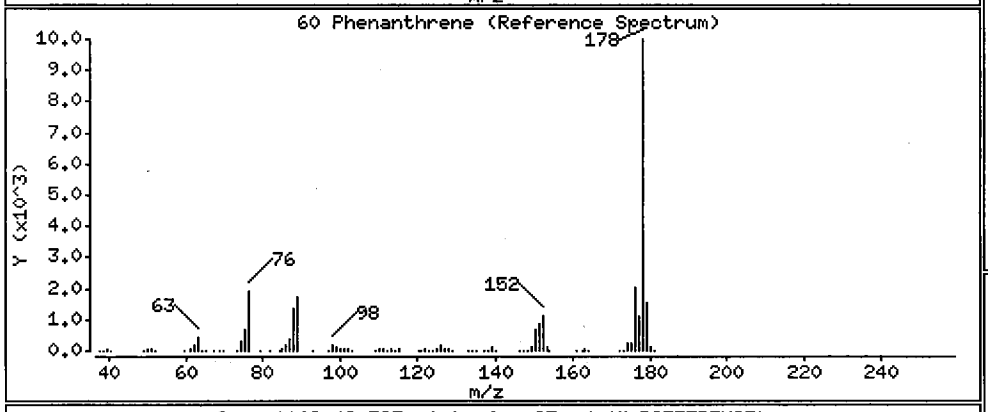
Column diameter: 0.32

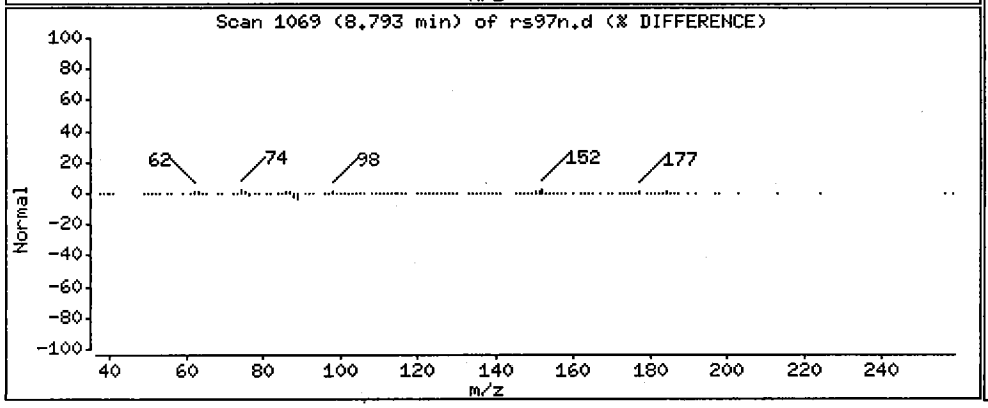
60 Phenanthrene

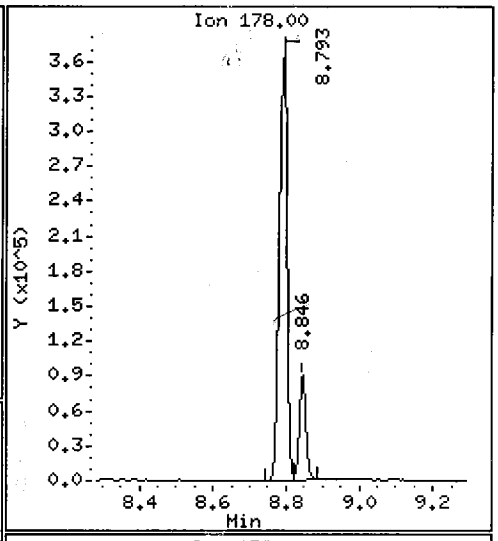
Concentration: 113700 ug/kg

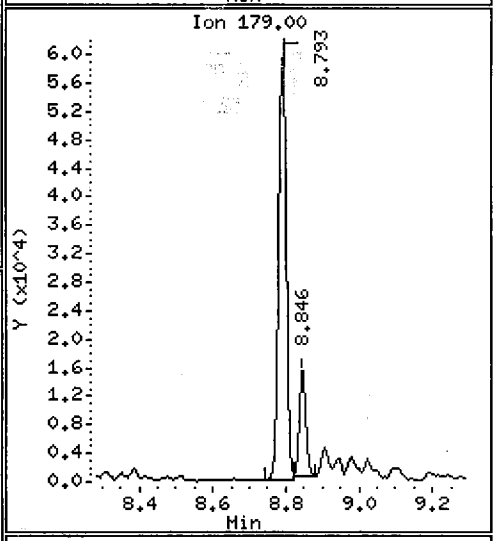


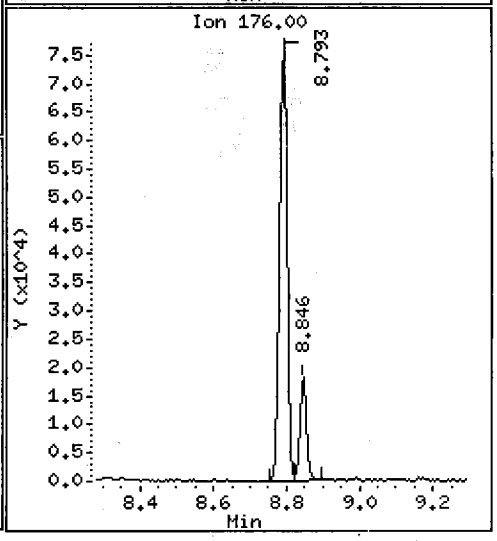












Data File: /chem1/nt12.i/20101110.b/rs97n.d

Date : 10-NOV-2010 17:58

Client ID: DGS-07-7.98.4-10101

Instrument: nt12.i

Sample Info: RS97N

Volume Injected (uL): 1.0

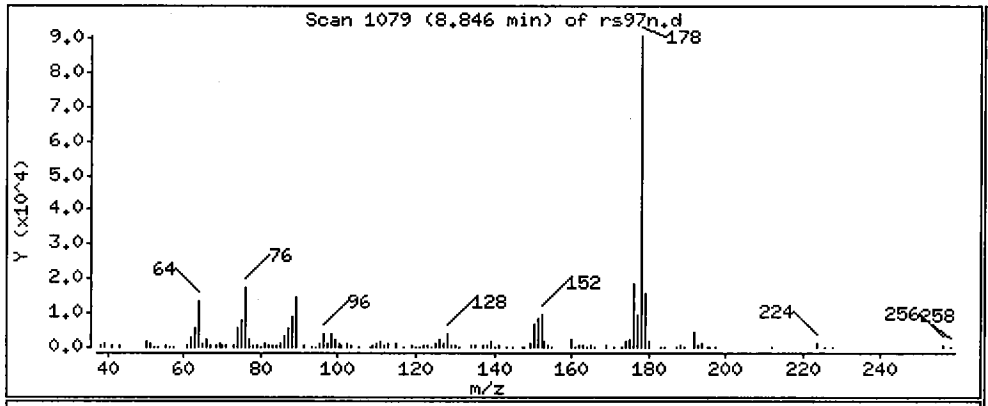
Operator: VTS

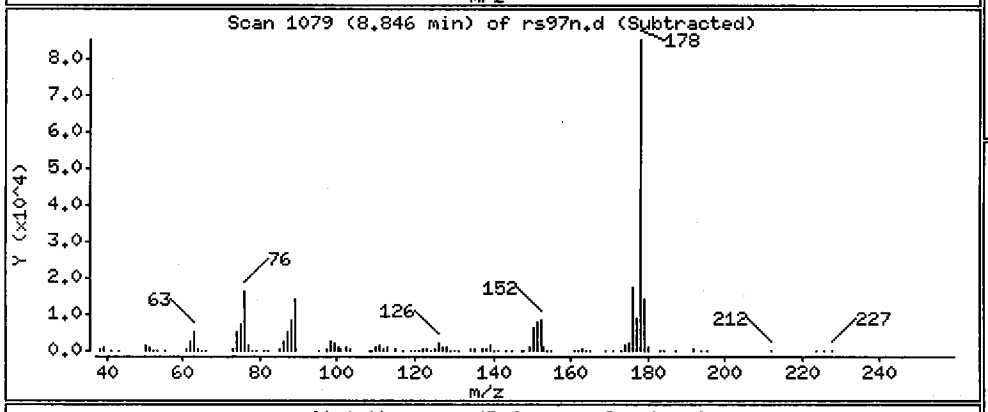
Column phase: ZB-5msi

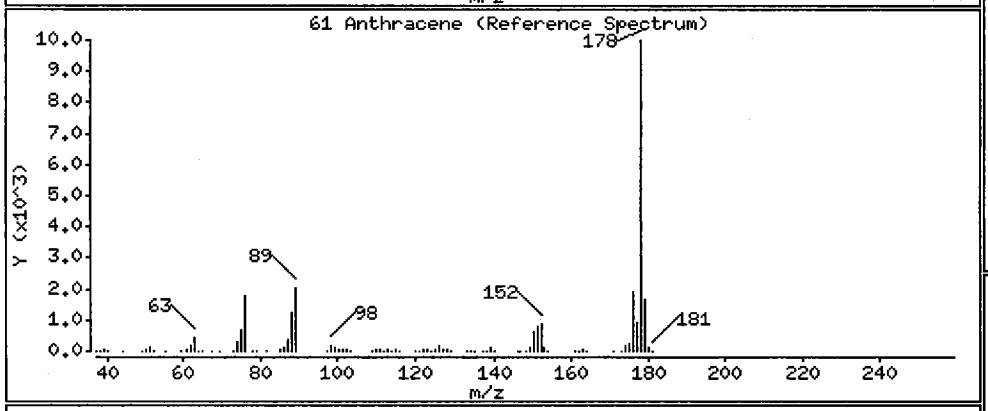
Column diameter: 0.32

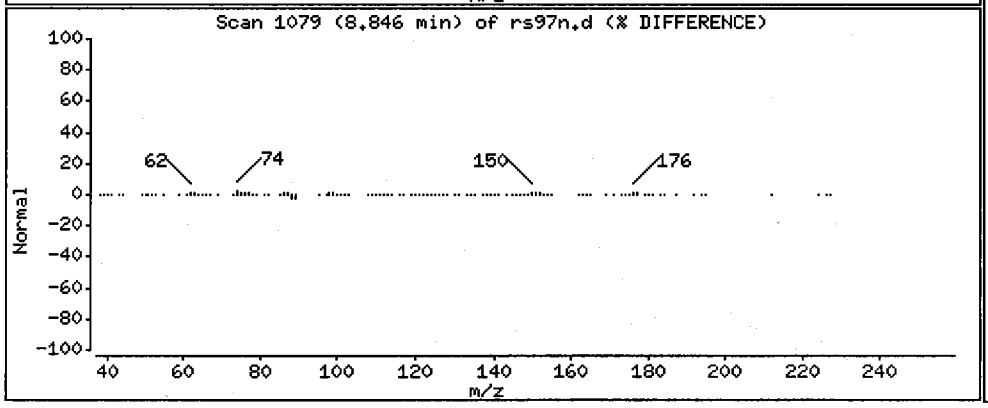
61 Anthracene

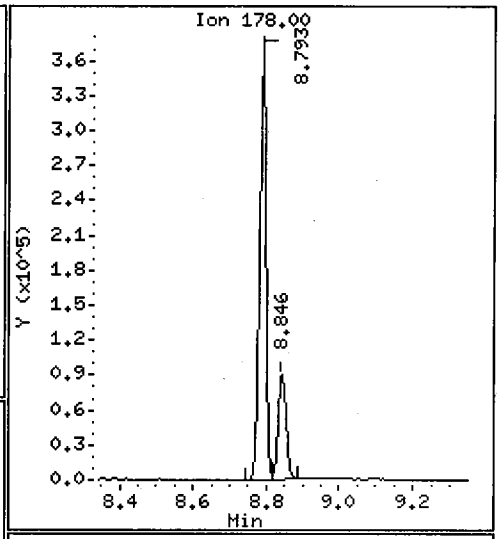
Concentration: 28460 ug/kg

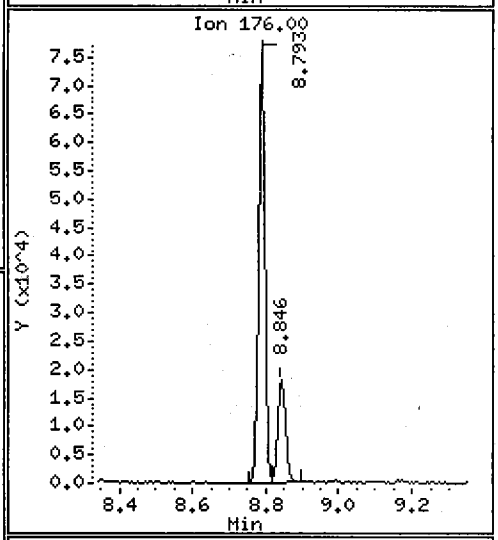


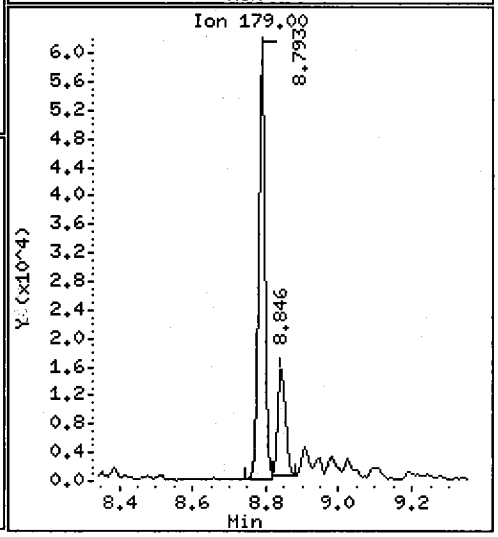












Data File: /chem1/nt12.i/20101110.b/rs97n.d

Date : 10-NOV-2010 17:58

Client ID: DGS-07-7.98.4-10101

Instrument: nt12.i

Sample Info: RS97N

Volume Injected (uL): 1.0

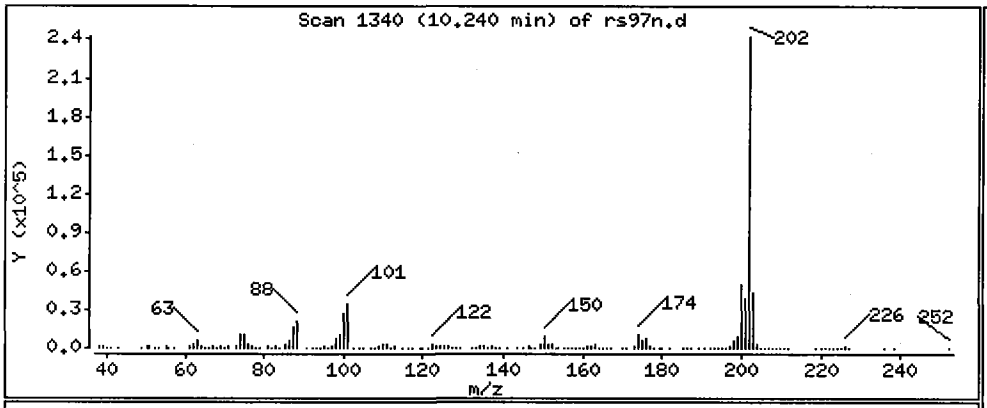
Operator: VTS

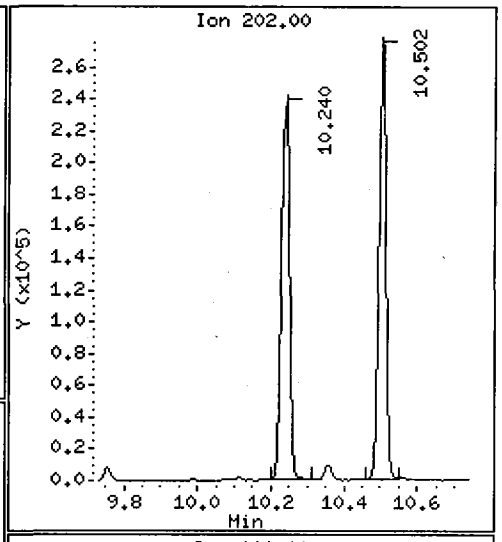
Column phase: ZB-5msi

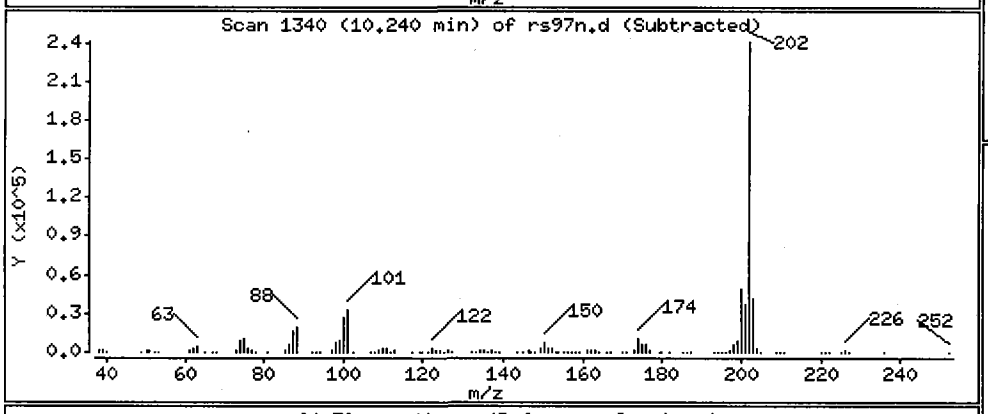
Column diameter: 0.32

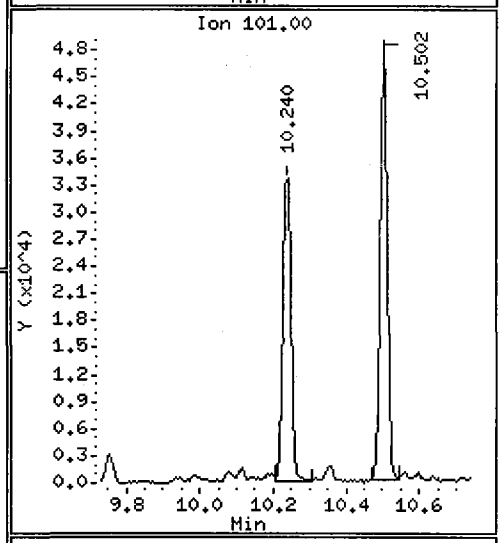
64 Fluoranthene

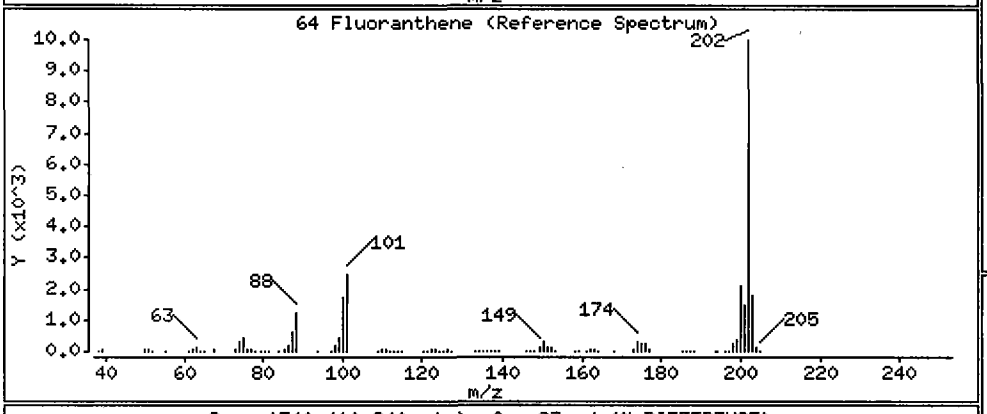
Concentration: 64060 ug/kg

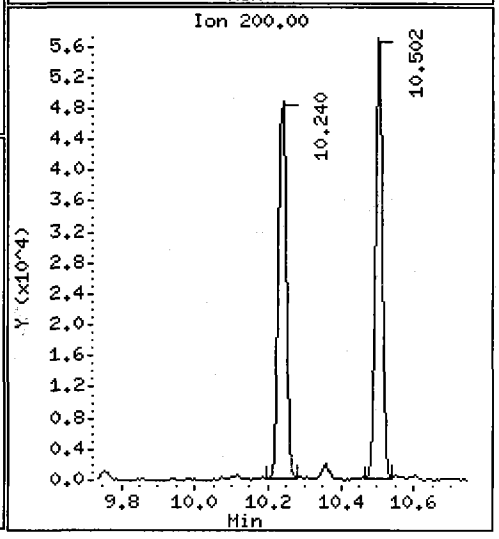


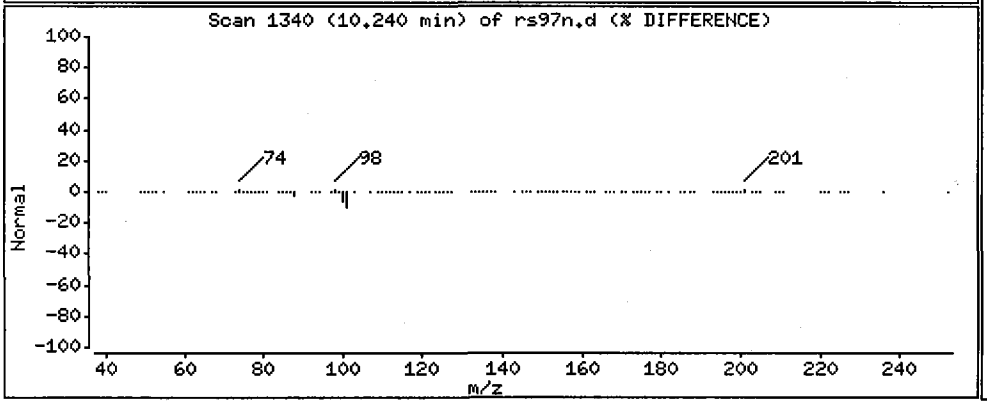












Data File: /chem1/nt12.i/20101110.b/rs97n.d

Date : 10-NOV-2010 17:58

Client ID: DGS-07-7.98.4-10101

Instrument: nt12.i

Sample Info: RS97N

Volume Injected (uL): 1.0

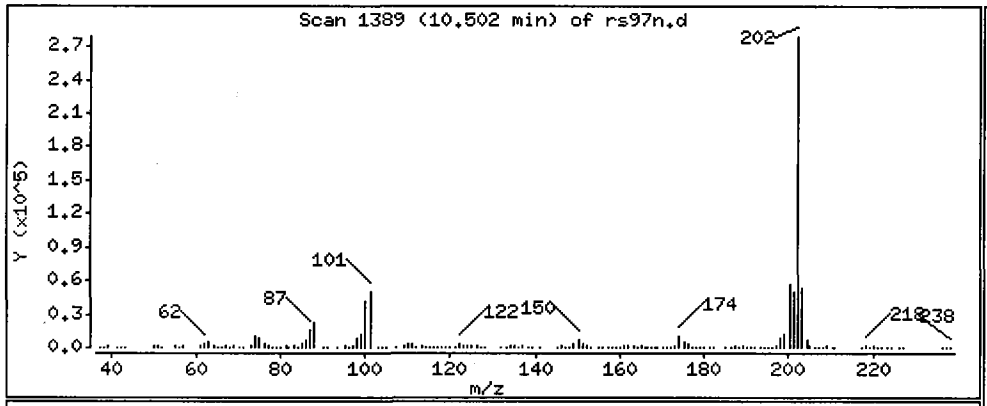
Operator: VTS

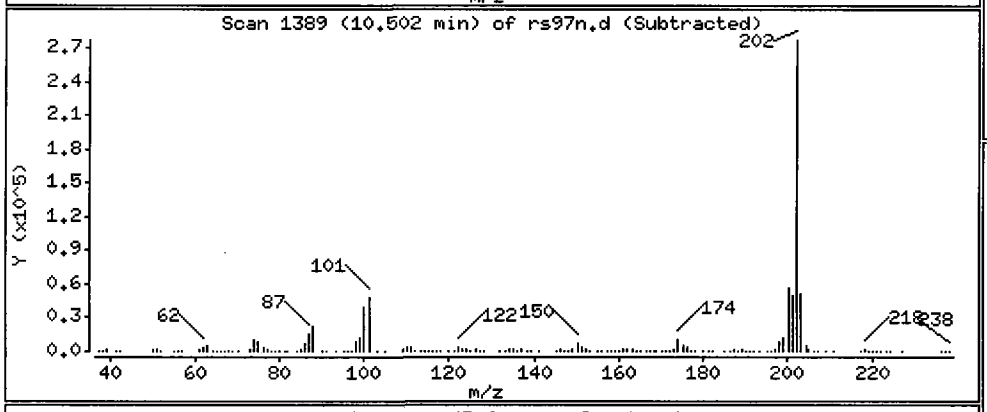
Column phase: ZB-5msi

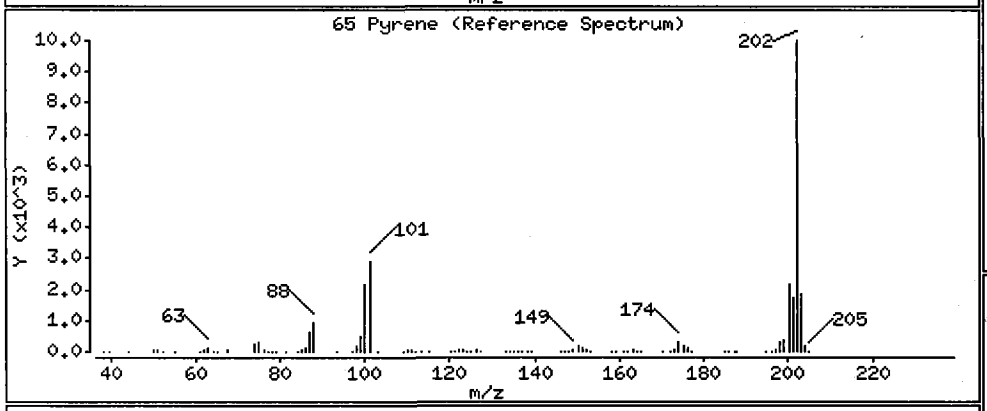
Column diameter: 0.32

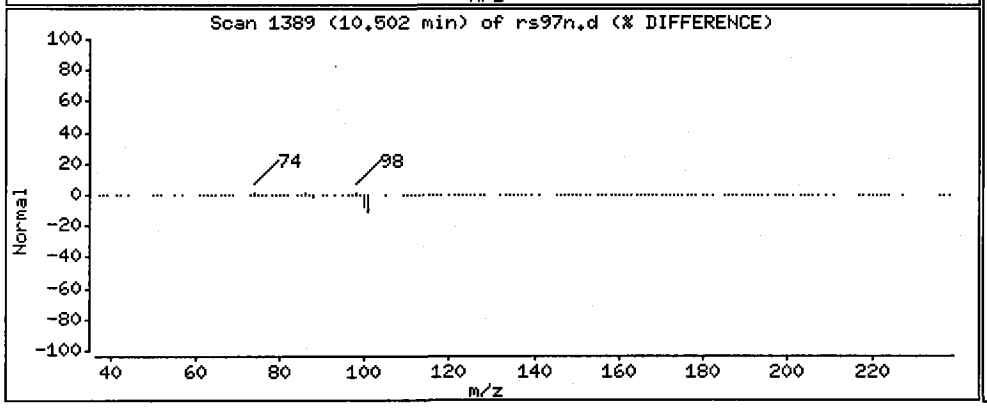
65 Pyrene

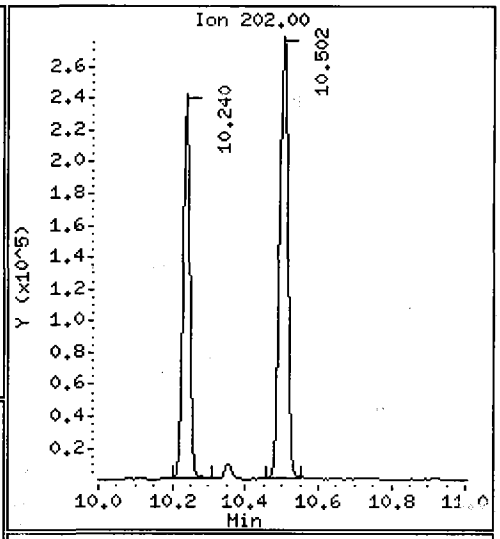
Concentration: 78040 ug/kg

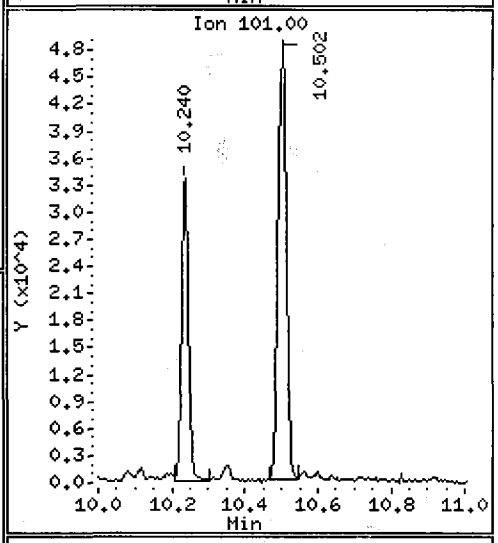


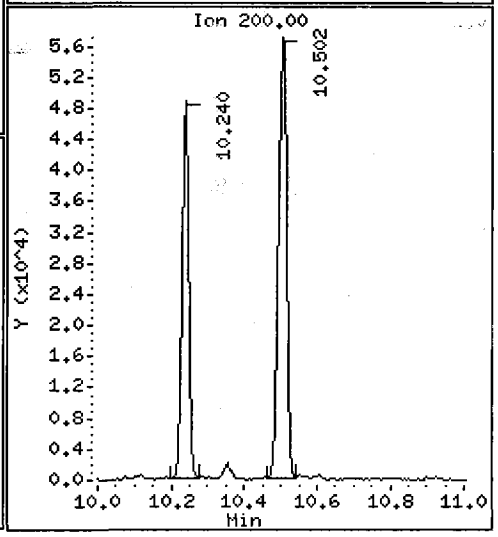












Data File: /chem1/nt12.i/20101110.b/rs97n.d

Date : 10-NOV-2010 17:58

Client ID: DGS-07-7.98.4-10101

Instrument: nt12.i

Sample Info: RS97N

Volume Injected (uL): 1.0

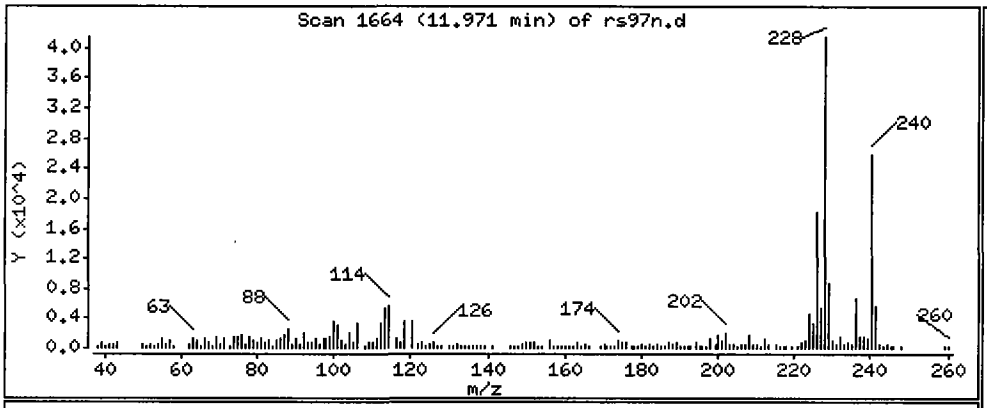
Operator: VTS

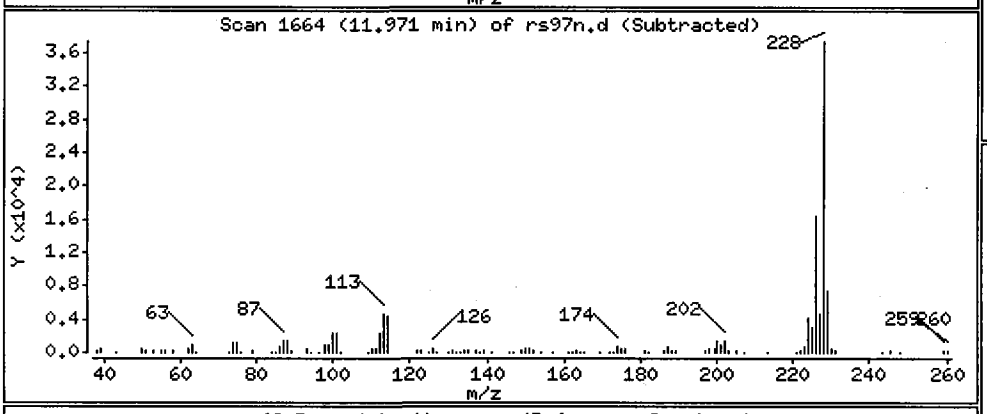
Column phase: ZB-5msi

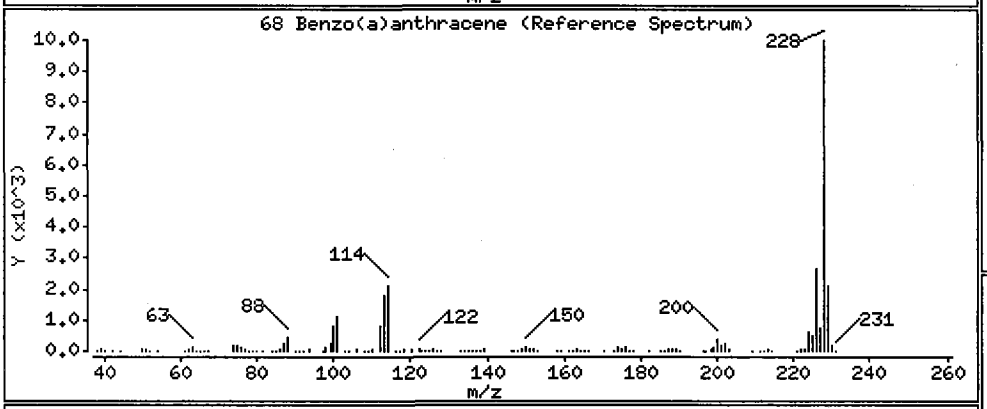
Column diameter: 0.32

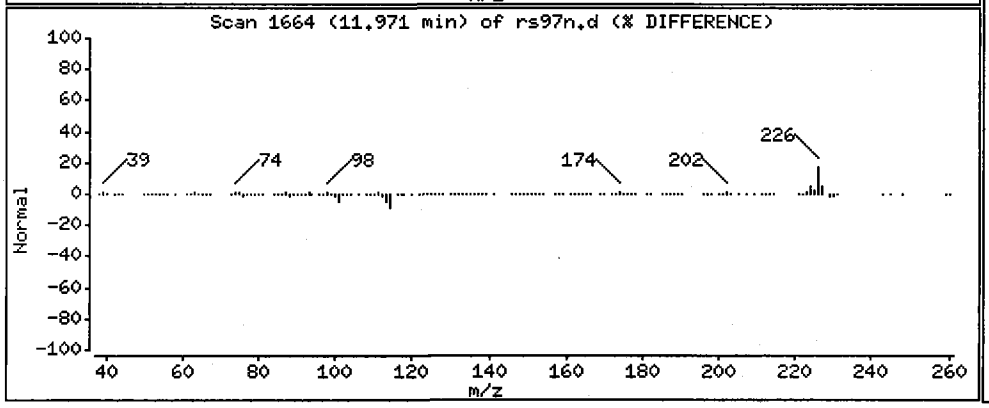
68 Benzo(a)anthracene

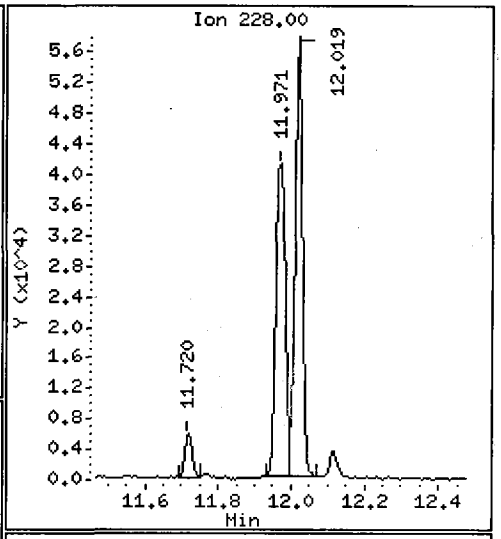
Concentration: 16660 ug/kg

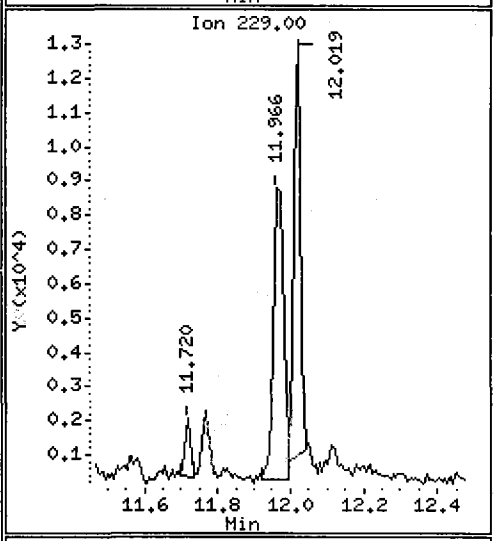


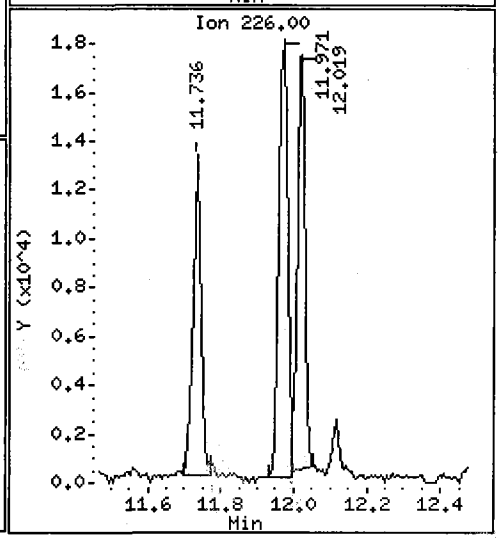












Data File: /chem1/nt12.i/20101110.b/rs97n.d

Date : 10-NOV-2010 17:58

Client ID: DGS-07-7.98.4-10101

Instrument: nt12.i

Sample Info: RS97N

Volume Injected (uL): 1.0

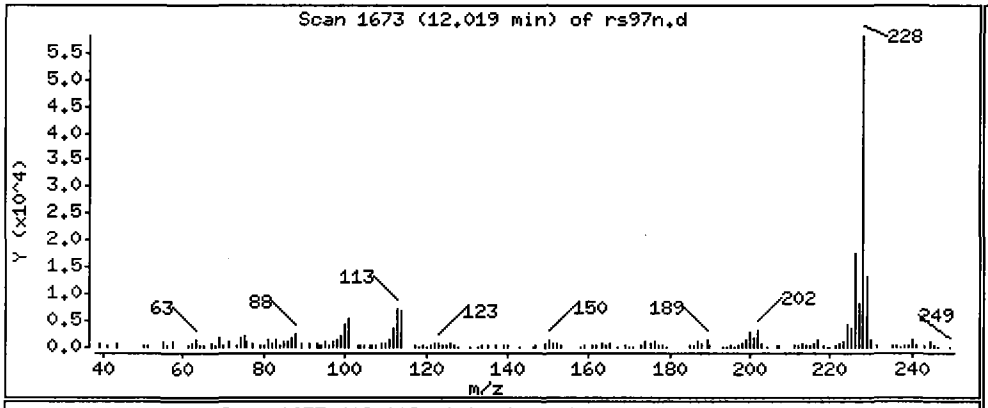
Operator: VTS

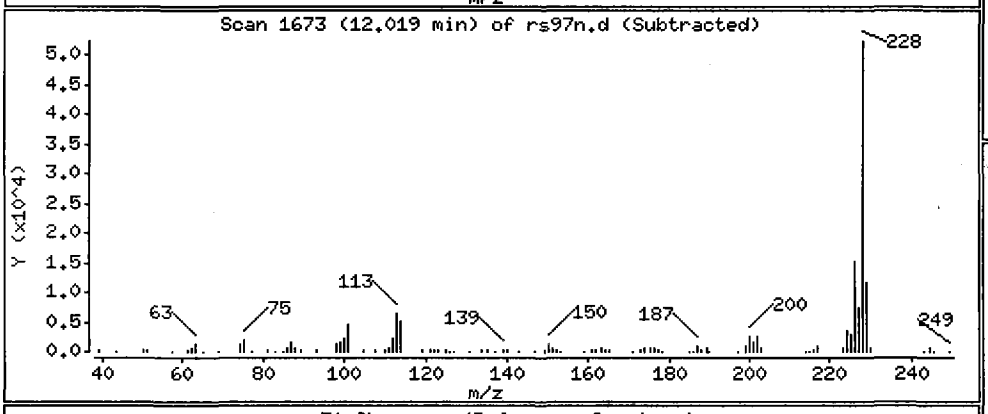
Column phase: ZB-5msi

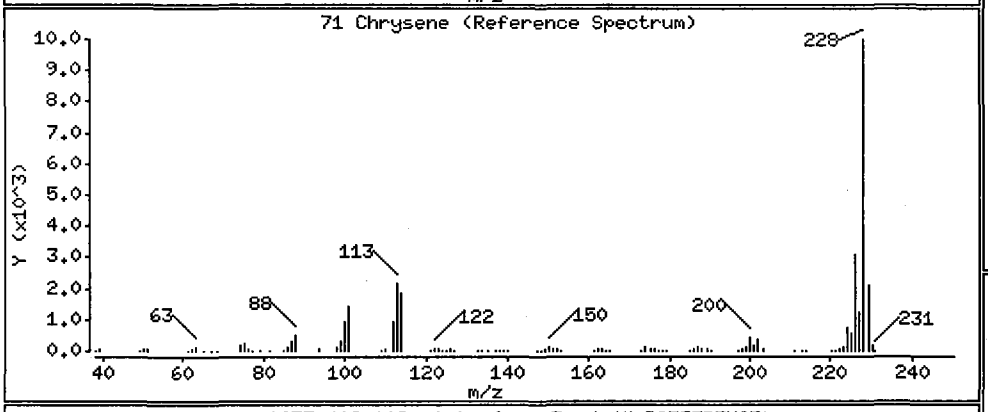
Column diameter: 0.32

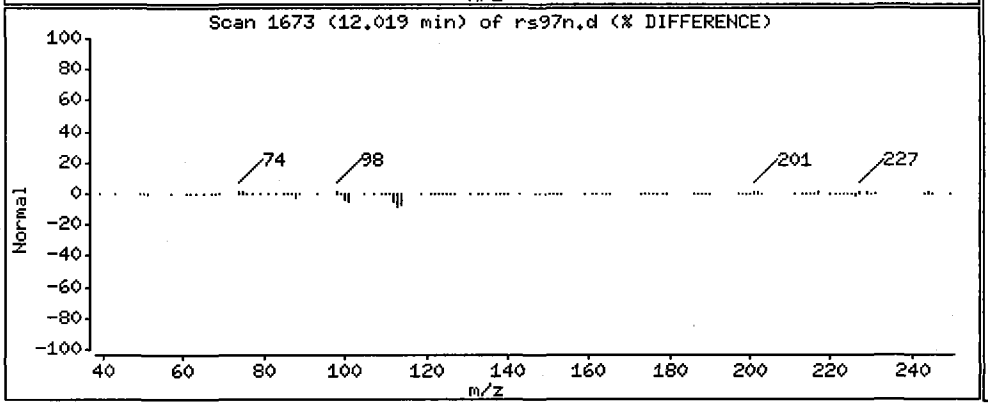
71 Chrysene

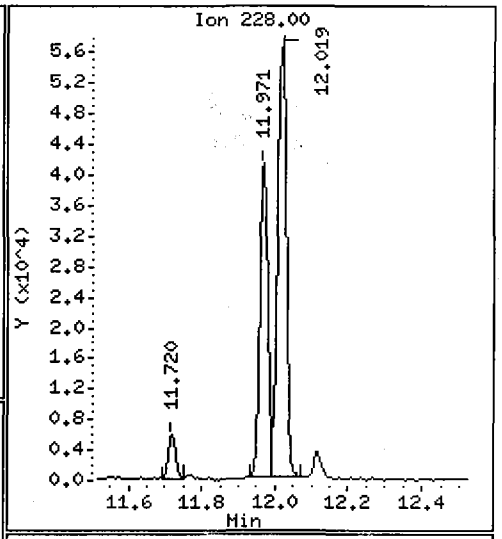
Concentration: 22410 ug/kg

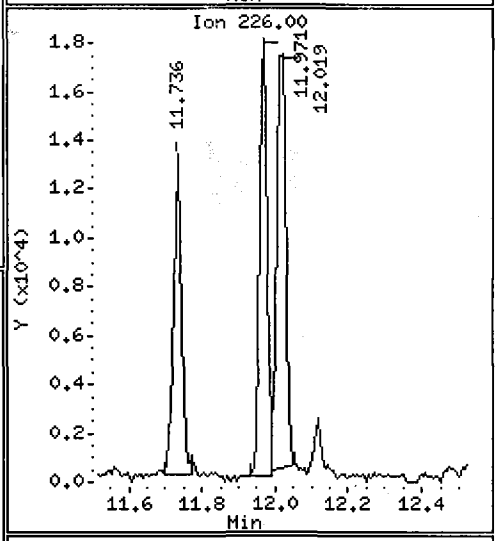


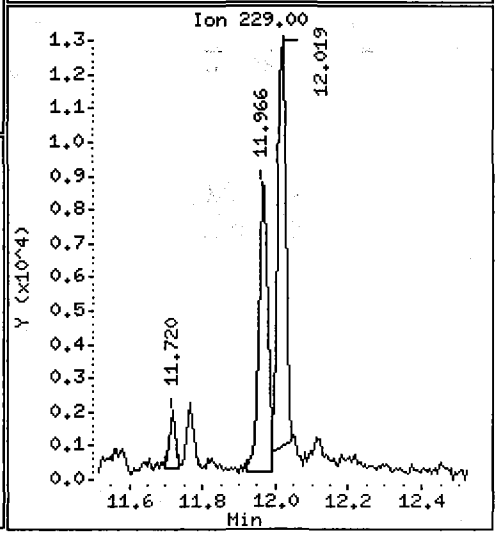












Data File: /chem1/nt12.i/20101110.b/rs97n.d

Date : 10-NOV-2010 17:58

Client ID: DGS-07-7.98.4-10101

Instrument: nt12.i

Sample Info: RS97N

Volume Injected (uL): 1.0

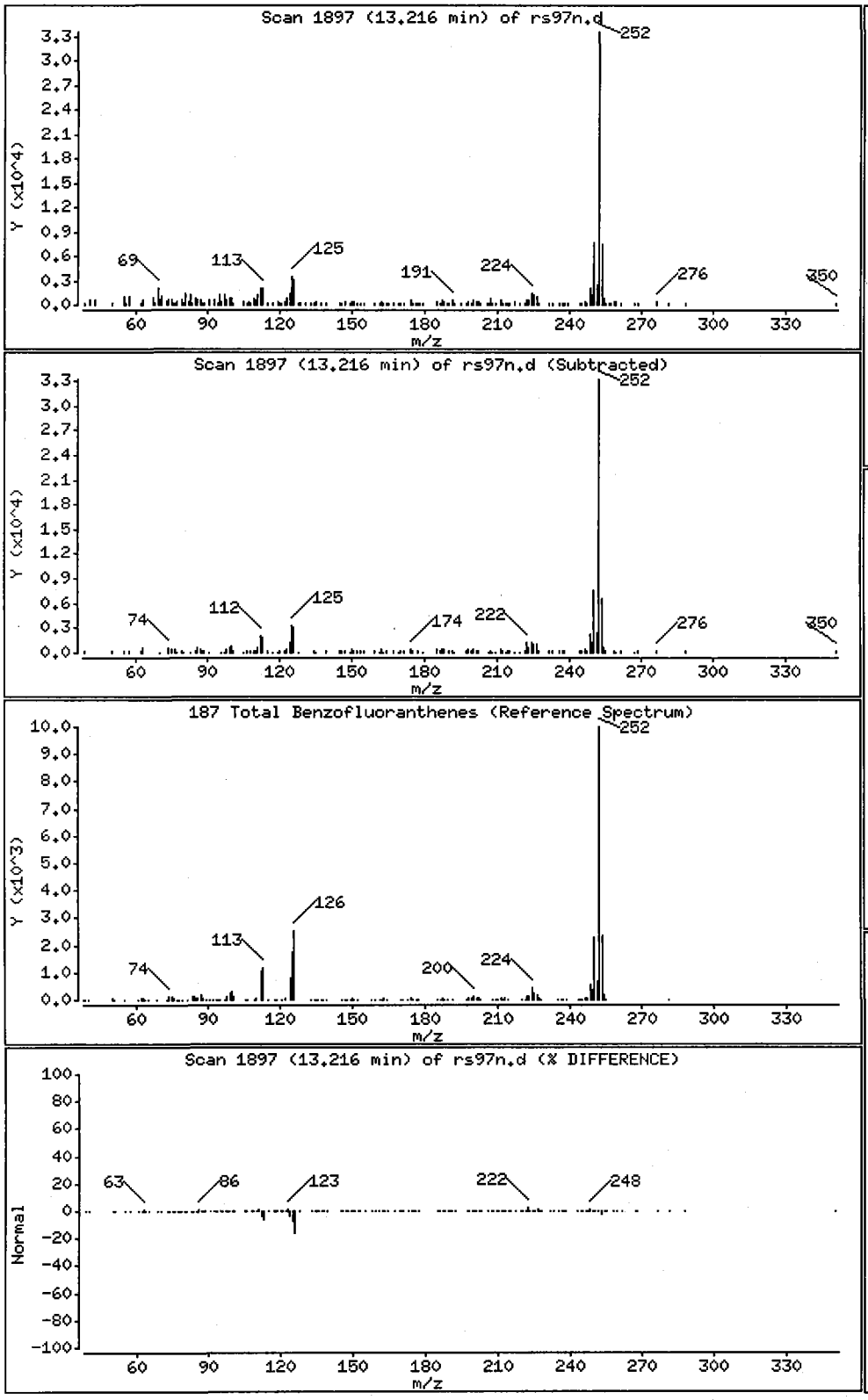
Operator: VTS

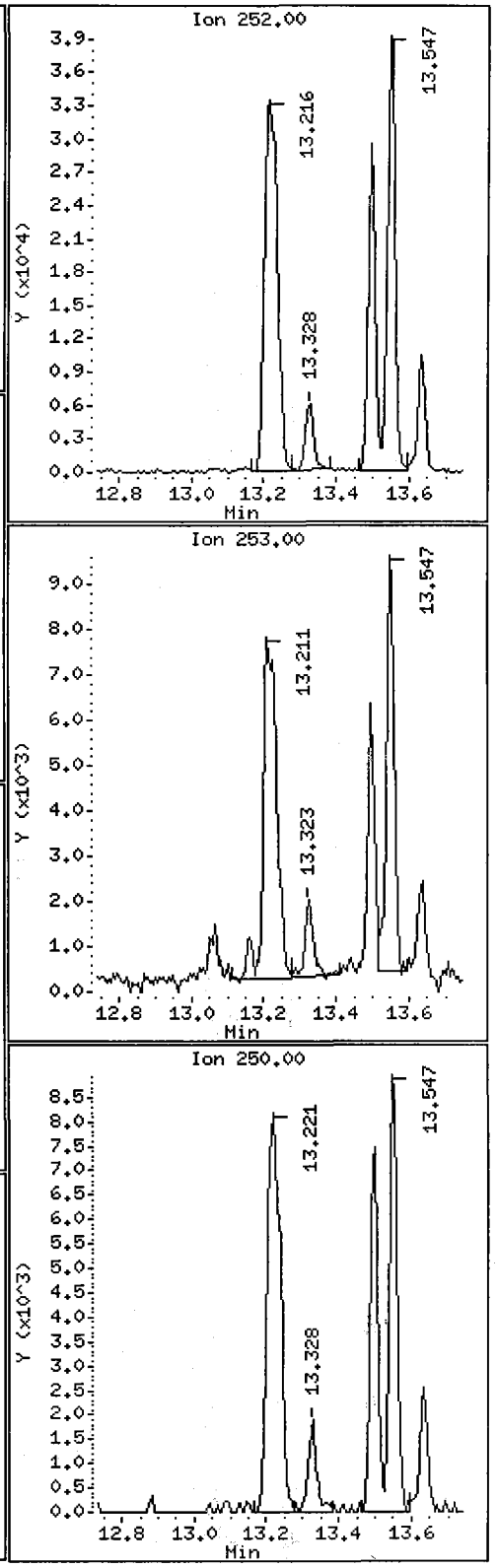
Column phase: ZB-5msi

Column diameter: 0.32

187 Total Benzofluoranthenes

Concentration: 25790 ug/kg





Data File: /chem1/nt12.i/20101110.b/rs97n.d

Date : 10-NOV-2010 17:58

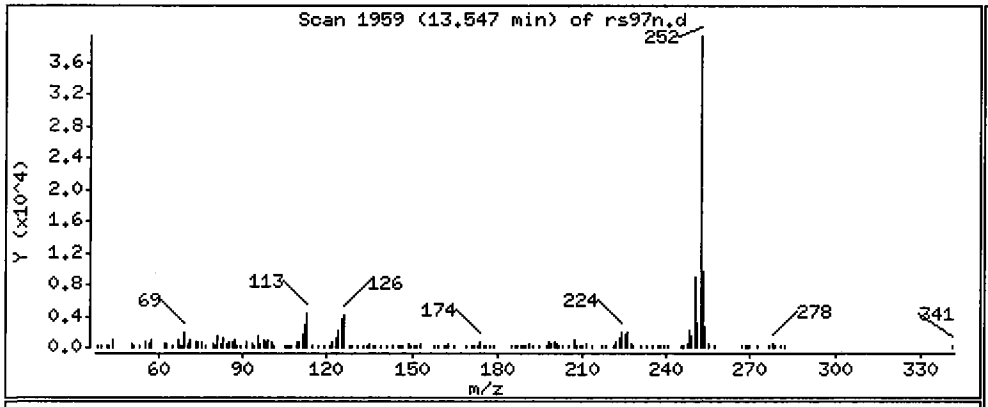
Client ID: DGS-07-7.98.4-10101 Instrument: nt12.i

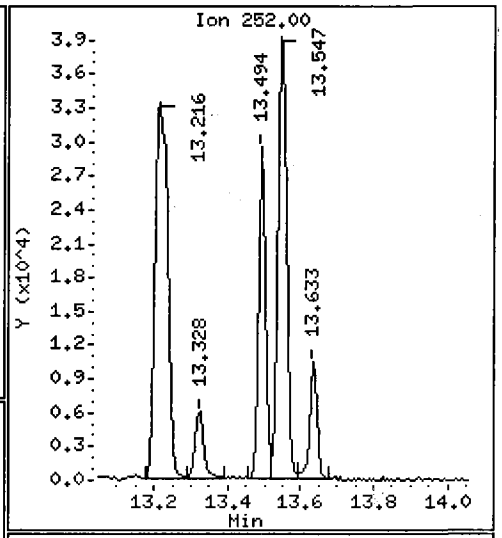
Sample Info: RS97N

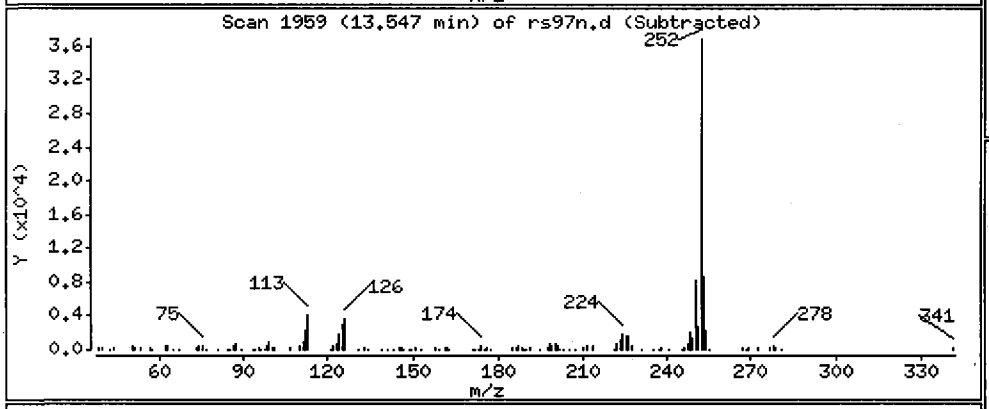
Volume Injected (uL): 1.0 Operator: VTS

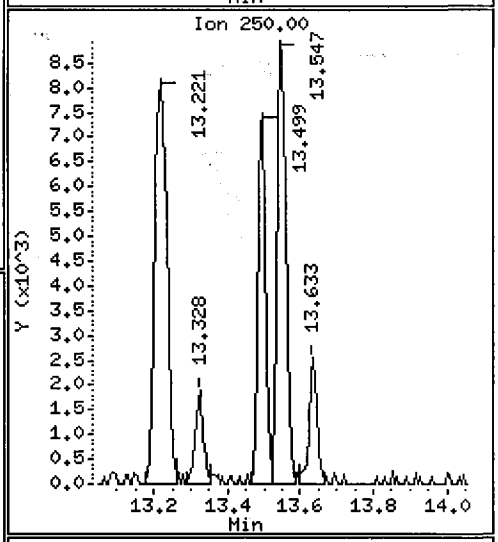
Column phase: ZB-5msi Column diameter: 0.32

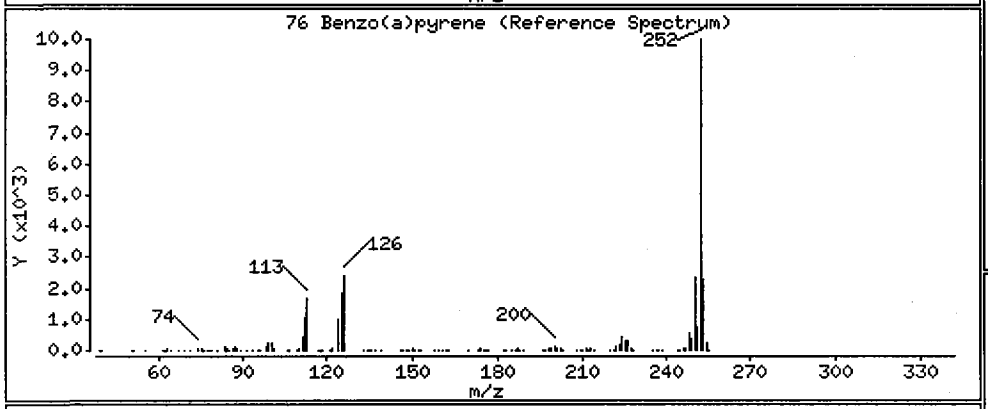
76 Benzo(a)pyrene Concentration: 20100 ug/kg

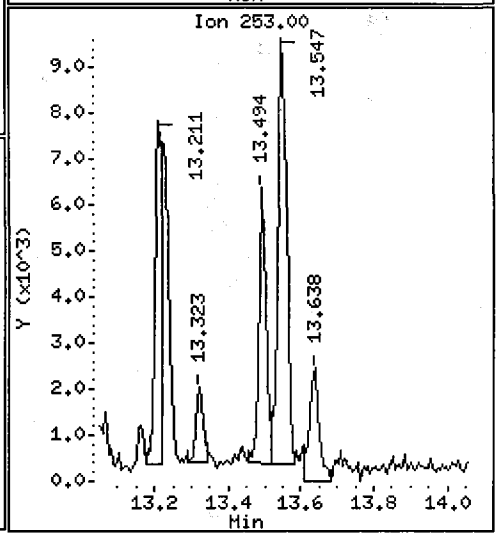


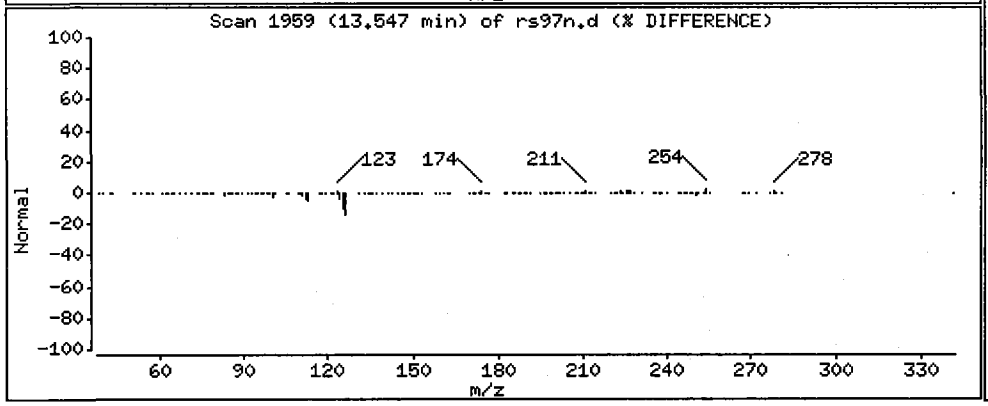












Data File: /chem1/nt12.i/20101110.b/rs97n.d

Date : 10-NOV-2010 17:58

Client ID: DGS-07-7.98.4-10101

Instrument: nt12.i

Sample Info: RS97N

Volume Injected (uL): 1.0

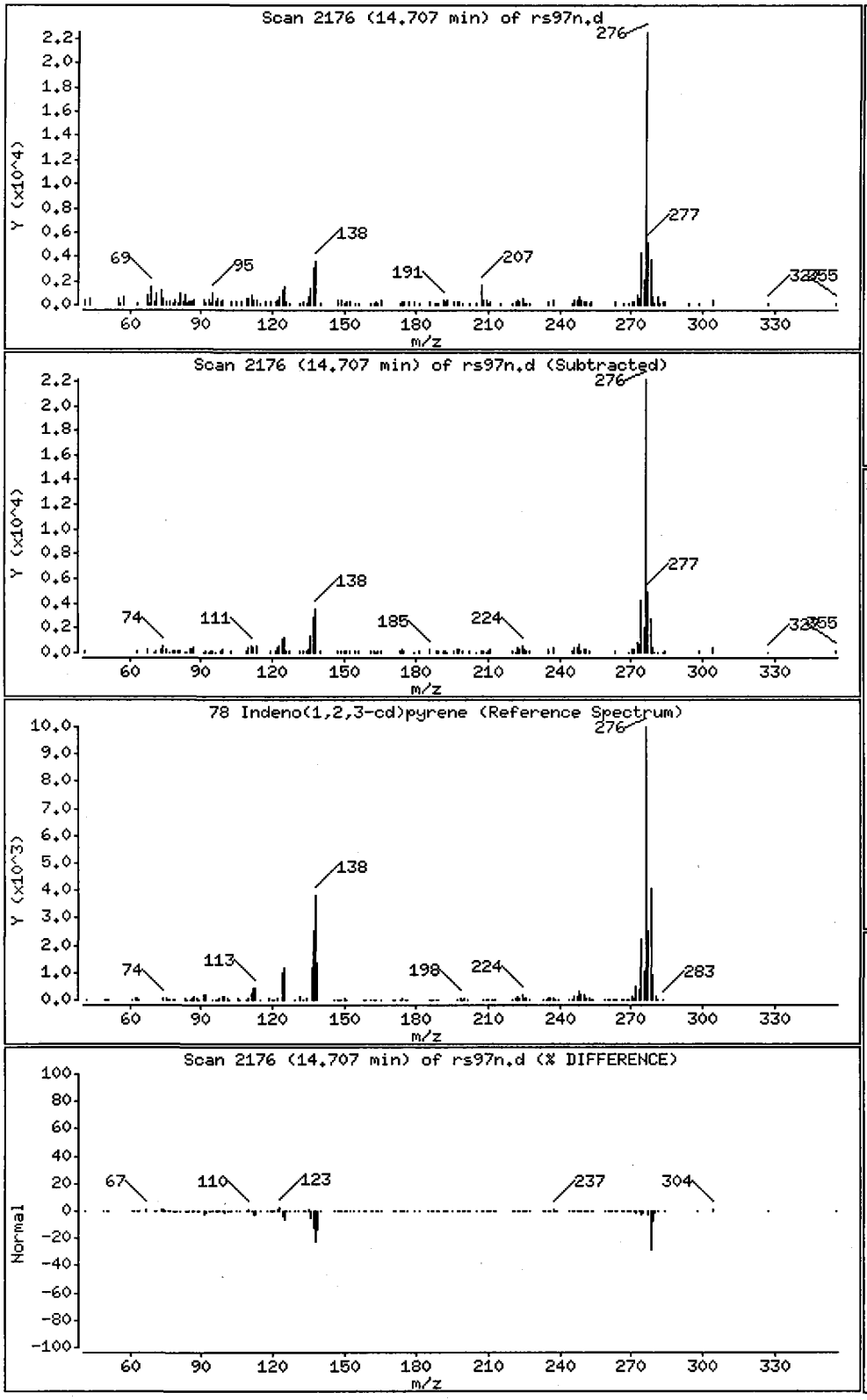
Operator: VTS

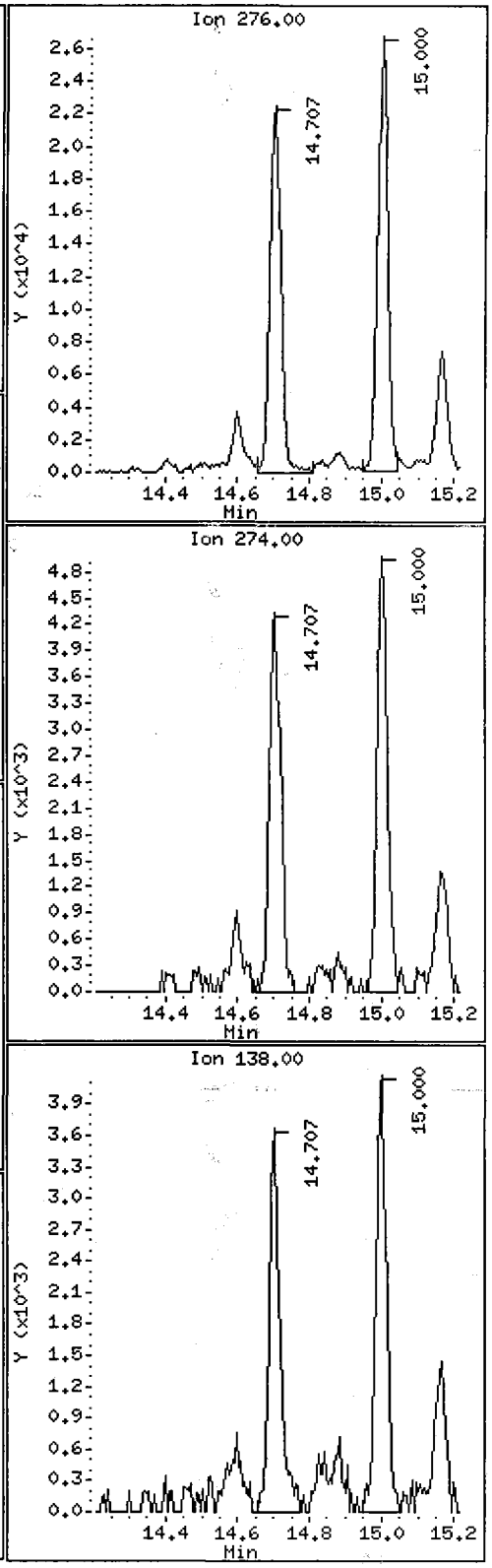
Column phase: ZB-5msi

Column diameter: 0.32

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

Concentration: 10250 ug/kg





Data File: /chem1/nt12.i/20101110.b/rs97n.d

Date : 10-NOV-2010 17:58

Client ID: DGS-07-7.98.4-10101

Instrument: nt12.i

Sample Info: RS97N

Volume Injected (uL): 1.0

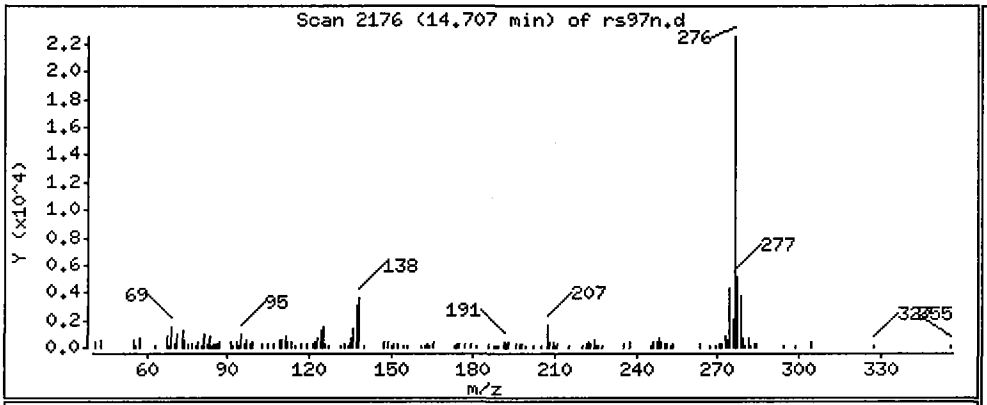
Operator: VTS

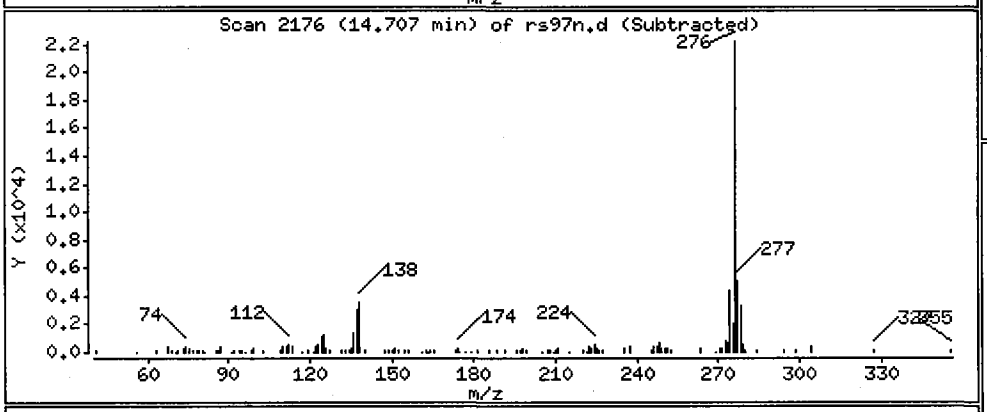
Column phase: ZB-5msi

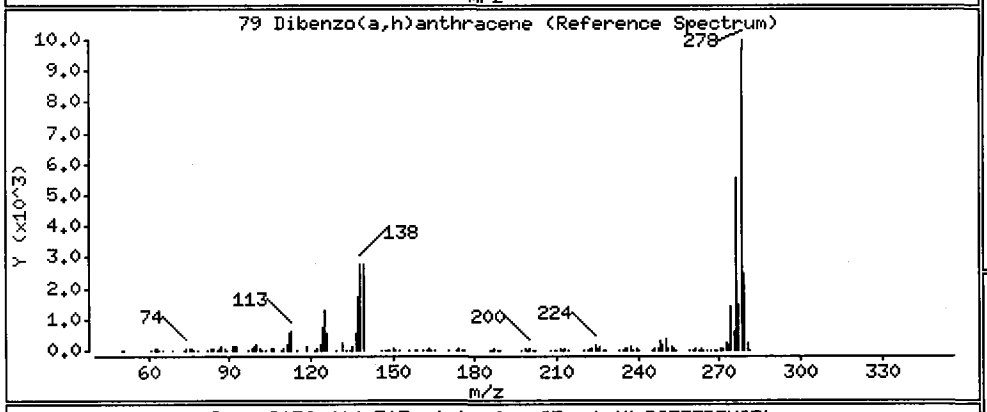
Column diameter: 0.32

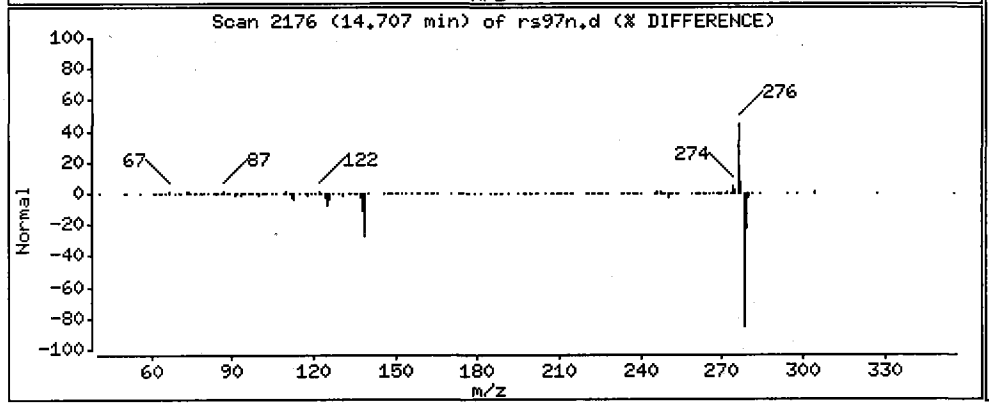
79 Dibenzo(a,h)anthracene

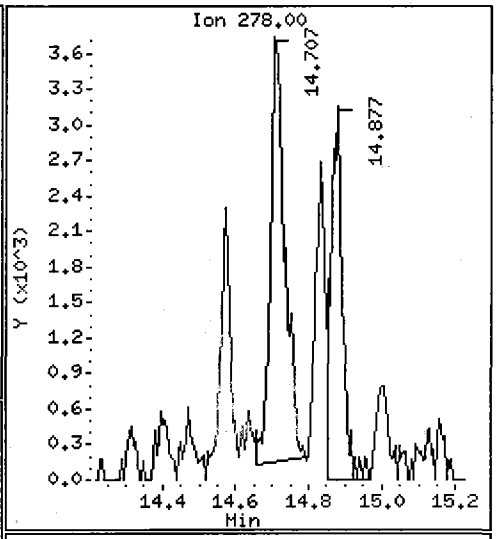
Concentration: 2676 ug/kg

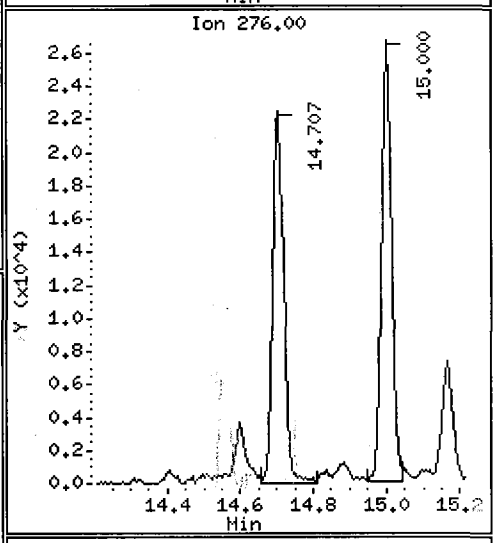


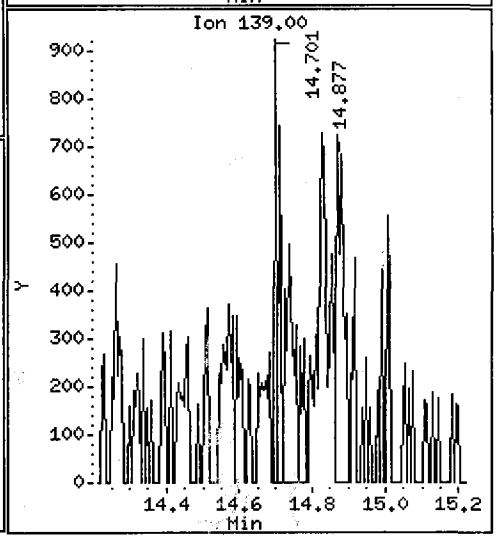












Data File: /chem1/nt12.i/20101110.b/rs97n.d

Date : 10-NOV-2010 17:58

Client ID: DGS-07-7.98.4-10101

Instrument: nt12.i

Sample Info: RS97N

Volume Injected (uL): 1.0

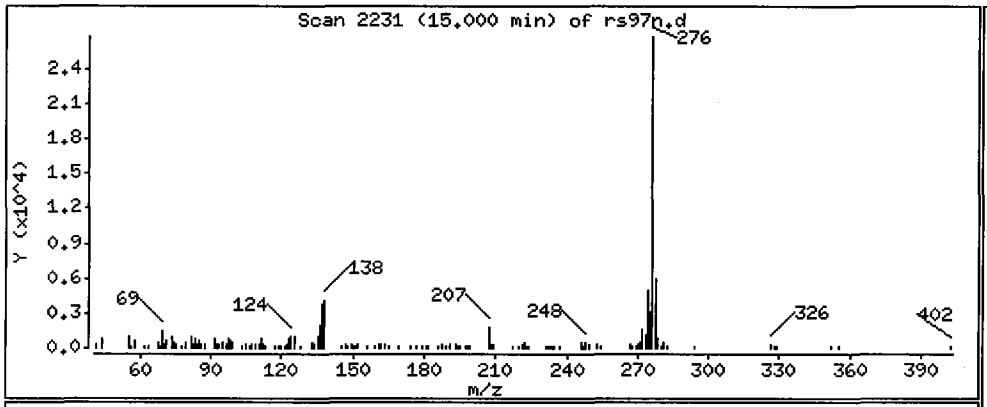
Operator: VTS

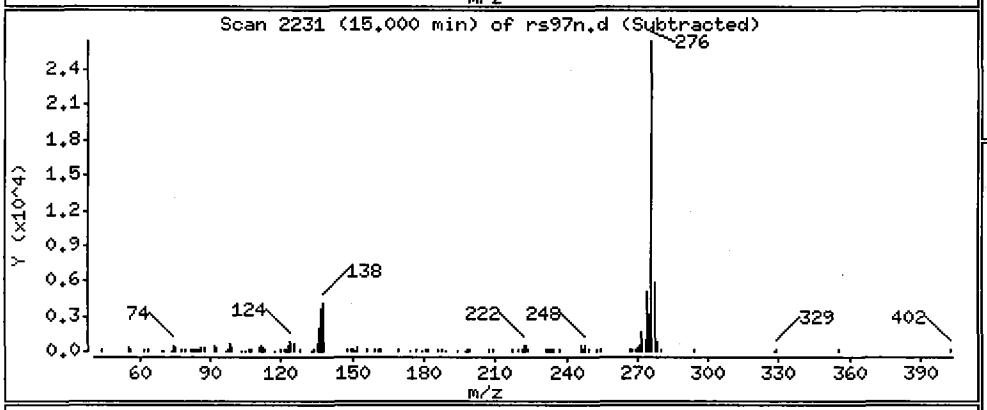
Column phase: ZB-5msi

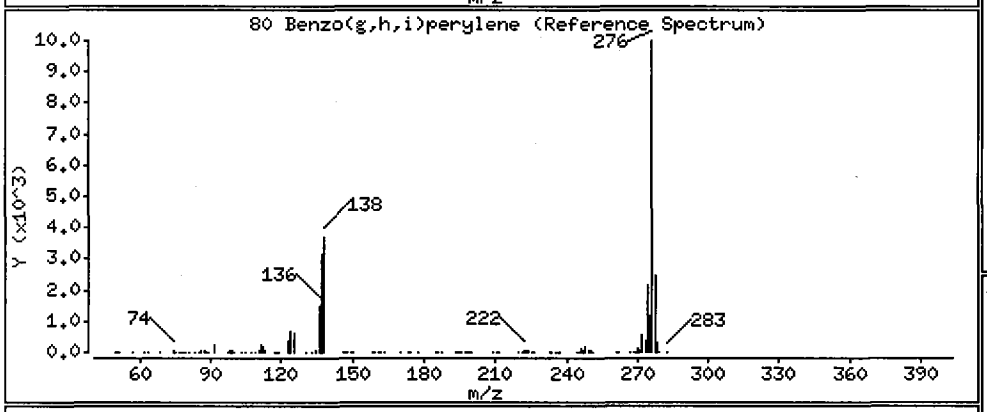
Column diameter: 0.32

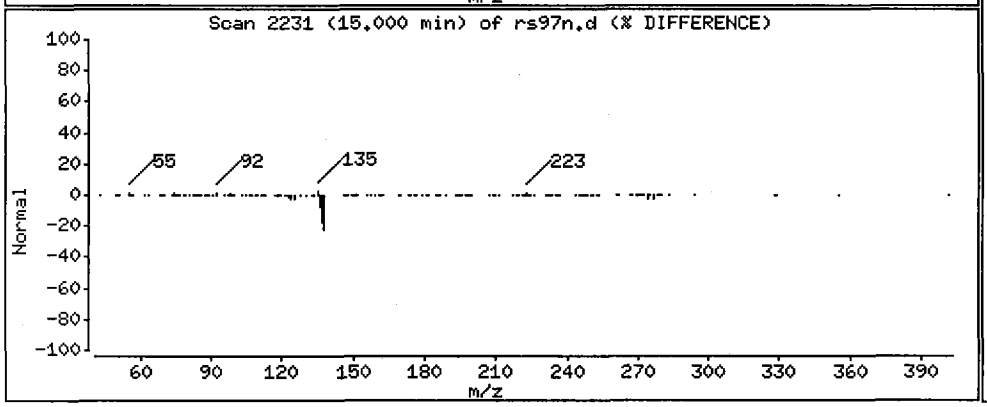
80 Benzo(g,h,i)perylene

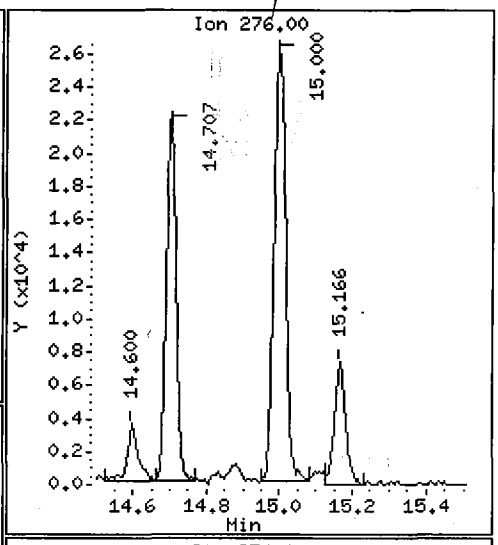
Concentration: 14570 ug/kg

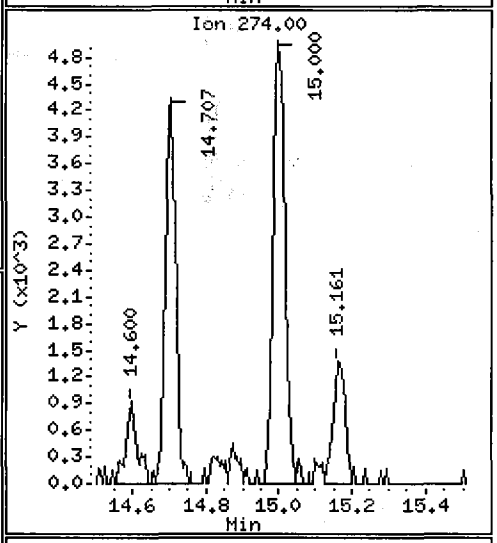


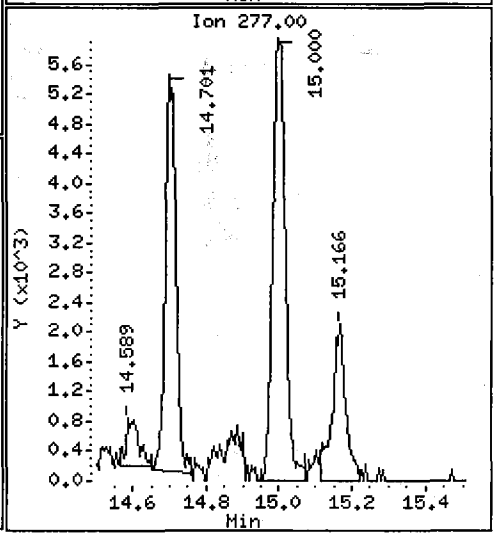












Analytical Resources, Inc.

Semivolatile Report SW846 Method 8270D

Data file : /chem1/nt12.i/20101110.b/rs97o.d
Lab Smp Id: RS97O
Client Smp ID: DGS-07-8.79.1-10101
Inj Date : 10-NOV-2010 18:21
Operator : VTS
Inst ID: nt12.i
Smp Info : RS97O,3
Misc Info : 10-27431
Comment : 1ul Injection
Method : /chem1/nt12.i/20101110.b/PNADMD.m
Meth Date : 10-Nov-2010 14:46 van
Quant Type: ISTD
Cal Date : 30-OCT-2010 13:19
Cal File: ic1030f.d
Als bottle: 14
Dil Factor: 3.00000
Integrator: HP RTE
Compound Sublist: pnas.sub
Target Version: 3.50
Processing Host: cserv3

Concentration Formula: Amt * DF * Vt/(Ws * (100 - M)/100) * CpndVariable

Name	Value	Description
DF	3.00000	Dilution Factor
Vt	10000.00000	Volume of final extract (uL)
Ws	5.21000	Weight of sample extracted (g)
M	47.20000	% Moisture

Cpnd Variable Local Compound Variable

Compounds	QUANT SIG MASS	RT	EXP RT	REL RT	RESPONSE	CONCENTRATIONS ON-COLUMN (ug/mL)	FINAL (ug/kg)
* 27 Naphthalene-d8	136	4.888	4.888	(1.000)	193302	20.0000	
28 Naphthalene	128	4.909	4.909	(1.004)	89682	8.15166	88900
32 2-Methylnaphthalene	141	5.726	5.726	(1.172)	67558	11.5047	125500
105 1-methylnaphthalene	141	5.849	5.854	(1.197)	39112	6.45968	70450
$ 36 2-Fluorobiphenyl	172	6.202	6.202	(0.888)	4333	0.46827	5107
40 Acenaphthylene	152	Compound Not Detected.					
* 42 Acenaphthene-d10	164	6.987	6.992	(1.000)	120276	20.0000	
44 Acenaphthene	153	7.024	7.030	(1.005)	79595	10.7605	117300
46 Dibenzofuran	168	7.222	7.222	(1.034)	9701	0.85525	9327 J
49 Fluorene	166	7.639	7.639	(1.093)	55527	6.55634	71500
* 59 Phenanthrene-d10	188	8.761	8.761	(1.000)	211863	20.0000	
60 Phenanthrene	178	8.793	8.787	(1.004)	543045	48.3158	526900
61 Anthracene	178	8.846	8.846	(1.010)	98945	8.51778	92890
62 Carbazole	167	9.071	9.065	(1.035)	9347	~~0.99744~~	10880 NR

	Compounds	QUANT SIG MASS	RT	EXP RT	REL RT	RESPONSE	CONCENTRATIONS ON-COLUMN (ug/mL)	CONCENTRATIONS FINAL (ug/kg)
	64 Fluoranthene	202	10.240	10.235	(0.854)	285642	19.8786	216800
	65 Pyrene	202	10.502	10.502	(0.876)	339665	23.8272	259800
$	66 Terphenyl-d14	244	10.737	10.737	(0.896)	4472	0.49176	5363
	68 Benzo(a)anthracene	228	11.966	11.971	(0.998)	60753	5.25888	57350
*	69 Chrysene-d12	240	11.987	11.993	(1.000)	205712	20.0000	
	71 Chrysene	228	12.014	12.019	(1.002)	75723	7.01104	76460
	187 Total Benzofluoranthenes	252	13.216	13.243	(0.971)	60125	5.98024	65220
	76 Benzo(a)pyrene	252	13.547	13.553	(0.996)	47204	5.11094	55740
*	77 Perylene-d12	264	13.606	13.611	(1.000)	168798	20.0000	
	99 Perylene	252	13.633	13.638	(1.002)	10435	~~1.~~06248	11590 NR
	78 Indeno(1,2,3-cd)pyrene	276	14.707	14.712	(1.081)	28131	2.05154	22370
	79 Dibenzo(a,h)anthracene	278	14.717	14.723	(1.082)	7388	0.65444	7137 T
	80 Benzo(g,h,i)perylene	276	15.000	15.006	(1.102)	30861	2.73962	29880

VB
11.11.10

Analytical Resources, Inc.

INTERNAL STANDARD COMPOUNDS
AREA AND RT SUMMARY

Instrument ID: nt12.i
Lab File ID: rs97o.d
Lab Smp Id: RS97O
Analysis Type: SV
Quant Type: ISTD
Operator: VTS
Method File: /chem1/nt12.i/20101110.b/PNADMD.m
Misc Info: 10-27431

Calibration Date: 10-NOV-2010
Calibration Time: 13:29
Client Smp ID: DGS-07-8.79.1-10
Level: LOW
Sample Type: Sediment

Test Mode:
Use Initial Calibration Level 4.

COMPOUND	STANDARD	AREA LIMIT LOWER	AREA LIMIT UPPER	SAMPLE	%DIFF
27 Naphthalene-d8	237664	118832	475328	193302	-18.67
42 Acenaphthene-d10	143363	71682	286726	120276	-16.10
59 Phenanthrene-d10	245437	122718	490874	211863	-13.68
69 Chrysene-d12	199260	99630	398520	205712	3.24
77 Perylene-d12	197636	98818	395272	168798	-14.59

COMPOUND	STANDARD	RT LIMIT LOWER	RT LIMIT UPPER	SAMPLE	%DIFF
27 Naphthalene-d8	4.89	4.39	5.39	4.89	0.00
42 Acenaphthene-d10	6.99	6.49	7.49	6.99	-0.08
59 Phenanthrene-d10	8.76	8.26	9.26	8.76	0.00
69 Chrysene-d12	11.99	11.49	12.49	11.99	-0.04
77 Perylene-d12	13.61	13.11	14.11	13.61	-0.04

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.

Analytical Resources, Inc.

RECOVERY REPORT

Client Name: NW Natural
Sample Matrix: SOLID
Lab Smp Id: RS97O
Level: LOW
Data Type: MS DATA
SpikeList File: SONICLCS.spk
Sublist File: pnas.sub
Method File: /chem1/nt12.i/20101110.b/PNADMD.m
Misc Info: 10-27431

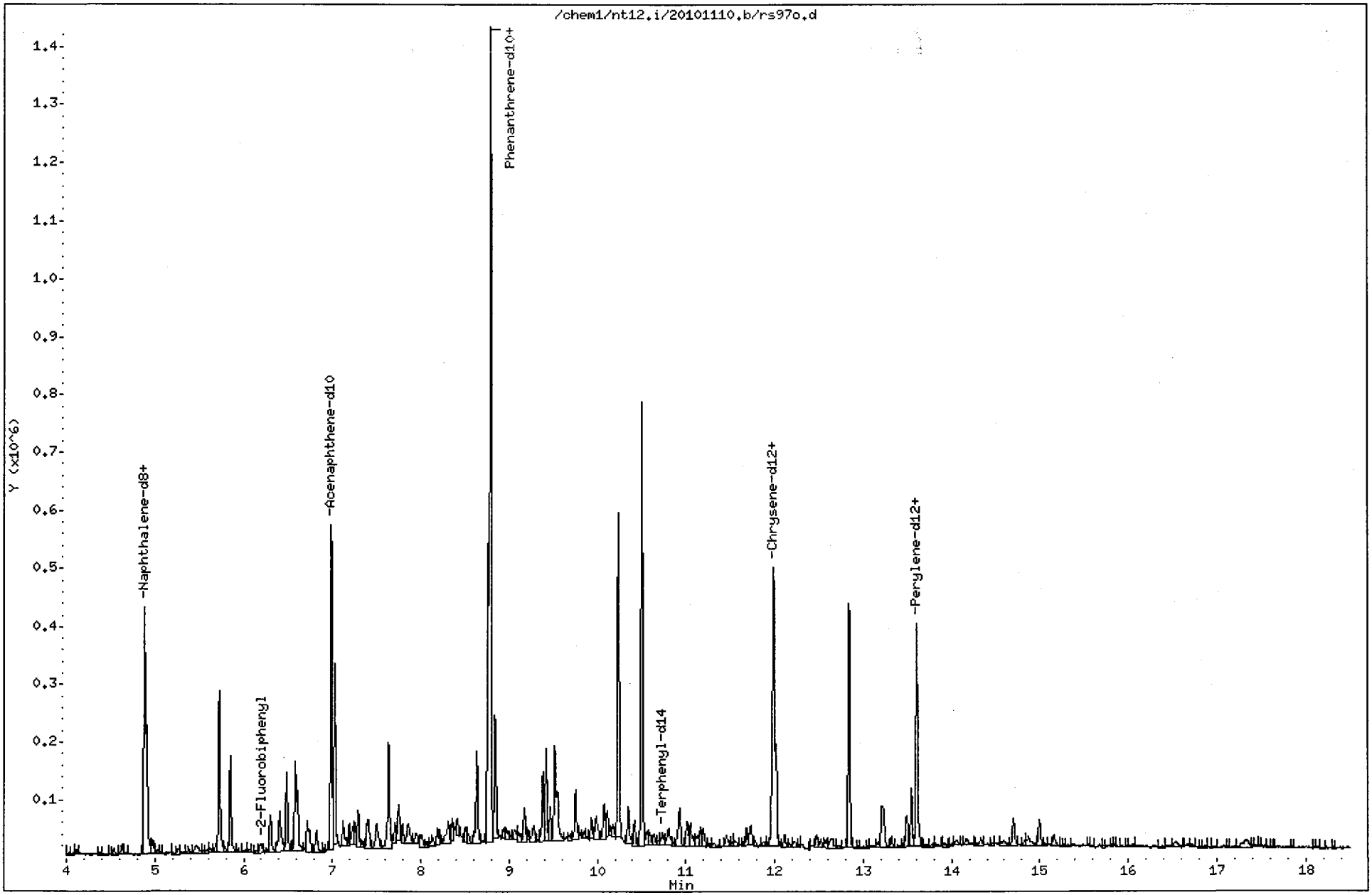
Client SDG: RS97
Fraction: SV
Client Smp ID: DGS-07-8.79.1-10101
Operator: VTS
SampleType: SAMPLE
Quant Type: ISTD

SURROGATE COMPOUND	CONC ADDED ug/kg	CONC RECOVERED ug/kg	% RECOVERED	LIMITS
$ 36 2-Fluorobiphenyl	9088	5107	56.19	34-100
$ 66 Terphenyl-d14	9088	5363	59.01	35-112

Data File: /chem1/nt12.i/20101110.b/rs97o.d
Date : 10-NOV-2010 18:21
Client ID: DGS-07-8.79.1-10101
Sample Info: RS97O,3
Volume Injected (uL): 1.0
Column phase: ZB-5msi

Instrument: nt12.i

Operator: VTS
Column diameter: 0.32



RS97:00528

Data File: /chem1/nt12.i/20101110.b/rs97o.d

Date : 10-NOV-2010 18:21

Client ID: DGS-07-8.79.1-10101

Instrument: nt12.i

Sample Info: RS97O,3

Volume Injected (uL): 1.0

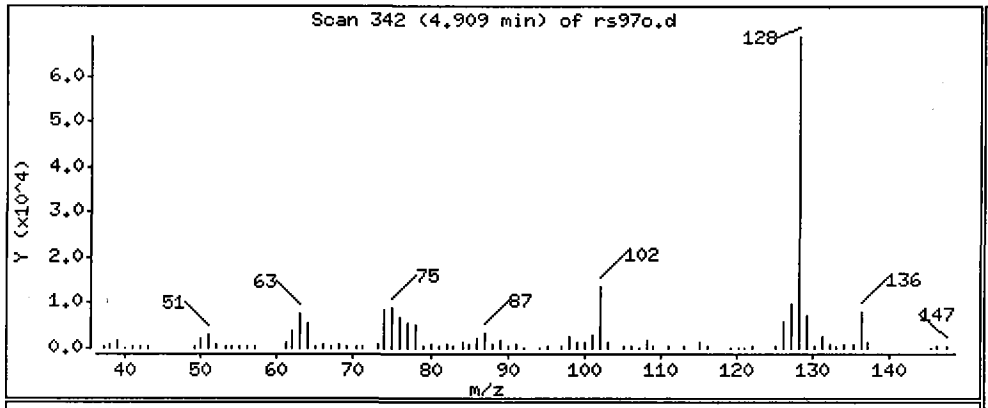
Operator: VTS

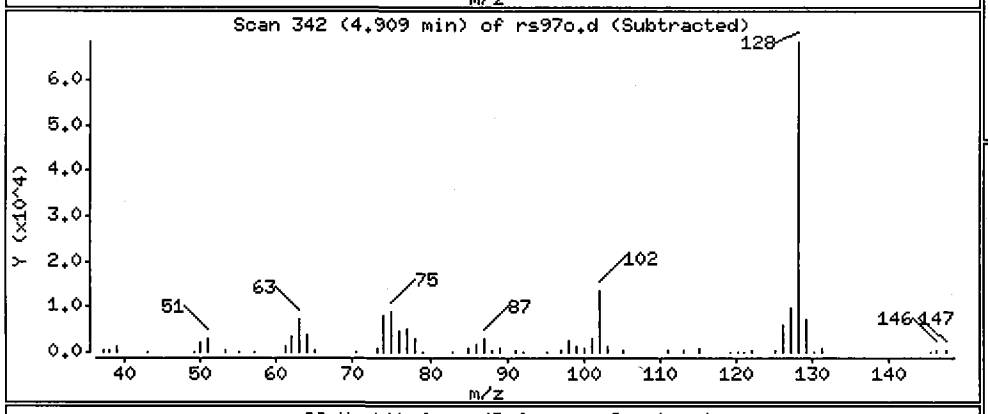
Column phase: ZB-5msi

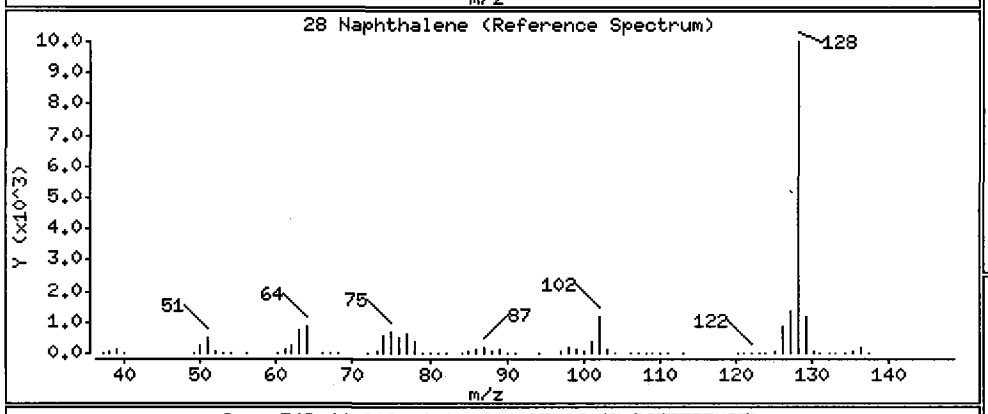
Column diameter: 0.32

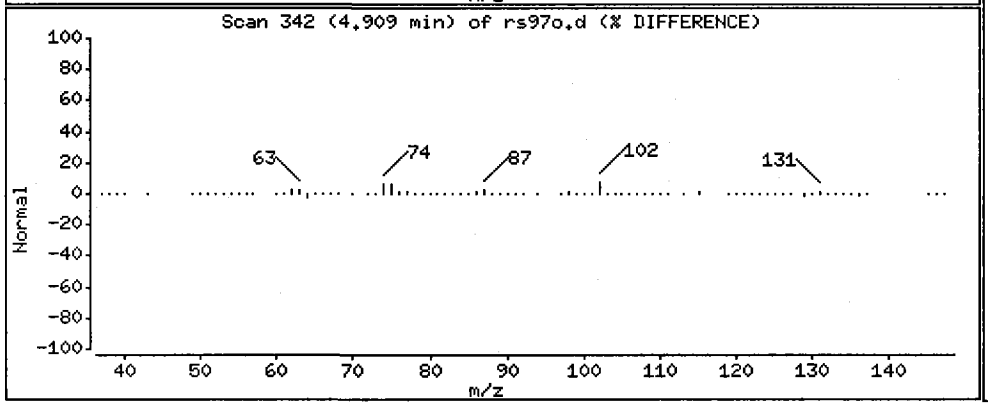
28 Naphthalene

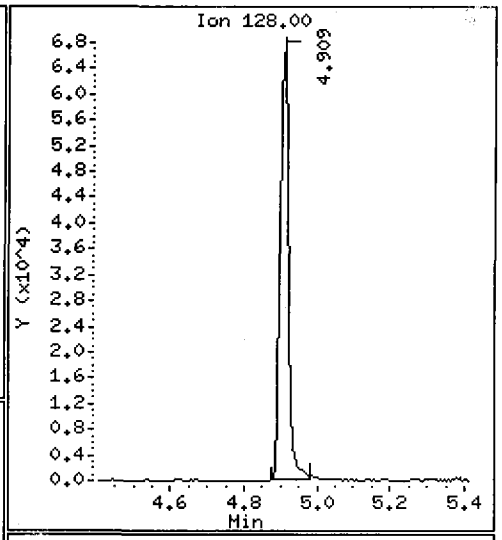
Concentration: 88900 ug/kg

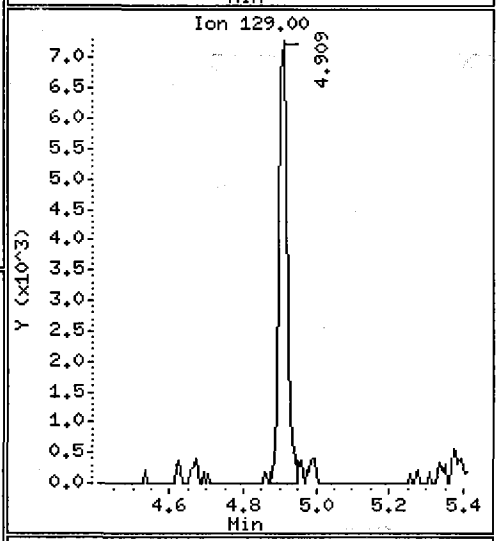


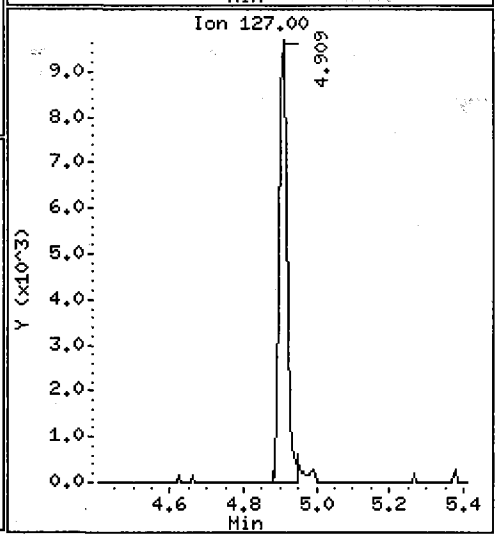












Data File: /chem1/nt12.i/20101110.b/rs97o.d

Date : 10-NOV-2010 18:21

Client ID: DGS-07-8.79.1-10101

Instrument: nt12.i

Sample Info: RS97O,3

Volume Injected (uL): 1.0

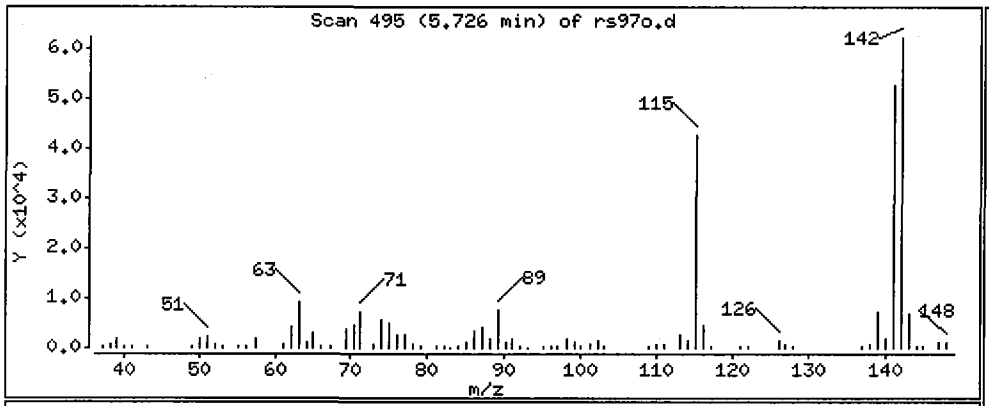
Operator: VTS

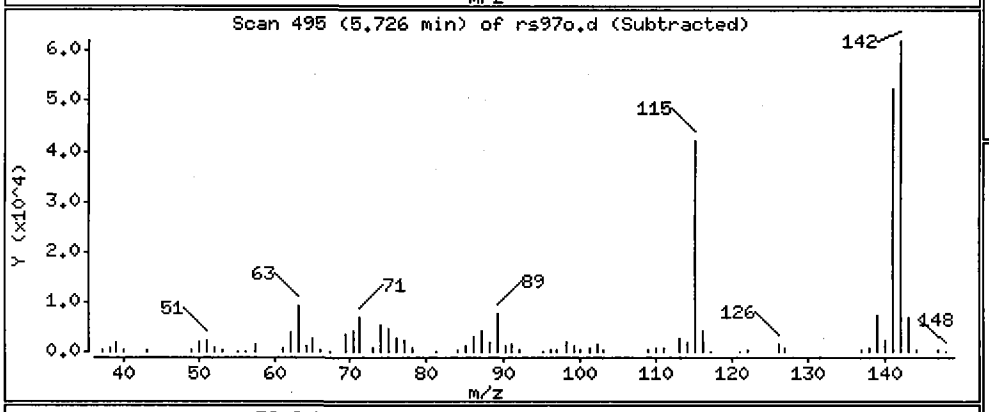
Column phase: ZB-5msi

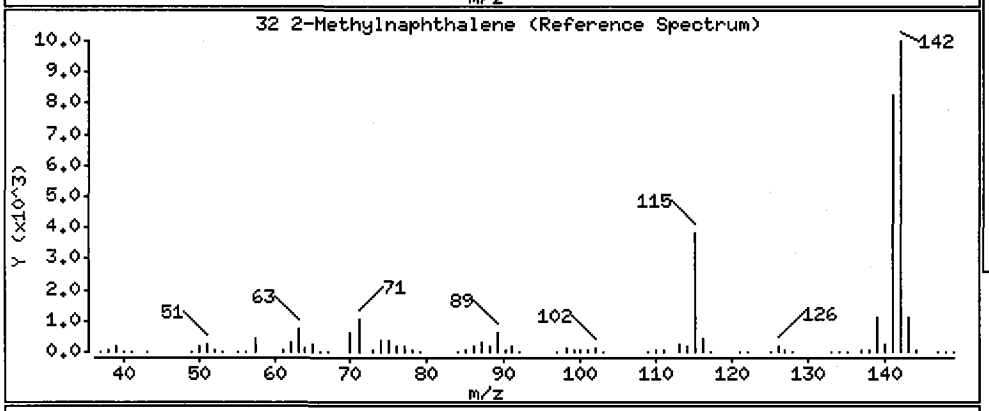
Column diameter: 0.32

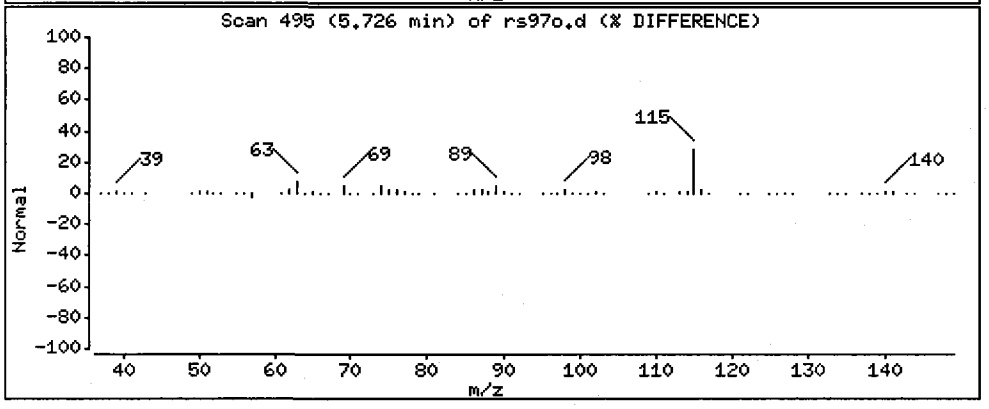
32 2-Methylnaphthalene

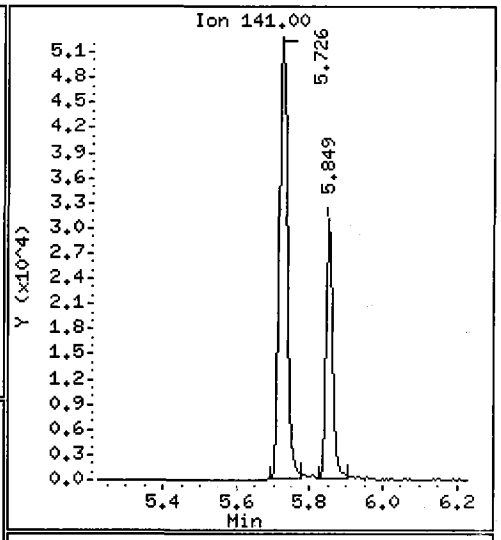
Concentration: 125500 ug/kg

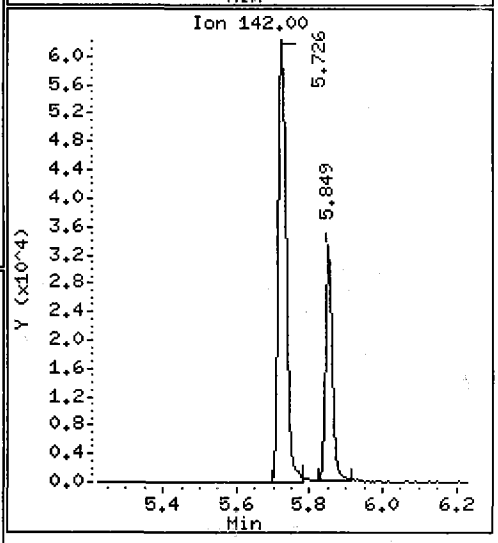












Data File: /chem1/nt12.i/20101110.b/rs97o.d

Date : 10-NOV-2010 18:21

Client ID: DGS-07-8.79.1-10101

Instrument: nt12.i

Sample Info: RS97O,3

Volume Injected (uL): 1.0

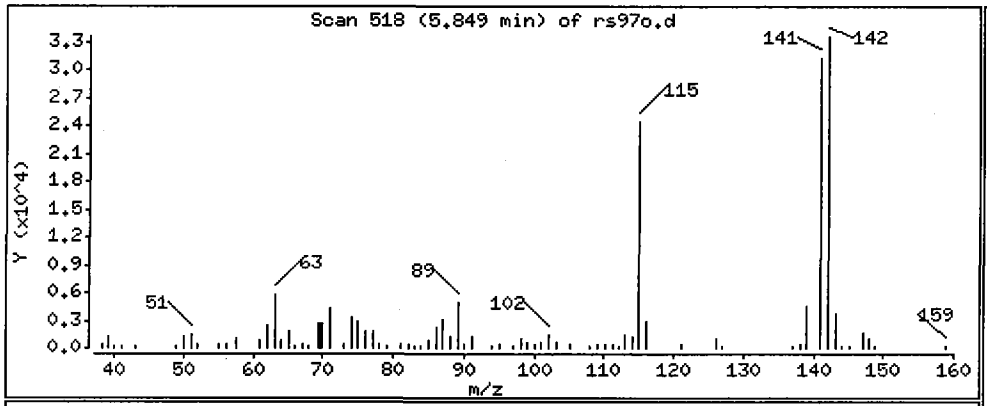
Operator: VTS

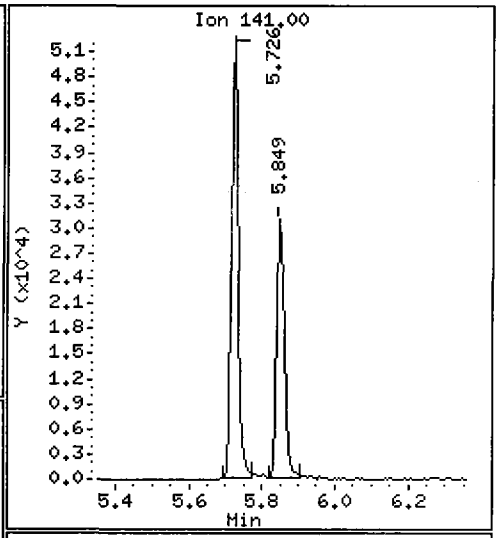
Column phase: ZB-5msi

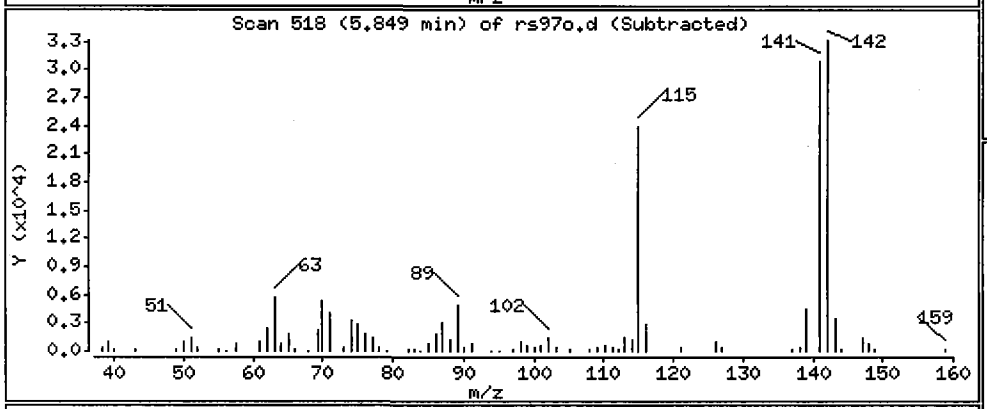
Column diameter: 0.32

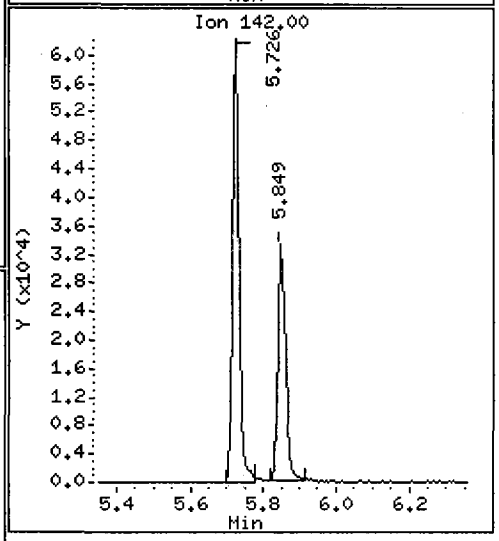
105 1-methylnaphthalene

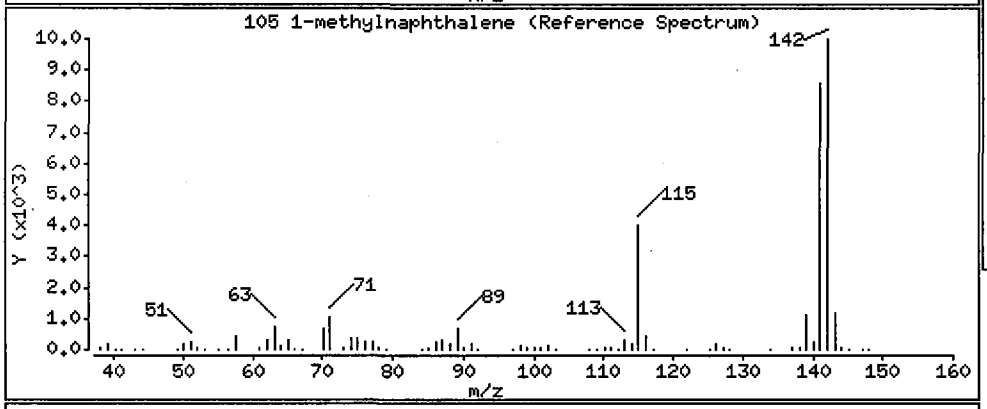
Concentration: 70450 ug/kg

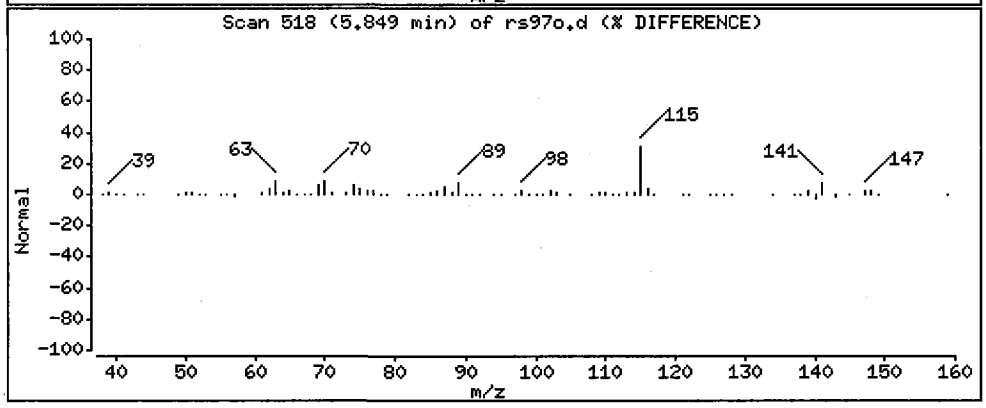












Data File: /chem1/nt12.i/20101110.b/rs97o.d

Date : 10-NOV-2010 18:21

Client ID: DGS-07-8.79.1-10101

Instrument: nt12.i

Sample Info: RS97O,3

Volume Injected (uL): 1.0

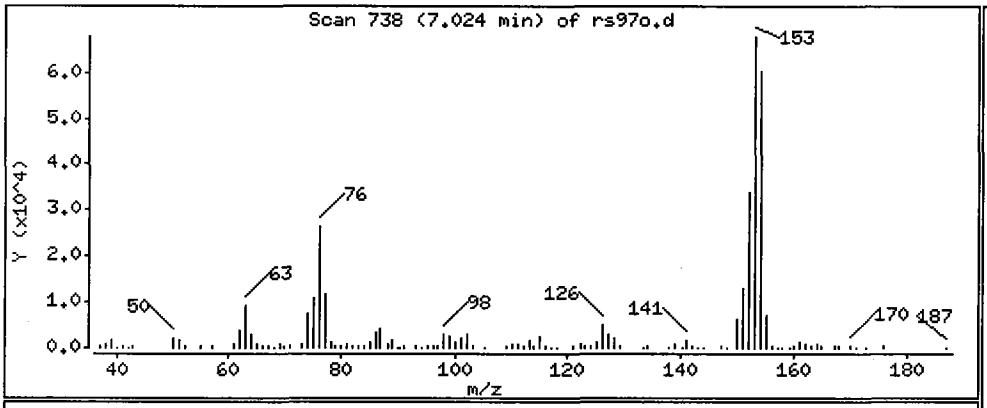
Operator: VTS

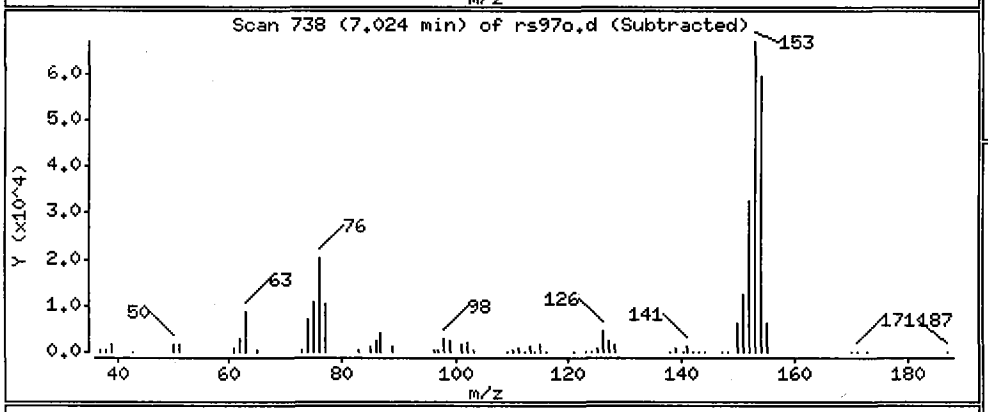
Column phase: ZB-5msi

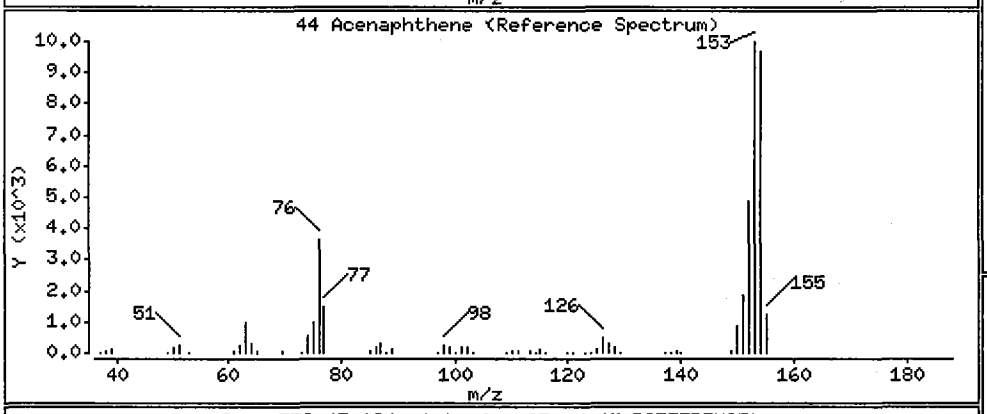
Column diameter: 0.32

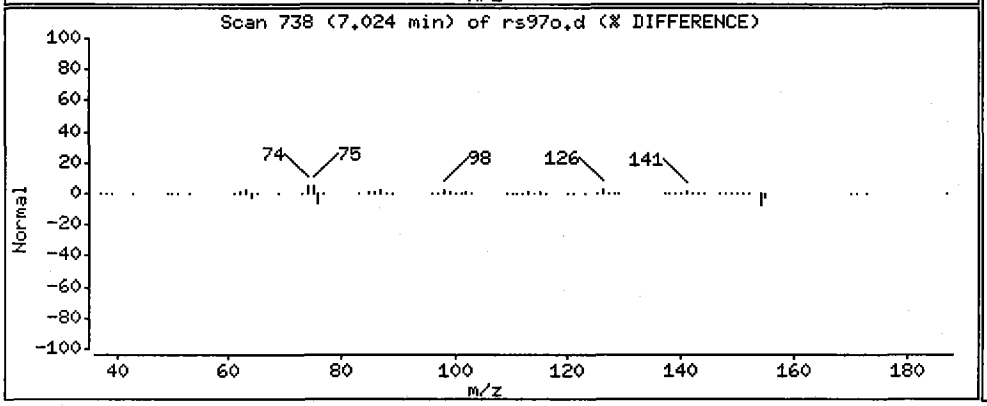
44 Acenaphthene

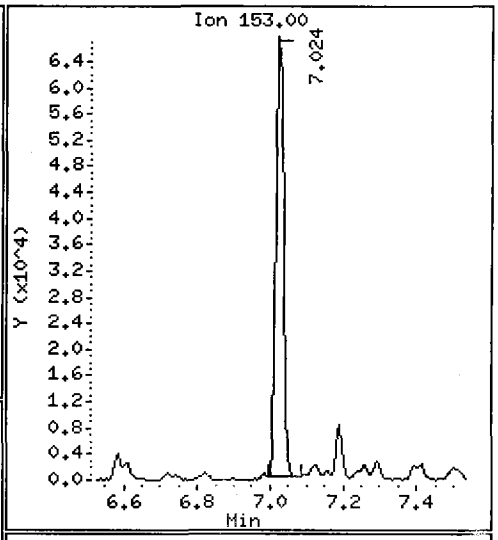
Concentration: 117300 ug/kg

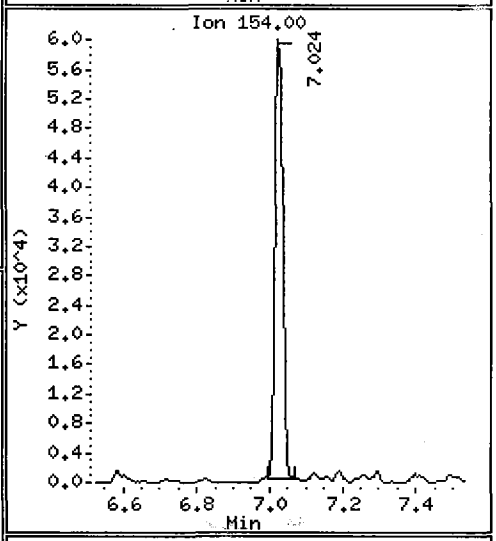


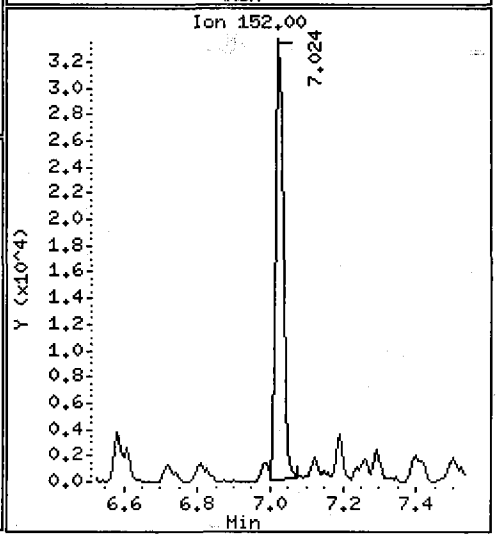












Data File: /chem1/nt12.i/20101110.b/rs97o.d

Date : 10-NOV-2010 18:21

Client ID: DGS-07-8.79.1-10101

Instrument: nt12.i

Sample Info: RS97O,3

Volume Injected (uL): 1.0

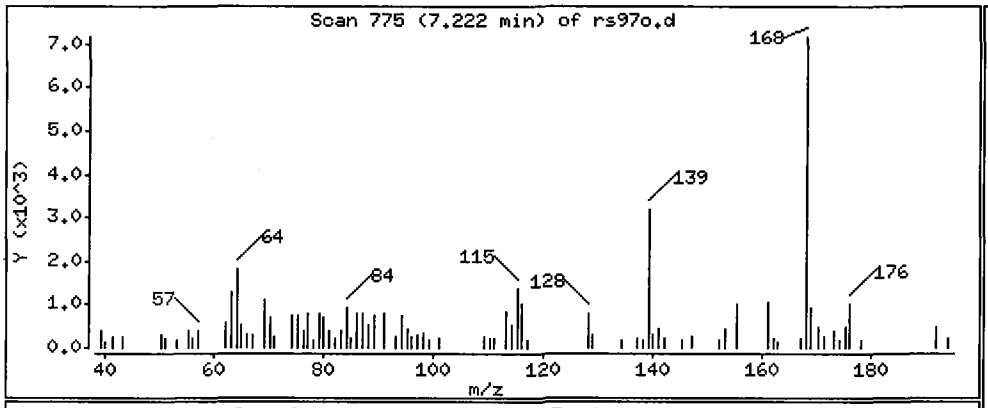
Operator: VTS

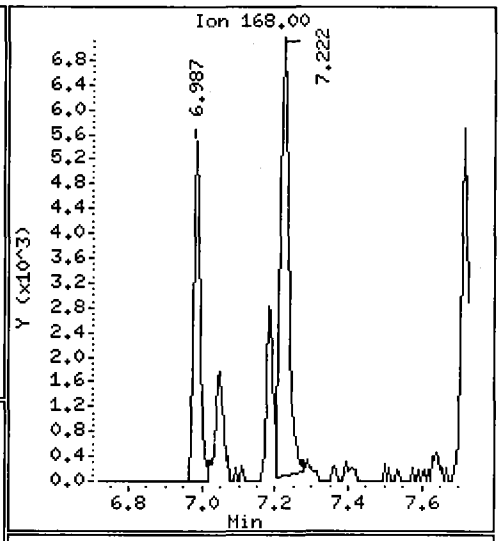
Column phase: ZB-5msi

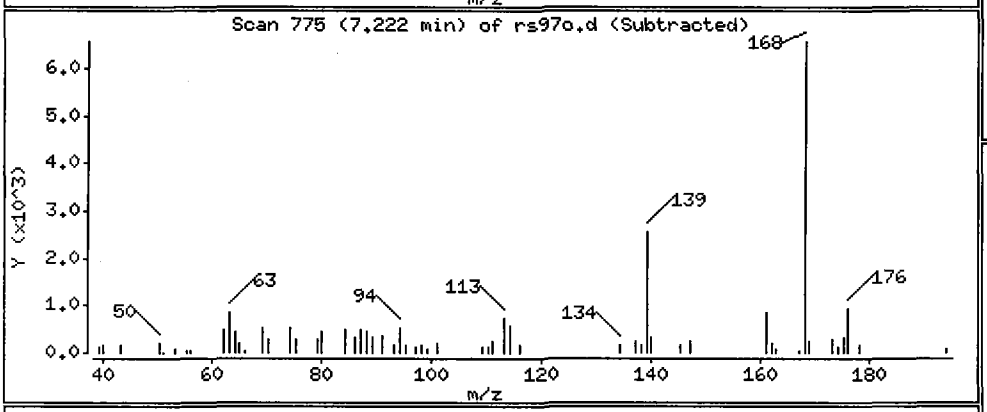
Column diameter: 0.32

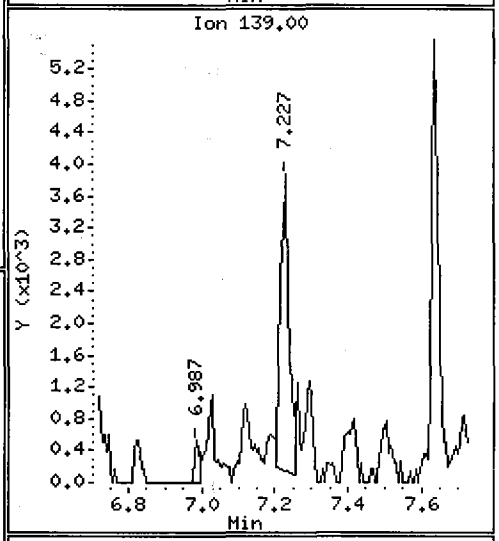
46 Dibenzofuran

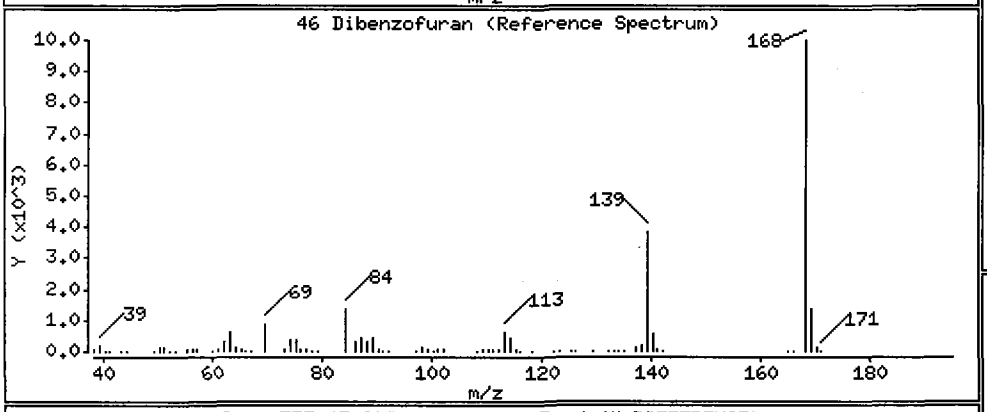
Concentration: 9327 ug/kg

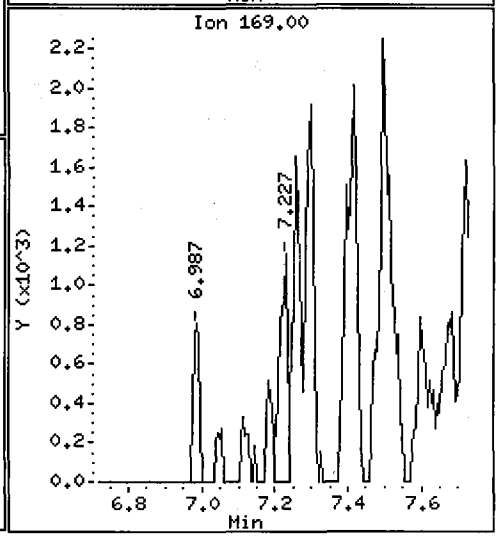


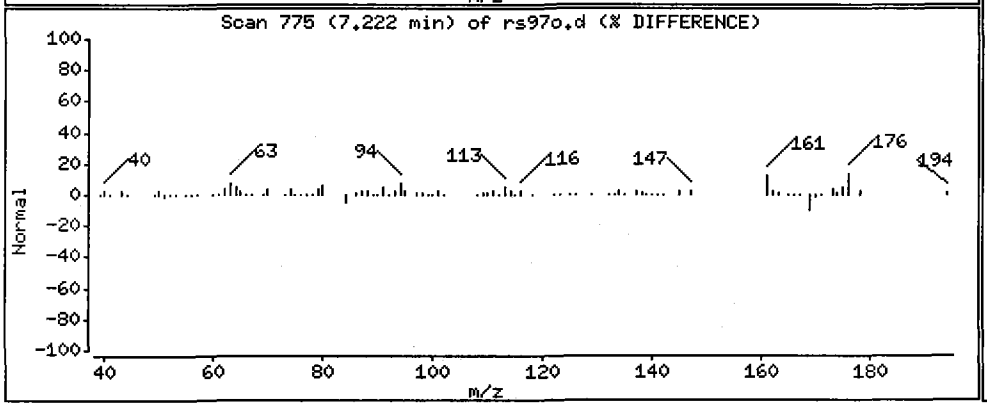












Data File: /chem1/nt12.i/20101110.b/rs97o.d

Date : 10-NOV-2010 18:21

Client ID: DGS-07-8.79.1-10101

Instrument: nt12.i

Sample Info: RS970,3

Volume Injected (uL): 1.0

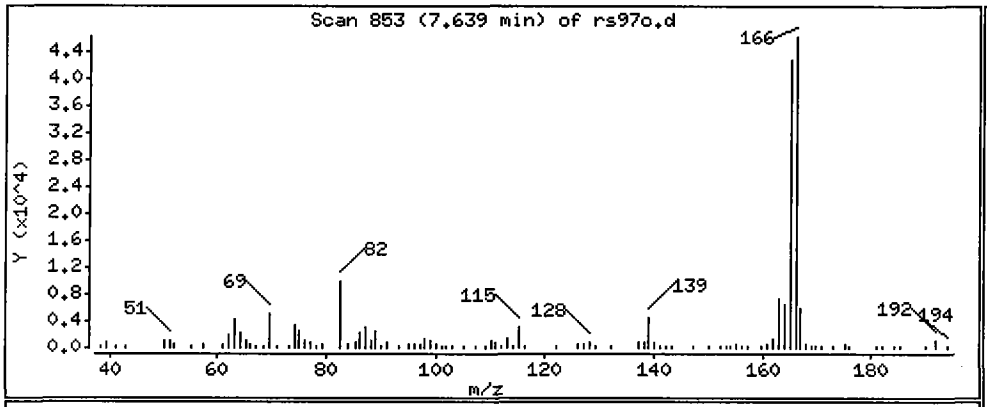
Operator: VTS

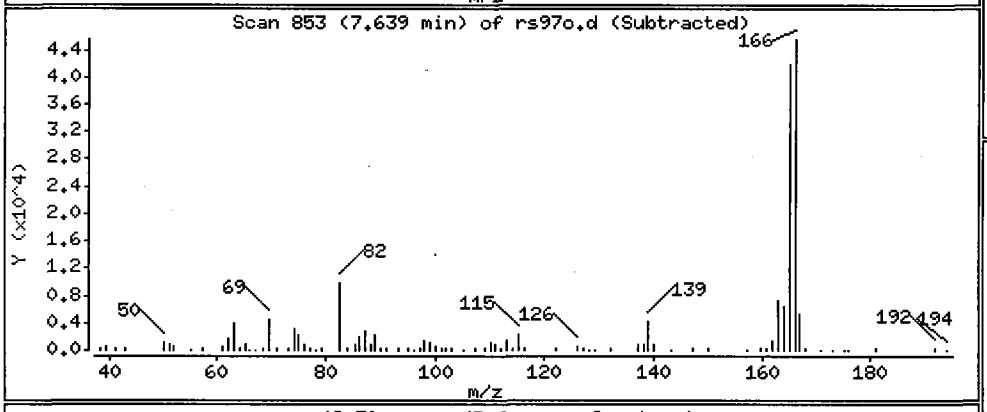
Column phase: ZB-5msi

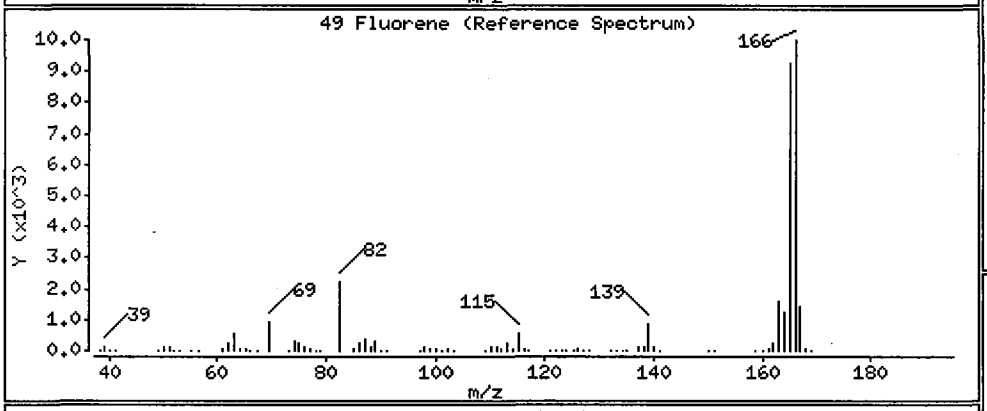
Column diameter: 0.32

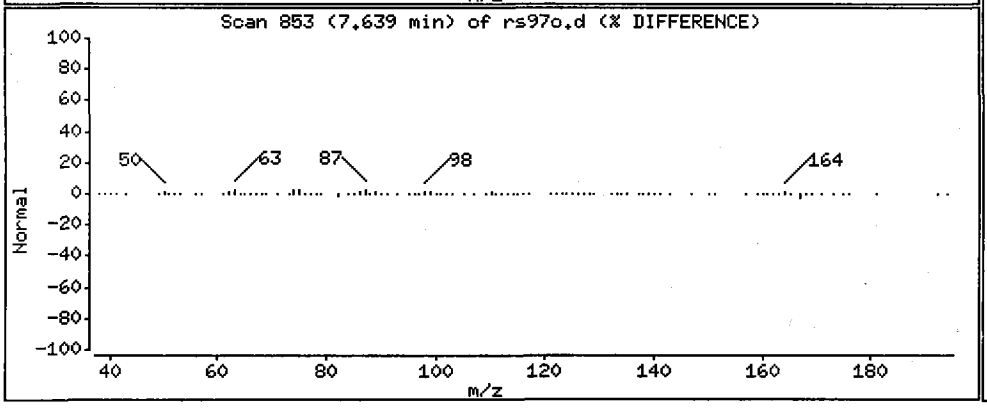
49 Fluorene

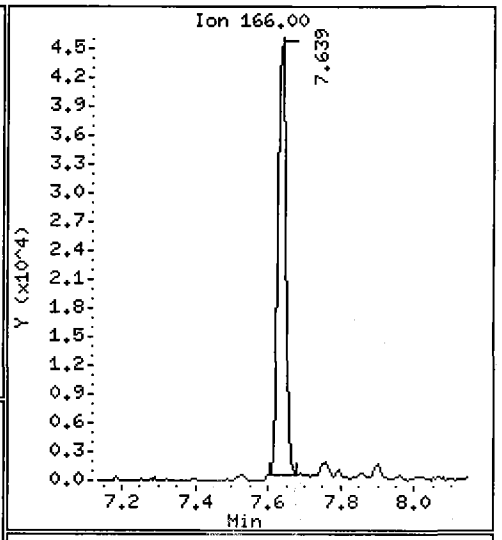
Concentration: 71500 ug/kg

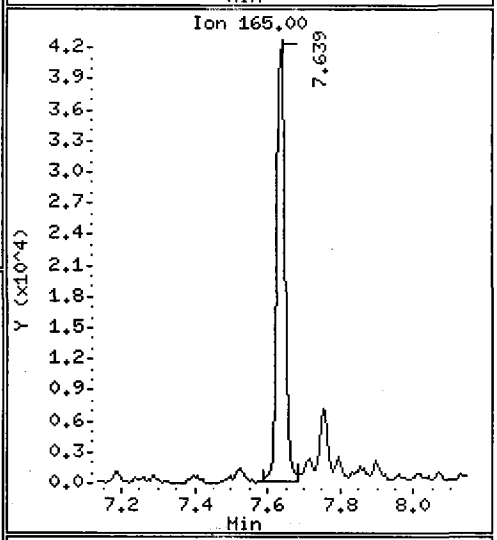


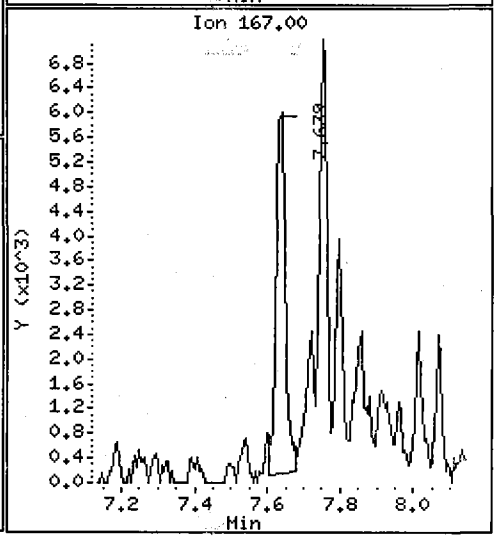












Data File: /chem1/nt12.i/20101110.b/rs97o.d

Date : 10-NOV-2010 18:21

Client ID: DGS-07-8.79.1-10101

Instrument: nt12.i

Sample Info: RS97O,3

Volume Injected (uL): 1.0

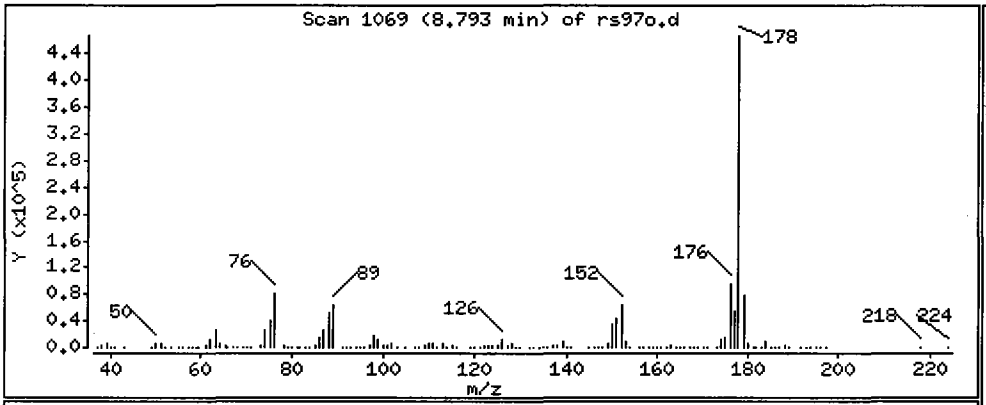
Operator: VTS

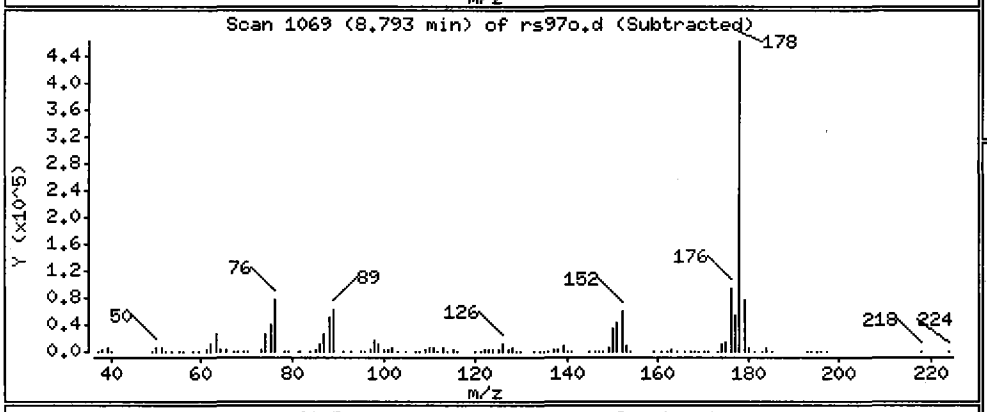
Column phase: ZB-5msi

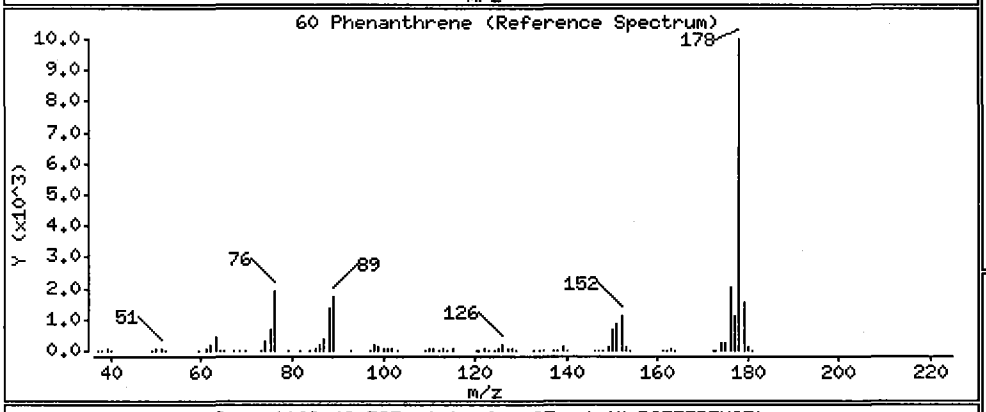
Column diameter: 0.32

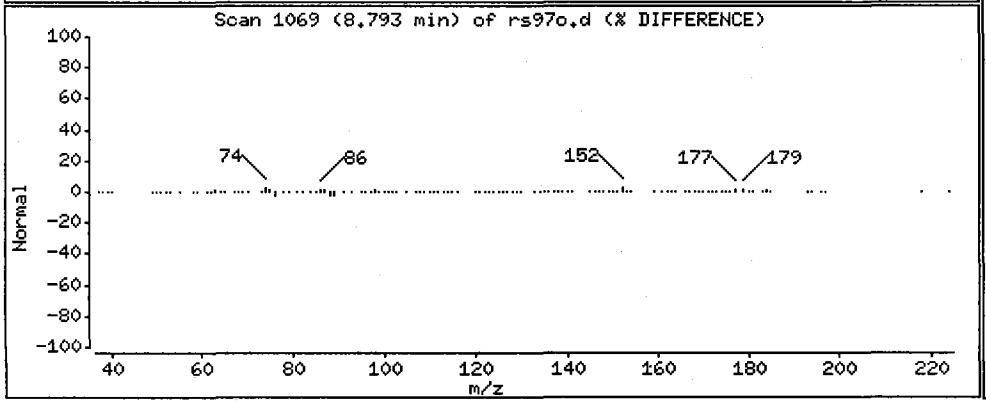
60 Phenanthrene

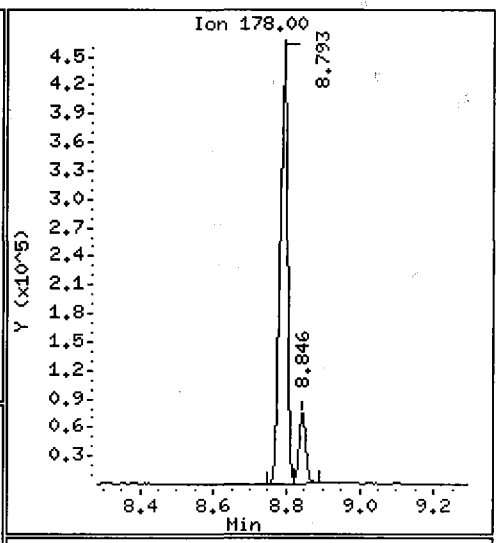
Concentration: 526900 ug/kg

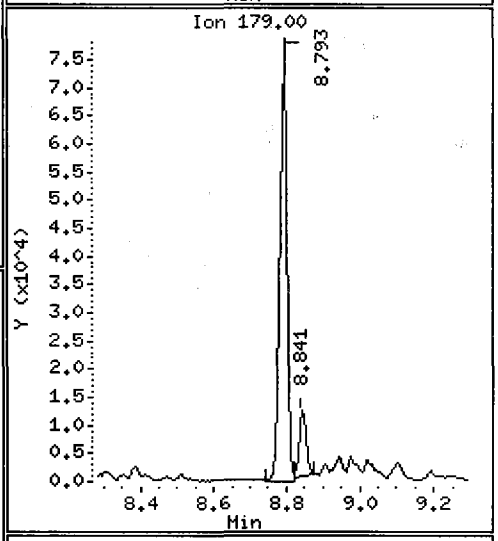


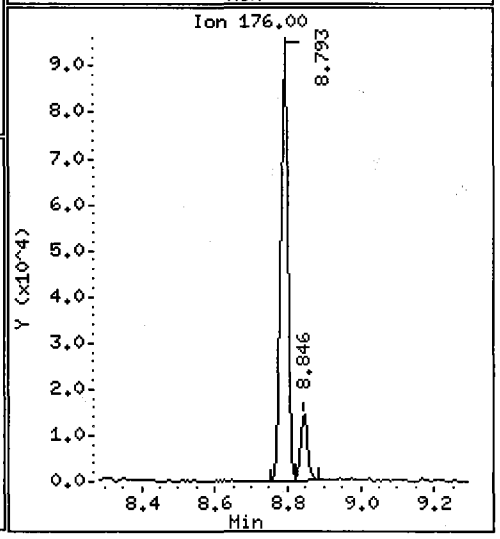












Data File: /chem1/nt12.i/20101110.b/rs97o.d

Date : 10-NOV-2010 18:21

Client ID: DGS-07-8.79.1-10101

Instrument: nt12.i

Sample Info: RS97O,3

Volume Injected (uL): 1.0

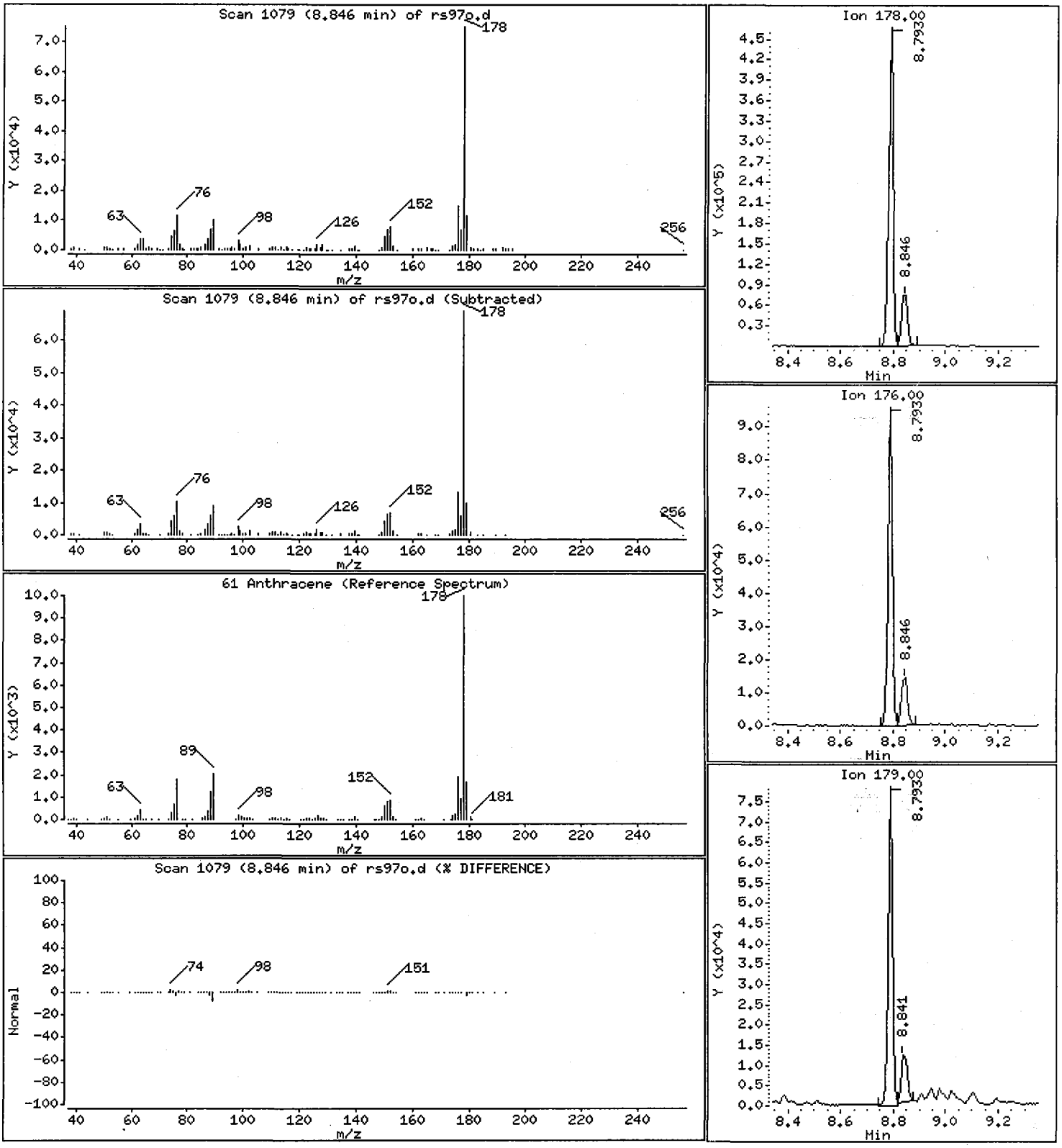
Operator: VTS

Column phase: ZB-5msi

Column diameter: 0.32

61 Anthracene

Concentration: 92890 ug/kg



Data File: /chem1/nt12.i/20101110.b/rs97o.d

Date : 10-NOV-2010 18:21

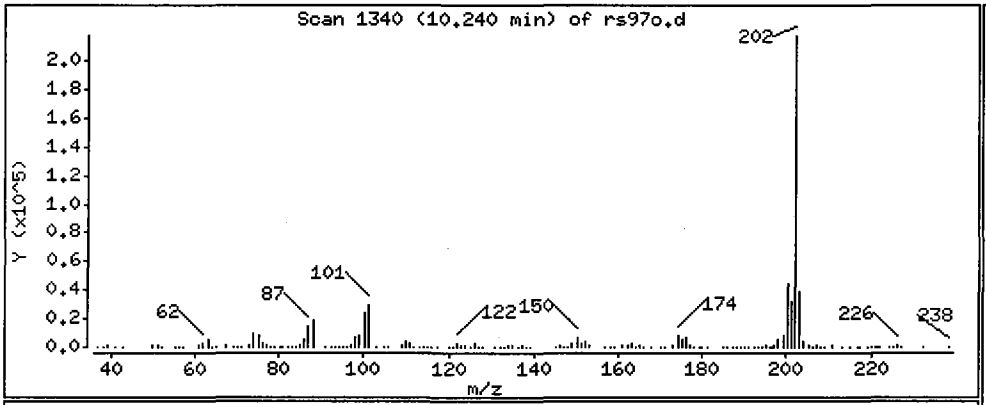
Client ID: DGS-07-8.79.1-10101 Instrument: nt12.i

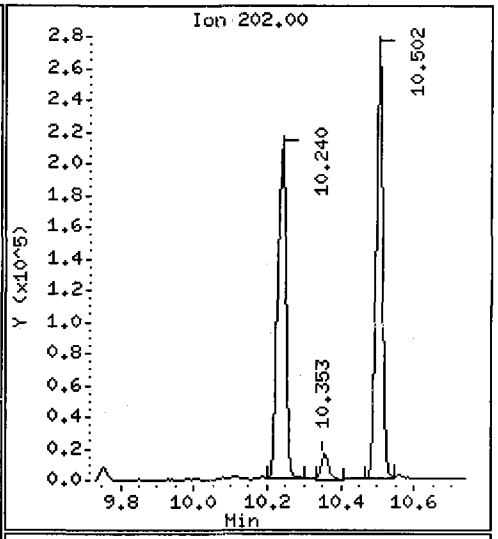
Sample Info: RS97O,3

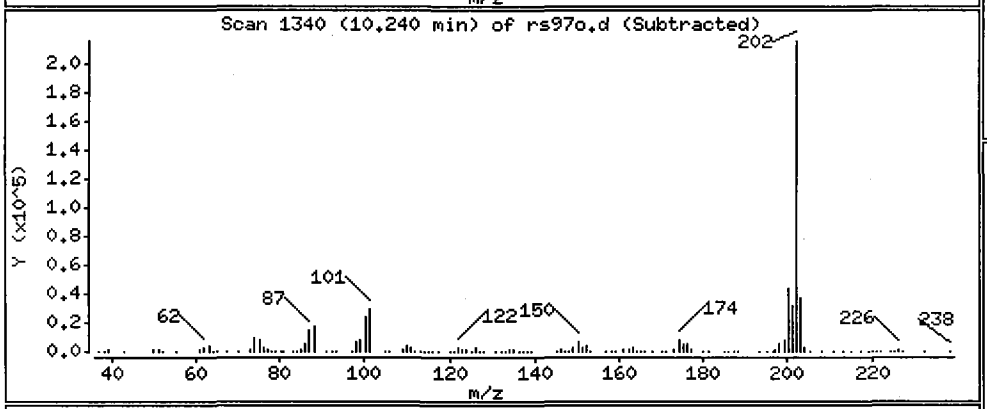
Volume Injected (uL): 1.0 Operator: VTS

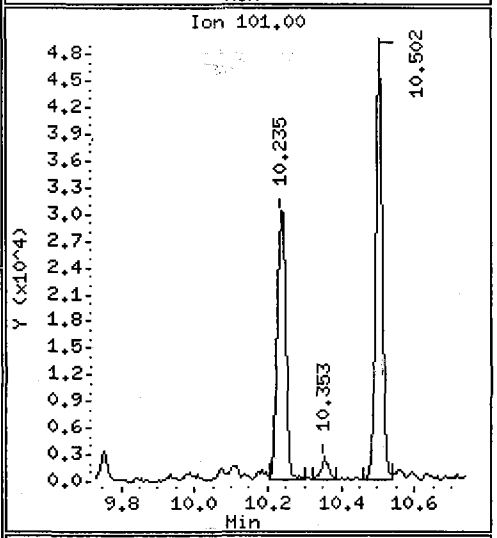
Column phase: ZB-5msi Column diameter: 0.32

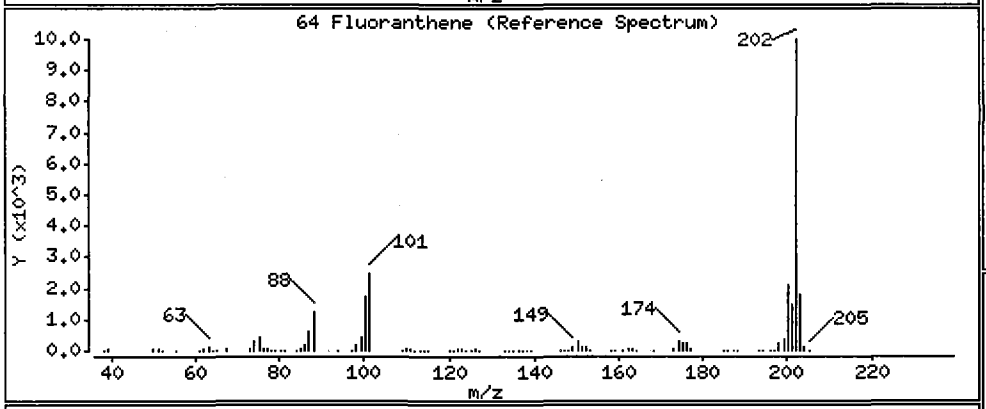
64 Fluoranthene Concentration: 216800 ug/kg

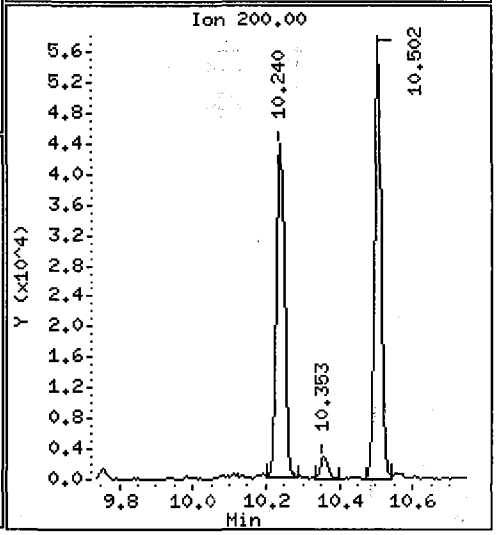


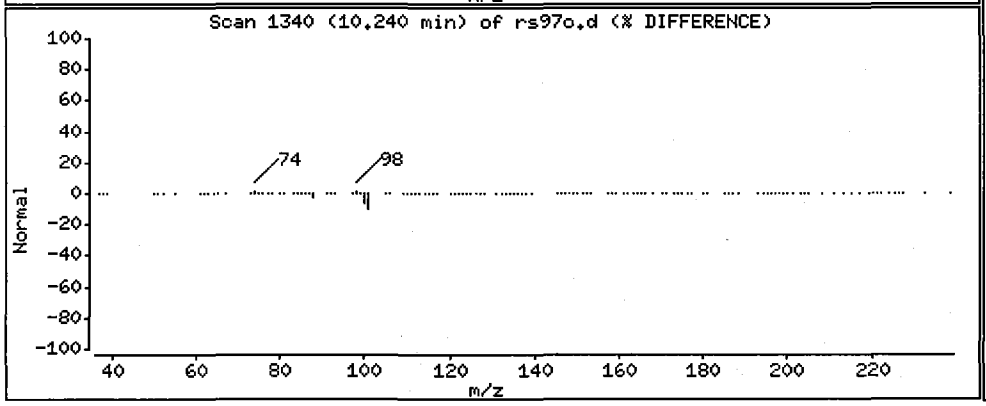












Data File: /chem1/nt12.i/20101110.b/rs97o.d

Date : 10-NOV-2010 18:21

Client ID: DGS-07-8.79.1-10101

Instrument: nt12.i

Sample Info: RS97O,3

Volume Injected (uL): 1.0

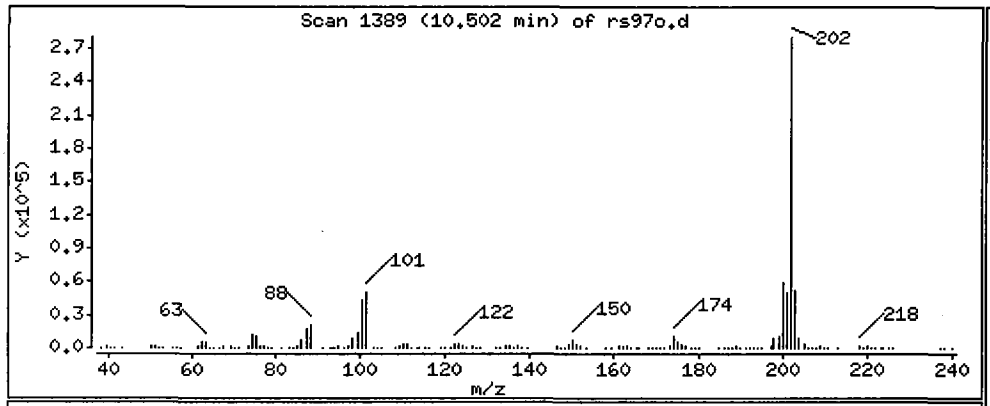
Operator: VTS

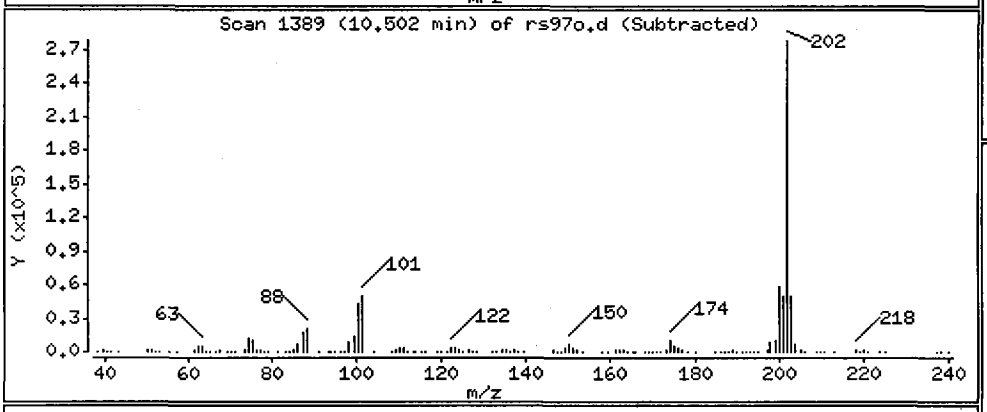
Column phase: ZB-5msi

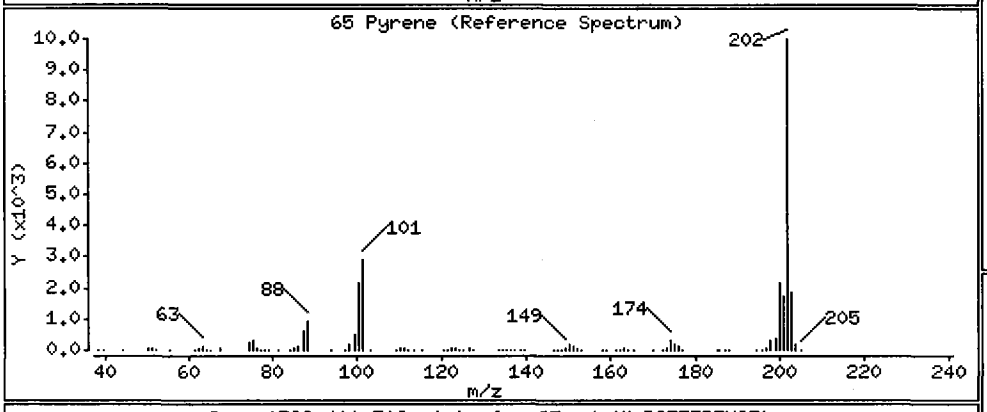
Column diameter: 0.32

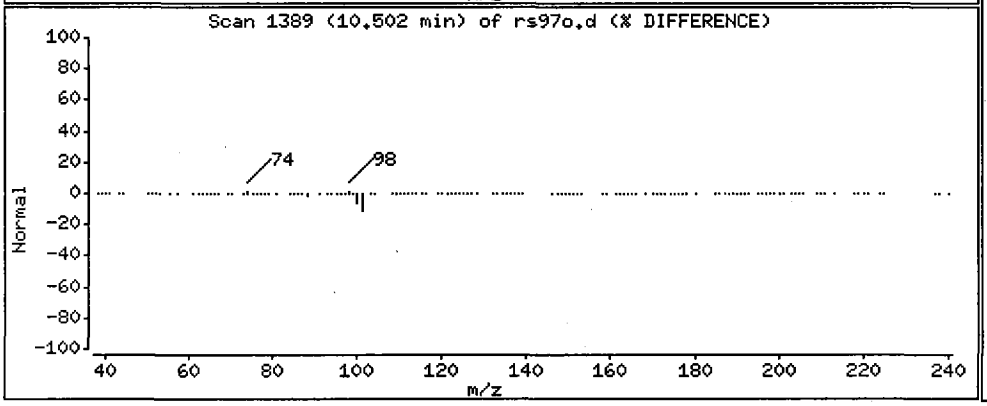
65 Pyrene

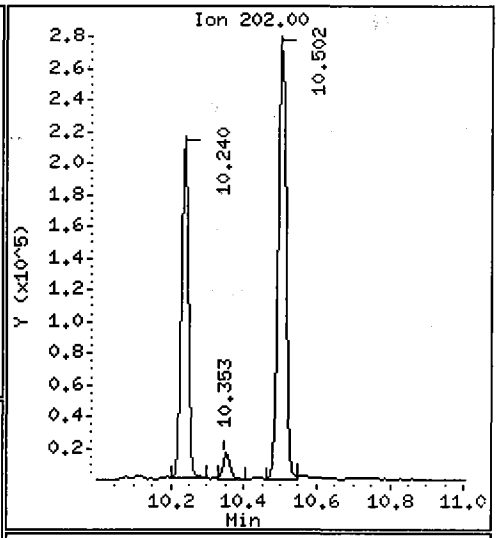
Concentration: 259800 ug/kg

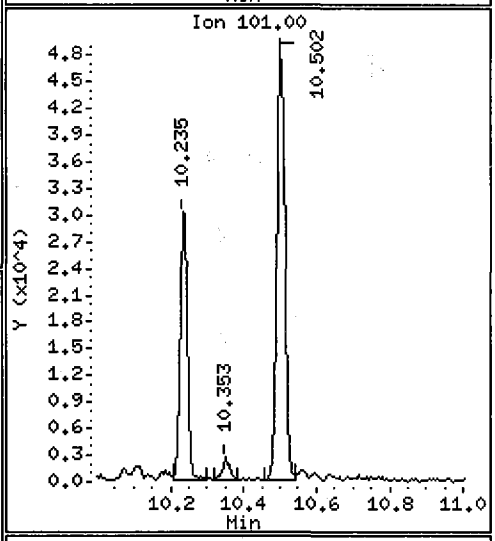


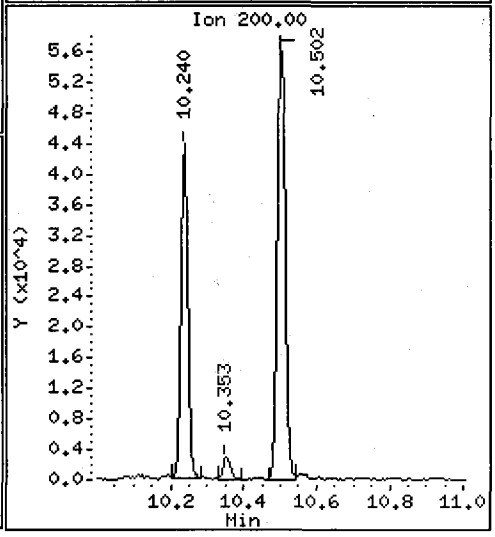












Data File: /chem1/nt12.i/20101110.b/rs97o.d

Date : 10-NOV-2010 18:21

Client ID: DGS-07-8.79.1-10101

Instrument: nt12.i

Sample Info: RS97O,3

Volume Injected (uL): 1.0

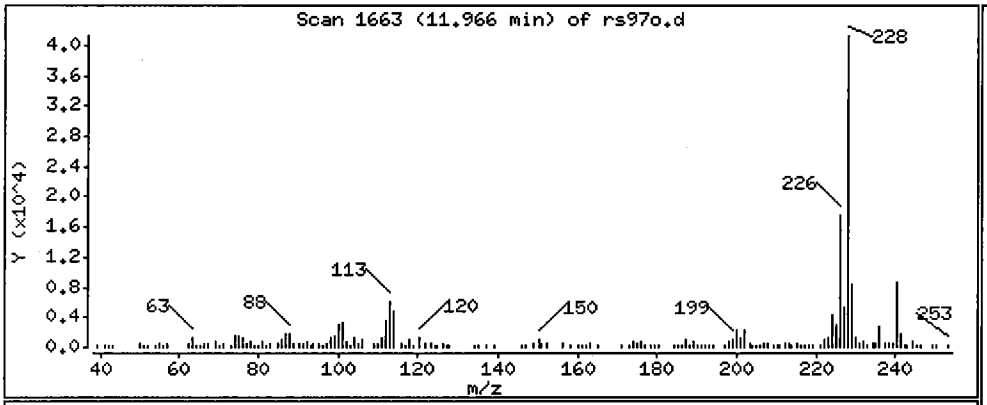
Operator: VTS

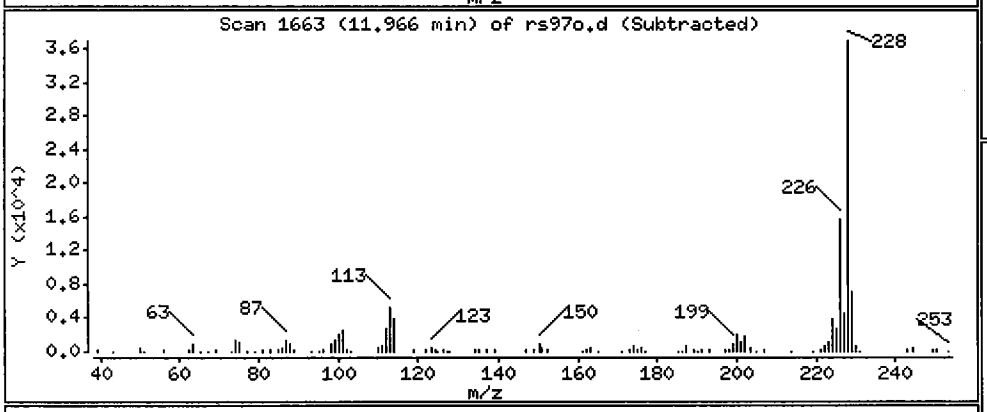
Column phase: ZB-5msi

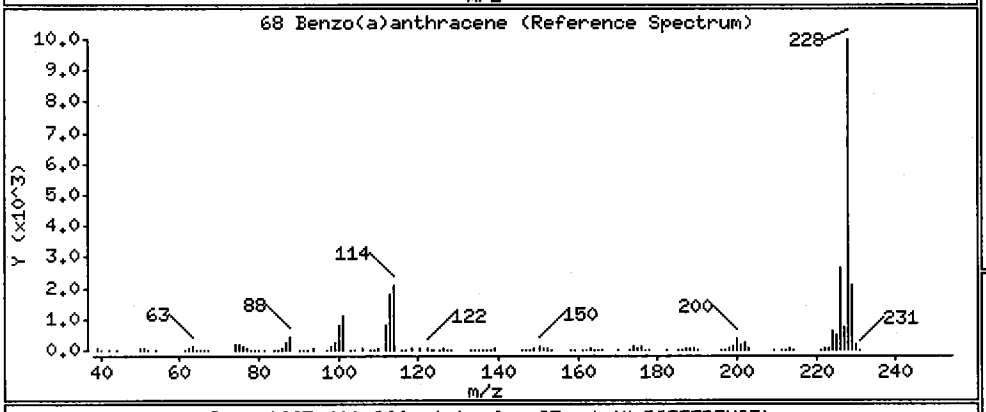
Column diameter: 0.32

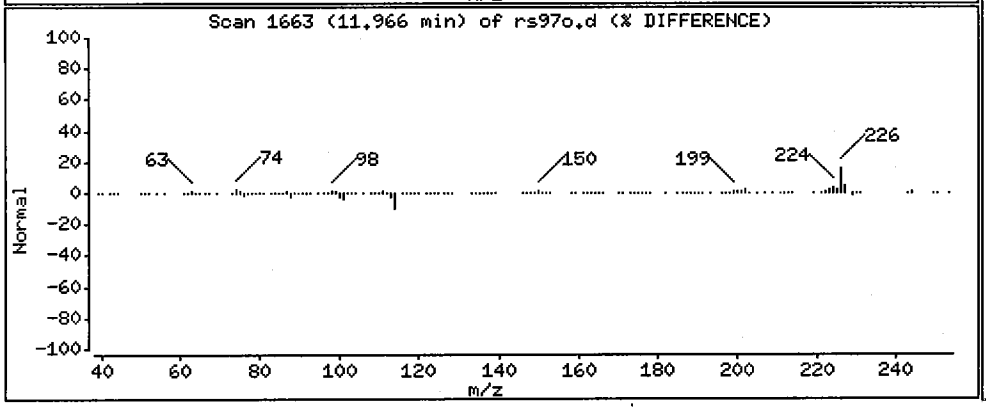
68 Benzo(a)anthracene

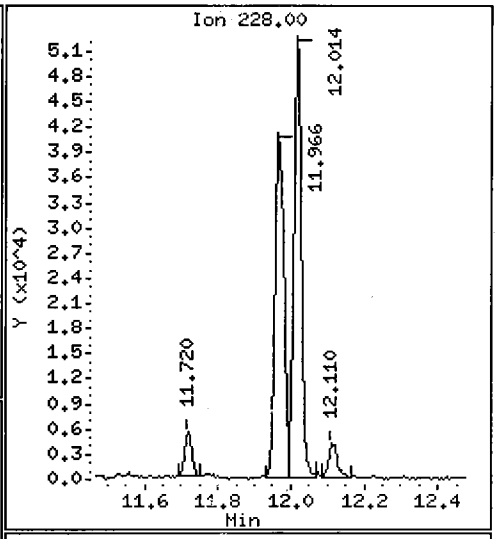
Concentration: 57350 ug/kg

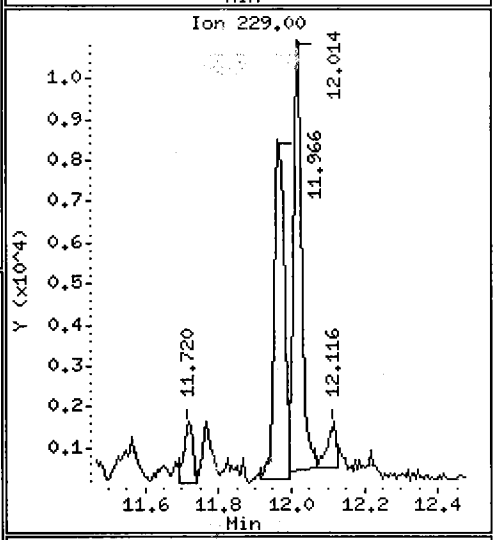


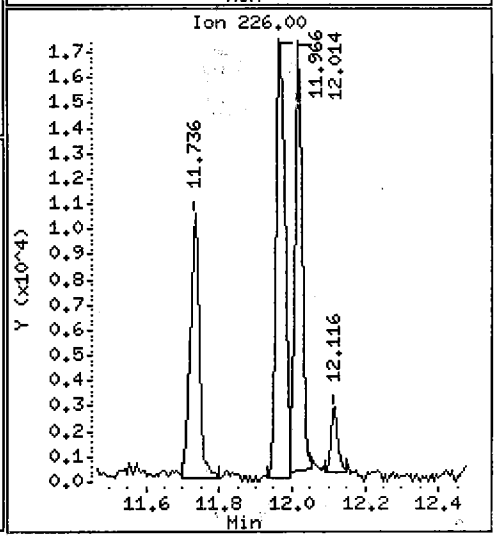












Data File: /chem1/nt12.i/20101110.b/rs97o.d

Date : 10-NOV-2010 18:21

Client ID: DGS-07-8.79.1-10101

Instrument: nt12.i

Sample Info: RS97O,3

Volume Injected (uL): 1.0

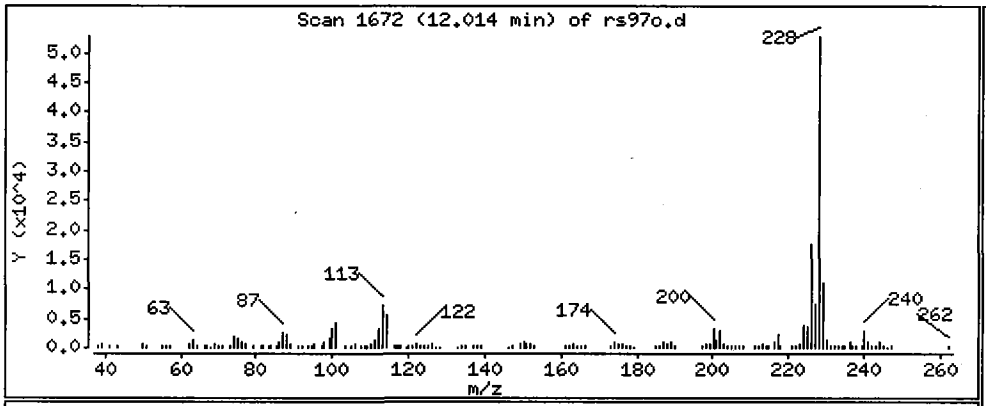
Operator: VTS

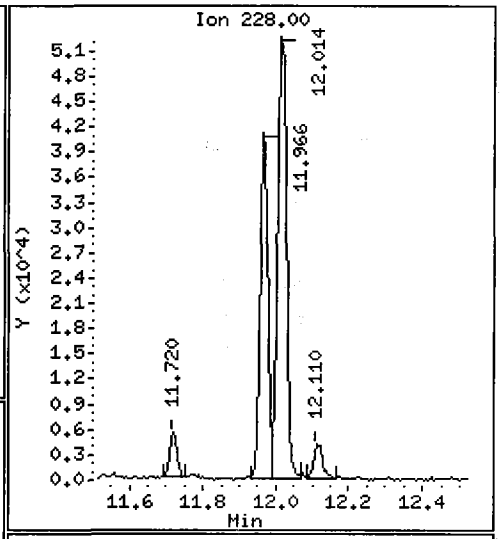
Column phase: ZB-5msi

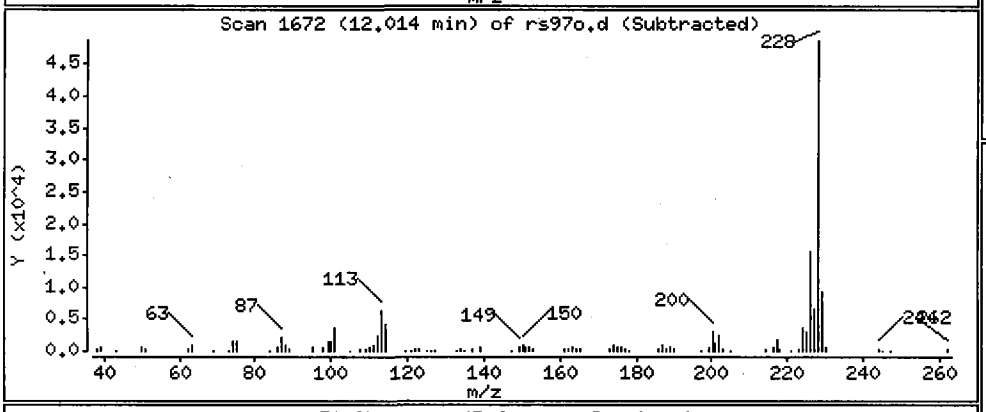
Column diameter: 0.32

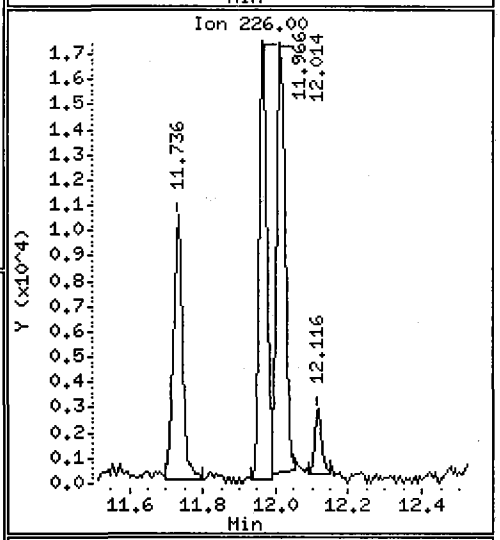
71 Chrysene

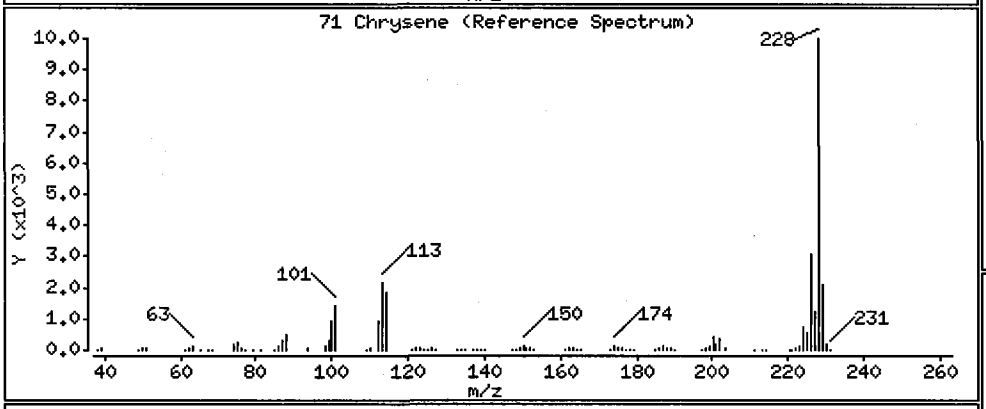
Concentration: 76460 ug/kg

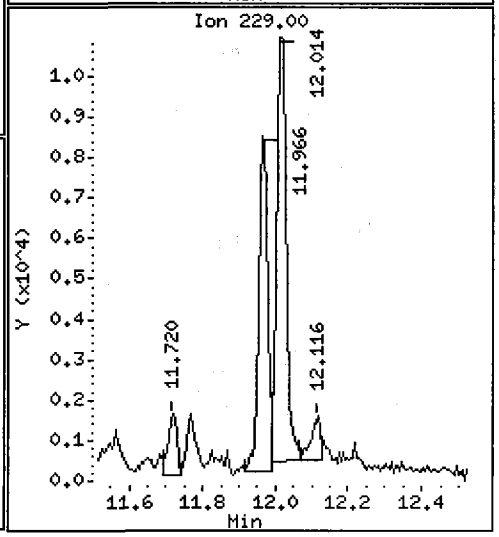


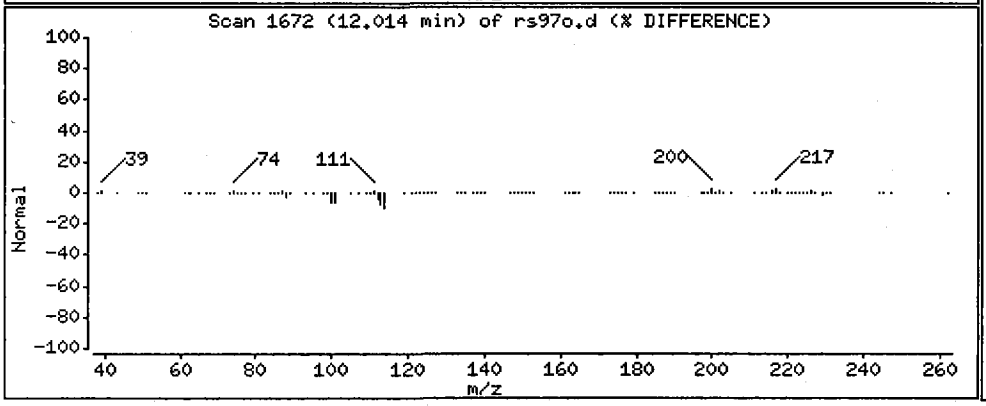












Data File: /chem1/nt12.i/20101110.b/rs97o.d

Date : 10-NOV-2010 18:21

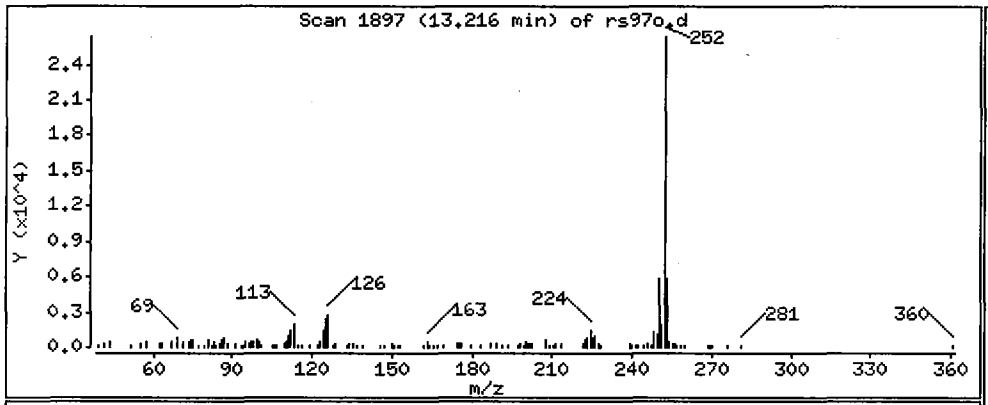
Client ID: DGS-07-8.79.1-10101 Instrument: nt12.i

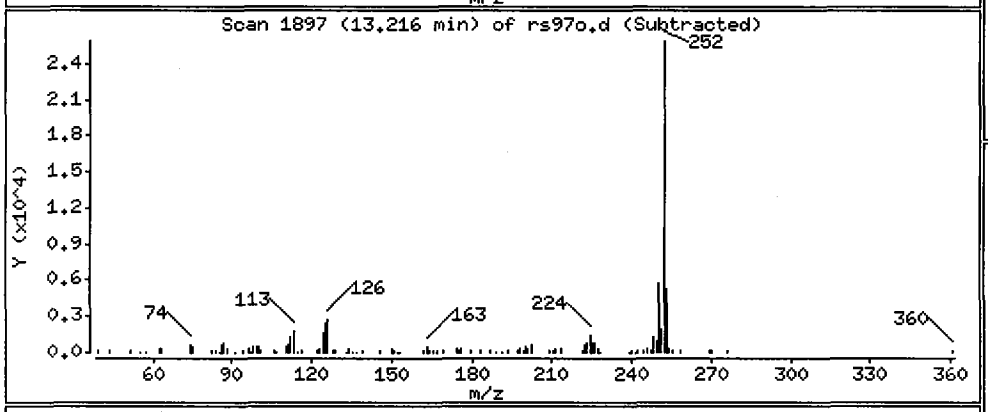
Sample Info: RS97O,3

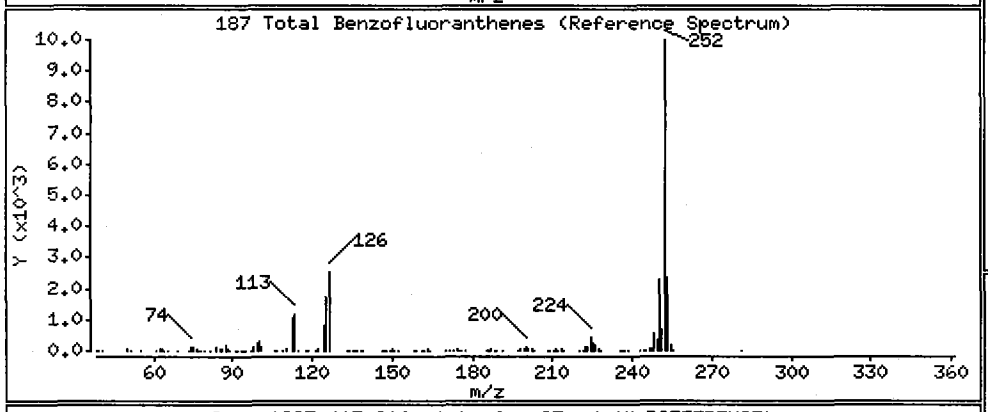
Volume Injected (uL): 1.0 Operator: VTS

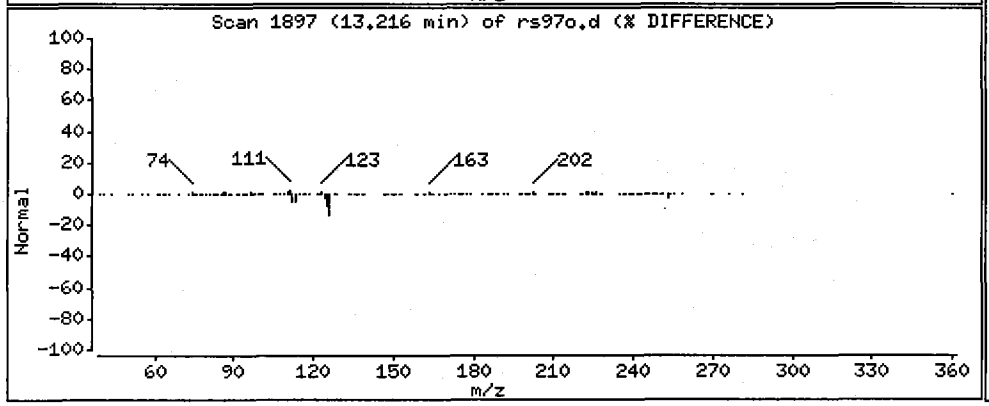
Column phase: ZB-5msi Column diameter: 0.32

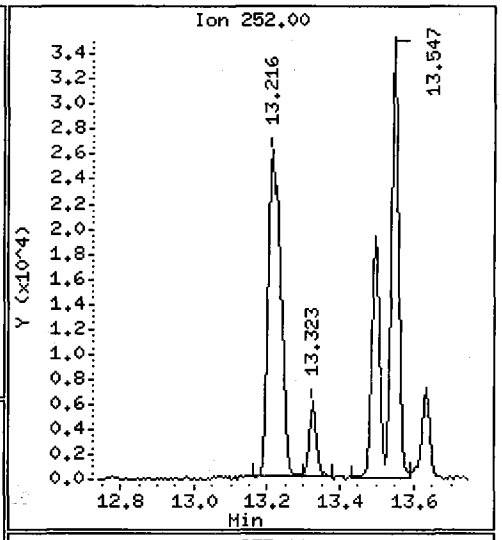
187 Total Benzofluoranthenes Concentration: 65220 ug/kg

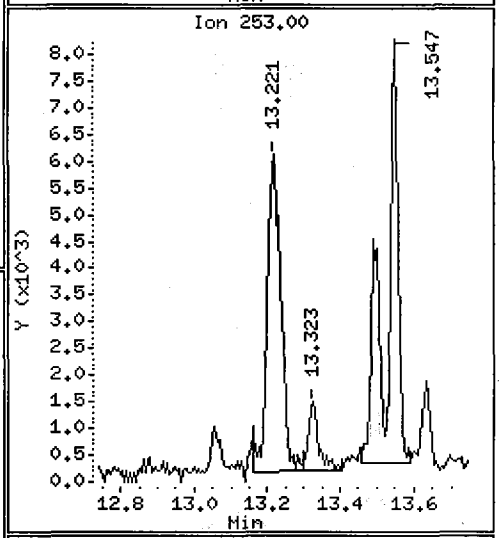


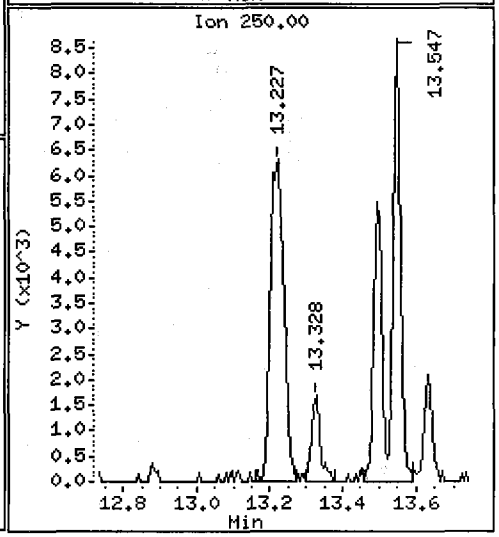












Data File: /chem1/nt12.i/20101110.b/rs97o.d

Date : 10-NOV-2010 18:21

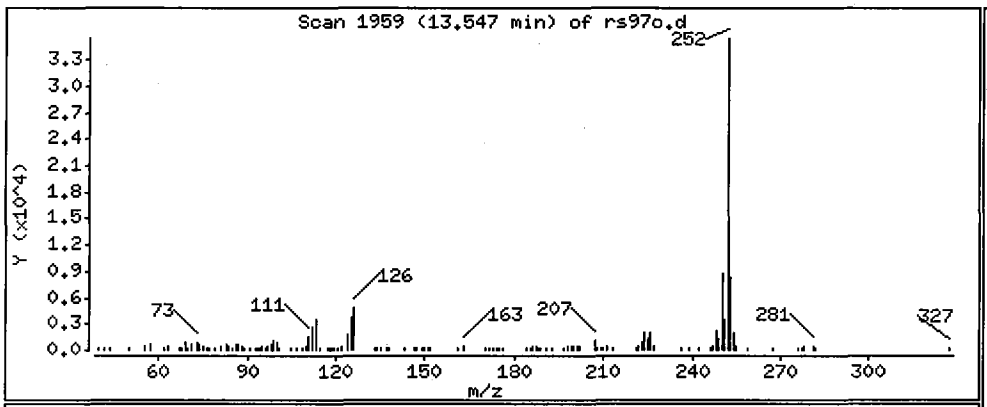
Client ID: DGS-07-8.79.1-10101 Instrument: nt12.i

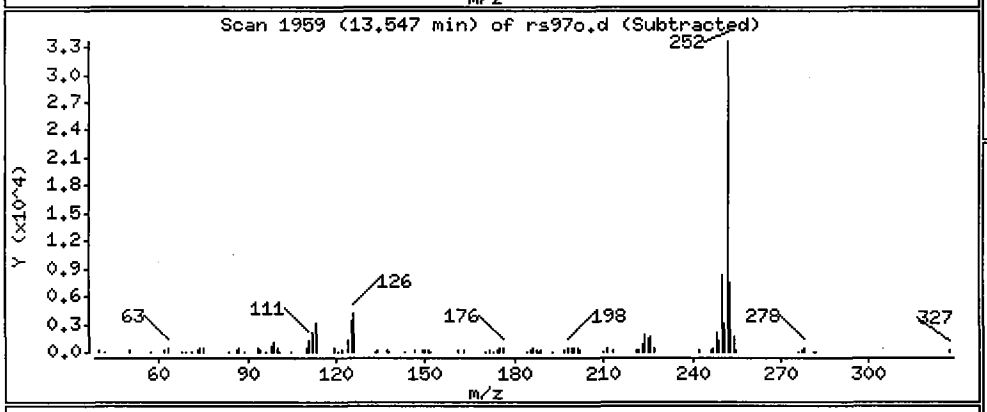
Sample Info: RS97O,3

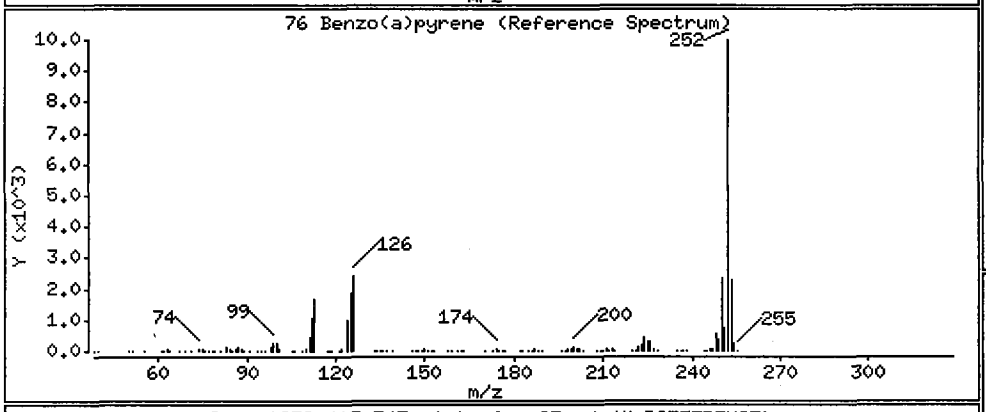
Volume Injected (uL): 1.0 Operator: VTS

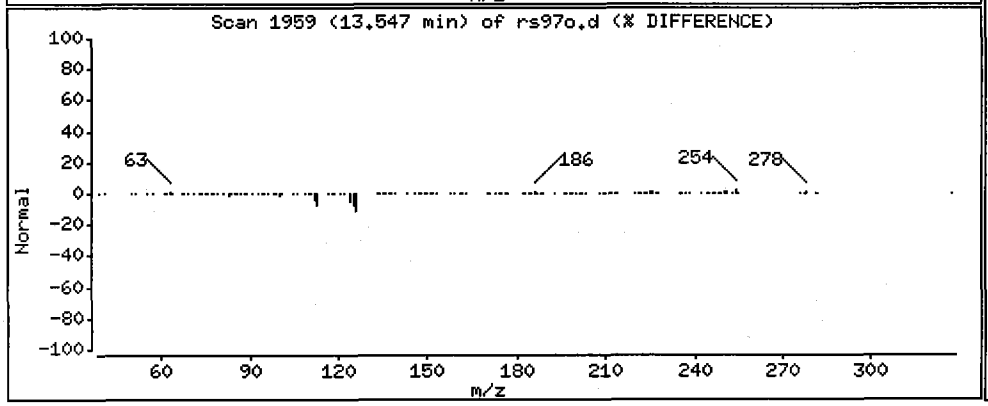
Column phase: ZB-5msi Column diameter: 0.32

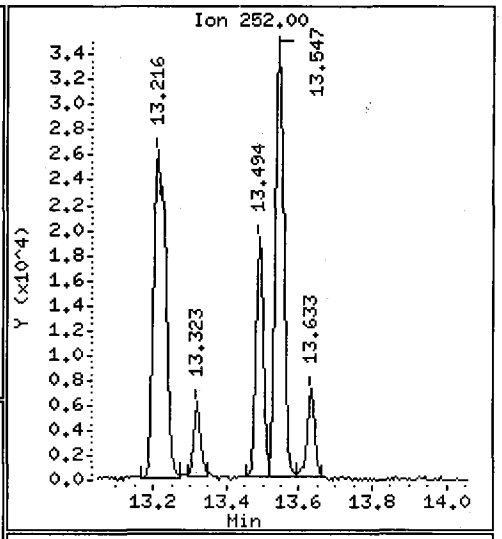
76 Benzo(a)pyrene Concentration: 55740 ug/kg

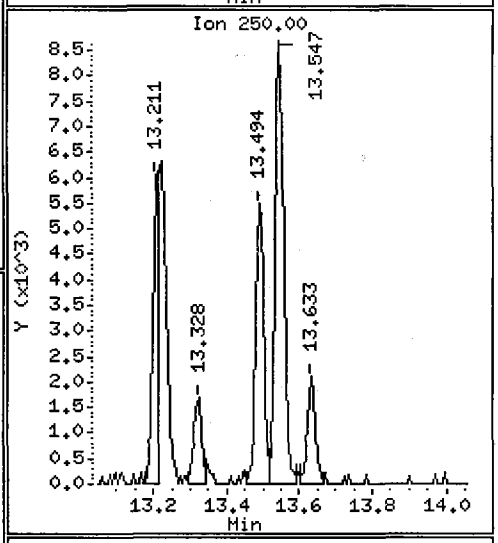


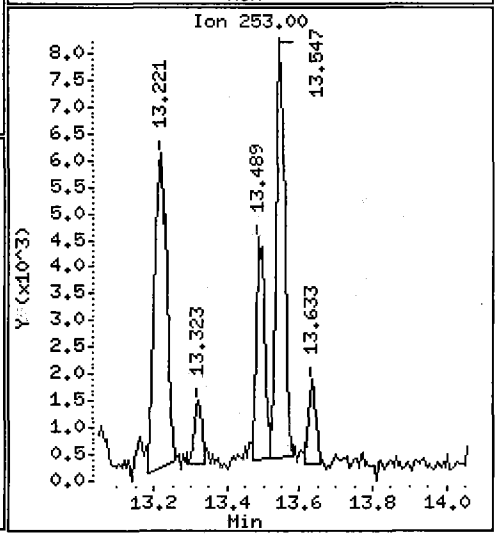












Data File: /chem1/nt12.i/20101110.b/rs97o.d

Date : 10-NOV-2010 18:21

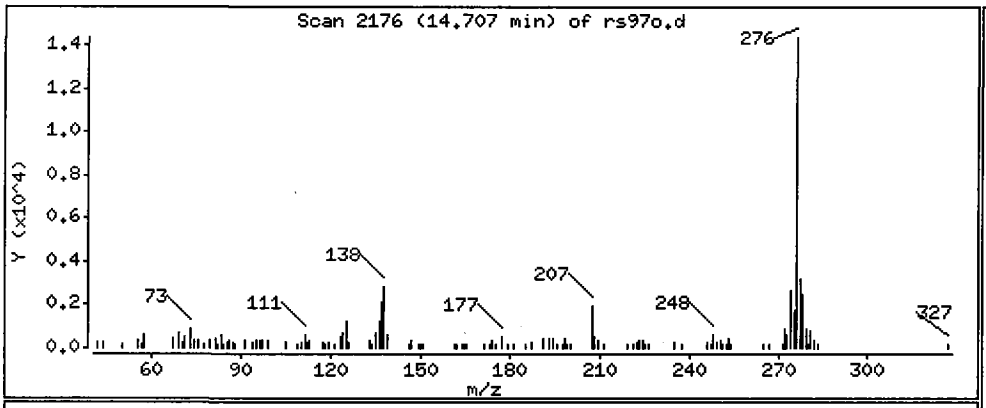
Client ID: DGS-07-8.79.1-10101 Instrument: nt12.i

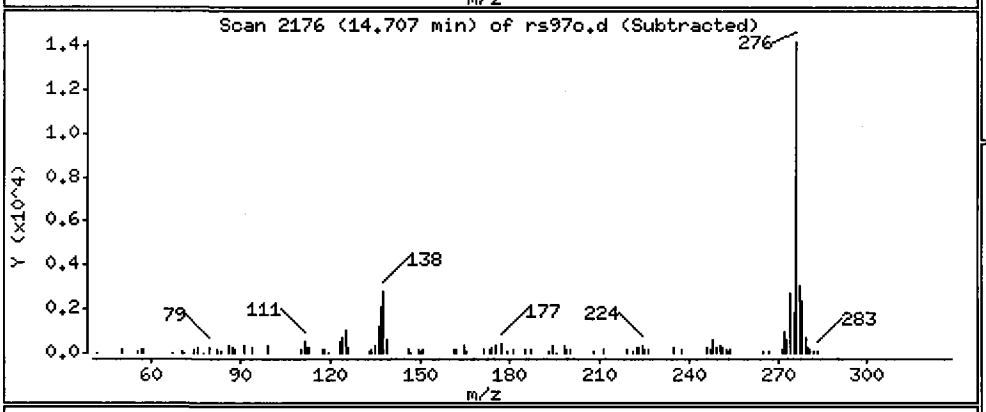
Sample Info: RS97O,3

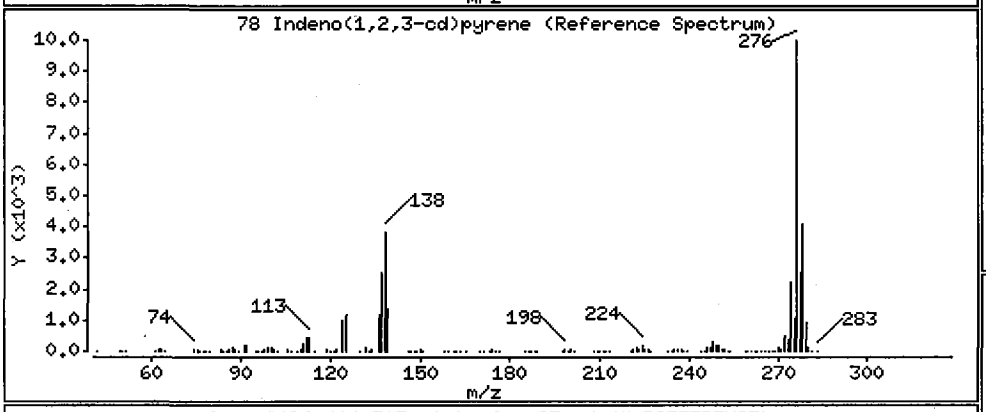
Volume Injected (uL): 1.0 Operator: VTS

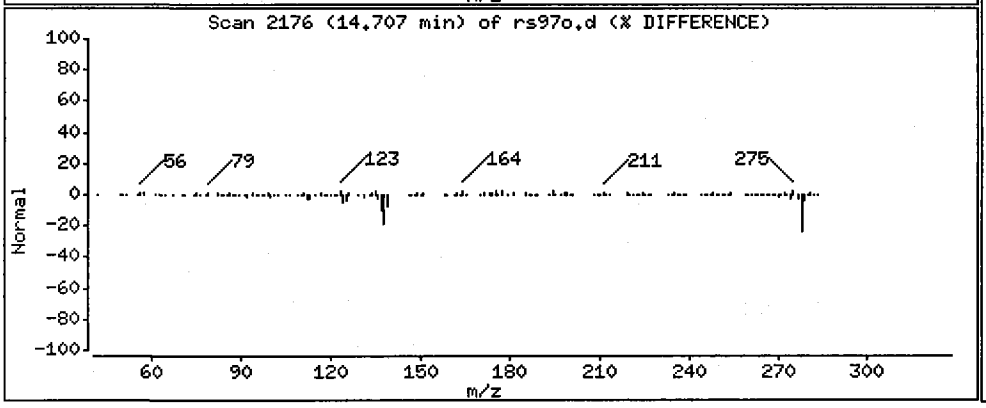
Column phase: ZB-5msi Column diameter: 0.32

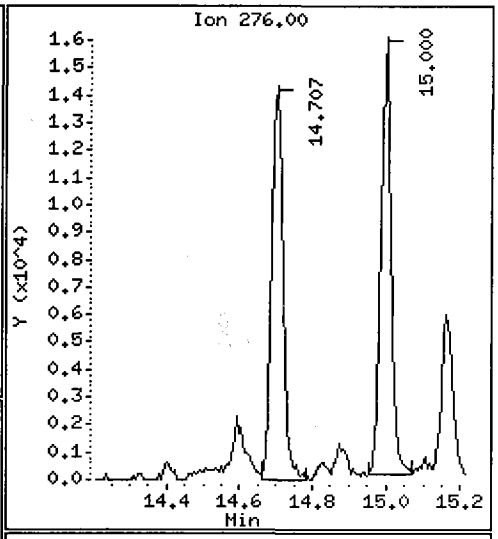
78 Indeno(1,2,3-cd)pyrene Concentration: 22370 ug/kg

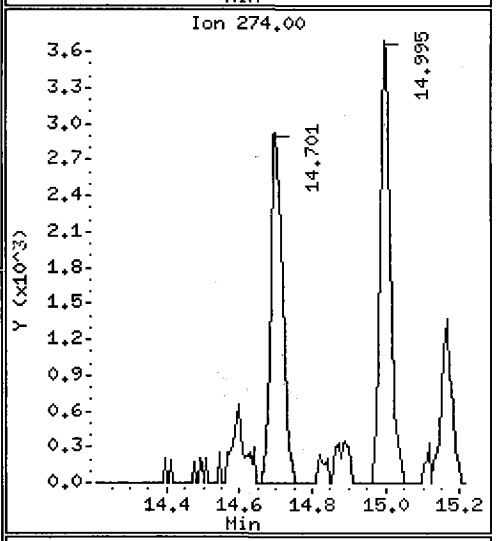


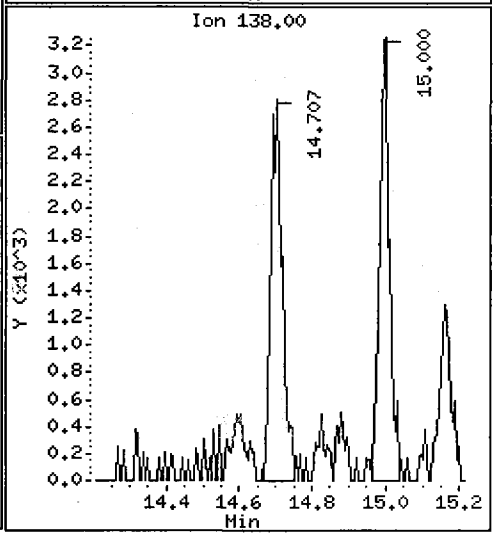












Data File: /chem1/nt12.i/20101110.b/rs97o.d

Date : 10-NOV-2010 18:21

Client ID: DGS-07-8.79.1-10101

Instrument: nt12.i

Sample Info: RS97O,3

Volume Injected (uL): 1.0

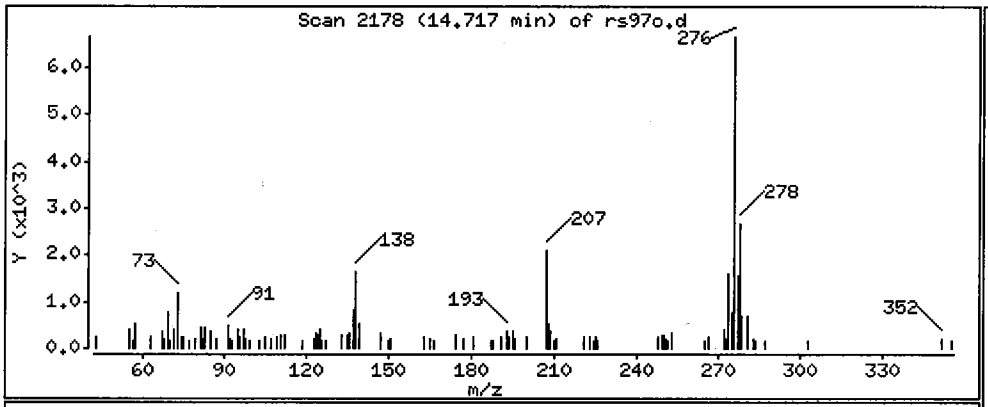
Operator: VTS

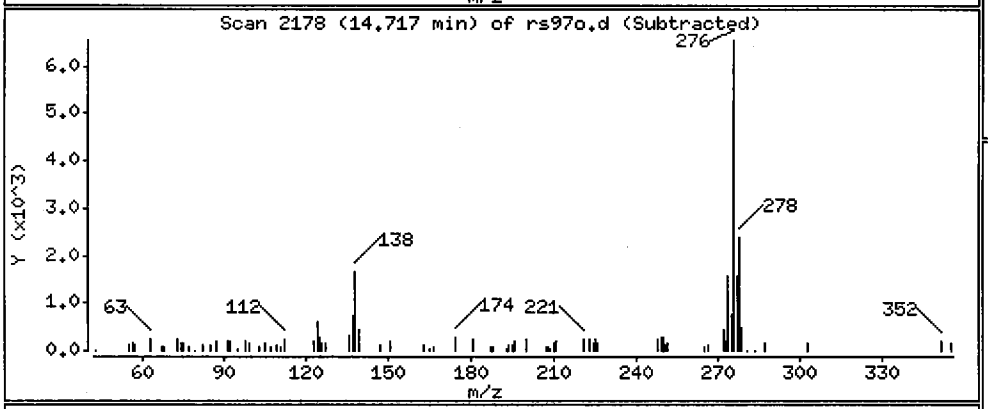
Column phase: ZB-5msi

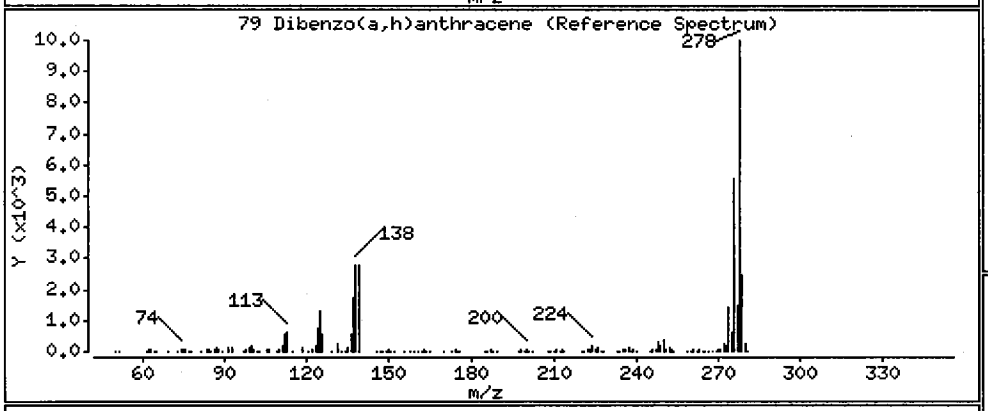
Column diameter: 0.32

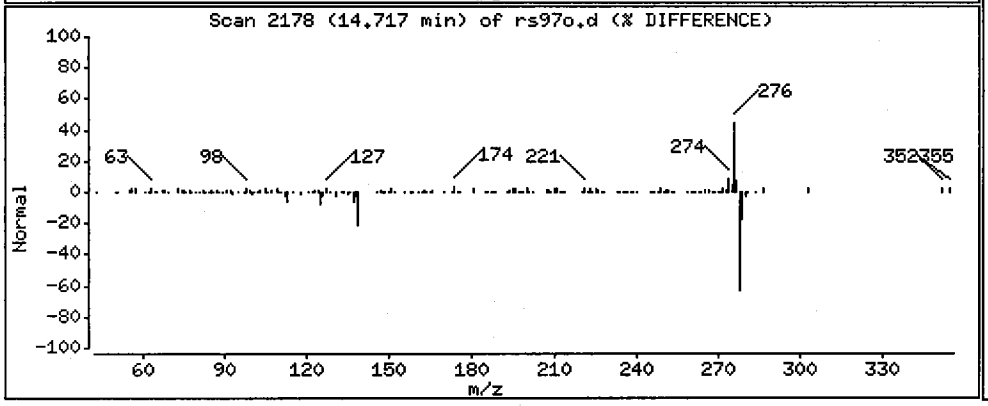
79 Dibenzo(a,h)anthracene

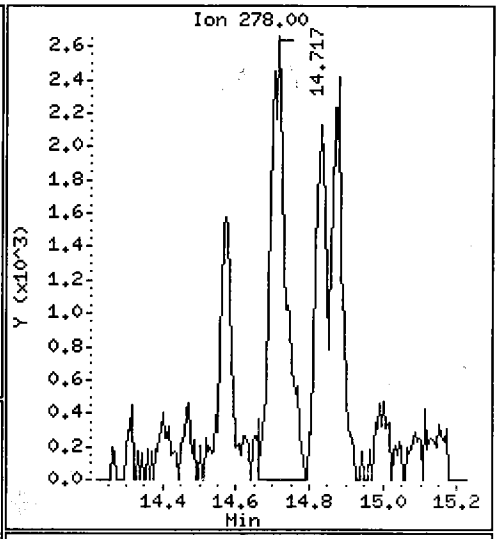
Concentration: 7137 ug/kg

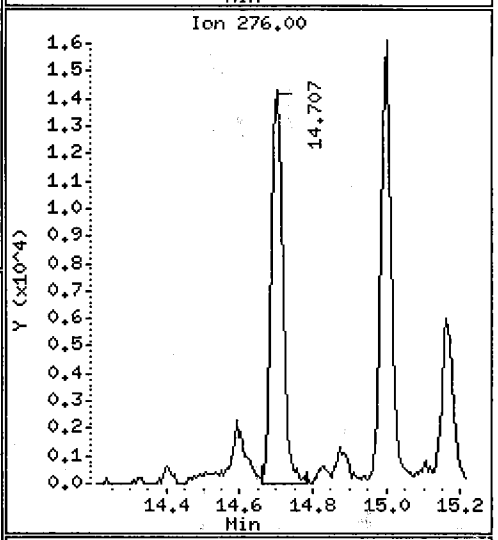


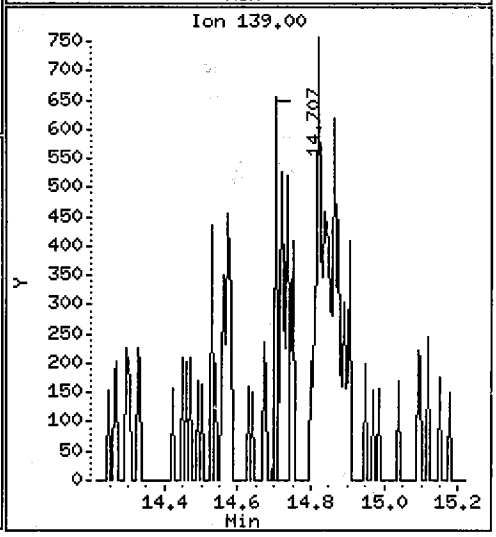












Data File: /chem1/nt12.i/20101110.b/rs97o.d

Date : 10-NOV-2010 18:21

Client ID: DCS-07-8.79.1-10101

Instrument: nt12.i

Sample Info: RS97O,3

Volume Injected (uL): 1.0

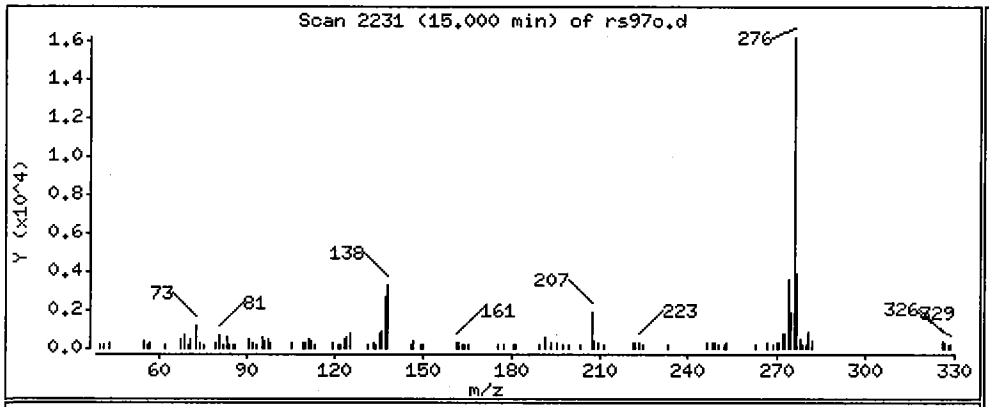
Operator: VTS

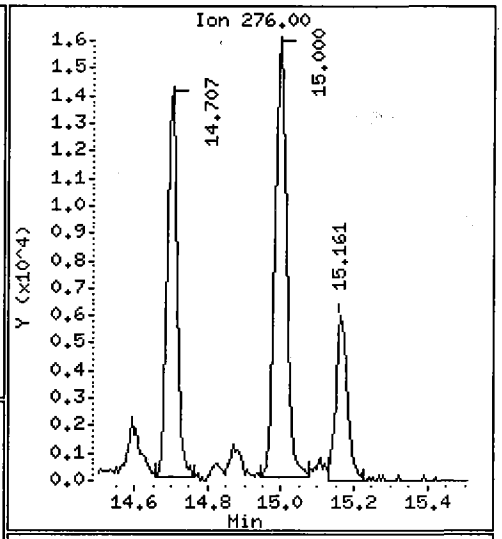
Column phase: ZB-5msi

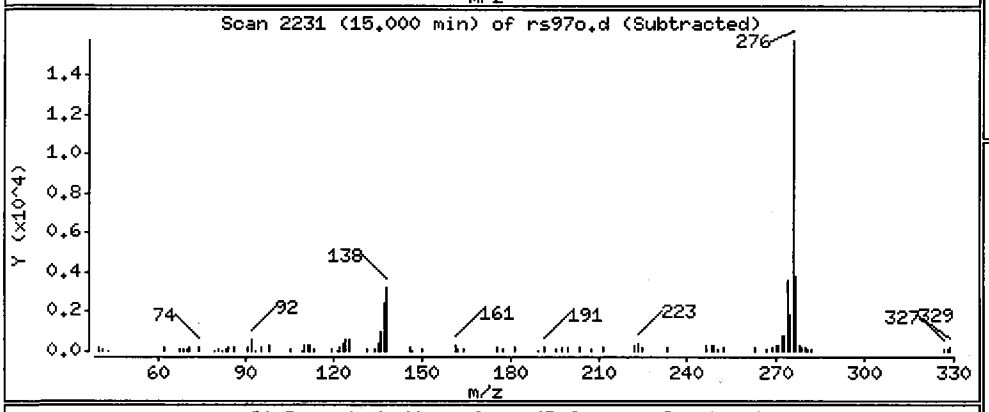
Column diameter: 0.32

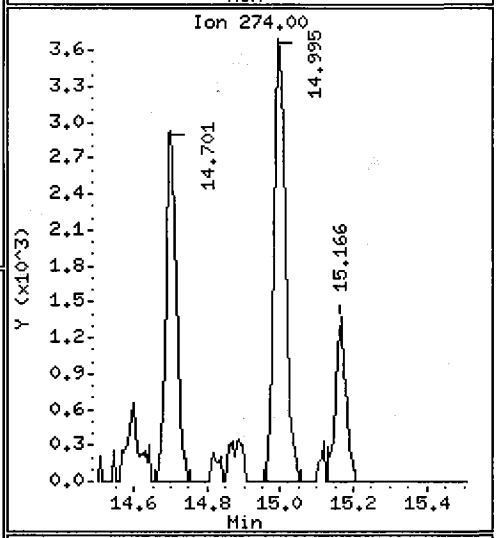
80 Benzo(g,h,i)perylene

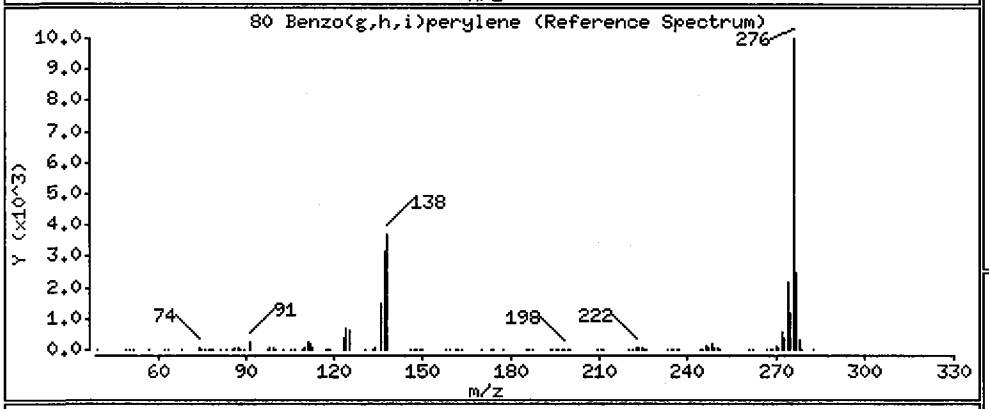
Concentration: 29880 ug/kg

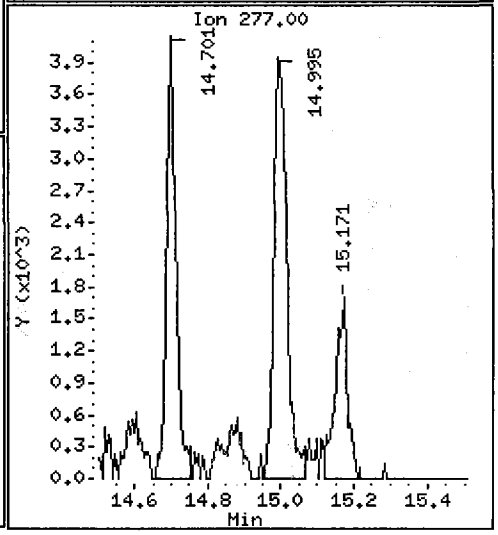


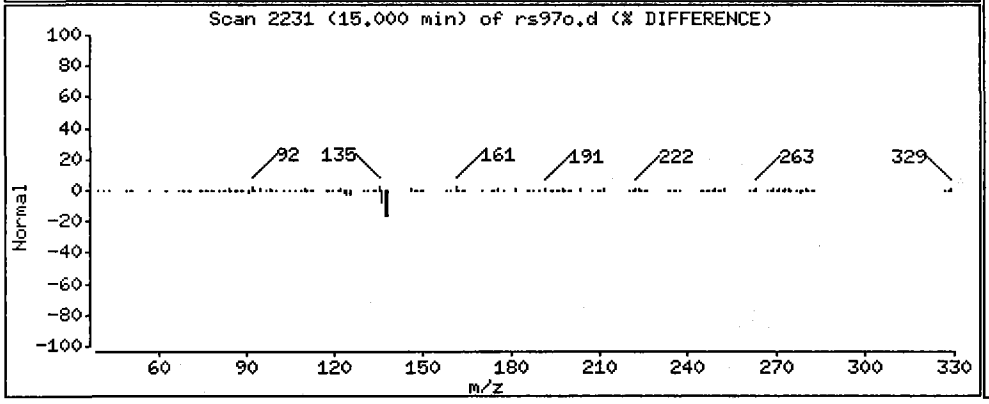












Analytical Resources, Inc.

Semivolatile Report SW846 Method 8270D

Data file : /chem1/nt12.i/20101110.b/rs97p.d
Lab Smp Id: RS97P
Client Smp ID: DGS-07-9.710-101012
Inj Date : 10-NOV-2010 18:45
Operator : VTS
Inst ID: nt12.i
Smp Info : RS97P,3
Misc Info : 10-27432
Comment : 1ul Injection
Method : /chem1/nt12.i/20101110.b/PNADMD.m
Meth Date : 10-Nov-2010 14:46 van
Quant Type: ISTD
Cal Date : 30-OCT-2010 13:19
Cal File: ic1030f.d
Als bottle: 15
Dil Factor: 3.00000
Integrator: HP RTE
Compound Sublist: pnas.sub
Target Version: 3.50
Processing Host: cserv3

Concentration Formula: Amt * DF * Vt/(Ws * (100 - M)/100) * CpndVariable

Name	Value	Description
DF	3.00000	Dilution Factor
Vt	10000.00000	Volume of final extract (uL)
Ws	5.02000	Weight of sample extracted (g)
M	48.80000	% Moisture

Cpnd Variable Local Compound Variable

Compounds	QUANT SIG MASS	RT	EXP RT	REL RT	RESPONSE	CONCENTRATIONS ON-COLUMN (ug/mL)	FINAL (ug/kg)
* 27 Naphthalene-d8	136	4.887	4.888	(1.000)	191343	20.0000	
28 Naphthalene	128	4.909	4.909	(1.004)	487782	44.7909	522800
32 2-Methylnaphthalene	141	5.726	5.726	(1.172)	249245	42.8794	500500
105 1-methylnaphthalene	141	5.854	5.854	(1.198)	144538	24.1161	281500
$ 36 2-Fluorobiphenyl	172	6.202	6.202	(0.887)	4621	0.52817	6165
40 Acenaphthylene	152	6.805	6.805	(0.973)	11571	1.01613	11860 (M)
* 42 Acenaphthene-d10	164	6.992	6.992	(1.000)	113722	20.0000	
44 Acenaphthene	153	7.030	7.030	(1.005)	265729	37.9945	443500
46 Dibenzofuran	168	7.222	7.222	(1.033)	28782	2.68370	31320
49 Fluorene	166	7.639	7.639	(1.092)	171213	21.3810	249600
* 59 Phenanthrene-d10	188	8.766	8.761	(1.000)	208882	20.0000	
60 Phenanthrene	178	8.803	8.787	(1.004)	1572458	141.901	1656000 E
61 Anthracene	178	8.851	8.846	(1.010)	225885	19.7230	230200
62 Carbazole	167	9.065	9.065	(1.034)	28328	3.06609	35790 NR

	Compounds	QUANT SIG MASS	RT	EXP RT	REL RT	RESPONSE	CONCENTRATIONS ON-COLUMN (ug/mL)	CONCENTRATIONS FINAL (ug/kg)
	64 Fluoranthene	202	10.246	10.235	(0.854)	810239	61.5620	718600
	65 Pyrene	202	10.513	10.502	(0.877)	956407	73.2485	855000
$	66 Terphenyl-d14	244	10.737	10.737	(0.895)	4891	0.58720	6854
	68 Benzo(a)anthracene	228	11.971	11.971	(0.998)	155769	14.7212	171800
*	69 Chrysene-d12	240	11.992	11.993	(1.000)	188419	20.0000	
	71 Chrysene	228	12.019	12.019	(1.002)	177642	17.9571	209600
	187 Total Benzofluoranthenes	252	13.227	13.243	(0.972)	173910	17.8889	208800
	76 Benzo(a)pyrene	252	13.552	13.553	(0.996)	141406	15.8338	184800
*	77 Perylene-d12	264	13.611	13.611	(1.000)	163219	20.0000	
	99 Perylene	252	13.633	13.638	(1.002)	29245	~~3.07947~~	35940 NQ
	78 Indeno(1,2,3-cd)pyrene	276	14.706	14.712	(1.080)	83513	6.29863	73520
	79 Dibenzo(a,h)anthracene	278	14.712	14.723	(1.081)	19489	1.78537	20840
	80 Benzo(g,h,i)perylene	276	15.006	15.006	(1.102)	95443	8.76235	102300

QC Flag Legend

M - Compound response manually integrated.

VB
11-11-10

Analytical Resources, Inc.

INTERNAL STANDARD COMPOUNDS
AREA AND RT SUMMARY

Instrument ID: nt12.i
Lab File ID: rs97p.d
Lab Smp Id: RS97P
Analysis Type: SV
Quant Type: ISTD
Operator: VTS
Method File: /chem1/nt12.i/20101110.b/PNADMD.m
Misc Info: 10-27432

Calibration Date: 10-NOV-2010
Calibration Time: 13:29
Client Smp ID: DGS-07-9.710-101
Level: LOW
Sample Type: Sediment

Test Mode:
Use Initial Calibration Level 4.

COMPOUND	STANDARD	AREA LIMIT LOWER	AREA LIMIT UPPER	SAMPLE	%DIFF
27 Naphthalene-d8	237664	118832	475328	191343	-19.49
42 Acenaphthene-d10	143363	71682	286726	113722	-20.68
59 Phenanthrene-d10	245437	122718	490874	208882	-14.89
69 Chrysene-d12	199260	99630	398520	188419	-5.44
77 Perylene-d12	197636	98818	395272	163219	-17.41

COMPOUND	STANDARD	RT LIMIT LOWER	RT LIMIT UPPER	SAMPLE	%DIFF
27 Naphthalene-d8	4.89	4.39	5.39	4.89	0.00
42 Acenaphthene-d10	6.99	6.49	7.49	6.99	0.00
59 Phenanthrene-d10	8.76	8.26	9.26	8.77	0.06
69 Chrysene-d12	11.99	11.49	12.49	11.99	0.00
77 Perylene-d12	13.61	13.11	14.11	13.61	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.

Analytical Resources, Inc.

RECOVERY REPORT

Client Name: NW Natural
Sample Matrix: SOLID
Lab Smp Id: RS97P
Level: LOW
Data Type: MS DATA
SpikeList File: SONICLCS.spk
Sublist File: pnas.sub
Method File: /chem1/nt12.i/20101110.b/PNADMD.m
Misc Info: 10-27432

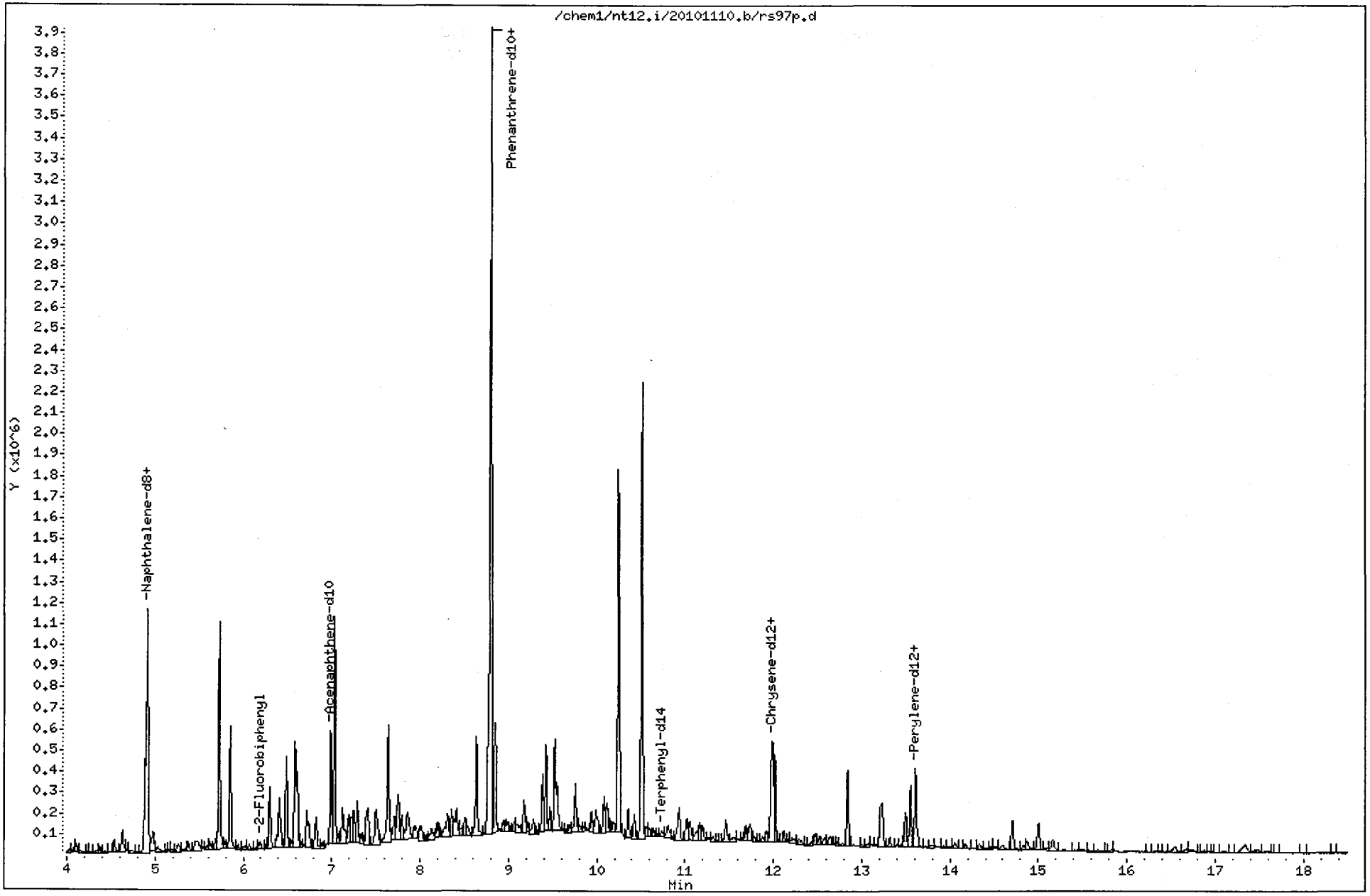
Client SDG: RS97
Fraction: SV
Client Smp ID: DGS-07-9.710-101012
Operator: VTS
SampleType: SAMPLE
Quant Type: ISTD

SURROGATE COMPOUND	CONC ADDED ug/kg	CONC RECOVERED ug/kg	% RECOVERED	LIMITS
$ 36 2-Fluorobiphenyl	9727	6165	63.38	34-100
$ 66 Terphenyl-d14	9727	6854	70.46	35-112

Data File: /chem1/nt12.i/20101110.b/rs97p.d
Date : 10-NOV-2010 18:45
Client ID: DGS-07-9.710-101012
Sample Info: RS97P,3
Volume Injected (uL): 1.0
Column phase: ZB-5msi

Instrument: nt12.i

Operator: VTS
Column diameter: 0.32



RS97:00559

Data File: /chem1/nt12.i/20101110.b/rs97p.d

Date : 10-NOV-2010 18:45

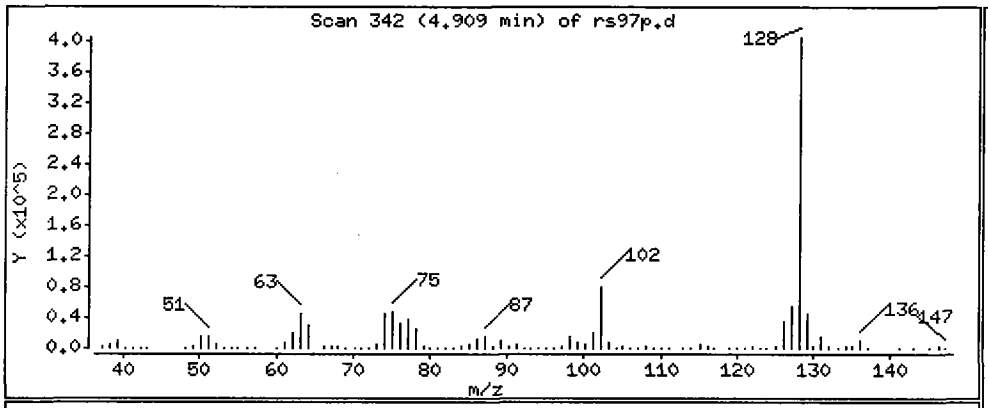
Client ID: DGS-07-9.710-101012 Instrument: nt12.i

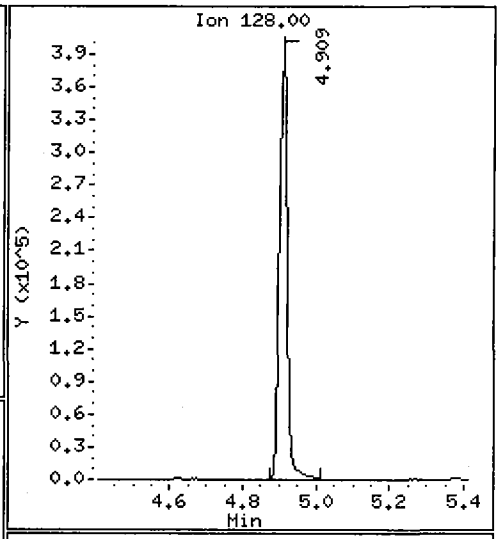
Sample Info: RS97P,3

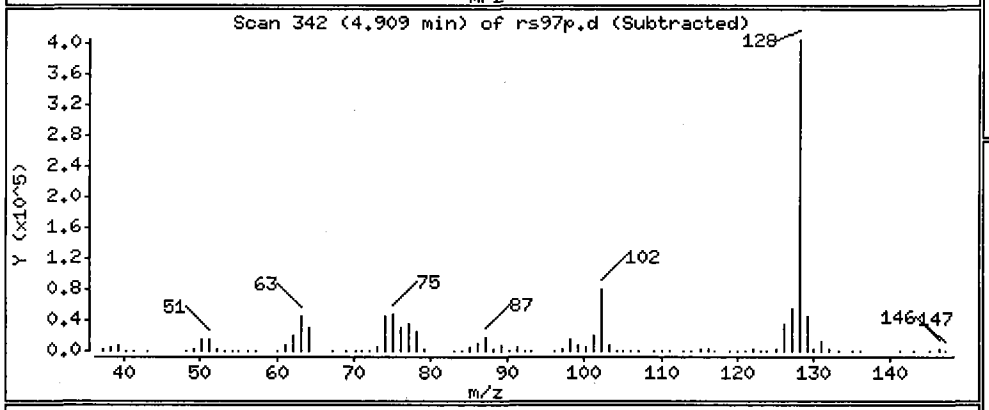
Volume Injected (uL): 1.0 Operator: VTS

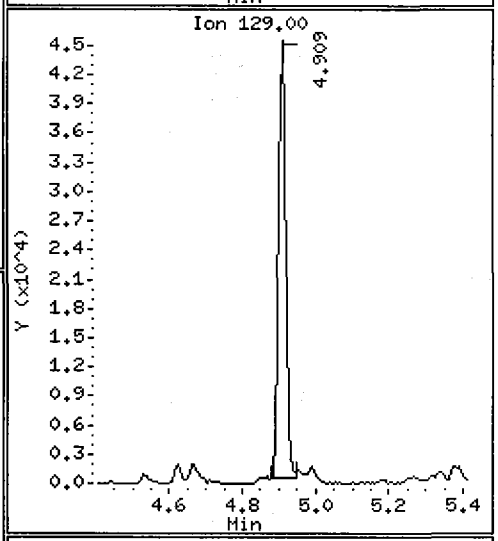
Column phase: ZB-5msi Column diameter: 0.32

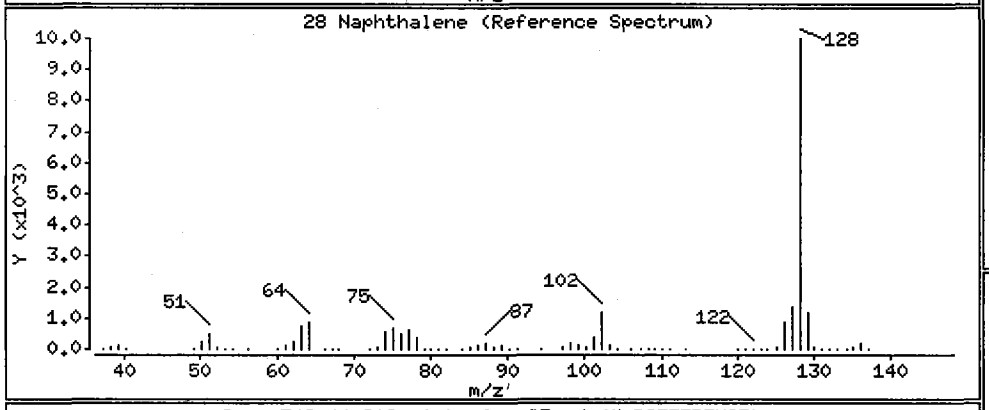
28 Naphthalene Concentration: 522800 ug/kg

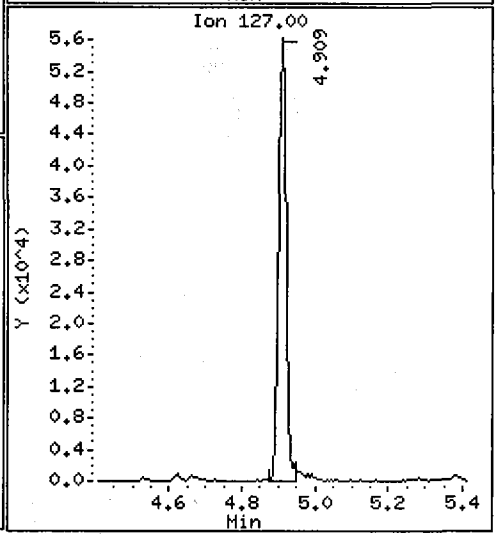


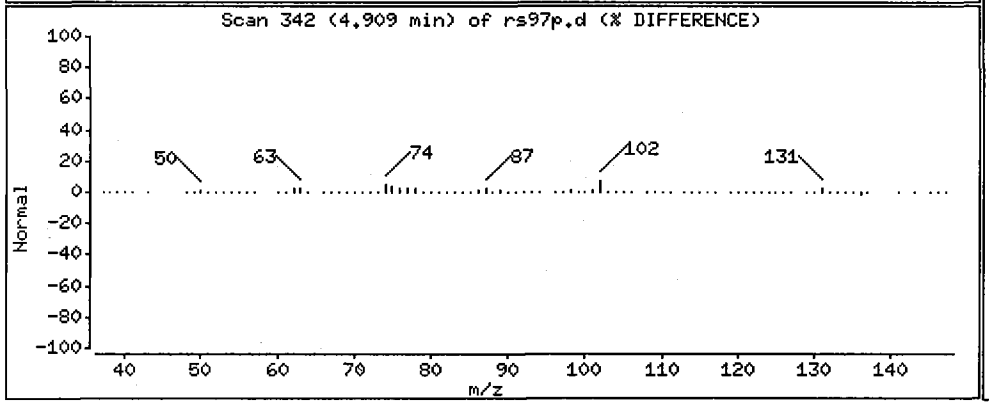












Data File: /chem1/nt12.i/20101110.b/rs97p.d

Date : 10-NOV-2010 18:45

Client ID: DGS-07-9.710-101012

Instrument: nt12.i

Sample Info: RS97P,3

Volume Injected (uL): 1.0

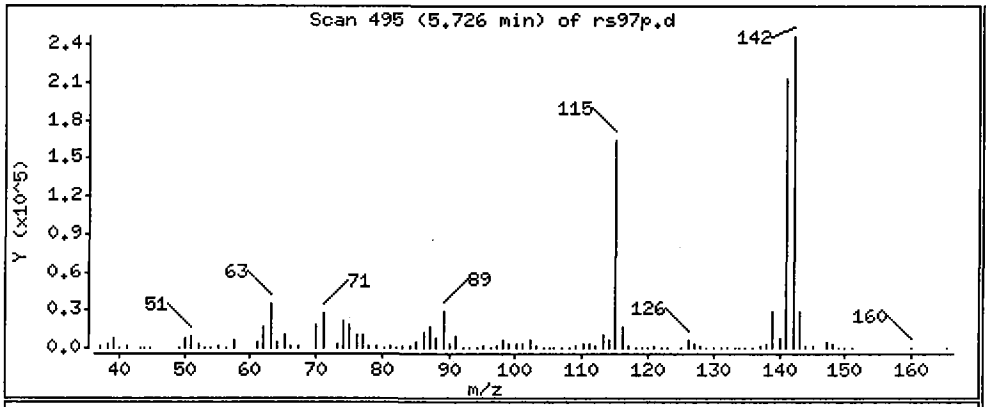
Operator: VTS

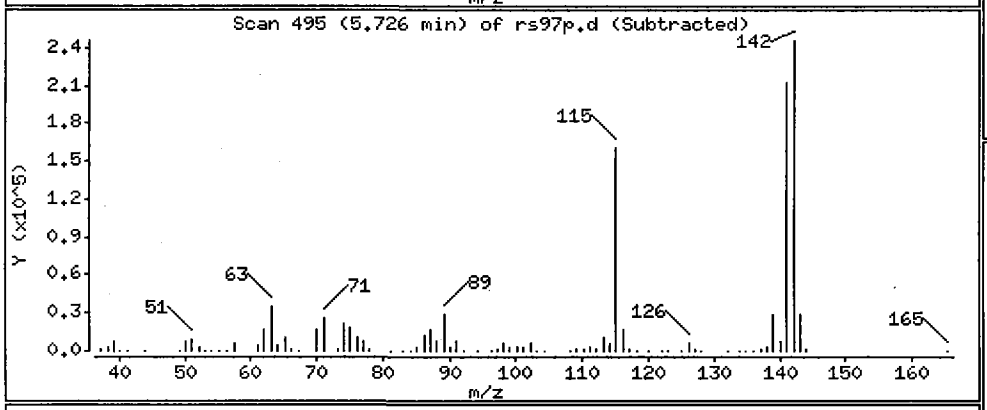
Column phase: ZB-5msi

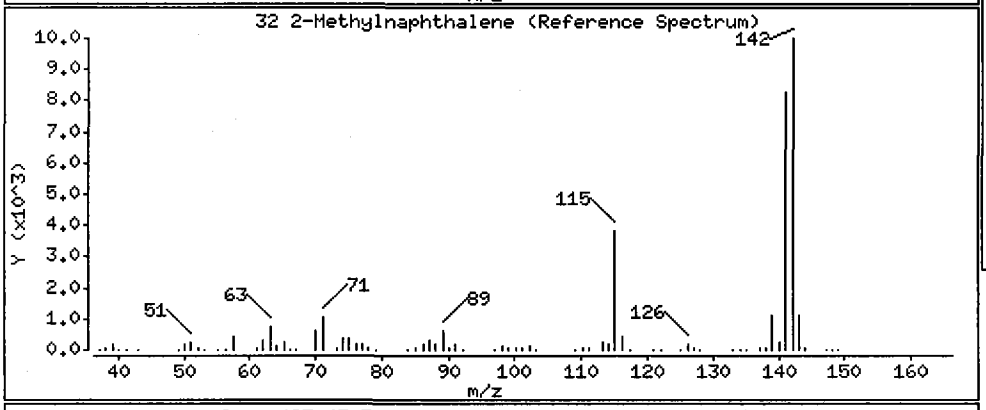
Column diameter: 0.32

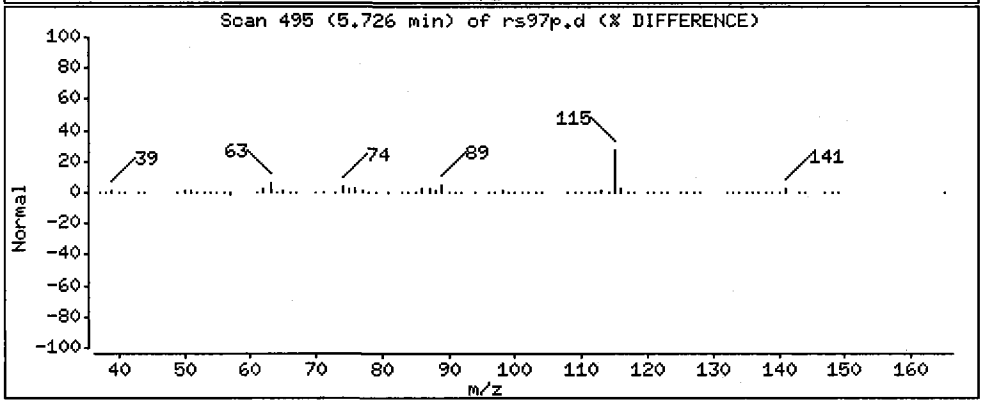
32 2-Methylnaphthalene

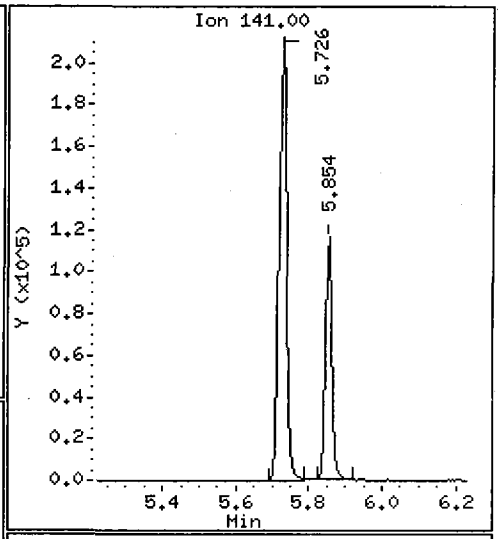
Concentration: 500500 ug/kg

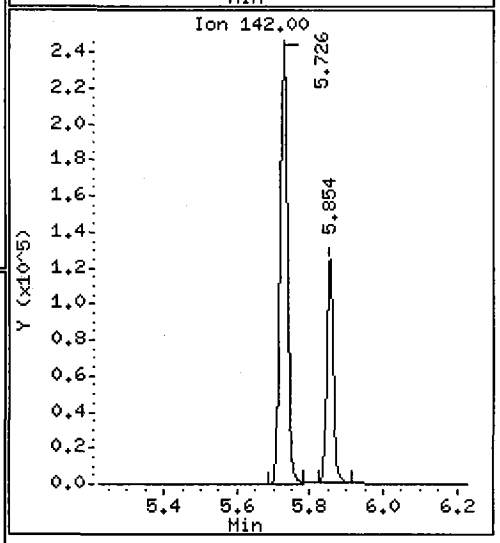












Data File: /chem1/nt12.i/20101110.b/rs97p.d

Date : 10-NOV-2010 18:45

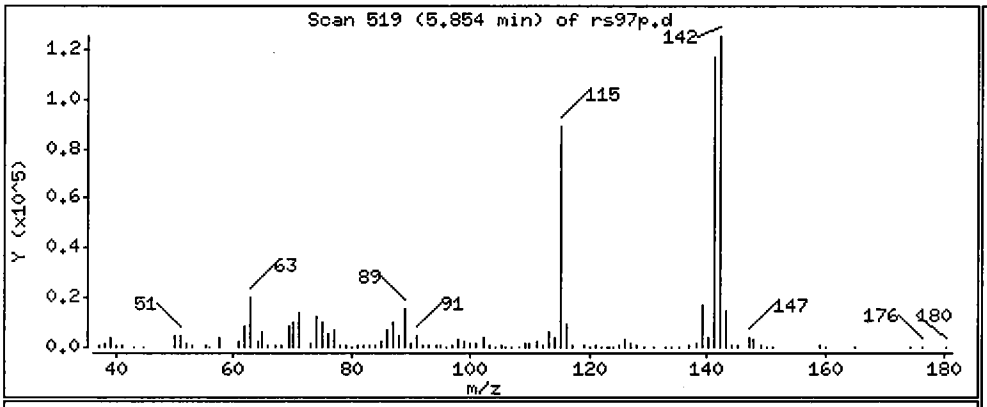
Client ID: DGS-07-9.710-101012 Instrument: nt12.i

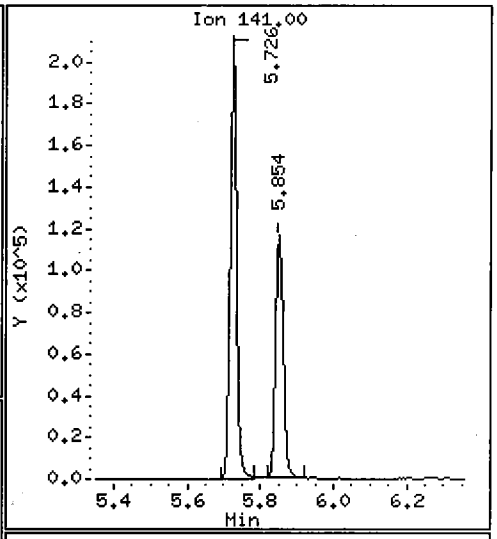
Sample Info: RS97P,3

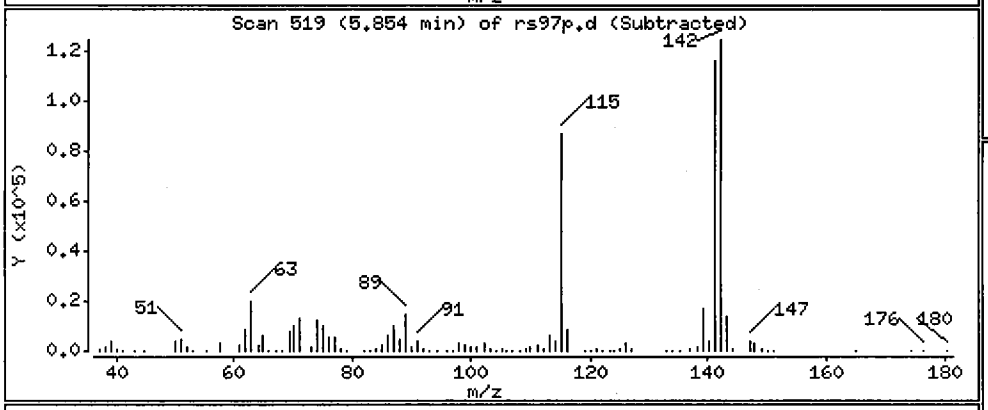
Volume Injected (uL): 1.0 Operator: VTS

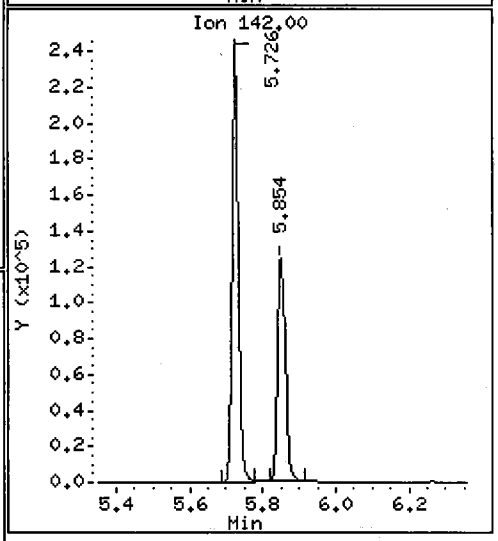
Column phase: ZB-5msi Column diameter: 0.32

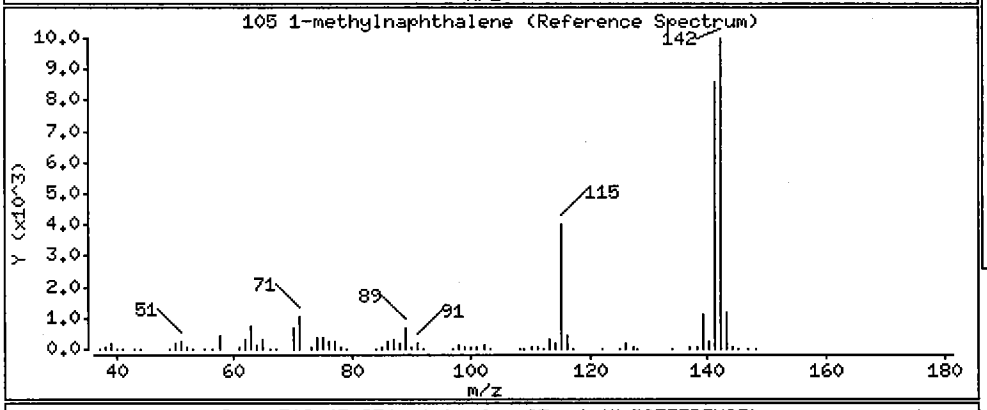
105 1-methylnaphthalene Concentration: 281500 ug/kg

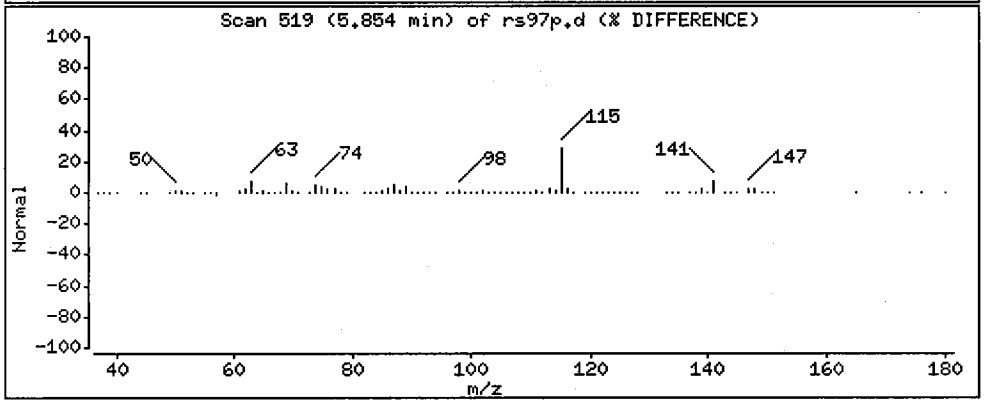












Data File: /chem1/nt12.i/20101110.b/rs97p.d

Date : 10-NOV-2010 18:45

Client ID: DGS-07-9.710-101012

Instrument: nt12.i

Sample Info: RS97P,3

Volume Injected (uL): 1.0

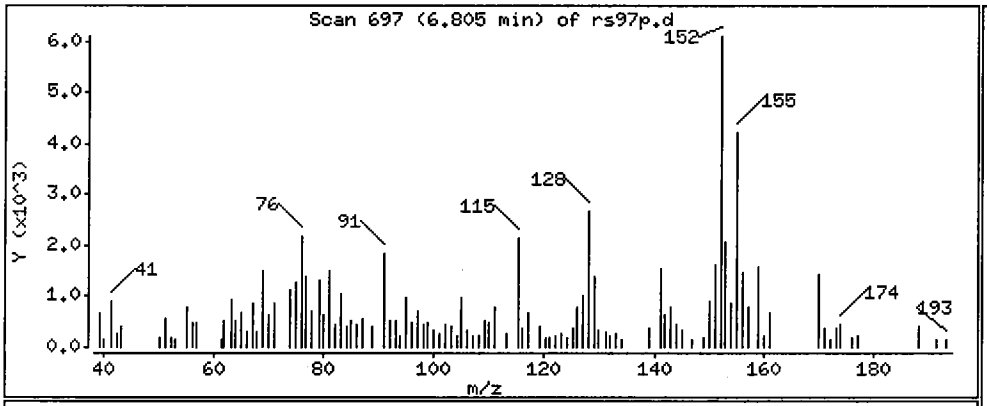
Operator: VTS

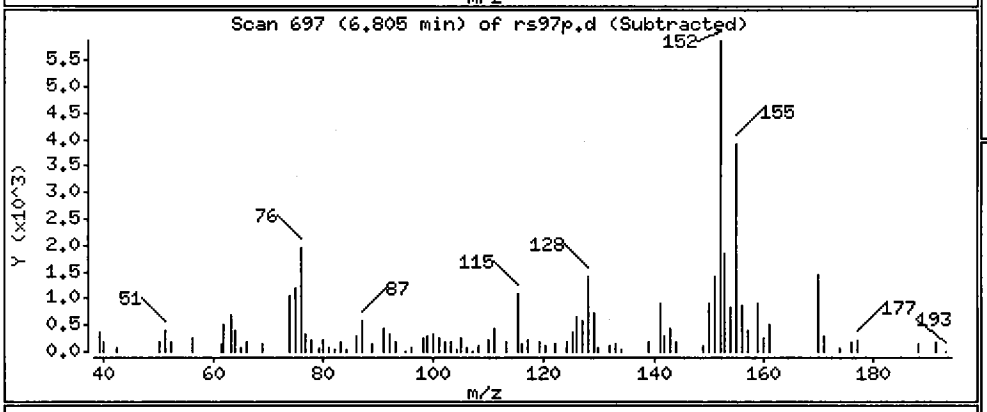
Column phase: ZB-5msi

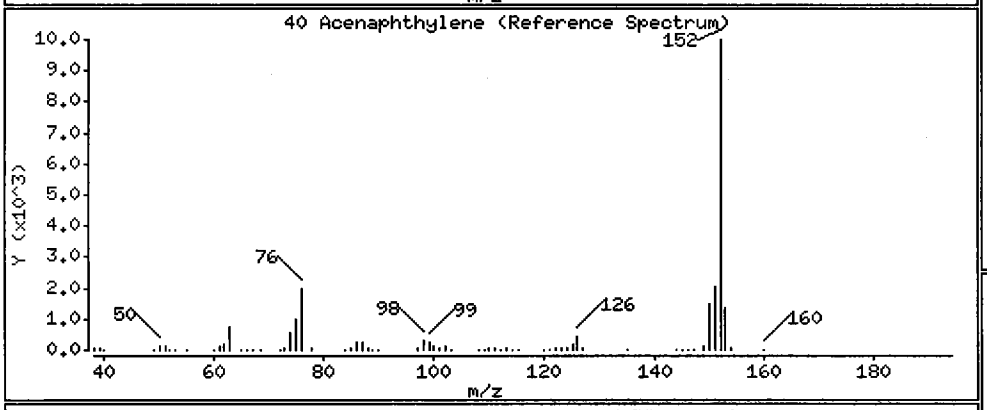
Column diameter: 0.32

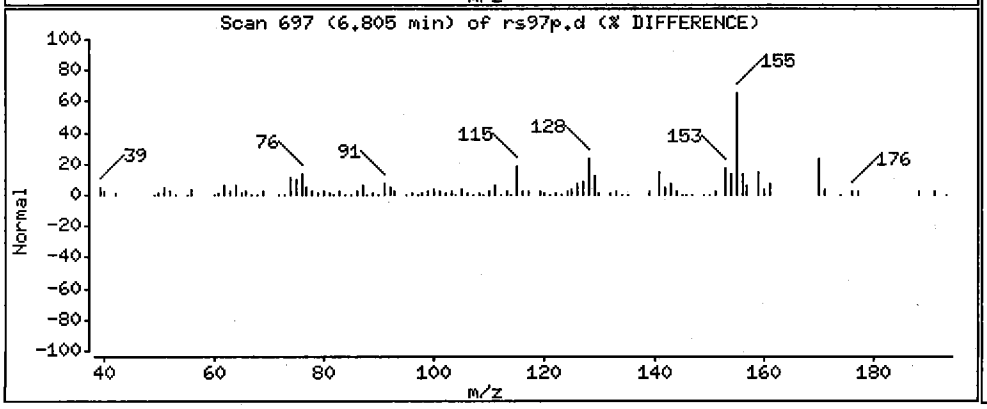
40 Acenaphthylene

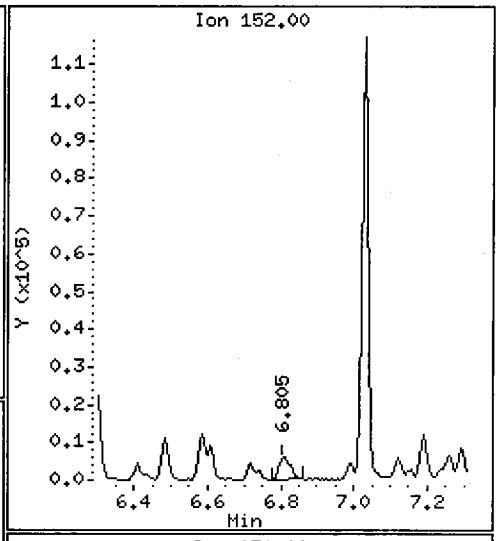
Concentration: 11860 ug/kg

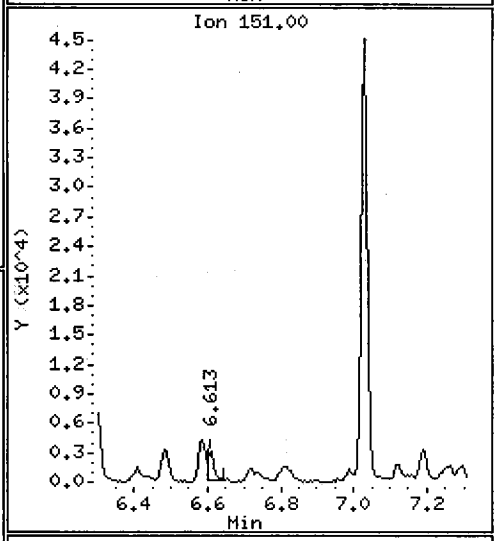


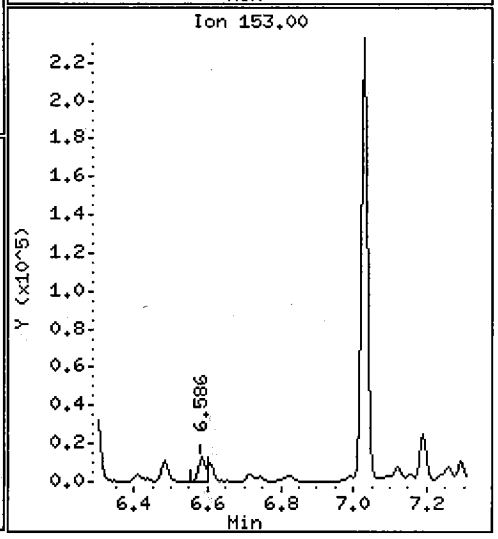












Data File: /chem1/nt12.i/20101110.b/rs97p.d

Date : 10-NOV-2010 18:45

Client ID: DGS-07-9.710-101012

Instrument: nt12.i

Sample Info: RS97P,3

Volume Injected (uL): 1.0

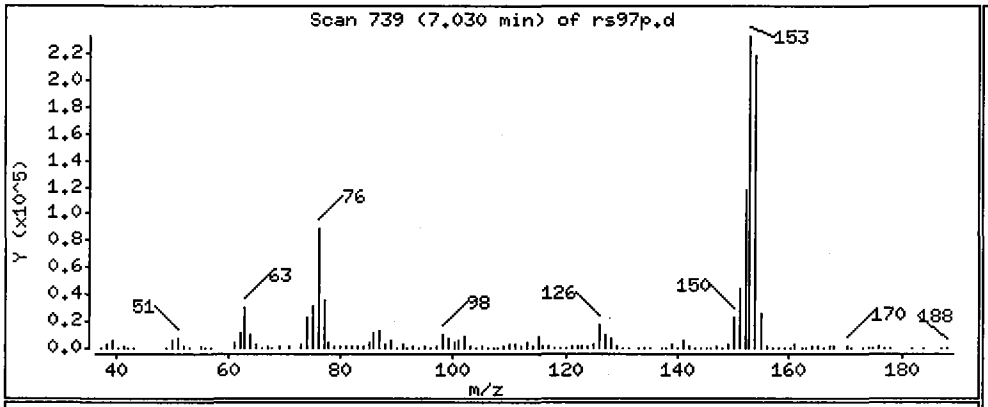
Operator: VTS

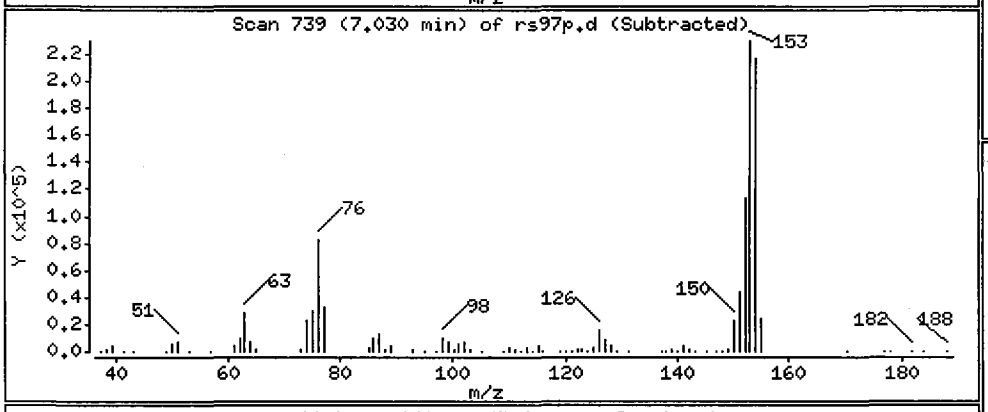
Column phase: ZB-5msi

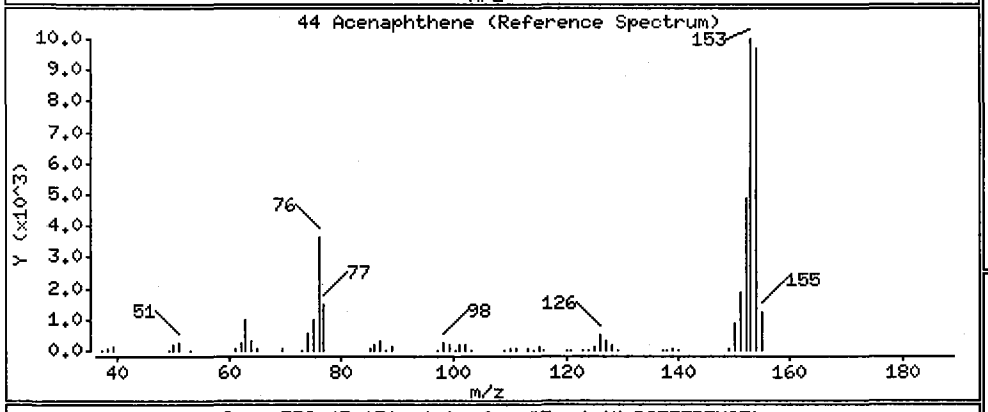
Column diameter: 0.32

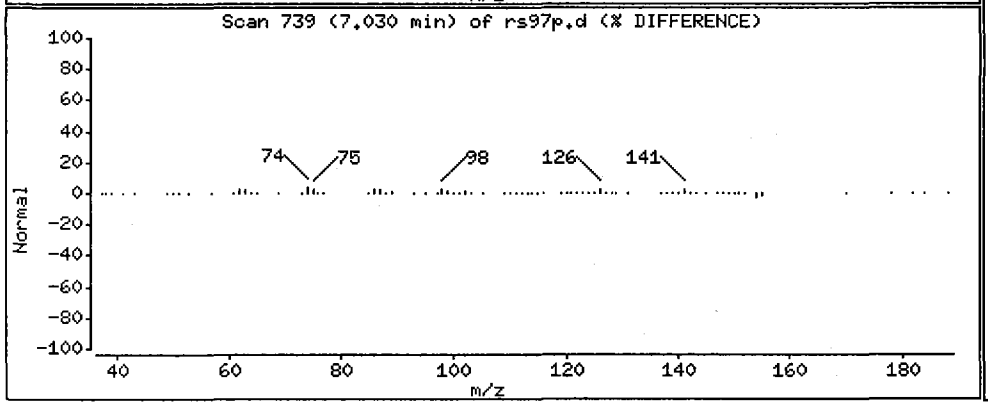
44 Acenaphthene

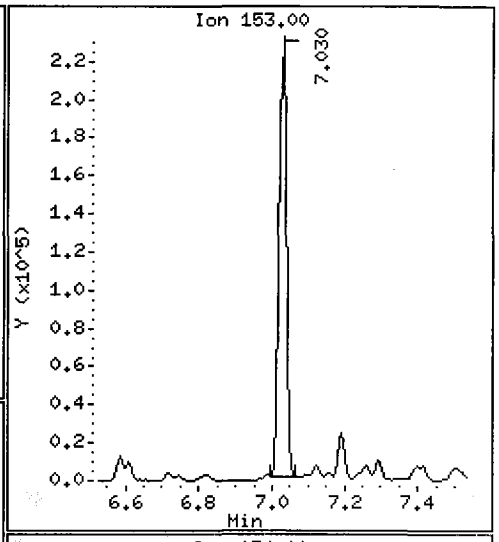
Concentration: 443500 ug/kg

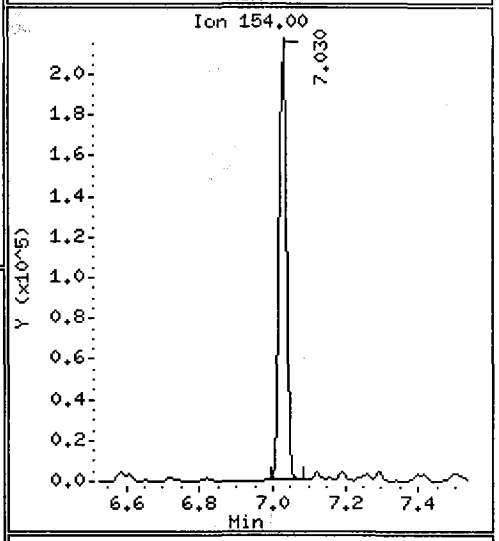


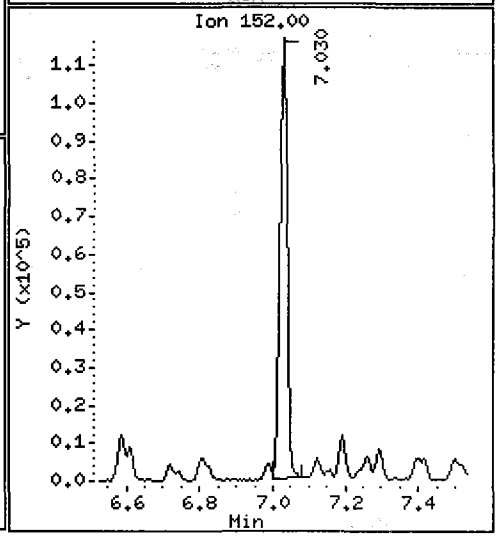












Data File: /chem1/nt12.i/20101110.b/rs97p.d

Date : 10-NOV-2010 18:45

Client ID: DGS-07-9.710-101012

Instrument: nt12.i

Sample Info: RS97P,3

Volume Injected (uL): 1.0

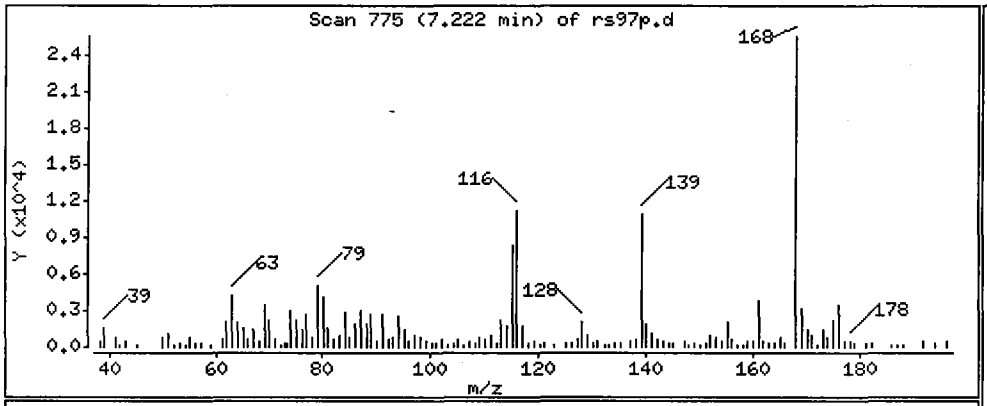
Operator: VTS

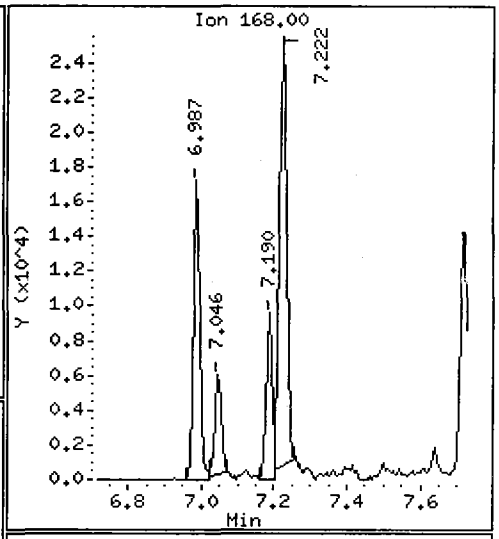
Column phase: ZB-5msi

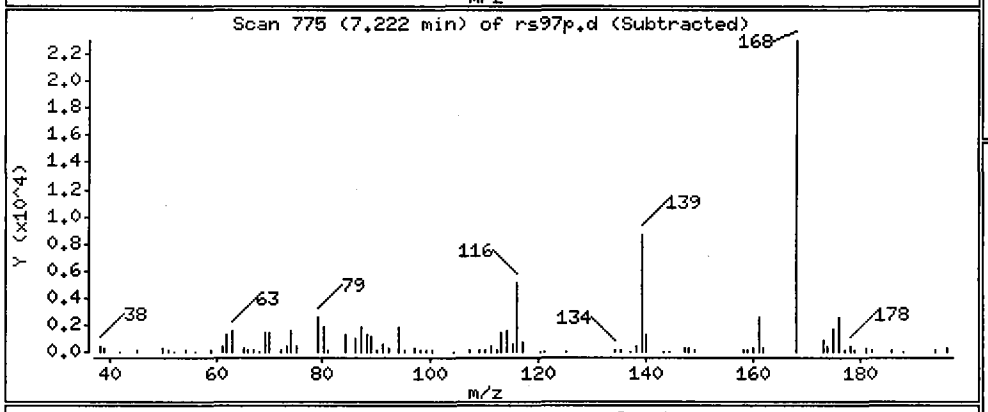
Column diameter: 0.32

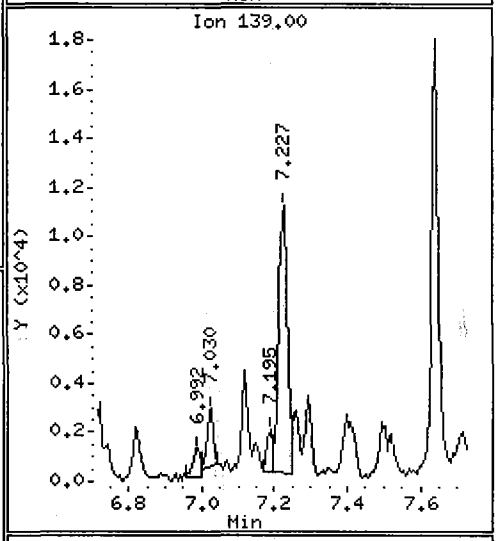
46 Dibenzofuran

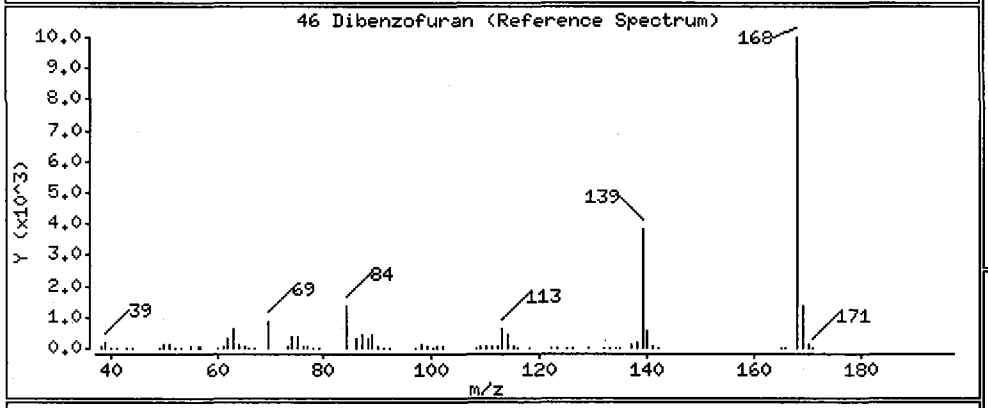
Concentration: 31320 ug/kg

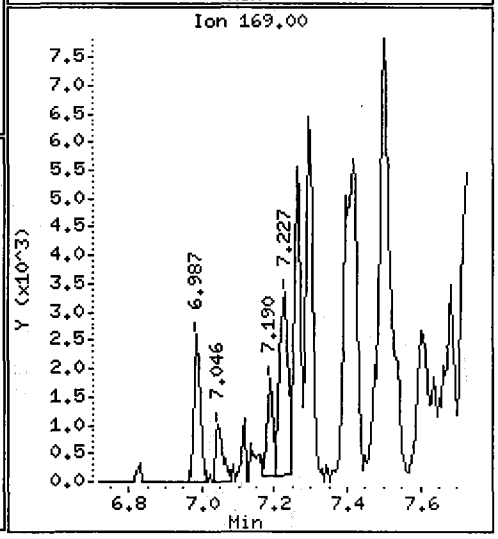


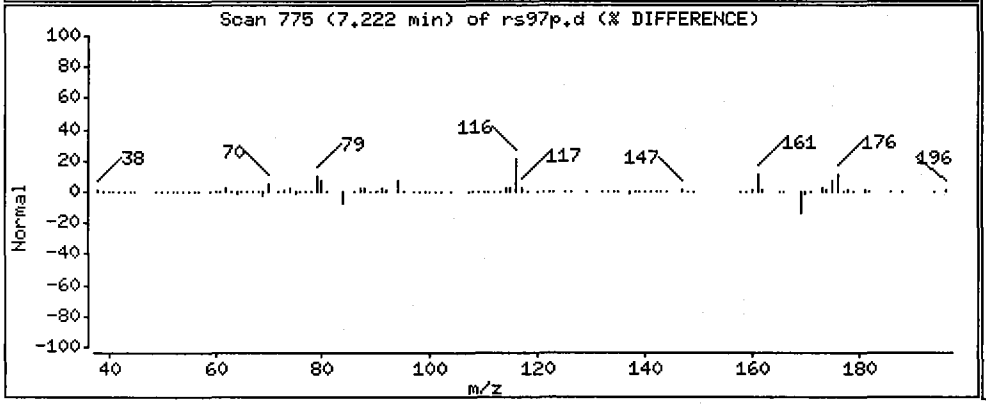












Data File: /chem1/nt12.i/20101110.b/rs97p.d

Date : 10-NOV-2010 18:45

Client ID: DGS-07-9.710-101012

Instrument: nt12.i

Sample Info: RS97P,3

Volume Injected (uL): 1.0

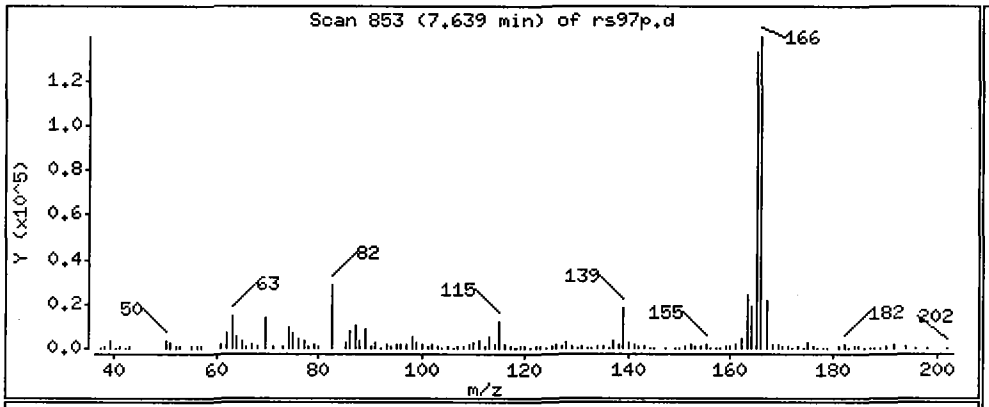
Operator: VTS

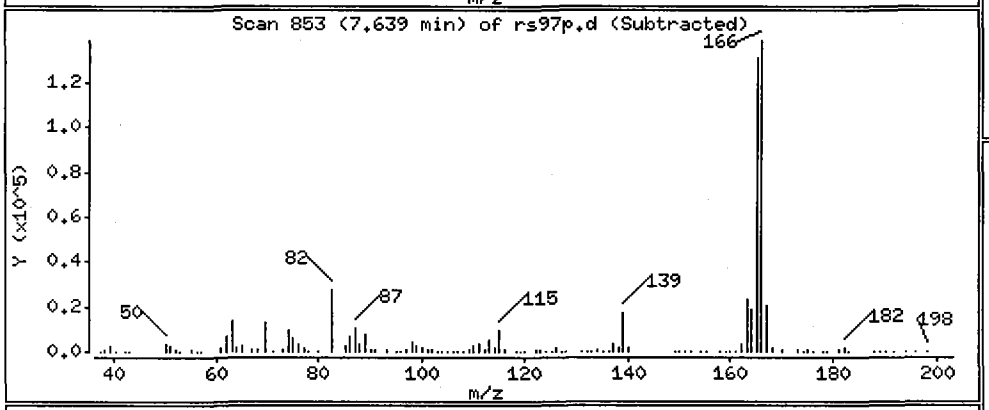
Column phase: ZB-5msi

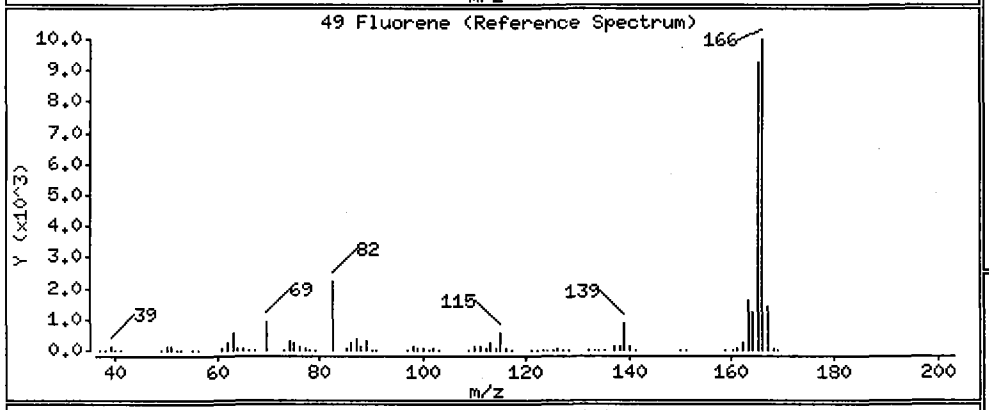
Column diameter: 0.32

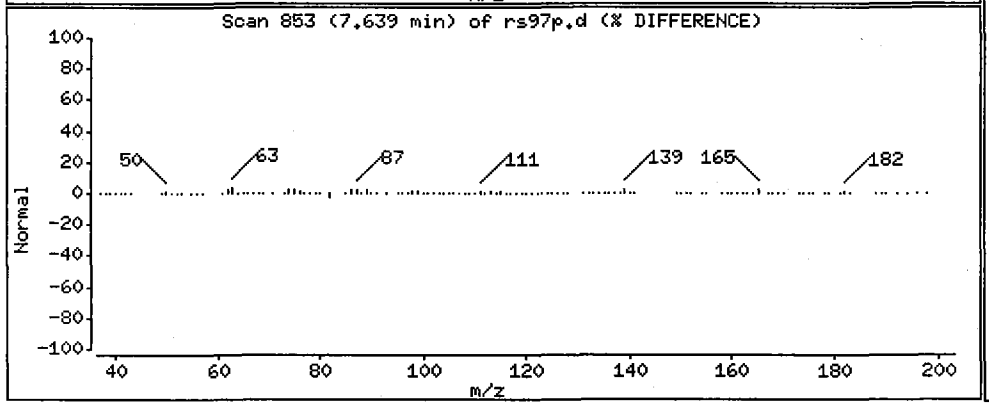
49 Fluorene

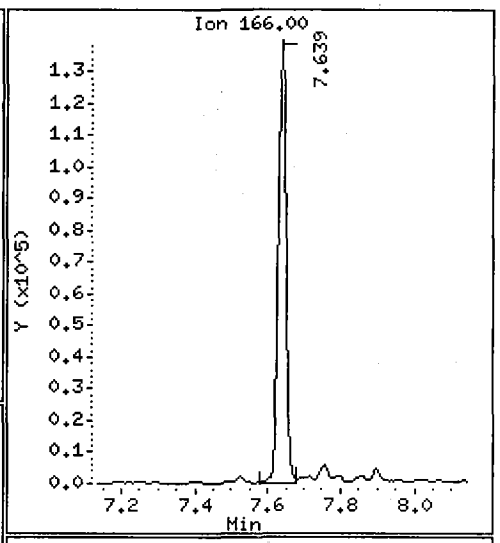
Concentration: 249600 ug/kg

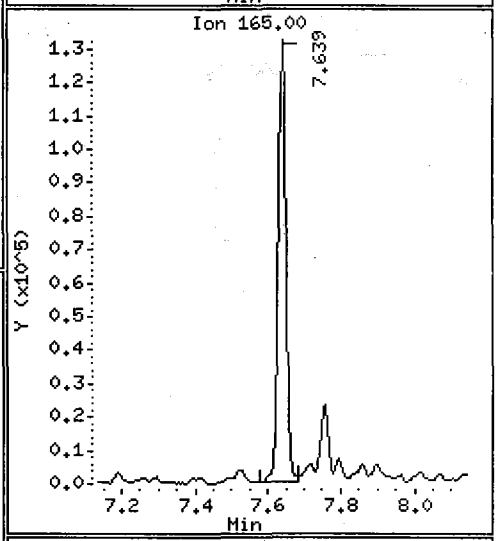


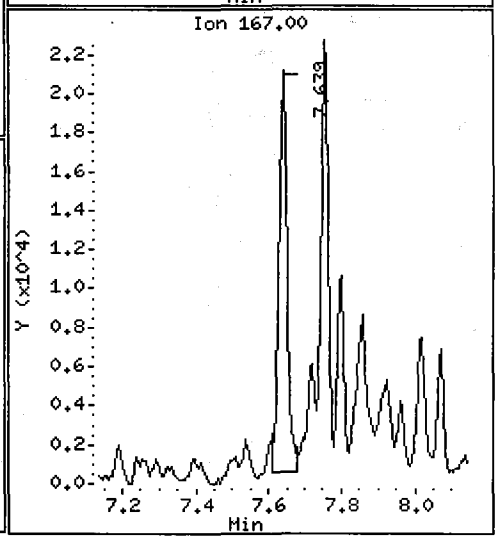












Data File: /chem1/nt12.i/20101110.b/rs97p.d

Date : 10-NOV-2010 18:45

Client ID: DGS-07-9.710-101012

Instrument: nt12.i

Sample Info: RS97P,3

Volume Injected (uL): 1.0

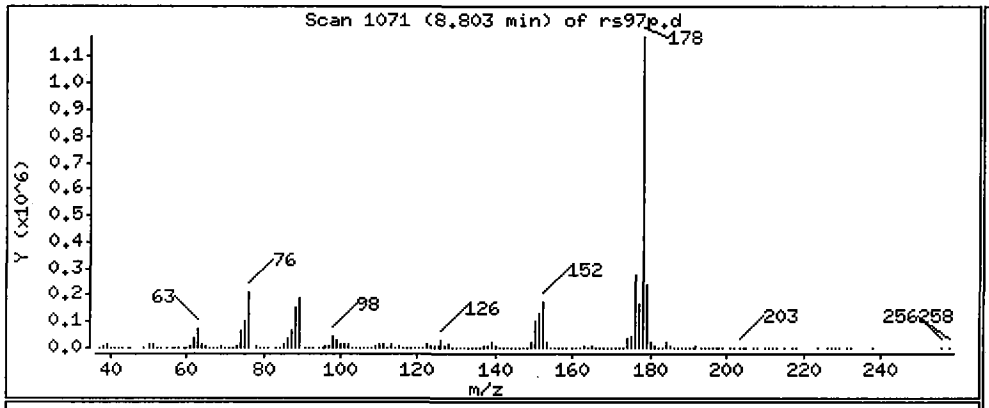
Operator: VTS

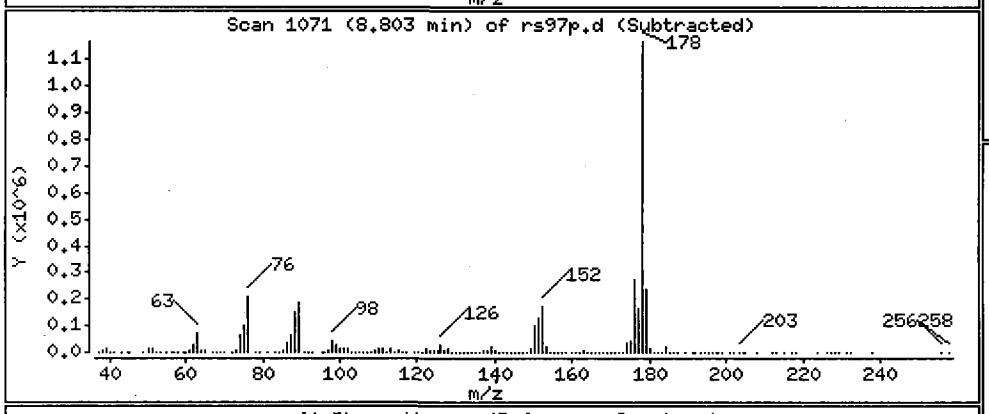
Column phase: ZB-5msi

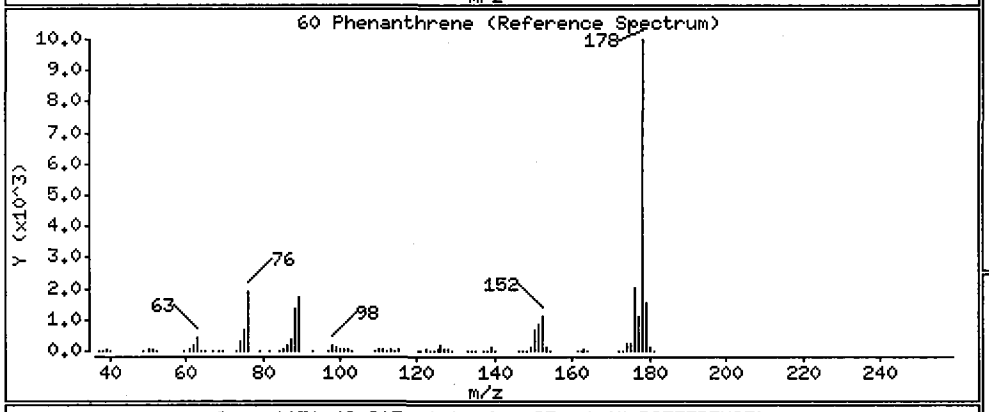
Column diameter: 0.32

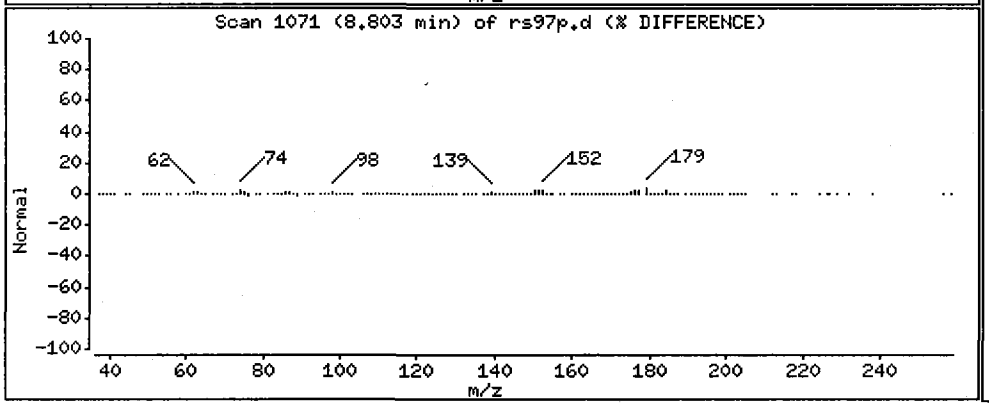
60 Phenanthrene

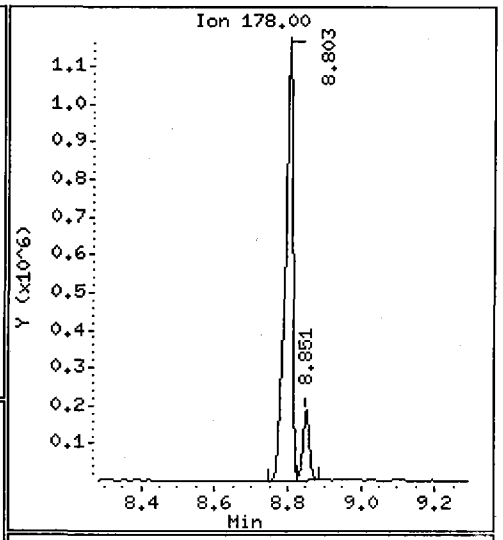
Concentration: 1656000 ug/kg

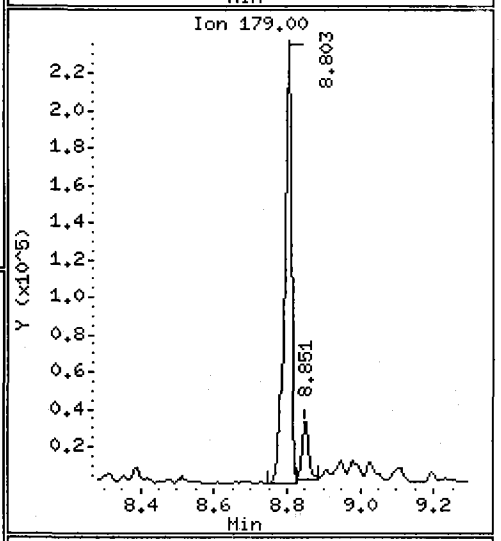


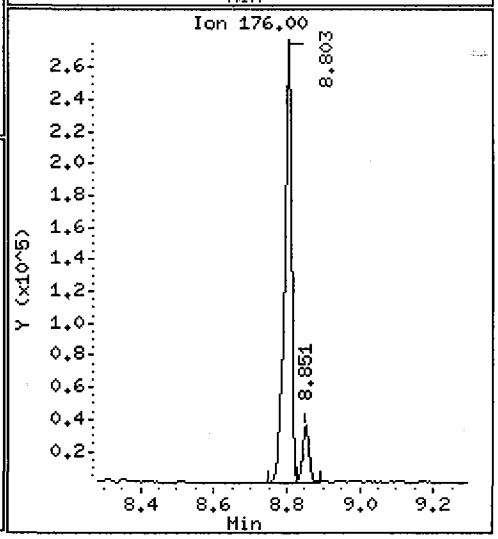












Data File: /chem1/nt12.i/20101110.b/rs97p.d

Date : 10-NOV-2010 18:45

Client ID: DGS-07-9.710-101012

Instrument: nt12.i

Sample Info: RS97P,3

Volume Injected (uL): 1.0

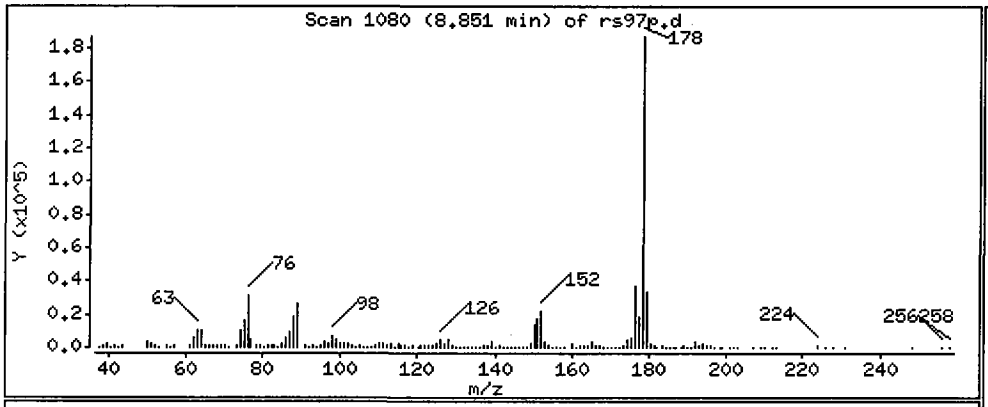
Operator: VTS

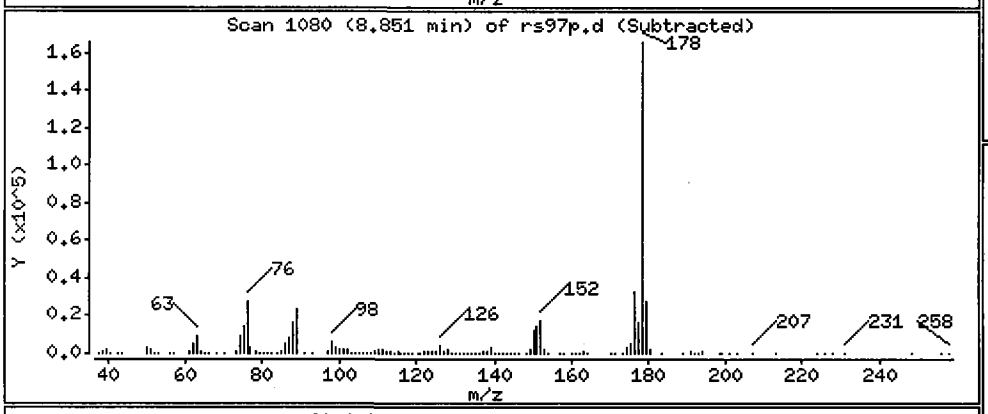
Column phase: ZB-5msi

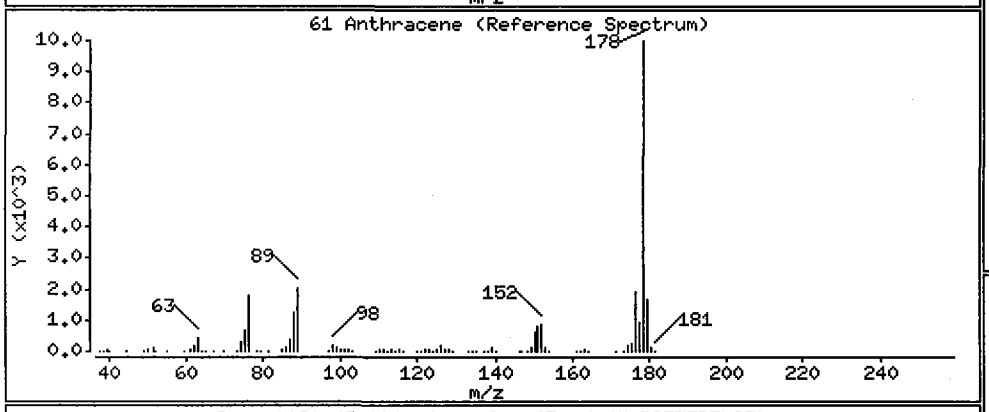
Column diameter: 0.32

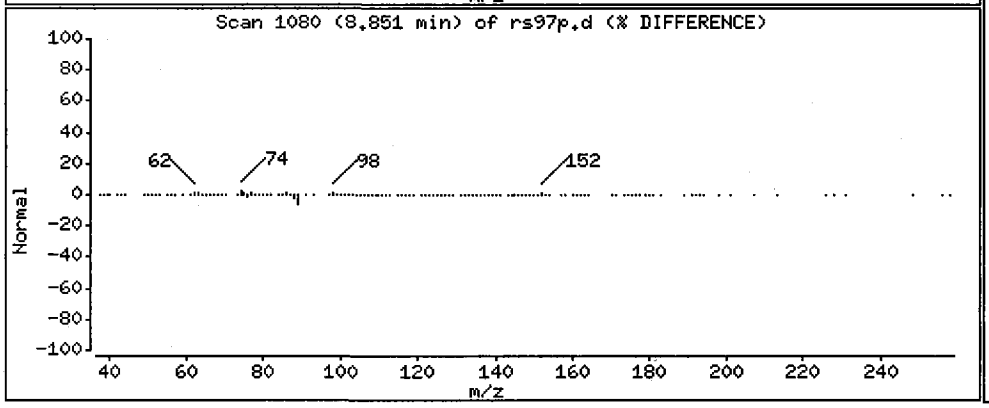
61 Anthracene

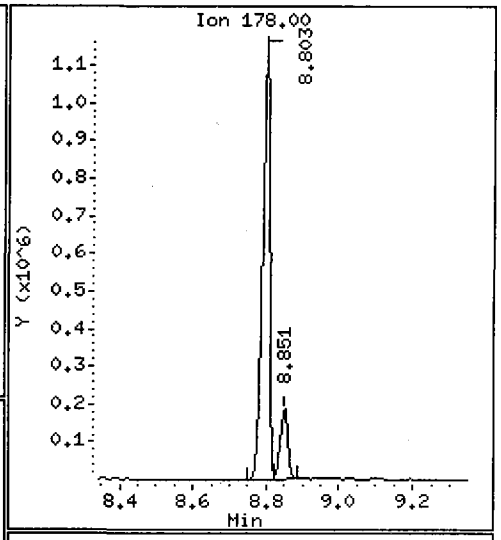
Concentration: 230200 ug/kg

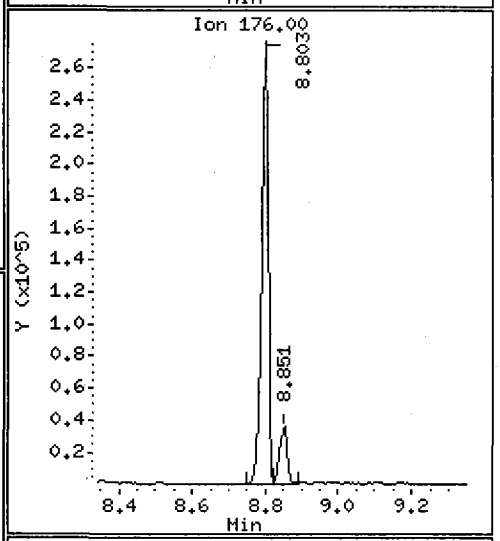


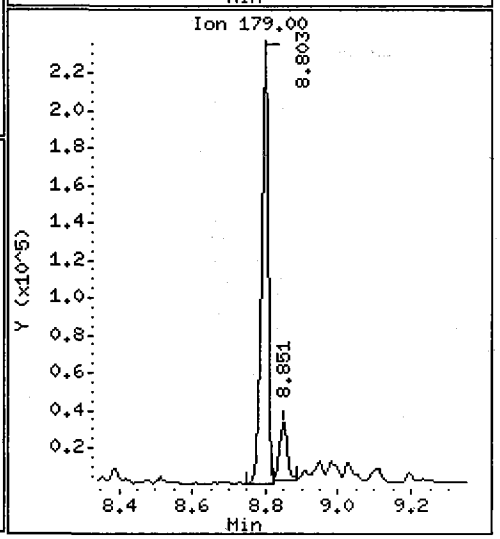












Data File: /chem1/nt12.i/20101110.b/rs97p.d

Date : 10-NOV-2010 18:45

Client ID: DGS-07-9.710-101012

Instrument: nt12.i

Sample Info: RS97P,3

Volume Injected (uL): 1.0

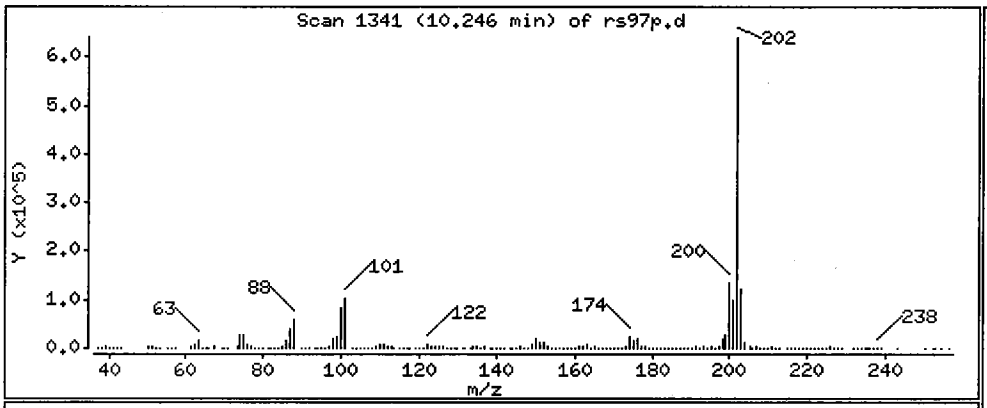
Operator: VTS

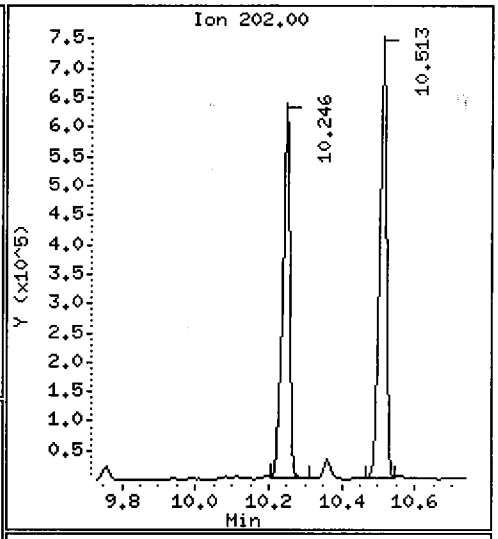
Column phase: ZB-5msi

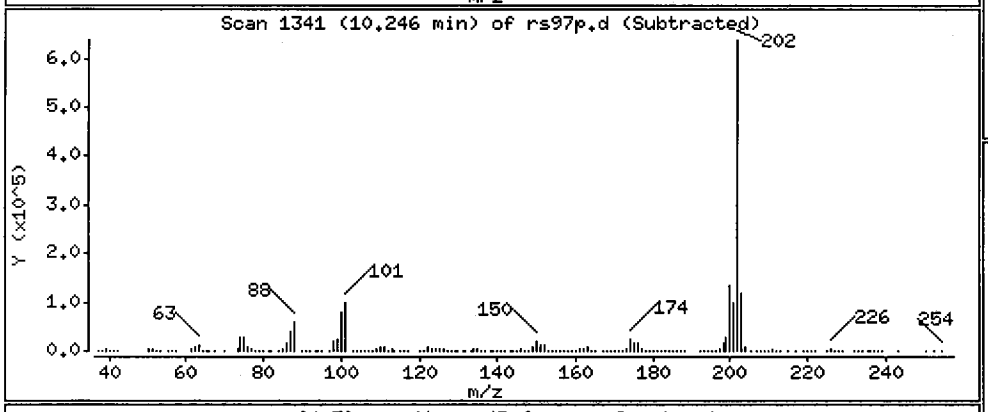
Column diameter: 0.32

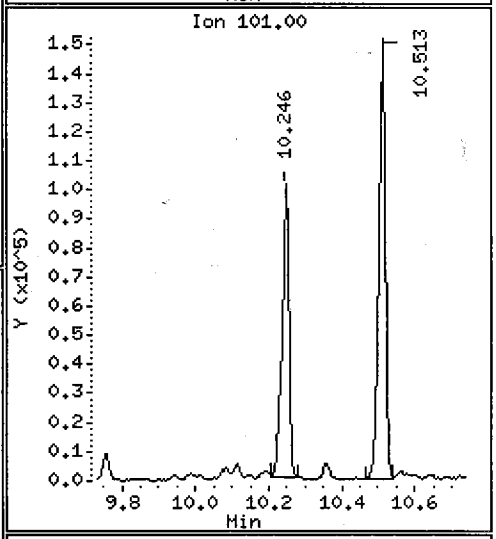
64 Fluoranthene

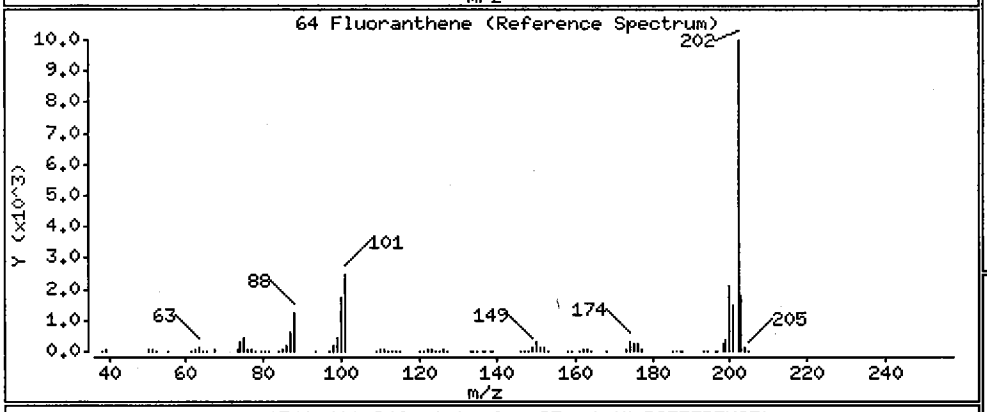
Concentration: 718600 ug/kg

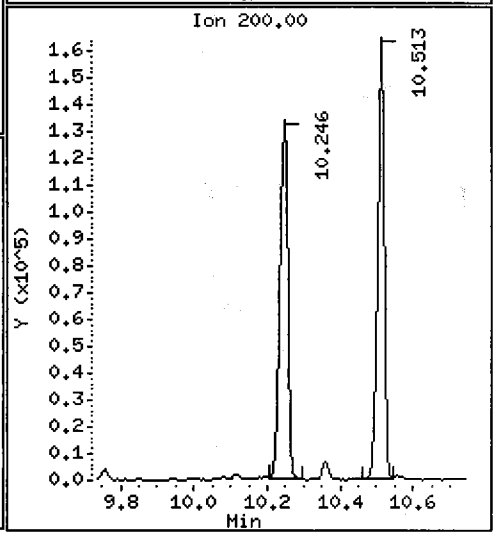


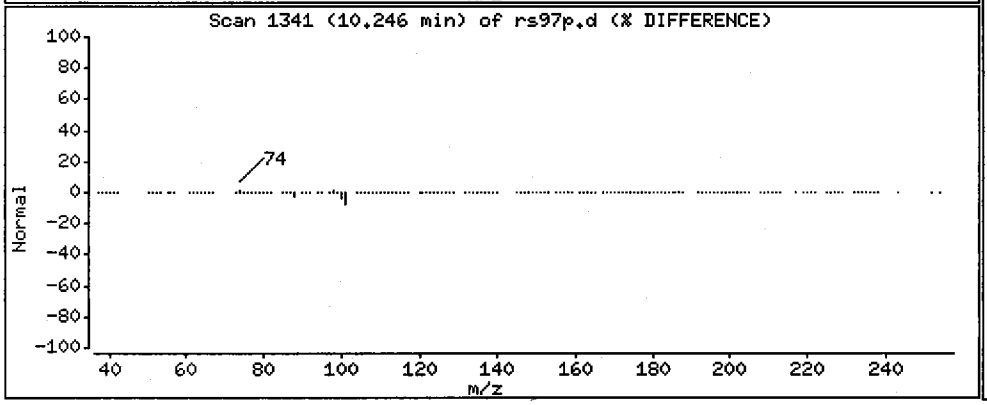












Data File: /chem1/nt12.i/20101110.b/rs97p.d

Date : 10-NOV-2010 18:45

Client ID: DGS-07-9.710-101012

Instrument: nt12.i

Sample Info: RS97P,3

Volume Injected (uL): 1.0

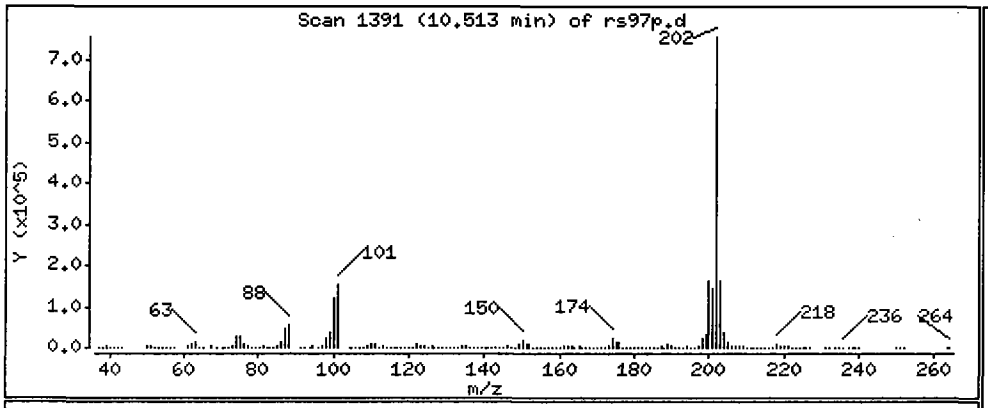
Operator: VTS

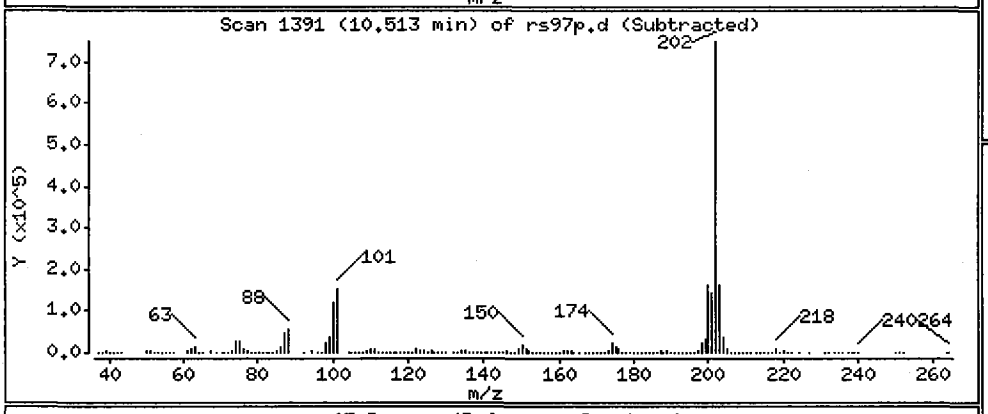
Column phase: ZB-5msi

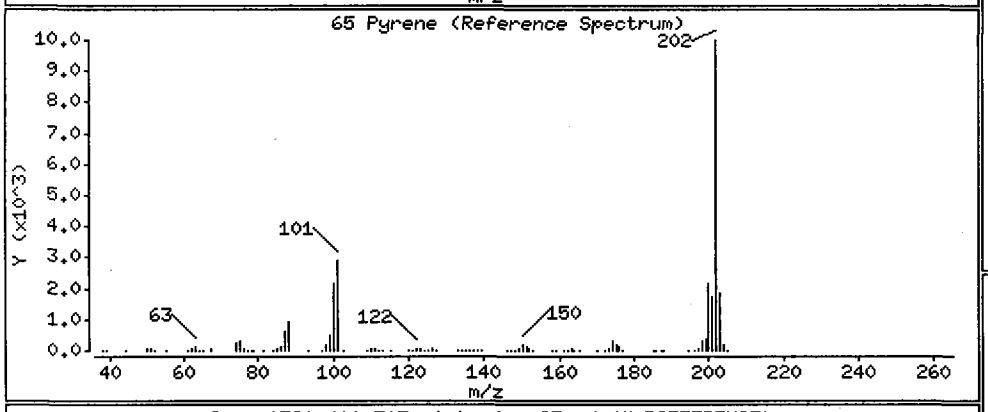
Column diameter: 0.32

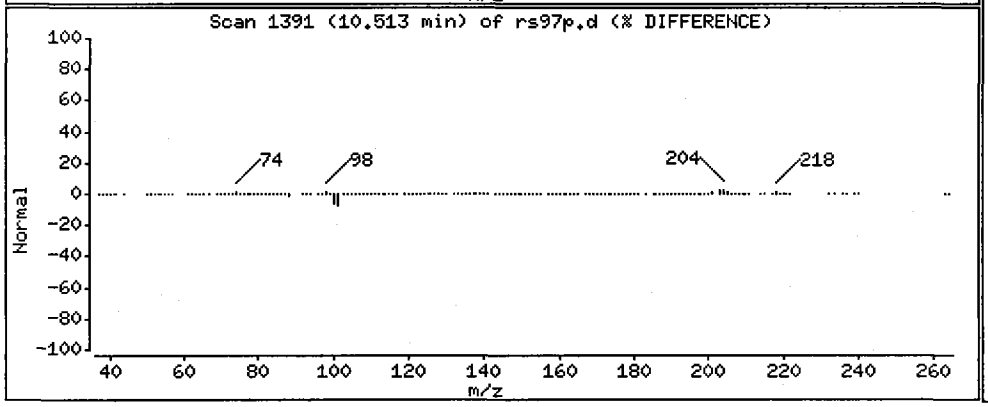
65 Pyrene

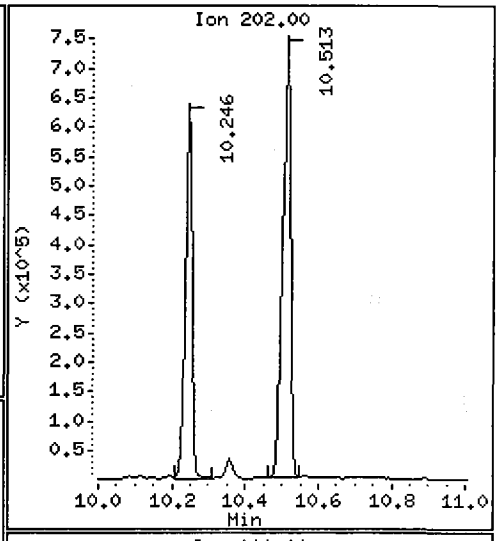
Concentration: 855000 ug/kg

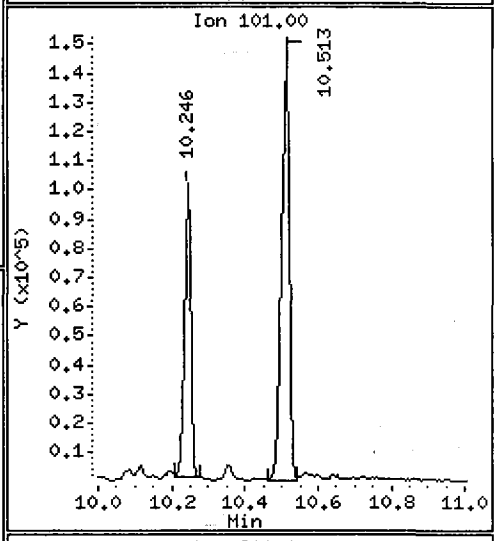


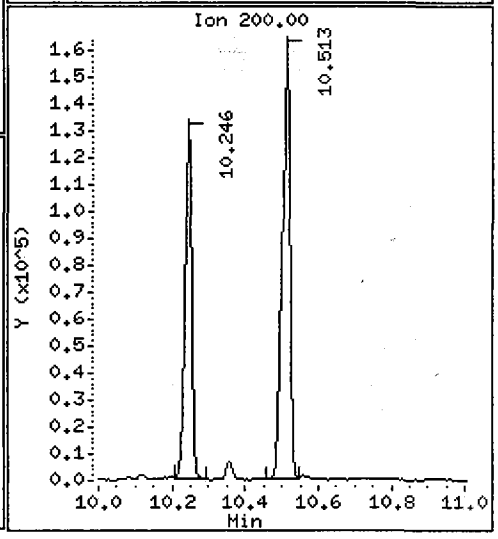












Data File: /chem1/nt12.i/20101110.b/rs97p.d

Date : 10-NOV-2010 18:45

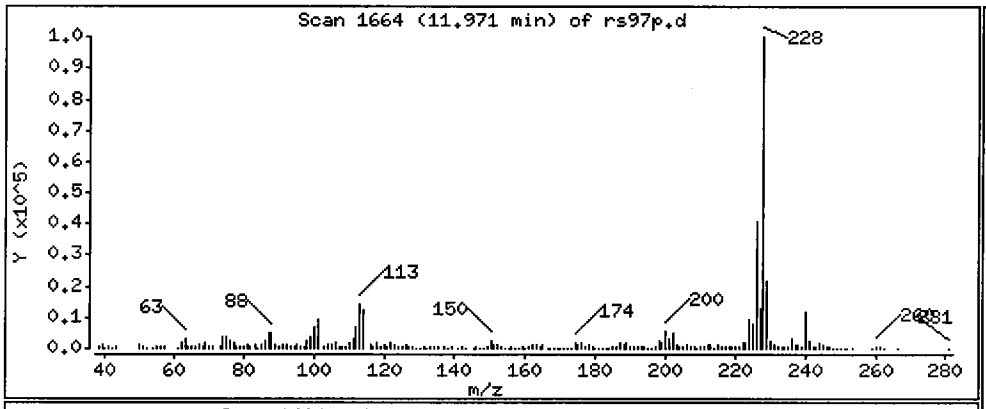
Client ID: DGS-07-9.710-101012 Instrument: nt12.i

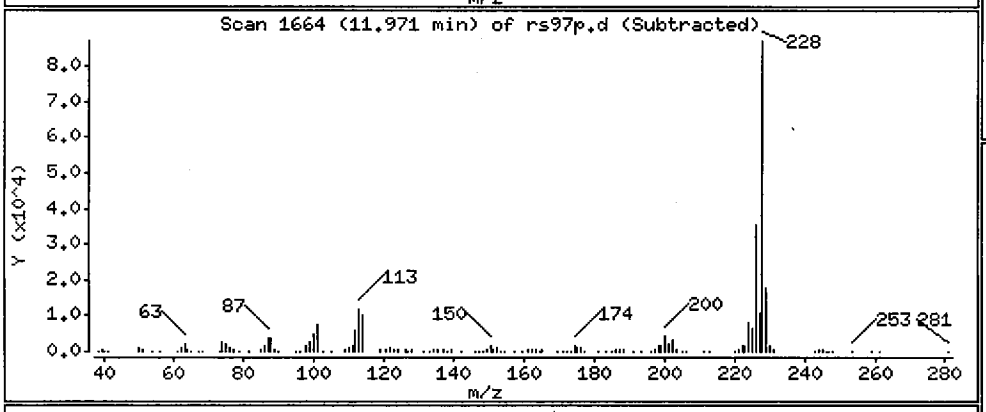
Sample Info: RS97P,3

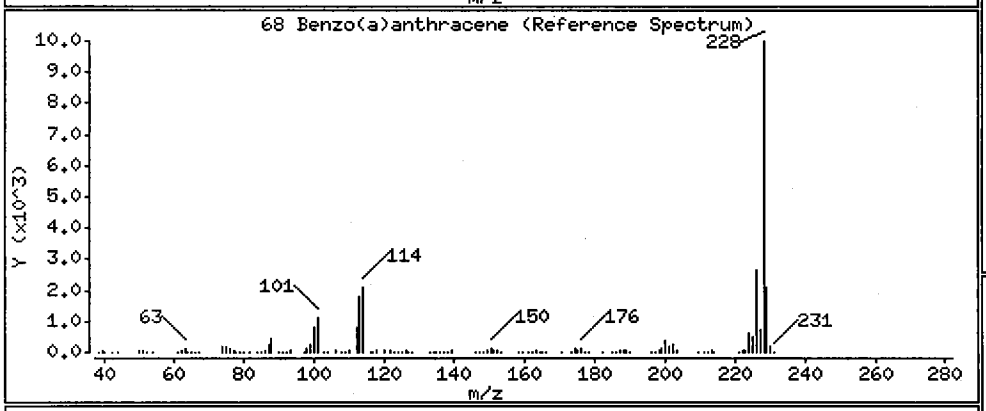
Volume Injected (uL): 1.0 Operator: VTS

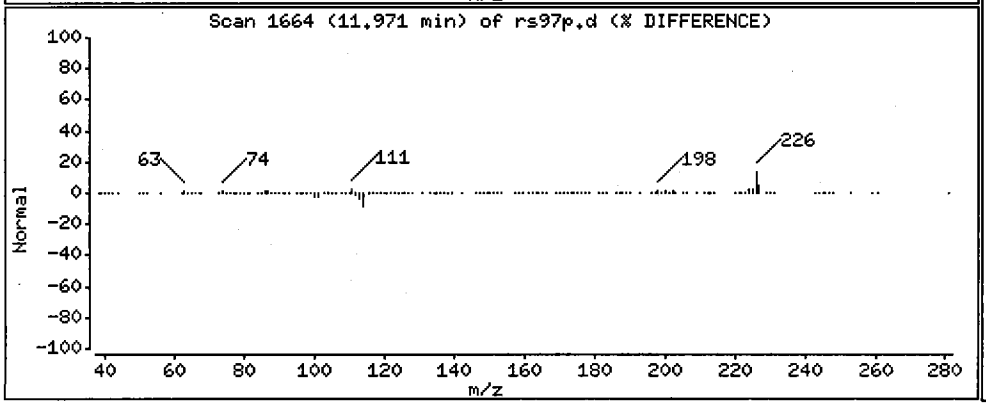
Column phase: ZB-5msi Column diameter: 0.32

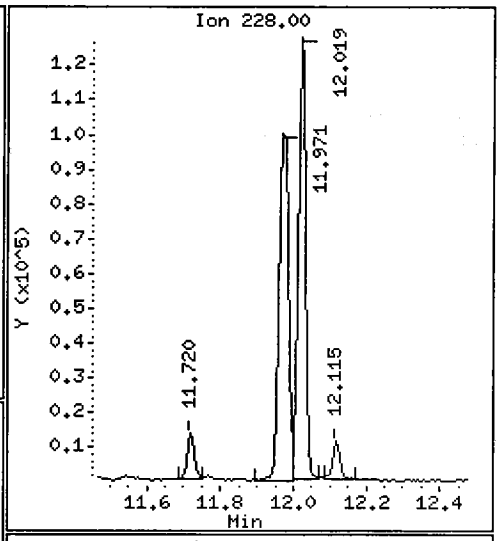
68 Benzo(a)anthracene Concentration: 171800 ug/kg

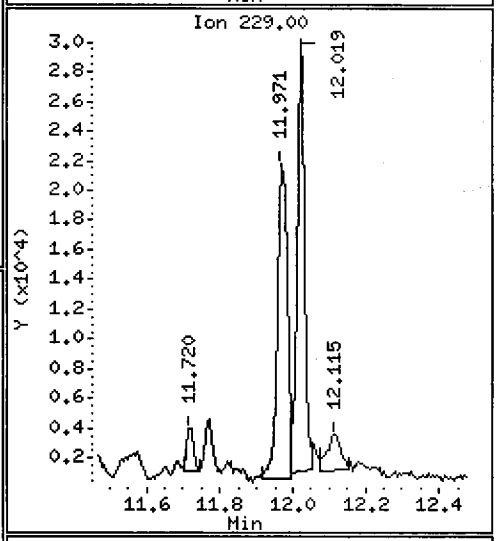


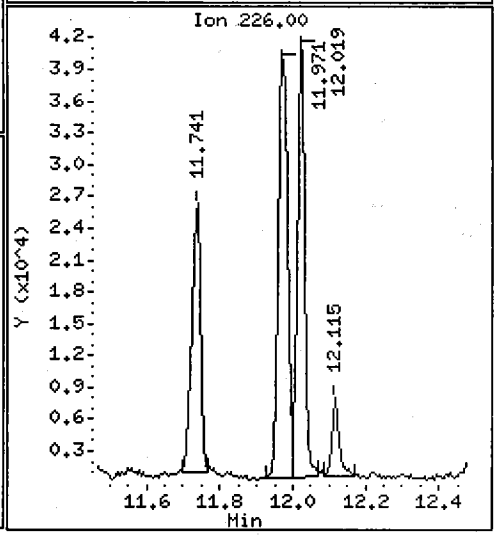












Data File: /chem1/nt12.i/20101110.b/rs97p.d

Date : 10-NOV-2010 18:45

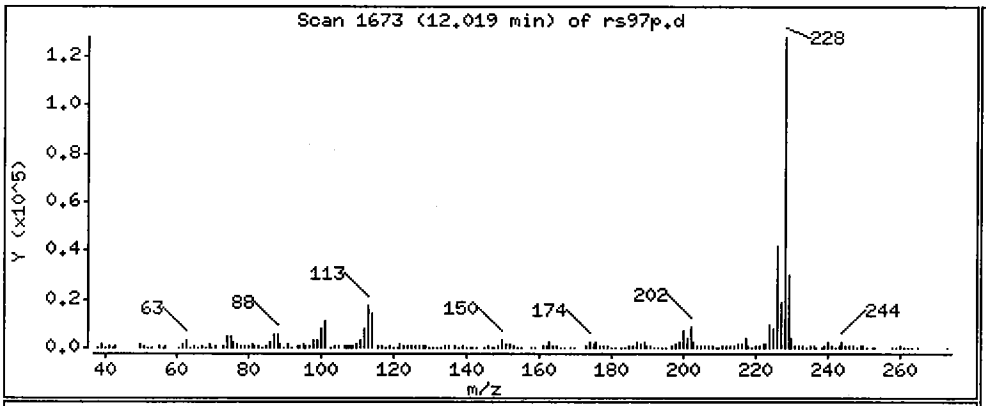
Client ID: DGS-07-9.710-101012 Instrument: nt12.i

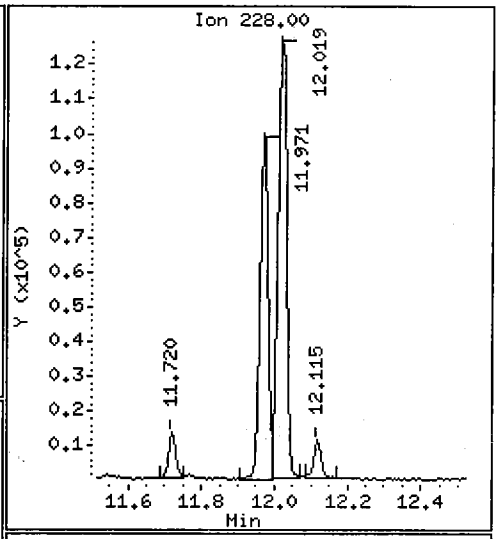
Sample Info: RS97P,3

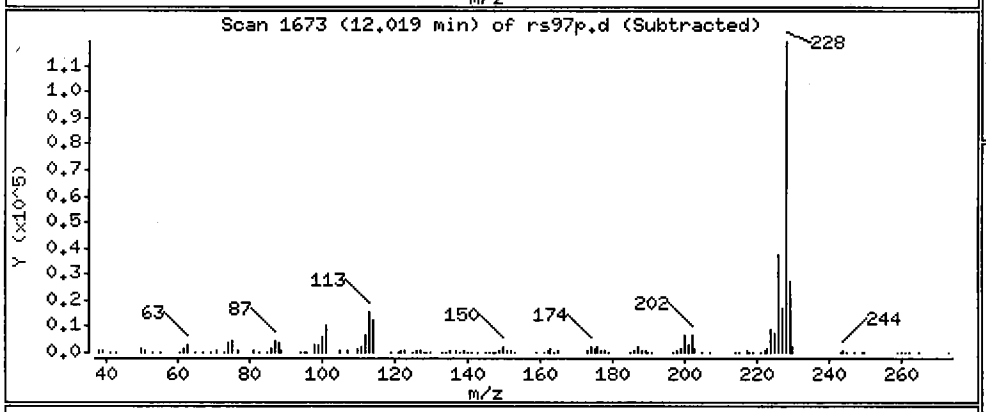
Volume Injected (uL): 1.0 Operator: VTS

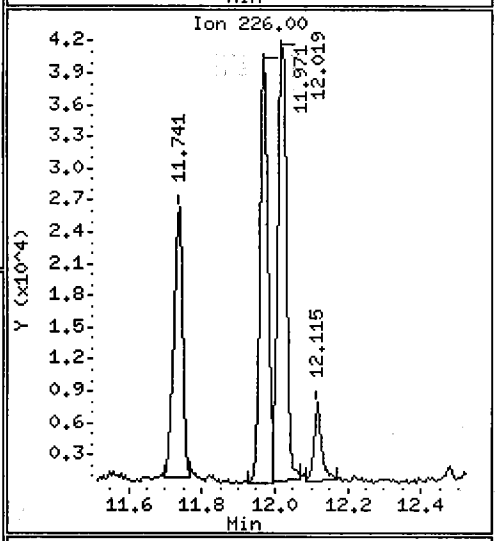
Column phase: ZB-5msi Column diameter: 0.32

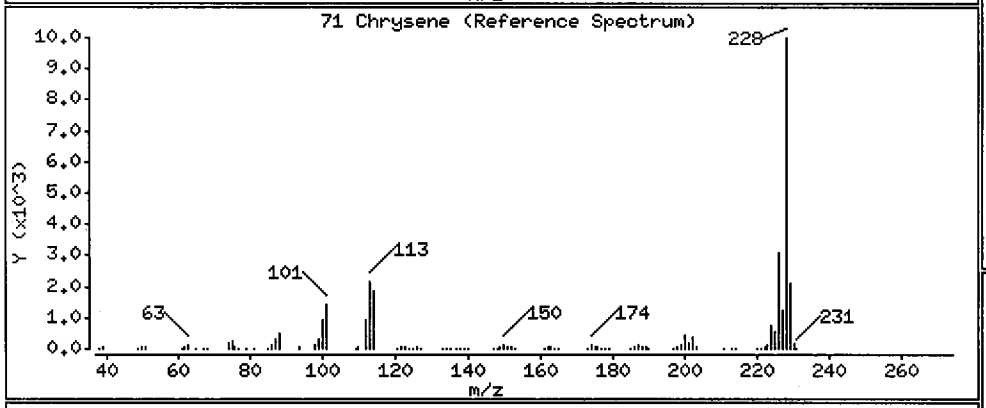
71 Chrysene Concentration: 209600 ug/kg

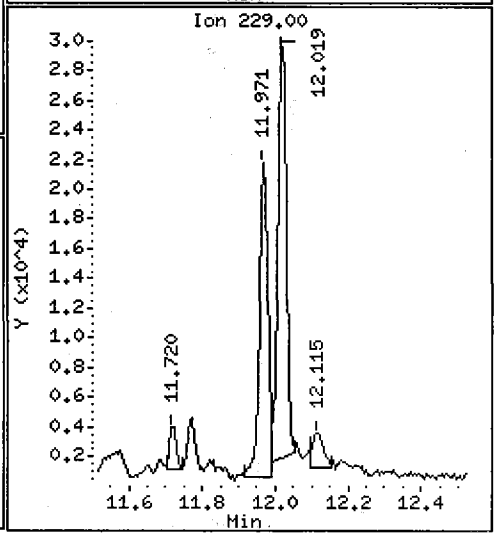


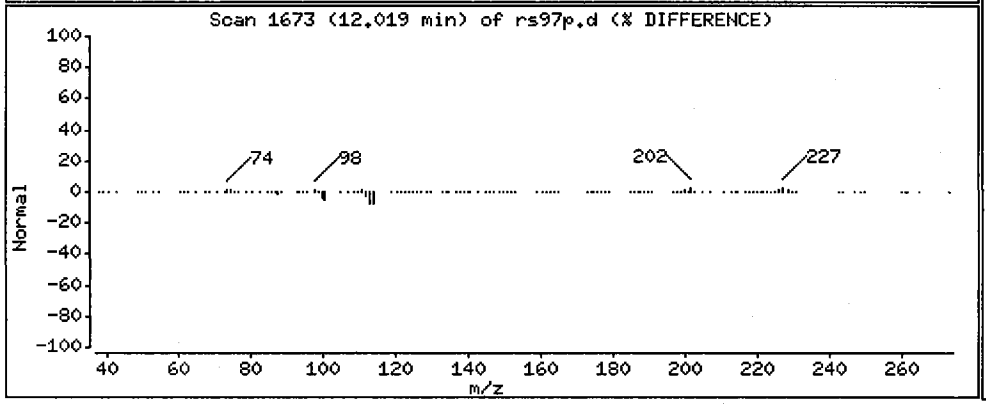












Data File: /chem1/nt12.i/20101110.b/rs97p.d

Date : 10-NOV-2010 18:45

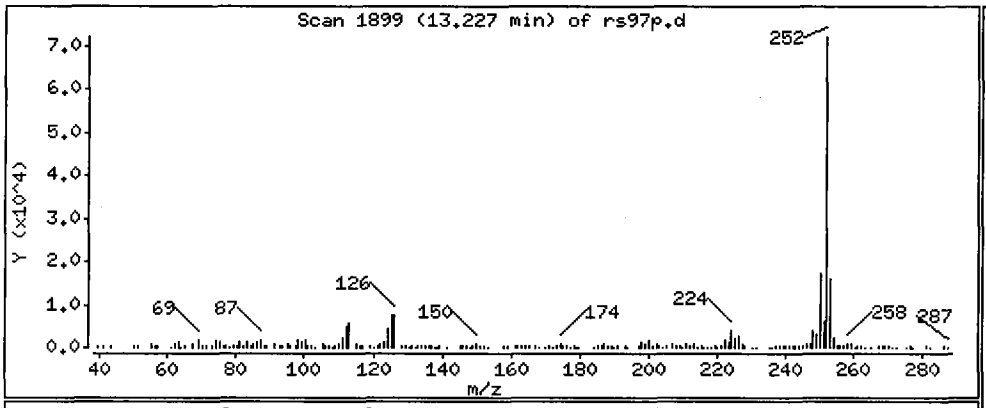
Client ID: DGS-07-9.710-101012 | Instrument: nt12.i

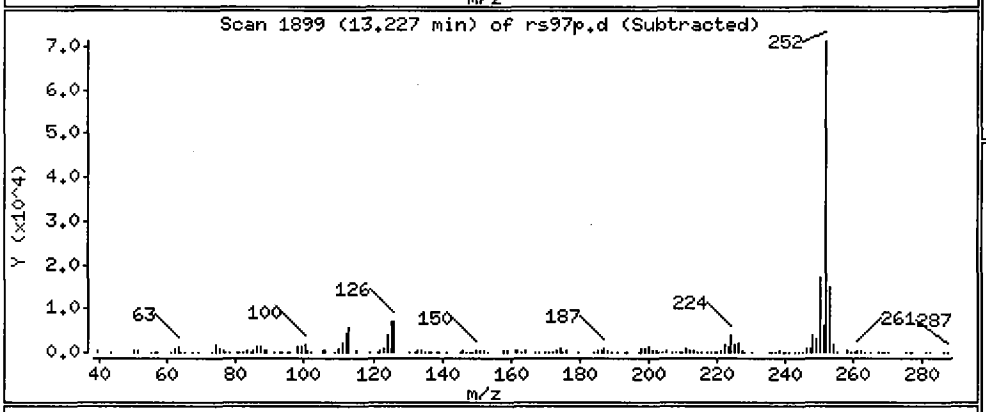
Sample Info: RS97P,3

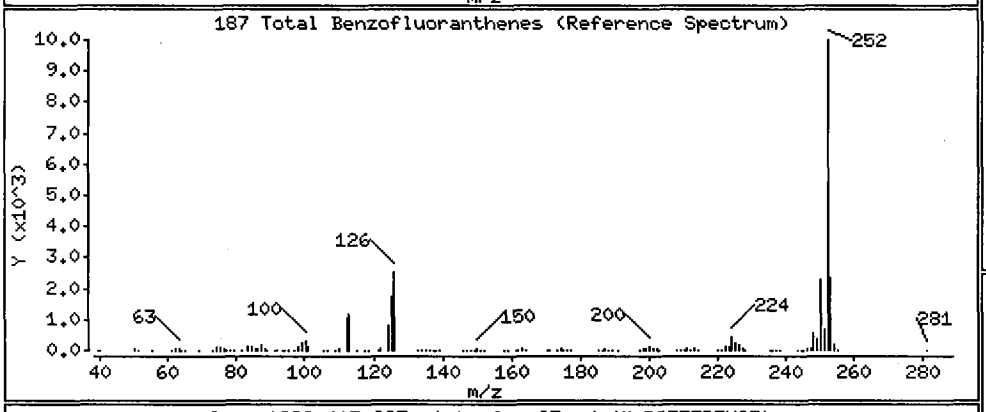
Volume Injected (uL): 1.0 | Operator: VTS

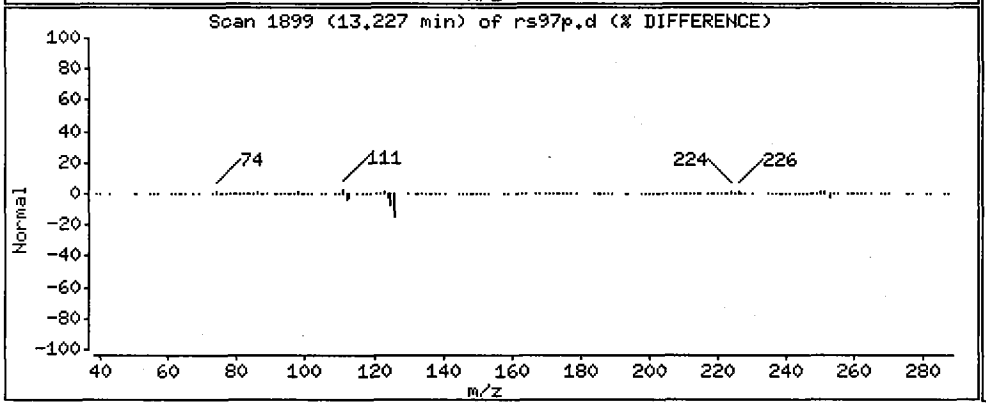
Column phase: ZB-5msi | Column diameter: 0.32

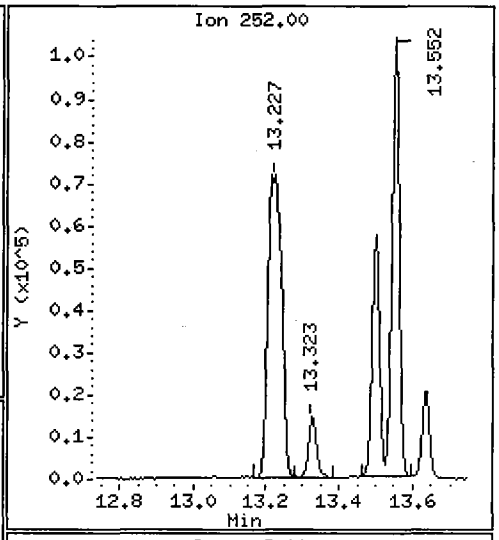
187 Total Benzofluoranthenes | Concentration: 208800 ug/kg

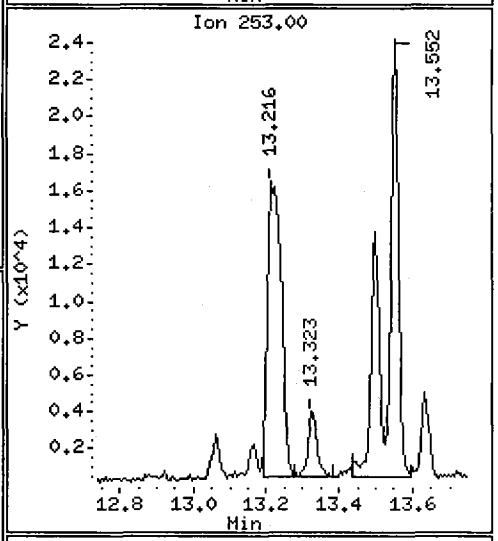


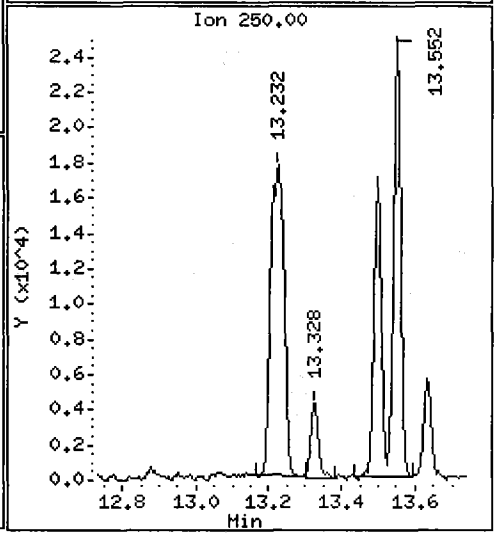












Data File: /chem1/nt12.i/20101110.b/rs97p.d

Date : 10-NOV-2010 18:45

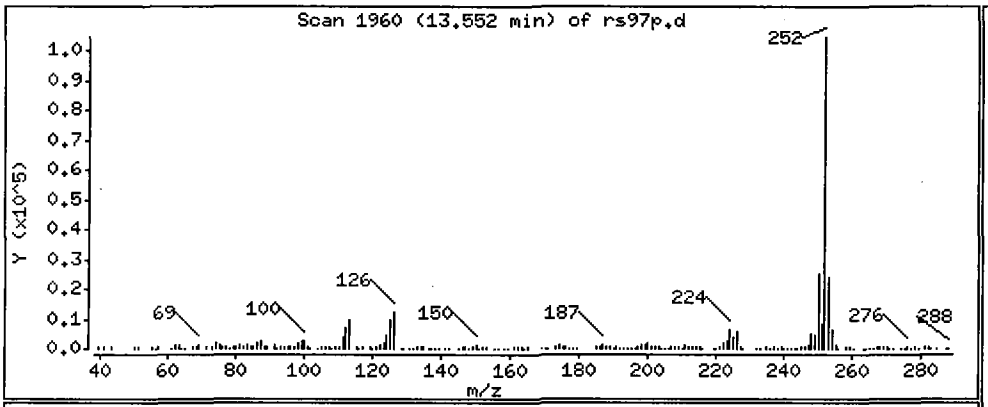
Client ID: DGS-07-9.710-101012 Instrument: nt12.i

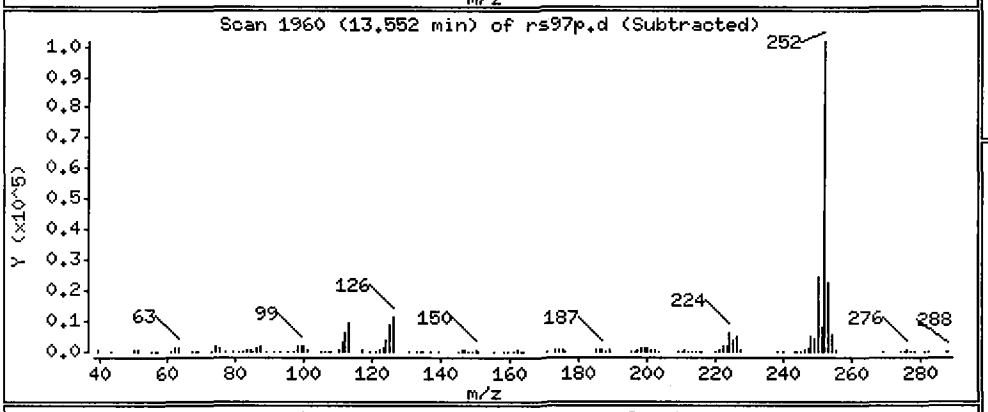
Sample Info: RS97P,3

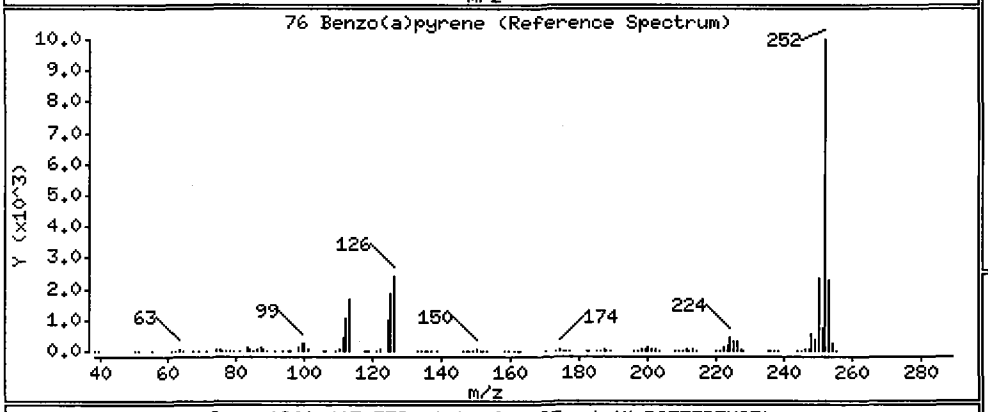
Volume Injected (uL): 1.0 Operator: VTS

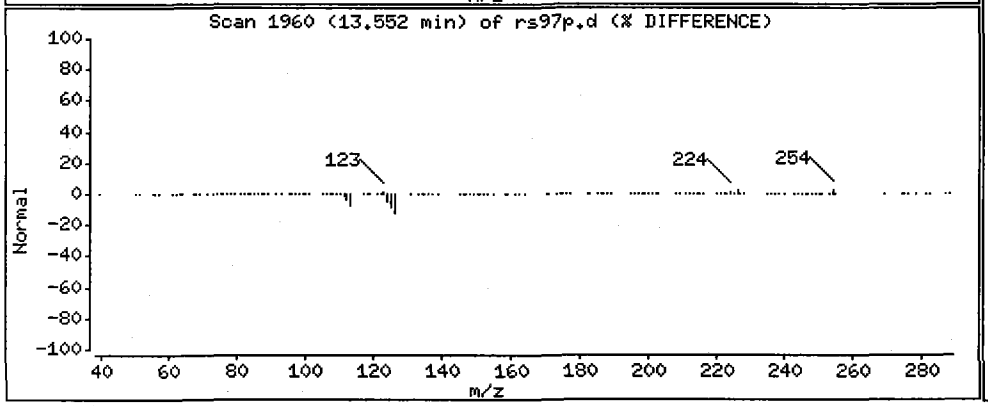
Column phase: ZB-5msi Column diameter: 0.32

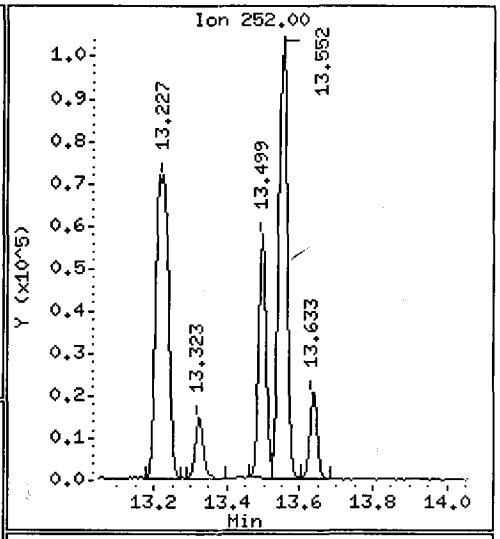
76 Benzo(a)pyrene Concentration: 184800 ug/kg

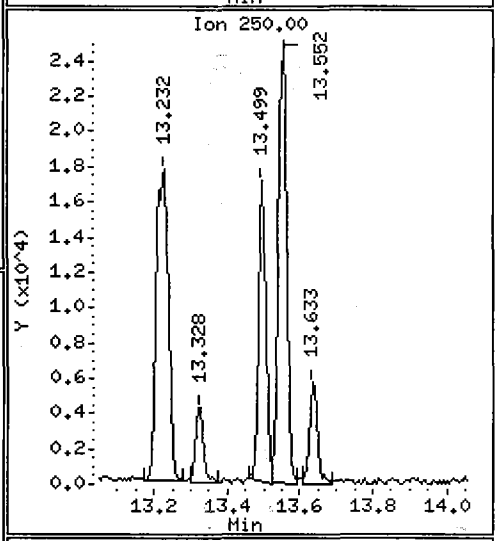


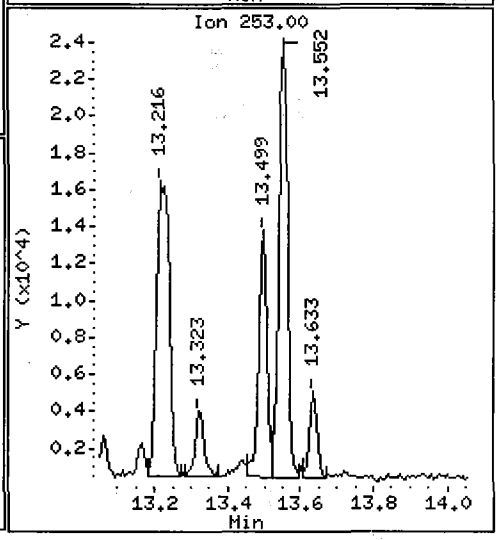












Data File: /chem1/nt12.i/20101110.b/rs97p.d

Date : 10-NOV-2010 18:45

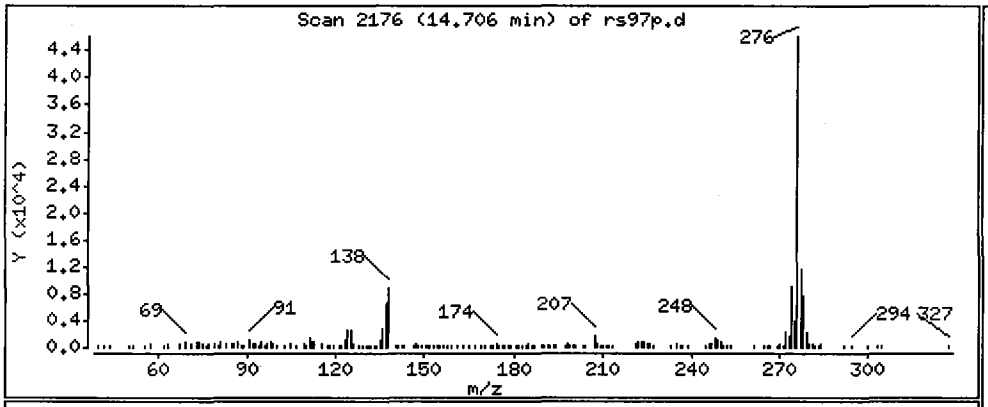
Client ID: DGS-07-9.710-101012 Instrument: nt12.i

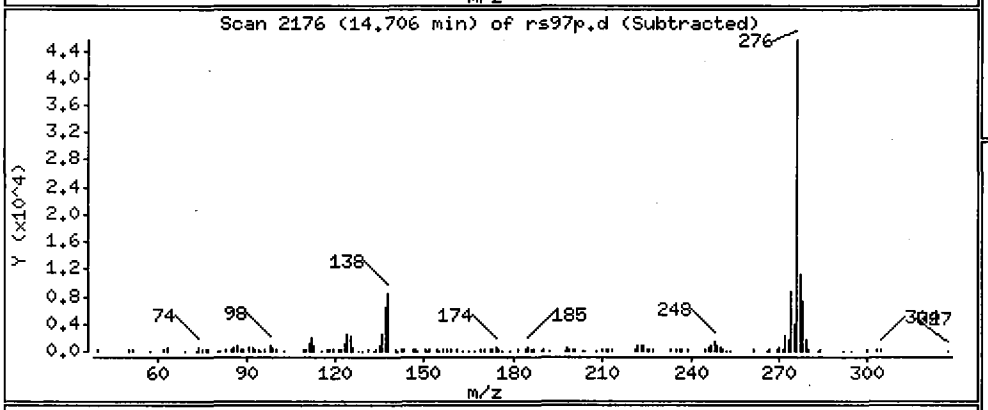
Sample Info: RS97P,3

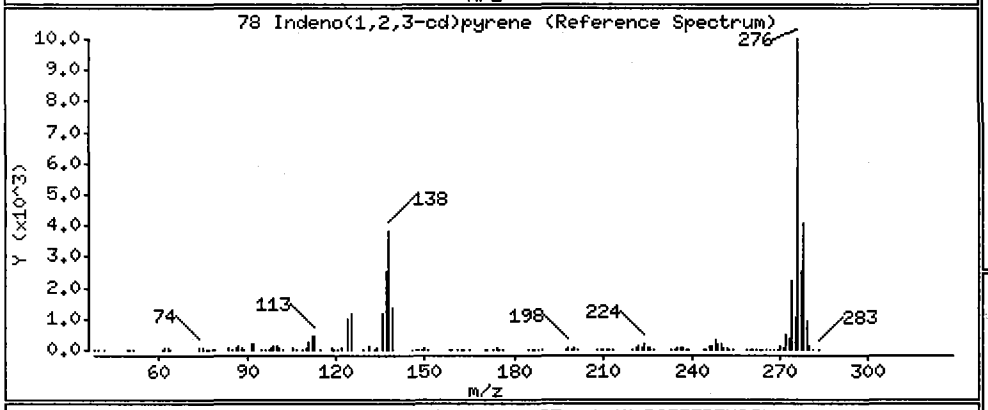
Volume Injected (uL): 1.0 Operator: VTS

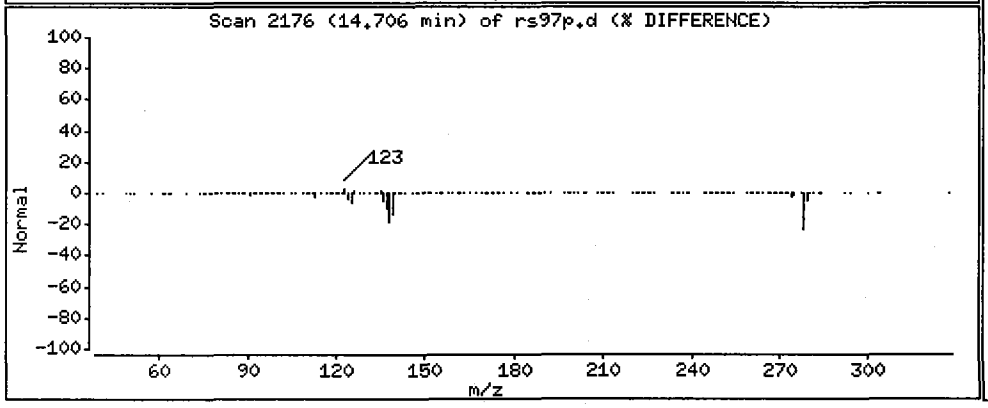
Column phase: ZB-5msi Column diameter: 0.32

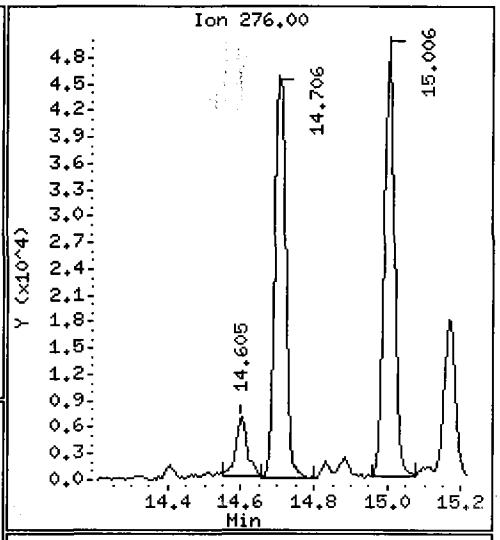
78 Indeno(1,2,3-cd)pyrene Concentration: 73520 ug/kg

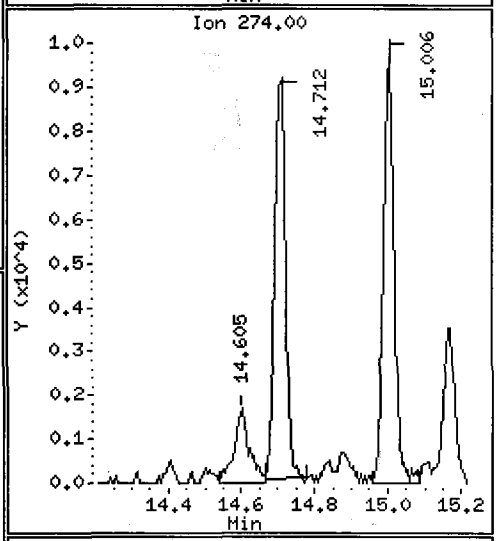


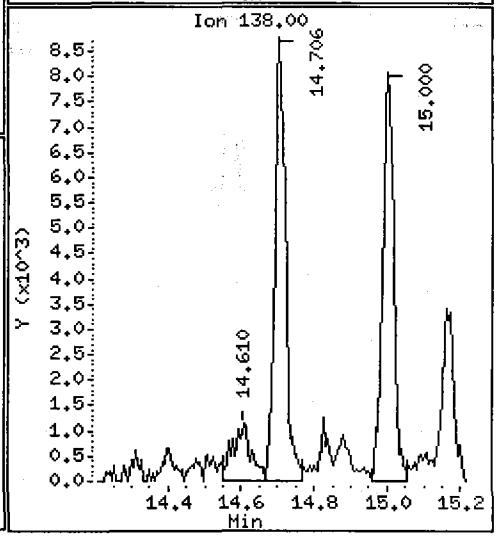












Data File: /chem1/nt12.i/20101110.b/rs97p.d

Date : 10-NOV-2010 18:45

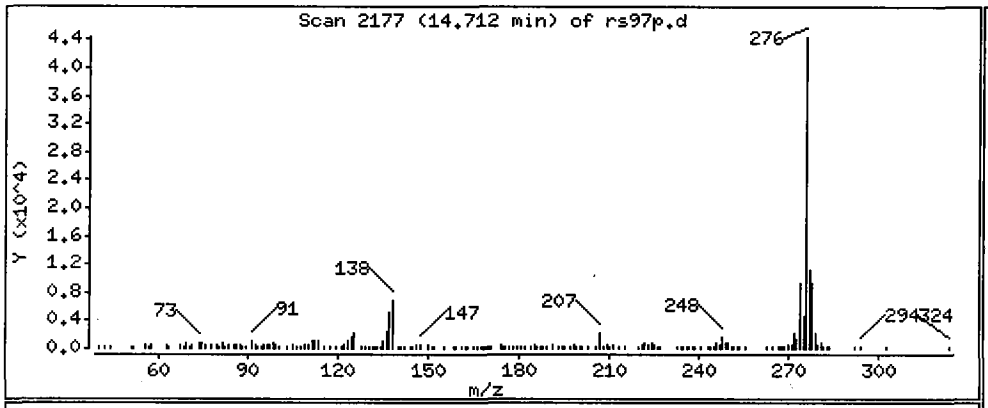
Client ID: DGS-07-9.710-101012 Instrument: nt12.i

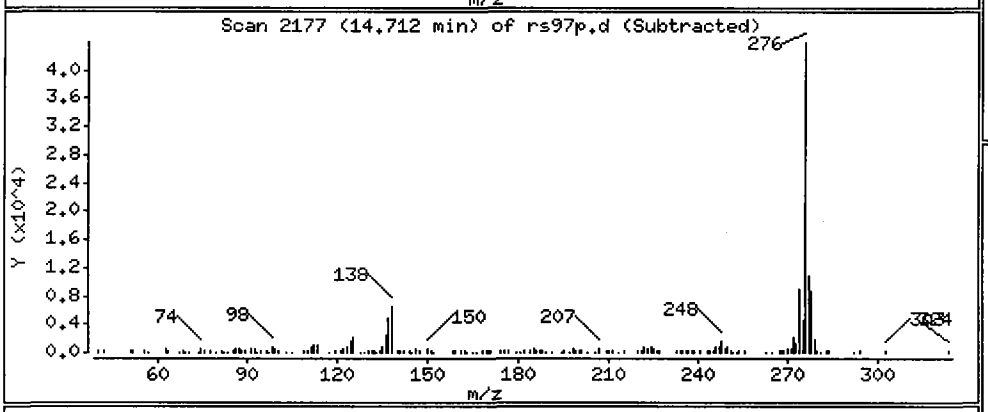
Sample Info: RS97P,3

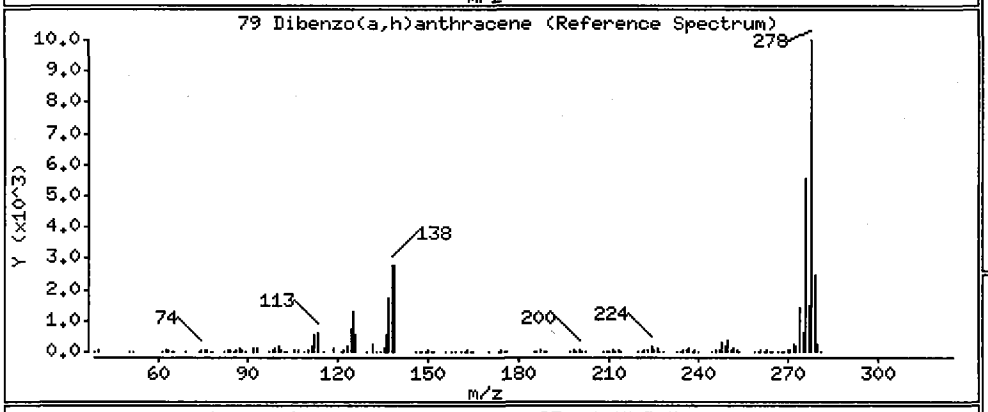
Volume Injected (uL): 1.0 Operator: VTS

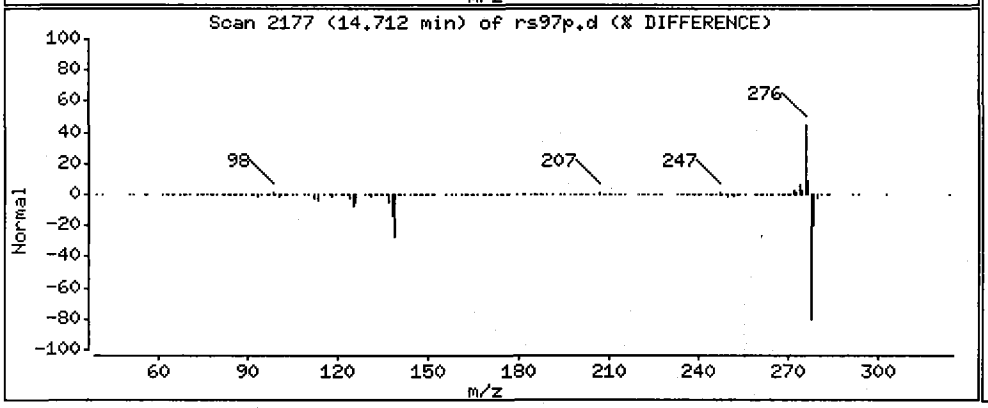
Column phase: ZB-5msi Column diameter: 0.32

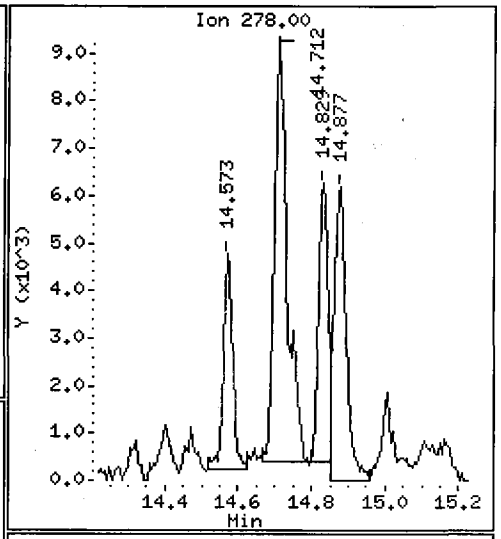
79 Dibenzo(a,h)anthracene Concentration: 20840 ug/kg

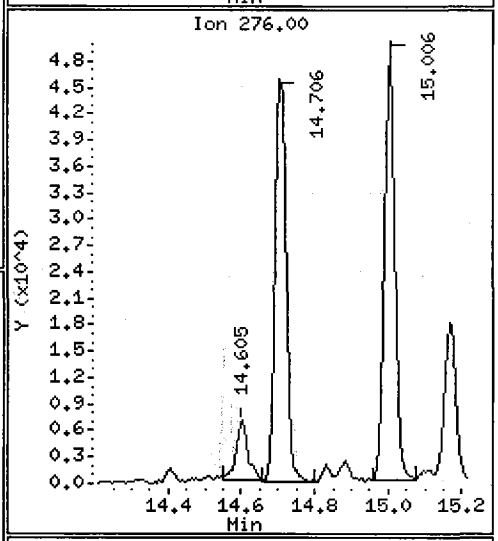


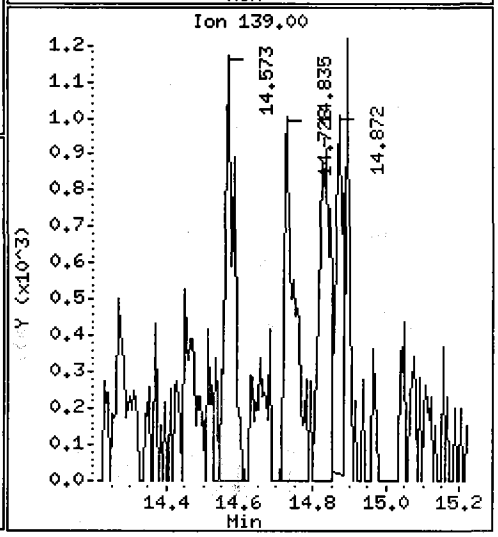












Data File: /chem1/nt12.i/20101110.b/rs97p.d

Date : 10-NOV-2010 18:45

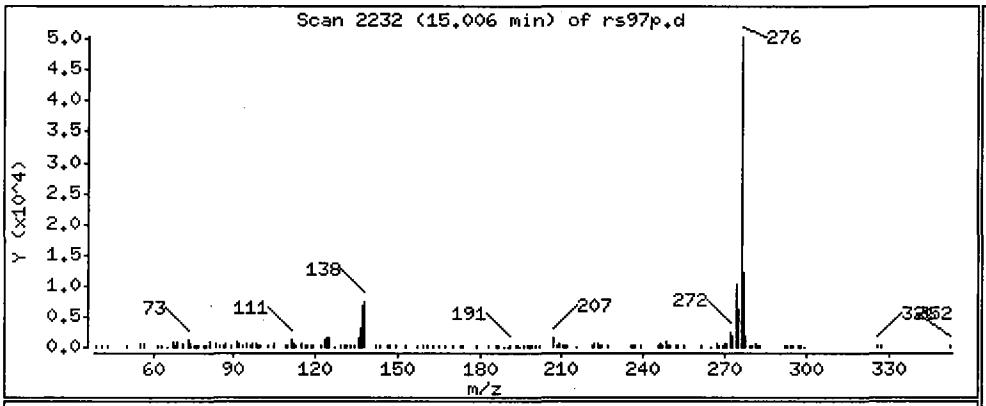
Client ID: DGS-07-9.710-101012 | Instrument: nt12.i

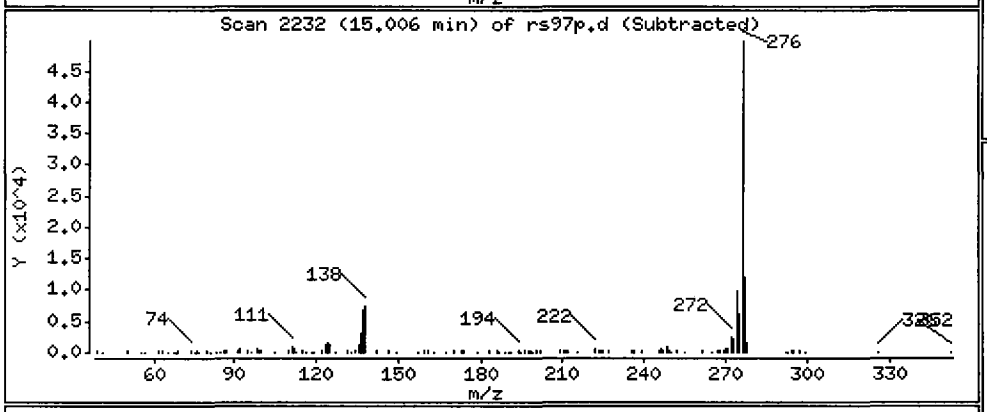
Sample Info: RS97P,3

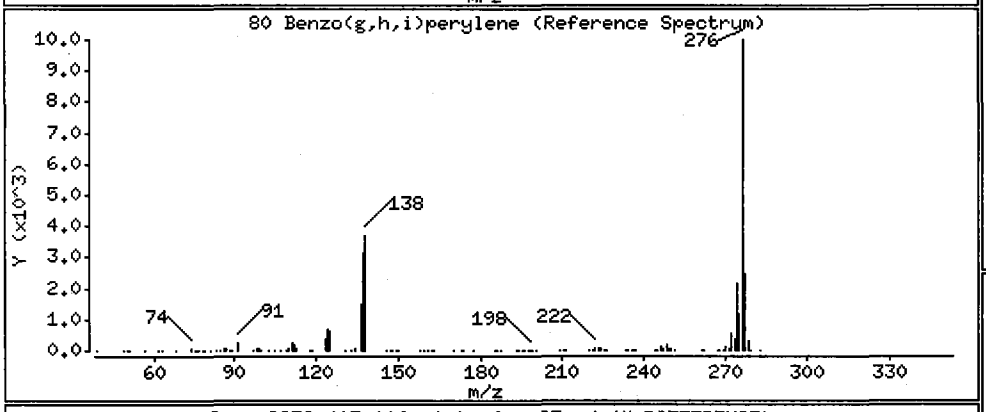
Volume Injected (uL): 1.0 | Operator: VTS

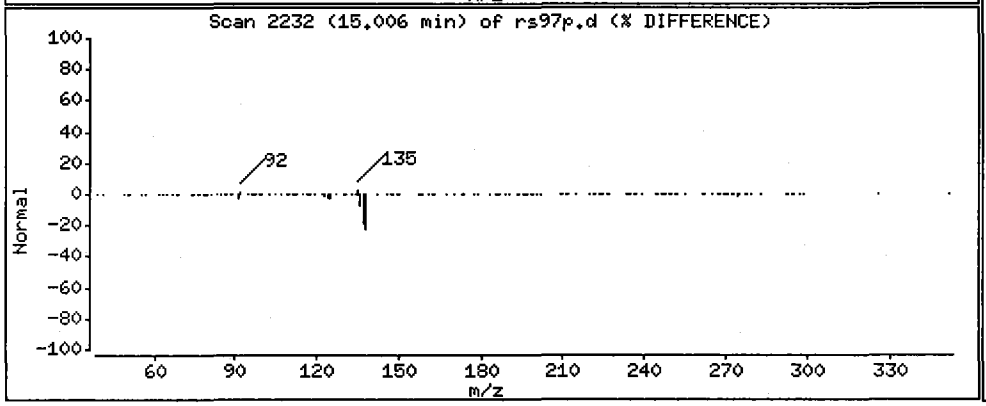
Column phase: ZB-5msi | Column diameter: 0.32

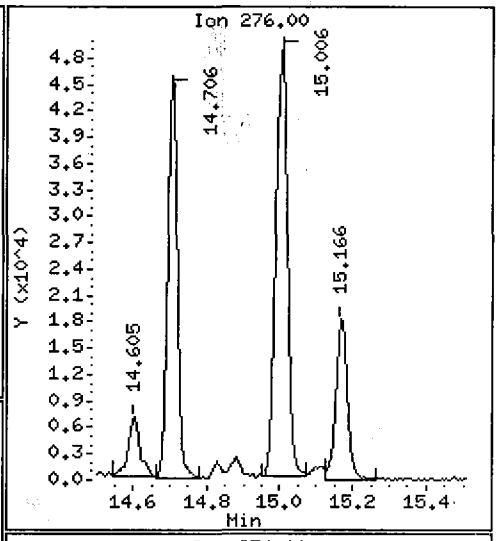
80 Benzo(g,h,i)perylene | Concentration: 102300 ug/kg

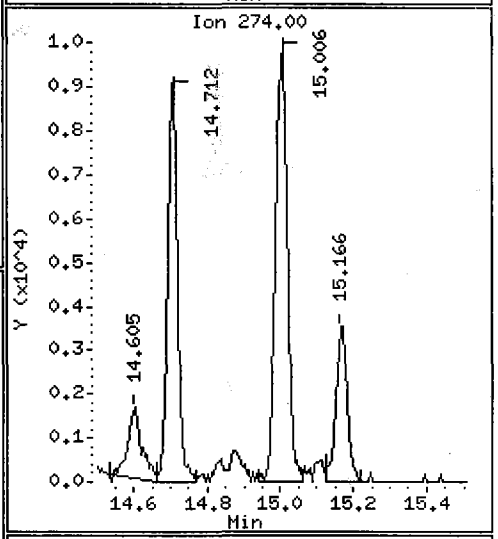


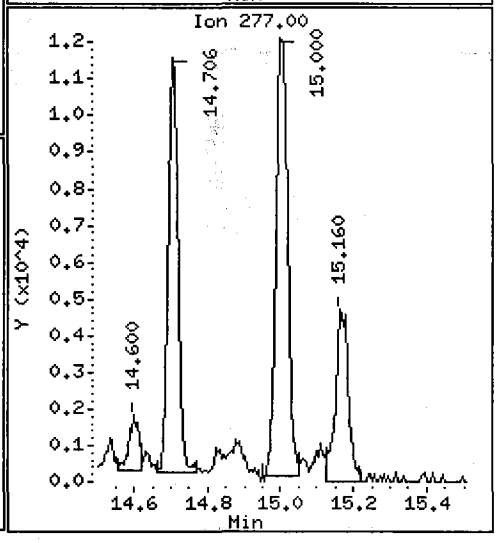








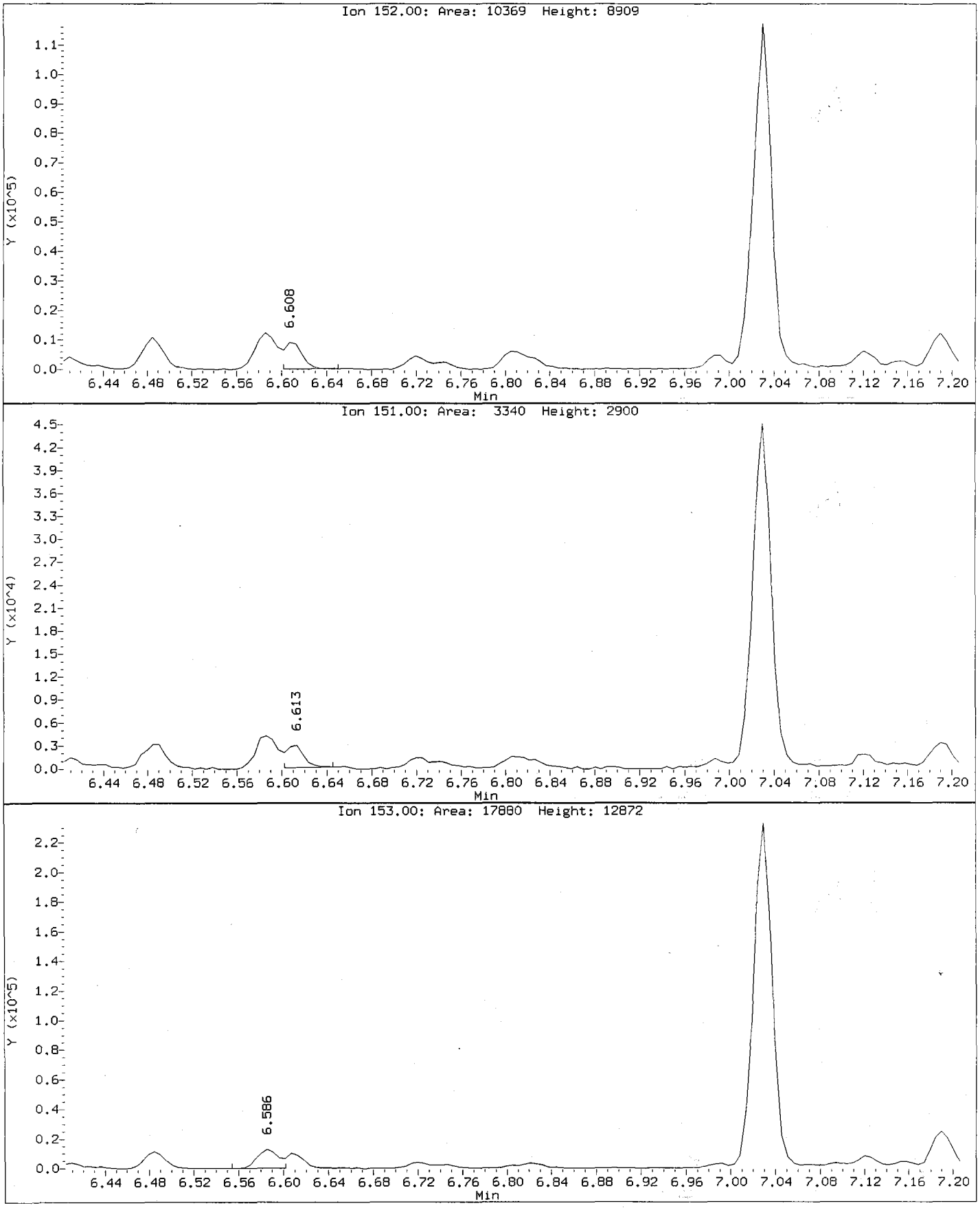




Data File: /chem1/nt12.i/20101110.b/rs97p.d
Injection Date: 10-NOV-2010 18:45
Instrument: nt12.i
Client Sample ID: DGS-07-9.710-101012

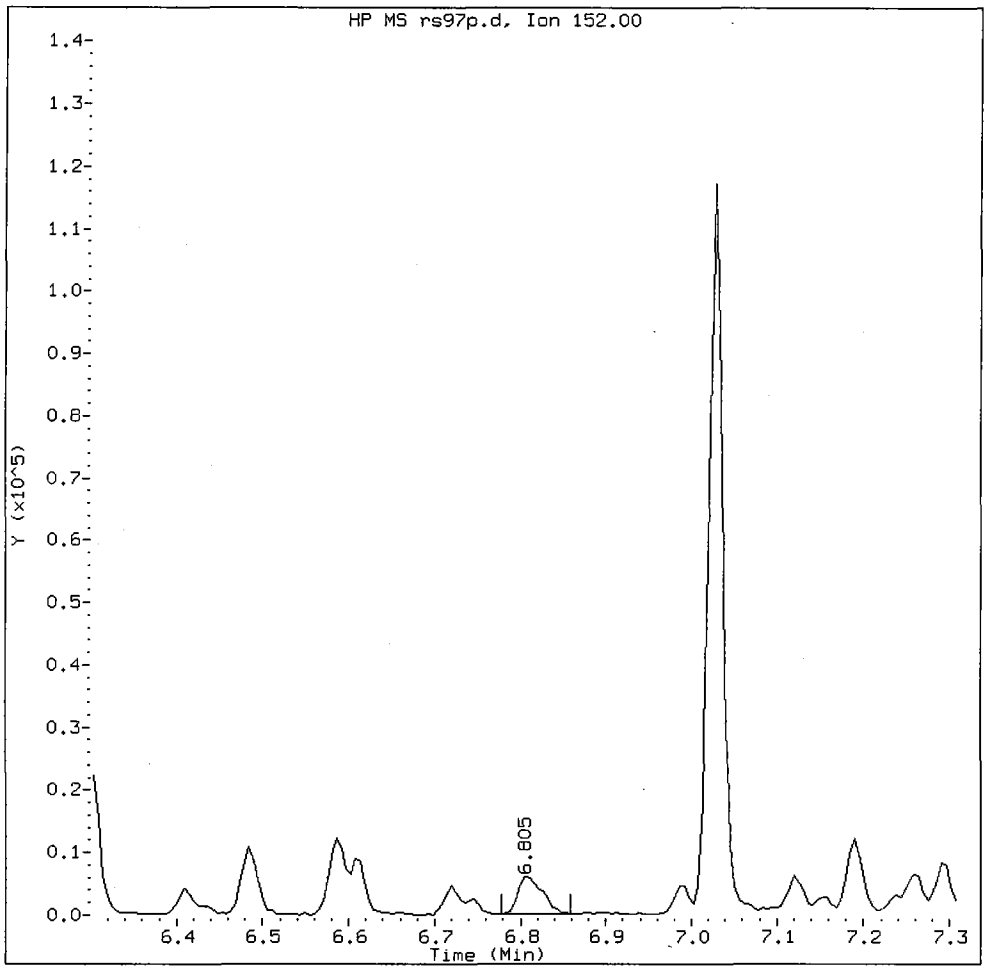
Compound: Acenaphthylene
CAS Number: 208-96-8

VB
11.11.10



RS97P, /chem1/nt12.i/20101110.b/rs97p.d

Acenaphthylene Amount: 1.02 Area: 11571



MANUAL INTEGRATION for Acenaphthylene

1. Baseline correction
2. Poor chromatography
3. Peak not found
4. Totals calculation

5. Other _____

Analyst: VB Date: 11-11-10

Analytical Resources, Inc.

Semivolatile Report SW846 Method 8270D

Data file : /chem1/nt12.i/20101110.b/rs97q.d
Lab Smp Id: RS97Q
Client Smp ID: DGS-07-10.610.9-101
Inj Date : 10-NOV-2010 19:08
Operator : VTS
Inst ID: nt12.i
Smp Info : RS97Q
Misc Info : 10-27433
Comment : 1ul Injection
Method : /chem1/nt12.i/20101110.b/PNADMD.m
Meth Date : 10-Nov-2010 14:46 van
Quant Type: ISTD
Cal Date : 30-OCT-2010 13:19
Cal File: ic1030f.d
Als bottle: 16
Dil Factor: 1.00000
Integrator: HP RTE
Compound Sublist: pnas.sub
Target Version: 3.50
Processing Host: cserv3

Concentration Formula: Amt * DF * Vt/(Ws * (100 - M)/100) * CpndVariable

Name	Value	Description
DF	1.00000	Dilution Factor
Vt	10000.00000	Volume of final extract (uL)
Ws	5.05000	Weight of sample extracted (g)
M	44.20000	% Moisture

Cpnd Variable Local Compound Variable

Compounds	QUANT SIG MASS	RT	EXP RT	REL RT	RESPONSE	CONCENTRATIONS ON-COLUMN (ug/mL)	FINAL (ug/kg)
* 27 Naphthalene-d8	136	4.887	4.888	(1.000)	224906	20.0000	
28 Naphthalene	128	4.914	4.909	(1.005)	880085	68.7544	244000
32 2-Methylnaphthalene	141	5.726	5.726	(1.172)	209686	30.6905	108900
105 1-methylnaphthalene	141	5.854	5.854	(1.198)	119614	16.9792	60250
$ 36 2-Fluorobiphenyl	172	6.201	6.202	(0.887)	16202	1.57431	5587
40 Acenaphthylene	152	6.805	6.805	(0.973)	14140	1.05565	3746 (M)
* 42 Acenaphthene-d10	164	6.992	6.992	(1.000)	133772	20.0000	
44 Acenaphthene	153	7.030	7.030	(1.005)	309298	37.5957	133400
46 Dibenzofuran	168	7.222	7.222	(1.033)	27325	2.16597	7686
49 Fluorene	166	7.639	7.639	(1.092)	186281	19.7761	70180
* 59 Phenanthrene-d10	188	8.766	8.761	(1.000)	251864	20.0000	
60 Phenanthrene	178	8.808	8.787	(1.005)	1986984	148.709	527700 E
61 Anthracene	178	8.851	8.846	(1.010)	328668	23.8001	84460
62 Carbazole	167	9.065	9.065	(1.034)	29359	~~2.63539~~	9352 NR

Compounds	QUANT SIG MASS	RT	EXP RT	REL RT	RESPONSE	CONCENTRATIONS ON-COLUMN (ug/mL)	CONCENTRATIONS FINAL (ug/kg)
64 Fluoranthene	202	10.251	10.235	(0.855)	1316858	88.6501	314600 E
65 Pyrene	202	10.518	10.502	(0.877)	1575172	106.887	379300 E
$ 66 Terphenyl-d14	244	10.737	10.737	(0.895)	15240	1.62111	5753
68 Benzo(a)anthracene	228	11.976	11.971	(0.999)	270282	22.6318	80310
* 69 Chrysene-d12	240	11.992	11.993	(1.000)	212659	20.0000	
71 Chrysene	228	12.025	12.019	(1.003)	292132	26.1643	92850
187 Total Benzofluoranthenes	252	13.221	13.243	(0.971)	341346	31.3857	111400
76 Benzo(a)pyrene	252	13.558	13.553	(0.996)	306757	30.7037	109000
* 77 Perylene-d12	264	13.617	13.611	(1.000)	182597	20.0000	
99 Perylene	252	13.638	13.638	(1.002)	57252	~~5.3088~~0	19120 NR
78 Indeno(1,2,3-cd)pyrene	276	14.712	14.712	(1.080)	187195	12.6201	44790
79 Dibenzo(a,h)anthracene	278	14.717	14.723	(1.081)	39818	3.26059	11570
80 Benzo(g,h,i)perylene	276	15.016	15.006	(1.103)	216238	17.7454	62970

QC Flag Legend

M - Compound response manually integrated.

LB
11-11-10

Analytical Resources, Inc.

INTERNAL STANDARD COMPOUNDS
AREA AND RT SUMMARY

Instrument ID: nt12.i
Lab File ID: rs97q.d
Lab Smp Id: RS97Q
Analysis Type: SV
Quant Type: ISTD
Operator: VTS
Method File: /chem1/nt12.i/20101110.b/PNADMD.m
Misc Info: 10-27433

Calibration Date: 10-NOV-2010
Calibration Time: 13:29
Client Smp ID: DGS-07-10.610.9-
Level: LOW
Sample Type: Sediment

Test Mode:
Use Initial Calibration Level 4.

COMPOUND	STANDARD	AREA LIMIT LOWER	AREA LIMIT UPPER	SAMPLE	%DIFF
27 Naphthalene-d8	237664	118832	475328	224906	-5.37
42 Acenaphthene-d10	143363	71682	286726	133772	-6.69
59 Phenanthrene-d10	245437	122718	490874	251864	2.62
69 Chrysene-d12	199260	99630	398520	212659	6.72
77 Perylene-d12	197636	98818	395272	182597	-7.61

COMPOUND	STANDARD	RT LIMIT LOWER	RT LIMIT UPPER	SAMPLE	%DIFF
27 Naphthalene-d8	4.89	4.39	5.39	4.89	0.00
42 Acenaphthene-d10	6.99	6.49	7.49	6.99	0.00
59 Phenanthrene-d10	8.76	8.26	9.26	8.77	0.06
69 Chrysene-d12	11.99	11.49	12.49	11.99	0.00
77 Perylene-d12	13.61	13.11	14.11	13.62	0.04

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.

Analytical Resources, Inc.

RECOVERY REPORT

Client Name: NW Natural
Sample Matrix: SOLID
Lab Smp Id: RS97Q
Level: LOW
Data Type: MS DATA
SpikeList File: SONICLCS.spk
Sublist File: pnas.sub
Method File: /chem1/nt12.i/20101110.b/PNADMD.m
Misc Info: 10-27433

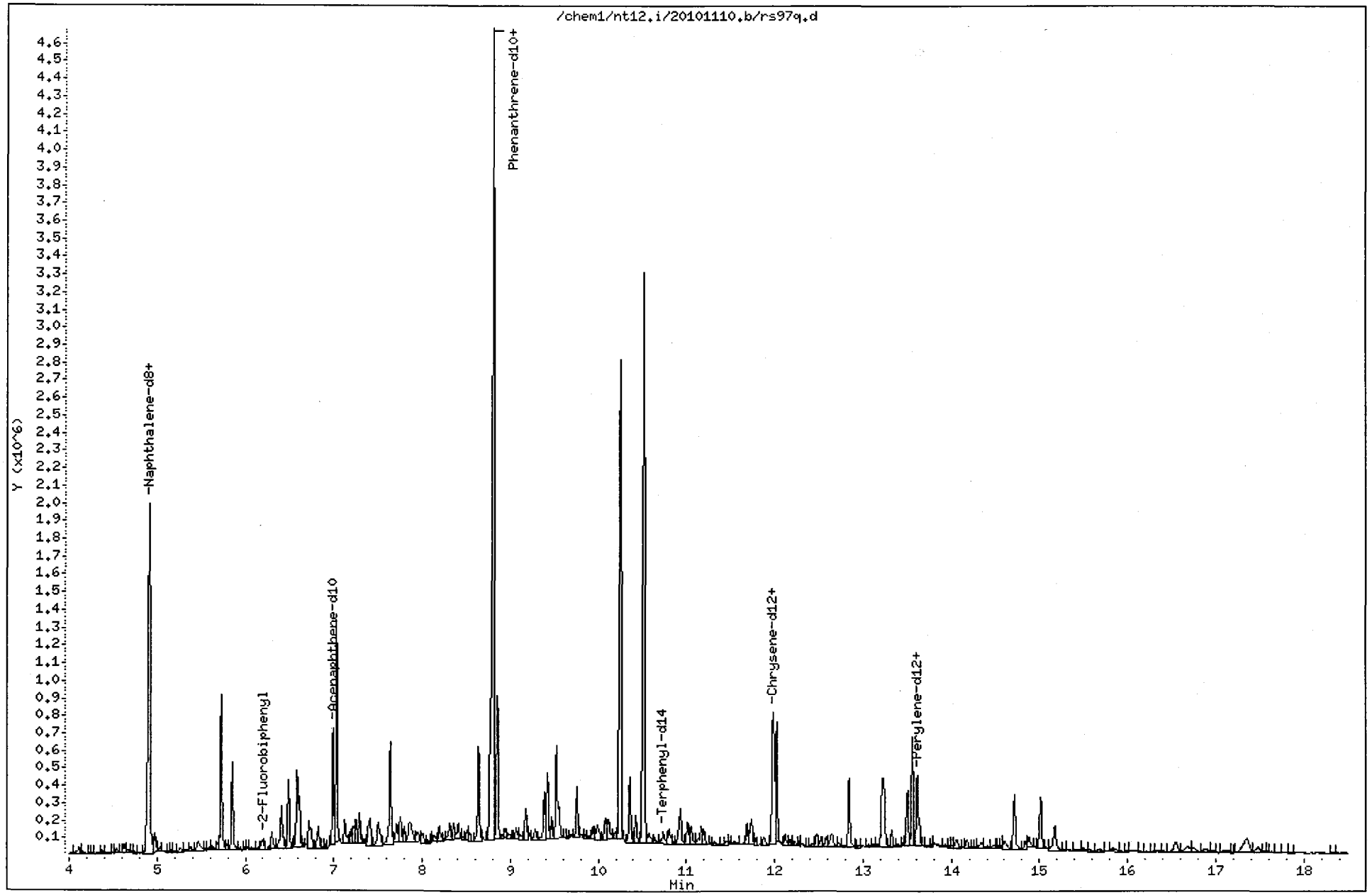
Client SDG: RS97
Fraction: SV
Client Smp ID: DGS-07-10.610.9-101
Operator: VTS
SampleType: SAMPLE
Quant Type: ISTD

SURROGATE COMPOUND	CONC ADDED ug/kg	CONC RECOVERED ug/kg	% RECOVERED	LIMITS
$ 36 2-Fluorobiphenyl	8872	5587	62.97	34-100
$ 66 Terphenyl-d14	8872	5753	64.84	35-112

Data File: /chem1/nt12.i/20101110.b/rs97q.d
Date : 10-NOV-2010 19:08
Client ID: DGS-07-10.610.9-101
Sample Info: RS97Q
Volume Injected (uL): 1.0
Column phase: ZB-5msi

Instrument: nt12.i
Operator: VTS
Column diameter: 0.32

RS97:00575



Data File: /chem1/nt12.i/20101110.b/rs97q.d

Date : 10-NOV-2010 19:08

Client ID: DGS-07-10.610.9-101

Instrument: nt12.i

Sample Info: RS97Q

Volume Injected (uL): 1.0

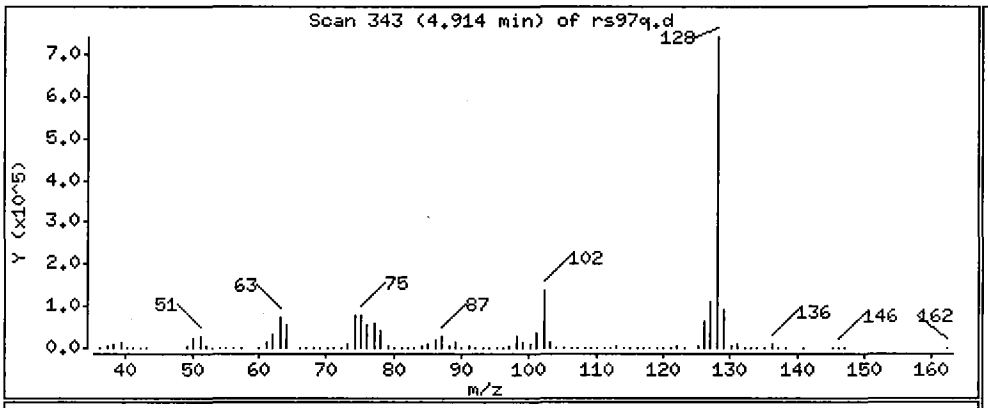
Operator: VTS

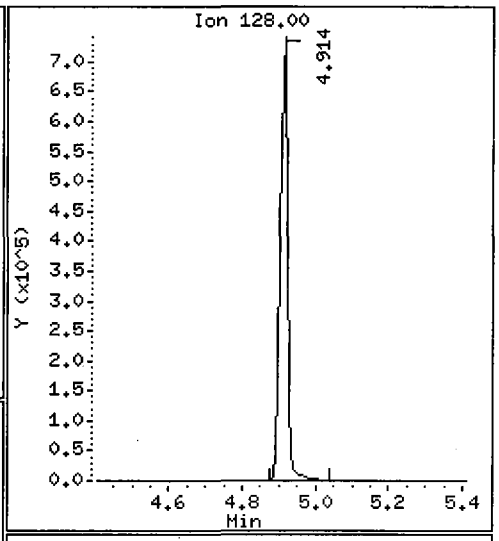
Column phase: ZB-5msi

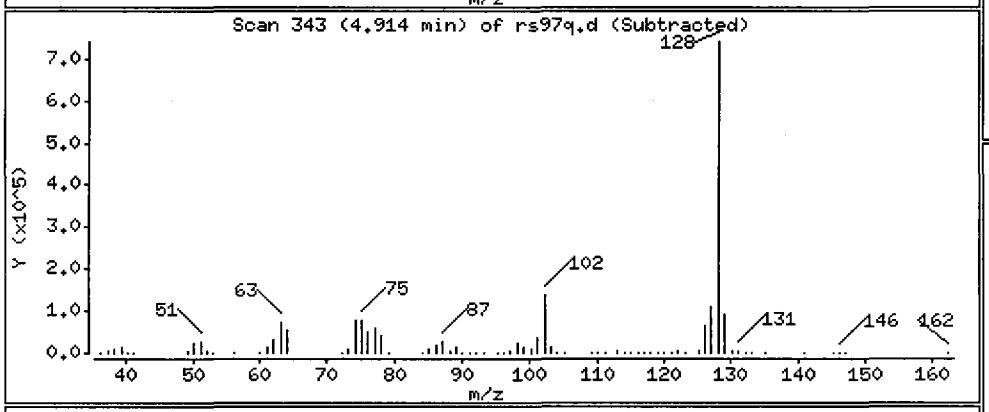
Column diameter: 0.32

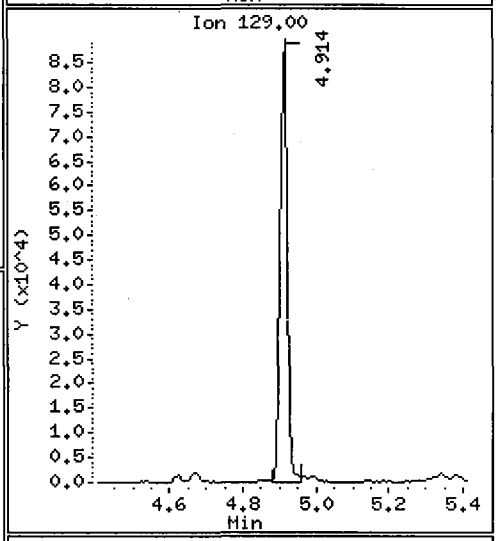
28 Naphthalene

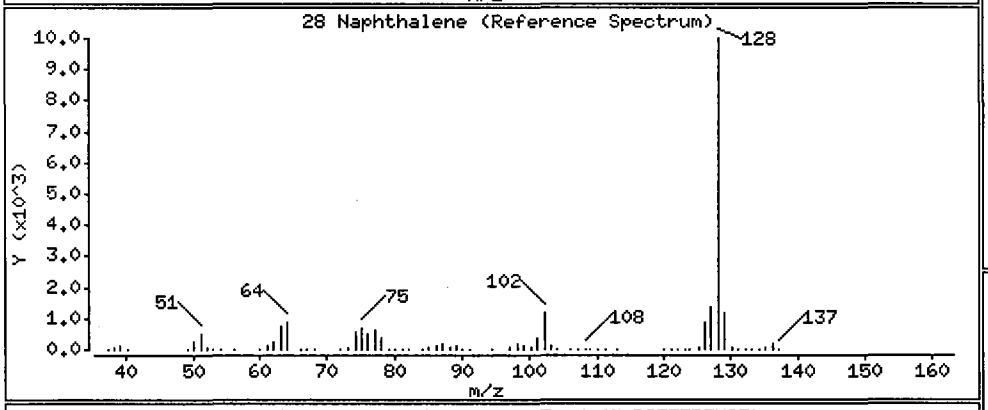
Concentration: 244000 ug/kg

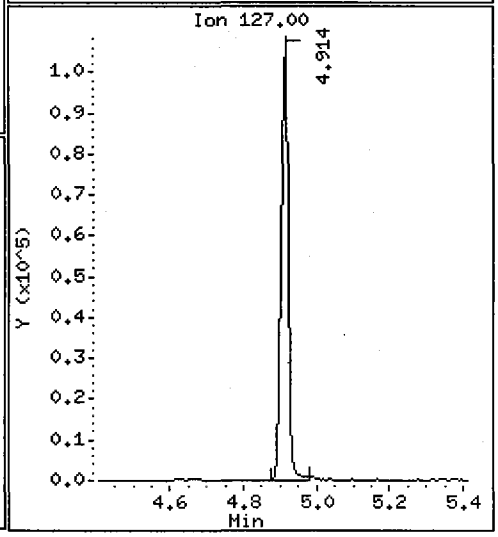


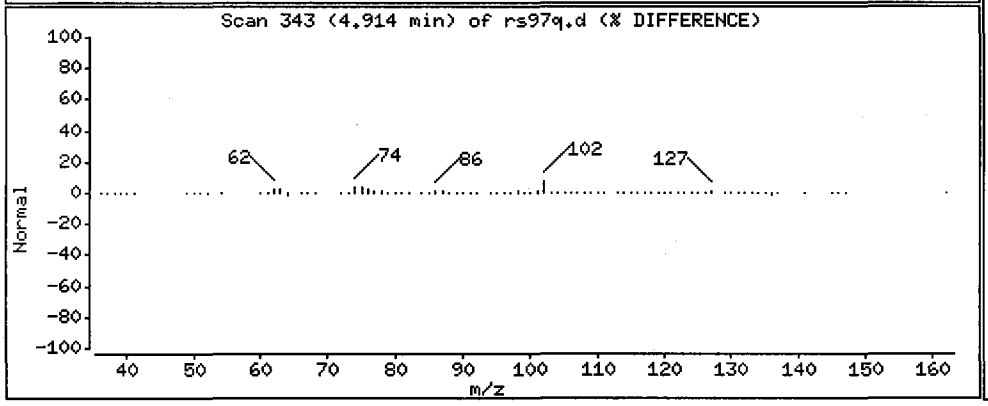












Data File: /chem1/nt12.i/20101110.b/rs97q.d

Date : 10-NOV-2010 19:08

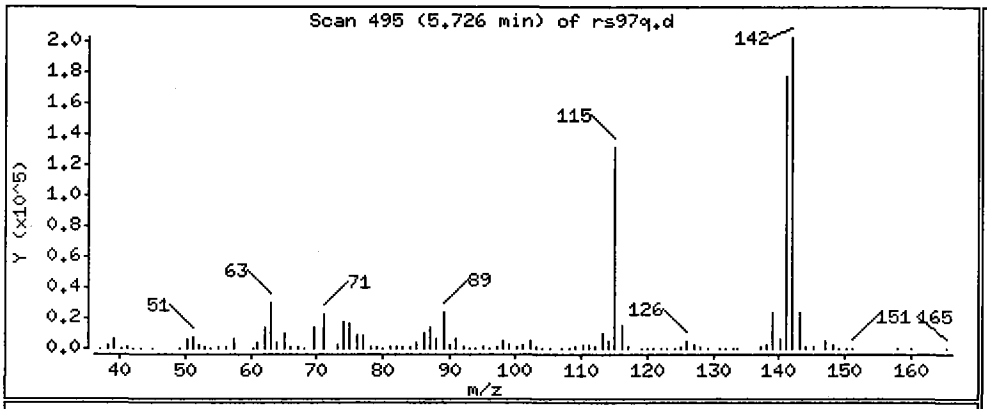
Client ID: DGS-07-10.610.9-101 Instrument: nt12.i

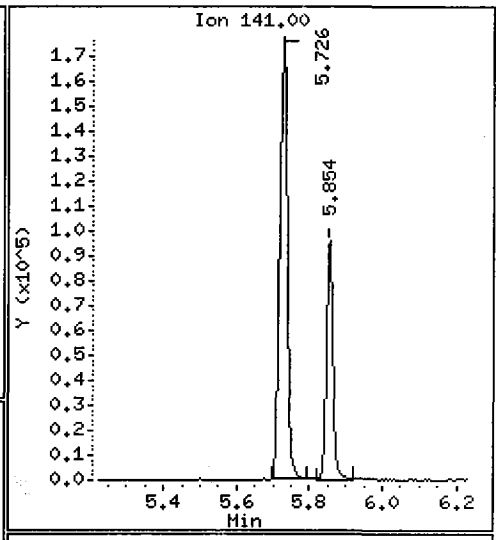
Sample Info: RS97Q

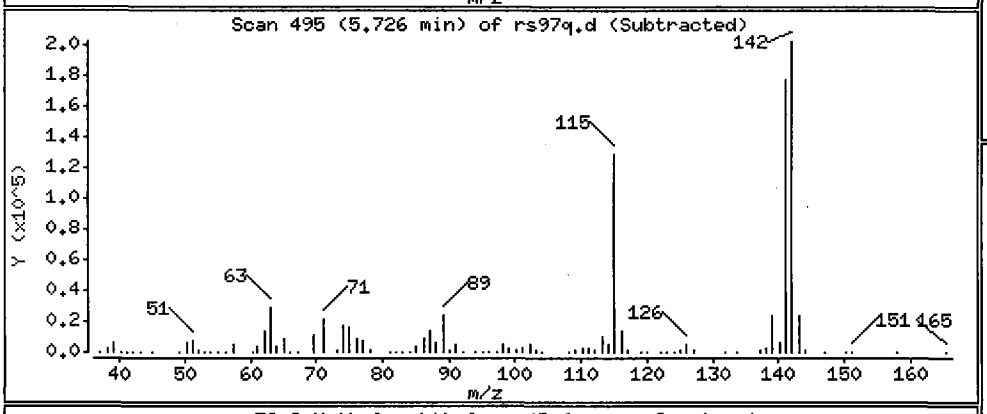
Volume Injected (uL): 1.0 Operator: VTS

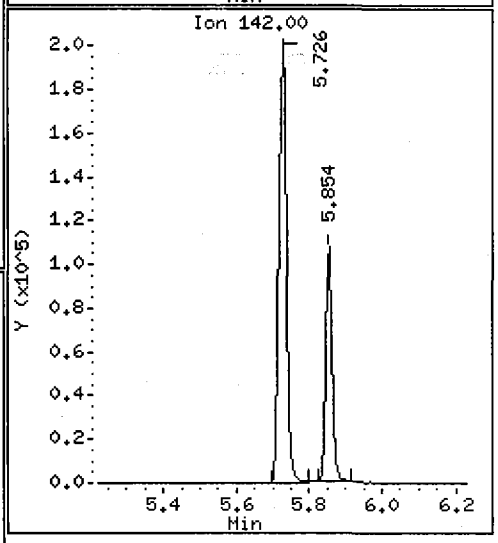
Column phase: ZB-5msi Column diameter: 0.32

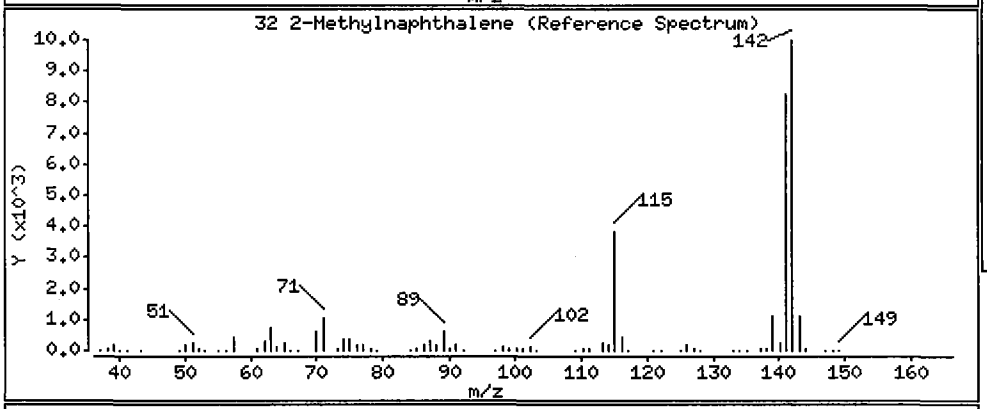
32 2-Methylnaphthalene Concentration: 108900 ug/kg

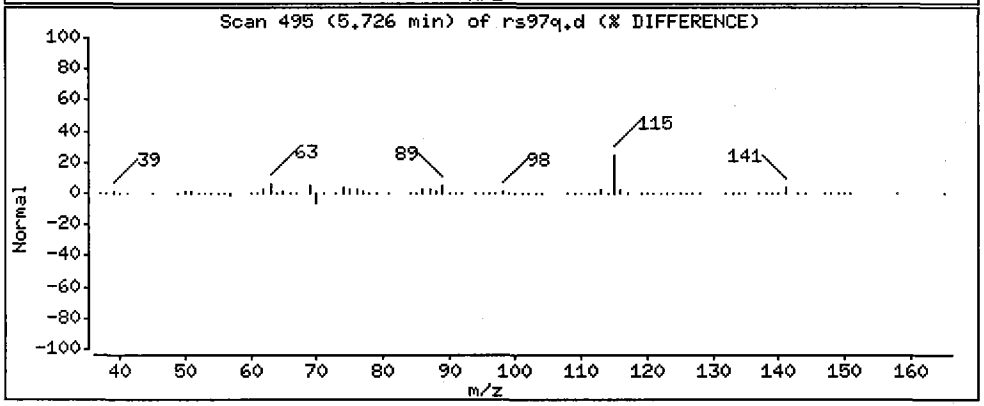












Data File: /chem1/nt12.i/20101110.b/rs97q.d

Date : 10-NOV-2010 19:08

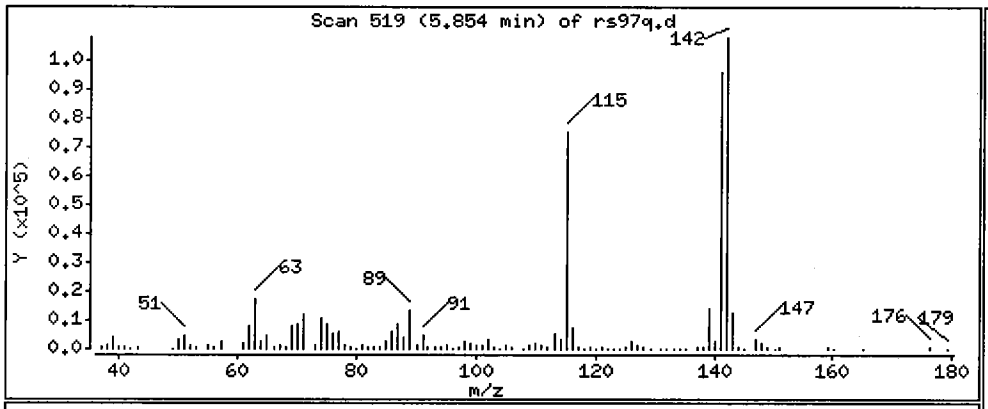
Client ID: DGS-07-10.610.9-101 | Instrument: nt12.i

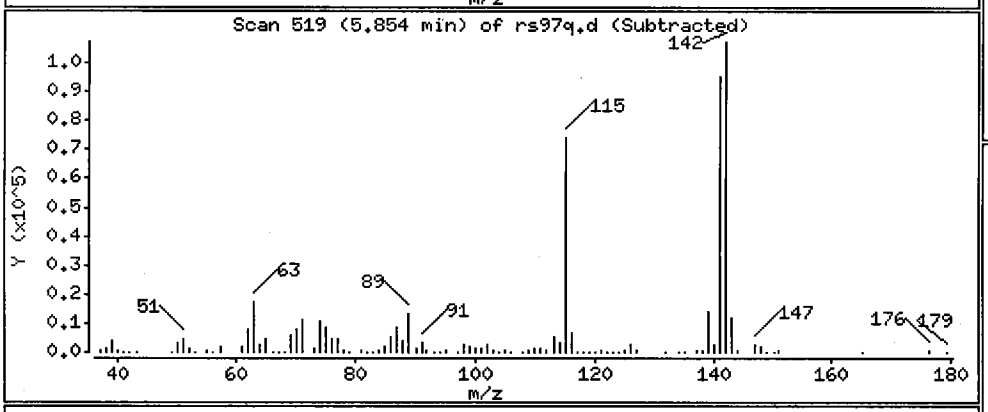
Sample Info: RS97Q

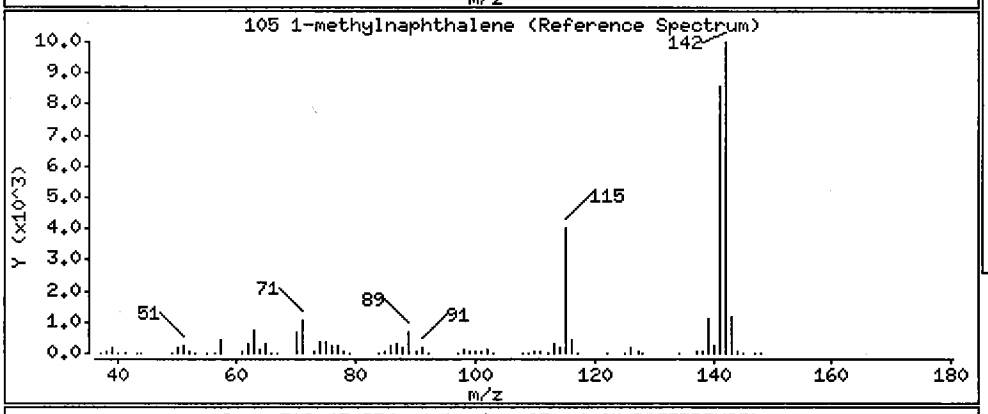
Volume Injected (uL): 1.0 | Operator: VTS

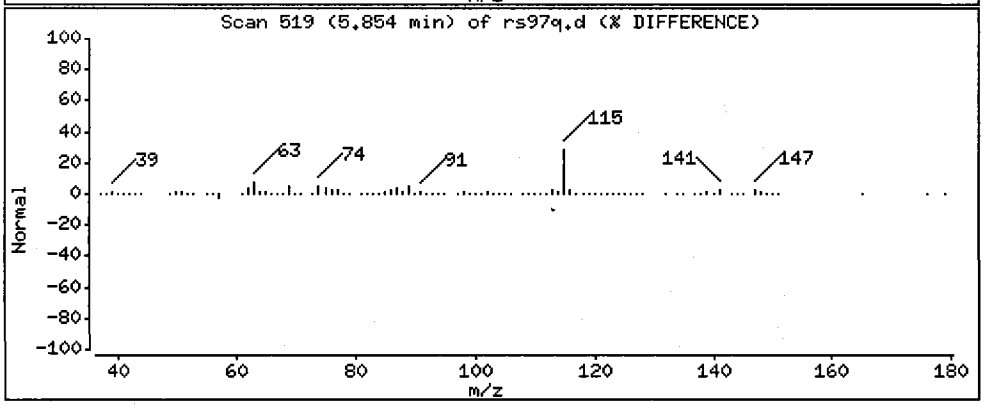
Column phase: ZB-5msi | Column diameter: 0.32

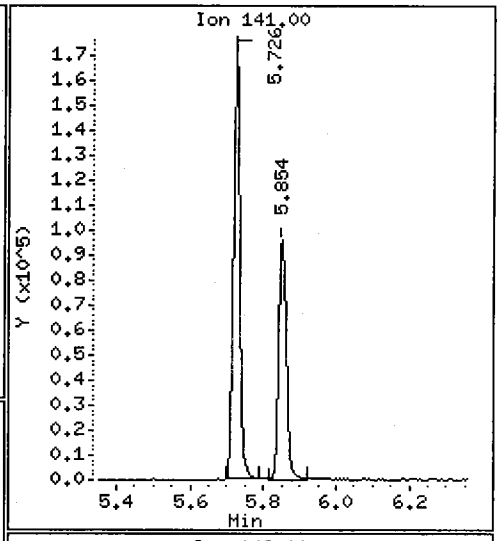
105 1-methylnaphthalene | Concentration: 60250 ug/kg

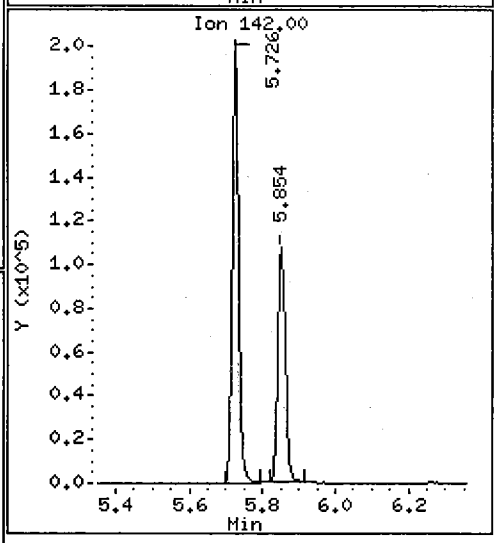












Data File: /chem1/nt12.i/20101110.b/rs97q.d

Date : 10-NOV-2010 19:08

Client ID: DGS-07-10.610.9-101

Instrument: nt12.i

Sample Info: RS97Q

Volume Injected (uL): 1.0

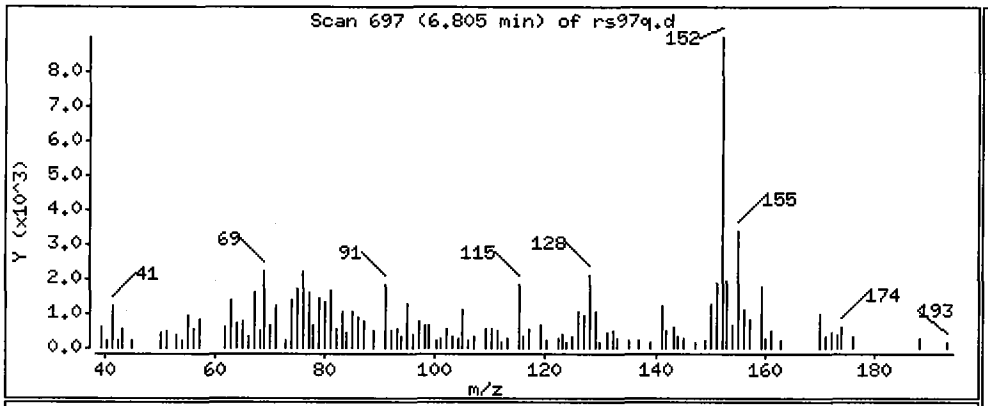
Operator: VTS

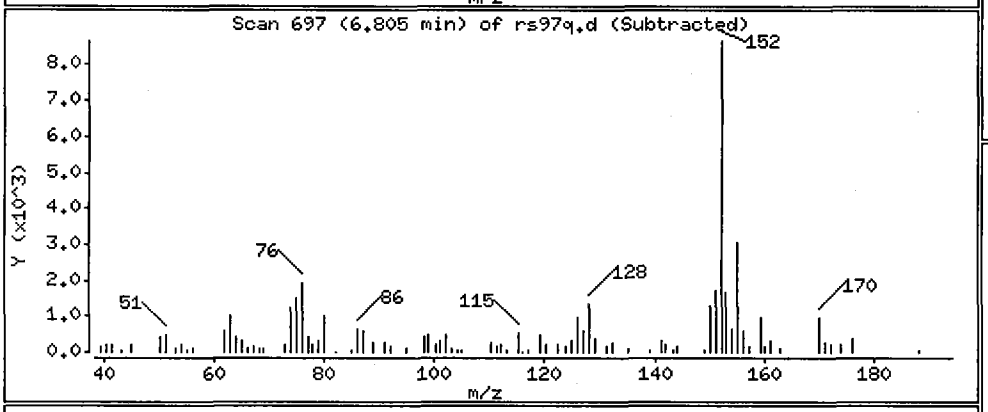
Column phase: ZB-5msi

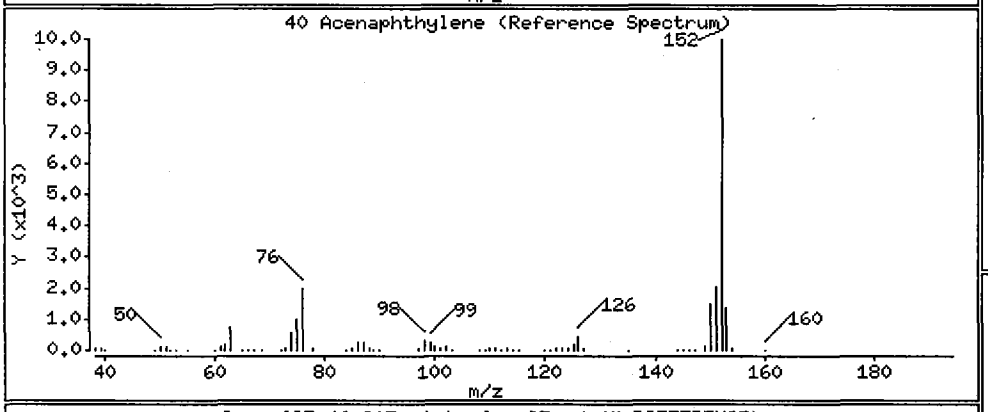
Column diameter: 0.32

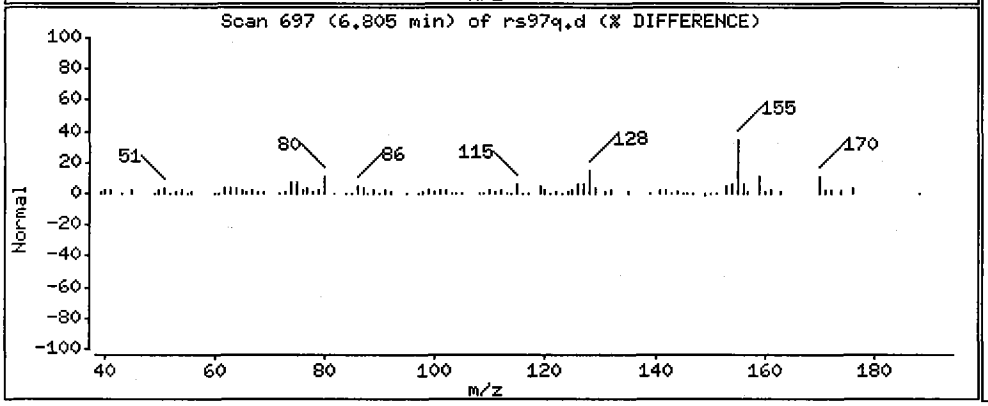
40 Acenaphthylene

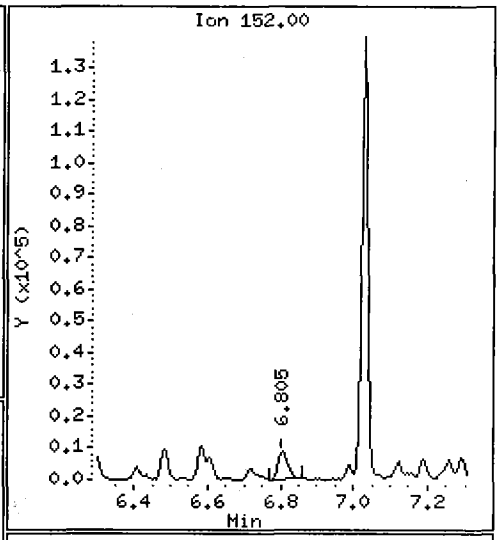
Concentration: 3746 ug/kg

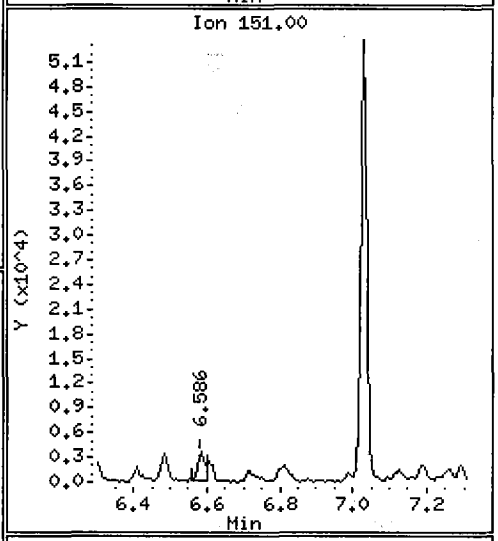


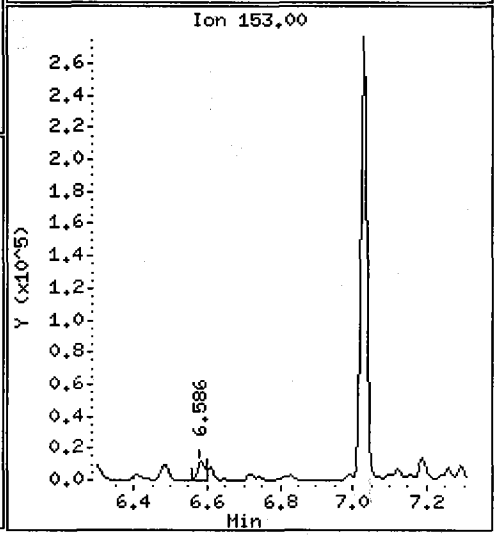












Data File: /chem1/nt12.i/20101110.b/rs97q.d

Date : 10-NOV-2010 19:08

Client ID: DGS-07-10.610.9-101

Instrument: nt12.i

Sample Info: RS97Q

Volume Injected (uL): 1.0

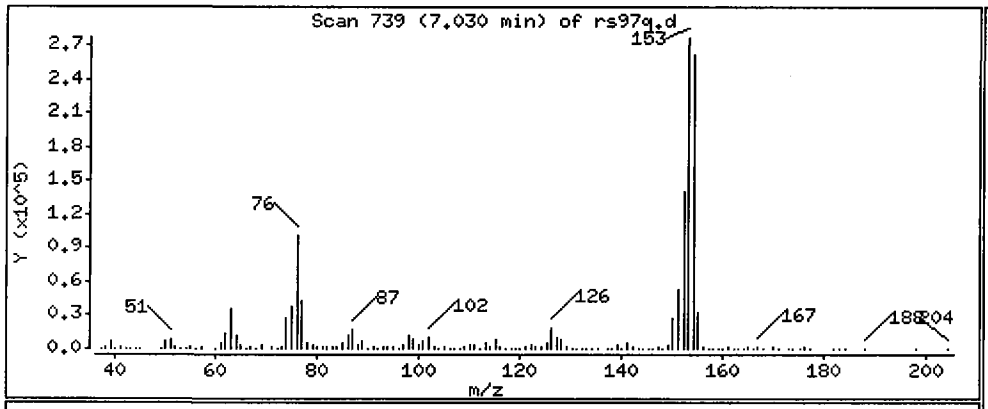
Operator: VTS

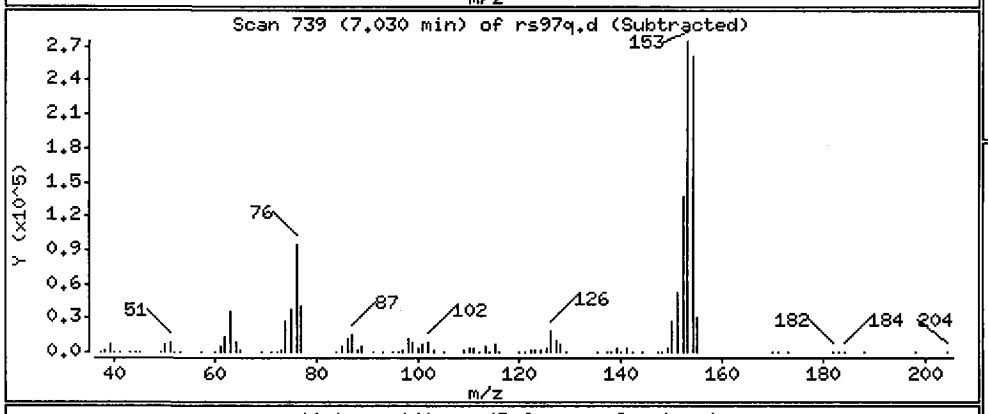
Column phase: ZB-5msi

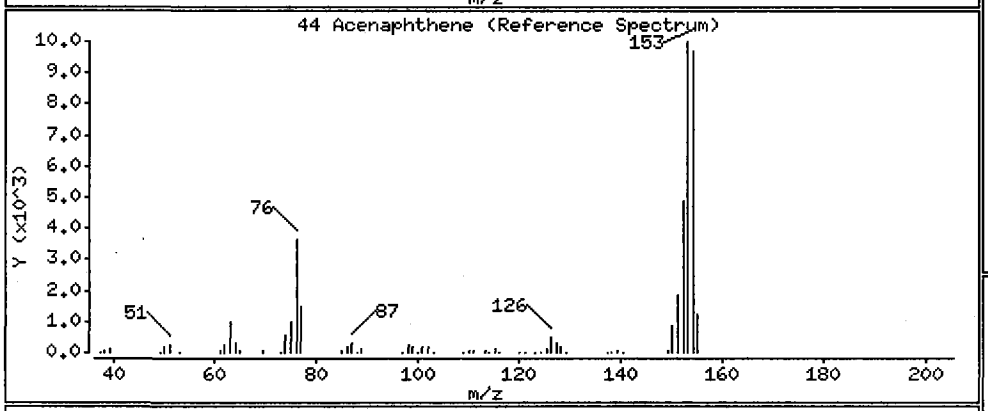
Column diameter: 0.32

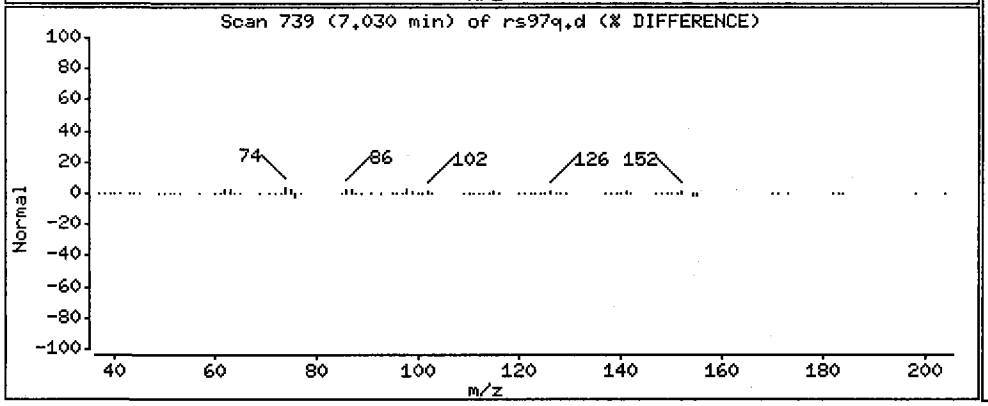
44 Acenaphthene

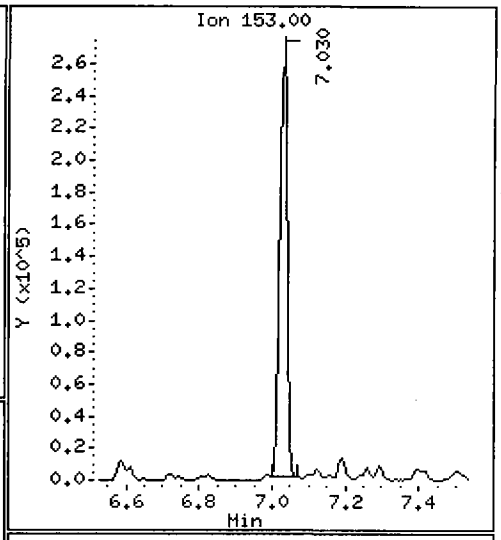
Concentration: 133400 ug/kg

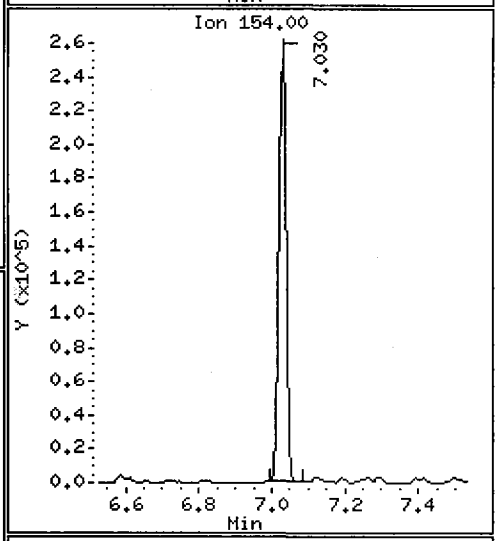


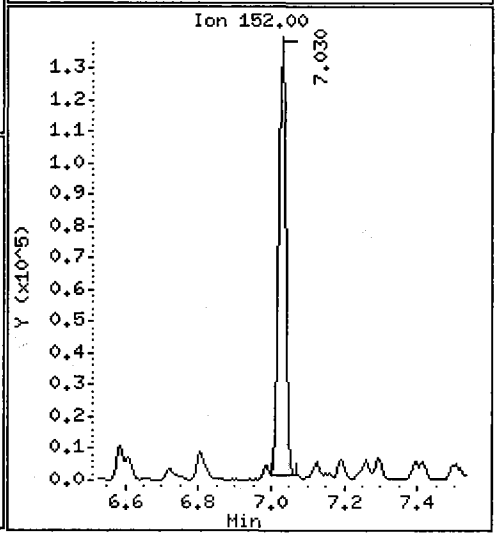












Data File: /chem1/nt12.i/20101110.b/rs97q.d

Date : 10-NOV-2010 19:08

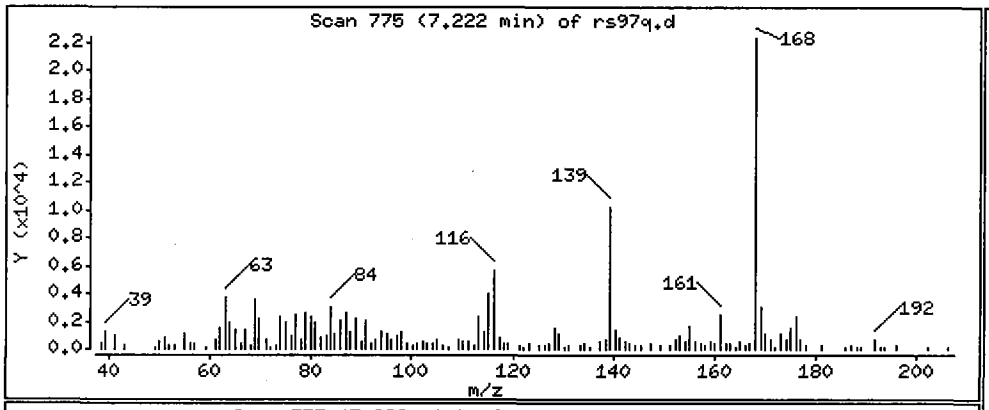
Client ID: DGS-07-10.610.9-101 Instrument: nt12.i

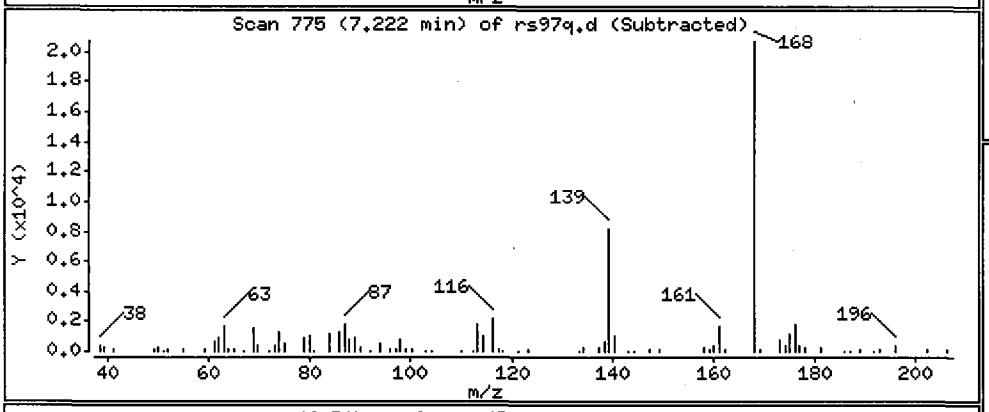
Sample Info: RS97Q

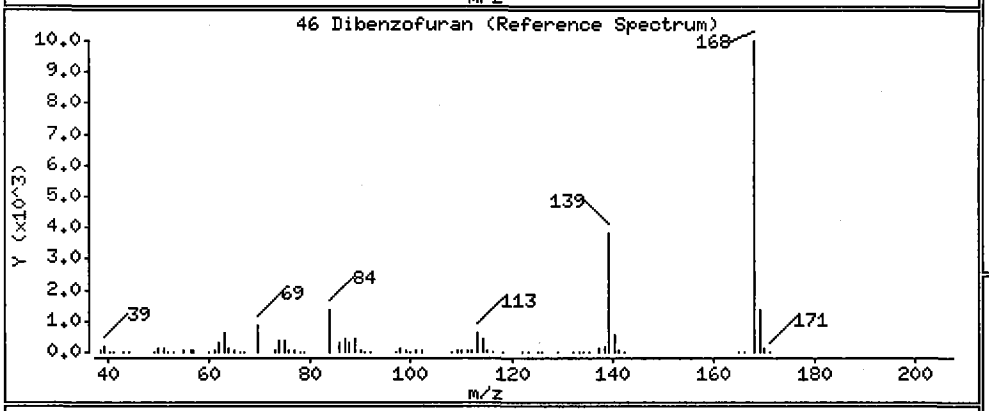
Volume Injected (uL): 1.0 Operator: VTS

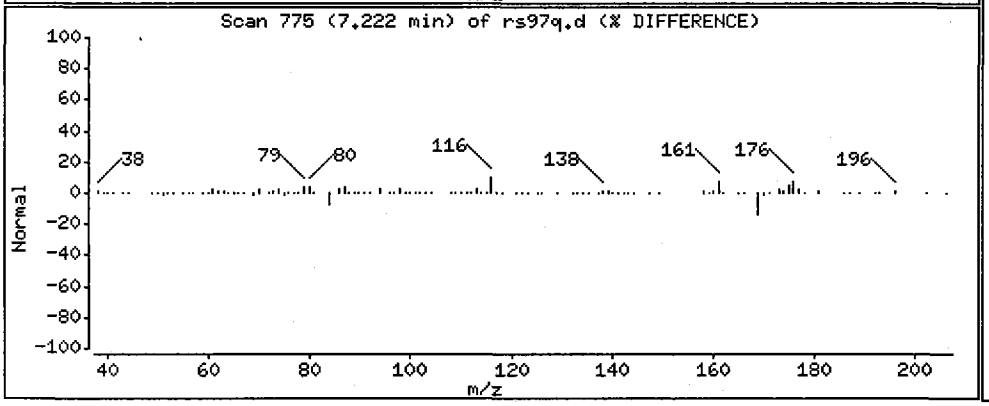
Column phase: ZB-5msi Column diameter: 0.32

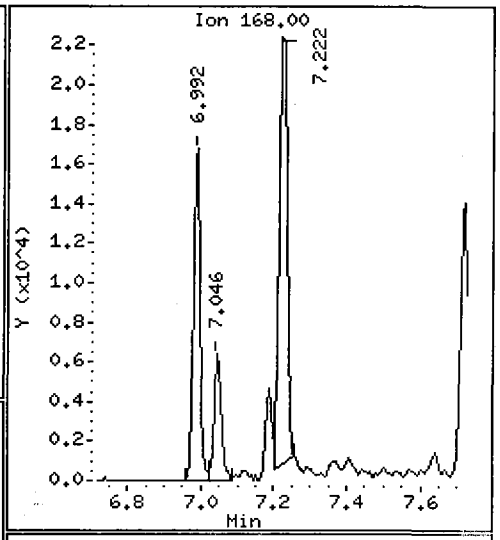
46 Dibenzofuran Concentration: 7686 ug/kg

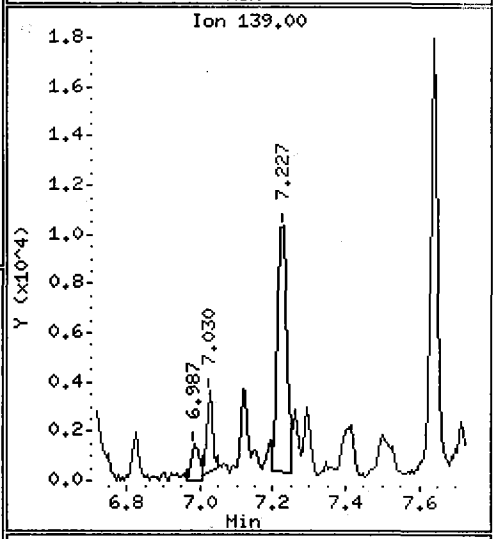


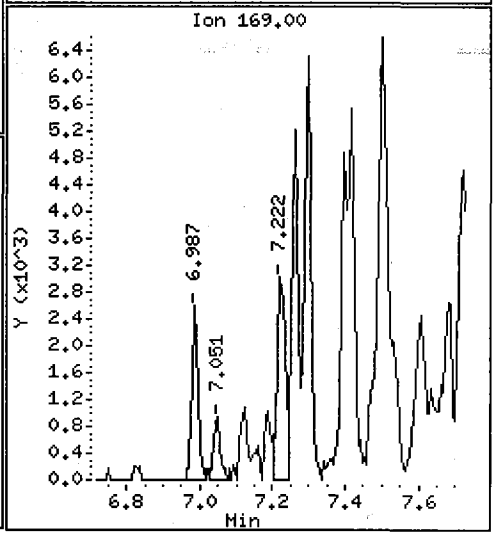












Data File: /chem1/nt12.i/20101110.b/rs97q.d

Date : 10-NOV-2010 19:08

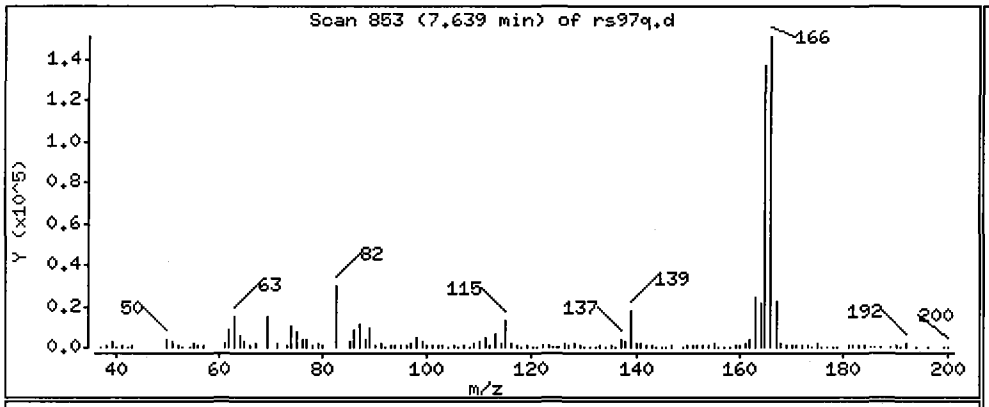
Client ID: DGS-07-10.610.9-101 Instrument: nt12.i

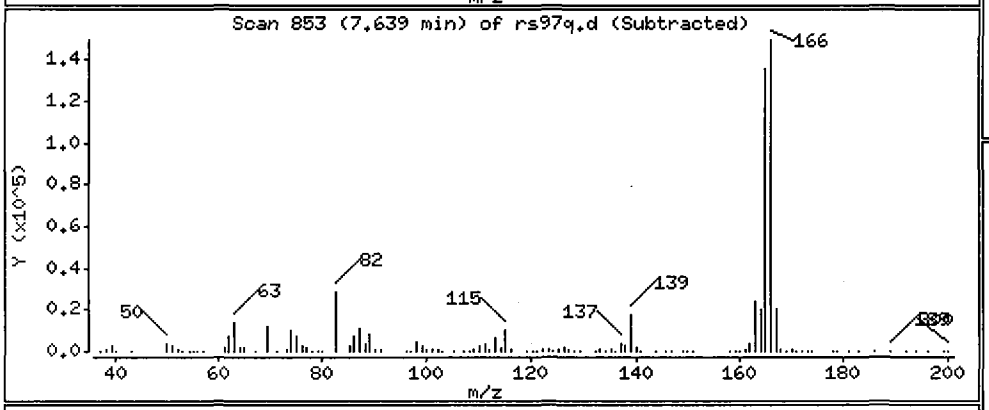
Sample Info: RS97Q

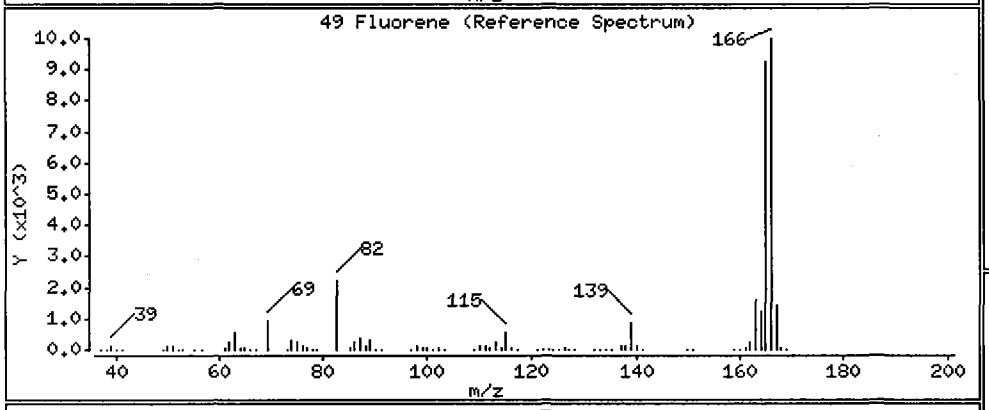
Volume Injected (uL): 1.0 Operator: VTS

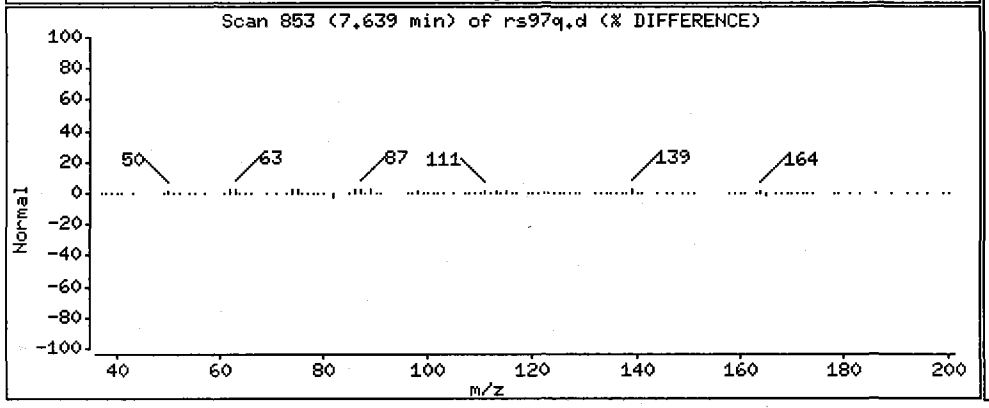
Column phase: ZB-5msi Column diameter: 0.32

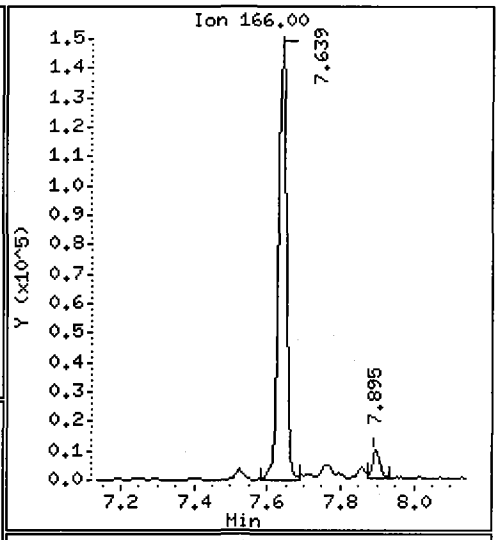
49 Fluorene Concentration: 70180 ug/kg

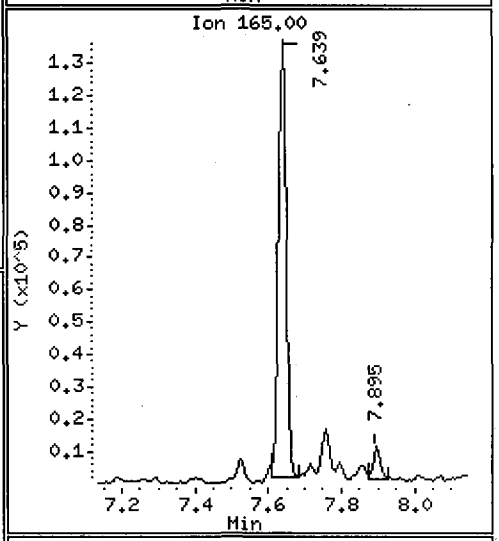


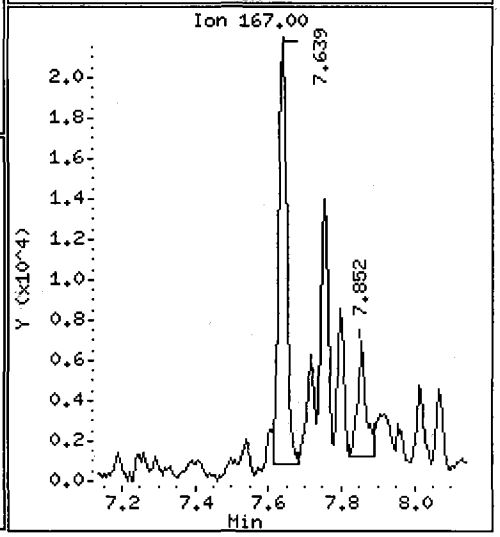












Data File: /chem1/nt12.i/20101110.b/rs97q.d

Date : 10-NOV-2010 19:08

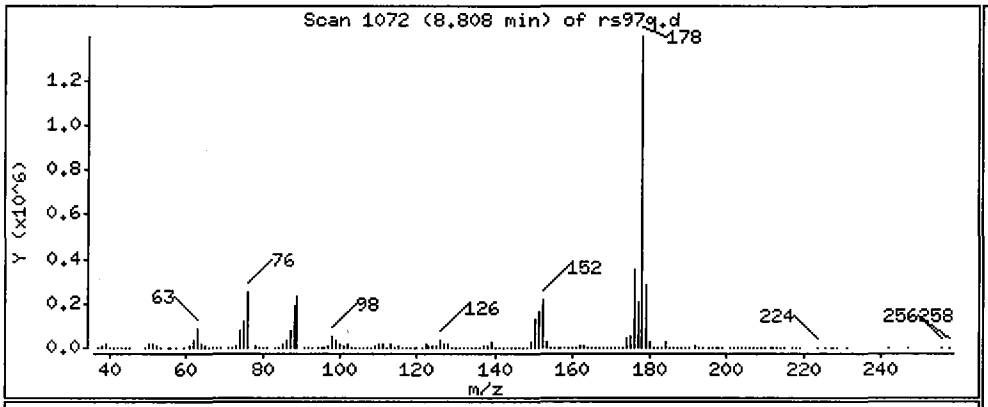
Client ID: DGS-07-10.610.9-101 | Instrument: nt12.i

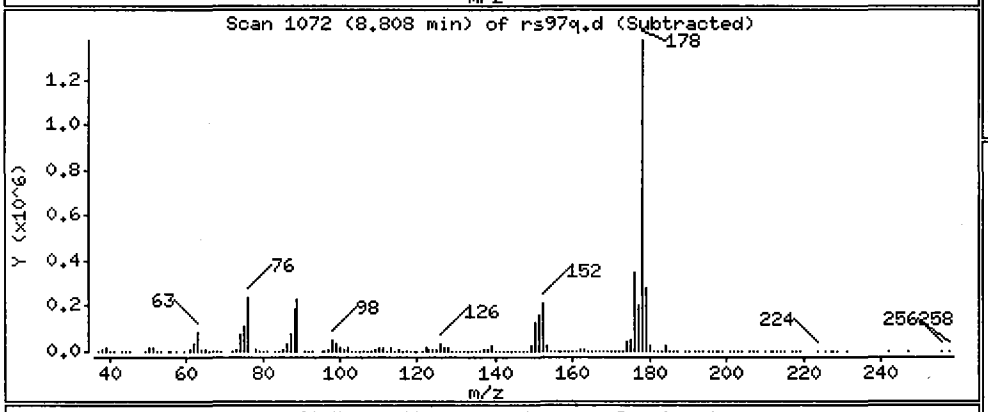
Sample Info: RS97Q

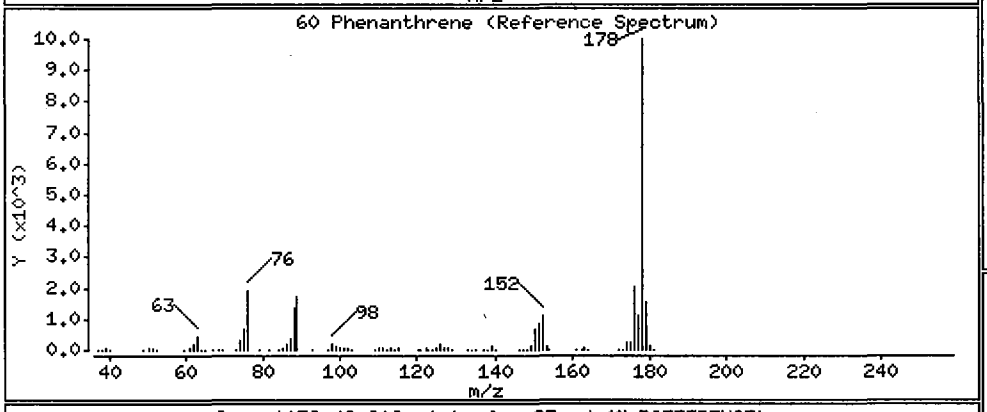
Volume Injected (uL): 1.0 | Operator: VTS

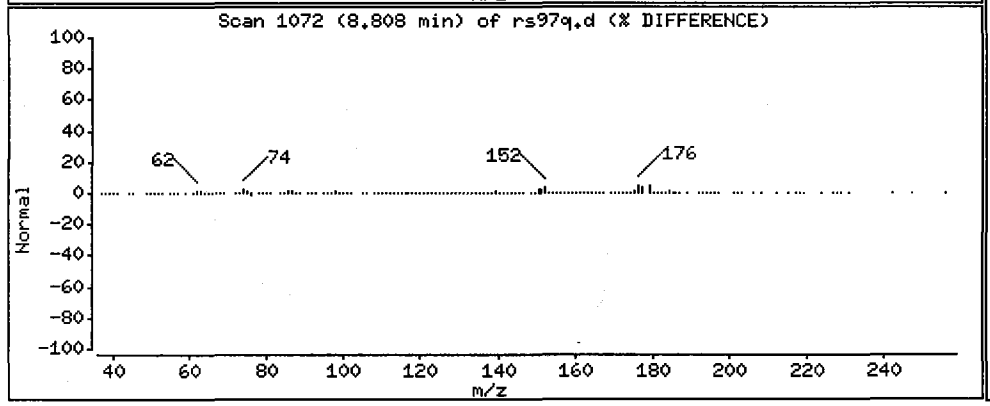
Column phase: ZB-5msi | Column diameter: 0.32

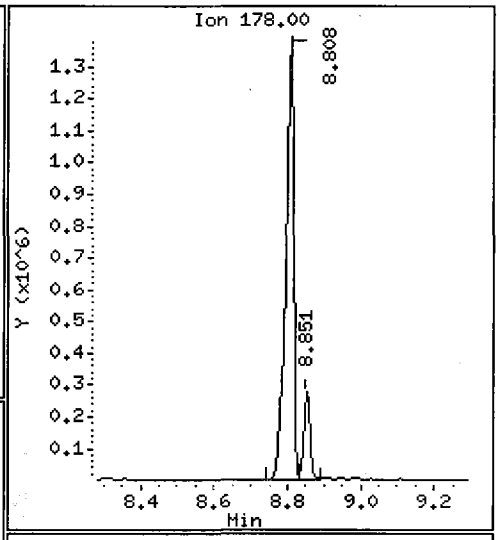
60 Phenanthrene | Concentration: 527700 ug/kg

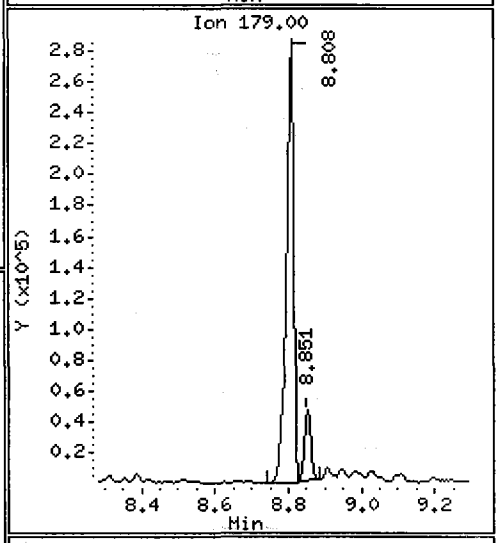


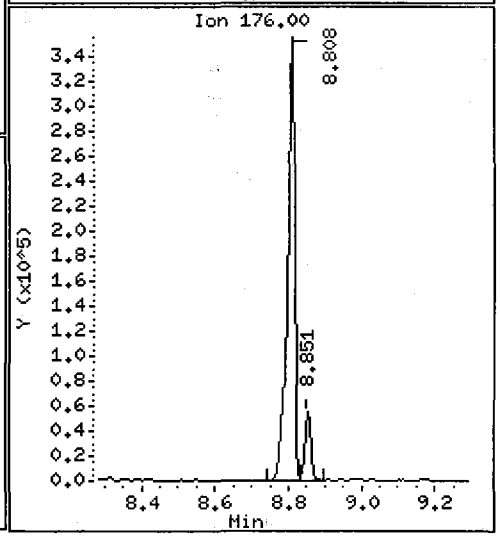












Data File: /chem1/nt12.i/20101110.b/rs97q.d

Date : 10-NOV-2010 19:08

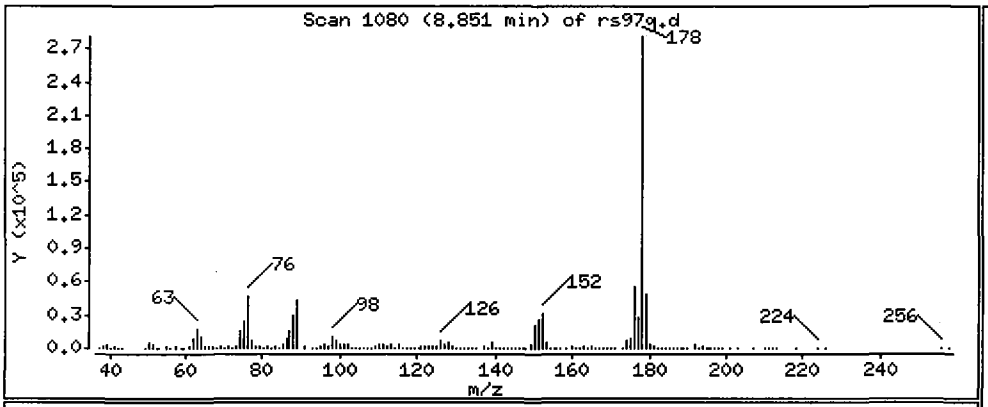
Client ID: DGS-07-10.610.9-101 Instrument: nt12.i

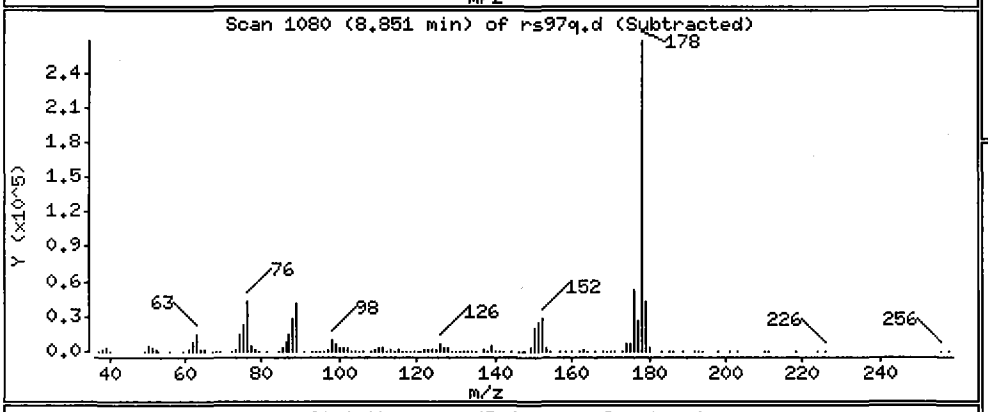
Sample Info: RS97Q

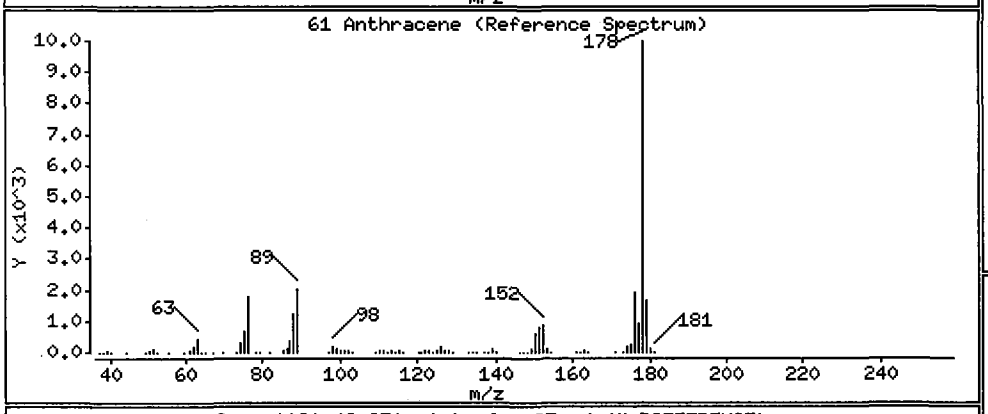
Volume Injected (uL): 1.0 Operator: VTS

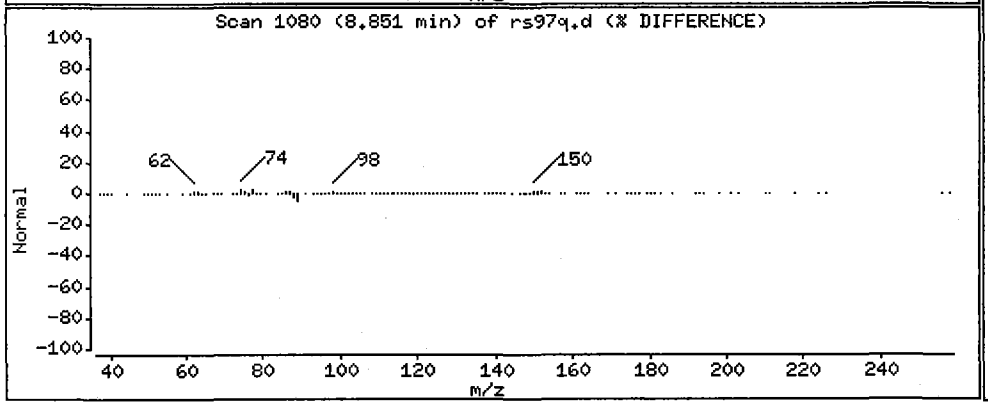
Column phase: ZB-5msi Column diameter: 0.32

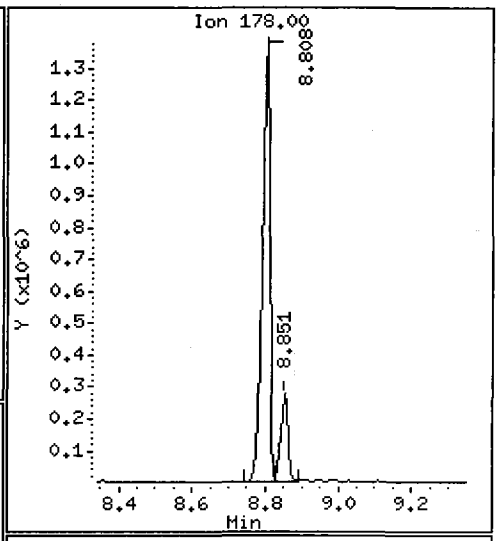
61 Anthracene Concentration: 84460 ug/kg

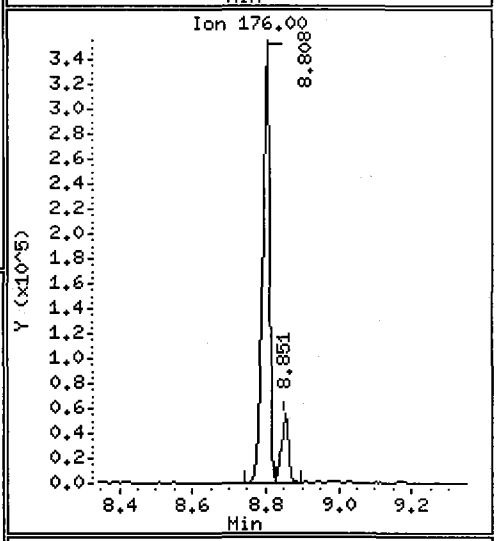


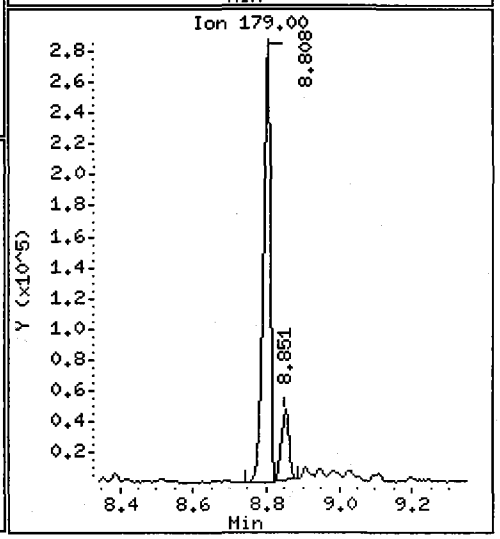












Data File: /chem1/nt12.i/20101110.b/rs97q.d

Date : 10-NOV-2010 19:08

Client ID: DGS-07-10.610.9-101

Instrument: nt12.i

Sample Info: RS97Q

Volume Injected (uL): 1.0

Operator: VTS

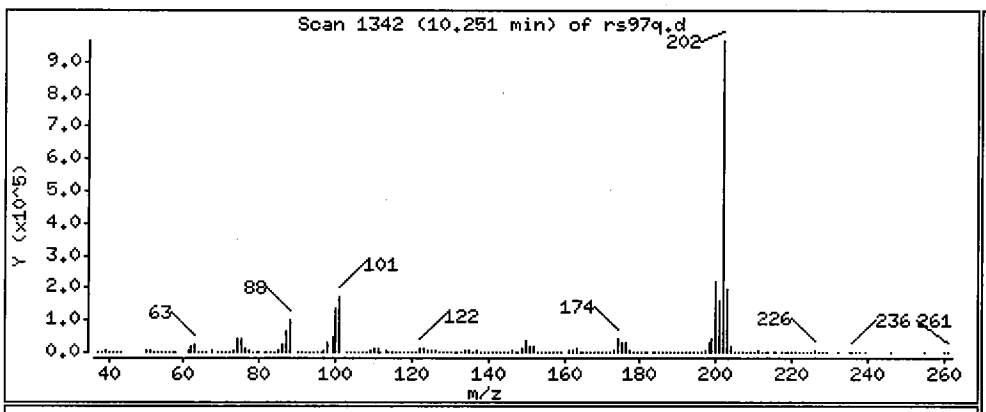
Column phase: ZB-5msi

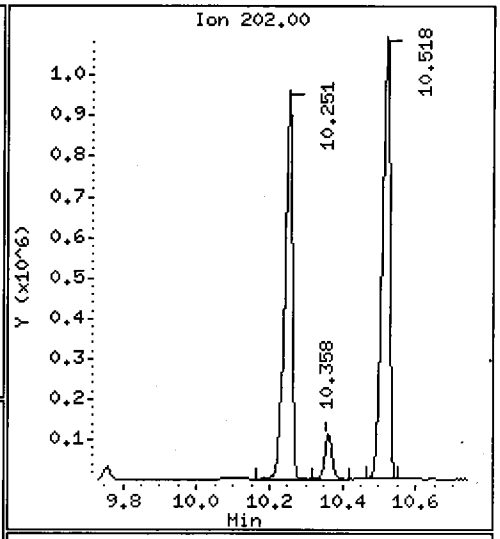
Column diameter: 0.32

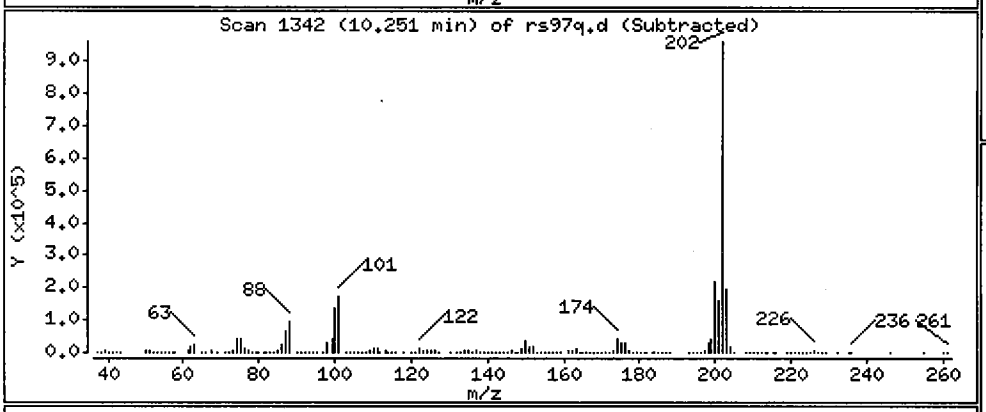
E

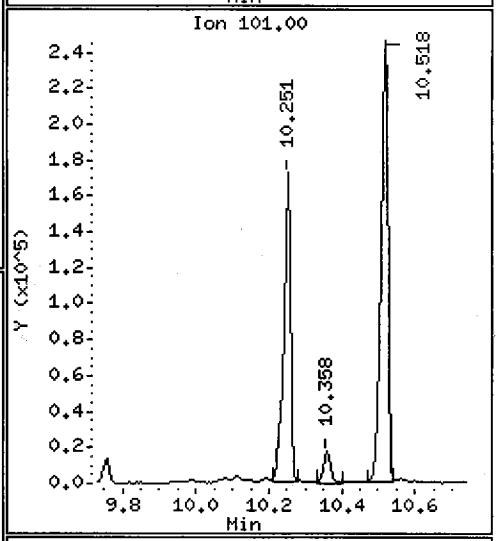
64 Fluoranthene

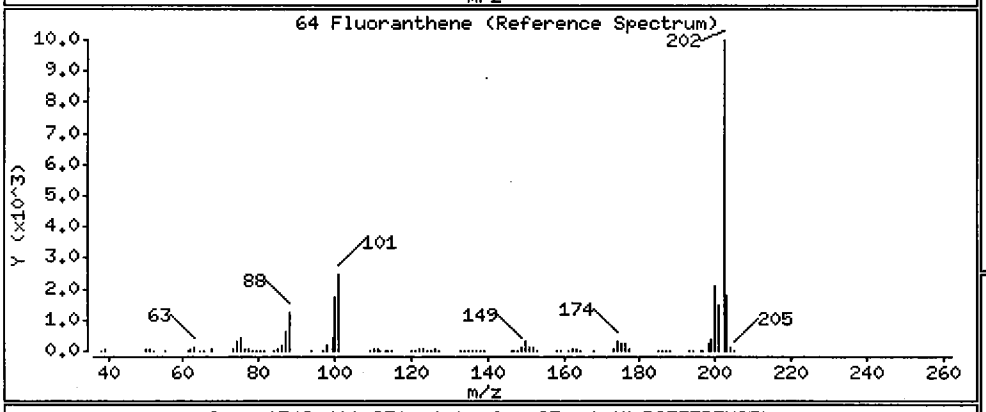
Concentration: 314600 ug/kg

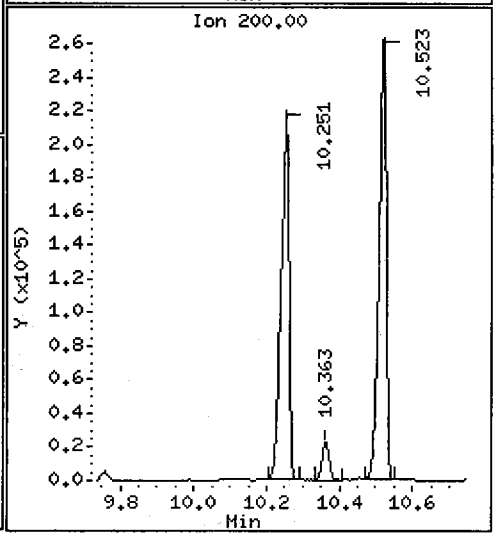


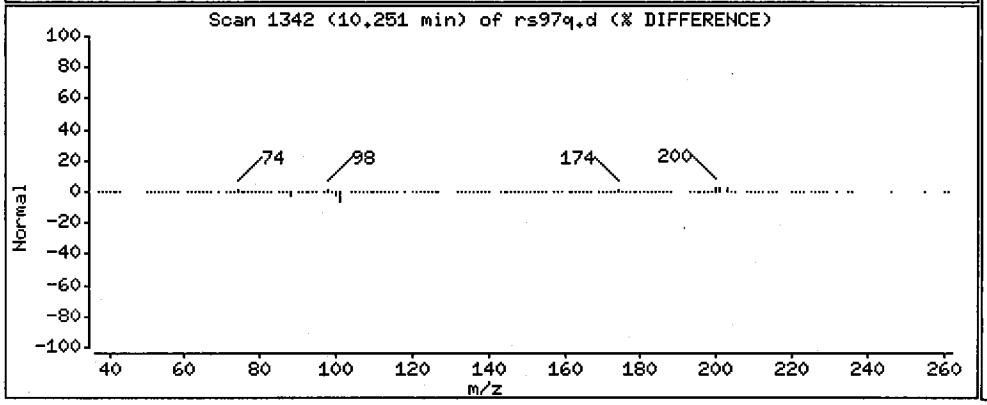












Data File: /chem1/nt12.i/20101110.b/rs97q.d

Date : 10-NOV-2010 19:08

Client ID: DGS-07-10.610.9-101

Instrument: nt12.i

Sample Info: RS97Q

Volume Injected (uL): 1.0

Operator: VTS

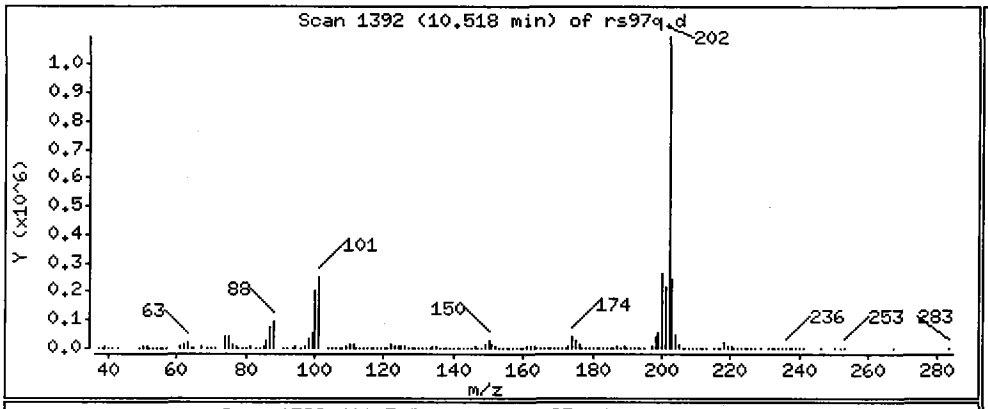
Column phase: ZB-5msi

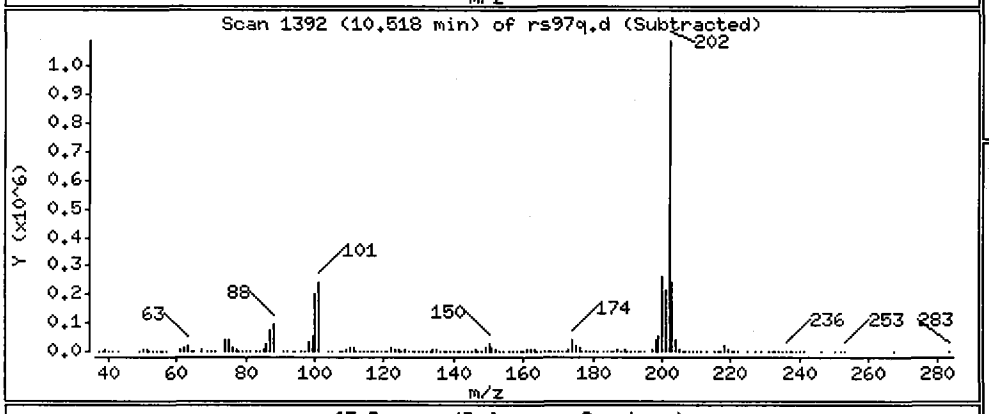
Column diameter: 0.32

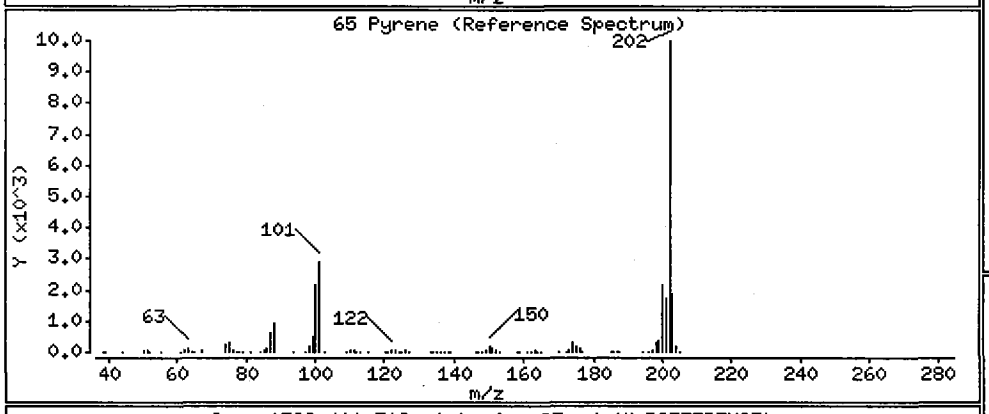
E

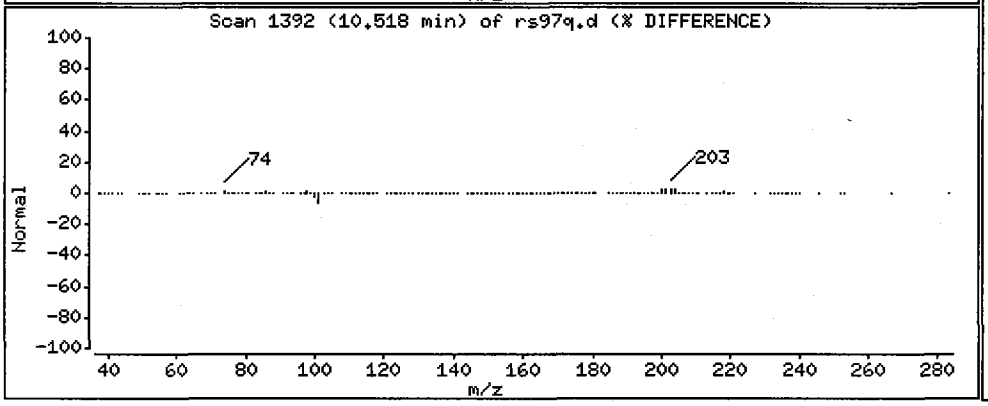
65 Pyrene

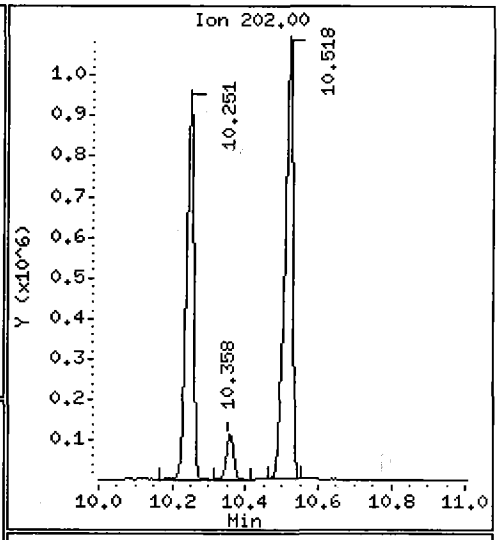
Concentration: 379300 ug/kg

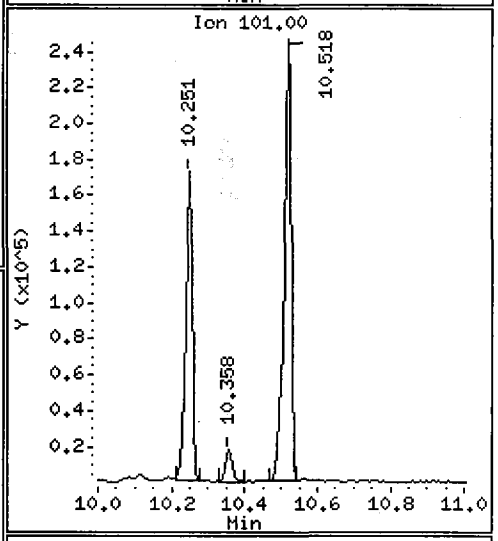


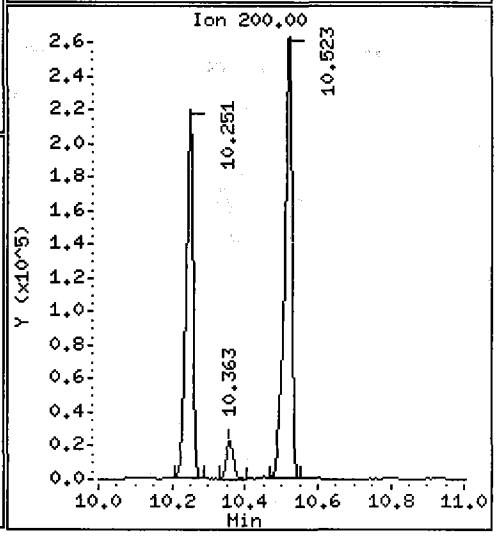












Data File: /chem1/nt12.i/20101110.b/rs97q.d

Date : 10-NOV-2010 19:08

Client ID: DGS-07-10.610.9-101

Instrument: nt12.i

Sample Info: RS97Q

Volume Injected (uL): 1.0

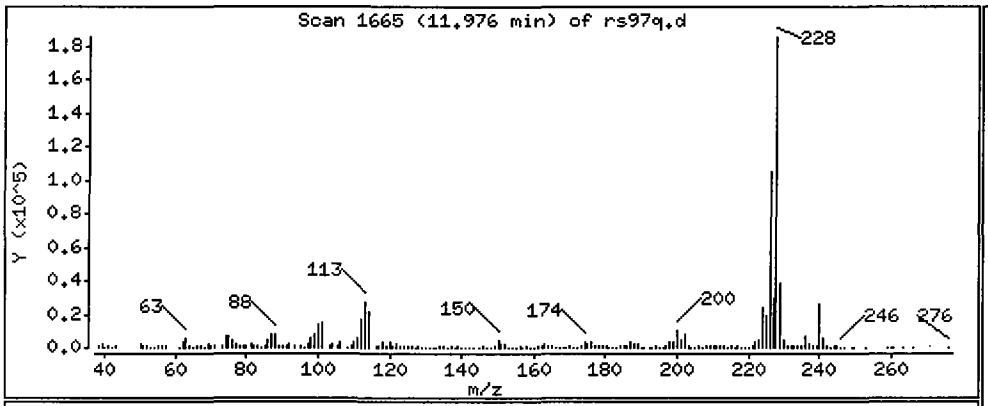
Operator: VTS

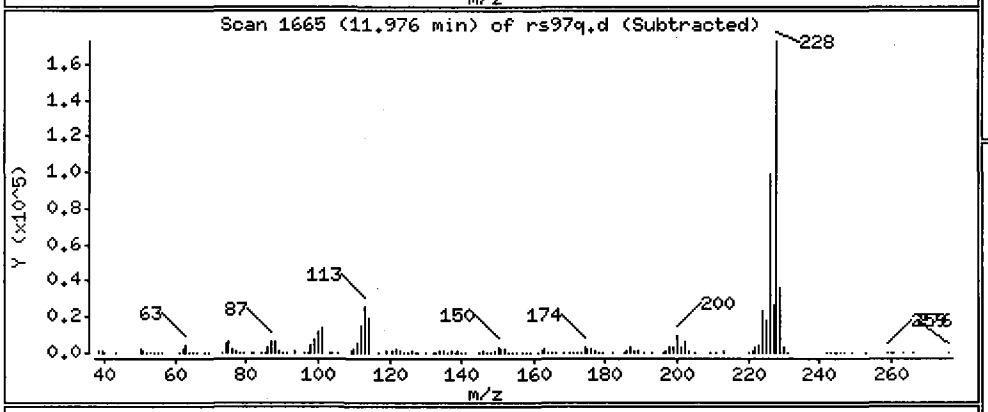
Column phase: ZB-5msi

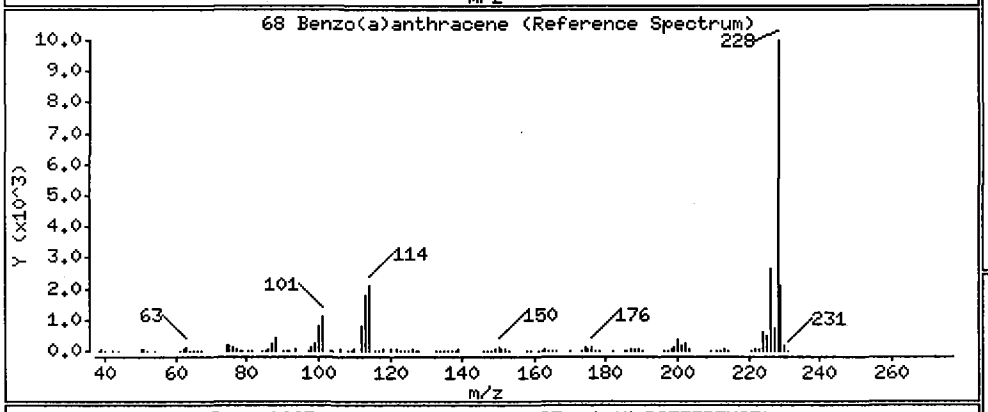
Column diameter: 0.32

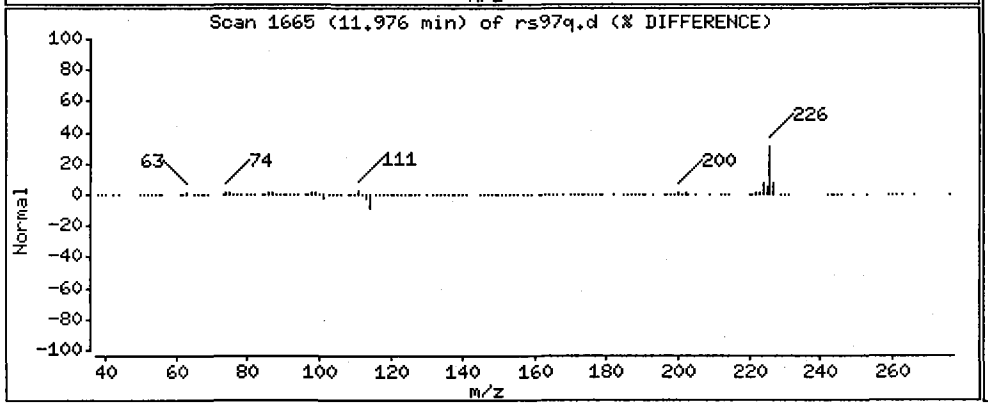
68 Benzo(a)anthracene

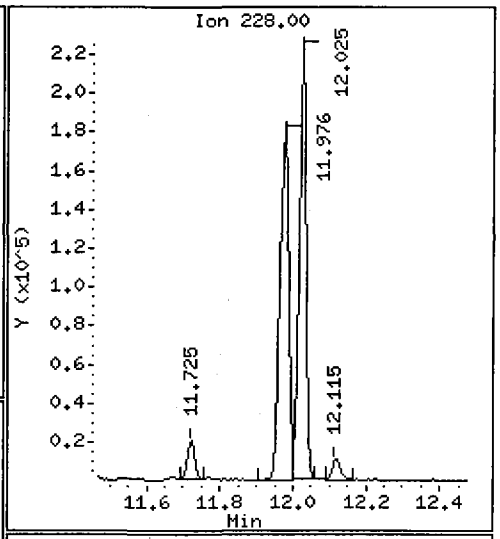
Concentration: 80310 ug/kg

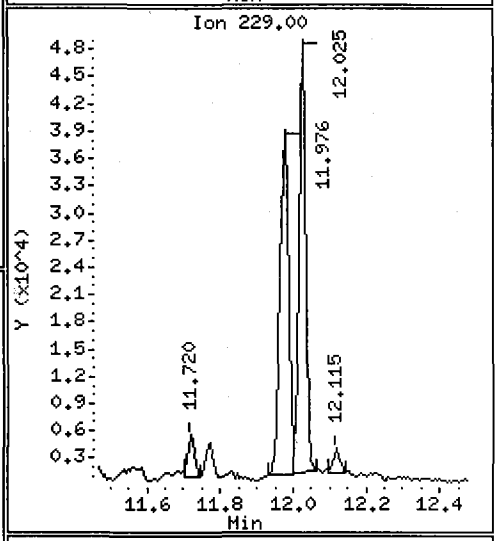


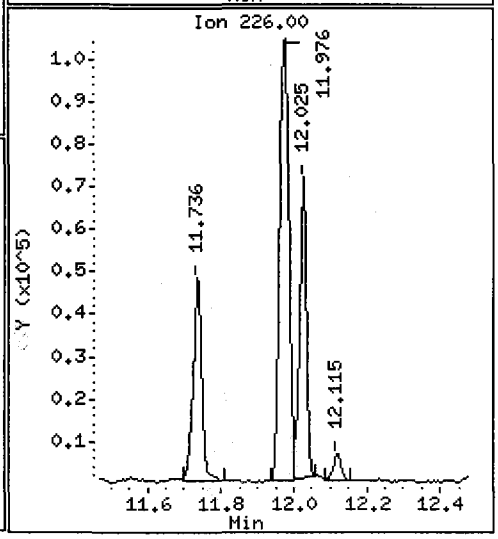












Data File: /chem1/nt12.i/20101110.b/rs97q.d

Date : 10-NOV-2010 19:08

Client ID: DGS-07-10.610.9-101

Instrument: nt12.i

Sample Info: RS97Q

Volume Injected (uL): 1.0

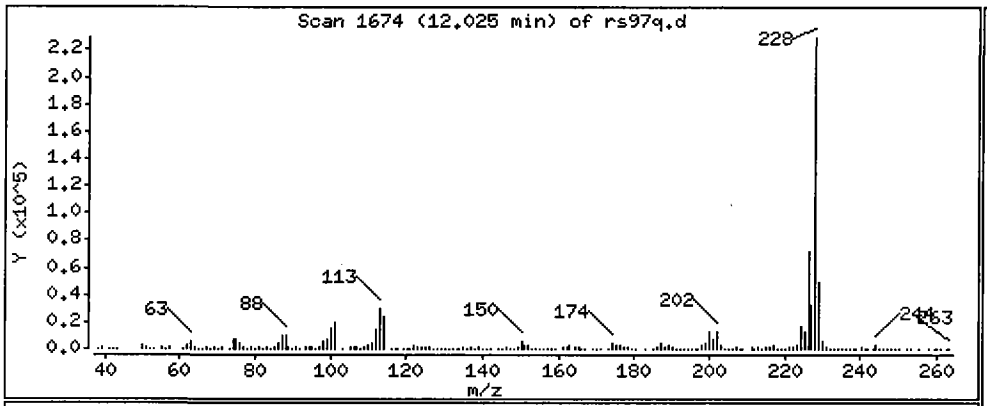
Operator: VTS

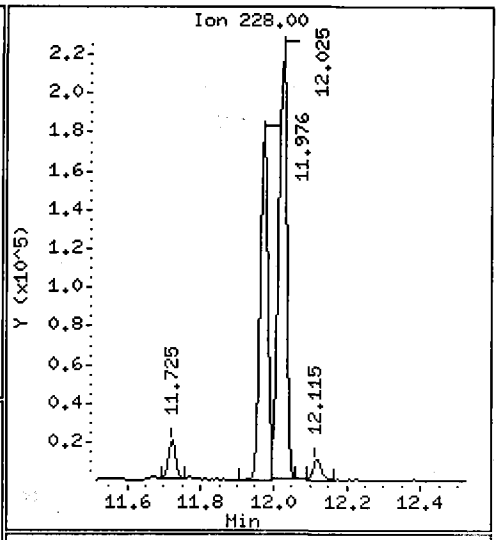
Column phase: ZB-5msi

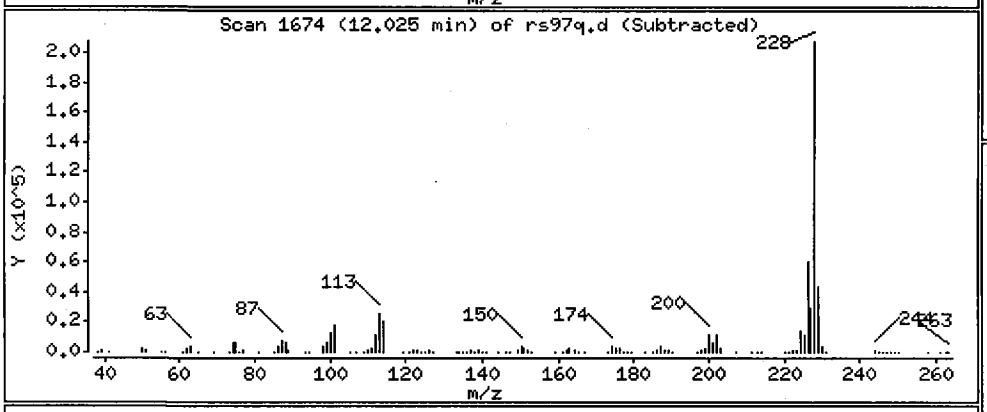
Column diameter: 0.32

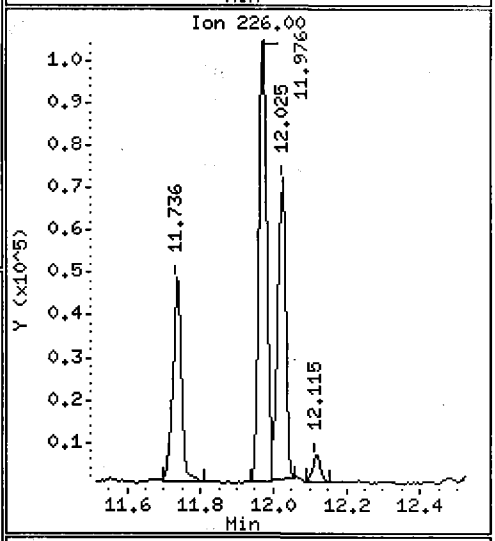
71 Chrysene

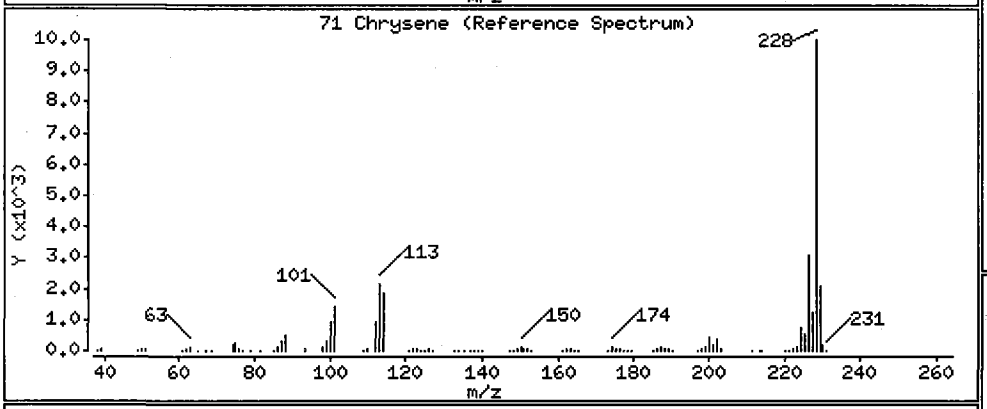
Concentration: 92850 ug/kg

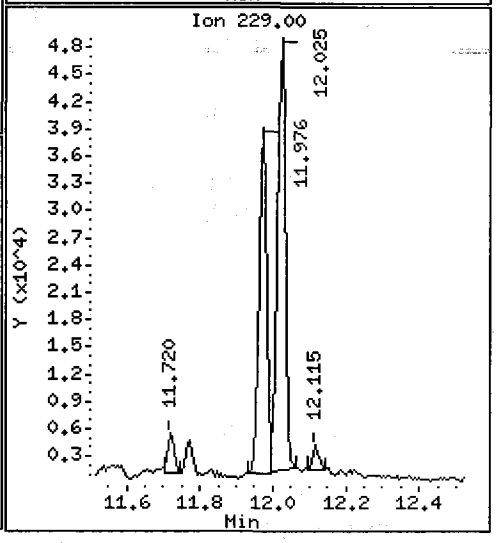


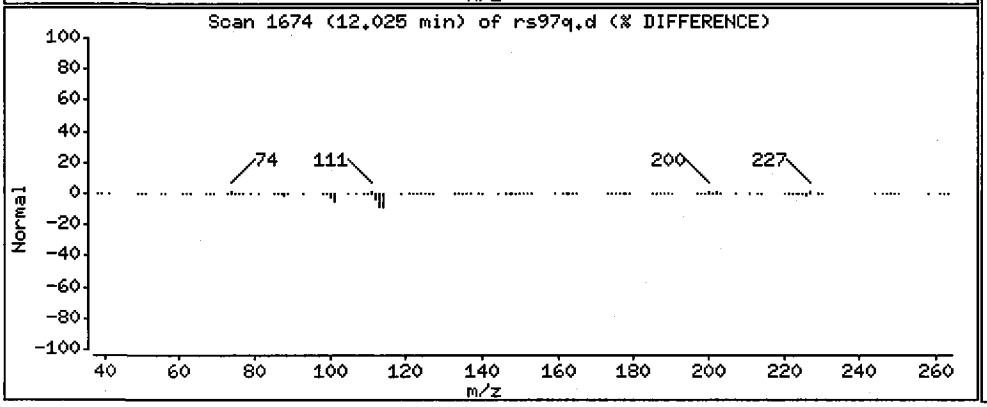












Data File: /chem1/nt12.i/20101110.b/rs97q.d

Date : 10-NOV-2010 19:08

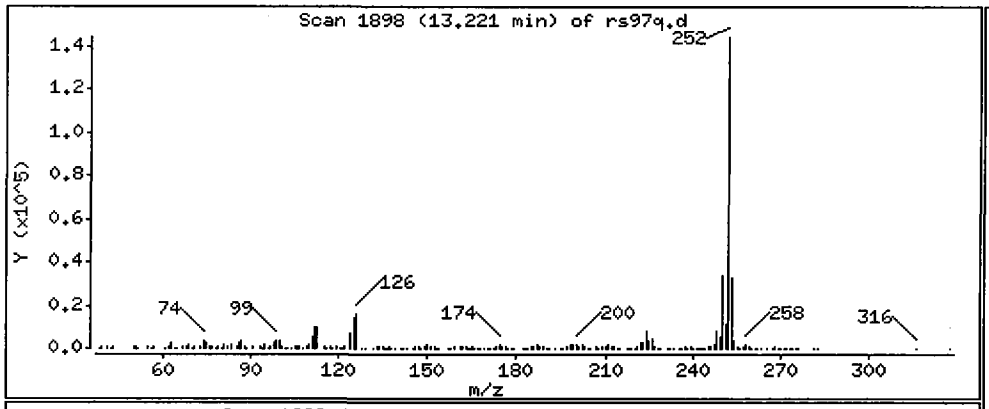
Client ID: DGS-07-10.610.9-101 | Instrument: nt12.i

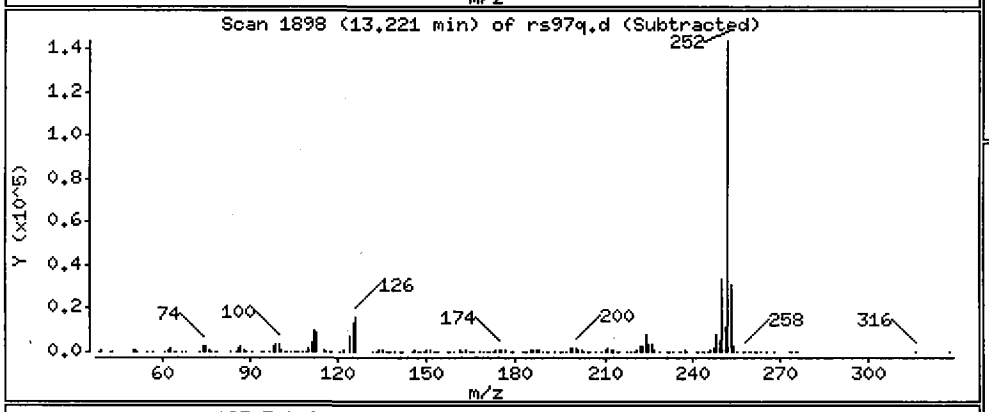
Sample Info: RS97Q

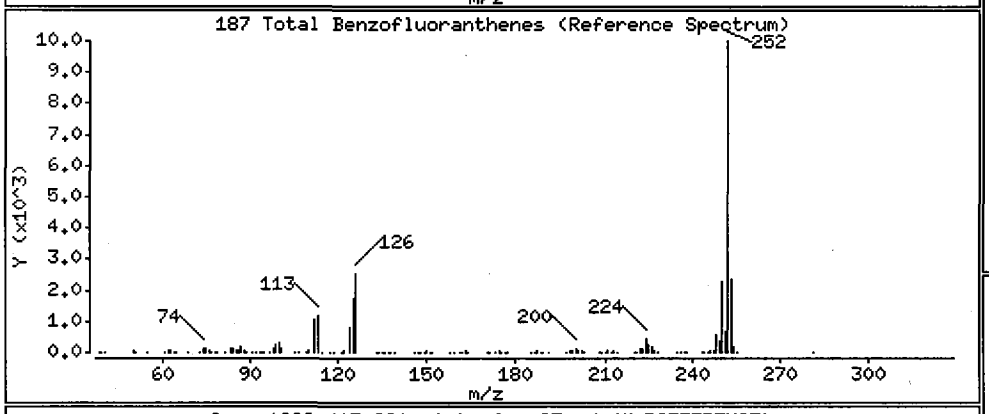
Volume Injected (uL): 1.0 | Operator: VTS

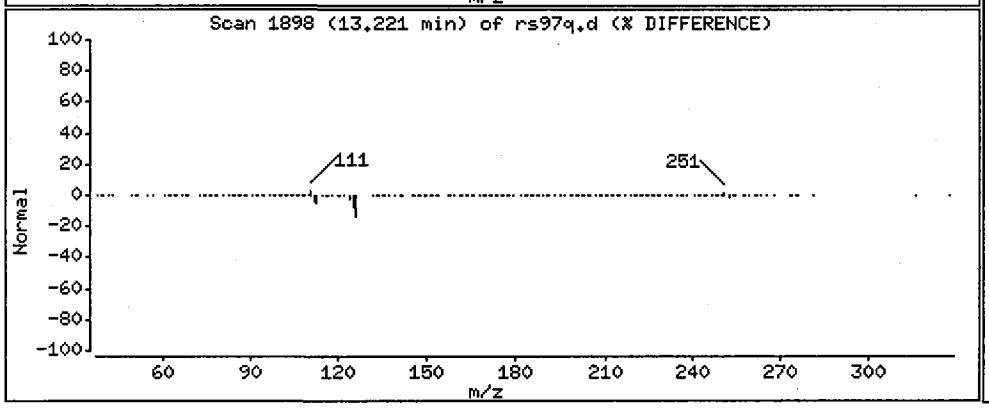
Column phase: ZB-5msi | Column diameter: 0.32

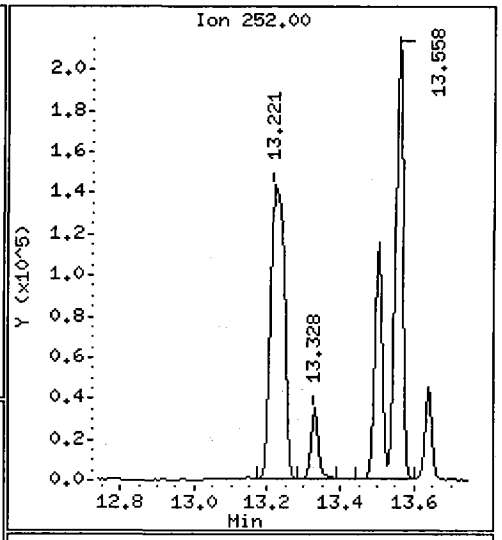
187 Total Benzofluoranthenes | Concentration: 111400 ug/kg

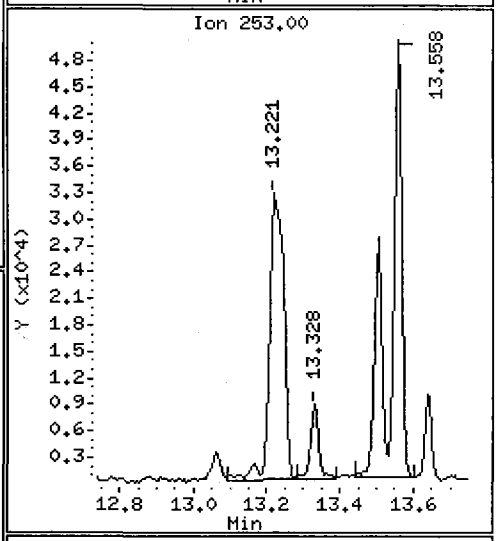


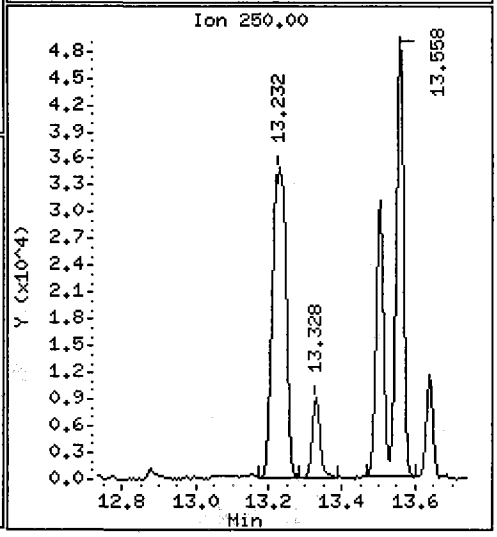












Data File: /chem1/nt12.i/20101110.b/rs97q.d

Date : 10-NOV-2010 19:08

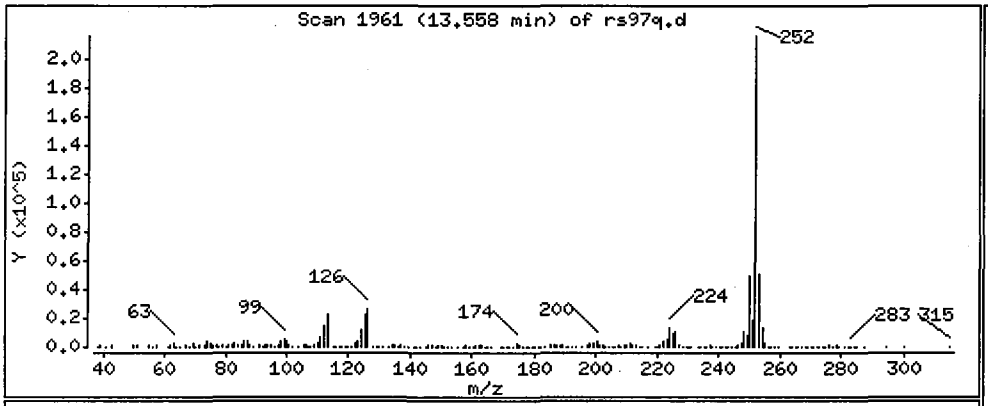
Client ID: DGS-07-10.610.9-101 Instrument: nt12.i

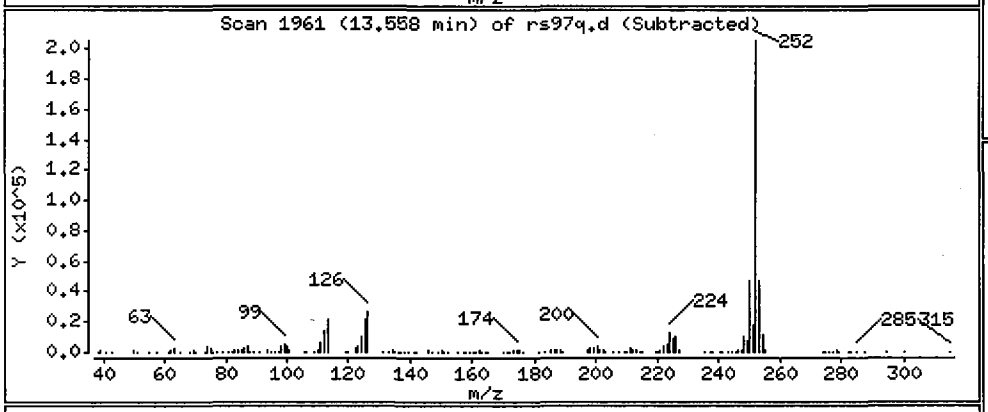
Sample Info: RS97Q

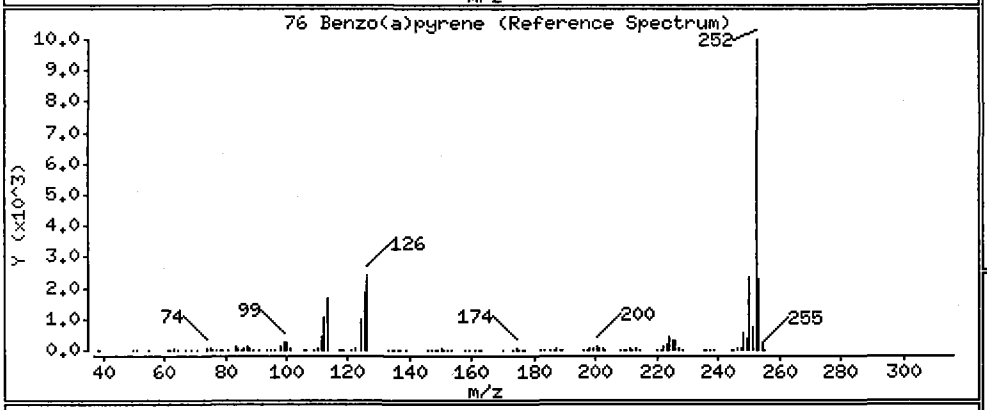
Volume Injected (uL): 1.0 Operator: VTS

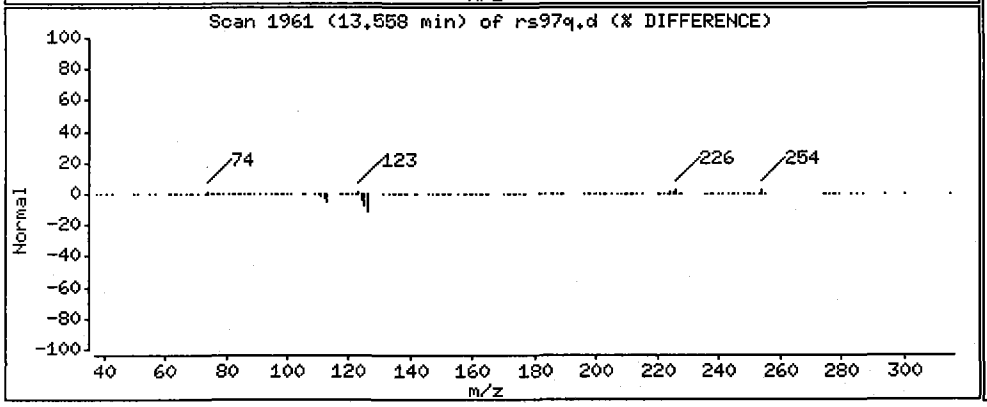
Column phase: ZB-5msi Column diameter: 0.32

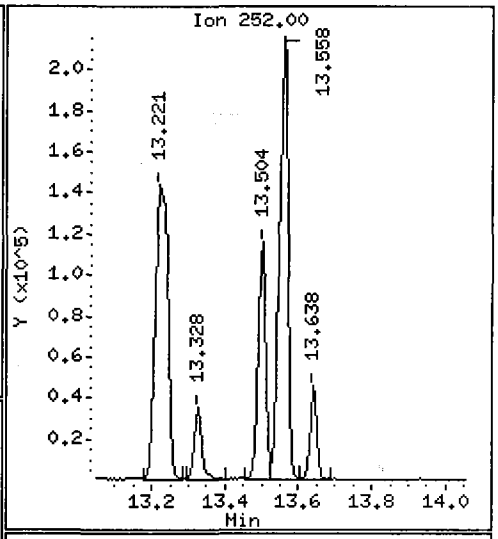
76 Benzo(a)pyrene Concentration: 109000 ug/kg

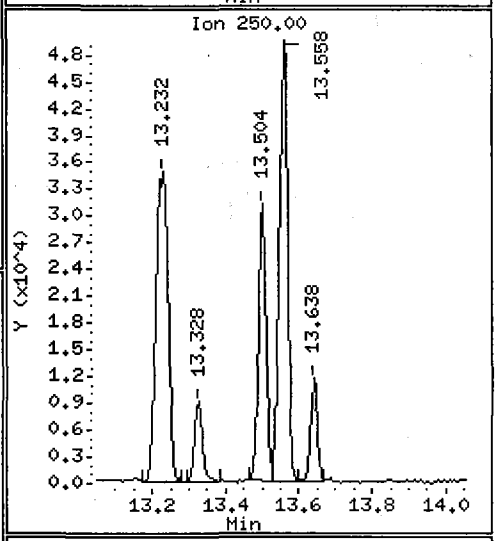


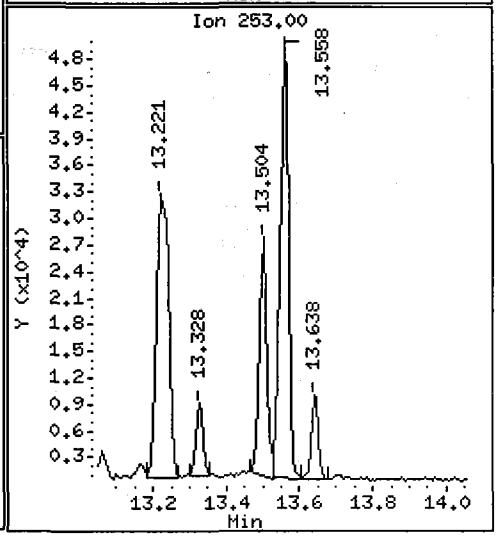












Data File: /chem1/nt12.i/20101110.b/rs97q.d

Date : 10-NOV-2010 19:08

Client ID: DGS-07-10.610.9-101

Instrument: nt12.i

Sample Info: RS97Q

Volume Injected (uL): 1.0

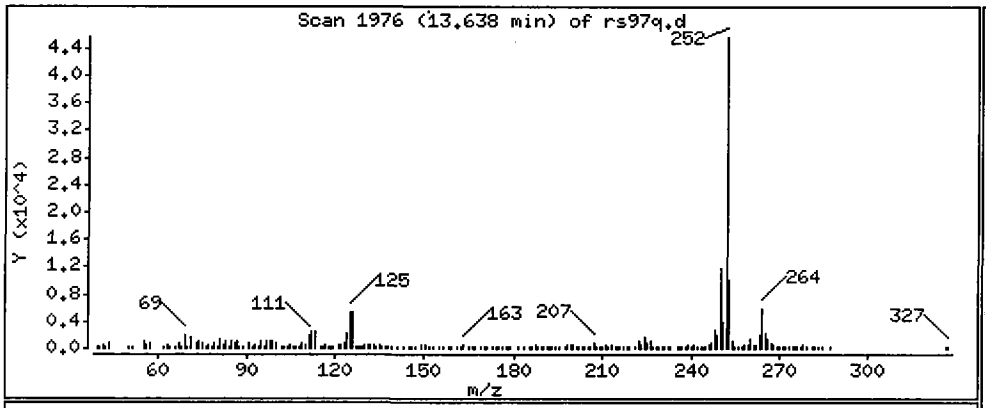
Operator: VTS

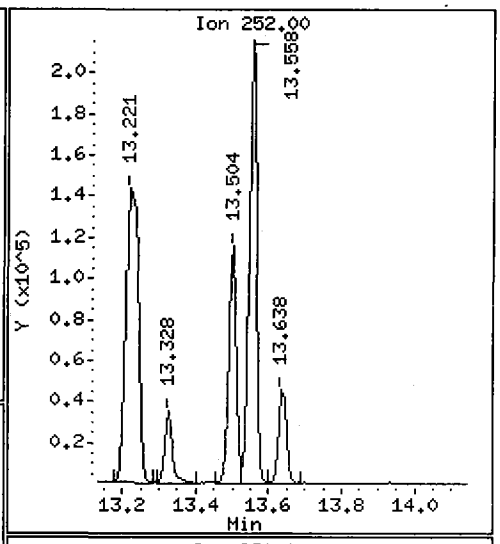
Column phase: ZB-5msi

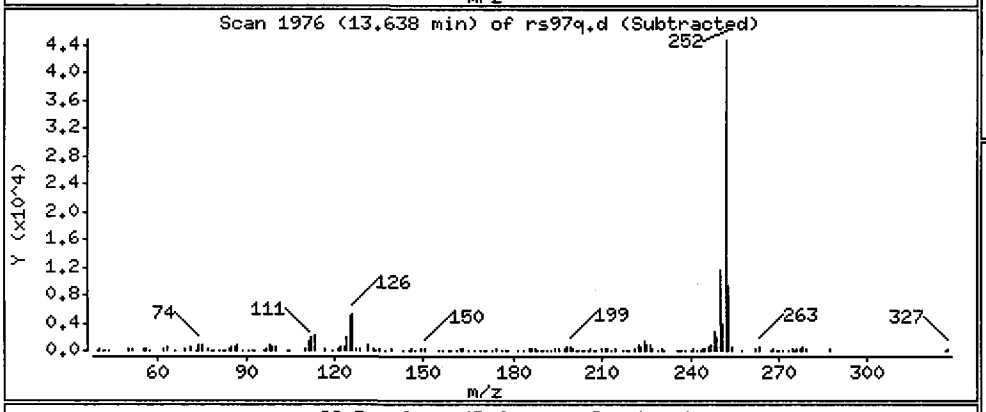
Column diameter: 0.32

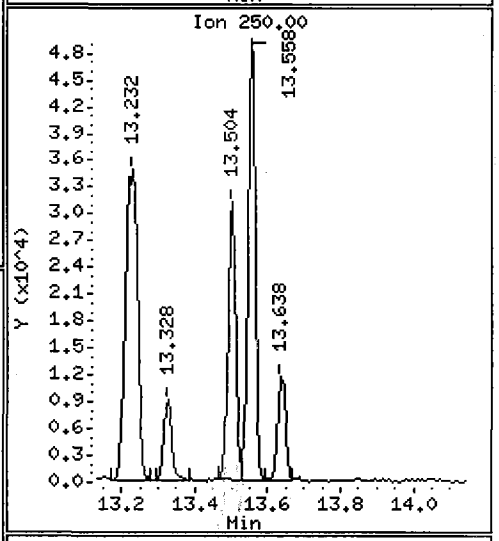
99 Perylene

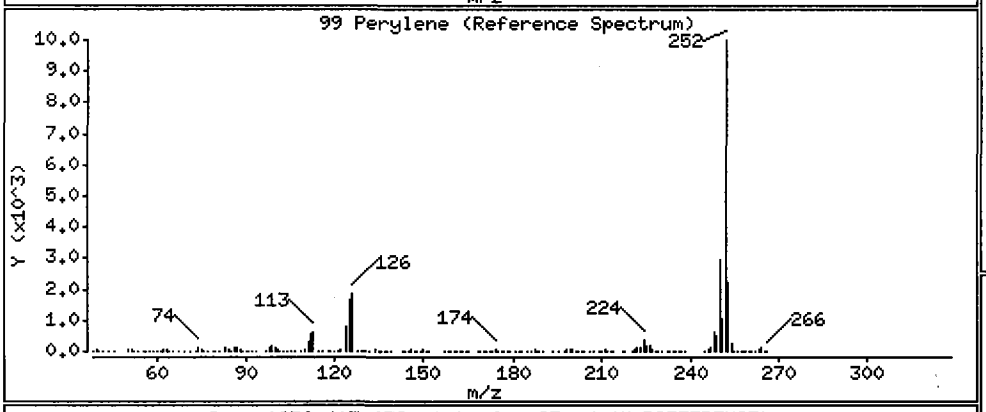
Concentration: 19120 ug/kg

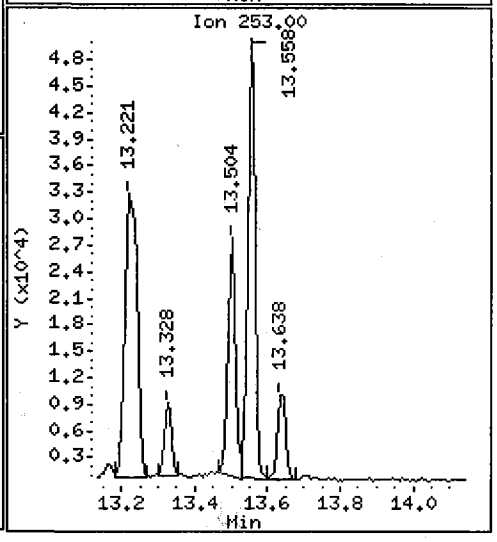


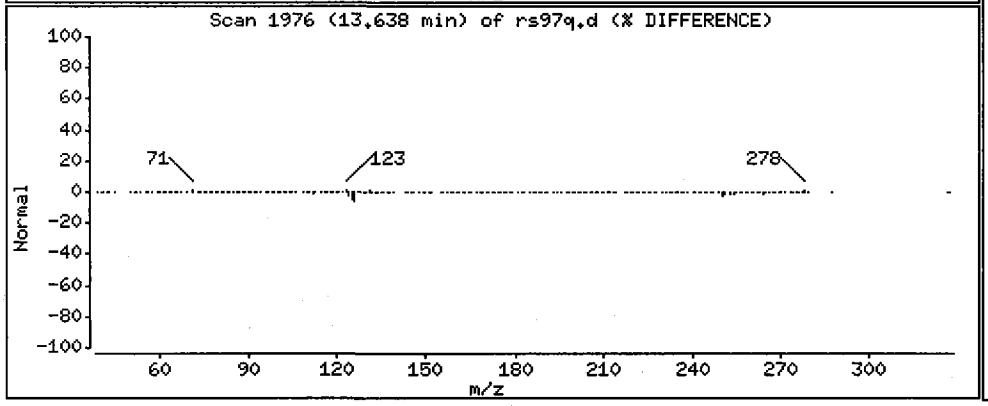












Data File: /chem1/nt12.i/20101110.b/rs97q.d

Date : 10-NOV-2010 19:08

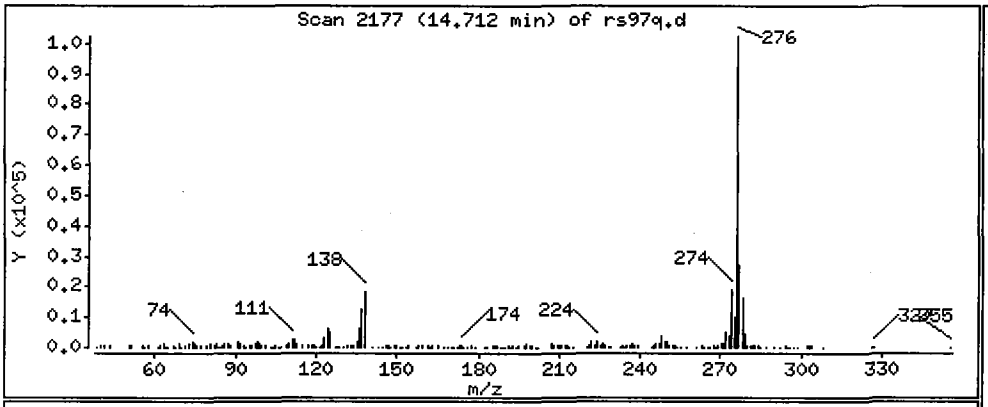
Client ID: DGS-07-10.610.9-101 Instrument: nt12.i

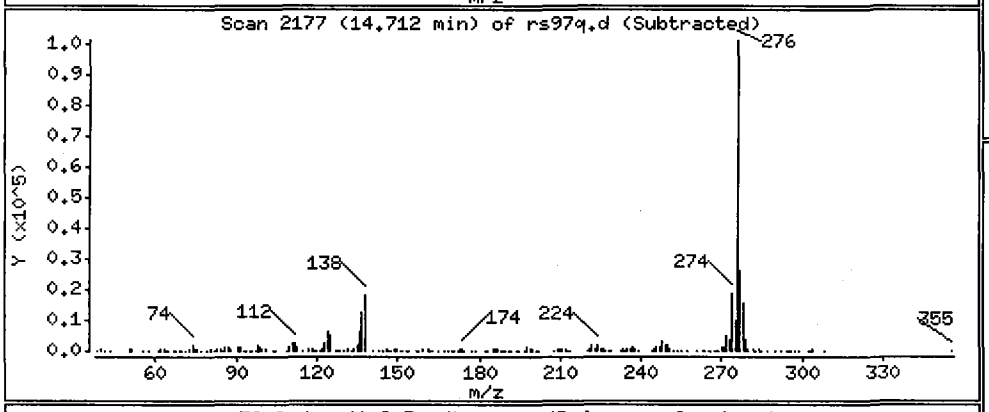
Sample Info: RS97Q

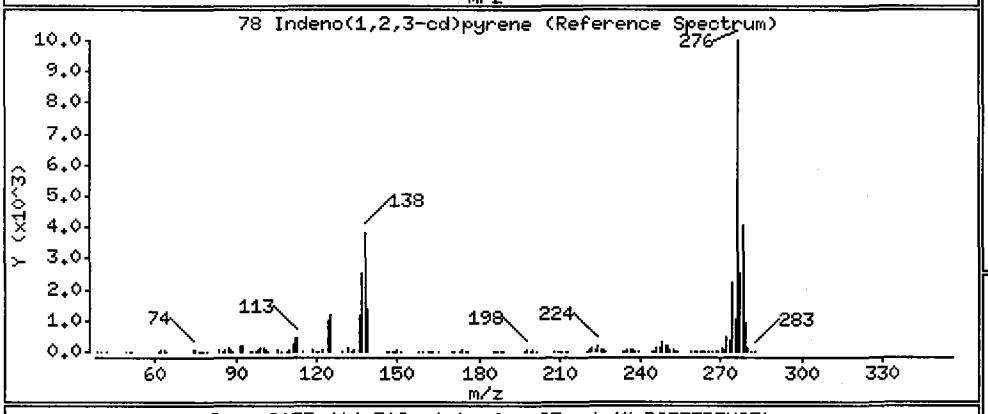
Volume Injected (uL): 1.0 Operator: VTS

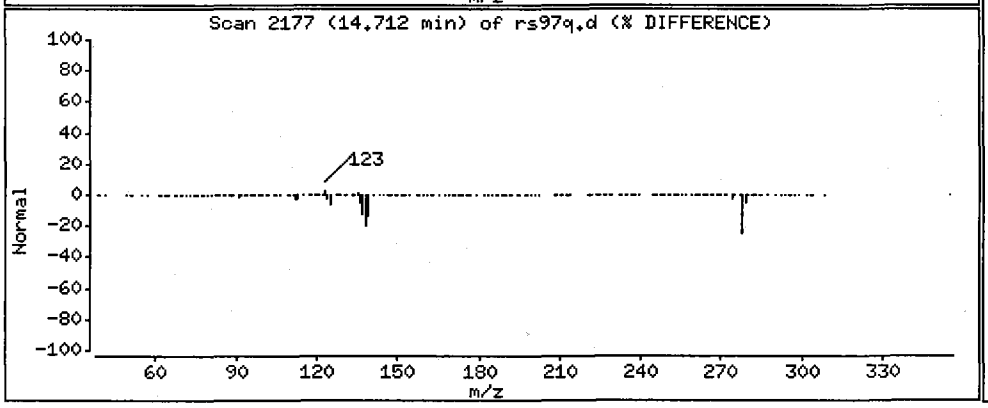
Column phase: ZB-5msi Column diameter: 0.32

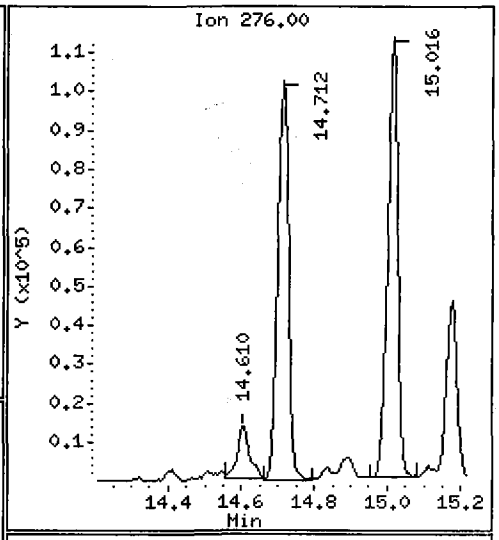
78 Indeno(1,2,3-cd)pyrene Concentration: 44790 ug/kg

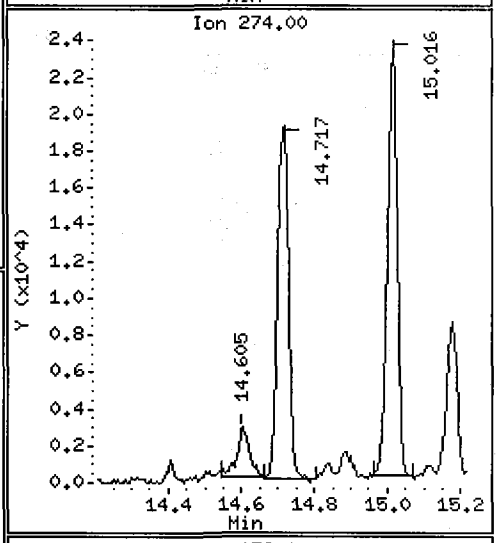


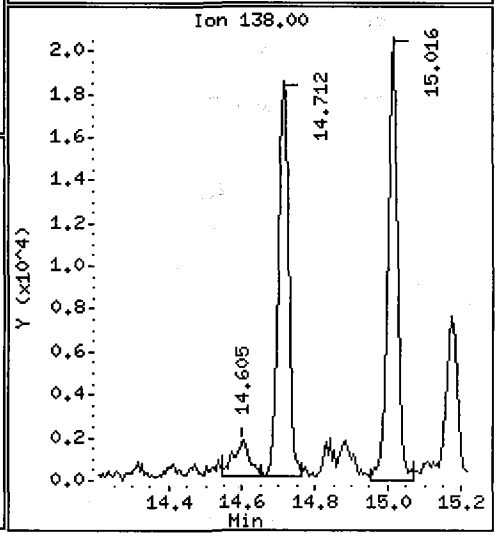












Data File: /chem1/nt12.i/20101110.b/rs97q.d

Date : 10-NOV-2010 19:08

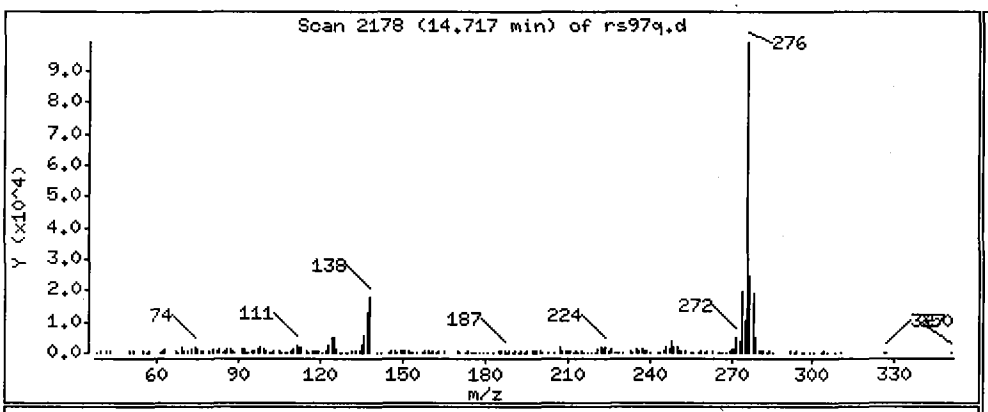
Client ID: DGS-07-10.610.9-101 Instrument: nt12.i

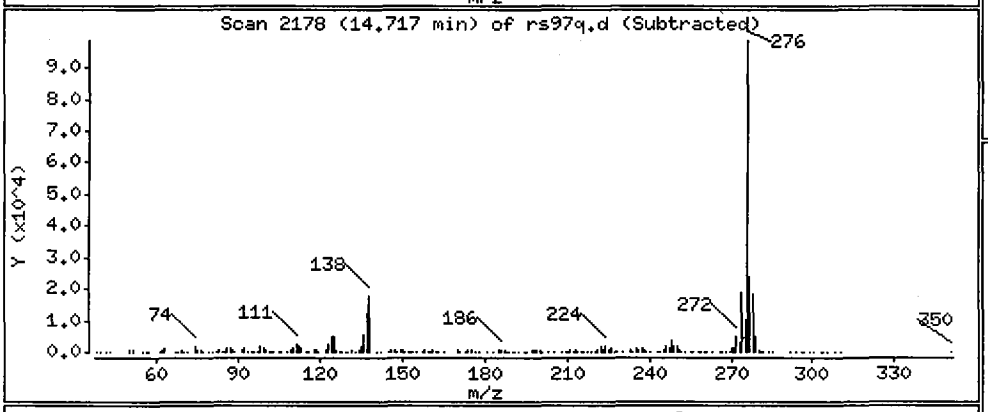
Sample Info: RS97Q

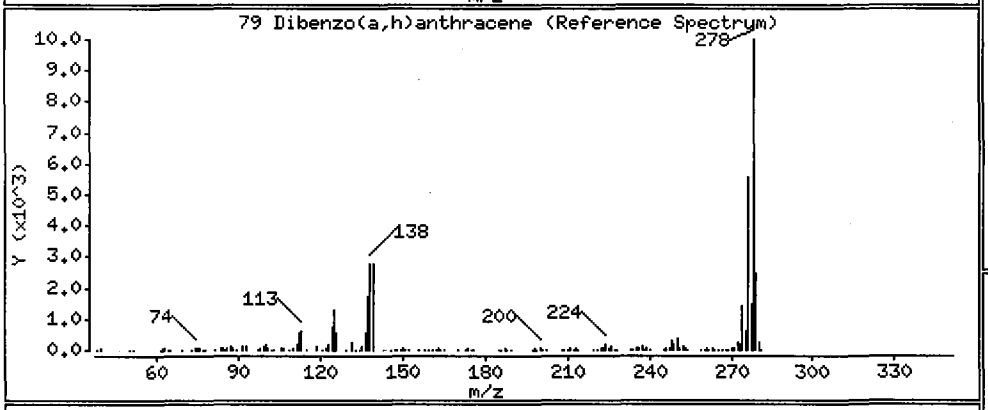
Volume Injected (uL): 1.0 Operator: VTS

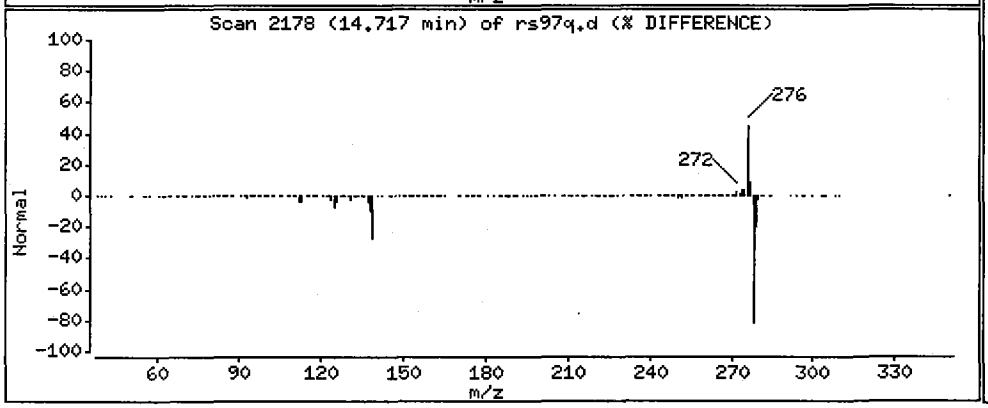
Column phase: ZB-5msi Column diameter: 0.32

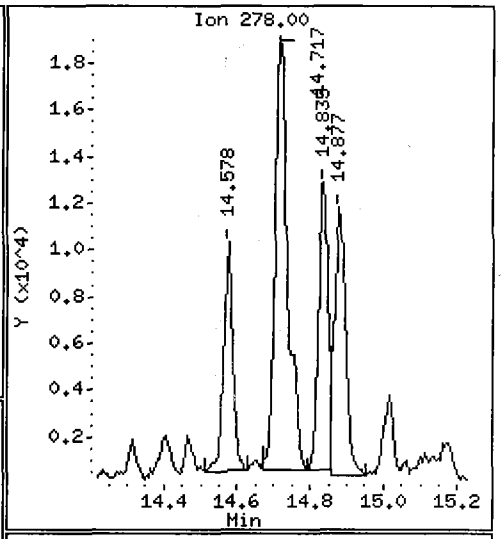
79 Dibenzo(a,h)anthracene Concentration: 11570 ug/kg

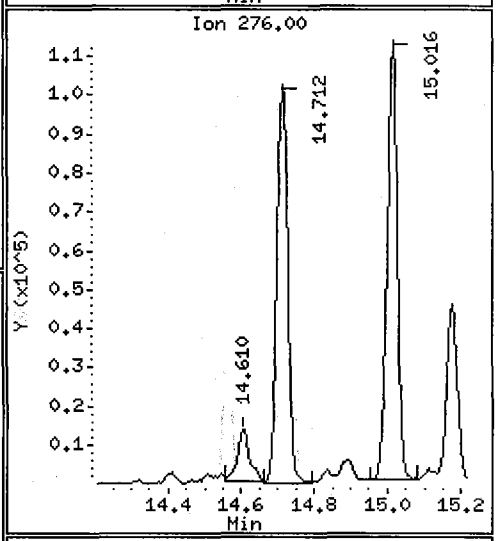


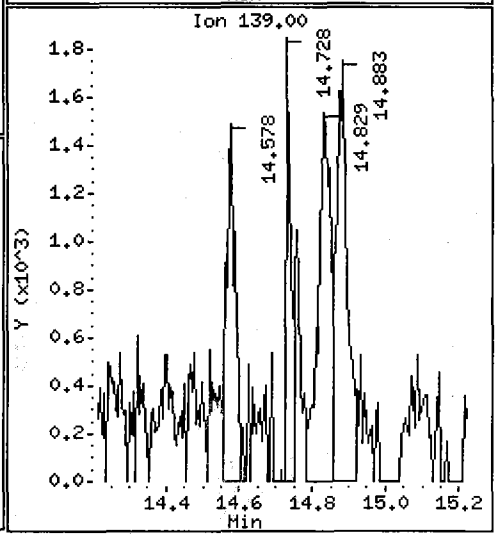












Data File: /chem1/nt12.i/20101110.b/rs97q.d

Date : 10-NOV-2010 19:08

Client ID: DGS-07-10.610.9-101

Instrument: nt12.i

Sample Info: RS97Q

Volume Injected (uL): 1.0

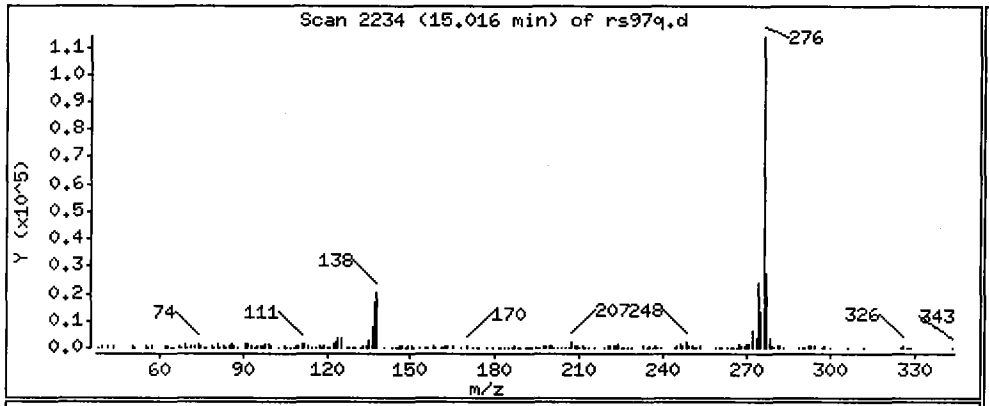
Operator: VTS

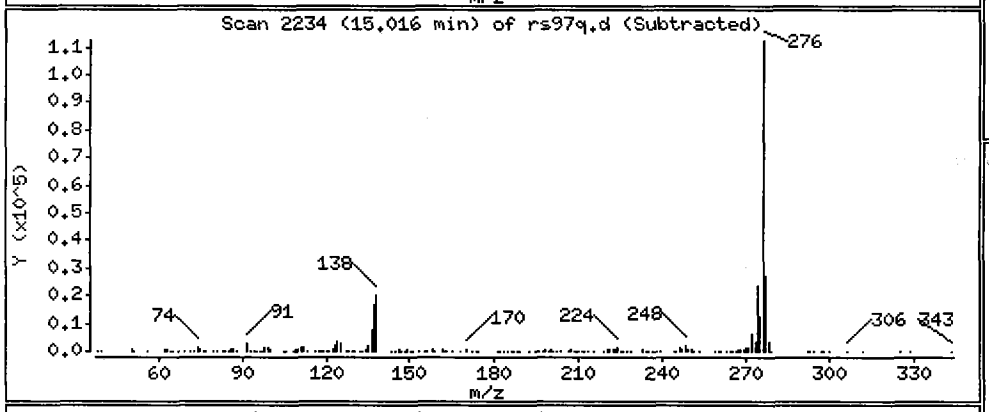
Column phase: ZB-5msi

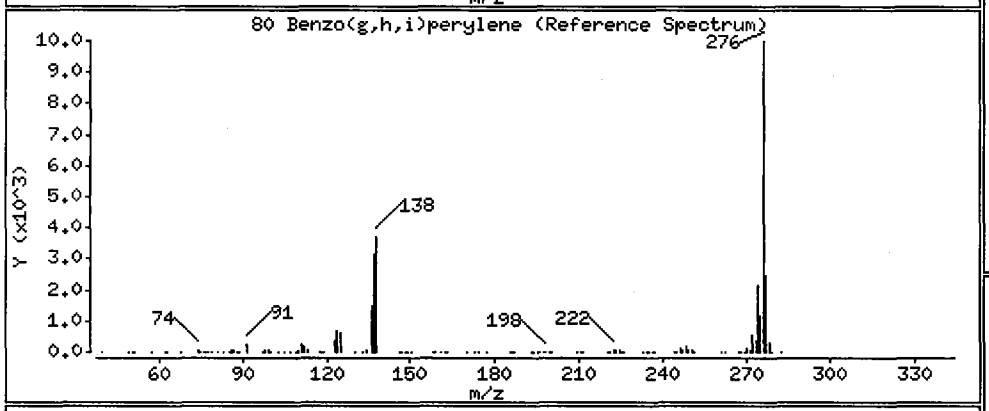
Column diameter: 0.32

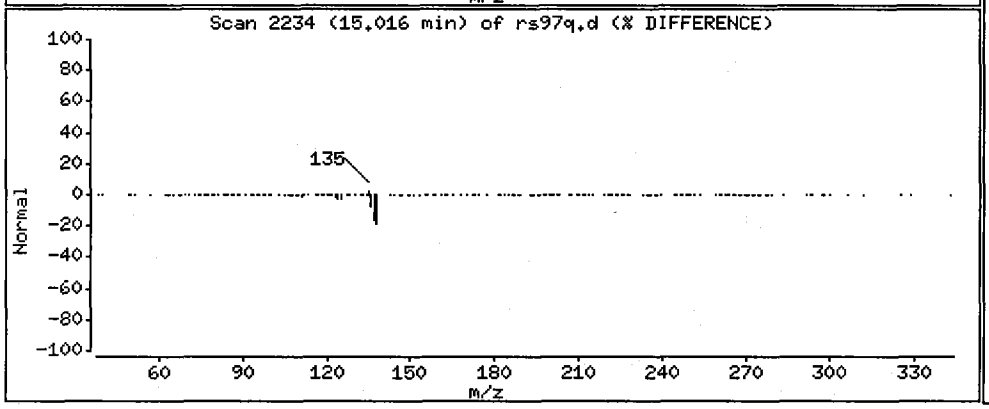
80 Benzo(g,h,i)perylene

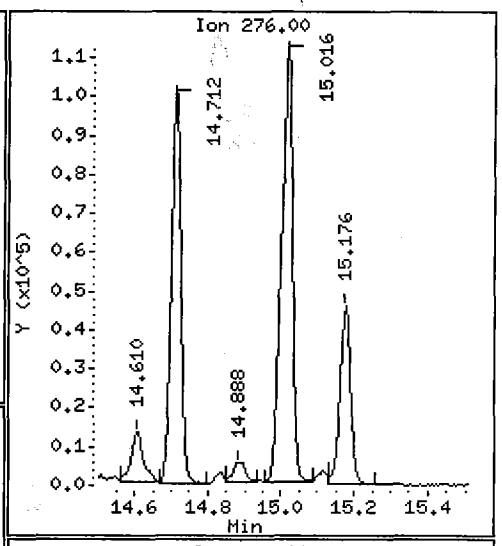
Concentration: 62970 ug/kg

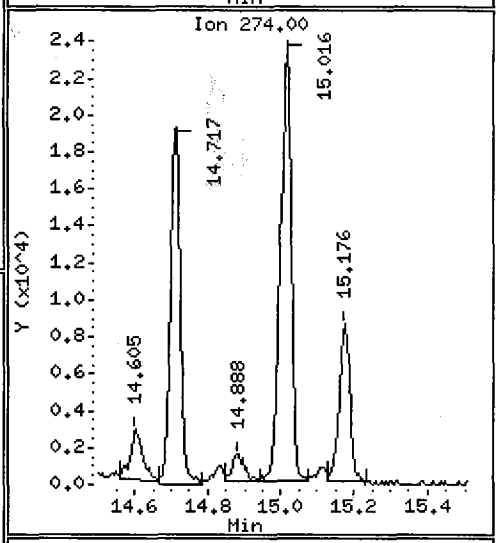


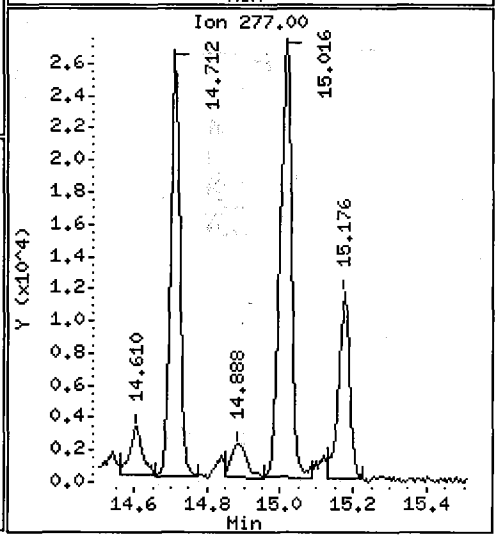








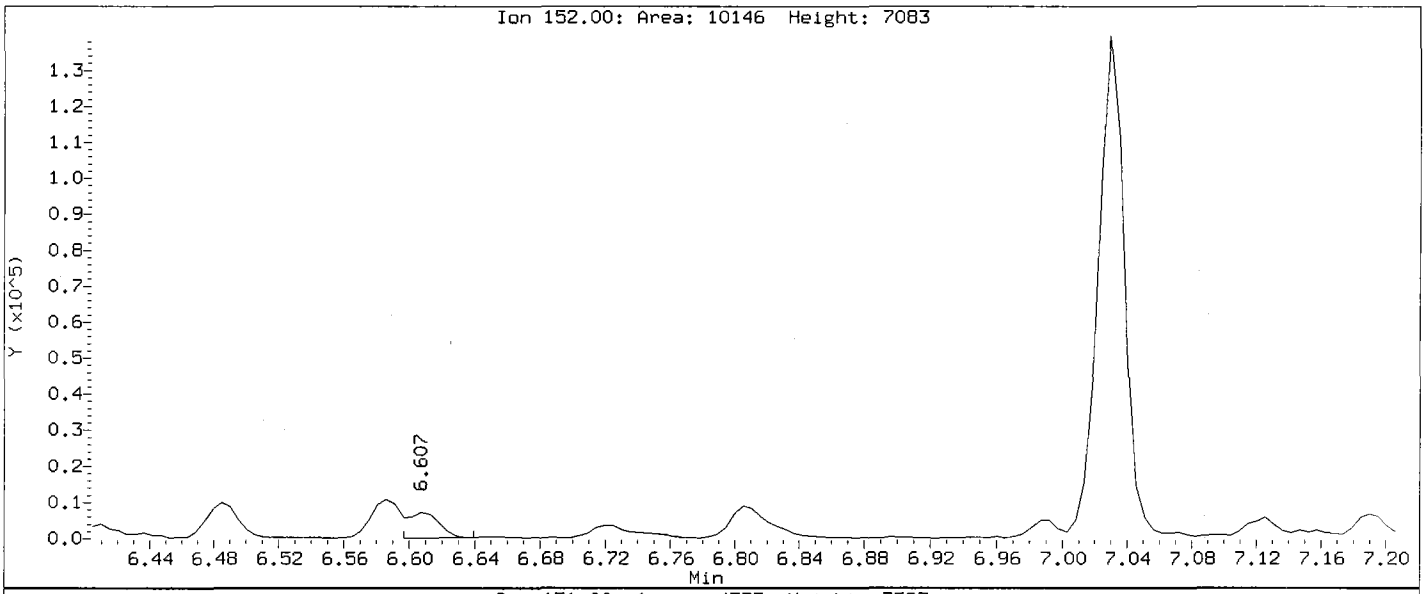


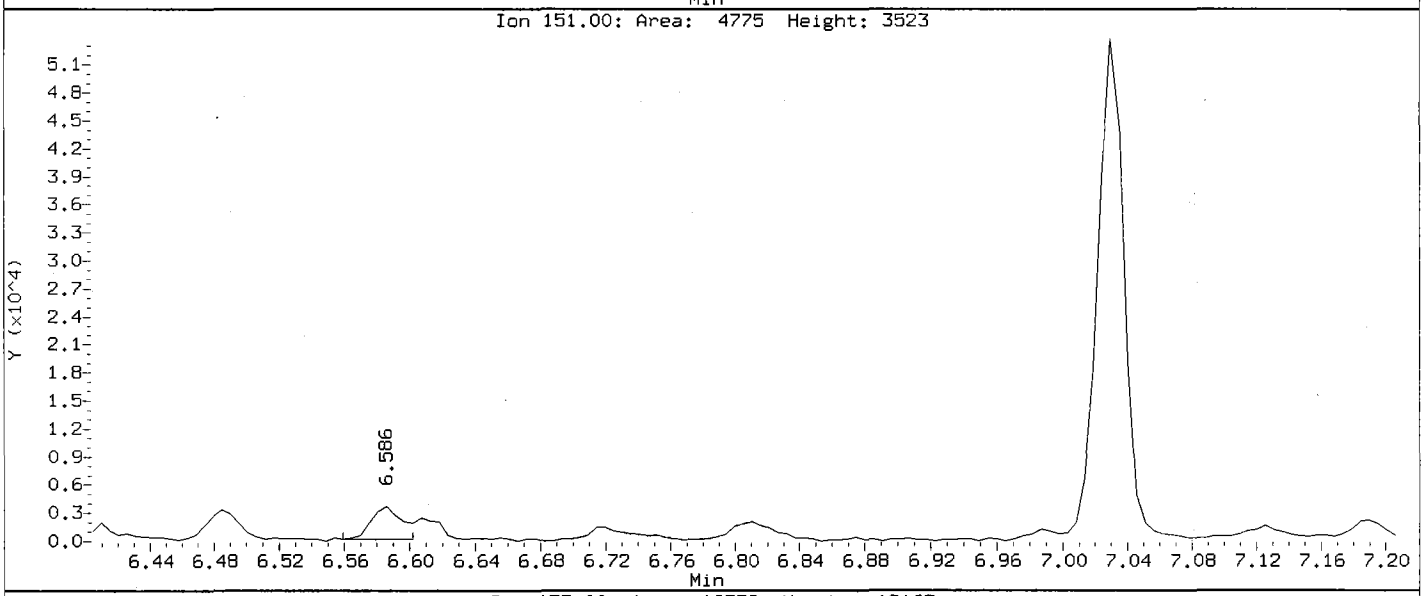


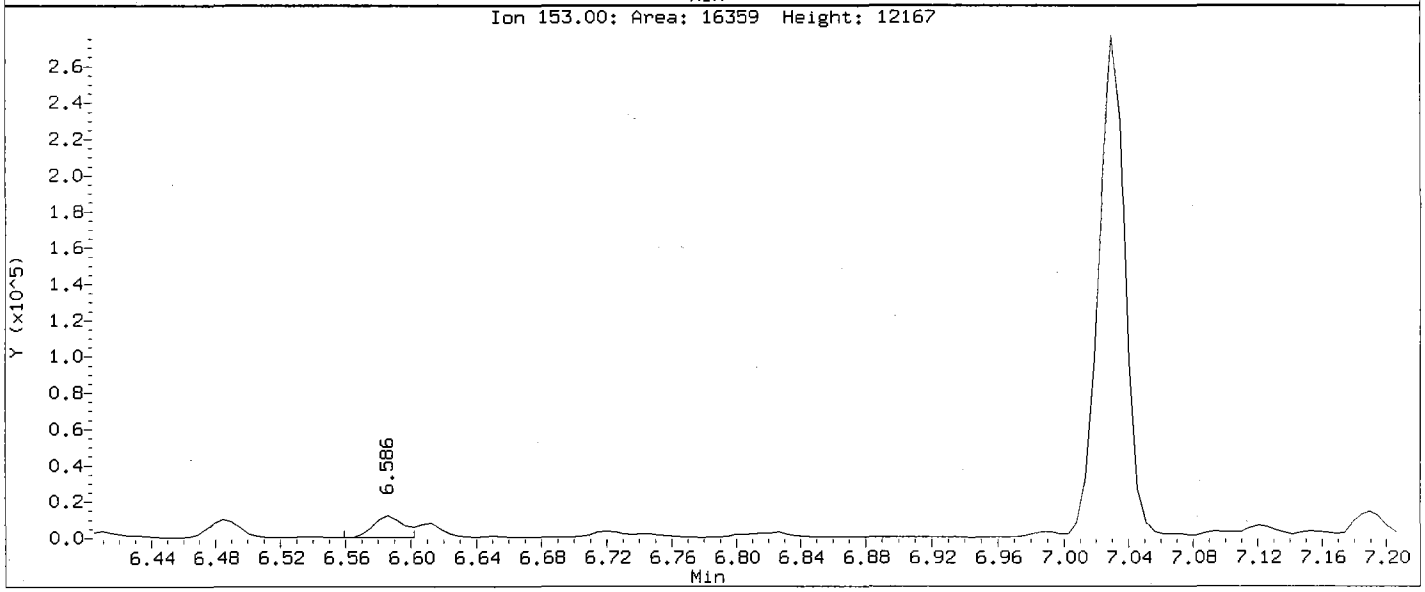
Data File: /chem1/nt12.i/20101110.b/rs97q.d
Injection Date: 10-NOV-2010 19:08
Instrument: nt12.i
Client Sample ID: DGS-07-10.610.9-101

VB 11-11-10

Compound: Acenaphthylene
CAS Number: 208-96-8

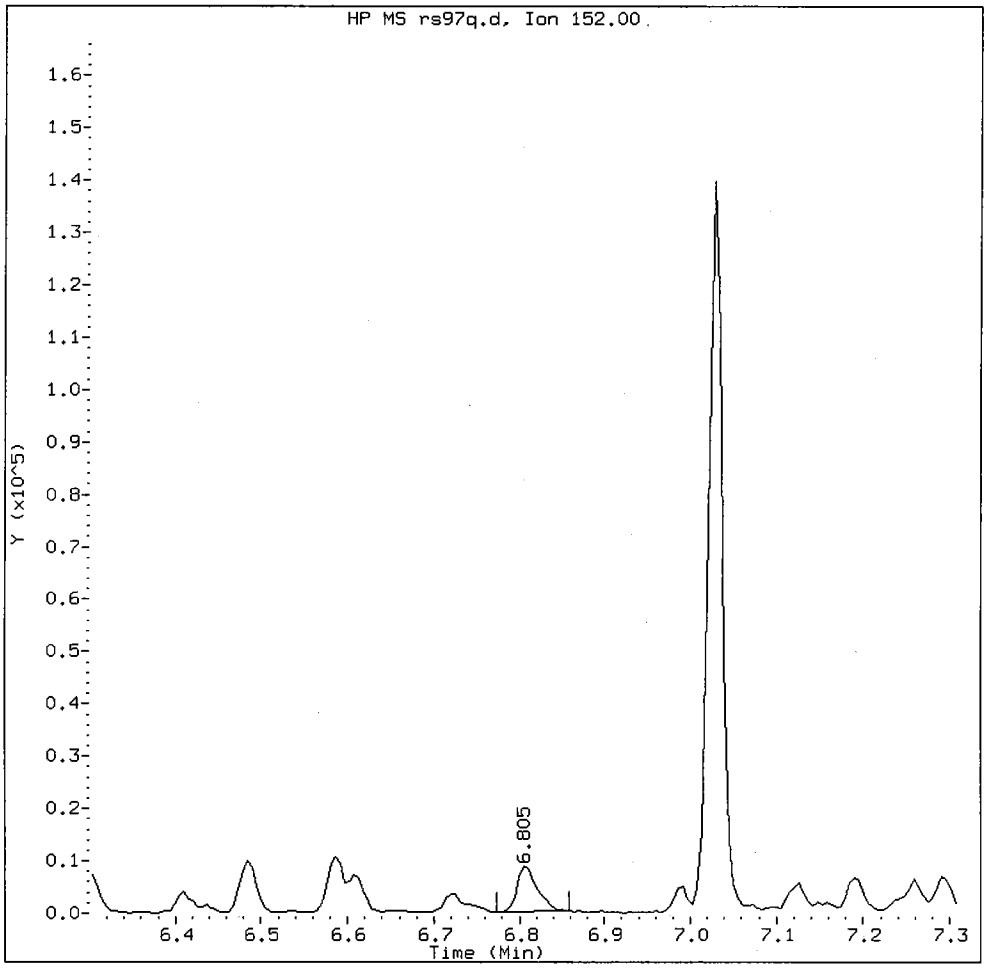






RS97Q, /chem1/nt12.i/20101110.b/rs97q.d

Acenaphthylene Amount: 1.06 Area: 14140



MANUAL INTEGRATION for Acenaphthylene

1. Baseline correction
2. Poor chromatography
3. Peak not found
4. Totals calculation

5. Other _____

Analyst: VTB Date: 11/1/10

Analytical Resources, Inc.

Semivolatile Report SW846 Method 8270D

Data file : /chem1/nt12.i/20101110.b/rs97r.d
Lab Smp Id: RS97R
Client Smp ID: DGS-07-11.611.8-101
Inj Date : 10-NOV-2010 19:31
Operator : VTS
Inst ID: nt12.i
Smp Info : RS97R
Misc Info : 10-27434
Comment : 1ul Injection
Method : /chem1/nt12.i/20101110.b/PNADMD.m
Meth Date : 10-Nov-2010 14:46 van
Quant Type: ISTD
Cal Date : 30-OCT-2010 13:19
Cal File: ic1030f.d
Als bottle: 17
Dil Factor: 1.00000
Integrator: HP RTE
Compound Sublist: pnas.sub
Target Version: 3.50
Processing Host: cserv3

Concentration Formula: Amt * DF * Vt/(Ws * (100 - M)/100) * CpndVariable

Name	Value	Description
DF	1.00000	Dilution Factor
Vt	10000.00000	Volume of final extract (uL)
Ws	5.05000	Weight of sample extracted (g)
M	44.90000	% Moisture

Cpnd Variable — Local Compound Variable

Compounds	QUANT SIG MASS	RT	EXP RT	REL RT	RESPONSE	CONCENTRATIONS ON-COLUMN (ug/mL)	CONCENTRATIONS FINAL (ug/kg)
* 27 Naphthalene-d8	136	4.887	4.888	(1.000)	228249	20.0000	
28 Naphthalene	128	4.914	4.909	(1.005)	699402	53.8388	193500
32 2-Methylnaphthalene	141	5.737	5.726	(1.174)	835066	120.433	432800 E
105 1-methylnaphthalene	141	5.860	5.854	(1.199)	417307	58.3692	209800
$ 36 2-Fluorobiphenyl	172	6.202	6.202	(0.886)	16912	1.55532	5590
40 Acenaphthylene	152	6.811	6.805	(0.973)	26921	1.90217	6836 (M)
* 42 Acenaphthene-d10	164	6.998	6.992	(1.000)	141339	20.0000	
44 Acenaphthene	153	7.040	7.030	(1.006)	698065	80.3082	288600 E
46 Dibenzofuran	168	7.227	7.222	(1.033)	79346	5.95280	21390
49 Fluorene	166	7.644	7.639	(1.092)	497296	49.9677	179600
* 59 Phenanthrene-d10	188	8.782	8.761	(1.000)	287042	20.0000	
60 Phenanthrene	178	8.825	8.787	(1.005)	4212484	276.631	994200 E S
61 Anthracene	178	8.867	8.846	(1.010)	794163	50.4605	181300
62 Carbazole	167	9.070	9.065	(1.033)	27848	~~2.193~~44	7883 (M) NR

Compounds	QUANT SIG MASS	RT	EXP RT	REL RT	RESPONSE	CONCENTRATIONS ON-COLUMN (ug/mL)	CONCENTRATIONS FINAL (ug/kg)	
64 Fluoranthene	202	10.267	10.235	(0.855)	2630826	156.477	562400	ES
65 Pyrene	202	10.540	10.502	(0.878)	3169709	190.036	683000	ES
$ 66 Terphenyl-d14	244	10.743	10.737	(0.895)	13978	1.31369	4721	
68 Benzo(a)anthracene	228	11.982	11.971	(0.998)	607519	44.9449	161500	
* 69 Chrysene-d12	240	12.003	11.993	(1.000)	240694	20.0000		
71 Chrysene	228	12.035	12.019	(1.003)	669510	52.9793	190400	
187 Total Benzofluoranthenes	252	13.237	13.243	(0.972)	758590	64.6144	232200	
76 Benzo(a)pyrene	252	13.574	13.553	(0.996)	670174	62.1396	223300	
* 77 Perylene-d12	264	13.622	13.611	(1.000)	197110	20.0000		
99 Perylene	252	13.649	13.638	(1.002)	128727	11.2242	40340	NR
78 Indeno(1,2,3-cd)pyrene	276	14.733	14.712	(1.082)	376850	23.5355	84580	
79 Dibenzo(a,h)anthracene	278	14.733	14.723	(1.082)	85788	6.50771	23390	
80 Benzo(g,h,i)perylene	276	15.038	15.006	(1.104)	431053	32.7695	117800	

QC Flag Legend

M - Compound response manually integrated.

11-11-10

Analytical Resources, Inc.

INTERNAL STANDARD COMPOUNDS
AREA AND RT SUMMARY

Instrument ID: nt12.i
Lab File ID: rs97r.d
Lab Smp Id: RS97R
Analysis Type: SV
Quant Type: ISTD
Operator: VTS
Method File: /chem1/nt12.i/20101110.b/PNADMD.m
Misc Info: 10-27434

Calibration Date: 10-NOV-2010
Calibration Time: 13:29
Client Smp ID: DGS-07-11.611.8-
Level: LOW
Sample Type: Sediment

Test Mode:
Use Initial Calibration Level 4.

COMPOUND	STANDARD	AREA LIMIT LOWER	AREA LIMIT UPPER	SAMPLE	%DIFF
27 Naphthalene-d8	237664	118832	475328	228249	-3.96
42 Acenaphthene-d10	143363	71682	286726	141339	-1.41
59 Phenanthrene-d10	245437	122718	490874	287042	16.95
69 Chrysene-d12	199260	99630	398520	240694	20.79
77 Perylene-d12	197636	98818	395272	197110	-0.27

COMPOUND	STANDARD	RT LIMIT LOWER	RT LIMIT UPPER	SAMPLE	%DIFF
27 Naphthalene-d8	4.89	4.39	5.39	4.89	0.00
42 Acenaphthene-d10	6.99	6.49	7.49	7.00	0.08
59 Phenanthrene-d10	8.76	8.26	9.26	8.78	0.24
69 Chrysene-d12	11.99	11.49	12.49	12.00	0.09
77 Perylene-d12	13.61	13.11	14.11	13.62	0.08

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.

Analytical Resources, Inc.

RECOVERY REPORT

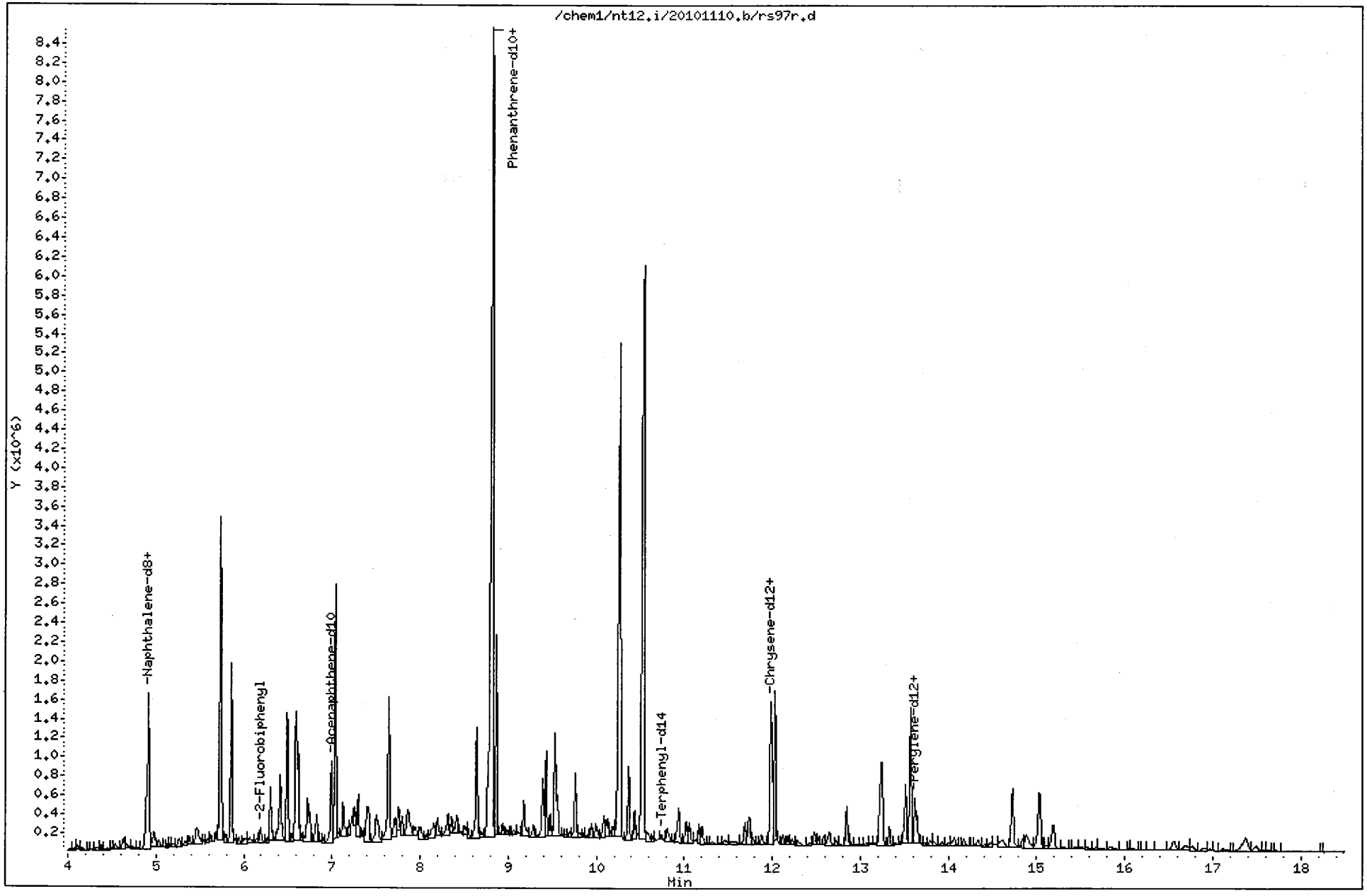
Client Name: NW Natural
Sample Matrix: SOLID
Lab Smp Id: RS97R
Level: LOW
Data Type: MS DATA
SpikeList File: SONICLCS.spk
Sublist File: pnas.sub
Method File: /chem1/nt12.i/20101110.b/PNADMD.m
Misc Info: 10-27434

Client SDG: RS97
Fraction: SV
Client Smp ID: DGS-07-11.611.8-101
Operator: VTS
SampleType: SAMPLE
Quant Type: ISTD

SURROGATE COMPOUND	CONC ADDED ug/kg	CONC RECOVERED ug/kg	% RECOVERED	LIMITS
$ 36 2-Fluorobiphenyl	8985	5590	62.21	34-100
$ 66 Terphenyl-d14	8985	4721	52.55	35-112

Data File: /chem1/nt12.i/20101110.b/rs97r.d
Date : 10-NOV-2010 19:31
Client ID: DGS-07-11.611.8-101
Sample Info: RS97R
Volume Injected (uL): 1.0
Column phase: ZB-5msi

Instrument: nt12.i
Operator: VTS
Column diameter: 0.32



RS97 : 09691

Data File: /chem1/nt12.i/20101110.b/rs97r.d

Date : 10-NOV-2010 19:31

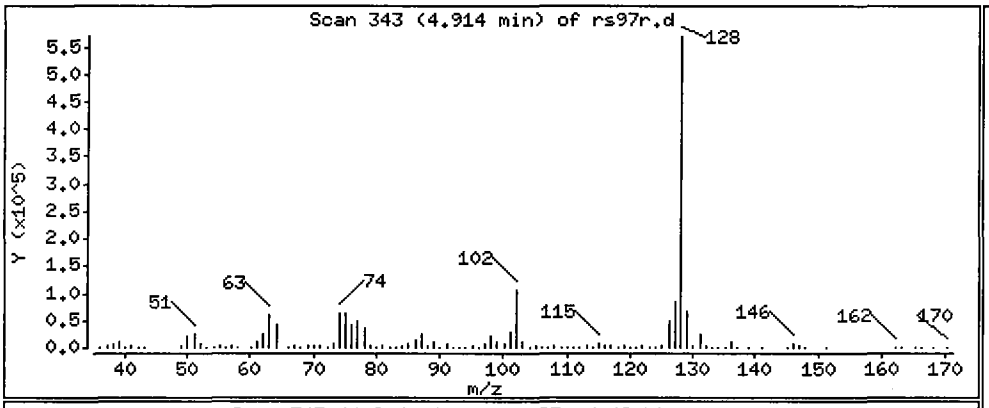
Client ID: DGS-07-11.611.8-101 Instrument: nt12.i

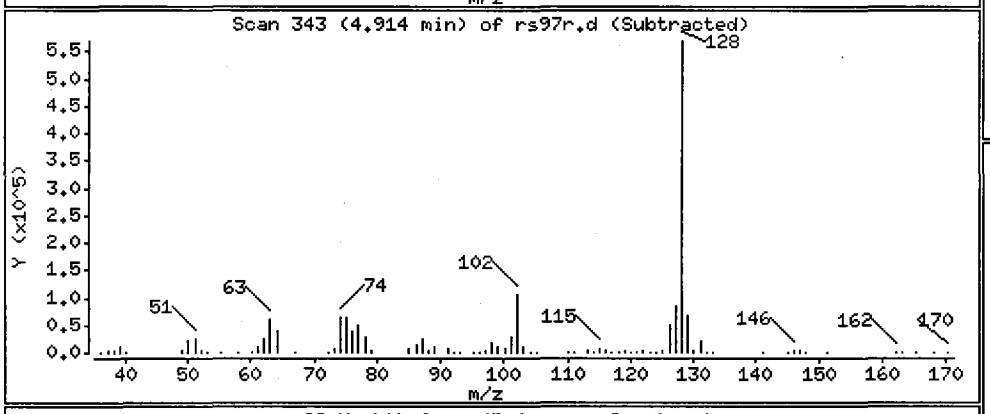
Sample Info: RS97R

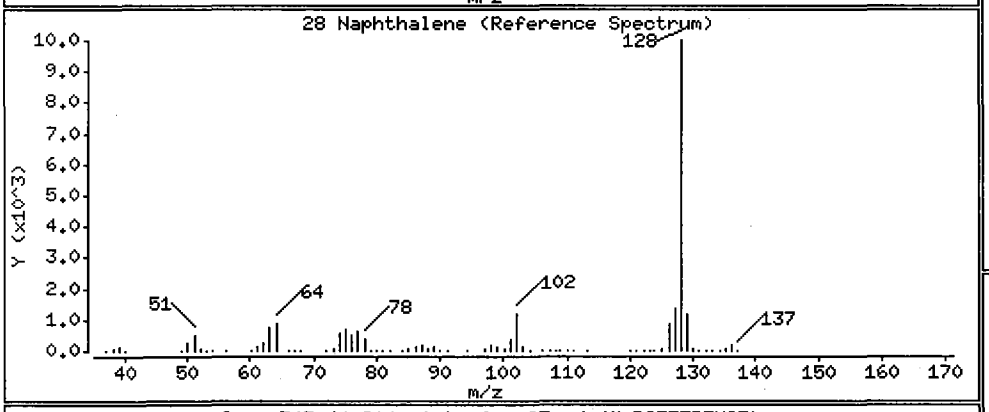
Volume Injected (uL): 1.0 Operator: VTS

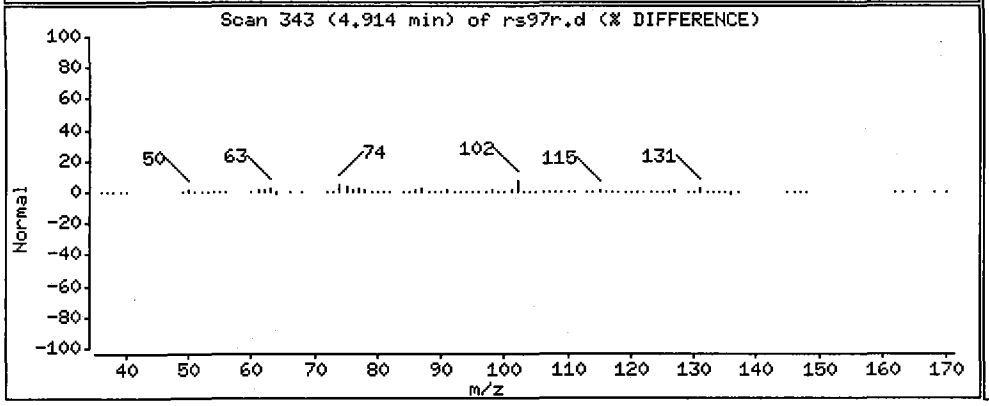
Column phase: ZB-5msi Column diameter: 0.32

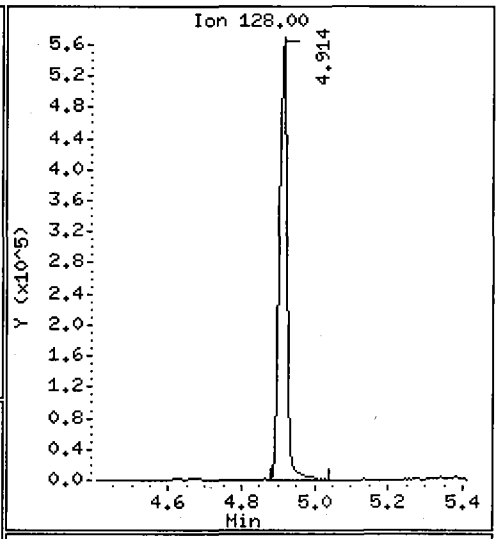
28 Naphthalene Concentration: 193500 ug/kg

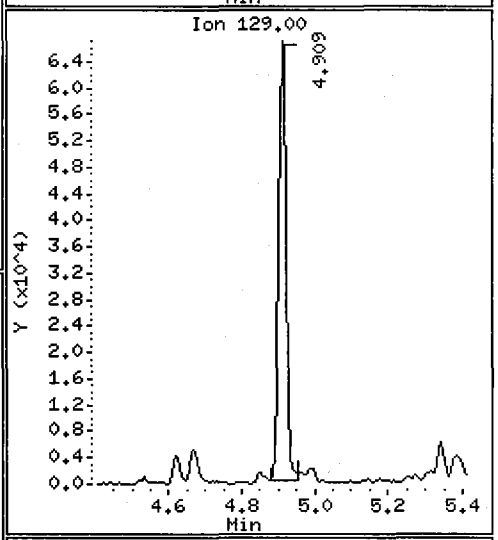


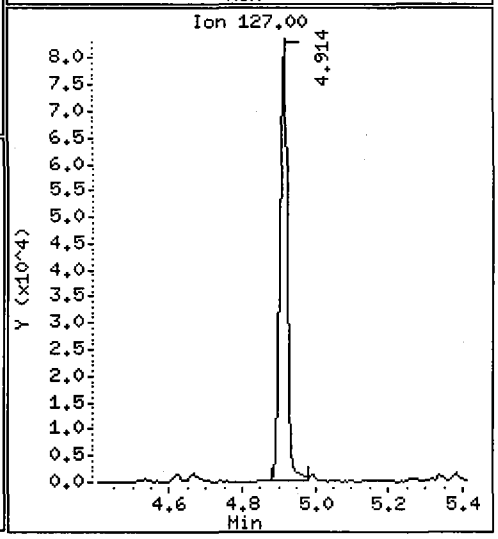












Data File: /chem1/nt12.i/20101110.b/rs97r.d

Date : 10-NOV-2010 19:31

Client ID: DGS-07-11.611.8-101

Instrument: nt12.i

Sample Info: RS97R

Volume Injected (uL): 1.0

Operator: VTS

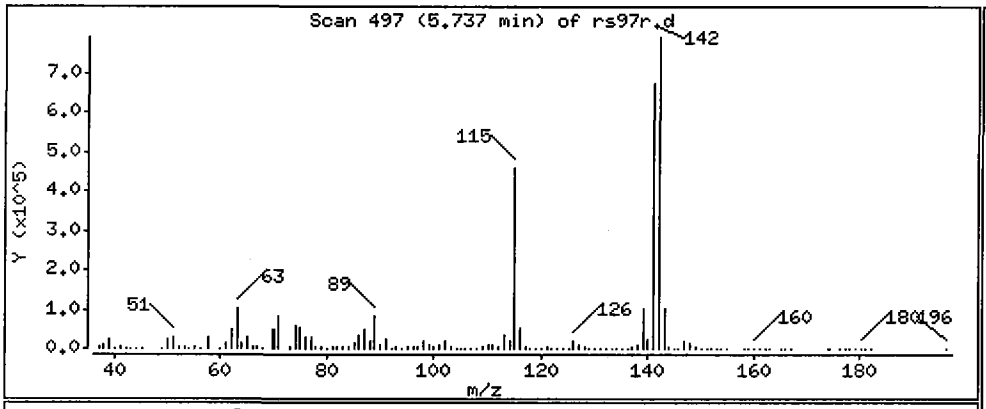
Column phase: ZB-5msi

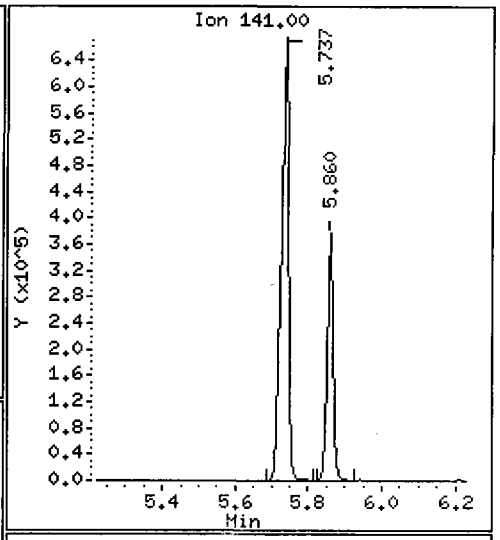
Column diameter: 0.32

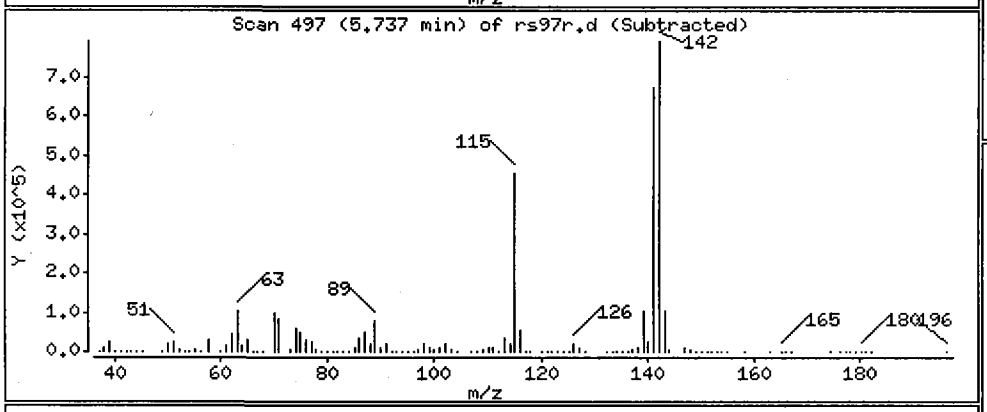
E

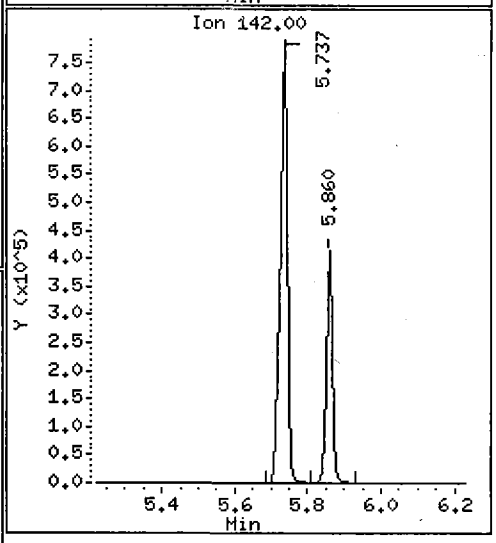
32 2-Methylnaphthalene

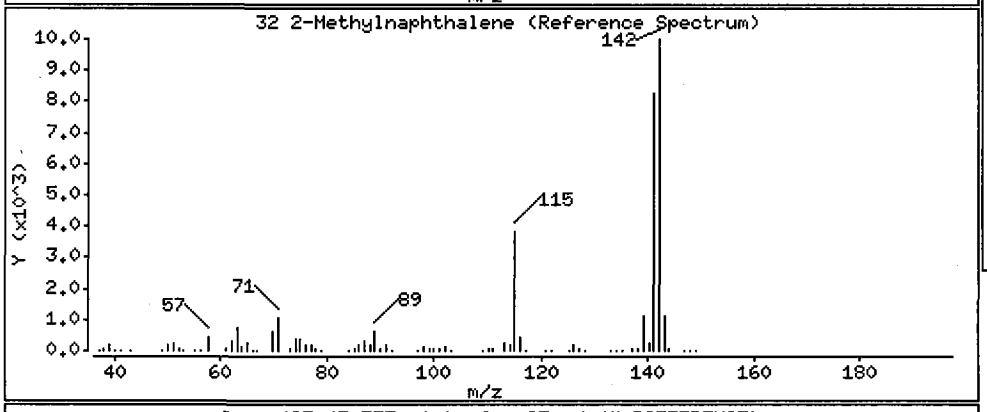
Concentration: 432800 ug/kg

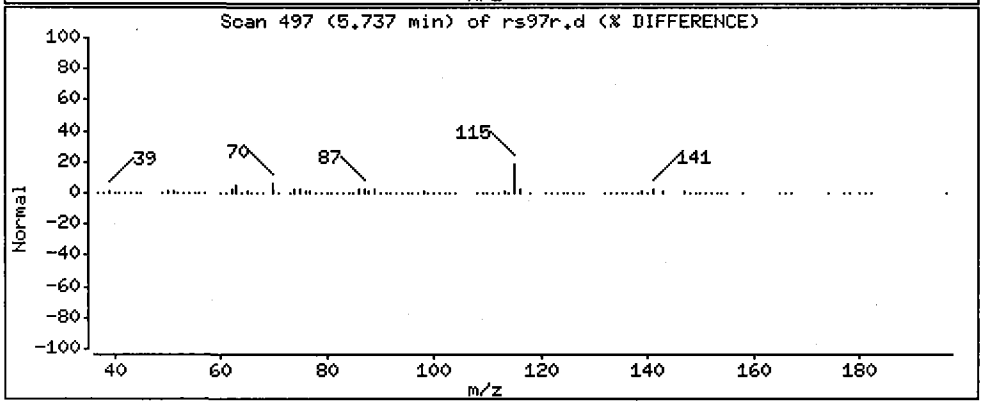












Data File: /chem1/nt12.i/20101110.b/rs97r.d

Date : 10-NOV-2010 19:31

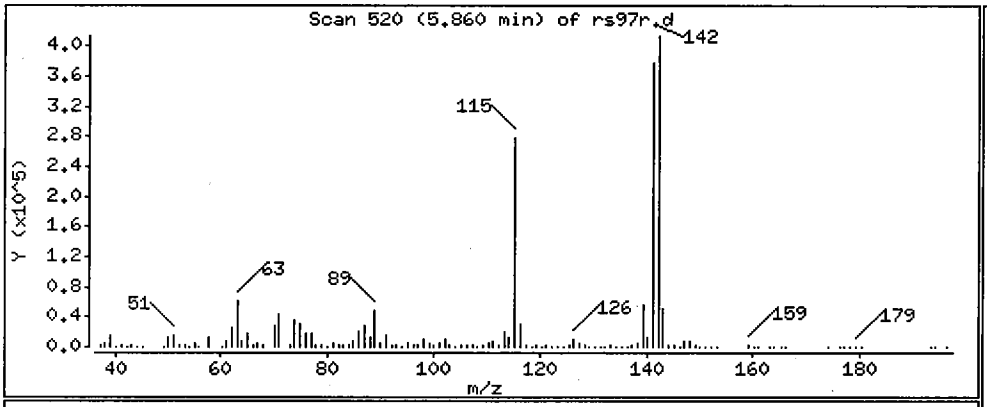
Client ID: DGS-07-11.611.8-101 | Instrument: nt12.i

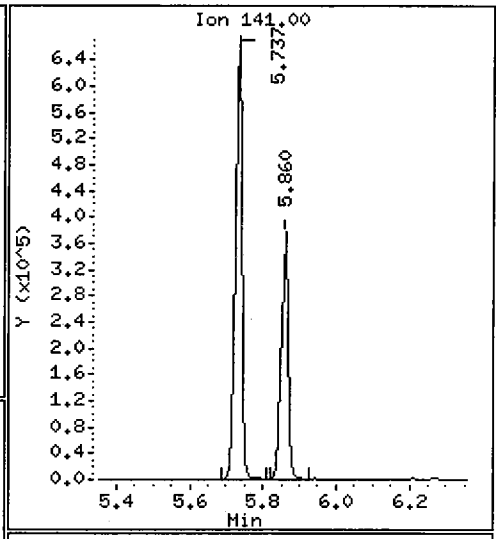
Sample Info: RS97R

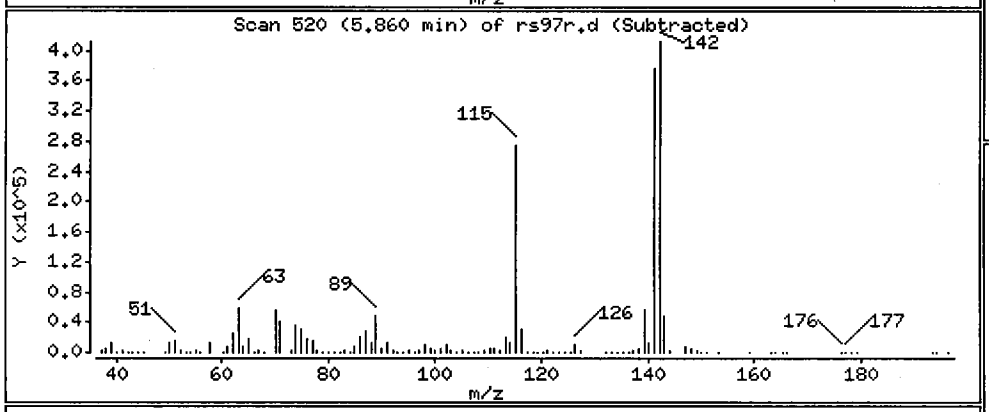
Volume Injected (uL): 1.0 | Operator: VTS

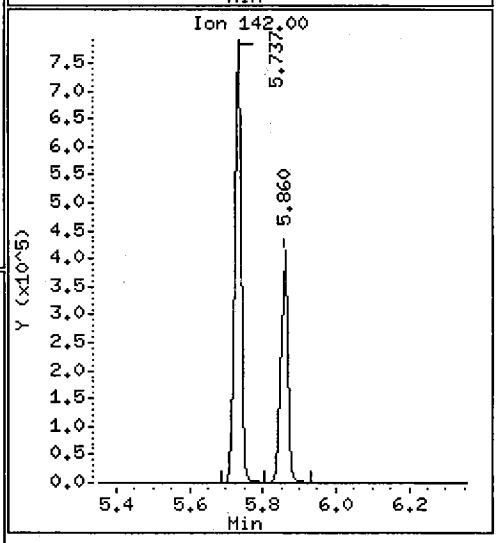
Column phase: ZB-5msi | Column diameter: 0.32

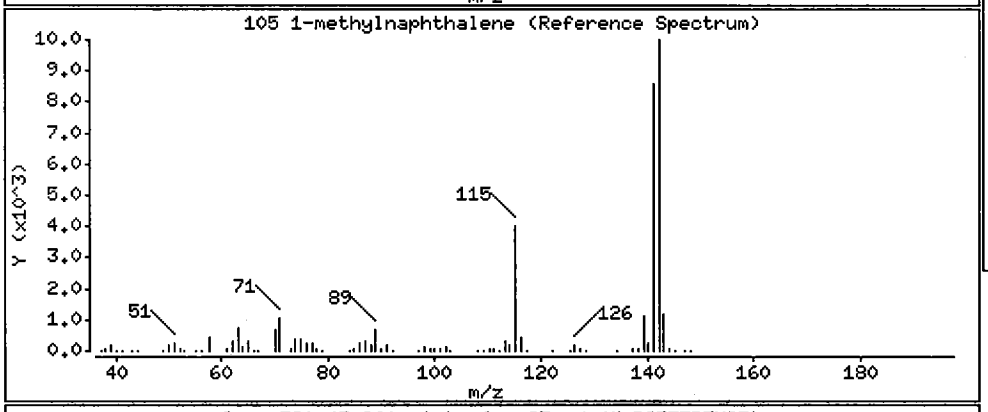
105 1-methylnaphthalene | Concentration: 209800 ug/kg

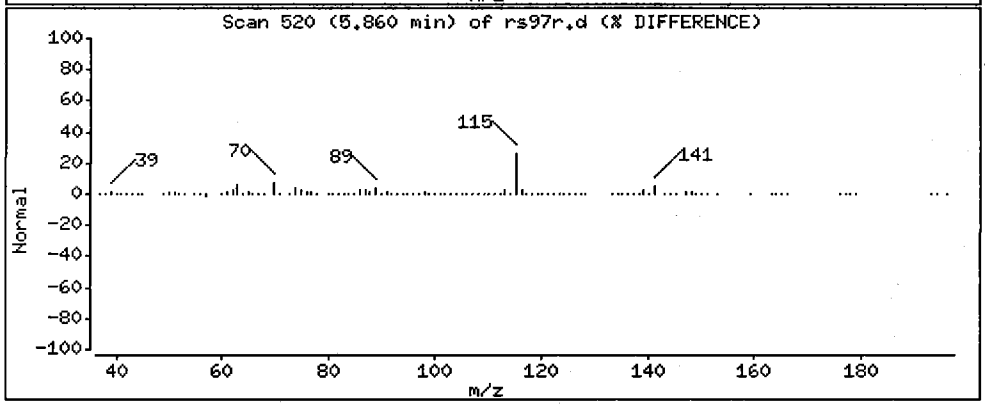












Data File: /chem1/nt12.i/20101110.b/rs97r.d

Date : 10-NOV-2010 19:31

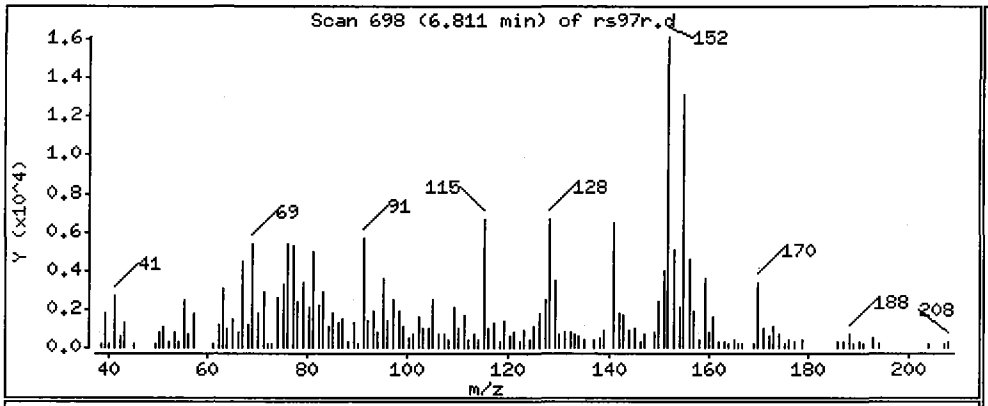
Client ID: DGS-07-11.611.8-101 | Instrument: nt12.i

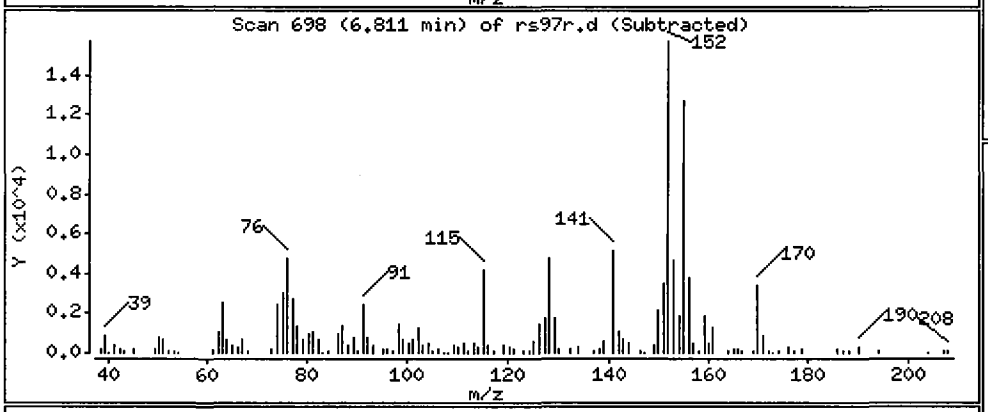
Sample Info: RS97R

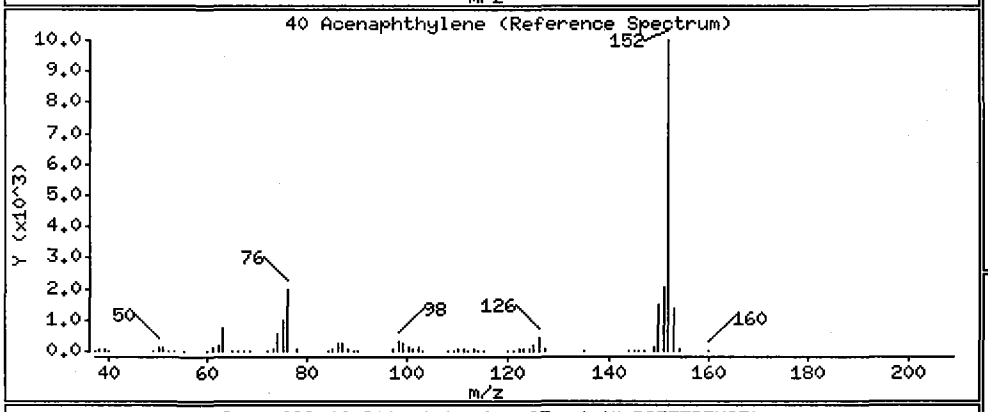
Volume Injected (uL): 1.0 | Operator: VTS

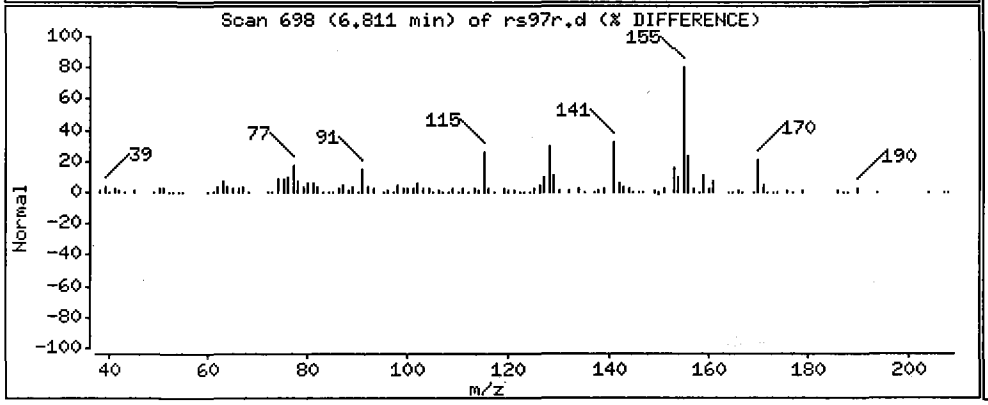
Column phase: ZB-5msi | Column diameter: 0.32

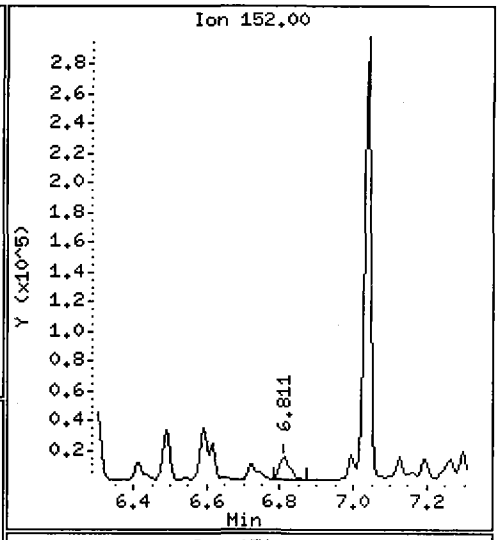
40 Acenaphthylene | Concentration: 6836 ug/kg

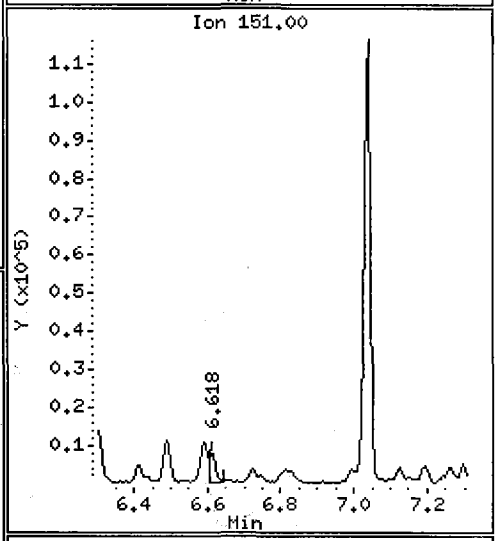


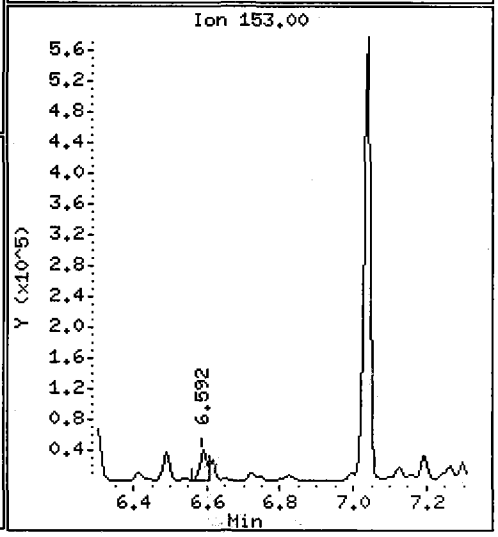












Data File: /chem1/nt12.i/20101110.b/rs97r.d

Date : 10-NOV-2010 19:31

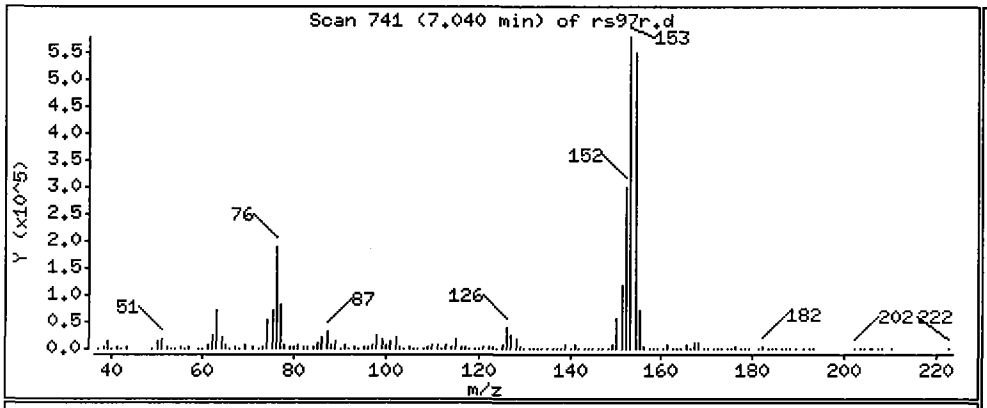
Client ID: DGS-07-11.611.8-101 Instrument: nt12.i

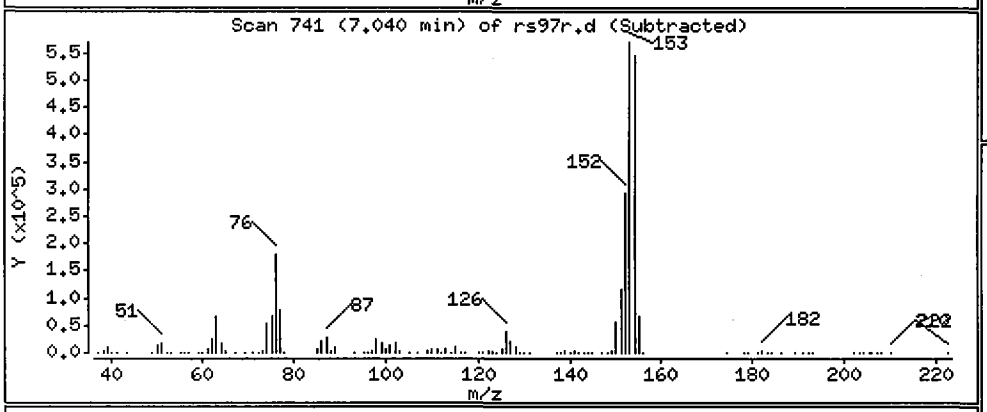
Sample Info: RS97R

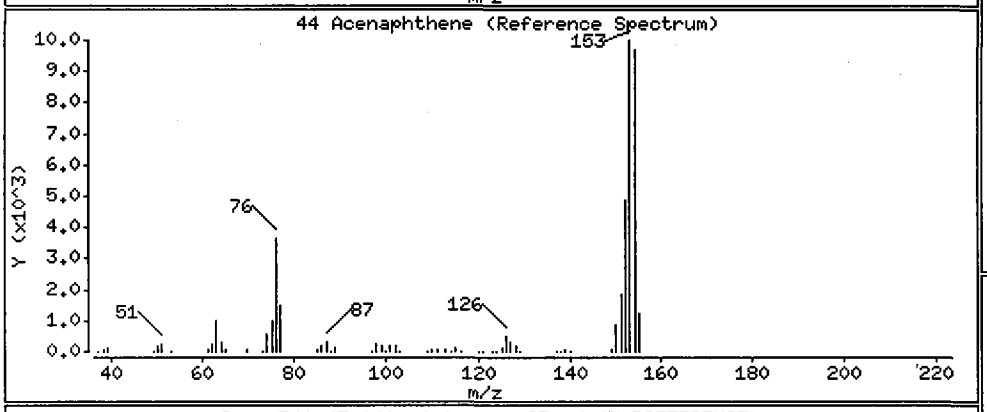
Volume Injected (uL): 1.0 Operator: VTS

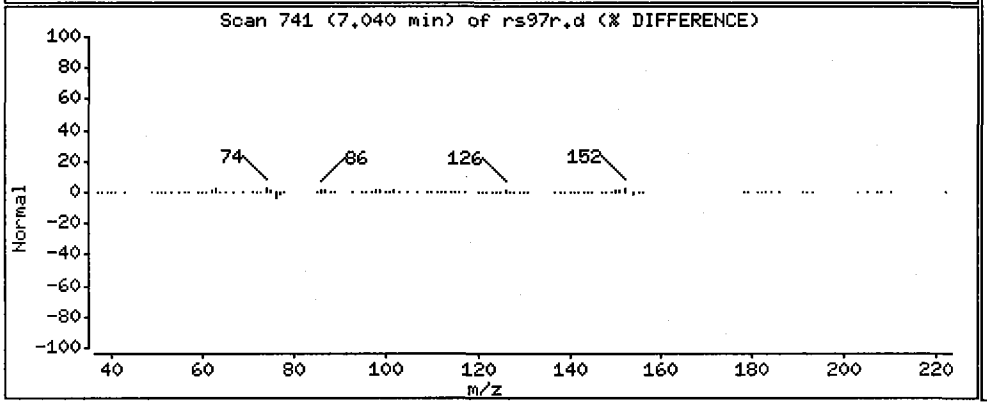
Column phase: ZB-5msi Column diameter: 0.32

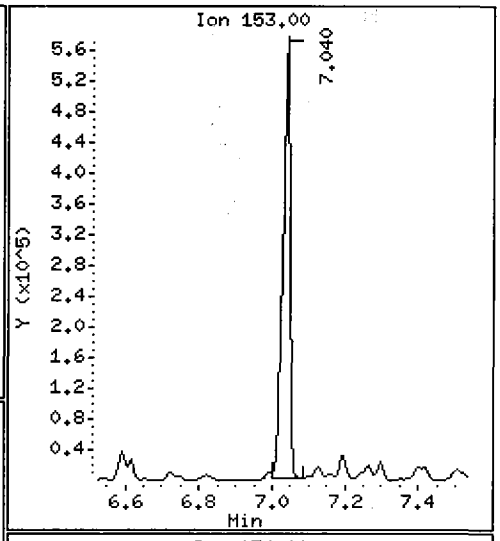
44 Acenaphthene Concentration: 288600 ug/kg

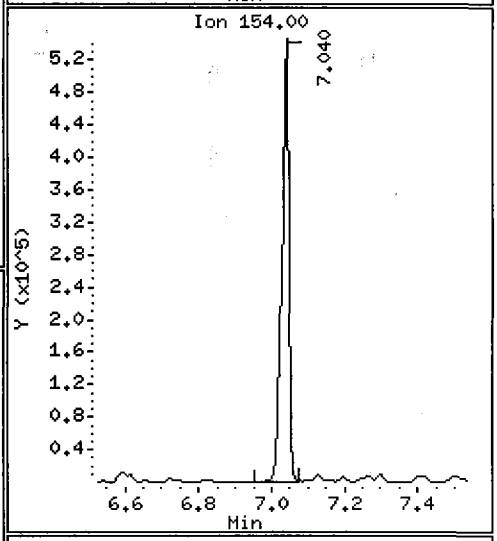


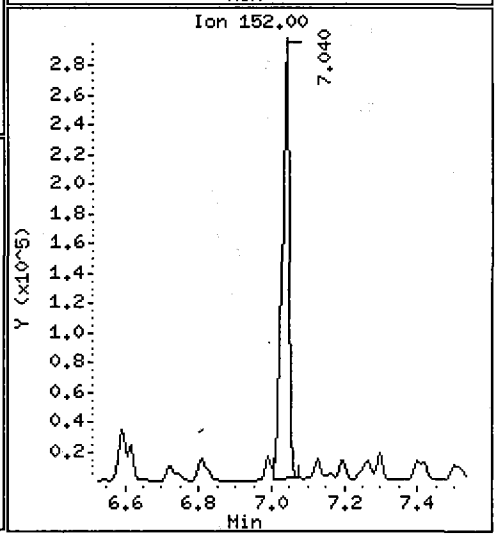












Data File: /chem1/nt12.i/20101110.b/rs97r.d

Date : 10-NOV-2010 19:31

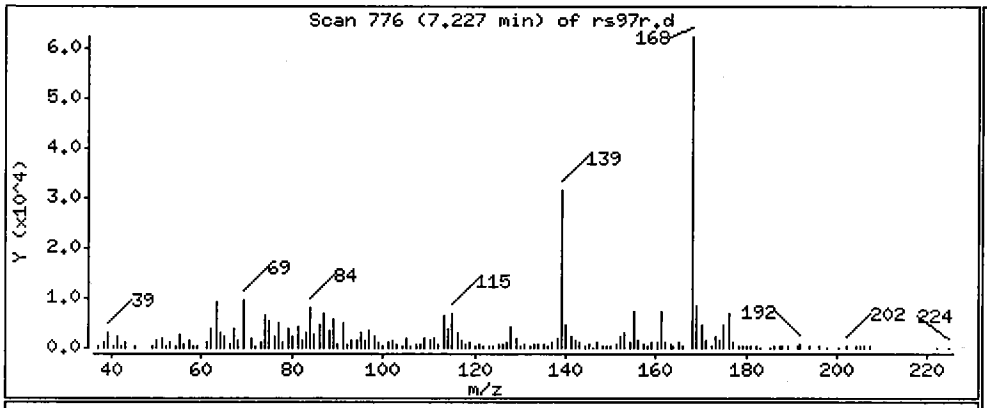
Client ID: DGS-07-11.611.8-101 Instrument: nt12.i

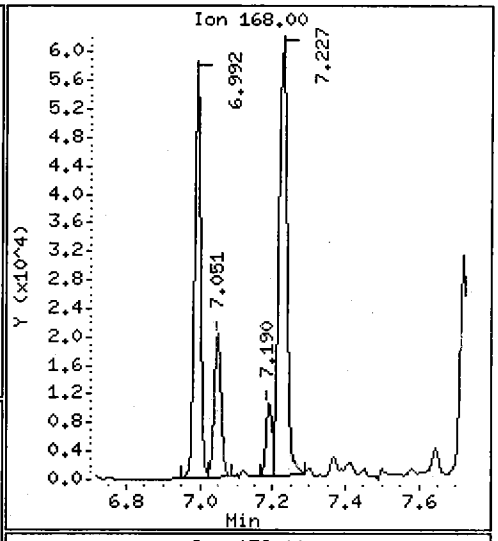
Sample Info: RS97R

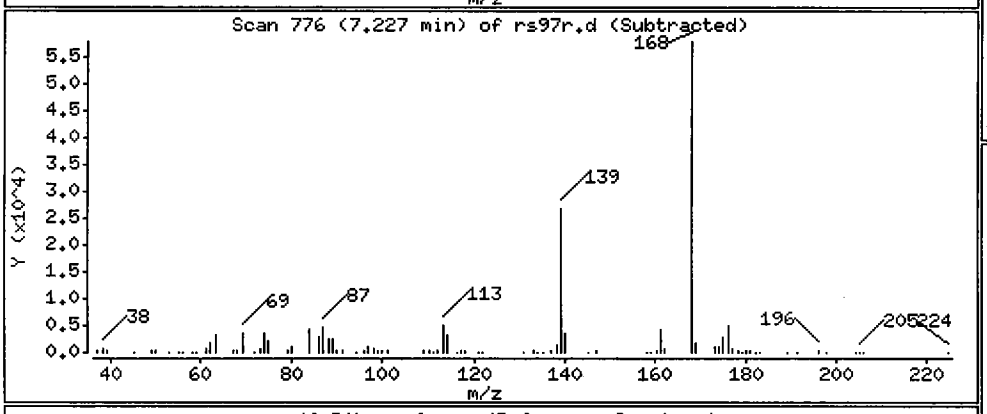
Volume Injected (uL): 1.0 Operator: VTS

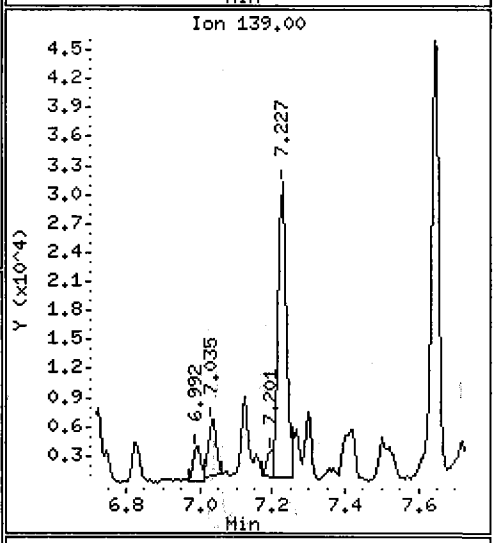
Column phase: ZB-5msi Column diameter: 0.32

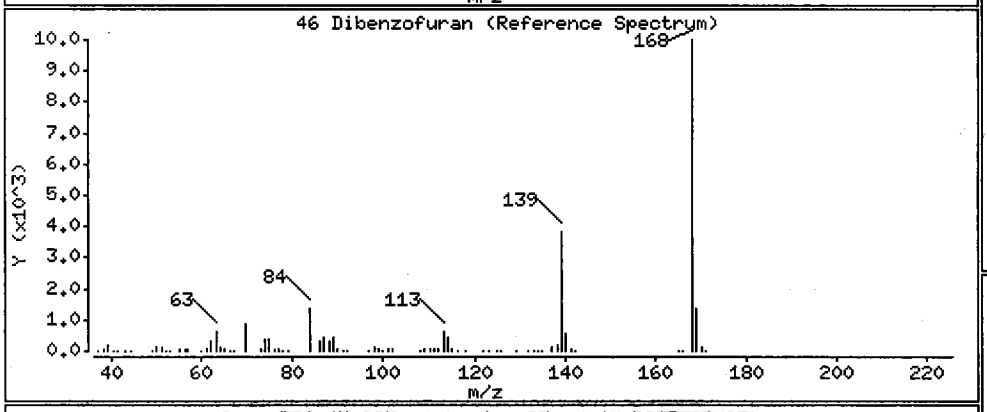
46 Dibenzofuran Concentration: 21390 ug/kg

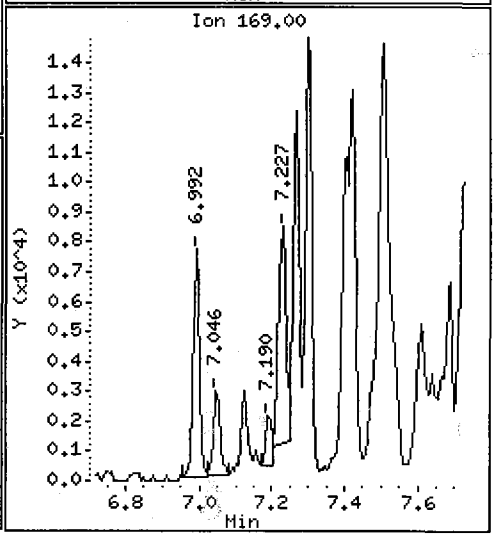


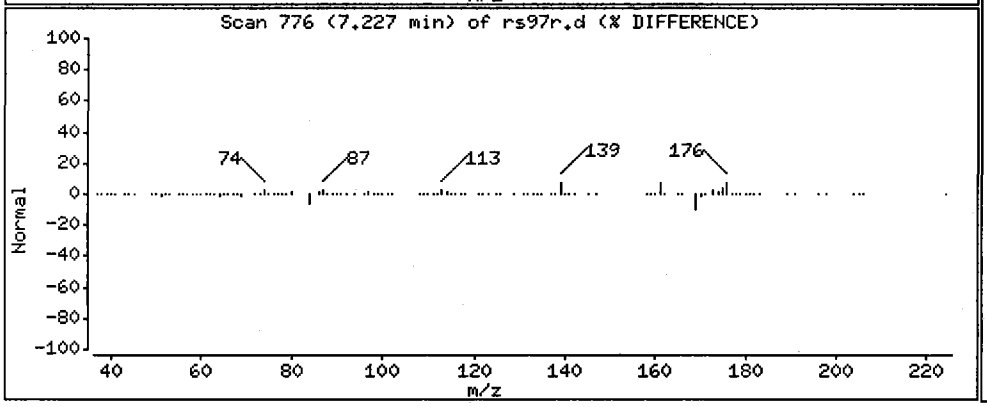












Data File: /chem1/nt12.i/20101110.b/rs97r.d

Date : 10-NOV-2010 19:31

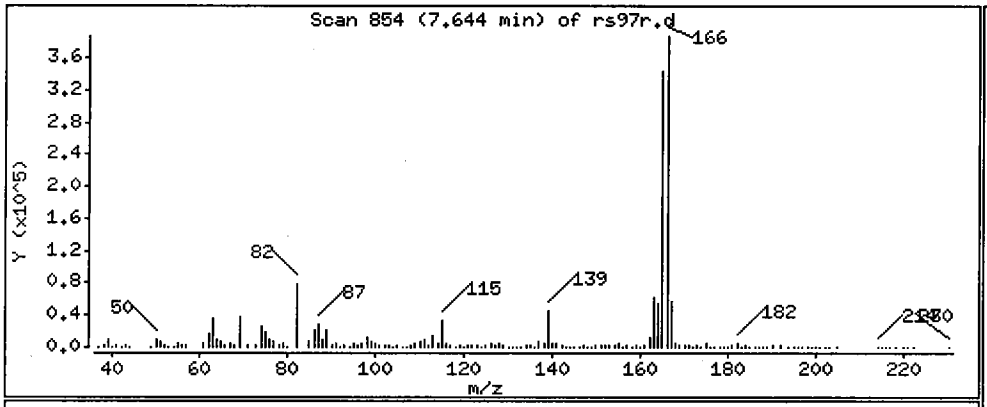
Client ID: DGS-07-11.611.8-101 Instrument: nt12.i

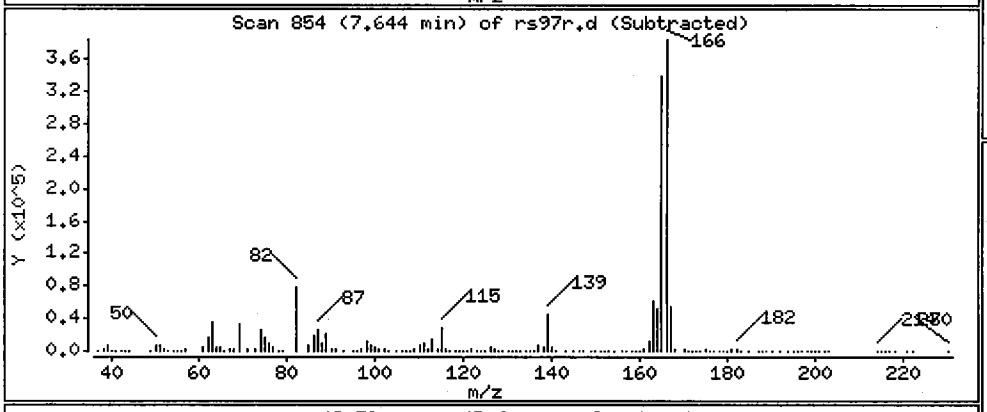
Sample Info: RS97R

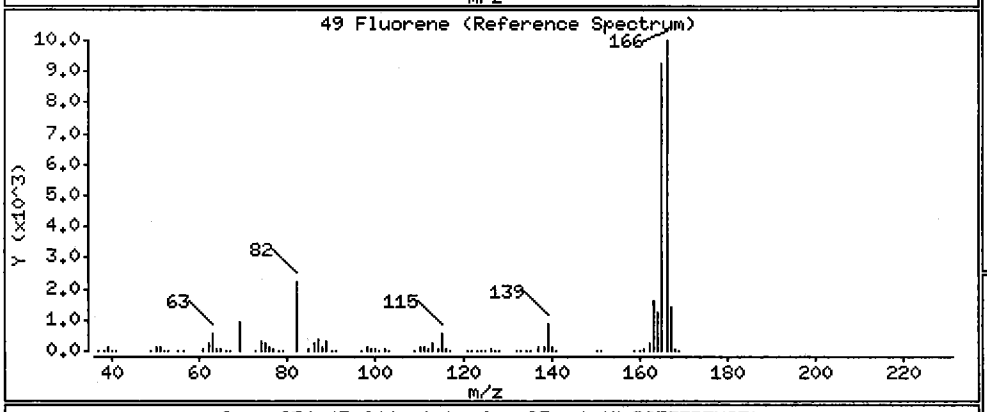
Volume Injected (uL): 1.0 Operator: VTS

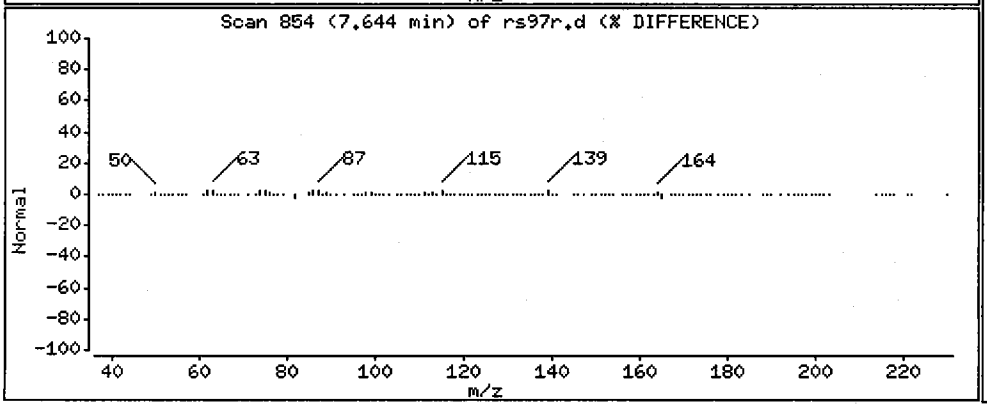
Column phase: ZB-5msi Column diameter: 0.32

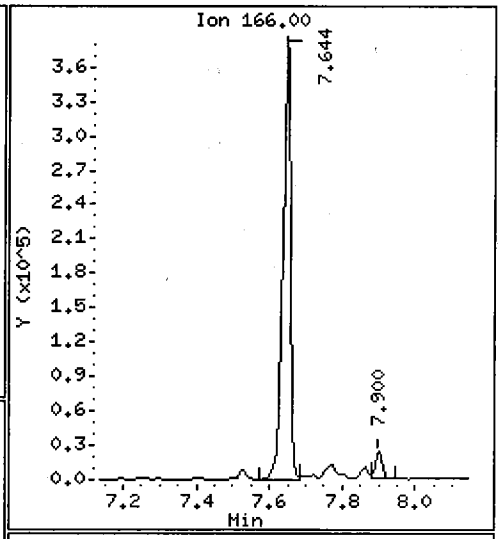
49 Fluorene Concentration: 179600 ug/kg

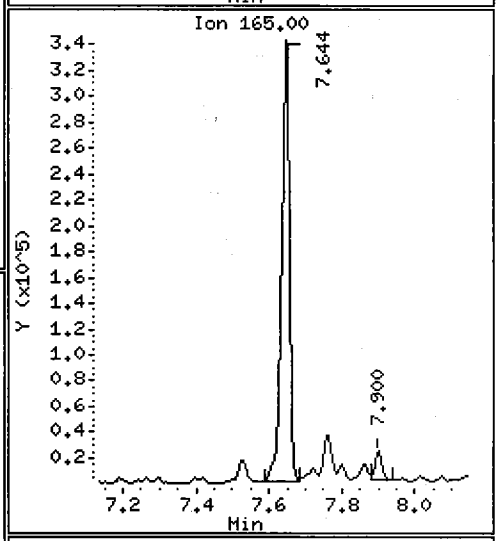


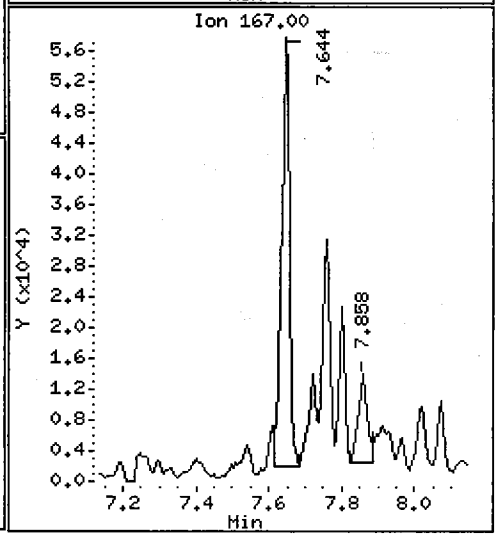












Data File: /chem1/nt12.i/20101110.b/rs97r.d

Date : 10-NOV-2010 19:31

Client ID: DGS-07-11.611.8-101

Instrument: nt12.i

Sample Info: RS97R

Volume Injected (uL): 1.0

Operator: VTS

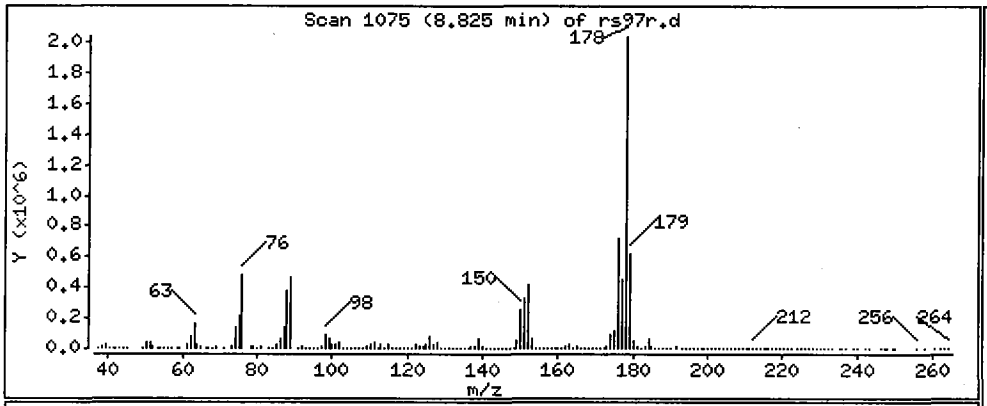
Column phase: ZB-5msi

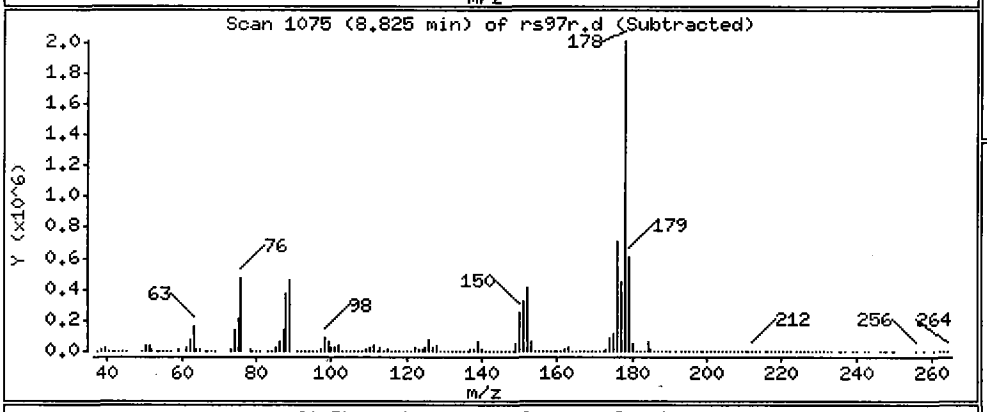
Column diameter: 0.32

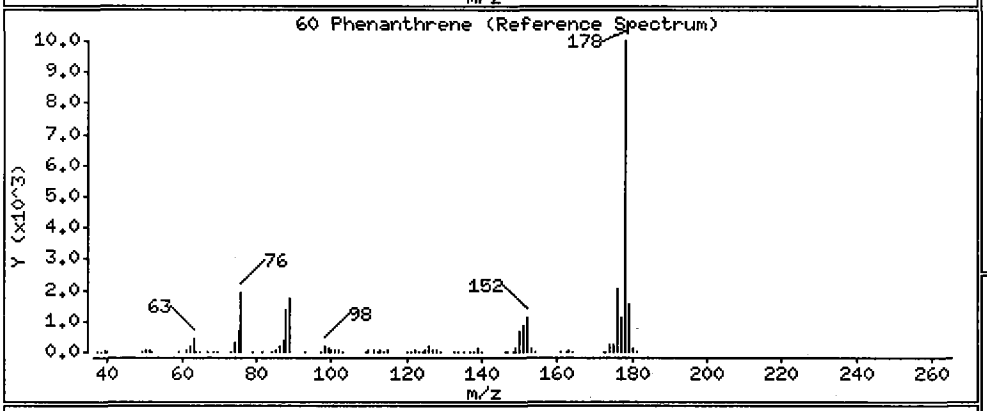
60 Phenanthrene

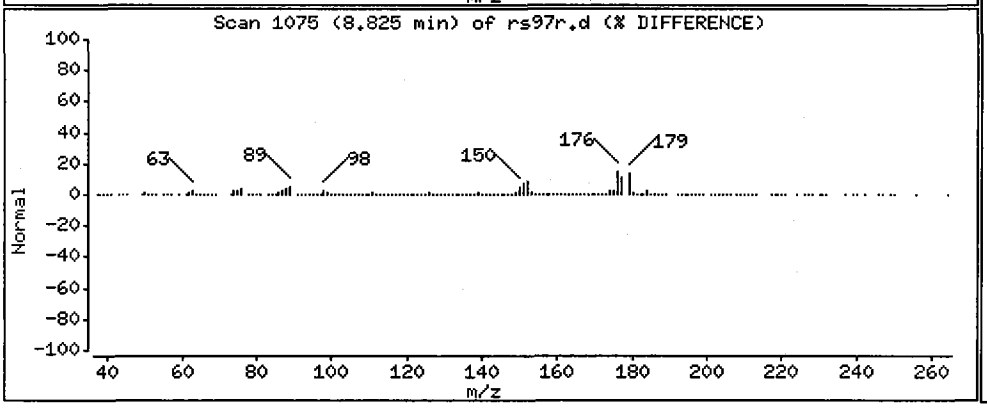
Concentration: 994200 ug/kg

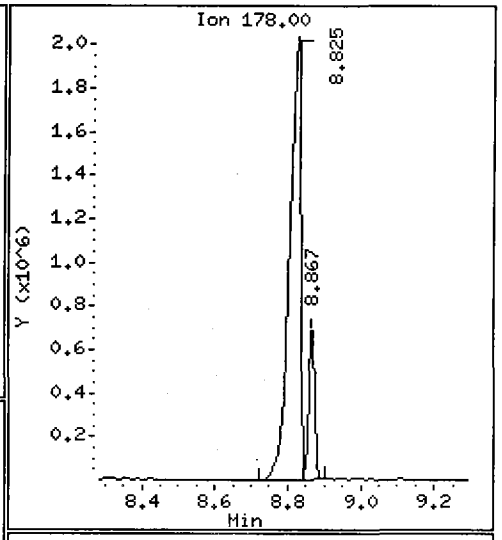
Est

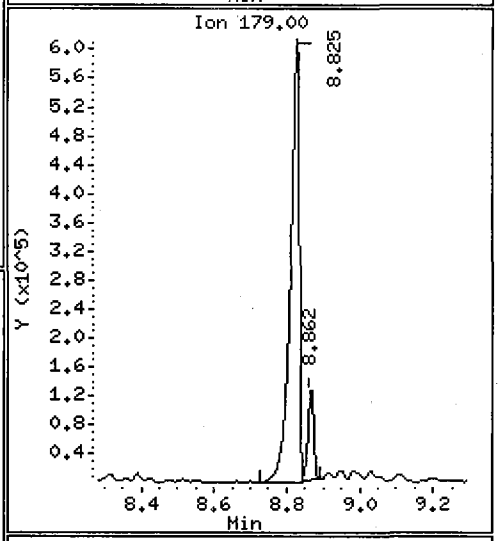


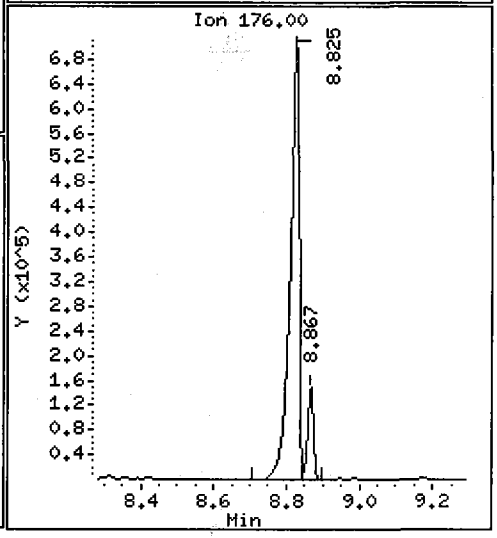












Data File: /chem1/nt12.i/20101110.b/rs97r.d

Date : 10-NOV-2010 19:31

Client ID: DGS-07-11.611.8-101

Instrument: nt12.i

Sample Info: RS97R

Volume Injected (uL): 1.0

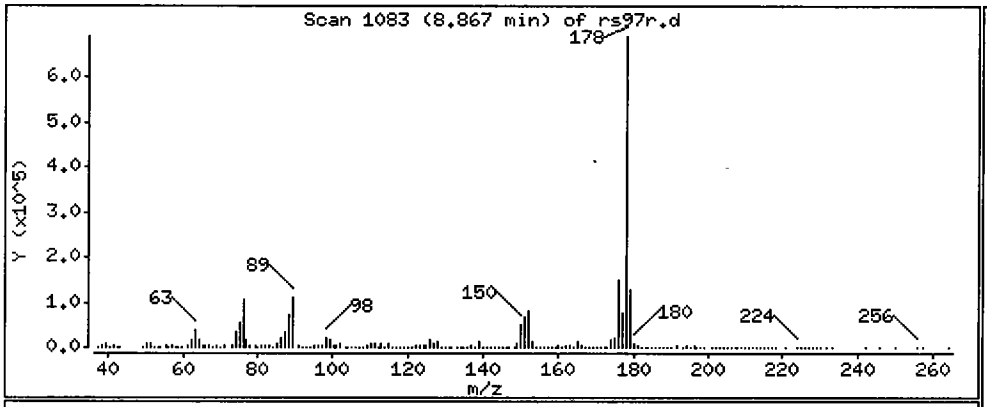
Operator: VTS

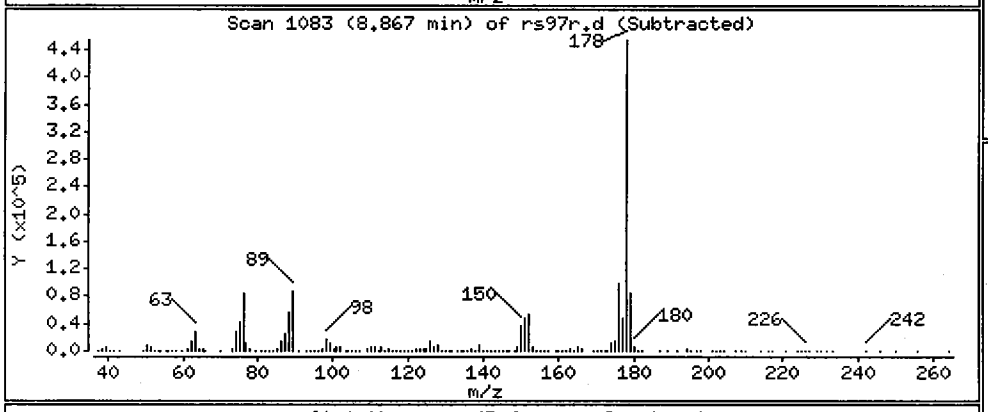
Column phase: ZB-5msi

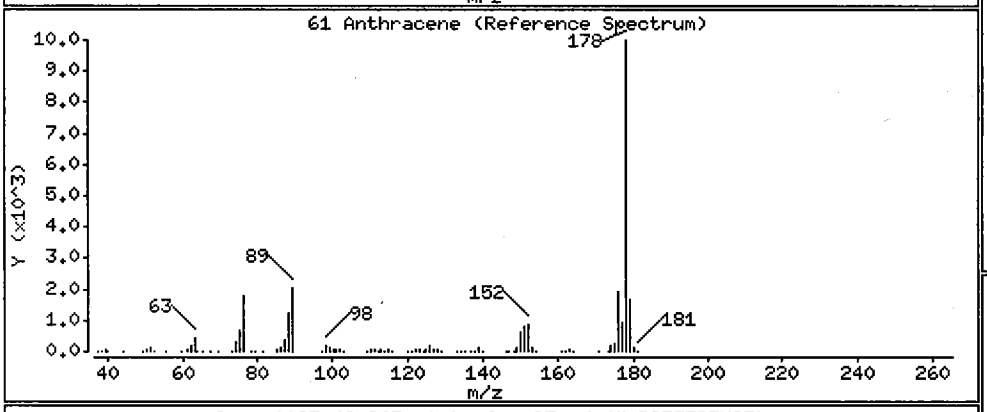
Column diameter: 0.32

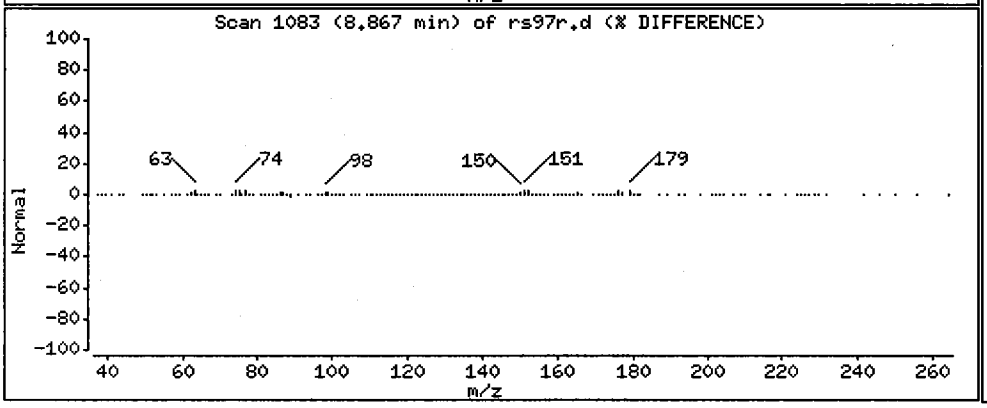
61 Anthracene

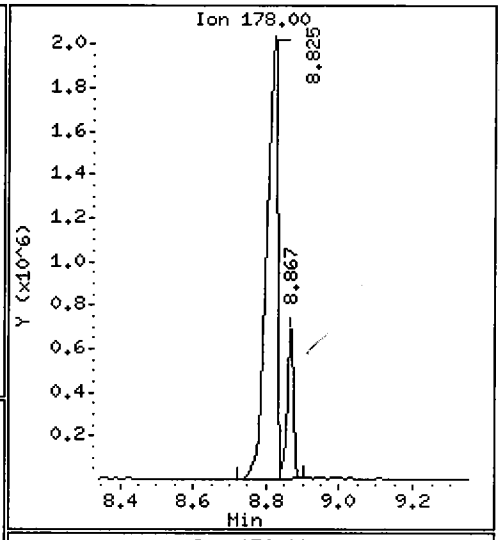
Concentration: 181300 ug/kg

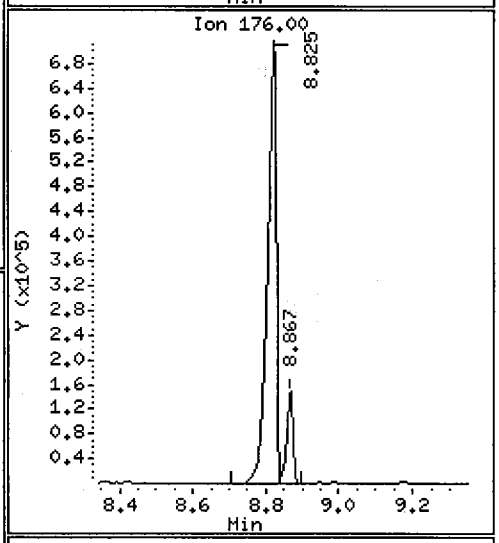


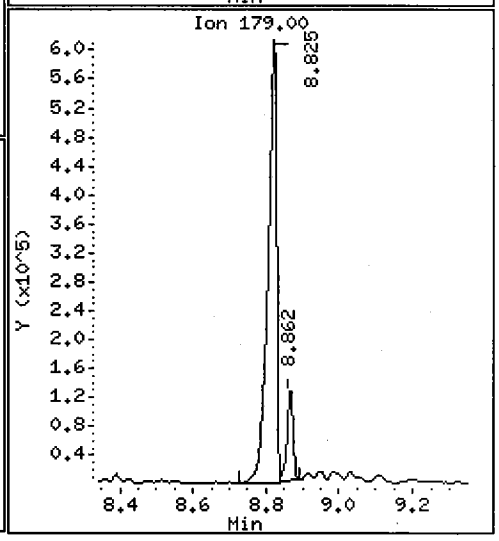












Data File: /chem1/nt12.i/20101110.b/rs97r.d

Date : 10-NOV-2010 19:31

Client ID: DGS-07-11.611.8-101 Instrument: nt12.i

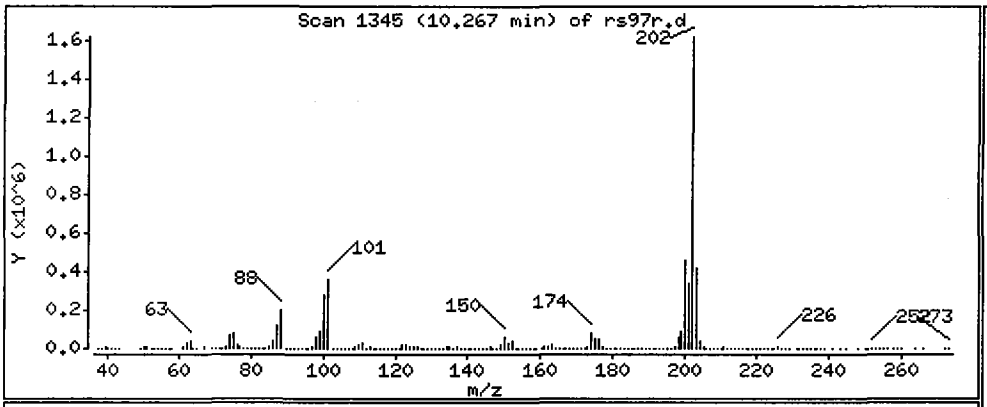
Sample Info: RS97R

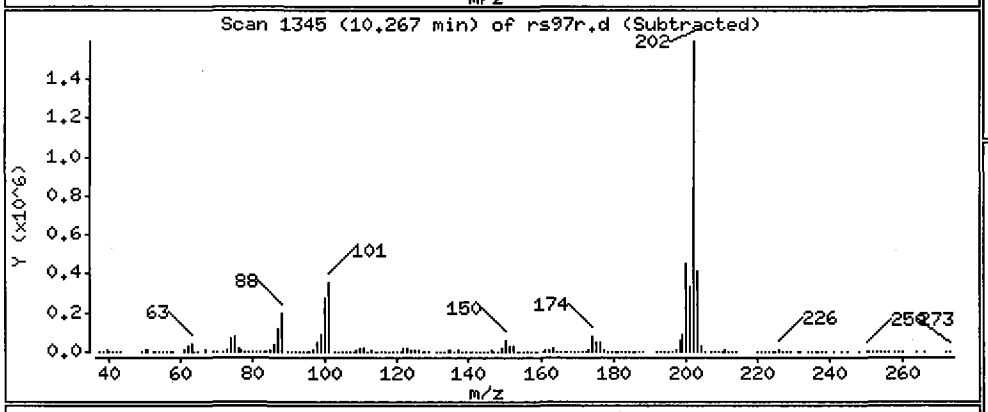
Volume Injected (uL): 1.0 Operator: VTS

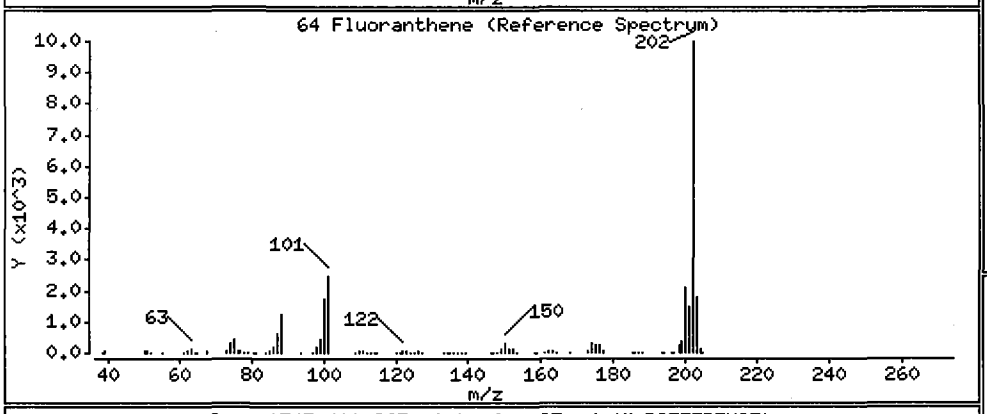
Column phase: ZB-5msi Column diameter: 0.32

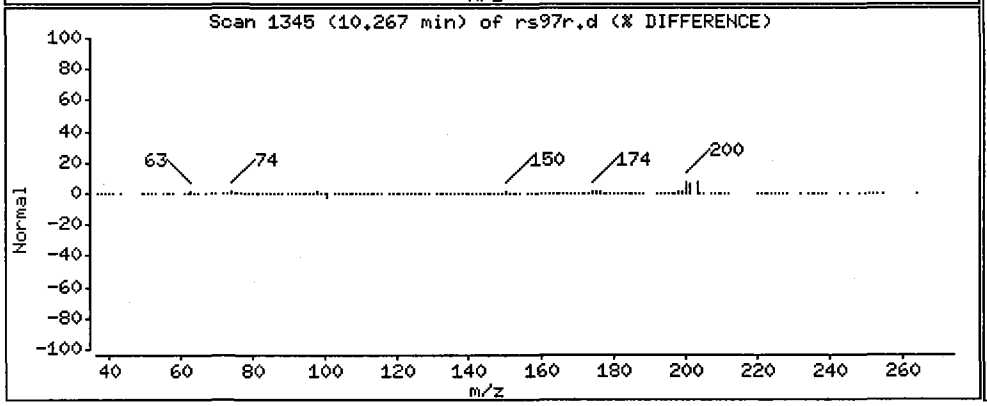
64 Fluoranthene Concentration: 562400 ug/kg

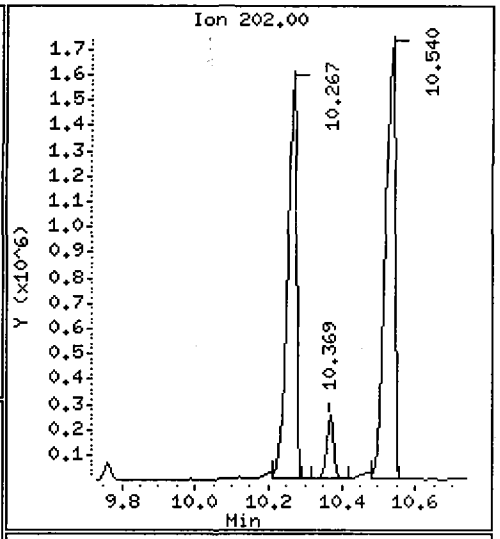
E sat

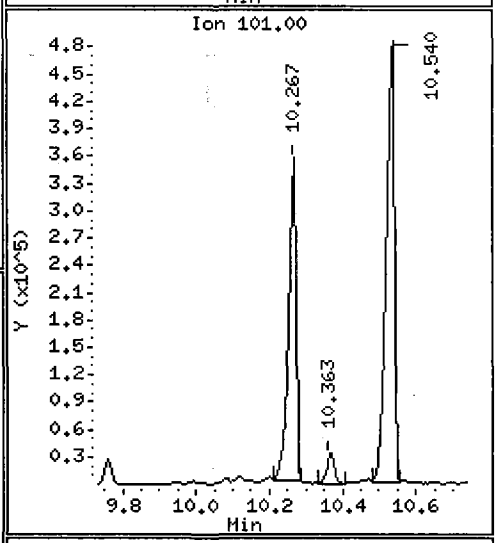


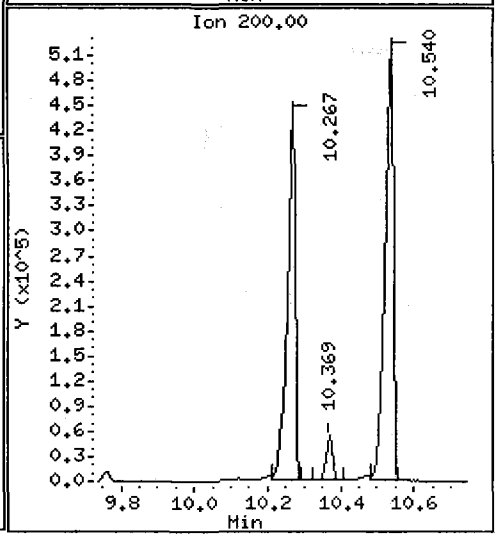












Data File: /chem1/nt12.i/20101110.b/rs97r.d

Date : 10-NOV-2010 19:31

Client ID: DGS-07-11.611.8-101

Instrument: nt12.i

Sample Info: RS97R

Volume Injected (uL): 1.0

Operator: VTS

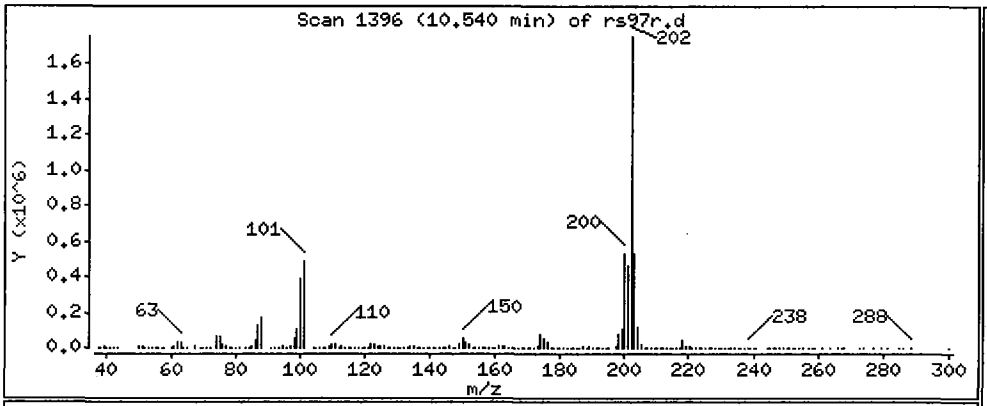
Column phase: ZB-5msi

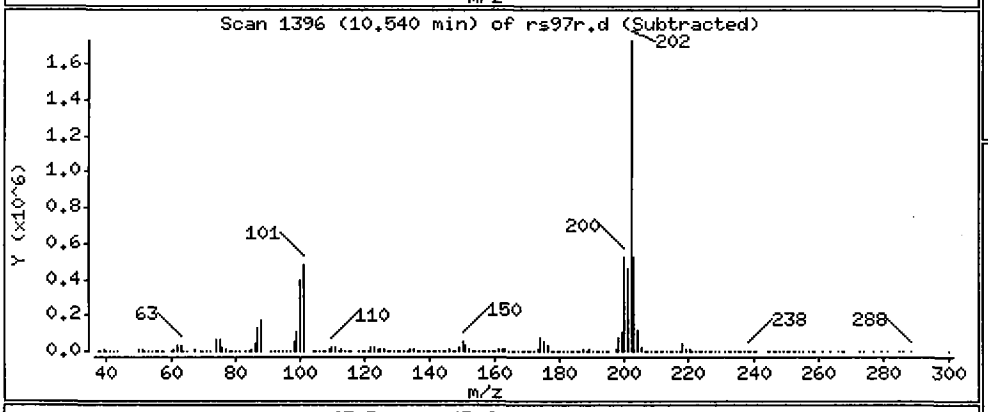
Column diameter: 0.32

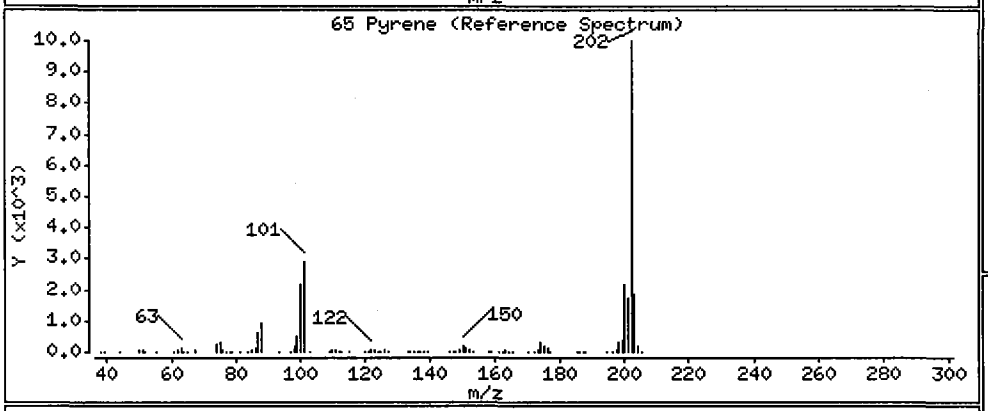
65 Pyrene

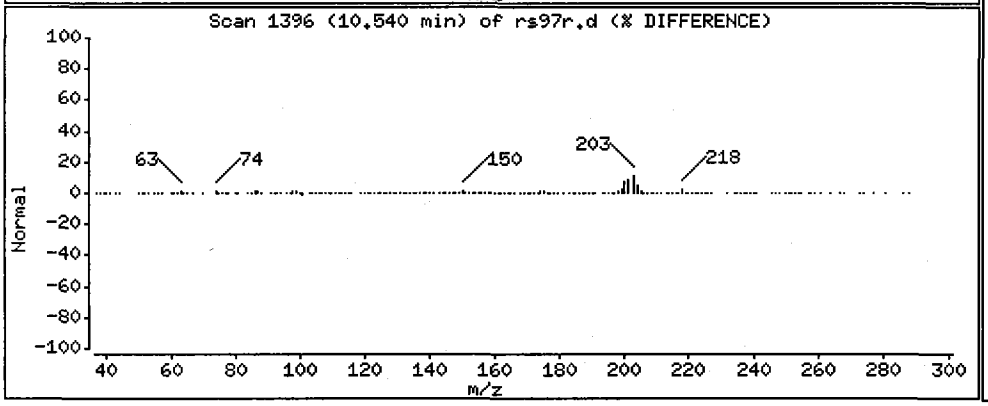
Concentration: 683000 ug/kg

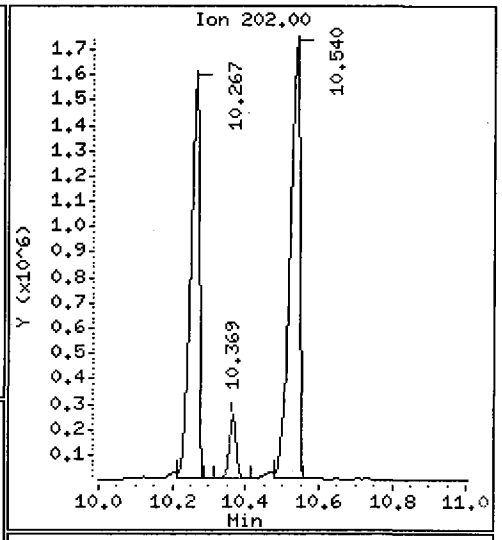
Esuf

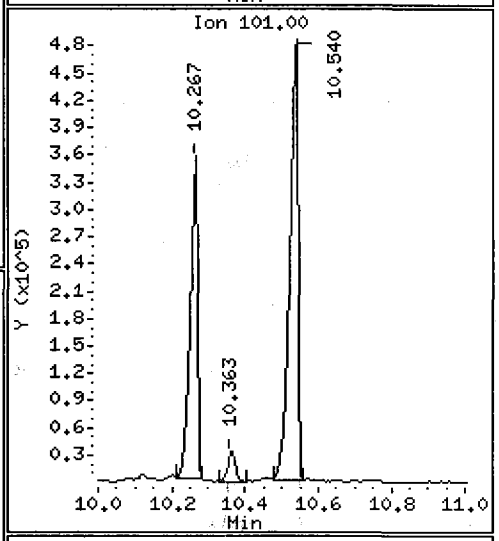


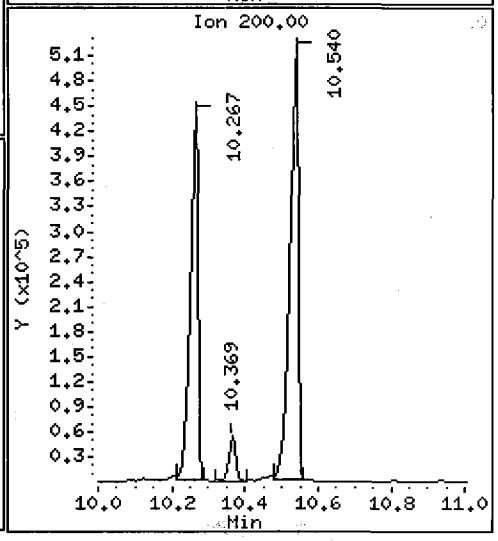












Data File: /chem1/nt12.i/20101110.b/rs97r.d

Date : 10-NOV-2010 19:31

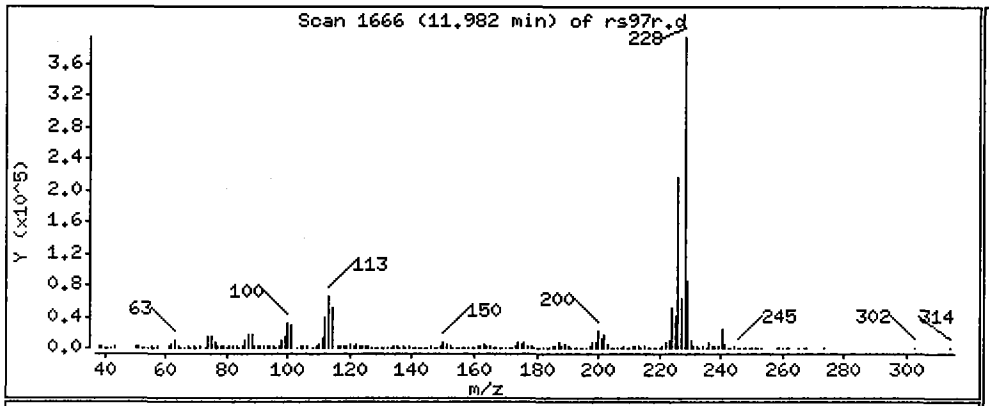
Client ID: DGS-07-11.611.8-101 Instrument: nt12.i

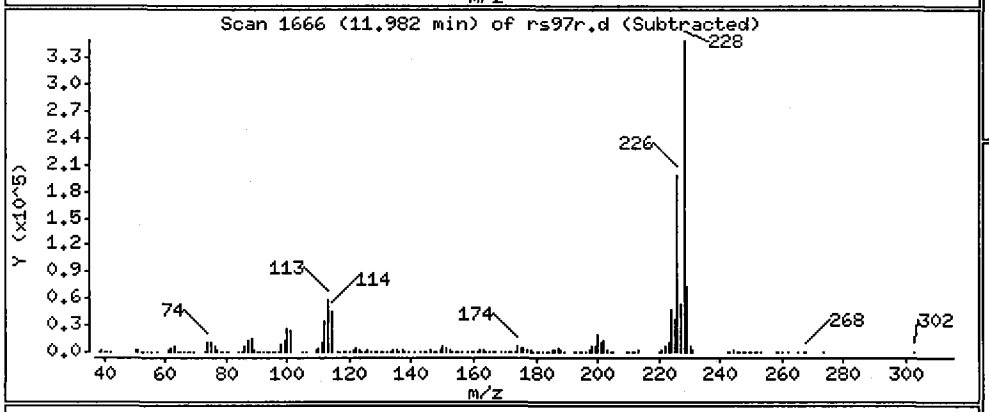
Sample Info: RS97R

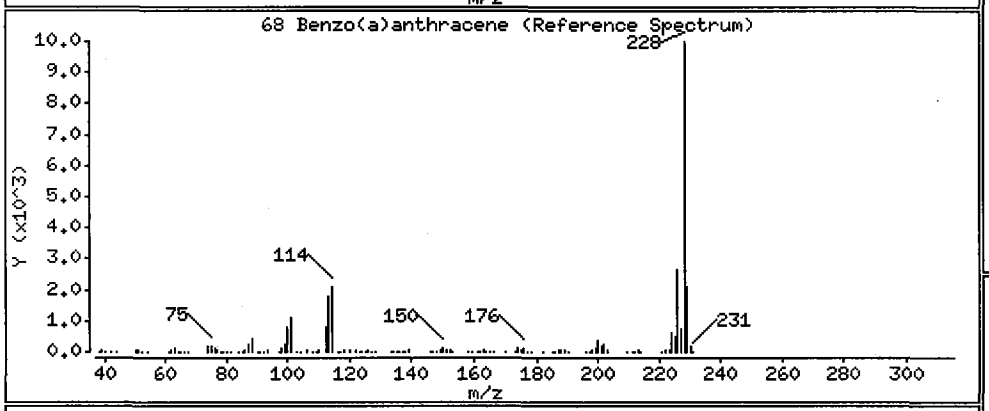
Volume Injected (uL): 1.0 Operator: VTS

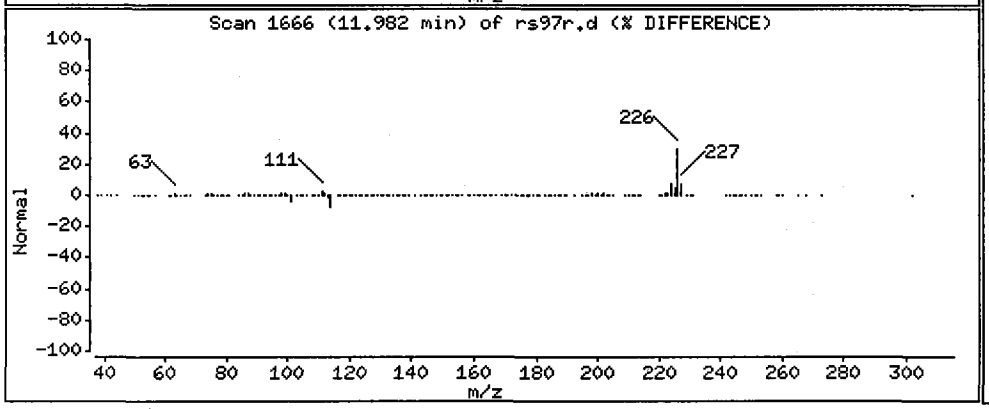
Column phase: ZB-5msi Column diameter: 0.32

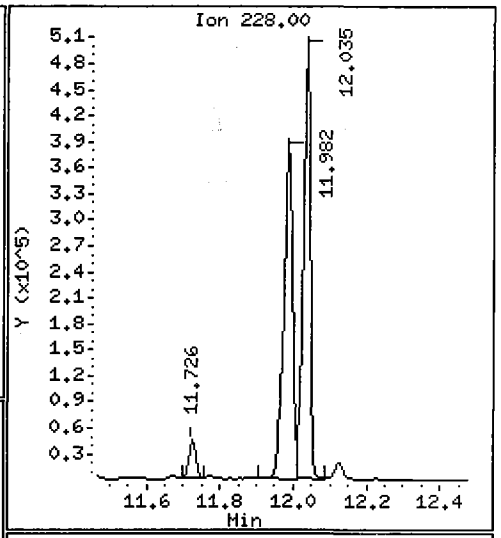
68 Benzo(a)anthracene Concentration: 161500 ug/kg

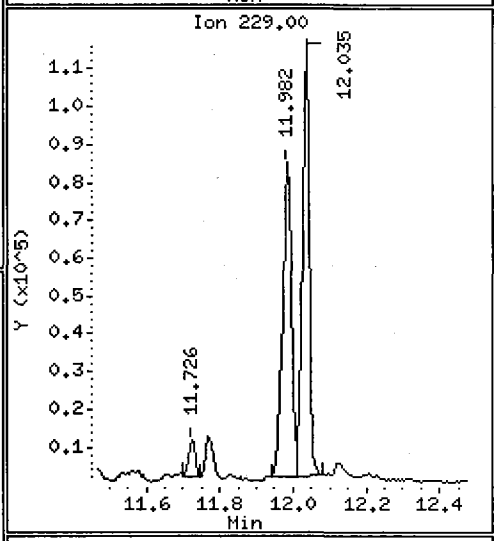


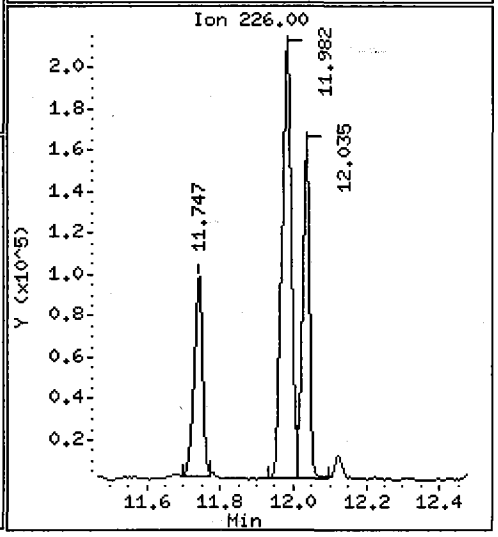












Data File: /chem1/nt12.i/20101110.b/rs97r.d

Date : 10-NOV-2010 19:31

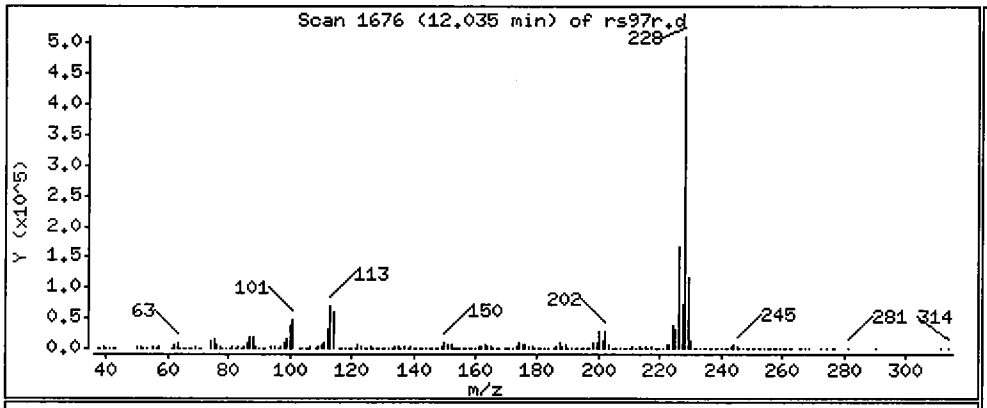
Client ID: DGS-07-11.611.8-101 Instrument: nt12.i

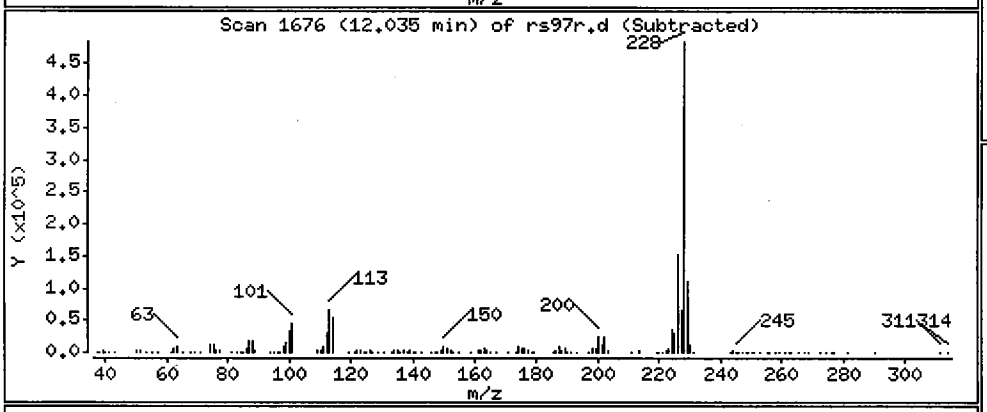
Sample Info: RS97R

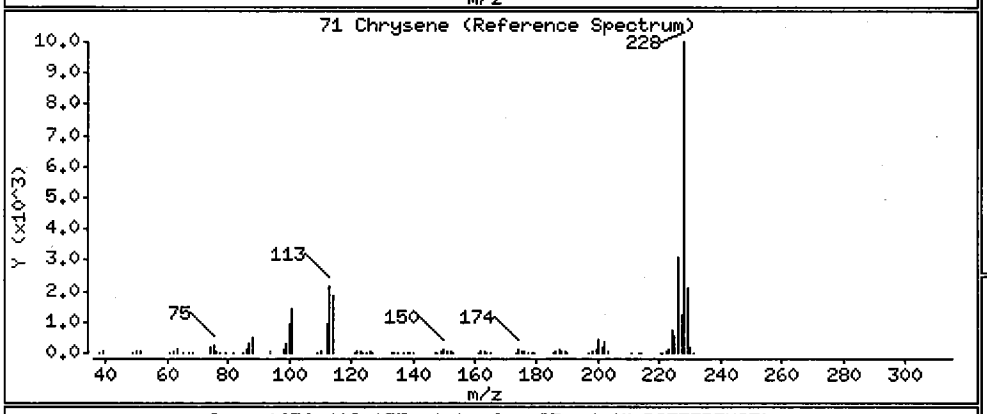
Volume Injected (uL): 1.0 Operator: VTS

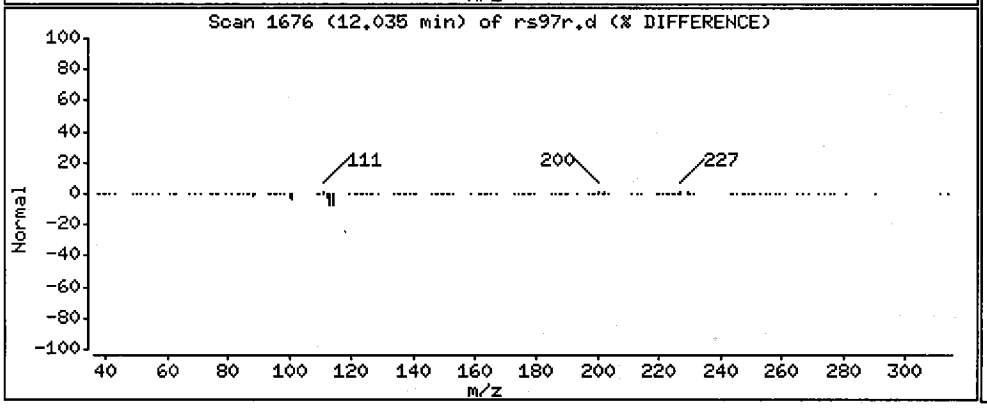
Column phase: ZB-5msi Column diameter: 0.32

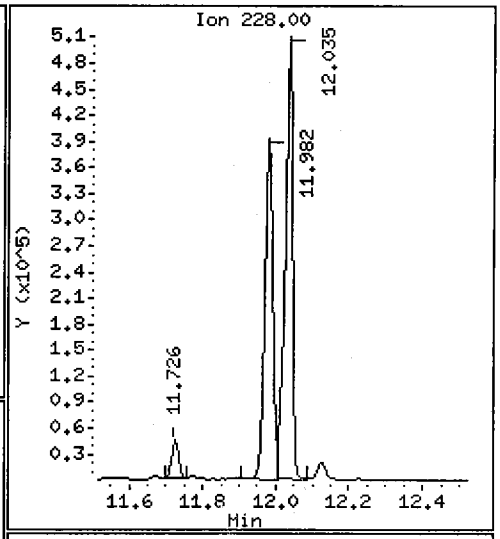
71 Chrysene Concentration: 190400 ug/kg

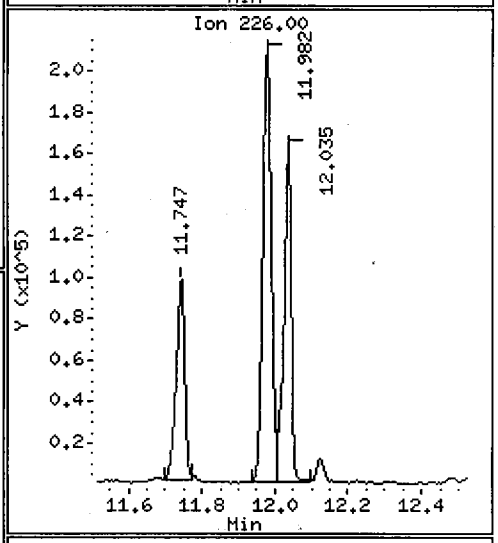


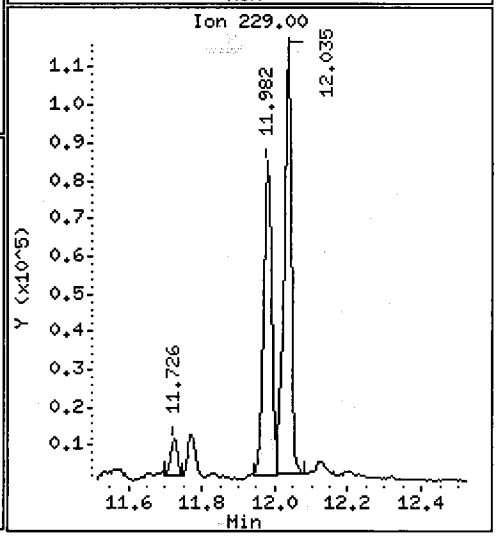












Data File: /chem1/nt12.i/20101110.b/rs97r.d

Date : 10-NOV-2010 19:31

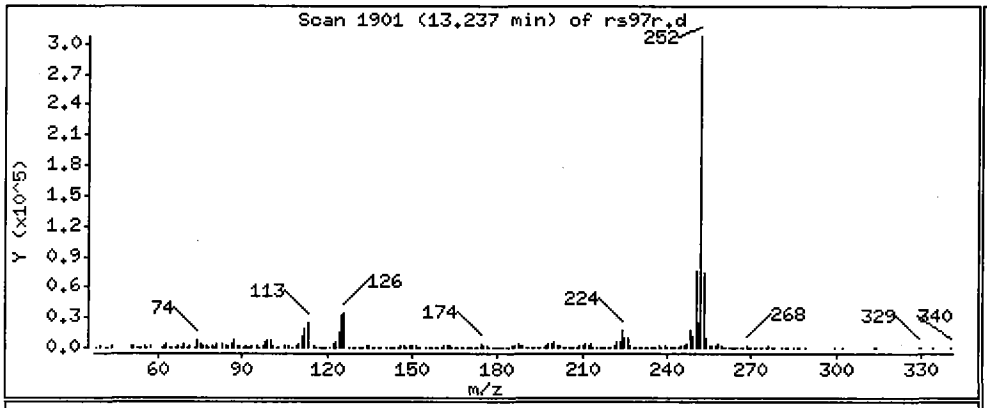
Client ID: DGS-07-11.611.8-101 Instrument: nt12.i

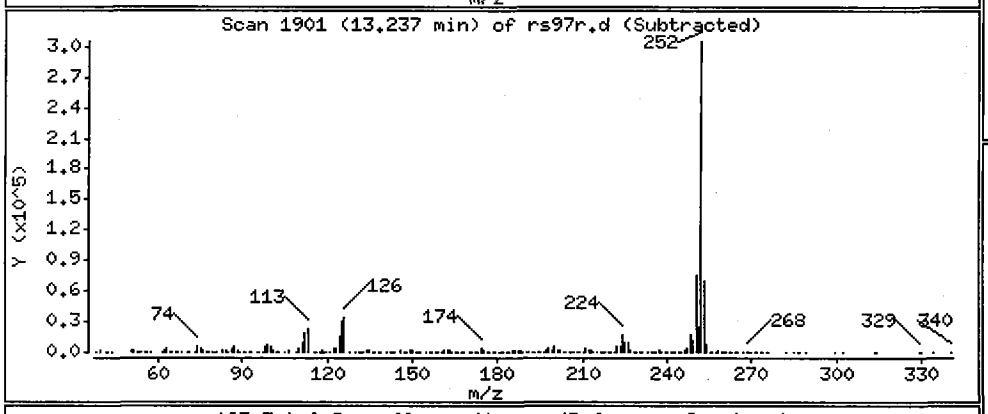
Sample Info: RS97R

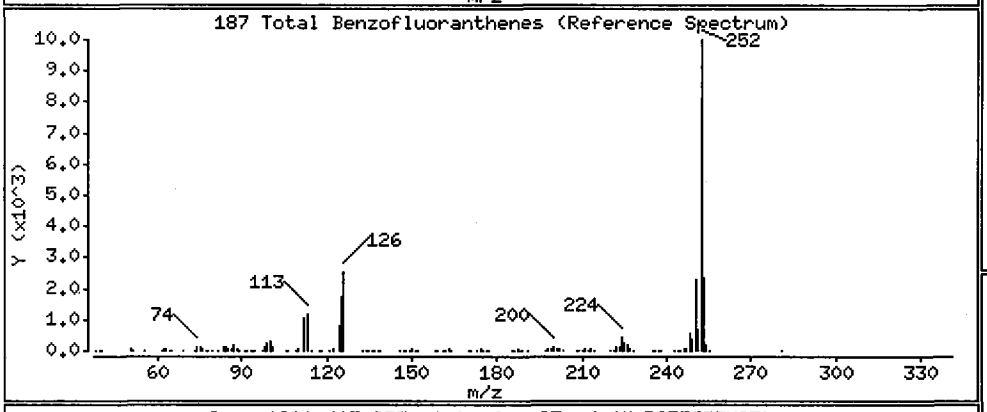
Volume Injected (uL): 1.0 Operator: VTS

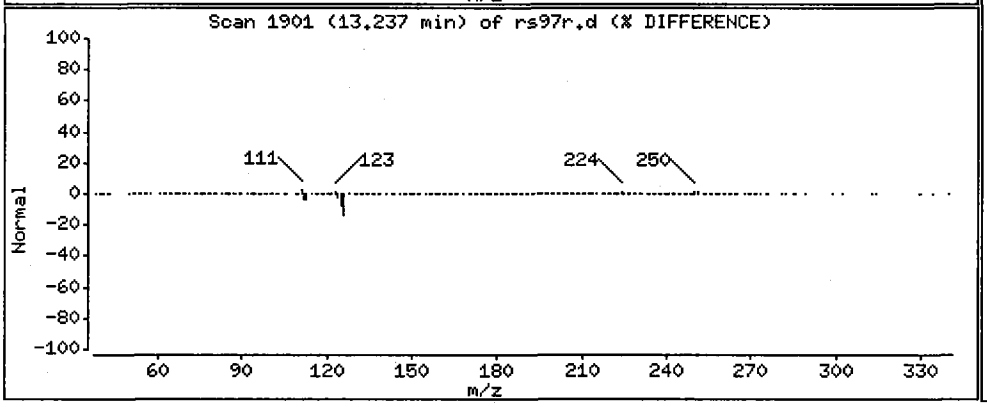
Column phase: ZB-5msi Column diameter: 0.32

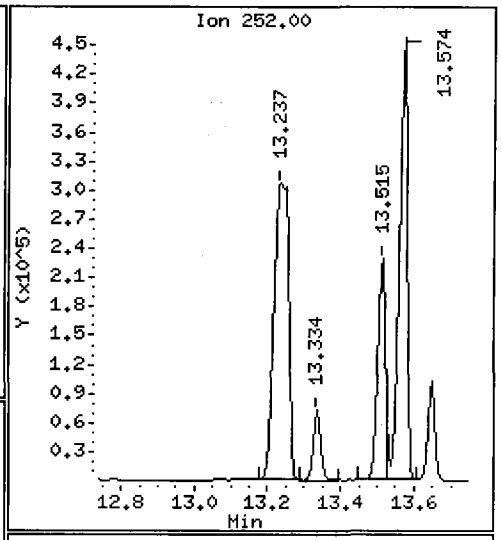
187 Total Benzofluoranthenes Concentration: 232200 ug/kg

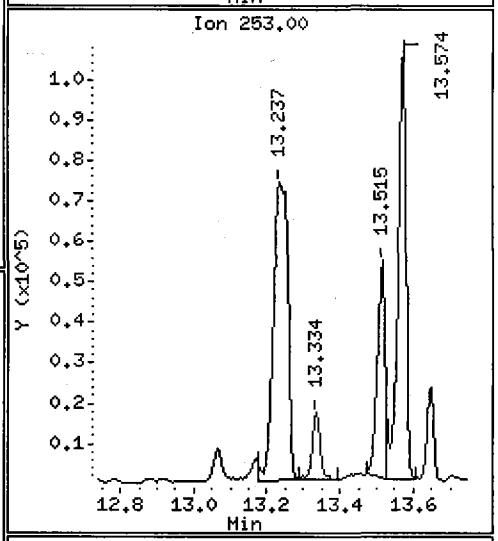


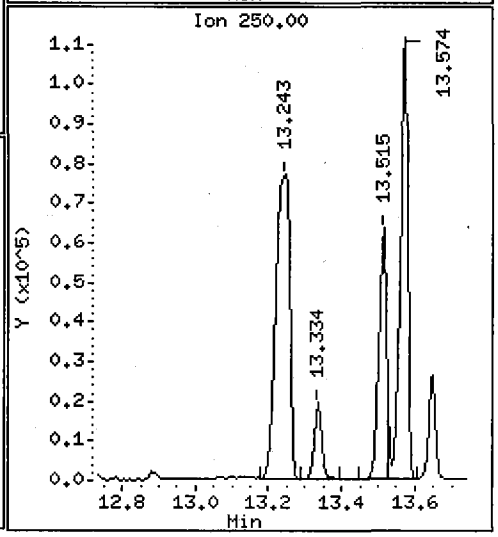












Data File: /chem1/nt12.i/20101110.b/rs97r.d

Date : 10-NOV-2010 19:31

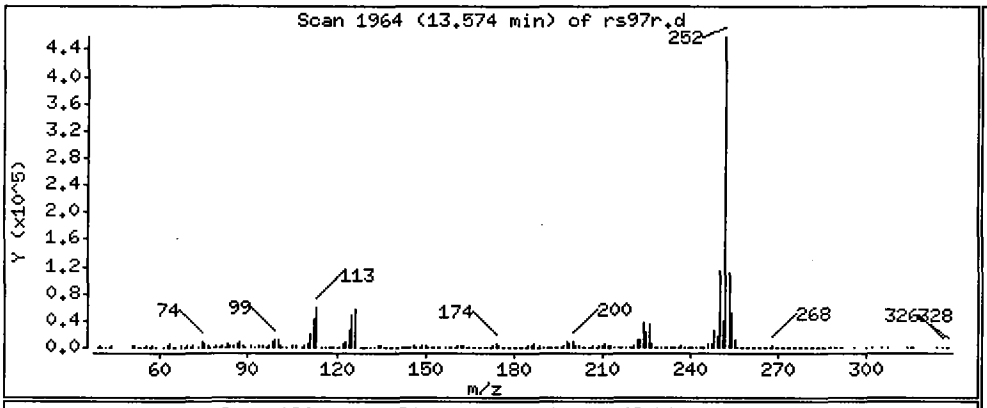
Client ID: DGS-07-11.611.8-101 Instrument: nt12.i

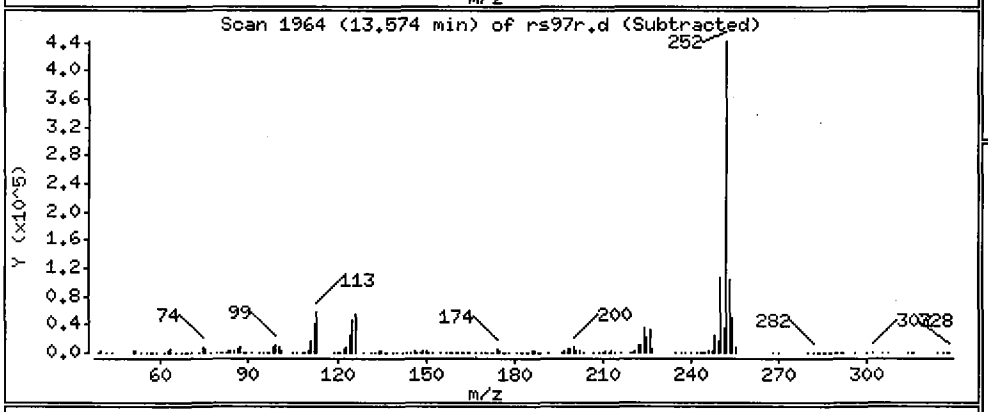
Sample Info: RS97R

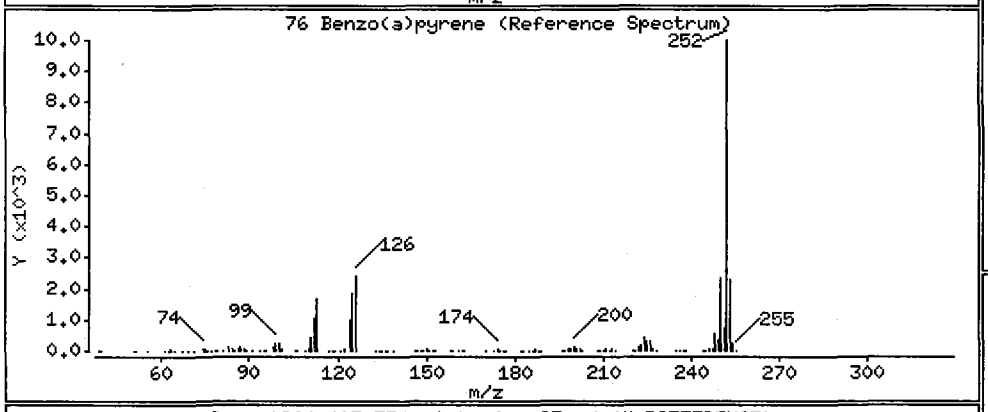
Volume Injected (uL): 1.0 Operator: VTS

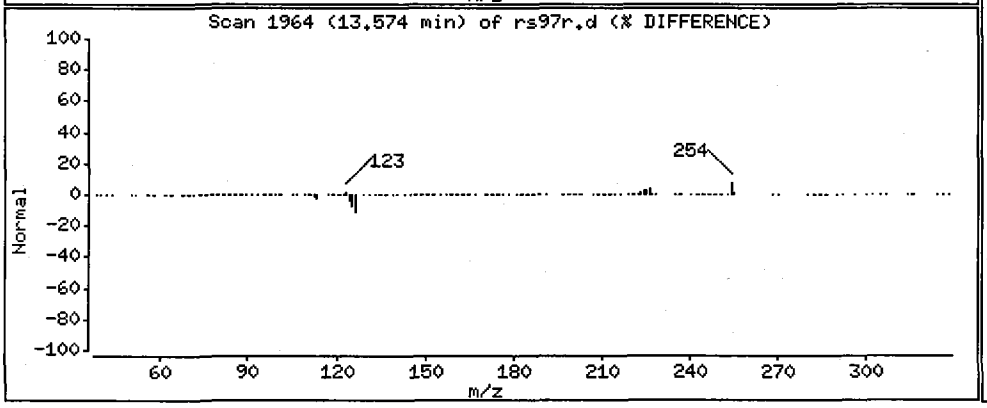
Column phase: ZB-5msi Column diameter: 0.32

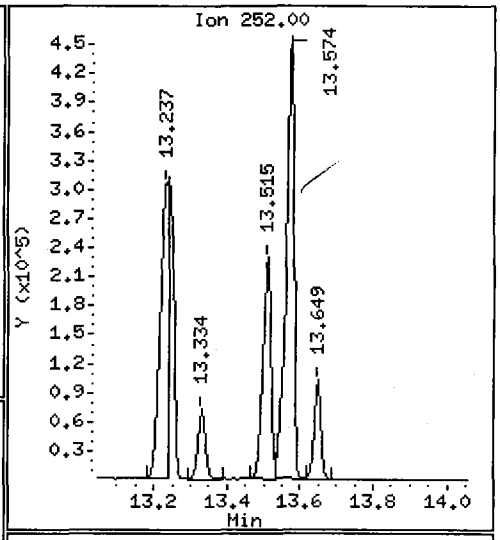
76 Benzo(a)pyrene Concentration: 223300 ug/kg

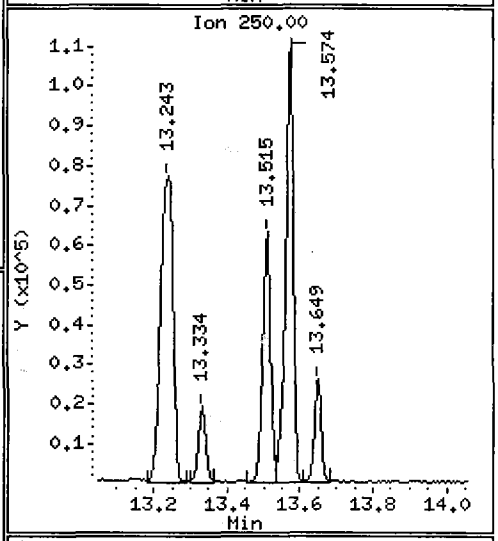


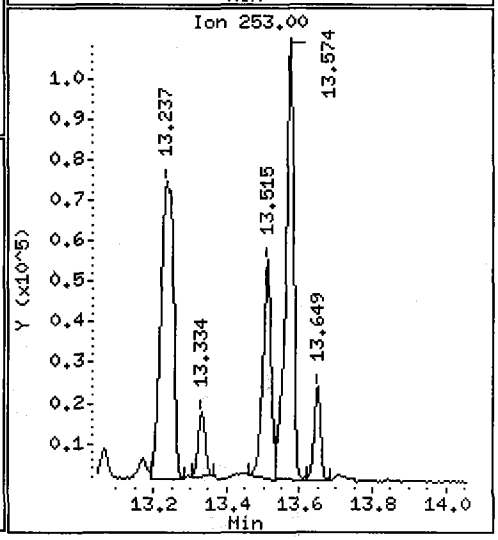












Data File: /chem1/nt12.i/20101110.b/rs97r.d

Date : 10-NOV-2010 19:31

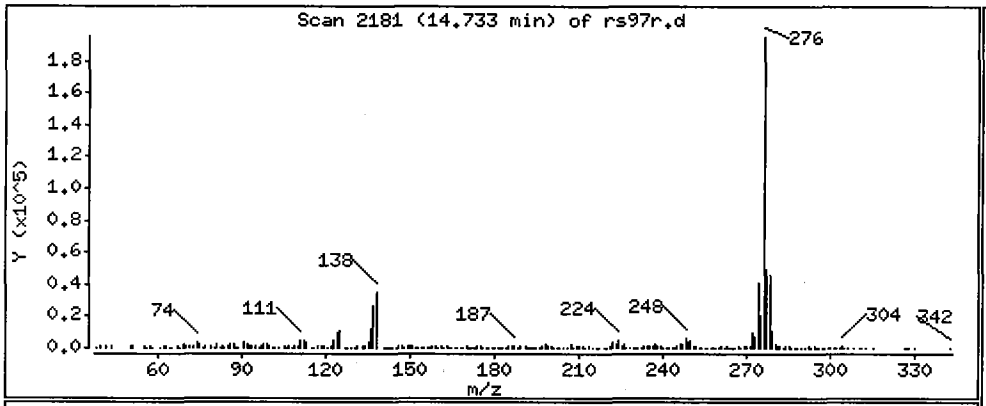
Client ID: DGS-07-11.611.8-101 Instrument: nt12.i

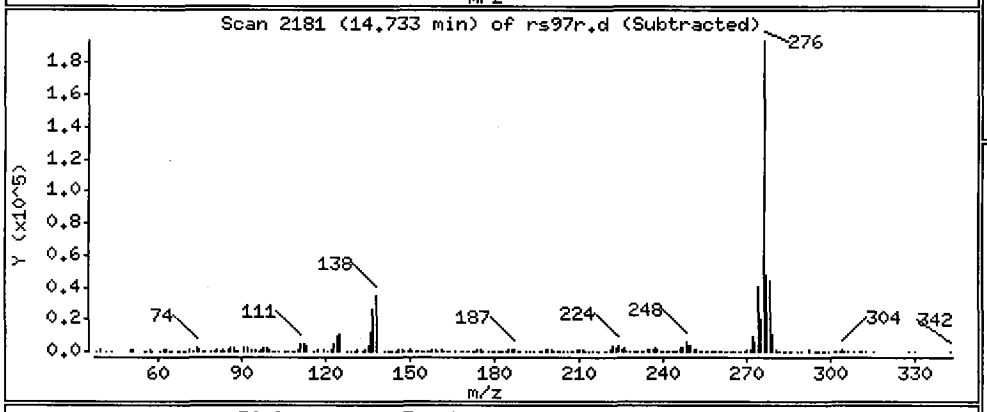
Sample Info: RS97R

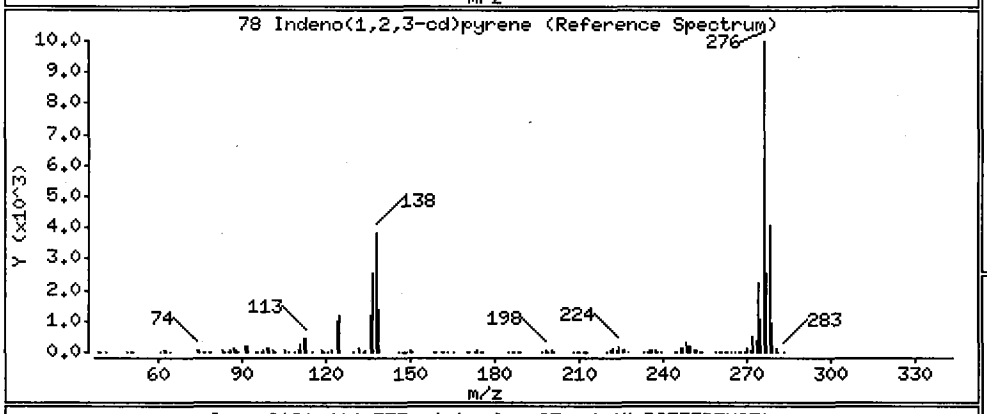
Volume Injected (uL): 1.0 Operator: VTS

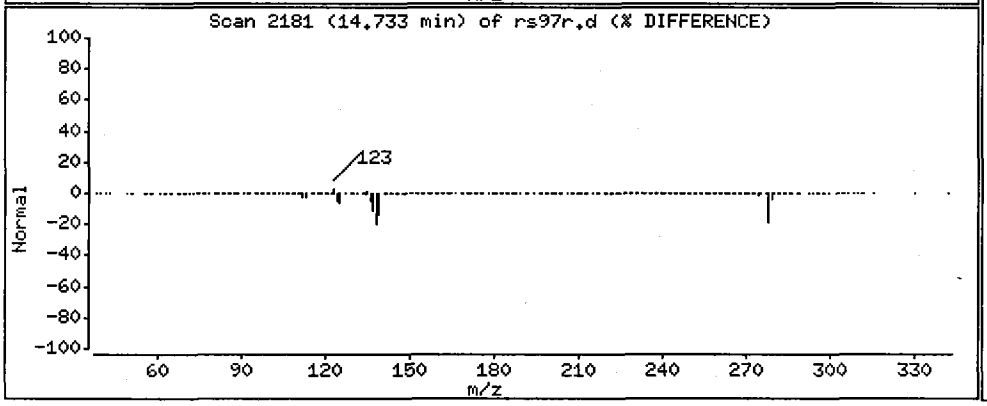
Column phase: ZB-5msi Column diameter: 0.32

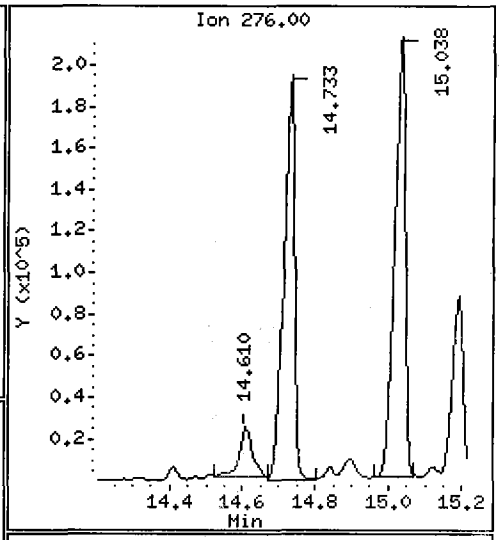
78 Indeno(1,2,3-cd)pyrene Concentration: 84580 ug/kg

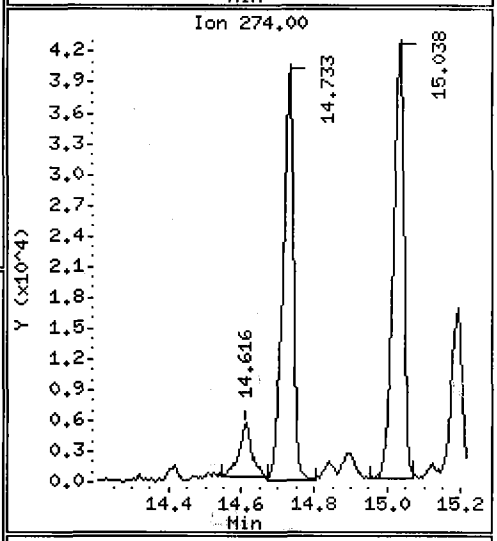


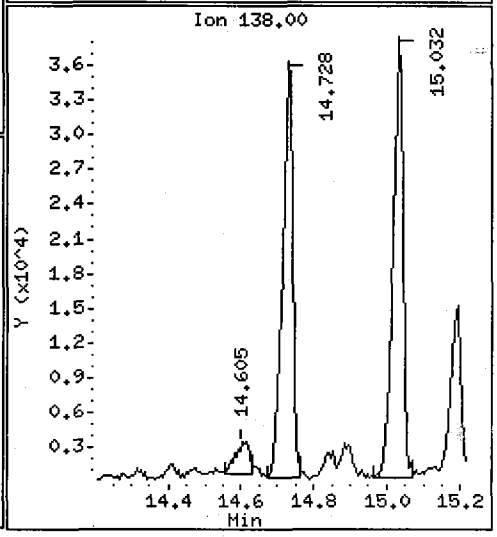












Data File: /chem1/nt12.i/20101110.b/rs97r.d

Date : 10-NOV-2010 19:31

Client ID: DGS-07-11.611.8-101

Instrument: nt12.i

Sample Info: RS97R

Volume Injected (uL): 1.0

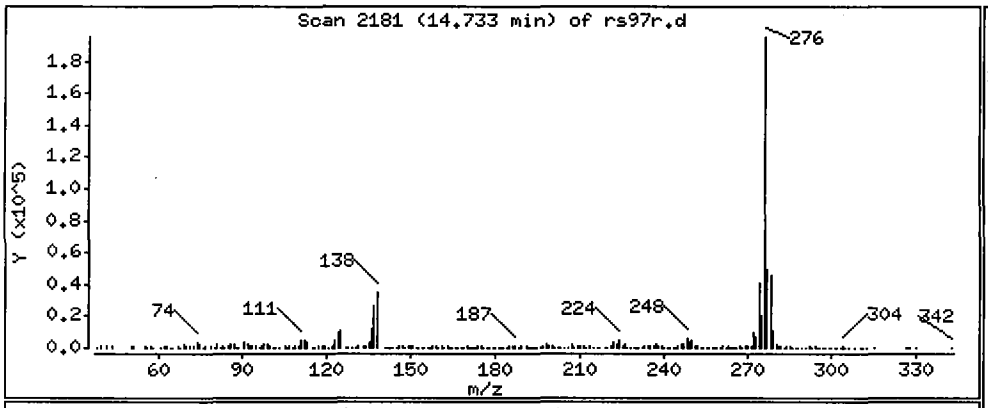
Operator: VTS

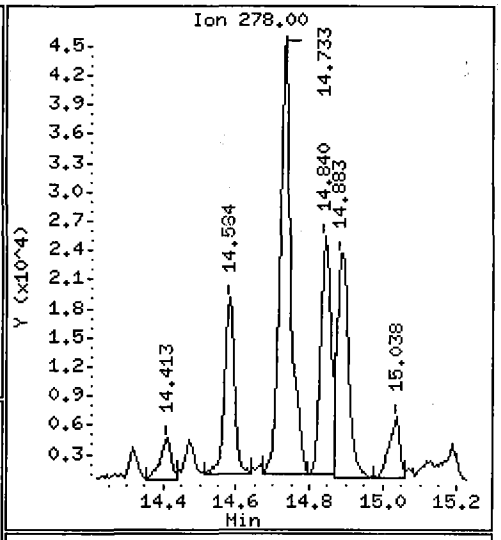
Column phase: ZB-5msi

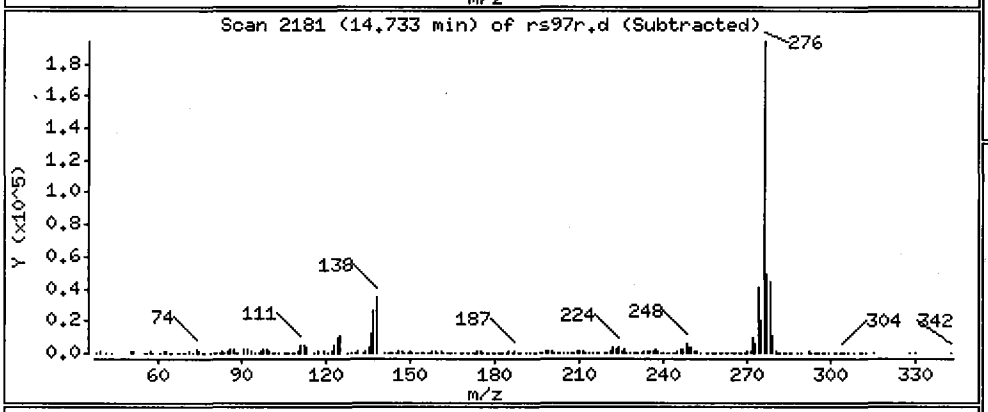
Column diameter: 0.32

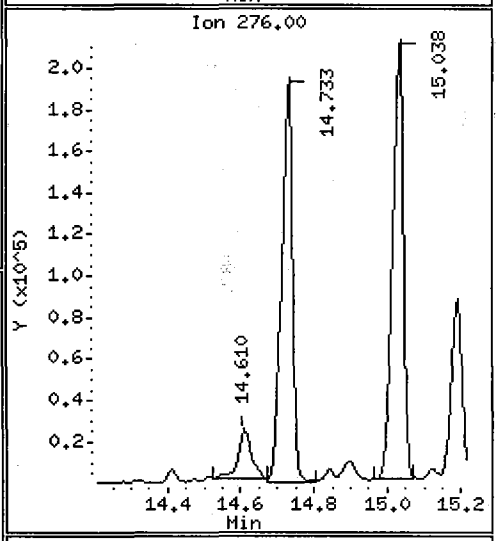
79 Dibenzo(a,h)anthracene

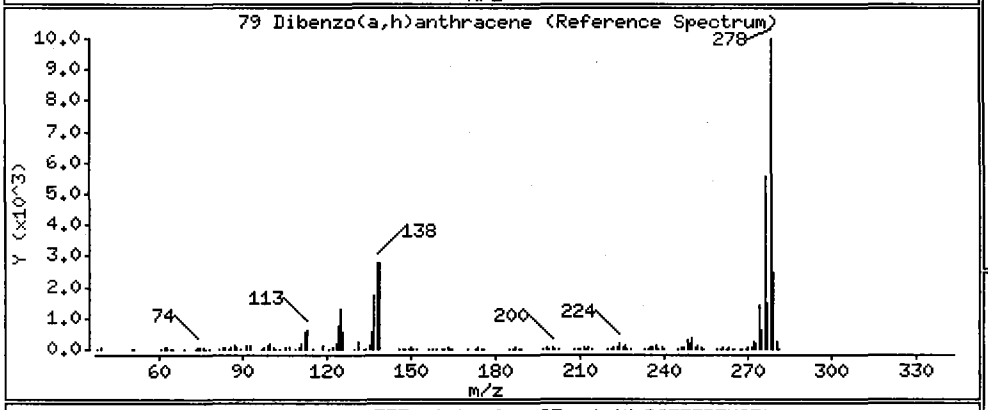
Concentration: 23390 ug/kg

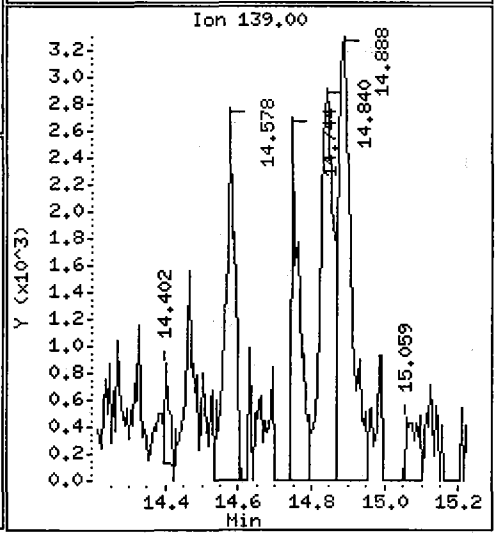


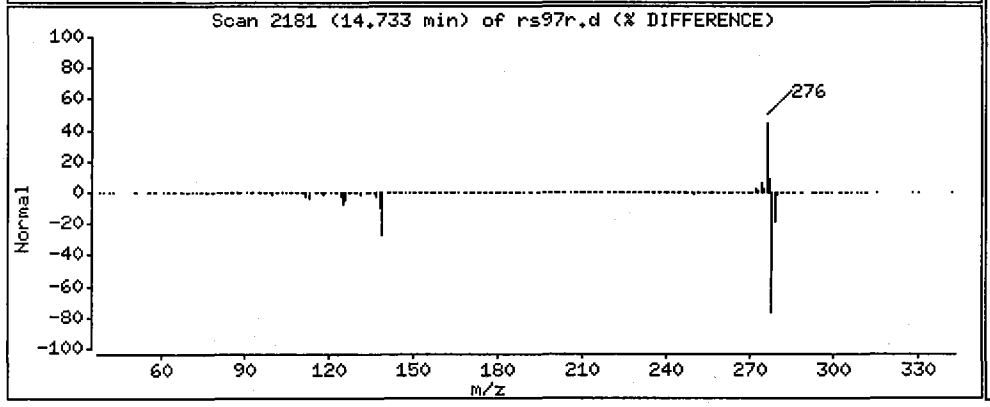












Data File: /chem1/nt12.i/20101110.b/rs97r.d

Date : 10-NOV-2010 19:31

Client ID: DGS-07-11.611.8-101

Instrument: nt12.i

Sample Info: RS97R

Volume Injected (uL): 1.0

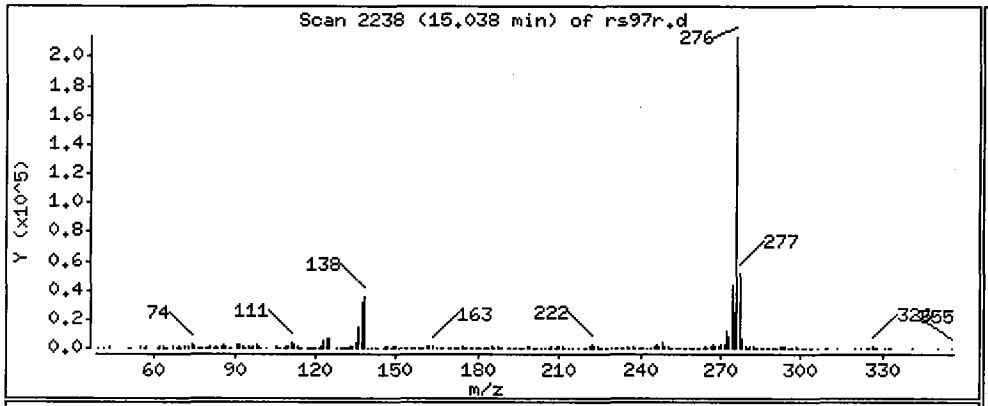
Operator: VTS

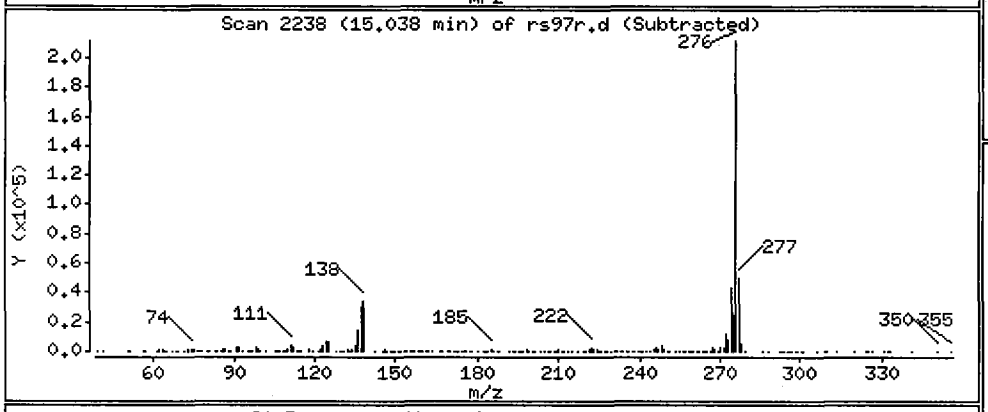
Column phase: ZB-5msi

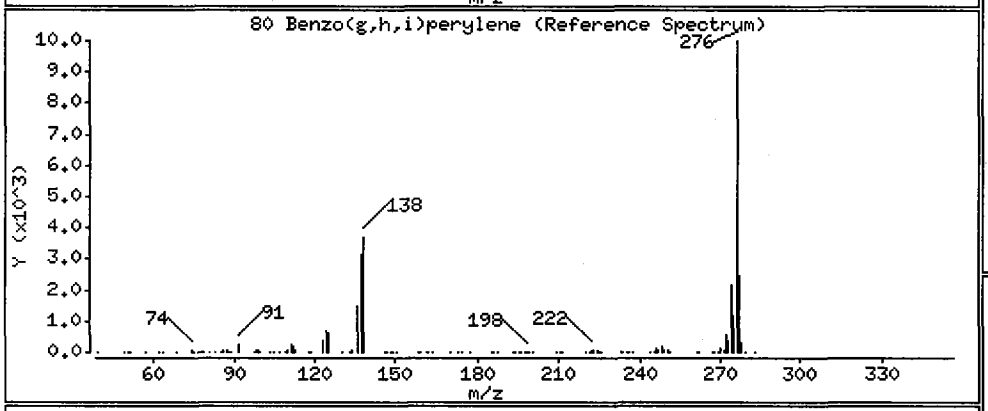
Column diameter: 0.32

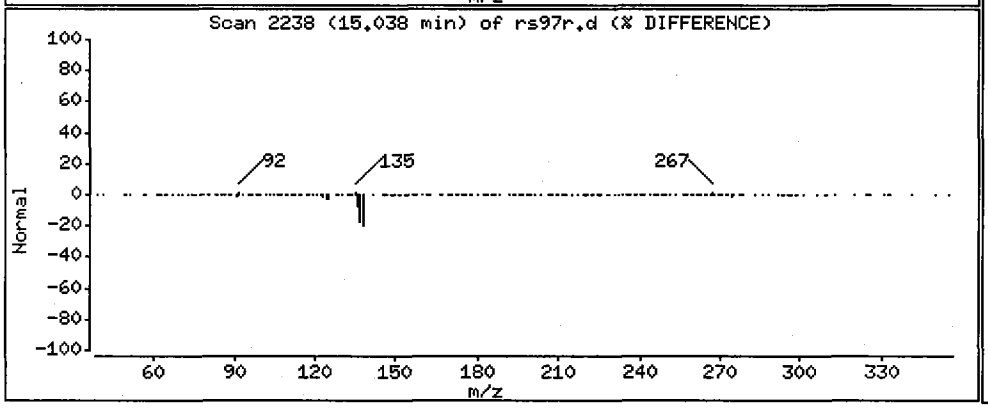
80 Benzo(g,h,i)perylene

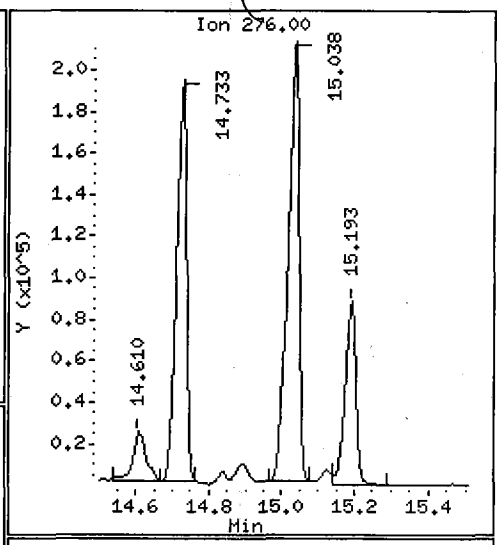
Concentration: 117800 ug/kg

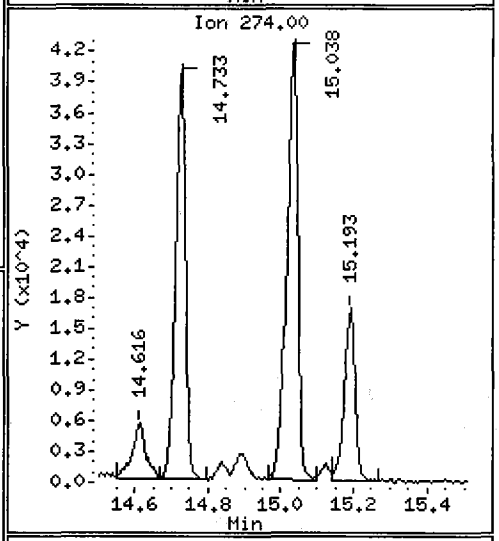


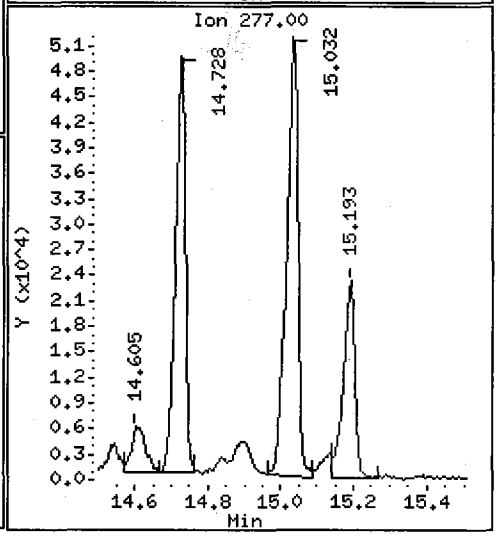








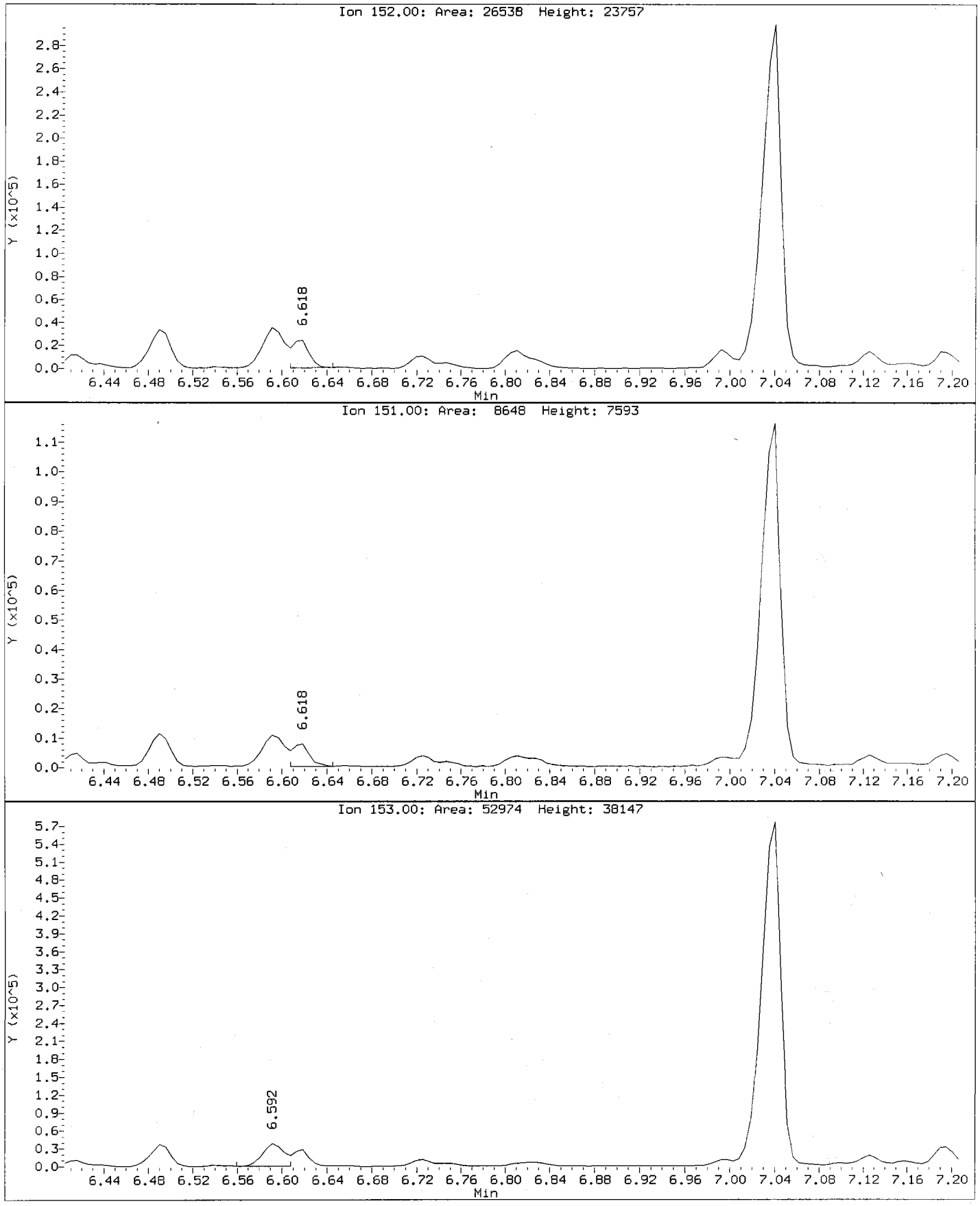




Data File: /chem1/nt12.i/20101110.b/rs97r.d
Injection Date: 10-NOV-2010 19:31
Instrument: nt12.i
Client Sample ID: DGS-07-11.611.8-101

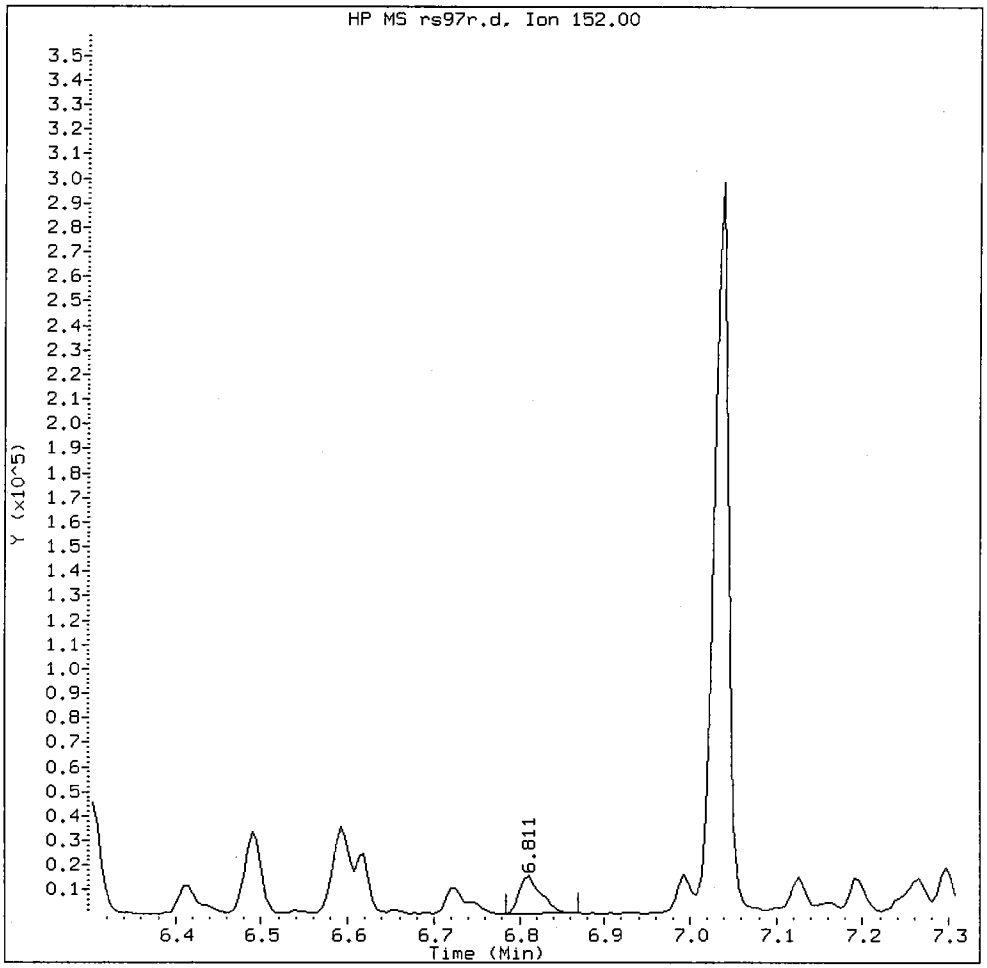
VTB
11-11-10

Compound: Acenaphthylene
CAS Number: 208-96-8



RS97R, /chem1/nt12.i/20101110.b/rs97r.d

Acenaphthylene Amount: 1.90 Area: 26921



MANUAL INTEGRATION for Acenaphthylene

1. Baseline correction
2. Poor chromatography
3. Peak not found
4. Totals calculation

5. Other _____

Analyst: VJS Date: 11-11-10

Analytical Resources, Inc.

Semivolatile Report SW846 Method 8270D

Data file : /chem1/nt12.i/20101110.b/rs97s.d
Lab Smp Id: RS97S Client Smp ID: DGS-07-12.713.2-101
Inj Date : 10-NOV-2010 19:55
Operator : VTS Inst ID: nt12.i
Smp Info : RS97S
Misc Info : 10-27435
Comment : 1ul Injection
Method : /chem1/nt12.i/20101110.b/PNADMD.m
Meth Date : 10-Nov-2010 14:46 van Quant Type: ISTD
Cal Date : 30-OCT-2010 13:19 Cal File: ic1030f.d
Als bottle: 18
Dil Factor: 1.00000
Integrator: HP RTE Compound Sublist: pnas.sub
Target Version: 3.50
Processing Host: cserv3

Concentration Formula: Amt * DF * Vt/(Ws * (100 - M)/100) * CpndVariable

Name	Value	Description
DF	1.00000	Dilution Factor
Vt	10000.00000	Volume of final extract (uL)
Ws	5.01000	Weight of sample extracted (g)
M	43.70000	% Moisture

Cpnd Variable Local Compound Variable

Compounds	QUANT SIG MASS	RT	EXP RT	REL RT	RESPONSE	CONCENTRATIONS ON-COLUMN (ug/mL)	FINAL (ug/kg)
* 27 Naphthalene-d8	136	4.887	4.888	(1.000)	230304	20.0000	
28 Naphthalene	128	4.914	4.909	(1.005)	924060	70.4978	249900
32 2-Methylnaphthalene	141	5.726	5.726	(1.172)	184830	26.4184	93660
105 1-methylnaphthalene	141	5.854	5.854	(1.198)	95916	13.2962	47140
$ 36 2-Fluorobiphenyl	172	6.202	6.202	(0.887)	16297	1.53515	5443
40 Acenaphthylene	152	6.805	6.805	(0.973)	8824	0.63864	2264 (M) J
* 42 Acenaphthene-d10	164	6.992	6.992	(1.000)	137988	20.0000	
44 Acenaphthene	153	7.030	7.030	(1.005)	238835	28.1438	99780
46 Dibenzofuran	168	7.222	7.222	(1.033)	18088	1.38998	4928
49 Fluorene	166	7.639	7.639	(1.092)	157126	16.1712	57330
* 59 Phenanthrene-d10	188	8.766	8.761	(1.000)	249698	20.0000	
60 Phenanthrene	178	8.803	8.787	(1.004)	1629484	123.011	436100 E
61 Anthracene	178	8.851	8.846	(1.010)	330068	24.1088	85470
62 Carbazole	167	9.065	9.065	(1.034)	11608	~~1.05109~~	3726 (M) WR

Compounds	QUANT SIG MASS	RT	EXP RT	REL RT	RESPONSE	CONCENTRATIONS ON-COLUMN (ug/mL)	FINAL (ug/kg)
64 Fluoranthene	202	10.251	10.235	(0.855)	1075440	67.8021	240400
65 Pyrene	202	10.518	10.502	(0.877)	1416837	90.0396	319200 E
$ 66 Terphenyl-d14	244	10.737	10.737	(0.895)	14454	1.43990	5105
68 Benzo(a)anthracene	228	11.971	11.971	(0.998)	204365	16.0260	56820
* 69 Chrysene-d12	240	11.993	11.993	(1.000)	227074	20.0000	
71 Chrysene	228	12.019	12.019	(1.002)	202101	16.9518	60100
187 Total Benzofluoranthenes	252	13.216	13.243	(0.971)	267524	23.5700	83560
76 Benzo(a)pyrene	252	13.558	13.553	(0.996)	248330	23.8169	84440
* 77 Perylene-d12	264	13.617	13.611	(1.000)	190561	20.0000	
99 Perylene	252	13.638	13.638	(1.002)	56266	~~5.07466~~	17990 NR
78 Indeno(1,2,3-cd)pyrene	276	14.712	14.712	(1.080)	152574	9.85620	34940
79 Dibenzo(a,h)anthracene	278	14.717	14.723	(1.081)	29595	2.32217	8233
80 Benzo(g,h,i)perylene	276	15.011	15.006	(1.102)	202420	15.9172	56430

QC Flag Legend

M - Compound response manually integrated.

LB

11-11-10

Analytical Resources, Inc.

INTERNAL STANDARD COMPOUNDS
AREA AND RT SUMMARY

Instrument ID: nt12.i
Lab File ID: rs97s.d
Lab Smp Id: RS97S
Analysis Type: SV
Quant Type: ISTD
Operator: VTS
Method File: /chem1/nt12.i/20101110.b/PNADMD.m
Misc Info: 10-27435

Calibration Date: 10-NOV-2010
Calibration Time: 13:29
Client Smp ID: DGS-07-12.713.2-
Level: LOW
Sample Type: Sediment

Test Mode:
Use Initial Calibration Level 4.

COMPOUND	STANDARD	AREA LIMIT LOWER	AREA LIMIT UPPER	SAMPLE	%DIFF
27 Naphthalene-d8	237664	118832	475328	230304	-3.10
42 Acenaphthene-d10	143363	71682	286726	137988	-3.75
59 Phenanthrene-d10	245437	122718	490874	249698	1.74
69 Chrysene-d12	199260	99630	398520	227074	13.96
77 Perylene-d12	197636	98818	395272	190561	-3.58

COMPOUND	STANDARD	RT LIMIT LOWER	RT LIMIT UPPER	SAMPLE	%DIFF
27 Naphthalene-d8	4.89	4.39	5.39	4.89	0.00
42 Acenaphthene-d10	6.99	6.49	7.49	6.99	0.00
59 Phenanthrene-d10	8.76	8.26	9.26	8.77	0.06
69 Chrysene-d12	11.99	11.49	12.49	11.99	0.00
77 Perylene-d12	13.61	13.11	14.11	13.62	0.04

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.

Analytical Resources, Inc.

RECOVERY REPORT

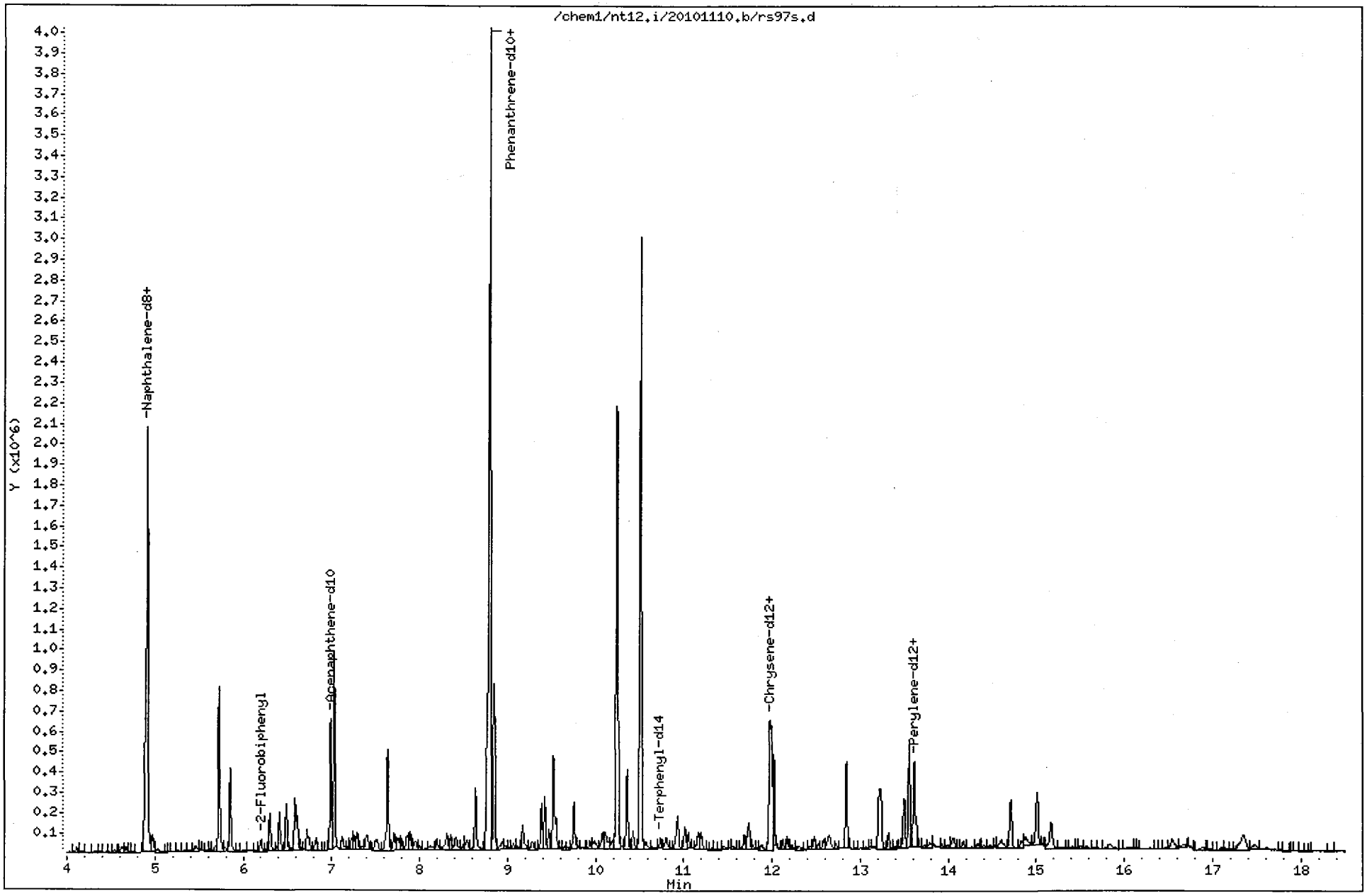
Client Name: NW Natural
Sample Matrix: SOLID
Lab Smp Id: RS97S
Level: LOW
Data Type: MS DATA
SpikeList File: SONICLCS.spk
Sublist File: pnas.sub
Method File: /chem1/nt12.i/20101110.b/PNADMD.m
Misc Info: 10-27435

Client SDG: RS97
Fraction: SV
Client Smp ID: DGS-07-12.713.2-101
Operator: VTS
SampleType: SAMPLE
Quant Type: ISTD

SURROGATE COMPOUND	CONC ADDED ug/kg	CONC RECOVERED ug/kg	% RECOVERED	LIMITS
$ 36 2-Fluorobiphenyl	8863	5443	61.41	34-100
$ 66 Terphenyl-d14	8863	5105	57.60	35-112

Data File: /chem1/nt12.i/20101110.b/rs97s.d
Date : 10-NOV-2010 19:55
Client ID: DGS-07-12.713.2-101
Sample Info: RS97S
Volume Injected (uL): 1.0
Column phase: ZB-5msi

Instrument: nt12.i
Operator: VTS
Column diameter: 0.32



RS97:99626

Data File: /chem1/nt12.i/20101110.b/rs97s.d

Date : 10-NOV-2010 19:55

Client ID: DGS-07-12.713.2-101

Instrument: nt12.i

Sample Info: RS97S

Volume Injected (uL): 1.0

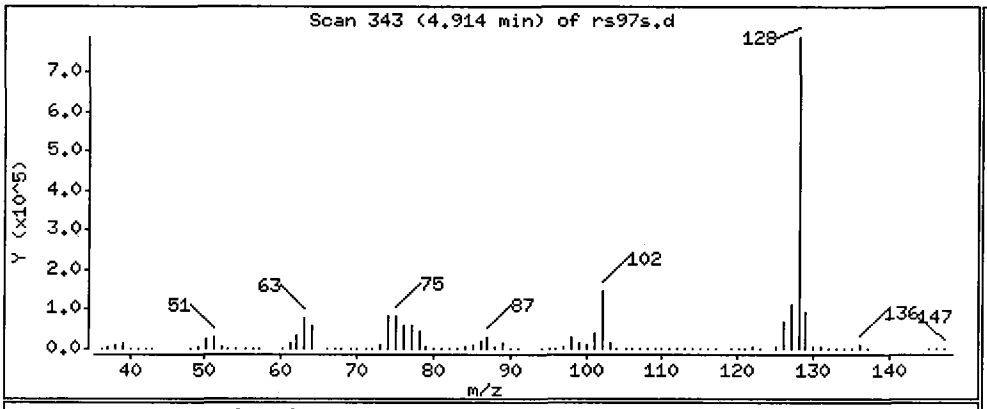
Operator: VTS

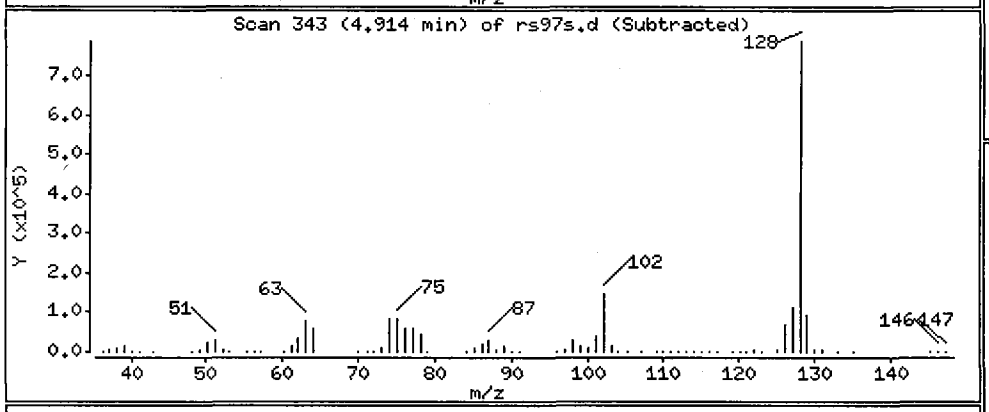
Column phase: ZB-5msi

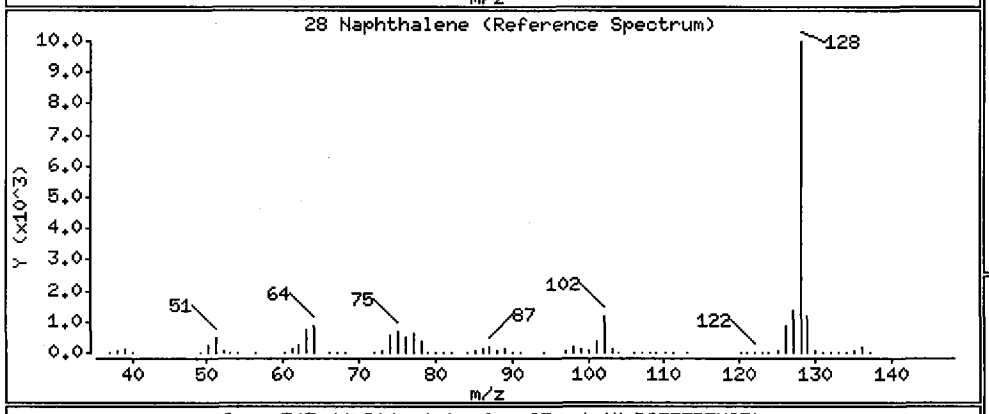
Column diameter: 0.32

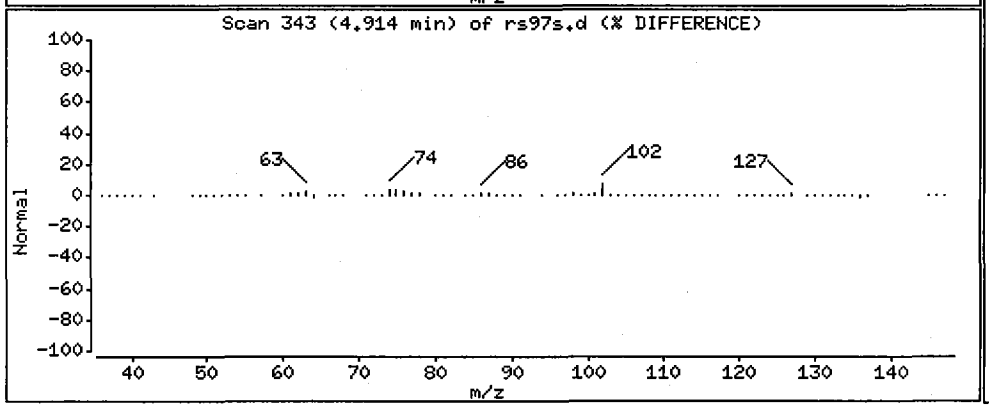
28 Naphthalene

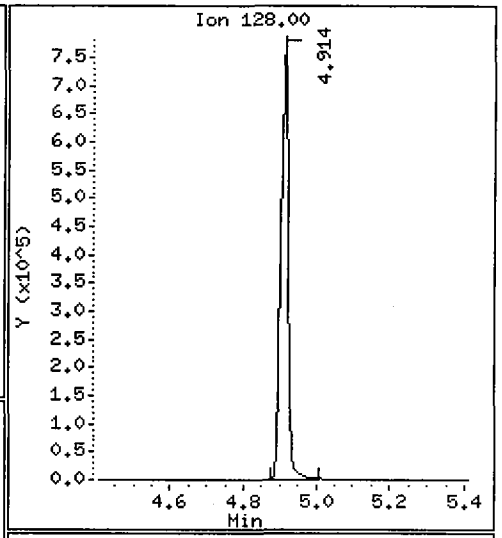
Concentration: 249900 ug/kg

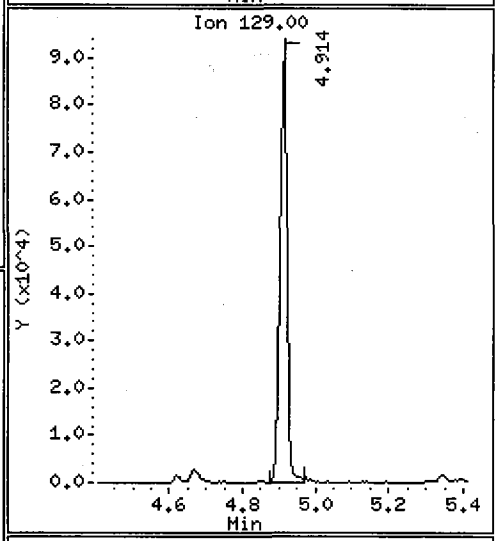


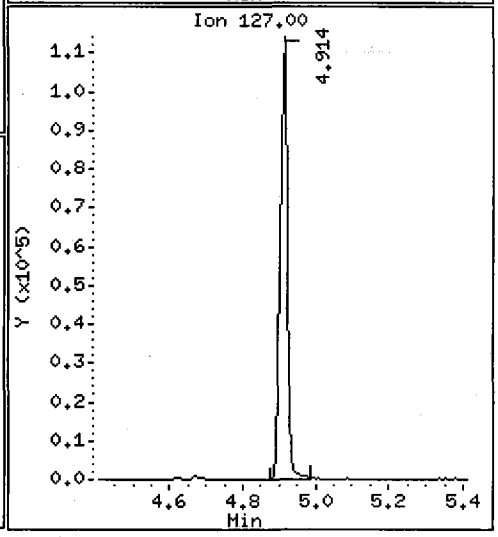












Data File: /chem1/nt12.i/20101110.b/rs97s.d

Date : 10-NOV-2010 19:55

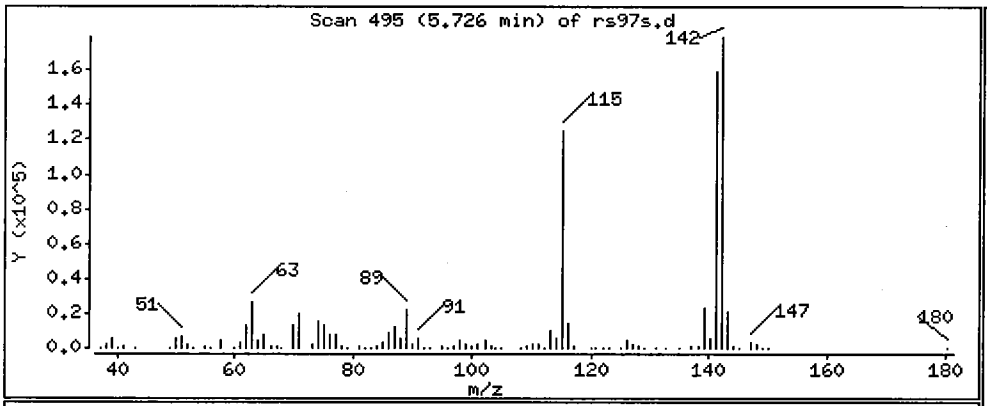
Client ID: DGS-07-12.713.2-101 Instrument: nt12.i

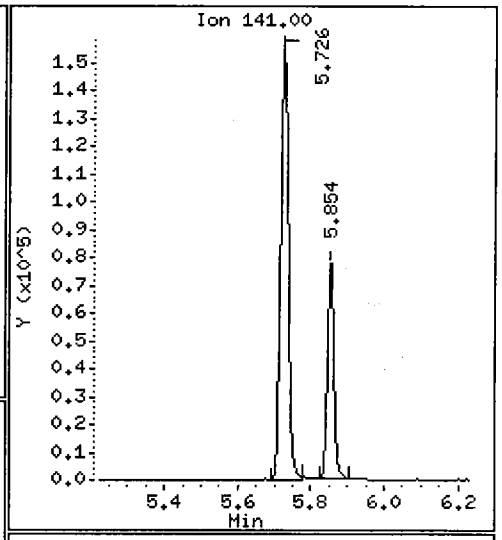
Sample Info: RS97S

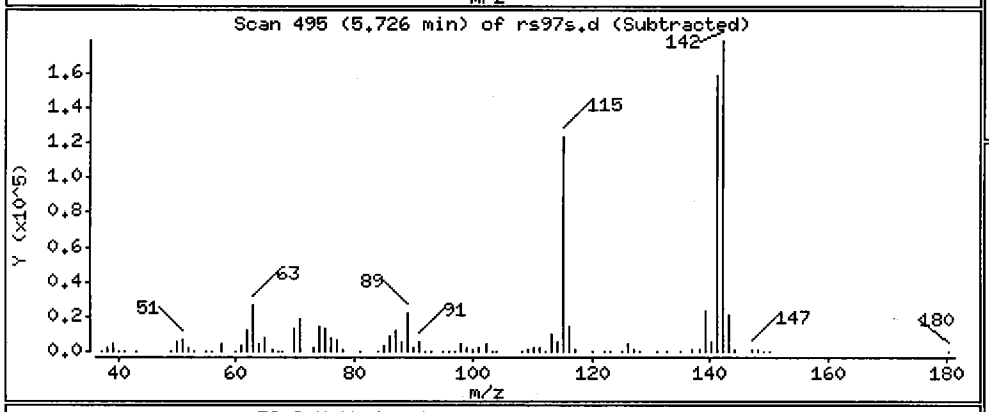
Volume Injected (uL): 1.0 Operator: VTS

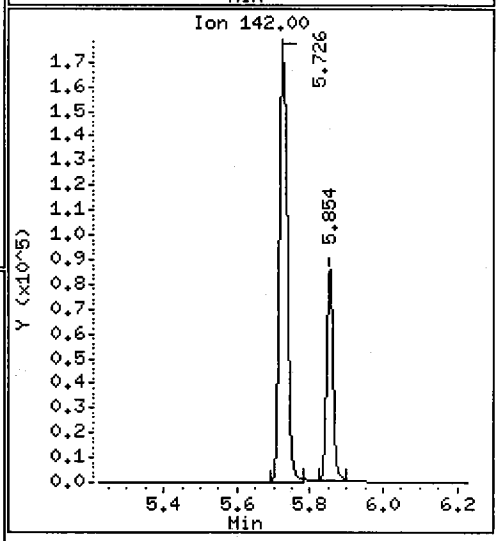
Column phase: ZB-5msi Column diameter: 0.32

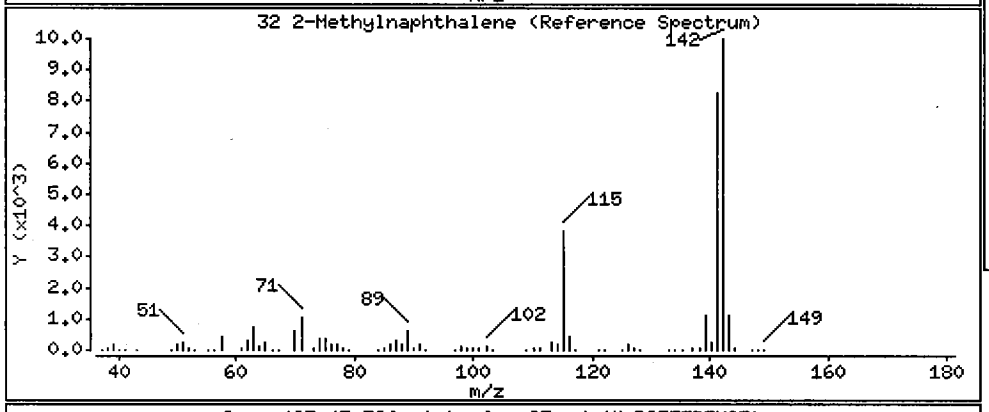
32 2-Methylnaphthalene Concentration: 93660 ug/kg

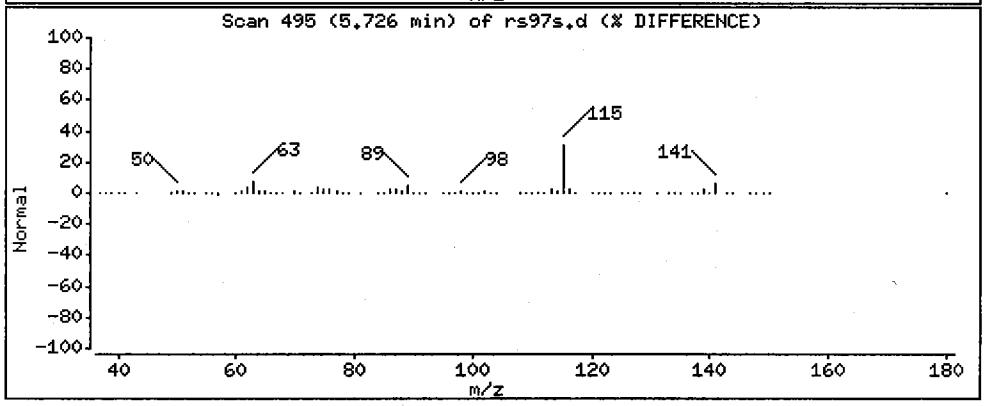












Data File: /chem1/nt12.i/20101110.b/rs97s.d

Date : 10-NOV-2010 19:55

Client ID: DGS-07-12.713.2-101

Instrument: nt12.i

Sample Info: RS97S

Volume Injected (uL): 1.0

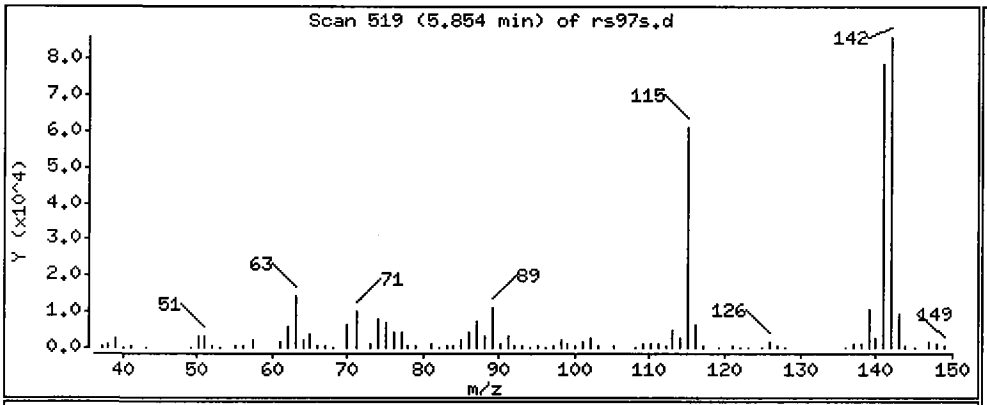
Operator: VTS

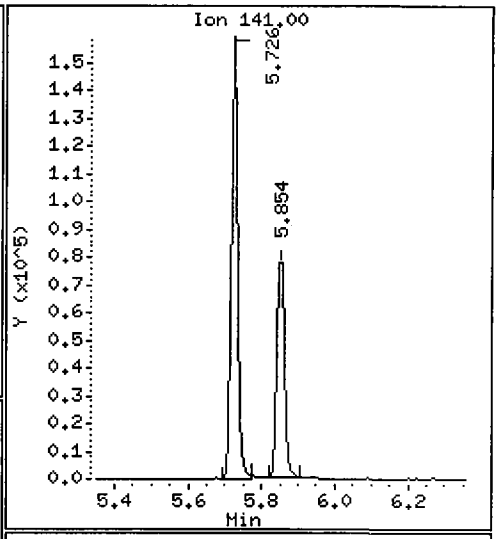
Column phase: ZB-5msi

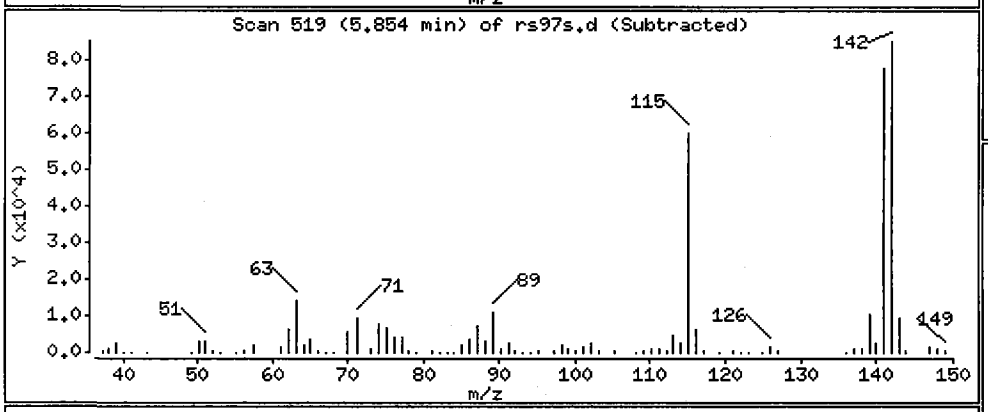
Column diameter: 0.32

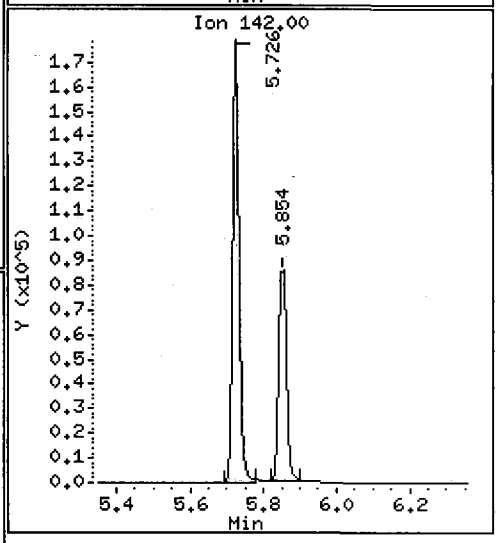
105 1-methylnaphthalene

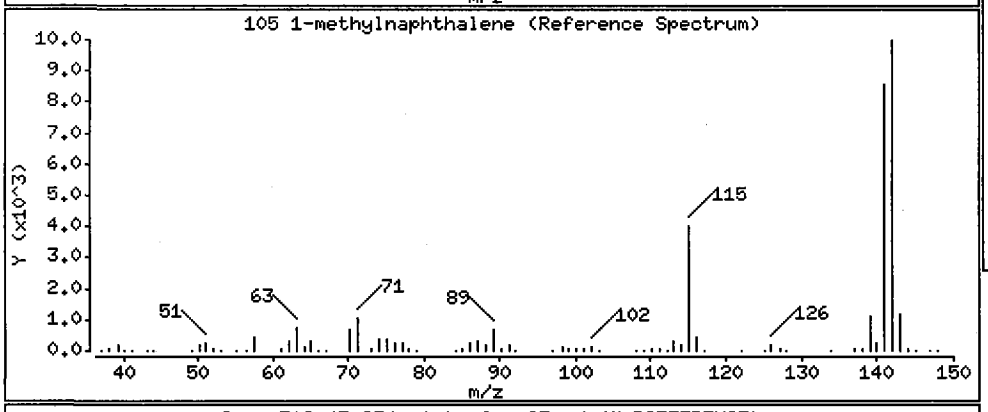
Concentration: 47140 ug/kg

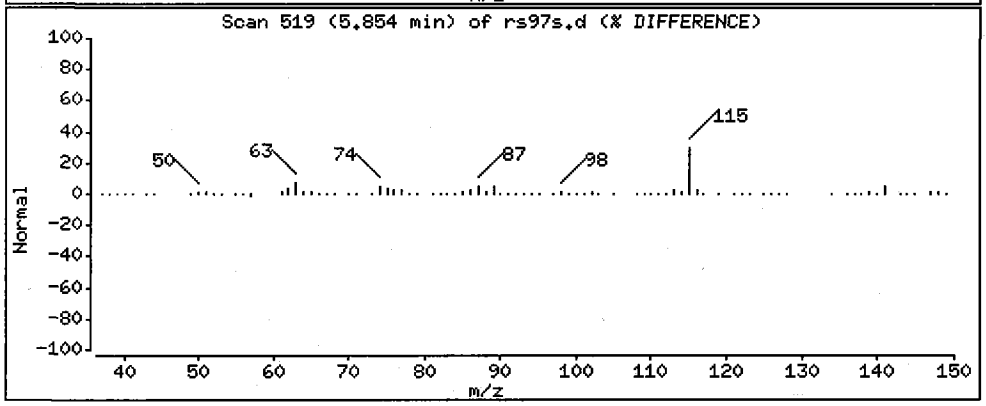












Data File: /chem1/nt12.i/20101110.b/rs97s.d

Date : 10-NOV-2010 19:55

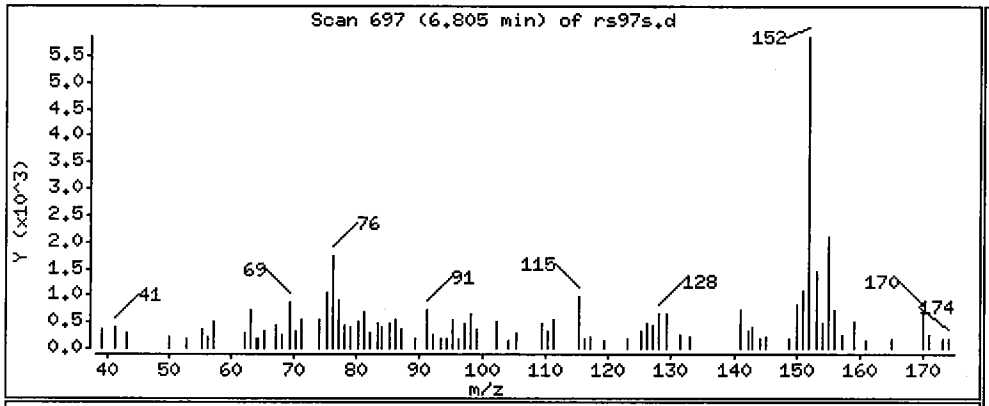
Client ID: DGS-07-12.713.2-101 | Instrument: nt12.i

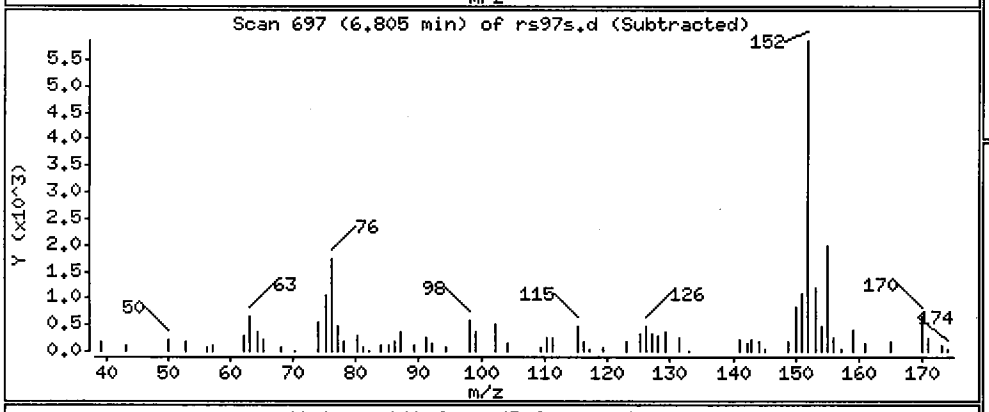
Sample Info: RS97S

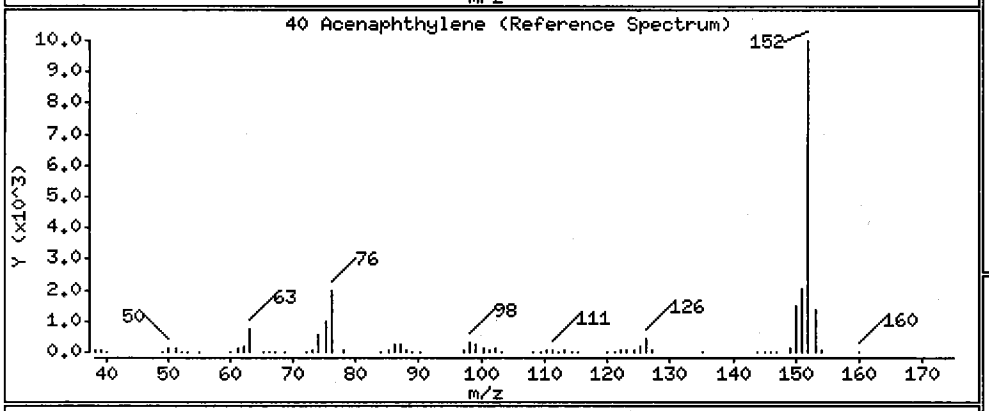
Volume Injected (uL): 1.0 | Operator: VTS

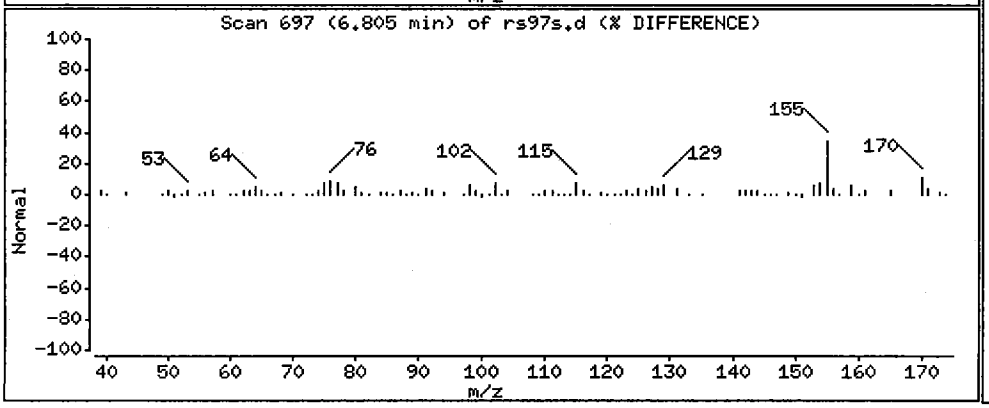
Column phase: ZB-5msi | Column diameter: 0.32

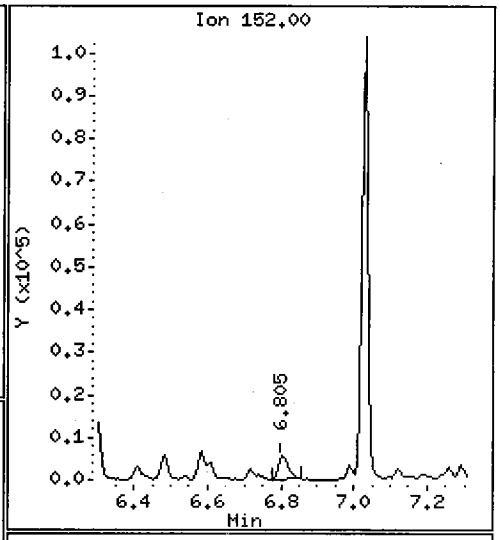
40 Acenaphthylene | Concentration: 2264 ug/kg

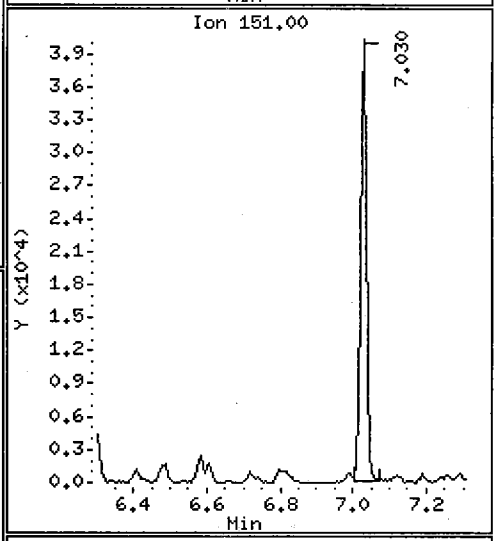


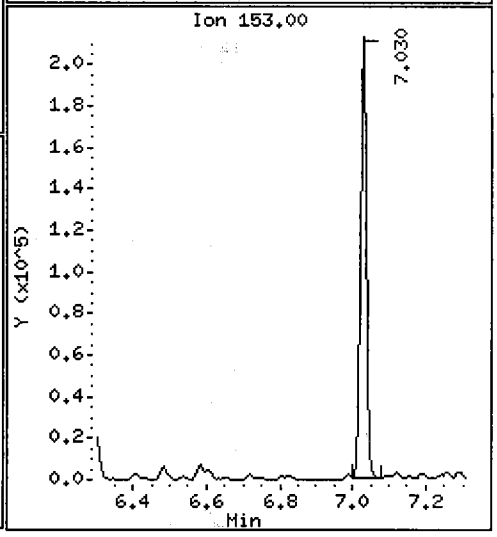












Data File: /chem1/nt12.i/20101110.b/rs97s.d

Date : 10-NOV-2010 19:55

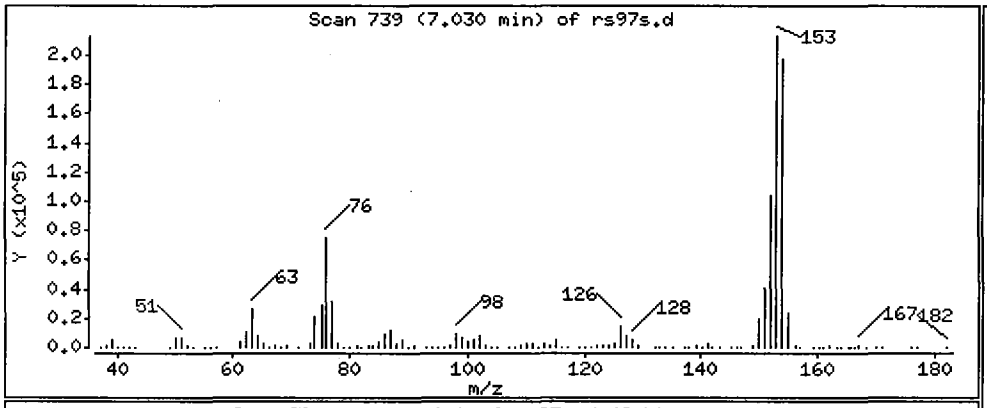
Client ID: DGS-07-12.713.2-101 Instrument: nt12.i

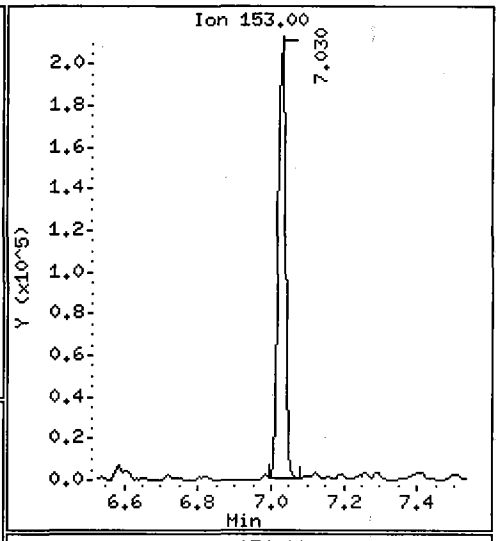
Sample Info: RS97S

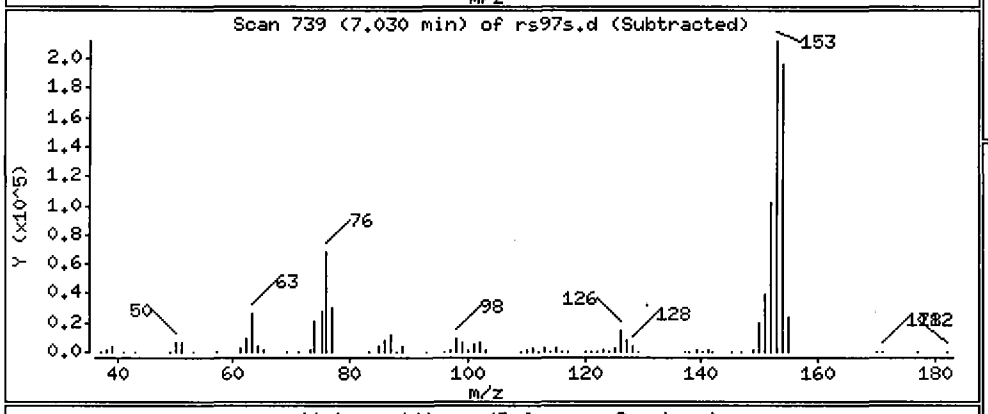
Volume Injected (uL): 1.0 Operator: VTS

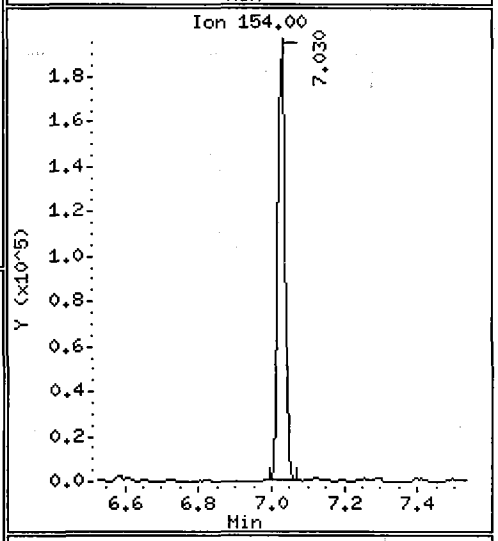
Column phase: ZB-5msi Column diameter: 0.32

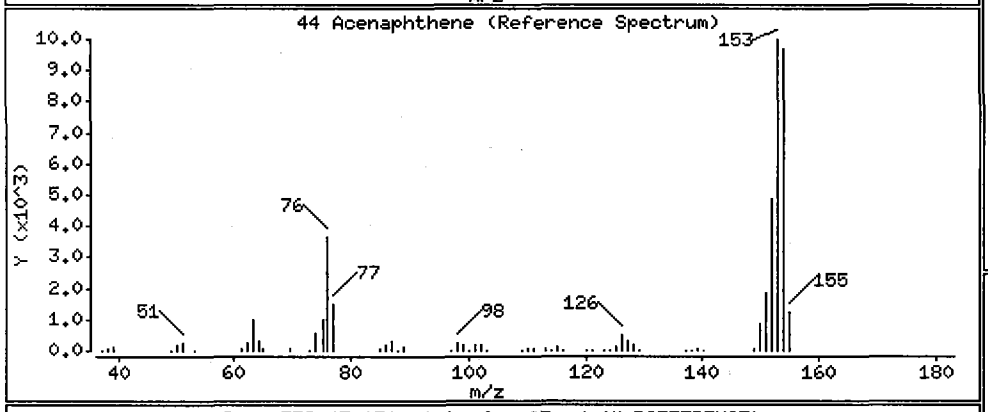
44 Acenaphthene Concentration: 99780 ug/kg

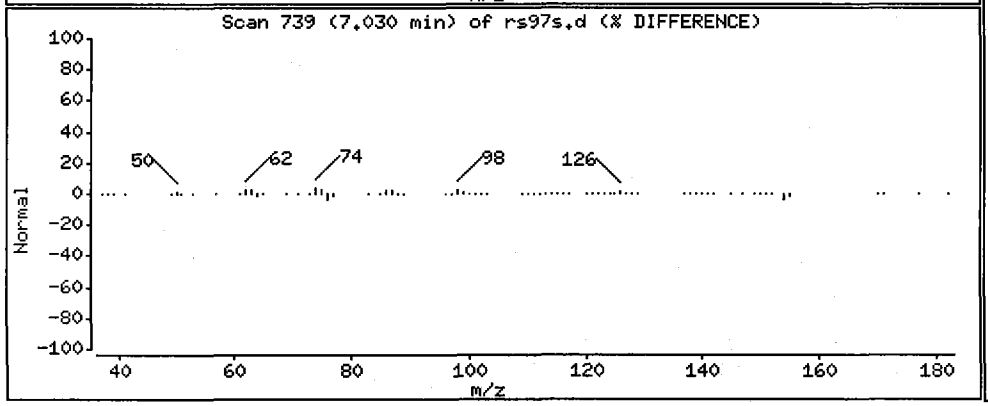


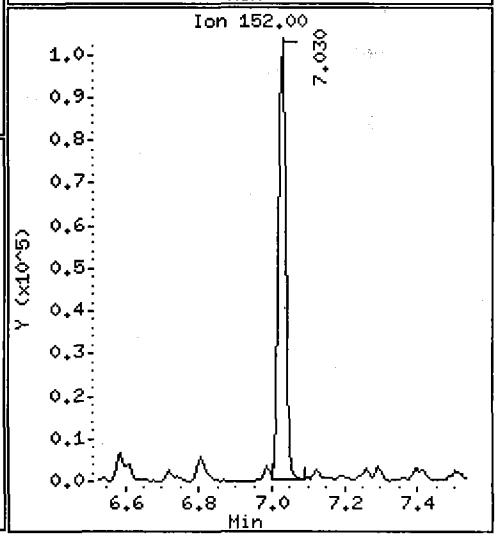












Data File: /chem1/nt12.i/20101110.b/rs97s.d

Date : 10-NOV-2010 19:55

Client ID: DGS-07-12.713.2-101

Instrument: nt12.i

Sample Info: RS97S

Volume Injected (uL): 1.0

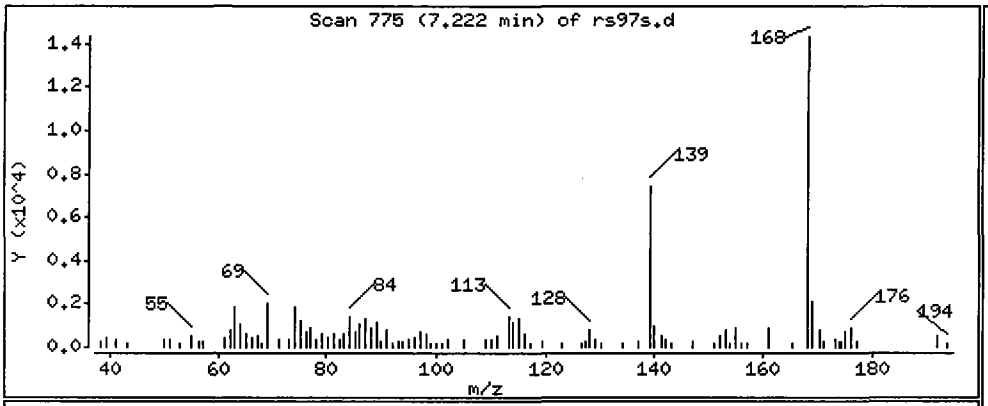
Operator: VTS

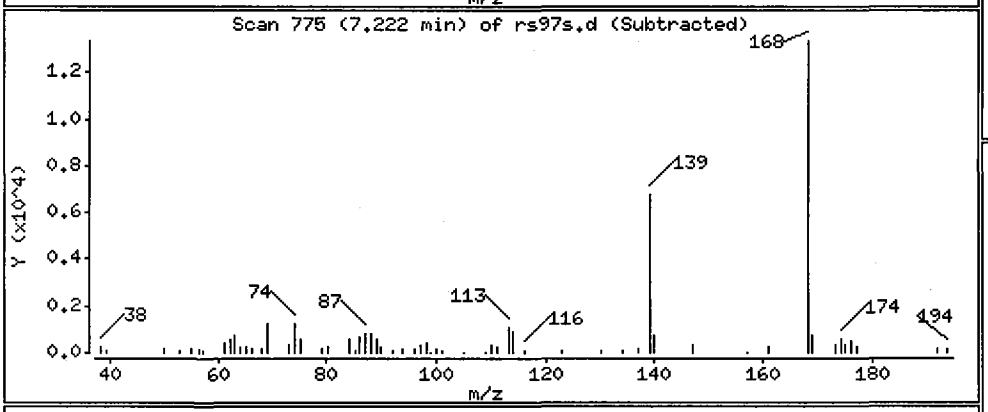
Column phase: ZB-5msi

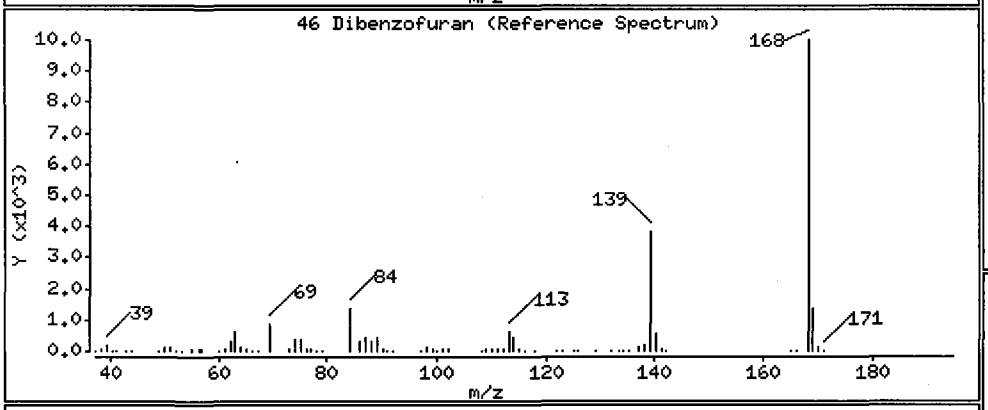
Column diameter: 0.32

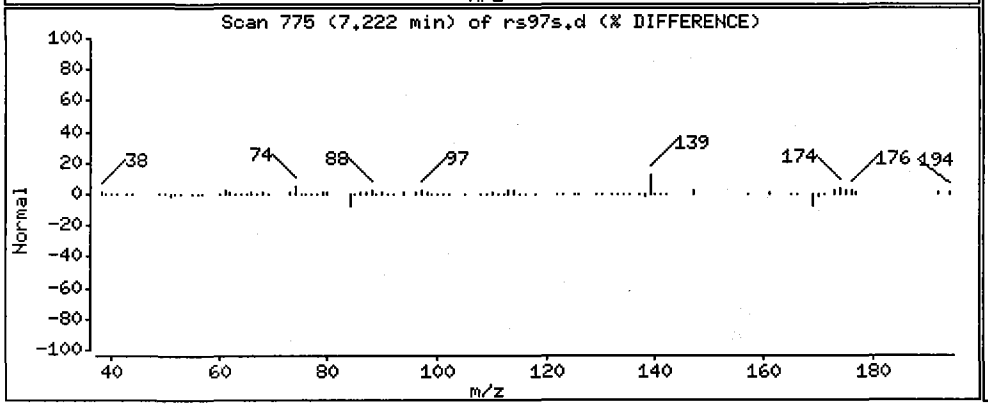
46 Dibenzofuran

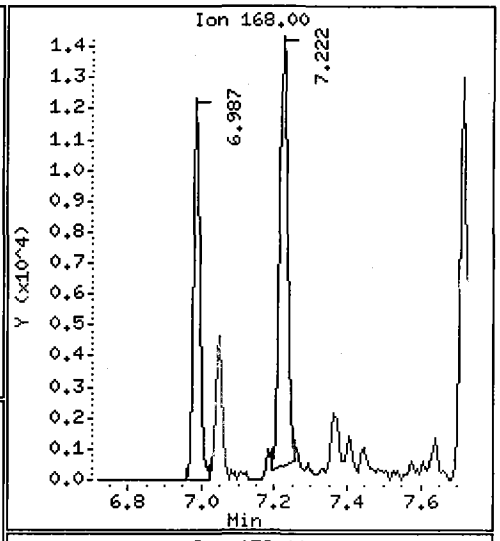
Concentration: 4928 ug/kg

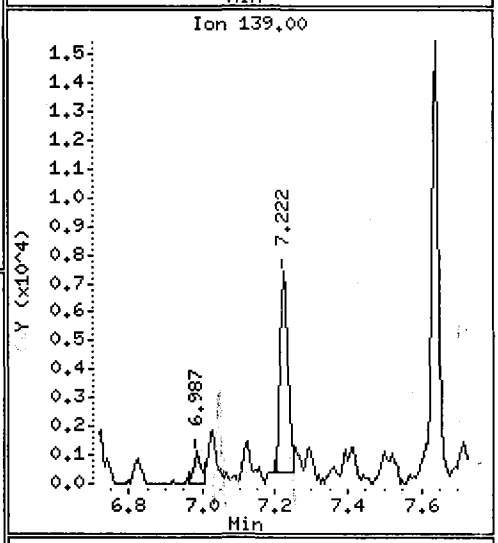


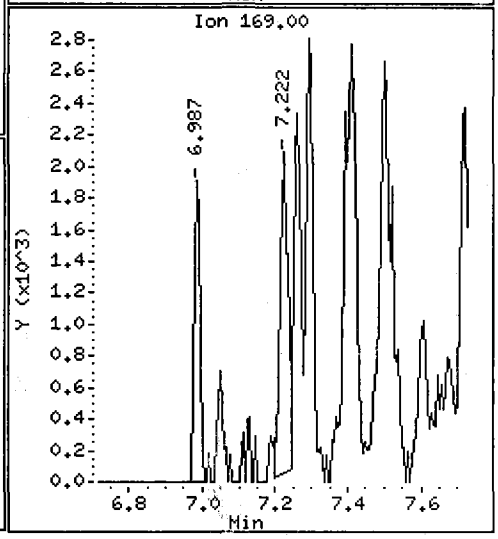












Data File: /chem1/nt12.i/20101110.b/rs97s.d

Date : 10-NOV-2010 19:55

Client ID: DGS-07-12.713.2-101

Instrument: nt12.i

Sample Info: RS97S

Volume Injected (uL): 1.0

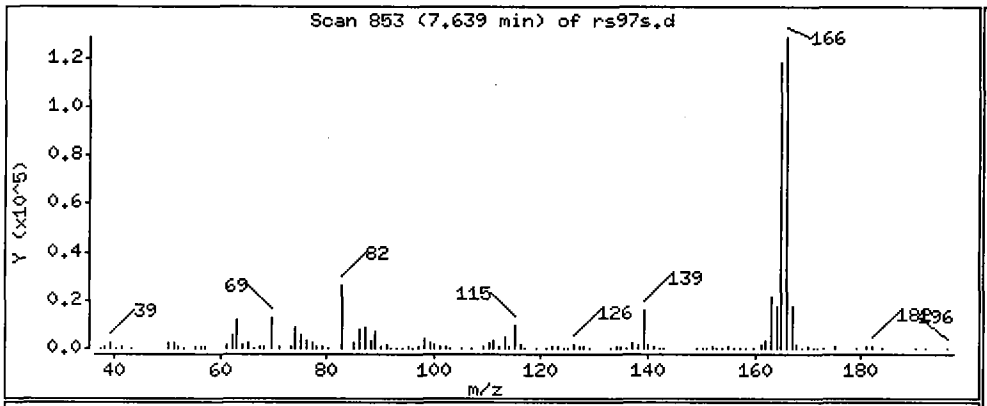
Operator: VTS

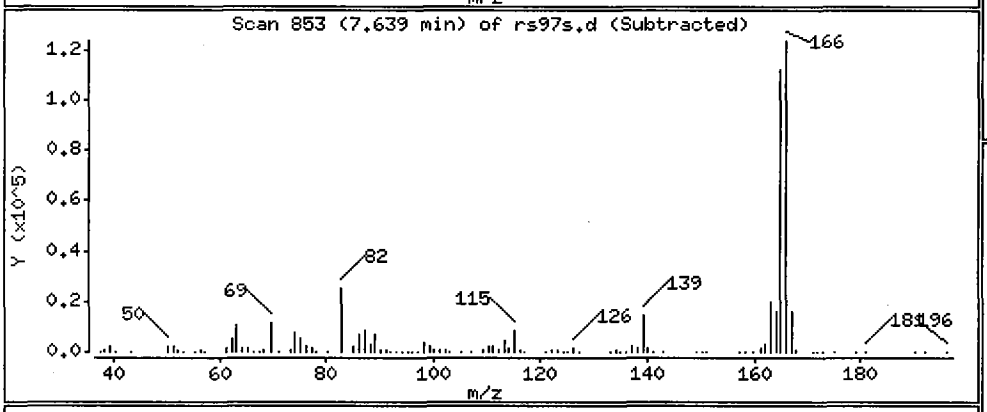
Column phase: ZB-5msi

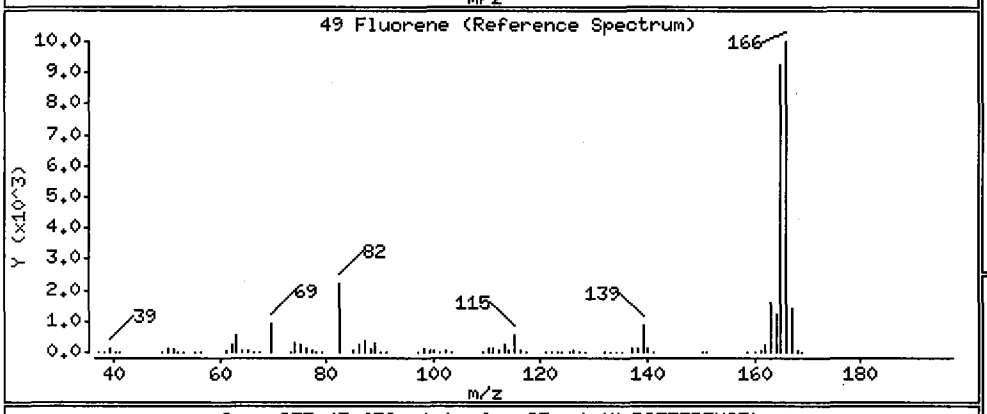
Column diameter: 0.32

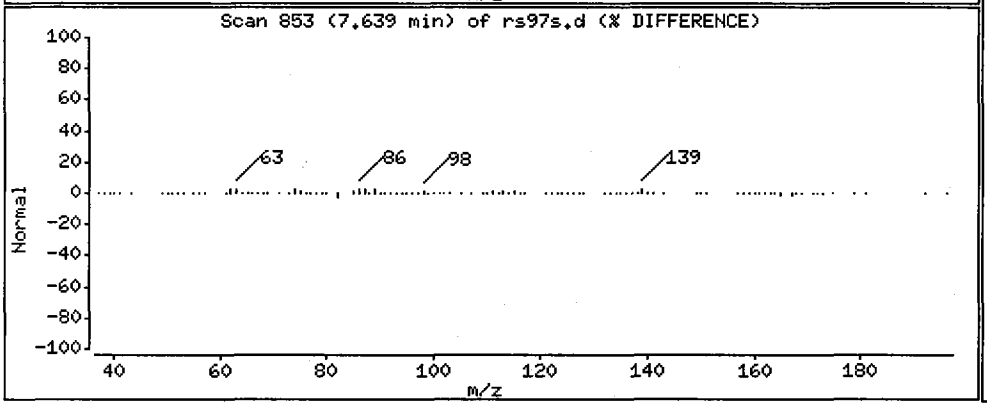
49 Fluorene

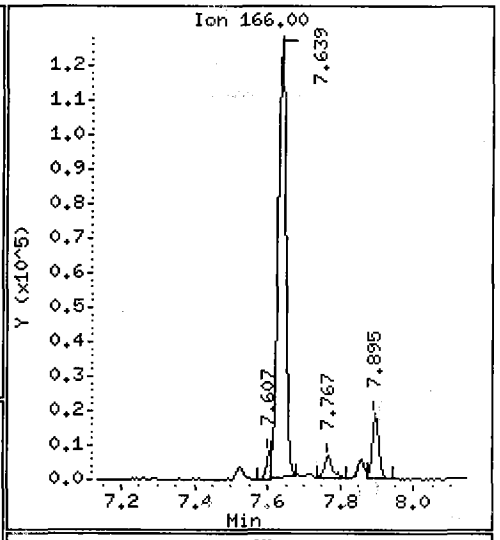
Concentration: 57330 ug/kg

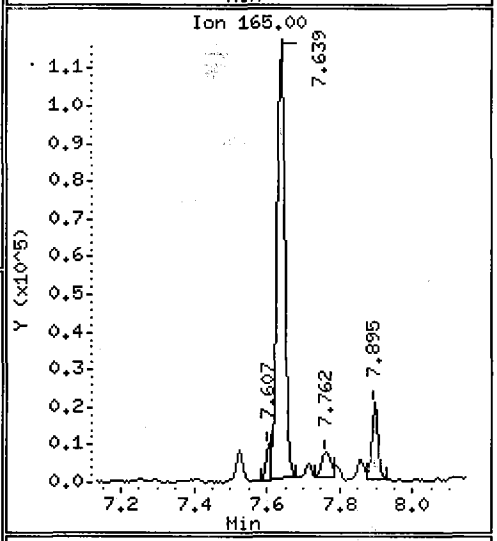


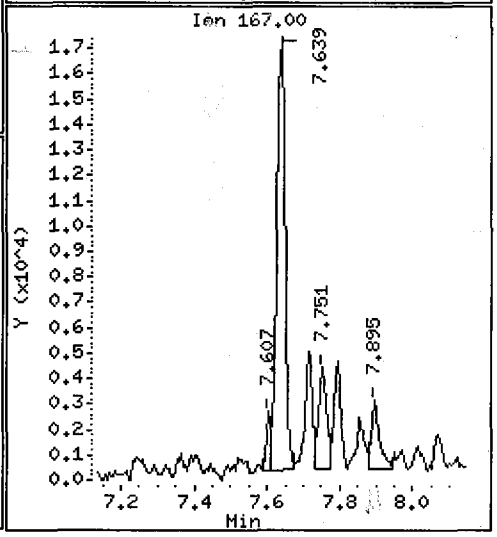












Data File: /chem1/nt12.i/20101110.b/rs97s.d

Date : 10-NOV-2010 19:55

Client ID: DGS-07-12.713.2-101

Instrument: nt12.i

Sample Info: RS97S

Volume Injected (uL): 1.0

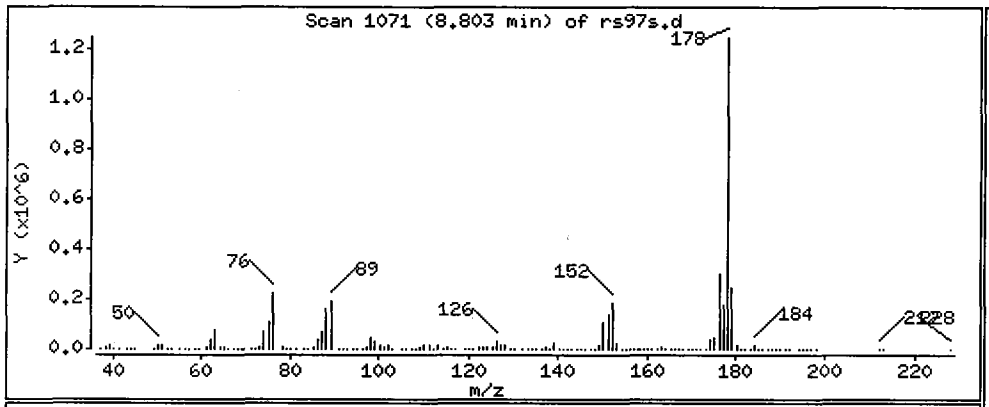
Operator: VTS

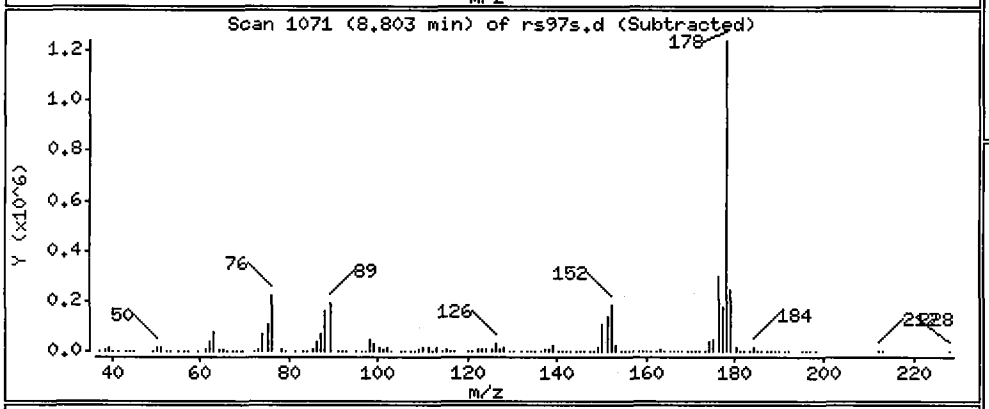
Column phase: ZB-5msi

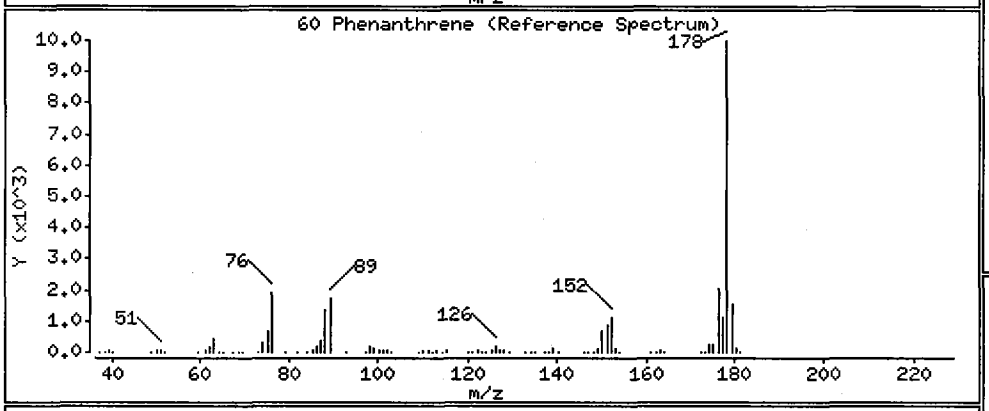
Column diameter: 0.32

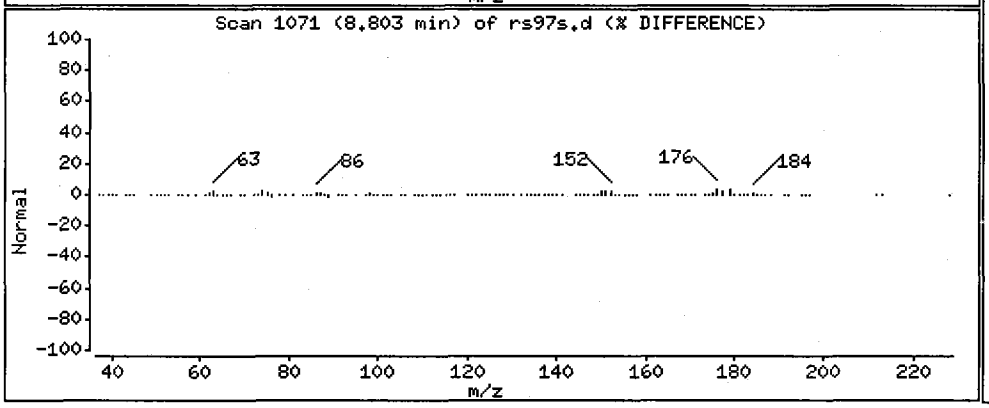
60 Phenanthrene

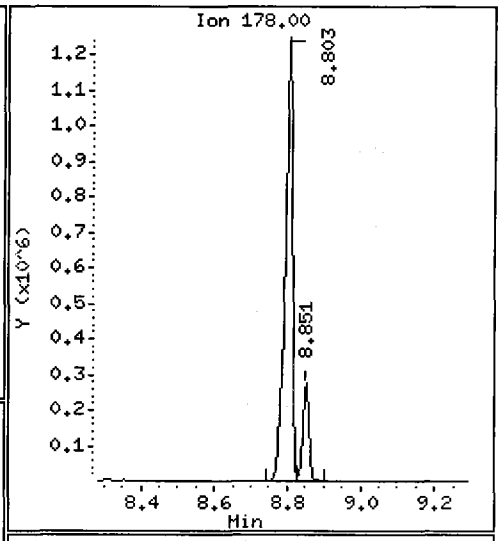
Concentration: 436100 ug/kg

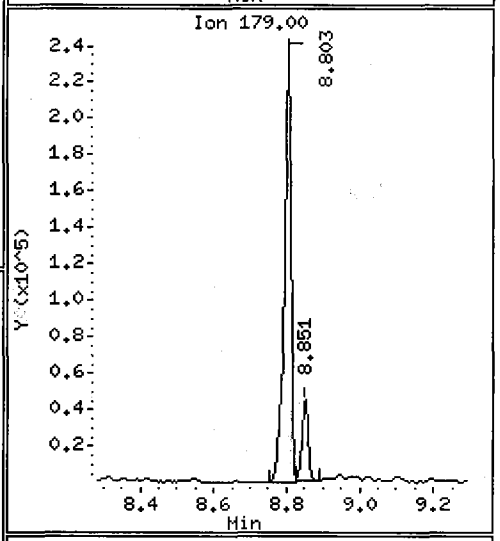


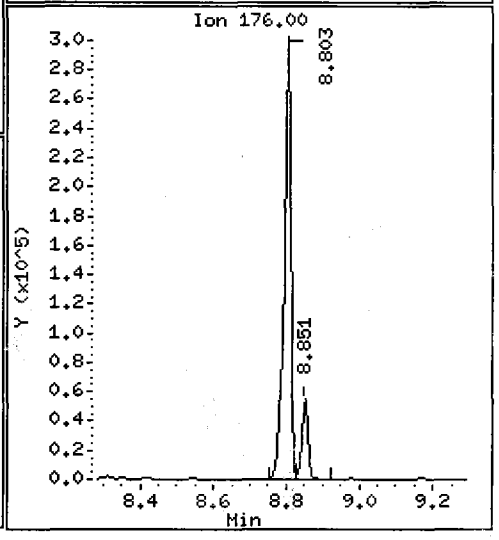












Data File: /chem1/nt12.i/20101110.b/rs97s.d

Date : 10-NOV-2010 19:55

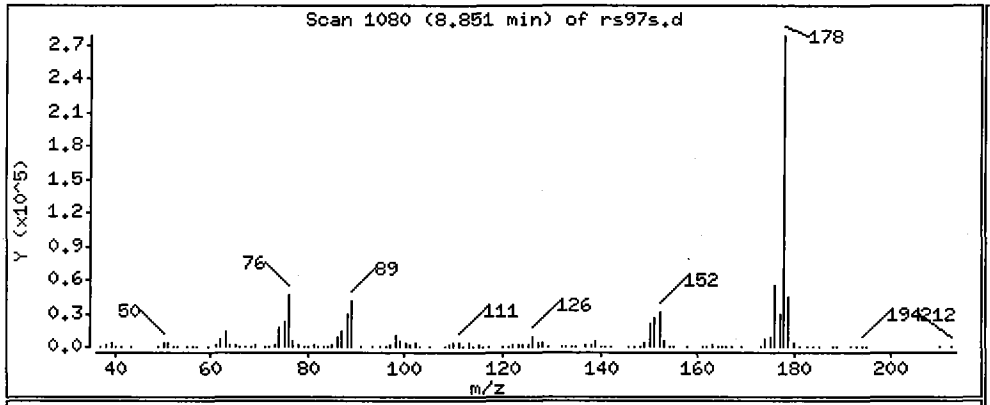
Client ID: DGS-07-12.713.2-101 | Instrument: nt12.i

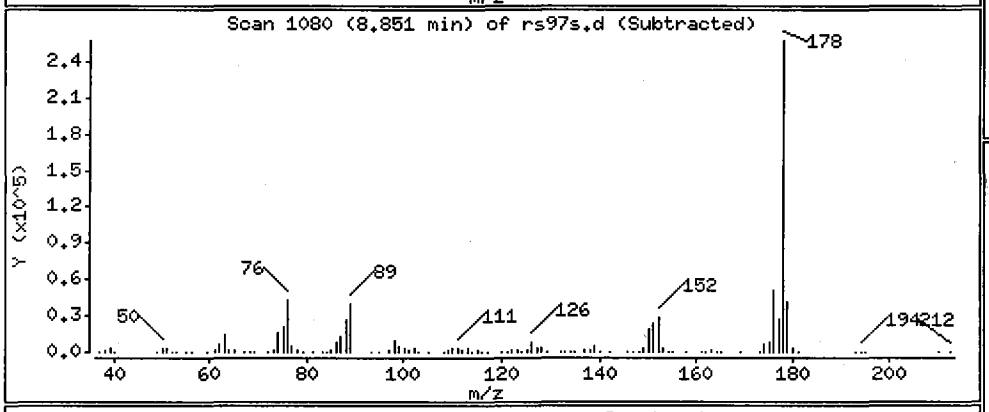
Sample Info: RS97S

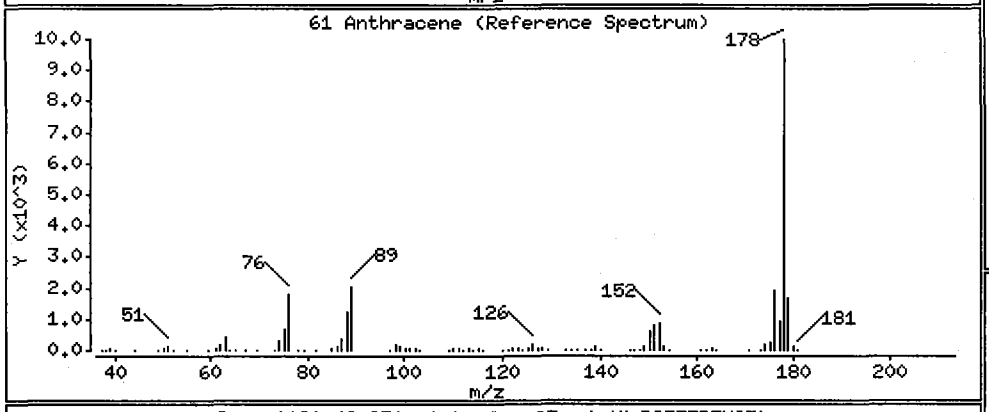
Volume Injected (uL): 1.0 | Operator: VTS

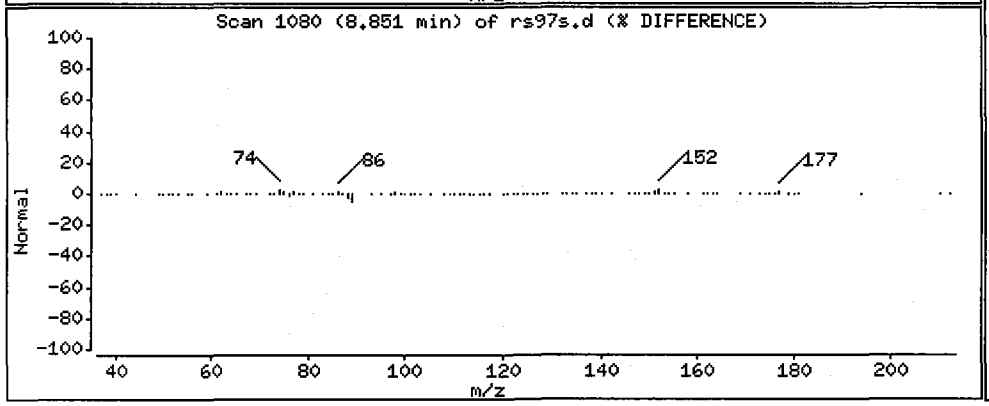
Column phase: ZB-5msi | Column diameter: 0.32

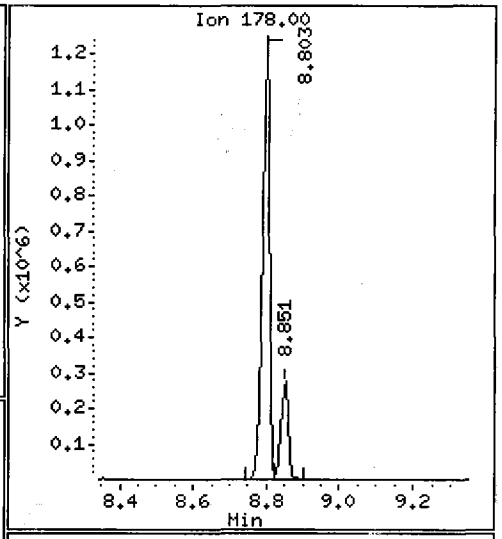
61 Anthracene | Concentration: 85470 ug/kg

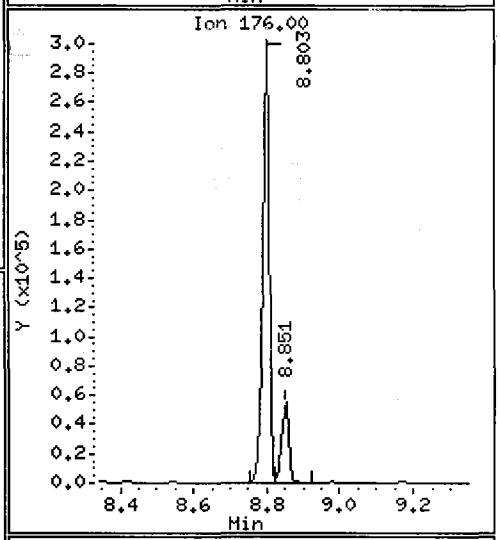


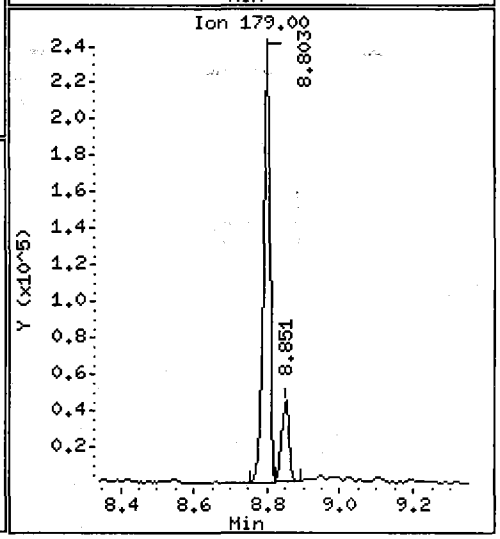












Data File: /chem1/nt12.i/20101110.b/rs97s.d

Date : 10-NOV-2010 19:55

Client ID: DGS-07-12.713.2-101

Instrument: nt12.i

Sample Info: RS97S

Volume Injected (uL): 1.0

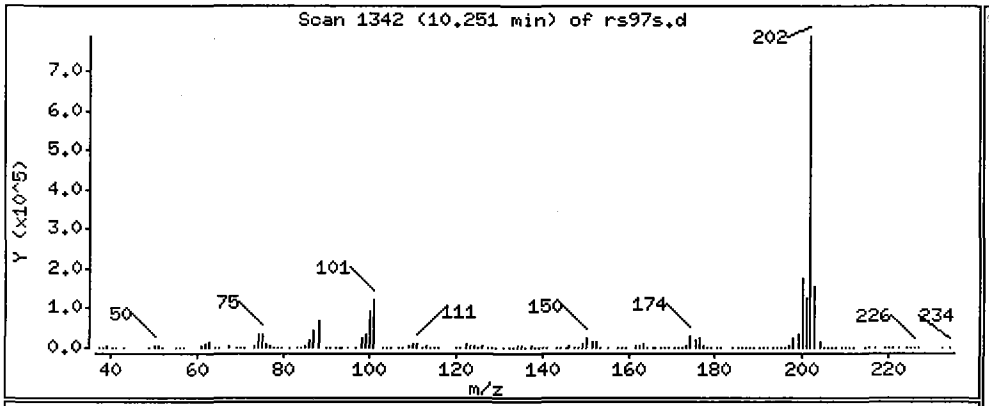
Operator: VTS

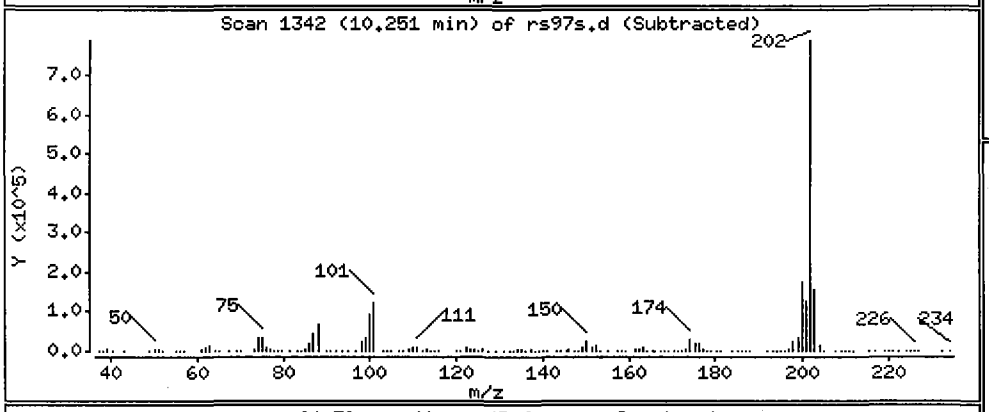
Column phase: ZB-5msi

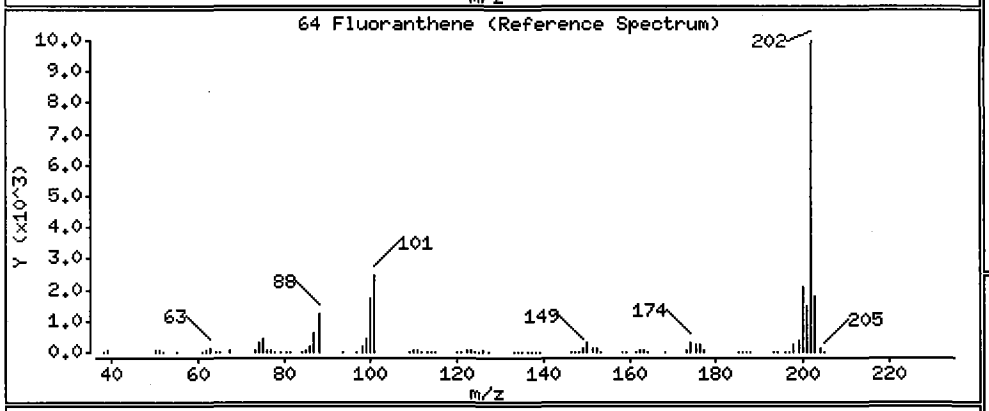
Column diameter: 0.32

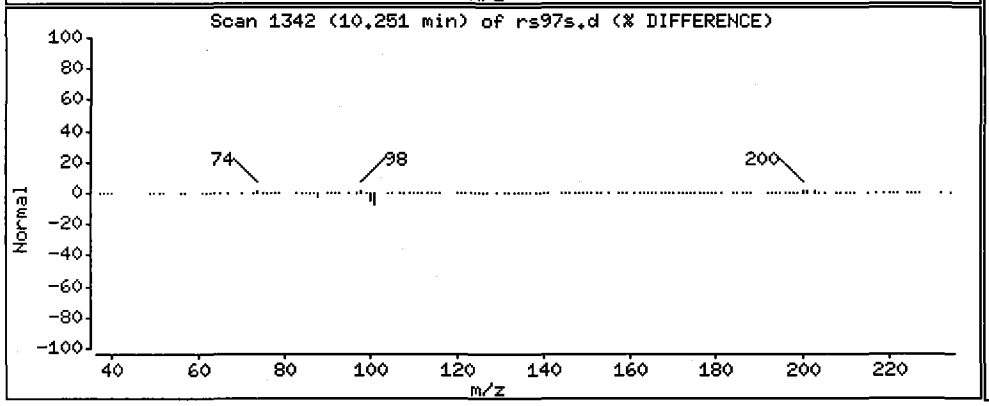
64 Fluoranthene

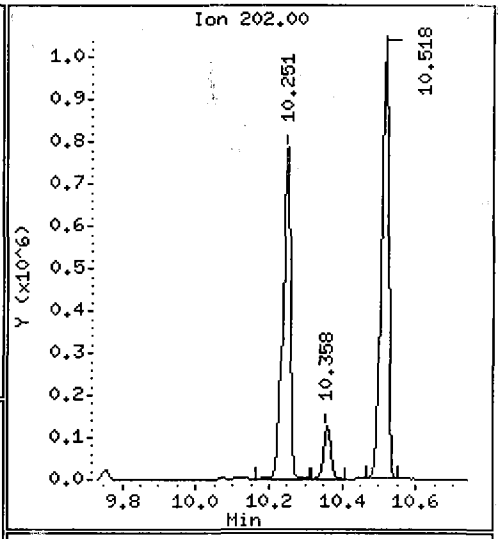
Concentration: 240400 ug/kg

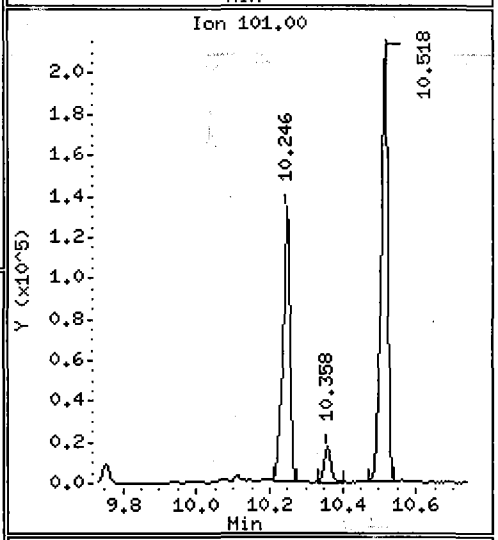


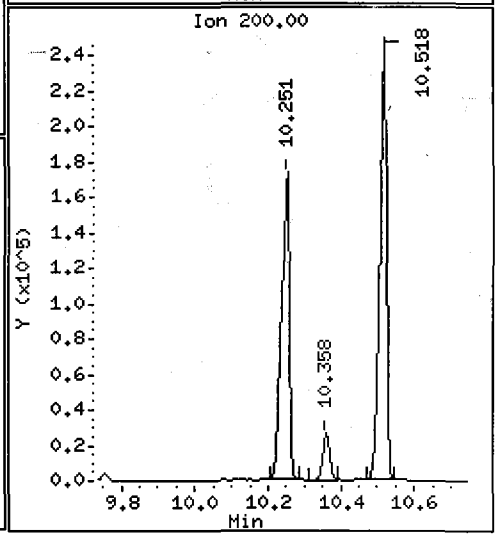












Data File: /chem1/nt12.i/20101110.b/rs97s.d

Date : 10-NOV-2010 19:55

Client ID: DGS-07-12.713.2-101

Instrument: nt12.i

Sample Info: RS97S

Volume Injected (uL): 1.0

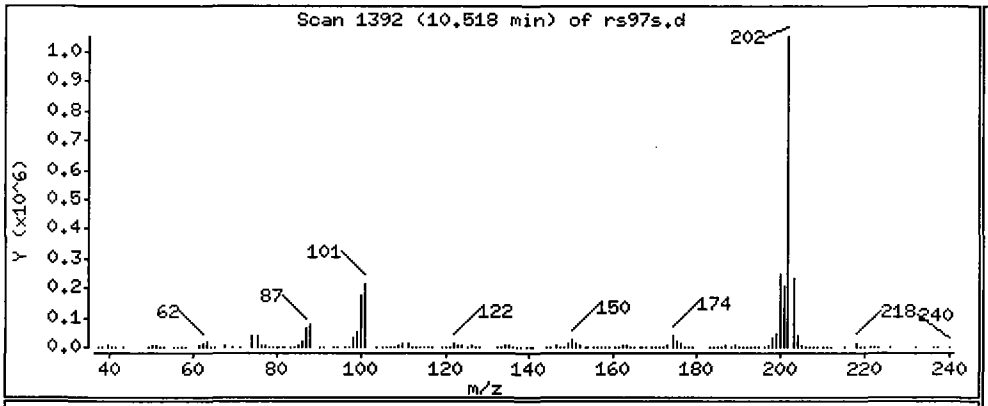
Operator: VTS

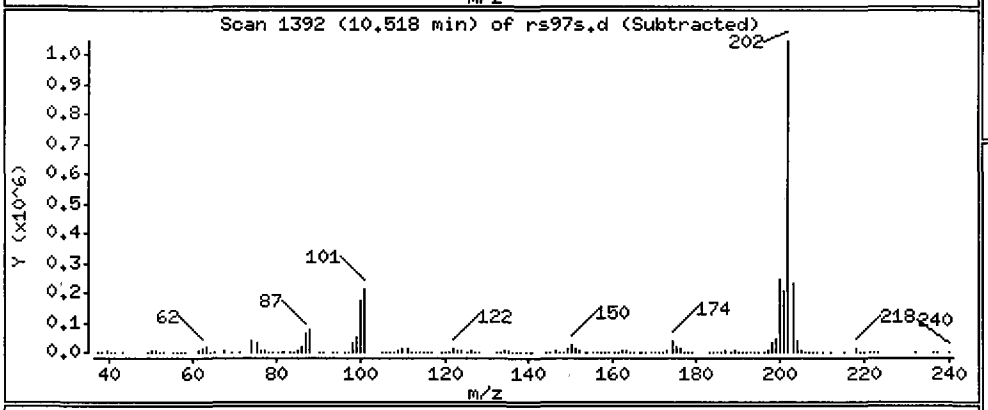
Column phase: ZB-5msi

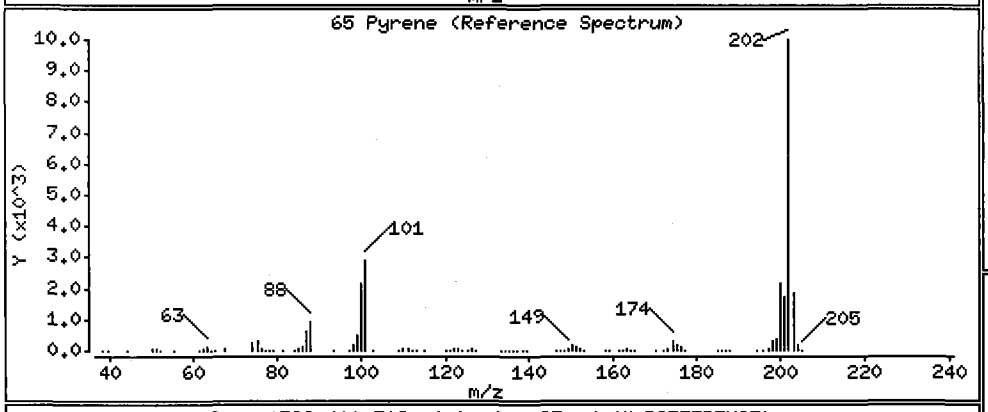
Column diameter: 0.32

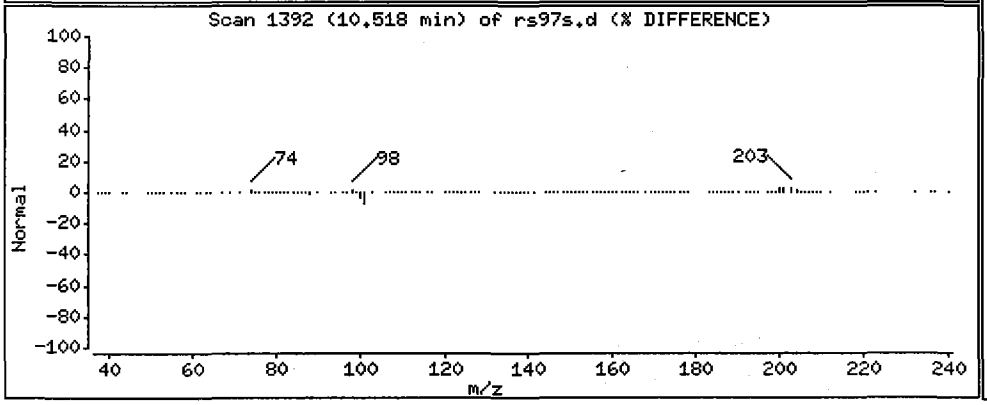
65 Pyrene

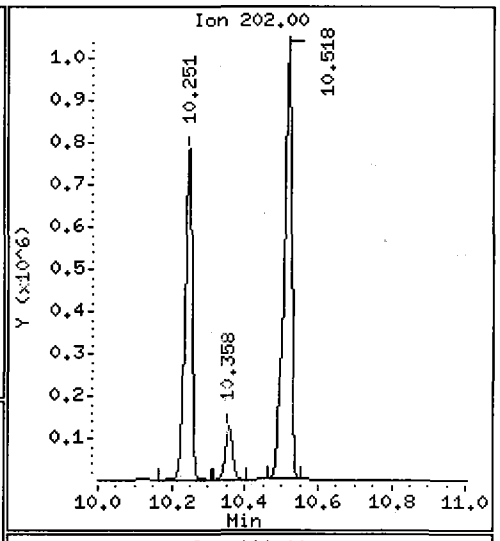
Concentration: 319200 ug/kg

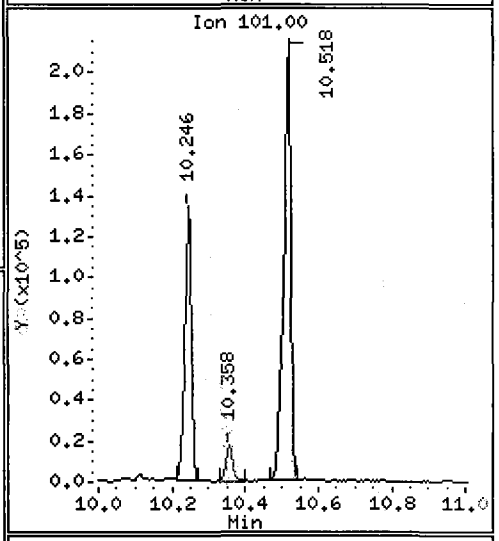


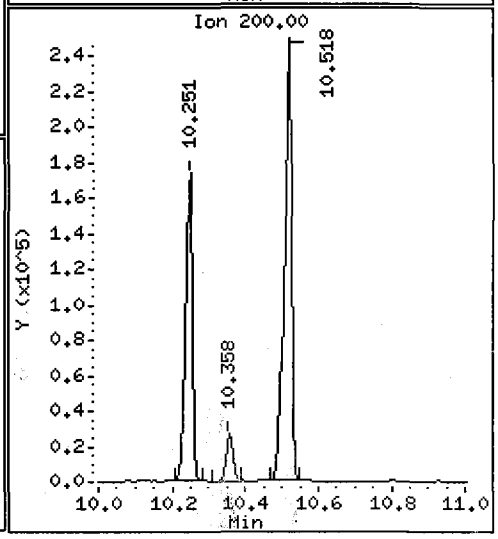












Data File: /chem1/nt12.i/20101110.b/rs97s.d

Date : 10-NOV-2010 19:55

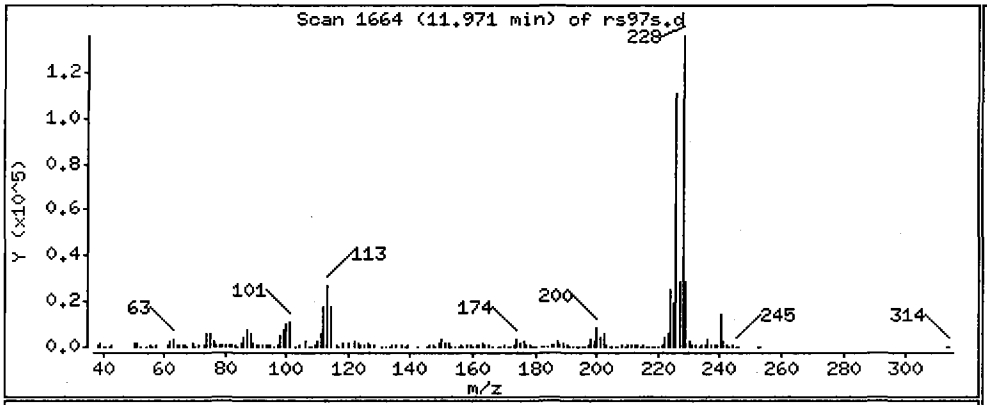
Client ID: DGS-07-12.713.2-101 Instrument: nt12.i

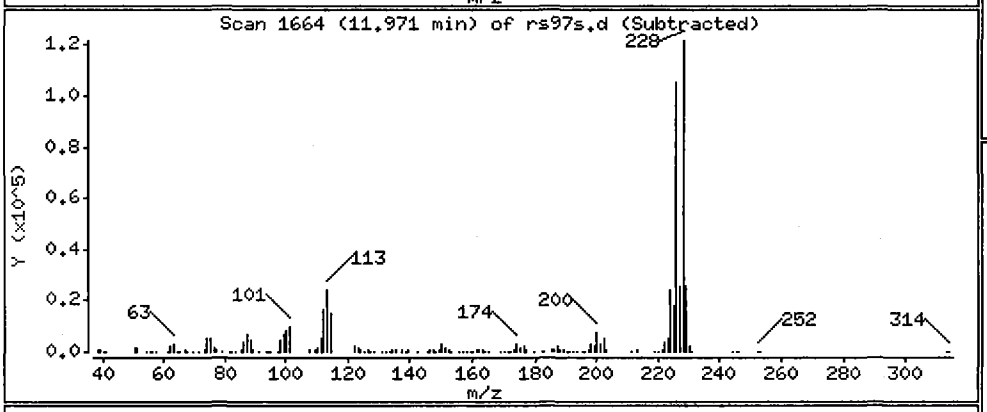
Sample Info: RS97S

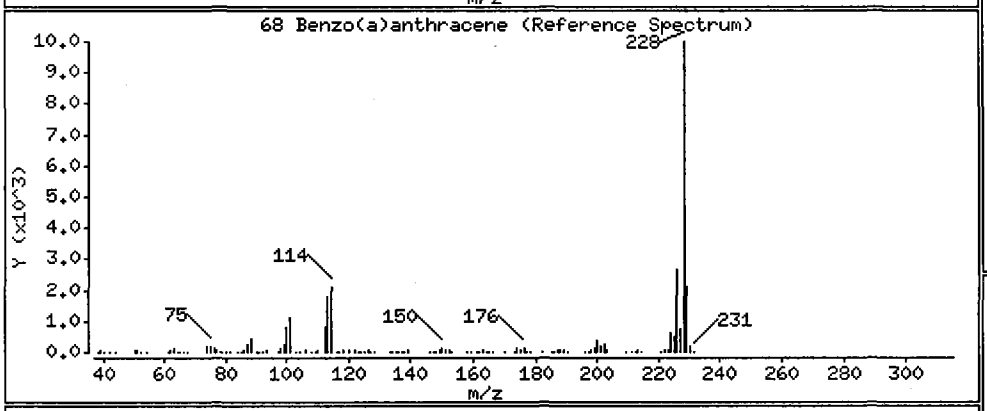
Volume Injected (uL): 1.0 Operator: VTS

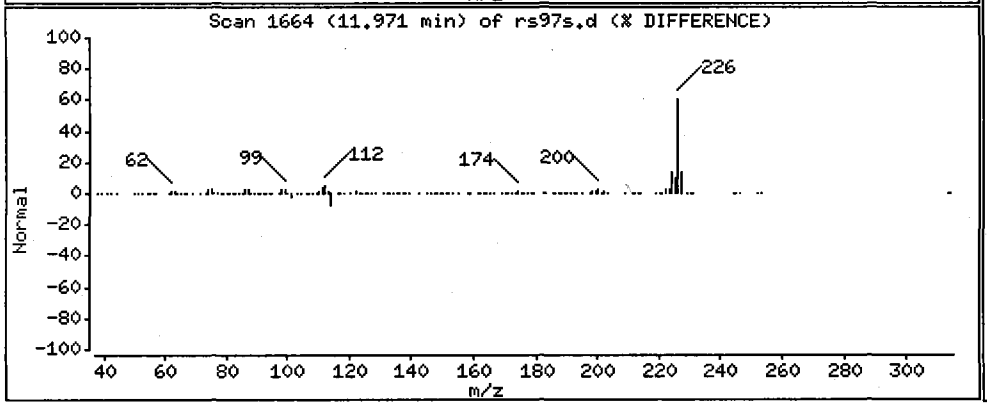
Column phase: ZB-5msi Column diameter: 0.32

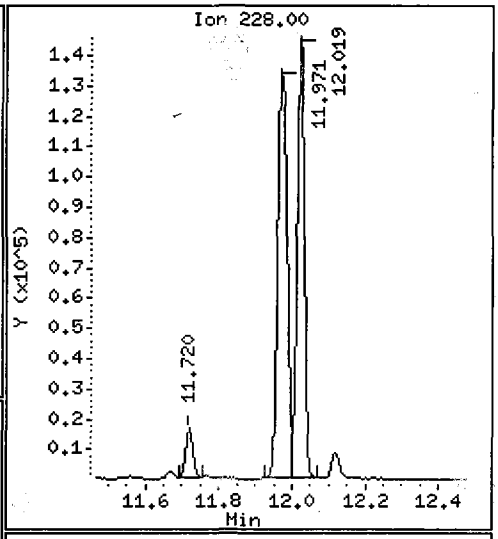
68 Benzo(a)anthracene Concentration: 56820 ug/kg

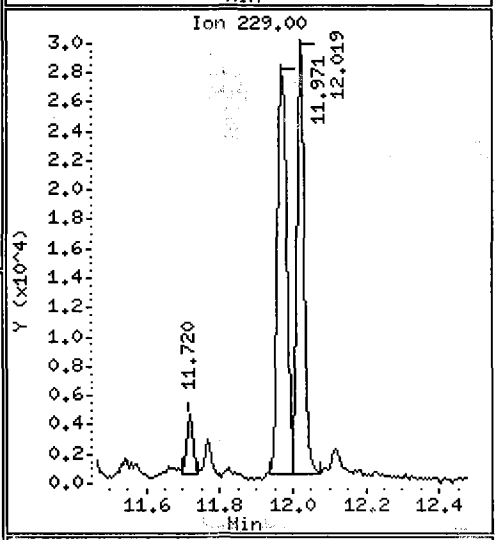


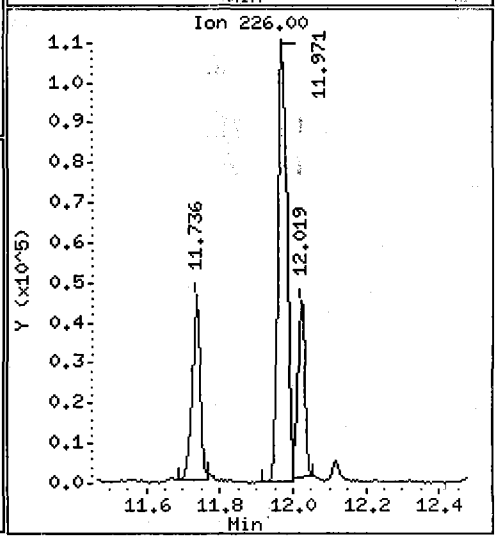












Data File: /chem1/nt12.i/20101110.b/rs97s.d

Date : 10-NOV-2010 19:55

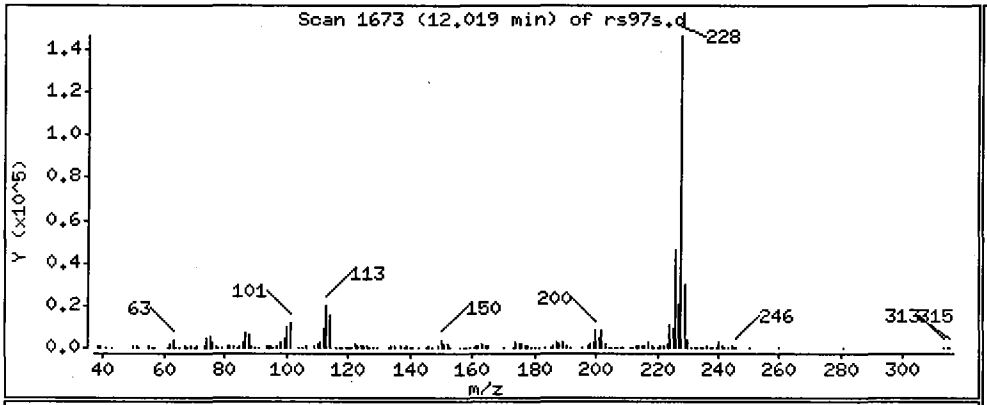
Client ID: DGS-07-12.713.2-101 | Instrument: nt12.i

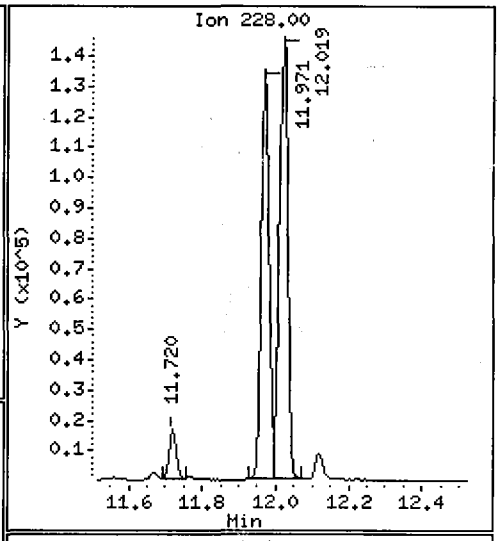
Sample Info: RS97S

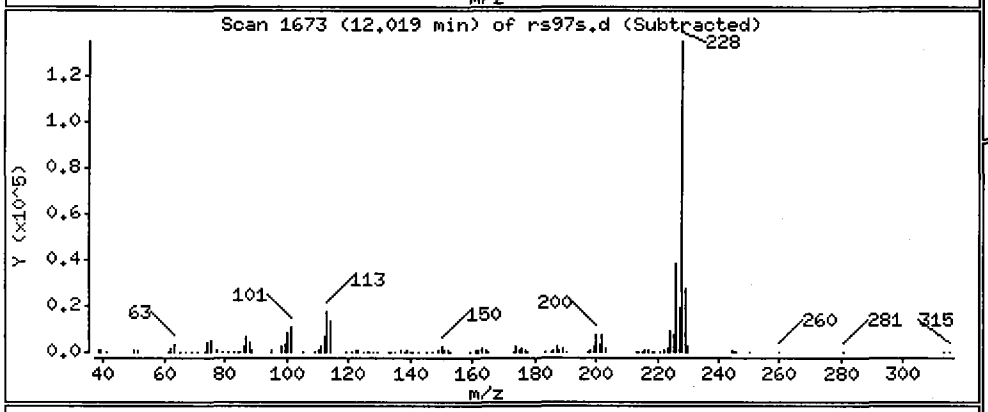
Volume Injected (uL): 1.0 | Operator: VTS

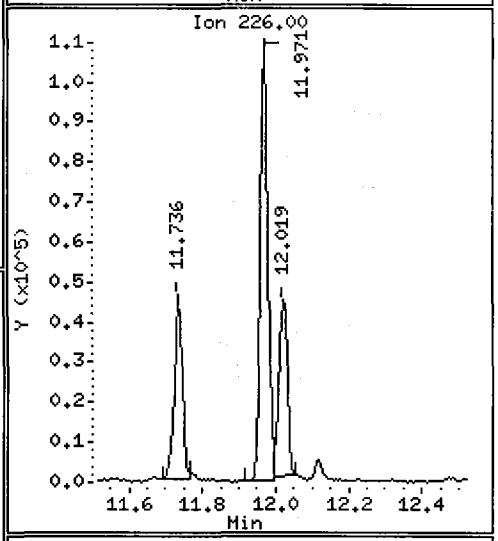
Column phase: ZB-5msi | Column diameter: 0.32

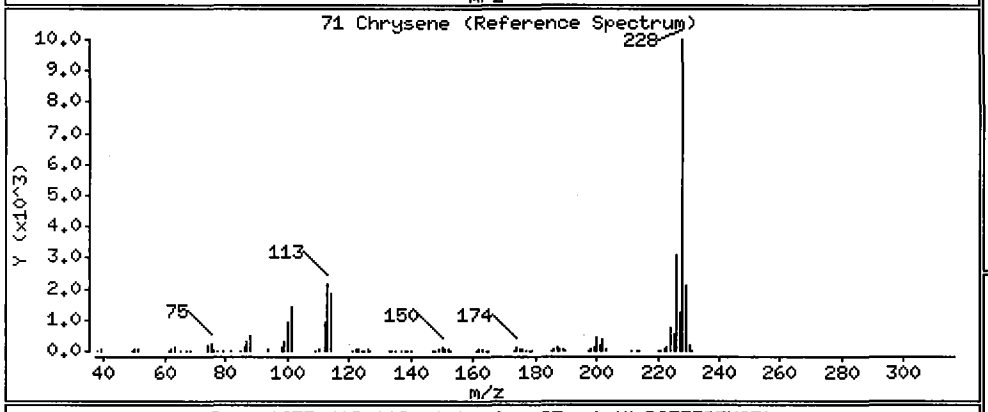
71 Chrysene | Concentration: 60100 ug/kg

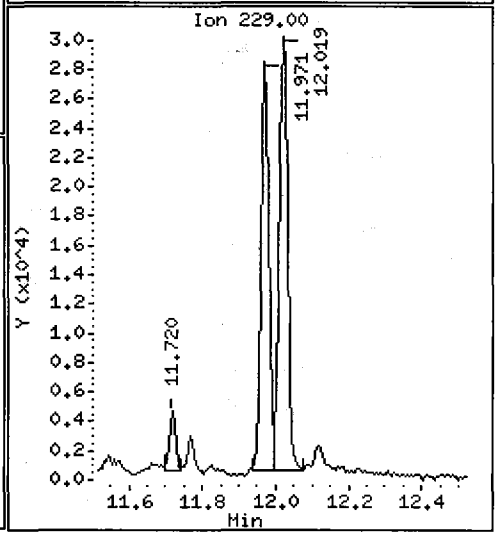


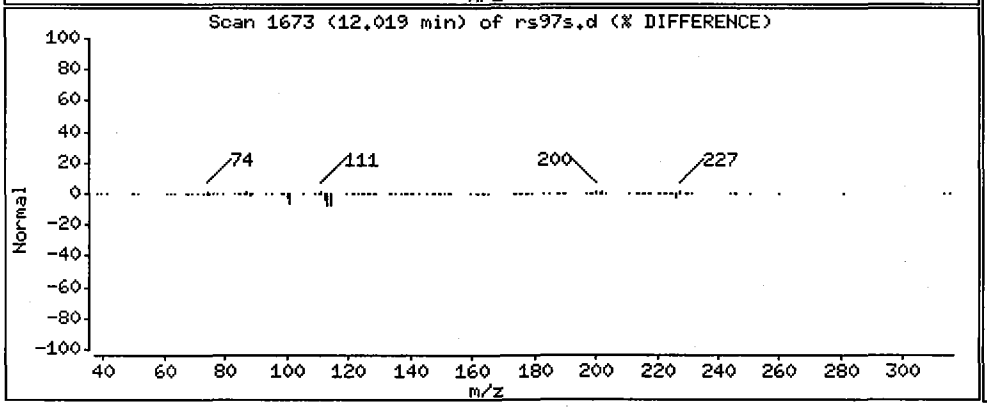












Data File: /chem1/nt12.i/20101110.b/rs97s.d

Date : 10-NOV-2010 19:55

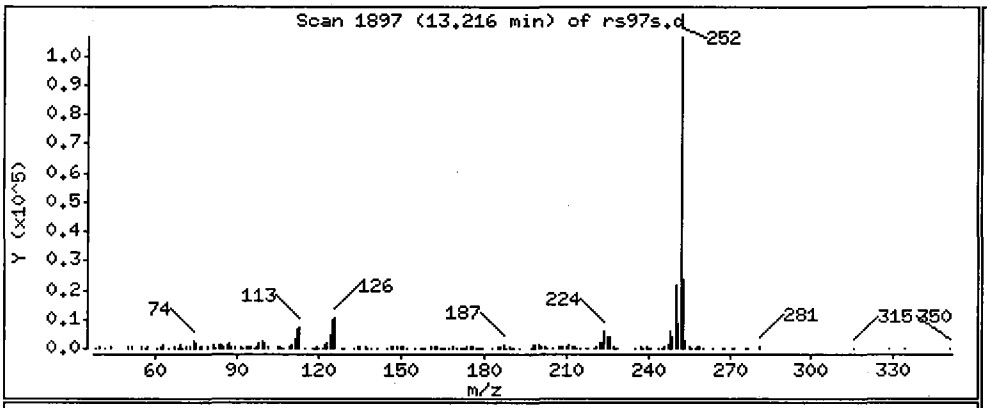
Client ID: DGS-07-12.713.2-101 | Instrument: nt12.i

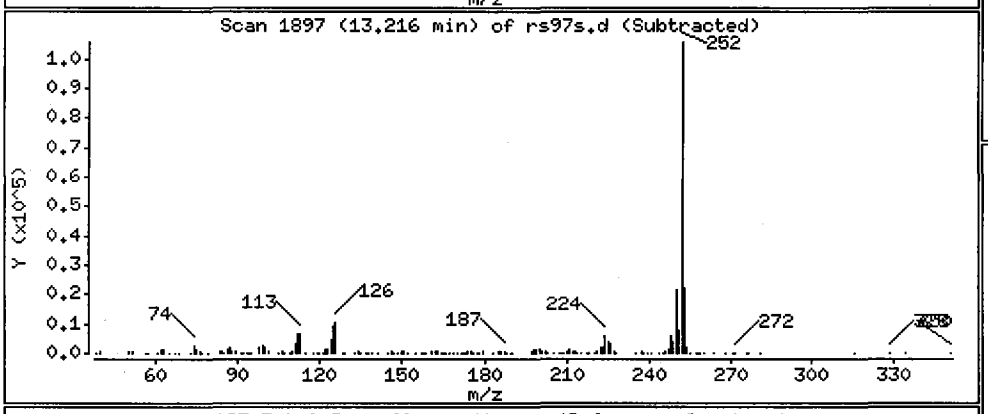
Sample Info: RS97S

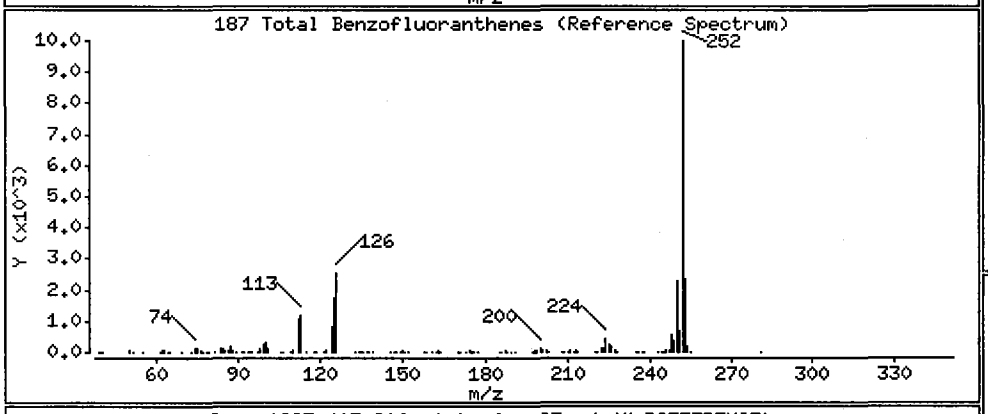
Volume Injected (uL): 1.0 | Operator: VTS

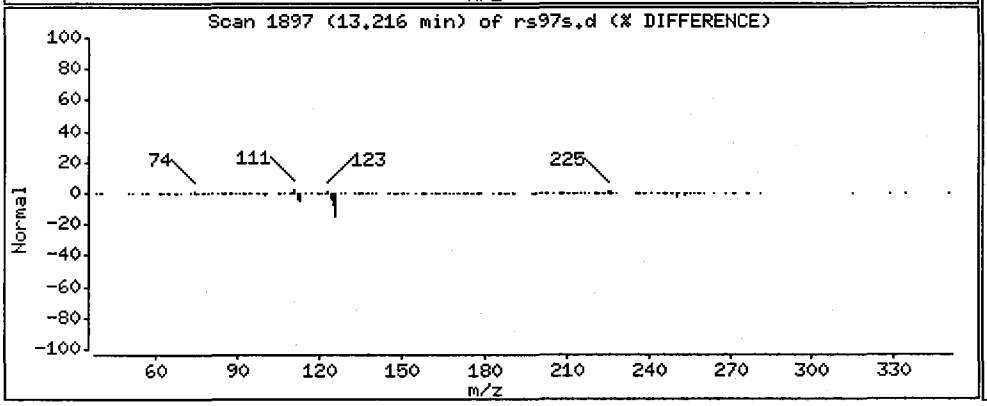
Column phase: ZB-5msi | Column diameter: 0.32

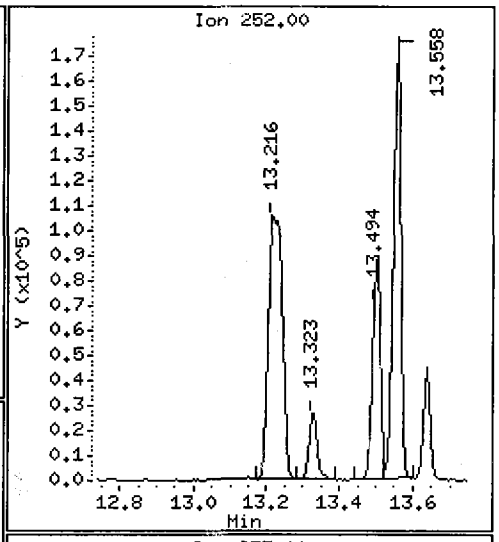
187 Total Benzofluoranthenes | Concentration: 83560 ug/kg

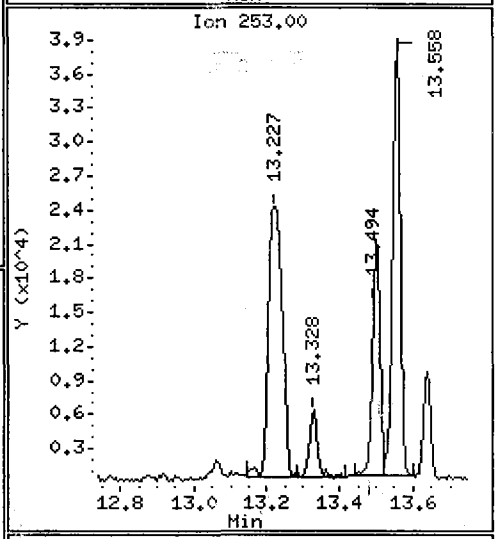


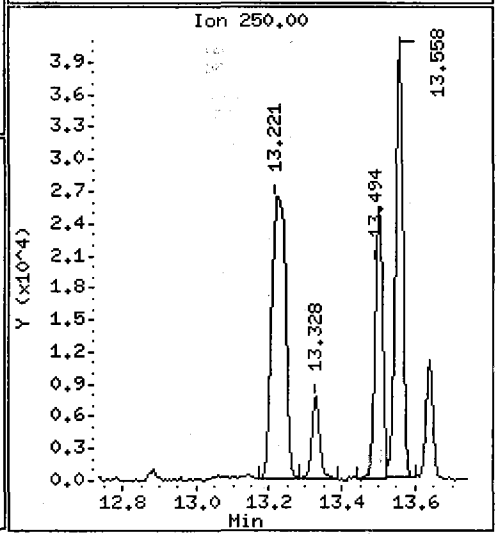












Data File: /chem1/nt12.i/20101110.b/rs97s.d

Date : 10-NOV-2010 19:55

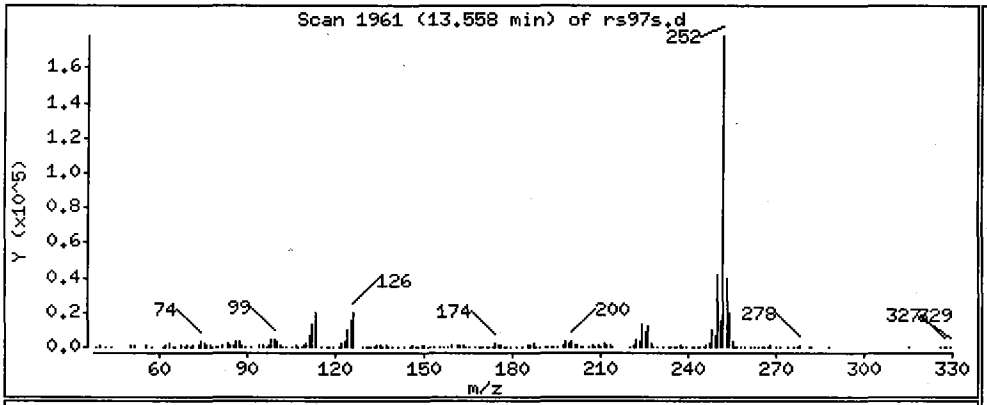
Client ID: DGS-07-12.713.2-101 | Instrument: nt12.i

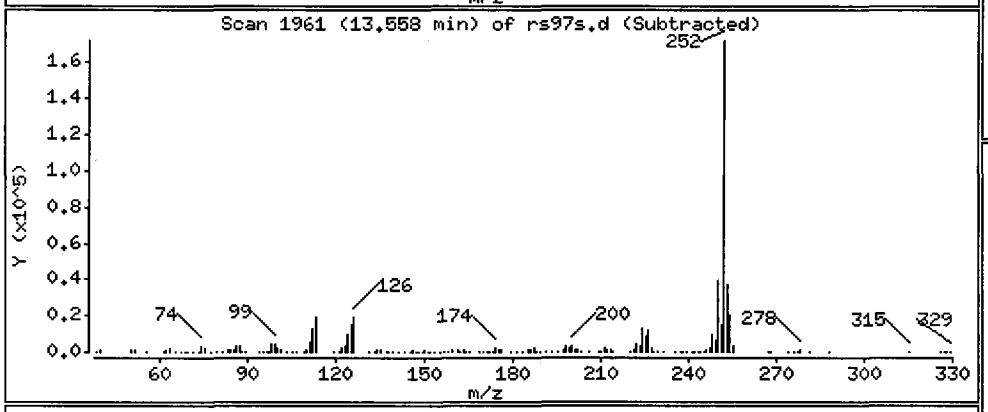
Sample Info: RS97S

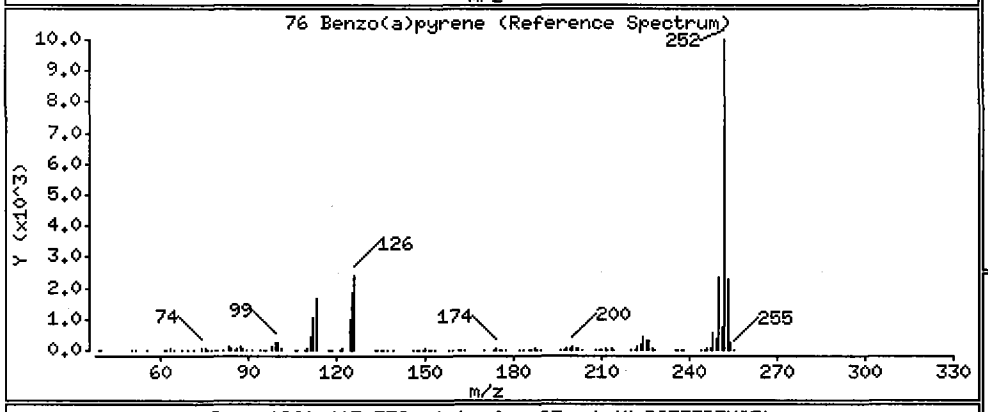
Volume Injected (uL): 1.0 | Operator: VTS

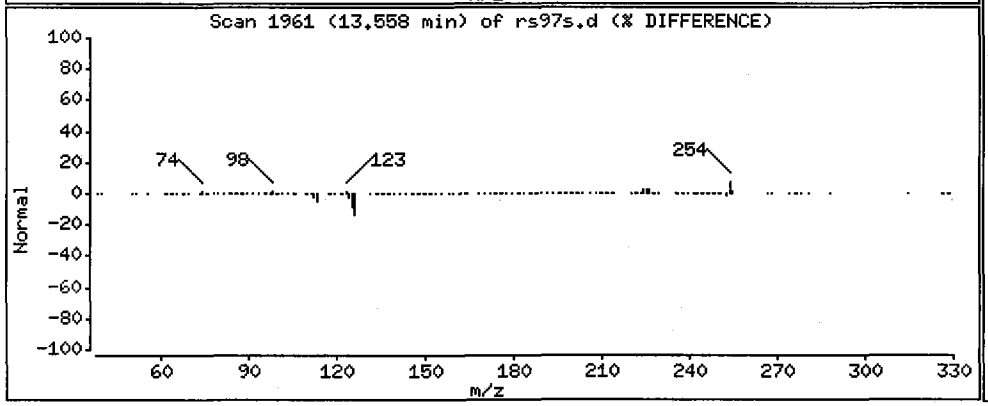
Column phase: ZB-5msi | Column diameter: 0.32

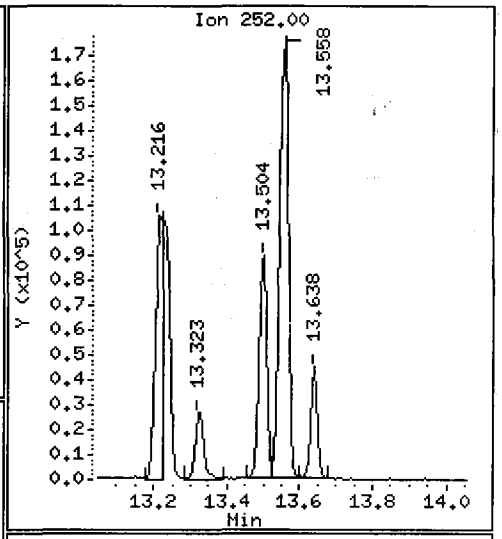
76 Benzo(a)pyrene | Concentration: 84440 ug/kg

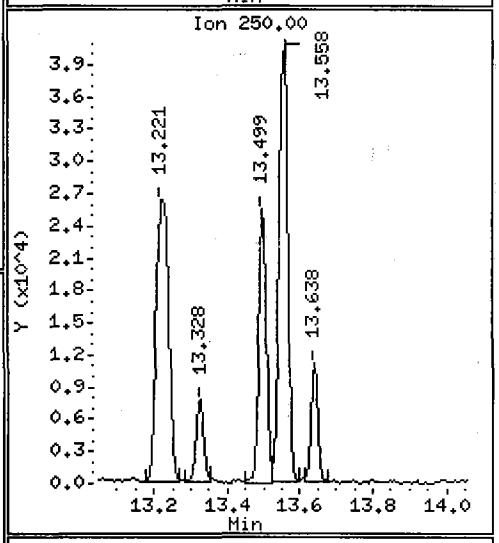


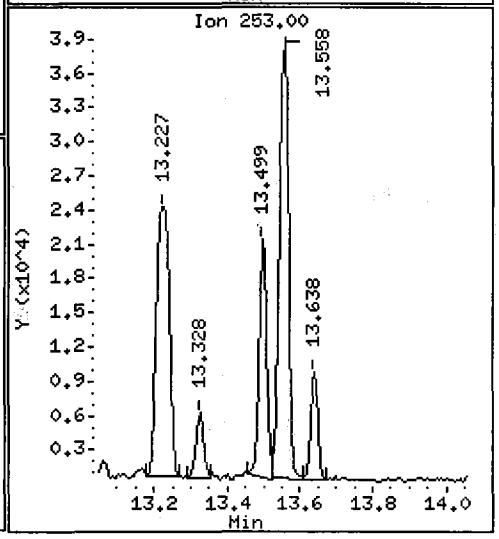












Data File: /chem1/nt12.i/20101110.b/rs97s.d

Date : 10-NOV-2010 19:55

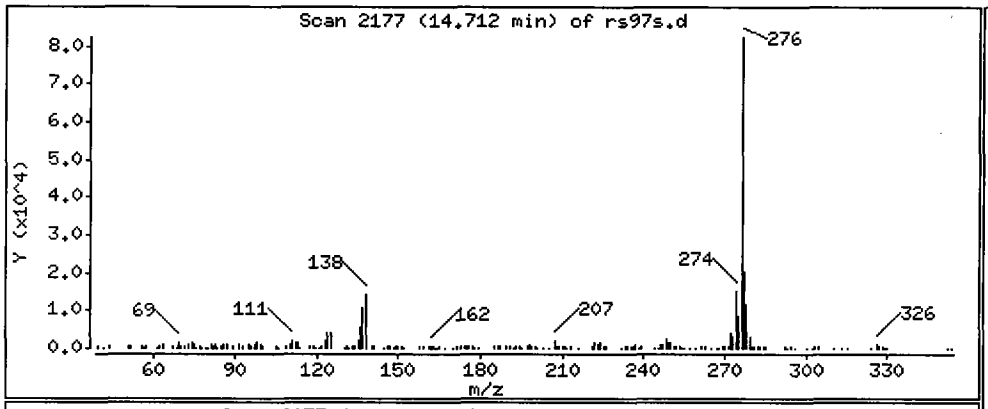
Client ID: DGS-07-12.713.2-101 Instrument: nt12.i

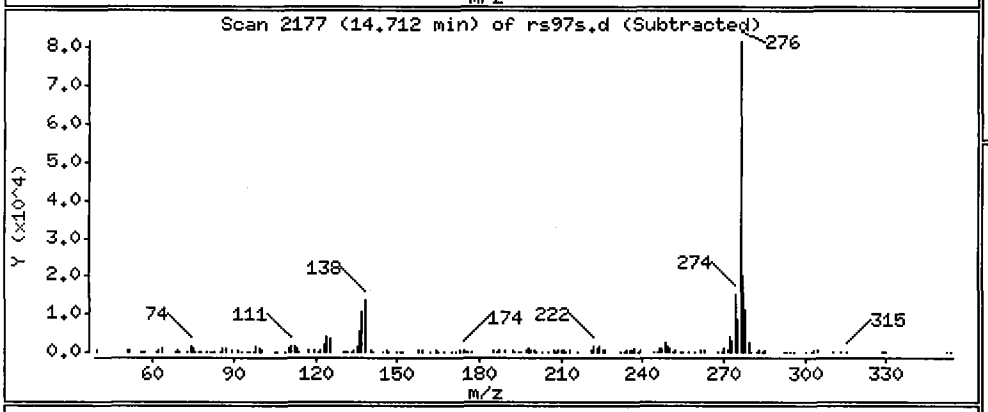
Sample Info: RS97S

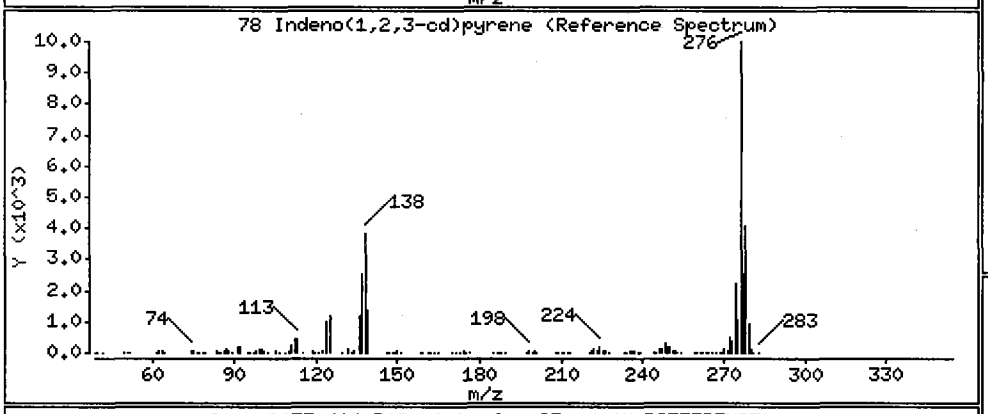
Volume Injected (uL): 1.0 Operator: VTS

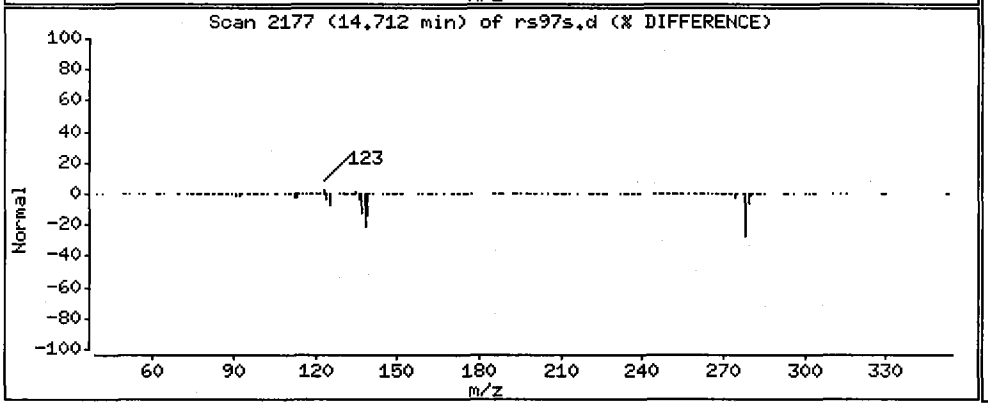
Column phase: ZB-5msi Column diameter: 0.32

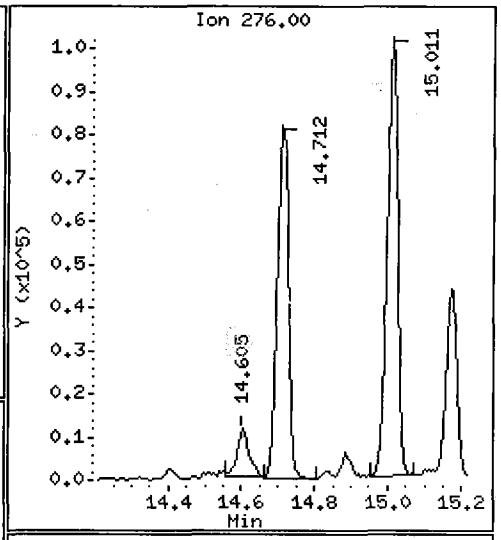
78 Indeno(1,2,3-cd)pyrene Concentration: 34940 ug/kg

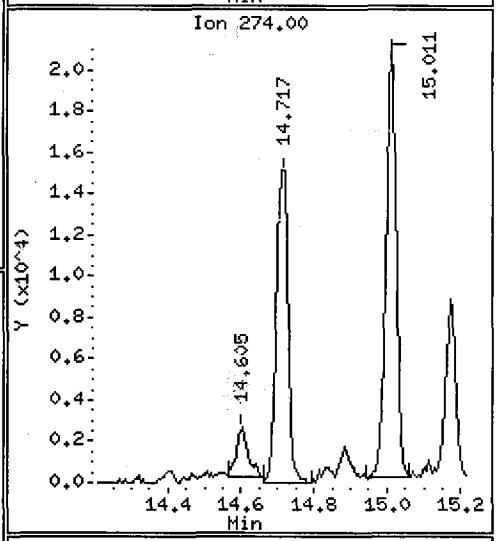


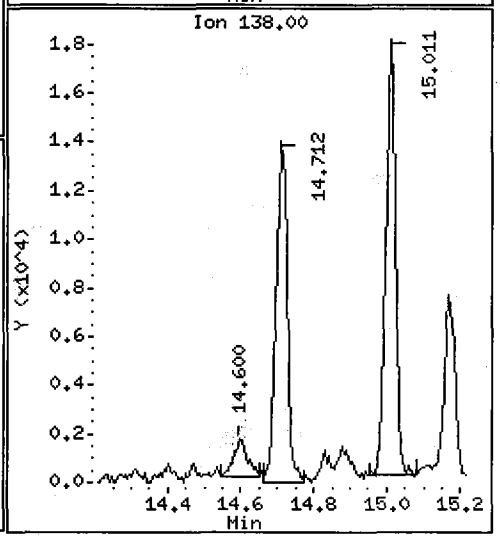












Data File: /chem1/nt12.i/20101110.b/rs97s.d

Date : 10-NOV-2010 19:55

Client ID: DGS-07-12.713.2-101

Instrument: nt12.i

Sample Info: RS97S

Volume Injected (uL): 1.0

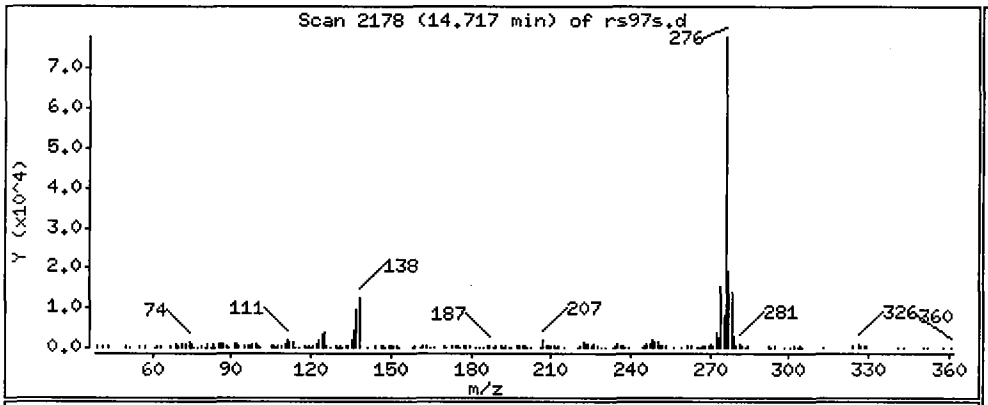
Operator: VTS

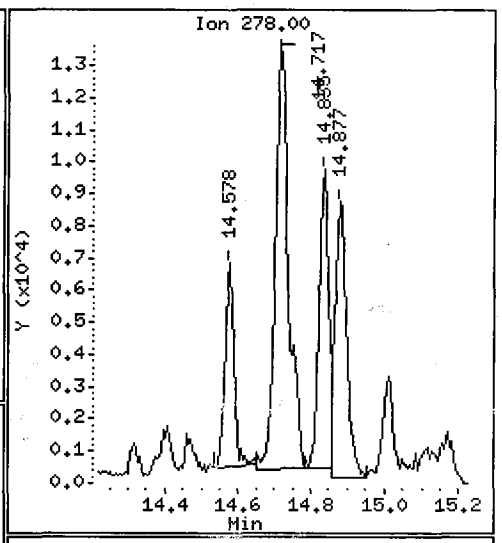
Column phase: ZB-5msi

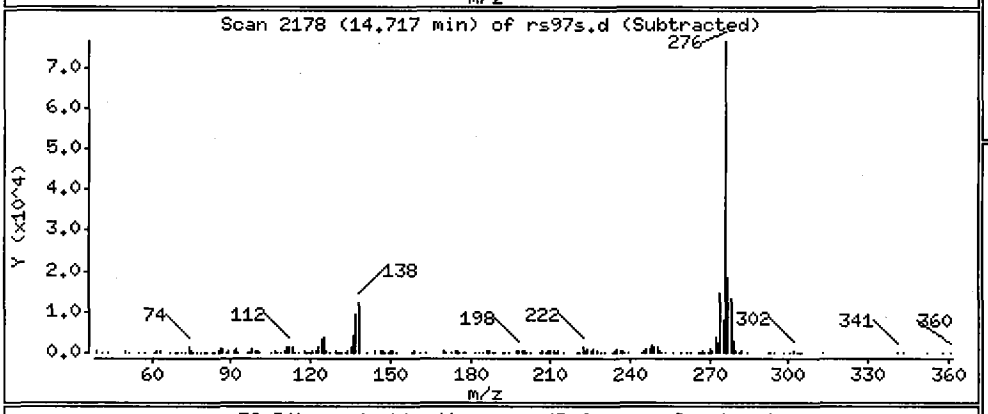
Column diameter: 0.32

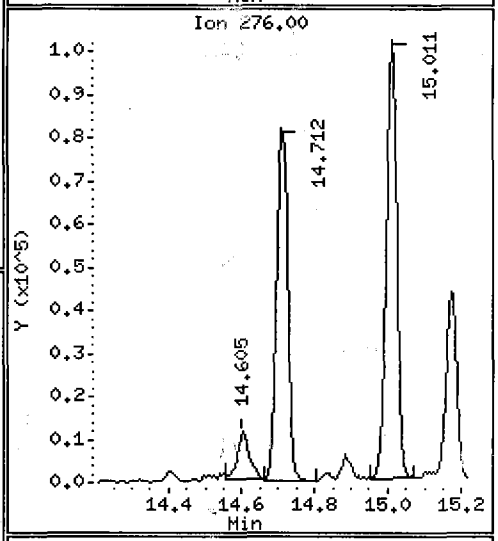
79 Dibenzo(a,h)anthracene

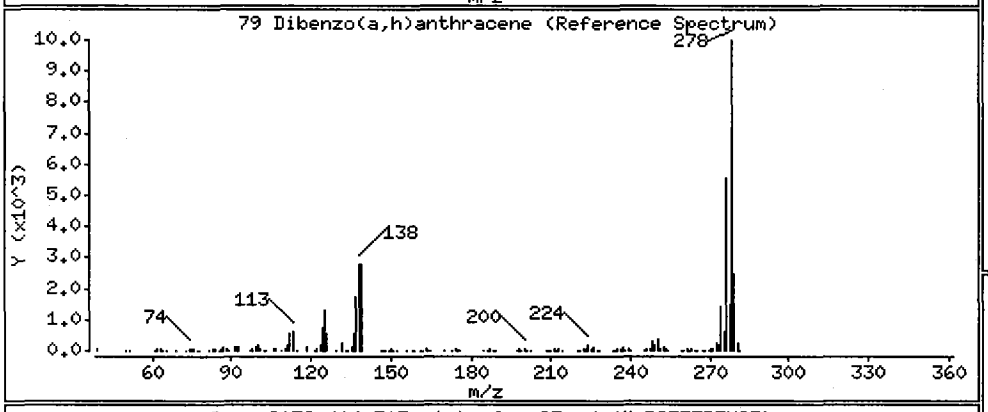
Concentration: 8233 ug/kg

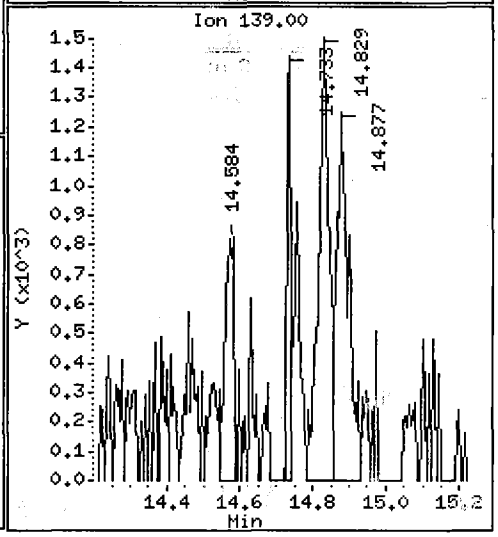


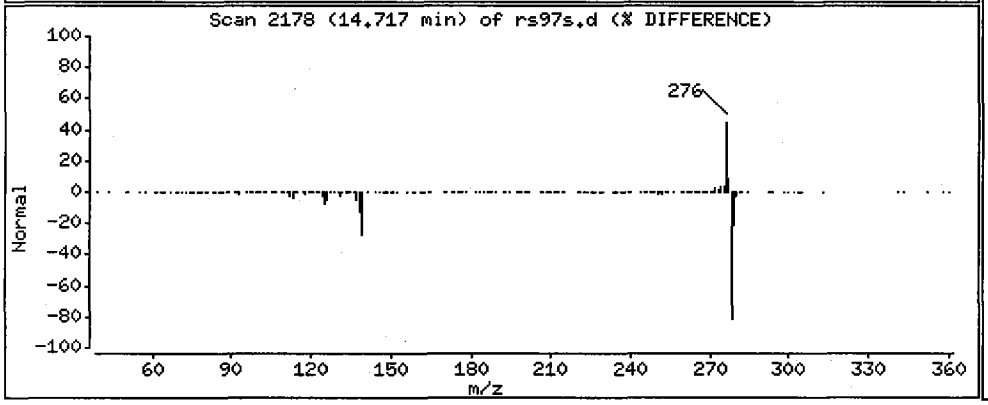












Data File: /chem1/nt12.i/20101110.b/rs97s.d

Date : 10-NOV-2010 19:55

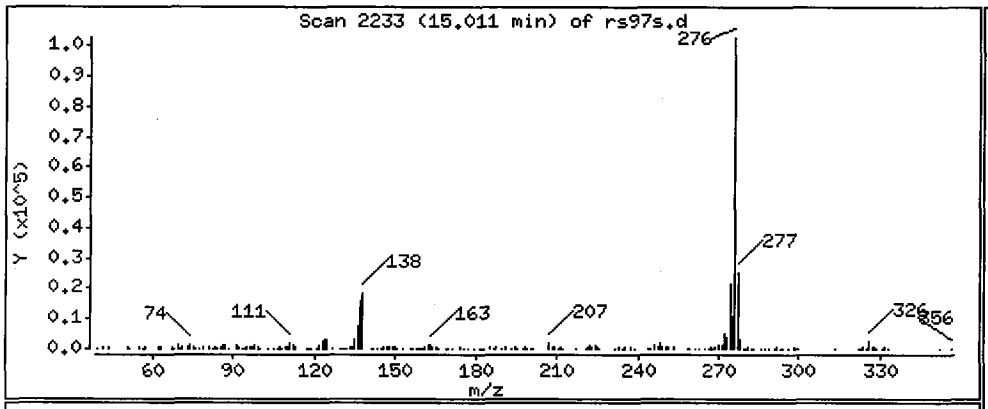
Client ID: DGS-07-12.713.2-101 | Instrument: nt12.i

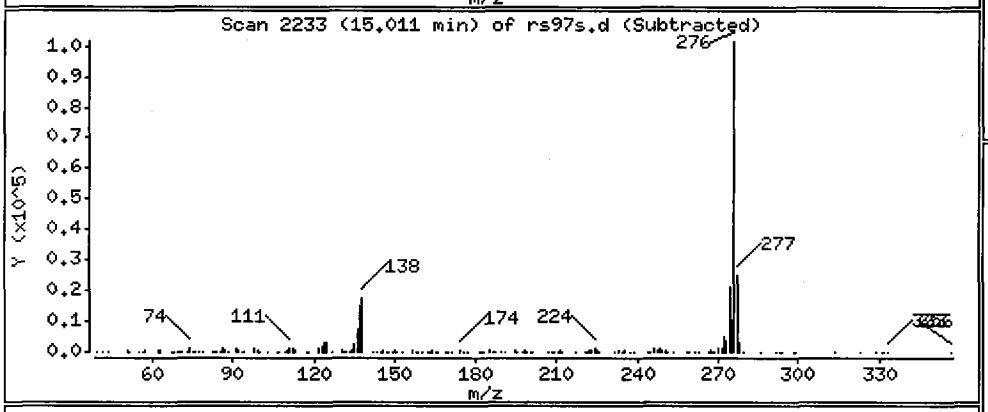
Sample Info: RS97S

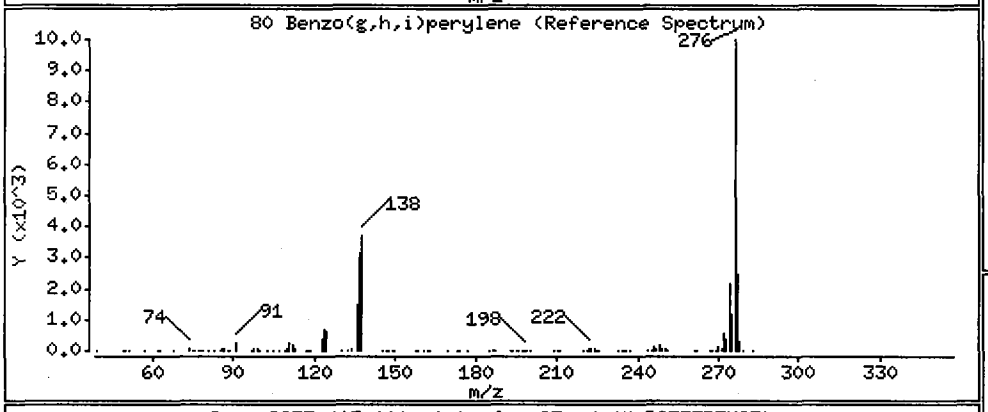
Volume Injected (uL): 1.0 | Operator: VTS

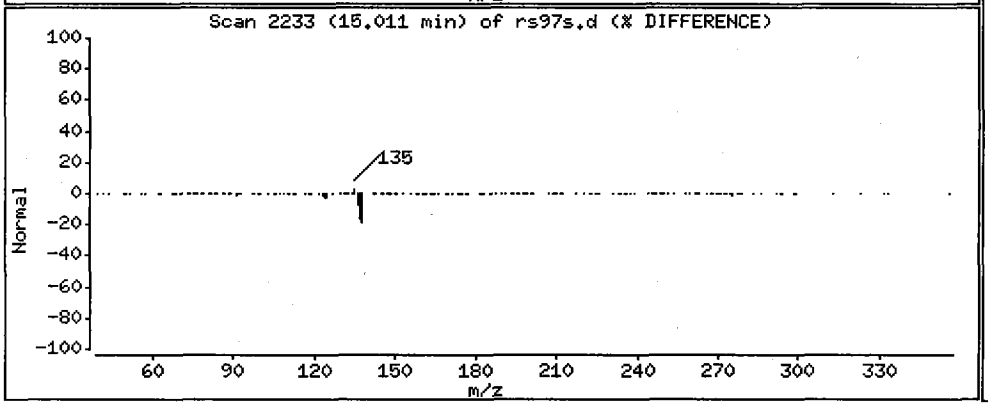
Column phase: ZB-5msi | Column diameter: 0.32

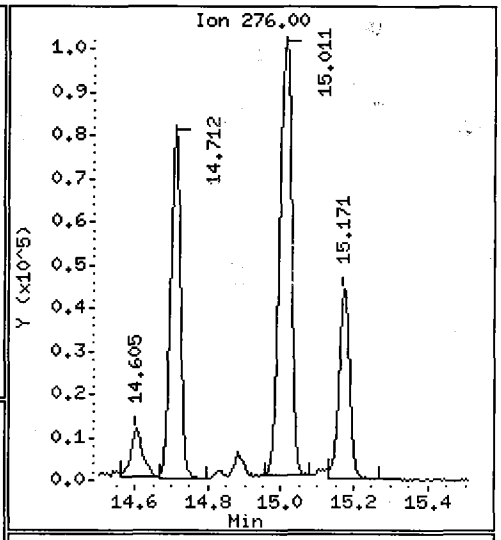
80 Benzo(g,h,i)perylene | Concentration: 56430 ug/kg

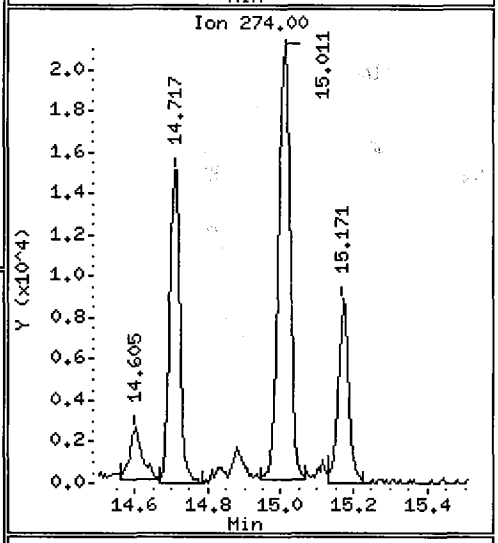


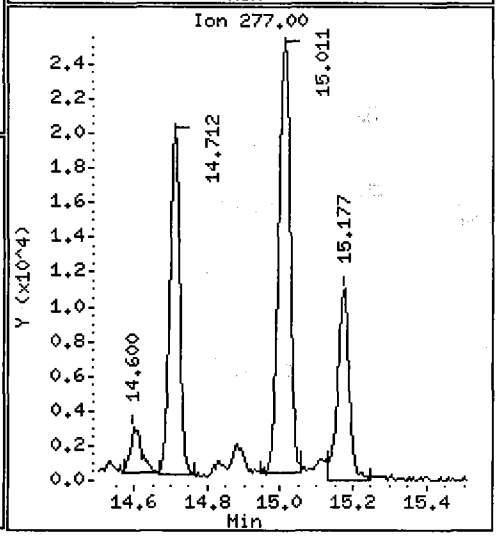








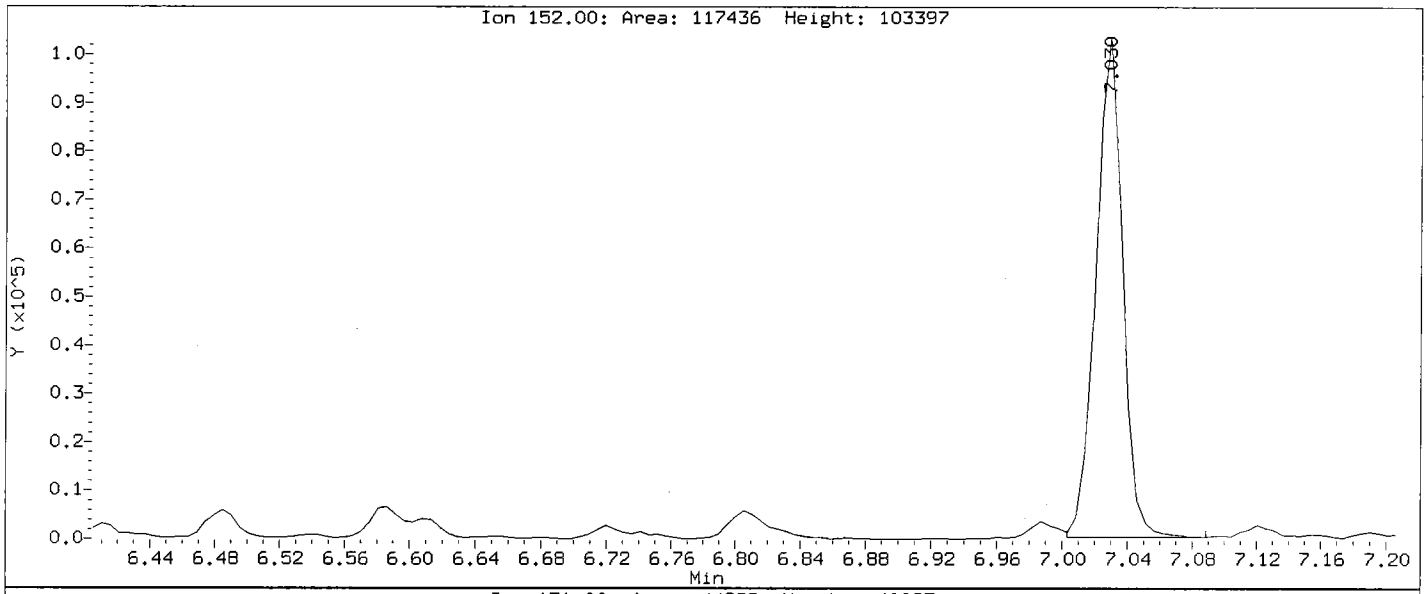


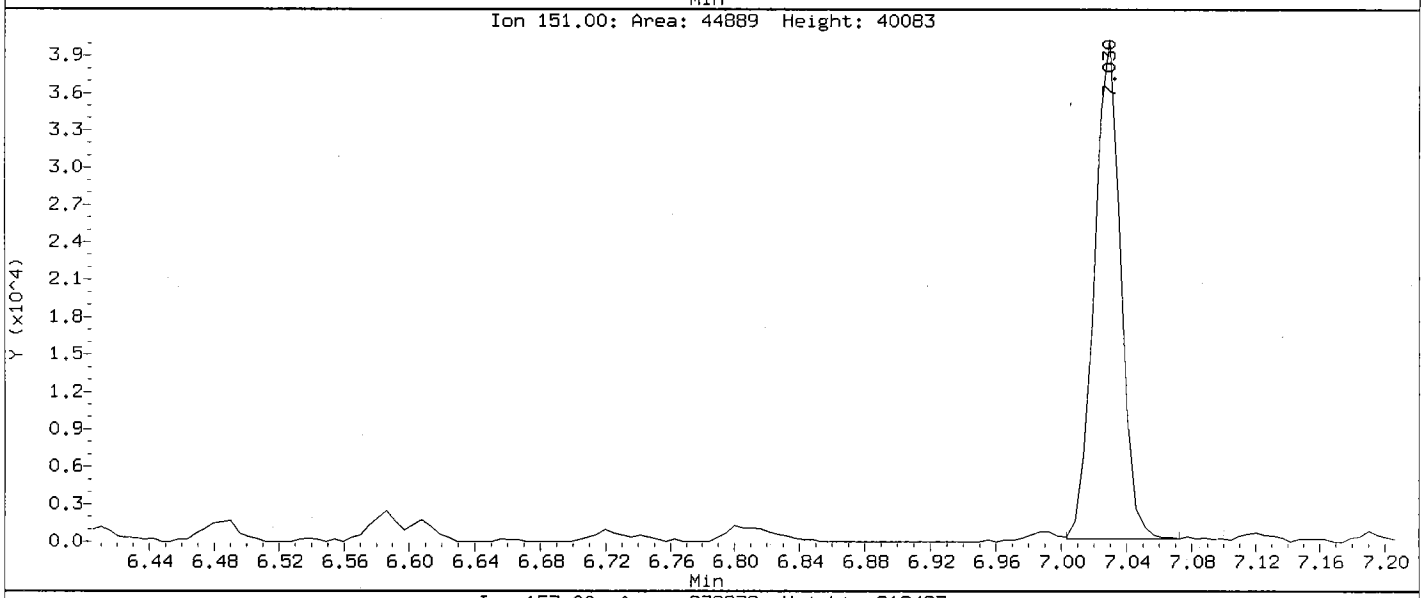


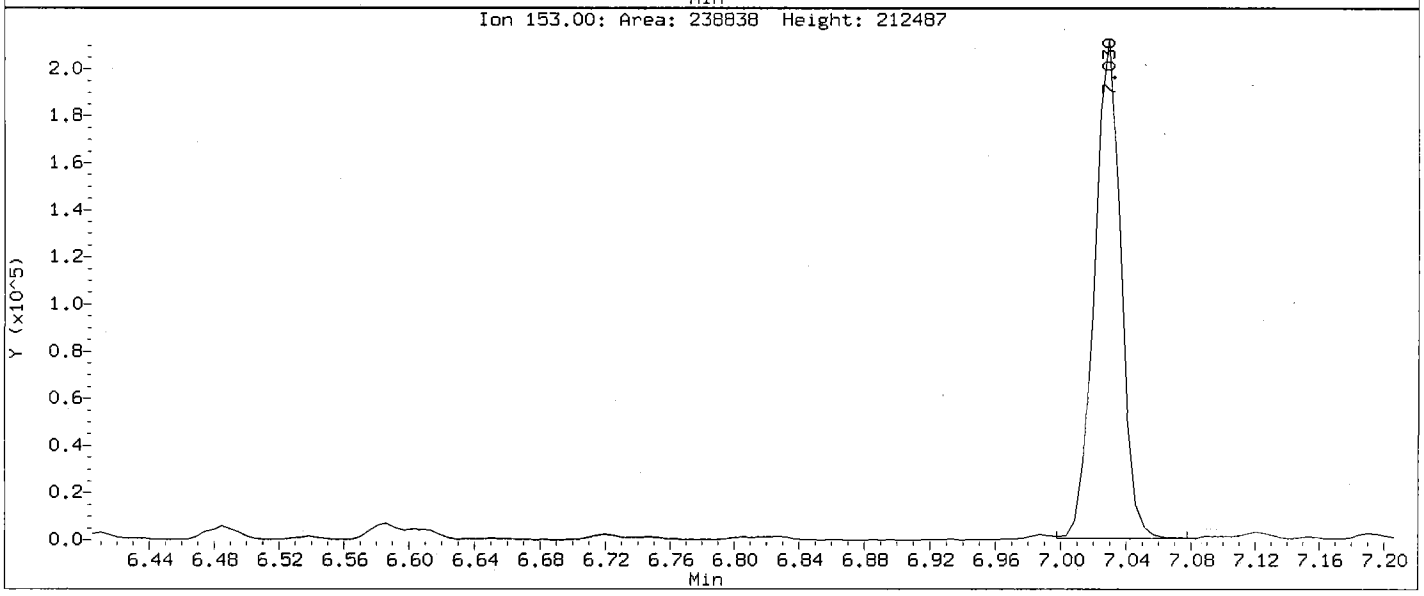
Data File: /chem1/nt12.i/20101110.b/rs97s.d
Injection Date: 10-NOV-2010 19:55
Instrument: nt12.i
Client Sample ID: DGS-07-12.713.2-101

VB
11.11.10

Compound: Acenaphthylene
CAS Number: 208-96-8

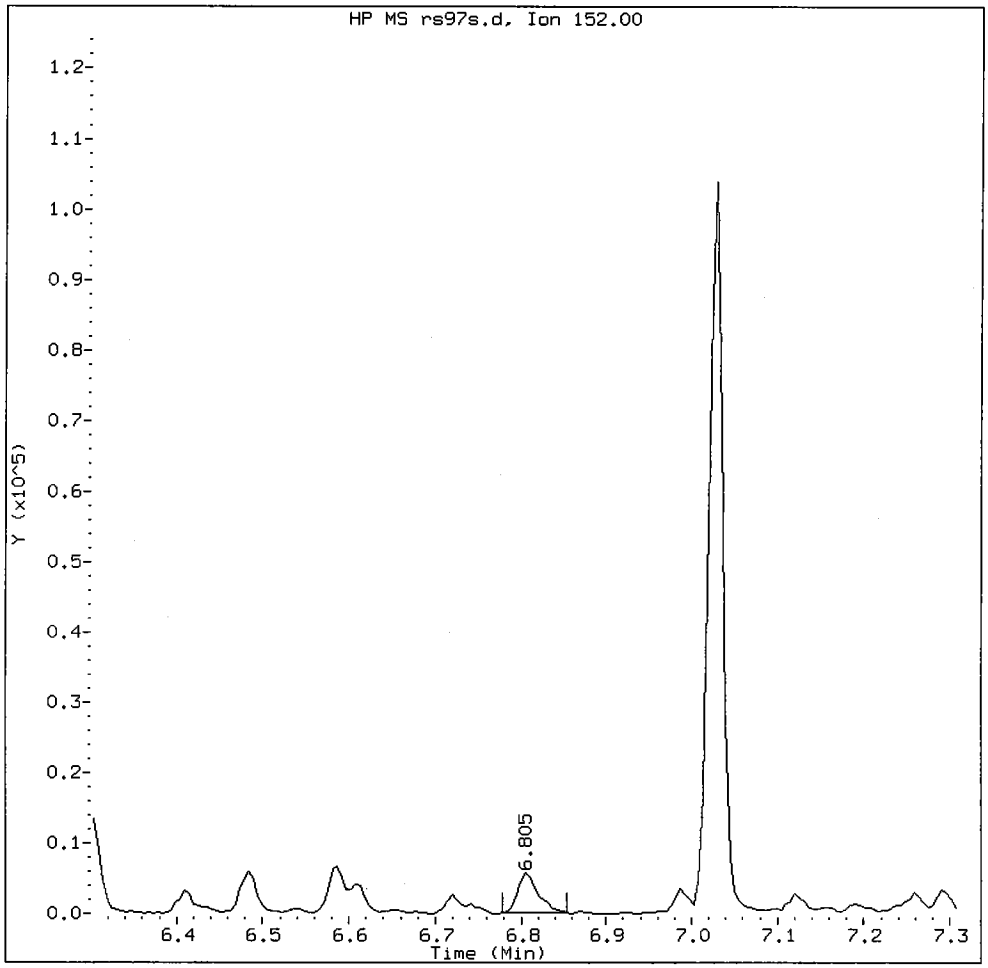






RS97S, /chem1/nt12.i/20101110.b/rs97s.d

Acenaphthylene Amount: 0.64 Area: 8824



MANUAL INTEGRATION for Acenaphthylene

1. Baseline correction
2. Poor chromatography
3. Peak not found
4. Totals calculation

5. Other _____

Analyst: VG Date: 11-11-10

Analytical Resources, Inc.

Semivolatile Report SW846 Method 8270D

Data file : /chem1/nt12.i/20101110.b/rs97adl.d
Lab Smp Id: RS97A Client Smp ID: GSM-08SO-10-11-1009
Inj Date : 10-NOV-2010 20:18
Operator : VTS Inst ID: nt12.i
Smp Info : RS97A,10
Misc Info : 10-27417
Comment : 1ul Injection
Method : /chem1/nt12.i/20101110.b/PNADMD.m
Meth Date : 10-Nov-2010 14:46 van Quant Type: ISTD
Cal Date : 30-OCT-2010 13:19 Cal File: ic1030f.d
Als bottle: 19
Dil Factor: 10.00000
Integrator: HP RTE Compound Sublist: pnas.sub
Target Version: 3.50
Processing Host: cserv3

Concentration Formula: Amt * DF * Vt/(Ws * (100 - M)/100) * CpndVariable

Name	Value	Description
DF	10.00000	Dilution Factor
Vt	10000.00000	Volume of final extract (uL)
Ws	5.36000	Weight of sample extracted (g)
M	31.20000	% Moisture

Cpnd Variable Local Compound Variable

Compounds	QUANT SIG MASS	RT	EXP RT	REL RT	RESPONSE	CONCENTRATIONS ON-COLUMN (ug/mL)	FINAL (ug/kg)
* 27 Naphthalene-d8	136	4.887	4.888	(1.000)	192645	20.0000	
28 Naphthalene	128	4.909	4.909	(1.004)	440242	40.1523	1089000
32 2-Methylnaphthalene	141	5.726	5.726	(1.172)	53009	9.05789	245600
105 1-methylnaphthalene	141	5.849	5.854	(1.197)	28438	4.71279	127800
$ 36 2-Fluorobiphenyl	172	Compound Not Detected.					
40 Acenaphthylene	152	Compound Not Detected.					
* 42 Acenaphthene-d10	164	6.987	6.992	(1.000)	120097	20.0000	
44 Acenaphthene	153	7.024	7.030	(1.005)	65631	8.88594	241000
46 Dibenzofuran	168	7.227	7.222	(1.034)	5834	0.51510	13970
49 Fluorene	166	7.639	7.639	(1.093)	34950	4.13287	112100
* 59 Phenanthrene-d10	188	8.761	8.761	(1.000)	213167	20.0000	
60 Phenanthrene	178	8.787	8.787	(1.003)	278021	24.5847	666700
61 Anthracene	178	8.841	8.846	(1.009)	45110	3.85958	104700
62 Carbazole	167	9.065	9.065	(1.035)	7952	~~0.84339~~	22870 NR

Compounds	QUANT SIG MASS	RT	EXP RT	REL RT	RESPONSE	CONCENTRATIONS ON-COLUMN (ug/mL)	FINAL (ug/kg)
64 Fluoranthene	202	10.235	10.235	(0.854)	162770	10.4411	283100
65 Pyrene	202	10.502	10.502	(0.876)	199648	12.9091	350100
$ 66 Terphenyl-d14	244	Compound Not Detected.					
68 Benzo(a)anthracene	228	11.966	11.971	(0.998)	38802	3.09591	83950
* 69 Chrysene-d12	240	11.987	11.993	(1.000)	223178	20.0000	
71 Chrysene	228	12.014	12.019	(1.002)	48551	4.14344	112400
187 Total Benzofluoranthenes	252	13.216	13.243	(0.971)	54259	4.59263	124500
76 Benzo(a)pyrene	252	13.547	13.553	(0.995)	47649	4.39038	119100
* 77 Perylene-d12	264	13.611	13.611	(1.000)	198354	20.0000	
99 Perylene	252	13.633	13.638	(1.002)	13816	1.19712	32460 NR
78 Indeno(1,2,3-cd)pyrene	276	14.701	14.712	(1.080)	28648	1.77794	48210
79 Dibenzo(a,h)anthracene	278	Compound Not Detected.					
80 Benzo(g,h,i)perylene	276	14.995	15.006	(1.102)	35163	2.65639	72030

LB
11-11-10

Analytical Resources, Inc.

INTERNAL STANDARD COMPOUNDS
AREA AND RT SUMMARY

Instrument ID: nt12.i
Lab File ID: rs97adl.d
Lab Smp Id: RS97A
Analysis Type: SV
Quant Type: ISTD
Operator: VTS
Method File: /chem1/nt12.i/20101110.b/PNADMD.m
Misc Info: 10-27417

Calibration Date: 10-NOV-2010
Calibration Time: 13:29
Client Smp ID: GSM-08SO-10-11-1
Level: LOW
Sample Type: Soil

Test Mode:
Use Initial Calibration Level 4.

COMPOUND	STANDARD	AREA LIMIT LOWER	AREA LIMIT UPPER	SAMPLE	%DIFF
27 Naphthalene-d8	237664	118832	475328	192645	-18.94
42 Acenaphthene-d10	143363	71682	286726	120097	-16.23
59 Phenanthrene-d10	245437	122718	490874	213167	-13.15
69 Chrysene-d12	199260	99630	398520	223178	12.00
77 Perylene-d12	197636	98818	395272	198354	0.36

COMPOUND	STANDARD	RT LIMIT LOWER	RT LIMIT UPPER	SAMPLE	%DIFF
27 Naphthalene-d8	4.89	4.39	5.39	4.89	0.00
42 Acenaphthene-d10	6.99	6.49	7.49	6.99	-0.08
59 Phenanthrene-d10	8.76	8.26	9.26	8.76	0.00
69 Chrysene-d12	11.99	11.49	12.49	11.99	-0.05
77 Perylene-d12	13.61	13.11	14.11	13.61	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.

Analytical Resources, Inc.

RECOVERY REPORT

Client Name: NW Natural
Sample Matrix: SOLID
Lab Smp Id: RS97A
Level: LOW
Data Type: MS DATA
SpikeList File: SONICLCS.spk
Sublist File: pnas.sub
Method File: /chem1/nt12.i/20101110.b/PNADMD.m
Misc Info: 10-27417

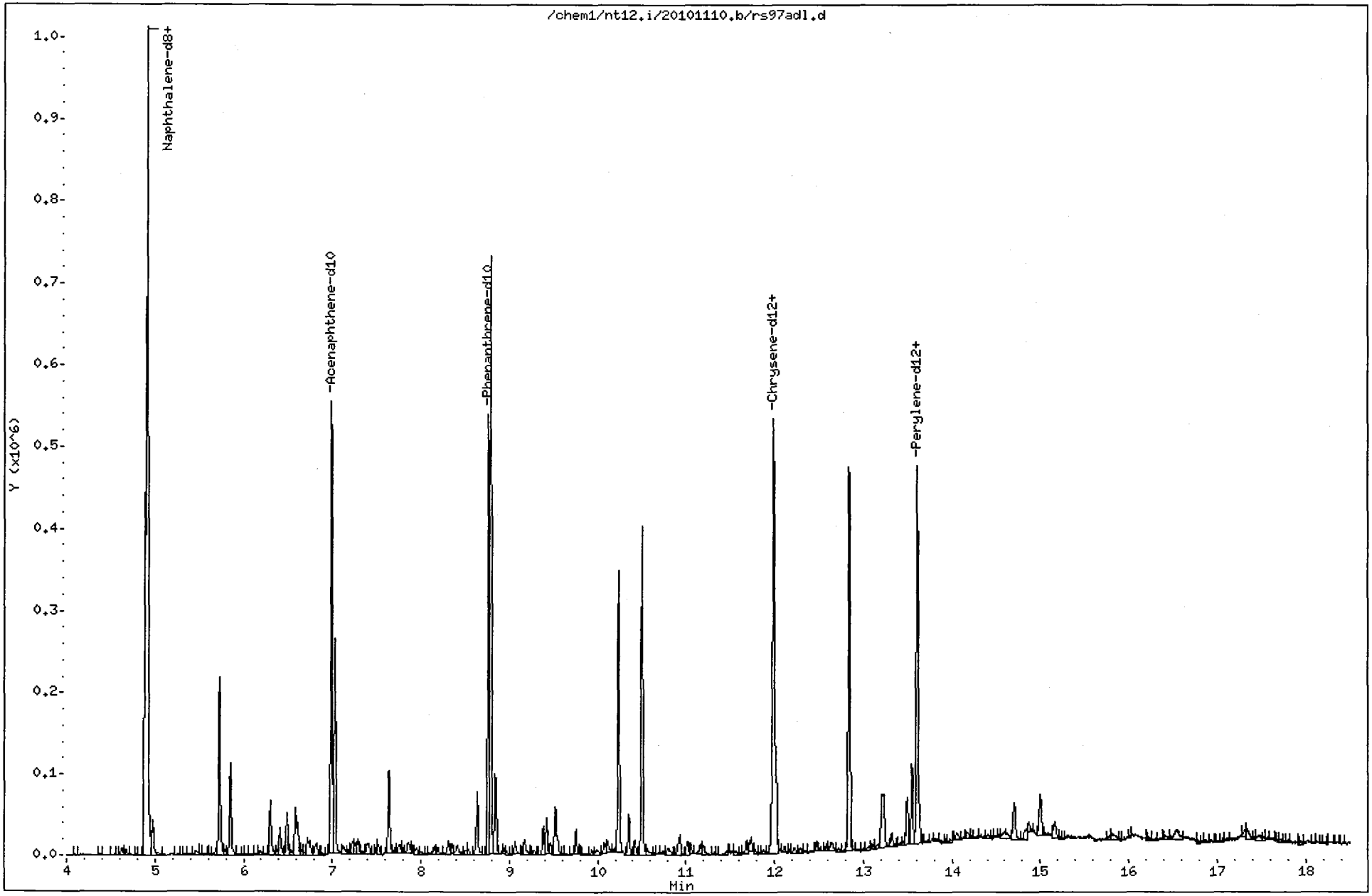
Client SDG: RS97
Fraction: SV
Client Smp ID: GSM-08SO-10-11-1009
Operator: VTS
SampleType: SAMPLE
Quant Type: ISTD

SURROGATE COMPOUND	CONC ADDED ug/kg	CONC RECOVERED ug/kg	% RECOVERED	LIMITS
$ 36 2-Fluorobiphenyl	6779	0.000	*	34-100
$ 66 Terphenyl-d14	6779	0.000	*	35-112

D. 11/5/10

Data File: /chem1/nt12.i/20101110.b/rs97ad1.d
Date : 10-NOV-2010 20:18
Client ID: GSM-08SO-10-11-1009
Sample Info: RS97A,10
Volume Injected (uL): 1.0
Column phase: ZB-5msi

Instrument: nt12.i
Operator: VTS
Column diameter: 0.32



RS97:00651

Data File: /chem1/nt12.i/20101110.b/rs97ad1.d

Date : 10-NOV-2010 20:18

Client ID: GSM-08SO-10-11-1009

Instrument: nt12.i

Sample Info: RS97A,10

Volume Injected (uL): 1.0

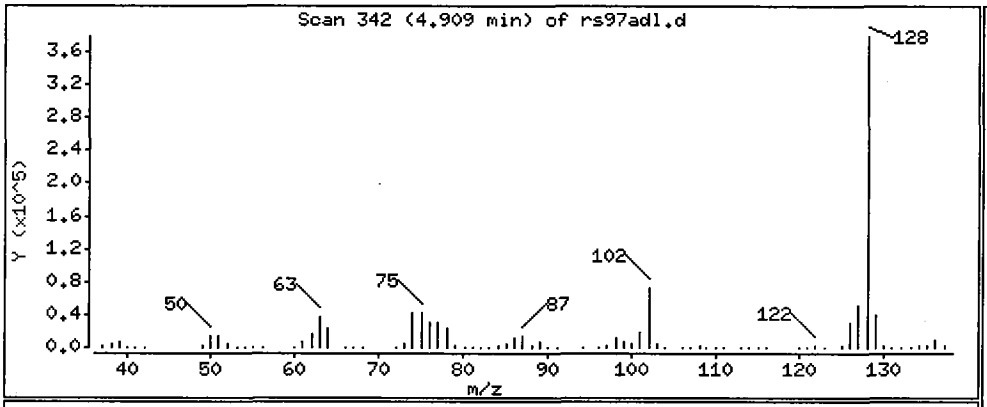
Operator: VTS

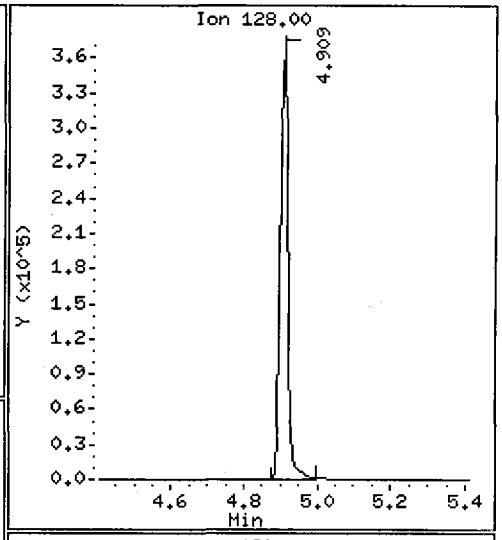
Column phase: ZB-5msi

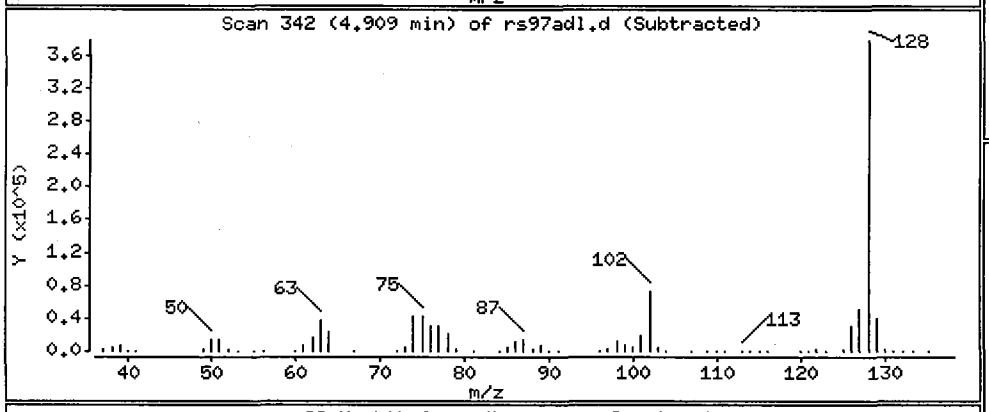
Column diameter: 0.32

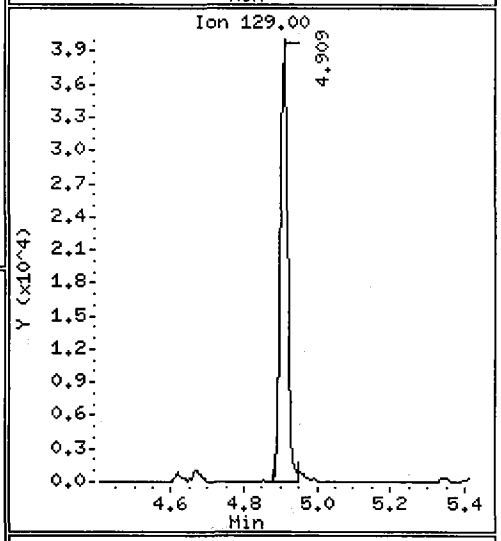
28 Naphthalene

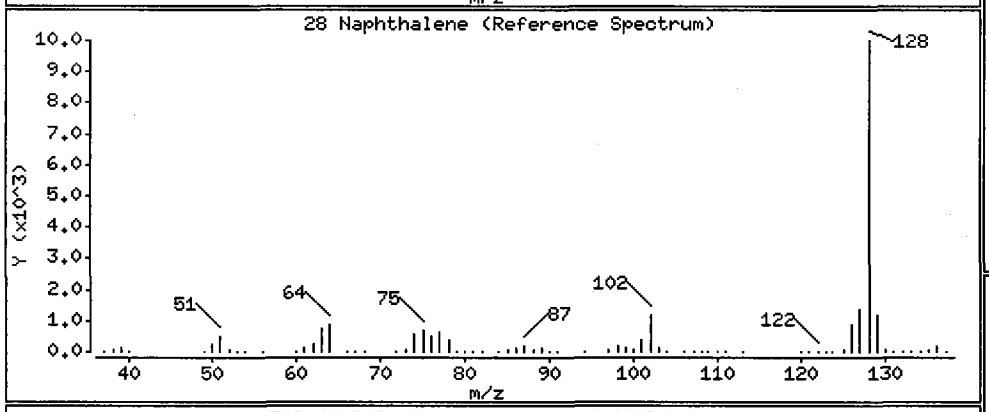
Concentration: 1089000 ug/kg

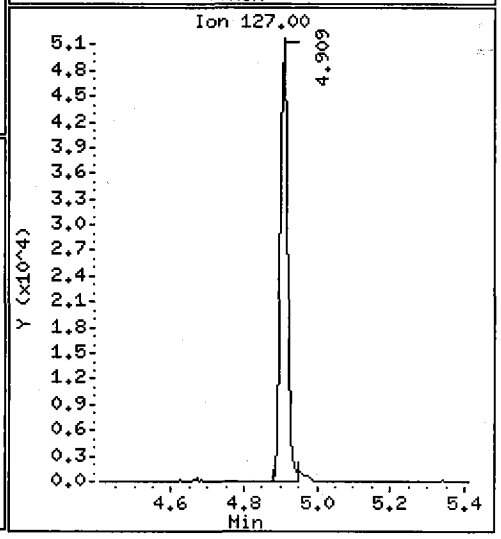


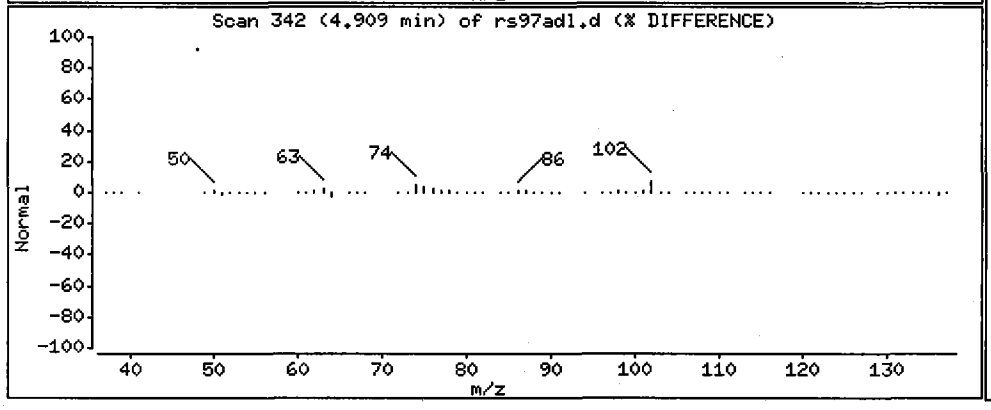












Data File: /chem1/nt12.i/20101110.b/rs97ad1.d

Date : 10-NOV-2010 20:18

Client ID: GSM-08SO-10-11-1009

Instrument: nt12.i

Sample Info: RS97A,10

Volume Injected (uL): 1.0

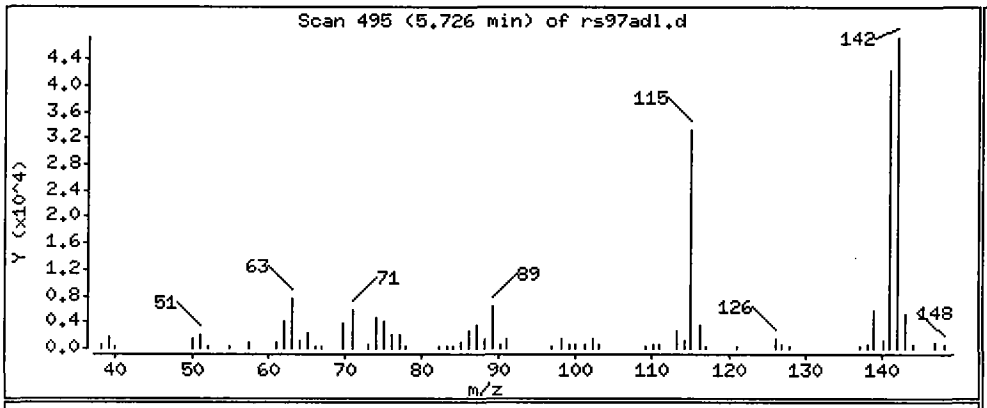
Operator: VTS

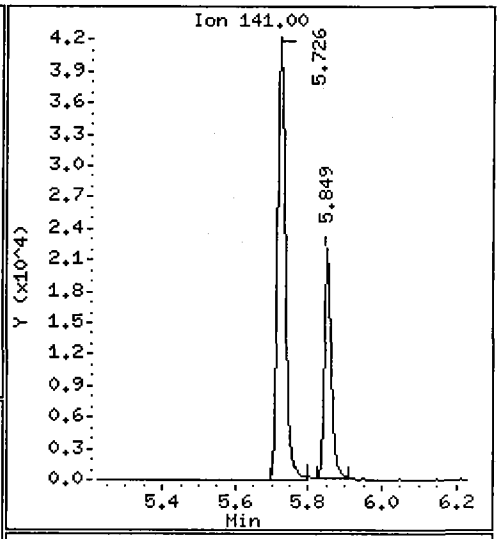
Column phase: ZB-5msi

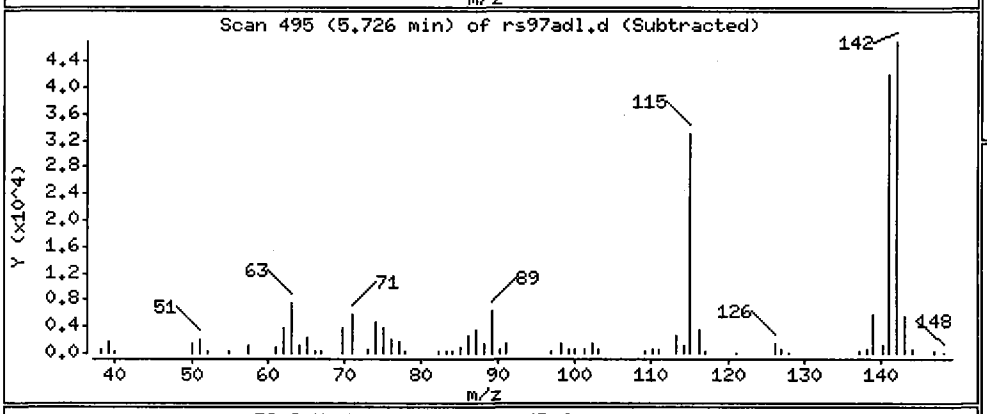
Column diameter: 0.32

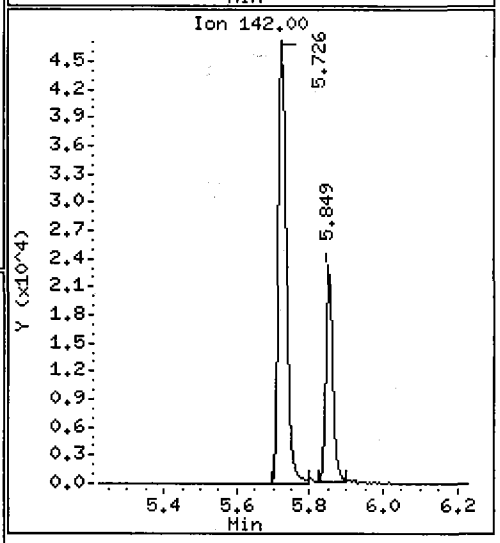
32 2-Methylnaphthalene

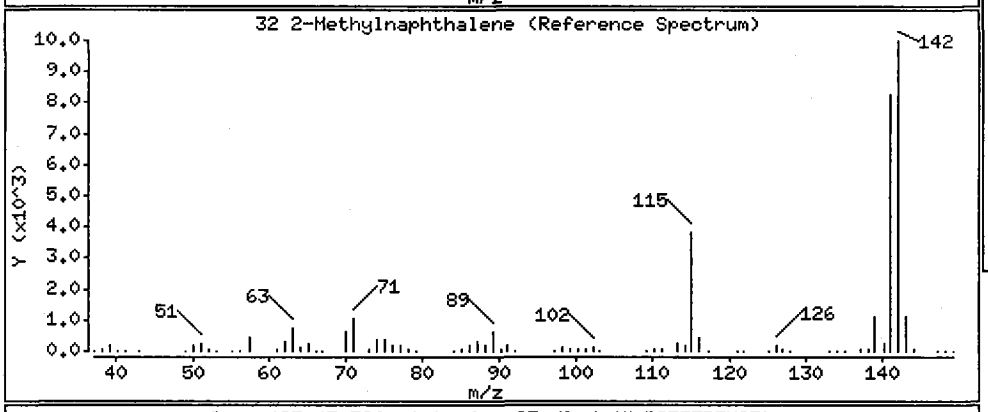
Concentration: 245600 ug/kg

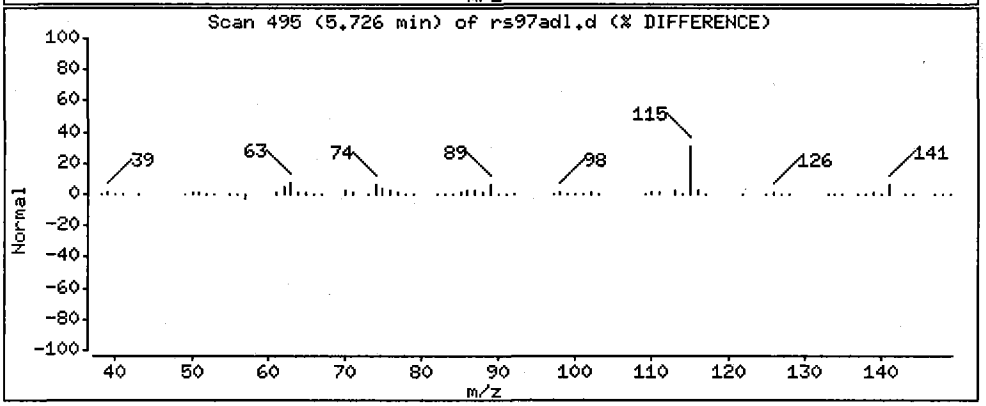












Data File: /chem1/nt12.i/20101110.b/rs97adl.d

Date : 10-NOV-2010 20:18

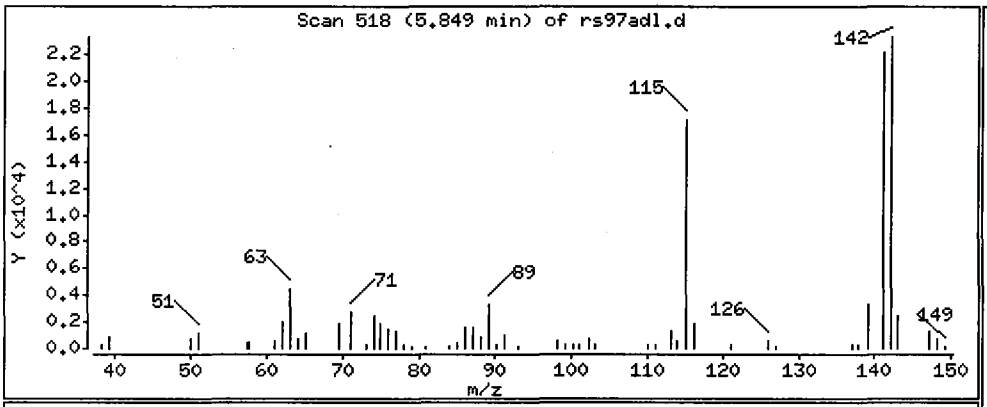
Client ID: GSM-08SO-10-11-1009 Instrument: nt12.i

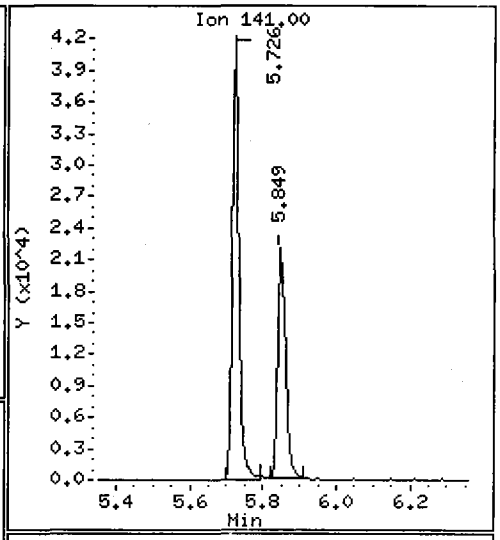
Sample Info: RS97A,10

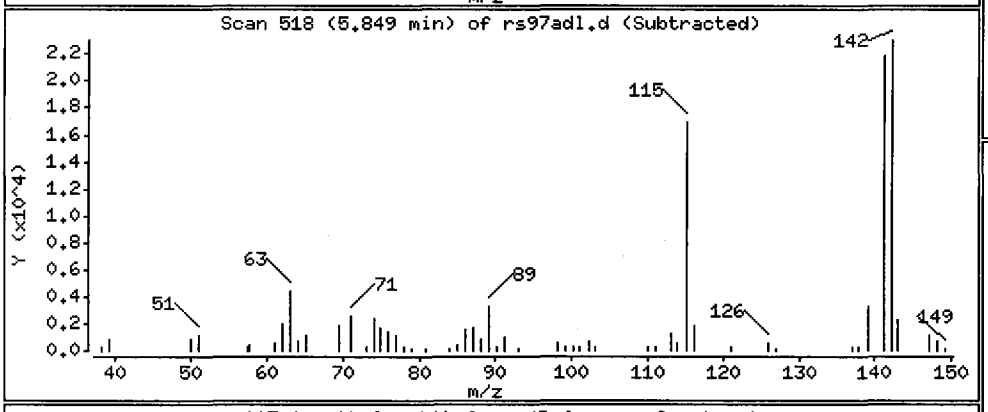
Volume Injected (uL): 1.0 Operator: VTS

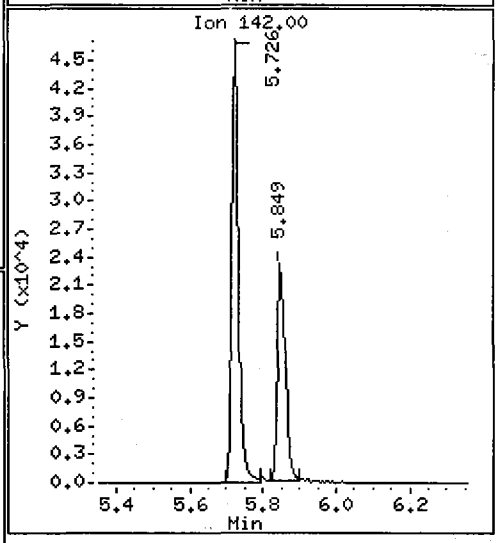
Column phase: ZB-5msi Column diameter: 0.32

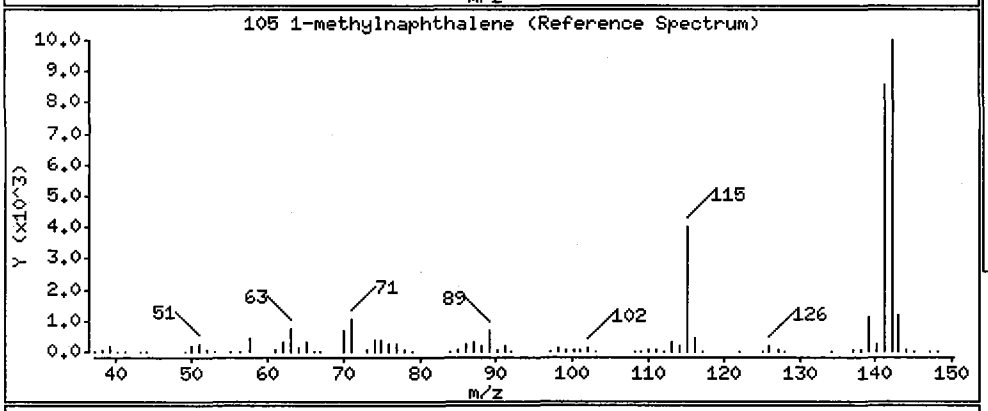
105 1-methylnaphthalene Concentration: 127800 ug/kg

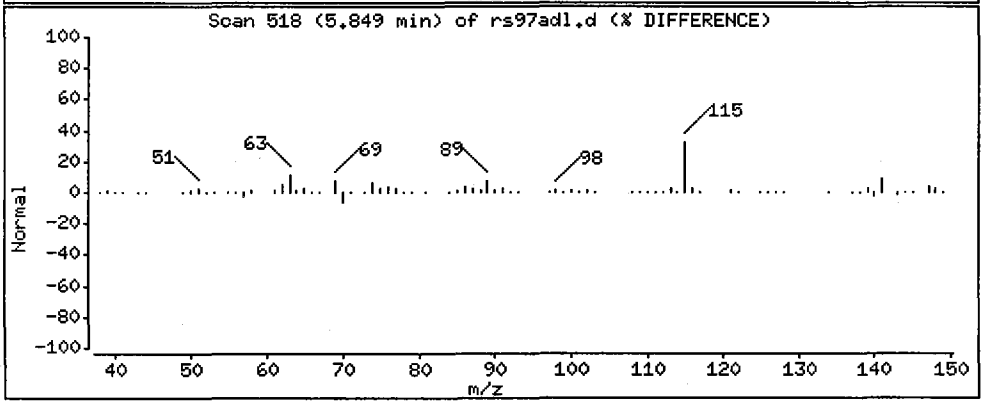












Data File: /chem1/nt12.i/20101110.b/rs97ad1.d

Date : 10-NOV-2010 20:18

Client ID: GSM-08SO-10-11-1009

Instrument: nt12.i

Sample Info: RS97A,10

Volume Injected (uL): 1.0

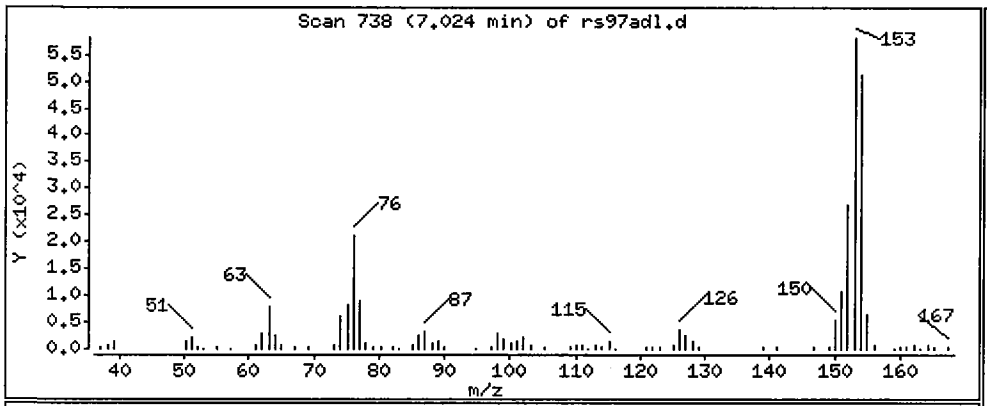
Operator: VTS

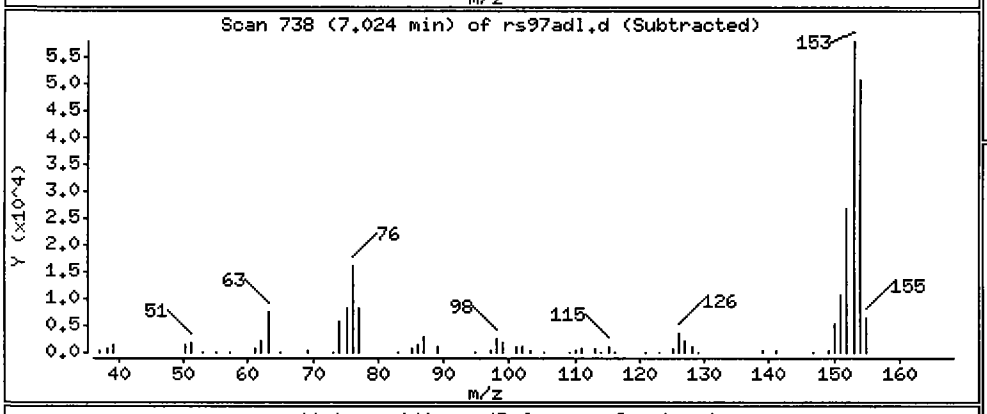
Column phase: ZB-5msi

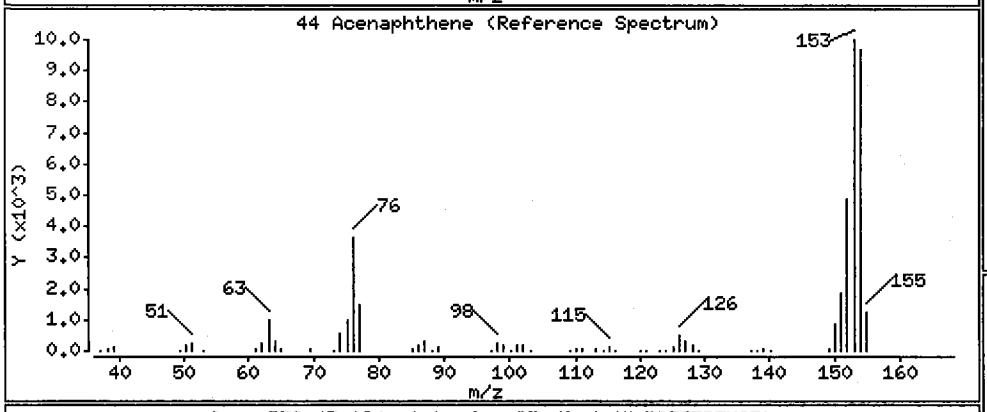
Column diameter: 0.32

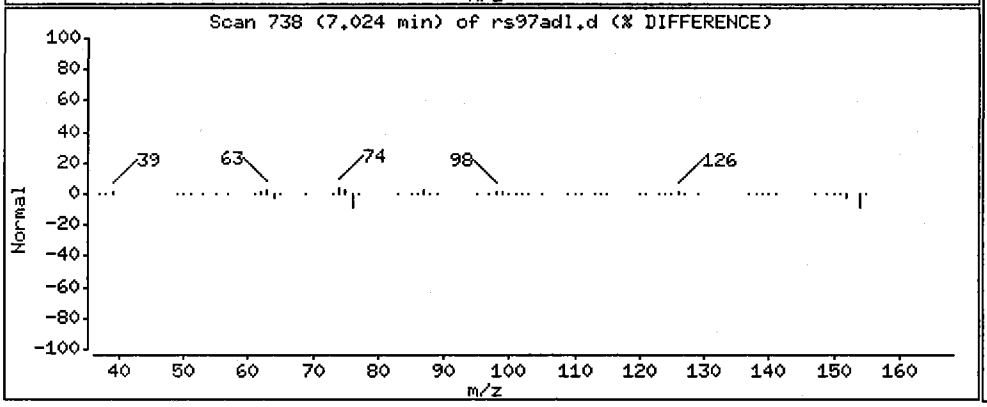
44 Acenaphthene

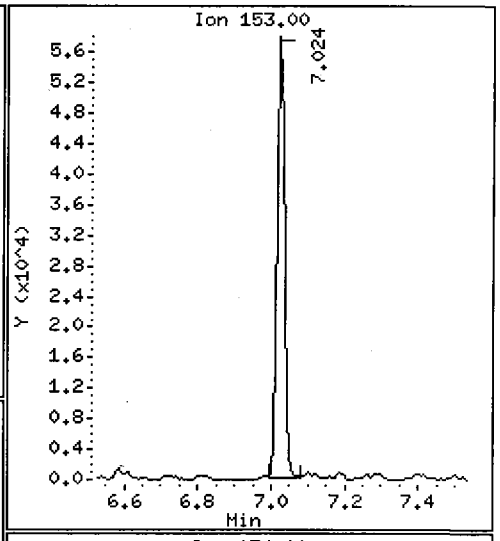
Concentration: 241000 ug/kg

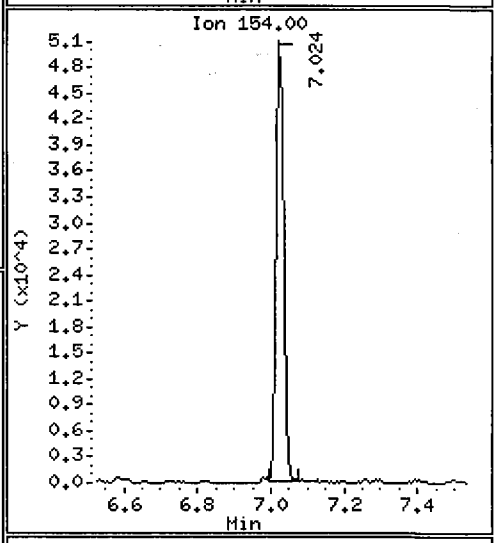


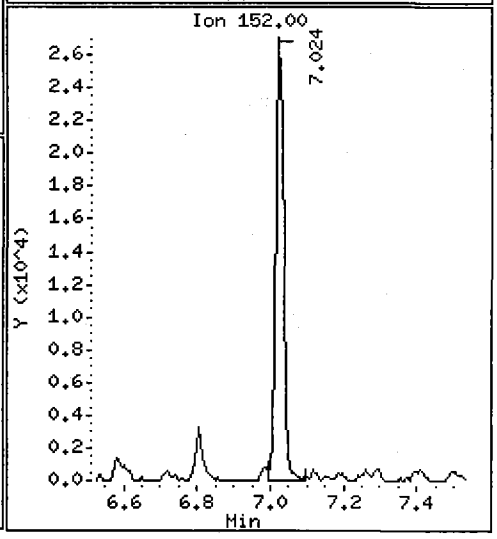












Data File: /chem1/nt12.i/20101110.b/rs97ad1.d

Date : 10-NOV-2010 20:18

Client ID: GSM-08SO-10-11-1009

Instrument: nt12.i

Sample Info: RS97A,10

Volume Injected (uL): 1.0

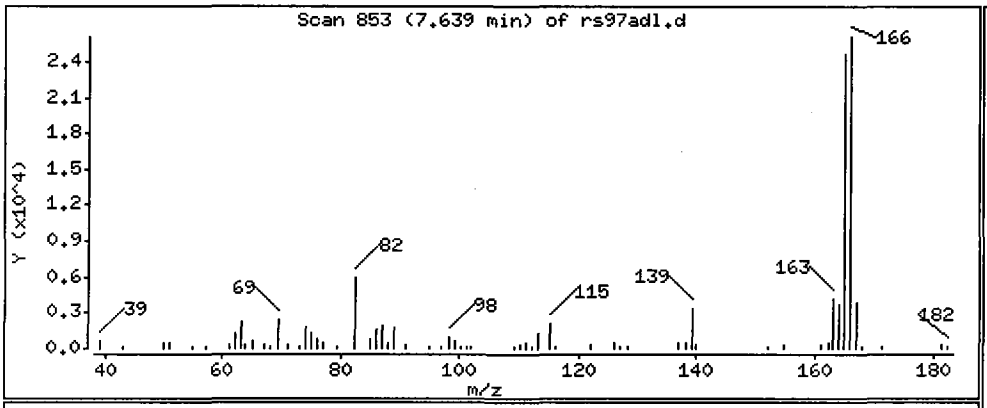
Operator: VTS

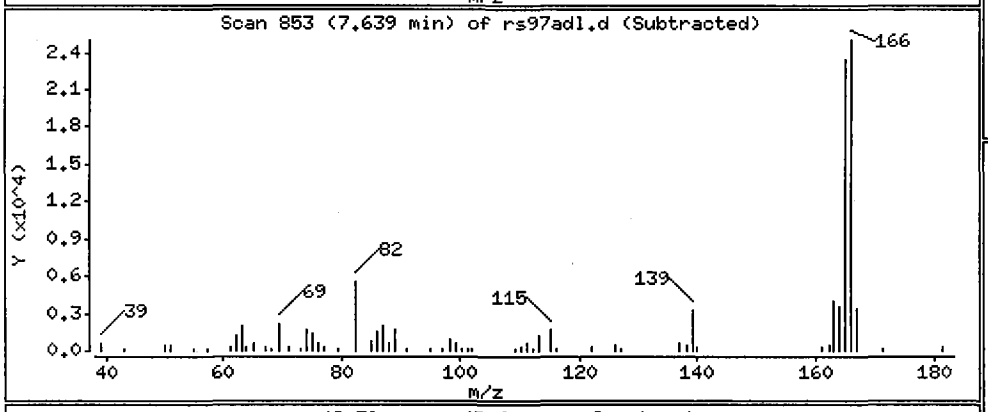
Column phase: ZB-5msi

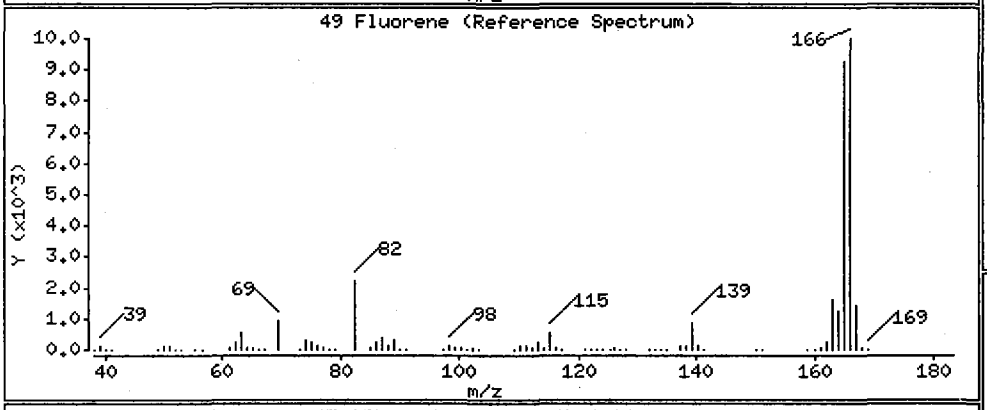
Column diameter: 0.32

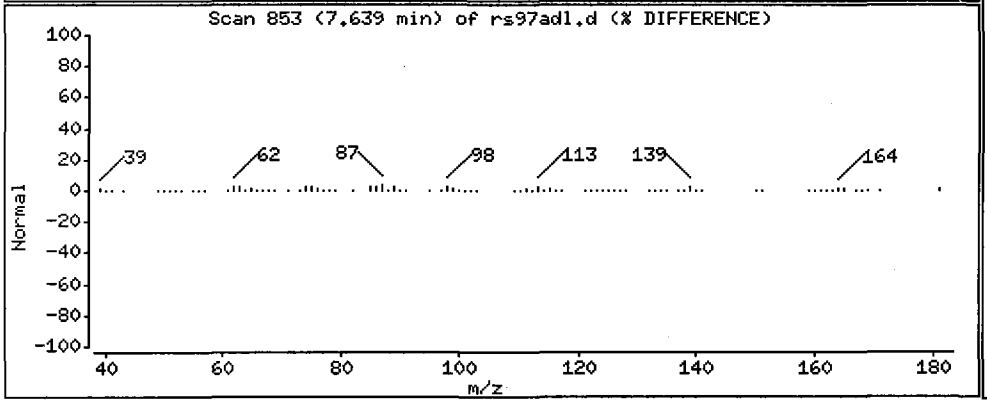
49 Fluorene

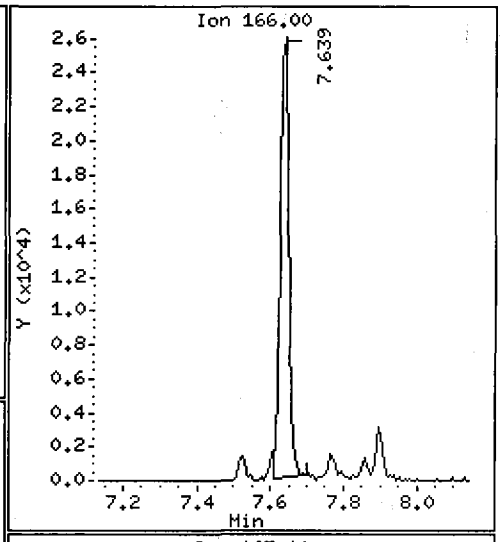
Concentration: 112100 ug/kg

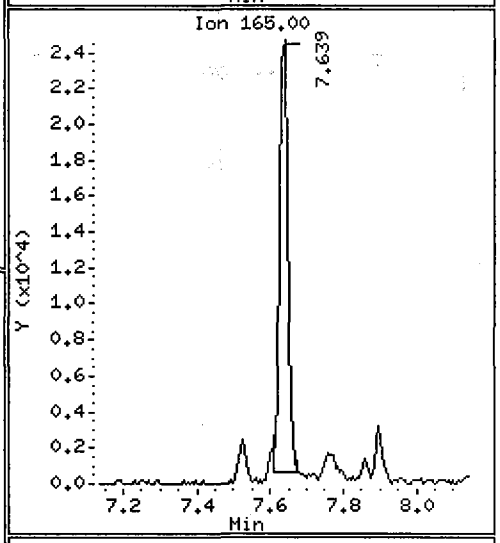


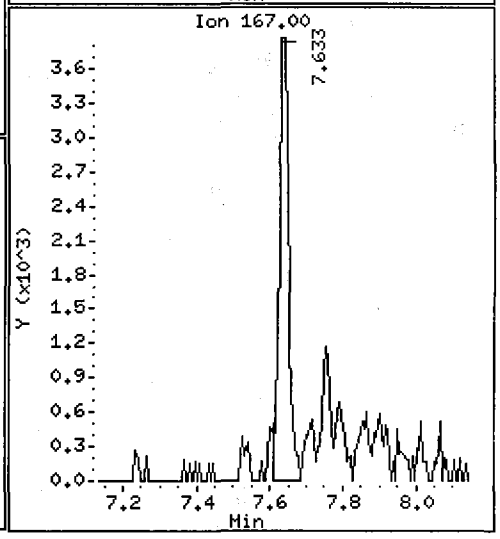












Data File: /chem1/nt12.i/20101110.b/rs97adl.d

Date : 10-NOV-2010 20:18

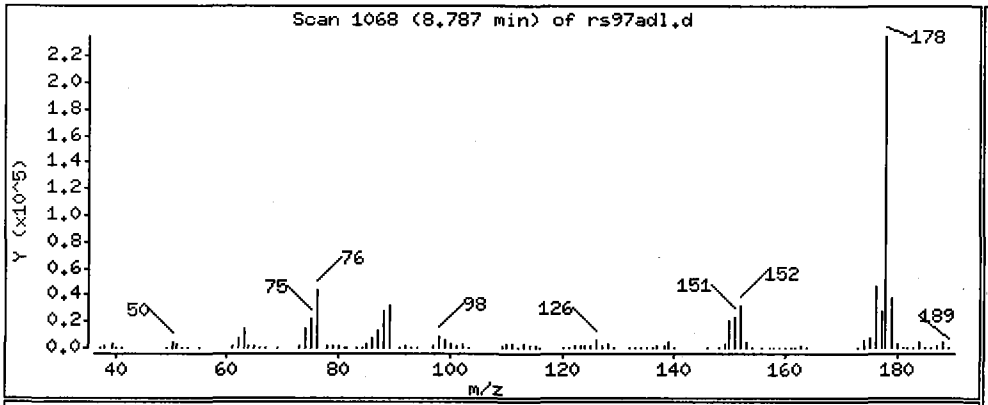
Client ID: GSM-08SO-10-11-1009 Instrument: nt12.i

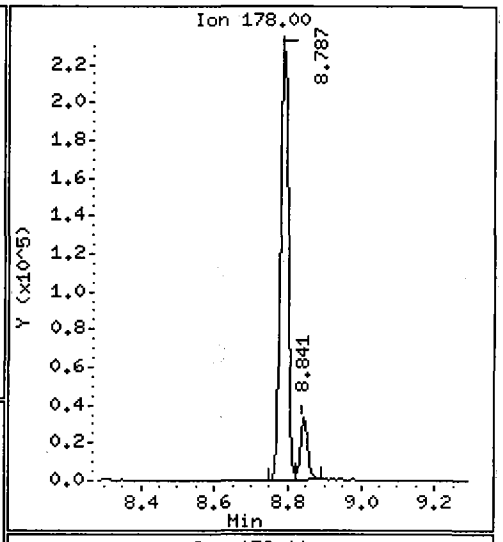
Sample Info: RS97A,10

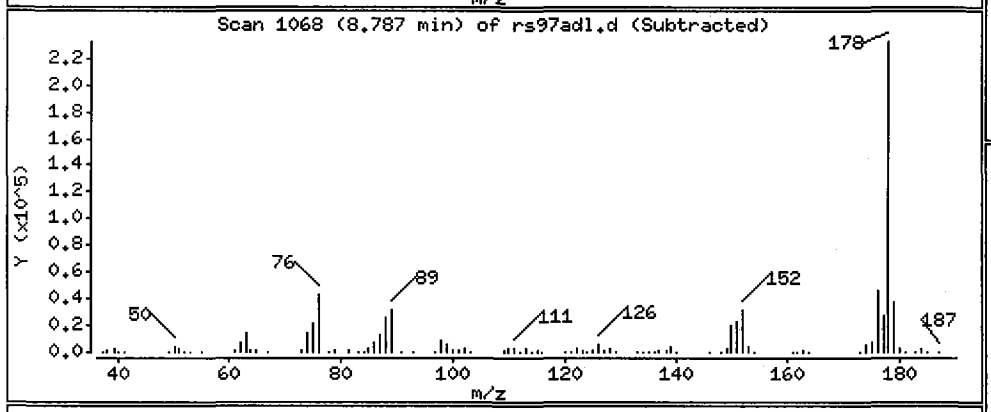
Volume Injected (uL): 1.0 Operator: VTS

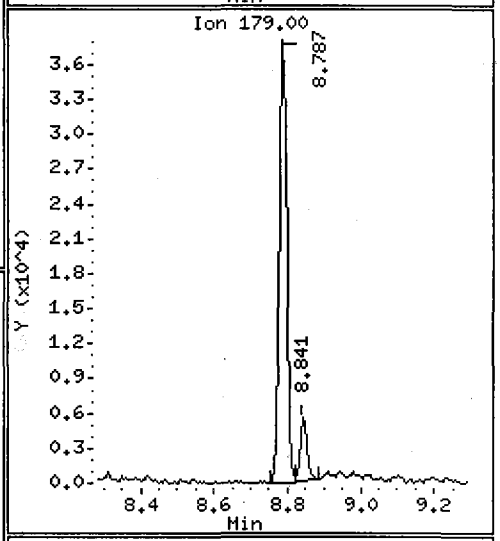
Column phase: ZB-5msi Column diameter: 0.32

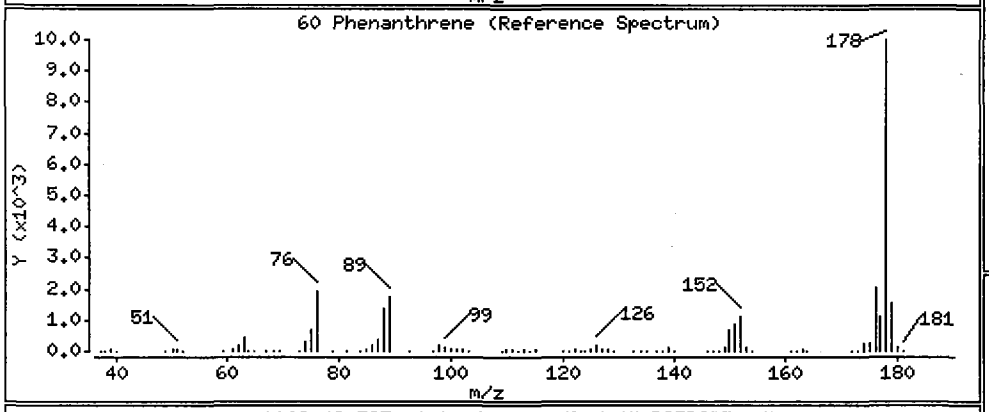
60 Phenanthrene Concentration: 666700 ug/kg

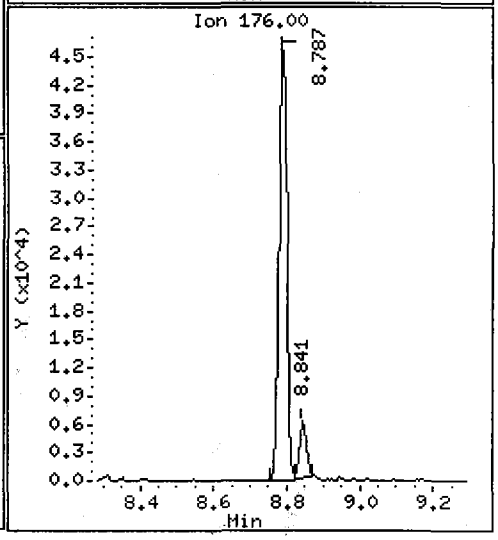


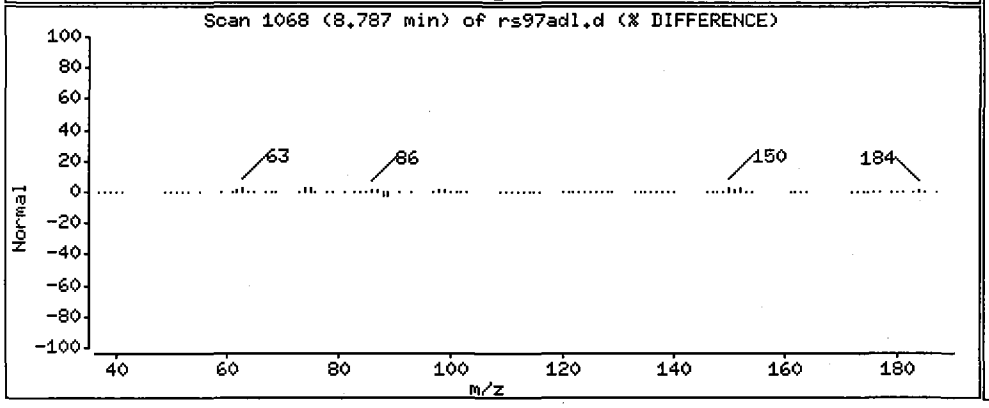












Data File: /chem1/nt12.i/20101110.b/rs97ad1.d

Date : 10-NOV-2010 20:18

Client ID: GSM-08SO-10-11-1009

Instrument: nt12.i

Sample Info: RS97A,10

Volume Injected (uL): 1.0

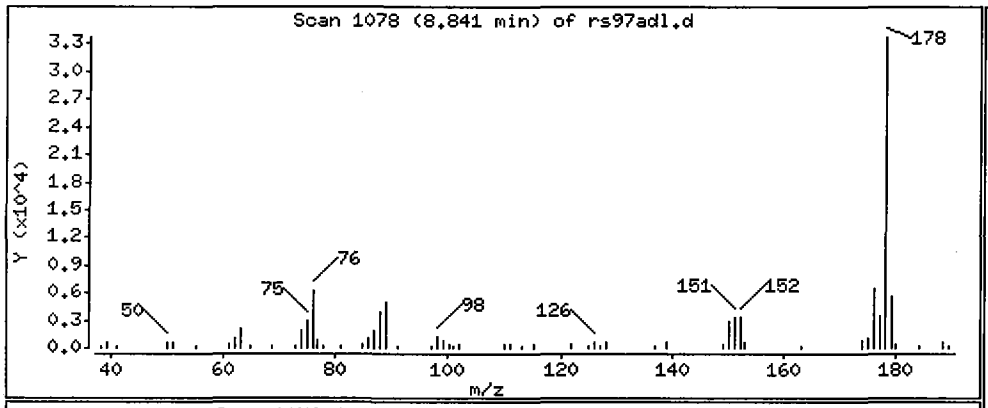
Operator: VTS

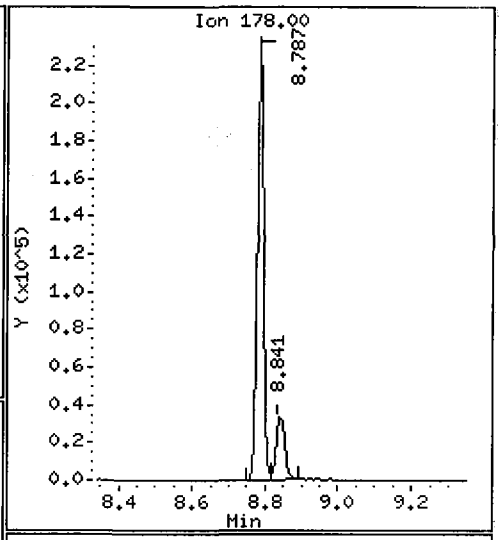
Column phase: ZB-5msi

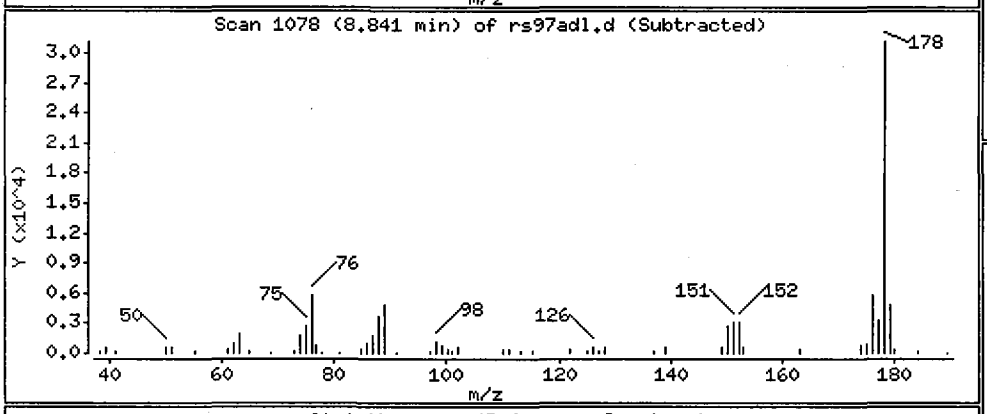
Column diameter: 0.32

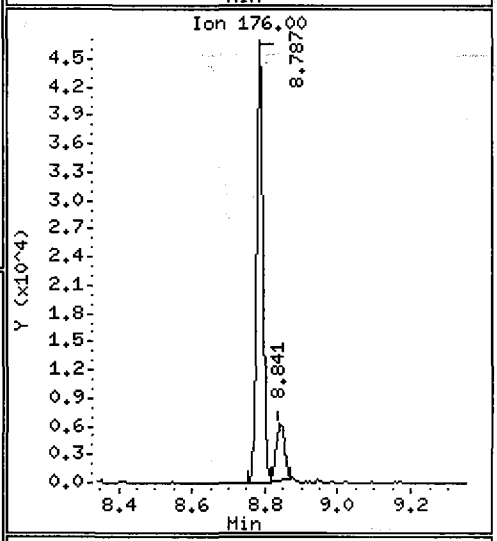
61 Anthracene

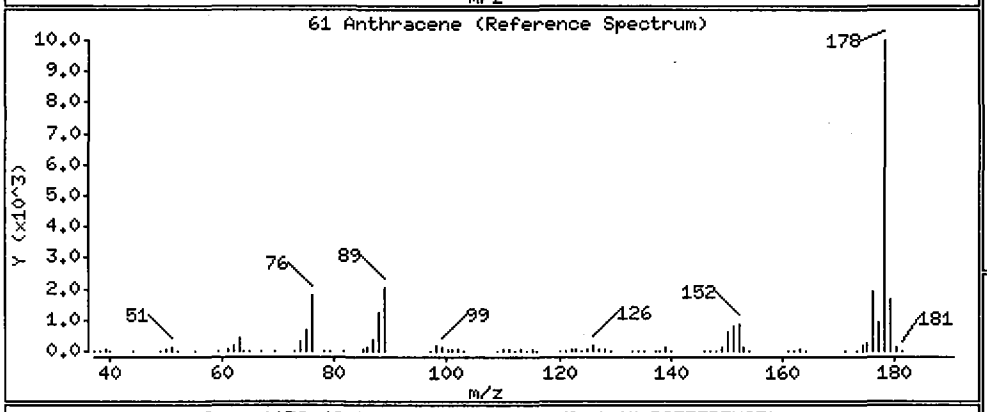
Concentration: 104700 ug/kg

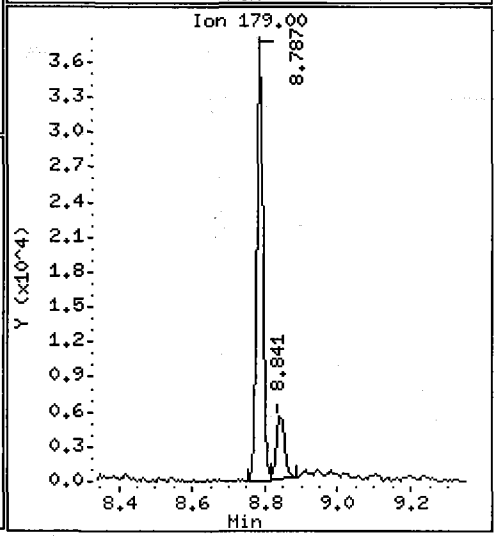


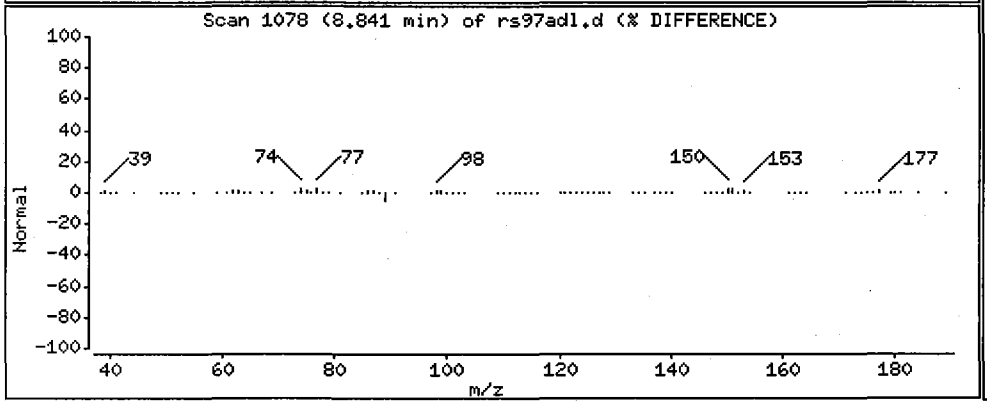












Data File: /chem1/nt12.i/20101110.b/rs97ad1.d

Date : 10-NOV-2010 20:18

Client ID: GSM-08SO-10-11-1009

Instrument: nt12.i

Sample Info: RS97A,10

Volume Injected (uL): 1.0

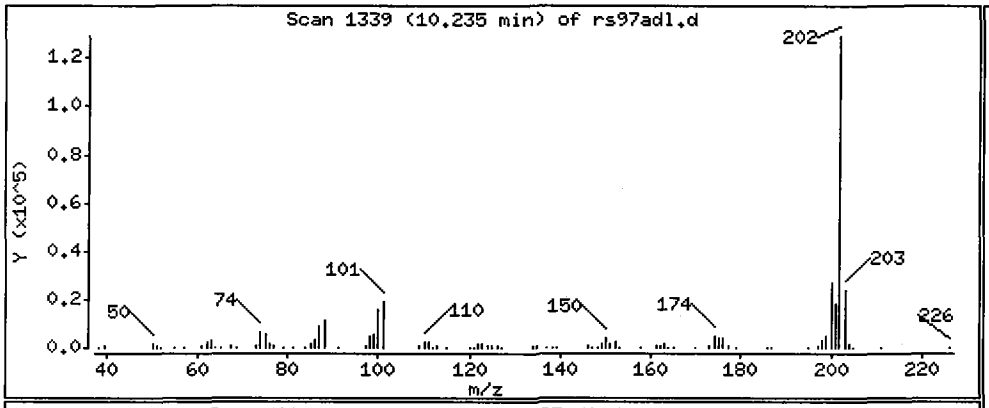
Operator: VTS

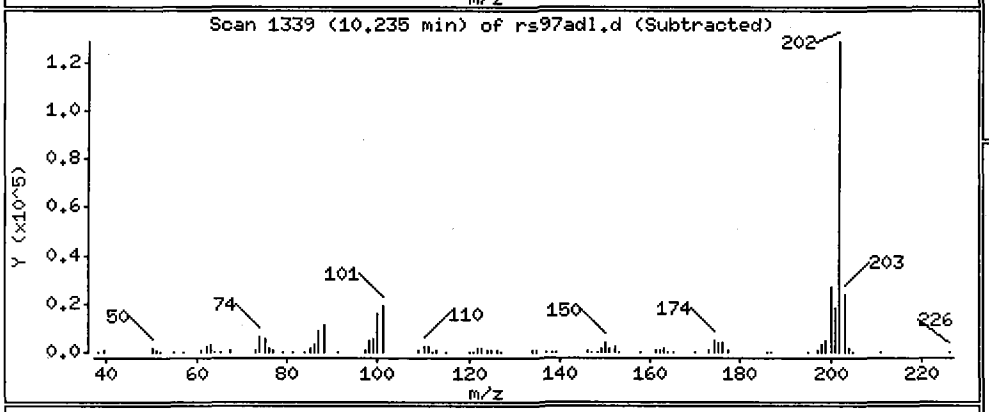
Column phase: ZB-5msi

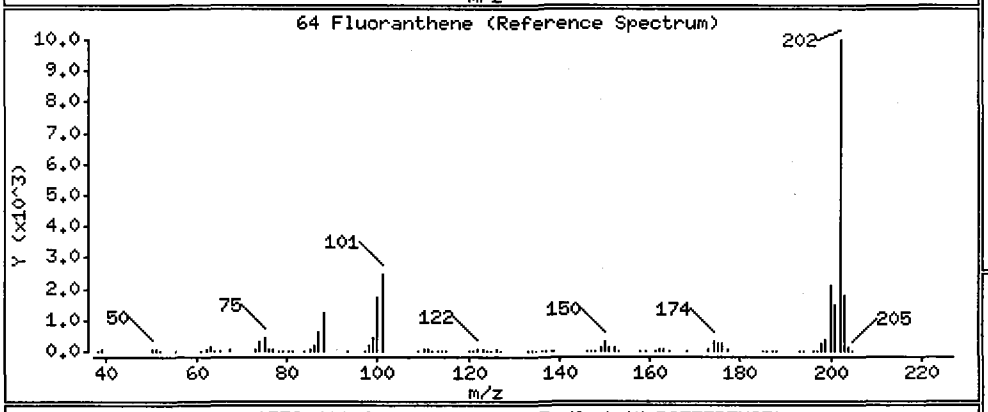
Column diameter: 0.32

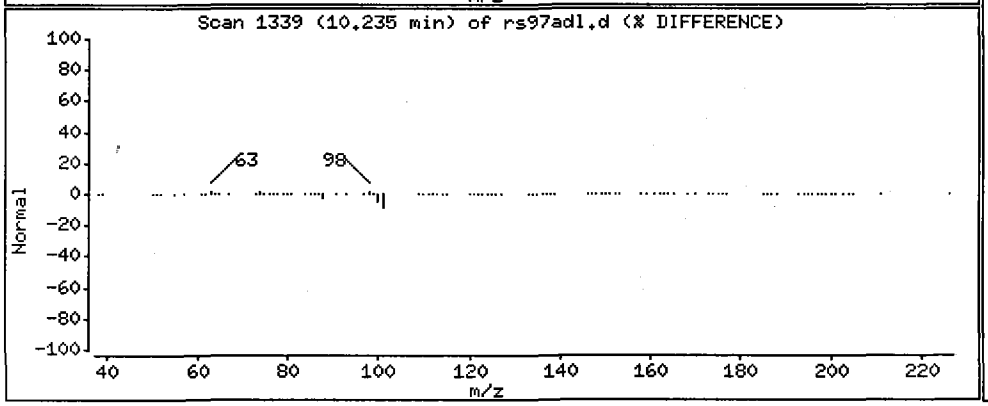
64 Fluoranthene

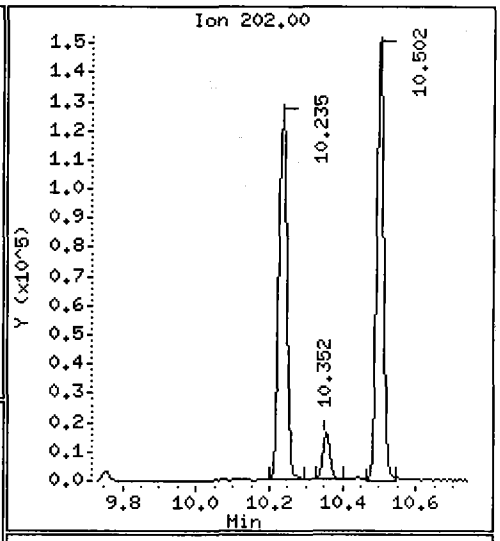
Concentration: 283100 ug/kg

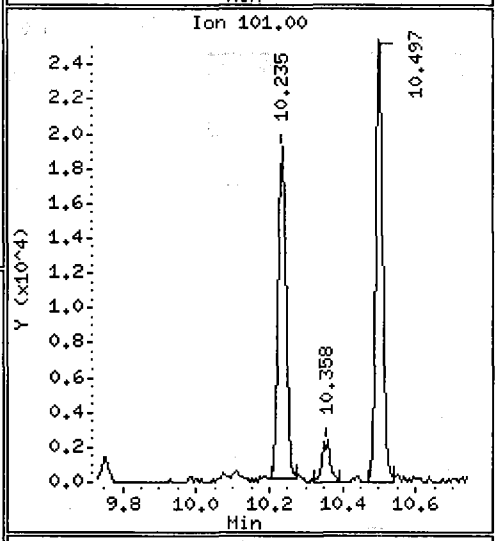


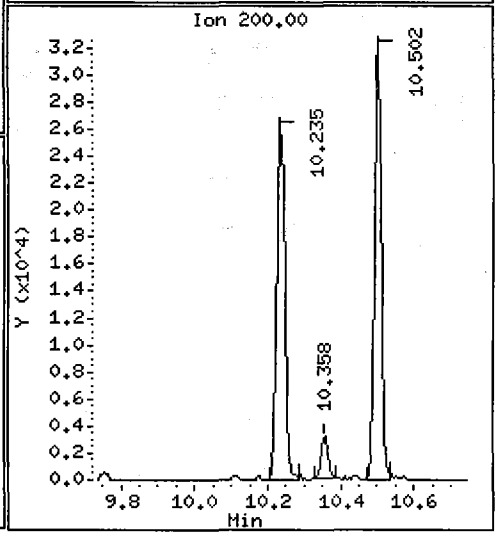












Data File: /chem1/nt12.i/20101110.b/rs97adl.d

Date : 10-NOV-2010 20:18

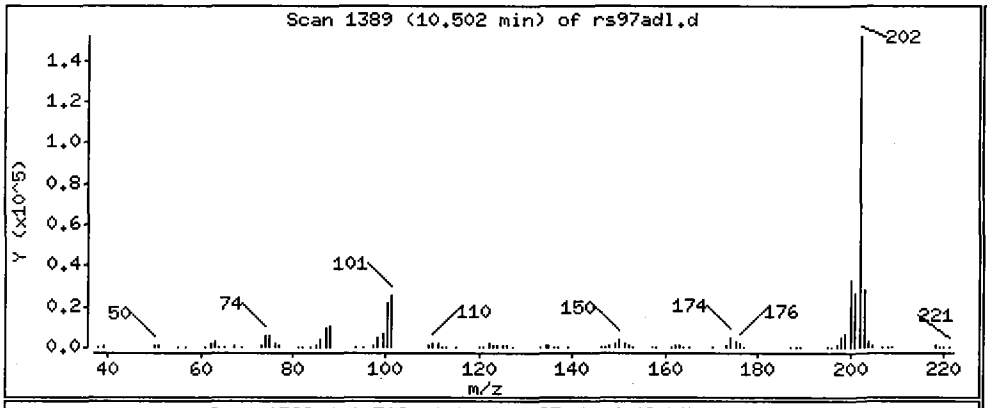
Client ID: GSM-08SO-10-11-1009 Instrument: nt12.i

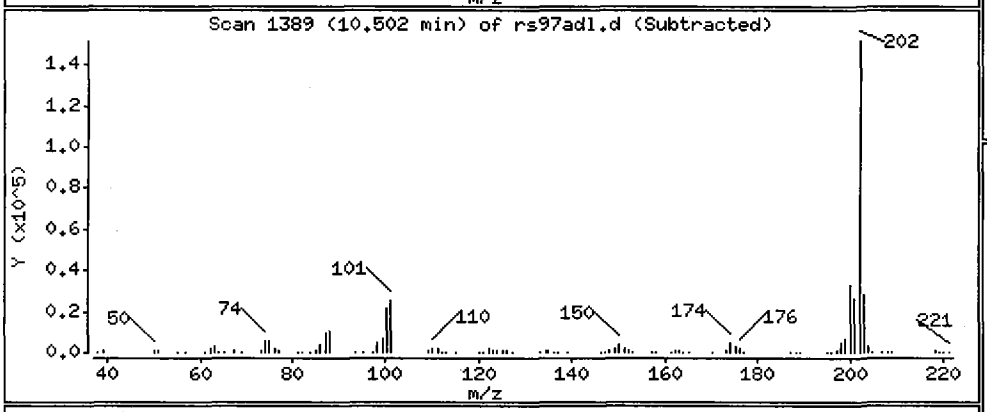
Sample Info: RS97A,10

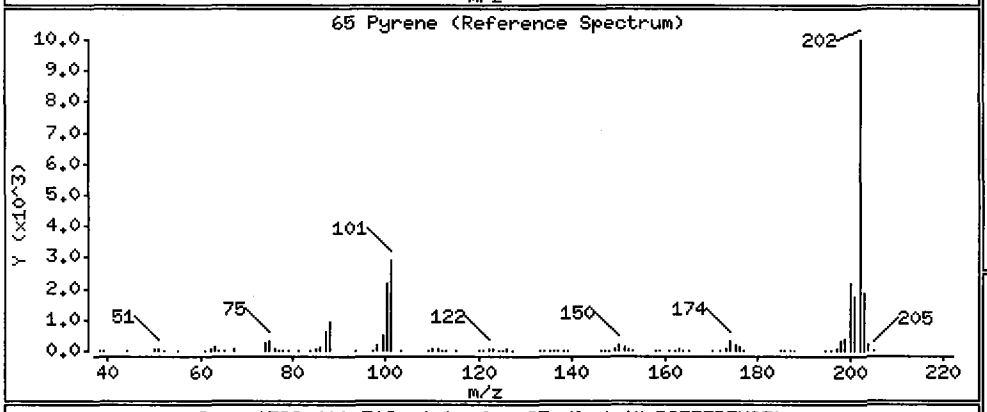
Volume Injected (uL): 1.0 Operator: VTS

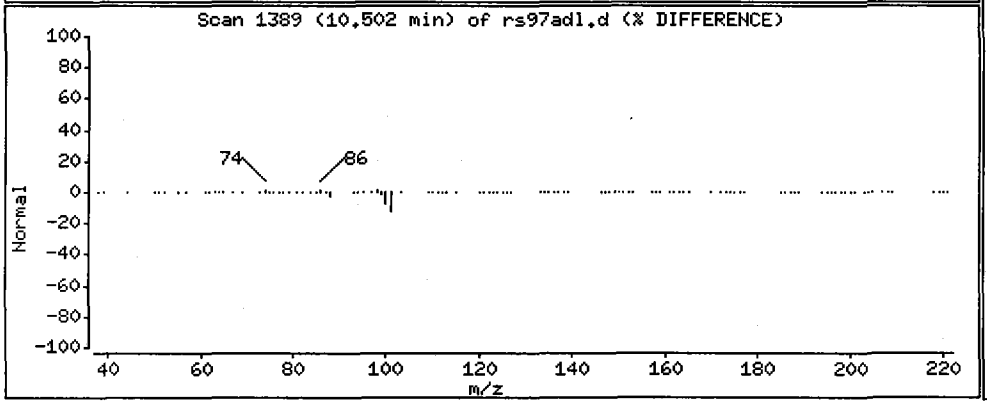
Column phase: ZB-5msi Column diameter: 0.32

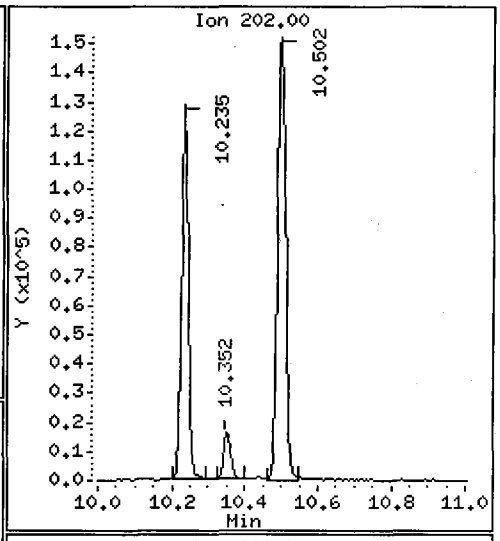
65 Pyrene Concentration: 350100 ug/kg

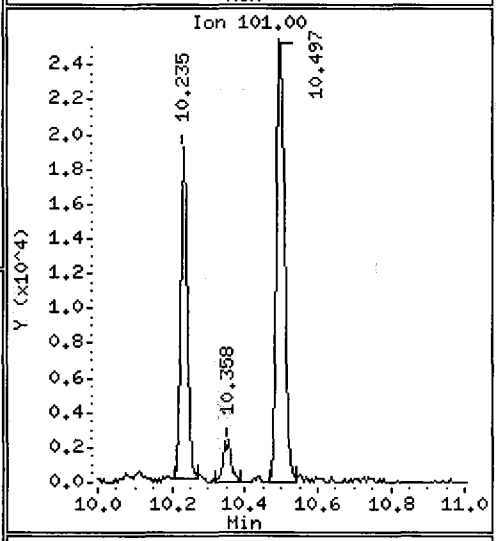


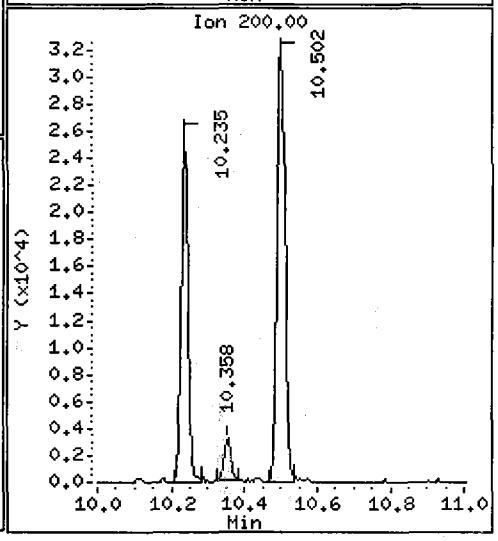












Data File: /chem1/nt12.i/20101110.b/rs97ad1.d

Date : 10-NOV-2010 20:18

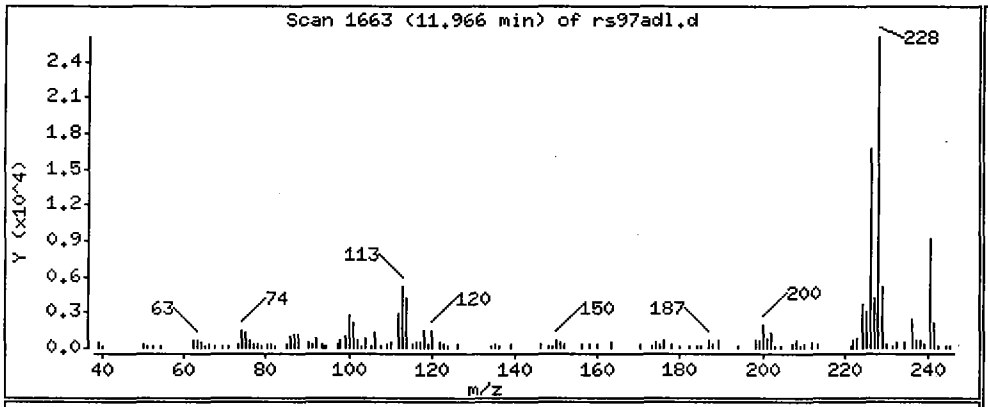
Client ID: GSM-08SO-10-11-1009 Instrument: nt12.i

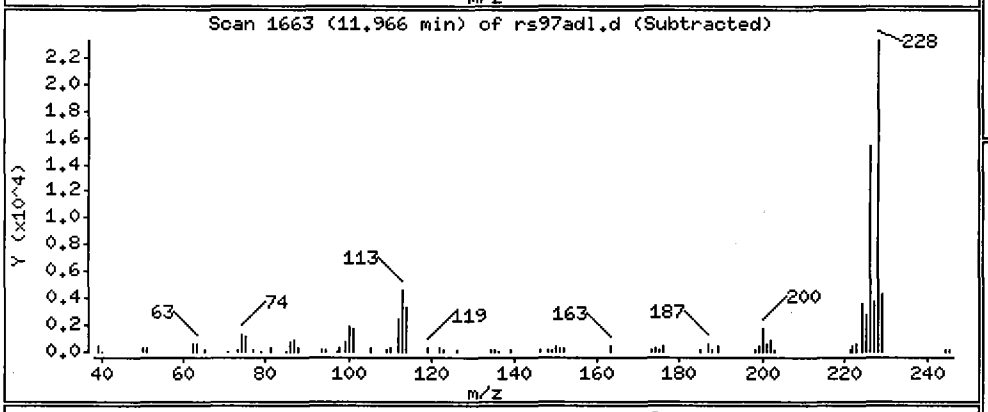
Sample Info: RS97A,10

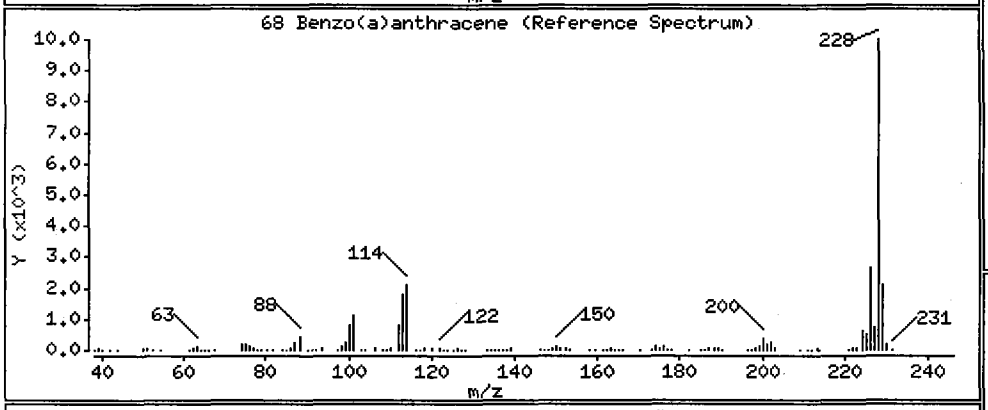
Volume Injected (uL): 1.0 Operator: VTS

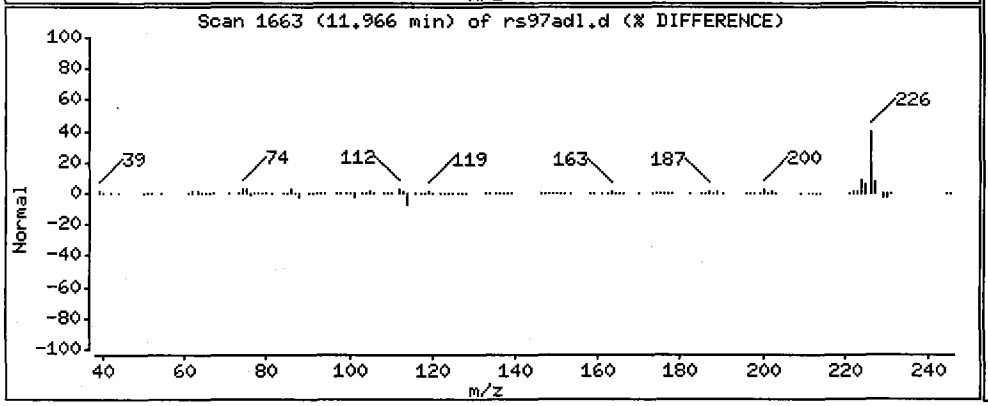
Column phase: ZB-5msi Column diameter: 0.32

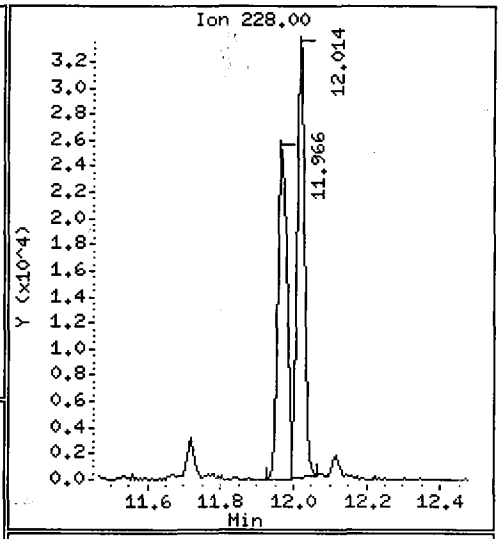
68 Benzo(a)anthracene Concentration: 83950 ug/kg

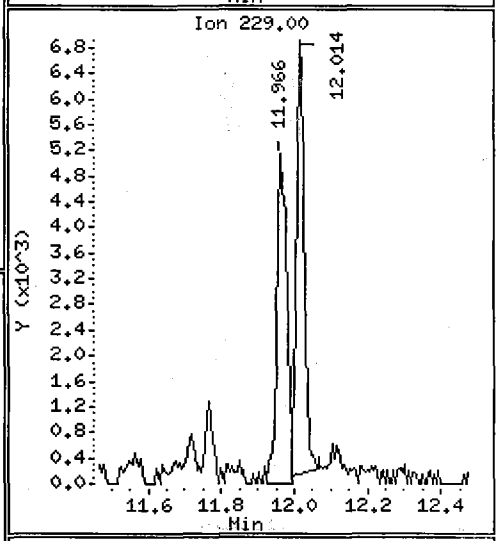


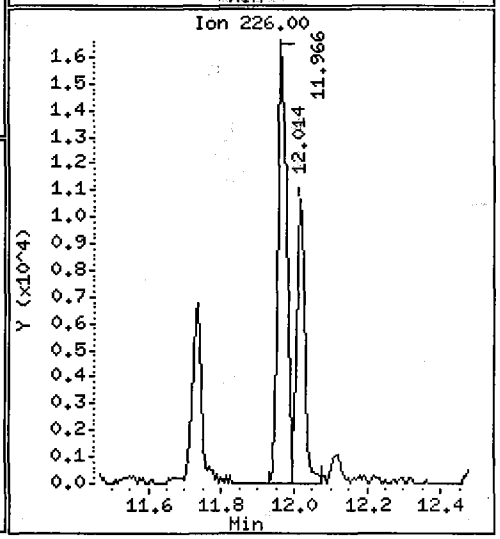












Data File: /chem1/nt12.i/20101110.b/rs97ad1.d

Date : 10-NOV-2010 20:18

Client ID: GSM-08SO-10-11-1009

Instrument: nt12.i

Sample Info: RS97A,10

Volume Injected (uL): 1.0

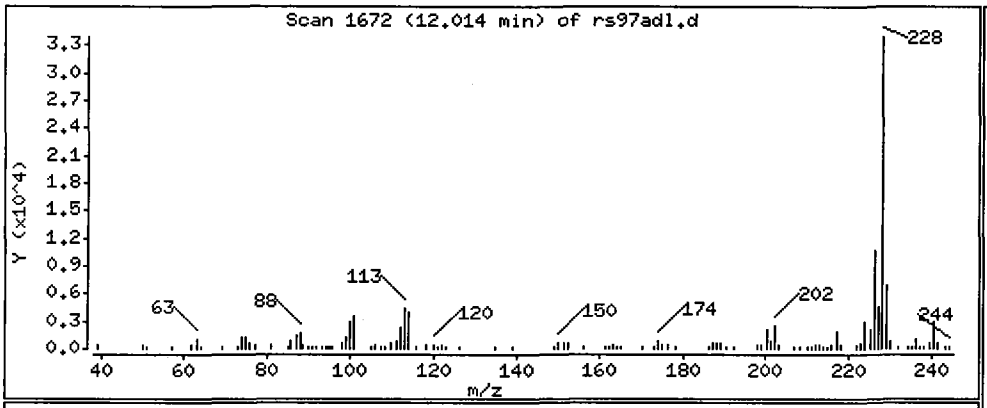
Operator: VTS

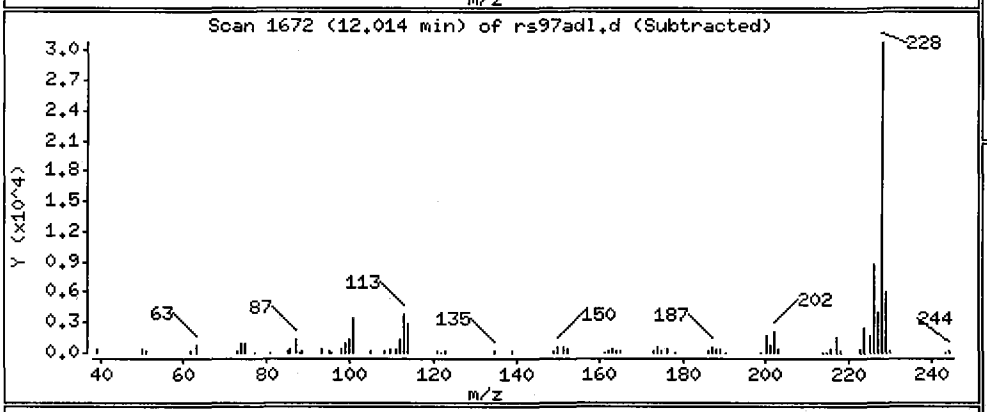
Column phase: ZB-5msi

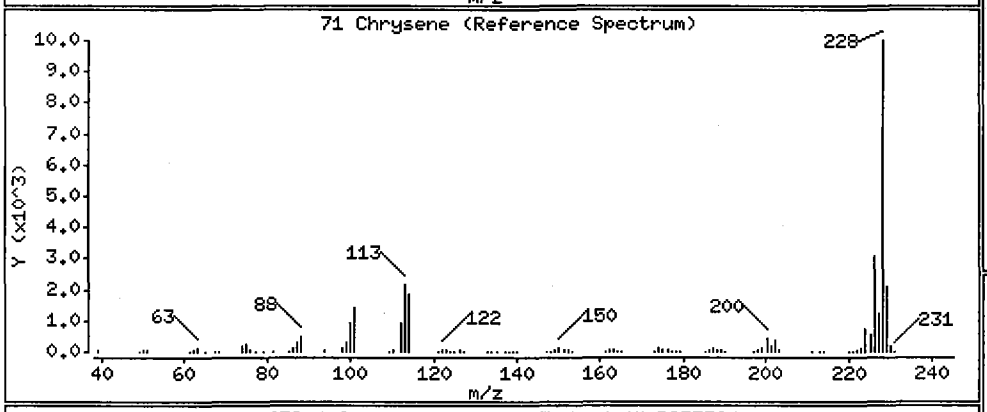
Column diameter: 0.32

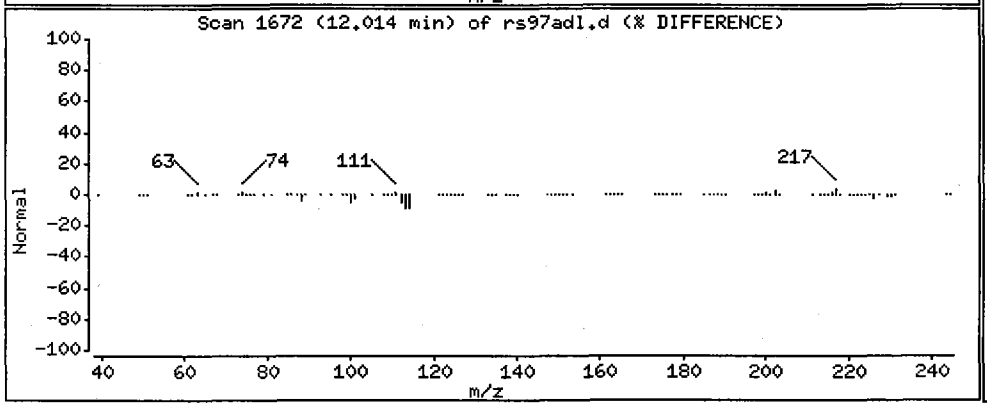
71 Chrysene

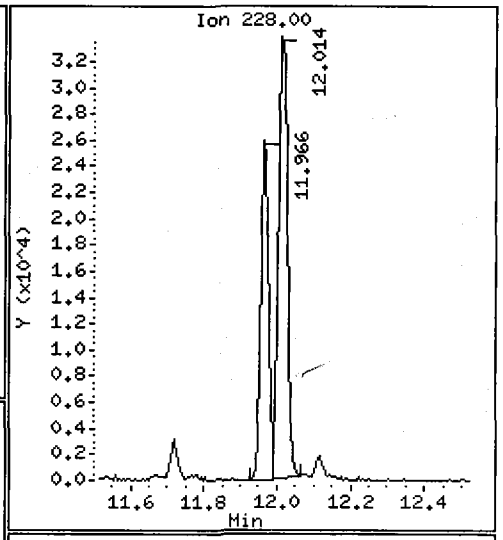
Concentration: 112400 ug/kg

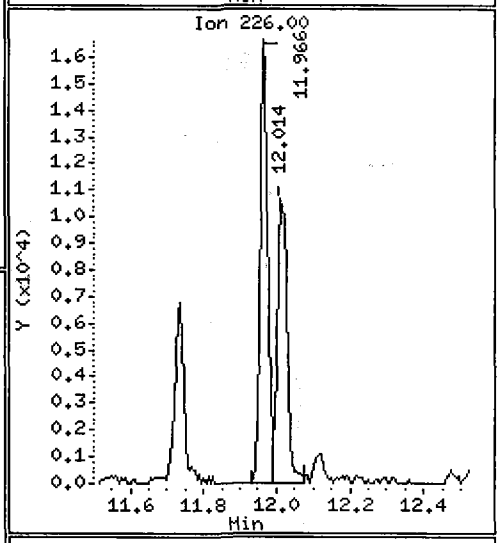


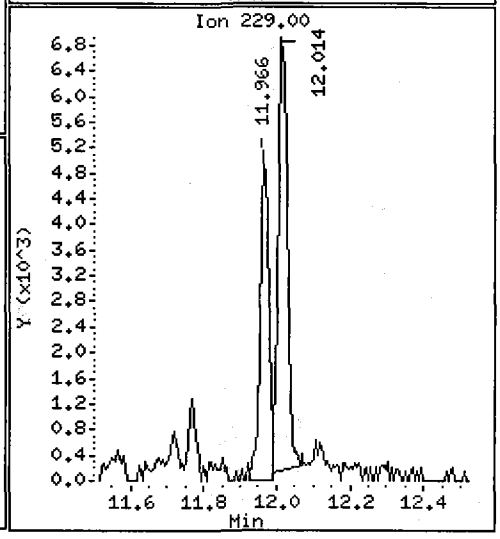












Data File: /chem1/nt12.i/20101110.b/rs97adl.d

Date : 10-NOV-2010 20:18

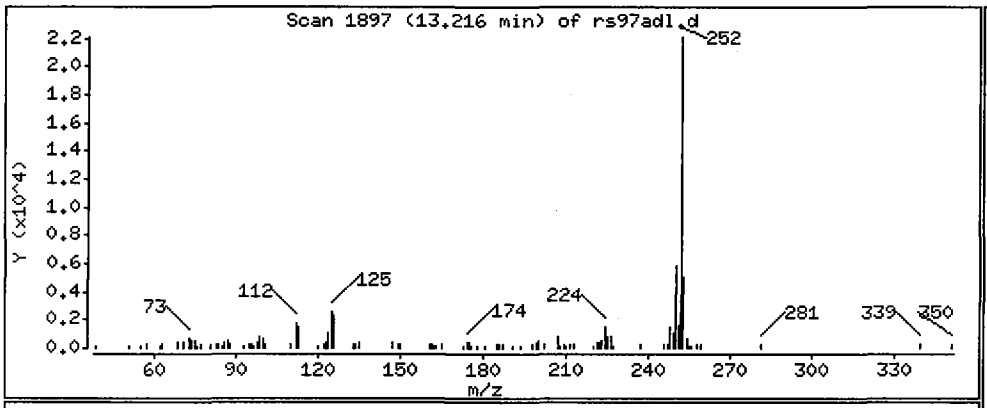
Client ID: GSM-08SO-10-11-1009 Instrument: nt12.i

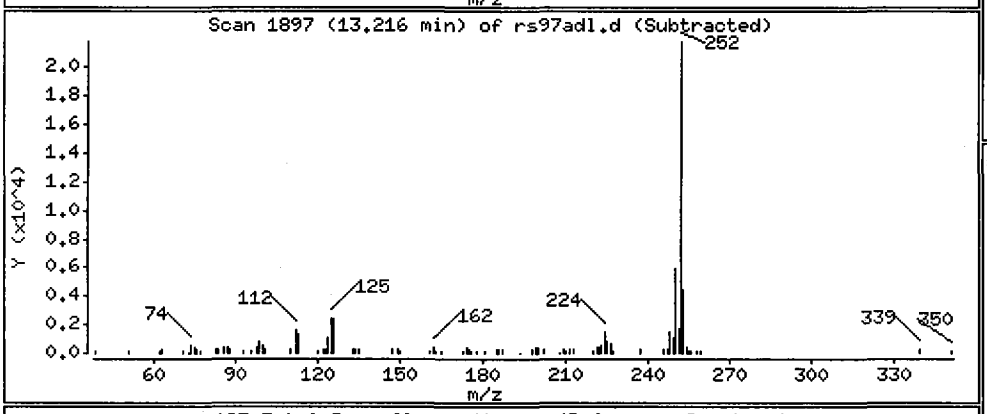
Sample Info: RS97A,10

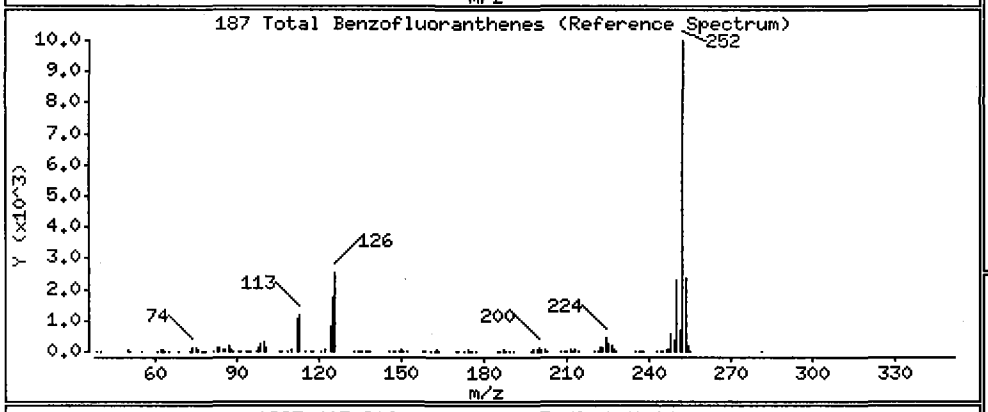
Volume Injected (uL): 1.0 Operator: VTS

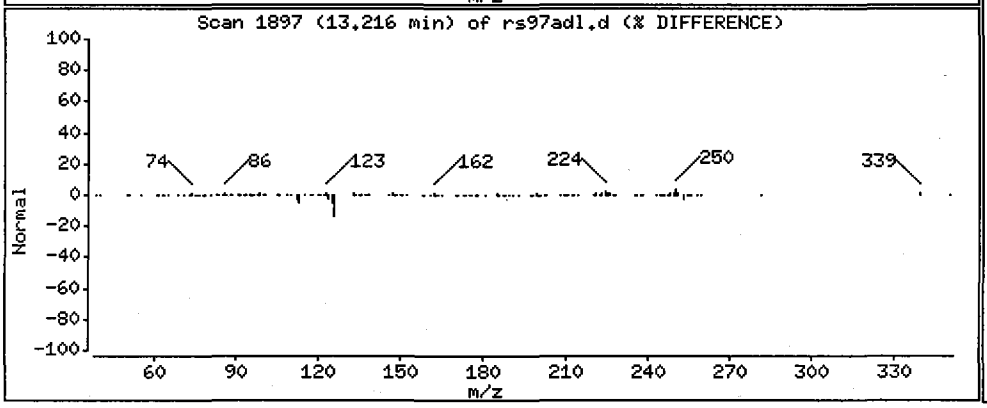
Column phase: ZB-5msi Column diameter: 0.32

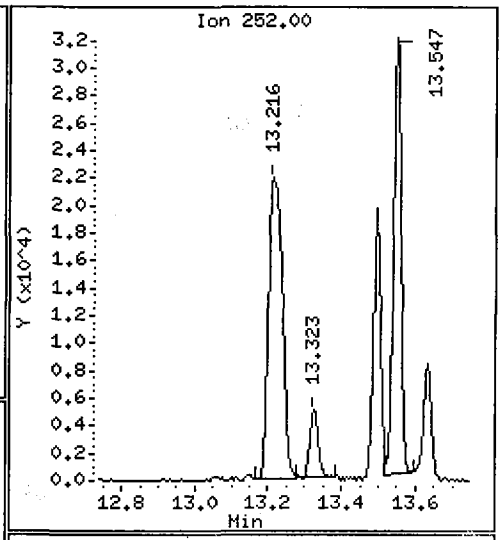
187 Total Benzofluoranthenes Concentration: 124500 ug/kg

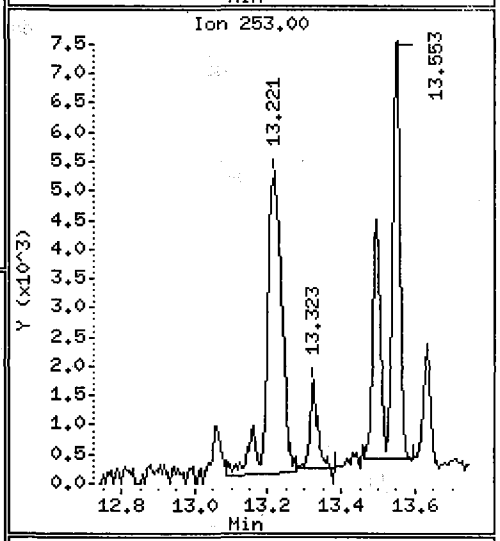


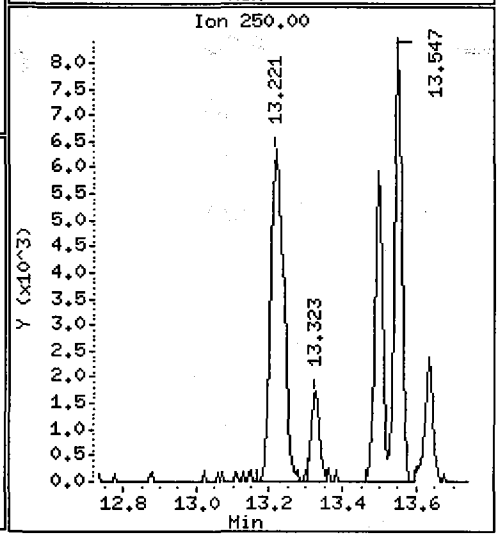












Data File: /chem1/nt12.i/20101110.b/rs97ad1.d

Date : 10-NOV-2010 20:18

Client ID: GSM-08SO-10-11-1009

Instrument: nt12.i

Sample Info: RS97A,10

Volume Injected (uL): 1.0

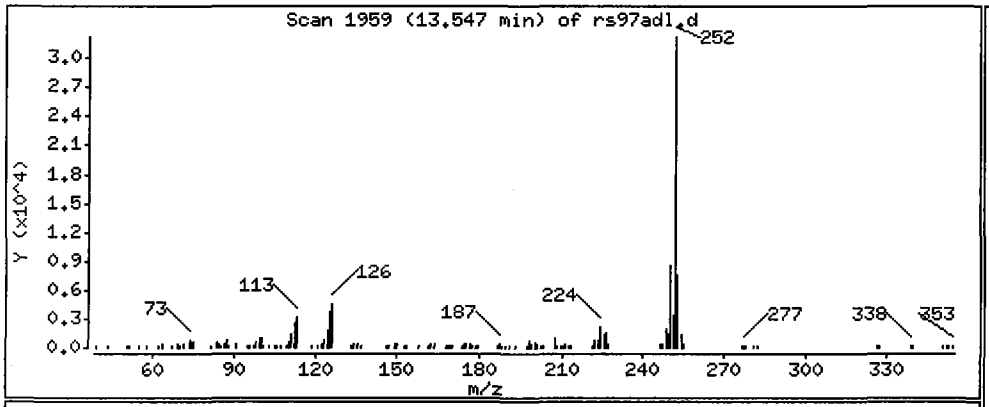
Operator: VTS

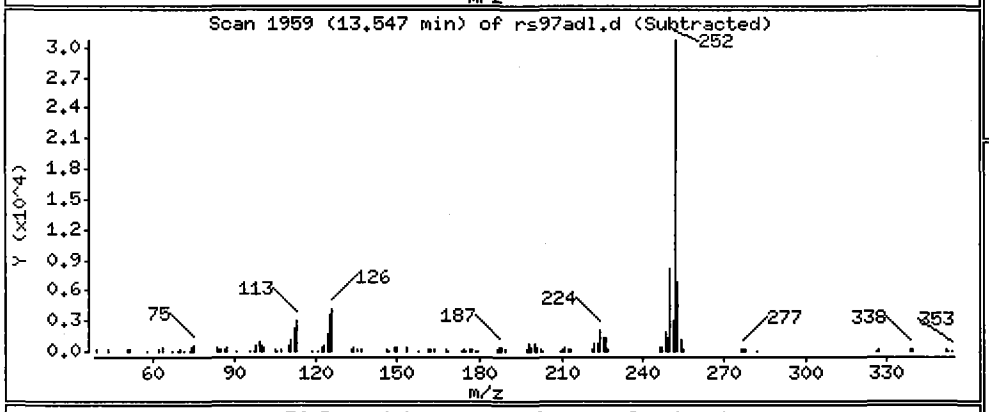
Column phase: ZB-5msi

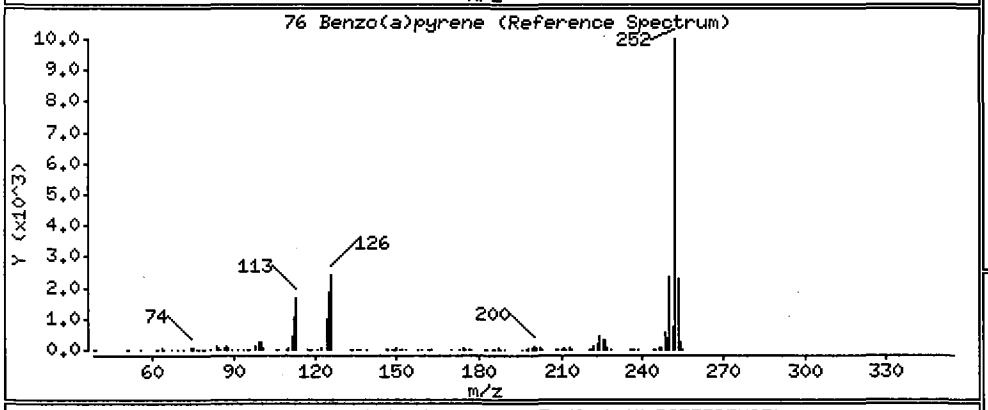
Column diameter: 0.32

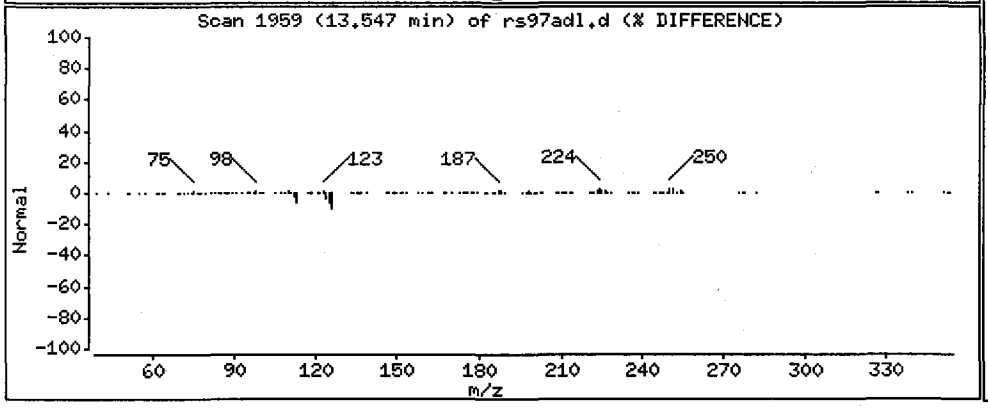
76 Benzo(a)pyrene

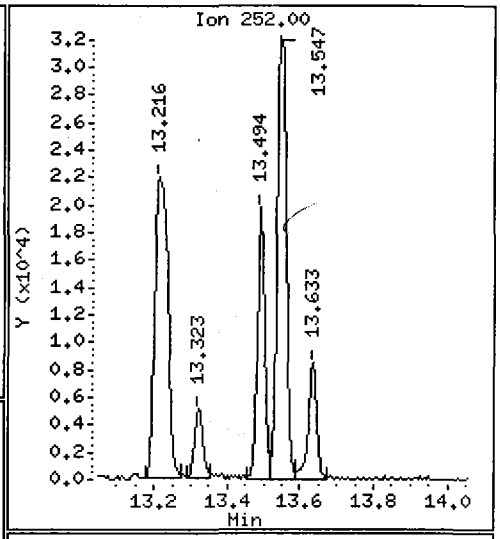
Concentration: 119100 ug/kg

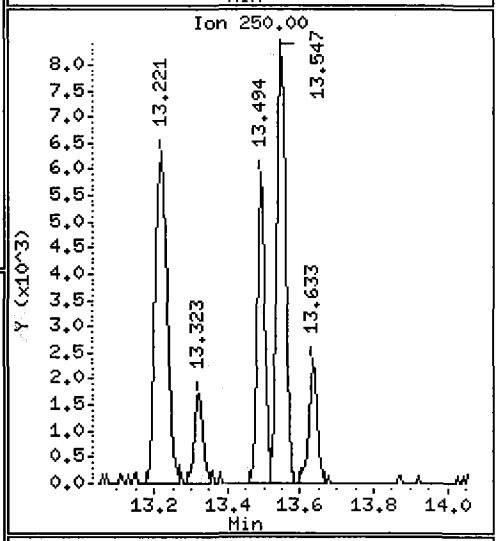


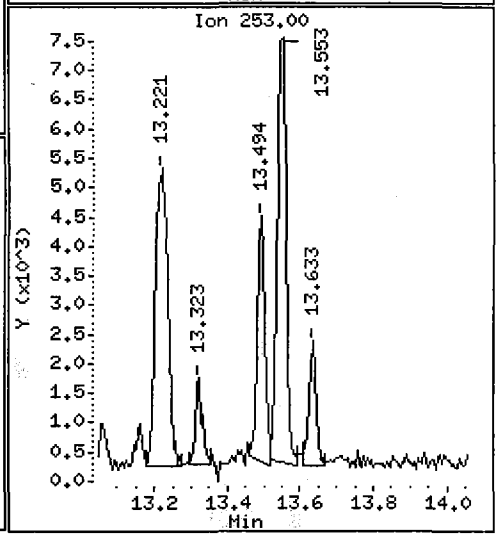












Data File: /chem1/nt12.i/20101110.b/rs97adl.d

Date : 10-NOV-2010 20:18

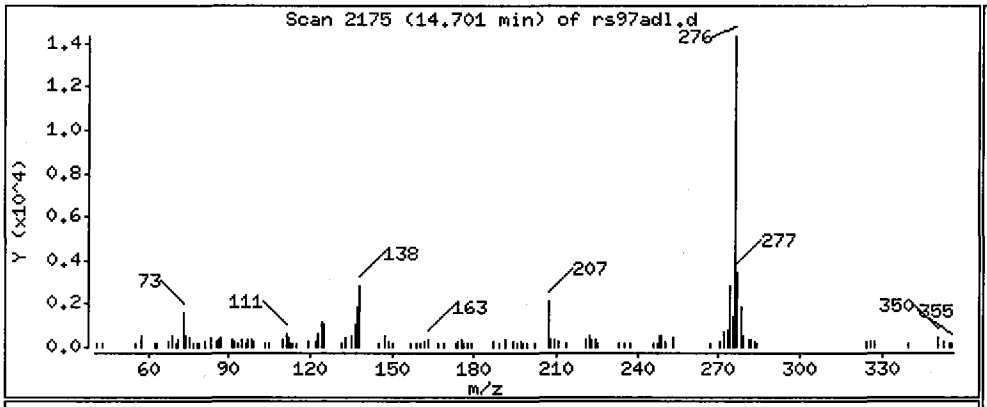
Client ID: GSM-08SO-10-11-1009 Instrument: nt12.i

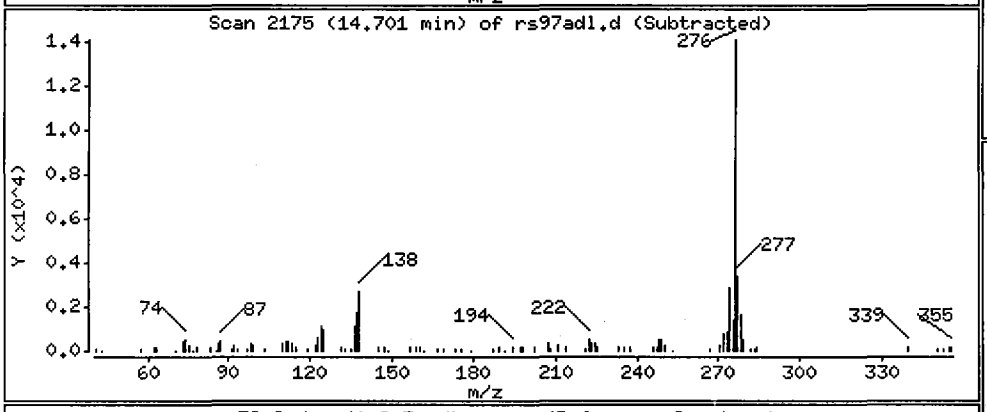
Sample Info: RS97A,10

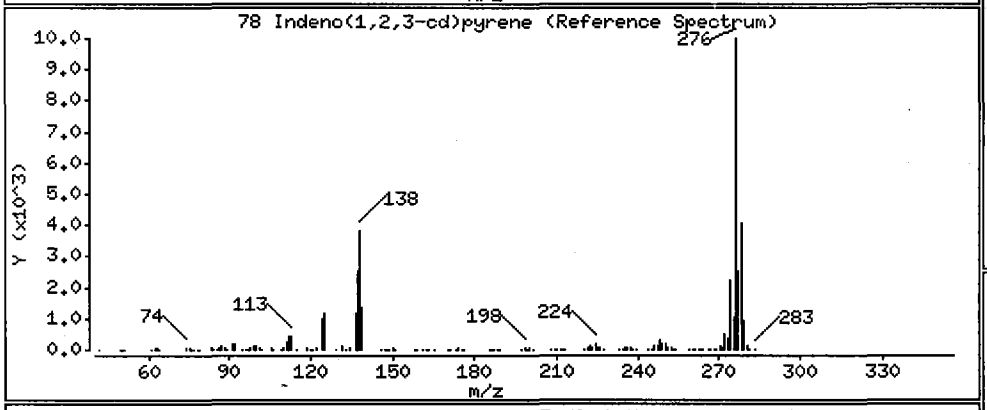
Volume Injected (uL): 1.0 Operator: VTS

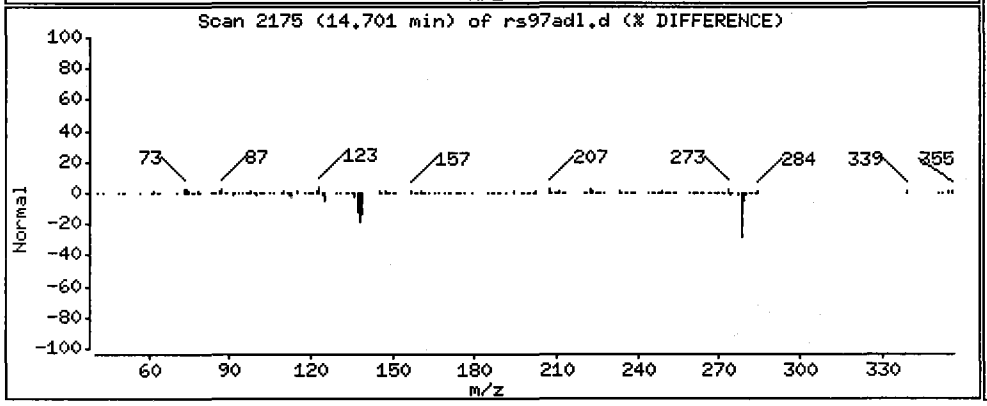
Column phase: ZB-5msi Column diameter: 0.32

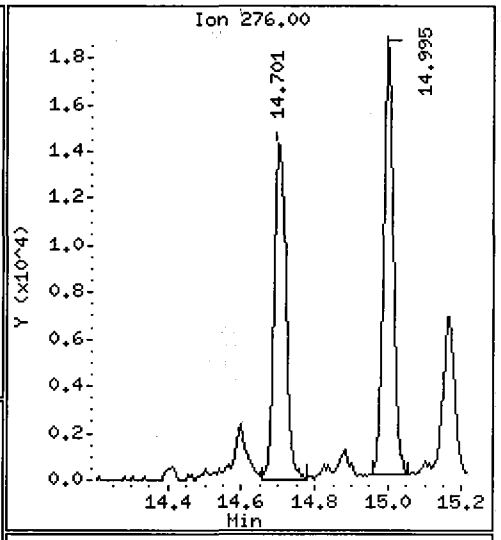
78 Indeno(1,2,3-cd)pyrene Concentration: 48210 ug/kg

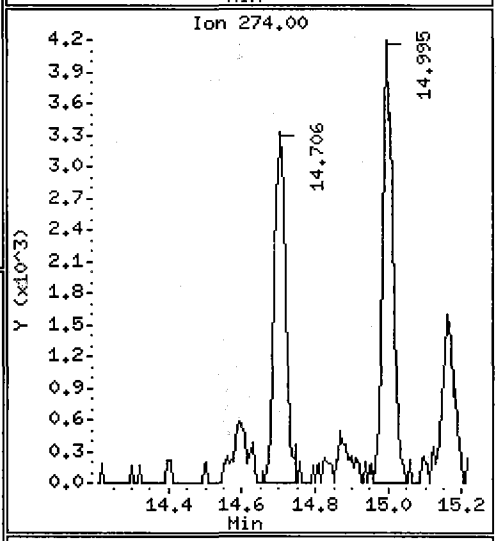


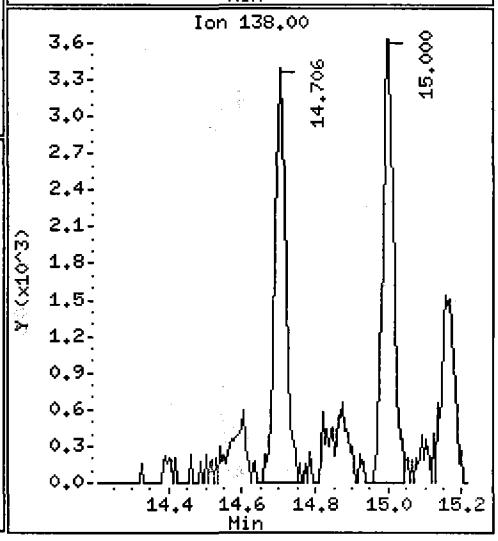












Data File: /chem1/nt12.i/20101110.b/rs97adl.d

Date : 10-NOV-2010 20:18

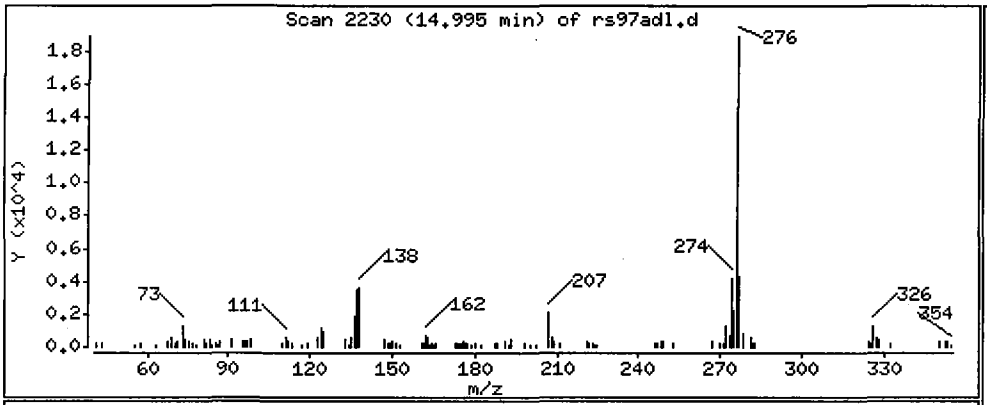
Client ID: GSM-08SO-10-11-1009 Instrument: nt12.i

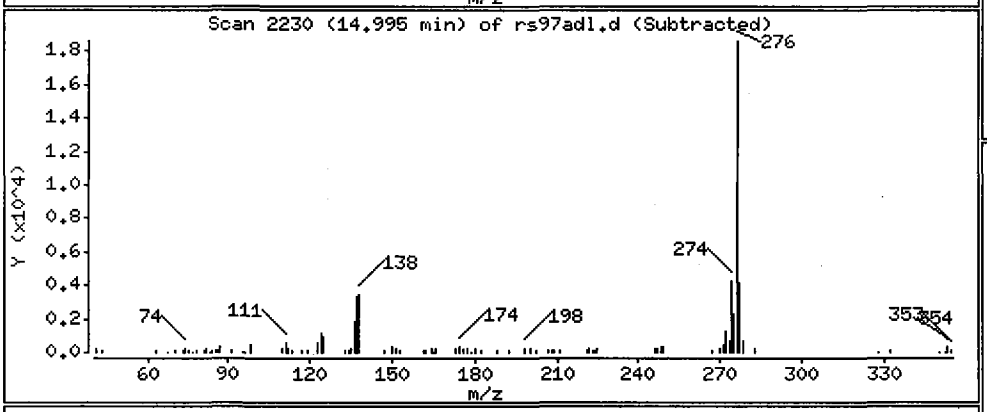
Sample Info: RS97A,10

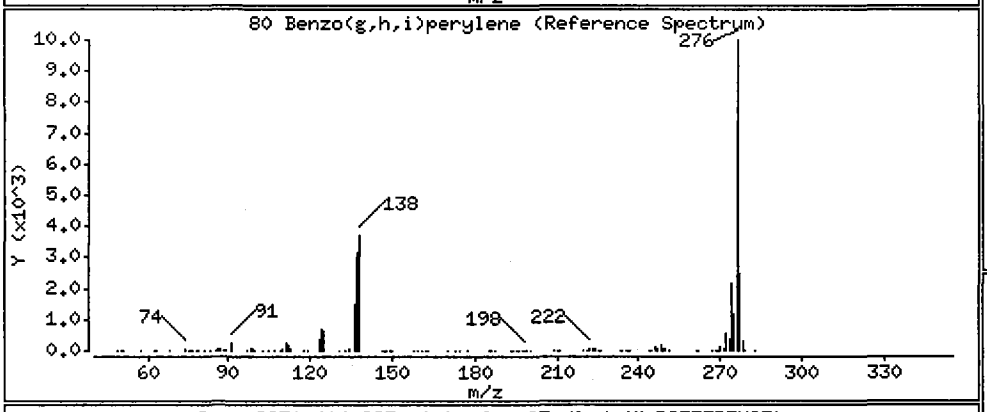
Volume Injected (uL): 1.0 Operator: VTS

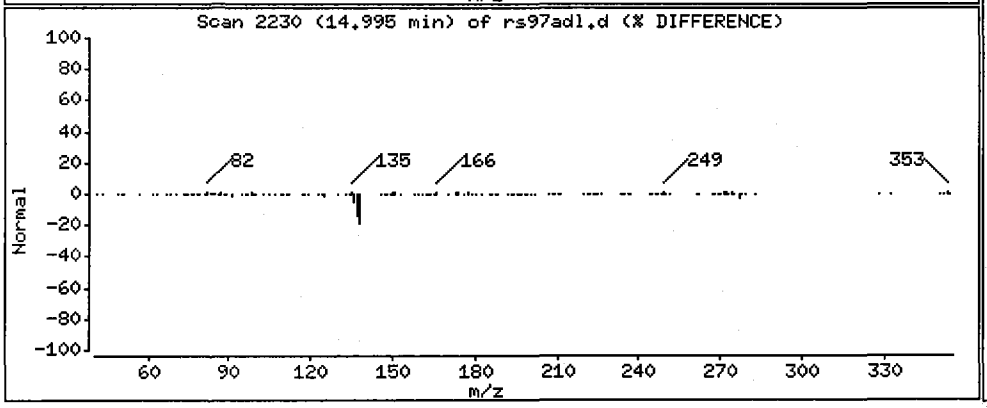
Column phase: ZB-5msi Column diameter: 0.32

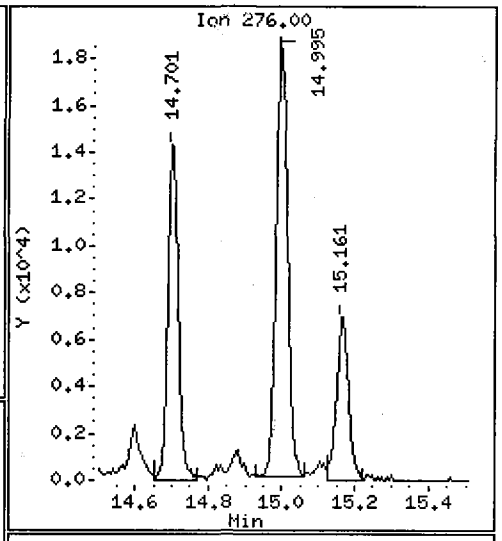
80 Benzo(g,h,i)perylene Concentration: 72030 ug/kg

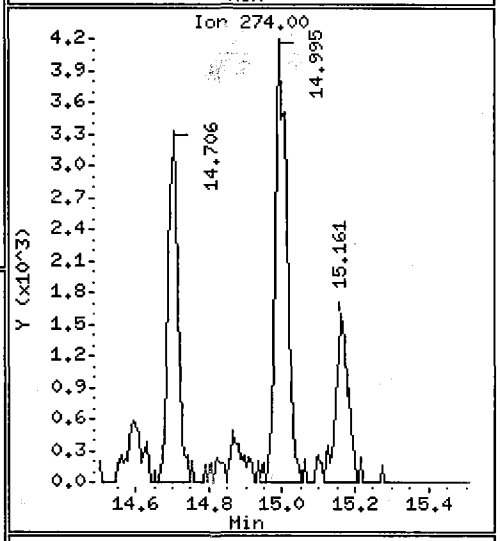


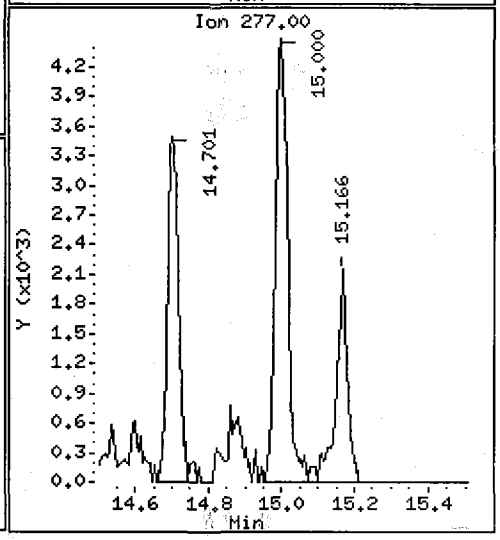












Analytical Resources, Inc.

Semivolatile Report SW846 Method 8270D

Data file : /chem1/nt12.i/20101110.b/rs97bdl.d
Lab Smp Id: RS97B Client Smp ID: DGS-19-3.34.1-10100
Inj Date : 10-NOV-2010 20:42
Operator : VTS Inst ID: nt12.i
Smp Info : RS97B,25
Misc Info : 10-27418
Comment : 1ul Injection
Method : /chem1/nt12.i/20101110.b/PNADMD.m
Meth Date : 10-Nov-2010 14:46 van Quant Type: ISTD
Cal Date : 30-OCT-2010 13:19 Cal File: ic1030f.d
Als bottle: 20
Dil Factor: 25.00000
Integrator: HP RTE Compound Sublist: pnas.sub
Target Version: 3.50
Processing Host: cserv3

Concentration Formula: Amt * DF * Vt/(Ws * (100 - M)/100) * CpndVariable

Name	Value	Description
DF	25.00000	Dilution Factor
Vt	10000.00000	Volume of final extract (uL)
Ws	5.28000	Weight of sample extracted (g)
M	29.70000	% Moisture

Cpnd Variable Local Compound Variable

Compounds	QUANT SIG MASS	RT	EXP RT	REL RT	RESPONSE	CONCENTRATIONS ON-COLUMN (ug/mL)	FINAL (ug/kg)
* 27 Naphthalene-d8	136	4.887	4.888	(1.000)	189471	20.0000	
28 Naphthalene	128	4.909	4.909	(1.004)	514607	47.7211	3214000
32 2-Methylnaphthalene	141	5.726	5.726	(1.172)	45018	7.82130	526800
105 1-methylnaphthalene	141	5.849	5.854	(1.197)	24883	4.19273	282400
$ 36 2-Fluorobiphenyl	172	Compound Not Detected.					
40 Acenaphthylene	152	Compound Not Detected.					
* 42 Acenaphthene-d10	164	6.987	6.992	(1.000)	115675	20.0000	
44 Acenaphthene	153	7.024	7.030	(1.005)	51824	7.28480	490600
46 Dibenzofuran	168	Compound Not Detected.					
49 Fluorene	166	7.639	7.639	(1.093)	19555	2.40079	161700
* 59 Phenanthrene-d10	188	8.760	8.761	(1.000)	209393	20.0000	
60 Phenanthrene	178	8.787	8.787	(1.003)	142671	12.8434	865000
61 Anthracene	178	8.841	8.846	(1.009)	24886	2.16761	146000
62 Carbazole	167	9.070	9.065	(1.035)	4775	~~0.51~~556	34720 N/A

Compounds	QUANT SIG MASS	RT	EXP RT	REL RT	RESPONSE	CONCENTRATIONS ON-COLUMN (ug/mL)	FINAL (ug/kg)
64 Fluoranthene	202	10.235	10.235	(0.854)	82326	5.43473	366000
65 Pyrene	202	10.502	10.502	(0.876)	101526	6.75577	455000
$ 66 Terphenyl-d14	244	Compound Not Detected.					
68 Benzo(a)anthracene	228	11.966	11.971	(0.998)	21057	1.72901	116500
* 69 Chrysene-d12	240	11.987	11.993	(1.000)	216862	20.0000	
71 Chrysene	228	12.019	12.019	(1.003)	23316	2.04779	137900
187 Total Benzofluoranthenes	252	13.221	13.243	(0.972)	31106	2.52603	170100
76 Benzo(a)pyrene	252	13.547	13.553	(0.996)	26201	2.31617	156000
* 77 Perylene-d12	264	13.606	13.611	(1.000)	206746	20.0000	
99 Perylene	252	13.633	13.638	(1.002)	8154	~~0.67784~~	45650(a) NR
78 Indeno(1,2,3-cd)pyrene	276	14.706	14.712	(1.081)	16311	0.97119	65410
79 Dibenzo(a,h)anthracene	278	Compound Not Detected.					
80 Benzo(g,h,i)perylene	276	15.000	15.006	(1.102)	19564	1.41797	95500

QC Flag Legend

a - Target compound detected but, quantitated amount Below Limit Of Quantitation(BLOQ).

LD

11-11-10

Analytical Resources, Inc.

INTERNAL STANDARD COMPOUNDS
AREA AND RT SUMMARY

Instrument ID: nt12.i
Lab File ID: rs97bdl.d
Lab Smp Id: RS97B
Analysis Type: SV
Quant Type: ISTD
Operator: VTS
Method File: /chem1/nt12.i/20101110.b/PNADMD.m
Misc Info: 10-27418

Calibration Date: 10-NOV-2010
Calibration Time: 13:29
Client Smp ID: DGS-19-3.34.1-1(
Level: LOW
Sample Type: Sediment

Test Mode:
Use Initial Calibration Level 4.

COMPOUND	STANDARD	AREA LIMIT LOWER	AREA LIMIT UPPER	SAMPLE	%DIFF
27 Naphthalene-d8	237664	118832	475328	189471	-20.28
42 Acenaphthene-d10	143363	71682	286726	115675	-19.31
59 Phenanthrene-d10	245437	122718	490874	209393	-14.69
69 Chrysene-d12	199260	99630	398520	216862	8.83
77 Perylene-d12	197636	98818	395272	206746	4.61

COMPOUND	STANDARD	RT LIMIT LOWER	RT LIMIT UPPER	SAMPLE	%DIFF
27 Naphthalene-d8	4.89	4.39	5.39	4.89	0.00
42 Acenaphthene-d10	6.99	6.49	7.49	6.99	-0.08
59 Phenanthrene-d10	8.76	8.26	9.26	8.76	0.00
69 Chrysene-d12	11.99	11.49	12.49	11.99	-0.05
77 Perylene-d12	13.61	13.11	14.11	13.61	-0.04

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.

Analytical Resources, Inc.

RECOVERY REPORT

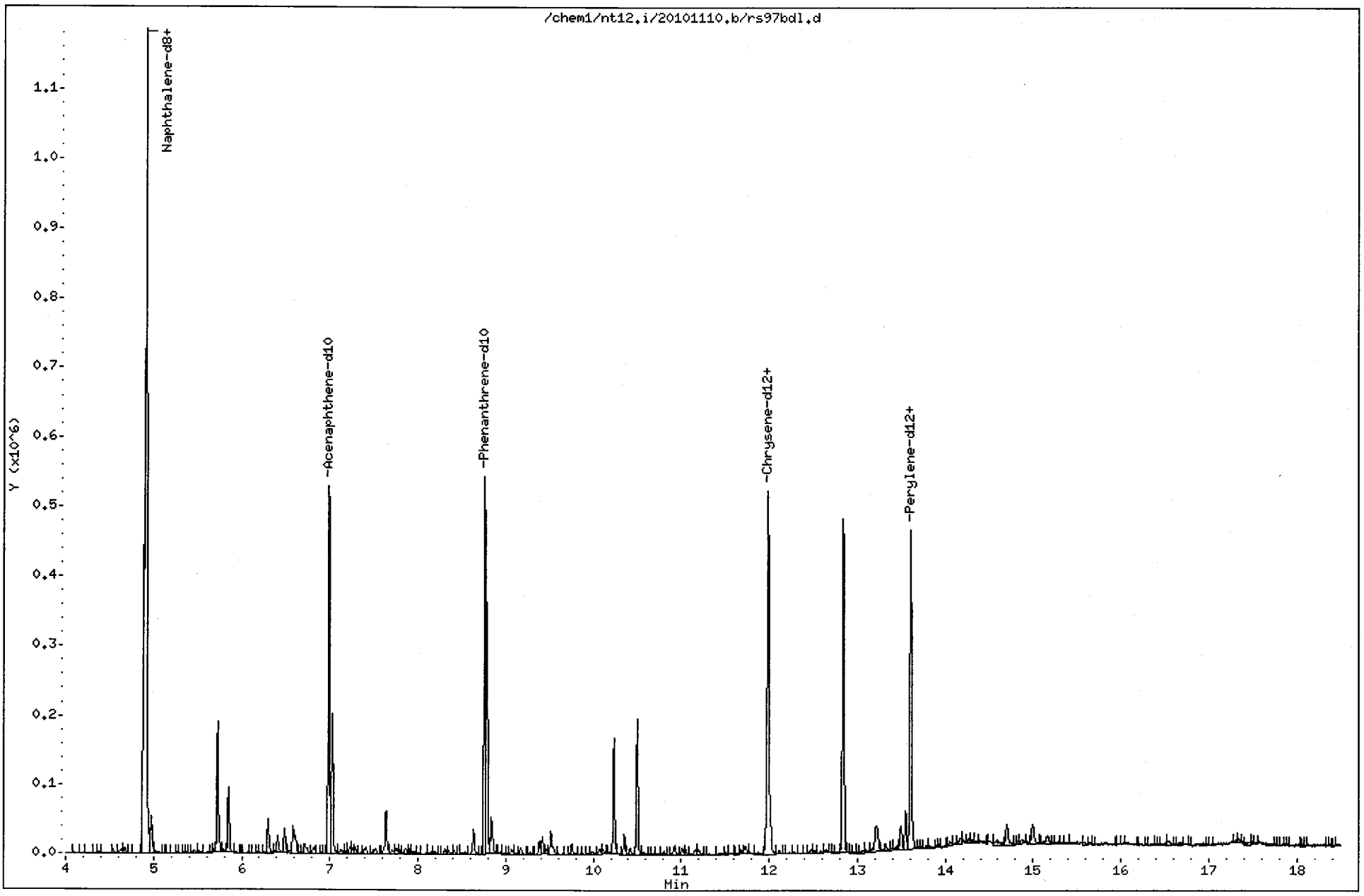
Client Name: NW Natural
Sample Matrix: SOLID
Lab Smp Id: RS97B
Level: LOW
Data Type: MS DATA
SpikeList File: SONICLCS.spk
Sublist File: pnas.sub
Method File: /chem1/nt12.i/20101110.b/PNADMD.m
Misc Info: 10-27418

Client SDG: RS97
Fraction: SV
Client Smp ID: DGS-19-3.34.1-10100
Operator: VTS
SampleType: SAMPLE
Quant Type: ISTD

SURROGATE COMPOUND	CONC ADDED ug/kg	CONC RECOVERED ug/kg	% RECOVERED	LIMITS
$ 36 2-Fluorobiphenyl	6735	0.000	*	34-100
$ 66 Terphenyl-d14	6735	0.000	*	35-112

Data File: /chem1/nt12.i/20101110.b/rs97bdl.d
Date : 10-NOV-2010 20:42
Client ID: DGS-19-3.34.1-10100
Sample Info: RS97B,25
Volume Injected (uL): 1.0
Column phase: ZB-5msi

Instrument: nt12.i
Operator: VTS
Column diameter: 0.32



RS97.0057

Data File: /chem1/nt12.i/20101110.b/rs97bdl.d

Date : 10-NOV-2010 20:42

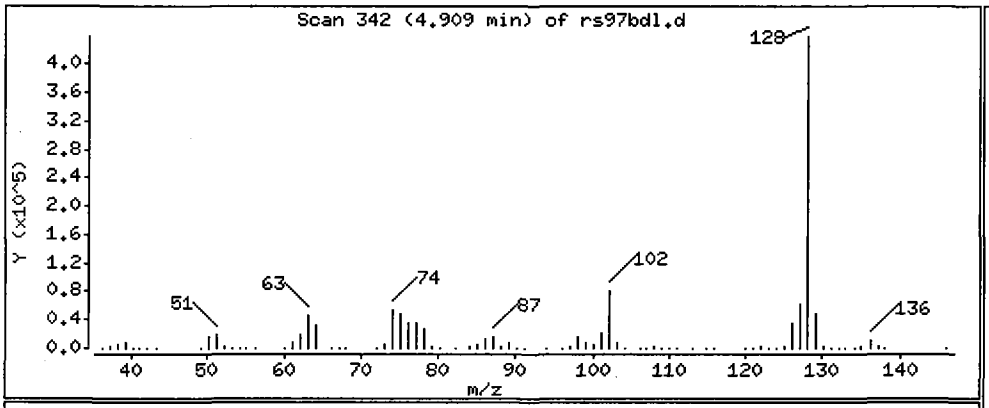
Client ID: DGS-19-3.34.1-10100 Instrument: nt12.i

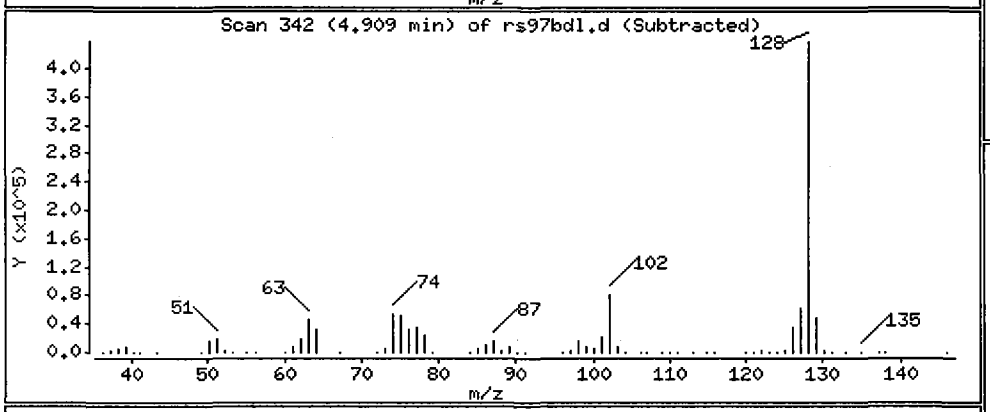
Sample Info: RS97B,25

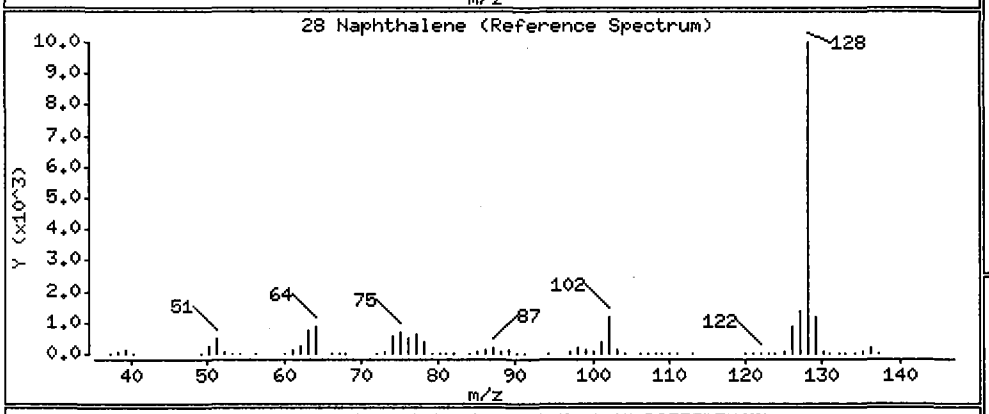
Volume Injected (uL): 1.0 Operator: VTS

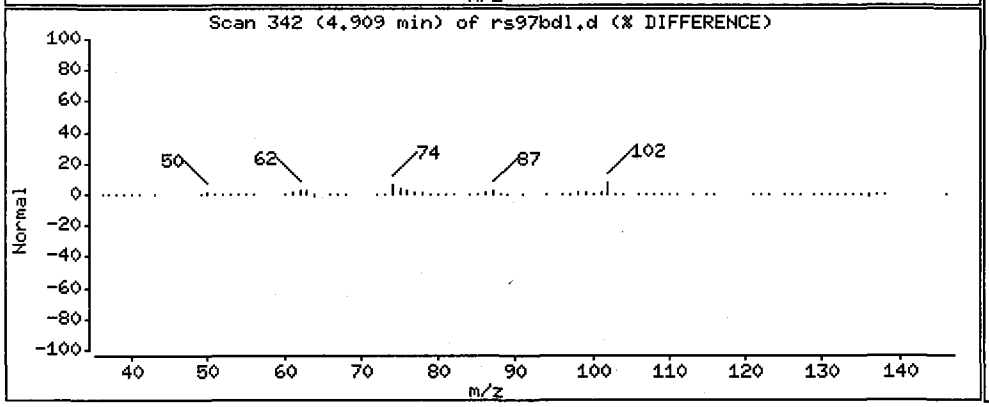
Column phase: ZB-5msi Column diameter: 0.32

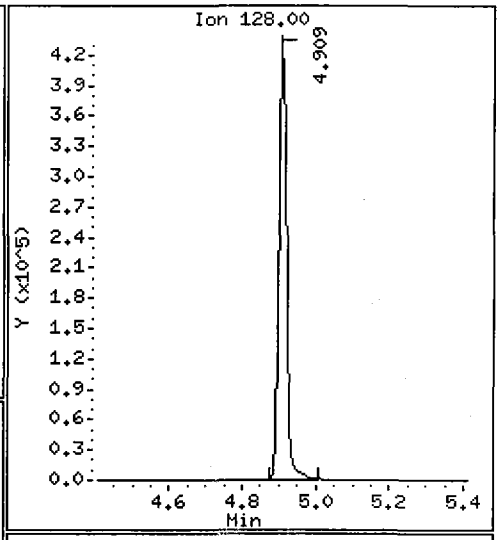
28 Naphthalene Concentration: 3214000 ug/kg

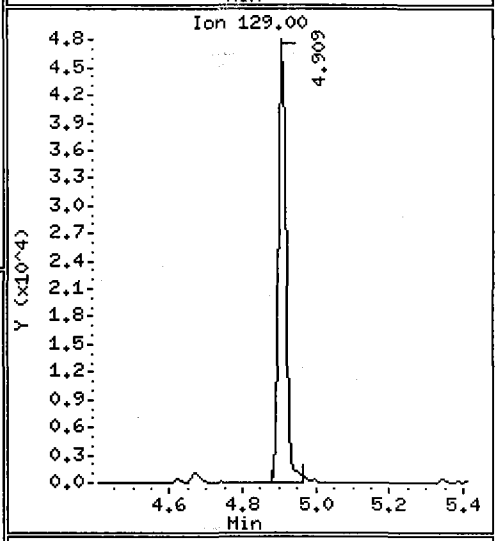


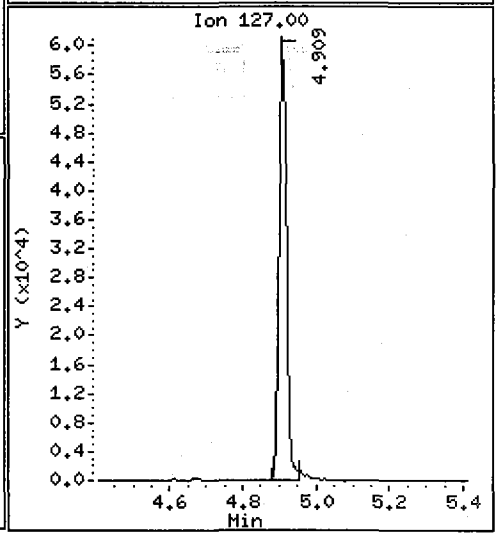












Data File: /chem1/nt12.i/20101110.b/rs97bdl.d

Date : 10-NOV-2010 20:42

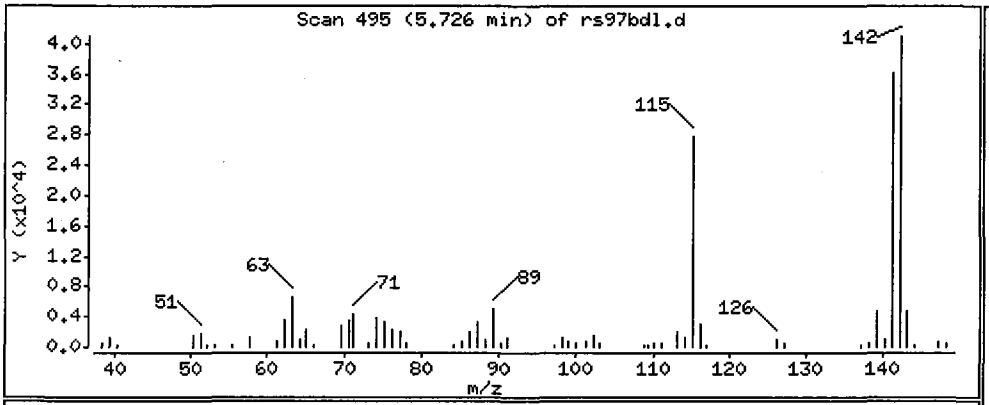
Client ID: DGS-19-3.34.1-10100 Instrument: nt12.i

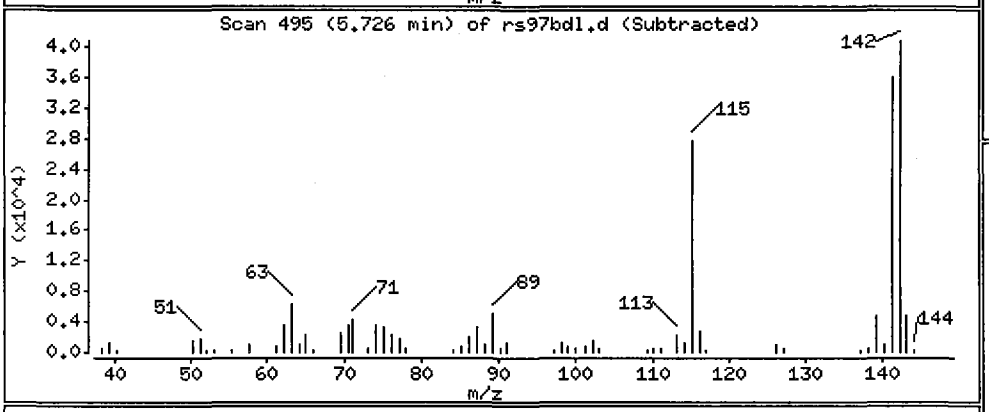
Sample Info: RS97B,25

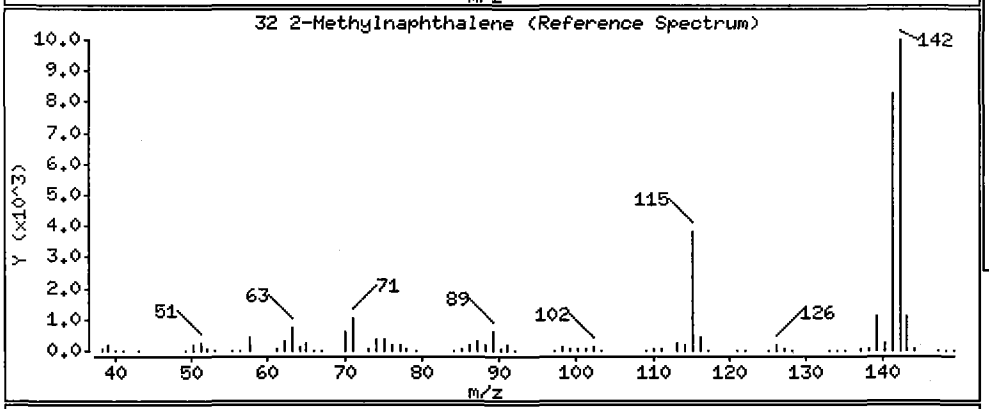
Volume Injected (uL): 1.0 Operator: VTS

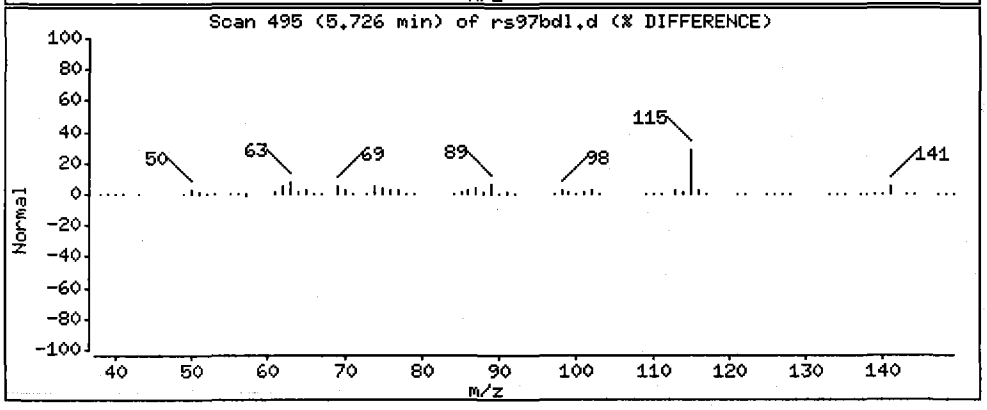
Column phase: ZB-5msi Column diameter: 0.32

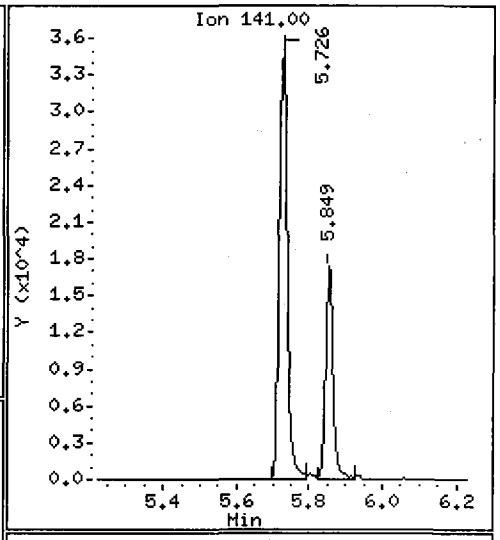
32 2-Methylnaphthalene Concentration: 526800 ug/kg

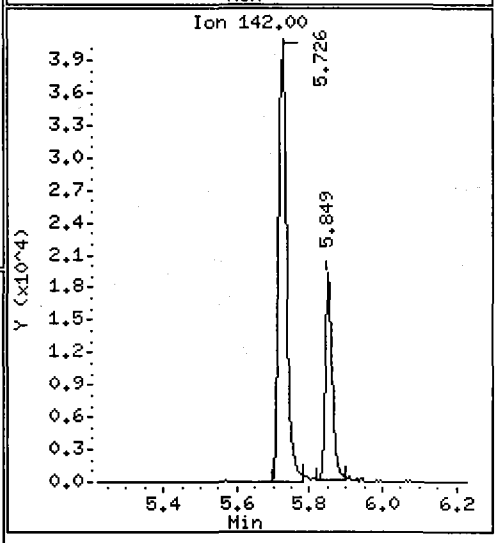












Data File: /chem1/nt12.i/20101110.b/rs97bdl.d

Date : 10-NOV-2010 20:42

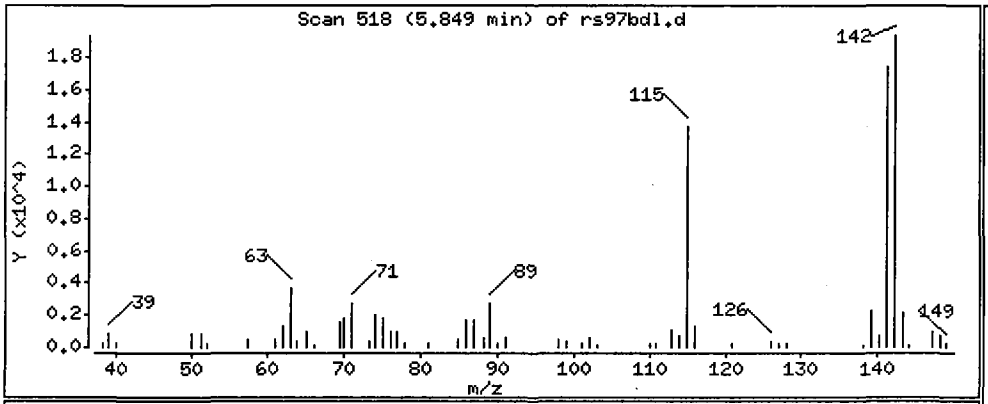
Client ID: DGS-19-3.34.1-10100 Instrument: nt12.i

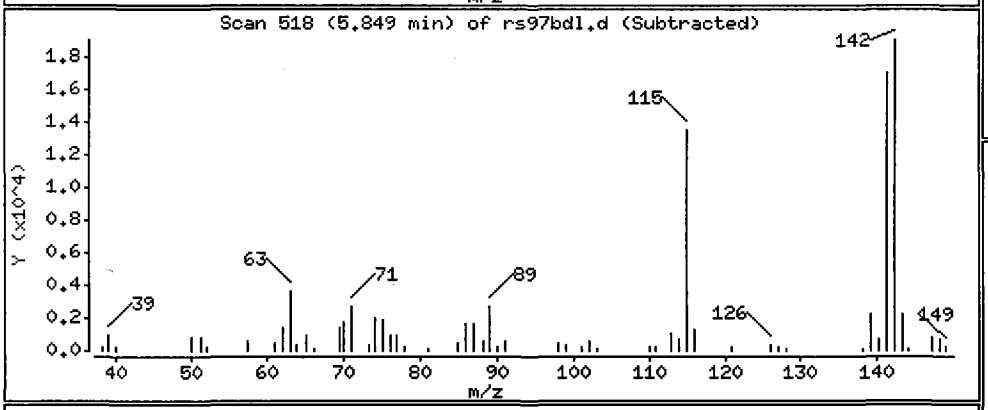
Sample Info: RS97B,25

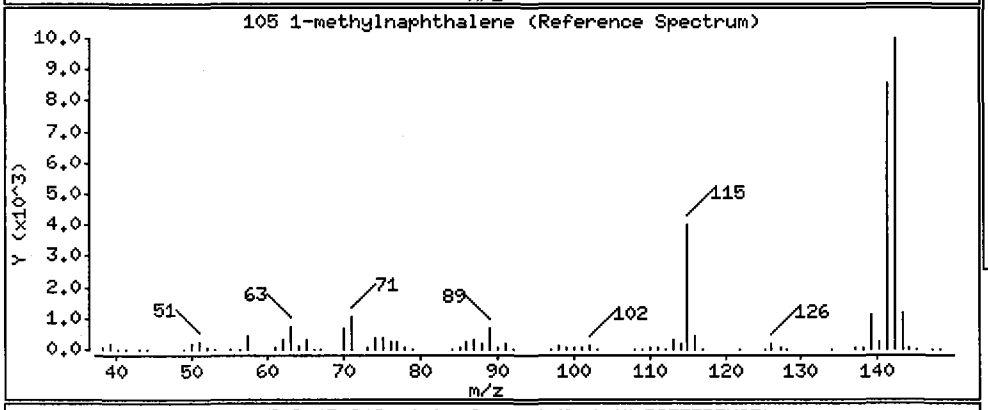
Volume Injected (uL): 1.0 Operator: VTS

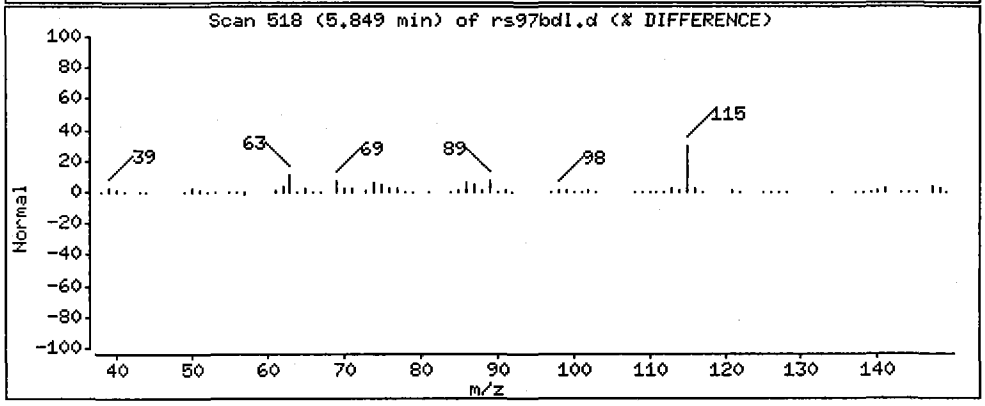
Column phase: ZB-5msi Column diameter: 0.32

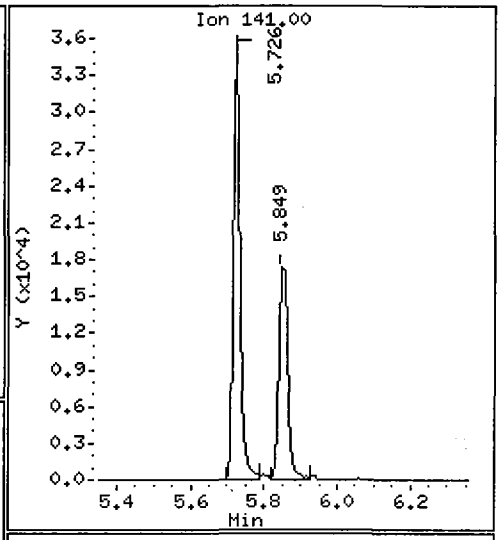
105 1-methylnaphthalene Concentration: 282400 ug/kg

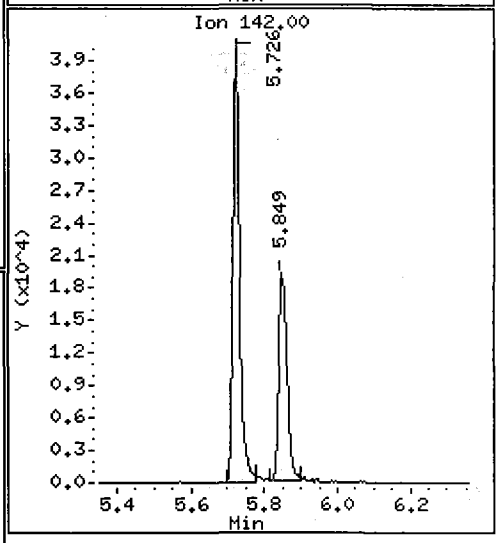












Data File: /chem1/nt12.i/20101110.b/rs97bdl.d

Date : 10-NOV-2010 20:42

Client ID: DGS-19-3.34.1-10100

Instrument: nt12.i

Sample Info: RS97B,25

Volume Injected (uL): 1.0

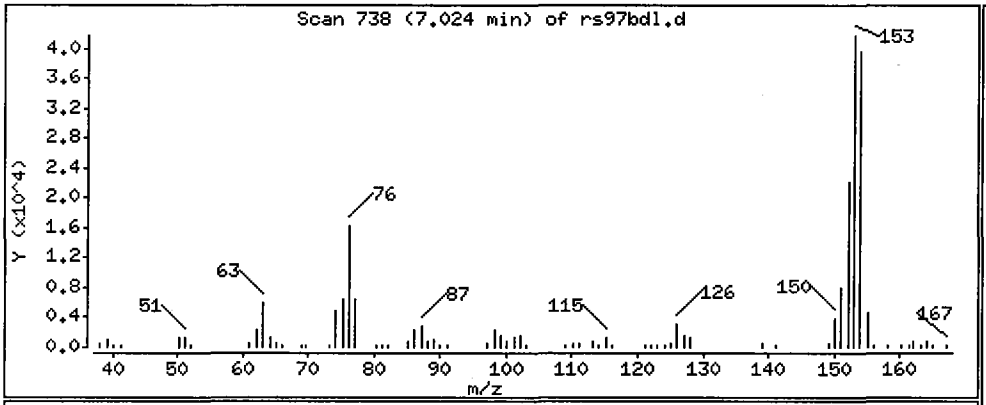
Operator: VTS

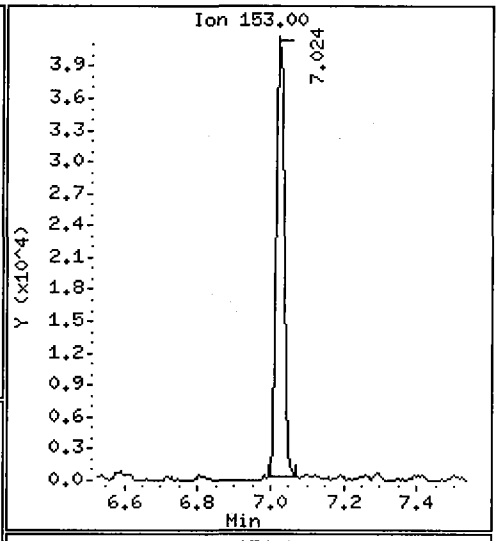
Column phase: ZB-5msi

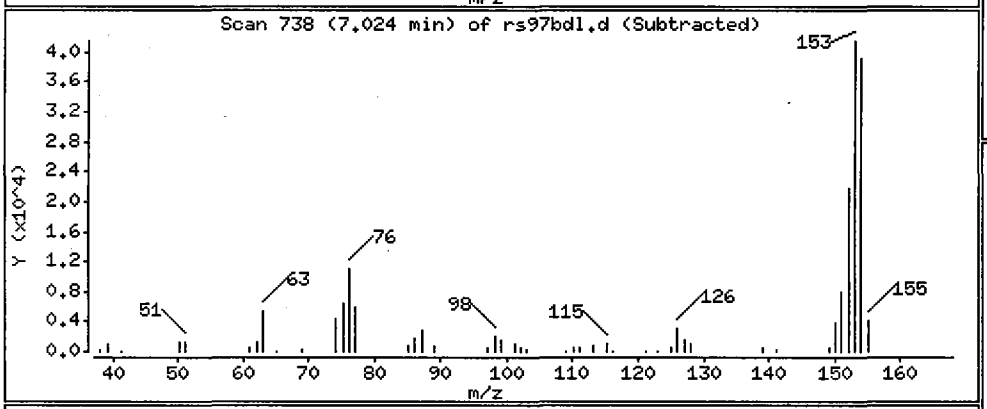
Column diameter: 0.32

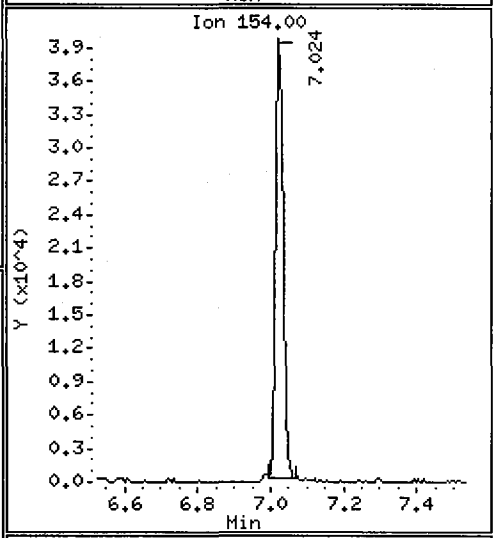
44 Acenaphthene

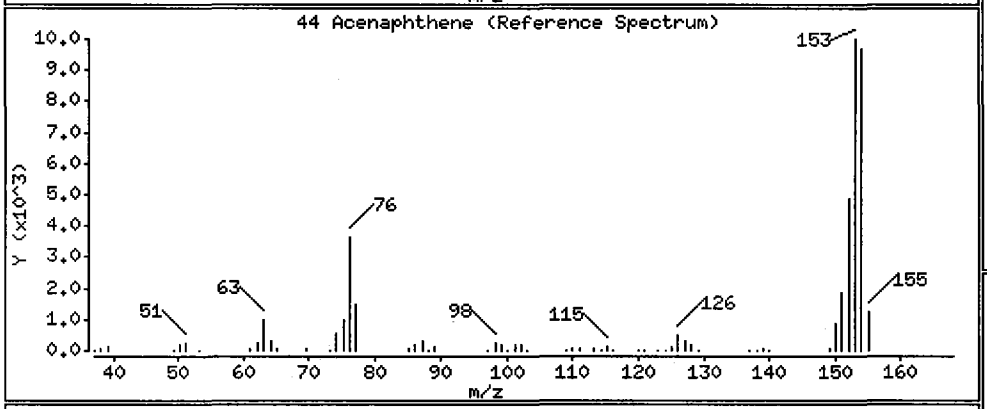
Concentration: 490600 ug/kg

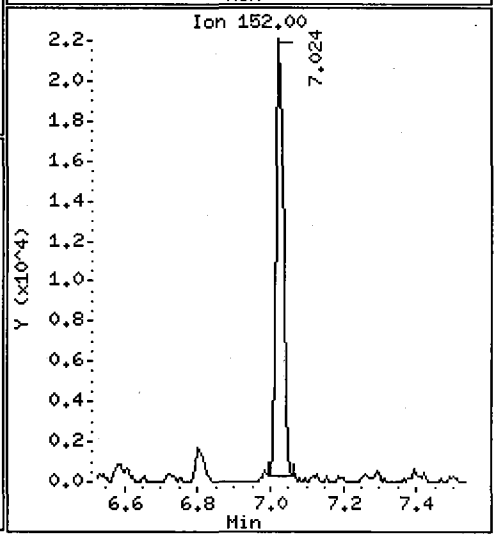


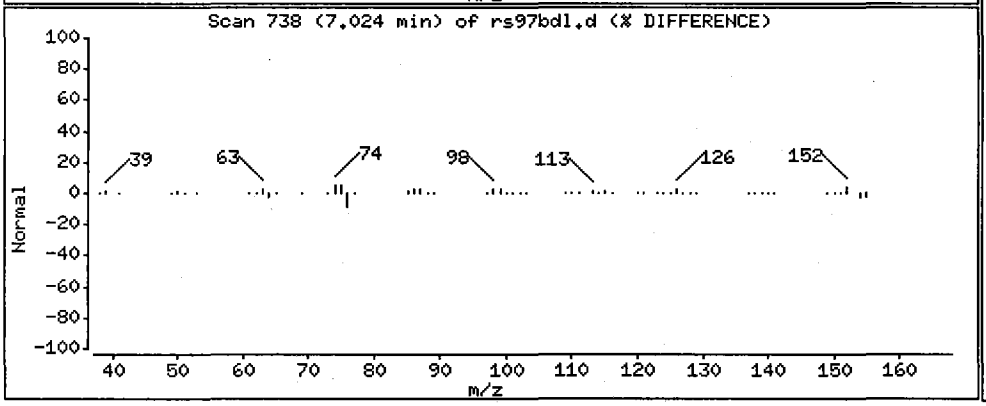












Data File: /chem1/nt12.i/20101110.b/rs97bdl.d

Date : 10-NOV-2010 20:42

Client ID: DGS-19-3.34.1-10100

Instrument: nt12.i

Sample Info: RS97B,25

Volume Injected (uL): 1.0

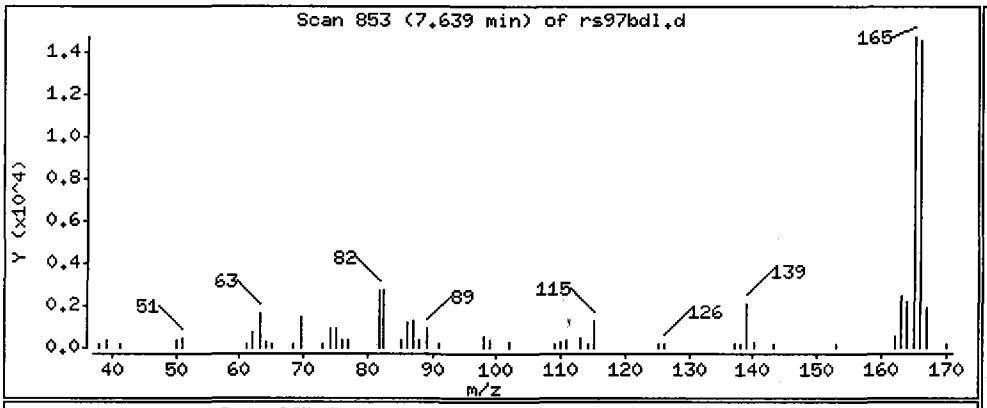
Operator: VTS

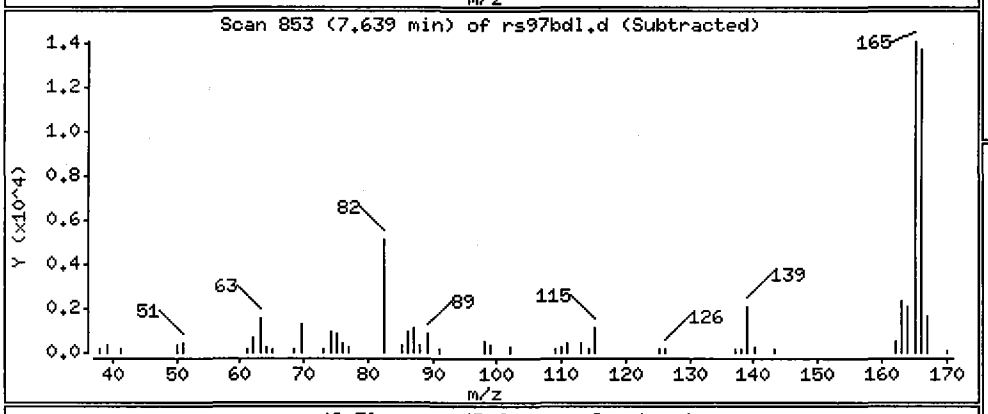
Column phase: ZB-5msi

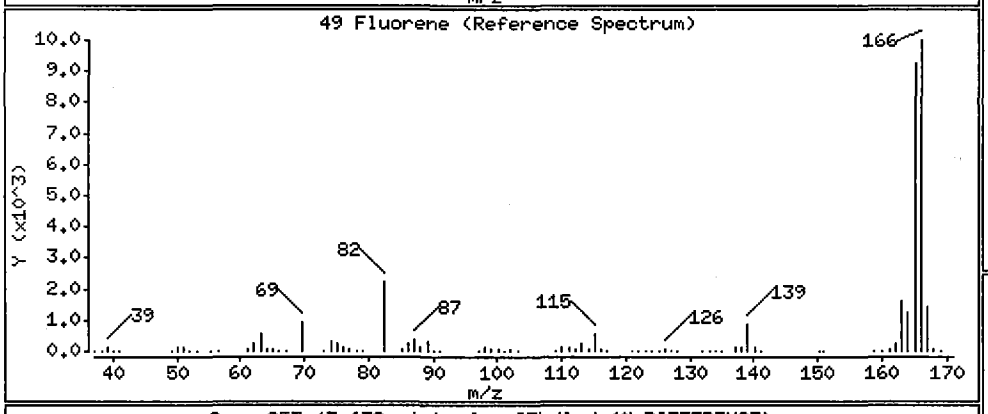
Column diameter: 0.32

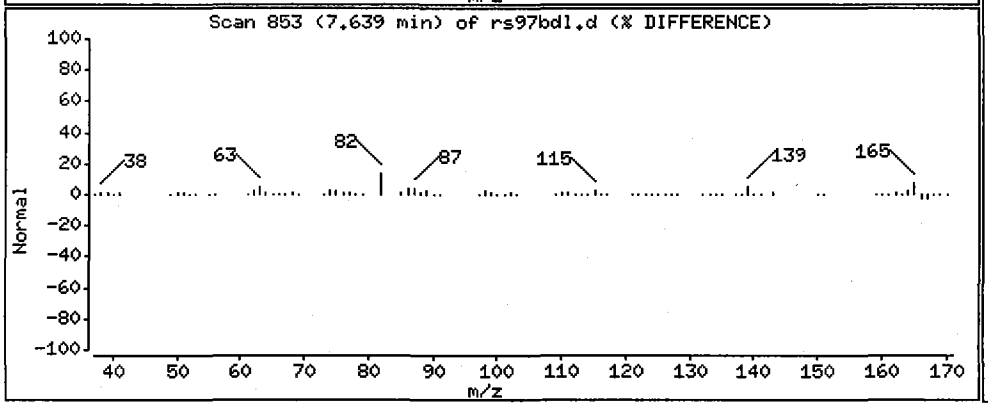
49 Fluorene

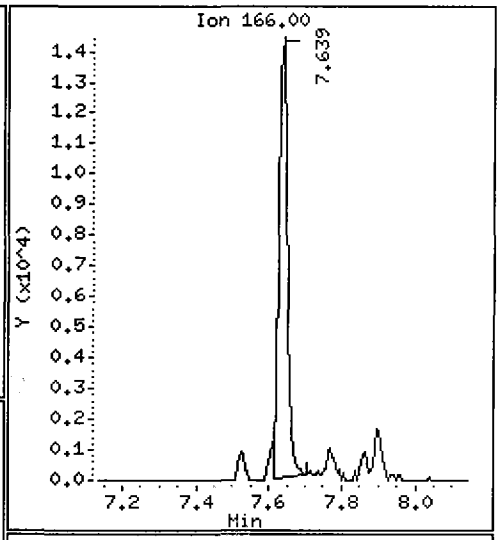
Concentration: 161700 ug/kg

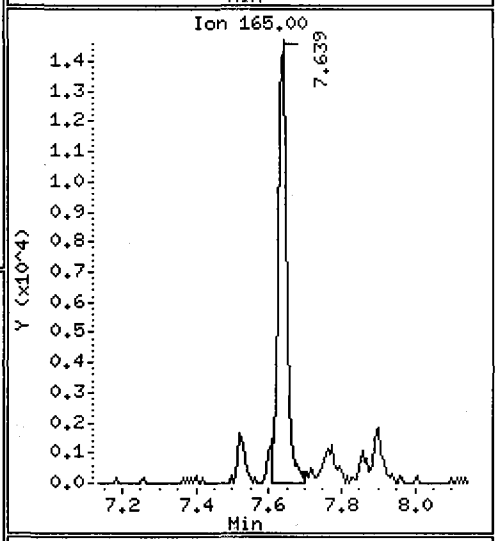


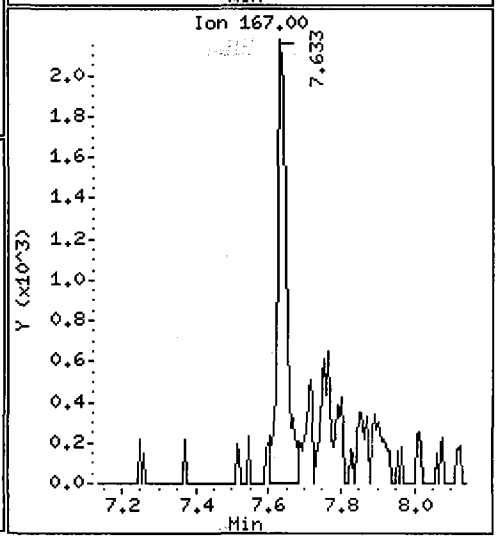












Data File: /chem1/nt12.i/20101110.b/rs97bdl.d

Date : 10-NOV-2010 20:42

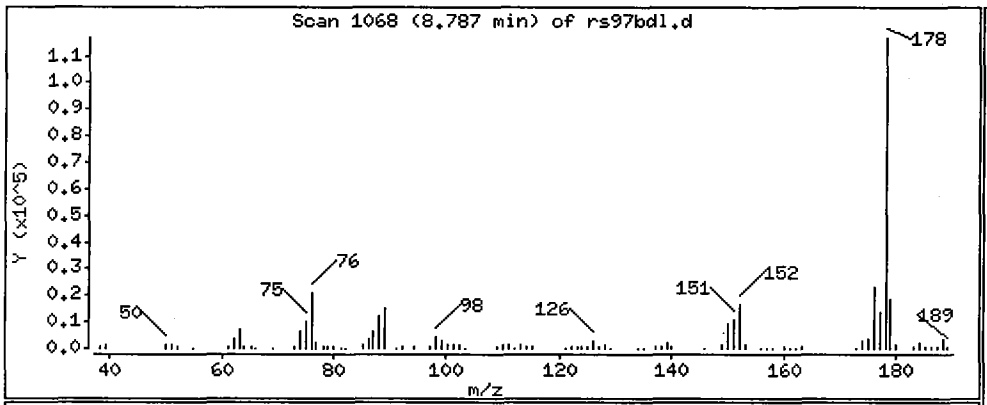
Client ID: DGS-19-3.34.1-10100 Instrument: nt12.i

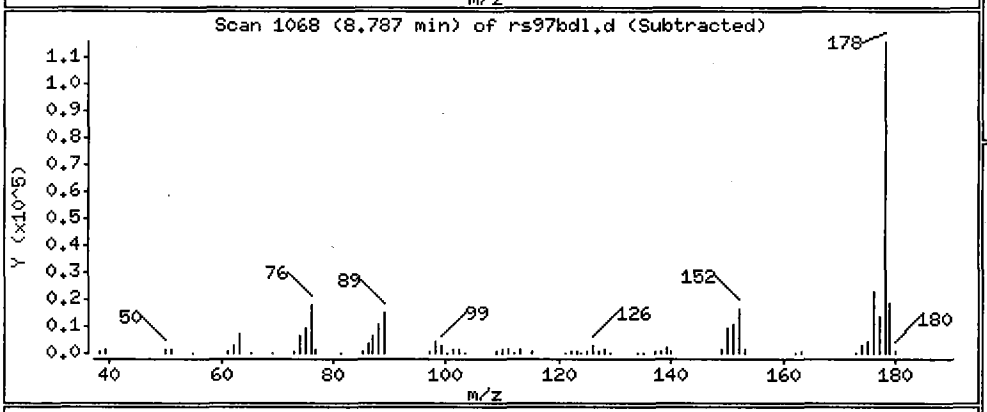
Sample Info: RS97B,25

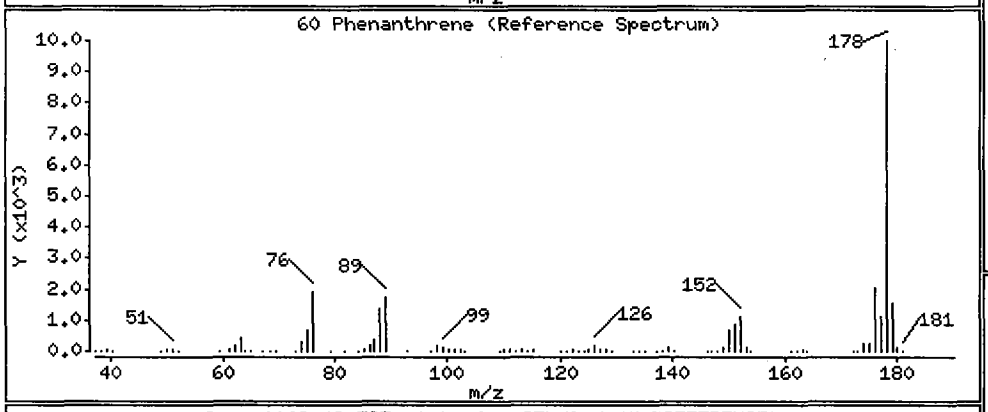
Volume Injected (uL): 1.0 Operator: VTS

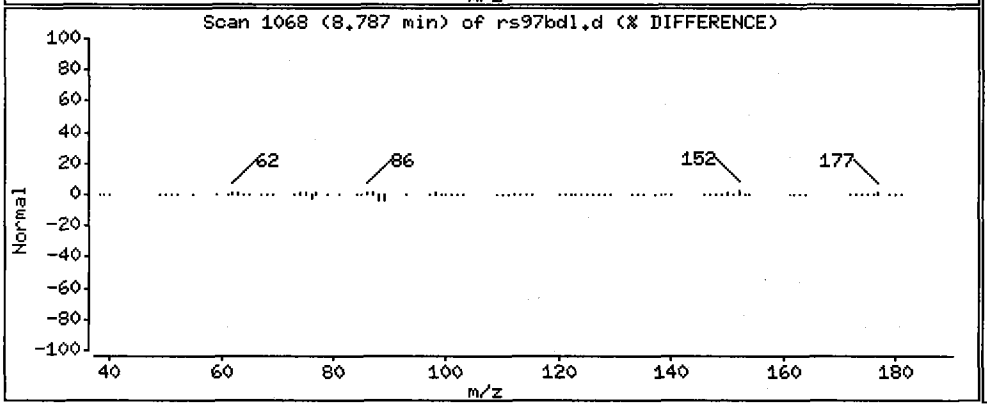
Column phase: ZB-5msi Column diameter: 0.32

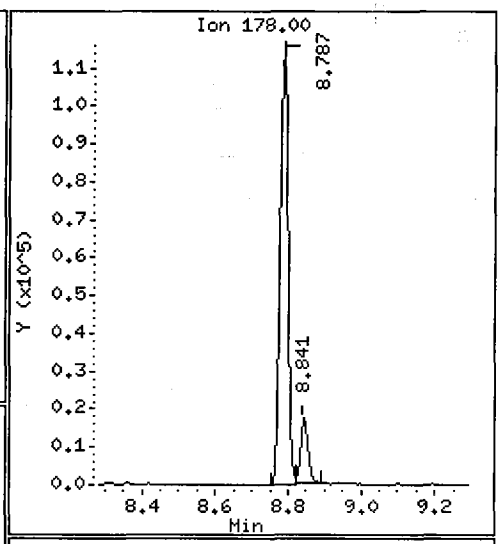
60 Phenanthrene Concentration: 865000 ug/kg

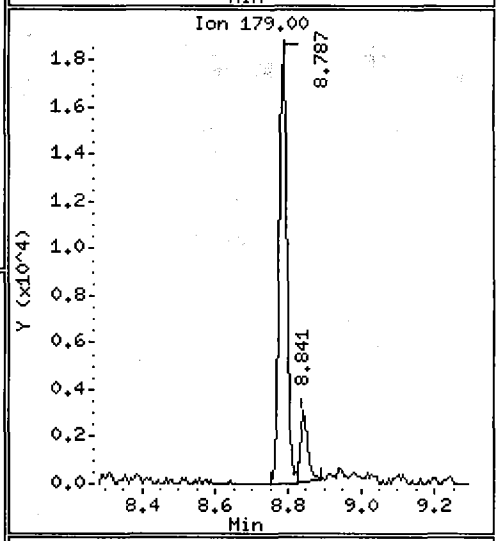


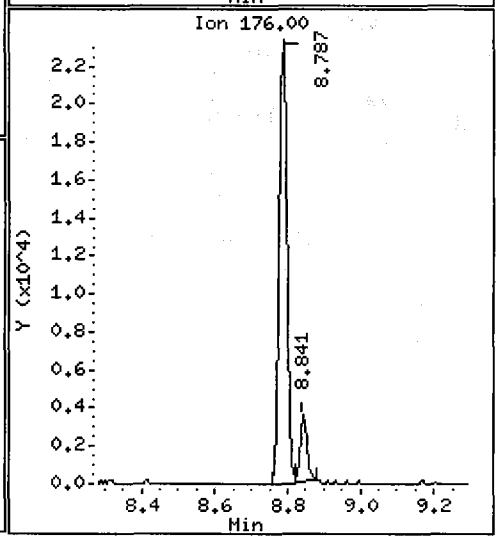












Data File: /chem1/nt12.i/20101110.b/rs97bdl.d

Date : 10-NOV-2010 20:42

Client ID: DGS-19-3.34.1-10100

Instrument: nt12.i

Sample Info: RS97B,25

Volume Injected (uL): 1.0

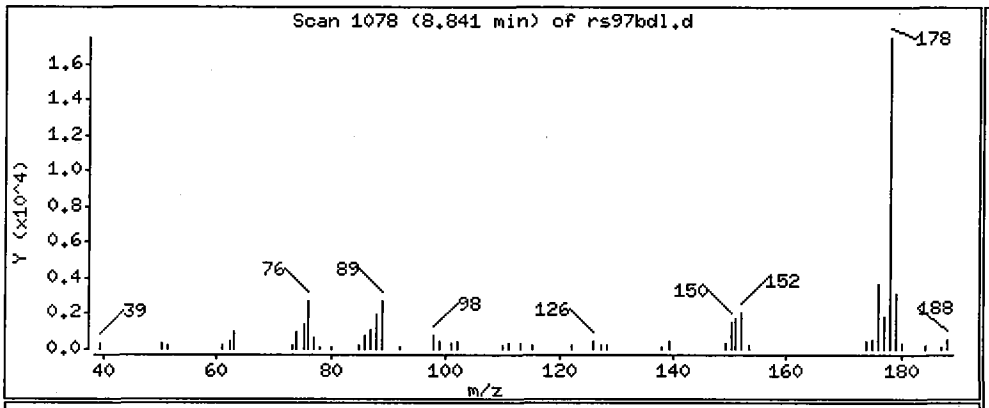
Operator: VTS

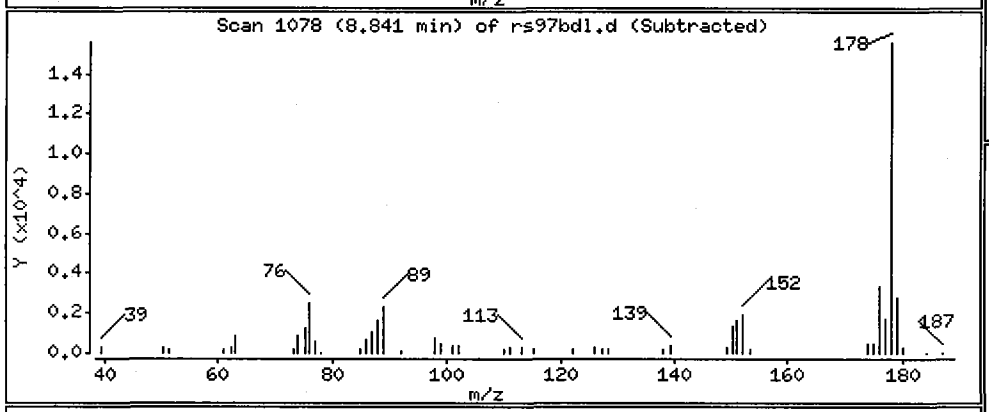
Column phase: ZB-5msi

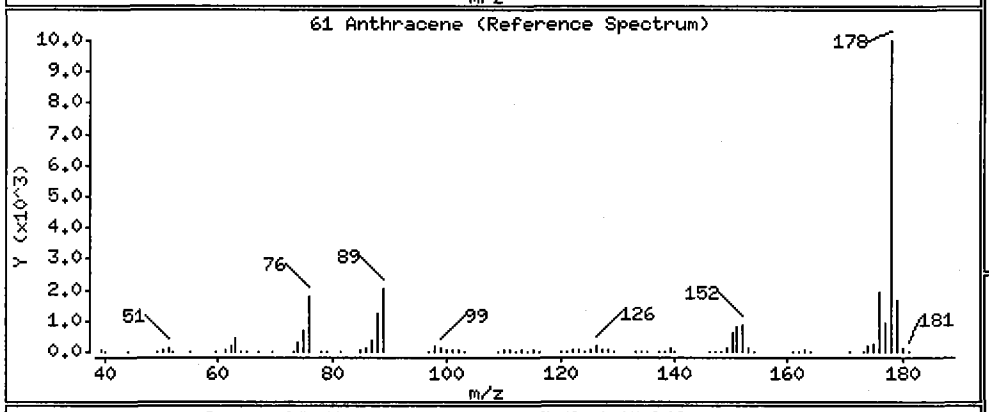
Column diameter: 0.32

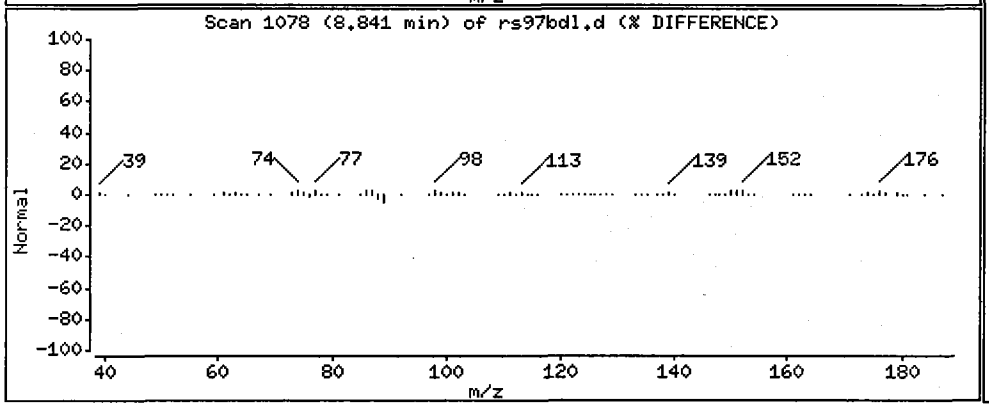
61 Anthracene

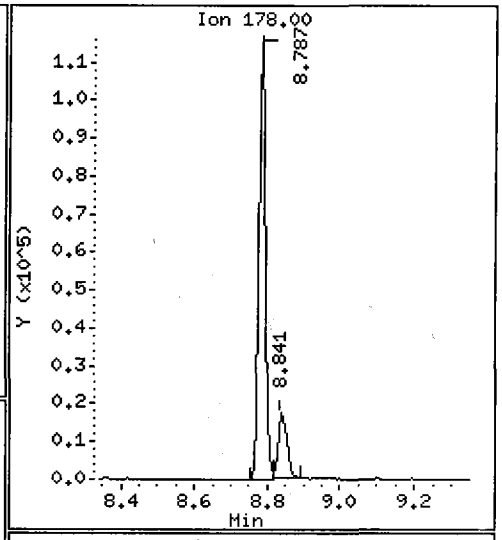
Concentration: 146000 ug/kg

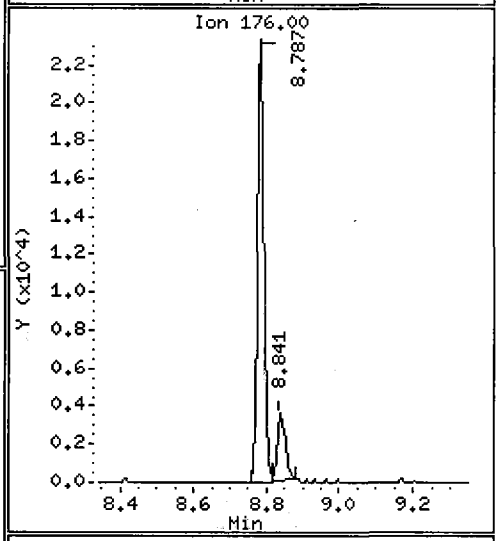


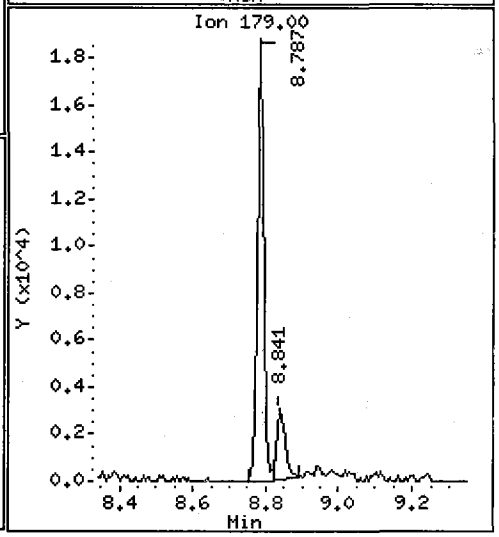












Data File: /chem1/nt12.i/20101110.b/rs97bdl.d

Date : 10-NOV-2010 20:42

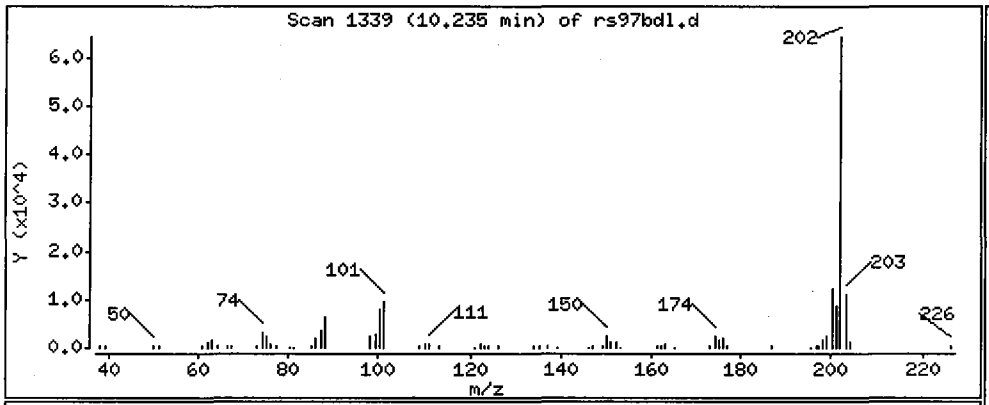
Client ID: DGS-19-3.34.1-10100 Instrument: nt12.i

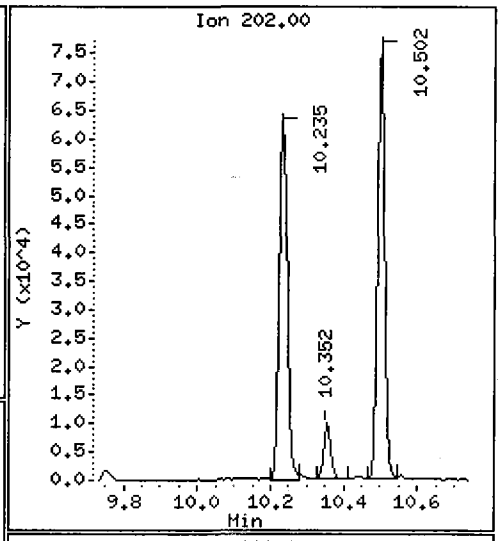
Sample Info: RS97B,25

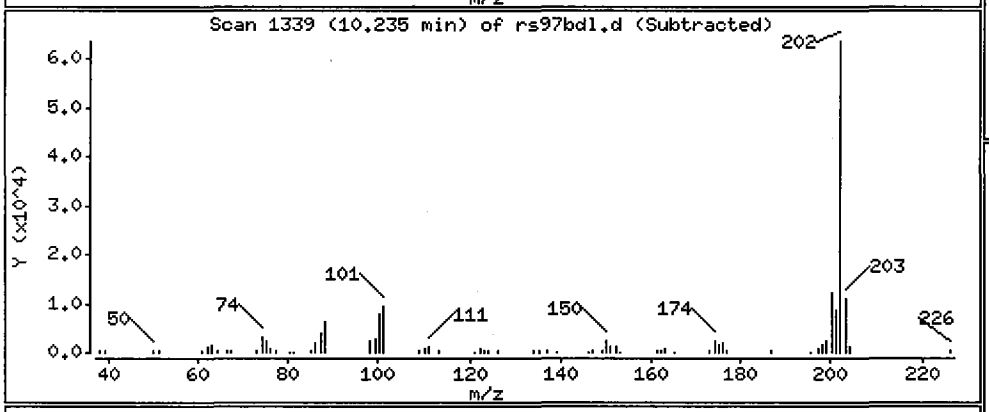
Volume Injected (uL): 1.0 Operator: VTS

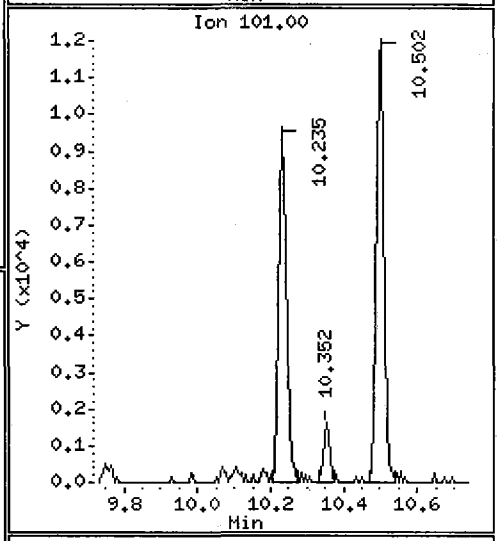
Column phase: ZB-5msi Column diameter: 0.32

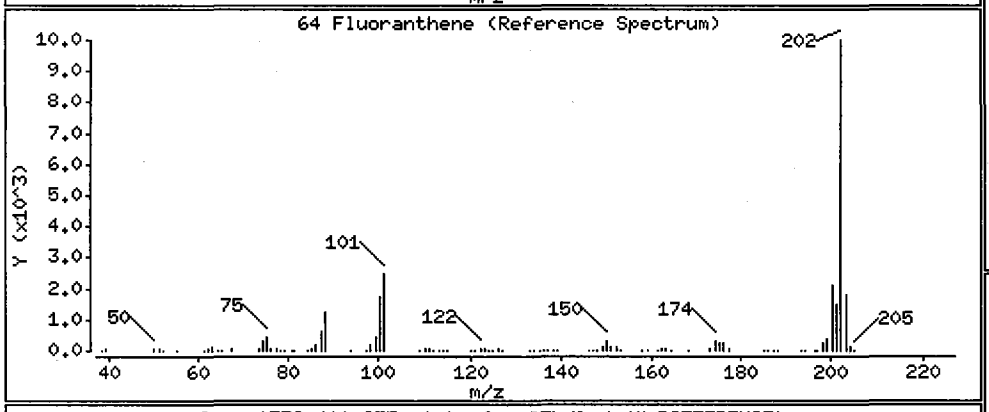
64 Fluoranthene Concentration: 366000 ug/kg

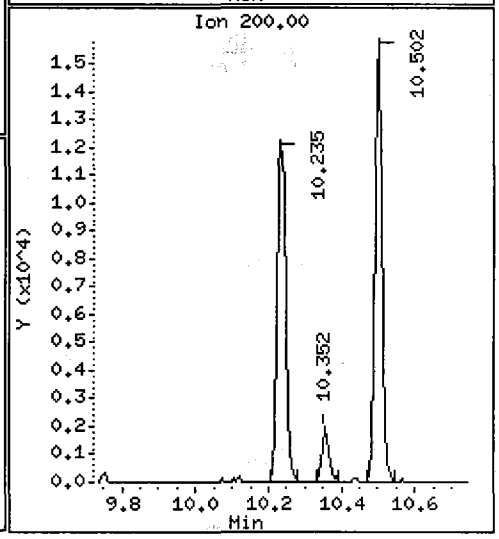


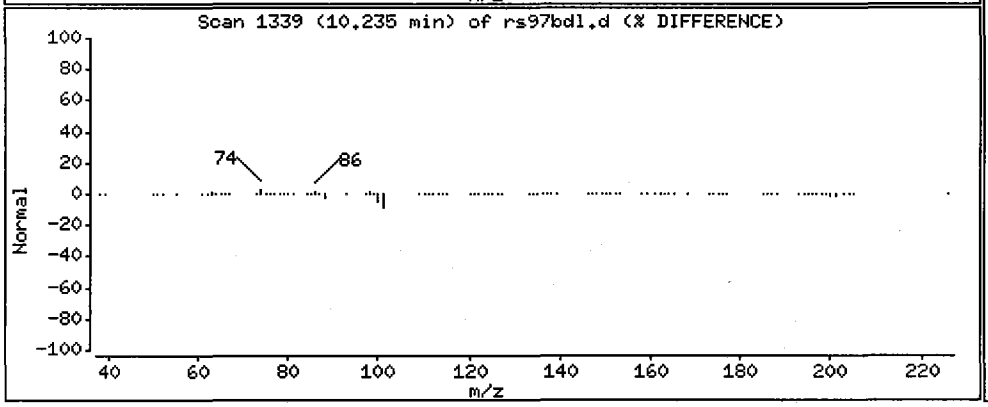












Data File: /chem1/nt12.i/20101110.b/rs97bdl.d

Date : 10-NOV-2010 20:42

Client ID: DGS-19-3.34.1-10100

Instrument: nt12.i

Sample Info: RS97B,25

Volume Injected (uL): 1.0

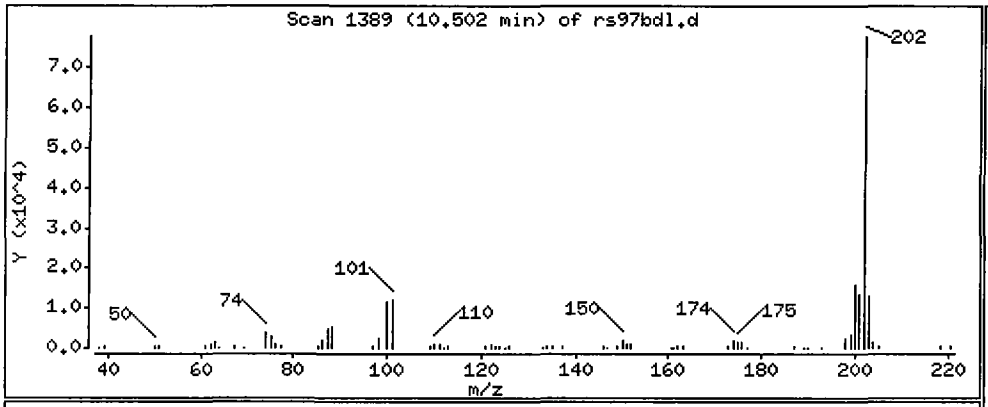
Operator: VTS

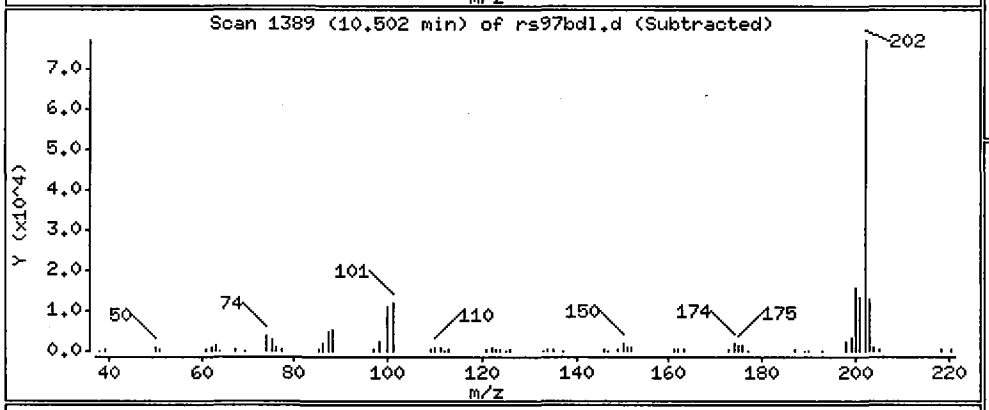
Column phase: ZB-5msi

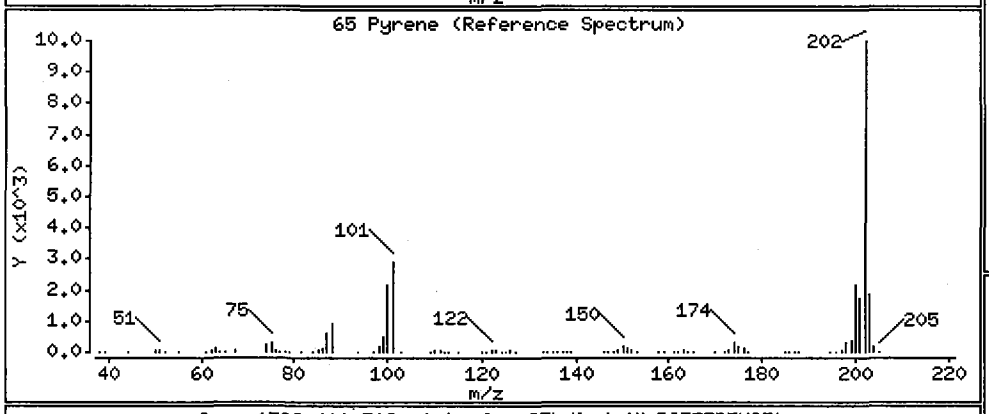
Column diameter: 0.32

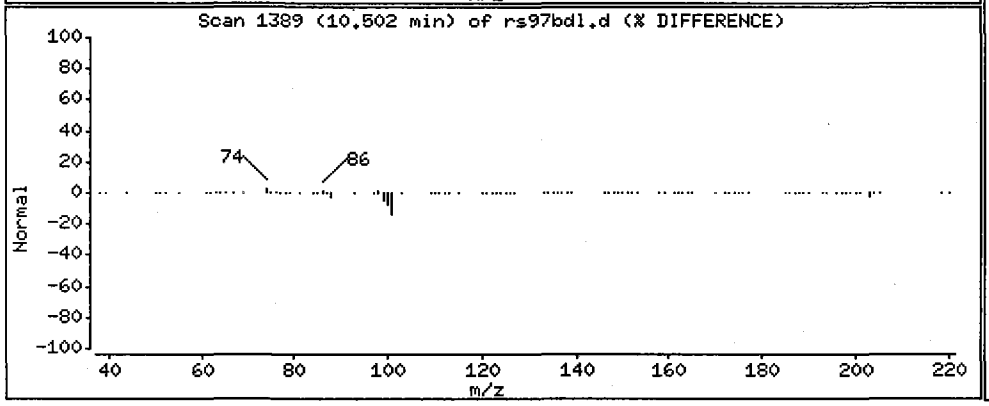
65 Pyrene

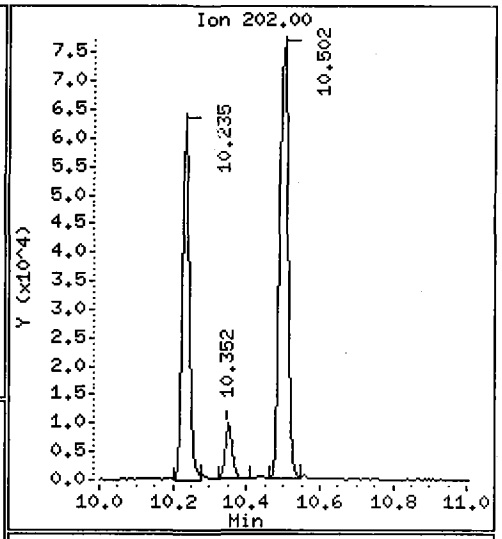
Concentration: 455000 ug/kg

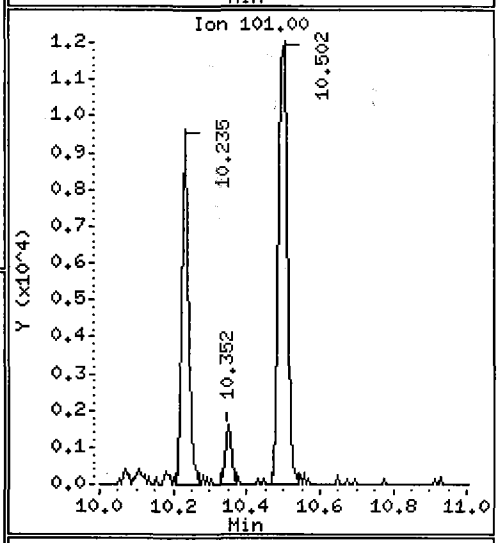


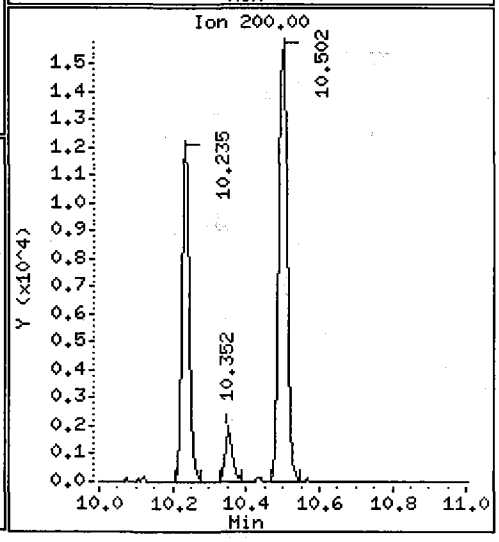












Data File: /chem1/nt12.i/20101110.b/rs97bdl.d

Date : 10-NOV-2010 20:42

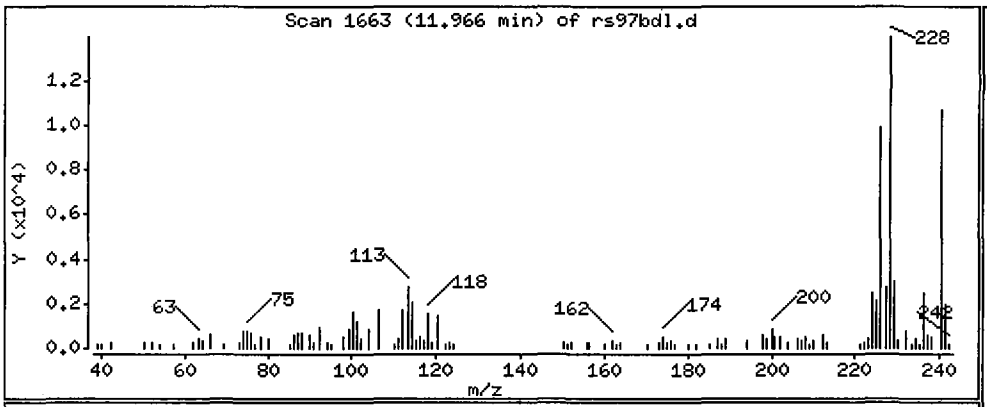
Client ID: DGS-19-3.34.1-10100 Instrument: nt12.i

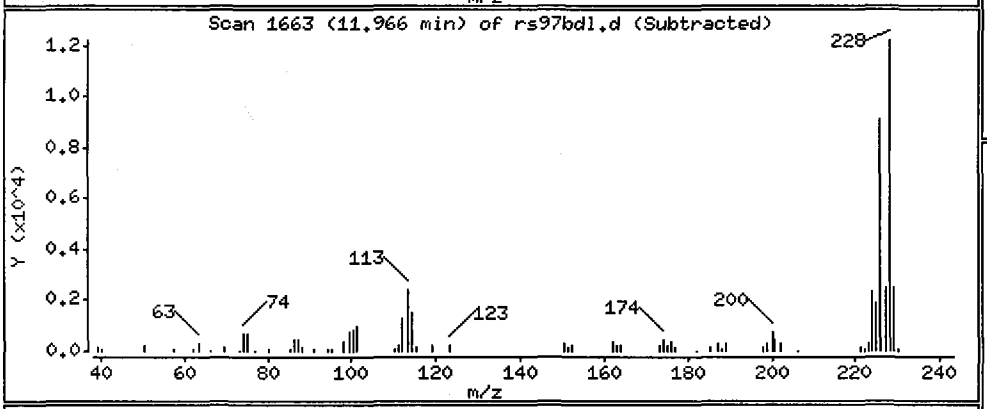
Sample Info: RS97B,25

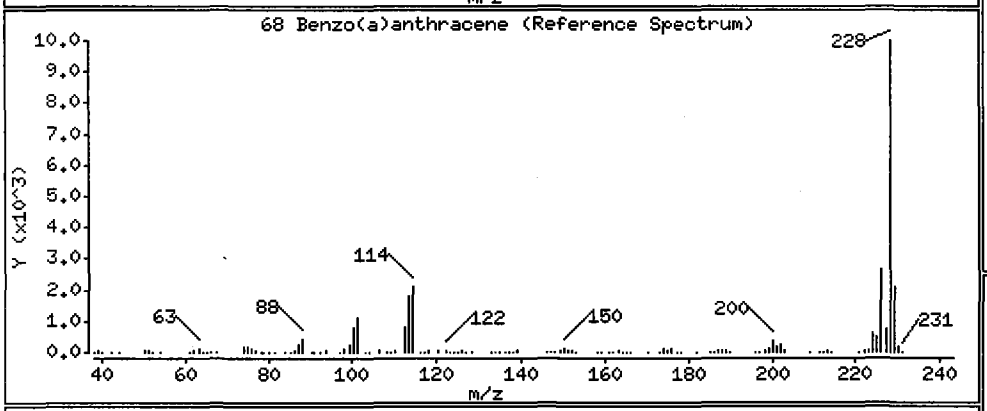
Volume Injected (uL): 1.0 Operator: VTS

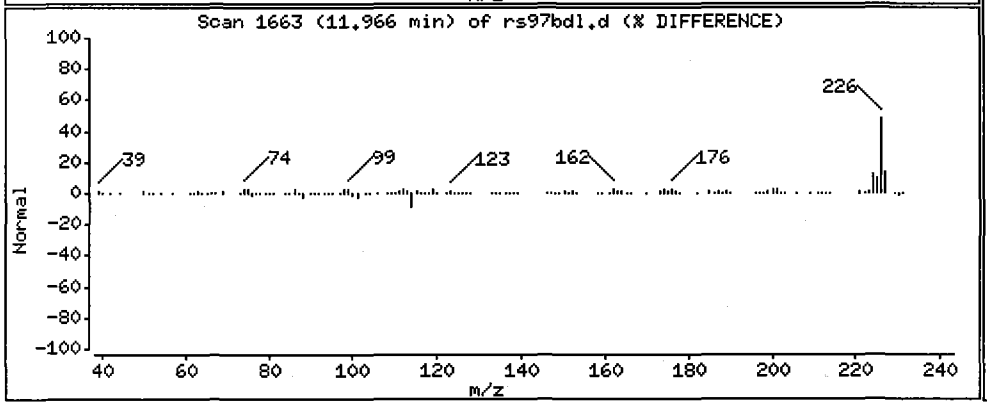
Column phase: ZB-5msi Column diameter: 0.32

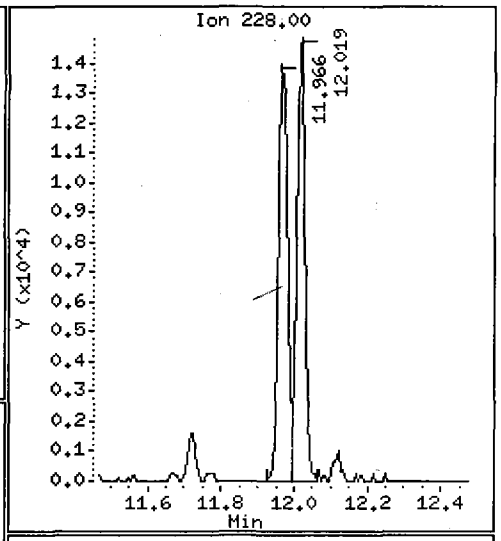
68 Benzo(a)anthracene Concentration: 116500 ug/kg

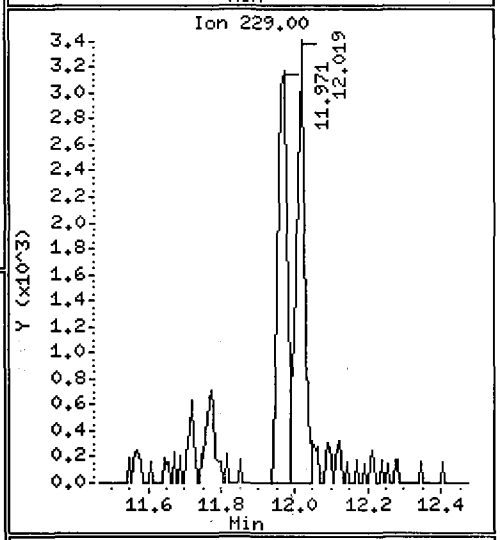


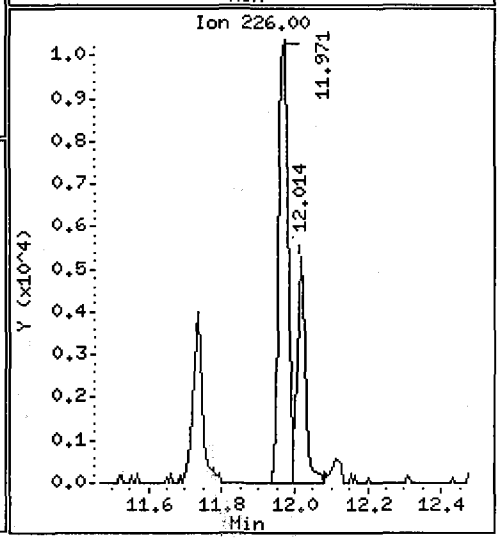












Data File: /chem1/nt12.i/20101110.b/rs97bdl.d

Date : 10-NOV-2010 20:42

Client ID: DGS-19-3.34.1-10100

Instrument: nt12.i

Sample Info: RS97B,25

Volume Injected (uL): 1.0

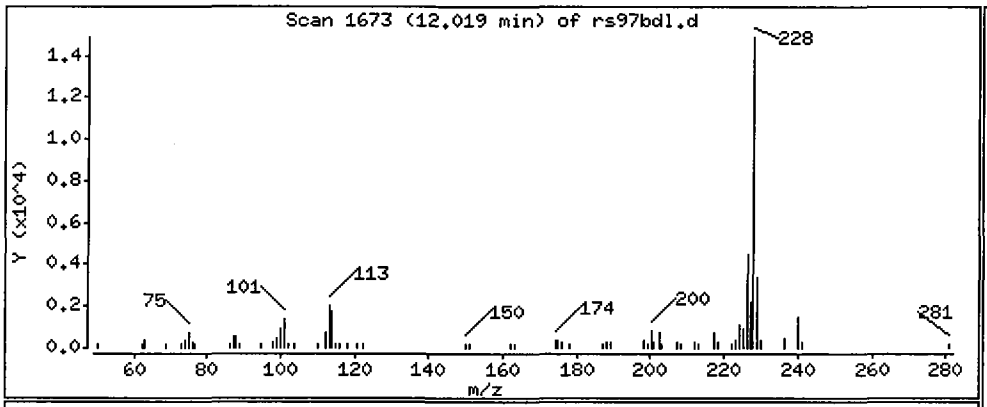
Operator: VTS

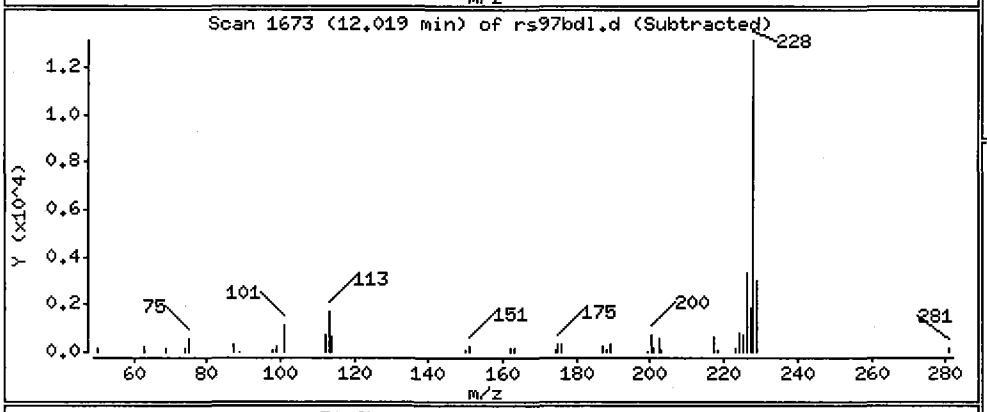
Column phase: ZB-5msi

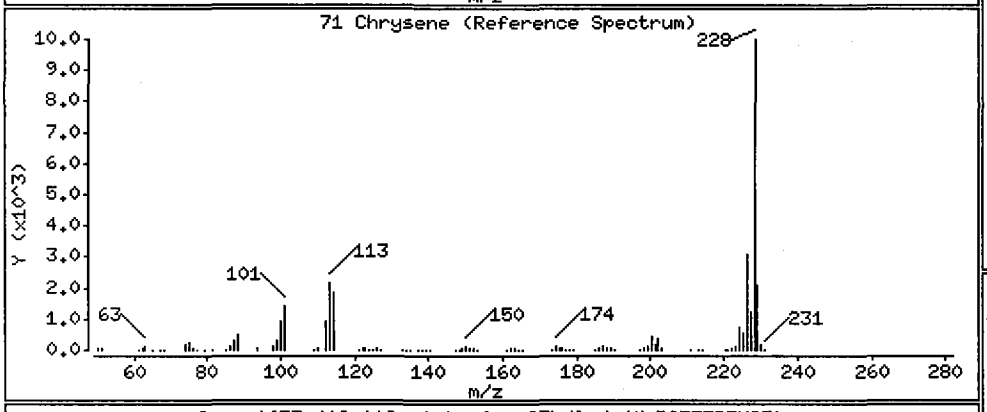
Column diameter: 0.32

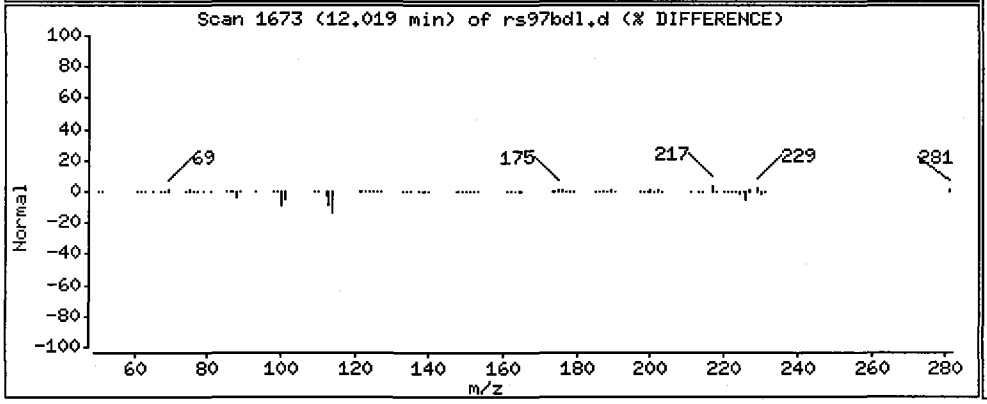
71 Chrysene

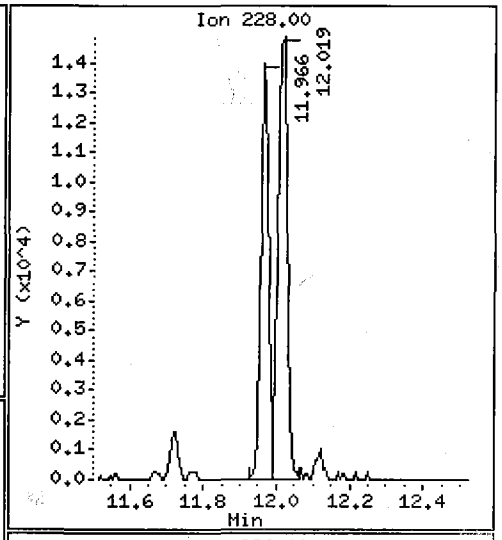
Concentration: 137900 ug/kg

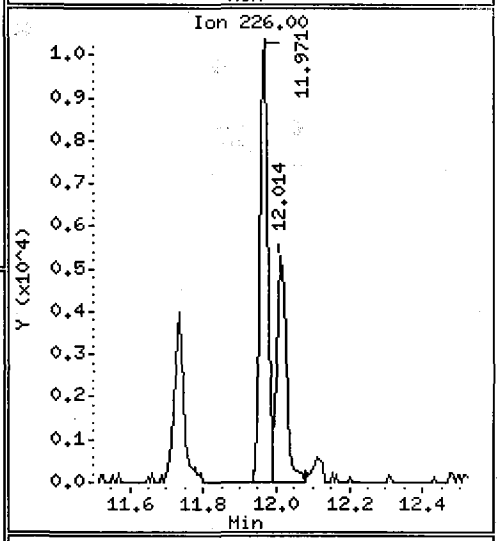


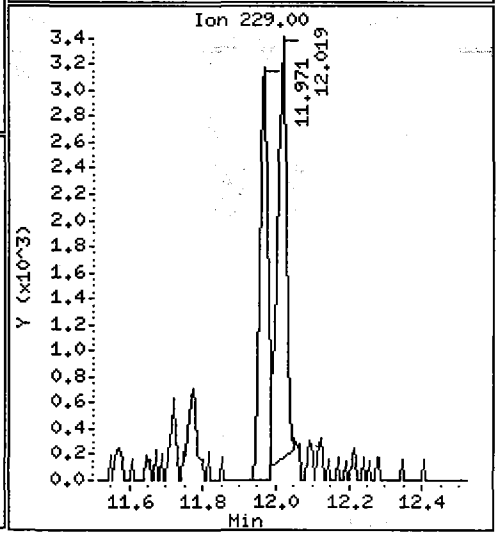












Data File: /chem1/nt12.i/20101110.b/rs97bdl.d

Date : 10-NOV-2010 20:42

Client ID: DGS-19-3.34.1-10100

Instrument: nt12.i

Sample Info: RS97B,25

Volume Injected (uL): 1.0

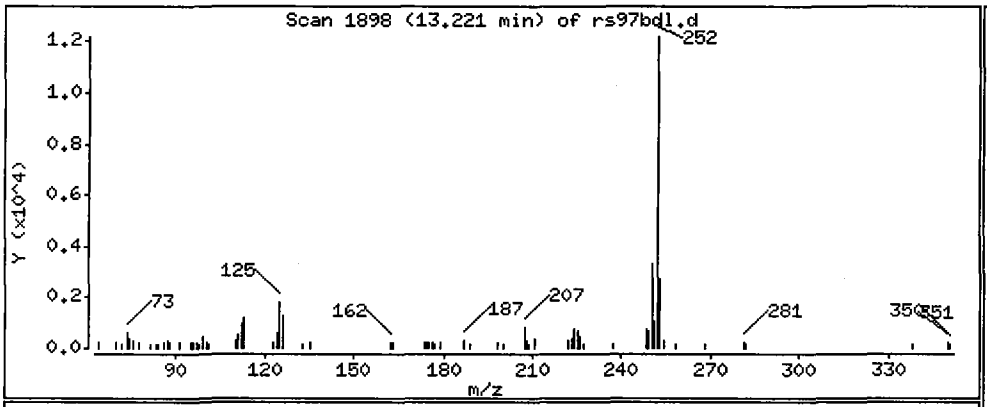
Operator: VTS

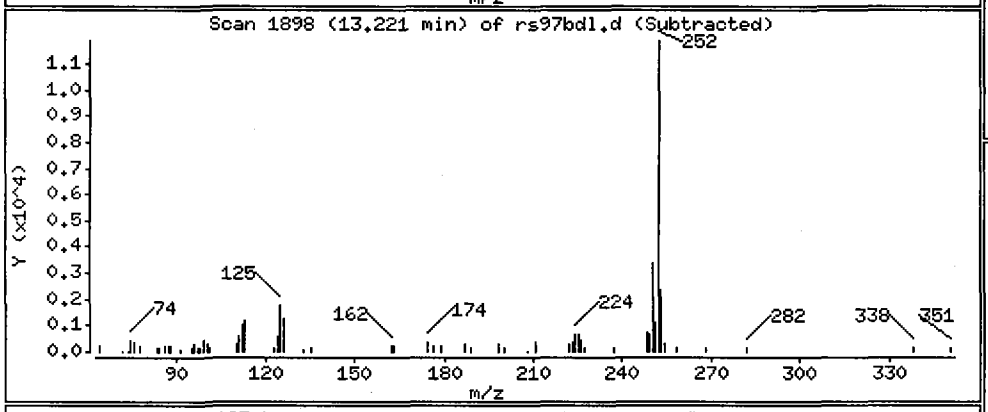
Column phase: ZB-5msi

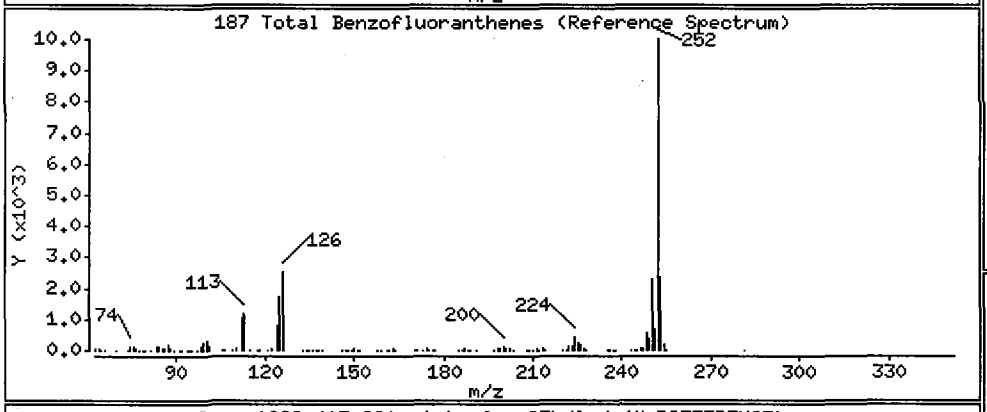
Column diameter: 0.32

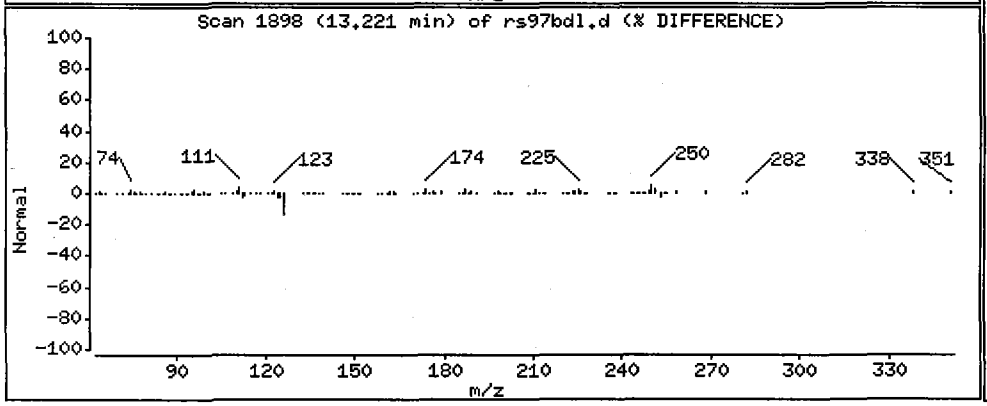
187 Total Benzofluoranthenes

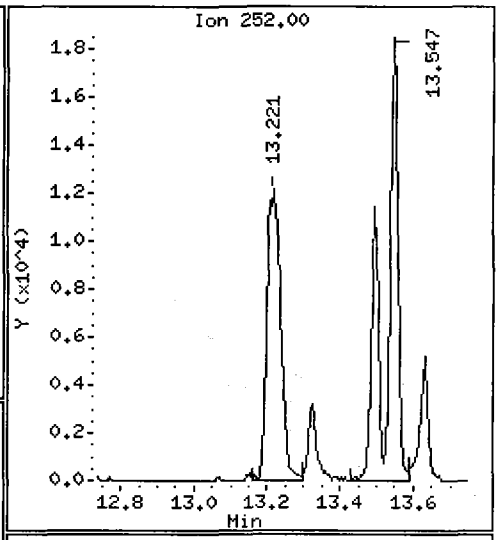
Concentration: 170100 ug/kg

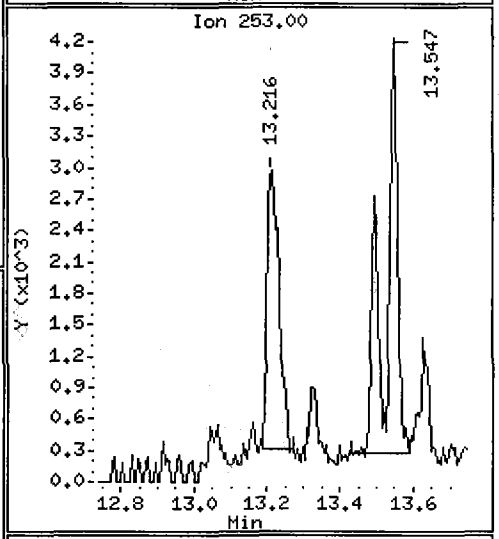


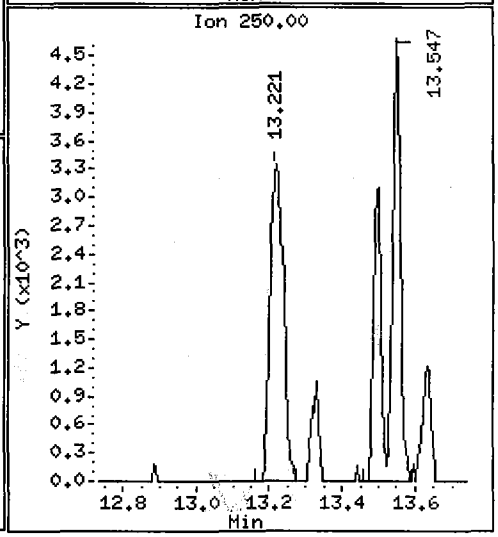












Data File: /chem1/nt12.i/20101110.b/rs97bdl.d

Date : 10-NOV-2010 20:42

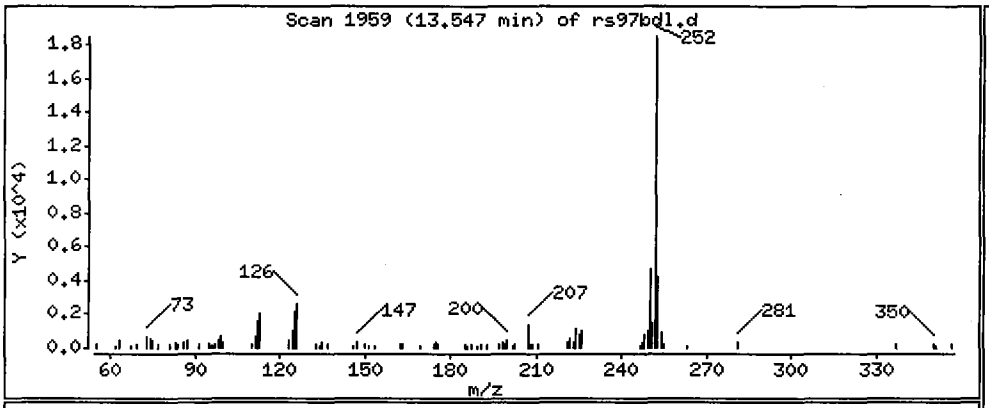
Client ID: DGS-19-3.34.1-10100 Instrument: nt12.i

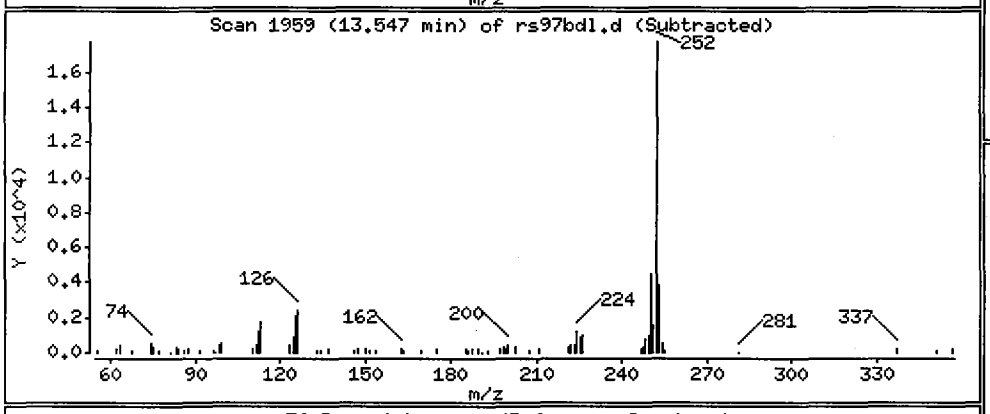
Sample Info: RS97B,25

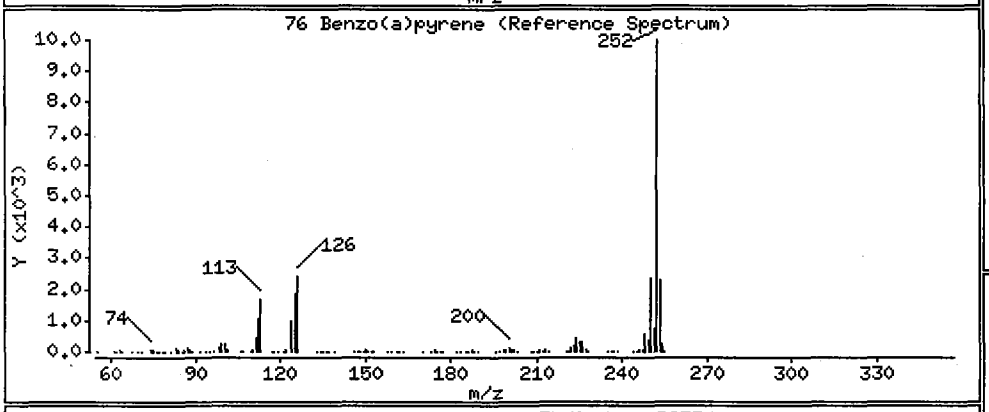
Volume Injected (uL): 1.0 Operator: VTS

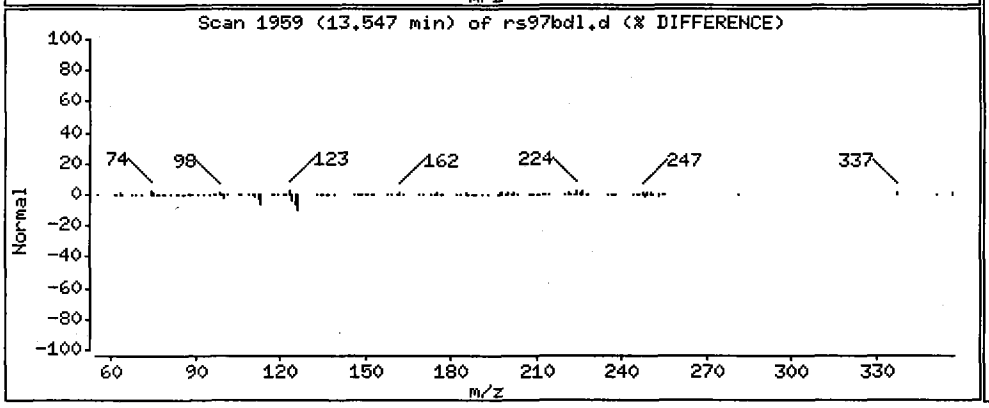
Column phase: ZB-5msi Column diameter: 0.32

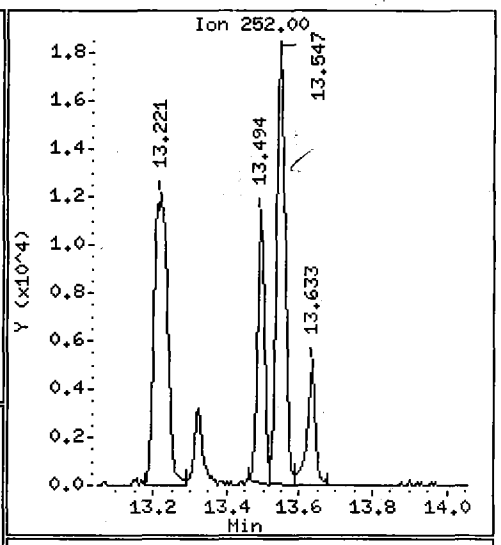
76 Benzo(a)pyrene Concentration: 156000 ug/kg

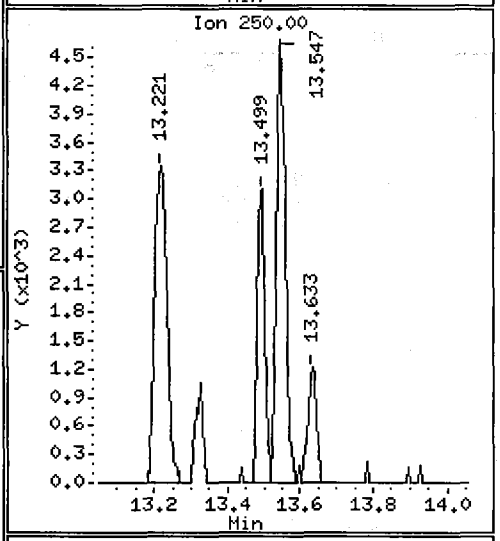


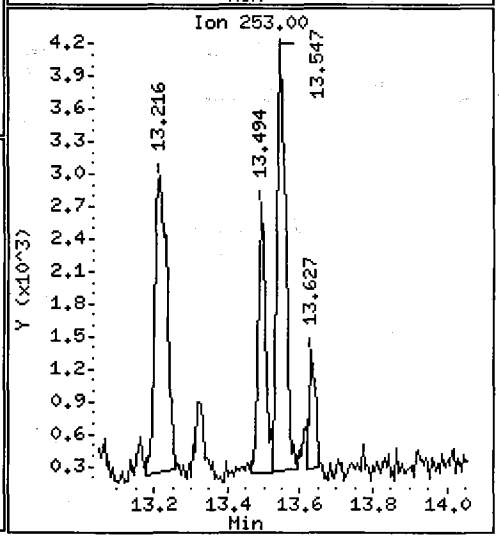












Data File: /chem1/nt12.i/20101110.b/rs97bdl.d

Date : 10-NOV-2010 20:42

Client ID: DGS-19-3.34.1-10100

Instrument: nt12.i

Sample Info: RS97B,25

Volume Injected (uL): 1.0

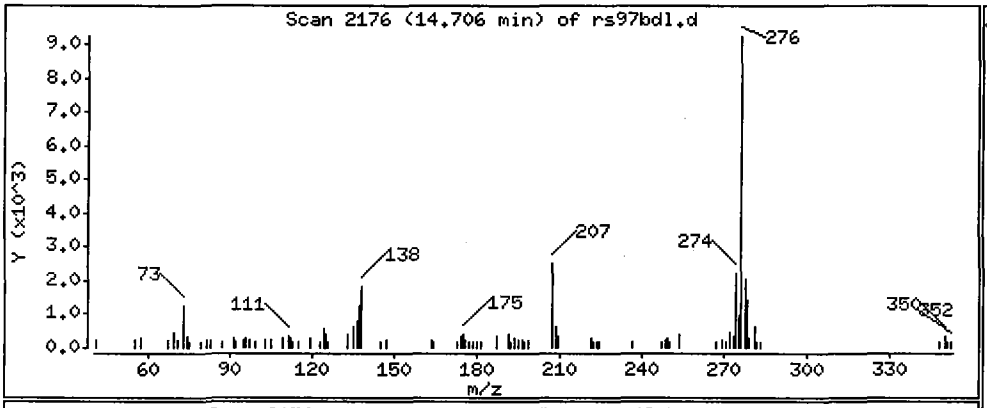
Operator: VTS

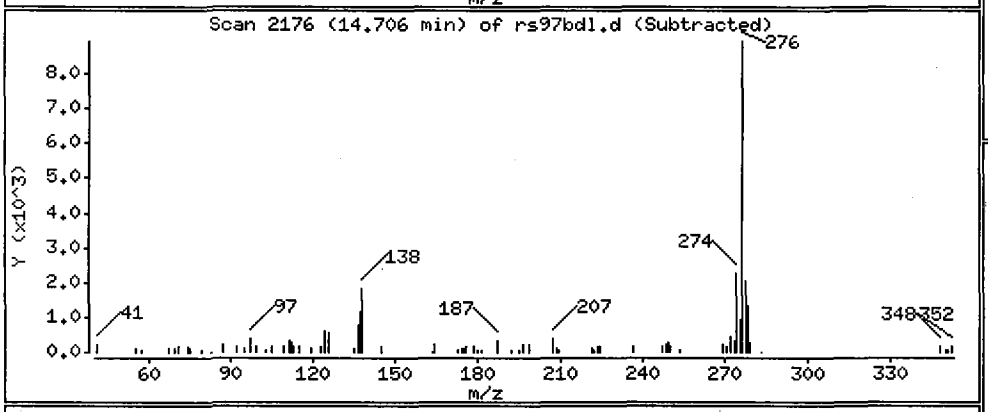
Column phase: ZB-5msi

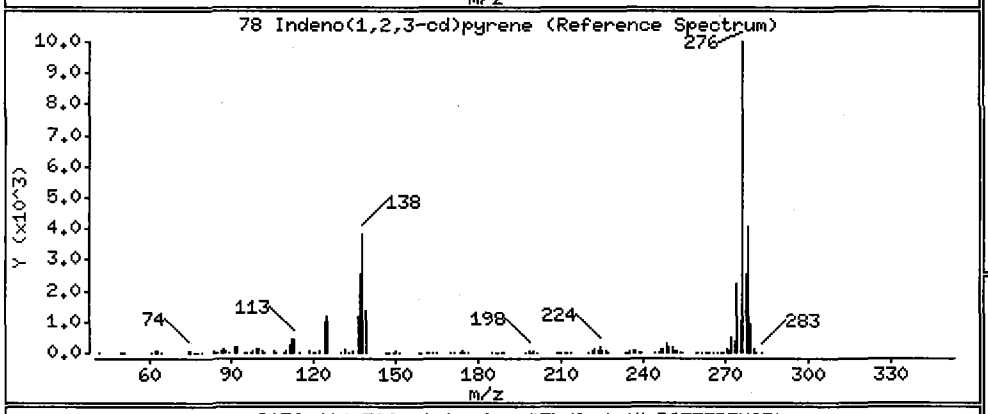
Column diameter: 0.32

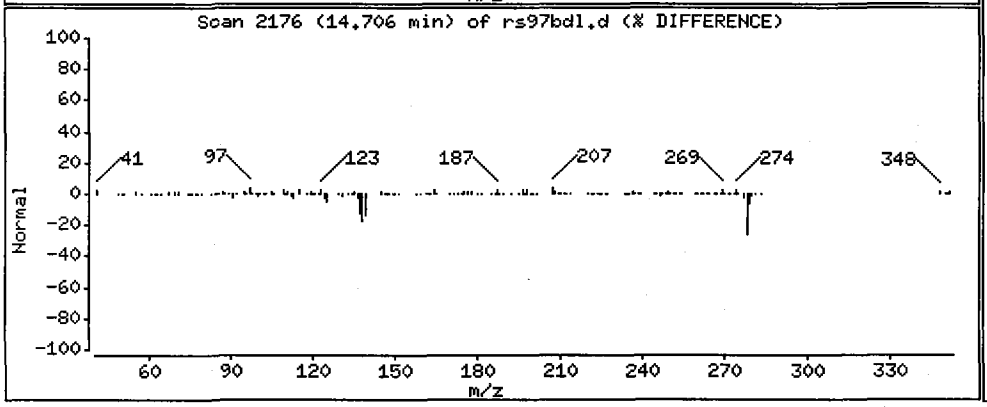
78 Indeno(1,2,3-cd)pyrene

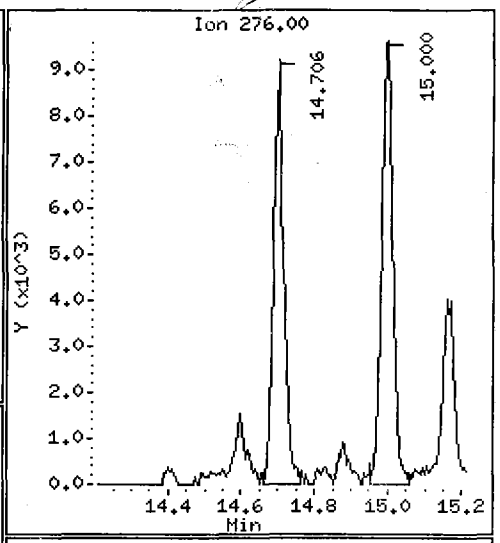
Concentration: 65410 ug/kg

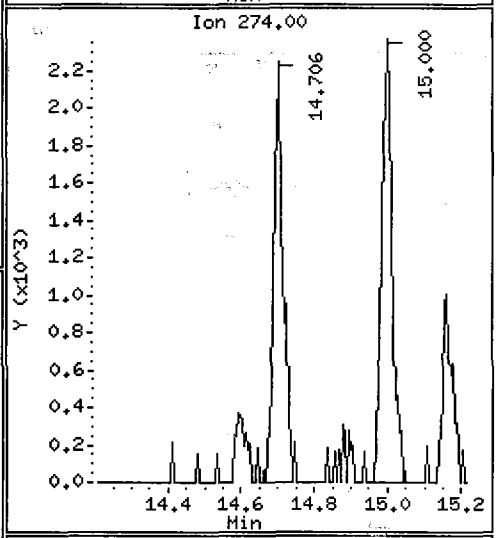


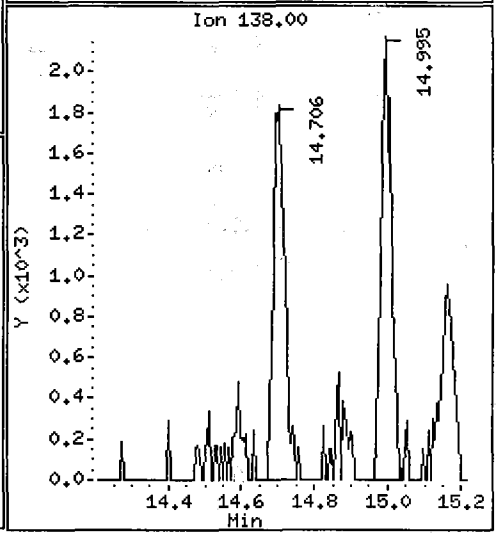












Data File: /chem1/nt12.i/20101110.b/rs97bdl.d

Date : 10-NOV-2010 20:42

Client ID: DGS-19-3.34.1-10100

Instrument: nt12.i

Sample Info: RS97B,25

Volume Injected (uL): 1.0

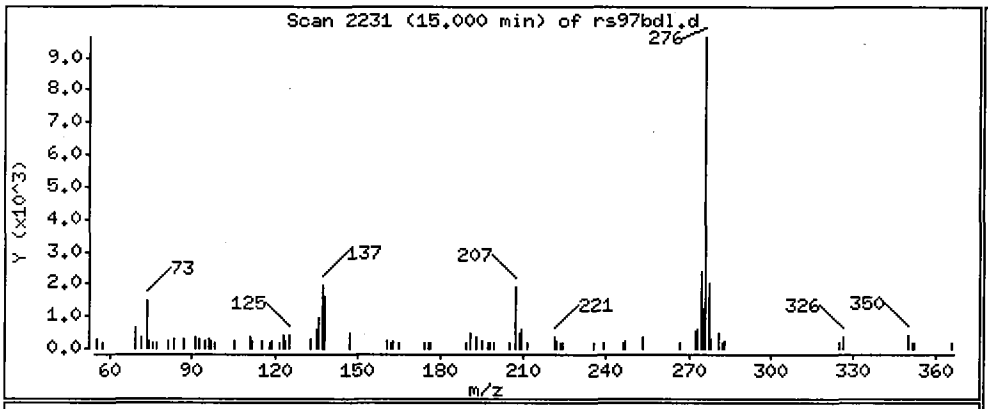
Operator: VTS

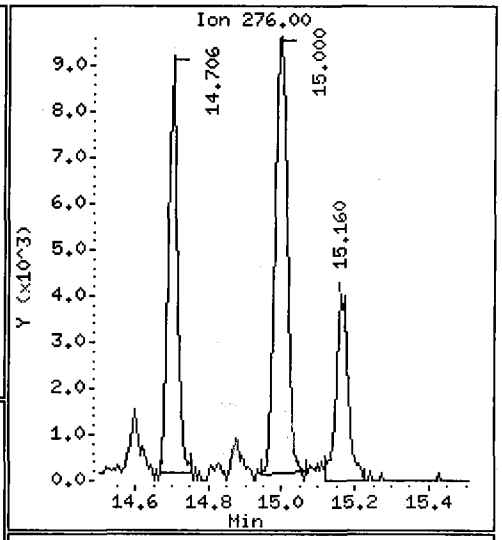
Column phase: ZB-5msi

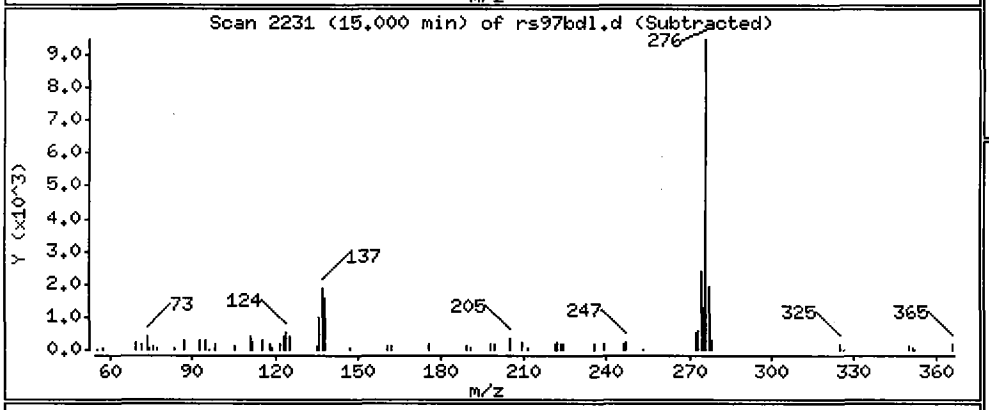
Column diameter: 0.32

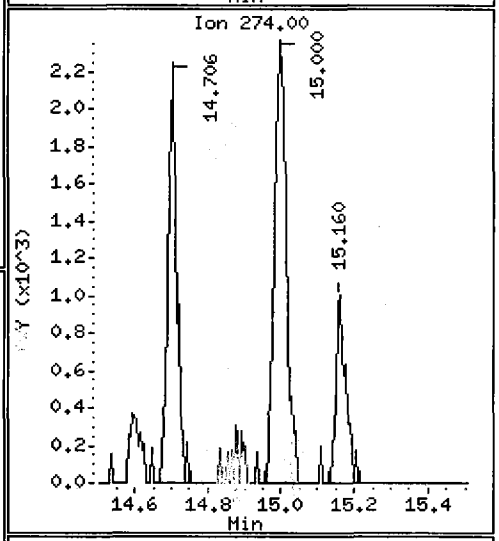
80 Benzo(g,h,i)perylene

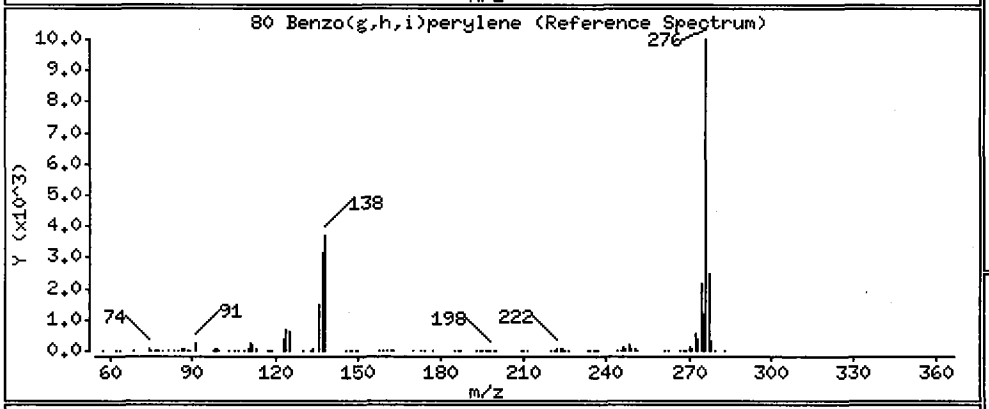
Concentration: 95500 ug/kg

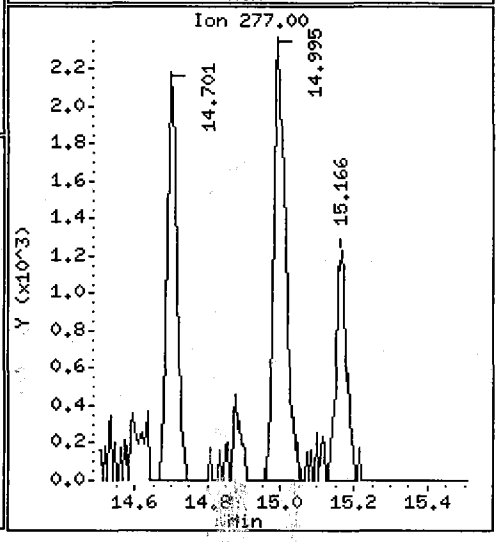


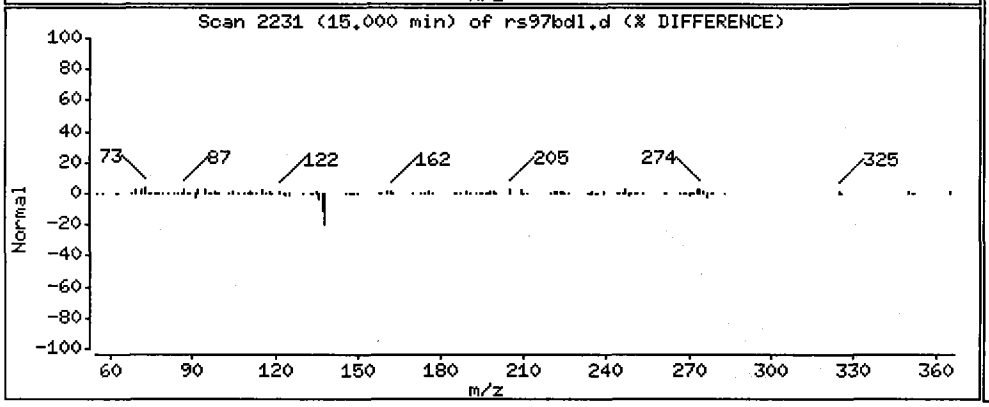












Analytical Resources, Inc.

Semivolatile Report SW846 Method 8270D

Data file : /chem1/nt12.i/20101110.b/rs97edl.d
Lab Smp Id: RS97E
Client Smp ID: DGS-08-4.44.6-10100
Inj Date : 10-NOV-2010 21:05
Operator : VTS
Inst ID: nt12.i
Smp Info : RS97E,25
Misc Info : 10-27421
Comment : 1ul Injection
Method : /chem1/nt12.i/20101110.b/PNADMD.m
Meth Date : 10-Nov-2010 14:46 van
Quant Type: ISTD
Cal Date : 30-OCT-2010 13:19
Cal File: ic1030f.d
Als bottle: 21
Dil Factor: 25.00000
Integrator: HP RTE
Compound Sublist: pnas.sub
Target Version: 3.50
Processing Host: cserv3

Concentration Formula: Amt * DF * Vt/(Ws * (100 - M)/100) * CpndVariable

Name	Value	Description
DF	25.00000	Dilution Factor
Vt	10000.00000	Volume of final extract (uL)
Ws	5.18000	Weight of sample extracted (g)
M	23.90000	% Moisture

Cpnd Variable Local Compound Variable

Compounds	QUANT SIG MASS	RT	EXP RT	REL RT	RESPONSE	CONCENTRATIONS ON-COLUMN (ug/mL)	FINAL (ug/kg)
* 27 Naphthalene-d8	136	4.887	4.888	(1.000)	196057	20.0000	
28 Naphthalene	128	4.909	4.909	(1.004)	534974	47.9432	3041000
32 2-Methylnaphthalene	141	5.726	5.726	(1.172)	78598	13.1967	836900
105 1-methylnaphthalene	141	5.849	5.854	(1.197)	39525	6.43616	408200
$ 36 2-Fluorobiphenyl	172	Compound Not Detected.					
40 Acenaphthylene	152	Compound Not Detected.					
* 42 Acenaphthene-d10	164	6.987	6.992	(1.000)	120175	20.0000	
44 Acenaphthene	153	7.024	7.030	(1.005)	62181	8.41337	533600
46 Dibenzofuran	168	Compound Not Detected.					
49 Fluorene	166	7.639	7.639	(1.093)	30122	3.55964	225800
* 59 Phenanthrene-d10	188	8.761	8.761	(1.000)	212428	20.0000	
60 Phenanthrene	178	8.787	8.787	(1.003)	200637	17.8036	1129000
61 Anthracene	178	8.846	8.846	(1.010)	33114	2.84307	180300
62 Carbazole	167	9.070	9.065	(1.035)	4938	0.52554	33330 NR

Compounds	QUANT SIG MASS	RT	EXP RT	REL RT	RESPONSE	CONCENTRATIONS ON-COLUMN (ug/mL)	FINAL (ug/kg)
64 Fluoranthene	202	10.235	10.235	(0.854)	98790	6.51270	413000
65 Pyrene	202	10.502	10.502	(0.876)	128506	8.53942	541600
$ 66 Terphenyl-d14	244	Compound Not Detected.					
68 Benzo(a)anthracene	228	11.971	11.971	(0.999)	24907	2.04235	129500
* 69 Chrysene-d12	240	11.987	11.993	(1.000)	217158	20.0000	
71 Chrysene	228	12.014	12.019	(1.002)	26653	2.33768	148300
187 Total Benzofluoranthenes	252	13.211	13.243	(0.971)	34824	2.88117	182700
76 Benzo(a)pyrene	252	13.547	13.553	(0.996)	30558	2.75216	174500
* 77 Perylene-d12	264	13.606	13.611	(1.000)	202927	20.0000	
99 Perylene	252	13.633	13.638	(1.002)	9327	~~0.78995~~	50100(a) NR
78 Indeno(1,2,3-cd)pyrene	276	14.706	14.712	(1.081)	18767	1.13846	72200
79 Dibenzo(a,h)anthracene	278	Compound Not Detected.					
80 Benzo(g,h,i)perylene	276	14.995	15.006	(1.102)	23964	1.76957	112200

QC Flag Legend

a - Target compound detected but, quantitated amount Below Limit Of Quantitation(BLOQ).

VB
11-11-10

Analytical Resources, Inc.

INTERNAL STANDARD COMPOUNDS
AREA AND RT SUMMARY

Instrument ID: nt12.i
Lab File ID: rs97edl.d
Lab Smp Id: RS97E
Analysis Type: SV
Quant Type: ISTD
Operator: VTS
Method File: /chem1/nt12.i/20101110.b/PNADMD.m
Misc Info: 10-27421

Calibration Date: 10-NOV-2010
Calibration Time: 13:29
Client Smp ID: DGS-08-4.44.6-1(
Level: LOW
Sample Type: Sediment

Test Mode:
Use Initial Calibration Level 4.

COMPOUND	STANDARD	AREA LIMIT LOWER	AREA LIMIT UPPER	SAMPLE	%DIFF
27 Naphthalene-d8	237664	118832	475328	196057	-17.51
42 Acenaphthene-d10	143363	71682	286726	120175	-16.17
59 Phenanthrene-d10	245437	122718	490874	212428	-13.45
69 Chrysene-d12	199260	99630	398520	217158	8.98
77 Perylene-d12	197636	98818	395272	202927	2.68

COMPOUND	STANDARD	RT LIMIT LOWER	RT LIMIT UPPER	SAMPLE	%DIFF
27 Naphthalene-d8	4.89	4.39	5.39	4.89	0.00
42 Acenaphthene-d10	6.99	6.49	7.49	6.99	-0.08
59 Phenanthrene-d10	8.76	8.26	9.26	8.76	0.00
69 Chrysene-d12	11.99	11.49	12.49	11.99	-0.05
77 Perylene-d12	13.61	13.11	14.11	13.61	-0.04

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.

Analytical Resources, Inc.

RECOVERY REPORT

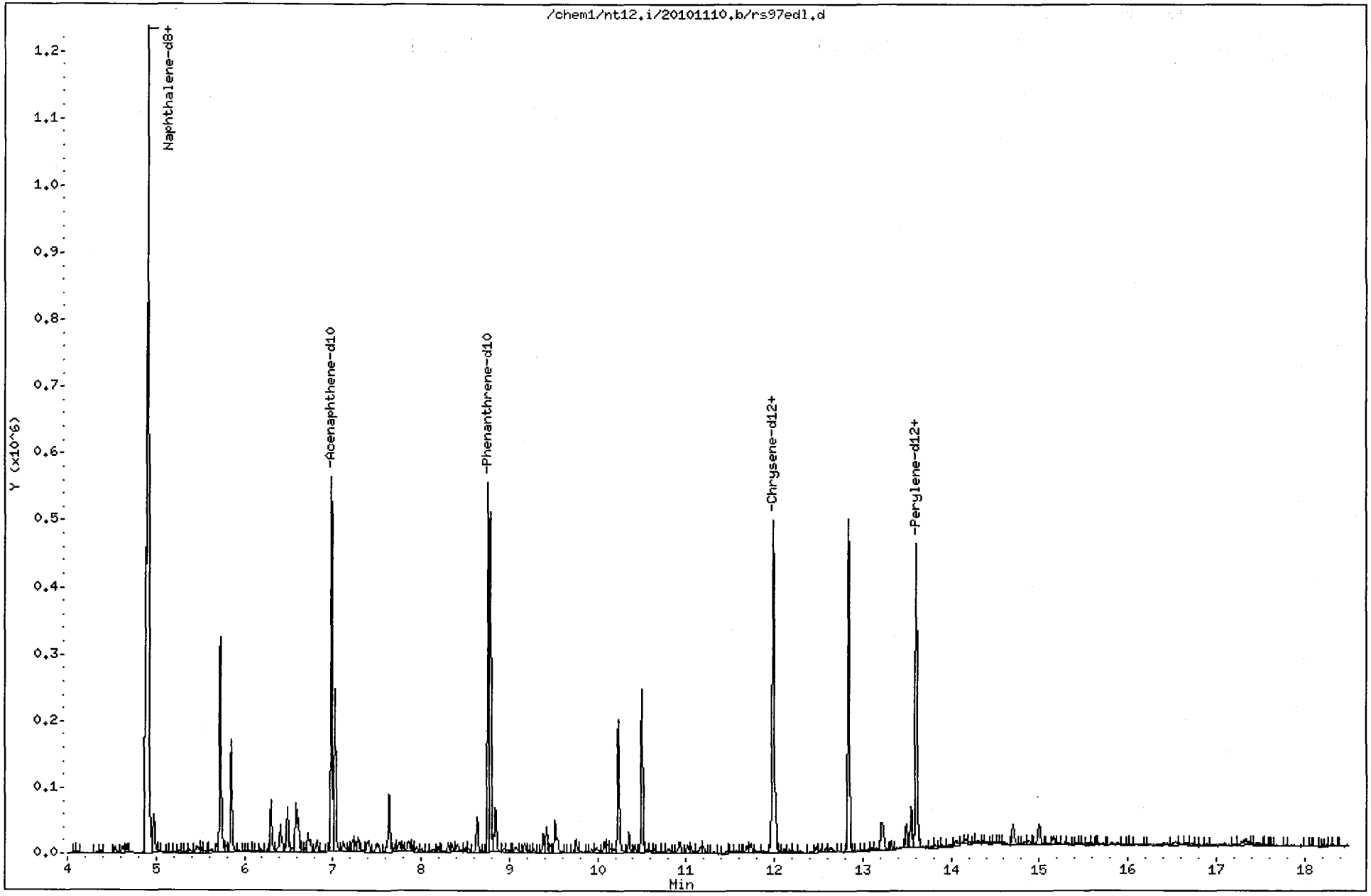
Client Name: NW Natural
Sample Matrix: SOLID
Lab Smp Id: RS97E
Level: LOW
Data Type: MS DATA
SpikeList File: SONICLCS.spk
Sublist File: pnas.sub
Method File: /chem1/nt12.i/20101110.b/PNADMD.m
Misc Info: 10-27421

Client SDG: RS97
Fraction: SV
Client Smp ID: DGS-08-4.44.6-10100
Operator: VTS
SampleType: SAMPLE
Quant Type: ISTD

SURROGATE COMPOUND	CONC ADDED ug/kg	CONC RECOVERED ug/kg	% RECOVERED	LIMITS
$ 36 2-Fluorobiphenyl	6342	0.000	*	34-100
$ 66 Terphenyl-d14	6342	0.000	*	35-112

Data File: /chem1/nt12.i/20101110.b/rs97edl.d
Date : 10-NOV-2010 21:05
Client ID: DGS-08-4.44.6-10100
Sample Info: RS97E,25
Volume Injected (uL): 1.0
Column phase: ZB-5msi

Instrument: nt12.i
Operator: VTS
Column diameter: 0.32



RS97.00591

Data File: /chem1/nt12.i/20101110.b/rs97ed1.d

Date : 10-NOV-2010 21:05

Client ID: DGS-08-4.44.6-10100

Instrument: nt12.i

Sample Info: RS97E,25

Volume Injected (uL): 1.0

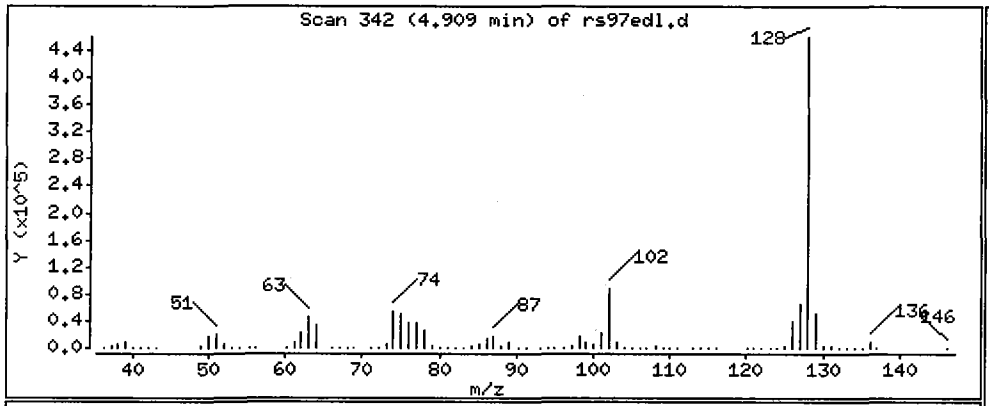
Operator: VTS

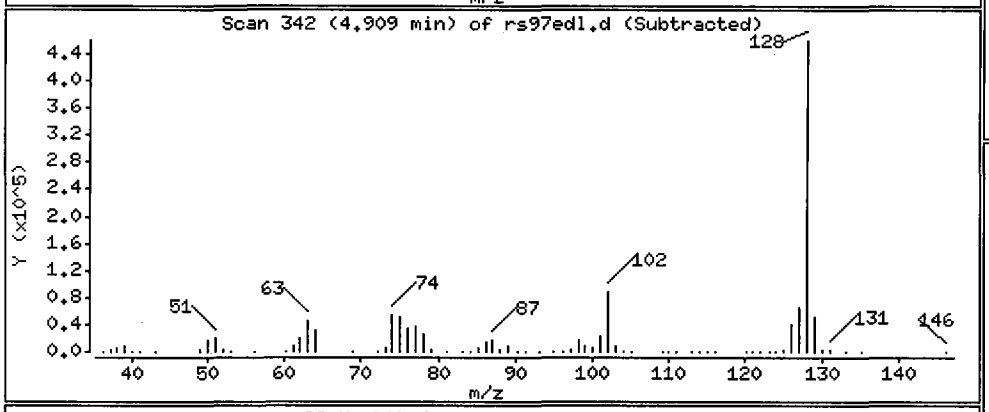
Column phase: ZB-5msi

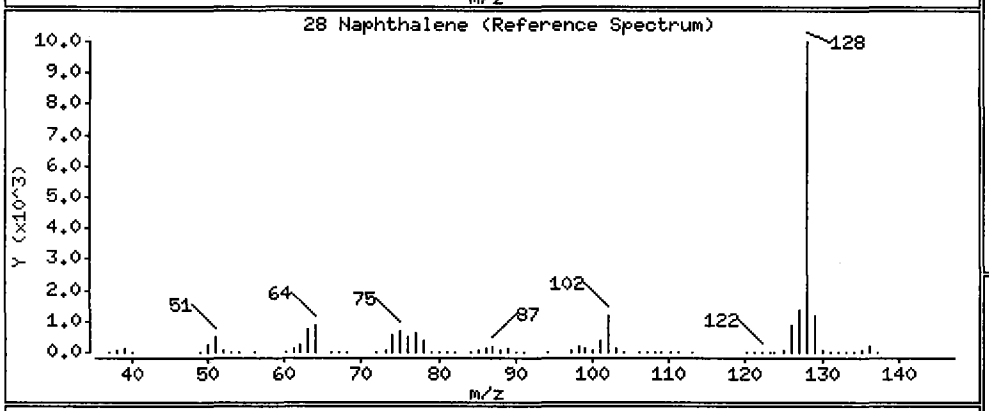
Column diameter: 0.32

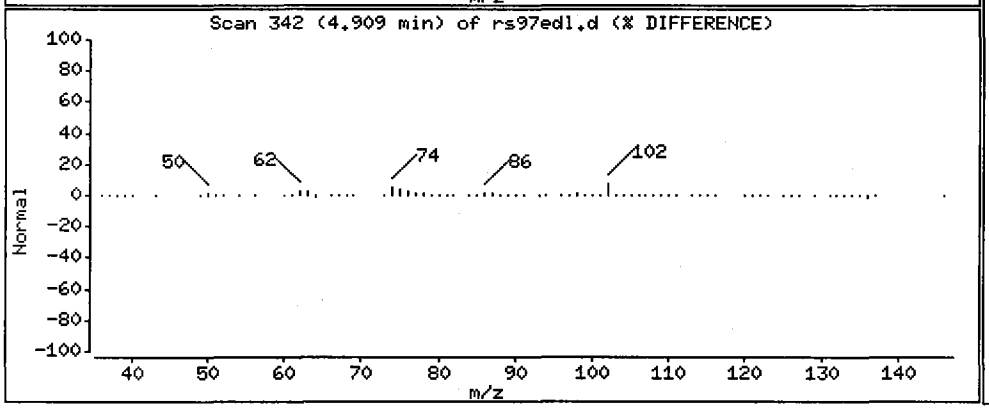
28 Naphthalene

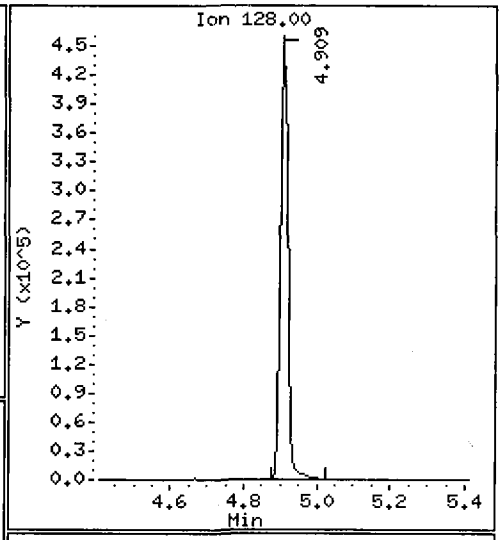
Concentration: 3041000 ug/kg

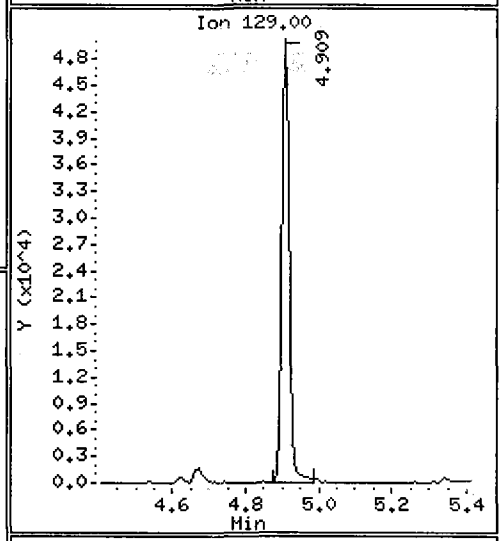


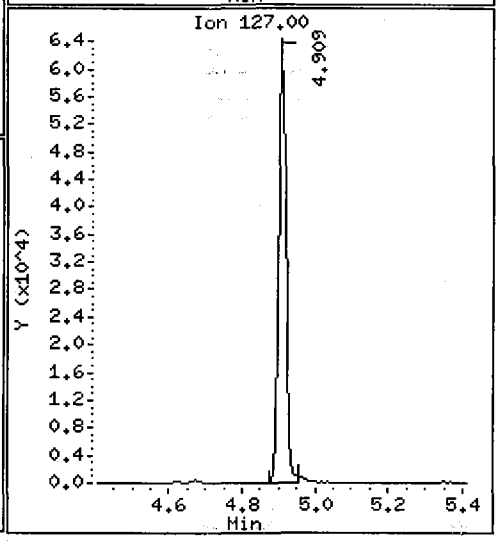












Data File: /chem1/nt12.i/20101110.b/rs97edl.d

Date : 10-NOV-2010 21:05

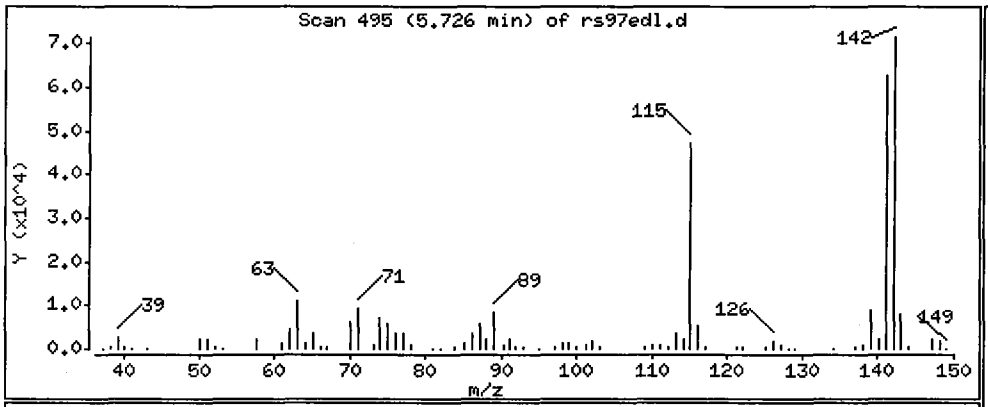
Client ID: DGS-08-4.44.6-10100 Instrument: nt12.i

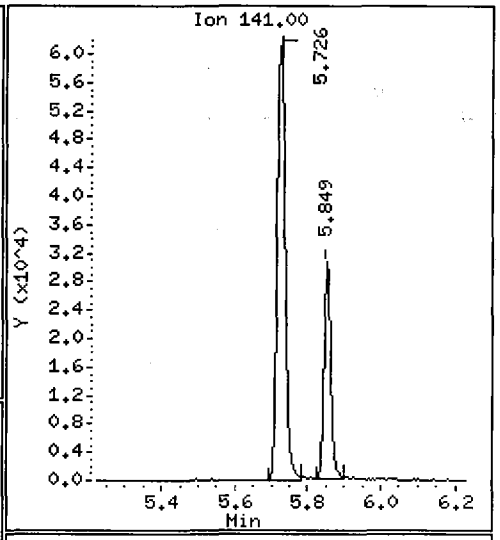
Sample Info: RS97E,25

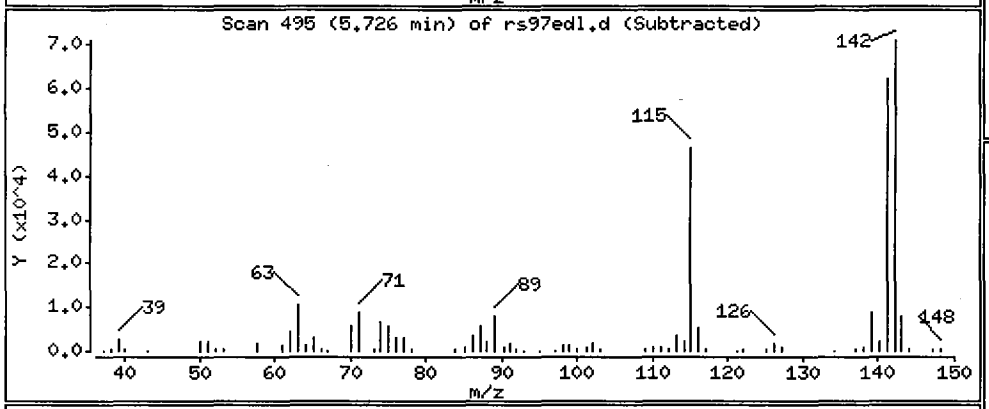
Volume Injected (uL): 1.0 Operator: VTS

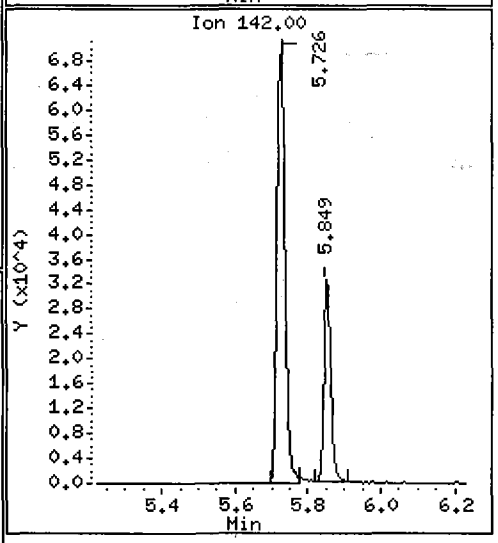
Column phase: ZB-5msi Column diameter: 0.32

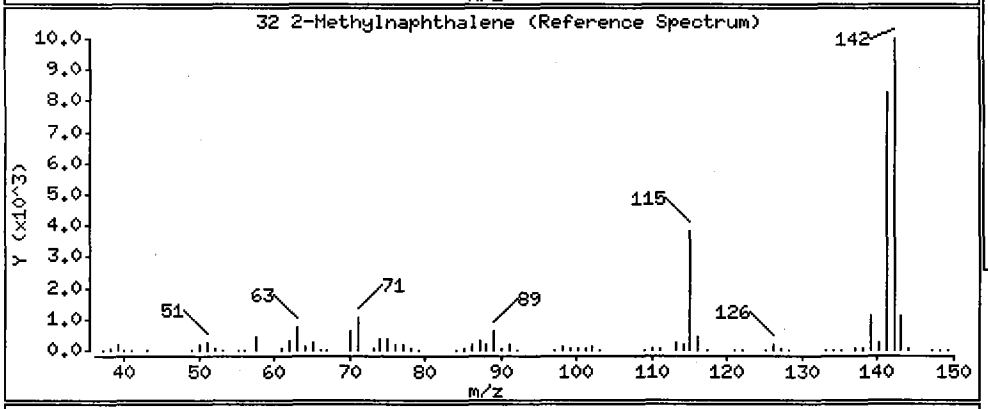
32 2-Methylnaphthalene Concentration: 836900 ug/kg

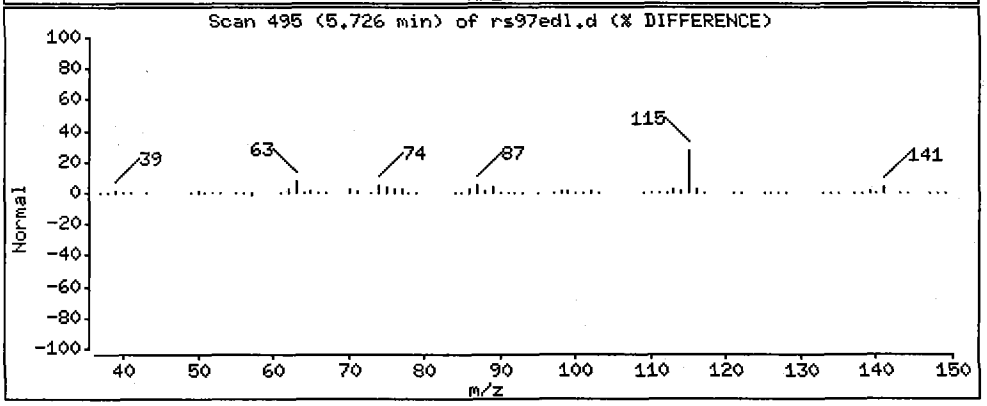












Data File: /chem1/nt12.i/20101110.b/rs97edl.d

Date : 10-NOV-2010 21:05

Client ID: DGS-08-4.44.6-10100

Instrument: nt12.i

Sample Info: RS97E,25

Volume Injected (uL): 1.0

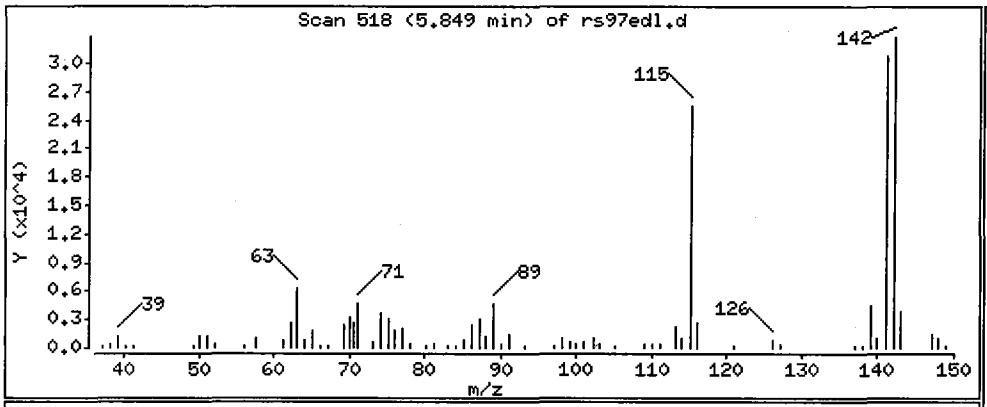
Operator: VTS

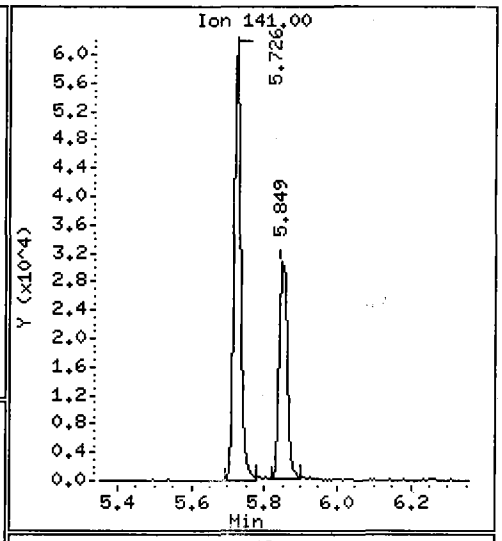
Column phase: ZB-5msi

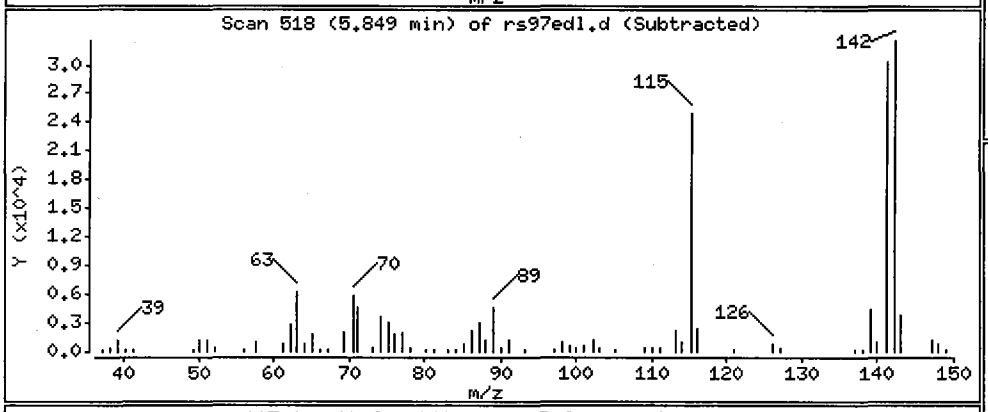
Column diameter: 0.32

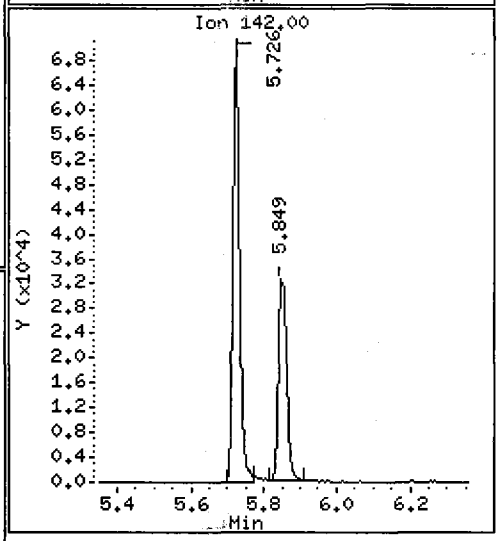
105 1-methylnaphthalene

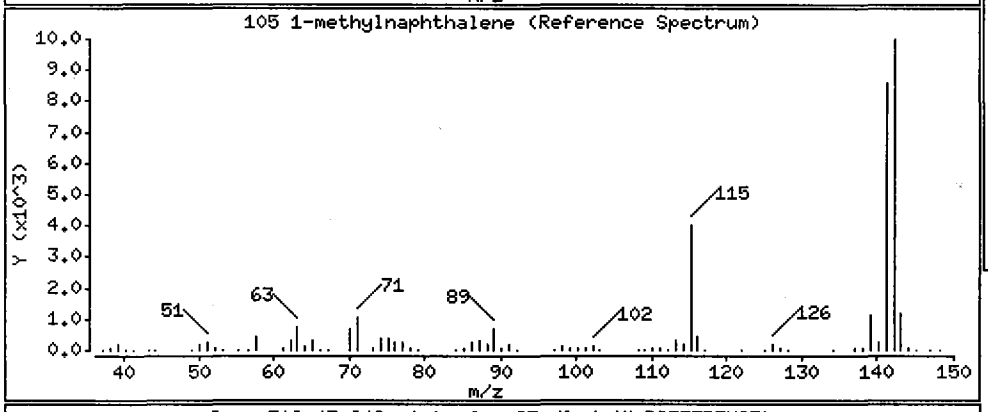
Concentration: 408200 ug/kg

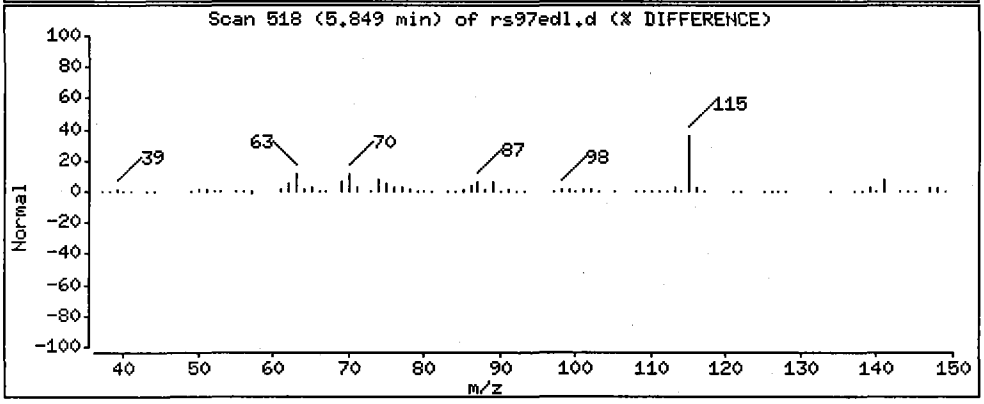












Data File: /chem1/nt12.i/20101110.b/rs97edl.d

Date : 10-NOV-2010 21:05

Client ID: DGS-08-4.44.6-10100

Instrument: nt12.i

Sample Info: RS97E,25

Volume Injected (uL): 1.0

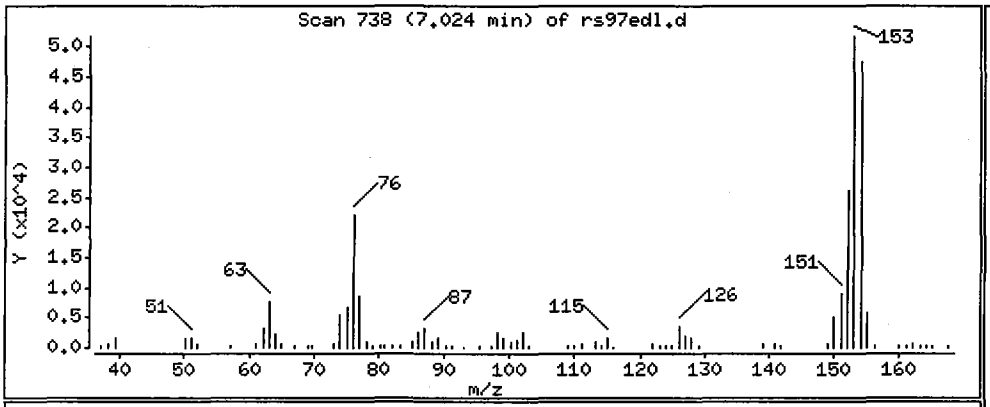
Operator: VTS

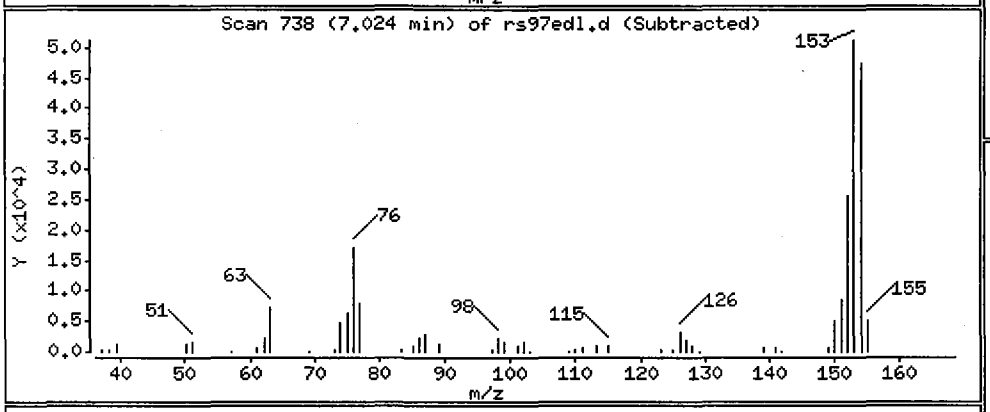
Column phase: ZB-5msi

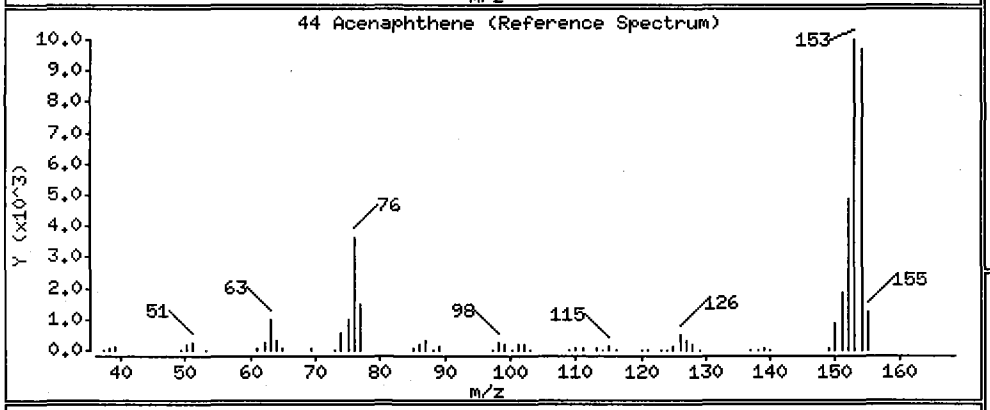
Column diameter: 0.32

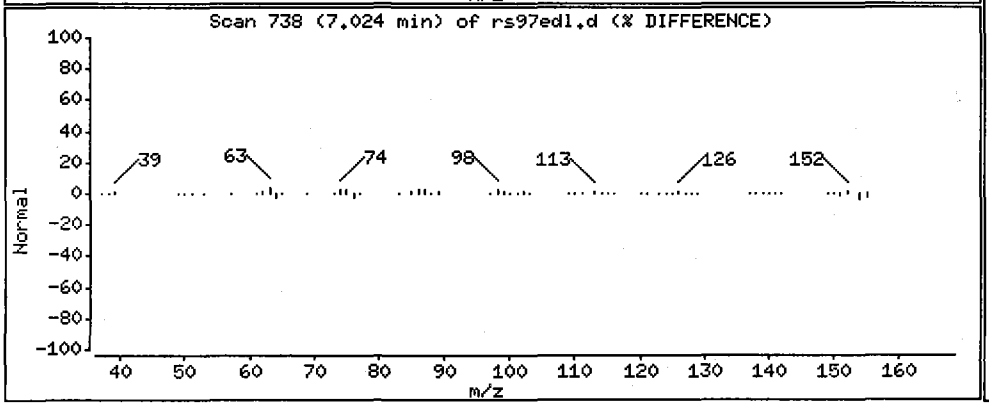
44 Acenaphthene

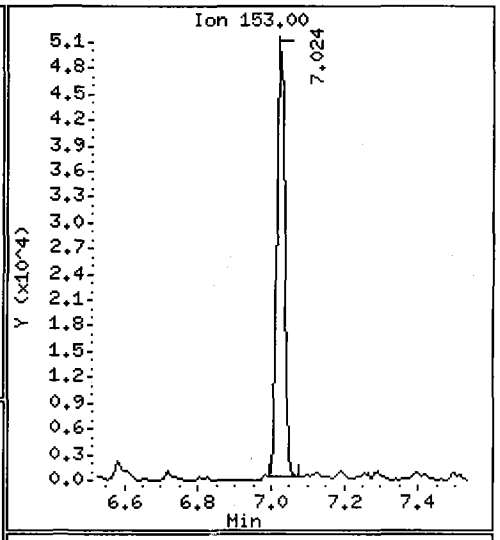
Concentration: 533600 ug/kg

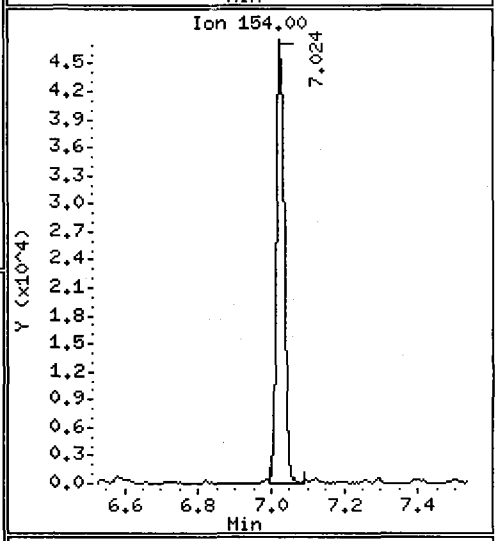


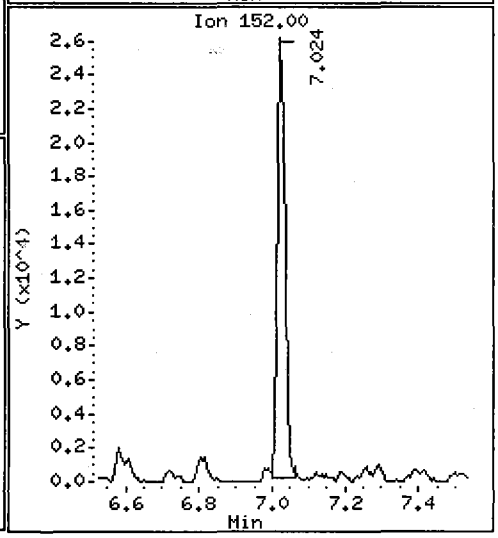












Data File: /chem1/nt12.i/20101110.b/rs97ed1.d

Date : 10-NOV-2010 21:05

Client ID: DGS-08-4.44.6-10100

Instrument: nt12.i

Sample Info: RS97E,25

Volume Injected (uL): 1.0

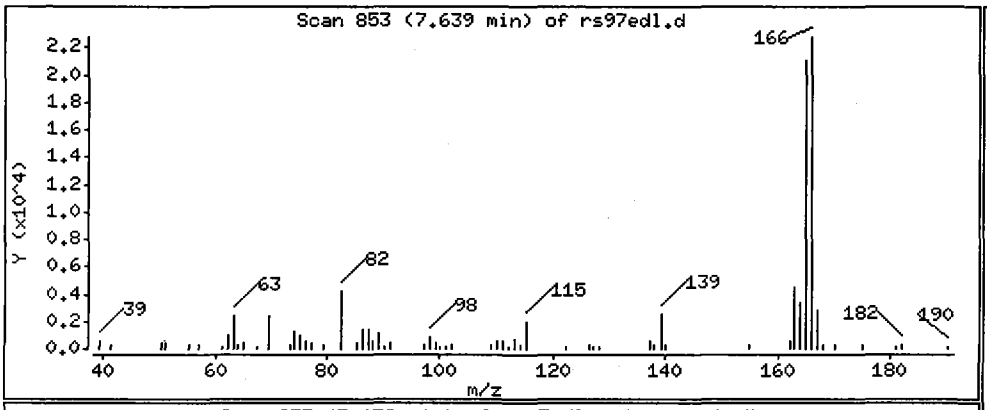
Operator: VTS

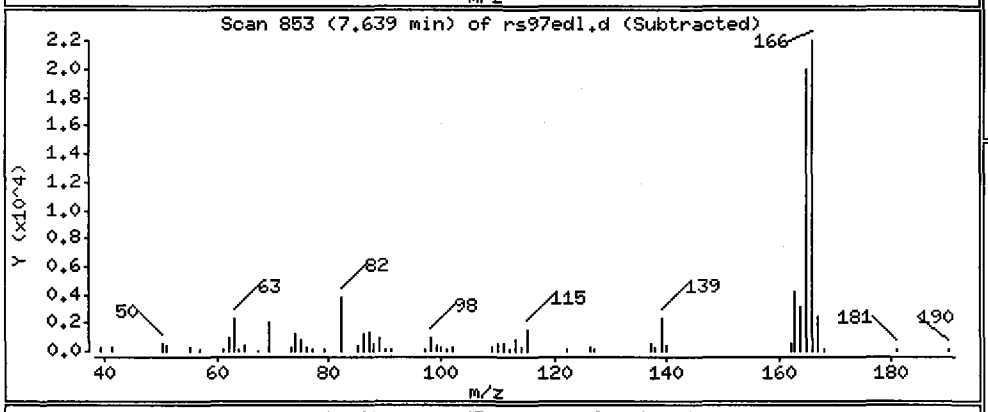
Column phase: ZB-5msi

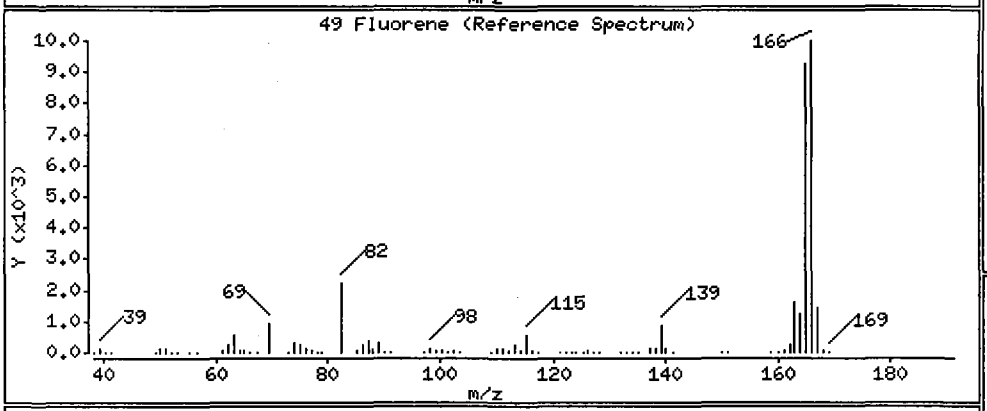
Column diameter: 0.32

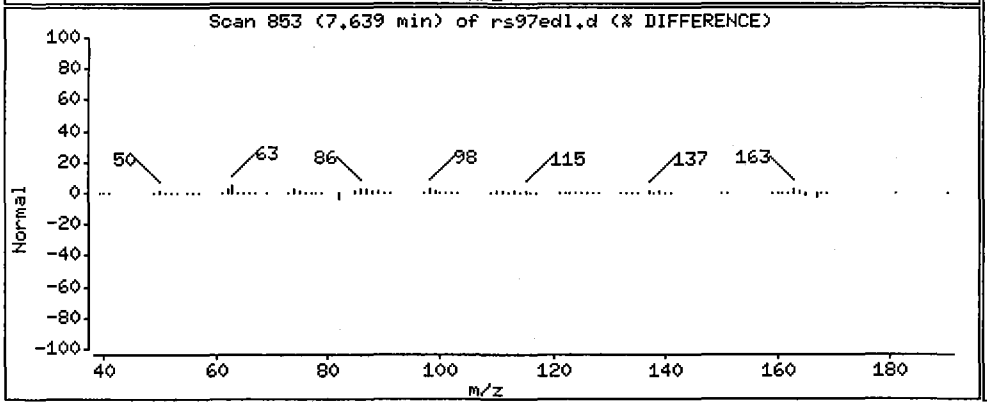
49 Fluorene

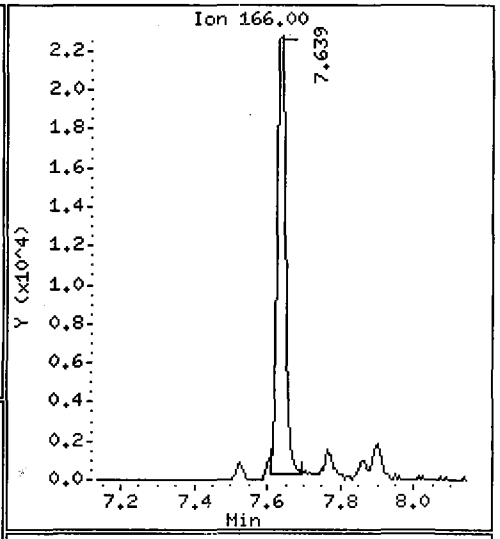
Concentration: 225800 ug/kg

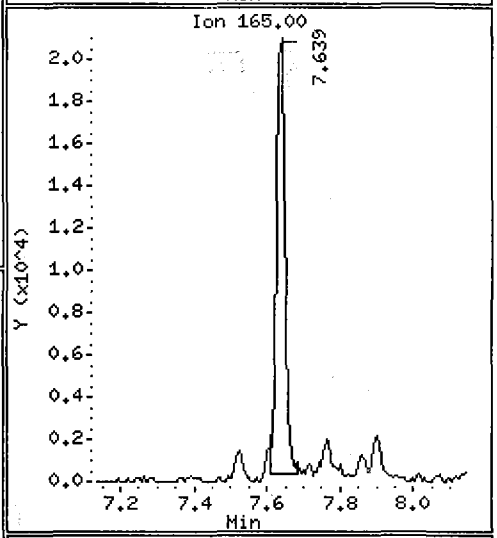


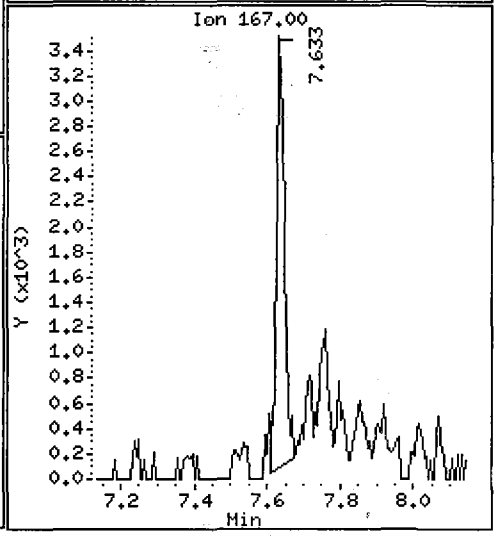












Data File: /chem1/nt12.i/20101110.b/rs97edl.d

Date : 10-NOV-2010 21:05

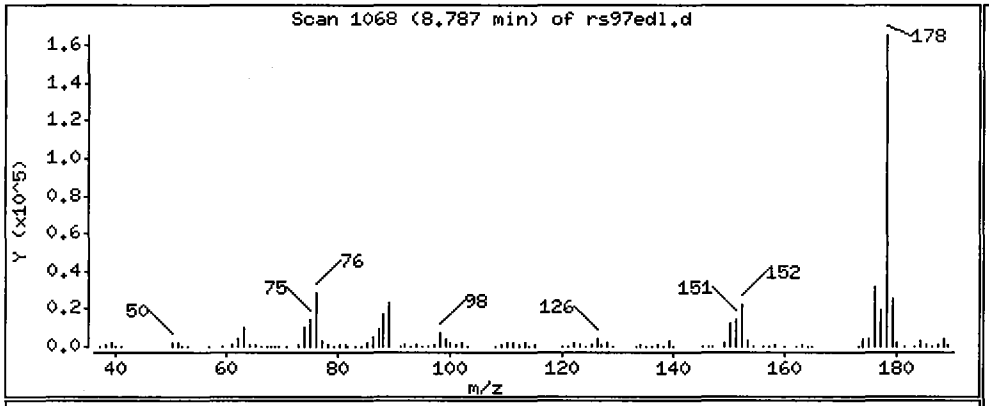
Client ID: DGS-08-4.44.6-10100 Instrument: nt12.i

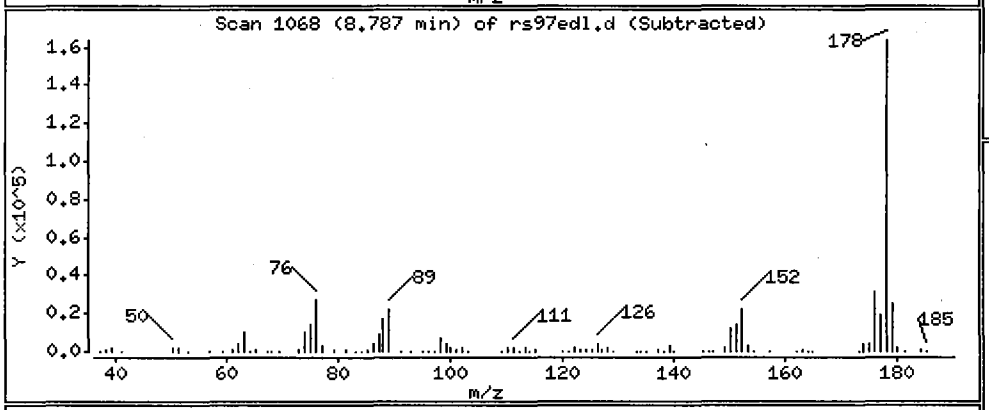
Sample Info: RS97E,25

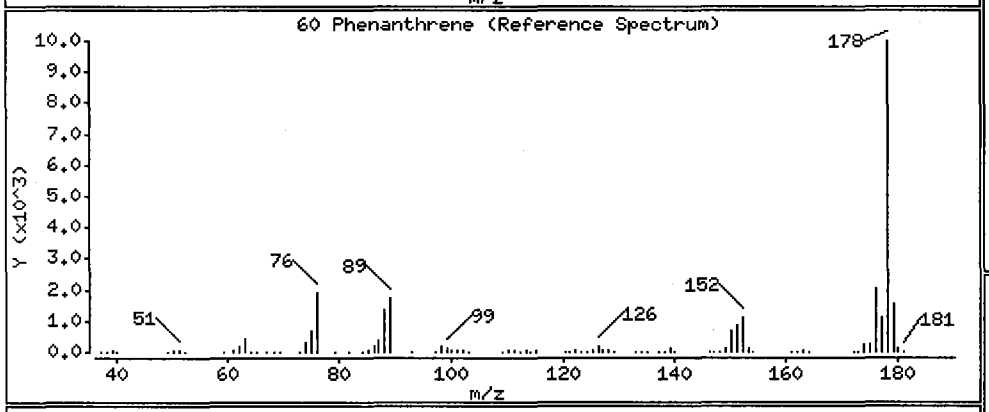
Volume Injected (uL): 1.0 Operator: VTS

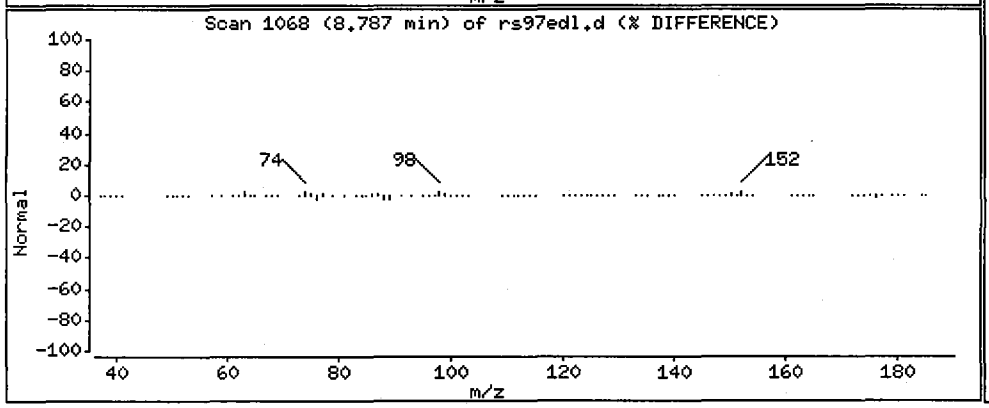
Column phase: ZB-5msi Column diameter: 0.32

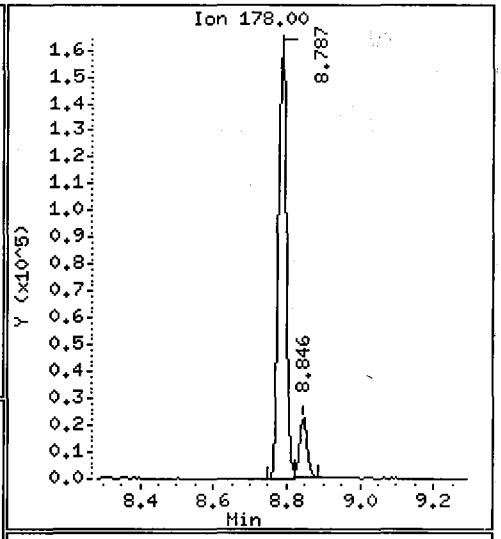
60 Phenanthrene Concentration: 1129000 ug/kg

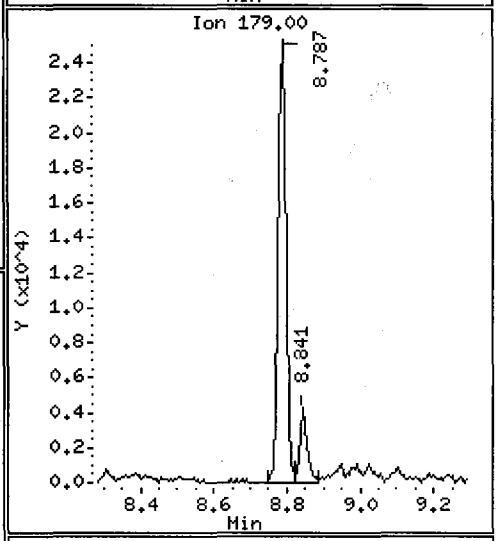


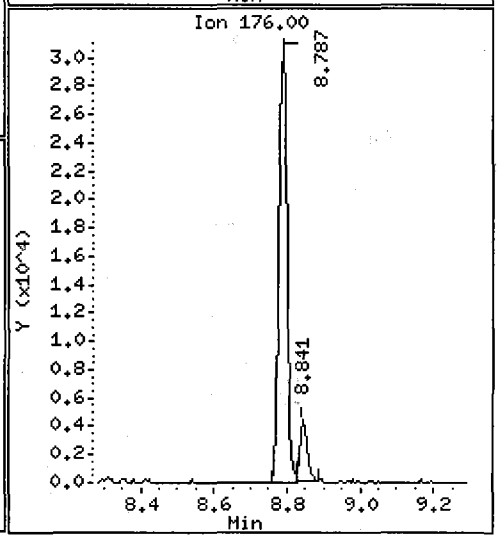












Data File: /chem1/nt12.i/20101110.b/rs97edl.d

Date : 10-NOV-2010 21:05

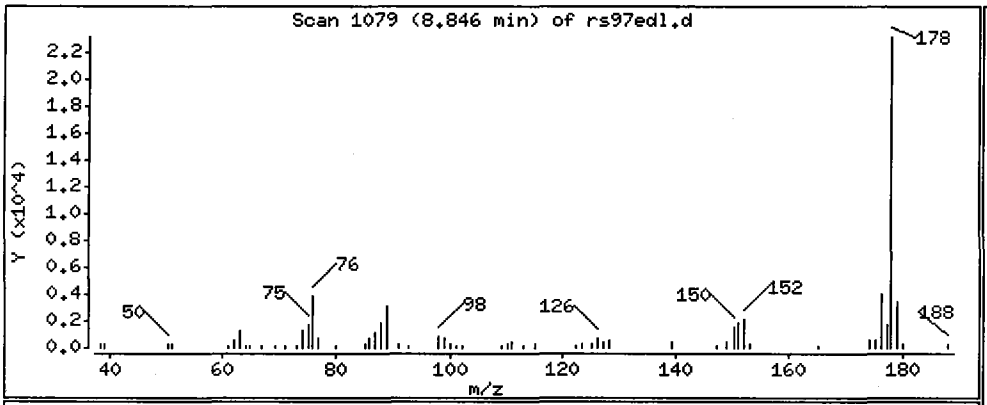
Client ID: DGS-08-4.44.6-10100 Instrument: nt12.i

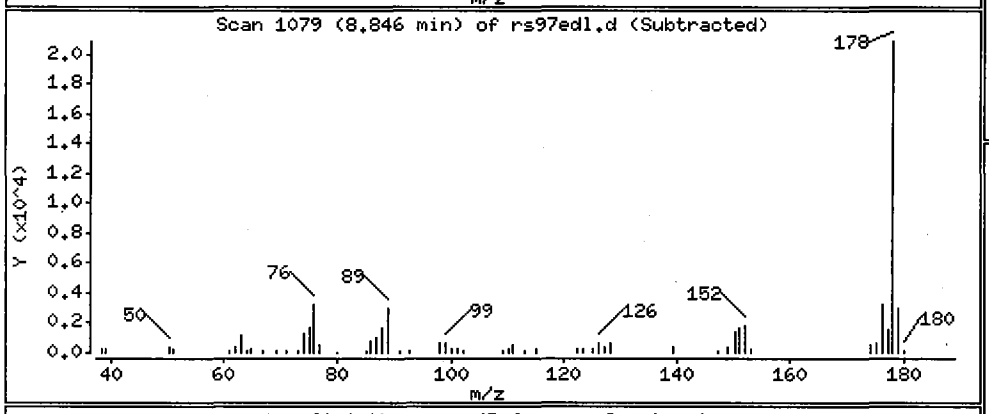
Sample Info: RS97E,25

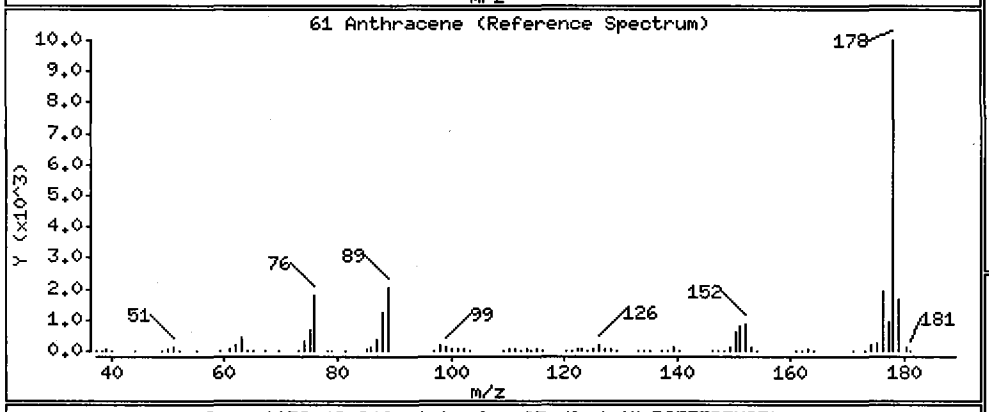
Volume Injected (uL): 1.0 Operator: VTS

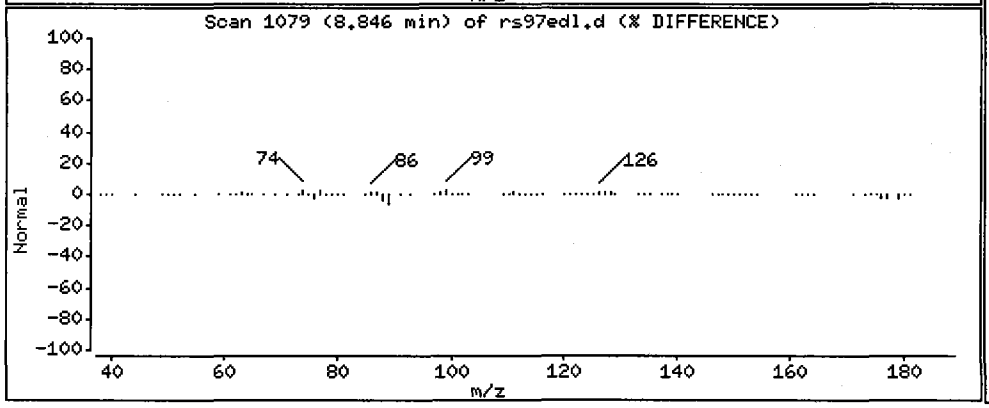
Column phase: ZB-5msi Column diameter: 0.32

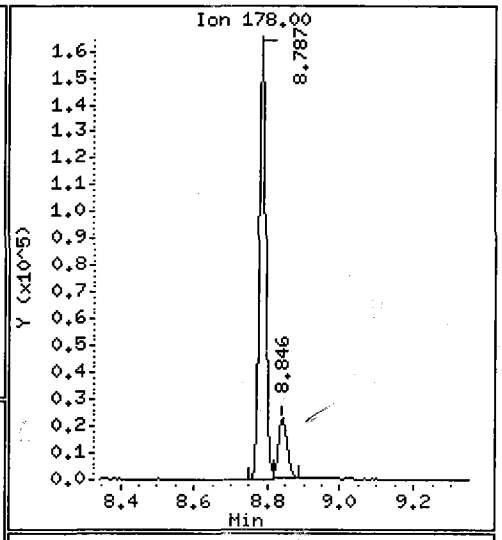
61 Anthracene Concentration: 180300 ug/kg

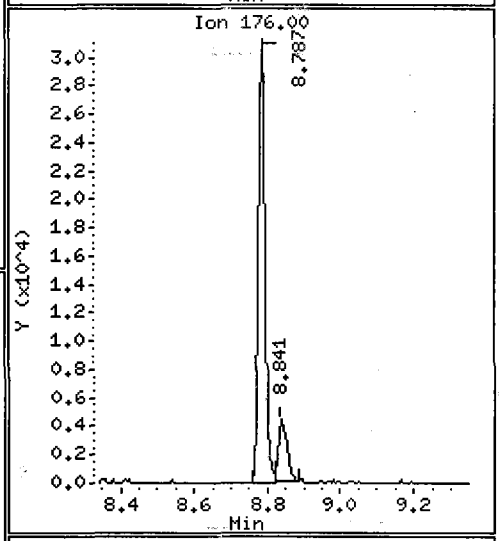


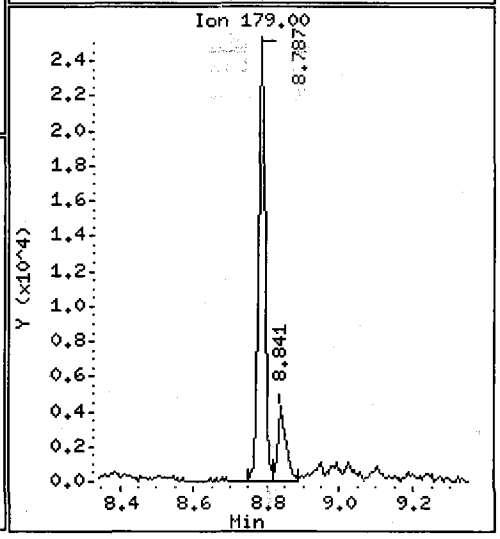












Data File: /chem1/nt12.i/20101110.b/rs97edl.d

Date : 10-NOV-2010 21:05

Client ID: DGS-08-4.44.6-10100

Instrument: nt12.i

Sample Info: RS97E,25

Volume Injected (uL): 1.0

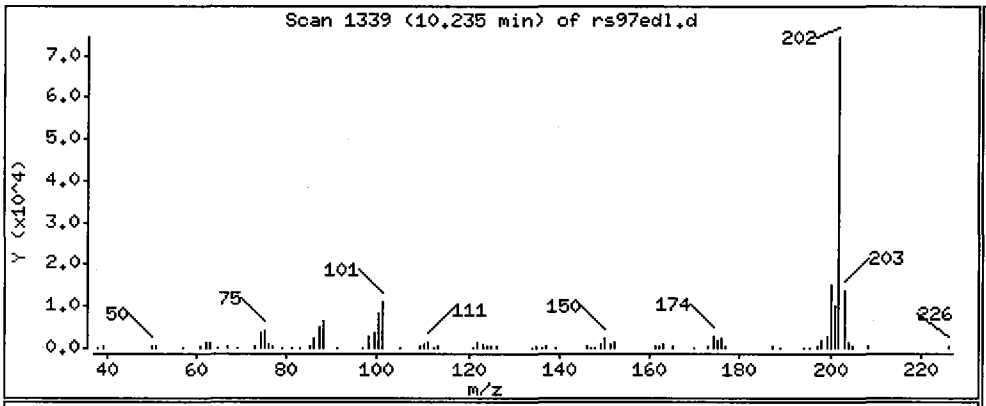
Operator: VTS

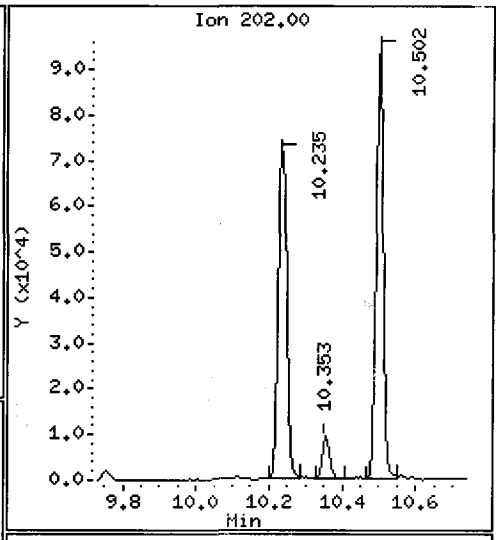
Column phase: ZB-5msi

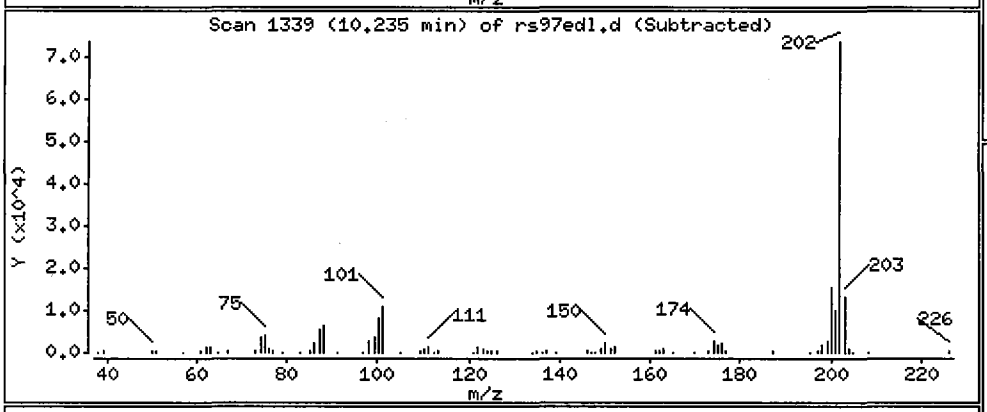
Column diameter: 0.32

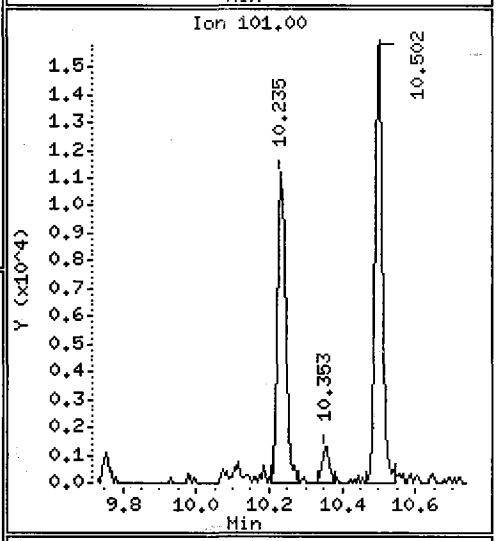
64 Fluoranthene

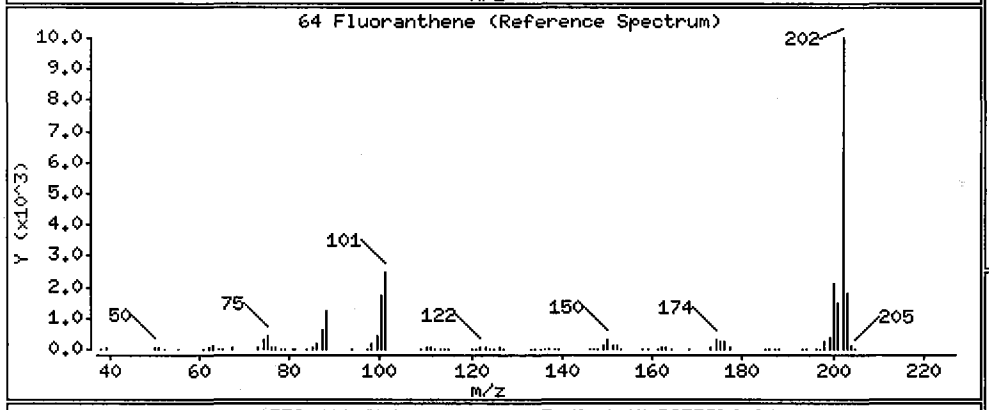
Concentration: 413000 ug/kg

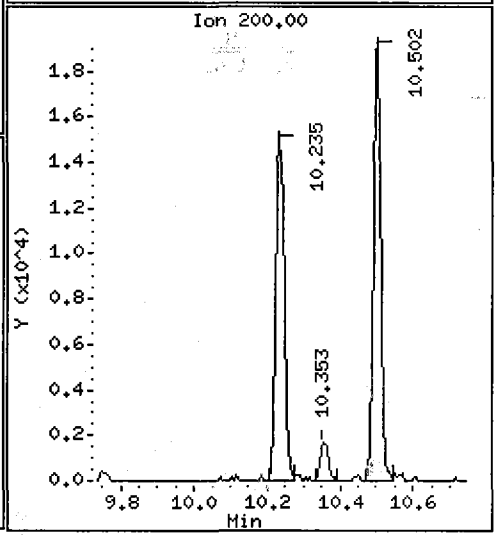


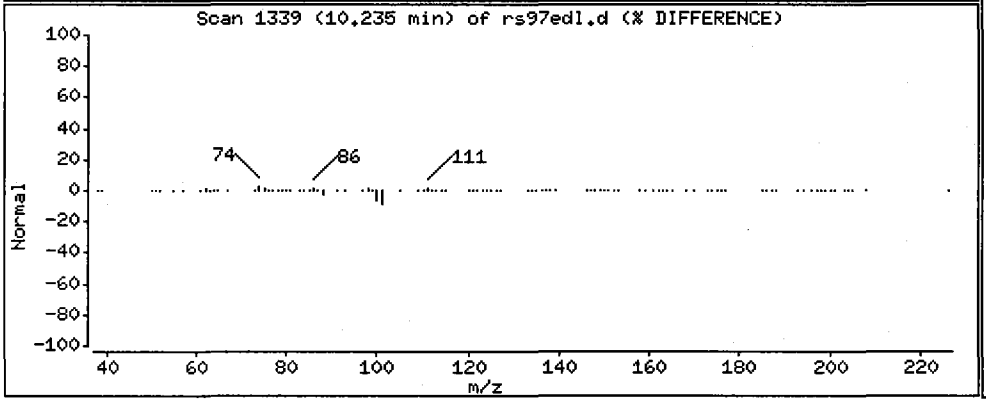












Data File: /chem1/nt12.i/20101110.b/rs97edl.d

Date : 10-NOV-2010 21:05

Client ID: DGS-08-4.44.6-10100

Instrument: nt12.i

Sample Info: RS97E,25

Volume Injected (uL): 1.0

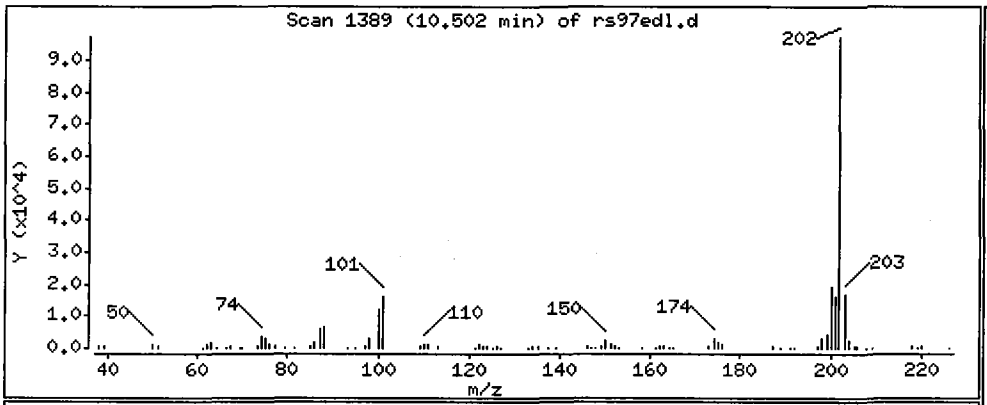
Operator: VTS

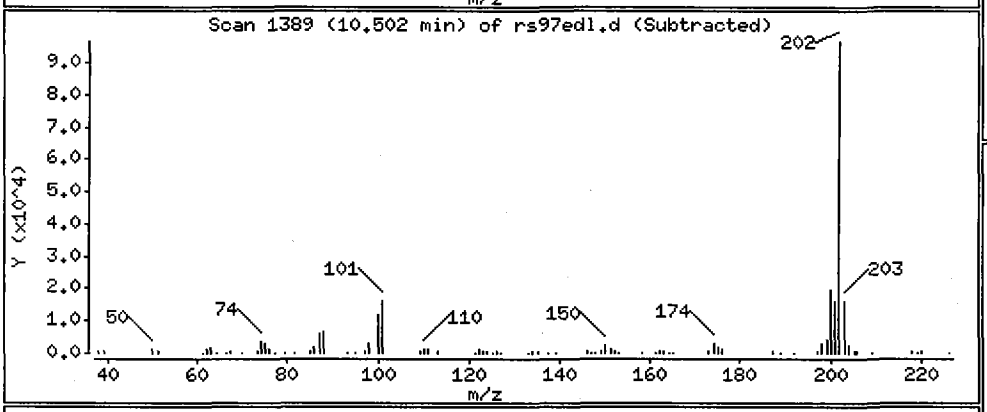
Column phase: ZB-5msi

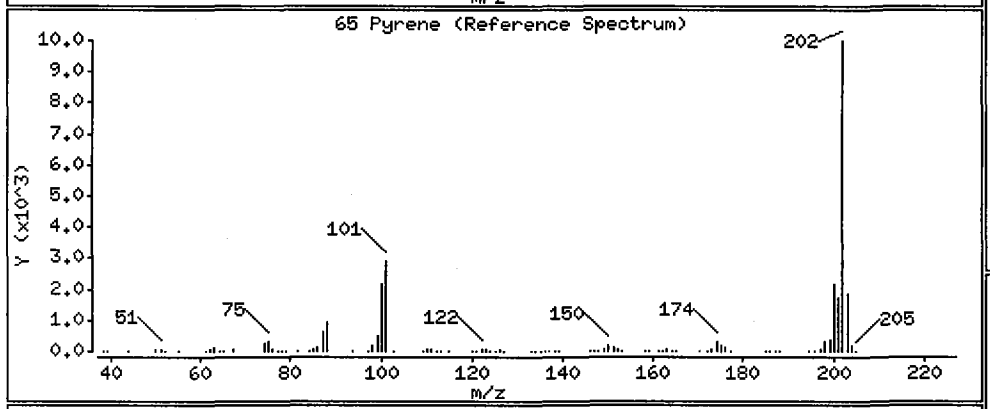
Column diameter: 0.32

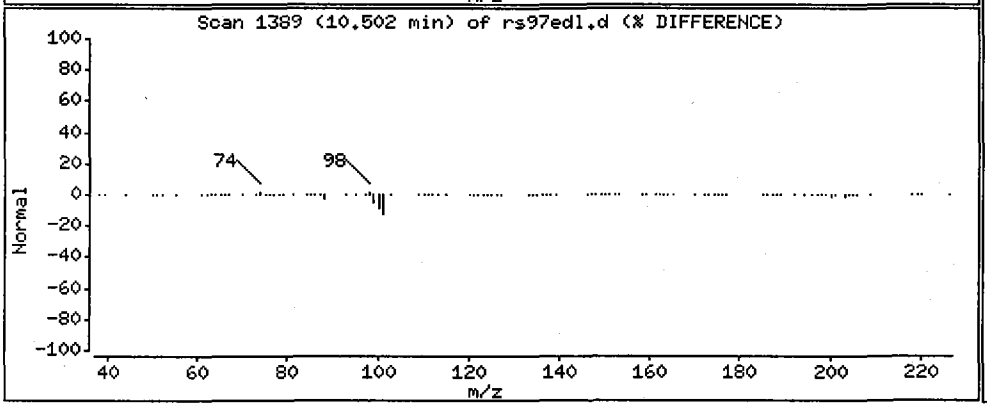
65 Pyrene

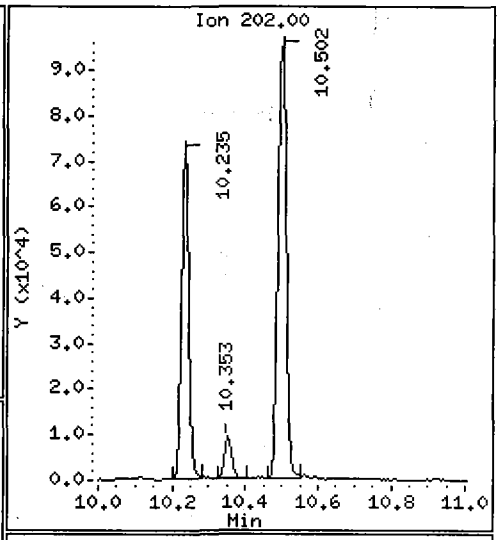
Concentration: 541600 ug/kg

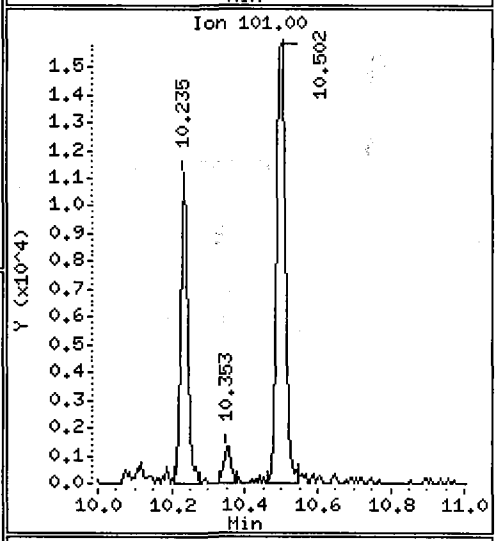


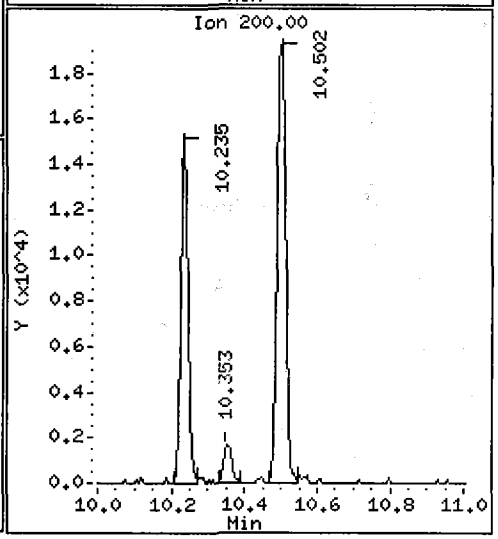












Data File: /chem1/nt12.i/20101110.b/rs97edl.d

Date : 10-NOV-2010 21:05

Client ID: DGS-08-4.44.6-10100

Instrument: nt12.i

Sample Info: RS97E,25

Volume Injected (uL): 1.0

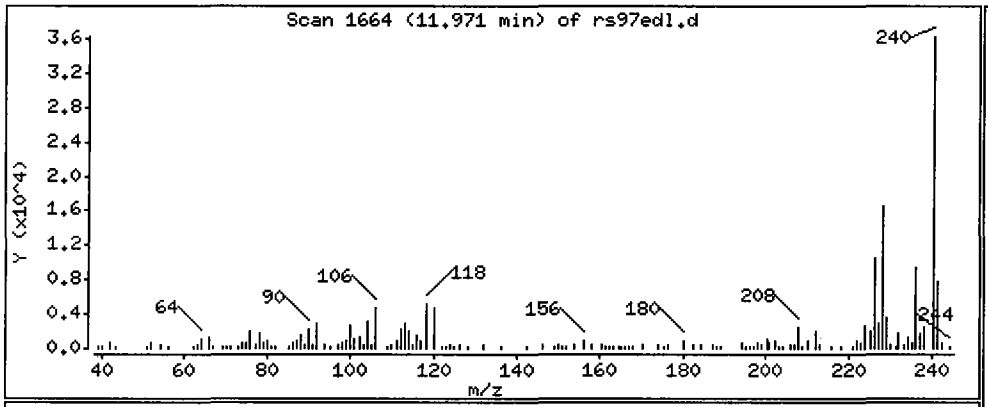
Operator: VTS

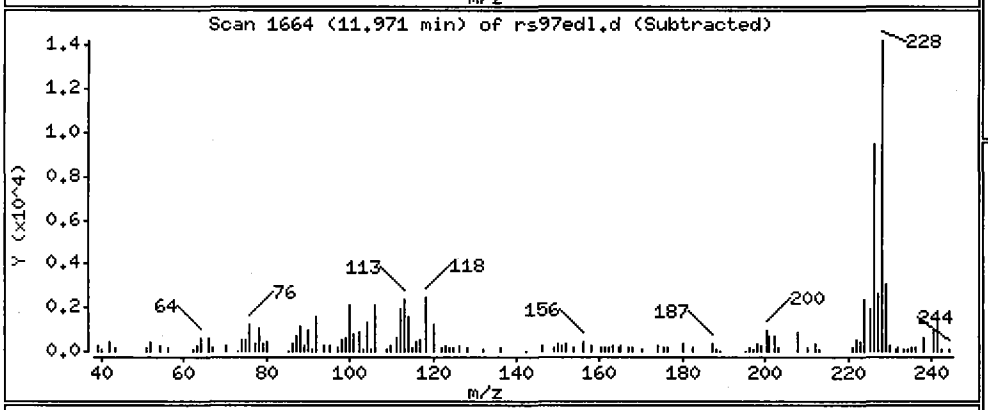
Column phase: ZB-5msi

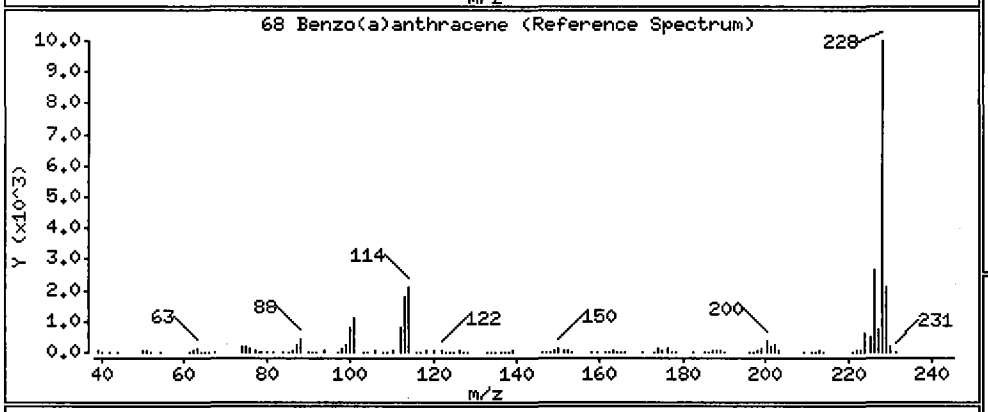
Column diameter: 0.32

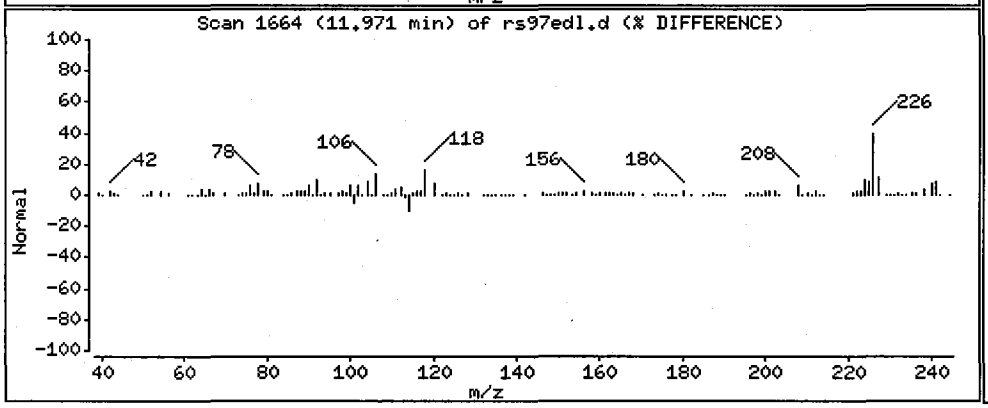
68 Benzo(a)anthracene

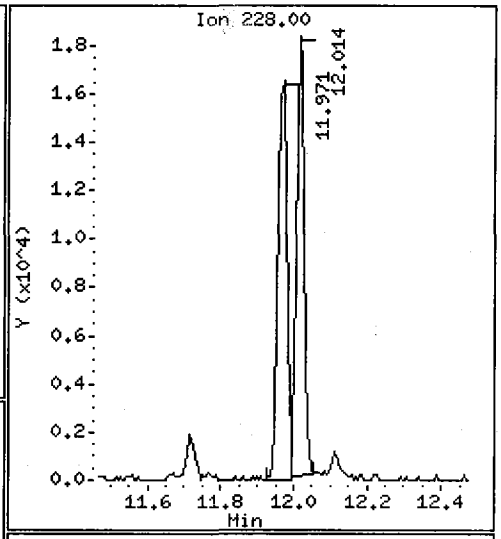
Concentration: 129500 ug/kg

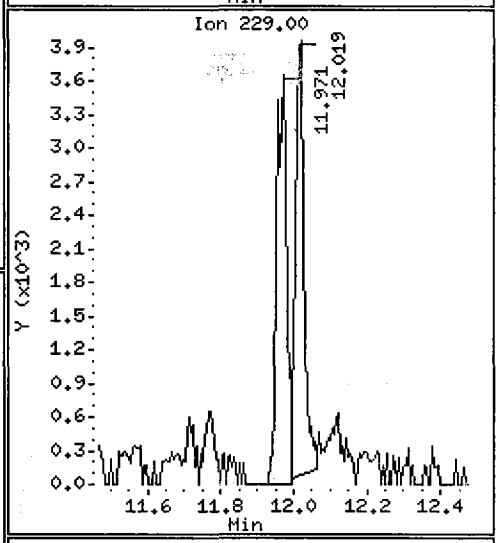


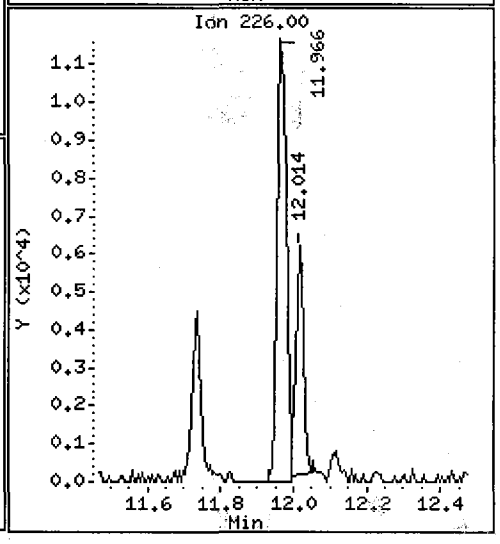












Data File: /chem1/nt12.i/20101110.b/rs97edl.d

Date : 10-NOV-2010 21:05

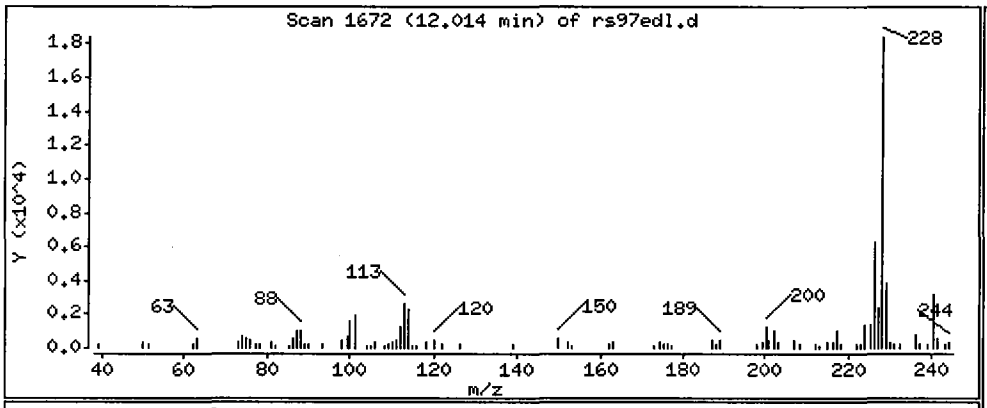
Client ID: DGS-08-4.44.6-10100 Instrument: nt12.i

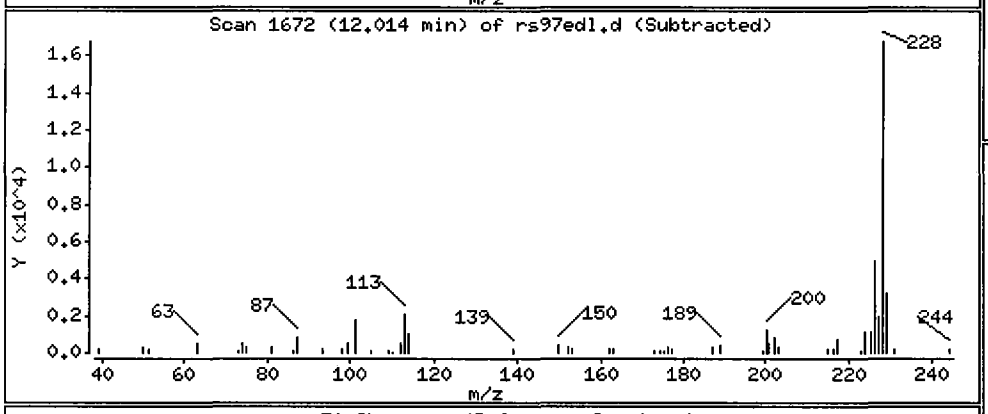
Sample Info: RS97E,25

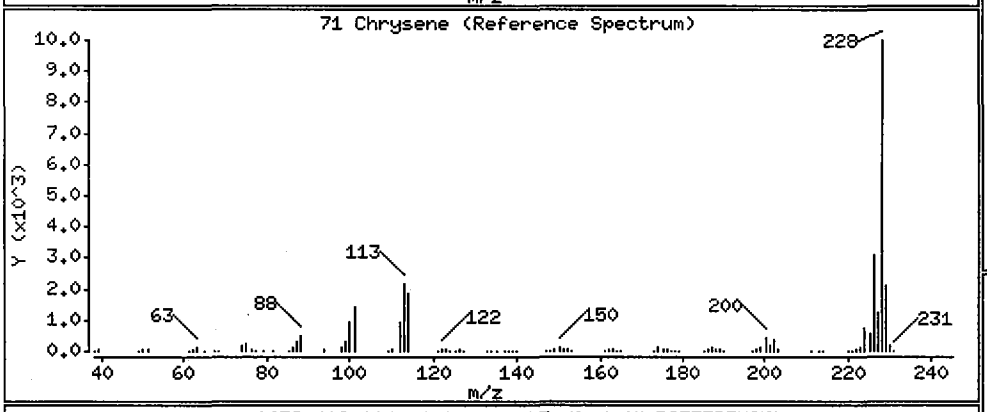
Volume Injected (uL): 1.0 Operator: VTS

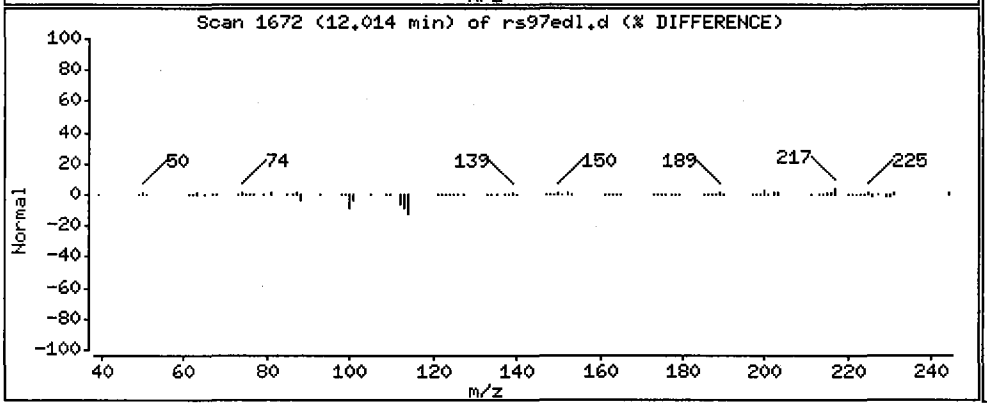
Column phase: ZB-5msi Column diameter: 0.32

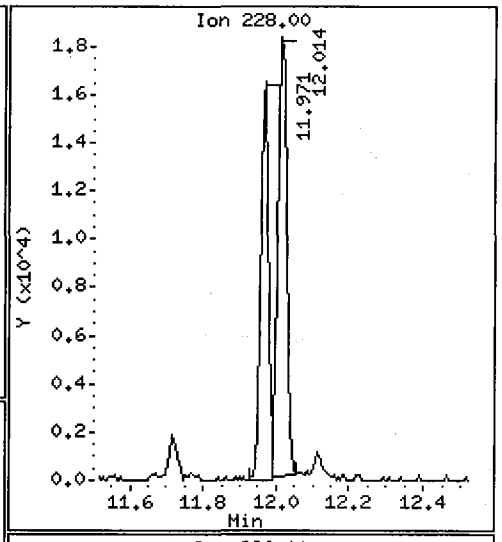
71 Chrysene Concentration: 148300 ug/kg

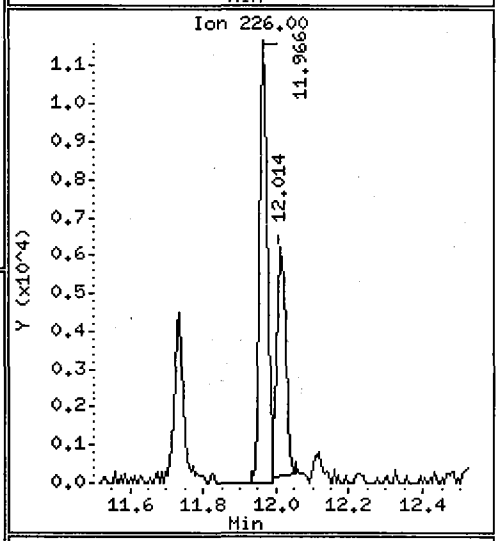


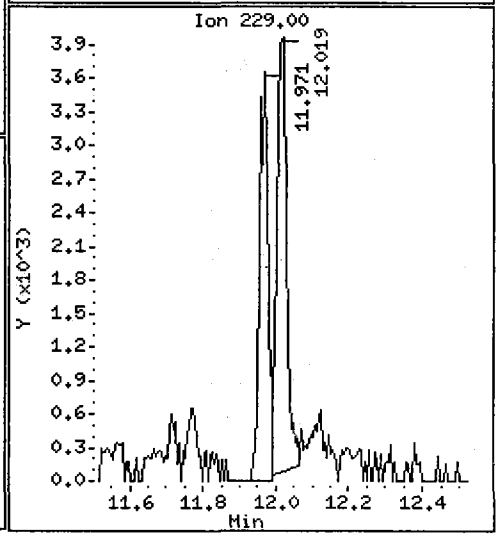












Data File: /chem1/nt12.i/20101110.b/rs97ed1.d

Date : 10-NOV-2010 21:05

Client ID: DGS-08-4.44.6-10100

Instrument: nt12.i

Sample Info: RS97E,25

Volume Injected (uL): 1.0

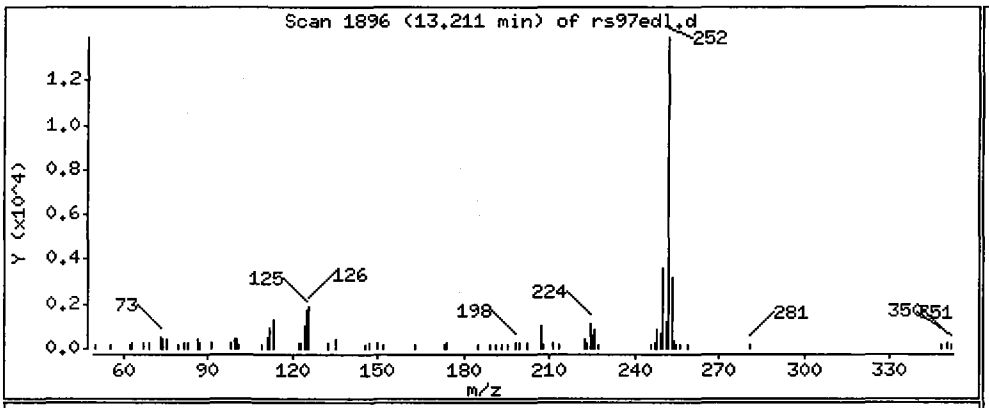
Operator: VTS

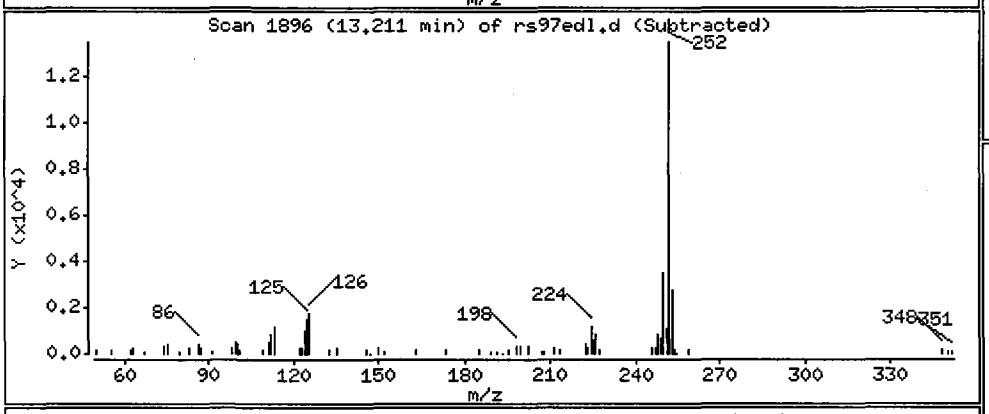
Column phase: ZB-5msi

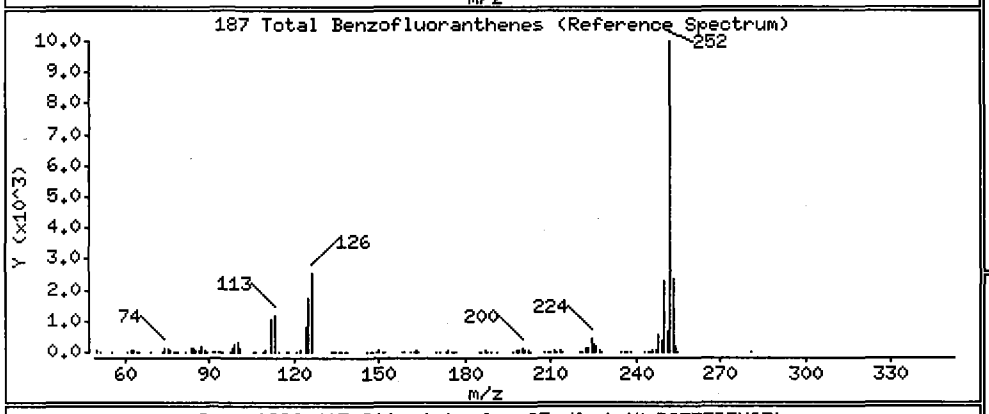
Column diameter: 0.32

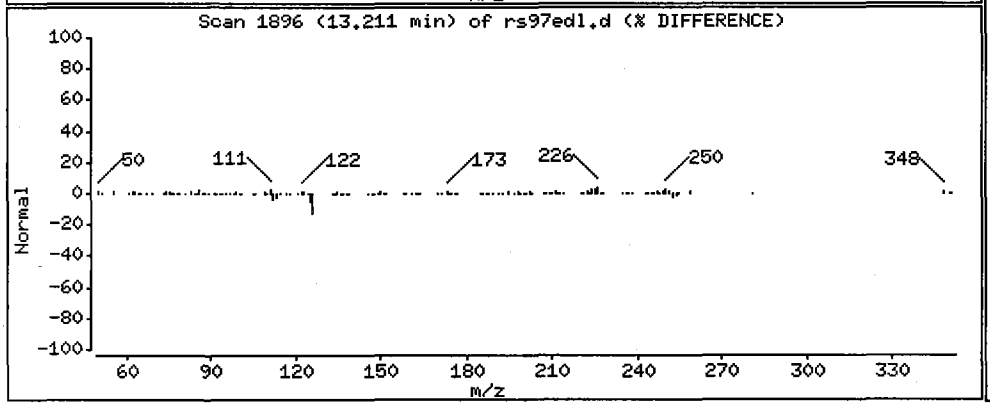
187 Total Benzofluoranthenes

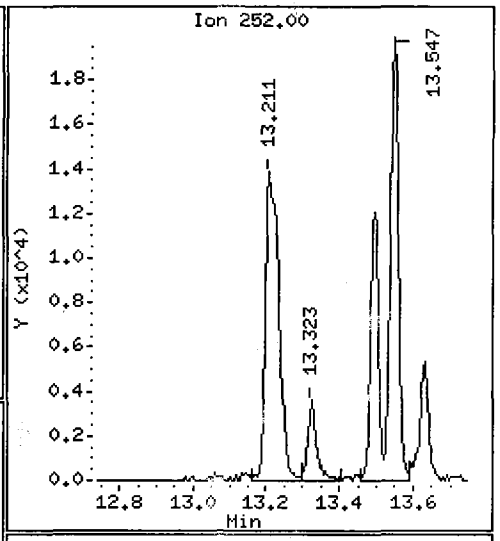
Concentration: 182700 ug/kg

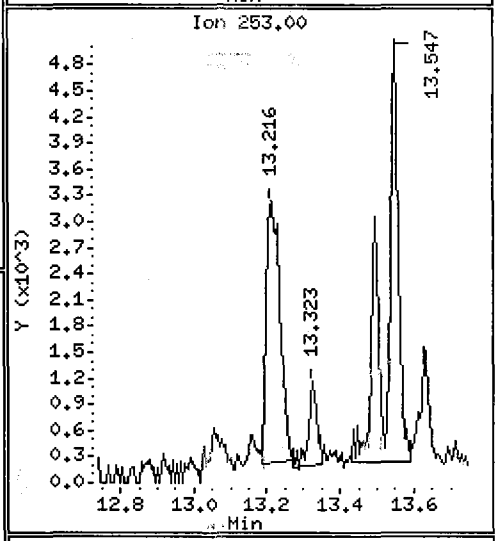


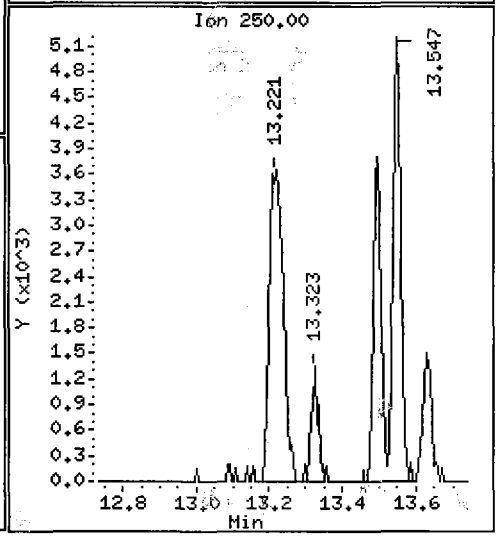












Data File: /chem1/nt12.i/20101110.b/rs97edl.d

Date : 10-NOV-2010 21:05

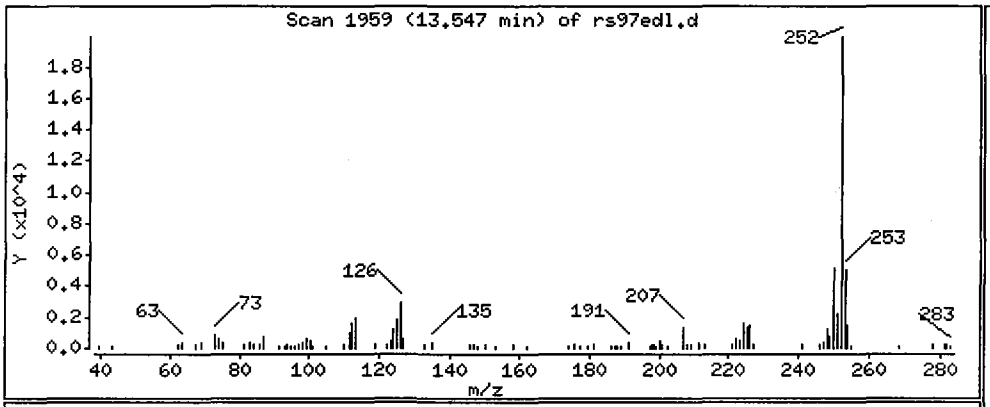
Client ID: DGS-08-4.44.6-10100 Instrument: nt12.i

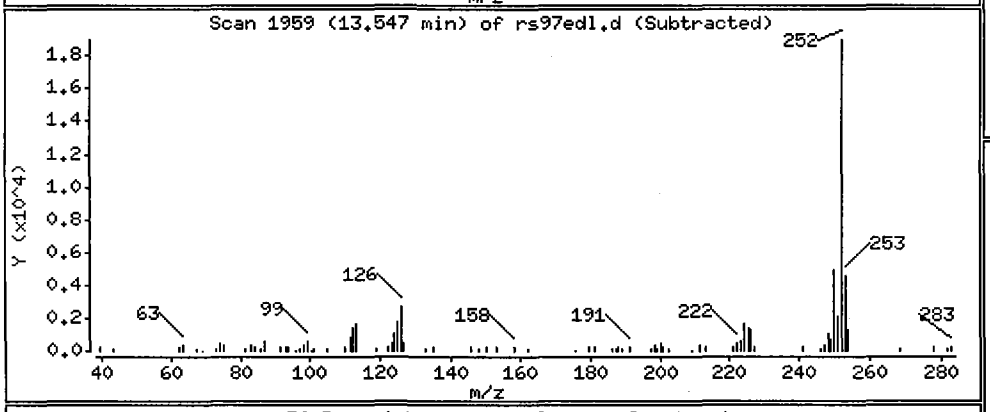
Sample Info: RS97E,25

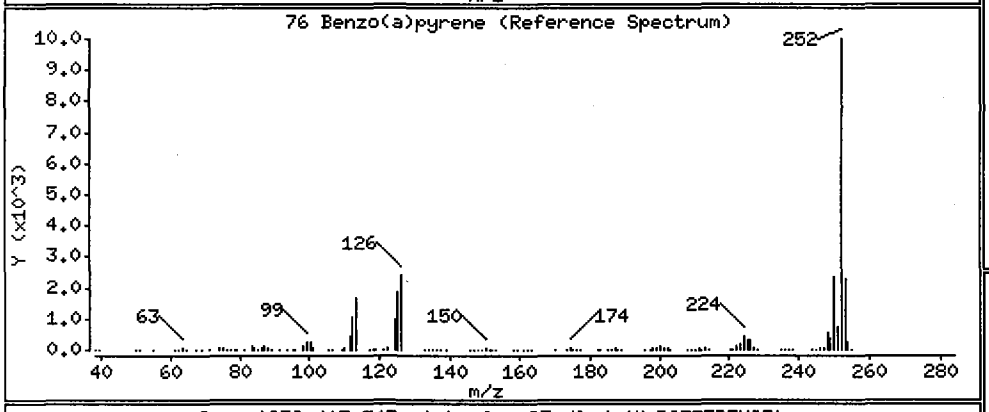
Volume Injected (uL): 1.0 Operator: VTS

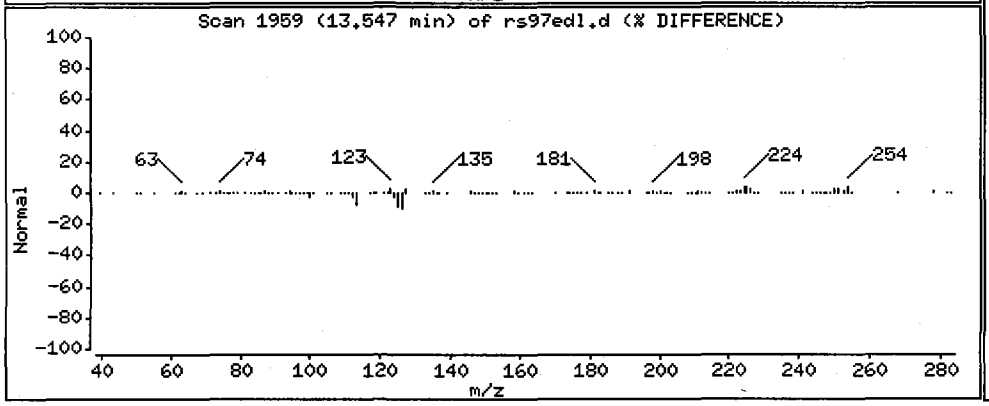
Column phase: ZB-5msi Column diameter: 0.32

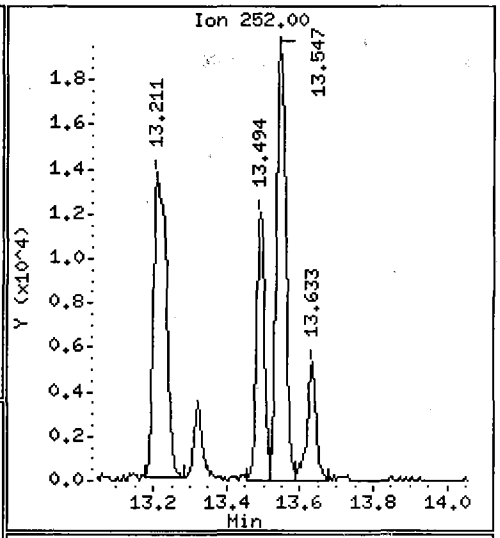
76 Benzo(a)pyrene Concentration: 174500 ug/kg

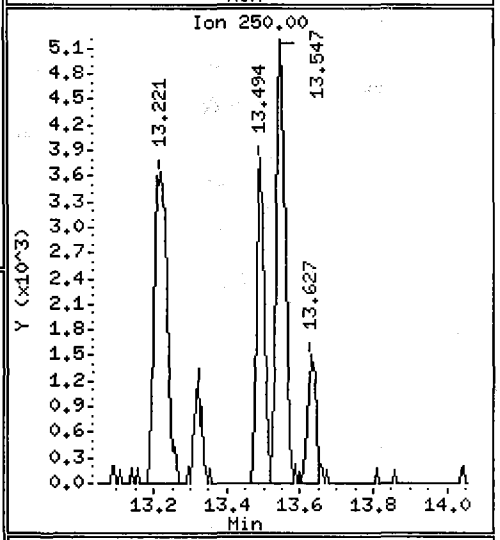


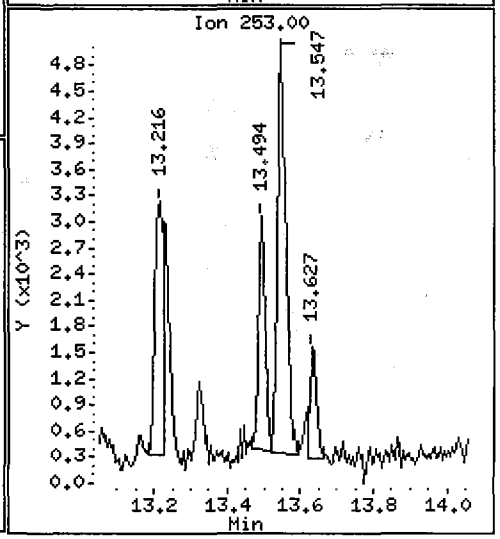












Data File: /chem1/nt12.i/20101110.b/rs97edl.d

Date : 10-NOV-2010 21:05

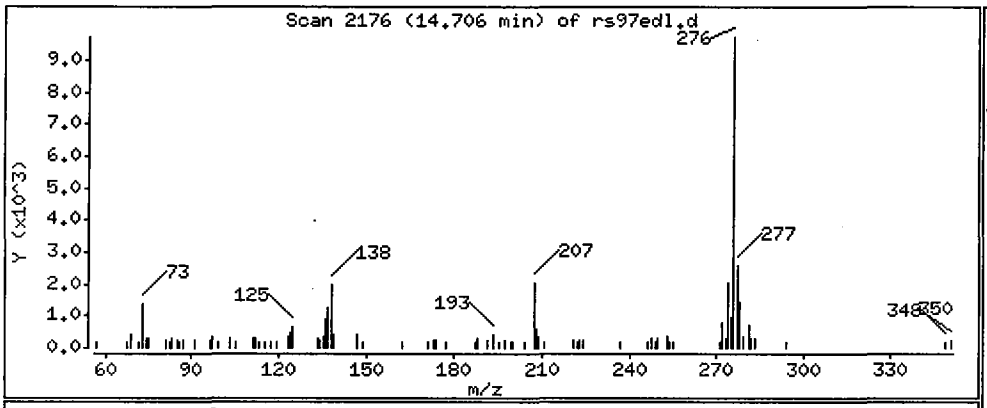
Client ID: DGS-08-4.44.6-10100 Instrument: nt12.i

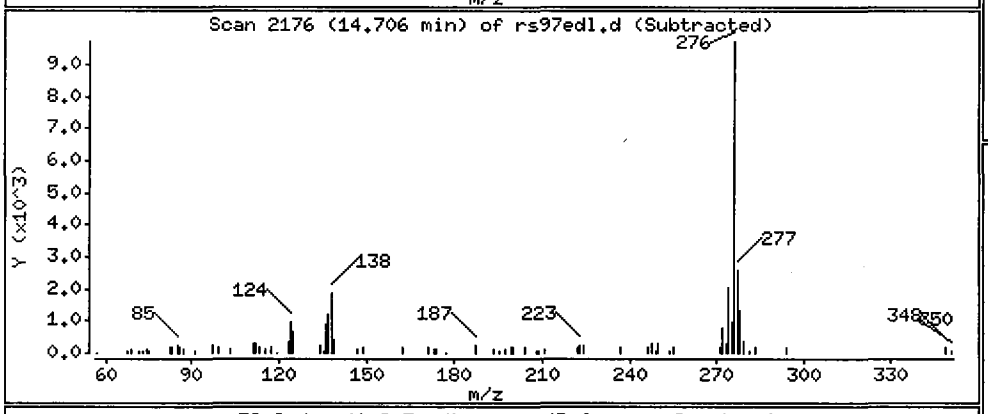
Sample Info: RS97E,25

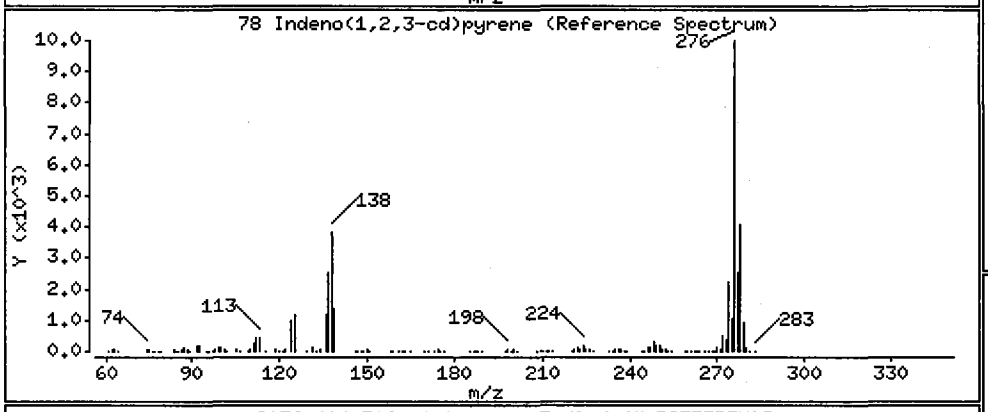
Volume Injected (uL): 1.0 Operator: VTS

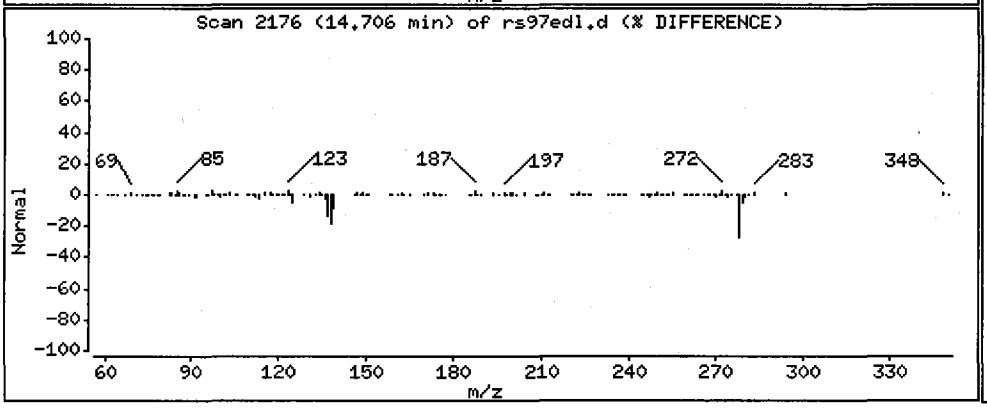
Column phase: ZB-5msi Column diameter: 0.32

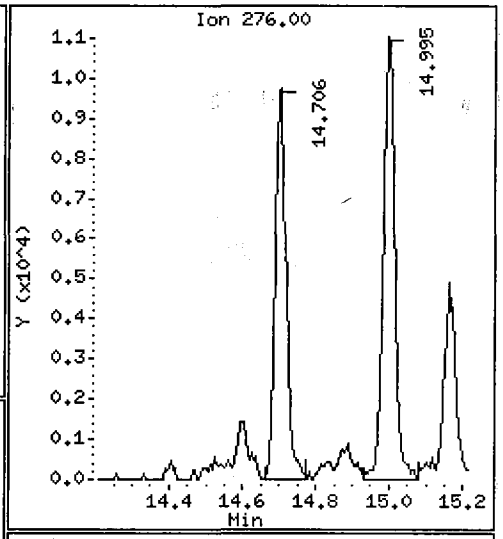
78 Indeno(1,2,3-cd)pyrene Concentration: 72200 ug/kg

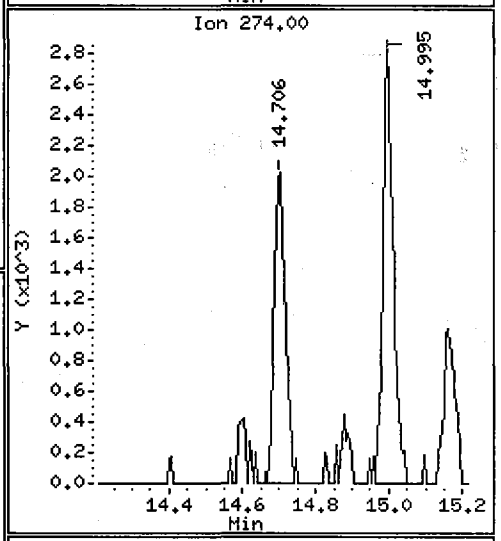


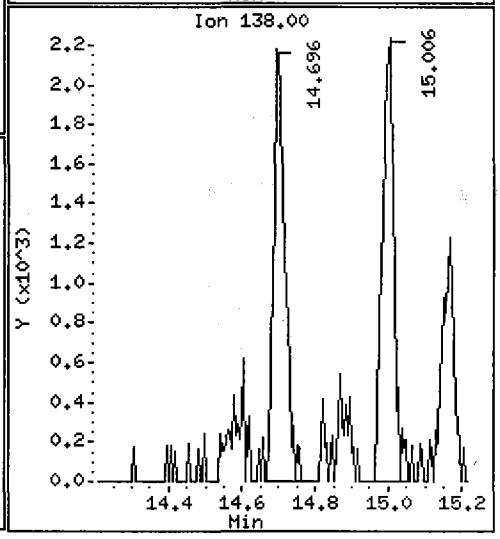












Data File: /chem1/nt12.i/20101110.b/rs97edl.d

Date : 10-NOV-2010 21:05

Client ID: DGS-08-4.44.6-10100

Instrument: nt12.i

Sample Info: RS97E,25

Volume Injected (uL): 1.0

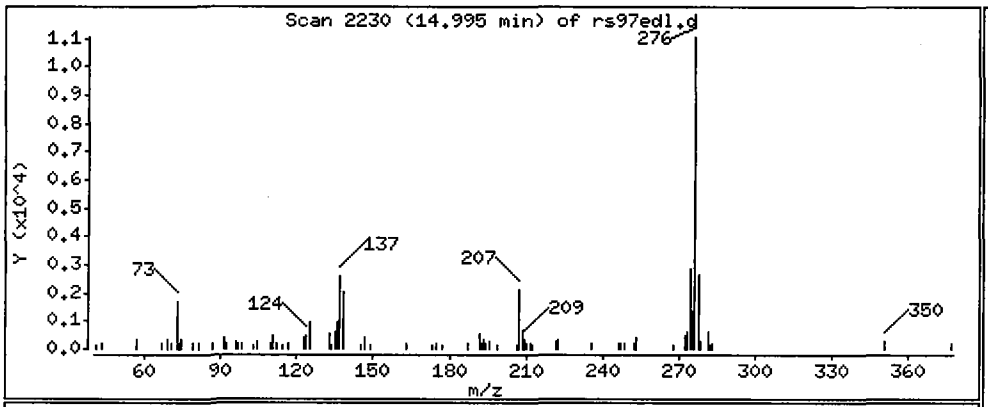
Operator: VTS

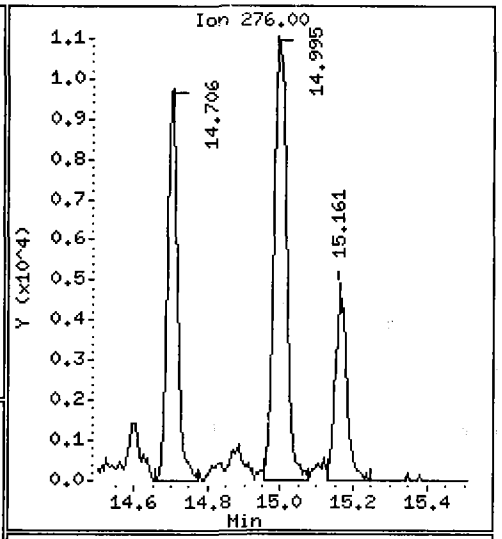
Column phase: ZB-5msi

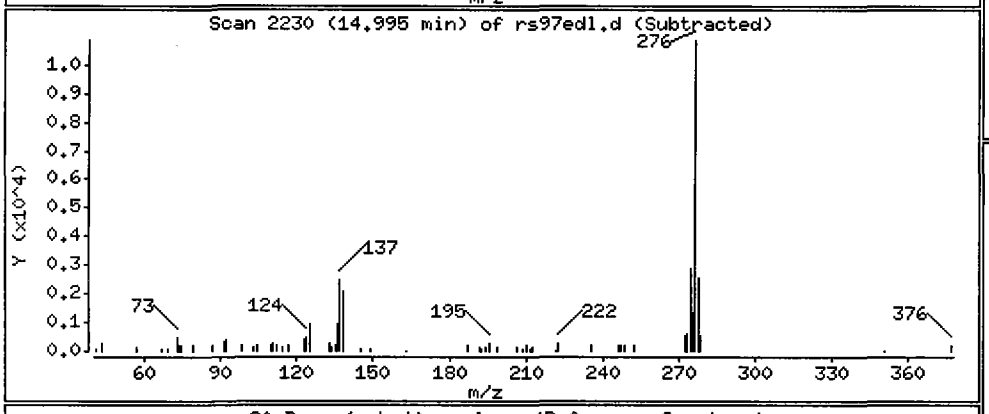
Column diameter: 0.32

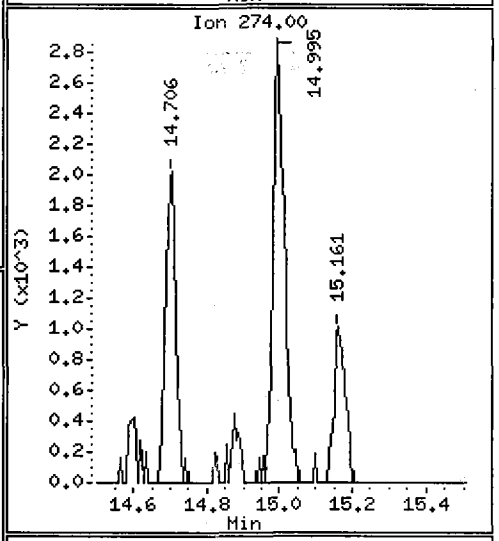
80 Benzo(g,h,i)perylene

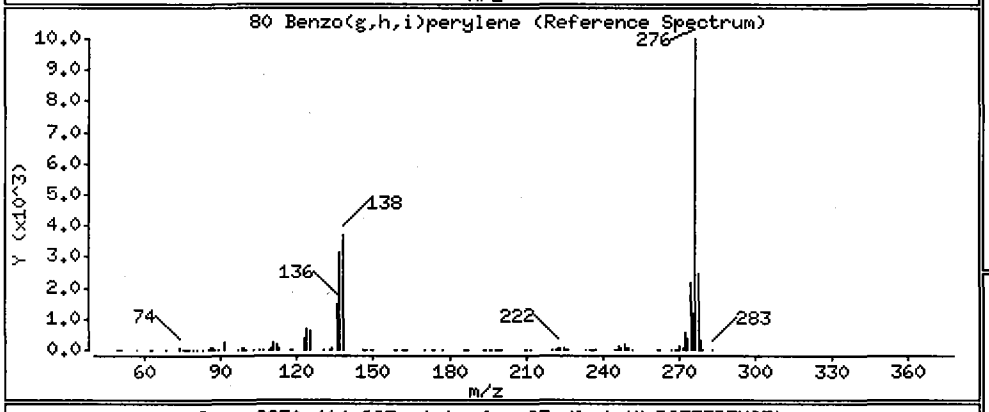
Concentration: 112200 ug/kg

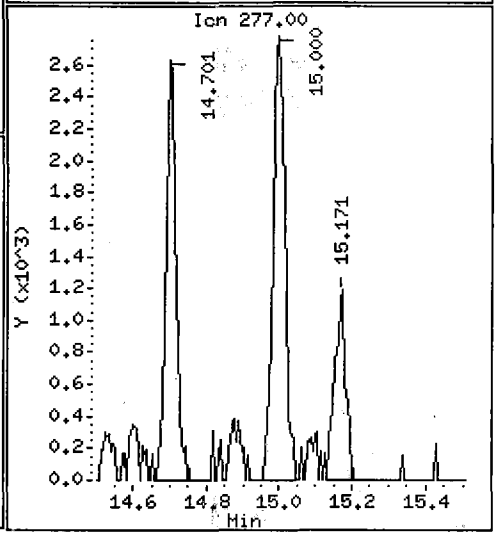


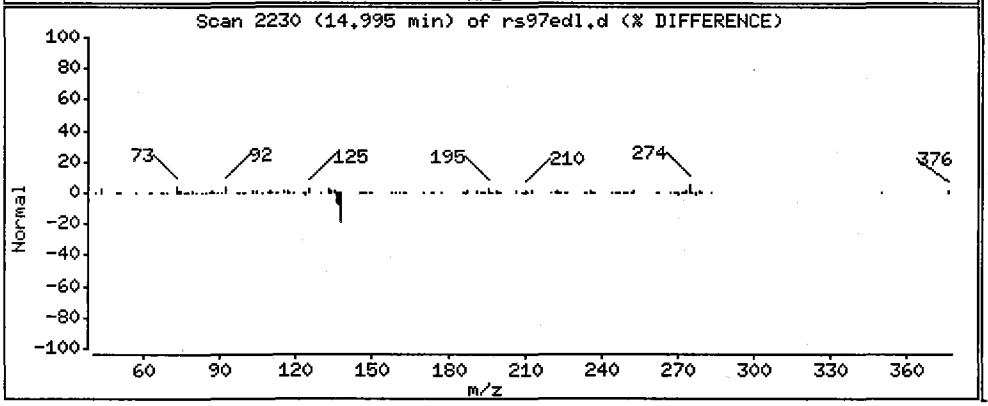












Analytical Resources Inc.: Volatile Organics Instrument Log

NT-12 Serial No.:GC=US00032558, MS= US01180091

Date: 11·11·10 Analysis: PNA Analyst: VJS

GC Program: PNA Column No: 181984 Column Type: ZB-5ms

Instrument Tune (.U or .CT.): 101030.U EM Voltage: 1776

Calibration File: df1111 Curve Date: 10·30·10

IS/SS	Ical/Ccal	LCS/ICV
1752·1	1770·1 1753·5	
	1773·3	

INTERNAL STANDARD SUMMARY FOR DATABATCH - /chem1/nt12.i/20101111.b

	Time	Filename	LabID	ClientId	DF											
1	1157	df1111.d	df1111		1	|NO ISTDS FOUND||										
2	1220	cc1111.d	CC1111		1	| 4.87	239106||	6.98	150916||	8.74	283286||	11.98	295366||	13.60	209515|
3	1248	177802.d	177802		1	|NO ISTDS FOUND|										
4	1325	rs97fdl.d	RS97F	GST-09SO-17-	100	| 4.87	210402||	6.98	124049||	8.75	230998||	11.97	236982||	13.59	172042|
5	1348	rs97pdl.d	RS97P	DGS-07-9.710	10	| 4.87	208131||	6.98	127328||	8.75	230583||	11.97	215632||	13.59	152628|
6	1412	rs97qdl.d	RS97Q	DGS-07-10.61	3	| 4.87	219438||	6.98	133878||	8.74	247029||	11.97	232786||	13.59	156655|
7	1435	rs97rdl.d	RS97R	DGS-07-11.61	10	| 4.87	204343||	6.98	126492||	8.74	230900||	11.97	234908||	13.59	162046|
8	1459	rs97sdl.d	RS97S	DGS-07-12.71	3	| 4.87	228532||	6.98	142788||	8.74	257335||	11.97	266150||	13.59	186139|
9	1522	rs97j.d	RS97J	DGS-07-034.2	3	| 4.87	172225||	6.98	110018||	8.74	192476||	11.97	165824||	13.59	136685|
10	1546	rs97k.d	RS97K	DGS-07-4.75.	1	| 4.87	251335||	6.98	160196||	8.75	282581||	11.98	235815||	13.61	210978|
11	1609	rs97h.d	RS97H	DGS-07-011.3	1	| 4.87	246109||	6.98	155332||	8.75	287621||	11.98	220552||	13.60	190707|
12	1633	rs97hms.d	RS97HMS	DGS-07-011.3	1	| 4.87	229854||	6.98	142143||	8.75	256533||	11.98	186761||	13.60	154847|
13	1657	rs97hmsd.d	RS97HMSD	DGS-07-011.3	1	| 4.87	210551||	6.98	131245||	8.75	243292||	11.98	184326||	13.60	156150|

VJS 11·12·10

Maintenance / Comments

New liner / New septum / Clipped column

Maintenance Verification (Identify ICal or CCal that demonstrates the instrument is in control): CC1111

Every line must contain information or be lined out. Make all entries legible. Start a new page for each QC period.

MANUAL INTEGRATION SUMMARY FOR DATABATCH - /chem1/nt12.i/20101111.b

ARI Job No.: CC11 Method: PNADMD.m Instrument: nt12.i Date: 11-NOV-2010

Time	Filename	LabID	ClientId	DF	Manually Integrated Compounds
1220	cc1111.d	CC1111		1	NO MANUAL INTEGRATION
1157	df1111.d	df1111		1	NO MANUAL INTEGRATION
1325	rs97fdl.d	RS97F	GST-09SO-1	100	NO MANUAL INTEGRATION
1609	rs97h.d	RS97H	DGS-07-011	1	NO MANUAL INTEGRATION
1633	rs97hms.d	RS97HMS	DGS-07-011	1	NO MANUAL INTEGRATION
1657	rs97hmsd.d	RS97HMSD	DGS-07-011	1	NO MANUAL INTEGRATION
1522	rs97j.d	RS97J	DGS-07-034	3	NO MANUAL INTEGRATION
1546	rs97k.d	RS97K	DGS-07-4.7	1	NO MANUAL INTEGRATION
1348	rs97pdl.d	RS97P	DGS-07-9.7	10	NO MANUAL INTEGRATION
1412	rs97qdl.d	RS97Q	DGS-07-10.	3	NO MANUAL INTEGRATION
1435	rs97rdl.d	RS97R	DGS-07-11.	10	NO MANUAL INTEGRATION
1459	rs97sdl.d	RS97S	DGS-07-12.	3	NO MANUAL INTEGRATION

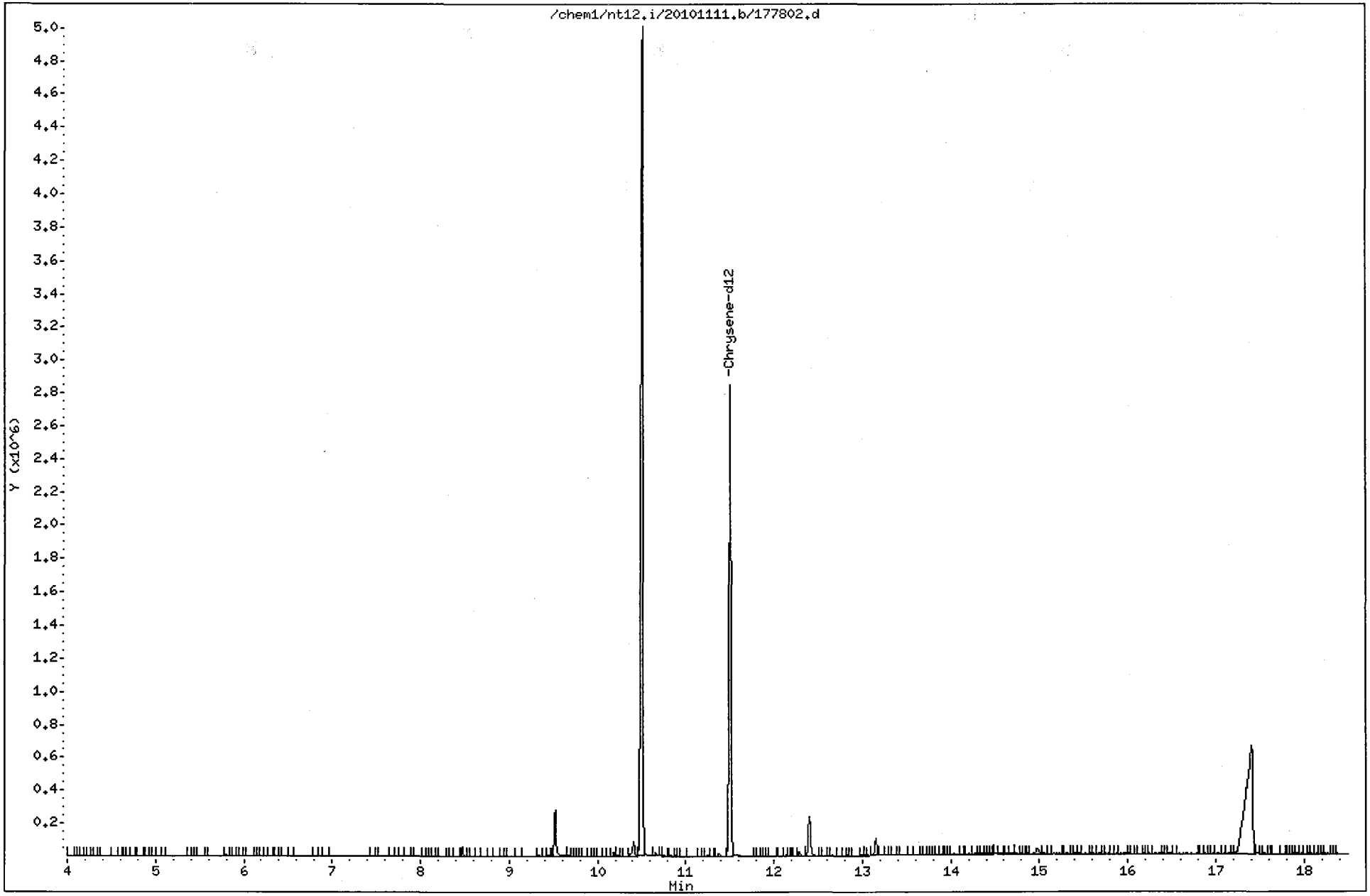
RS97.00703

Data File: /chem1/nt12.i/20101111.b/177802.d
Date : 11-NOV-2010 12:48
Client ID:
Sample Info: 177802

Column phase: ZB-5msi

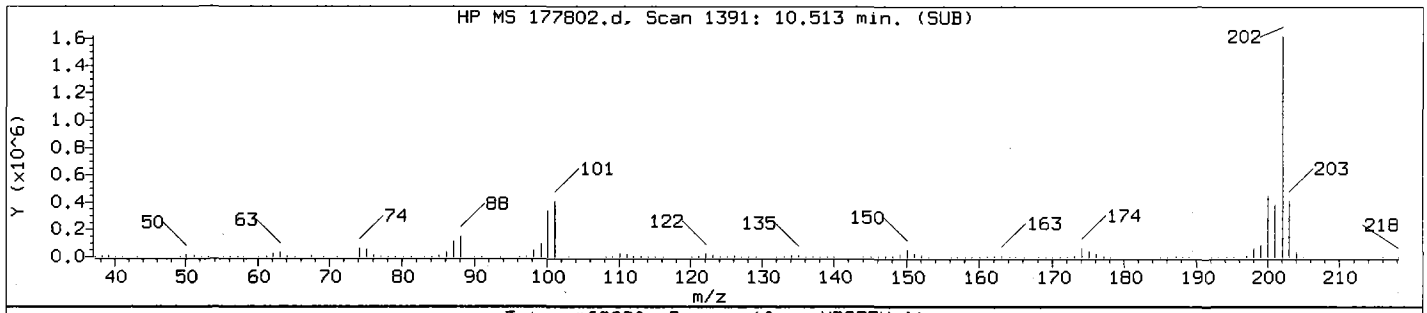
Instrument: nt12.i

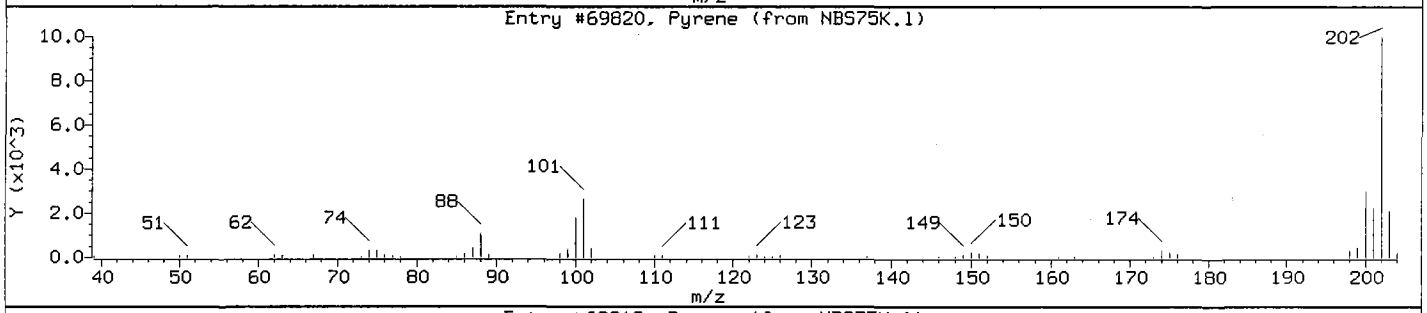
Operator: VTS
Column diameter: 0.32

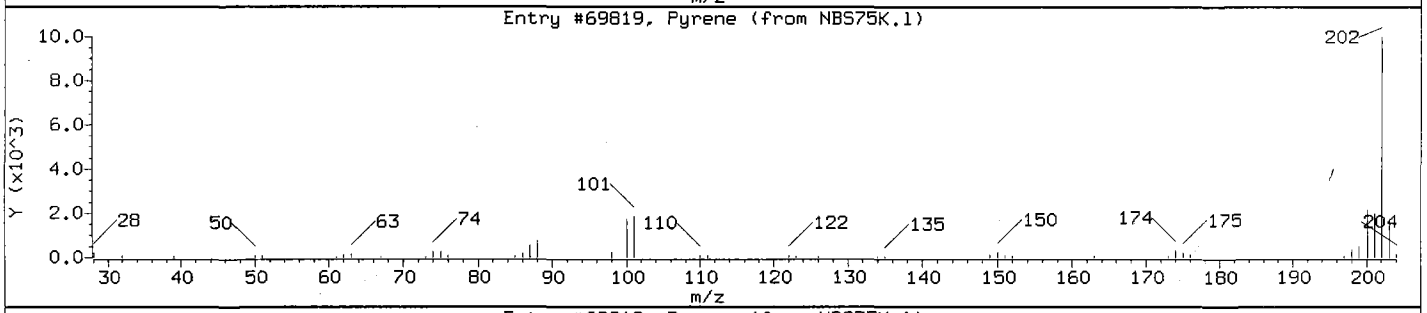


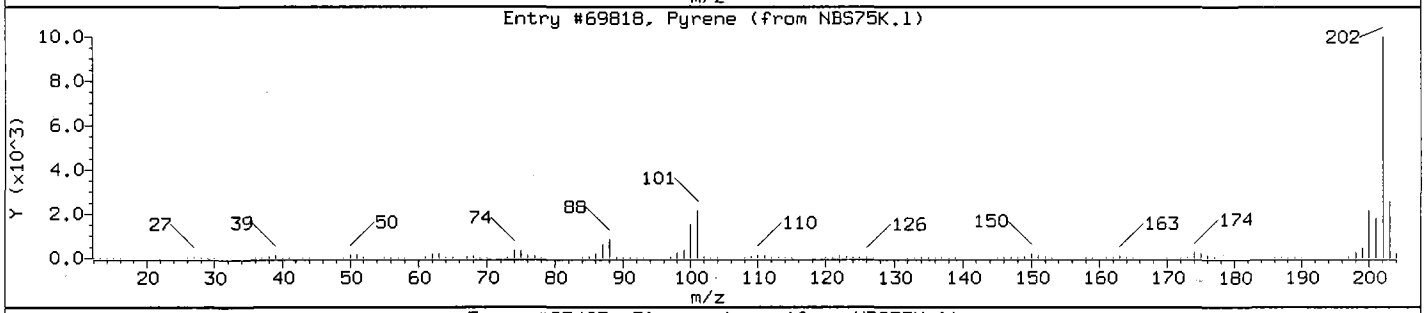
RS97 00799

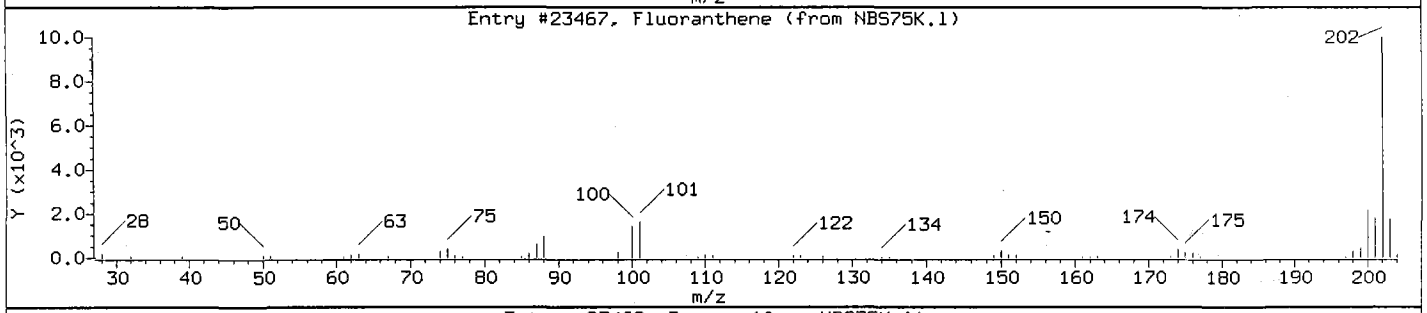
Data File: /chem1/nt12.i/20101111.b/177802.d
Injection Date: 11-NOV-2010 12:48
Instrument: nt12.i
Client Sample ID:

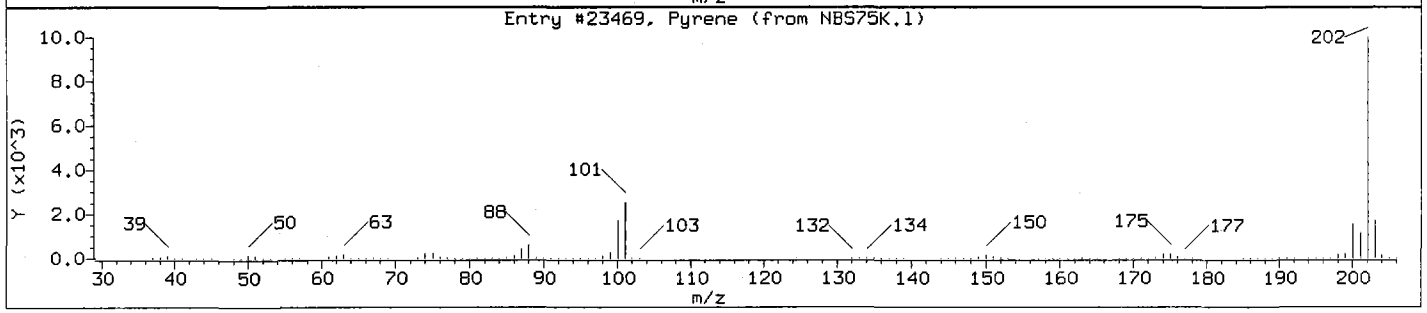






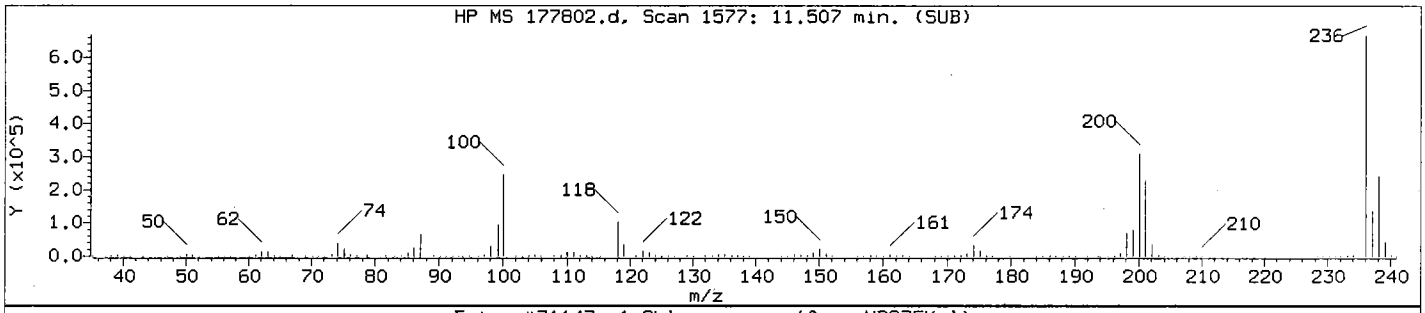


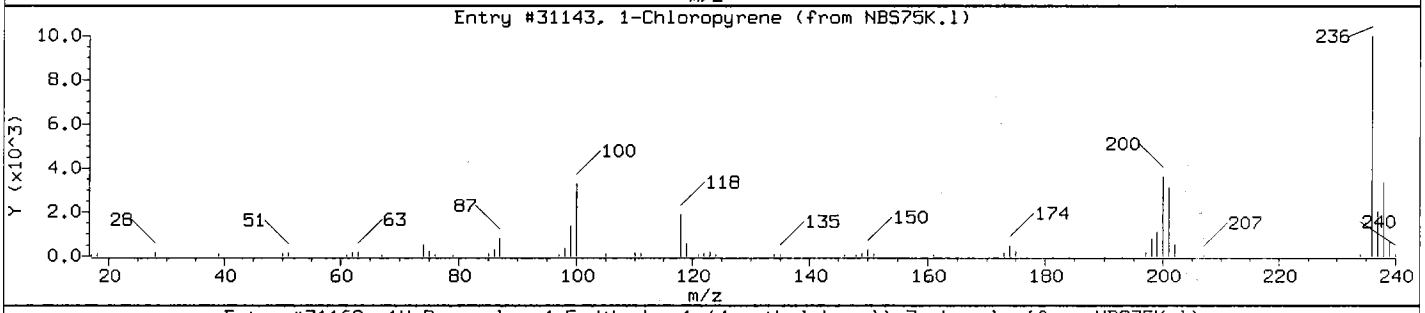


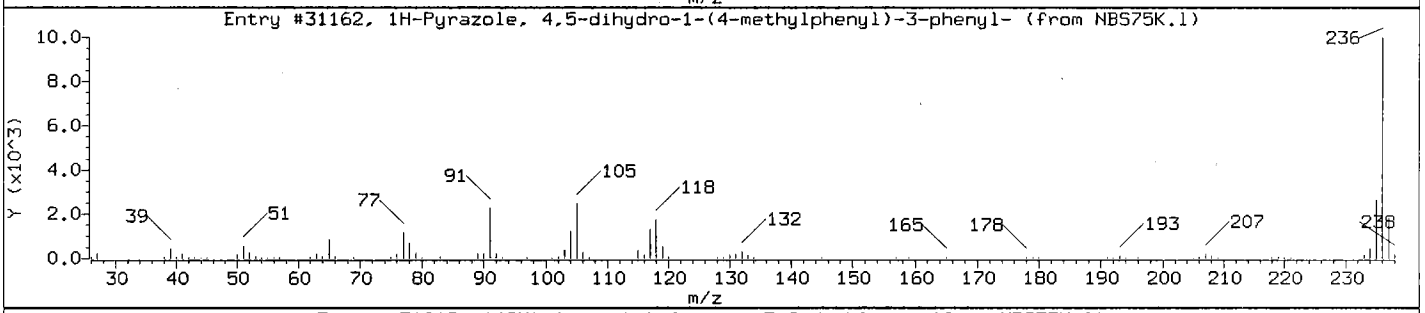


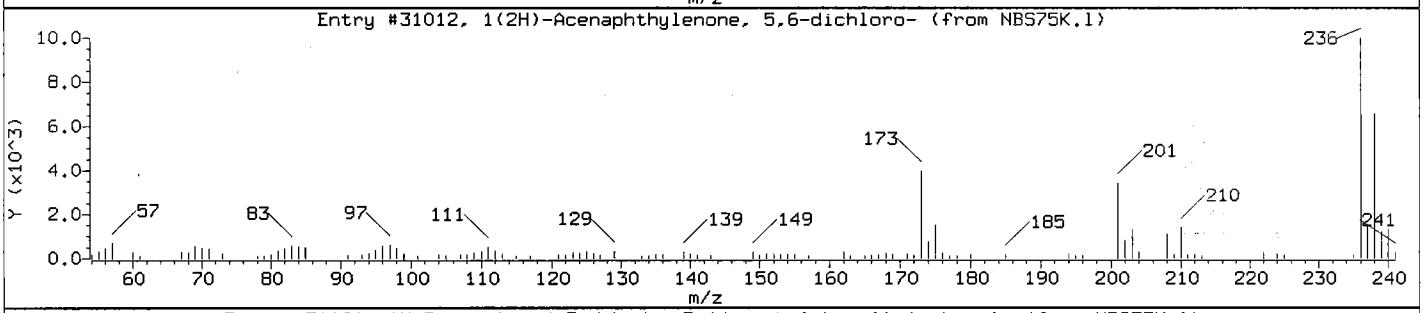
RS97:00710

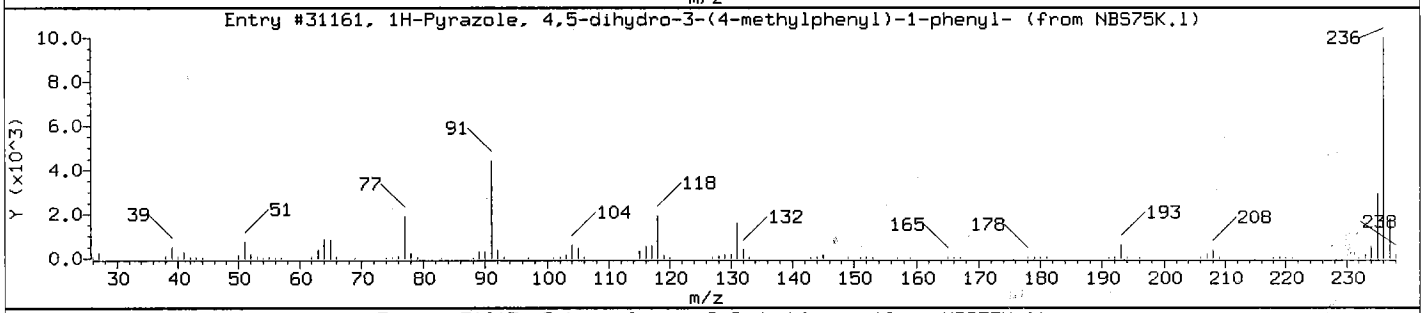
Data File: /chem1/nt12.i/20101111.b/177802.d
Injection Date: 11-NOV-2010 12:48
Instrument: nt12.i
Client Sample ID:

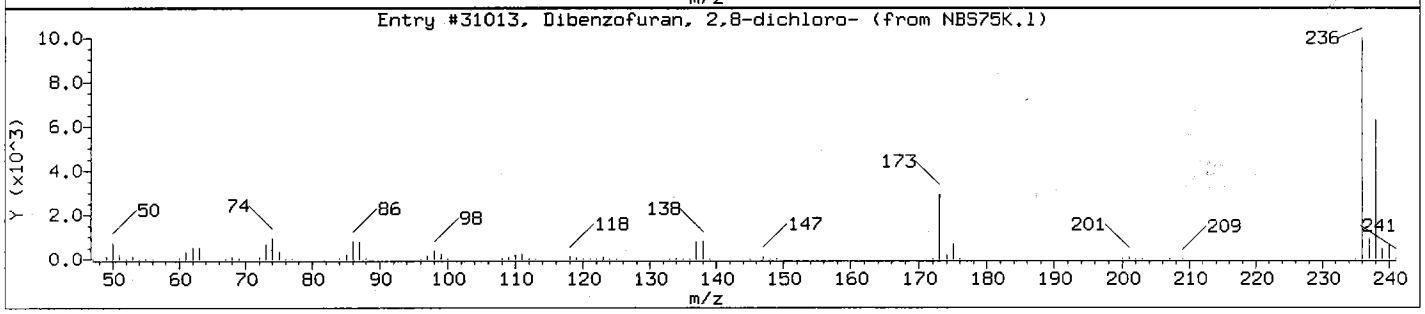






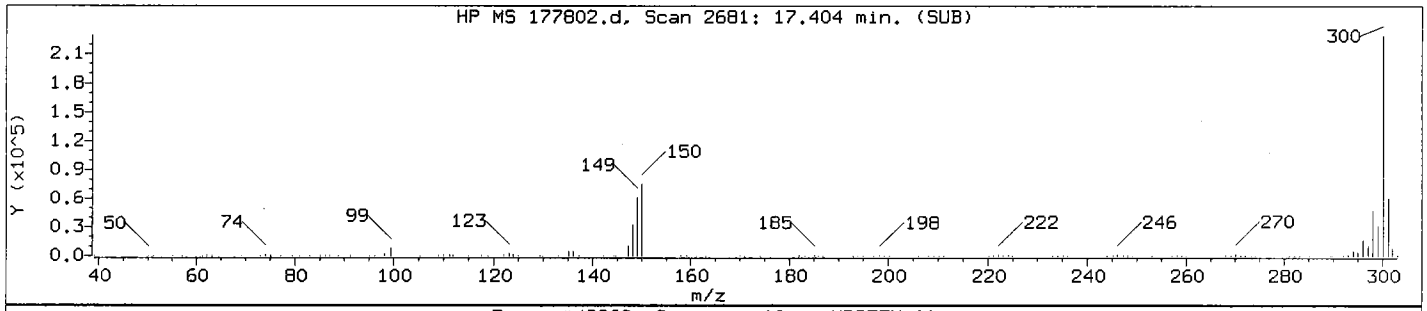


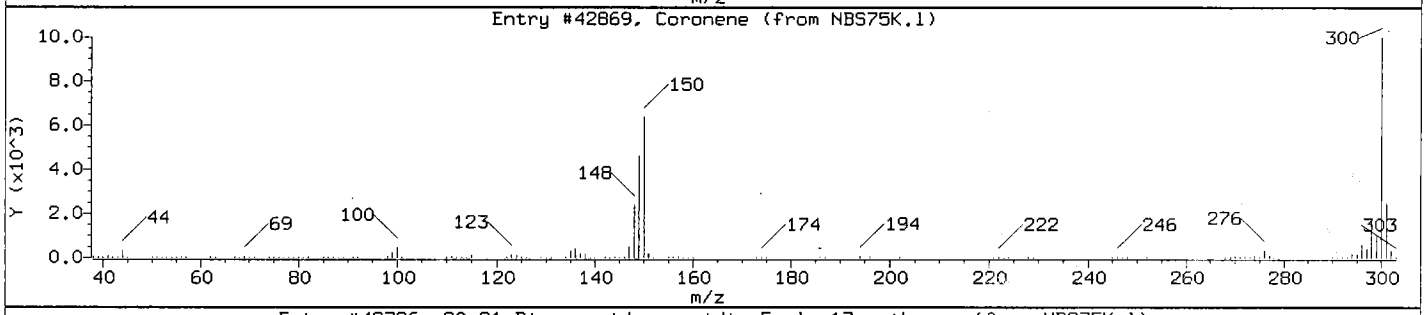


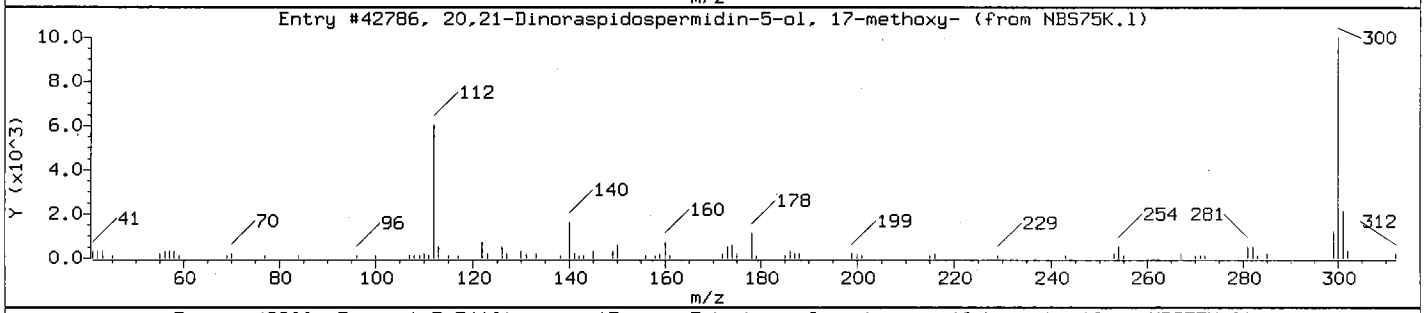


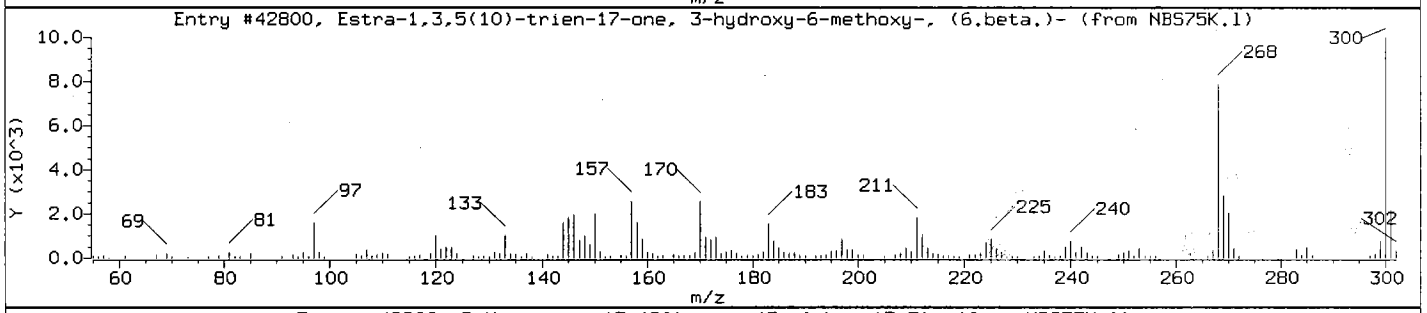
RS97:00711

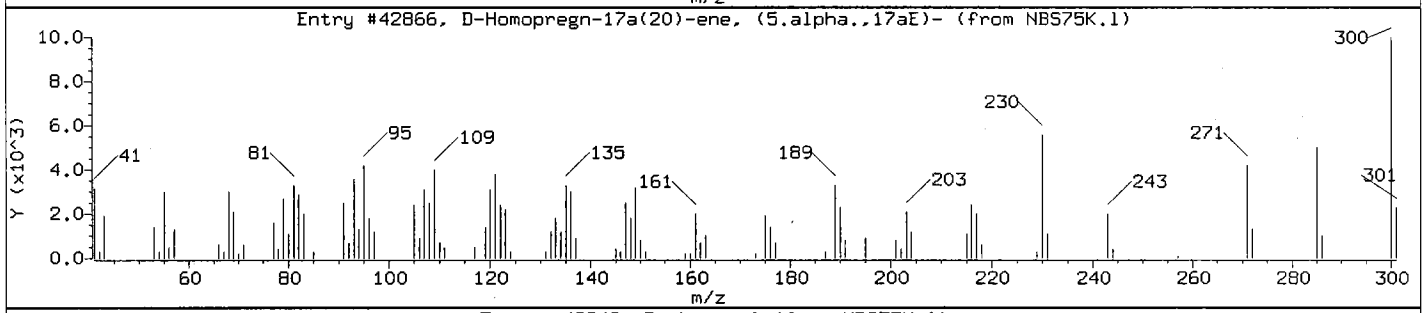
Data File: /chem1/nt12.i/20101111.b/177802.d
Injection Date: 11-NOV-2010 12:48
Instrument: nt12.i
Client Sample ID:

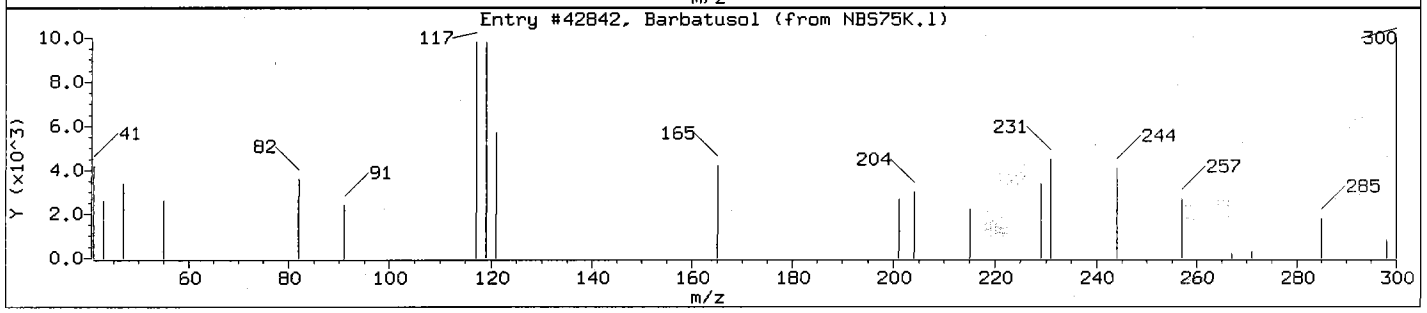












RS97 : 00712

Q-FLAG SUMMARY FOR DATABATCH - /chem1/nt12.i/20101111.b

Instrument: nt12.i Date: 11-NOV-2010 Method: PNADMD.m

INITIAL CAL: 30-OCT-2010

Compound	%RSD or R^2
NO Q-FLAGS	

CONTINUING CAL: 11-NOV-2010

Compound	%D
Indeno(1,2,3-cd)pyrene	-23.6
Dibenzo(a,h)anthracene	-24.0
Benzo(g,h,i)perylene	-28.1

Data File: /chem1/nt12.i/20101111.b/df1111.d

Date : 11-NOV-2010 11:57

Client ID:

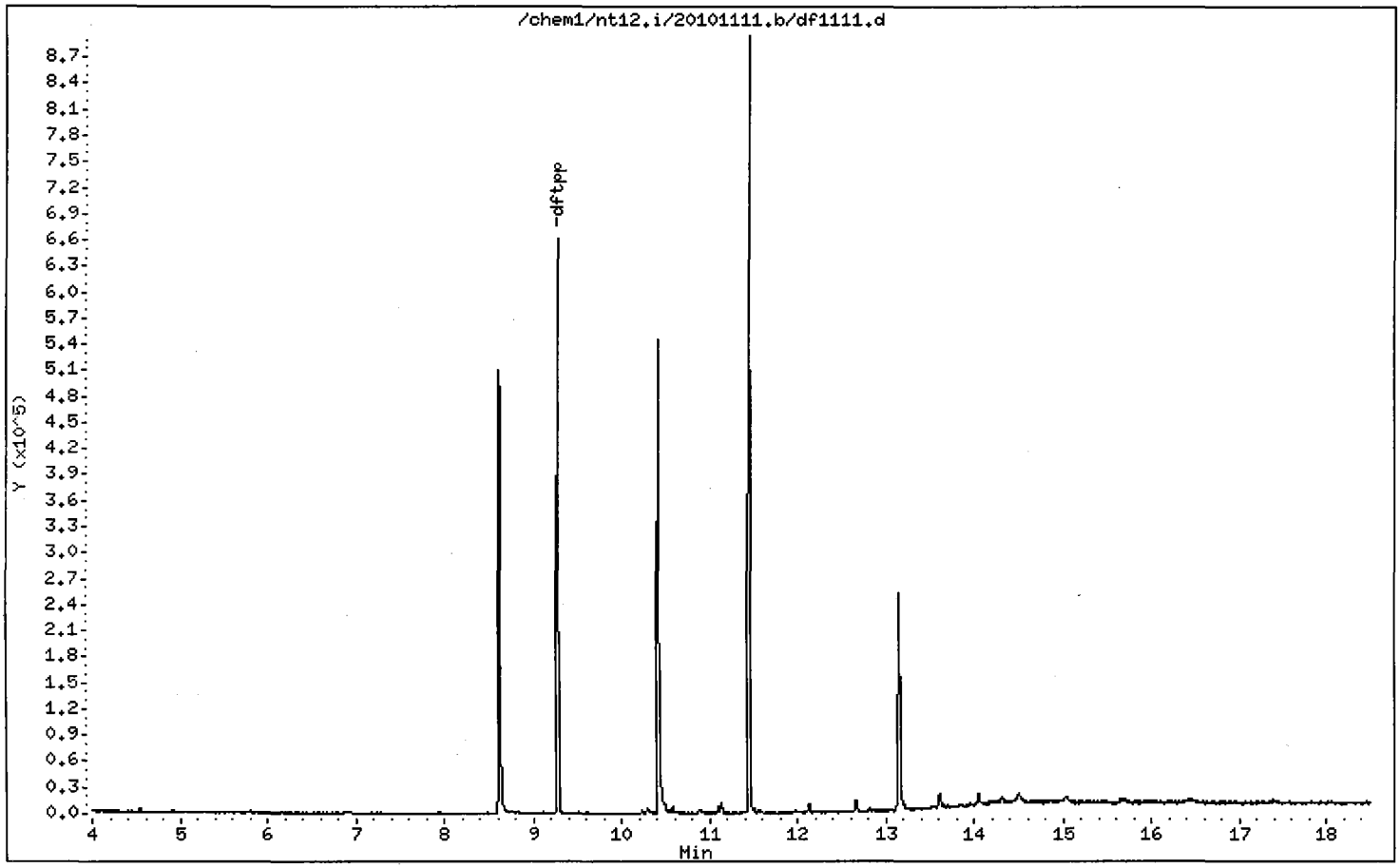
Instrument: nt12.i

Sample Info: DF1111

Operator: VTS

Column phase: ZB-5msi

Column diameter: 0.32



Data File: /chem1/nt12.i/20101111.b/df1111.d

Date : 11-NOV-2010 11:57

Client ID:

Instrument: nt12.i

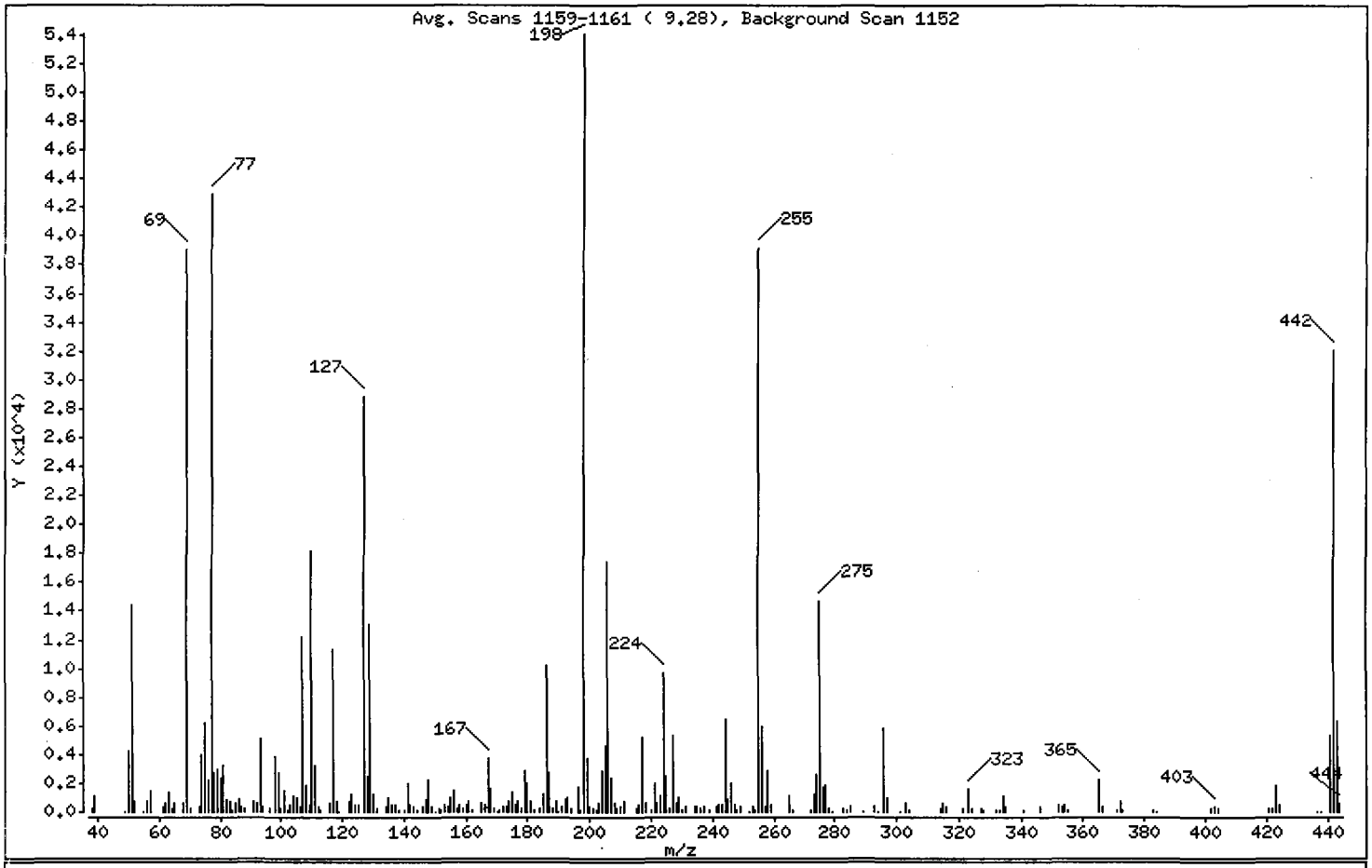
Sample Info: DF1111

Operator: VTS

Column phase: ZB-5msi

Column diameter: 0.32

1 dftpp



m/e	ION ABUNDANCE CRITERIA	% RELATIVE ABUNDANCE
198	Base Peak, 100% relative abundance	100.00
51	10.00 - 80.00% of mass 198	26.69
68	Less than 2.00% of mass 69	1.18 (1.63)
69	Mass 69 relative abundance	72.12
70	Less than 2.00% of mass 69	0.48 (0.66)
127	10.00 - 80.00% of mass 198	53.43
197	Less than 2.00% of mass 198	0.26
199	5.00 - 9.00% of mass 198	6.95
275	10.00 - 60.00% of mass 198	27.08
365	Greater than 1.00% of mass 198	4.20
441	0.01 - 24.00% of mass 442	9.86 (16.59)
442	50.00 - 200.00% of mass 198	59.42
443	15.00 - 24.00% of mass 442	11.71 (19.71)

Data File: /chem1/nt12.i/20101111.b/df1111.d

Date : 11-NOV-2010 11:57

Client ID:

Instrument: nt12.i

Sample Info: DF1111

Operator: VTS

Column phase: ZB-5msi

Column diameter: 0.32

Data File: df1111.d
Spectrum: Avg. Scans 1159-1161 (9.28), Background Scan 1152
Location of Maximum: 198.00
Number of points: 236

m/z	Y	m/z	Y	m/z	Y	m/z	Y
38.00	223	124.00	486	192.00	827	273.00	1227
39.00	1119	125.00	512	193.00	957	274.00	2666
49.00	56	127.00	28904	194.00	200	275.00	14649
50.00	4281	128.00	2545	196.00	1726	276.00	1778
51.00	14438	129.00	13105	197.00	143	277.00	1810
52.00	766	130.00	1223	198.00	54104	278.00	265
55.00	58	131.00	205	199.00	3758	279.00	53
56.00	686	134.00	362	200.00	423	283.00	215
57.00	1497	135.00	1019	201.00	254	284.00	145
61.00	391	136.00	449	202.00	119	285.00	326
62.00	631	137.00	486	203.00	673	289.00	50
63.00	1315	138.00	120	204.00	2918	293.00	326
64.00	190	140.00	116	205.00	4607	294.00	55
65.00	621	141.00	1929	206.00	17400	296.00	5883
68.00	637	142.00	490	207.00	2311	297.00	936
69.00	39016	143.00	416	208.00	660	301.00	60
70.00	257	144.00	63	209.00	262	303.00	632
73.00	400	146.00	321	210.00	329	304.00	86
74.00	4008	147.00	880	211.00	801	314.00	295
75.00	6238	148.00	2291	215.00	228	315.00	657
76.00	2286	149.00	405	216.00	469	316.00	312
77.00	42904	150.00	55	217.00	5266	321.00	231
78.00	2741	151.00	303	218.00	619	323.00	1556
79.00	3037	152.00	129	220.00	106	324.00	227
80.00	2311	153.00	537	221.00	1939	327.00	283
81.00	3212	154.00	381	222.00	636	328.00	140
82.00	870	155.00	985	223.00	1124	332.00	106
83.00	765	156.00	1481	224.00	9755	333.00	77
84.00	155	157.00	296	225.00	2537	334.00	1100
85.00	560	158.00	439	226.00	228	335.00	333
86.00	915	159.00	281	227.00	5310	341.00	135
87.00	404	160.00	544	228.00	669	346.00	318
88.00	217	161.00	789	229.00	965	352.00	441
91.00	805	162.00	88	230.00	124	353.00	389
92.00	662	165.00	654	231.00	423	354.00	453

Data File: /chem1/nt12.i/20101111.b/df1111.d

Date : 11-NOV-2010 11:57

Client ID:

Instrument: nt12.i

Sample Info: DF1111

Operator: VTS

Column phase: ZB-5msi

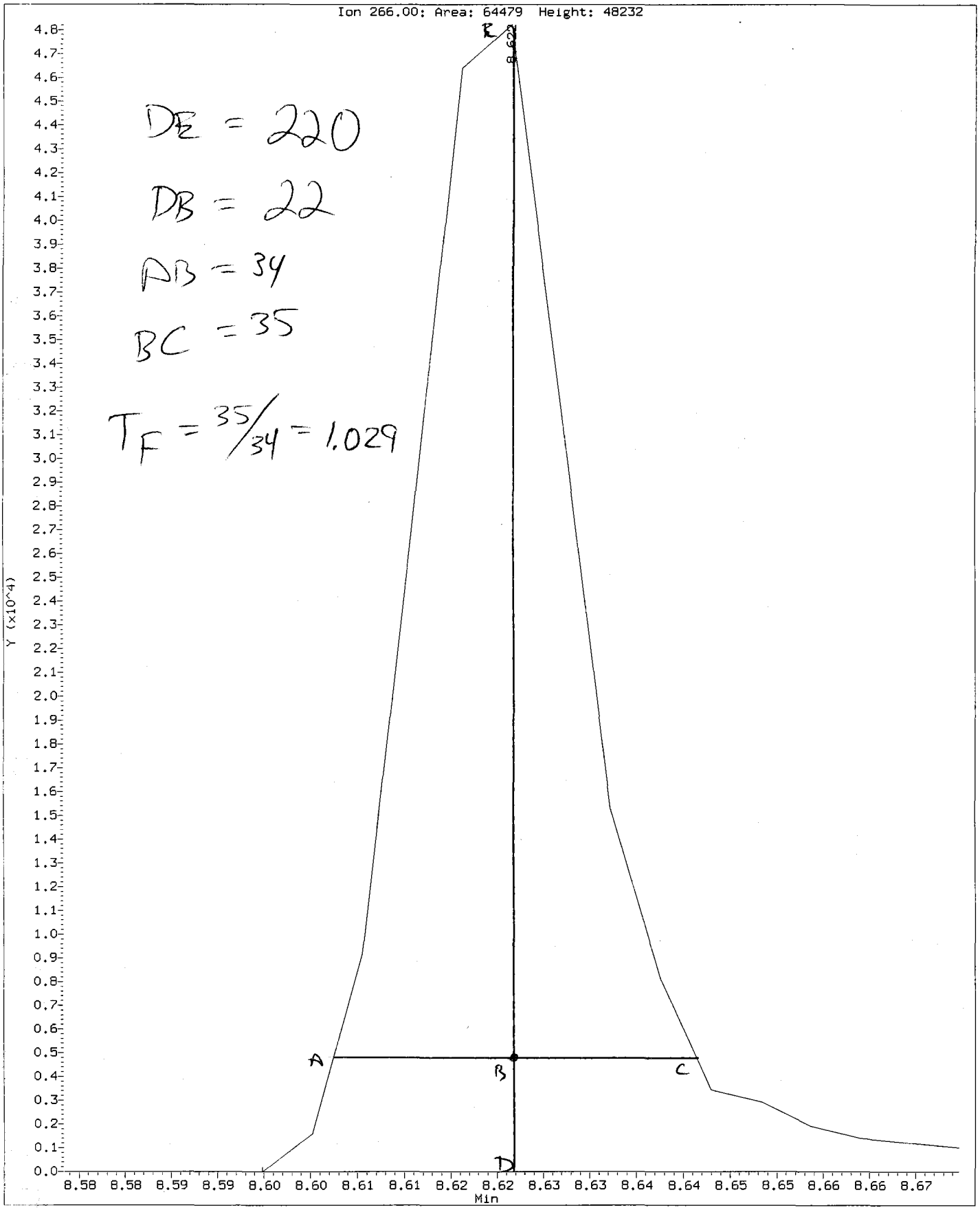
Column diameter: 0.32

Data File: df1111.d
Spectrum: Avg. Scans 1159-1161 (9.28), Background Scan 1152
Location of Maximum: 198.00
Number of points: 236

m/z	Y	m/z	Y	m/z	Y	m/z	Y
93.00	5127	166.00	556	234.00	376	355.00	107
94.00	429	167.00	3704	235.00	341	365.00	2270
96.00	202	168.00	1644	236.00	266	366.00	392
98.00	3886	169.00	207	237.00	340	371.00	168
99.00	2745	170.00	52	239.00	156	372.00	805
100.00	292	171.00	110	241.00	340	373.00	119
101.00	1542	172.00	396	242.00	551	383.00	141
102.00	136	173.00	417	243.00	490	384.00	50
103.00	497	174.00	730	244.00	6452	402.00	281
104.00	1152	175.00	1419	245.00	927	403.00	391
105.00	1056	176.00	466	246.00	1958	404.00	224
106.00	404	177.00	691	247.00	450	421.00	274
107.00	12238	178.00	247	248.00	74	422.00	267
108.00	1923	179.00	2847	249.00	340	423.00	1887
109.00	459	180.00	1936	252.00	54	424.00	467
110.00	18128	181.00	748	253.00	318	437.00	62
111.00	3255	182.00	70	254.00	77	438.00	56
112.00	337	184.00	287	255.00	39160	441.00	5332
113.00	64	185.00	1259	256.00	5947	442.00	32144
116.00	682	186.00	10203	257.00	386	443.00	6335
117.00	11347	187.00	2744	258.00	2819	444.00	670
118.00	766	188.00	281	259.00	473		
119.00	50	189.00	723	265.00	1101		
122.00	708	190.00	50	266.00	147		
123.00	1213	191.00	312	272.00	159		

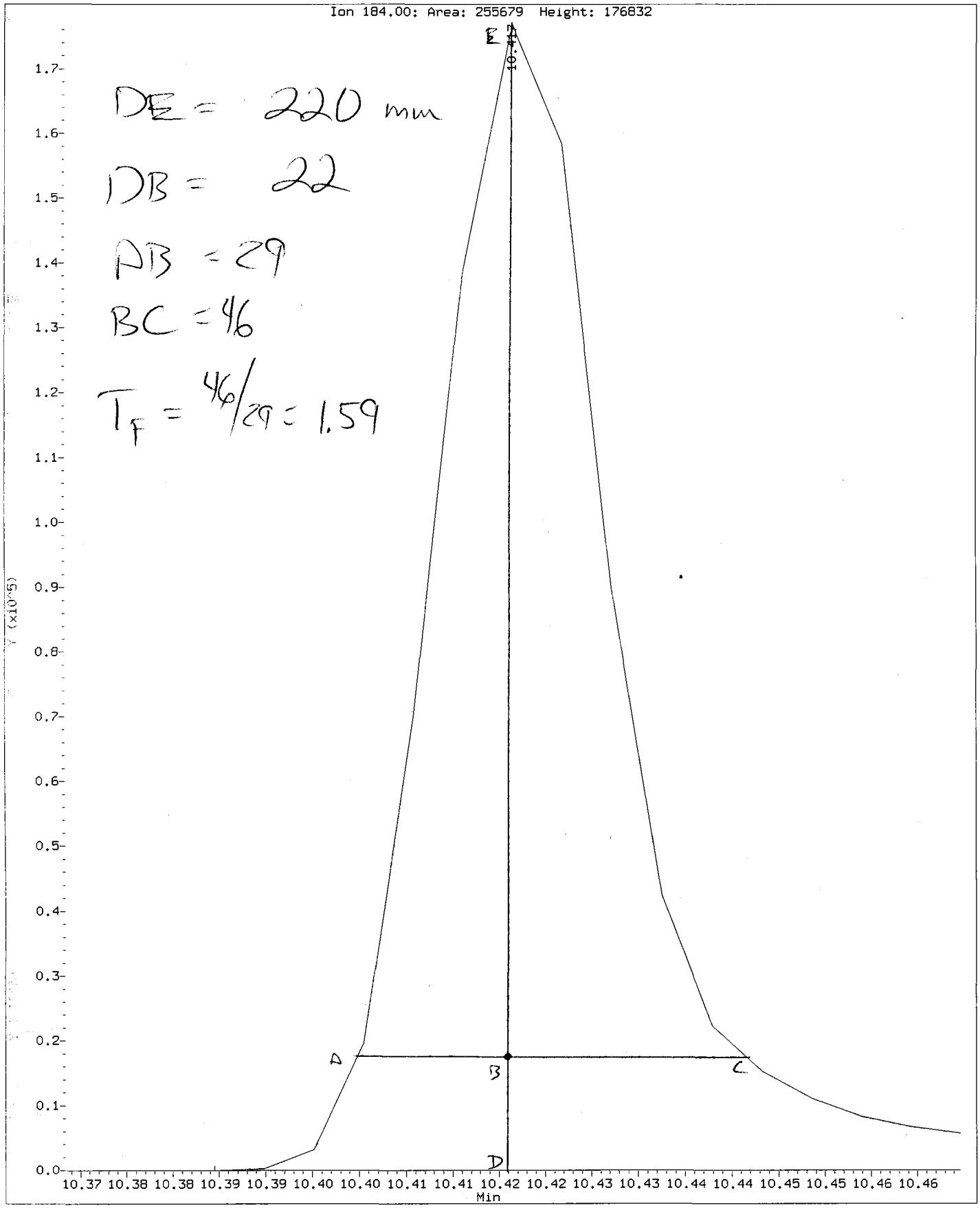
Data File: /chem1/nt12.i/20101111.b/ddt.b/df1111.d
Injection Date: 11-NOV-2010 11:57
Instrument: nt12.i
Client Sample ID:

Compound: Pentachlorophenol
CAS Number: 87-86-5



Data File: /chem1/nt12.i/20101111.b/ddt.b/df1111.d
Injection Date: 11-NOV-2010 11:57
Instrument: nt12.i
Client Sample ID:

Compound: Benzidine
CAS Number:



Analytical Resources Inc.
ABN by sw846 8270C
DDT Breakdown Report

Data file: /chem1/nt12.i/20101111.b/ddt.b/df1111.d
Method: /chem1/nt12.i/20101111.b/ddt.b/sw846ddt.m
Analysis Date: 11-NOV-2010 11:57

ARI ID: df1111
Misc:
Instrument: nt12.i

COMPOUND	RT	AREA
Pentachlorophenol	8.622	64479
Benzidine	10.417	255679
4,4'-DDE	10.700	289
4,4'-DDD	11.138	2960
4,4'-DDT	11.453	188419

$$\text{DDT Percent Breakdown} = \frac{(\text{DDE Area} + \text{DDD Area}) * 100}{(\text{DDE Area} + \text{DDD Area} + \text{DDT Area})}$$

$$\text{DDT Percent Breakdown} = \frac{(289 + 2960) * 100}{(289 + 2960 + 188419)}$$

DDT Percent Breakdown = 1.7 %

Analytical Resources, Inc.

Semivolatile Report SW846 Method 8270D

Data file : /chem1/nt12.i/20101111.b/cc1111.d
Lab Smp Id: CC1111
Inj Date : 11-NOV-2010 12:20
Operator : vts Inst ID: nt12.i
Smp Info : CC1111
Misc Info : 10-
Comment : 1ul Injection
Method : /chem1/nt12.i/20101111.b/PNADMD.m
Meth Date : 11-Nov-2010 14:36 van Quant Type: ISTD
Cal Date : 30-OCT-2010 13:19 Cal File: ic1030f.d
Als bottle: 2 Continuing Calibration Sample
Dil Factor: 1.00000
Integrator: HP RTE Compound Sublist: pnas.sub
Target Version: 3.50
Processing Host: cserv3

Compounds	QUANT SIG MASS	RT	EXP RT	REL RT	RESPONSE	AMOUNTS CAL-AMT (ug/mL)	AMOUNTS ON-COL (ug/mL)
* 27 Naphthalene-d8	136	4.871	4.871	(1.000)	239106	20.0000	
28 Naphthalene	128	4.893	4.893	(1.004)	355145	25.0000	26.10
32 2-Methylnaphthalene	141	5.710	5.710	(1.172)	196591	25.0000	27.07
105 1-methylnaphthalene	141	5.838	5.838	(1.198)	195316	25.0000	26.08
$ 36 2-Fluorobiphenyl	172	6.186	6.186	(0.887)	298467	25.0000	25.71
40 Acenaphthylene	152	6.789	6.789	(0.973)	384638	25.0000	25.45
* 42 Acenaphthene-d10	164	6.976	6.976	(1.000)	150916	20.0000	
44 Acenaphthene	153	7.014	7.014	(1.005)	232717	25.0000	25.07
46 Dibenzofuran	168	7.211	7.211	(1.034)	371707	25.0000	26.12
49 Fluorene	166	7.623	7.623	(1.093)	282973	25.0000	26.63
* 59 Phenanthrene-d10	188	8.745	8.745	(1.000)	283286	20.0000	
60 Phenanthrene	178	8.777	8.777	(1.004)	387291	25.0000	25.77
61 Anthracene	178	8.830	8.830	(1.010)	389327	25.0000	25.07
62 Carbazole	167	9.049	9.049	(1.035)	337166	25.0000	26.91
64 Fluoranthene	202	10.224	10.224	(0.854)	489972	25.0000	23.75
65 Pyrene	202	10.486	10.486	(0.876)	479993	25.0000	23.45
$ 66 Terphenyl-d14	244	10.721	10.721	(0.895)	306277	25.0000	23.46
68 Benzo(a)anthracene	228	11.955	11.955	(0.998)	429750	25.0000	25.91
* 69 Chrysene-d12	240	11.977	11.977	(1.000)	295366	20.0000	
71 Chrysene	228	12.003	12.003	(1.002)	379170	25.0000	24.45
187 Total Benzofluoranthenes	252	13.221	13.221	(0.972)	719025	50.0000	57.62
76 Benzo(a)pyrene	252	13.537	13.537	(0.996)	298363	25.0000	26.03
* 77 Perylene-d12	264	13.595	13.595	(1.000)	209515	20.0000	
99 Perylene	252	13.622	13.622	(1.002)	300768	25.0000	24.67
78 Indeno(1,2,3-cd)pyrene	276	14.691	14.691	(1.081)	324869	25.0000	19.09
79 Dibenzo(a,h)anthracene	278	14.696	14.696	(1.081)	266119	25.0000	18.99

Compounds	QUANT SIG MASS	RT	EXP RT	REL RT	RESPONSE	AMOUNTS CAL-AMT (ug/mL)	AMOUNTS ON-COL (ug/mL)
80 Benzo(g,h,i)perylene	276	14.979	14.979	(1.102)	251318	25.0000	17.97

VJB
11-11-10

Analytical Resources, Inc.

INTERNAL STANDARD COMPOUNDS
AREA AND RT SUMMARY

Instrument ID: nt12.i
Lab File ID: cc1111.d
Lab Smp Id: CC1111
Analysis Type: SV
Quant Type: ISTD
Operator: vts
Method File: /chem1/nt12.i/20101111.b/PNADMD.m
Misc Info: 10-

Calibration Date: 11-NOV-2010
Calibration Time: 12:20

Level:
Sample Type:

Test Mode:
Use Initial Calibration Level 4.

COMPOUND	STANDARD	AREA LIMIT LOWER	AREA LIMIT UPPER	SAMPLE	%DIFF
27 Naphthalene-d8	237664	118832	475328	239106	0.61
42 Acenaphthene-d10	143363	71682	286726	150916	5.27
59 Phenanthrene-d10	245437	122718	490874	283286	15.42
69 Chrysene-d12	199260	99630	398520	295366	48.23
77 Perylene-d12	197636	98818	395272	209515	6.01

COMPOUND	STANDARD	RT LIMIT LOWER	RT LIMIT UPPER	SAMPLE	%DIFF
27 Naphthalene-d8	4.87	4.37	5.37	4.87	0.00
42 Acenaphthene-d10	6.98	6.48	7.48	6.98	0.00
59 Phenanthrene-d10	8.74	8.24	9.24	8.74	0.00
69 Chrysene-d12	11.98	11.48	12.48	11.98	0.00
77 Perylene-d12	13.60	13.10	14.10	13.60	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.

Analytical Resources, Inc.

CONTINUING CALIBRATION COMPOUNDS

Instrument ID: nt12.i
Lab File ID: cc1111.d
Analysis Type:
Lab Sample ID: CC1111
Method: /chem1/nt12.i/20101111.b/PNADMD.m

Injection Date: 11-NOV-2010 12:20
Init. Cal. Date(s): 30-OCT-2010 30-OCT-2010
Init. Cal. Times: 11:27 13:19
Quant Type: ISTD

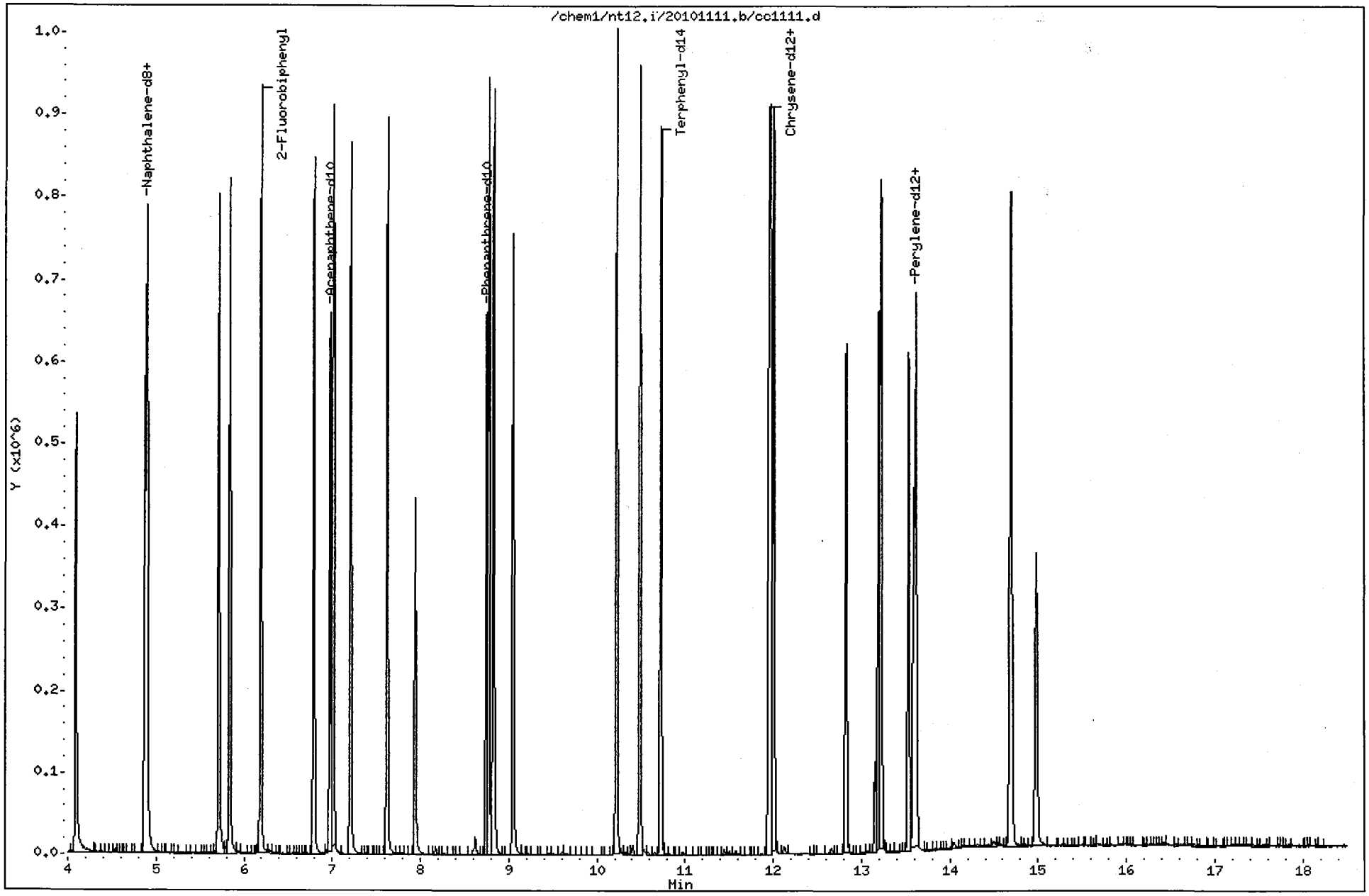
COMPOUND	RRF / AMOUNT	RF25	MIN RRF	%D / %DRIFT	MAX %D / %DRIFT	CURVE TYPE	
28 Naphthalene	1.13829	1.18824	0.010	4.38817	20.00000	Averaged	
32 2-Methylnaphthalene	0.60757	0.65775	0.010	8.25995	20.00000	Averaged	
105 1-methylnaphthalene	0.62646	0.65349	0.010	4.31444	20.00000	Averaged	
$ 36 2-Fluorobiphenyl	1.53867	1.58216	0.010	2.82650	20.00000	Averaged	
40 Acenaphthylene	2.00273	2.03894	0.010	1.80798	20.00000	Averaged	
44 Acenaphthene	1.23000	1.23362	0.010	0.29468	20.00000	Averaged	
46 Dibenzofuran	1.88613	1.97040	0.010	4.46773	20.00000	Averaged	
49 Fluorene	1.40830	1.50002	0.010	6.51349	20.00000	Averaged	
60 Phenanthrene	1.06102	1.09371	0.010	3.08163	20.00000	Averaged	
61 Anthracene	1.09658	1.09946	0.010	0.26219	20.00000	Averaged	
62 Carbazole	0.88463	0.95216	0.010	7.63396	20.00000	Averaged	
64 Fluoranthene	1.39703	1.32709	0.010	-5.00635	20.00000	Averaged	
65 Pyrene	1.38595	1.30006	0.010	-6.19725	20.00000	Averaged	
$ 66 Terphenyl-d14	0.88413	0.82955	0.010	-6.17322	20.00000	Averaged	
68 Benzo(a)anthracene	1.12317	1.16398	0.010	3.63369	20.00000	Averaged	
71 Chrysene	1.05006	1.02698	0.010	-2.19805	20.00000	Averaged	
187 Total Benzofluoranthenes	1.19124	1.37274	0.010	15.23592	20.00000	Averaged	
76 Benzo(a)pyrene	1.09431	1.13925	0.010	4.10662	20.00000	Averaged	
99 Perylene	1.16368	1.14843	0.010	-1.31059	20.00000	Averaged	
78 Indeno(1,2,3-cd)pyrene	1.62468	1.24046	0.010	-23.64897	20.00000	Averaged	<-
79 Dibenzo(a,h)anthracene	1.33758	1.01613	0.010	-24.03211	20.00000	Averaged	<-
80 Benzo(g,h,i)perylene	1.33470	0.95961	0.010	-28.10250	20.00000	Averaged	<-

Data File: /chem1/nt12.i/20101111.b/cc1111.d
Date : 11-NOV-2010 12:20
Client ID:
Sample Info: CC1111

Column phase: ZB-5msi

Instrument: nt12.i

Operator: vts
Column diameter: 0.32



RS97.09725

Analytical Resources, Inc.

Semivolatile Report SW846 Method 8270D

Data file : /chem1/nt12.i/20101111.b/rs97hms.d
Lab Smp Id: RS97HMS Client Smp ID: DGS-07-011.3-10 MS
Inj Date : 11-NOV-2010 16:33
Operator : VTS Inst ID: nt12.i
Smp Info : RS97HMS
Misc Info : 10-27424
Comment : 1ul Injection
Method : /chem1/nt12.i/20101111.b/PNADMD.m
Meth Date : 11-Nov-2010 14:36 van Quant Type: ISTD
Cal Date : 30-OCT-2010 13:19 Cal File: ic1030f.d
Als bottle: 12 QC Sample: MS
Dil Factor: 1.00000
Integrator: HP RTE Compound Sublist: pnas.sub
Target Version: 3.50
Processing Host: cserv3

Concentration Formula: Amt * DF * Vt/(Ws * (100 - M)/100) * CpndVariable

Name	Value	Description
DF	1.00000	Dilution Factor
Vt	2000.00000	Volume of final extract (uL)
Ws	5.06000	Weight of sample extracted (g)
M	49.90000	% Moisture

Cpnd Variable Local Compound Variable

Compounds	QUANT SIG MASS	RT	EXP RT	REL RT	RESPONSE	CONCENTRATIONS ON-COLUMN (ug/mL)	FINAL (ug/kg)
* 27 Naphthalene-d8	136	4.871	4.871	(1.000)	229854	20.0000	
28 Naphthalene	128	4.893	4.893	(1.004)	133978	10.2414	8080
32 2-Methylnaphthalene	141	5.710	5.710	(1.172)	69923	10.0139	7900
105 1-methylnaphthalene	141	5.838	5.838	(1.198)	81829	11.3656	8967
$ 36 2-Fluorobiphenyl	172	6.186	6.186	(0.887)	78527	7.18090	5665
40 Acenaphthylene	152	6.789	6.789	(0.973)	129555	9.10197	7181
* 42 Acenaphthene-d10	164	6.976	6.976	(1.000)	142143	20.0000	
44 Acenaphthene	153	7.014	7.014	(1.005)	88480	10.1215	7985
46 Dibenzofuran	168	7.206	7.211	(1.033)	113193	8.44408	6662
49 Fluorene	166	7.623	7.623	(1.093)	106055	10.5960	8360
* 59 Phenanthrene-d10	188	8.750	8.745	(1.000)	256533	20.0000	
60 Phenanthrene	178	8.777	8.777	(1.003)	388574	28.5521	22530(R)
61 Anthracene	178	8.830	8.830	(1.009)	192486	13.6850	10800(R)
62 Carbazole	167	9.049	9.049	(1.034)	9349	~~0.82~~393	650.0 NR

Compounds	QUANT SIG MASS	RT	EXP RT	REL RT	RESPONSE	CONCENTRATIONS ON-COLUMN (ug/mL)	FINAL (ug/kg)
64 Fluoranthene	202	10.230	10.224	(0.854)	593253	45.4755	35880(R)
65 Pyrene	202	10.497	10.486	(0.876)	761983	58.8762	46450(R)
$ 66 Terphenyl-d14	244	10.726	10.721	(0.896)	75826	9.18427	7246
68 Benzo(a)anthracene	228	11.961	11.955	(0.999)	235440	22.4481	17710(R)
* 69 Chrysene-d12	240	11.977	11.977	(1.000)	186761	20.0000	
71 Chrysene	228	12.009	12.003	(1.003)	270131	27.5488	21730(R)
187 Total Benzofluoranthenes	252	13.227	13.221	(0.972)	375842	40.7505	32150(R)
76 Benzo(a)pyrene	252	13.542	13.537	(0.996)	244185	28.8208	22740(R)
* 77 Perylene-d12	264	13.601	13.595	(1.000)	154847	20.0000	
99 Perylene	252	13.622	13.622	(1.002)	36483	~~4.04933~~	3195 NR
78 Indeno(1,2,3-cd)pyrene	276	14.701	14.691	(1.081)	229614	18.2540	14400(R)
79 Dibenzo(a,h)anthracene	278	14.706	14.696	(1.081)	122001	11.7807	9294
80 Benzo(g,h,i)perylene	276	14.995	14.979	(1.103)	240656	23.2885	18370(R)

QC Flag Legend

R - Spike/Surrogate failed recovery limits.

VJ
11-12-10

Analytical Resources, Inc.

INTERNAL STANDARD COMPOUNDS
AREA AND RT SUMMARY

Instrument ID: nt12.i
Lab File ID: rs97hms.d
Lab Smp Id: RS97HMS
Analysis Type: SV
Quant Type: ISTD
Operator: VTS
Method File: /chem1/nt12.i/20101111.b/PNADMD.m
Misc Info: 10-27424

Calibration Date: 11-NOV-2010
Calibration Time: 12:20
Client Smp ID: DGS-07-011.3-10
Level: LOW
Sample Type: Sediment

Test Mode:
Use Initial Calibration Level 4.

COMPOUND	STANDARD	AREA LIMIT LOWER	AREA LIMIT UPPER	SAMPLE	%DIFF
27 Naphthalene-d8	237664	118832	475328	229854	-3.29
42 Acenaphthene-d10	143363	71682	286726	142143	-0.85
59 Phenanthrene-d10	245437	122718	490874	256533	4.52
69 Chrysene-d12	199260	99630	398520	186761	-6.27
77 Perylene-d12	197636	98818	395272	154847	-21.65

COMPOUND	STANDARD	RT LIMIT LOWER	RT LIMIT UPPER	SAMPLE	%DIFF
27 Naphthalene-d8	4.87	4.37	5.37	4.87	0.00
42 Acenaphthene-d10	6.98	6.48	7.48	6.98	0.00
59 Phenanthrene-d10	8.74	8.24	9.24	8.75	0.06
69 Chrysene-d12	11.98	11.48	12.48	11.98	0.00
77 Perylene-d12	13.60	13.10	14.10	13.60	0.04

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.

Analytical Resources, Inc.

RECOVERY REPORT

Client Name: NW Natural
Sample Matrix: SOLID
Lab Smp Id: RS97HMS
Level: LOW
Data Type: MS DATA
SpikeList File: pnaslcss.spk
Sublist File: pnas.sub
Method File: /chem1/nt12.i/20101111.b/PNADMD.m
Misc Info: 10-27424

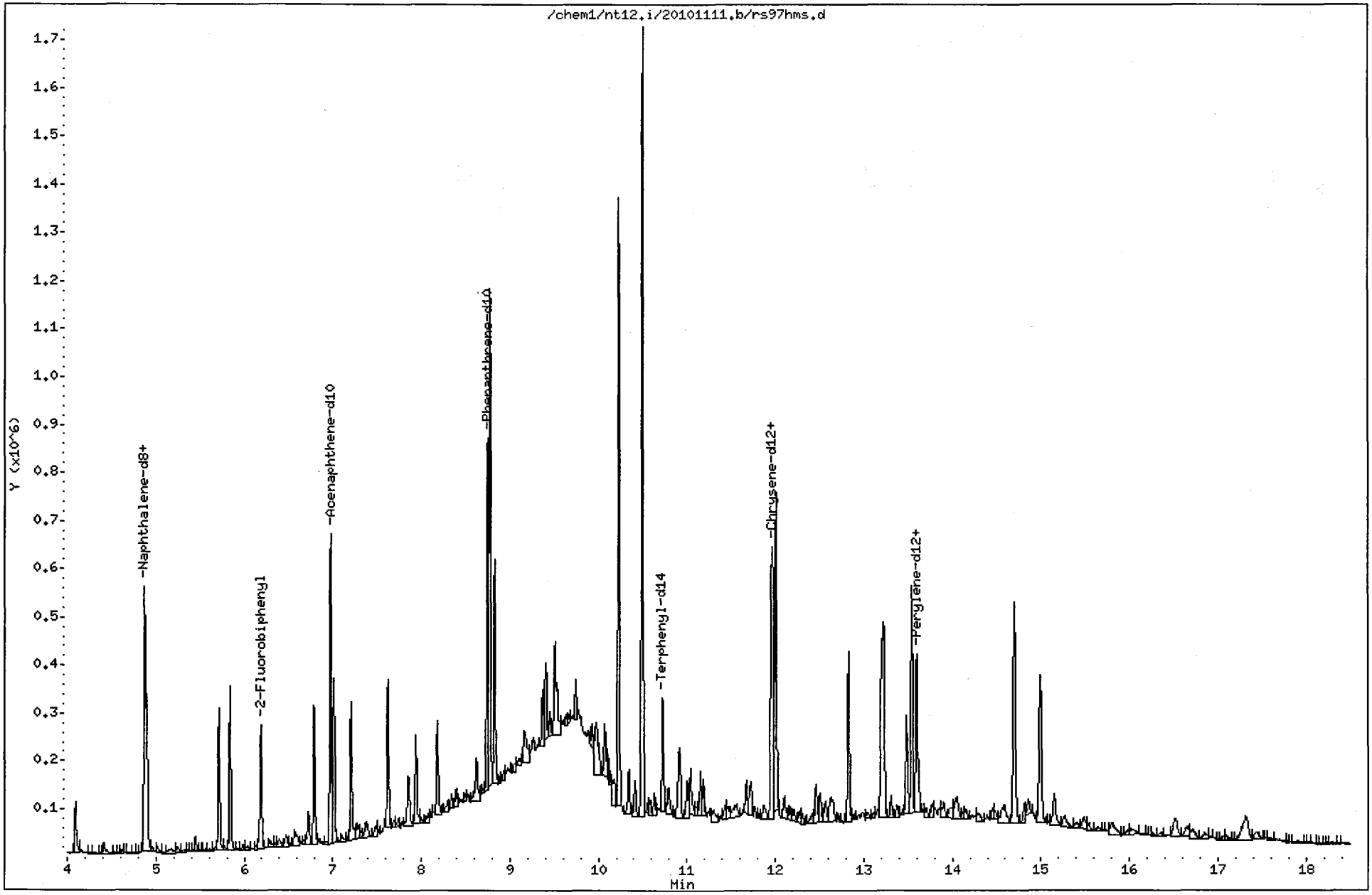
Client SDG: RS97
Fraction: SV
Client Smp ID: DGS-07-011.3-10 MS
Operator: VTS
SampleType: MS
Quant Type: ISTD

SPIKE COMPOUND	CONC ADDED ug/kg	CONC RECOVERED ug/kg	% RECOVERED	LIMITS
28 Naphthalene	9862	8080	81.93	37-100
32 2-Methylnaphthalen	9862	7900	80.11	43-101
105 1-methylnaphthalen	9862	8967	90.92	39-100
40 Acenaphthylene	9862	7181	72.82	44-100
44 Acenaphthene	9862	7985	80.97	41-100
46 Dibenzofuran	9862	6662	67.55	44-100
49 Fluorene	9862	8360	84.77	49-100
60 Phenanthrene	9862	22530	228.42*	48-100
61 Anthracene	9862	10800	109.48*	50-100
64 Fluoranthene	9862	35880	363.80*	54-100
65 Pyrene	9862	46450	471.01*	41-105
68 Benzo(a)anthracene	9862	17710	179.58*	49-100
71 Chrysene	9862	21730	220.39*	50-100
187 Total Benzofluoran	19720	32150	163.00*	30-160
76 Benzo(a)pyrene	9862	22740	230.57*	50-100
78 Indeno(1,2,3-cd)py	9862	14400	146.03*	33-101
79 Dibenzo(a,h)anthra	9862	9294	94.25	37-104
80 Benzo(g,h,i)peryle	9862	18370	186.31*	33-107

SURROGATE COMPOUND	CONC ADDED ug/kg	CONC RECOVERED ug/kg	% RECOVERED	LIMITS
$ 36 2-Fluorobiphenyl	9862	5665	57.45	34-100
$ 66 Terphenyl-d14	9862	7246	73.47	35-112

Data File: /chem1/nt12.i/20101111.b/rs97hms.d
Date : 11-NOV-2010 16:33
Client ID: DGS-07-011.3-10 MS
Sample Info: RS97HMS
Volume Injected (uL): 1.0
Column phase: ZB-5msi

Instrument: nt12.i
Operator: VTS
Column diameter: 0.32



RS97:95739

Analytical Resources, Inc.

Semivolatile Report SW846 Method 8270D

Data file : /chem1/nt12.i/20101111.b/rs97hmsd.d
Lab Smp Id: RS97HMSD
Client Smp ID: DGS-07-011.3-10 MSD
Inj Date : 11-NOV-2010 16:57
Operator : VTS
Inst ID: nt12.i
Smp Info : RS97HMSD
Misc Info : 10-27424
Comment : 1ul Injection
Method : /chem1/nt12.i/20101111.b/PNADMD.m
Meth Date : 11-Nov-2010 14:36 van
Quant Type: ISTD
Cal Date : 30-OCT-2010 13:19
Cal File: ic1030f.d
Als bottle: 13
QC Sample: MSD
Dil Factor: 1.00000
Integrator: HP RTE
Compound Sublist: pnas.sub
Target Version: 3.50
Processing Host: cserv3

Concentration Formula: Amt * DF * Vt/(Ws * (100 - M)/100) * CpndVariable

Name	Value	Description
DF	1.00000	Dilution Factor
Vt	2000.00000	Volume of final extract (uL)
Ws	5.07000	Weight of sample extracted (g)
M	49.90000	% Moisture

Cpnd Variable — Local Compound Variable

Compounds	QUANT SIG MASS	RT	EXP RT	REL RT	RESPONSE	CONCENTRATIONS ON-COLUMN (ug/mL)	FINAL (ug/kg)
* 27 Naphthalene-d8	136	4.871	4.871	(1.000)	210551	20.0000	
28 Naphthalene	128	4.893	4.893	(1.004)	124745	10.4098	8196
32 2-Methylnaphthalene	141	5.710	5.710	(1.172)	62966	9.84428	7751
105 1-methylnaphthalene	141	5.838	5.838	(1.198)	76284	11.5668	9107
$ 36 2-Fluorobiphenyl	172	6.186	6.186	(0.887)	68408	6.77501	5335
40 Acenaphthylene	152	6.789	6.789	(0.973)	122571	9.32635	7343
* 42 Acenaphthene-d10	164	6.976	6.976	(1.000)	131245	20.0000	
44 Acenaphthene	153	7.008	7.014	(1.005)	82273	10.1930	8026
46 Dibenzofuran	168	7.206	7.211	(1.033)	102946	8.31735	6549
49 Fluorene	166	7.623	7.623	(1.093)	98694	10.6793	8409
* 59 Phenanthrene-d10	188	8.750	8.745	(1.000)	243292	20.0000	
60 Phenanthrene	178	8.777	8.777	(1.003)	401747	31.1267	24510(R)
61 Anthracene	178	8.830	8.830	(1.009)	196870	14.7584	11620(R)
62 Carbazole	167	9.049	9.049	(1.034)	11291	~~1.04924~~	826.1 NR

Compounds	QUANT SIG MASS	RT	EXP RT	REL RT	RESPONSE	CONCENTRATIONS ON-COLUMN (ug/mL)	FINAL (ug/kg)
64 Fluoranthene	202	10.235	10.224	(0.855)	600501	46.6392	36720(R)
65 Pyrene	202	10.497	10.486	(0.876)	794728	62.2175	48990(R)
$ 66 Terphenyl-d14	244	10.726	10.721	(0.896)	70588	8.66277	6821
68 Benzo(a)anthracene	228	11.960	11.955	(0.999)	230308	22.2489	17520(R)
* 69 Chrysene-d12	240	11.977	11.977	(1.000)	184326	20.0000	
71 Chrysene	228	12.009	12.003	(1.003)	266755	27.5639	21700(R)
187 Total Benzofluoranthenes	252	13.211	13.221	(0.971)	374584	40.2752	31710(R)
76 Benzo(a)pyrene	252	13.542	13.537	(0.996)	240950	28.2016	22210(R)
* 77 Perylene-d12	264	13.601	13.595	(1.000)	156150	20.0000	
99 Perylene	252	13.622	13.622	(1.002)	33401	~~3.67631~~	2895 NR
78 Indeno(1,2,3-cd)pyrene	276	14.701	14.691	(1.081)	228702	18.0298	14200(R)
79 Dibenzo(a,h)anthracene	278	14.706	14.696	(1.081)	118833	11.3790	8960
80 Benzo(g,h,i)perylene	276	15.000	14.979	(1.103)	239161	22.9507	18070(R)

QC Flag Legend

R - Spike/Surrogate failed recovery limits.

VJS
11-12-10

Analytical Resources, Inc.

INTERNAL STANDARD COMPOUNDS
AREA AND RT SUMMARY

Instrument ID: nt12.i
Lab File ID: rs97hmsd.d
Lab Smp Id: RS97HMSD
Analysis Type: SV
Quant Type: ISTD
Operator: VTS
Method File: /chem1/nt12.i/20101111.b/PNADMD.m
Misc Info: 10-27424

Calibration Date: 11-NOV-2010
Calibration Time: 12:20
Client Smp ID: DGS-07-011.3-10
Level: LOW
Sample Type: Sediment

Test Mode:
Use Initial Calibration Level 4.

COMPOUND	STANDARD	AREA LIMIT LOWER	AREA LIMIT UPPER	SAMPLE	%DIFF
27 Naphthalene-d8	237664	118832	475328	210551	-11.41
42 Acenaphthene-d10	143363	71682	286726	131245	-8.45
59 Phenanthrene-d10	245437	122718	490874	243292	-0.87
69 Chrysene-d12	199260	99630	398520	184326	-7.49
77 Perylene-d12	197636	98818	395272	156150	-20.99

COMPOUND	STANDARD	RT LIMIT LOWER	RT LIMIT UPPER	SAMPLE	%DIFF
27 Naphthalene-d8	4.87	4.37	5.37	4.87	0.00
42 Acenaphthene-d10	6.98	6.48	7.48	6.98	0.00
59 Phenanthrene-d10	8.74	8.24	9.24	8.75	0.06
69 Chrysene-d12	11.98	11.48	12.48	11.98	0.00
77 Perylene-d12	13.60	13.10	14.10	13.60	0.04

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.

Analytical Resources, Inc.

RECOVERY REPORT

Client Name: NW Natural
Sample Matrix: SOLID
Lab Smp Id: RS97HMSD
Level: LOW
Data Type: MS DATA
SpikeList File: pnaslcss.spk
Sublist File: pnas.sub
Method File: /chem1/nt12.i/20101111.b/PNADMD.m
Misc Info: 10-27424

Client SDG: RS97
Fraction: SV
Client Smp ID: DGS-07-011.3-10 MSD
Operator: VTS
SampleType: MSD
Quant Type: ISTD

SPIKE COMPOUND	CONC ADDED ug/kg	CONC RECOVERED ug/kg	% RECOVERED	LIMITS
28 Naphthalene	9842	8196	83.28	37-100
32 2-Methylnaphthalen	9842	7751	78.75	43-101
105 1-methylnaphthalen	9842	9107	92.53	39-100
40 Acenaphthylene	9842	7343	74.61	44-100
44 Acenaphthene	9842	8026	81.54	41-100
46 Dibenzofuran	9842	6549	66.54	44-100
49 Fluorene	9842	8409	85.43	49-100
60 Phenanthrene	9842	24510	249.01*	48-100
61 Anthracene	9842	11620	118.07*	50-100
64 Fluoranthene	9842	36720	373.11*	54-100
65 Pyrene	9842	48990	497.74*	41-105
68 Benzo(a)anthracene	9842	17520	177.99*	49-100
71 Chrysene	9842	21700	220.51*	50-100
187 Total Benzofluoran	19680	31710	161.10*	30-160
76 Benzo(a)pyrene	9842	22210	225.61*	50-100
78 Indeno(1,2,3-cd)py	9842	14200	144.24*	33-101
79 Dibenzo(a,h)anthra	9842	8960	91.03	37-104
80 Benzo(g,h,i)peryle	9842	18070	183.61*	33-107

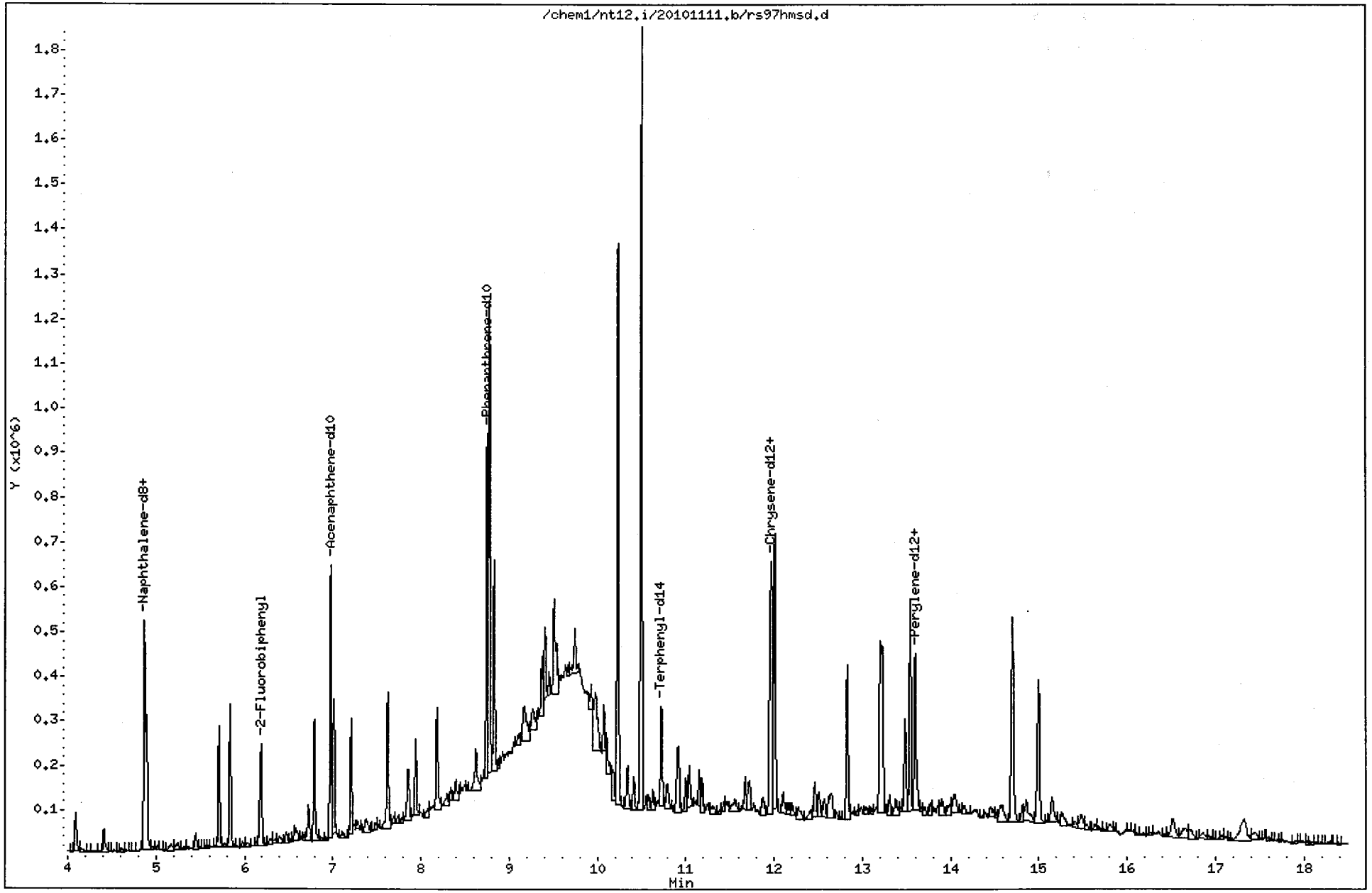
SURROGATE COMPOUND	CONC ADDED ug/kg	CONC RECOVERED ug/kg	% RECOVERED	LIMITS
$ 36 2-Fluorobiphenyl	9842	5335	54.20	34-100
$ 66 Terphenyl-d14	9842	6821	69.30	35-112

Data File: /chem1/nt12.i/20101111.b/rs97hmsd.d
Date : 11-NOV-2010 16:57
Client ID: DGS-07-011.3-10 MSD
Sample Info: RS97HMSD
Volume Injected (uL): 1.0
Column phase: ZB-5msi

Instrument: nt12.i

Operator: VTS
Column diameter: 0.32

RS97 : 00735



Analytical Resources, Inc.

Semivolatile Report SW846 Method 8270D

Data file : /chem1/nt12.i/20101111.b/rs97fdl.d
Lab Smp Id: RS97F
Client Smp ID: GST-09SO-17-18-1010
Inj Date : 11-NOV-2010 13:25
Operator : VTS
Inst ID: nt12.i
Smp Info : RS97F,100
Misc Info : 10-27422
Comment : 1ul Injection
Method : /chem1/nt12.i/20101111.b/PNADMD.m
Meth Date : 11-Nov-2010 14:36 van
Quant Type: ISTD
Cal Date : 30-OCT-2010 13:19
Cal File: ic1030f.d
Als bottle: 4
Dil Factor: 100.00000
Integrator: HP RTE
Compound Sublist: pnas.sub
Target Version: 3.50
Processing Host: cserv3

Concentration Formula: Amt * DF * Vt/(Ws * (100 - M)/100) * CpndVariable

Name	Value	Description
DF	100.00000	Dilution Factor
Vt	10000.00000	Volume of final extract (uL)
Ws	5.08000	Weight of sample extracted (g)
M	17.30000	% Moisture

Cpnd Variable Local Compound Variable

Compounds	QUANT SIG MASS	RT	EXP RT	REL RT	RESPONSE	CONCENTRATIONS ON-COLUMN (ug/mL)	FINAL (ug/kg)
* 27 Naphthalene-d8	136	4.872	4.871	(1.000)	210402	20.0000	
28 Naphthalene	128	4.898	4.893	(1.005)	512494	42.7973	10190000
32 2-Methylnaphthalene	141	5.716	5.710	(1.173)	45879	7.17793	1709000
105 1-methylnaphthalene	141	5.838	5.838	(1.198)	23709	3.59750	856300
$ 36 2-Fluorobiphenyl	172	Compound Not Detected.					
40 Acenaphthylene	152	6.789	6.789	(0.973)	32807	2.64107	628700
* 42 Acenaphthene-d10	164	6.976	6.976	(1.000)	124049	20.0000	
44 Acenaphthene	153	7.014	7.014	(1.005)	35587	4.66471	1110000
46 Dibenzofuran	168	Compound Not Detected.					
49 Fluorene	166	7.628	7.623	(1.093)	29684	3.39833	808900
* 59 Phenanthrene-d10	188	8.750	8.745	(1.000)	230998	20.0000	
60 Phenanthrene	178	8.777	8.777	(1.003)	252065	20.5690	4896000
61 Anthracene	178	8.830	8.830	(1.009)	45748	3.61203	859800
62 Carbazole	167	9.060	9.049	(1.035)	8529	~~0.8347~~6	198700 NR

Compounds	QUANT SIG MASS	RT	EXP RT	REL RT	RESPONSE	CONCENTRATIONS ON-COLUMN (ug/mL)	FINAL (ug/kg)
64 Fluoranthene	202	10.224	10.224	(0.854)	153365	9.26478	2205000
65 Pyrene	202	10.486	10.486	(0.876)	183790	11.1915	2664000
$ 66 Terphenyl-d14	244	Compound Not Detected.					
68 Benzo(a)anthracene	228	11.955	11.955	(0.999)	35748	2.68610	639400
* 69 Chrysene-d12	240	11.971	11.977	(1.000)	236982	20.0000	
71 Chrysene	228	11.998	12.003	(1.002)	42771	3.43754	818200
187 Total Benzofluoranthenes	252	13.200	13.221	(0.971)	42575	4.15481	989000
76 Benzo(a)pyrene	252	13.531	13.537	(0.996)	34284	3.64205	866900
* 77 Perylene-d12	264	13.590	13.595	(1.000)	172042	20.0000	
99 Perylene	252	13.617	13.622	(1.002)	10116	1.01058	240500 NR
78 Indeno(1,2,3-cd)pyrene	276	14.691	14.691	(1.081)	18494	1.32330	315000
79 Dibenzo(a,h)anthracene	278	Compound Not Detected.					
80 Benzo(g,h,i)perylene	276	14.974	14.979	(1.102)	22226	1.93586	460800

VB
11-11-10

Analytical Resources, Inc.

INTERNAL STANDARD COMPOUNDS
AREA AND RT SUMMARY

Instrument ID: nt12.i
Lab File ID: rs97fdl.d
Lab Smp Id: RS97F
Analysis Type: SV
Quant Type: ISTD
Operator: VTS
Method File: /chem1/nt12.i/20101111.b/PNADMD.m
Misc Info: 10-27422

Calibration Date: 11-NOV-2010
Calibration Time: 12:20
Client Smp ID: GST-09SO-17-18-1
Level: LOW
Sample Type: Soil

Test Mode:
Use Initial Calibration Level 4.

COMPOUND	STANDARD	AREA LIMIT LOWER	AREA LIMIT UPPER	SAMPLE	%DIFF
27 Naphthalene-d8	237664	118832	475328	210402	-11.47
42 Acenaphthene-d10	143363	71682	286726	124049	-13.47
59 Phenanthrene-d10	245437	122718	490874	230998	-5.88
69 Chrysene-d12	199260	99630	398520	236982	18.93
77 Perylene-d12	197636	98818	395272	172042	-12.95

COMPOUND	STANDARD	RT LIMIT LOWER	RT LIMIT UPPER	SAMPLE	%DIFF
27 Naphthalene-d8	4.87	4.37	5.37	4.87	0.00
42 Acenaphthene-d10	6.98	6.48	7.48	6.98	0.00
59 Phenanthrene-d10	8.74	8.24	9.24	8.75	0.06
69 Chrysene-d12	11.98	11.48	12.48	11.97	-0.04
77 Perylene-d12	13.60	13.10	14.10	13.59	-0.04

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.

Analytical Resources, Inc.

RECOVERY REPORT

Client Name: NW Natural
Sample Matrix: SOLID
Lab Smp Id: RS97F
Level: LOW
Data Type: MS DATA
SpikeList File: SONICLCS.spk
Sublist File: pnas.sub
Method File: /chem1/nt12.i/20101111.b/PNADMD.m
Misc Info: 10-27422

Client SDG: RS97
Fraction: SV
Client Smp ID: GST-09SO-17-18-1010
Operator: VTS
SampleType: SAMPLE
Quant Type: ISTD

SURROGATE COMPOUND	CONC ADDED ug/kg	CONC RECOVERED ug/kg	% RECOVERED	LIMITS
$ 36 2-Fluorobiphenyl	5951	0.000	*	34-100
$ 66 Terphenyl-d14	5951	0.000	*	35-112

Data File: /chem1/nt12.i/20101111.b/rs97fdl.d

Date : 11-NOV-2010 13:25

Client ID: GST-09SO-17-18-1010

Sample Info: RS97F,100

Volume Injected (uL): 1.0

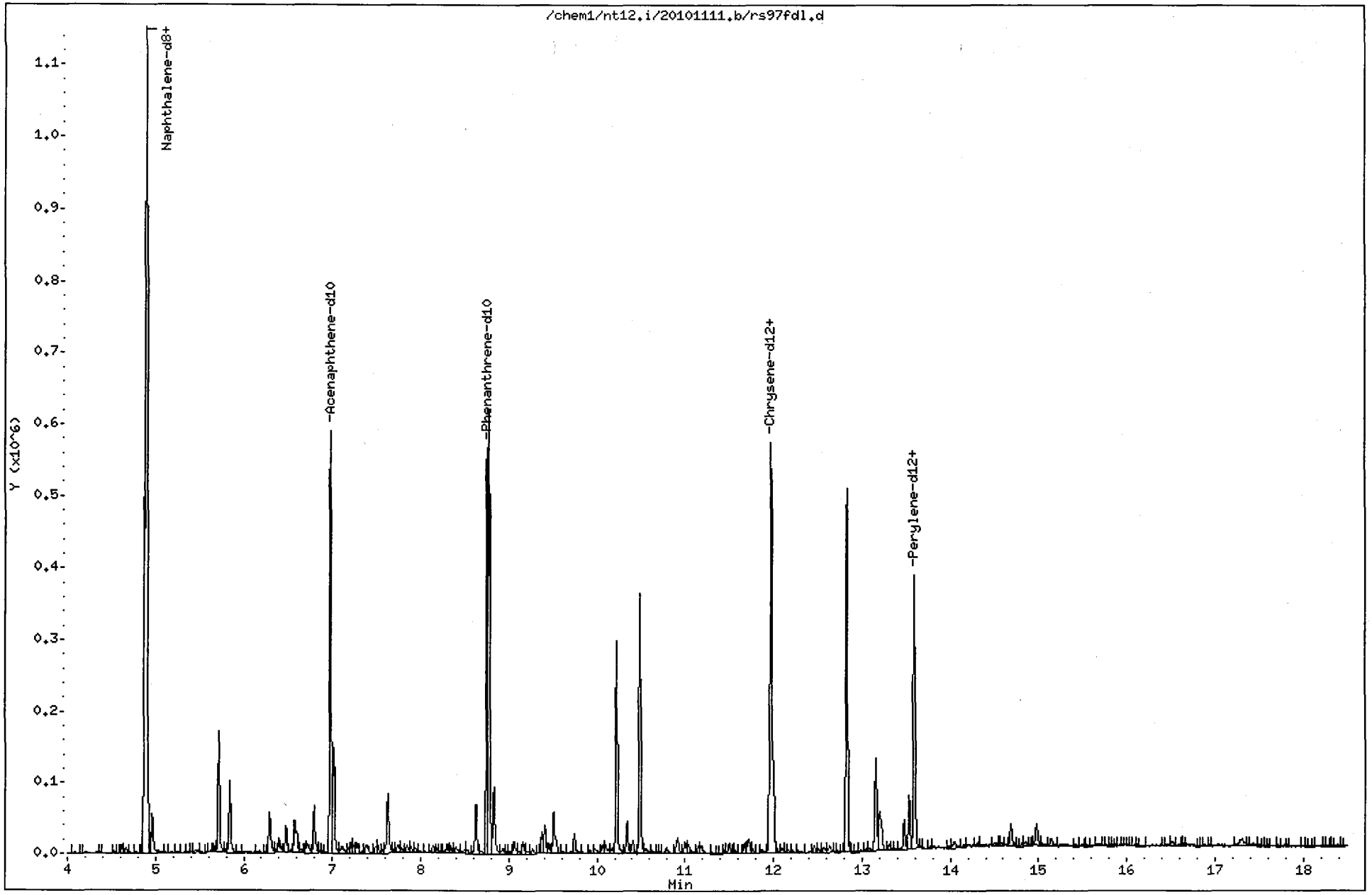
Column phase: ZB-5msi

Instrument: nt12.i

Operator: VTS

Column diameter: 0.32

RS97 : 997109



Data File: /chem1/nt12.i/20101111.b/rs97fdl.d

Date : 11-NOV-2010 13:25

Client ID: GST-09SO-17-18-1010

Instrument: nt12.i

Sample Info: RS97F,100

Volume Injected (uL): 1.0

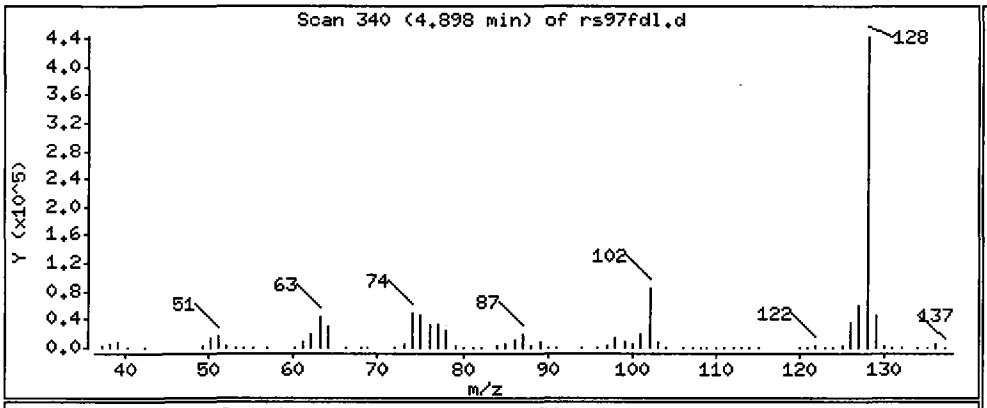
Operator: VTS

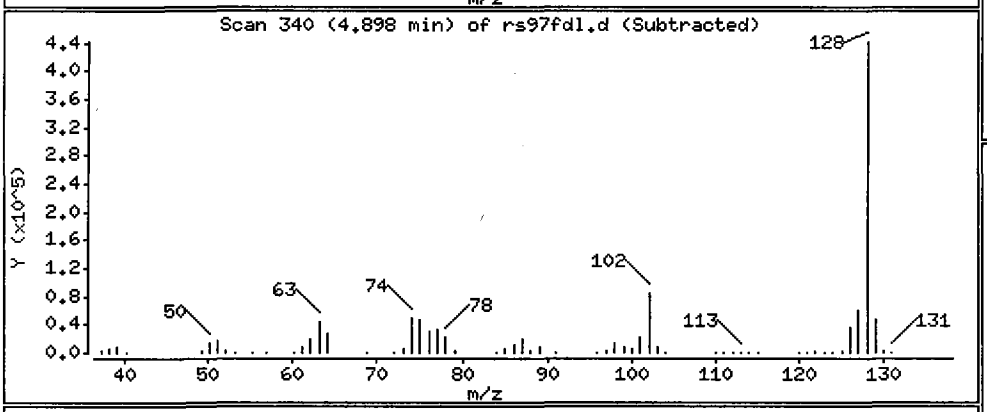
Column phase: ZB-5msi

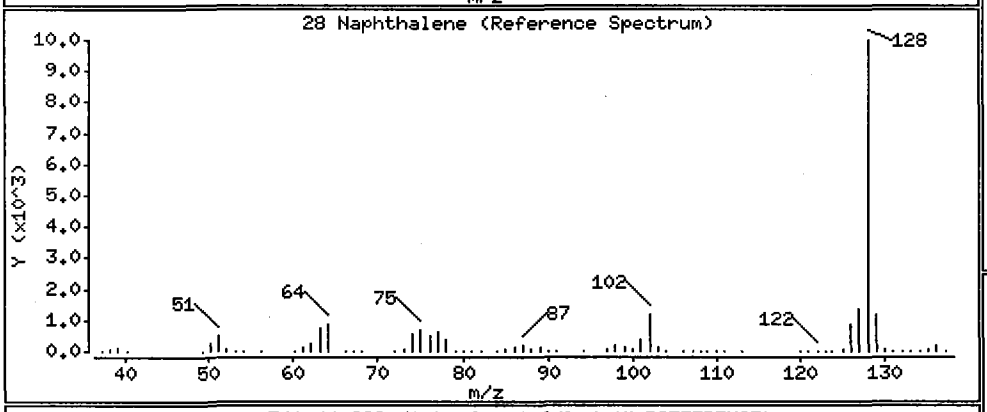
Column diameter: 0.32

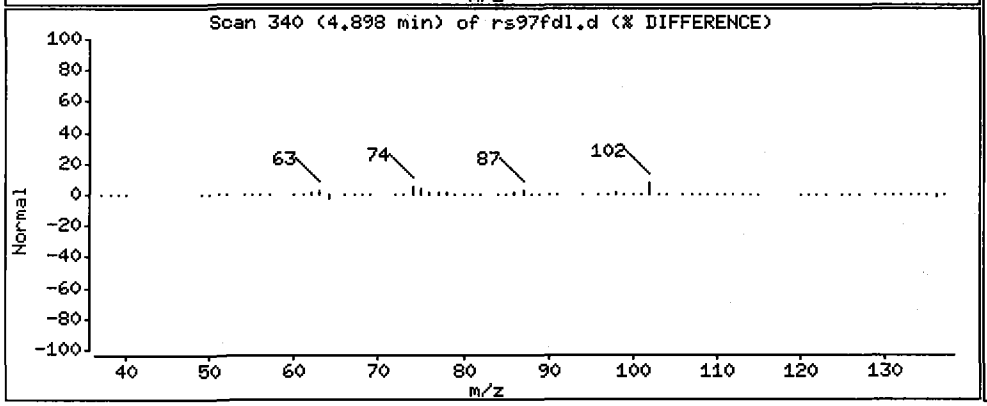
28 Naphthalene

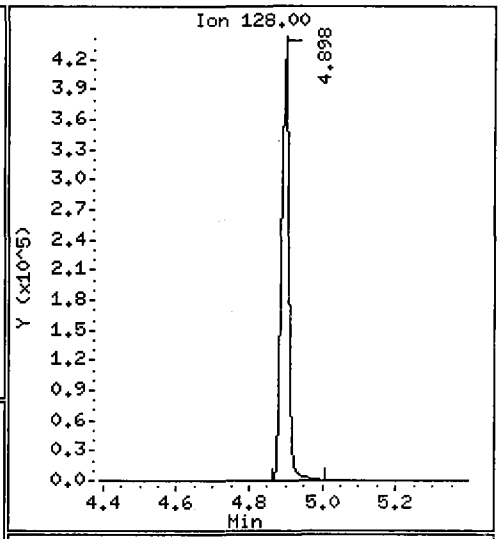
Concentration: 10190000 ug/kg

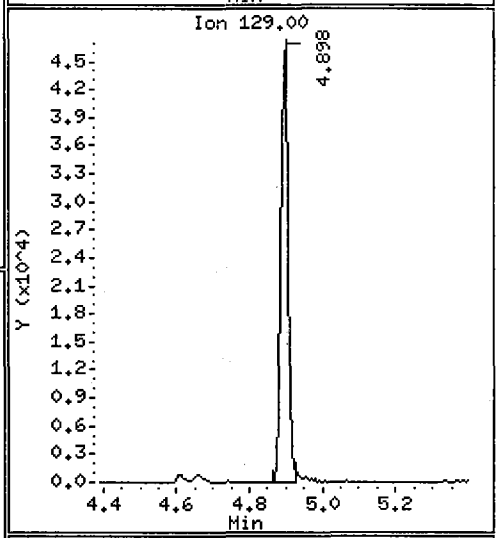


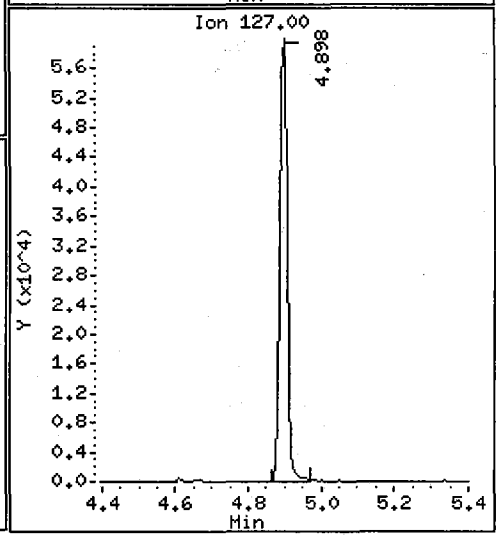












Data File: /chem1/nt12.i/20101111.b/rs97fdl.d

Date : 11-NOV-2010 13:25

Client ID: GST-09SO-17-18-1010

Instrument: nt12.i

Sample Info: RS97F,100

Volume Injected (uL): 1.0

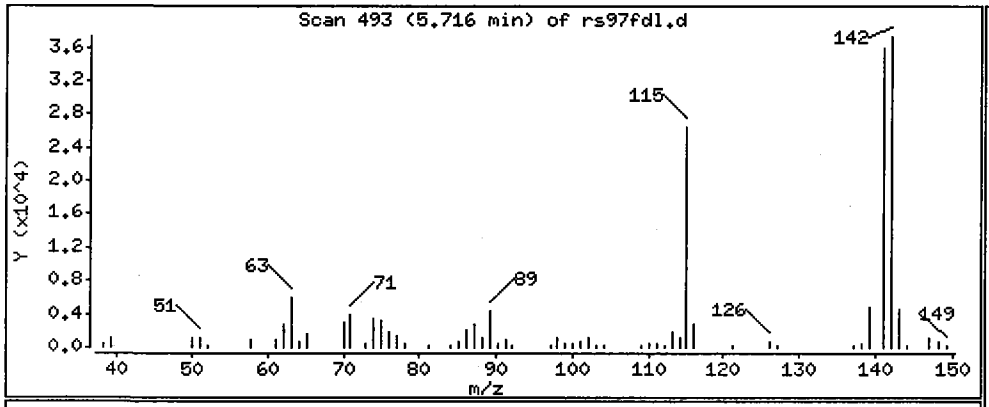
Operator: VTS

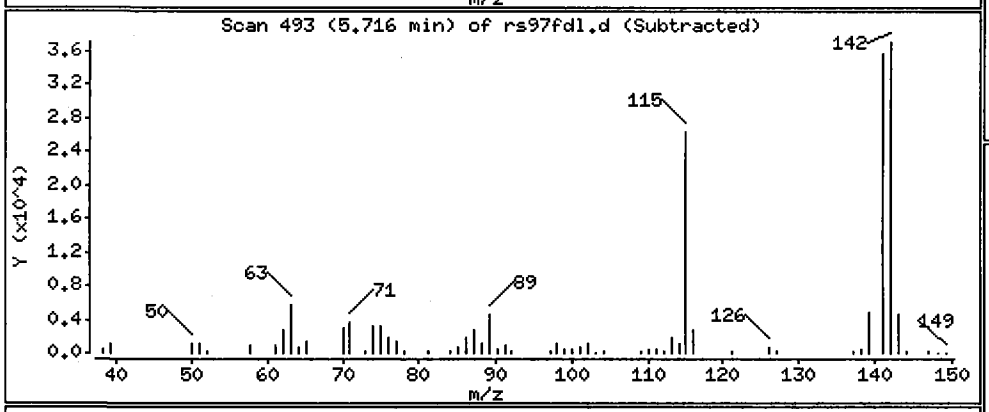
Column phase: ZB-5msi

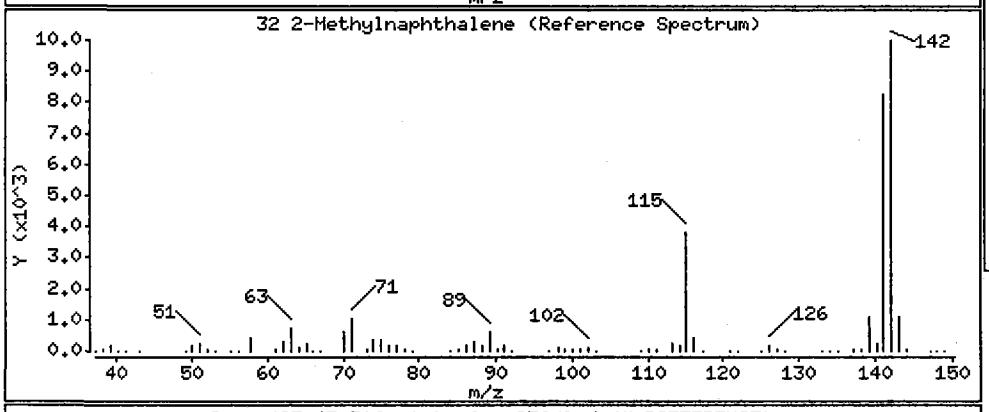
Column diameter: 0.32

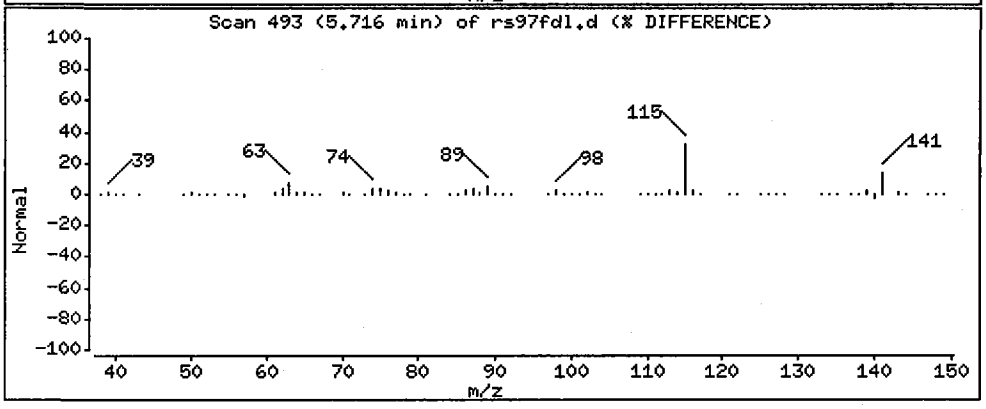
32 2-Methylnaphthalene

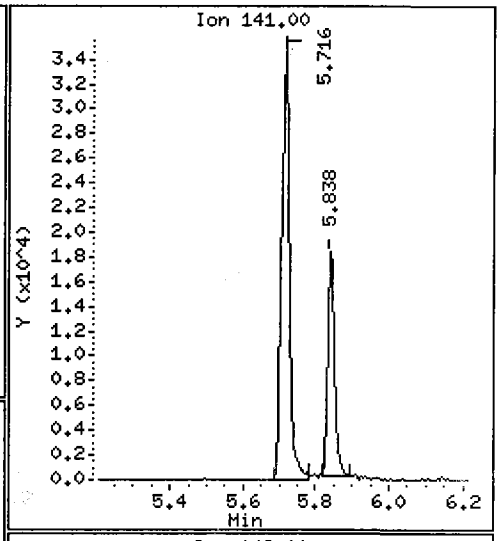
Concentration: 1709000 ug/kg

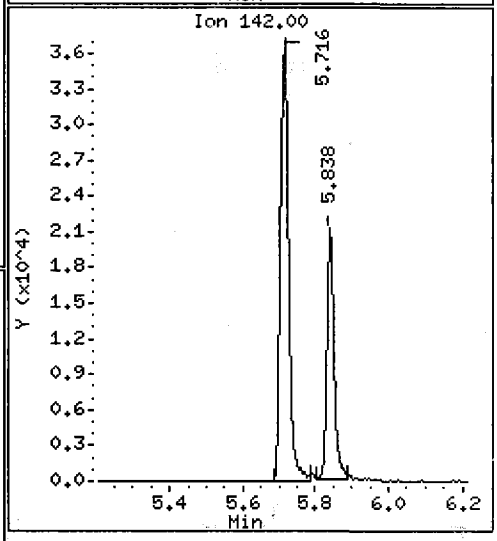












Data File: /chem1/nt12.i/20101111.b/rs97fdl.d

Date : 11-NOV-2010 13:25

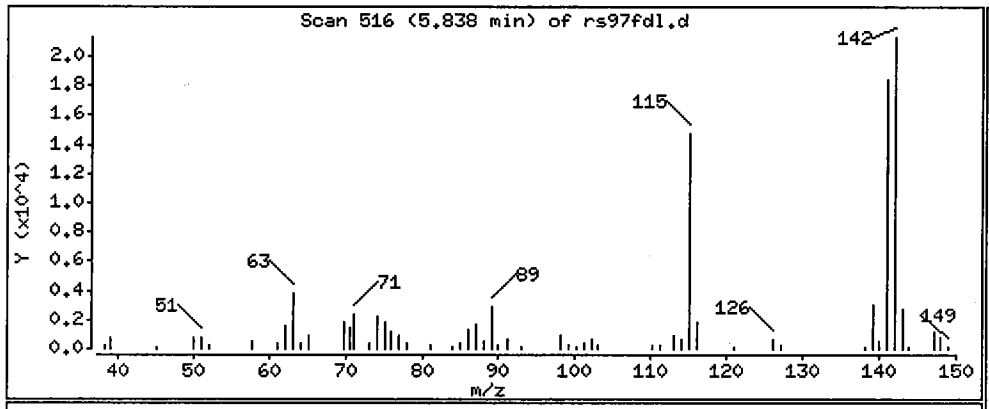
Client ID: GST-09SO-17-18-1010 Instrument: nt12.i

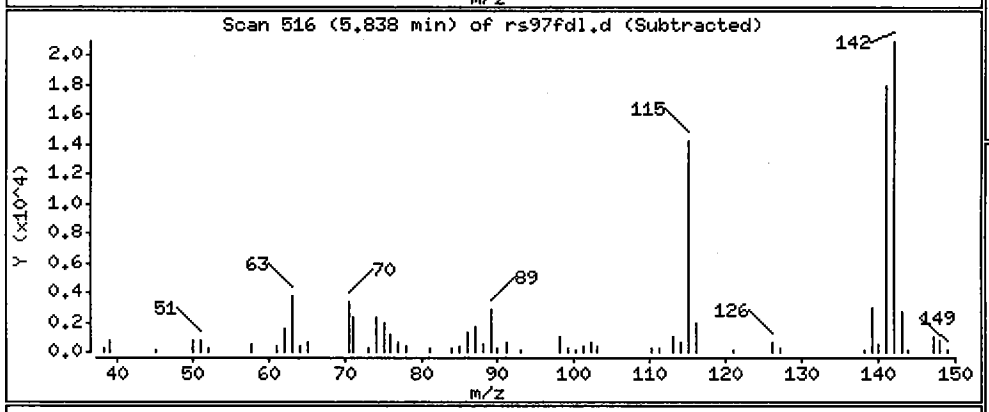
Sample Info: RS97F,100

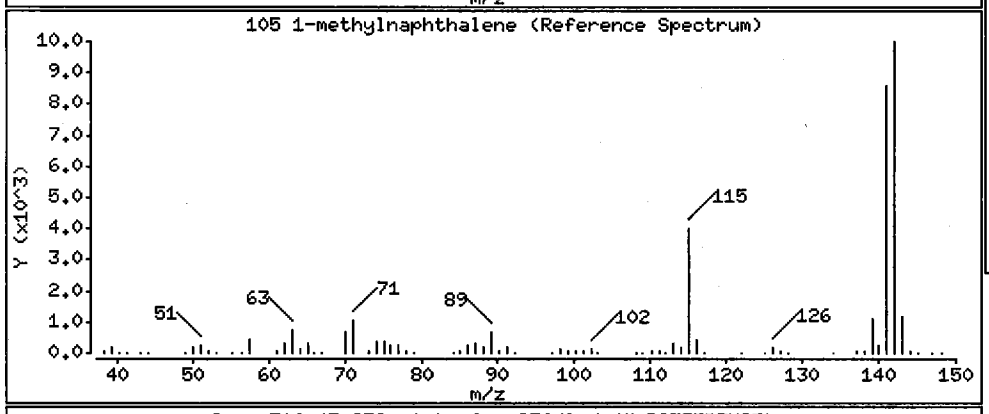
Volume Injected (uL): 1.0 Operator: VTS

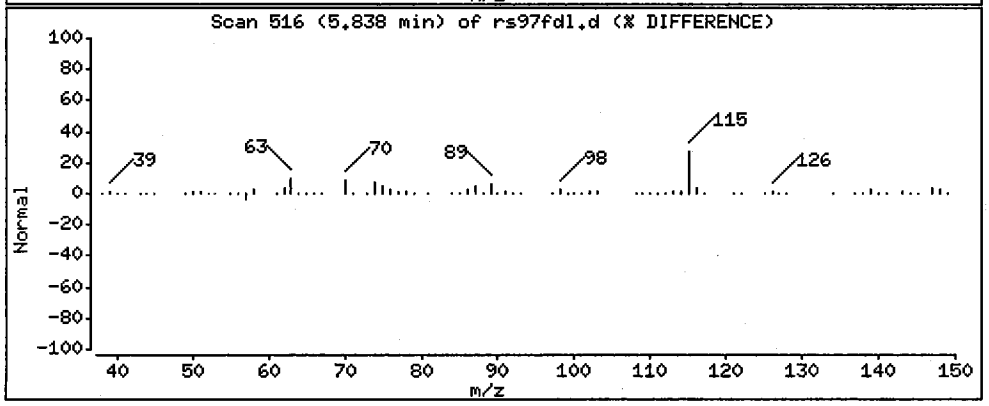
Column phase: ZB-5msi Column diameter: 0.32

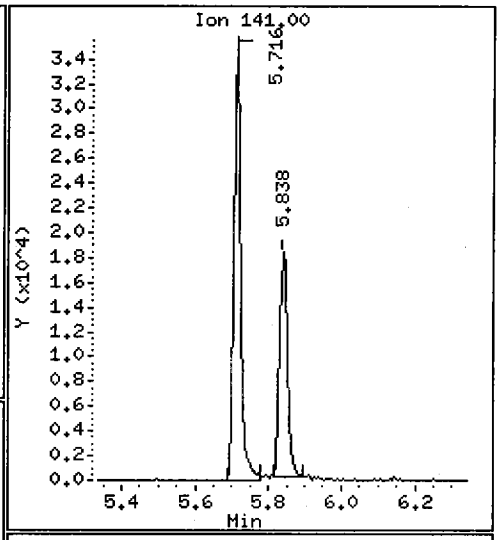
105 1-methylnaphthalene Concentration: 856300 ug/kg

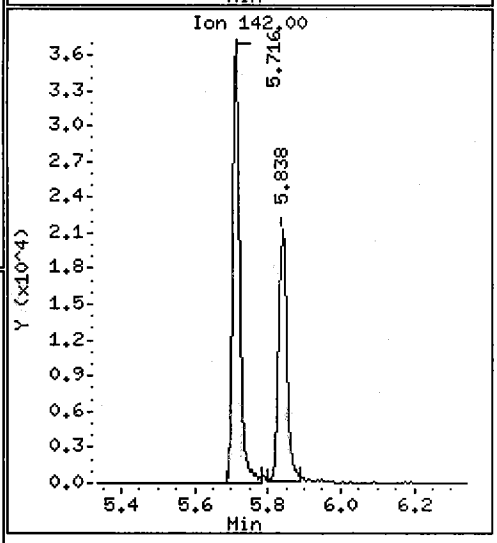












Data File: /chem1/nt12.i/20101111.b/rs97fdl.d

Date : 11-NOV-2010 13:25

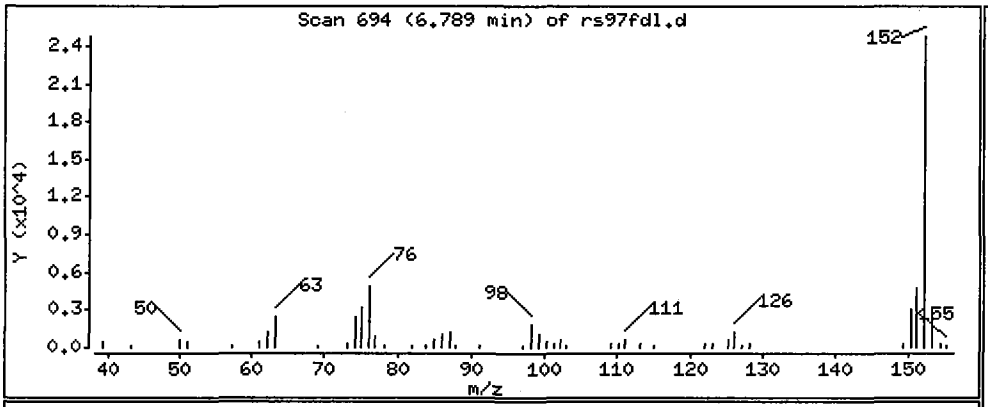
Client ID: GST-09SO-17-18-1010 Instrument: nt12.i

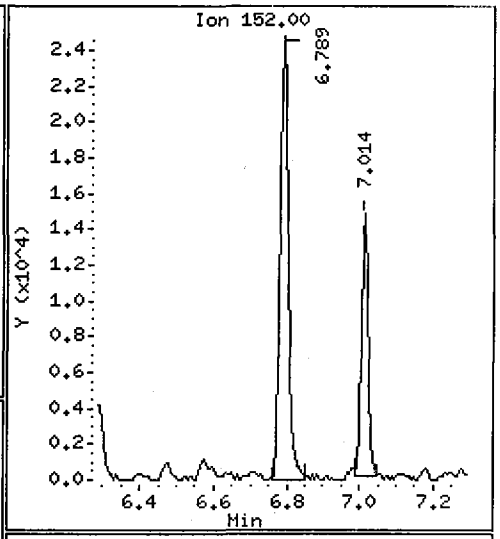
Sample Info: RS97F,100

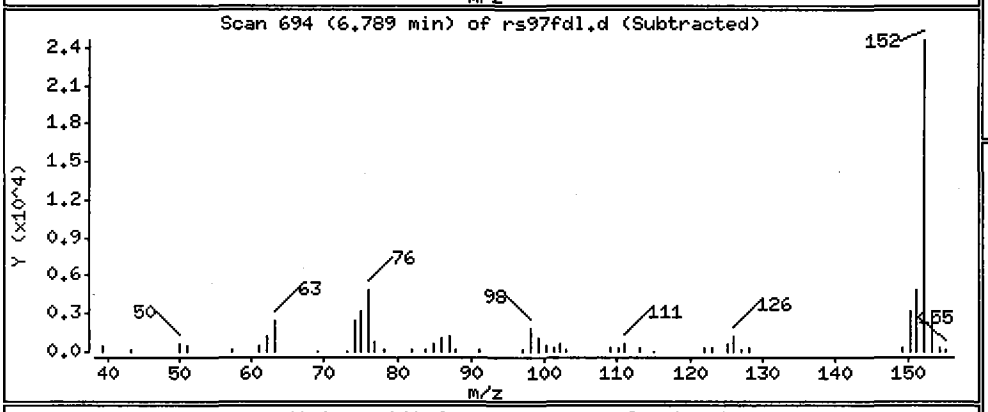
Volume Injected (uL): 1.0 Operator: VTS

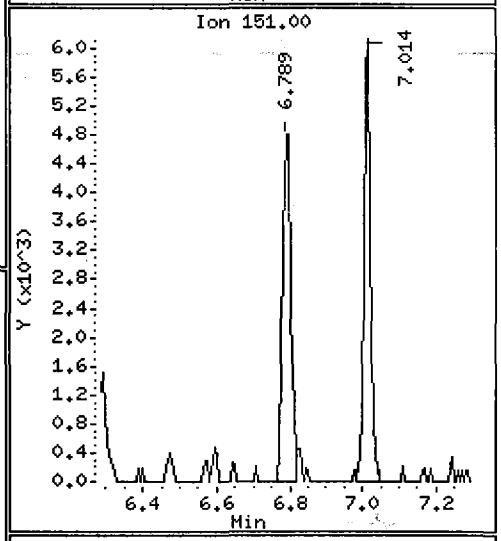
Column phase: ZB-5msi Column diameter: 0.32

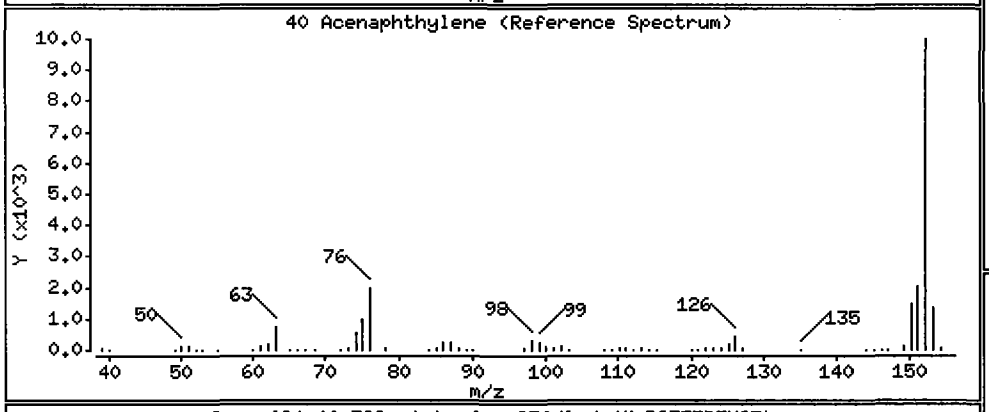
40 Acenaphthylene Concentration: 628700 ug/kg

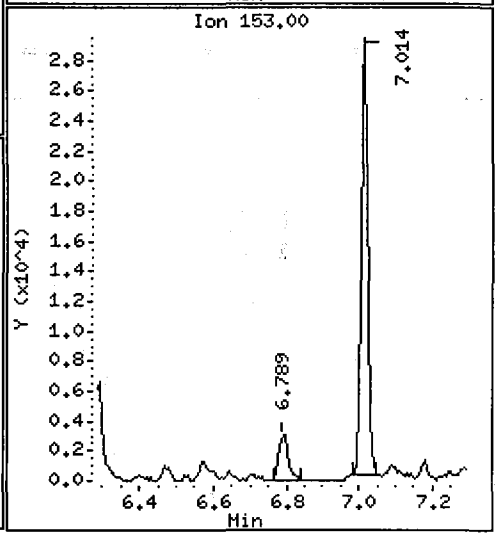


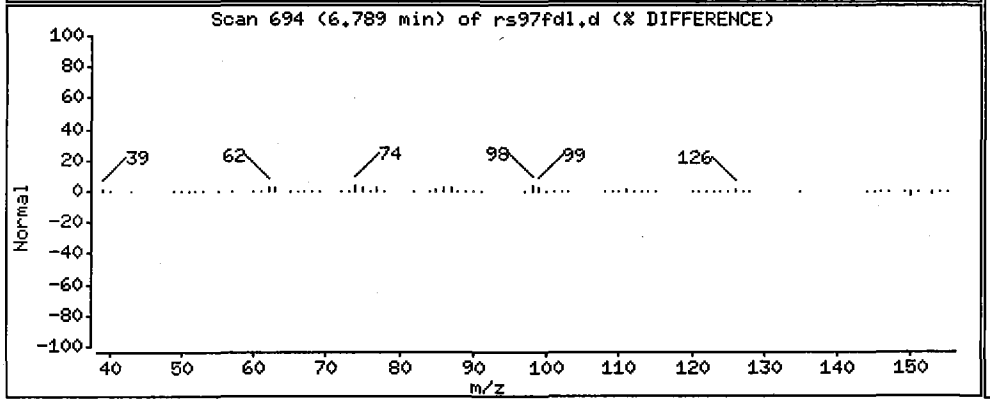












Data File: /chem1/nt12.i/20101111.b/rs97fdl.d

Date : 11-NOV-2010 13:25

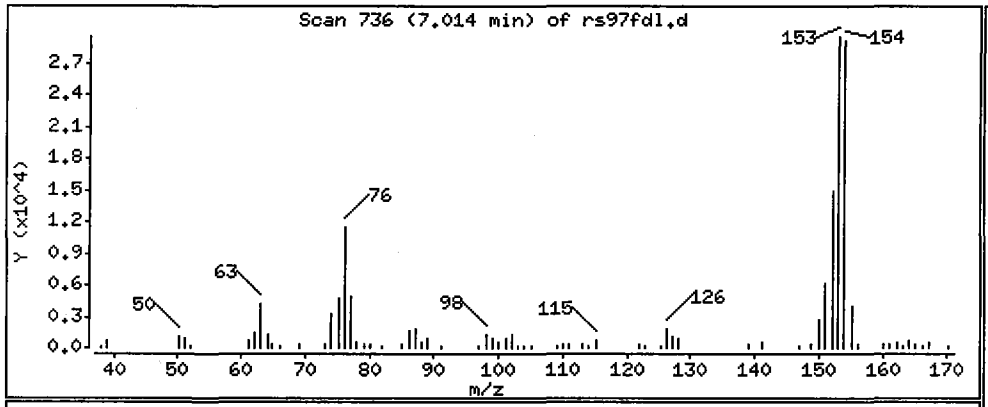
Client ID: GST-09SO-17-18-1010 Instrument: nt12.i

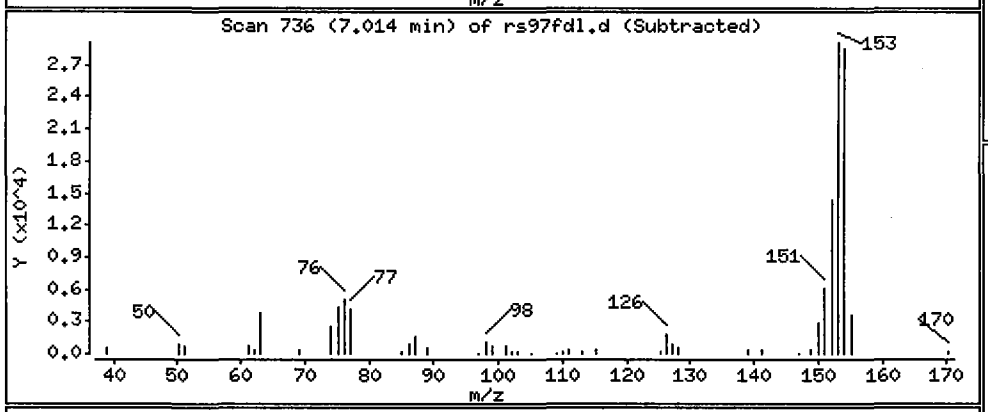
Sample Info: RS97F,100

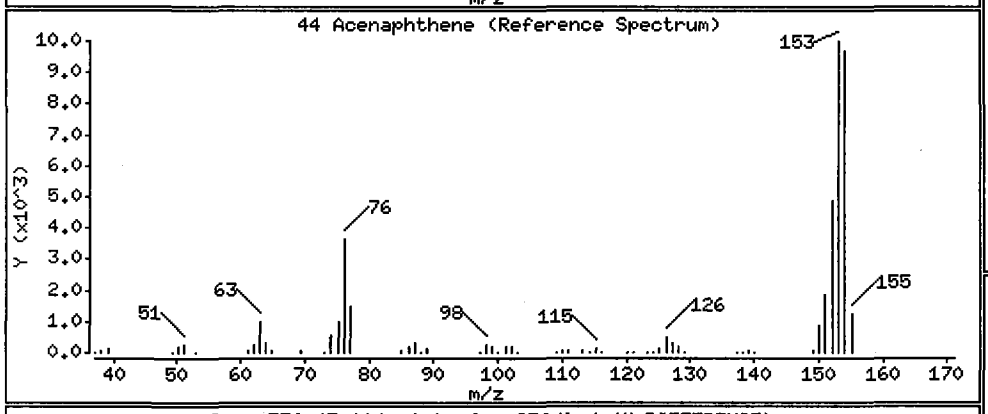
Volume Injected (uL): 1.0 Operator: VTS

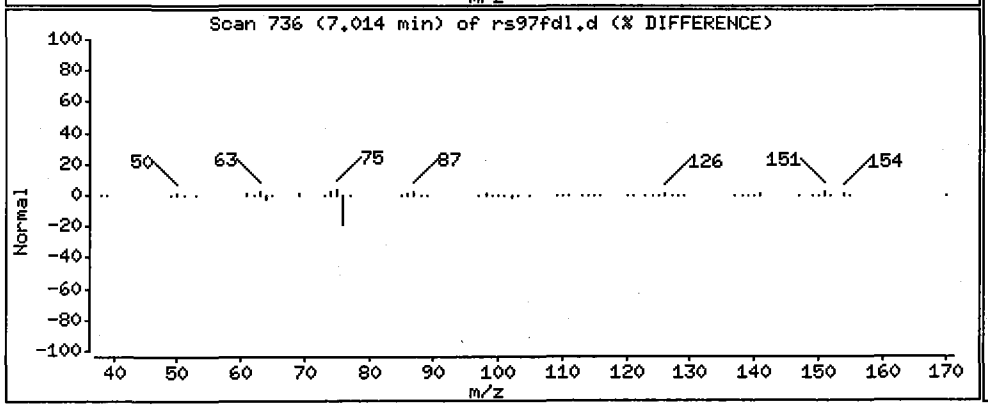
Column phase: ZB-5msi Column diameter: 0.32

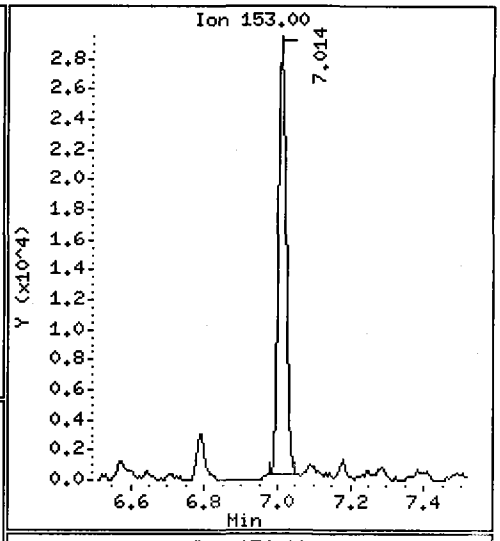
44 Acenaphthene Concentration: 1110000 ug/kg

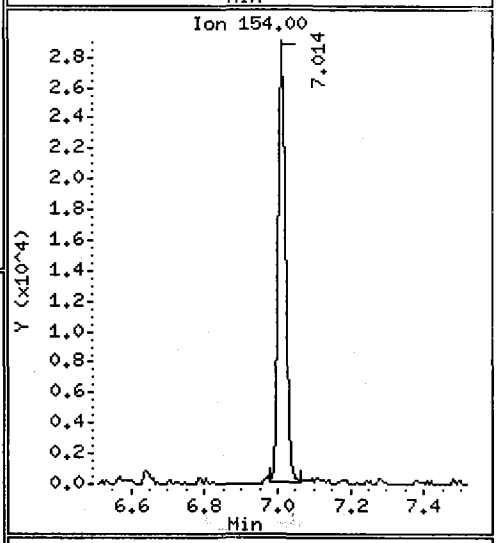


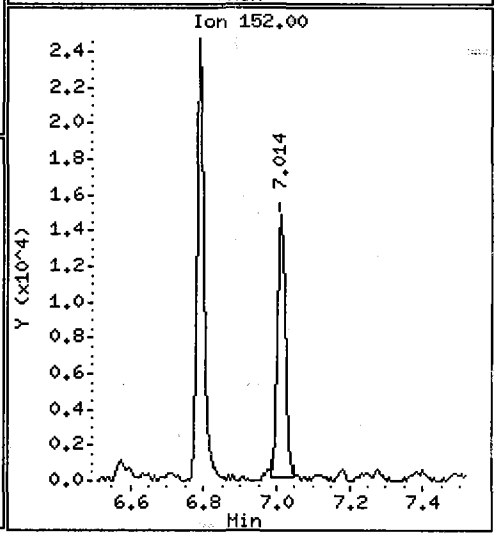












Data File: /chem1/nt12.i/20101111.b/rs97fdl.d

Date : 11-NOV-2010 13:25

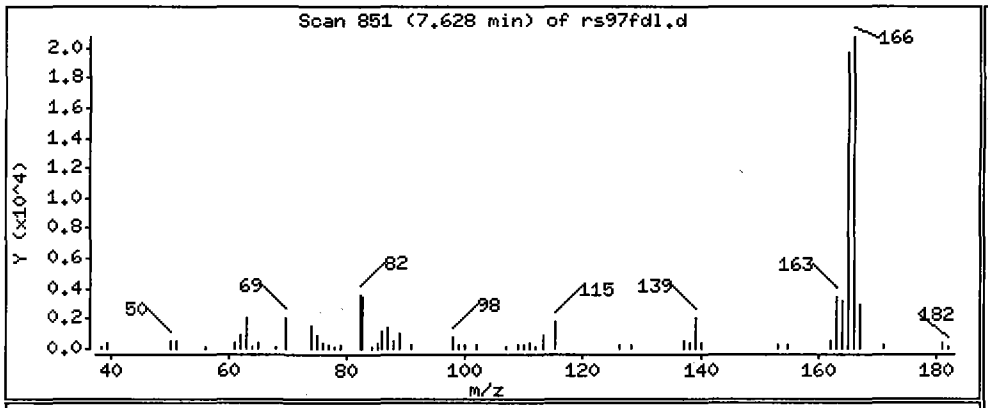
Client ID: GST-09SO-17-18-1010 Instrument: nt12.i

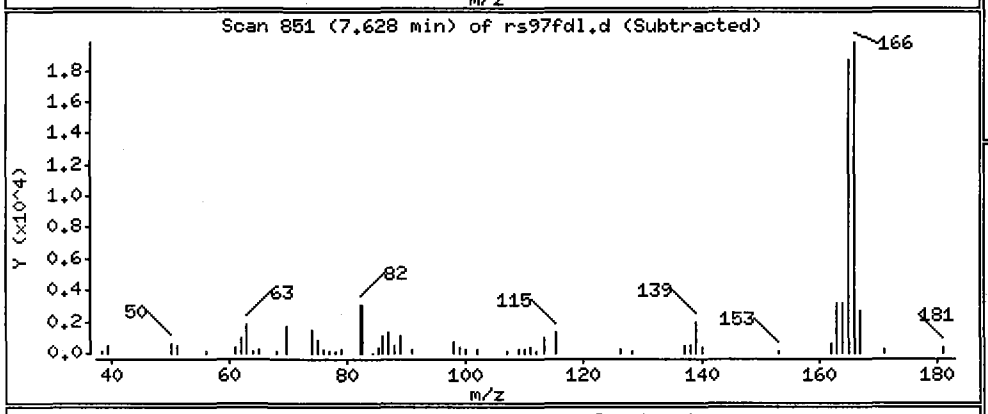
Sample Info: RS97F,100

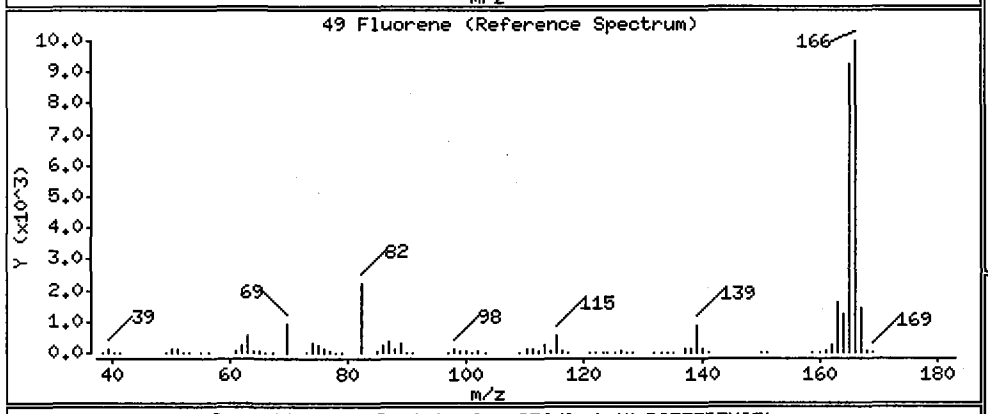
Volume Injected (uL): 1.0 Operator: VTS

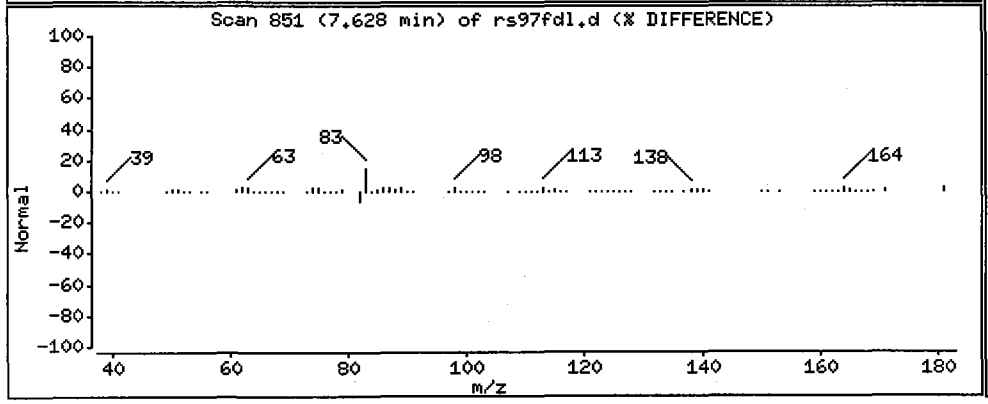
Column phase: ZB-5msi Column diameter: 0.32

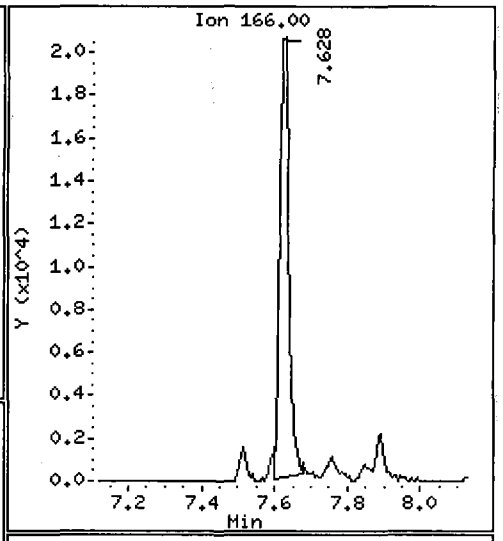
49 Fluorene Concentration: 808900 ug/kg

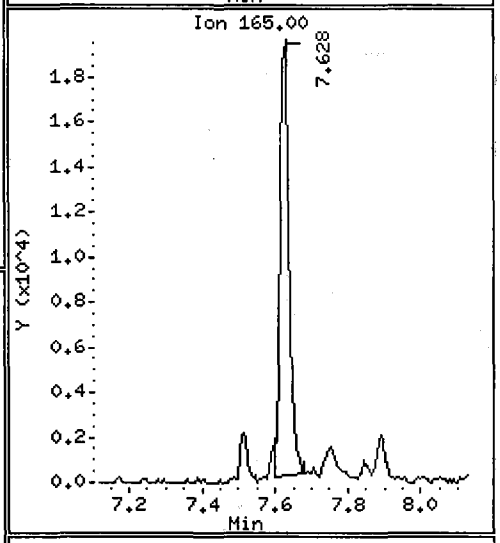


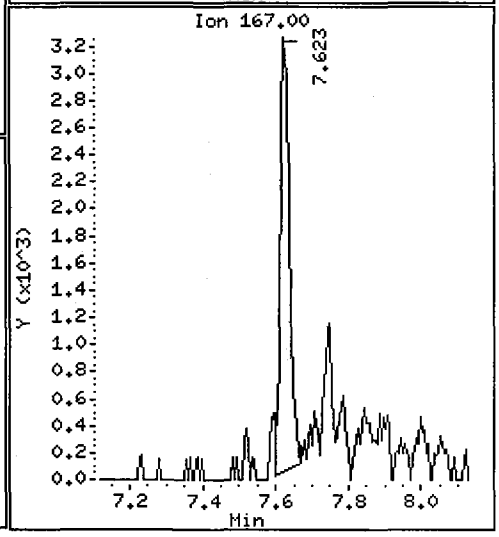












Data File: /chem1/nt12.i/20101111.b/rs97fd1.d

Date : 11-NOV-2010 13:25

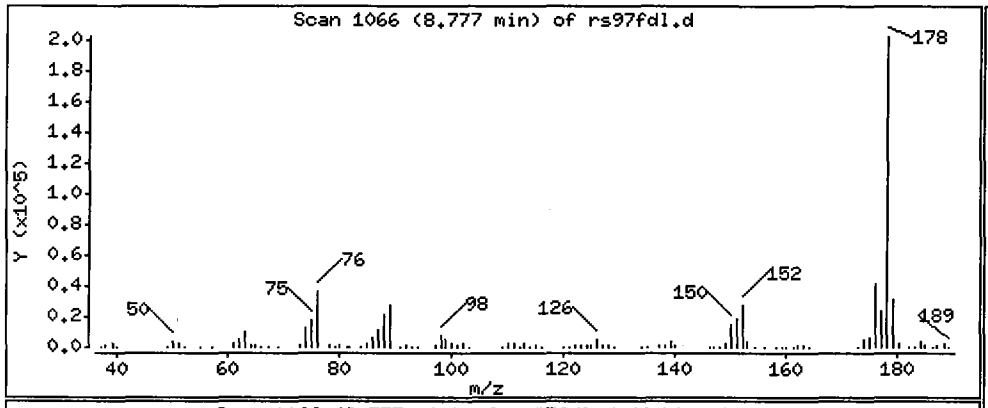
Client ID: GST-09SO-17-18-1010 Instrument: nt12.i

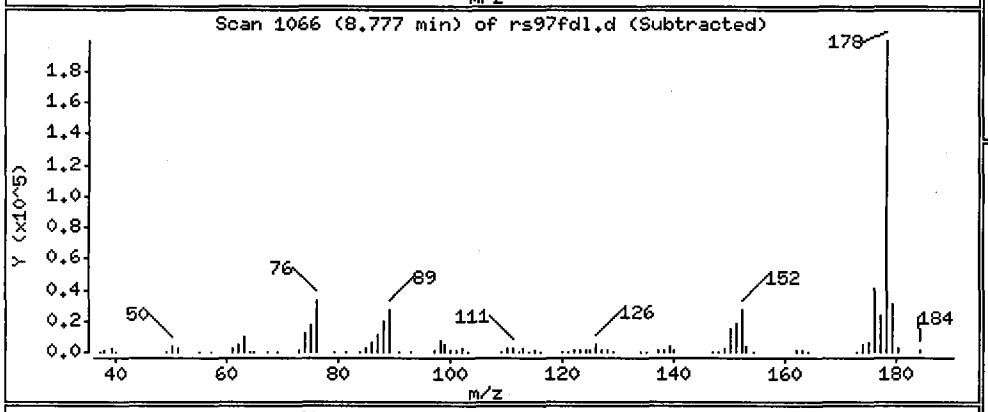
Sample Info: RS97F,100

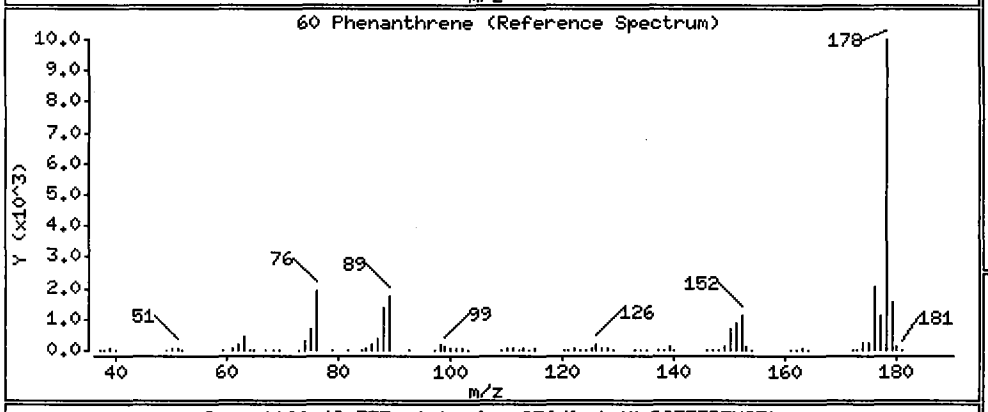
Volume Injected (uL): 1.0 Operator: VTS

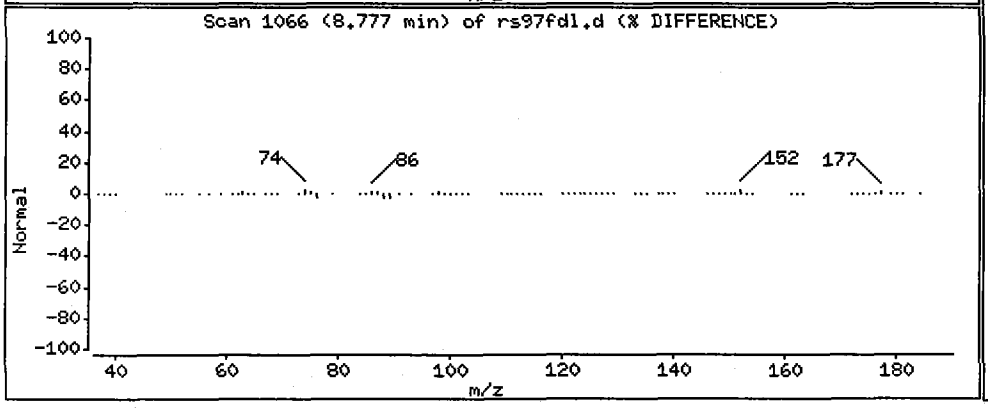
Column phase: ZB-5msi Column diameter: 0.32

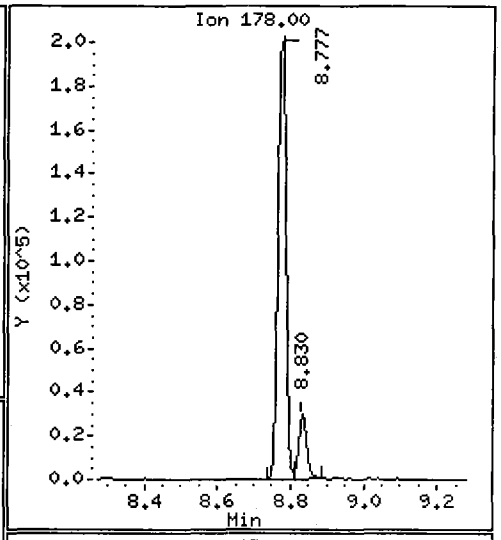
60 Phenanthrene Concentration: 4896000 ug/kg

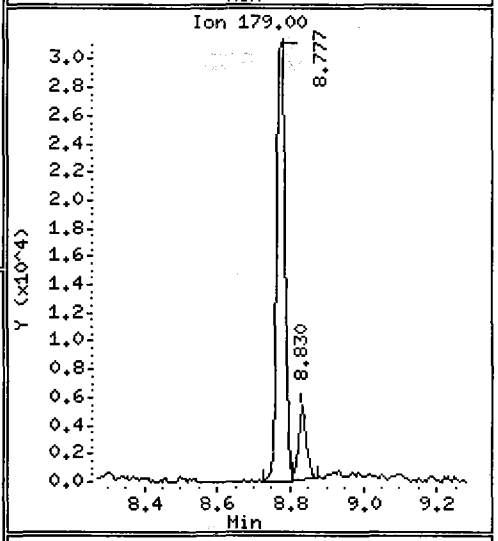


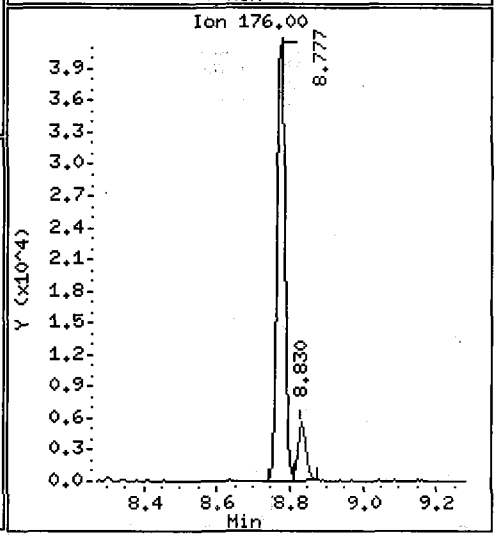












Data File: /chem1/nt12.i/20101111.b/rs97fdl.d

Date : 11-NOV-2010 13:25

Client ID: GST-09SO-17-18-1010

Instrument: nt12.i

Sample Info: RS97F,100

Volume Injected (uL): 1.0

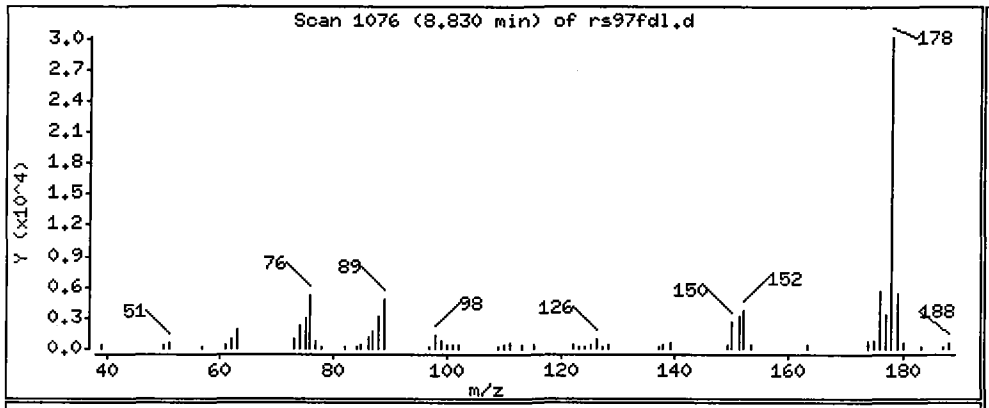
Operator: VTS

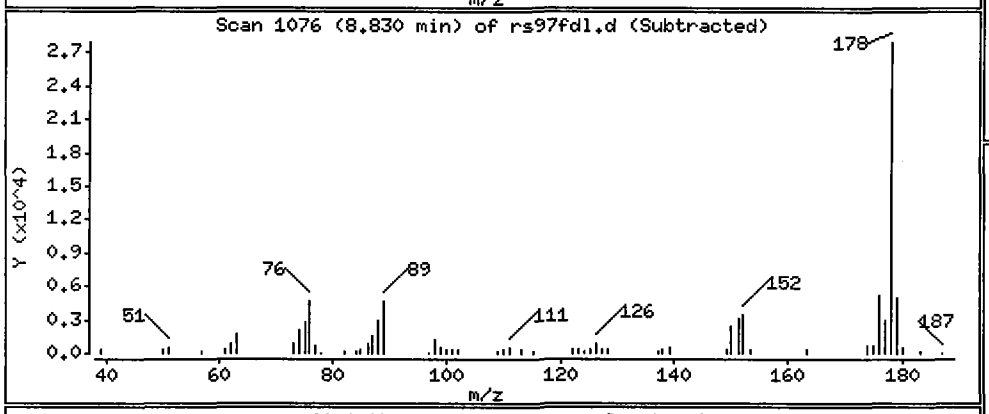
Column phase: ZB-5msi

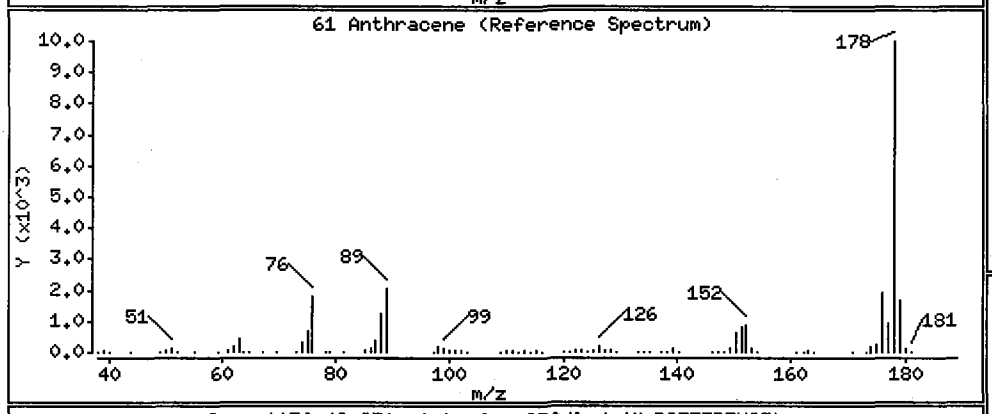
Column diameter: 0.32

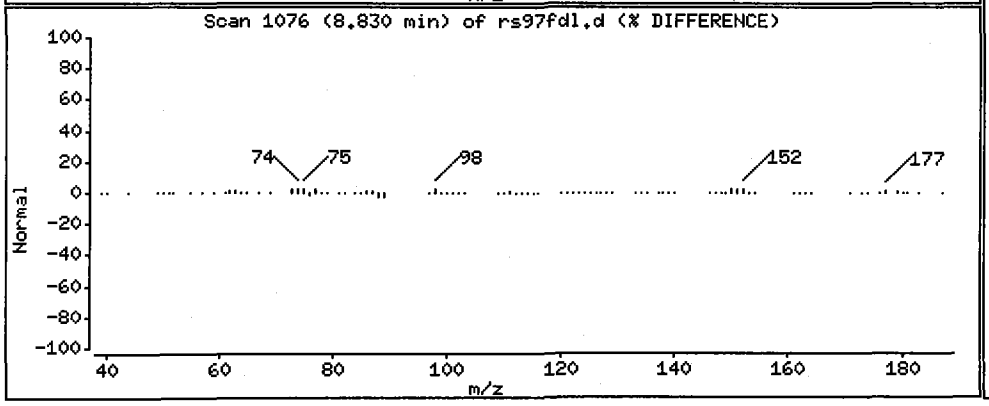
61 Anthracene

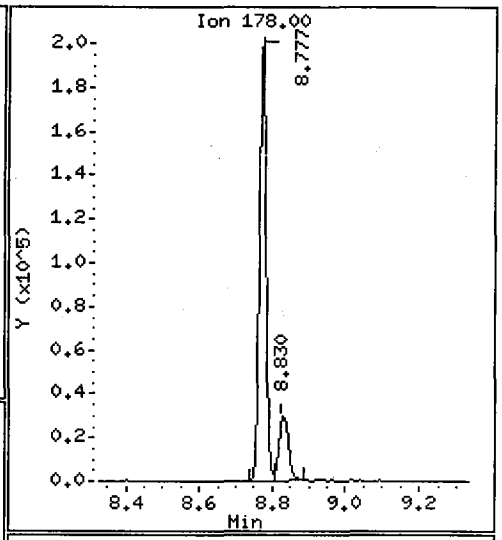
Concentration: 859800 ug/kg

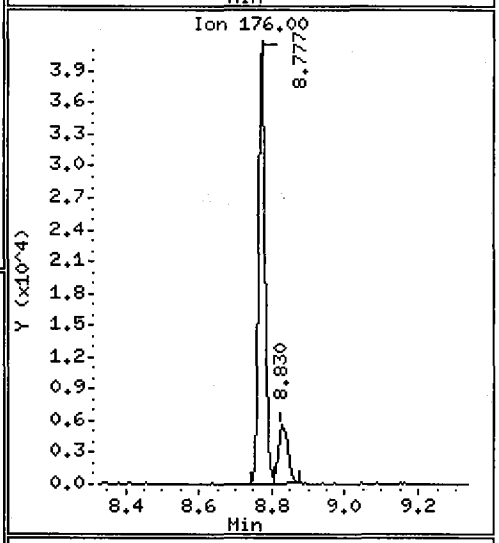


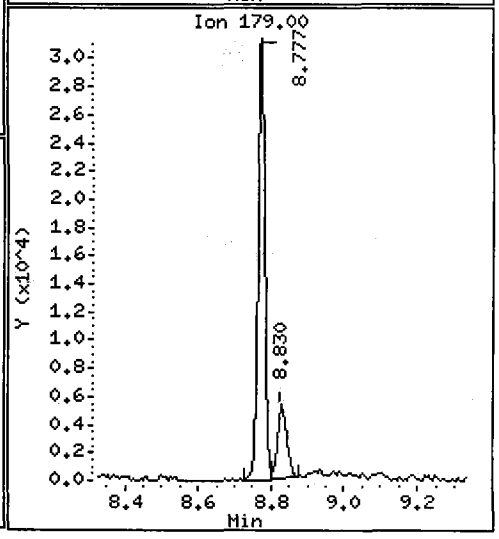












Data File: /chem1/nt12.i/20101111.b/rs97fdl.d

Date : 11-NOV-2010 13:25

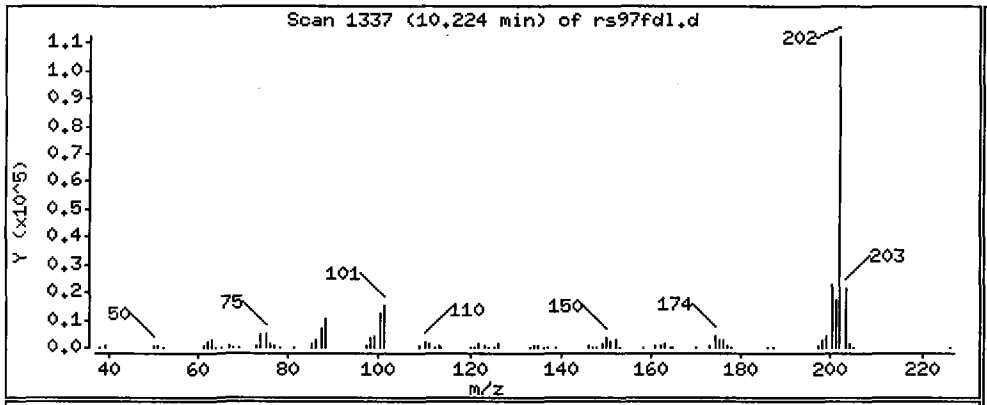
Client ID: GST-09SO-17-18-1010 Instrument: nt12.i

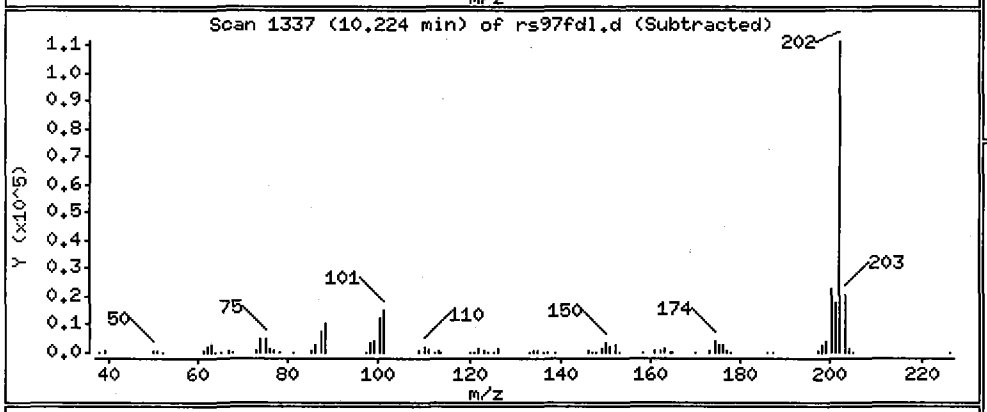
Sample Info: RS97F,100

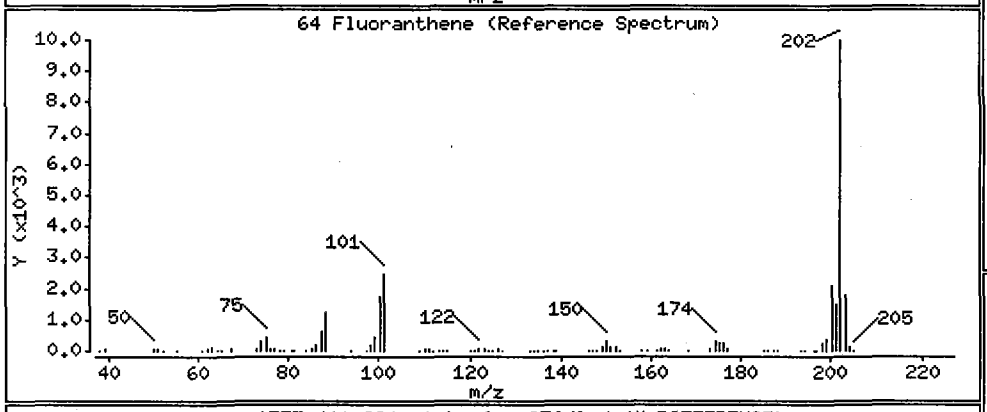
Volume Injected (uL): 1.0 Operator: VTS

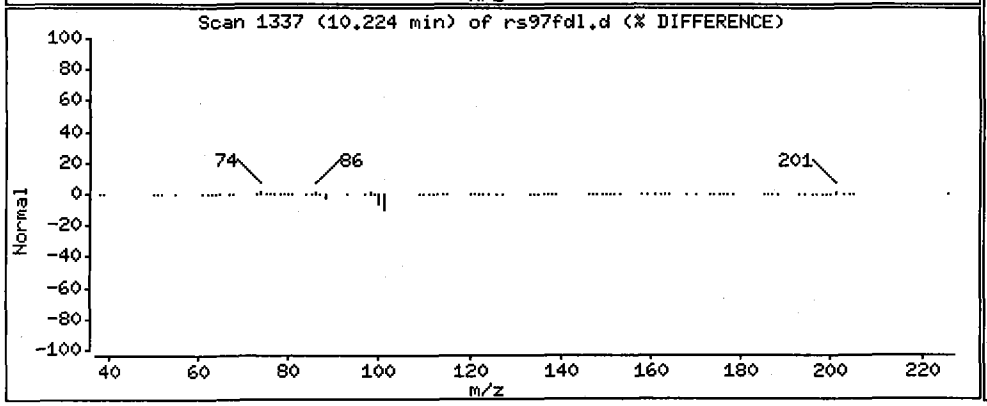
Column phase: ZB-5msi Column diameter: 0.32

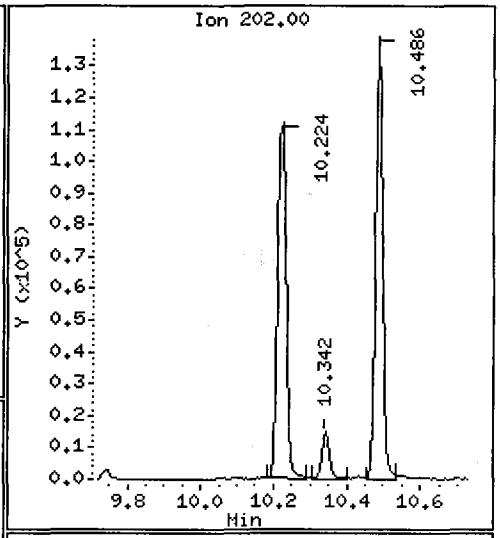
64 Fluoranthene Concentration: 2205000 ug/kg

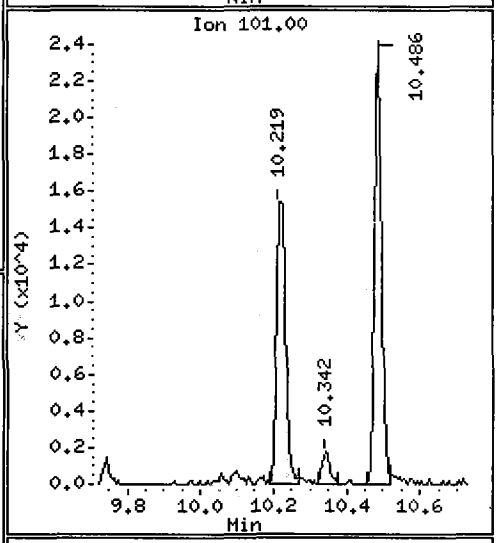


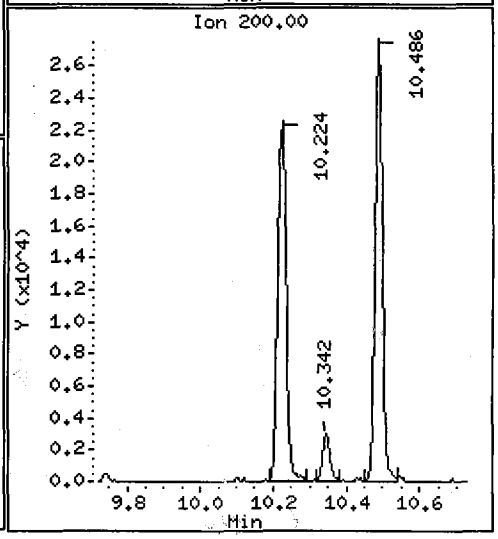












Data File: /chem1/nt12.i/20101111.b/rs97fdl.d

Date : 11-NOV-2010 13:25

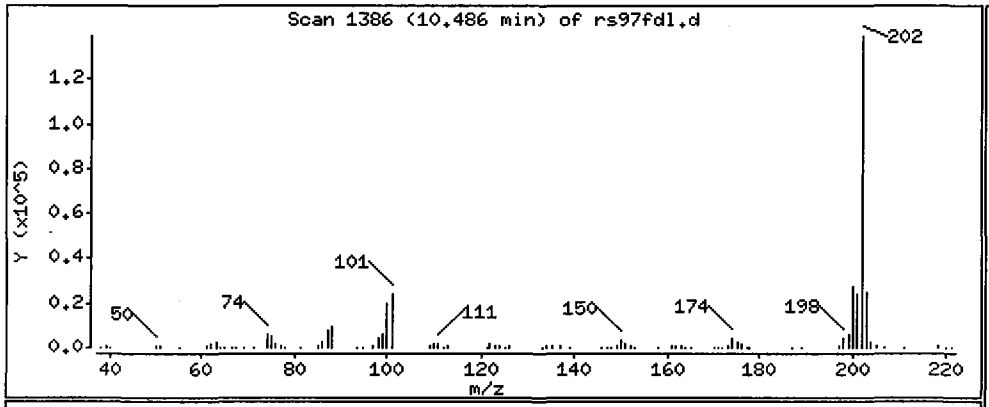
Client ID: GST-09SO-17-18-1010 Instrument: nt12.i

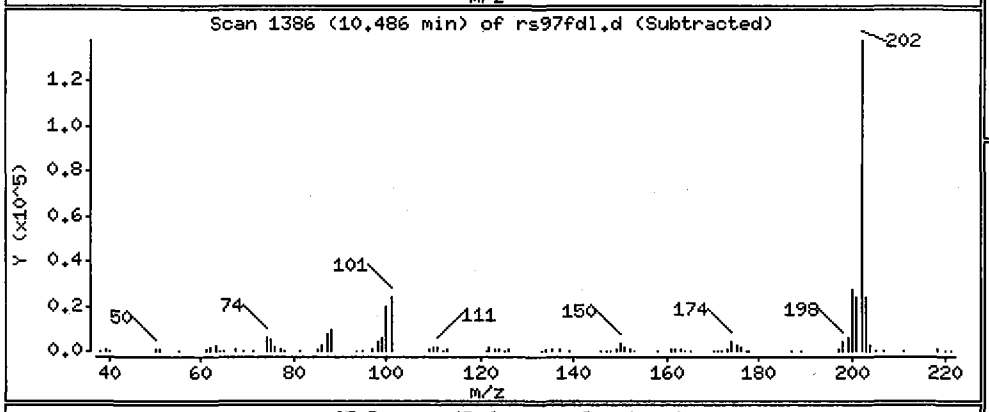
Sample Info: RS97F,100

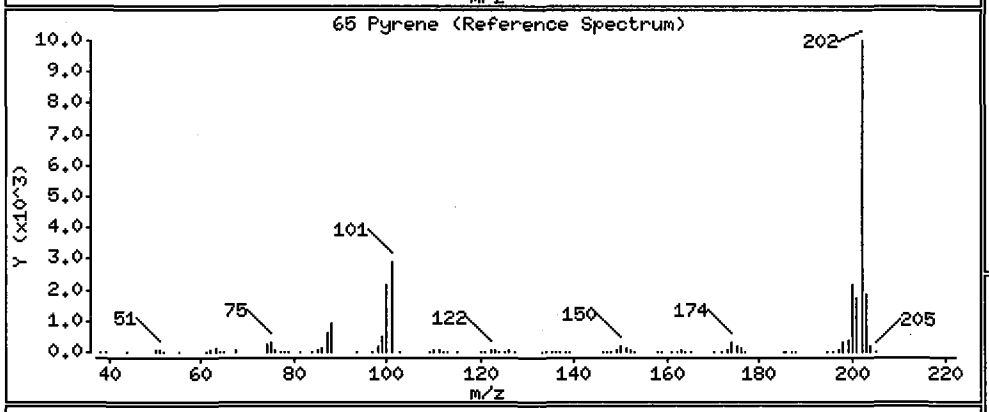
Volume Injected (uL): 1.0 Operator: VTS

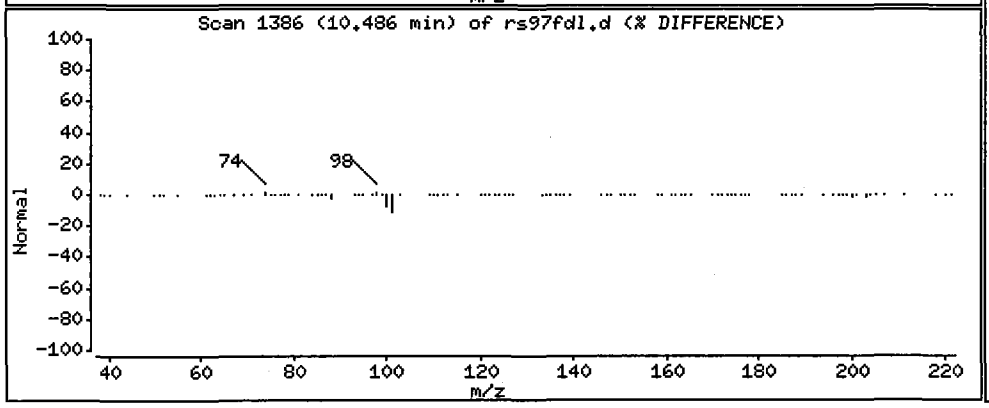
Column phase: ZB-5msi Column diameter: 0.32

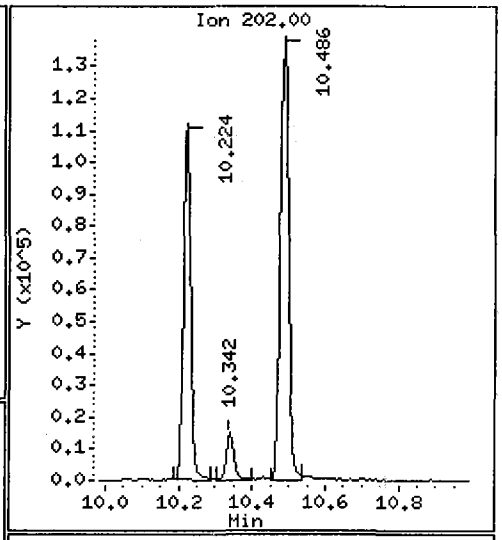
65 Pyrene Concentration: 2664000 ug/kg

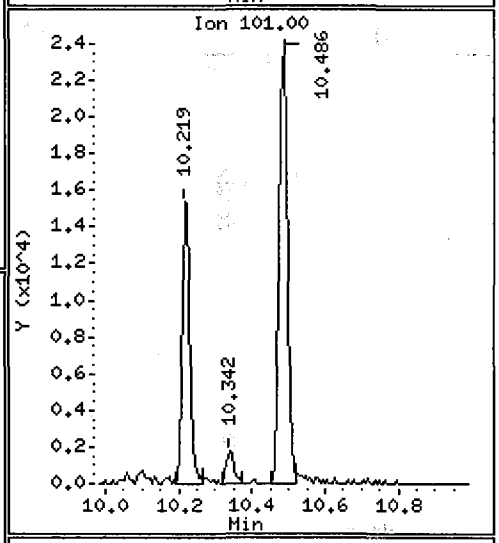


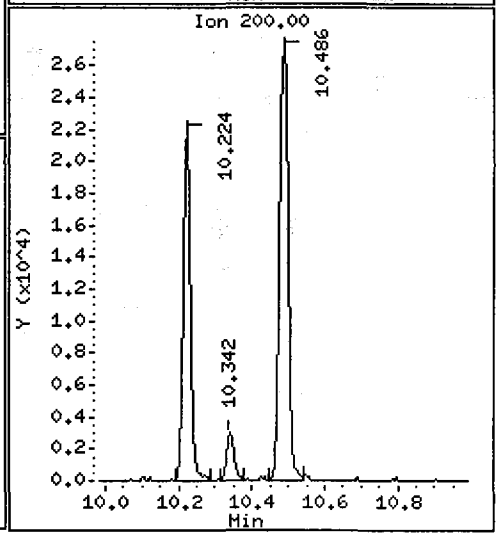












Data File: /chem1/nt12.i/20101111.b/rs97fdl.d

Date : 11-NOV-2010 13:25

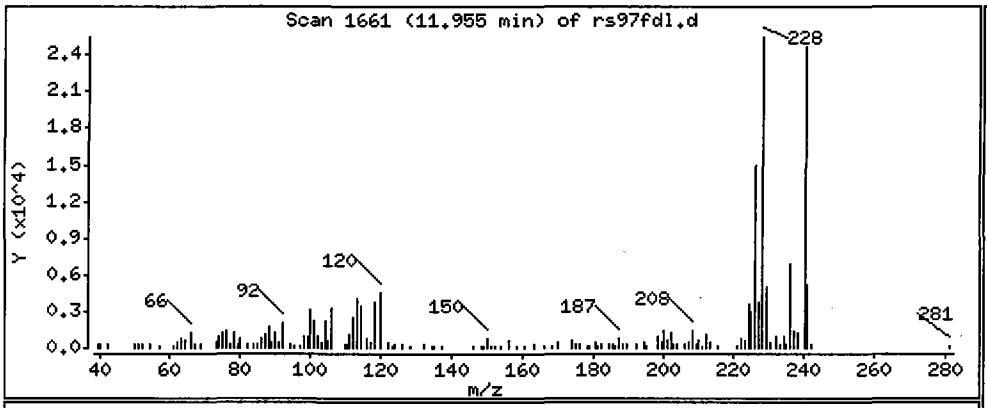
Client ID: GST-09SO-17-18-1010 Instrument: nt12.i

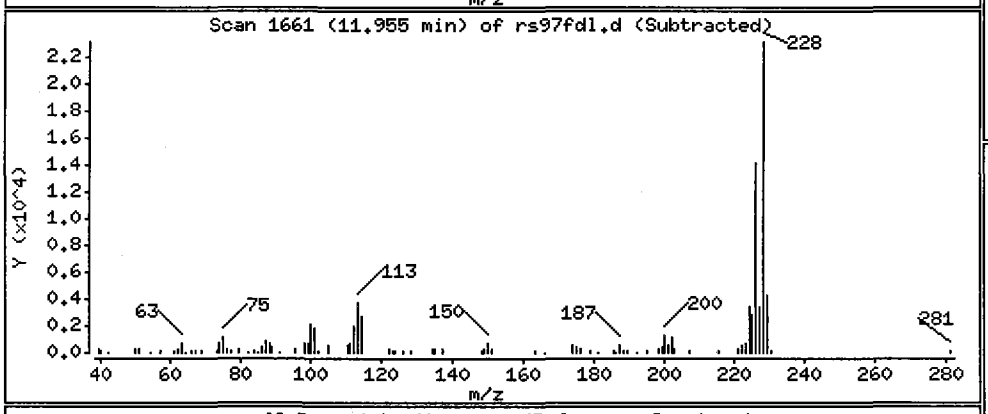
Sample Info: RS97F,100

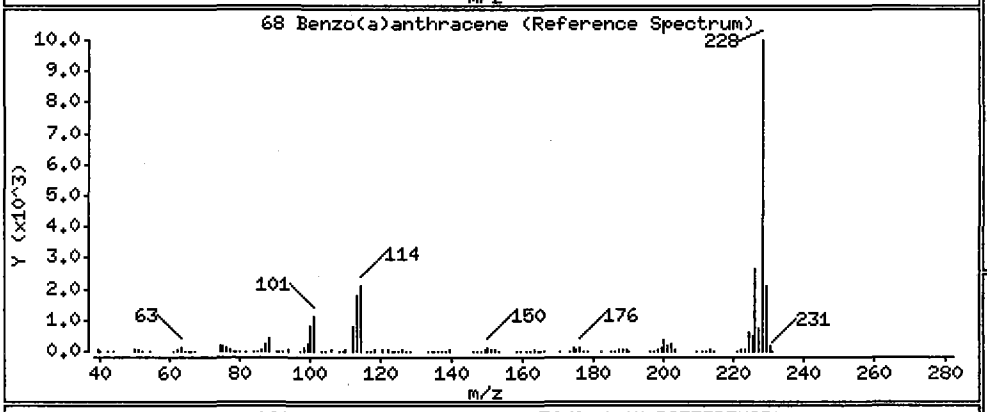
Volume Injected (uL): 1.0 Operator: VTS

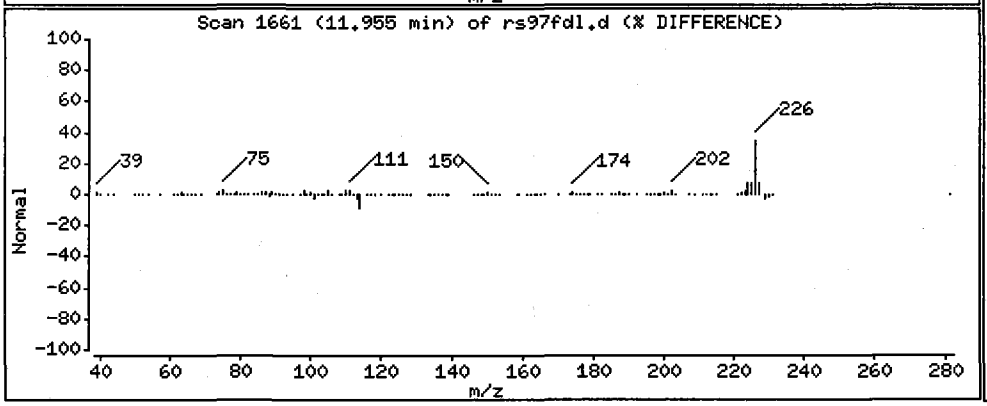
Column phase: ZB-5msi Column diameter: 0.32

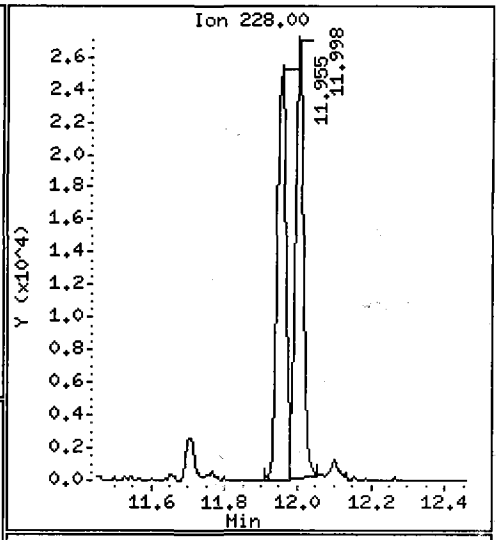
68 Benzo(a)anthracene Concentration: 639400 ug/kg

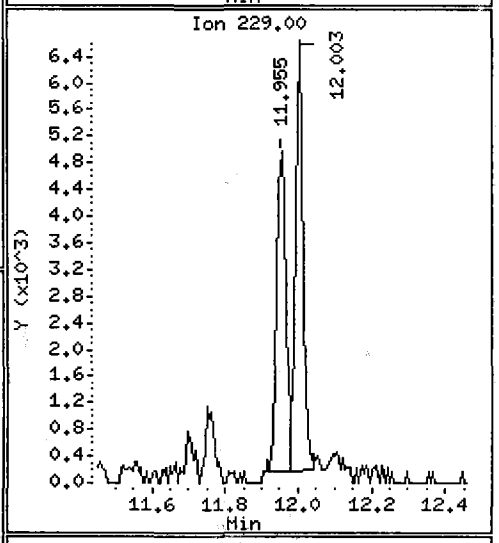


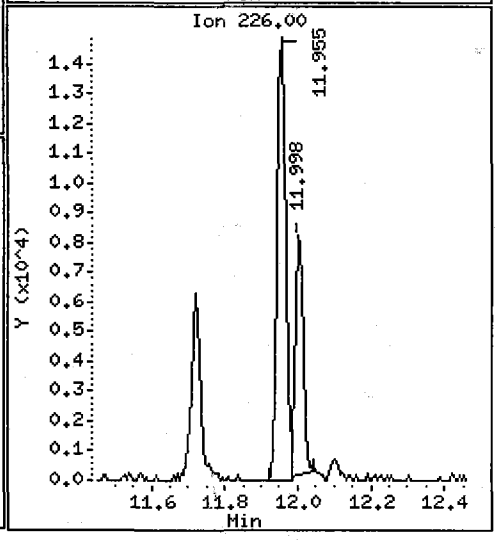












Data File: /chem1/nt12.i/20101111.b/rs97fdl.d

Date : 11-NOV-2010 13:25

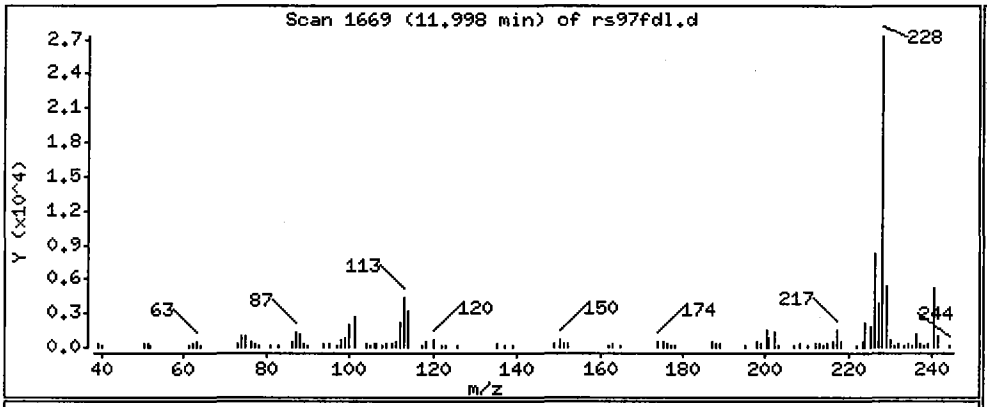
Client ID: GST-09SO-17-18-1010 Instrument: nt12.i

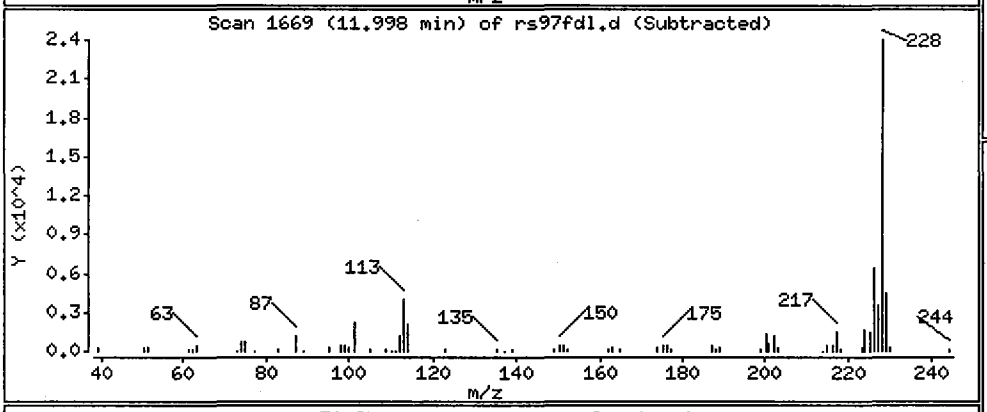
Sample Info: RS97F,100

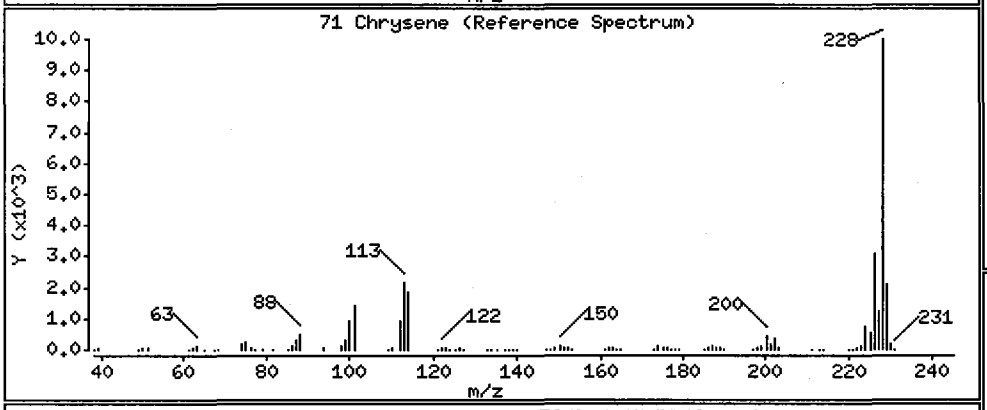
Volume Injected (uL): 1.0 Operator: VTS

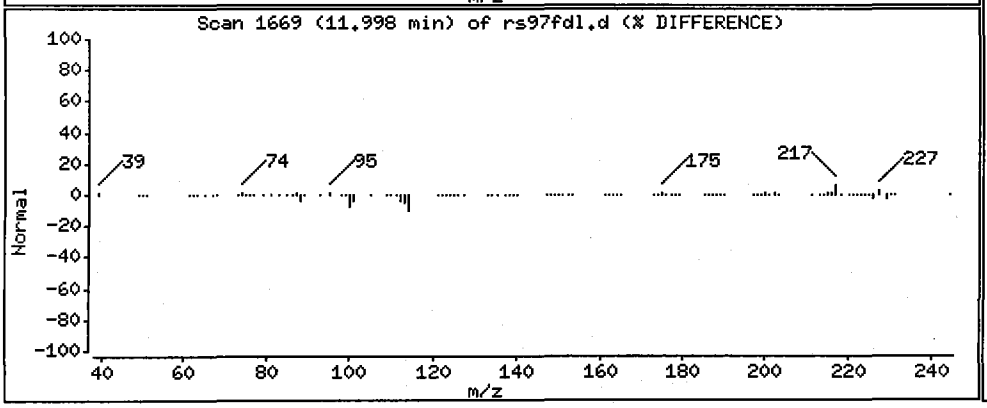
Column phase: ZB-5msi Column diameter: 0.32

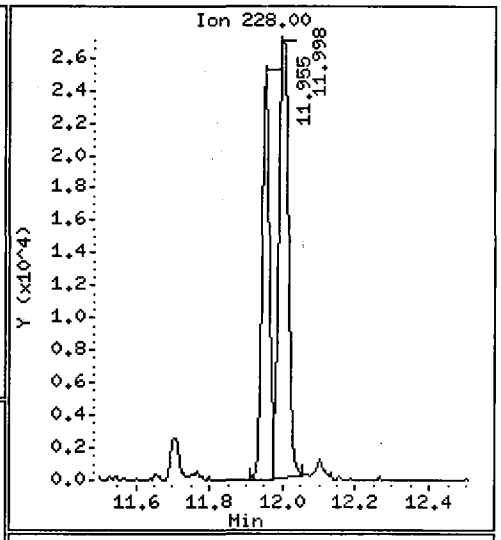
71 Chrysene Concentration: 818200 ug/kg

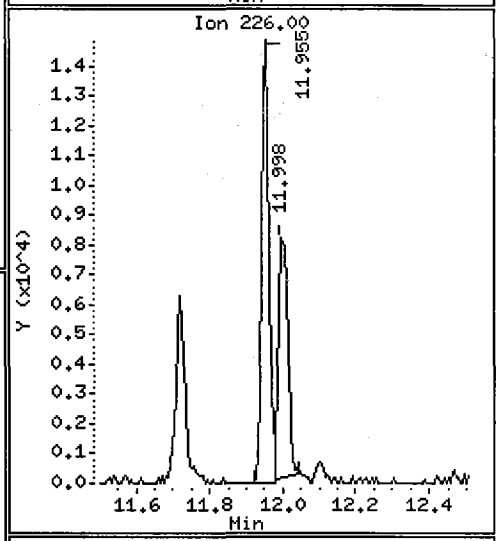


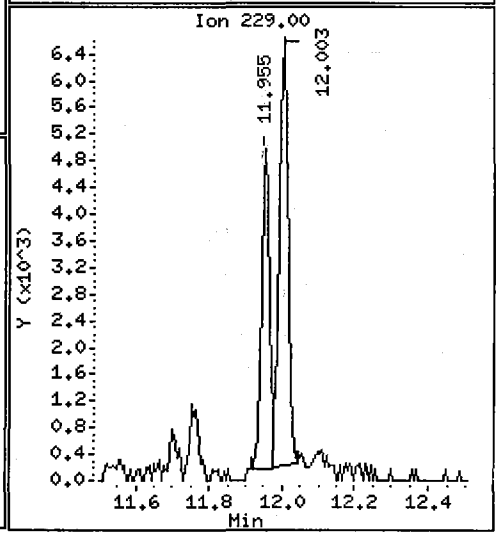












Data File: /chem1/nt12.i/20101111.b/rs97fdl.d

Date : 11-NOV-2010 13:25

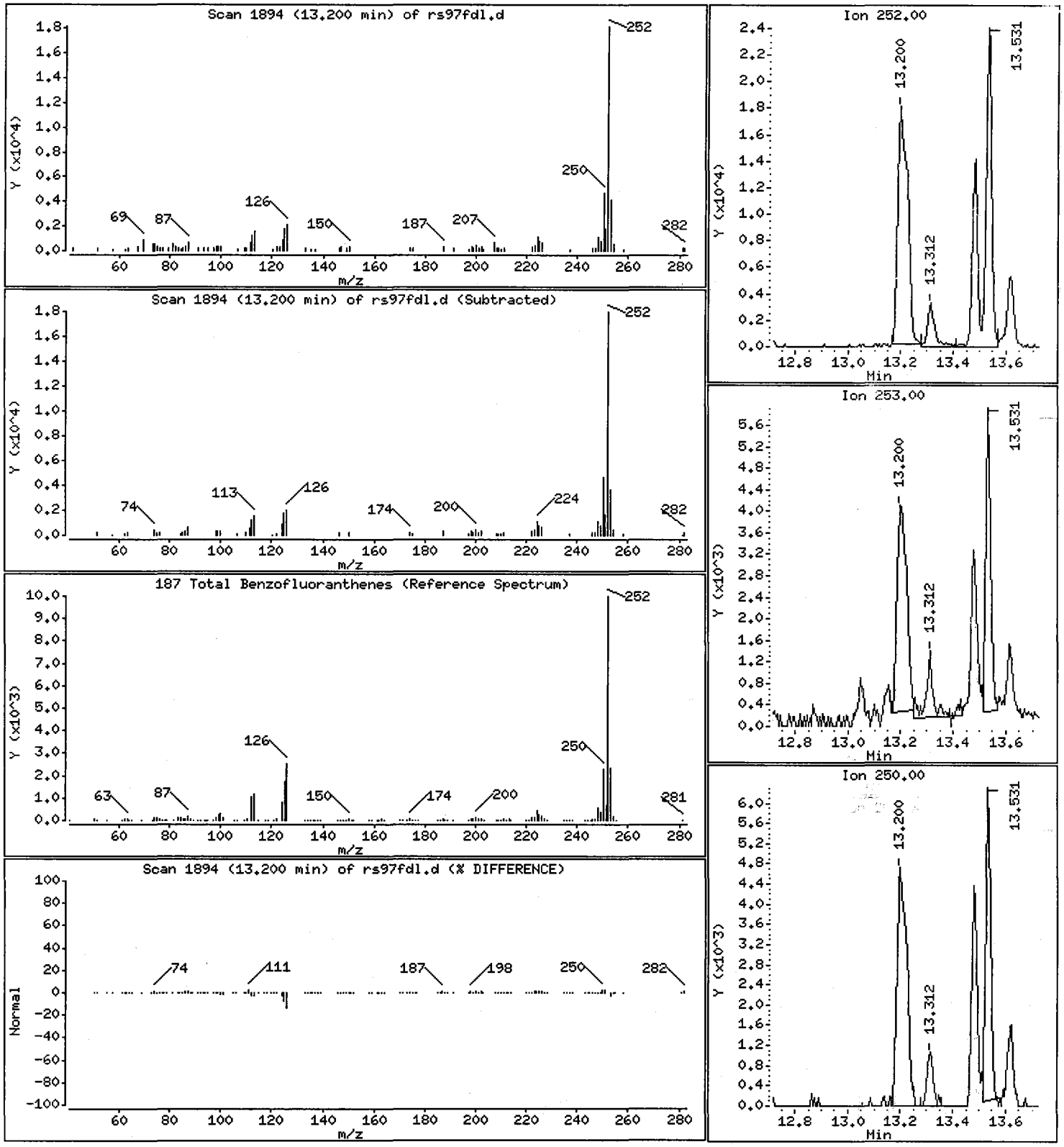
Client ID: GST-09SO-17-18-1010 Instrument: nt12.i

Sample Info: RS97F,100

Volume Injected (uL): 1.0 Operator: VTS

Column phase: ZB-5msi Column diameter: 0.32

187 Total Benzofluoranthenes Concentration: 989000 ug/kg



Data File: /chem1/nt12.i/20101111.b/rs97fdl.d

Date : 11-NOV-2010 13:25

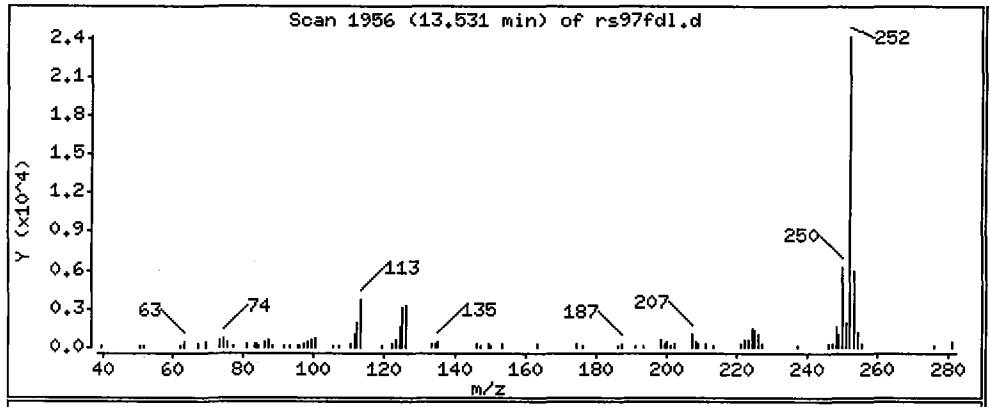
Client ID: GST-09SO-17-18-1010 Instrument: nt12.i

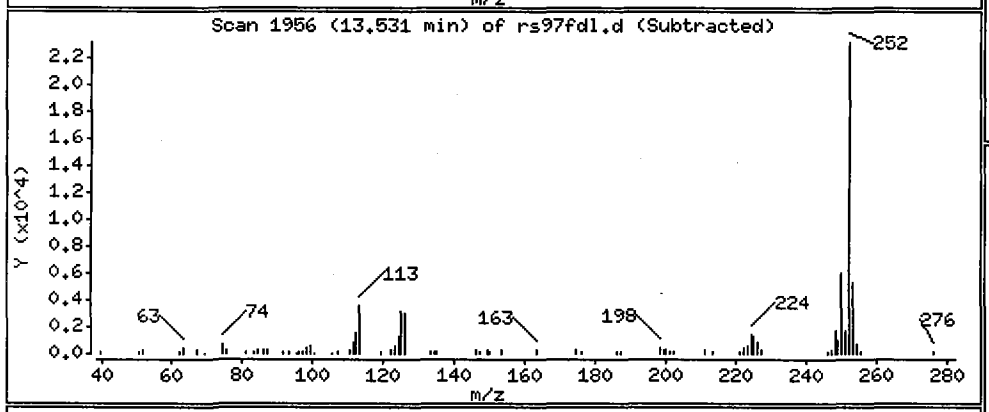
Sample Info: RS97F,100

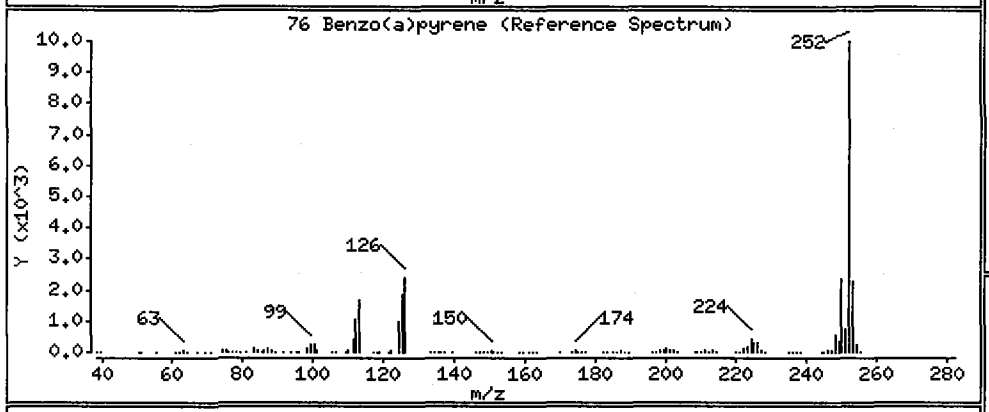
Volume Injected (uL): 1.0 Operator: VTS

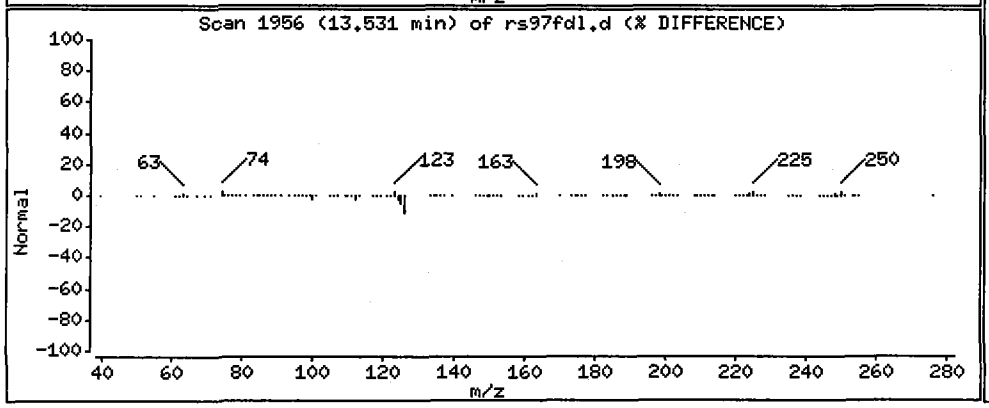
Column phase: ZB-5msi Column diameter: 0.32

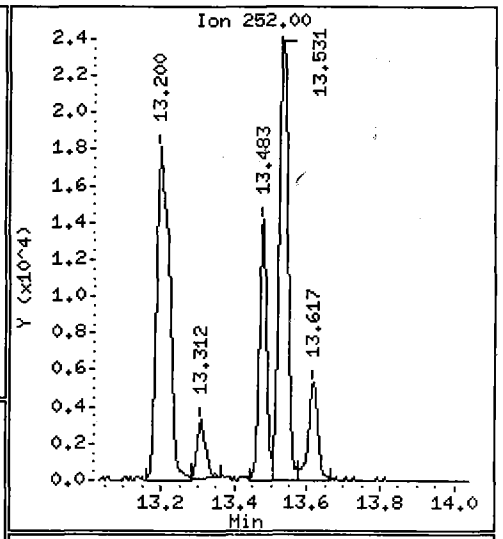
76 Benzo(a)pyrene Concentration: 866900 ug/kg

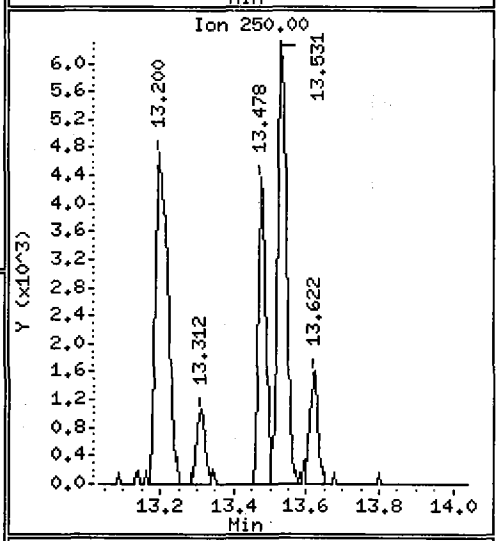


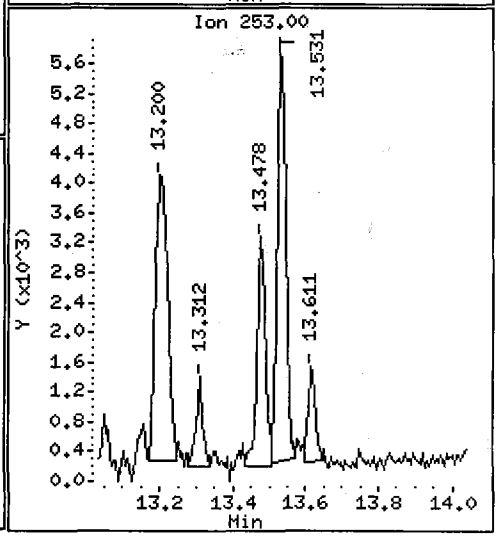












Data File: /chem1/nt12.i/20101111.b/rs97fdl.d

Date : 11-NOV-2010 13:25

Client ID: GST-09SO-17-18-1010 Instrument: nt12.i

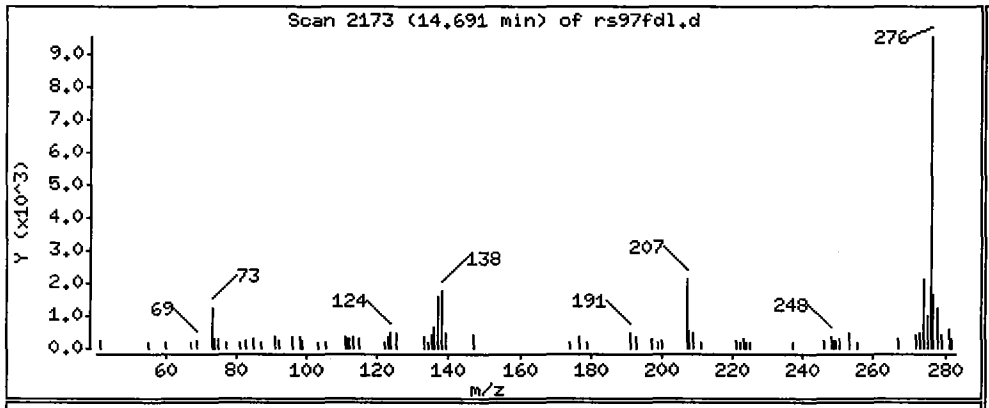
Sample Info: RS97F,100

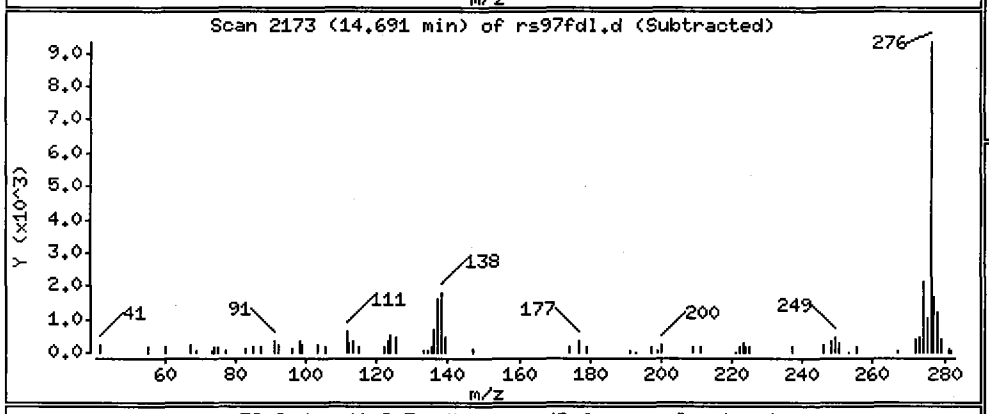
Volume Injected (uL): 1.0 Operator: VTS

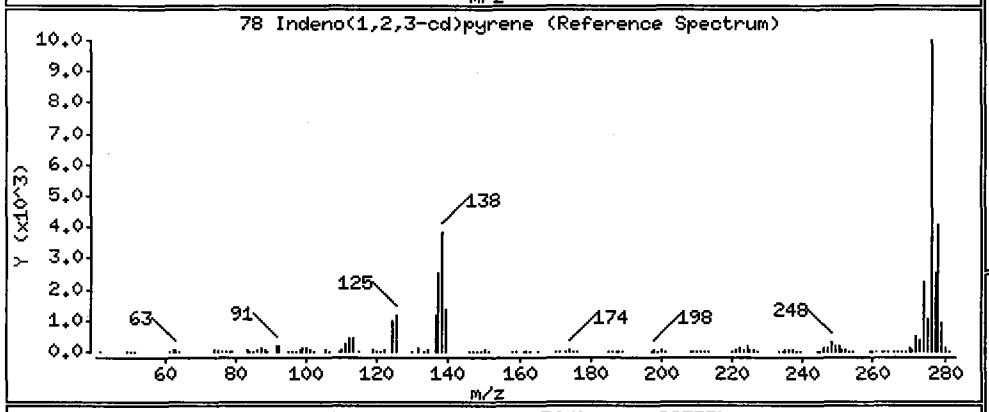
Column phase: ZB-5msi Column diameter: 0.32

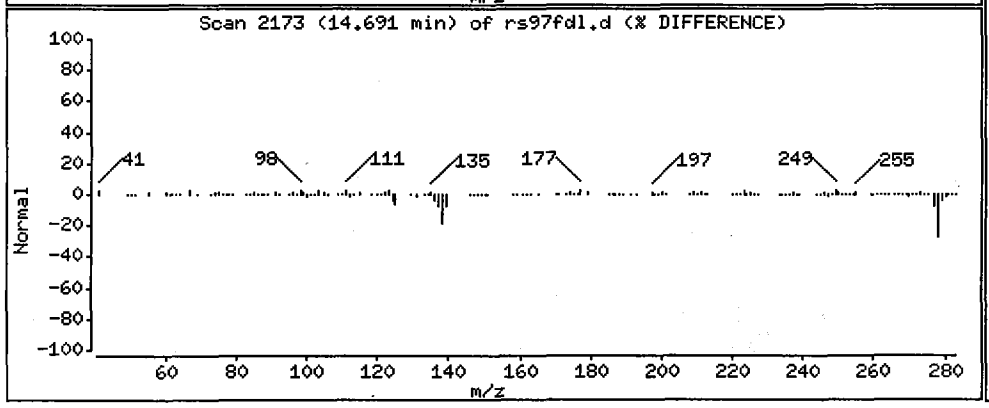
78 Indeno(1,2,3-cd)pyrene Concentration: 315000 ug/kg

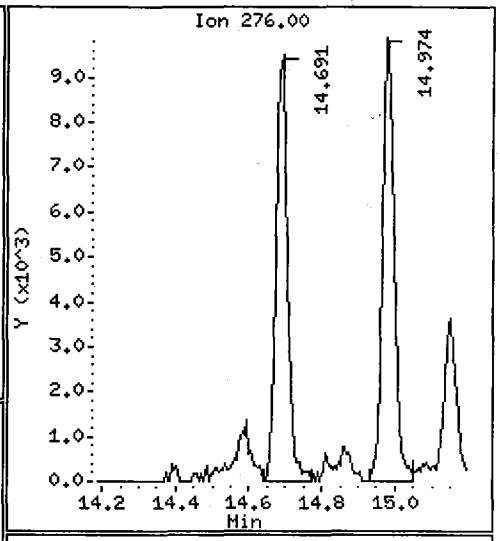
4

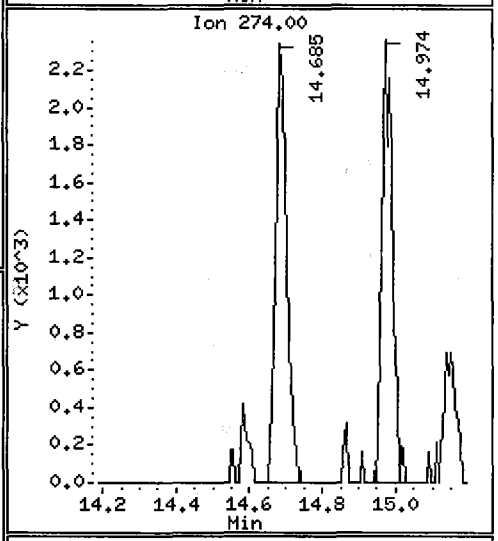


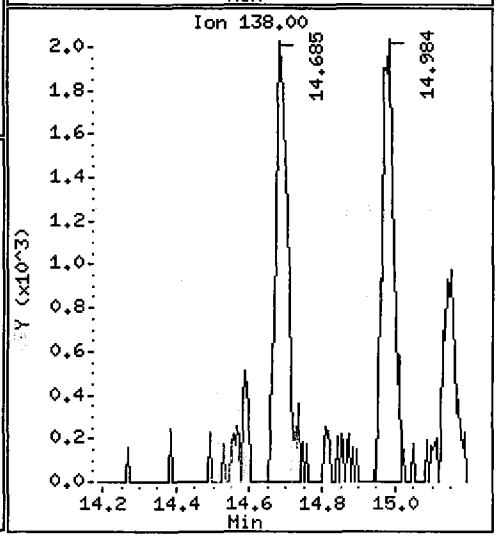












Data File: /chem1/nt12.i/20101111.b/rs97fdl.d

Date : 11-NOV-2010 13:25

Client ID: GST-09SO-17-18-1010

Instrument: nt12.i

Sample Info: RS97F,100

Volume Injected (uL): 1.0

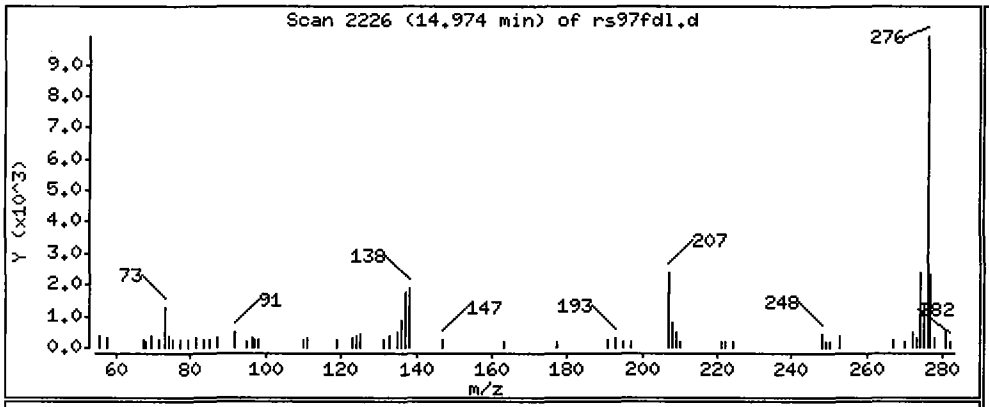
Operator: VTS

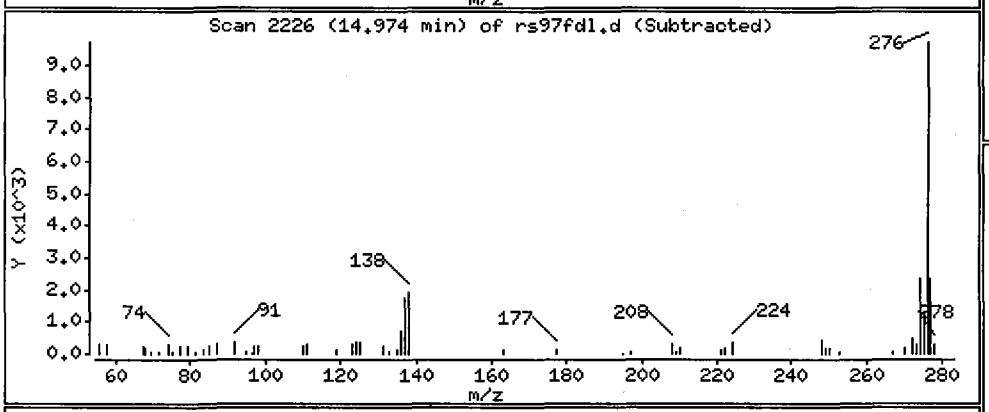
Column phase: ZB-5msi

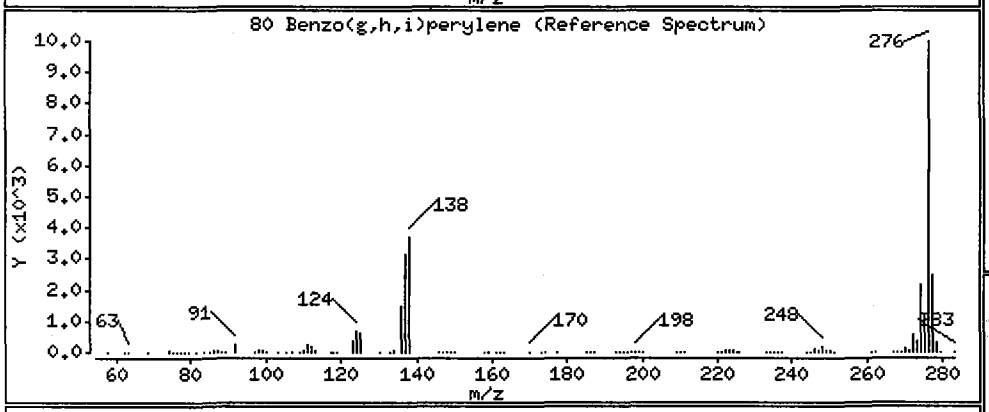
Column diameter: 0.32

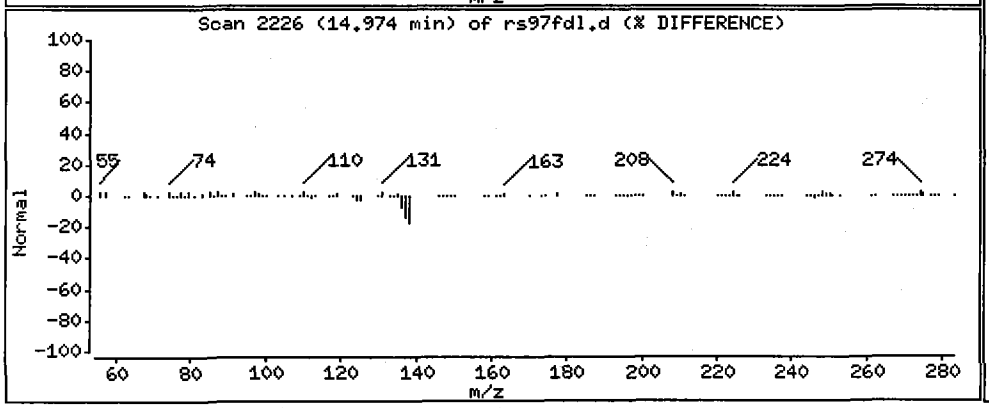
80 Benzo(g,h,i)perylene

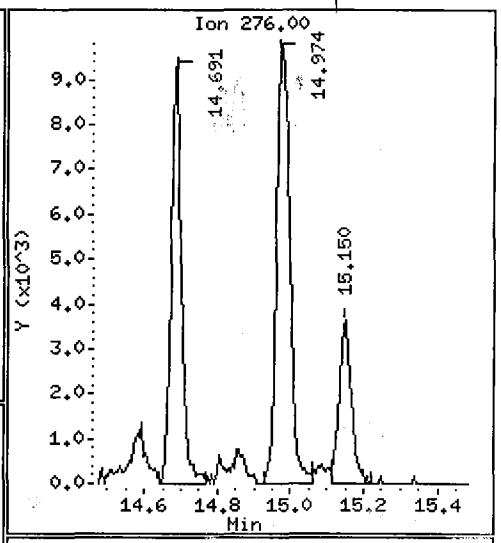
Concentration: 460800 ug/kg

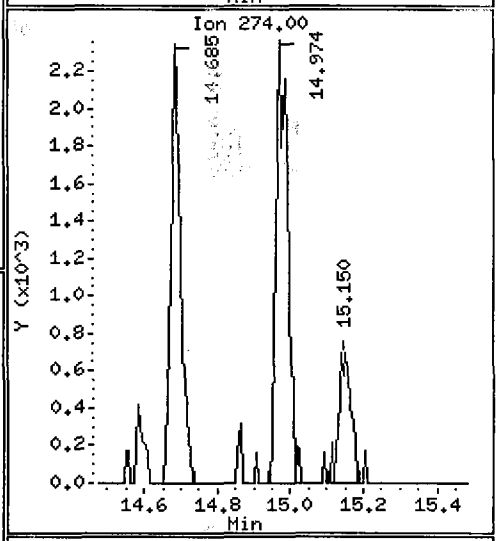


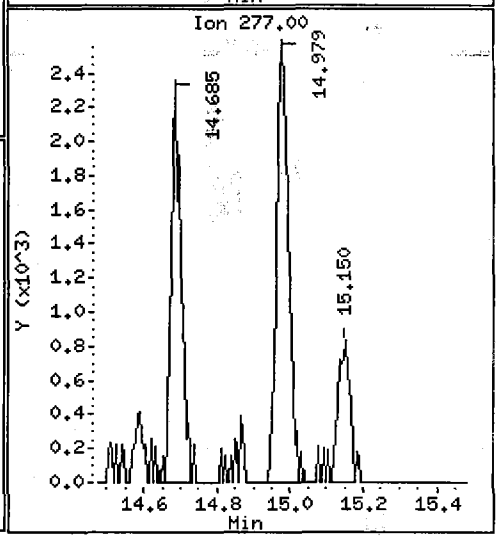












Analytical Resources, Inc.

Semivolatile Report SW846 Method 8270D

Data file : /chem1/nt12.i/20101111.b/rs97pdl.d
Lab Smp Id: RS97P Client Smp ID: DGS-07-9.710-101012
Inj Date : 11-NOV-2010 13:48
Operator : VTS Inst ID: nt12.i
Smp Info : RS97P,10
Misc Info : 10-27432
Comment : 1ul Injection
Method : /chem1/nt12.i/20101111.b/PNADMD.m
Meth Date : 11-Nov-2010 14:36 van Quant Type: ISTD
Cal Date : 30-OCT-2010 13:19 Cal File: ic1030f.d
Als bottle: 5
Dil Factor: 10.00000
Integrator: HP RTE Compound Sublist: pnas.sub
Target Version: 3.50
Processing Host: cserv3

Concentration Formula: Amt * DF * Vt/(Ws * (100 - M)/100) * CpndVariable

Name	Value	Description
DF	10.00000	Dilution Factor
Vt	10000.00000	Volume of final extract (uL)
Ws	5.02000	Weight of sample extracted (g)
M	48.80000	% Moisture

Cpnd Variable Local Compound Variable

Compounds	QUANT SIG MASS	RT	EXP RT	REL RT	RESPONSE	CONCENTRATIONS ON-COLUMN (ug/mL)	FINAL (ug/kg)
* 27 Naphthalene-d8	136	4.871	4.871	(1.000)	208131	20.0000	
28 Naphthalene	128	4.893	4.893	(1.004)	162136	13.6874	532500
32 2-Methylnaphthalene	141	5.710	5.710	(1.172)	82060	12.9787	505000
105 1-methylnaphthalene	141	5.838	5.838	(1.198)	47807	7.33317	285300
$ 36 2-Fluorobiphenyl	172	Compound Not Detected.					
40 Acenaphthylene	152	Compound Not Detected.					
* 42 Acenaphthene-d10	164	6.976	6.976	(1.000)	127328	20.0000	
44 Acenaphthene	153	7.008	7.014	(1.005)	89086	11.3766	442600
46 Dibenzofuran	168	7.211	7.211	(1.034)	10535	0.87734	34130
49 Fluorene	166	7.623	7.623	(1.093)	56927	6.34937	247000
* 59 Phenanthrene-d10	188	8.750	8.745	(1.000)	230583	20.0000	
60 Phenanthrene	178	8.777	8.777	(1.003)	505756	41.3449	1609000
61 Anthracene	178	8.830	8.830	(1.009)	78775	6.23087	242400
62 Carbazole	167	9.054	9.049	(1.035)	10794	~~1.058~~34	41180

NR

Compounds	QUANT SIG MASS	RT	EXP RT	REL RT	RESPONSE	CONCENTRATIONS ON-COLUMN (ug/mL)	FINAL (ug/kg)
64 Fluoranthene	202	10.224	10.224	(0.854)	261579	17.3666	675700
65 Pyrene	202	10.486	10.486	(0.876)	315828	21.1358	822300
$ 66 Terphenyl-d14	244	Compound Not Detected.					
68 Benzo(a)anthracene	228	11.950	11.955	(0.998)	55890	4.61537	179600
* 69 Chrysene-d12	240	11.971	11.977	(1.000)	215632	20.0000	
71 Chrysene	228	11.998	12.003	(1.002)	62964	5.56152	216400
187 Total Benzofluoranthenes	252	13.195	13.221	(0.971)	51954	5.71499	222400
76 Benzo(a)pyrene	252	13.531	13.537	(0.996)	41911	5.01861	195300
* 77 Perylene-d12	264	13.590	13.595	(1.000)	152628	20.0000	
99 Perylene	252	13.617	13.622	(1.002)	8672	~~0.9765~~2	37990(a) NR
78 Indeno(1,2,3-cd)pyrene	276	14.680	14.691	(1.080)	22500	1.81473	70610
79 Dibenzo(a,h)anthracene	278	14.690	14.696	(1.081)	6272	0.61444	23910 J
80 Benzo(g,h,i)perylene	276	14.974	14.979	(1.102)	28965	2.84372	110600

QC Flag Legend

a - Target compound detected but, quantitated amount Below Limit Of Quantitation(BLOQ).

VJB

11.11.10

Analytical Resources, Inc.

INTERNAL STANDARD COMPOUNDS
AREA AND RT SUMMARY

Instrument ID: nt12.i
Lab File ID: rs97pdl.d
Lab Smp Id: RS97P
Analysis Type: SV
Quant Type: ISTD
Operator: VTS
Method File: /chem1/nt12.i/20101111.b/PNADMD.m
Misc Info: 10-27432

Calibration Date: 11-NOV-2010
Calibration Time: 12:20
Client Smp ID: DGS-07-9.710-101
Level: LOW
Sample Type: Sediment

Test Mode:
Use Initial Calibration Level 4.

COMPOUND	STANDARD	AREA LIMIT LOWER	AREA LIMIT UPPER	SAMPLE	%DIFF
27 Naphthalene-d8	237664	118832	475328	208131	-12.43
42 Acenaphthene-d10	143363	71682	286726	127328	-11.18
59 Phenanthrene-d10	245437	122718	490874	230583	-6.05
69 Chrysene-d12	199260	99630	398520	215632	8.22
77 Perylene-d12	197636	98818	395272	152628	-22.77

COMPOUND	STANDARD	RT LIMIT LOWER	RT LIMIT UPPER	SAMPLE	%DIFF
27 Naphthalene-d8	4.87	4.37	5.37	4.87	0.00
42 Acenaphthene-d10	6.98	6.48	7.48	6.98	0.00
59 Phenanthrene-d10	8.74	8.24	9.24	8.75	0.06
69 Chrysene-d12	11.98	11.48	12.48	11.97	-0.04
77 Perylene-d12	13.60	13.10	14.10	13.59	-0.04

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.

Analytical Resources, Inc.

RECOVERY REPORT

Client Name: NW Natural
Sample Matrix: SOLID
Lab Smp Id: RS97P
Level: LOW
Data Type: MS DATA
SpikeList File: SONICLCS.spk
Sublist File: pnas.sub
Method File: /chem1/nt12.i/20101111.b/PNADMD.m
Misc Info: 10-27432

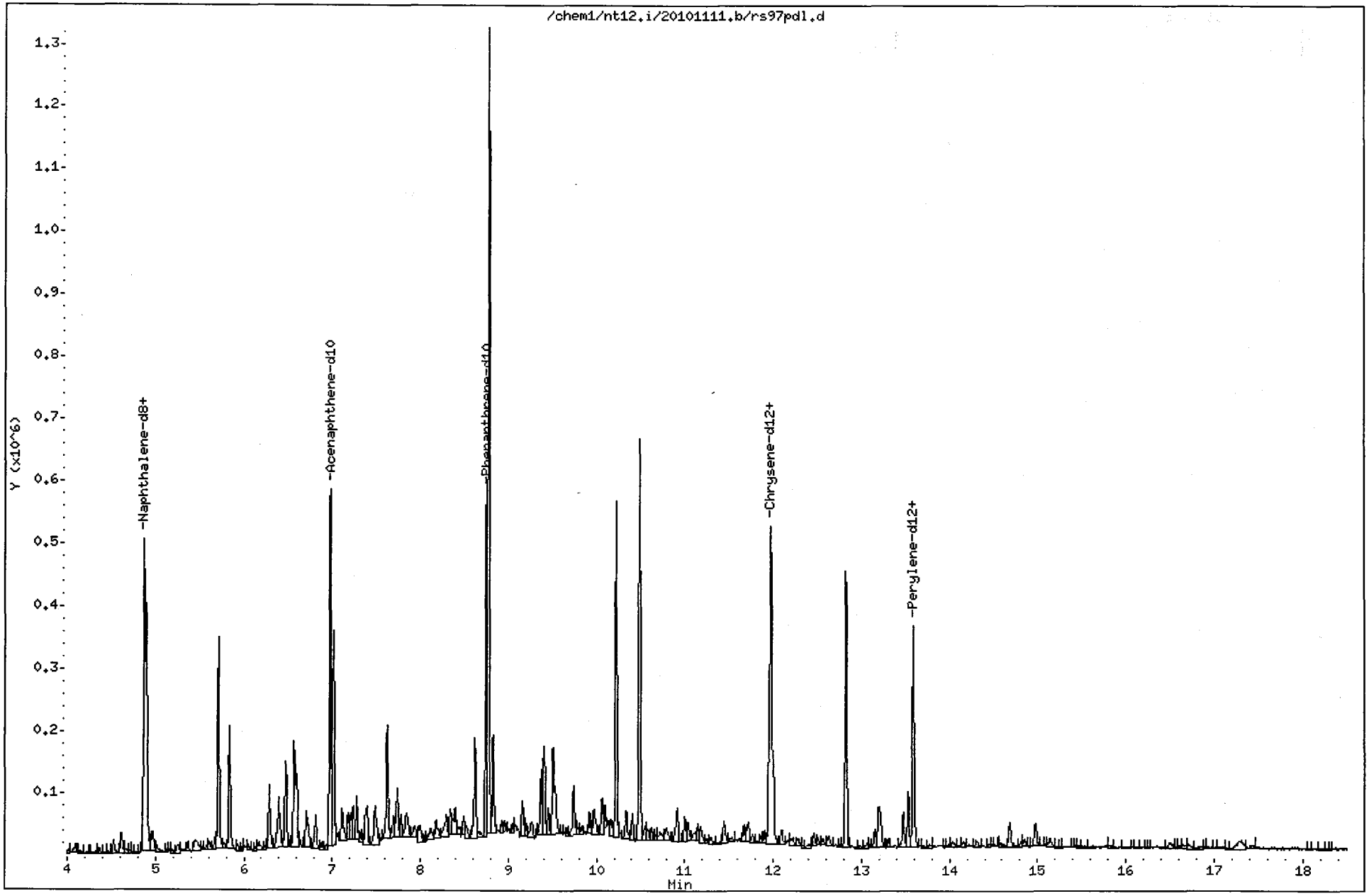
Client SDG: RS97
Fraction: SV
Client Smp ID: DGS-07-9.710-101012
Operator: VTS
SampleType: SAMPLE
Quant Type: ISTD

SURROGATE COMPOUND	CONC ADDED ug/kg	CONC RECOVERED ug/kg	% RECOVERED	LIMITS
$ 36 2-Fluorobiphenyl	9727	0.000	*	34-100
$ 66 Terphenyl-d14	9727	0.000	*	35-112

Data File: /chem1/nt12.i/20101111.b/rs97pdl.d
Date : 11-NOV-2010 13:48
Client ID: DGS-07-9.710-101012
Sample Info: RS97P,10
Volume Injected (uL): 1.0
Column phase: ZB-5msi

Instrument: nt12.i

Operator: VTS
Column diameter: 0.32



RS97:00761

Data File: /chem1/nt12.i/20101111.b/rs97pdl.d

Date : 11-NOV-2010 13:48

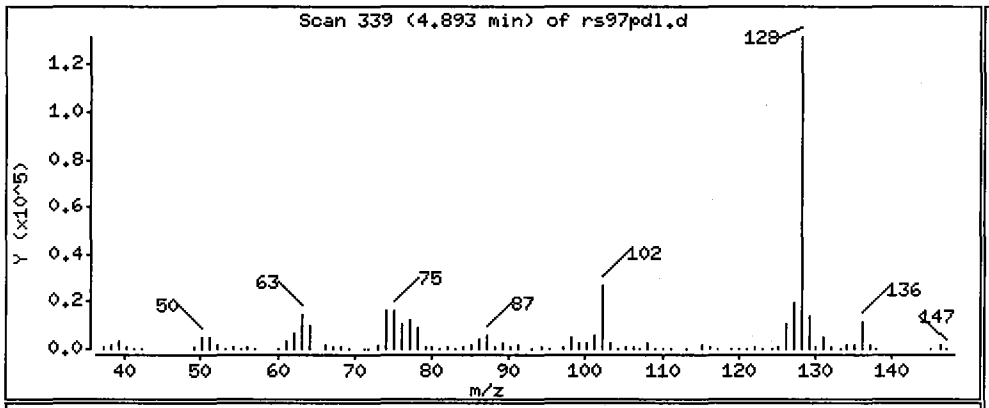
Client ID: DGS-07-9.710-101012 Instrument: nt12.i

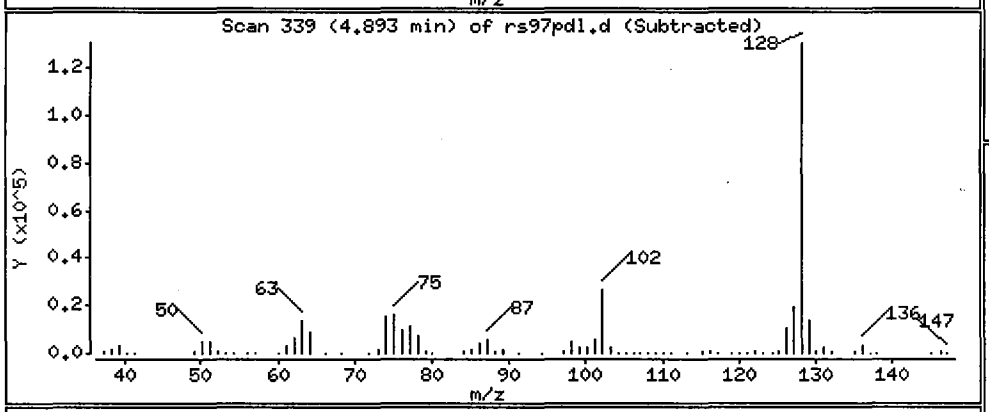
Sample Info: RS97P,10

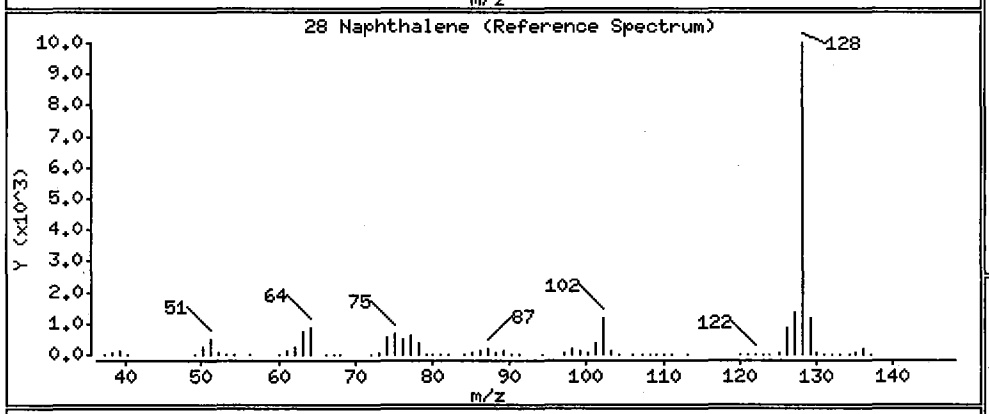
Volume Injected (uL): 1.0 Operator: VTS

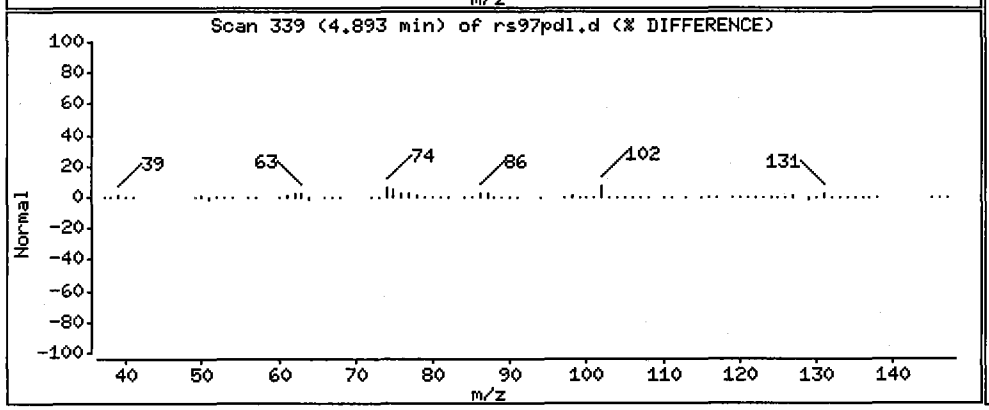
Column phase: ZB-5msi Column diameter: 0.32

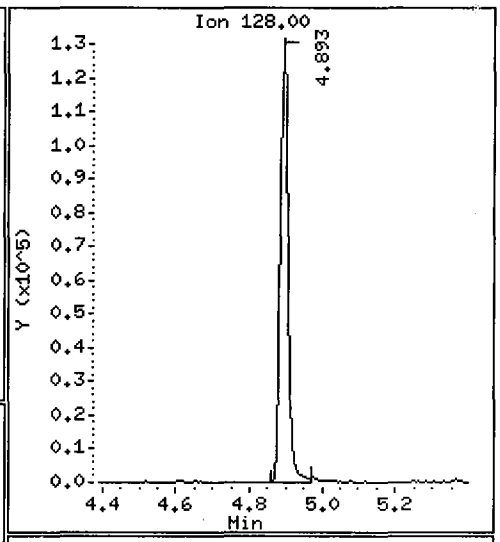
28 Naphthalene Concentration: 532500 ug/kg

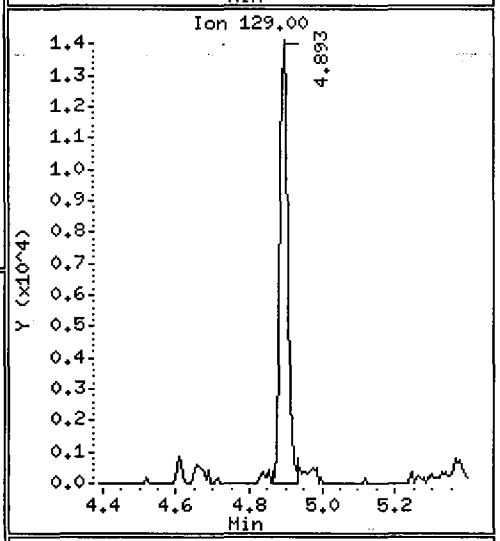


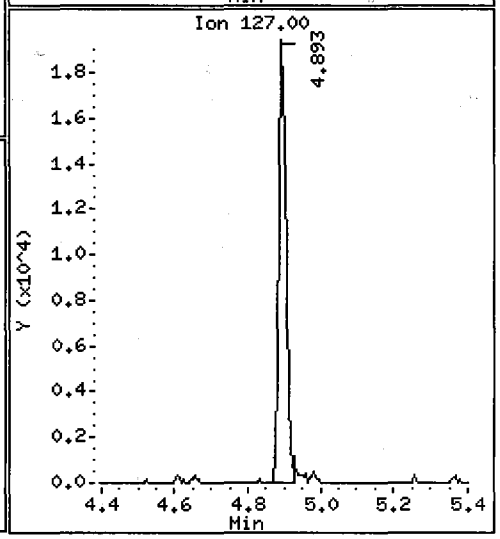












Data File: /chem1/nt12.i/20101111.b/rs97pdl.d

Date : 11-NOV-2010 13:48

Client ID: DGS-07-9.710-101012

Instrument: nt12.i

Sample Info: RS97P,10

Volume Injected (uL): 1.0

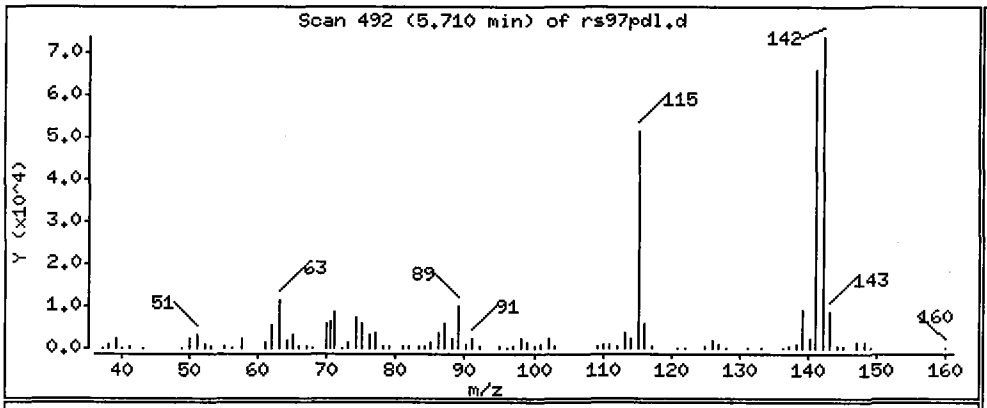
Operator: VTS

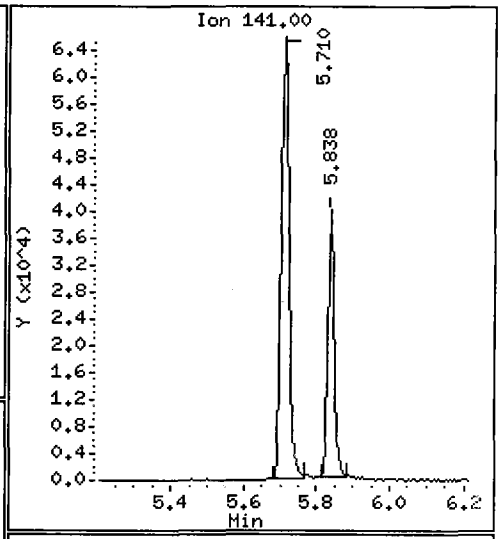
Column phase: ZB-5msi

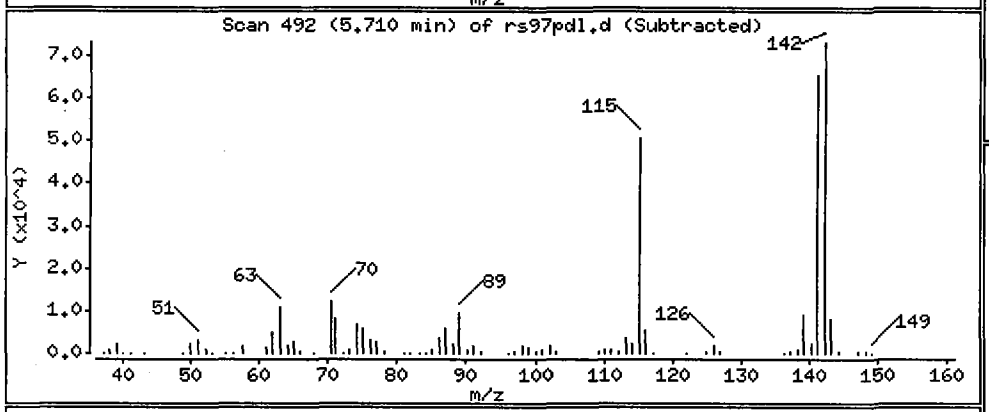
Column diameter: 0.32

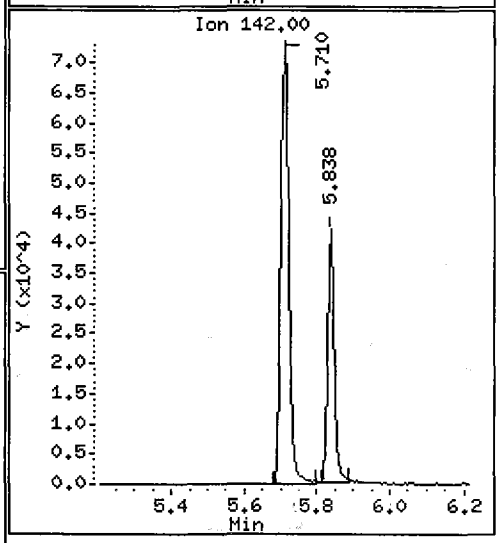
32 2-Methylnaphthalene

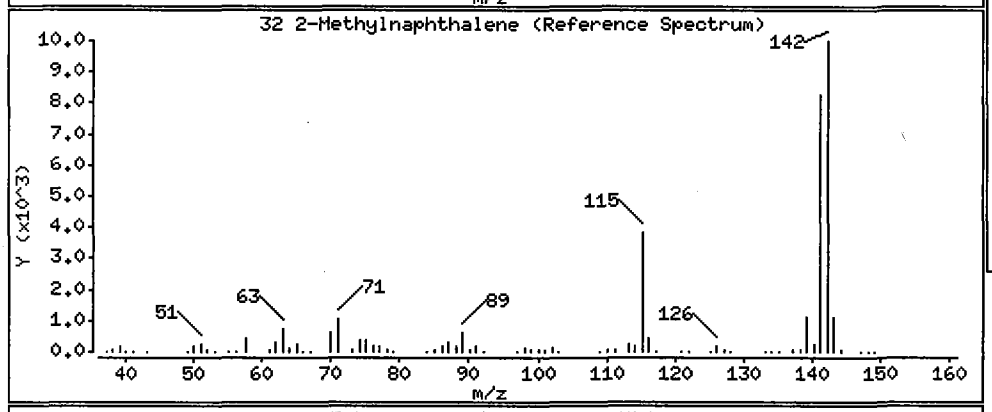
Concentration: 505000 ug/kg

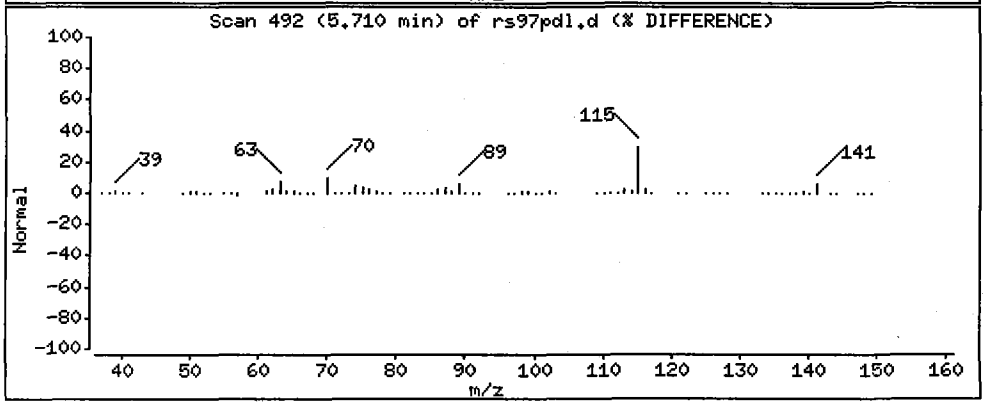












Data File: /chem1/nt12.i/20101111.b/rs97pdl.d

Date : 11-NOV-2010 13:48

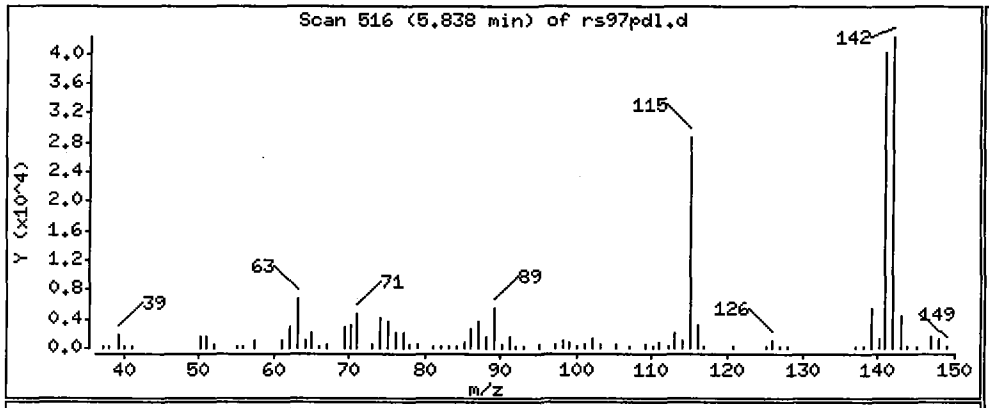
Client ID: DGS-07-9.710-101012 Instrument: nt12.i

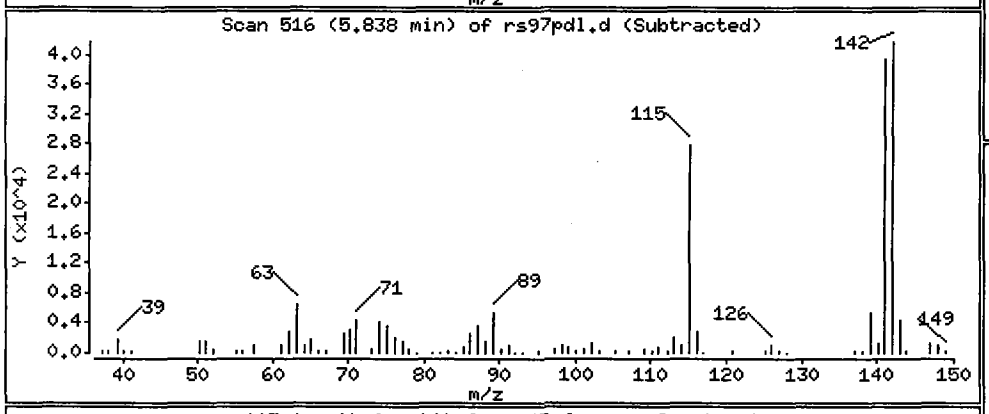
Sample Info: RS97P,10

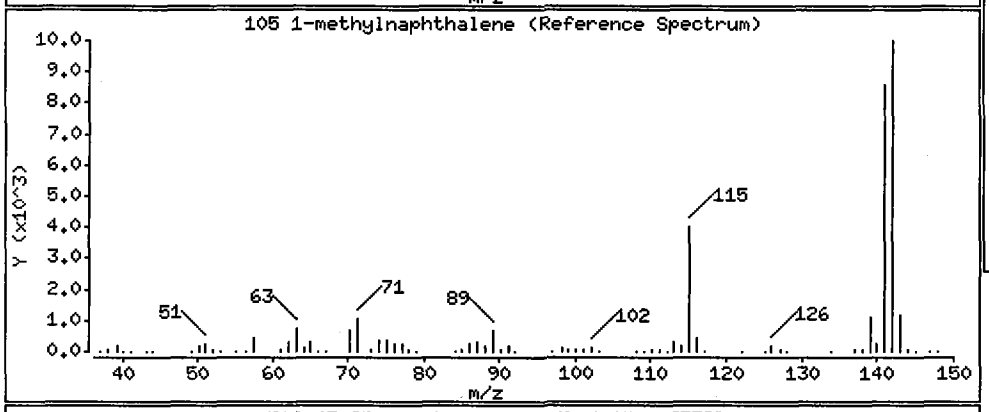
Volume Injected (uL): 1.0 Operator: VTS

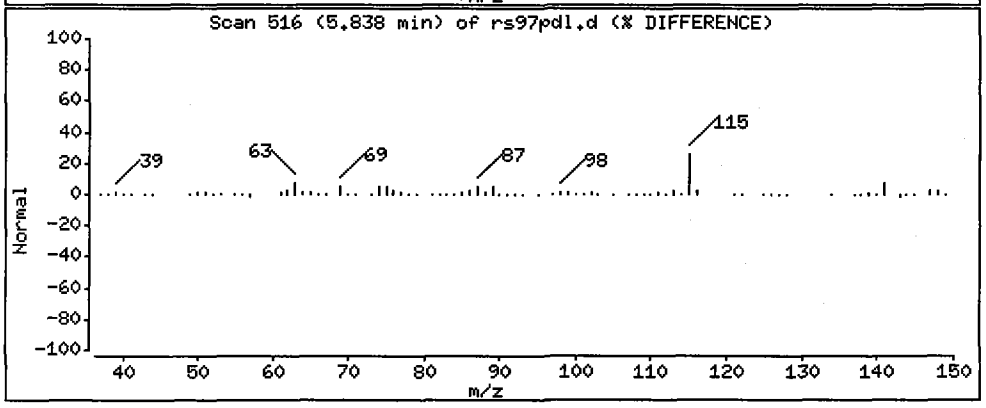
Column phase: ZB-5msi Column diameter: 0.32

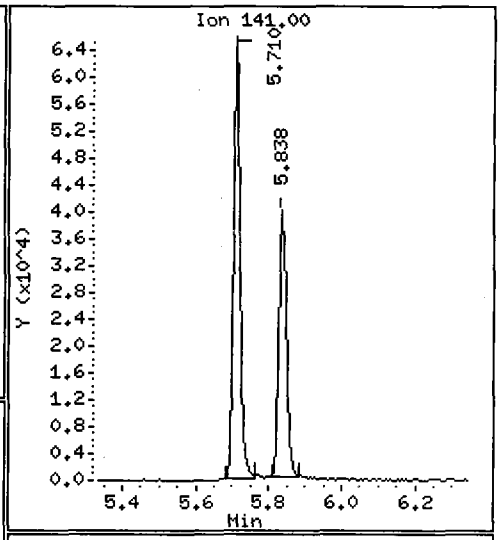
105 1-methylnaphthalene Concentration: 285300 ug/kg

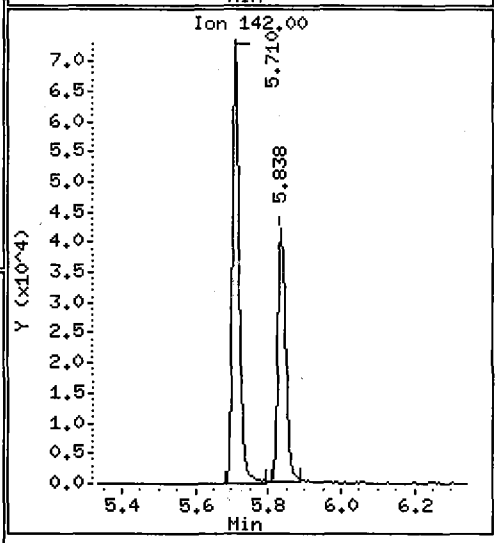












Data File: /chem1/nt12.i/20101111.b/rs97pdl.d

Date : 11-NOV-2010 13:48

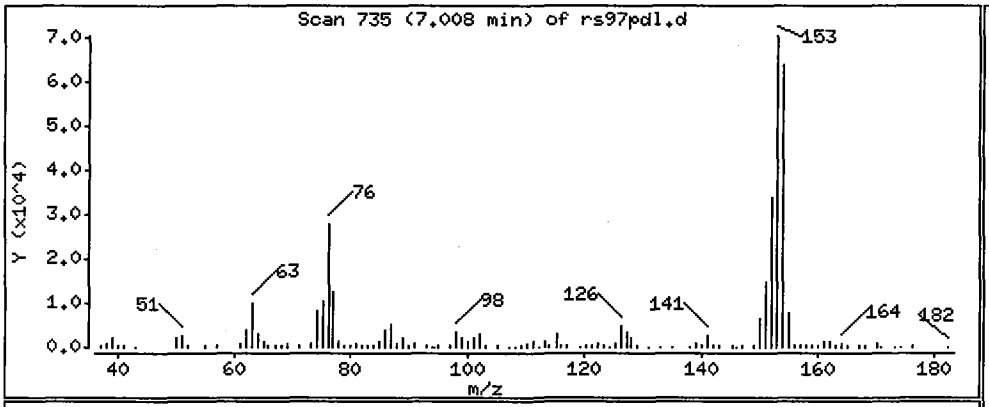
Client ID: DGS-07-9.710-101012 Instrument: nt12.i

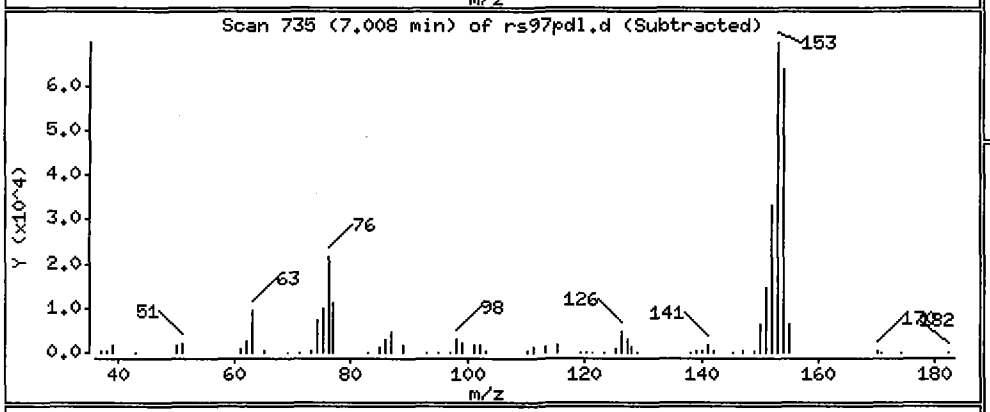
Sample Info: RS97P,10

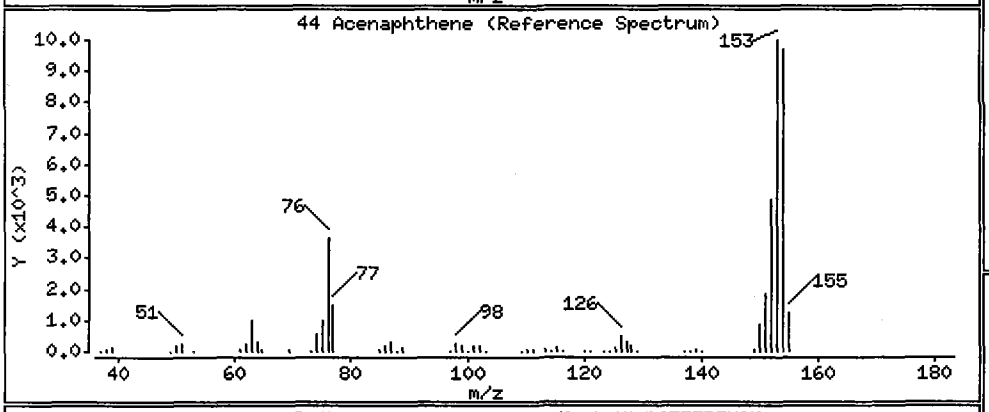
Volume Injected (uL): 1.0 Operator: VTS

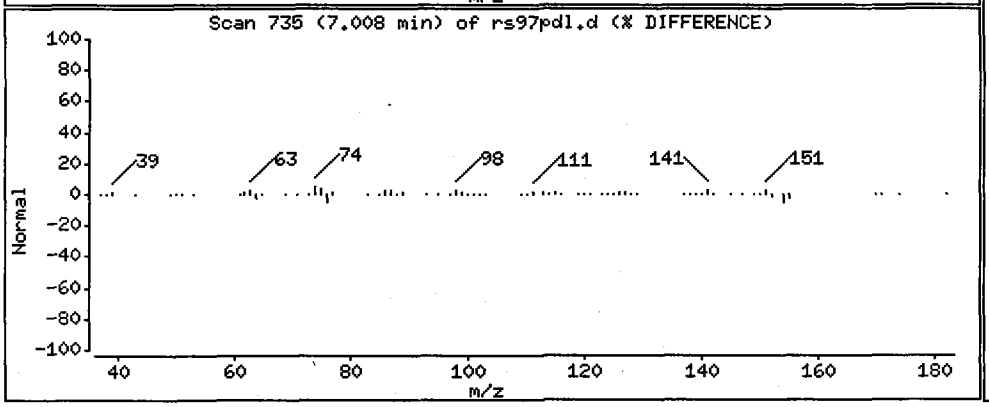
Column phase: ZB-5msi Column diameter: 0.32

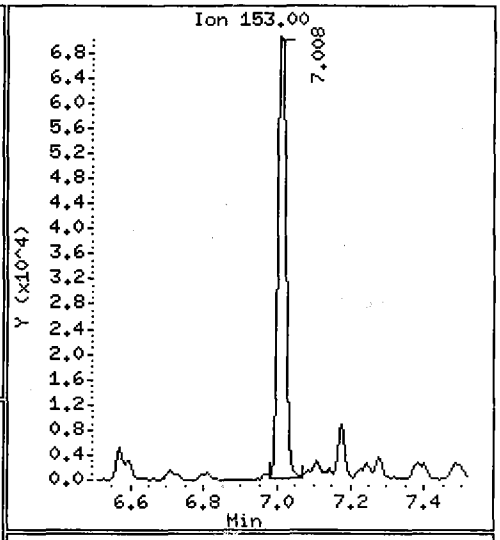
44 Acenaphthene Concentration: 442600 ug/kg

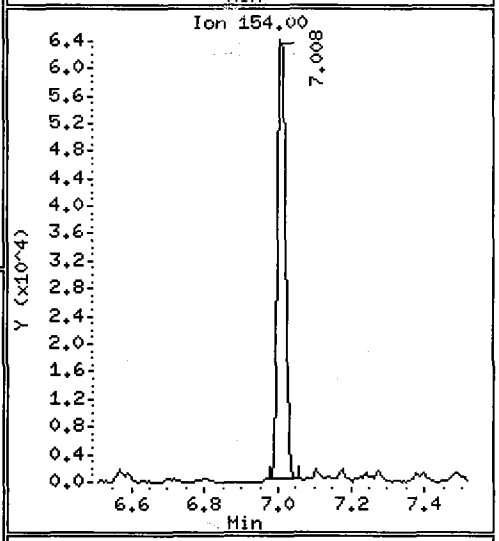


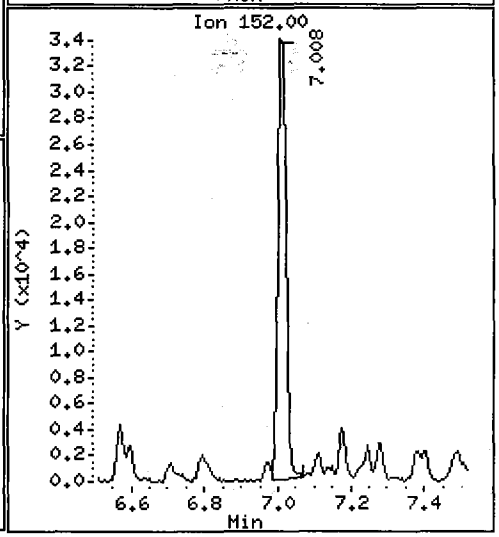












Data File: /chem1/nt12.i/20101111.b/rs97pdl.d

Date : 11-NOV-2010 13:48

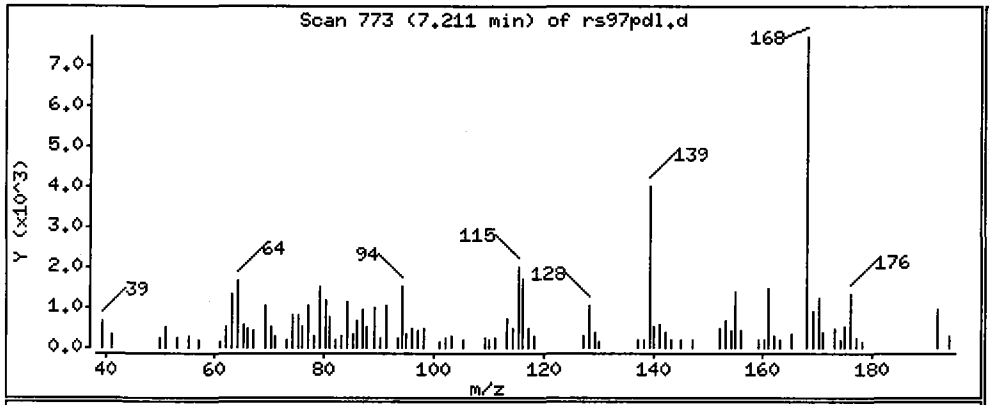
Client ID: DGS-07-9.710-101012 Instrument: nt12.i

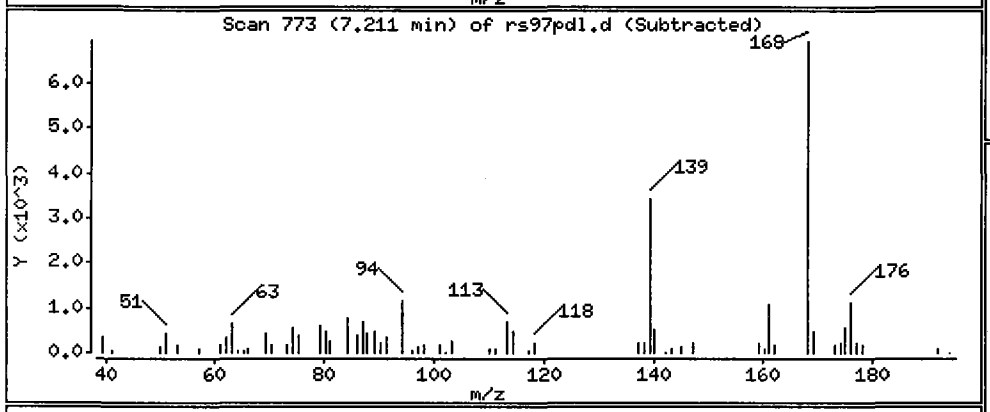
Sample Info: RS97P,10

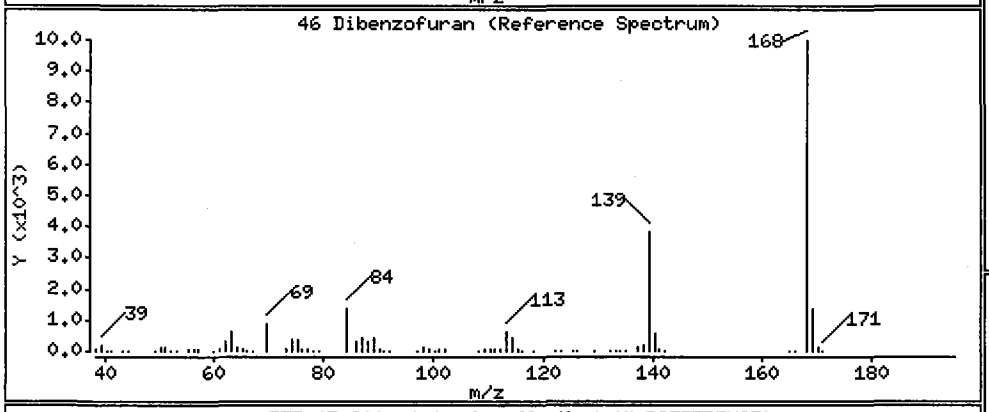
Volume Injected (uL): 1.0 Operator: VTS

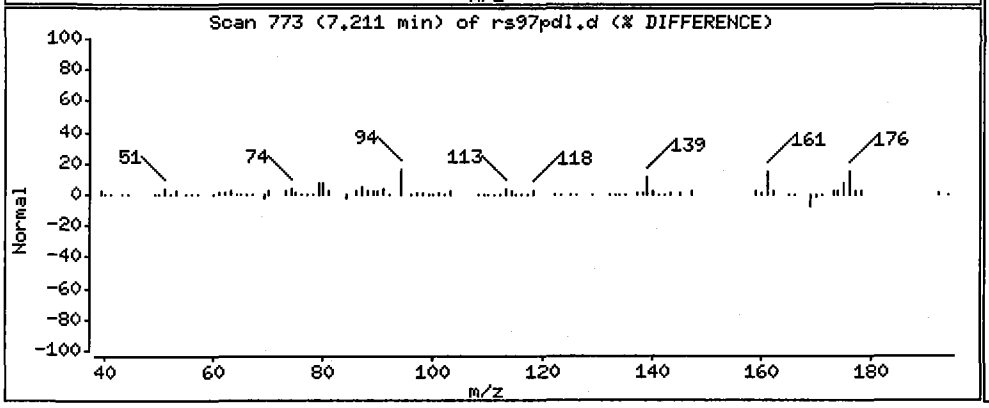
Column phase: ZB-5msi Column diameter: 0.32

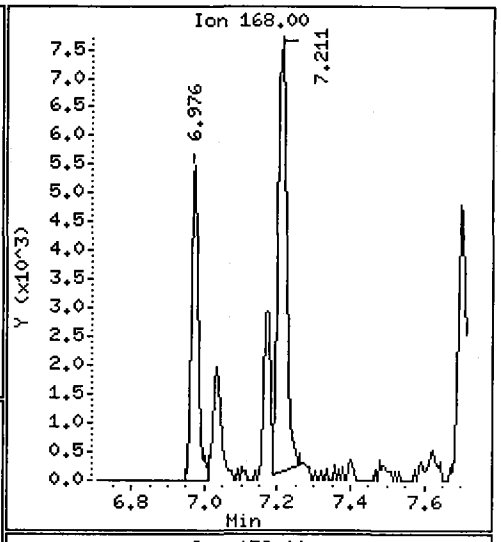
46 Dibenzofuran Concentration: 34130 ug/kg

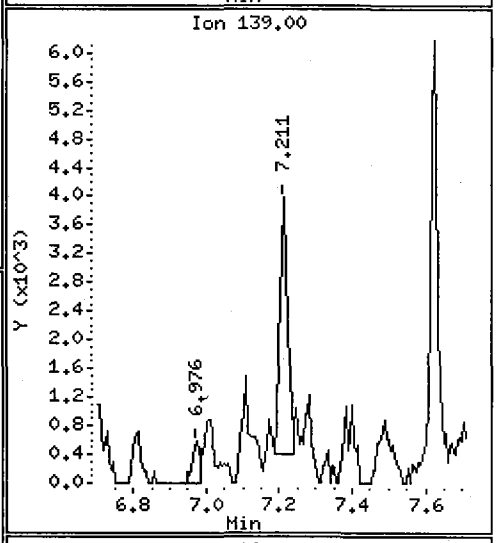


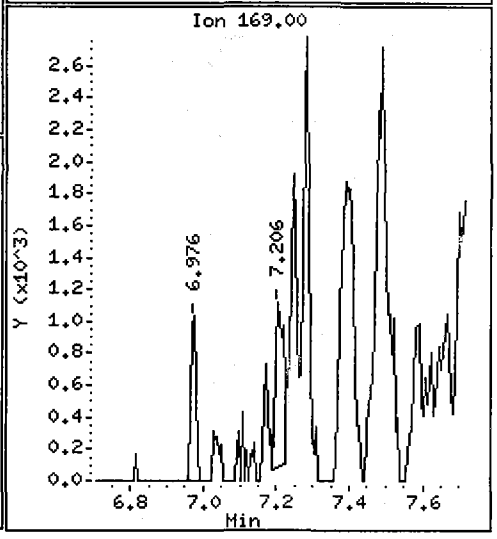












Data File: /chem1/nt12.i/20101111.b/rs97pdl.d

Date : 11-NOV-2010 13:48

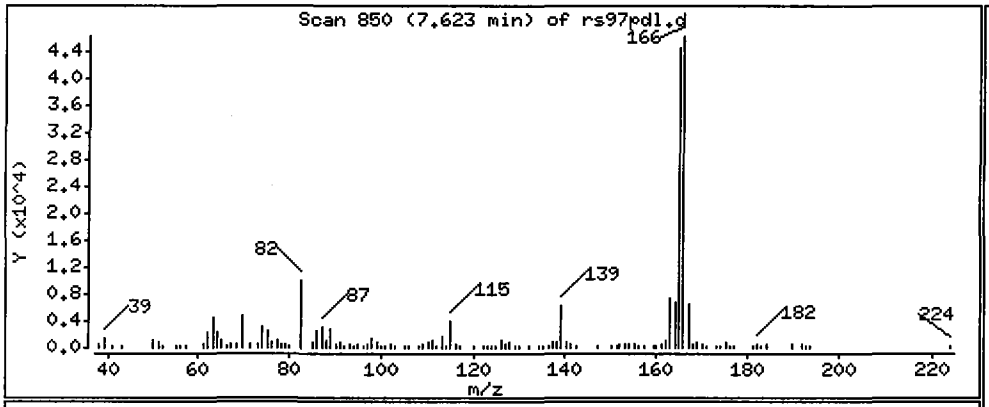
Client ID: DGS-07-9.710-101012 Instrument: nt12.i

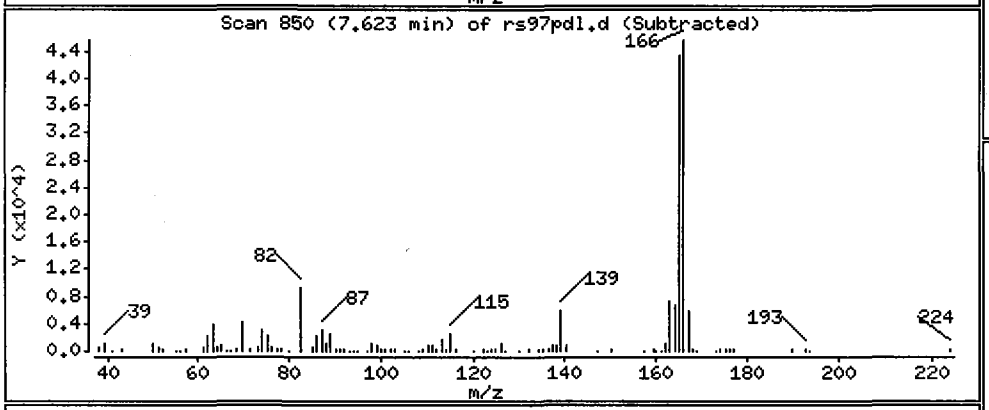
Sample Info: RS97P,10

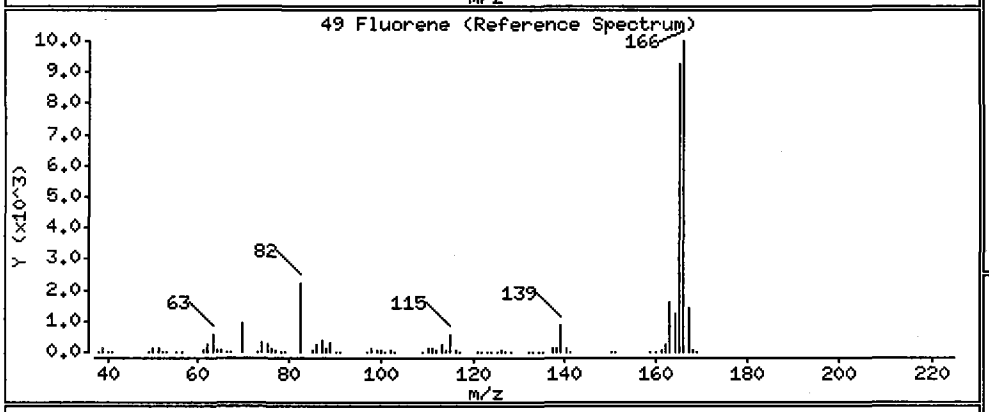
Volume Injected (uL): 1.0 Operator: VTS

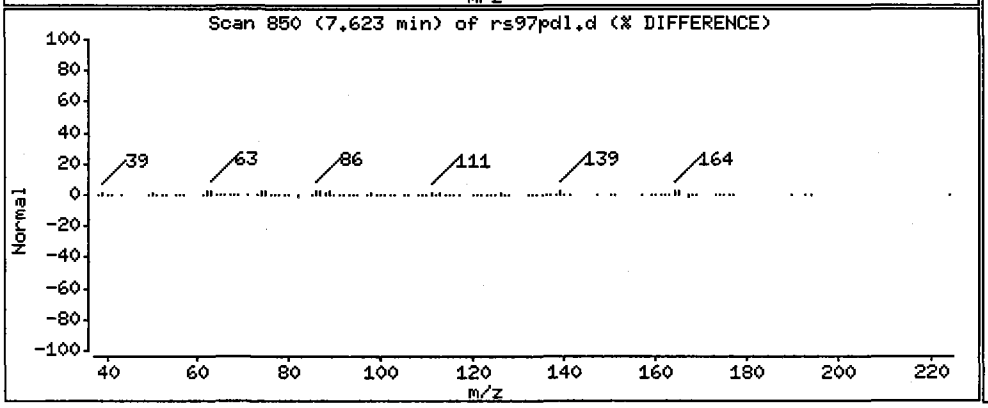
Column phase: ZB-5msi Column diameter: 0.32

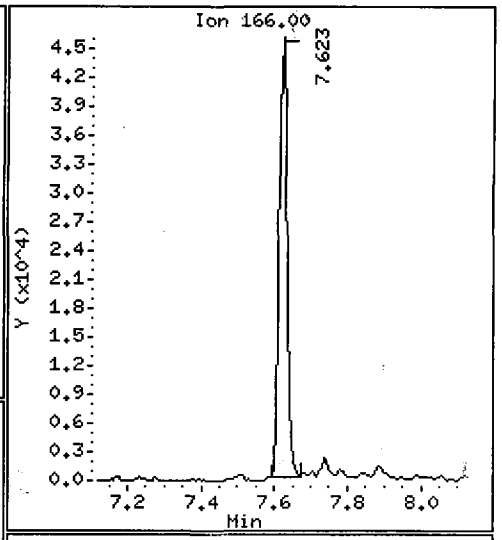
49 Fluorene Concentration: 247000 ug/kg

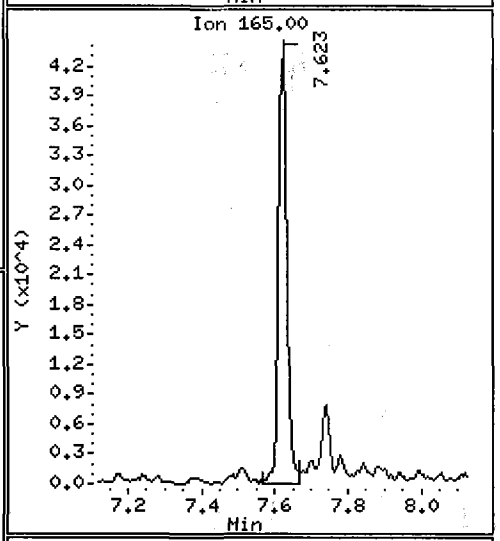


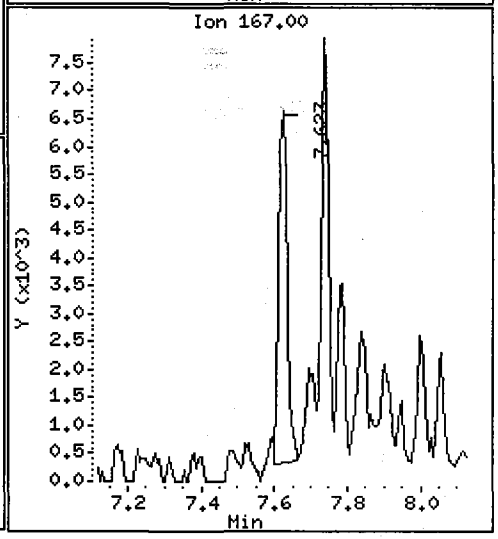












Data File: /chem1/nt12.i/20101111.b/rs97pdl.d

Date : 11-NOV-2010 13:48

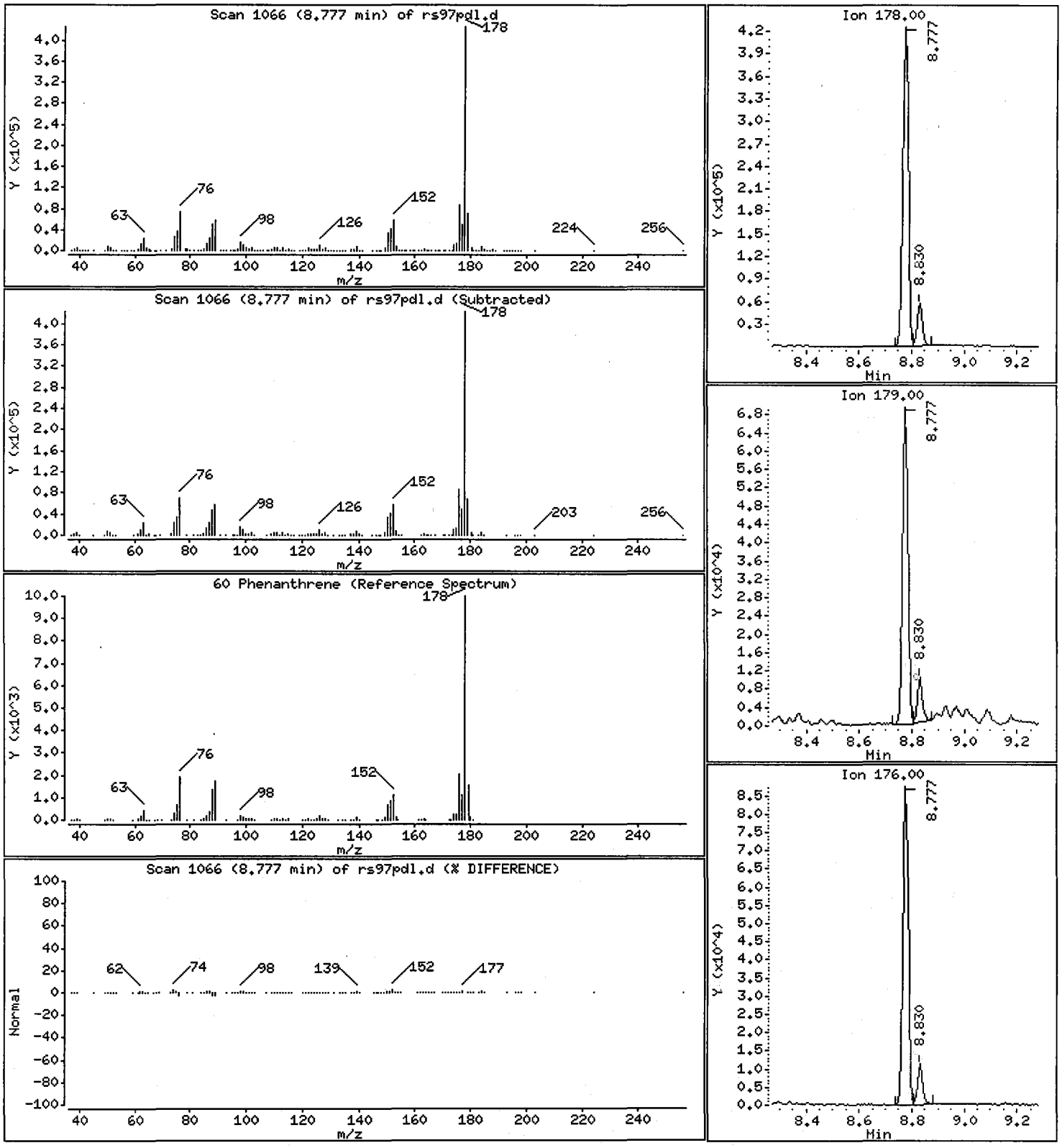
Client ID: DGS-07-9.710-101012 Instrument: nt12.i

Sample Info: RS97P,10

Volume Injected (uL): 1.0 Operator: VTS

Column phase: ZB-5msi Column diameter: 0.32

60 Phenanthrene Concentration: 1609000 ug/kg



Data File: /chem1/nt12.i/20101111.b/rs97pdl.d

Date : 11-NOV-2010 13:48

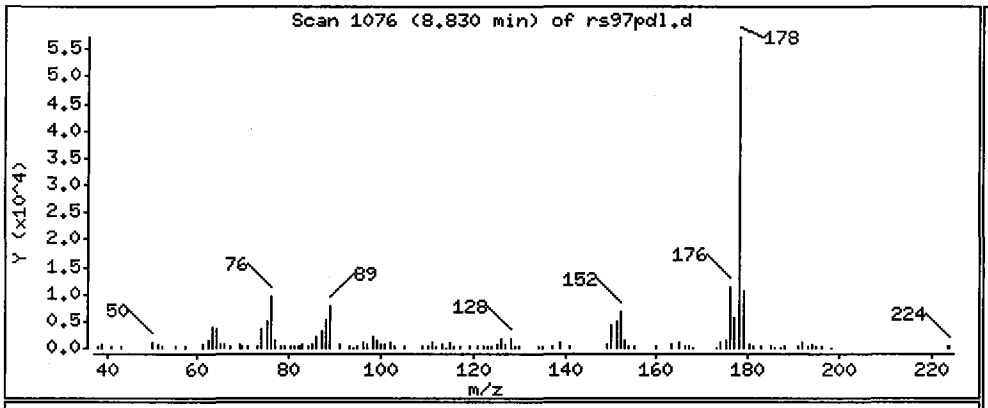
Client ID: DGS-07-9.710-101012 Instrument: nt12.i

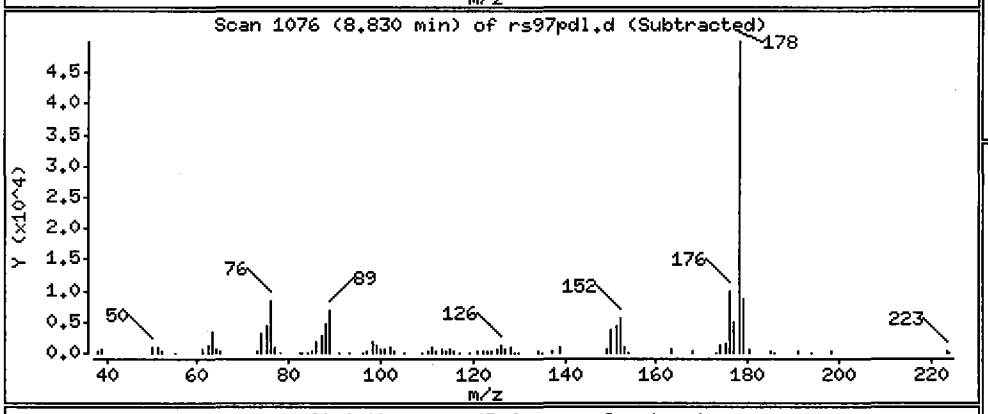
Sample Info: RS97P,10

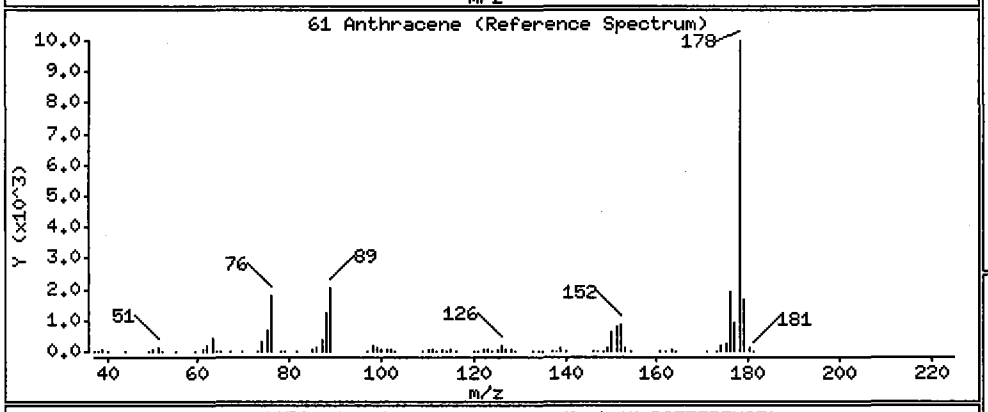
Volume Injected (uL): 1.0 Operator: VTS

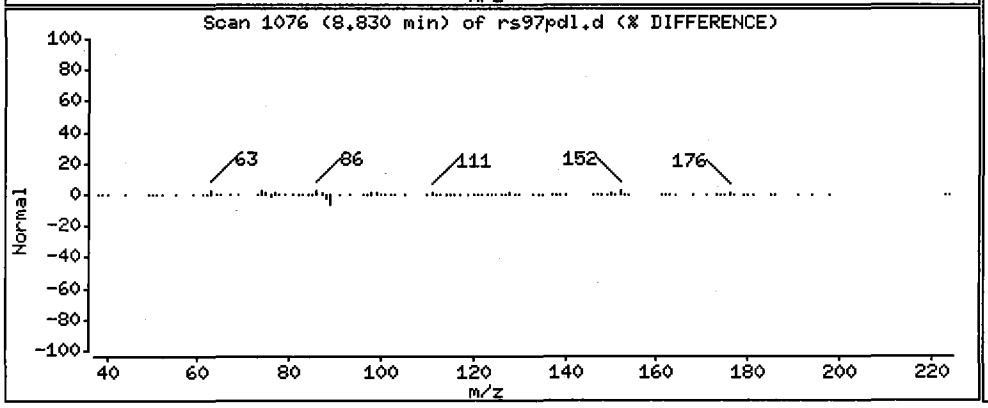
Column phase: ZB-5msi Column diameter: 0.32

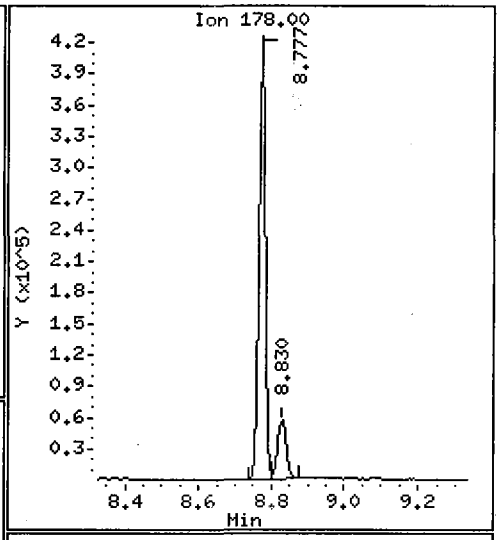
61 Anthracene Concentration: 242400 ug/kg

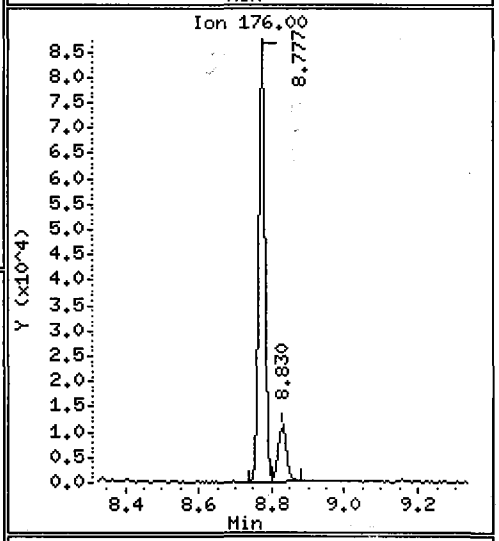


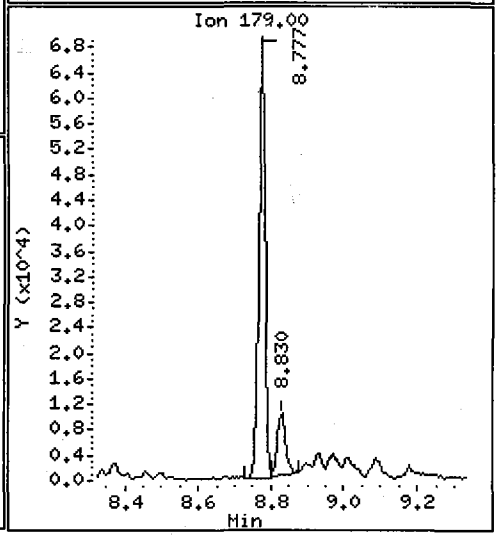












Data File: /chem1/nt12.i/20101111.b/rs97pdl.d

Date : 11-NOV-2010 13:48

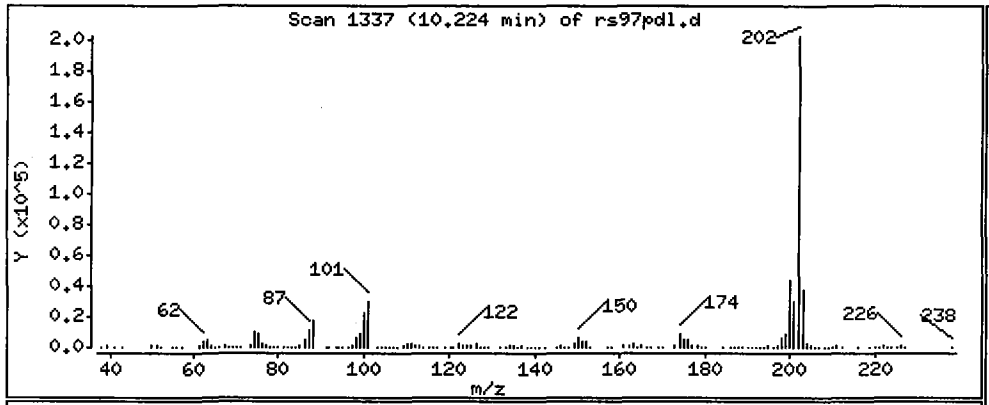
Client ID: DGS-07-9.710-101012 Instrument: nt12.i

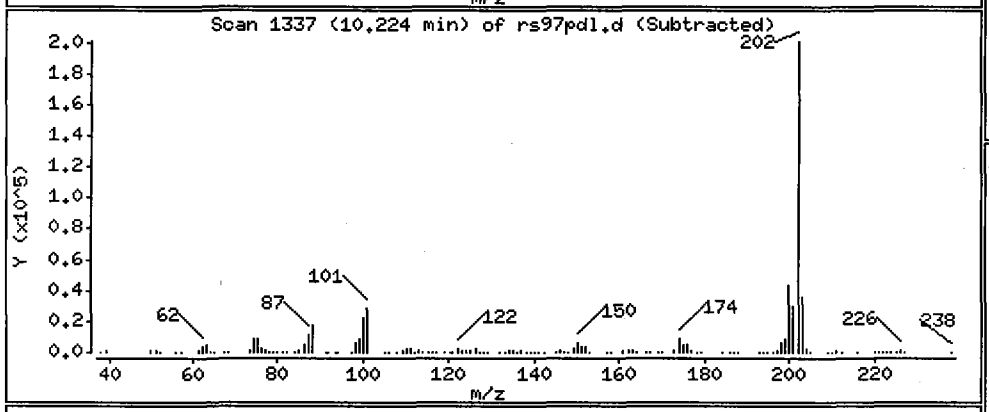
Sample Info: RS97P,10

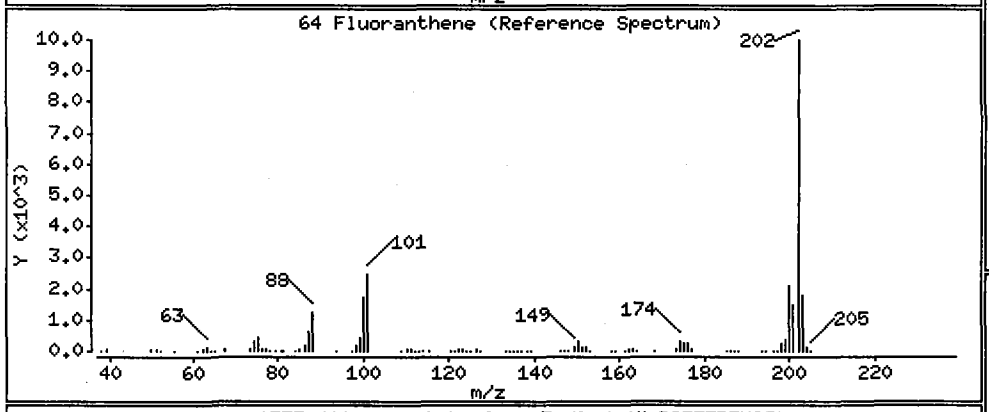
Volume Injected (uL): 1.0 Operator: VTS

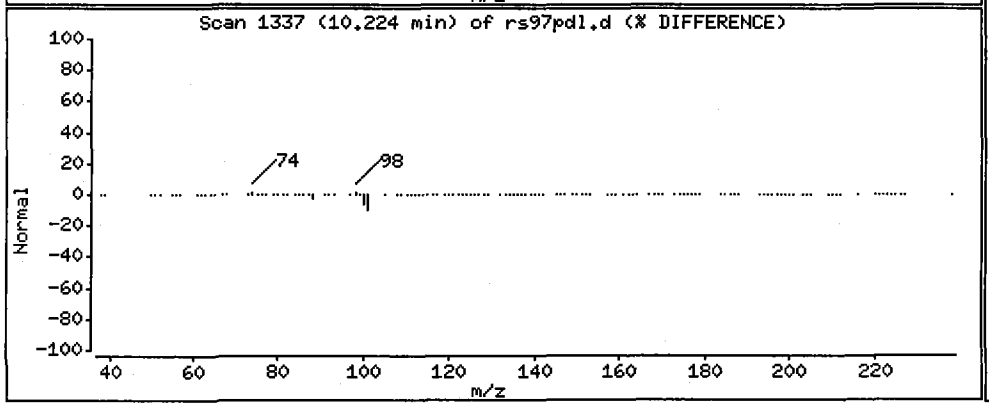
Column phase: ZB-5msi Column diameter: 0.32

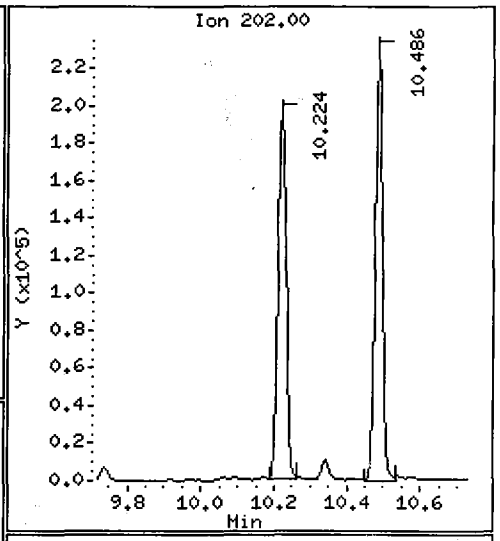
64 Fluoranthene Concentration: 675700 ug/kg

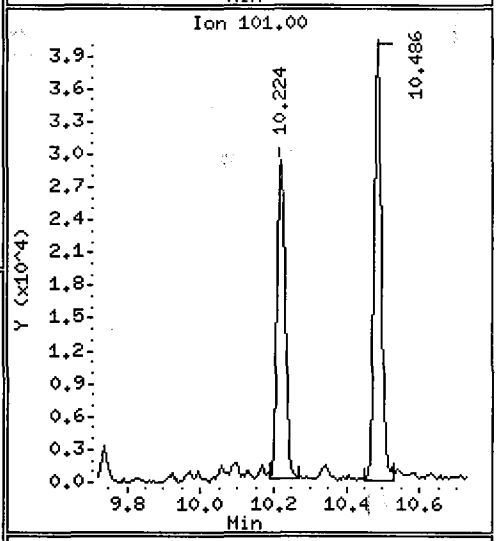


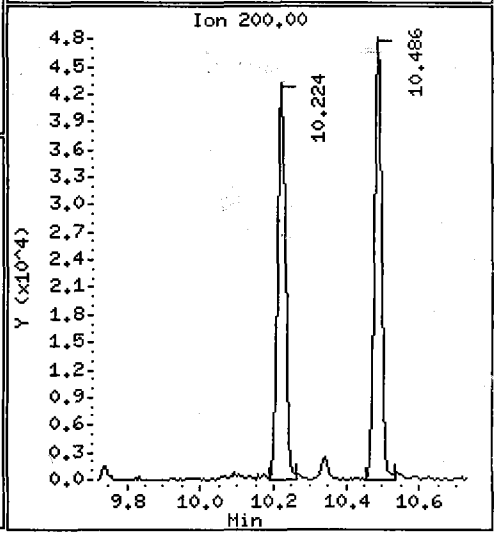












Data File: /chem1/nt12.i/20101111.b/rs97pdl.d

Date : 11-NOV-2010 13:48

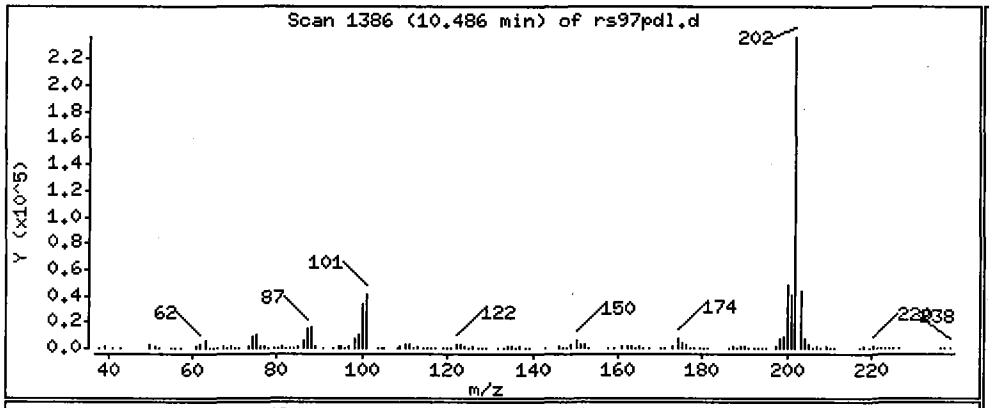
Client ID: DGS-07-9.710-101012 Instrument: nt12.i

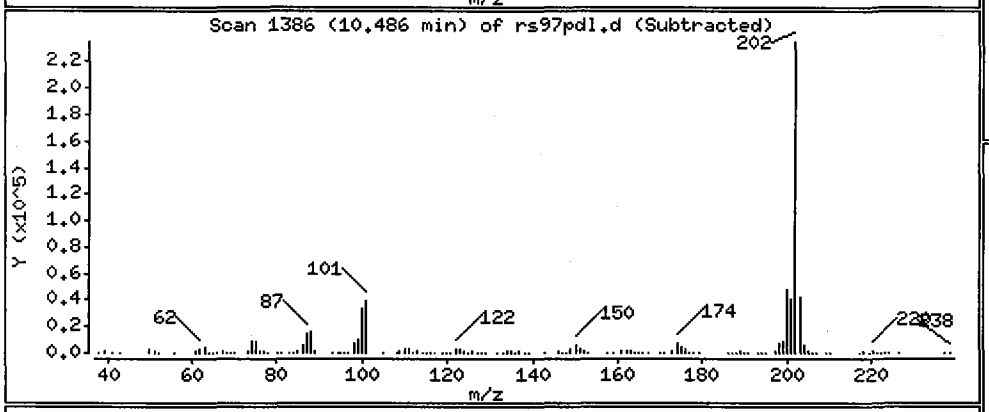
Sample Info: RS97P,10

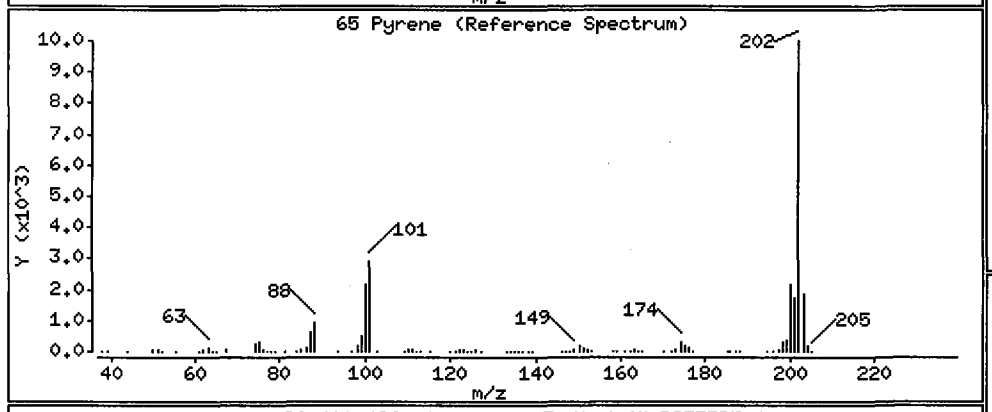
Volume Injected (uL): 1.0 Operator: VTS

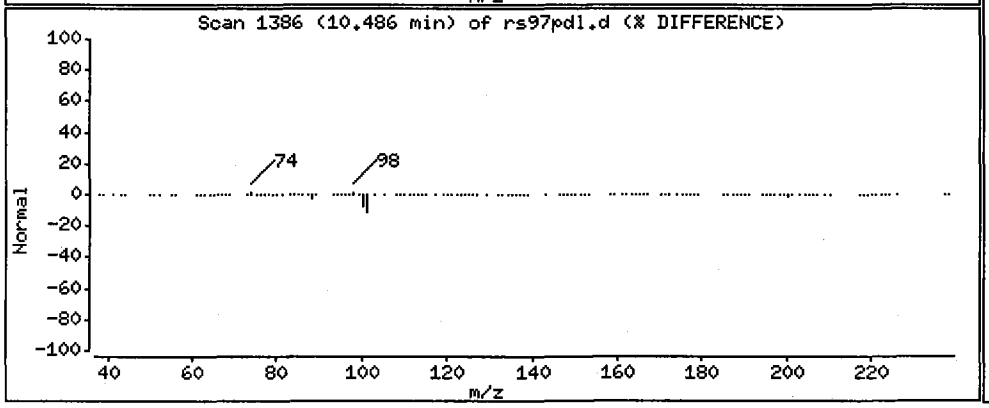
Column phase: ZB-5msi Column diameter: 0.32

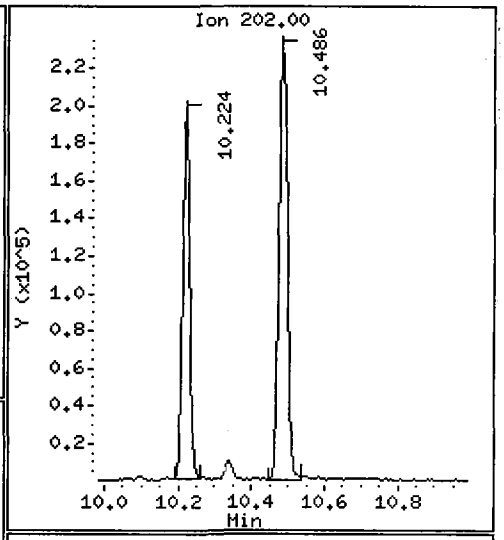
65 Pyrene Concentration: 822300 ug/kg

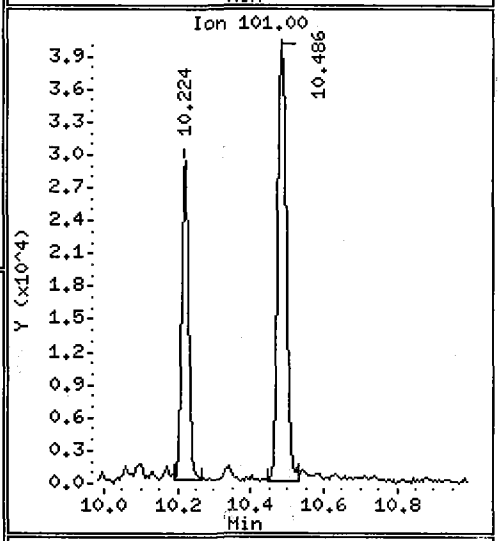


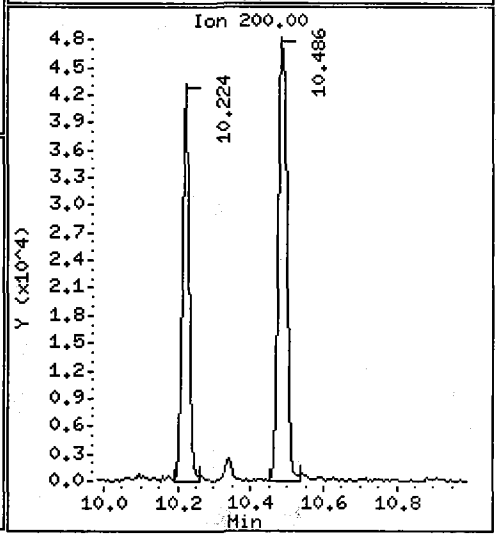












Data File: /chem1/nt12.i/20101111.b/rs97pdl.d

Date : 11-NOV-2010 13:48

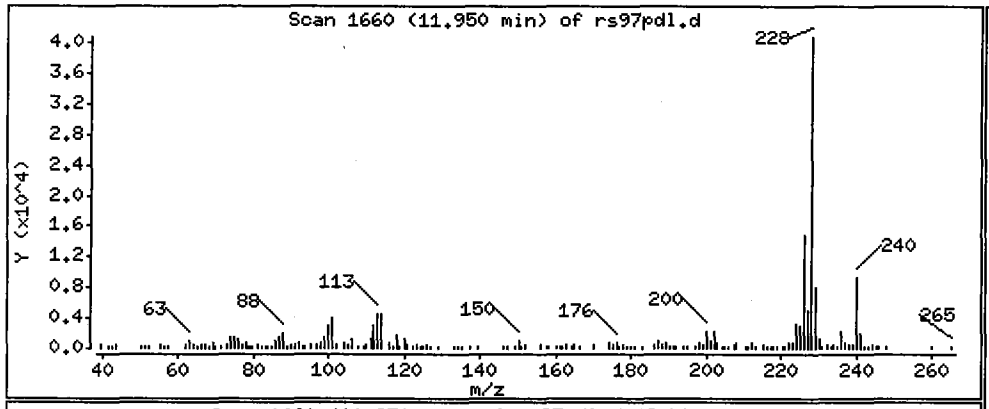
Client ID: DGS-07-9.710-101012 Instrument: nt12.i

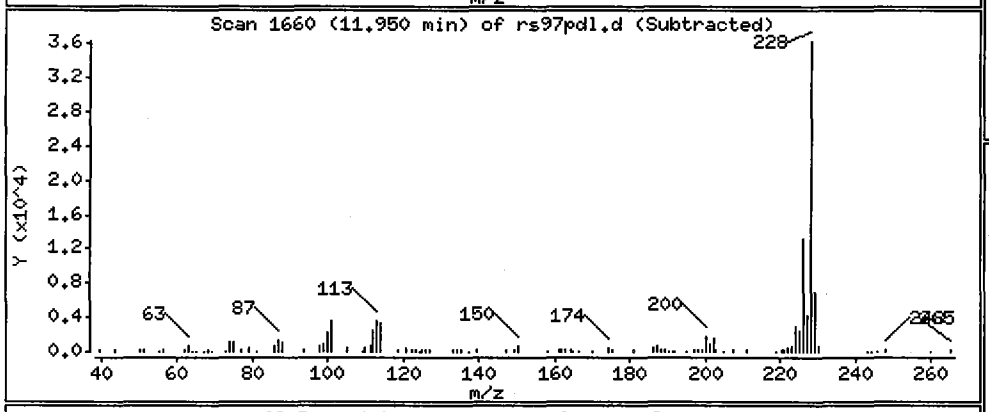
Sample Info: RS97P,10

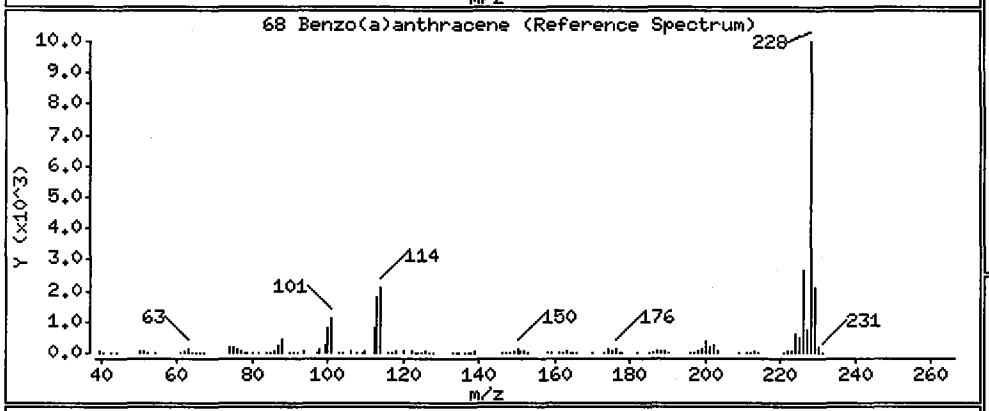
Volume Injected (uL): 1.0 Operator: VTS

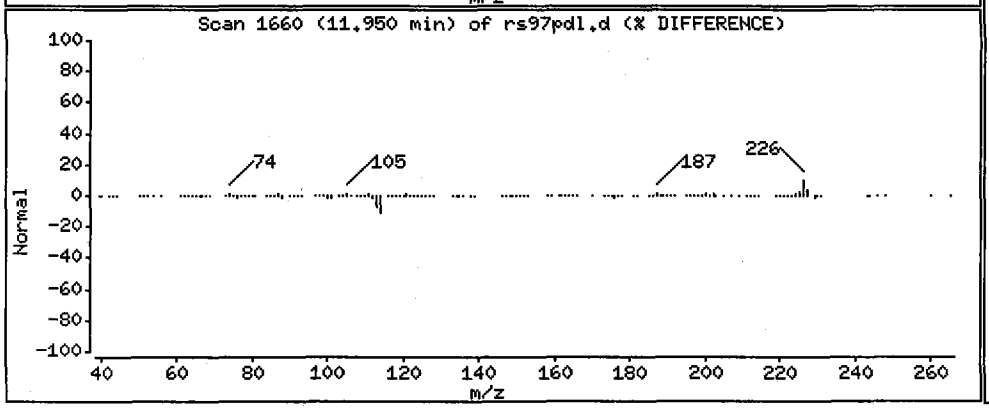
Column phase: ZB-5msi Column diameter: 0.32

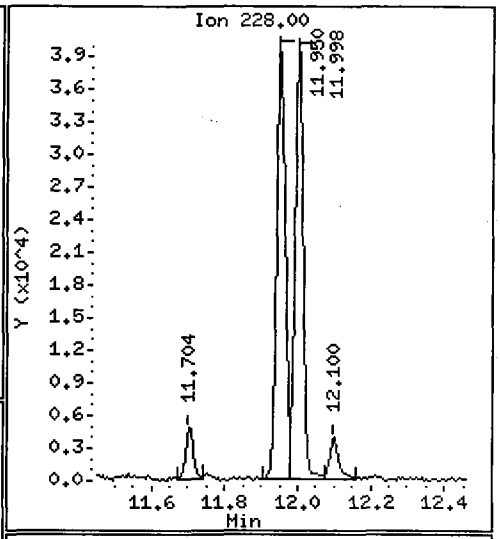
68 Benzo(a)anthracene Concentration: 179600 ug/kg

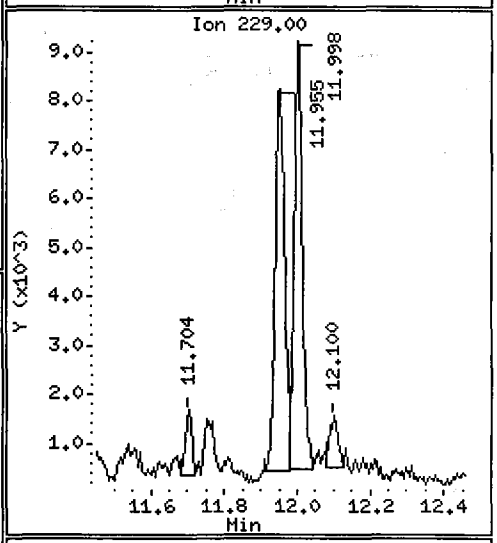


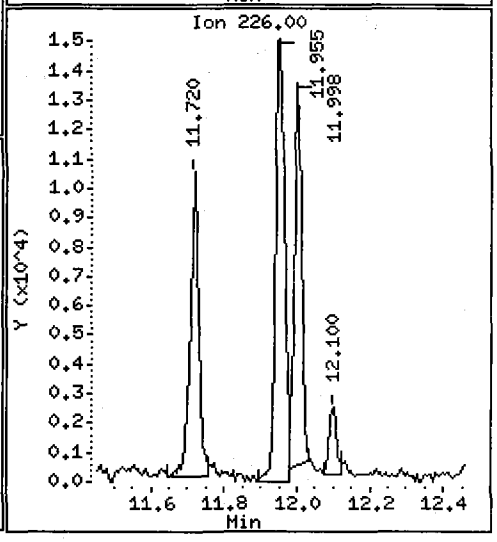












Data File: /chem1/nt12.i/20101111.b/rs97pdl.d

Date : 11-NOV-2010 13:48

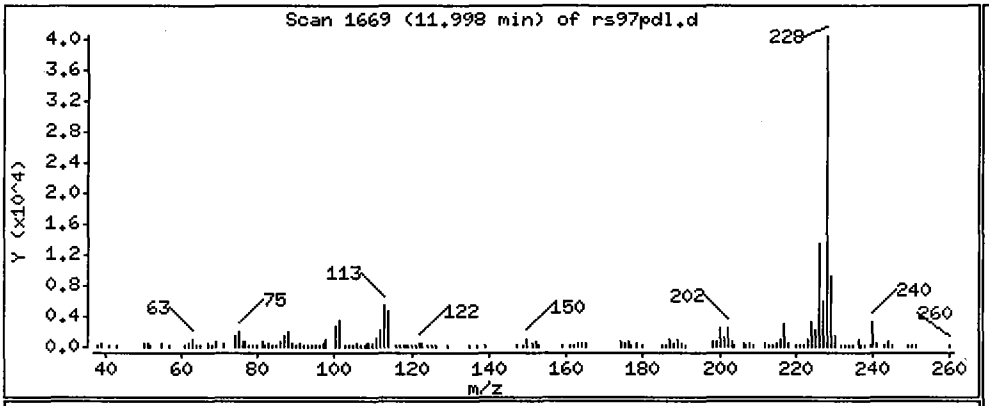
Client ID: DGS-07-9.710-101012 Instrument: nt12.i

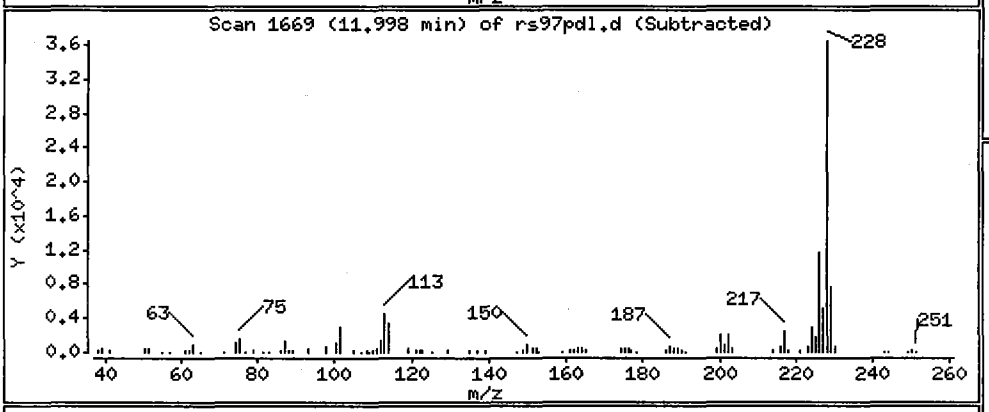
Sample Info: RS97P,10

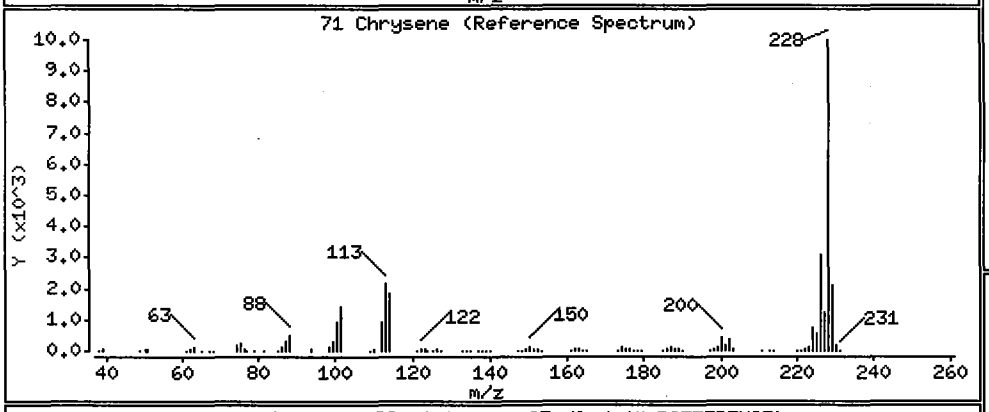
Volume Injected (uL): 1.0 Operator: VTS

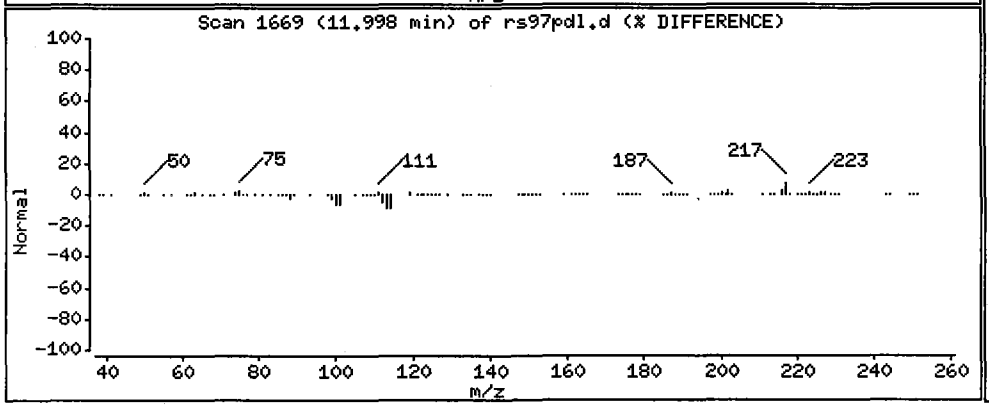
Column phase: ZB-5msi Column diameter: 0.32

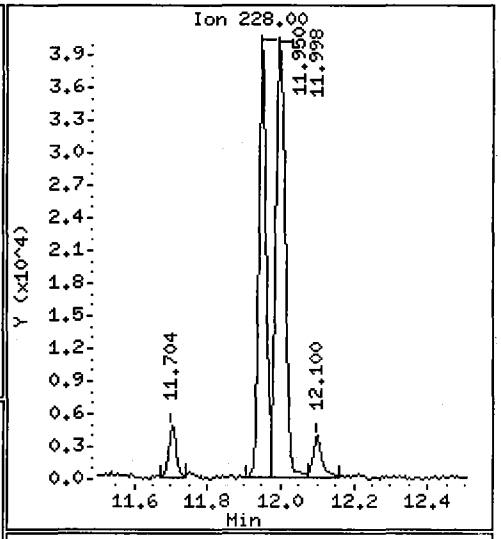
71 Chrysene Concentration: 216400 ug/kg

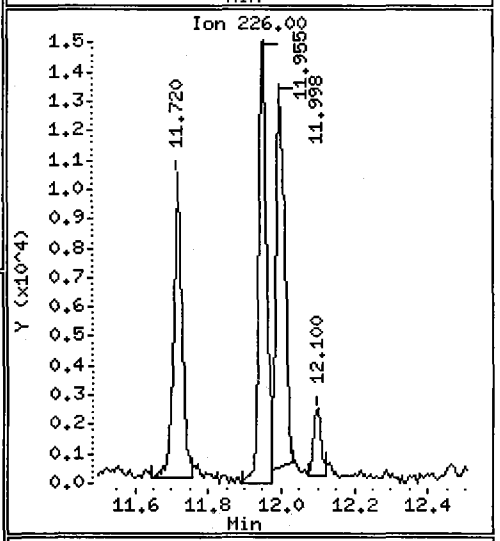


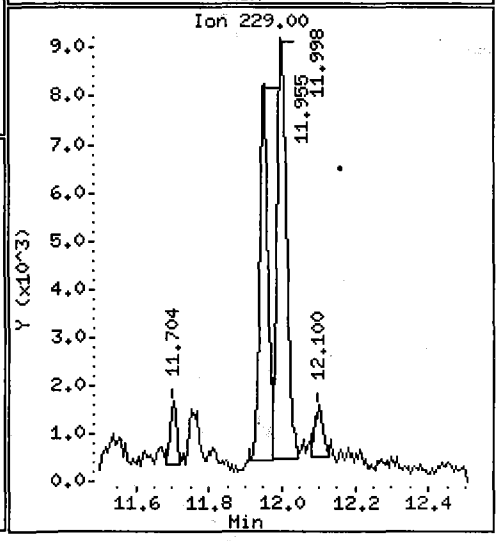












Data File: /chem1/nt12.i/20101111.b/rs97pdl.d

Date : 11-NOV-2010 13:48

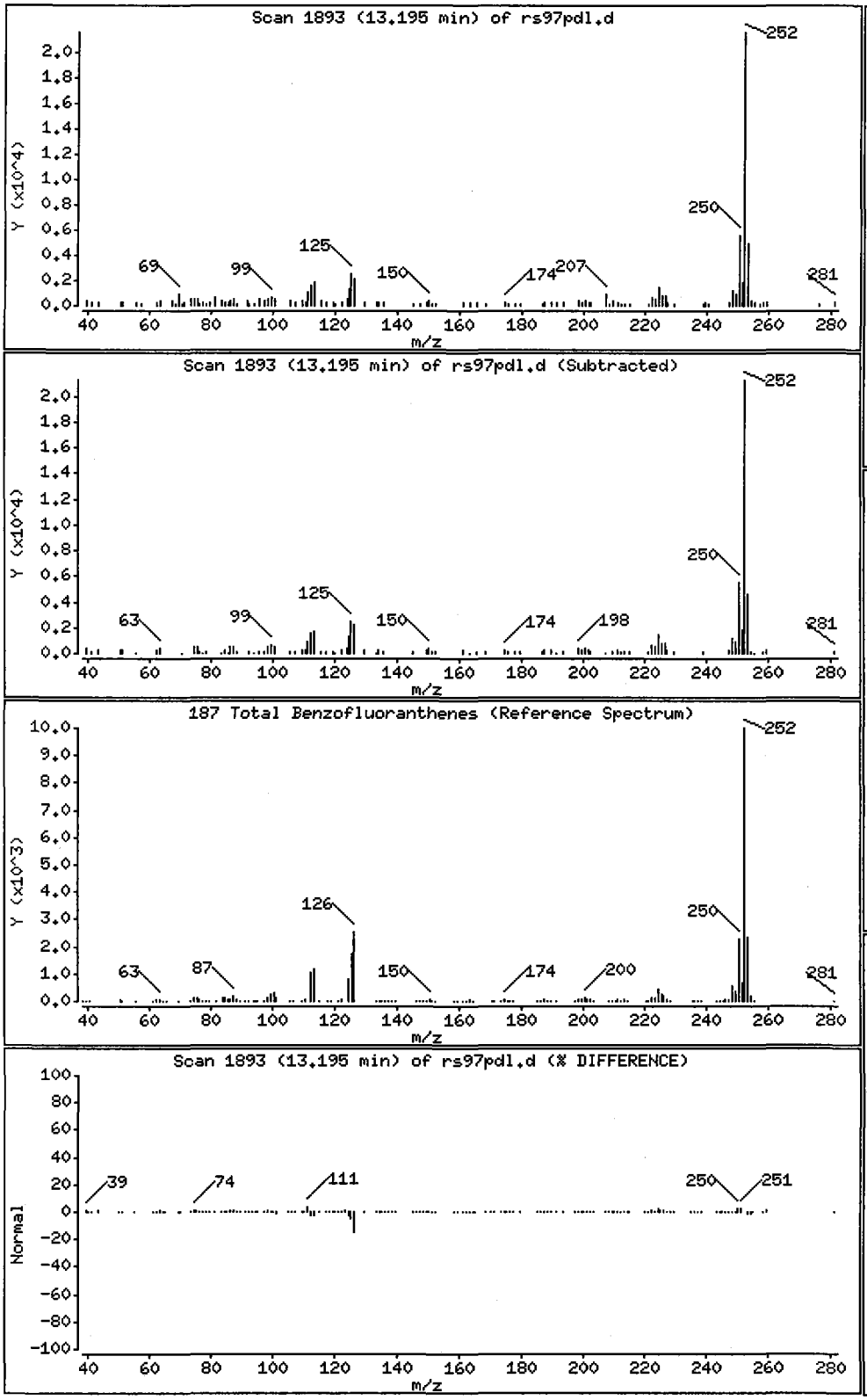
Client ID: DGS-07-9.710-101012 Instrument: nt12.i

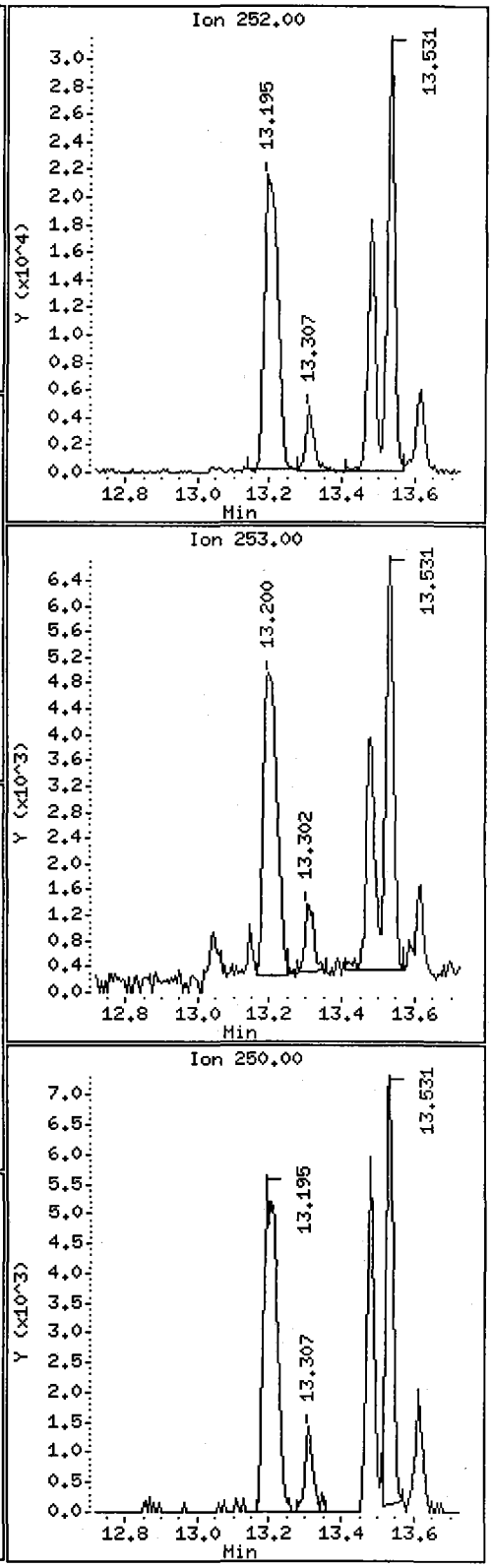
Sample Info: RS97P,10

Volume Injected (uL): 1.0 Operator: VTS

Column phase: ZB-5msi Column diameter: 0.32

187 Total Benzofluoranthenes Concentration: 222400 ug/kg





Data File: /chem1/nt12.i/20101111.b/rs97pdl.d

Date : 11-NOV-2010 13:48

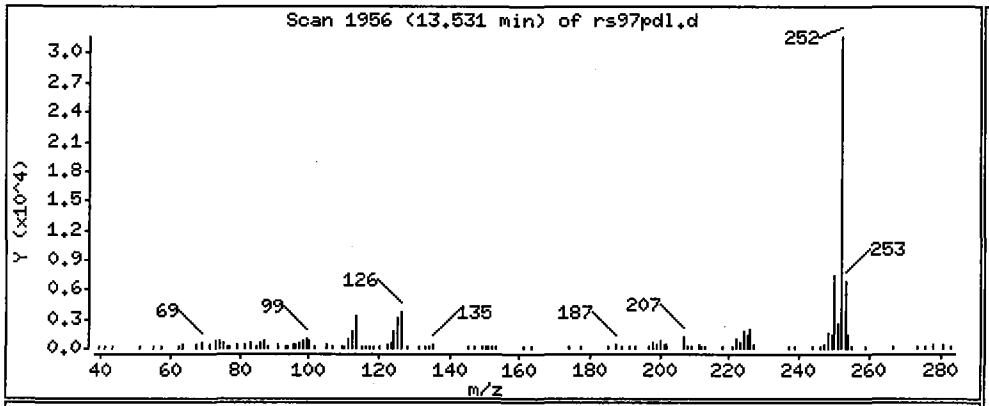
Client ID: DGS-07-9.710-101012 Instrument: nt12.i

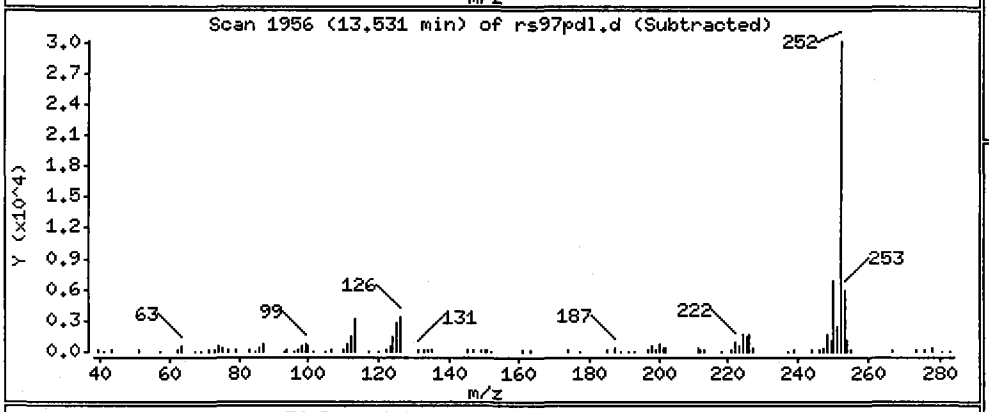
Sample Info: RS97P,10

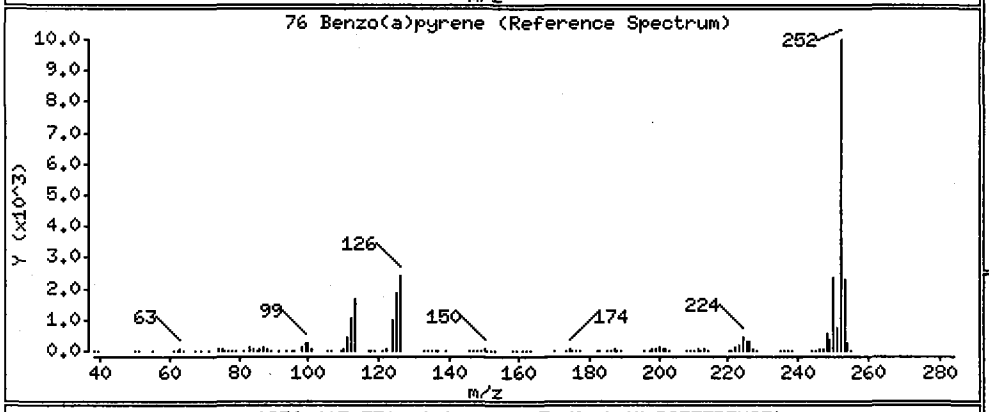
Volume Injected (uL): 1.0 Operator: VTS

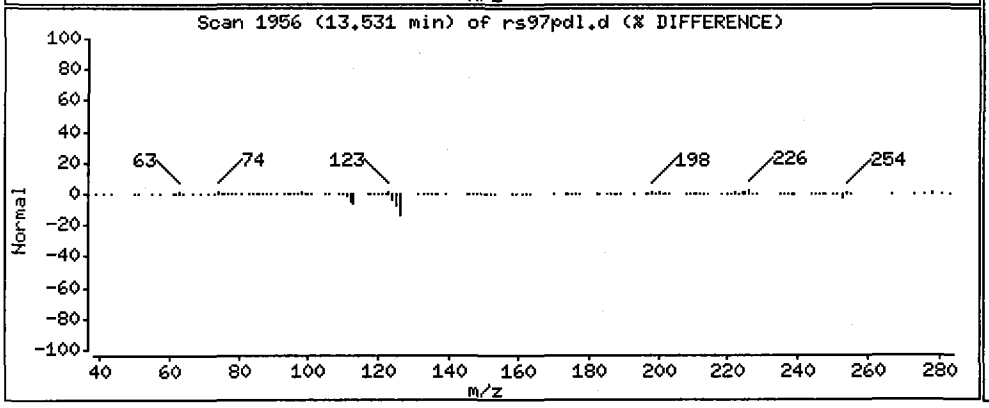
Column phase: ZB-5msi Column diameter: 0.32

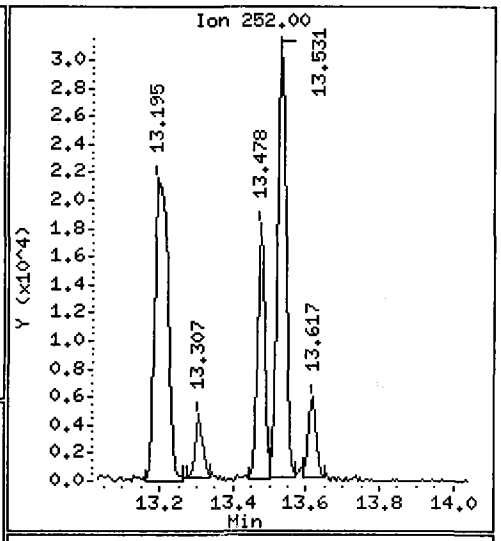
76 Benzo(a)pyrene Concentration: 195300 ug/kg

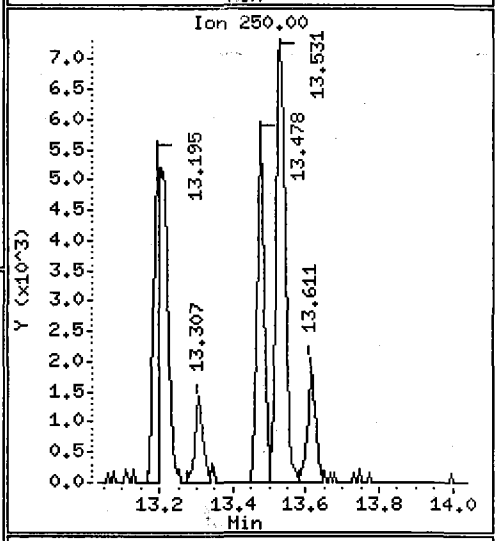


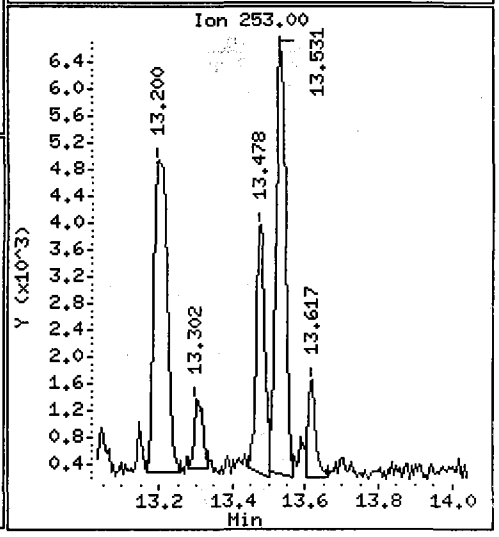












Data File: /chem1/nt12.i/20101111.b/rs97pdl.d

Date : 11-NOV-2010 13:48

Client ID: DGS-07-9.710-101012

Instrument: nt12.i

Sample Info: RS97P,10

Volume Injected (uL): 1.0

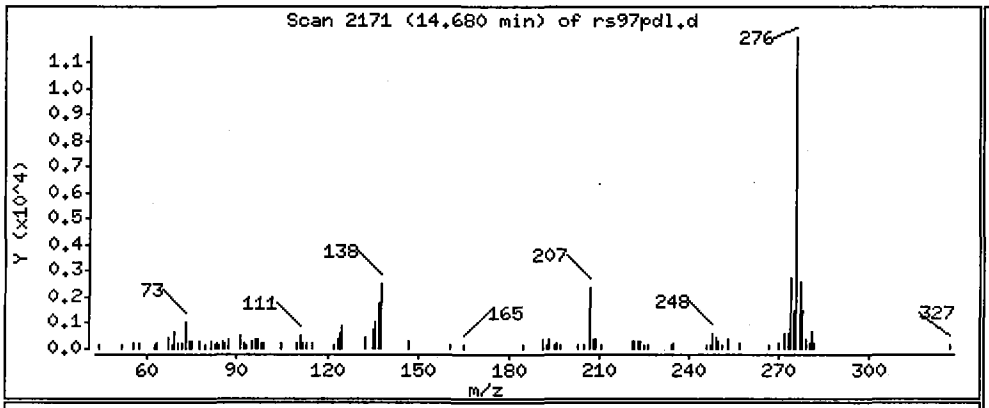
Operator: VTS

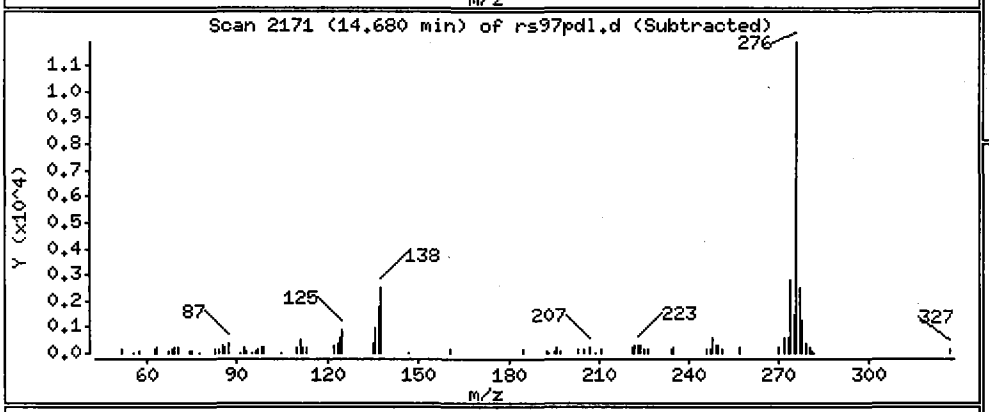
Column phase: ZB-5msi

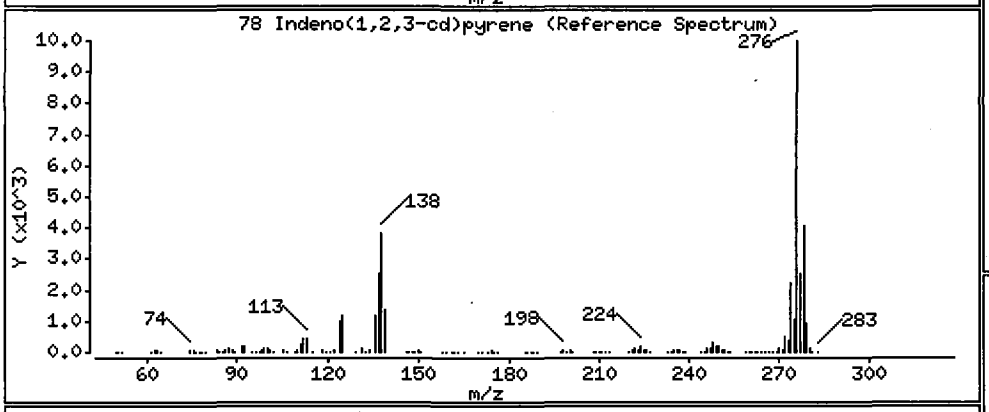
Column diameter: 0.32

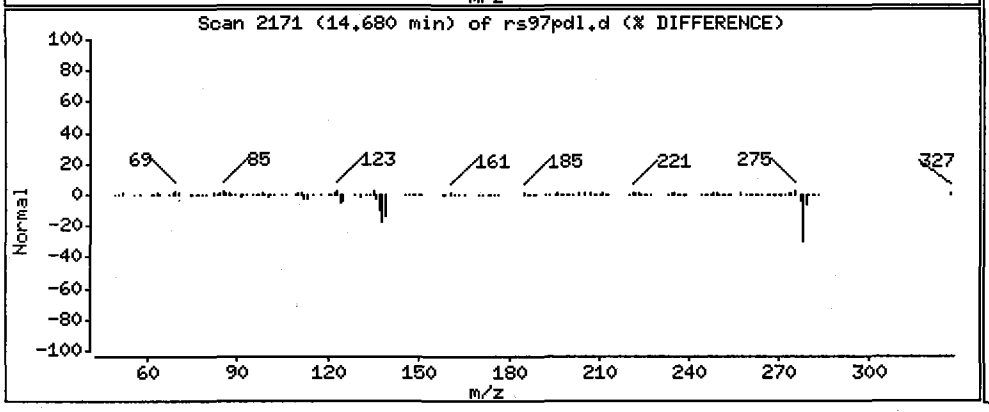
78 Indeno(1,2,3-cd)pyrene

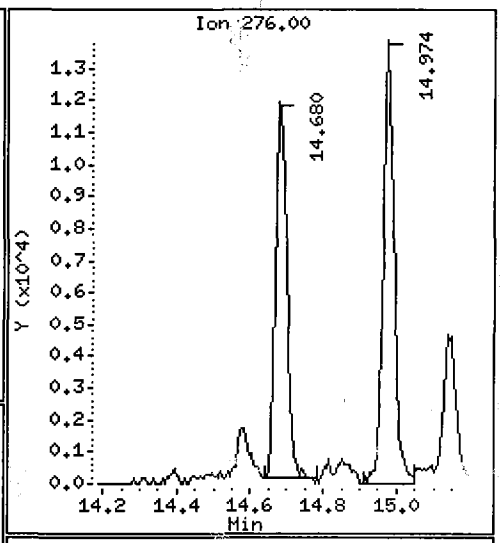
Concentration: 70610 ug/kg

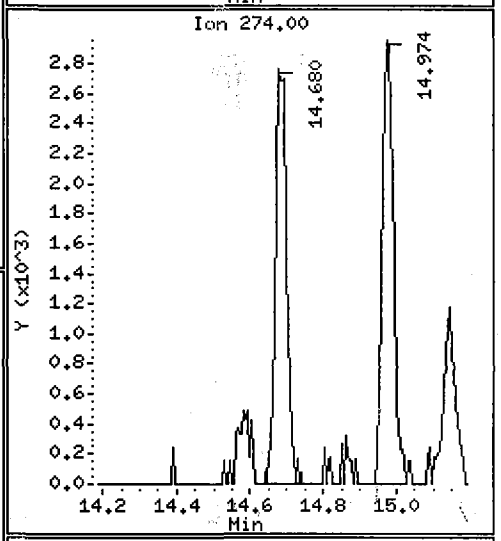


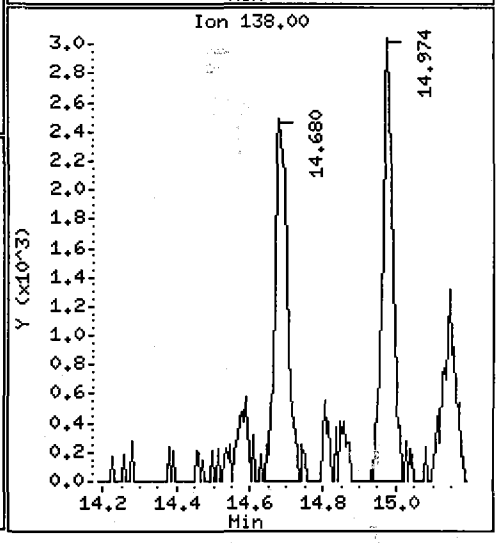












Data File: /chem1/nt12.i/20101111.b/rs97pdl.d

Date : 11-NOV-2010 13:48

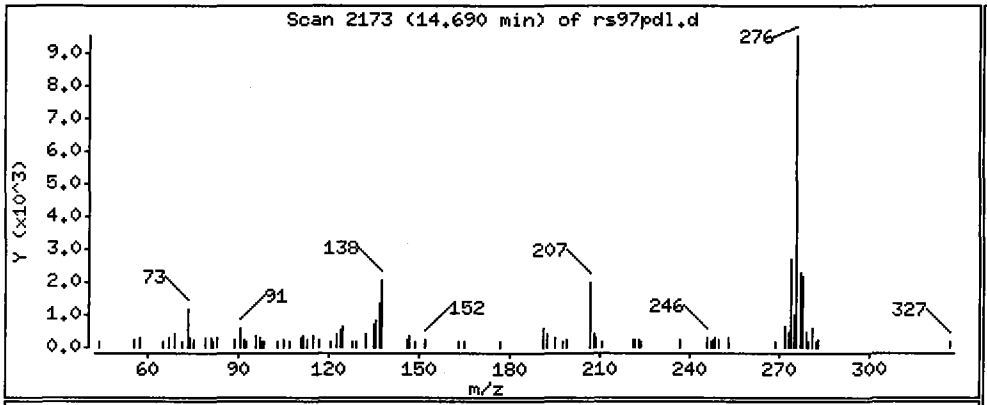
Client ID: DGS-07-9.710-101012 Instrument: nt12.i

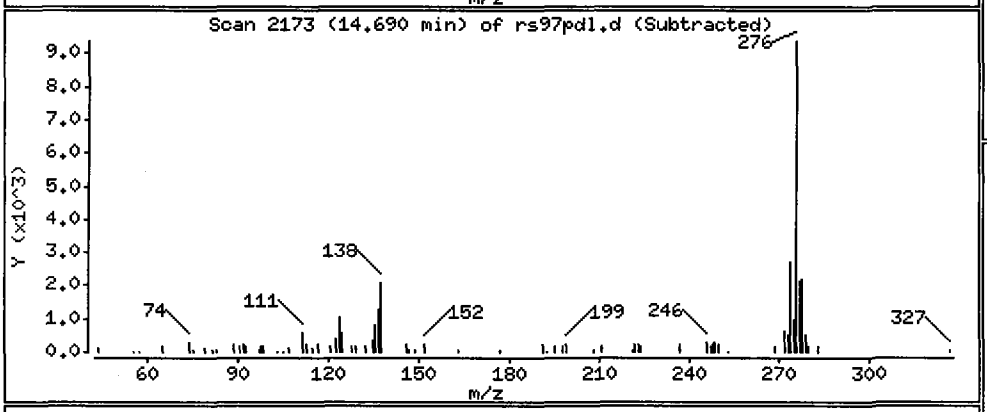
Sample Info: RS97P,10

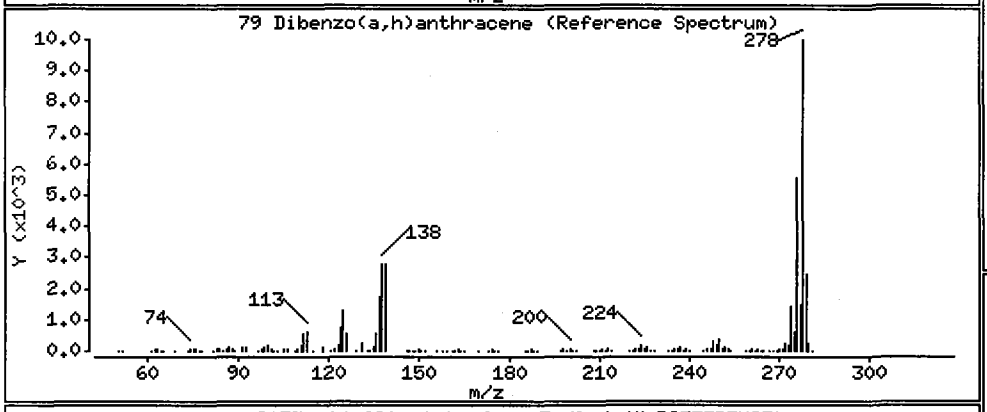
Volume Injected (uL): 1.0 Operator: VTS

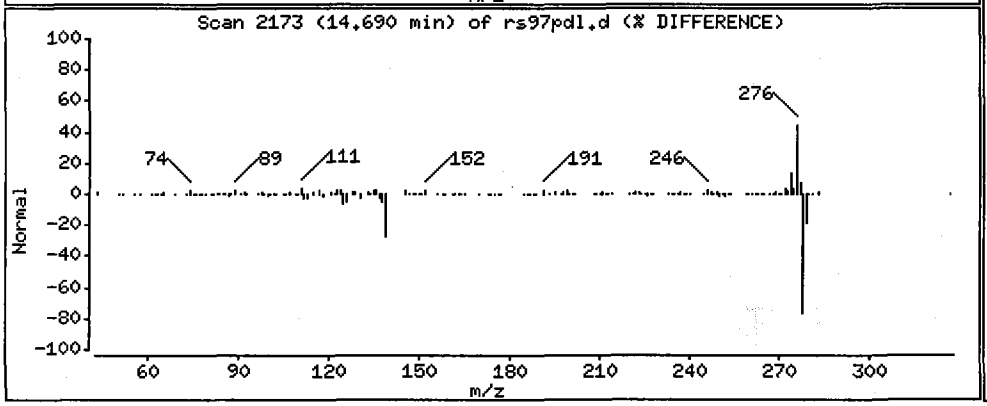
Column phase: ZB-5msi Column diameter: 0.32

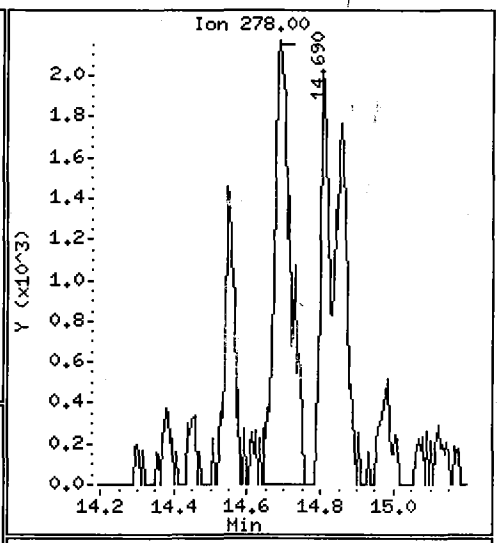
79 Dibenzo(a,h)anthracene Concentration: 23910 ug/kg

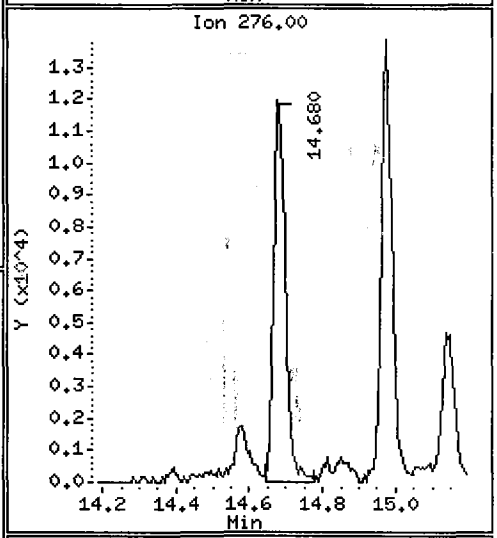


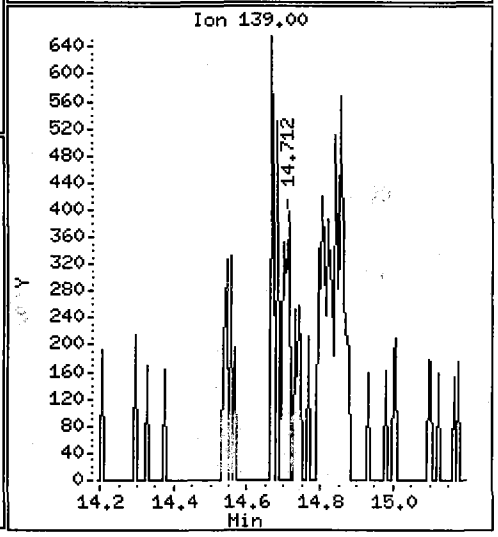












Data File: /chem1/nt12.i/20101111.b/rs97pdl.d

Date : 11-NOV-2010 13:48

Client ID: DGS-07-9.710-101012

Instrument: nt12.i

Sample Info: RS97P,10

Volume Injected (uL): 1.0

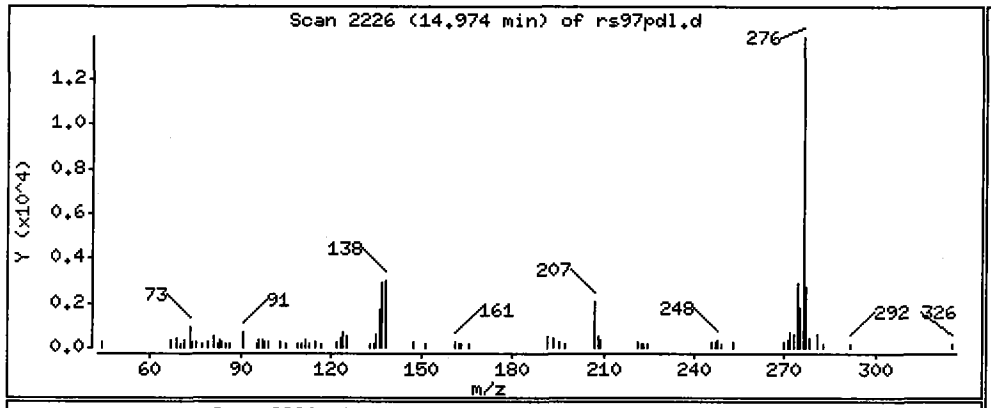
Operator: VTS

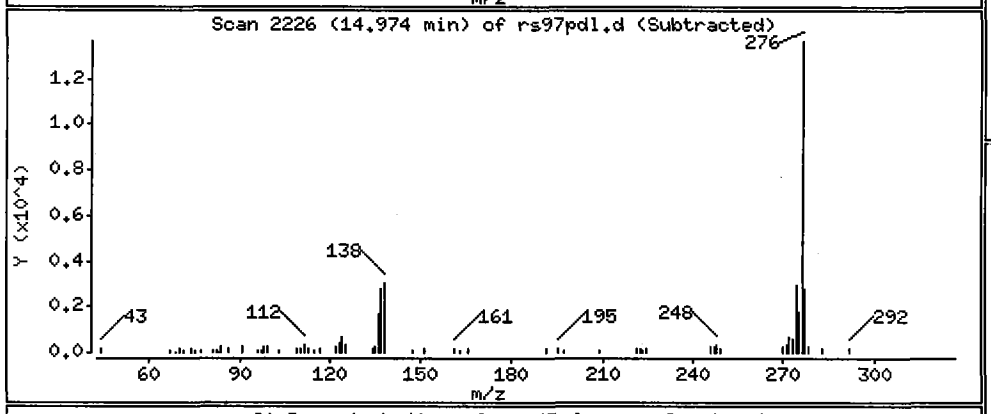
Column phase: ZB-5msi

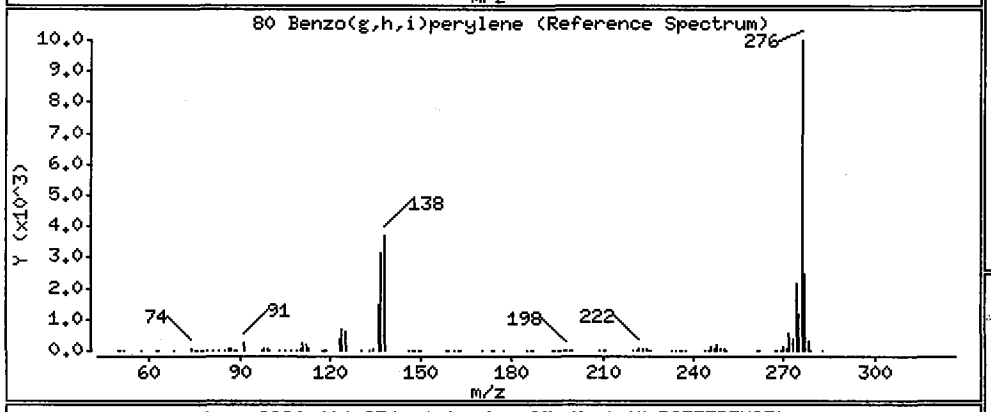
Column diameter: 0.32

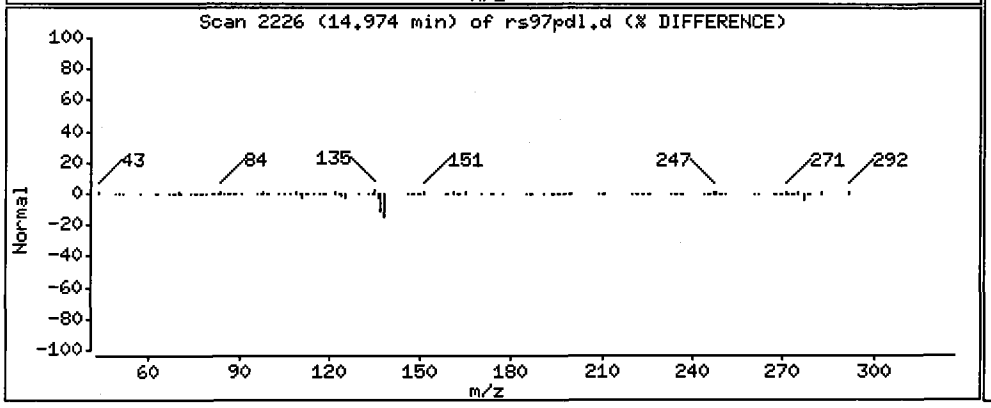
80 Benzo(g,h,i)perylene

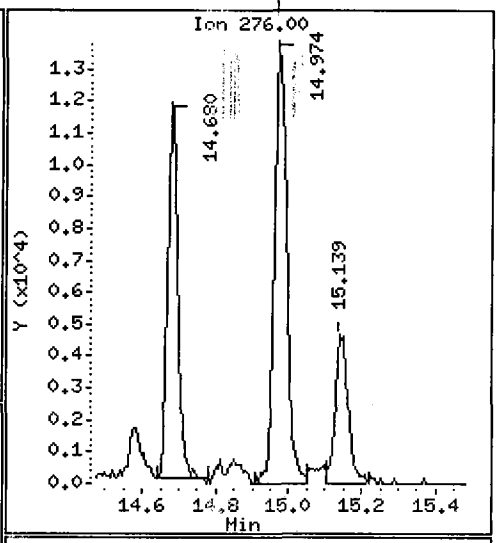
Concentration: 110600 ug/kg

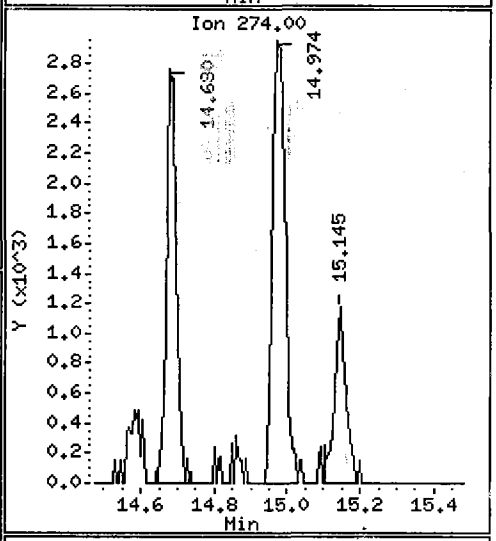


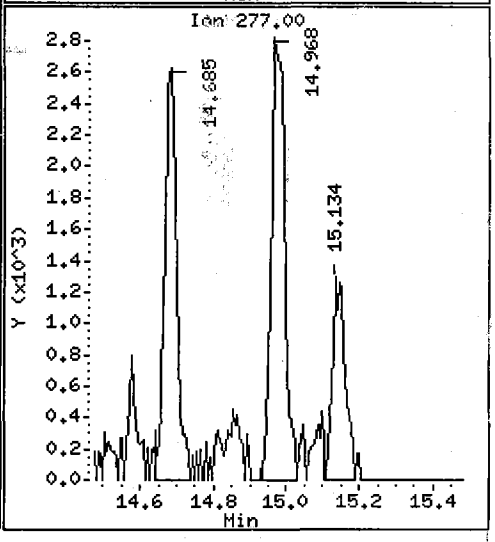












Analytical Resources, Inc.

Semivolatile Report SW846 Method 8270D

Data file : /chem1/nt12.i/20101111.b/rs97qdl.d
Lab Smp Id: RS97Q Client Smp ID: DGS-07-10.610.9-101
Inj Date : 11-NOV-2010 14:12
Operator : VTS Inst ID: nt12.i
Smp Info : RS97Q,3
Misc Info : 10-27433
Comment : 1ul Injection
Method : /chem1/nt12.i/20101111.b/PNADMD.m
Meth Date : 11-Nov-2010 14:36 van Quant Type: ISTD
Cal Date : 30-OCT-2010 13:19 Cal File: ic1030f.d
Als bottle: 6
Dil Factor: 3.00000
Integrator: HP RTE Compound Sublist: pnas.sub
Target Version: 3.50
Processing Host: cserv3

Concentration Formula: Amt * DF * Vt/(Ws * (100 - M)/100) * CpndVariable

Name	Value	Description
DF	3.00000	Dilution Factor
Vt	10000.00000	Volume of final extract (uL)
Ws	5.05000	Weight of sample extracted (g)
M	44.20000	% Moisture

Cpnd Variable Local Compound Variable

Compounds	QUANT SIG MASS	RT	EXP RT	REL RT	RESPONSE	CONCENTRATIONS ON-COLUMN (ug/mL)	FINAL (ug/kg)
* 27 Naphthalene-d8	136	4.872	4.871	(1.000)	219438	20.0000	
28 Naphthalene	128	4.893	4.893	(1.004)	241338	19.3237	205700
32 2-Methylnaphthalene	141	5.710	5.710	(1.172)	61135	9.17093	97640
105 1-methylnaphthalene	141	5.838	5.838	(1.198)	34203	4.97611	52980
$ 36 2-Fluorobiphenyl	172	6.191	6.186	(0.887)	4621	0.44865	4776
40 Acenaphthylene	152	Compound Not Detected.					
* 42 Acenaphthene-d10	164	6.976	6.976	(1.000)	133878	20.0000	
44 Acenaphthene	153	7.008	7.014	(1.005)	85638	10.4012	110700
46 Dibenzofuran	168	7.211	7.211	(1.034)	9118	0.72218	7689 7
49 Fluorene	166	7.623	7.623	(1.093)	54066	5.73524	61060
* 59 Phenanthrene-d10	188	8.745	8.745	(1.000)	247029	20.0000	
60 Phenanthrene	178	8.777	8.777	(1.004)	542566	41.4012	440800
61 Anthracene	178	8.830	8.830	(1.010)	95392	7.04290	74980
62 Carbazole	167	9.054	9.049	(1.035)	9736	~~0.89~~105	9486 NR

Compounds	QUANT SIG MASS	RT	EXP RT	REL RT	RESPONSE	CONCENTRATIONS ON-COLUMN (ug/mL)	CONCENTRATIONS FINAL (ug/kg)
64 Fluoranthene	202	10.224	10.224	(0.854)	368806	22.6812	241500
65 Pyrene	202	10.486	10.486	(0.876)	450666	27.9369	297400
$ 66 Terphenyl-d14	244	10.727	10.721	(0.896)	4987	0.48461	5159
68 Benzo(a)anthracene	228	11.955	11.955	(0.999)	84451	6.46001	68770
* 69 Chrysene-d12	240	11.971	11.977	(1.000)	232786	20.0000	
71 Chrysene	228	11.998	12.003	(1.002)	92147	7.53943	80270
187 Total Benzofluoranthenes	252	13.200	13.221	(0.971)	92680	9.93282	105700
76 Benzo(a)pyrene	252	13.531	13.537	(0.996)	76810	8.96113	95400
* 77 Perylene-d12	264	13.590	13.595	(1.000)	156655	20.0000	
99 Perylene	252	13.611	13.622	(1.002)	16414	~~1.80~~080	19170 NQ
78 Indeno(1,2,3-cd)pyrene	276	14.685	14.691	(1.081)	45759	3.59580	38280
79 Dibenzo(a,h)anthracene	278	14.696	14.696	(1.081)	10291	0.98225	10460 J
80 Benzo(g,h,i)perylene	276	14.974	14.979	(1.102)	53365	5.10457	54340

LJB
11.12.10

Analytical Resources, Inc.

INTERNAL STANDARD COMPOUNDS
AREA AND RT SUMMARY

Instrument ID: nt12.i
Lab File ID: rs97qdl.d
Lab Smp Id: RS97Q
Analysis Type: SV
Quant Type: ISTD
Operator: VTS
Method File: /chem1/nt12.i/20101111.b/PNADMD.m
Misc Info: 10-27433

Calibration Date: 11-NOV-2010
Calibration Time: 12:20
Client Smp ID: DGS-07-10.610.9-
Level: LOW
Sample Type: Sediment

Test Mode:
Use Initial Calibration Level 4.

COMPOUND	STANDARD	AREA LIMIT LOWER	AREA LIMIT UPPER	SAMPLE	%DIFF
27 Naphthalene-d8	237664	118832	475328	219438	-7.67
42 Acenaphthene-d10	143363	71682	286726	133878	-6.62
59 Phenanthrene-d10	245437	122718	490874	247029	0.65
69 Chrysene-d12	199260	99630	398520	232786	16.83
77 Perylene-d12	197636	98818	395272	156655	-20.74

COMPOUND	STANDARD	RT LIMIT LOWER	RT LIMIT UPPER	SAMPLE	%DIFF
27 Naphthalene-d8	4.87	4.37	5.37	4.87	0.00
42 Acenaphthene-d10	6.98	6.48	7.48	6.98	0.00
59 Phenanthrene-d10	8.74	8.24	9.24	8.74	0.00
69 Chrysene-d12	11.98	11.48	12.48	11.97	-0.04
77 Perylene-d12	13.60	13.10	14.10	13.59	-0.04

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.

Analytical Resources, Inc.

RECOVERY REPORT

Client Name: NW Natural
Sample Matrix: SOLID
Lab Smp Id: RS97Q
Level: LOW
Data Type: MS DATA
SpikeList File: SONICLCS.spk
Sublist File: pnas.sub
Method File: /chem1/nt12.i/20101111.b/PNADMD.m
Misc Info: 10-27433

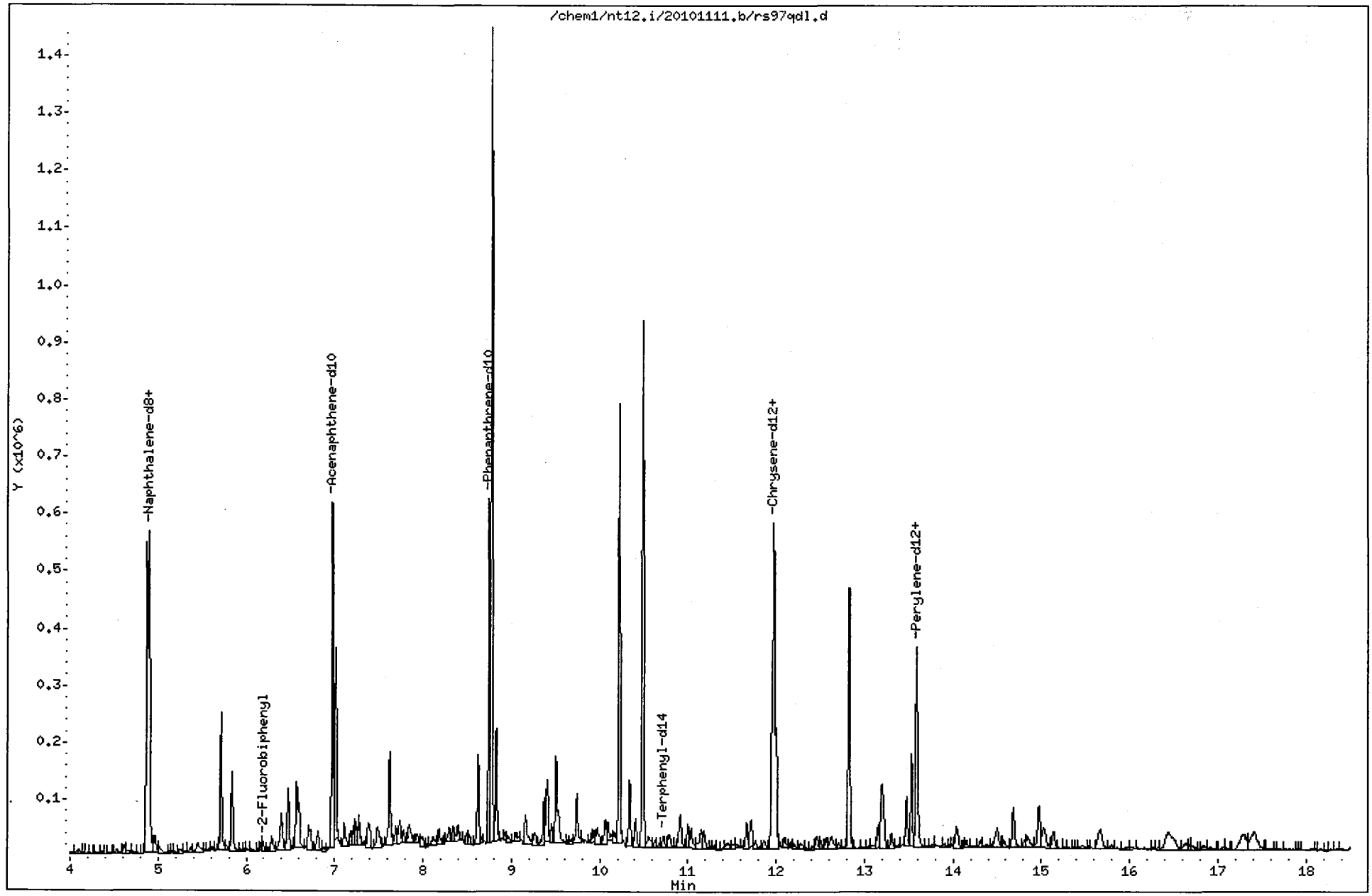
Client SDG: RS97
Fraction: SV
Client Smp ID: DGS-07-10.610.9-101
Operator: VTS
SampleType: SAMPLE
Quant Type: ISTD

SURROGATE COMPOUND	CONC ADDED ug/kg	CONC RECOVERED ug/kg	% RECOVERED	LIMITS
$ 36 2-Fluorobiphenyl	8872	4776	53.84	34-100
$ 66 Terphenyl-d14	8872	5159	58.15	35-112

Data File: /chem1/nt12.i/20101111.b/rs97qdl.d
Date : 11-NOV-2010 14:12
Client ID: DGS-07-10.610.9-101
Sample Info: RS97Q,3
Volume Injected (uL): 1.0
Column phase: ZB-5msi

Instrument: nt12.i

Operator: VTS
Column diameter: 0.32



RS97:09783

Data File: /chem1/nt12.i/20101111.b/rs97qdl.d

Date : 11-NOV-2010 14:12

Client ID: DGS-07-10.610.9-101

Instrument: nt12.i

Sample Info: RS97Q,3

Volume Injected (uL): 1.0

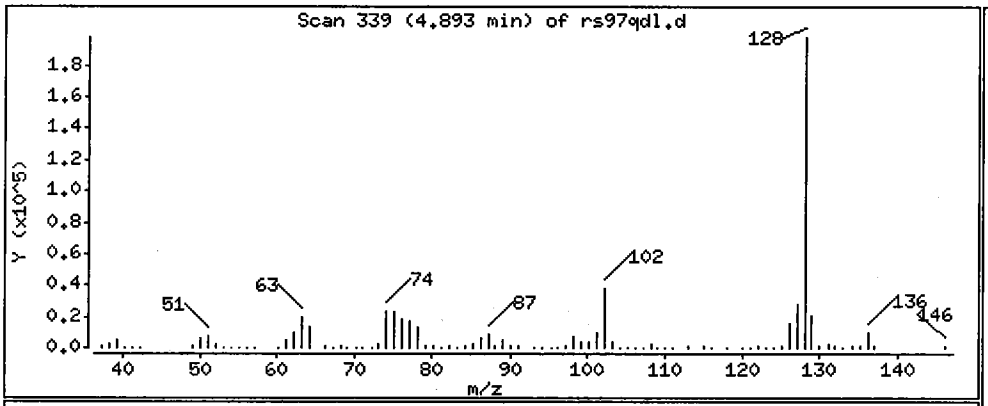
Operator: VTS

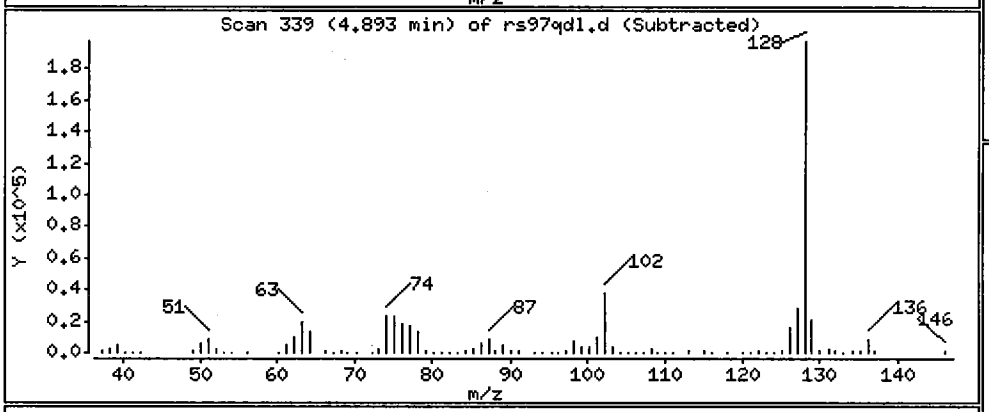
Column phase: ZB-5msi

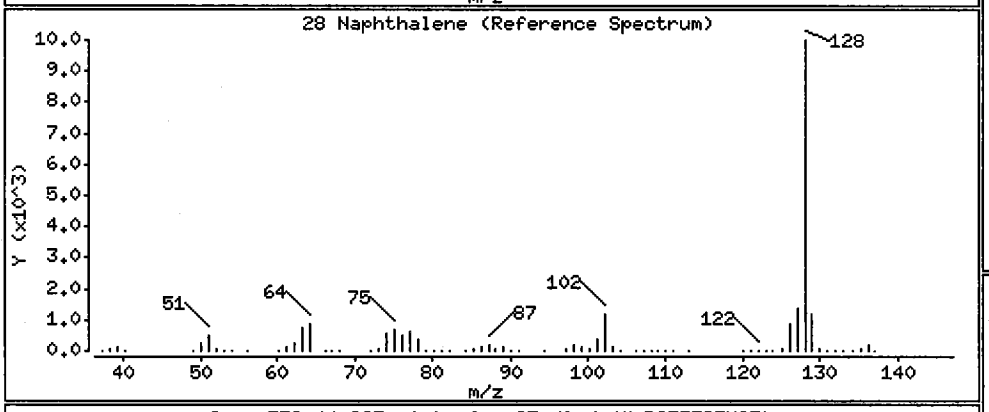
Column diameter: 0.32

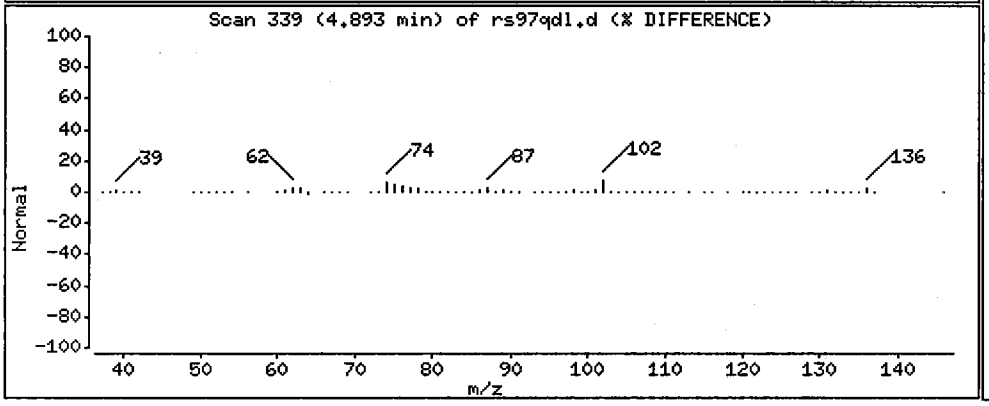
28 Naphthalene

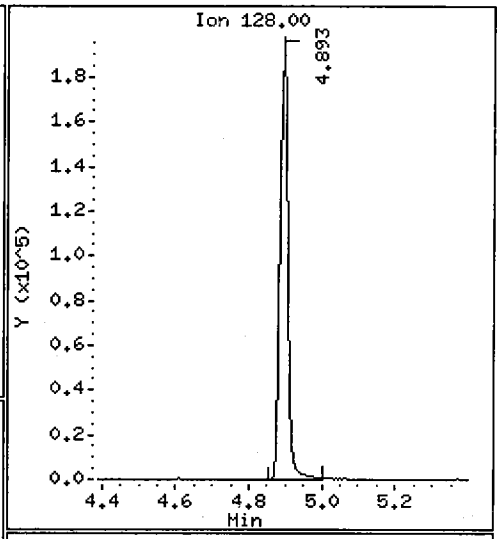
Concentration: 205700 ug/kg

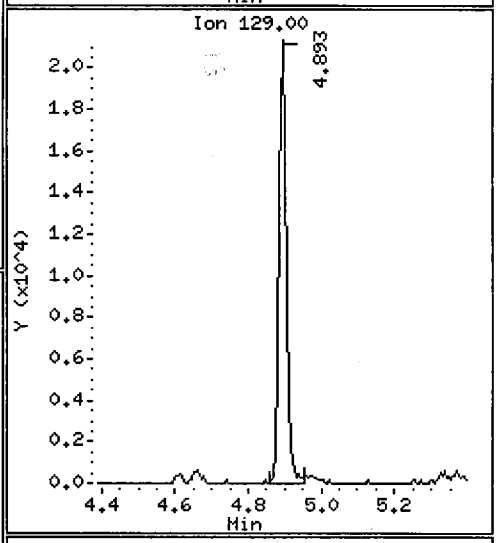


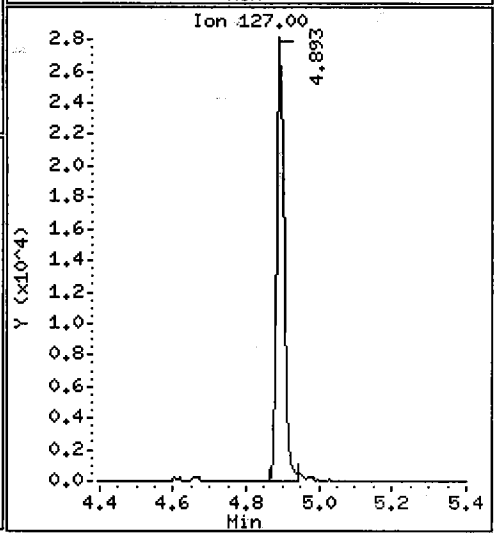












Data File: /chem1/nt12.i/20101111.b/rs97qdl.d

Date : 11-NOV-2010 14:12

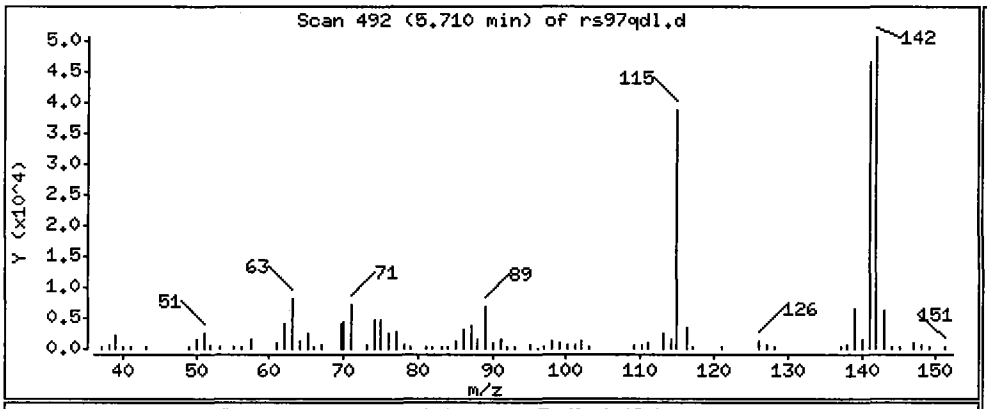
Client ID: DGS-07-10.610.9-101 Instrument: nt12.i

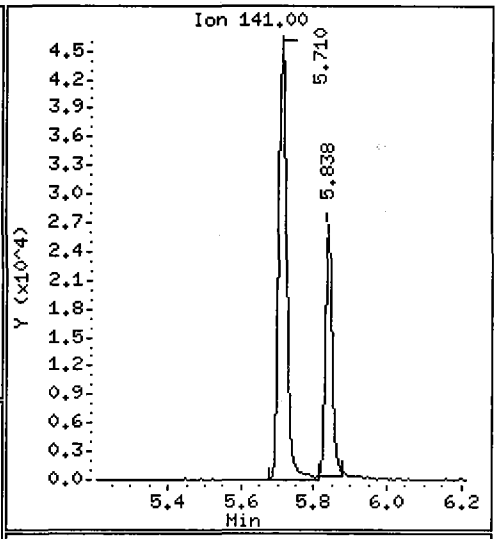
Sample Info: RS97Q,3

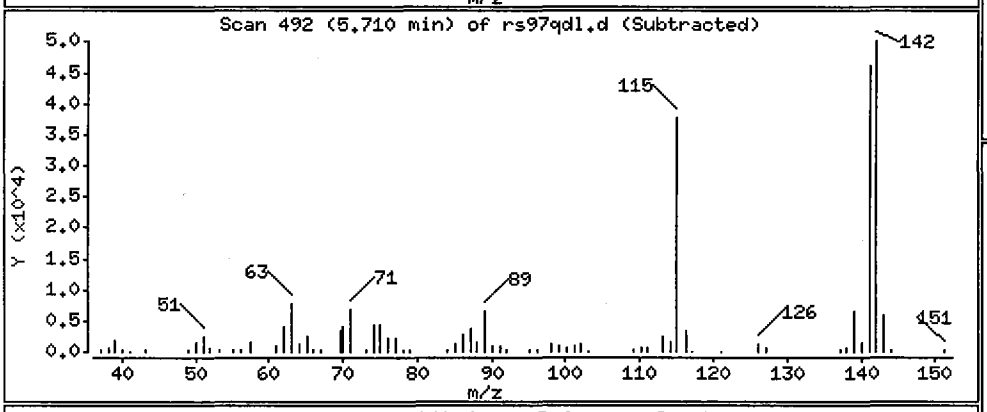
Volume Injected (uL): 1.0 Operator: VTS

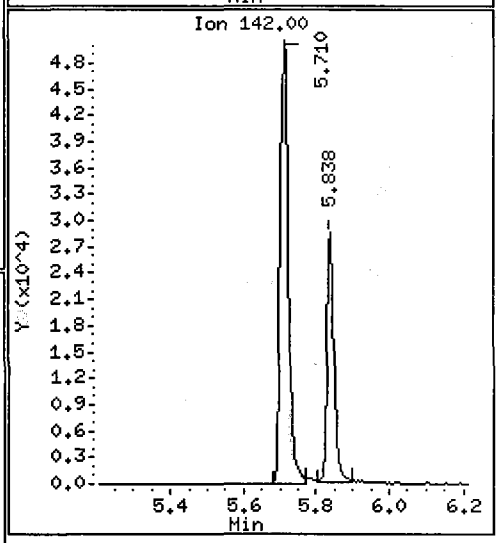
Column phase: ZB-5msi Column diameter: 0.32

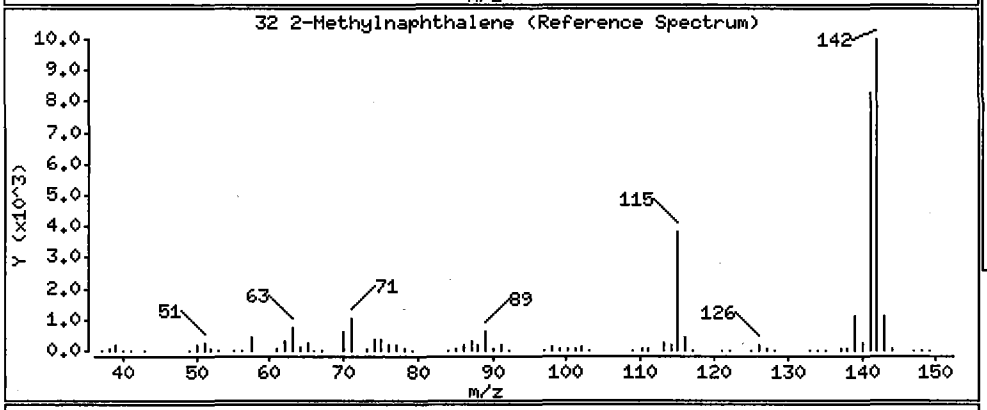
32 2-Methylnaphthalene Concentration: 97640 ug/kg

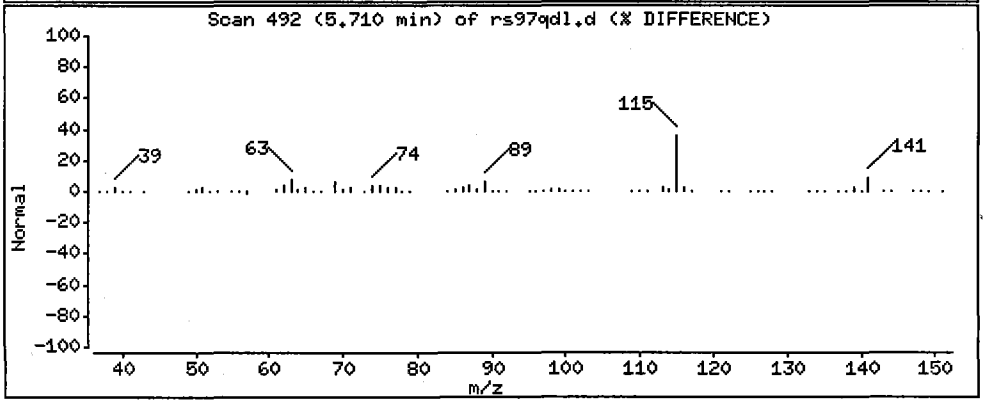












Data File: /chem1/nt12.i/20101111.b/rs97qdl.d

Date : 11-NOV-2010 14:12

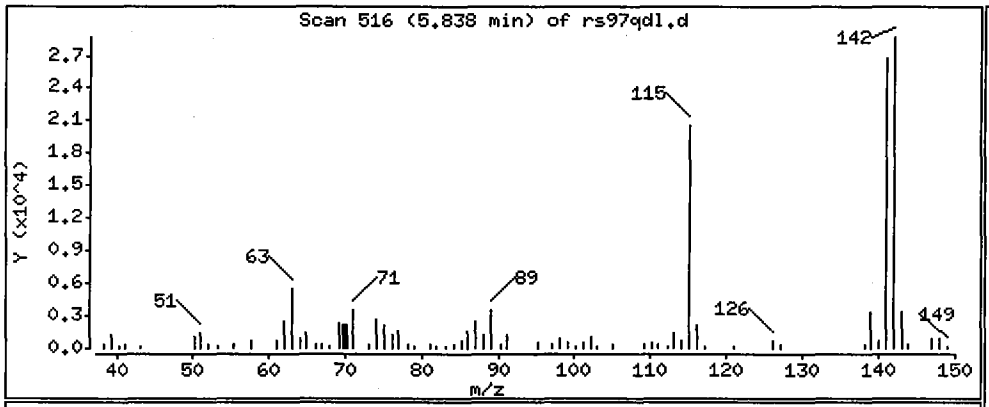
Client ID: DGS-07-10.610.9-101 Instrument: nt12.i

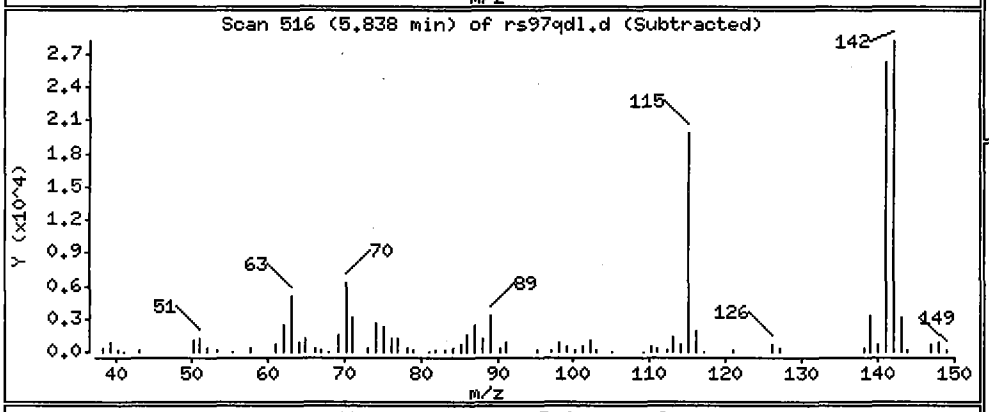
Sample Info: RS97Q,3

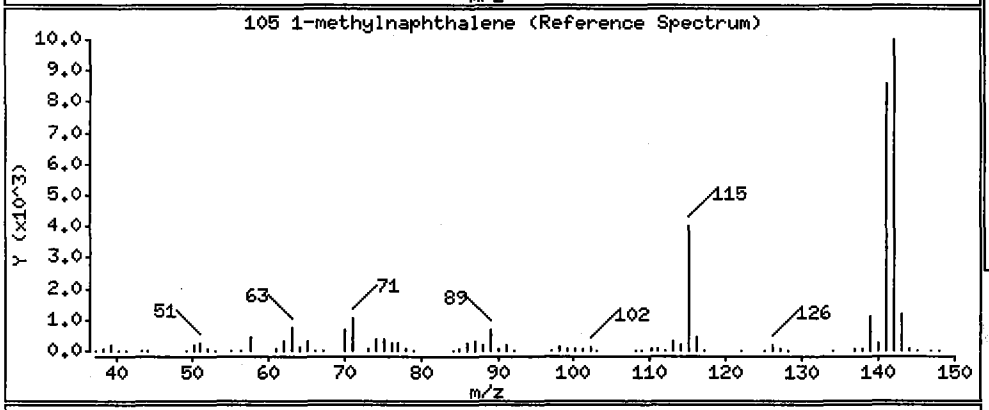
Volume Injected (uL): 1.0 Operator: VTS

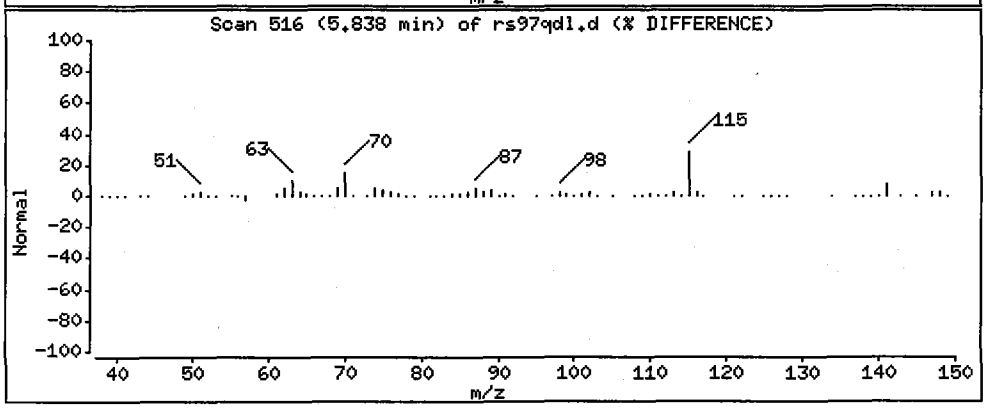
Column phase: ZB-5msi Column diameter: 0.32

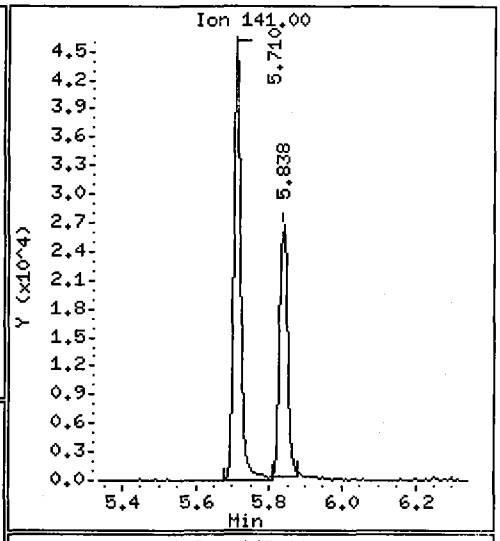
105 1-methylnaphthalene Concentration: 52980 ug/kg

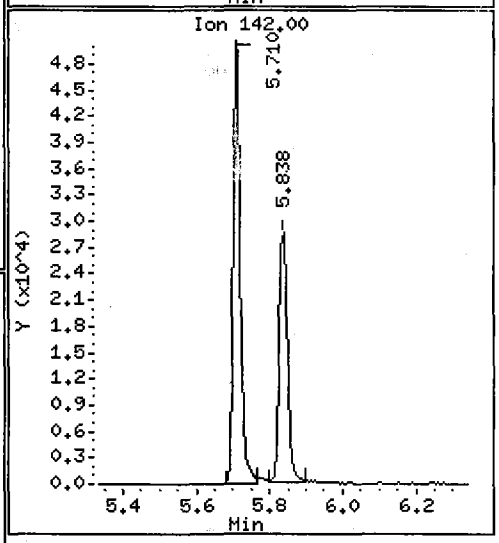












Data File: /chem1/nt12.i/20101111.b/rs97qdl.d

Date : 11-NOV-2010 14:12

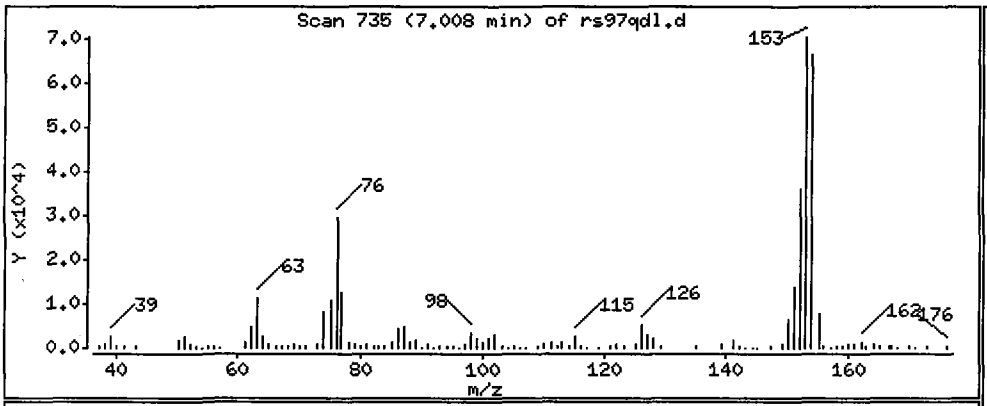
Client ID: DGS-07-10.610.9-101 Instrument: nt12.i

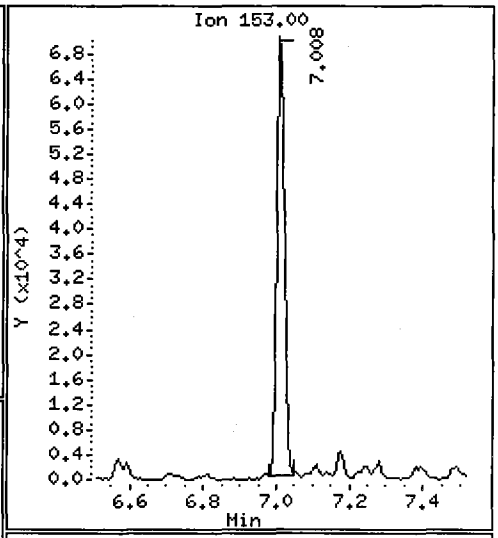
Sample Info: RS97Q,3

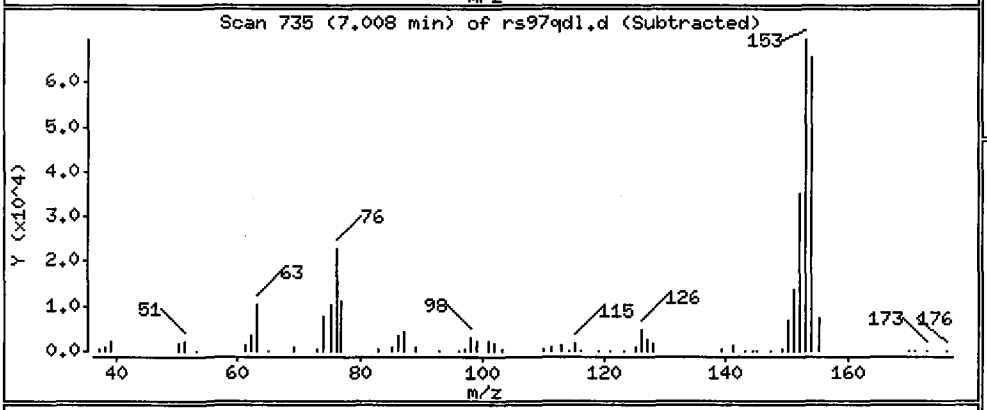
Volume Injected (uL): 1.0 Operator: VTS

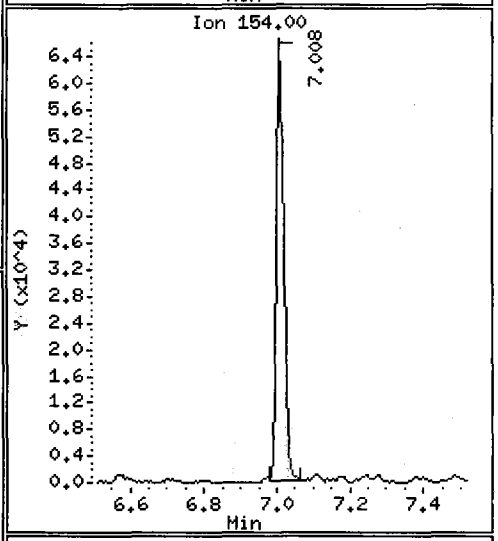
Column phase: ZB-5msi Column diameter: 0.32

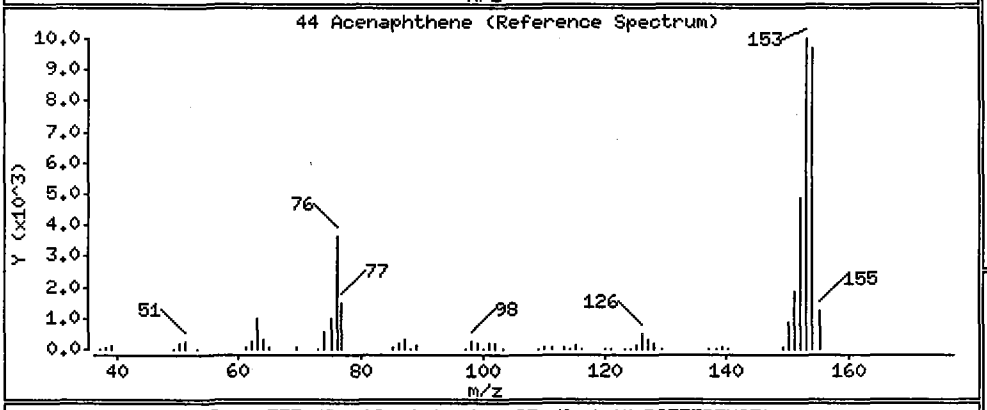
44 Acenaphthene Concentration: 110700 ug/kg

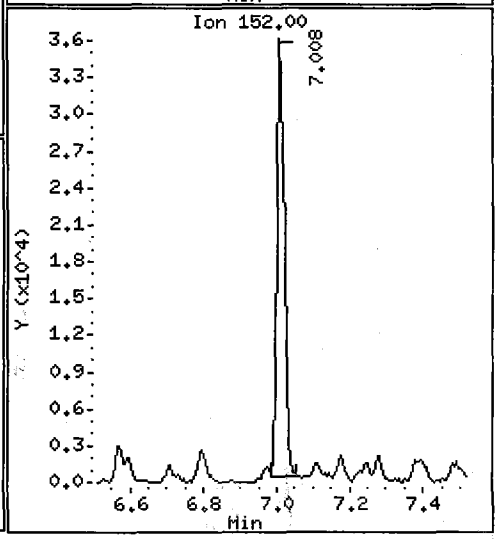


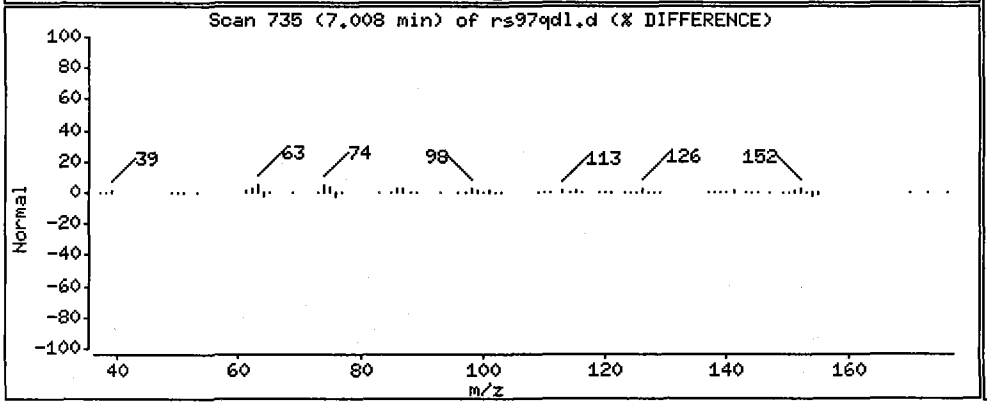












Data File: /chem1/nt12.i/20101111.b/rs97qdl.d

Date : 11-NOV-2010 14:12

Client ID: DGS-07-10.610.9-101

Instrument: nt12.i

Sample Info: RS97Q.3

Volume Injected (uL): 1.0

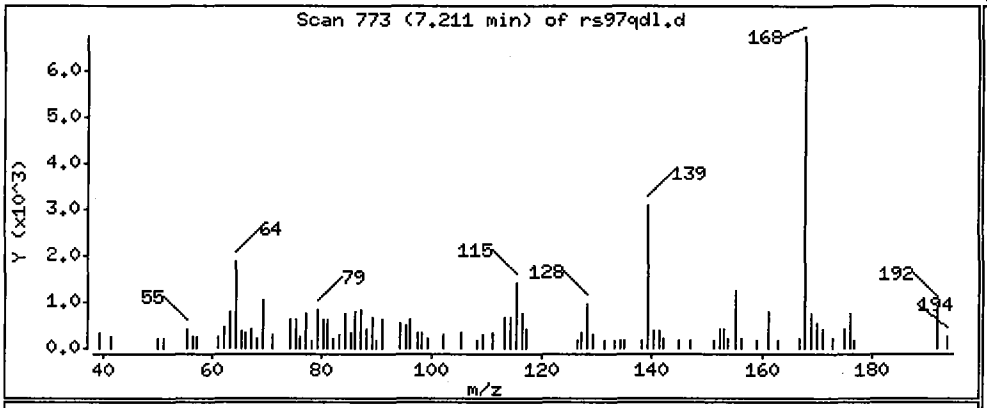
Operator: VTS

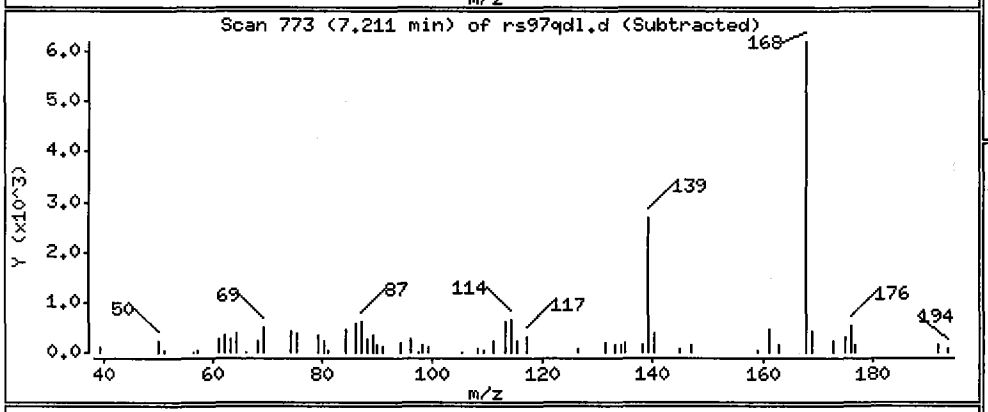
Column phase: ZB-5msi

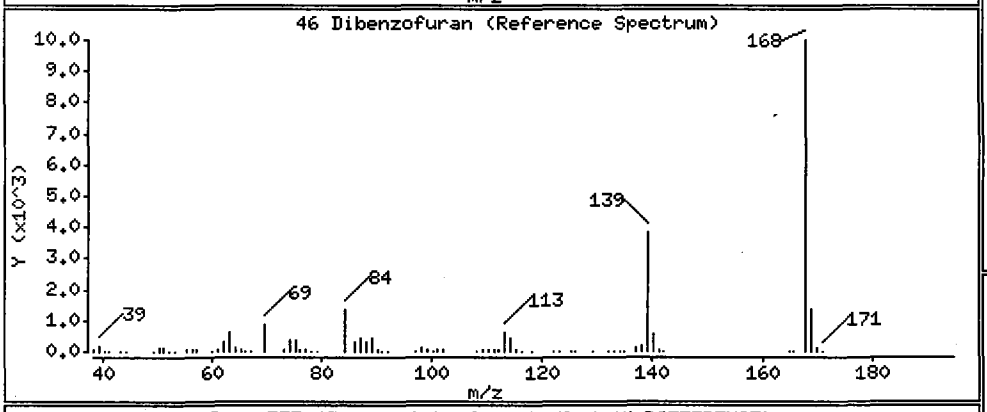
Column diameter: 0.32

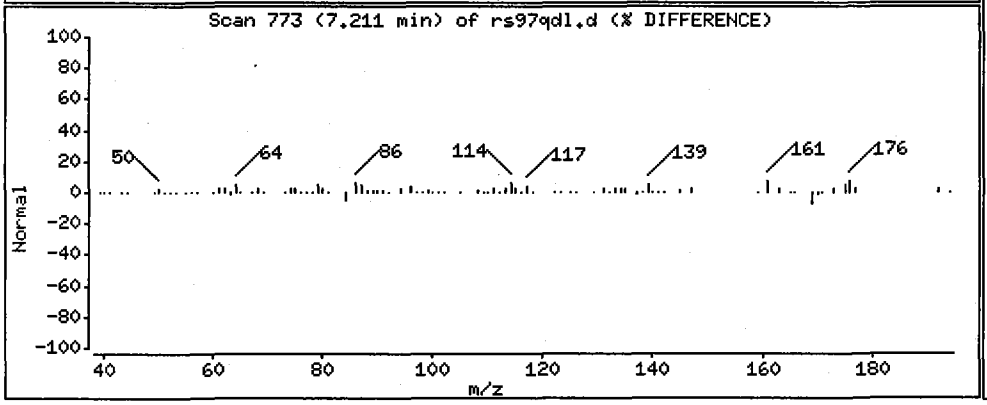
46 Dibenzofuran

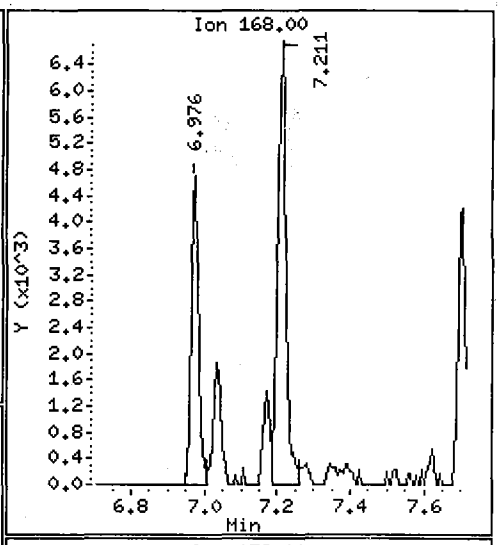
Concentration: 7689 ug/kg

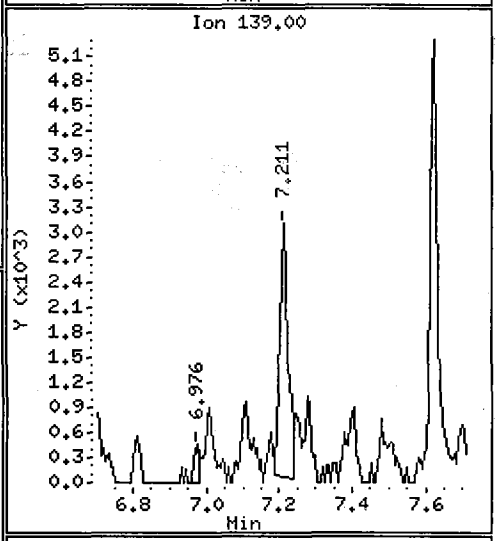


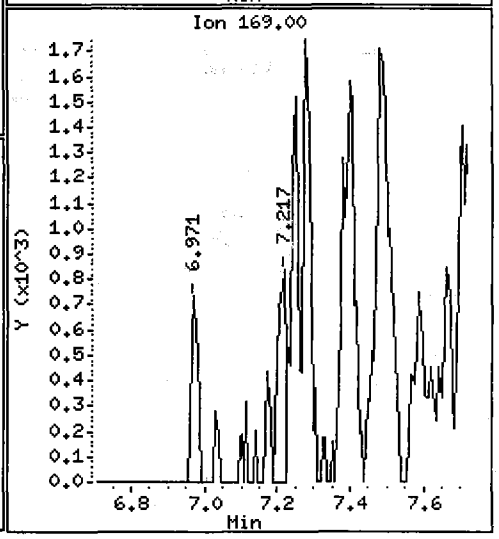












Data File: /chem1/nt12.i/20101111.b/rs97qdl.d

Date : 11-NOV-2010 14:12

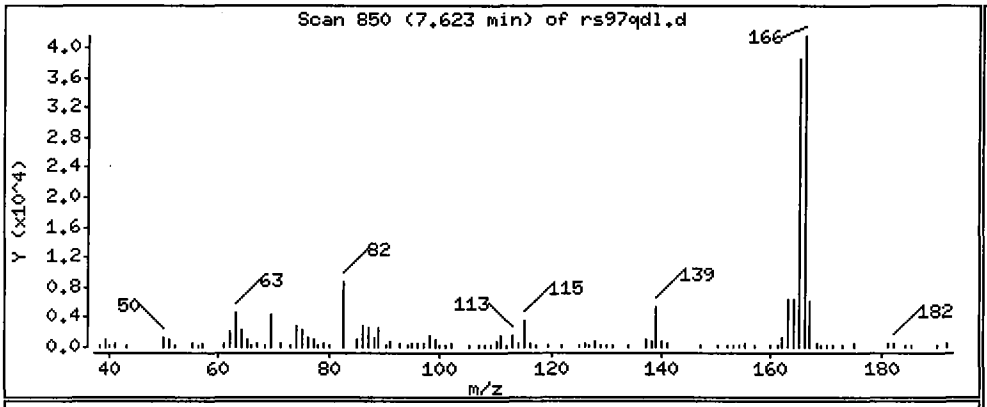
Client ID: DGS-07-10.610.9-101 Instrument: nt12.i

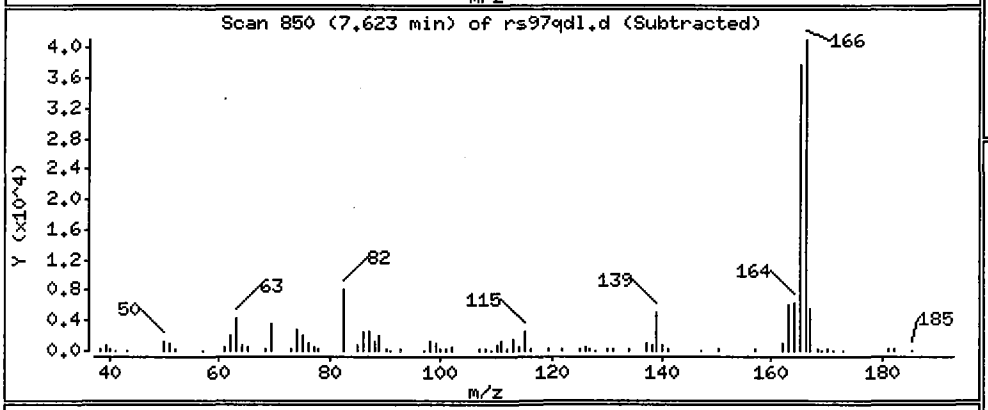
Sample Info: RS97Q,3

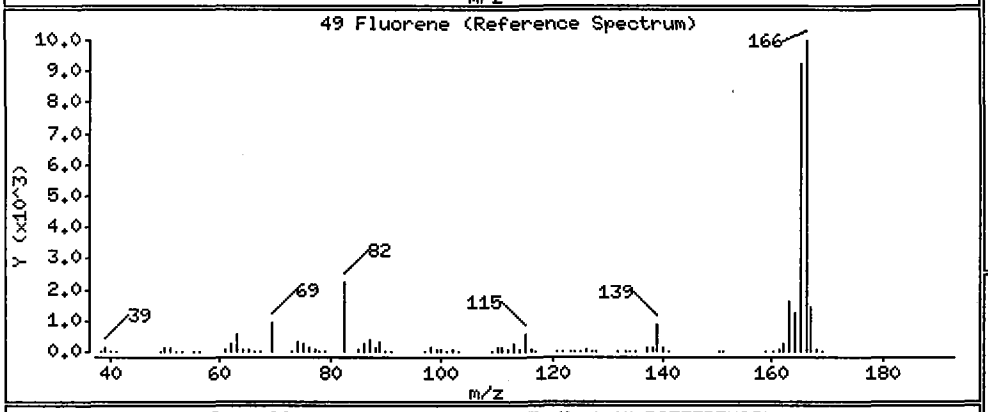
Volume Injected (uL): 1.0 Operator: VTS

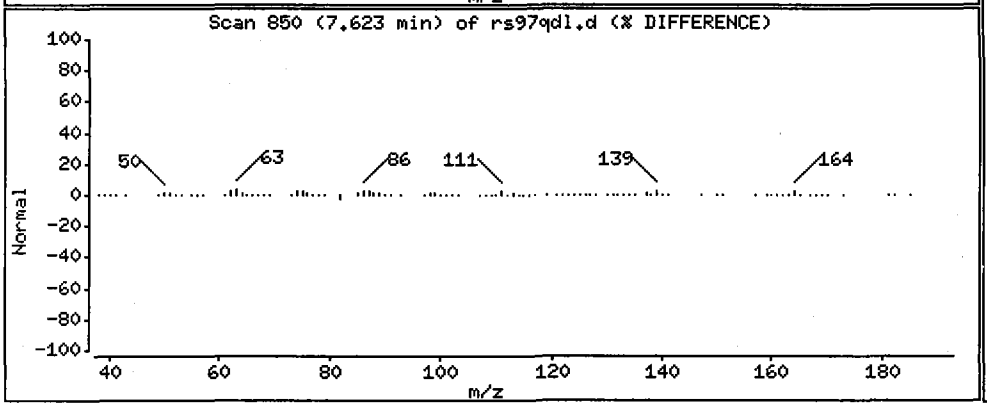
Column phase: ZB-5msi Column diameter: 0.32

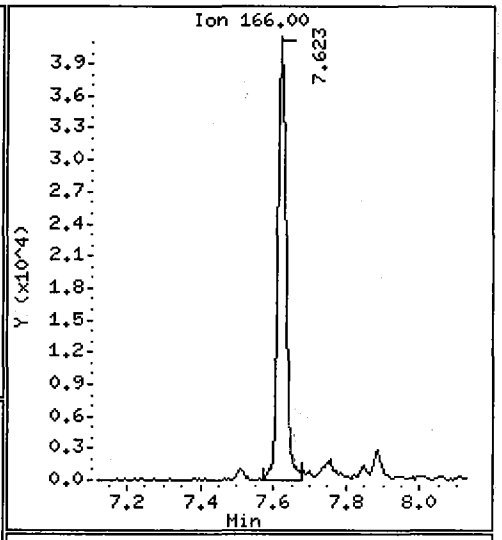
49 Fluorene Concentration: 61060 ug/kg

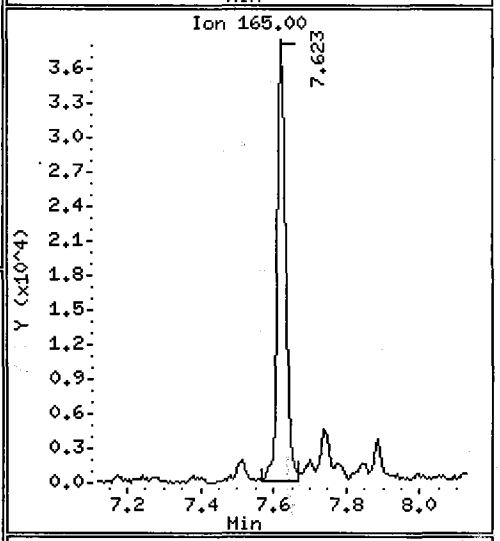


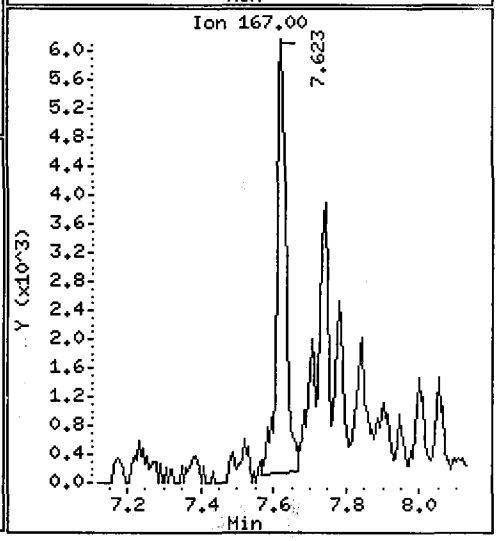












Data File: /chem1/nt12.i/20101111.b/rs97qdl.d

Date : 11-NOV-2010 14:12

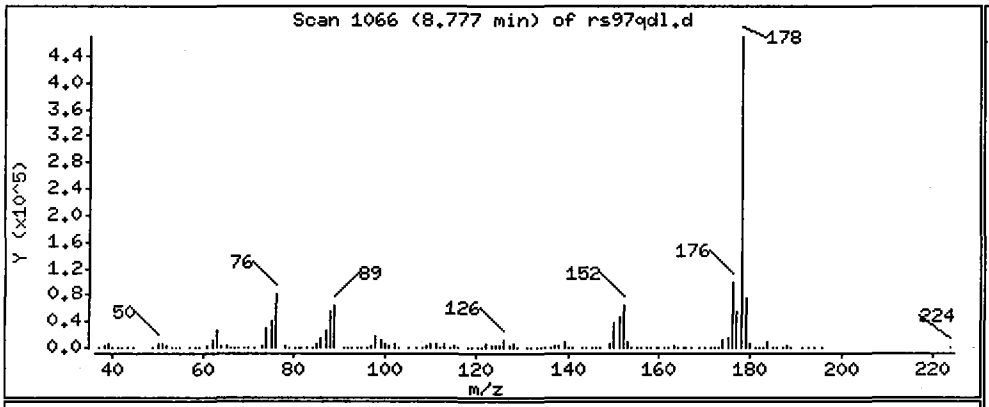
Client ID: DGS-07-10.610.9-101 Instrument: nt12.i

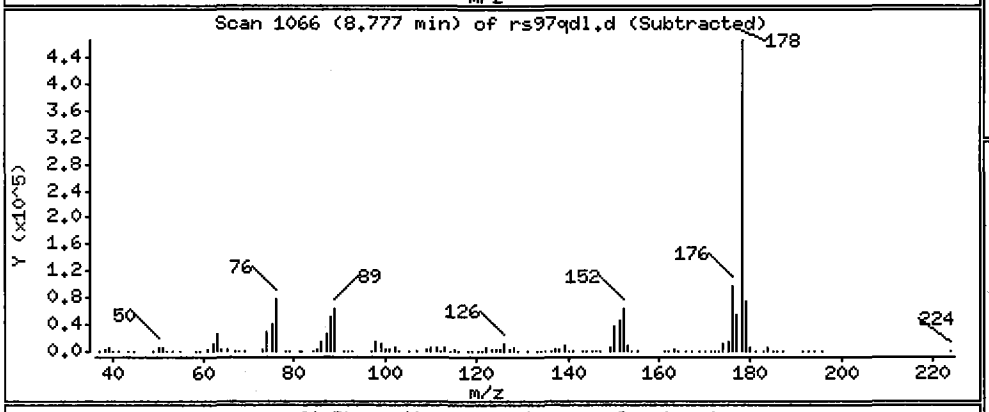
Sample Info: RS97Q,3

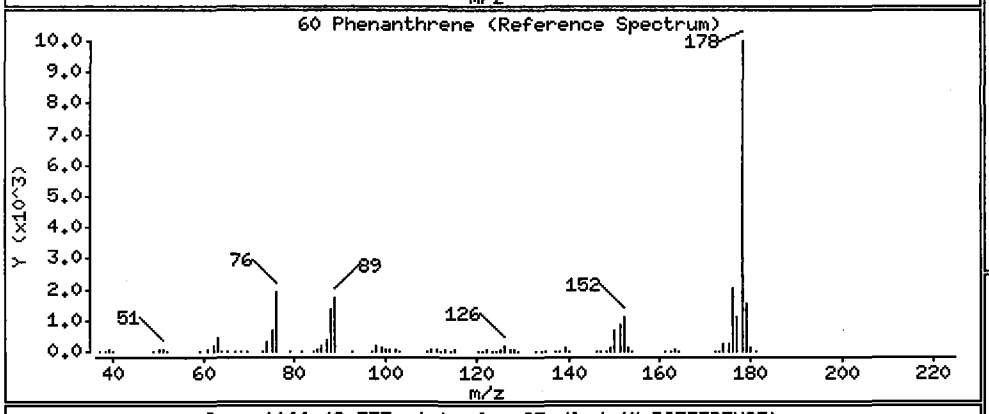
Volume Injected (uL): 1.0 Operator: VTS

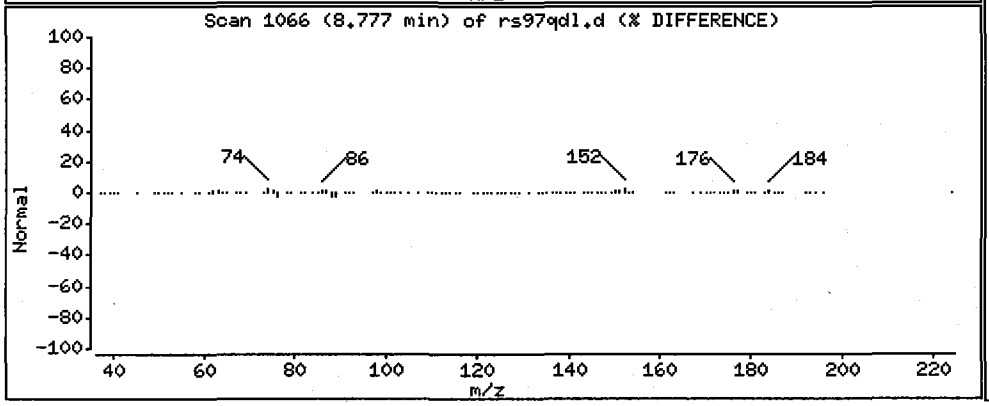
Column phase: ZB-5msi Column diameter: 0.32

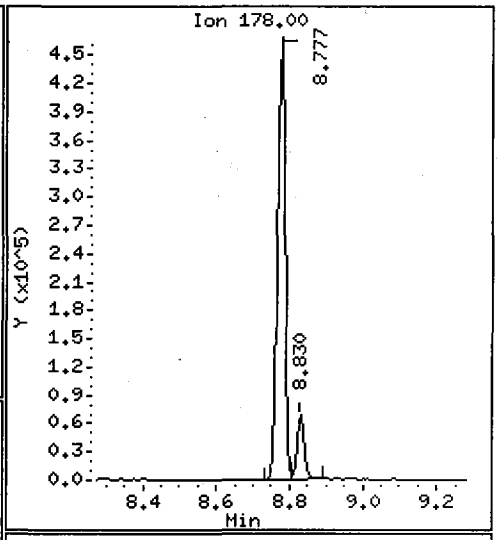
60 Phenanthrene Concentration: 440800 ug/kg

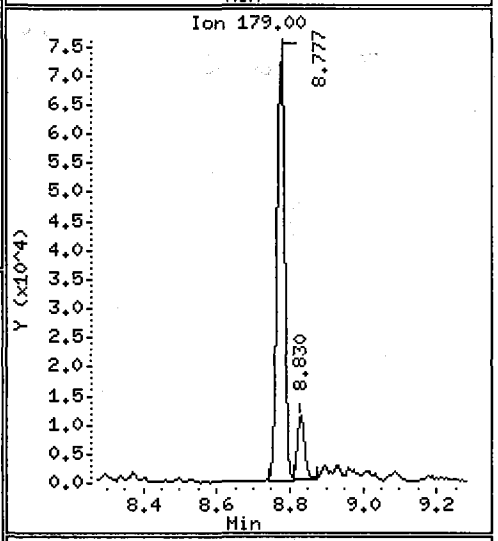


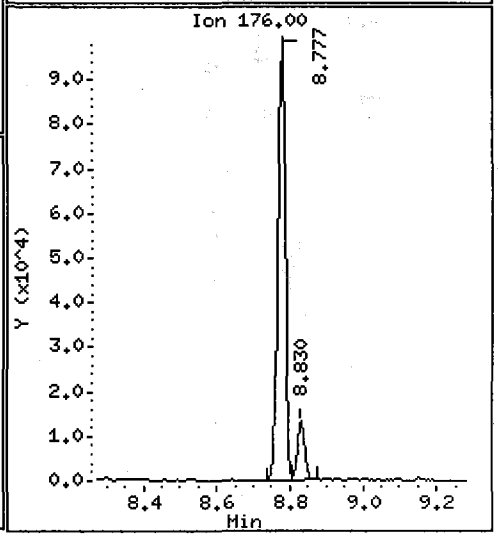












Data File: /chem1/nt12.i/20101111.b/rs97qdl.d

Date : 11-NOV-2010 14:12

Client ID: DGS-07-10.610.9-101

Instrument: nt12.i

Sample Info: RS97Q,3

Volume Injected (uL): 1.0

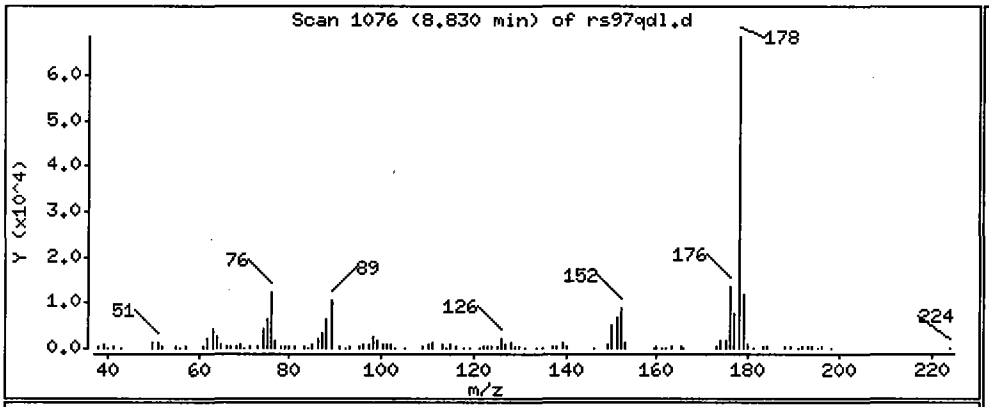
Operator: VTS

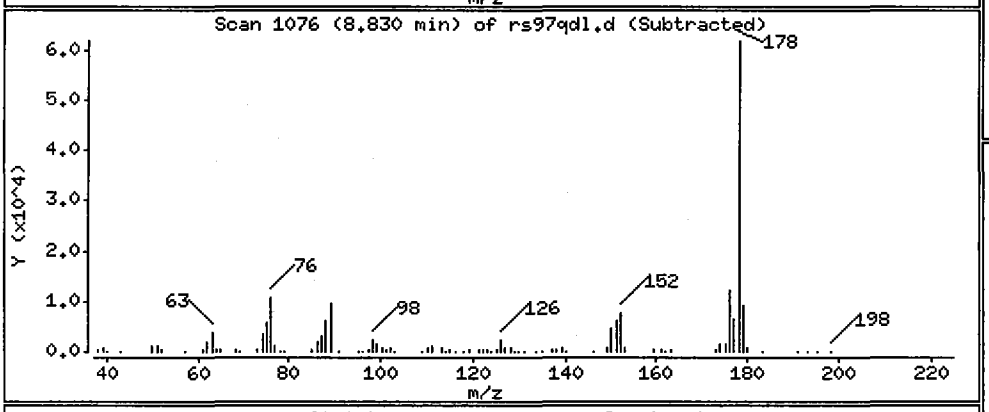
Column phase: ZB-5msi

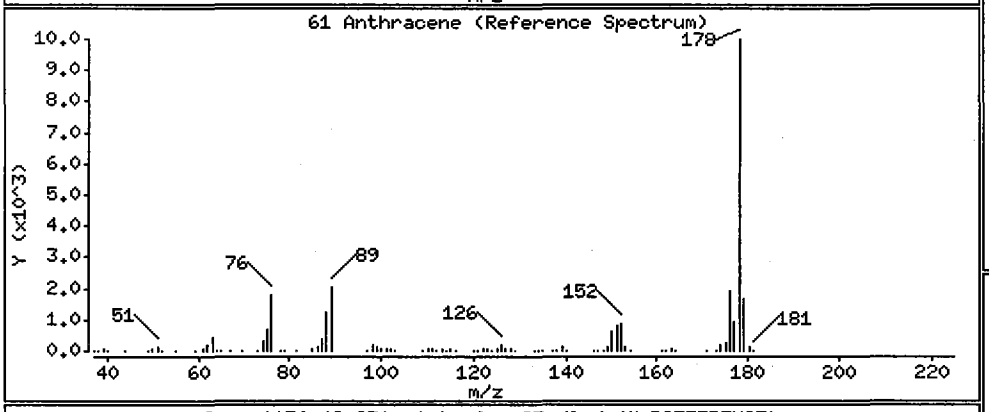
Column diameter: 0.32

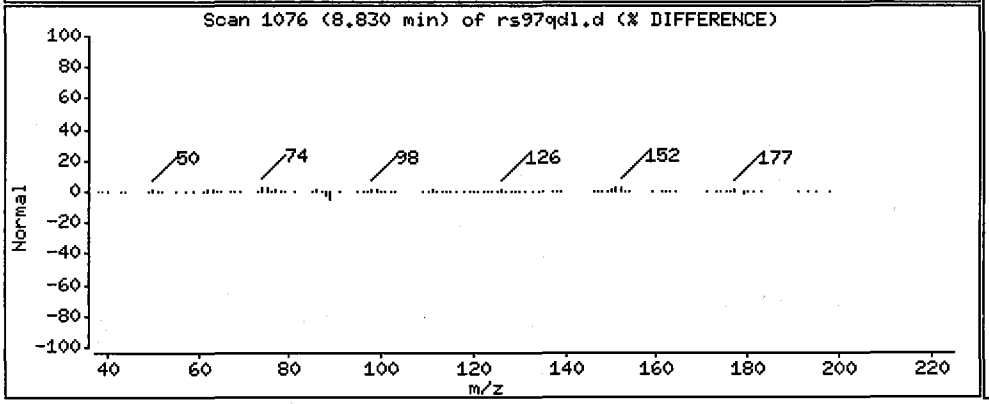
61 Anthracene

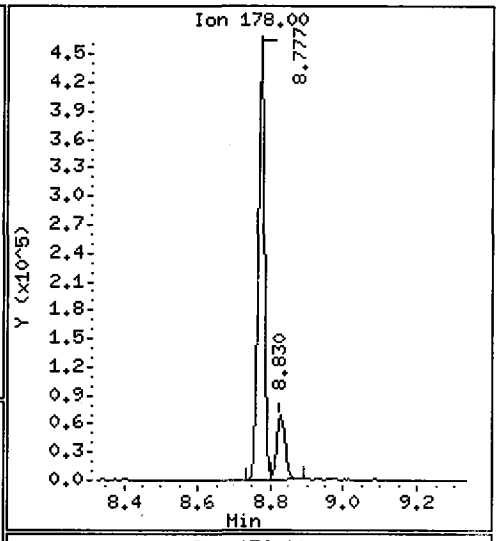
Concentration: 74980 ug/kg

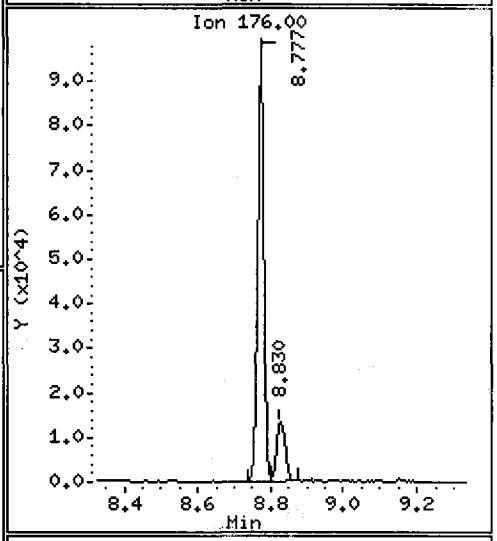


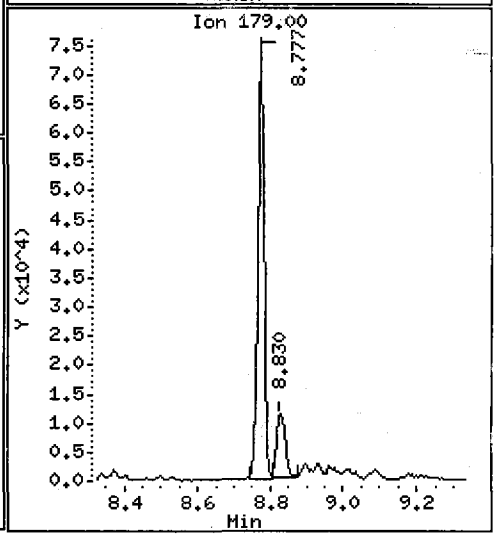












Data File: /chem1/nt12.i/20101111.b/rs97qdl.d

Date : 11-NOV-2010 14:12

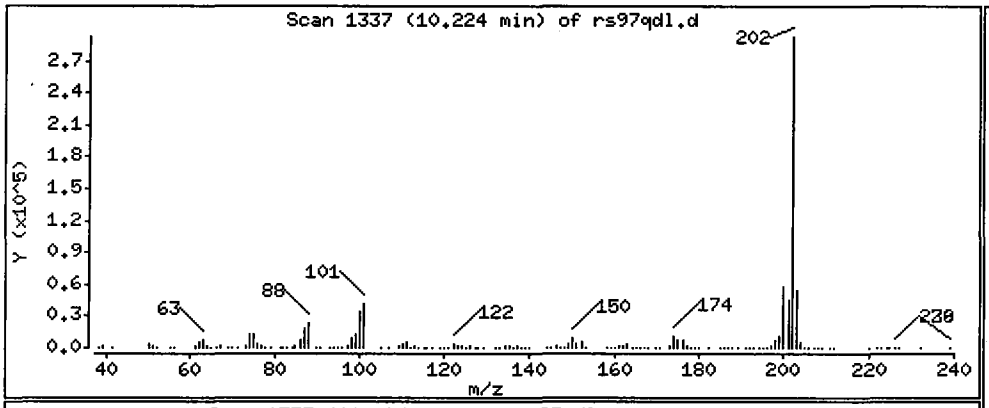
Client ID: DGS-07-10.610.9-101 Instrument: nt12.i

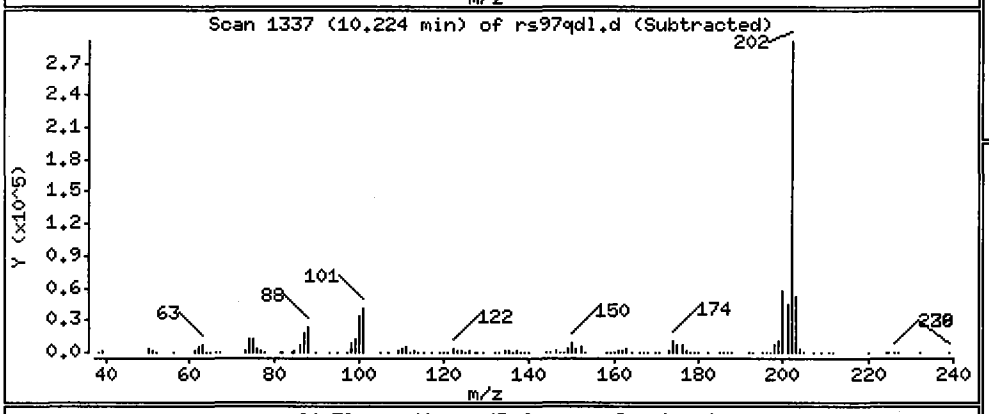
Sample Info: RS97Q,3

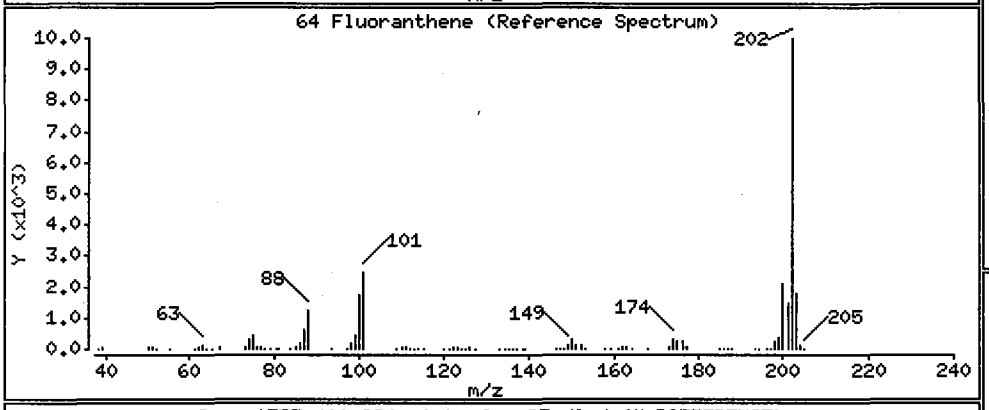
Volume Injected (uL): 1.0 Operator: VTS

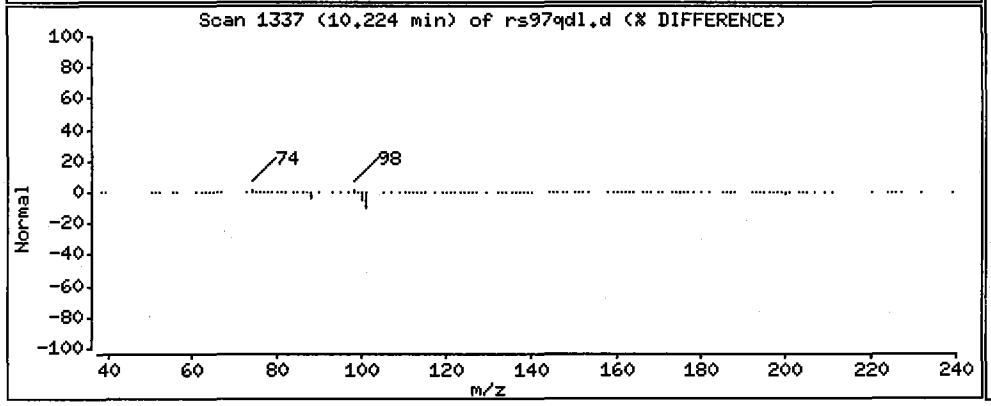
Column phase: ZB-5msi Column diameter: 0.32

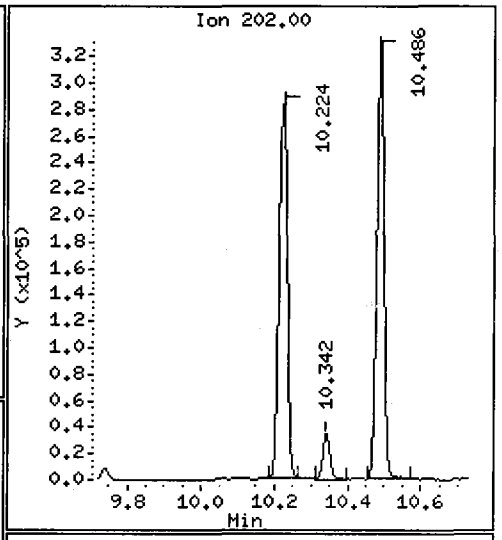
64 Fluoranthene Concentration: 241500 ug/kg

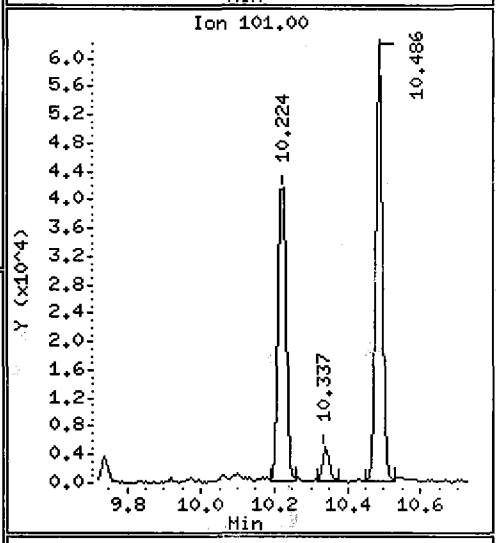


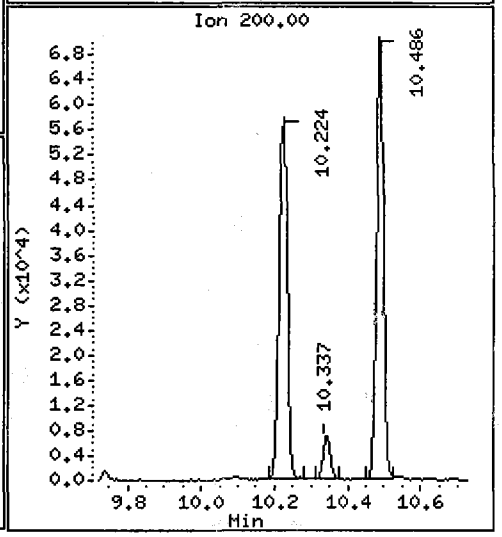












Data File: /chem1/nt12.i/20101111.b/rs97qdl.d

Date : 11-NOV-2010 14:12

Client ID: DGS-07-10.610.9-101

Instrument: nt12.i

Sample Info: RS97Q,3

Volume Injected (uL): 1.0

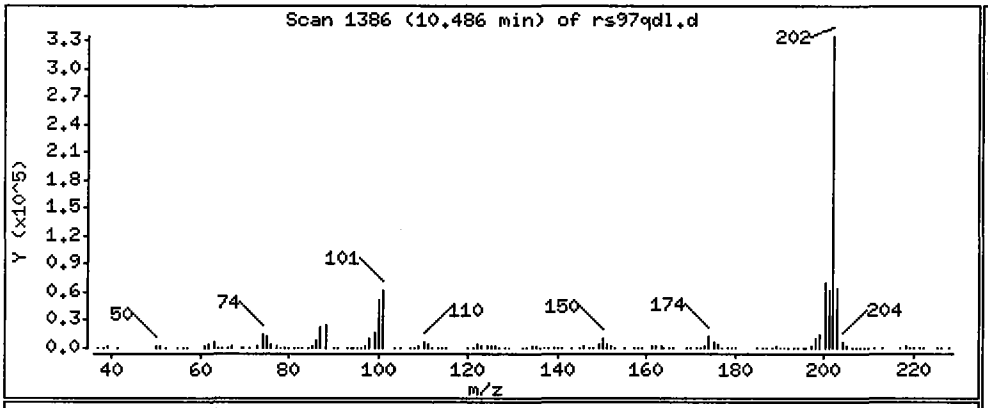
Operator: VTS

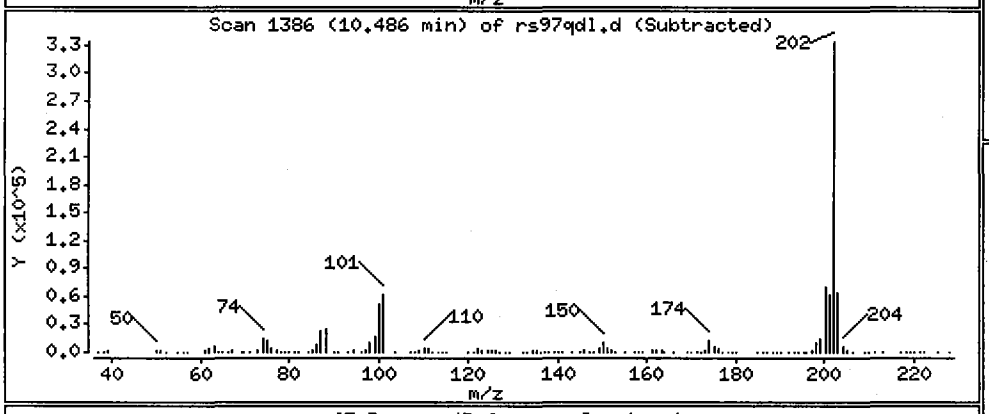
Column phase: ZB-5msi

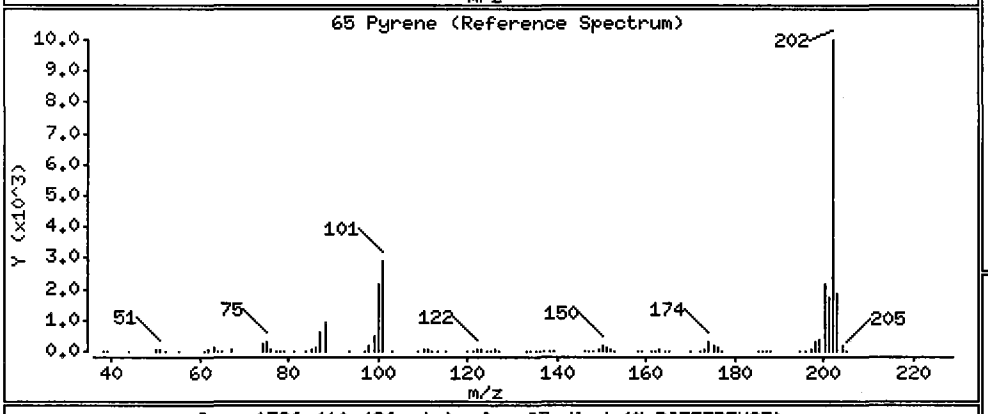
Column diameter: 0.32

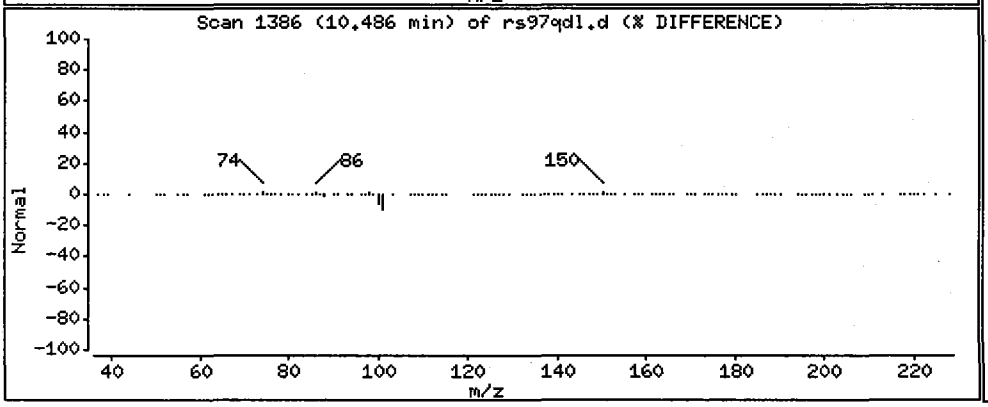
65 Pyrene

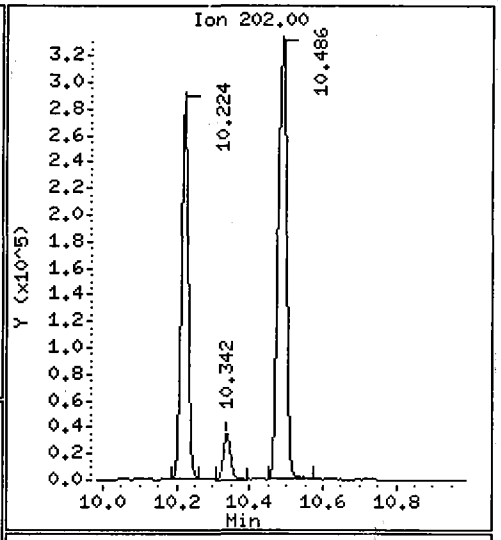
Concentration: 297400 ug/kg

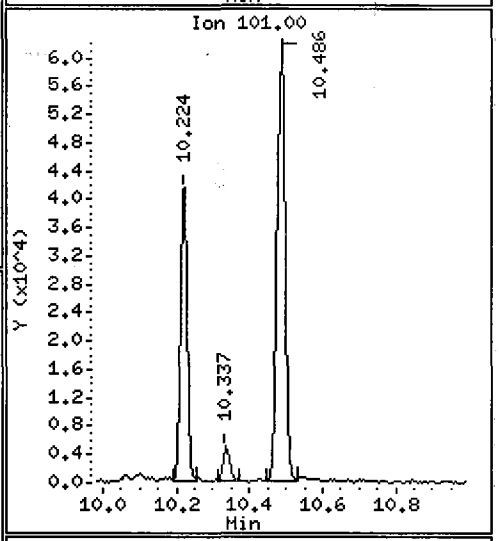


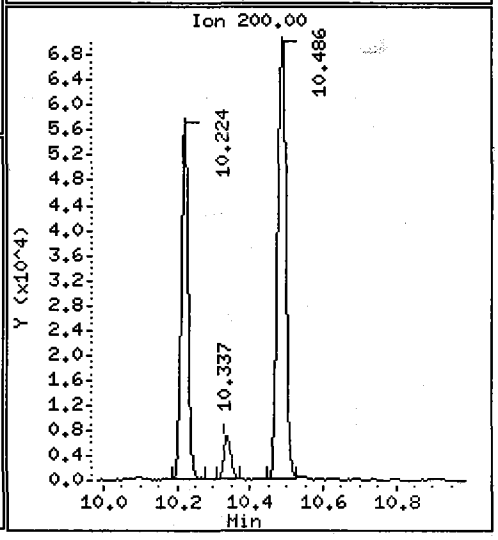












Data File: /chem1/nt12.i/20101111.b/rs97qdl.d

Date : 11-NOV-2010 14:12

Client ID: DGS-07-10.610.9-101

Instrument: nt12.i

Sample Info: RS97Q,3

Volume Injected (uL): 1.0

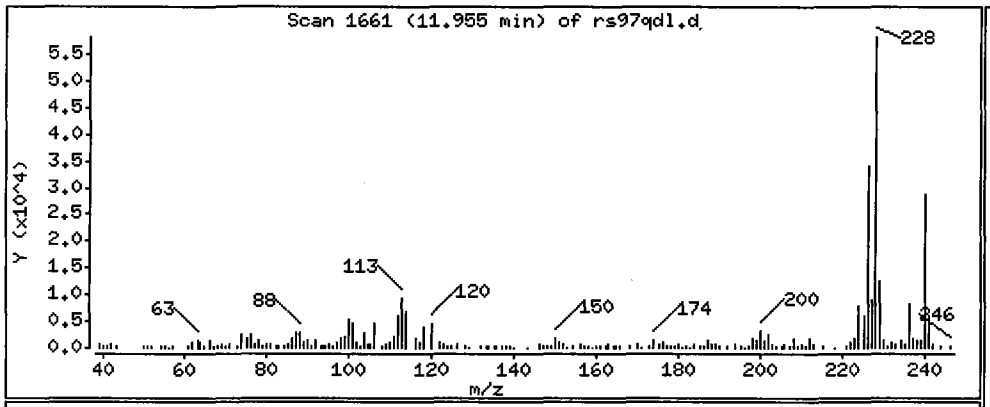
Operator: VTS

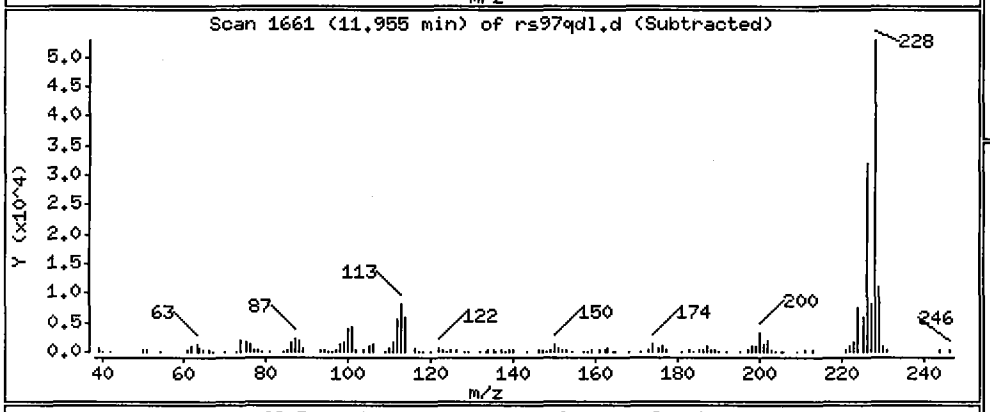
Column phase: ZB-5msi

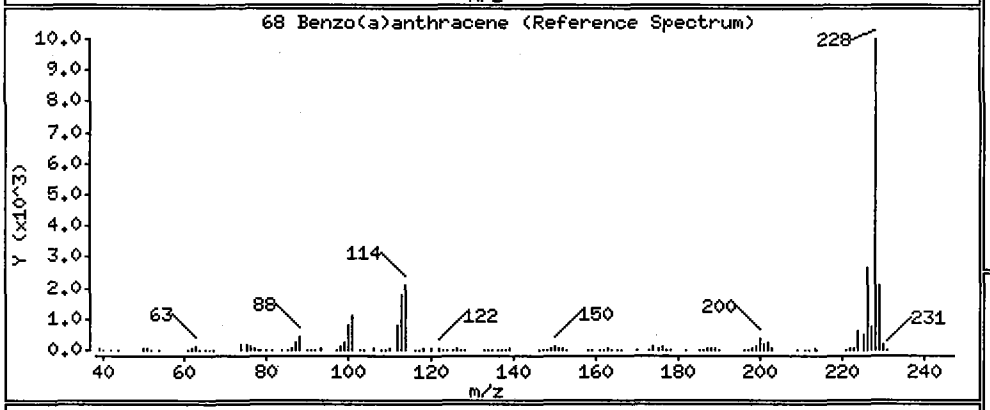
Column diameter: 0.32

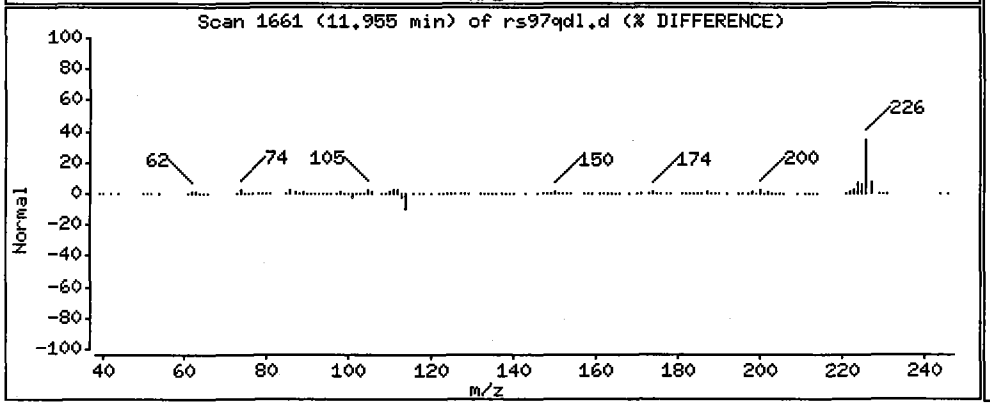
68 Benzo(a)anthracene

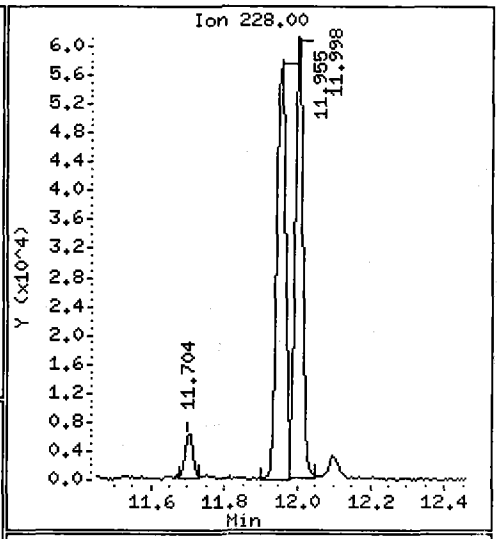
Concentration: 68770 ug/kg

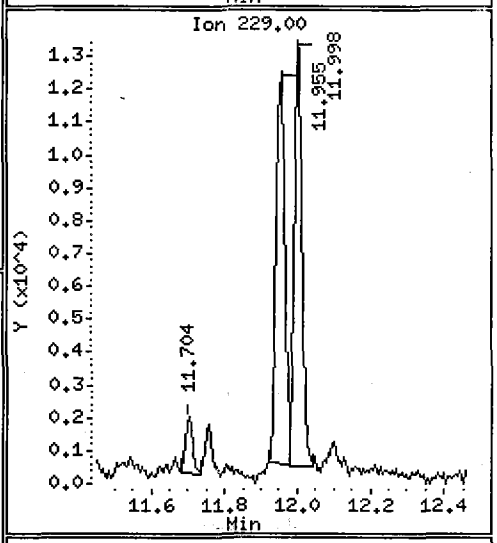


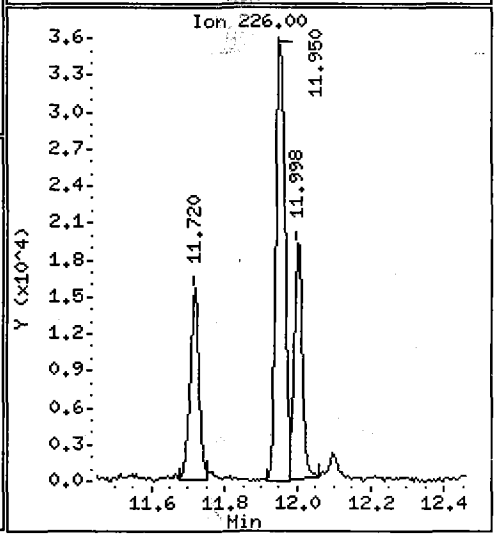












Data File: /chem1/nt12.i/20101111.b/rs97qdl.d

Date : 11-NOV-2010 14:12

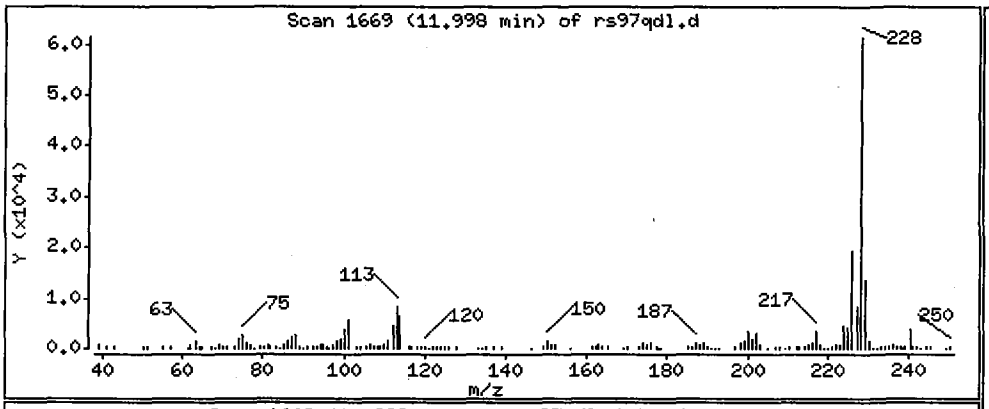
Client ID: DGS-07-10.610.9-101 | Instrument: nt12.i

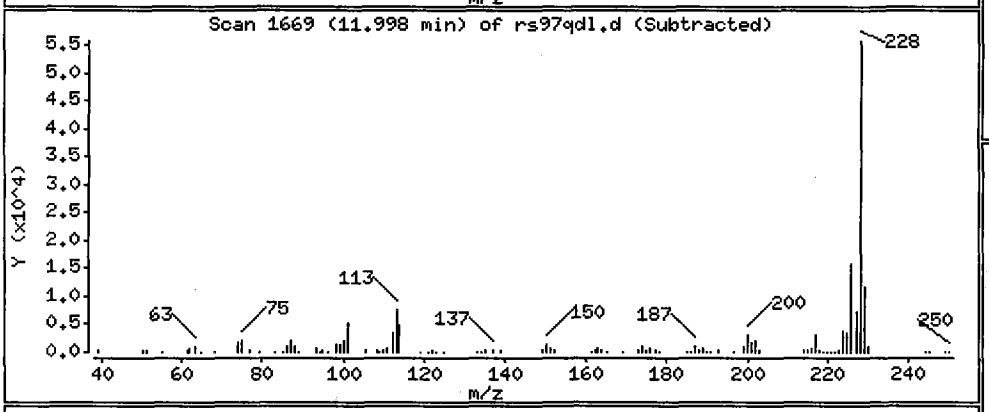
Sample Info: RS97Q,3

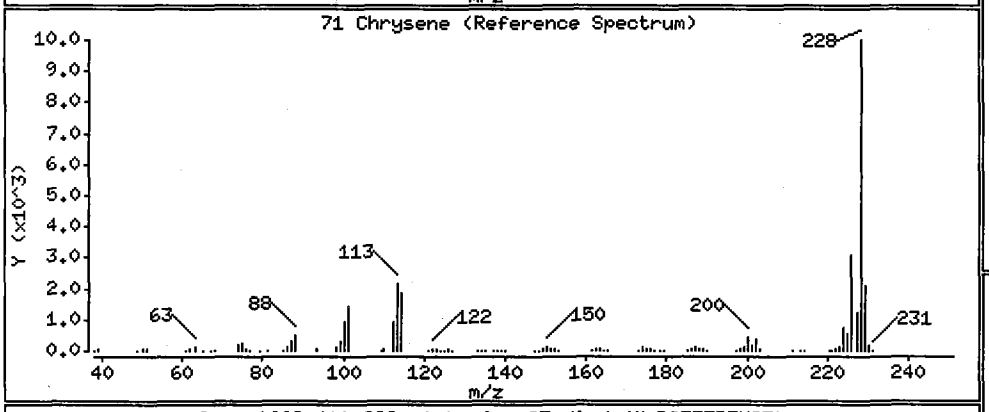
Volume Injected (uL): 1.0 | Operator: VTS

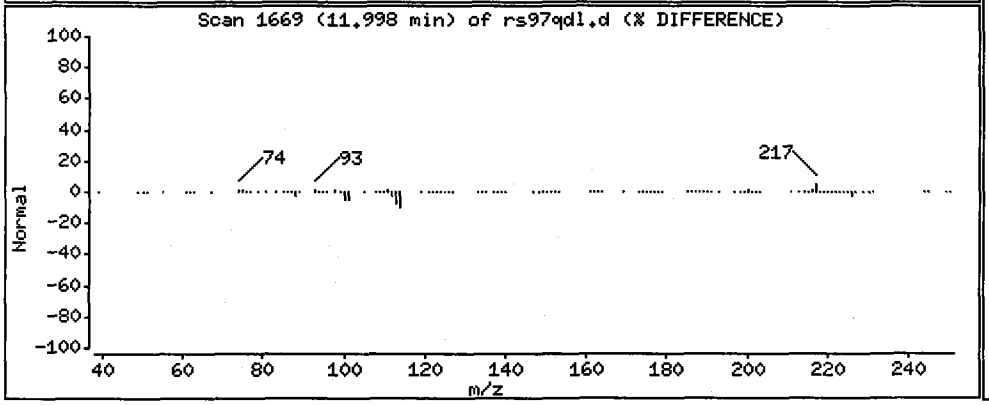
Column phase: ZB-5msi | Column diameter: 0.32

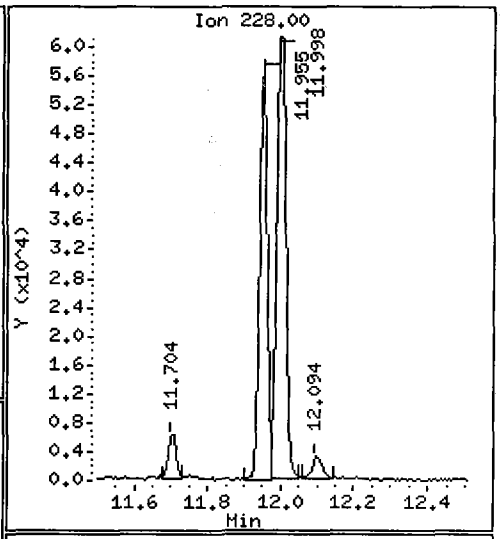
71 Chrysene | Concentration: 80270 ug/kg

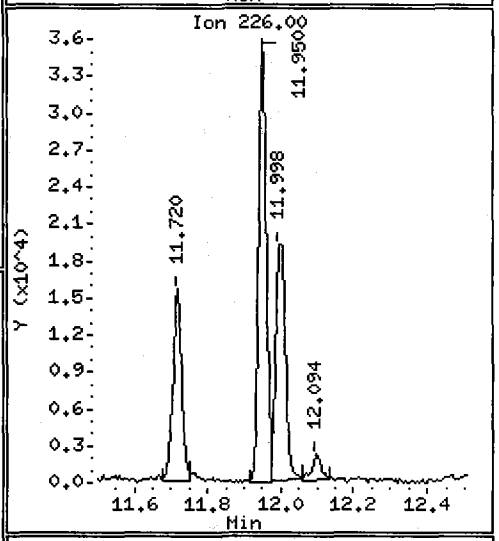


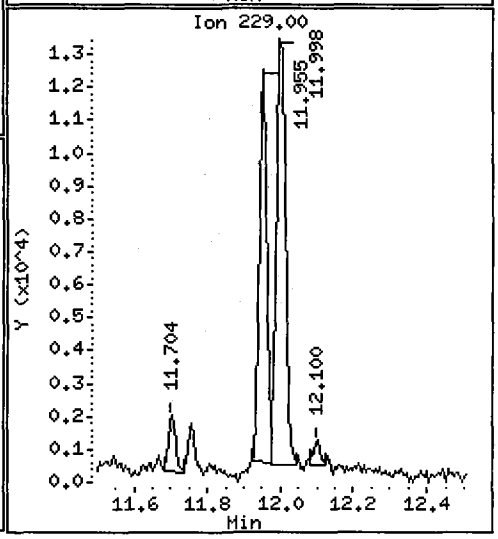












Data File: /chem1/nt12.i/20101111.b/rs97qdl.d

Date : 11-NOV-2010 14:12

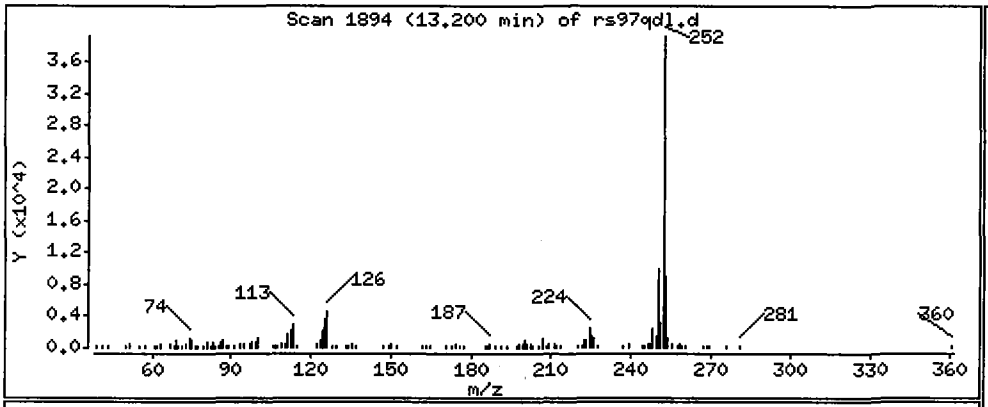
Client ID: DGS-07-10.610.9-101 | Instrument: nt12.i

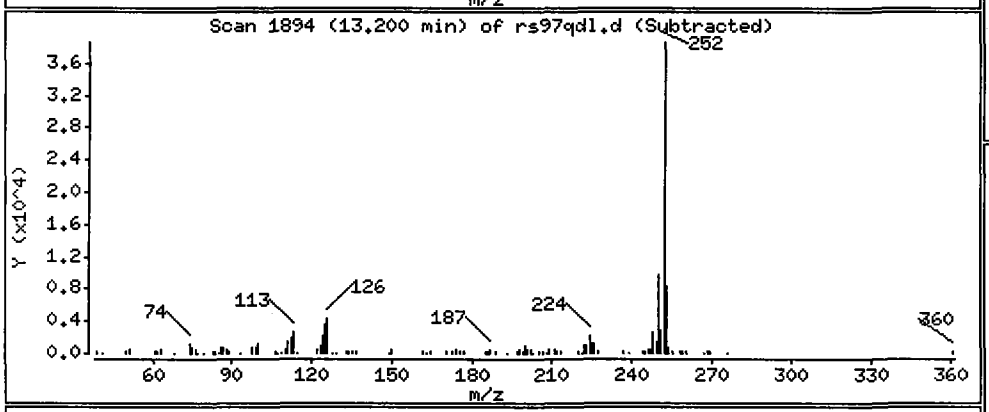
Sample Info: RS97Q,3

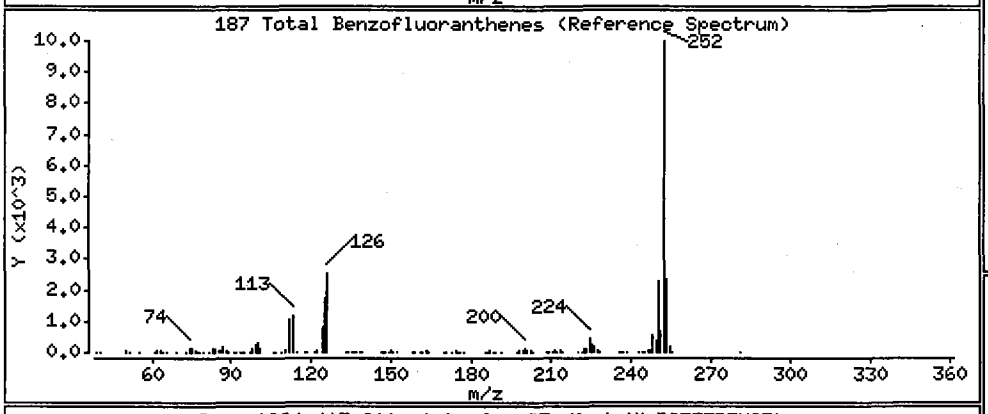
Volume Injected (uL): 1.0 | Operator: VTS

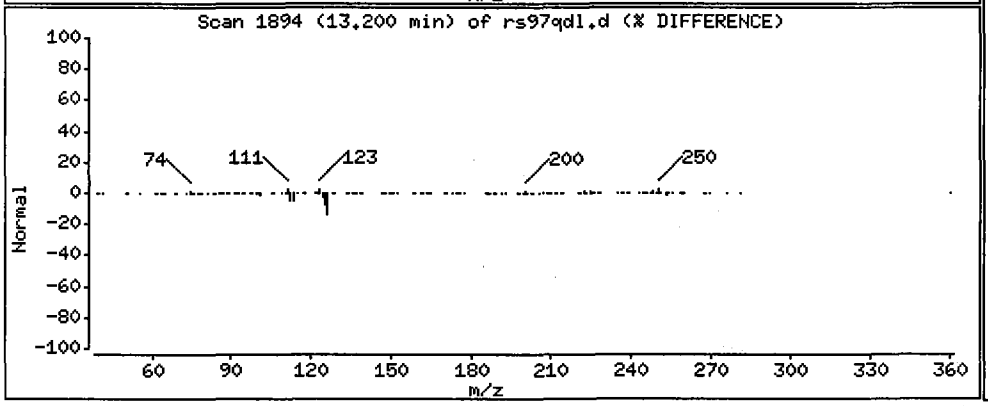
Column phase: ZB-5msi | Column diameter: 0.32

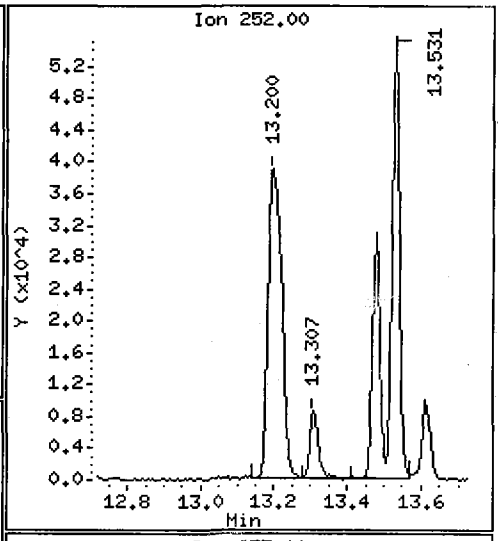
187 Total Benzofluoranthenes | Concentration: 105700 ug/kg

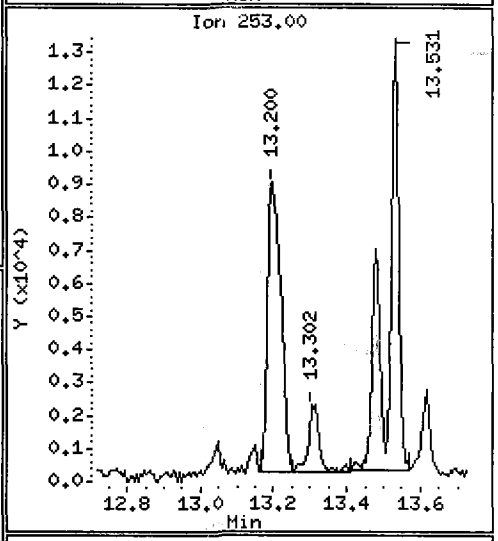


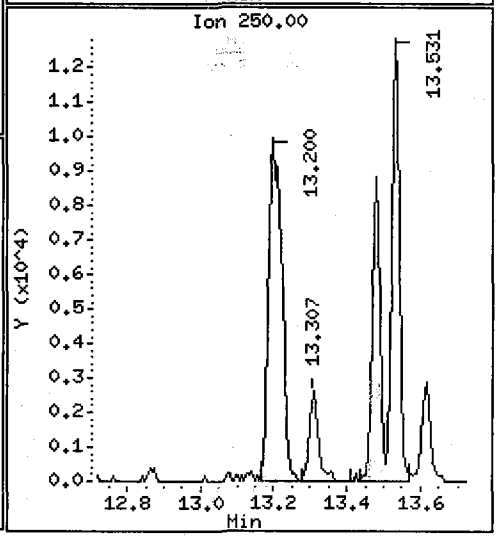












Data File: /chem1/nt12.i/20101111.b/rs97qdl.d

Date : 11-NOV-2010 14:12

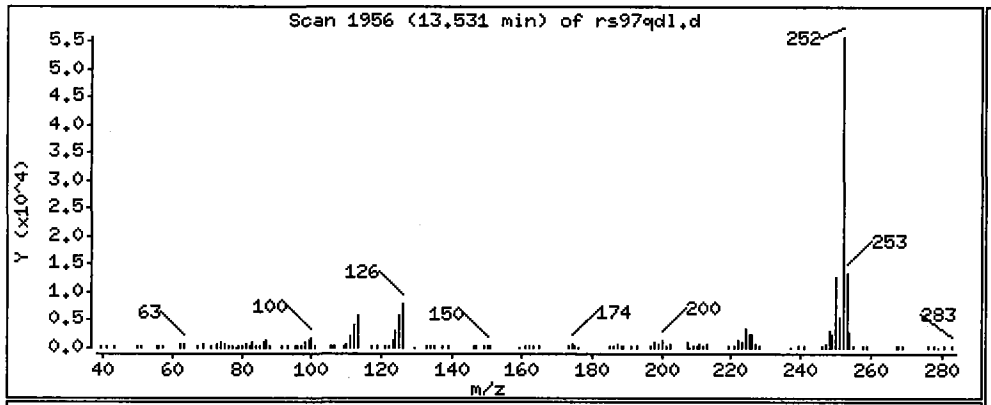
Client ID: DGS-07-10.610.9-101 Instrument: nt12.i

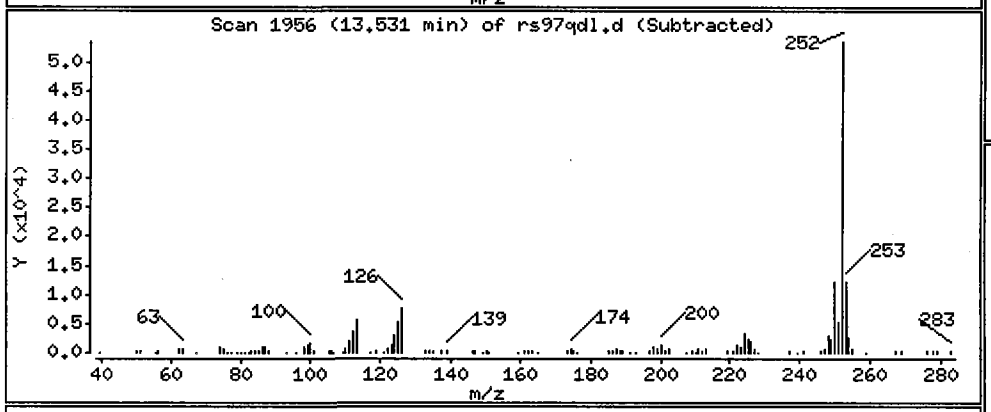
Sample Info: RS97Q,3

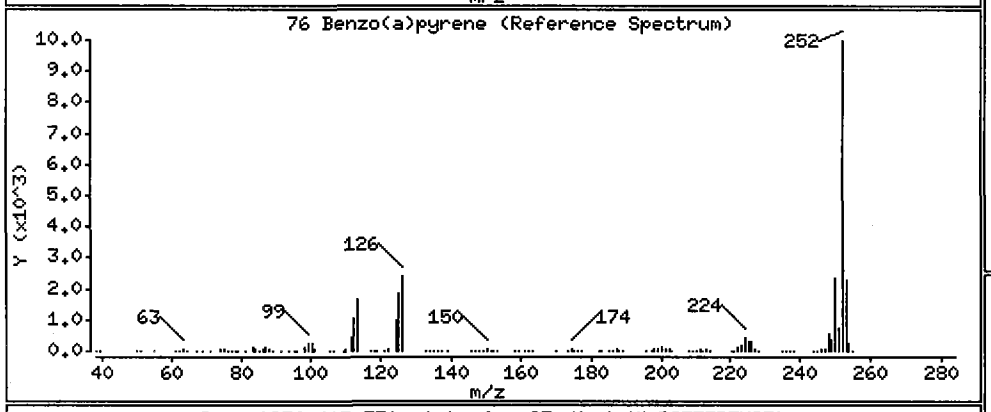
Volume Injected (uL): 1.0 Operator: VTS

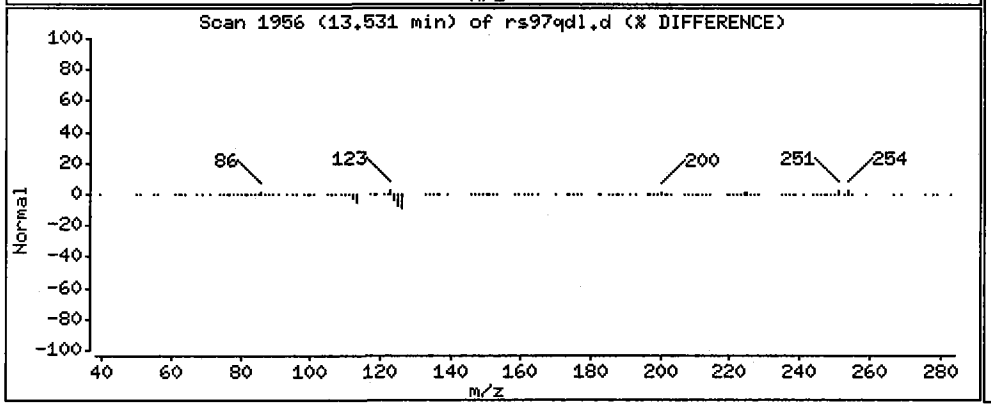
Column phase: ZB-5msi Column diameter: 0.32

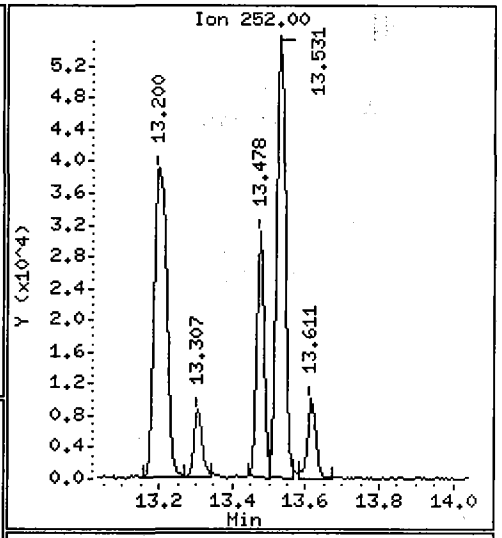
76 Benzo(a)pyrene Concentration: 95400 ug/kg

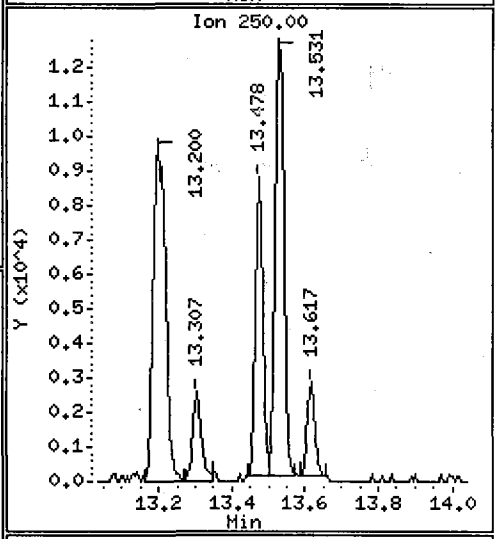


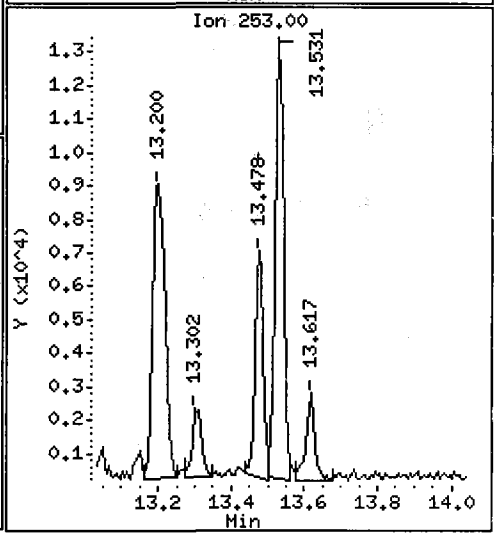












Data File: /chem1/nt12.i/20101111.b/rs97qdl.d

Date : 11-NOV-2010 14:12

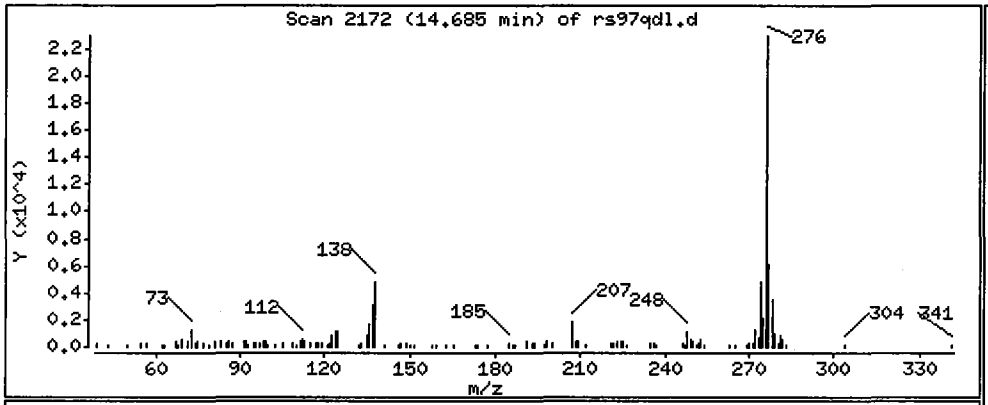
Client ID: DGS-07-10.610.9-101 Instrument: nt12.i

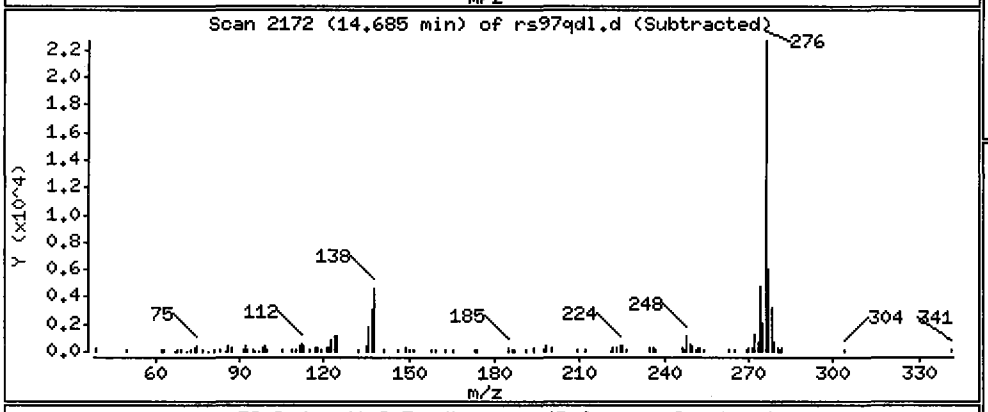
Sample Info: RS97Q,3

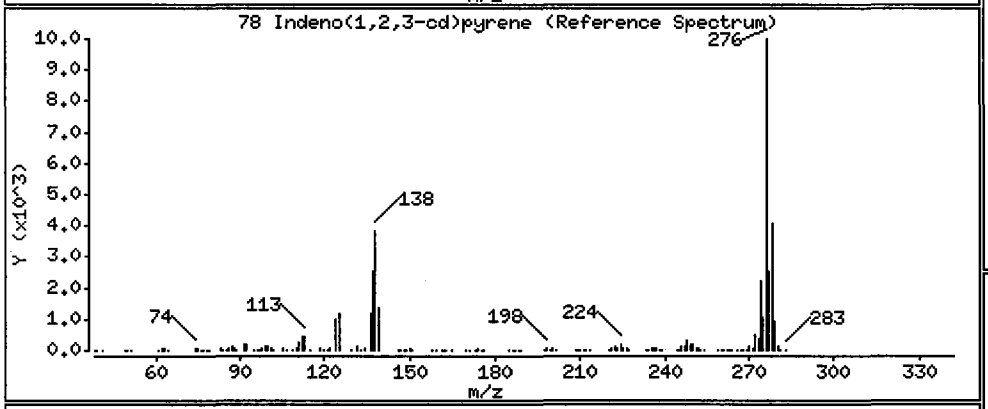
Volume Injected (uL): 1.0 Operator: VTS

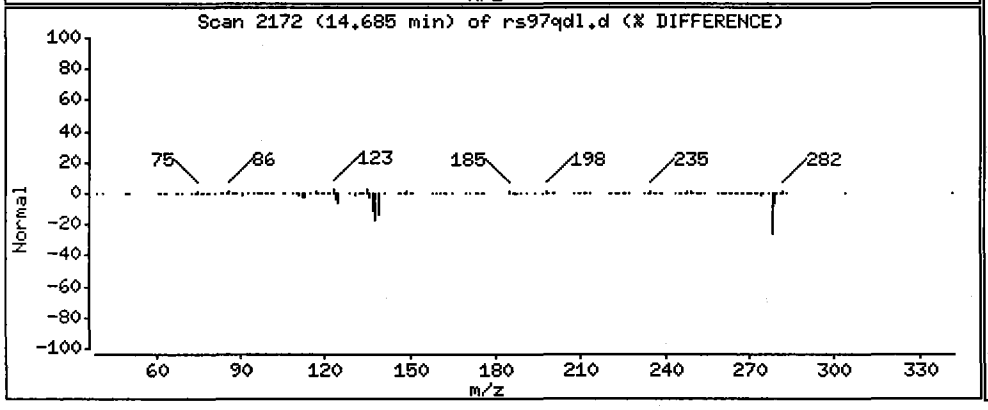
Column phase: ZB-5msi Column diameter: 0.32

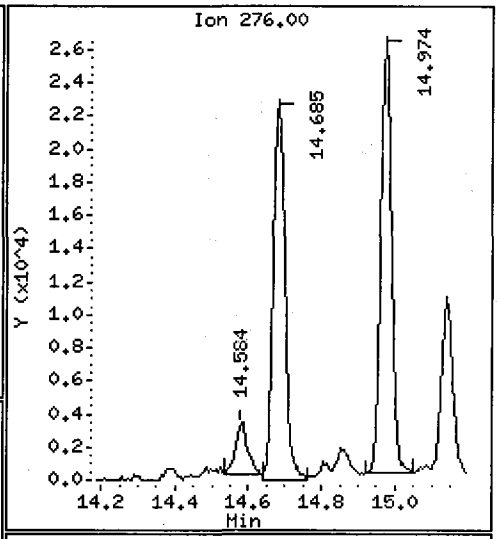
78 Indeno(1,2,3-cd)pyrene Concentration: 38280 ug/kg

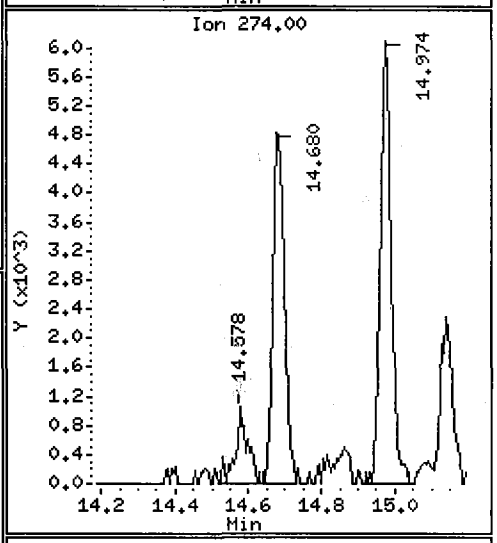


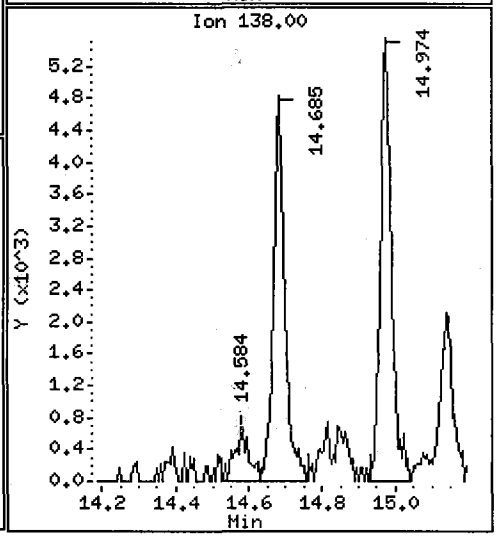












Data File: /chem1/nt12.i/20101111.b/rs97qdl.d

Date : 11-NOV-2010 14:12

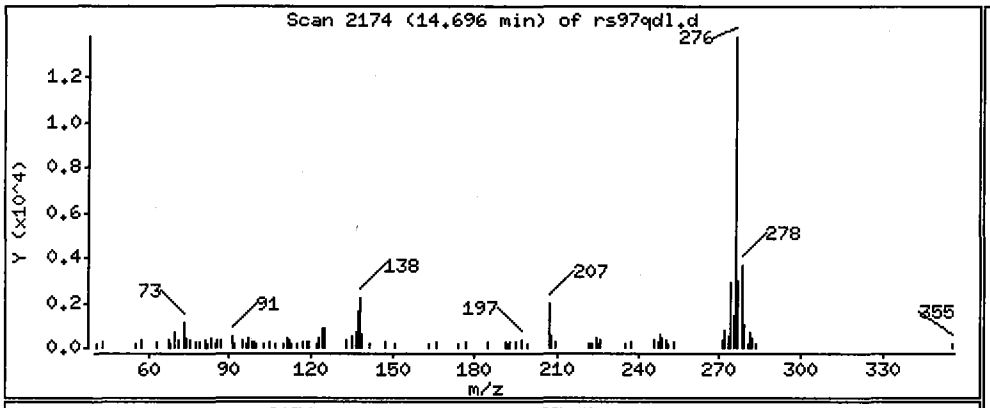
Client ID: DGS-07-10.610.9-101 Instrument: nt12.i

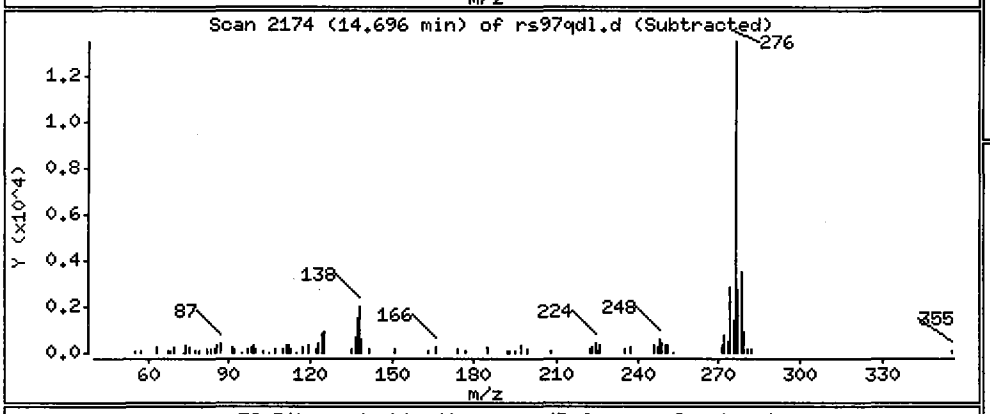
Sample Info: RS97Q,3

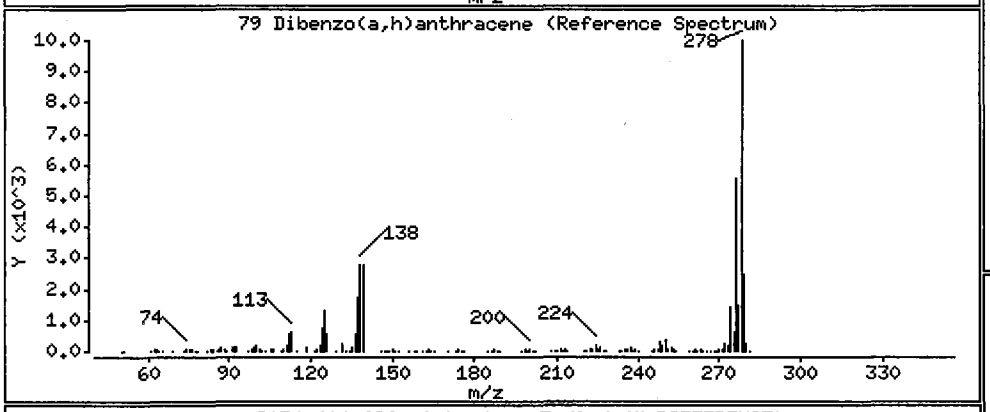
Volume Injected (uL): 1.0 Operator: VTS

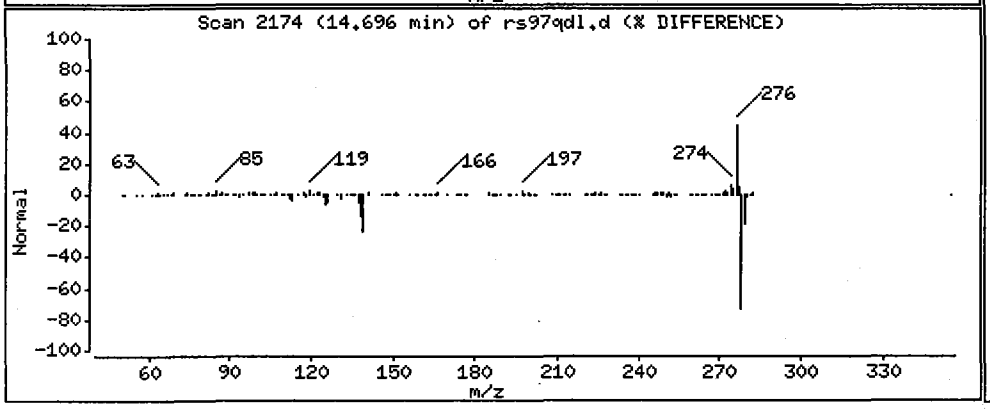
Column phase: ZB-5msi Column diameter: 0.32

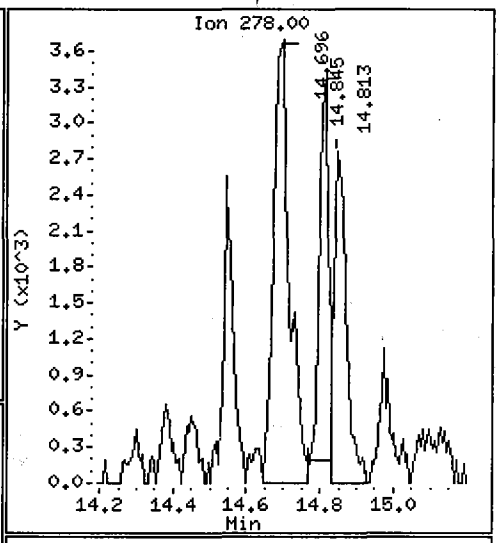
79 Dibenzo(a,h)anthracene Concentration: 10460 ug/kg

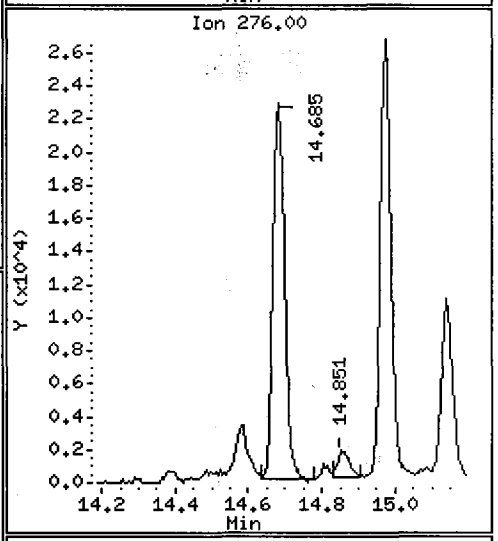


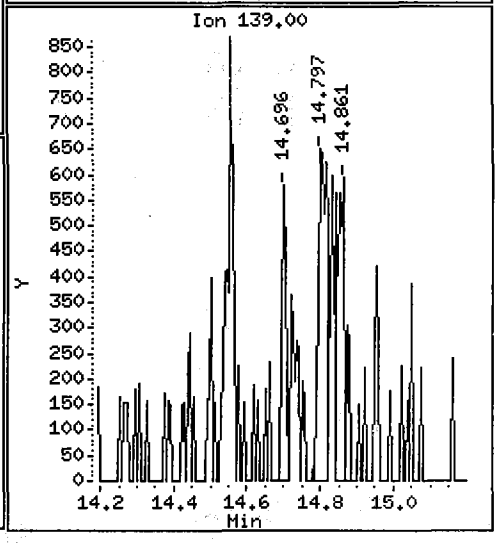












Data File: /chem1/nt12.i/20101111.b/rs97qdl.d

Date : 11-NOV-2010 14:12

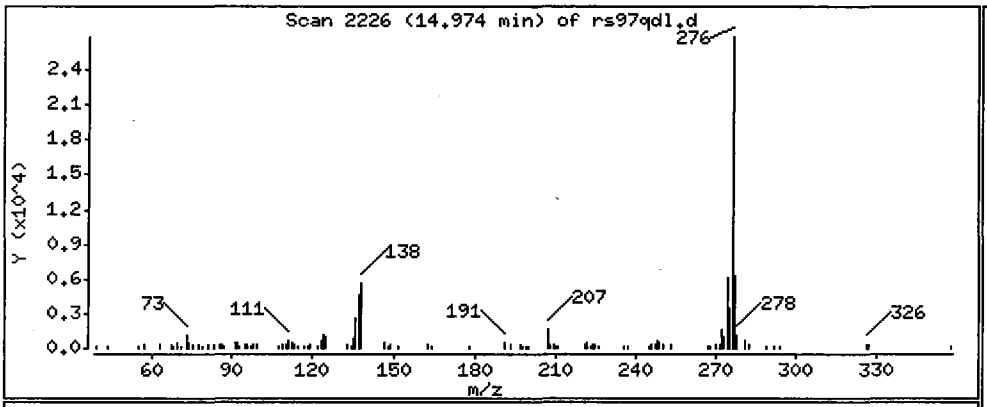
Client ID: DGS-07-10.610.9-101 | Instrument: nt12.i

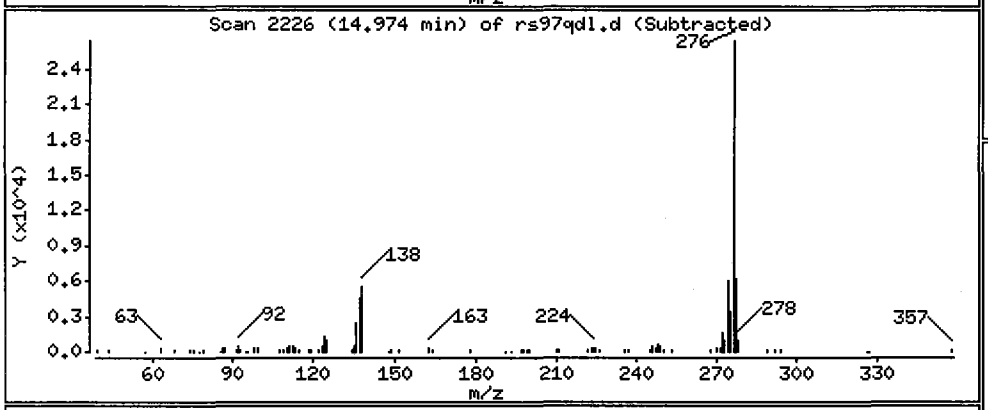
Sample Info: RS97Q,3

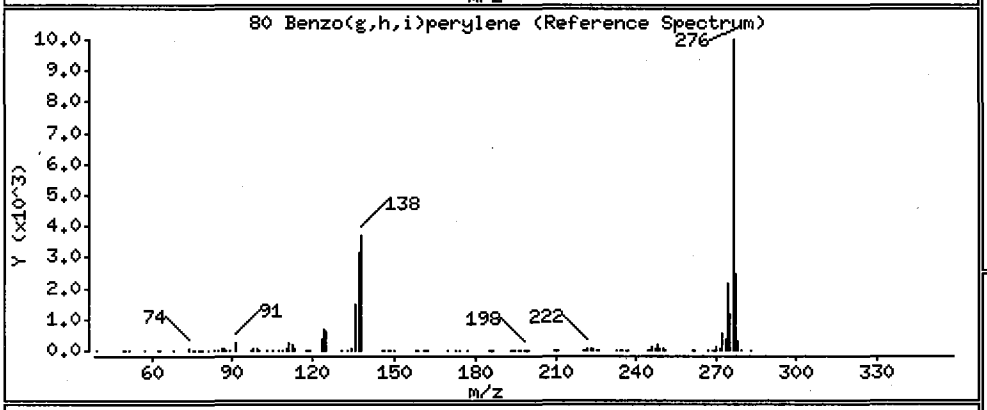
Volume Injected (uL): 1.0 | Operator: VTS

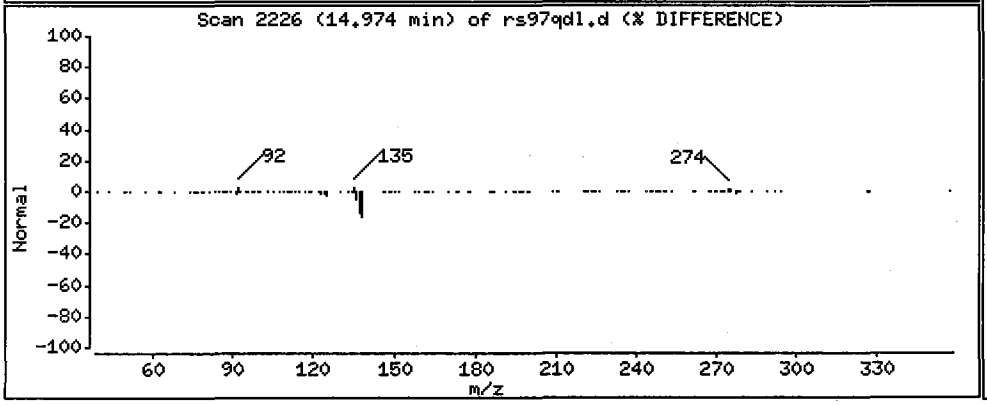
Column phase: ZB-5msi | Column diameter: 0.32

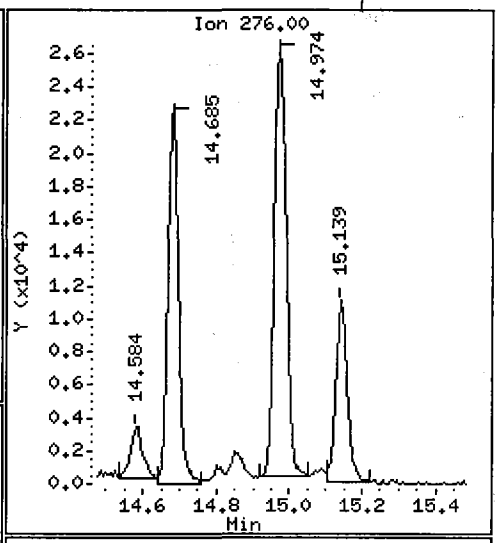
80 Benzo(g,h,i)perylene | Concentration: 54340 ug/kg

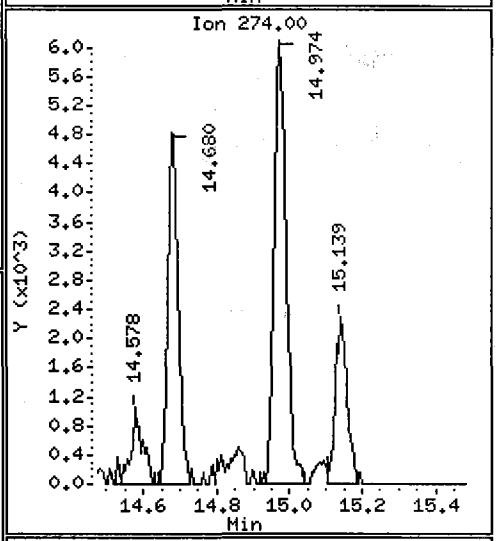


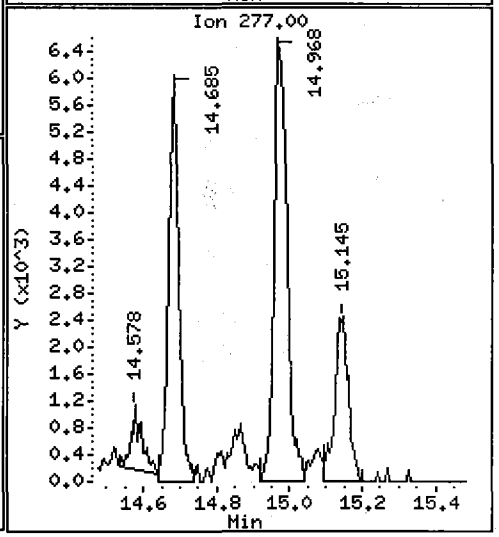












Analytical Resources, Inc.

Semivolatile Report SW846 Method 8270D

Data file : /chem1/nt12.i/20101111.b/rs97rdl.d
Lab Smp Id: RS97R Client Smp ID: DGS-07-11.611.8-101
Inj Date : 11-NOV-2010 14:35
Operator : VTS Inst ID: nt12.i
Smp Info : RS97R,10
Misc Info : 10-27434
Comment : 1ul Injection
Method : /chem1/nt12.i/20101111.b/PNADMD.m
Meth Date : 11-Nov-2010 14:36 van Quant Type: ISTD
Cal Date : 30-OCT-2010 13:19 Cal File: ic1030f.d
Als bottle: 7
Dil Factor: 10.00000
Integrator: HP RTE Compound Sublist: pnas.sub
Target Version: 3.50
Processing Host: cserv3

Concentration Formula: Amt * DF * Vt/(Ws * (100 - M)/100) * CpndVariable

Name	Value	Description
DF	10.00000	Dilution Factor
Vt	10000.00000	Volume of final extract (uL)
Ws	5.05000	Weight of sample extracted (g)
M	44.90000	% Moisture

Cpnd Variable Local Compound Variable

Compounds	QUANT SIG MASS	RT	EXP RT	REL RT	RESPONSE	CONCENTRATIONS ON-COLUMN (ug/mL)	FINAL (ug/kg)
* 27 Naphthalene-d8	136	4.871	4.871	(1.000)	204343	20.0000	
28 Naphthalene	128	4.893	4.893	(1.004)	58595	5.03823	181100
32 2-Methylnaphthalene	141	5.710	5.710	(1.172)	61553	9.91573	356400
105 1-methylnaphthalene	141	5.838	5.838	(1.198)	32388	5.06013	181900
$ 36 2-Fluorobiphenyl	172	Compound Not Detected.					
40 Acenaphthylene	152	Compound Not Detected.					
* 42 Acenaphthene-d10	164	6.976	6.976	(1.000)	126492	20.0000	
44 Acenaphthene	153	7.008	7.014	(1.005)	52063	6.69256	240500
46 Dibenzofuran	168	Compound Not Detected.					
49 Fluorene	166	7.623	7.623	(1.093)	36672	4.11726	148000
* 59 Phenanthrene-d10	188	8.744	8.745	(1.000)	230900	20.0000	
60 Phenanthrene	178	8.777	8.777	(1.004)	368034	30.0450	1080000
61 Anthracene	178	8.830	8.830	(1.010)	65852	5.20155	186900
62 Carbazole	167	Compound Not Detected.					

Compounds	QUANT SIG MASS	RT	EXP RT	REL RT	RESPONSE	CONCENTRATIONS ON-COLUMN (ug/mL)	FINAL (ug/kg)
64 Fluoranthene	202	10.219	10.224	(0.854)	223761	13.6367	490100
65 Pyrene	202	10.486	10.486	(0.876)	273856	16.8231	604600
$ 66 Terphenyl-d14	244	Compound Not Detected.					
68 Benzo(a)anthracene	228	11.950	11.955	(0.998)	54829	4.15621	149400
* 69 Chrysene-d12	240	11.971	11.977	(1.000)	234908	20.0000	
71 Chrysene	228	11.998	12.003	(1.002)	58391	4.73437	170100
187 Total Benzofluoranthenes	252	13.200	13.221	(0.971)	61468	6.36856	228900
76 Benzo(a)pyrene	252	13.531	13.537	(0.996)	48832	5.50751	197900
* 77 Perylene-d12	264	13.590	13.595	(1.000)	162046	20.0000	
99 Perylene	252	13.611	13.622	(1.002)	12393	~~1.31~~442	47240 NR
78 Indeno(1,2,3-cd)pyrene	276	14.680	14.691	(1.080)	26239	1.99330	71640
79 Dibenzo(a,h)anthracene	278	14.690	14.696	(1.081)	6700	0.61823	22220 J
80 Benzo(g,h,i)perylene	276	14.968	14.979	(1.101)	32946	3.04657	109500

11-12-10

Analytical Resources, Inc.

INTERNAL STANDARD COMPOUNDS
AREA AND RT SUMMARY

Instrument ID: nt12.i
Lab File ID: rs97rdl.d
Lab Smp Id: RS97R
Analysis Type: SV
Quant Type: ISTD
Operator: VTS
Method File: /chem1/nt12.i/20101111.b/PNADMD.m
Misc Info: 10-27434

Calibration Date: 11-NOV-2010
Calibration Time: 12:20
Client Smp ID: DGS-07-11.611.8-
Level: LOW
Sample Type: Sediment

Test Mode:
Use Initial Calibration Level 4.

COMPOUND	STANDARD	AREA LIMIT LOWER	AREA LIMIT UPPER	SAMPLE	%DIFF
27 Naphthalene-d8	237664	118832	475328	204343	-14.02
42 Acenaphthene-d10	143363	71682	286726	126492	-11.77
59 Phenanthrene-d10	245437	122718	490874	230900	-5.92
69 Chrysene-d12	199260	99630	398520	234908	17.89
77 Perylene-d12	197636	98818	395272	162046	-18.01

COMPOUND	STANDARD	RT LIMIT LOWER	RT LIMIT UPPER	SAMPLE	%DIFF
27 Naphthalene-d8	4.87	4.37	5.37	4.87	0.00
42 Acenaphthene-d10	6.98	6.48	7.48	6.98	0.00
59 Phenanthrene-d10	8.74	8.24	9.24	8.74	0.00
69 Chrysene-d12	11.98	11.48	12.48	11.97	-0.05
77 Perylene-d12	13.60	13.10	14.10	13.59	-0.04

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.

Analytical Resources, Inc.

RECOVERY REPORT

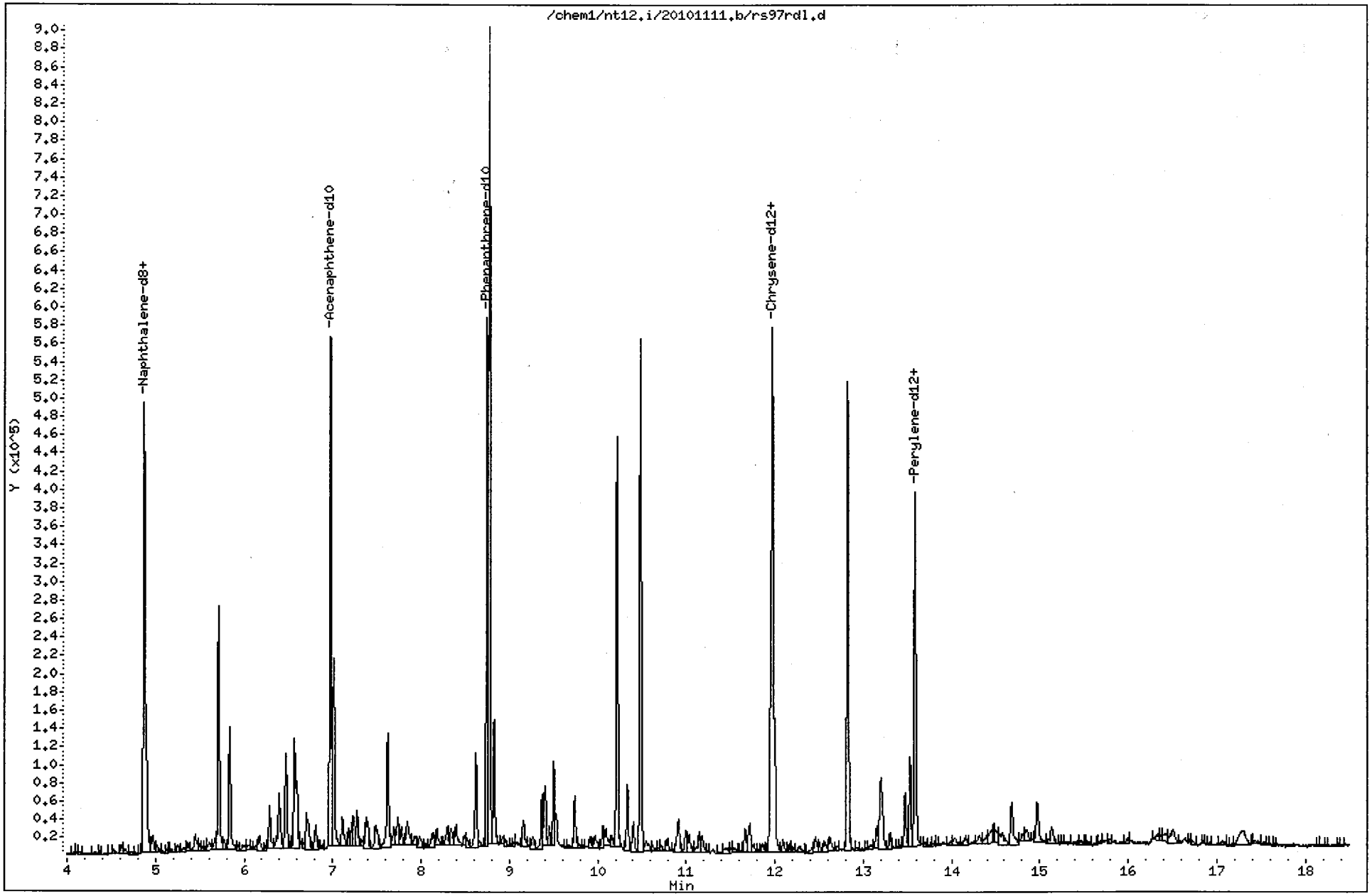
Client Name: NW Natural
Sample Matrix: SOLID
Lab Smp Id: RS97R
Level: LOW
Data Type: MS DATA
SpikeList File: SONICLCS.spk
Sublist File: pnas.sub
Method File: /chem1/nt12.i/20101111.b/PNADMD.m
Misc Info: 10-27434

Client SDG: RS97
Fraction: SV
Client Smp ID: DGS-07-11.611.8-101
Operator: VTS
SampleType: SAMPLE
Quant Type: ISTD

SURROGATE COMPOUND	CONC ADDED ug/kg	CONC RECOVERED ug/kg	% RECOVERED	LIMITS
$ 36 2-Fluorobiphenyl	8985	0.000	*	34-100
$ 66 Terphenyl-d14	8985	0.000	*	35-112

Data File: /chem1/nt12.i/20101111.b/rs97rdl.d
Date : 11-NOV-2010 14:35
Client ID: DGS-07-11.611.8-101
Sample Info: RS97R,10
Volume Injected (uL): 1.0
Column phase: ZB-5msi

Instrument: nt12.i
Operator: VTS
Column diameter: 0.32



RS97:00885

Data File: /chem1/nt12.i/20101111.b/rs97rdl.d

Date : 11-NOV-2010 14:35

Client ID: DGS-07-11.611.8-101

Instrument: nt12.i

Sample Info: RS97R,10

Volume Injected (uL): 1.0

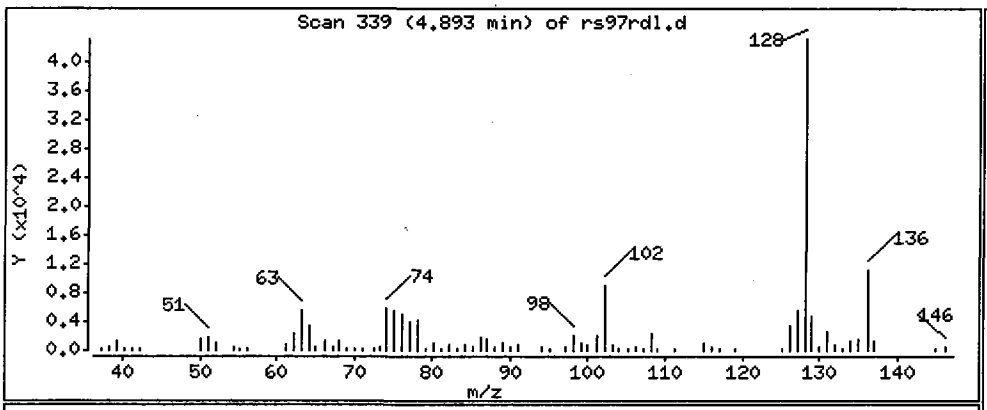
Operator: VTS

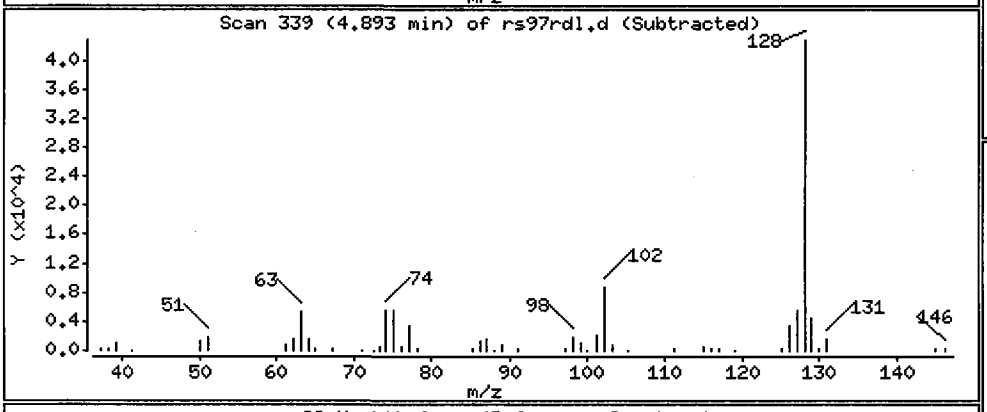
Column phase: ZB-5msi

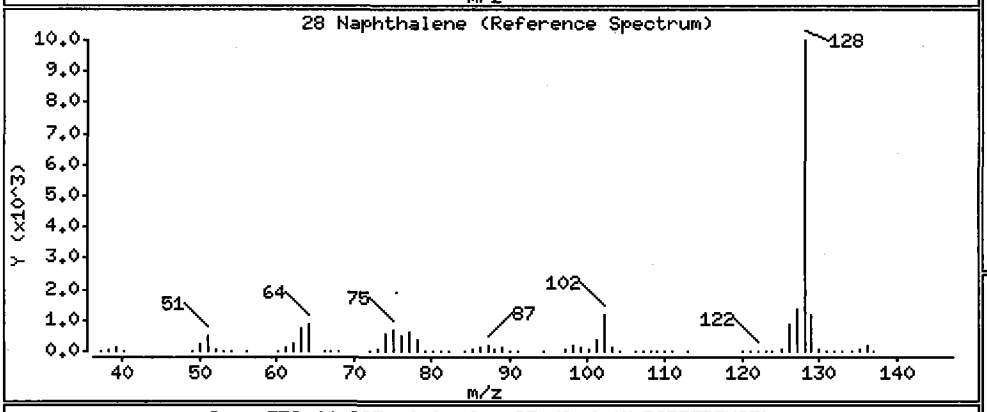
Column diameter: 0.32

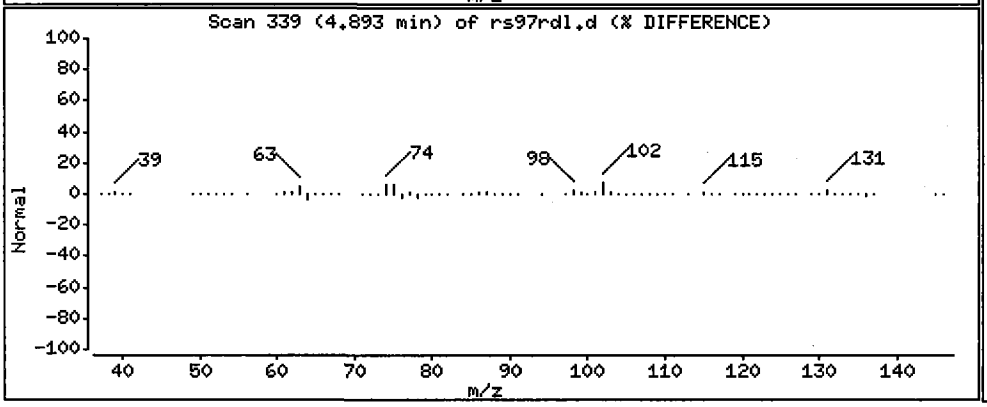
28 Naphthalene

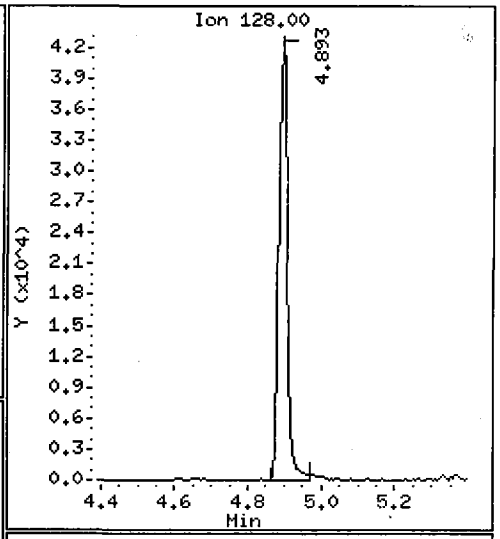
Concentration: 181100 ug/kg

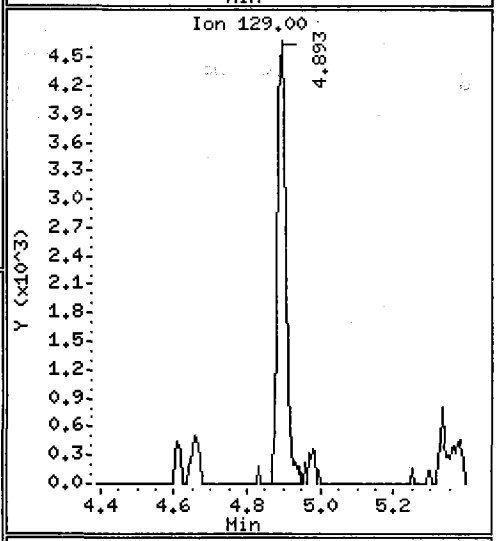


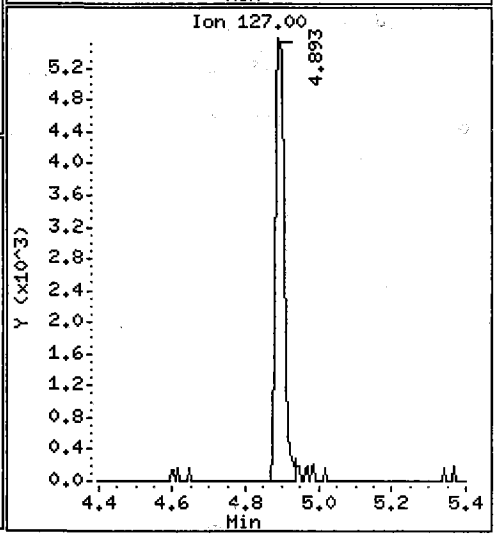












Data File: /chem1/nt12.i/20101111.b/rs97rdl.d

Date : 11-NOV-2010 14:35

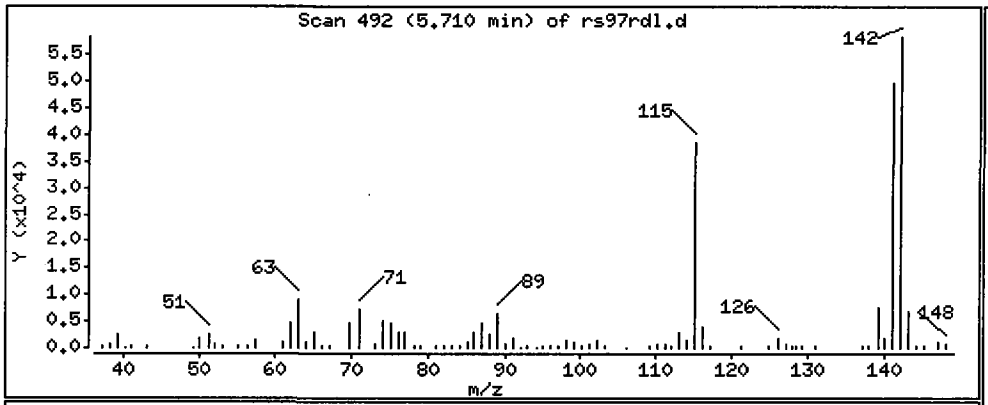
Client ID: DGS-07-11.611.8-101 Instrument: nt12.i

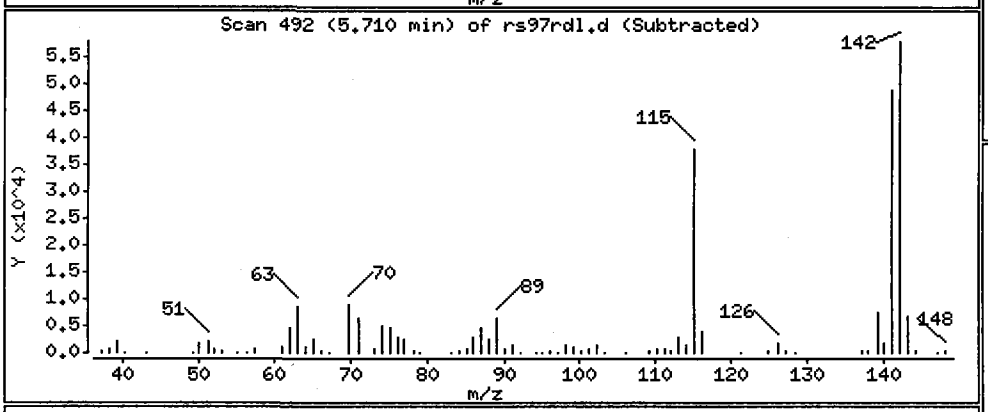
Sample Info: RS97R,10

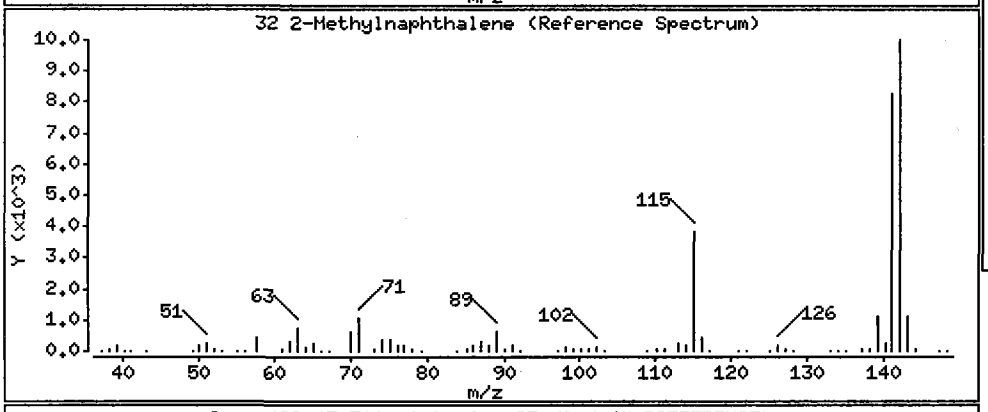
Volume Injected (uL): 1.0 Operator: VTS

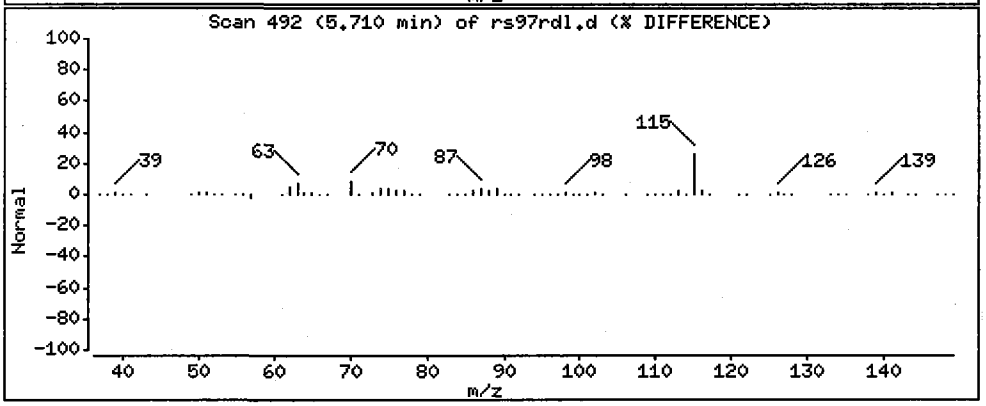
Column phase: ZB-5msi Column diameter: 0.32

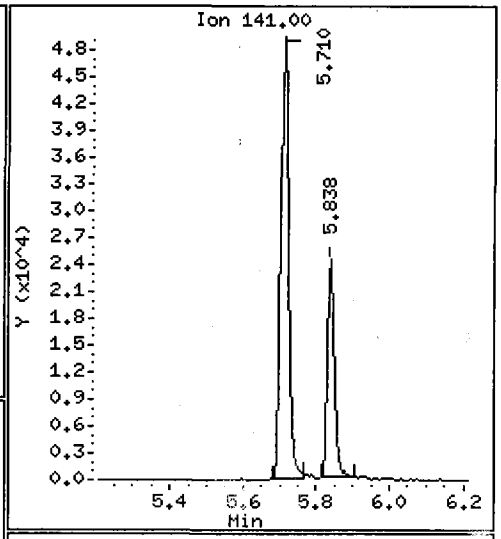
32 2-Methylnaphthalene Concentration: 356400 ug/kg

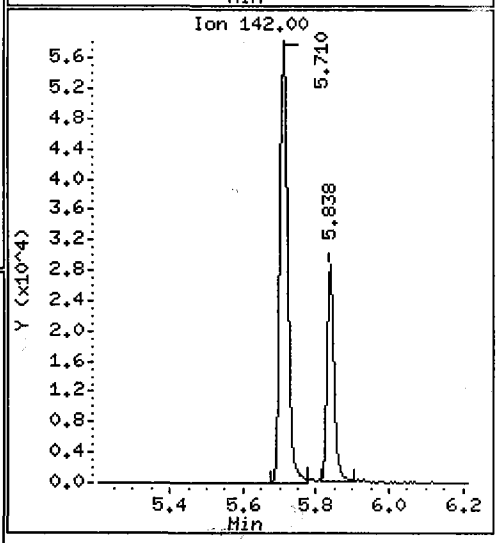












Data File: /chem1/nt12.i/20101111.b/rs97rdl.d

Date : 11-NOV-2010 14:35

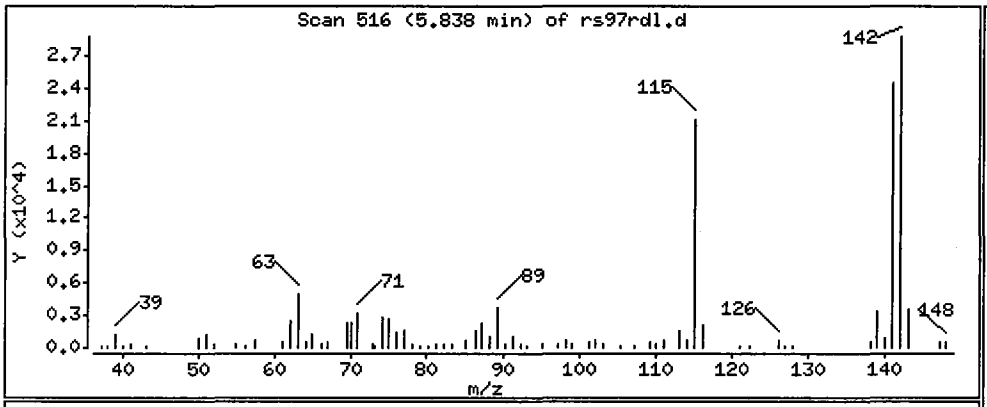
Client ID: DGS-07-11.611.8-101 Instrument: nt12.i

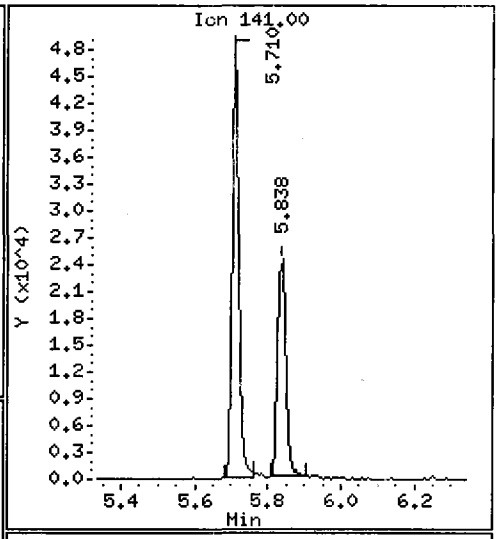
Sample Info: RS97R,10

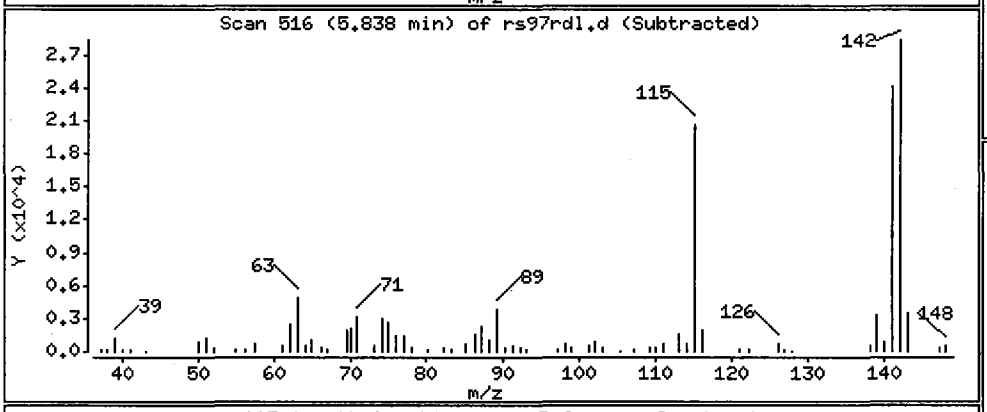
Volume Injected (uL): 1.0 Operator: VTS

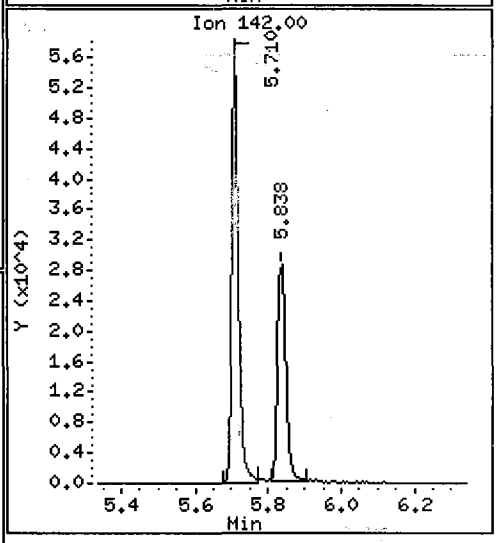
Column phase: ZB-5msi Column diameter: 0.32

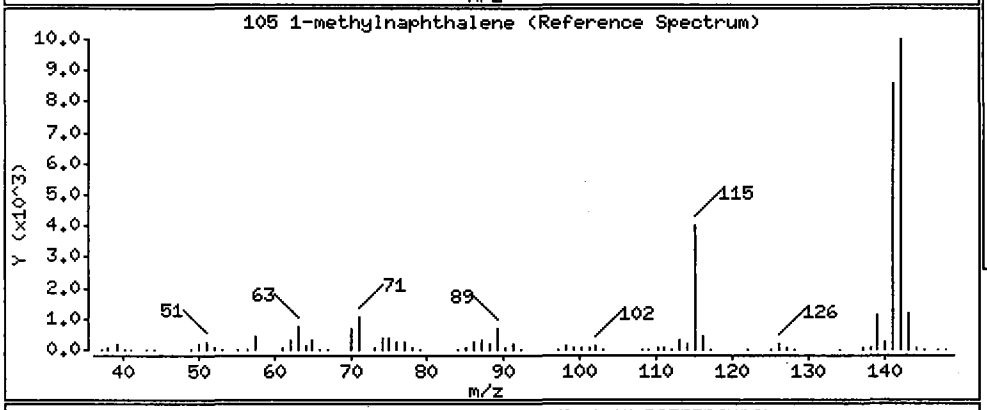
105 1-methylnaphthalene Concentration: 181900 ug/kg

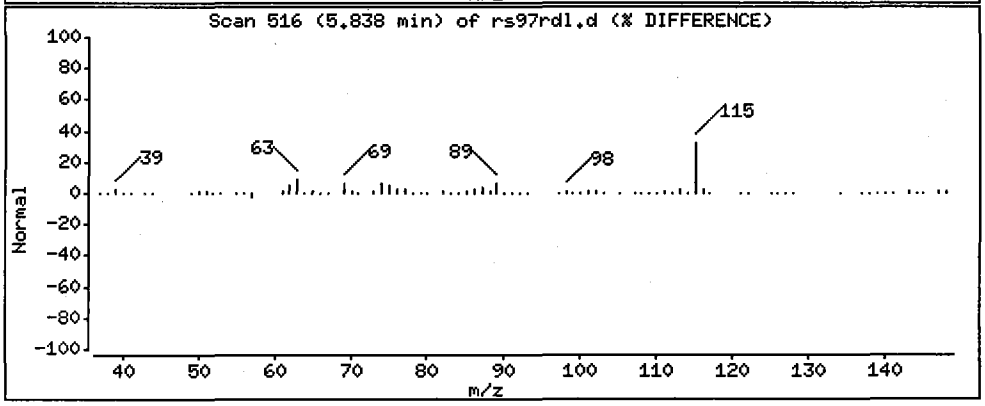












Data File: /chem1/nt12.i/20101111.b/rs97rdl.d

Date : 11-NOV-2010 14:35

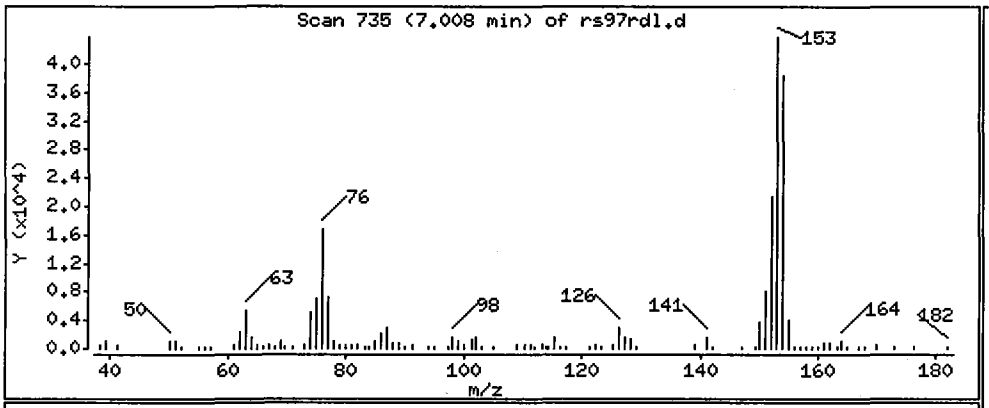
Client ID: DGS-07-11.611.8-101 Instrument: nt12.i

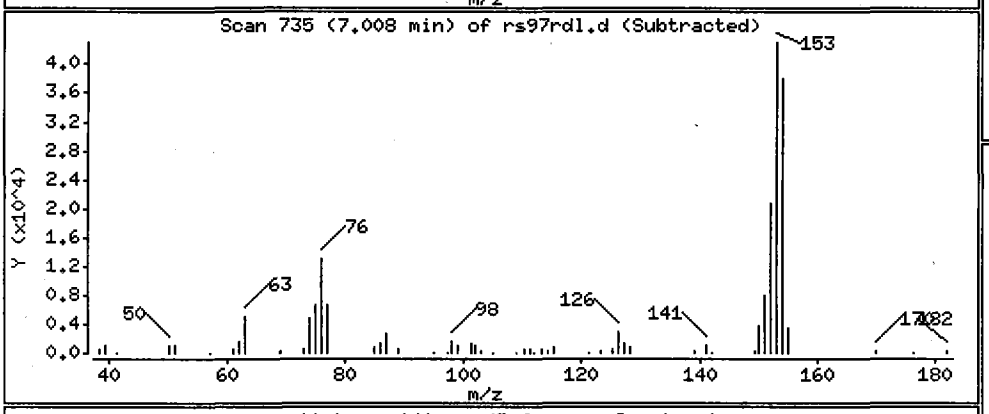
Sample Info: RS97R,10

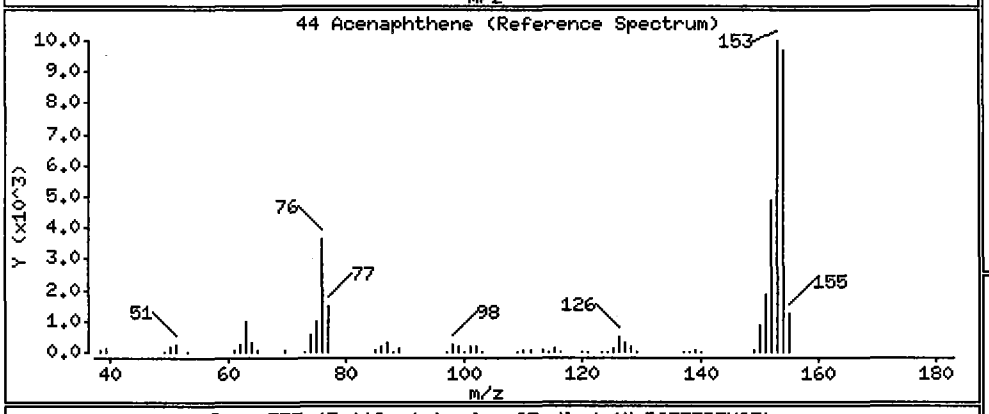
Volume Injected (uL): 1.0 Operator: VTS

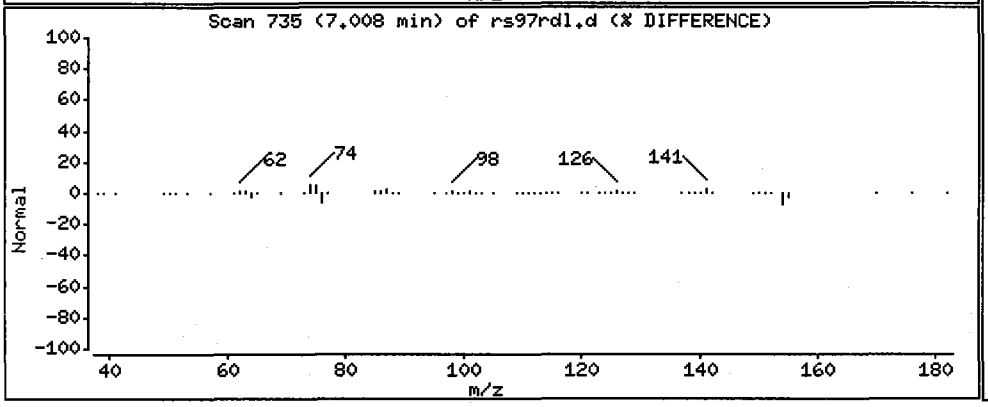
Column phase: ZB-5msi Column diameter: 0.32

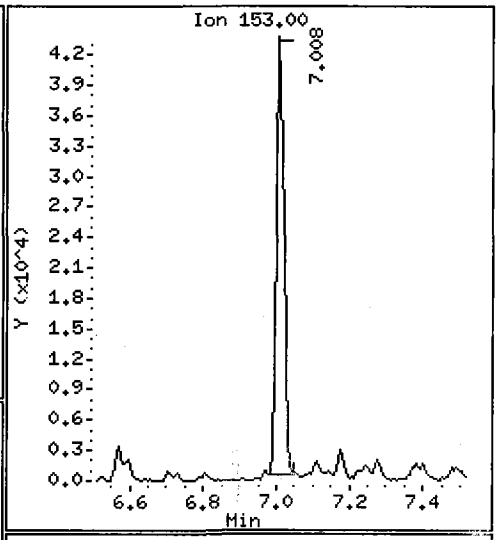
44 Acenaphthene Concentration: 240500 ug/kg

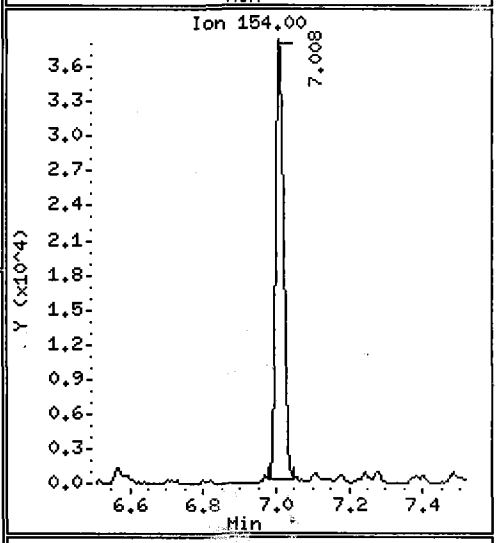


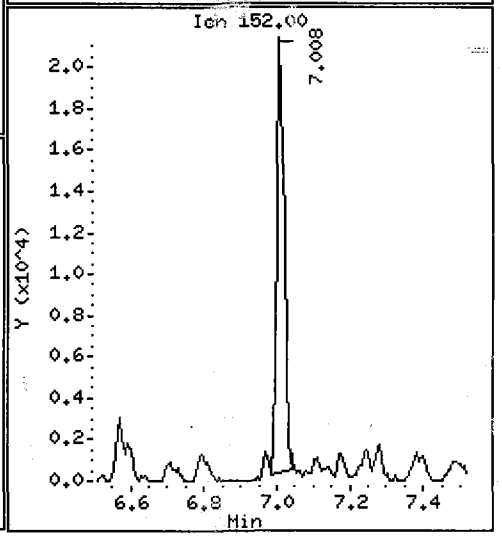












Data File: /chem1/nt12.i/20101111.b/rs97rdl.d

Date : 11-NOV-2010 14:35

Client ID: DGS-07-11.611.8-101

Instrument: nt12.i

Sample Info: RS97R,10

Volume Injected (uL): 1.0

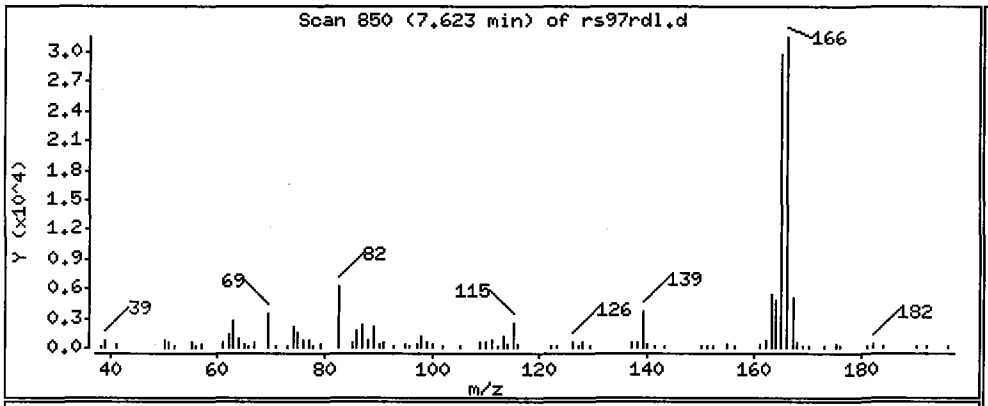
Operator: VTS

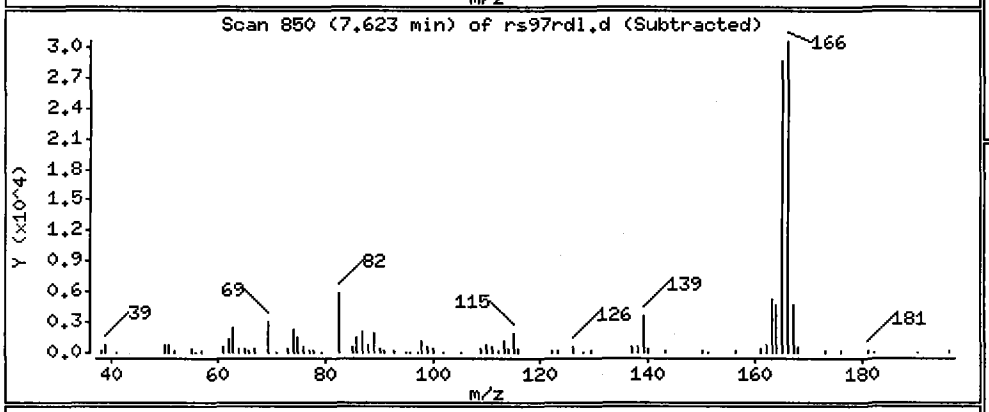
Column phase: ZB-5msi

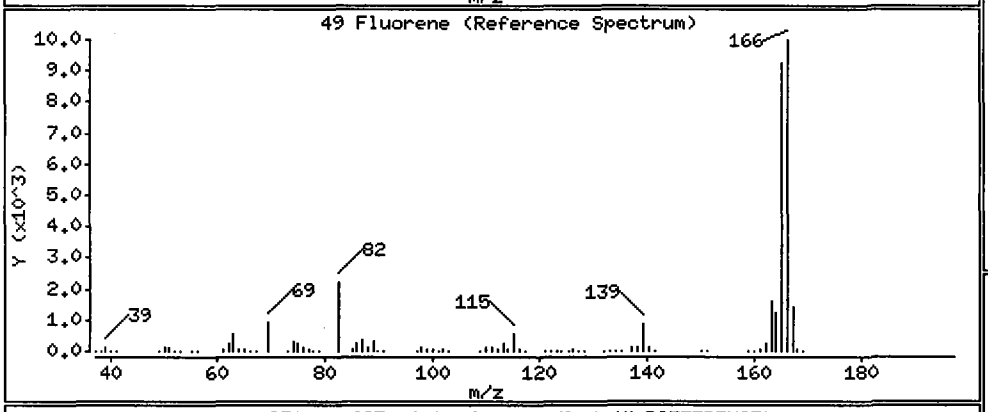
Column diameter: 0.32

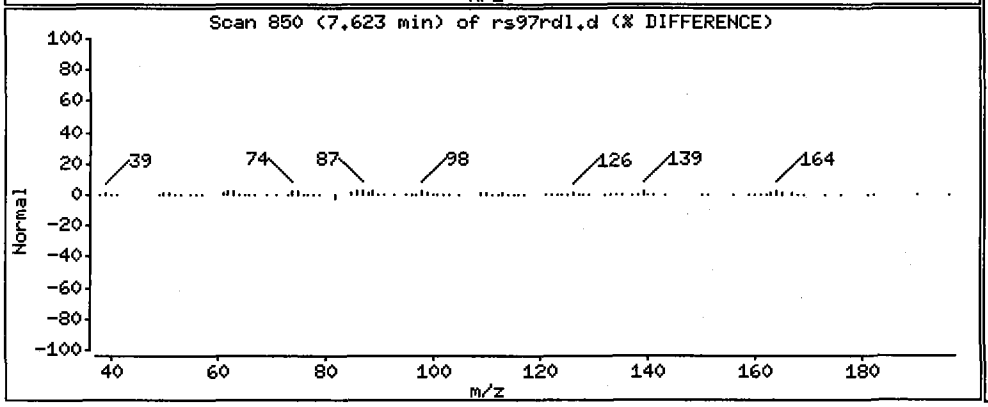
49 Fluorene

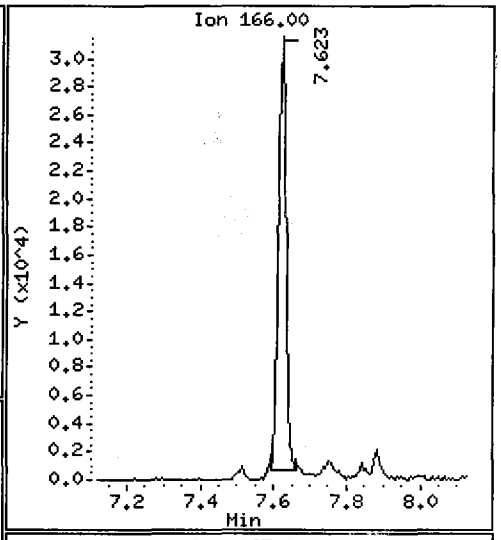
Concentration: 148000 ug/kg

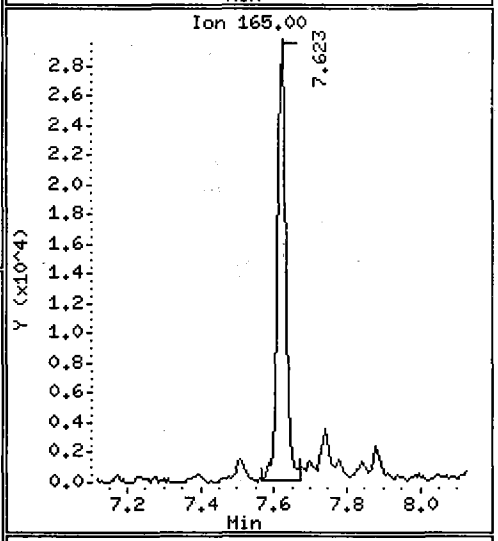


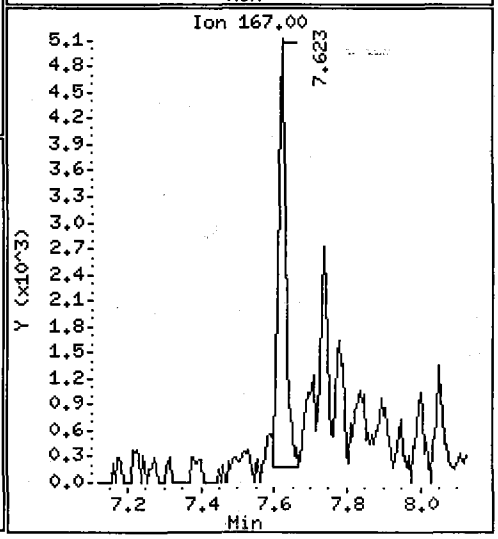












Data File: /chem1/nt12.i/20101111.b/rs97rdl.d

Date : 11-NOV-2010 14:35

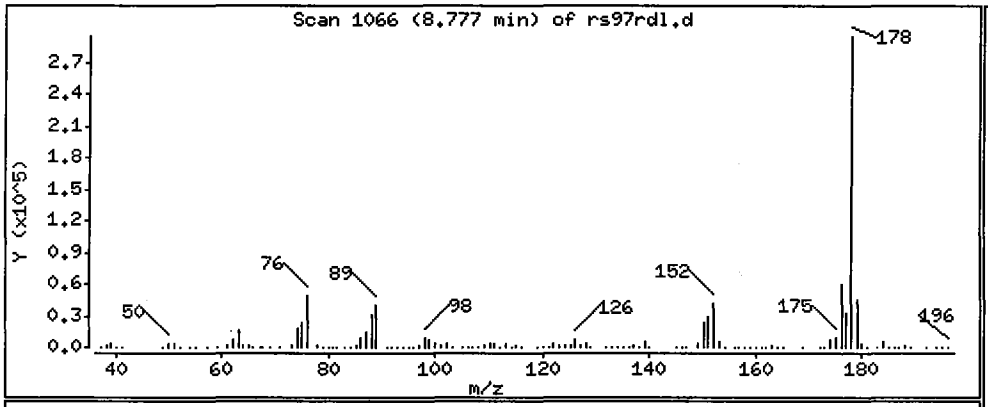
Client ID: DGS-07-11.611.8-101 Instrument: nt12.i

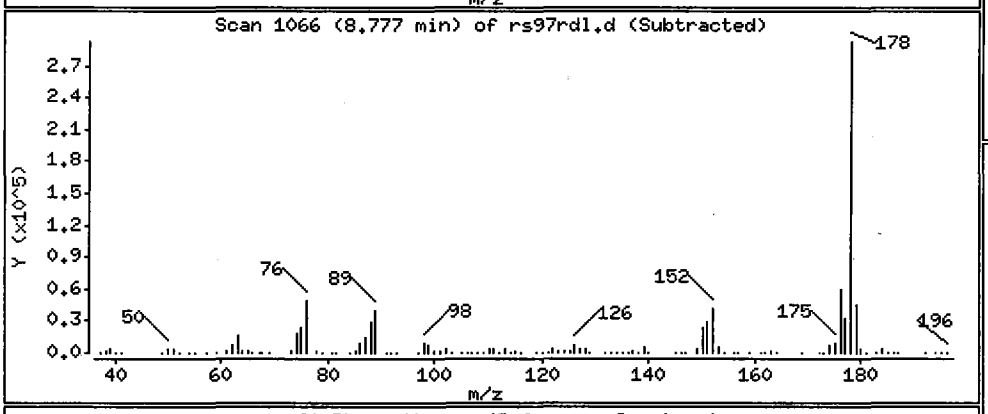
Sample Info: RS97R,10

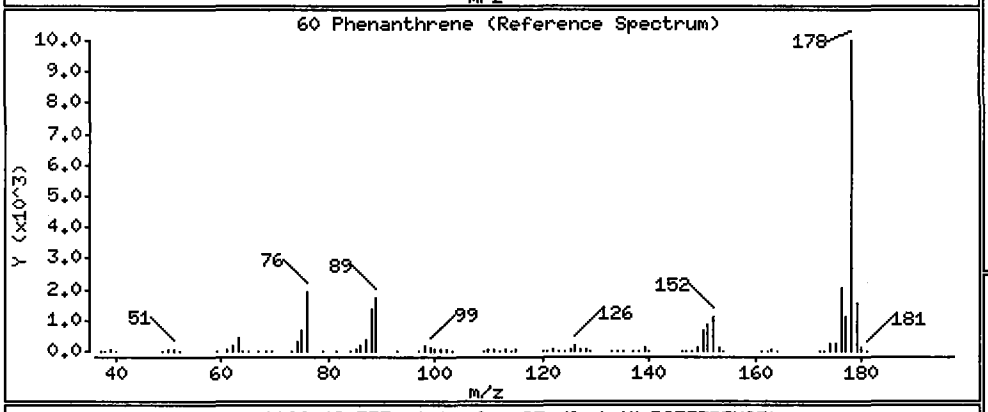
Volume Injected (uL): 1.0 Operator: VTS

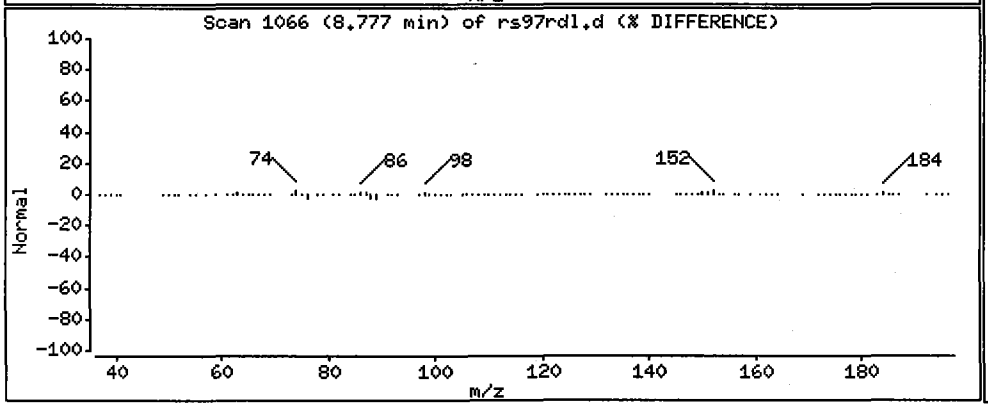
Column phase: ZB-5msi Column diameter: 0.32

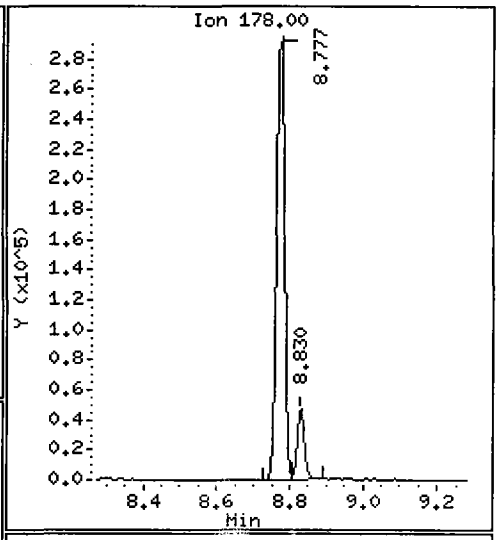
60 Phenanthrene Concentration: 1080000 ug/kg

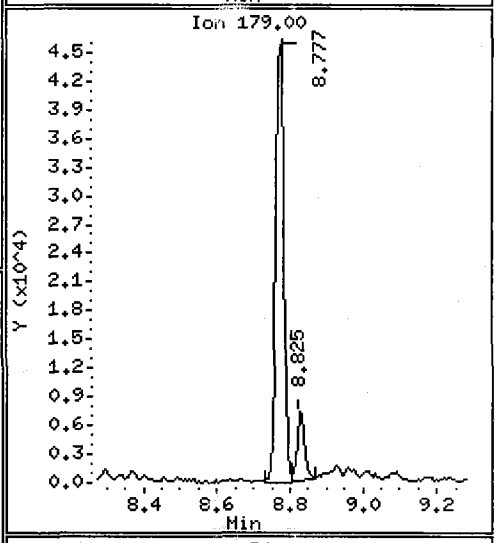


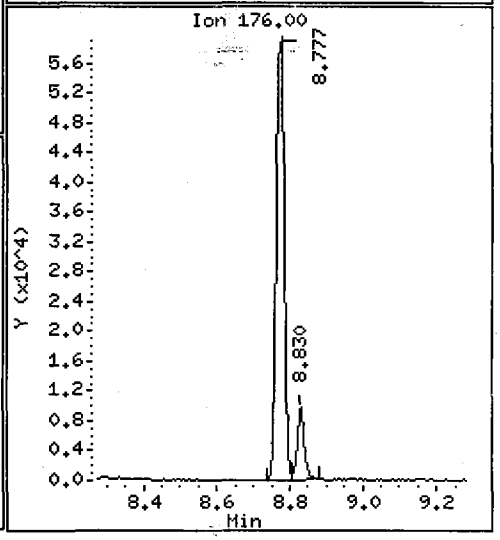












Data File: /chem1/nt12.i/20101111.b/rs97rdl.d

Date : 11-NOV-2010 14:35

Client ID: DGS-07-11.611.8-101

Instrument: nt12.i

Sample Info: RS97R,10

Volume Injected (uL): 1.0

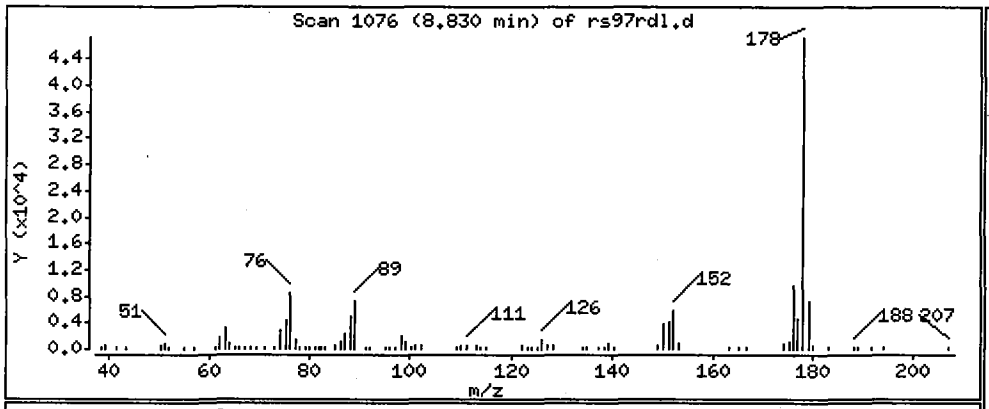
Operator: VTS

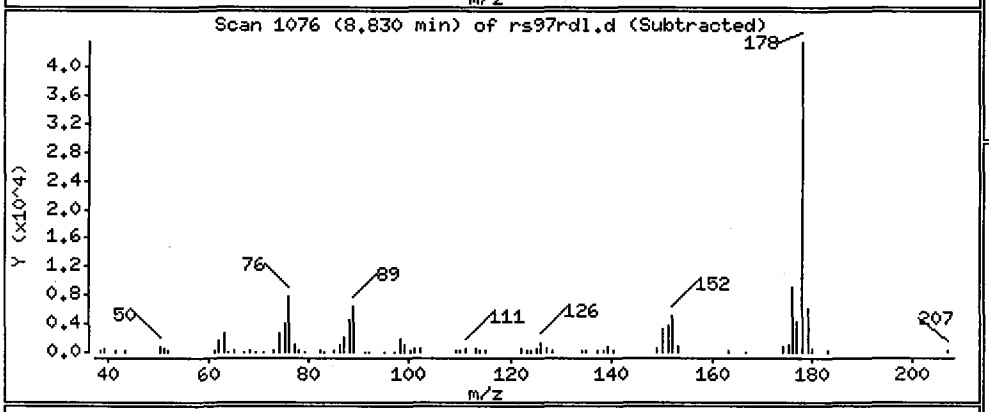
Column phase: ZB-5msi

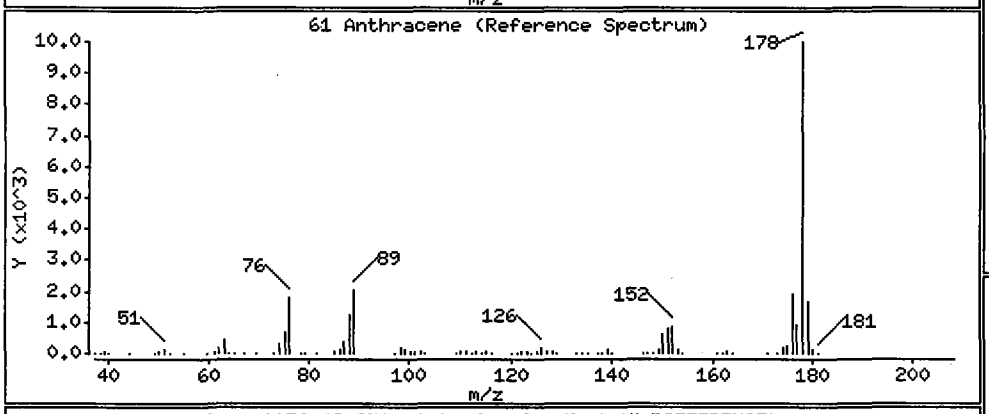
Column diameter: 0.32

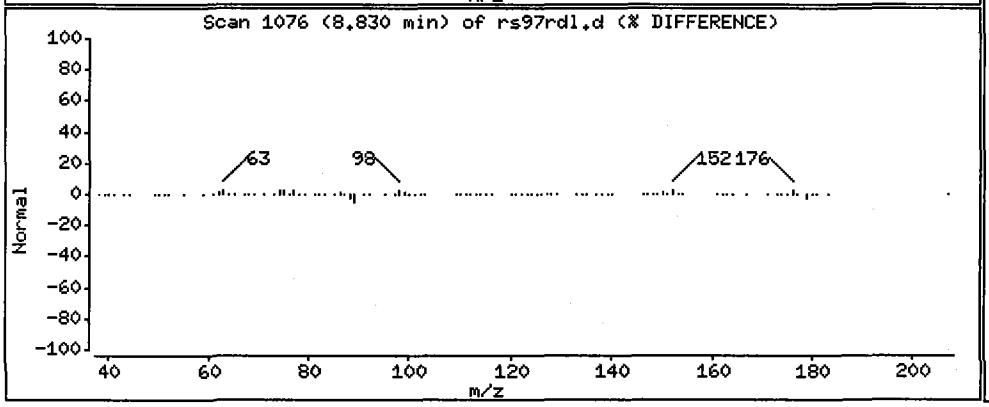
61 Anthracene

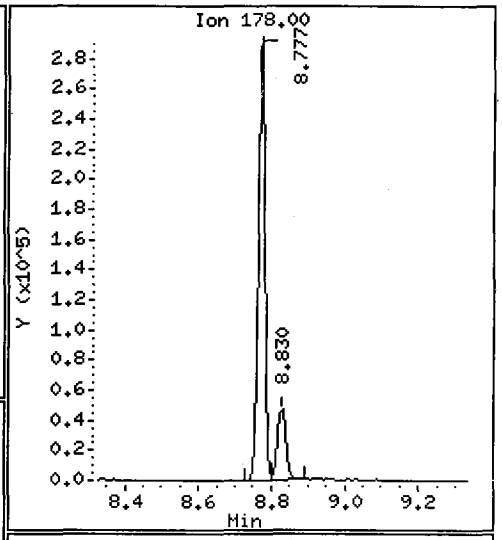
Concentration: 186900 ug/kg

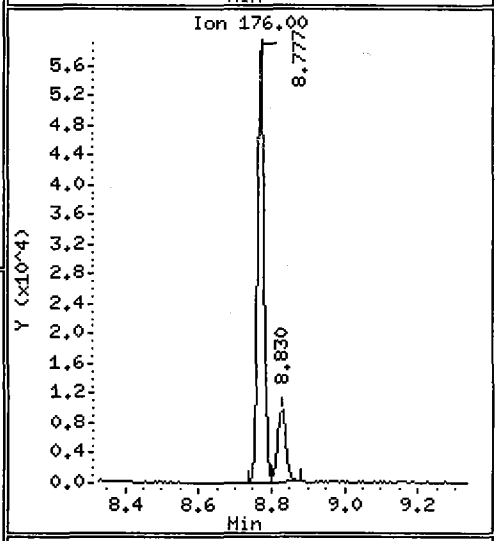


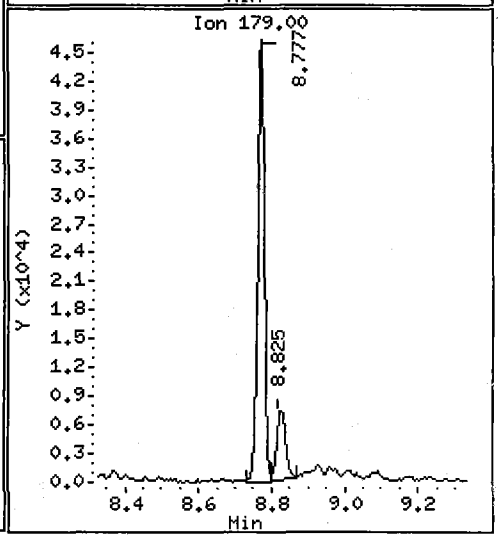












Data File: /chem1/nt12.i/20101111.b/rs97rdl.d

Date : 11-NOV-2010 14:35

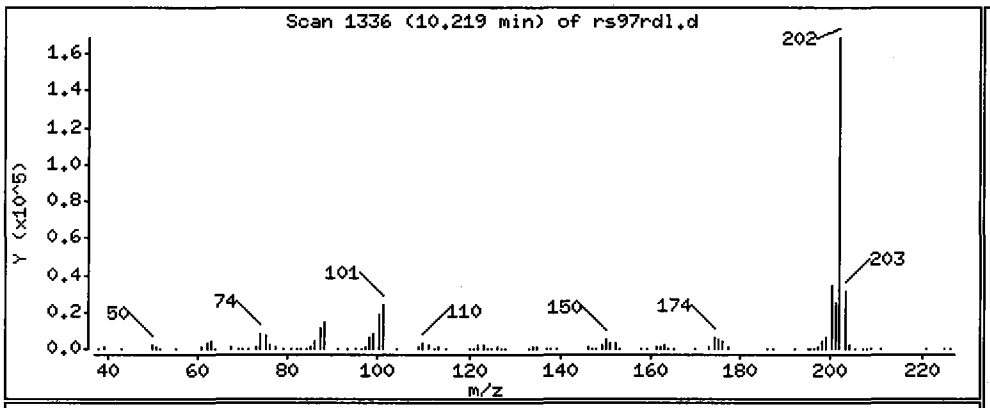
Client ID: DGS-07-11.611.8-101 Instrument: nt12.i

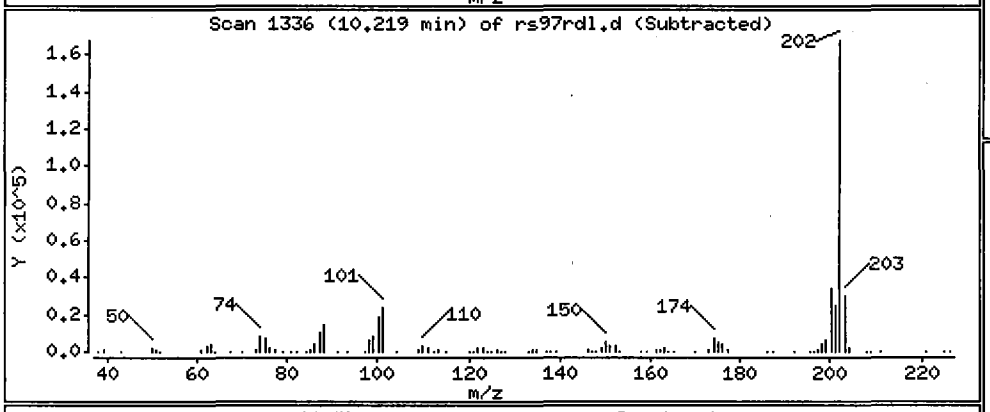
Sample Info: RS97R,10

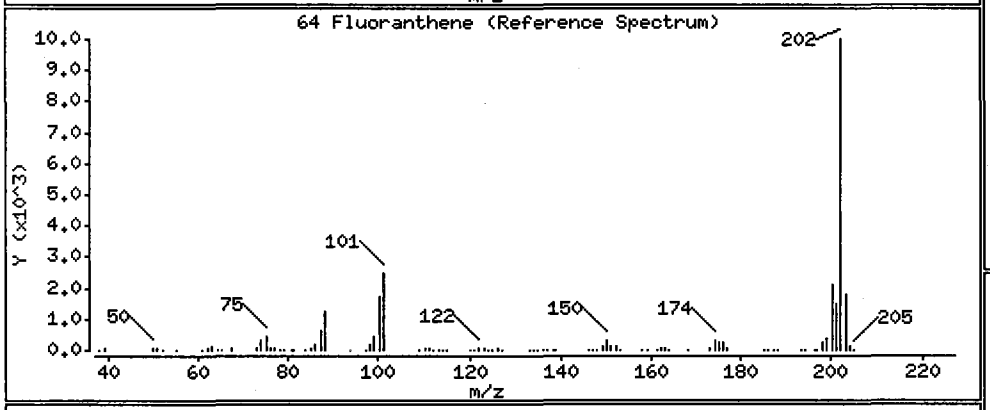
Volume Injected (uL): 1.0 Operator: VTS

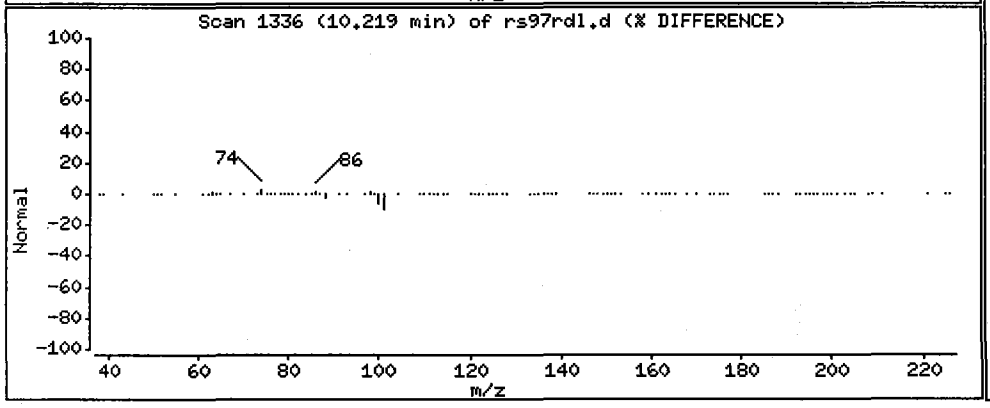
Column phase: ZB-5msi Column diameter: 0.32

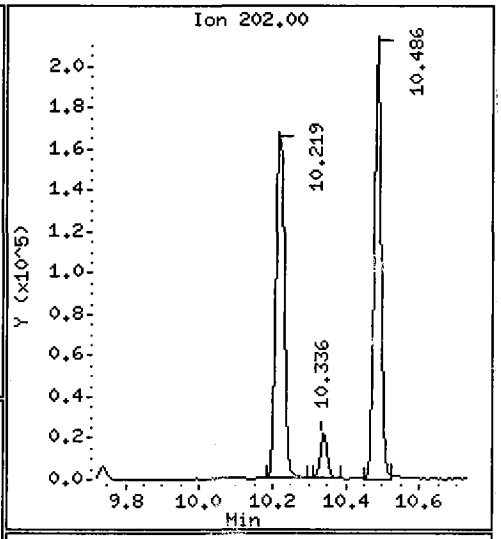
64 Fluoranthene Concentration: 490100 ug/kg

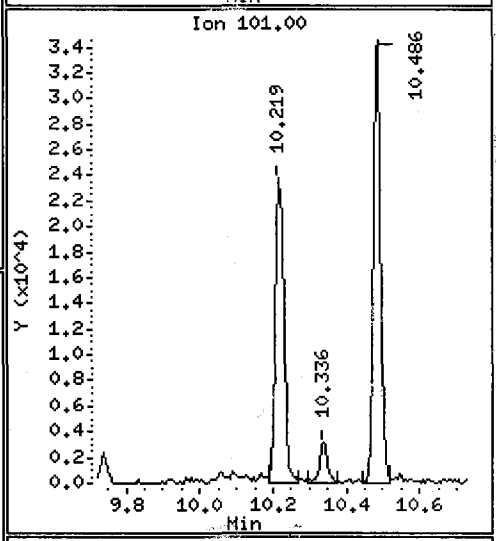


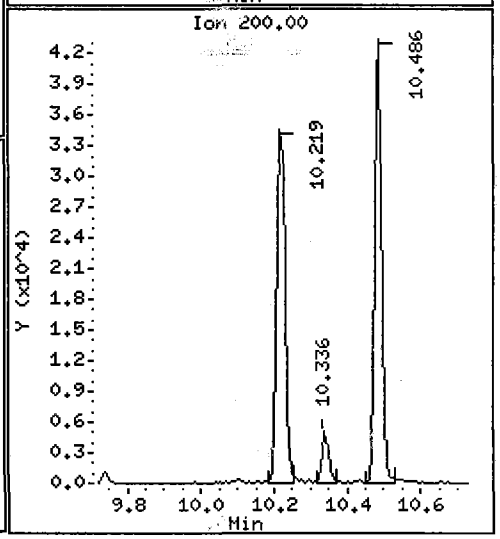












Data File: /chem1/nt12.i/20101111.b/rs97rdl.d

Date : 11-NOV-2010 14:35

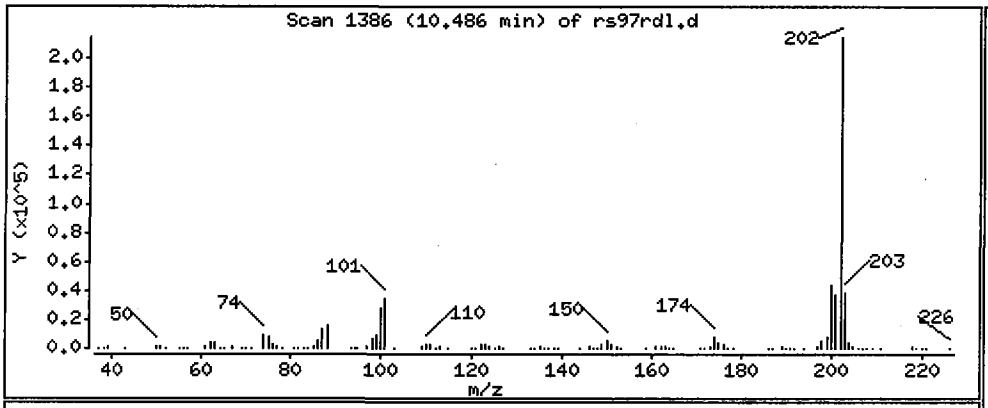
Client ID: DGS-07-11.611.8-101 Instrument: nt12.i

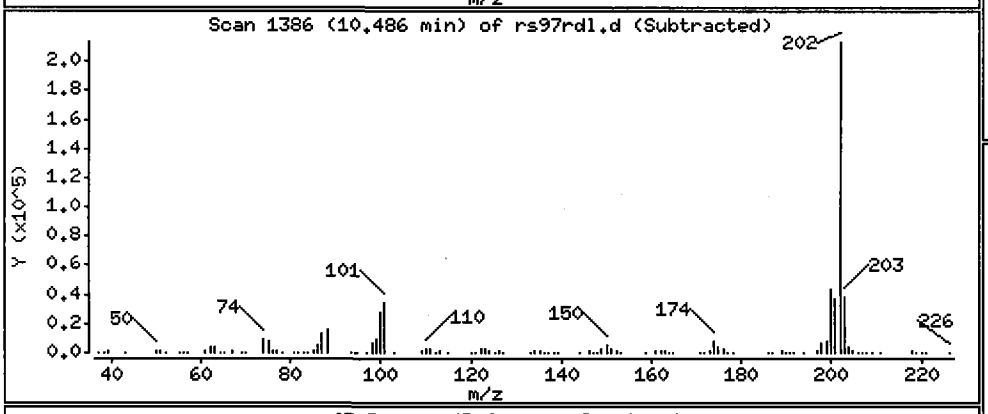
Sample Info: RS97R,10

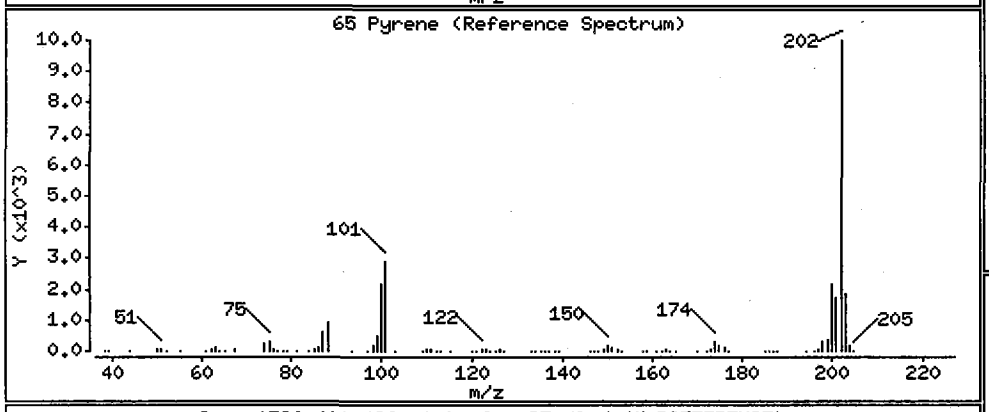
Volume Injected (uL): 1.0 Operator: VTS

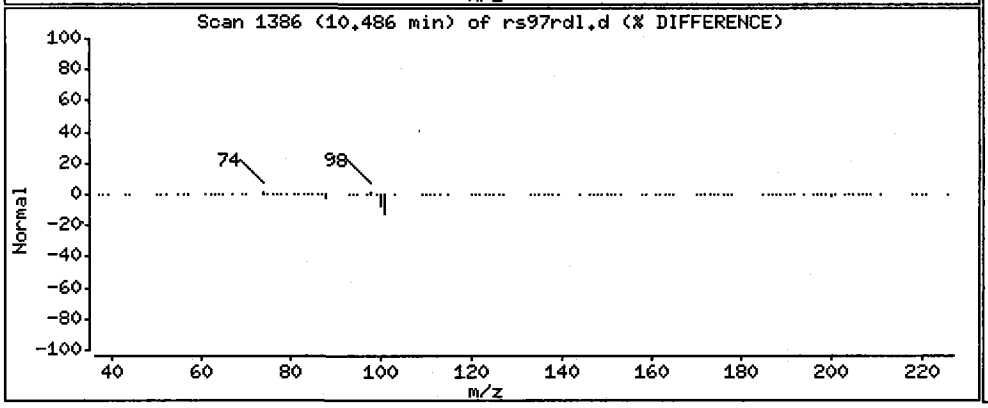
Column phase: ZB-5msi Column diameter: 0.32

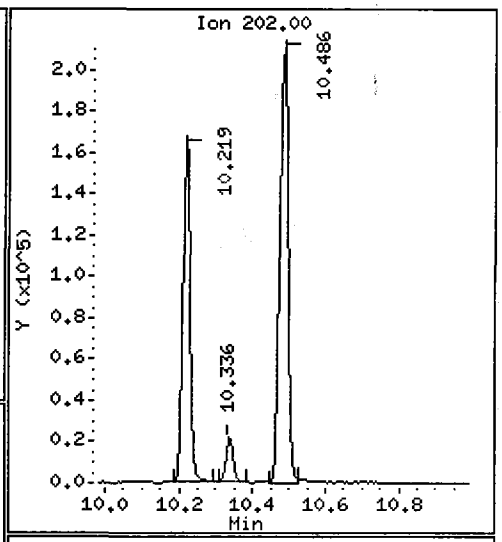
65 Pyrene Concentration: 604600 ug/kg

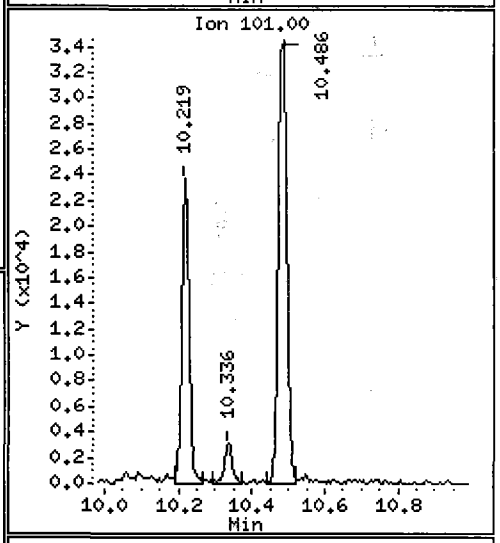


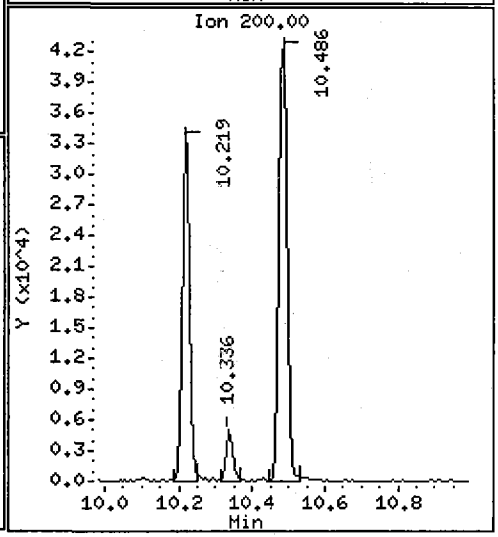












Data File: /chem1/nt12.i/20101111.b/rs97rdl.d

Date : 11-NOV-2010 14:35

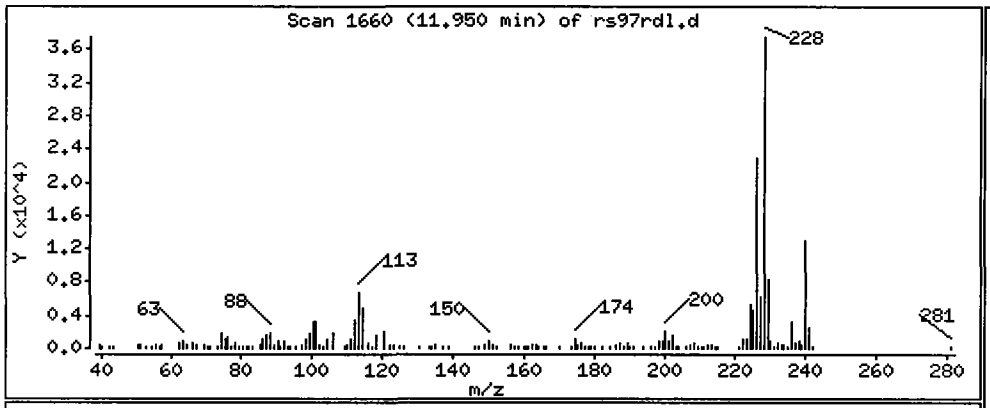
Client ID: DGS-07-11.611.8-101 Instrument: nt12.i

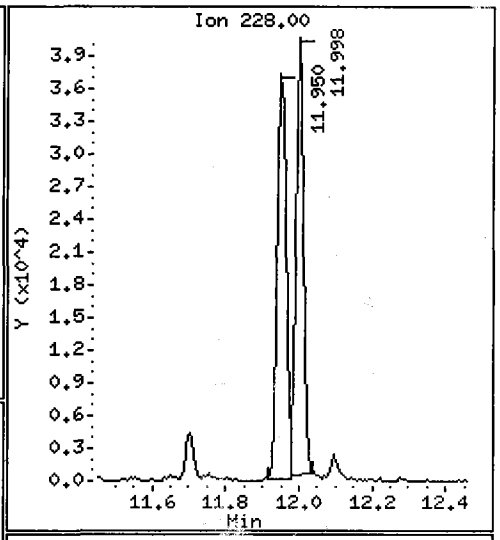
Sample Info: RS97R,10

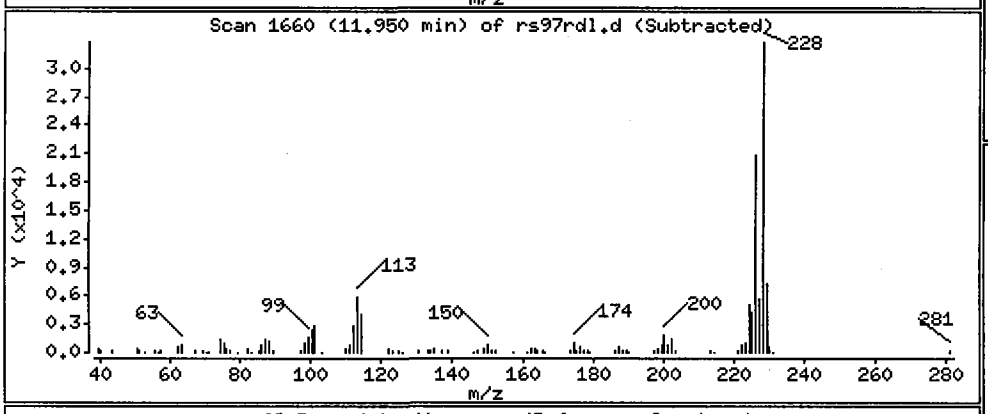
Volume Injected (uL): 1.0 Operator: VTS

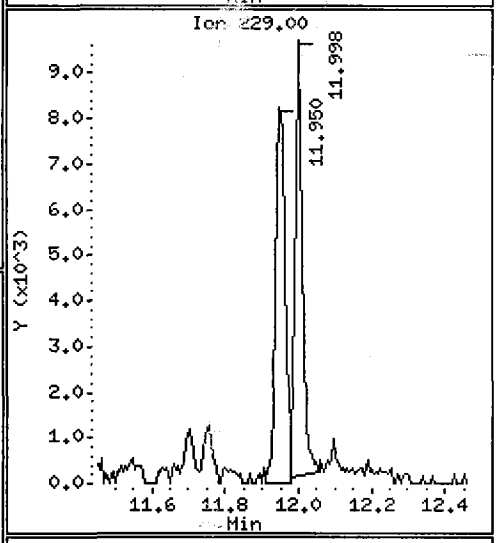
Column phase: ZB-5msi Column diameter: 0.32

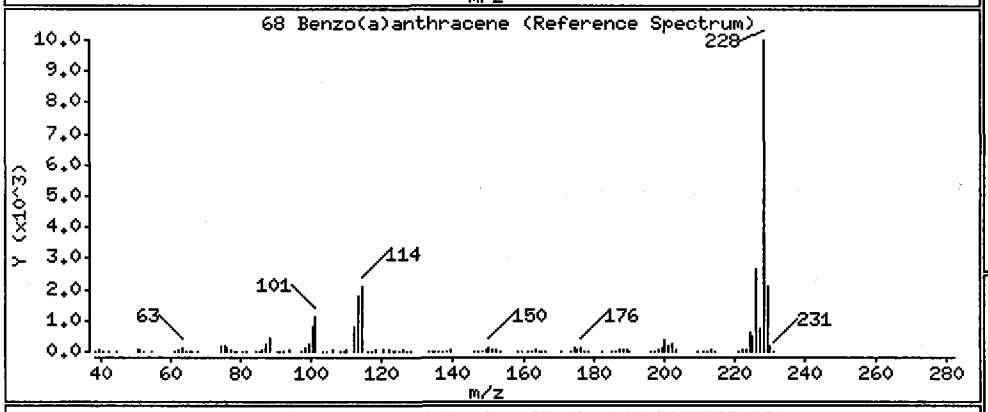
68 Benzo(a)anthracene Concentration: 149400 ug/kg

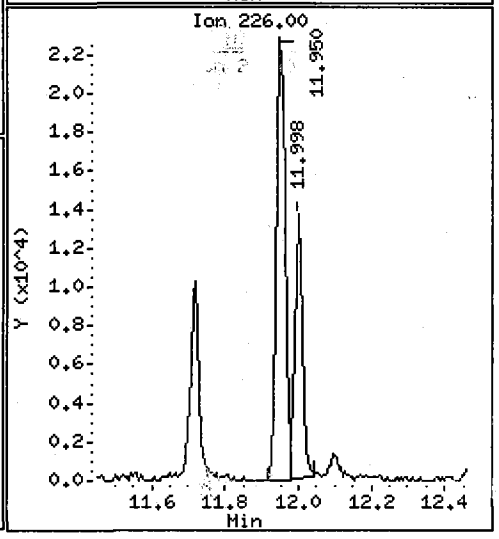


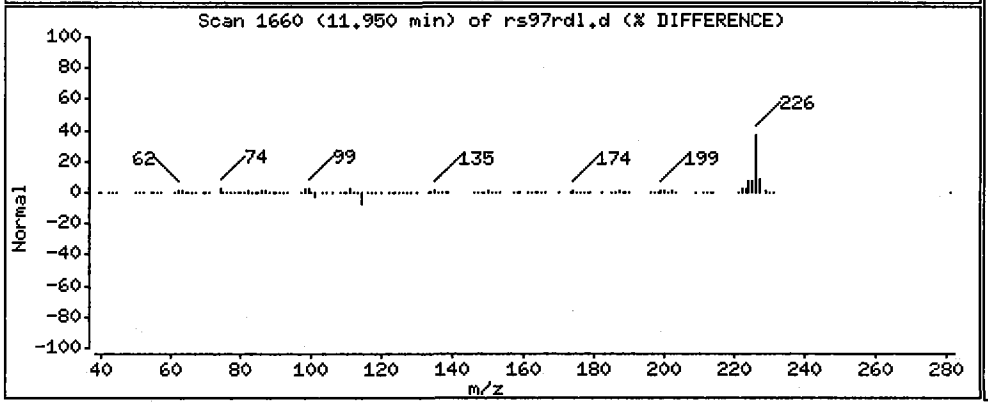












Data File: /chem1/nt12.i/20101111.b/rs97rdl.d

Date : 11-NOV-2010 14:35

Client ID: DGS-07-11.611.8-101

Instrument: nt12.i

Sample Info: RS97R,10

Volume Injected (uL): 1.0

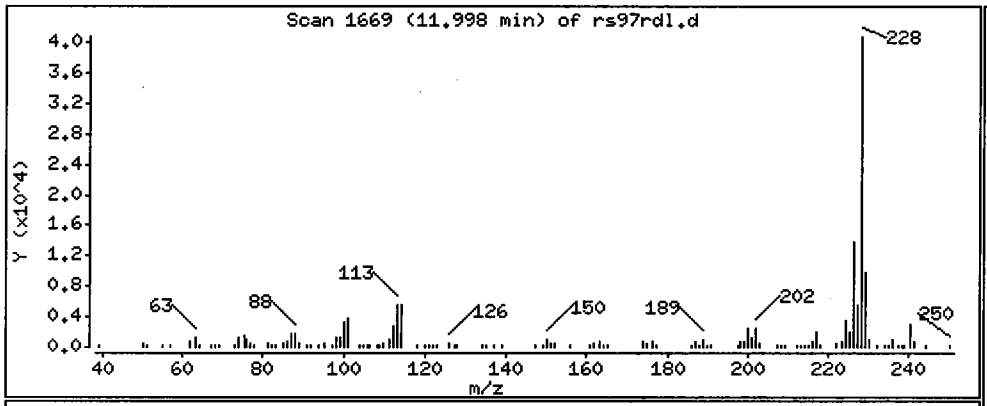
Operator: VTS

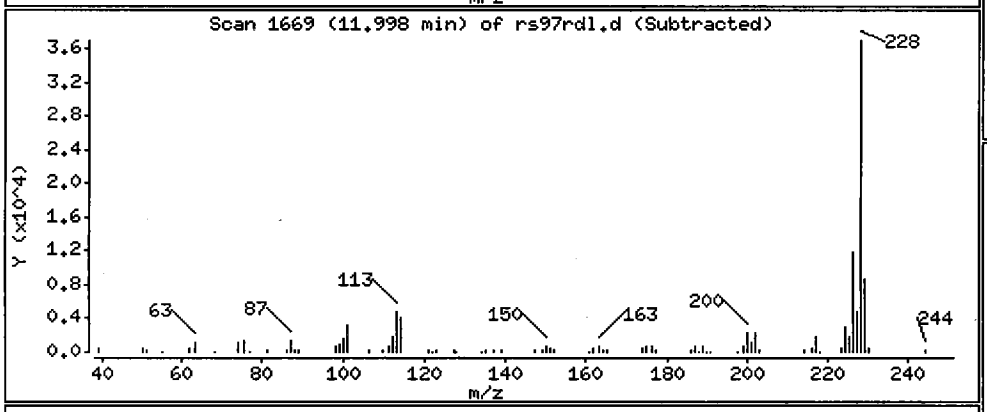
Column phase: ZB-5msi

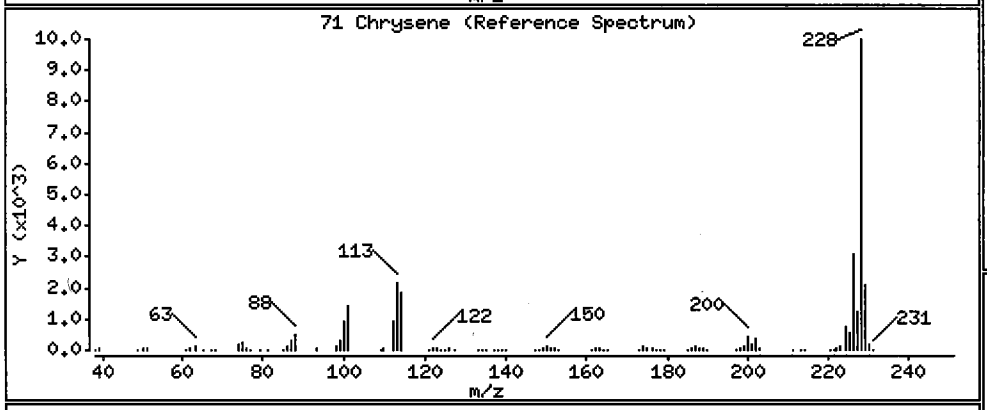
Column diameter: 0.32

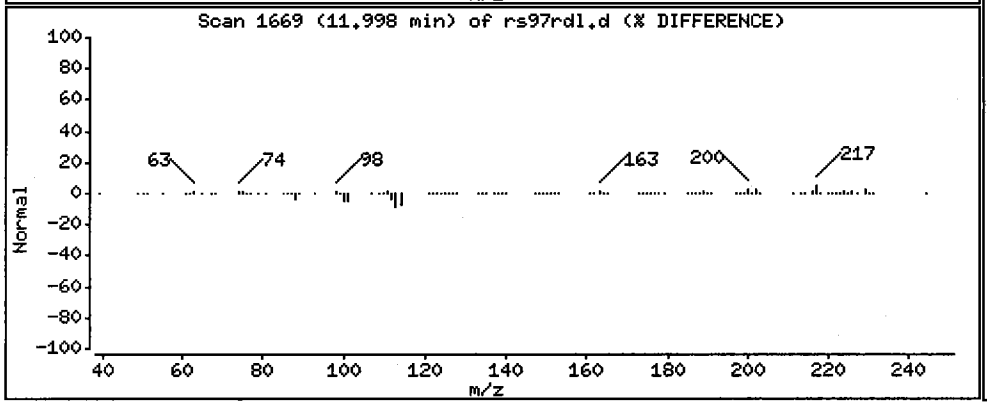
71 Chrysene

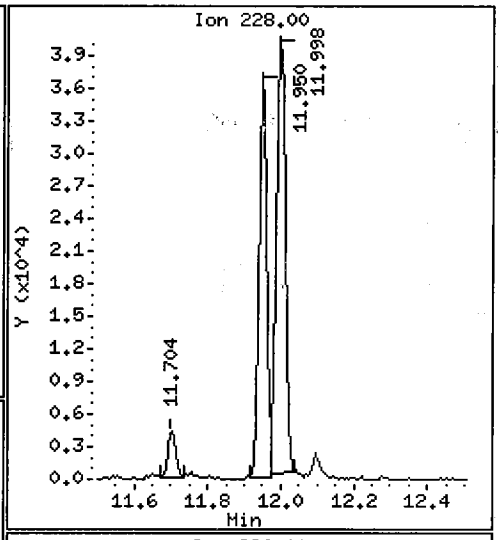
Concentration: 170100 ug/kg

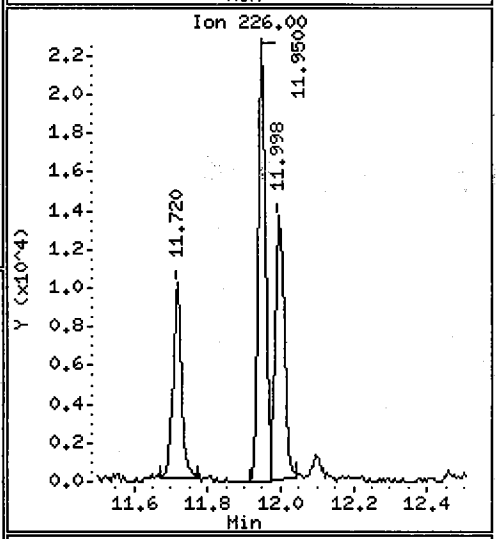


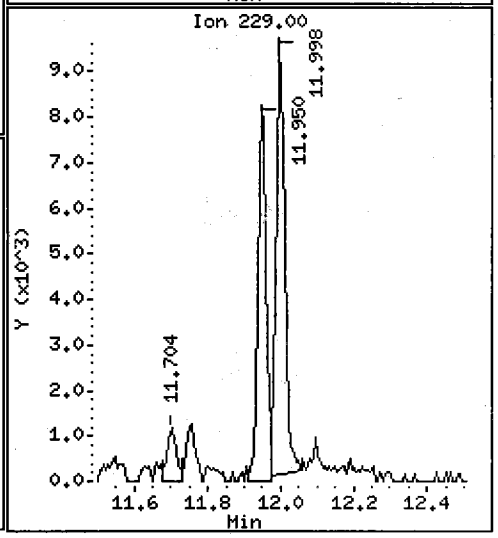












Data File: /chem1/nt12.i/20101111.b/rs97rdl.d

Date : 11-NOV-2010 14:35

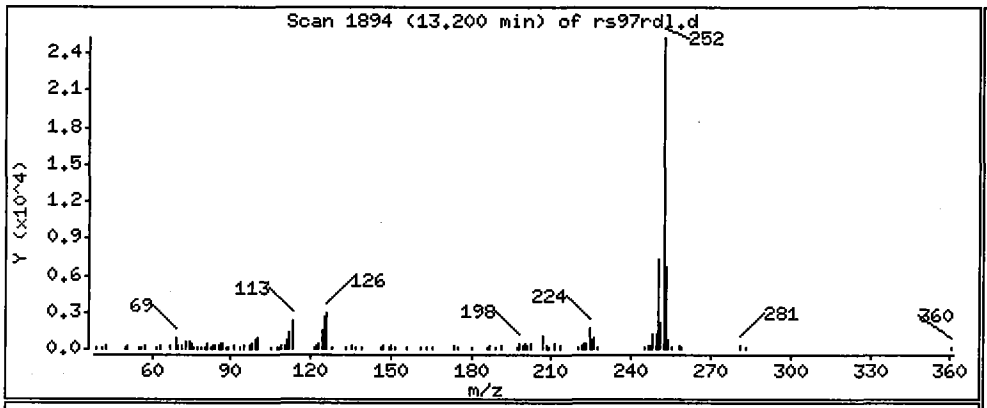
Client ID: DGS-07-11.611.8-101 Instrument: nt12.i

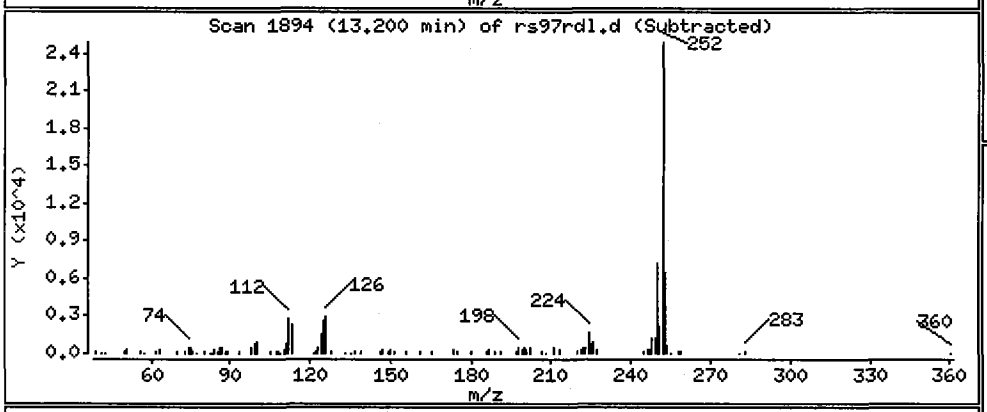
Sample Info: RS97R,10

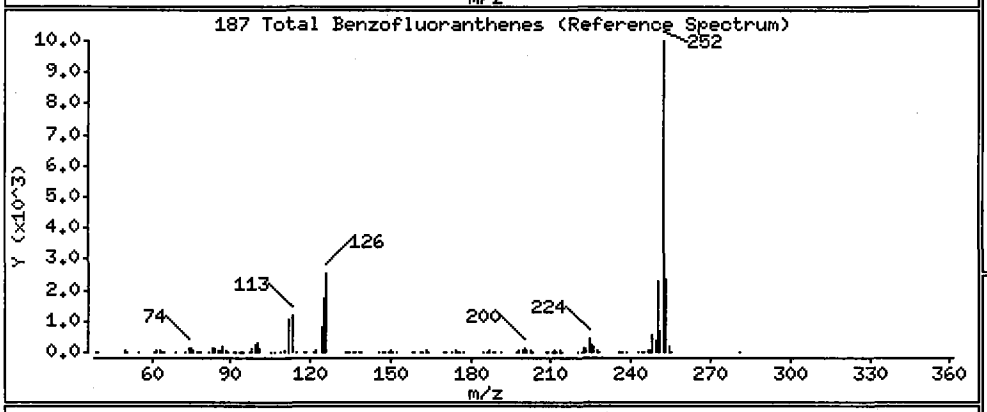
Volume Injected (uL): 1.0 Operator: VTS

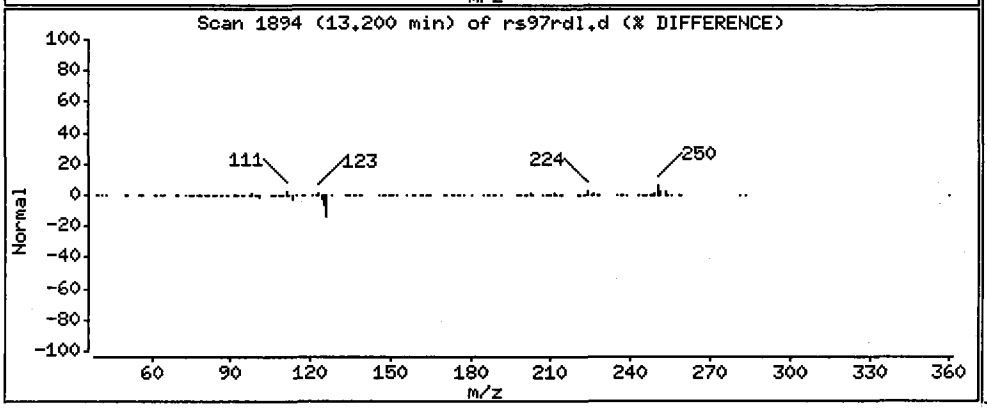
Column phase: ZB-5msi Column diameter: 0.32

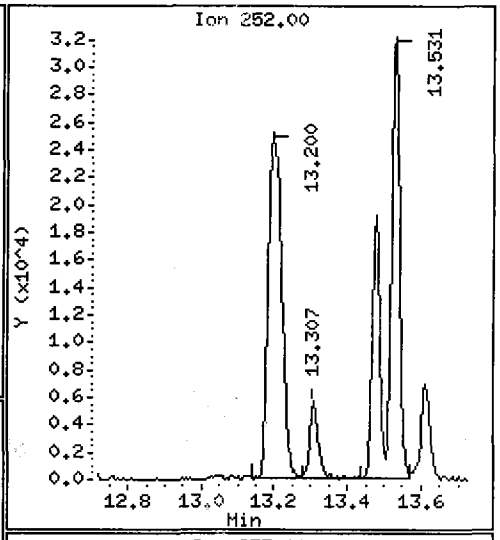
187 Total Benzofluoranthenes Concentration: 228900 ug/kg

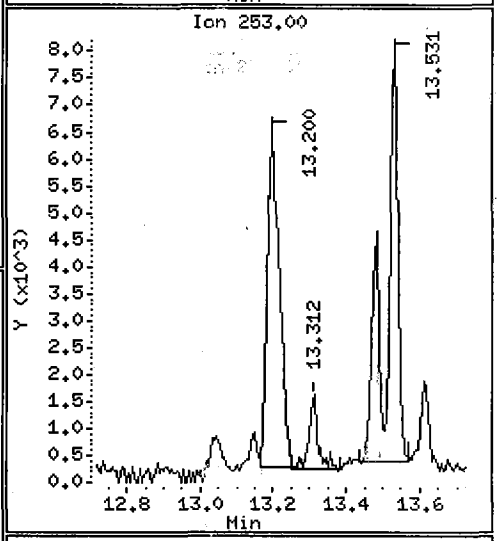


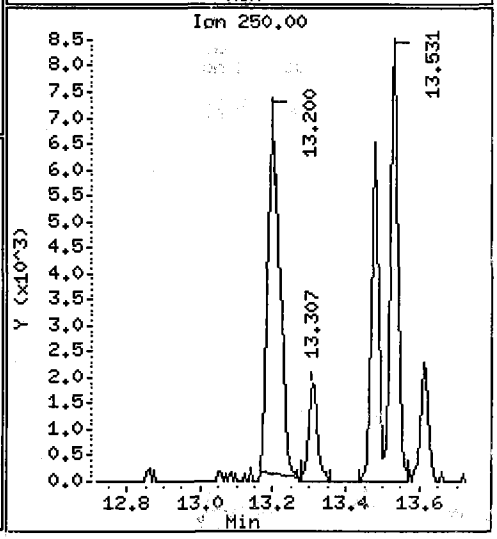












Data File: /chem1/nt12.i/20101111.b/rs97rd1.d

Date : 11-NOV-2010 14:35

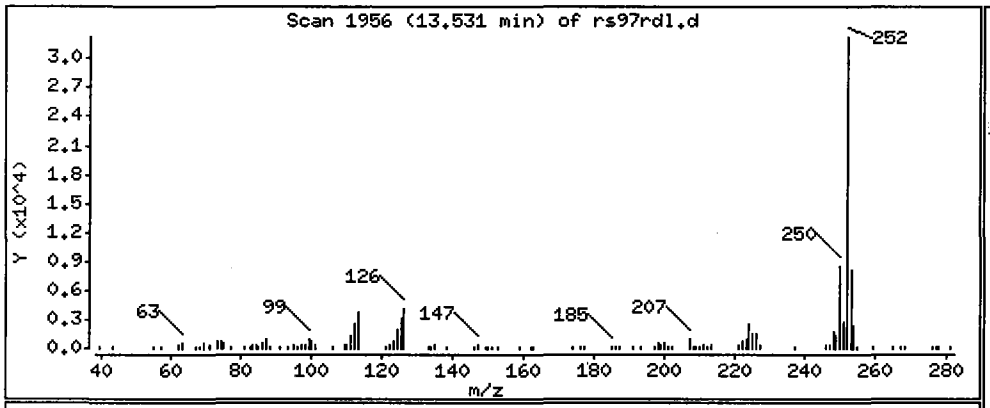
Client ID: DGS-07-11.611.8-101 Instrument: nt12.i

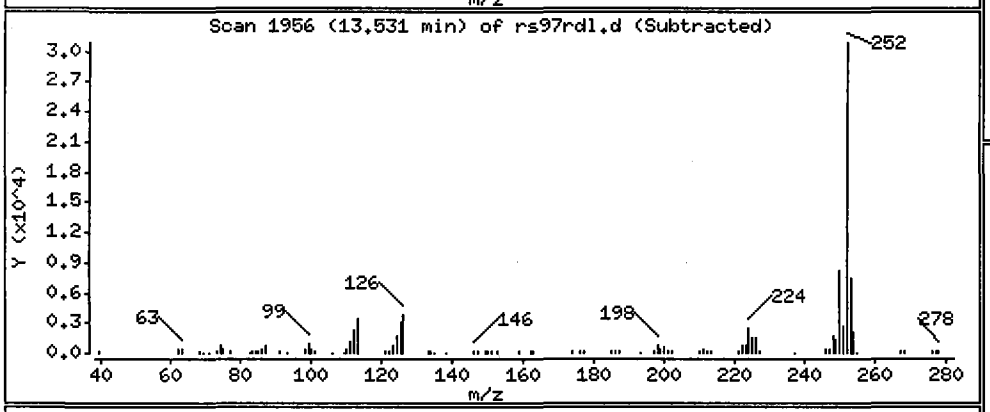
Sample Info: RS97R,10

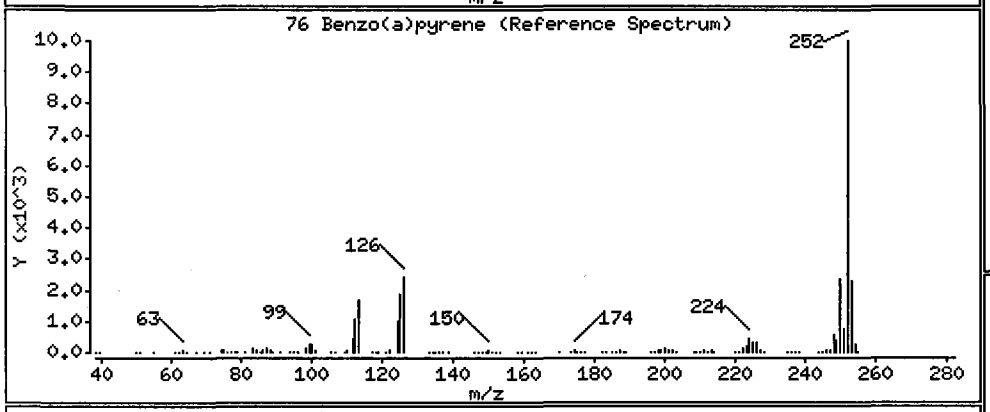
Volume Injected (uL): 1.0 Operator: VTS

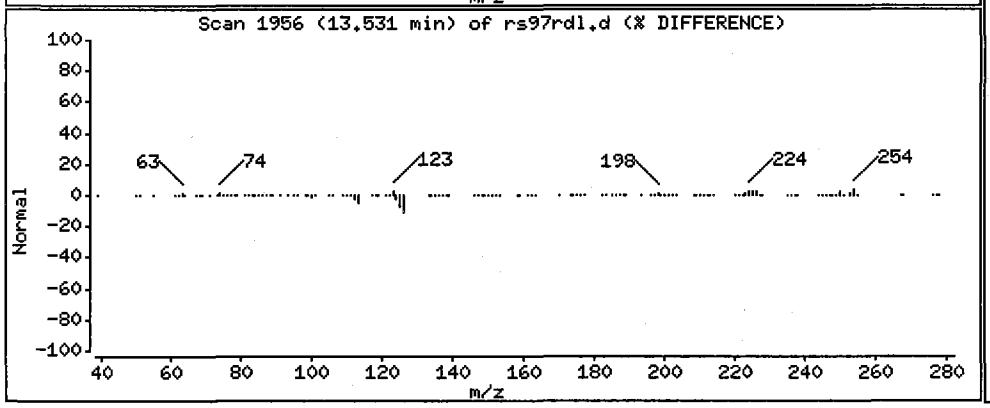
Column phase: ZB-5msi Column diameter: 0.32

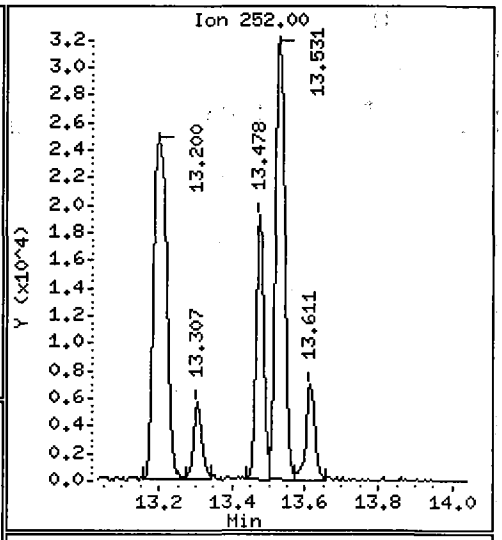
76 Benzo(a)pyrene Concentration: 197900 ug/kg

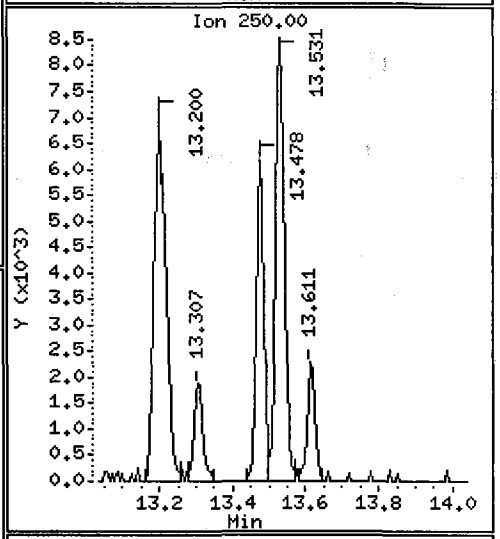


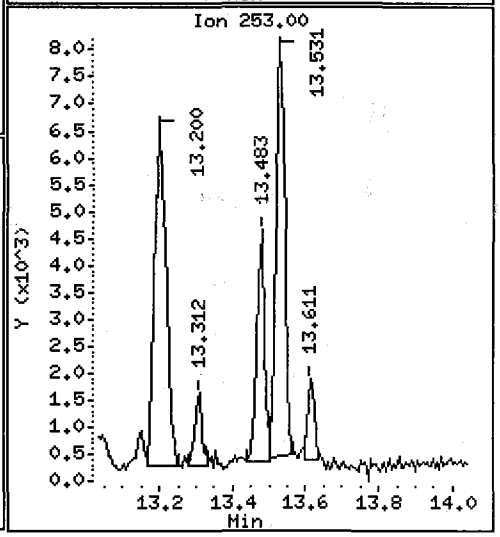












Data File: /chem1/nt12.i/20101111.b/rs97rdl.d

Date : 11-NOV-2010 14:35

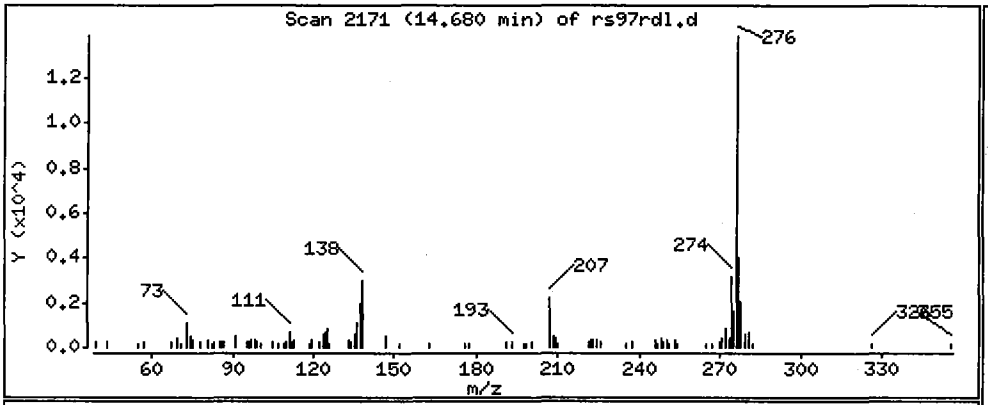
Client ID: DGS-07-11.611.8-101 Instrument: nt12.i

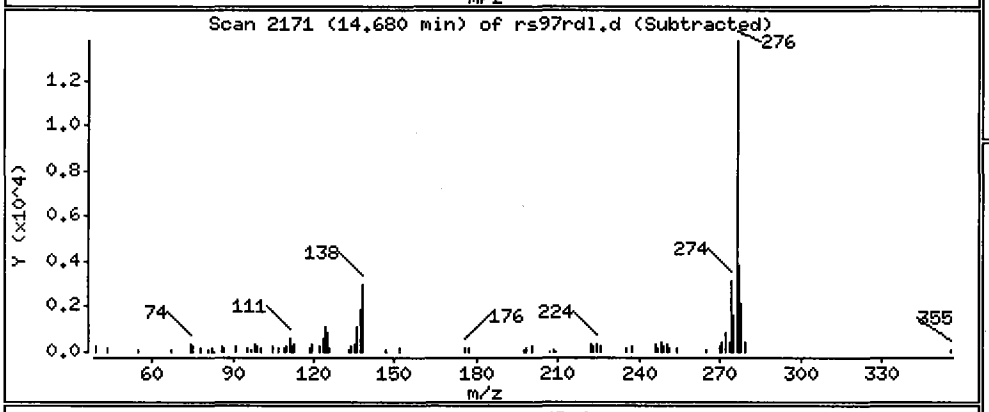
Sample Info: RS97R,10

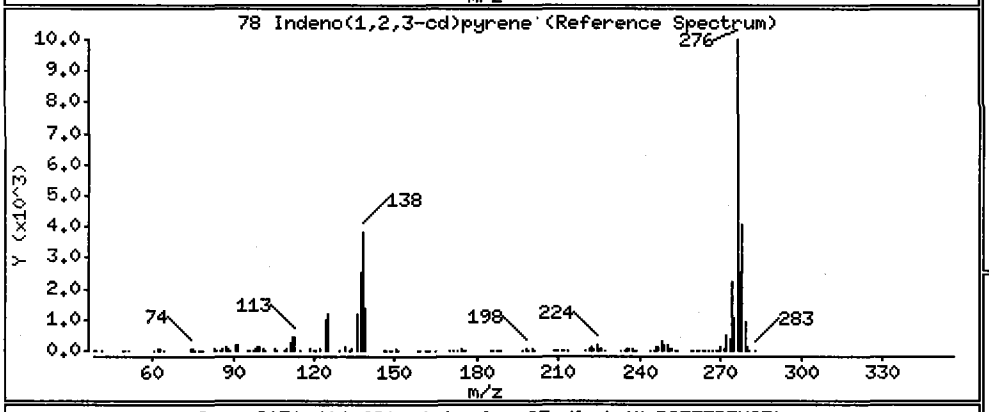
Volume Injected (uL): 1.0 Operator: VTS

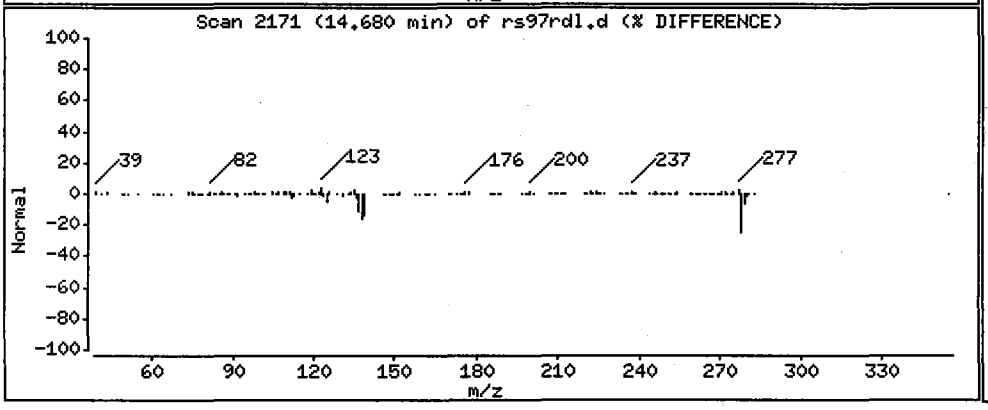
Column phase: ZB-5msi Column diameter: 0.32

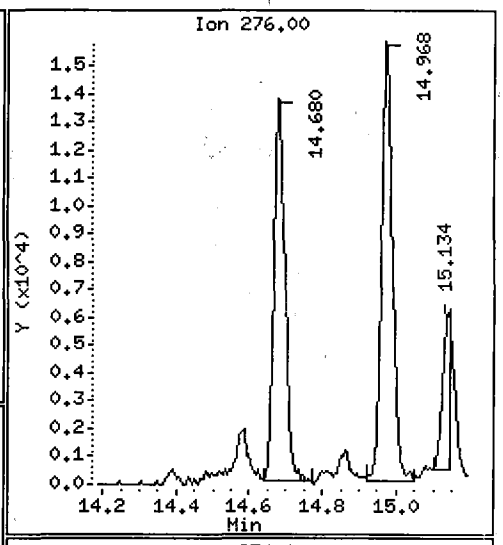
78 Indeno(1,2,3-cd)pyrene Concentration: 71640 ug/kg

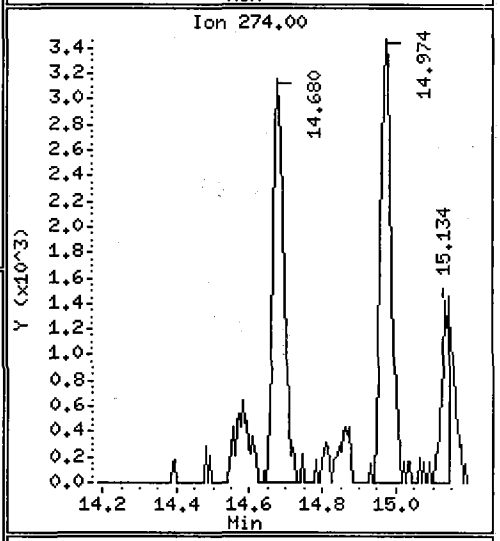


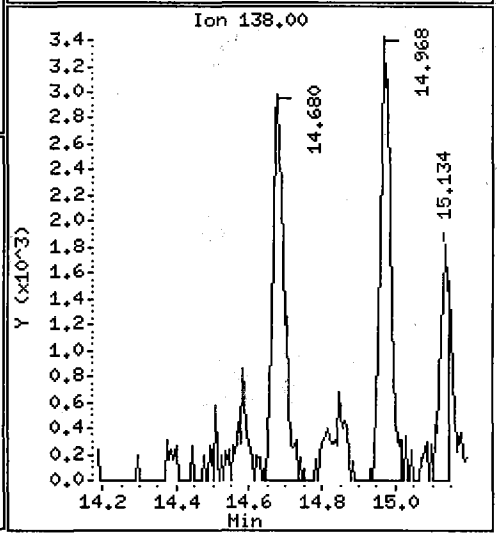












Data File: /chem1/nt12.i/20101111.b/rs97rdl.d

Date : 11-NOV-2010 14:35

Client ID: DGS-07-11.611.8-101

Instrument: nt12.i

Sample Info: RS97R,10

Volume Injected (uL): 1.0

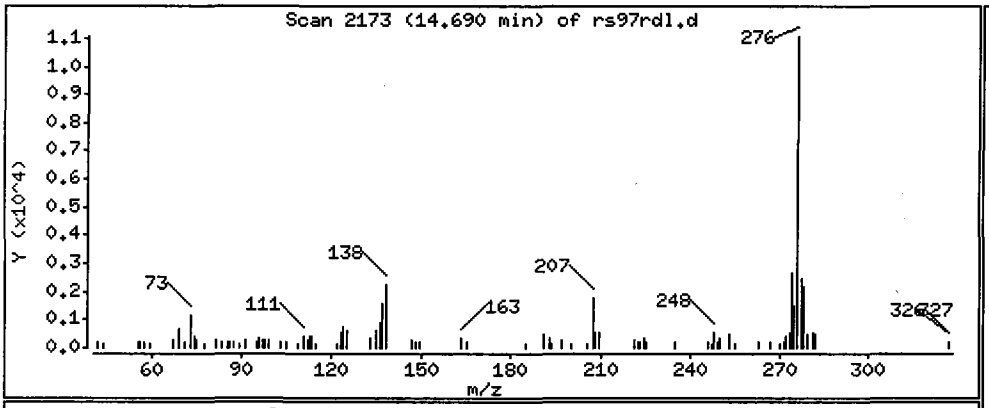
Operator: VTS

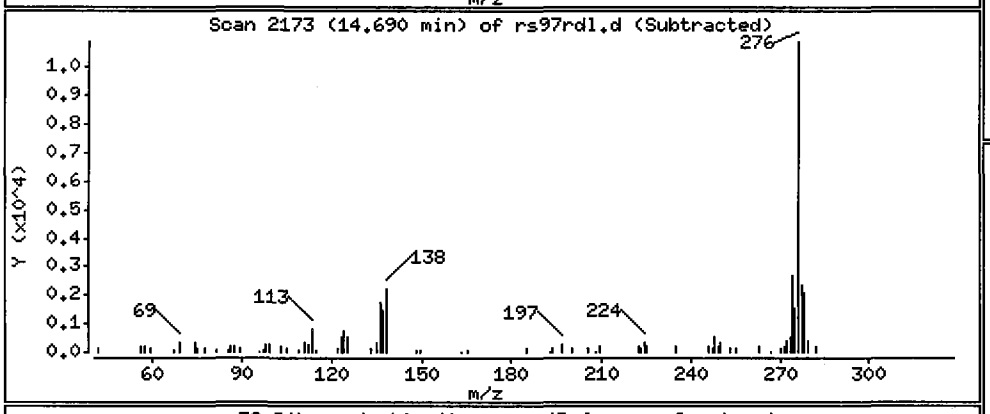
Column phase: ZB-5msi

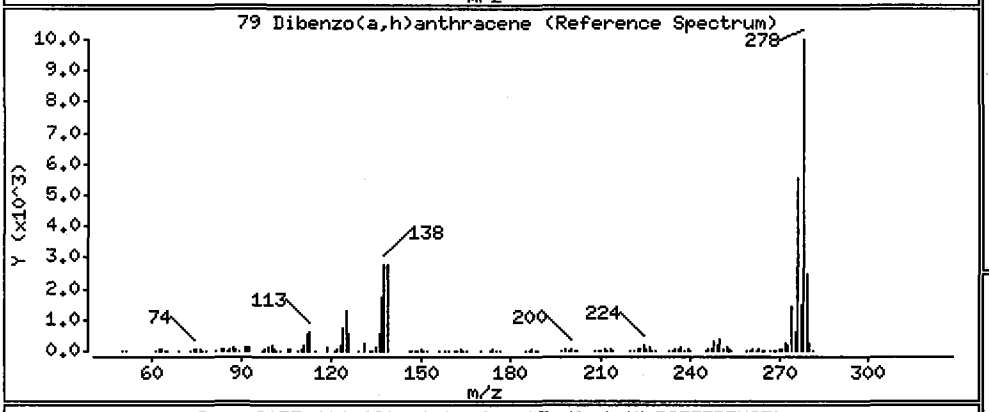
Column diameter: 0.32

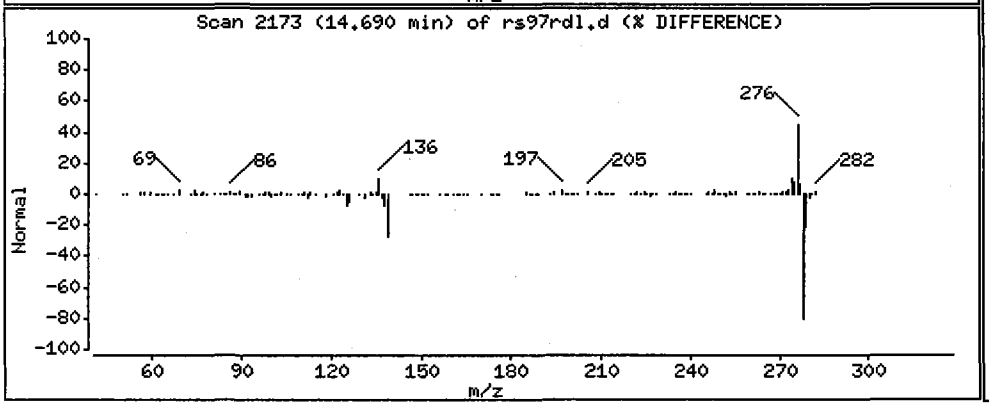
79 Dibenzo(a,h)anthracene

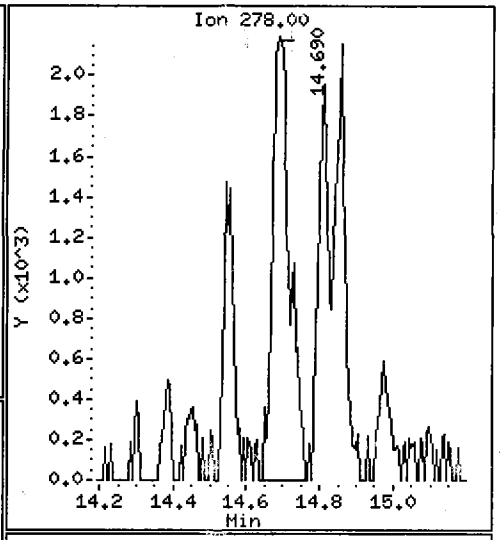
Concentration: 22220 ug/kg

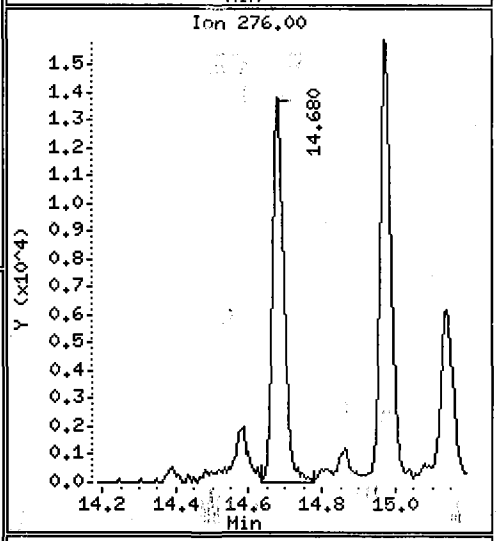


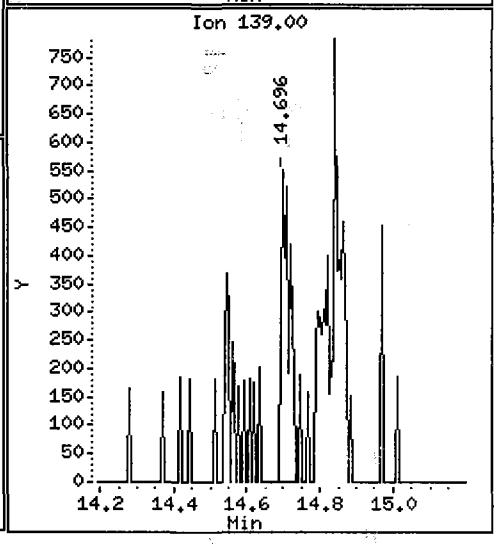












Data File: /chem1/nt12.i/20101111.b/rs97rdl.d

Date : 11-NOV-2010 14:35

Client ID: DGS-07-11.611.8-101

Instrument: nt12.i

Sample Info: RS97R,10

Volume Injected (uL): 1.0

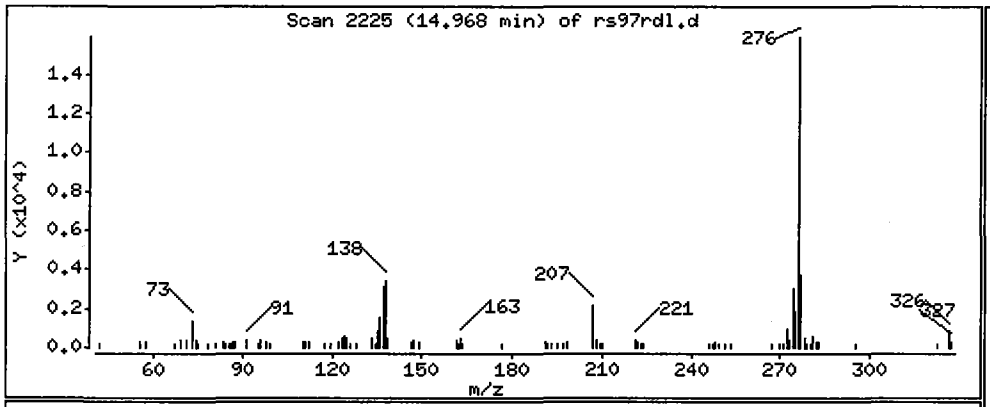
Operator: VTS

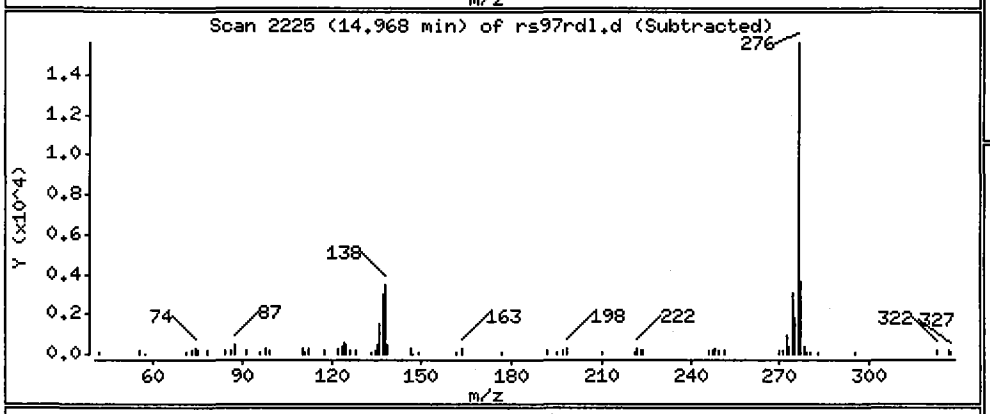
Column phase: ZB-5msi

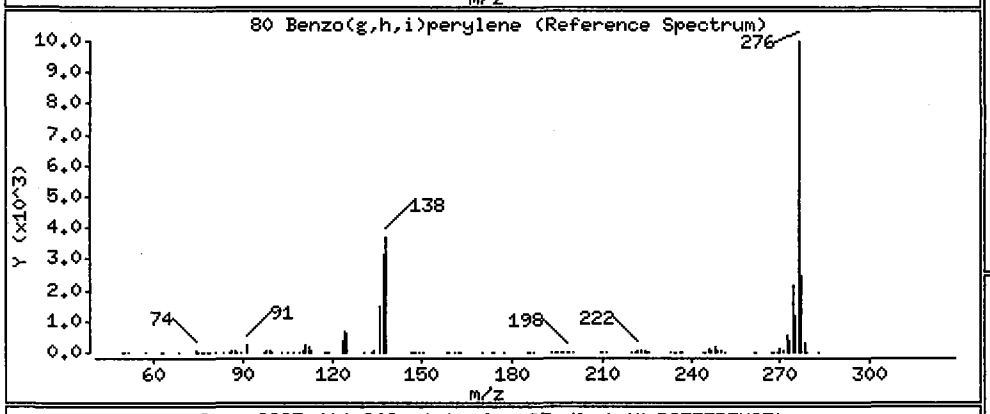
Column diameter: 0.32

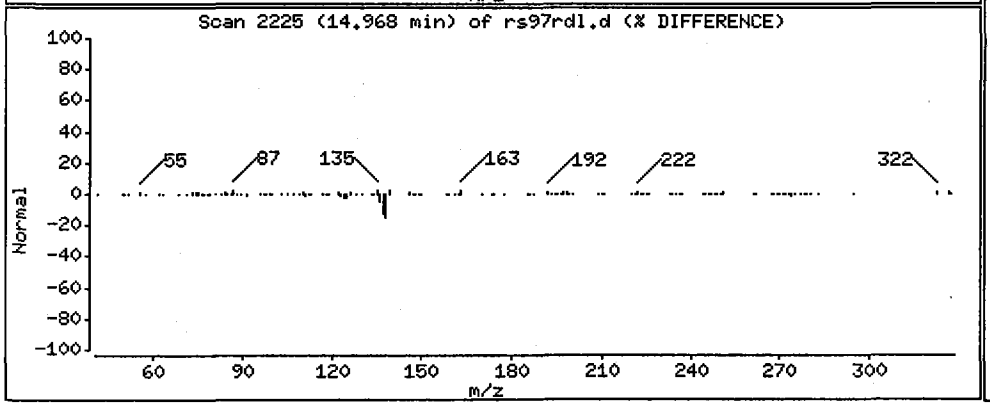
80 Benzo(g,h,i)perylene

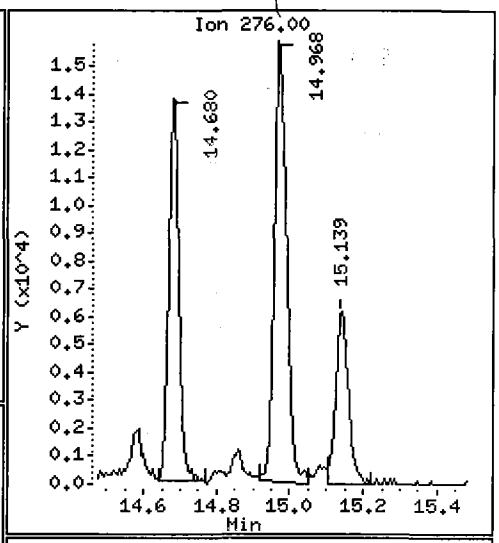
Concentration: 109500 ug/kg

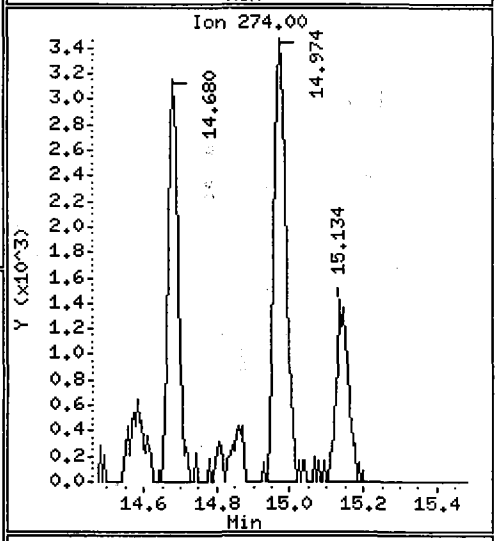


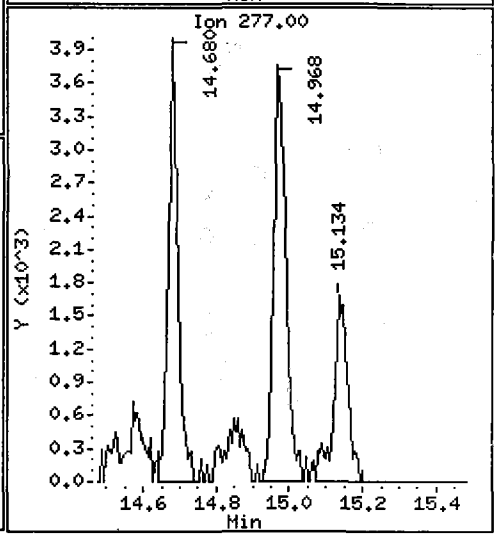












Analytical Resources, Inc.

Semivolatile Report SW846 Method 8270D

Data file : /chem1/nt12.i/20101111.b/rs97sdl.d
Lab Smp Id: RS97S Client Smp ID: DGS-07-12.713.2-101
Inj Date : 11-NOV-2010 14:59
Operator : VTS Inst ID: nt12.i
Smp Info : RS97S,3
Misc Info : 10-27435
Comment : 1ul Injection
Method : /chem1/nt12.i/20101111.b/PNADMD.m
Meth Date : 11-Nov-2010 14:36 van Quant Type: ISTD
Cal Date : 30-OCT-2010 13:19 Cal File: ic1030f.d
Als bottle: 8
Dil Factor: ~~3.00000~~
Integrator: HP RTE Compound Sublist: pnas.sub
Target Version: 3.50
Processing Host: cserv3

Concentration Formula: Amt * DF * Vt/(Ws * (100 - M)/100) * CpndVariable

Name	Value	Description
DF	3.00000	Dilution Factor
Vt	10000.00000	Volume of final extract (uL)
Ws	5.01000	Weight of sample extracted (g)
M	43.70000	% Moisture

Cpnd Variable Local Compound Variable

Compounds	QUANT SIG MASS	RT	EXP RT	REL RT	RESPONSE	CONCENTRATIONS ON-COLUMN (ug/mL)	FINAL (ug/kg)
* 27 Naphthalene-d8	136	4.871	4.871	(1.000)	228532	20.0000	
28 Naphthalene	128	4.893	4.893	(1.004)	270741	20.8154	221400
32 2-Methylnaphthalene	141	5.710	5.710	(1.172)	56459	8.13245	86500
105 1-methylnaphthalene	141	5.838	5.838	(1.198)	29121	4.06815	43270
$ 36 2-Fluorobiphenyl	172	6.186	6.186	(0.887)	5202	0.47355	5037
40 Acenaphthylene	152	Compound Not Detected.					
* 42 Acenaphthene-d10	164	6.976	6.976	(1.000)	142788	20.0000	
44 Acenaphthene	153	7.008	7.014	(1.005)	70320	8.00780	85170
46 Dibenzofuran	168	Compound Not Detected.					
49 Fluorene	166	7.623	7.623	(1.093)	47432	4.71755	50180
* 59 Phenanthrene-d10	188	8.744	8.745	(1.000)	257335	20.0000	
60 Phenanthrene	178	8.776	8.777	(1.004)	475016	34.7951	370100
61 Anthracene	178	8.830	8.830	(1.010)	104898	7.43457	79070
62 Carbazole	167	Compound Not Detected.					

Compounds	QUANT SIG MASS	RT	EXP RT	REL RT	RESPONSE	CONCENTRATIONS ON-COLUMN (ug/mL)	FINAL (ug/kg)
64 Fluoranthene	202	10.219	10.224	(0.854)	329198	17.7074	188300
65 Pyrene	202	10.486	10.486	(0.876)	435521	23.6137	251200
$ 66 Terphenyl-d14	244	10.726	10.721	(0.896)	5310	0.45132	4800
68 Benzo(a)anthracene	228	11.950	11.955	(0.998)	72615	4.85831	51670
* 69 Chrysene-d12	240	11.971	11.977	(1.000)	266150	20.0000	
71 Chrysene	228	11.998	12.003	(1.002)	71178	5.09370	54180
187 Total Benzofluoranthenes	252	13.200	13.221	(0.971)	85619	7.72260	82140
76 Benzo(a)pyrene	252	13.531	13.537	(0.996)	71837	7.05343	75020
* 77 Perylene-d12	264	13.590	13.595	(1.000)	186139	20.0000	
99 Perylene	252	13.611	13.622	(1.002)	17544	~~1.61~~989	17230 NP
78 Indeno(1,2,3-cd)pyrene	276	14.685	14.691	(1.081)	39698	2.62539	27920
79 Dibenzo(a,h)anthracene	278	14.696	14.696	(1.081)	7165	0.57556	6122 J
80 Benzo(g,h,i)perylene	276	14.973	14.979	(1.102)	52006	4.18662	44530

LOJ
11.12.10

Analytical Resources, Inc.

INTERNAL STANDARD COMPOUNDS
AREA AND RT SUMMARY

Instrument ID: nt12.i
Lab File ID: rs97sdl.d
Lab Smp Id: RS97S
Analysis Type: SV
Quant Type: ISTD
Operator: VTS
Method File: /chem1/nt12.i/20101111.b/PNADMD.m
Misc Info: 10-27435

Calibration Date: 11-NOV-2010
Calibration Time: 12:20
Client Smp ID: DGS-07-12.713.2-
Level: LOW
Sample Type: Sediment

Test Mode:
Use Initial Calibration Level 4.

COMPOUND	STANDARD	AREA LIMIT LOWER	AREA LIMIT UPPER	SAMPLE	%DIFF
27 Naphthalene-d8	237664	118832	475328	228532	-3.84
42 Acenaphthene-d10	143363	71682	286726	142788	-0.40
59 Phenanthrene-d10	245437	122718	490874	257335	4.85
69 Chrysene-d12	199260	99630	398520	266150	33.57
77 Perylene-d12	197636	98818	395272	186139	-5.82

COMPOUND	STANDARD	RT LIMIT LOWER	RT LIMIT UPPER	SAMPLE	%DIFF
27 Naphthalene-d8	4.87	4.37	5.37	4.87	0.00
42 Acenaphthene-d10	6.98	6.48	7.48	6.98	0.00
59 Phenanthrene-d10	8.74	8.24	9.24	8.74	0.00
69 Chrysene-d12	11.98	11.48	12.48	11.97	-0.05
77 Perylene-d12	13.60	13.10	14.10	13.59	-0.04

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.

Analytical Resources, Inc.

RECOVERY REPORT

Client Name: NW Natural
Sample Matrix: SOLID
Lab Smp Id: RS97S
Level: LOW
Data Type: MS DATA
SpikeList File: SONICLCS.spk
Sublist File: pnas.sub
Method File: /chem1/nt12.i/20101111.b/PNADMD.m
Misc Info: 10-27435

Client SDG: RS97
Fraction: SV
Client Smp ID: DGS-07-12.713.2-101
Operator: VTS
SampleType: SAMPLE
Quant Type: ISTD

SURROGATE COMPOUND	CONC ADDED ug/kg	CONC RECOVERED ug/kg	% RECOVERED	LIMITS
$ 36 2-Fluorobiphenyl	8863	5037	56.83	34-100
$ 66 Terphenyl-d14	8863	4800	54.16	35-112

Data File: /chem1/nt12.i/20101111.b/rs97sdl.d

Date : 11-NOV-2010 14:59

Client ID: DGS-07-12.713.2-101

Sample Info: RS97S,3

Volume Injected (uL): 1.0

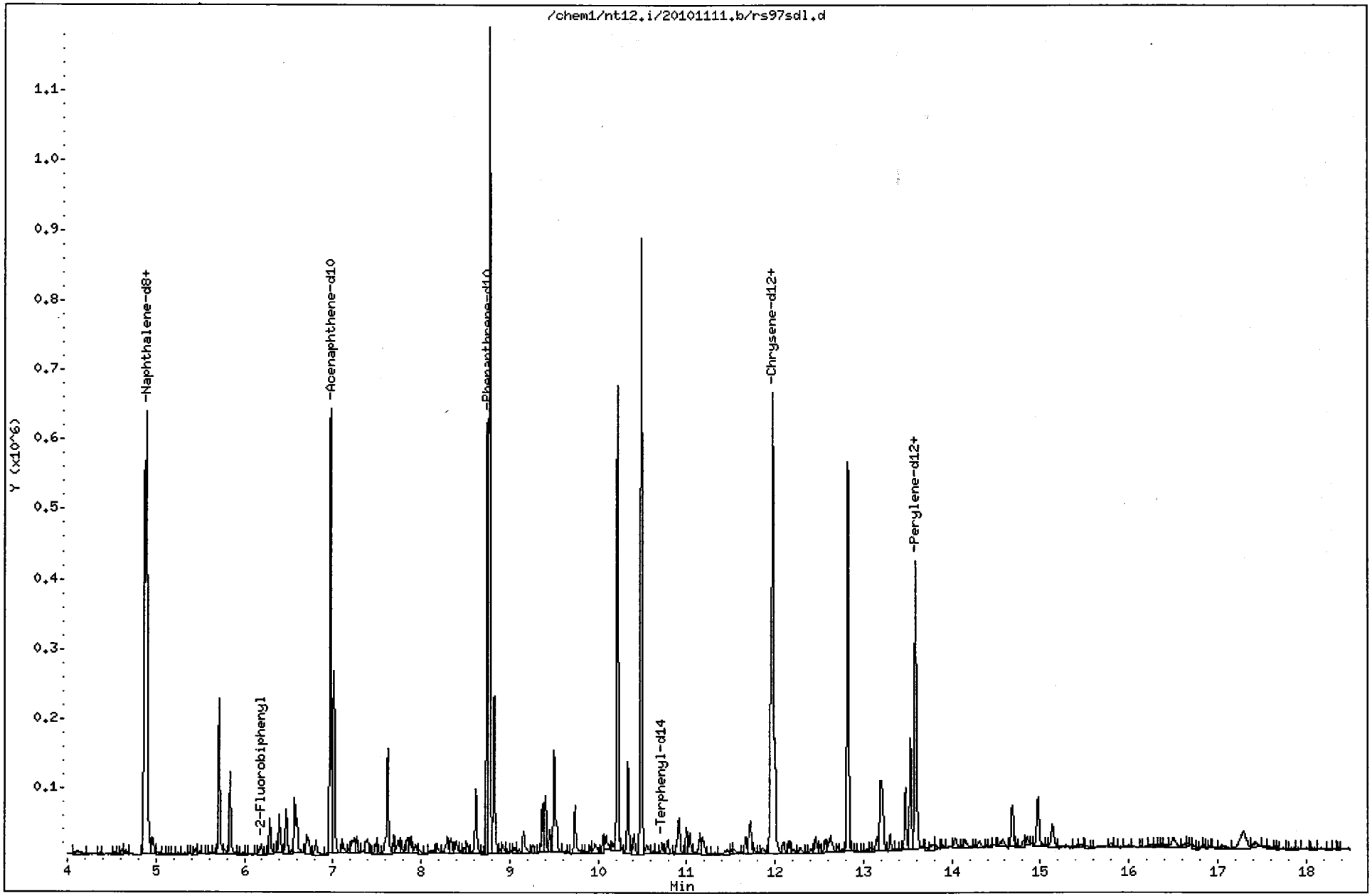
Column phase: ZB-5msi

Instrument: nt12.i

Operator: VTS

Column diameter: 0.32

RS97:00825



Data File: /chem1/nt12.i/20101111.b/rs97sdl.d

Date : 11-NOV-2010 14:59

Client ID: DGS-07-12.713.2-101

Instrument: nt12.i

Sample Info: RS97S,3

Volume Injected (uL): 1.0

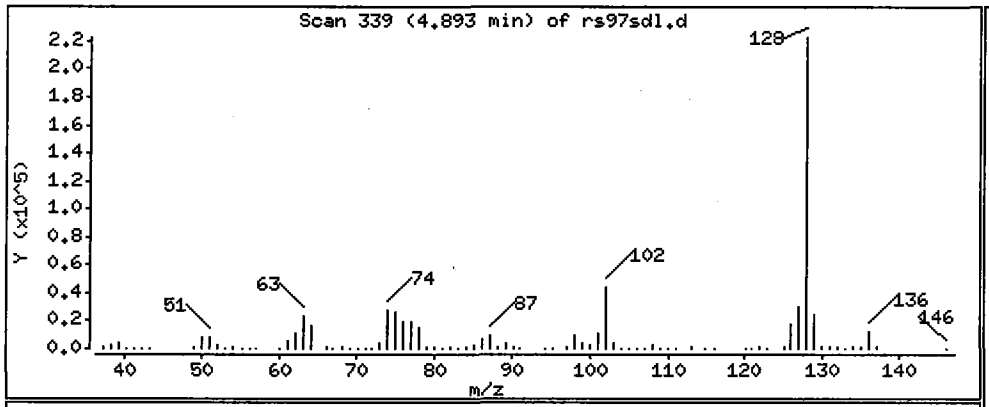
Operator: VTS

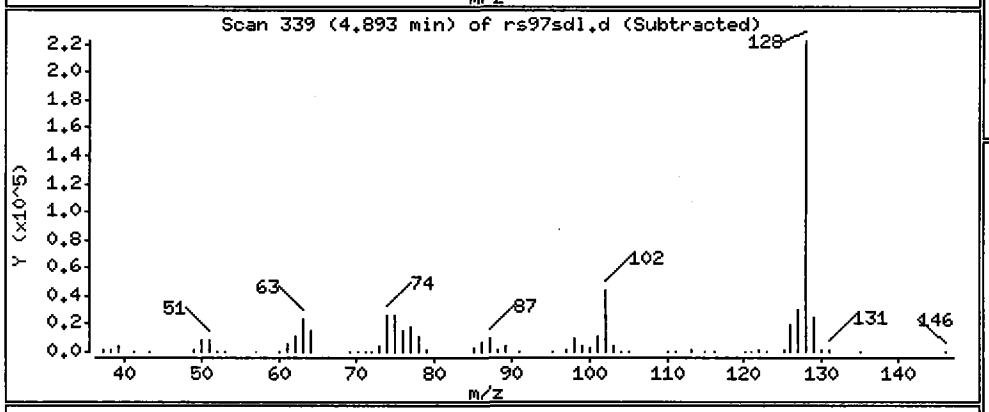
Column phase: ZB-5msi

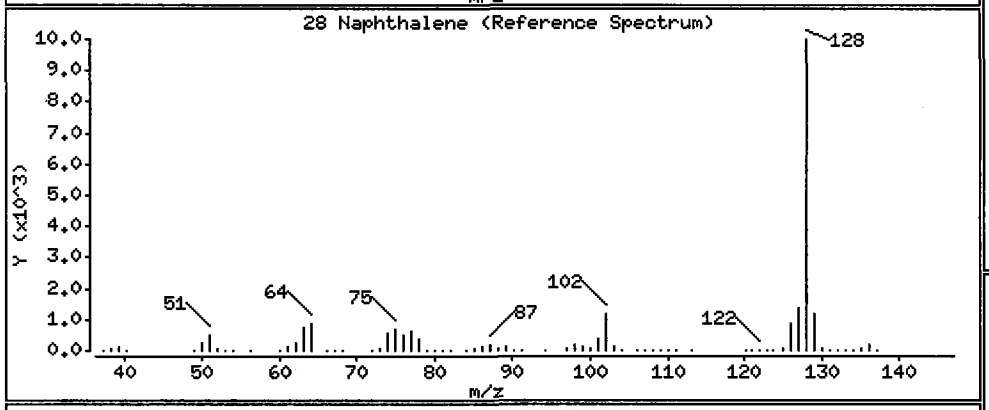
Column diameter: 0.32

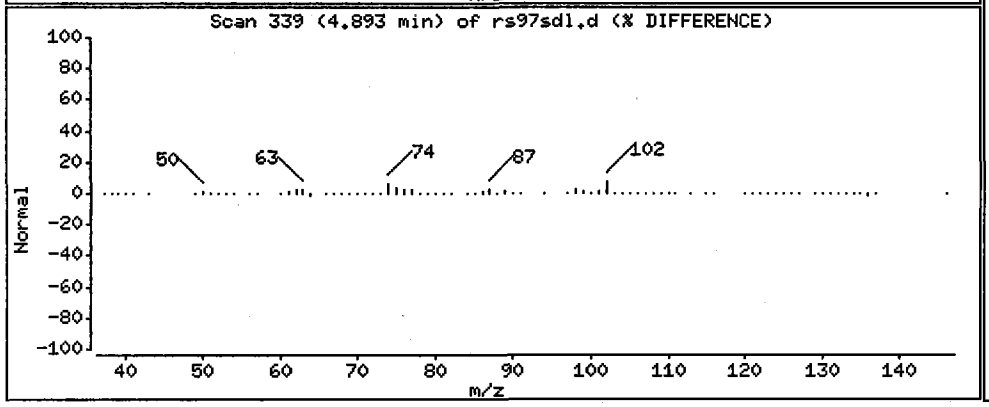
28 Naphthalene

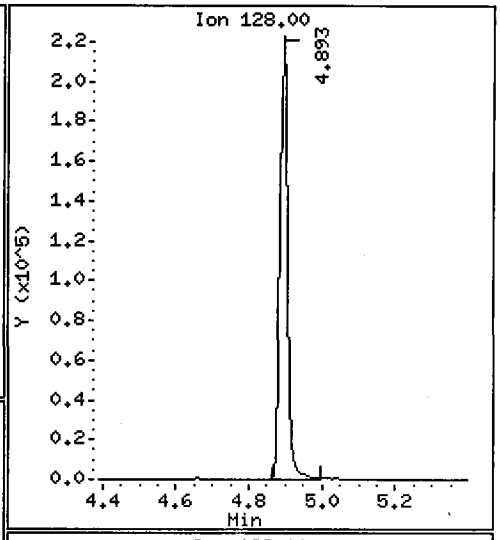
Concentration: 221400 ug/kg

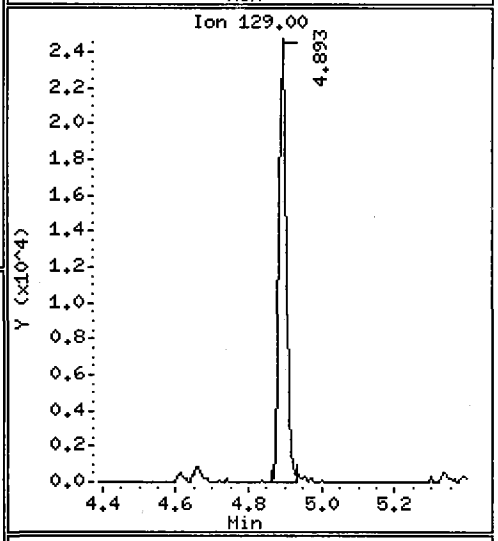


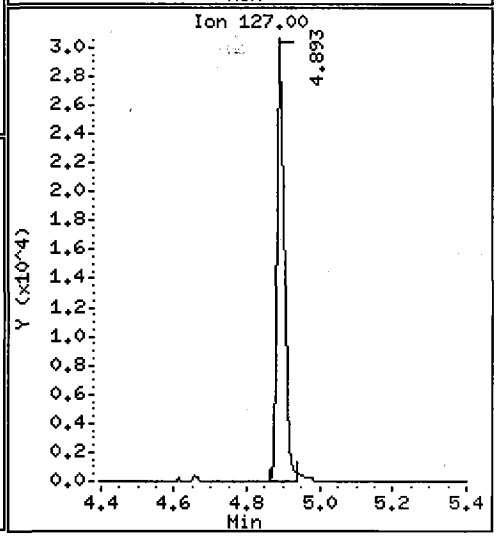












Data File: /chem1/nt12.i/20101111.b/rs97sdl.d

Date : 11-NOV-2010 14:59

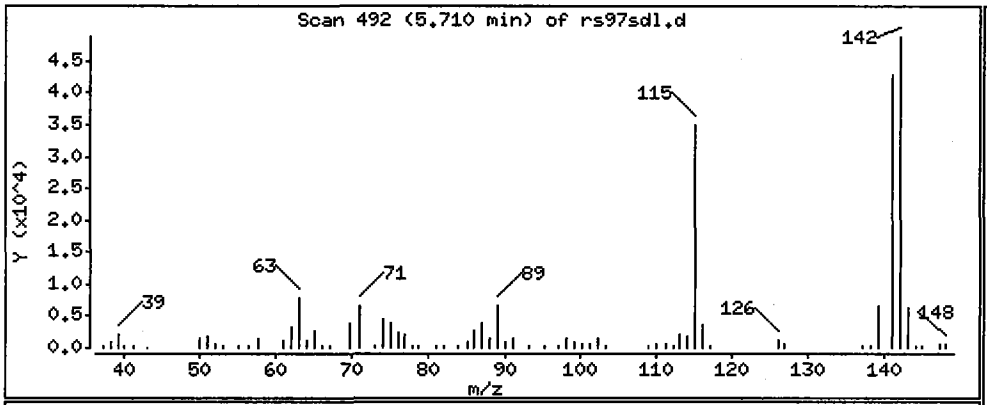
Client ID: DGS-07-12.713.2-101 Instrument: nt12.i

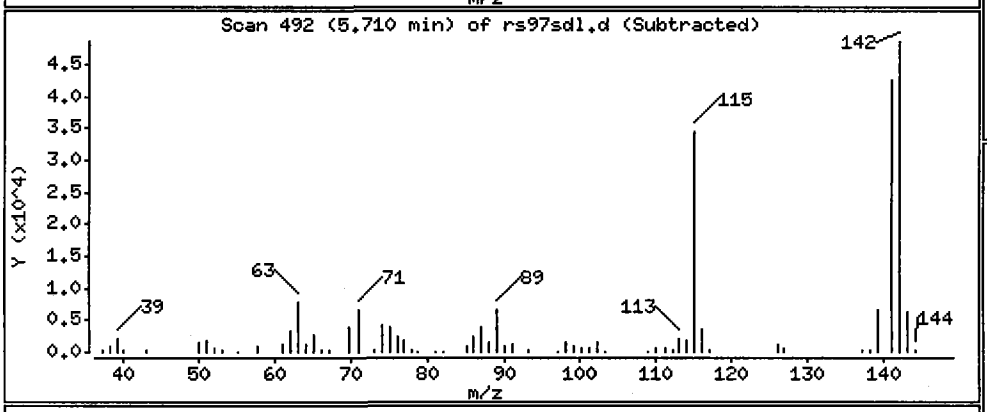
Sample Info: RS97S,3

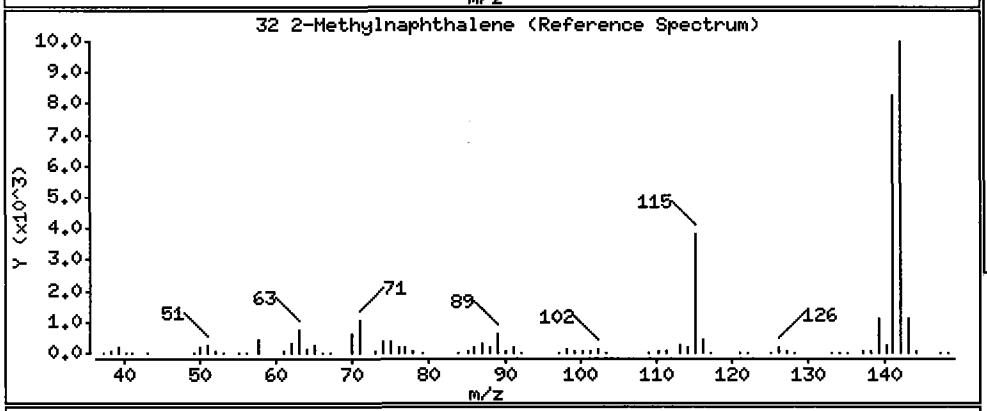
Volume Injected (uL): 1.0 Operator: VTS

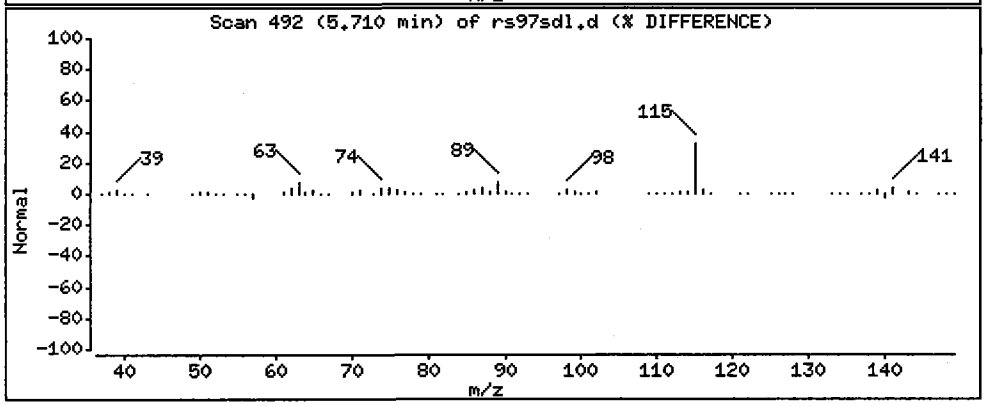
Column phase: ZB-5msi Column diameter: 0.32

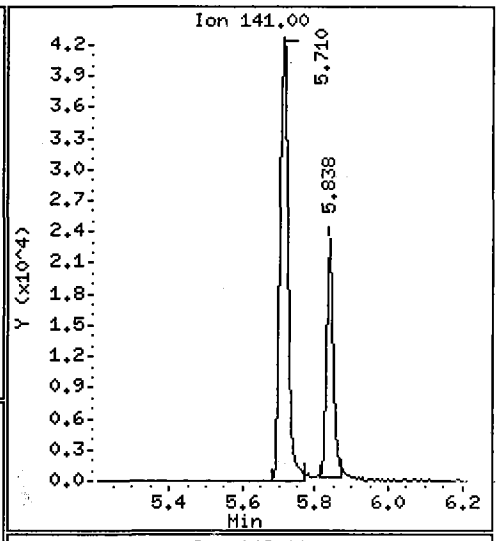
32 2-Methylnaphthalene Concentration: 86500 ug/kg

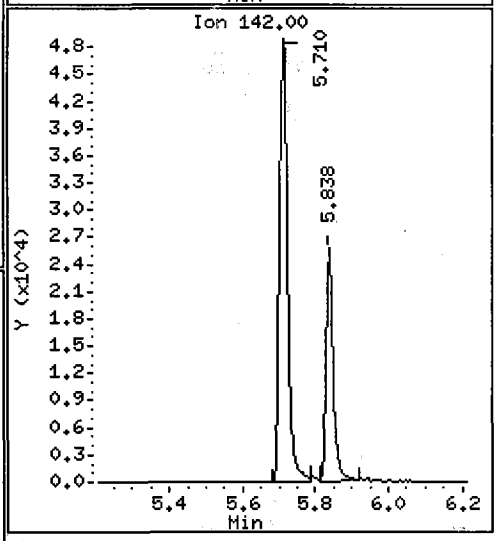












Data File: /chem1/nt12.i/20101111.b/rs97sdl.d

Date : 11-NOV-2010 14:59

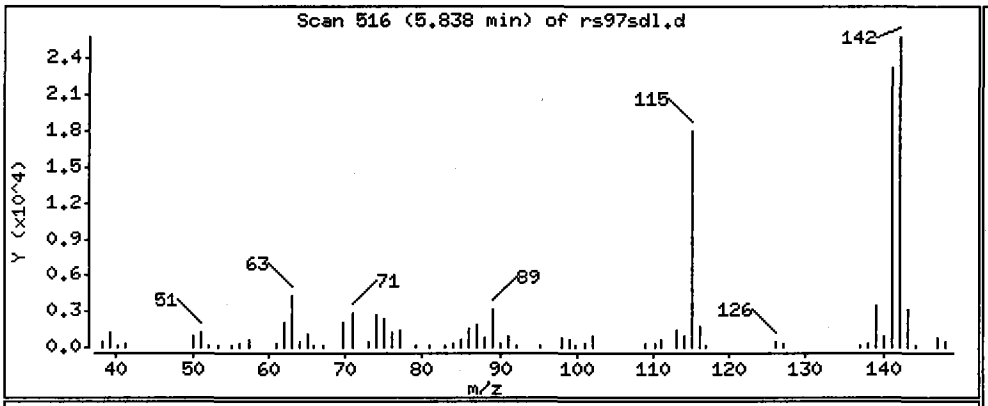
Client ID: DGS-07-12.713.2-101 Instrument: nt12.i

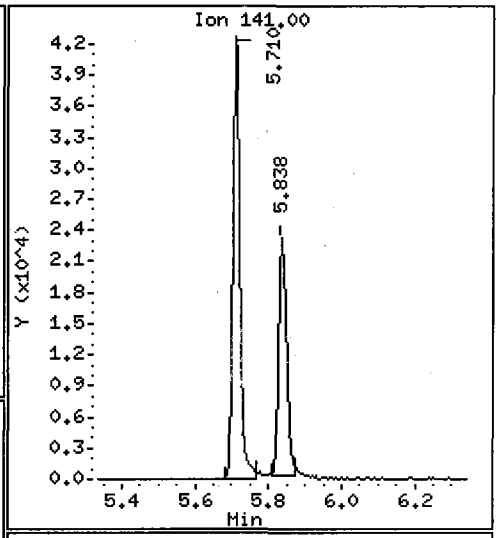
Sample Info: RS97S,3

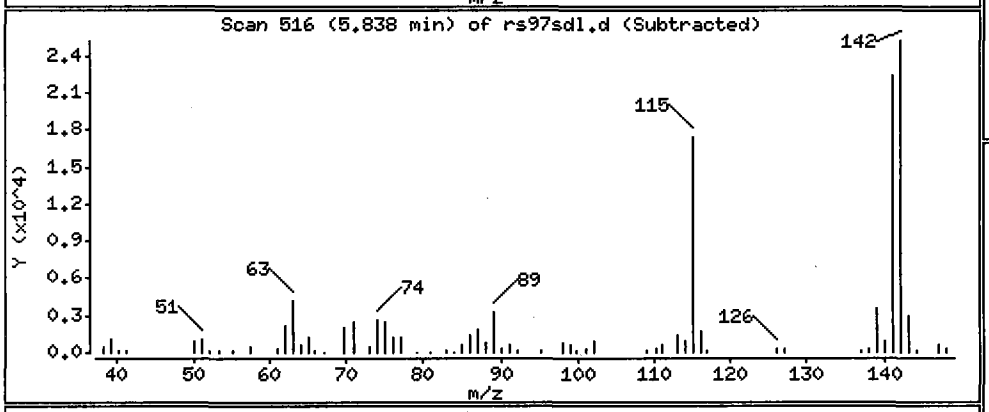
Volume Injected (uL): 1.0 Operator: VTS

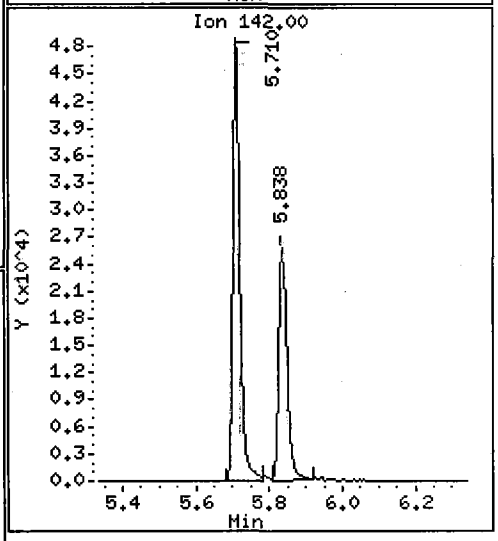
Column phase: ZB-5msi Column diameter: 0.32

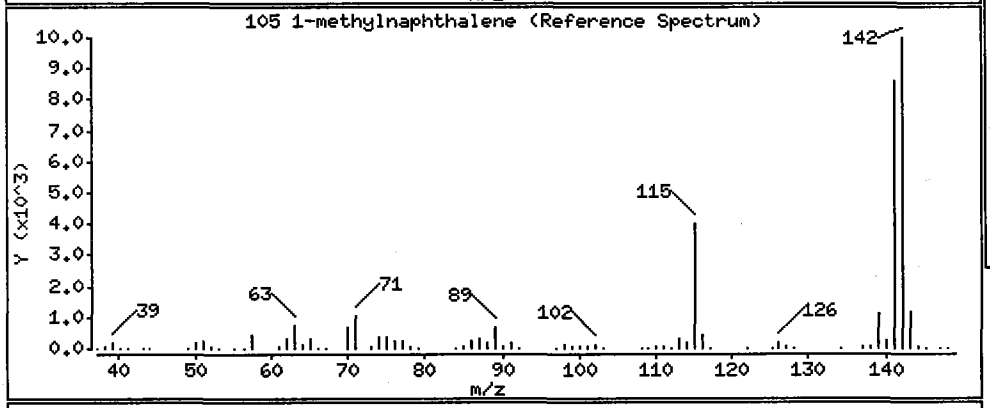
105 1-methylnaphthalene Concentration: 43270 ug/kg

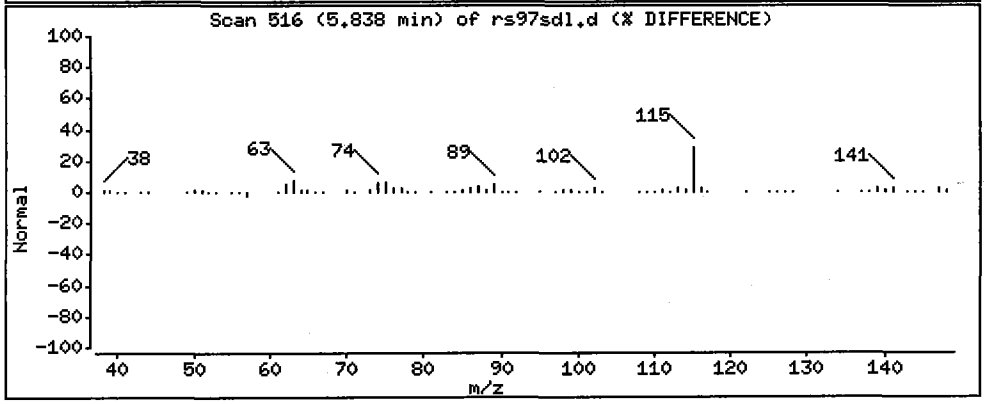












Data File: /chem1/nt12.i/20101111.b/rs97sdl.d

Date : 11-NOV-2010 14:59

Client ID: DGS-07-12.713.2-101

Instrument: nt12.i

Sample Info: RS97S,3

Volume Injected (uL): 1.0

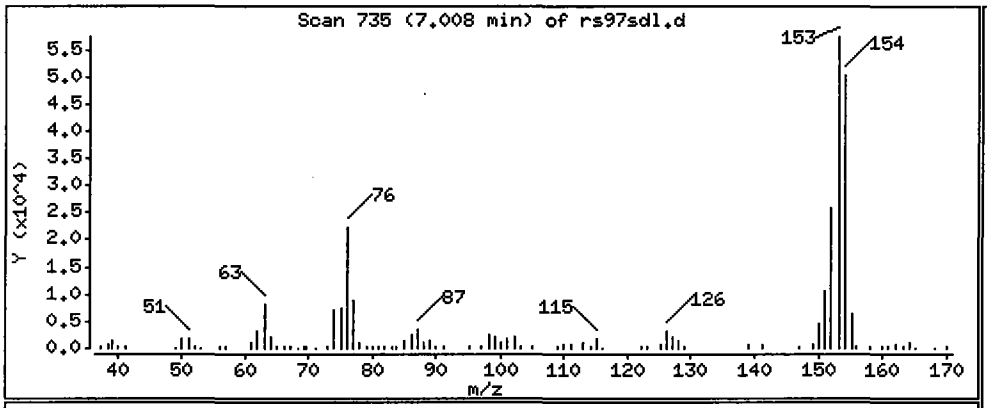
Operator: VTS

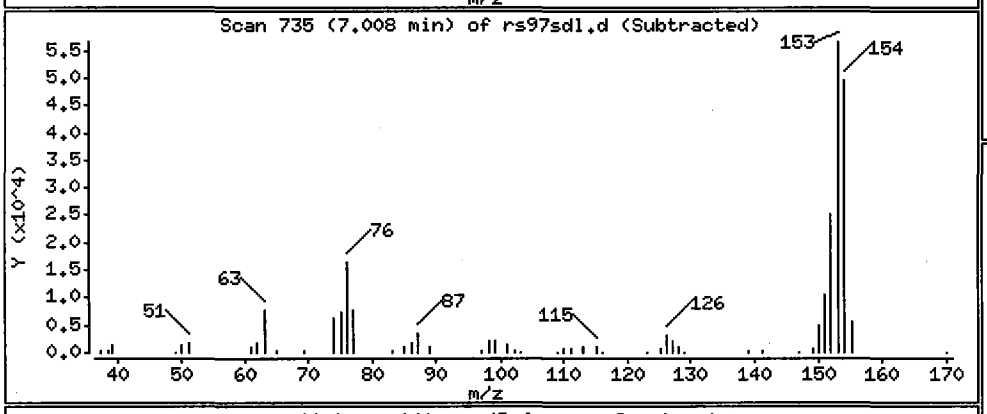
Column phase: ZB-5msi

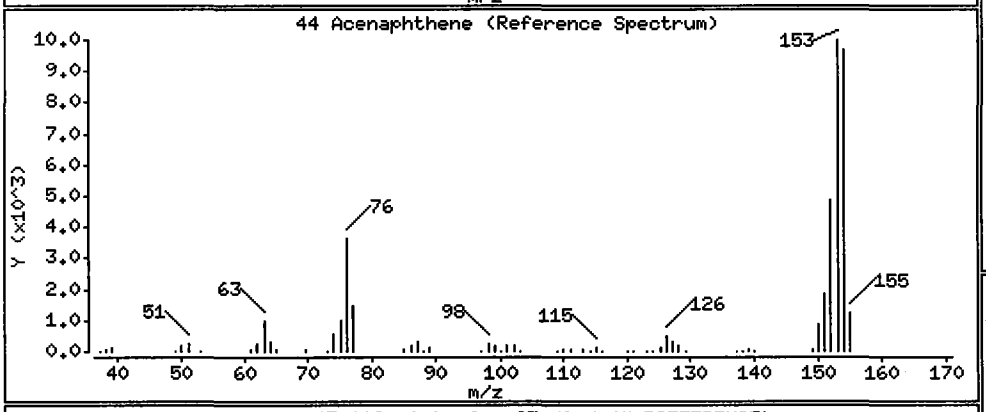
Column diameter: 0.32

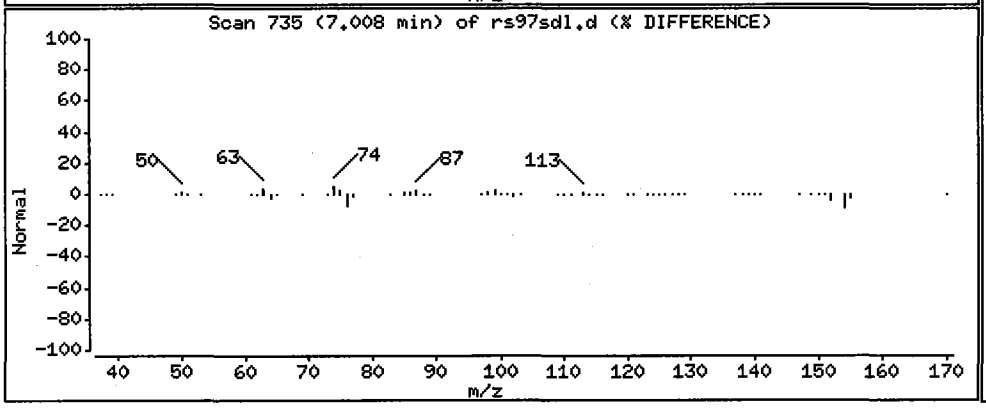
44 Acenaphthene

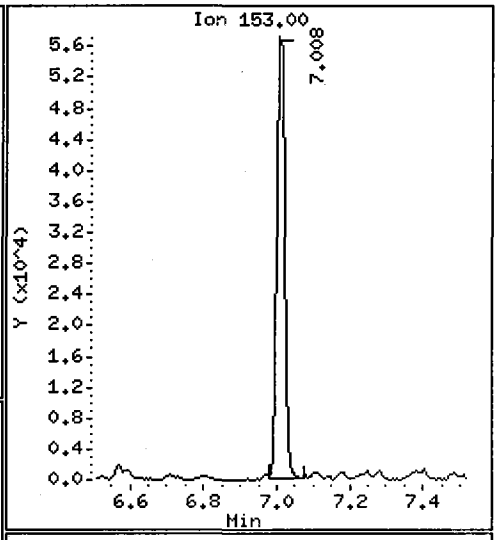
Concentration: 85170 ug/kg

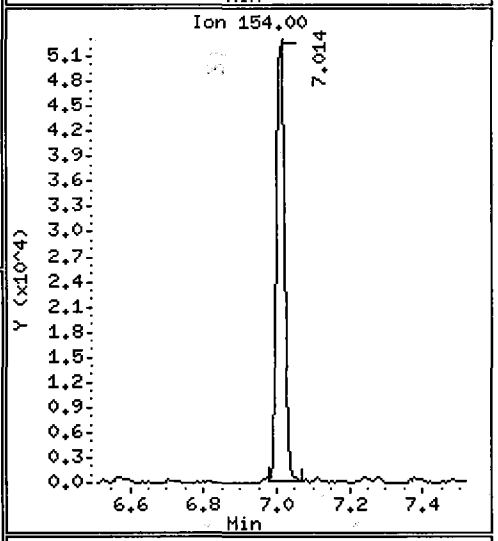


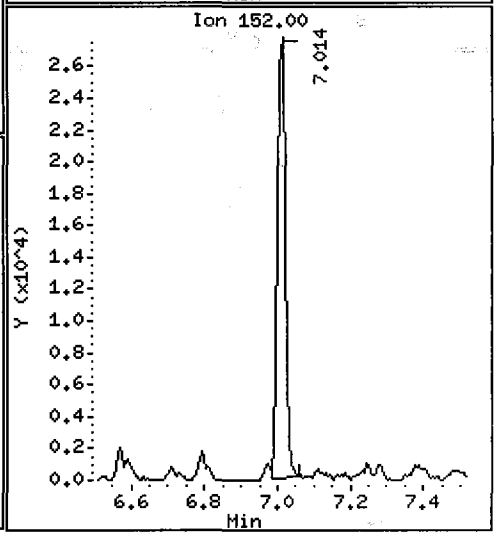












Data File: /chem1/nt12.i/20101111.b/rs97sdl.d

Date : 11-NOV-2010 14:59

Client ID: DGS-07-12.713.2-101

Instrument: nt12.i

Sample Info: RS97S,3

Volume Injected (uL): 1.0

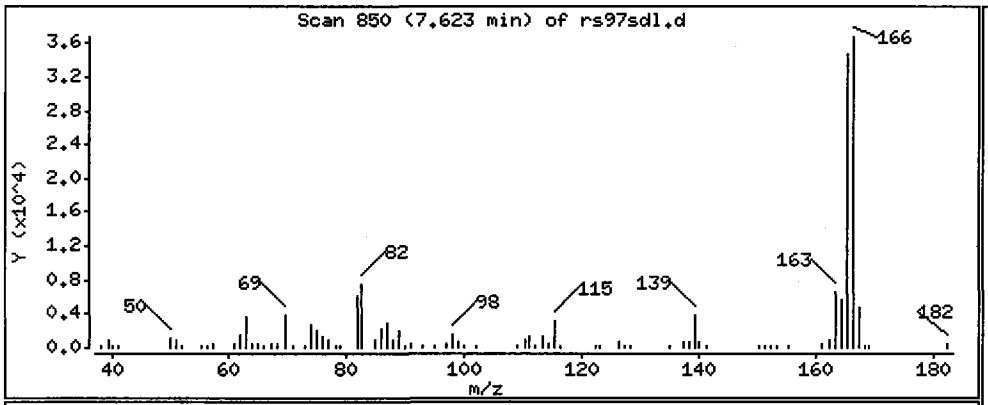
Operator: VTS

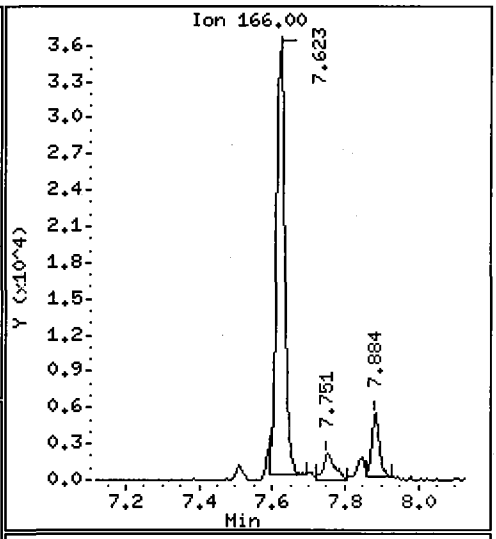
Column phase: ZB-5msi

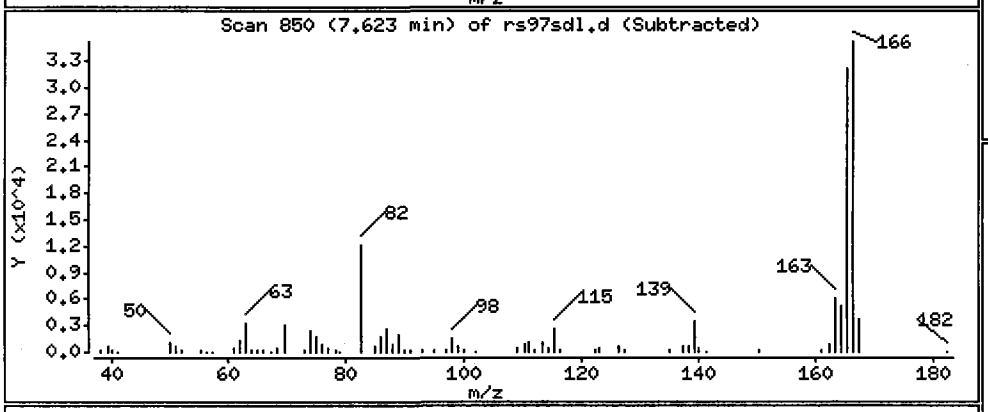
Column diameter: 0.32

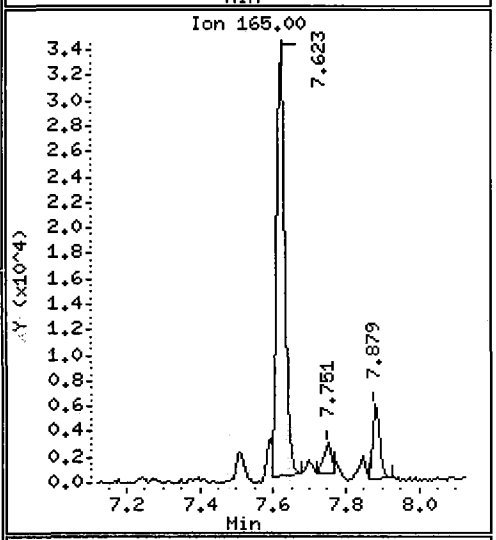
49 Fluorene

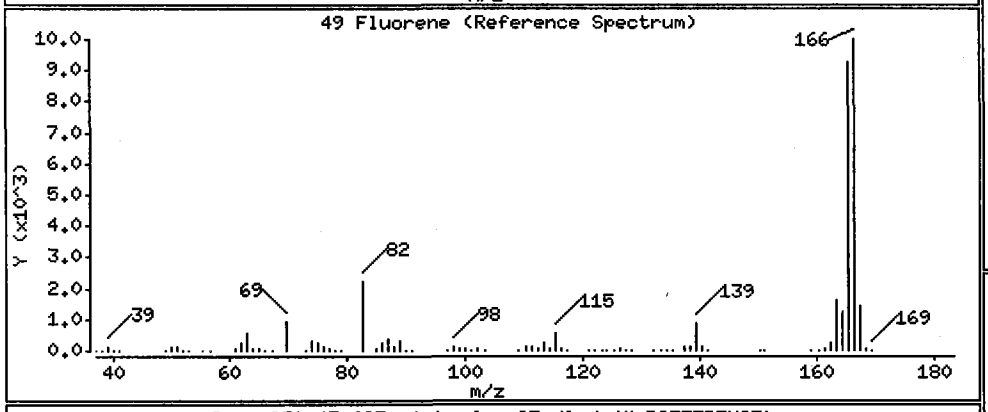
Concentration: 50180 ug/kg

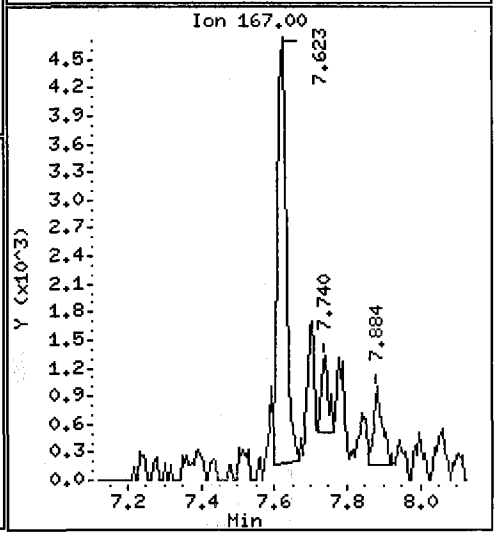


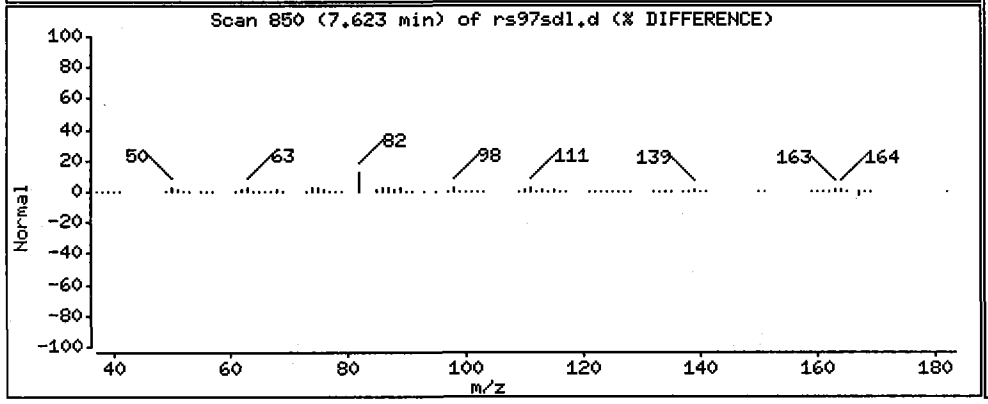












Data File: /chem1/nt12.i/20101111.b/rs97sdl.d

Date : 11-NOV-2010 14:59

Client ID: DGS-07-12.713.2-101

Instrument: nt12.i

Sample Info: RS97S,3

Volume Injected (uL): 1.0

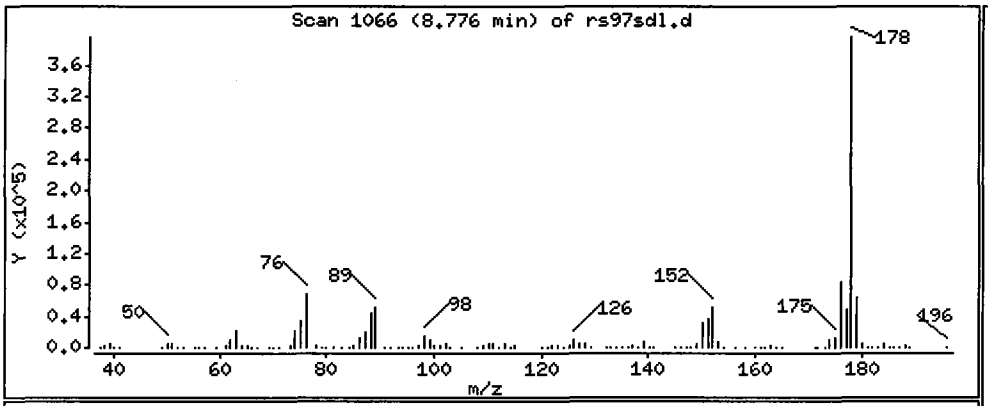
Operator: VTS

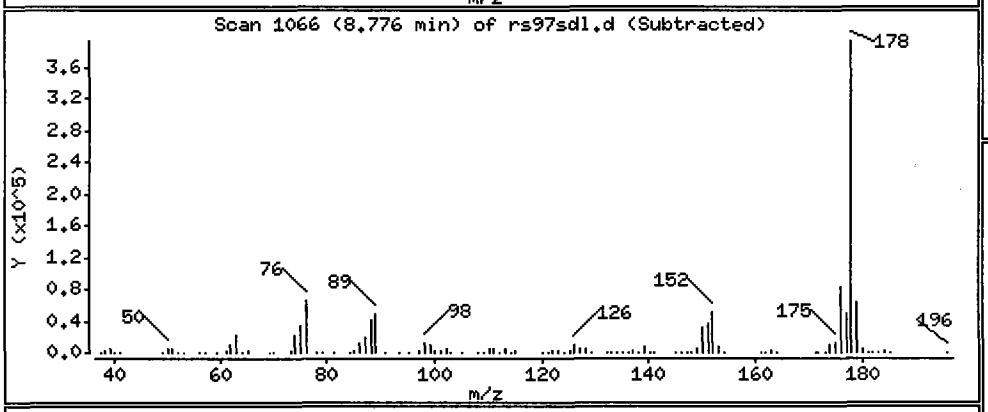
Column phase: ZB-5msi

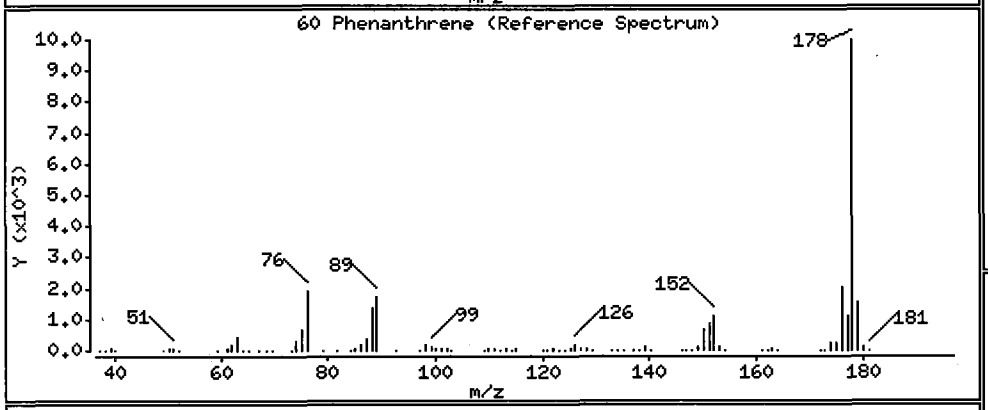
Column diameter: 0.32

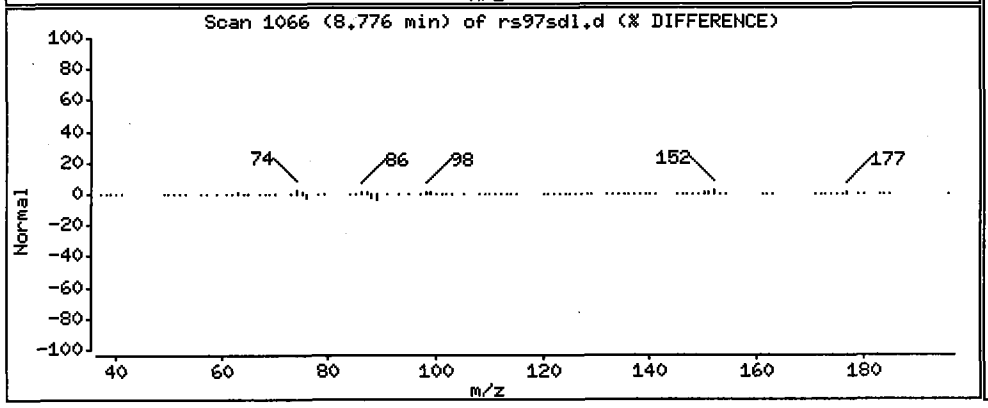
60 Phenanthrene

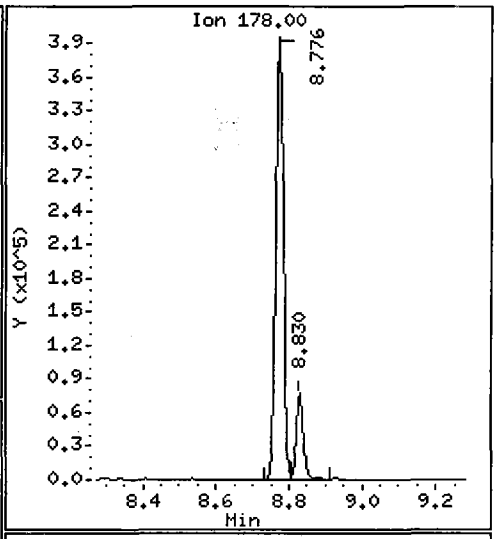
Concentration: 370100 ug/kg

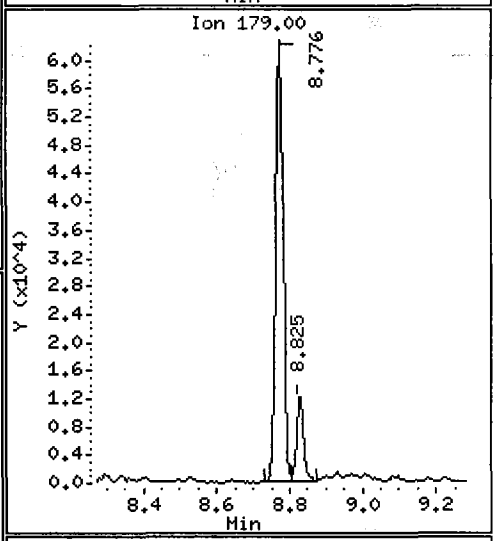


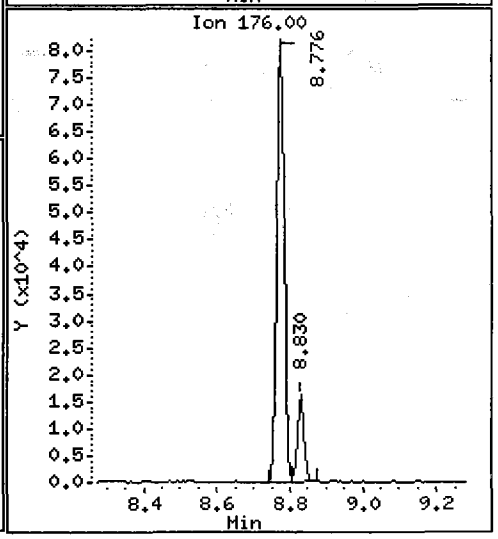












Data File: /chem1/nt12.i/20101111.b/rs97sdl.d

Date : 11-NOV-2010 14:59

Client ID: DGS-07-12.713.2-101

Instrument: nt12.i

Sample Info: RS97S,3

Volume Injected (uL): 1.0

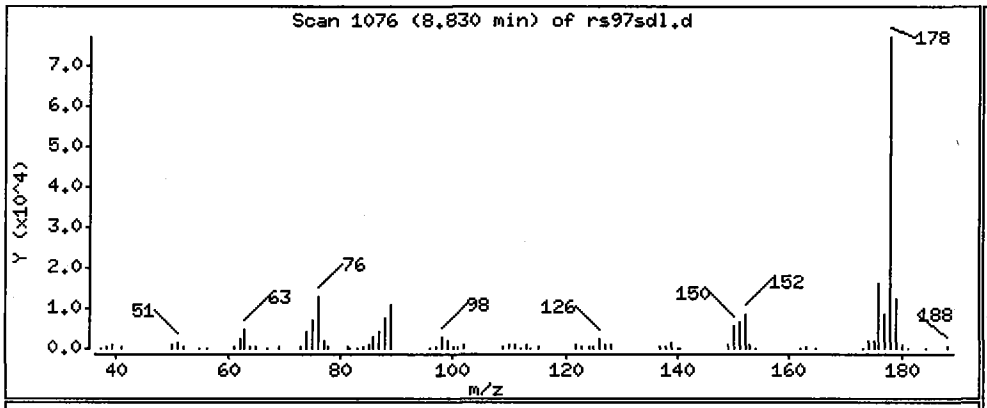
Operator: VTS

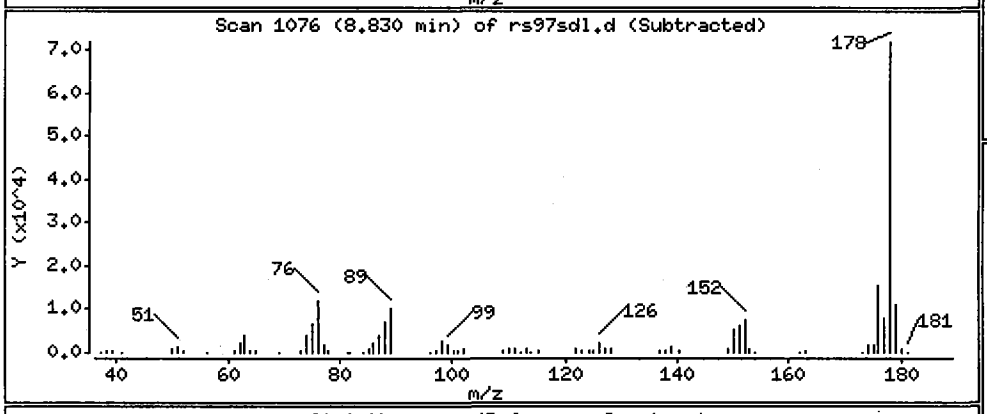
Column phase: ZB-5msi

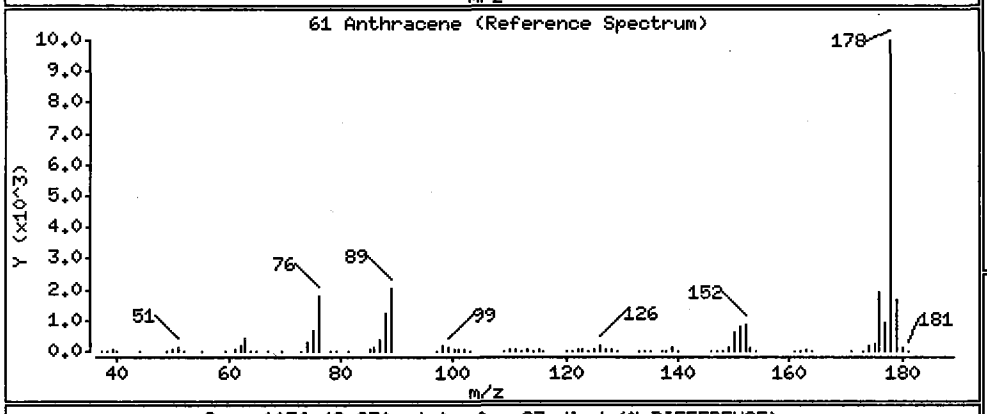
Column diameter: 0.32

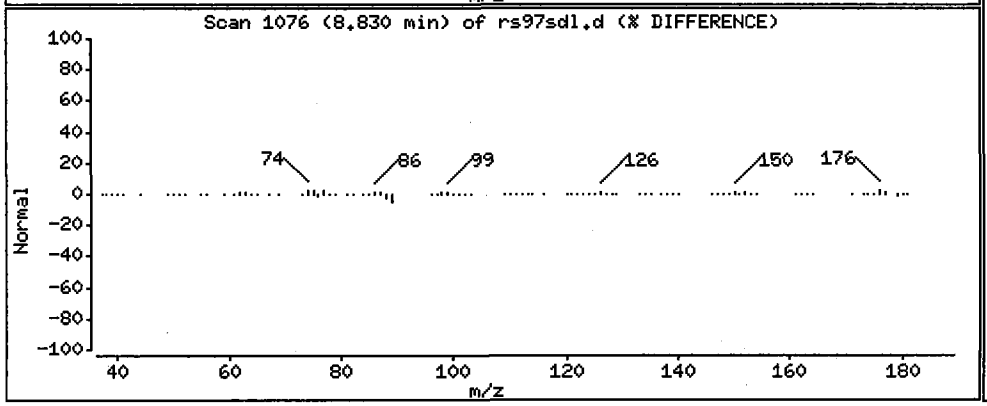
61 Anthracene

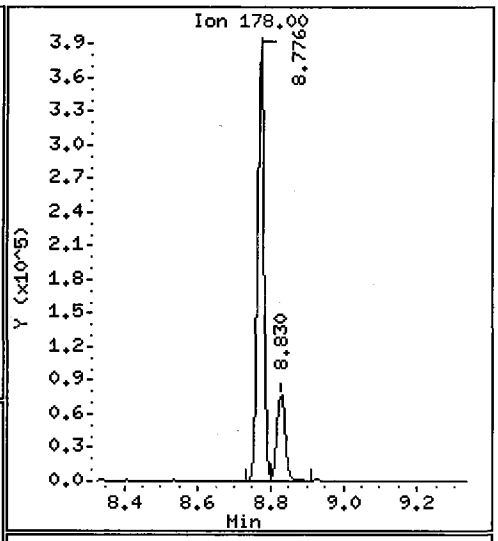
Concentration: 79070 ug/kg

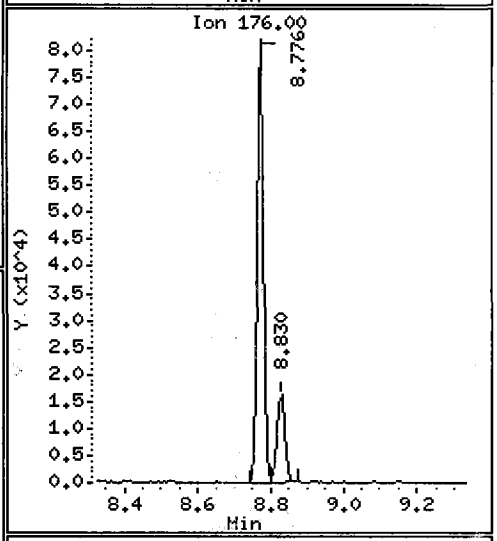


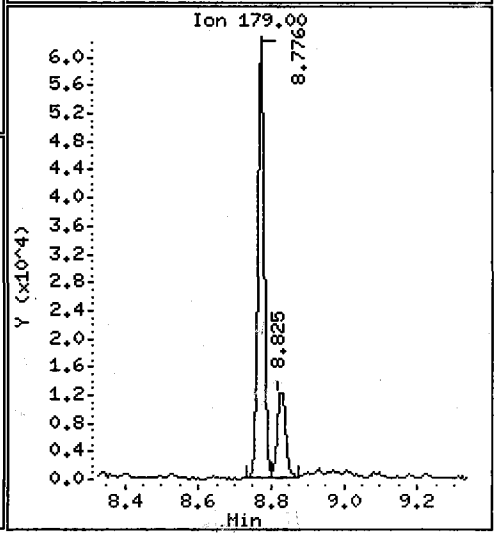












Data File: /chem1/nt12.i/20101111.b/rs97sdl.d

Date : 11-NOV-2010 14:59

Client ID: DGS-07-12.713.2-101

Instrument: nt12.i

Sample Info: RS97S,3

Volume Injected (uL): 1.0

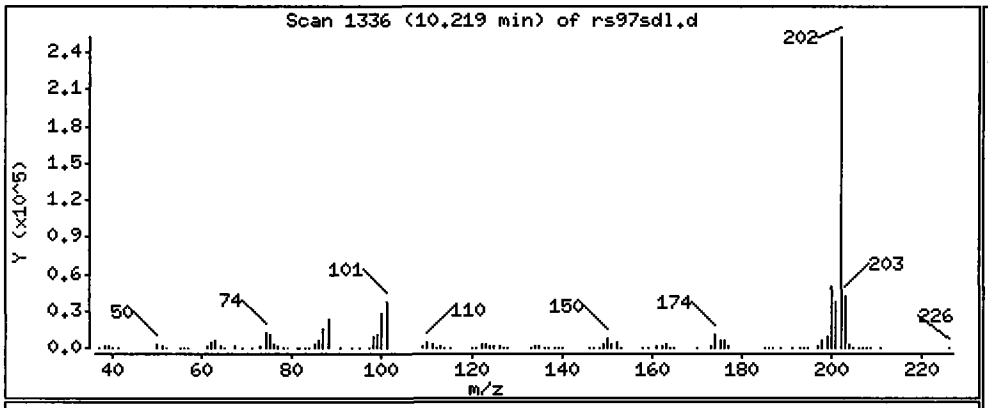
Operator: VTS

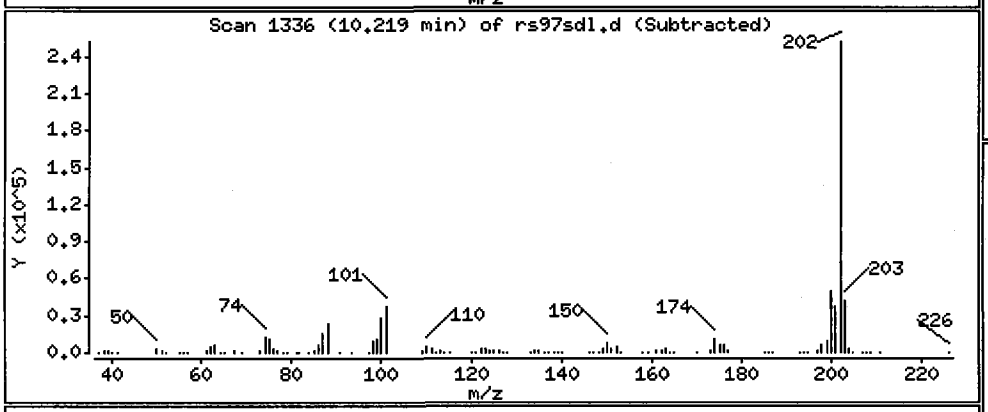
Column phase: ZB-5msi

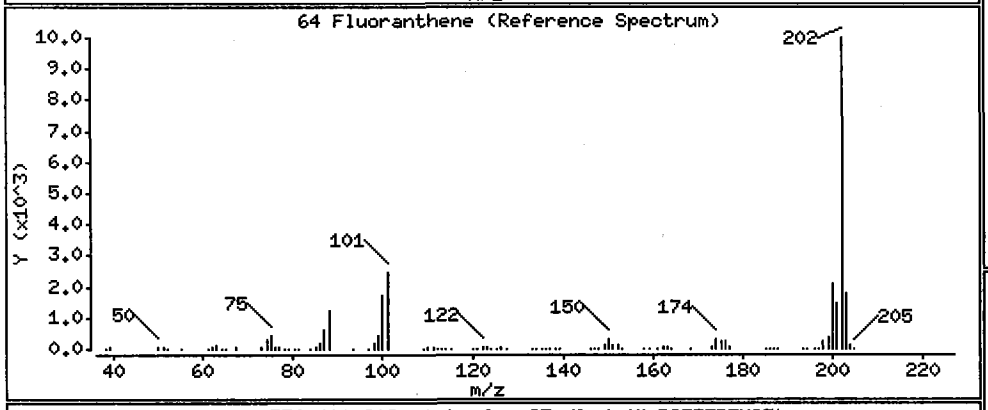
Column diameter: 0.32

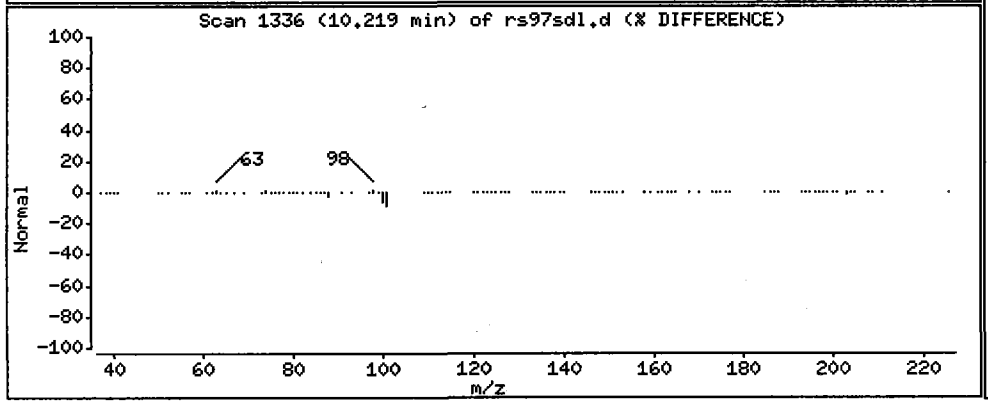
64 Fluoranthene

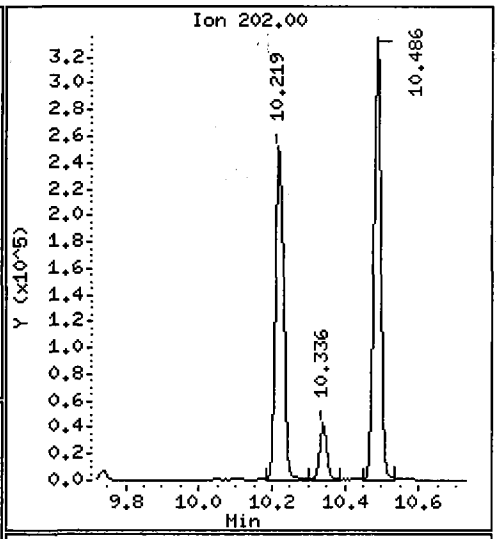
Concentration: 188300 ug/kg

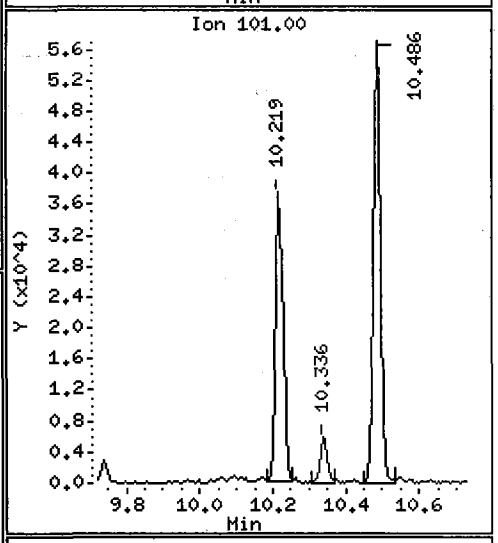


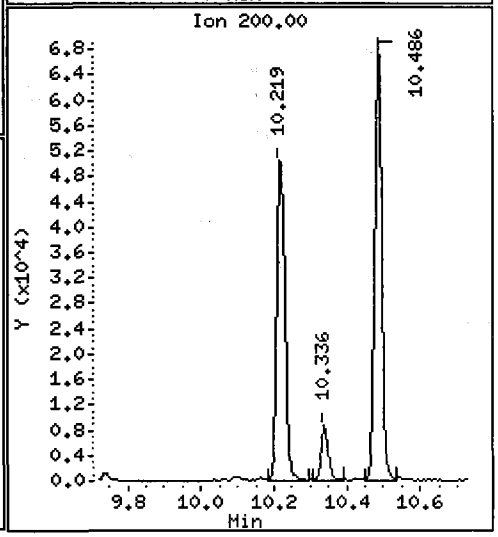












Data File: /chem1/nt12.i/20101111.b/rs97sdl.d

Date : 11-NOV-2010 14:59

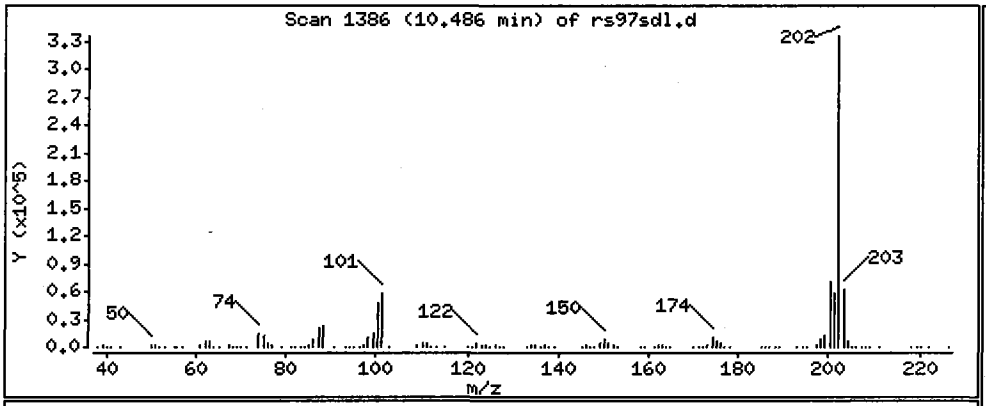
Client ID: DGS-07-12.713.2-101 Instrument: nt12.i

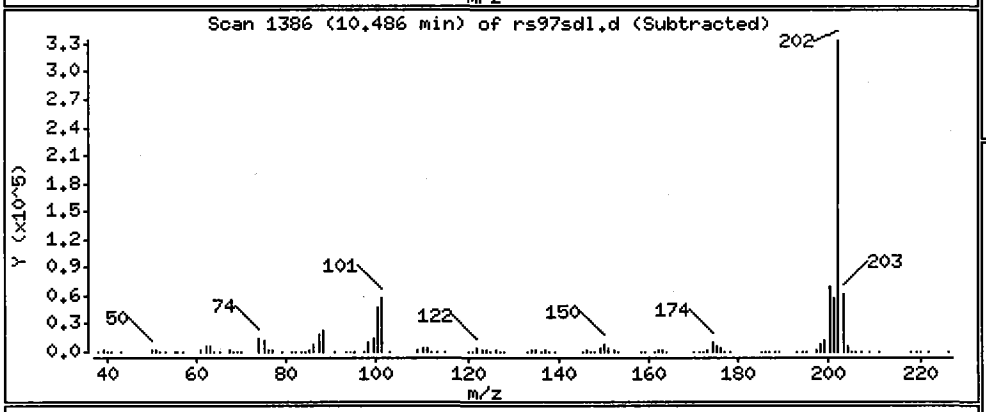
Sample Info: RS97S,3

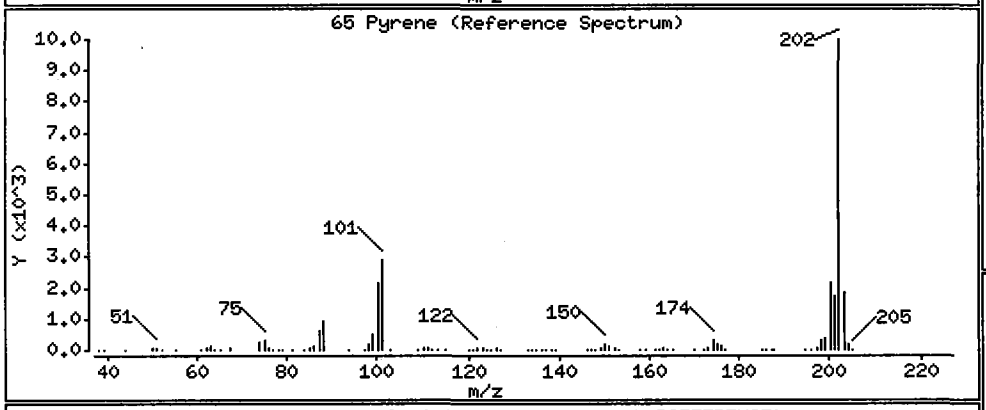
Volume Injected (uL): 1.0 Operator: VTS

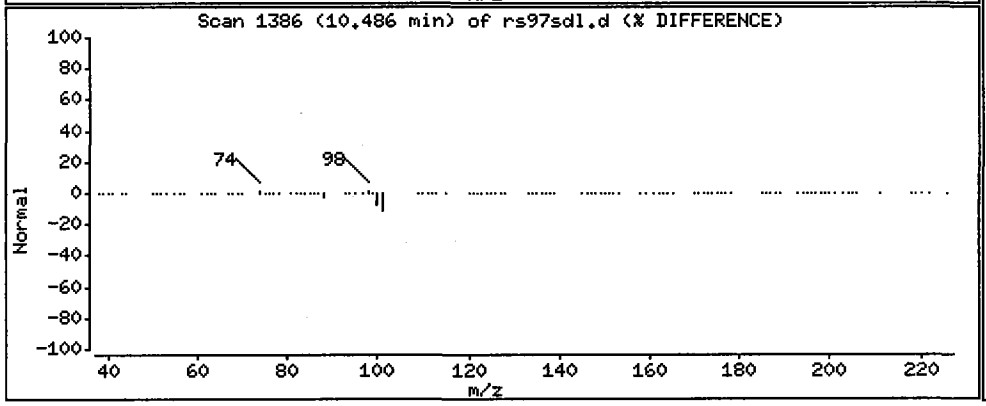
Column phase: ZB-5msi Column diameter: 0.32

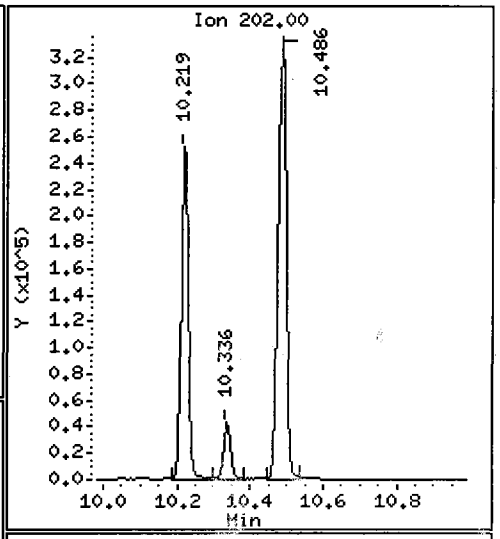
65 Pyrene Concentration: 251200 ug/kg

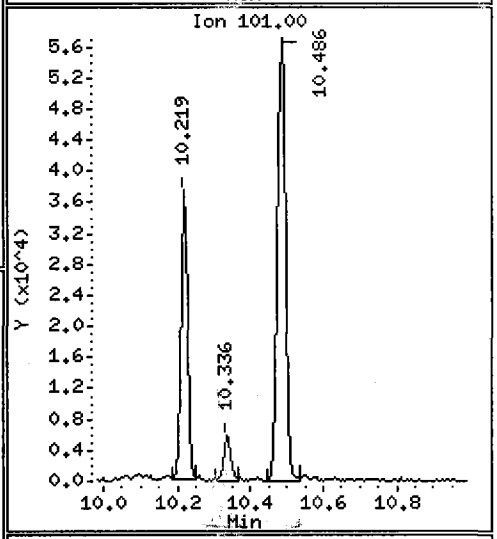


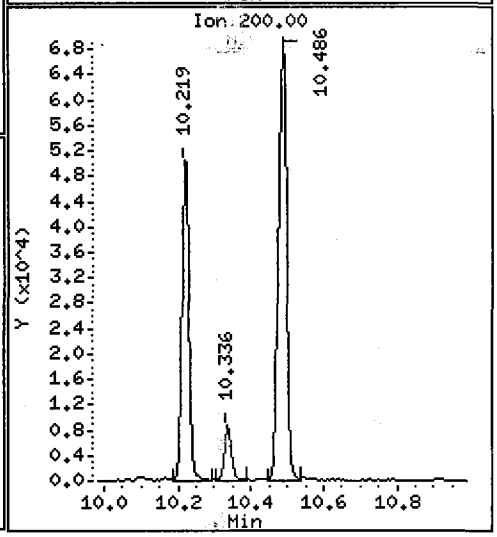












Data File: /chem1/nt12.i/20101111.b/rs97sdl.d

Date : 11-NOV-2010 14:59

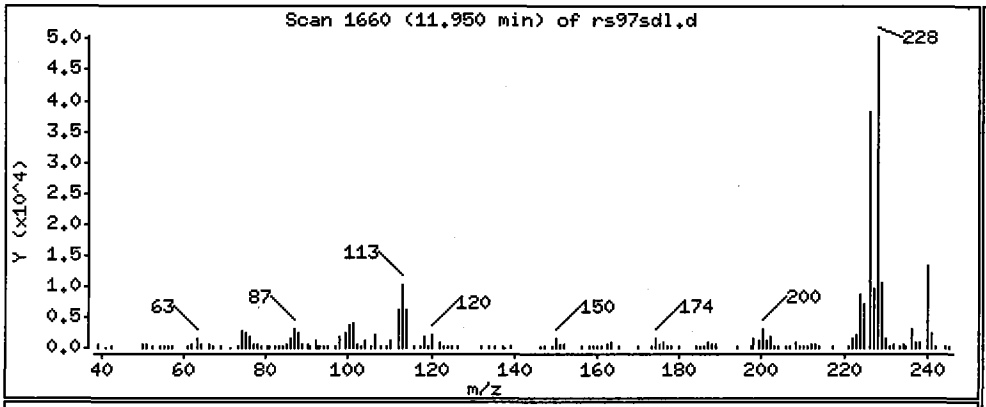
Client ID: DGS-07-12.713.2-101 Instrument: nt12.i

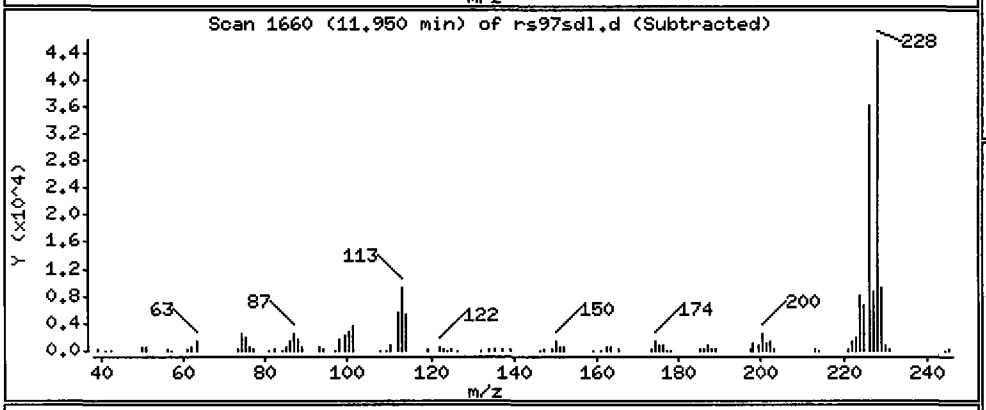
Sample Info: RS97S,3

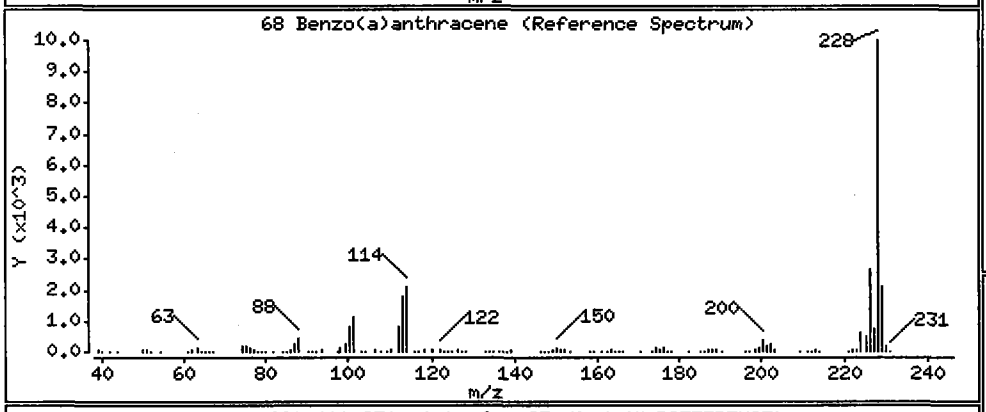
Volume Injected (uL): 1.0 Operator: VTS

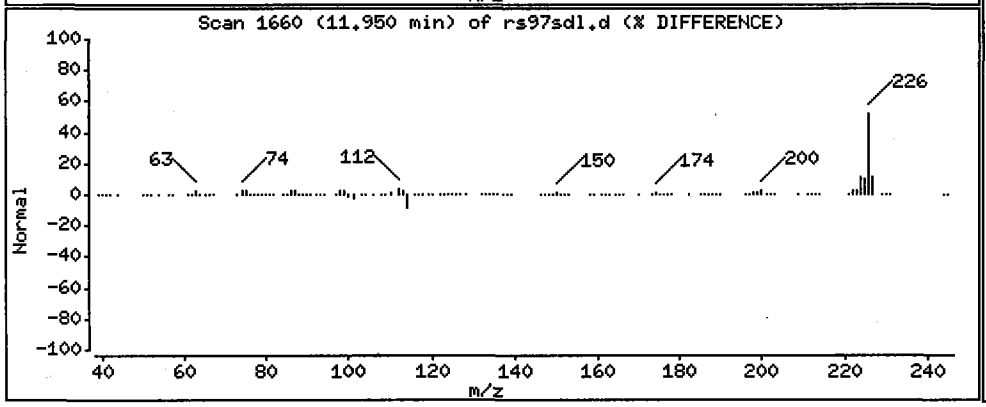
Column phase: ZB-5msi Column diameter: 0.32

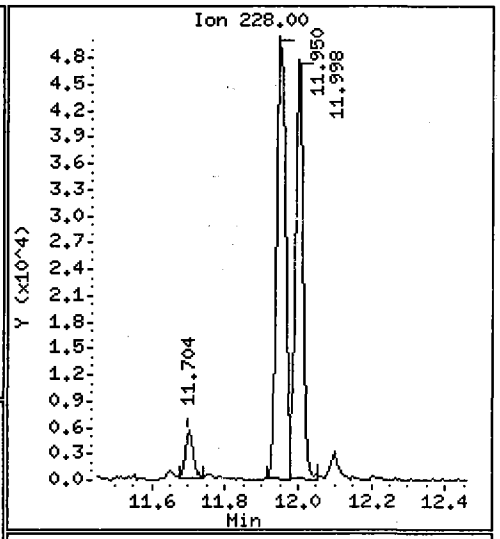
68 Benzo(a)anthracene Concentration: 51670 ug/kg

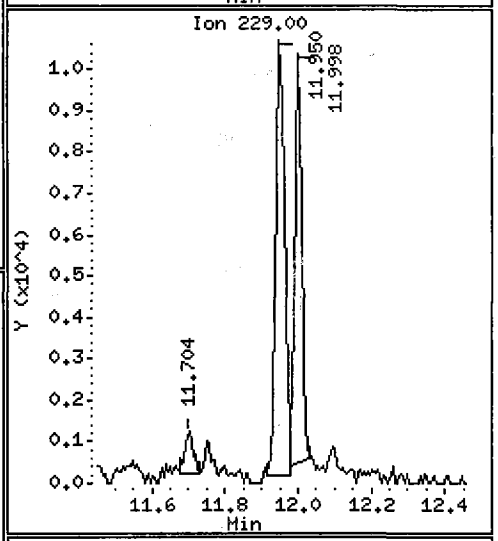


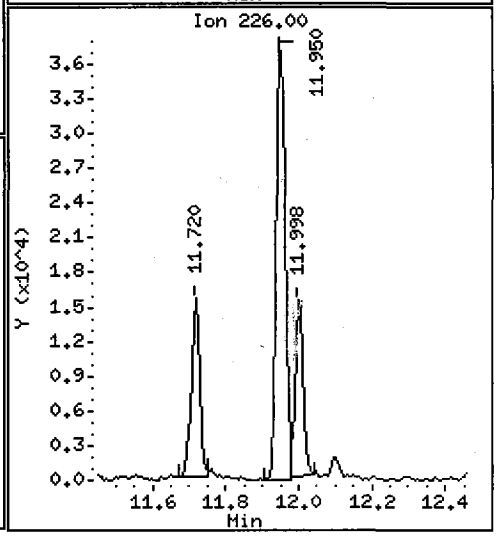












Data File: /chem1/nt12.i/20101111.b/rs97sdl.d

Date : 11-NOV-2010 14:59

Client ID: DGS-07-12.713.2-101

Instrument: nt12.i

Sample Info: RS97S,3

Volume Injected (uL): 1.0

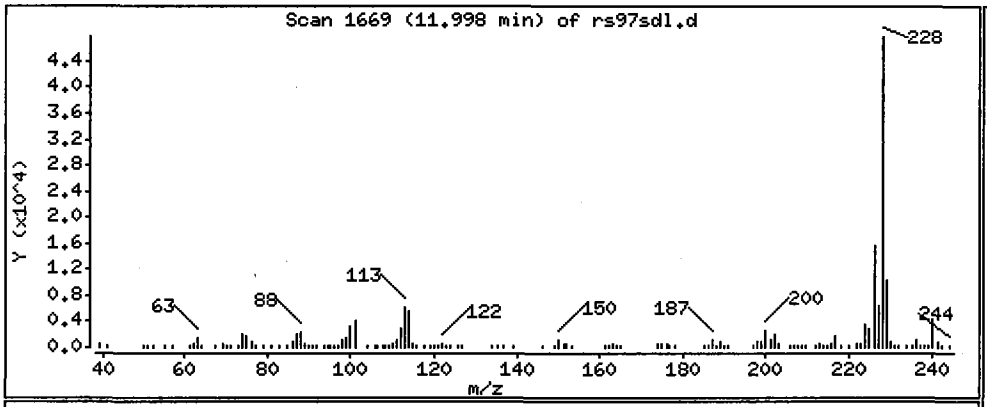
Operator: VTS

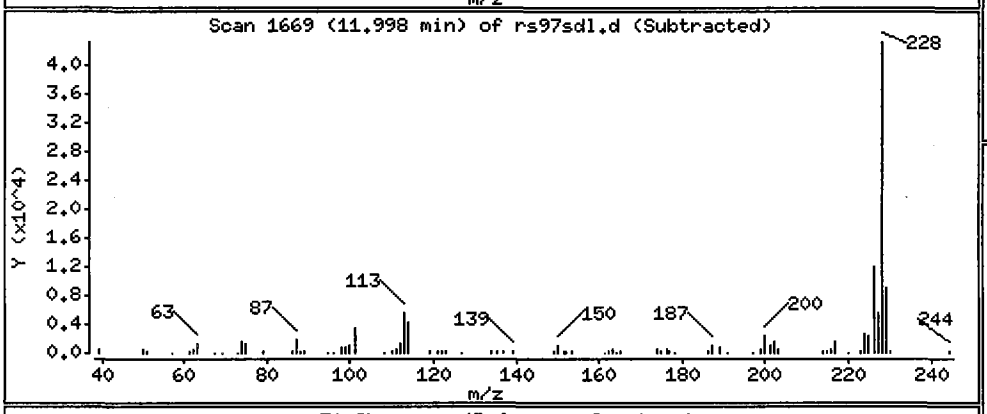
Column phase: ZB-5msi

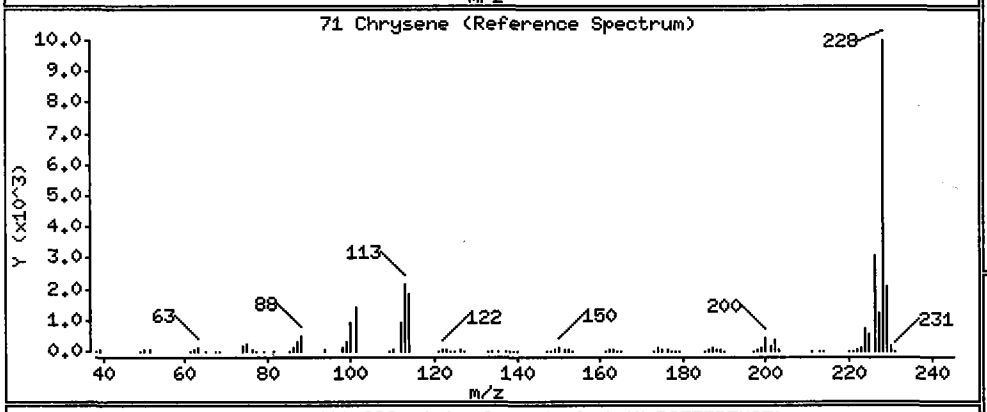
Column diameter: 0.32

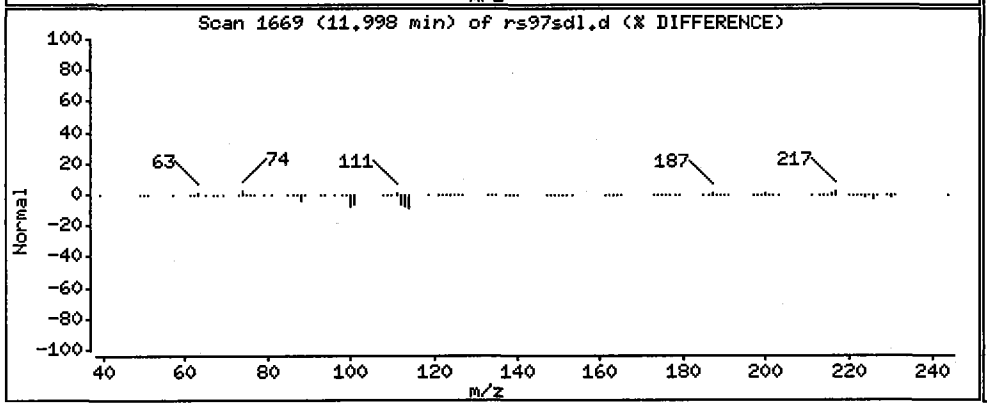
71 Chrysene

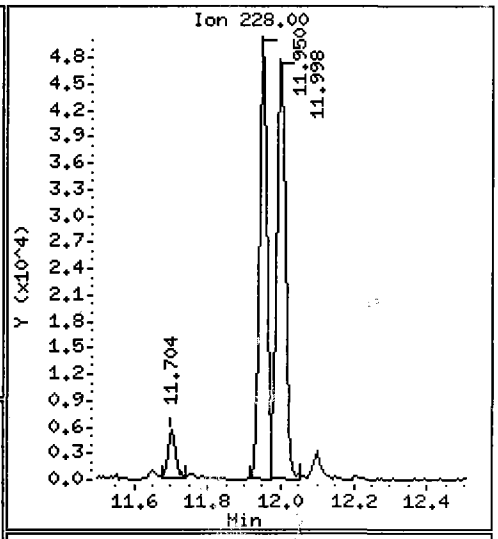
Concentration: 54180 ug/kg

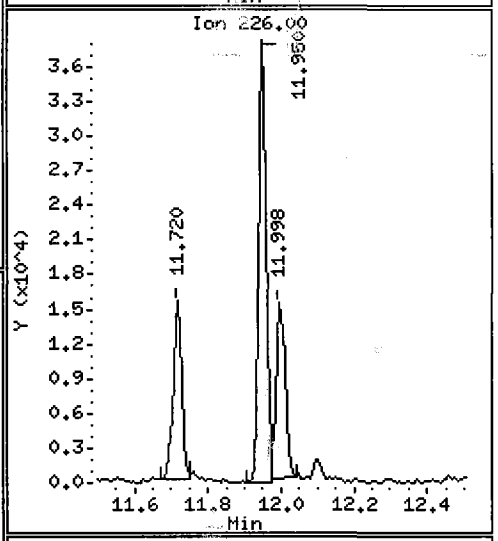


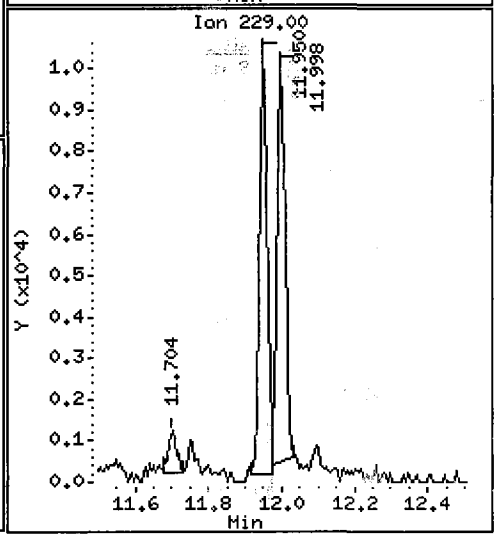












Data File: /chem1/nt12.i/20101111.b/rs97sdl.d

Date : 11-NOV-2010 14:59

Client ID: DGS-07-12.713.2-101

Instrument: nt12.i

Sample Info: RS97S,3

Volume Injected (uL): 1.0

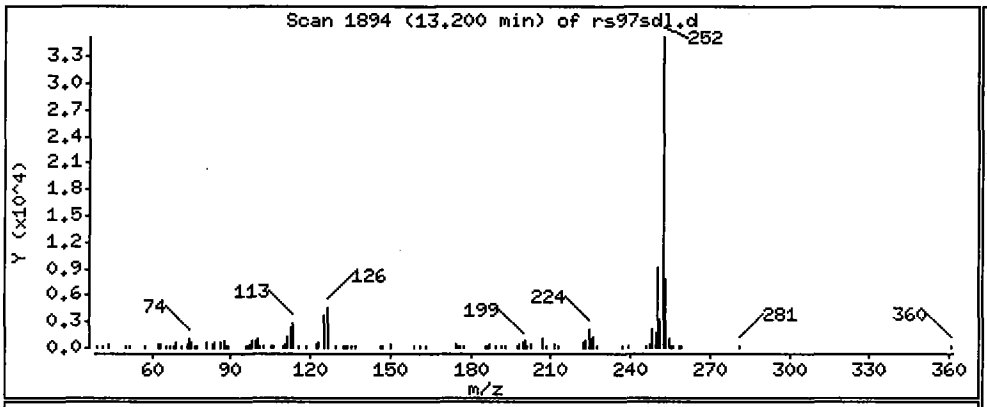
Operator: VTS

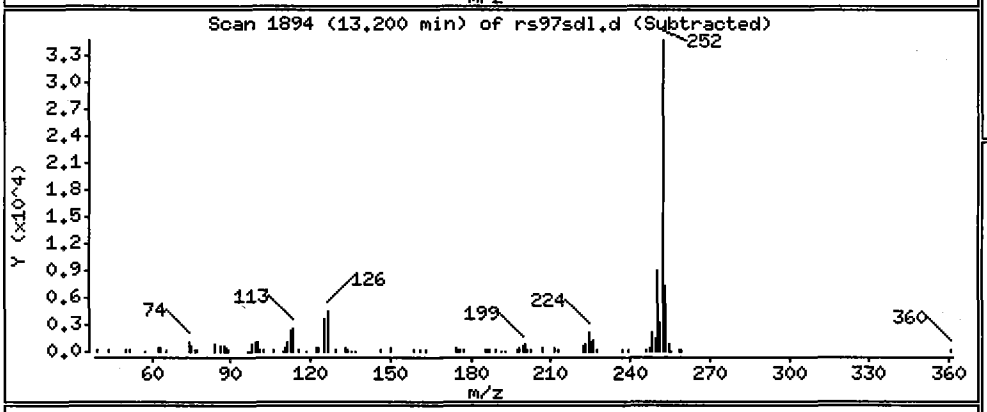
Column phase: ZB-5msi

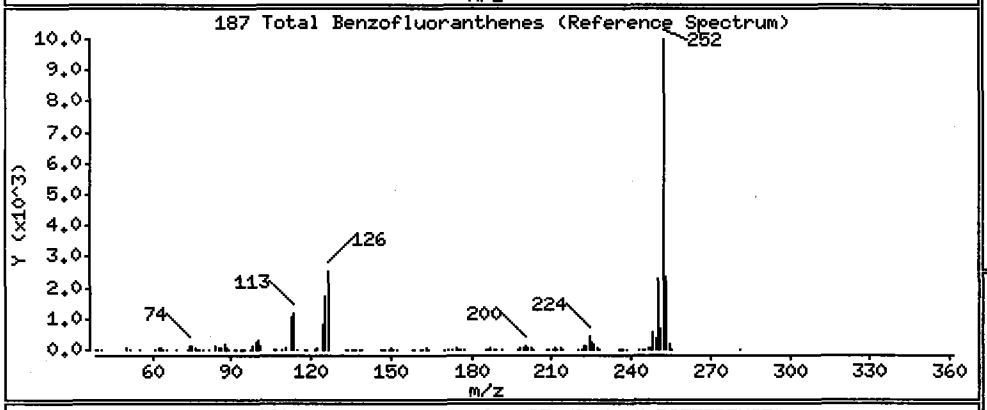
Column diameter: 0.32

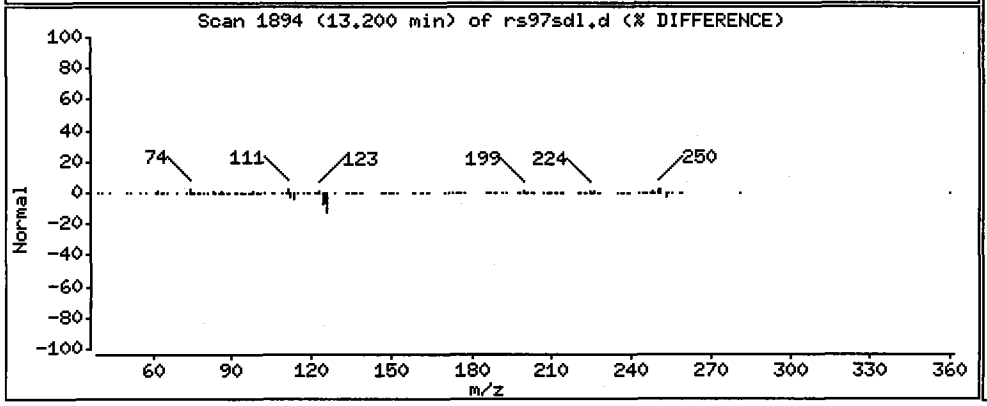
187 Total Benzofluoranthenes

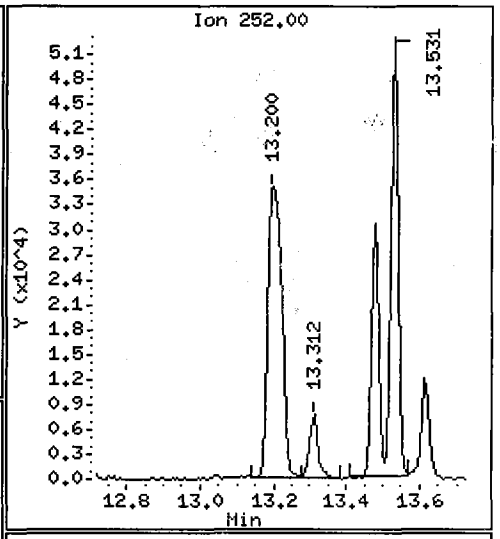
Concentration: 82140 ug/kg

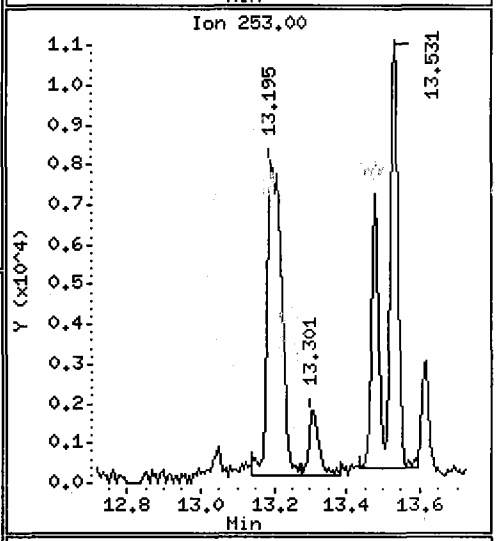


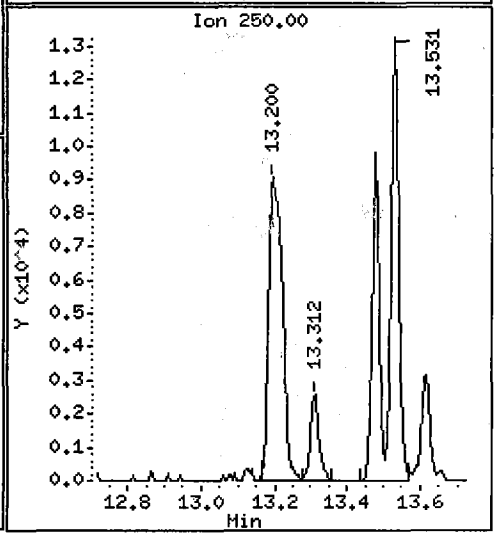












Data File: /chem1/nt12.i/20101111.b/rs97sdl.d

Date : 11-NOV-2010 14:59

Client ID: DGS-07-12.713.2-101

Instrument: nt12.i

Sample Info: RS97S,3

Volume Injected (uL): 1.0

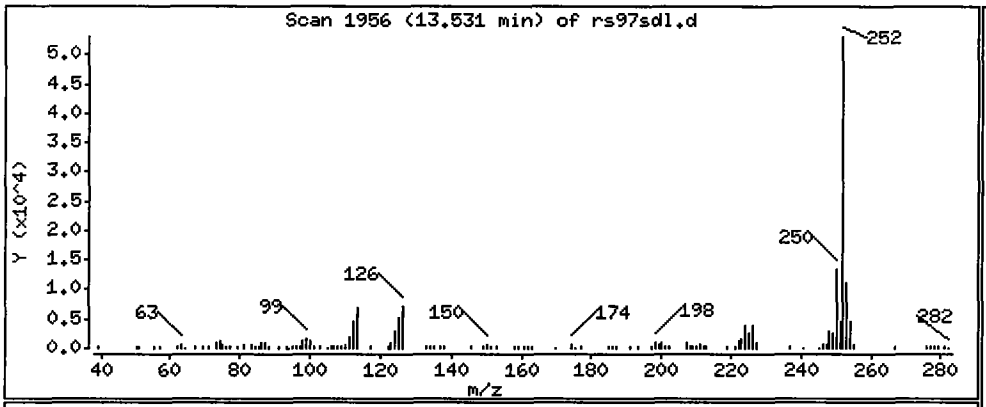
Operator: VTS

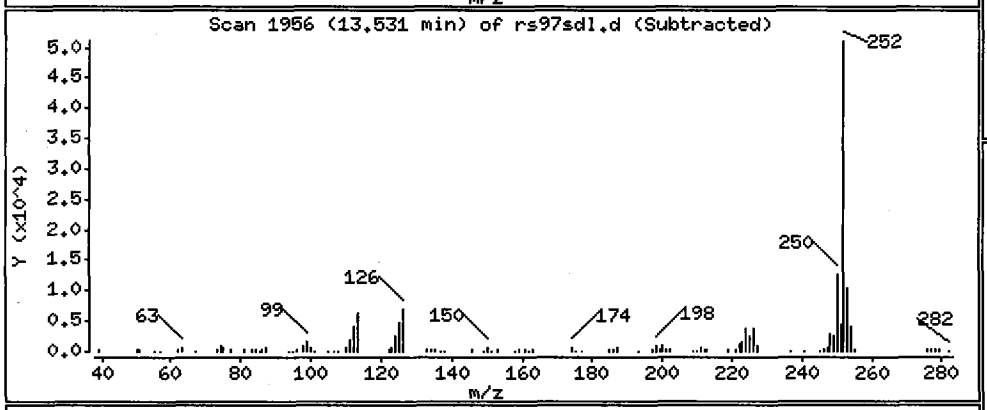
Column phase: ZB-5msi

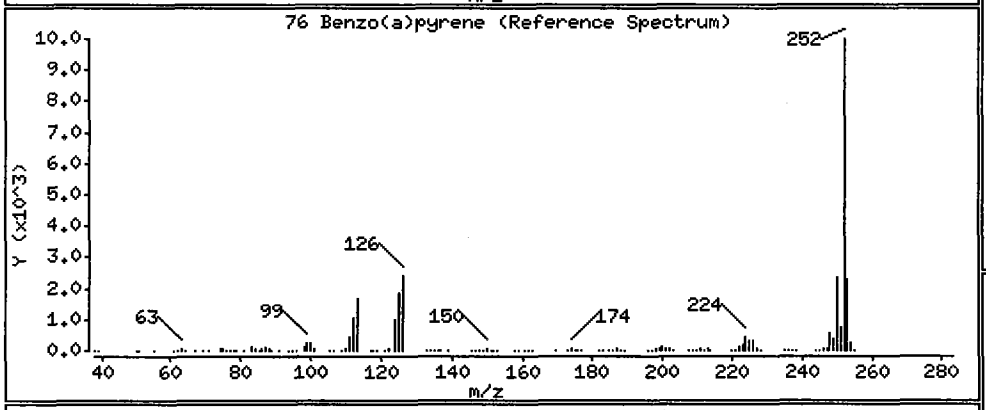
Column diameter: 0.32

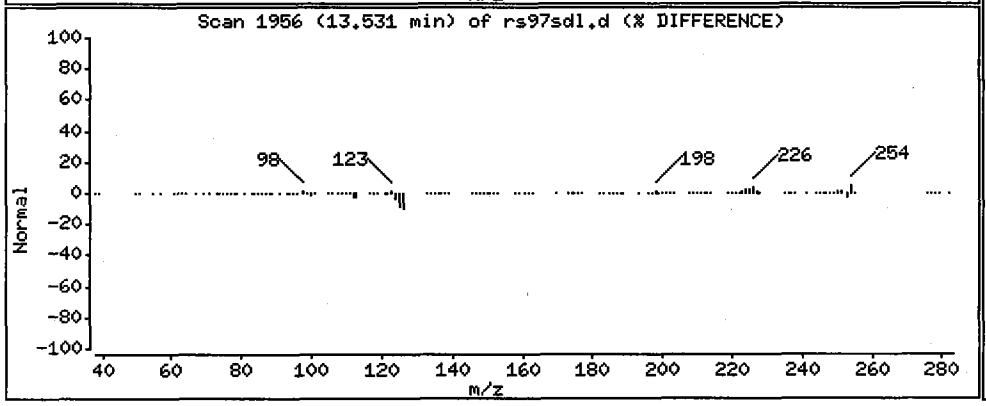
76 Benzo(a)pyrene

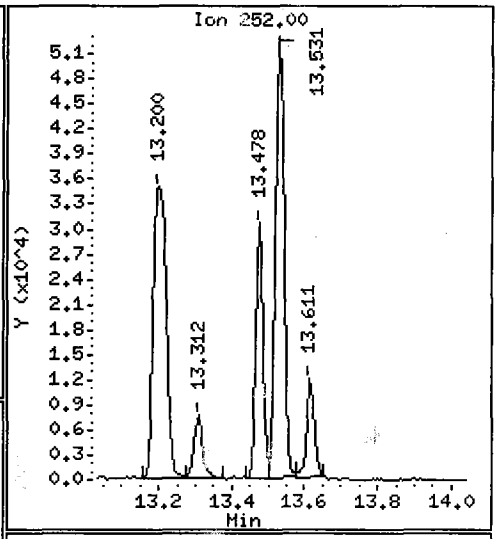
Concentration: 75020 ug/kg

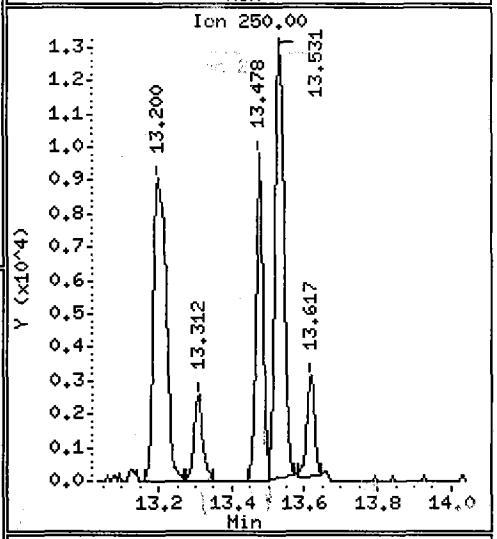


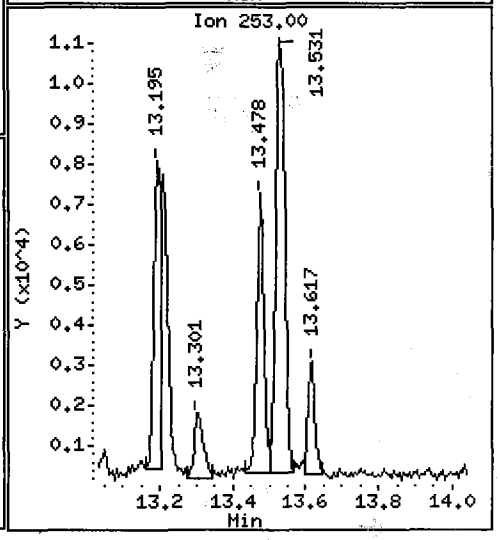












Data File: /chem1/nt12.i/20101111.b/rs97sdl.d

Date : 11-NOV-2010 14:59

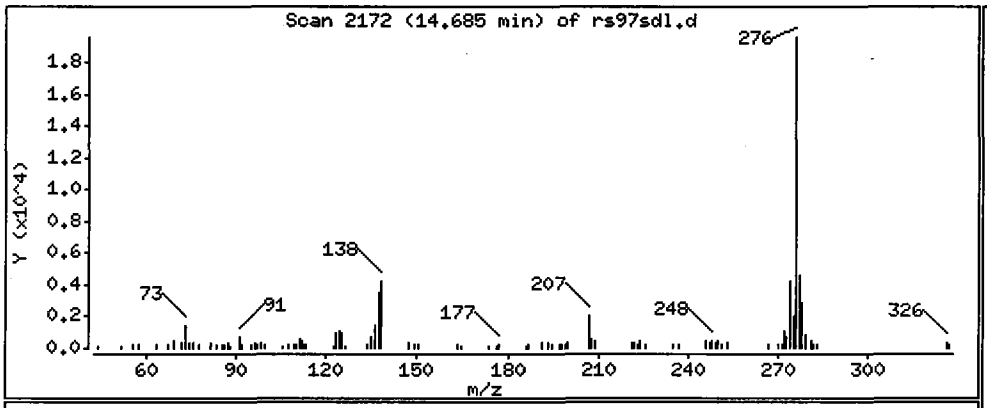
Client ID: DGS-07-12.713.2-101 Instrument: nt12.i

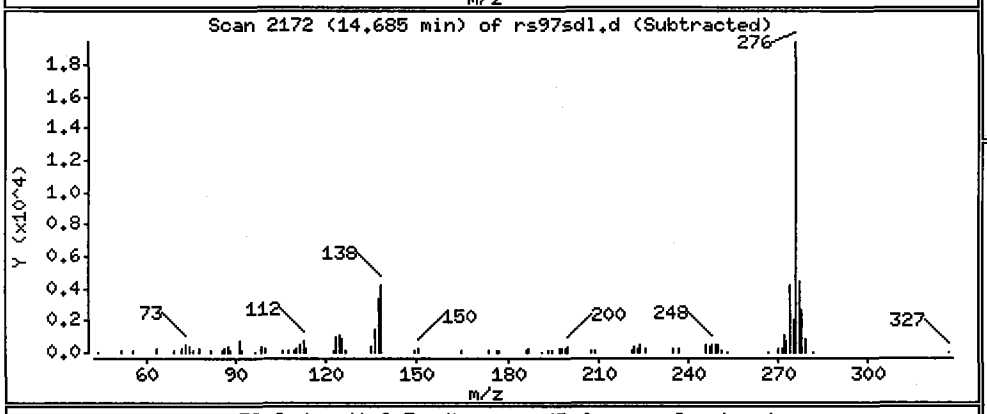
Sample Info: RS97S,3

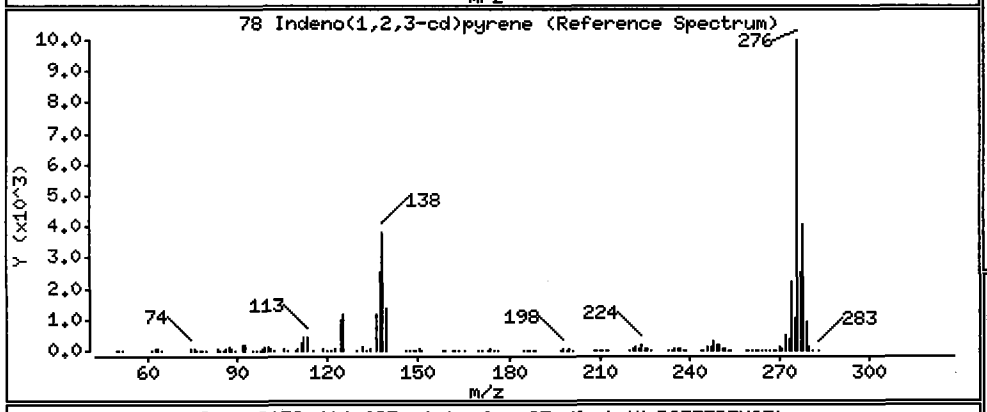
Volume Injected (uL): 1.0 Operator: VTS

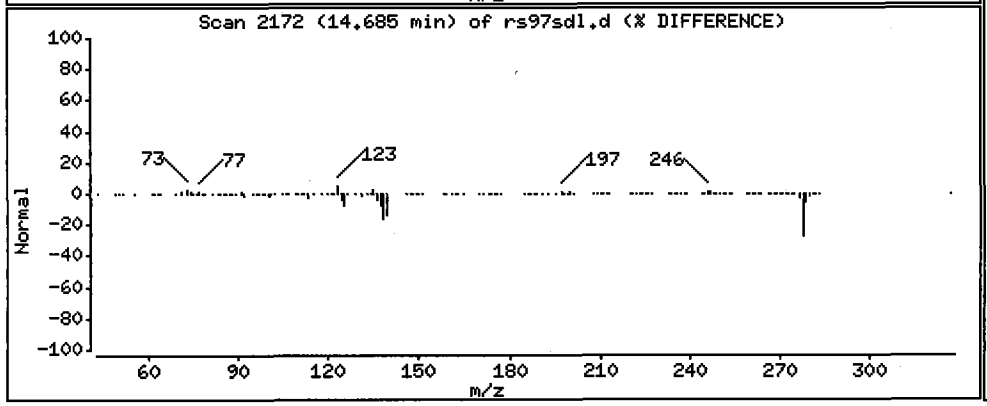
Column phase: ZB-5msi Column diameter: 0.32

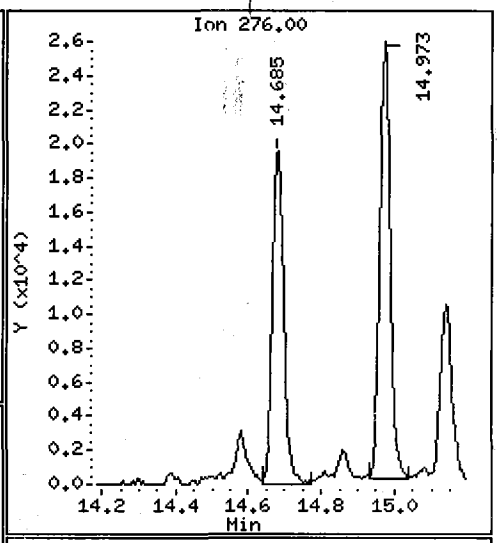
78 Indeno(1,2,3-cd)pyrene Concentration: 27920 ug/kg

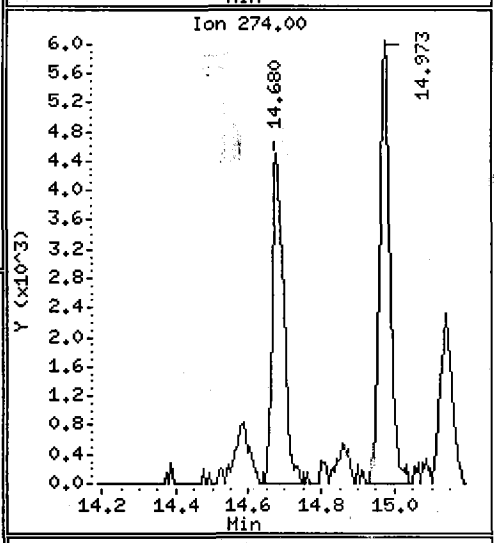


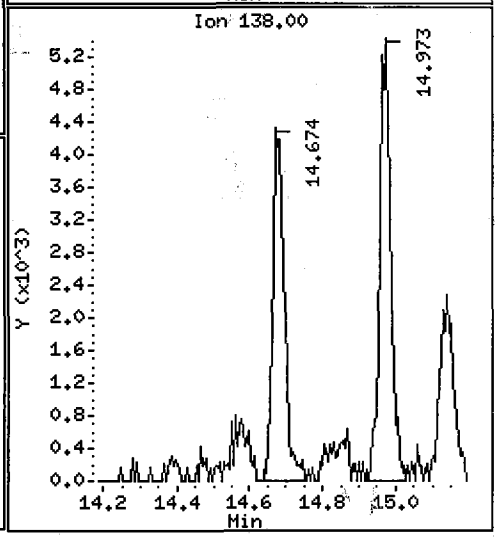












Data File: /chem1/nt12.i/20101111.b/rs97sdl.d

Date : 11-NOV-2010 14:59

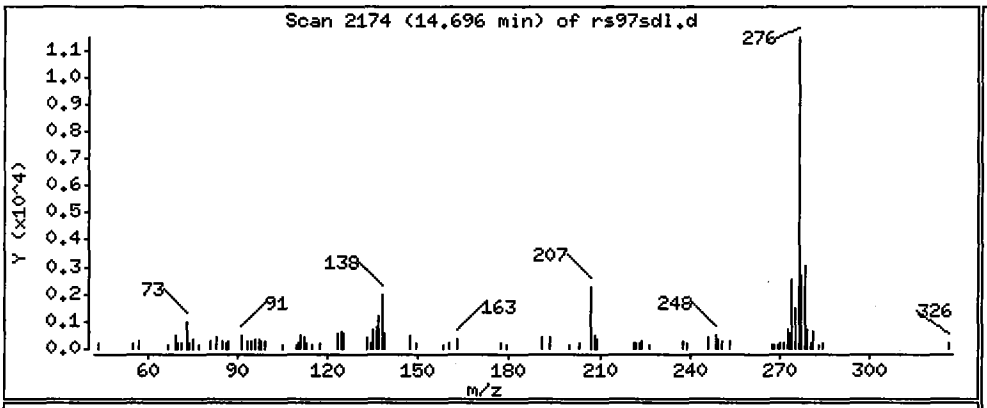
Client ID: DGS-07-12.713.2-101 Instrument: nt12.i

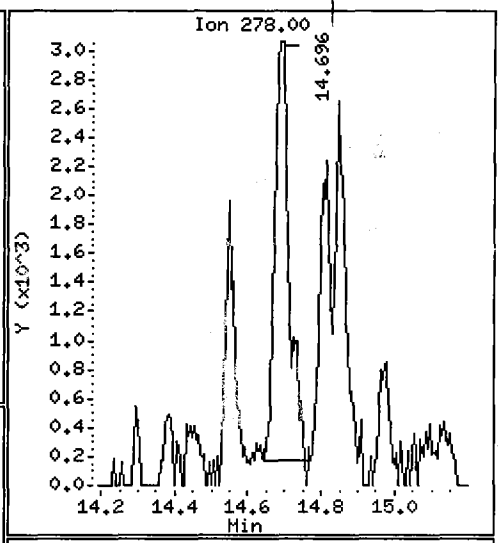
Sample Info: RS97S,3

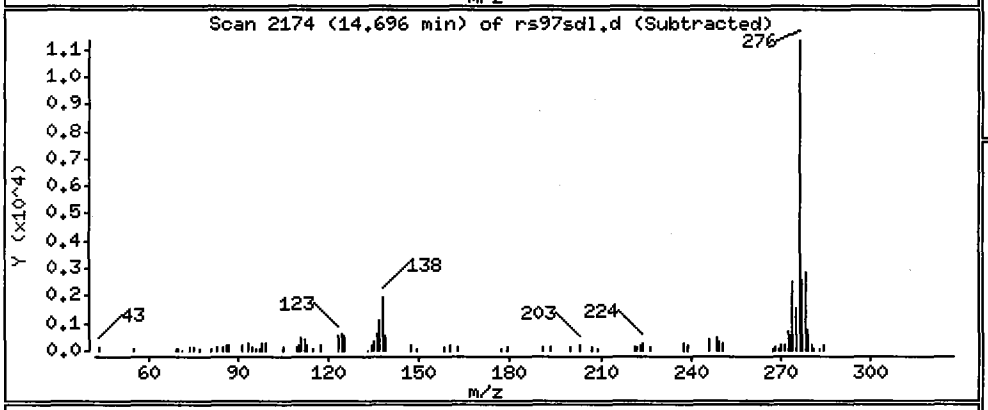
Volume Injected (uL): 1.0 Operator: VTS

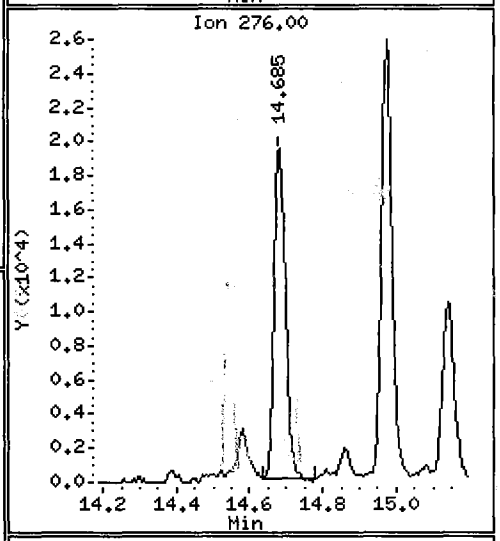
Column phase: ZB-5msi Column diameter: 0.32

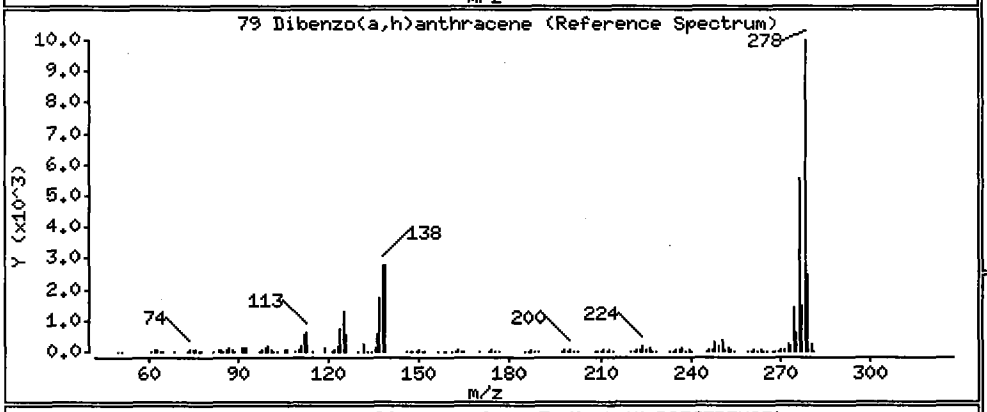
79 Dibenzo(a,h)anthracene Concentration: 6122 ug/kg

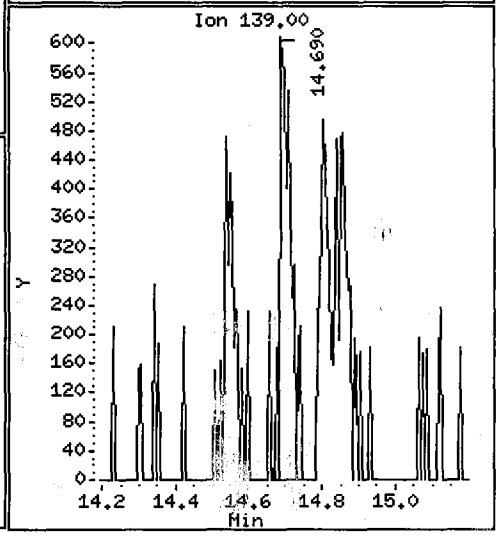


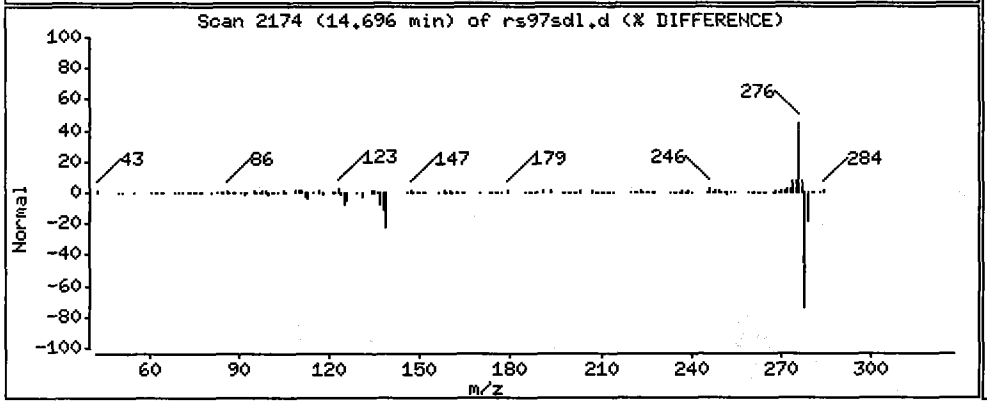












Data File: /chem1/nt12.i/20101111.b/rs97sdl.d

Date : 11-NOV-2010 14:59

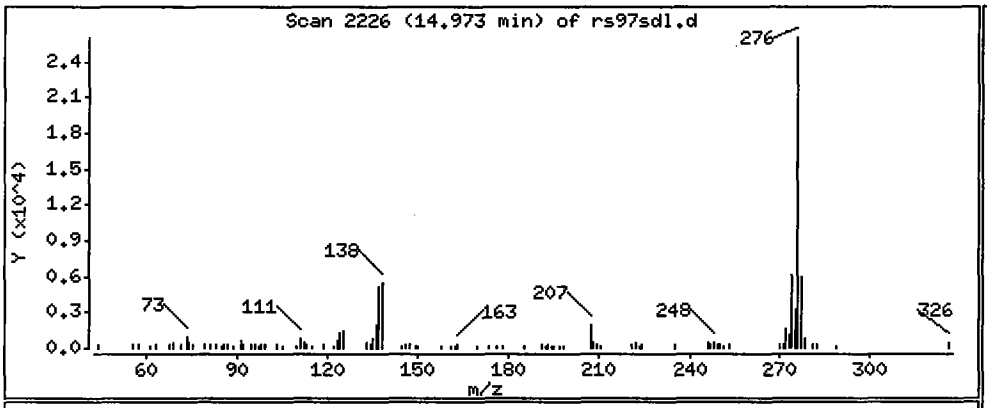
Client ID: DGS-07-12.713.2-101 Instrument: nt12.i

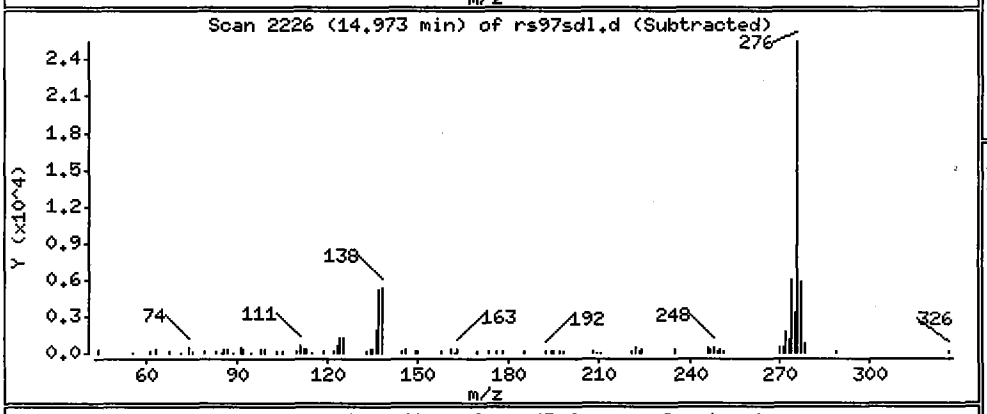
Sample Info: RS97S,3

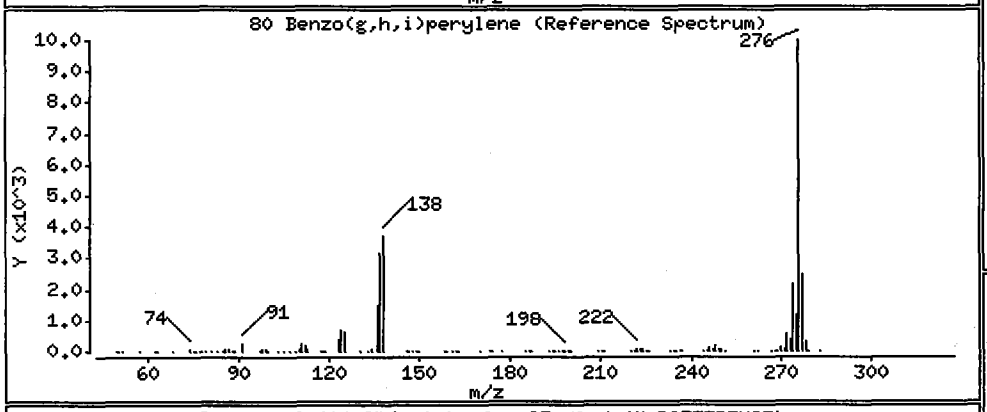
Volume Injected (uL): 1.0 Operator: VTS

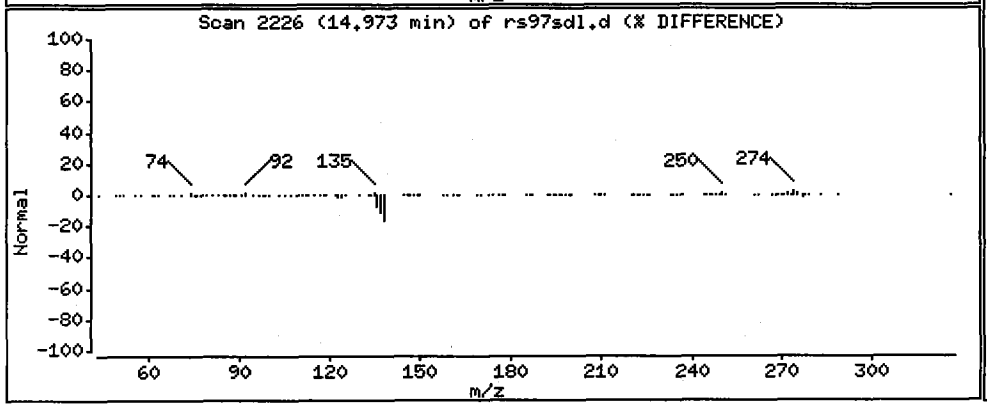
Column phase: ZB-5msi Column diameter: 0.32

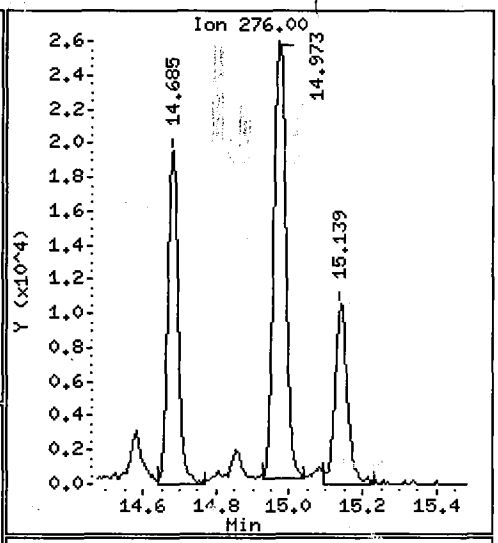
80 Benzo(g,h,i)perylene Concentration: 44530 ug/kg

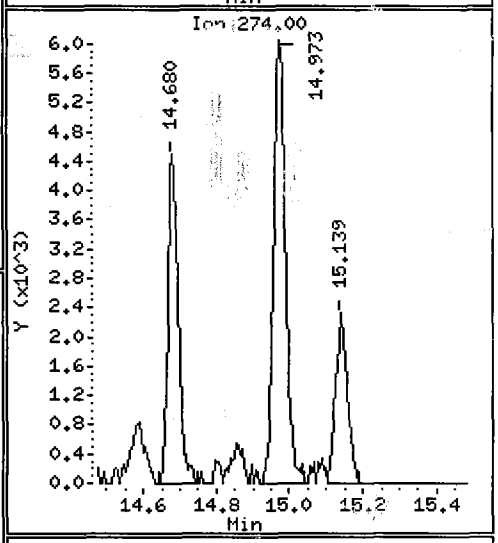


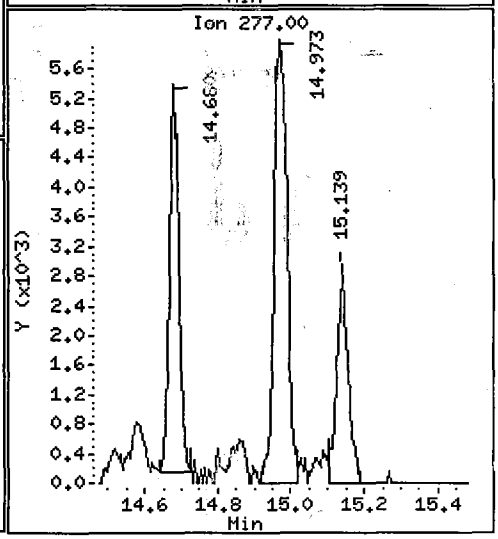












Analytical Resources, Inc.

Semivolatile Report SW846 Method 8270D

Data file : /chem1/nt12.i/20101111.b/rs97k.d
Lab Smp Id: RS97K
Client Smp ID: DGS-07-4.75.2-10101
Inj Date : 11-NOV-2010 15:46
Operator : VTS
Inst ID: nt12.i
Smp Info : RS97K
Misc Info : 10-27427
Comment : 1ul Injection
Method : /chem1/nt12.i/20101111.b/PNADMD.m
Meth Date : 11-Nov-2010 14:36 van
Quant Type: ISTD
Cal Date : 30-OCT-2010 13:19
Cal File: ic1030f.d
Als bottle: 10
Dil Factor: 1.00000
Integrator: HP RTE
Compound Sublist: pnas.sub
Target Version: 3.50
Processing Host: cserv3

Concentration Formula: Amt * DF * Vt/(Ws * (100 - M)/100) * CpndVariable

Name	Value	Description
DF	1.00000	Dilution Factor
Vt	10000.00000	Volume of final extract (uL)
Ws	5.19000	Weight of sample extracted (g)
M	48.60000	% Moisture

Cpnd Variable Local Compound Variable

Compounds	QUANT SIG MASS	RT	EXP RT	REL RT	RESPONSE	CONCENTRATIONS ON-COLUMN (ug/mL)	FINAL (ug/kg)
* 27 Naphthalene-d8	136	4.871	4.871	(1.000)	251335	20.0000	
28 Naphthalene	128	4.893	4.893	(1.004)	58987	4.12364	15460
32 2-Methylnaphthalene	141	5.710	5.710	(1.172)	69994	9.16733	34360
105 1-methylnaphthalene	141	5.838	5.838	(1.198)	45823	5.82060	21820
$ 36 2-Fluorobiphenyl	172	6.186	6.186	(0.887)	17232	1.39820	5241
40 Acenaphthylene	152	Compound Not Detected.					
* 42 Acenaphthene-d10	164	6.976	6.976	(1.000)	160196	20.0000	
44 Acenaphthene	153	7.014	7.014	(1.005)	110690	11.2353	42120
46 Dibenzofuran	168	7.211	7.211	(1.034)	9533	0.63101	2365 J
49 Fluorene	166	7.623	7.623	(1.093)	72939	6.46613	24240
* 59 Phenanthrene-d10	188	8.750	8.745	(1.000)	282581	20.0000	
60 Phenanthrene	178	8.782	8.777	(1.004)	829800	55.3527	207500
61 Anthracene	178	8.830	8.830	(1.009)	174582	11.2679	42240
62 Carbazole	167	9.049	9.049	(1.034)	42702	~~3.41645~~	12810 NR

Compounds	QUANT SIG MASS	RT	EXP RT	REL RT	RESPONSE	CONCENTRATIONS ON-COLUMN (ug/mL)	FINAL (ug/kg)
64 Fluoranthene	202	10.235	10.224	(0.854)	858293	52.1061	195300
65 Pyrene	202	10.502	10.486	(0.876)	1350369	82.6346	309800
$ 66 Terphenyl-d14	244	10.727	10.721	(0.895)	16424	1.57551	5906
68 Benzo(a)anthracene	228	11.961	11.955	(0.998)	414800	31.3222	117400
* 69 Chrysene-d12	240	11.982	11.977	(1.000)	235815	20.0000	
71 Chrysene	228	12.014	12.003	(1.003)	514832	41.5823	155900
187 Total Benzofluoranthenes	252	13.221	13.221	(0.972)	562888	44.7936	167900
76 Benzo(a)pyrene	252	13.553	13.537	(0.996)	534745	46.3232	173600
* 77 Perylene-d12	264	13.606	13.595	(1.000)	210978	20.0000	
99 Perylene	252	13.633	13.622	(1.002)	106649	~~8.68~~790	32570
78 Indeno(1,2,3-cd)pyrene	276	14.712	14.691	(1.081)	310809	18.1351	67980
79 Dibenzo(a,h)anthracene	278	14.712	14.696	(1.081)	108849	7.71432	28920
80 Benzo(g,h,i)perylene	276	15.016	14.979	(1.104)	375096	26.6411	99870

11-12-10

Analytical Resources, Inc.

INTERNAL STANDARD COMPOUNDS
AREA AND RT SUMMARY

Instrument ID: nt12.i
Lab File ID: rs97k.d
Lab Smp Id: RS97K
Analysis Type: SV
Quant Type: ISTD
Operator: VTS
Method File: /chem1/nt12.i/20101111.b/PNADMD.m
Misc Info: 10-27427

Calibration Date: 11-NOV-2010
Calibration Time: 12:20
Client Smp ID: DGS-07-4.75.2-10
Level: LOW
Sample Type: Sediment

Test Mode:
Use Initial Calibration Level 4.

COMPOUND	STANDARD	AREA LIMIT LOWER	AREA LIMIT UPPER	SAMPLE	%DIFF
27 Naphthalene-d8	237664	118832	475328	251335	5.75
42 Acenaphthene-d10	143363	71682	286726	160196	11.74
59 Phenanthrene-d10	245437	122718	490874	282581	15.13
69 Chrysene-d12	199260	99630	398520	235815	18.35
77 Perylene-d12	197636	98818	395272	210978	6.75

COMPOUND	STANDARD	RT LIMIT LOWER	RT LIMIT UPPER	SAMPLE	%DIFF
27 Naphthalene-d8	4.87	4.37	5.37	4.87	0.00
42 Acenaphthene-d10	6.98	6.48	7.48	6.98	0.00
59 Phenanthrene-d10	8.74	8.24	9.24	8.75	0.06
69 Chrysene-d12	11.98	11.48	12.48	11.98	0.04
77 Perylene-d12	13.60	13.10	14.10	13.61	0.08

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.

Analytical Resources, Inc.

RECOVERY REPORT

Client Name: NW Natural
Sample Matrix: SOLID
Lab Smp Id: RS97K
Level: LOW
Data Type: MS DATA
SpikeList File: SONICLCS.spk
Sublist File: pnas.sub
Method File: /chem1/nt12.i/20101111.b/PNADMD.m
Misc Info: 10-27427

Client SDG: RS97
Fraction: SV
Client Smp ID: DGS-07-4.75.2-10101
Operator: VTS
SampleType: SAMPLE
Quant Type: ISTD

SURROGATE COMPOUND	CONC ADDED ug/kg	CONC RECOVERED ug/kg	% RECOVERED	LIMITS
$ 36 2-Fluorobiphenyl	9372	5241	55.93	34-100
$ 66 Terphenyl-d14	9372	5906	63.02	35-112

Data File: /chem1/nt12.i/20101111.b/rs97k.d

Date : 11-NOV-2010 15:46

Client ID: DGS-07-4.75.2-10101

Sample Info: RS97K

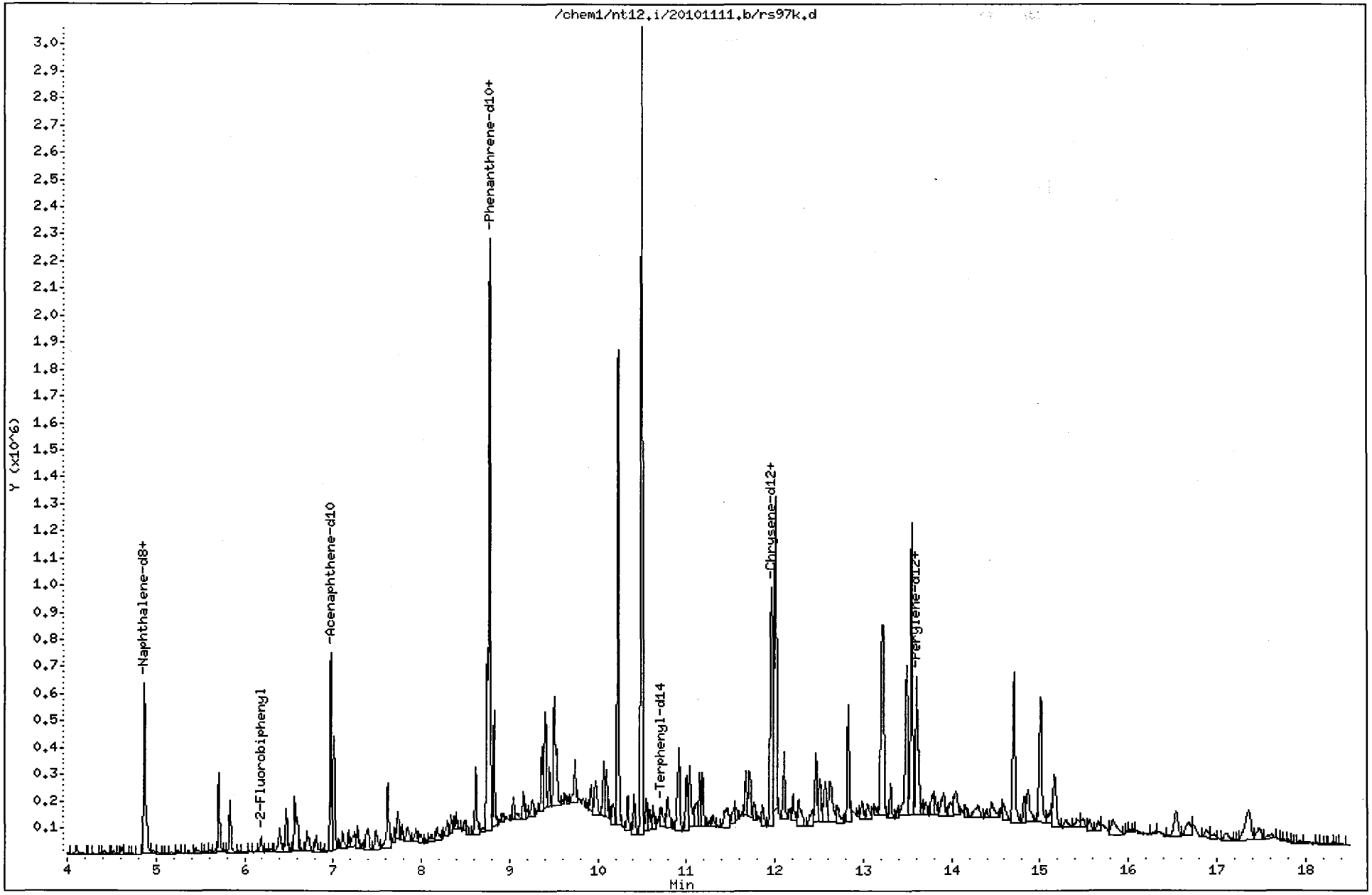
Volume Injected (uL): 1.0

Column phase: ZB-5msi

Instrument: nt12.i

Operator: VTS

Column diameter: 0.32



RS97:99817

Data File: /chem1/nt12.i/20101111.b/rs97k.d

Date : 11-NOV-2010 15:46

Client ID: DGS-07-4.75.2-10101

Instrument: nt12.i

Sample Info: RS97K

Volume Injected (uL): 1.0

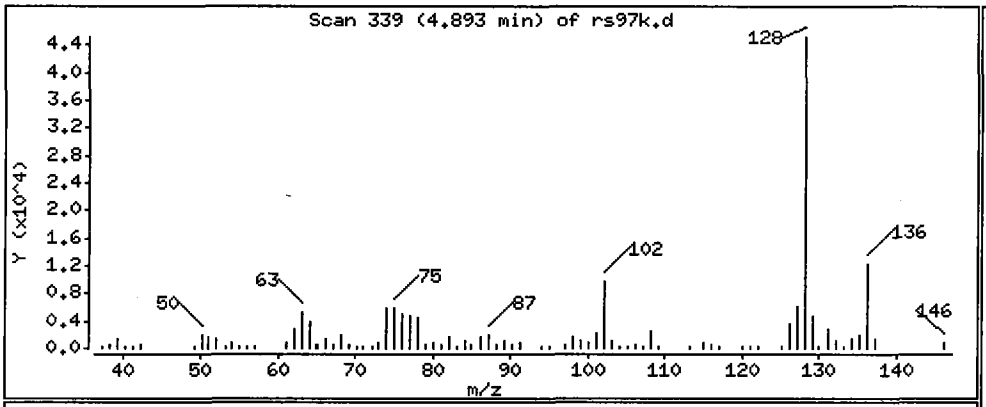
Operator: VTS

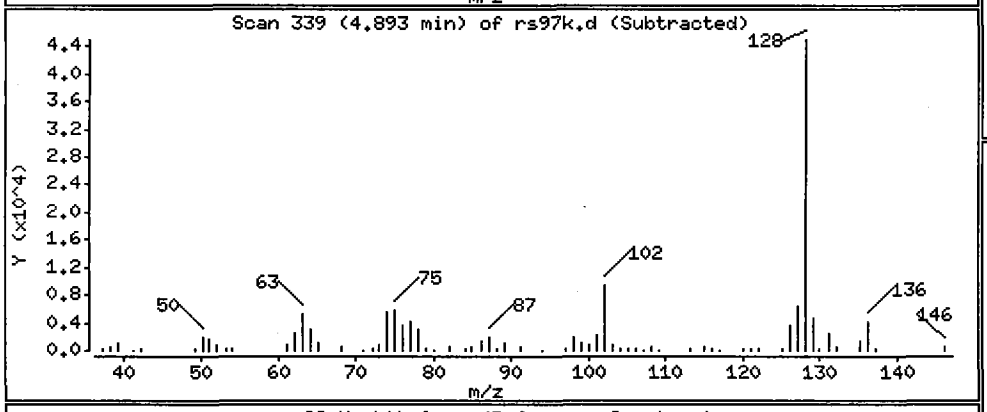
Column phase: ZB-5msi

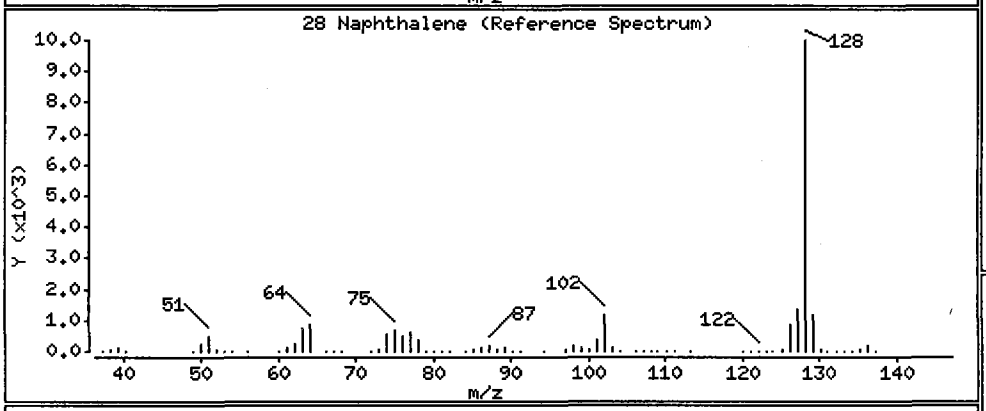
Column diameter: 0.32

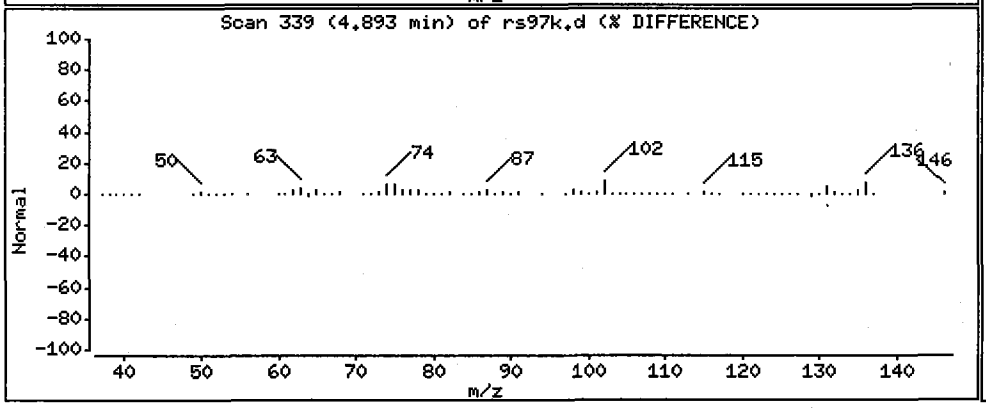
28 Naphthalene

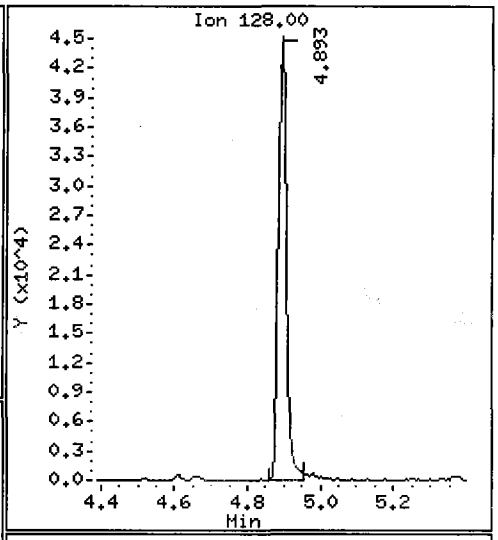
Concentration: 15460 ug/kg

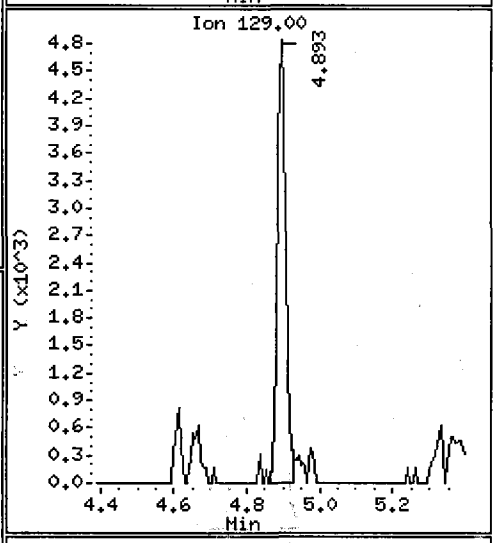


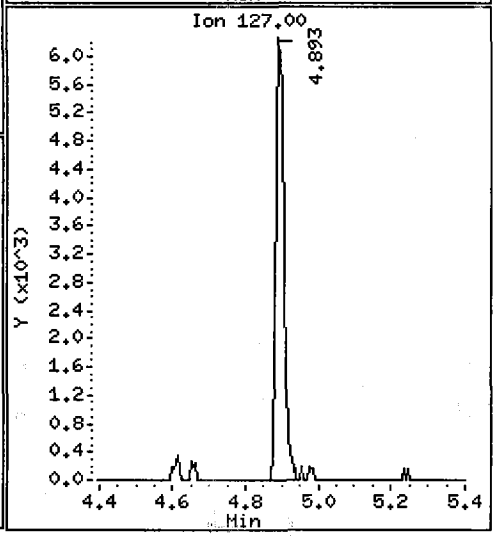












Data File: /chem1/nt12.i/20101111.b/rs97k.d

Date : 11-NOV-2010 15:46

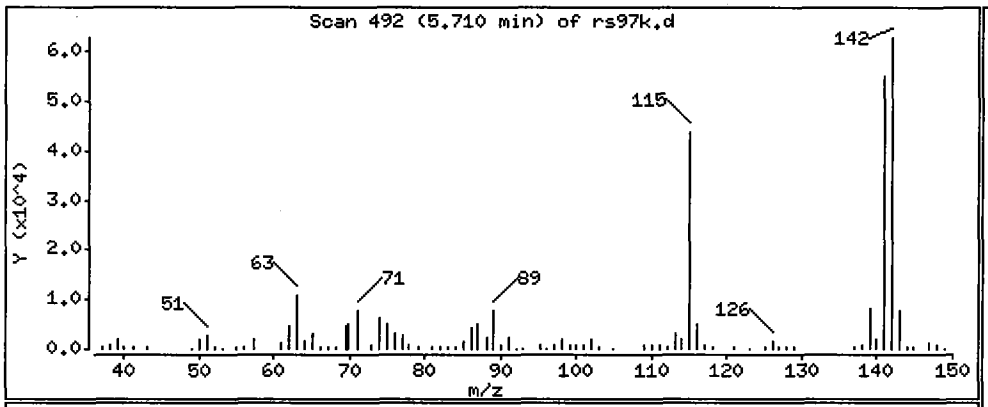
Client ID: DGS-07-4.75.2-10101 Instrument: nt12.i

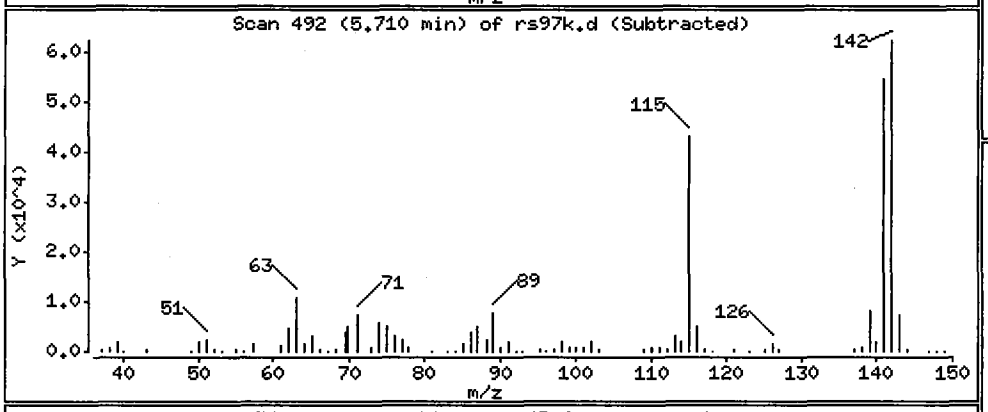
Sample Info: RS97K

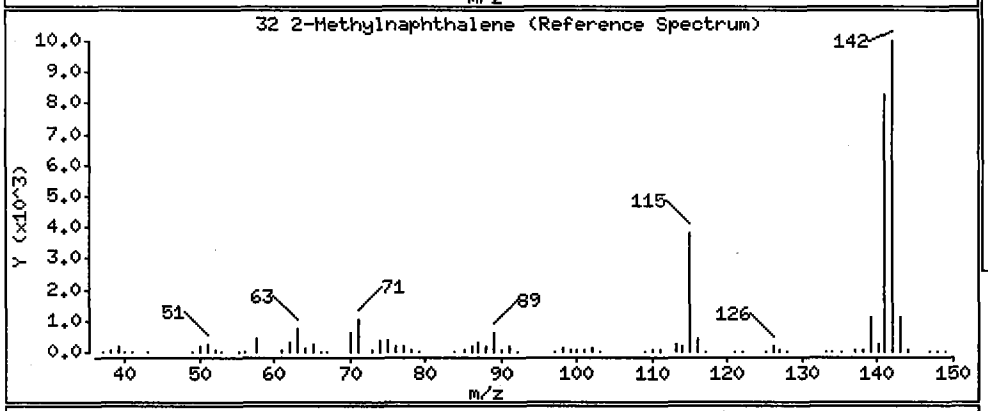
Volume Injected (uL): 1.0 Operator: VTS

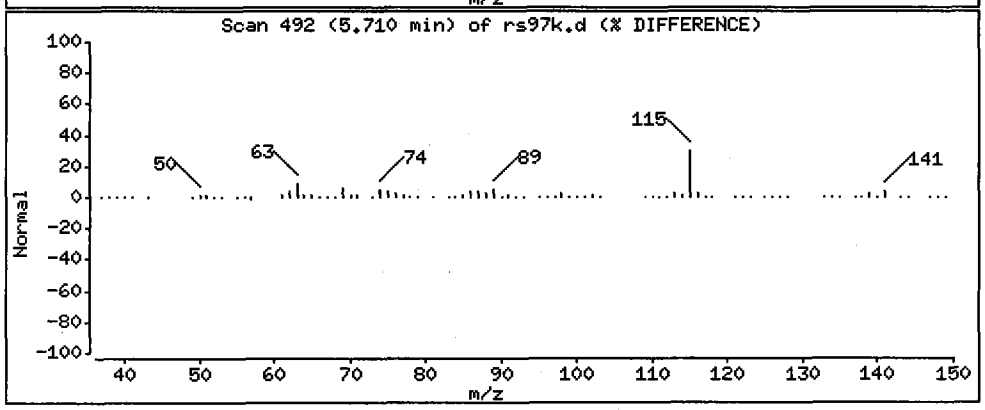
Column phase: ZB-5msi Column diameter: 0.32

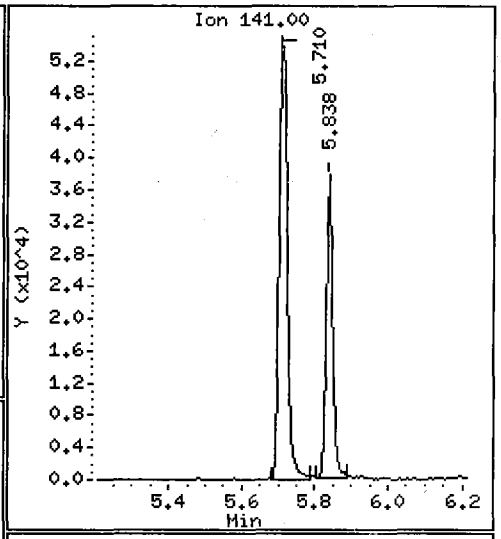
32 2-Methylnaphthalene Concentration: 34360 ug/kg

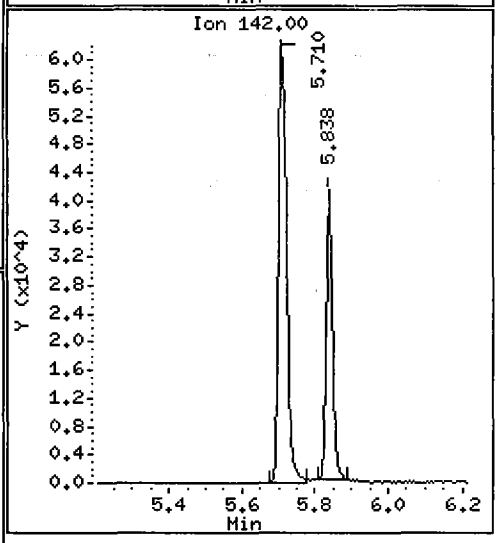












Data File: /chem1/nt12.i/20101111.b/rs97k.d

Date : 11-NOV-2010 15:46

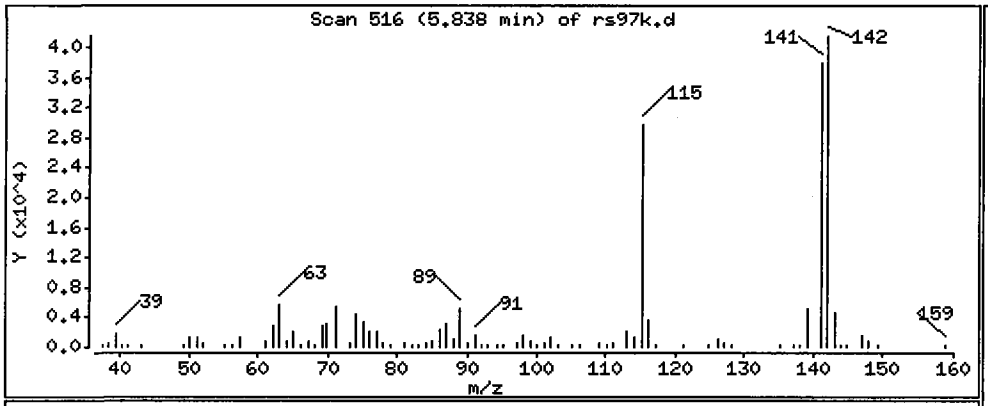
Client ID: DGS-07-4.75.2-10101 | Instrument: nt12.i

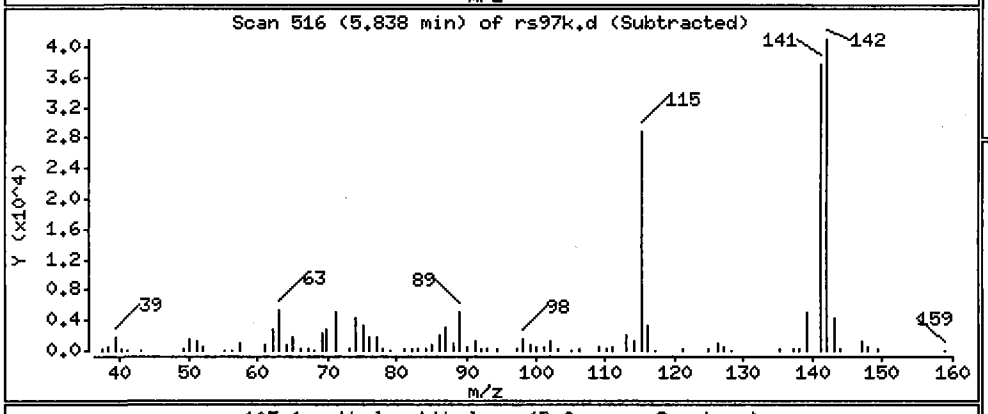
Sample Info: RS97K

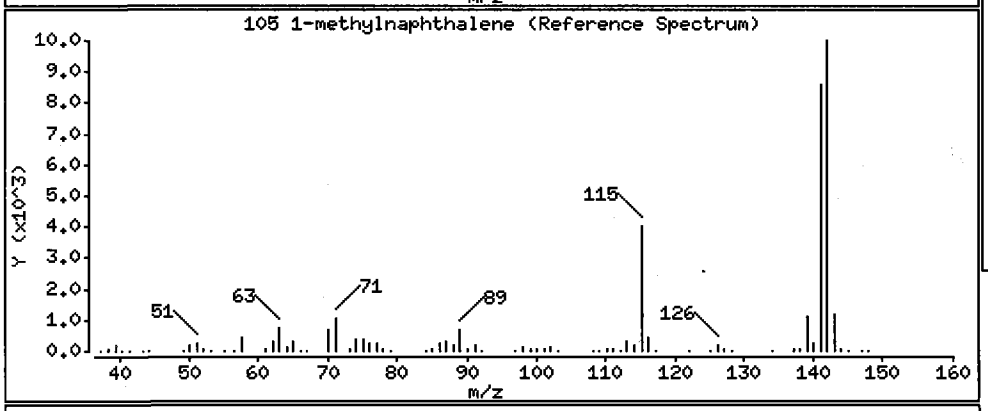
Volume Injected (uL): 1.0 | Operator: VTS

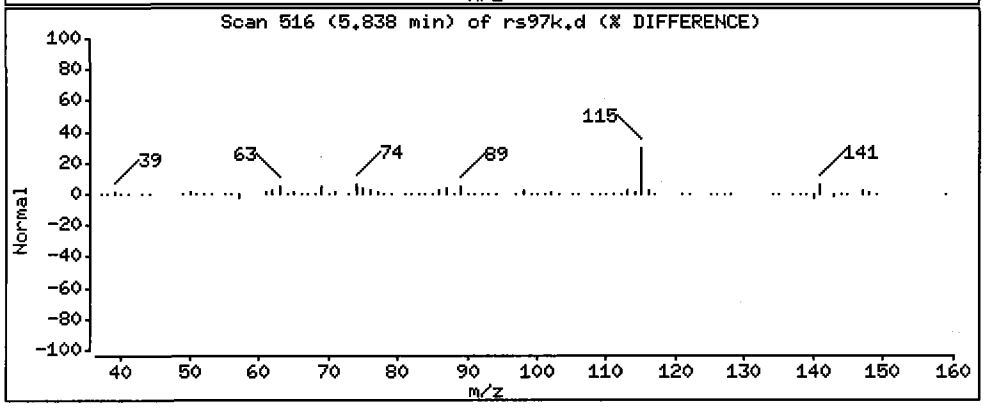
Column phase: ZB-5msi | Column diameter: 0.32

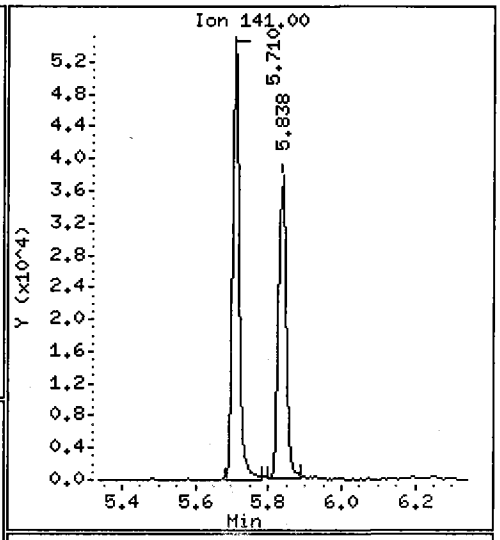
105 1-methylnaphthalene | Concentration: 21820 ug/kg

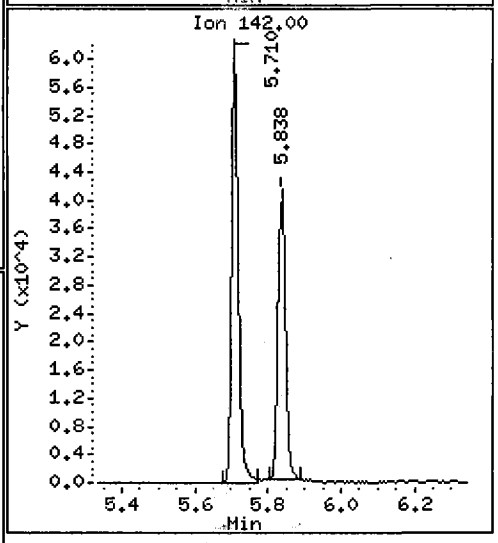












Data File: /chem1/nt12.i/20101111.b/rs97k.d

Date : 11-NOV-2010 15:46

Client ID: DGS-07-4.75.2-10101

Instrument: nt12.i

Sample Info: RS97K

Volume Injected (uL): 1.0

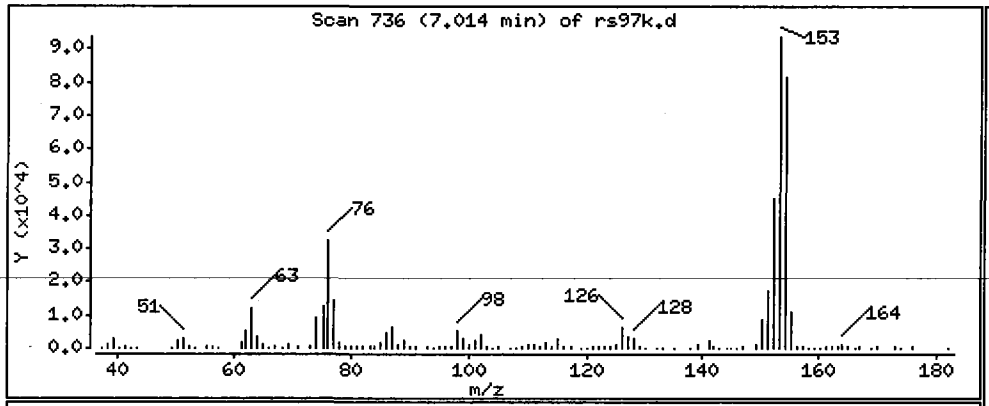
Operator: VTS

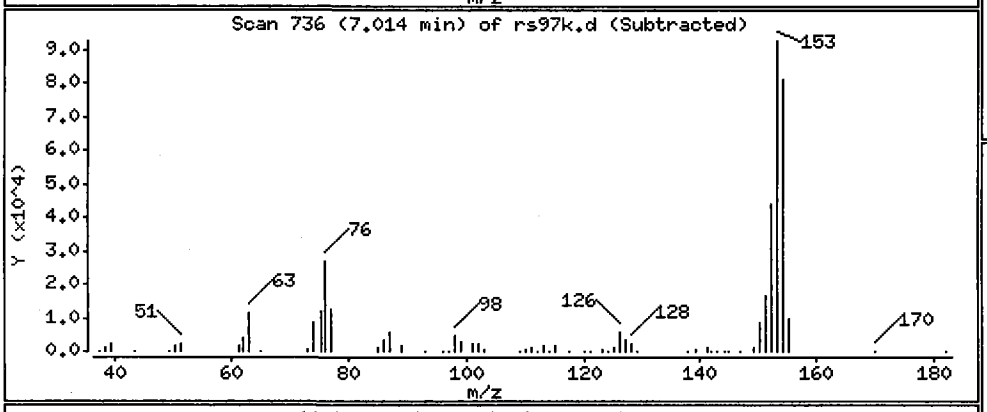
Column phase: ZB-5msi

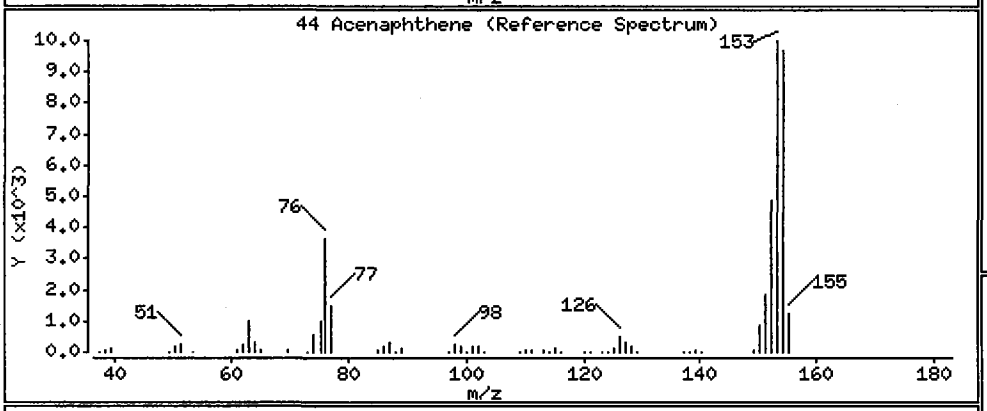
Column diameter: 0.32

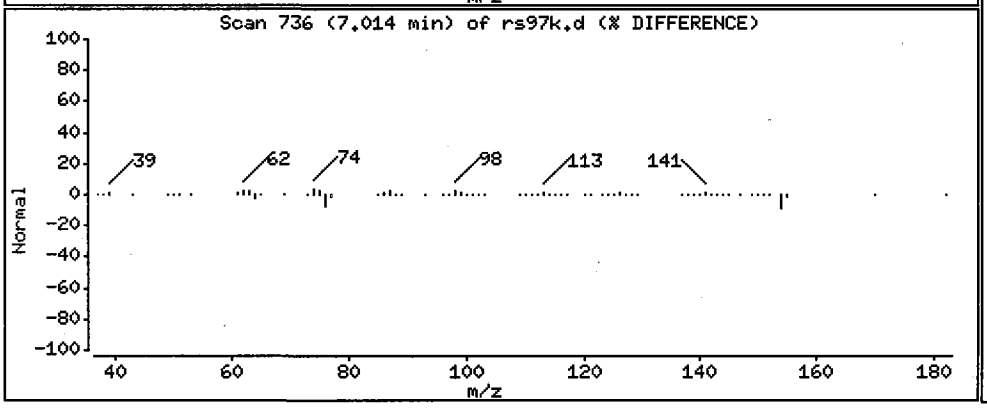
44 Acenaphthene

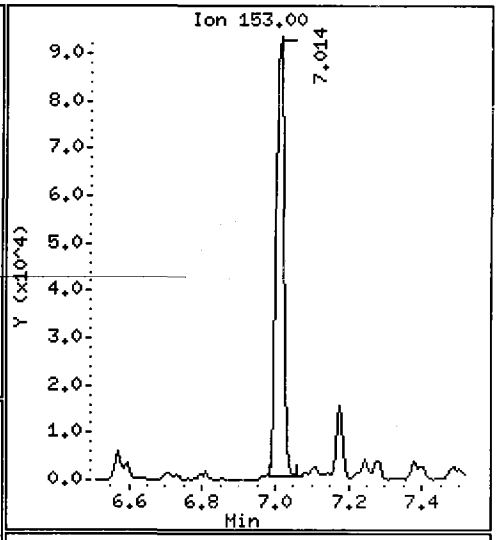
Concentration: 42120 ug/kg

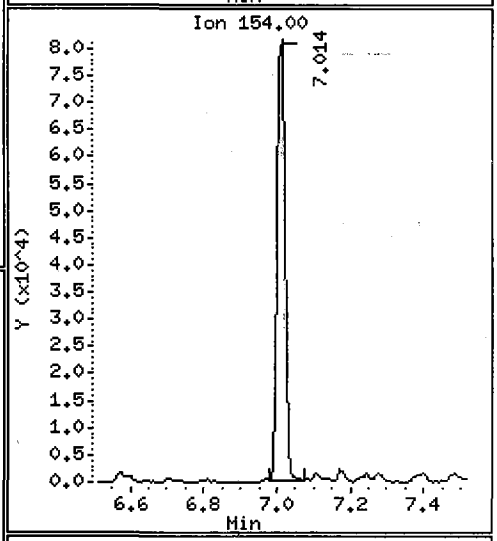


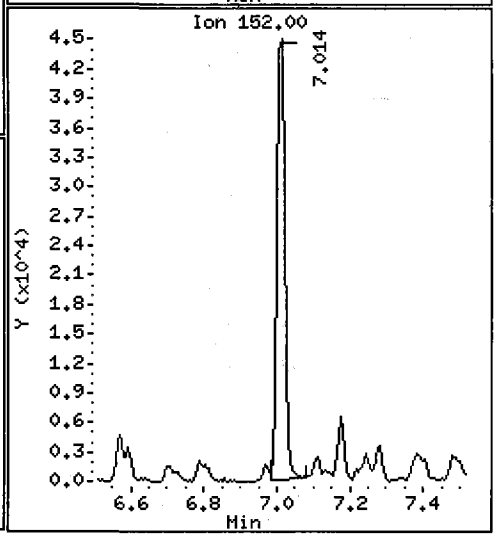












Data File: /chem1/nt12.i/20101111.b/rs97k.d

Date : 11-NOV-2010 15:46

Client ID: DGS-07-4.75.2-10101

Instrument: nt12.i

Sample Info: RS97K

Volume Injected (uL): 1.0

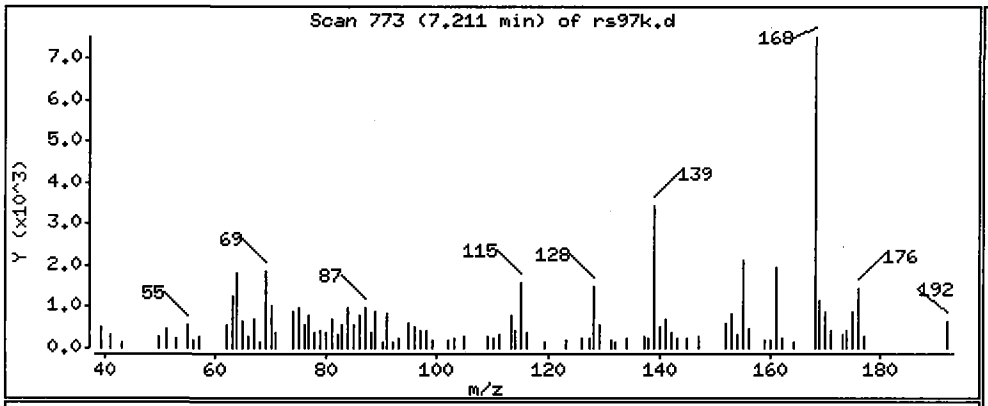
Operator: VTS

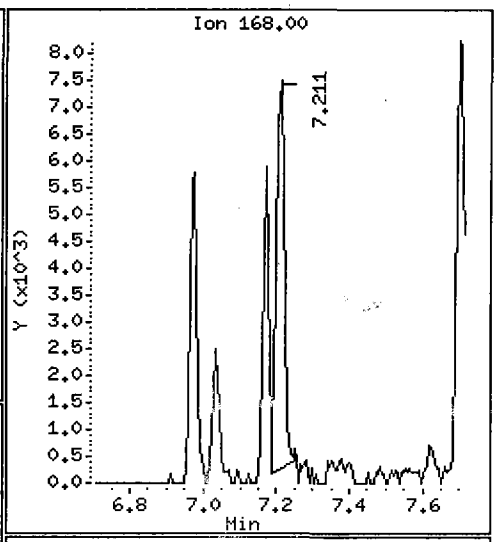
Column phase: ZB-5msi

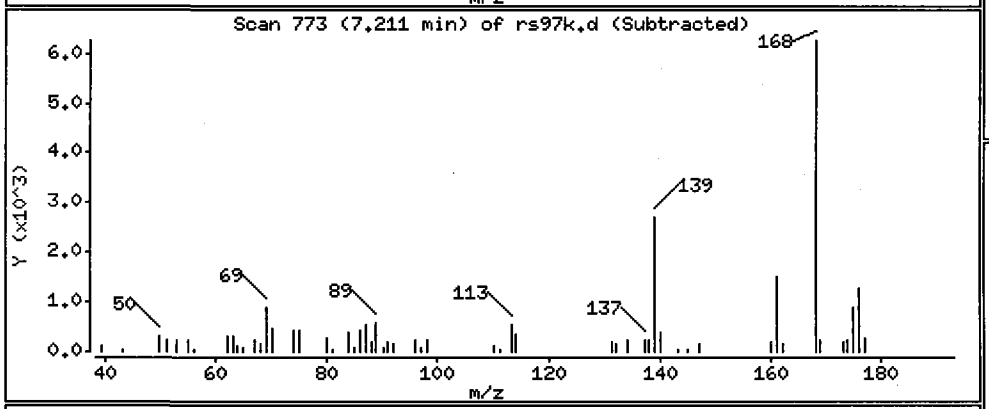
Column diameter: 0.32

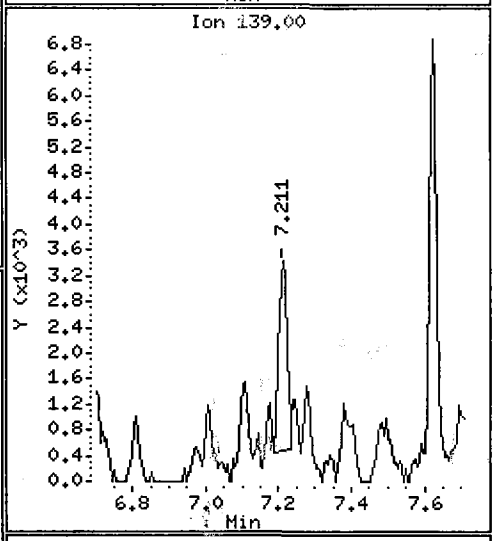
46 Dibenzofuran

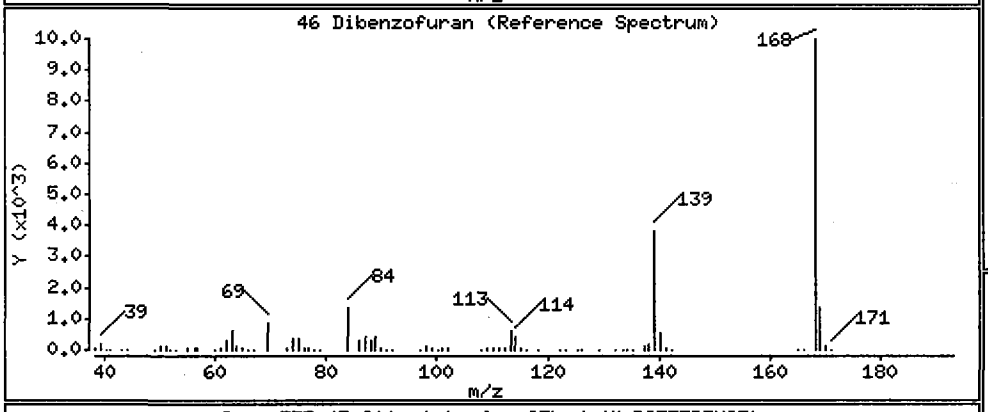
Concentration: 2365 ug/kg

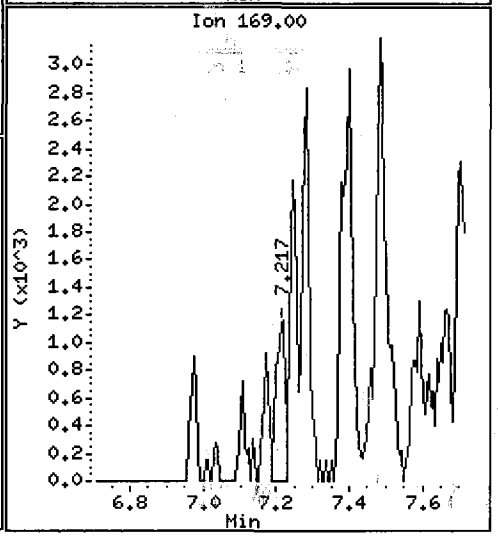


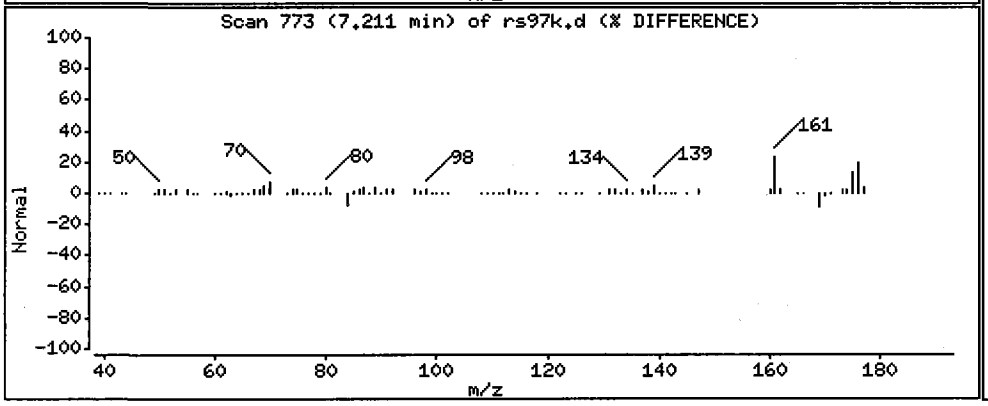












Data File: /chem1/nt12.i/20101111.b/rs97k.d

Date : 11-NOV-2010 15:46

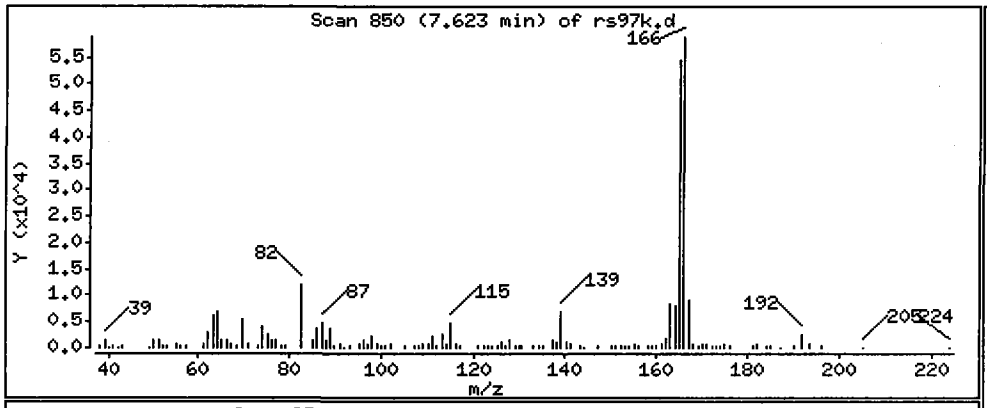
Client ID: DGS-07-4.75.2-10101 | Instrument: nt12.i

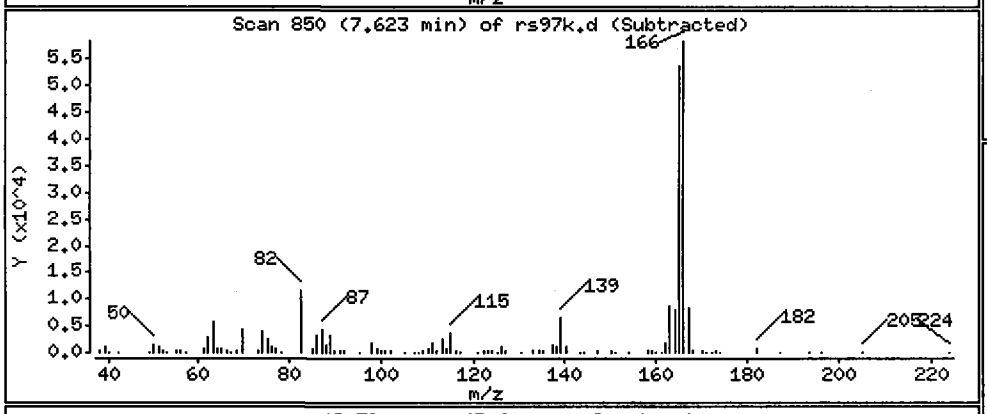
Sample Info: RS97K

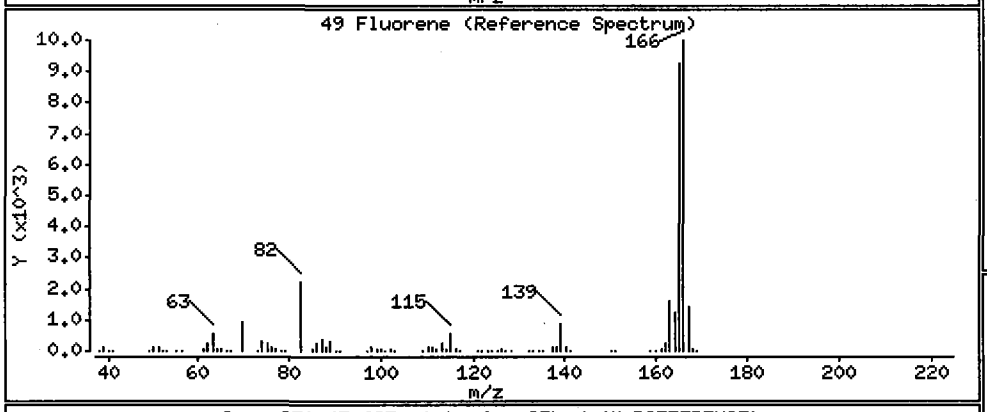
Volume Injected (uL): 1.0 | Operator: VTS

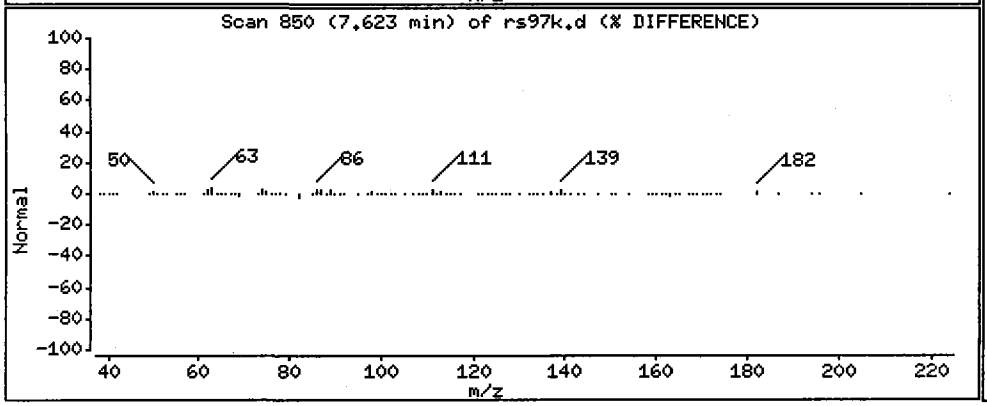
Column phase: ZB-5msi | Column diameter: 0.32

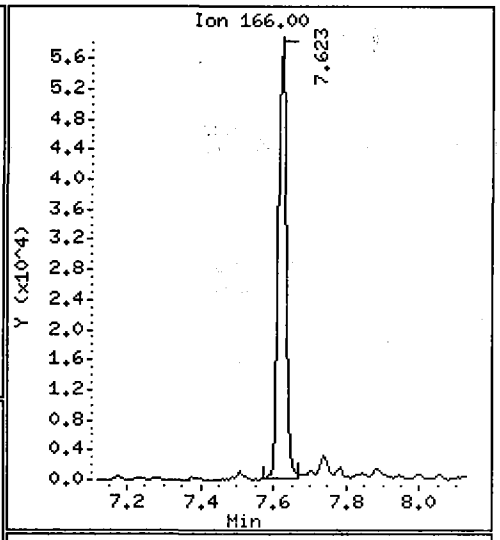
49 Fluorene | Concentration: 24240 ug/kg

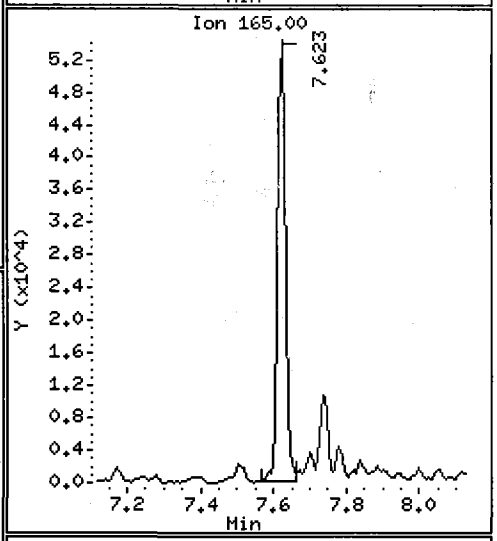


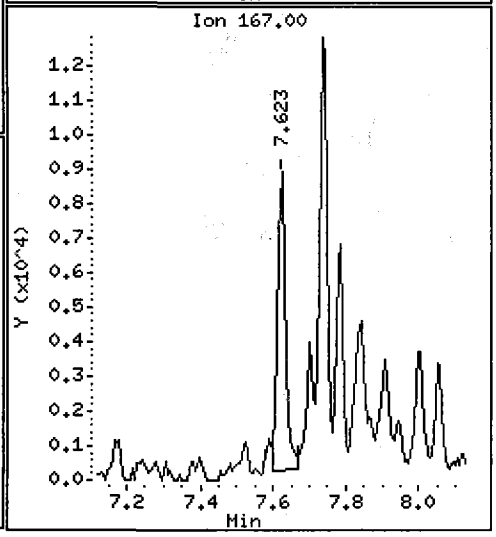












Data File: /chem1/nt12.i/20101111.b/rs97k.d

Date : 11-NOV-2010 15:46

Client ID: DGS-07-4.75.2-10101

Instrument: nt12.i

Sample Info: RS97K

Volume Injected (uL): 1.0

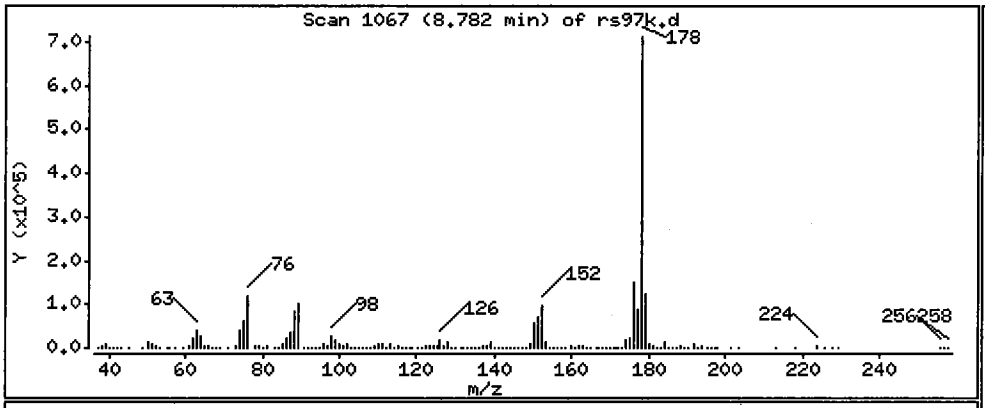
Operator: VTS

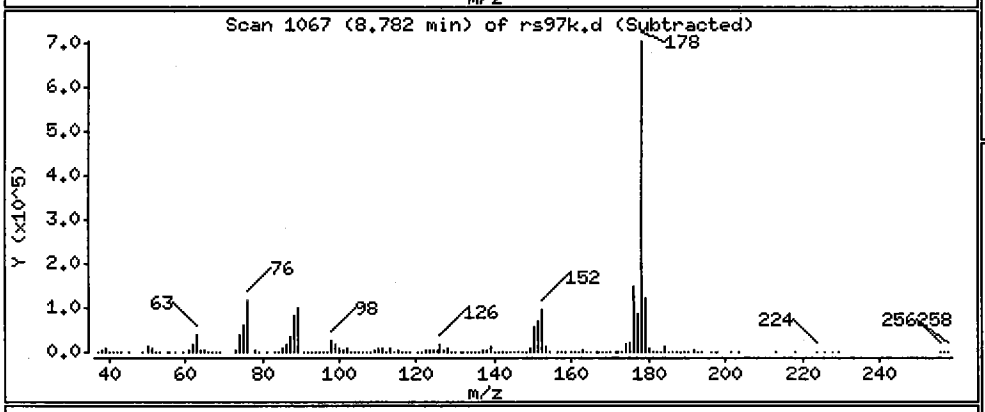
Column phase: ZB-5msi

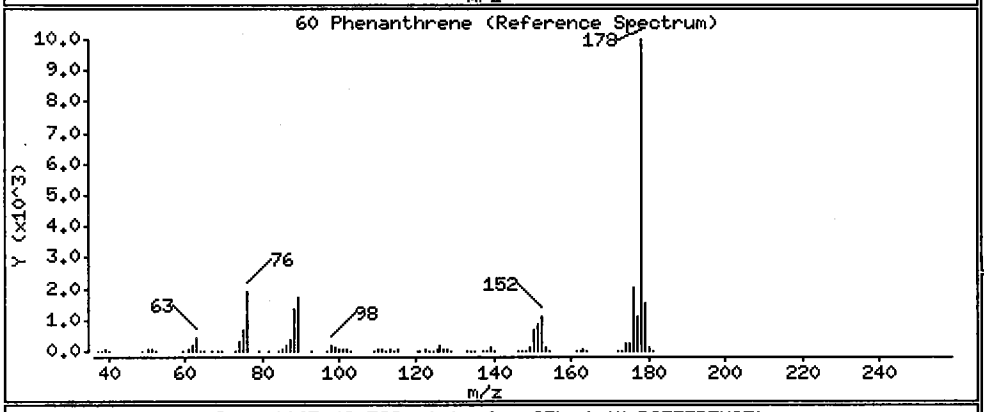
Column diameter: 0.32

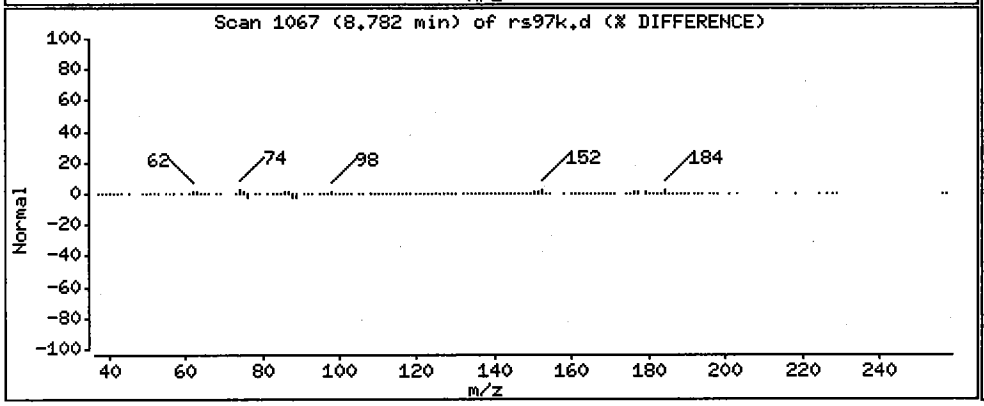
60 Phenanthrene

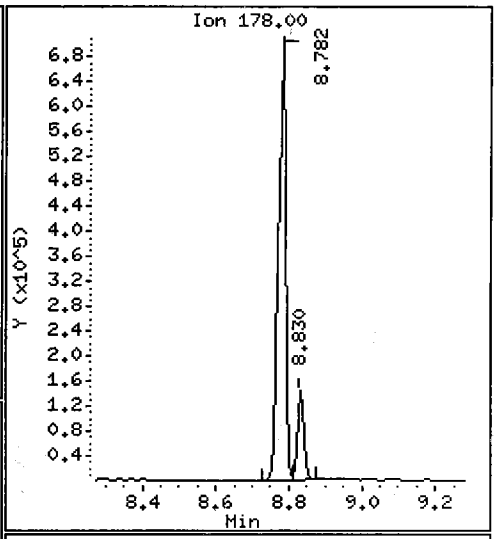
Concentration: 207500 ug/kg

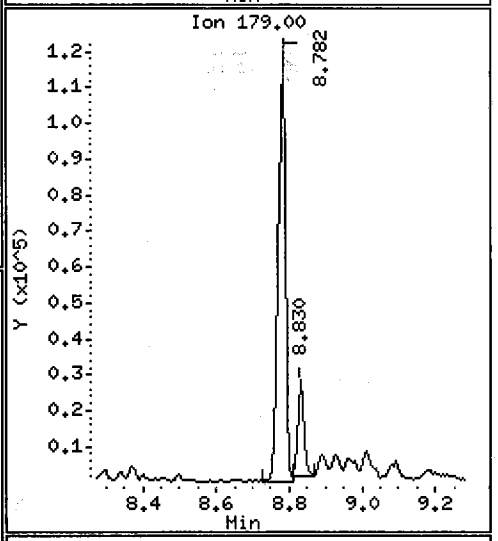


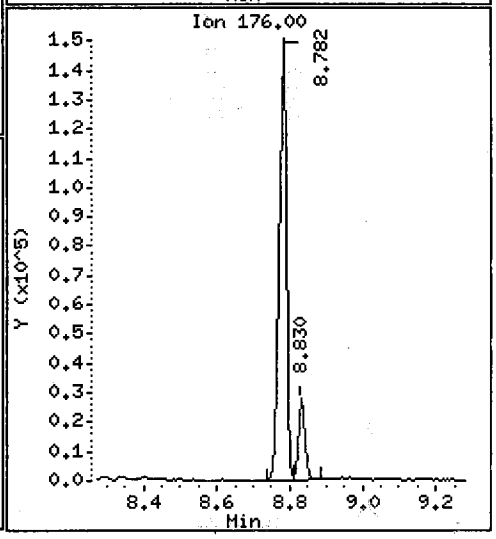












Data File: /chem1/nt12.i/20101111.b/rs97k.d

Date : 11-NOV-2010 15:46

Client ID: DGS-07-4.75.2-10101

Instrument: nt12.i

Sample Info: RS97K

Volume Injected (uL): 1.0

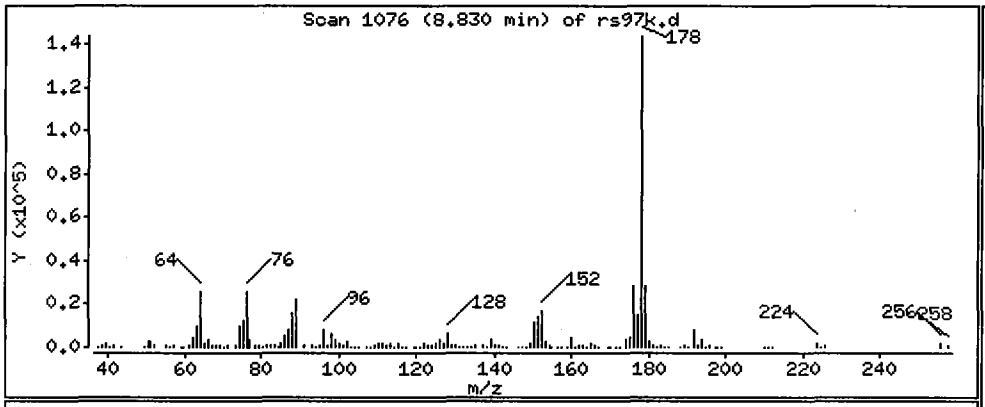
Operator: VTS

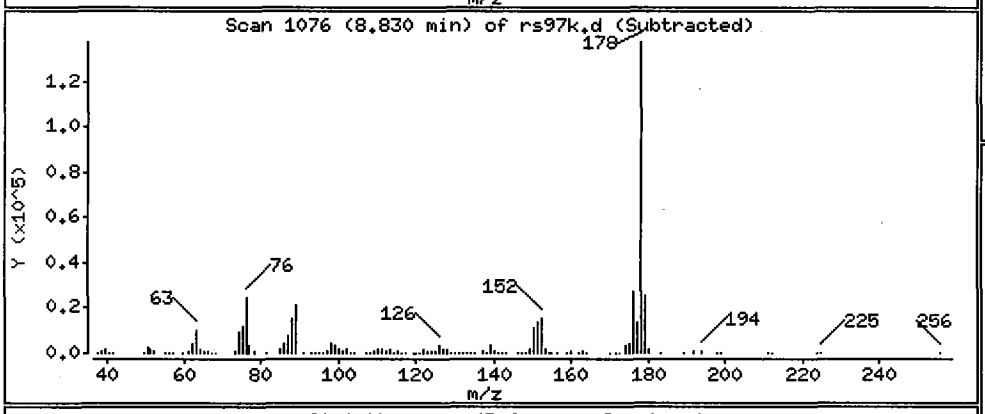
Column phase: ZB-5msi

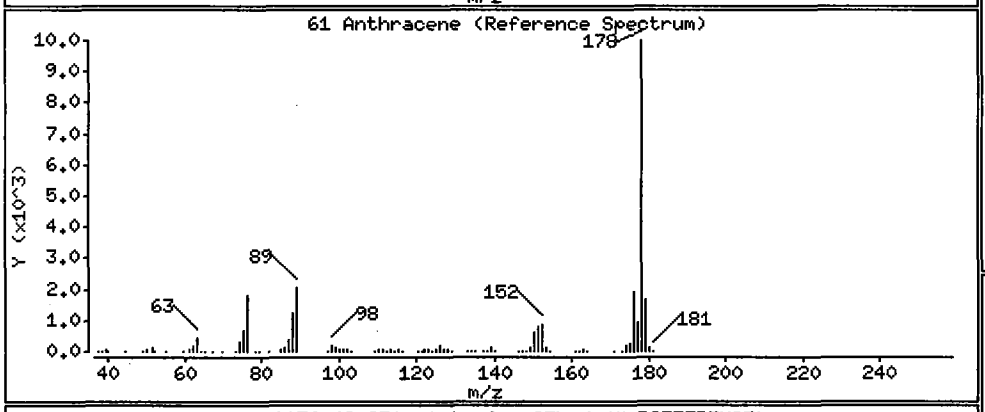
Column diameter: 0.32

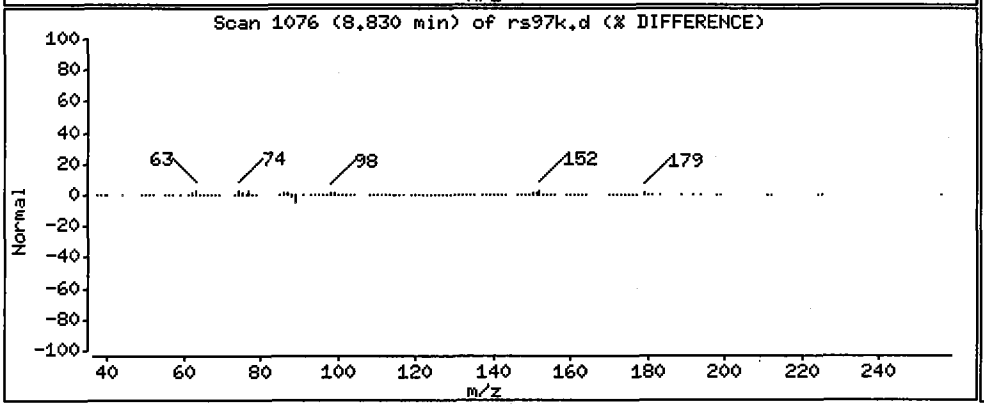
61 Anthracene

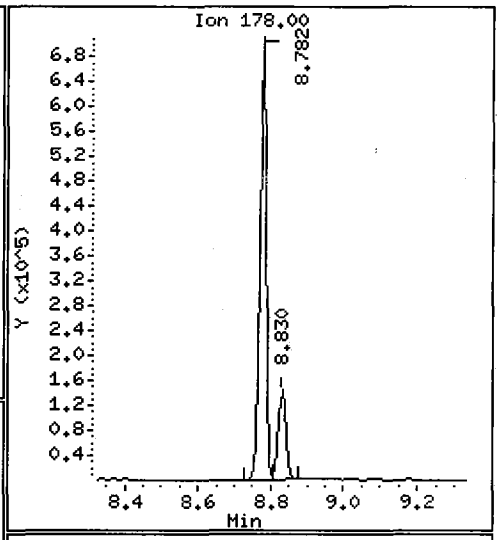
Concentration: 42240 ug/kg

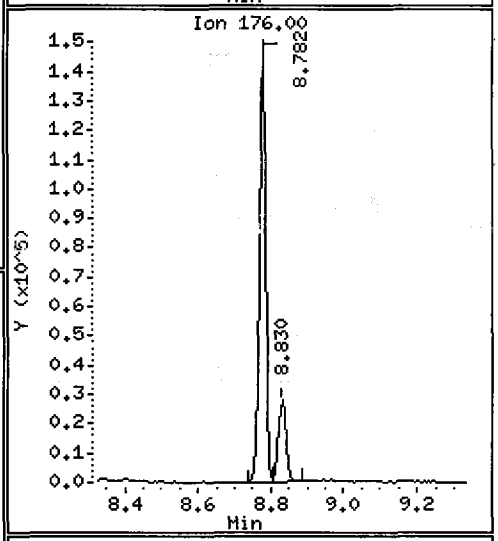


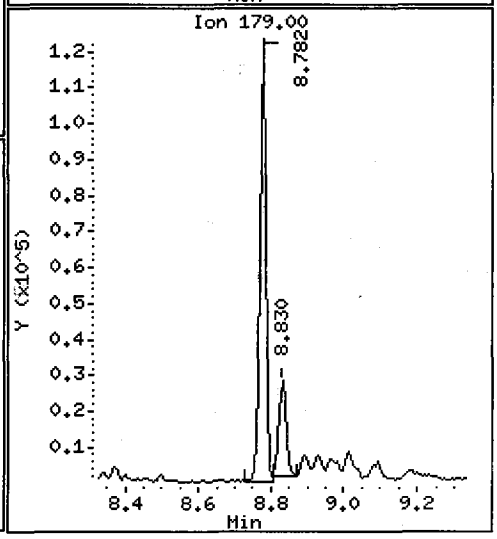












Data File: /chem1/nt12.i/20101111.b/rs97k.d

Date : 11-NOV-2010 15:46

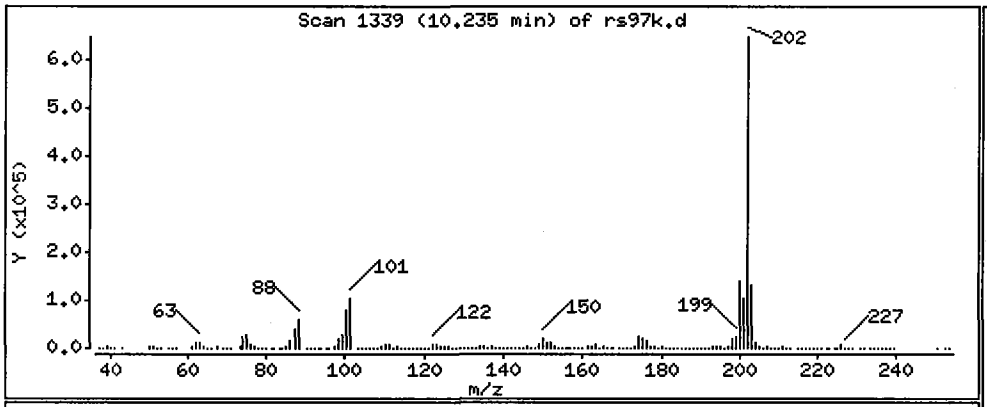
Client ID: DGS-07-4.75.2-10101 | Instrument: nt12.i

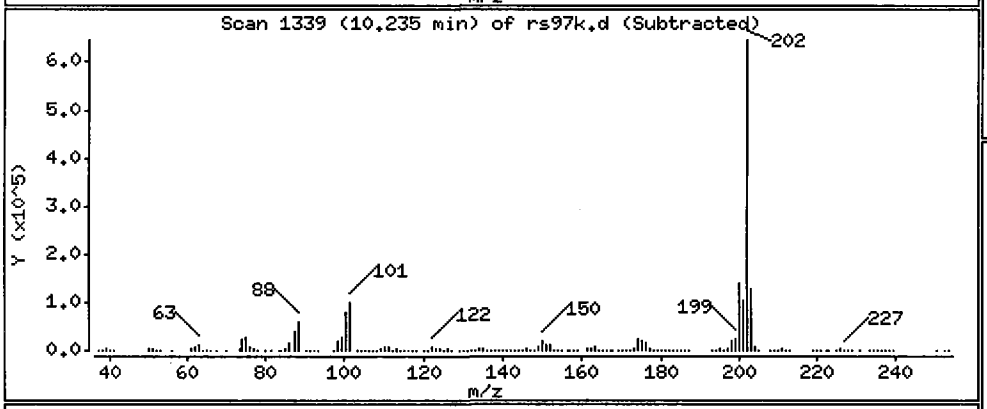
Sample Info: RS97K

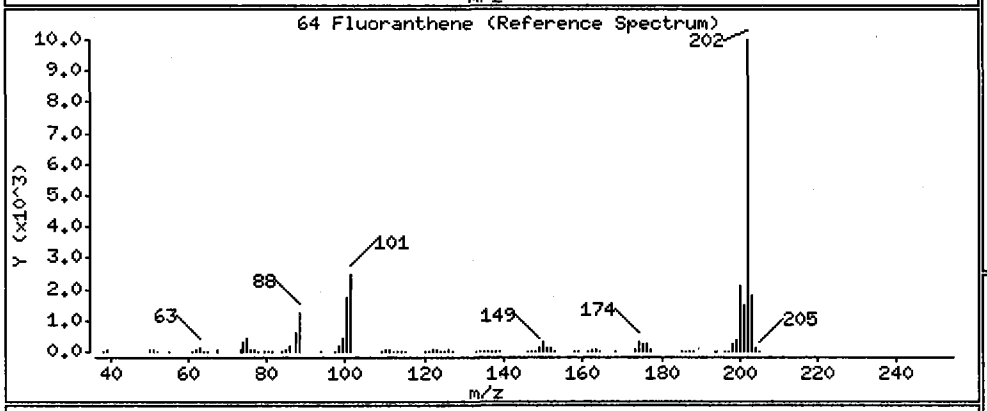
Volume Injected (uL): 1.0 | Operator: VTS

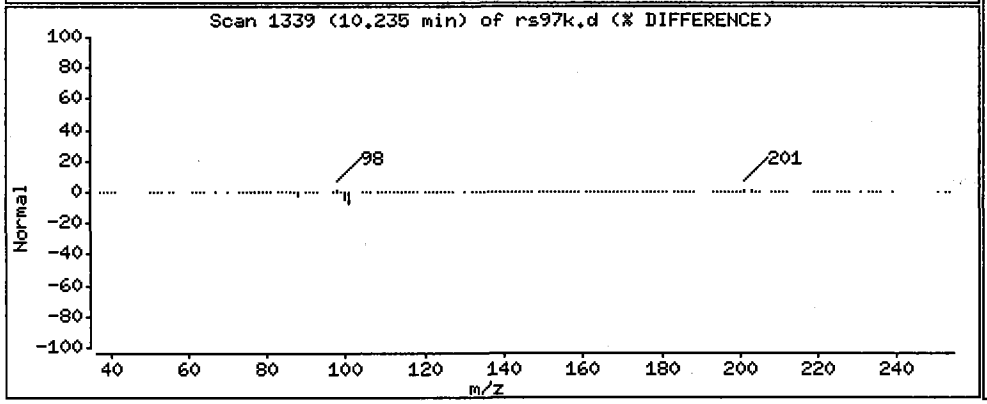
Column phase: ZB-5msi | Column diameter: 0.32

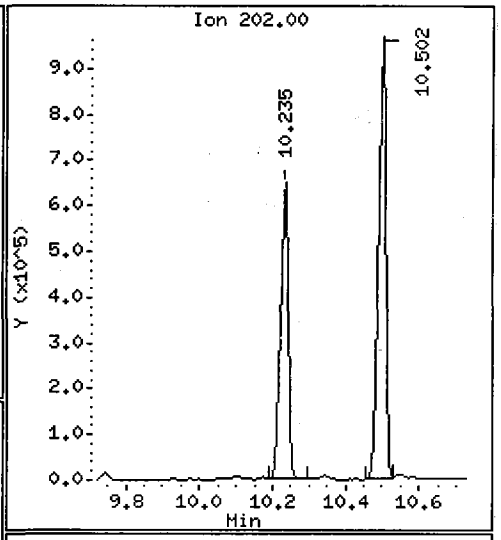
64 Fluoranthene | Concentration: 195300 ug/kg

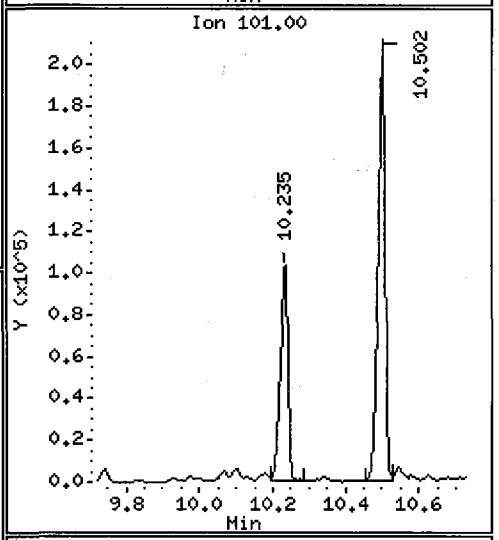


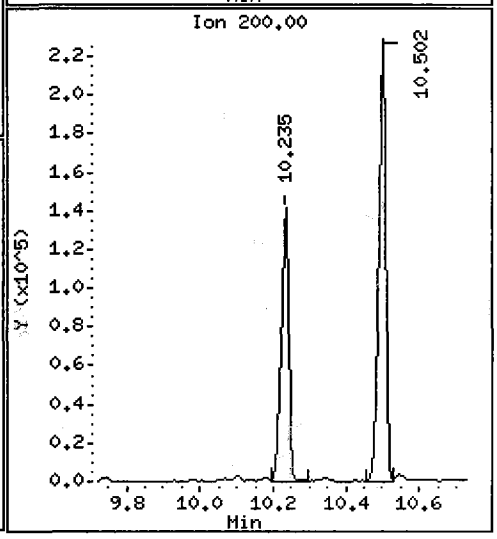












Data File: /chem1/nt12.i/20101111.b/rs97k.d

Date : 11-NOV-2010 15:46

Client ID: DGS-07-4.75.2-10101

Instrument: nt12.i

Sample Info: RS97K

Volume Injected (uL): 1.0

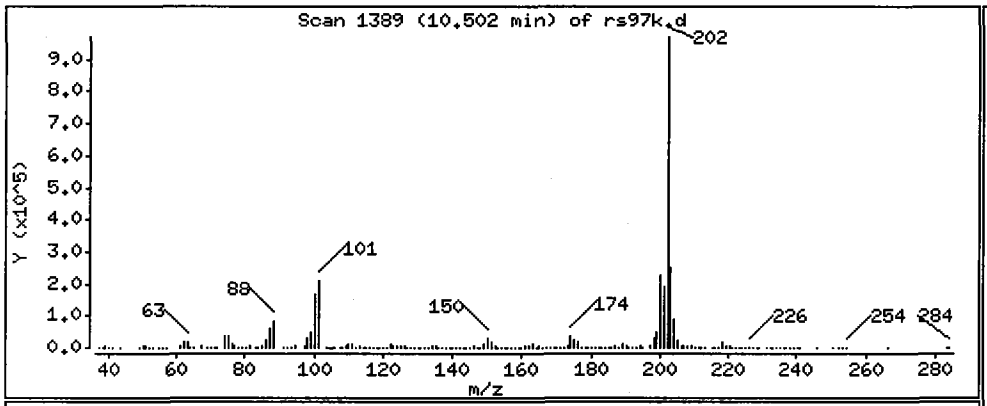
Operator: VTS

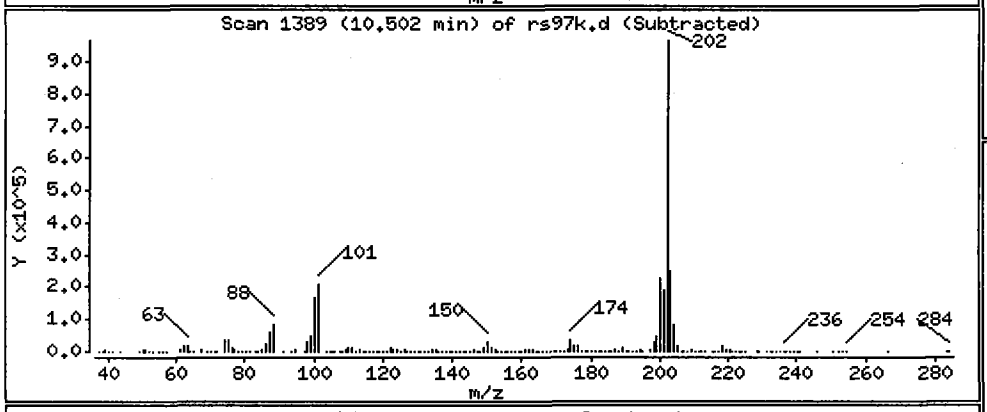
Column phase: ZB-5msi

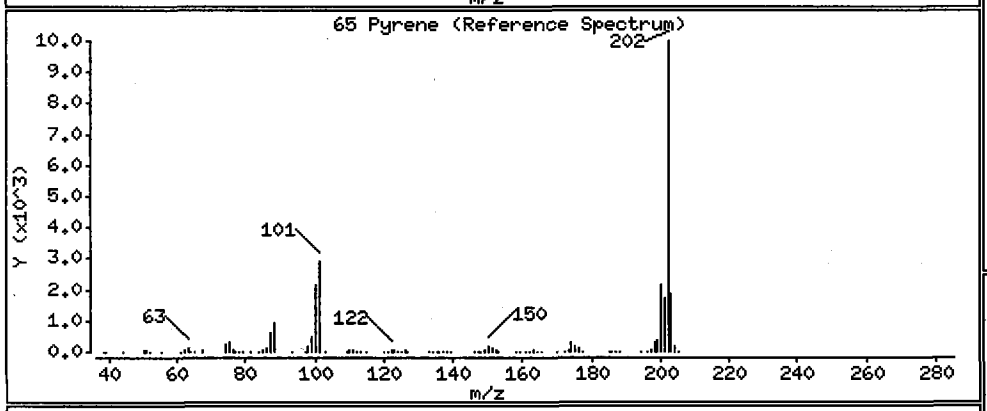
Column diameter: 0.32

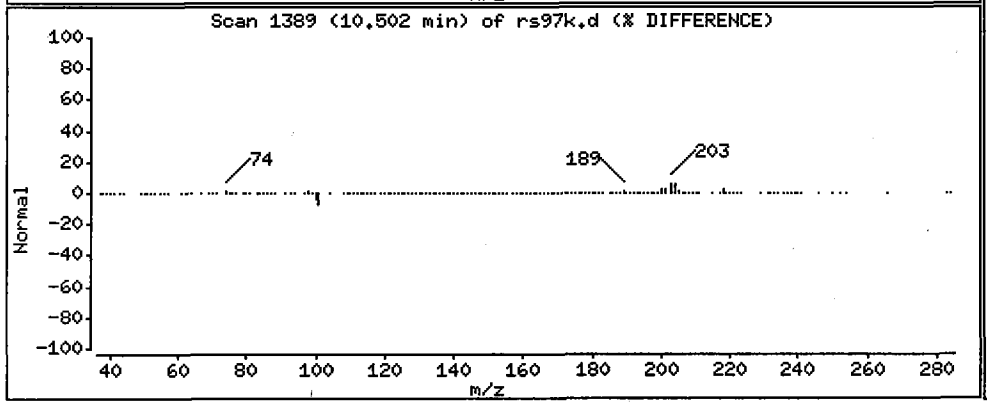
65 Pyrene

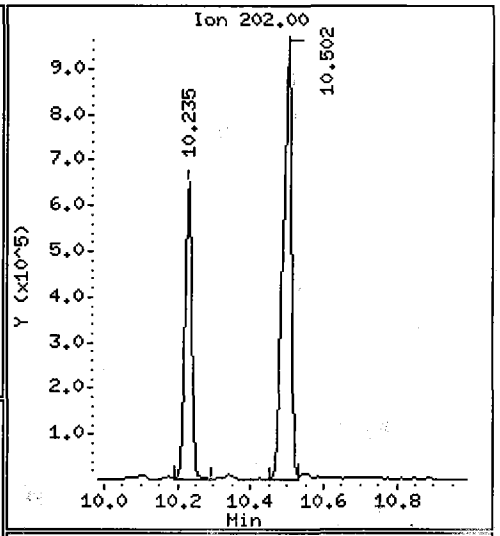
Concentration: 309800 ug/kg

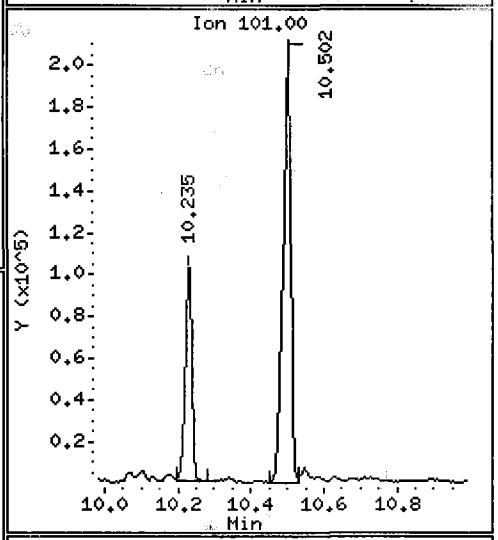


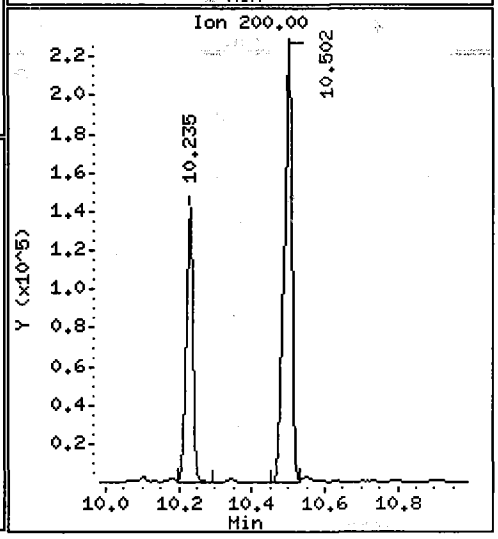












Data File: /chem1/nt12.i/20101111.b/rs97k.d

Date : 11-NOV-2010 15:46

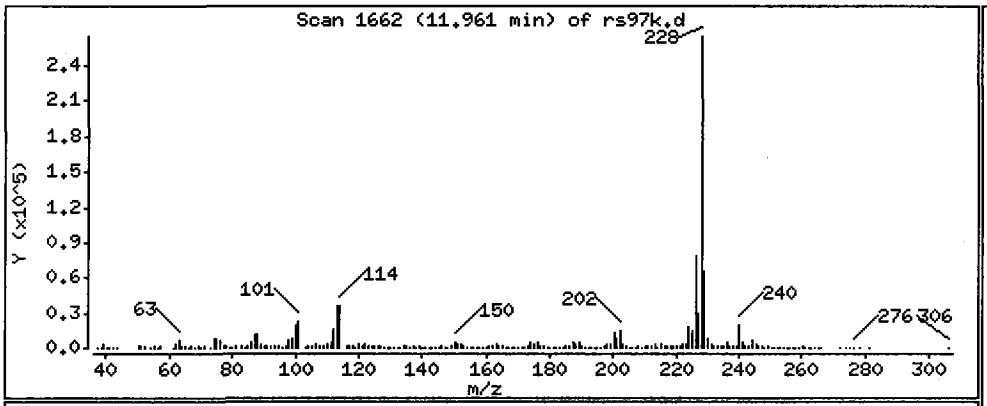
Client ID: DGS-07-4.75.2-10101 Instrument: nt12.i

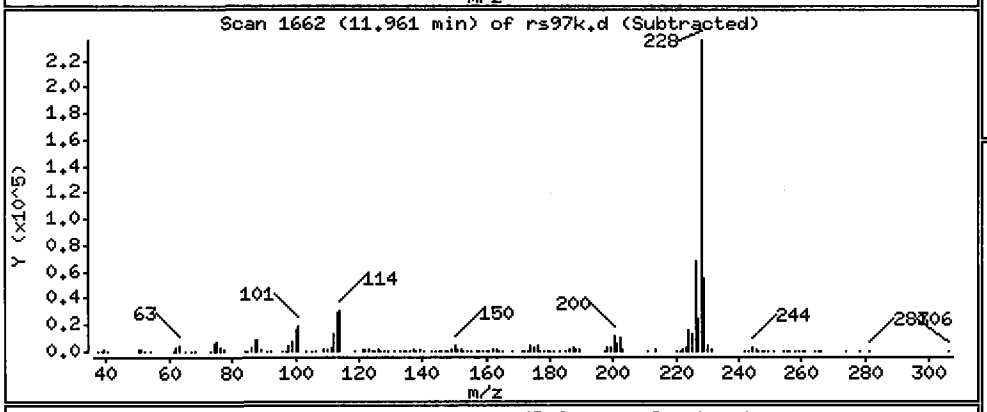
Sample Info: RS97K

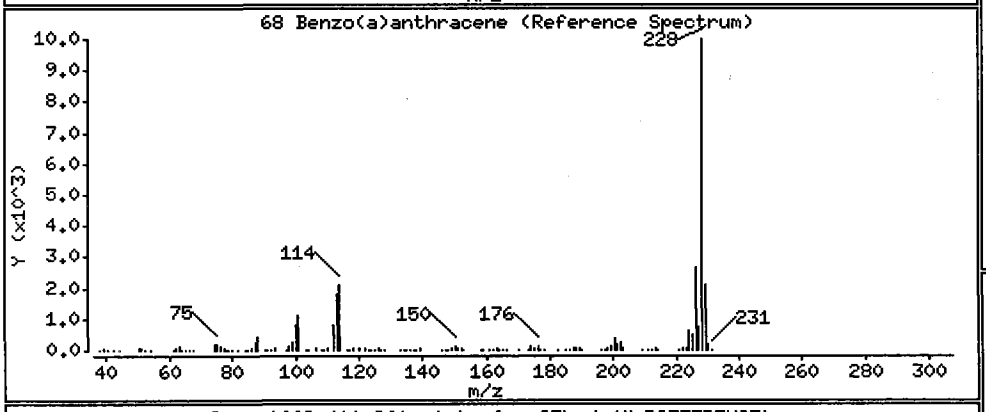
Volume Injected (uL): 1.0 Operator: VTS

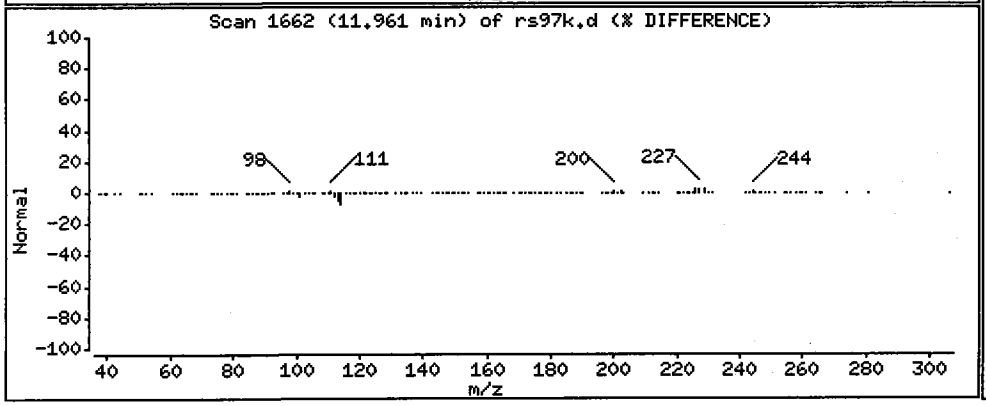
Column phase: ZB-5msi Column diameter: 0.32

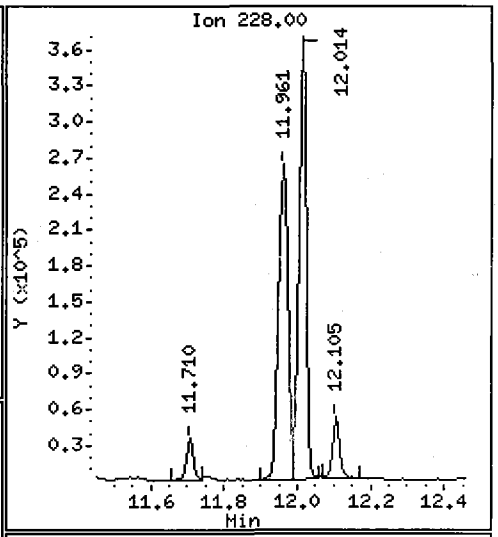
68 Benzo(a)anthracene Concentration: 117400 ug/kg

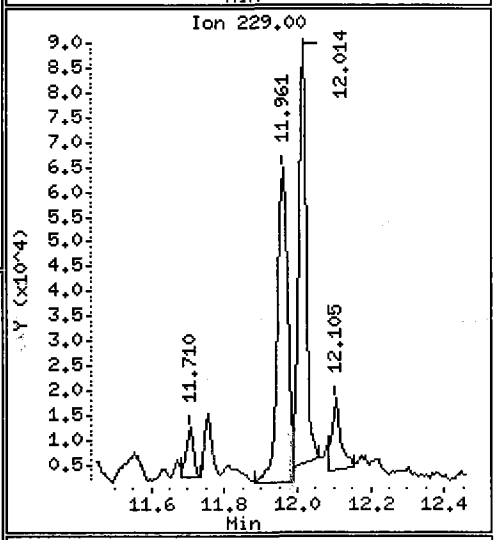


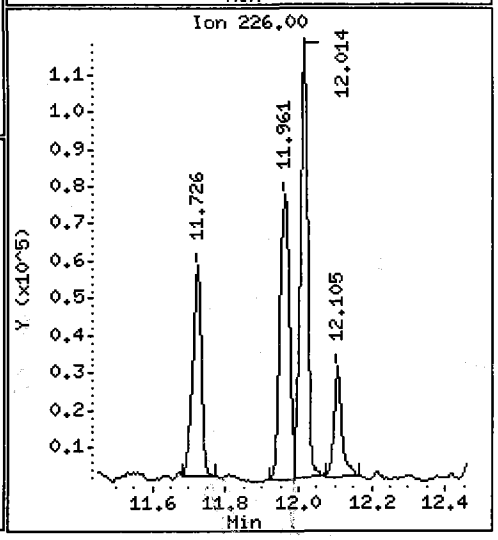












Data File: /chem1/nt12.i/20101111.b/rs97k.d

Date : 11-NOV-2010 15:46

Client ID: DGS-07-4.75.2-10101

Instrument: nt12.i

Sample Info: RS97K

Volume Injected (uL): 1.0

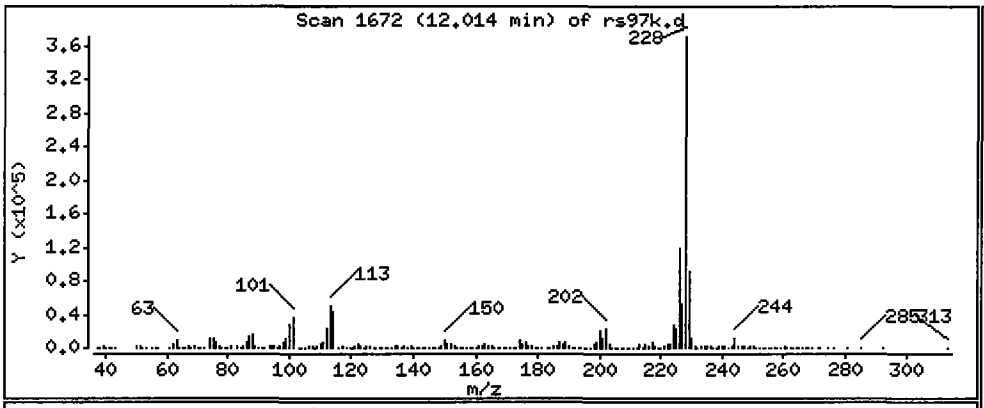
Operator: VTS

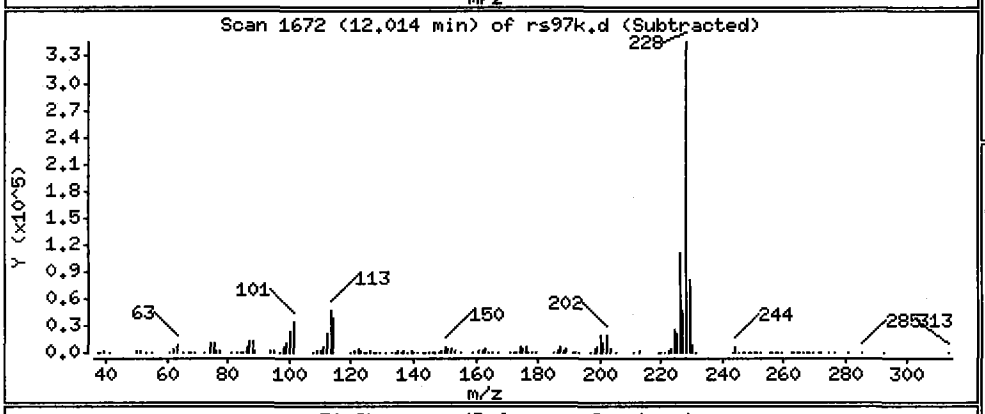
Column phase: ZB-5msi

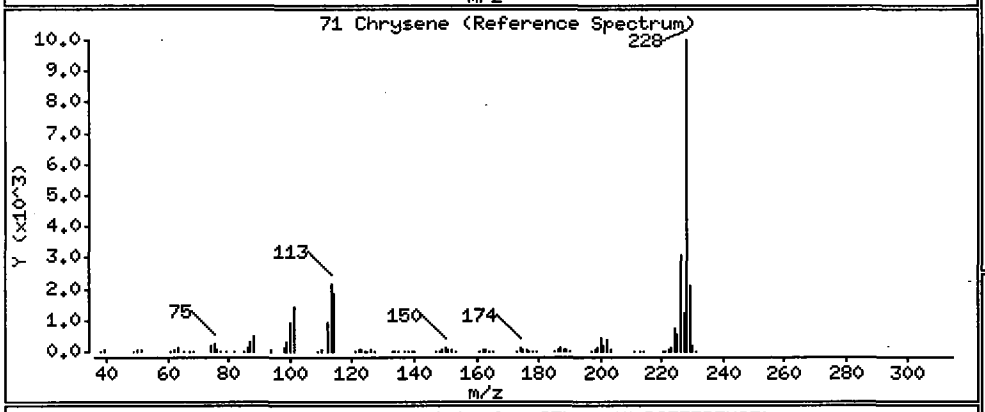
Column diameter: 0.32

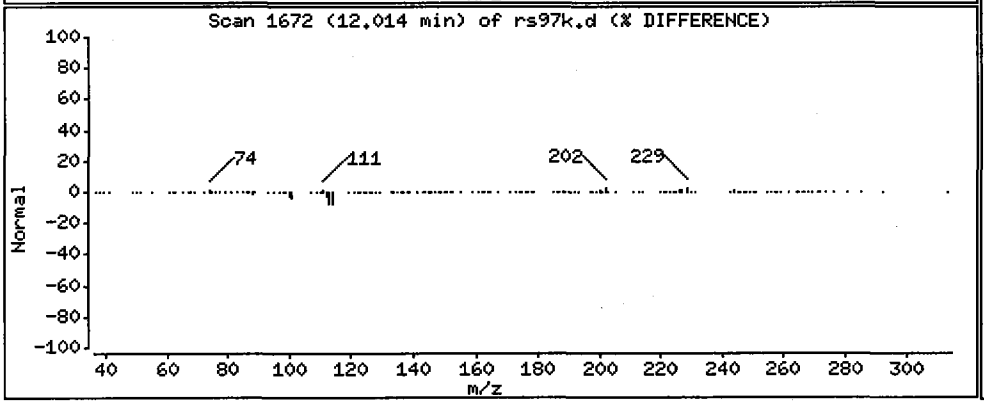
71 Chrysene

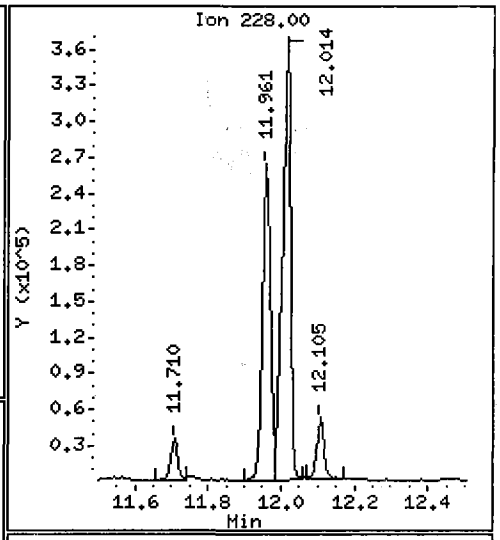
Concentration: 155900 ug/kg

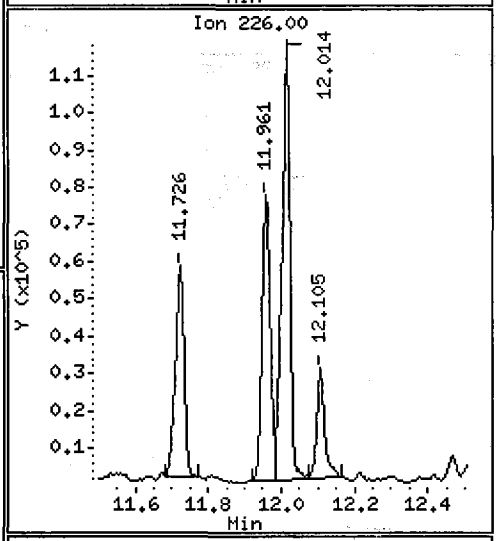


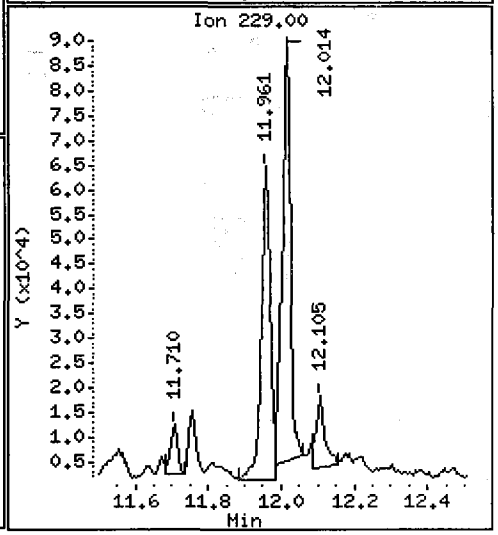












Data File: /chem1/nt12.i/20101111.b/rs97k.d

Date : 11-NOV-2010 15:46

Client ID: DGS-07-4.75.2-10101

Instrument: nt12.i

Sample Info: RS97K

Volume Injected (uL): 1.0

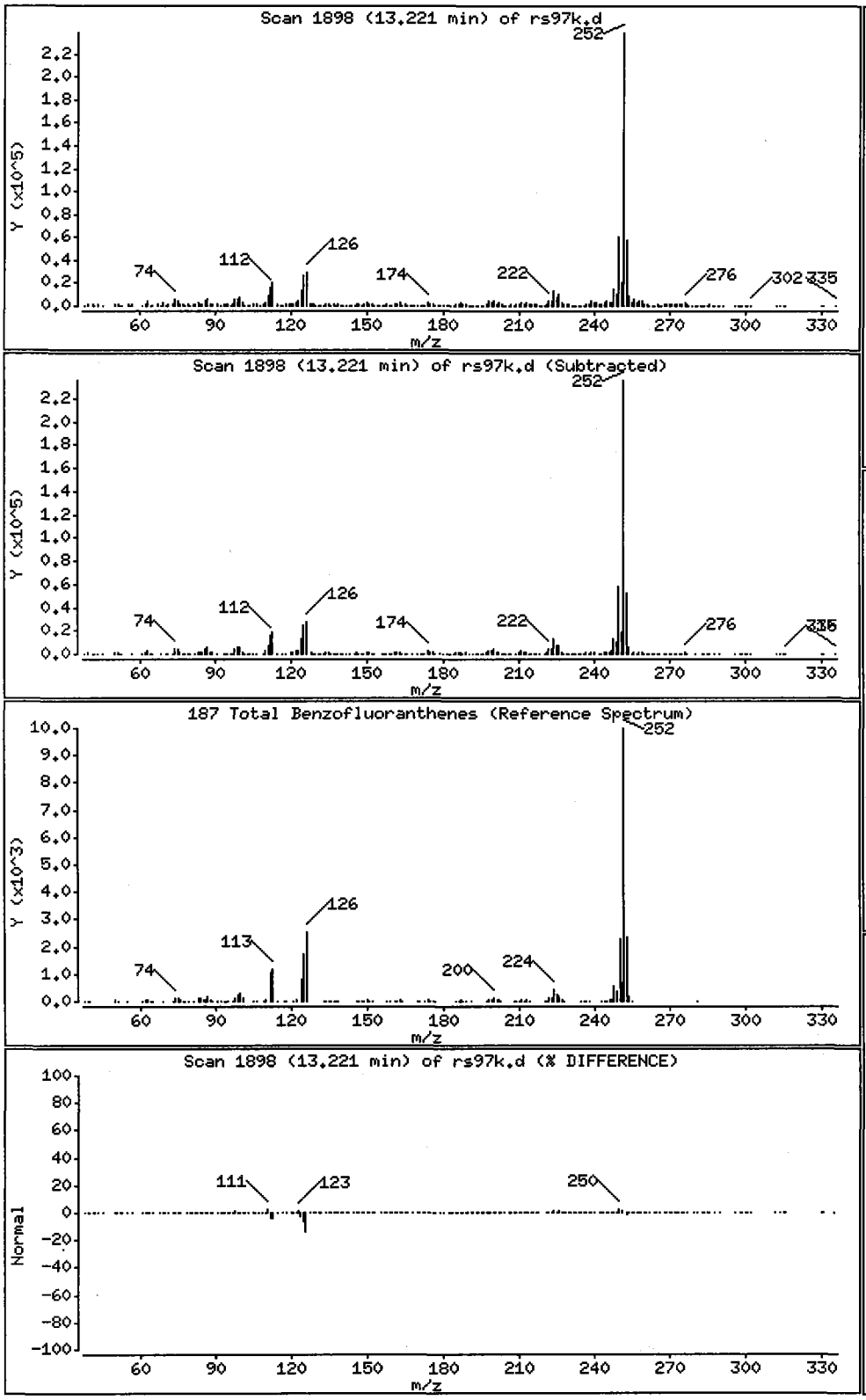
Operator: VTS

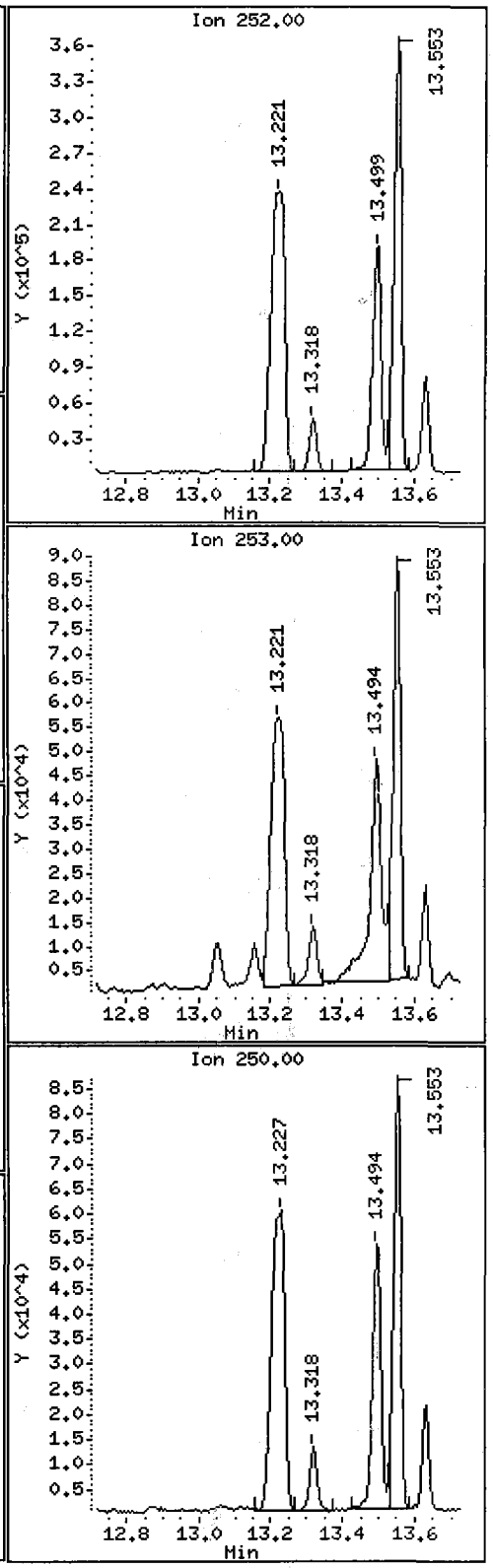
Column phase: ZB-5msi

Column diameter: 0.32

187 Total Benzofluoranthenes

Concentration: 167900 ug/kg





Data File: /chem1/nt12.i/20101111.b/rs97k.d

Date : 11-NOV-2010 15:46

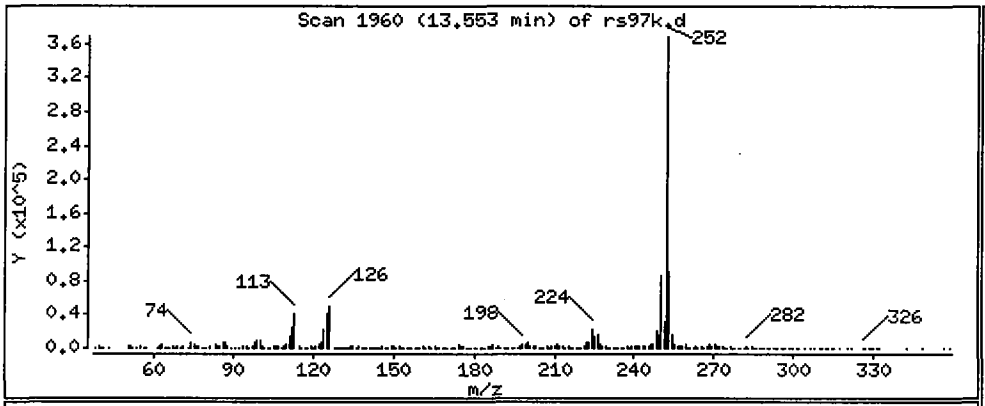
Client ID: DGS-07-4.75.2-10101 Instrument: nt12.i

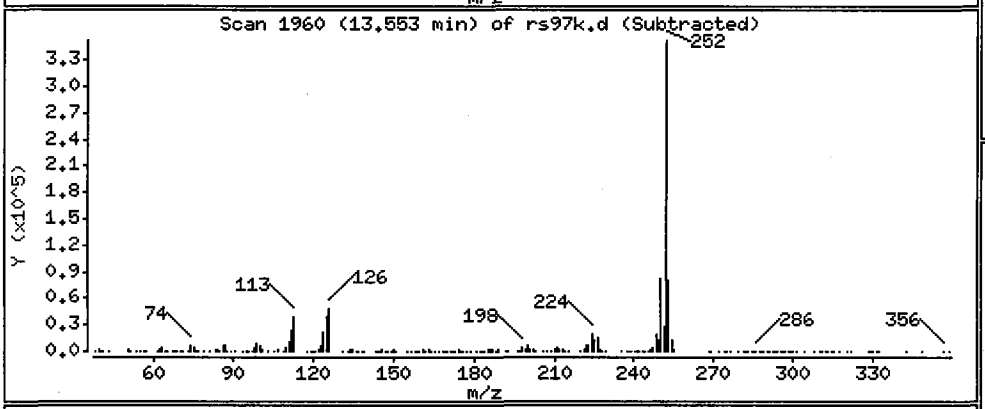
Sample Info: RS97K

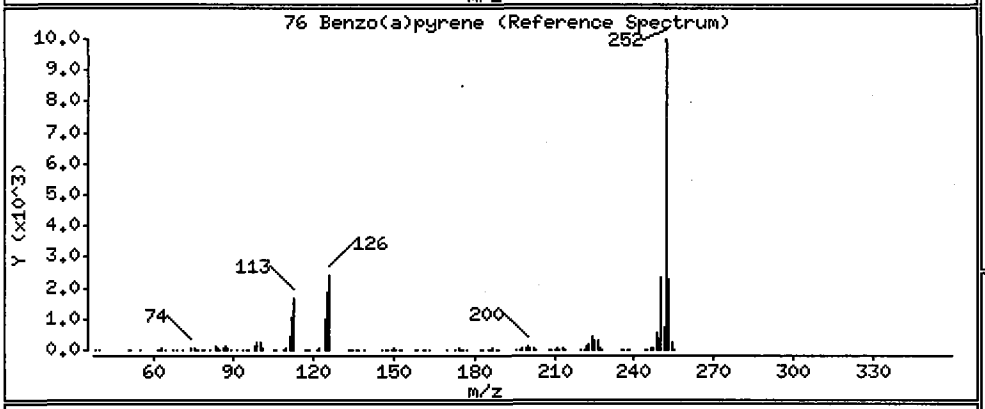
Volume Injected (uL): 1.0 Operator: VTS

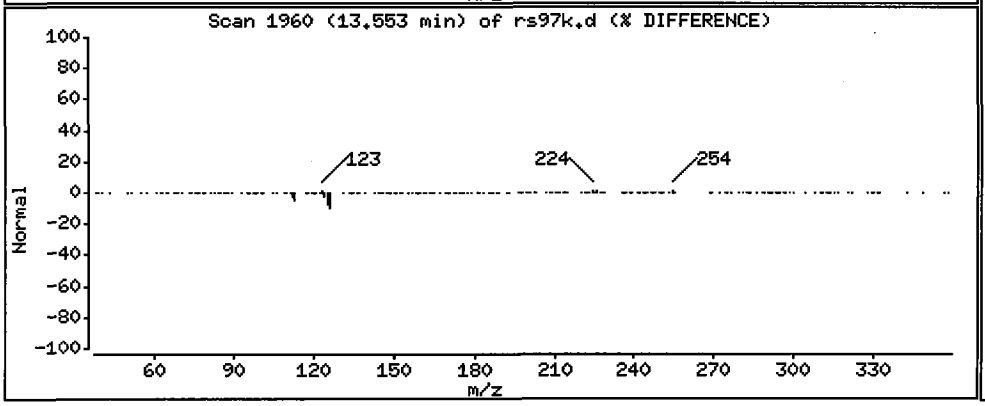
Column phase: ZB-5msi Column diameter: 0.32

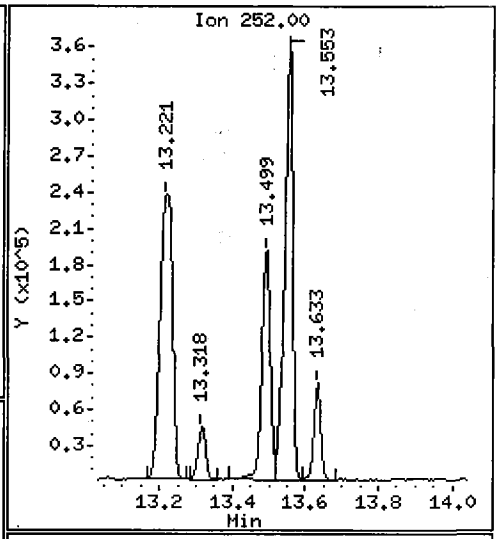
76 Benzo(a)pyrene Concentration: 173600 ug/kg

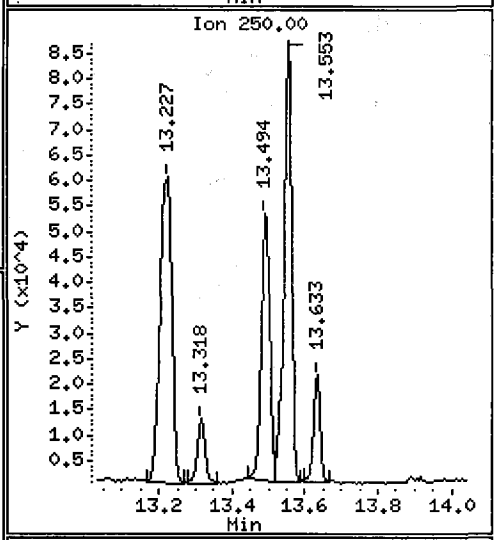


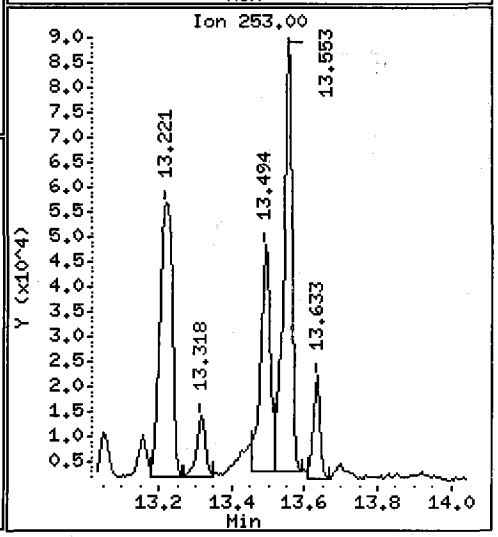












Data File: /chem1/nt12.i/20101111.b/rs97k.d

Date : 11-NOV-2010 15:46

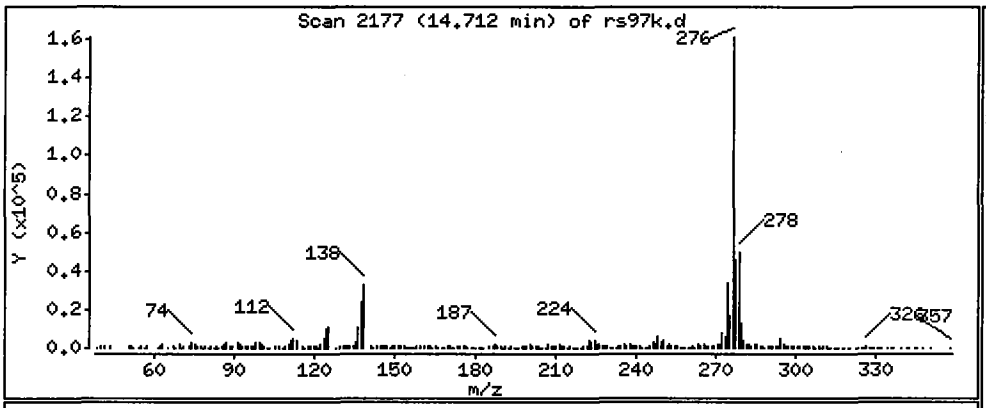
Client ID: DGS-07-4.75.2-10101 Instrument: nt12.i

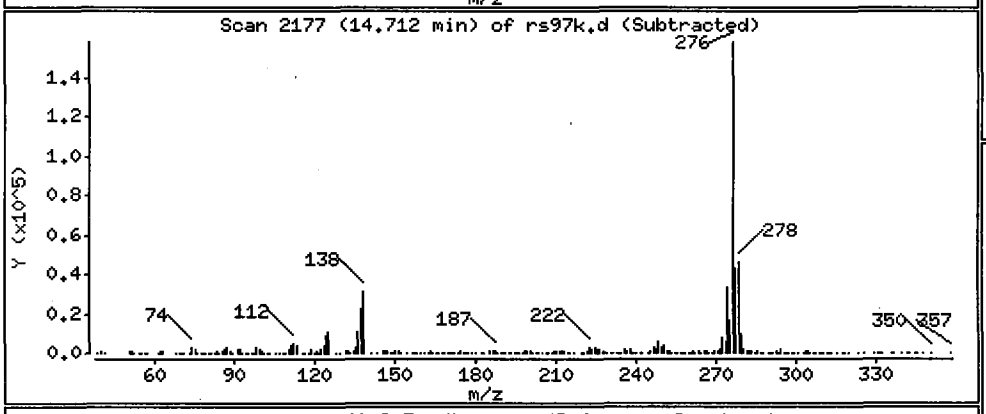
Sample Info: RS97K

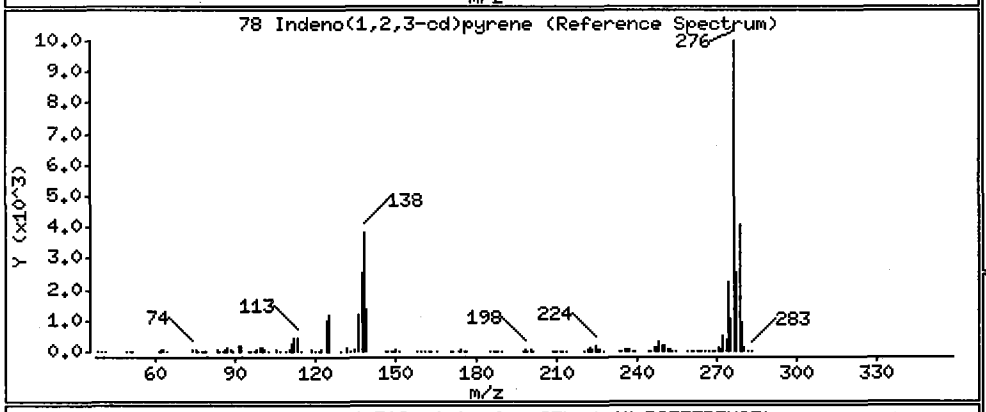
Volume Injected (uL): 1.0 Operator: VTS

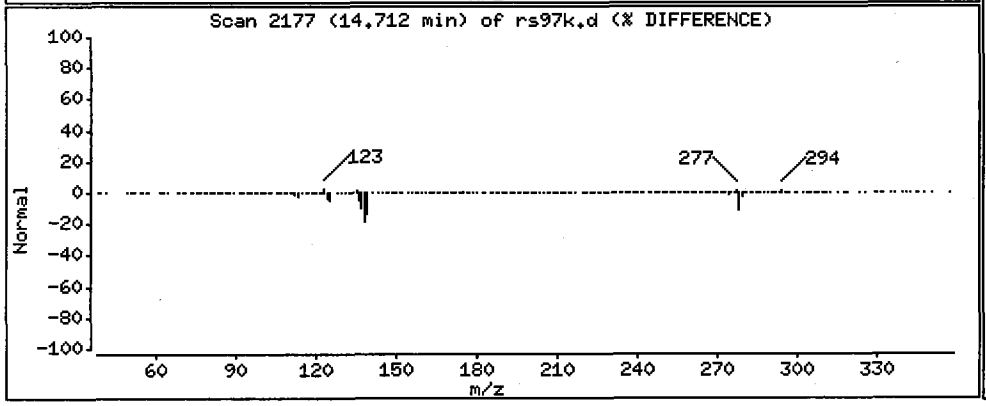
Column phase: ZB-5msi Column diameter: 0.32

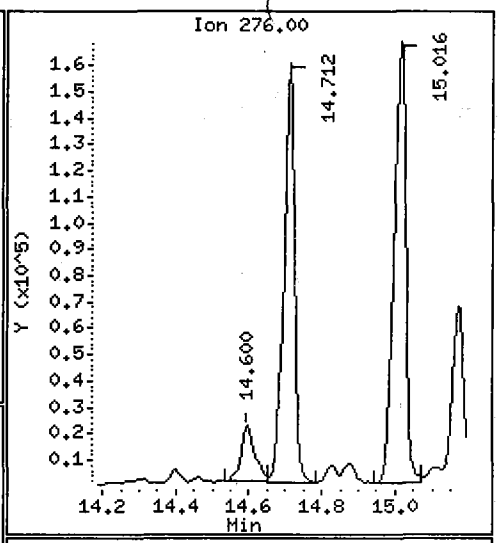
78 Indeno(1,2,3-cd)pyrene Concentration: 67980 ug/kg

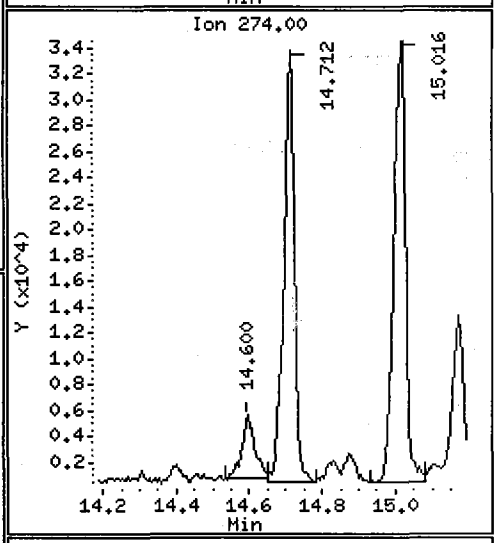


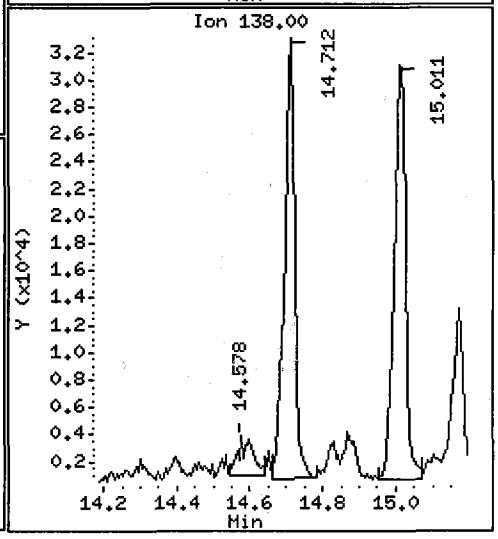












Data File: /chem1/nt12.i/20101111.b/rs97k.d

Date : 11-NOV-2010 15:46

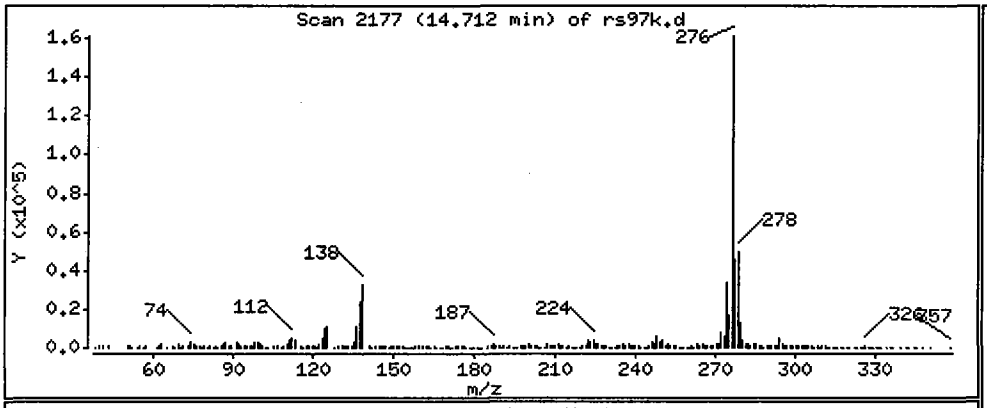
Client ID: DGS-07-4.75.2-10101 Instrument: nt12.i

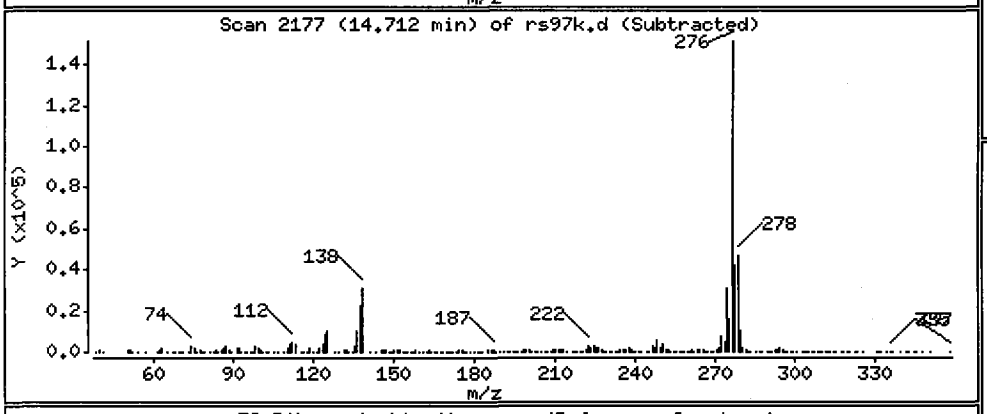
Sample Info: RS97K

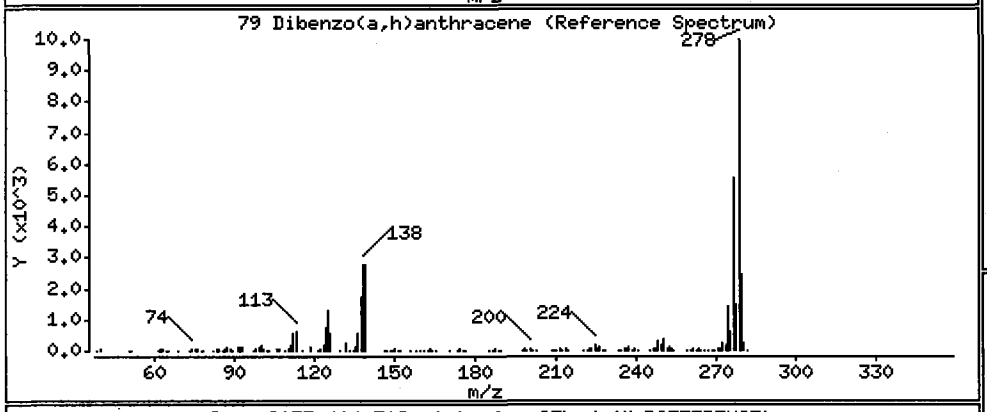
Volume Injected (uL): 1.0 Operator: VTS

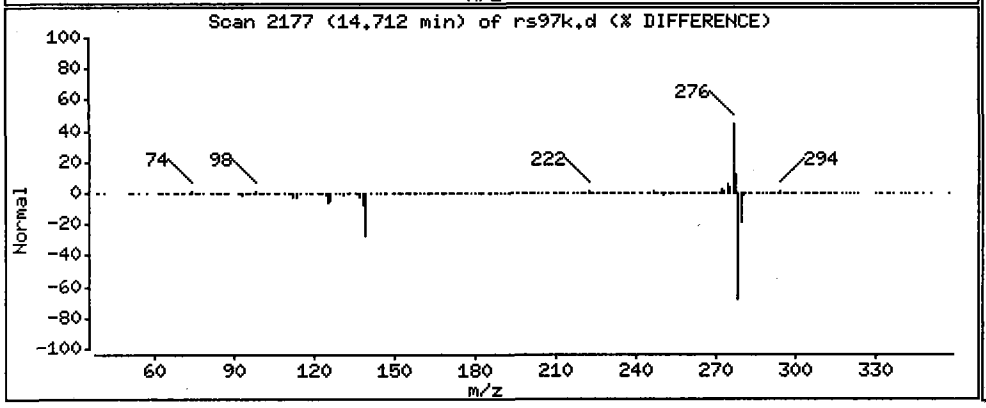
Column phase: ZB-5msi Column diameter: 0.32

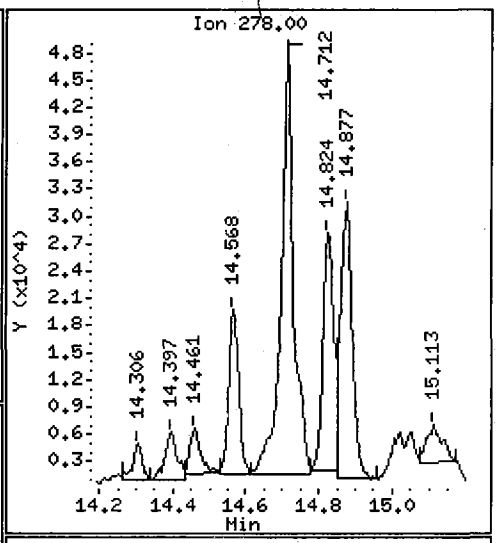
79 Dibenzo(a,h)anthracene Concentration: 28920 ug/kg

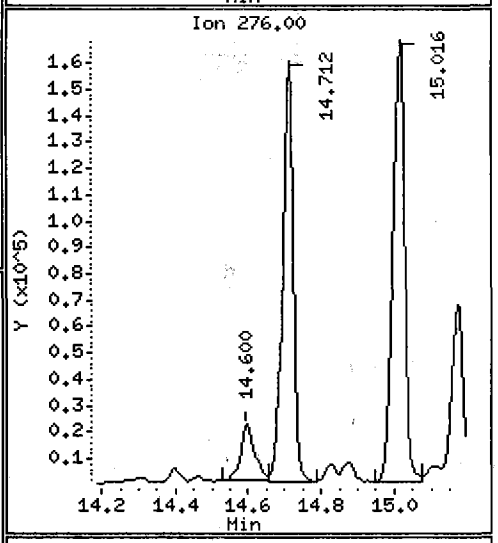


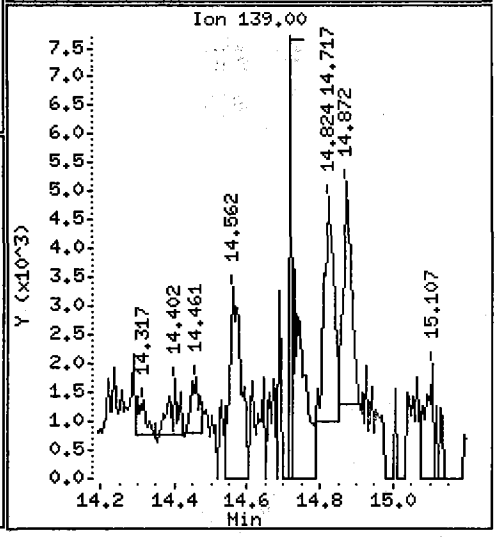












Data File: /chem1/nt12.i/20101111.b/rs97k.d

Date : 11-NOV-2010 15:46

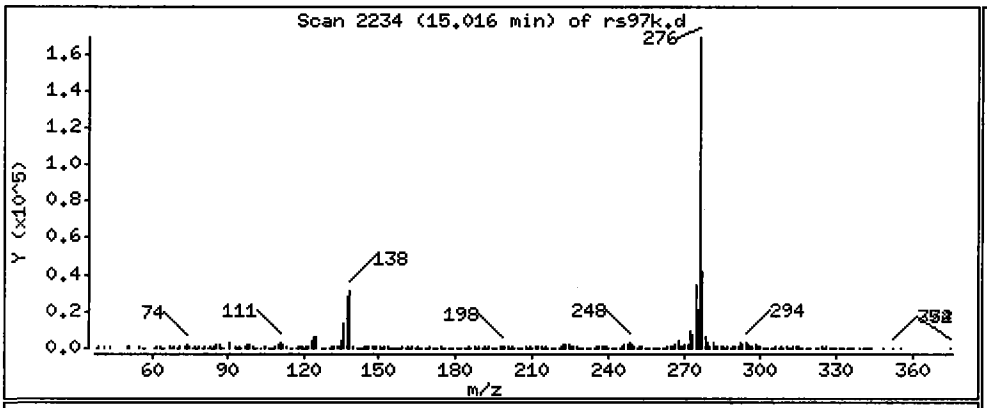
Client ID: DGS-07-4.75.2-10101 | Instrument: nt12.i

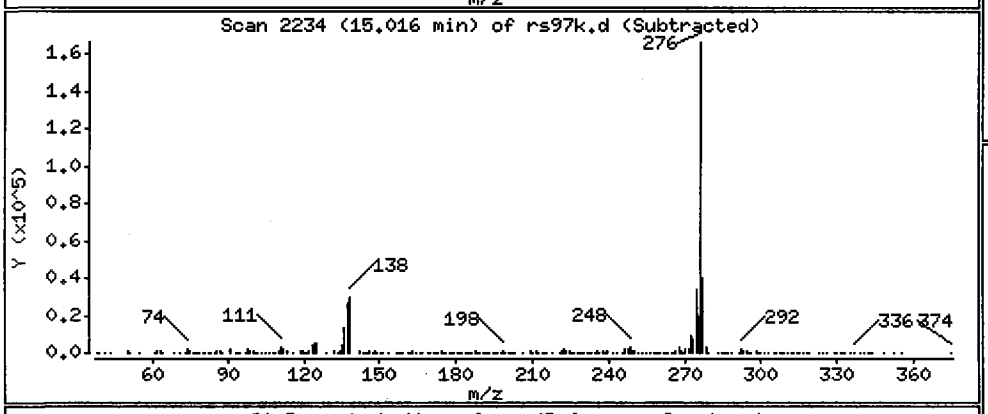
Sample Info: RS97K

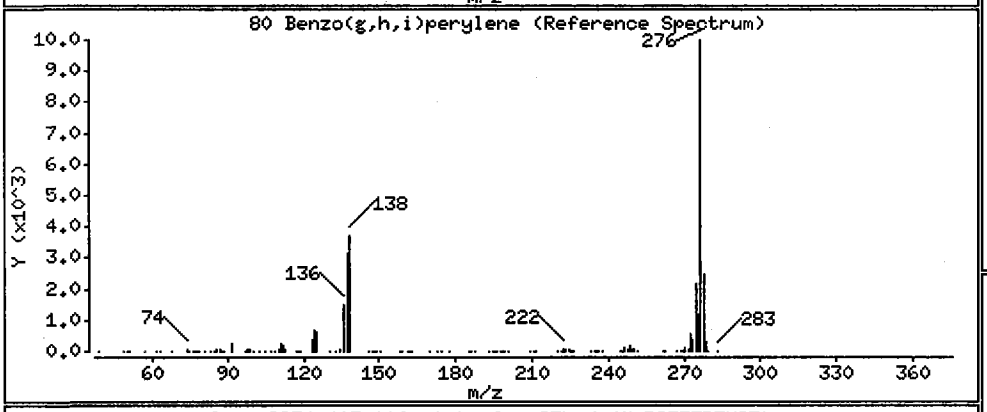
Volume Injected (uL): 1.0 | Operator: VTS

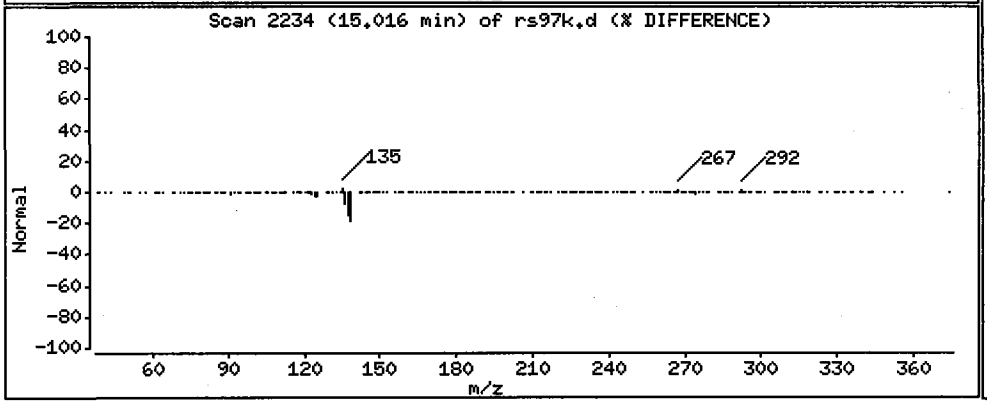
Column phase: ZB-5msi | Column diameter: 0.32

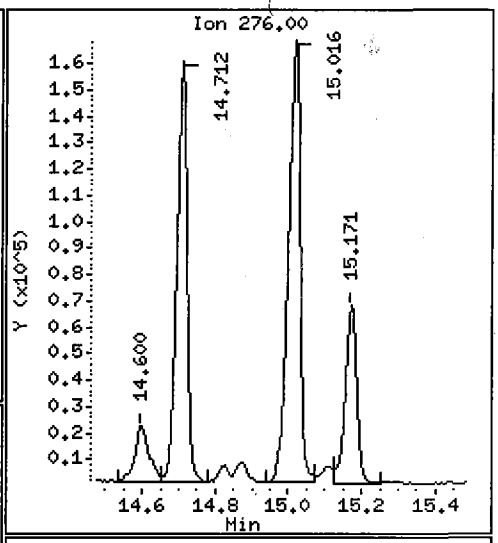
80 Benzo(g,h,i)perylene | Concentration: 99870 ug/kg

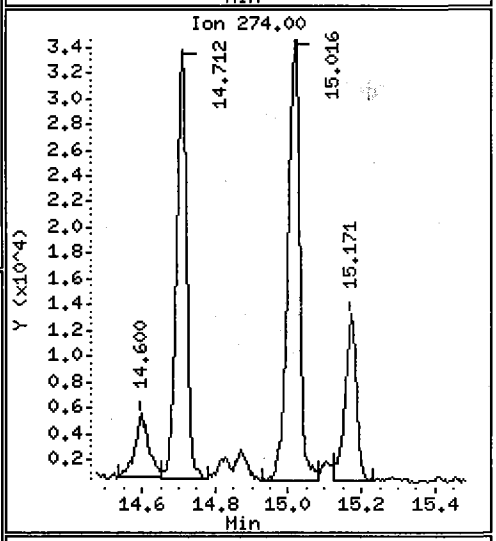


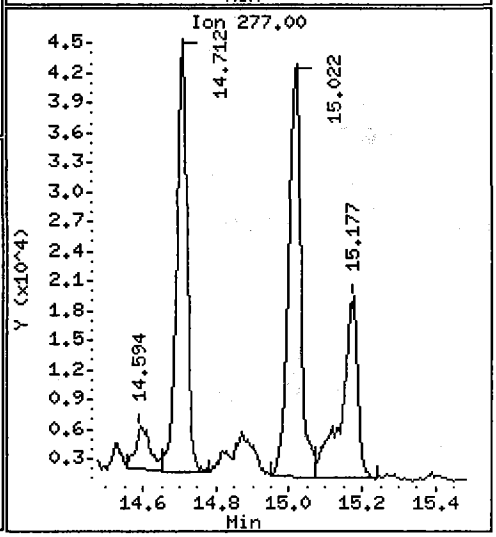












Analytical Resources, Inc.

Semivolatile Report SW846 Method 8270D

Data file : /chem1/nt12.i/20101111.b/rs97h.d
Lab Smp Id: RS97H
Client Smp ID: DGS-07-011.3-101012
Inj Date : 11-NOV-2010 16:09
Operator : VTS
Inst ID: nt12.i
Smp Info : RS97H
Misc Info : 10-27424
Comment : 1ul Injection
Method : /chem1/nt12.i/20101111.b/PNADMD.m
Meth Date : 11-Nov-2010 14:36 van
Quant Type: ISTD
Cal Date : 30-OCT-2010 13:19
Cal File: ic1030f.d
Als bottle: 11
Dil Factor: 1.00000
Integrator: HP RTE
Compound Sublist: pnas.sub
Target Version: 3.50
Processing Host: cserv3

Concentration Formula: Amt * DF * Vt/(Ws * (100 - M)/100) * CpndVariable

Name	Value	Description
DF	1.00000	Dilution Factor
Vt	2000.00000	Volume of final extract (uL)
Ws	5.11000	Weight of sample extracted (g)
M	49.90000	% Moisture

Cpnd Variable Local Compound Variable

Compounds	QUANT SIG MASS	RT	EXP RT	REL RT	RESPONSE	CONCENTRATIONS ON-COLUMN (ug/mL)	FINAL (ug/kg)
* 27 Naphthalene-d8	136	4.871	4.871	(1.000)	246109	20.0000	
28 Naphthalene	128	4.893	4.893	(1.004)	45817	3.27097	2555
32 2-Methylnaphthalene	141	5.715	5.710	(1.173)	14973	2.00270	1565
105 1-methylnaphthalene	141	5.838	5.838	(1.198)	10461	1.35701	1060
$ 36 2-Fluorobiphenyl	172	6.186	6.186	(0.887)	86403	7.23025	5648
40 Acenaphthylene	152	6.789	6.789	(0.973)	12868	0.82729	646.3 J
* 42 Acenaphthene-d10	164	6.976	6.976	(1.000)	155332	20.0000	
44 Acenaphthene	153	7.008	7.014	(1.005)	30602	3.20343	2503
46 Dibenzofuran	168	Compound Not Detected.					
49 Fluorene	166	7.623	7.623	(1.093)	21776	1.99092	1555
* 59 Phenanthrene-d10	188	8.750	8.745	(1.000)	287621	20.0000	
60 Phenanthrene	178	8.777	8.777	(1.003)	366144	23.9960	18750
61 Anthracene	178	8.830	8.830	(1.009)	92580	5.87062	4586
62 Carbazole	167	9.049	9.049	(1.034)	18875	~~1.48~~367	1159

NR

Compounds	QUANT SIG MASS	RT	EXP RT	REL RT	RESPONSE	CONCENTRATIONS ON-COLUMN (ug/mL)	FINAL (ug/kg)
64 Fluoranthene	202	10.230	10.224	(0.854)	545888	35.4337	27680
65 Pyrene	202	10.497	10.486	(0.876)	819949	53.6484	41910
$ 66 Terphenyl-d14	244	10.726	10.721	(0.895)	85989	8.81951	6890
68 Benzo(a)anthracene	228	11.961	11.955	(0.998)	218218	17.6183	13760
* 69 Chrysene-d12	240	11.982	11.977	(1.000)	220552	20.0000	
71 Chrysene	228	12.009	12.003	(1.002)	279704	24.1547	18870
187 Total Benzofluoranthenes	252	13.211	13.221	(0.971)	311764	27.4467	21440
76 Benzo(a)pyrene	252	13.547	13.537	(0.996)	270229	25.8973	20230
* 77 Perylene-d12	264	13.601	13.595	(1.000)	190707	20.0000	
99 Perylene	252	13.627	13.622	(1.002)	57628	~~5.19~~352	4057 NQ
78 Indeno(1,2,3-cd)pyrene	276	14.701	14.691	(1.081)	184702	11.9225	9314
79 Dibenzo(a,h)anthracene	278	14.706	14.696	(1.081)	55289	4.33493	3387
80 Benzo(g,h,i)perylene	276	15.000	14.979	(1.103)	226354	17.7856	13890

LJS
11-12-10

Analytical Resources, Inc.

INTERNAL STANDARD COMPOUNDS
AREA AND RT SUMMARY

Instrument ID: nt12.i
Lab File ID: rs97h.d
Lab Smp Id: RS97H
Analysis Type: SV
Quant Type: ISTD
Operator: VTS
Method File: /chem1/nt12.i/20101111.b/PNADMD.m
Misc Info: 10-27424

Calibration Date: 11-NOV-2010
Calibration Time: 12:20
Client Smp ID: DGS-07-011.3-101
Level: LOW
Sample Type: Sediment

Test Mode:
Use Initial Calibration Level 4.

COMPOUND	STANDARD	AREA LIMIT LOWER	AREA LIMIT UPPER	SAMPLE	%DIFF
27 Naphthalene-d8	237664	118832	475328	246109	3.55
42 Acenaphthene-d10	143363	71682	286726	155332	8.35
59 Phenanthrene-d10	245437	122718	490874	287621	17.19
69 Chrysene-d12	199260	99630	398520	220552	10.69
77 Perylene-d12	197636	98818	395272	190707	-3.51

COMPOUND	STANDARD	RT LIMIT LOWER	RT LIMIT UPPER	SAMPLE	%DIFF
27 Naphthalene-d8	4.87	4.37	5.37	4.87	0.00
42 Acenaphthene-d10	6.98	6.48	7.48	6.98	0.00
59 Phenanthrene-d10	8.74	8.24	9.24	8.75	0.06
69 Chrysene-d12	11.98	11.48	12.48	11.98	0.04
77 Perylene-d12	13.60	13.10	14.10	13.60	0.04

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.

Analytical Resources, Inc.

RECOVERY REPORT

Client Name: NW Natural
Sample Matrix: SOLID
Lab Smp Id: RS97H
Level: LOW
Data Type: MS DATA
SpikeList File: SONICLCS.spk
Sublist File: pnas.sub
Method File: /chem1/nt12.i/20101111.b/PNADMD.m
Misc Info: 10-27424

Client SDG: RS97
Fraction: SV
Client Smp ID: DGS-07-011.3-101012
Operator: VTS
SampleType: SAMPLE
Quant Type: ISTD

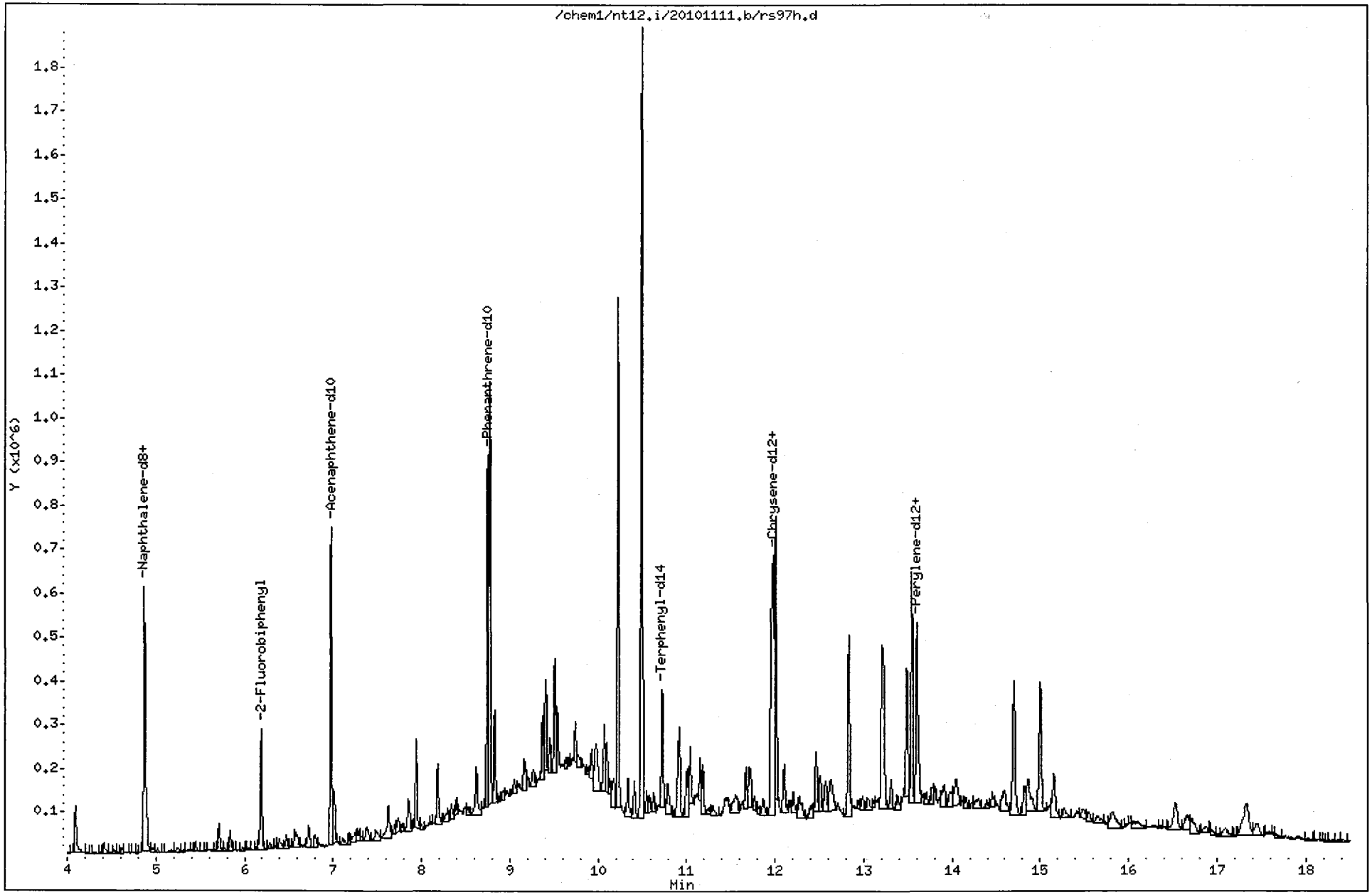
SURROGATE COMPOUND	CONC ADDED ug/kg	CONC RECOVERED ug/kg	% RECOVERED	LIMITS
$ 36 2-Fluorobiphenyl	9765	5648	57.84	34-100
$ 66 Terphenyl-d14	9765	6890	70.56	35-112

Data File: /chem1/nt12.i/20101111.b/rs97h.d
Date : 11-NOV-2010 16:09
Client ID: DGS-07-011.3-101012
Sample Info: RS97H
Volume Injected (uL): 1.0
Column phase: ZB-5msi

Instrument: nt12.i

Operator: VTS
Column diameter: 0.32

RS97:00869



Data File: /chem1/nt12.i/20101111.b/rs97h.d

Date : 11-NOV-2010 16:09

Client ID: DGS-07-011.3-101012

Instrument: nt12.i

Sample Info: RS97H

Volume Injected (uL): 1.0

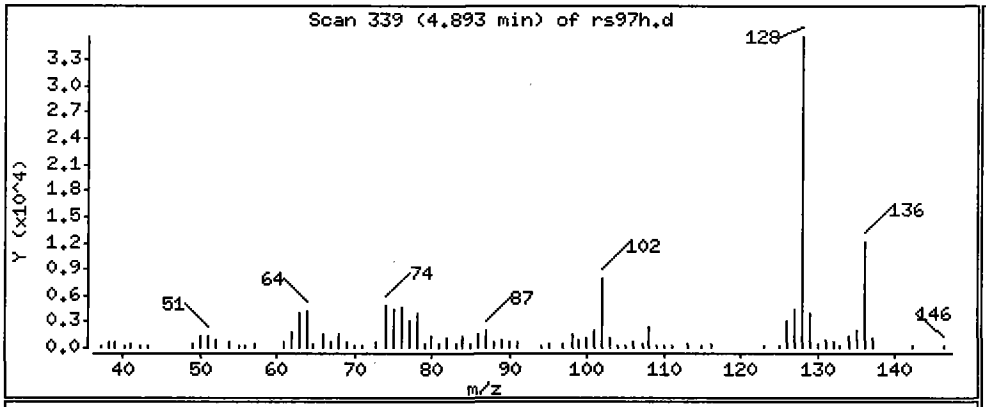
Operator: VTS

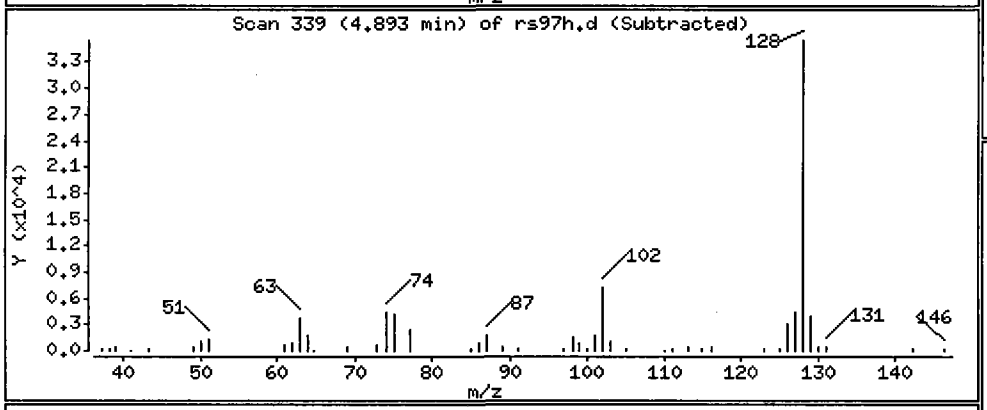
Column phase: ZB-5msi

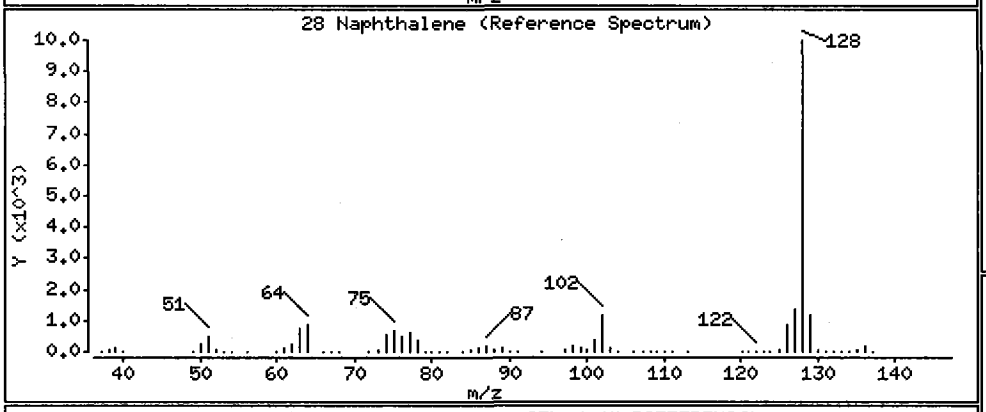
Column diameter: 0.32

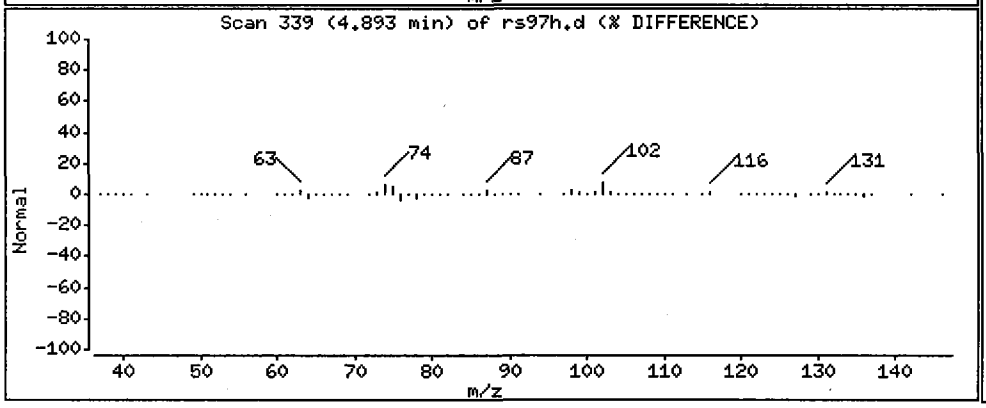
28 Naphthalene

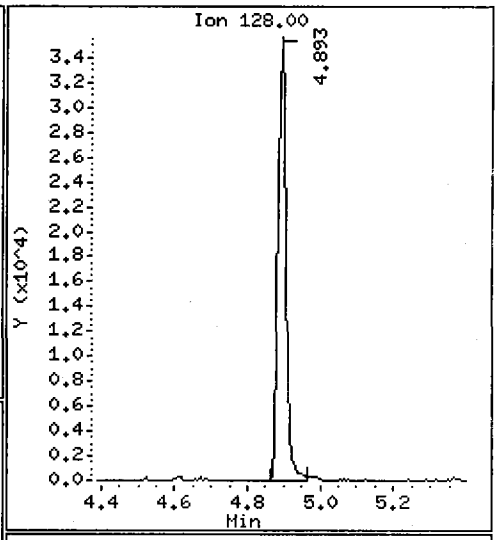
Concentration: 2555 ug/kg

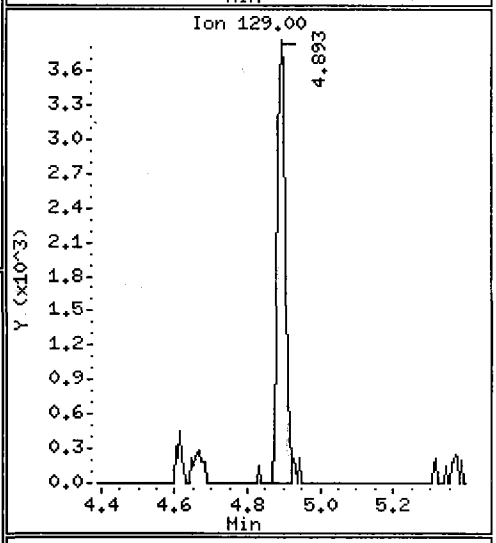


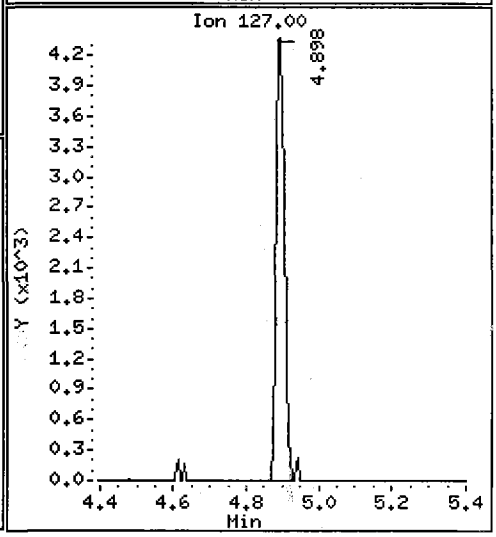












Data File: /chem1/nt12.i/20101111.b/rs97h.d

Date : 11-NOV-2010 16:09

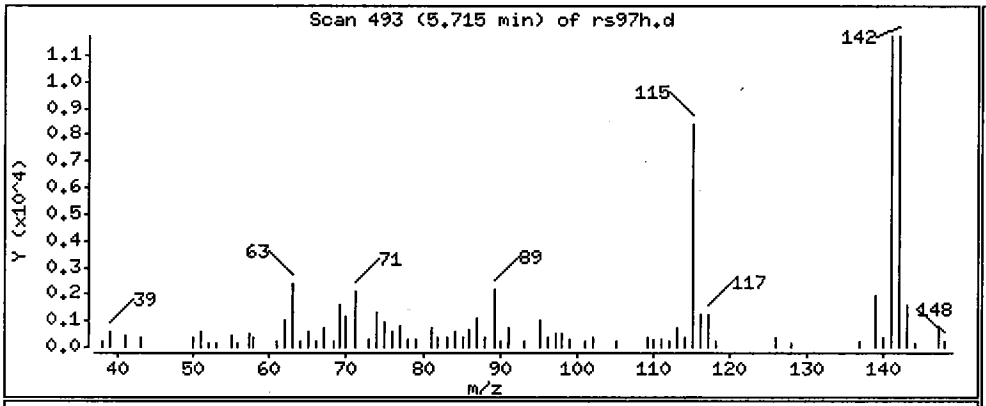
Client ID: DGS-07-011.3-101012 Instrument: nt12.i

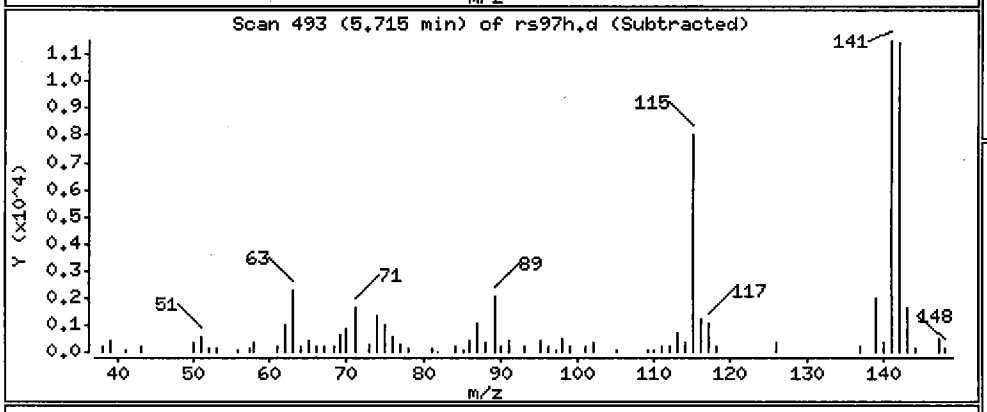
Sample Info: RS97H

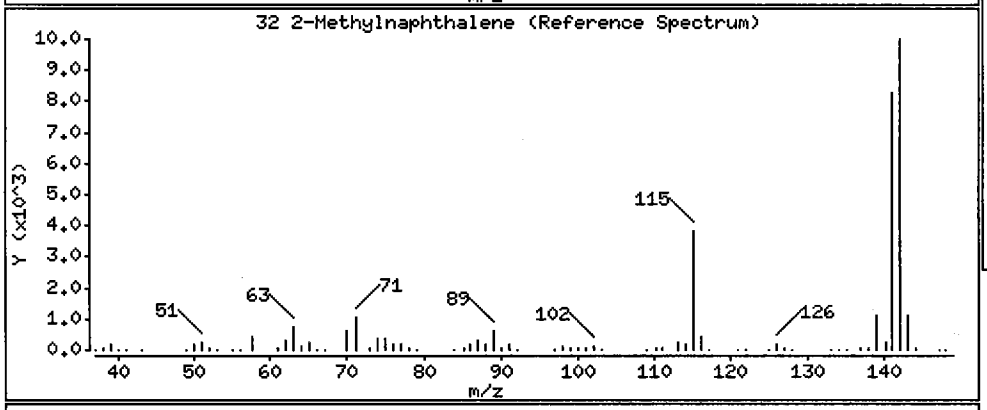
Volume Injected (uL): 1.0 Operator: VTS

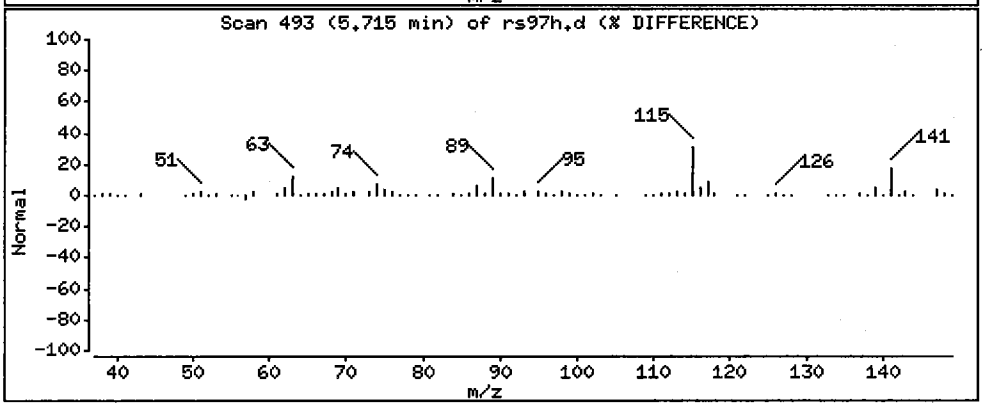
Column phase: ZB-5msi Column diameter: 0.32

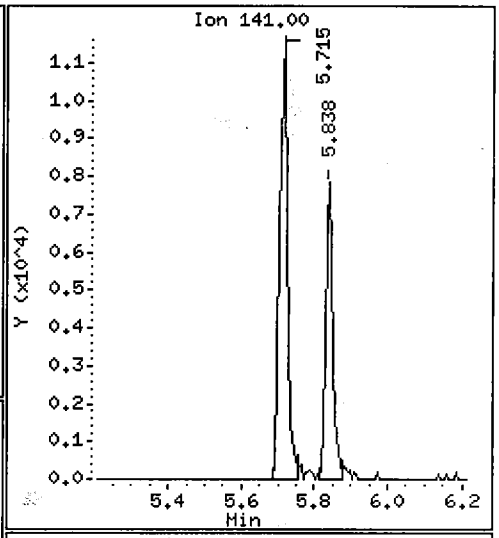
32 2-Methylnaphthalene Concentration: 1565 ug/kg

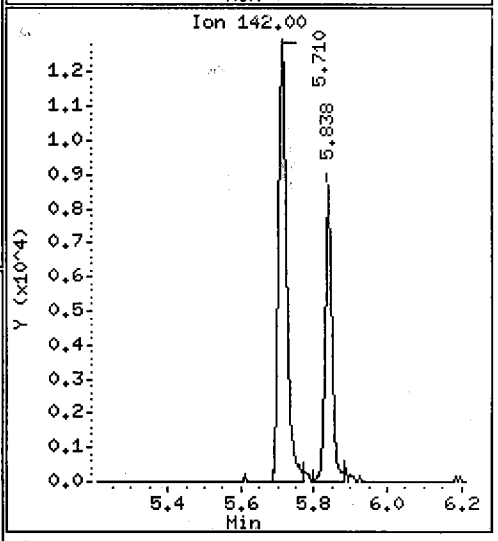












Data File: /chem1/nt12.i/20101111.b/rs97h.d

Date : 11-NOV-2010 16:09

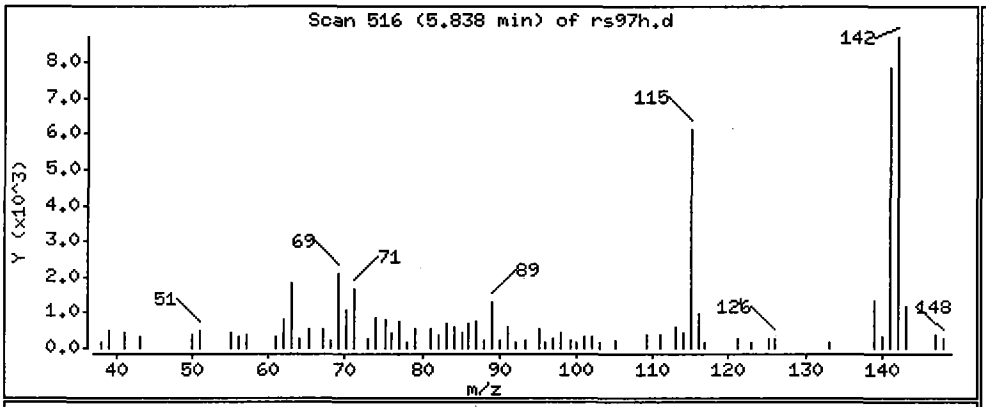
Client ID: DGS-07-011.3-101012 Instrument: nt12.i

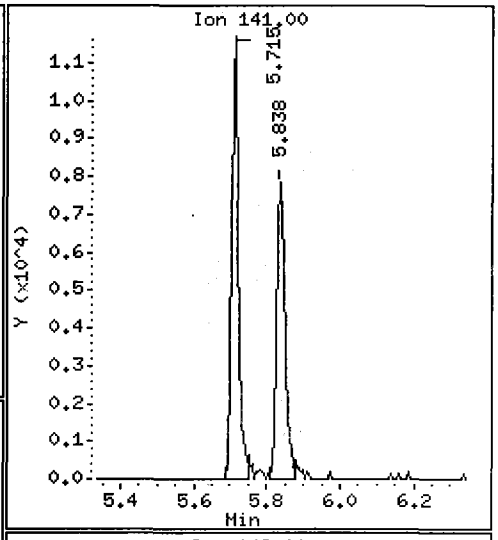
Sample Info: RS97H

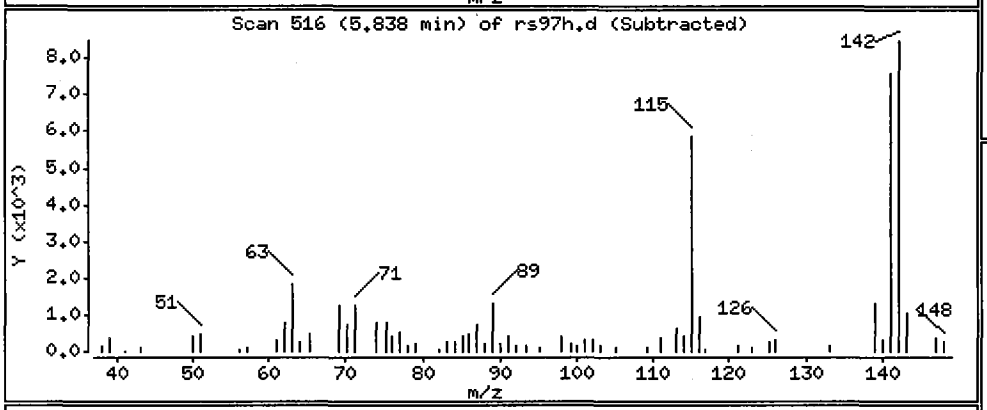
Volume Injected (uL): 1.0 Operator: VTS

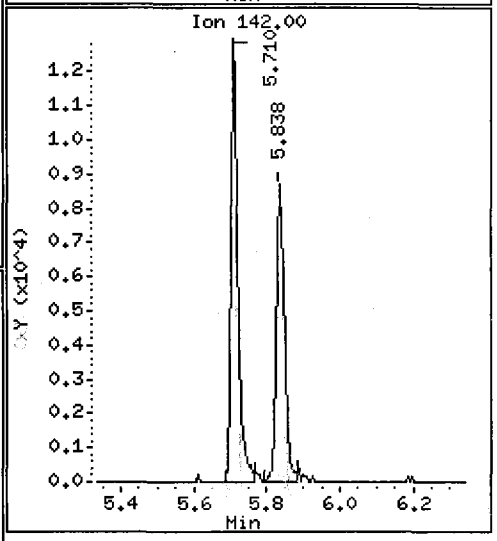
Column phase: ZB-5msi Column diameter: 0.32

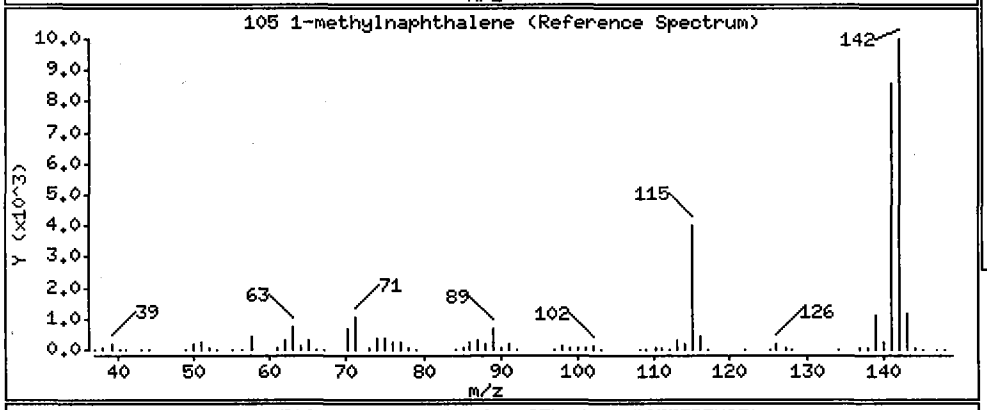
105 1-methylnaphthalene Concentration: 1060 ug/kg

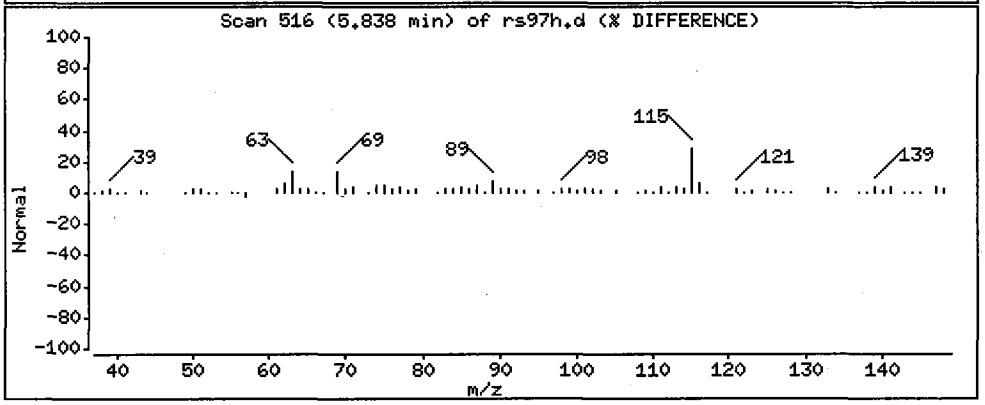












Data File: /chem1/nt12.i/20101111.b/rs97h.d

Date : 11-NOV-2010 16:09

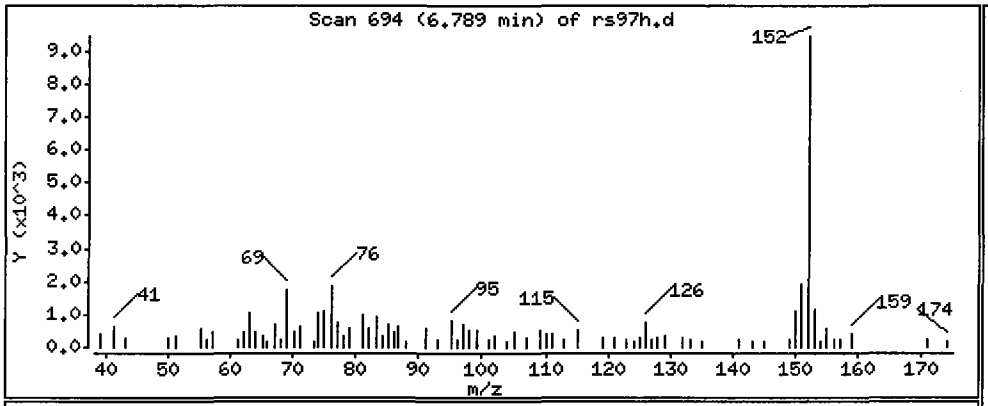
Client ID: DGS-07-011.3-101012 Instrument: nt12.i

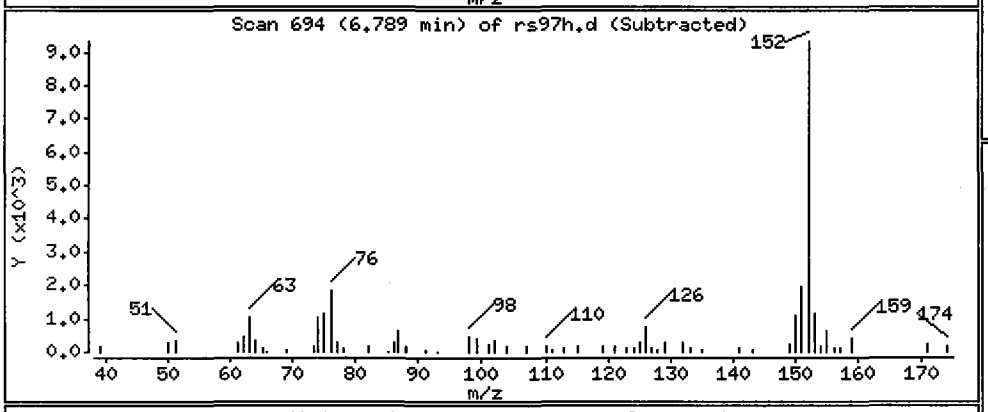
Sample Info: RS97H

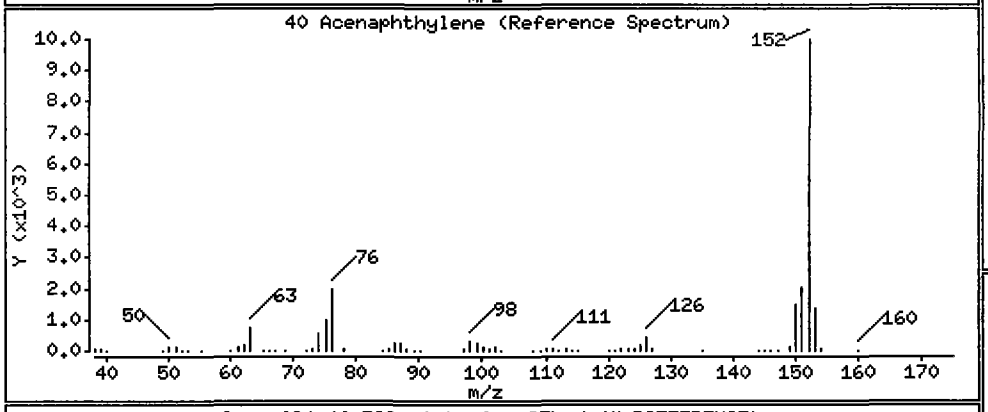
Volume Injected (uL): 1.0 Operator: VTS

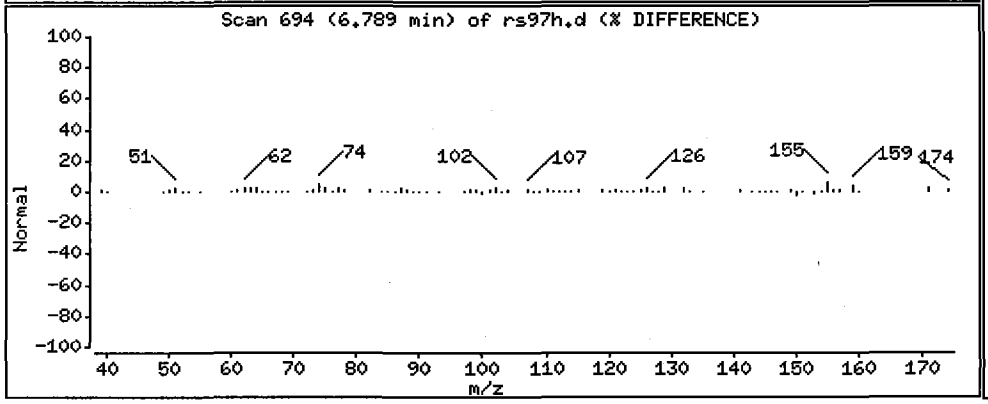
Column phase: ZB-5msi Column diameter: 0.32

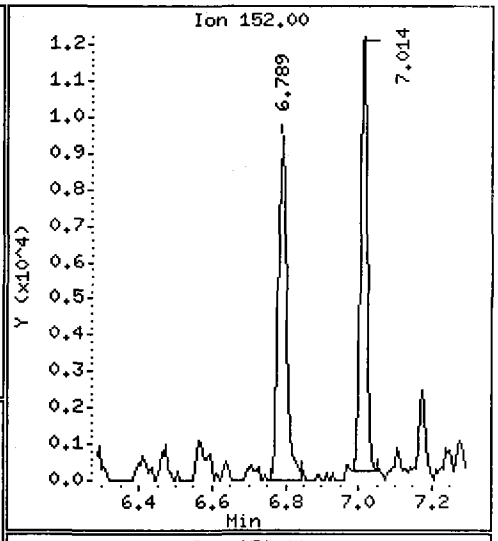
40 Acenaphthylene Concentration: 646.3 ug/kg

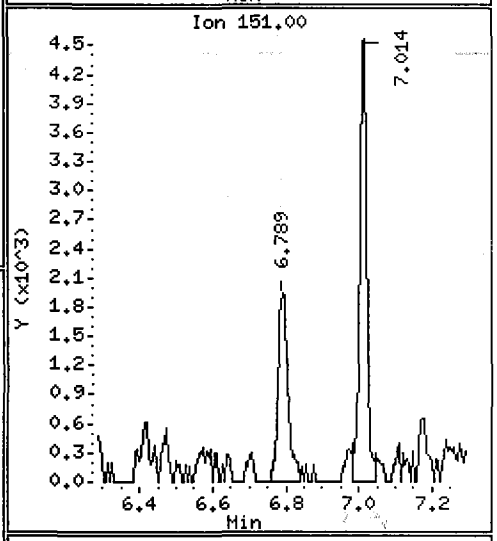


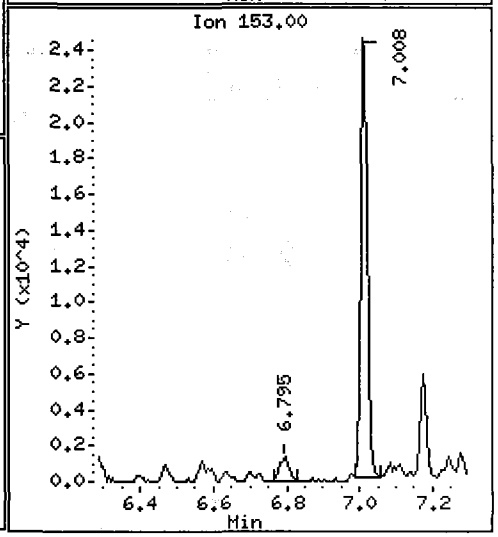












Data File: /chem1/nt12.i/20101111.b/rs97h.d

Date : 11-NOV-2010 16:09

Client ID: DGS-07-011.3-101012

Instrument: nt12.i

Sample Info: RS97H

Volume Injected (uL): 1.0

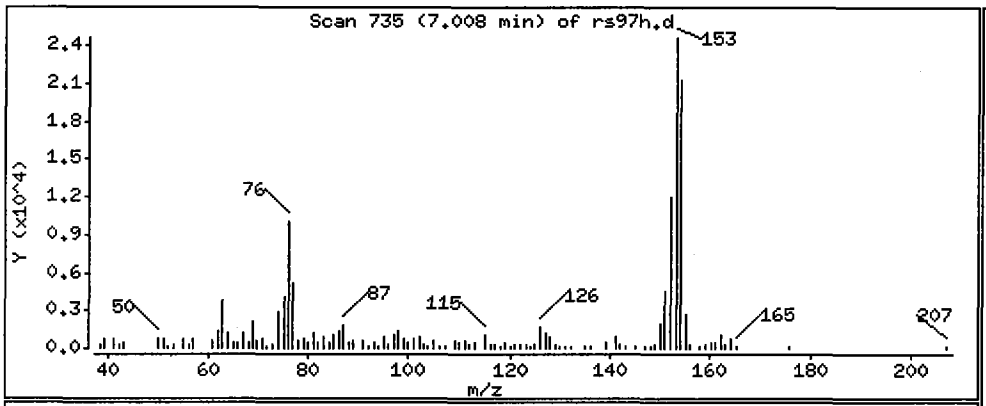
Operator: VTS

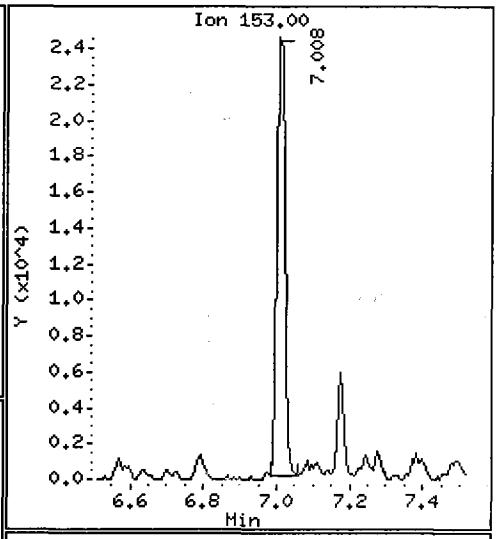
Column phase: ZB-5msi

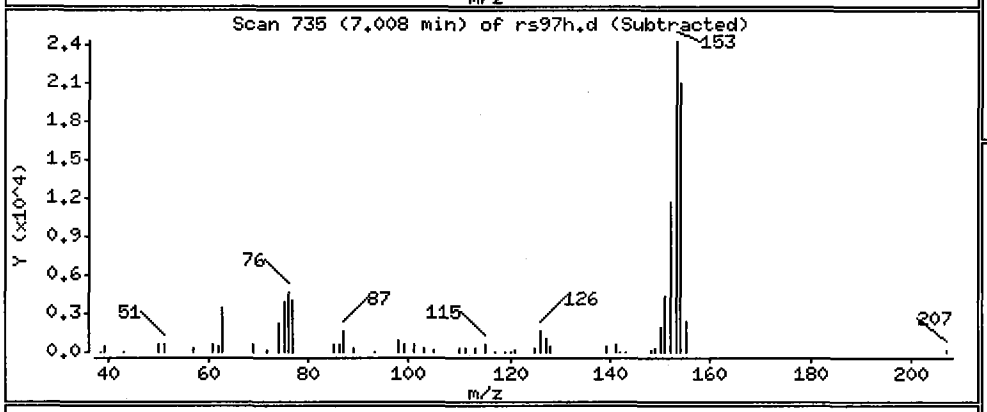
Column diameter: 0.32

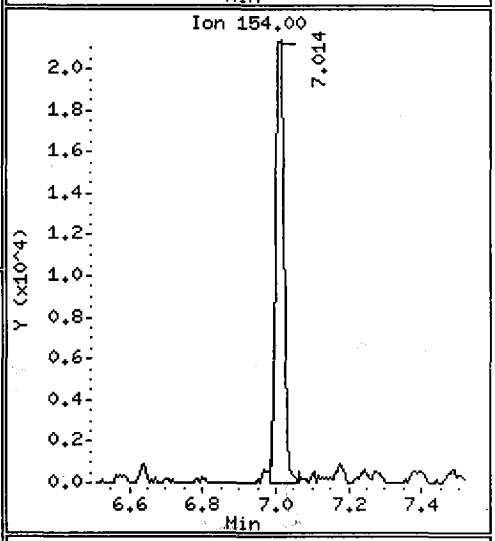
44 Acenaphthene

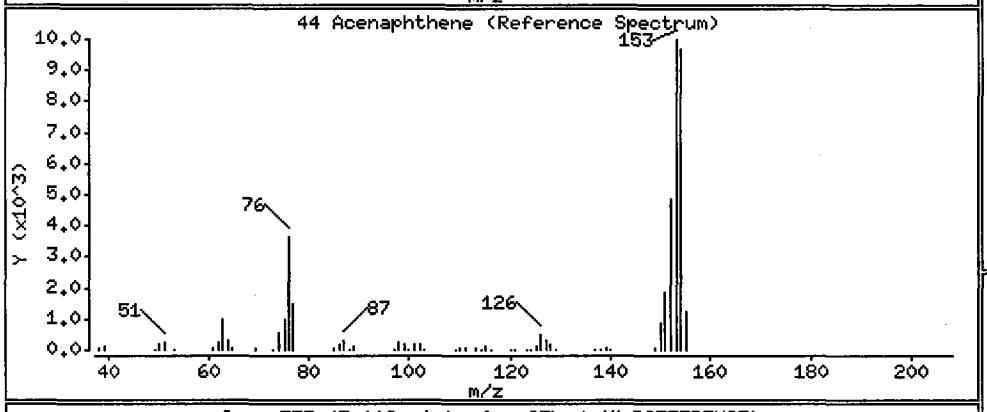
Concentration: 2503 ug/kg

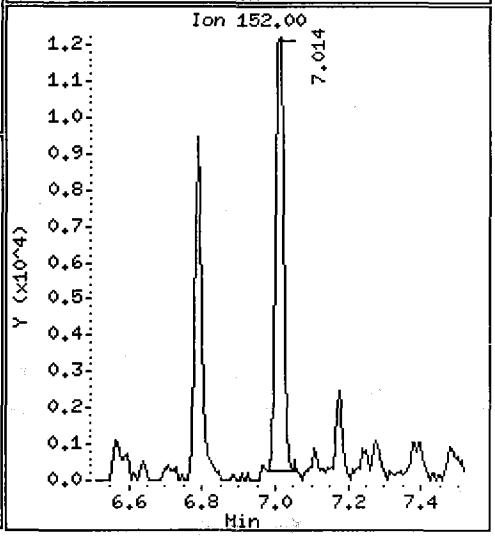


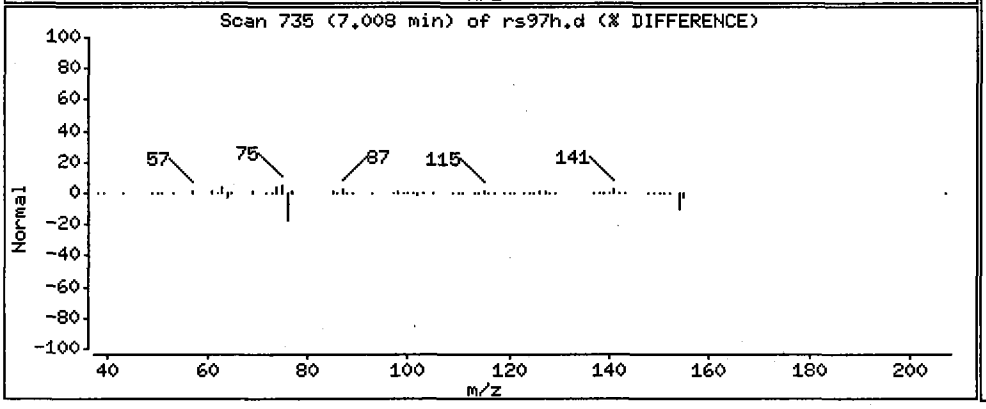












Data File: /chem1/nt12.i/20101111.b/rs97h.d

Date : 11-NOV-2010 16:09

Client ID: DGS-07-011.3-101012

Instrument: nt12.i

Sample Info: RS97H

Volume Injected (uL): 1.0

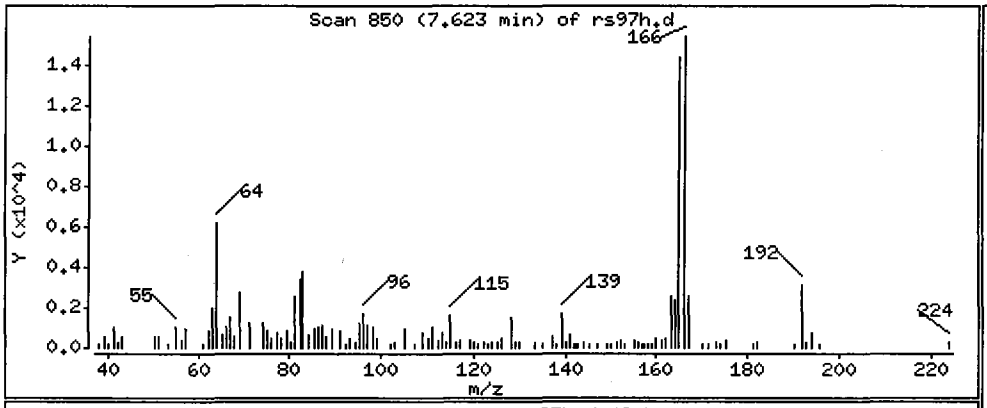
Operator: VTS

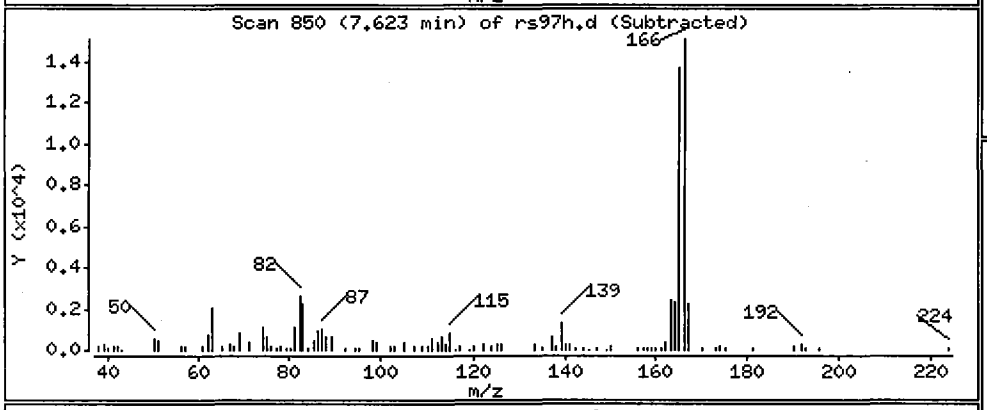
Column phase: ZB-5msi

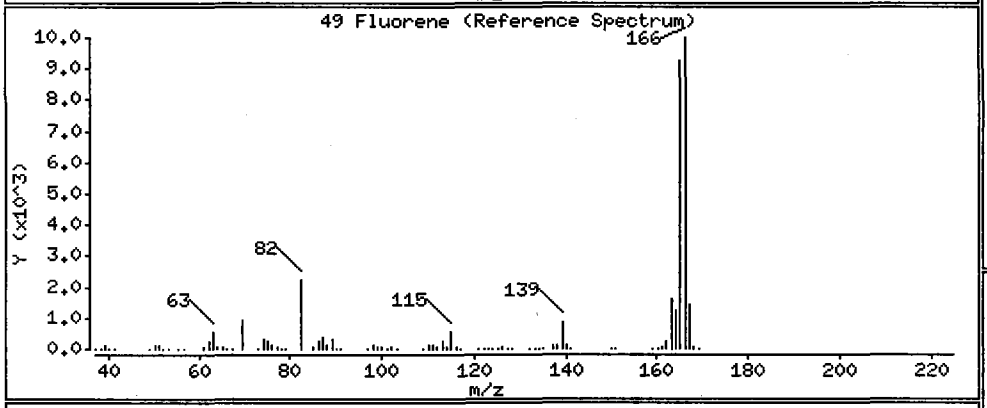
Column diameter: 0.32

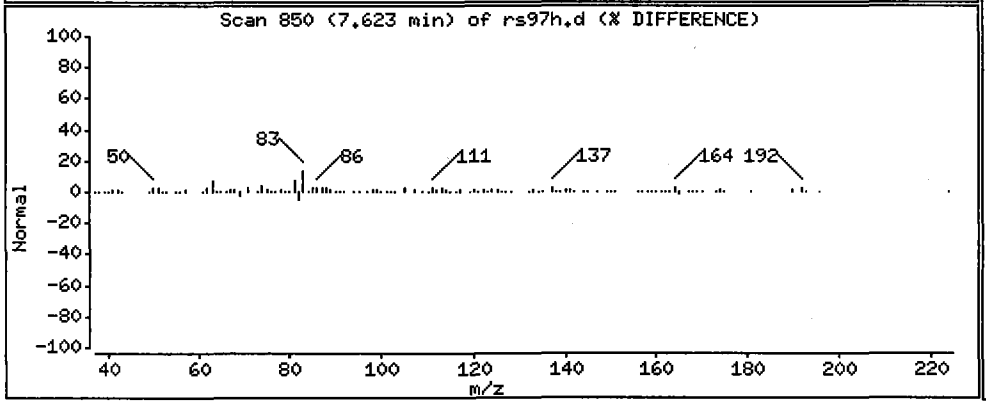
49 Fluorene

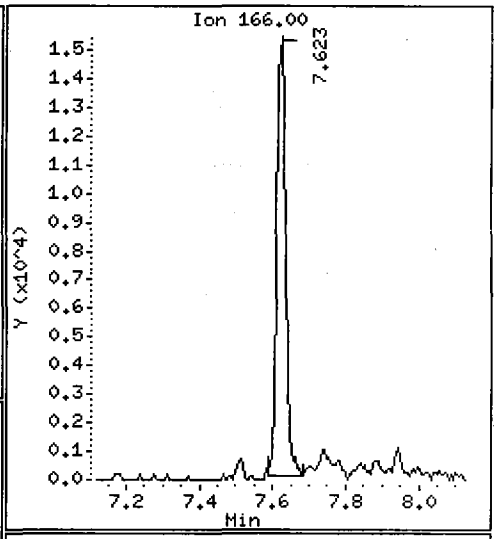
Concentration: 1555 ug/kg

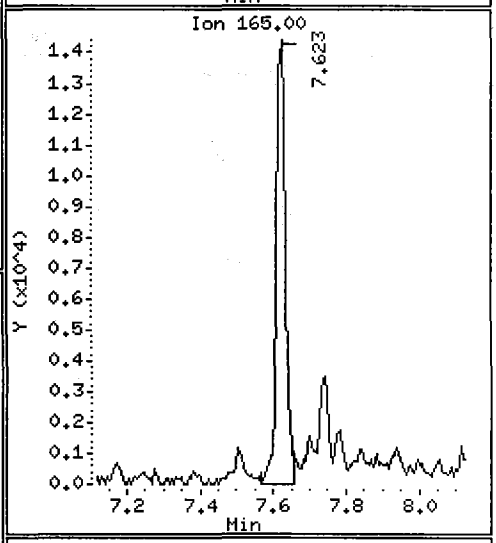


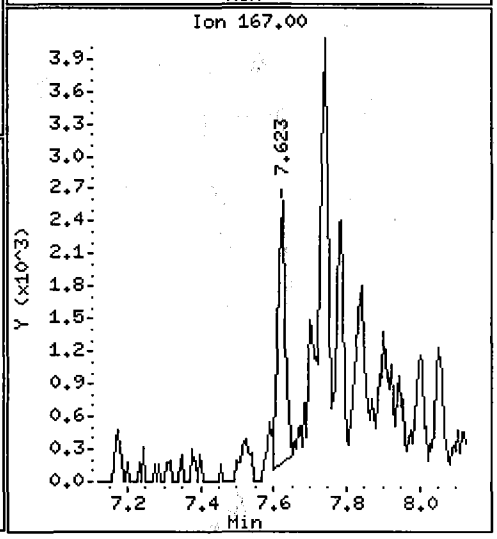












Data File: /chem1/nt12.i/20101111.b/rs97h.d

Date : 11-NOV-2010 16:09

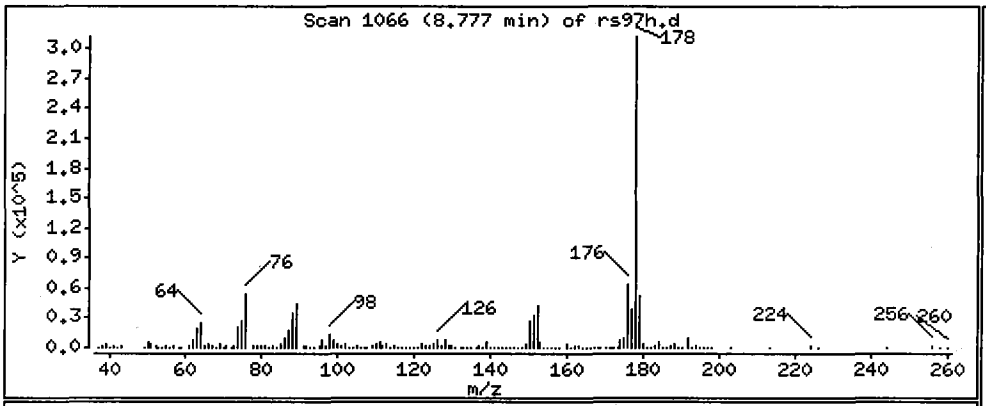
Client ID: DGS-07-011.3-101012 Instrument: nt12.i

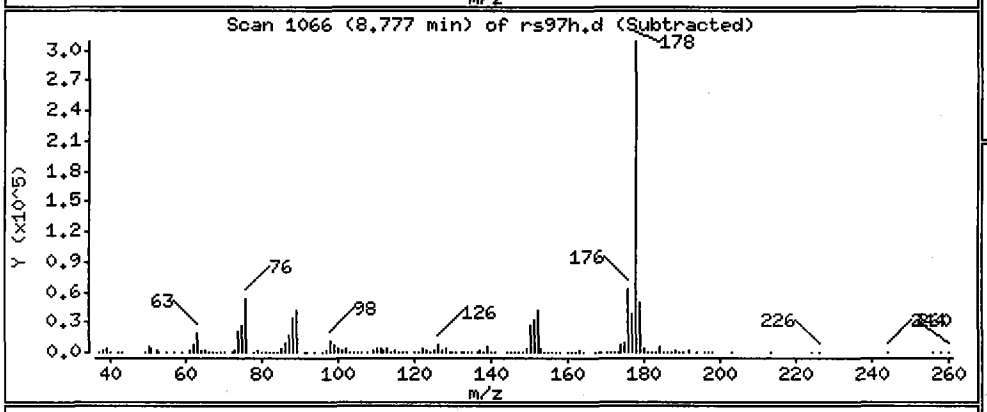
Sample Info: RS97H

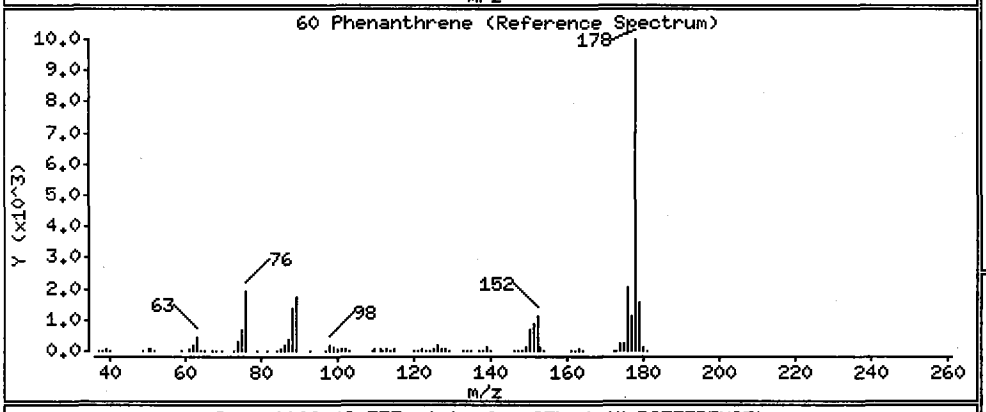
Volume Injected (uL): 1.0 Operator: VTS

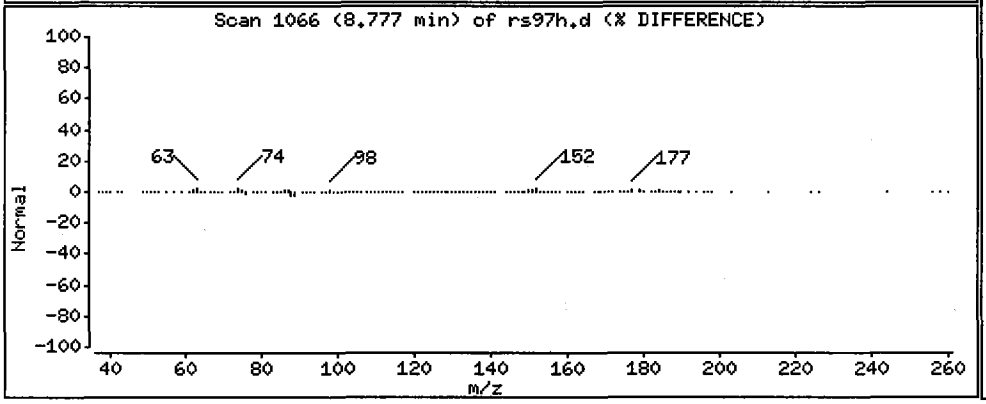
Column phase: ZB-5msi Column diameter: 0.32

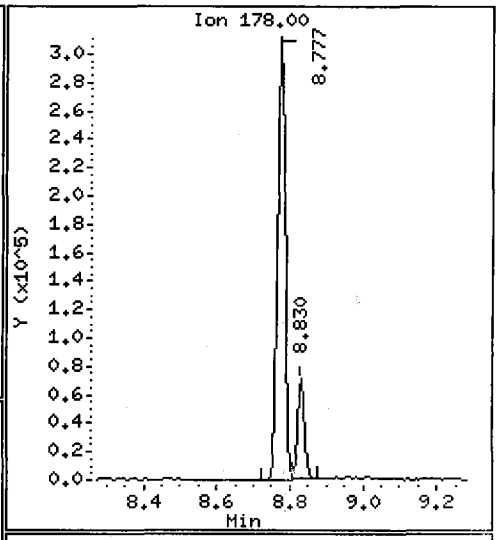
60 Phenanthrene Concentration: 18750 ug/kg

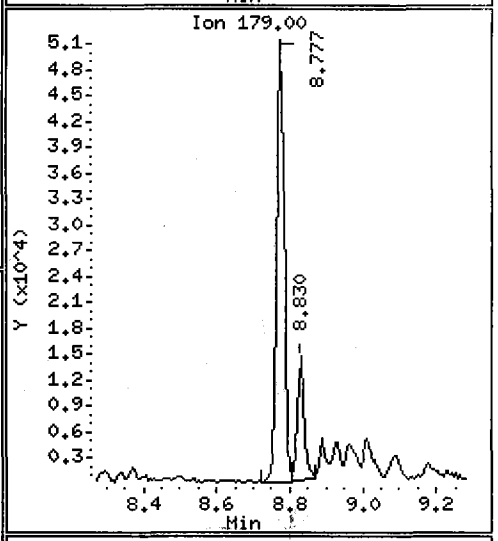


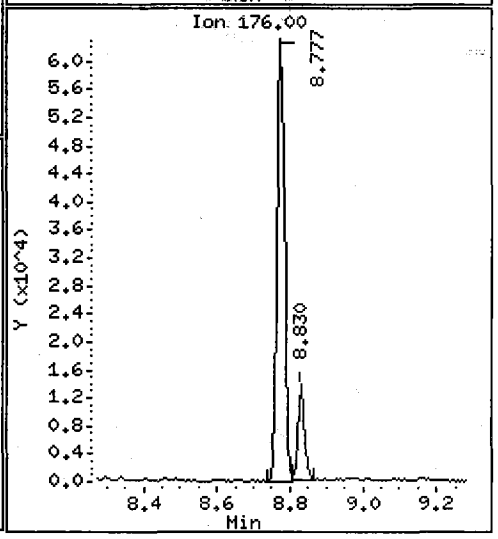












Data File: /chem1/nt12.i/20101111.b/rs97h.d

Date : 11-NOV-2010 16:09

Client ID: DGS-07-011.3-101012

Instrument: nt12.i

Sample Info: RS97H

Volume Injected (uL): 1.0

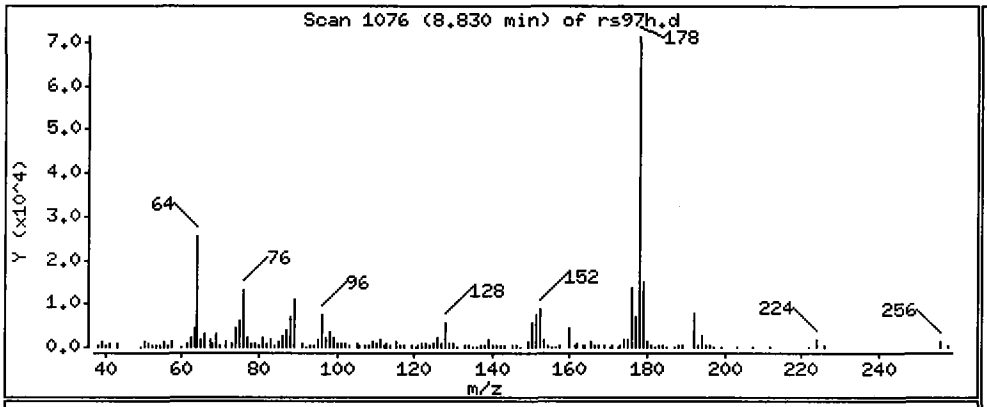
Operator: VTS

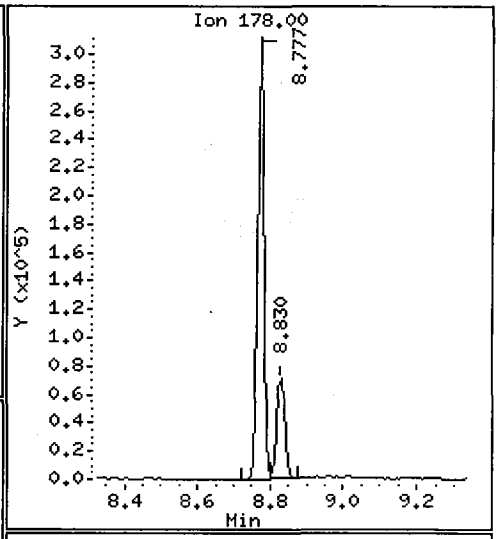
Column phase: ZB-5msi

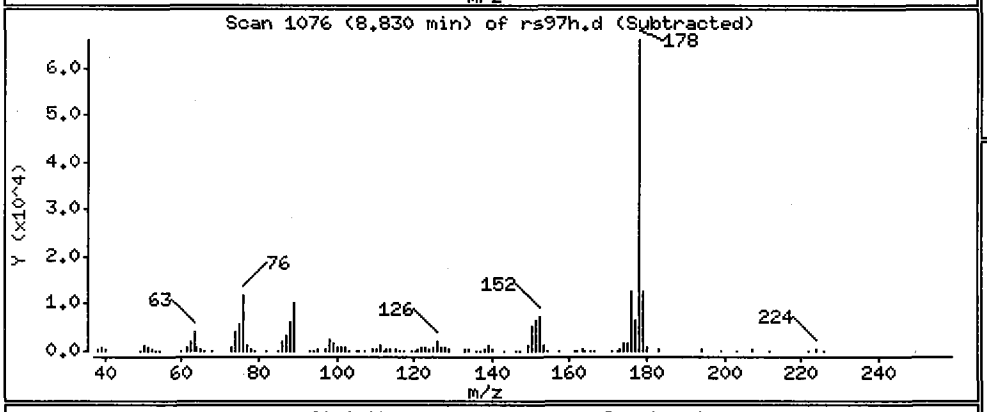
Column diameter: 0.32

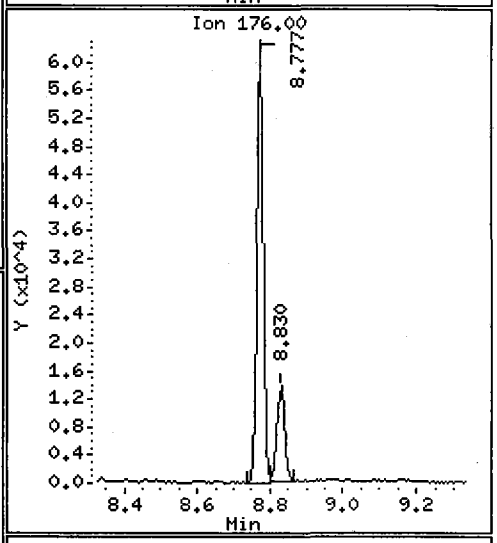
61 Anthracene

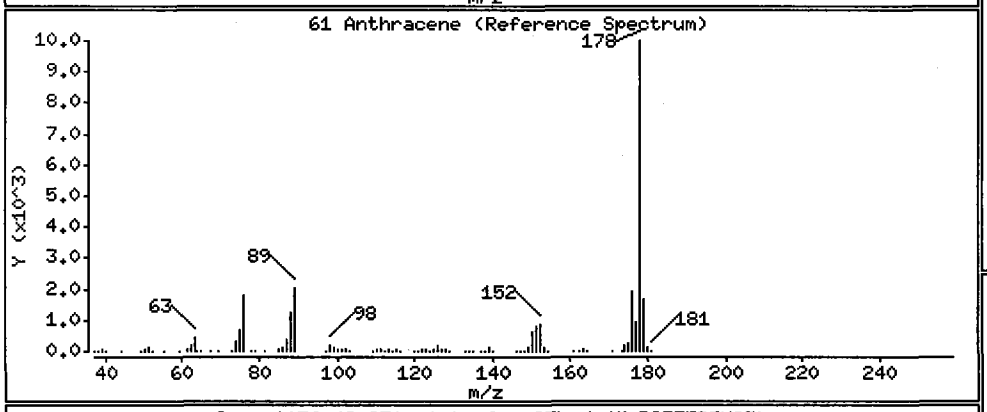
Concentration: 4586 ug/kg

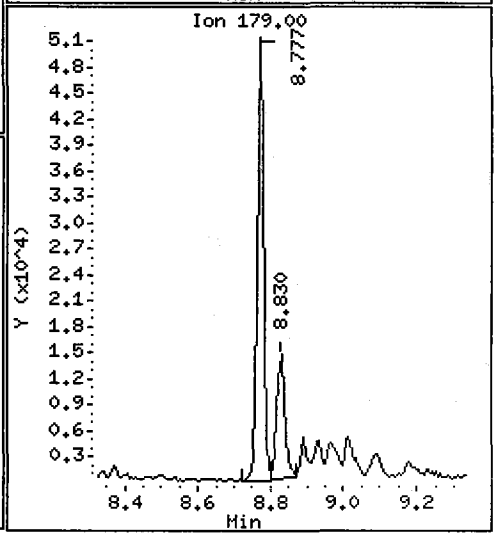


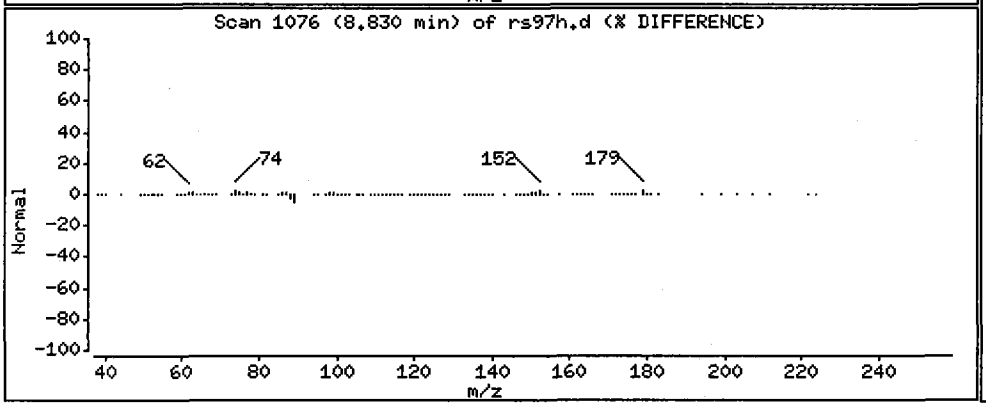












Data File: /chem1/nt12.i/20101111.b/rs97h.d

Date : 11-NOV-2010 16:09

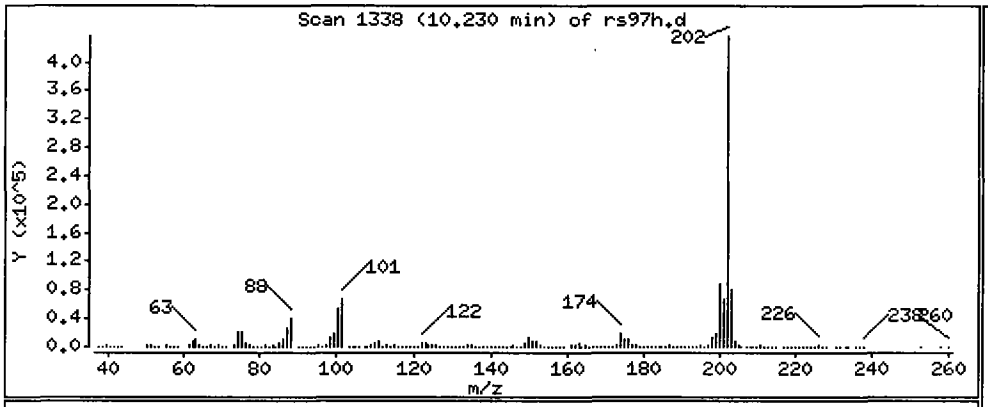
Client ID: DGS-07-011.3-101012 Instrument: nt12.i

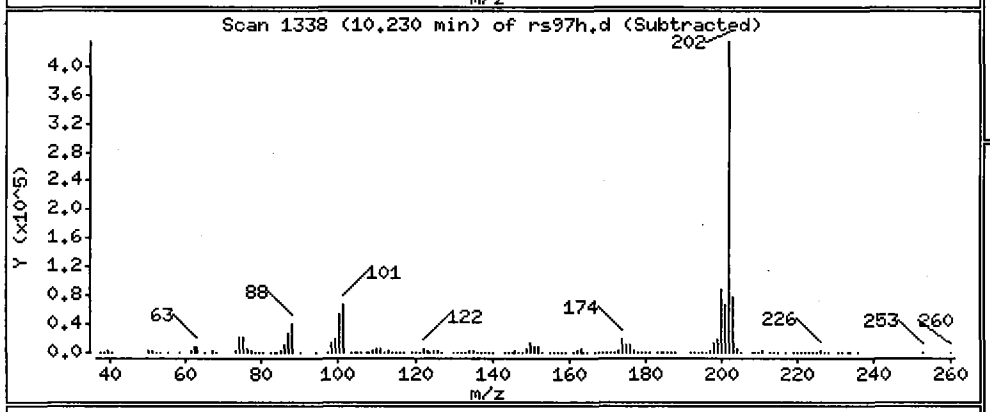
Sample Info: RS97H

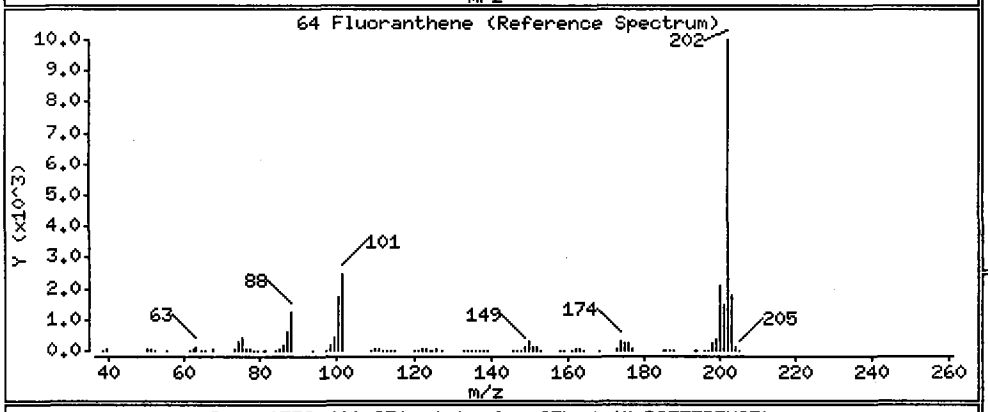
Volume Injected (uL): 1.0 Operator: VTS

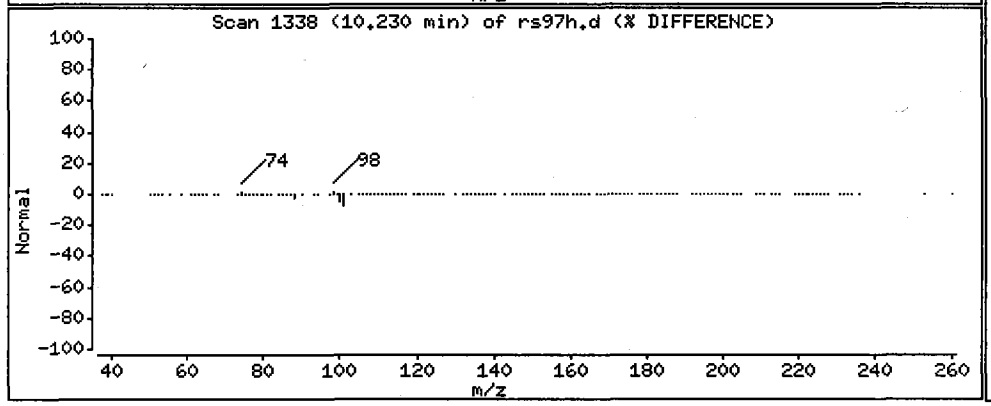
Column phase: ZB-5msi Column diameter: 0.32

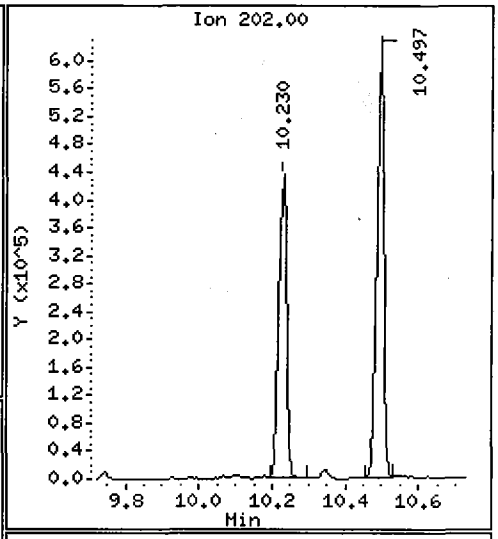
64 Fluoranthene Concentration: 27680 ug/kg

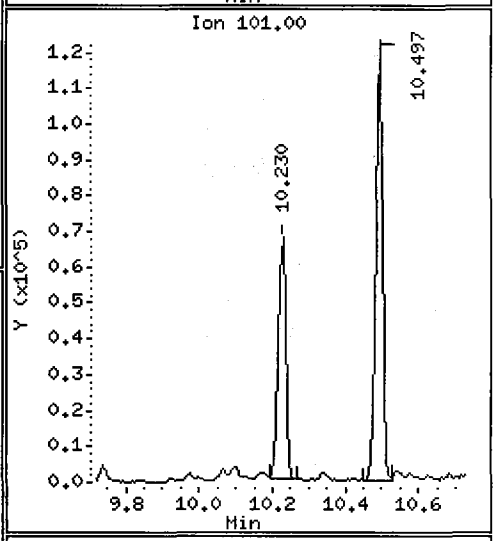


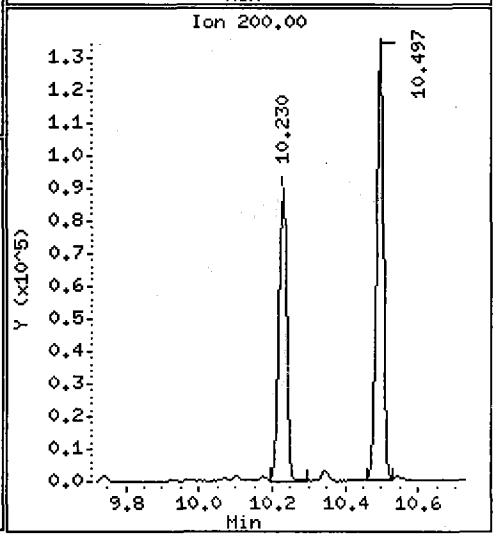












Data File: /chem1/nt12.i/20101111.b/rs97h.d

Date : 11-NOV-2010 16:09

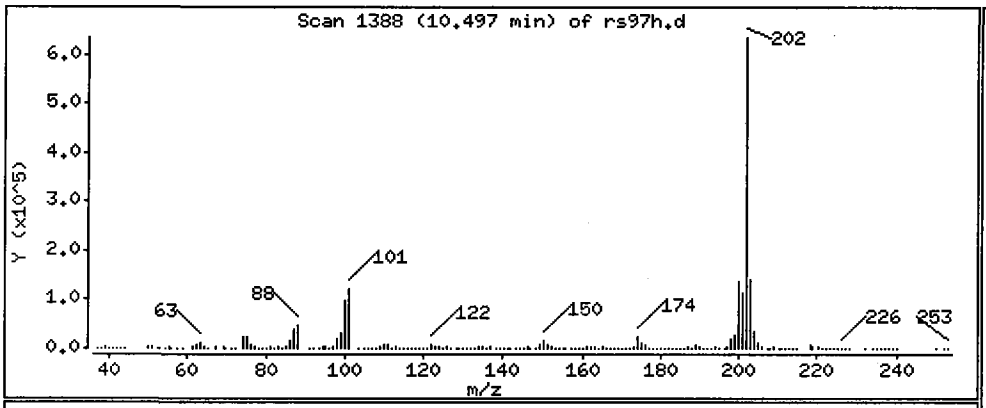
Client ID: DGS-07-011.3-101012 Instrument: nt12.i

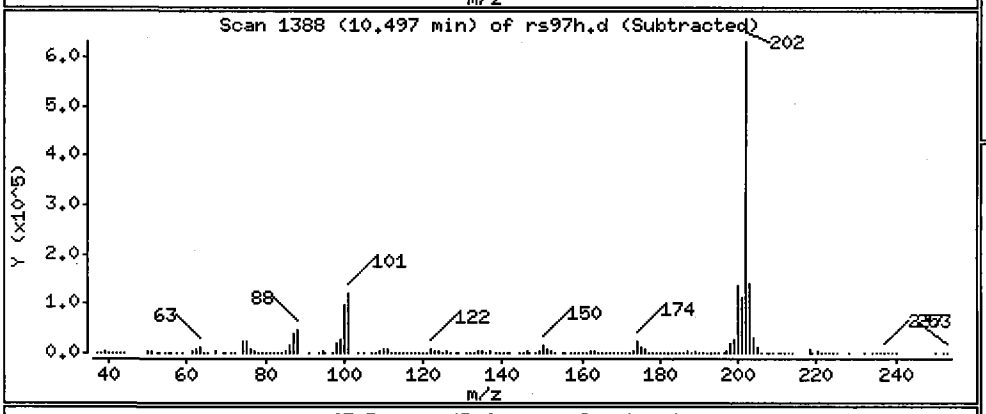
Sample Info: RS97H

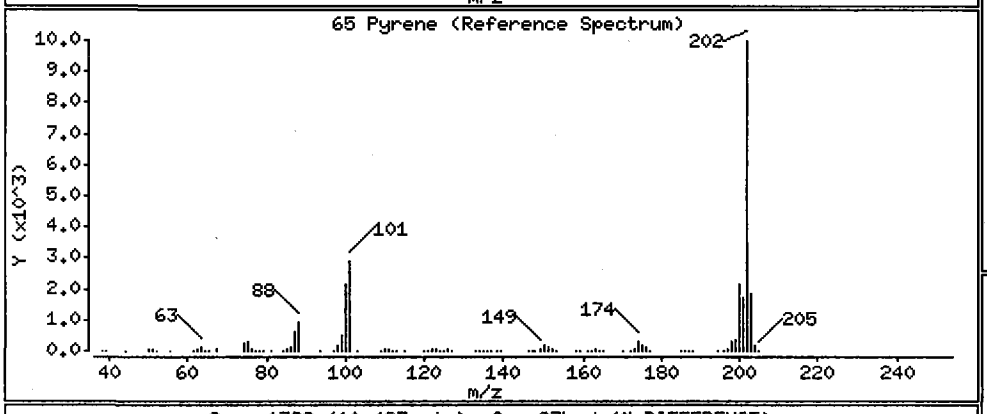
Volume Injected (uL): 1.0 Operator: VTS

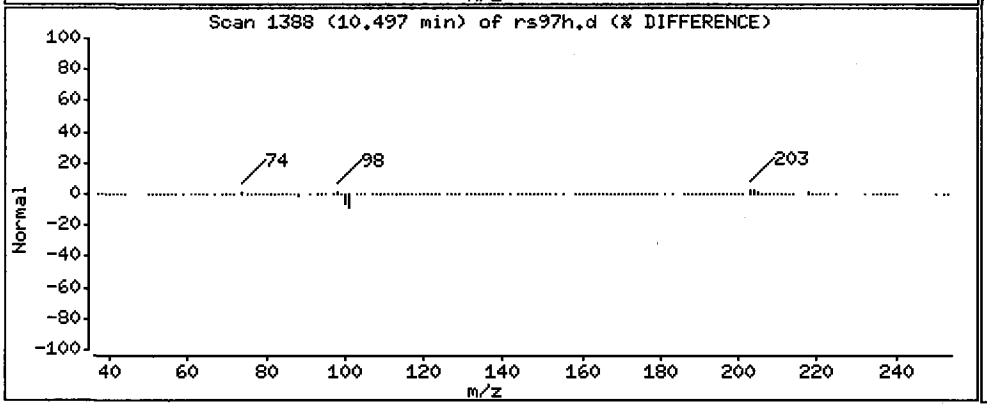
Column phase: ZB-5msi Column diameter: 0.32

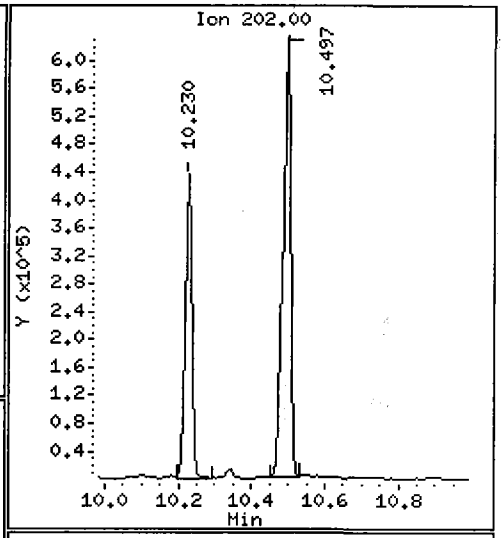
65 Pyrene Concentration: 41910 ug/kg

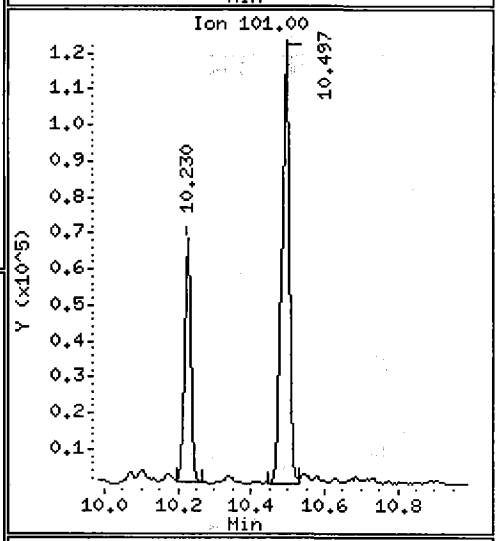


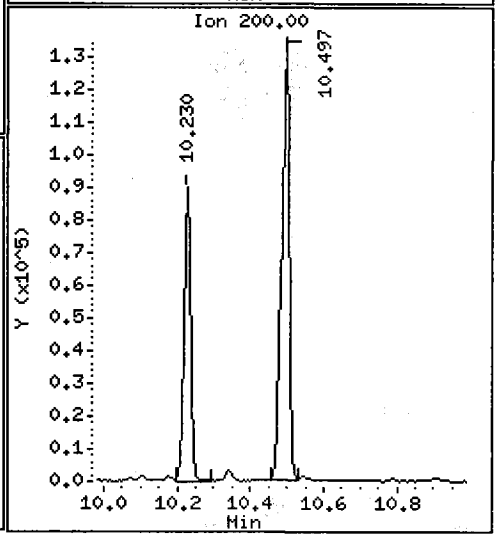












Data File: /chem1/nt12.i/20101111.b/rs97h.d

Date : 11-NOV-2010 16:09

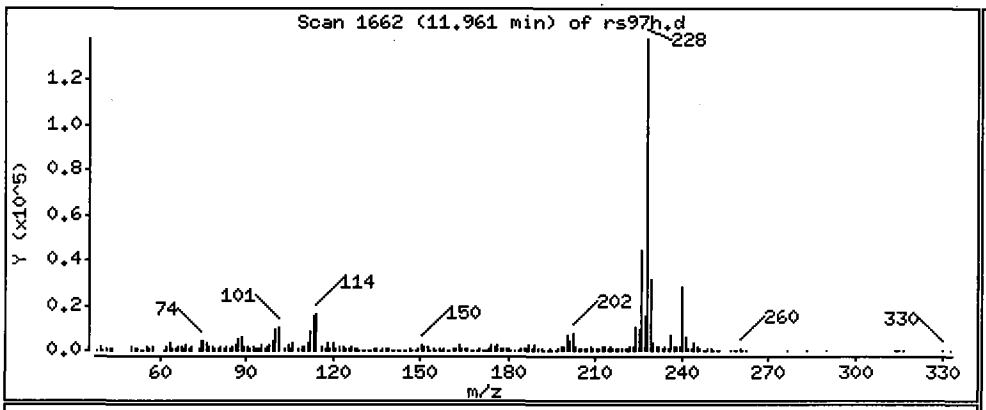
Client ID: DGS-07-011.3-101012 Instrument: nt12.i

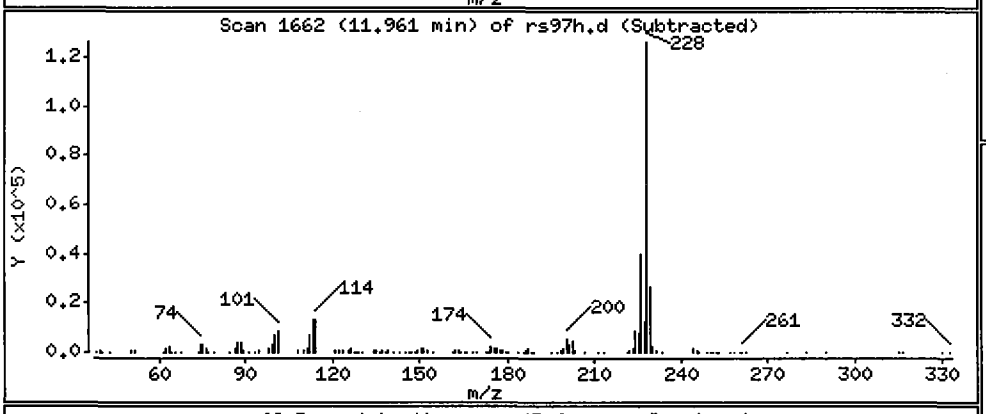
Sample Info: RS97H

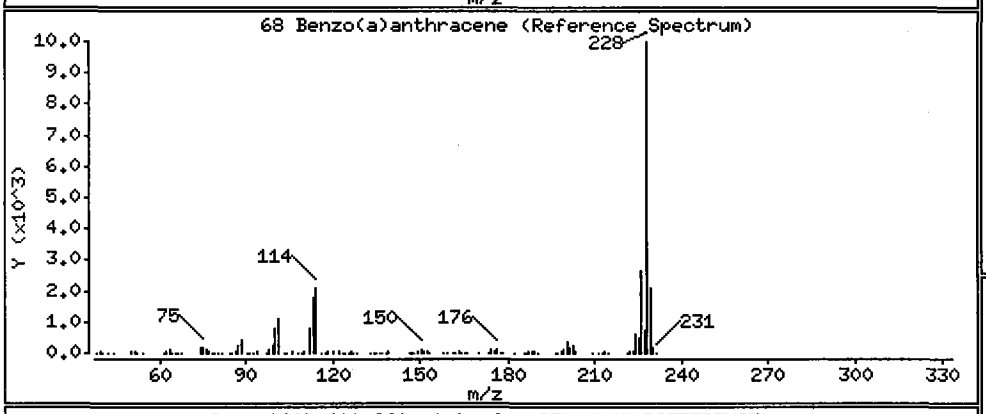
Volume Injected (uL): 1.0 Operator: VTS

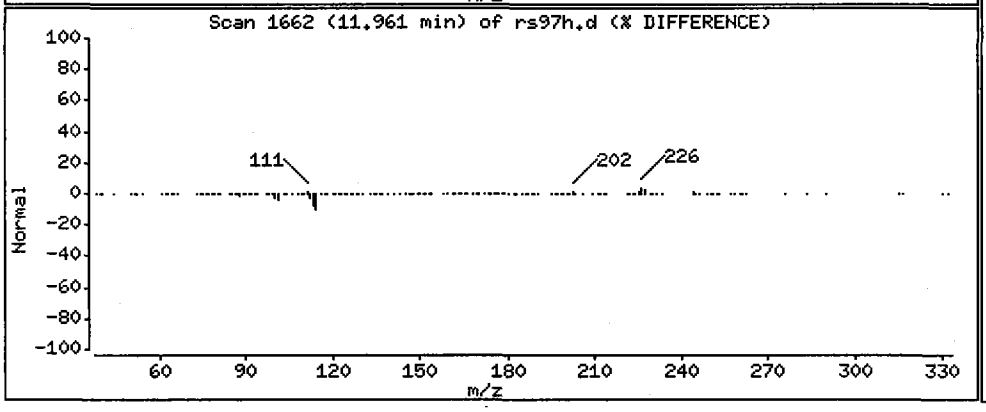
Column phase: ZB-5msi Column diameter: 0.32

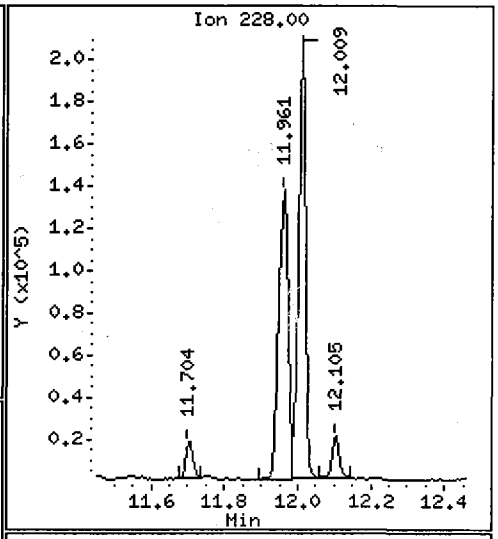
68 Benzo(a)anthracene Concentration: 13760 ug/kg

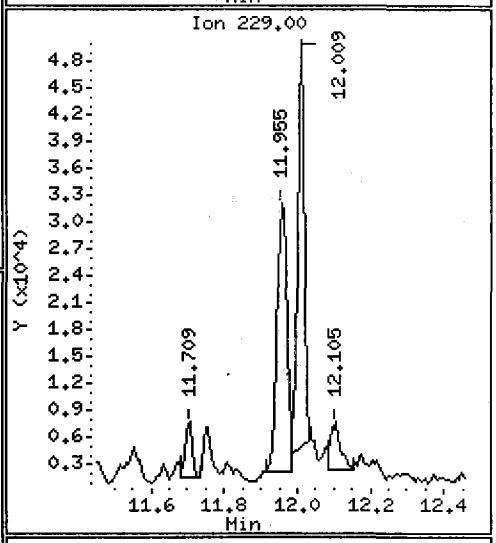


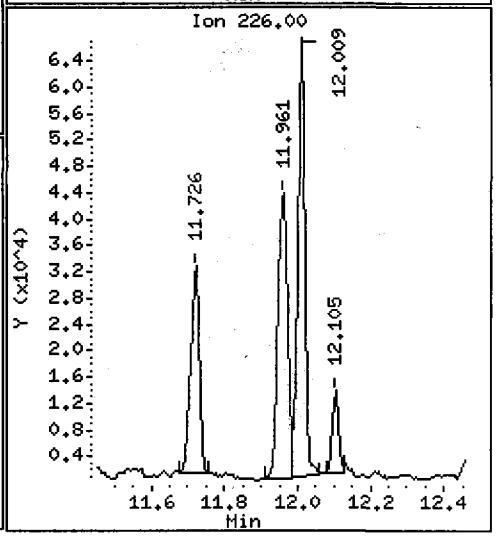












Data File: /chem1/nt12.i/20101111.b/rs97h.d

Date : 11-NOV-2010 16:09

Client ID: DGS-07-011.3-101012

Instrument: nt12.i

Sample Info: RS97H

Volume Injected (uL): 1.0

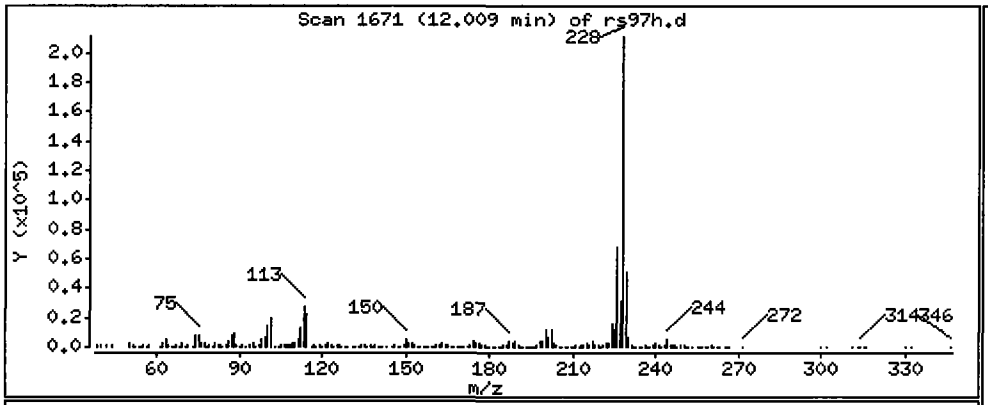
Operator: VTS

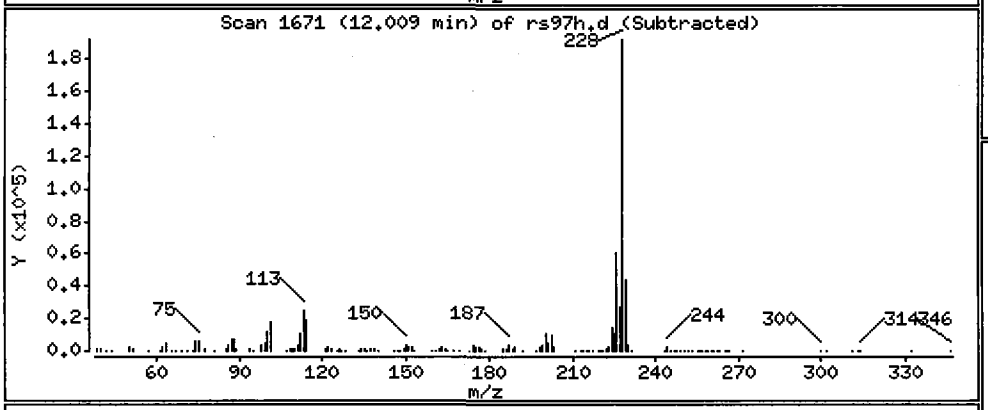
Column phase: ZB-5msi

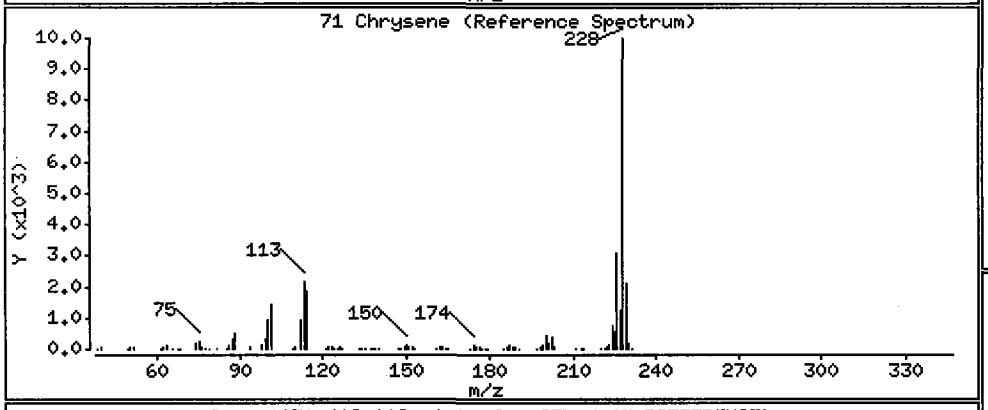
Column diameter: 0.32

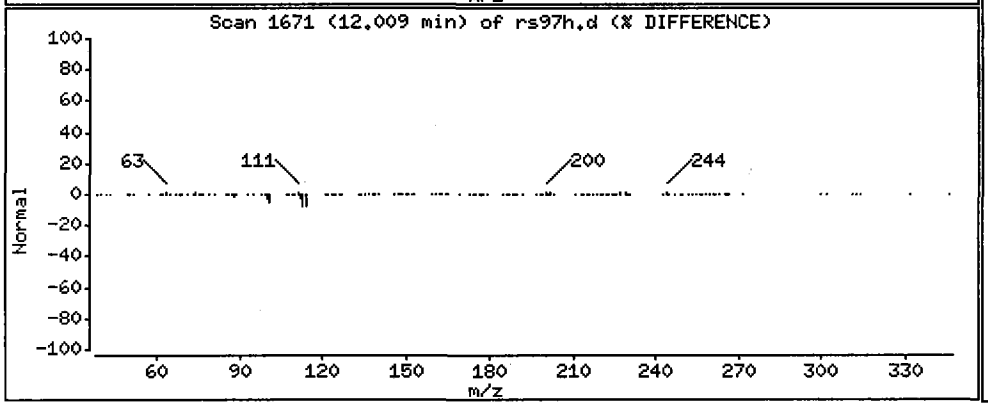
71 Chrysene

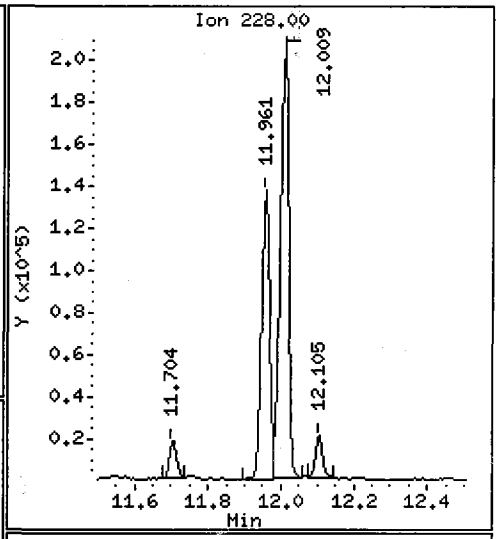
Concentration: 18870 ug/kg

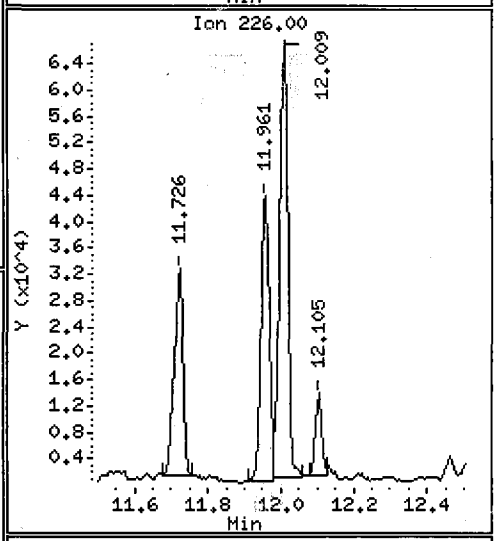


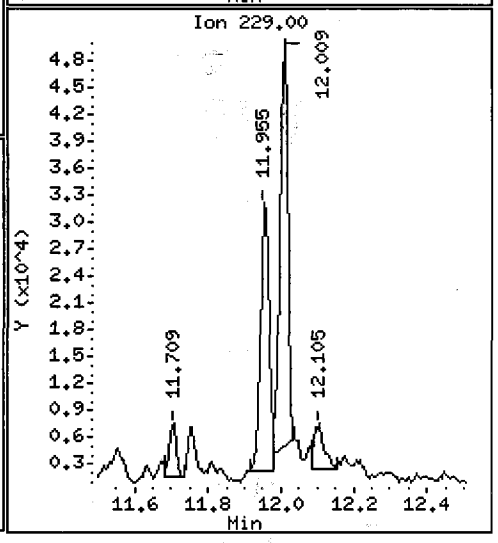












Data File: /chem1/nt12.i/20101111.b/rs97h.d

Date : 11-NOV-2010 16:09

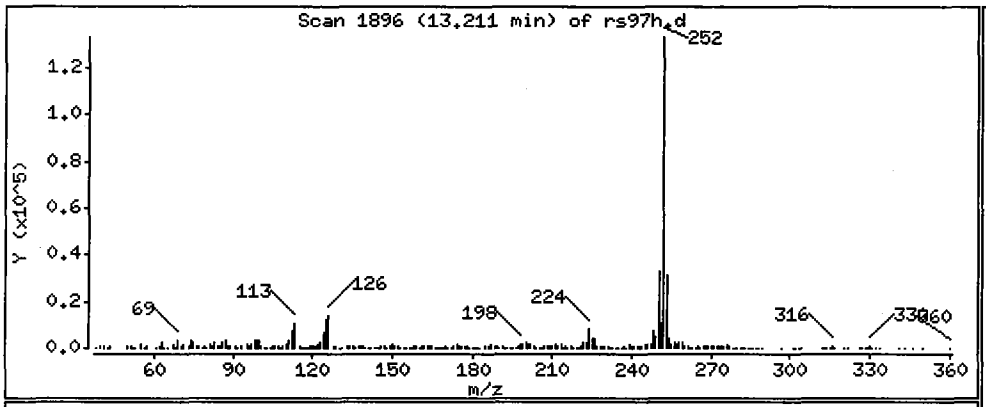
Client ID: DGS-07-011.3-101012 Instrument: nt12.i

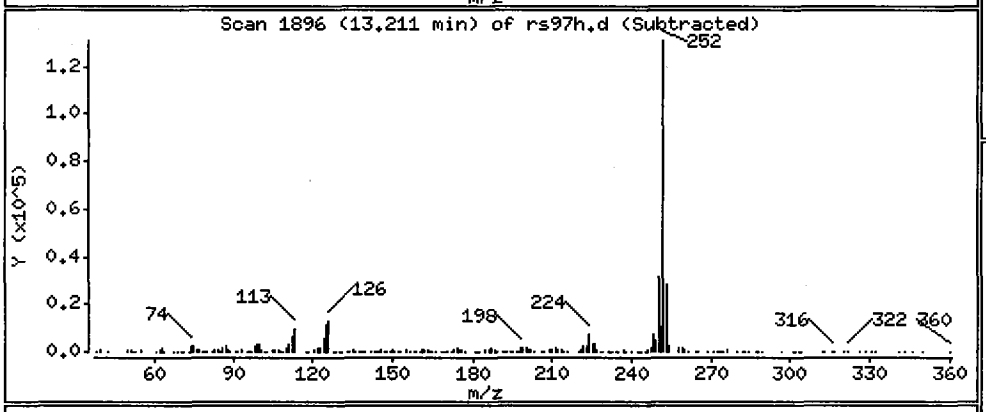
Sample Info: RS97H

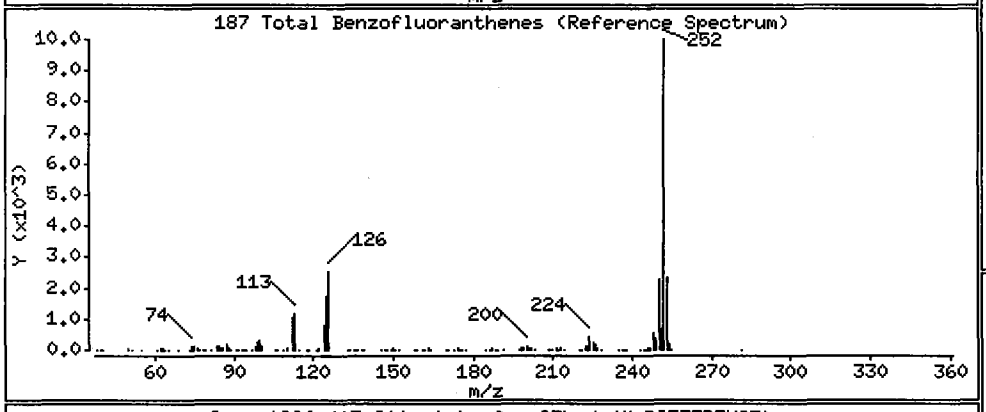
Volume Injected (uL): 1.0 Operator: VTS

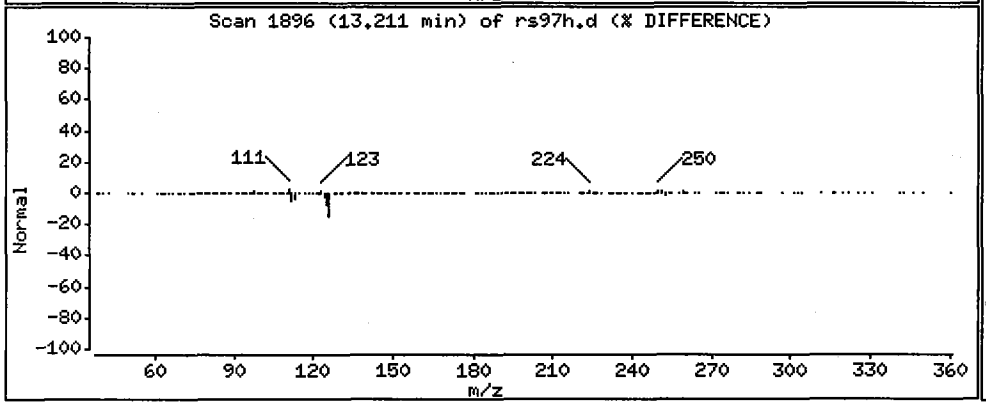
Column phase: ZB-5msi Column diameter: 0.32

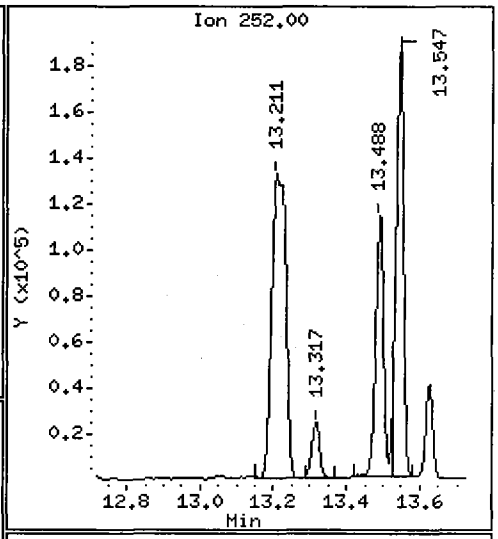
187 Total Benzofluoranthenes Concentration: 21440 ug/kg

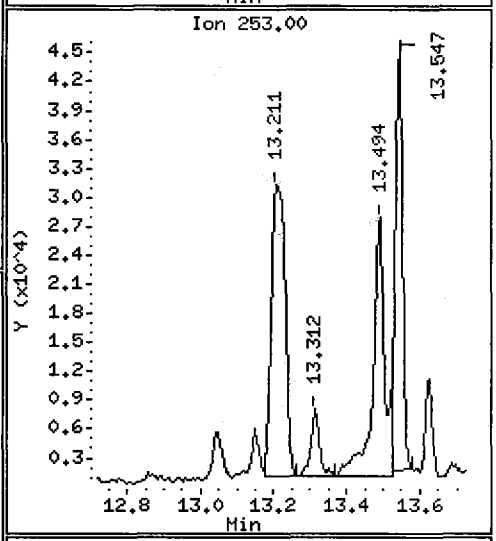


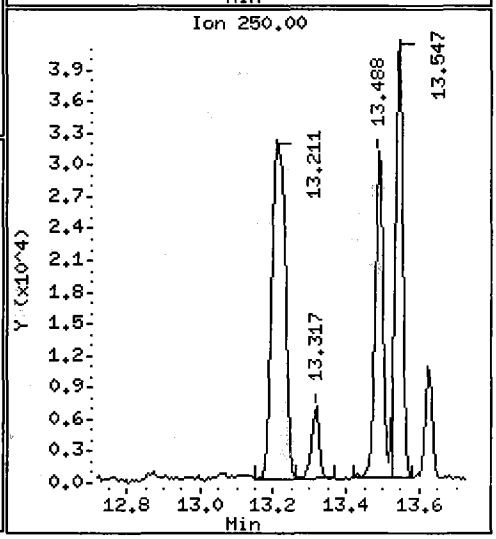












Data File: /chem1/nt12.i/20101111.b/rs97h.d

Date : 11-NOV-2010 16:09

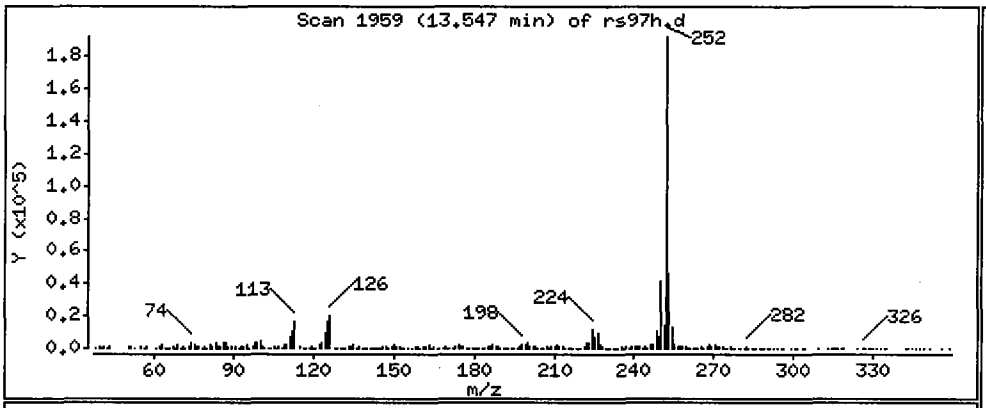
Client ID: DGS-07-011.3-101012 | Instrument: nt12.i

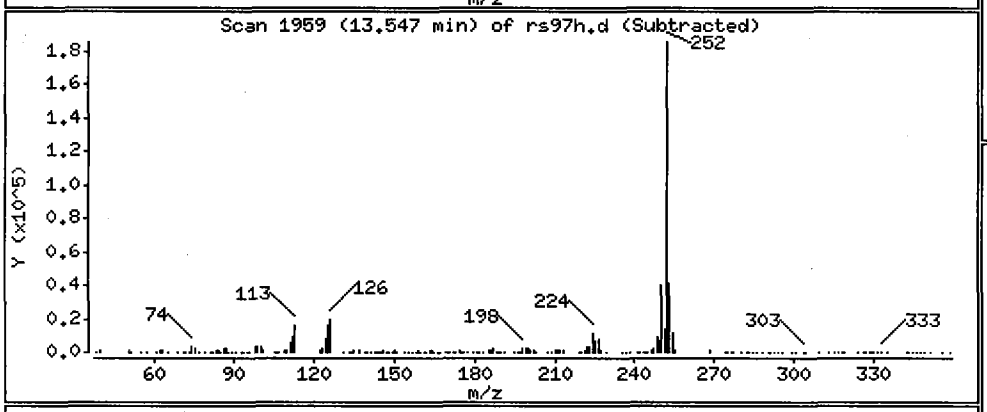
Sample Info: RS97H

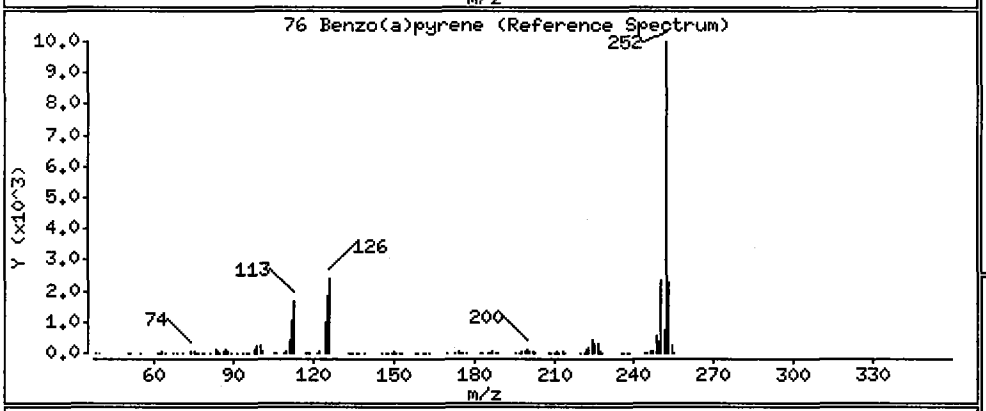
Volume Injected (uL): 1.0 | Operator: VTS

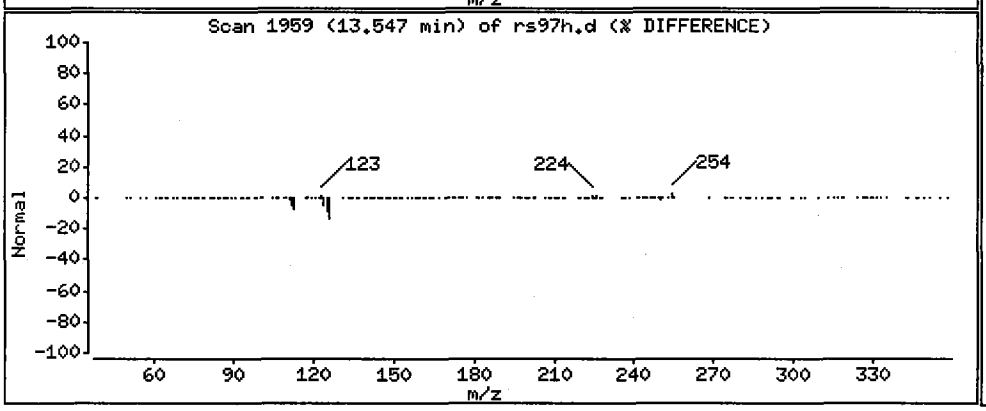
Column phase: ZB-5msi | Column diameter: 0.32

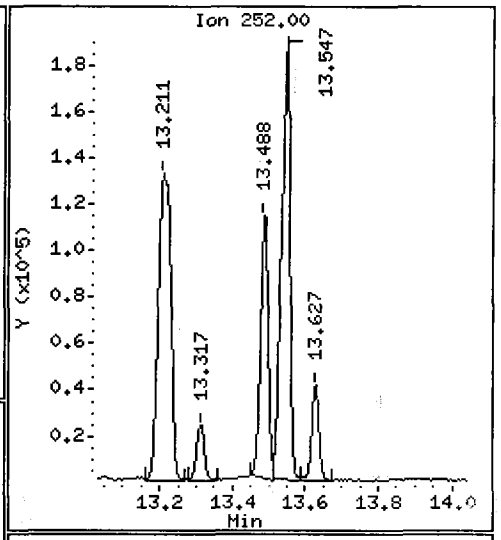
76 Benzo(a)pyrene | Concentration: 20230 ug/kg

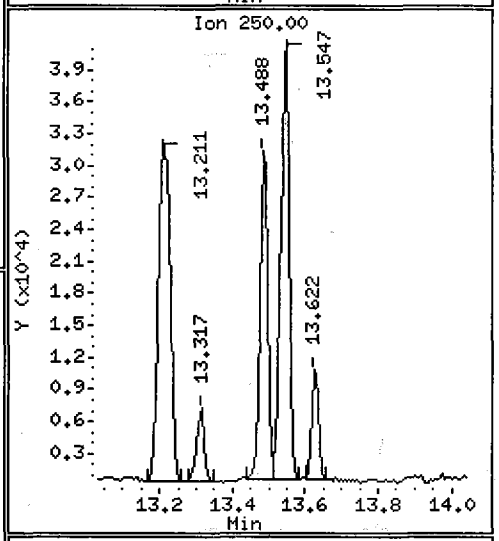


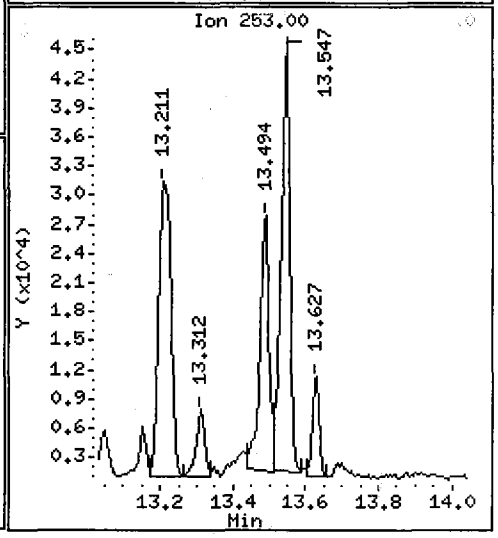












Data File: /chem1/nt12.i/20101111.b/rs97h.d

Date : 11-NOV-2010 16:09

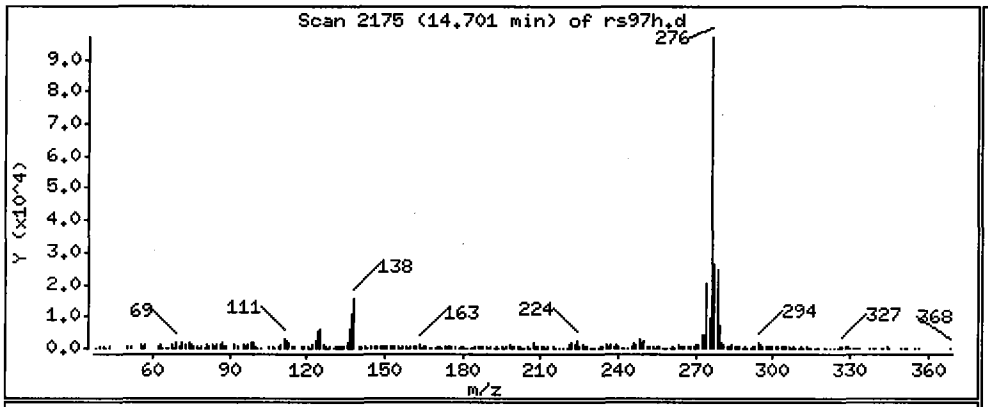
Client ID: DGS-07-011.3-101012 Instrument: nt12.i

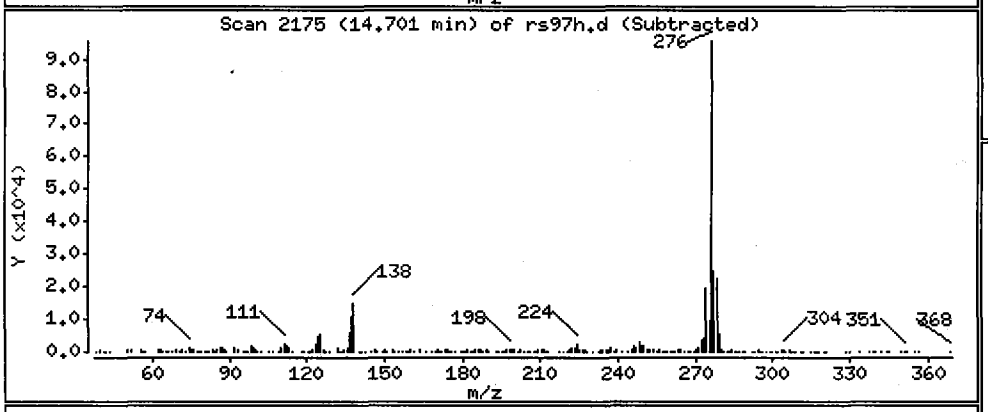
Sample Info: RS97H

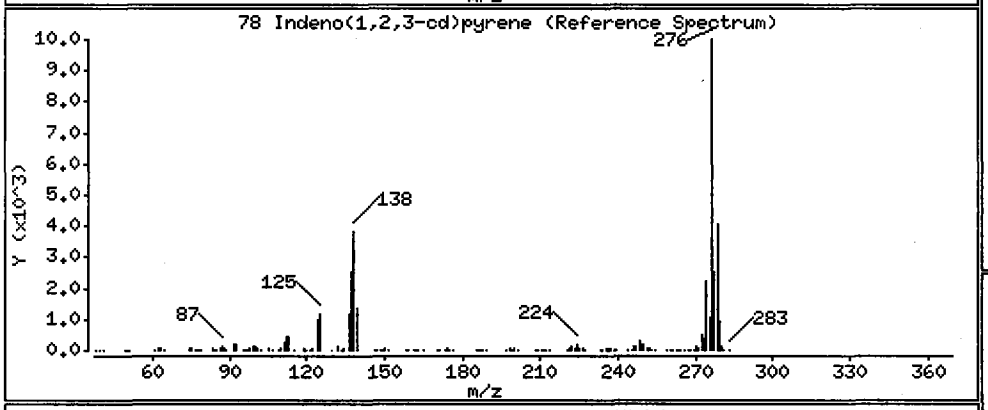
Volume Injected (uL): 1.0 Operator: VTS

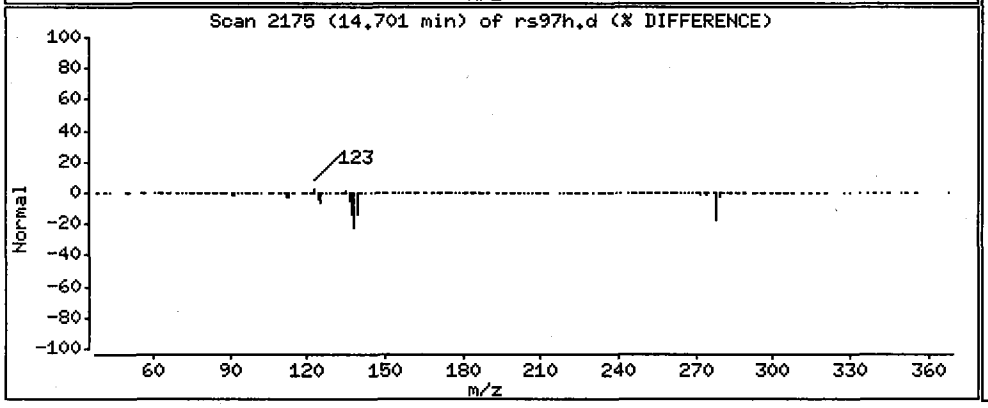
Column phase: ZB-5msi Column diameter: 0.32

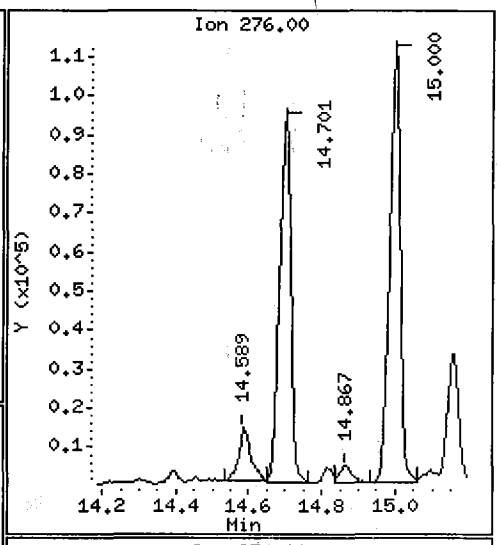
78 Indeno(1,2,3-cd)pyrene Concentration: 9314 ug/kg

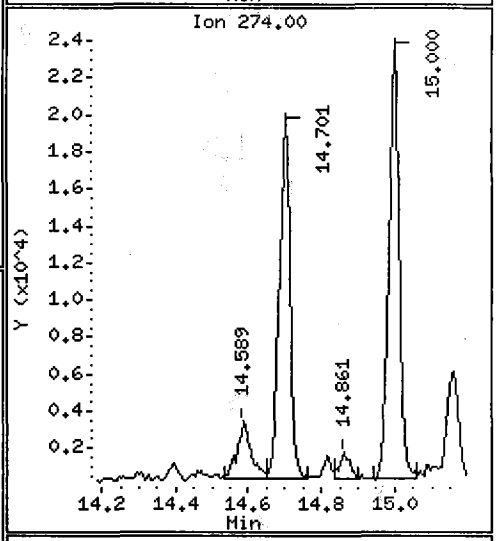


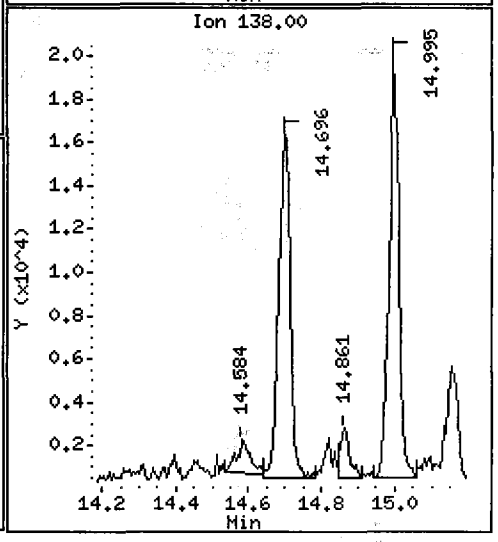












Data File: /chem1/nt12.i/20101111.b/rs97h.d

Date : 11-NOV-2010 16:09

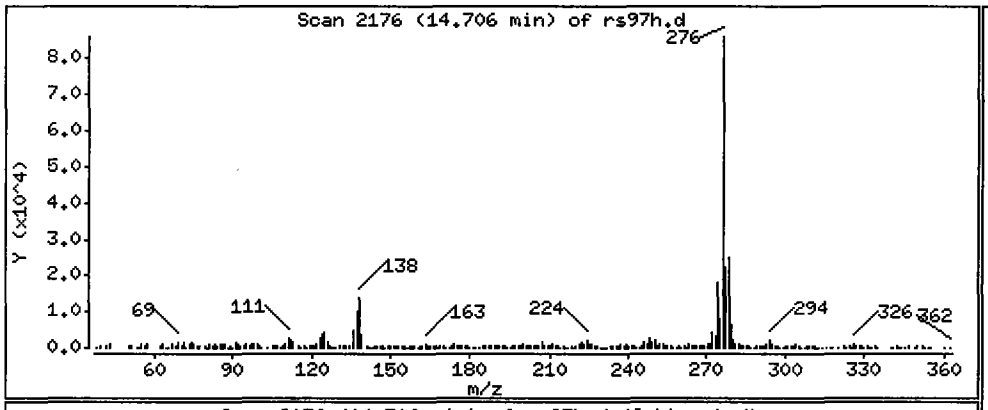
Client ID: DGS-07-011.3-101012 Instrument: nt12.i

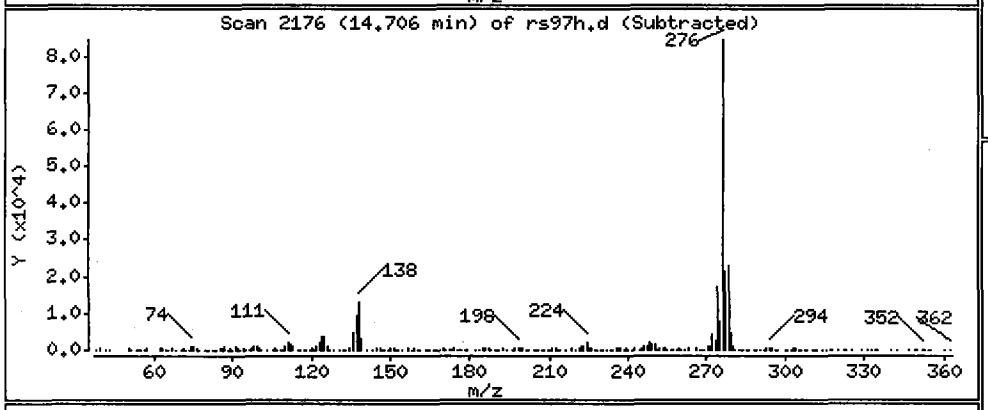
Sample Info: RS97H

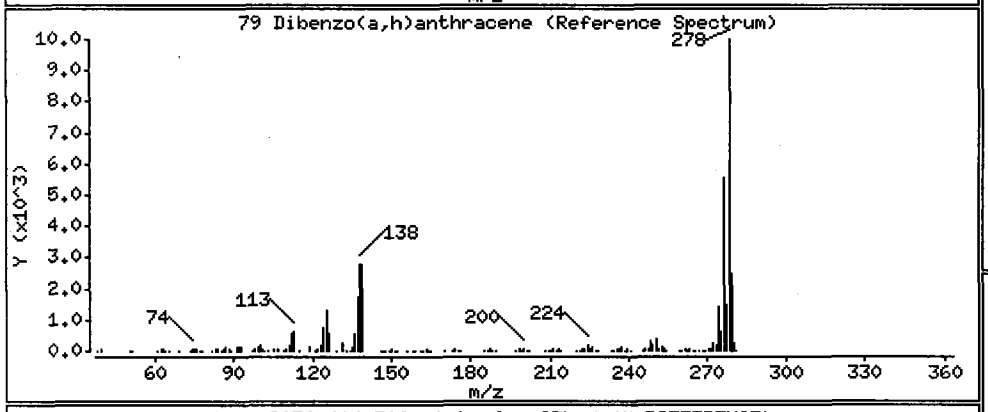
Volume Injected (uL): 1.0 Operator: VTS

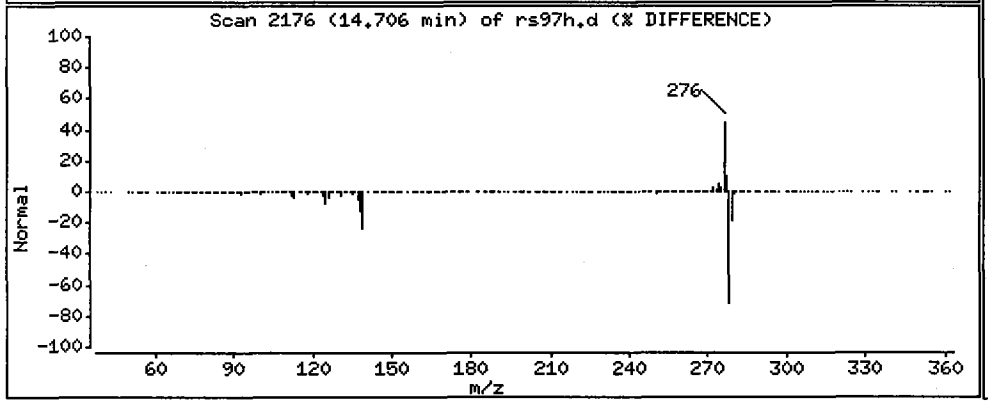
Column phase: ZB-5msi Column diameter: 0.32

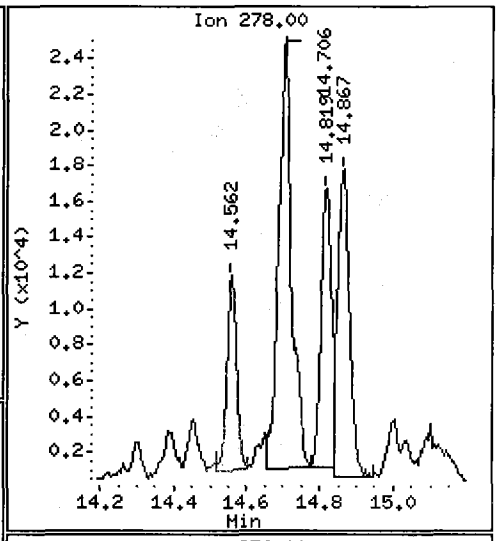
79 Dibenzo(a,h)anthracene Concentration: 3387 ug/kg

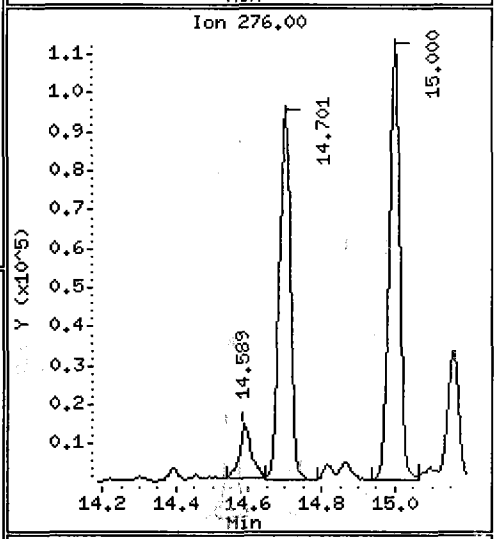


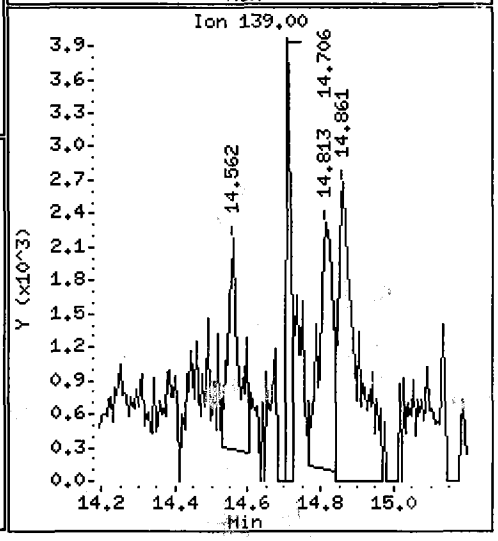












Data File: /chem1/nt12.i/20101111.b/rs97h.d

Date : 11-NOV-2010 16:09

Client ID: DGS-07-011.3-101012

Instrument: nt12.i

Sample Info: RS97H

Volume Injected (uL): 1.0

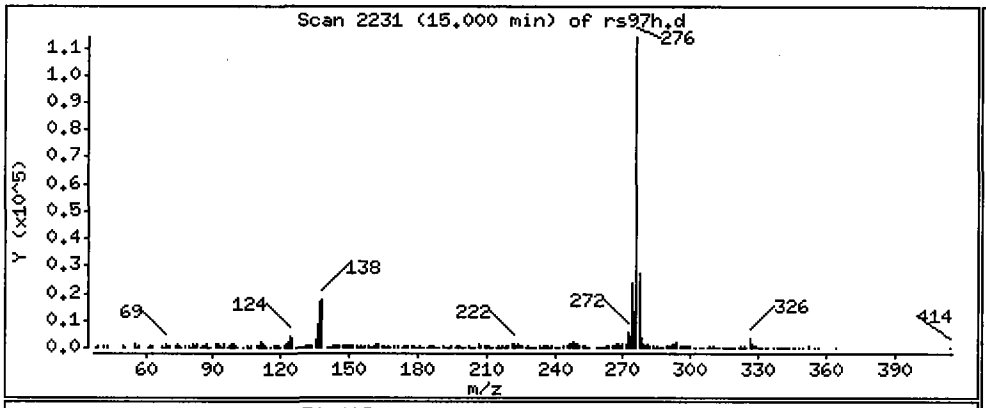
Operator: VTS

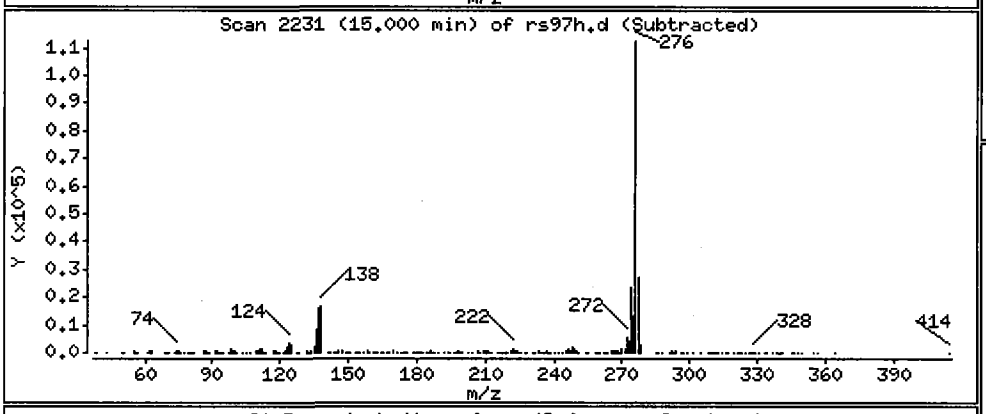
Column phase: ZB-5msi

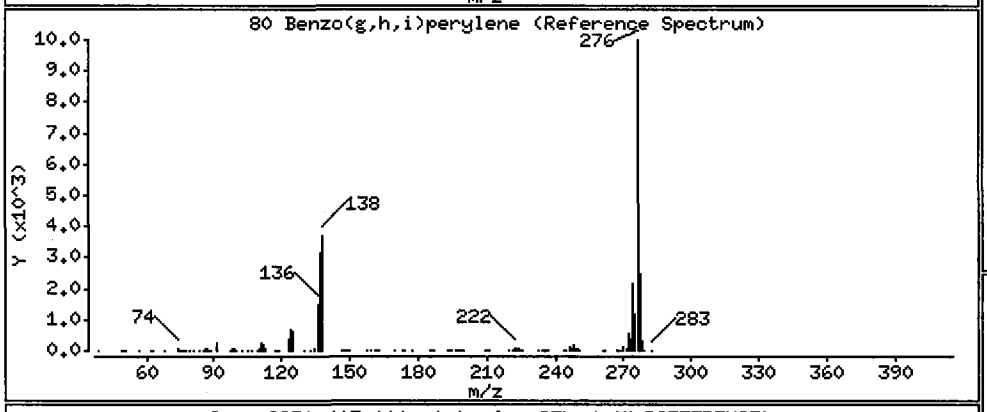
Column diameter: 0.32

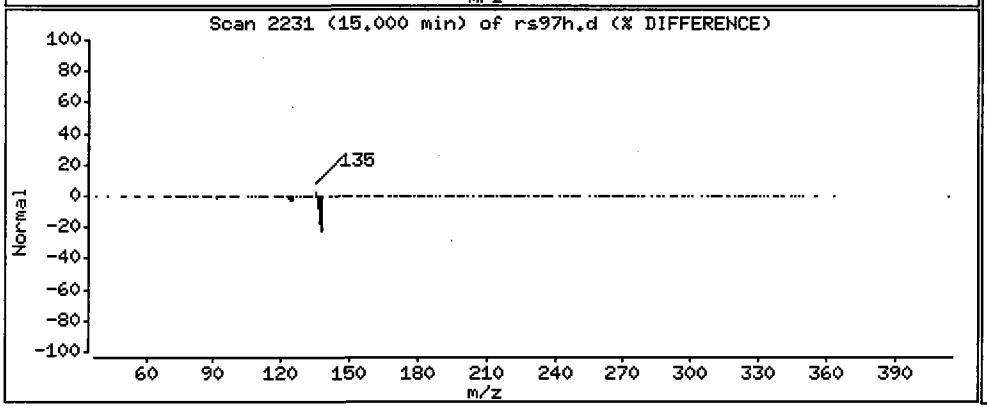
80 Benzo(g,h,i)perylene

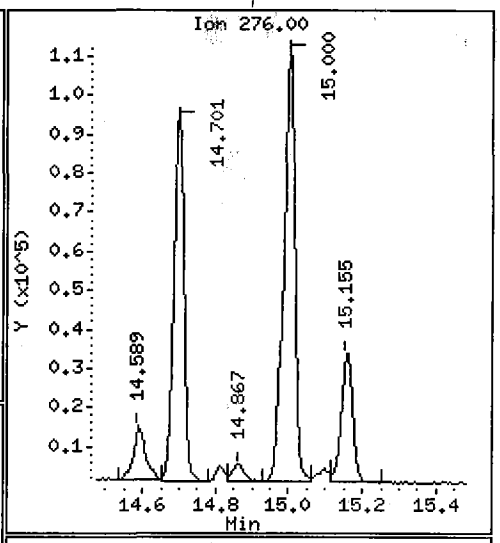
Concentration: 13890 ug/kg

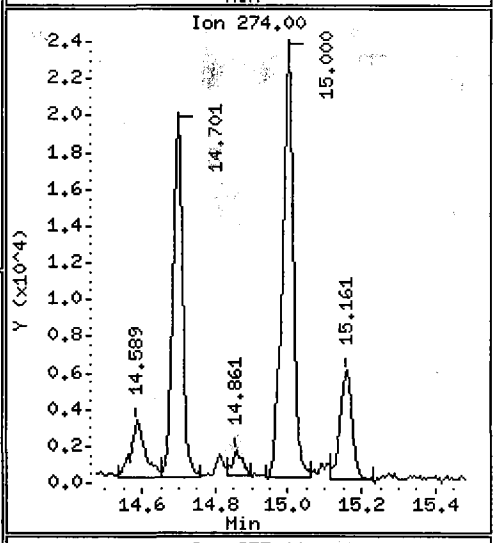


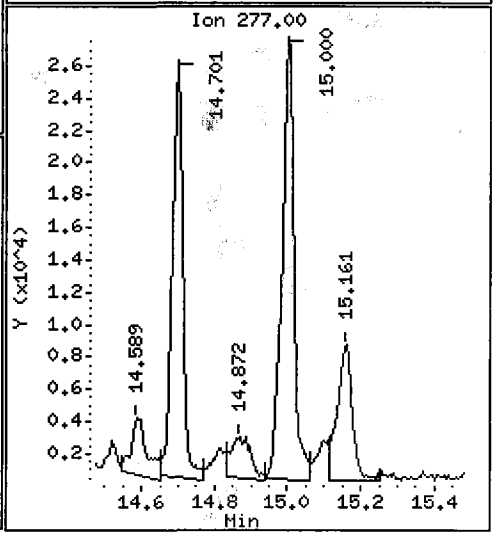












Analytical Resources Inc.: Volatile Organics Instrument Log

NT-12 Serial No.:GC=US00032558, MS= US01180091

Date: 11.12.10 Analysis: PNA Analyst: VTS

GC Program: PNA Column No: 181984 Column Type: ZB-5msi

Instrument Tune (.U or .CT.): 101030.U EM Voltage: 1776

Calibration File: dF1112 Curve Date: 10.30.10

IS/SS	Ical/Ccal	LCS/ICV
1752-1	1770-1 1753.5	
	1773-3	

INTERNAL STANDARD SUMMARY FOR DATABATCH - /chem1/nt12.i/20101112.b

	Time	Filename	LabID	ClientId	DF											
1	0942	df1112.d			1	|NO ISTDS FOUND||										
2	1005	cc1112.d	CC1112		1	| 4.86	193132||	6.96	117075||	8.73	203634||	11.96	184274||	13.58	15392
3	1033	177802.d	177802		1	|NO ISTDS FOUND|										
4	1057	rs97kdl.d	RS97K	DGS-07-4.75.	3	| 4.86	200787||	6.96	122606||	8.73	205625||	11.96	184343||	13.58	17586
5	1120	rs97ldl.d	RS97L	DGS-07-5.66.	3	| 4.86	206523||	6.96	128146||	8.73	218929||	11.96	198748||	13.58	16923

VTS 11.12.10

Maintenance / Comments

New liner / new septum / Clipped Column

Maintenance Verification (Identify ICal or CCal that demonstrates the instrument is in control): CC1112

Every line must contain information or be lined out. Make all entries legible. Start a new page for each QC period.

MANUAL INTEGRATION SUMMARY FOR DATABATCH - /chem1/nt12.i/20101112.b

ARI Job No.: 1778 Method: PNADMD.m Instrument: nt12.i Date: 12-NOV-2010

Time	Filename	LabID	ClientId	DF	Manually Integrated Compounds
1033	177802.d	177802		1	NO MANUAL INTEGRATION
1005	cc1112.d	CC1112		1	NO MANUAL INTEGRATION
0942	df1112.d			1	NO MANUAL INTEGRATION
1057	rs97kdl.d	RS97K	DGS-07-4.7	3	NO MANUAL INTEGRATION
1120	rs97ldl.d	RS97L	DGS-07-5.6	3	Acenaphthylene,

Data File: /chem1/nt12.i/20101112.b/df1112.d

Date : 12-NOV-2010 09:42

Client ID:

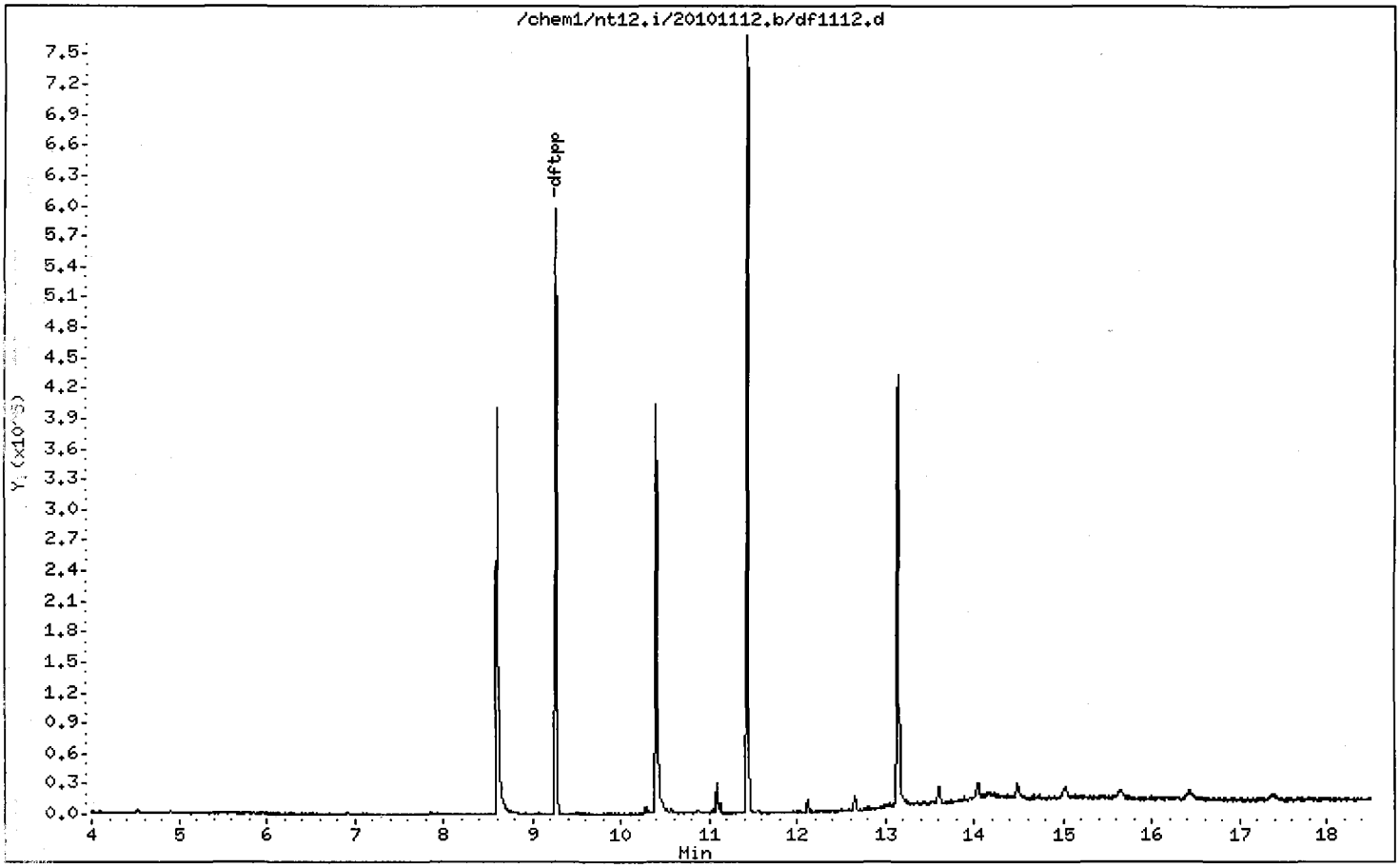
Instrument: nt12.i

Sample Info: DF1112

Operator: VTS

Column phase: ZB-5msi

Column diameter: 0.32



Data File: /chem1/nt12.i/20101112.b/df1112.d

Date : 12-NOV-2010 09:42

Client ID:

Instrument: nt12.i

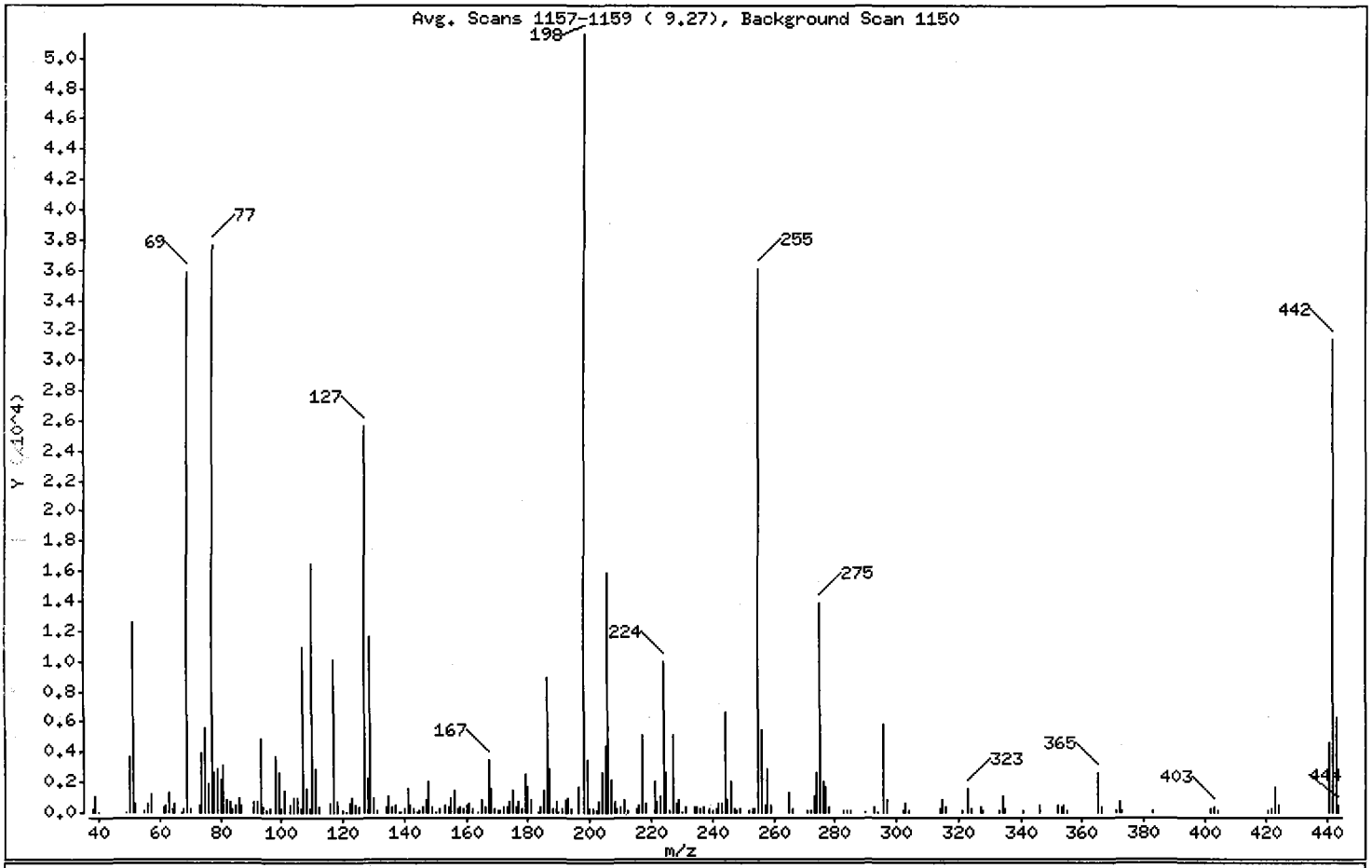
Sample Info: DF1112

Operator: VTS

Column phase: ZB-5msi

Column diameter: 0.32

1 dftpp



m/e	ION ABUNDANCE CRITERIA	% RELATIVE ABUNDANCE
198	Base Peak, 100% relative abundance	100.00
51	10.00 - 80.00% of mass 198	24.30
68	Less than 2.00% of mass 69	0.45 (0.64)
69	Mass 69 relative abundance	69.52
70	Less than 2.00% of mass 69	0.43 (0.62)
127	10.00 - 80.00% of mass 198	49.72
197	Less than 2.00% of mass 198	0.00
199	5.00 - 9.00% of mass 198	6.59
275	10.00 - 60.00% of mass 198	26.89
365	Greater than 1.00% of mass 198	5.06
441	0.01 - 24.00% of mass 442	8.97 (14.72)
442	50.00 - 200.00% of mass 198	60.98
443	15.00 - 24.00% of mass 442	12.27 (20.12)

Data File: /chem1/nt12.i/20101112.b/df1112.d

Date : 12-NOV-2010 09:42

Client ID:

Instrument: nt12.i

Sample Info: DF1112

Operator: VTS

Column phase: ZB-5msi

Column diameter: 0.32

Data File: df1112.d
Spectrum: Avg. Scans 1157-1159 (9.27), Background Scan 1150
Location of Maximum: 198.00
Number of points: 235

m/z	Y	m/z	Y	m/z	Y	m/z	Y
38.00	200	122.00	625	187.00	2793	257.00	504
39.00	1042	123.00	1000	188.00	201	258.00	2814
40.00	52	124.00	489	189.00	688	259.00	432
49.00	51	125.00	404	190.00	56	265.00	1346
50.00	3645	127.00	25672	191.00	245	266.00	261
51.00	12546	128.00	2204	192.00	823	271.00	61
52.00	588	129.00	11677	193.00	945	272.00	84
55.00	141	130.00	996	194.00	220	273.00	1065
56.00	613	131.00	147	196.00	1620	274.00	2657
57.00	1196	134.00	320	198.00	51632	275.00	13884
61.00	355	135.00	1022	199.00	3403	276.00	2014
62.00	426	136.00	361	200.00	217	277.00	1668
63.00	1264	137.00	479	201.00	232	278.00	315
64.00	225	138.00	53	202.00	73	283.00	114
65.00	561	139.00	52	203.00	687	284.00	113
67.00	50	140.00	204	204.00	2632	285.00	152
68.00	230	141.00	1527	205.00	4346	290.00	50
69.00	35896	142.00	472	206.00	15944	293.00	348
70.00	223	143.00	280	207.00	2099	294.00	51
73.00	449	144.00	55	208.00	715	296.00	5849
74.00	3875	145.00	126	209.00	243	297.00	886
75.00	5578	146.00	398	210.00	345	302.00	74
76.00	1958	147.00	810	211.00	800	303.00	583
77.00	37592	148.00	2005	212.00	62	304.00	99
78.00	2554	149.00	317	215.00	207	314.00	231
79.00	2901	150.00	59	216.00	447	315.00	784
80.00	2133	151.00	257	217.00	5113	316.00	317
81.00	3097	153.00	495	218.00	635	321.00	118
82.00	790	154.00	367	221.00	1985	323.00	1524
83.00	653	155.00	899	222.00	760	324.00	265
84.00	235	156.00	1442	223.00	1052	327.00	299
85.00	479	157.00	187	224.00	9915	328.00	173
86.00	914	158.00	315	225.00	2619	333.00	165
87.00	489	159.00	215	226.00	64	334.00	1016
91.00	761	160.00	523	227.00	5088	335.00	258

Data File: /chem1/nt12.i/20101112.b/df1112.d

Date : 12-NOV-2010 09:42

Client ID:

Instrument: nt12.i

Sample Info: DF1112

Operator: VTS

Column phase: ZB-5msi

Column diameter: 0.32

Data File: df1112.d
Spectrum: Avg. Scans 1157-1159 (9.27), Background Scan 1150
Location of Maximum: 198.00
Number of points: 235

m/z	Y	m/z	Y	m/z	Y	m/z	Y
92.00	691	161.00	623	228.00	648	341.00	142
93.00	4905	162.00	248	229.00	870	346.00	417
94.00	324	164.00	56	230.00	53	352.00	421
95.00	63	165.00	772	231.00	337	353.00	325
96.00	187	166.00	397	234.00	336	354.00	532
98.00	3634	167.00	3464	235.00	351	355.00	64
99.00	2566	168.00	1493	236.00	274	365.00	2612
100.00	242	169.00	262	237.00	349	366.00	370
101.00	1368	170.00	150	239.00	260	371.00	123
103.00	497	171.00	177	240.00	131	372.00	747
104.00	925	172.00	329	241.00	204	373.00	146
105.00	911	173.00	404	242.00	604	383.00	106
106.00	279	174.00	687	243.00	625	402.00	270
107.00	10949	175.00	1467	244.00	6668	403.00	337
108.00	1535	176.00	319	245.00	861	404.00	170
109.00	290	177.00	661	246.00	2042	421.00	174
110.00	16480	178.00	243	247.00	295	422.00	206
111.00	2829	179.00	2522	248.00	152	423.00	1708
112.00	396	180.00	1636	249.00	259	424.00	482
116.00	635	181.00	890	252.00	106	441.00	4634
117.00	10065	183.00	55	253.00	234	442.00	31488
118.00	712	184.00	304	254.00	273	443.00	6335
120.00	69	185.00	1441	255.00	36112	444.00	447
121.00	58	186.00	8878	256.00	5483		

Analytical Resources, Inc.

Semivolatile Report SW846 Method 8270D

Data file : /chem1/nt12.i/20101112.b/cc1112.d
Lab Smp Id: CC1112
Inj Date : 12-NOV-2010 10:05
Operator : VTS Inst ID: nt12.i
Smp Info : CC1112
Misc Info : 10-
Comment : 1ul Injection
Method : /chem1/nt12.i/20101112.b/PNADMD.m
Meth Date : 12-Nov-2010 10:45 van Quant Type: ISTD
Cal Date : 30-OCT-2010 13:19 Cal File: ic1030f.d
Als bottle: 2 Continuing Calibration Sample
Dil Factor: 1.00000
Integrator: HP RTE Compound Sublist: pnas.sub
Target Version: 3.50
Processing Host: cserv3

Compounds	QUANT SIG MASS	RT	EXP RT	REL RT	RESPONSE	AMOUNTS CAL-AMT (ug/mL)	AMOUNTS ON-COL (ug/mL)
* 27 Naphthalene-d8	136	4.855	4.855	(1.000)	193132	20.0000	
28 Naphthalene	128	4.882	4.882	(1.005)	283732	25.0000	25.81
32 2-Methylnaphthalene	141	5.699	5.699	(1.174)	155896	25.0000	26.57
105 1-methylnaphthalene	141	5.822	5.822	(1.199)	156077	25.0000	25.80
$ 36 2-Fluorobiphenyl	172	6.175	6.175	(0.887)	234479	25.0000	26.03
40 Acenaphthylene	152	6.773	6.773	(0.973)	301786	25.0000	25.74
* 42 Acenaphthene-d10	164	6.960	6.960	(1.000)	117075	20.0000	
44 Acenaphthene	153	6.997	6.997	(1.005)	181070	25.0000	25.15
46 Dibenzofuran	168	7.195	7.195	(1.034)	281509	25.0000	25.50
49 Fluorene	166	7.612	7.612	(1.094)	210223	25.0000	25.50
* 59 Phenanthrene-d10	188	8.734	8.734	(1.000)	203634	20.0000	
60 Phenanthrene	178	8.760	8.760	(1.003)	279729	25.0000	25.89
61 Anthracene	178	8.814	8.814	(1.009)	285293	25.0000	25.55
62 Carbazole	167	9.033	9.033	(1.034)	228009	25.0000	25.31
64 Fluoranthene	202	10.208	10.208	(0.853)	328773	25.0000	25.54
65 Pyrene	202	10.475	10.475	(0.876)	324587	25.0000	25.42
$ 66 Terphenyl-d14	244	10.710	10.710	(0.895)	199646	25.0000	24.51
68 Benzo(a)anthracene	228	11.944	11.944	(0.999)	264609	25.0000	25.57
* 69 Chrysene-d12	240	11.960	11.960	(1.000)	184274	20.0000	
71 Chrysene	228	11.992	11.992	(1.003)	235645	25.0000	24.36
187 Total Benzofluoranthenes	252	13.211	13.211	(0.972)	470675	50.0000	51.34
76 Benzo(a)pyrene	252	13.520	13.520	(0.995)	211996	25.0000	25.17
* 77 Perylene-d12	264	13.584	13.584	(1.000)	153925	20.0000	
99 Perylene	252	13.606	13.606	(1.002)	221887	25.0000	24.78
78 Indeno(1,2,3-cd)pyrene	276	14.680	14.680	(1.081)	282377	25.0000	22.58
79 Dibenzo(a,h)anthracene	278	14.685	14.685	(1.081)	227616	25.0000	22.11

Compounds	QUANT SIG MASS	RT	EXP RT	REL RT	RESPONSE	AMOUNTS CAL-AMT (ug/mL)	AMOUNTS ON-COL (ug/mL)
80 Benzo(g,h,i)perylene	276	14.968	14.968	(1.102)	229429	25.0000	22.34

VJB
11.12.10

Analytical Resources, Inc.

INTERNAL STANDARD COMPOUNDS
AREA AND RT SUMMARY

Instrument ID: nt12.i
Lab File ID: cc1112.d
Lab Smp Id: CC1112
Analysis Type: SV
Quant Type: ISTD
Operator: VTS
Method File: /chem1/nt12.i/20101112.b/PNADMD.m
Misc Info: 10-

Calibration Date: 12-NOV-2010
Calibration Time: 09:18

Level:
Sample Type:

Test Mode:
Use Initial Calibration Level 4.

COMPOUND	STANDARD	AREA LIMIT LOWER	AREA LIMIT UPPER	SAMPLE	%DIFF
27 Naphthalene-d8	237664	118832	475328	193132	-18.74
42 Acenaphthene-d10	143363	71682	286726	117075	-18.34
59 Phenanthrene-d10	245437	122718	490874	203634	-17.03
69 Chrysene-d12	199260	99630	398520	184274	-7.52
77 Perylene-d12	197636	98818	395272	153925	-22.12

COMPOUND	STANDARD	RT LIMIT LOWER	RT LIMIT UPPER	SAMPLE	%DIFF
27 Naphthalene-d8	4.86	4.36	5.36	4.86	0.00
42 Acenaphthene-d10	6.96	6.46	7.46	6.96	0.00
59 Phenanthrene-d10	8.73	8.23	9.23	8.73	0.00
69 Chrysene-d12	11.96	11.46	12.46	11.96	0.00
77 Perylene-d12	13.58	13.08	14.08	13.58	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.

Analytical Resources, Inc.

CONTINUING CALIBRATION COMPOUNDS

Instrument ID: nt12.i
Lab File ID: cc1112.d
Analysis Type:
Lab Sample ID: CC1112
Method: /chem1/nt12.i/20101112.b/PNADMD.m

Injection Date: 12-NOV-2010 10:05
Init. Cal. Date(s): 30-OCT-2010 30-OCT-2010
Init. Cal. Times: 11:27 13:19
Quant Type: ISTD

COMPOUND	RRF / AMOUNT	RF25	MIN RRF	%D / %DRIFT	MAX %D / %DRIFT	CURVE TYPE
28 Naphthalene	1.13829	1.17529	0.010	3.25032	20.00000	Averaged
32 2-Methylnaphthalene	0.60757	0.64576	0.010	6.28641	20.00000	Averaged
105 1-methylnaphthalene	0.62646	0.64651	0.010	3.20054	20.00000	Averaged
$ 36 2-Fluorobiphenyl	1.53867	1.60224	0.010	4.13190	20.00000	Averaged
40 Acenaphthylene	2.00273	2.06217	0.010	2.96777	20.00000	Averaged
44 Acenaphthene	1.23000	1.23729	0.010	0.59334	20.00000	Averaged
46 Dibenzofuran	1.88613	1.92361	0.010	1.98728	20.00000	Averaged
49 Fluorene	1.40830	1.43650	0.010	2.00283	20.00000	Averaged
60 Phenanthrene	1.06102	1.09895	0.010	3.57499	20.00000	Averaged
61 Anthracene	1.09658	1.12081	0.010	2.20873	20.00000	Averaged
62 Carbazole	0.88463	0.89576	0.010	1.25836	20.00000	Averaged
64 Fluoranthene	1.39703	1.42732	0.010	2.16798	20.00000	Averaged
65 Pyrene	1.38595	1.40914	0.010	1.67317	20.00000	Averaged
$ 66 Terphenyl-d14	0.88413	0.86673	0.010	-1.96790	20.00000	Averaged
68 Benzo(a)anthracene	1.12317	1.14876	0.010	2.27851	20.00000	Averaged
71 Chrysene	1.05006	1.02302	0.010	-2.57571	20.00000	Averaged
187 Total Benzofluoranthenes	1.19124	1.22313	0.010	2.67693	20.00000	Averaged
76 Benzo(a)pyrene	1.09431	1.10182	0.010	0.68610	20.00000	Averaged
99 Perylene	1.16368	1.15322	0.010	-0.89908	20.00000	Averaged
78 Indeno(1,2,3-cd)pyrene	1.62468	1.46761	0.010	-9.66761	20.00000	Averaged
79 Dibenzo(a,h)anthracene	1.33758	1.18300	0.010	-11.55684	20.00000	Averaged
80 Benzo(g,h,i)perylene	1.33470	1.19242	0.010	-10.65980	20.00000	Averaged

Data File: /chem1/nt12.i/20101112.b/cc1112.d

Date : 12-NOV-2010 10:05

Client ID:

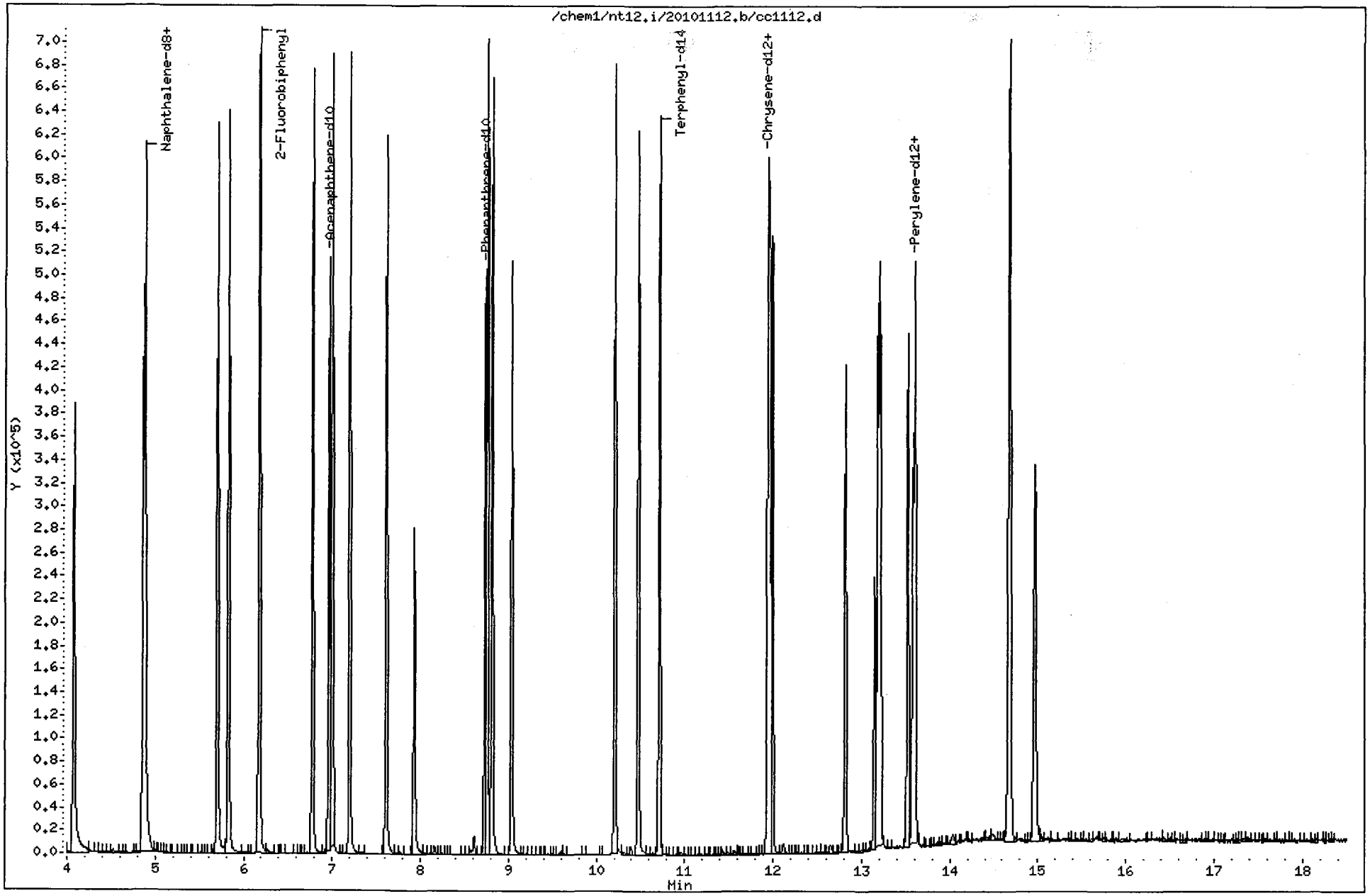
Sample Info: CC1112

Column phase: ZB-5msi

Instrument: nt12.i

Operator: VTS

Column diameter: 0.32



RS97:00897

Analytical Resources Inc.
ABN by sw846 8270C
DDT Breakdown Report

Data file: /chem1/nt12.i/20101112.b/ddt.b/df1112.d ARI ID:
Method: /chem1/nt12.i/20101112.b/ddt.b/sw846ddt.m Misc:
Analysis Date: 12-NOV-2010 09:42 Instrument: nt12.i

COMPOUND	RT	AREA
Pentachlorophenol	8.606	54995
Benzidine	10.406	203218
4,4'-DDE	10.684	262
4,4'-DDD	11.090	6670
4,4'-DDT	11.437	160679

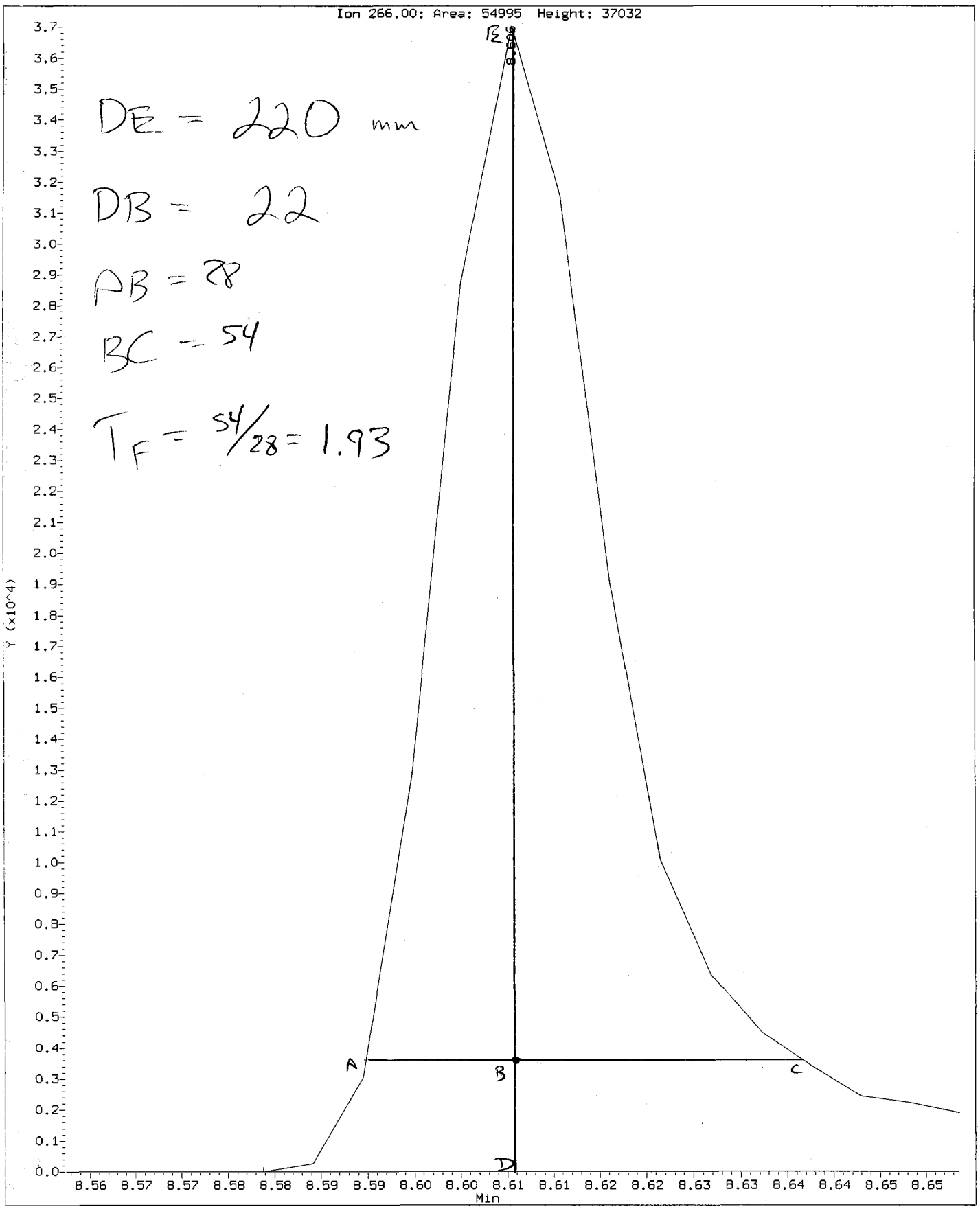
$$\text{DDT Percent Breakdown} = \frac{(\text{DDE Area} + \text{DDD Area}) * 100}{(\text{DDE Area} + \text{DDD Area} + \text{DDT Area})}$$

$$\text{DDT Percent Breakdown} = \frac{(262 + 6670) * 100}{(262 + 6670 + 160679)}$$

DDT Percent Breakdown = 4.1 %

Data File: /chem1/nt12.i/20101112.b/ddt.b/df1112.d
Injection Date: 12-NOV-2010 09:42
Instrument: nt12.i
Client Sample ID:

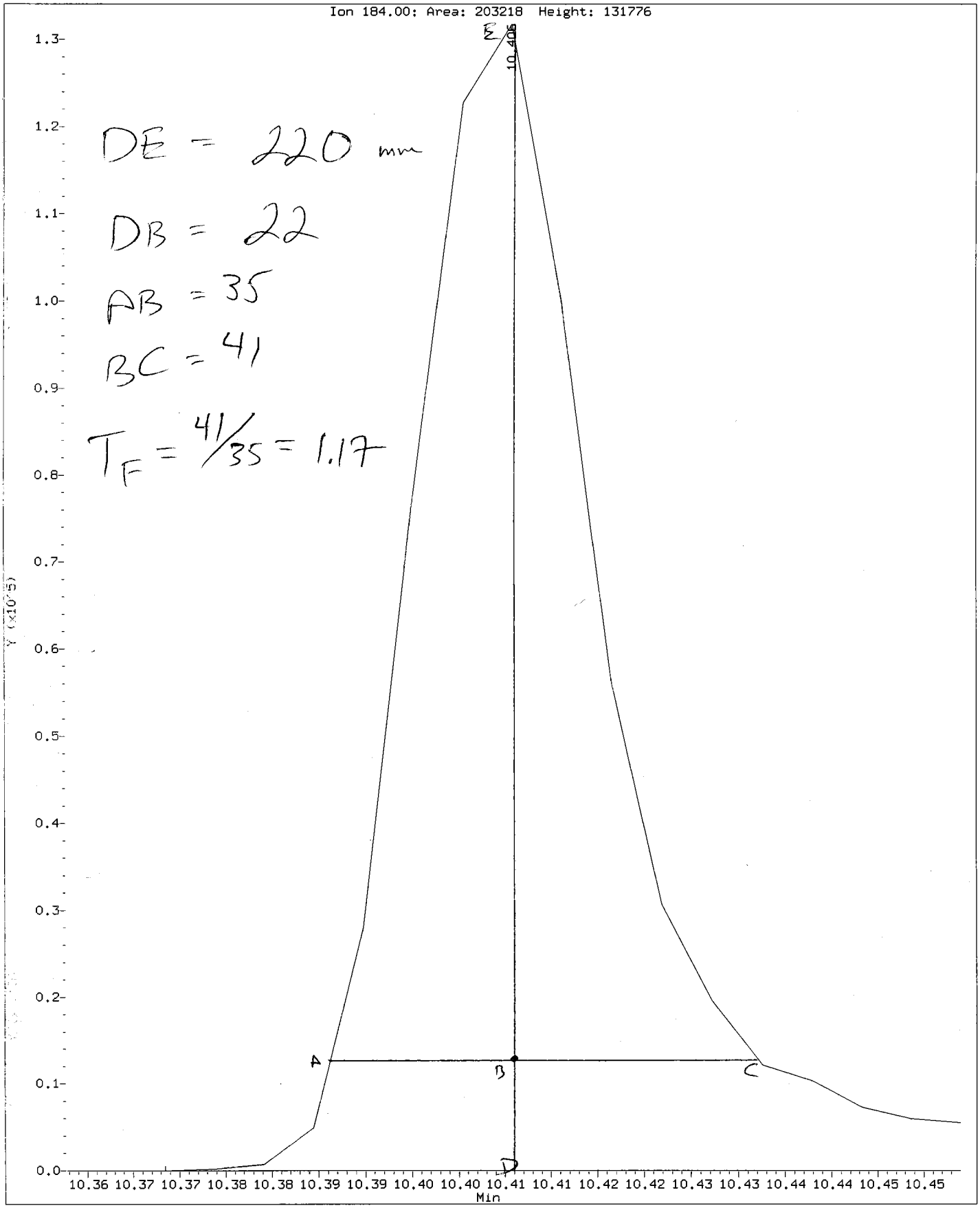
Compound: Pentachlorophenol
CAS Number: 87-86-5



RS97:00899

Data File: /chem1/nt12.i/20101112.b/ddt.b/df1112.d
Injection Date: 12-NOV-2010 09:42
Instrument: nt12.i
Client Sample ID:

Compound: Benzidine
CAS Number:



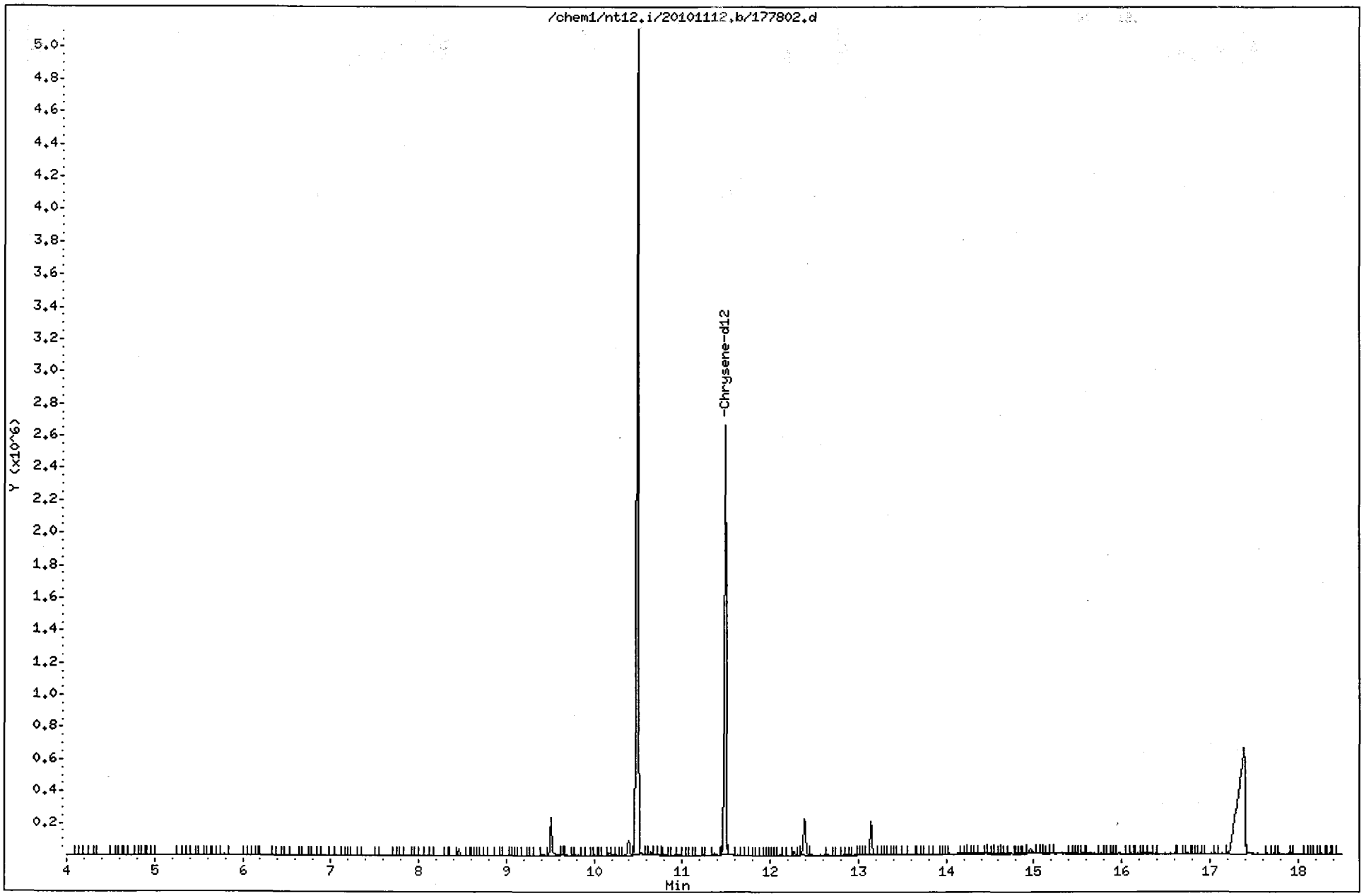
RS97 : 00900

Data File: /chem1/nt12.i/20101112.b/177802.d
Date : 12-NOV-2010 10:33
Client ID:
Sample Info: 177802

Column phase: ZB-5msi

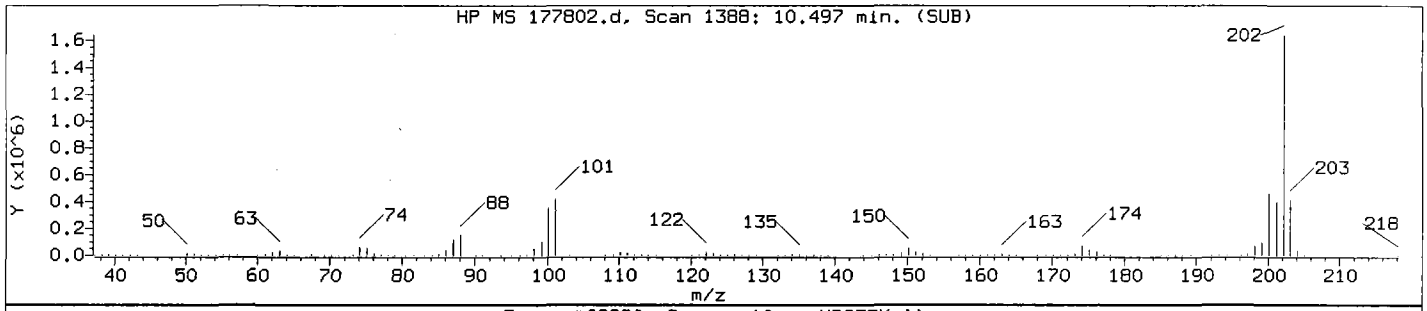
Instrument: nt12.i

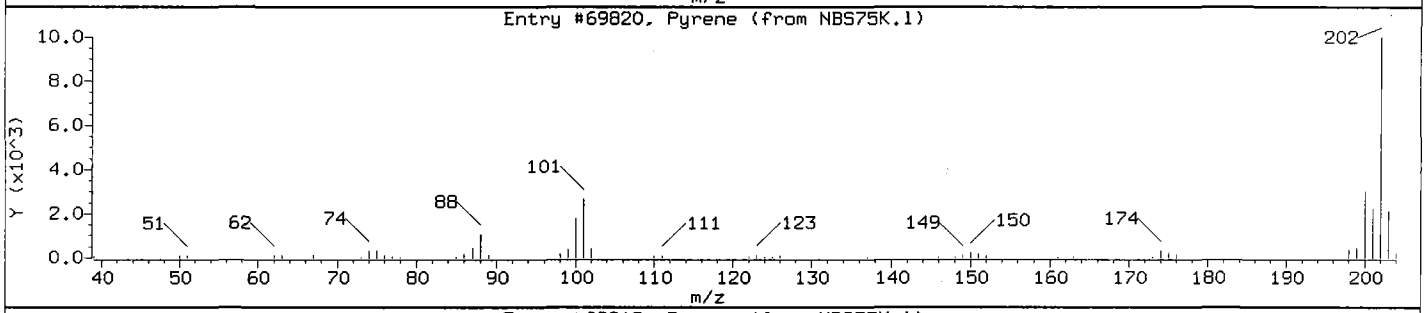
Operator: VTS
Column diameter: 0.32

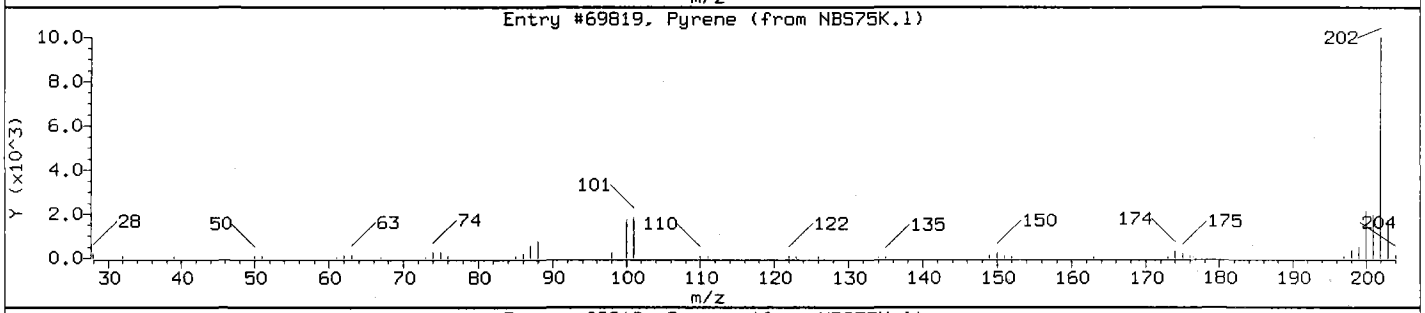


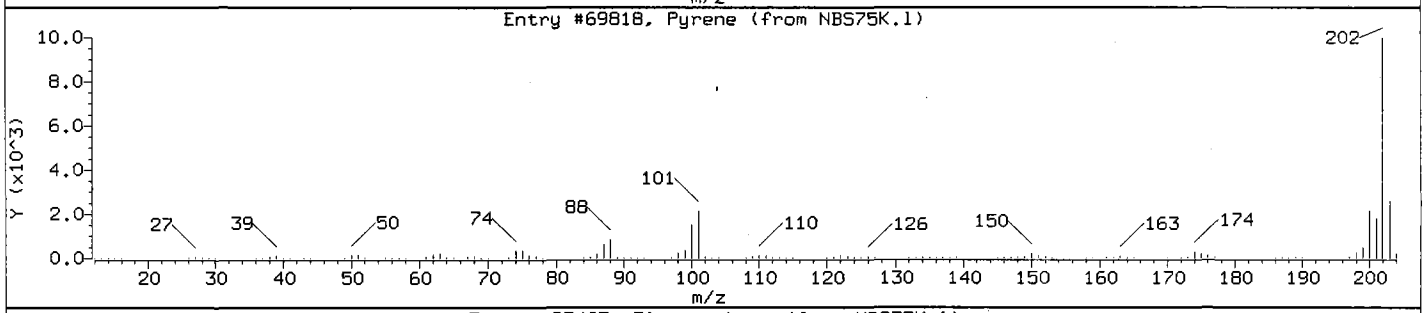
RS97:00001

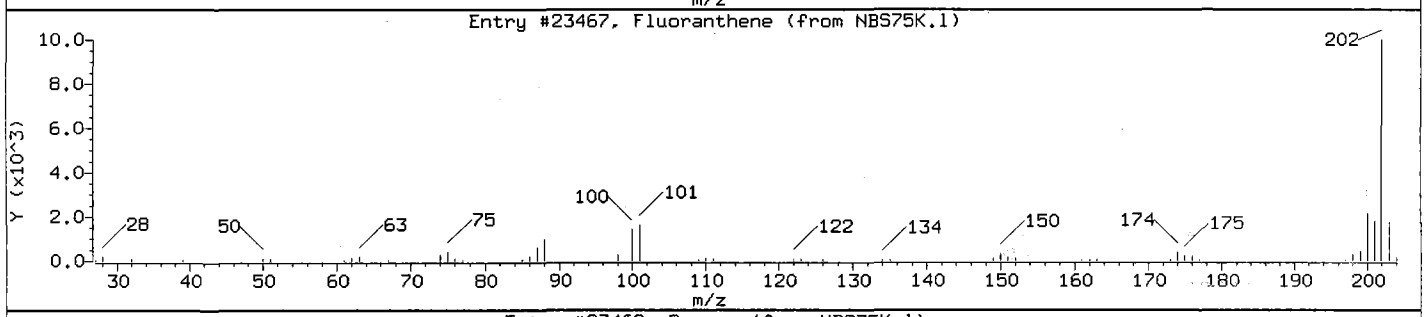
Data File: /chem1/nt12.i/20101112.b/177802.d
Injection Date: 12-NOV-2010 10:33
Instrument: nt12.i
Client Sample ID:

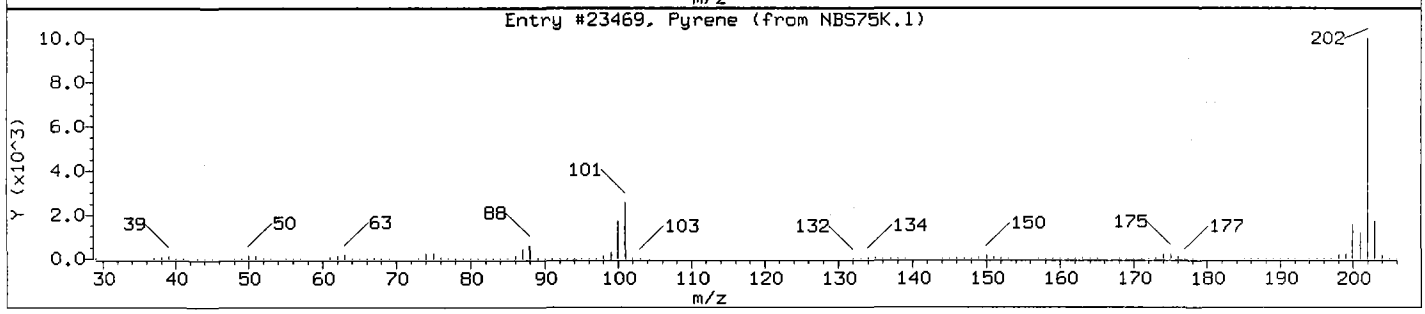












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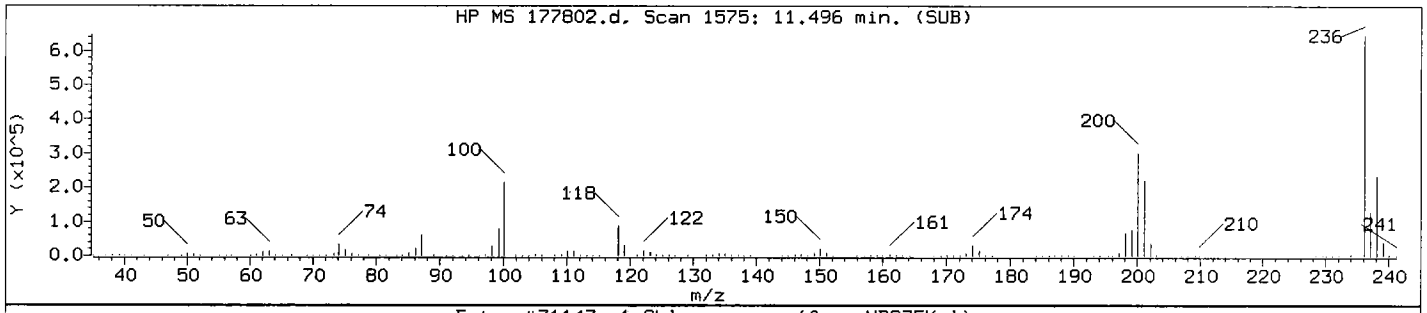
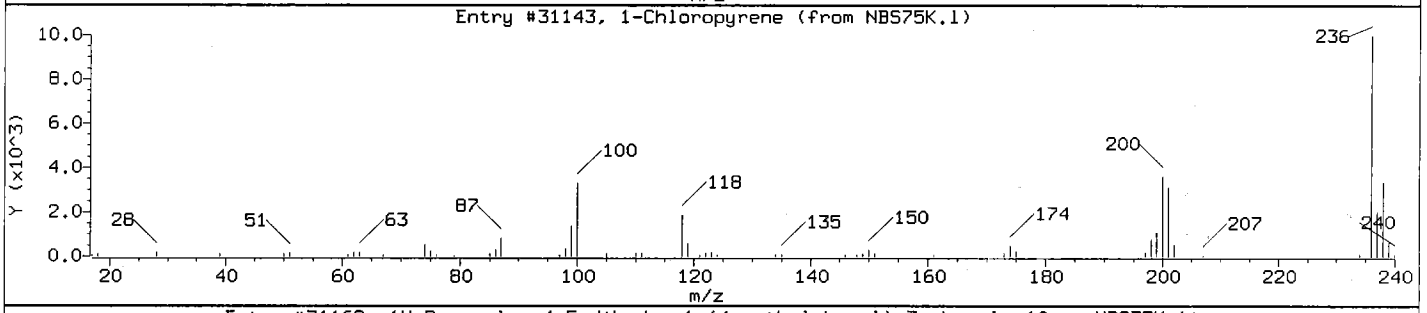
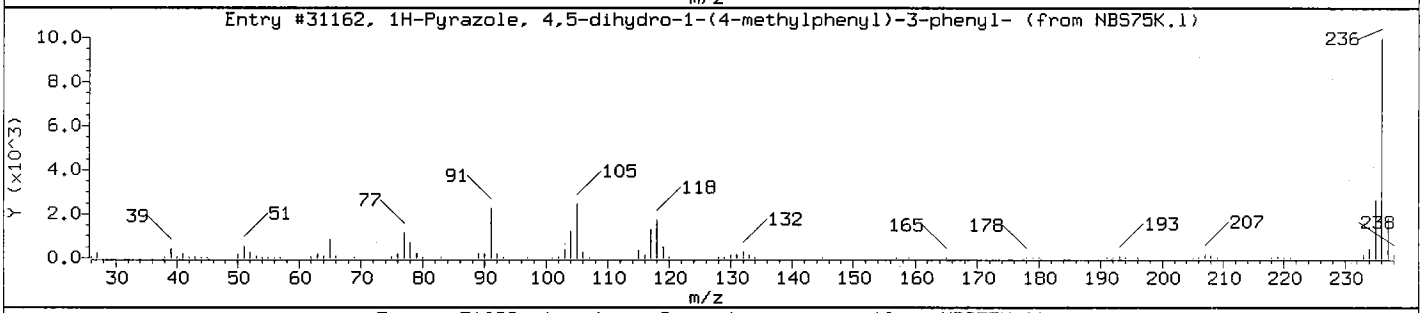
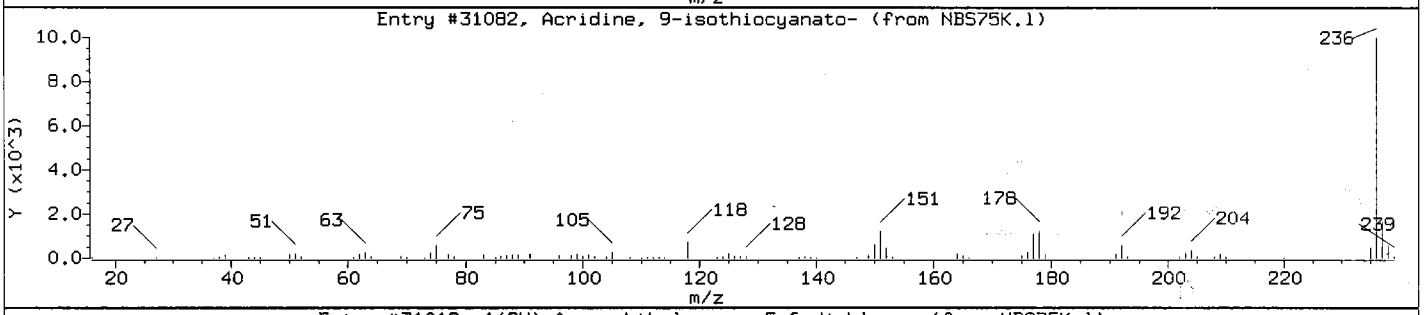
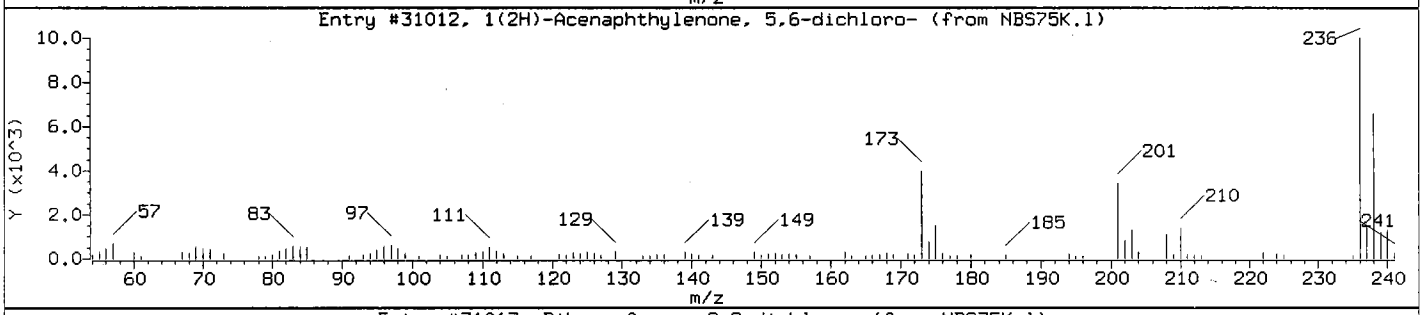
Injection Date: 12-NOV-2010 10:33
Instrument: nt12.i
Client Sample ID:

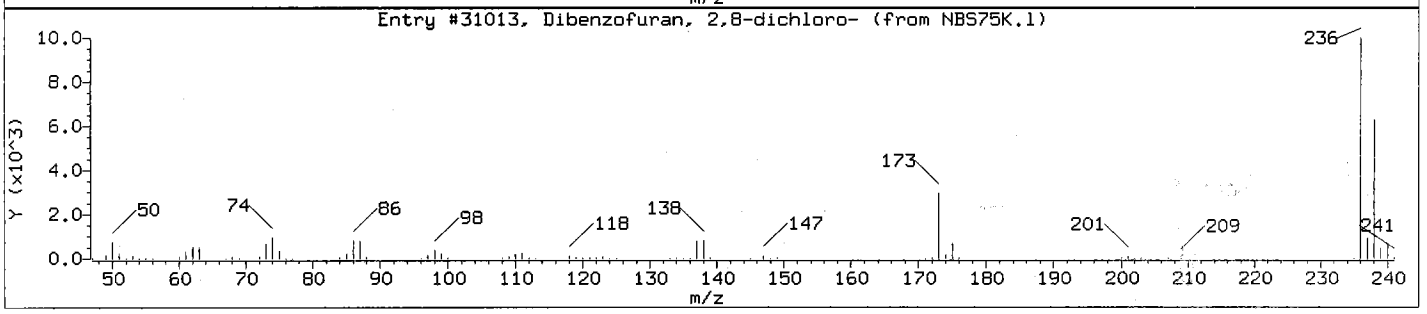






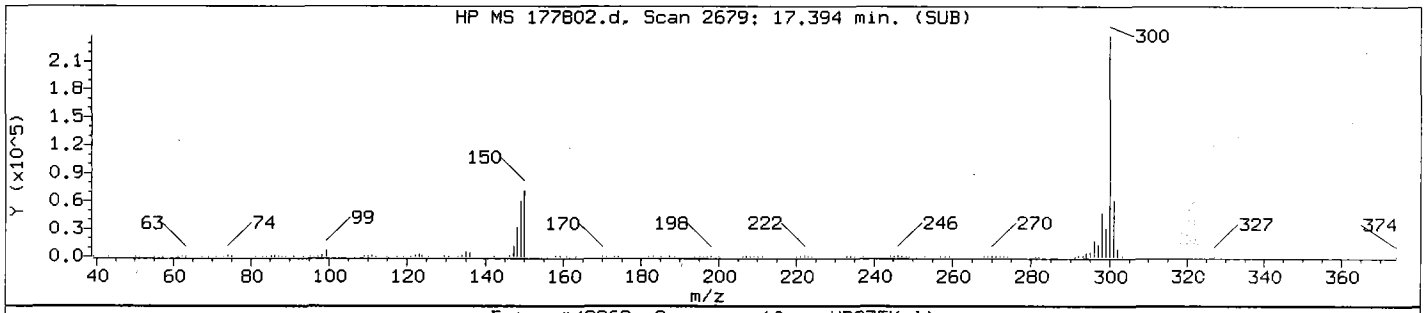


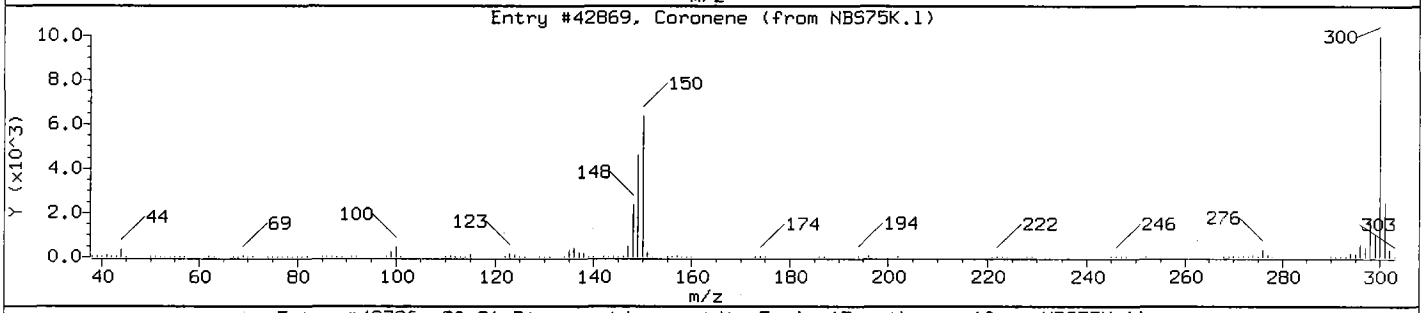


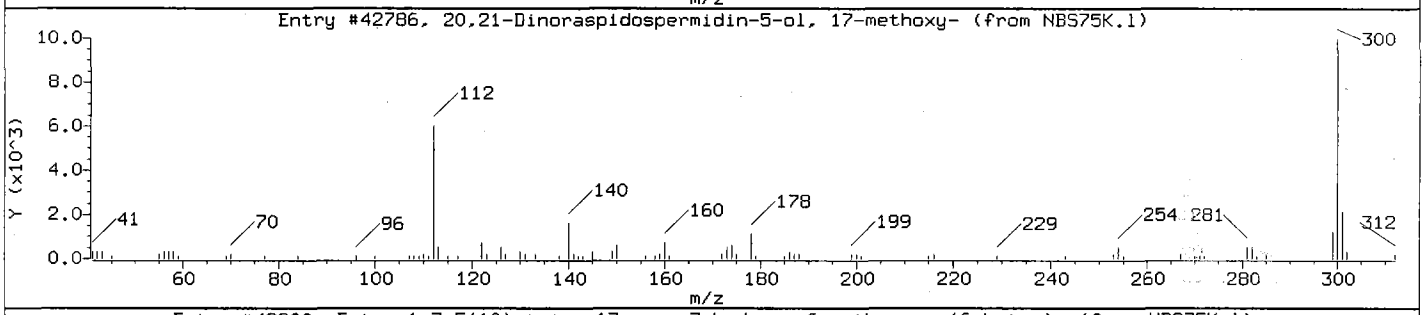


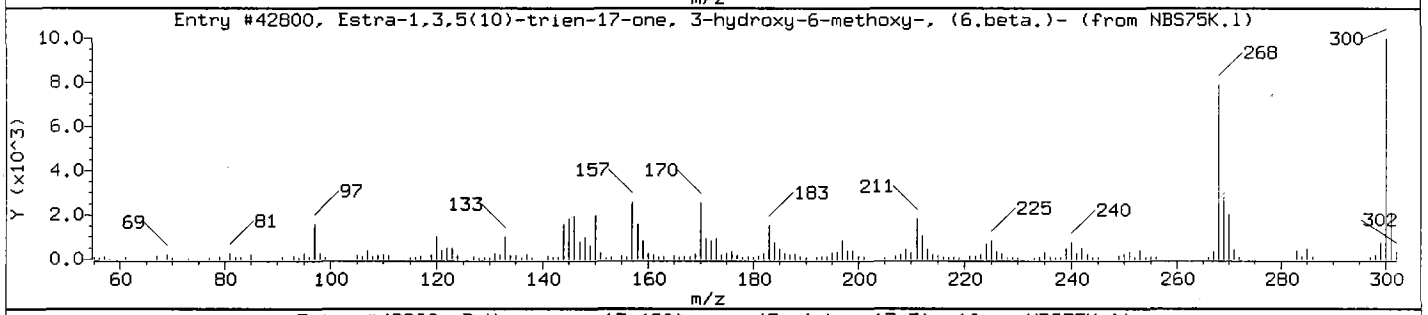
RS97:00903

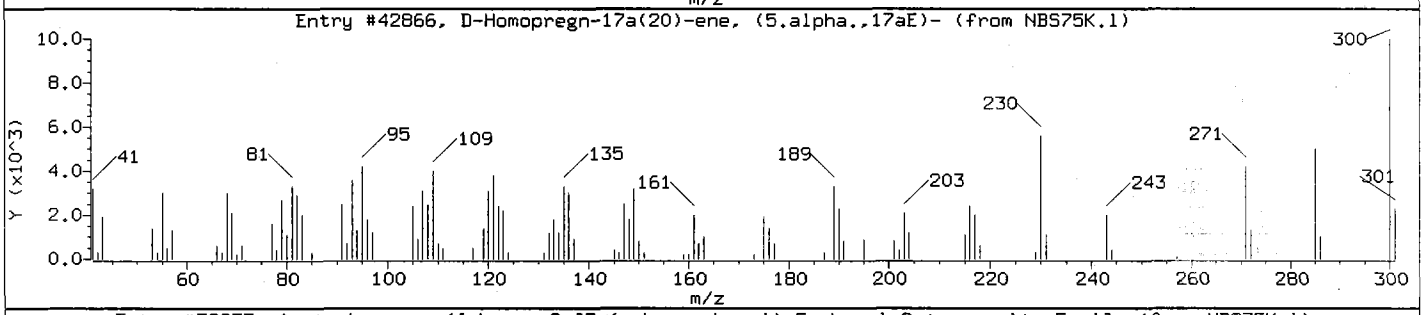
Data File: /chem1/nt12.i/20101112.b/177802.d
Injection Date: 12-NOV-2010 10:33
Instrument: nt12.i
Client Sample ID:

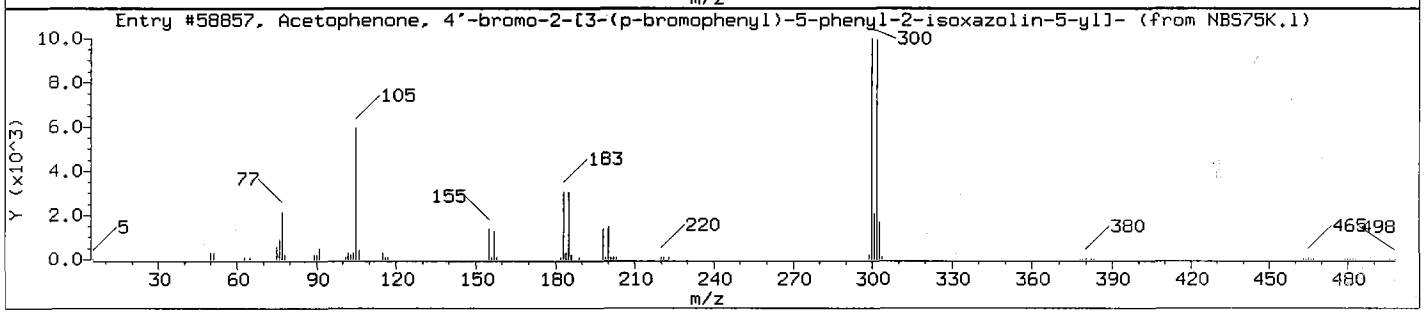












RS97 : 00904

Analytical Resources, Inc.

Semivolatile Report SW846 Method 8270D

Data file : /chem1/nt12.i/20101112.b/rs97kdl.d
Lab Smp Id: RS97K
Client Smp ID: DGS-07-4.75.2-10101
Inj Date : 12-NOV-2010 10:57
Operator : VTS
Inst ID: nt12.i
Smp Info : RS97K,3
Misc Info : 10-27427
Comment : 1ul Injection
Method : /chem1/nt12.i/20101112.b/PNADMD.m
Meth Date : 12-Nov-2010 10:45 van
Quant Type: ISTD
Cal Date : 30-OCT-2010 13:19
Cal File: ic1030f.d
Als bottle: 4
Dil Factor: 3.00000
Integrator: HP RTE
Compound Sublist: pnas.sub
Target Version: 3.50
Processing Host: cserv3

Concentration Formula: Amt * DF * Vt/(Ws * (100 - M)/100) * CpndVariable

Name	Value	Description
DF	3.00000	Dilution Factor
Vt	10000.00000	Volume of final extract (uL)
Ws	5.19000	Weight of sample extracted (g)
M	48.60000	% Moisture

Cpnd Variable Local Compound Variable

Compounds	QUANT SIG MASS	RT	EXP RT	REL RT	RESPONSE	CONCENTRATIONS ON-COLUMN (ug/mL)	FINAL (ug/kg)
* 27 Naphthalene-d8	136	4.855	4.855	(1.000)	200787	20.0000	
28 Naphthalene	128	4.882	4.882	(1.005)	14703	1.28661	14470
32 2-Methylnaphthalene	141	5.699	5.699	(1.174)	16849	2.76232	31060
105 1-methylnaphthalene	141	5.828	5.822	(1.200)	10825	1.72119	19360
$ 36 2-Fluorobiphenyl	172	6.180	6.175	(0.888)	4255	0.45110	5073
40 Acenaphthylene	152	Compound Not Detected.					
* 42 Acenaphthene-d10	164	6.960	6.960	(1.000)	122606	20.0000	
44 Acenaphthene	153	6.998	6.997	(1.005)	26698	3.54073	39820
46 Dibenzofuran	168	Compound Not Detected.					
49 Fluorene	166	7.612	7.612	(1.094)	18235	2.11218	23750
* 59 Phenanthrene-d10	188	8.734	8.734	(1.000)	205625	20.0000	
60 Phenanthrene	178	8.761	8.760	(1.003)	173285	15.8852	178600
61 Anthracene	178	8.814	8.814	(1.009)	41143	3.64928	41040
62 Carbazole	167	9.038	9.033	(1.035)	9261	~~1.01824~~	11450

NR

Compounds	QUANT SIG MASS	RT	EXP RT	REL RT	RESPONSE	CONCENTRATIONS ON-COLUMN (ug/mL)	FINAL (ug/kg)
64 Fluoranthene	202	10.208	10.208	(0.853)	183031	14.2142	159900
65 Pyrene	202	10.475	10.475	(0.876)	287326	22.4921	252900
$ 66 Terphenyl-d14	244	10.711	10.710	(0.895)	3782	0.46410	5219
68 Benzo(a)anthracene	228	11.939	11.944	(0.998)	100897	9.74624	109600
* 69 Chrysene-d12	240	11.961	11.960	(1.000)	184343	20.0000	
71 Chrysene	228	11.987	11.992	(1.002)	120933	12.4949	140500
187 Total Benzofluoranthenes	252	13.189	13.211	(0.971)	139831	13.3495	150100
76 Benzo(a)pyrene	252	13.521	13.520	(0.996)	130993	13.6134	153100
* 77 Perylene-d12	264	13.579	13.584	(1.000)	175861	20.0000	
99 Perylene	252	13.606	13.606	(1.002)	28803	~~2.814~~90	31660 NP
78 Indeno(1,2,3-cd)pyrene	276	14.674	14.680	(1.081)	80620	5.64334	63460
79 Dibenzo(a,h)anthracene	278	14.680	14.685	(1.081)	29061	2.47088	27790
80 Benzo(g,h,i)perylene	276	14.963	14.968	(1.102)	98994	8.43503	94860

LD
11-12-10

Analytical Resources, Inc.

INTERNAL STANDARD COMPOUNDS
AREA AND RT SUMMARY

Instrument ID: nt12.i
Lab File ID: rs97kdl.d
Lab Smp Id: RS97K
Analysis Type: SV
Quant Type: ISTD
Operator: VTS
Method File: /chem1/nt12.i/20101112.b/PNADMD.m
Misc Info: 10-27427

Calibration Date: 12-NOV-2010
Calibration Time: 10:05
Client Smp ID: DGS-07-4.75.2-10
Level: LOW
Sample Type: Sediment

Test Mode:
Use Initial Calibration Level 4.

COMPOUND	STANDARD	AREA LIMIT LOWER	AREA LIMIT UPPER	SAMPLE	%DIFF
27 Naphthalene-d8	237664	118832	475328	200787	-15.52
42 Acenaphthene-d10	143363	71682	286726	122606	-14.48
59 Phenanthrene-d10	245437	122718	490874	205625	-16.22
69 Chrysene-d12	199260	99630	398520	184343	-7.49
77 Perylene-d12	197636	98818	395272	175861	-11.02

COMPOUND	STANDARD	RT LIMIT LOWER	RT LIMIT UPPER	SAMPLE	%DIFF
27 Naphthalene-d8	4.86	4.36	5.36	4.86	0.00
42 Acenaphthene-d10	6.96	6.46	7.46	6.96	0.00
59 Phenanthrene-d10	8.73	8.23	9.23	8.73	0.00
69 Chrysene-d12	11.96	11.46	12.46	11.96	0.00
77 Perylene-d12	13.58	13.08	14.08	13.58	-0.04

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.

Analytical Resources, Inc.

RECOVERY REPORT

Client Name: NW Natural
Sample Matrix: SOLID
Lab Smp Id: RS97K
Level: LOW
Data Type: MS DATA
SpikeList File: SONICLCS.spk
Sublist File: pnas.sub
Method File: /chem1/nt12.i/20101112.b/PNADMD.m
Misc Info: 10-27427

Client SDG: RS97
Fraction: SV
Client Smp ID: DGS-07-4.75.2-10101
Operator: VTS
SampleType: SAMPLE
Quant Type: ISTD

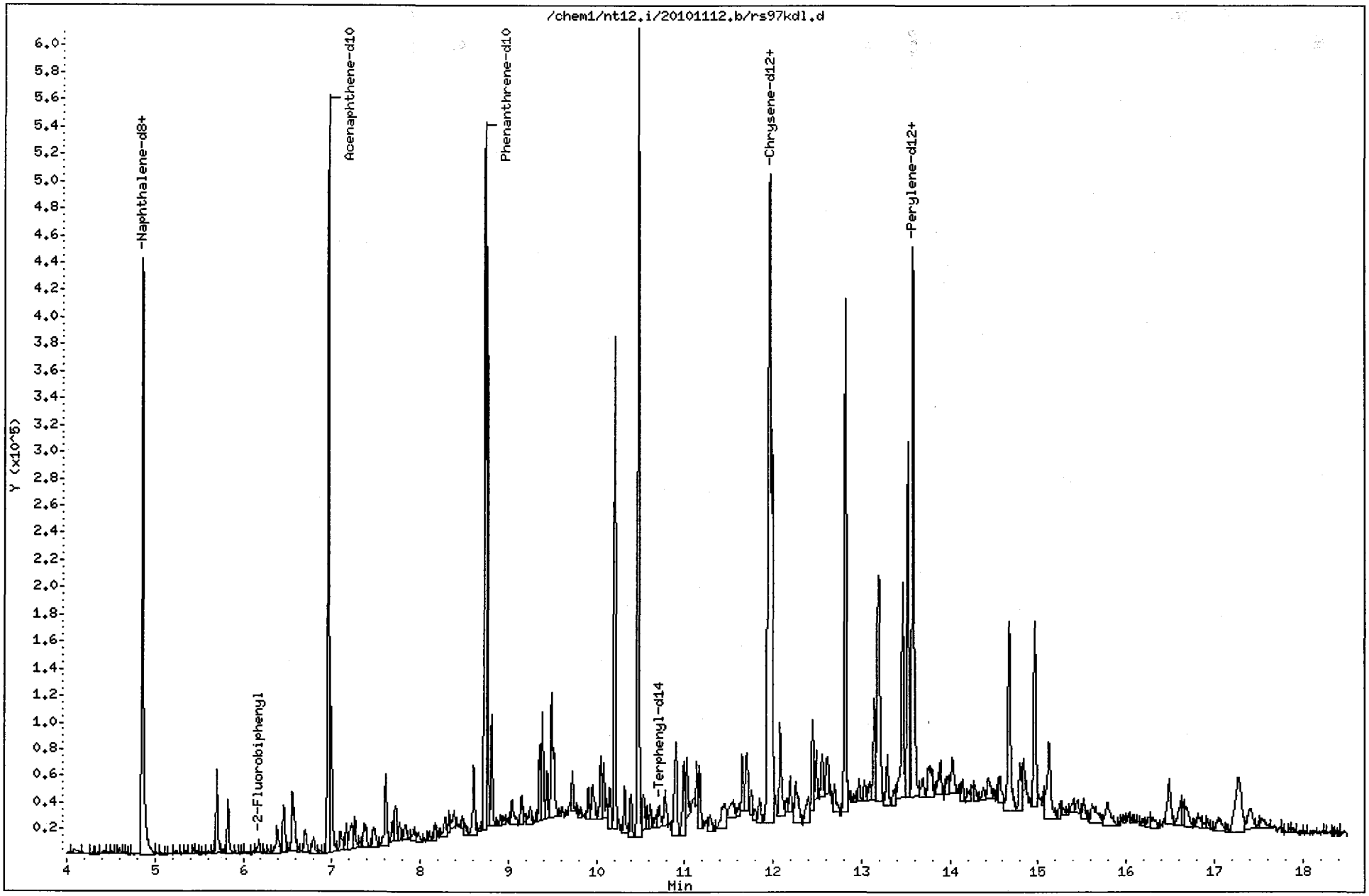
SURROGATE COMPOUND	CONC ADDED ug/kg	CONC RECOVERED ug/kg	% RECOVERED	LIMITS
$ 36 2-Fluorobiphenyl	9372	5073	54.13	34-100
$ 66 Terphenyl-d14	9372	5219	55.69	35-112

Data File: /chem1/nt12.i/20101112.b/rs97kdl.d
Date : 12-NOV-2010 10:57
Client ID: DGS-07-4.75.2-10101
Sample Info: RS97K,3
Volume Injected (uL): 1.0
Column phase: ZB-5msi

Instrument: nt12.i

Operator: VTS
Column diameter: 0.32

RS97:00999



Data File: /chem1/nt12.i/20101112.b/rs97kdl.d

Date : 12-NOV-2010 10:57

Client ID: DGS-07-4.75.2-10101

Instrument: nt12.i

Sample Info: RS97K,3

Volume Injected (uL): 1.0

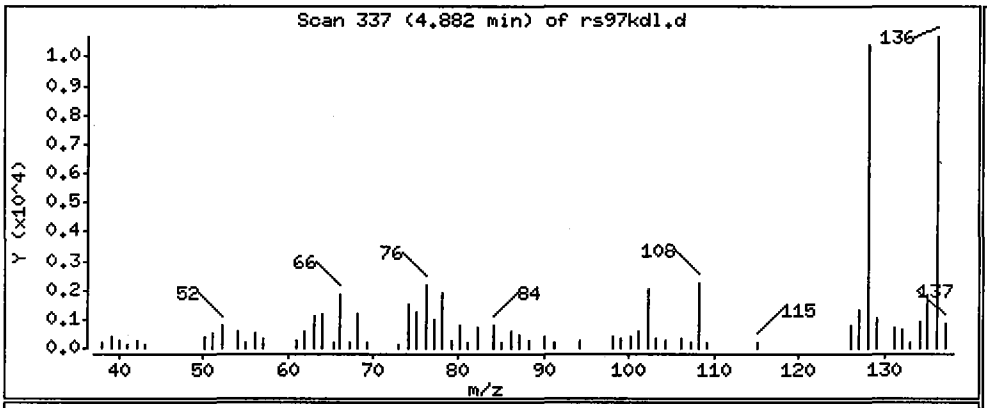
Operator: VTS

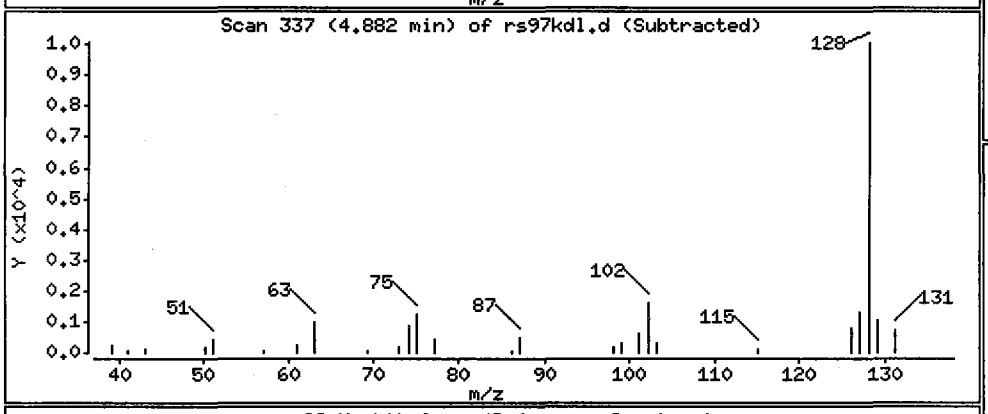
Column phase: ZB-5msi

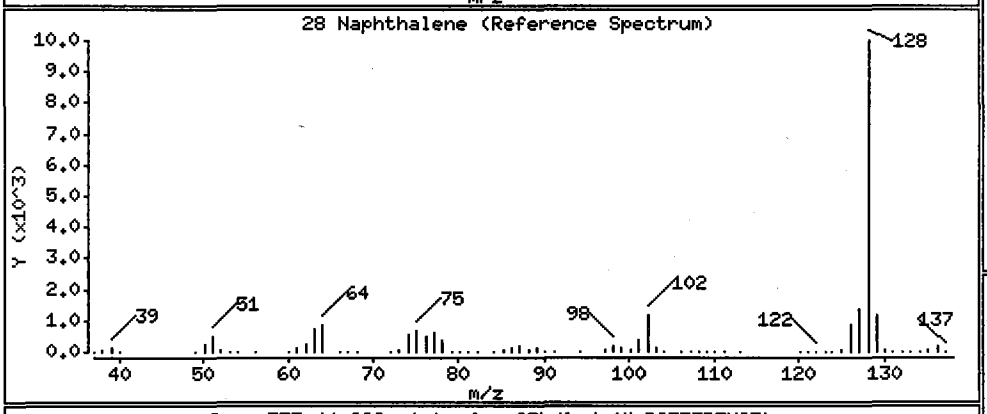
Column diameter: 0.32

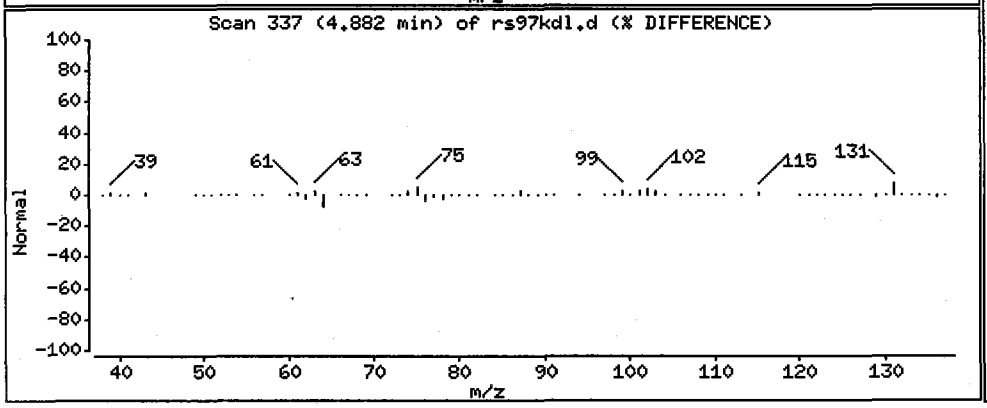
28 Naphthalene

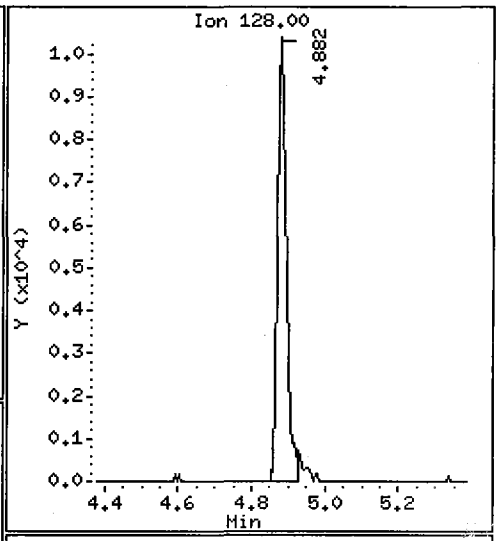
Concentration: 14470 ug/kg

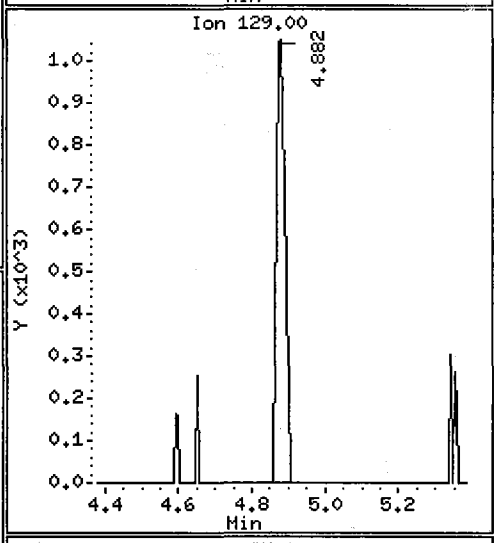


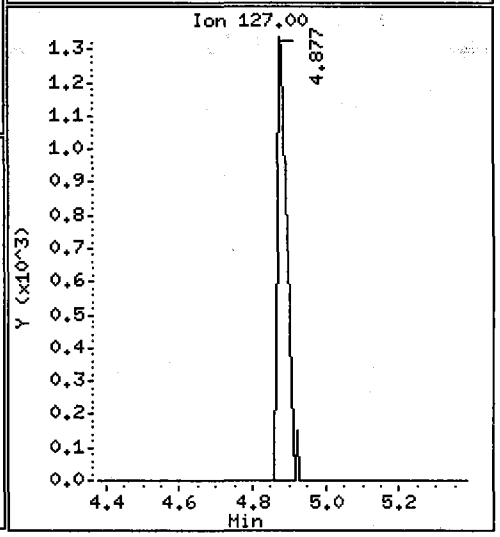












Data File: /chem1/nt12.i/20101112.b/rs97kdl.d

Date : 12-NOV-2010 10:57

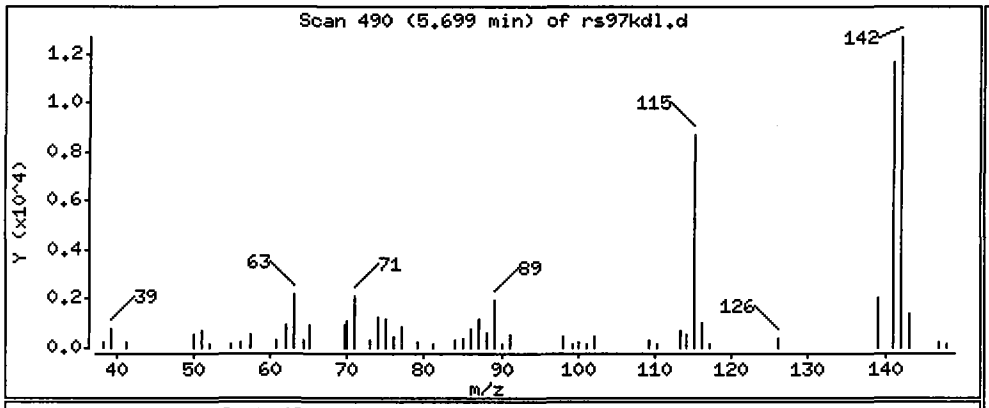
Client ID: DGS-07-4.75.2-10101 Instrument: nt12.i

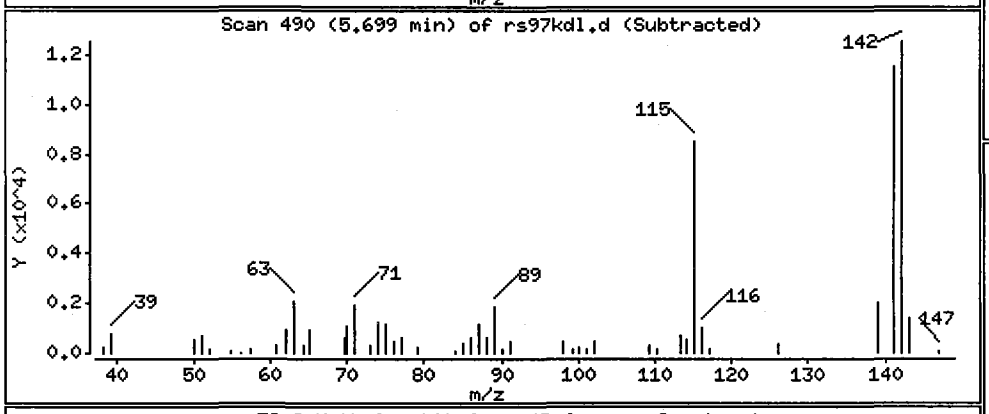
Sample Info: RS97K,3

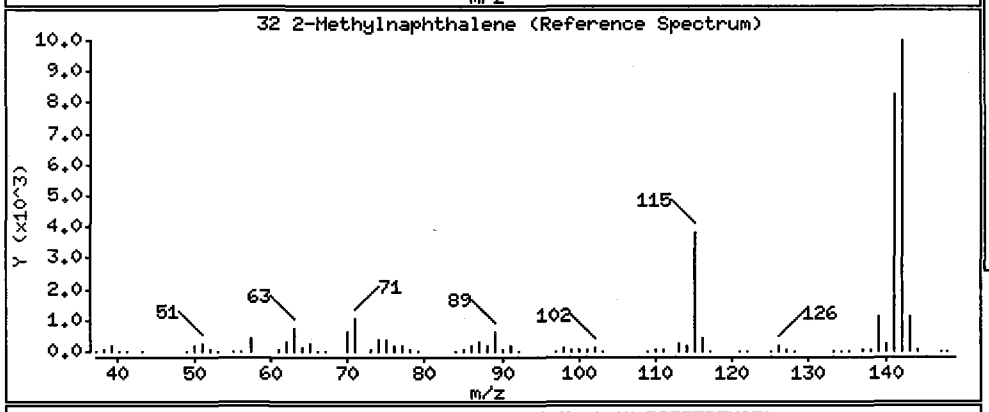
Volume Injected (uL): 1.0 Operator: VTS

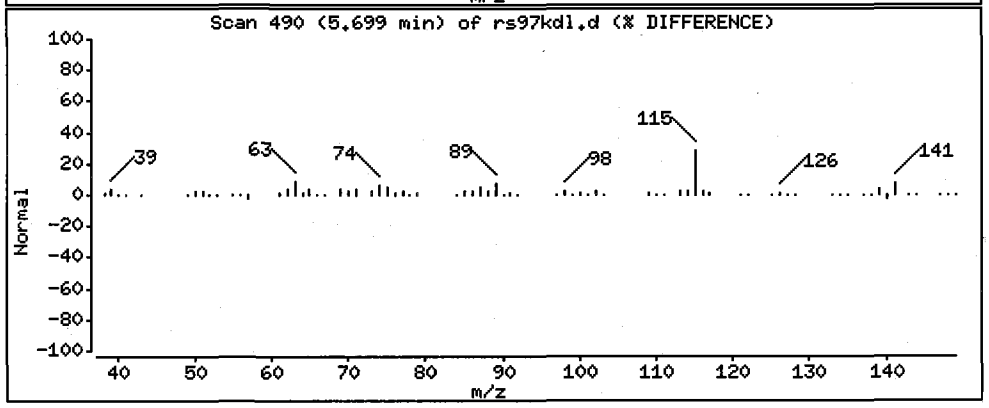
Column phase: ZB-5msi Column diameter: 0.32

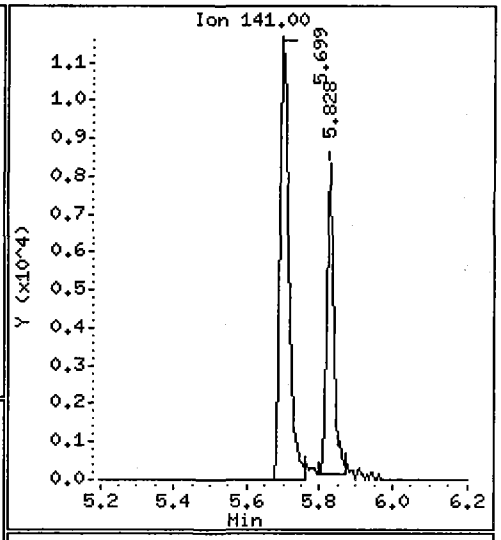
32 2-Methylnaphthalene Concentration: 31060 ug/kg

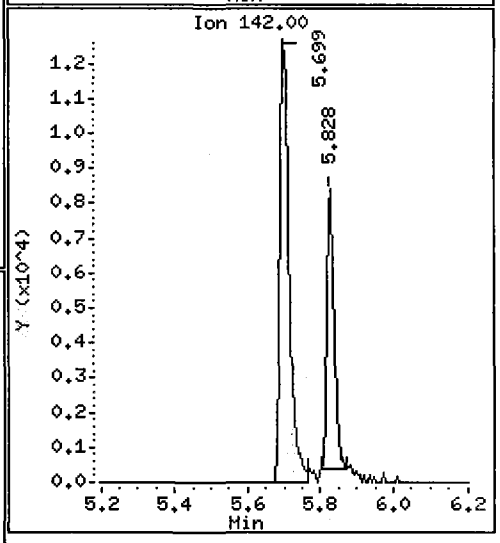












Data File: /chem1/nt12.i/20101112.b/rs97kdl.d

Date : 12-NOV-2010 10:57

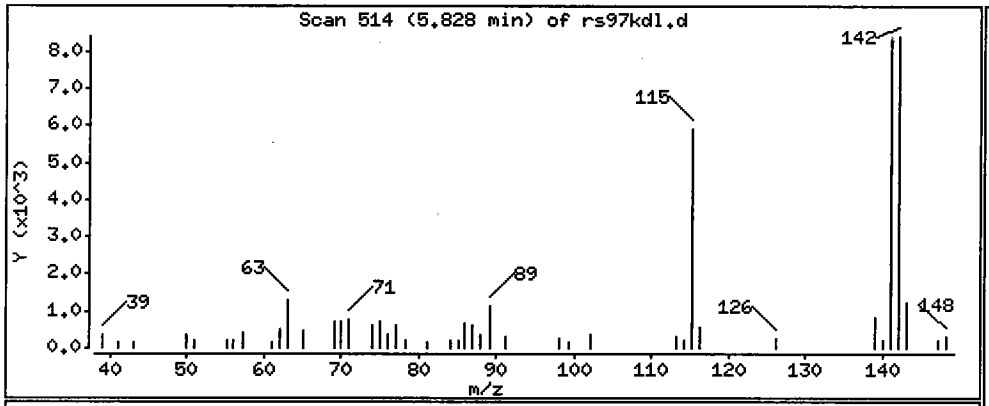
Client ID: DGS-07-4.75.2-10101 Instrument: nt12.i

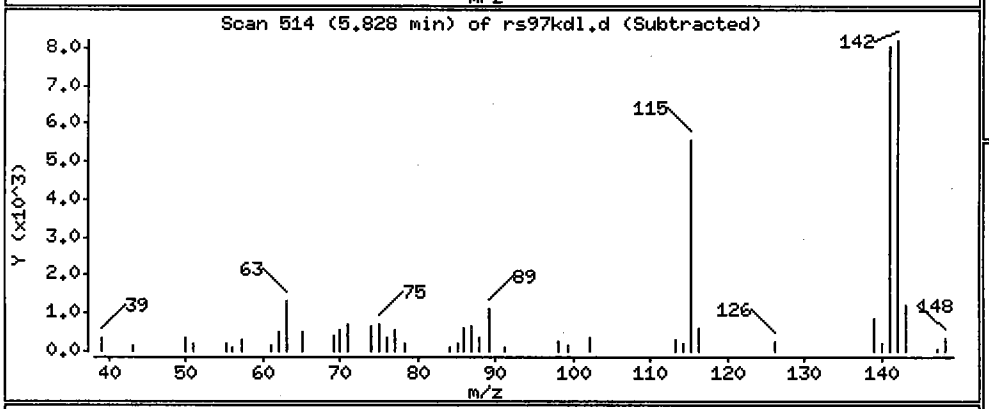
Sample Info: RS97K,3

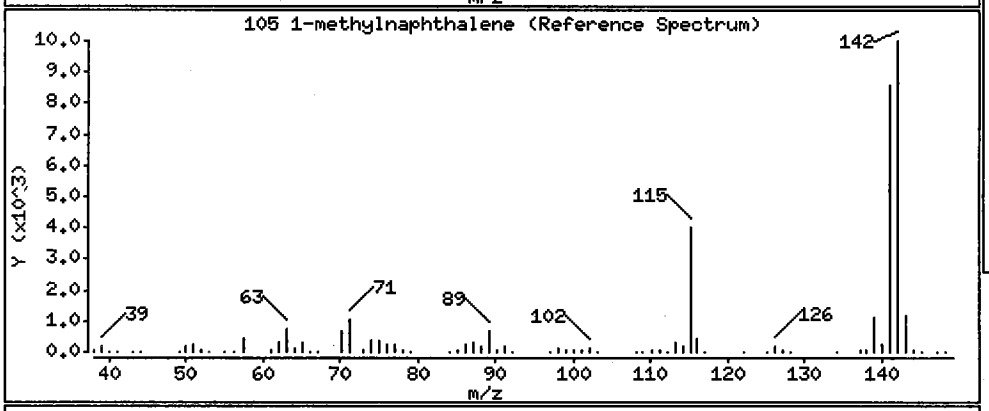
Volume Injected (uL): 1.0 Operator: VTS

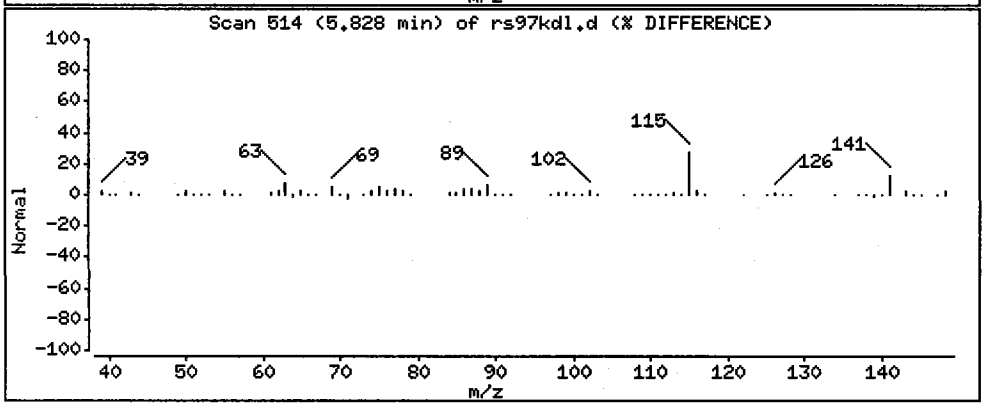
Column phase: ZB-5msi Column diameter: 0.32

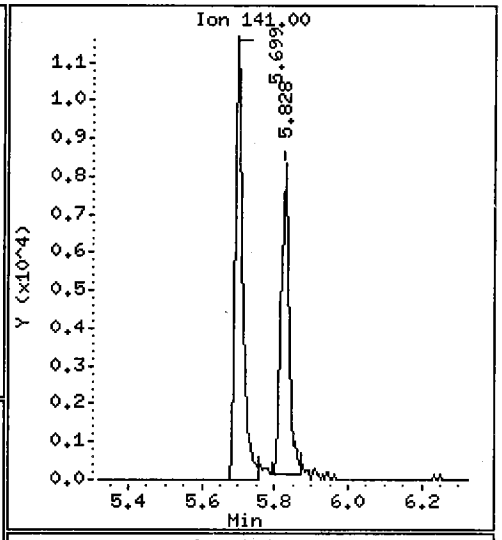
105 1-methylnaphthalene Concentration: 19360 ug/kg

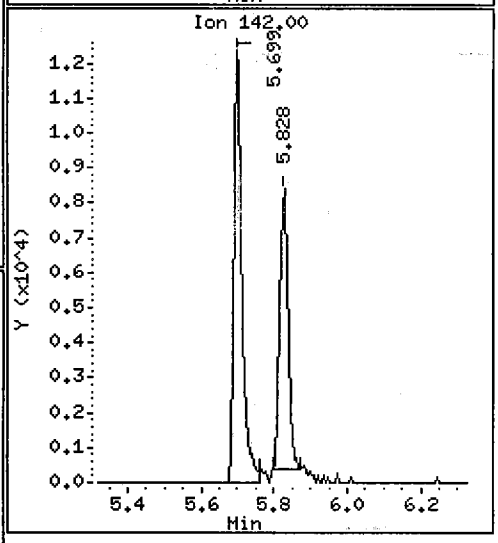












Data File: /chem1/nt12.i/20101112.b/rs97kdl.d

Date : 12-NOV-2010 10:57

Client ID: DGS-07-4.75.2-10101

Instrument: nt12.i

Sample Info: RS97K,3

Volume Injected (uL): 1.0

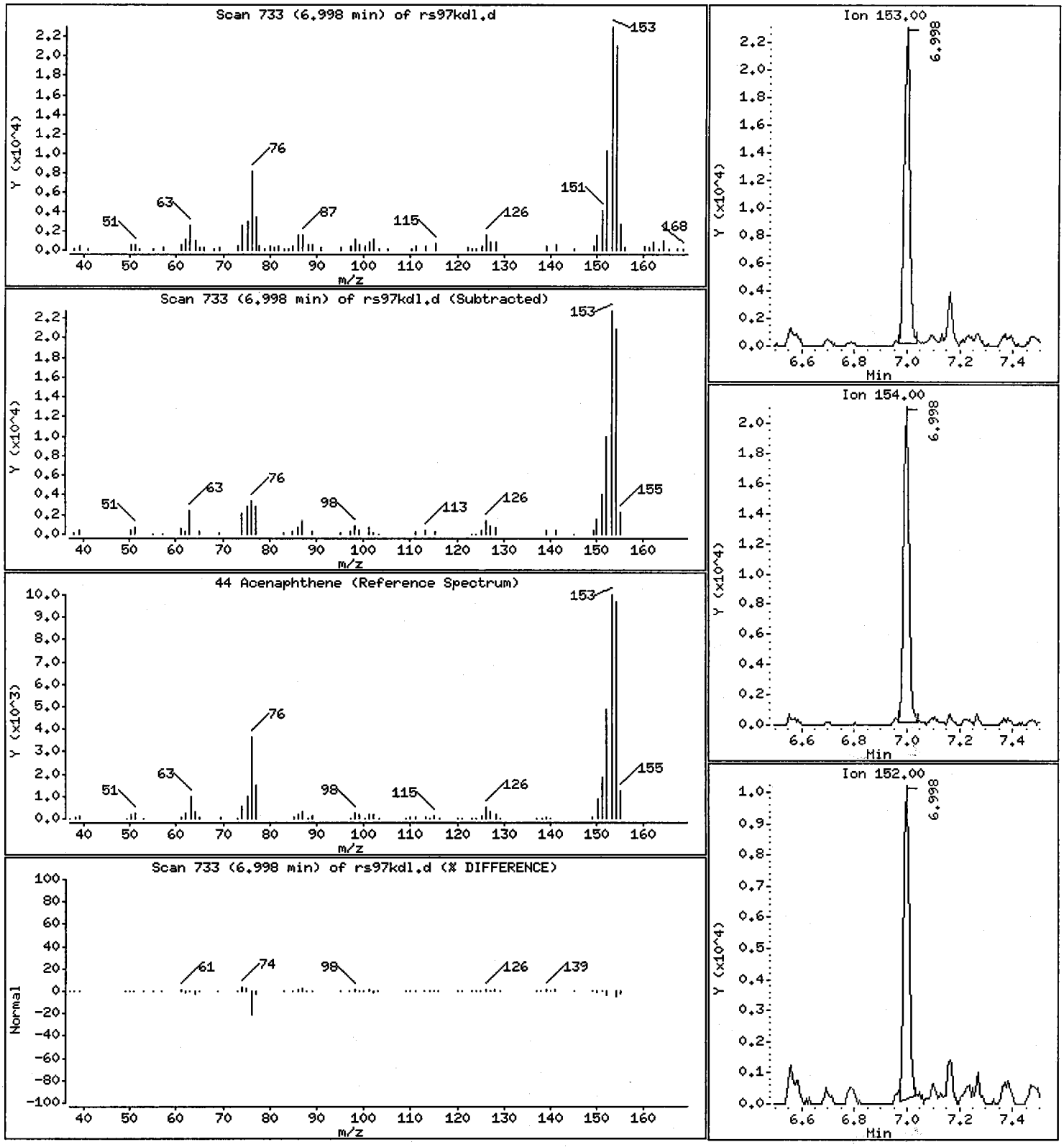
Operator: VTS

Column phase: ZB-5msi

Column diameter: 0.32

44 Acenaphthene

Concentration: 39820 ug/kg



Data File: /chem1/nt12.i/20101112.b/rs97kdl.d

Date : 12-NOV-2010 10:57

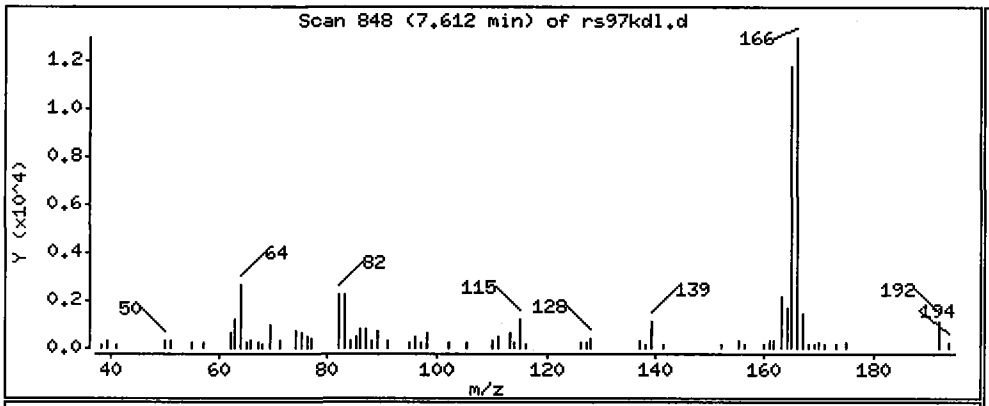
Client ID: DGS-07-4.75.2-10101 Instrument: nt12.i

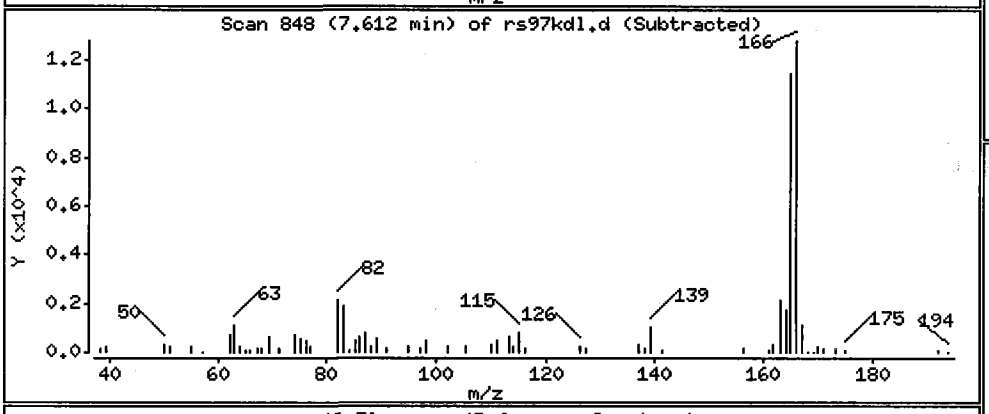
Sample Info: RS97K,3

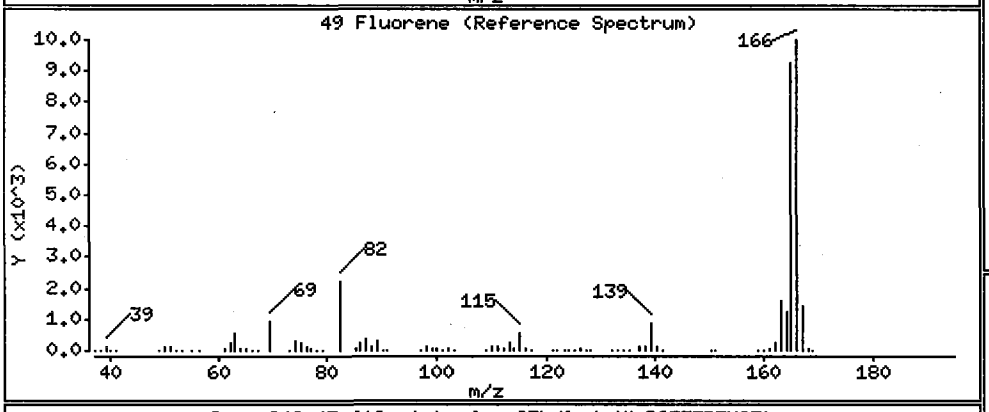
Volume Injected (uL): 1.0 Operator: VTS

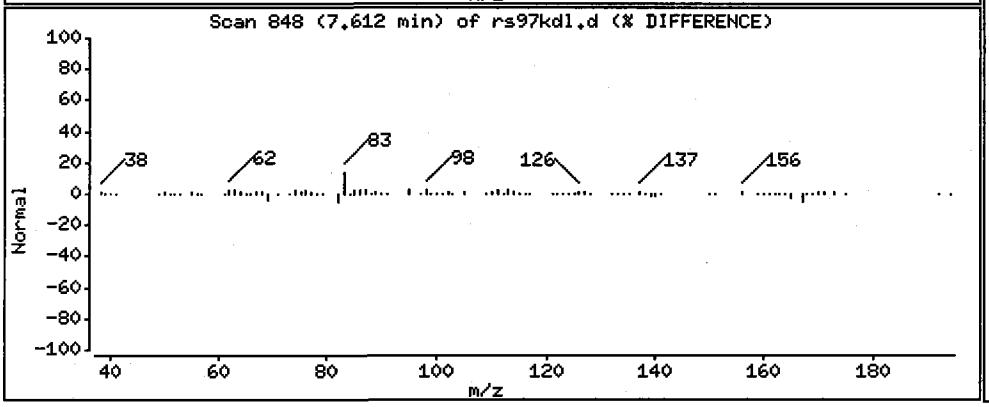
Column phase: ZB-5msi Column diameter: 0.32

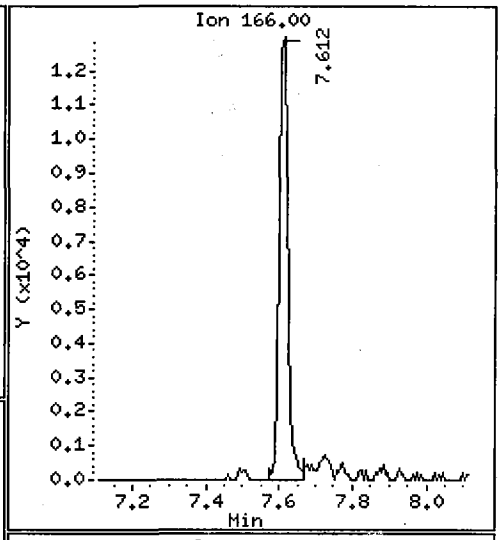
49 Fluorene Concentration: 23750 ug/kg

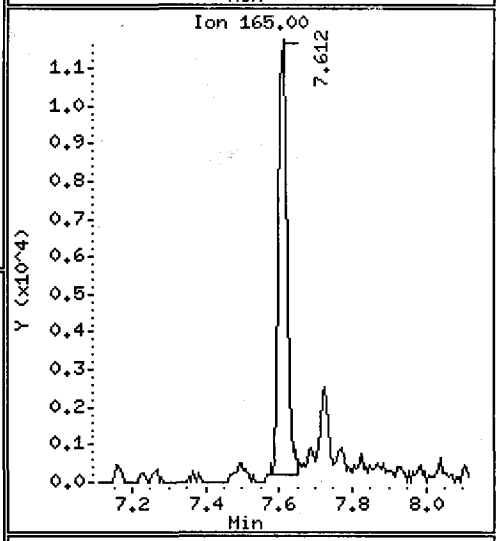


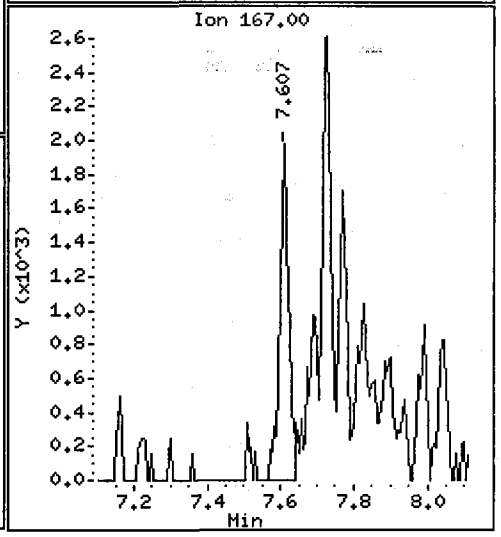












Data File: /chem1/nt12.i/20101112.b/rs97kdl.d

Date : 12-NOV-2010 10:57

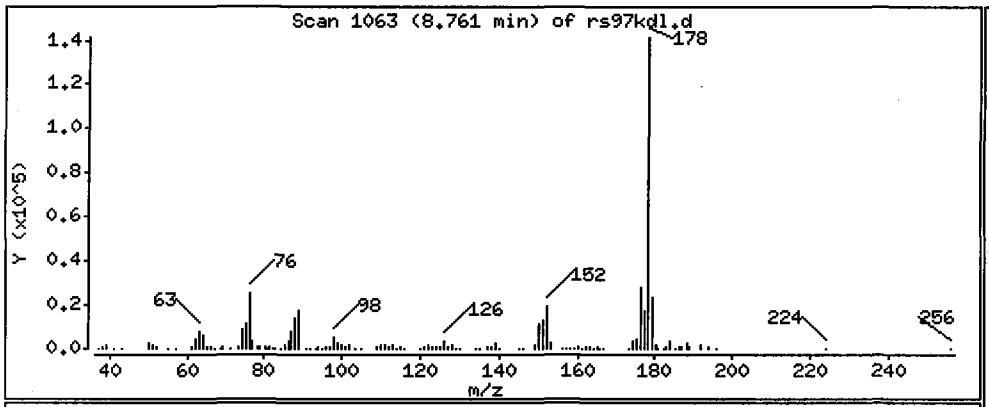
Client ID: DGS-07-4.75.2-10101 Instrument: nt12.i

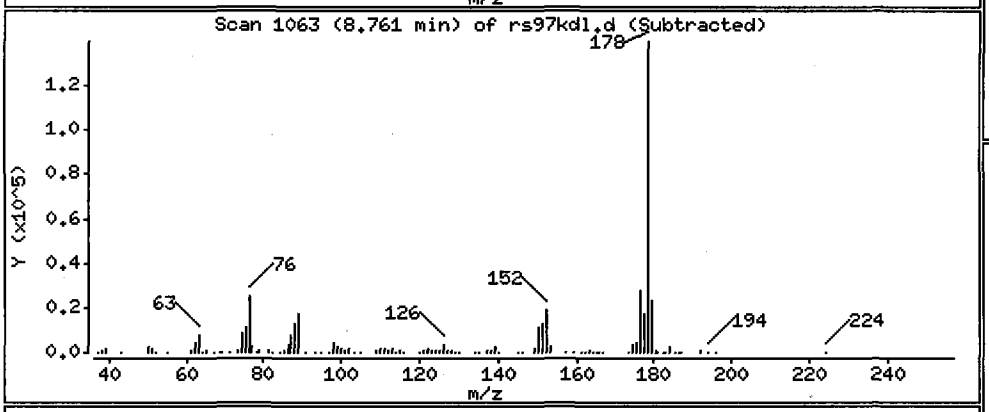
Sample Info: RS97K,3

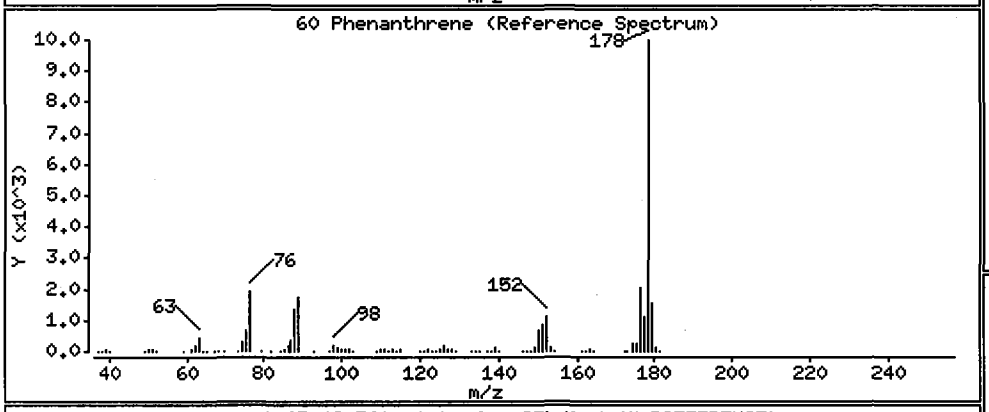
Volume Injected (uL): 1.0 Operator: VTS

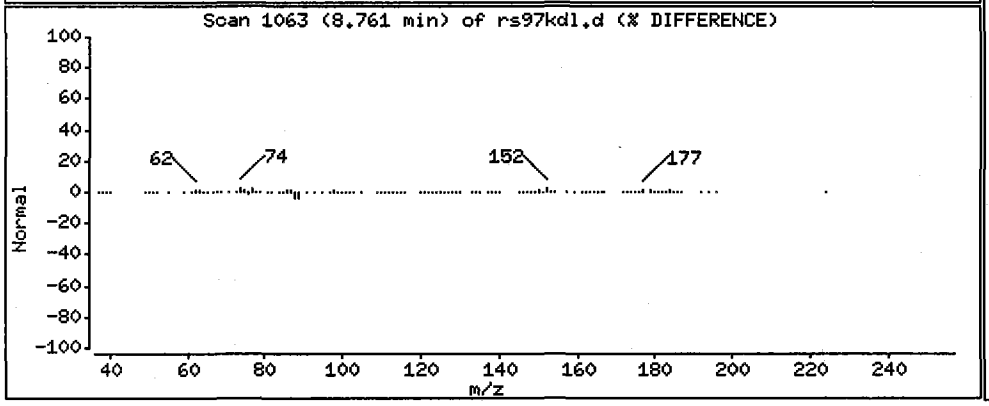
Column phase: ZB-5msi Column diameter: 0.32

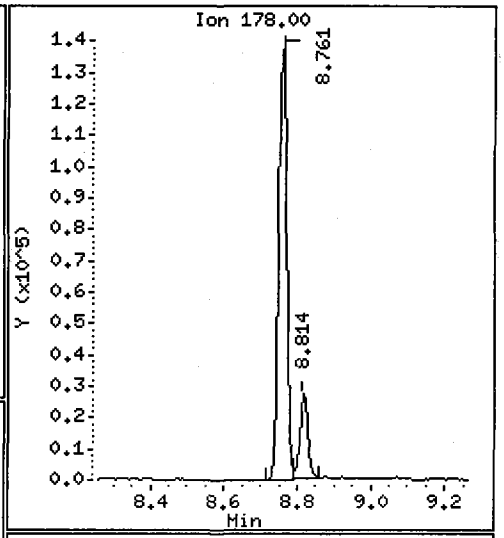
60 Phenanthrene Concentration: 178600 ug/kg

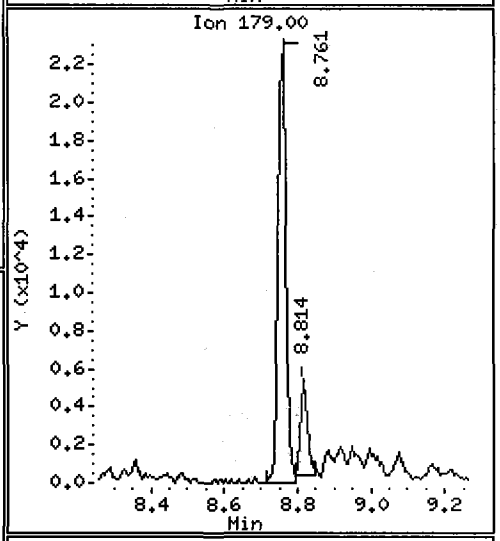


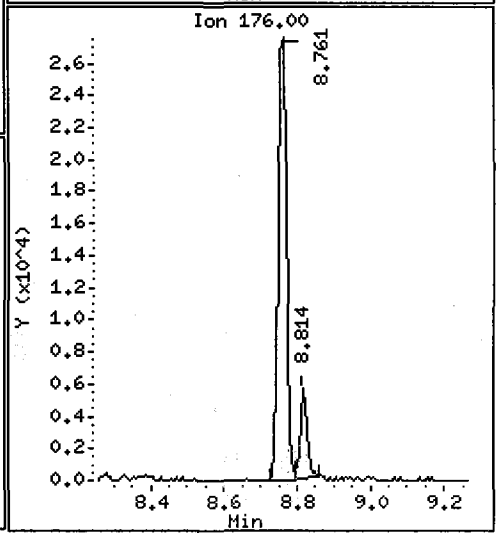












Data File: /chem1/nt12.i/20101112.b/rs97kdl.d

Date : 12-NOV-2010 10:57

Client ID: DGS-07-4.75.2-10101

Instrument: nt12.i

Sample Info: RS97K,3

Volume Injected (uL): 1.0

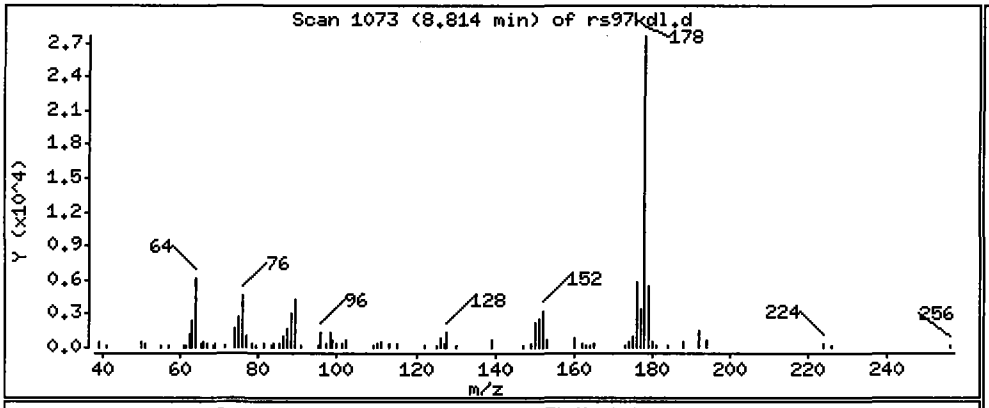
Operator: VTS

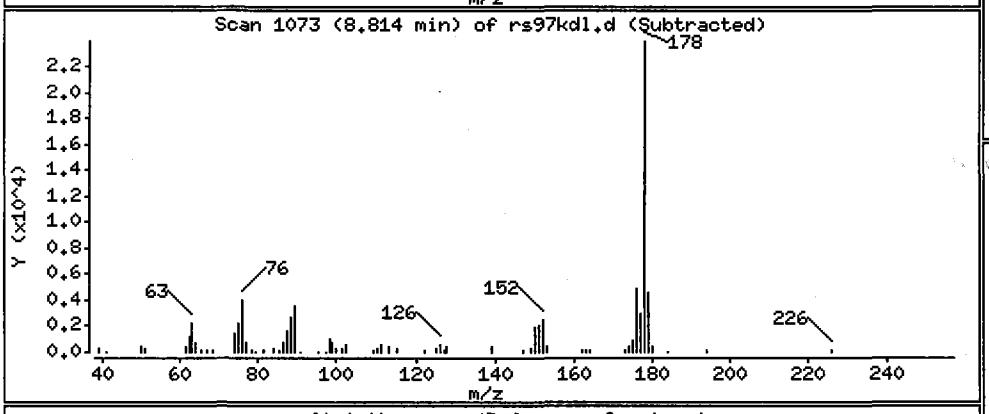
Column phase: ZB-5msi

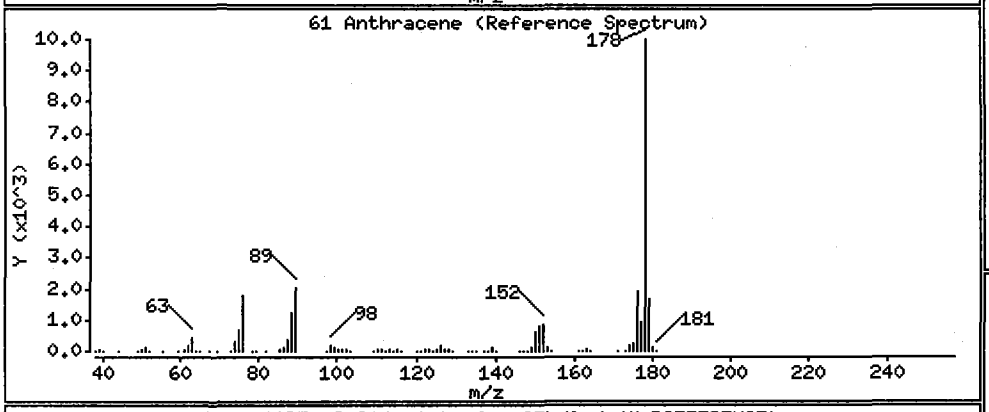
Column diameter: 0.32

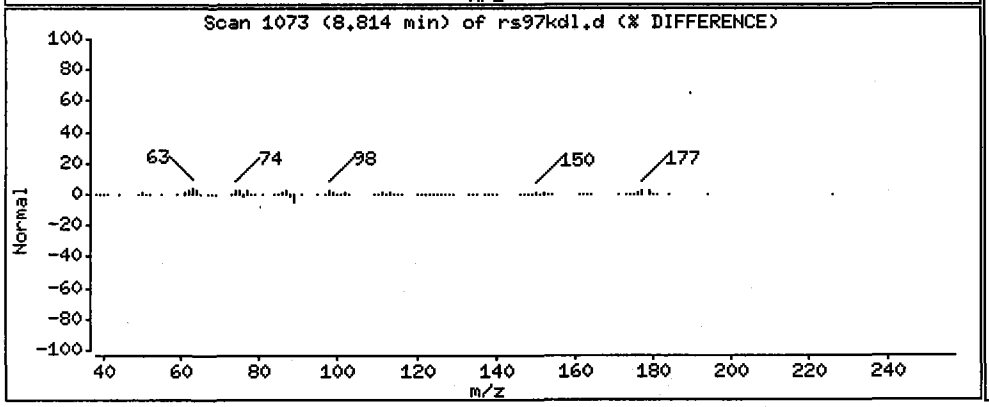
61 Anthracene

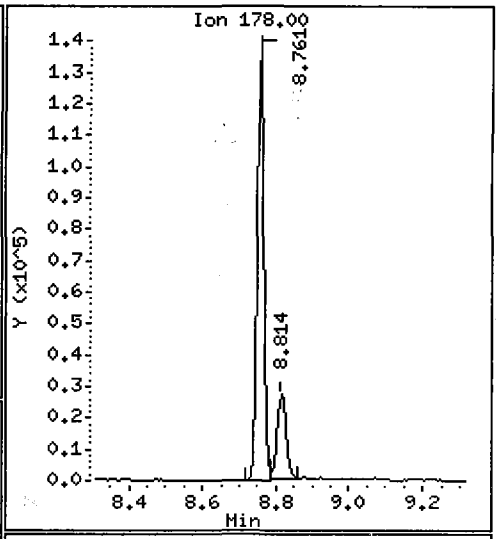
Concentration: 41040 ug/kg

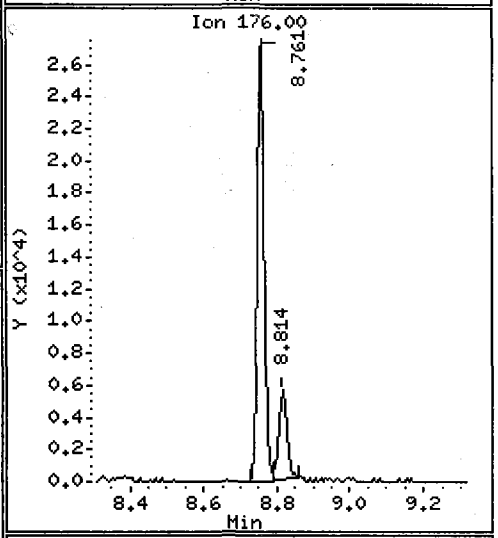


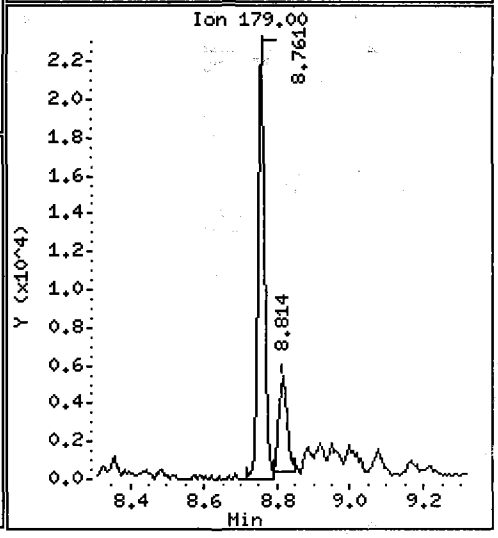












Data File: /chem1/nt12.i/20101112.b/rs97kdl.d

Date : 12-NOV-2010 10:57

Client ID: DGS-07-4.75.2-10101

Instrument: nt12.i

Sample Info: RS97K,3

Volume Injected (uL): 1.0

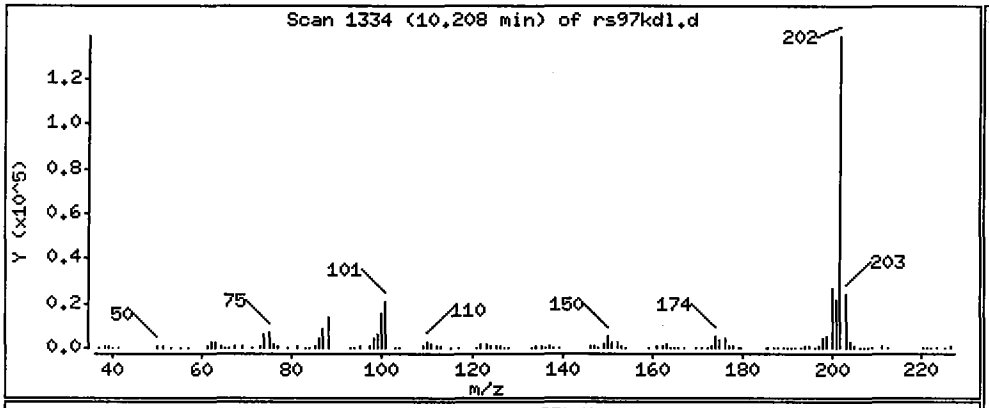
Operator: VTS

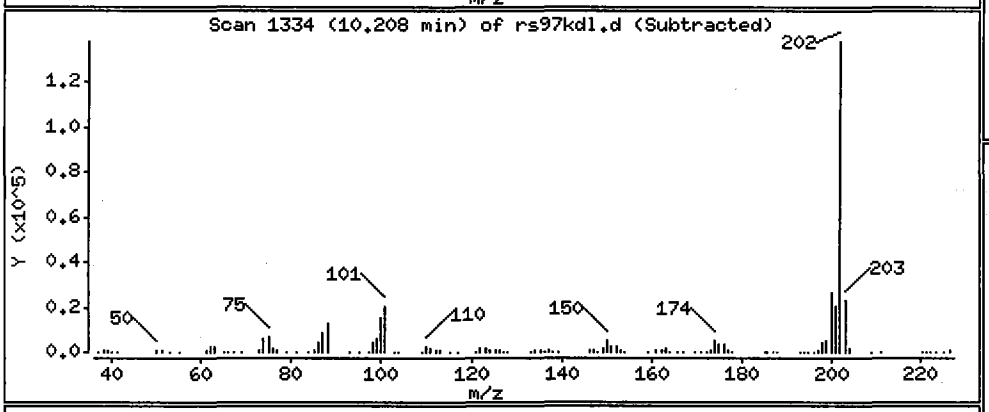
Column phase: ZB-5msi

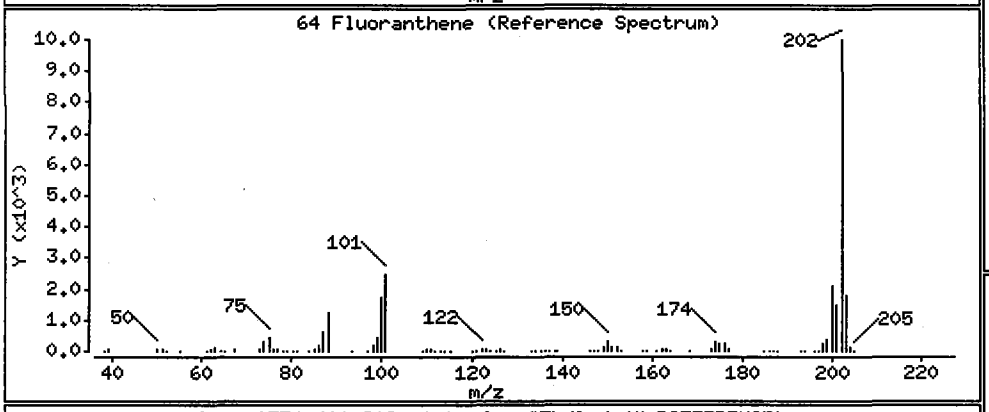
Column diameter: 0.32

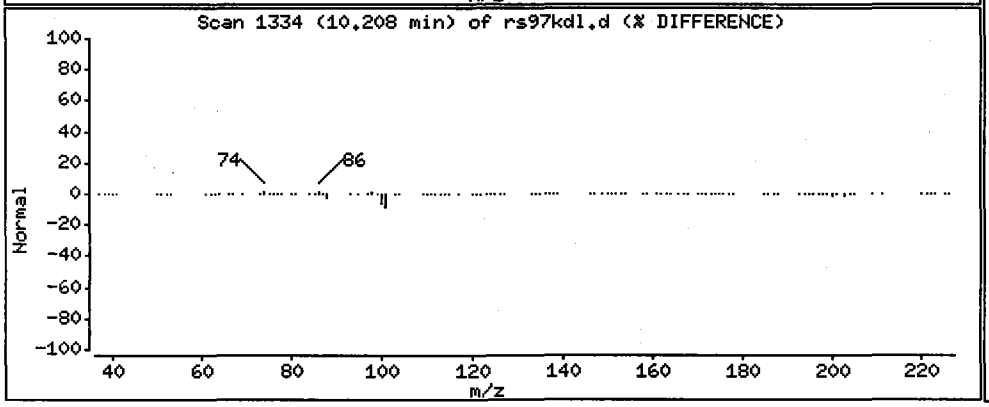
64 Fluoranthene

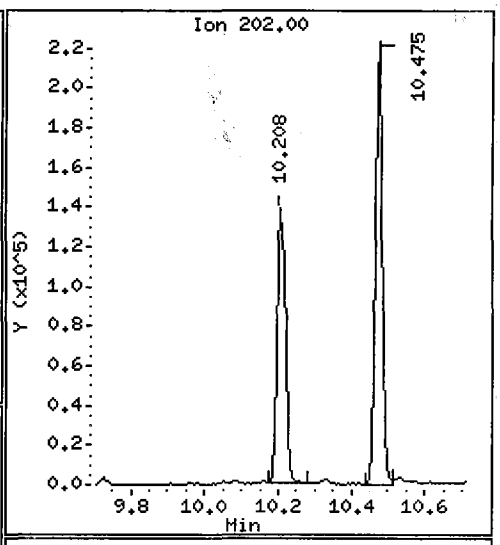
Concentration: 159900 ug/kg

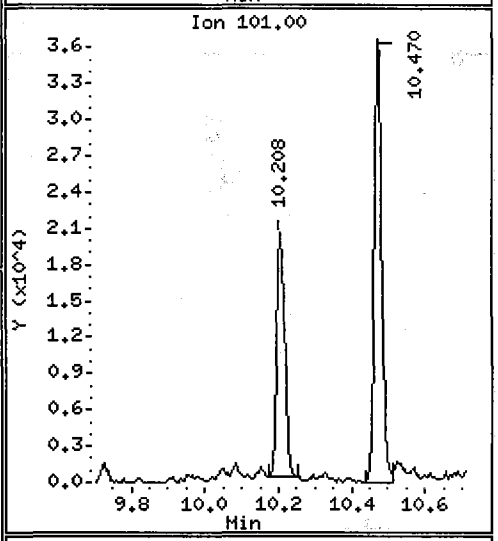


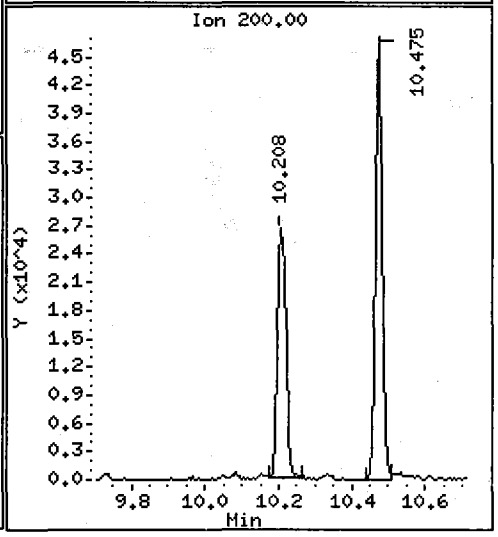












Data File: /chem1/nt12.i/20101112.b/rs97kdl.d

Date : 12-NOV-2010 10:57

Client ID: DGS-07-4.75.2-10101

Instrument: nt12.i

Sample Info: RS97K,3

Volume Injected (uL): 1.0

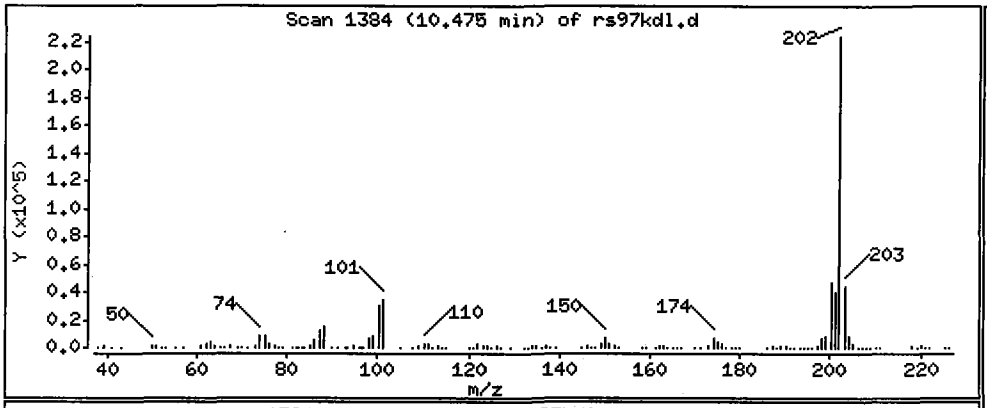
Operator: VTS

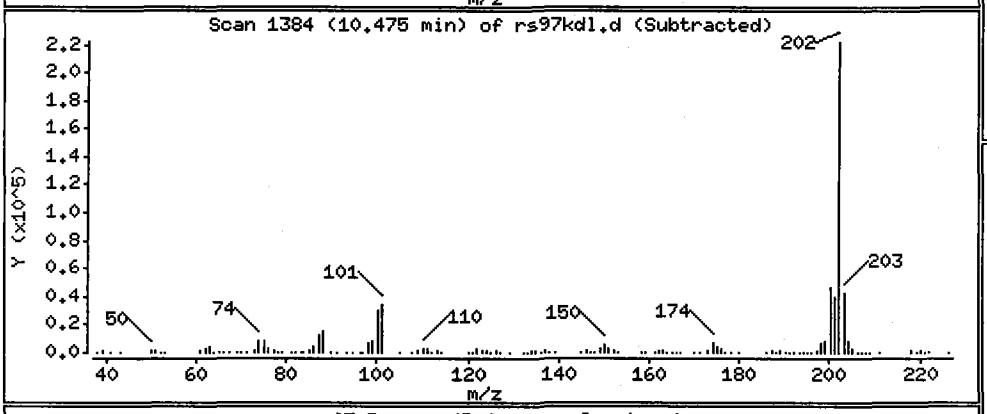
Column phase: ZB-5msi

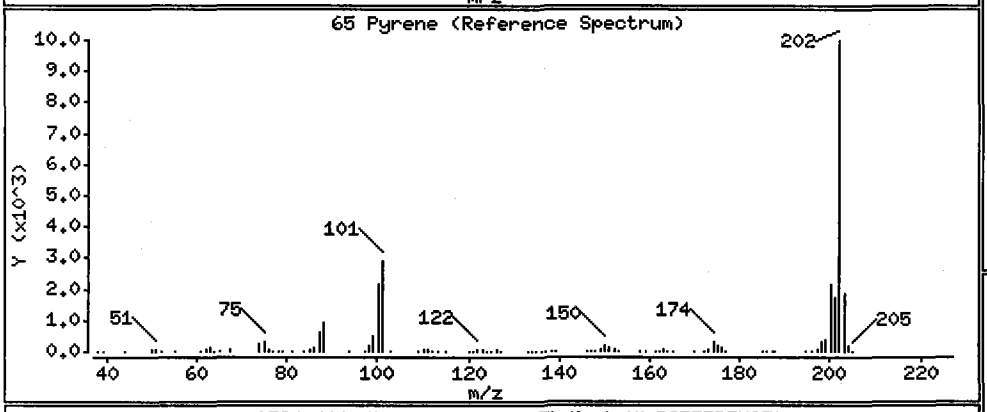
Column diameter: 0.32

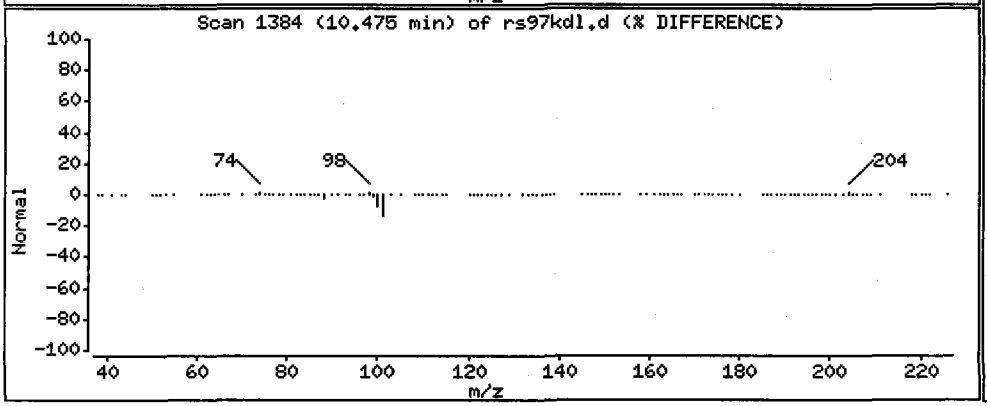
65 Pyrene

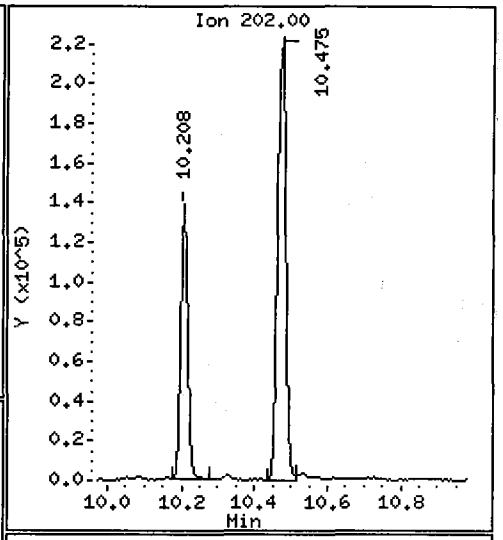
Concentration: 252900 ug/kg

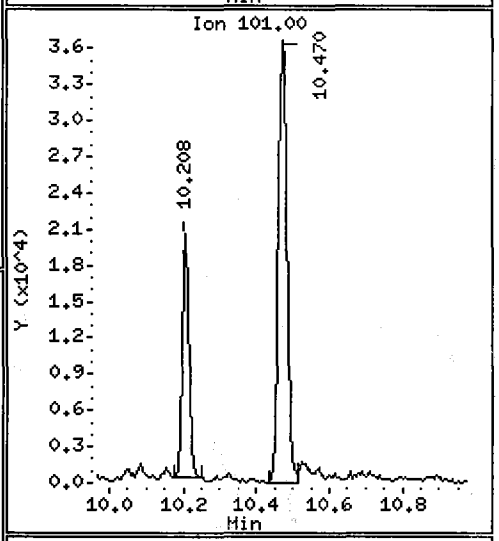


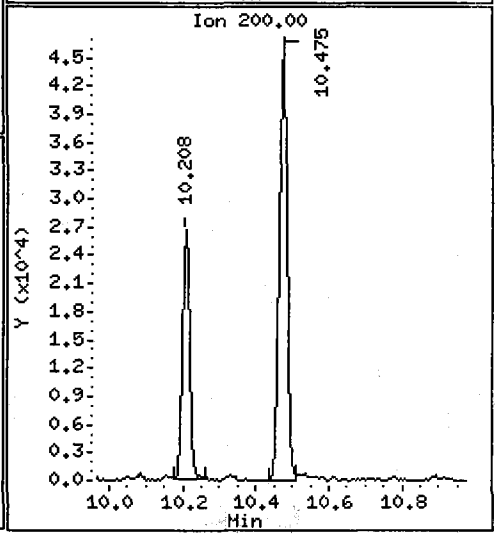












Data File: /chem1/nt12.i/20101112.b/rs97kdl.d

Date : 12-NOV-2010 10:57

Client ID: DGS-07-4.75.2-10101

Instrument: nt12.i

Sample Info: RS97K,3

Volume Injected (uL): 1.0

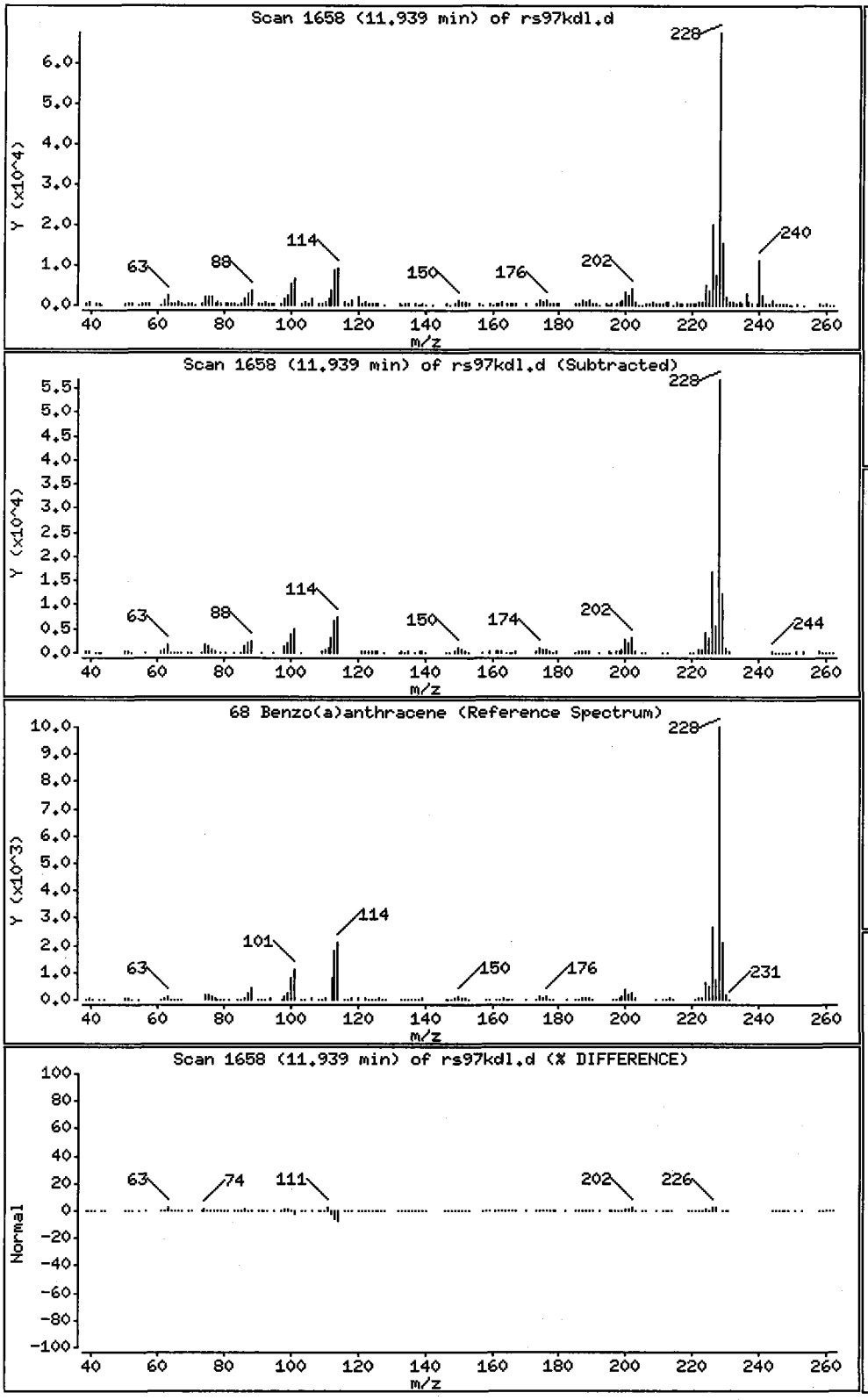
Operator: VTS

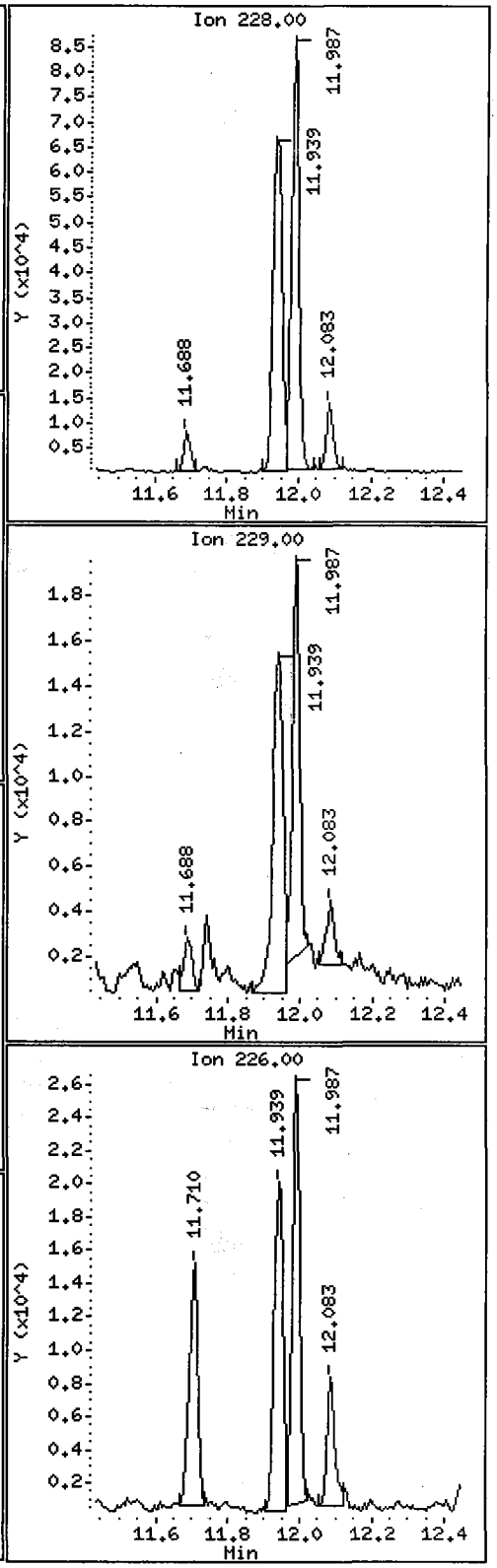
Column phase: ZB-5msi

Column diameter: 0.32

68 Benzo(a)anthracene

Concentration: 109600 ug/kg





Data File: /chem1/nt12.i/20101112.b/rs97kdl.d

Date : 12-NOV-2010 10:57

Client ID: DGS-07-4.75.2-10101

Instrument: nt12.i

Sample Info: RS97K,3

Volume Injected (uL): 1.0

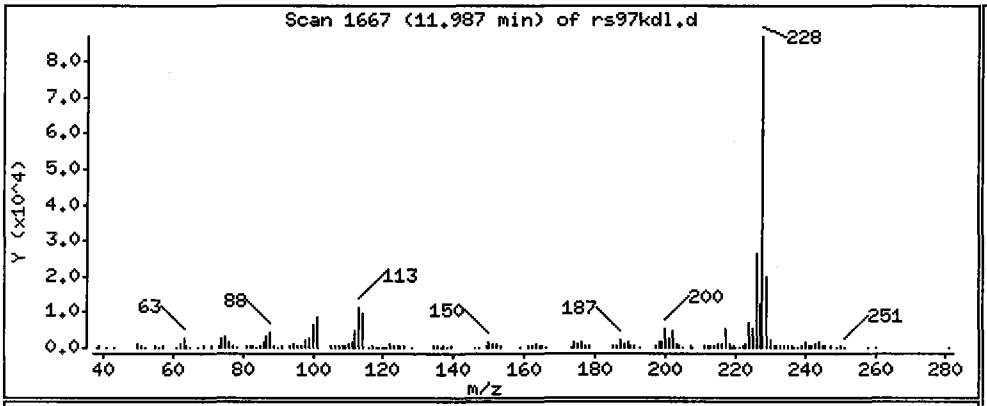
Operator: VTS

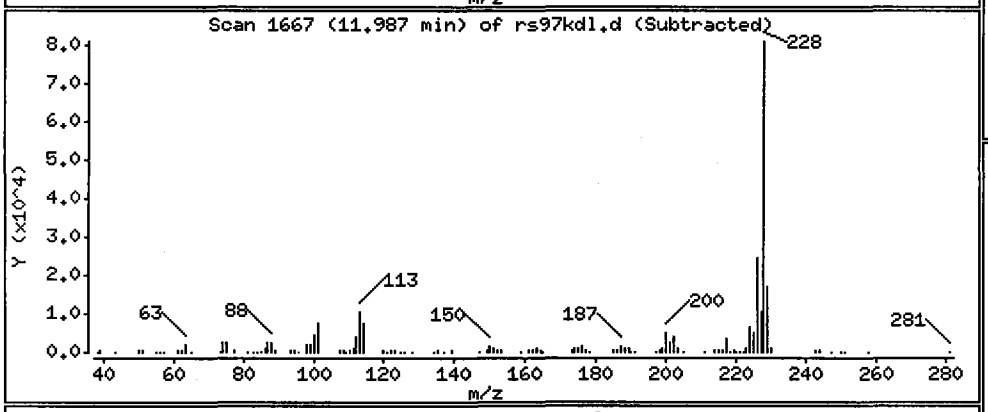
Column phase: ZB-5msi

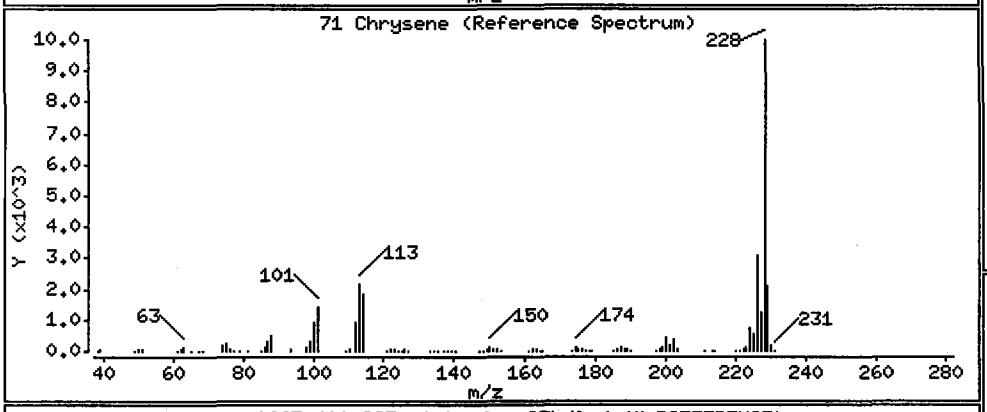
Column diameter: 0.32

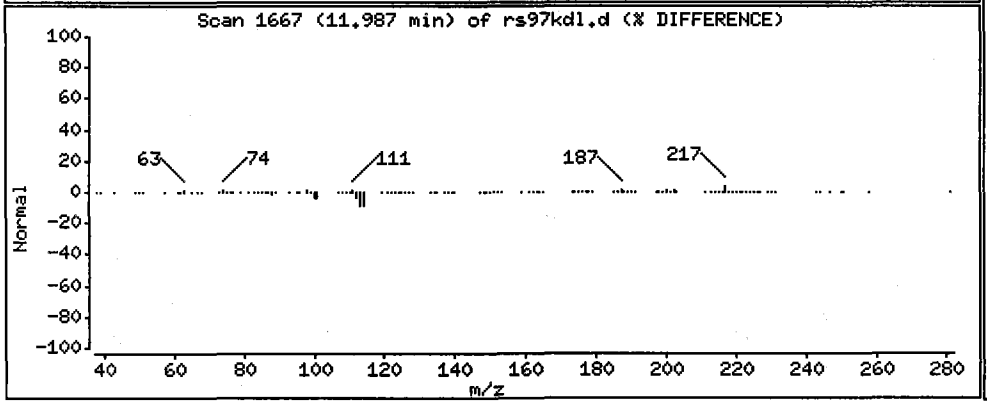
71 Chrysene

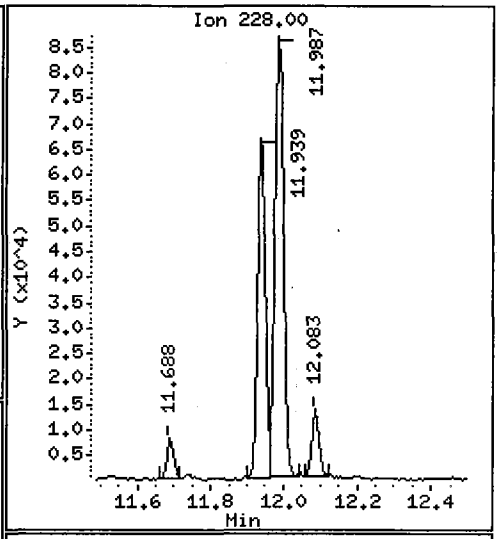
Concentration: 140500 ug/kg

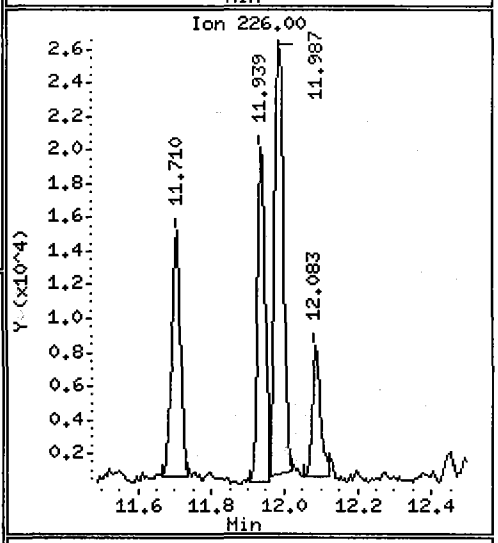


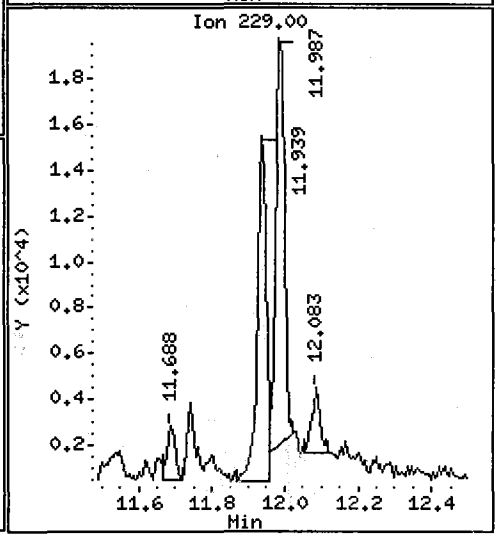












Data File: /chem1/nt12.i/20101112.b/rs97kdl.d

Date : 12-NOV-2010 10:57

Client ID: DGS-07-4.75.2-10101

Instrument: nt12.i

Sample Info: RS97K,3

Volume Injected (uL): 1.0

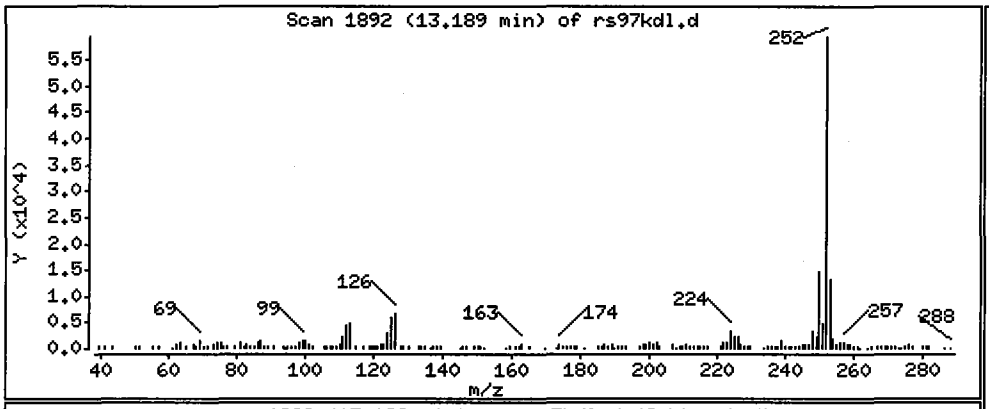
Operator: VTS

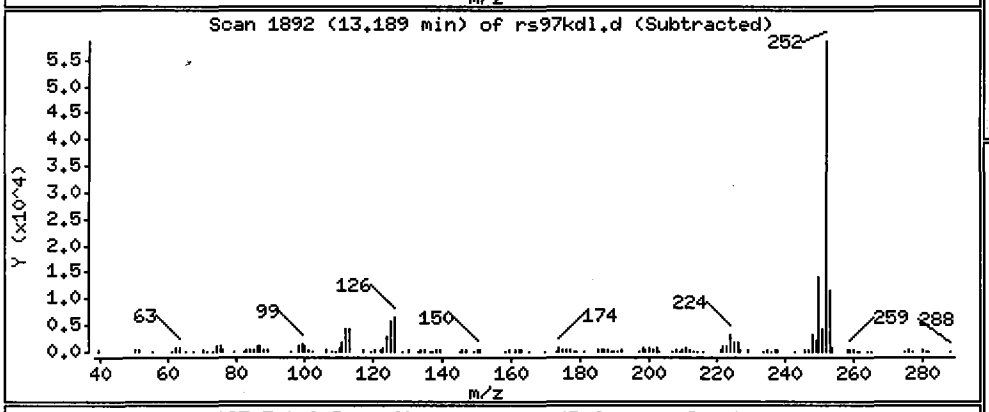
Column phase: ZB-5msi

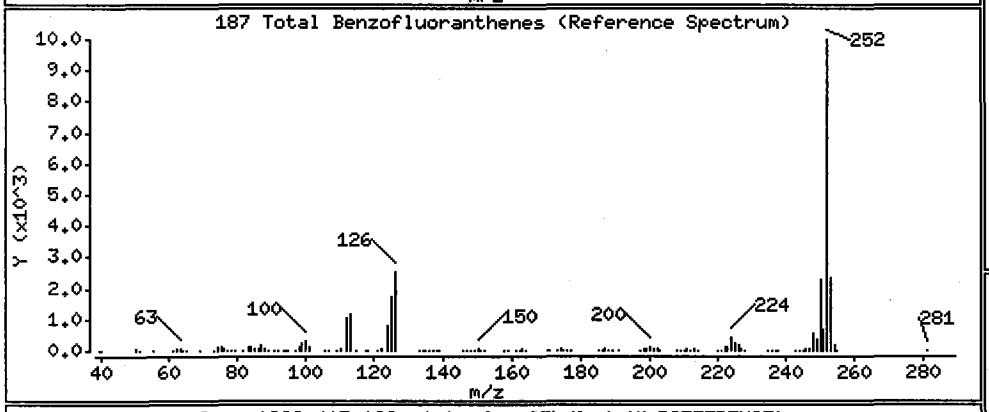
Column diameter: 0.32

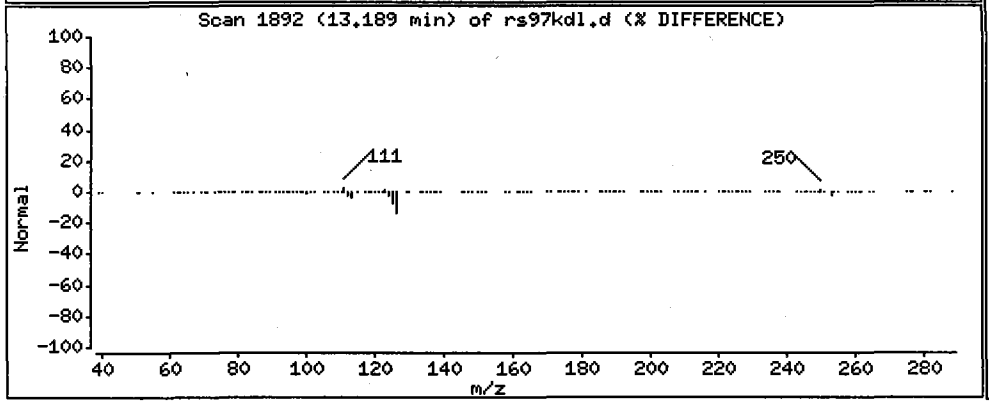
187 Total Benzofluoranthenes

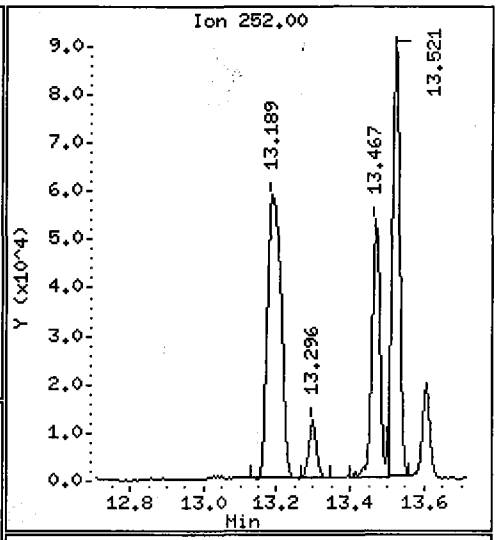
Concentration: 150100 ug/kg

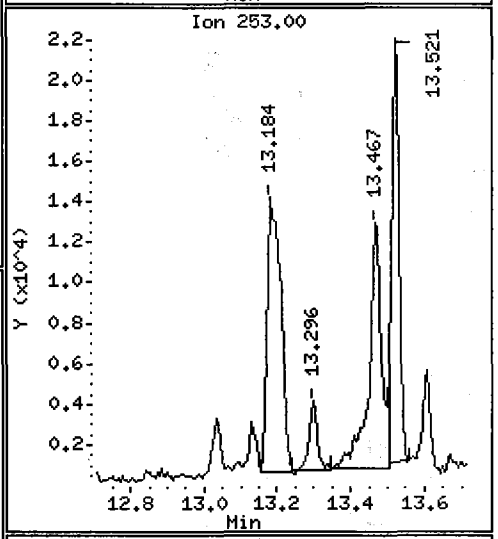


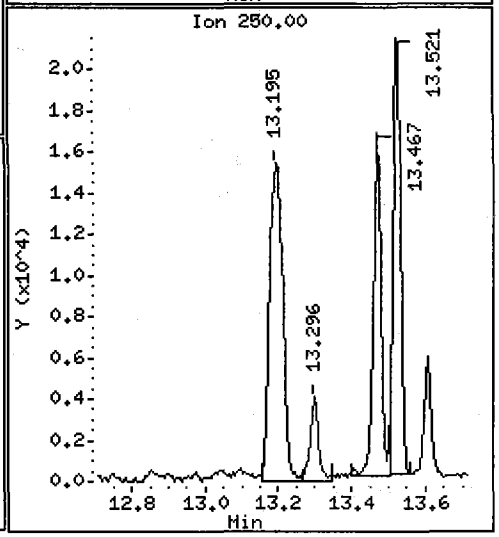












Data File: /chem1/nt12.i/20101112.b/rs97kdl.d

Date : 12-NOV-2010 10:57

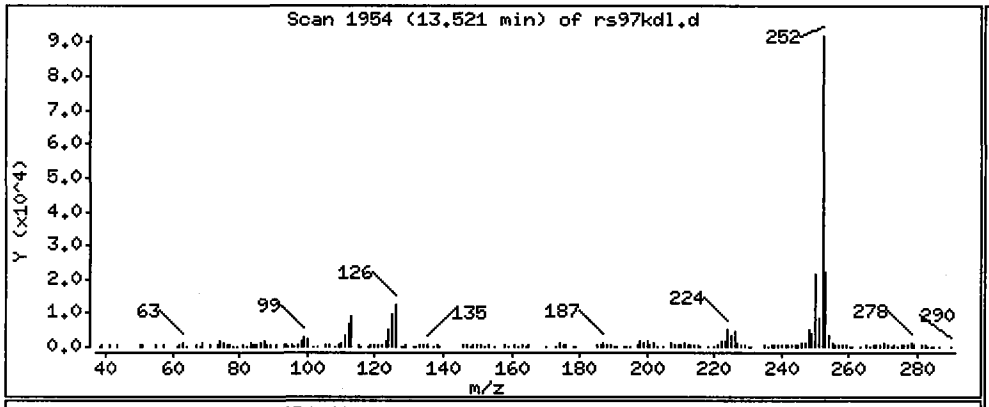
Client ID: DGS-07-4.75.2-10101 | Instrument: nt12.i

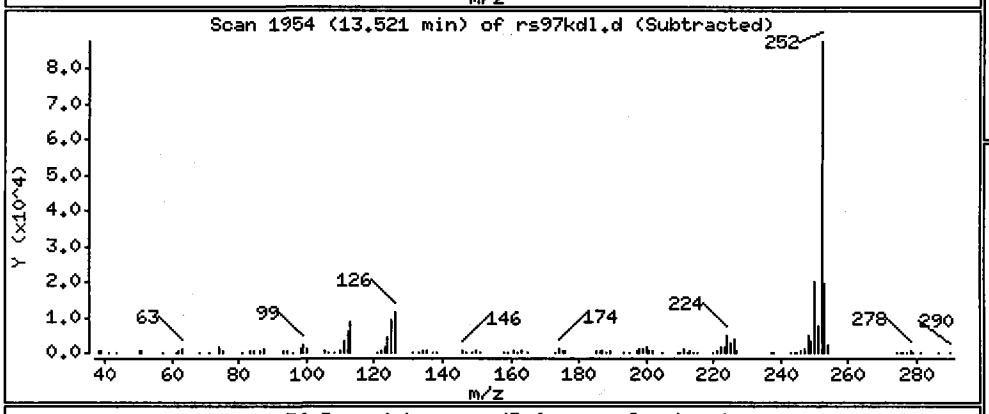
Sample Info: RS97K,3

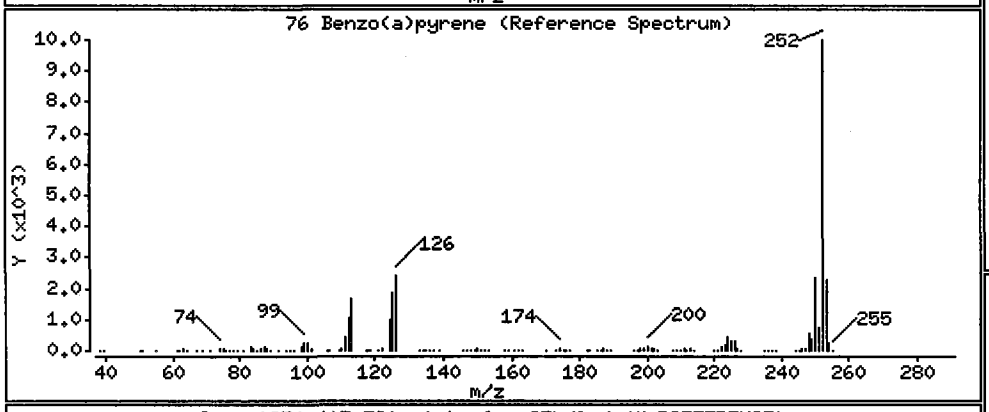
Volume Injected (uL): 1.0 | Operator: VTS

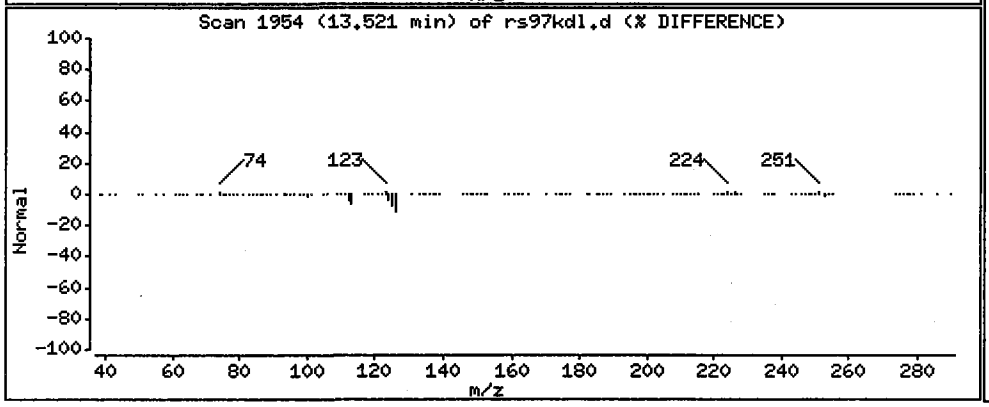
Column phase: ZB-5msi | Column diameter: 0.32

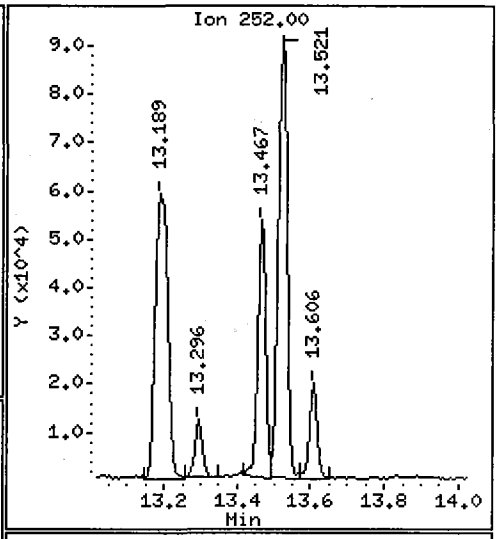
76 Benzo(a)pyrene | Concentration: 153100 ug/kg

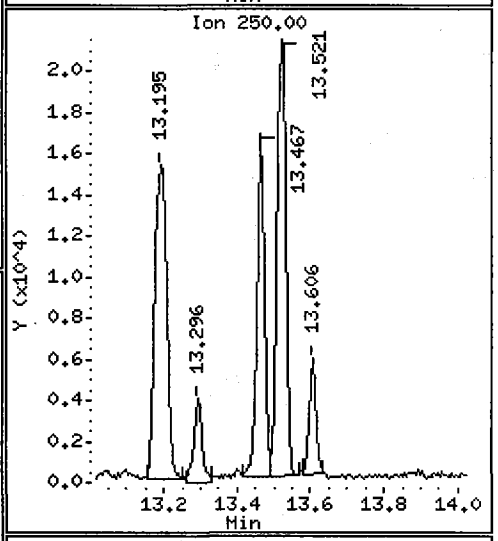


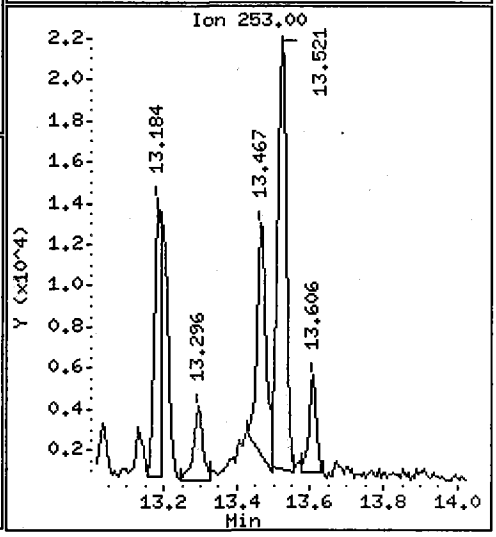












Data File: /chem1/nt12.i/20101112.b/rs97kdl.d

Date : 12-NOV-2010 10:57

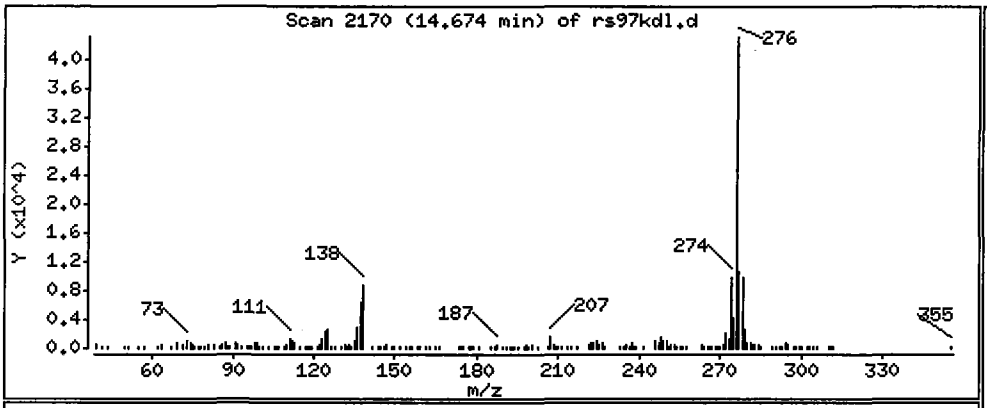
Client ID: DGS-07-4.75.2-10101 Instrument: nt12.i

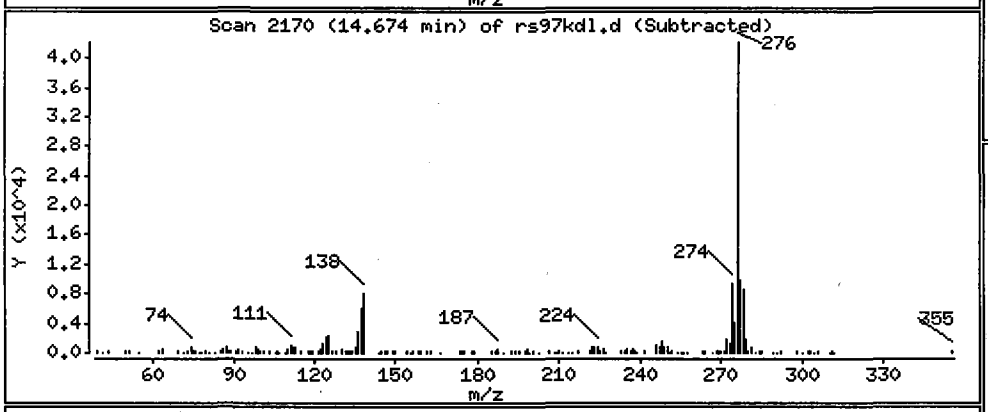
Sample Info: RS97K,3

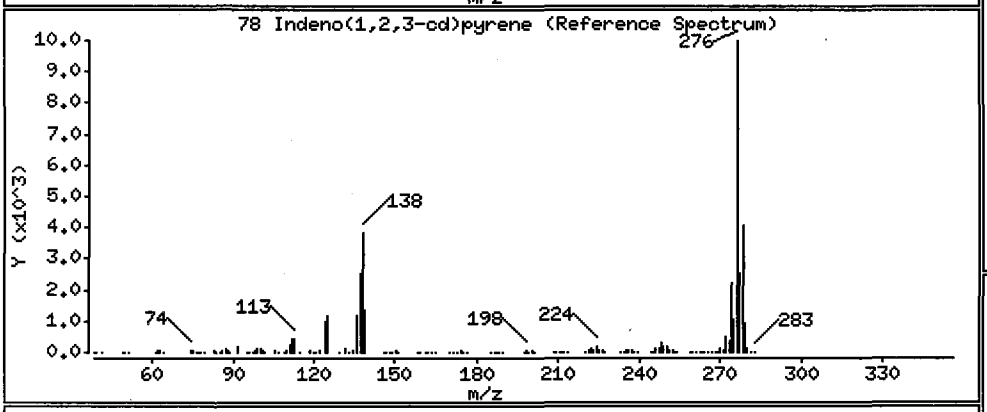
Volume Injected (uL): 1.0 Operator: VTS

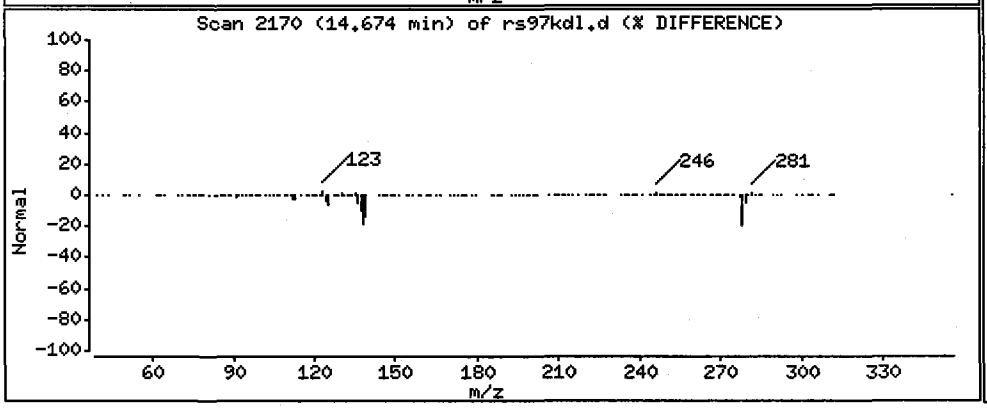
Column phase: ZB-5msi Column diameter: 0.32

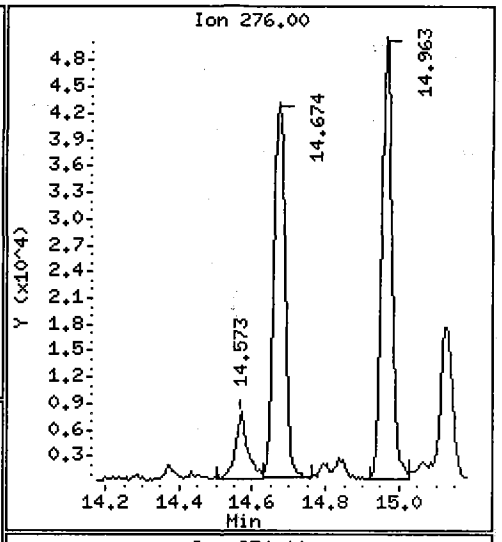
78 Indeno(1,2,3-cd)pyrene Concentration: 63460 ug/kg

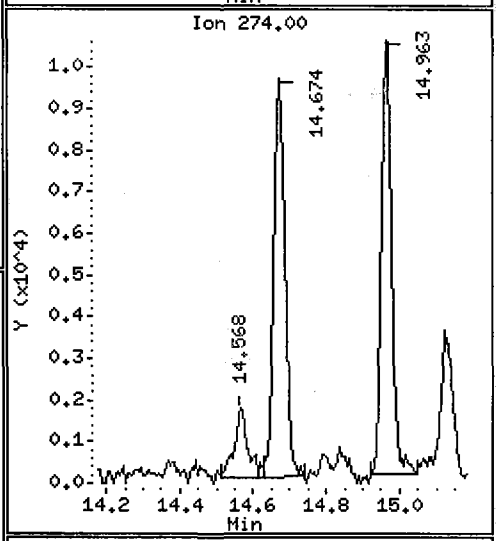


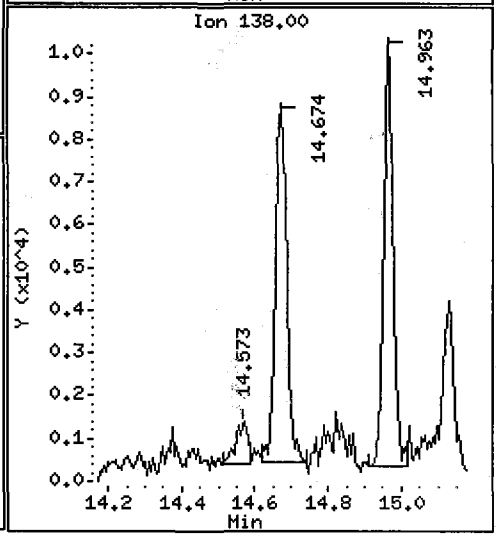












Data File: /chem1/nt12.i/20101112.b/rs97kdl.d

Date : 12-NOV-2010 10:57

Client ID: DGS-07-4.75.2-10101

Instrument: nt12.i

Sample Info: RS97K,3

Volume Injected (uL): 1.0

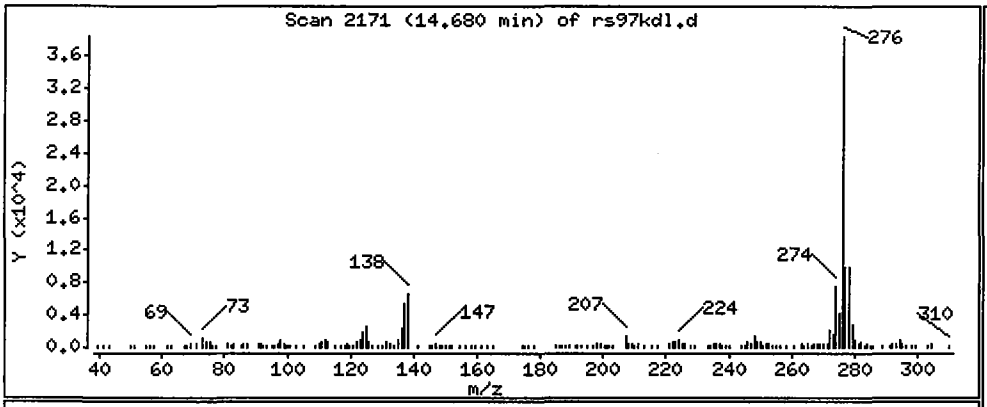
Operator: VTS

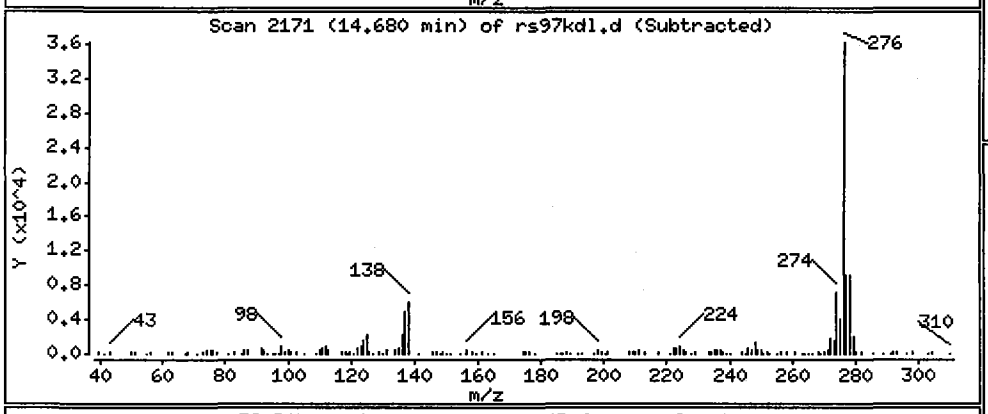
Column phase: ZB-5msi

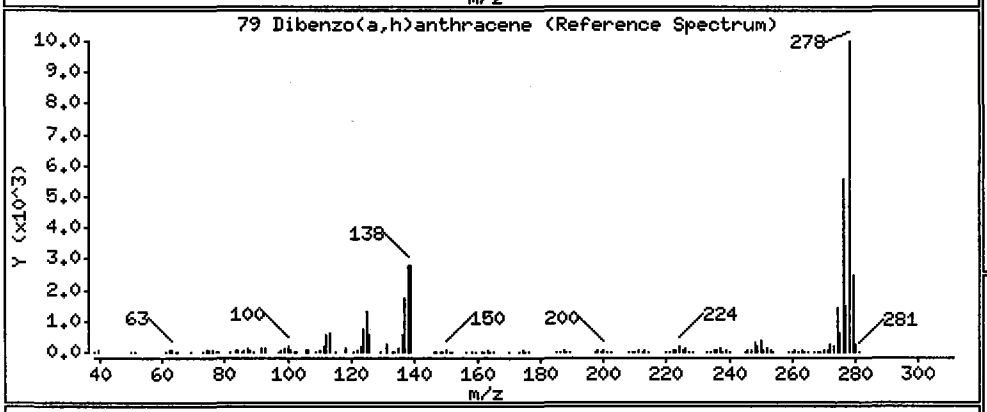
Column diameter: 0.32

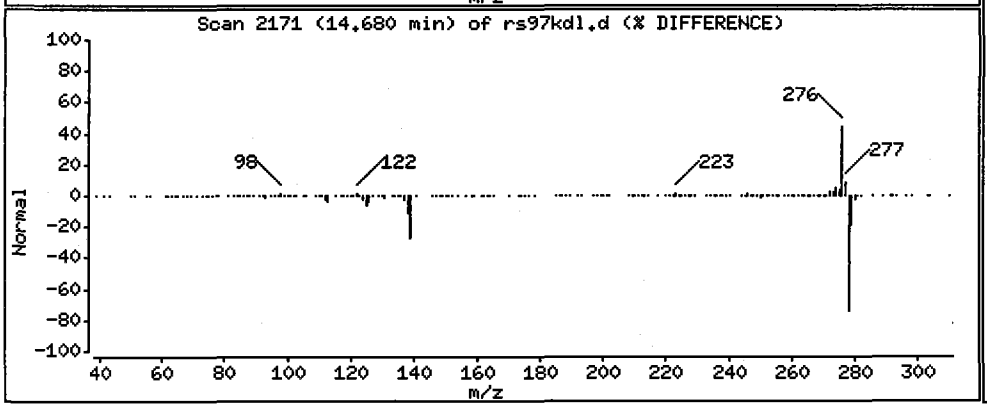
79 Dibenzo(a,h)anthracene

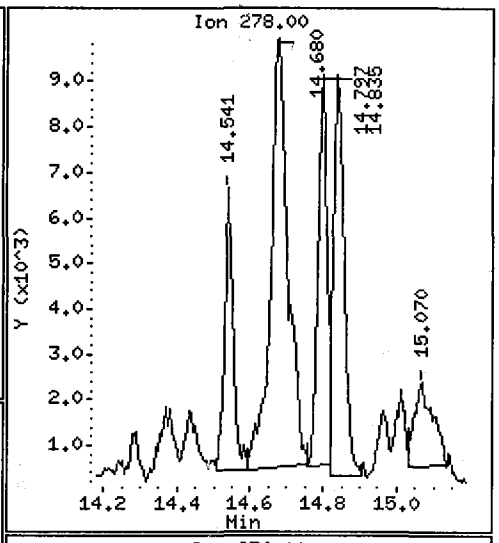
Concentration: 27790 ug/kg

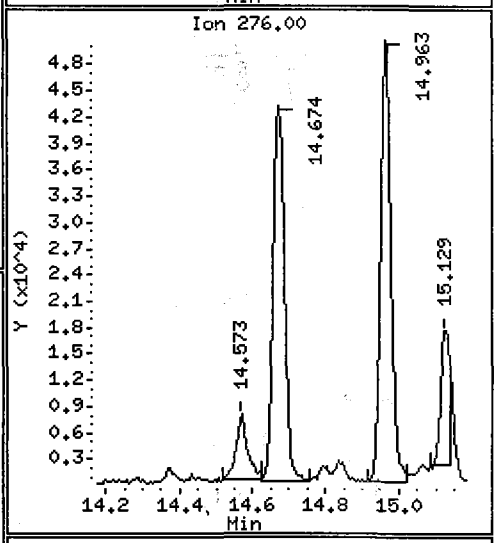


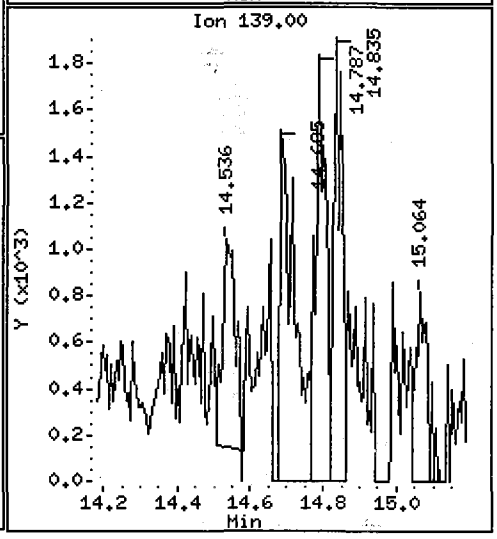












Data File: /chem1/nt12.i/20101112.b/rs97kdl.d

Date : 12-NOV-2010 10:57

Client ID: DGS-07-4.75.2-10101

Instrument: nt12.i

Sample Info: RS97K,3

Volume Injected (uL): 1.0

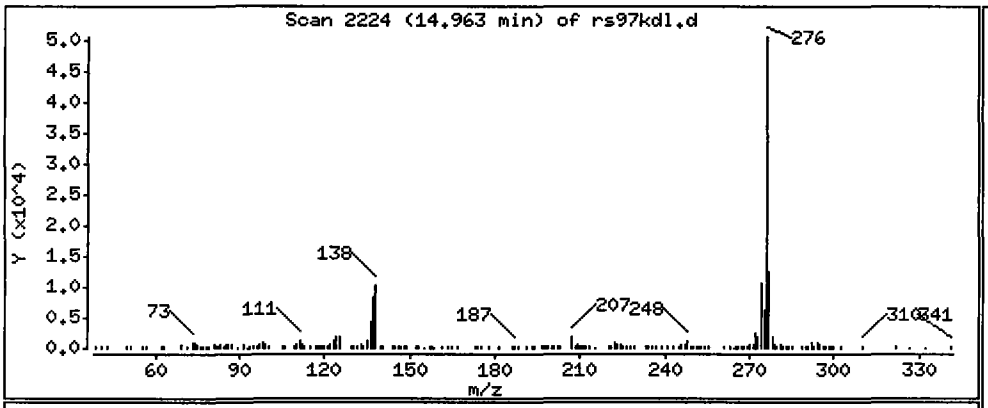
Operator: VTS

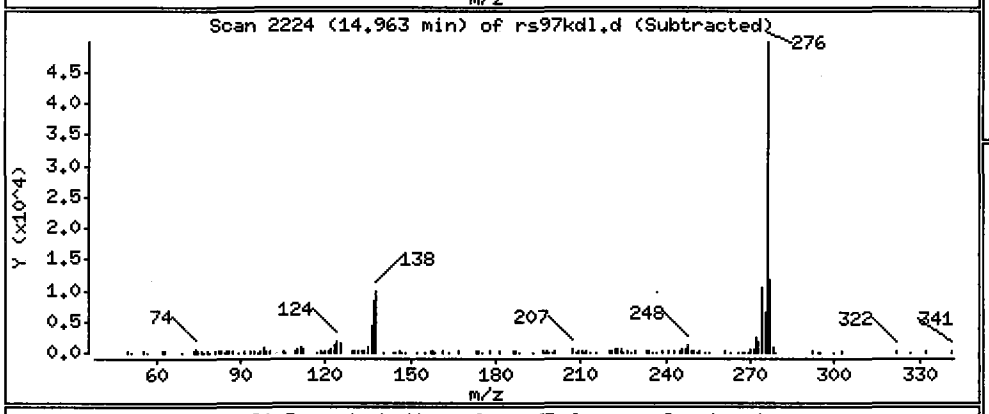
Column phase: ZB-5msi

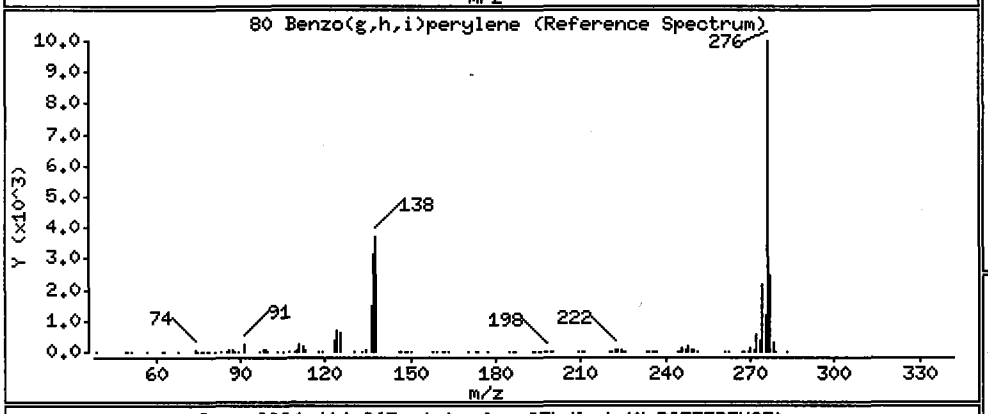
Column diameter: 0.32

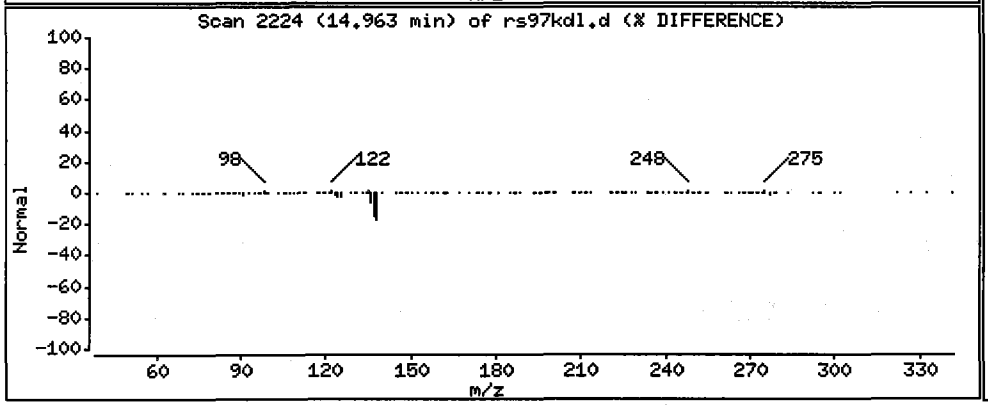
80 Benzo(g,h,i)perylene

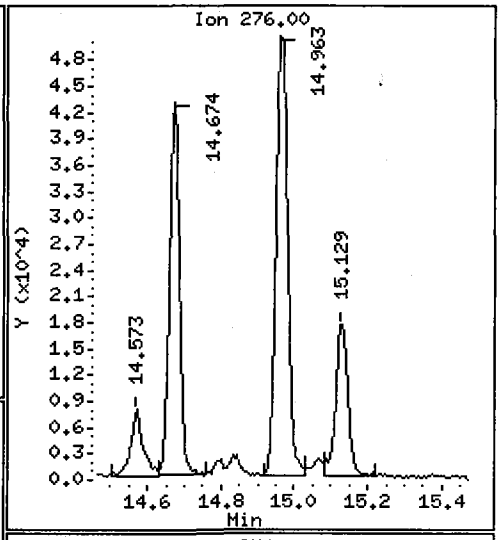
Concentration: 94860 ug/kg

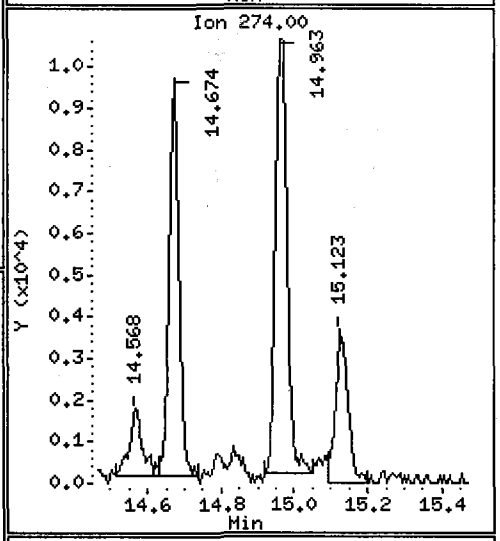


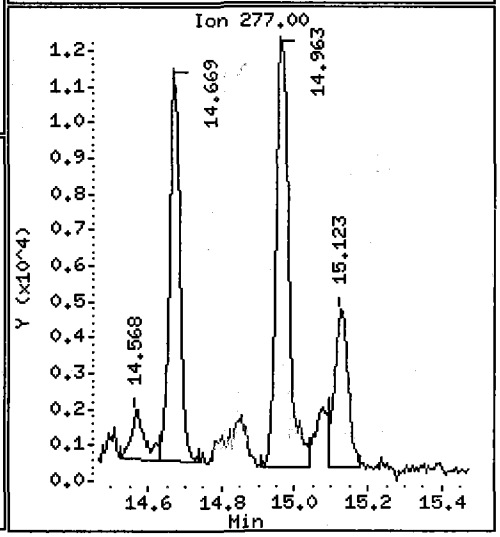












Analytical Resources, Inc.

Semivolatile Report SW846 Method 8270D

Data file : /chem1/nt12.i/20101112.b/rs97ldl.d
Lab Smp Id: RS97L Client Smp ID: DGS-07-5.66.7-10101
Inj Date : 12-NOV-2010 11:20
Operator : VTS Inst ID: nt12.i
Smp Info : RS97L,3
Misc Info : 10-27428
Comment : 1ul Injection
Method : /chem1/nt12.i/20101112.b/PNADMD.m
Meth Date : 12-Nov-2010 10:45 van Quant Type: ISTD
Cal Date : 30-OCT-2010 13:19 Cal File: ic1030f.d
Als bottle: 5
Dil Factor: 3.00000
Integrator: HP RTE Compound Sublist: pnas.sub
Target Version: 3.50
Processing Host: cserv3

Concentration Formula: Amt * DF * Vt/(Ws * (100 - M)/100) * CpndVariable

Name	Value	Description
DF	3.00000	Dilution Factor
Vt	10000.00000	Volume of final extract (uL)
Ws	5.16000	Weight of sample extracted (g)
M	42.60000	% Moisture

Cpnd Variable Local Compound Variable

Compounds	QUANT SIG MASS	RT	EXP RT	REL RT	RESPONSE	CONCENTRATIONS ON-COLUMN (ug/mL)	FINAL (ug/kg)
* 27 Naphthalene-d8	136	4.855	4.855	(1.000)	206523	20.0000	
28 Naphthalene	128	4.882	4.882	(1.005)	346666	29.4931	298700
32 2-Methylnaphthalene	141	5.700	5.699	(1.174)	47729	7.60763	77060
105 1-methylnaphthalene	141	5.822	5.822	(1.199)	28012	4.33025	43860
$ 36 2-Fluorobiphenyl	172	6.175	6.175	(0.887)	4806	0.48749	4938
40 Acenaphthylene	152	6.779	6.773	(0.974)	7885	0.61454	6225 (M) J
* 42 Acenaphthene-d10	164	6.960	6.960	(1.000)	128146	20.0000	
44 Acenaphthene	153	6.998	6.997	(1.005)	34466	4.37333	44300
46 Dibenzofuran	168	Compound Not Detected.					
49 Fluorene	166	7.607	7.612	(1.093)	32655	3.61894	36660
* 59 Phenanthrene-d10	188	8.734	8.734	(1.000)	218929	20.0000	
60 Phenanthrene	178	8.761	8.760	(1.003)	246920	21.2599	215300
61 Anthracene	178	8.814	8.814	(1.009)	40521	3.37571	34190
62 Carbazole	167	9.038	9.033	(1.035)	9450	~~0.97588~~	9885 NR

Compounds	QUANT SIG MASS	RT	EXP RT	REL RT	RESPONSE	CONCENTRATIONS ON-COLUMN (ug/mL)	FINAL (ug/kg)	
64 Fluoranthene	202	10.208	10.208	(0.854)	151070	10.8818	110200	
65 Pyrene	202	10.470	10.475	(0.876)	183583	13.3294	135000	
$ 66 Terphenyl-d14	244	10.711	10.710	(0.896)	3955	0.45015	4559	
68 Benzo(a)anthracene	228	11.939	11.944	(0.999)	42478	3.80581	38550	
* 69 Chrysene-d12	240	11.955	11.960	(1.000)	198748	20.0000		
71 Chrysene	228	11.987	11.992	(1.003)	48033	4.60311	46620	
187 Total Benzofluoranthenes	252	13.189	13.211	(0.971)	50943	5.05388	51190	
76 Benzo(a)pyrene	252	13.521	13.520	(0.996)	45792	4.94525	50090	
* 77 Perylene-d12	264	13.579	13.584	(1.000)	169235	20.0000		
99 Perylene	252	13.601	13.606	(1.002)	10974	~~1.11~~447	11290	NR
78 Indeno(1,2,3-cd)pyrene	276	14.669	14.680	(1.080)	32076	2.33321	23630	
79 Dibenzo(a,h)anthracene	278	14.675	14.685	(1.081)	6987	0.61732	6253	J
80 Benzo(g,h,i)perylene	276	14.963	14.968	(1.102)	39363	3.48534	35300	

QC Flag Legend

M - Compound response manually integrated.

VB

11.12.10

Analytical Resources, Inc.

INTERNAL STANDARD COMPOUNDS
AREA AND RT SUMMARY

Instrument ID: nt12.i
Lab File ID: rs97ldl.d
Lab Smp Id: RS97L
Analysis Type: SV
Quant Type: ISTD
Operator: VTS
Method File: /chem1/nt12.i/20101112.b/PNADMD.m
Misc Info: 10-27428

Calibration Date: 12-NOV-2010
Calibration Time: 10:05
Client Smp ID: DGS-07-5.66.7-10
Level: LOW
Sample Type: Sediment

Test Mode:
Use Initial Calibration Level 4.

COMPOUND	STANDARD	AREA LIMIT LOWER	AREA LIMIT UPPER	SAMPLE	%DIFF
27 Naphthalene-d8	237664	118832	475328	206523	-13.10
42 Acenaphthene-d10	143363	71682	286726	128146	-10.61
59 Phenanthrene-d10	245437	122718	490874	218929	-10.80
69 Chrysene-d12	199260	99630	398520	198748	-0.26
77 Perylene-d12	197636	98818	395272	169235	-14.37

COMPOUND	STANDARD	RT LIMIT LOWER	RT LIMIT UPPER	SAMPLE	%DIFF
27 Naphthalene-d8	4.86	4.36	5.36	4.86	0.00
42 Acenaphthene-d10	6.96	6.46	7.46	6.96	0.00
59 Phenanthrene-d10	8.73	8.23	9.23	8.73	0.00
69 Chrysene-d12	11.96	11.46	12.46	11.96	-0.04
77 Perylene-d12	13.58	13.08	14.08	13.58	-0.04

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.

Analytical Resources, Inc.

RECOVERY REPORT

Client Name: NW Natural
Sample Matrix: SOLID
Lab Smp Id: RS97L
Level: LOW
Data Type: MS DATA
SpikeList File: SONICLCS.spk
Sublist File: pnas.sub
Method File: /chem1/nt12.i/20101112.b/PNADMD.m
Misc Info: 10-27428

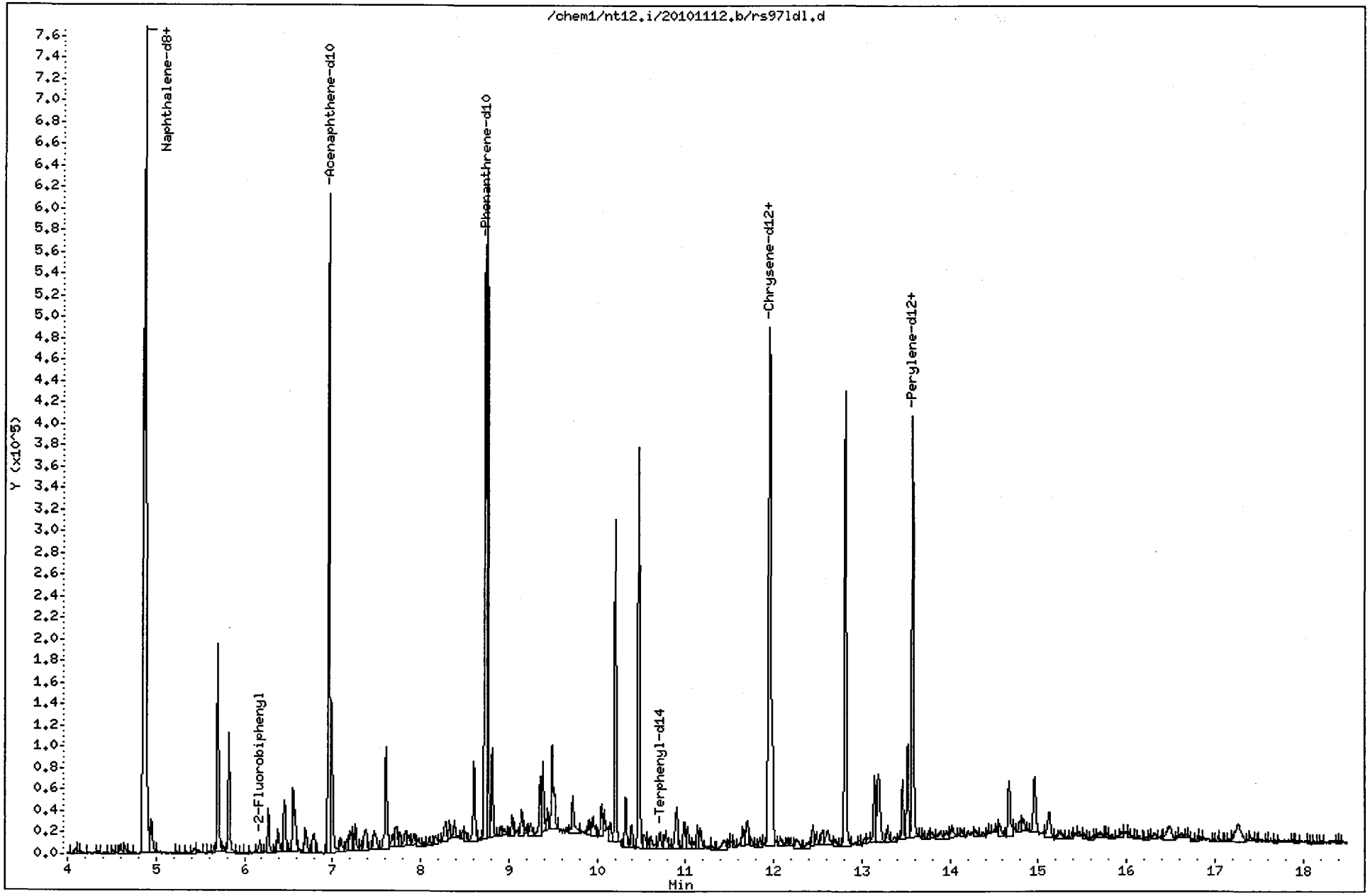
Client SDG: RS97
Fraction: SV
Client Smp ID: DGS-07-5.66.7-10101
Operator: VTS
SampleType: SAMPLE
Quant Type: ISTD

SURROGATE COMPOUND	CONC ADDED ug/kg	CONC RECOVERED ug/kg	% RECOVERED	LIMITS
$ 36 2-Fluorobiphenyl	8441	4938	58.50	34-100
$ 66 Terphenyl-d14	8441	4559	54.02	35-112

Data File: /chem1/nt12.i/20101112.b/rs97ldl.d
Date : 12-NOV-2010 11:20
Client ID: DGS-07-5.66.7-10101
Sample Info: RS97L,3
Volume Injected (uL): 1.0
Column phase: ZB-5msi

Instrument: nt12.i

Operator: VTS
Column diameter: 0.32



RS97L:00938

Data File: /chem1/nt12.i/20101112.b/rs97ldl.d

Date : 12-NOV-2010 11:20

Client ID: DGS-07-5.66.7-10101

Instrument: nt12.i

Sample Info: RS97L,3

Volume Injected (uL): 1.0

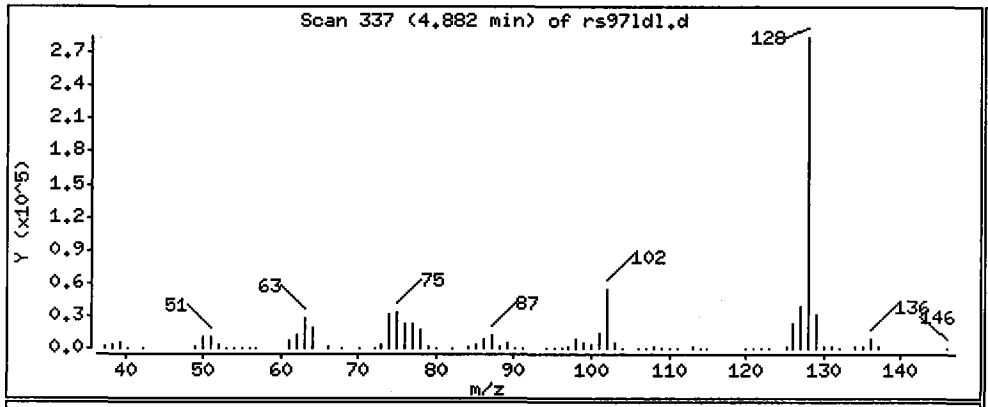
Operator: VTS

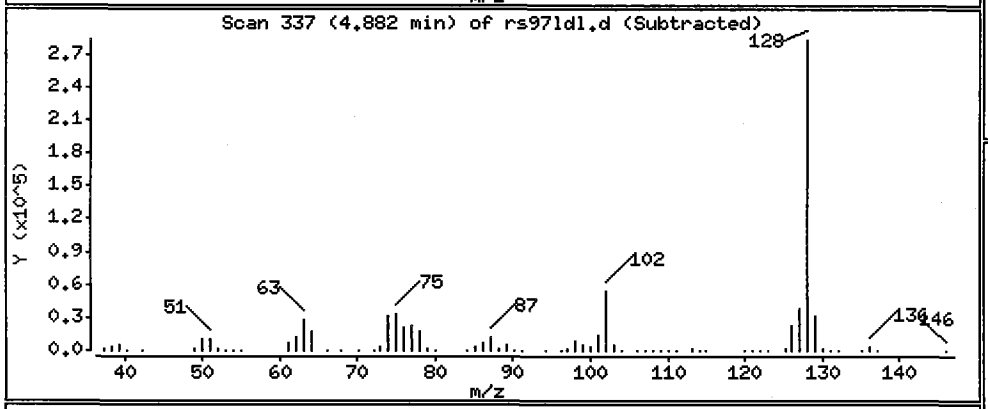
Column phase: ZB-5msi

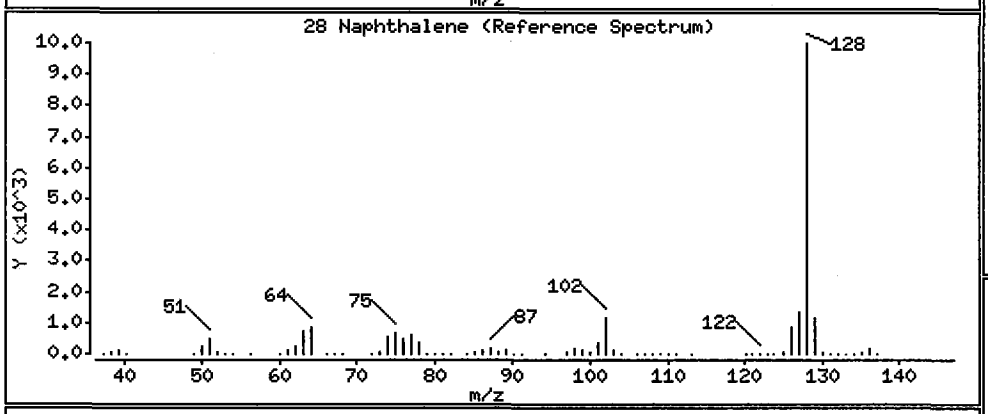
Column diameter: 0.32

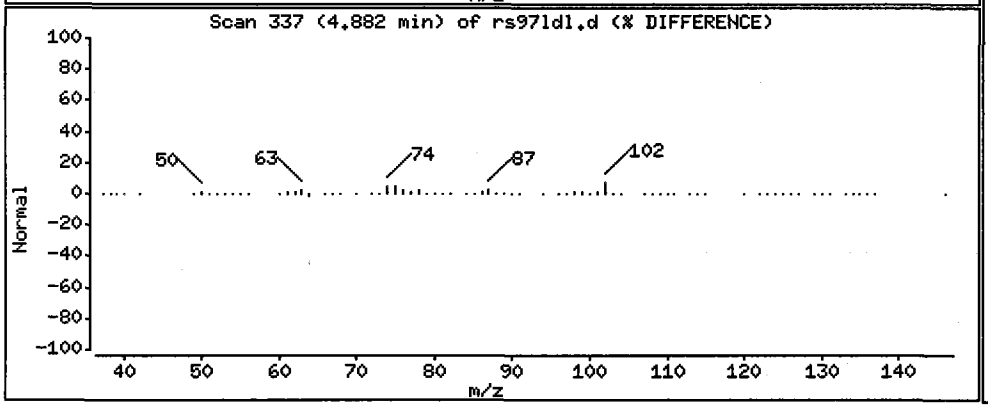
28 Naphthalene

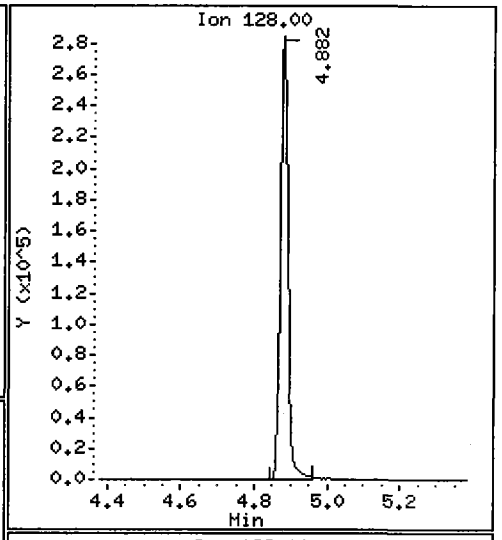
Concentration: 298700 ug/kg

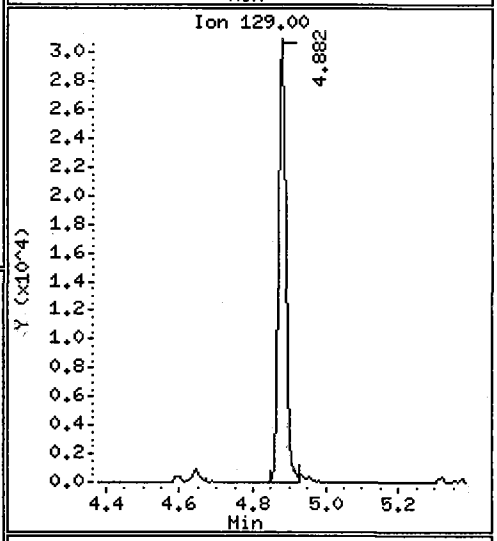


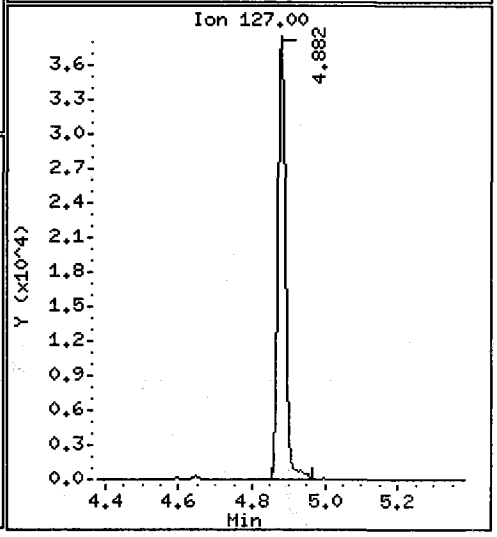












Data File: /chem1/nt12.i/20101112.b/rs971dl.d

Date : 12-NOV-2010 11:20

Client ID: DGS-07-5.66.7-10101

Instrument: nt12.i

Sample Info: RS97L,3

Volume Injected (uL): 1.0

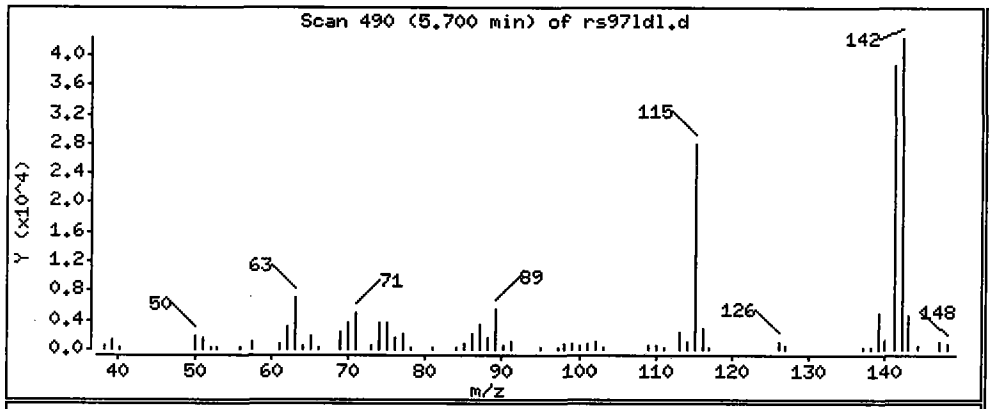
Operator: VTS

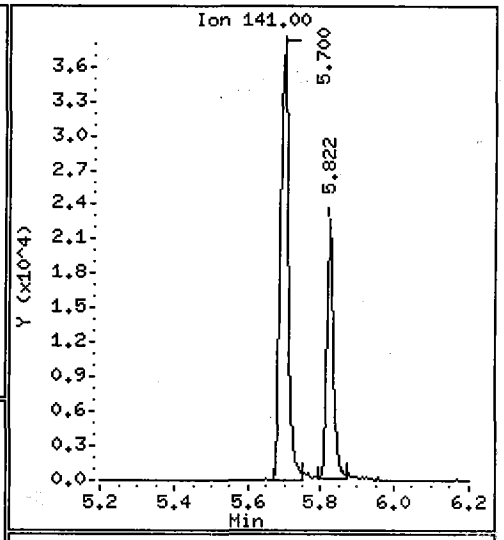
Column phase: ZB-5msi

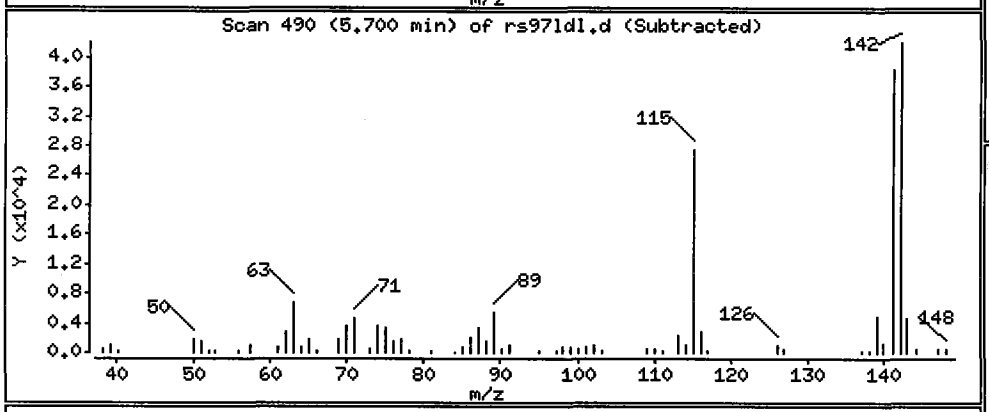
Column diameter: 0.32

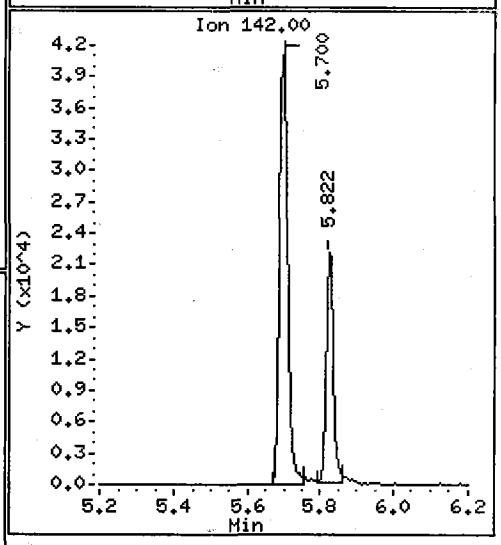
32 2-Methylnaphthalene

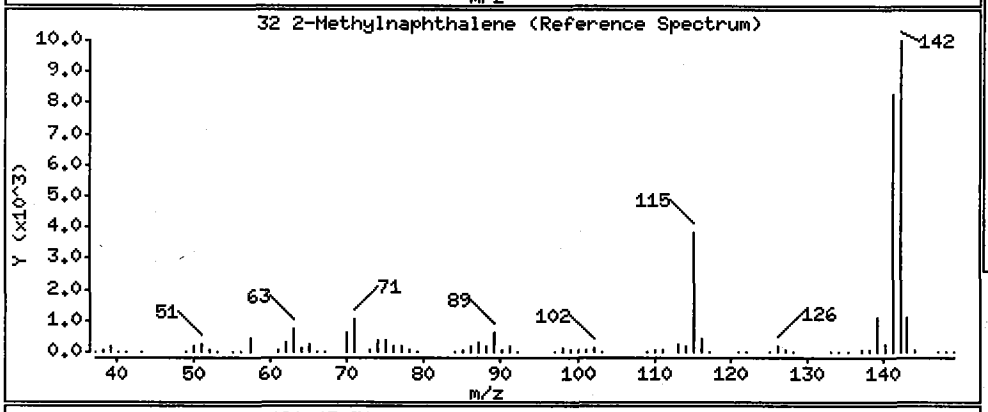
Concentration: 77060 ug/kg

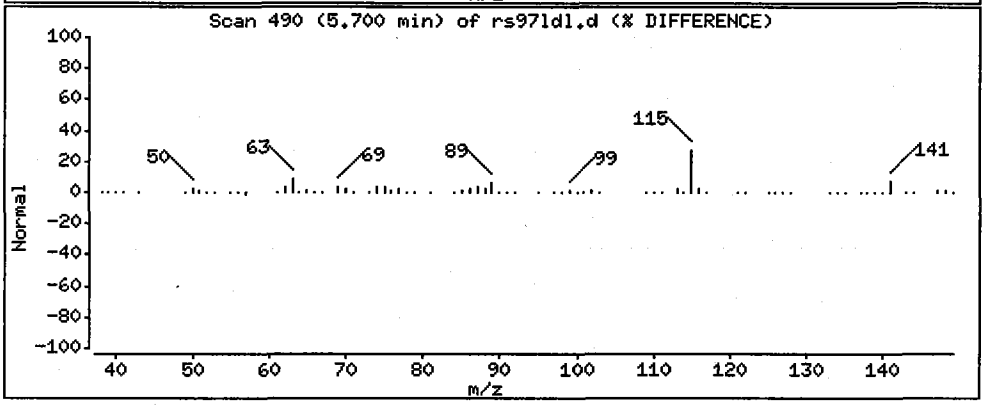












Data File: /chem1/nt12.i/20101112.b/rs971dl.d

Date : 12-NOV-2010 11:20

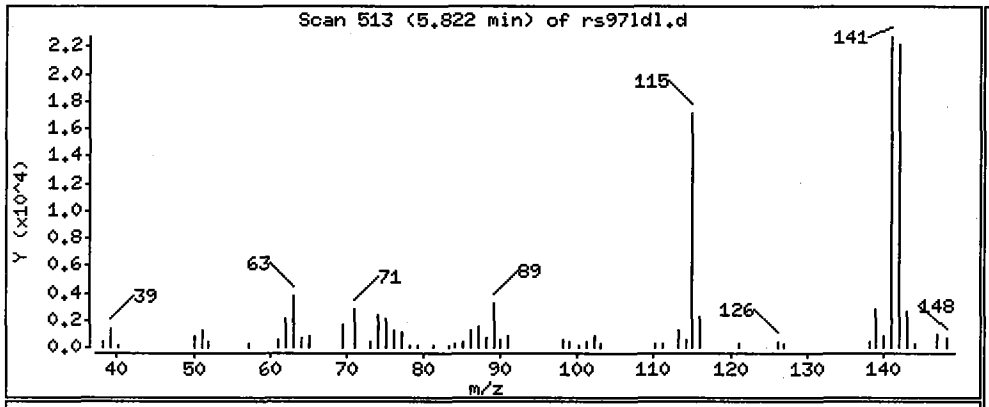
Client ID: DGS-07-5.66.7-10101 Instrument: nt12.i

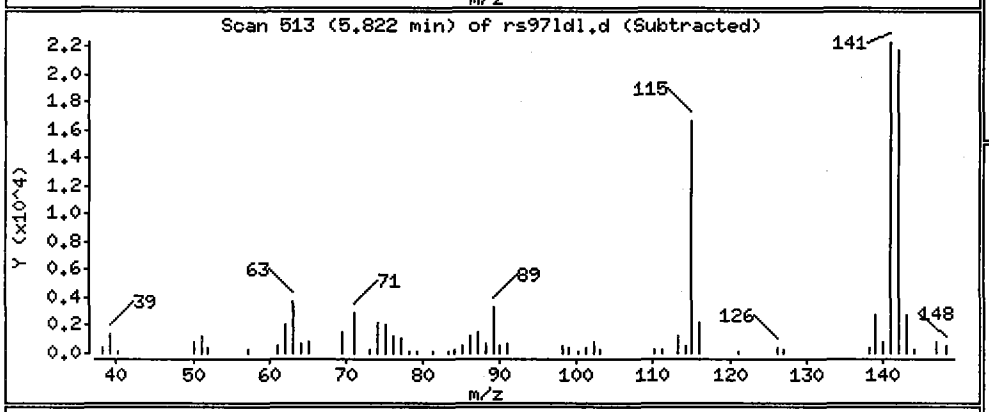
Sample Info: RS97L,3

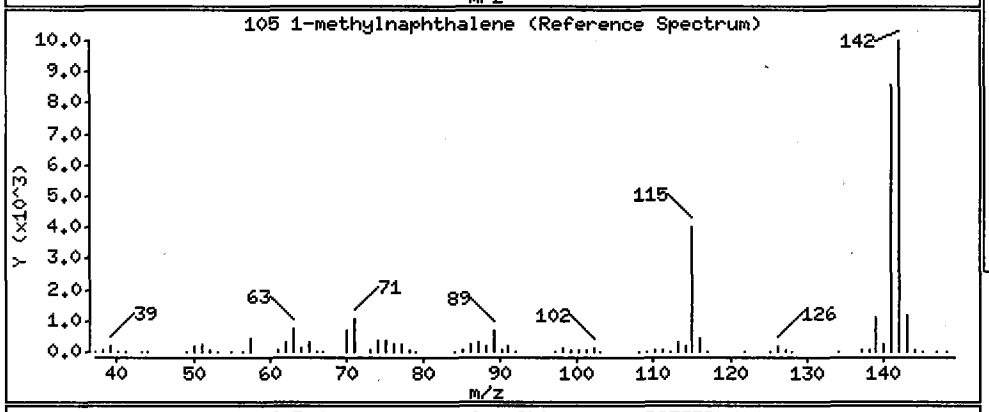
Volume Injected (uL): 1.0 Operator: VTS

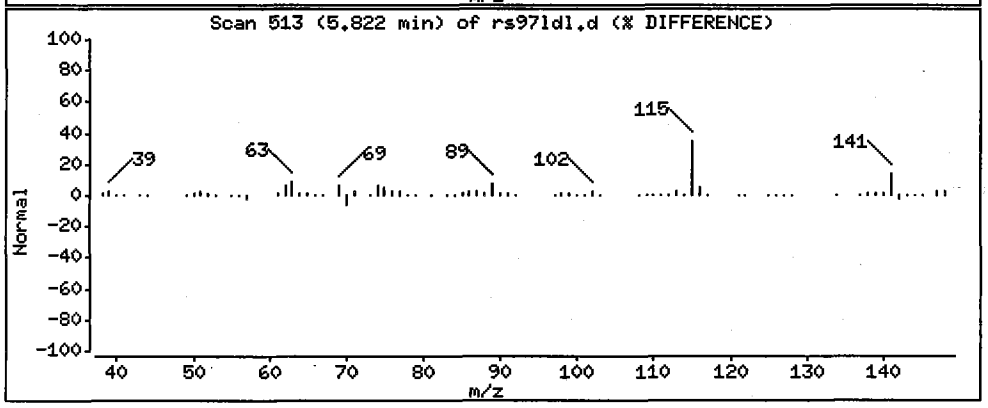
Column phase: ZB-5msi Column diameter: 0.32

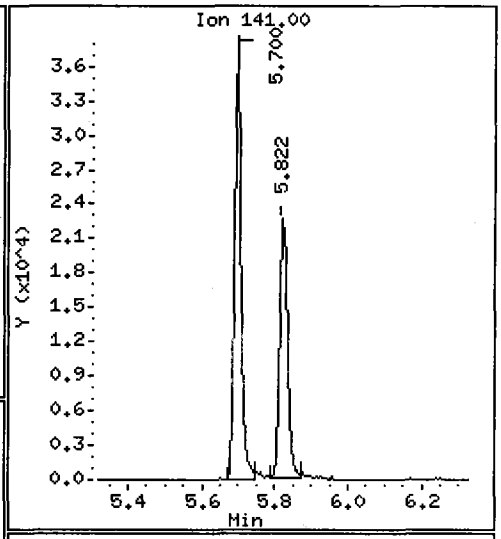
105 1-methylnaphthalene Concentration: 43860 ug/kg

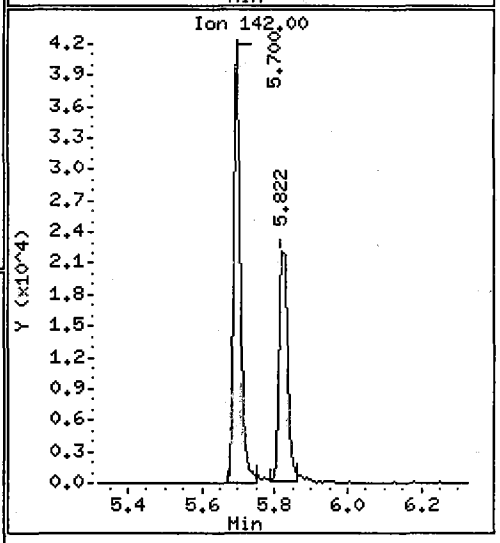












Data File: /chem1/nt12.i/20101112.b/rs971dl.d

Date : 12-NOV-2010 11:20

Client ID: DGS-07-5.66.7-10101

Instrument: nt12.i

Sample Info: RS97L,3

Volume Injected (uL): 1.0

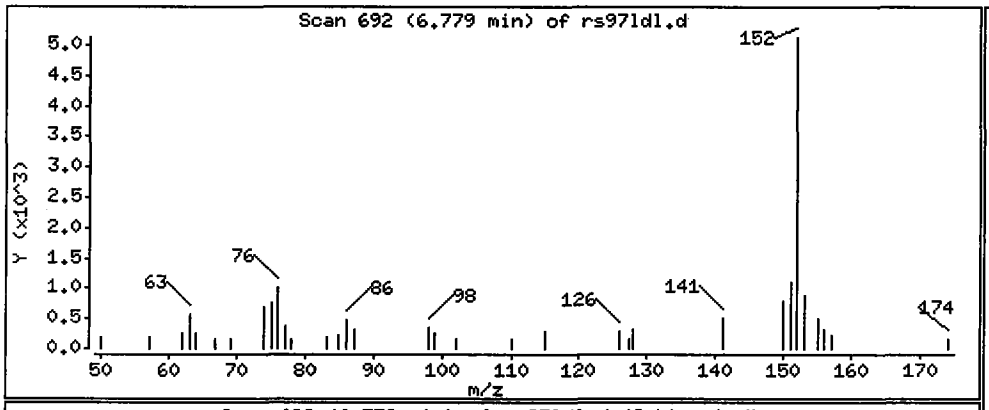
Operator: VTS

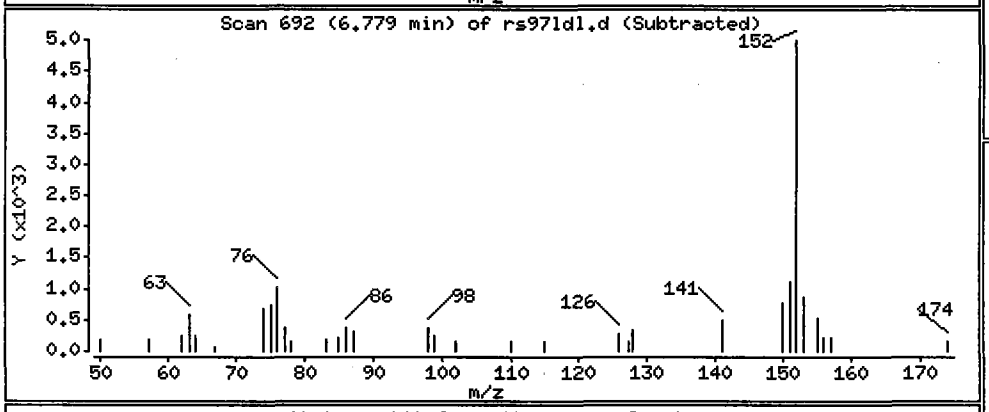
Column phase: ZB-5msi

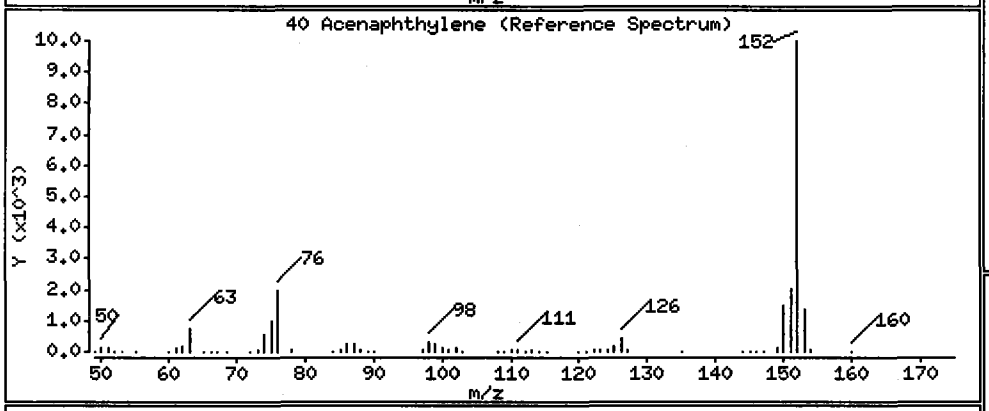
Column diameter: 0.32

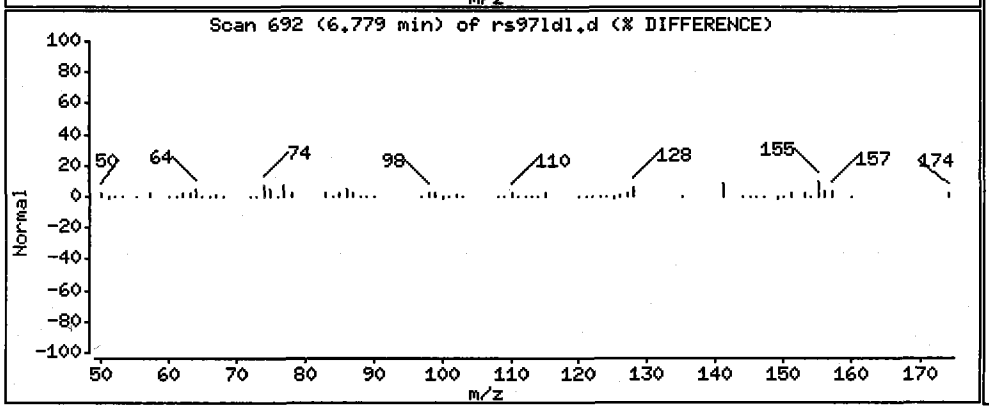
40 Acenaphthylene

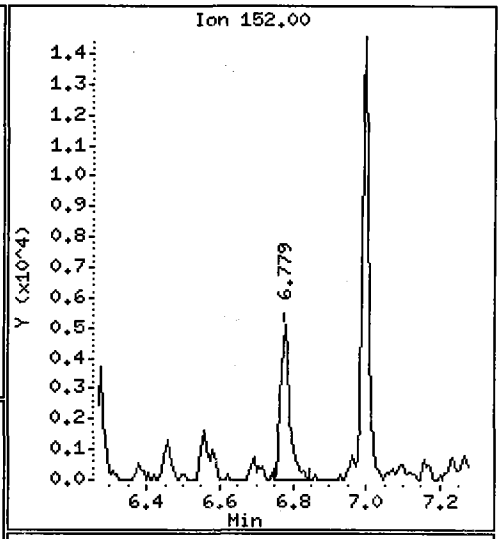
Concentration: 6225 ug/kg

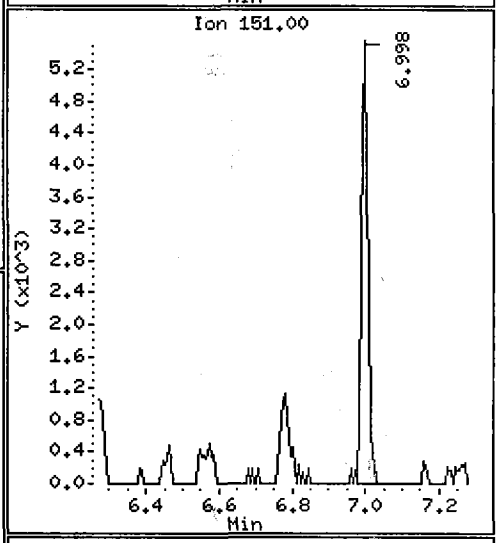


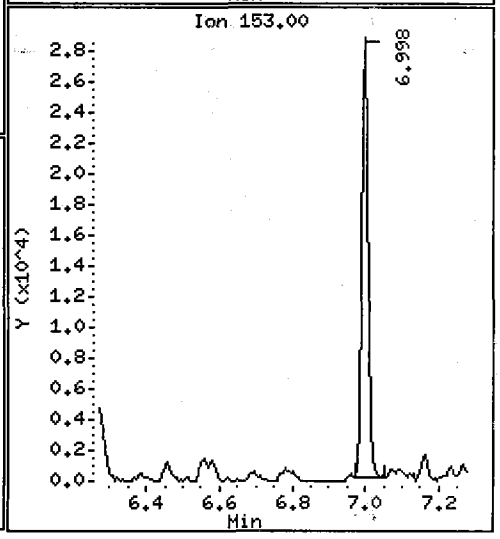












Data File: /chem1/nt12.i/20101112.b/rs97ldl.d

Date : 12-NOV-2010 11:20

Client ID: DGS-07-5.66.7-10101

Instrument: nt12.i

Sample Info: RS97L,3

Volume Injected (uL): 1.0

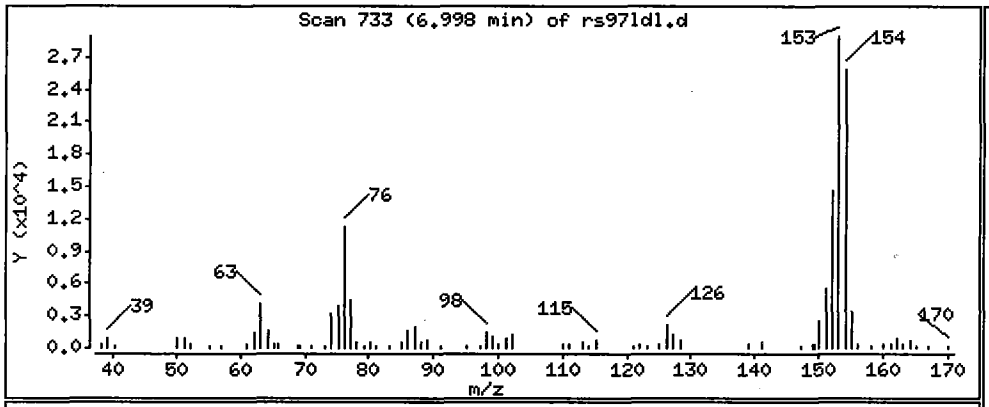
Operator: VTS

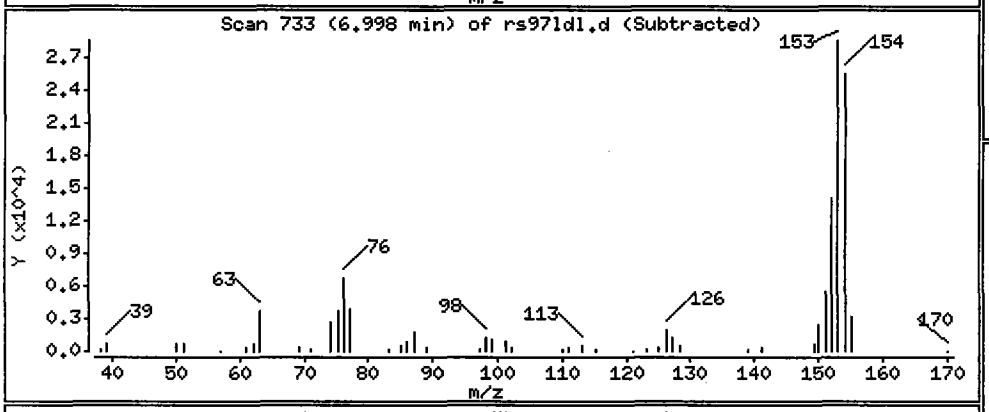
Column phase: ZB-5msi

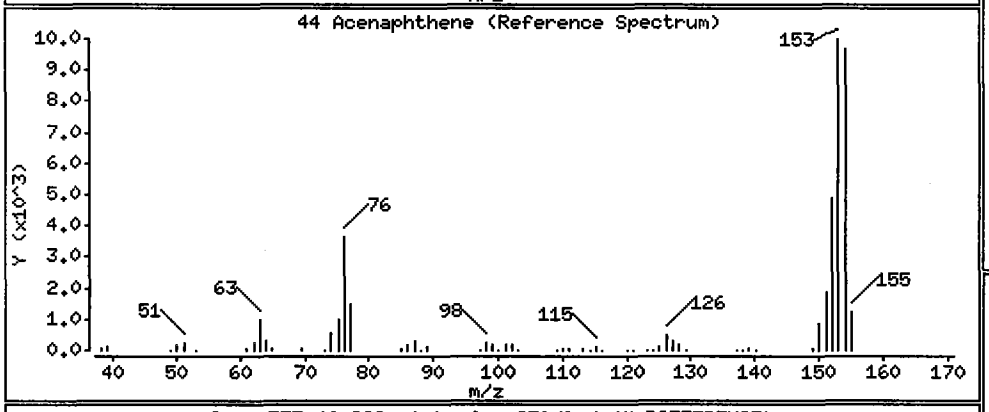
Column diameter: 0.32

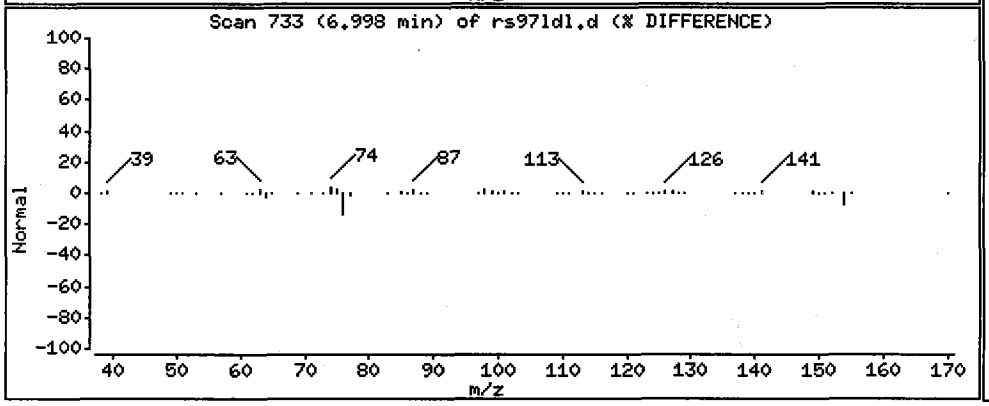
44 Acenaphthene

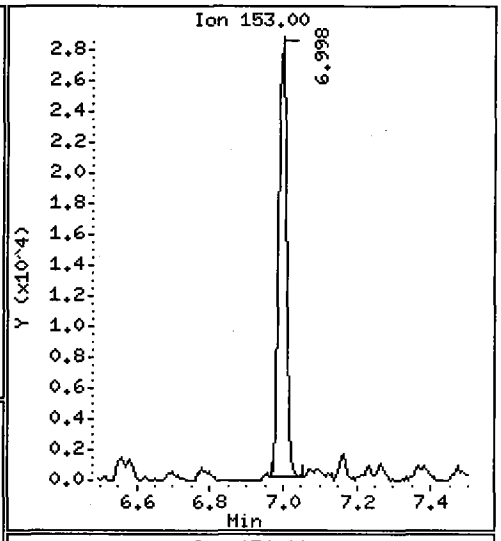
Concentration: 44300 ug/kg

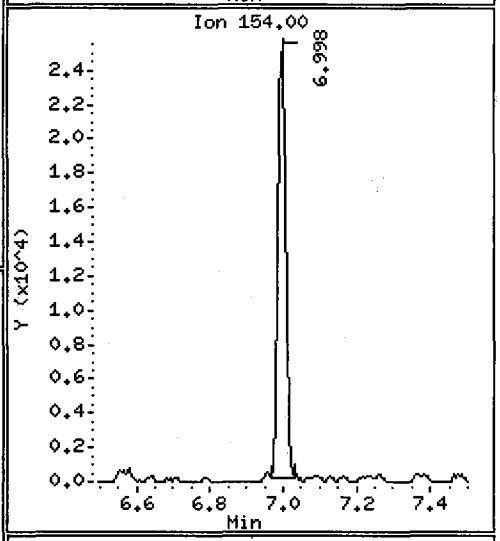


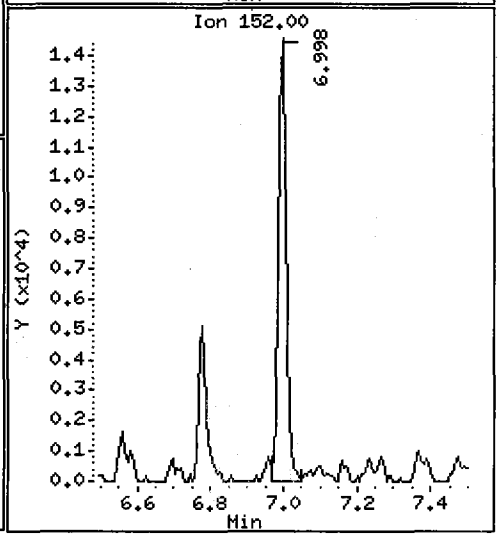












Data File: /chem1/nt12.i/20101112.b/rs971dl.d

Date : 12-NOV-2010 11:20

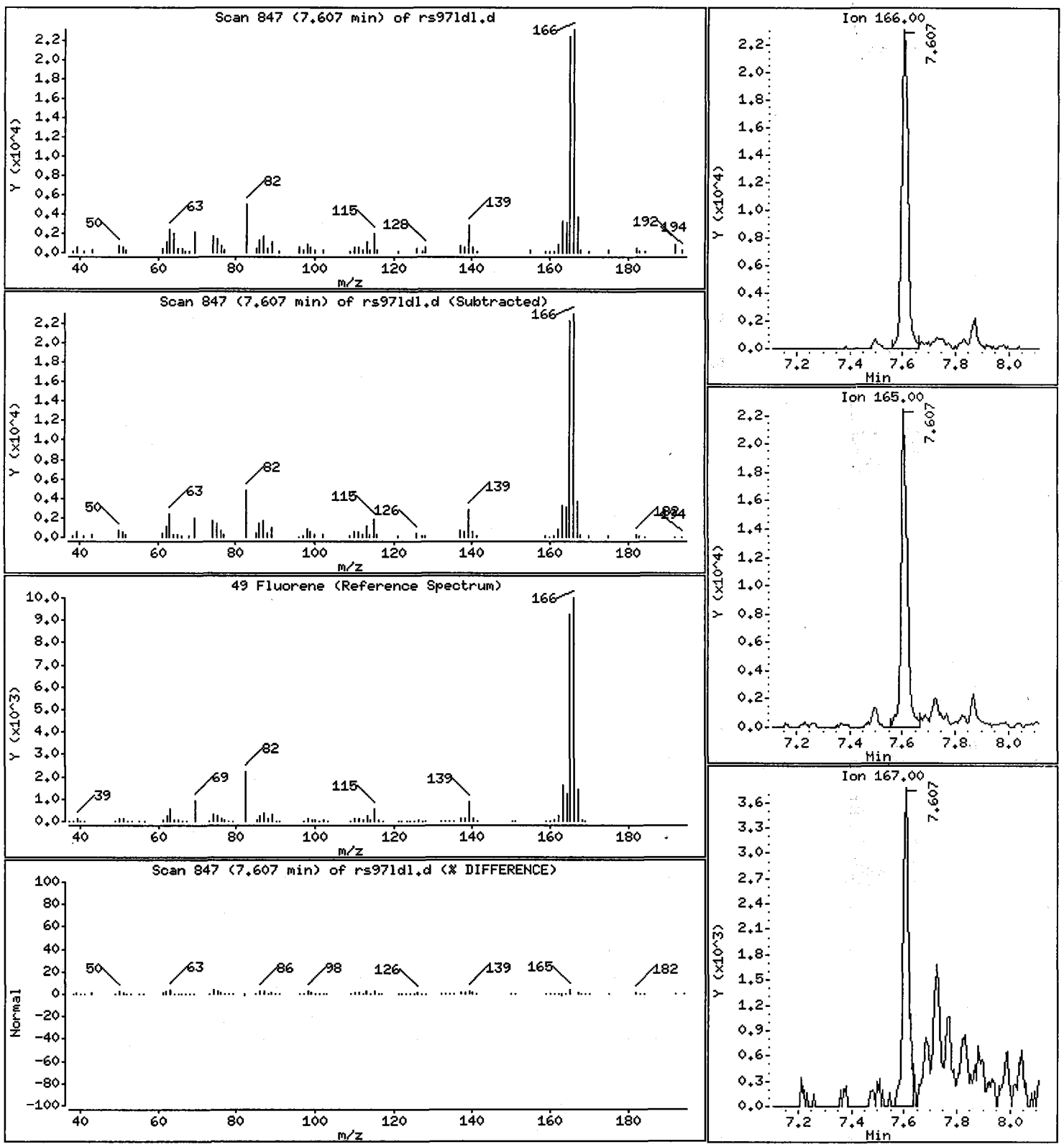
Client ID: DGS-07-5.66.7-10101 Instrument: nt12.i

Sample Info: RS97L,3

Volume Injected (uL): 1.0 Operator: VTS

Column phase: ZB-5msi Column diameter: 0.32

49 Fluorene Concentration: 36660 ug/kg



Data File: /chem1/nt12.i/20101112.b/rs97ldl.d

Date : 12-NOV-2010 11:20

Client ID: DCS-07-5.66.7-10101

Instrument: nt12.i

Sample Info: RS97L,3

Volume Injected (uL): 1.0

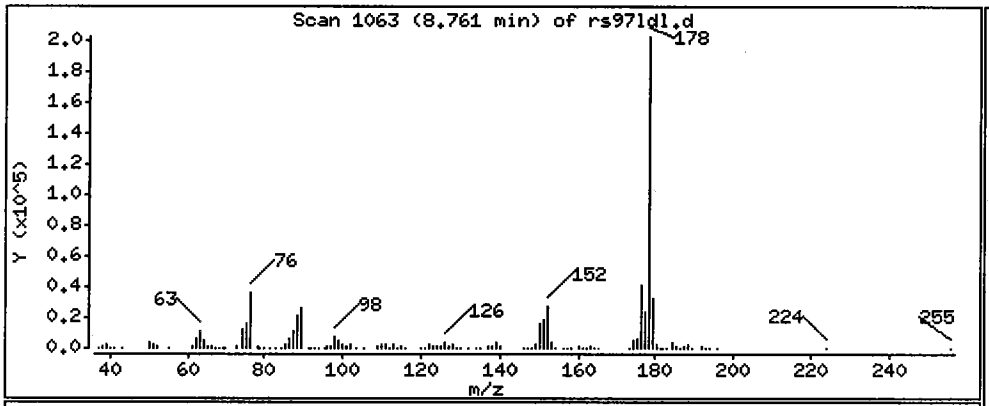
Operator: VTS

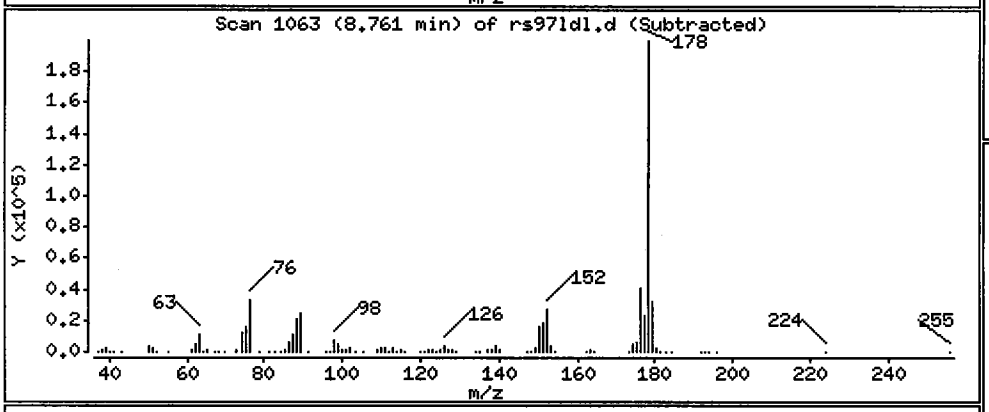
Column phase: ZB-5msi

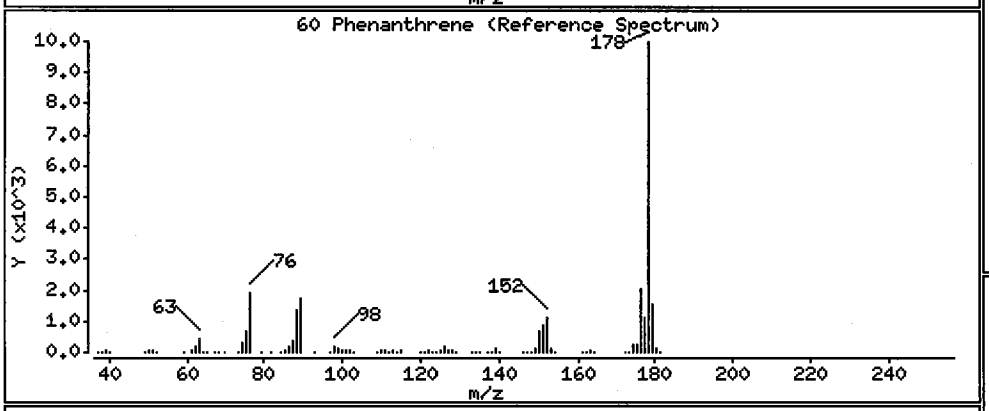
Column diameter: 0.32

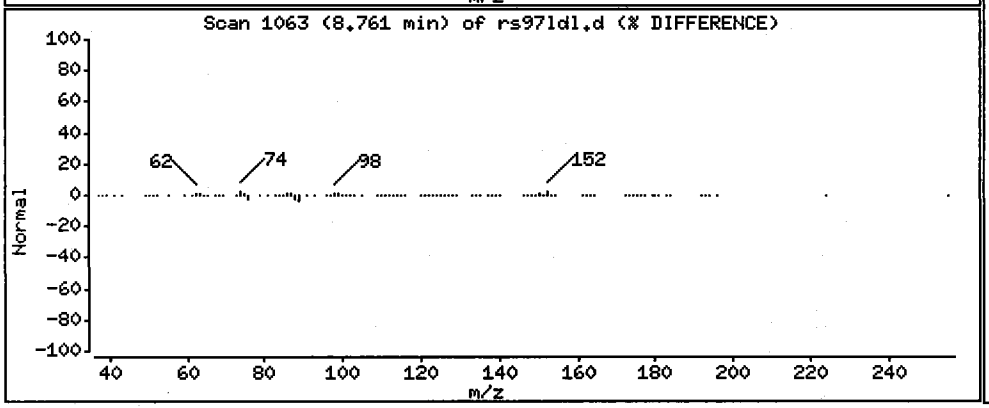
60 Phenanthrene

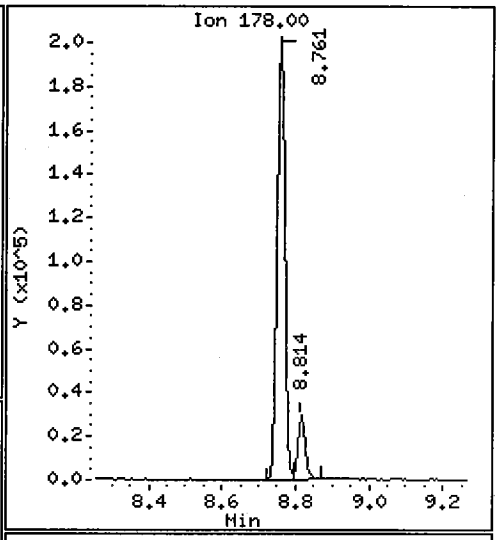
Concentration: 215300 ug/kg

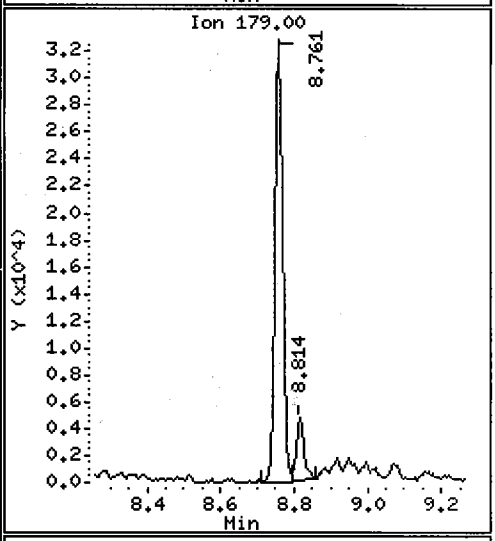


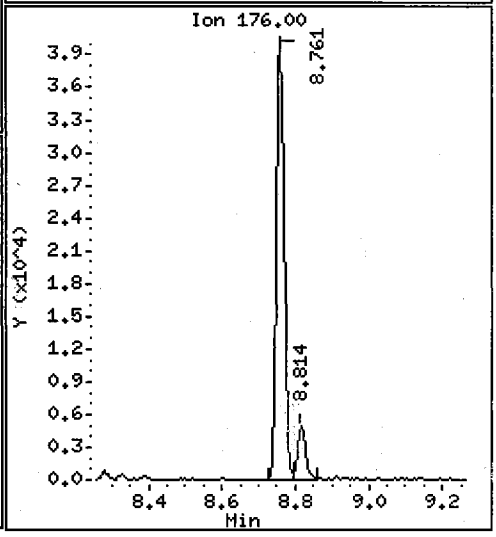












Data File: /chem1/nt12.i/20101112.b/rs97ldl.d

Date : 12-NOV-2010 11:20

Client ID: DGS-07-5.66.7-10101

Instrument: nt12.i

Sample Info: RS97L,3

Volume Injected (uL): 1.0

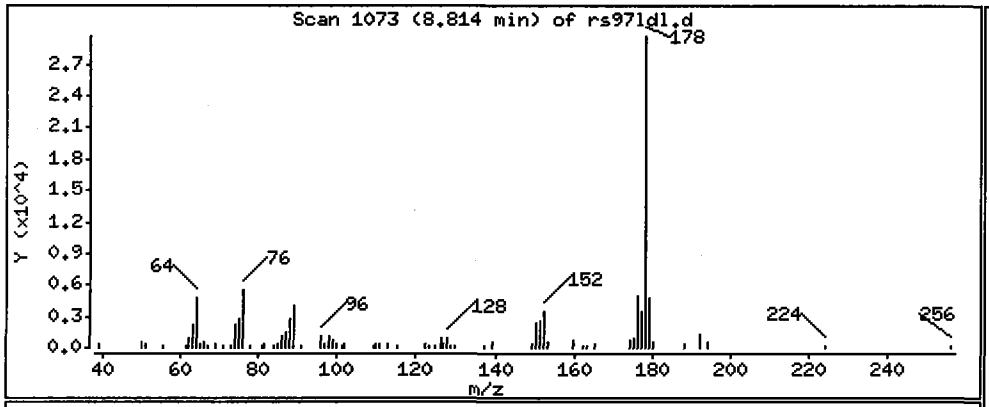
Operator: VTS

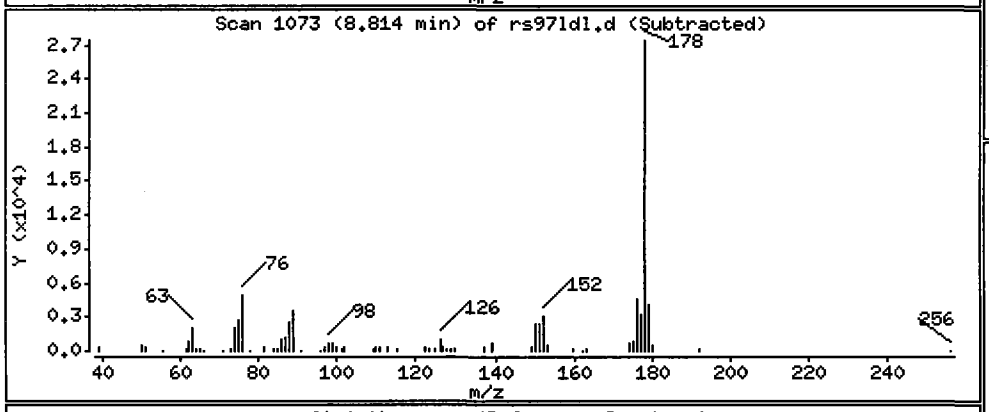
Column phase: ZB-5msi

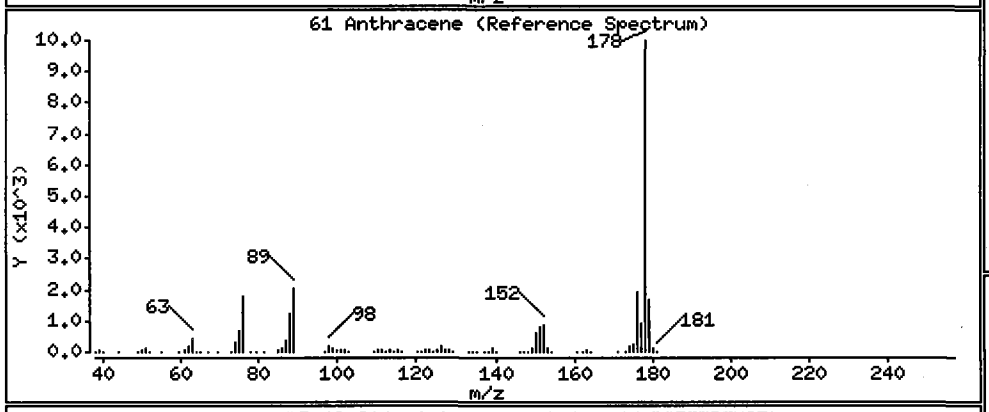
Column diameter: 0.32

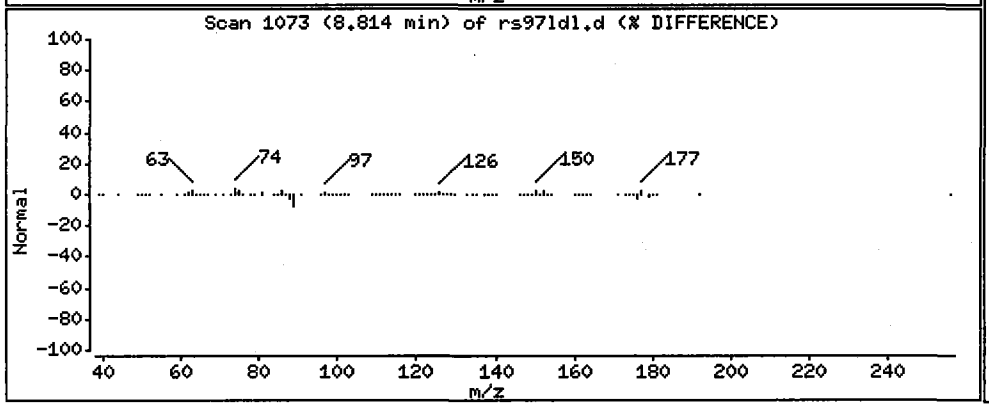
61 Anthracene

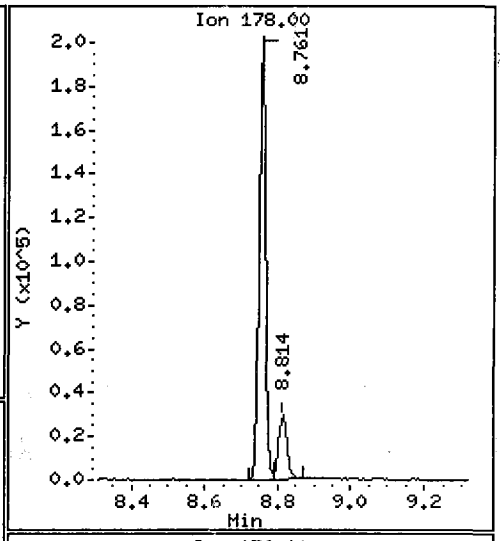
Concentration: 34190 ug/kg

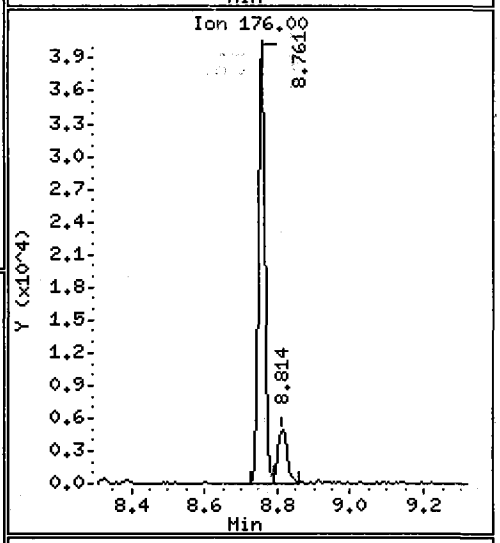


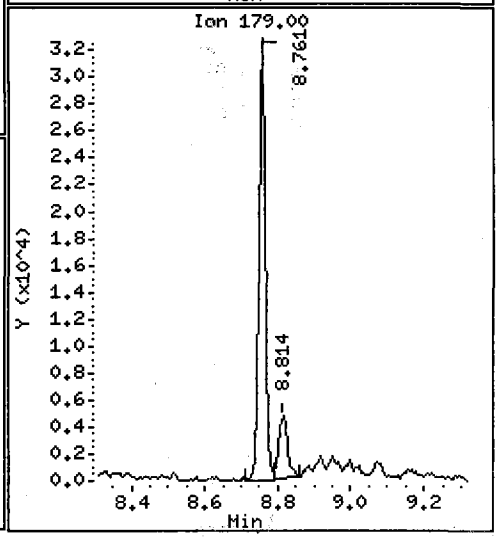












Data File: /chem1/nt12.i/20101112.b/rs971dl.d

Date : 12-NOV-2010 11:20

Client ID: DGS-07-5.66.7-10101

Instrument: nt12.i

Sample Info: RS97L,3

Volume Injected (uL): 1.0

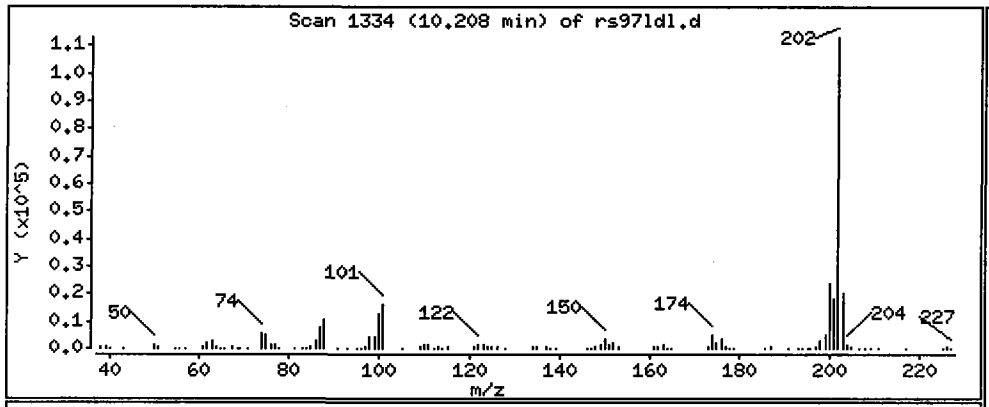
Operator: VTS

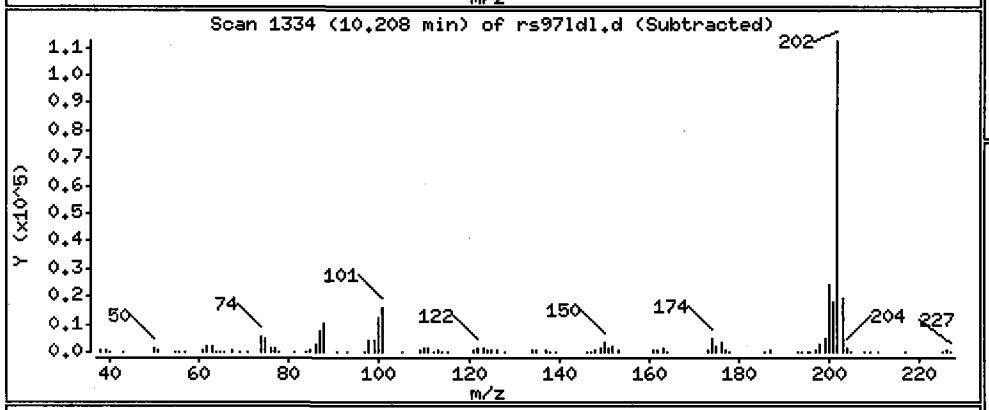
Column phase: ZB-5msi

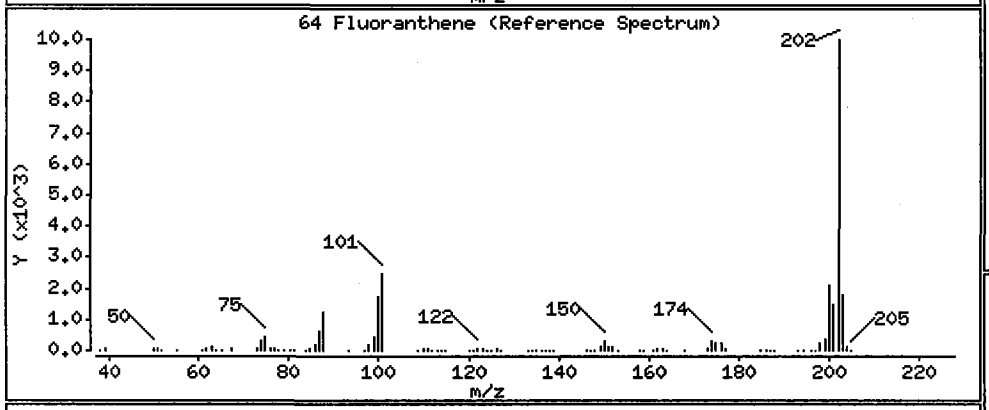
Column diameter: 0.32

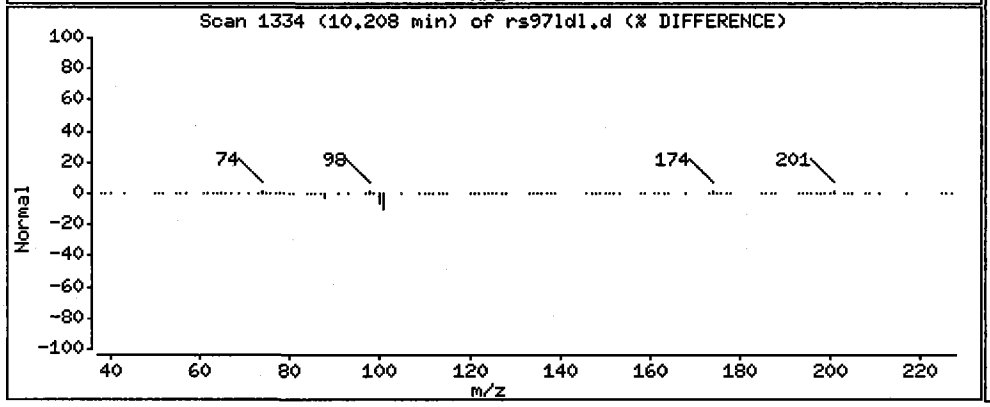
64 Fluoranthene

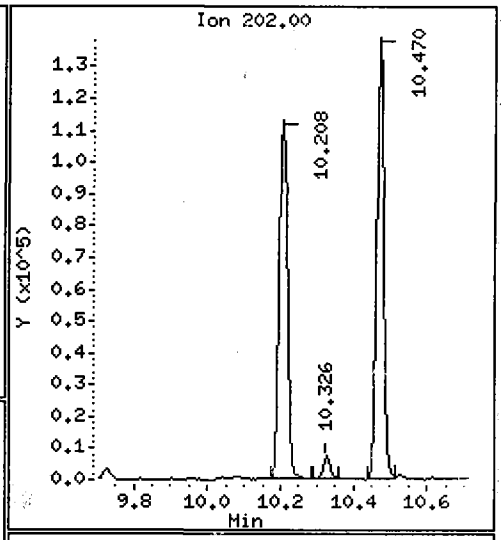
Concentration: 110200 ug/kg

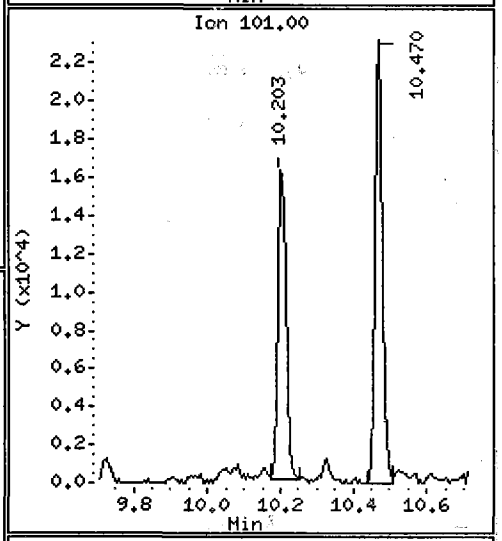


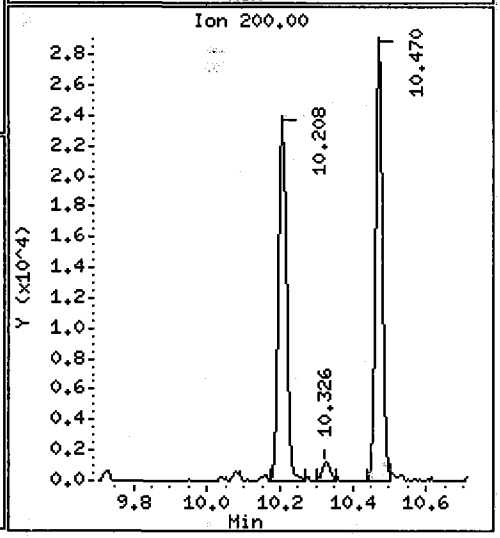












Data File: /chem1/nt12.i/20101112.b/rs971dl.d

Date : 12-NOV-2010 11:20

Client ID: DGS-07-5.66.7-10101

Instrument: nt12.i

Sample Info: RS97L,3

Volume Injected (uL): 1.0

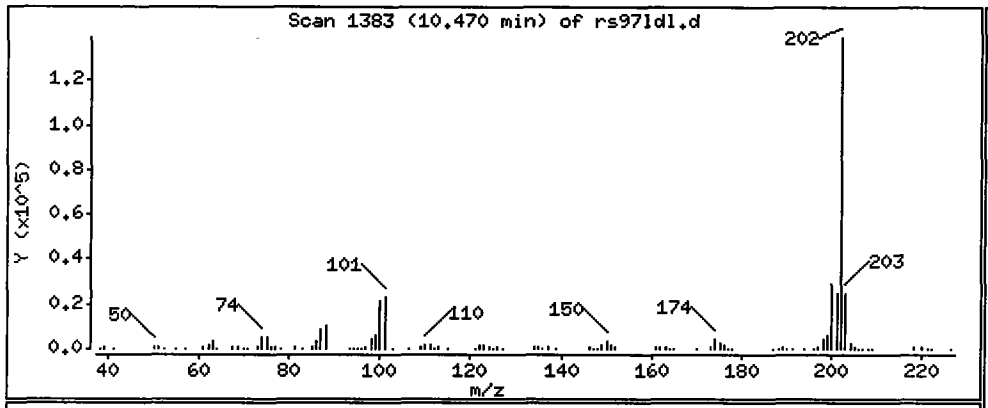
Operator: VTS

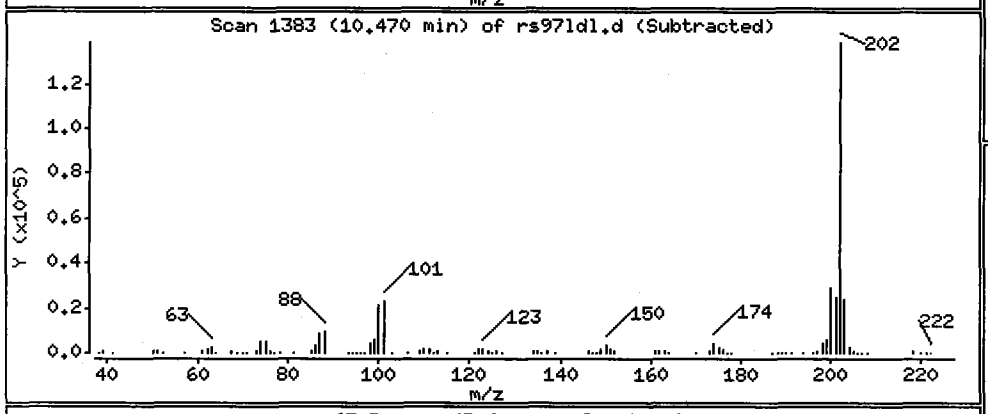
Column phase: ZB-5msi

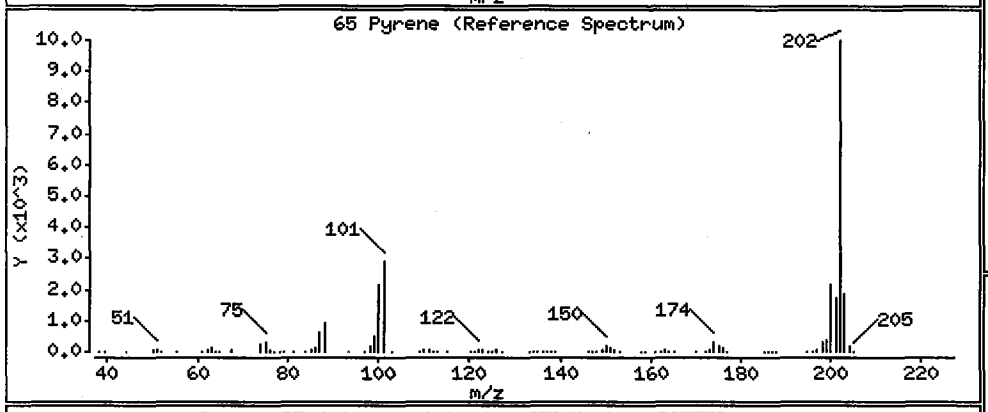
Column diameter: 0.32

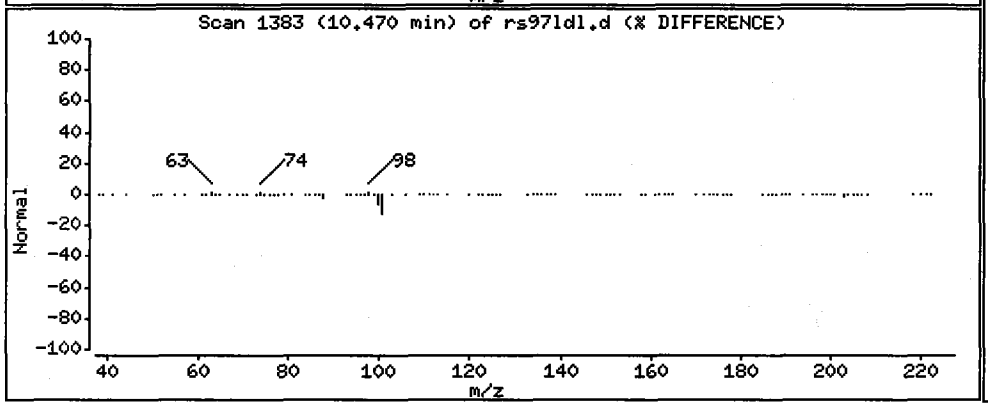
65 Pyrene

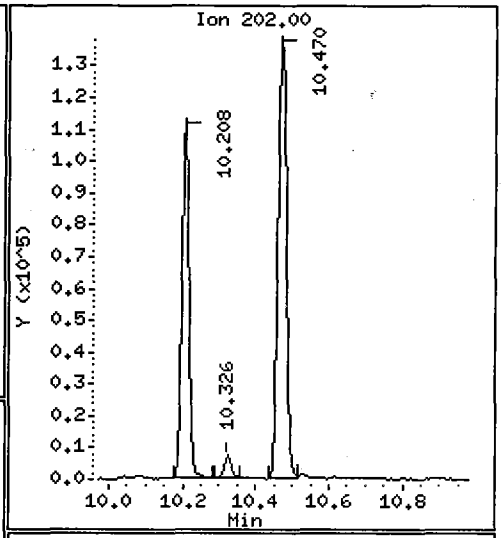
Concentration: 135000 ug/kg

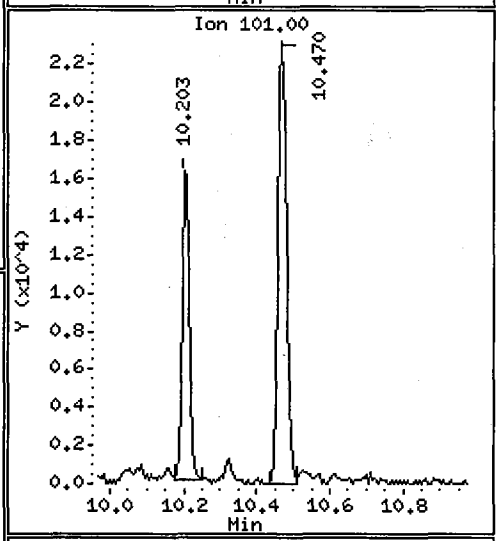


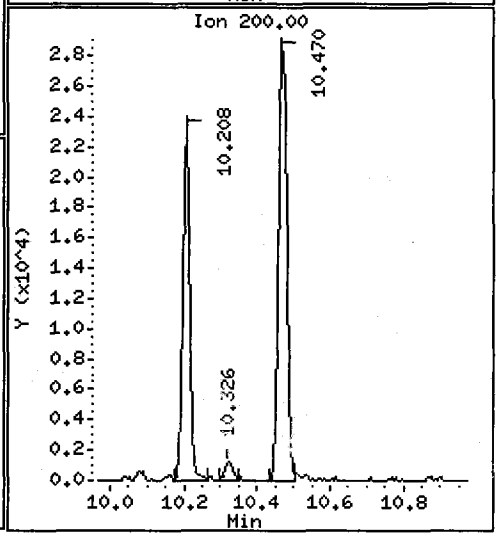












Data File: /chem1/nt12.i/20101112.b/rs97ldl.d

Date : 12-NOV-2010 11:20

Client ID: DGS-07-5.66.7-10101

Instrument: nt12.i

Sample Info: RS97L,3

Volume Injected (uL): 1.0

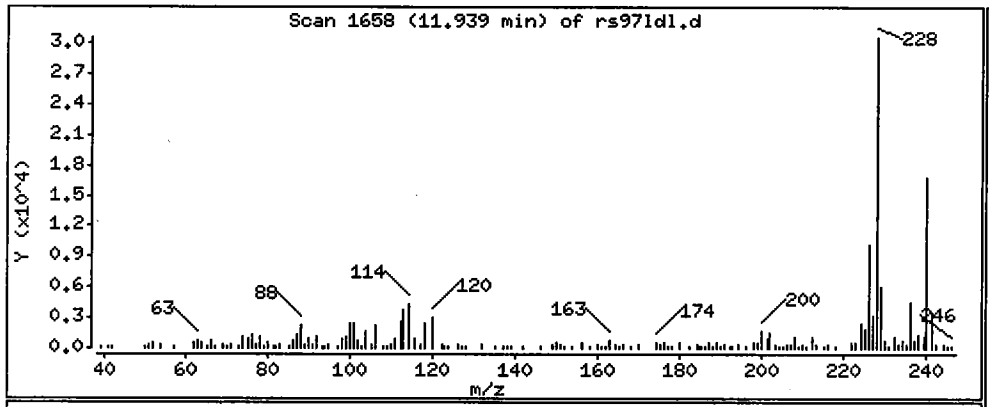
Operator: VTS

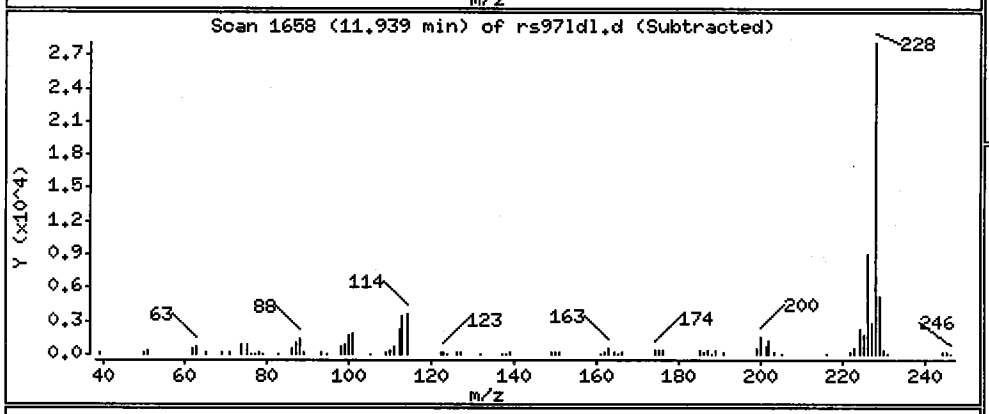
Column phase: ZB-5msi

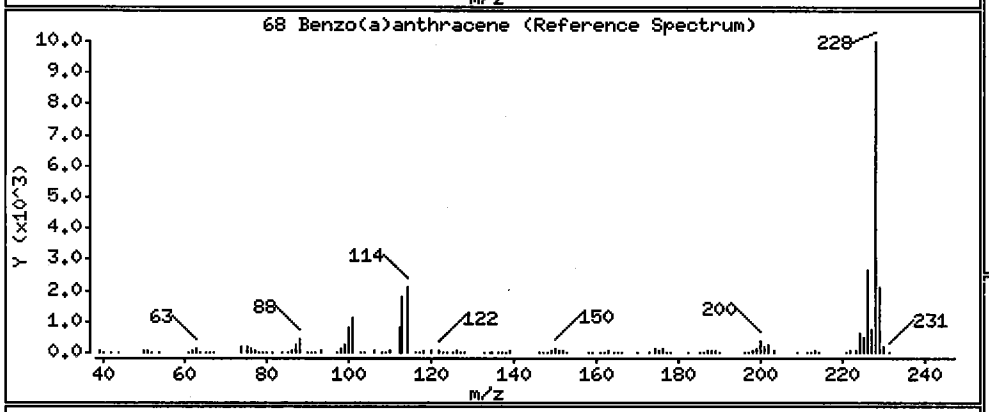
Column diameter: 0.32

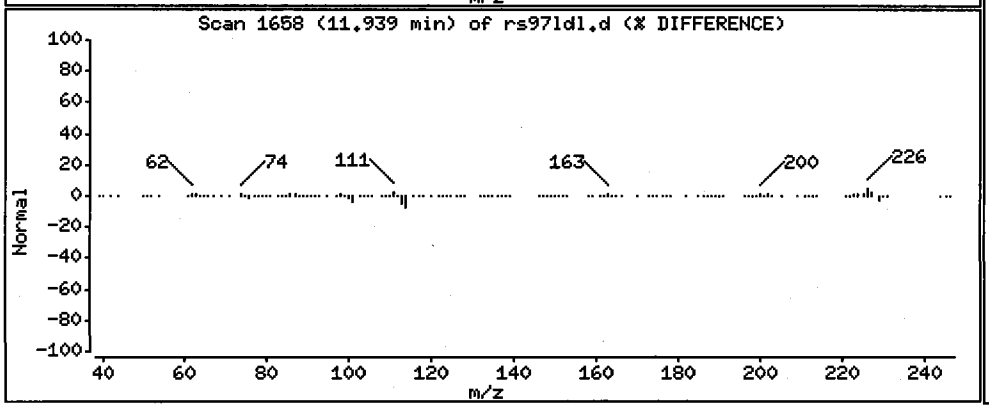
68 Benzo(a)anthracene

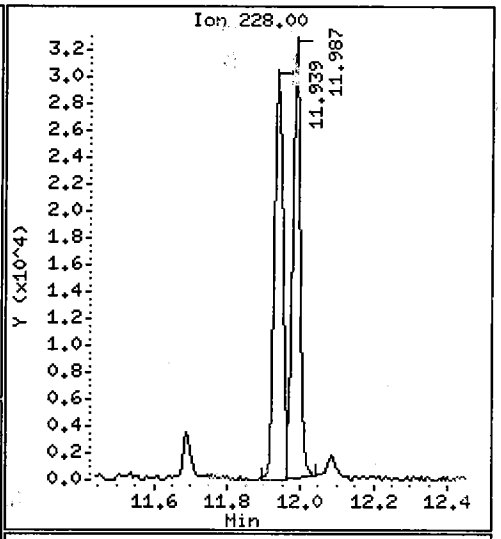
Concentration: 38550 ug/kg

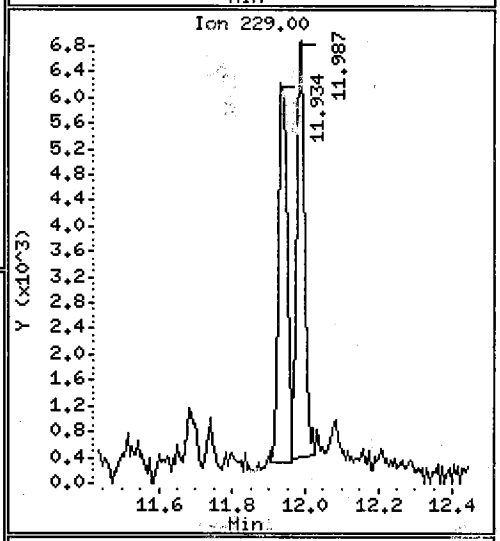


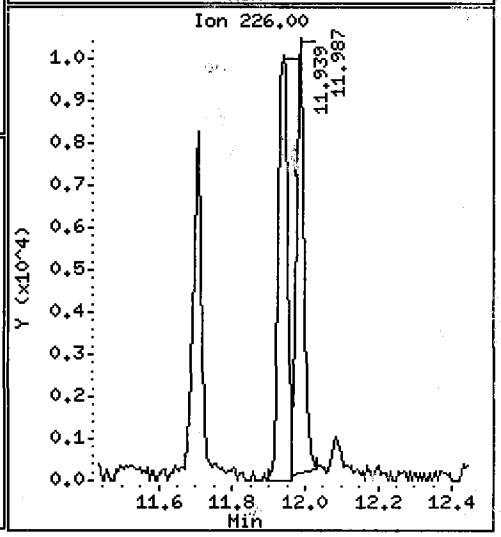












Data File: /chem1/nt12.i/20101112.b/rs97ldl.d

Date : 12-NOV-2010 11:20

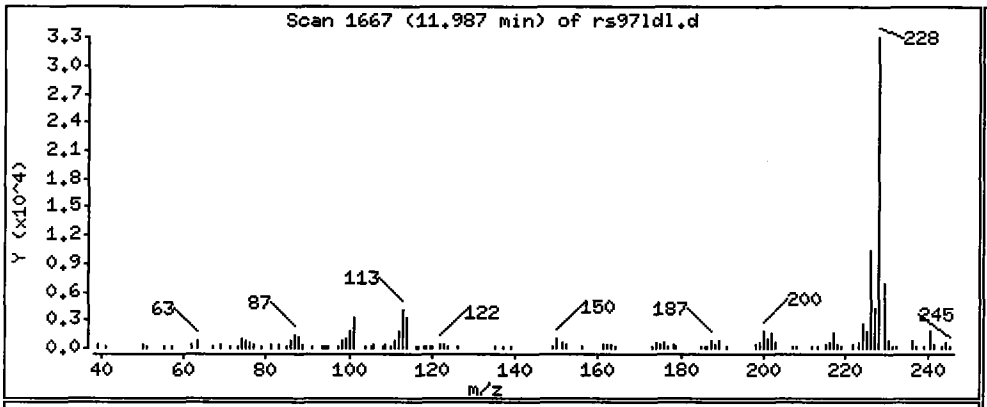
Client ID: DGS-07-5.66.7-10101 Instrument: nt12.i

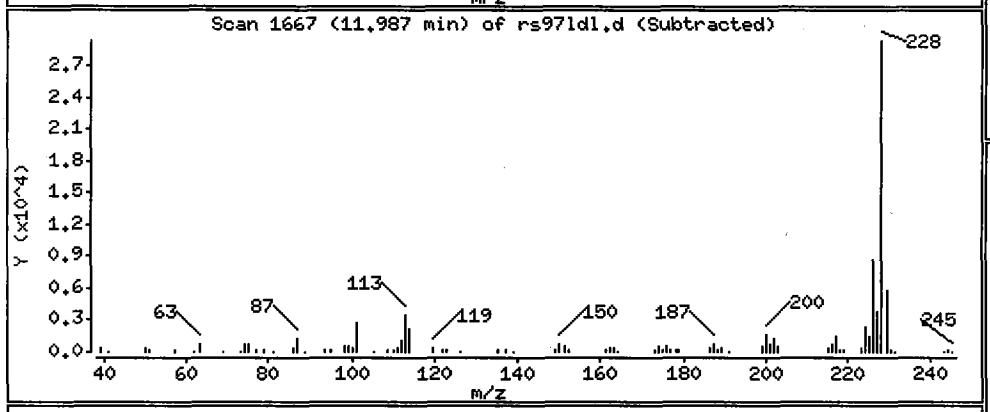
Sample Info: RS97L,3

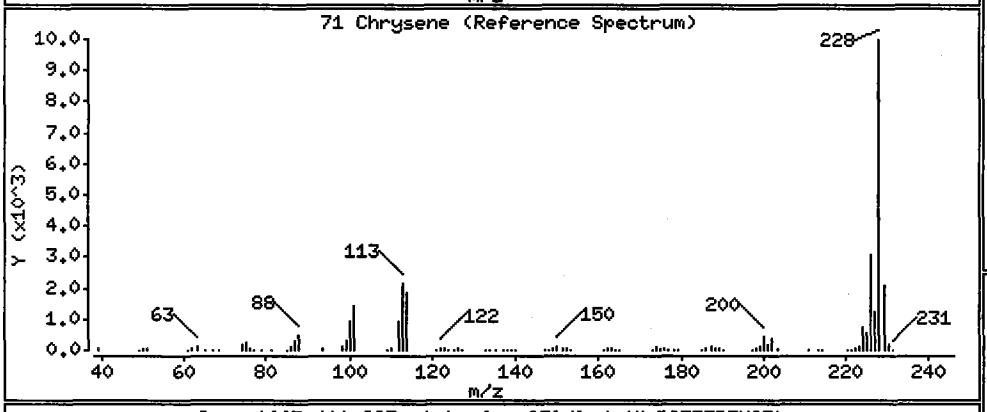
Volume Injected (uL): 1.0 Operator: VTS

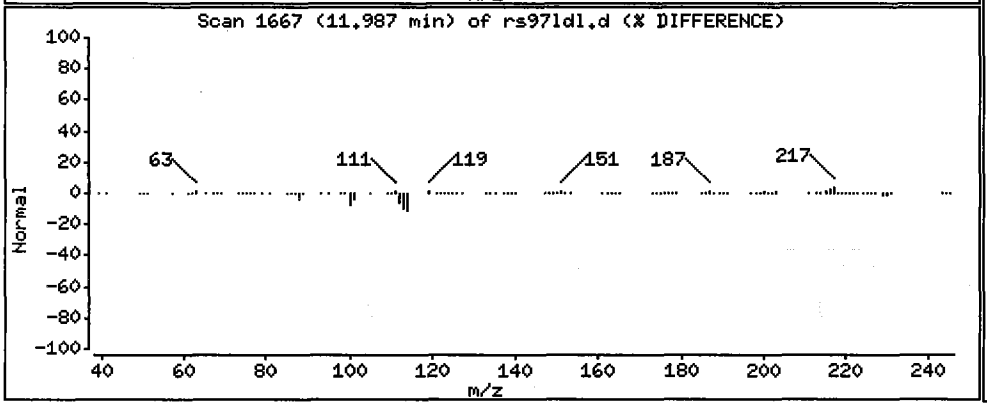
Column phase: ZB-5msi Column diameter: 0.32

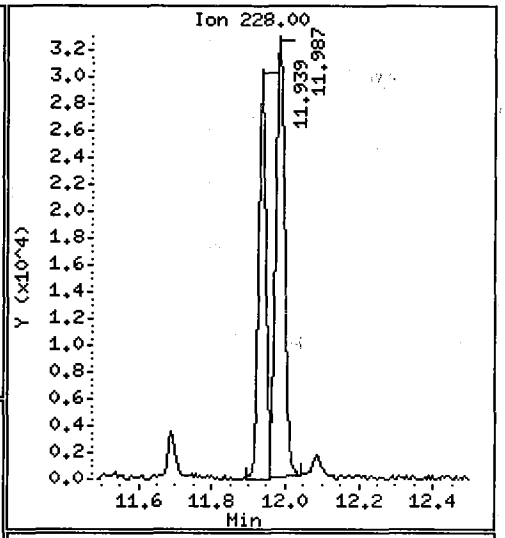
71 Chrysene Concentration: 46620 ug/kg

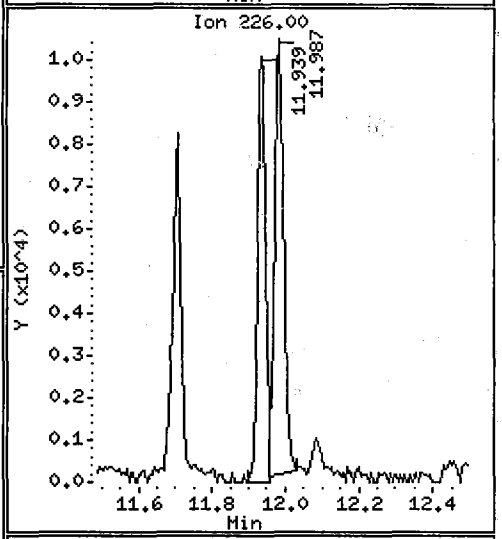


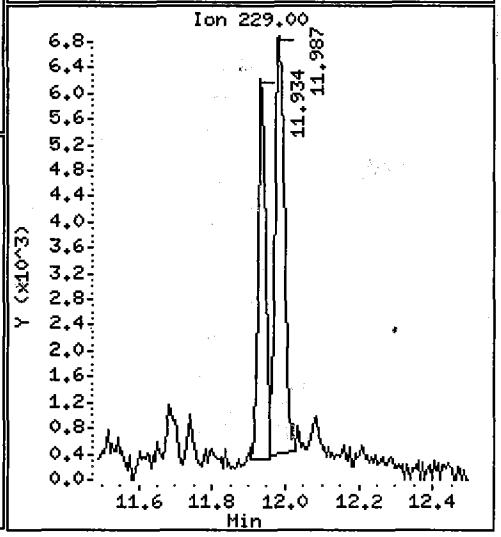












Data File: /chem1/nt12.i/20101112.b/rs971dl.d

Date : 12-NOV-2010 11:20

Client ID: DGS-07-5.66.7-10101

Instrument: nt12.i

Sample Info: RS97L,3

Volume Injected (uL): 1.0

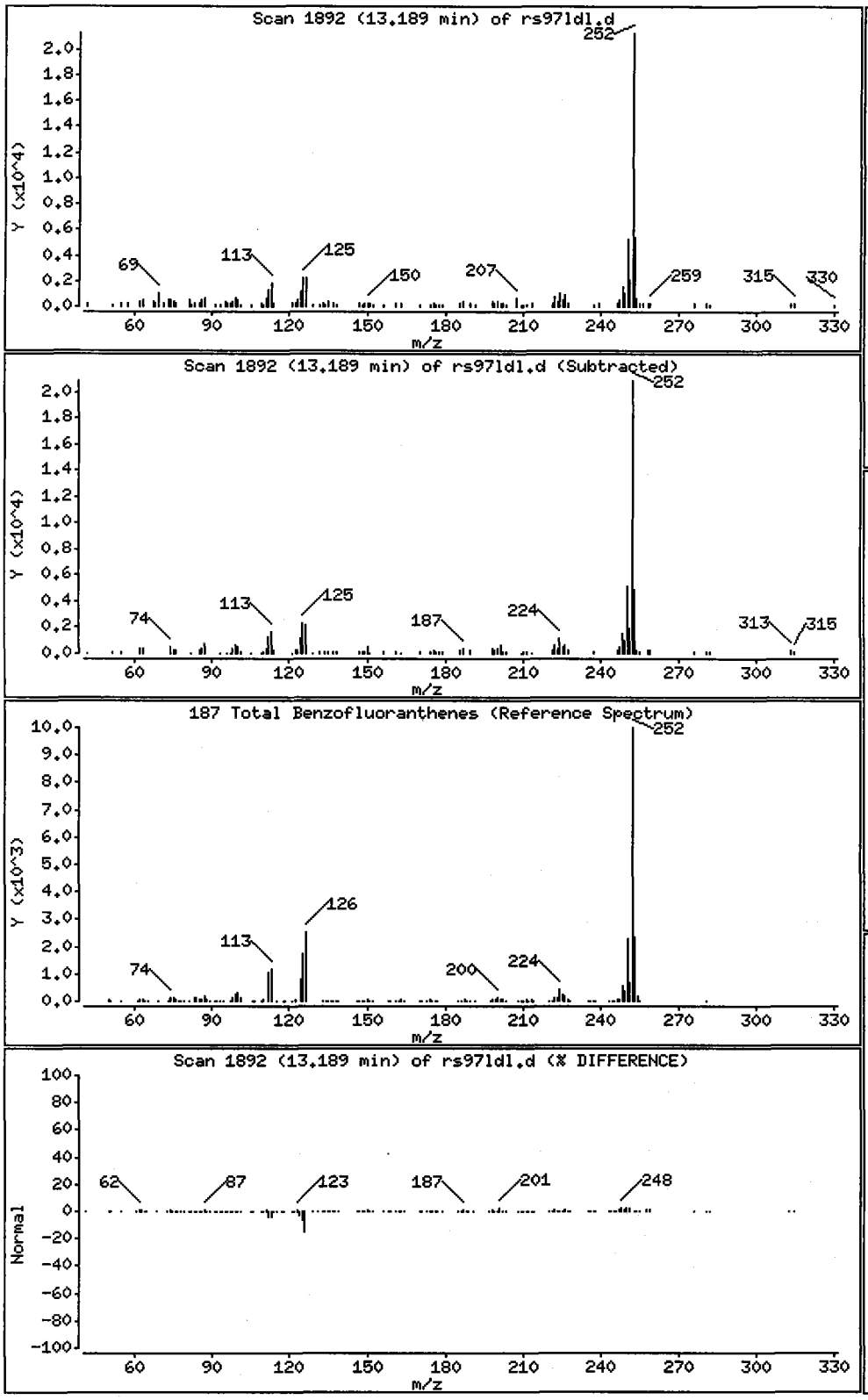
Operator: VTS

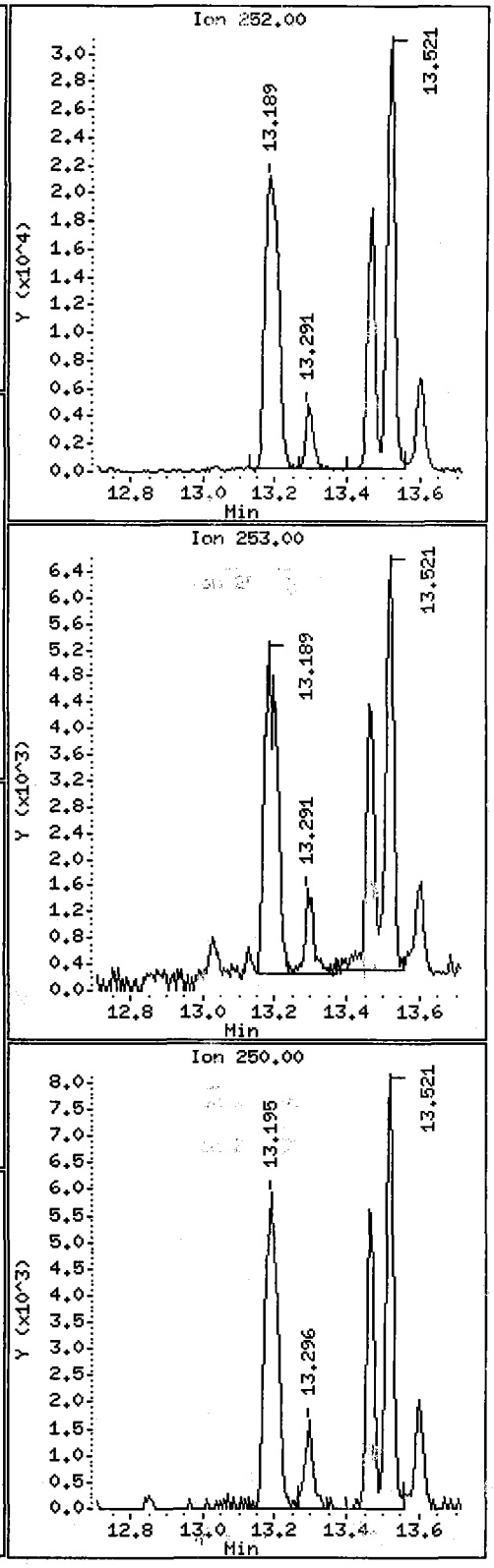
Column phase: ZB-5msi

Column diameter: 0.32

187 Total Benzofluoranthenes

Concentration: 51190 ug/kg





Data File: /chem1/nt12.i/20101112.b/rs971dl.d

Date : 12-NOV-2010 11:20

Client ID: DGS-07-5.66.7-10101

Instrument: nt12.i

Sample Info: RS97L,3

Volume Injected (uL): 1.0

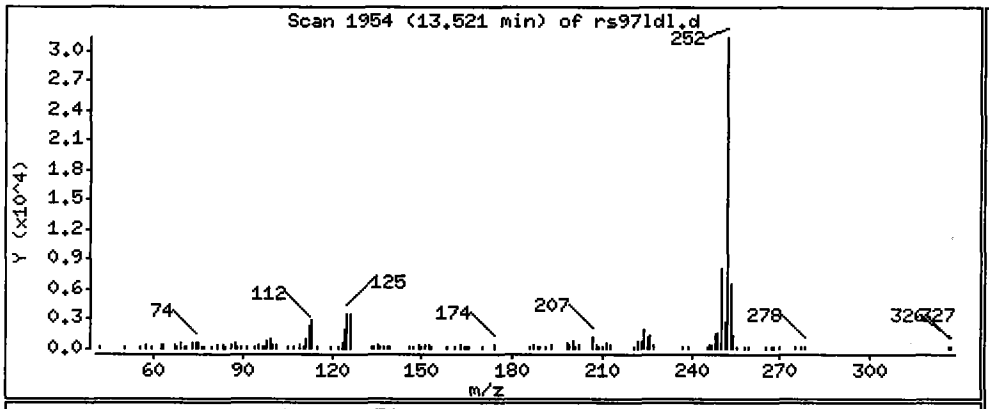
Operator: VTS

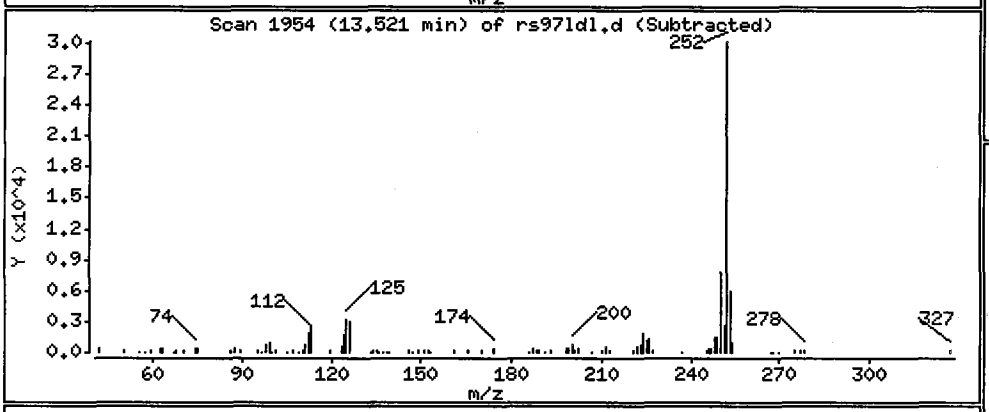
Column phase: ZB-5msi

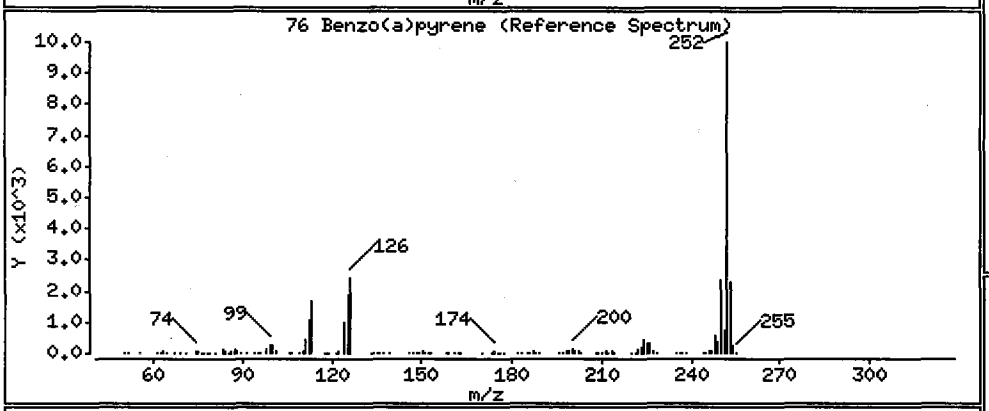
Column diameter: 0.32

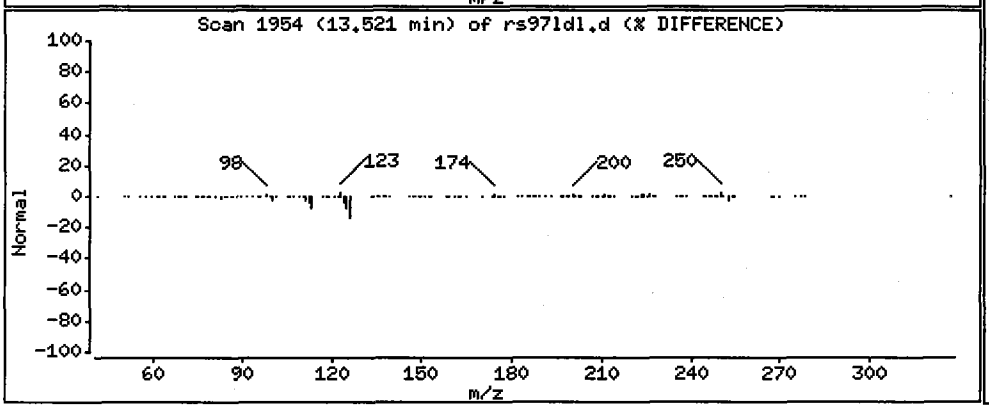
76 Benzo(a)pyrene

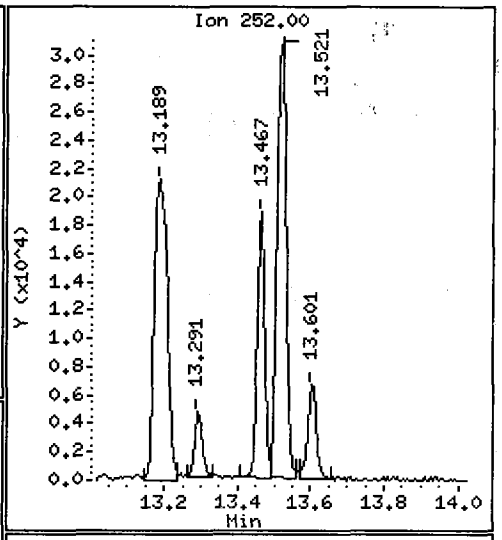
Concentration: 50090 ug/kg

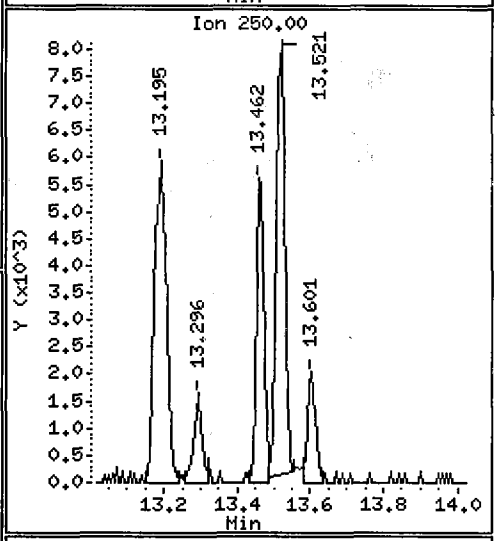


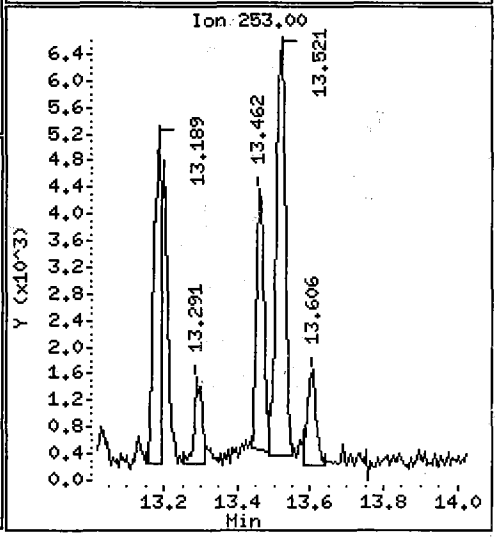












Data File: /chem1/nt12.i/20101112.b/rs97ldl.d

Date : 12-NOV-2010 11:20

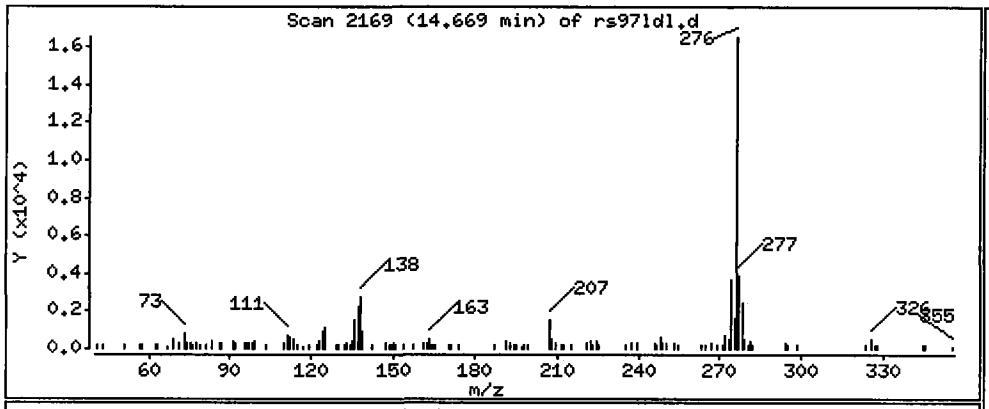
Client ID: DGS-07-5.66.7-10101 Instrument: nt12.i

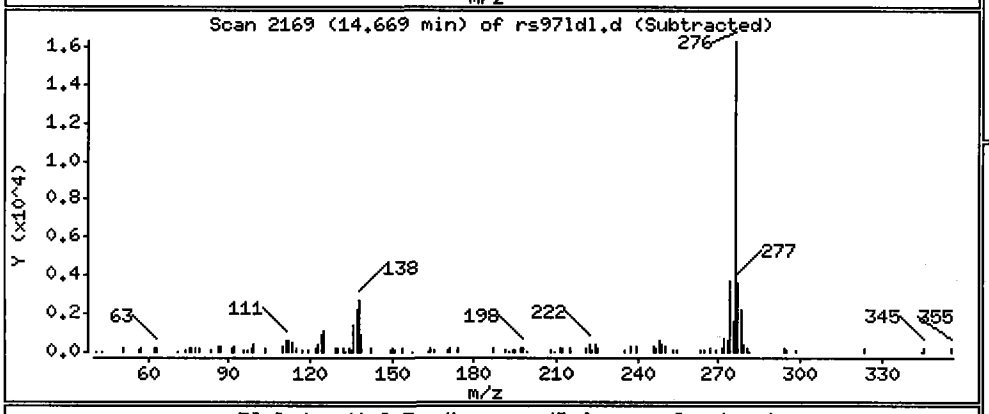
Sample Info: RS97L,3

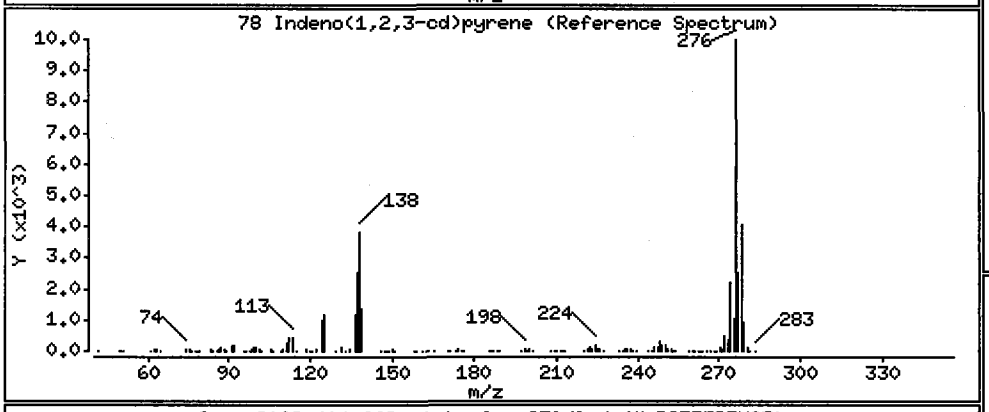
Volume Injected (uL): 1.0 Operator: VTS

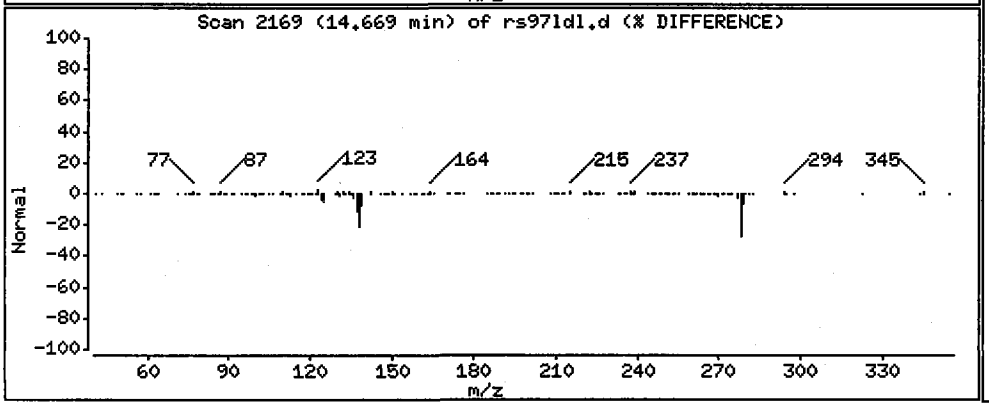
Column phase: ZB-5msi Column diameter: 0.32

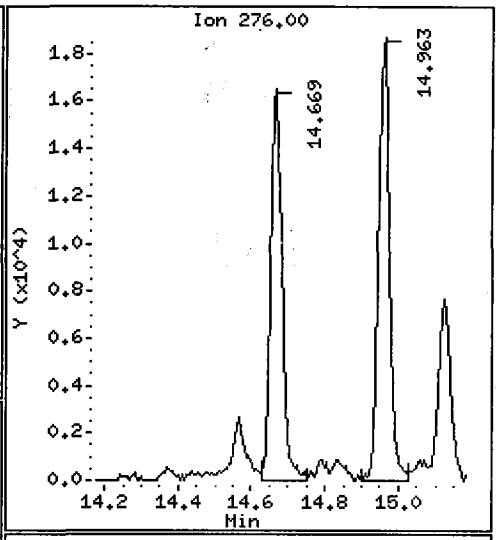
78 Indeno(1,2,3-cd)pyrene Concentration: 23630 ug/kg

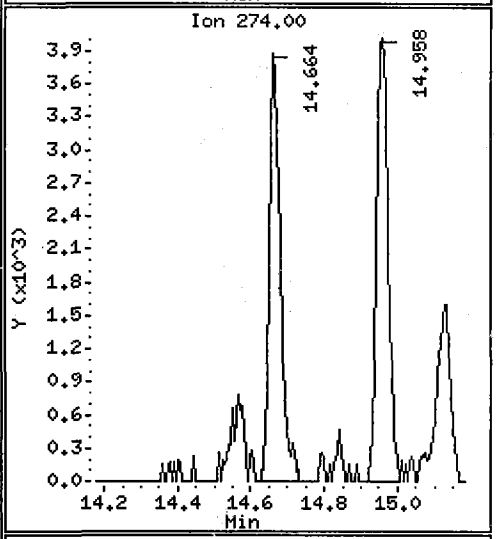


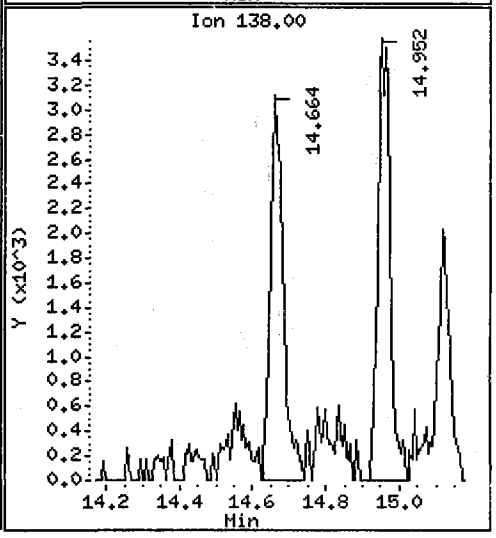












Data File: /chem1/nt12.i/20101112.b/rs971dl.d

Date : 12-NOV-2010 11:20

Client ID: DGS-07-5.66.7-10101

Instrument: nt12.i

Sample Info: RS97L,3

Volume Injected (uL): 1.0

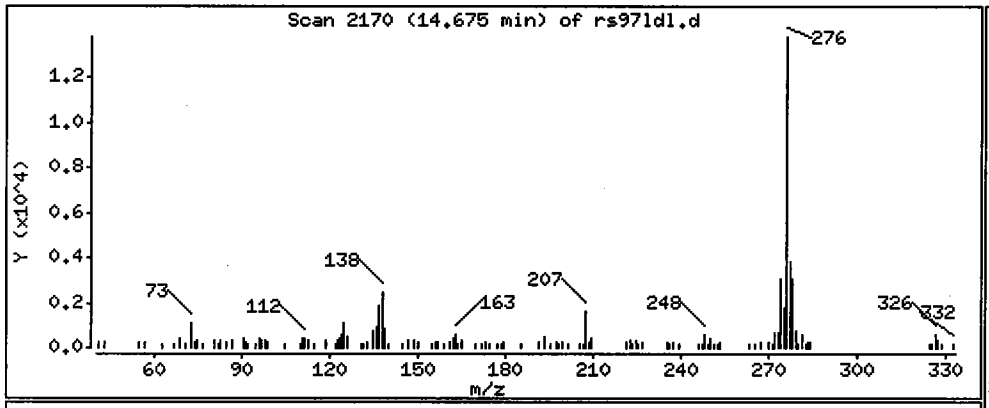
Operator: VTS

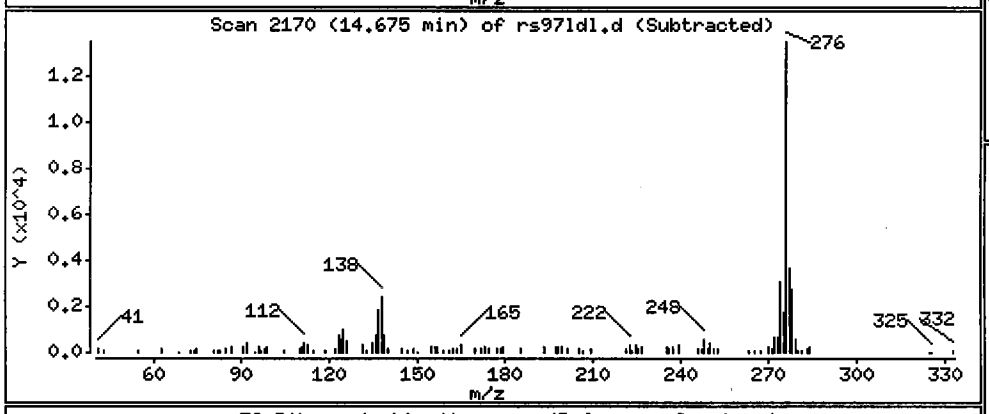
Column phase: ZB-5msi

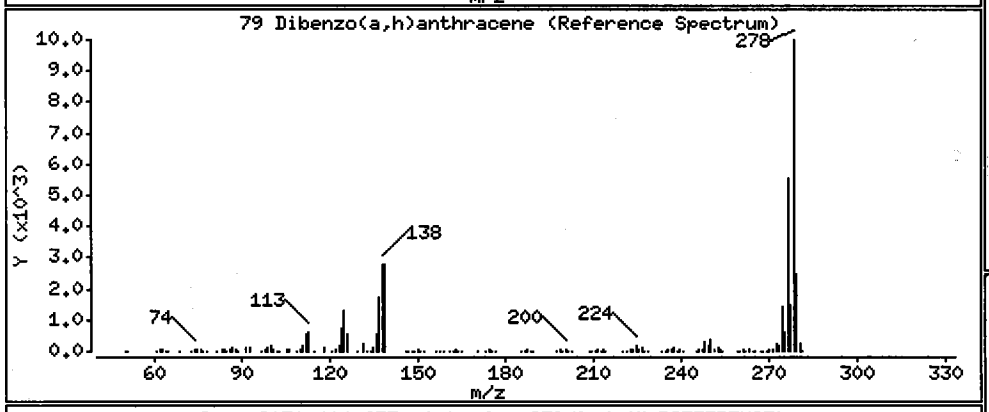
Column diameter: 0.32

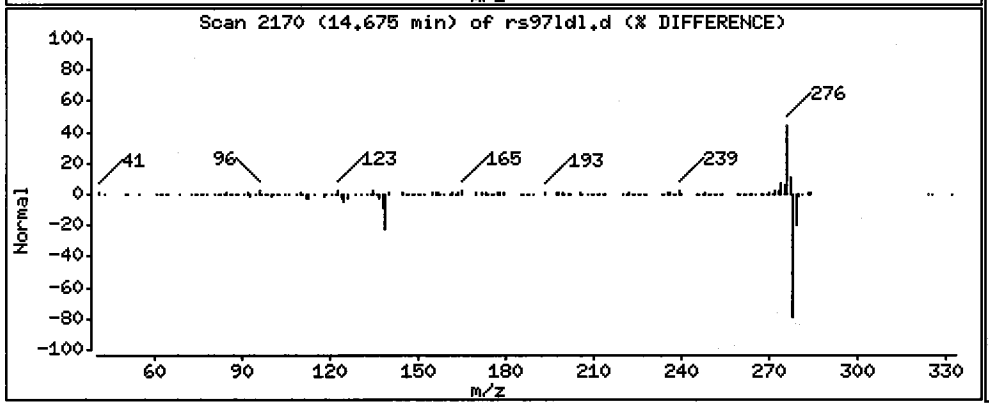
79 Dibenzo(a,h)anthracene

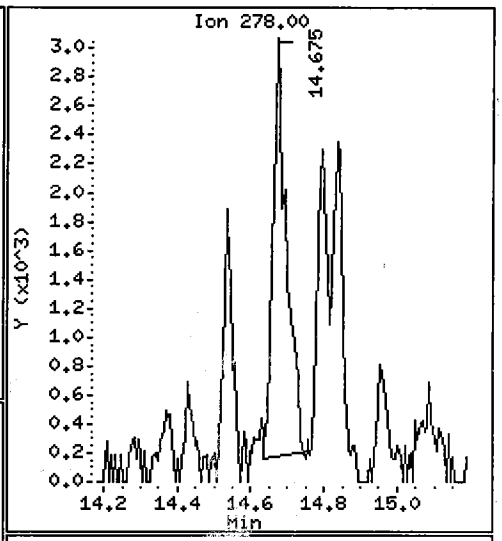
Concentration: 6253 ug/kg

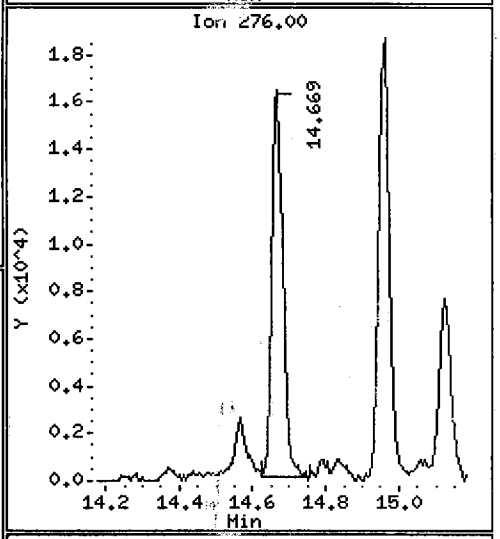


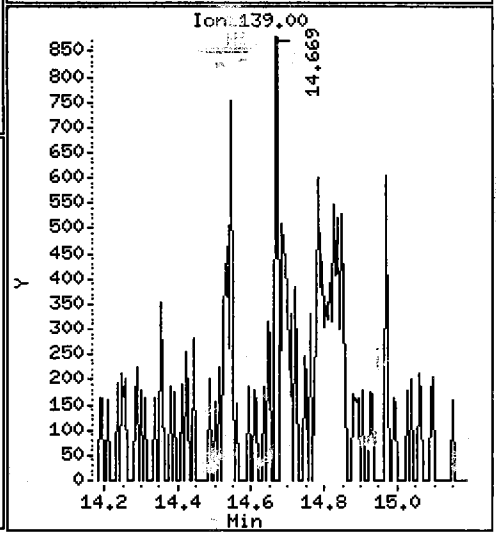












Data File: /chem1/nt12.i/20101112.b/rs971dl.d

Date : 12-NOV-2010 11:20

Client ID: DGS-07-5.66.7-10101

Instrument: nt12.i

Sample Info: RS97L,3

Volume Injected (uL): 1.0

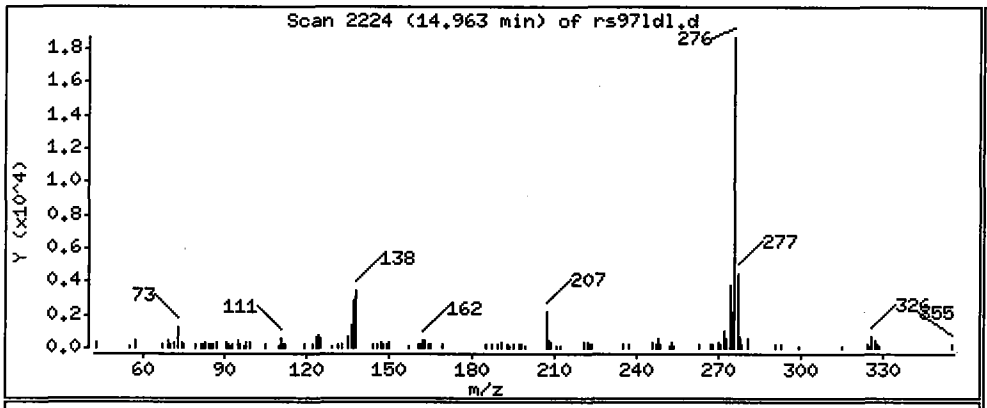
Operator: VTS

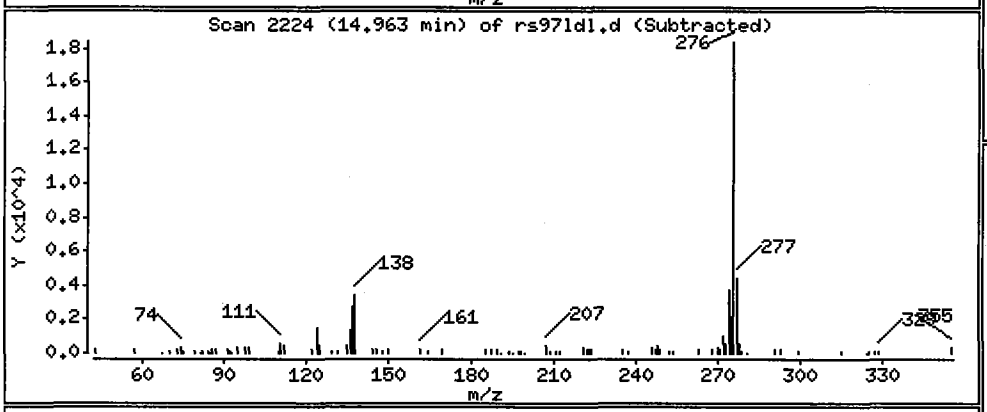
Column phase: ZB-5msi

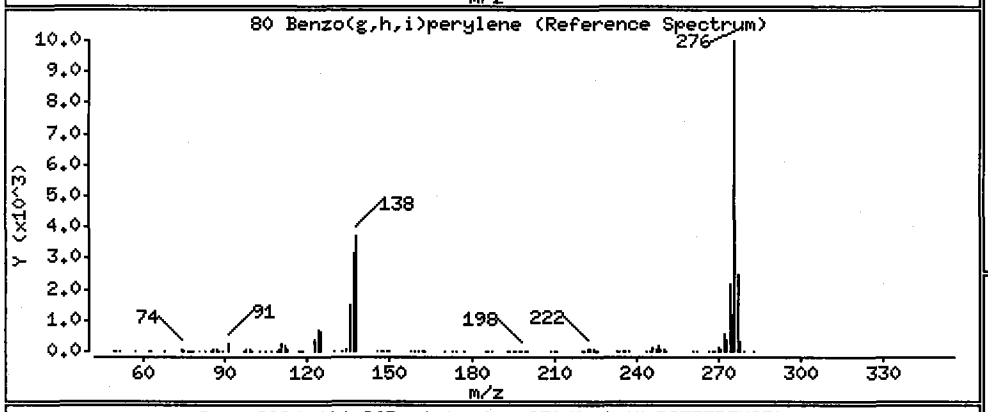
Column diameter: 0.32

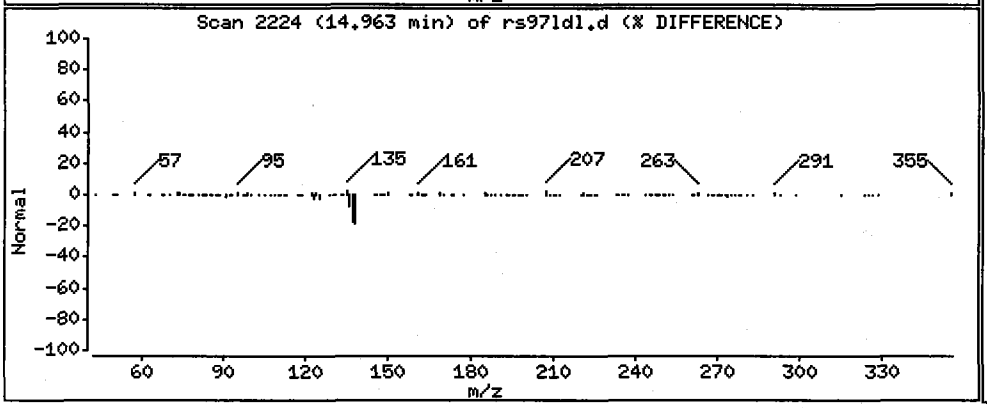
80 Benzo(g,h,i)perylene

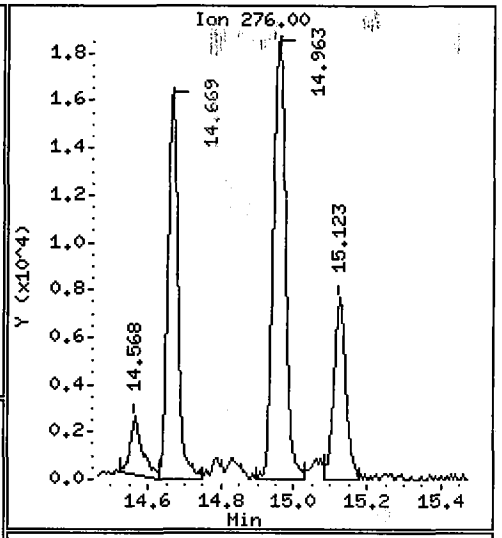
Concentration: 35300 ug/kg

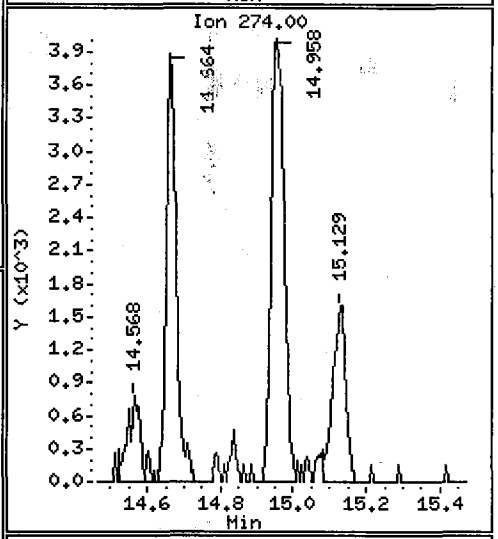


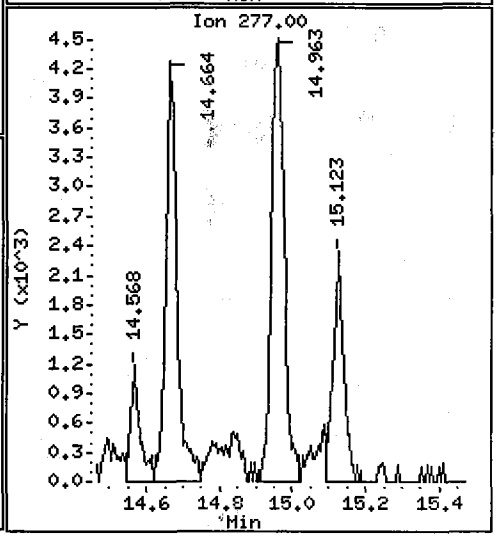








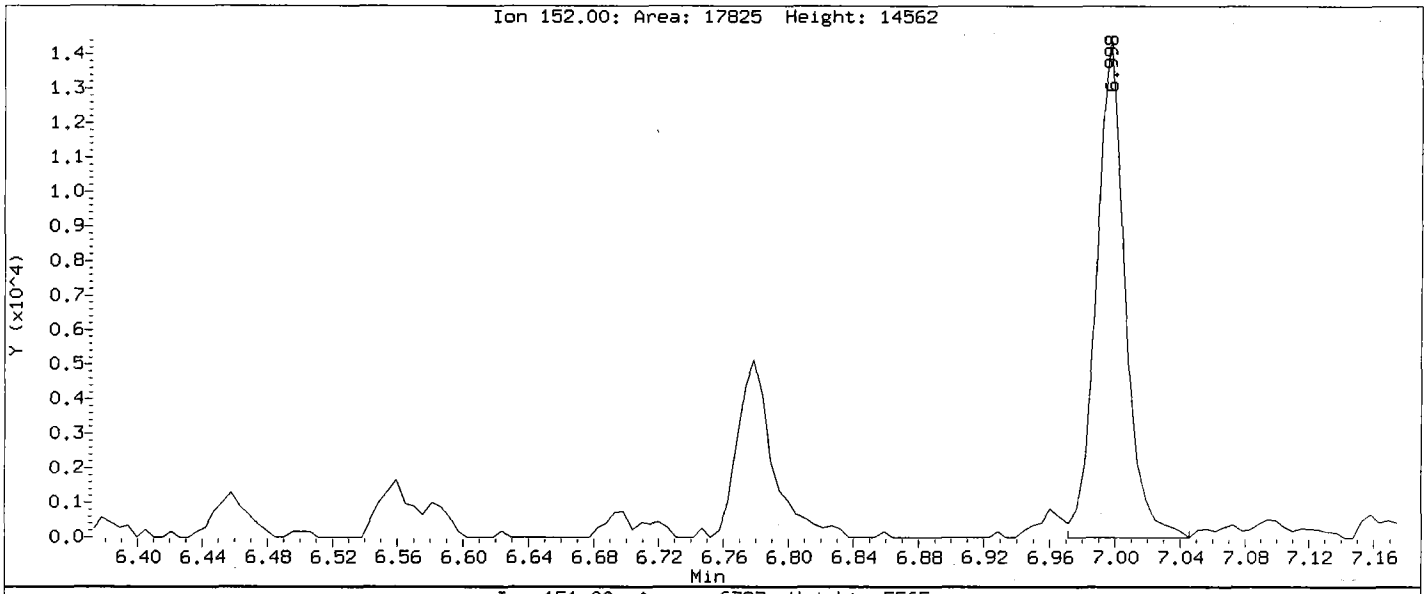


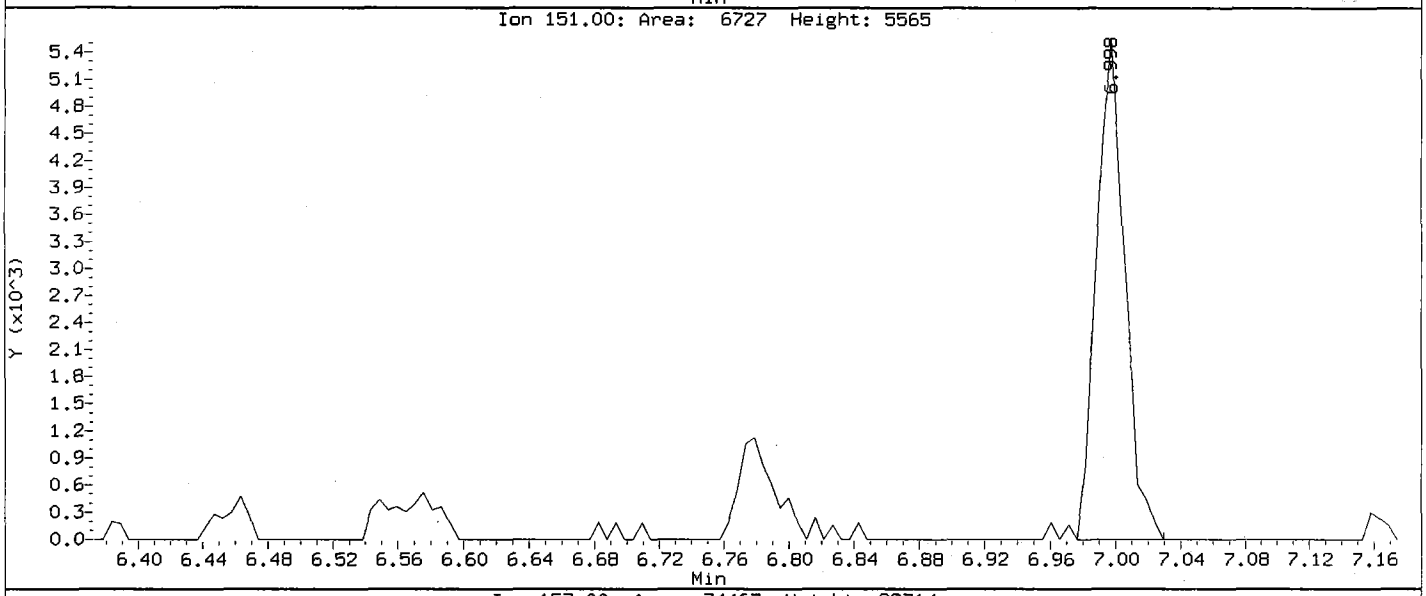


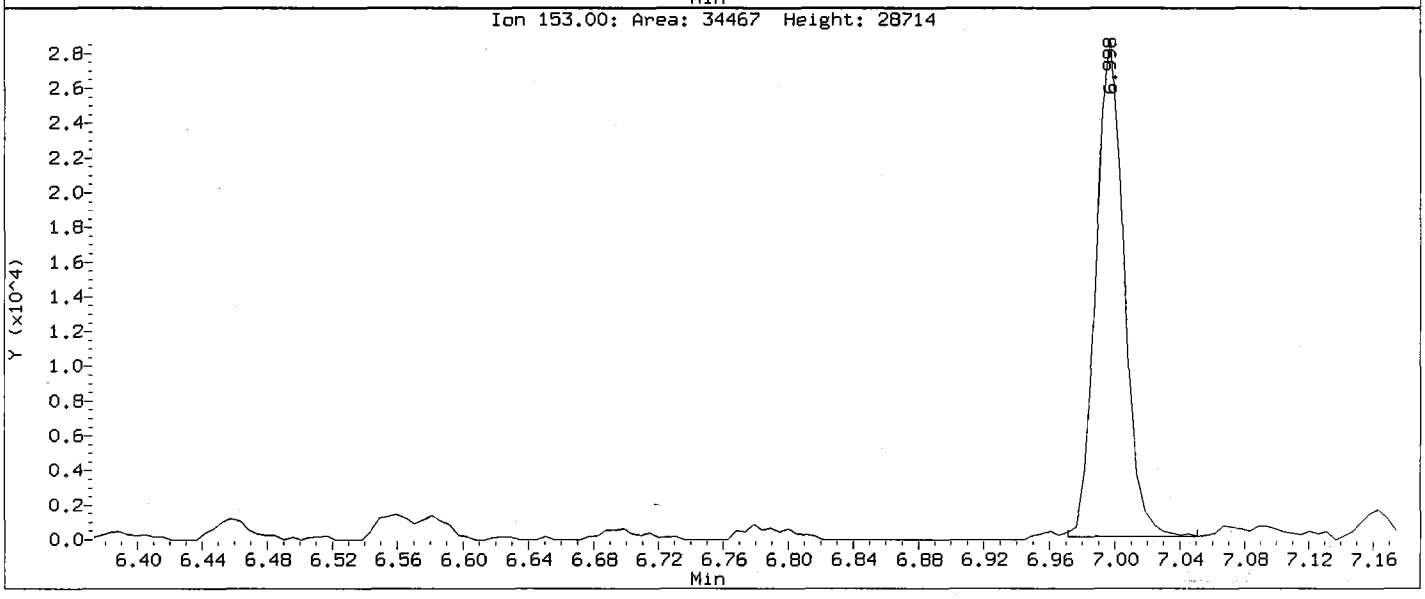
11.12.10. VB

Data File: /chem1/nt12.i/20101112.b/rs97ld1.d
Injection Date: 12-NOV-2010 11:20
Instrument: nt12.i
Client Sample ID: DGS-07-5.66.7-10101

Compound: Acenaphthylene
CAS Number: 208-96-8

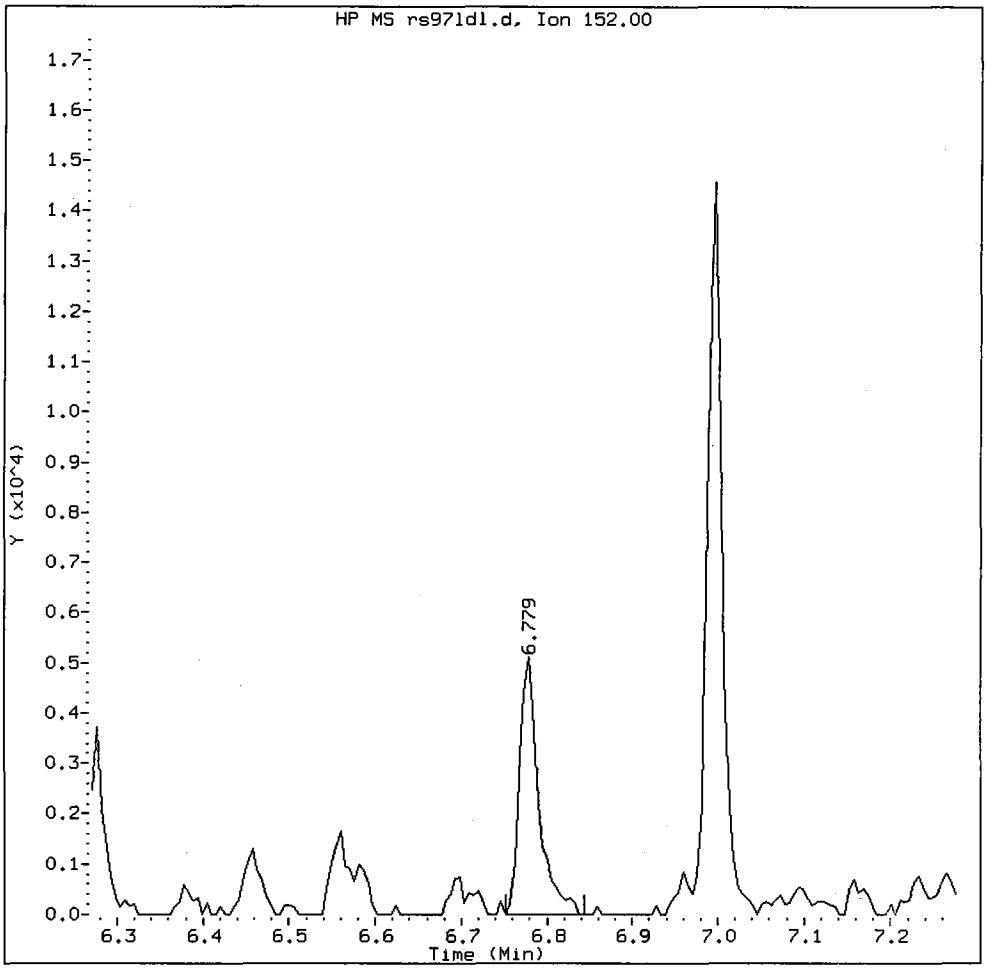






RS97L, /chem1/nt12.i/20101112.b/rs97ldl.d

Acenaphthylene Amount: 0.61 Area: 7885



MANUAL INTEGRATION for Acenaphthylene

1. Baseline correction
2. Poor chromatography
3. Peak not found
4. Totals calculation

5. Other _____

Analyst: VTS Date: 11.12.10

Analytical Resources, Incorporated
Analytical Chemists and Consultants

GC/MS SVOA Analyst Notes / Corrective Action Log

ARI Project ID: RS97 Client ID: DMD - NW Natural

ARI SOP: **801S**(SIM-PNA) **802S**(Butyl Tins) **804S**(SVOA-8270D) **805S**(op-Pest)

Parameter(s): PNA'S

Instrument: NT-2 NT-4 NT-6 NT-8 NT11 NT12

Curve Date: 10.30.10 Analysis Start Date: 11.17.10

DFTPP Tune Meets Criteria?	YES / NO	Internal Standard Meets Criteria?	YES / NO (2)
DDT Breakdown <20%?	YES / NO / NA	Method Blank In Control?	YES / NO
Peak Tailing Factor ≤2?	YES / NO (1) / NA	LCS / LCSD Recovery In Control?	YES / NO
ICal acceptable?	YES / NO	CCal acceptable?	YES / NO
Q flag applied?	YES / NO	Q flag applied?	YES / NO
Surrogate Recovery in Control?	YES / NO	Special Analysis Criteria Met?	YES / NO / NA
Manual Integrations for ICal?	YES / NO	Manual Integrations for Samples?	Yes /NO

Detail problems, corrective actions and/or other pertinent information below (use reverse side when necessary):

(1) PCP @ 2.29
- H, HMS, HMSD already run at 1.0 mL E.F.V.
(2) Samples B, E, G, I, J, K, L, M, N, Q, R, S showed d12-Chrysene > 200% Internal Standard Area or <50% area for other internal standards. I only re-integrated the internal standards & produce the batch report.
- Raw data transferred "AS IS" to DMD directory.

Additional Details on Reverse: Yes / No

Analyst: VB **Date:** 11.18.10

Reviewer: [signature] **Date:** 11/18/10

- See Version Final volumes - David spent 4+ hours on these blowdowns - difficult to RS97 transfer

MANUAL INTEGRATION SUMMARY FOR DATABATCH - /chem1/nt12.i/20101117.b

ARI Job No.: 1778 Method: PNADMD.m Instrument: nt12.i Date: 17-NOV-2010

Time	Filename	LabID	ClientId	DF	Manually Integrated Compounds
1624	177802.d	177802		1	NO MANUAL INTEGRATION
1600	cc1117.d	CC1117		1	NO MANUAL INTEGRATION
1537	df1117.d			1	NO MANUAL INTEGRATION
1734	rs97a.d	RS97A	GSM-08SO-1	1	Acenaphthene-d10,
1758	rs97b.d	RS97B	DGS-19-3.3	1	Naphthalene-d8,
1821	rs97c.d	RS97C	DGS-19-4.4	1	NO MANUAL INTEGRATION
1845	rs97d.d	RS97D	DGS-19-10.	1	NO MANUAL INTEGRATION
1908	rs97e.d	RS97E	DGS-08-4.4	1	Naphthalene-d8, Phenanthrene-d10,
1932	rs97f.d	RS97F	GST-09SO-1	1	Naphthalene-d8, Phenanthrene-d10, Chrysene-d12,
1955	rs97g.d	RS97G	DGS-36-066	1	NO MANUAL INTEGRATION
2019	rs97i.d	RS97I	DGS-07-2.2	1	NO MANUAL INTEGRATION
2042	rs97j.d	RS97J	DGS-07-034	1	NO MANUAL INTEGRATION
2106	rs97k.d	RS97K	DGS-07-4.7	1	NO MANUAL INTEGRATION
2130	rs97l.d	RS97L	DGS-07-5.6	1	NO MANUAL INTEGRATION
2153	rs97m.d	RS97M	DGS-07-077	1	NO MANUAL INTEGRATION
1947	rs97mb.d	RS97MB		1	NO MANUAL INTEGRATION
2217	rs97n.d	RS97N	DGS-07-7.9	1	NO MANUAL INTEGRATION
2240	rs97o.d	RS97O	DGS-07-8.7	1	NO MANUAL INTEGRATION
2304	rs97p.d	RS97P	DGS-07-9.7	1	Phenanthrene-d10,
2327	rs97q.d	RS97Q	DGS-07-10.	1	NO MANUAL INTEGRATION
2351	rs97r.d	RS97R	DGS-07-11.	1	Phenanthrene-d10,

MANUAL INTEGRATION SUMMARY FOR DATABATCH - /chem1/nt12.i/20101117.b

Time	Filename	LabID	ClientId	DF	Manually Integrated Compounds
0014	rs97s.d	RS97S	DGS-07-12.	1	NO MANUAL INTEGRATION
1711	rs97sb.d	RS97SB		1	NO MANUAL INTEGRATION

Q-FLAG SUMMARY FOR DATABATCH - /chem1/nt12.i/20101117.b

Instrument: nt12.i Date: 17-NOV-2010 Method: PNADMD.m

INITIAL CAL: 30-OCT-2010

Compound	%RSD or R^2
NO Q-FLAGS	

CONTINUING CAL: 17-NOV-2010

Compound	%D
NO Q-FLAGS	

Data File: /chem1/nt12.i/20101117.b/df1117.d

Date : 17-NOV-2010 15:37

Client ID:

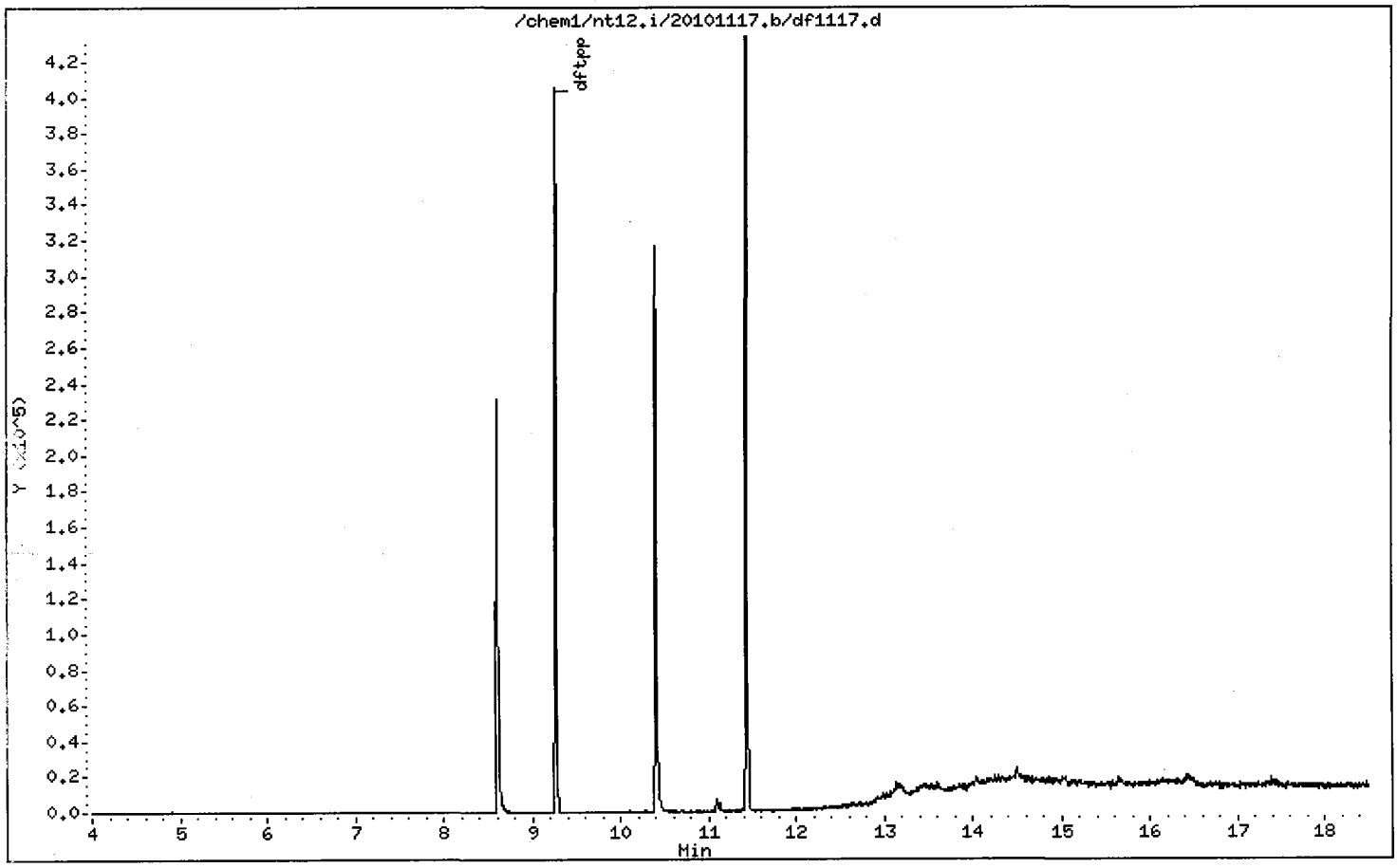
Instrument: nt12.i

Sample Info: DF1117

Operator: jr

Column phase: ZB-5msi

Column diameter: 0.32



Data File: /chem1/nt12.i/20101117.b/df1117.d

Date : 17-NOV-2010 15:37

Client ID:

Instrument: nt12.i

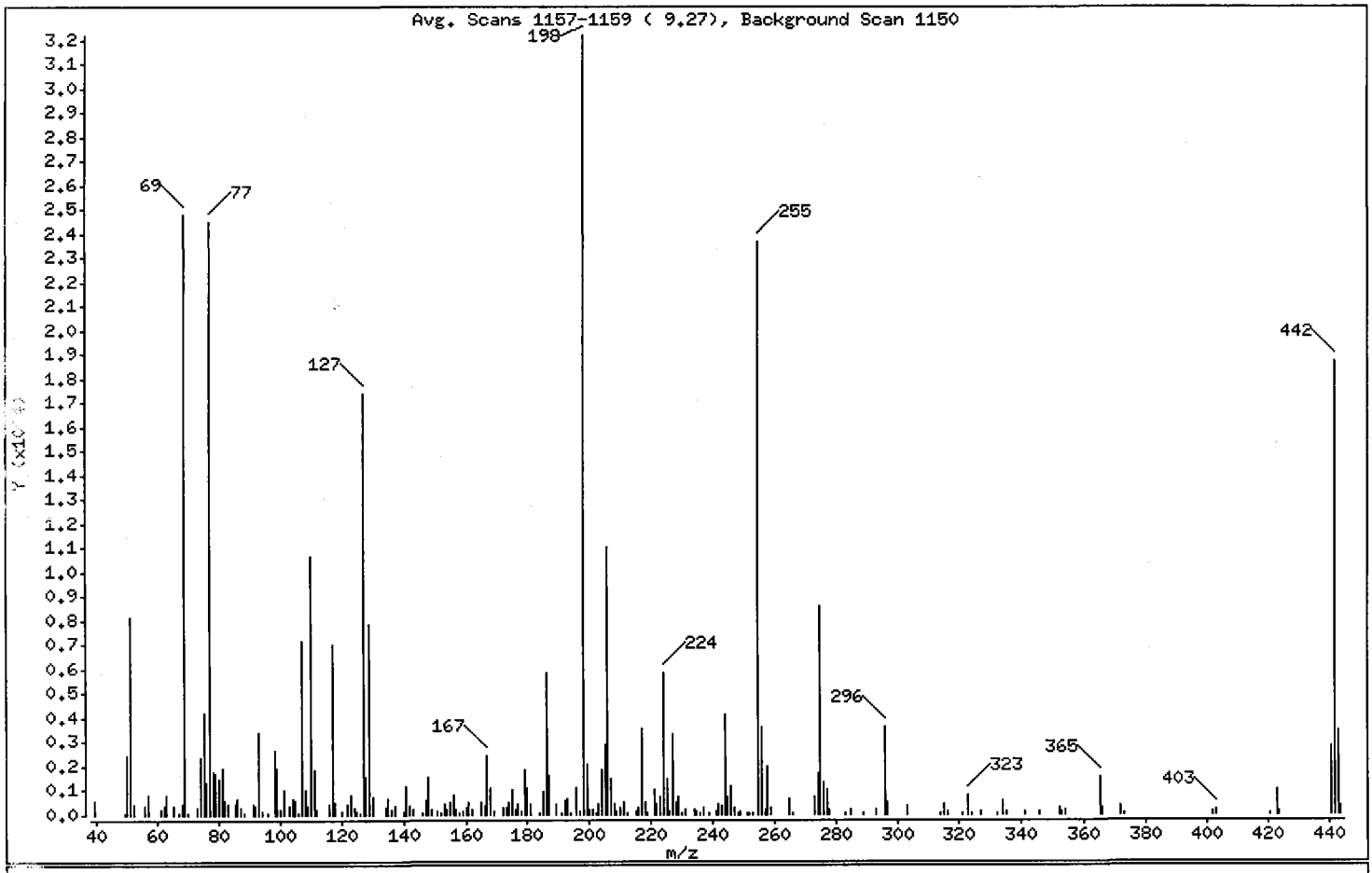
Sample Info: DF1117

Operator: jr

Column phase: ZB-5msi

Column diameter: 0.32

1 dftpp



m/e	ION ABUNDANCE CRITERIA	% RELATIVE ABUNDANCE
198	Base Peak, 100% relative abundance	100.00
51	10.00 - 80.00% of mass 198	25.39
68	Less than 2.00% of mass 69	1.36 (1.77)
69	Mass 69 relative abundance	77.06
70	Less than 2.00% of mass 69	0.19 (0.24)
127	10.00 - 80.00% of mass 198	54.03
197	Less than 2.00% of mass 198	0.37
199	5.00 - 9.00% of mass 198	6.48
275	10.00 - 60.00% of mass 198	26.66
365	Greater than 1.00% of mass 198	4.92
441	0.01 - 24.00% of mass 442	8.83 (15.15)
442	50.00 - 200.00% of mass 198	58.28
443	15.00 - 24.00% of mass 442	10.78 (18.50)

Data File: /chem1/nt12.i/20101117.b/df1117.d

Date : 17-NOV-2010 15:37

Client ID:

Instrument: nt12.i

Sample Info: DF1117

Operator: jr

Column phase: ZB-5msi

Column diameter: 0.32

Data File: df1117.d
Spectrum: Avg. Scans 1157-1159 (9.27), Background Scan 1150
Location of Maximum: 198.00
Number of points: 208

m/z	Y	m/z	Y	m/z	Y	m/z	Y
39.00	571	122.00	447	191.00	84	253.00	57
49.00	52	123.00	823	192.00	612	255.00	23688
50.00	2447	124.00	329	193.00	655	256.00	3610
51.00	8177	125.00	114	194.00	82	257.00	249
52.00	453	126.00	74	196.00	1120	258.00	2023
56.00	345	127.00	17400	197.00	120	259.00	286
57.00	800	128.00	1525	198.00	32208	265.00	695
61.00	204	129.00	7832	199.00	2086	266.00	65
62.00	375	130.00	726	200.00	201	273.00	718
63.00	802	134.00	331	201.00	194	274.00	1676
65.00	379	135.00	690	202.00	50	275.00	8587
67.00	60	136.00	242	203.00	434	276.00	1340
68.00	439	137.00	371	204.00	1817	277.00	1041
69.00	24816	140.00	113	205.00	2863	278.00	219
70.00	60	141.00	1208	206.00	11019	283.00	58
73.00	303	142.00	354	207.00	1460	285.00	221
74.00	2363	143.00	243	208.00	477	289.00	53
75.00	4254	146.00	61	209.00	126	293.00	232
76.00	1344	147.00	558	210.00	276	296.00	3608
77.00	24536	148.00	1527	211.00	552	297.00	501
78.00	1779	149.00	243	212.00	61	303.00	380
79.00	1700	151.00	154	215.00	145	314.00	54
80.00	1470	152.00	50	216.00	270	315.00	426
81.00	1903	153.00	417	217.00	3535	316.00	138
82.00	603	154.00	200	218.00	530	321.00	75
83.00	409	155.00	554	219.00	58	323.00	849
85.00	424	156.00	814	221.00	1041	324.00	73
86.00	637	157.00	250	222.00	477	327.00	148
87.00	321	158.00	81	223.00	748	332.00	50
88.00	56	159.00	121	224.00	5873	334.00	604
91.00	438	160.00	283	225.00	1444	335.00	168
92.00	405	161.00	547	226.00	173	341.00	127
93.00	3379	162.00	200	227.00	3298	346.00	152
94.00	183	165.00	484	228.00	483	352.00	301
96.00	69	166.00	382	229.00	721	353.00	122

Data File: /chem1/nt12.i/20101117.b/df1117.d

Date : 17-NOV-2010 15:37

Client ID:

Instrument: nt12.i

Sample Info: DF1117

Operator: jr

Column phase: ZB-5msi

Column diameter: 0.32

Data File: df1117.d
Spectrum: Avg. Scans 1157-1159 (9.27), Background Scan 1150
Location of Maximum: 198.00
Number of points: 208

m/z	Y	m/z	Y	m/z	Y	m/z	Y
98.00	2701	167.00	2477	230.00	75	354.00	210
99.00	1926	168.00	1111	231.00	191	365.00	1585
100.00	194	169.00	170	234.00	241	366.00	292
101.00	1072	172.00	321	235.00	157	372.00	357
103.00	373	173.00	284	236.00	63	373.00	65
104.00	667	174.00	513	237.00	284	402.00	112
105.00	566	175.00	1051	239.00	72	403.00	257
106.00	82	176.00	244	241.00	123	421.00	72
107.00	7195	177.00	475	242.00	411	423.00	1028
108.00	1029	178.00	136	243.00	366	424.00	112
109.00	345	179.00	1883	244.00	4119	441.00	2844
110.00	10629	180.00	1104	245.00	766	442.00	18768
111.00	1844	181.00	408	246.00	1153	443.00	3472
112.00	213	184.00	64	247.00	315	444.00	374
116.00	446	185.00	927	248.00	71		
117.00	7061	186.00	5880	249.00	123		
118.00	502	187.00	1620	251.00	70		
120.00	135	189.00	417	252.00	58		

Analytical Resources, Inc.

Semivolatile Report SW846 Method 8270D

Data file : /chem1/nt12.i/20101117.b/cc1117.d
Lab Smp Id: CC1117
Inj Date : 17-NOV-2010 16:00
Operator : VTS Inst ID: nt12.i
Smp Info : CC1117
Misc Info : 10-
Comment : 1ul Injection
Method : /chem1/nt12.i/20101117.b/PNADMD.m
Meth Date : 18-Nov-2010 10:54 van Quant Type: ISTD
Cal Date : 30-OCT-2010 13:19 Cal File: ic1030f.d
Als bottle: 3 Continuing Calibration Sample
Dil Factor: 1.00000
Integrator: HP RTE Compound Sublist: pnas.sub
Target Version: 3.50
Processing Host: cserv3

Compounds	QUANT SIG MASS	RT	EXP RT	REL RT	RESPONSE	AMOUNTS CAL-AMT (ug/mL)	AMOUNTS ON-COL (ug/mL)
* 27 Naphthalene-d8	136	4.861	4.861	(1.000)	182336	20.0000	
28 Naphthalene	128	4.882	4.882	(1.004)	273520	25.0000	26.36
32 2-Methylnaphthalene	141	5.700	5.700	(1.173)	147058	25.0000	26.55
105 1-methylnaphthalene	141	5.822	5.822	(1.198)	147858	25.0000	25.89
$ 36 2-Fluorobiphenyl	172	6.175	6.175	(0.887)	224395	25.0000	26.56
40 Acenaphthylene	152	6.773	6.773	(0.973)	283784	25.0000	25.81
* 42 Acenaphthene-d10	164	6.960	6.960	(1.000)	109803	20.0000	
44 Acenaphthene	153	6.998	6.998	(1.005)	174301	25.0000	25.81
46 Dibenzofuran	168	7.195	7.195	(1.034)	263548	25.0000	25.45
49 Fluorene	166	7.612	7.612	(1.094)	196222	25.0000	25.38
* 59 Phenanthrene-d10	188	8.734	8.734	(1.000)	191581	20.0000	
60 Phenanthrene	178	8.761	8.761	(1.003)	262187	25.0000	25.80
61 Anthracene	178	8.819	8.819	(1.010)	262861	25.0000	25.02
62 Carbazole	167	9.038	9.038	(1.035)	214292	25.0000	25.29
64 Fluoranthene	202	10.208	10.208	(0.853)	306606	25.0000	24.14
65 Pyrene	202	10.476	10.476	(0.875)	307183	25.0000	24.38
$ 66 Terphenyl-d14	244	10.711	10.711	(0.895)	187938	25.0000	23.38
68 Benzo(a)anthracene	228	11.945	11.945	(0.998)	261325	25.0000	25.60
* 69 Chrysene-d12	240	11.966	11.966	(1.000)	181802	20.0000	
71 Chrysene	228	11.993	11.993	(1.002)	232839	25.0000	24.39
187 Total Benzofluoranthenes	252	13.211	13.211	(0.972)	508742	50.0000	53.86
76 Benzo(a)pyrene	252	13.526	13.526	(0.996)	224154	25.0000	25.83
* 77 Perylene-d12	264	13.585	13.585	(1.000)	158595	20.0000	
99 Perylene	252	13.611	13.611	(1.002)	228474	25.0000	24.76
78 Indeno(1,2,3-cd)pyrene	276	14.680	14.680	(1.081)	304723	25.0000	23.65
79 Dibenzo(a,h)anthracene	278	14.691	14.691	(1.081)	246956	25.0000	23.28

Compounds	QUANT SIG MASS	RT	EXP RT	REL RT	RESPONSE	AMOUNTS CAL-AMT (ug/mL)	AMOUNTS ON-COL (ug/mL)
80 Benzo(g,h,i)perylene	276	14.974	14.974	(1.102)	245795	25.0000	23.22

LJ3
11.18.10

Analytical Resources, Inc.

INTERNAL STANDARD COMPOUNDS
AREA AND RT SUMMARY

Instrument ID: nt12.i
Lab File ID: cc1117.d
Lab Smp Id: CC1117
Analysis Type: SV
Quant Type: ISTD
Operator: VTS
Method File: /chem1/nt12.i/20101117.b/PNADMD.m
Misc Info: 10-

Calibration Date: 17-NOV-2010
Calibration Time: 16:00

Level:
Sample Type:

Test Mode:
Use Initial Calibration Level 4.

COMPOUND	STANDARD	AREA LIMIT LOWER	AREA LIMIT UPPER	SAMPLE	%DIFF
27 Naphthalene-d8	237664	118832	475328	182336	-23.28
42 Acenaphthene-d10	143363	71682	286726	109803	-23.41
59 Phenanthrene-d10	245437	122718	490874	191581	-21.94
69 Chrysene-d12	199260	99630	398520	181802	-8.76
77 Perylene-d12	197636	98818	395272	158595	-19.75

COMPOUND	STANDARD	RT LIMIT LOWER	RT LIMIT UPPER	SAMPLE	%DIFF
27 Naphthalene-d8	4.86	4.36	5.36	4.86	0.00
42 Acenaphthene-d10	6.96	6.46	7.46	6.96	0.00
59 Phenanthrene-d10	8.73	8.23	9.23	8.73	0.00
69 Chrysene-d12	11.97	11.47	12.47	11.97	0.00
77 Perylene-d12	13.58	13.08	14.08	13.58	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.

Analytical Resources, Inc.

CONTINUING CALIBRATION COMPOUNDS

Instrument ID: nt12.i
Lab File ID: cc1117.d
Analysis Type:
Lab Sample ID: CC1117
Method: /chem1/nt12.i/20101117.b/PNADMD.m

Injection Date: 17-NOV-2010 16:00
Init. Cal. Date(s): 30-OCT-2010 30-OCT-2010
Init. Cal. Times: 11:27 13:19
Quant Type: ISTD

COMPOUND	RRF / AMOUNT	RF25	MIN RRF	%D / %DRIFT	MAX %D / %DRIFT	CURVE TYPE
28 Naphthalene	1.13829	1.20007	0.010	5.42749	20.00000	Averaged
32 2-Methylnaphthalene	0.60757	0.64522	0.010	6.19688	20.00000	Averaged
105 1-methylnaphthalene	0.62646	0.64873	0.010	3.55477	20.00000	Averaged
$ 36 2-Fluorobiphenyl	1.53867	1.63490	0.010	6.25418	20.00000	Averaged
40 Acenaphthylene	2.00273	2.06758	0.010	3.23815	20.00000	Averaged
44 Acenaphthene	1.23000	1.26992	0.010	3.24577	20.00000	Averaged
46 Dibenzofuran	1.88613	1.92016	0.010	1.80395	20.00000	Averaged
49 Fluorene	1.40830	1.42963	0.010	1.51485	20.00000	Averaged
60 Phenanthrene	1.06102	1.09484	0.010	3.18778	20.00000	Averaged
61 Anthracene	1.09658	1.09765	0.010	0.09709	20.00000	Averaged
62 Carbazole	0.88463	0.89484	0.010	1.15435	20.00000	Averaged
64 Fluoranthene	1.39703	1.34919	0.010	-3.42456	20.00000	Averaged
65 Pyrene	1.38595	1.35173	0.010	-2.46965	20.00000	Averaged
$ 66 Terphenyl-d14	0.88413	0.82700	0.010	-6.46173	20.00000	Averaged
68 Benzo(a)anthracene	1.12317	1.14993	0.010	2.38321	20.00000	Averaged
71 Chrysene	1.05006	1.02458	0.010	-2.42661	20.00000	Averaged
187 Total Benzofluoranthenes	1.19124	1.28312	0.010	7.71275	20.00000	Averaged
76 Benzo(a)pyrene	1.09431	1.13070	0.010	3.32496	20.00000	Averaged
99 Perylene	1.16368	1.15249	0.010	-0.96204	20.00000	Averaged
78 Indeno(1,2,3-cd)pyrene	1.62468	1.53710	0.010	-5.39013	20.00000	Averaged
79 Dibenzo(a,h)anthracene	1.33758	1.24571	0.010	-6.86799	20.00000	Averaged
80 Benzo(g,h,i)perylene	1.33470	1.23986	0.010	-7.10583	20.00000	Averaged

Data File: /chem1/nt12.i/20101117.b/cc1117.d

Date : 17-NOV-2010 16:00

Client ID:

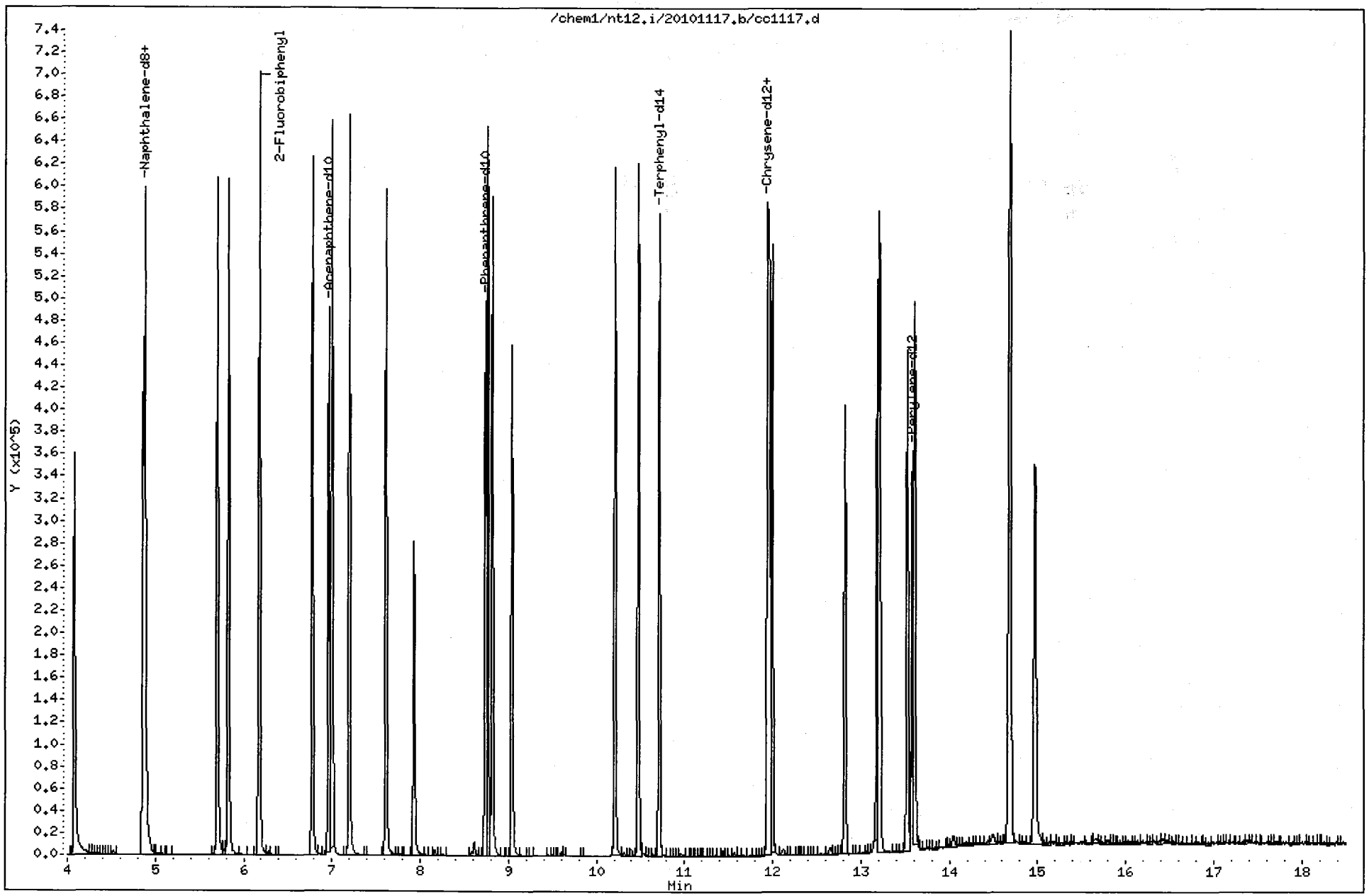
Sample Info: CC1117

Column phase: ZB-5msi

Instrument: nt12.i

Operator: VTS

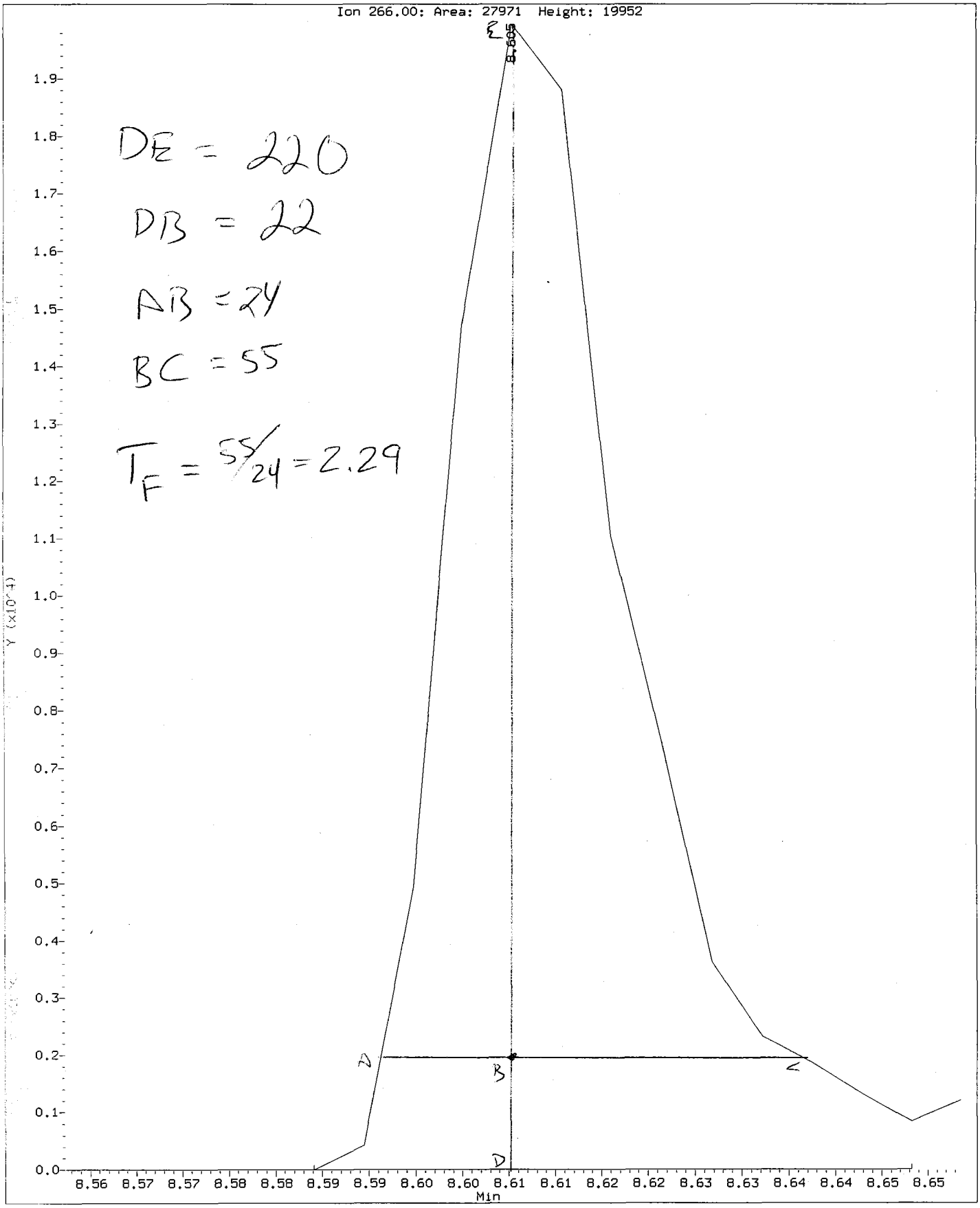
Column diameter: 0.32



RS97:00962

Data File: /chem1/nt12.i/20101117.b/ddt.b/df1117.d
Injection Date: 17-NOV-2010 15:37
Instrument: nt12.i
Client Sample ID:

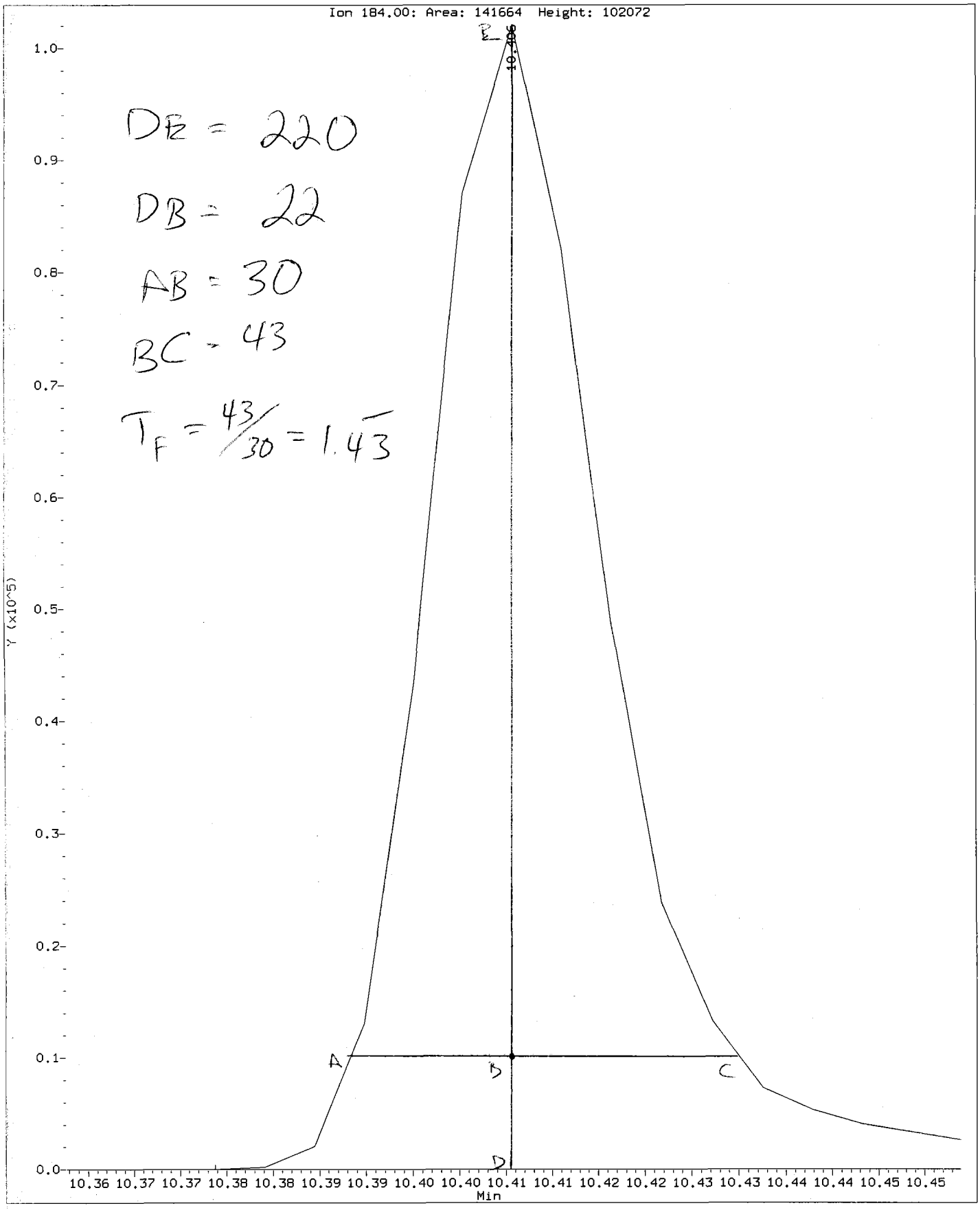
Compound: Pentachlorophenol
CAS Number: 87-86-5



RS97 : 00963

Data File: /chem1/nt12.i/20101117.b/ddt.b/df1117.d
Injection Date: 17-NOV-2010 15:37
Instrument: nt12.i
Client Sample ID:

Compound: Benzidine
CAS Number:



Analytical Resources Inc.
ABN by sw846 8270C
DDT Breakdown Report

Data file: /chem1/nt12.i/20101117.b/ddt.b/df1117.d ARI ID:
Method: /chem1/nt12.i/20101117.b/ddt.b/sw846ddt.m Misc:
Analysis Date: 17-NOV-2010 15:37 Instrument: nt12.i

COMPOUND	RT	AREA
Pentachlorophenol	8.605	27971
Benzidine	10.406	141664
4,4'-DDE	10.689	186
4,4'-DDD	11.090	1914
4,4'-DDT	11.442	93574

$$\text{DDT Percent Breakdown} = \frac{(\text{DDE Area} + \text{DDD Area}) * 100}{(\text{DDE Area} + \text{DDD Area} + \text{DDT Area})}$$

$$\text{DDT Percent Breakdown} = \frac{(186 + 1914) * 100}{(186 + 1914 + 93574)}$$

DDT Percent Breakdown = 2.2 %

Data File: /chem1/nt12.i/20101117.b/rs97mb.d

Date : 17-NOV-2010 16:47

Client ID:

Sample Info: RS97MB

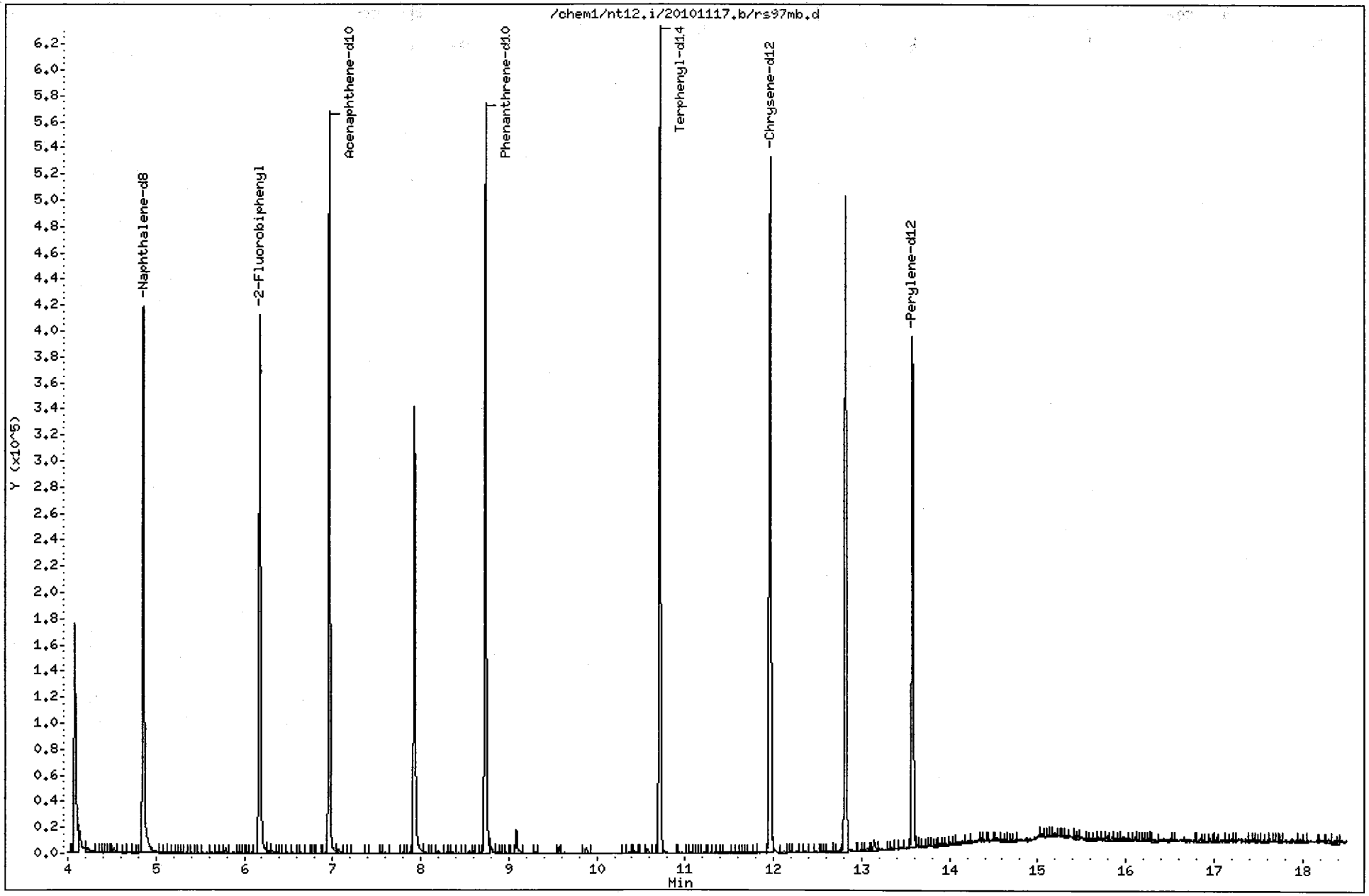
Volume Injected (uL): 1.0

Column phase: ZB-5msi

Instrument: nt12.i

Operator: VTS

Column diameter: 0.32



RS97:00066

Data File: /chem1/nt12.i/20101117.b/rs97sb.d

Date : 17-NOV-2010 17:11

Client ID:

Sample Info: RS97SB

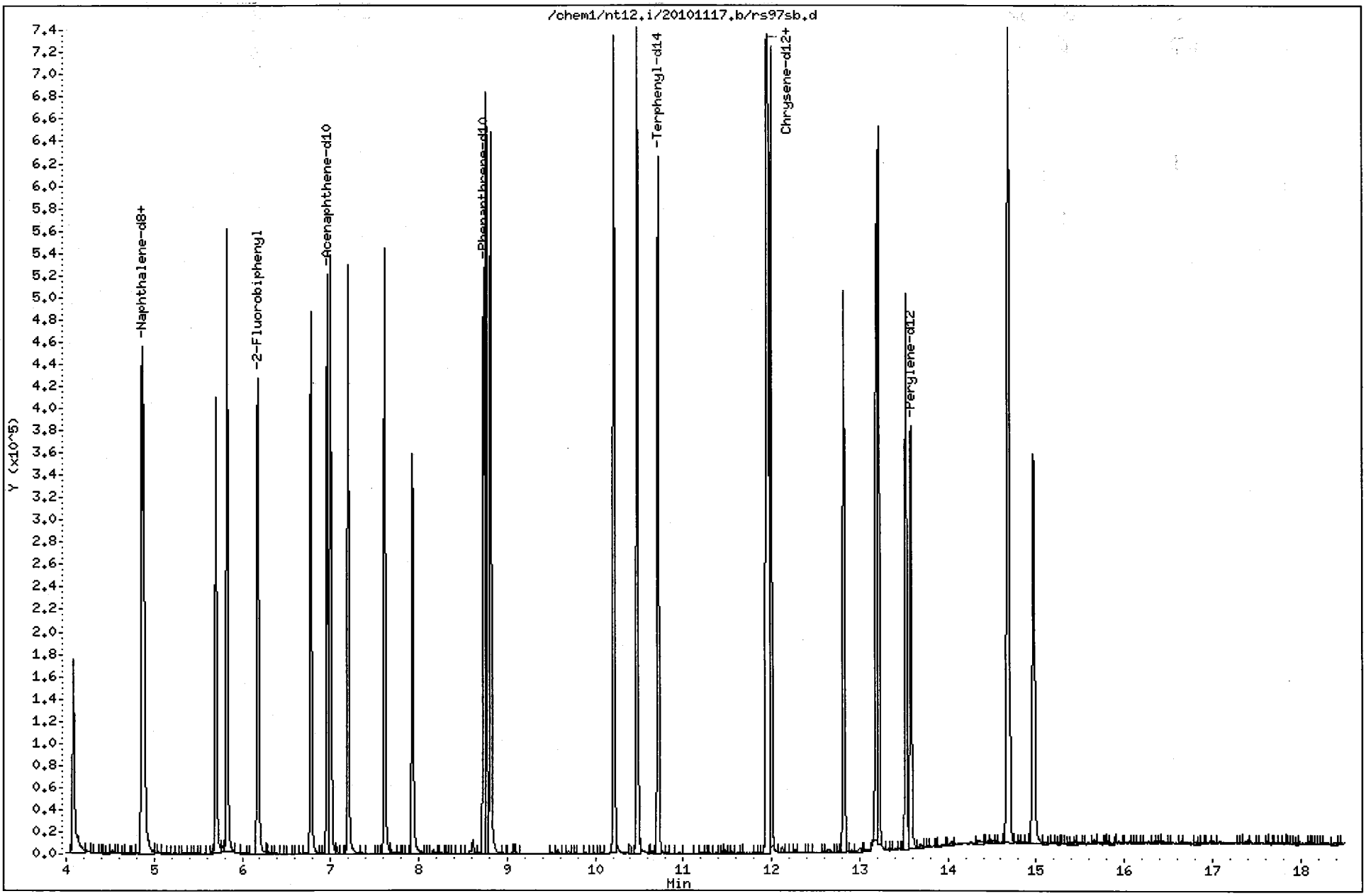
Volume Injected (uL): 1.0

Column phase: ZB-5msi

Instrument: nt12.i

Operator: VTS

Column diameter: 0.32



RS97 : 00957

Data File: /chem1/nt12.i/20101117.b/rs97a.d

Date : 17-NOV-2010 17:34

Client ID: GSM-08SO-10-11-1009

Sample Info: RS97A

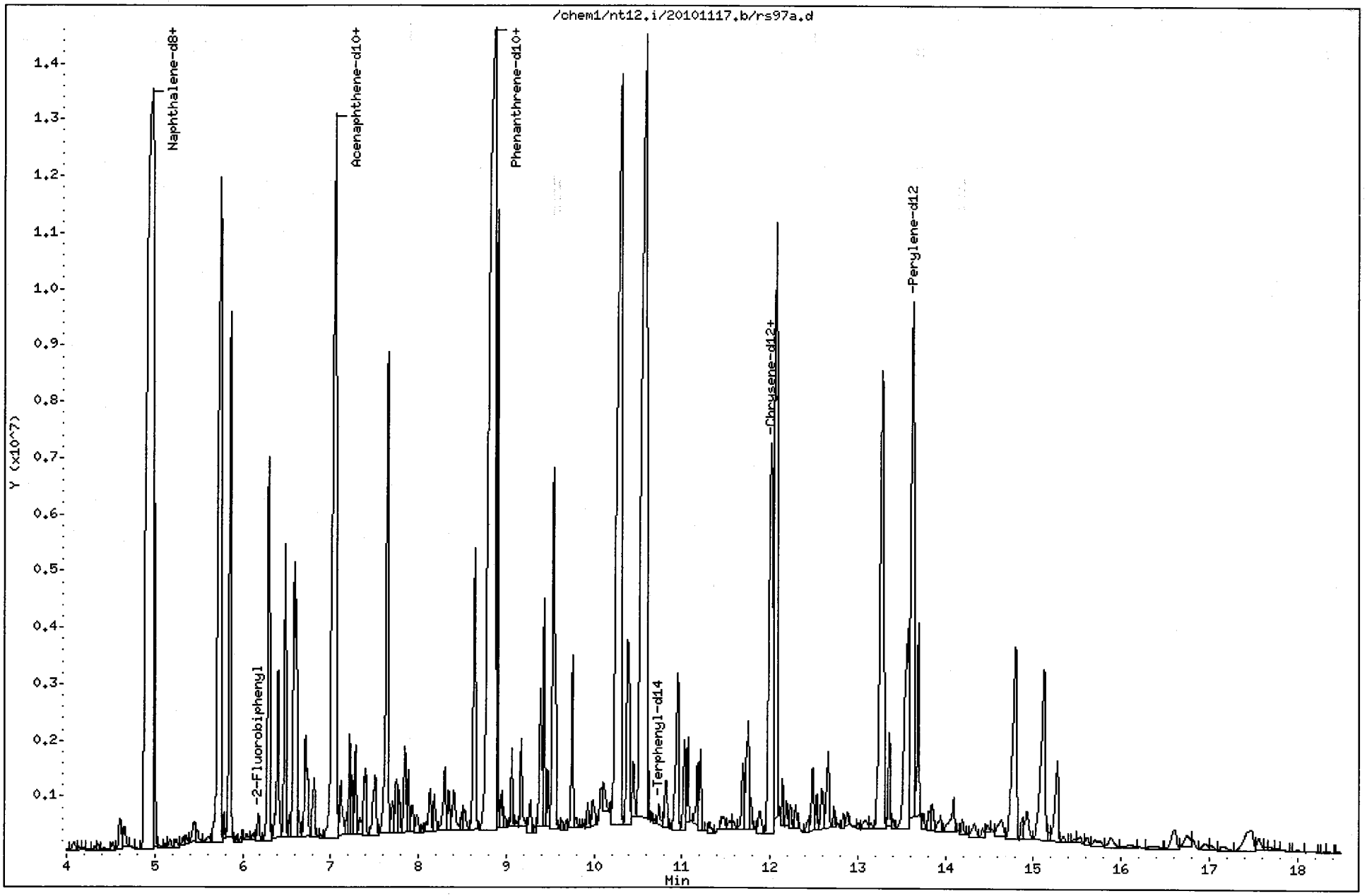
Volume Injected (uL): 1.0

Column phase: ZB-5msi

Instrument: nt12.i

Operator: VTS

Column diameter: 0.32



RS97 : 00968

Data File: /chem1/nt12.i/20101117.b/rs97b.d

Date : 17-NOV-2010 17:58

Client ID: DGS-19-3.34.1-10100

Sample Info: RS97B

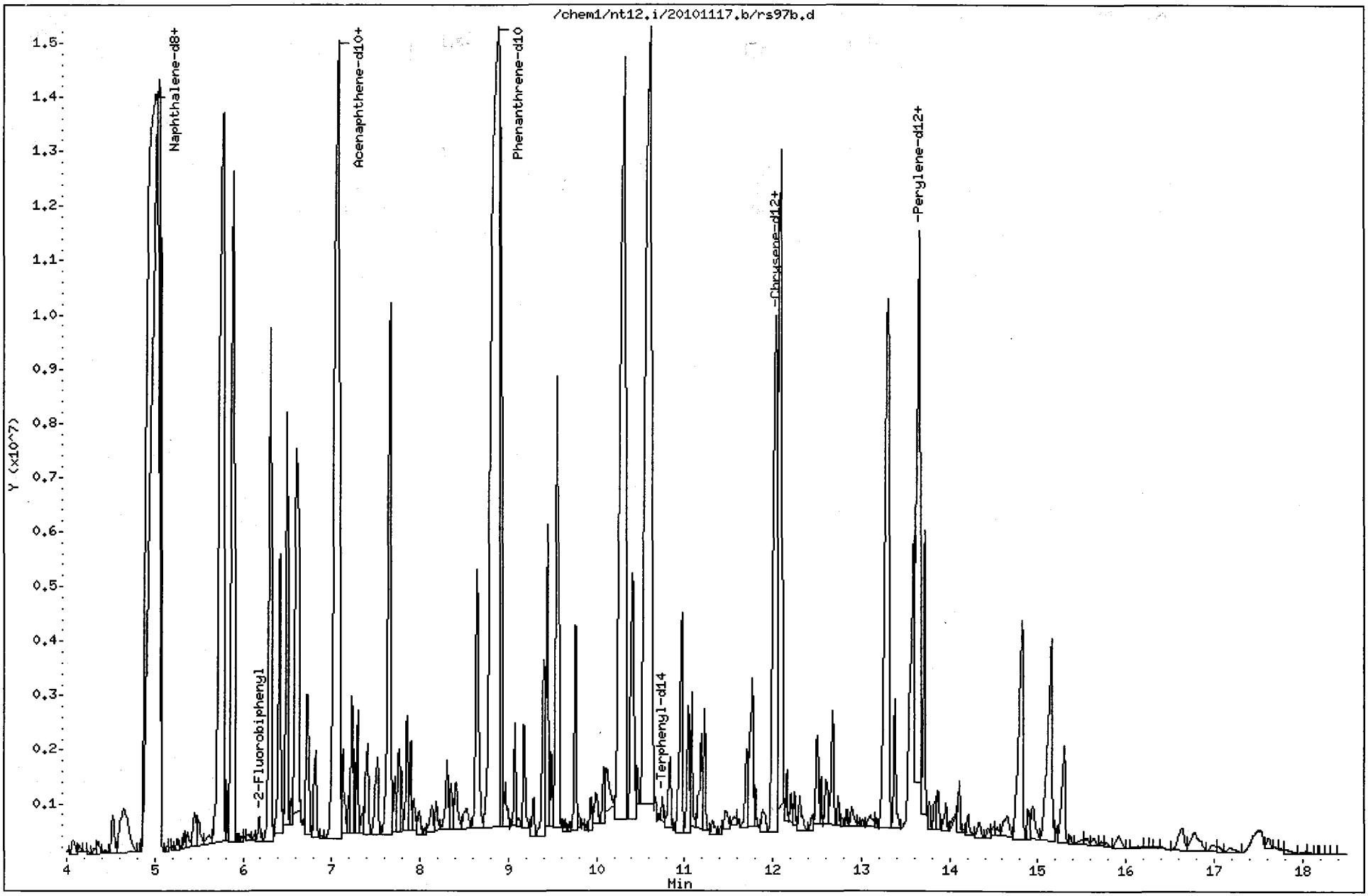
Volume Injected (uL): 1.0

Column phase: ZB-5msi

Instrument: nt12.i

Operator: VTS

Column diameter: 0.32



RS97 : 00969

Data File: /chem1/nt12.i/20101117.b/rs97c.d

Date : 17-NOV-2010 18:21

Client ID: DGS-19-4.48.2-10100

Sample Info: RS97C

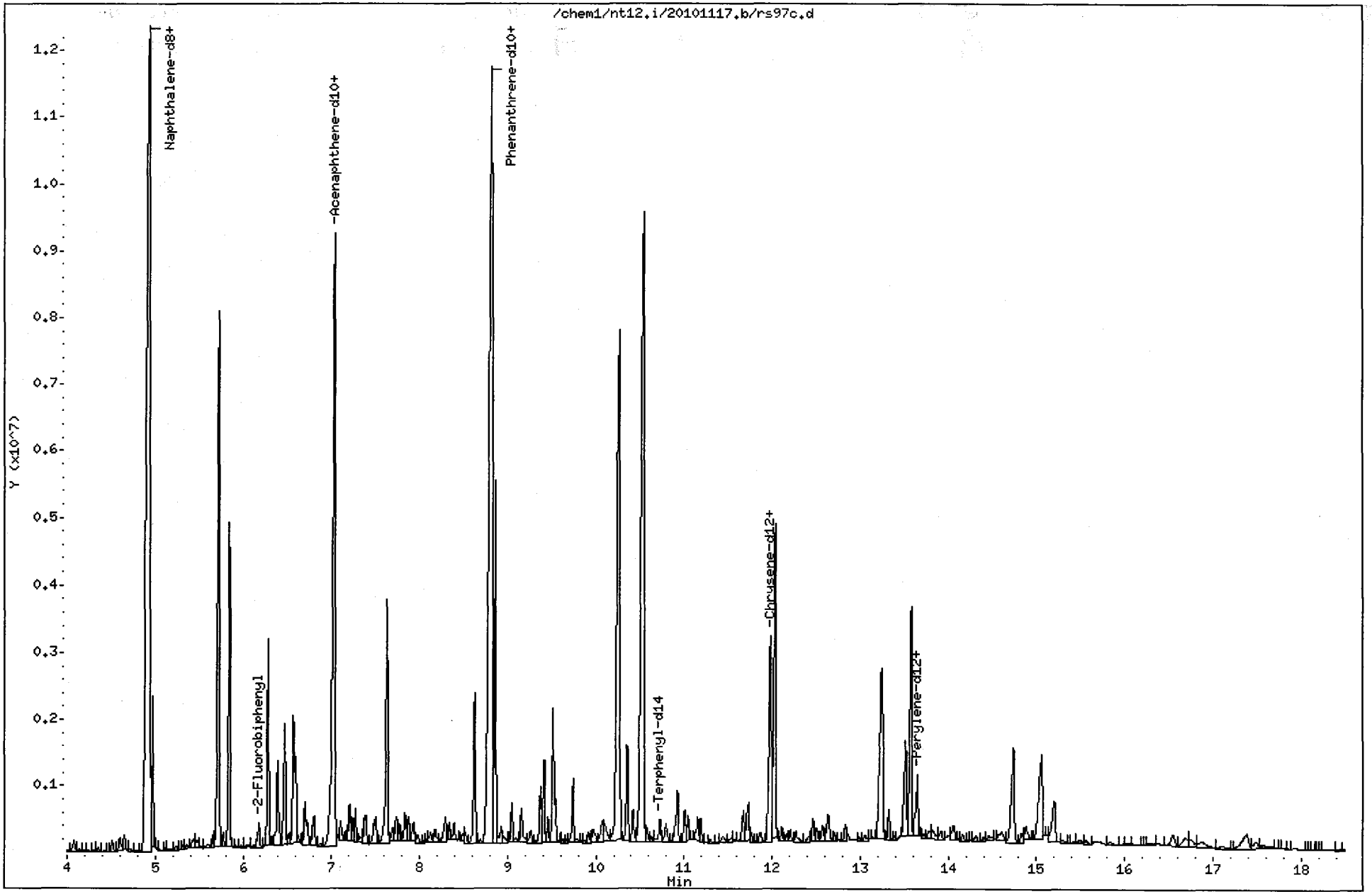
Volume Injected (uL): 1.0

Column phase: ZB-5msi

Instrument: nt12.i

Operator: VTS

Column diameter: 0.32



RS97 : 00570

Data File: /chem1/nt12.i/20101117.b/rs97d.d

Date : 17-NOV-2010 18:45

Client ID: DGS-19-10.210.9-101

Sample Info: RS97D

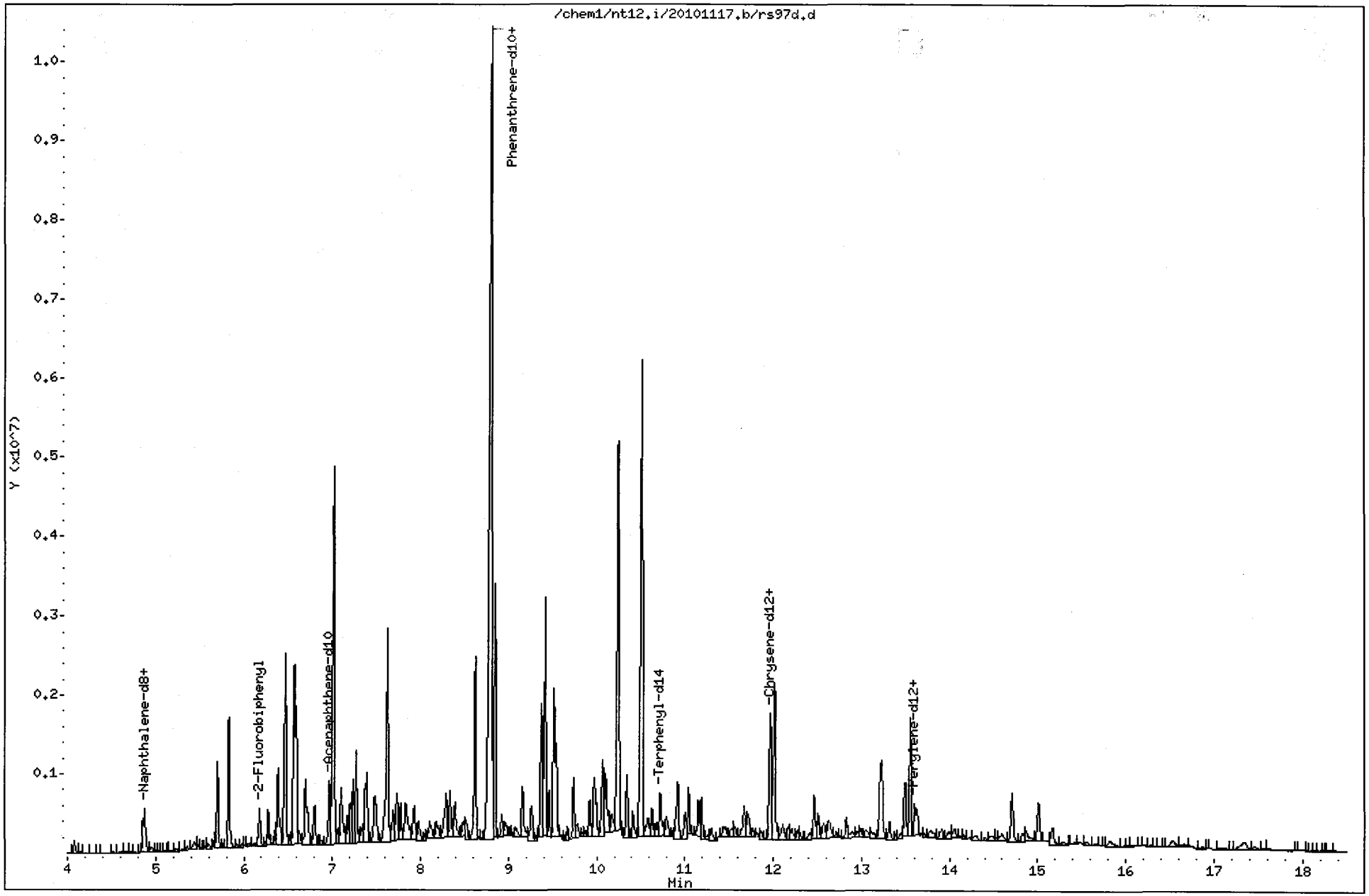
Volume Injected (uL): 1.0

Column phase: ZB-5msi

Instrument: nt12.i

Operator: VTS

Column diameter: 0.32



RS97 : 00571

Data File: /chem1/nt12.i/20101117.b/rs97e.d

Date : 17-NOV-2010 19:08

Client ID: DGS-08-4.44.6-10100

Sample Info: RS97E

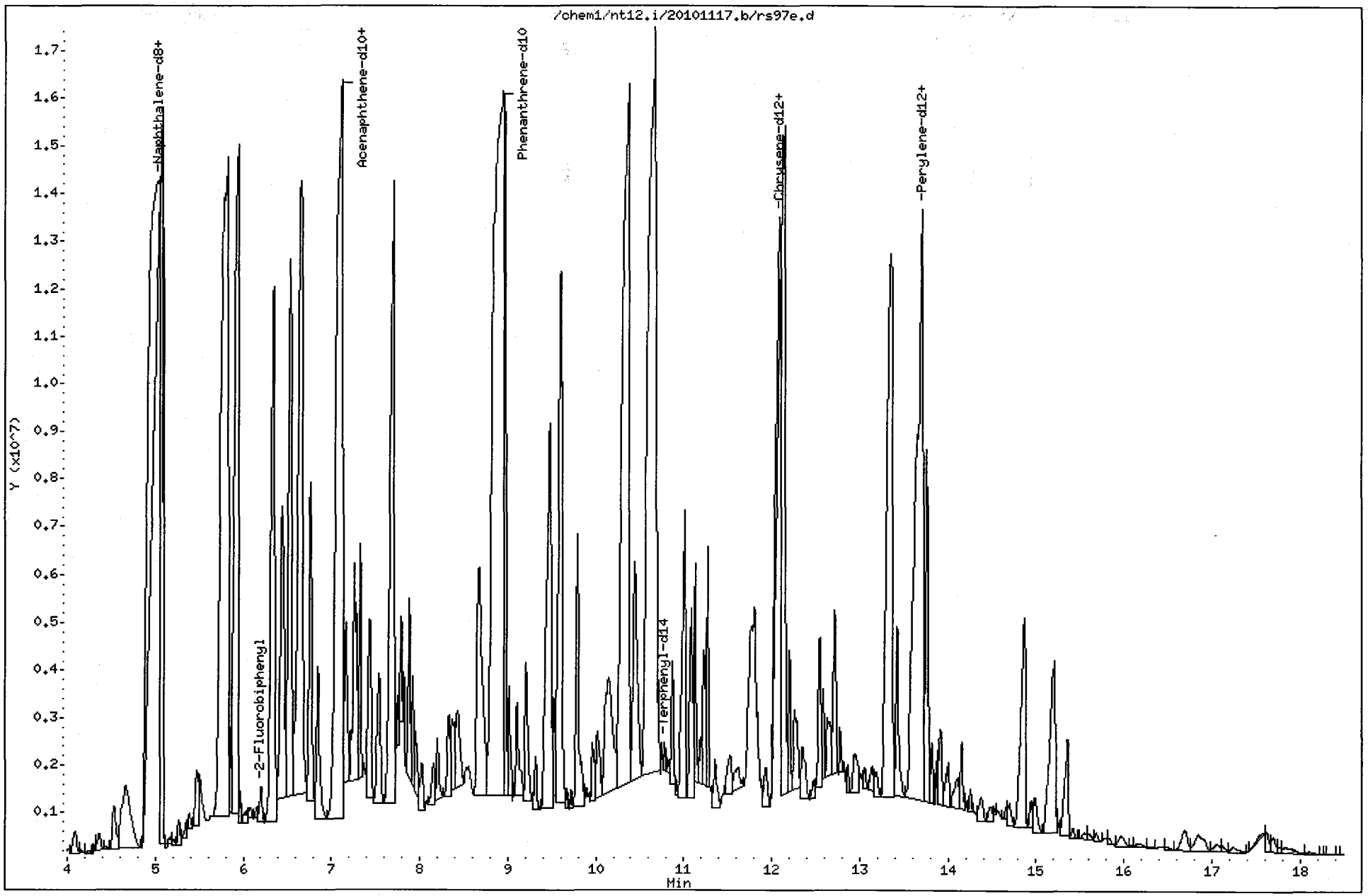
Volume Injected (uL): 1.0

Column phase: ZB-5msi

Instrument: nt12.i

Operator: VTS

Column diameter: 0.32



RS97 : 00972

Data File: /chem1/nt12.i/20101117.b/rs97f.d

Date : 17-NOV-2010 19:32

Client ID: GST-09SO-17-18-1010

Sample Info: RS97F

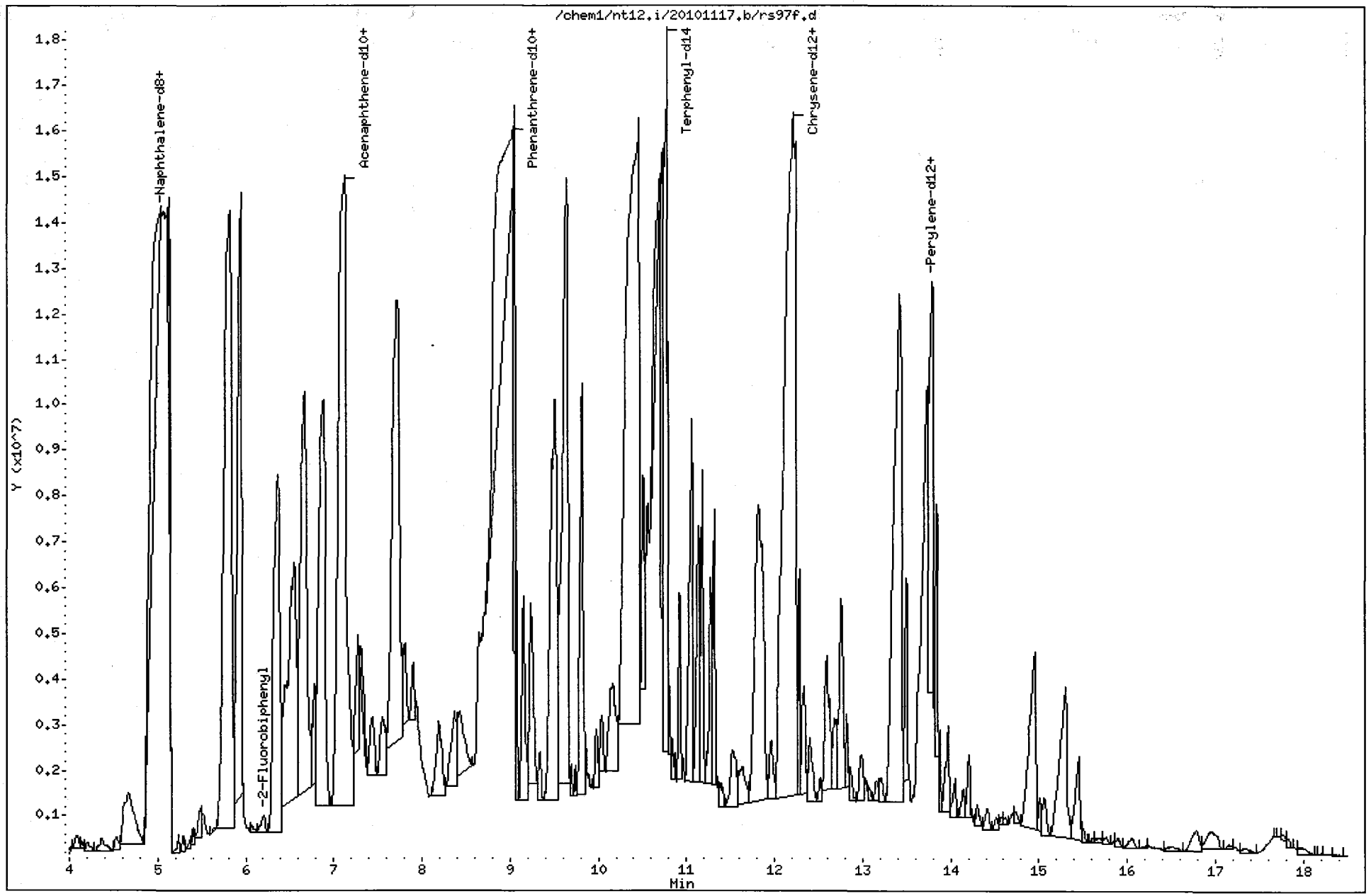
Volume Injected (uL): 1.0

Column phase: ZB-5msi

Instrument: nt12.i

Operator: VTS

Column diameter: 0.32



RS97 : 00973

Data File: /chem1/nt12.i/20101117.b/rs97g.d

Date : 17-NOV-2010 19:55

Client ID: DGS-36-066.7-101012

Sample Info: RS97G

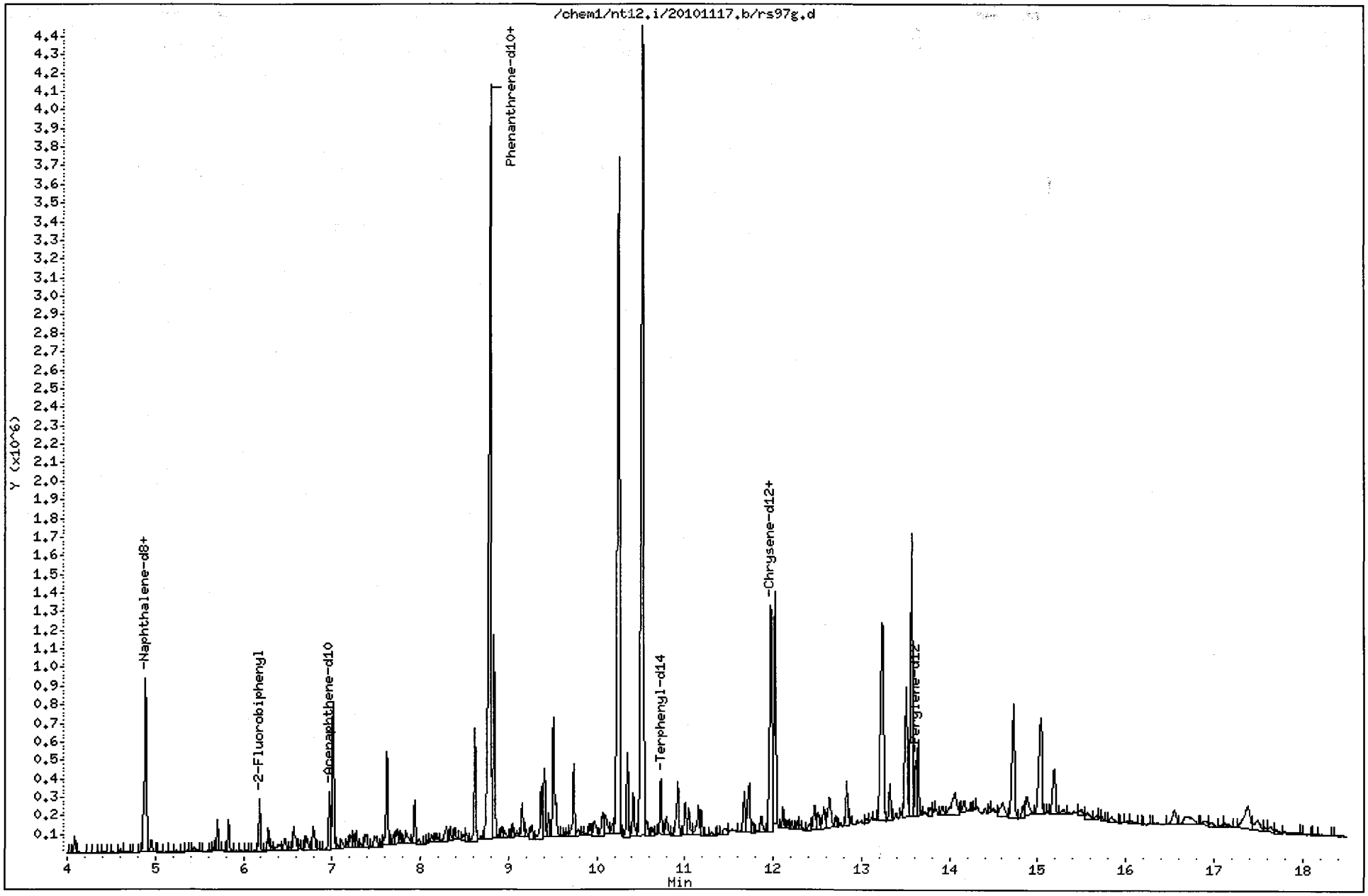
Volume Injected (uL): 1.0

Column phase: ZB-5msi

Instrument: nt12.i

Operator: VTS

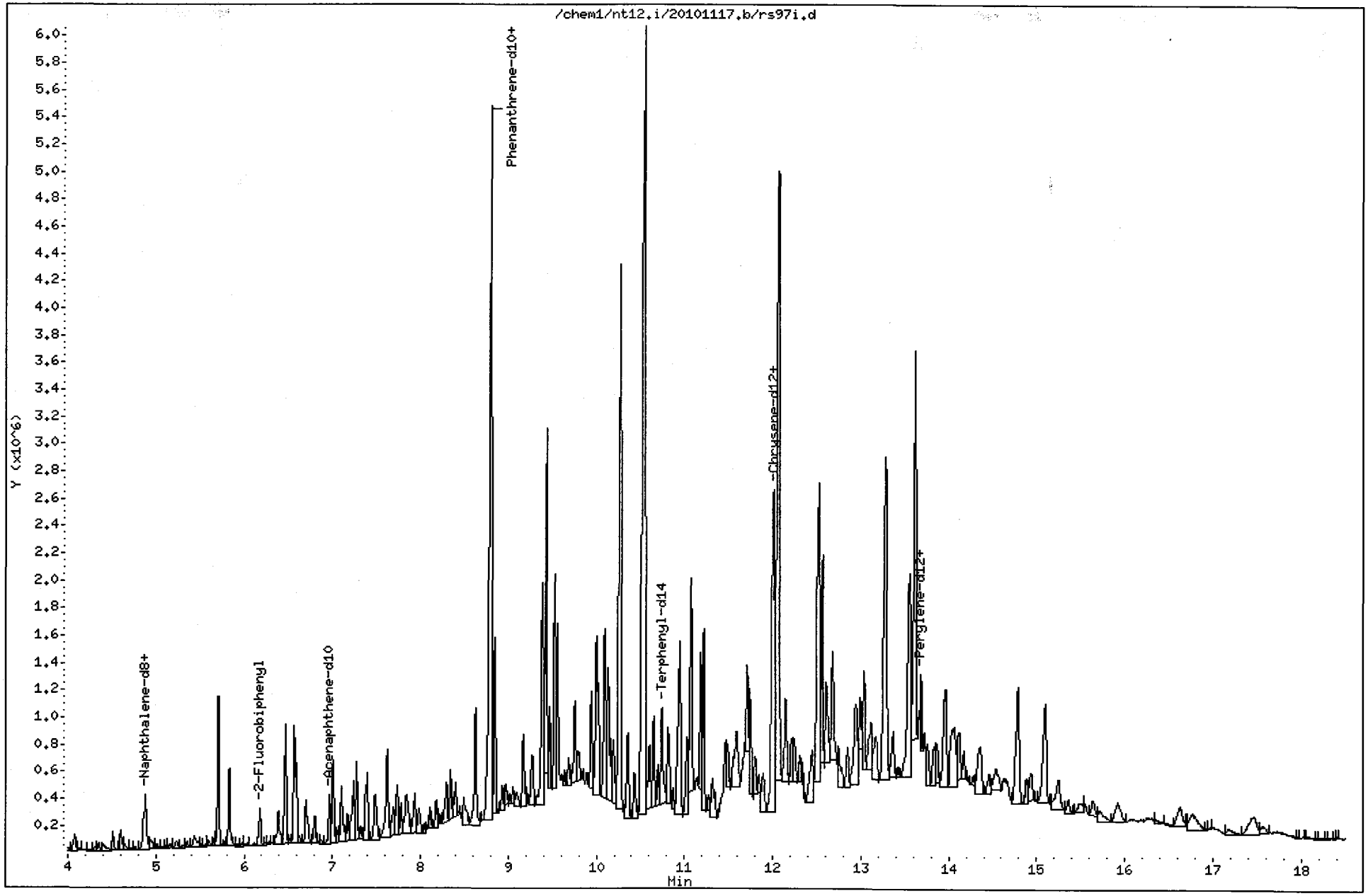
Column diameter: 0.32



RS97 : 00974

Data File: /chem1/nt12.i/20101117.b/rs97i.d
Date : 17-NOV-2010 20:19
Client ID: DGS-07-2.22.7-10101
Sample Info: RS97I
Volume Injected (uL): 1.0
Column phase: ZB-5msi

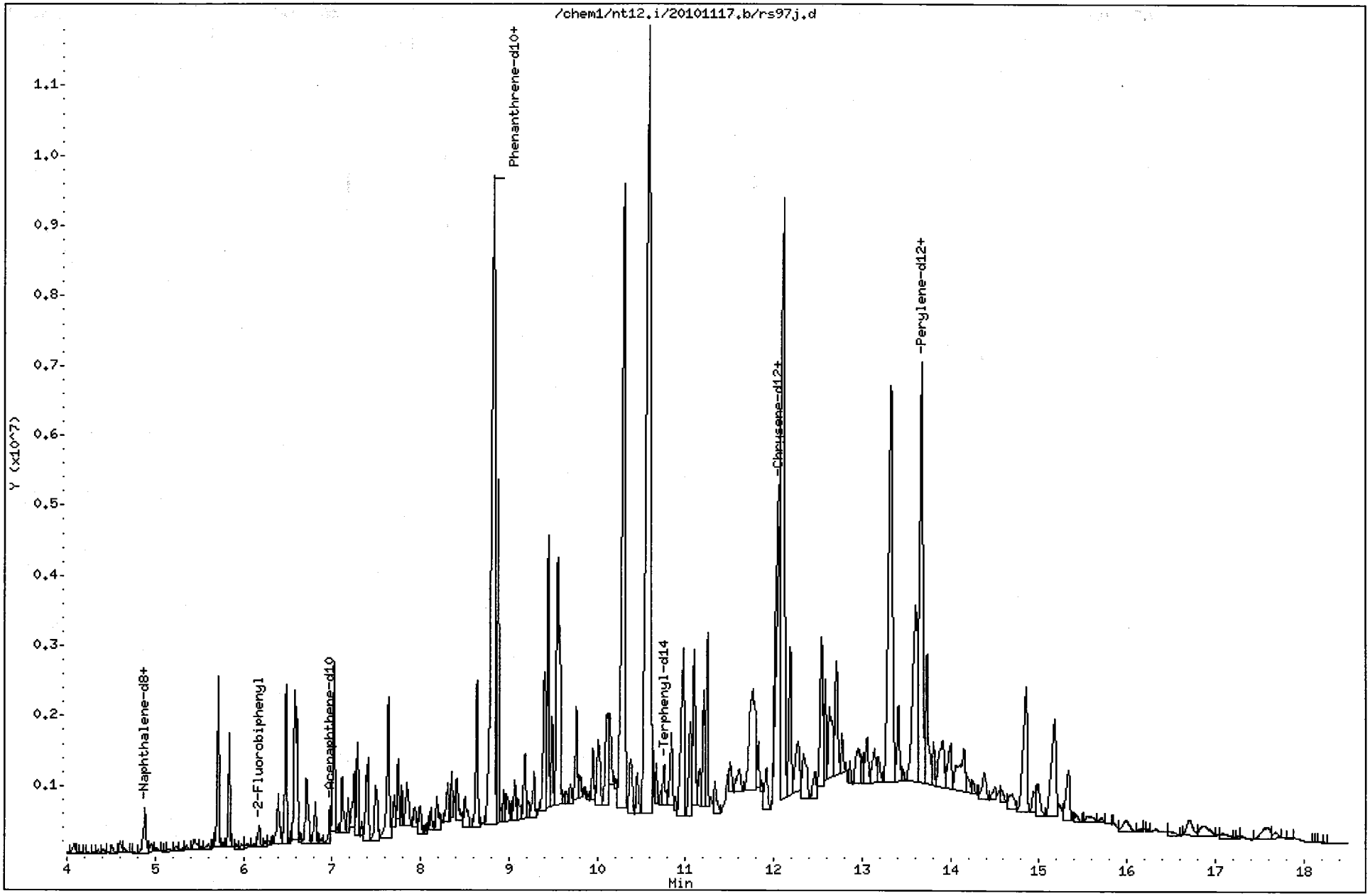
Instrument: nt12.i
Operator: VTS
Column diameter: 0.32



RS97I:00675

Data File: /chem1/nt12.i/20101117.b/rs97j.d
Date : 17-NOV-2010 20:42
Client ID: DGS-07-034.2-101012
Sample Info: RS97J
Volume Injected (uL): 1.0
Column phase: ZB-5msi

Instrument: nt12.i
Operator: VTS
Column diameter: 0.32



RS97:009976

Data File: /chem1/nt12.i/20101117.b/rs97k.d

Date : 17-NOV-2010 21:06

Client ID: DGS-07-4.75.2-10101

Sample Info: RS97K

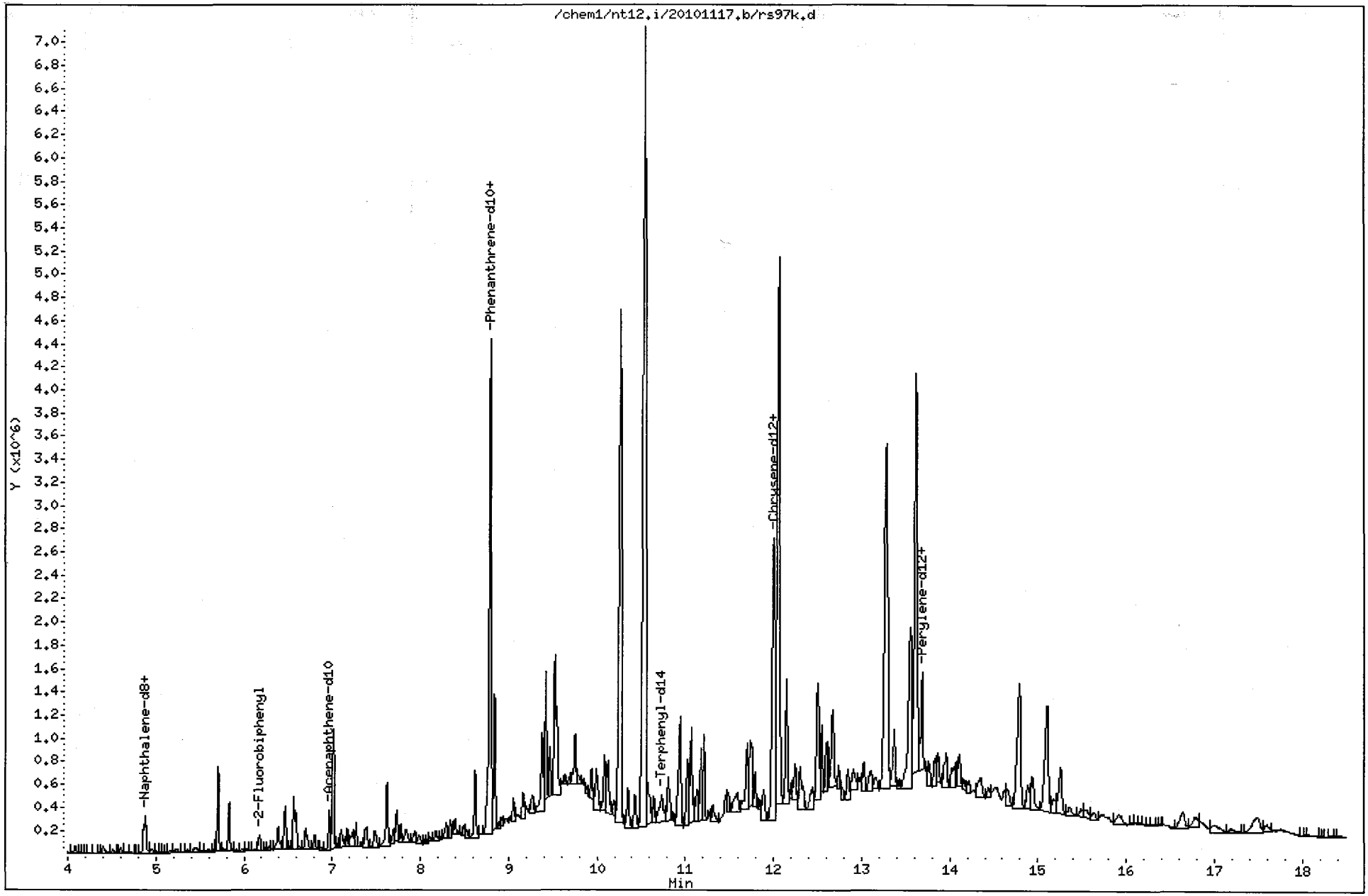
Volume Injected (uL): 1.0

Column phase: ZB-5msi

Instrument: nt12.i

Operator: VTS

Column diameter: 0.32



RS97 : 00097

Data File: /chem1/nt12.i/20101117.b/rs97l.d

Date : 17-NOV-2010 21:30

Client ID: DGS-07-5.66.7-10101

Sample Info: RS97L

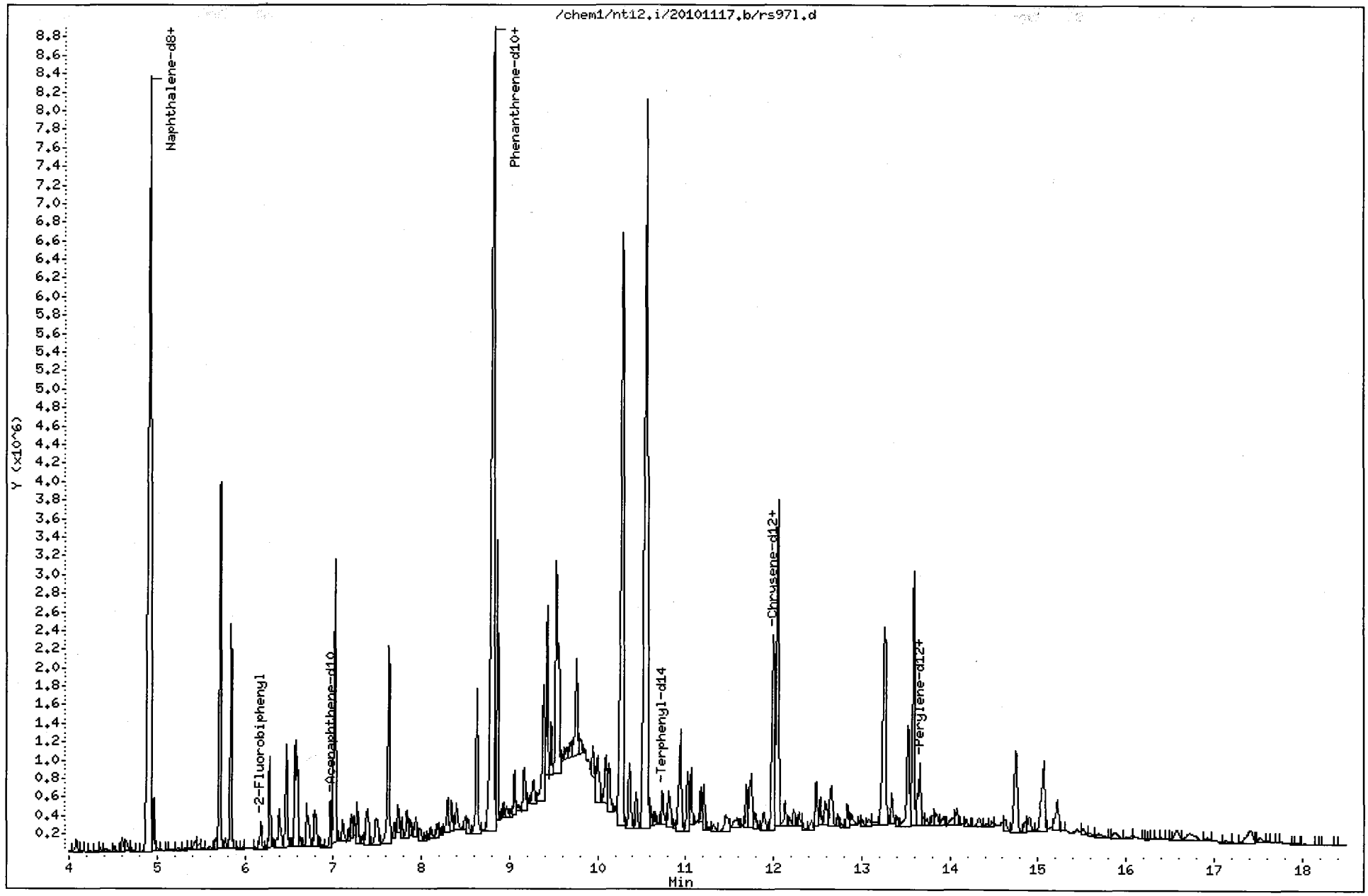
Volume Injected (uL): 1.0

Column phase: ZB-5msi

Instrument: nt12.i

Operator: VTS

Column diameter: 0.32



RS97 : 00978

Data File: /chem1/nt12.i/20101117.b/rs97m.d

Date : 17-NOV-2010 21:53

Client ID: DGS-07-077.3-101012

Sample Info: RS97M

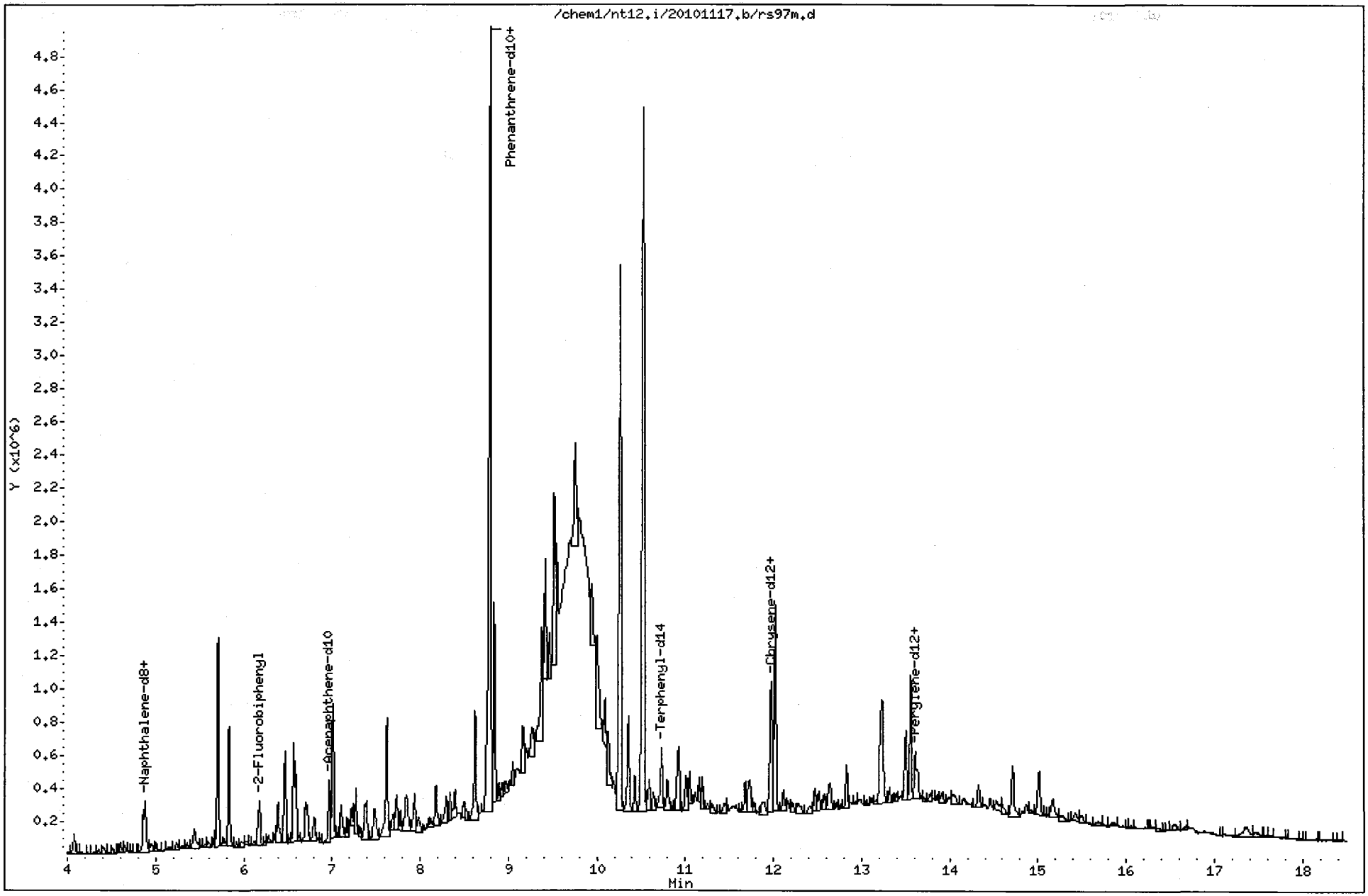
Volume Injected (uL): 1.0

Column phase: ZB-5msi

Instrument: nt12.i

Operator: VTS

Column diameter: 0.32



RS97:00576

Data File: /chem1/nt12.i/20101117.b/rs97n.d

Date : 17-NOV-2010 22:17

Client ID: DGS-07-7.98.4-10101

Sample Info: RS97N

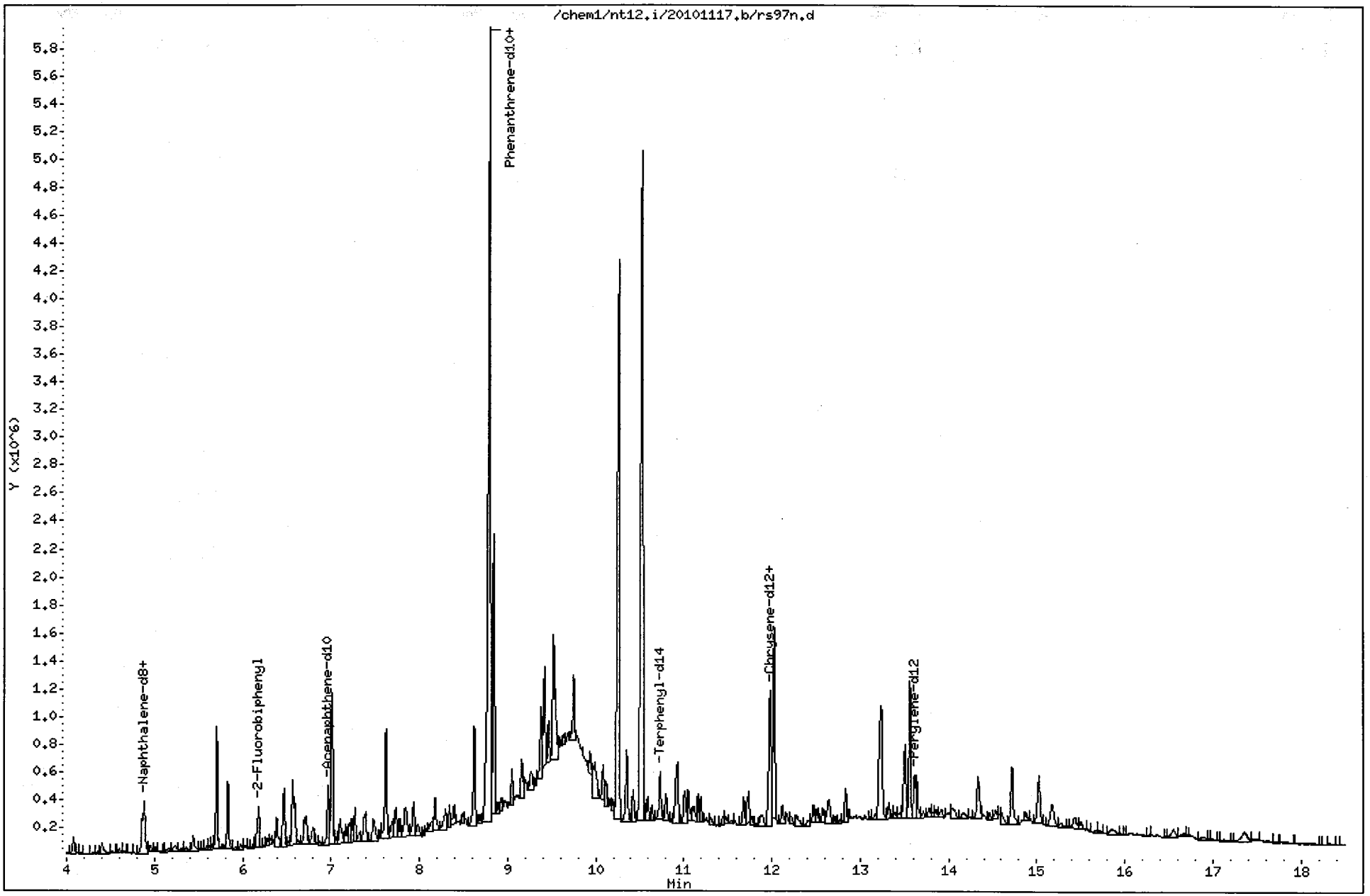
Volume Injected (uL): 1.0

Column phase: ZB-5msi

Instrument: nt12.i

Operator: VTS

Column diameter: 0.32



RS97 : 00988

Data File: /chem1/nt12.i/20101117.b/rs97o.d

Date : 17-NOV-2010 22:40

Client ID: DGS-07-8.79.1-10101

Sample Info: RS97O

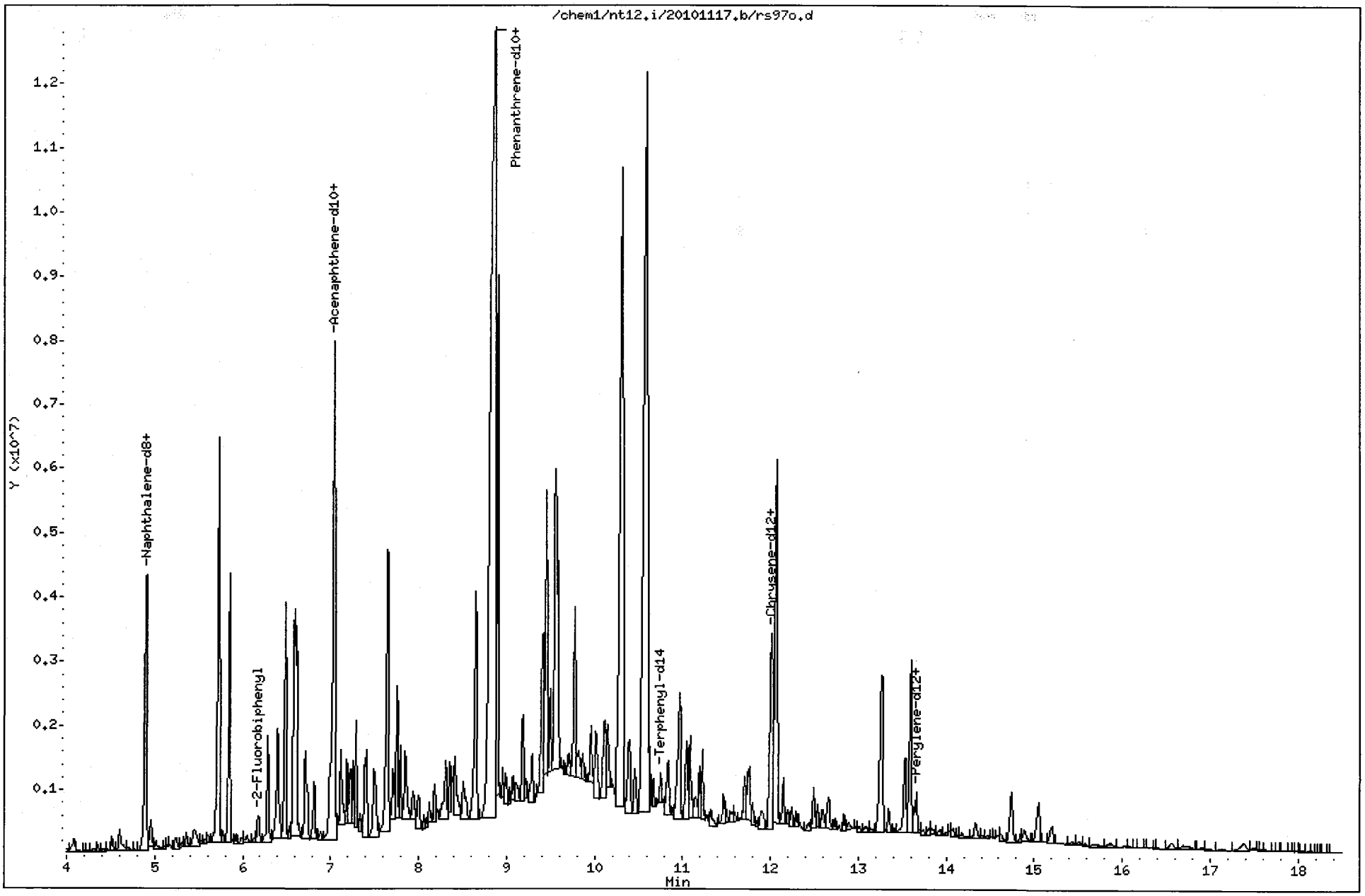
Volume Injected (uL): 1.0

Column phase: ZB-5msi

Instrument: nt12.i

Operator: VTS

Column diameter: 0.32



RS97 : 00981

Data File: /chem1/nt12.i/20101117.b/rs97p.d

Date : 17-NOV-2010 23:04

Client ID: DGS-07-9.710-101012

Sample Info: RS97P

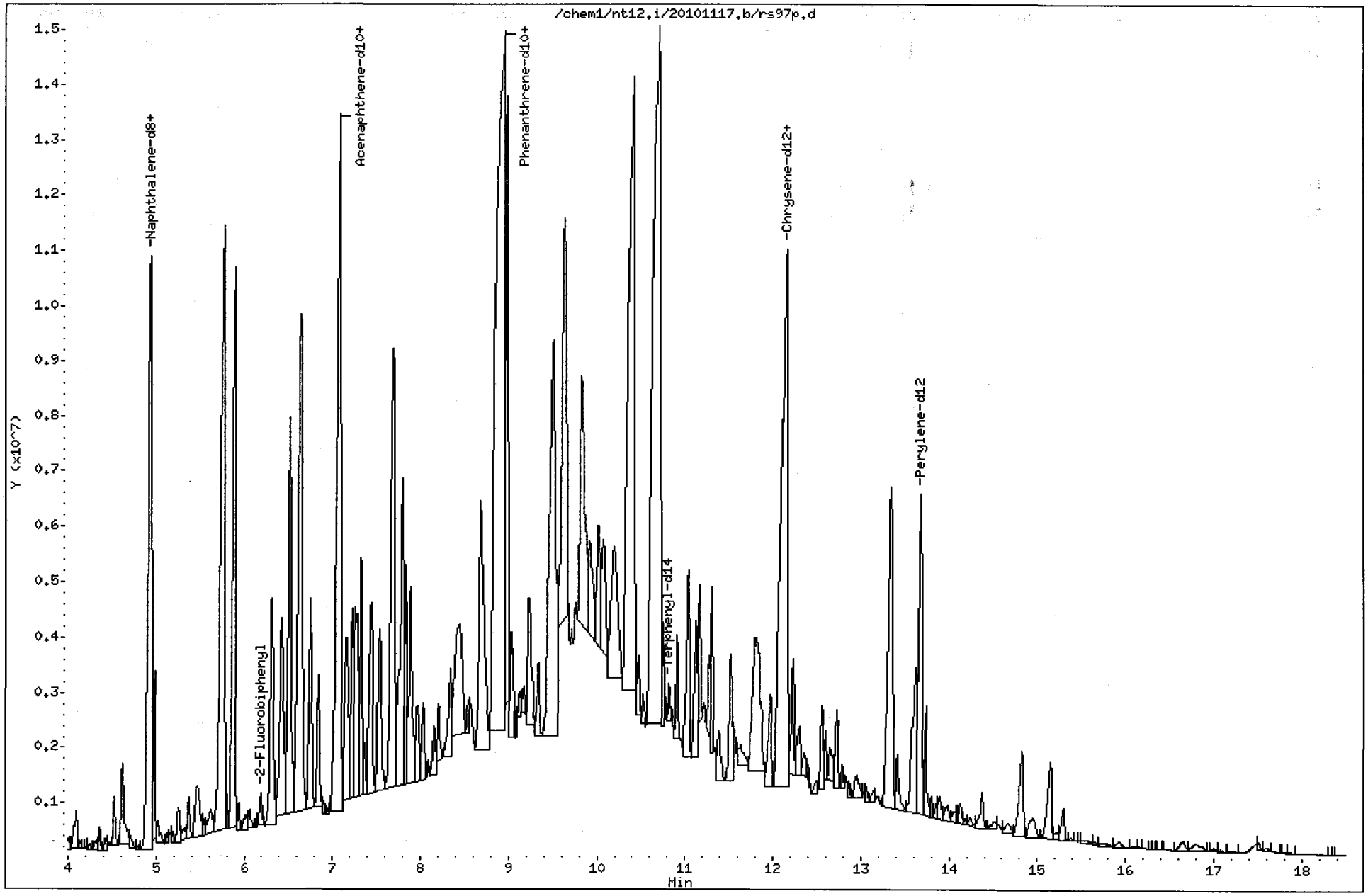
Volume Injected (uL): 1.0

Column phase: ZB-5msi

Instrument: nt12.i

Operator: VTS

Column diameter: 0.32



RS97:00982

Data File: /chem1/nt12.i/20101117.b/rs97q.d

Date : 17-NOV-2010 23:27

Client ID: DGS-07-10.610.9-101

Sample Info: RS97Q

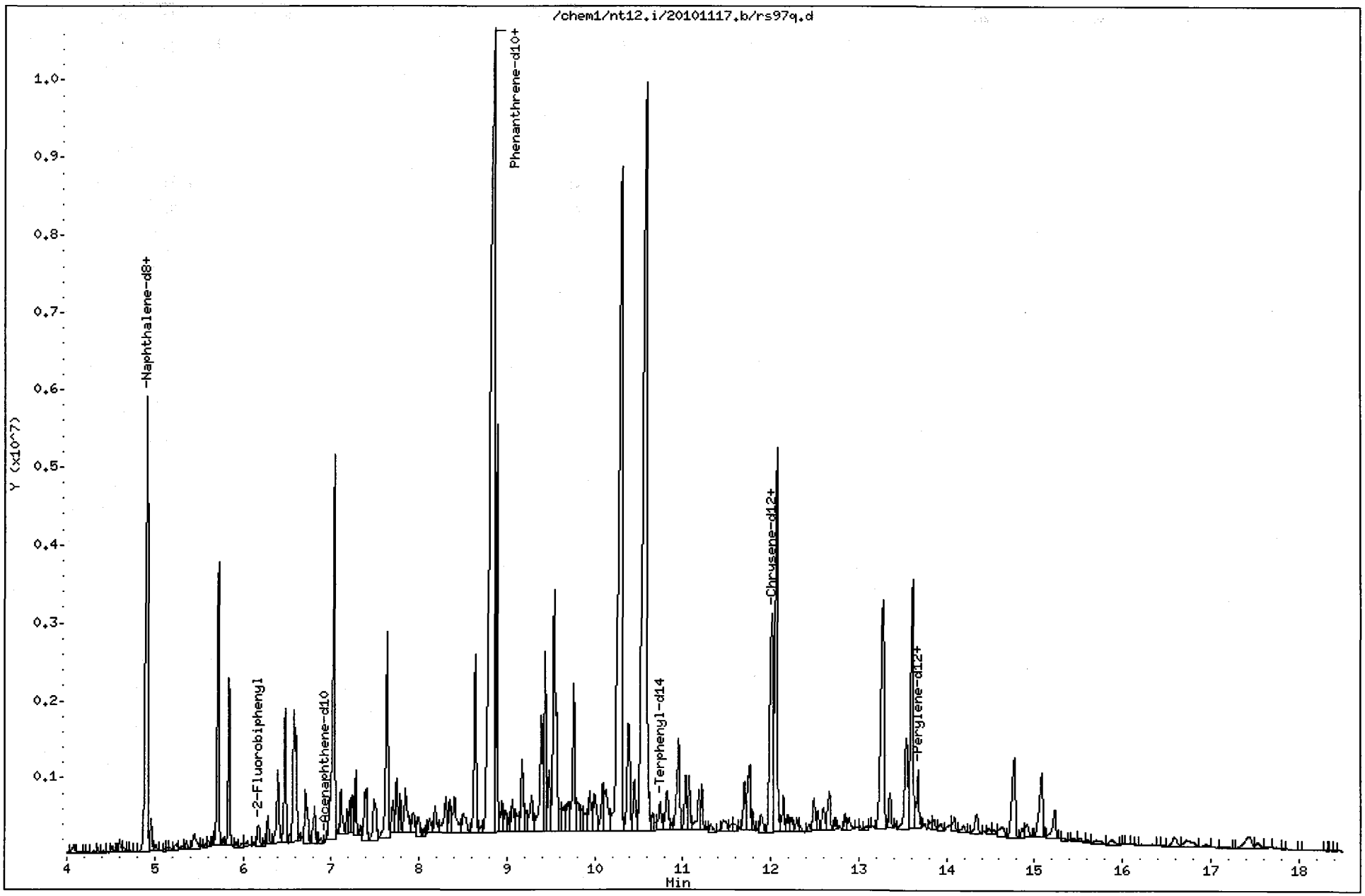
Volume Injected (uL): 1.0

Column phase: ZB-5msi

Instrument: nt12.i

Operator: VTS

Column diameter: 0.32



RS97 : 00983

Data File: /chem1/nt12.i/20101117.b/rs97r.d

Date : 17-NOV-2010 23:51

Client ID: DGS-07-11.611.8-101

Sample Info: RS97R

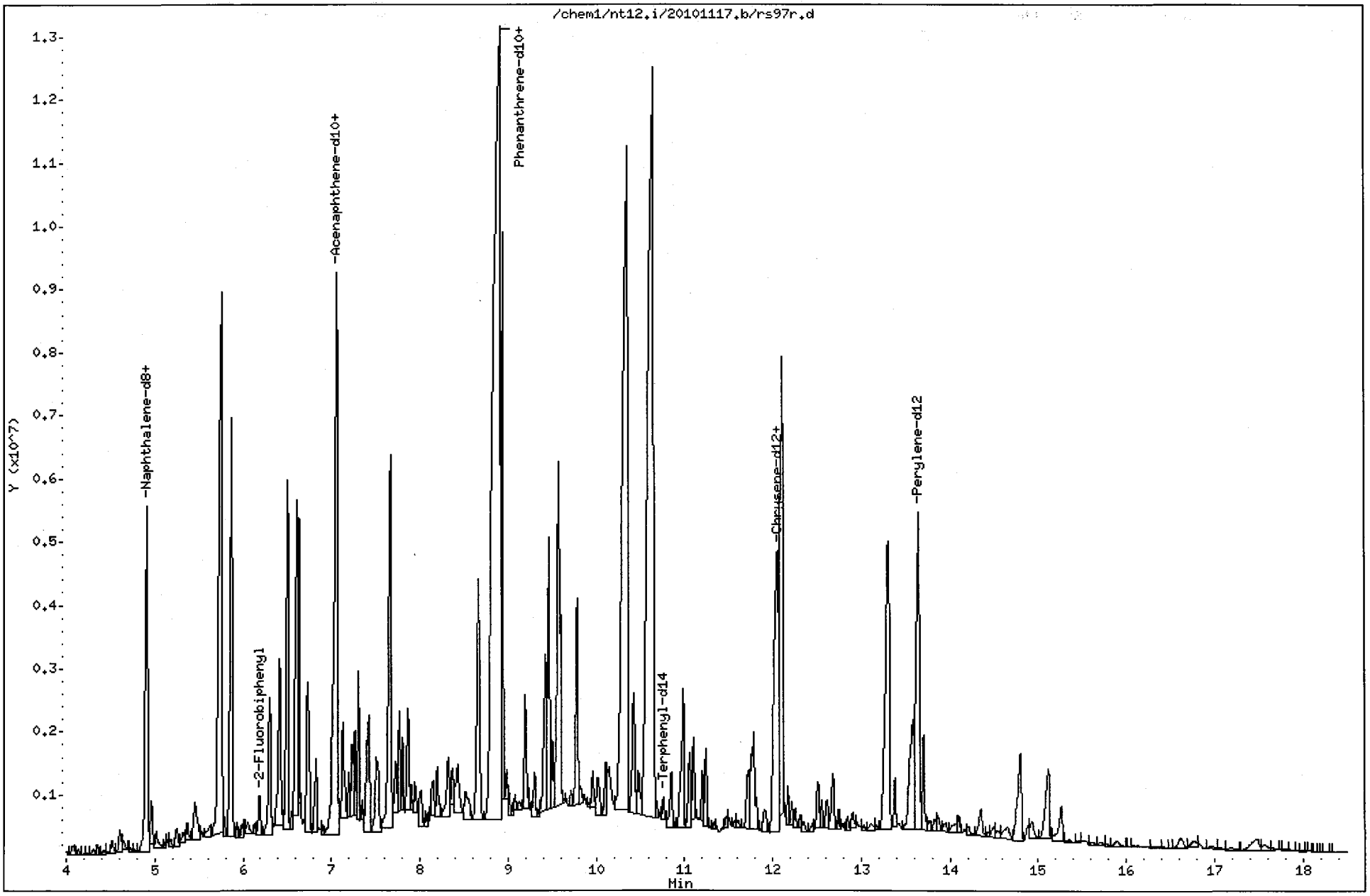
Volume Injected (uL): 1.0

Column phase: ZB-5msi

Instrument: nt12.i

Operator: VTS

Column diameter: 0.32



RS97 : 00931

Data File: /chem1/nt12.i/20101117.b/rs97s.d

Date : 18-NOV-2010 00:14

Client ID: DGS-07-12.713.2-101

Sample Info: RS97S

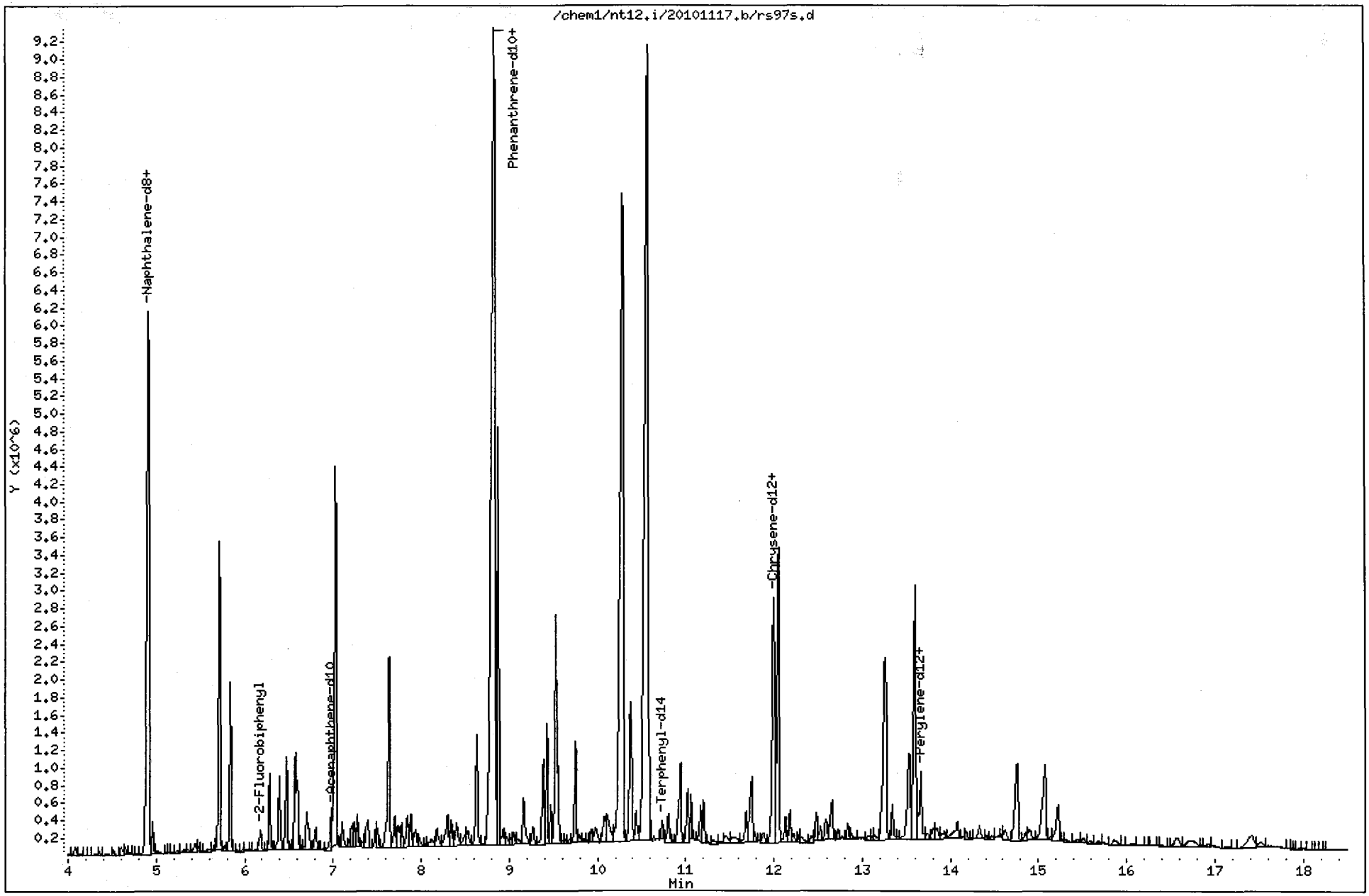
Volume Injected (uL): 1.0

Column phase: ZB-5msi

Instrument: nt12.i

Operator: VTS

Column diameter: 0.32



RS97 : 00985

TPHD Raw Data
Extraction Bench Sheets and Notes

ARI Job ID: RS97

Analytical Resources, Incorporated
Analytical Chemists and Consultants

Organic Extractions Benchsheet

NWTPHD-Soil (Sediment)
Microwave (3546) (SOP # 3304S)

Preparation Test TPHD # 3
ARI Job No(s) R597

In-House (5ppm)
Batch set up by: JH

Bottle #	Extraction Requirements	Verify Client ID	Volume Extracted (wet wt)	Transfer to Turbo Tube	TurboVap 1 2 3	Acid/Silica Clean (1:1) Y / N	TurboVap 1 2 3	Final Effective Volume	Volume to Lab	Comments
	R597 MBS	Date 10-29-10	10.00g					~~1mL~~ 10 mL	1mL	See Notes
	SBS									
	~~SBS Dup.~~									
2	R597 A	verified	10.07g							
	B		10.11g							
	C		10.20g							
	D		10.06g							
	E		10.03g							
	F		10.02g							
1	G		10.20g							
2	H		10.05							
	Hms		10.18g							
	Hmsd		10.01g							
	I		10.01g							
	J		10.13g							
	K		10.05g							
	L		10.03g							
	M		10.20g							
	N		10.09g							
	O		10.02g							
	P		10.01g							
	Q		10.27g							
	R		10.13g							
	S		10.25g							
Analyst/Date:		PD 10-29-10					MW 11/1/10	MW 11/1/10		

HCID Surrogate	P	200µL	8/05/11	PD	AC

Standard	Standard ID	Volume	Expiration Date	Analyst	Witness
HCID Surrogate	Ø P	400µL ~~100µL~~	8/05/11	PD	AC
TPHD Spike	11	1,000µL ~~100µL~~	4/26/11	PD	AC

Extraction Time: 11:45 **Balance ID:** 2415Ø347

SPECIAL INSTRUCTIONS: 1. Weigh into 100mL beakers-dry with Sodium Sulfate. 2. Transfer to microwave vessel. 3. Add 20mL DCM to the vessel (if needed-Add 5mL increments until solvent is 1" above soil layer). 4. Add surr/spike. 5. Mix samples thoroughly before microwaving. 6. Microwave on appropriate power setting determined by # of samples. 7. After microwave-let cool 10-15 min. 8. Collect into turbo tube with sm. funnel containing glasswool and 1" sodium sulfate. 9. Add (2) 10mL DCM rinses to vessel and transfer to turbo tube. 10. TurboVap. 11. Acid/Silica Clean-up?= Y / N 12. TurboVap (if Silica Clean). 13. Vial in DCM.

A. Need Total Solids Y / N B. Archive/Freeze Y / N

Analytical Resources, Incorporated
Analytical Chemists and Consultants

Organic Extractions Laboratory Analyst Notes

ARI Job No.: RS 97

Client ID: NW Natural

Parameter: TPHD

Client Project: NWN- INS

Note problems, concerns, corrective actions	Analyst/Date
Screens: Soil/Sediment/Solid/Other: sediment	WC 10/27/10
☐ No Anomalies (standard soil/sediment)	
☐ Wet sediment/sludge=	
☐ Standing Water Decanted=	
☐ Standing Water Homogenized (Shared samples)=	
☐ Clay (Difficult to homogenize/Mixed with Kitchen Aid)=	
☐ Rocks/Organics=	
☒ Oily, obvious fuel/sulfur odors= fuel odor (A-S)	WC 10/27/10
☐ Other (Details)=	
Aqueous:	
☐ No Anomalies	
☐ Turbid/Color=	
☐ Particulates=	
☐ Emulsions=	
☐ Other (Details)=	
☒ Other Notes/Comments= Project was extracted to a 10mL	
final volume. All samples were double surrogated to leave	
room for possible dilutions as per laboratory director.	
4mL of sample archives were vialed for shipping to the	
client.	JH 10/27/10

3056F

Revision 007
02/25/10

TPHD Raw Data
Initial Calibration

ARI Job ID: RS97

Analytical Resources, Incorporated
Analytical Chemists and Consultants

GC Analyst Notes / Corrective Action Log

ARI Project ID: Diesel, AK102, o-Terph CURVE Client ID: ARI

ARI SOP: **403S**(PCB) **405S**(Herb) **407S**(TPH-D) **409S**(HCID) **412S**(PCP) **423S**(Pest) **427S**(Dir Inj) **428S**(EPH) **432S**(EDB) **Other**

Parameter(s): Diesel # 2, AK102, o-Terphenyl

Instrument: FID-3A FID-3B FID-4A FID-4B FID-5 FID-7 FID-8 FID-9 ECD-1 ECD-3 ECD-4 ECD-5 ECD-6 ECD-7

Dates: Curve: 11/1/10 Analysis Start: 11/1/10

Endrin/DDT Breakdown <15%? YES / NO / NA

Method Blank In Control? YES / NO / NA

ICal Meets RF & %RSD Criteria? YES / NO

LCS/LCSD Recovery In Control? YES / NO

CCal Meets RF & %RSD Criteria? YES / NO

Surrogate Recovery In Control? YES / NO

Manual Integrations for ICal? YES / NO

Manual Integrations for Samples? YES / NO

Internal Standard Meets Criteria? YES / NO / NA

Special Analysis Criteria Met? YES / NO / NA

Detail problems, corrective actions and/or other pertinent information below (use reverse side when necessary):

Additional Details on Reverse: Yes / No

Analyst: [signature] **Date:** 11/3/10

Reviewer: [signature] **Date:** 11/3/10

Analytical Resources Inc.: Organics Instrument Log

FID-3B Serial No.: US00003232

Date: 11/1/10 Analysis: NWTPHD Analyst: [illegible]

GC Program: TPHHT Column No: 102175 Column Type: ZB1HT

Instrument Tune (.U or .CT.): — EM Voltage: —

Calibration File: — Curve Date: 11/1/10, 10/15/10

IS/SS	Ical/Ccal	LCS/ICV
	A00-1	
	1751-2	
	1777-3	
	1755-2	

	Inject Date/Time	Filename	DF	LabID
1	01-NOV-2010 17:41	1101b001.d	1	RINSE
2	01-NOV-2010 17:58	1101b002.d	1	RINSE
3	01-NOV-2010 18:16	1101b003.d	1	RT
4	01-NOV-2010 18:33	1101b004.d	1	IB
5	01-NOV-2010 18:51	1101b005.d	1	DIESEL 50
6	01-NOV-2010 19:08	1101b006.d	1	DIESEL 100
7	01-NOV-2010 19:26	1101b007.d	1	DIESEL 250
8	01-NOV-2010 19:43	1101b008.d	1	DIESEL 500
9	01-NOV-2010 20:01	1101b009.d	1	DIESEL 1000
10	01-NOV-2010 20:18	1101b010.d	1	DIESEL 2500
11	01-NOV-2010 20:36	1101b011.d	1	DIESEL ICV
12	01-NOV-2010 20:53	1101b012.d	1	DIESEL SPIKE VEI
13	01-NOV-2010 21:11	1101b013.d	1	DIESEL#1
14	01-NOV-2010 21:28	1101b014.d	1	MOIL#1
15	01-NOV-2010 21:46	1101b015.d	1	RT40MBS1
16	01-NOV-2010 22:03	1101b016.d	1	RT40LCSS1
17	01-NOV-2010 22:21	1101b017.d	1	RT40E
18	01-NOV-2010 22:38	1101b018.d	1	RT40F
19	01-NOV-2010 22:56	1101b019.d	1	RT40G
20	01-NOV-2010 23:13	1101b020.d	1	RT40H
21	01-NOV-2010 23:30	1101b021.d	1	RT40HMS
22	01-NOV-2010 23:48	1101b022.d	1	RT40HMSD
23	02-NOV-2010 00:05	1101b023.d	1	RT40I
24	02-NOV-2010 00:22	1101b024.d	1	RT40J
25	02-NOV-2010 00:40	1101b025.d	1	RT40K
26	02-NOV-2010 00:57	1101b026.d	1	RT40L
27	02-NOV-2010 01:15	1101b027.d	1	RT40M
28	02-NOV-2010 01:32	1101b028.d	1	DIESEL#2
29	02-NOV-2010 01:49	1101b029.d	1	MOIL#2
30	02-NOV-2010 02:06	1101b030.d	1	RT41A
31	02-NOV-2010 02:24	1101b031.d	1	RT41B
32	02-NOV-2010 02:41	1101b032.d	1	RT41C
33	02-NOV-2010 02:58	1101b033.d	1	RT41D
34	02-NOV-2010 03:15	1101b034.d	1	RT41E
35	02-NOV-2010 03:32	1101b035.d	1	RT41J
36	02-NOV-2010 03:49	1101b036.d	1	RT41K
37	02-NOV-2010 04:07	1101b037.d	1	RT41L
38	02-NOV-2010 04:24	1101b038.d	1	RT41M
39	02-NOV-2010 04:41	1101b039.d	1	RT41N
40	02-NOV-2010 04:58	1101b040.d	1	RT41O
41	02-NOV-2010 05:15	1101b041.d	1	DIESEL#3
42	02-NOV-2010 05:32	1101b042.d	1	MOIL#3
43	02-NOV-2010 05:49	1101b043.d	1	RT40MBW1
44	02-NOV-2010 06:06	1101b044.d	1	RT40LCSW1
45	02-NOV-2010 06:23	1101b045.d	1	RT40LCSDW1
46	02-NOV-2010 06:40	1101b046.d	1	RT40O
47	02-NOV-2010 06:57	1101b047.d	1	RT40R
48	02-NOV-2010 07:14	1101b048.d	1	DIESEL#4
49	02-NOV-2010 07:31	1101b049.d	1	MOIL#4

[illegible] 11/5/1

Maintenance / Comments 'Out of Sequence' [illegible] 11/5/10

Maintenance Verification (Identify ICal or CCal that demonstrates the instrument is in control):

Every line must contain information or be lined out. Make all entries legible. Start a new page for each QC period.

RS97:00992

Analytical Resources, Inc.
RETENTION TIME SUMMARY REPORT

Method File: /chem3/fid3b.i/20101101.b/ftphfid3b.m
Batch File: /chem3/fid3b.i/20101101.b
Inst ID: fid3b.i

ID:	RT01	RT02	RT03	RT04	RT05	RT06
FILENAME:	1101b005	1101b006	1101b007	1101b008	1101b009	1101b010
INJ.DATE:	01-NOV-2010	01-NOV-2010	01-NOV-2010	01-NOV-2010	01-NOV-2010	01-NOV-2010
INJ.TIME:	18:51	19:08	19:26	19:43	20:01	20:18

Compound	RT01	RT02	RT03	RT04	RT05	RT06	EXPEC RT	RT WINDOW	AVG RT	STD DEV
1 Toluene	0.834	0.803	0.803	0.831	0.835	0.824	0.800	0.700-0.900	0.822	0.015
2 C8	1.029	1.029	1.028	1.030	1.033	1.039	1.026	0.926-1.126	1.031	0.004
3 C10	2.721	2.720	2.719	2.720	2.720	2.724	2.719	2.669-2.769	2.721	0.002
4 C12	3.376	3.374	3.371	3.372	3.372	3.375	3.376	3.326-3.426	3.373	0.002
5 C14	3.852	3.847	3.840	3.841	3.841	3.847	3.851	3.801-3.901	3.845	0.004
6 C16	4.249	4.246	4.244	4.246	4.247	4.252	4.248	4.198-4.298	4.247	0.003
7 C18	4.608	4.605	4.603	4.604	4.607	4.614	4.605	4.555-4.655	4.607	0.004
$ 8 o-terph	4.683	4.684	4.682	4.688	4.695	4.705	4.684	4.634-4.734	4.689	0.009
9 C20	4.925	4.934	4.929	4.931	4.932	4.938	4.932	4.882-4.982	4.932	0.005
10 C22	5.222	5.228	5.231	5.228	5.228	5.232	5.230	5.180-5.280	5.228	0.004
11 C24	5.535	5.525	5.527	5.537	5.531	5.530	5.531	5.481-5.581	5.531	0.004
12 C25	5.679	5.691	5.685	5.686	5.694	5.689	5.688	5.638-5.738	5.687	0.005
13 C26	5.853	5.844	5.845	5.847	5.847	5.849	5.847	5.797-5.897	5.848	0.003
14 C28	6.170	6.171	6.164	6.180	6.167	6.168	6.167	6.117-6.217	6.170	0.006
$ 15 Triacon Surr	6.482	6.483	6.481	6.487	6.485	6.486	6.483	6.433-6.533	6.484	0.002
16 C32	6.793	6.765	6.791	6.791	6.789	6.763	6.777	6.727-6.827	6.782	0.014
17 C34	7.064	7.063	7.061	7.064	7.061	7.066	7.062	7.012-7.112	7.063	0.002

Reviewer 1 MD Date: 11/3/10
Reviewer 2 [illegible] Date: 11/3/10

Analytical Resources, Inc.
RETENTION TIME SUMMARY REPORT

Method File: /chem3/fid3b.i/20101101.b/ftphfid3b.m
Batch File: /chem3/fid3b.i/20101101.b
Inst ID: fid3b.i

Compound	RT01	RT02	RT03	RT04	RT05	RT06	EXPEC RT	RT WINDOW	AVG RT	STD DEV
18 Filter Peak	+++++	+++++	+++++	+++++	+++++	+++++	11.120	11.020-11.220	+++++	+++++
19 C36	7.329	7.331	7.328	7.323	7.331	7.329	7.331	7.281-7.381	7.328	0.003
20 C38	7.589	7.585	7.587	7.587	7.588	7.587	7.587	7.537-7.637	7.587	0.001
21 C40	7.823	7.815	7.827	7.822	7.820	7.829	7.833	7.783-7.883	7.823	0.005
29 NW Diesel	0.908	0.906	0.913	0.919	0.895	0.909	0.906	0.856-0.956	0.908	0.008
30 NW Moil	0.805	0.832	0.831	0.806	0.810	0.810	0.810	0.760-0.860	0.816	0.012
31 NW AK102	0.967	0.969	0.961	0.960	0.956	0.964	0.961	0.911-1.011	0.963	0.005
32 Bunker C	1.009	1.006	0.973	0.978	0.982	0.997	0.986	0.936-1.036	0.991	0.015
33 AK103	1.122	1.121	1.114	1.126	1.129	1.113	1.119	1.069-1.169	1.121	0.006

RS97:00993

6a

NW DIESEL INITIAL CALIBRATION

Lab Name: ANALYTICAL RESOURCES, INC.

Instrument: FID3B.I

Calibration Date: 01-NOV-2010

Client: 20101101

Project:

SDG No.: 20101101

Diesel Range	RF1 50	RF2 100	RF3 250	RF4 500	RF5 1000	RF6 2500	Ave RF	%RSD
WA Diesel	19356	18589	18380	17942	17731	17392	18232	3.8
AK Diesel	22672	21271	20867	20225	19958	19512	20751	5.5
OR Diesel	22866	21422	21006	20502	20086	19641	20920	5.5
o-Terph	18795	17409	16385	16044	16582	16687	16984	5.9

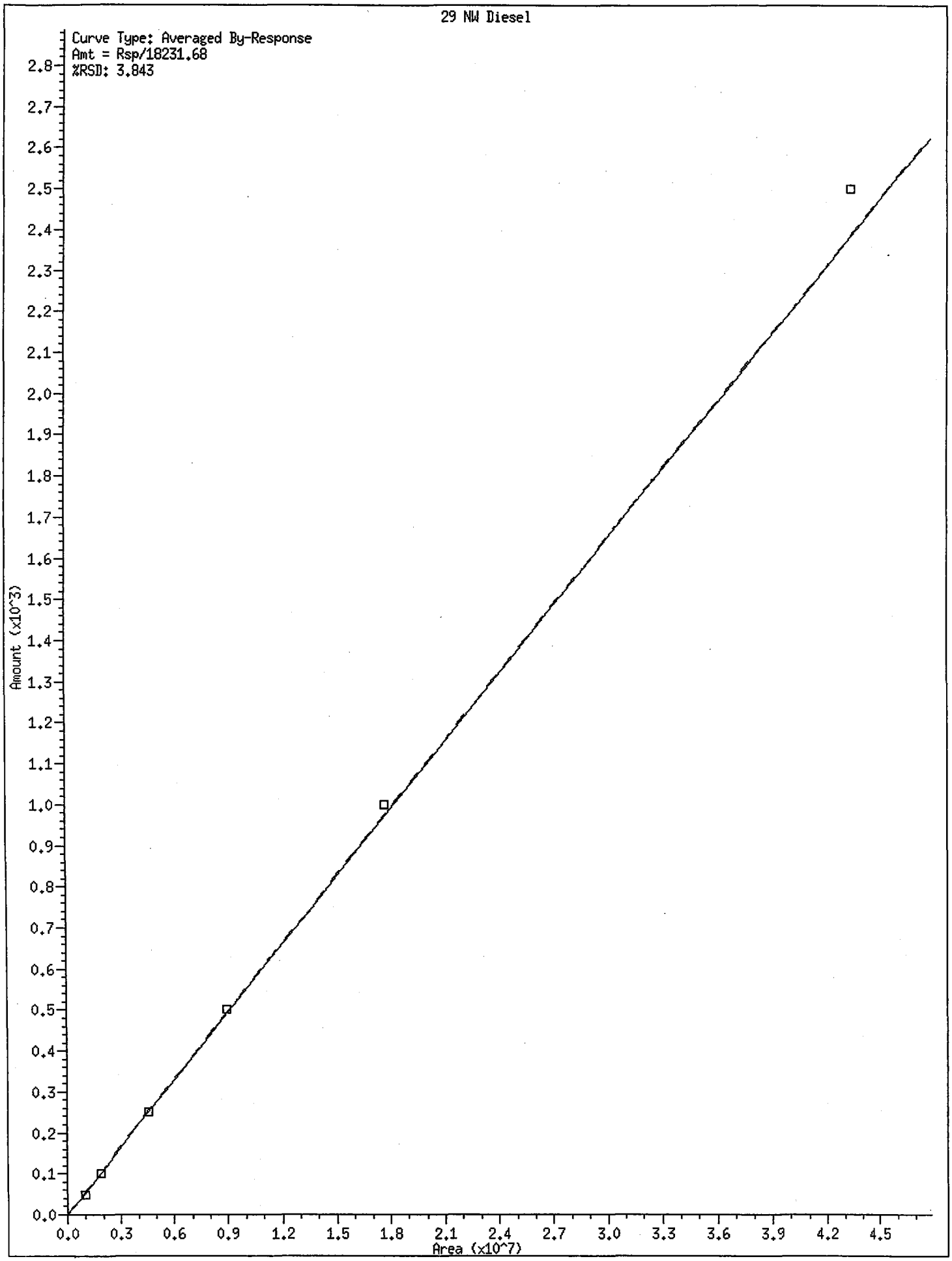
<- Indicates %RSD outside limits
Surrogate areas are not included in Diesel RF calculation.

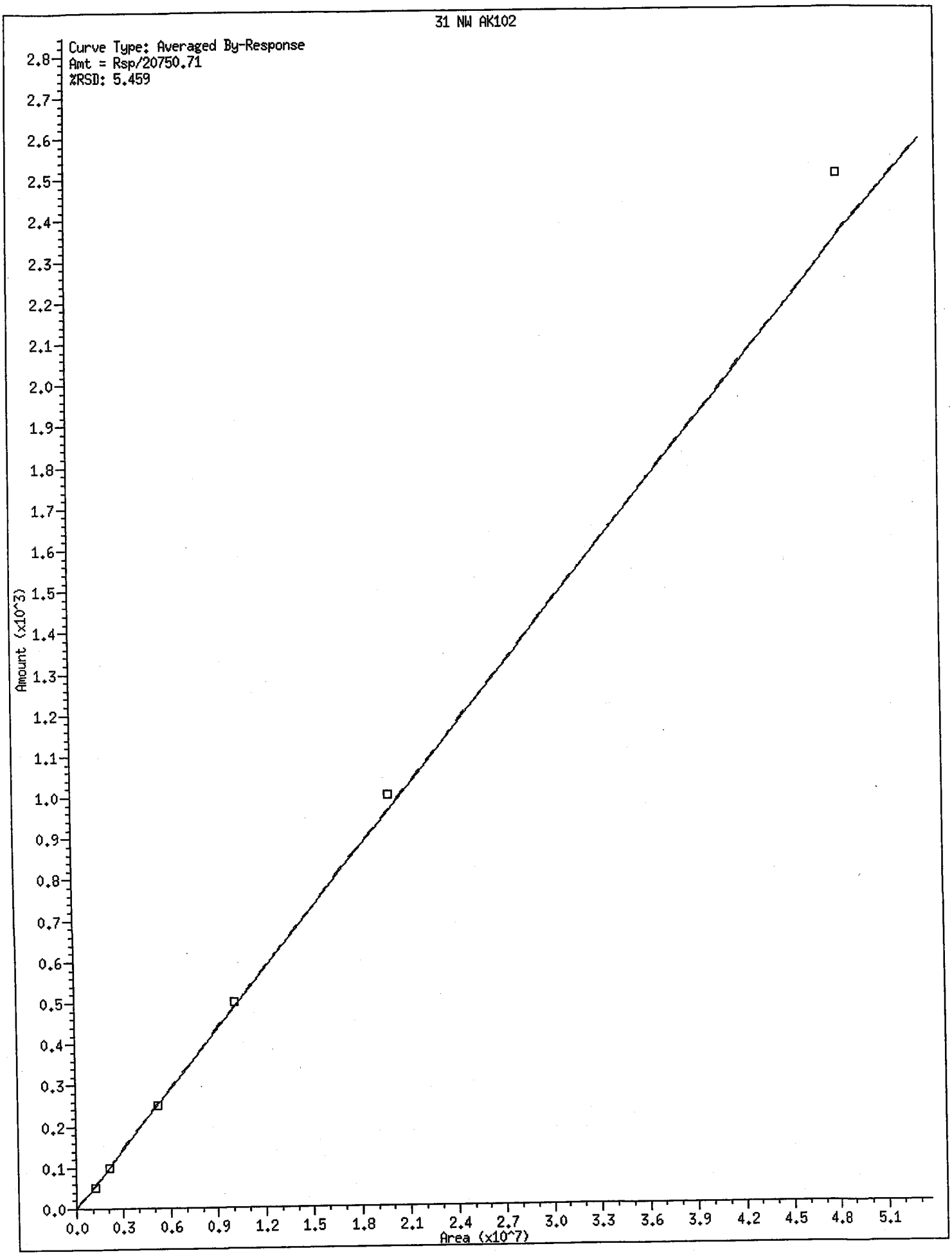
Quant Ranges :

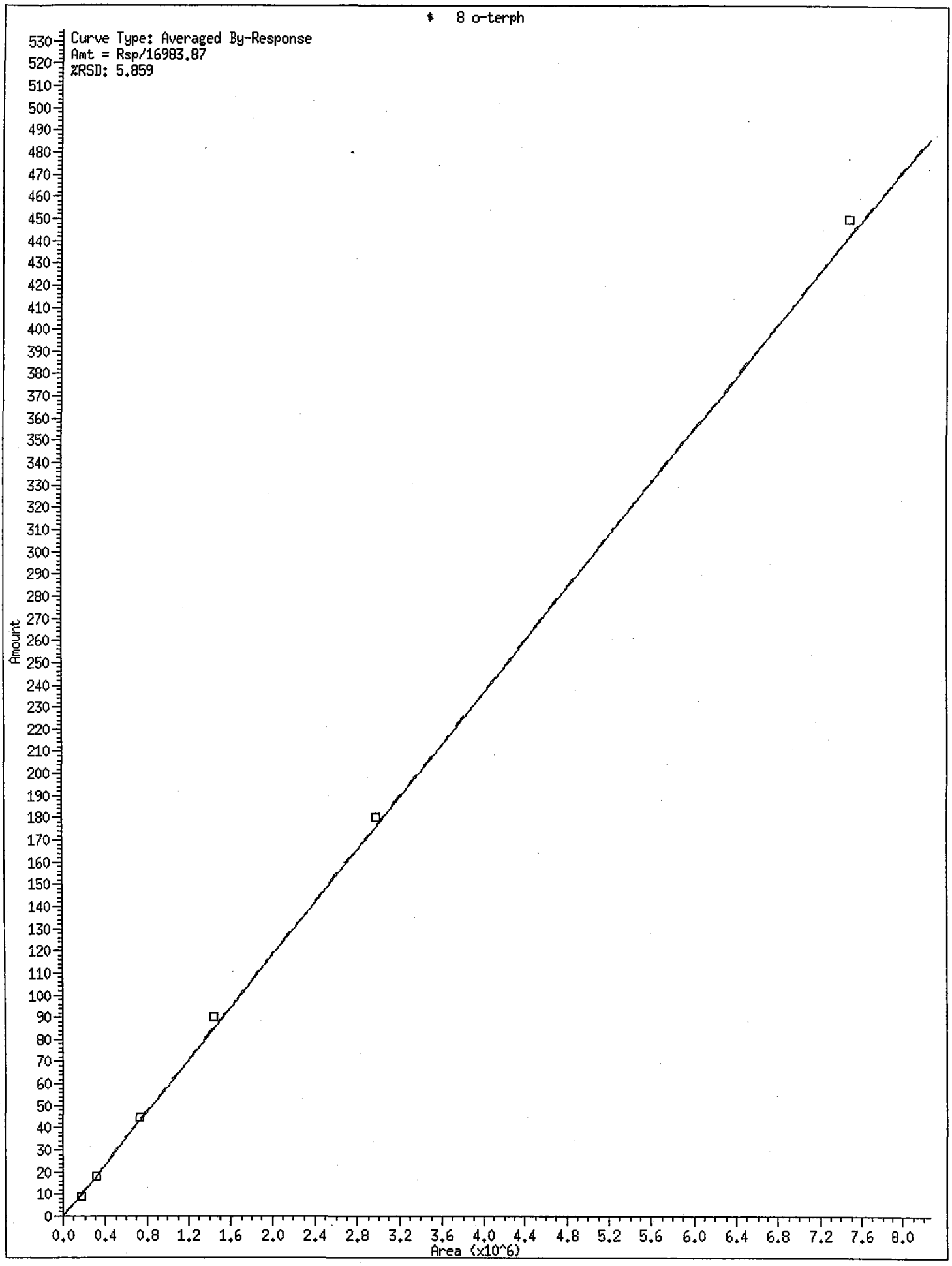
WA Diesel	C12-C24	(3.376-5.531)
AK Diesel	C10-C25	(2.719-5.688)
OR Diesel	C10-C28	(2.719-6.167)

Calibration Files	Analysis Time
1101b005.d	01-NOV-2010 18:51
1101b006.d	01-NOV-2010 19:08
1101b007.d	01-NOV-2010 19:26
1101b008.d	01-NOV-2010 19:43
1101b009.d	01-NOV-2010 20:01
1101b010.d	01-NOV-2010 20:18

FORM VI-Diesel


29 NW Diesel
Curve Type: Averaged By-Response
Amt = Rsp/18231.68
%RSD: 3.843
Amount (x10^3)
Area (x10^7)
0.0
0.1
0.2
0.3
0.4
0.5
0.6
0.7
0.8
0.9
1.0
1.1
1.2
1.3
1.4
1.5
1.6
1.7
1.8
1.9
2.0
2.1
2.2
2.3
2.4
2.5
2.6
2.7
2.8
0.0
0.3
0.6
0.9
1.2
1.5
1.8
2.1
2.4
2.7
3.0
3.3
3.6
3.9
4.2
4.5


31 NW AK102
Curve Type: Averaged By-Response
Amt = Rsp/20750.71
%RSD: 5.459
Amount (x10^3)
Area (x10^7)
0.0
0.1
0.2
0.3
0.4
0.5
0.6
0.7
0.8
0.9
1.0
1.1
1.2
1.3
1.4
1.5
1.6
1.7
1.8
1.9
2.0
2.1
2.2
2.3
2.4
2.5
2.6
2.7
2.8
0.0
0.3
0.6
0.9
1.2
1.5
1.8
2.1
2.4
2.7
3.0
3.3
3.6
3.9
4.2
4.5
4.8
5.1


8 o-terph
Curve Type: Averaged By-Response
Amt = Rsp/16983.87
%RSD: 5.859
Amount
Area (x10^6)

Analytical Resources Inc.
407S TPH Quantitation Report

Data file: /chem3/fid3b.i/20101101.b/1101b003.d
Method: /chem3/fid3b.i/20101101.b/ftphfid3b.m
Instrument: fid3b.i
Operator: MS
Report Date: 11/03/2010
Macro: FID:3B110110

ARI ID: RT
Client ID:
Injection: 01-NOV-2010 18:16
Dilution Factor: 1

FID:3B RESULTS

Compound	RT	Shift	Height	Area	Range	Total Area	Conc
Toluene	0.800	0.000	745497	459387	GAS (Tol-C12)	1665072	104 M
C8	1.026	0.000	314727	313514	DIESEL (C12-C24)	2035155	112
C10	2.719	0.000	363753	322209	M.OIL (C24-C38)	2513273	217
C12	3.376	0.000	228391	313524	AK-102 (C10-C25)	2760861	133
C14	3.851	0.000	346345	313902	AK-103 (C25-C36)	2217253	254
C16	4.248	0.000	450863	311188	OR.DIES (C10-C28)	3896231	153
C18	4.605	0.000	427181	322910	OR.MOIL (C28-C40)	1670649	148
C20	4.932	0.000	435122	312927			
C22	5.230	0.000	456381	311631	STODDARD (C8-C12)	1182001	43
C24	5.531	0.000	404109	324794			
C25	5.688	0.000	533119	451476			
C26	5.847	0.000	362957	329137			
C28	6.167	0.000	333121	330117			
C32	6.777	0.000	324055	344999			
C34	7.062	0.000	296420	330080	CREOSOT (C8-C22)	1692467	265
Filter Peak	----						
C36	7.331	0.000	299993	309836	BUNKERC (C10-C38)	5269138	618
o-terph	4.684	0.000	1672963	1125772	JET-A (C10-C18)	1733809	109
Triacon Surr	6.483	0.000	1054627	1137773	IT.MOIL (C24-C40)	3949298	184

Range Times: NW Diesel(3.426 - 5.581) NW Gas(0.750 - 3.426) NW M.Oil(5.581 - 7.637)
AK102(2.669 - 5.638) AK103(5.638 - 7.381) Jet A(2.669 - 4.655)

Surrogate	Area	Amount	%Rec
o-Terphenyl	1125772	66.3	147.3
Triacontane	1137773	71.6	159.0

MM 11/3/10

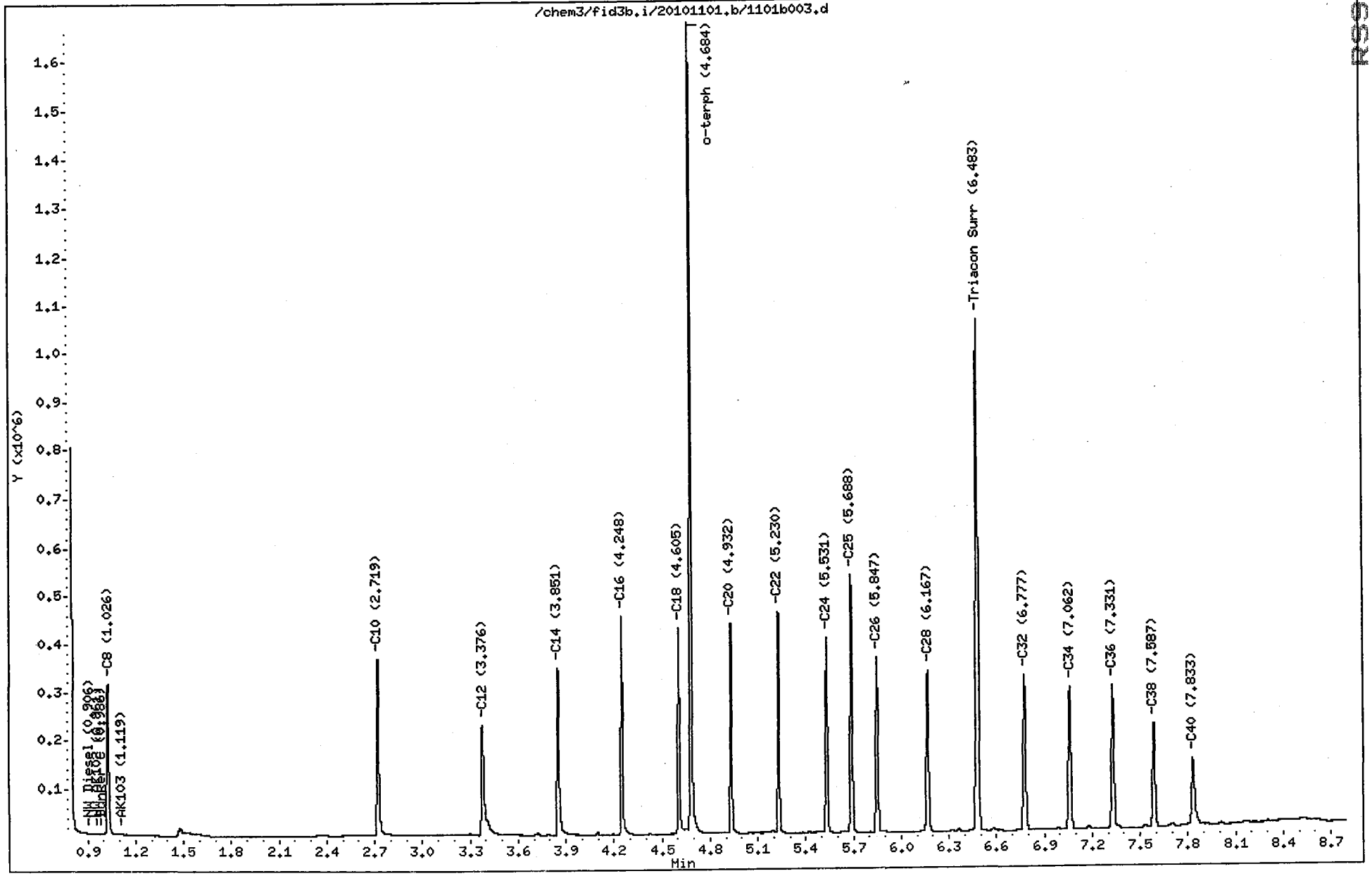
Analyte	RF	Curve Date
o-Terph Surr	16983.9	01-NOV-2010
Triacon Surr	15901.0	16-OCT-2010
Gas	15975.0	20-OCT-2010
Diesel	18232.0	01-NOV-2010
Motor Oil	11596.5	15-OCT-2010
AK102	20751.0	01-NOV-2010
AK103	8727.5	29-SEPT-2010
JetA	15848.0	27-JAN-2009
OR Diesel	25401.0	
OR M.Oil	11274.0	
IT M.Oil	21488.2	
Bunker C	8522.1	20-SEP-2010
Creosote	6396.0	17-JAN-2009

Data File: /chem3/fid3b.i/20101101.b/1101b003.d
Date : 01-NOV-2010 18:16
Client ID:
Sample Info: RT

Column phase: ZB-1HT

Instrument: fid3b.i

Operator: MS
Column diameter: 0.25



RSST: 00999

Analytical Resources Inc.
407S TPH Quantitation Report

Data file: /chem3/fid3b.i/20101101.b/1101b004.d
Method: /chem3/fid3b.i/20101101.b/ftphfid3b.m
Instrument: fid3b.i
Operator: MS
Report Date: 11/03/2010
Macro: FID:3B110110

ARI ID: IB
Client ID:
Injection: 01-NOV-2010 18:33
Dilution Factor: 1

FID:3B RESULTS

Compound	RT	Shift	Height	Area	Range	Total Area	Conc
Toluene	0.804	0.004	48939	56080	GAS (Tol-C12)	408325	26
C8	1.032	0.006	6613	14766	DIESEL (C12-C24)	170534	9
C10	2.731	0.012	3293	7213	M.OIL (C24-C38)	200193	17
C12	3.375	-0.001	2237	1549	AK-102 (C10-C25)	291963	14
C14	3.849	-0.002	1115	872	AK-103 (C25-C36)	151994	17
C16	4.255	0.007	1194	1486	OR.DIES (C10-C28)	315139	12
C18	4.608	0.003	846	791	OR.MOIL (C28-C40)	264679	23
C20	4.928	-0.005	788	844			
C22	5.211	-0.019	1333	1581	STODDARD (C8-C12)	309604	11
C24	5.526	-0.005	199	55			
C25	5.698	0.010	4067	3879			
C26	5.854	0.006	2741	2320			
C28	6.167	0.000	3130	2970			
C32	6.791	0.014	9427	11324			
C34	7.075	0.013	3011	6298	CREOSOT (C8-C22)	162925	25
Filter Peak	----						
C36	7.314	-0.017	1967	1428	BUNKERC (C10-C38)	491996	58
o-terph	4.686	0.002	1544716	1080722	JET-A (C10-C18)	210867	13
Triacon Surr	6.484	0.001	796195	884488	IT.MOIL (C24-C40)	1172504	55

Range Times: NW Diesel(3.426 - 5.581) NW Gas(0.750 - 3.426) NW M.Oil(5.581 - 7.637)
AK102(2.669 - 5.638) AK103(5.638 - 7.381) Jet A(2.669 - 4.655)

Surrogate	Area	Amount	%Rec
o-Terphenyl	1080722	63.6	141.4
Triacontane	884488	55.6	123.6

Analyte	RF	Curve Date
o-Terph Surr	16983.9	01-NOV-2010
Triacon Surr	15901.0	16-OCT-2010
Gas	15975.0	20-OCT-2010
Diesel	18232.0	01-NOV-2010
Motor Oil	11596.5	15-OCT-2010
AK102	20751.0	01-NOV-2010
AK103	8727.5	29-SEPT-2010
JetA	15848.0	27-JAN-2009
OR Diesel	25401.0	
OR M.Oil	11274.0	
IT M.Oil	21488.2	
Bunker C	8522.1	20-SEP-2010
Creosote	6396.0	17-JAN-2009

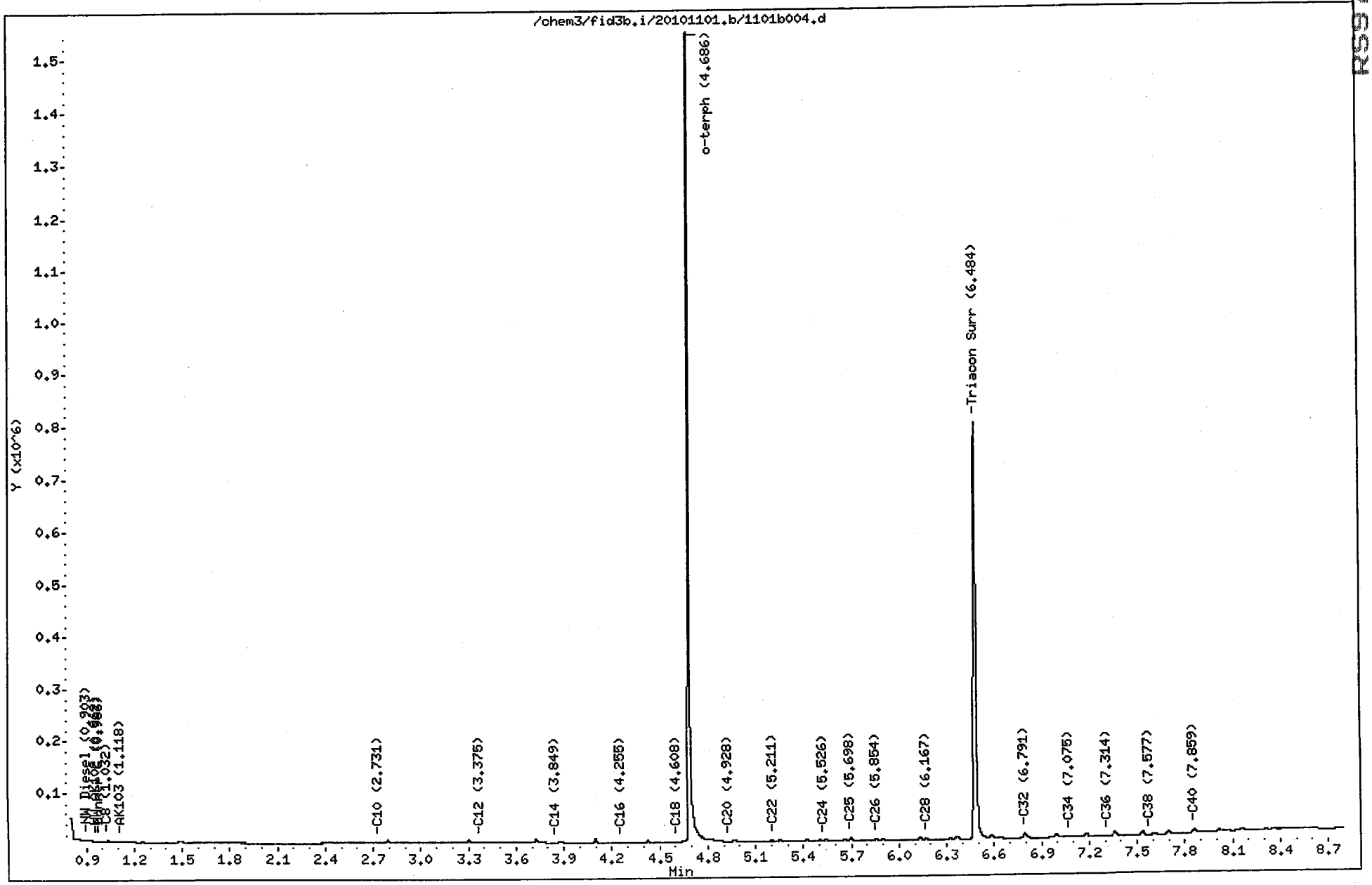
11/3/10

Data File: /chem3/fid3b.i/20101101.b/1101b004.d
Date : 01-NOV-2010 18:33
Client ID:
Sample Info: IB

Instrument: fid3b.i

Operator: MS
Column diameter: 0.25

Column phase: ZB-1HT



RS37:01001

Analytical Resources Inc.
407S TPH Quantitation Report

Data file: /chem3/fid3b.i/20101101.b/1101b005.d
Method: /chem3/fid3b.i/20101101.b/ftphfid3b.m
Instrument: fid3b.i
Operator: MS
Report Date: 11/03/2010
Macro: FID:3B110110

ARI ID: DIESEL 50
Client ID:
Injection: 01-NOV-2010 18:51
Dilution Factor: 1

FID:3B RESULTS

Compound	RT	Shift	Height	Area	Range	Total Area	Conc
Toluene	0.834	0.034	7921	1264	GAS (Tol-C12)	363327	23
C8	1.029	0.002	4568	6500	DIESEL (C12-C24)	967803	53
C10	2.721	0.002	3944	5605	M.OIL (C24-C38)	128061	11
C12	3.376	0.000	5052	2488	AK-102 (C10-C25)	1133602	55 M
C14	3.852	0.001	13411	18048	AK-103 (C25-C36)	84475	10
C16	4.249	0.001	27719	43666	OR.DIES (C10-C28)	1143280	45 M
C18	4.608	0.003	24552	24448	OR.MOIL (C28-C40)	185105	16
C20	4.925	-0.008	5948	937			
C22	5.222	-0.008	3432	2979	STODDARD (C8-C12)	298095	11
C24	5.535	0.004	1106	468			
C25	5.679	-0.009	572	301			
C26	5.853	0.006	194	102			
C28	6.170	0.002	33	11			
C32	6.793	0.016	3551	5757			
C34	7.064	0.002	1108	370	CREOSOT (C8-C22)	937566	147
Filter Peak	----						
C36	7.329	-0.002	2211	1090	BUNKERC (C10-C38)	1258679	148
o-terph	4.683	-0.002	221676	169151	JET-A (C10-C18)	856341	54
Triacon Surr	6.482	-0.001	247	149	IT.MOIL (C24-C40)	197917	9

Range Times: NW Diesel(3.426 - 5.581) NW Gas(0.750 - 3.426) NW M.Oil(5.581 - 7.637)
AK102(2.669 - 5.638) AK103(5.638 - 7.381) Jet A(2.669 - 4.655)

Surrogate	Area	Amount	%Rec
o-Terphenyl	169151	10.0	22.1
Triacontane	149	0.0	0.0

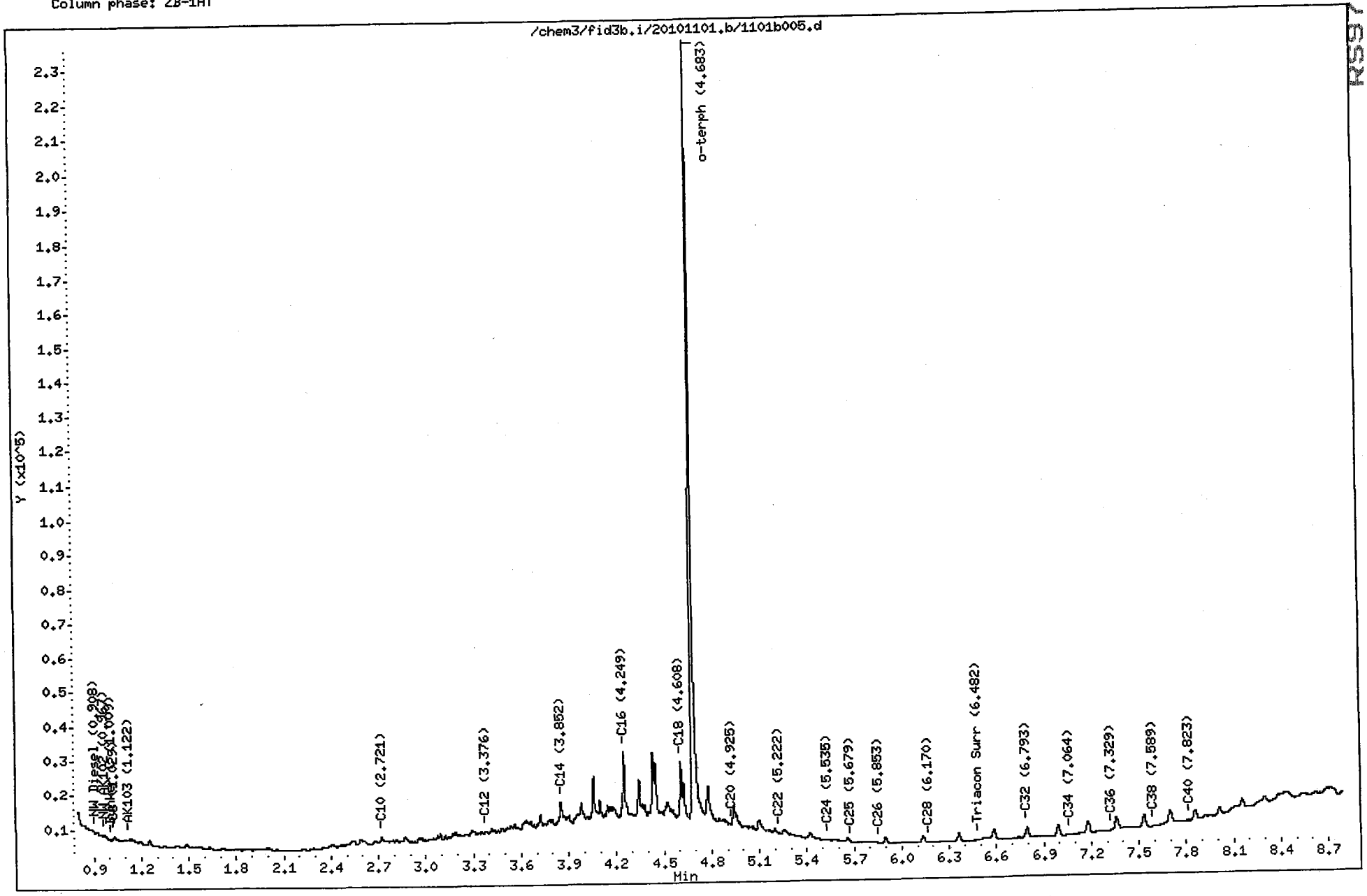
Analyte	RF	Curve Date
o-Terph Surr	16983.9	01-NOV-2010
Triacon Surr	15901.0	16-OCT-2010
Gas	15975.0	20-OCT-2010
Diesel	18232.0	01-NOV-2010
Motor Oil	11596.5	15-OCT-2010
AK102	20751.0	01-NOV-2010
AK103	8727.5	29-SEPT-2010
JetA	15848.0	27-JAN-2009
OR Diesel	25401.0	
OR M.Oil	11274.0	
IT M.Oil	21488.2	
Bunker C	8522.1	20-SEP-2010
Creosote	6396.0	17-JAN-2009

Data File: /chem3/fid3b.i/20101101.b/1101b005.d
Date : 01-NOV-2010 18:51
Client ID:
Sample Info: DIESEL 50

Column phase: ZB-1HT

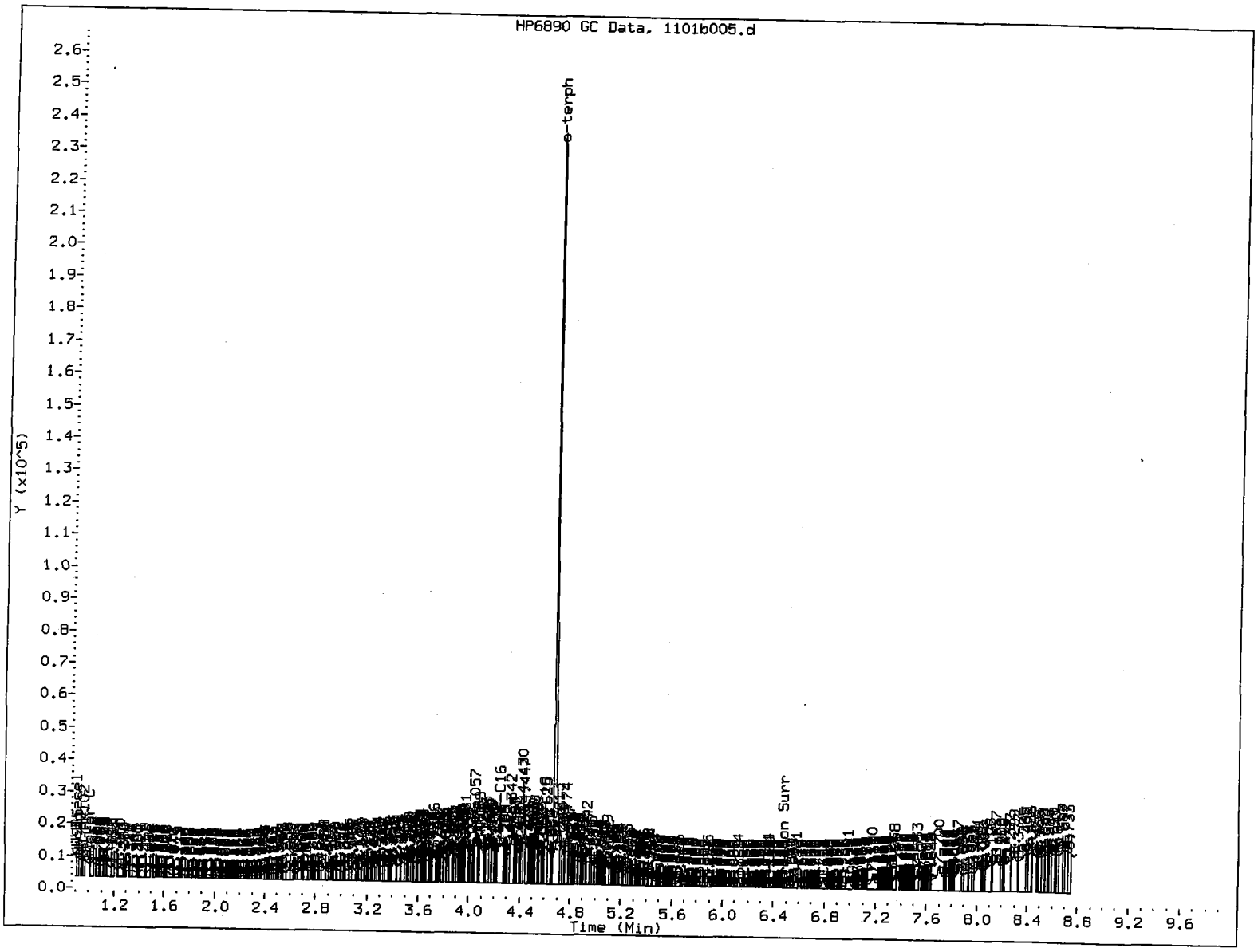
Instrument: fid3b.i

Operator: MS
Column diameter: 0.25



K5/1 : 01003

FID:3B-2C/RTX-1 DIESEL 50 FID:3B SIGNAL



MANUAL INTEGRATION

1. Baseline correction
2. Poor chromatography
3. Peak not found
4. Totals calculation

5. Other _____

Analyst: MM Date: 11/3/10

RS97:01004

Analytical Resources Inc.
407S TPH Quantitation Report

Data file: /chem3/fid3b.i/20101101.b/1101b006.d
Method: /chem3/fid3b.i/20101101.b/ftphfid3b.m
Instrument: fid3b.i
Operator: MS
Report Date: 11/03/2010
Macro: FID:3B110110

ARI ID: DIESEL 100
Client ID:
Injection: 01-NOV-2010 19:08
Dilution Factor: 1

FID:3B RESULTS

Compound	RT	Shift	Height	Area	Range	Total Area	Conc
Toluene	0.803	0.003	14570	21091	GAS (Tol-C12)	531946	33
C8	1.029	0.002	5409	11214	DIESEL (C12-C24)	1858920	102
C10	2.720	0.001	6843	10763	M.OIL (C24-C38)	106643	9
C12	3.374	-0.001	12011	13971	AK-102 (C10-C25)	2127095	103 M
C14	3.847	-0.004	29042	37555	AK-103 (C25-C36)	66881	8
C16	4.246	-0.002	61365	80401	OR.DIES (C10-C28)	2142167	84 M
C18	4.605	0.000	58690	53599	OR.MOIL (C28-C40)	152508	14
C20	4.934	0.002	28664	26186			
C22	5.228	-0.002	5978	1535	STODDARD (C8-C12)	453750	16
C24	5.525	-0.006	2086	2042			
C25	5.691	0.003	995	527			
C26	5.844	-0.003	444	234			
C28	6.171	0.004	42	14			
C32	6.765	-0.012	415	127			
C34	7.063	0.001	731	258	CREOSOT (C8-C22)	1798207	281
Filter Peak	----						
C36	7.331	0.000	1466	348	BUNKERC (C10-C38)	2229244	262
o-terph	4.684	0.000	494830	313370	JET-A (C10-C18)	1596575	101
Triacon Surr	6.483	0.000	121	71	IT.MOIL (C24-C40)	172145	8

Range Times: NW Diesel(3.426 - 5.581) NW Gas(0.750 - 3.426) NW M.Oil(5.581 - 7.637)
AK102(2.669 - 5.638) AK103(5.638 - 7.381) Jet A(2.669 - 4.655)

Surrogate	Area	Amount	%Rec
o-Terphenyl	313370	18.5	41.0
Triacontane	71	0.0	0.0

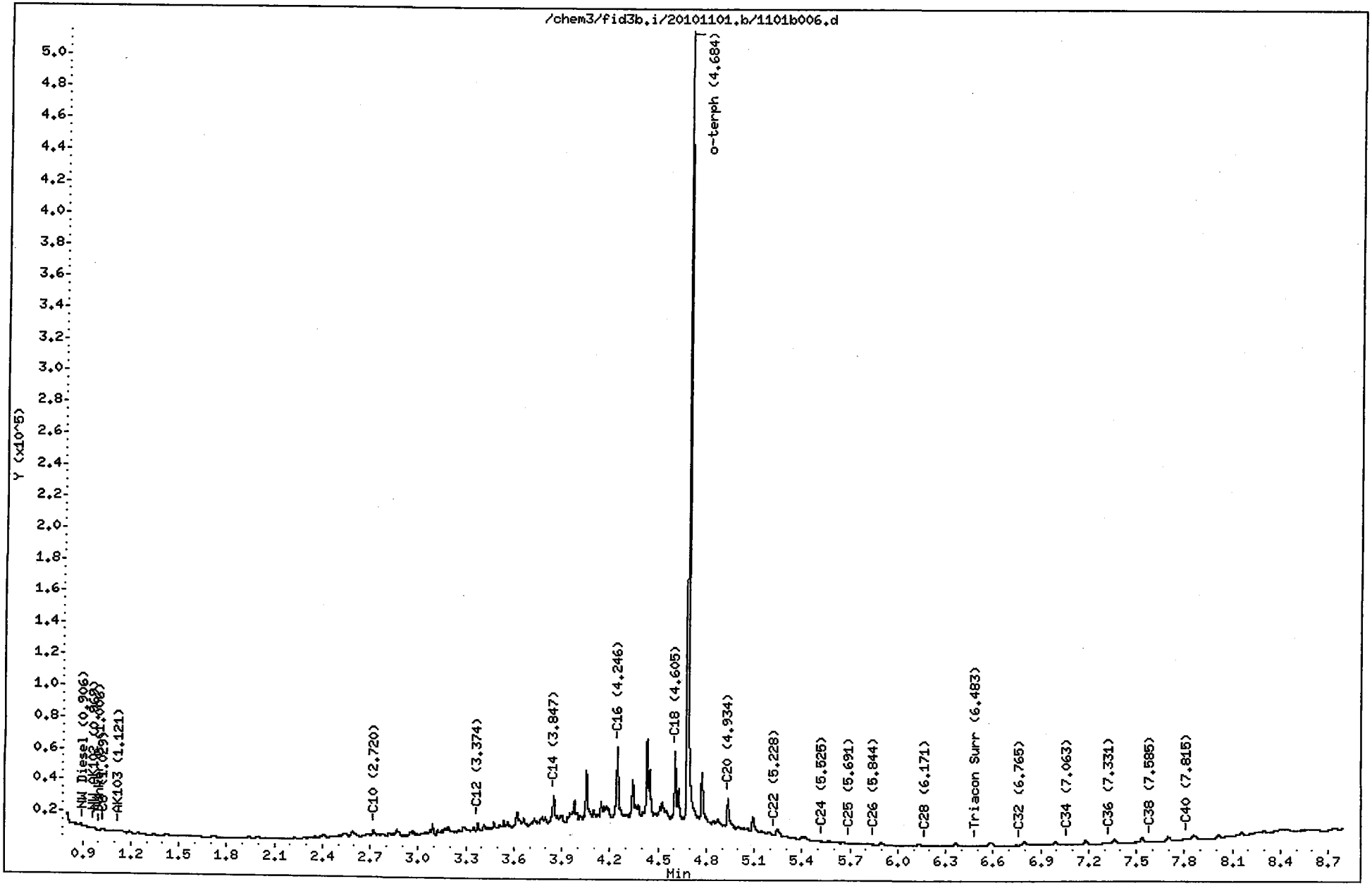
Analyte	RF	Curve Date
o-Terph Surr	16983.9	01-NOV-2010
Triacon Surr	15901.0	16-OCT-2010
Gas	15975.0	20-OCT-2010
Diesel	18232.0	01-NOV-2010
Motor Oil	11596.5	15-OCT-2010
AK102	20751.0	01-NOV-2010
AK103	8727.5	29-SEPT-2010
JetA	15848.0	27-JAN-2009
OR Diesel	25401.0	
OR M.Oil	11274.0	
IT M.Oil	21488.2	
Bunker C	8522.1	20-SEP-2010
Creosote	6396.0	17-JAN-2009

Data File: /chem3/fid3b.i/20101101.b/1101b006.d
Date : 01-NOV-2010 19:08
Client ID:
Sample Info: DIESEL 100

Column phase: ZB-1HT

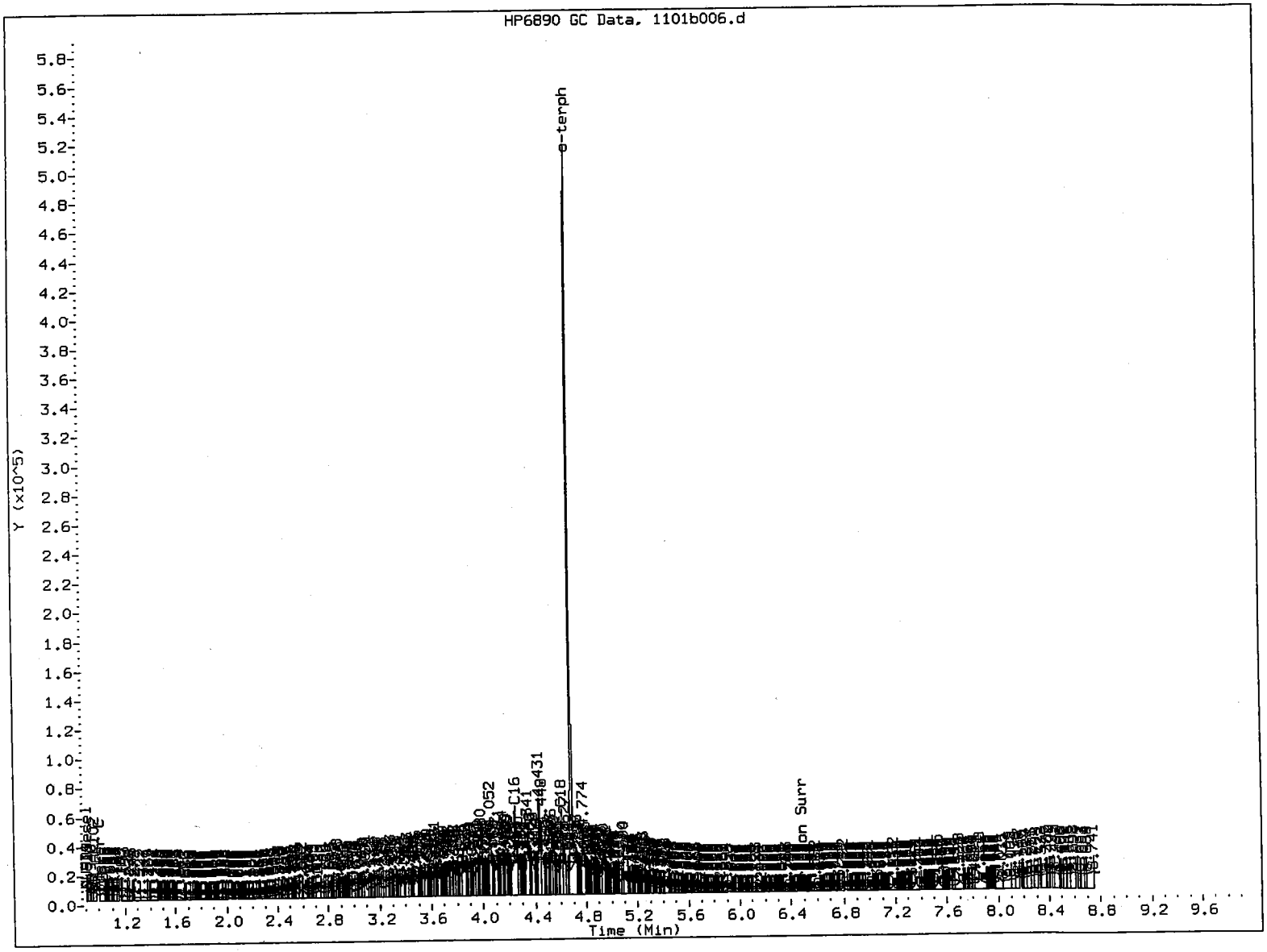
Instrument: fid3b.i

Operator: HS
Column diameter: 0.25



RS97:01006

FID:3B-2C/RTX-1 DIESEL 100 FID:3B SIGNAL



MANUAL INTEGRATION

1. Baseline correction
2. Poor chromatography
3. Peak not found
4. Totals calculation

5. Other _____

Analyst: _____ Date: 11/3/10

RS97:01007

Analytical Resources Inc.
407S TPH Quantitation Report

Data file: /chem3/fid3b.i/20101101.b/1101b007.d
Method: /chem3/fid3b.i/20101101.b/ftphfid3b.m
Instrument: fid3b.i
Operator: MS
Report Date: 11/03/2010
Macro: FID:3B110110

ARI ID: DIESEL 250
Client ID:
Injection: 01-NOV-2010 19:26
Dilution Factor: 1

FID:3B RESULTS

Compound	RT	Shift	Height	Area	Range	Total Area	Conc
Toluene	0.803	0.003	17986	23785	GAS (Tol-C12)	992393	62
C8	1.028	0.001	7025	15960	DIESEL (C12-C24)	4594962	252
C10	2.719	0.000	16282	19850	M.OIL (C24-C38)	143783	12
C12	3.371	-0.005	42651	37331	AK-102 (C10-C25)	5216631	251 M
C14	3.840	-0.010	85149	123822	AK-103 (C25-C36)	91838	11
C16	4.244	-0.004	173209	141320	OR.DIES (C10-C28)	5251444	207 M
C18	4.603	-0.002	155704	146574	OR.MOIL (C28-C40)	150257	13
C20	4.929	-0.003	88693	101597			
C22	5.231	0.001	33273	51263	STODDARD (C8-C12)	895750	32
C24	5.527	-0.003	4752	1488			
C25	5.685	-0.003	2387	1161			
C26	5.845	-0.002	1103	258			
C28	6.164	-0.003	148	101			
C32	6.791	0.014	4215	5939			
C34	7.061	-0.001	723	267	CREOSOT (C8-C22)	4451977	696
Filter Peak	----						
C36	7.328	-0.003	1469	346	BUNKERC (C10-C38)	5348572	628
o-terph	4.682	-0.002	1191037	737342	JET-A (C10-C18)	3908503	247
Triacon Surr	6.481	-0.002	35	11	IT.MOIL (C24-C40)	196923	9

Range Times: NW Diesel(3.426 - 5.581) NW Gas(0.750 - 3.426) NW M.Oil(5.581 - 7.637)
AK102(2.669 - 5.638) AK103(5.638 - 7.381) Jet A(2.669 - 4.655)

Surrogate	Area	Amount	%Rec
o-Terphenyl	737342	43.4	96.5
Triacontane	11	0.0	0.0

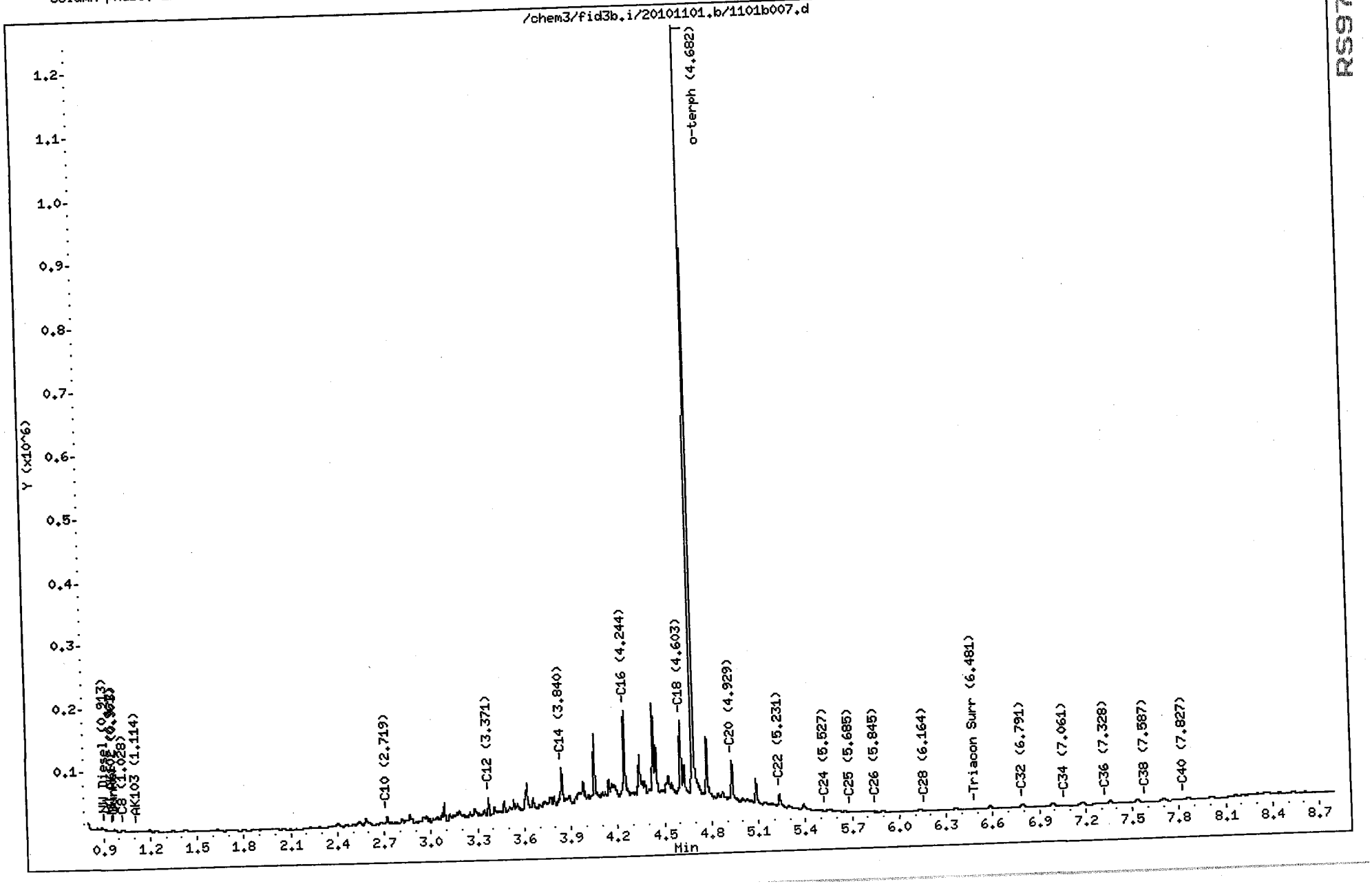
Analyte	RF	Curve Date
o-Terph Surr	16983.9	01-NOV-2010
Triacon Surr	15901.0	16-OCT-2010
Gas	15975.0	20-OCT-2010
Diesel	18232.0	01-NOV-2010
Motor Oil	11596.5	15-OCT-2010
AK102	20751.0	01-NOV-2010
AK103	8727.5	29-SEPT-2010
JetA	15848.0	27-JAN-2009
OR Diesel	25401.0	
OR M.Oil	11274.0	
IT M.Oil	21488.2	
Bunker C	8522.1	20-SEP-2010
Creosote	6396.0	17-JAN-2009

Data File: /chem3/fid3b.i/20101101.b/1101b007.d
Date : 01-NOV-2010 19:26
Client ID:
Sample Info: DIESEL 250

Column phase: ZB-1HT

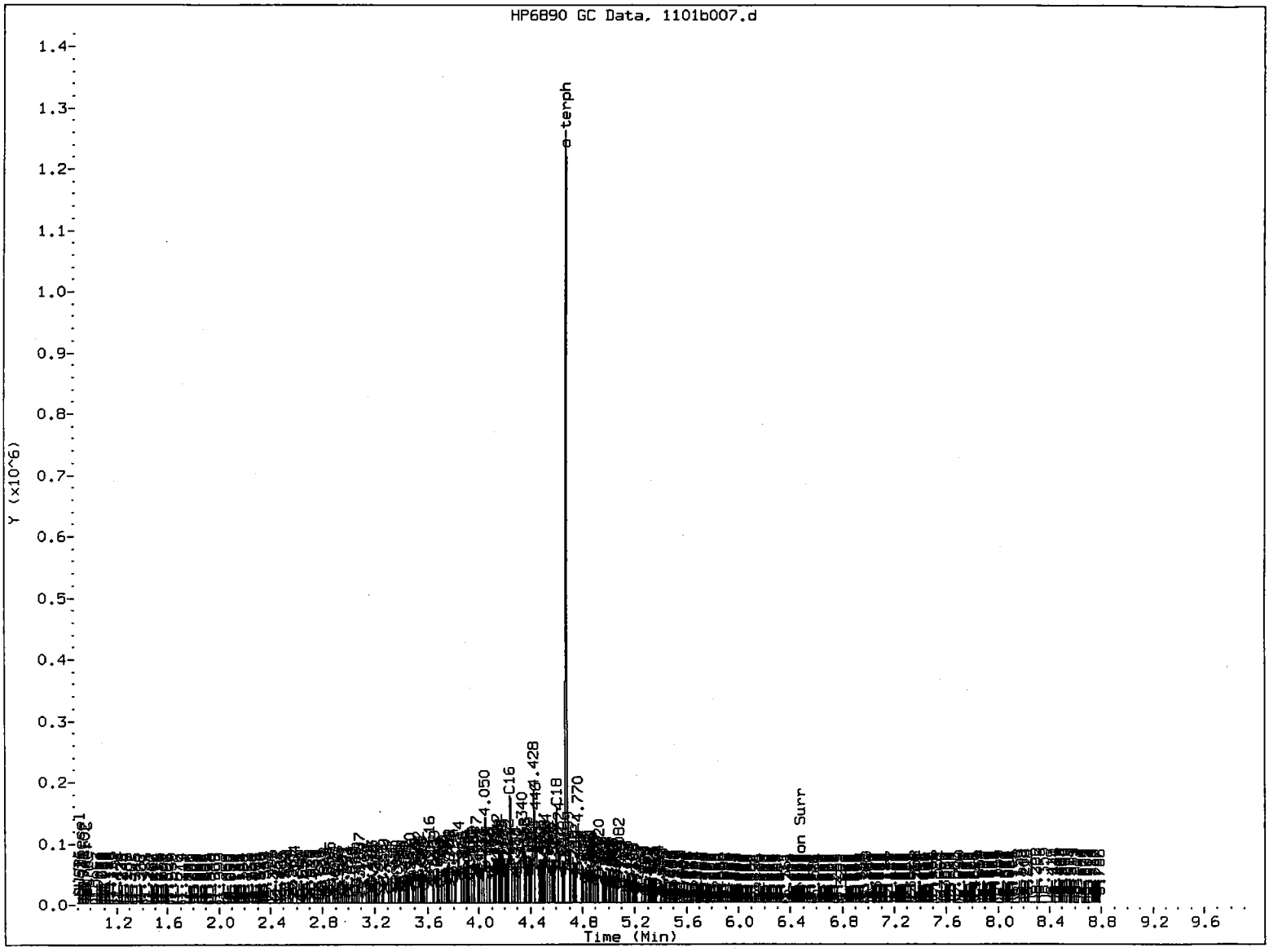
Instrument: fid3b.i

Operator: MS
Column diameter: 0.25



RS97:01009

FID:3B-2C/RTX-1 DIESEL 250 FID:3B SIGNAL



MANUAL INTEGRATION

1. Baseline correction
2. Poor chromatography
3. Peak not found
4. Totals calculation

5. Other _____

Analyst: MM Date: 11/3/10

RS97:01010

Analytical Resources Inc.
407S TPH Quantitation Report

Data file: /chem3/fid3b.i/20101101.b/1101b008.d
Method: /chem3/fid3b.i/20101101.b/ftphfid3b.m
Instrument: fid3b.i
Operator: MS
Report Date: 11/03/2010
Macro: FID:3B110110

ARI ID: DIESEL 500
Client ID:
Injection: 01-NOV-2010 19:43
Dilution Factor: 1

FID:3B RESULTS

Compound	RT	Shift	Height	Area	Range	Total Area	Conc
Toluene	0.831	0.032	10347	8164	GAS (Tol-C12)	1676378	105
C8	1.030	0.004	9283	19758	DIESEL (C12-C24)	8971043	492
C10	2.720	0.001	33000	38653	M.OIL (C24-C38)	399407	34
C12	3.372	-0.003	101741	78500	AK-102 (C10-C25)	10112353	487 M
C14	3.841	-0.009	181174	229354	AK-103 (C25-C36)	334430	38
C16	4.246	-0.002	348290	363253	OR.DIES (C10-C28)	10250764	404 M
C18	4.604	-0.001	299810	273214	OR.MOIL (C28-C40)	303924	27
C20	4.931	-0.001	182857	168983			
C22	5.228	-0.002	81534	94482	STODDARD (C8-C12)	1571077	57
C24	5.537	0.006	16795	18266			
C25	5.686	-0.002	4688	1008			
C26	5.847	0.000	2018	278			
C28	6.180	0.013	279	134			
C32	6.791	0.014	25872	25773			
C34	7.064	0.002	494	199	CREOSOT (C8-C22)	8702029	1361
Filter Peak	----						
C36	7.323	-0.008	1020	416	BUNKERC (C10-C38)	10490574	1231
o-terph	4.688	0.004	2249872	1443971	JET-A (C10-C18)	7510919	474
Triacon Surr	6.487	0.004	28	3	IT.MOIL (C24-C40)	463523	22

Range Times: NW Diesel(3.426 - 5.581) NW Gas(0.750 - 3.426) NW M.Oil(5.581 - 7.637)
AK102(2.669 - 5.638) AK103(5.638 - 7.381) Jet A(2.669 - 4.655)

Surrogate	Area	Amount	%Rec
o-Terphenyl	1443971	85.0	188.9
Triacontane	3	0.0	0.0

Analyte	RF	Curve Date
o-Terph Surr	16983.9	01-NOV-2010
Triacon Surr	15901.0	16-OCT-2010
Gas	15975.0	20-OCT-2010
Diesel	18232.0	01-NOV-2010
Motor Oil	11596.5	15-OCT-2010
AK102	20751.0	01-NOV-2010
AK103	8727.5	29-SEPT-2010
JetA	15848.0	27-JAN-2009
OR Diesel	25401.0	
OR M.Oil	11274.0	
IT M.Oil	21488.2	
Bunker C	8522.1	20-SEP-2010
Creosote	6396.0	17-JAN-2009

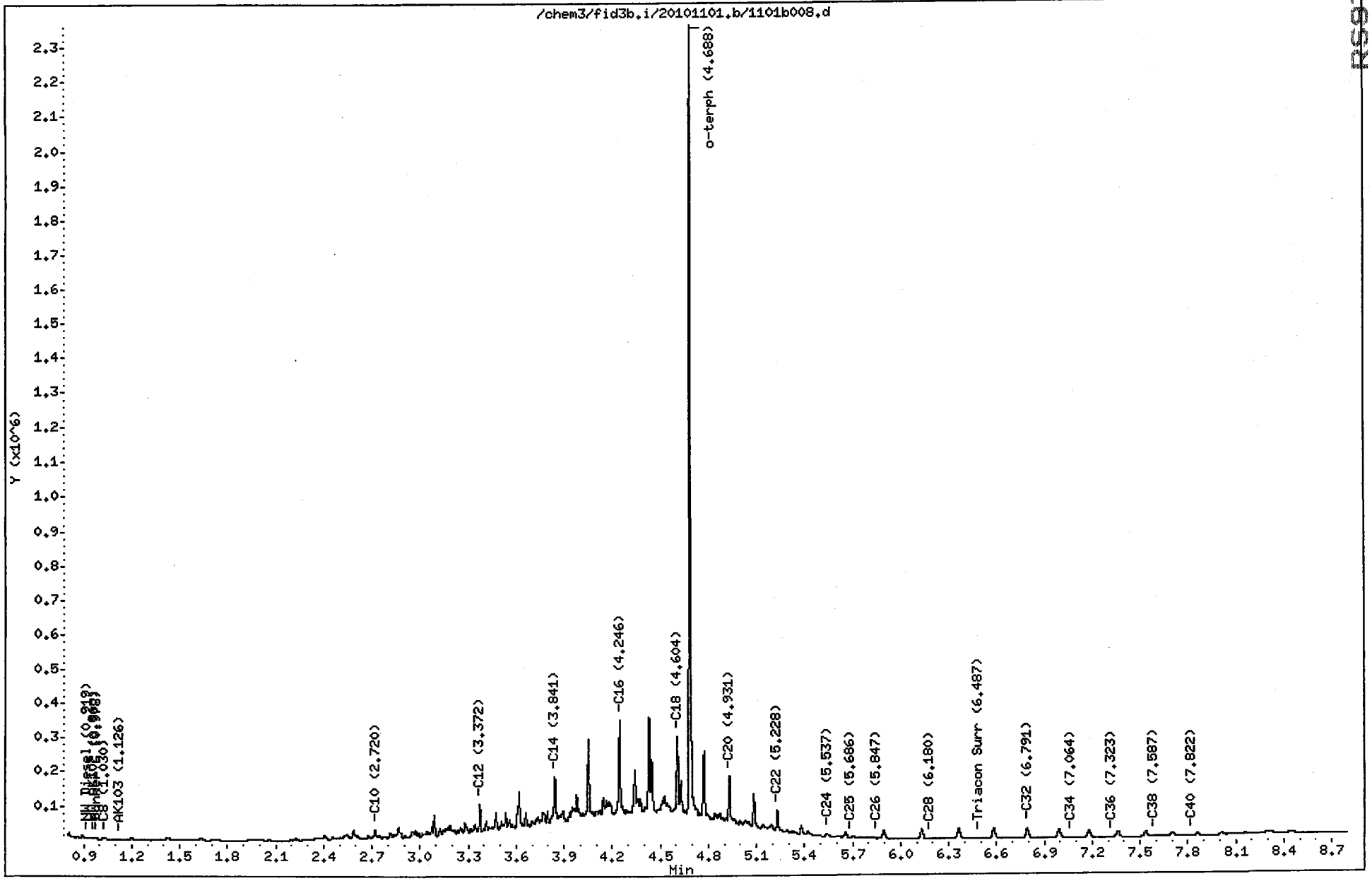
Data File: /chem3/fid3b.i/20101101.b/1101b008.d
Date : 01-NOV-2010 19:43
Client ID:
Sample Info: DIESEL 500

Column phase: ZB-1HT

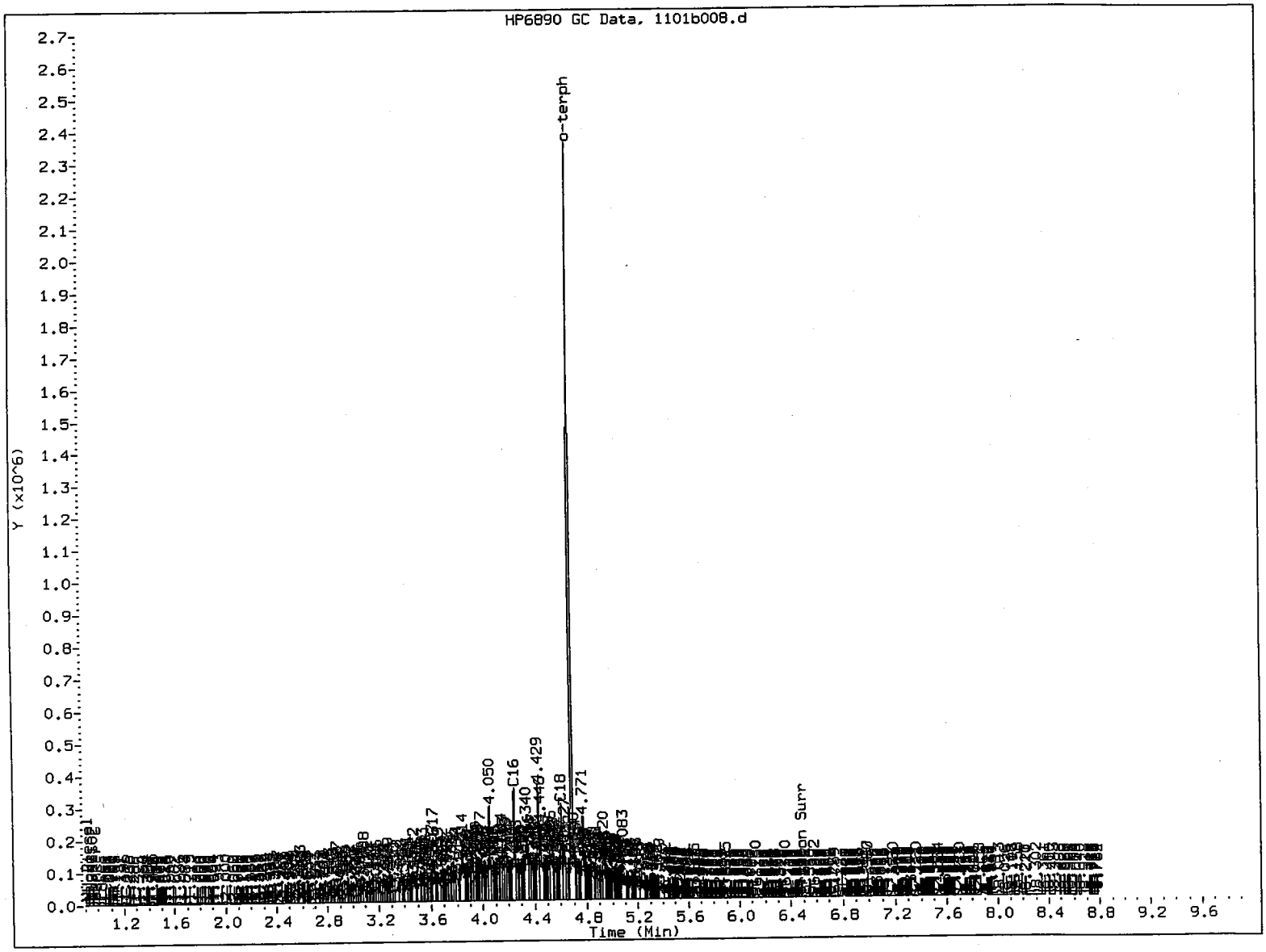
Instrument: fid3b.i

Operator: MS
Column diameter: 0.25

RS97:01012



FID:3B-2C/RTX-1 DIESEL 500 FID:3B SIGNAL



MANUAL INTEGRATION

1. Baseline correction
2. Poor chromatography
3. Peak not found
4. Totals calculation

5. Other _____

Analyst: MM Date: 11/3/10

RS97:01013

Analytical Resources Inc.
407S TPH Quantitation Report

Data file: /chem3/fid3b.i/20101101.b/1101b009.d
Method: /chem3/fid3b.i/20101101.b/ftphfid3b.m
Instrument: fid3b.i
Operator: MS
Report Date: 11/03/2010
Macro: FID:3B110110

ARI ID: DIESEL 1000
Client ID:
Injection: 01-NOV-2010 20:01
Dilution Factor: 1

FID:3B RESULTS

Compound	RT	Shift	Height	Area	Range	Total Area	Conc
Toluene	0.835	0.035	10921	13753	GAS (Tol-C12)	3074770	192
C8	1.033	0.007	13456	26881	DIESEL (C12-C24)	17731271	973
C10	2.720	0.001	69114	60401	M.OIL (C24-C38)	219427	19
C12	3.372	-0.004	215753	156733	AK-102 (C10-C25)	19958462	962 M
C14	3.841	-0.009	374484	371375	AK-103 (C25-C36)	152588	17
C16	4.247	-0.001	699708	677165	OR.DIES (C10-C28)	20086351	791 M
C18	4.607	0.002	581619	566964	OR.MOIL (C28-C40)	98836	9
C20	4.932	0.000	370278	416242			
C22	5.228	-0.002	170274	180738	STODDARD (C8-C12)	2946381	106
C24	5.531	0.000	36930	40845			
C25	5.694	0.005	14682	14575			
C26	5.847	0.000	4268	1635			
C28	6.167	0.000	730	290			
C32	6.789	0.012	1437	1900			
C34	7.061	-0.001	340	79	CREOSOT (C8-C22)	17169926	2684
Filter Peak	----						
C36	7.331	0.000	784	185	BUNKERC (C10-C38)	20134280	2363
o-terph	4.695	0.011	3685778	2984810	JET-A (C10-C18)	14803258	934
Triacon Surr	6.485	0.002	72	42	IT.MOIL (C24-C40)	270375	13

Range Times: NW Diesel(3.426 - 5.581) NW Gas(0.750 - 3.426) NW M.Oil(5.581 - 7.637)
AK102(2.669 - 5.638) AK103(5.638 - 7.381) Jet A(2.669 - 4.655)

Surrogate	Area	Amount	%Rec
o-Terphenyl	2984810	175.7	390.5
Triacontane	42	0.0	0.0

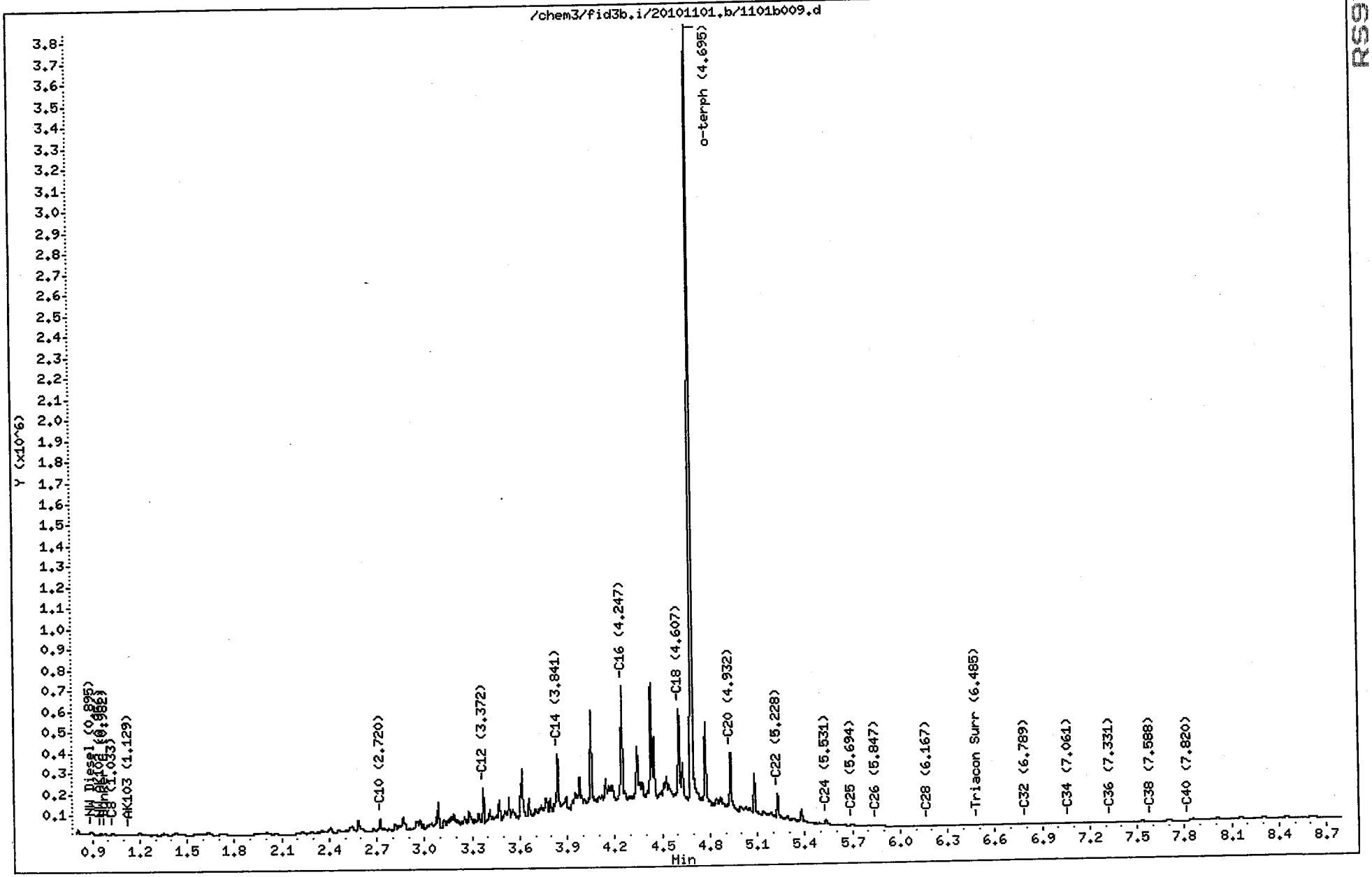
Analyte	RF	Curve Date
o-Terph Surr	16983.9	01-NOV-2010
Triacon Surr	15901.0	16-OCT-2010
Gas	15975.0	20-OCT-2010
Diesel	18232.0	01-NOV-2010
Motor Oil	11596.5	15-OCT-2010
AK102	20751.0	01-NOV-2010
AK103	8727.5	29-SEPT-2010
JetA	15848.0	27-JAN-2009
OR Diesel	25401.0	
OR M.Oil	11274.0	
IT M.Oil	21488.2	
Bunker C	8522.1	20-SEP-2010
Creosote	6396.0	17-JAN-2009

Data File: /chem3/fid3b.i/20101101.b/1101b009.d
Date : 01-NOV-2010 20:01
Client ID:
Sample Info: DIESEL 1000

Column phase: ZB-1HT

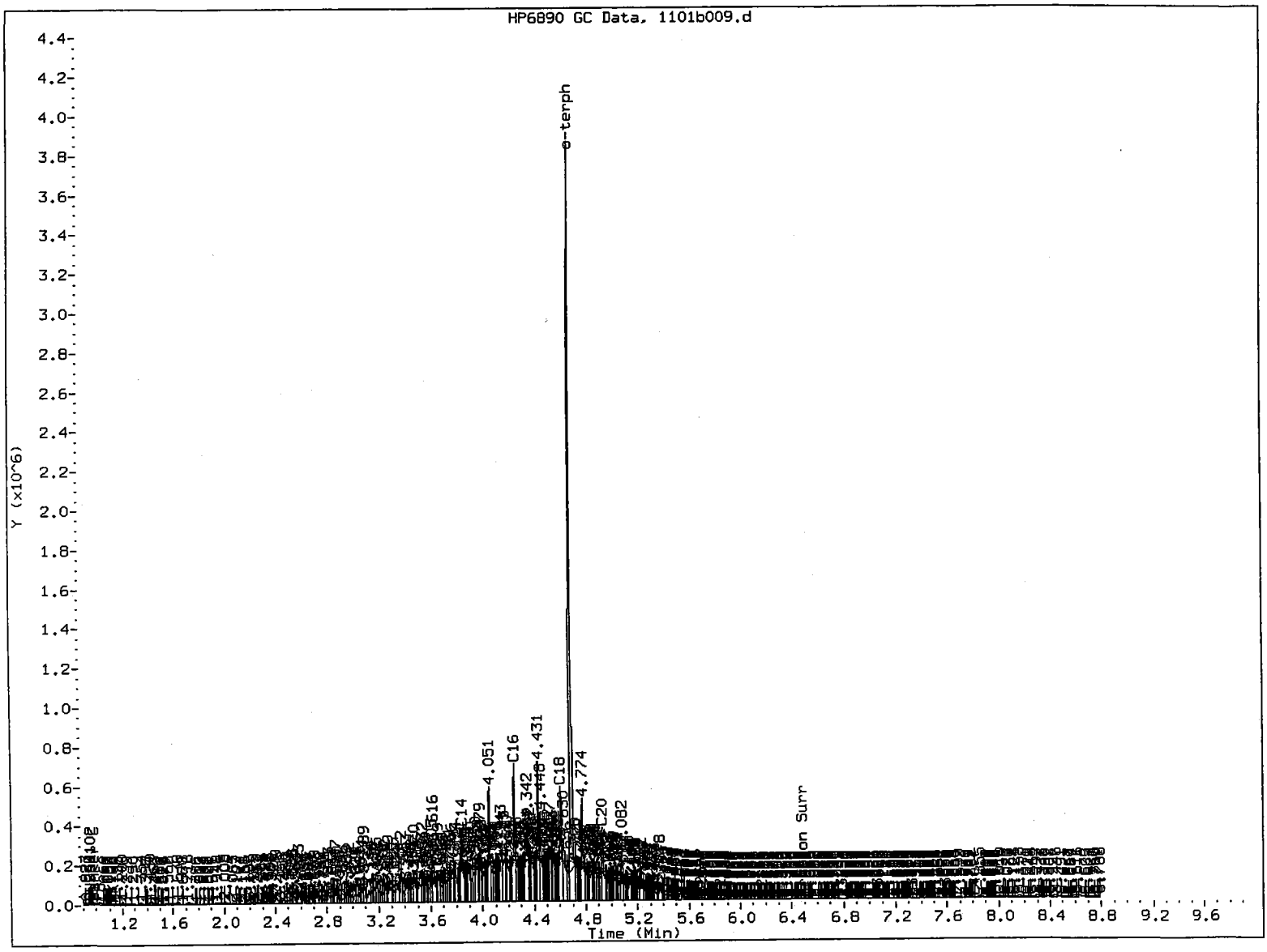
Instrument: fid3b.i

Operator: MS
Column diameter: 0.25



RS97:01015

FID:3B-2C/RTX-1 DIESEL 1000 FID:3B SIGNAL



MANUAL INTEGRATION

1. Baseline correction
2. Poor chromatography
3. Peak not found
4. Totals calculation

5. Other _____

Analyst: [signature] Date: 4/3/10

RS97:01016

Analytical Resources Inc.
407S TPH Quantitation Report

Data file: /chem3/fid3b.i/20101101.b/1101b010.d
Method: /chem3/fid3b.i/20101101.b/ftphfid3b.m
Instrument: fid3b.i
Operator: MS
Report Date: 11/03/2010
Macro: FID:3B110110

ARI ID: DIESEL 2500
Client ID:
Injection: 01-NOV-2010 20:18
Dilution Factor: 1

FID:3B RESULTS

Compound	RT	Shift	Height	Area	Range	Total Area	Conc
Toluene	0.824	0.024	72121	48287	GAS (Tol-C12)	6975022	437
C8	1.039	0.012	23325	24178	DIESEL (C12-C24)	43479027	2385
C10	2.724	0.005	172461	142615	M.OIL (C24-C38)	480743	41
C12	3.375	-0.001	541769	410608	AK-102 (C10-C25)	48778888	2351 M
C14	3.847	-0.004	907723	1081448	AK-103 (C25-C36)	355432	41
C16	4.252	0.004	1620010	1511128	OR.DIES (C10-C28)	49102564	1933 M
C18	4.614	0.009	1285989	1449522	OR.MOIL (C28-C40)	99113	9
C20	4.938	0.006	947698	975294			
C22	5.232	0.002	464645	455444	STODDARD (C8-C12)	6787523	245
C24	5.530	-0.001	116816	110239			
C25	5.689	0.000	47604	50306			
C26	5.849	0.002	16025	13289			
C28	6.168	0.001	2005	736			
C32	6.763	-0.014	35	5			
C34	7.066	0.004	206	104	CREOSOT (C8-C22)	42106424	6583
Filter Peak	----						
C36	7.329	-0.002	534	126	BUNKERC (C10-C38)	49153103	5768
o-terph	4.711	0.027	6500931	7509351	JET-A (C10-C18)	35999418	2272
Triacon Surr	6.486	0.003	334	171	IT.MOIL (C24-C40)	529489	25

Range Times: NW Diesel(3.426 - 5.581) NW Gas(0.750 - 3.426) NW M.Oil(5.581 - 7.637)
AK102(2.669 - 5.638) AK103(5.638 - 7.381) Jet A(2.669 - 4.655)

Surrogate	Area	Amount	%Rec
o-Terphenyl	7509351	442.1	982.5
Triacontane	171	0.0	0.0

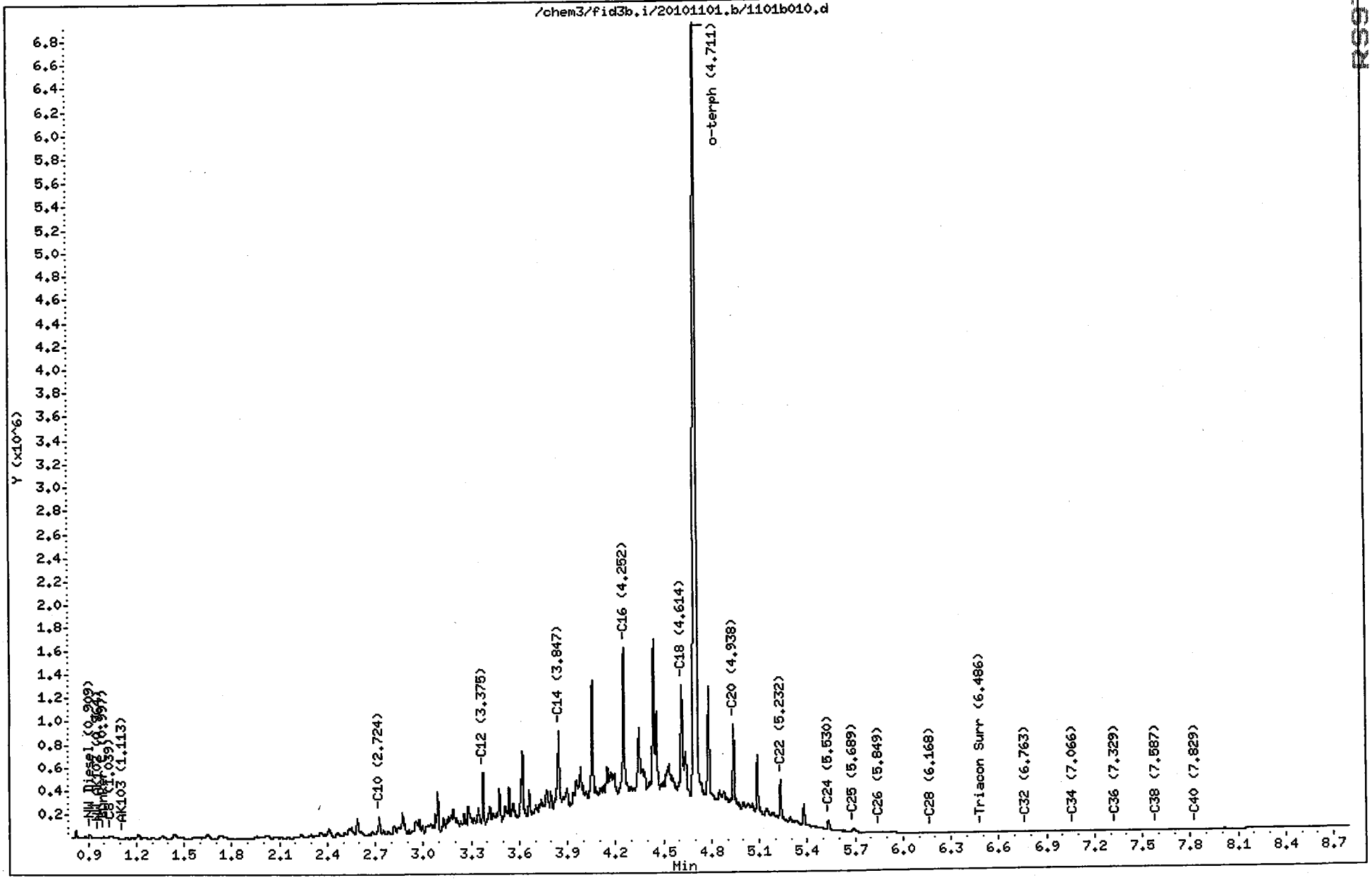
Analyte	RF	Curve Date
o-Terph Surr	16983.9	01-NOV-2010
Triacon Surr	15901.0	16-OCT-2010
Gas	15975.0	20-OCT-2010
Diesel	18232.0	01-NOV-2010
Motor Oil	11596.5	15-OCT-2010
AK102	20751.0	01-NOV-2010
AK103	8727.5	29-SEPT-2010
JetA	15848.0	27-JAN-2009
OR Diesel	25401.0	
OR M.Oil	11274.0	
IT M.Oil	21488.2	
Bunker C	8522.1	20-SEP-2010
Creosote	6396.0	17-JAN-2009

Data File: /chem3/fid3b.i/20101101.b/1101b010.d
Date : 01-NOV-2010 20:18
Client ID:
Sample Info: DIESEL 2500

Column phase: ZB-1HT

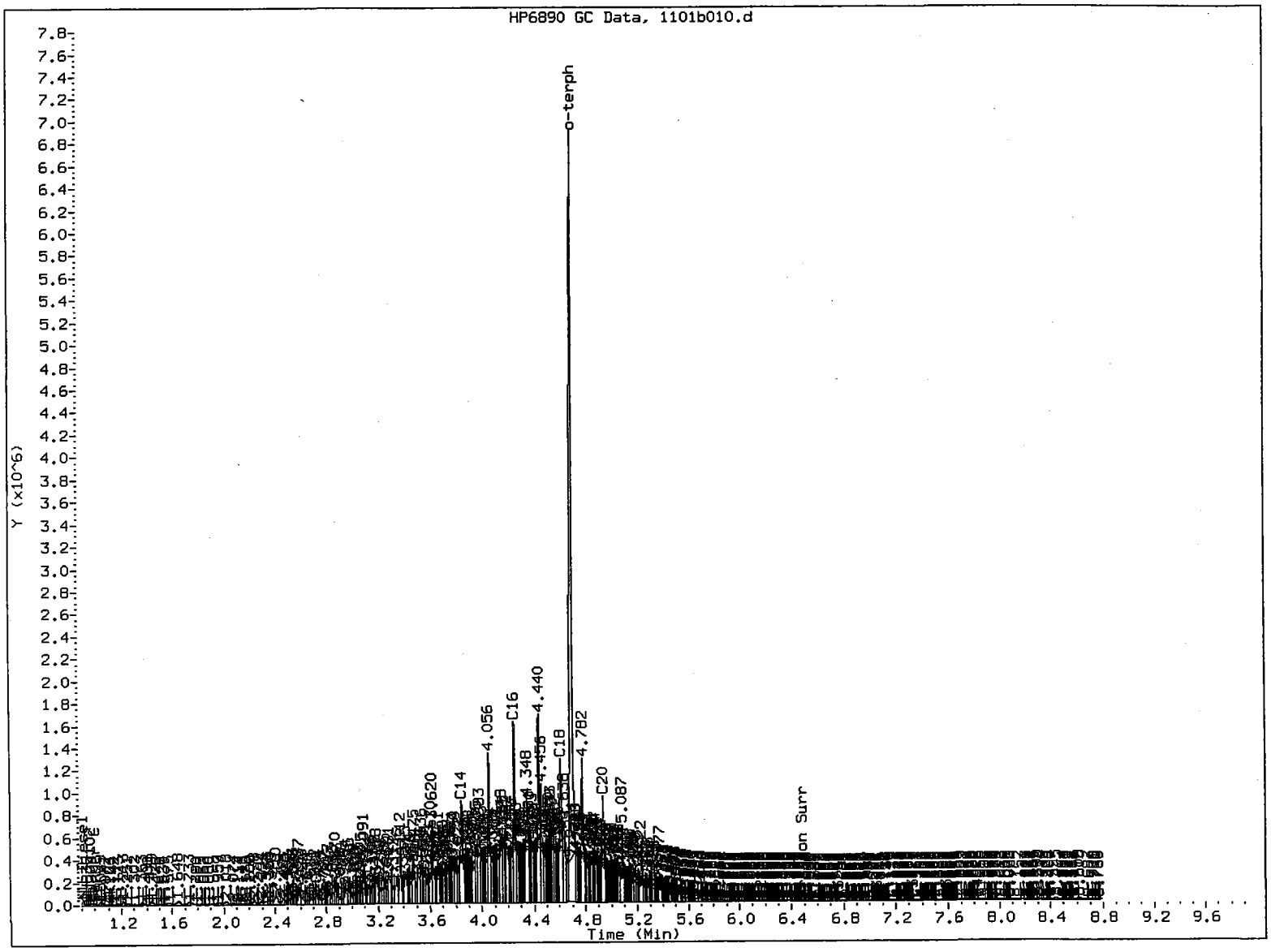
Instrument: fid3b.i

Operator: MS
Column diameter: 0.25



RSGT : 01018

FID:3B-2C/RTX-1 DIESEL 2500 FID:3B SIGNAL



MANUAL INTEGRATION

1. Baseline correction
2. Poor chromatography
3. Peak not found
4. Totals calculation

5. Other _____

Analyst: MM Date: 11/3/10

RS97:01019

MANUAL INTEGRATION SUMMARY FOR DATABATCH - /chem3/fid3b.i/20101101.b

ARI Job No.: DIES Method: i/20101101.b/ftphfid3b.m Instrument: fid3b.i Date: 01-NOV-2010

Time	Filename	LabID	ClientId	DF	Manually Integrated Compounds
1851	1101b005.d	DIESEL 50		1	o-terph,
1908	1101b006.d	DIESEL 100		1	o-terph,
1926	1101b007.d	DIESEL 250		1	o-terph,
1943	1101b008.d	DIESEL 500		1	o-terph,
2001	1101b009.d	DIESEL 1000		1	o-terph,
2018	1101b010.d	DIESEL 2500		1	o-terph,

RS97:01020

Analytical Resources Inc.
407S TPH Quantitation Report

Data file: /chem3/fid3b.i/20101101.b/1101braw.b/1101b005.d ARI ID: DIESEL 50
Method: /chem3/fid3b.i/20101101.b/ftphfid3b.m Client ID:
Instrument: fid3b.i Injection: 01-NOV-2010 18:51
Operator: MS Dilution Factor: 1
Report Date: 11/03/2010
Macro: FID:3B110110

FID:3B RESULTS

Compound	RT	Shift	Height	Area	Range	Total Area	Conc
Toluene	0.834	0.034	7921	1264	GAS (Tol-C12)	363327	23
C8	1.029	0.002	4568	6500	DIESEL (C12-C24)	925023	51
C10	2.721	0.002	3944	5605	M.OIL (C24-C38)	128061	11
C12	3.376	0.000	5052	2488	AK-102 (C10-C25)	1090822	53
C14	3.852	0.001	13411	18048	AK-103 (C25-C36)	84475	10
C16	4.249	0.001	27719	43666	OR.DIES (C10-C28)	1100500	43
C18	4.608	0.003	24552	24448	OR.MOIL (C28-C40)	185105	16
C20	4.925	-0.008	5948	937			
C22	5.222	-0.008	3432	2979	STODDARD (C8-C12)	298095	11
C24	5.535	0.004	1106	468			
C25	5.679	-0.009	572	301			
C26	5.853	0.006	194	102			
C28	6.170	0.002	33	11			
C32	6.793	0.016	3551	5757			
C34	7.064	0.002	1108	370	CREOSOT (C8-C22)	894786	140
Filter Peak	----						
C36	7.329	-0.002	2211	1090	BUNKERC (C10-C38)	1215899	143
o-terph	4.683	-0.002	233121	211712	JET-A (C10-C18)	856341	54
Triacon Surr	6.482	-0.001	247	149	IT.MOIL (C24-C40)	197917	9

Range Times: NW Diesel(3.426 - 5.581) NW Gas(0.750 - 3.426) NW M.Oil(5.581 - 7.637)
AK102(2.669 - 5.638) AK103(5.638 - 7.381) Jet A(2.669 - 4.655)

Surrogate	Area	Amount	%Rec
o-Terphenyl	211712	12.5	27.7
Triacontane	149	0.0	0.0

Analyte	RF	Curve Date
o-Terph Surr	16983.9	01-NOV-2010
Triacon Surr	15901.0	16-OCT-2010
Gas	15975.0	20-OCT-2010
Diesel	18232.0	01-NOV-2010
Motor Oil	11596.5	15-OCT-2010
AK102	20751.0	01-NOV-2010
AK103	8727.5	29-SEPT-2010
JetA	15848.0	27-JAN-2009
OR Diesel	25401.0	
OR M.Oil	11274.0	
IT M.Oil	21488.2	
Bunker C	8522.1	20-SEP-2010
Creosote	6396.0	17-JAN-2009

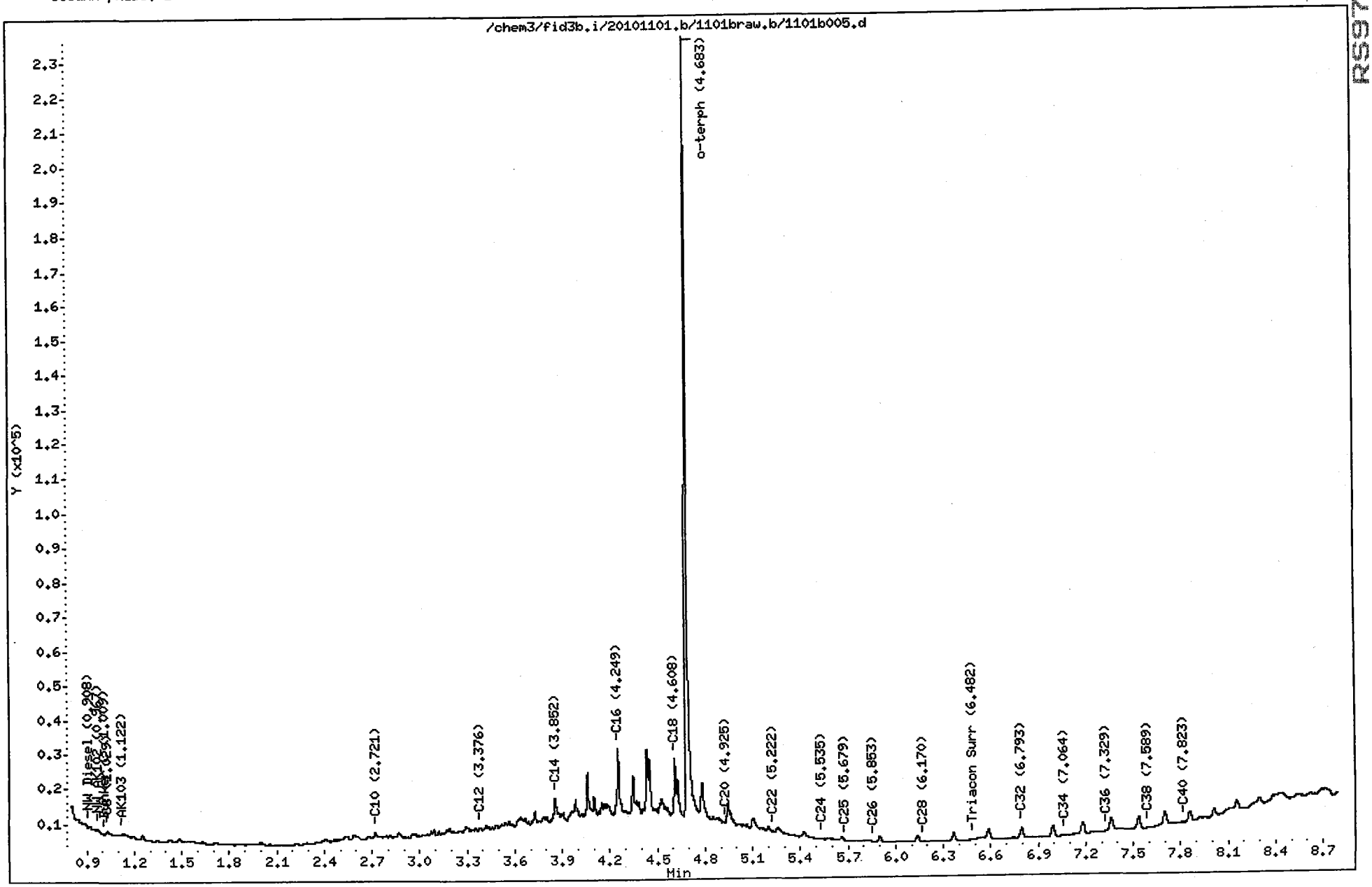
11/3/10

Data File: /chem3/fid3b.i/20101101.b/1101braw.b/1101b005.d
Date : 01-NOV-2010 18:51
Client ID:
Sample Info: DIESEL 50

Instrument: fid3b.i

Operator: MS
Column diameter: 0.25

Column phase: ZB-1HT



RS97:01022

Analytical Resources Inc.
407S TPH Quantitation Report

Data file: /chem3/fid3b.i/20101101.b/1101braw.b/1101b006.d ARI ID: DIESEL 100
Method: /chem3/fid3b.i/20101101.b/ftphfid3b.m
Instrument: fid3b.i
Operator: MS
Report Date: 11/03/2010
Macro: FID:3B110110

Client ID:
Injection: 01-NOV-2010 19:08
Dilution Factor: 1

FID:3B RESULTS

Compound	RT	Shift	Height	Area	Range	Total Area	Conc
Toluene	0.803	0.003	14570	21091	GAS (Tol-C12)	531946	33
C8	1.029	0.002	5409	11214	DIESEL (C12-C24)	1787677	98
C10	2.720	0.001	6843	10763	M.OIL (C24-C38)	106643	9
C12	3.374	-0.001	12011	13971	AK-102 (C10-C25)	2055852	99
C14	3.847	-0.004	29042	37555	AK-103 (C25-C36)	66881	8
C16	4.246	-0.002	61365	80401	OR.DIES (C10-C28)	2070924	82
C18	4.605	0.000	58690	53599	OR.MOIL (C28-C40)	152508	14
C20	4.934	0.002	28664	26186			
C22	5.228	-0.002	5978	1535	STODDARD (C8-C12)	453750	16
C24	5.525	-0.006	2086	2042			
C25	5.691	0.003	995	527			
C26	5.844	-0.003	444	234			
C28	6.171	0.004	42	14			
C32	6.765	-0.012	415	127			
C34	7.063	0.001	731	258	CREOSOT (C8-C22)	1726964	270
Filter Peak	----						
C36	7.331	0.000	1466	348	BUNKERC (C10-C38)	2158001	253
o-terph	4.684	0.000	513399	384239	JET-A (C10-C18)	1596575	101
Triacon Surr	6.483	0.000	121	71	IT.MOIL (C24-C40)	172145	8

Range Times: NW Diesel(3.426 - 5.581) NW Gas(0.750 - 3.426) NW M.Oil(5.581 - 7.637)
AK102(2.669 - 5.638) AK103(5.638 - 7.381) Jet A(2.669 - 4.655)

Surrogate	Area	Amount	%Rec
o-Terphenyl	384239	22.6	50.3
Triacontane	71	0.0	0.0

MM 11/3/10

Analyte	RF	Curve Date
o-Terph Surr	16983.9	01-NOV-2010
Triacon Surr	15901.0	16-OCT-2010
Gas	15975.0	20-OCT-2010
Diesel	18232.0	01-NOV-2010
Motor Oil	11596.5	15-OCT-2010
AK102	20751.0	01-NOV-2010
AK103	8727.5	29-SEPT-2010
JetA	15848.0	27-JAN-2009
OR Diesel	25401.0	
OR M.Oil	11274.0	
IT M.Oil	21488.2	
Bunker C	8522.1	20-SEP-2010
Creosote	6396.0	17-JAN-2009

Data File: /chem3/fid3b.i/20101101.b/1101braw.b/1101b006.d

Date : 01-NOV-2010 19:08

Client ID:

Sample Info: DIESEL 100

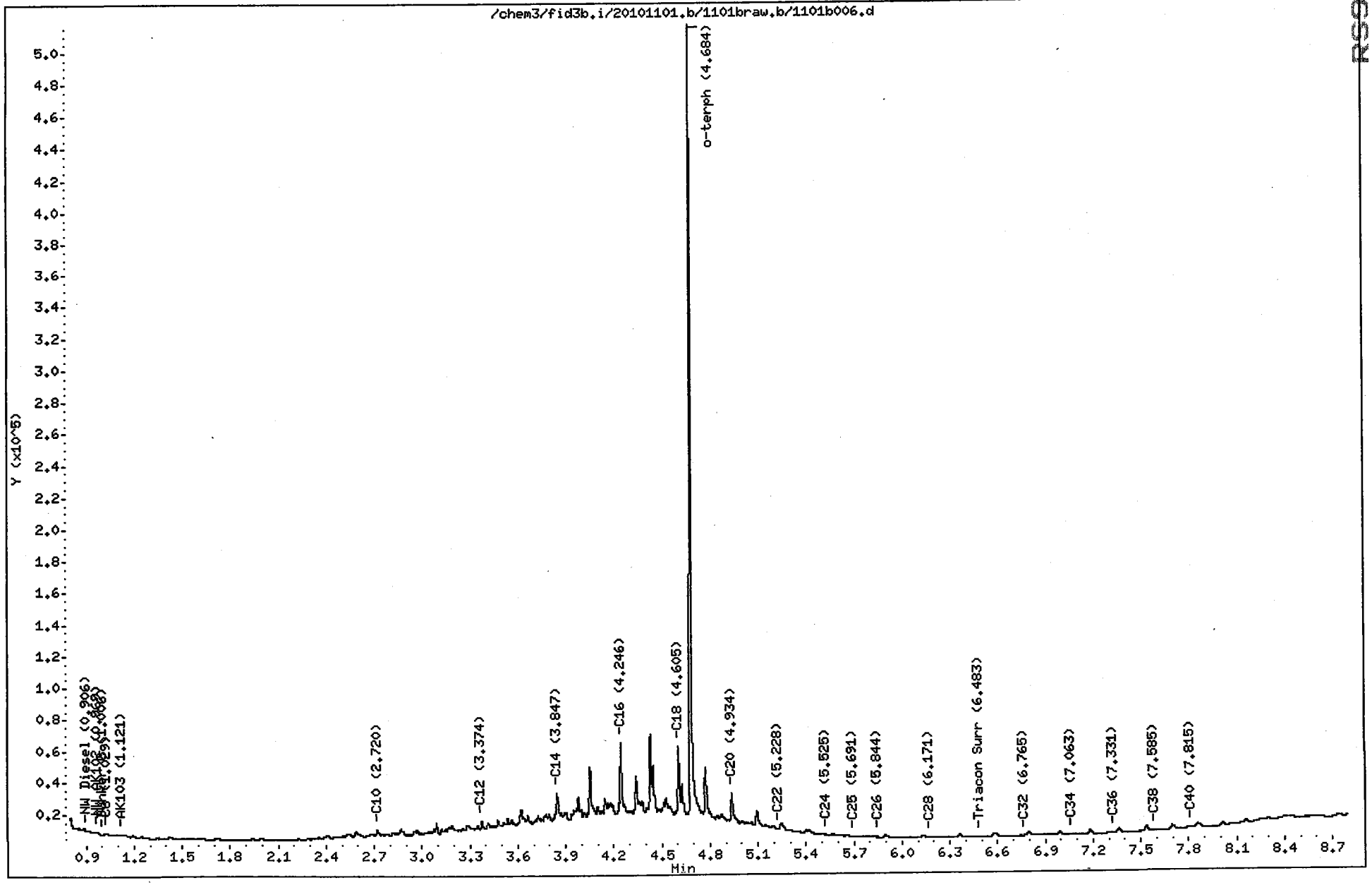
Column phase: ZB-1HT

Instrument: fid3b.i

Operator: MS

Column diameter: 0.25

RS97:01021



Analytical Resources Inc.
407S TPH Quantitation Report

Data file: /chem3/fid3b.i/20101101.b/1101braw.b/1101b007.d ARI ID: DIESEL 250
Method: /chem3/fid3b.i/20101101.b/ftphfid3b.m
Instrument: fid3b.i
Operator: MS
Report Date: 11/03/2010
Macro: FID:3B110110

Client ID:
Injection: 01-NOV-2010 19:26
Dilution Factor: 1

FID:3B RESULTS

Compound	RT	Shift	Height	Area	Range	Total Area	Conc
Toluene	0.803	0.003	17986	23785	GAS (Tol-C12)	992393	62
C8	1.028	0.001	7025	15960	DIESEL (C12-C24)	4456407	244
C10	2.719	0.000	16282	19850	M.OIL (C24-C38)	143783	12
C12	3.371	-0.005	42651	37331	AK-102 (C10-C25)	5078076	245
C14	3.840	-0.010	85149	123822	AK-103 (C25-C36)	91838	11
C16	4.244	-0.004	173209	141320	OR.DIES (C10-C28)	5112889	201
C18	4.603	-0.002	155704	146574	OR.MOIL (C28-C40)	150257	13
C20	4.929	-0.003	88693	101597			
C22	5.231	0.001	33273	51263	STODDARD (C8-C12)	895750	32
C24	5.527	-0.003	4752	1488			
C25	5.685	-0.003	2387	1161			
C26	5.845	-0.002	1103	258			
C28	6.164	-0.003	148	101			
C32	6.791	0.014	4215	5939			
C34	7.061	-0.001	723	267	CREOSOT (C8-C22)	4313422	674
Filter Peak	----						
C36	7.328	-0.003	1469	346	BUNKERC (C10-C38)	5210016	611
o-terph	4.682	-0.002	1246271	874903	JET-A (C10-C18)	3908503	247
Triacon Surr	6.481	-0.002	35	11	IT.MOIL (C24-C40)	196923	9

Range Times: NW Diesel(3.426 - 5.581) NW Gas(0.750 - 3.426) NW M.Oil(5.581 - 7.637)
AK102(2.669 - 5.638) AK103(5.638 - 7.381) Jet A(2.669 - 4.655)

Surrogate	Area	Amount	%Rec
o-Terphenyl	874903	51.5	114.5
Triacontane	11	0.0	0.0

MM 11/3/10

Analyte	RF	Curve Date
o-Terph Surr	16983.9	01-NOV-2010
Triacon Surr	15901.0	16-OCT-2010
Gas	15975.0	20-OCT-2010
Diesel	18232.0	01-NOV-2010
Motor Oil	11596.5	15-OCT-2010
AK102	20751.0	01-NOV-2010
AK103	8727.5	29-SEPT-2010
JetA	15848.0	27-JAN-2009
OR Diesel	25401.0	
OR M.Oil	11274.0	
IT M.Oil	21488.2	
Bunker C	8522.1	20-SEP-2010
Creosote	6396.0	17-JAN-2009

Data File: /chem3/fid3b.i/20101101.b/1101braw.b/1101b007.d

Date : 01-NOV-2010 19:26

Client ID:

Sample Info: DIESEL 250

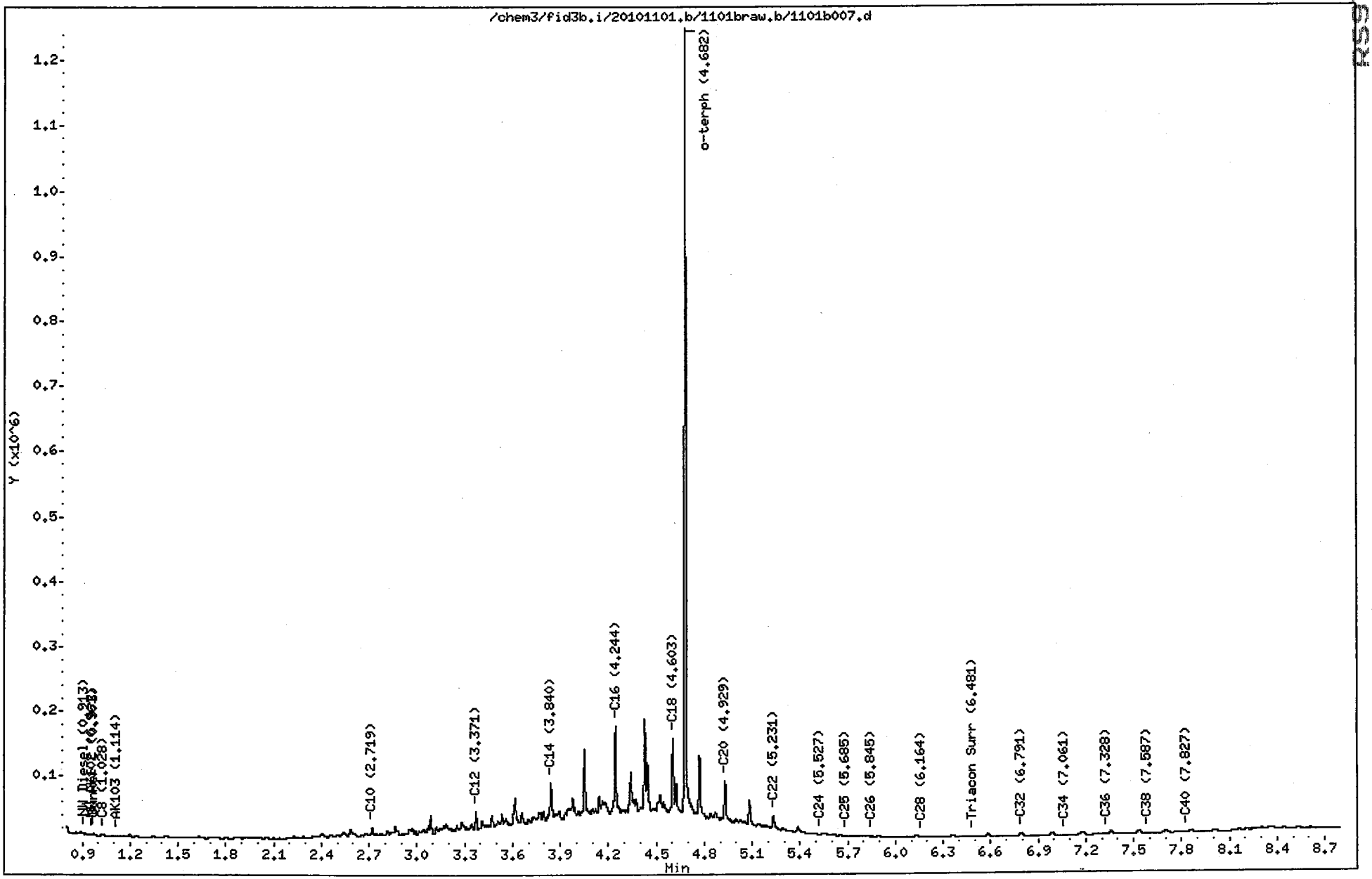
Column phase: ZB-1HT

Instrument: fid3b.i

Operator: MS

Column diameter: 0.25

RS97:01026



Analytical Resources Inc.
407S TPH Quantitation Report

Data file: /chem3/fid3b.i/20101101.b/1101braw.b/1101b008.d ARI ID: DIESEL 500
Method: /chem3/fid3b.i/20101101.b/ftphfid3b.m Client ID:
Instrument: fid3b.i Injection: 01-NOV-2010 19:43
Operator: MS Dilution Factor: 1
Report Date: 11/03/2010
Macro: FID:3B110110

FID:3B RESULTS

Compound	RT	Shift	Height	Area	Range	Total Area	Conc
Toluene	0.831	0.032	10347	8164	GAS (Tol-C12)	1676378	105
C8	1.030	0.004	9283	19758	DIESEL (C12-C24)	8659630	475
C10	2.720	0.001	33000	38653	M.OIL (C24-C38)	399407	34
C12	3.372	-0.003	101741	78500	AK-102 (C10-C25)	9800939	472
C14	3.841	-0.009	181174	229354	AK-103 (C25-C36)	334430	38
C16	4.246	-0.002	348290	363253	OR.DIES (C10-C28)	9939350	391
C18	4.604	-0.001	299810	273214	OR.MOIL (C28-C40)	303924	27
C20	4.931	-0.001	182857	168983			
C22	5.228	-0.002	81534	94482	STODDARD (C8-C12)	1571077	57
C24	5.537	0.006	16795	18266			
C25	5.686	-0.002	4688	1008			
C26	5.847	0.000	2018	278			
C28	6.180	0.013	279	134			
C32	6.791	0.014	25872	25773			
C34	7.064	0.002	494	199	CREOSOT (C8-C22)	8390616	1312
Filter Peak	----						
C36	7.323	-0.008	1020	416	BUNKERC (C10-C38)	10179161	1194
o-terph	4.688	0.004	2358099	1753654	JET-A (C10-C18)	7510919	474
Triacon Surr	6.487	0.004	28	3	IT.MOIL (C24-C40)	463523	22

Range Times: NW Diesel(3.426 - 5.581) NW Gas(0.750 - 3.426) NW M.Oil(5.581 - 7.637)
AK102(2.669 - 5.638) AK103(5.638 - 7.381) Jet A(2.669 - 4.655)

Surrogate	Area	Amount	%Rec
o-Terphenyl	1753654	103.3	229.5
Triacontane	3	0.0	0.0

MR 11/3/10

Analyte	RF	Curve Date
o-Terph Surr	16983.9	01-NOV-2010
Triacon Surr	15901.0	16-OCT-2010
Gas	15975.0	20-OCT-2010
Diesel	18232.0	01-NOV-2010
Motor Oil	11596.5	15-OCT-2010
AK102	20751.0	01-NOV-2010
AK103	8727.5	29-SEPT-2010
JetA	15848.0	27-JAN-2009
OR Diesel	25401.0	
OR M.Oil	11274.0	
IT M.Oil	21488.2	
Bunker C	8522.1	20-SEP-2010
Creosote	6396.0	17-JAN-2009

Data File: /chem3/fid3b.i/20101101.b/1101braw.b/1101b008.d

Date : 01-NOV-2010 19:43

Client ID:

Sample Info: DIESEL 500

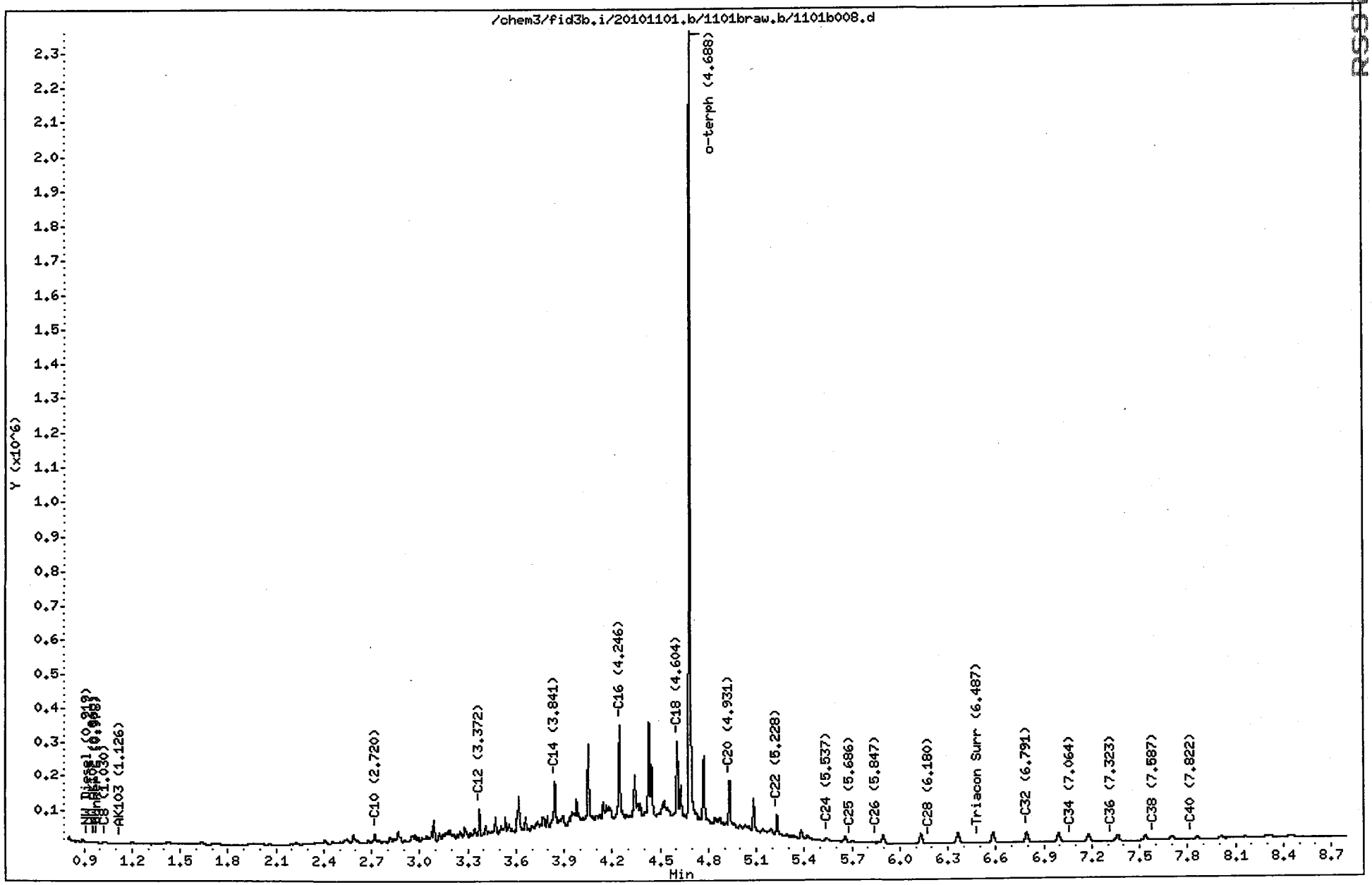
Column phase: ZB-1HT

Instrument: fid3b.i

Operator: MS

Column diameter: 0.25

RS97 : 91028



Analytical Resources Inc.
407S TPH Quantitation Report

Data file: /chem3/fid3b.i/20101101.b/1101braw.b/1101b009.d ARI ID: DIESEL 1000
Method: /chem3/fid3b.i/20101101.b/ftphfid3b.m Client ID:
Instrument: fid3b.i Injection: 01-NOV-2010 20:01
Operator: MS Dilution Factor: 1
Report Date: 11/03/2010
Macro: FID:3B110110

FID:3B RESULTS

Compound	RT	Shift	Height	Area	Range	Total Area	Conc
Toluene	0.835	0.035	10921	13753	GAS (Tol-C12)	3074770	192
C8	1.033	0.007	13456	26881	DIESEL (C12-C24)	17176901	942
C10	2.720	0.001	69114	60401	M.OIL (C24-C38)	219427	19
C12	3.372	-0.004	215753	156733	AK-102 (C10-C25)	19404092	935
C14	3.841	-0.009	374484	371375	AK-103 (C25-C36)	152588	17
C16	4.247	-0.001	699708	677165	OR.DIES (C10-C28)	19531982	769
C18	4.607	0.002	581619	566964	OR.MOIL (C28-C40)	98836	9
C20	4.932	0.000	370278	416242			
C22	5.228	-0.002	170274	180738	STODDARD (C8-C12)	2946381	106
C24	5.531	0.000	36930	40845			
C25	5.694	0.005	14682	14575			
C26	5.847	0.000	4268	1635			
C28	6.167	0.000	730	290			
C32	6.789	0.012	1437	1900			
C34	7.061	-0.001	340	79	CREOSOT (C8-C22)	16615556	2598
Filter Peak	----						
C36	7.331	0.000	784	185	BUNKERC (C10-C38)	19579910	2298
o-terph	4.695	0.011	3850557	3535978	JET-A (C10-C18)	14803258	934
Triacon Surr	6.485	0.002	72	42	IT.MOIL (C24-C40)	270375	13

Range Times: NW Diesel(3.426 - 5.581) NW Gas(0.750 - 3.426) NW M.Oil(5.581 - 7.637)
AK102(2.669 - 5.638) AK103(5.638 - 7.381) Jet A(2.669 - 4.655)

Surrogate	Area	Amount	%Rec
o-Terphenyl	3535978	208.2	462.7
Triacontane	42	0.0	0.0

MH 11/3/10

Analyte	RF	Curve Date
o-Terph Surr	16983.9	01-NOV-2010
Triacon Surr	15901.0	16-OCT-2010
Gas	15975.0	20-OCT-2010
Diesel	18232.0	01-NOV-2010
Motor Oil	11596.5	15-OCT-2010
AK102	20751.0	01-NOV-2010
AK103	8727.5	29-SEPT-2010
JetA	15848.0	27-JAN-2009
OR Diesel	25401.0	
OR M.Oil	11274.0	
IT M.Oil	21488.2	
Bunker C	8522.1	20-SEP-2010
Creosote	6396.0	17-JAN-2009

Data File: /chem3/fid3b.i/20101101.b/1101braw.b/1101b009.d

Date : 01-NOV-2010 20:01

Client ID:

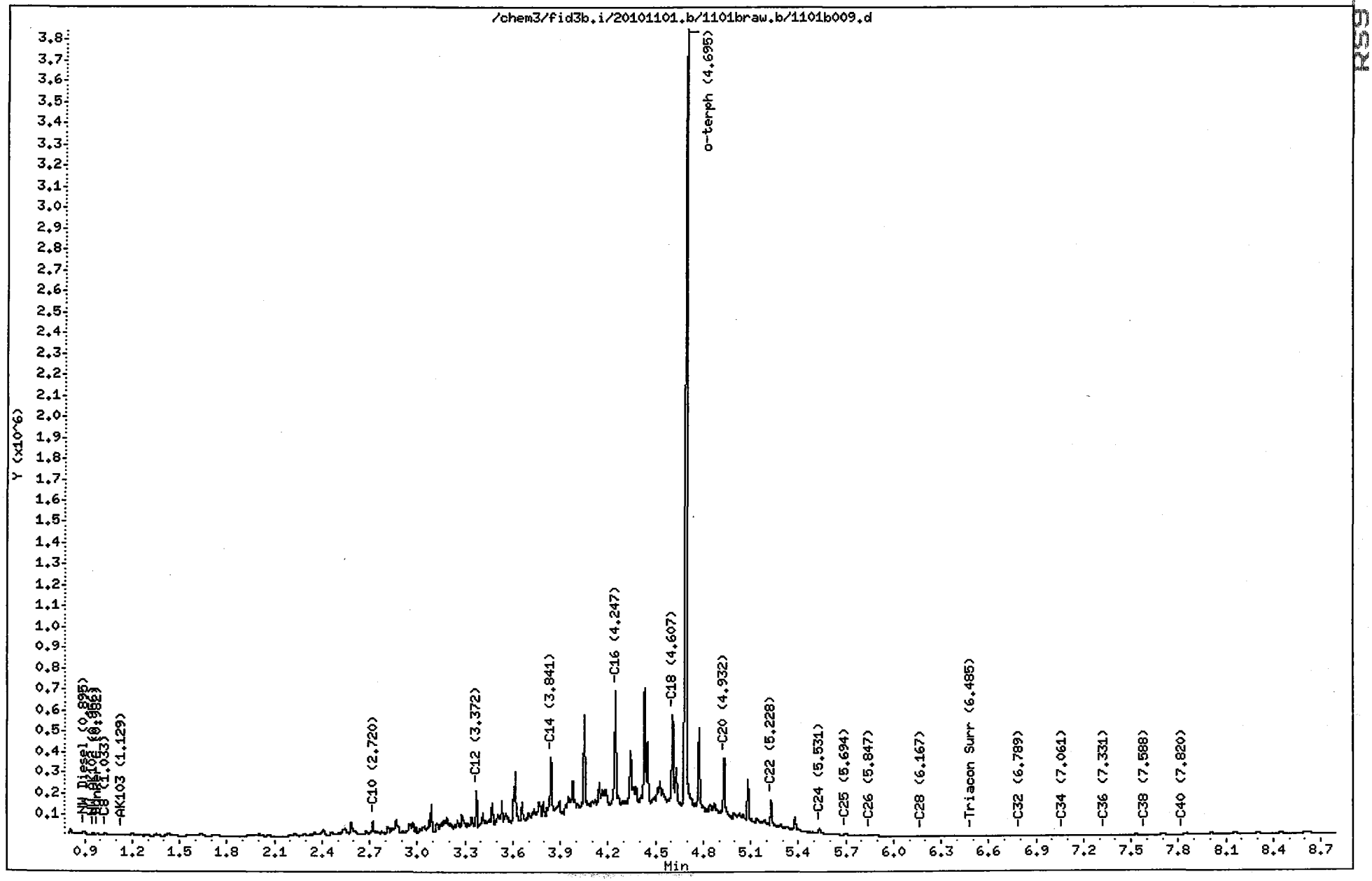
Sample Info: DIESEL 1000

Column phase: ZB-1HT

Instrument: fid3b.i

Operator: MS

Column diameter: 0.25



RS97:01030

Analytical Resources Inc.
407S TPH Quantitation Report

Data file: /chem3/fid3b.i/20101101.b/1101braw.b/1101b010.d ARI ID: DIESEL 2500
Method: /chem3/fid3b.i/20101101.b/ftphfid3b.m Client ID:
Instrument: fid3b.i Injection: 01-NOV-2010 20:18
Operator: MS Dilution Factor: 1
Report Date: 11/03/2010
Macro: FID:3B110110

FID:3B RESULTS

Compound	RT	Shift	Height	Area	Range	Total Area	Conc
Toluene	0.824	0.024	72121	48287	GAS (Tol-C12)	6975022	437
C8	1.039	0.012	23325	24178	DIESEL (C12-C24)	45634219	2503
C10	2.724	0.005	172461	142615	M.OIL (C24-C38)	480743	41
C12	3.375	-0.001	541769	410608	AK-102 (C10-C25)	50934079	2455
C14	3.847	-0.004	907723	1081448	AK-103 (C25-C36)	355432	41
C16	4.252	0.004	1620010	1511128	OR.DIES (C10-C28)	51257756	2018
C18	4.614	0.009	1285989	1449522	OR.MOIL (C28-C40)	99113	9
C20	4.938	0.006	947698	975294			
C22	5.232	0.002	464645	455444	STODDARD (C8-C12)	6787523	245
C24	5.530	-0.001	116816	110239			
C25	5.689	0.000	47604	50306			
C26	5.849	0.002	16025	13289			
C28	6.168	0.001	2005	736			
C32	6.763	-0.014	35	5			
C34	7.066	0.004	206	104	CREOSOT (C8-C22)	44261616	6920
Filter Peak	----						
C36	7.329	-0.002	534	126	BUNKERC (C10-C38)	51308295	6021
o-terph	4.705	0.021	5800648	5345104	JET-A (C10-C18)	35999418	2272
Triacon Surr	6.486	0.003	334	171	IT.MOIL (C24-C40)	529489	25

Range Times: NW Diesel(3.426 - 5.581) NW Gas(0.750 - 3.426) NW M.Oil(5.581 - 7.637)
AK102(2.669 - 5.638) AK103(5.638 - 7.381) Jet A(2.669 - 4.655)

Surrogate	Area	Amount	%Rec
o-Terphenyl	5345104	314.7	699.4
Triacontane	171	0.0	0.0

MO 11/3/10

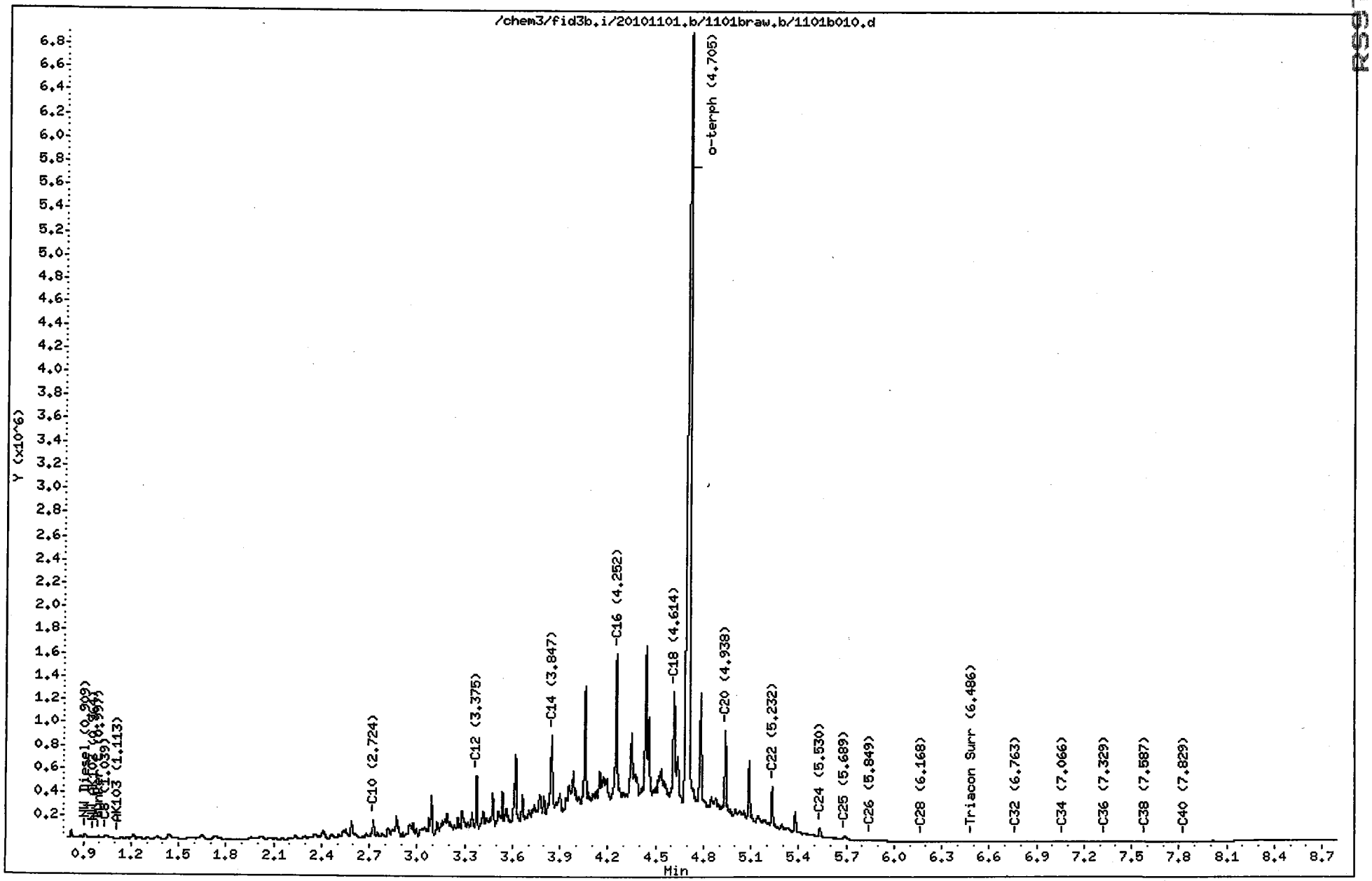
Analyte	RF	Curve Date
o-Terph Surr	16983.9	01-NOV-2010
Triacon Surr	15901.0	16-OCT-2010
Gas	15975.0	20-OCT-2010
Diesel	18232.0	01-NOV-2010
Motor Oil	11596.5	15-OCT-2010
AK102	20751.0	01-NOV-2010
AK103	8727.5	29-SEPT-2010
JetA	15848.0	27-JAN-2009
OR Diesel	25401.0	
OR M.Oil	11274.0	
IT M.Oil	21488.2	
Bunker C	8522.1	20-SEP-2010
Creosote	6396.0	17-JAN-2009

Data File: /chem3/fid3b.i/20101101.b/1101braw.b/1101b010.d
Date : 01-NOV-2010 20:18
Client ID:
Sample Info: DIESEL 2500

Column phase: ZB-1HT

Instrument: fid3b.i

Operator: MS
Column diameter: 0.25



RS97:01032

Analytical Resources, Incorporated
Analytical Chemists and Consultants

GC Analyst Notes / Corrective Action Log

ARI Project ID: 30wtM.Oil, n-Triac. CURVE Client ID: ARF.

ARI SOP: **403S**(PCB) **405S**(Herb) **407S**(TPH-D) **409S**(HCID) **412S**(PCP) **423S**(Pest) **427S**(Dir Inj) **428S**(EPH) **432S**(EDB) **Other**

Parameter(s): 30 wt. M.Oil, n-Triacontane

Instrument: FID-3A FID-3B FID-4A FID-4B FID-5 FID-7 FID-8 FID-9 ECD-1 ECD-3 ECD-4 ECD-5 ECD-6 ECD-7

Dates: Curve: 10/15/10 Analysis Start: 10/15/10

Endrin/DDT Breakdown <15%?	YES / NO / NA	Method Blank In Control?	YES / NO / NA
ICal Meets RF & %RSD Criteria?	YES / NO	LCS/LCSD Recovery In Control?	YES / NO
CCal Meets RF & %RSD Criteria?	YES / NO	Surrogate Recovery In Control?	YES / NO
Manual Integrations for ICal?	YES / NO	Manual Integrations for Samples?	YES / NO
Internal Standard Meets Criteria?	YES / NO / NA	Special Analysis Criteria Met?	YES / NO / NA

Detail problems, corrective actions and/or other pertinent information below (use reverse side when necessary):

The MOil ICV is in at (513/500) = 102.6%.
ms 10/18/10

Additional Details on Reverse: Yes / No

Analyst: ms **Date:** 10/18/10

Reviewer: [signature] **Date:** 10/18/10

Analytical Resources Inc.: Organics Instrument Log

FID-3B Serial No.: US00003232

Date: 10/15/10 Analysis: NWTPH-D Analyst: _____

GC Program: DRAFT Column No: 132-173 Column Type: ~~[illegible]~~

Instrument Tune (.U or .CT.): — EM Voltage: —

Calibration File: — Curve Date: 10/15/10

IS/SS	Ical/Ccal	LCS/ICV
	17001	
	17012	
	17302	
	17102	

	Inject Date/Time	Filename	DF	LabID
1	15-OCT-2010 17:50	1015b001.d	1	RINSE
2	15-OCT-2010 18:07	1015b002.d	1	RINSE
3	15-OCT-2010 18:24	1015b003.d	1	RINSE
4	15-OCT-2010 19:11	1015b004.d	1	RINSE
5	15-OCT-2010 19:41	1015b005.d	1	RINSE
6	15-OCT-2010 19:58	1015b006.d	1	RINSE
7	15-OCT-2010 20:15	1015b007.d	1	RINSE
8	15-OCT-2010 20:33	1015b008.d	1	RINSE
9	15-OCT-2010 20:50	1015b009.d	1	RINSE
10	15-OCT-2010 21:07	1015b010.d	1	RINSE
11	15-OCT-2010 21:25	1015b011.d	1	RINSE
12	15-OCT-2010 21:42	1015b012.d	1	RINSE
13	15-OCT-2010 21:59	1015b013.d	1	RINSE
14	15-OCT-2010 22:16	1015b014.d	1	RINSE
15	15-OCT-2010 22:34	1015b015.d	1	RINSE
16	15-OCT-2010 22:51	1015b016.d	1	RT
17	15-OCT-2010 23:08	1015b017.d	1	IB
18	15-OCT-2010 23:25	1015b018.d	1	DIESEL 50
19	15-OCT-2010 23:42	1015b019.d	1	DIESEL 100
20	15-OCT-2010 23:59	1015b020.d	1	DIESEL 250
21	16-OCT-2010 00:17	1015b021.d	1	DIESEL 500
22	16-OCT-2010 00:34	1015b022.d	1	DIESEL 1000
23	16-OCT-2010 00:51	1015b023.d	1	DIESEL 2500
24	16-OCT-2010 01:08	1015b024.d	1	DIESEL ICV
25	16-OCT-2010 01:25	1015b025.d	1	RINSE
26	16-OCT-2010 01:42	1015b026.d	1	MOIL 100
27	16-OCT-2010 01:59	1015b027.d	1	MOIL 250
28	16-OCT-2010 02:16	1015b028.d	1	MOIL 500
29	16-OCT-2010 02:33	1015b029.d	1	MOIL 1000
30	16-OCT-2010 02:50	1015b030.d	1	MOIL 2500
31	16-OCT-2010 03:07	1015b031.d	1	MOIL 5000
32	16-OCT-2010 03:24	1015b032.d	1	MOIL ICV
33	16-OCT-2010 03:41	1015b033.d	1	RINSE
34	16-OCT-2010 03:58	1015b034.d	1	DIESEL#1
35	16-OCT-2010 04:15	1015b035.d	1	MOIL#1
36	16-OCT-2010 04:32	1015b036.d	1	RQ74MBW1
37	16-OCT-2010 04:49	1015b037.d	1	RQ74LCSW1
38	16-OCT-2010 05:06	1015b038.d	1	RQ74A
39	16-OCT-2010 05:23	1015b039.d	1	RQ75C
40	16-OCT-2010 05:41	1015b040.d	1	RQ29MBS1
41	16-OCT-2010 05:58	1015b041.d	1	RQ29LCSS1
42	16-OCT-2010 06:15	1015b042.d	10	RQ29A
43	16-OCT-2010 06:32	1015b043.d	10	RQ29B
44	16-OCT-2010 06:49	1015b044.d	5	RQ29C
45	16-OCT-2010 07:07	1015b045.d	10	RQ29D
46	16-OCT-2010 07:24	1015b046.d	1	DIESEL#2
47	16-OCT-2010 07:41	1015b047.d	1	MOIL#2
48	16-OCT-2010 07:59	1015b048.d	20	RQ42A
49	16-OCT-2010 08:16	1015b049.d	20	RQ42B
50	16-OCT-2010 08:33	1015b050.d	1	RQ42C
51	16-OCT-2010 08:51	1015b051.d	10	RQ42D
52	16-OCT-2010 09:08	1015b052.d	10	RQ42E
53	16-OCT-2010 09:25	1015b053.d	1	RQ42F
54	16-OCT-2010 09:42	1015b054.d	10	RQ42G
55	16-OCT-2010 09:59	1015b055.d	20	RQ42H
56	16-OCT-2010 10:16	1015b056.d	1	RQ42I
57	16-OCT-2010 10:34	1015b057.d	20	RQ42J
58	16-OCT-2010 10:51	1015b058.d	1	DIESEL#3
59	16-OCT-2010 11:08	1015b059.d	1	MOIL#3
60	16-OCT-2010 11:25	1015b060.d	5	RQ42K
61	16-OCT-2010 11:43	1015b061.d	1	RQ42L
62	16-OCT-2010 12:00	1015b062.d	1	RQ42M
63	16-OCT-2010 12:17	1015b063.d	1	RQ42N
64	16-OCT-2010 12:34	1015b064.d	1	RQ42NMS
65	16-OCT-2010 12:51	1015b065.d	1	RQ42NMSD
66	16-OCT-2010 13:08	1015b066.d	1	RQ42O
67	16-OCT-2010 13:25	1015b067.d	1	RQ42P
68	16-OCT-2010 13:42	1015b068.d	1	DIESEL#4
69	16-OCT-2010 14:00	1015b069.d	1	MOIL#4

MO MO

MO 10/18/10

Maintenance / Comments Reinstalled V2 union prestight, changed septa, clipped precolumns + ~~X~~ column ~~in~~ between. Curved diesel + Moil. MO 10/18/10

Maintenance Verification (Identify ICal or CCal that demonstrates the instrument is in control):

Every line must contain information or be lined out. Make all entries legible. Start a new page for each QC period.

RS97.16035

Analytical Resources, Inc.
RETENTION TIME SUMMARY REPORT

Method File: /chem3/fid3b.i/20101015.b/ftphfid3b.m
Batch File: /chem3/fid3b.i/20101015.b
Inst ID: fid3b.i

ID:	RT01	RT02	RT03	RT04	RT05	RT06
FILENAME:	1015b026	1015b027	1015b028	1015b029	1015b030	1015b031
INJ.DATE:	16-OCT-2010	16-OCT-2010	16-OCT-2010	16-OCT-2010	16-OCT-2010	16-OCT-2010
INJ.TIME:	01:42	01:59	02:16	02:33	02:50	03:07

Compound	RT01	RT02	RT03	RT04	RT05	RT06	EXPEC RT	RT WINDOW	AVG RT	STD DEV
1 Toluene	0.809	0.809	0.812	0.812	0.883	0.810	0.814	0.714-0.914	0.822	0.030
2 C8	1.046	1.037	1.042	1.044	1.040	1.044	1.045	0.945-1.145	1.042	0.003
3 C10	2.724	2.726	2.723	2.726	2.723	2.727	2.727	2.677-2.777	2.725	0.002
4 C12	3.375	3.374	3.373	3.373	3.375	3.379	3.374	3.324-3.424	3.375	0.002
5 C14	3.844	3.844	3.843	3.847	3.843	3.852	3.845	3.795-3.895	3.846	0.004
6 C16	4.248	4.244	4.247	4.247	4.251	4.252	4.246	4.196-4.296	4.248	0.003
7 C18	4.609	4.608	4.609	4.605	4.609	4.610	4.608	4.558-4.658	4.608	0.002
$ 8 o-terph	4.690	4.688	4.685	4.683	4.684	4.687	4.688	4.638-4.738	4.686	0.003
9 C20	4.930	4.936	4.932	4.933	4.933	4.935	4.934	4.884-4.984	4.933	0.002
10 C22	5.234	5.233	5.236	5.238	5.229	5.233	5.235	5.185-5.285	5.234	0.003
11 C24	5.539	5.537	5.536	5.538	5.538	5.539	5.539	5.489-5.589	5.538	0.001
12 C25	5.697	5.697	5.698	5.699	5.699	5.700	5.699	5.649-5.749	5.698	0.001
13 C26	5.859	5.858	5.855	5.852	5.857	5.857	5.856	5.806-5.906	5.856	0.003
14 C28	6.174	6.180	6.178	6.183	6.175	6.175	6.178	6.128-6.228	6.177	0.003
$ 15 Triacon Surr	6.488	6.489	6.496	6.503	6.525	6.554	6.497	6.447-6.547	6.509	0.026
16 C32	6.794	6.798	6.798	6.794	6.795	6.795	6.795	6.745-6.845	6.796	0.002
17 C34	7.080	7.079	7.080	7.080	7.079	7.082	7.079	7.029-7.129	7.080	0.001

Reviewer 1 MP Date: 10/18/10
Reviewer 2 Date:

Analytical Resources, Inc.
RETENTION TIME SUMMARY REPORT

Method File: /chem3/fid3b.i/20101015.b/ftphfid3b.m
Batch File: /chem3/fid3b.i/20101015.b
Inst ID: fid3b.i

Compound	RT01	RT02	RT03	RT04	RT05	RT06	EXPEC RT	RT WINDOW	AVG RT	STD DEV
18 Filter Peak	+++++	+++++	+++++	+++++	+++++	+++++	11.120	11.020-11.220	+++++	+++++
19 C36	7.347	7.350	7.345	7.348	7.348	7.349	7.348	7.298-7.398	7.348	0.002
20 C38	7.609	7.610	7.608	7.607	7.612	7.605	7.610	7.560-7.660	7.609	0.002
21 C40	7.855	7.853	7.857	7.858	7.854	7.858	7.856	7.806-7.906	7.856	0.002
29 NW Diesel	0.928	0.924	0.929	0.921	0.926	0.928	0.925	0.875-0.975	0.926	0.003
30 NW Moil	0.801	0.837	0.845	0.801	+++++	0.805	0.826	0.776-0.876	0.817	0.021
31 NW AK102	1.021	1.027	1.031	1.028	1.024	1.016	1.007	0.957-1.057	1.024	0.006
32 Bunker C	0.977	0.980	0.980	0.983	0.979	0.983	0.993	0.943-1.043	0.980	0.002
33 AK103	1.135	1.132	1.130	1.121	1.131	1.129	1.130	1.080-1.180	1.130	0.004

RS97:01936

NW MOTOR OIL RANGE INITIAL CALIBRATION

Lab Name: ANALYTICAL RESOURCES, INC.

Client: 20101015

Instrument: FID3B.I

Project:

Calibration Date: 16-OCT-2010

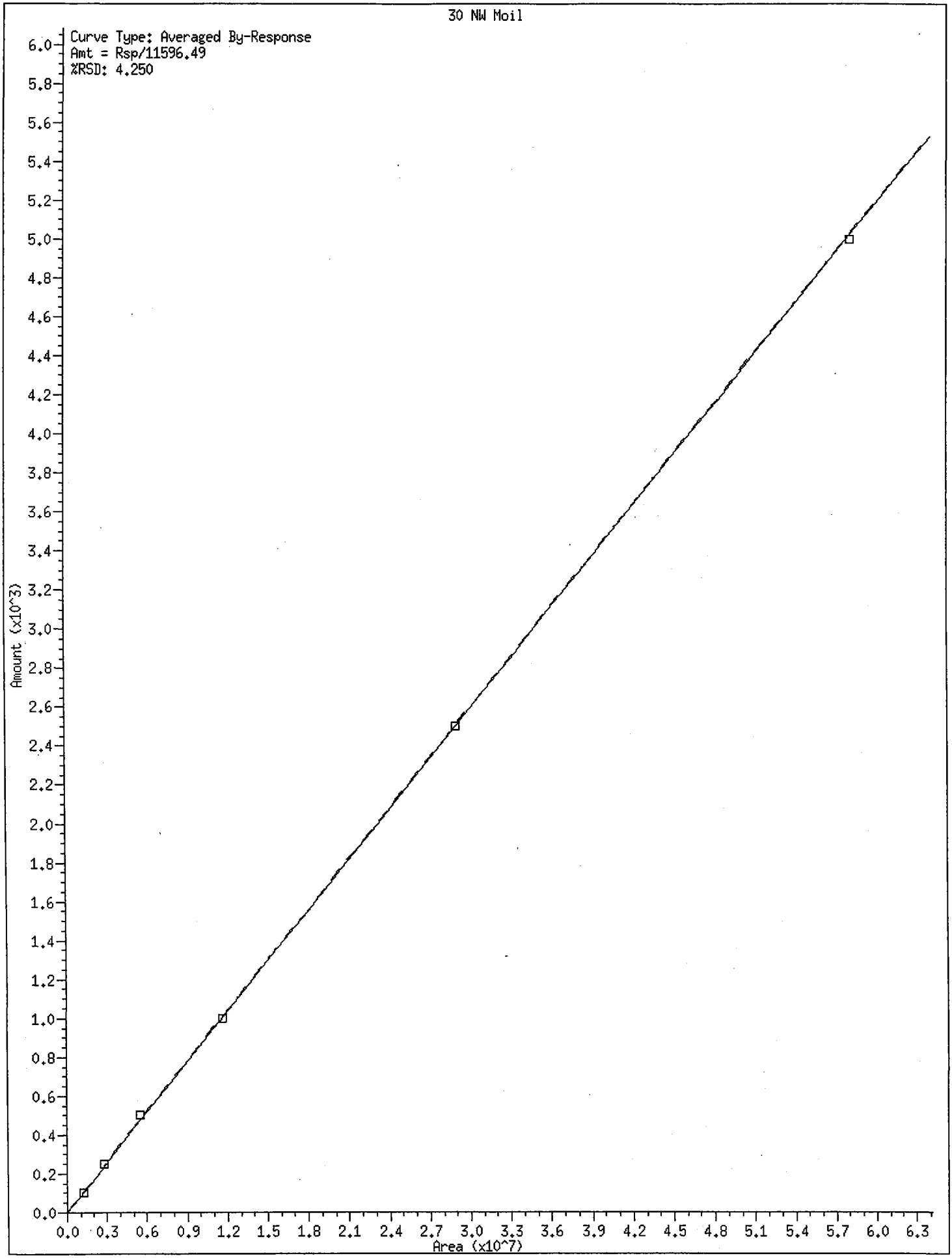
SDG No.: 20101015

Product Range	RF1 100	RF2 250	RF3 500	RF4 1000	RF5 2500	RF6 5000	Ave RF	%RSD
WA M.Oil C24-C38	12434	11245	10982	11684	11580	11655	11596	4.2
Triac Surr	14855	14564	15284	16775	16844	17083	15901	7.1

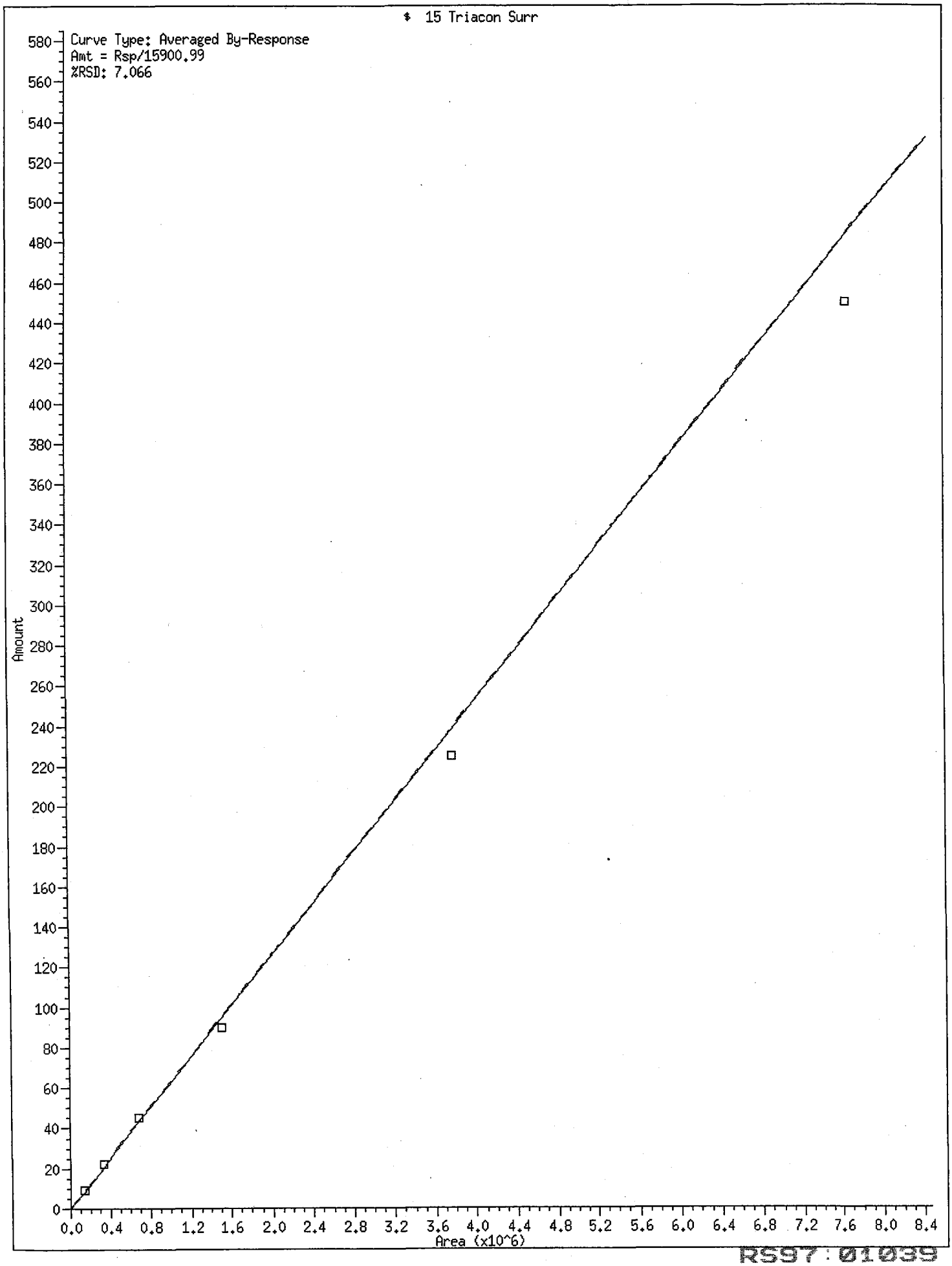
<- Indicates %RSD outside limits
Surrogate areas are not included in Motor Oil RF calculation.

Calibration Files	Analysis Time
1015b026.d	16-OCT-2010 01:42
1015b027.d	16-OCT-2010 01:59
1015b028.d	16-OCT-2010 02:16
1015b029.d	16-OCT-2010 02:33
1015b030.d	16-OCT-2010 02:50
1015b031.d	16-OCT-2010 03:07

FORM VI-M.Oil


30 NW Moil
Curve Type: Averaged By-Response
Amt = Rsp/11596.49
%RSD: 4.250
Amount (x10^3)
Area (x10^7)
0.0
0.2
0.4
0.6
0.8
1.0
1.2
1.4
1.6
1.8
2.0
2.2
2.4
2.6
2.8
3.0
3.2
3.4
3.6
3.8
4.0
4.2
4.4
4.6
4.8
5.0
5.2
5.4
5.6
5.8
6.0
0.0 0.3 0.6 0.9 1.2 1.5 1.8 2.1 2.4 2.7 3.0 3.3 3.6 3.9 4.2 4.5 4.8 5.1 5.4 5.7 6.0 6.3

RS97:01038


$ 15 Triacon Surr
Curve Type: Averaged By-Response
Amt = Rsp/15900.99
%RSD: 7.066
Amount
Area (x10^6)

RS97:01039

TPH ANALYTICAL SEQUENCE

Lab Name: ANALYTICAL RESOURCES, INC Client:

SDG No.: 20101015 Project:

Instrument ID: FID3B GC Column: ZB-1HT

Run Date: 10/16/10

THE ANALYTICAL SEQUENCE OF BLANKS, SAMPLES, AND STANDARDS, IS GIVEN BELOW:

SURROGATE RT FROM DAILY STANDARD
TERPH: 4.69 TRIAC: 6.50

	CLIENT SAMPLE NO.	LAB SAMPLE ID	DATE ANALYZED	TIME ANALYZED	TERPH RT #	TRIAC RT #
01	RT	RT	10/15/10	2251	4.69	6.50
02	IB	IB	10/15/10	2308	4.69	6.50
03	DIESEL 50	DIESEL 50	10/15/10	2325	4.68	6.50
04	DIESEL 100	DIESEL 100	10/15/10	2342	4.69	6.50
05	DIESEL 250	DIESEL 250	10/15/10	2359	4.69	6.50
06	DIESEL 500	DIESEL 500	10/16/10	0017	4.70	6.50
07	DIESEL 1000	DIESEL 1000	10/16/10	0034	4.70	6.50
08	DIESEL 2500	DIESEL 2500	10/16/10	0051	4.72	6.50
09	DIESEL ICV	DIESEL ICV	10/16/10	0108	4.69	6.50
10	RINSE	RINSE	10/16/10	0125	4.69	6.50
11	MOIL 100	MOIL 100	10/16/10	0142	4.69	6.49
12	MOIL 250	MOIL 250	10/16/10	0159	4.69	6.49
13	MOIL 500	MOIL 500	10/16/10	0216	4.69	6.50
14	MOIL 1000	MOIL 1000	10/16/10	0233	4.68	6.50
15	MOIL 2500	MOIL 2500	10/16/10	0250	4.68	6.52
16	MOIL 5000	MOIL 5000	10/16/10	0307	4.69	6.55*
17	MOIL ICV	MOIL ICV	10/16/10	0324	4.69	6.50

QC LIMITS

TERPH = o-terph (+/- 0.05 MINUTES)
TRIAC = Triacon Surr (+/- 0.05 MINUTES)

* Values outside of QC limits.

FORM VIII TPH

Analytical Resources Inc.
407S TPH Quantitation Report

Data file: /chem3/fid3b.i/20101015.b/1015b016.d
Method: /chem3/fid3b.i/20101015.b/ftphfid3b.m
Instrument: fid3b.i
Operator: MS
Report Date: 10/18/2010
Macro: FID:3B101510

ARI ID: RT
Client ID:
Injection: 15-OCT-2010 22:51
Dilution Factor: 1

FID:3B RESULTS

Compound	RT	Shift	Height	Area	Range	Total Area	Conc
Toluene	0.814	0.000	926209	591587	GAS (Tol-C12)	1984496	77
C8	1.045	0.000	361705	340677	DIESEL (C12-C24)	1994113	92
C10	2.727	0.000	500391	357611	M.OIL (C24-C38)	2605993	225
C12	3.374	0.000	491001	327215	AK-102 (C10-C25)	2786758	110
C14	3.845	0.000	437929	329324	AK-103 (C25-C36)	2143180	246
C16	4.246	0.000	514356	321947	OR.DIES (C10-C28)	3790169	149
C18	4.608	0.000	466109	316776	OR.MOIL (C28-C40)	2175587	193
C20	4.934	0.000	430150	293285			
C22	5.235	0.000	380707	280613	STODDARD (C8-C12)	1333972	48
C24	5.539	0.000	356941	286180			
C25	5.699	0.000	457313	392876			
C26	5.856	0.000	321779	287714			
C28	6.178	0.000	298397	296761			
C32	6.795	0.000	304406	328871			
C34	7.079	0.000	301652	345503	CREOSOT (C8-C22)	1679284	263
Filter Peak	----						
C36	7.348	0.000	292250	190246	BUNKERC (C10-C38)	5385932	632
o-terph	4.688	0.000	1741841	1137972	JET-A (C10-C18)	1835539	116
Triacon Surr	6.497	0.000	942103	1062982	IT.MOIL (C24-C40)	4248799	198

Range Times: NW Diesel(3.424 - 5.589) NW Gas(0.764 - 3.424) NW M.Oil(5.589 - 7.660)
AK102(2.677 - 5.649) AK103(5.649 - 7.398) Jet A(2.677 - 4.658)

Surrogate	Area	Amount	%Rec
o-Terphenyl	1137972	59.7	132.6
Triacontane	1062982	66.9	148.6

Mo 10/18/10

Analyte	RF	Curve Date
o-Terph Surr	19066.8	15-OCT-2010
Triacon Surr	15901.0	16-OCT-2010
Gas	25699.2	21-SEPT-2010
Diesel	21626.0	15-OCT-2010
Motor Oil	11596.5	15-OCT-2010
AK102	25261.0	15-OCT-2010
AK103	8727.5	29-SEPT-2010
JetA	15848.0	27-JAN-2009
OR Diesel	25401.0	
OR M.Oil	11274.0	
IT M.Oil	21488.2	
Bunker C	8522.1	20-SEP-2010
Creosote	6396.0	17-JAN-2009

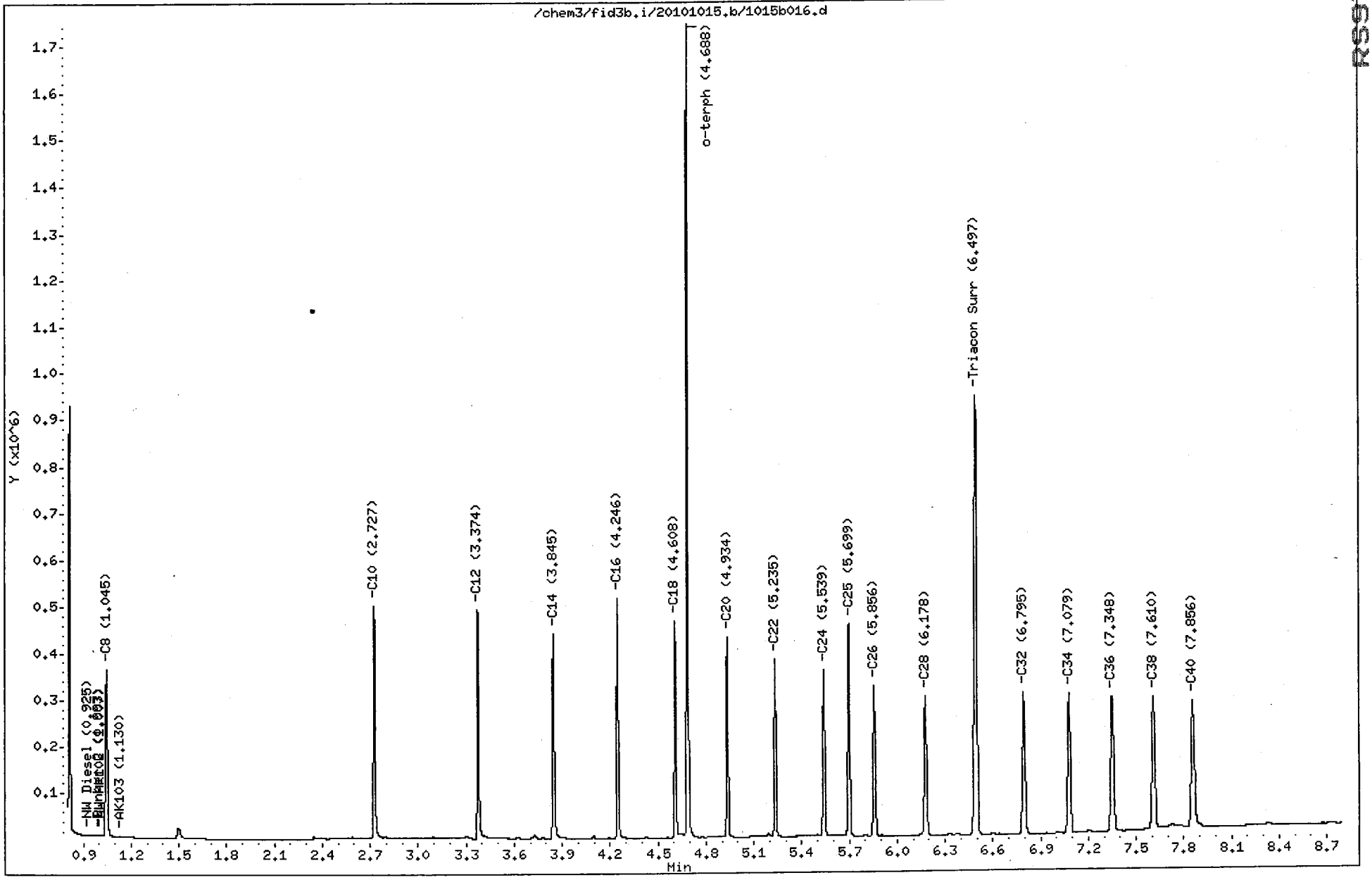
Data File: /chem3/fid3b.i/20101015.b/1015b016.d
Date : 15-OCT-2010 22:51
Client ID:
Sample Info: RT

Column phase: ZB-1HT

Instrument: fid3b.i

Operator: MS
Column diameter: 0.25

RS57:01042



Analytical Resources Inc.
407S TPH Quantitation Report

Data file: /chem3/fid3b.i/20101015.b/1015b017.d
Method: /chem3/fid3b.i/20101015.b/ftphfid3b.m
Instrument: fid3b.i
Operator: MS
Report Date: 10/18/2010
Macro: FID:3B101510

ARI ID: IB
Client ID:
Injection: 15-OCT-2010 23:08
Dilution Factor: 1

FID:3B RESULTS

Compound	RT	Shift	Height	Area	Range	Total Area	Conc
Toluene	0.812	-0.002	49982	80706	GAS (Tol-C12)	507135	20
C8	1.046	0.001	7919	13066	DIESEL (C12-C24)	111056	5
C10	2.726	-0.001	4455	7622	M.OIL (C24-C38)	185586	16
C12	3.377	0.003	2508	4534	AK-102 (C10-C25)	243578	10
C14	3.831	-0.014	1087	463	AK-103 (C25-C36)	121326	14
C16	4.253	0.007	1193	1642	OR.DIES (C10-C28)	256626	10
C18	4.609	0.001	748	658	OR.MOIL (C28-C40)	301626	27
C20	4.934	0.000	564	489			
C22	5.232	-0.003	399	83	STODDARD (C8-C12)	363216	13
C24	5.546	0.007	1971	2080			
C25	5.700	0.002	2519	2082			
C26	5.860	0.004	1833	1836			
C28	6.179	0.001	2136	2626			
C32	6.809	0.014	4204	3968			
C34	7.078	-0.001	1431	503	CREOSOT (C8-C22)	105780	17
Filter Peak	----						
C36	7.340	-0.008	2676	1106	BUNKERC (C10-C38)	428964	50
o-terph	4.689	0.001	1697684	1095160	JET-A (C10-C18)	212662	13
Triacon Surr	6.497	0.000	618815	738132	IT.MOIL (C24-C40)	1053007	49

Range Times: NW Diesel(3.424 - 5.589) NW Gas(0.764 - 3.424) NW M.Oil(5.589 - 7.660)
AK102(2.677 - 5.649) AK103(5.649 - 7.398) Jet A(2.677 - 4.658)

Surrogate	Area	Amount	%Rec
o-Terphenyl	1095160	57.4	127.6
Triacontane	738132	46.4	103.2

MS 10/18/10

Analyte	RF	Curve Date
o-Terph Surr	19066.8	15-OCT-2010
Triacon Surr	15901.0	16-OCT-2010
Gas	25699.2	21-SEPT-2010
Diesel	21626.0	15-OCT-2010
Motor Oil	11596.5	15-OCT-2010
AK102	25261.0	15-OCT-2010
AK103	8727.5	29-SEPT-2010
JetA	15848.0	27-JAN-2009
OR Diesel	25401.0	
OR M.Oil	11274.0	
IT M.Oil	21488.2	
Bunker C	8522.1	20-SEP-2010
Creosote	6396.0	17-JAN-2009

Data File: /chem3/fid3b.i/20101015.b/1015b017.d

Date : 15-OCT-2010 23:08

Client ID:

Sample Info: IB

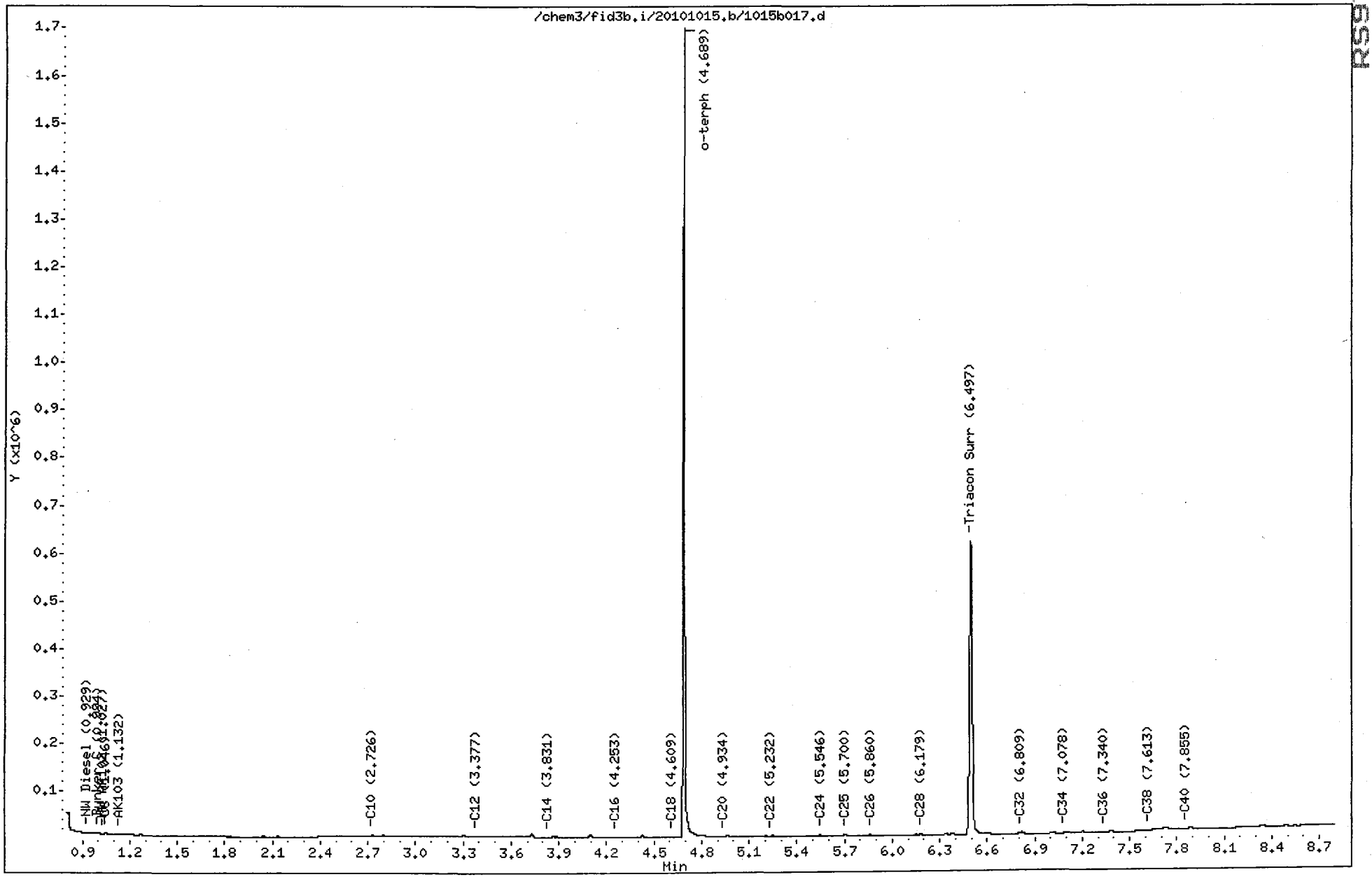
Column phase: ZB-1HT

Instrument: fid3b.i

Operator: MS

Column diameter: 0.25

RS37:01014



Analytical Resources Inc.
407S TPH Quantitation Report

Data file: /chem3/fid3b.i/20101015.b/1015b026.d
Method: /chem3/fid3b.i/20101015.b/ftphfid3b.m
Instrument: fid3b.i
Operator: MS
Report Date: 10/18/2010
Macro: FID:3B101510

ARI ID: MOIL 100
Client ID:
Injection: 16-OCT-2010 01:42
Dilution Factor: 1

FID:3B RESULTS

Compound	RT	Shift	Height	Area	Range	Total Area	Conc
Toluene	0.809	-0.005	28257	40121	GAS (Tol-C12)	558942	22
C8	1.046	0.001	7194	6433	DIESEL (C12-C24)	212168	10
C10	2.724	-0.002	4039	2748	M.OIL (C24-C38)	1243401	107
C12	3.375	0.001	2897	4017	AK-102 (C10-C25)	371571	15
C14	3.844	-0.001	1344	546	AK-103 (C25-C36)	1034548	119 M
C16	4.248	0.002	492	123	OR.DIES (C10-C28)	641991	25
C18	4.609	0.002	112	58	OR.MOIL (C28-C40)	1142473	101 M
C20	4.930	-0.004	603	285			
C22	5.234	-0.001	3055	1230	STODDARD (C8-C12)	398335	14
C24	5.539	0.000	5097	2696			
C25	5.697	-0.002	6560	1924			
C26	5.859	0.003	7411	1907			
C28	6.174	-0.004	8779	5966			
C32	6.794	-0.001	11238	2442			
C34	7.080	0.001	12029	4920	CREOSOT (C8-C22)	128802	20
Filter Peak	----						
C36	7.347	-0.001	12101	10326	BUNKERC (C10-C38)	1593172	187
o-terph	4.690	0.002	2743	2291	JET-A (C10-C18)	220695	14
Triacon Surr	6.488	-0.009	128111	133698	IT.MOIL (C24-C40)	1568390	73

Range Times: NW Diesel(3.424 - 5.589) NW Gas(0.764 - 3.424) NW M.Oil(5.589 - 7.660)
AK102(2.677 - 5.649) AK103(5.649 - 7.398) Jet A(2.677 - 4.658)

Surrogate	Area	Amount	%Rec
o-Terphenyl	2291	0.1	0.3
Triacontane	133698	8.4	18.7

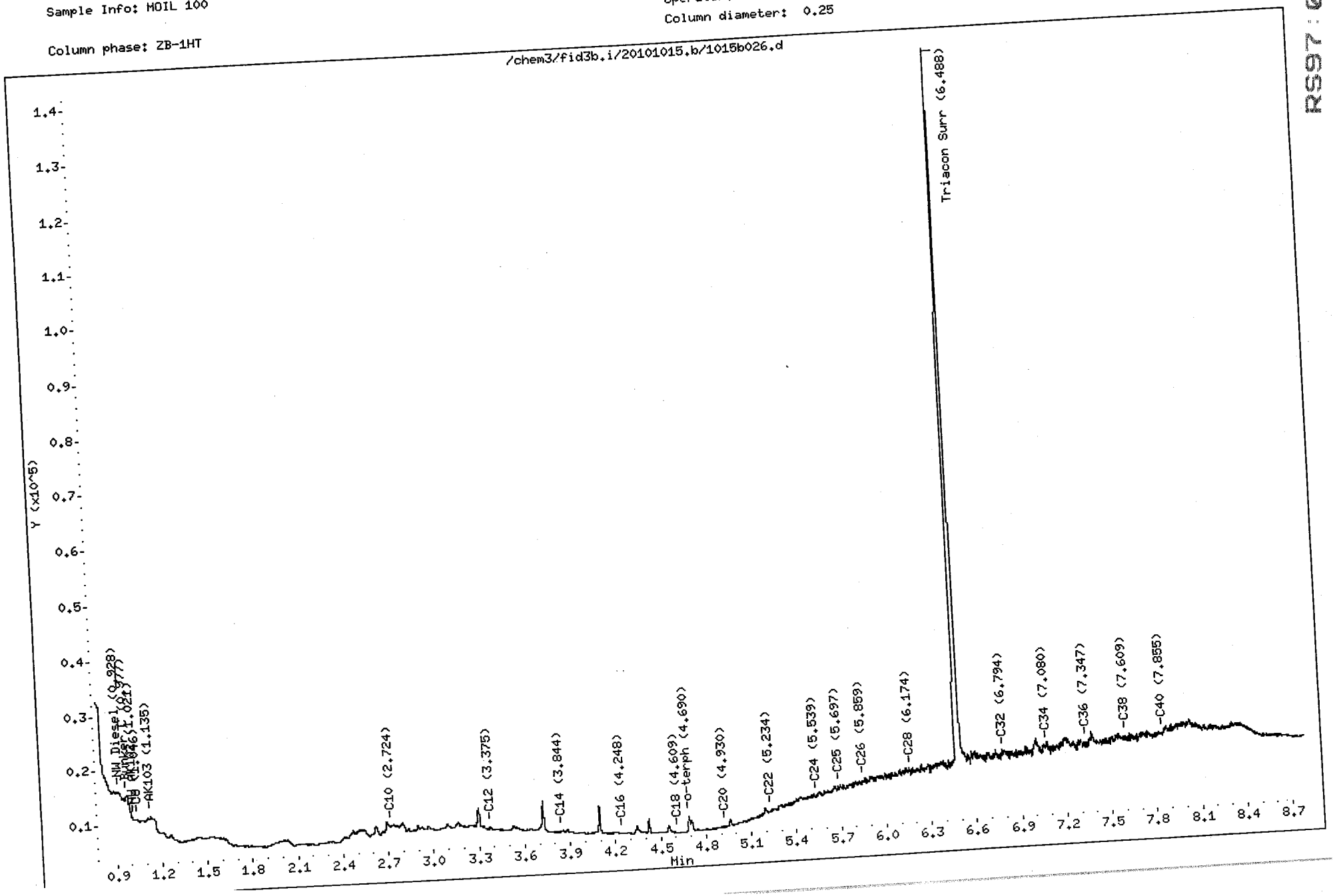
Analyte	RF	Curve Date
o-Terph Surr	19066.8	15-OCT-2010
Triacon Surr	15901.0	16-OCT-2010
Gas	25699.2	21-SEPT-2010
Diesel	21626.0	15-OCT-2010
Motor Oil	11596.5	15-OCT-2010
AK102	25261.0	15-OCT-2010
AK103	8727.5	29-SEPT-2010
JetA	15848.0	27-JAN-2009
OR Diesel	25401.0	
OR M.Oil	11274.0	
IT M.Oil	21488.2	
Bunker C	8522.1	20-SEP-2010
Creosote	6396.0	17-JAN-2009

Data File: /chem3/fid3b.i/20101015.b/1015b026.d
Date : 16-OCT-2010 01:42
Client ID:
Sample Info: MOIL 100

Column phase: ZB-1HT

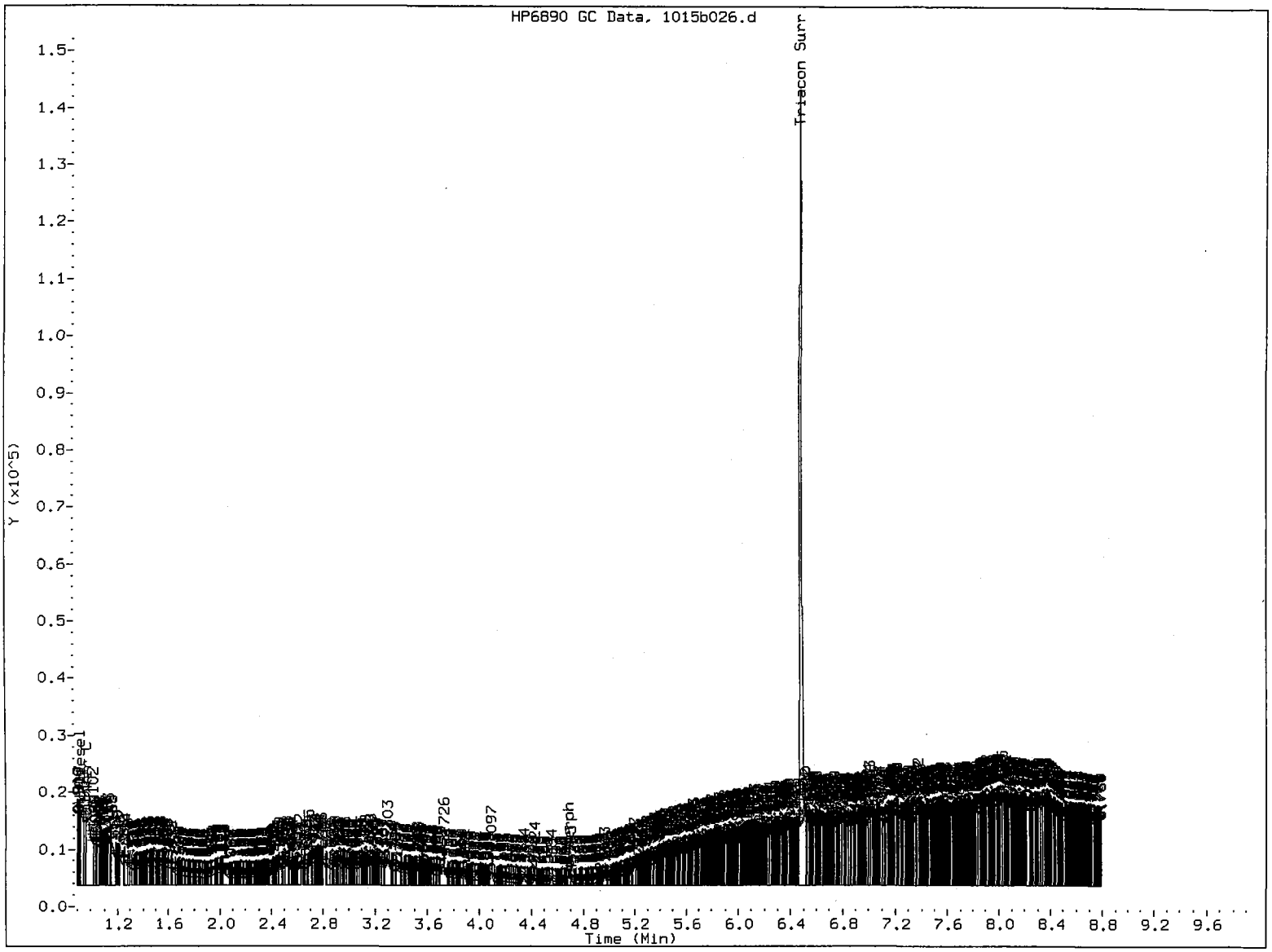
Instrument: fid3b.i

Operator: MS
Column diameter: 0.25



RS97 : 01.01.16

FID:3B-2C/RTX-1 MOIL 100 FID:3B SIGNAL



MANUAL INTEGRATION

1. Baseline correction
2. Poor chromatography
3. Peak not found
4. Totals calculation

5. Other _____

Analyst: MM Date: 10/18/10

RS97:01047

Analytical Resources Inc.
407S TPH Quantitation Report

Data file: /chem3/fid3b.i/20101015.b/1015b027.d
Method: /chem3/fid3b.i/20101015.b/ftphfid3b.m
Instrument: fid3b.i
Operator: MS
Report Date: 10/18/2010
Macro: FID:3B101510

ARI ID: MOIL 250
Client ID:
Injection: 16-OCT-2010 01:59
Dilution Factor: 1

FID:3B RESULTS

Compound	RT	Shift	Height	Area	Range	Total Area	Conc
Toluene	0.809	-0.006	40770	49032	GAS (Tol-C12)	574889	22
C8	1.037	-0.008	7626	8903	DIESEL (C12-C24)	390138	18
C10	2.726	0.000	4379	3381	M.OIL (C24-C38)	2811172	242
C12	3.374	0.000	2964	4441	AK-102 (C10-C25)	587391	23
C14	3.844	-0.001	1327	565	AK-103 (C25-C36)	2349902	269 M
C16	4.244	-0.002	396	68	OR.DIES (C10-C28)	1206884	48
C18	4.608	0.000	134	52	OR.MOIL (C28-C40)	2504060	222 M
C20	4.936	0.002	1749	1138			
C22	5.233	-0.002	7151	1945	STODDARD (C8-C12)	416362	15
C24	5.537	-0.002	13074	5005			
C25	5.697	-0.002	15364	6498			
C26	5.858	0.003	17576	8760			
C28	6.180	0.002	21061	4538			
C32	6.798	0.003	26643	12789			
C34	7.079	0.001	28009	7112	CREOSOT (C8-C22)	192612	30
Filter Peak	----						
C36	7.350	0.002	25187	4463	BUNKERC (C10-C38)	3344309	392
o-terph	4.688	0.000	821	673	JET-A (C10-C18)	229074	14
Triacon Surr	6.489	-0.008	328637	327700	IT.MOIL (C24-C40)	3505507	163

Range Times: NW Diesel(3.424 - 5.589) NW Gas(0.764 - 3.424) NW M.Oil(5.589 - 7.660)
AK102(2.677 - 5.649) AK103(5.649 - 7.398) Jet A(2.677 - 4.658)

Surrogate	Area	Amount	%Rec
o-Terphenyl	673	0.0	0.1
Triacontane	327700	20.6	45.8

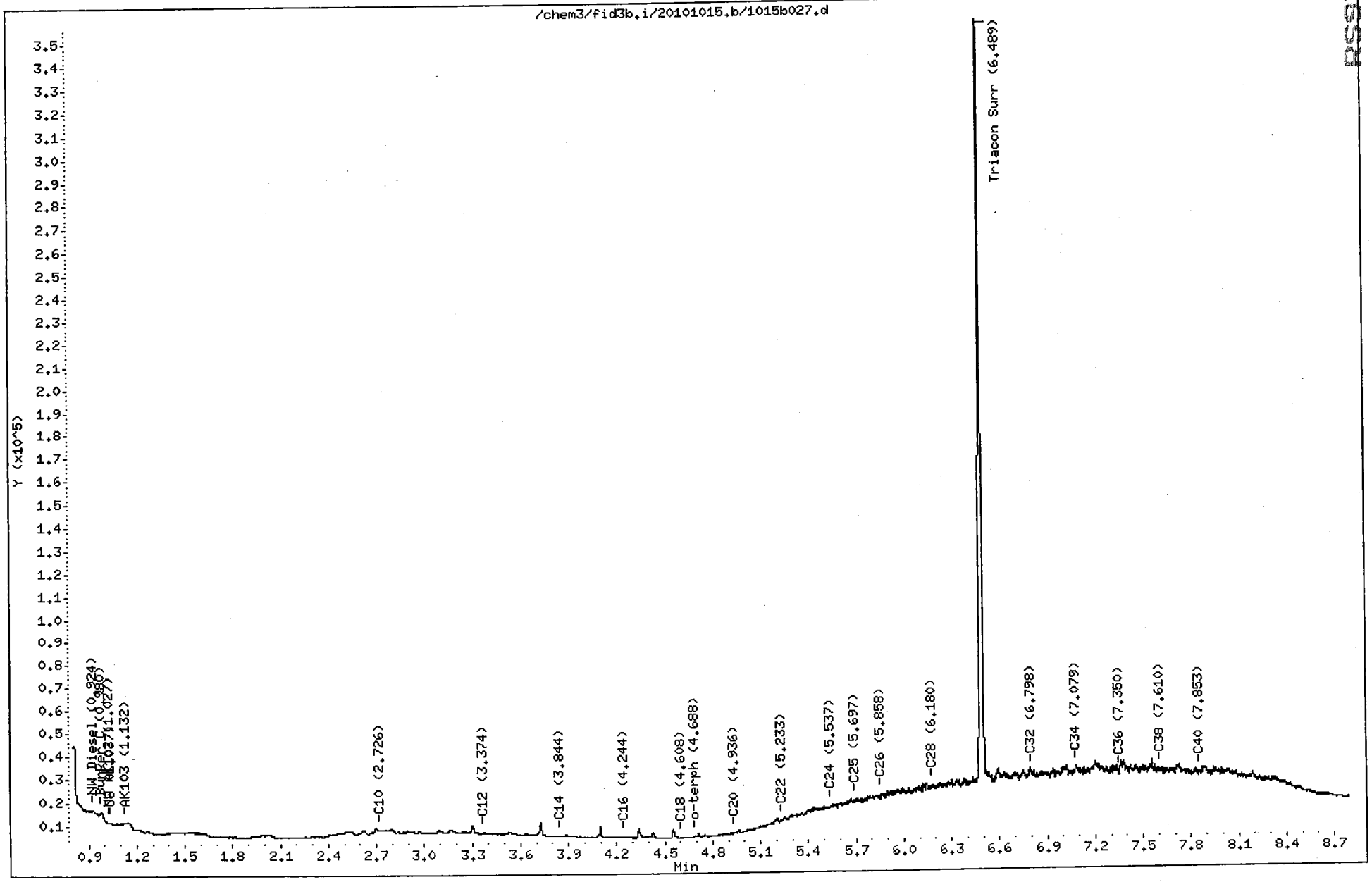
Analyte	RF	Curve Date
o-Terph Surr	19066.8	15-OCT-2010
Triacon Surr	15901.0	16-OCT-2010
Gas	25699.2	21-SEPT-2010
Diesel	21626.0	15-OCT-2010
Motor Oil	11596.5	15-OCT-2010
AK102	25261.0	15-OCT-2010
AK103	8727.5	29-SEPT-2010
JetA	15848.0	27-JAN-2009
OR Diesel	25401.0	
OR M.Oil	11274.0	
IT M.Oil	21488.2	
Bunker C	8522.1	20-SEP-2010
Creosote	6396.0	17-JAN-2009

Data File: /chem3/fid3b.i/20101015.b/1015b027.d
Date : 16-OCT-2010 01:59
Client ID:
Sample Info: MOIL 250

Column phase: ZB-1HT

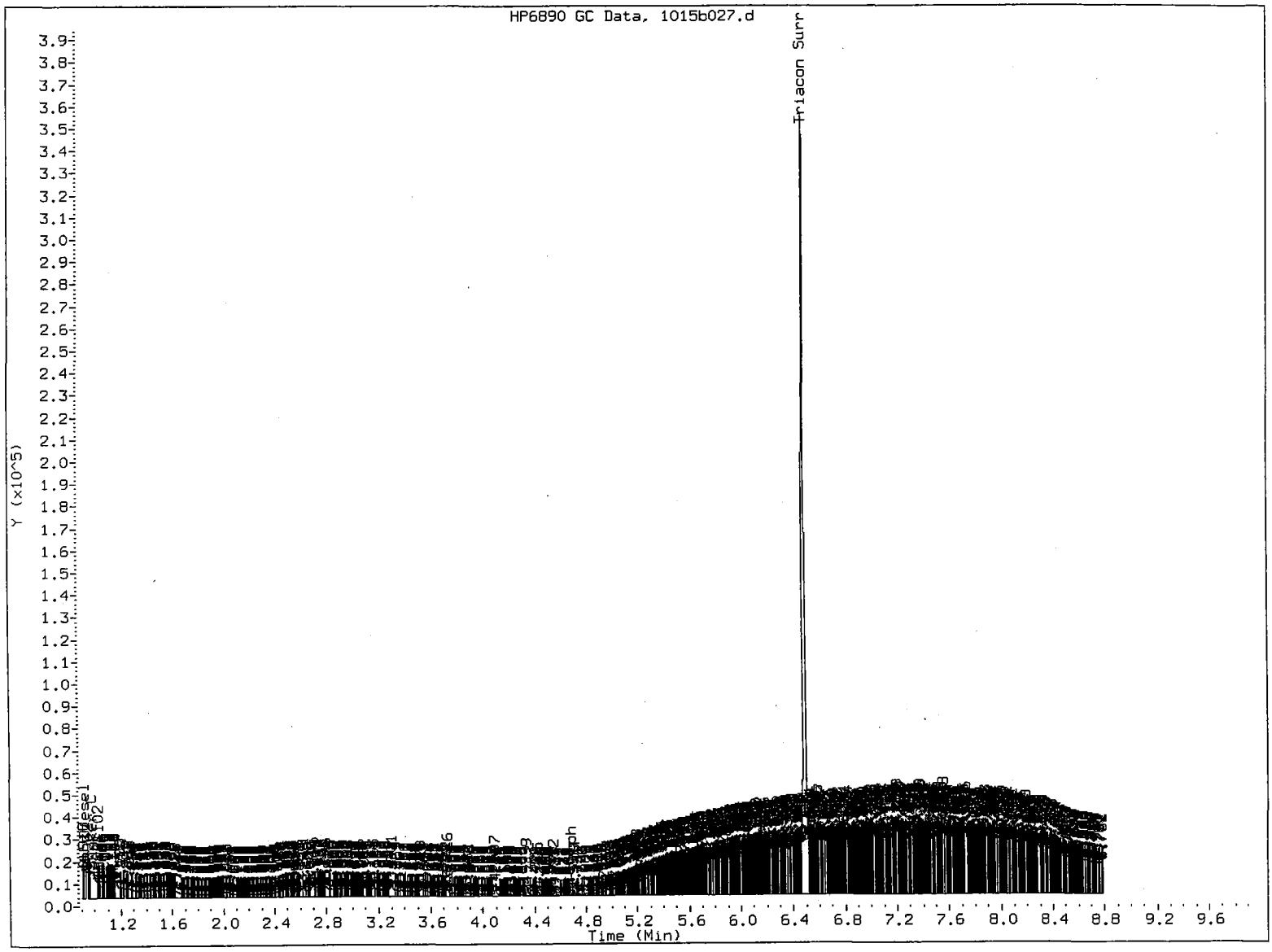
Instrument: fid3b.i

Operator: MS
Column diameter: 0.25



RS97:01049

FID:3B-2C/RTX-1 MOIL 250 FID:3B SIGNAL



MANUAL INTEGRATION

1. Baseline correction
2. Poor chromatography
3. Peak not found
4. Totals calculation

5. Other _____

Analyst: MM Date: 10/18/10

RS97:01050

Analytical Resources Inc.
407S TPH Quantitation Report

Data file: /chem3/fid3b.i/20101015.b/1015b028.d
Method: /chem3/fid3b.i/20101015.b/ftphfid3b.m
Instrument: fid3b.i
Operator: MS
Report Date: 10/18/2010
Macro: FID:3B101510

ARI ID: MOIL 500
Client ID:
Injection: 16-OCT-2010 02:16
Dilution Factor: 1

FID:3B RESULTS

Compound	RT	Shift	Height	Area	Range	Total Area	Conc
Toluene	0.812	-0.003	56425	29350	GAS (Tol-C12)	595614	23
C8	1.042	-0.003	7908	5956	DIESEL (C12-C24)	653076	30
C10	2.723	-0.003	4876	4427	M.OIL (C24-C38)	5490898	473
C12	3.373	-0.001	3072	4023	AK-102 (C10-C25)	893104	35
C14	3.843	-0.002	1201	396	AK-103 (C25-C36)	4610967	528 M
C16	4.247	0.001	299	145	OR.DIES (C10-C28)	2054602	81
C18	4.609	0.001	159	163	OR.MOIL (C28-C40)	4922868	437 M
C20	4.932	-0.002	2998	1499			
C22	5.236	0.001	13730	2957	STODDARD (C8-C12)	411790	15
C24	5.536	-0.003	24251	14647			
C25	5.698	-0.001	29588	3505			
C26	5.855	-0.001	34845	20948			
C28	6.178	0.000	40584	17583			
C32	6.798	0.003	50956	7038			
C34	7.080	0.001	55990	18614	CREOSOT (C8-C22)	283948	44
Filter Peak	----						
C36	7.345	-0.003	53517	23043	BUNKERC (C10-C38)	6289479	738
o-terph	4.685	-0.002	1066	913	JET-A (C10-C18)	227612	14
Triacon Surr	6.496	0.000	611424	687768	IT.MOIL (C24-C40)	6866657	320

Range Times: NW Diesel(3.424 - 5.589) NW Gas(0.764 - 3.424) NW M.Oil(5.589 - 7.660)
AK102(2.677 - 5.649) AK103(5.649 - 7.398) Jet A(2.677 - 4.658)

Surrogate	Area	Amount	%Rec
o-Terphenyl	913	0.0	0.1
Triacontane	687768	43.3	96.1

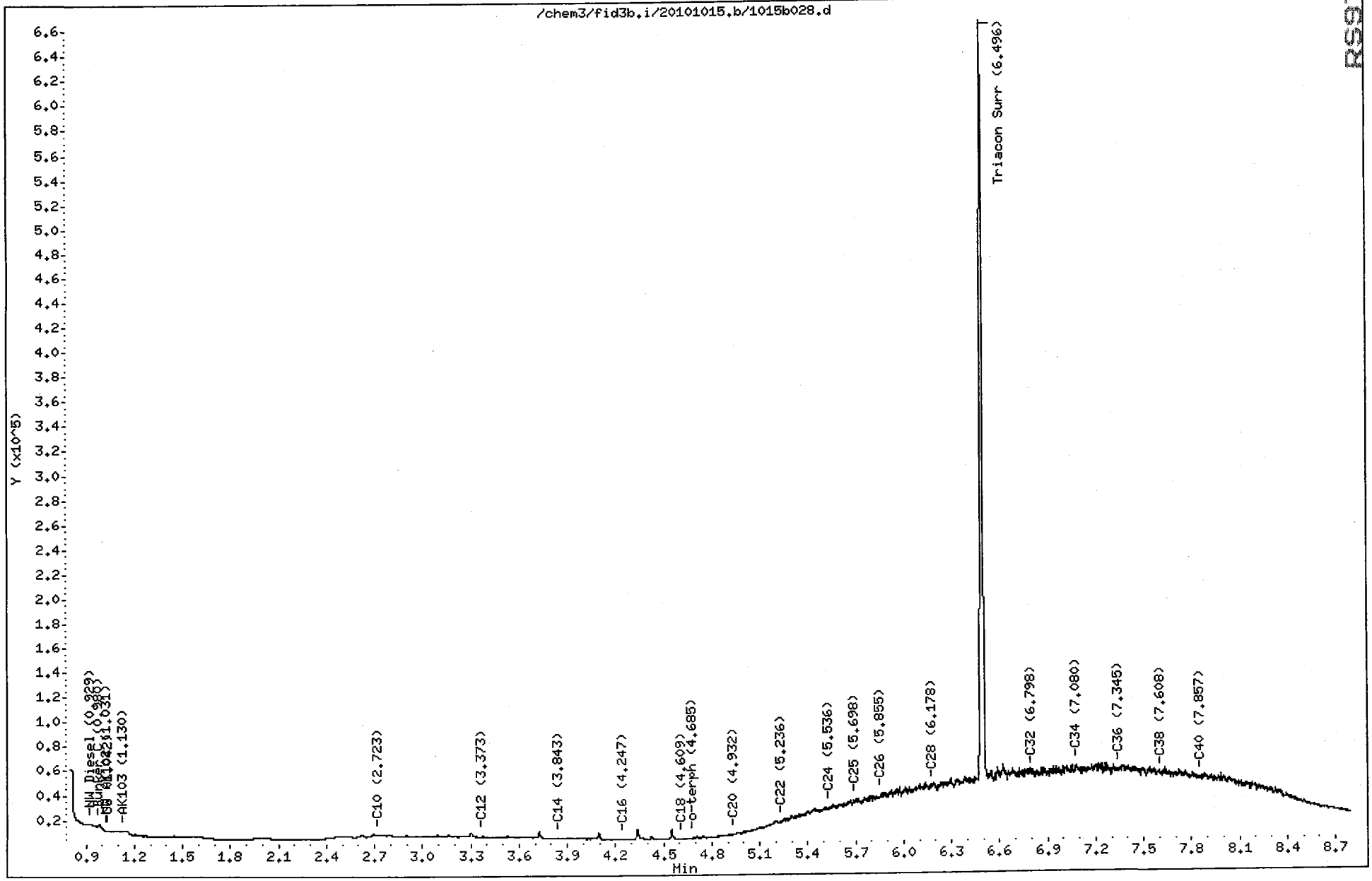
Analyte	RF	Curve Date
o-Terph Surr	19066.8	15-OCT-2010
Triacon Surr	15901.0	16-OCT-2010
Gas	25699.2	21-SEPT-2010
Diesel	21626.0	15-OCT-2010
Motor Oil	11596.5	15-OCT-2010
AK102	25261.0	15-OCT-2010
AK103	8727.5	29-SEPT-2010
JetA	15848.0	27-JAN-2009
OR Diesel	25401.0	
OR M.Oil	11274.0	
IT M.Oil	21488.2	
Bunker C	8522.1	20-SEP-2010
Creosote	6396.0	17-JAN-2009

Data File: /chem3/fid3b.i/20101015.b/1015b028.d
Date : 16-OCT-2010 02:16
Client ID:
Sample Info: MOIL 500

Instrument: fid3b.i

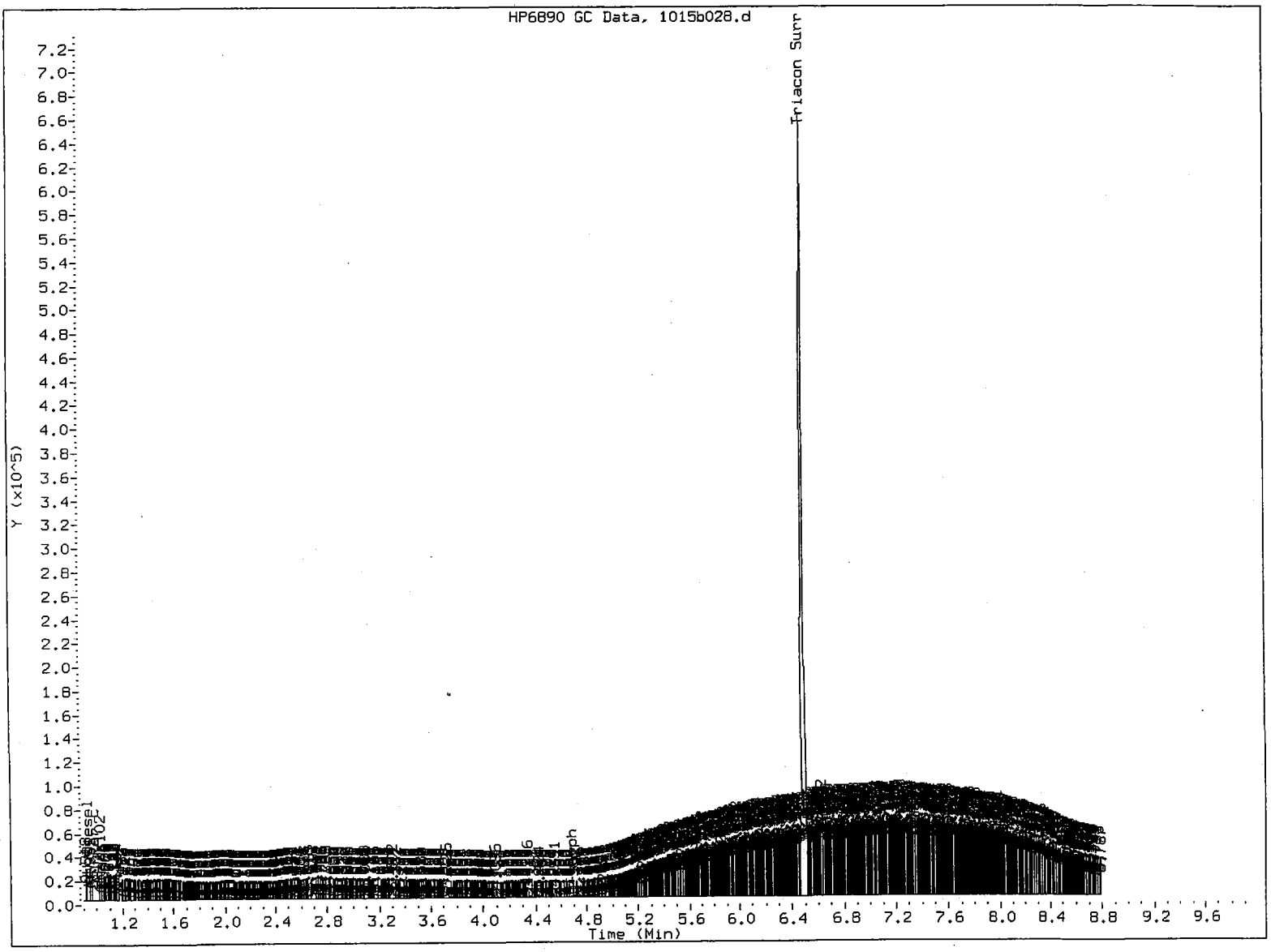
Operator: MS
Column diameter: 0.25

Column phase: ZB-1HT



RS87 : 91052

FID:3B-2C/RTX-1 MOIL 500 FID:3B SIGNAL



MANUAL INTEGRATION

1. Baseline correction
2. Poor chromatography
3. Peak not found
4. Totals calculation

5. Other _____

Analyst: MM Date: 10/18/10

RS97:01053

Analytical Resources Inc.
407S TPH Quantitation Report

Data file: /chem3/fid3b.i/20101015.b/1015b029.d
Method: /chem3/fid3b.i/20101015.b/ftphfid3b.m
Instrument: fid3b.i
Operator: MS
Report Date: 10/18/2010
Macro: FID:3B101510

ARI ID: MOIL 1000
Client ID:
Injection: 16-OCT-2010 02:33
Dilution Factor: 1

FID:3B RESULTS

Compound	RT	Shift	Height	Area	Range	Total Area	Conc
Toluene	0.812	-0.002	98519	86376	GAS (Tol-C12)	659236	26
C8	1.044	-0.001	8537	7410	DIESEL (C12-C24)	1332087	62
C10	2.726	-0.001	5216	6352	M.OIL (C24-C38)	11683733	1008
C12	3.373	-0.001	3357	5354	AK-102 (C10-C25)	1703388	67
C14	3.847	0.002	1400	787	AK-103 (C25-C36)	9844164	1128 M
C16	4.247	0.001	309	78	OR.DIES (C10-C28)	4232280	167
C18	4.605	-0.002	633	541	OR.MOIL (C28-C40)	10379462	921 M
C20	4.933	-0.001	7465	1846			
C22	5.238	0.003	30245	21439	STODDARD (C8-C12)	424402	15
C24	5.538	-0.001	50190	9934			
C25	5.699	0.000	63134	21902			
C26	5.852	-0.004	73265	32147			
C28	6.183	0.005	91815	47221			
C32	6.794	-0.001	107700	19074			
C34	7.080	0.001	119939	21023	CREOSOT (C8-C22)	560100	88
Filter Peak	----						
C36	7.348	0.000	112697	63184	BUNKERC (C10-C38)	13167943	1545
o-terph	4.683	-0.005	2038	2132	JET-A (C10-C18)	251710	16
Triacon Surr	6.503	0.007	1224325	1509716	IT.MOIL (C24-C40)	14637248	681

Range Times: NW Diesel(3.424 - 5.589) NW Gas(0.764 - 3.424) NW M.Oil(5.589 - 7.660)
AK102(2.677 - 5.649) AK103(5.649 - 7.398) Jet A(2.677 - 4.658)

Surrogate	Area	Amount	%Rec
o-Terphenyl	2132	0.1	0.2
Triacontane	1509716	94.9	211.0

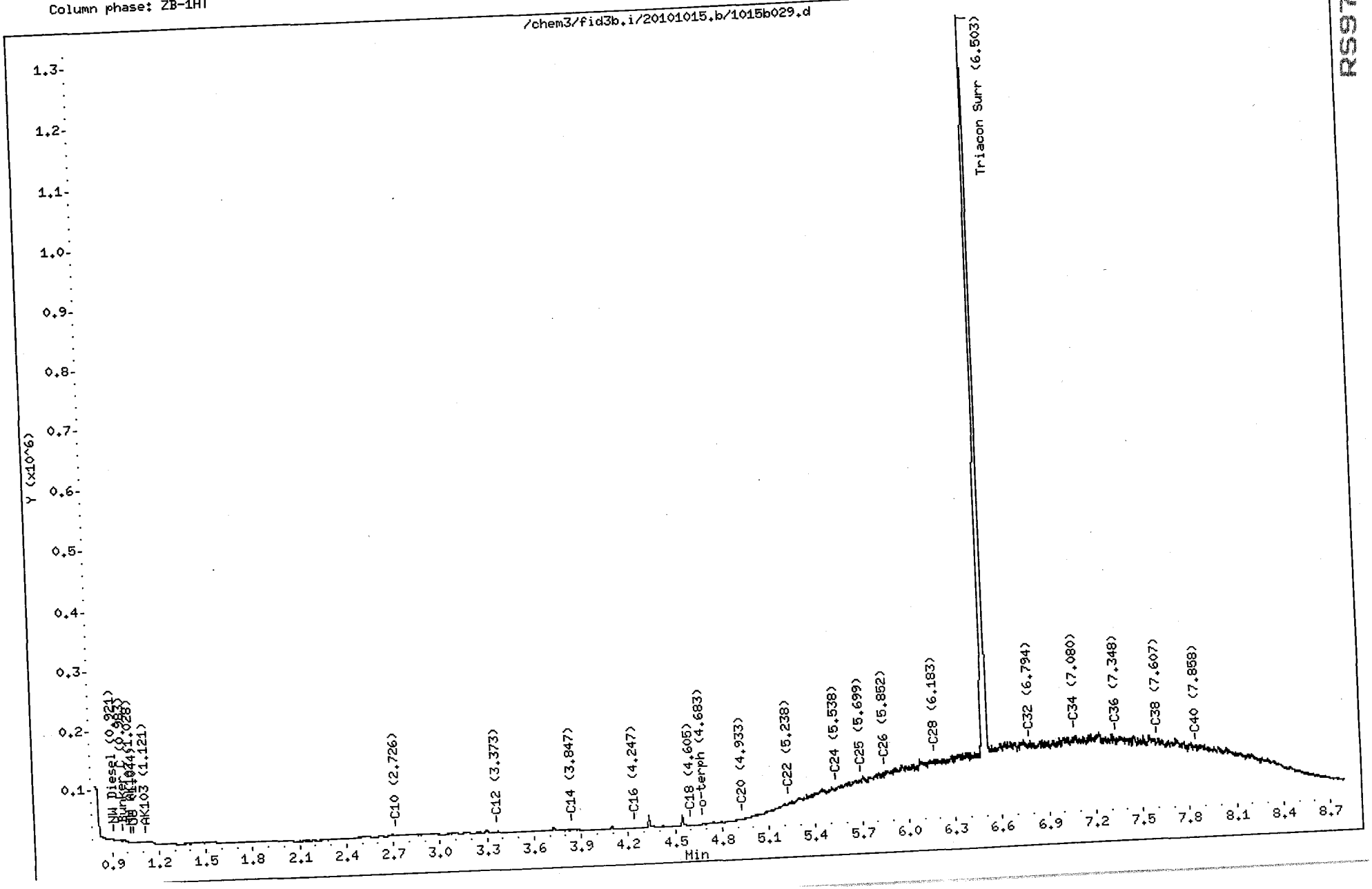
Analyte	RF	Curve Date
o-Terph Surr	19066.8	15-OCT-2010
Triacon Surr	15901.0	16-OCT-2010
Gas	25699.2	21-SEPT-2010
Diesel	21626.0	15-OCT-2010
Motor Oil	11596.5	15-OCT-2010
AK102	25261.0	15-OCT-2010
AK103	8727.5	29-SEPT-2010
JetA	15848.0	27-JAN-2009
OR Diesel	25401.0	
OR M.Oil	11274.0	
IT M.Oil	21488.2	
Bunker C	8522.1	20-SEP-2010
Creosote	6396.0	17-JAN-2009

Data File: /chem3/fid3b.i/20101015.b/1015b029.d
Date : 16-OCT-2010 02:33
Client ID:
Sample Info: MOIL 1000

Column phase: ZB-1HT

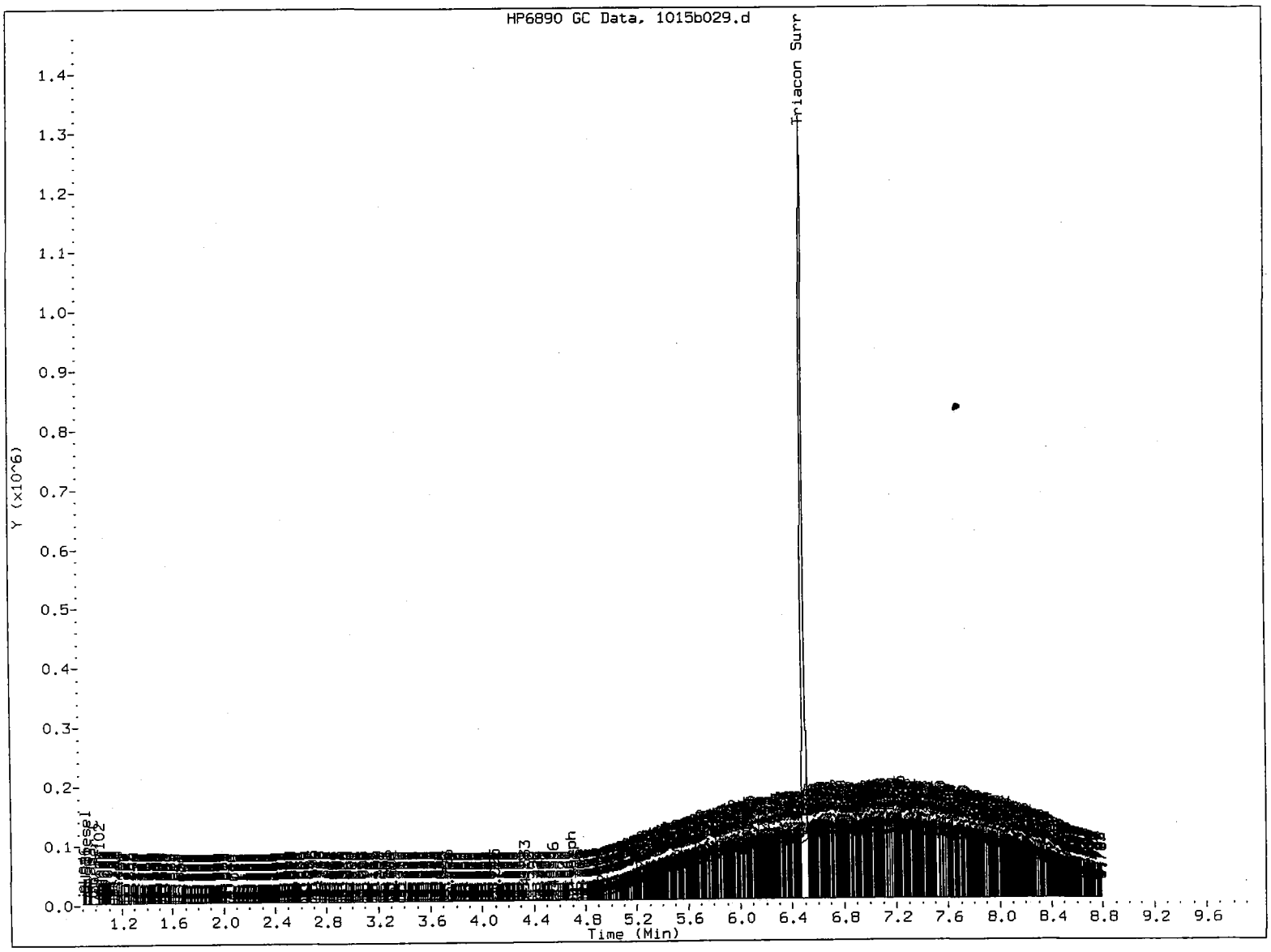
Instrument: fid3b.i

Operator: MS
Column diameter: 0.25



RS97:01055

FID:3B-2C/RTX-1 MOIL 1000 FID:3B SIGNAL



MANUAL INTEGRATION

1. Baseline correction
2. Poor chromatography
3. Peak not found
4. Totals calculation

5. Other _____

Analyst: MM Date: 10/18/10

RS97:01056

Analytical Resources Inc.
407S TPH Quantitation Report

Data file: /chem3/fid3b.i/20101015.b/1015b030.d
Method: /chem3/fid3b.i/20101015.b/ftphfid3b.m
Instrument: fid3b.i
Operator: MS
Report Date: 10/18/2010
Macro: FID:3B101510

ARI ID: MOIL 2500
Client ID:
Injection: 16-OCT-2010 02:50
Dilution Factor: 1

FID:3B RESULTS

Compound	RT	Shift	Height	Area	Range	Total Area	Conc	
Toluene	0.883	0.069	16288	3879	GAS (Tol-C12)	511725	20	
C8	1.040	-0.005	9096	4136	DIESEL (C12-C24)	3196707	148	
C10	2.723	-0.004	6515	9191	M.OIL (C24-C38)	28948998	2496	
C12	3.375	0.001	3938	5782	AK-102 (C10-C25)	3822575	151	
C14	3.843	-0.002	1285	228	AK-103 (C25-C36)	24431167	2799	M
C16	4.251	0.005	485	460	OR.DIES (C10-C28)	10185979	401	
C18	4.609	0.002	2195	2325	OR.MOIL (C28-C40)	25447711	2257	M
C20	4.933	-0.001	19128	16868				
C22	5.229	-0.006	70218	39045	STODDARD (C8-C12)	416722	15	
C24	5.538	-0.001	122051	38182				
C25	5.699	0.000	145599	20243				
C26	5.857	0.001	174611	61390				
C28	6.175	-0.003	223021	94785				
C32	6.795	0.000	276056	151428				
C34	7.079	0.000	289073	68337	CREOSOT (C8-C22)	1208030	189	
Filter Peak	----							
C36	7.348	0.000	284596	210532	BUNKERC (C10-C38)	32309460	3791	
o-terph	4.684	-0.004	4823	5469	JET-A (C10-C18)	313077	20	
Triacon Surr	6.525	0.028	2570700	3789975	IT.MOIL (C24-C40)	36063203	1678	

Range Times: NW Diesel(3.424 - 5.589) NW Gas(0.764 - 3.424) NW M.Oil(5.589 - 7.660)
AK102(2.677 - 5.649) AK103(5.649 - 7.398) Jet A(2.677 - 4.658)

Surrogate	Area	Amount	%Rec
o-Terphenyl	5469	0.3	0.6
Triacontane	3789975	238.3	529.7

Analyte	RF	Curve Date
o-Terph Surr	19066.8	15-OCT-2010
Triacon Surr	15901.0	16-OCT-2010
Gas	25699.2	21-SEPT-2010
Diesel	21626.0	15-OCT-2010
Motor Oil	11596.5	15-OCT-2010
AK102	25261.0	15-OCT-2010
AK103	8727.5	29-SEPT-2010
JetA	15848.0	27-JAN-2009
OR Diesel	25401.0	
OR M.Oil	11274.0	
IT M.Oil	21488.2	
Bunker C	8522.1	20-SEP-2010
Creosote	6396.0	17-JAN-2009

Data File: /chem3/fid3b.i/20101015.b/1015b030.d

Date : 16-OCT-2010 02:50

Client ID:

Sample Info: MOIL 2500

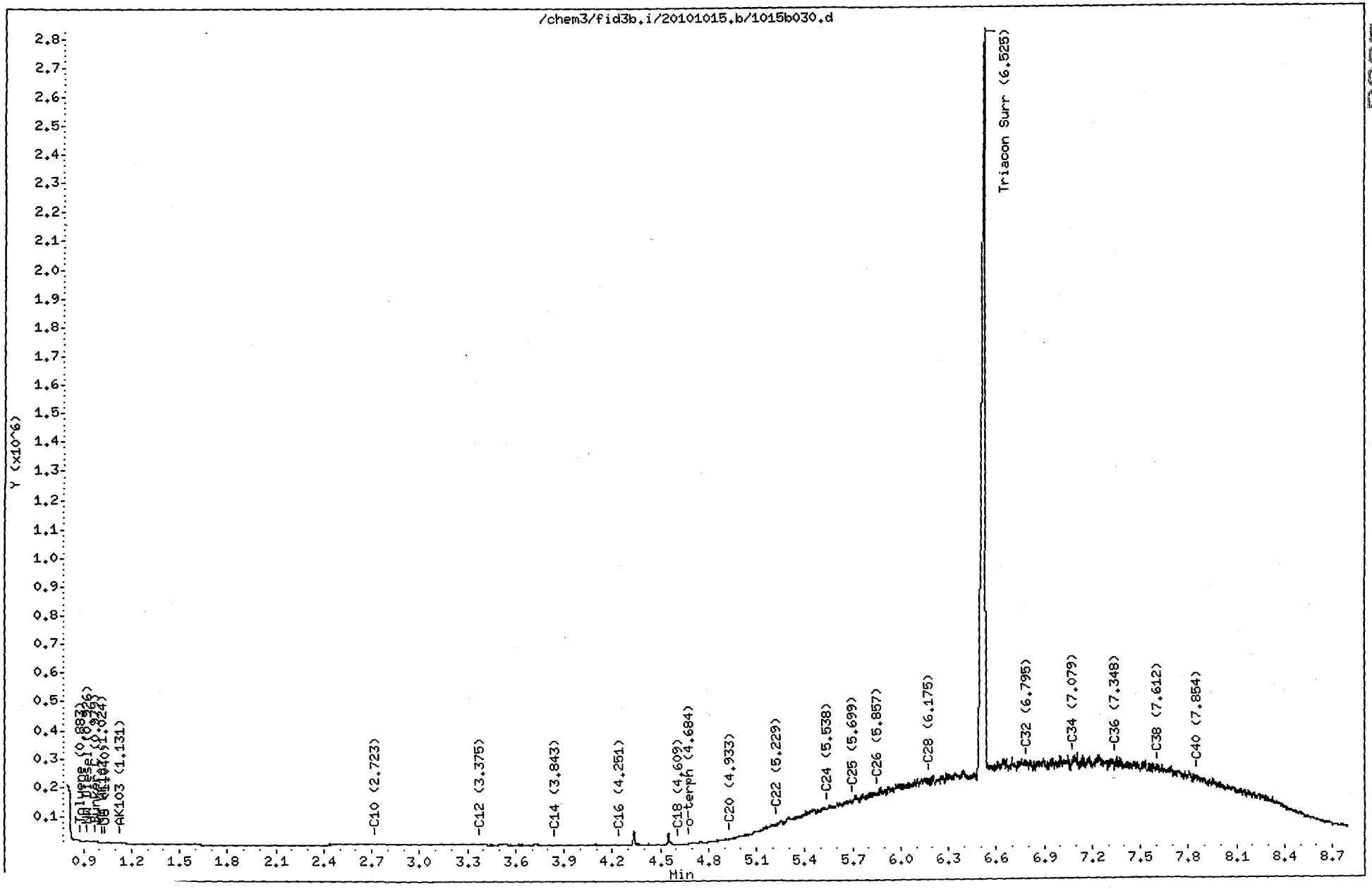
Column phase: ZB-1HT

Instrument: fid3b.i

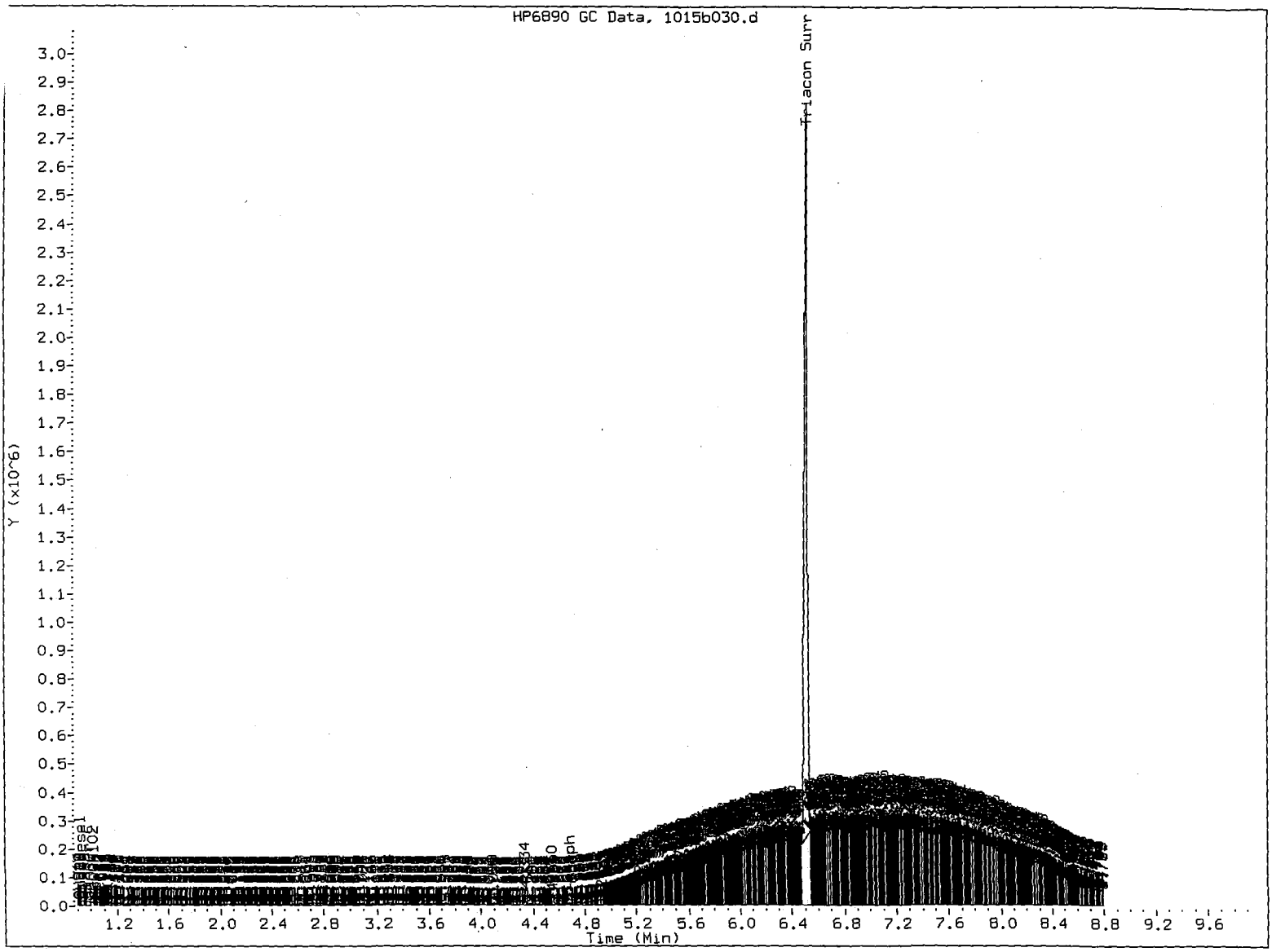
Operator: MS

Column diameter: 0.25

RS97:01058



FID:3B-2C/RTX-1 MOIL 2500 FID:3B SIGNAL



MANUAL INTEGRATION

1. Baseline correction
2. Poor chromatography
3. Peak not found
4. Totals calculation

5. Other _____

Analyst: MM Date: 10/18/10

RS97:01059

Analytical Resources Inc.
407S TPH Quantitation Report

Data file: /chem3/fid3b.i/20101015.b/1015b031.d
Method: /chem3/fid3b.i/20101015.b/ftphfid3b.m
Instrument: fid3b.i
Operator: MS
Report Date: 10/18/2010
Macro: FID:3B101510

ARI ID: MOIL 5000
Client ID:
Injection: 16-OCT-2010 03:07
Dilution Factor: 1

FID:3B RESULTS

Compound	RT	Shift	Height	Area	Range	Total Area	Conc
Toluene	0.810	-0.005	369954	322221	GAS (Tol-C12)	985801	38
C8	1.044	-0.001	10843	2375	DIESEL (C12-C24)	6413477	297
C10	2.727	0.001	8995	14155	M.OIL (C24-C38)	58275429	5025
C12	3.379	0.005	4233	6305	AK-102 (C10-C25)	7460469	295
C14	3.852	0.007	1737	1597	AK-103 (C25-C36)	49272001	5646 M
C16	4.252	0.006	1076	681	OR.DIES (C10-C28)	20200998	795
C18	4.610	0.002	5042	5543	OR.MOIL (C28-C40)	50912353	4516 M
C20	4.935	0.001	40638	17171			
C22	5.233	-0.002	132168	31395	STODDARD (C8-C12)	486160	18
C24	5.539	0.000	250319	149663			
C25	5.700	0.001	310863	109598			
C26	5.857	0.001	351272	228129			
C28	6.175	-0.003	422063	243448			
C32	6.795	0.000	572495	177151			
C34	7.082	0.003	571868	165806	CREOSOT (C8-C22)	2433166	380
Filter Peak	----						
C36	7.349	0.001	576037	286456	BUNKERC (C10-C38)	64878600	7613
o-terph	4.687	-0.001	9471	11948	JET-A (C10-C18)	441116	28
Triacon Surr	6.554	0.058	3952958	7687552	IT.MOIL (C24-C40)	72197732	3360

Range Times: NW Diesel(3.424 - 5.589) NW Gas(0.764 - 3.424) NW M.Oil(5.589 - 7.660)
AK102(2.677 - 5.649) AK103(5.649 - 7.398) Jet A(2.677 - 4.658)

Surrogate	Area	Amount	%Rec
o-Terphenyl	11948	0.6	1.4
Triacontane	7687552	483.5	1074.4

Analyte	RF	Curve Date
o-Terph Surr	19066.8	15-OCT-2010
Triacon Surr	15901.0	16-OCT-2010
Gas	25699.2	21-SEPT-2010
Diesel	21626.0	15-OCT-2010
Motor Oil	11596.5	15-OCT-2010
AK102	25261.0	15-OCT-2010
AK103	8727.5	29-SEPT-2010
JetA	15848.0	27-JAN-2009
OR Diesel	25401.0	
OR M.Oil	11274.0	
IT M.Oil	21488.2	
Bunker C	8522.1	20-SEP-2010
Creosote	6396.0	17-JAN-2009

Data File: /chem3/fid3b.i/20101015.b/1015b031.d

Date : 16-OCT-2010 03:07

Client ID:

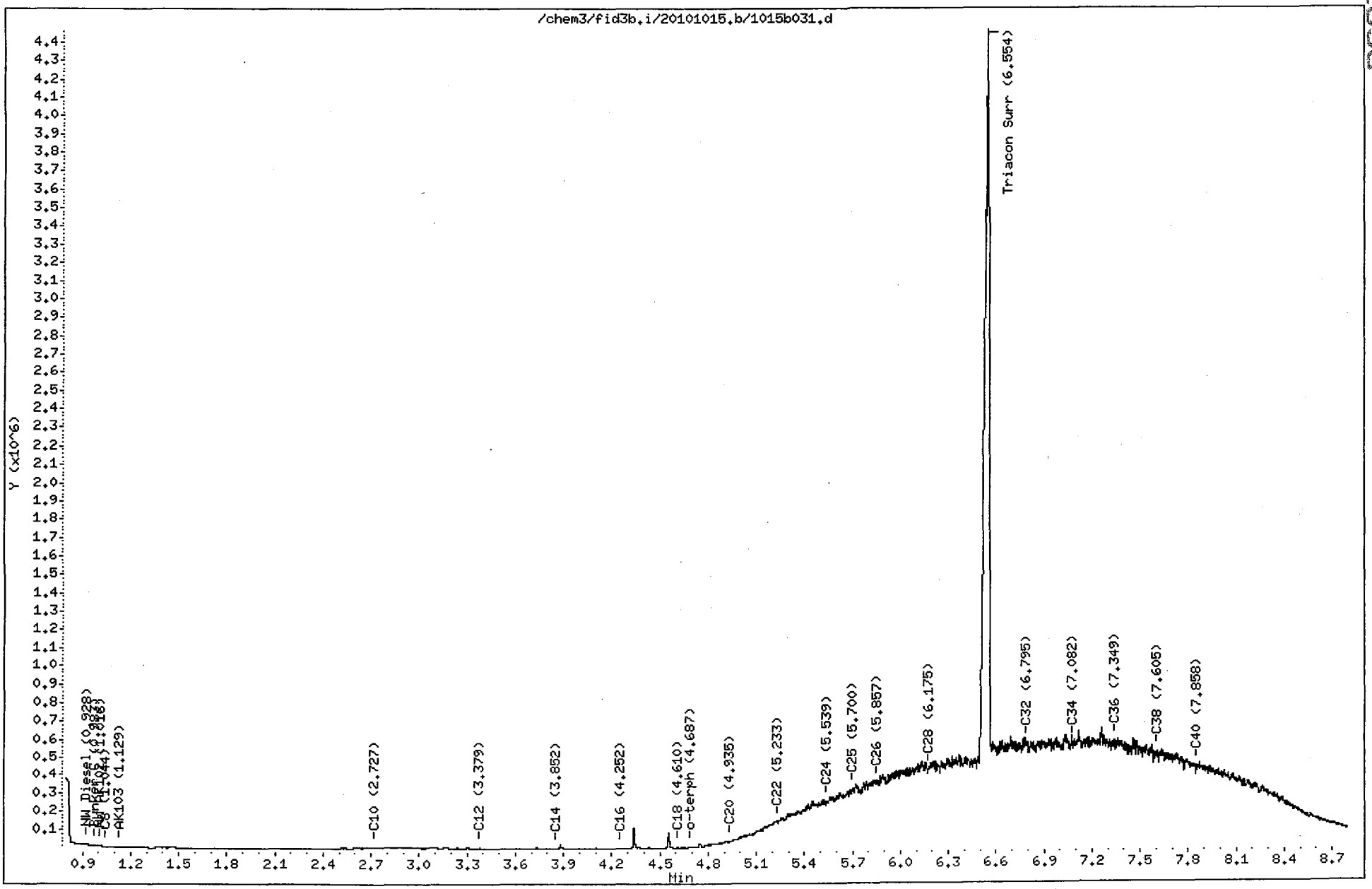
Sample Info: MOIL 5000

Column phase: ZB-1HT

Instrument: fid3b.i

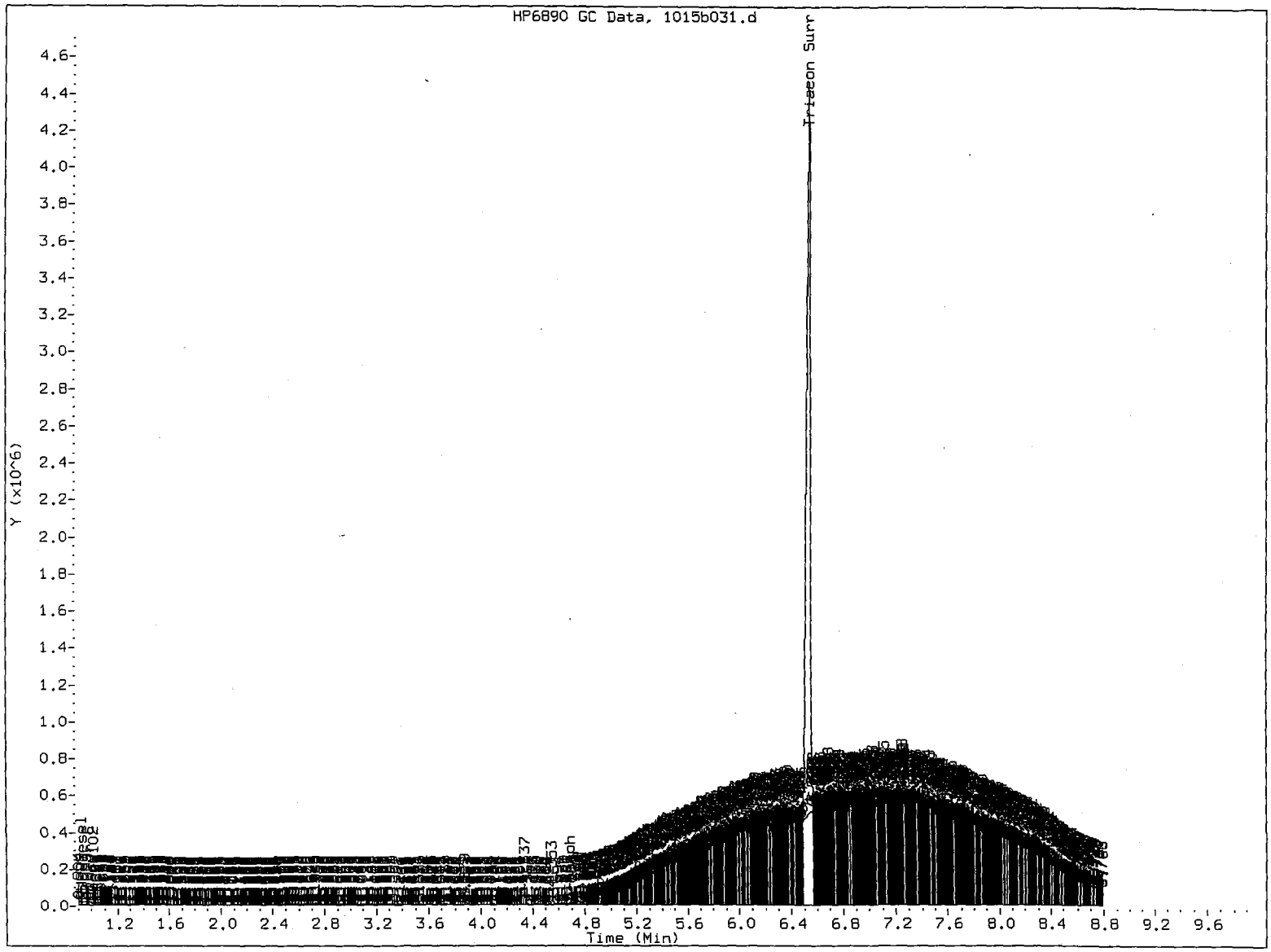
Operator: MS

Column diameter: 0.25



RS97:01061

FID:3B-2C/RTX-1 MOIL 5000 FID:3B SIGNAL



MANUAL INTEGRATION

1. Baseline correction
2. Poor chromatography
3. Peak not found
4. Totals calculation

5. Other _____

Analyst: MM Date: 10/18/10

RS97:01062

Analytical Resources Inc.
407S TPH Quantitation Report

Data file: /chem3/fid3b.i/20101015.b/1015b032.d
Method: /chem3/fid3b.i/20101015.b/ftphfid3b.m
Instrument: fid3b.i
Operator: MS
Report Date: 10/18/2010
Macro: FID:3B101510

ARI ID: MOIL ICV
Client ID:
Injection: 16-OCT-2010 03:24
Dilution Factor: 1

FID:3B RESULTS

Compound	RT	Shift	Height	Area	Range	Total Area	Conc	
Toluene	0.803	-0.011	57989	10408	GAS (Tol-C12)	525069	20	
C8	1.047	0.002	7436	1481	DIESEL (C12-C24)	708518	33	
C10	2.729	0.002	4089	2962	M.OIL (C24-C38)	6111356	527	
C12	3.379	0.005	2834	2645	AK-102 (C10-C25)	947023	37	
C14	3.837	-0.008	1096	341	AK-103 (C25-C36)	5004085	573	M
C16	4.250	0.004	353	129	OR.DIES (C10-C28)	2273927	90	
C18	4.608	0.001	114	28	OR.MOIL (C28-C40)	5582518	495	M
C20	4.936	0.002	3377	1469				
C22	5.237	0.002	14752	5298	STODDARD (C8-C12)	385607	14	
C24	5.541	0.002	27423	19589				
C25	5.697	-0.001	32901	10862				
C26	5.858	0.003	38654	17203				
C28	6.179	0.001	44943	31985				
C32	6.799	0.004	52582	16633				
C34	7.076	-0.003	61111	22044	CREOSOT (C8-C22)	297308	46	
Filter Peak	----							
C36	7.347	-0.001	65631	31281	BUNKERC (C10-C38)	6959660	817	
o-terph	4.690	0.003	1006	854	JET-A (C10-C18)	221285	14	
Triacon Surr	6.500	0.004	645824	710305	IT.MOIL (C24-C40)	7718447	359	

Range Times: NW Diesel(3.424 - 5.589) NW Gas(0.764 - 3.424) NW M.Oil(5.589 - 7.660)
AK102(2.677 - 5.649) AK103(5.649 - 7.398) Jet A(2.677 - 4.658)

Surrogate	Area	Amount	%Rec
o-Terphenyl	854	0.0	0.1
Triacontane	710305	44.7	99.3

Analyte	RF	Curve Date
o-Terph Surr	19066.8	15-OCT-2010
Triacon Surr	15901.0	16-OCT-2010
Gas	25699.2	21-SEPT-2010
Diesel	21626.0	15-OCT-2010
Motor Oil	11596.5	15-OCT-2010
AK102	25261.0	15-OCT-2010
AK103	8727.5	29-SEPT-2010
JetA	15848.0	27-JAN-2009
OR Diesel	25401.0	
OR M.Oil	11274.0	
IT M.Oil	21488.2	
Bunker C	8522.1	20-SEP-2010
Creosote	6396.0	17-JAN-2009

Data File: /chem3/fid3b.i/20101015.b/1015b032.d

Date : 16-OCT-2010 03:24

Client ID:

Sample Info: MOIL ICV

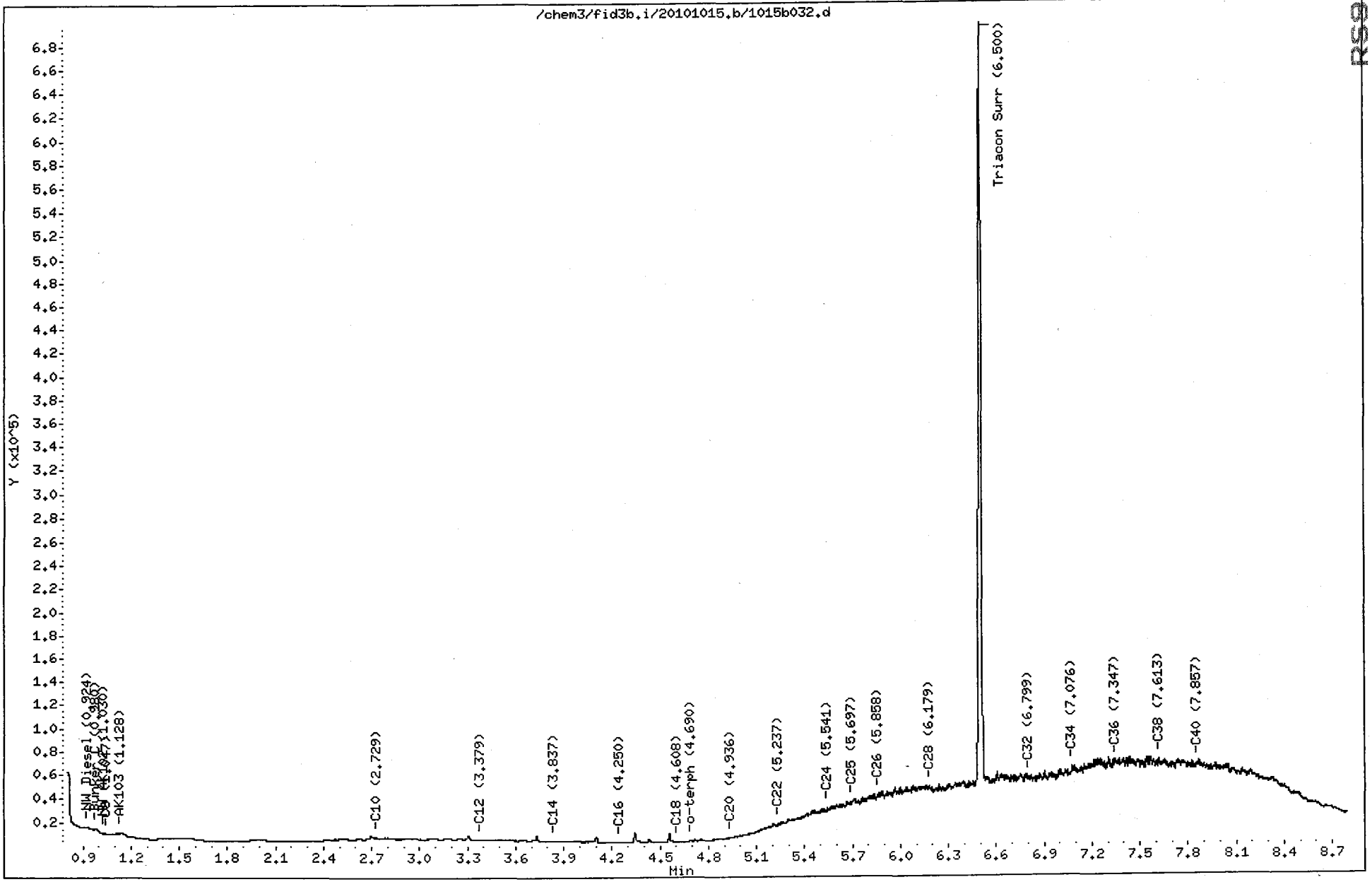
Column phase: ZB-1HT

Instrument: fid3b.i

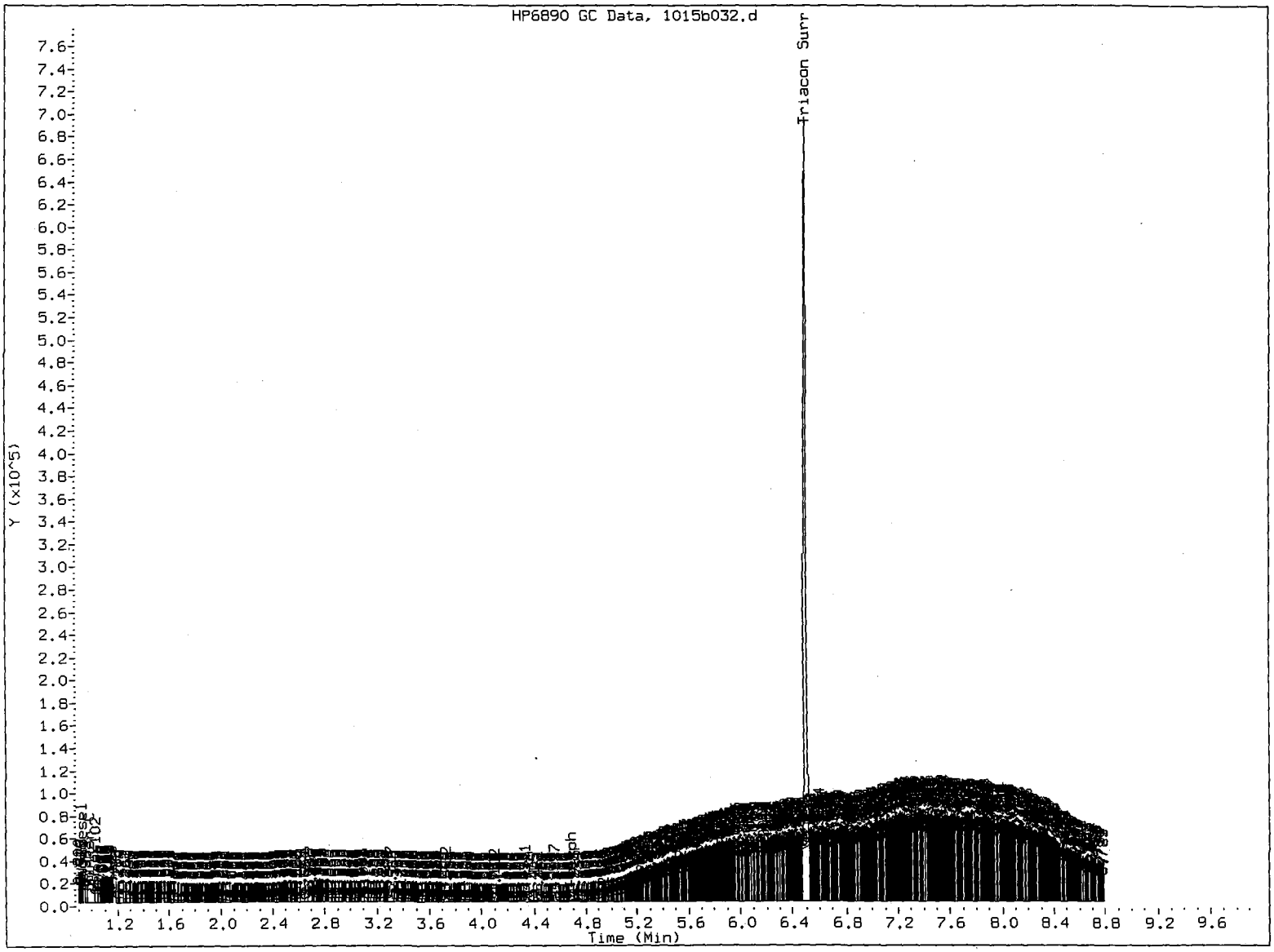
Operator: MS

Column diameter: 0.25

RS97 : 01064



FID:3B-2C/RTX-1 MOIL ICV FID:3B SIGNAL



MANUAL INTEGRATION

1. Baseline correction
2. Poor chromatography
3. Peak not found
4. Totals calculation

5. Other _____

Analyst: MM Date: 10/18/10

RS97:01065

MANUAL INTEGRATION SUMMARY FOR DATABATCH - /chem3/fid3b.i/20101015.b

ARI Job No.: MOIL Method: i/20101015.b/ftphfid3b.m Instrument: fid3b.i Date: 16-OCT-2010

Time	Filename	LabID	ClientId	DF	Manually Integrated Compounds
0142	1015b026.d	MOIL	100	1	Triacon Surr,
0159	1015b027.d	MOIL	250	1	Triacon Surr,
0216	1015b028.d	MOIL	500	1	Triacon Surr,
0233	1015b029.d	MOIL	1000	1	Triacon Surr,
0250	1015b030.d	MOIL	2500	1	Triacon Surr,
0307	1015b031.d	MOIL	5000	1	Triacon Surr,
0324	1015b032.d	MOIL	ICV	1	Triacon Surr,

RS97:91066

Analytical Resources Inc.
407S TPH Quantitation Report

Data file: /chem3/fid3b.i/20101015.b/1015braw.b/1015b026.d ARI ID: MOIL 100
Method: /chem3/fid3b.i/20101015.b/ftphfid3b.m Client ID:
Instrument: fid3b.i Injection: 16-OCT-2010 01:42
Operator: MS Dilution Factor: 1
Report Date: 10/18/2010
Macro: FID:3B101510

FID:3B RESULTS

Compound	RT	Shift	Height	Area	Range	Total Area	Conc
Toluene	0.809	-0.005	28257	40121	GAS (Tol-C12)	558942	22
C8	1.046	0.001	7194	6433	DIESEL (C12-C24)	212168	10
C10	2.724	-0.002	4039	2748	M.OIL (C24-C38)	1204612	104
C12	3.375	0.001	2897	4017	AK-102 (C10-C25)	371571	15
C14	3.844	-0.001	1344	546	AK-103 (C25-C36)	995759	114
C16	4.248	0.002	492	123	OR.DIES (C10-C28)	641991	25
C18	4.609	0.002	112	58	OR.MOIL (C28-C40)	1103684	98
C20	4.930	-0.004	603	285			
C22	5.234	-0.001	3055	1230	STODDARD (C8-C12)	398335	14
C24	5.539	0.000	5097	2696			
C25	5.697	-0.002	6560	1924			
C26	5.859	0.003	7411	1907			
C28	6.174	-0.004	8779	5966			
C32	6.794	-0.001	11238	2442			
C34	7.080	0.001	12029	4920	CREOSOT (C8-C22)	128802	20
Filter Peak	----						
C36	7.347	-0.001	12101	10326	BUNKERC (C10-C38)	1554383	182
o-terph	4.690	0.002	2743	2291	JET-A (C10-C18)	220695	14
Triacon Surr	6.488	-0.009	139375	172272	IT.MOIL (C24-C40)	1568176	73

Range Times: NW Diesel(3.424 - 5.589) NW Gas(0.764 - 3.424) NW M.Oil(5.589 - 7.660)
AK102(2.677 - 5.649) AK103(5.649 - 7.398) Jet A(2.677 - 4.658)

Surrogate	Area	Amount	%Rec
o-Terphenyl	2291	0.1	0.3
Triacontane	172272	10.8	24.1

MM 10/18/10

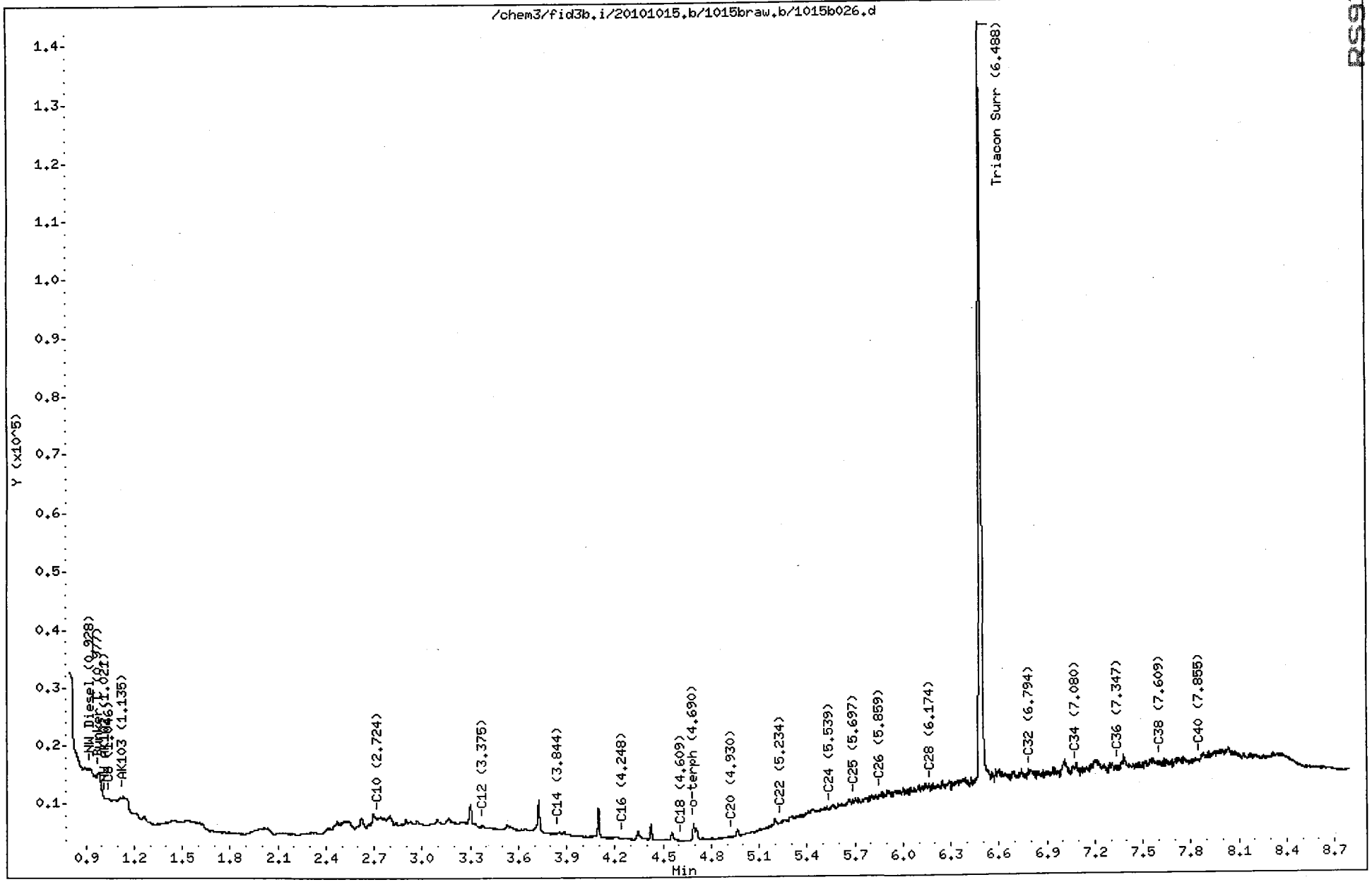
Analyte	RF	Curve Date
o-Terph Surr	19066.8	15-OCT-2010
Triacon Surr	15901.0	16-OCT-2010
Gas	25699.2	21-SEPT-2010
Diesel	21626.0	15-OCT-2010
Motor Oil	11596.5	15-OCT-2010
AK102	25261.0	15-OCT-2010
AK103	8727.5	29-SEPT-2010
JetA	15848.0	27-JAN-2009
OR Diesel	25401.0	
OR M.Oil	11274.0	
IT M.Oil	21488.2	
Bunker C	8522.1	20-SEP-2010
Creosote	6396.0	17-JAN-2009

Data File: /chem3/fid3b.i/20101015.b/1015braw.b/1015b026.d
Date : 16-OCT-2010 01:42
Client ID:
Sample Info: MOIL 100

Column phase: ZB-1HT

Instrument: fid3b.i

Operator: MS
Column diameter: 0.25



RS97 : 01068

Analytical Resources Inc.
407S TPH Quantitation Report

Data file: /chem3/fid3b.i/20101015.b/1015braw.b/1015b027.d ARI ID: MOIL 250
Method: /chem3/fid3b.i/20101015.b/ftphfid3b.m
Client ID:
Instrument: fid3b.i
Injection: 16-OCT-2010 01:59
Operator: MS
Dilution Factor: 1
Report Date: 10/18/2010
Macro: FID:3B101510

FID:3B RESULTS

Compound	RT	Shift	Height	Area	Range	Total Area	Conc
Toluene	0.809	-0.006	40770	49032	GAS (Tol-C12)	574889	22
C8	1.037	-0.008	7626	8903	DIESEL (C12-C24)	390138	18
C10	2.726	0.000	4379	3381	M.OIL (C24-C38)	2724837	235
C12	3.374	0.000	2964	4441	AK-102 (C10-C25)	587391	23
C14	3.844	-0.001	1327	565	AK-103 (C25-C36)	2263567	259
C16	4.244	-0.002	396	68	OR.DIES (C10-C28)	1206884	48
C18	4.608	0.000	134	52	OR.MOIL (C28-C40)	2417725	214
C20	4.936	0.002	1749	1138			
C22	5.233	-0.002	7151	1945	STODDARD (C8-C12)	416362	15
C24	5.537	-0.002	13074	5005			
C25	5.697	-0.002	15364	6498			
C26	5.858	0.003	17576	8760			
C28	6.180	0.002	21061	4538			
C32	6.798	0.003	26643	12789			
C34	7.079	0.001	28009	7112	CREOSOT (C8-C22)	192612	30
Filter Peak	----						
C36	7.350	0.002	25187	4463	BUNKERC (C10-C38)	3257974	382
o-terph	4.688	0.000	821	673	JET-A (C10-C18)	229074	14
Triacon Surr	6.489	-0.008	352795	413556	IT.MOIL (C24-C40)	3505028	163

Range Times: NW Diesel(3.424 - 5.589) NW Gas(0.764 - 3.424) NW M.Oil(5.589 - 7.660)
AK102(2.677 - 5.649) AK103(5.649 - 7.398) Jet A(2.677 - 4.658)

Surrogate	Area	Amount	%Rec
o-Terphenyl	673	0.0	0.1
Triacontane	413556	26.0	57.8

MS 10/18/10

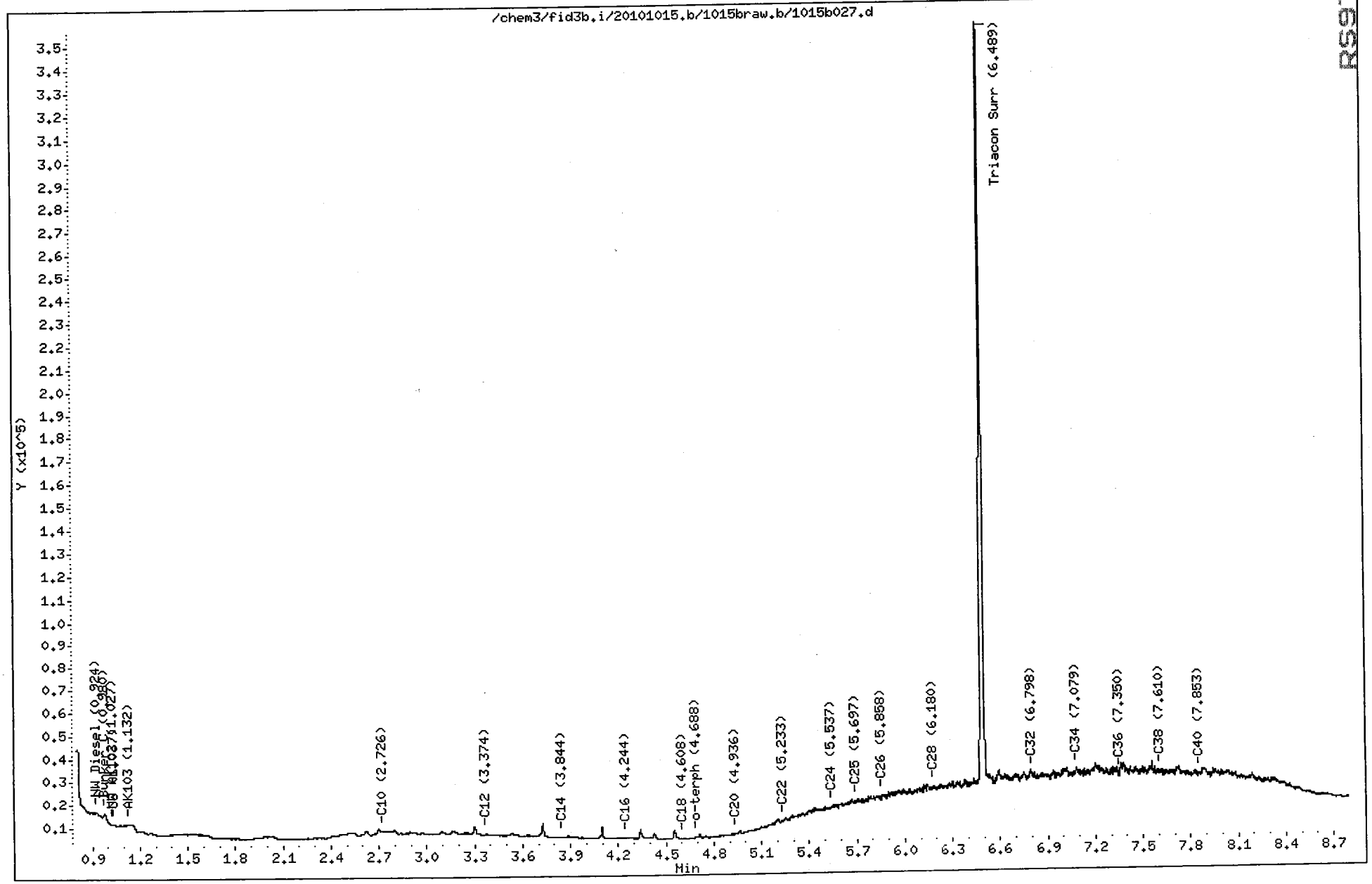
Analyte	RF	Curve Date
o-Terph Surr	19066.8	15-OCT-2010
Triacon Surr	15901.0	16-OCT-2010
Gas	25699.2	21-SEPT-2010
Diesel	21626.0	15-OCT-2010
Motor Oil	11596.5	15-OCT-2010
AK102	25261.0	15-OCT-2010
AK103	8727.5	29-SEPT-2010
JetA	15848.0	27-JAN-2009
OR Diesel	25401.0	
OR M.Oil	11274.0	
IT M.Oil	21488.2	
Bunker C	8522.1	20-SEP-2010
Creosote	6396.0	17-JAN-2009

Data File: /chem3/fid3b.i/20101015.b/1015braw.b/1015b027.d
Date : 16-OCT-2010 01:59
Client ID:
Sample Info: MOIL 250

Column phase: ZB-1HT

Instrument: fid3b.i

Operator: MS
Column diameter: 0.25



RS97 : 01079

Analytical Resources Inc.
407S TPH Quantitation Report

Data file: /chem3/fid3b.i/20101015.b/1015braw.b/1015b028.d ARI ID: MOIL 500
Method: /chem3/fid3b.i/20101015.b/ftphfid3b.m
Client ID:
Instrument: fid3b.i
Injection: 16-OCT-2010 02:16
Operator: MS
Dilution Factor: 1
Report Date: 10/18/2010
Macro: FID:3B101510

FID:3B RESULTS

Compound	RT	Shift	Height	Area	Range	Total Area	Conc
Toluene	0.812	-0.003	56425	29350	GAS (Tol-C12)	595614	23
C8	1.042	-0.003	7908	5956	DIESEL (C12-C24)	653076	30
C10	2.723	-0.003	4876	4427	M.OIL (C24-C38)	5326823	459
C12	3.373	-0.001	3072	4023	AK-102 (C10-C25)	893104	35
C14	3.843	-0.002	1201	396	AK-103 (C25-C36)	4446892	510
C16	4.247	0.001	299	145	OR.DIES (C10-C28)	2054602	81
C18	4.609	0.001	159	163	OR.MOIL (C28-C40)	4758793	422
C20	4.932	-0.002	2998	1499			
C22	5.236	0.001	13730	2957	STODDARD (C8-C12)	411790	15
C24	5.536	-0.003	24251	14647			
C25	5.698	-0.001	29588	3505			
C26	5.855	-0.001	34845	20948			
C28	6.178	0.000	40584	17583			
C32	6.798	0.003	50956	7038			
C34	7.080	0.001	55990	18614	CREOSOT (C8-C22)	283948	44
Filter Peak	----						
C36	7.345	-0.003	53517	23043	BUNKERC (C10-C38)	6125404	719
o-terph	4.685	-0.002	1066	913	JET-A (C10-C18)	227612	14
Triacon Surr	6.496	0.000	659424	850927	IT.MOIL (C24-C40)	6865741	320

Range Times: NW Diesel(3.424 - 5.589) NW Gas(0.764 - 3.424) NW M.Oil(5.589 - 7.660)
AK102(2.677 - 5.649) AK103(5.649 - 7.398) Jet A(2.677 - 4.658)

Surrogate	Area	Amount	%Rec
o-Terphenyl	913	0.0	0.1
Triacontane	850927	53.5	118.9

MM 10/18/10

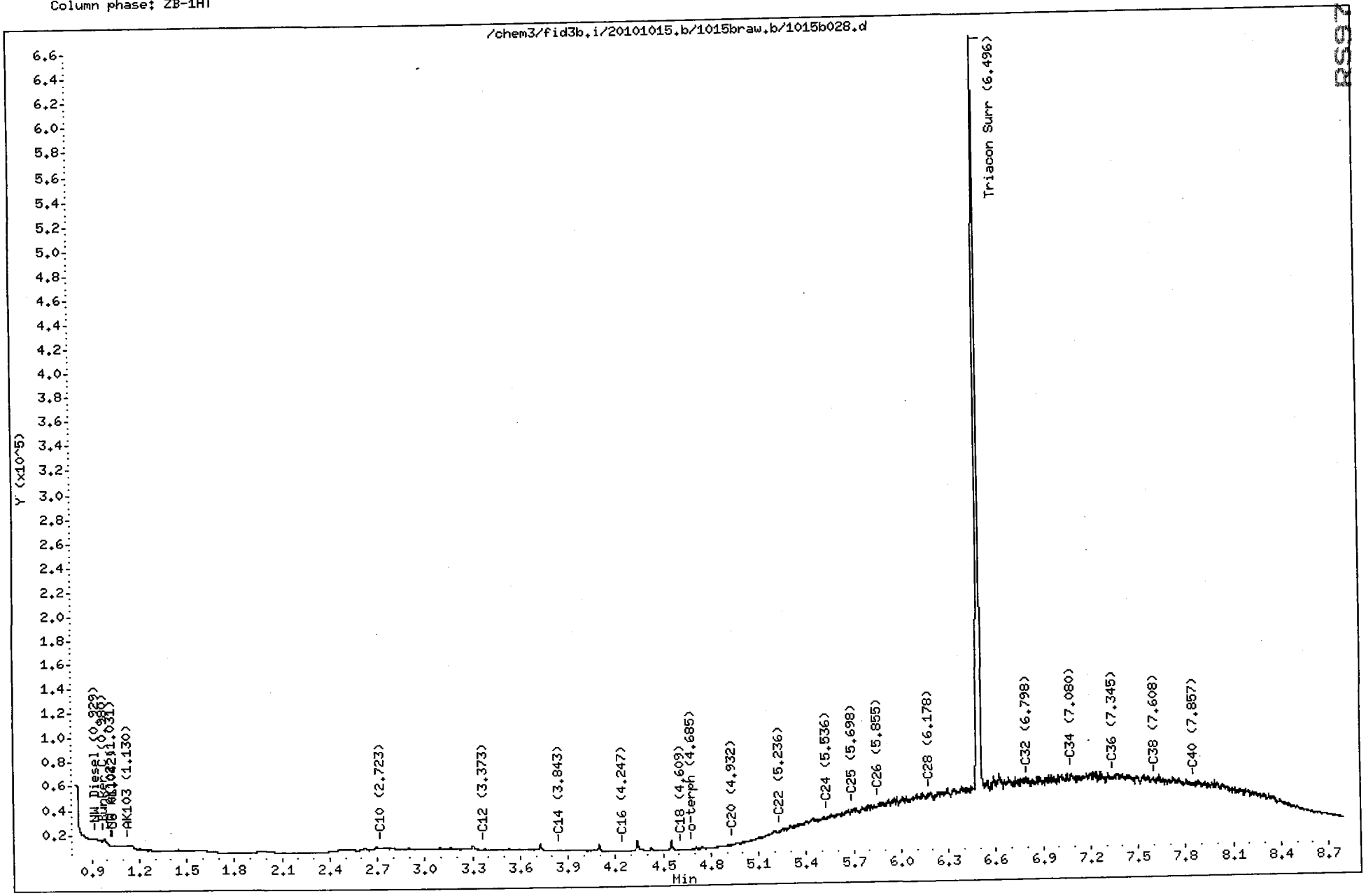
Analyte	RF	Curve Date
o-Terph Surr	19066.8	15-OCT-2010
Triacon Surr	15901.0	16-OCT-2010
Gas	25699.2	21-SEPT-2010
Diesel	21626.0	15-OCT-2010
Motor Oil	11596.5	15-OCT-2010
AK102	25261.0	15-OCT-2010
AK103	8727.5	29-SEPT-2010
JetA	15848.0	27-JAN-2009
OR Diesel	25401.0	
OR M.Oil	11274.0	
IT M.Oil	21488.2	
Bunker C	8522.1	20-SEP-2010
Creosote	6396.0	17-JAN-2009

Data File: /chem3/fid3b.i/20101015.b/1015braw.b/1015b028.d
Date : 16-OCT-2010 02:16
Client ID:
Sample Info: MOIL 500

Column phase: ZB-1HT

Instrument: fid3b.i

Operator: MS
Column diameter: 0.25



RS97 : 01072

Analytical Resources Inc.
407S TPH Quantitation Report

Data file: /chem3/fid3b.i/20101015.b/1015braw.b/1015b029.d ARI ID: MOIL 1000
Method: /chem3/fid3b.i/20101015.b/ftphfid3b.m Client ID:
Instrument: fid3b.i Injection: 16-OCT-2010 02:33
Operator: MS Dilution Factor: 1
Report Date: 10/18/2010
Macro: FID:3B101510

FID:3B RESULTS

Compound	RT	Shift	Height	Area	Range	Total Area	Conc
Toluene	0.812	-0.002	98519	86376	GAS (Tol-C12)	659236	26
C8	1.044	-0.001	8537	7410	DIESEL (C12-C24)	1332087	62
C10	2.726	-0.001	5216	6352	M.OIL (C24-C38)	11329181	977
C12	3.373	-0.001	3357	5354	AK-102 (C10-C25)	1703388	67
C14	3.847	0.002	1400	787	AK-103 (C25-C36)	9489612	1087
C16	4.247	0.001	309	78	OR.DIES (C10-C28)	4232280	167
C18	4.605	-0.002	633	541	OR.MOIL (C28-C40)	10024909	889
C20	4.933	-0.001	7465	1846			
C22	5.238	0.003	30245	21439	STODDARD (C8-C12)	424402	15
C24	5.538	-0.001	50190	9934			
C25	5.699	0.000	63134	21902			
C26	5.852	-0.004	73265	32147			
C28	6.183	0.005	91815	47221			
C32	6.794	-0.001	107700	19074			
C34	7.080	0.001	119939	21023	CREOSOT (C8-C22)	560100	88
Filter Peak	----						
C36	7.348	0.000	112697	63184	BUNKERC (C10-C38)	12813390	1504
o-terph	4.683	-0.005	2038	2132	JET-A (C10-C18)	251710	16
Triacon Surr	6.503	0.007	1321126	1862352	IT.MOIL (C24-C40)	14635332	681

Range Times: NW Diesel(3.424 - 5.589) NW Gas(0.764 - 3.424) NW M.Oil(5.589 - 7.660)
AK102(2.677 - 5.649) AK103(5.649 - 7.398) Jet A(2.677 - 4.658)

Surrogate	Area	Amount	%Rec
o-Terphenyl	2132	0.1	0.2
Triacontane	1862352	117.1	260.3

Analyte	RF	Curve Date
o-Terph Surr	19066.8	15-OCT-2010
Triacon Surr	15901.0	16-OCT-2010
Gas	25699.2	21-SEPT-2010
Diesel	21626.0	15-OCT-2010
Motor Oil	11596.5	15-OCT-2010
AK102	25261.0	15-OCT-2010
AK103	8727.5	29-SEPT-2010
JetA	15848.0	27-JAN-2009
OR Diesel	25401.0	
OR M.Oil	11274.0	
IT M.Oil	21488.2	
Bunker C	8522.1	20-SEP-2010
Creosote	6396.0	17-JAN-2009

MH 10/18/10

Data File: /chem3/fid3b.i/20101015.b/1015braw.b/1015b029.d
Date : 16-OCT-2010 02:33
Client ID:
Sample Info: MOIL 1000

Column phase: ZB-1HT

Instrument: fid3b.i

Operator: MS
Column diameter: 0.25

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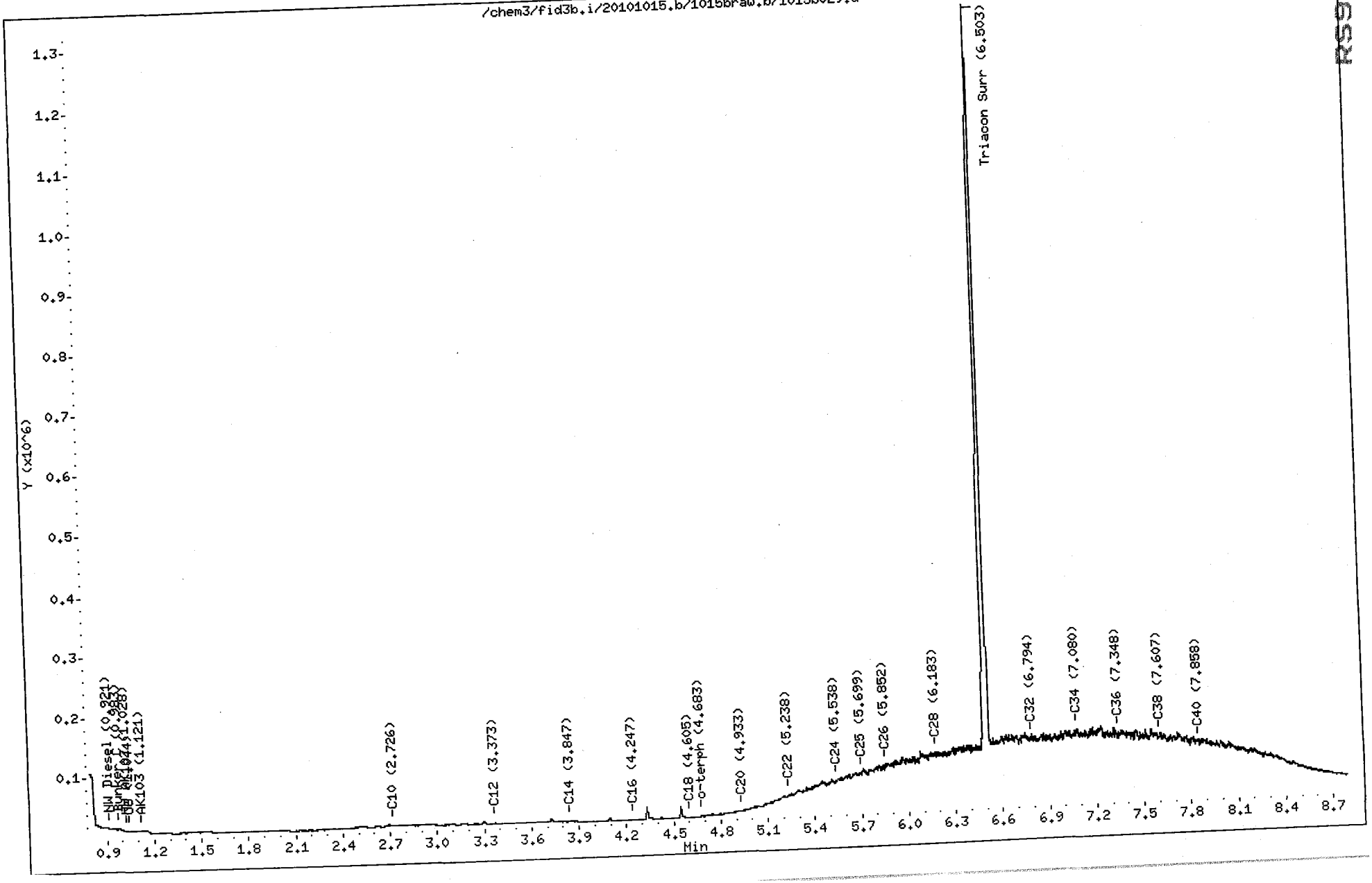


RSS7 01071

Analytical Resources Inc.
407S TPH Quantitation Report

Data file: /chem3/fid3b.i/20101015.b/1015braw.b/1015b030.d ARI ID: MOIL 2500
Method: /chem3/fid3b.i/20101015.b/ftphfid3b.m Client ID:
Instrument: fid3b.i Injection: 16-OCT-2010 02:50
Operator: MS Dilution Factor: 1
Report Date: 10/18/2010
Macro: FID:3B101510

FID:3B RESULTS

Compound	RT	Shift	Height	Area	Range	Total Area	Conc
Toluene	0.883	0.069	16288	3879	GAS (Tol-C12)	511725	20
C8	1.040	-0.005	9096	4136	DIESEL (C12-C24)	3196707	148
C10	2.723	-0.004	6515	9191	M.OIL (C24-C38)	30631683	2641
C12	3.375	0.001	3938	5782	AK-102 (C10-C25)	3822575	151
C14	3.843	-0.002	1285	228	AK-103 (C25-C36)	26113852	2992
C16	4.251	0.005	485	460	OR.DIES (C10-C28)	10185979	401
C18	4.609	0.002	2195	2325	OR.MOIL (C28-C40)	27130396	2406
C20	4.933	-0.001	19128	16868			
C22	5.229	-0.006	70218	39045	STODDARD (C8-C12)	416722	15
C24	5.538	-0.001	122051	38182			
C25	5.699	0.000	145599	20243			
C26	5.857	0.001	174611	61390			
C28	6.175	-0.003	223021	94785			
C32	6.795	0.000	276056	151428			
C34	7.079	0.000	289073	68337	CREOSOT (C8-C22)	1208030	189
Filter Peak	----						
C36	7.348	0.000	284596	210532	BUNKERC (C10-C38)	33992145	3989
o-terph	4.684	-0.004	4823	5469	JET-A (C10-C18)	313077	20
Triacon Surr	6.514	0.017	2084778	2102614	IT.MOIL (C24-C40)	36058526	1678

Range Times: NW Diesel(3.424 - 5.589) NW Gas(0.764 - 3.424) NW M.Oil(5.589 - 7.660)
AK102(2.677 - 5.649) AK103(5.649 - 7.398) Jet A(2.677 - 4.658)

Surrogate	Area	Amount	%Rec
o-Terphenyl	5469	0.3	0.6
Triacontane	2102614	132.2	293.8

M 10/19/10

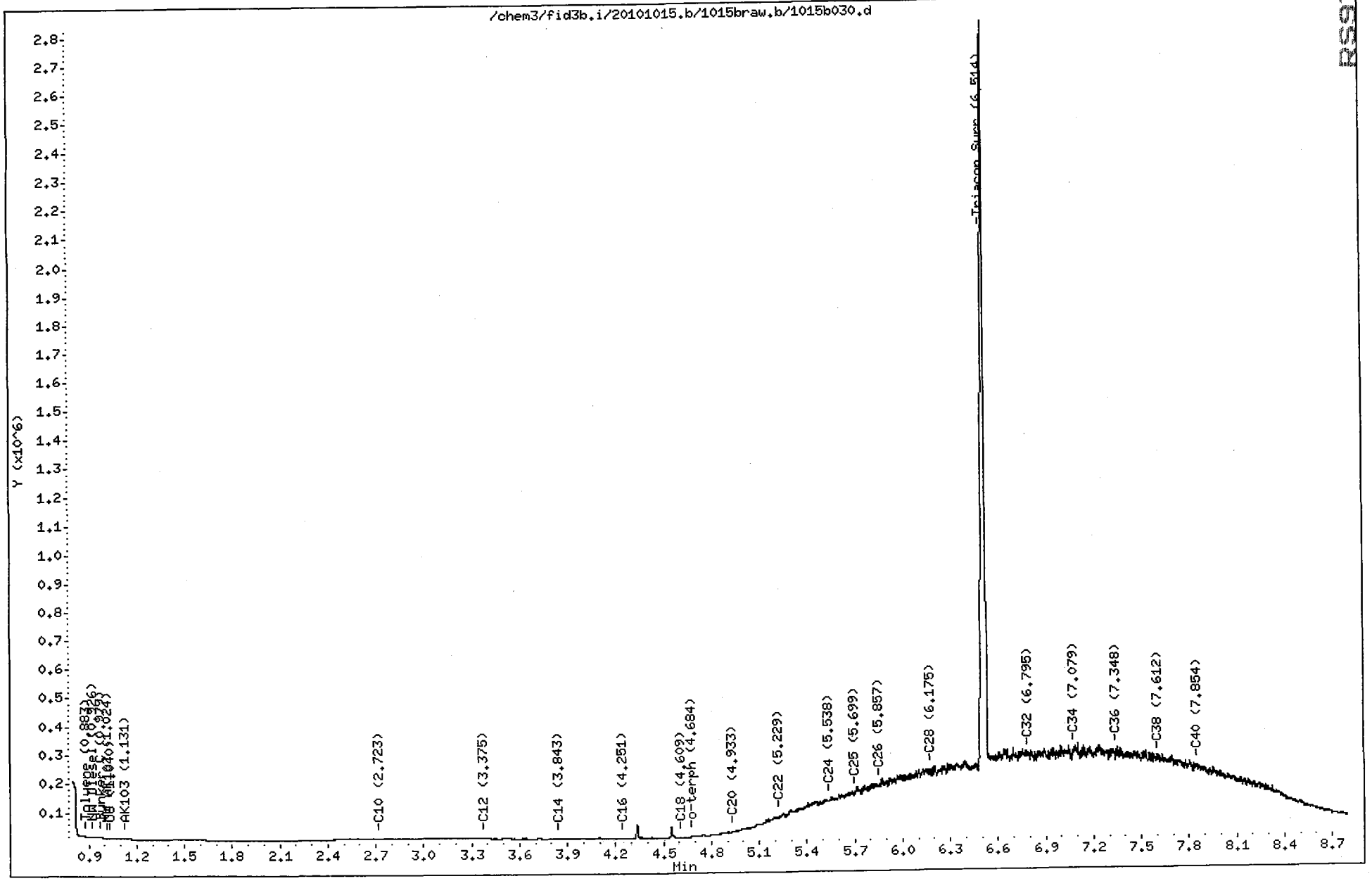
Analyte	RF	Curve Date
o-Terph Surr	19066.8	15-OCT-2010
Triacon Surr	15901.0	16-OCT-2010
Gas	25699.2	21-SEPT-2010
Diesel	21626.0	15-OCT-2010
Motor Oil	11596.5	15-OCT-2010
AK102	25261.0	15-OCT-2010
AK103	8727.5	29-SEPT-2010
JetA	15848.0	27-JAN-2009
OR Diesel	25401.0	
OR M.Oil	11274.0	
IT M.Oil	21488.2	
Bunker C	8522.1	20-SEP-2010
Creosote	6396.0	17-JAN-2009

Data File: /chem3/fid3b.i/20101015.b/1015braw.b/1015b030.d
Date : 16-OCT-2010 02:50
Client ID:
Sample Info: MOIL 2500

Column phase: ZB-1HT

Instrument: fid3b.i

Operator: MS
Column diameter: 0.25



RS97:01076

Analytical Resources Inc.
407S TPH Quantitation Report

Data file: /chem3/fid3b.i/20101015.b/1015braw.b/1015b031.d ARI ID: MOIL 5000
Method: /chem3/fid3b.i/20101015.b/ftphfid3b.m Client ID:
Instrument: fid3b.i Injection: 16-OCT-2010 03:07
Operator: MS Dilution Factor: 1
Report Date: 10/18/2010
Macro: FID:3B101510

FID:3B RESULTS

Compound	RT	Shift	Height	Area	Range	Total Area	Conc
Toluene	0.810	-0.005	369954	322221	GAS (Tol-C12)	985801	38
C8	1.044	-0.001	10843	2375	DIESEL (C12-C24)	6413477	297
C10	2.727	0.001	8995	14155	M.OIL (C24-C38)	65672638	5663
C12	3.379	0.005	4233	6305	AK-102 (C10-C25)	7460469	295
C14	3.852	0.007	1737	1597	AK-103 (C25-C36)	56669210	6493
C16	4.252	0.006	1076	681	OR.DIES (C10-C28)	20200998	795
C18	4.610	0.002	5042	5543	OR.MOIL (C28-C40)	58309562	5172
C20	4.935	0.001	40638	17171			
C22	5.233	-0.002	132168	31395	STODDARD (C8-C12)	486160	18
C24	5.539	0.000	250319	149663			
C25	5.700	0.001	310863	109598			
C26	5.857	0.001	351272	228129			
C28	6.175	-0.003	422063	243448			
C32	6.795	0.000	572495	177151			
C34	7.082	0.003	571868	165806	CREOSOT (C8-C22)	2433166	380
Filter Peak	----						
C36	7.349	0.001	576037	286456	BUNKERC (C10-C38)	72275809	8481
o-terph	4.687	-0.001	9471	11948	JET-A (C10-C18)	441116	28
Triacon Surr	6.485	-0.012	486145	280865	IT.MOIL (C24-C40)	72188254	3359

Range Times: NW Diesel(3.424 - 5.589) NW Gas(0.764 - 3.424) NW M.Oil(5.589 - 7.660)
AK102(2.677 - 5.649) AK103(5.649 - 7.398) Jet A(2.677 - 4.658)

Surrogate	Area	Amount	%Rec
o-Terphenyl	11948	0.6	1.4
Triacontane	280865	17.7	39.3

MM 10/18/10

Analyte	RF	Curve Date
o-Terph Surr	19066.8	15-OCT-2010
Triacon Surr	15901.0	16-OCT-2010
Gas	25699.2	21-SEPT-2010
Diesel	21626.0	15-OCT-2010
Motor Oil	11596.5	15-OCT-2010
AK102	25261.0	15-OCT-2010
AK103	8727.5	29-SEPT-2010
JetA	15848.0	27-JAN-2009
OR Diesel	25401.0	
OR M.Oil	11274.0	
IT M.Oil	21488.2	
Bunker C	8522.1	20-SEP-2010
Creosote	6396.0	17-JAN-2009

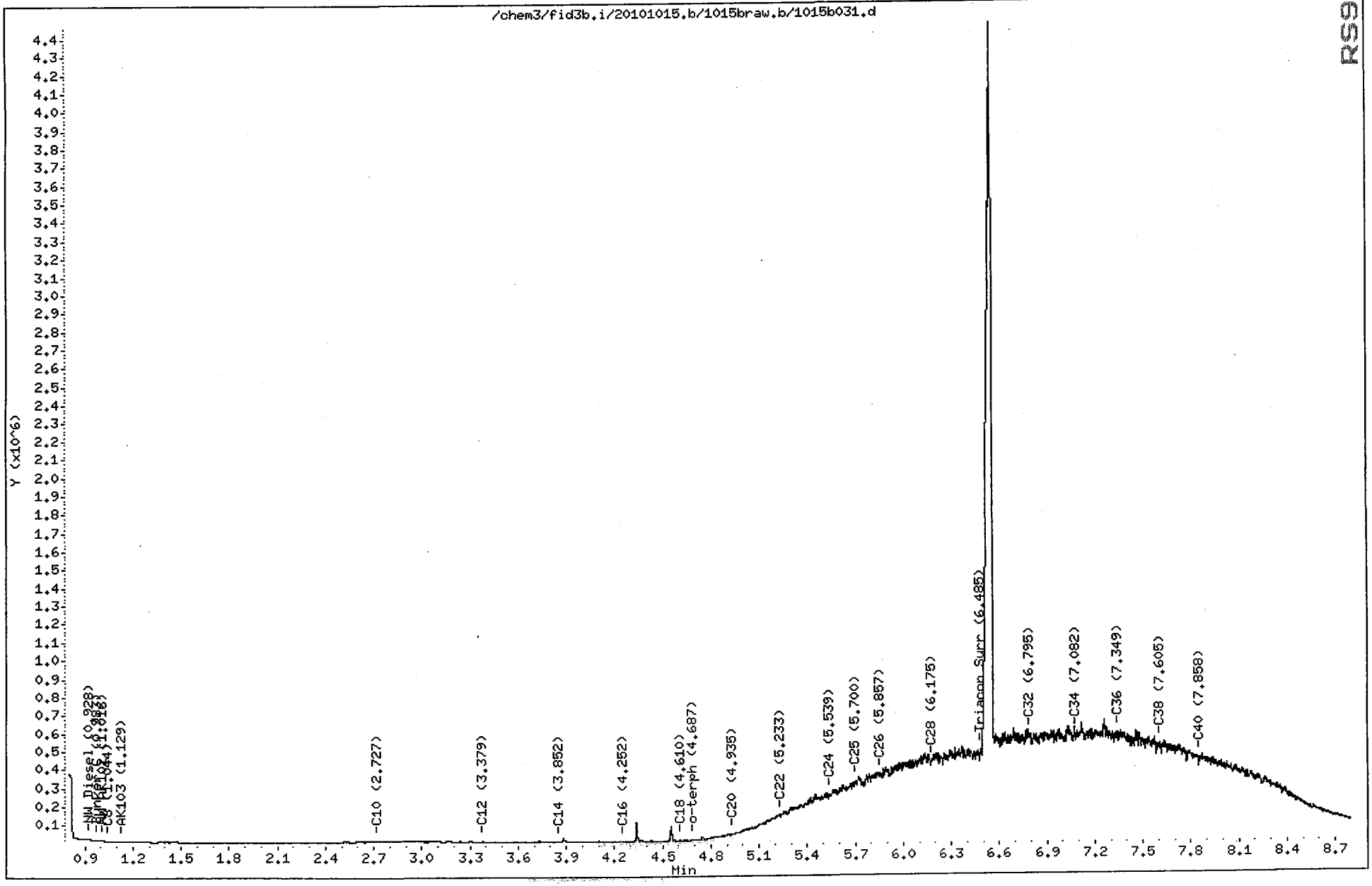
Data File: /chem3/fid3b.i/20101015.b/1015braw.b/1015b031.d
Date : 16-OCT-2010 03:07
Client ID:
Sample Info: MOIL 5000

Column phase: ZB-1HT

Instrument: fid3b.i

Operator: MS
Column diameter: 0.25

RS97:01078



Analytical Resources Inc.
407S TPH Quantitation Report

Data file: /chem3/fid3b.i/20101015.b/1015braw.b/1015b032.d ARI ID: MOIL ICV
Method: /chem3/fid3b.i/20101015.b/ftphfid3b.m
Client ID:
Instrument: fid3b.i
Injection: 16-OCT-2010 03:24
Operator: MS
Dilution Factor: 1
Report Date: 10/18/2010
Macro: FID:3B101510

FID:3B RESULTS

Compound	RT	Shift	Height	Area	Range	Total Area	Conc
Toluene	0.803	-0.011	57989	10408	GAS (Tol-C12)	525069	20
C8	1.047	0.002	7436	1481	DIESEL (C12-C24)	708518	33
C10	2.729	0.002	4089	2962	M.OIL (C24-C38)	5952425	513
C12	3.379	0.005	2834	2645	AK-102 (C10-C25)	947023	37
C14	3.837	-0.008	1096	341	AK-103 (C25-C36)	4845155	555
C16	4.250	0.004	353	129	OR.DIES (C10-C28)	2273927	90
C18	4.608	0.001	114	28	OR.MOIL (C28-C40)	5423587	481
C20	4.936	0.002	3377	1469			
C22	5.237	0.002	14752	5298	STODDARD (C8-C12)	385607	14
C24	5.541	0.002	27423	19589			
C25	5.697	-0.001	32901	10862			
C26	5.858	0.003	38654	17203			
C28	6.179	0.001	44943	31985			
C32	6.799	0.004	52582	16633			
C34	7.076	-0.003	61111	22044	CREOSOT (C8-C22)	297308	46
Filter Peak	----						
C36	7.347	-0.001	65631	31281	BUNKERC (C10-C38)	6800729	798
o-terph	4.690	0.003	1006	854	JET-A (C10-C18)	221285	14
Triacon Surr	6.500	0.004	693203	868291	IT.MOIL (C24-C40)	7717502	359

Range Times: NW Diesel(3.424 - 5.589) NW Gas(0.764 - 3.424) NW M.Oil(5.589 - 7.660)
AK102(2.677 - 5.649) AK103(5.649 - 7.398) Jet A(2.677 - 4.658)

Surrogate	Area	Amount	%Rec
o-Terphenyl	854	0.0	0.1
Triacontane	868291	54.6	121.3

MS 10/18/10

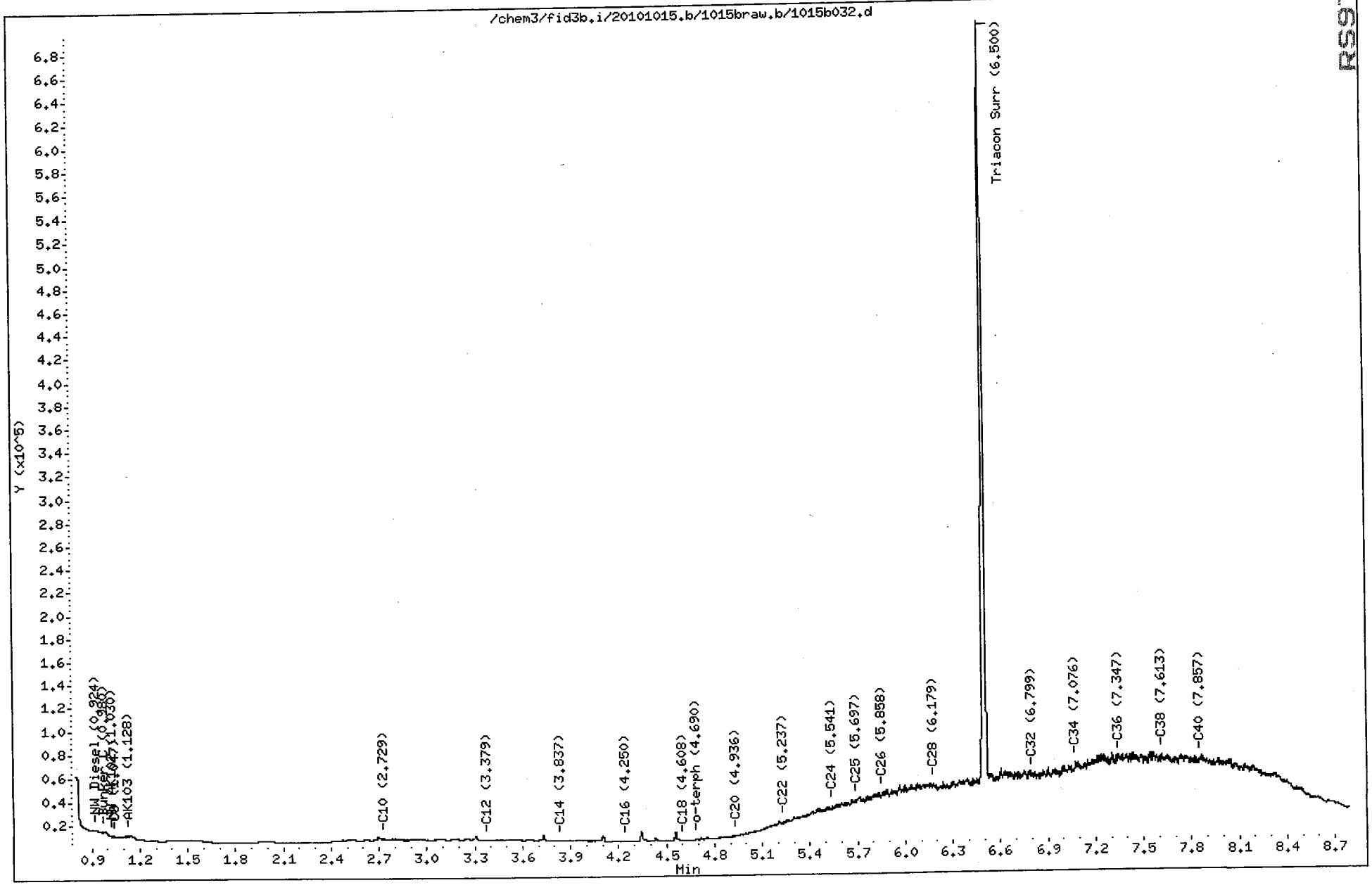
Analyte	RF	Curve Date
o-Terph Surr	19066.8	15-OCT-2010
Triacon Surr	15901.0	16-OCT-2010
Gas	25699.2	21-SEPT-2010
Diesel	21626.0	15-OCT-2010
Motor Oil	11596.5	15-OCT-2010
AK102	25261.0	15-OCT-2010
AK103	8727.5	29-SEPT-2010
JetA	15848.0	27-JAN-2009
OR Diesel	25401.0	
OR M.Oil	11274.0	
IT M.Oil	21488.2	
Bunker C	8522.1	20-SEP-2010
Creosote	6396.0	17-JAN-2009

Data File: /chem3/fid3b.i/20101015.b/1015braw.b/1015b032.d
Date : 16-OCT-2010 03:24
Client ID:
Sample Info: MOIL ICV

Instrument: fid3b.i

Operator: MS
Column diameter: 0.25

Column phase: ZB-1HT



RS97 : 91080

TPHD Raw Data
Run Logs, Continuing Calibrations, and Raw Data

ARI Job ID: RS97

Analytical Resources, Incorporated
Analytical Chemists and Consultants

GC Analyst Notes / Corrective Action Log

ARI Project ID: RS97 Client ID: NW Natural

ARI SOP: **403S**(PCB) **405S**(Herb) **407S**(TPH-D) **409S**(HCID) **412S**(PCP) **423S**(Pest) **427S**(Dir Inj) **428S**(EPH) **432S**(EDB) **Other**

Parameter(s): Diesel, MOil, oTeph.

Instrument: FID-3A FID-3B FID-4A FID-4B FID-5 FID-7 FID-8 FID-9 ECD-1 ECD-3 ECD-4 ECD-5 ECD-6 ECD-7

Dates: Curve: 11/1/10, 10/15/10 Analysis Start: 11/4/10

Endrin/DDT Breakdown <15%? YES / NO / NA

Method Blank In Control? YES / NO

ICal Meets RF & %RSD Criteria? YES / NO

LCS/LCSD Recovery In Control? YES / NO

CCal Meets RF & %RSD Criteria? YES / NO

Surrogate Recovery In Control? YES / NO

Manual Integrations for ICal? YES / NO

Manual Integrations for Samples? YES / NO

Internal Standard Meets Criteria? YES / NO / NA

Special Analysis Criteria Met? YES / NO / NA

Detail problems, corrective actions and/or other pertinent information below (use reverse side when necessary):

All samples contain weathered diesel and motor oil with miscellaneous peaks throughout. 11/16/10

The spike in the LCS is about 15% high due to the spike solution having concentrated. 11/16/10

Additional Details on Reverse: Yes / No

Analyst: [illegible] **Date:** 11/10/10

Reviewer: [illegible] **Date:** 11/16/10

Analytical Resources Inc.: Organics Instrument Log

FID-3B Serial No.: US00003232

Date: 11/4/10 Analysis: NWTPHD Analyst: Mo

GC Program: TPHHT Column No: 162178 Column Type: ZB-HT

Instrument Tune (.U or .CT.): — EM Voltage: —

Calibration File: — Curve Date: 11/1/10, 10/15/10

IS/SS	Ical/Ccal	LCS/ICV
	1700-1	
	1751-2	
	1777-3	
	1805-2	

	Inject Date/Time	Filename	DF	LabID
1	04-NOV-2010 18:37	1104b001.d	1	RINSE
2	04-NOV-2010 18:54	1104b002.d	1	RINSE
3	04-NOV-2010 19:11	1104b003.d	1	RT
4	04-NOV-2010 19:28	1104b004.d	1	IB
5	04-NOV-2010 19:46	1104b005.d	1	DIESEL#1
6	04-NOV-2010 20:03	1104b006.d	1	MOIL#1
7	04-NOV-2010 20:21	1104b007.d	1	RS97MBS1
8	04-NOV-2010 20:39	1104b008.d	1	RS97LCSS1
9	04-NOV-2010 20:56	1104b009.d	5	RS97A
10	04-NOV-2010 21:14	1104b010.d	10	RS97B
11	04-NOV-2010 21:31	1104b011.d	2	RS97C
12	04-NOV-2010 21:49	1104b012.d	2	RS97D
13	04-NOV-2010 22:06	1104b013.d	10	RS97E
14	04-NOV-2010 22:24	1104b014.d	50	RS97F
15	04-NOV-2010 22:42	1104b015.d	5	RS97G
16	04-NOV-2010 22:59	1104b016.d	2	RS97H
17	04-NOV-2010 23:17	1104b017.d	2	RS97HMS
18	04-NOV-2010 23:34	1104b018.d	2	RS97HMSD
19	04-NOV-2010 23:52	1104b019.d	1	DIESEL#2
20	05-NOV-2010 00:09	1104b020.d	1	MOIL#2
21	05-NOV-2010 00:27	1104b021.d	10	RS97I
22	05-NOV-2010 00:44	1104b022.d	10	RS97J
23	05-NOV-2010 01:02	1104b023.d	10	RS97K
24	05-NOV-2010 01:19	1104b024.d	5	RS97L
25	05-NOV-2010 01:37	1104b025.d	5	RS97M
26	05-NOV-2010 01:54	1104b026.d	2	RS97N
27	05-NOV-2010 02:11	1104b027.d	5	RS97O
28	05-NOV-2010 02:29	1104b028.d	10	RS97P
29	05-NOV-2010 02:46	1104b029.d	10	RS97Q
30	05-NOV-2010 03:04	1104b030.d	10	RS97R
31	05-NOV-2010 03:21	1104b031.d	5	RS97S
32	05-NOV-2010 03:39	1104b032.d	1	DIESEL#3
33	05-NOV-2010 03:56	1104b033.d	1	MOIL#3

Mo

11/5/10

Maintenance / Comments None

Maintenance Verification (Identify ICal or CCal that demonstrates the instrument is in control):

Every line must contain information or be lined out. Make all entries legible. Start a new page for each QC period.

Analytical Resources Inc.
407S TPH Quantitation Report

Data file: /chem3/fid3b.i/20101104.b/1104b003.d
Method: /chem3/fid3b.i/20101104.b/ftphfid3b.m
Instrument: fid3b.i
Operator: MS
Report Date: 11/16/2010
Macro: FID:3B110110

ARI ID: RT
Client ID: RT
Injection: 04-NOV-2010 19:11
Dilution Factor: 1

FID:3B RESULTS

Compound	RT	Shift	Height	Area	Range	Total Area	Conc
Toluene	0.804	0.000	884823	555220	GAS (Tol-C12)	1682801	105
C8	1.029	0.000	327466	297173	DIESEL (C12-C24)	2202894	121
C10	2.721	0.000	361984	321840	M.OIL (C24-C38)	2443740	211
C12	3.378	0.000	197307	107645	AK-102 (C10-C25)	2892240	139
C14	3.852	0.000	330130	326130	AK-103 (C25-C36)	2149963	246
C16	4.248	0.000	476258	333061	OR.DIES (C10-C28)	4110276	162
C18	4.606	0.000	426985	352076	OR.MOIL (C28-C40)	1415761	126
C20	4.932	0.000	454655	336949			
C22	5.232	0.000	453049	335134	STODDARD (C8-C12)	1095098	40
C24	5.531	0.000	457968	350037			
C25	5.689	0.000	544038	486407			
C26	5.847	0.000	390634	354569			
C28	6.165	0.000	383675	355574			
C32	6.774	0.000	336536	175483			
C34	7.062	0.000	323499	349992	CREOSOT (C8-C22)	1830830	286
Filter Peak	----						
C36	7.330	0.000	312410	337421	BUNKERC (C10-C38)	5330633	626
o-terph	4.686	0.000	1698037	1227770	JET-A (C10-C18)	1779424	112
Triacon Surr	6.482	0.000	1143035	1229640	IT.MOIL (C24-C40)	3868784	180

Range Times: NW Diesel(3.428 - 5.581) NW Gas(0.754 - 3.428) NW M.Oil(5.581 - 7.637)
AK102(2.671 - 5.639) AK103(5.639 - 7.380) Jet A(2.671 - 4.656)

Surrogate	Area	Amount	%Rec
o-Terphenyl	1227770	72.3	160.6
Triacontane	1229640	77.3	171.8

Analyte	RF	Curve Date
o-Terph Surr	16983.9	01-NOV-2010
Triacon Surr	15901.0	16-OCT-2010
Gas	15975.0	20-OCT-2010
Diesel	18232.0	01-NOV-2010
Motor Oil	11596.5	15-OCT-2010
AK102	20751.0	01-NOV-2010
AK103	8727.5	29-SEPT-2010
JetA	15848.0	27-JAN-2009
OR Diesel	25401.0	
OR M.Oil	11274.0	
IT M.Oil	21488.2	
Bunker C	8522.1	20-SEP-2010
Creosote	6396.0	17-JAN-2009

Data File: /chem3/fid3b.i/20101104.b/1104b003.d

Date : 04-NOV-2010 19:11

Client ID: RT

Sample Info: RT

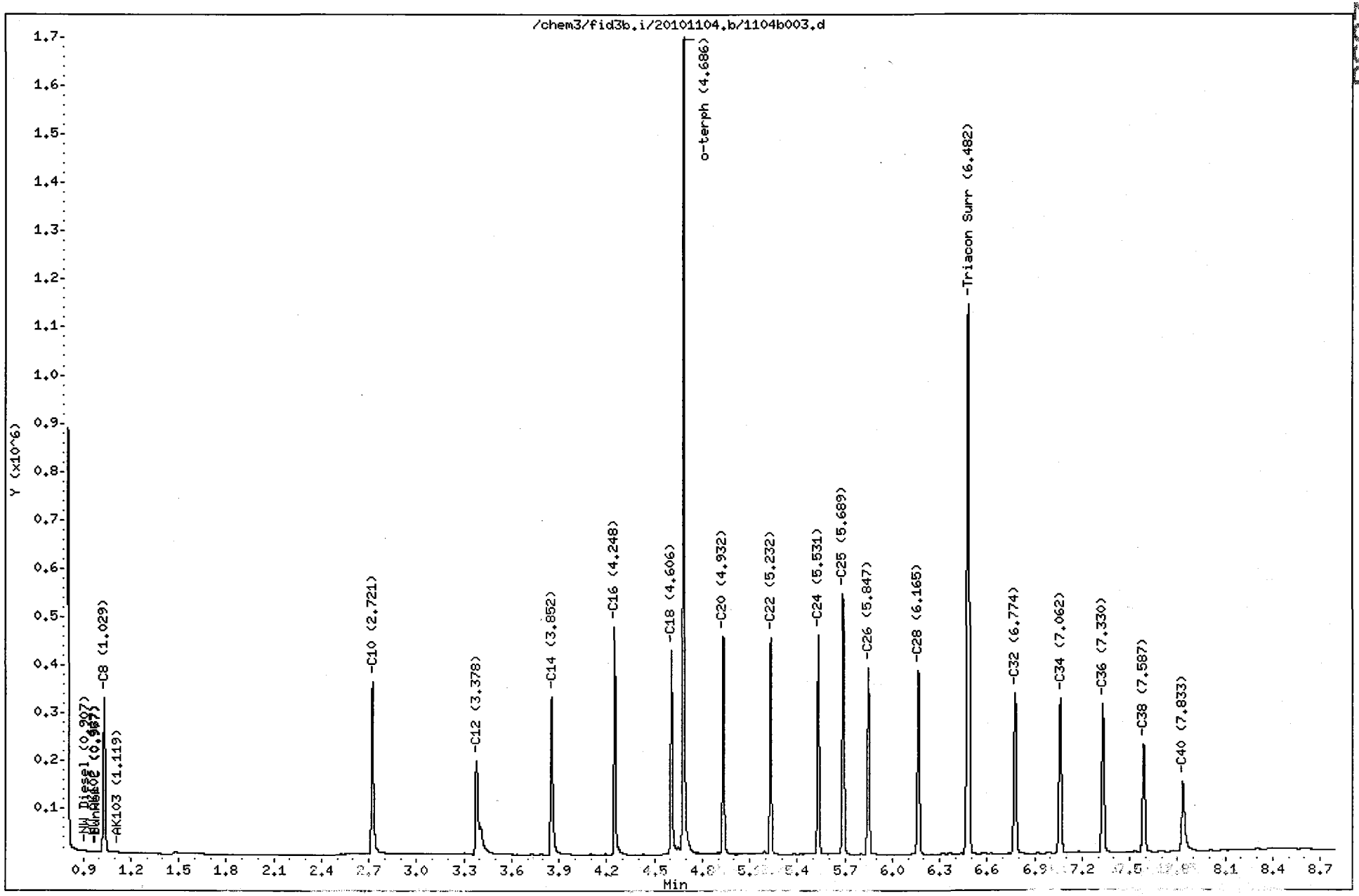
Column phase: ZB-1HT

Instrument: fid3b.i

Operator: MS

Column diameter: 0.25

RS97 : 91085



Analytical Resources Inc.
407S TPH Quantitation Report

Data file: /chem3/fid3b.i/20101104.b/1104b004.d
Method: /chem3/fid3b.i/20101104.b/ftphfid3b.m
Instrument: fid3b.i
Operator: MS
Report Date: 11/16/2010
Macro: FID:3B110110

ARI ID: IB
Client ID: IB
Injection: 04-NOV-2010 19:28
Dilution Factor: 1

FID:3B RESULTS

Compound	RT	Shift	Height	Area	Range	Total Area	Conc
Toluene	0.803	-0.001	42420	51226	GAS (Tol-C12)	256401	16
C8	1.030	0.001	4021	7986	DIESEL (C12-C24)	139037	8
C10	2.722	0.002	1989	1889	M.OIL (C24-C38)	157900	14
C12	3.377	0.000	1779	461	AK-102 (C10-C25)	233839	11
C14	3.854	0.002	862	237	AK-103 (C25-C36)	117026	13
C16	4.254	0.006	1059	1702	OR.DIES (C10-C28)	255197	10
C18	4.605	-0.001	901	885	OR.MOIL (C28-C40)	195229	17
C20	4.936	0.004	827	328			
C22	5.249	0.017	3025	3559	STODDARD (C8-C12)	166499	6
C24	5.541	0.010	3422	3926			
C25	5.695	0.006	4834	4441			
C26	5.850	0.003	3299	3147			
C28	6.163	-0.002	3796	4125			
C32	6.762	-0.012	1181	390			
C34	7.049	-0.013	1308	282	CREOSOT (C8-C22)	130322	20
Filter Peak	----						
C36	7.319	-0.011	1680	234	BUNKERC (C10-C38)	391526	46
o-terph	4.683	-0.002	1604340	1178348	JET-A (C10-C18)	161722	10
Triacon Surr	6.482	0.000	894009	987060	IT.MOIL (C24-C40)	1203861	56

Range Times: NW Diesel(3.428 - 5.581) NW Gas(0.754 - 3.428) NW M.Oil(5.581 - 7.637)
AK102(2.671 - 5.639) AK103(5.639 - 7.380) Jet A(2.671 - 4.656)

Surrogate	Area	Amount	%Rec
o-Terphenyl	1178348	69.4	154.2
Triacontane	987060	62.1	137.9

Analyte	RF	Curve Date
o-Terph Surr	16983.9	01-NOV-2010
Triacon Surr	15901.0	16-OCT-2010
Gas	15975.0	20-OCT-2010
Diesel	18232.0	01-NOV-2010
Motor Oil	11596.5	15-OCT-2010
AK102	20751.0	01-NOV-2010
AK103	8727.5	29-SEPT-2010
JetA	15848.0	27-JAN-2009
OR Diesel	25401.0	
OR M.Oil	11274.0	
IT M.Oil	21488.2	
Bunker C	8522.1	20-SEP-2010
Creosote	6396.0	17-JAN-2009

Data File: /chem3/fid3b.i/20101104.b/1104b004.d

Date : 04-NOV-2010 19:28

Client ID: IB

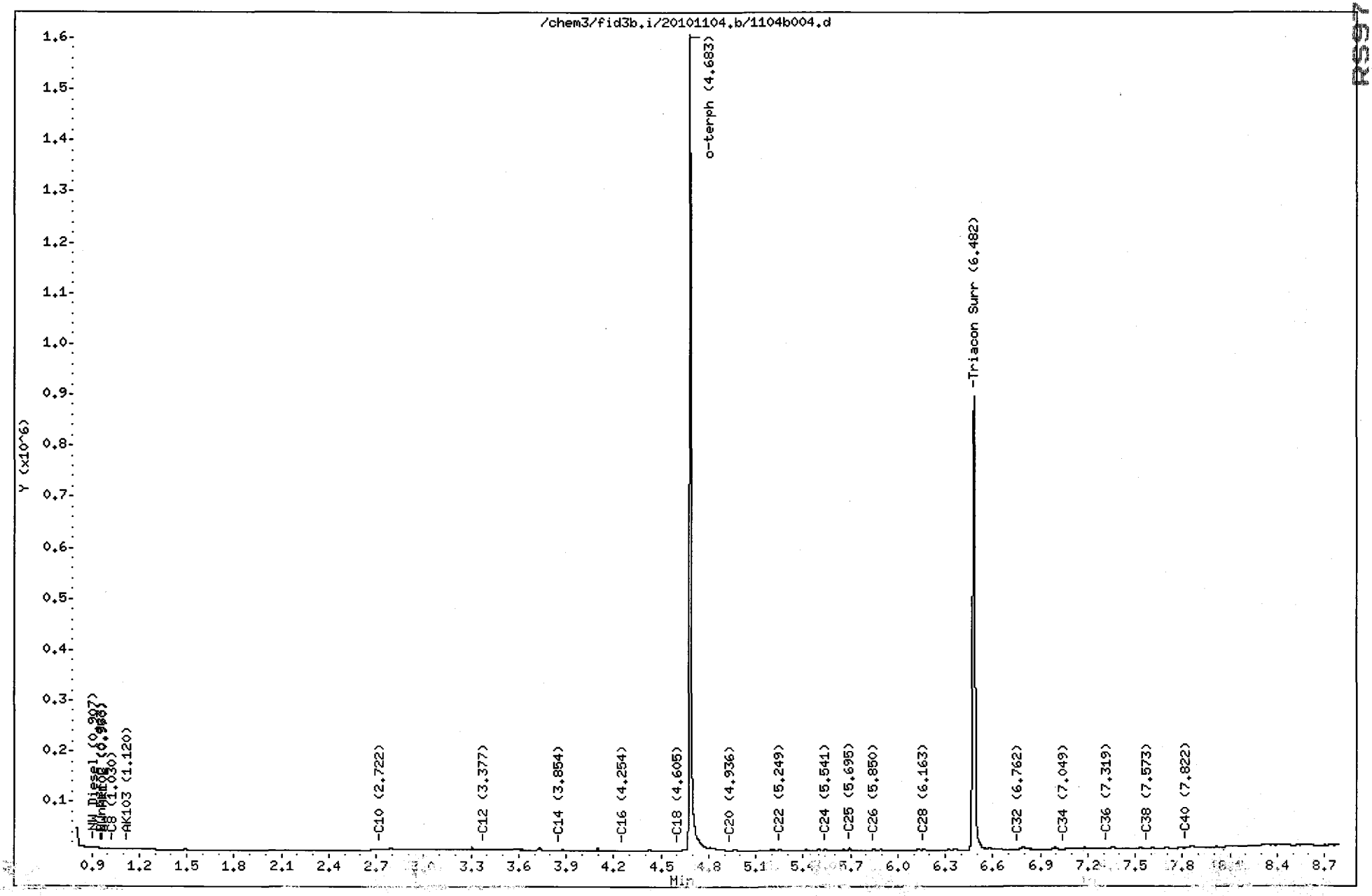
Sample Info: IB

Column phase: ZB-1HT

Instrument: fid3b.i

Operator: MS

Column diameter: 0.25



RS97 : 01087

Analytical Resources Inc.
407S TPH Quantitation Report

Data file: /chem3/fid3b.i/20101104.b/1104b005.d
Method: /chem3/fid3b.i/20101104.b/ftphfid3b.m
Instrument: fid3b.i
Operator: MS
Report Date: 11/16/2010
Macro: FID:3B110110

ARI ID: DIESEL#1
Client ID: NWN-INS
Injection: 04-NOV-2010 19:46
Dilution Factor: 1

FID:3B RESULTS

Compound	RT	Shift	Height	Area	Range	Total Area	Conc
Toluene	0.803	-0.001	12756	16661	GAS (Tol-C12)	773164	48
C8	1.026	-0.003	4826	11127	DIESEL (C12-C24)	4403085	242
C10	2.721	0.001	14534	18551	M.OIL (C24-C38)	107977	9
C12	3.374	-0.004	36751	33396	AK-102 (C10-C25)	4931537	238 M
C14	3.842	-0.010	79276	88627	AK-103 (C25-C36)	75222	9
C16	4.244	-0.004	162088	181317	OR.DIES (C10-C28)	4965497	195 M
C18	4.603	-0.003	150893	142982	OR.MOIL (C28-C40)	110614	10
C20	4.929	-0.002	84485	95646			
C22	5.230	-0.002	29804	29760	STODDARD (C8-C12)	704157	25
C24	5.520	-0.011	4690	3387			
C25	5.688	-0.001	2273	1071			
C26	5.852	0.005	1039	612			
C28	6.161	-0.004	145	82			
C32	6.791	0.017	1354	2379			
C34	7.061	-0.001	703	151	CREOSOT (C8-C22)	4259550	666
Filter Peak	----						
C36	7.326	-0.003	1320	417	BUNKERC (C10-C38)	5032034	590
o-terph	4.683	-0.002	1181053	725607	JET-A (C10-C18)	3703049	234
Triacon Surr	6.477	-0.004	61	9	IT.MOIL (C24-C40)	152062	7

Range Times: NW Diesel(3.428 - 5.581) NW Gas(0.754 - 3.428) NW M.Oil(5.581 - 7.637)
AK102(2.671 - 5.639) AK103(5.639 - 7.380) Jet A(2.671 - 4.656)

Surrogate	Area	Amount	%Rec
o-Terphenyl	725607	42.7	94.9
Triacontane	9	0.0	0.0

Analyte	RF	Curve Date
o-Terph Surr	16983.9	01-NOV-2010
Triacon Surr	15901.0	16-OCT-2010
Gas	15975.0	20-OCT-2010
Diesel	18232.0	01-NOV-2010
Motor Oil	11596.5	15-OCT-2010
AK102	20751.0	01-NOV-2010
AK103	8727.5	29-SEPT-2010
JetA	15848.0	27-JAN-2009
OR Diesel	25401.0	
OR M.Oil	11274.0	
IT M.Oil	21488.2	
Bunker C	8522.1	20-SEP-2010
Creosote	6396.0	17-JAN-2009

Data File: /chem3/fid3b.i/20101104.b/1104b005.d

Date : 04-NOV-2010 19:46

Client ID: NWN-INS

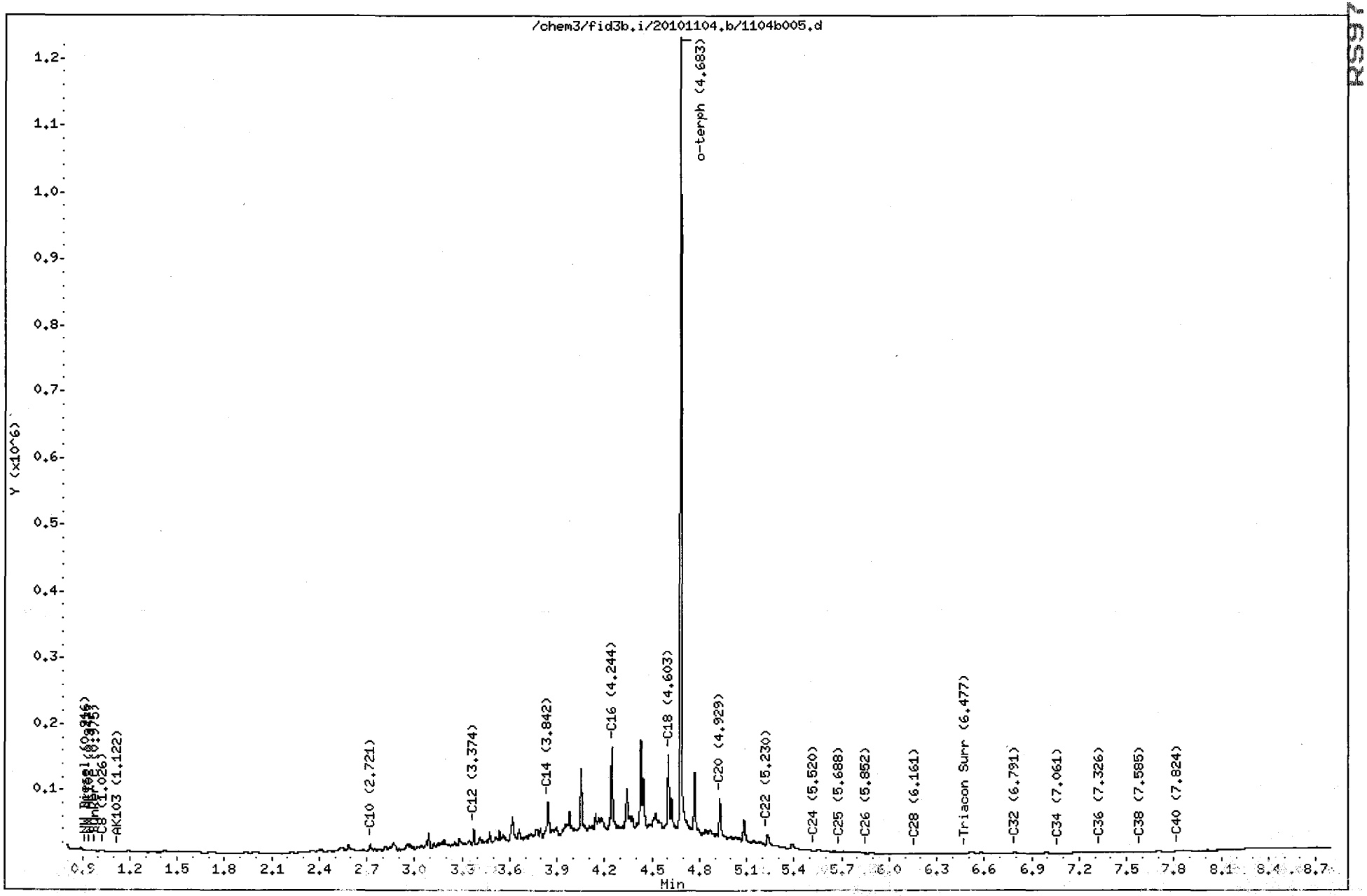
Sample Info: DIESEL#1

Column phase: ZB-1HT

Instrument: fid3b.i

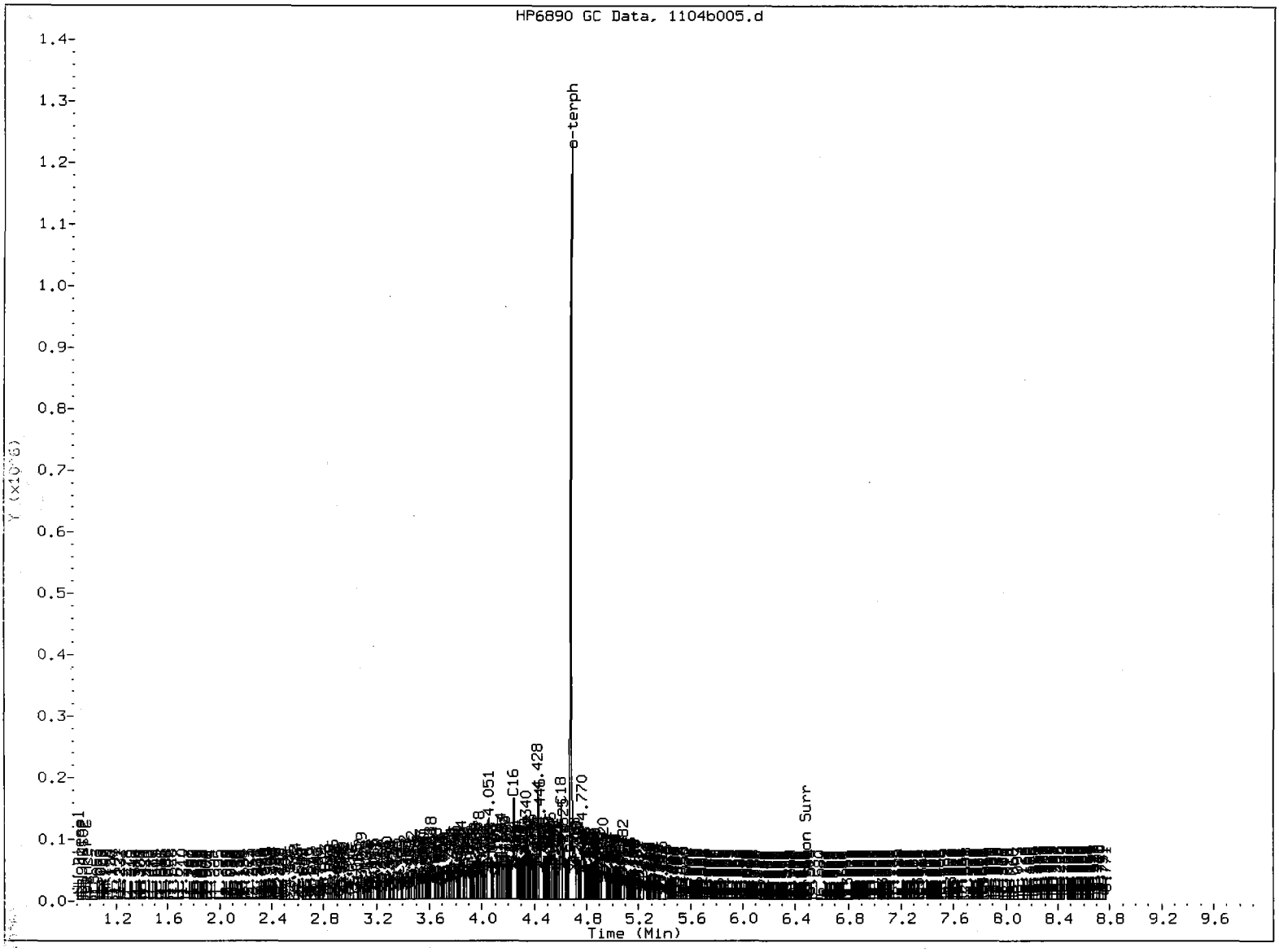
Operator: MS

Column diameter: 0.25



RS97-01089

FID:3B-2C/RTX-1 DIESEL#1 FID:3B SIGNAL



MANUAL INTEGRATION

1. Baseline correction
2. Poor chromatography
3. Peak not found
4. Totals calculation

5. Other _____

Analyst: _____ Date: 11/10/16

RS97:01090

Analytical Resources Inc.
407S TPH Quantitation Report

Data file: /chem3/fid3b.i/20101104.b/1104b006.d
Method: /chem3/fid3b.i/20101104.b/ftphfid3b.m
Instrument: fid3b.i
Operator: MS
Report Date: 11/16/2010
Macro: FID:3B110110

ARI ID: MOIL#1
Client ID: NWN-INS
Injection: 04-NOV-2010 20:03
Dilution Factor: 1

FID:3B RESULTS

Compound	RT	Shift	Height	Area	Range	Total Area	Conc
Toluene	0.871	0.067	5699	3155	GAS (Tol-C12)	154072	10
C8	1.028	-0.002	2978	3626	DIESEL (C12-C24)	724993	40
C10	2.727	0.006	1726	1774	M.OIL (C24-C38)	5094009	439
C12	3.378	0.001	1656	823	AK-102 (C10-C25)	904951	44
C14	3.853	0.001	1052	208	AK-103 (C25-C36)	4468109	512 M
C16	4.239	-0.009	758	518	OR.DIES (C10-C28)	2179667	86
C18	4.605	-0.001	958	170	OR.MOIL (C28-C40)	4084168	362 M
C20	4.930	-0.001	3718	1088			
C22	5.232	0.001	14622	4553	STODDARD (C8-C12)	139448	5
C24	5.530	-0.002	26175	3603			
C25	5.687	-0.002	33078	20061			
C26	5.847	0.000	38860	16892			
C28	6.167	0.002	44714	15781			
C32	6.775	0.001	51806	22662			
C34	7.060	-0.002	51374	36734	CREOSOT (C8-C22)	312681	49
Filter Peak	----						
C36	7.326	-0.003	43562	17695	BUNKERC (C10-C38)	5897134	692
o-terph	4.692	0.006	3879	4064	JET-A (C10-C18)	160586	10
Triacon Surr	6.484	0.003	692960	722146	IT.MOIL (C24-C40)	6182856	288

Range Times: NW Diesel(3.428 - 5.581) NW Gas(0.754 - 3.428) NW M.Oil(5.581 - 7.637)
AK102(2.671 - 5.639) AK103(5.639 - 7.380) Jet A(2.671 - 4.656)

Surrogate	Area	Amount	%Rec
o-Terphenyl	4064	0.2	0.5
Triacontane	722146	45.4	100.9

Analyte	RF	Curve Date
o-Terph Surr	16983.9	01-NOV-2010
Triacon Surr	15901.0	16-OCT-2010
Gas	15975.0	20-OCT-2010
Diesel	18232.0	01-NOV-2010
Motor Oil	11596.5	15-OCT-2010
AK102	20751.0	01-NOV-2010
AK103	8727.5	29-SEPT-2010
JetA	15848.0	27-JAN-2009
OR Diesel	25401.0	
OR M.Oil	11274.0	
IT M.Oil	21488.2	
Bunker C	8522.1	20-SEP-2010
Creosote	6396.0	17-JAN-2009

Data File: /chem3/fid3b.i/20101104.b/1104b006.d

Date : 04-NOV-2010 20:03

Client ID: NWN-INS

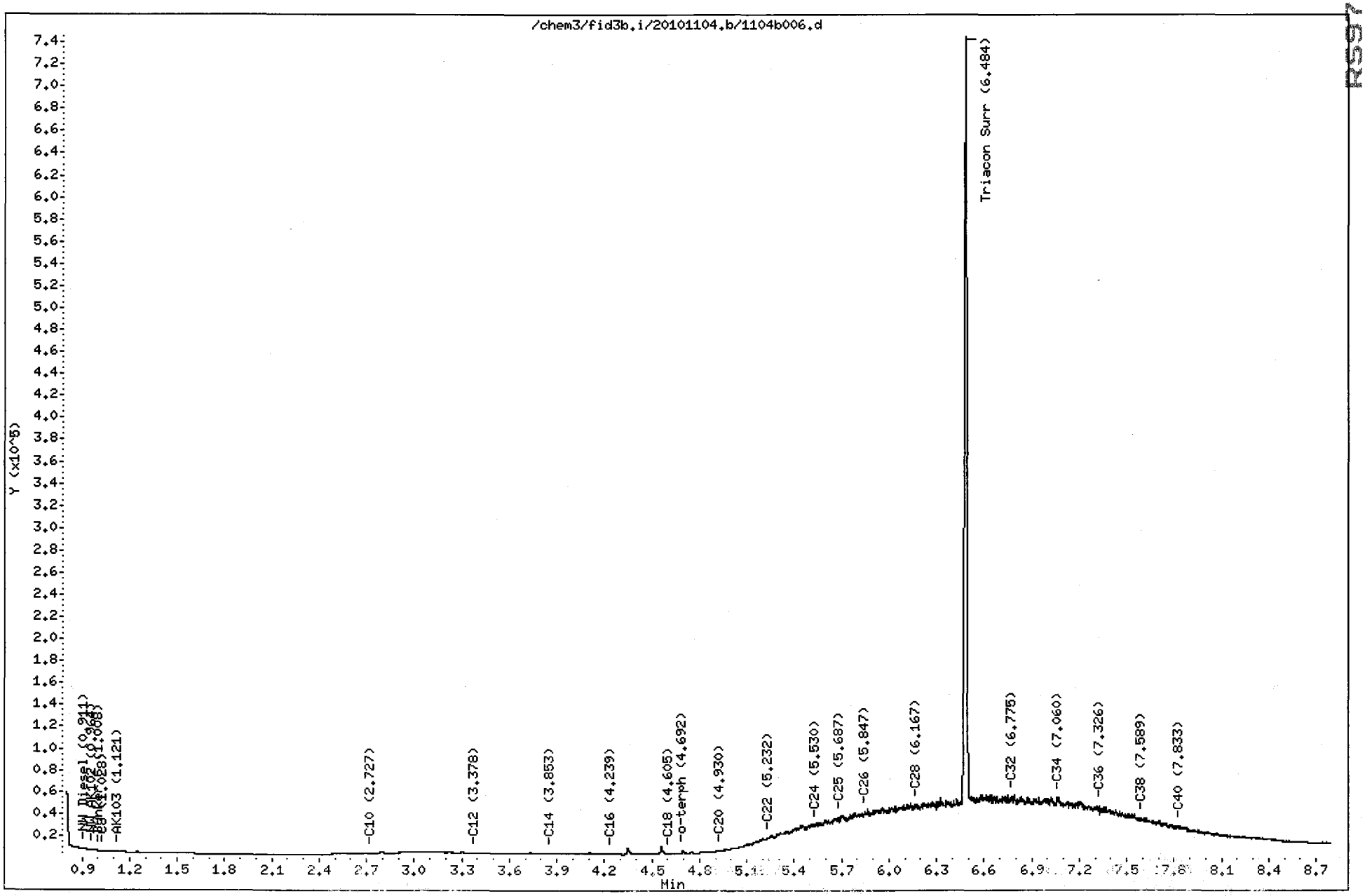
Sample Info: MOIL#1

Column phase: ZB-1HT

Instrument: fid3b.i

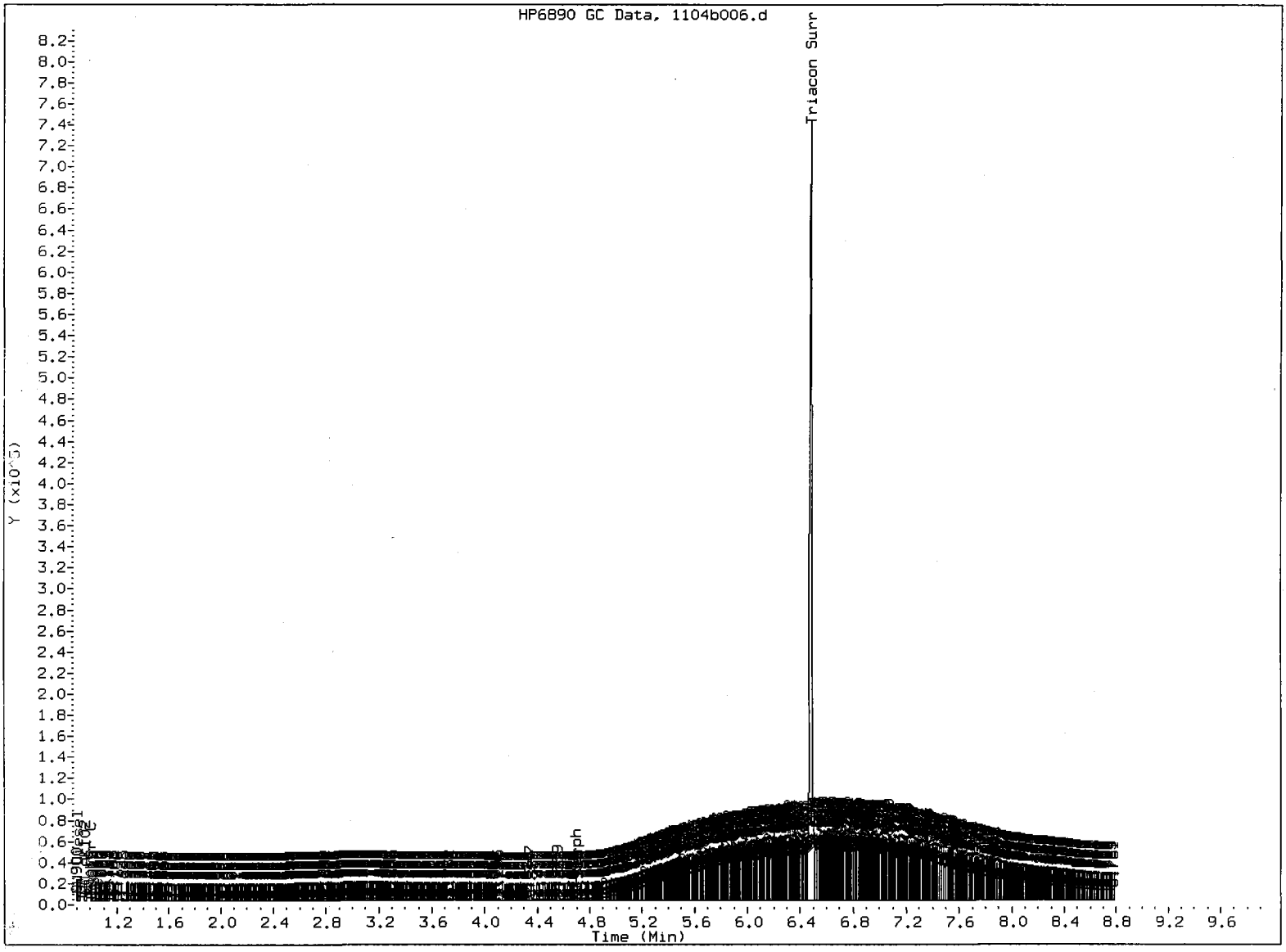
Operator: MS

Column diameter: 0.25



RS97:01092

FID:3B-2C/RTX-1 MOIL#1 FID:3B SIGNAL



MANUAL INTEGRATION

1. Baseline correction
2. Poor chromatography
3. Peak not found
4. Totals calculation

5. Other _____

Analyst: _____ Date: 01/16/2

RS97:01093

Analytical Resources Inc.
407S TPH Quantitation Report

Data file: /chem3/fid3b.i/20101104.b/1104b007.d
Method: /chem3/fid3b.i/20101104.b/ftphfid3b.m
Instrument: fid3b.i
Operator: MS
Report Date: 11/15/2010
Macro: FID:3B110110

ARI ID: RS97MBS1
Client ID: RS97MBS1
Injection: 04-NOV-2010 20:21
Dilution Factor: 1

FID:3B RESULTS

Compound	RT	Shift	Height	Area	Range	Total Area	Conc
Toluene	0.804	0.000	31926	37071	GAS (Tol-C12)	267299	17
C8	1.029	0.000	3259	3198	DIESEL (C12-C24)	140820	8
C10	2.723	0.003	1850	688	M.OIL (C24-C38)	144956	13
C12	3.378	0.001	1950	925	AK-102 (C10-C25)	233530	11
C14	3.856	0.004	988	98	AK-103 (C25-C36)	104890	12
C16	4.250	0.002	458	126	OR.DIES (C10-C28)	240542	9
C18	4.601	-0.005	170	42	OR.MOIL (C28-C40)	190871	17
C20	4.936	0.004	633	389			
C22	5.224	-0.007	244	211	STODDARD (C8-C12)	189727	7
C24	5.540	0.009	492	495			
C25	5.693	0.004	109	43			
C26	5.843	-0.004	149	58			
C28	6.166	0.001	532	246			
C32	6.767	-0.007	1306	310			
C34	7.059	-0.003	1468	519	CREOSOT (C8-C22)	139471	22
Filter Peak	----						
C36	7.332	0.003	2157	343	BUNKERC (C10-C38)	378275	44
o-terph	4.688	0.002	838994	692593	JET-A (C10-C18)	148364	9
Triacon Surr	6.483	0.001	580565	657310	IT.MOIL (C24-C40)	855404	40

Range Times: NW Diesel(3.428 - 5.581) NW Gas(0.754 - 3.428) NW M.Oil(5.581 - 7.637)
AK102(2.671 - 5.639) AK103(5.639 - 7.380) Jet A(2.671 - 4.656)

Surrogate	Area	Amount	%Rec
o-Terphenyl	692593	40.8	90.6
Triacontane	657310	41.3	91.9

Analyte	RF	Curve Date
o-Terph Surr	16983.9	01-NOV-2010
Triacon Surr	15901.0	16-OCT-2010
Gas	15975.0	20-OCT-2010
Diesel	18232.0	01-NOV-2010
Motor Oil	11596.5	15-OCT-2010
AK102	20751.0	01-NOV-2010
AK103	8727.5	29-SEPT-2010
JetA	15848.0	27-JAN-2009
OR Diesel	25401.0	
OR M.Oil	11274.0	
IT M.Oil	21488.2	
Bunker C	8522.1	20-SEP-2010
Creosote	6396.0	17-JAN-2009

Data File: /chem3/fid3b.i/20101104.b/1104b007.d

Date : 04-NOV-2010 20:21

Client ID: RS97MBS1

Sample Info: RS97MBS1

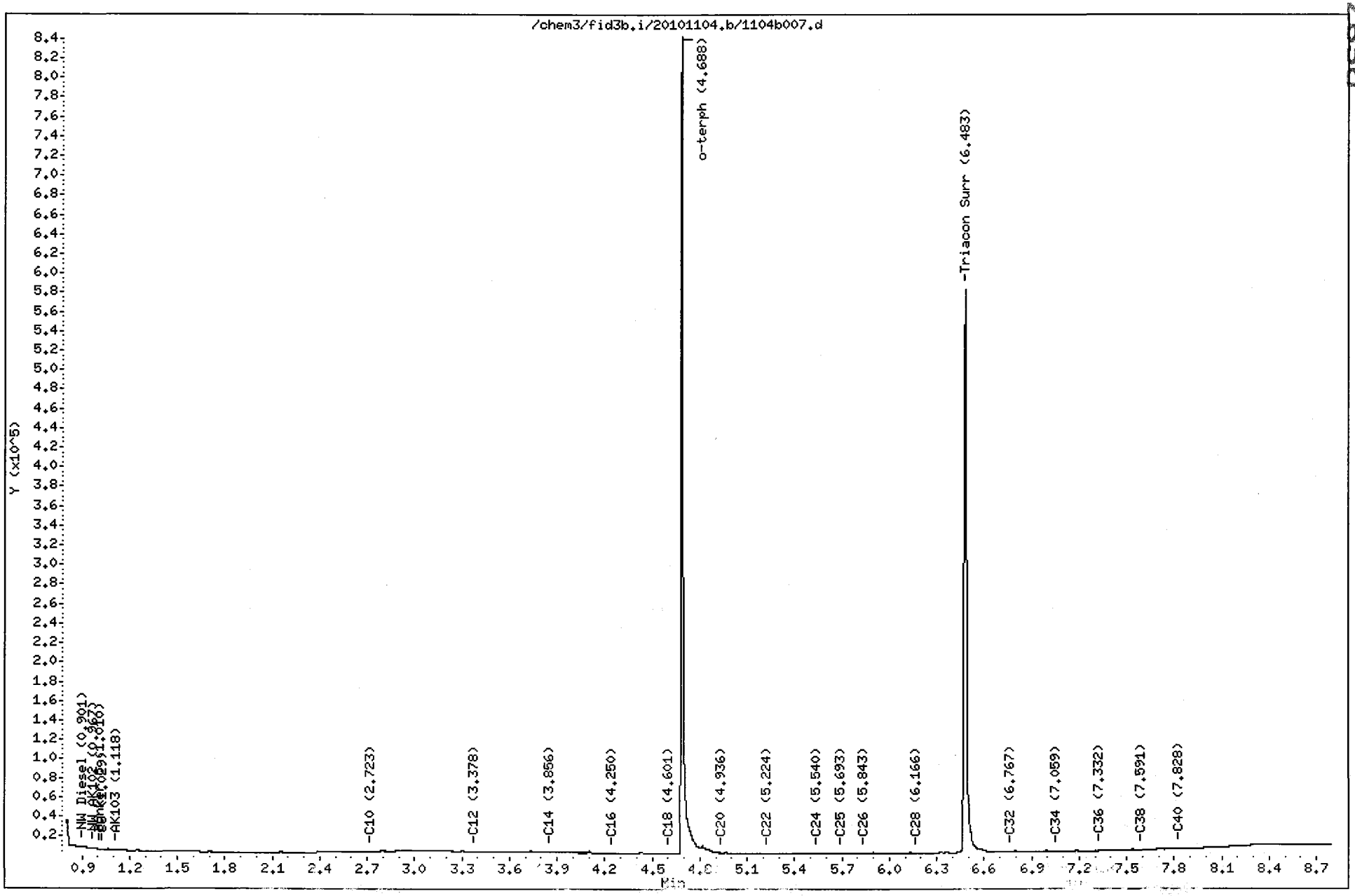
Column phase: ZB-1HT

Instrument: fid3b.i

Operator: MS

Column diameter: 0.25

RS97 : 01095



Analytical Resources Inc.
407S TPH Quantitation Report

Data file: /chem3/fid3b.i/20101104.b/1104b008.d
Method: /chem3/fid3b.i/20101104.b/ftphfid3b.m
Instrument: fid3b.i
Operator: MS
Report Date: 11/15/2010
Macro: FID:3B110110

ARI ID: RS97LCSS1
Client ID: RS97LCSS1
Injection: 04-NOV-2010 20:39
Dilution Factor: 1

FID:3B RESULTS

Compound	RT	Shift	Height	Area	Range	Total Area	Conc
Toluene	0.840	0.036	10063	11473	GAS (Tol-C12)	5546919	347
C8	1.037	0.007	16713	31198	DIESEL (C12-C24)	35964747	1973
C10	2.720	-0.001	126052	143170	M.OIL (C24-C38)	402967	35
C12	3.372	-0.006	427856	321284	AK-102 (C10-C25)	40232649	1939 M
C14	3.843	-0.009	738313	898684	AK-103 (C25-C36)	297098	34 M
C16	4.251	0.003	1340854	1319319	OR.DIES (C10-C28)	40489686	1594 M
C18	4.612	0.006	1197326	1168798	OR.MOIL (C28-C40)	82305	7 M
C20	4.935	0.003	784350	729112			
C22	5.232	0.000	364767	323200	STODDARD (C8-C12)	5403713	195
C24	5.530	-0.001	89276	108196			
C25	5.691	0.002	40229	68616			
C26	5.847	0.000	15288	9950			
C28	6.164	-0.001	2249	2509			
C32	6.790	0.016	2631	3221			
C34	7.059	-0.003	158	102	CREOSOT (C8-C22)	34829494	5446
Filter Peak	----						
C36	7.333	0.003	615	96	BUNKERC (C10-C38)	40545037	4758
o-terph	4.689	0.003	1161873	753365	JET-A (C10-C18)	29497049	1861
Triacon Surr	6.481	-0.001	571267	699061	IT.MOIL (C24-C40)	1128982	53

Range Times: NW Diesel(3.428 - 5.581) NW Gas(0.754 - 3.428) NW M.Oil(5.581 - 7.637)
AK102(2.671 - 5.639) AK103(5.639 - 7.380) Jet A(2.671 - 4.656)

Surrogate	Area	Amount	%Rec
o-Terphenyl	753365	44.4	98.6
Triacontane	699061	44.0	97.7

Analyte	RF	Curve Date
o-Terph Surr	16983.9	01-NOV-2010
Triacon Surr	15901.0	16-OCT-2010
Gas	15975.0	20-OCT-2010
Diesel	18232.0	01-NOV-2010
Motor Oil	11596.5	15-OCT-2010
AK102	20751.0	01-NOV-2010
AK103	8727.5	29-SEPT-2010
JetA	15848.0	27-JAN-2009
OR Diesel	25401.0	
OR M.Oil	11274.0	
IT M.Oil	21488.2	
Bunker C	8522.1	20-SEP-2010
Creosote	6396.0	17-JAN-2009

Data File: /chem3/fid3b.i/20101104.b/1104b008.d

Date : 04-NOV-2010 20:39

Client ID: RS97LCSS1

Sample Info: RS97LCSS1

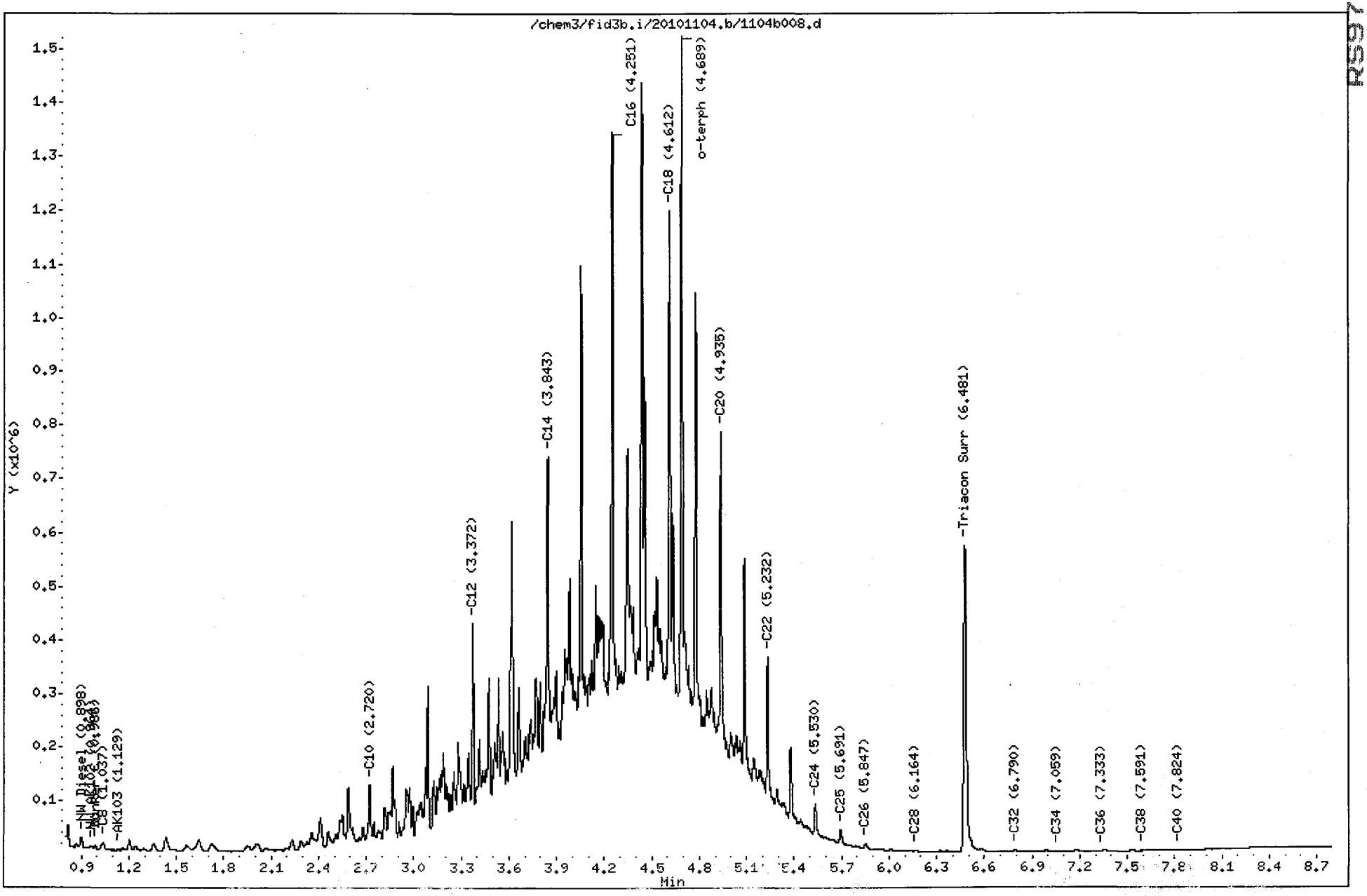
Column phase: ZB-1HT

Instrument: fid3b.i

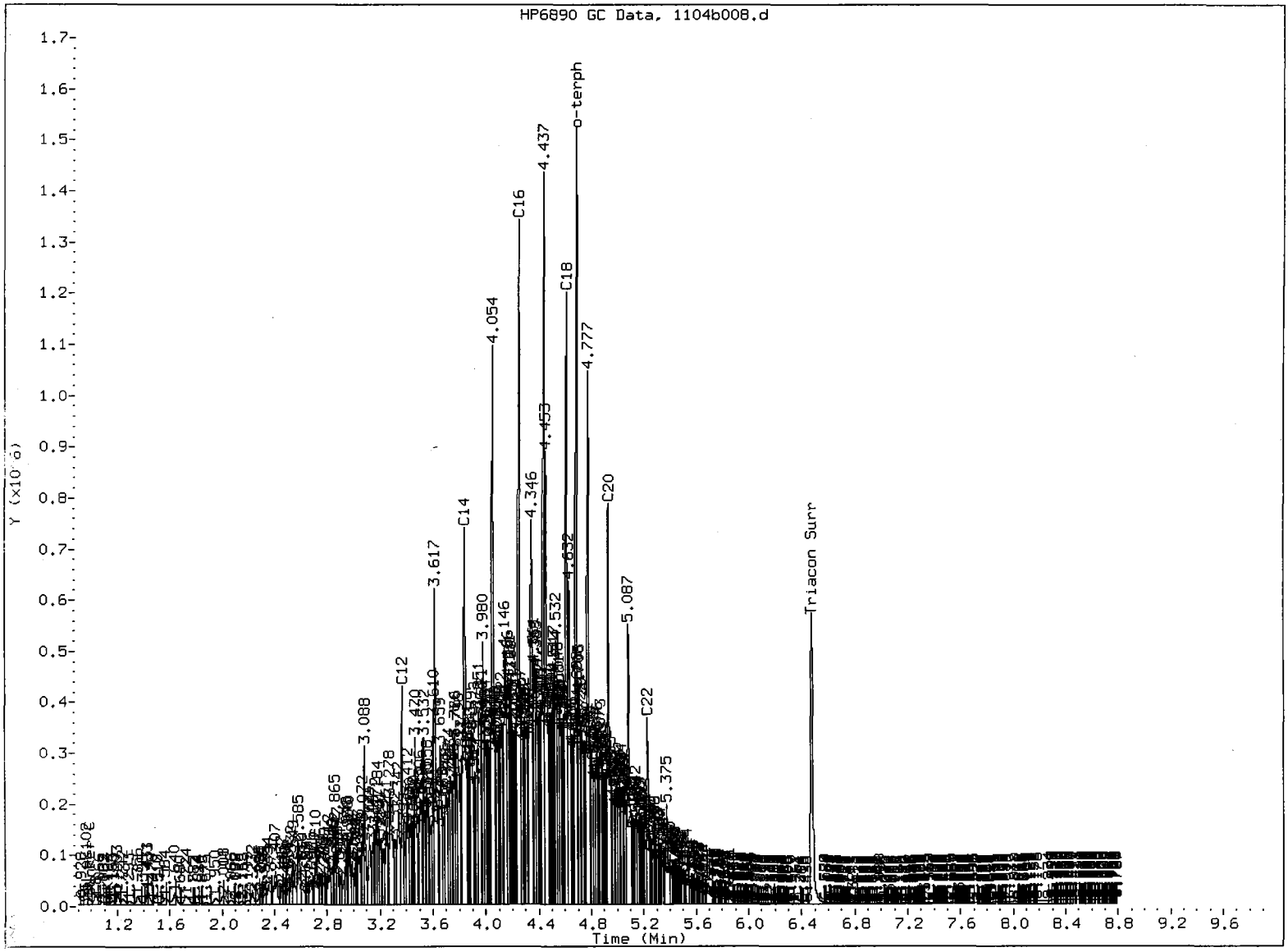
Operator: MS

Column diameter: 0.25

RS97:01097



FID:3B-2C/RTX-1 RS97LCSS1 FID:3B SIGNAL



MANUAL INTEGRATION

1. Baseline correction
2. Poor chromatography
3. Peak not found
4. Totals calculation

5. Other _____

Analyst: _____ Date: 11/16/1

Analytical Resources Inc.
407S TPH Quantitation Report

Data file: /chem3/fid3b.i/20101104.b/1104b009.d
Method: /chem3/fid3b.i/20101104.b/ftphfid3b.m
Instrument: fid3b.i
Operator: MS
Report Date: 11/15/2010
Macro: FID:3B110110

ARI ID: RS97A
Client ID: GSM-08SO-10-11-1009
Injection: 04-NOV-2010 20:56
Dilution Factor: 5

FID:3B RESULTS

Compound	RT	Shift	Height	Area	Range	Total Area	Conc
Toluene	0.805	0.001	30932	34926	GAS (Tol-C12)	4508128	282
C8	1.030	0.000	3303	3615	DIESEL (C12-C24)	16883378	926
C10	2.726	0.005	6050	3664	M.OIL (C24-C38)	5132649	443
C12	3.379	0.001	20673	3692	AK-102 (C10-C25)	21368162	1030 M
C14	3.858	0.006	176625	195387	AK-103 (C25-C36)	4753267	545 M
C16	4.244	-0.004	72706	49242	OR.DIES (C10-C28)	23887001	940 M
C18	4.623	0.017	153117	181734	OR.MOIL (C28-C40)	2611722	232 M
C20	4.923	-0.009	113514	22041			
C22	5.233	0.001	123206	148385	STODDARD (C8-C12)	4435035	160
C24	5.521	-0.011	486331	818222			
C25	5.691	0.002	49556	20713			
C26	5.856	0.010	36215	5031			
C28	6.150	-0.015	107042	188166			
C32	6.778	0.004	28431	16208			
C34	7.058	-0.004	19728	13740	CREOSOT (C8-C22)	15152974	2369
Filter Peak	----						
C36	7.331	0.001	18622	9437	BUNKERC (C10-C38)	26306881	3087
o-terph	4.683	-0.003	427011	321676	JET-A (C10-C18)	14032337	885
Triacon Surr	6.477	-0.004	252729	248405	IT.MOIL (C24-C40)	5572895	259

Range Times: NW Diesel(3.428 - 5.581) NW Gas(0.754 - 3.428) NW M.Oil(5.581 - 7.637)
AK102(2.671 - 5.639) AK103(5.639 - 7.380) Jet A(2.671 - 4.656)

Surrogate	Area	Amount	%Rec
o-Terphenyl	321676	18.9	210.4
Triacontane	248405	15.6	173.6

Analyte	RF	Curve Date
o-Terph Surr	16983.9	01-NOV-2010
Triacon Surr	15901.0	16-OCT-2010
Gas	15975.0	20-OCT-2010
Diesel	18232.0	01-NOV-2010
Motor Oil	11596.5	15-OCT-2010
AK102	20751.0	01-NOV-2010
AK103	8727.5	29-SEPT-2010
JetA	15848.0	27-JAN-2009
OR Diesel	25401.0	
OR M.Oil	11274.0	
IT M.Oil	21488.2	
Bunker C	8522.1	20-SEP-2010
Creosote	6396.0	17-JAN-2009

Data File: /chem3/fid3b.i/20101104.b/1104b009.d

Date : 04-NOV-2010 20:56

Client ID: GSM-08SO-10-11-1009

Sample Info: RS97A,5

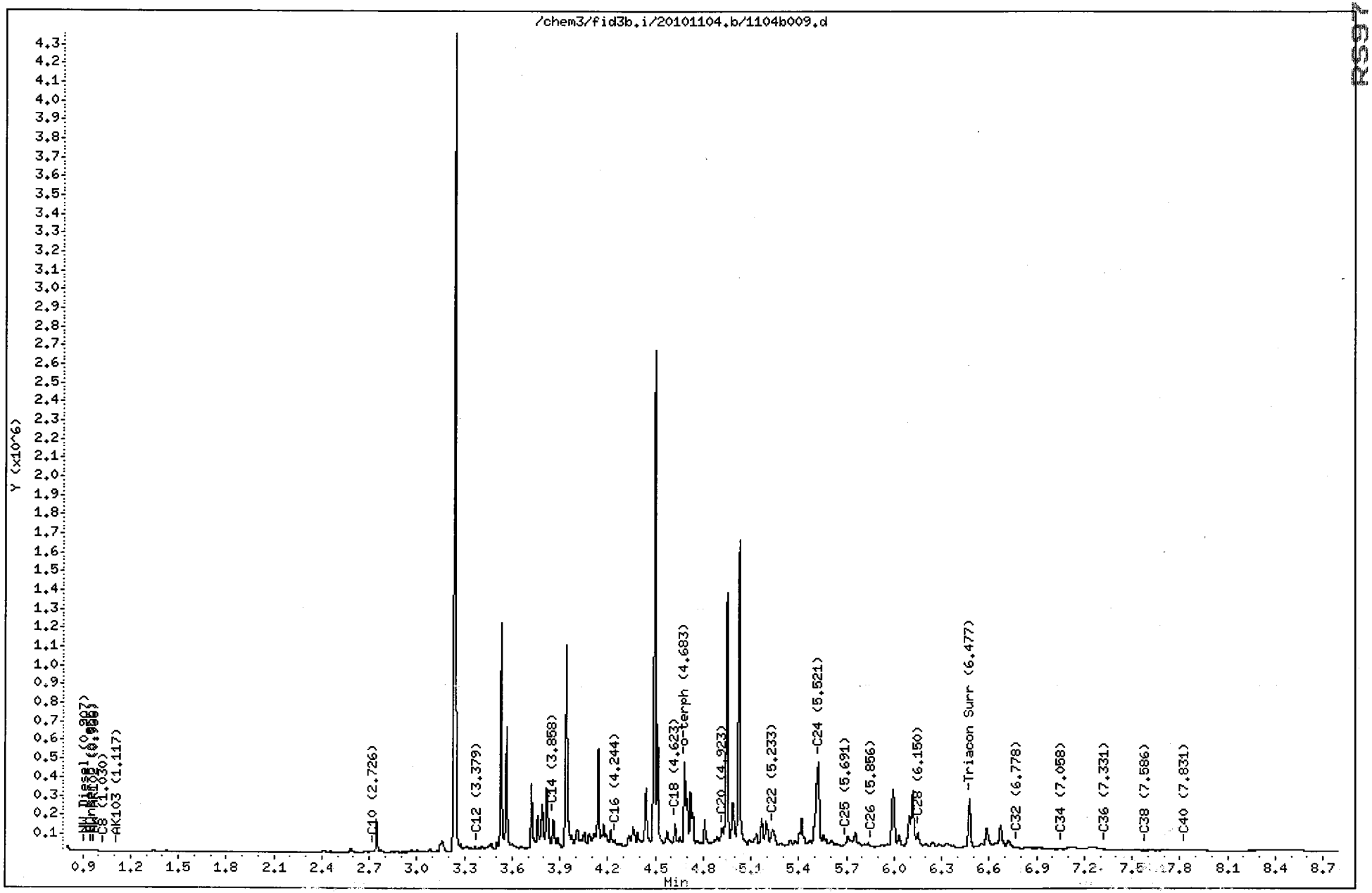
Column phase: ZB-1HT

Instrument: fid3b.i

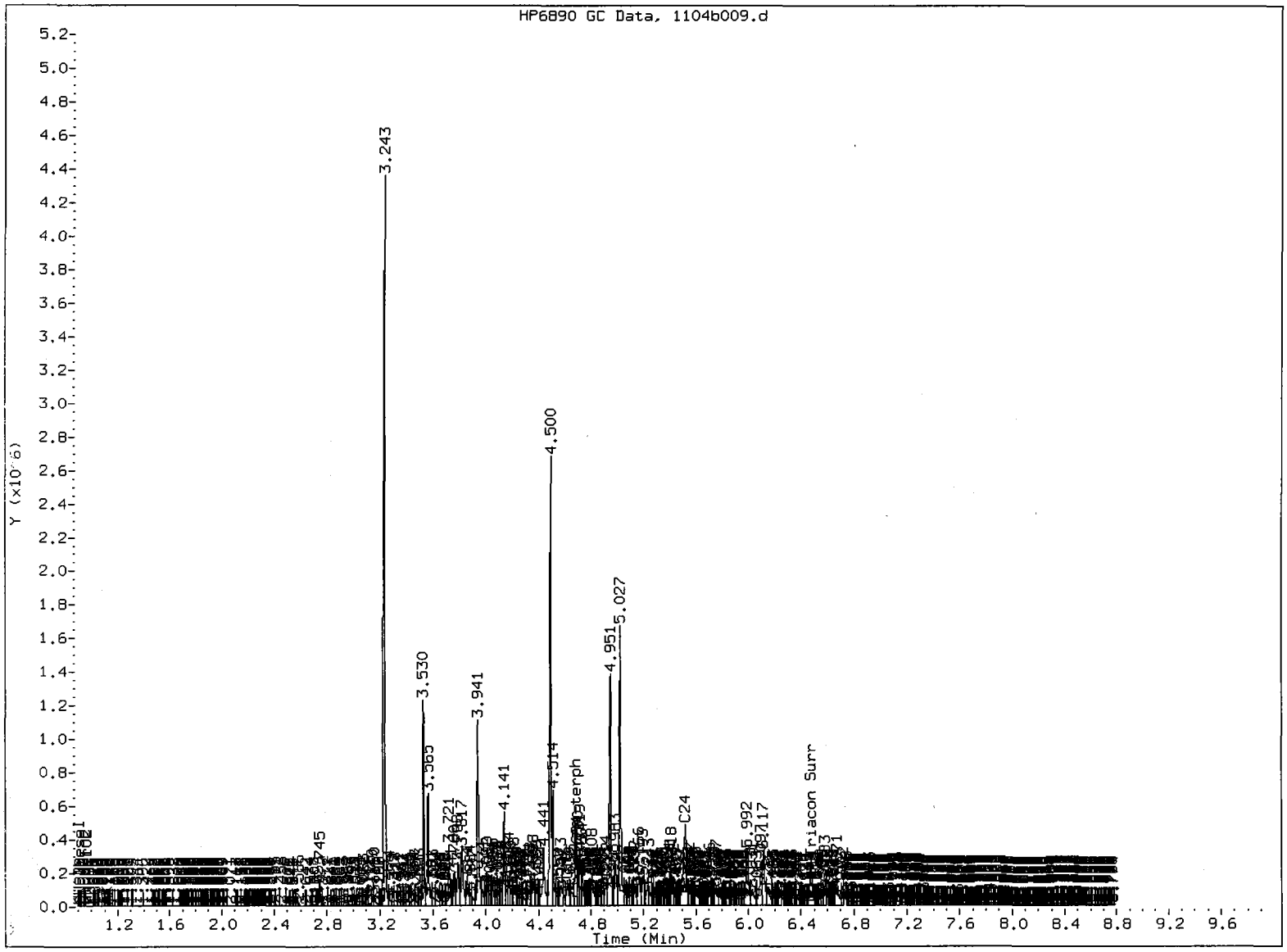
Operator: MS

Column diameter: 0.25

RS97 : 01100



FID:3B-2C/RTX-1 RS97A FID:3B SIGNAL



MANUAL INTEGRATION

1. Baseline correction
2. Poor chromatography
3. Peak not found
4. Totals calculation

5. Other _____

Analyst: _____ Date: 11/16/12

RS97:01101

Analytical Resources Inc.
407S TPH Quantitation Report

Data file: /chem3/fid3b.i/20101104.b/1104b010.d
Method: /chem3/fid3b.i/20101104.b/ftphfid3b.m
Instrument: fid3b.i
Operator: MS
Report Date: 11/15/2010
Macro: FID:3B110110

ARI ID: RS97B
Client ID: DGS-19-3.34.1-10100
Injection: 04-NOV-2010 21:14
Dilution Factor: 10

FID:3B RESULTS

Compound	RT	Shift	Height	Area	Range	Total Area	Conc
Toluene	0.842	0.039	7162	2709	GAS (Tol-C12)	9793780	613
C8	1.030	0.001	3604	859	DIESEL (C12-C24)	14024701	769
C10	2.725	0.004	9957	6210	M.OIL (C24-C38)	3578373	309
C12	3.383	0.006	26925	10495	AK-102 (C10-C25)	23662019	1140 M
C14	3.859	0.007	165949	185944	AK-103 (C25-C36)	3318296	380 M
C16	4.244	-0.004	58254	52394	OR.DIES (C10-C28)	25430223	1001 M
C18	4.622	0.016	107500	135444	OR.MOIL (C28-C40)	1838489	163 M
C20	4.946	0.014	1070219	841620			
C22	5.231	-0.001	93109	67594	STODDARD (C8-C12)	9718452	351
C24	5.519	-0.012	338081	321069			
C25	5.673	-0.016	27837	17871			
C26	5.849	0.002	24218	6625			
C28	6.183	0.018	28334	6703			
C32	6.772	-0.002	19496	6796			
C34	7.062	0.000	12392	2911	CREOSOT (C8-C22)	12752791	1994
Filter Peak	----						
C36	7.335	0.005	13300	3828	BUNKERC (C10-C38)	27111016	3181
o-terph	4.681	-0.004	201839	140876	JET-A (C10-C18)	18207402	1149
Triacon Surr	6.474	-0.007	115078	118260	IT.MOIL (C24-C40)	3854328	179

Range Times: NW Diesel(3.428 - 5.581) NW Gas(0.754 - 3.428) NW M.Oil(5.581 - 7.637)
AK102(2.671 - 5.639) AK103(5.639 - 7.380) Jet A(2.671 - 4.656)

Surrogate	Area	Amount	%Rec
o-Terphenyl	140876	8.3	184.3
Triacontane	118260	7.4	165.3

Analyte	RF	Curve Date
o-Terph Surr	16983.9	01-NOV-2010
Triacon Surr	15901.0	16-OCT-2010
Gas	15975.0	20-OCT-2010
Diesel	18232.0	01-NOV-2010
Motor Oil	11596.5	15-OCT-2010
AK102	20751.0	01-NOV-2010
AK103	8727.5	29-SEPT-2010
JetA	15848.0	27-JAN-2009
OR Diesel	25401.0	
OR M.Oil	11274.0	
IT M.Oil	21488.2	
Bunker C	8522.1	20-SEP-2010
Creosote	6396.0	17-JAN-2009

Data File: /chem3/fid3b.i/20101104.b/1104b010.d

Date : 04-NOV-2010 21:14

Client ID: DGS-19-3.34.1-10100

Sample Info: RS97B,10

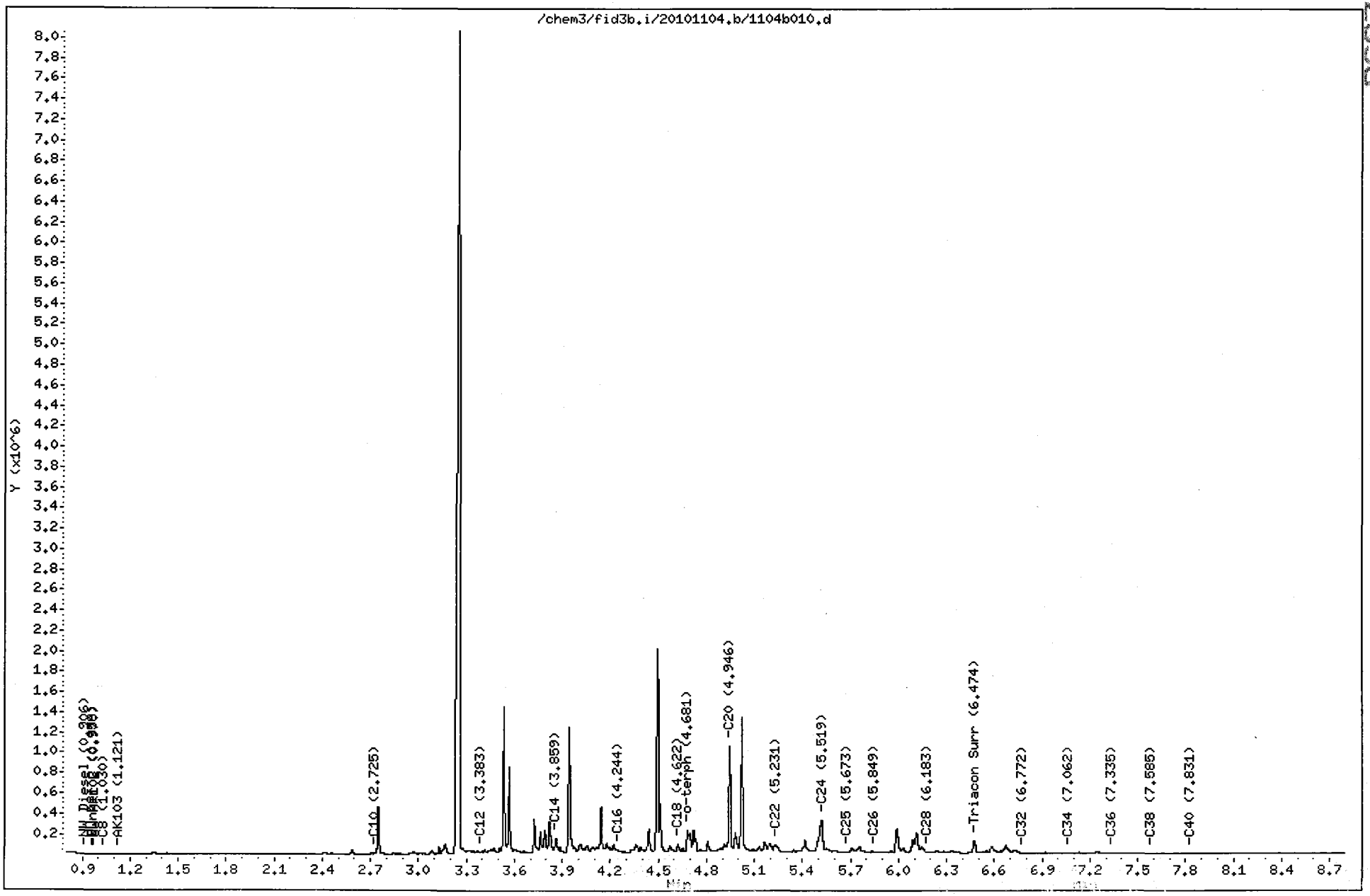
Column phase: ZB-1HT

Instrument: fid3b.i

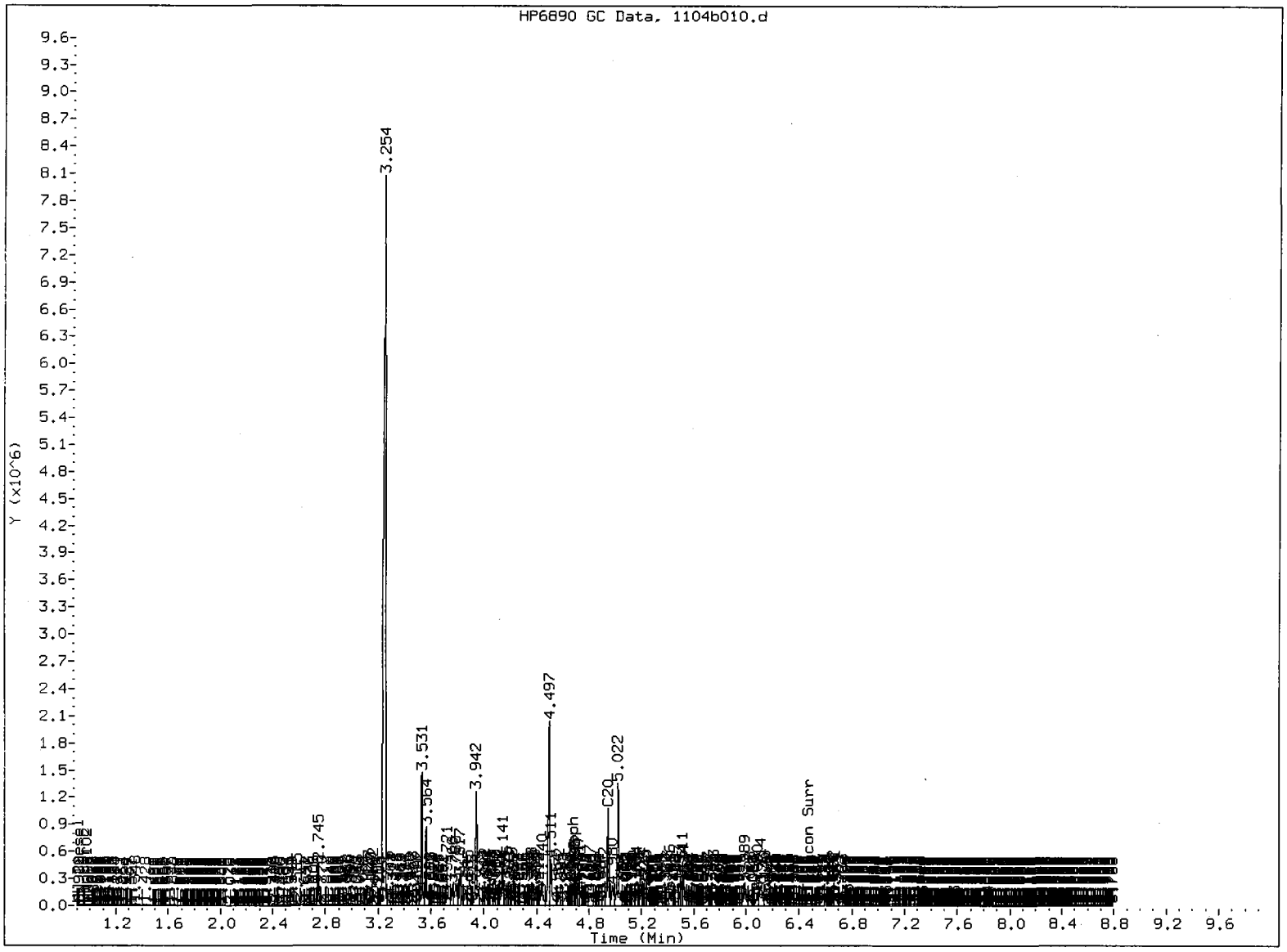
Operator: MS

Column diameter: 0.25

RS97 : 91193



FID:3B-2C/RTX-1 RS97B FID:3B SIGNAL



MANUAL INTEGRATION

1. Baseline correction
2. Poor chromatography
3. Peak not found
4. Totals calculation

5. Other _____

Analyst: MM Date: 11/16/1

RS97:01104

Analytical Resources Inc.
407S TPH Quantitation Report

Data file: /chem3/fid3b.i/20101104.b/1104b011.d
Method: /chem3/fid3b.i/20101104.b/ftphfid3b.m
Instrument: fid3b.i
Operator: MS
Report Date: 11/15/2010
Macro: FID:3B110110

ARI ID: RS97C
Client ID: DGS-19-4.48.2-10100
Injection: 04-NOV-2010 21:31
Dilution Factor: 2

FID:3B RESULTS

Compound	RT	Shift	Height	Area	Range	Total Area	Conc
Toluene	0.806	0.002	28012	34206	GAS (Tol-C12)	6219682	389
C8	1.029	0.000	3696	1976	DIESEL (C12-C24)	14786036	811
C10	2.727	0.006	5363	3824	M.OIL (C24-C38)	4197325	362
C12	3.385	0.007	22438	10389	AK-102 (C10-C25)	20946774	1009 M
C14	3.862	0.010	149769	181738	AK-103 (C25-C36)	3865424	443 M
C16	4.247	-0.001	61411	59677	OR.DIES (C10-C28)	22926358	903 M
C18	4.602	-0.004	50685	12926	OR.MOIL (C28-C40)	2260353	200 M
C20	4.926	-0.006	92663	12849			
C22	5.234	0.002	99276	120459	STODDARD (C8-C12)	6149379	222
C24	5.521	-0.010	447698	723091			
C25	5.687	-0.002	36984	17208			
C26	5.836	-0.011	43160	39010			
C28	6.146	-0.019	82566	109262			
C32	6.777	0.003	23091	2757			
C34	7.057	-0.005	17008	11422	CREOSOT (C8-C22)	13326221	2084
Filter Peak	----						
C36	7.329	0.000	16114	9900	BUNKERC (C10-C38)	25006898	2934
o-terph	4.686	0.000	849699	512552	JET-A (C10-C18)	14831480	936
Triacon Surr	6.478	-0.004	596829	609445	IT.MOIL (C24-C40)	4986583	232

Range Times: NW Diesel(3.428 - 5.581) NW Gas(0.754 - 3.428) NW M.Oil(5.581 - 7.637)
AK102(2.671 - 5.639) AK103(5.639 - 7.380) Jet A(2.671 - 4.656)

Surrogate	Area	Amount	%Rec
o-Terphenyl	512552	30.2	134.1
Triacontane	609445	38.3	170.3

Analyte	RF	Curve Date
o-Terph Surr	16983.9	01-NOV-2010
Triacon Surr	15901.0	16-OCT-2010
Gas	15975.0	20-OCT-2010
Diesel	18232.0	01-NOV-2010
Motor Oil	11596.5	15-OCT-2010
AK102	20751.0	01-NOV-2010
AK103	8727.5	29-SEPT-2010
JetA	15848.0	27-JAN-2009
OR Diesel	25401.0	
OR M.Oil	11274.0	
IT M.Oil	21488.2	
Bunker C	8522.1	20-SEP-2010
Creosote	6396.0	17-JAN-2009

Data File: /chem3/fid3b.i/20101104.b/1104b011.d

Date : 04-NOV-2010 21:31

Client ID: DGS-19-4.48.2-10100

Sample Info: RS97C,2

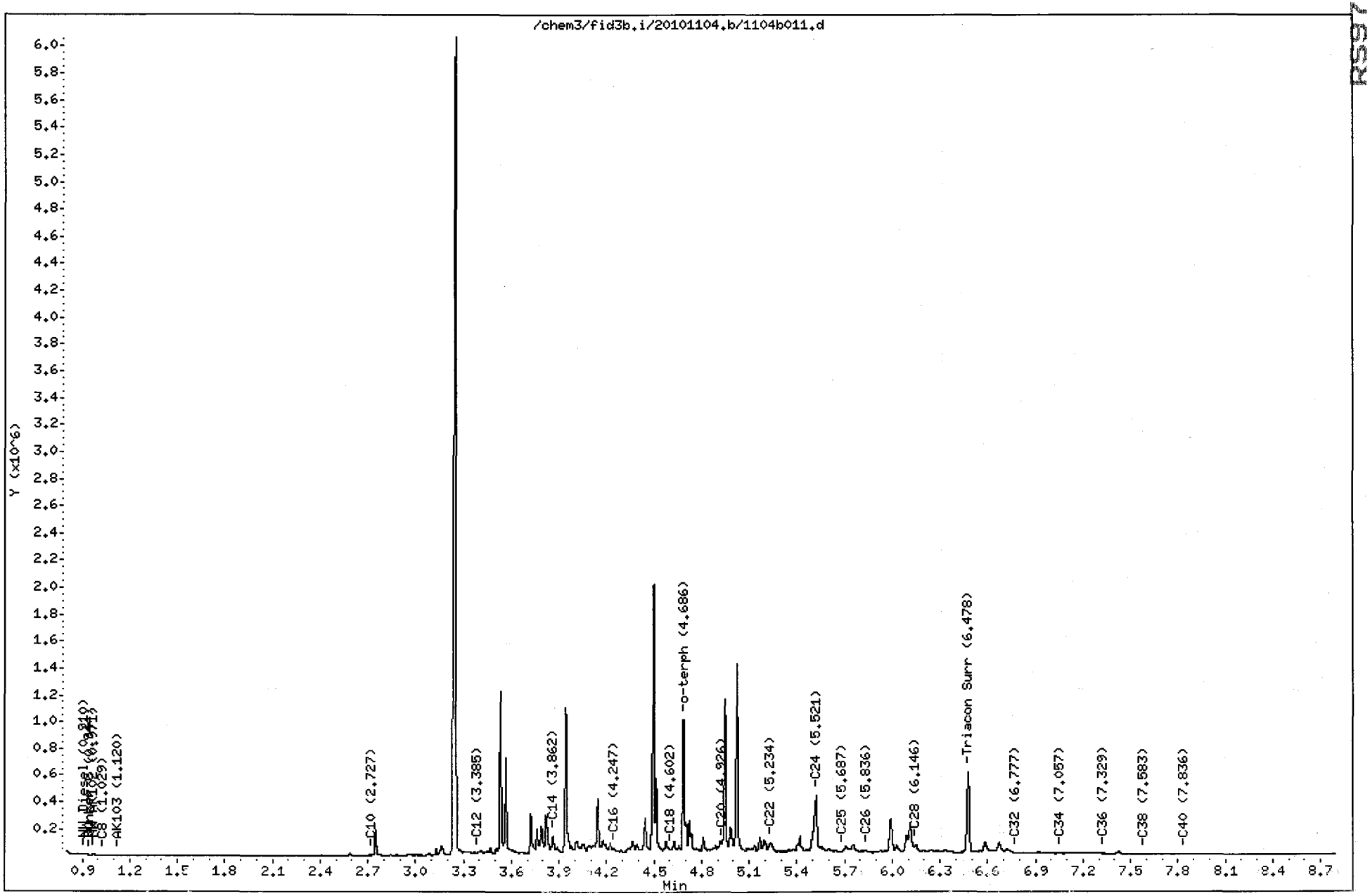
Column phase: ZB-1HT

Instrument: fid3b.i

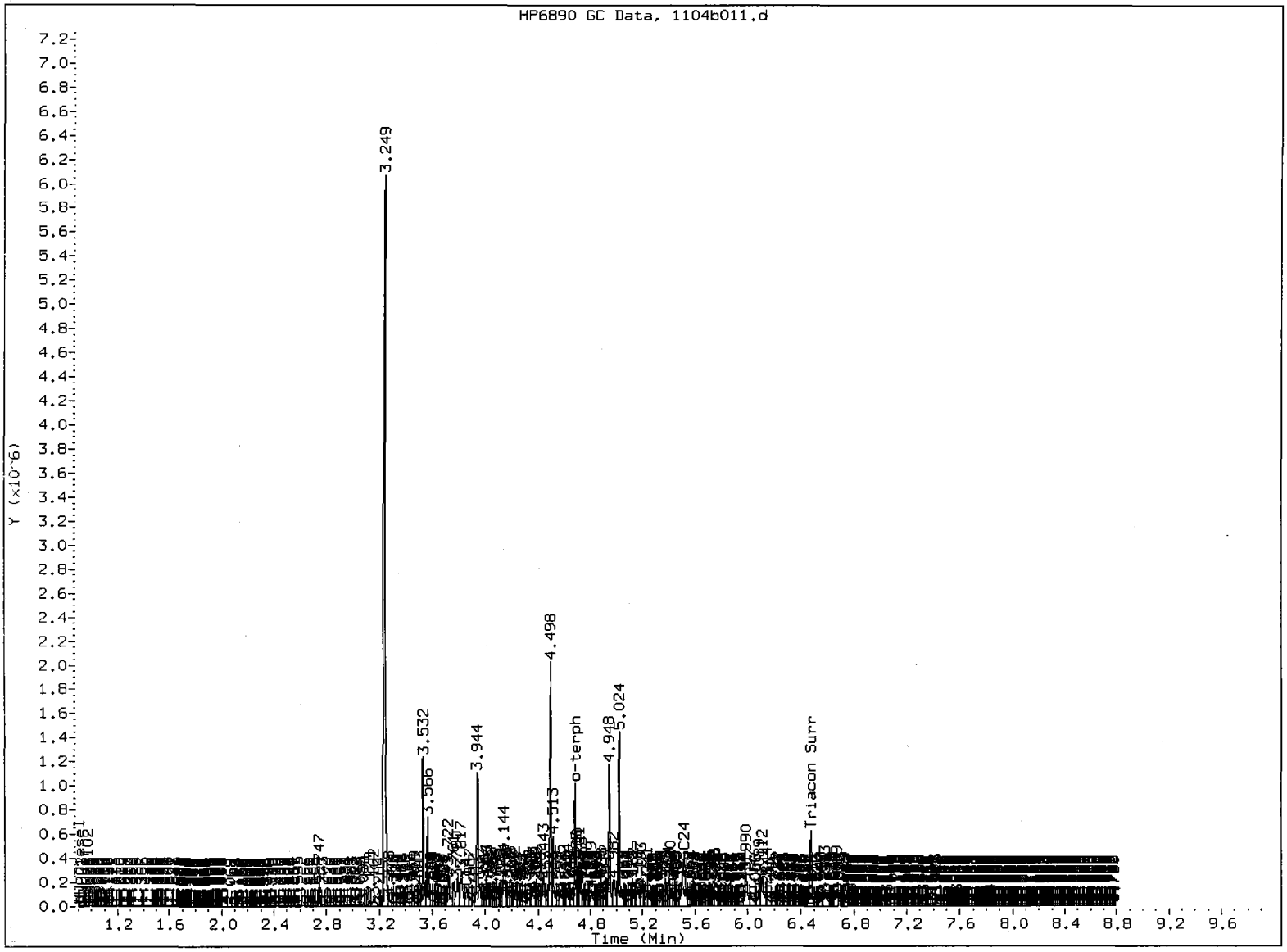
Operator: MS

Column diameter: 0.25

RS97 : 01105



FID:3B-2C/RTX-1 RS97C FID:3B SIGNAL



MANUAL INTEGRATION

1. Baseline correction
2. Poor chromatography
3. Peak not found
4. Totals calculation

5. Other _____

Analyst: _____ Date: 11/16/10

RS97:01107

Analytical Resources Inc.
407S TPH Quantitation Report

Data file: /chem3/fid3b.i/20101104.b/1104b012.d
Method: /chem3/fid3b.i/20101104.b/ftphfid3b.m
Instrument: fid3b.i
Operator: MS
Report Date: 11/15/2010
Macro: FID:3B110110

ARI ID: RS97D
Client ID: DGS-19-10.210 9-101
Injection: 04-NOV-2010 21:49
Dilution Factor: 2

FID:3B RESULTS

Compound	RT	Shift	Height	Area	Range	Total Area	Conc
Toluene	0.805	0.001	29146	32739	GAS (Tol-C12)	523672	33
C8	1.028	-0.001	3552	1555	DIESEL (C12-C24)	14152425	776
C10	2.721	0.000	2431	1301	M.OIL (C24-C38)	3978399	343
C12	3.384	0.006	16602	8496	AK-102 (C10-C25)	14680360	707 M
C14	3.859	0.006	177587	200951	AK-103 (C25-C36)	3615226	414 M
C16	4.243	-0.005	84010	94682	OR.DIES (C10-C28)	16547147	651 M
C18	4.621	0.015	148304	185534	OR.MOIL (C28-C40)	2082268	185 M
C20	4.947	0.015	774400	584670			
C22	5.234	0.002	140671	132273	STODDARD (C8-C12)	439588	16
C24	5.521	-0.011	254326	277423			
C25	5.683	-0.006	47858	34993			
C26	5.853	0.006	37176	16234			
C28	6.169	0.003	41148	19261			
C32	6.776	0.002	23171	5048			
C34	7.061	-0.001	16687	12459	CREOSOT (C8-C22)	12695571	1985
Filter Peak	----						
C36	7.326	-0.004	14755	5967	BUNKERC (C10-C38)	18467732	2167
o-terph	4.684	-0.001	907501	529923	JET-A (C10-C18)	8096483	511
Triacon Surr	6.479	-0.003	670352	672335	IT.MOIL (C24-C40)	4812415	224

Range Times: NW Diesel(3.428 - 5.581) NW Gas(0.754 - 3.428) NW M.Oil(5.581 - 7.637)
AK102(2.671 - 5.639) AK103(5.639 - 7.380) Jet A(2.671 - 4.656)

Surrogate	Area	Amount	%Rec
o-Terphenyl	529923	31.2	138.7
Triacontane	672335	42.3	187.9

Analyte	RF	Curve Date
o-Terph Surr	16983.9	01-NOV-2010
Triacon Surr	15901.0	16-OCT-2010
Gas	15975.0	20-OCT-2010
Diesel	18232.0	01-NOV-2010
Motor Oil	11596.5	15-OCT-2010
AK102	20751.0	01-NOV-2010
AK103	8727.5	29-SEPT-2010
JetA	15848.0	27-JAN-2009
OR Diesel	25401.0	
OR M.Oil	11274.0	
IT M.Oil	21488.2	
Bunker C	8522.1	20-SEP-2010
Creosote	6396.0	17-JAN-2009

Data File: /chem3/fid3b.i/20101104.b/1104b012.d

Date : 04-NOV-2010 21:49

Client ID: DGS-19-10.210.9-101

Sample Info: RS97D,2

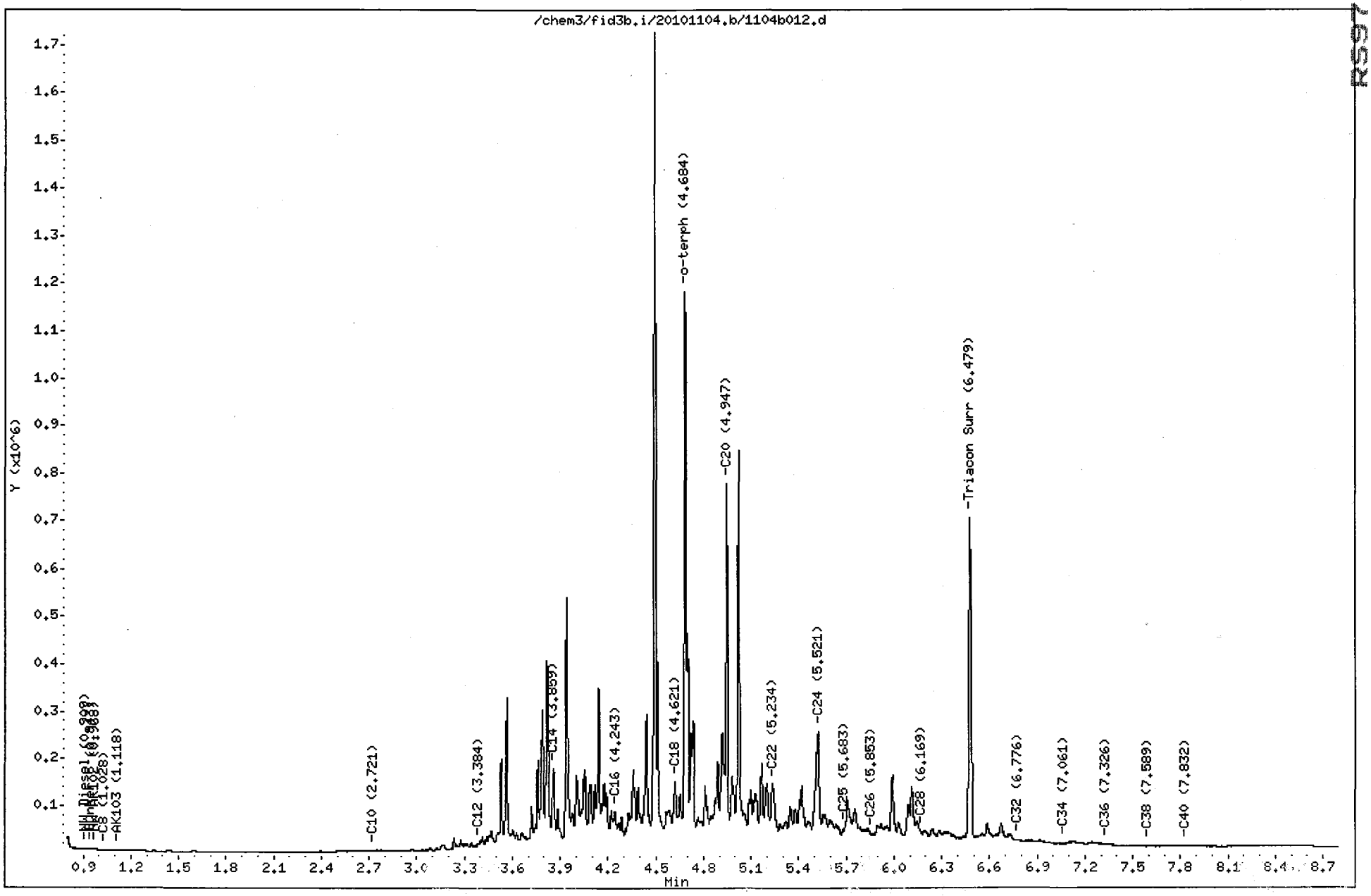
Column phase: ZB-1HT

Instrument: fid3b.i

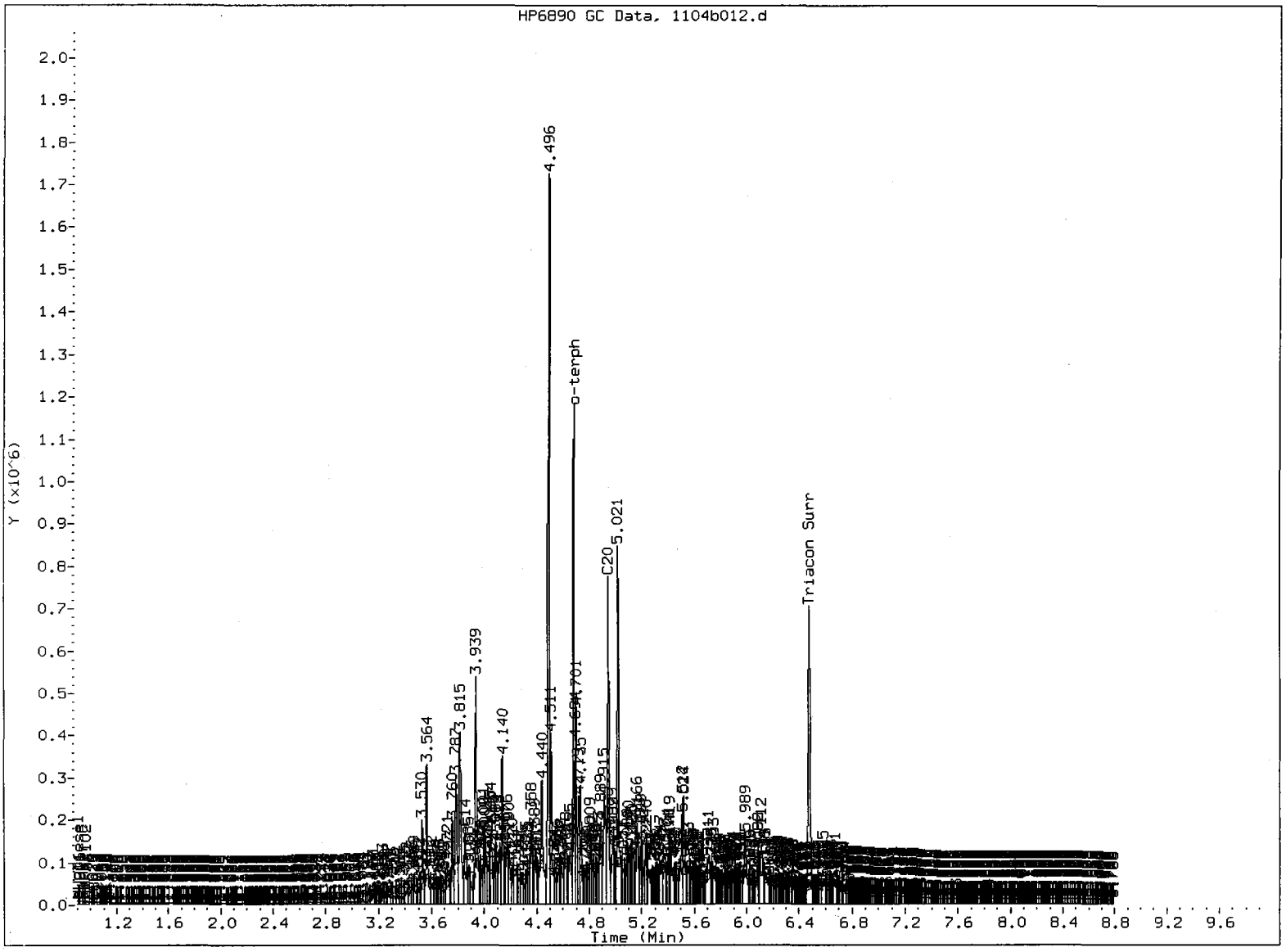
Operator: MS

Column diameter: 0.25

RS97 : 91109



FID:3B-2C/RTX-1 RS97D FID:3B SIGNAL



MANUAL INTEGRATION

1. Baseline correction
2. Poor chromatography
3. Peak not found
4. Totals calculation

5. Other _____

Analyst: _____ Date: 11/6/1

RS97:01110

Analytical Resources Inc.
407S TPH Quantitation Report

Data file: /chem3/fid3b.i/20101104.b/1104b013.d
Method: /chem3/fid3b.i/20101104.b/ftphfid3b.m
Instrument: fid3b.i
Operator: MS
Report Date: 11/15/2010
Macro: FID:3B110110

ARI ID: RS97E
Client ID: DGS-08-4.44.6-10100
Injection: 04-NOV-2010 22:06
Dilution Factor: 10

FID:3B RESULTS

Compound	RT	Shift	Height	Area	Range	Total Area	Conc
Toluene	0.804	0.000	13939	21816	GAS (Tol-C12)	5639647	353
C8	1.029	0.000	3321	2104	DIESEL (C12-C24)	17377206	953
C10	2.728	0.008	9071	5955	M.OIL (C24-C38)	4557191	393
C12	3.384	0.007	32606	11492	AK-102 (C10-C25)	22919564	1105 M
C14	3.860	0.008	215293	238093	AK-103 (C25-C36)	4236051	485 M
C16	4.247	-0.001	86505	53736	OR.DIES (C10-C28)	25066229	987 M
C18	4.625	0.019	147753	183405	OR.MOIL (C28-C40)	2472080	219 M
C20	4.926	-0.005	123400	40962			
C22	5.233	0.001	139201	133906	STODDARD (C8-C12)	5572574	201
C24	5.521	-0.010	362966	368913			
C25	5.689	0.001	47287	9191			
C26	5.851	0.004	42029	18461			
C28	6.162	-0.003	53883	35515			
C32	6.766	-0.008	27091	23586			
C34	7.062	0.001	18181	2880	CREOSOT (C8-C22)	15858339	2479
Filter Peak	----						
C36	7.332	0.002	16969	4301	BUNKERC (C10-C38)	27344289	3209
o-terph	4.682	-0.003	216696	137866	JET-A (C10-C18)	16403967	1035
Triacon Surr	6.476	-0.005	130511	124607	IT.MOIL (C24-C40)	4875818	227

Range Times: NW Diesel(3.428 - 5.581) NW Gas(0.754 - 3.428) NW M.Oil(5.581 - 7.637)
AK102(2.671 - 5.639) AK103(5.639 - 7.380) Jet A(2.671 - 4.656)

Surrogate	Area	Amount	%Rec
o-Terphenyl	137866	8.1	180.4
Triacontane	124607	7.8	174.1

Analyte	RF	Curve Date
o-Terph Surr	16983.9	01-NOV-2010
Triacon Surr	15901.0	16-OCT-2010
Gas	15975.0	20-OCT-2010
Diesel	18232.0	01-NOV-2010
Motor Oil	11596.5	15-OCT-2010
AK102	20751.0	01-NOV-2010
AK103	8727.5	29-SEPT-2010
JetA	15848.0	27-JAN-2009
OR Diesel	25401.0	
OR M.Oil	11274.0	
IT M.Oil	21488.2	
Bunker C	8522.1	20-SEP-2010
Creosote	6396.0	17-JAN-2009

Data File: /chem3/fid3b.i/20101104.b/1104b013.d

Date : 04-NOV-2010 22:06

Client ID: DGS-08-4.44.6-10100

Sample Info: RS97E,10

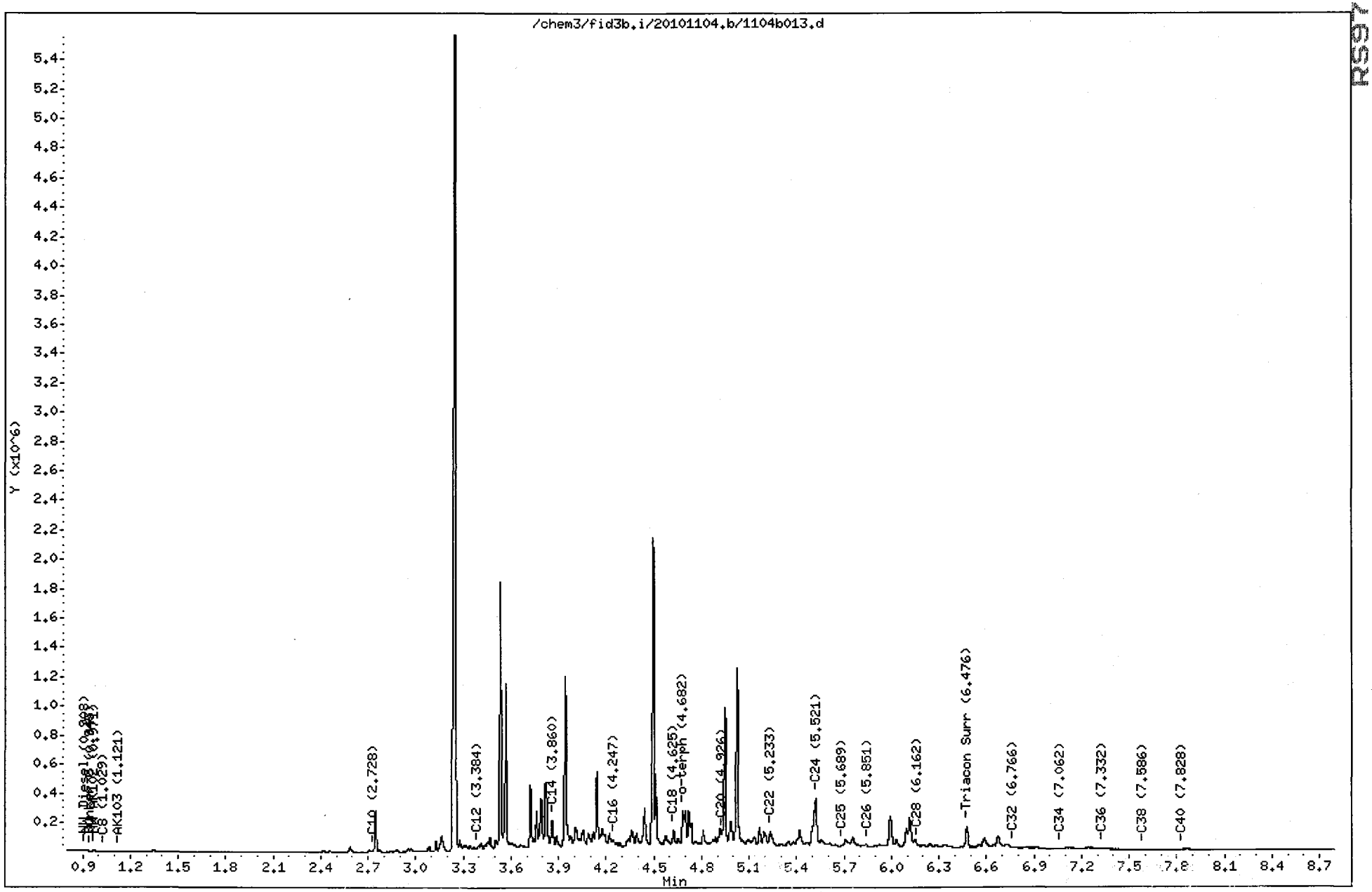
Column phase: ZB-1HT

Instrument: fid3b.i

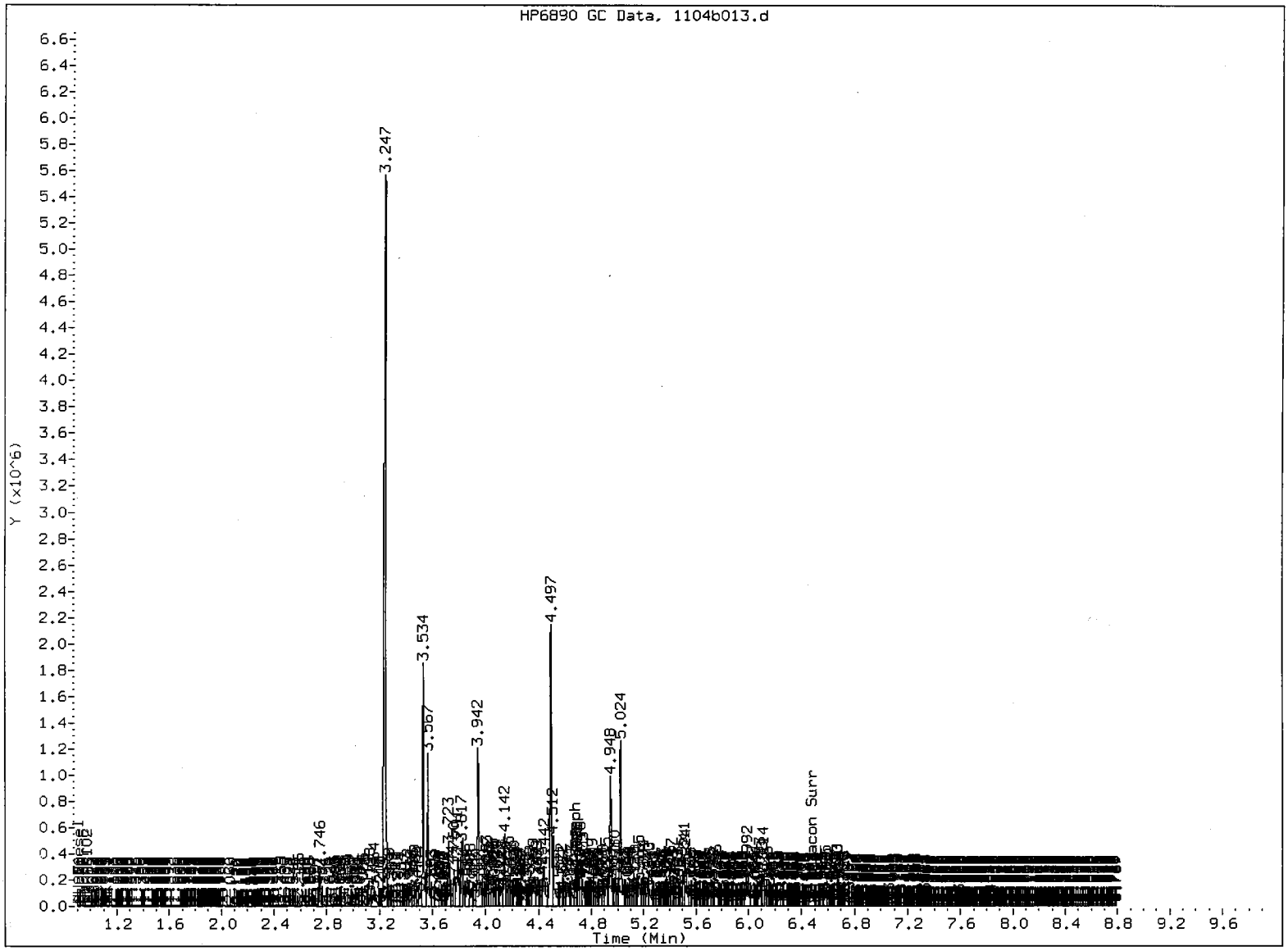
Operator: MS

Column diameter: 0.25

RS97:01112



FID:3B-2C/RTX-1 RS97E FID:3B SIGNAL



MANUAL INTEGRATION

1. Baseline correction
2. Poor chromatography
3. Peak not found
4. Totals calculation

5. Other _____

Analyst: _____ Date: 11/16/1

Analytical Resources Inc.
407S TPH Quantitation Report

Data file: /chem3/fid3b.i/20101104.b/1104b014.d
Method: /chem3/fid3b.i/20101104.b/ftphfid3b.m
Instrument: fid3b.i
Operator: MS
Report Date: 11/15/2010
Macro: FID:3B110110

ARI ID: RS97F
Client ID: GST-09SO-17-18-1010
Injection: 04-NOV-2010 22:24
Dilution Factor: 50

FID:3B RESULTS

Compound	RT	Shift	Height	Area	Range	Total Area	Conc
Toluene	0.806	0.002	25475	30972	GAS (Tol-C12)	4131389	259
C8	1.030	0.000	3391	3398	DIESEL (C12-C24)	12817513	703
C10	2.729	0.009	6623	5340	M.OIL (C24-C38)	3904090	337
C12	3.384	0.007	19570	8231	AK-102 (C10-C25)	16798373	810
C14	3.865	0.012	348000	311226	AK-103 (C25-C36)	3617193	414
C16	4.246	-0.002	68945	70520	OR.DIES (C10-C28)	18713130	737
C18	4.598	-0.008	55399	45615	OR.MOIL (C28-C40)	2020779	179
C20	4.947	0.015	1175850	939427			
C22	5.232	0.001	96222	147716	STODDARD (C8-C12)	4051685	146
C24	5.520	-0.011	400328	322292			
C25	5.689	0.000	36055	16870			
C26	5.856	0.009	26947	18934			
C28	6.186	0.021	33572	12157			
C32	6.777	0.003	20747	6428			
C34	7.064	0.002	12857	2037	CREOSOT (C8-C22)	11487509	1796
Filter Peak	----						
C36	7.329	-0.001	14539	6520	BUNKERC (C10-C38)	20560559	2413
o-terph	----				JET-A (C10-C18)	11197096	707
Triacon Surr	----				IT.MOIL (C24-C40)	4077440	190

Range Times: NW Diesel(3.428 - 5.581) NW Gas(0.754 - 3.428) NW M.Oil(5.581 - 7.637)
AK102(2.671 - 5.639) AK103(5.639 - 7.380) Jet A(2.671 - 4.656)

Surrogate	Area	Amount	%Rec
o-Terphenyl	0	0.0	0.0
Triacontane	0	0.0	0.0

Analyte	RF	Curve Date
o-Terph Surr	16983.9	01-NOV-2010
Triacon Surr	15901.0	16-OCT-2010
Gas	15975.0	20-OCT-2010
Diesel	18232.0	01-NOV-2010
Motor Oil	11596.5	15-OCT-2010
AK102	20751.0	01-NOV-2010
AK103	8727.5	29-SEPT-2010
JetA	15848.0	27-JAN-2009
OR Diesel	25401.0	
OR M.Oil	11274.0	
IT M.Oil	21488.2	
Bunker C	8522.1	20-SEP-2010
Creosote	6396.0	17-JAN-2009

Data File: /chem3/fid3b.i/20101104.b/1104b014.d

Date : 04-NOV-2010 22:24

Client ID: GST-09SO-17-18-1010

Sample Info: RS97F,50

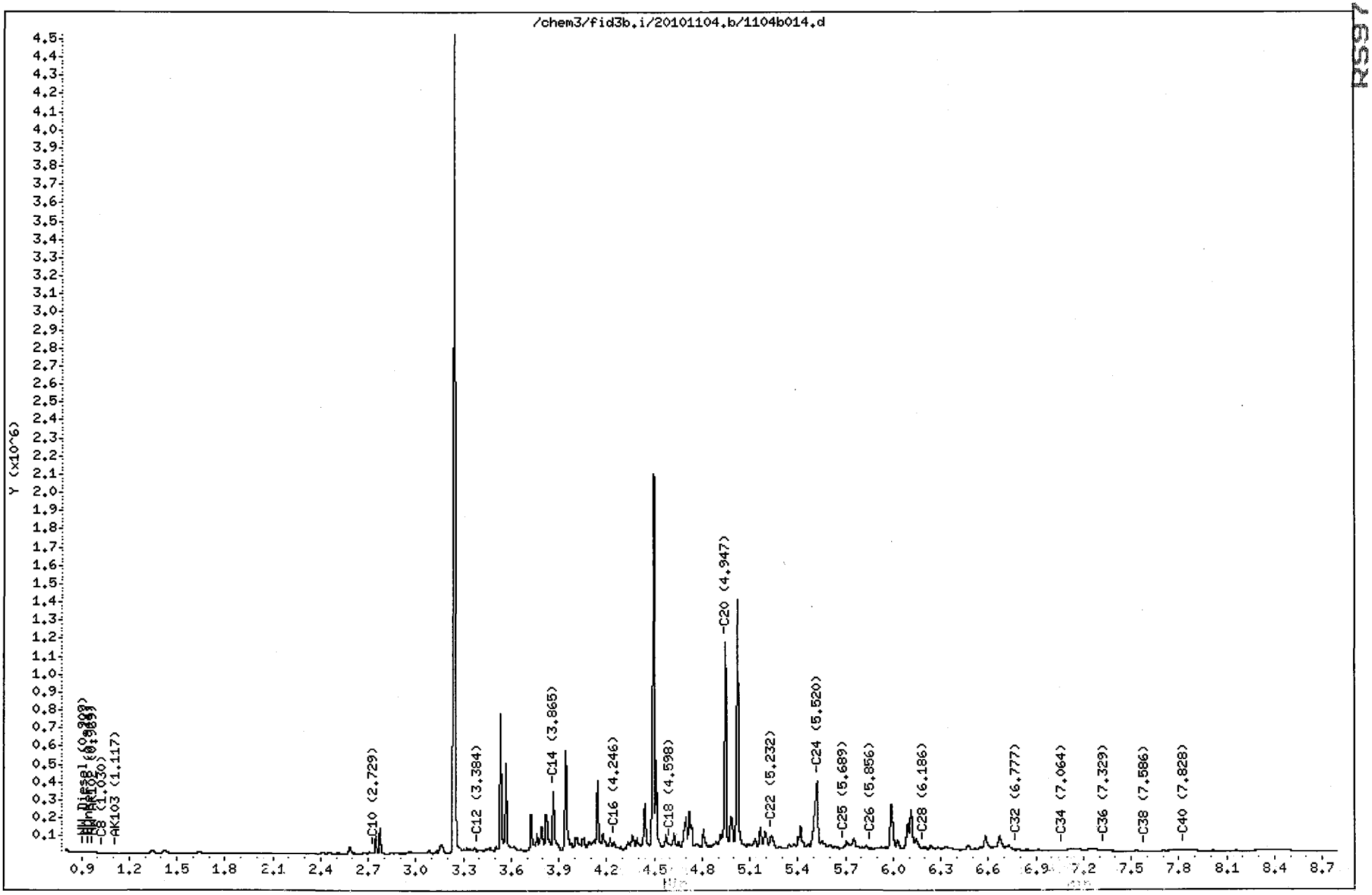
Column phase: ZB-1HT

Instrument: fid3b.i

Operator: MS

Column diameter: 0.25

RS97:01115



Analytical Resources Inc.
407S TPH Quantitation Report

Data file: /chem3/fid3b.i/20101104.b/1104b015.d
Method: /chem3/fid3b.i/20101104.b/ftphfid3b.m
Instrument: fid3b.i
Operator: MS
Report Date: 11/15/2010
Macro: FID:3B110110

ARI ID: RS97G
Client ID: DGS-36-066.7-101012
Injection: 04-NOV-2010 22:42
Dilution Factor: 5

FID:3B RESULTS

Compound	RT	Shift	Height	Area	Range	Total Area	Conc
Toluene	0.805	0.001	17556	25262	GAS (Tol-C12)	293930	18
C8	1.032	0.003	3339	1906	DIESEL (C12-C24)	4584926	251
C10	2.720	-0.001	1849	783	M.OIL (C24-C38)	2748011	237
C12	3.378	0.000	4463	1922	AK-102 (C10-C25)	4782503	230 M
C14	3.835	-0.017	24445	27039	AK-103 (C25-C36)	2516539	288 M
C16	4.252	0.004	21592	15499	OR.DIES (C10-C28)	5961139	235 M
C18	4.603	-0.003	24401	5319	OR.MOIL (C28-C40)	1664181	148 M
C20	4.918	-0.014	53443	55398			
C22	5.235	0.003	52878	53676	STODDARD (C8-C12)	225668	8
C24	5.522	-0.009	181403	224039			
C25	5.688	-0.001	23412	6433			
C26	5.840	-0.006	26324	30294			
C28	6.164	-0.002	32168	22401			
C32	6.774	0.000	18599	9207			
C34	7.062	0.000	14626	9111	CREOSOT (C8-C22)	3827422	598
Filter Peak	----						
C36	7.332	0.003	14468	6963	BUNKERC (C10-C38)	7464202	876
o-terph	4.686	0.001	350174	195363	JET-A (C10-C18)	1853241	117
Triacon Surr	6.476	-0.006	231057	217370	IT.MOIL (C24-C40)	3126498	145

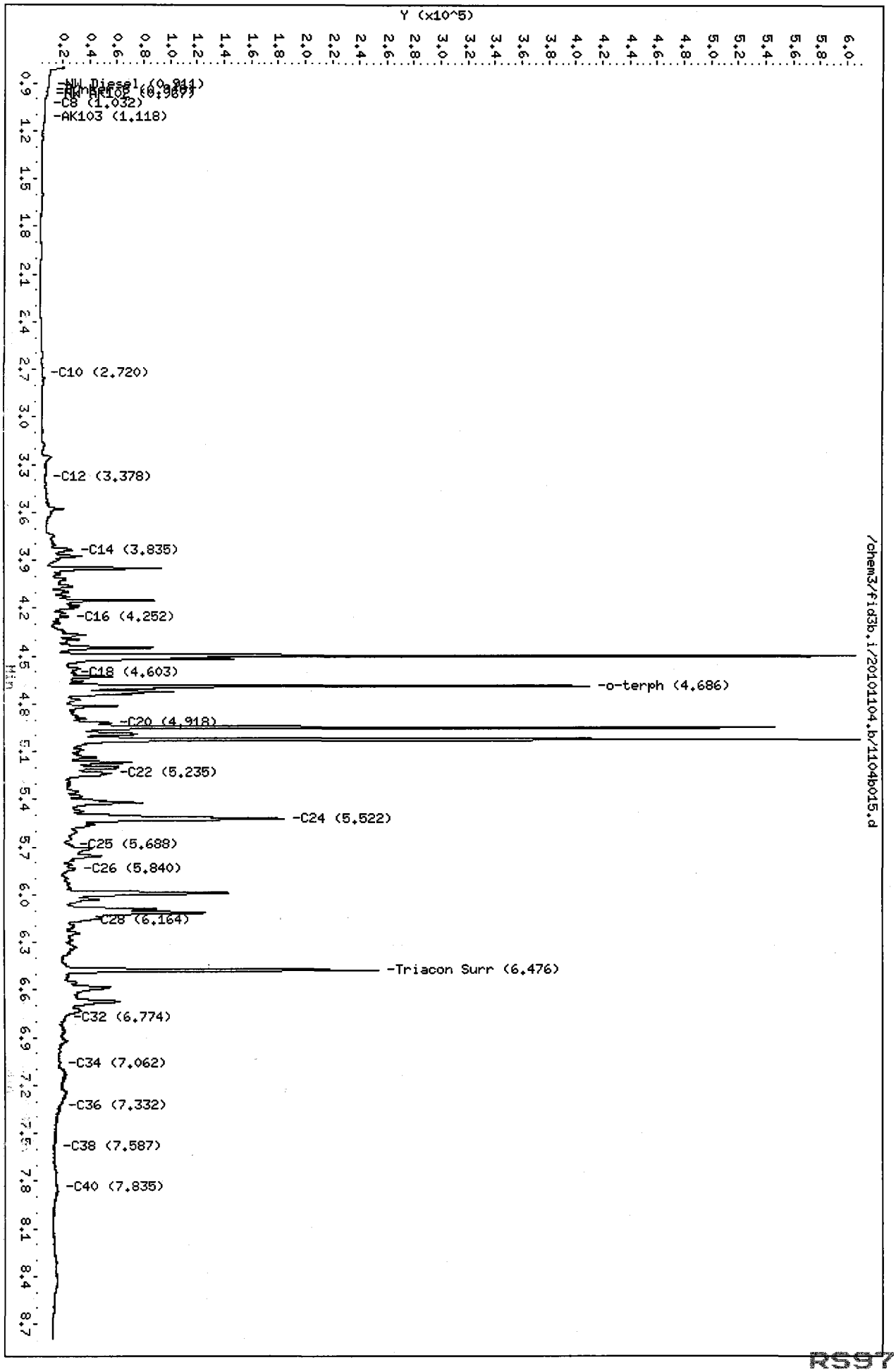
Range Times: NW Diesel(3.428 - 5.581) NW Gas(0.754 - 3.428) NW M.Oil(5.581 - 7.637)
AK102(2.671 - 5.639) AK103(5.639 - 7.380) Jet A(2.671 - 4.656)

Surrogate	Area	Amount	%Rec
o-Terphenyl	195363	11.5	127.8
Triacontane	217370	13.7	151.9

Analyte	RF	Curve Date
o-Terph Surr	16983.9	01-NOV-2010
Triacon Surr	15901.0	16-OCT-2010
Gas	15975.0	20-OCT-2010
Diesel	18232.0	01-NOV-2010
Motor Oil	11596.5	15-OCT-2010
AK102	20751.0	01-NOV-2010
AK103	8727.5	29-SEPT-2010
JetA	15848.0	27-JAN-2009
OR Diesel	25401.0	
OR M.Oil	11274.0	
IT M.Oil	21488.2	
Bunker C	8522.1	20-SEP-2010
Creosote	6396.0	17-JAN-2009

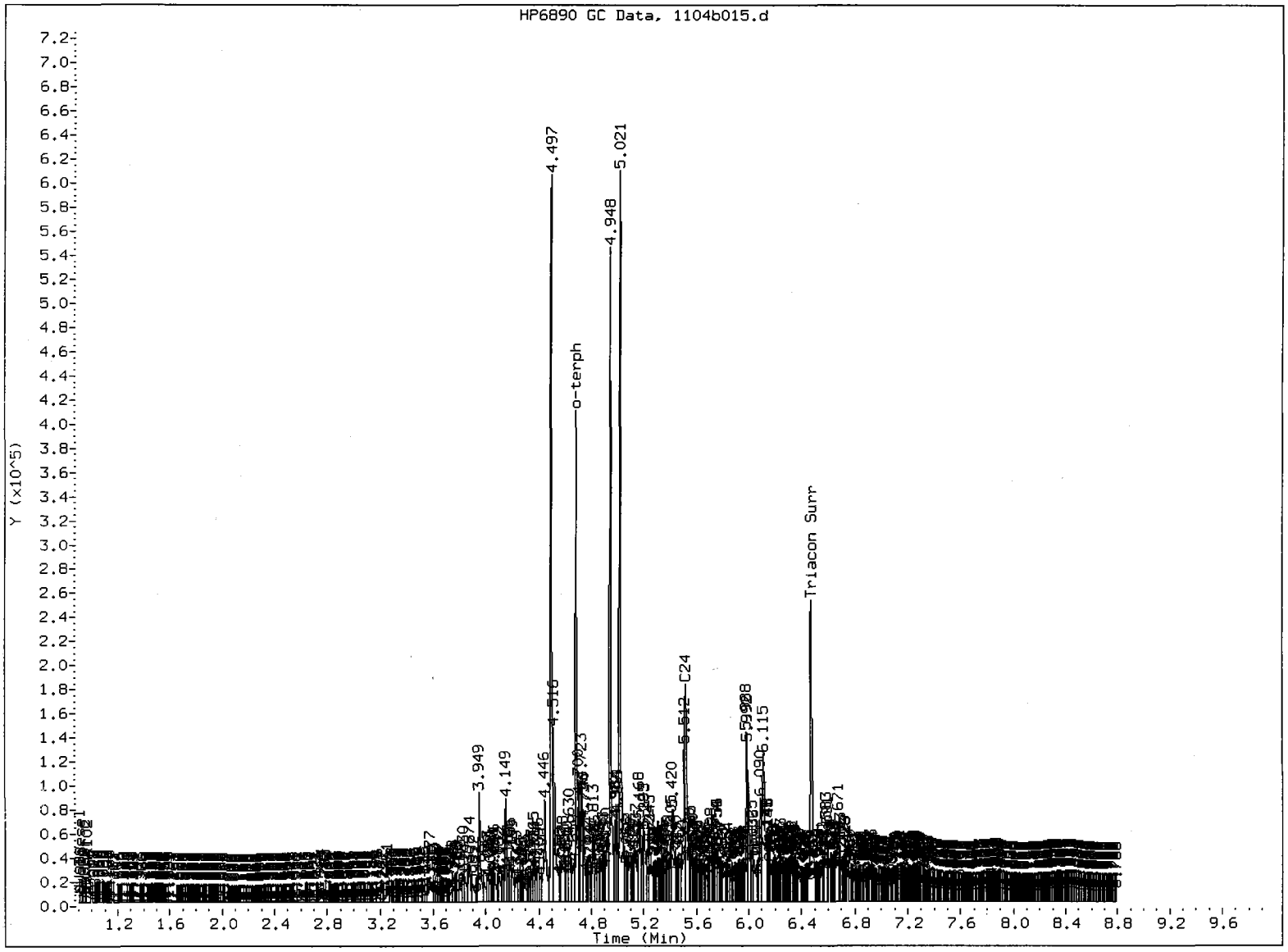
Data File: /chem3/fid3b.i/20101104.b/1104b015.d
Date : 04-NOV-2010 22:42
Client ID: DGS-36-066,7-101012
Sample Info: RS97C,5
Column phase: ZB-1HT

Instrument: fid3b.i
Operator: MS
Column diameter: 0.25



RS97:01117

FID:3B-2C/RTX-1 RS97G FID:3B SIGNAL



MANUAL INTEGRATION

1. Baseline correction
2. Poor chromatography
3. Peak not found
4. Totals calculation

5. Other _____

Analyst: _____ Date: 11/16/10

RS97:01118

Analytical Resources Inc.
407S TPH Quantitation Report

Data file: /chem3/fid3b.i/20101104.b/1104b016.d
Method: /chem3/fid3b.i/20101104.b/ftphfid3b.m
Instrument: fid3b.i
Operator: MS
Report Date: 11/15/2010
Macro: FID:3B110110

ARI ID: RS97H
Client ID: DGS-07-011.3-101012
Injection: 04-NOV-2010 22:59
Dilution Factor: 2

FID:3B RESULTS

Compound	RT	Shift	Height	Area	Range	Total Area	Conc
Toluene	0.842	0.038	7086	990	GAS (Tol-C12)	347211	22
C8	1.029	0.000	3430	1087	DIESEL (C12-C24)	4509033	247
C10	2.721	0.000	2387	1912	M.OIL (C24-C38)	4200030	362
C12	3.371	-0.006	5084	4401	AK-102 (C10-C25)	4787910	231 M
C14	3.854	0.001	14472	8023	AK-103 (C25-C36)	3833437	439 M
C16	4.245	-0.003	23208	21201	OR.DIES (C10-C28)	6404487	252 M
C18	4.607	0.001	34048	8695	OR.MOIL (C28-C40)	2671940	237 M
C20	4.933	0.001	60970	14297			
C22	5.232	0.001	67536	57040	STODDARD (C8-C12)	258209	9
C24	5.519	-0.012	151791	196018			
C25	5.691	0.002	41938	16917			
C26	5.847	0.000	36670	16907			
C28	6.168	0.003	43022	17417			
C32	6.776	0.002	30582	9695			
C34	7.062	0.000	26403	16580	CREOSOT (C8-C22)	3573222	559
Filter Peak	----						
C36	7.330	0.000	20263	10681	BUNKERC (C10-C38)	8864309	1040
o-terph	4.684	-0.002	901306	542406	JET-A (C10-C18)	1679634	106
Triacon Surr	6.481	0.000	572790	545395	IT.MOIL (C24-C40)	4957543	231

Range Times: NW Diesel(3.428 - 5.581) NW Gas(0.754 - 3.428) NW M.Oil(5.581 - 7.637)
AK102(2.671 - 5.639) AK103(5.639 - 7.380) Jet A(2.671 - 4.656)

Surrogate	Area	Amount	%Rec
o-Terphenyl	542406	31.9	141.9
Triacontane	545395	34.3	152.4

Analyte	RF	Curve Date
o-Terph Surr	16983.9	01-NOV-2010
Triacon Surr	15901.0	16-OCT-2010
Gas	15975.0	20-OCT-2010
Diesel	18232.0	01-NOV-2010
Motor Oil	11596.5	15-OCT-2010
AK102	20751.0	01-NOV-2010
AK103	8727.5	29-SEPT-2010
JetA	15848.0	27-JAN-2009
OR Diesel	25401.0	
OR M.Oil	11274.0	
IT M.Oil	21488.2	
Bunker C	8522.1	20-SEP-2010
Creosote	6396.0	17-JAN-2009

Data File: /chem3/fid3b.i/20101104.b/1104b016.d

Date : 04-NOV-2010 22:59

Client ID: DGS-07-011.3-101012

Sample Info: RS97H,2

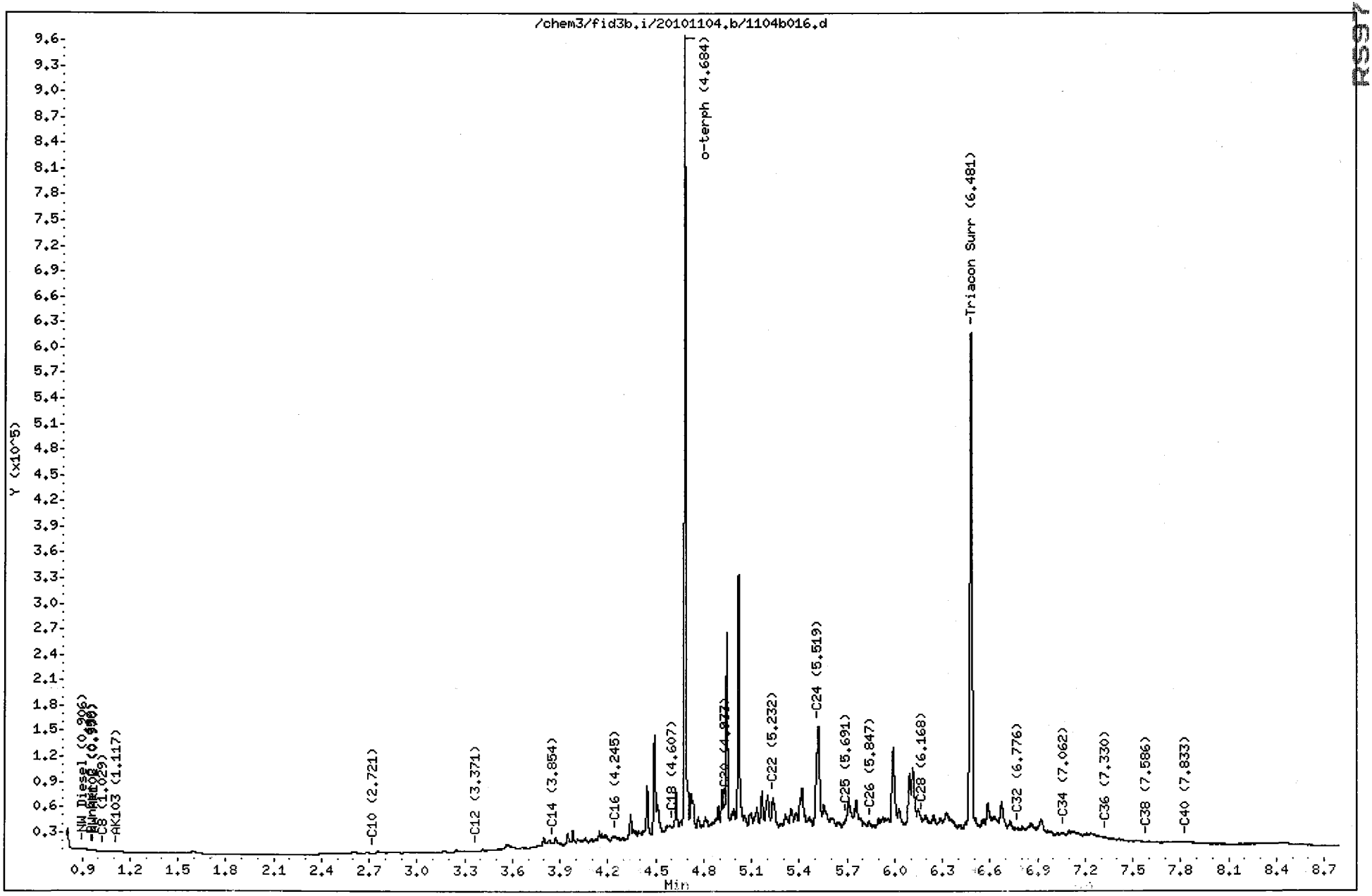
Column phase: ZB-1HT

Instrument: fid3b.i

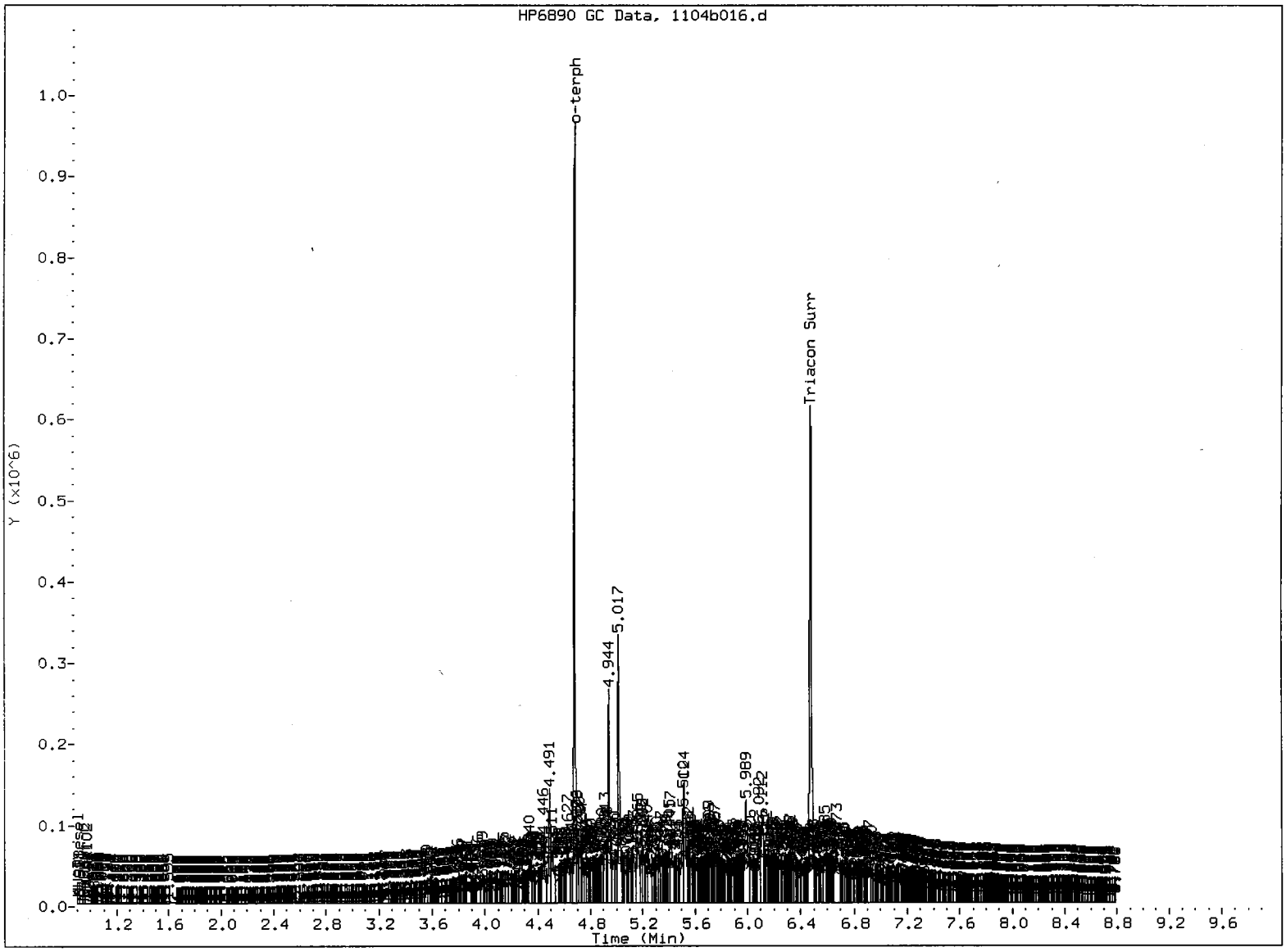
Operator: MS

Column diameter: 0.25

RS97:01120



FID:3B-2C/RTX-1 RS97H FID:3B SIGNAL



MANUAL INTEGRATION

1. Baseline correction
2. Poor chromatography
3. Peak not found
4. Totals calculation

5. Other _____

Analyst: _____ Date: 11/16/1.

Analytical Resources Inc.
407S TPH Quantitation Report

Data file: /chem3/fid3b.i/20101104.b/1104b017.d
Method: /chem3/fid3b.i/20101104.b/ftphfid3b.m
Instrument: fid3b.i
Operator: MS
Report Date: 11/15/2010
Macro: FID:3B110110

ARI ID: RS97HMS
Client ID: DGS-07-011.3-10 MS
Injection: 04-NOV-2010 23:17
Dilution Factor: 2

FID:3B RESULTS

Compound	RT	Shift	Height	Area	Range	Total Area	Conc
Toluene	0.805	0.001	45156	40937	GAS (Tol-C12)	2390111	150
C8	1.030	0.000	7993	8670	DIESEL (C12-C24)	19104379	1048
C10	2.718	-0.003	49474	49234	M.OIL (C24-C38)	3905391	337
C12	3.372	-0.006	177227	133079	AK-102 (C10-C25)	21080152	1016 M
C14	3.841	-0.011	333071	397474	AK-103 (C25-C36)	3529441	404 M
C16	4.245	-0.003	599829	644796	OR.DIES (C10-C28)	22646962	892 M
C18	4.608	0.002	527917	523836	OR.MOIL (C28-C40)	2368117	210 M
C20	4.934	0.002	374368	312106			
C22	5.230	-0.002	201735	256276	STODDARD (C8-C12)	2278731	82
C24	5.524	-0.008	163826	214443			
C25	5.688	-0.001	55250	17896			
C26	5.845	-0.002	41979	28877			
C28	6.162	-0.003	46110	27421			
C32	6.773	-0.001	29108	17993			
C34	7.064	0.002	23834	18143	CREOSOT (C8-C22)	17763557	2777
Filter Peak	----						
C36	7.329	-0.001	18481	7791	BUNKERC (C10-C38)	24826302	2913
o-terph	4.687	0.001	901241	604773	JET-A (C10-C18)	13863583	875
Triacon Surr	6.481	0.000	614820	596619	IT.MOIL (C24-C40)	4690786	218

Range Times: NW Diesel(3.428 - 5.581) NW Gas(0.754 - 3.428) NW M.Oil(5.581 - 7.637)
AK102(2.671 - 5.639) AK103(5.639 - 7.380) Jet A(2.671 - 4.656)

Surrogate	Area	Amount	%Rec
o-Terphenyl	604773	35.6	158.3
Triacontane	596619	37.5	166.8

Analyte	RF	Curve Date
o-Terph Surr	16983.9	01-NOV-2010
Triacon Surr	15901.0	16-OCT-2010
Gas	15975.0	20-OCT-2010
Diesel	18232.0	01-NOV-2010
Motor Oil	11596.5	15-OCT-2010
AK102	20751.0	01-NOV-2010
AK103	8727.5	29-SEPT-2010
JetA	15848.0	27-JAN-2009
OR Diesel	25401.0	
OR M.Oil	11274.0	
IT M.Oil	21488.2	
Bunker C	8522.1	20-SEP-2010
Creosote	6396.0	17-JAN-2009

Data File: /chem3/fid3b.i/20101104.b/1104b017.d

Date : 04-NOV-2010 23:17

Client ID: DGS-07-011.3-10 MS

Sample Info: RS97HMS,2

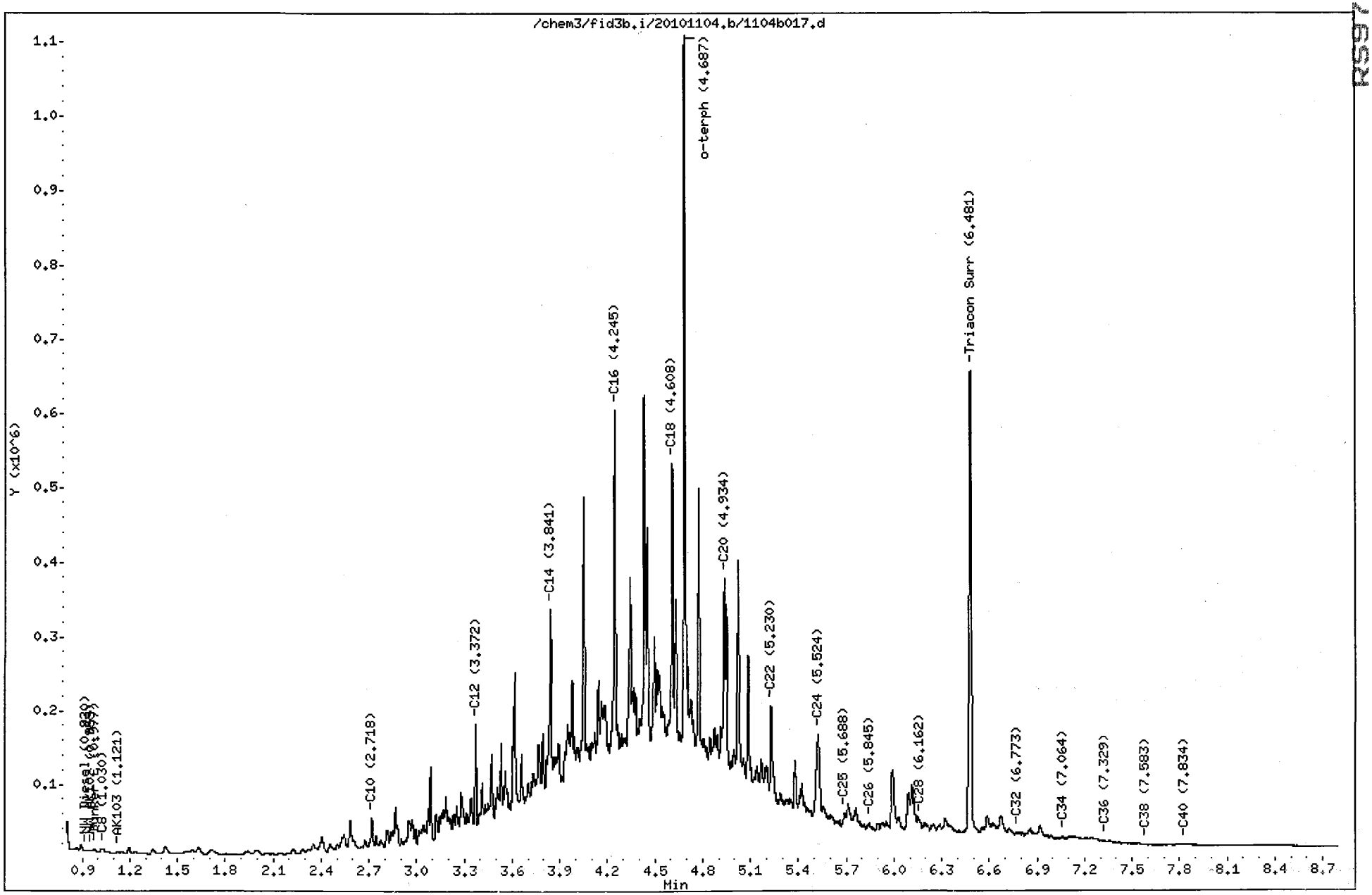
Column phase: ZB-1HT

Instrument: fid3b.i

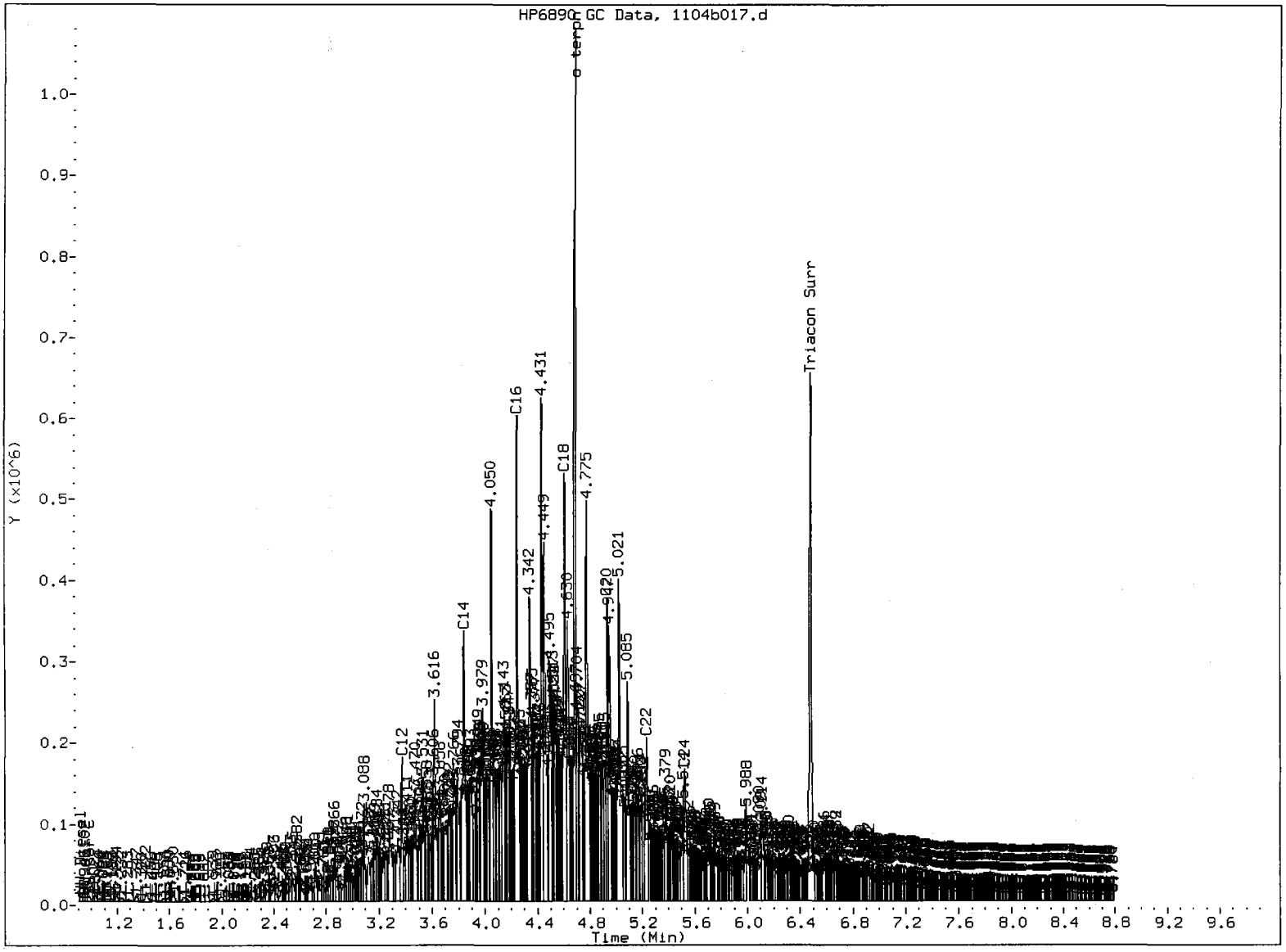
Operator: MS

Column diameter: 0.25

RS97:01129



FID:3B-2C/RTX-1 RS97HMS FID:3B SIGNAL



MANUAL INTEGRATION

1. Baseline correction
2. Poor chromatography
3. Peak not found
4. Totals calculation

5. Other _____

Analyst: MM Date: 11/16/10

RS97:01124

Analytical Resources Inc.
407S TPH Quantitation Report

Data file: /chem3/fid3b.i/20101104.b/1104b018.d
Method: /chem3/fid3b.i/20101104.b/ftphfid3b.m
Instrument: fid3b.i
Operator: MS
Report Date: 11/15/2010
Macro: FID:3B110110

ARI ID: RS97HMSD
Client ID: DGS-07-011.3-10 MSD
Injection: 04-NOV-2010 23:34
Dilution Factor: 2

FID:3B RESULTS

Compound	RT	Shift	Height	Area	Range	Total Area	Conc
Toluene	0.833	0.029	7429	8622	GAS (Tol-C12)	2366846	148
C8	1.033	0.003	7946	9077	DIESEL (C12-C24)	19468848	1068
C10	2.718	-0.003	48765	48838	M.OIL (C24-C38)	4066489	351
C12	3.370	-0.007	172698	139192	AK-102 (C10-C25)	21457932	1034 M
C14	3.841	-0.011	325982	390073	AK-103 (C25-C36)	3678657	422 M
C16	4.246	-0.002	614387	603319	OR.DIES (C10-C28)	23075163	908 M
C18	4.606	0.000	566561	518366	OR.MOIL (C28-C40)	2471196	219 M
C20	4.933	0.001	378350	324002			
C22	5.230	-0.002	210693	219375	STODDARD (C8-C12)	2268246	82
C24	5.520	-0.011	154858	307276			
C25	5.685	-0.004	56474	61443			
C26	5.850	0.003	41273	44370			
C28	6.166	0.001	42599	30505			
C32	6.772	-0.002	31136	12595			
C34	7.060	-0.002	25458	19176	CREOSOT (C8-C22)	18118813	2833
Filter Peak	----						
C36	7.331	0.001	19567	6649	BUNKERC (C10-C38)	25351579	2975
o-terph	4.685	-0.001	974389	594619	JET-A (C10-C18)	14188626	895
Triacon Surr	6.478	-0.003	583415	599072	IT.MOIL (C24-C40)	4860341	226

Range Times: NW Diesel(3.428 - 5.581) NW Gas(0.754 - 3.428) NW M.Oil(5.581 - 7.637)
AK102(2.671 - 5.639) AK103(5.639 - 7.380) Jet A(2.671 - 4.656)

Surrogate	Area	Amount	%Rec
o-Terphenyl	594619	35.0	155.6
Triacontane	599072	37.7	167.4

Analyte	RF	Curve Date
o-Terph Surr	16983.9	01-NOV-2010
Triacon Surr	15901.0	16-OCT-2010
Gas	15975.0	20-OCT-2010
Diesel	18232.0	01-NOV-2010
Motor Oil	11596.5	15-OCT-2010
AK102	20751.0	01-NOV-2010
AK103	8727.5	29-SEPT-2010
JetA	15848.0	27-JAN-2009
OR Diesel	25401.0	
OR M.Oil	11274.0	
IT M.Oil	21488.2	
Bunker C	8522.1	20-SEP-2010
Creosote	6396.0	17-JAN-2009

Data File: /chem3/fid3b.i/20101104.b/1104b018.d

Date : 04-NOV-2010 23:34

Client ID: DGS-07-011.3-10 MSD

Sample Info: RS97HMSD,2

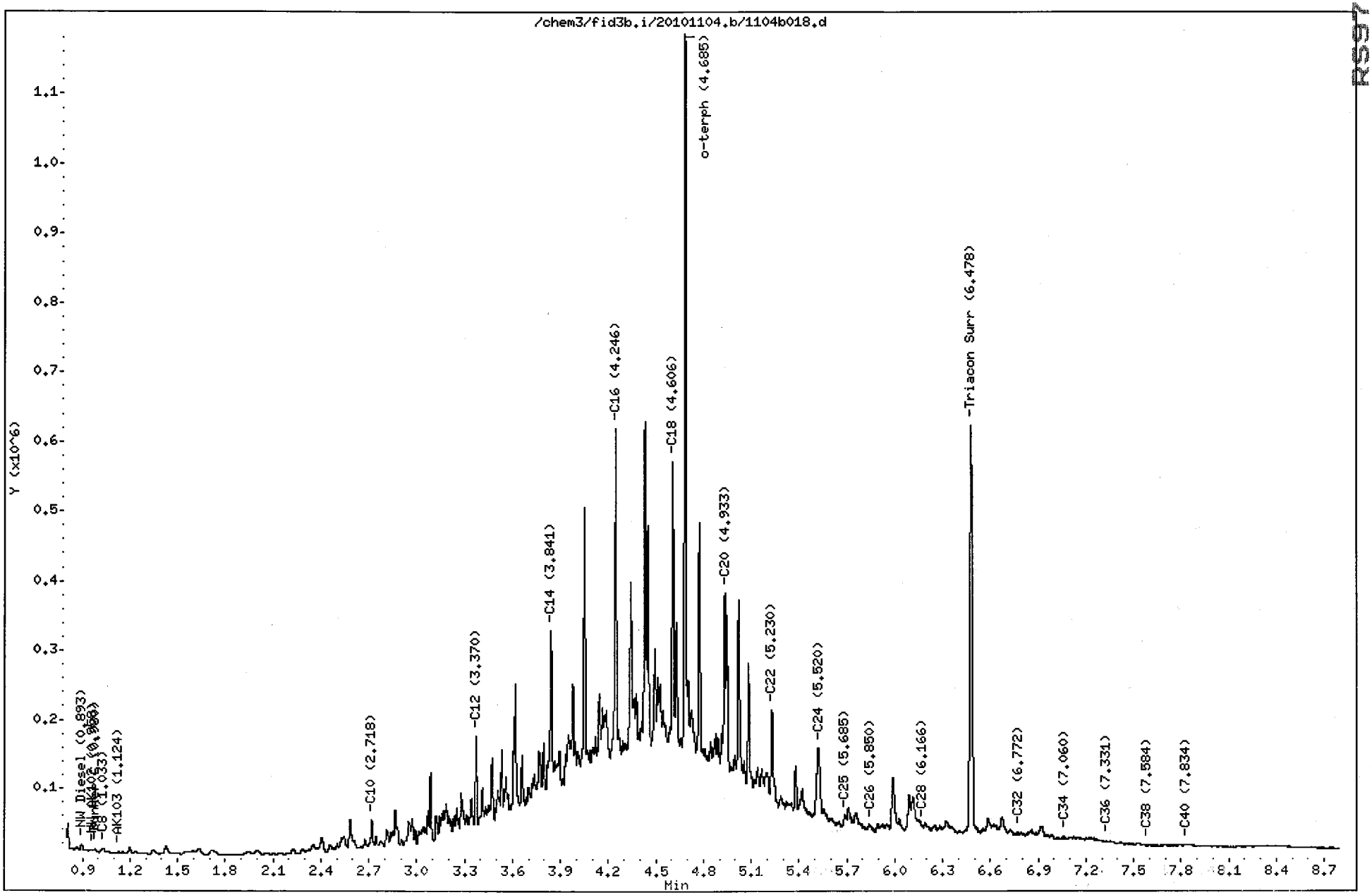
Column phase: ZB-1HT

Instrument: fid3b.i

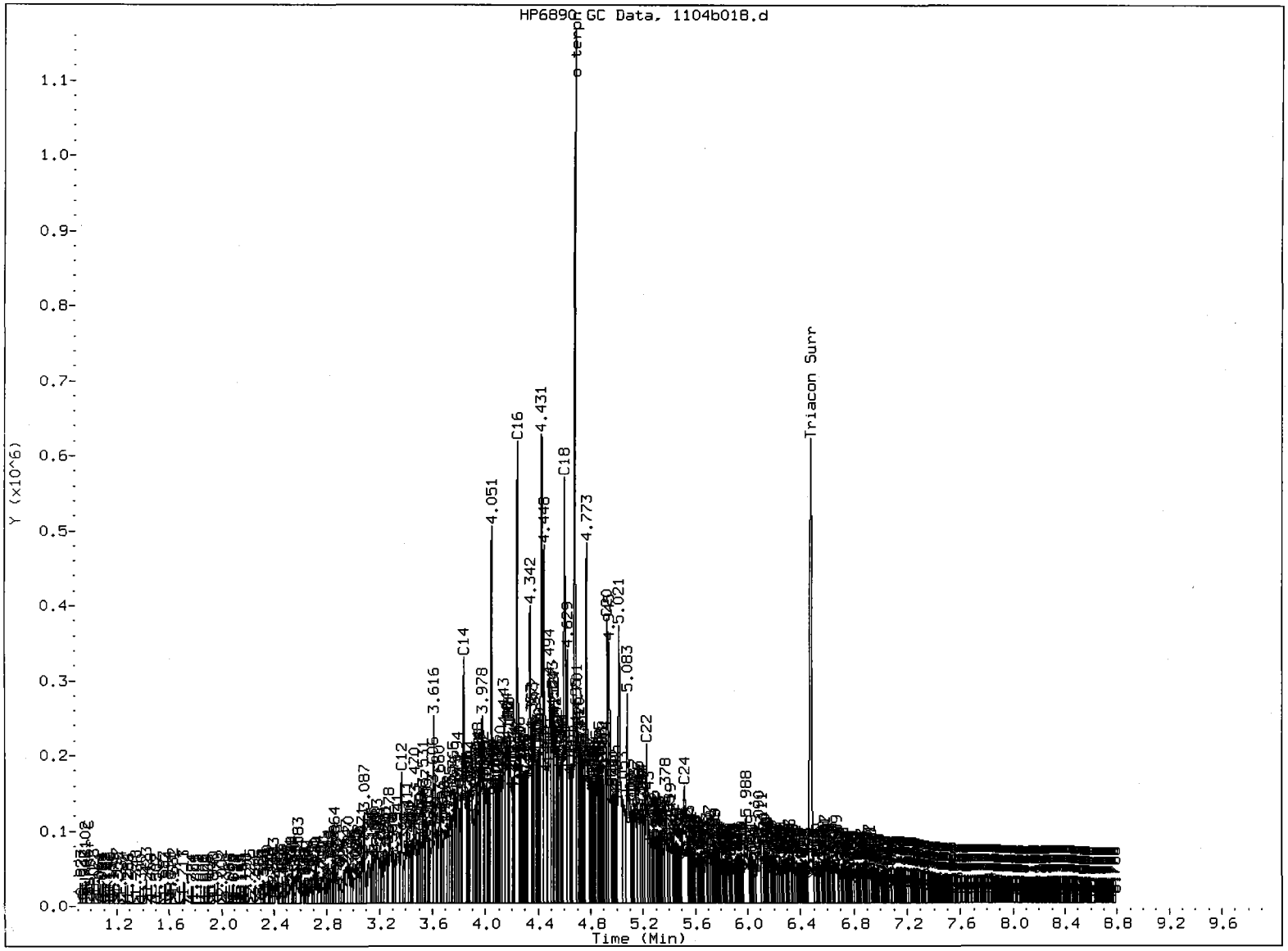
Operator: MS

Column diameter: 0.25

RS97:01126



FID:3B-2C/RTX-1 RS97HMSD FID:3B SIGNAL



MANUAL INTEGRATION

1. Baseline correction
2. Poor chromatography
3. Peak not found
4. Totals calculation

5. Other _____

Analyst: [signature] Date: 11/16/10

RS97:01127

Analytical Resources Inc.
407S TPH Quantitation Report

Data file: /chem3/fid3b.i/20101104.b/1104b019.d
Method: /chem3/fid3b.i/20101104.b/ftphfid3b.m
Instrument: fid3b.i
Operator: MS
Report Date: 11/16/2010
Macro: FID:3B110110

ARI ID: DIESEL#2
Client ID: NWN-INS
Injection: 04-NOV-2010 23:52
Dilution Factor: 1

FID:3B RESULTS

Compound	RT	Shift	Height	Area	Range	Total Area	Conc
Toluene	0.803	-0.001	14469	17087	GAS (Tol-C12)	789454	49
C8	1.027	-0.002	4962	10330	DIESEL (C12-C24)	4477756	246
C10	2.718	-0.003	13820	18282	M.OIL (C24-C38)	124408	11
C12	3.372	-0.006	35684	34566	AK-102 (C10-C25)	5022242	242 M
C14	3.862	0.010	34784	5522	AK-103 (C25-C36)	85020	10
C16	4.244	-0.004	174741	175265	OR.DIES (C10-C28)	5061634	199 M
C18	4.604	-0.002	149817	150853	OR.MOIL (C28-C40)	121836	11
C20	4.929	-0.003	84994	99859			
C22	5.235	0.003	29797	53092	STODDARD (C8-C12)	716303	26
C24	5.532	0.000	4853	674			
C25	5.687	-0.002	2435	1051			
C26	5.849	0.002	1209	810			
C28	6.166	0.001	341	177			
C32	6.771	-0.003	475	90			
C34	7.063	0.001	812	765	CREOSOT (C8-C22)	4337391	678
Filter Peak	----						
C36	7.329	-0.001	1428	397	BUNKERC (C10-C38)	5137012	603
o-terph	4.682	-0.004	1204337	706303	JET-A (C10-C18)	3695314	233
Triacon Surr	6.482	0.001	280	83	IT.MOIL (C24-C40)	170950	8

Range Times: NW Diesel(3.428 - 5.581) NW Gas(0.754 - 3.428) NW M.Oil(5.581 - 7.637)
AK102(2.671 - 5.639) AK103(5.639 - 7.380) Jet A(2.671 - 4.656)

Surrogate	Area	Amount	%Rec
o-Terphenyl	706303	41.6	92.4
Triacontane	83	0.0	0.0

Analyte	RF	Curve Date
o-Terph Surr	16983.9	01-NOV-2010
Triacon Surr	15901.0	16-OCT-2010
Gas	15975.0	20-OCT-2010
Diesel	18232.0	01-NOV-2010
Motor Oil	11596.5	15-OCT-2010
AK102	20751.0	01-NOV-2010
AK103	8727.5	29-SEPT-2010
JetA	15848.0	27-JAN-2009
OR Diesel	25401.0	
OR M.Oil	11274.0	
IT M.Oil	21488.2	
Bunker C	8522.1	20-SEP-2010
Creosote	6396.0	17-JAN-2009

Data File: /chem3/fid3b.i/20101104.b/1104b019.d

Date : 04-NOV-2010 23:52

Client ID: NWN-INS

Sample Info: DIESEL#2

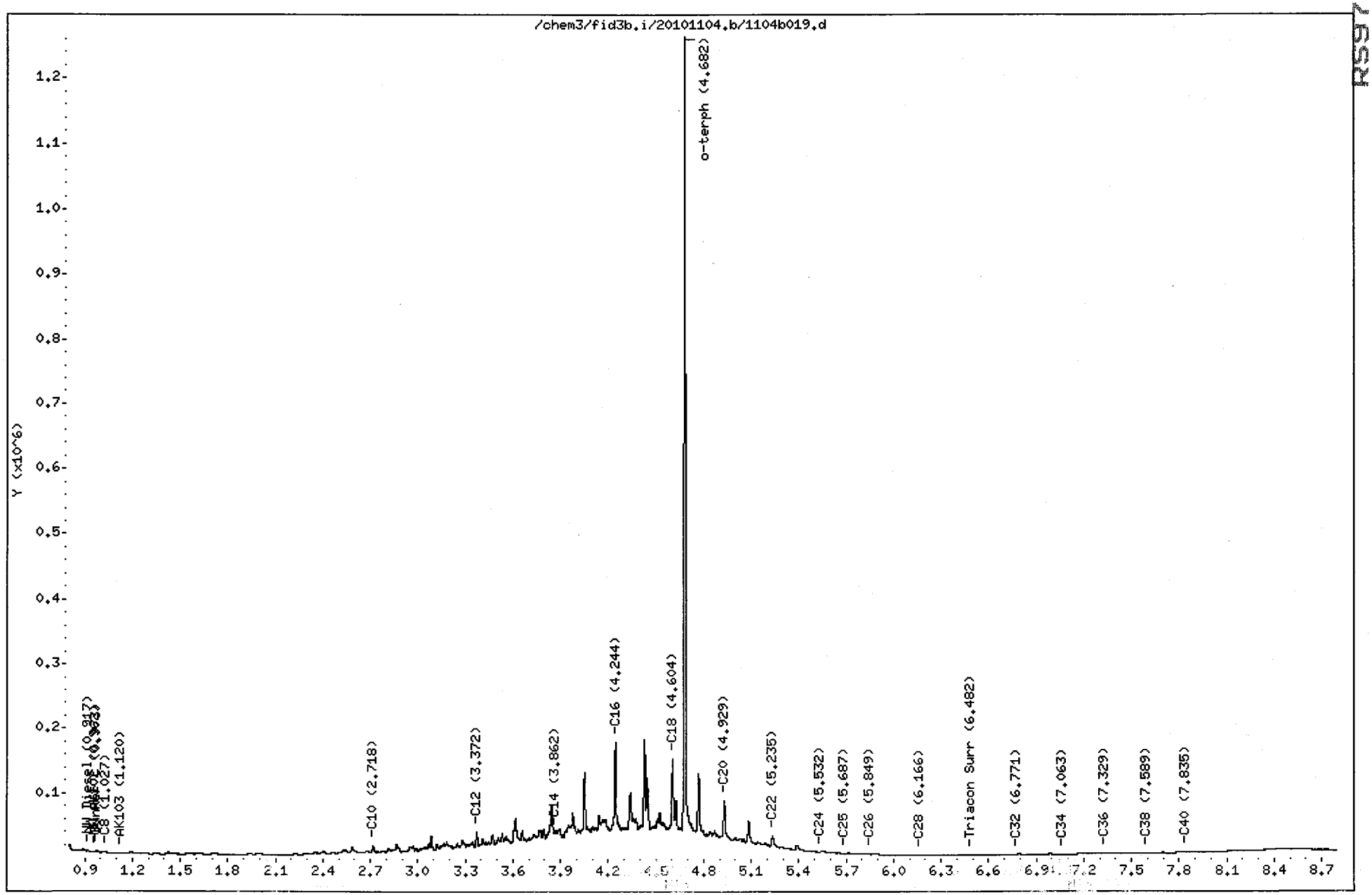
Column phase: ZB-1HT

Instrument: fid3b.i

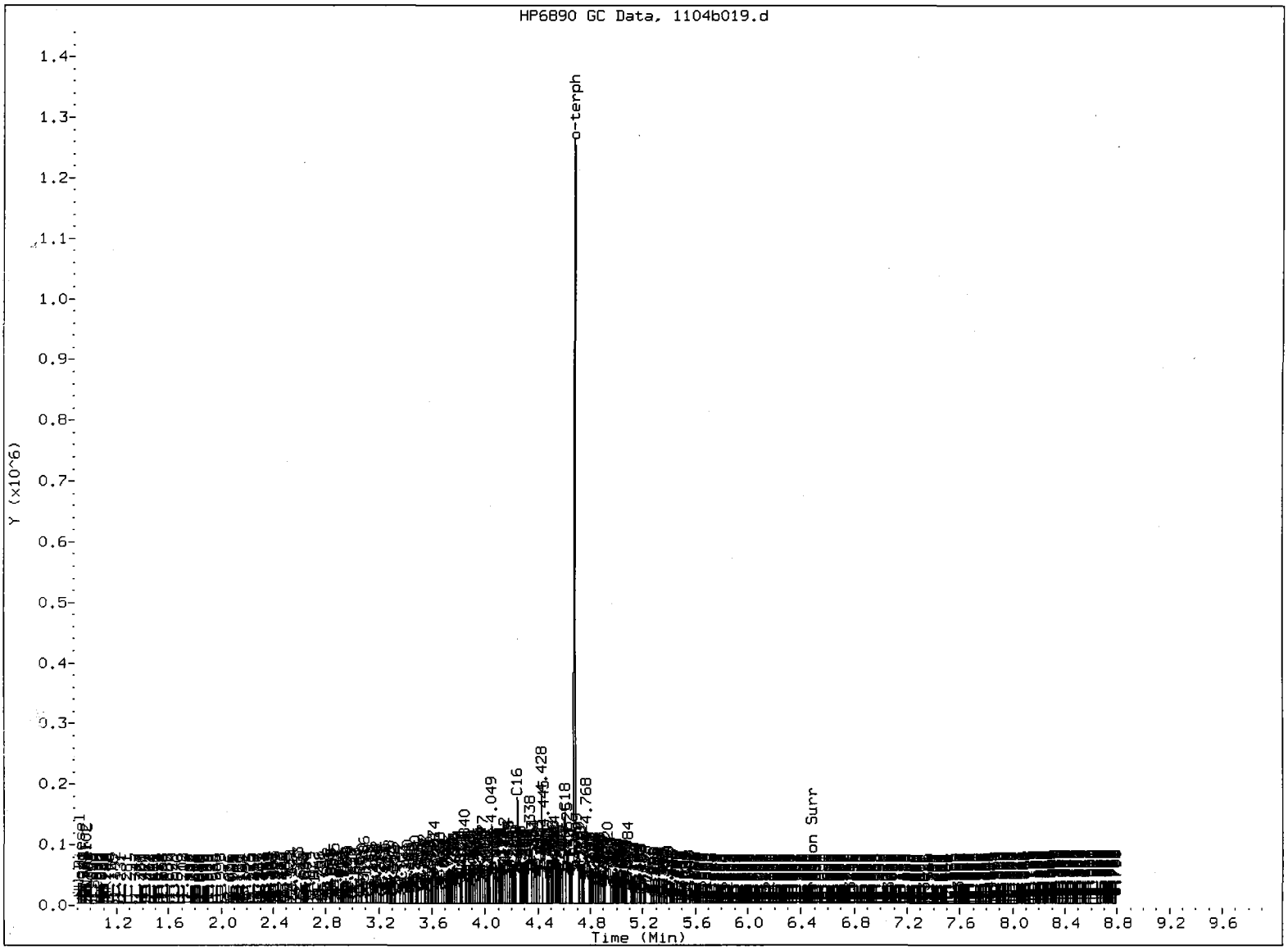
Operator: MS

Column diameter: 0.25

RS57:01129



FID:3B-2C/RTX-1 DIESEL#2 FID:3B SIGNAL



MANUAL INTEGRATION

1. Baseline correction
2. Poor chromatography
3. Peak not found
4. Totals calculation

5. Other _____

Analyst: _____ Date: 4/16/16

RS97:01130

Analytical Resources Inc.
407S TPH Quantitation Report

Data file: /chem3/fid3b.i/20101104.b/1104b020.d
Method: /chem3/fid3b.i/20101104.b/ftphfid3b.m
Instrument: fid3b.i
Operator: MS
Report Date: 11/16/2010
Macro: FID:3B110110

ARI ID: MOIL#2
Client ID: NWN-INS
Injection: 05-NOV-2010 00:09
Dilution Factor: 1

FID:3B RESULTS

Compound	RT	Shift	Height	Area	Range	Total Area	Conc
Toluene	0.875	0.071	6677	8771	GAS (Tol-C12)	209900	13
C8	1.032	0.003	3388	2221	DIESEL (C12-C24)	733801	40
C10	2.715	-0.006	1601	438	M.OIL (C24-C38)	5049622	435
C12	3.378	0.000	1889	261	AK-102 (C10-C25)	925584	45
C14	3.854	0.002	1231	438	AK-103 (C25-C36)	4463382	511 M
C16	4.251	0.003	773	330	OR.DIES (C10-C28)	2220233	87
C18	4.604	-0.002	1046	244	OR.MOIL (C28-C40)	3983352	353 M
C20	4.933	0.001	4284	2171			
C22	5.234	0.003	15410	4872	STODDARD (C8-C12)	167147	6
C24	5.532	0.000	27705	17207			
C25	5.693	0.004	34579	26201			
C26	5.845	-0.002	37151	7376			
C28	6.163	-0.003	43671	23231			
C32	6.773	-0.001	51610	29581			
C34	7.064	0.002	48538	21053	CREOSOT (C8-C22)	336438	53
Filter Peak	----						
C36	7.334	0.004	40642	21859	BUNKERC (C10-C38)	5870116	689
o-terph	4.685	0.000	3996	3953	JET-A (C10-C18)	180882	11
Triacon Surr	6.481	-0.001	676065	713858	IT.MOIL (C24-C40)	6096949	284

Range Times: NW Diesel(3.428 - 5.581) NW Gas(0.754 - 3.428) NW M.Oil(5.581 - 7.637)
AK102(2.671 - 5.639) AK103(5.639 - 7.380) Jet A(2.671 - 4.656)

Surrogate	Area	Amount	%Rec
o-Terphenyl	3953	0.2	0.5
Triacontane	713858	44.9	99.8

Analyte	RF	Curve Date
o-Terph Surr	16983.9	01-NOV-2010
Triacon Surr	15901.0	16-OCT-2010
Gas	15975.0	20-OCT-2010
Diesel	18232.0	01-NOV-2010
Motor Oil	11596.5	15-OCT-2010
AK102	20751.0	01-NOV-2010
AK103	8727.5	29-SEPT-2010
JetA	15848.0	27-JAN-2009
OR Diesel	25401.0	
OR M.Oil	11274.0	
IT M.Oil	21488.2	
Bunker C	8522.1	20-SEP-2010
Creosote	6396.0	17-JAN-2009

Data File: /chem3/fid3b.i/20101104.b/1104b020.d

Date : 05-NOV-2010 00:09

Client ID: NWN-INS

Sample Info: MOIL#2

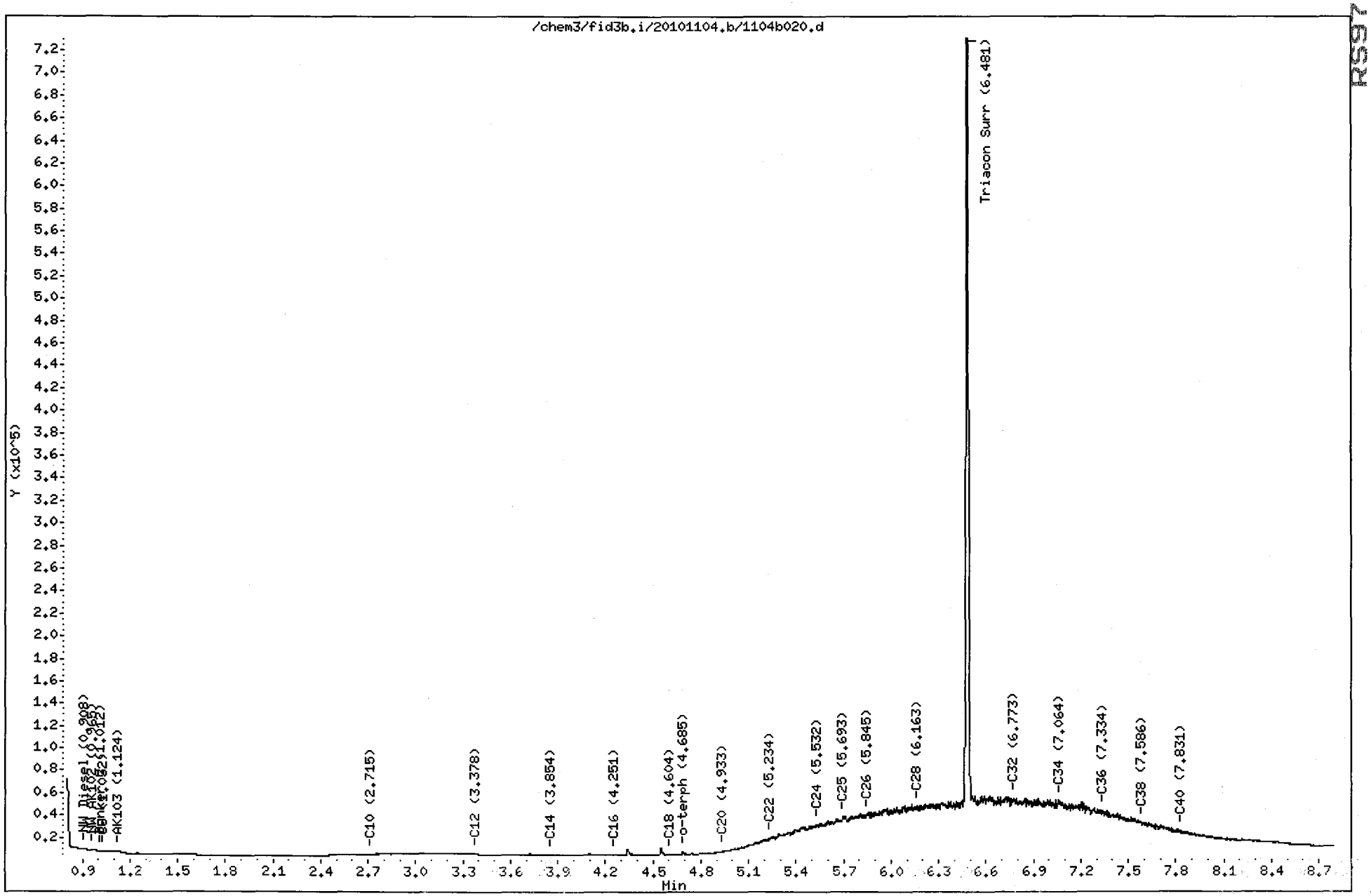
Column phase: ZB-1HT

Instrument: fid3b.i

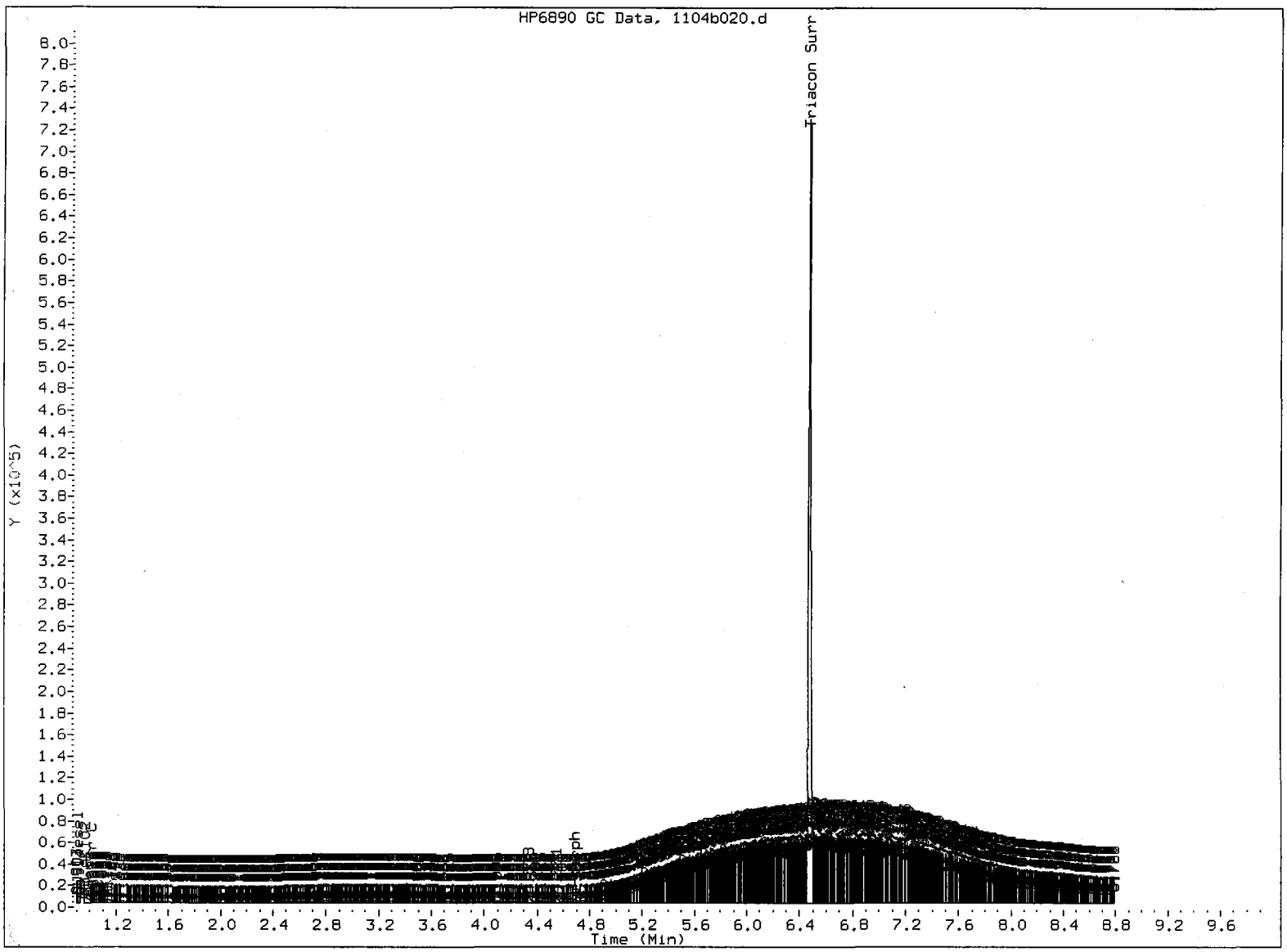
Operator: MS

Column diameter: 0.25

RS97:01132



FID:3B-2C/RTX-1 MOIL#2 FID:3B SIGNAL



MANUAL INTEGRATION

1. Baseline correction
2. Poor chromatography
3. Peak not found
4. Totals calculation

5. Other _____

Analyst: _____ Date: 11/16/10

RS97:01133

Analytical Resources Inc.
407S TPH Quantitation Report

Data file: /chem3/fid3b.i/20101104.b/1104b021.d
Method: /chem3/fid3b.i/20101104.b/ftphfid3b.m
Instrument: fid3b.i
Operator: MS
Report Date: 11/15/2010
Macro: FID:3B110110

ARI ID: RS97I
Client ID: DGS-07-2.22.7-10101
Injection: 05-NOV-2010 00:27
Dilution Factor: 10

FID:3B RESULTS

Compound	RT	Shift	Height	Area	Range	Total Area	Conc
Toluene	0.802	-0.002	16578	23620	GAS (Tol-C12)	292575	18
C8	1.029	0.000	3319	1901	DIESEL (C12-C24)	3691150	202
C10	2.722	0.002	1991	747	M.OIL (C24-C38)	3300411	285
C12	3.378	0.000	4221	1430	AK-102 (C10-C25)	3942604	190 M
C14	3.865	0.012	20387	30664	AK-103 (C25-C36)	3021237	346 M
C16	4.244	-0.004	19923	25185	OR.DIES (C10-C28)	5372675	212 M
C18	4.609	0.003	22903	11204	OR.MOIL (C28-C40)	1896895	168 M
C20	4.941	0.009	185149	147963			
C22	5.233	0.001	78542	67708	STODDARD (C8-C12)	223533	8
C24	5.516	-0.015	146103	177956			
C25	5.679	-0.010	31098	13033			
C26	5.848	0.001	27359	3808			
C28	6.171	0.006	33853	21022			
C32	6.774	0.000	22290	7057			
C34	7.058	-0.004	16273	15264	CREOSOT (C8-C22)	2877940	450
Filter Peak	----						
C36	7.328	-0.001	13850	9693	BUNKERC (C10-C38)	7126620	836
o-terph	4.680	-0.006	224843	149048	JET-A (C10-C18)	1400027	88
Triacon Surr	6.474	-0.008	125659	124185	IT.MOIL (C24-C40)	3567547	166

Range Times: NW Diesel(3.428 - 5.581) NW Gas(0.754 - 3.428) NW M.Oil(5.581 - 7.637)
AK102(2.671 - 5.639) AK103(5.639 - 7.380) Jet A(2.671 - 4.656)

Surrogate	Area	Amount	%Rec
o-Terphenyl	149048	8.8	195.0
Triacontane	124185	7.8	173.6

Analyte	RF	Curve Date
o-Terph Surr	16983.9	01-NOV-2010
Triacon Surr	15901.0	16-OCT-2010
Gas	15975.0	20-OCT-2010
Diesel	18232.0	01-NOV-2010
Motor Oil	11596.5	15-OCT-2010
AK102	20751.0	01-NOV-2010
AK103	8727.5	29-SEPT-2010
JetA	15848.0	27-JAN-2009
OR Diesel	25401.0	
OR M.Oil	11274.0	
IT M.Oil	21488.2	
Bunker C	8522.1	20-SEP-2010
Creosote	6396.0	17-JAN-2009

Data File: /chem3/fid3b.i/20101104.b/1104b021.d

Date : 05-NOV-2010 00:27

Client ID: DGS-07-2.22.7-10101

Sample Info: RS97I,10

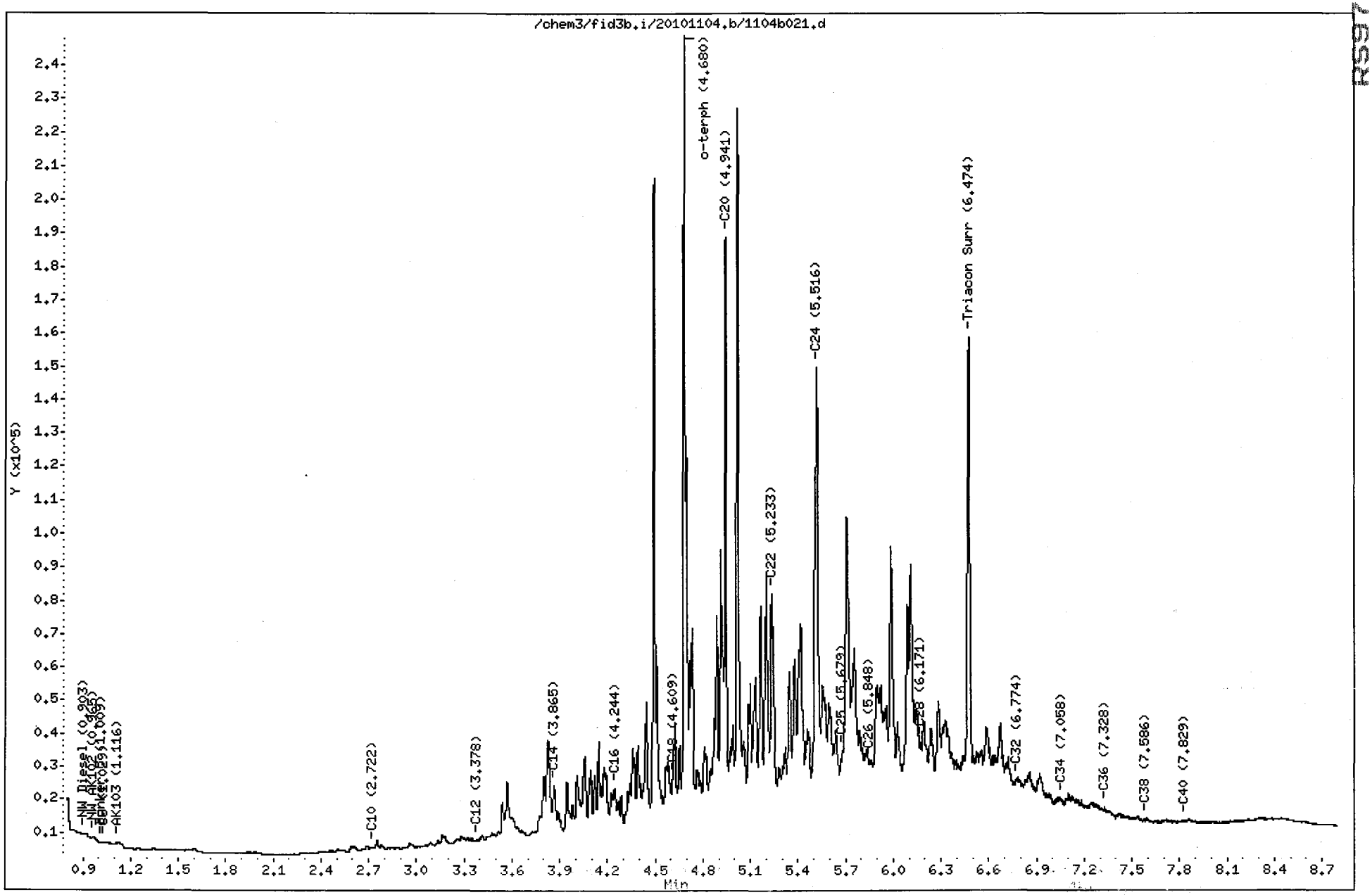
Column phase: ZB-1HT

Instrument: fid3b.i

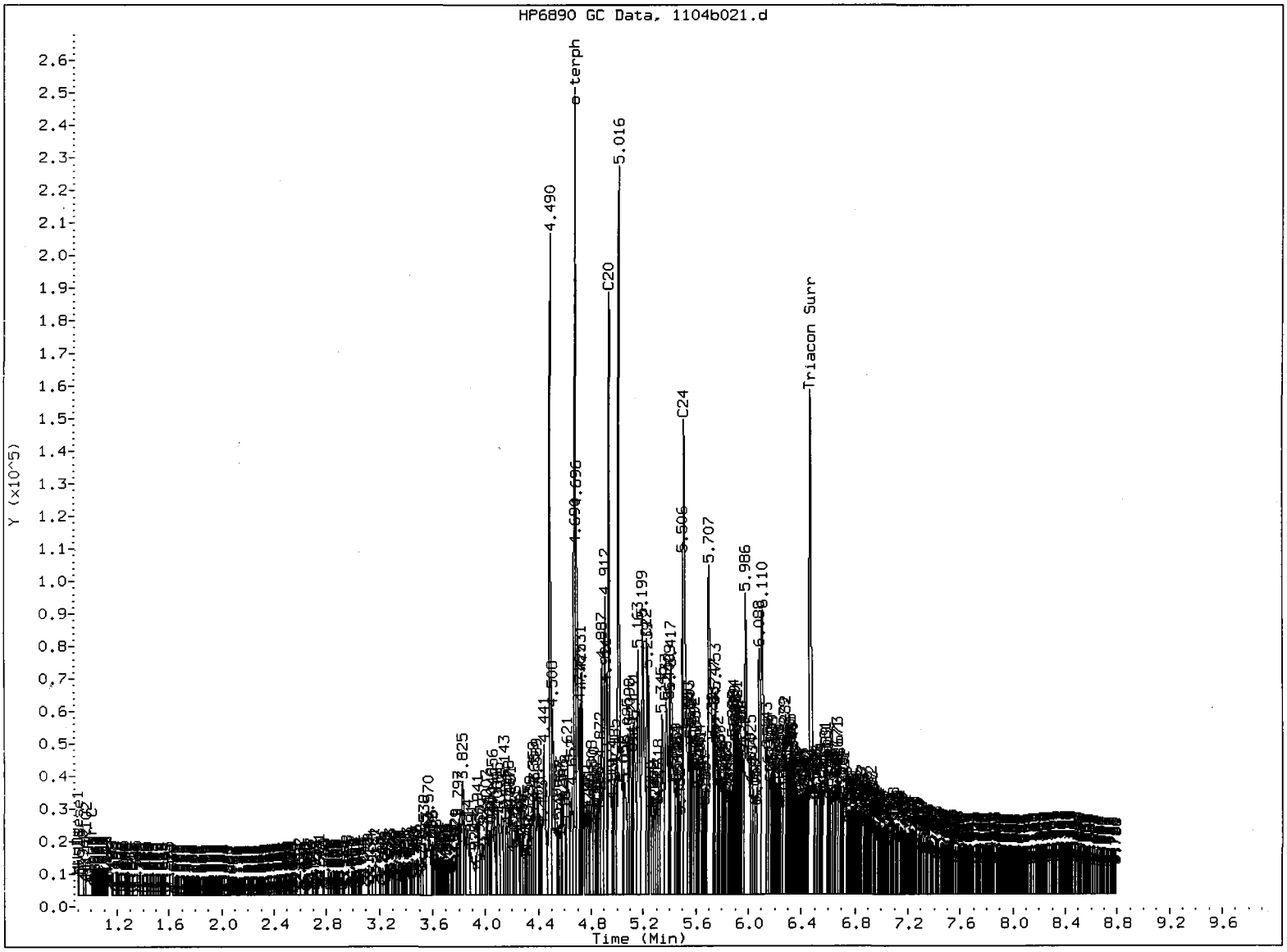
Operator: MS

Column diameter: 0.25

RS97:01135



FID:3B-2C/RTX-1 RS97I FID:3B SIGNAL



MANUAL INTEGRATION

1. Baseline correction
2. Poor chromatography
3. Peak not found
4. Totals calculation

5. Other _____

Analyst: _____ Date: 01/16/10

RS97:01136

Analytical Resources Inc.
407S TPH Quantitation Report

Data file: /chem3/fid3b.i/20101104.b/1104b022.d
Method: /chem3/fid3b.i/20101104.b/ftphfid3b.m
Instrument: fid3b.i
Operator: MS
Report Date: 11/15/2010
Macro: FID:3B110110

ARI ID: RS97J
Client ID: DGS-07-034.2-101012
Injection: 05-NOV-2010 00:44
Dilution Factor: 10

FID:3B RESULTS

Compound	RT	Shift	Height	Area	Range	Total Area	Conc
Toluene	0.804	0.000	14422	22877	GAS (Tol-C12)	320526	20
C8	1.030	0.000	3380	2322	DIESEL (C12-C24)	5423819	297
C10	2.719	-0.002	2051	1141	M.OIL (C24-C38)	4690508	404
C12	3.375	-0.003	4781	3002	AK-102 (C10-C25)	5685326	274 M
C14	3.863	0.010	32345	33408	AK-103 (C25-C36)	4312425	494 M
C16	4.247	-0.001	31262	18709	OR.DIES (C10-C28)	7595985	299 M
C18	4.605	-0.001	31701	10895	OR.MOIL (C28-C40)	2893015	257 M
C20	4.928	-0.004	68510	21406			
C22	5.230	-0.002	95273	118976	STODDARD (C8-C12)	247740	9
C24	5.516	-0.016	206282	265460			
C25	5.690	0.001	44106	12257			
C26	5.842	-0.005	46789	38624			
C28	6.164	-0.001	49071	37852			
C32	6.775	0.001	31991	7605			
C34	7.057	-0.005	26786	17304	CREOSOT (C8-C22)	4349098	680
Filter Peak	----						
C36	7.333	0.003	21724	6854	BUNKERC (C10-C38)	10262389	1204
o-terph	4.680	-0.005	197759	135207	JET-A (C10-C18)	2266691	143
Triacon Surr	6.472	-0.010	113844	109059	IT.MOIL (C24-C40)	5026177	234

Range Times: NW Diesel(3.428 - 5.581) NW Gas(0.754 - 3.428) NW M.Oil(5.581 - 7.637)
AK102(2.671 - 5.639) AK103(5.639 - 7.380) Jet A(2.671 - 4.656)

Surrogate	Area	Amount	%Rec
o-Terphenyl	135207	8.0	176.9
Triacontane	109059	6.9	152.4

Analyte	RF	Curve Date
o-Terph Surr	16983.9	01-NOV-2010
Triacon Surr	15901.0	16-OCT-2010
Gas	15975.0	20-OCT-2010
Diesel	18232.0	01-NOV-2010
Motor Oil	11596.5	15-OCT-2010
AK102	20751.0	01-NOV-2010
AK103	8727.5	29-SEPT-2010
JetA	15848.0	27-JAN-2009
OR Diesel	25401.0	
OR M.Oil	11274.0	
IT M.Oil	21488.2	
Bunker C	8522.1	20-SEP-2010
Creosote	6396.0	17-JAN-2009

Data File: /chem3/fid3b.i/20101104.b/1104b022.d

Date : 05-NOV-2010 00:44

Client ID: DGS-07-034.2-101012

Sample Info: RS97J,10

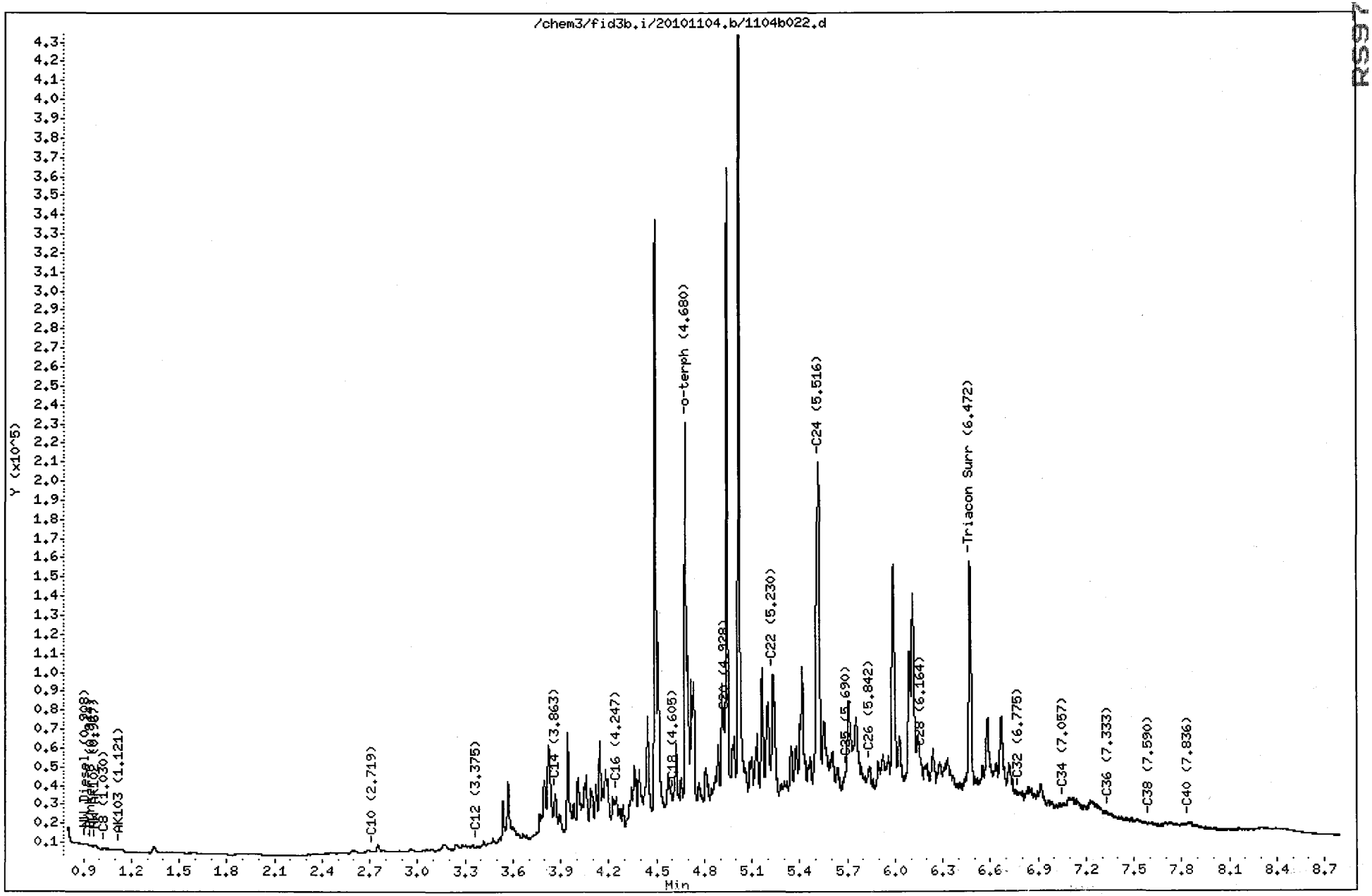
Column phase: ZB-1HT

Instrument: fid3b.i

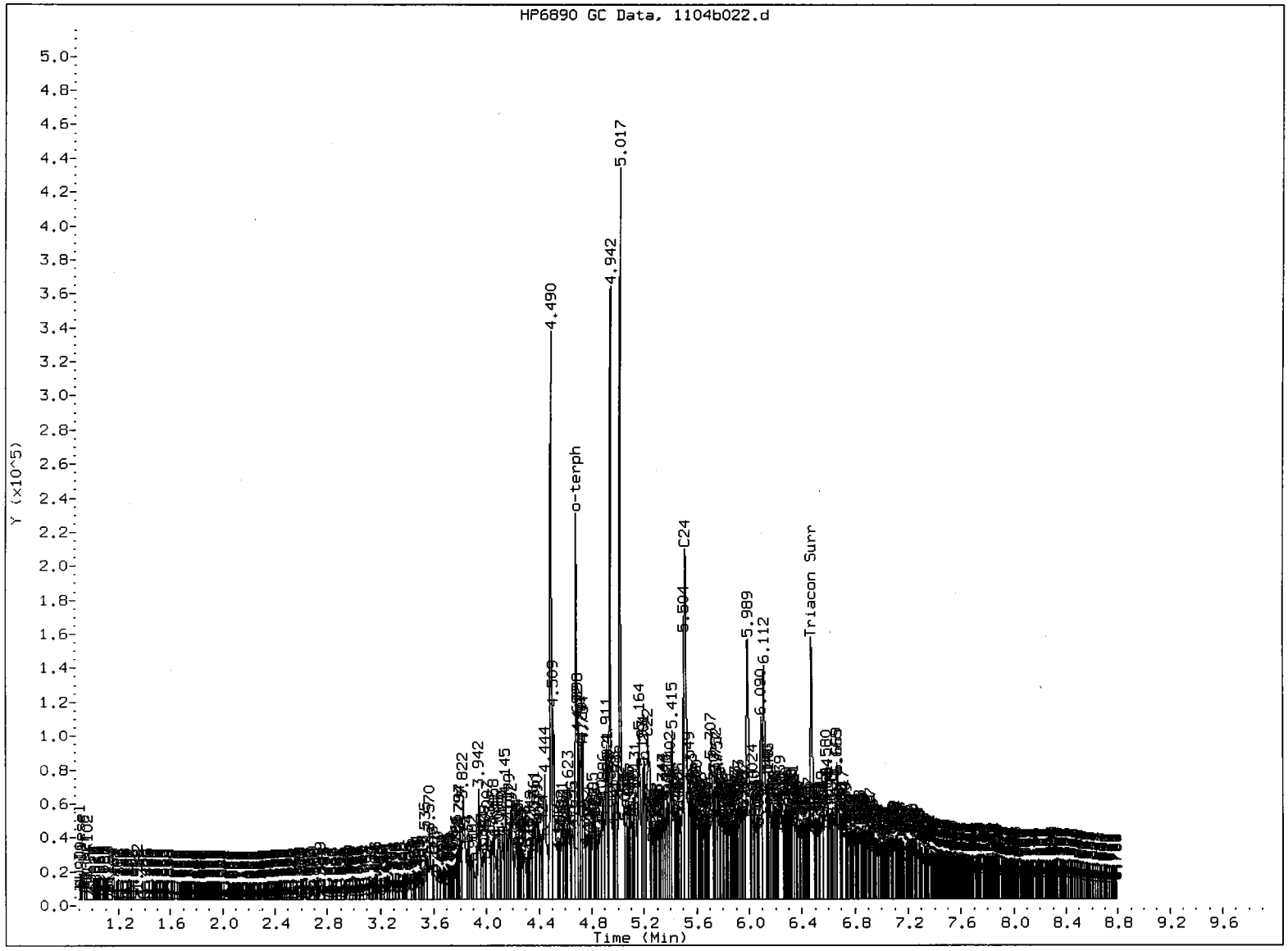
Operator: MS

Column diameter: 0.25

RS97J01138



FID:3B-2C/RTX-1 RS97J FID:3B SIGNAL



MANUAL INTEGRATION

1. Baseline correction
2. Poor chromatography
3. Peak not found
4. Totals calculation

5. Other _____

Analyst: _____ Date: 11/16/1

RS97:01139

Analytical Resources Inc.
407S TPH Quantitation Report

Data file: /chem3/fid3b.i/20101104.b/1104b023.d
Method: /chem3/fid3b.i/20101104.b/ftphfid3b.m
Instrument: fid3b.i
Operator: MS
Report Date: 11/15/2010
Macro: FID:3B110110

ARI ID: RS97K
Client ID: DGS-07-4.75.2-10101
Injection: 05-NOV-2010 01:02
Dilution Factor: 10

FID:3B RESULTS

Compound	RT	Shift	Height	Area	Range	Total Area	Conc
Toluene	0.803	-0.001	14713	21672	GAS (Tol-C12)	299671	19
C8	1.026	-0.003	3310	2879	DIESEL (C12-C24)	5706967	313
C10	2.720	-0.001	1883	773	M.OIL (C24-C38)	7352930	634
C12	3.378	0.000	3628	2903	AK-102 (C10-C25)	6106133	294 M
C14	3.866	0.013	19989	29899	AK-103 (C25-C36)	6704648	768 M
C16	4.244	-0.004	18452	21959	OR.DIES (C10-C28)	9083593	358 M
C18	4.610	0.004	25262	12234	OR.MOIL (C28-C40)	4412278	391 M
C20	4.941	0.009	443095	342091			
C22	5.230	-0.002	136171	127273	STODDARD (C8-C12)	222624	8
C24	5.518	-0.013	398032	561679			
C25	5.681	-0.008	57150	11190			
C26	5.840	-0.007	72303	67677			
C28	6.163	-0.002	82526	58005			
C32	6.773	-0.001	49210	5871			
C34	7.059	-0.003	42033	31407	CREOSOT (C8-C22)	4122719	645
Filter Peak	----						
C36	7.330	0.001	33027	22513	BUNKERC (C10-C38)	13186048	1547
o-terph	4.679	-0.007	161447	91162	JET-A (C10-C18)	1642576	104
Triacon Surr	6.475	-0.007	118985	110182	IT.MOIL (C24-C40)	7772935	362

Range Times: NW Diesel(3.428 - 5.581) NW Gas(0.754 - 3.428) NW M.Oil(5.581 - 7.637)
AK102(2.671 - 5.639) AK103(5.639 - 7.380) Jet A(2.671 - 4.656)

Surrogate	Area	Amount	%Rec
o-Terphenyl	91162	5.4	119.3
Triacontane	110182	6.9	154.0

Analyte	RF	Curve Date
o-Terph Surr	16983.9	01-NOV-2010
Triacon Surr	15901.0	16-OCT-2010
Gas	15975.0	20-OCT-2010
Diesel	18232.0	01-NOV-2010
Motor Oil	11596.5	15-OCT-2010
AK102	20751.0	01-NOV-2010
AK103	8727.5	29-SEPT-2010
JetA	15848.0	27-JAN-2009
OR Diesel	25401.0	
OR M.Oil	11274.0	
IT M.Oil	21488.2	
Bunker C	8522.1	20-SEP-2010
Creosote	6396.0	17-JAN-2009

Data File: /chem3/fid3b.i/20101104.b/1104b023.d

Date : 05-NOV-2010 01:02

Client ID: DGS-07-4.75.2-10101

Sample Info: RS97K,10

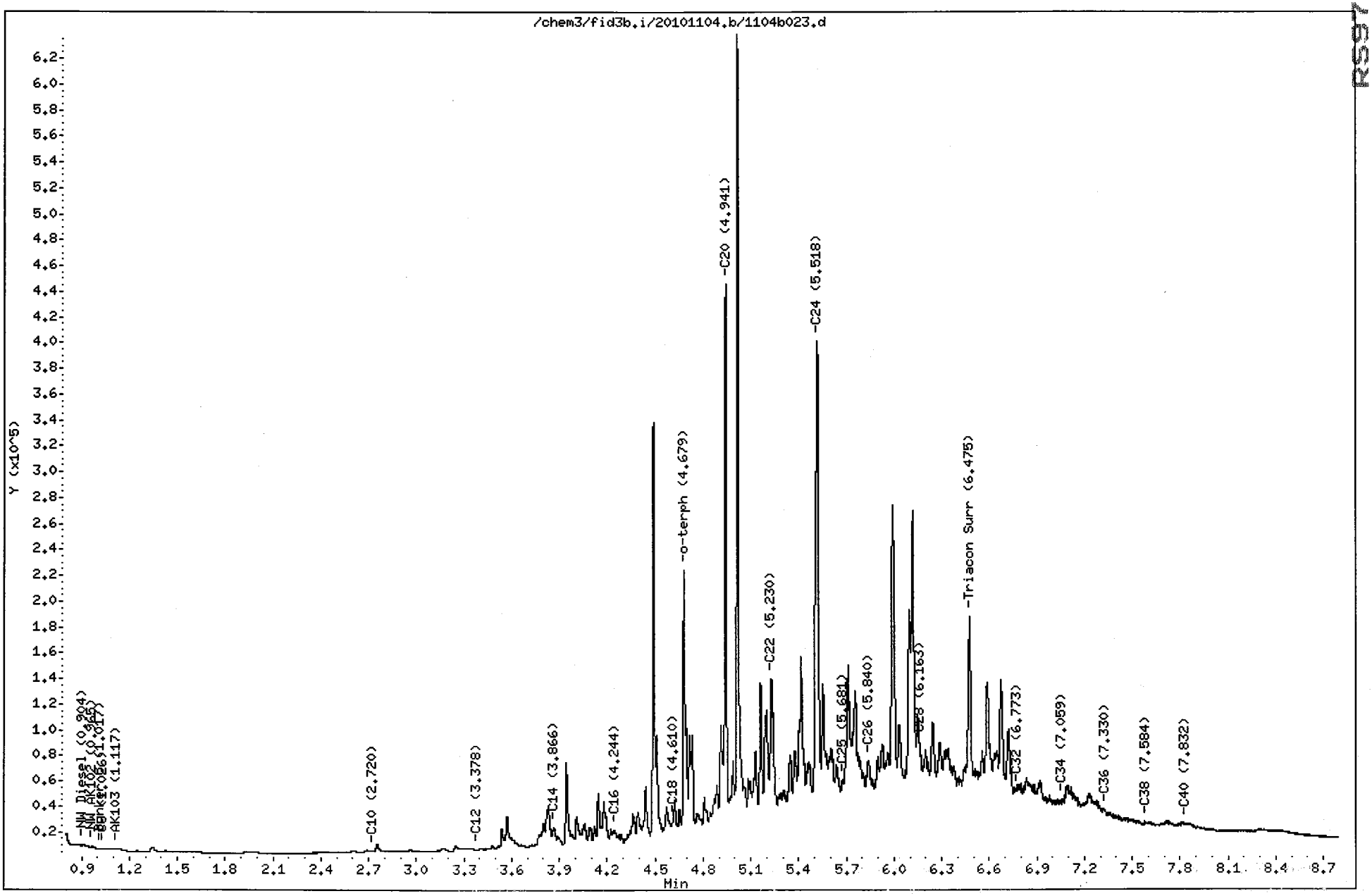
Column phase: ZB-1HT

Instrument: fid3b.i

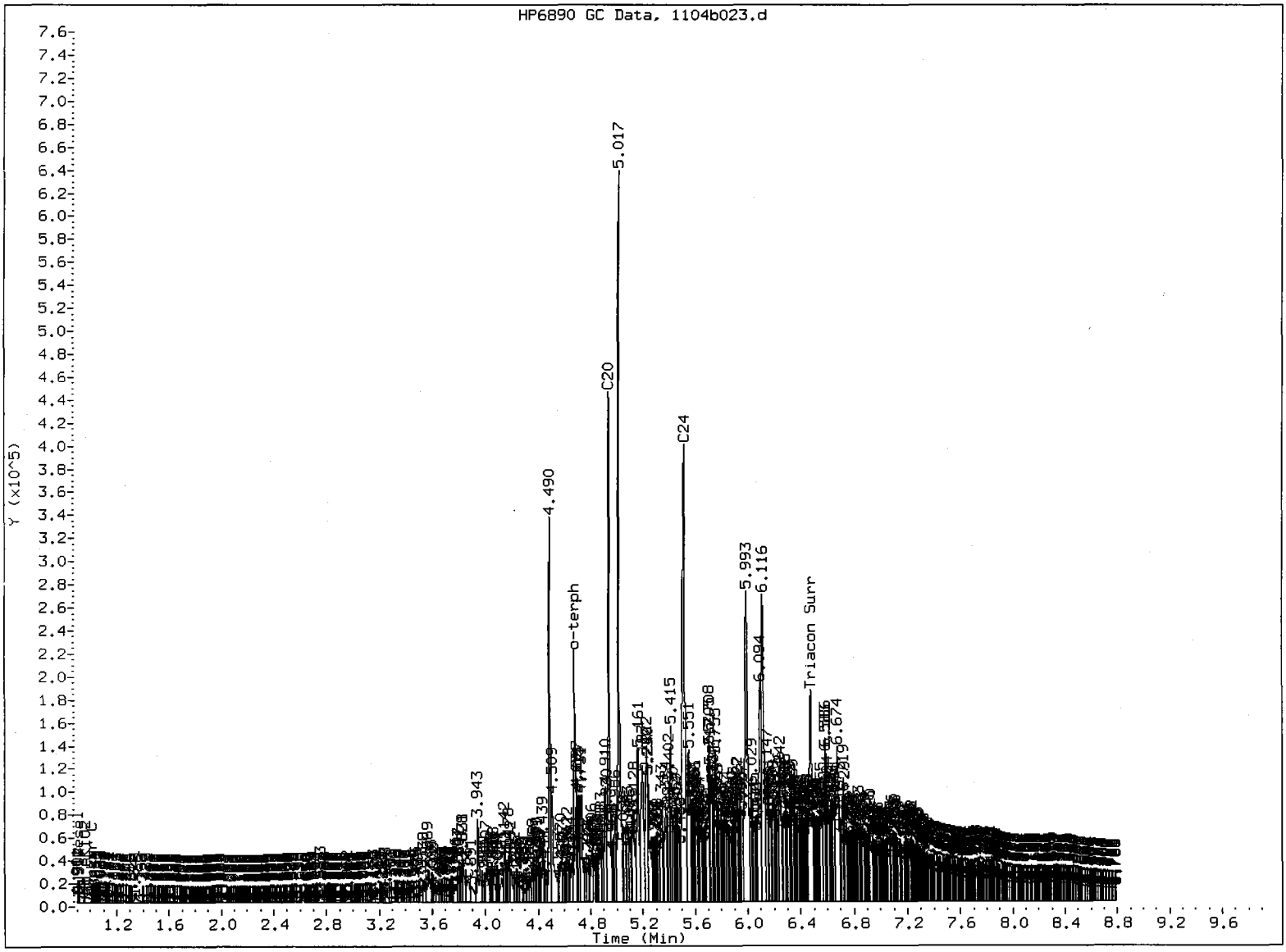
Operator: MS

Column diameter: 0.25

RS97:01141



FID:3B-2C/RTX-1 RS97K FID:3B SIGNAL



MANUAL INTEGRATION

1. Baseline correction
2. Poor chromatography
3. Peak not found
4. Totals calculation

5. Other _____

Analyst: _____ Date: 11/6/10

RS97:01142

Analytical Resources Inc.
407S TPH Quantitation Report

Data file: /chem3/fid3b.i/20101104.b/1104b024.d
Method: /chem3/fid3b.i/20101104.b/ftphfid3b.m
Instrument: fid3b.i
Operator: MS
Report Date: 11/15/2010
Macro: FID:3B110110

ARI ID: RS97L
Client ID: DGS-07-5.66.7-10101
Injection: 05-NOV-2010 01:19
Dilution Factor: 5

FID:3B RESULTS

Compound	RT	Shift	Height	Area	Range	Total Area	Conc
Toluene	0.804	0.000	16763	22373	GAS (Tol-C12)	1330635	83
C8	1.026	-0.003	3264	2380	DIESEL (C12-C24)	8111940	445
C10	2.721	0.000	4468	2244	M.OIL (C24-C38)	3700552	319
C12	3.371	-0.006	15305	14409	AK-102 (C10-C25)	9374102	452 M
C14	3.869	0.016	84930	108665	AK-103 (C25-C36)	3401537	390 M
C16	4.248	0.000	34899	34585	OR.DIES (C10-C28)	11003301	433 M
C18	4.608	0.002	40211	10828	OR.MOIL (C28-C40)	2123377	188 M
C20	4.927	-0.005	92238	17950			
C22	5.232	0.000	89667	108463	STODDARD (C8-C12)	1265489	46
C24	5.519	-0.012	259768	297947			
C25	5.691	0.002	37082	9992			
C26	5.843	-0.003	37301	25615			
C28	6.174	0.009	32301	6903			
C32	6.769	-0.005	23364	10729			
C34	7.063	0.001	16634	6473	CREOSOT (C8-C22)	6994377	1094
Filter Peak	----						
C36	7.329	0.000	15016	3248	BUNKERC (C10-C38)	12949982	1520
o-terph	4.684	-0.001	423816	258178	JET-A (C10-C18)	4959905	313
Triacon Surr	6.477	-0.005	238040	231121	IT.MOIL (C24-C40)	4108368	191

Range Times: NW Diesel(3.428 - 5.581) NW Gas(0.754 - 3.428) NW M.Oil(5.581 - 7.637)
AK102(2.671 - 5.639) AK103(5.639 - 7.380) Jet A(2.671 - 4.656)

Surrogate	Area	Amount	%Rec
o-Terphenyl	258178	15.2	168.9
Triacontane	231121	14.5	161.5

Analyte	RF	Curve Date
o-Terph Surr	16983.9	01-NOV-2010
Triacon Surr	15901.0	16-OCT-2010
Gas	15975.0	20-OCT-2010
Diesel	18232.0	01-NOV-2010
Motor Oil	11596.5	15-OCT-2010
AK102	20751.0	01-NOV-2010
AK103	8727.5	29-SEPT-2010
JetA	15848.0	27-JAN-2009
OR Diesel	25401.0	
OR M.Oil	11274.0	
IT M.Oil	21488.2	
Bunker C	8522.1	20-SEP-2010
Creosote	6396.0	17-JAN-2009

Data File: /chem3/fid3b.i/20101104.b/1104b024.d

Date : 05-NOV-2010 01:19

Client ID: DGS-07-5.66.7-10101

Sample Info: RS97L,5

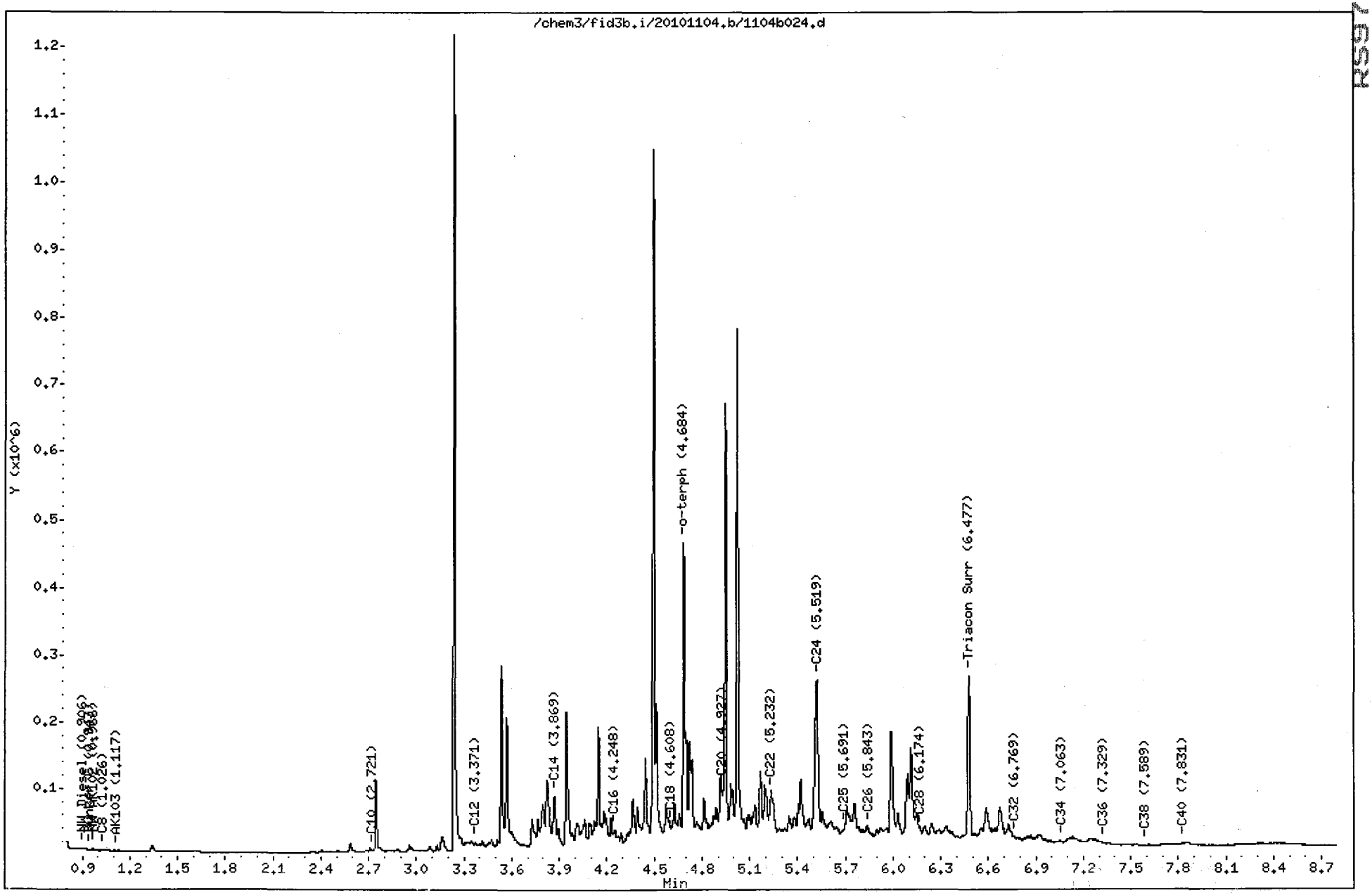
Column phase: ZB-1HT

Instrument: fid3b.i

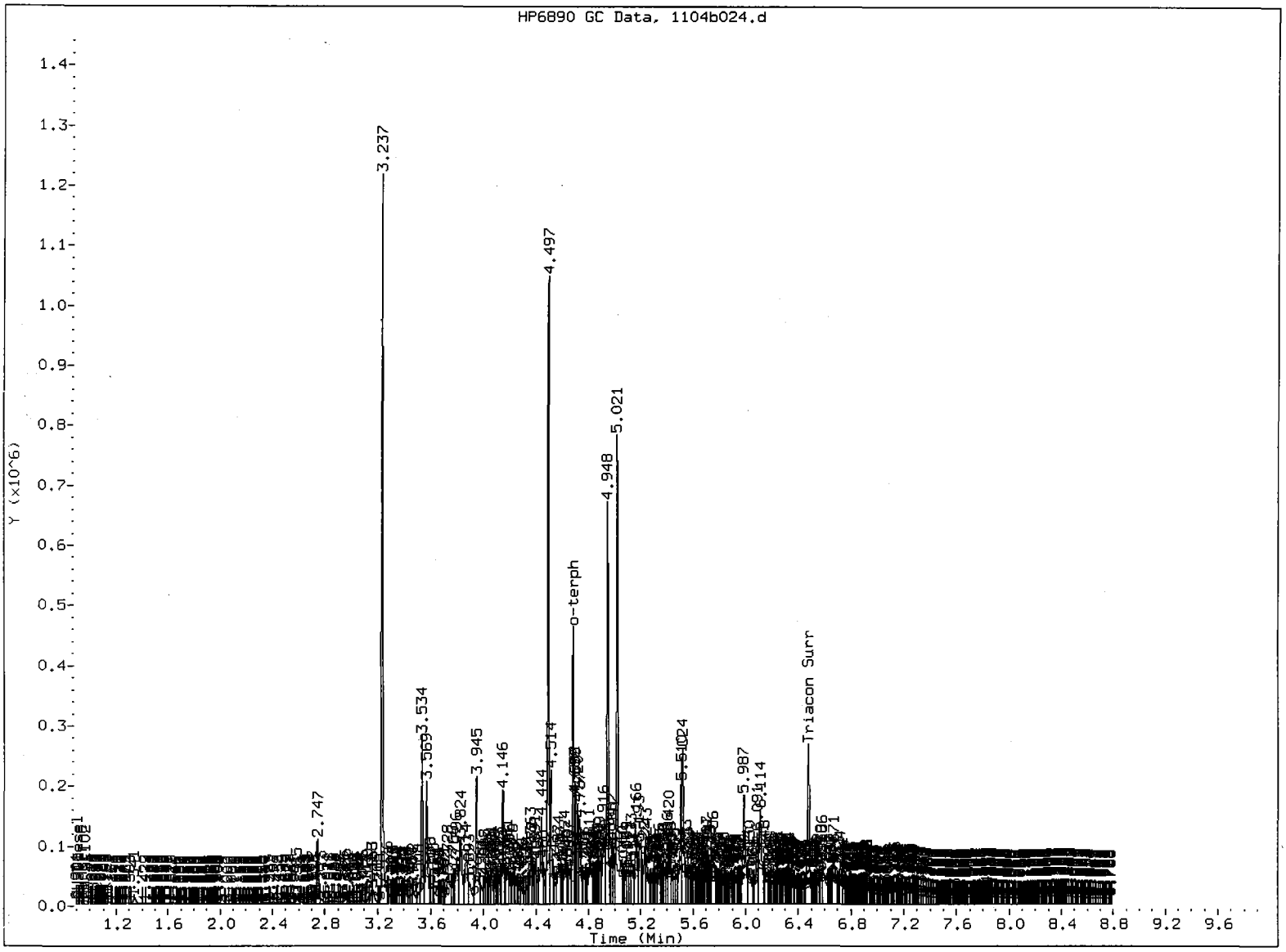
Operator: MS

Column diameter: 0.25

RS97:01144



FID:3B-2C/RTX-1 RS97L FID:3B SIGNAL



MANUAL INTEGRATION

1. Baseline correction
2. Poor chromatography
3. Peak not found
4. Totals calculation

5. Other _____

Analyst: _____ Date: 11/16/10

RS97:01145

Analytical Resources Inc.
407S TPH Quantitation Report

Data file: /chem3/fid3b.i/20101104.b/1104b025.d
Method: /chem3/fid3b.i/20101104.b/ftphfid3b.m
Instrument: fid3b.i
Operator: MS
Report Date: 11/15/2010
Macro: FID:3B110110

ARI ID: RS97M
Client ID: DGS-07-077 3-101012
Injection: 05-NOV-2010 01:37
Dilution Factor: 5

FID:3B RESULTS

Compound	RT	Shift	Height	Area	Range	Total Area	Conc
Toluene	0.806	0.002	17312	22785	GAS (Tol-C12)	385835	24
C8	1.031	0.002	3284	1762	DIESEL (C12-C24)	4570779	251
C10	2.715	-0.006	2705	1920	M.OIL (C24-C38)	2723243	235
C12	3.377	0.000	6804	7208	AK-102 (C10-C25)	4858919	234 M
C14	3.833	-0.019	53333	50931	AK-103 (C25-C36)	2462353	282 M
C16	4.250	0.002	27635	15659	OR.DIES (C10-C28)	5894686	232 M
C18	4.615	0.009	31538	10362	OR.MOIL (C28-C40)	1760705	156 M
C20	4.934	0.002	51908	9178			
C22	5.234	0.002	46394	32193	STODDARD (C8-C12)	310529	11
C24	5.524	-0.007	84805	101907			
C25	5.686	-0.003	29066	6842			
C26	5.849	0.002	26958	13014			
C28	6.167	0.002	31596	20273			
C32	6.772	-0.002	22006	10330			
C34	7.058	-0.004	17229	9485	CREOSOT (C8-C22)	3923964	614
Filter Peak	----						
C36	7.326	-0.003	13657	7889	BUNKERC (C10-C38)	7500411	880
o-terph	4.685	0.000	359343	196665	JET-A (C10-C18)	2302578	145
Triacon Surr	6.478	-0.003	206382	205076	IT.MOIL (C24-C40)	3083300	143

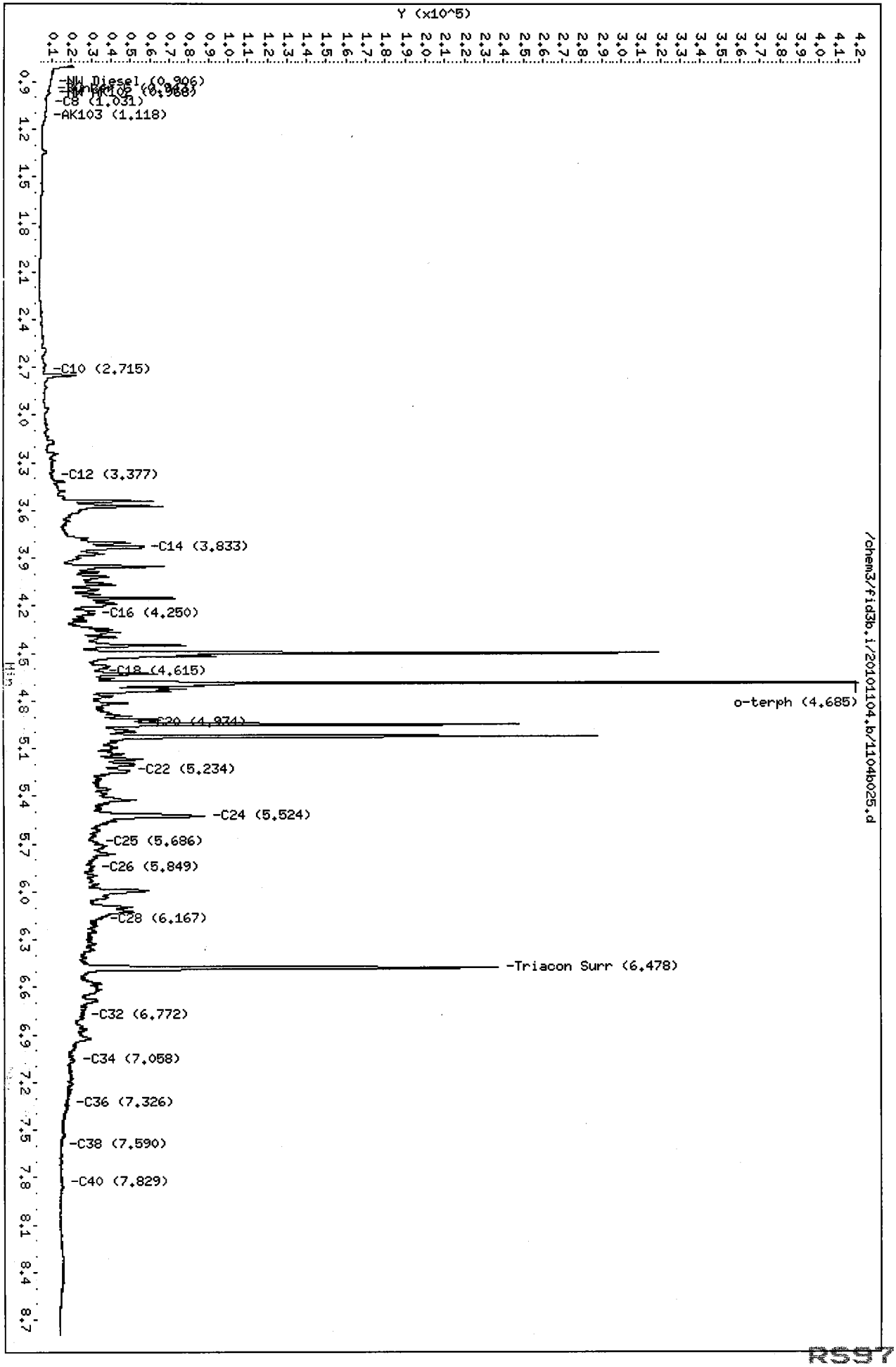
Range Times: NW Diesel(3.428 - 5.581) NW Gas(0.754 - 3.428) NW M.Oil(5.581 - 7.637)
AK102(2.671 - 5.639) AK103(5.639 - 7.380) Jet A(2.671 - 4.656)

Surrogate	Area	Amount	%Rec
o-Terphenyl	196665	11.6	128.7
Triacontane	205076	12.9	143.3

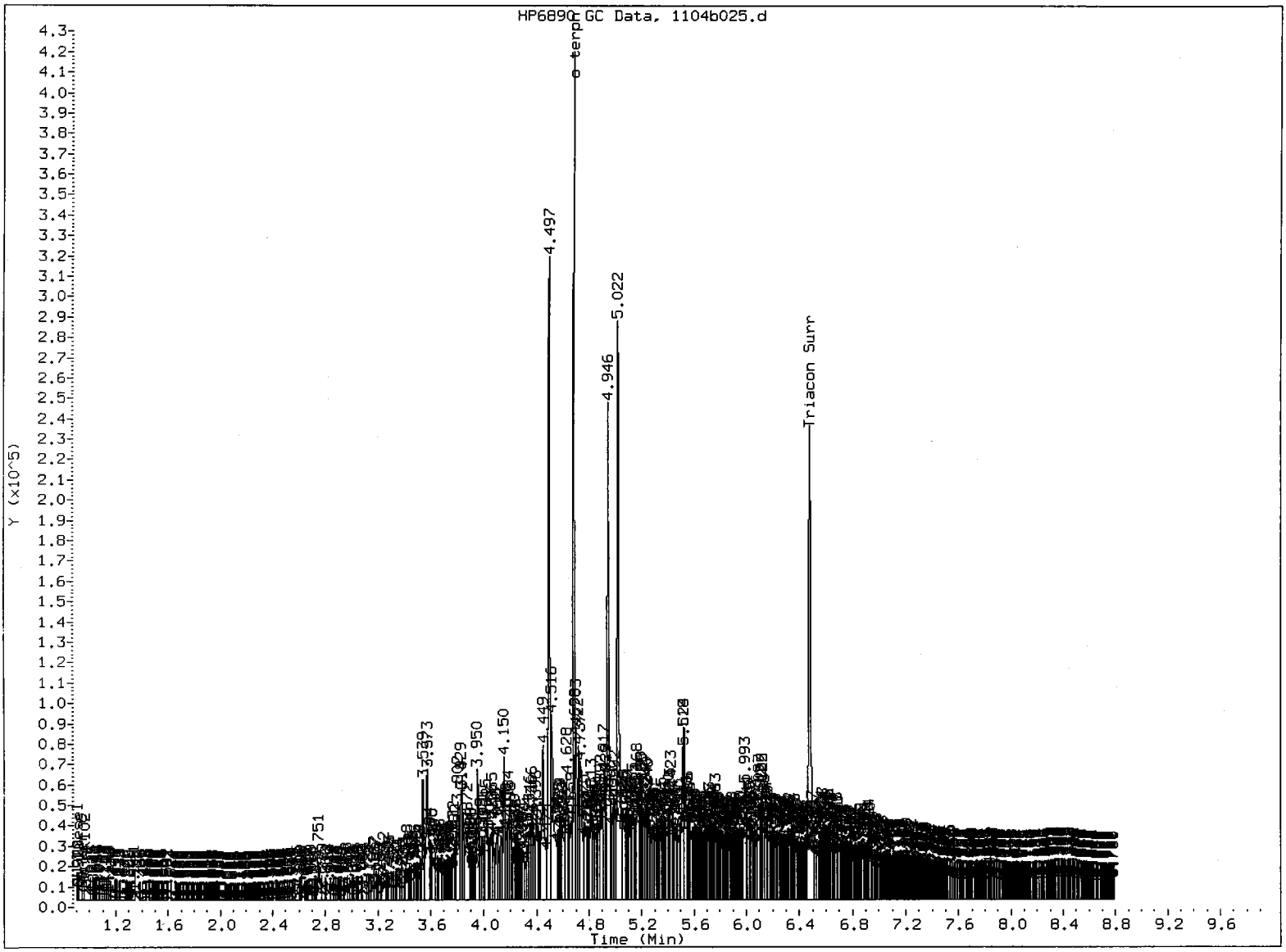
Analyte	RF	Curve Date
o-Terph Surr	16983.9	01-NOV-2010
Triacon Surr	15901.0	16-OCT-2010
Gas	15975.0	20-OCT-2010
Diesel	18232.0	01-NOV-2010
Motor Oil	11596.5	15-OCT-2010
AK102	20751.0	01-NOV-2010
AK103	8727.5	29-SEPT-2010
JetA	15848.0	27-JAN-2009
OR Diesel	25401.0	
OR M.Oil	11274.0	
IT M.Oil	21488.2	
Bunker C	8522.1	20-SEP-2010
Creosote	6396.0	17-JAN-2009

Data File: /chem3/fid3b.i/20101104.b/1104b025.d
Date : 05-NOV-2010 01:37
Client ID: DGS-07-077,3-101012
Sample Info: RS97M,5
Column phase: ZB-1HT

Instrument: fid3b.i
Operator: MS
Column diameter: 0.25



FID:3B-2C/RTX-1 RS97M FID:3B SIGNAL



MANUAL INTEGRATION

1. Baseline correction
2. Poor chromatography
3. Peak not found
4. Totals calculation

5. Other _____

Analyst: _____ Date: 11/16/10

RS97:01148

Analytical Resources Inc.
407S TPH Quantitation Report

Data file: /chem3/fid3b.i/20101104.b/1104b026.d
Method: /chem3/fid3b.i/20101104.b/ftphfid3b.m
Instrument: fid3b.i
Operator: MS
Report Date: 11/15/2010
Macro: FID:3B110110

ARI ID: RS97N
Client ID: DGS-07-7.98.4-10101
Injection: 05-NOV-2010 01:54
Dilution Factor: 2

FID:3B RESULTS

Compound	RT	Shift	Height	Area	Range	Total Area	Conc
Toluene	0.805	0.001	52037	50471	GAS (Tol-C12)	486329	30
C8	1.030	0.001	3366	3729	DIESEL (C12-C24)	8552353	469
C10	2.721	0.000	3419	2109	M.OIL (C24-C38)	4396635	379
C12	3.383	0.006	8718	5826	AK-102 (C10-C25)	8974870	433 M
C14	3.860	0.008	54361	75232	AK-103 (C25-C36)	4007516	459 M
C16	4.245	-0.003	51762	65364	OR.DIES (C10-C28)	10691556	421 M
C18	4.609	0.003	62933	29379	OR.MOIL (C28-C40)	2746266	244 M
C20	4.926	-0.006	94650	18652			
C22	5.232	0.000	99831	70545	STODDARD (C8-C12)	392532	14
C24	5.520	-0.011	224352	388686			
C25	5.688	-0.001	46943	22009			
C26	5.847	0.000	42674	21303			
C28	6.166	0.000	45787	12342			
C32	6.776	0.002	32180	16903			
C34	7.068	0.006	25864	13361	CREOSOT (C8-C22)	7329345	1146
Filter Peak	----						
C36	7.324	-0.005	21129	14998	BUNKERC (C10-C38)	13218119	1551
o-terph	4.683	-0.003	949392	556627	JET-A (C10-C18)	4065816	257
Triacon Surr	6.480	-0.001	578732	605194	IT.MOIL (C24-C40)	5221532	243

Range Times: NW Diesel(3.428 - 5.581) NW Gas(0.754 - 3.428) NW M.Oil(5.581 - 7.637)
AK102(2.671 - 5.639) AK103(5.639 - 7.380) Jet A(2.671 - 4.656)

Surrogate	Area	Amount	%Rec
o-Terphenyl	556627	32.8	145.7
Triacontane	605194	38.1	169.2

Analyte	RF	Curve Date
o-Terph Surr	16983.9	01-NOV-2010
Triacon Surr	15901.0	16-OCT-2010
Gas	15975.0	20-OCT-2010
Diesel	18232.0	01-NOV-2010
Motor Oil	11596.5	15-OCT-2010
AK102	20751.0	01-NOV-2010
AK103	8727.5	29-SEPT-2010
JetA	15848.0	27-JAN-2009
OR Diesel	25401.0	
OR M.Oil	11274.0	
IT M.Oil	21488.2	
Bunker C	8522.1	20-SEP-2010
Creosote	6396.0	17-JAN-2009

Data File: /chem3/fid3b.i/20101104.b/1104b026.d

Date : 05-NOV-2010 01:54

Client ID: DGS-07-7.98.4-10101

Sample Info: RS97N,2

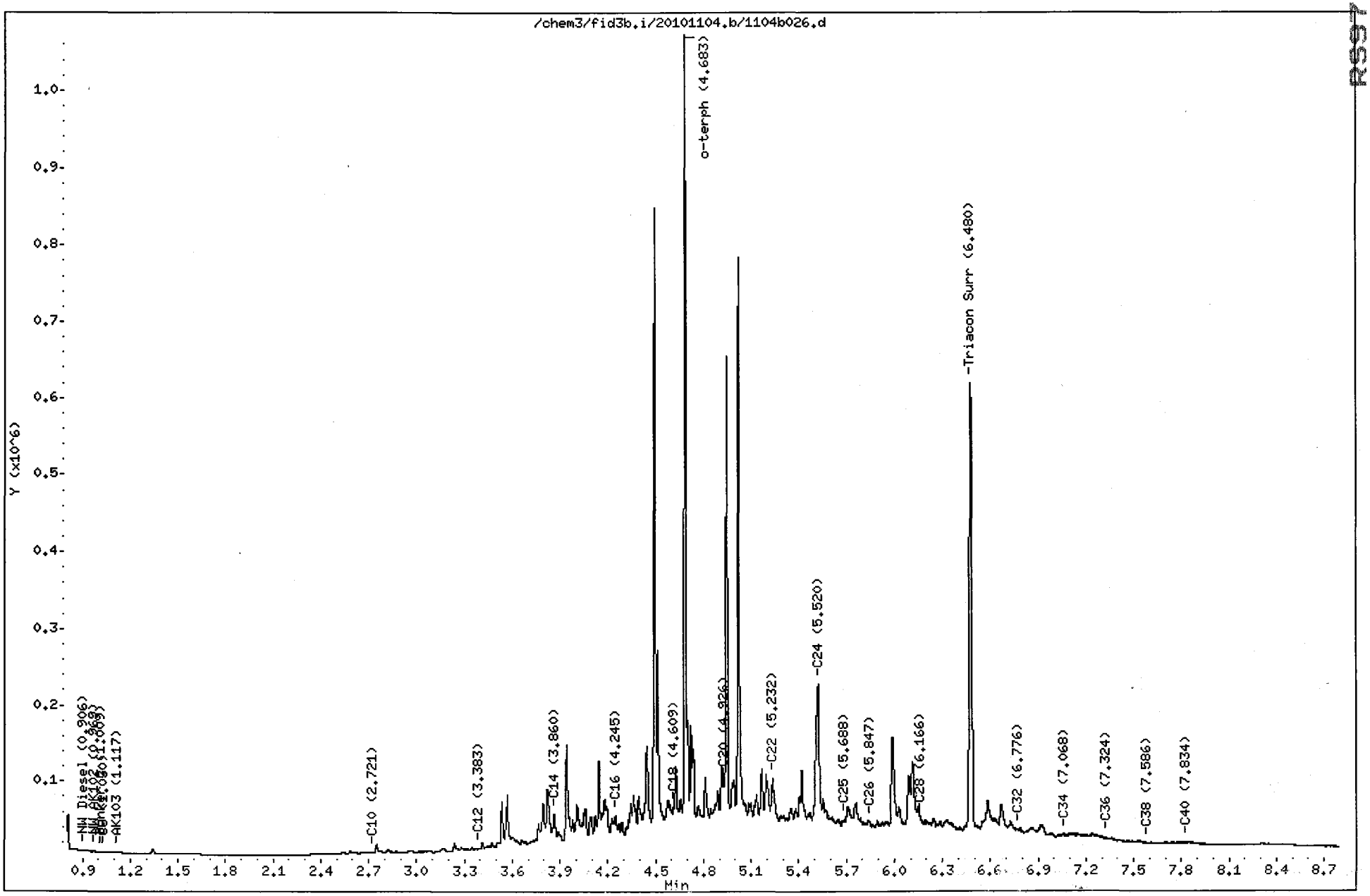
Column phase: ZB-1HT

Instrument: fid3b.i

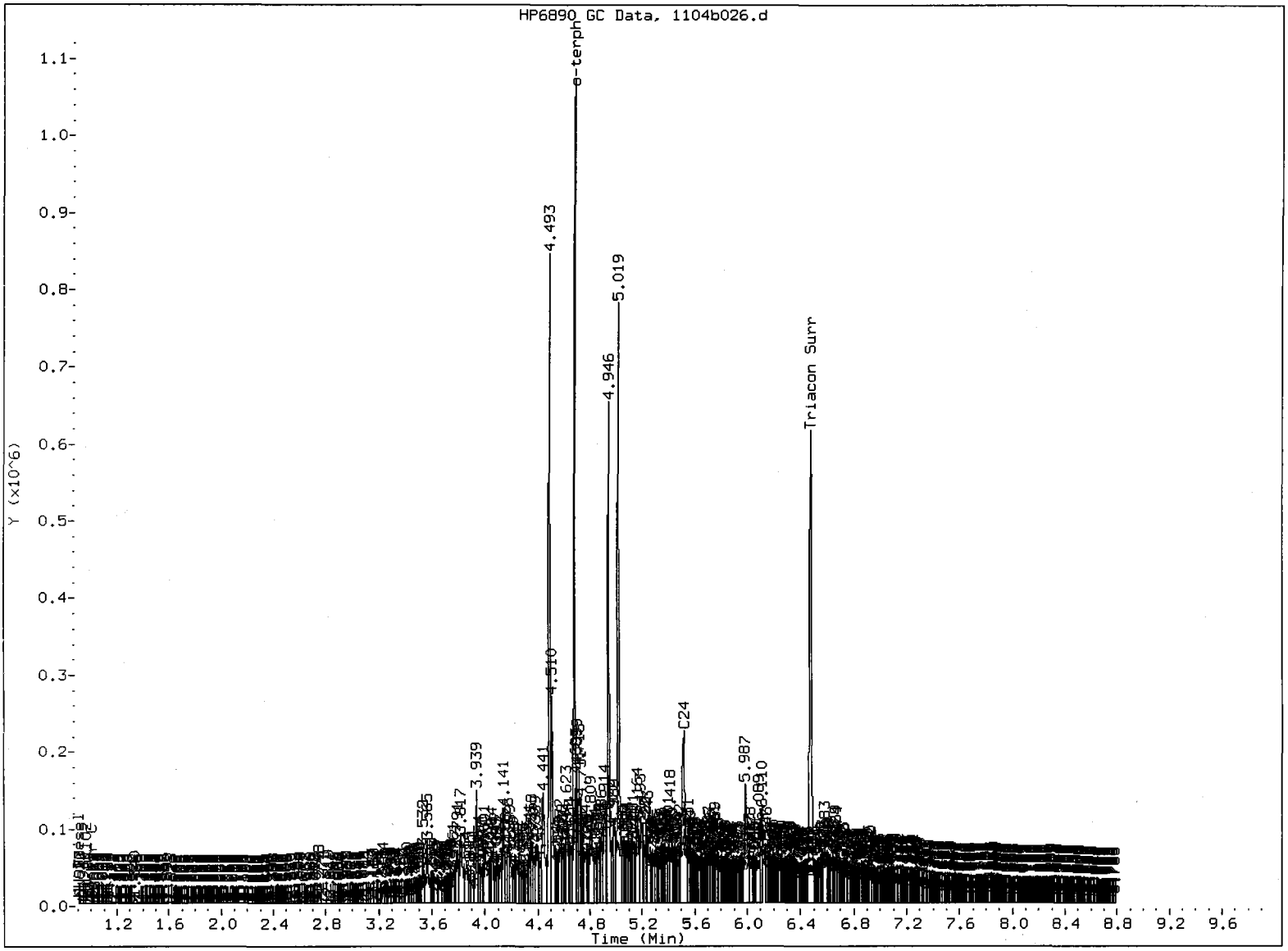
Operator: MS

Column diameter: 0.25

RS97 : 91150



FID:3B-2C/RTX-1 RS97N FID:3B SIGNAL



MANUAL INTEGRATION

1. Baseline correction
2. Poor chromatography
3. Peak not found
4. Totals calculation

5. Other _____

Analyst: _____ Date: 11/10/10

RS97:01151

Analytical Resources Inc.
407S TPH Quantitation Report

Data file: /chem3/fid3b.i/20101104.b/1104b027.d
Method: /chem3/fid3b.i/20101104.b/ftphfid3b.m
Instrument: fid3b.i
Operator: MS
Report Date: 11/15/2010
Macro: FID:3B110110

ARI ID: RS97O
Client ID: DGS-07-8.79.1-10101
Injection: 05-NOV-2010 02:11
Dilution Factor: 5

FID:3B RESULTS

Compound	RT	Shift	Height	Area	Range	Total Area	Conc
Toluene	0.801	-0.003	18819	22667	GAS (Tol-C12)	690472	43
C8	1.027	-0.002	3828	4345	DIESEL (C12-C24)	10994733	603
C10	2.715	-0.006	4180	2226	M.OIL (C24-C38)	3992230	344
C12	3.384	0.006	14406	8072	AK-102 (C10-C25)	11641017	561 M
C14	3.858	0.006	89220	112590	AK-103 (C25-C36)	3646934	418 M
C16	4.242	-0.006	65434	52849	OR.DIES (C10-C28)	13344588	525 M
C18	4.607	0.001	61911	18967	OR.MOIL (C28-C40)	2325494	206 M
C20	4.926	-0.006	111161	27964			
C22	5.231	0.000	105214	118864	STODDARD (C8-C12)	625749	23
C24	5.518	-0.013	289287	306795			
C25	5.687	-0.002	44592	15346			
C26	5.848	0.001	38141	22174			
C28	6.169	0.003	38317	25702			
C32	6.777	0.003	26933	10392			
C34	7.061	-0.001	20268	12291	CREOSOT (C8-C22)	9631142	1506
Filter Peak	----						
C36	7.326	-0.004	17569	11122	BUNKERC (C10-C38)	15487245	1817
o-terph	4.682	-0.004	408738	264997	JET-A (C10-C18)	6071458	383
Triacon Surr	6.472	-0.009	237782	238505	IT.MOIL (C24-C40)	4413572	205

Range Times: NW Diesel(3.428 - 5.581) NW Gas(0.754 - 3.428) NW M.Oil(5.581 - 7.637)
AK102(2.671 - 5.639) AK103(5.639 - 7.380) Jet A(2.671 - 4.656)

Surrogate	Area	Amount	%Rec
o-Terphenyl	264997	15.6	173.4
Triacontane	238505	15.0	166.7

Analyte	RF	Curve Date
o-Terph Surr	16983.9	01-NOV-2010
Triacon Surr	15901.0	16-OCT-2010
Gas	15975.0	20-OCT-2010
Diesel	18232.0	01-NOV-2010
Motor Oil	11596.5	15-OCT-2010
AK102	20751.0	01-NOV-2010
AK103	8727.5	29-SEPT-2010
JetA	15848.0	27-JAN-2009
OR Diesel	25401.0	
OR M.Oil	11274.0	
IT M.Oil	21488.2	
Bunker C	8522.1	20-SEP-2010
Creosote	6396.0	17-JAN-2009

Data File: /chem3/fid3b.i/20101104.b/1104b027.d

Date : 05-NOV-2010 02:11

Client ID: DGS-07-8.79.1-10101

Sample Info: RS970,5

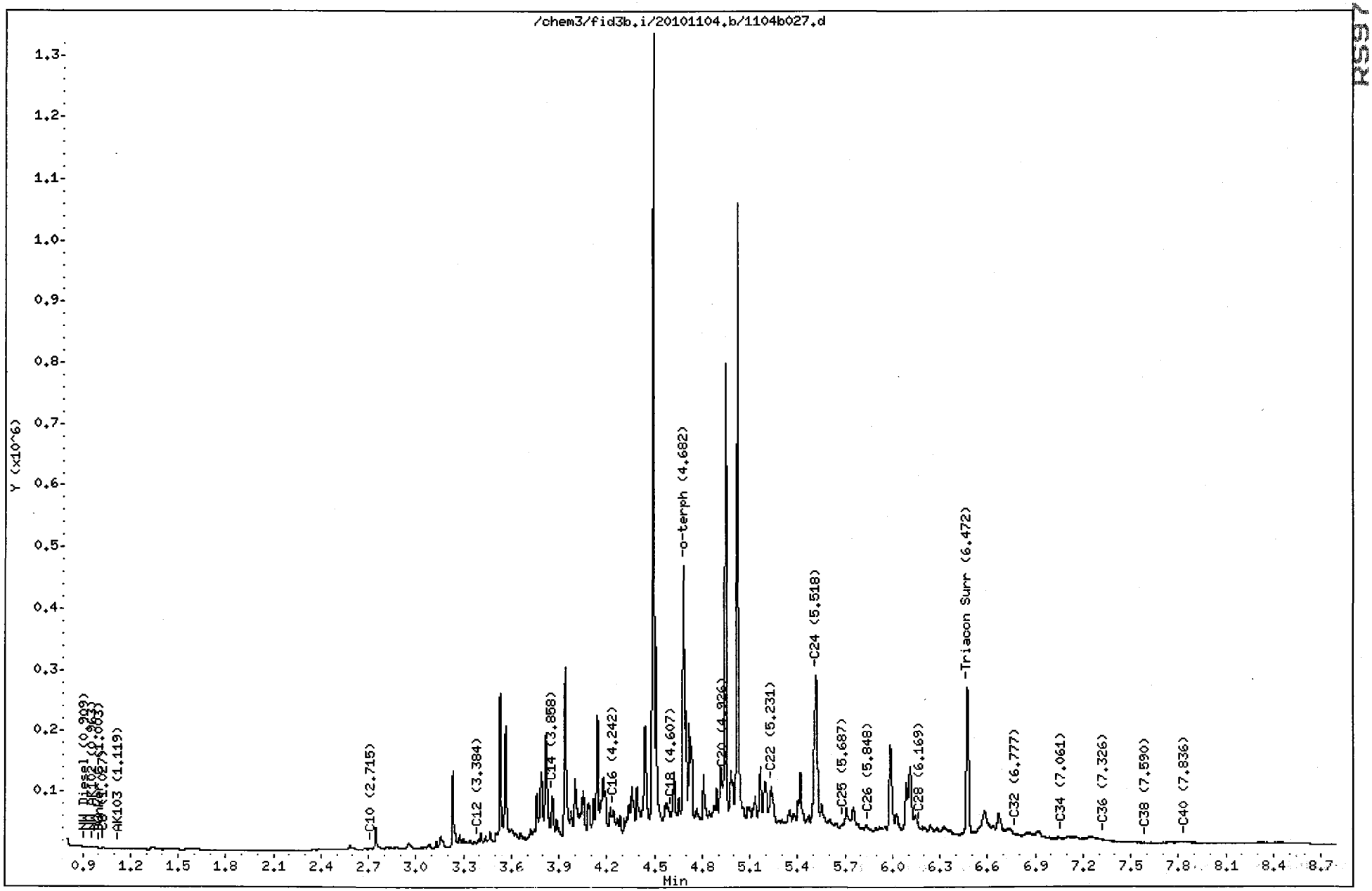
Column phase: ZB-1HT

Instrument: fid3b.i

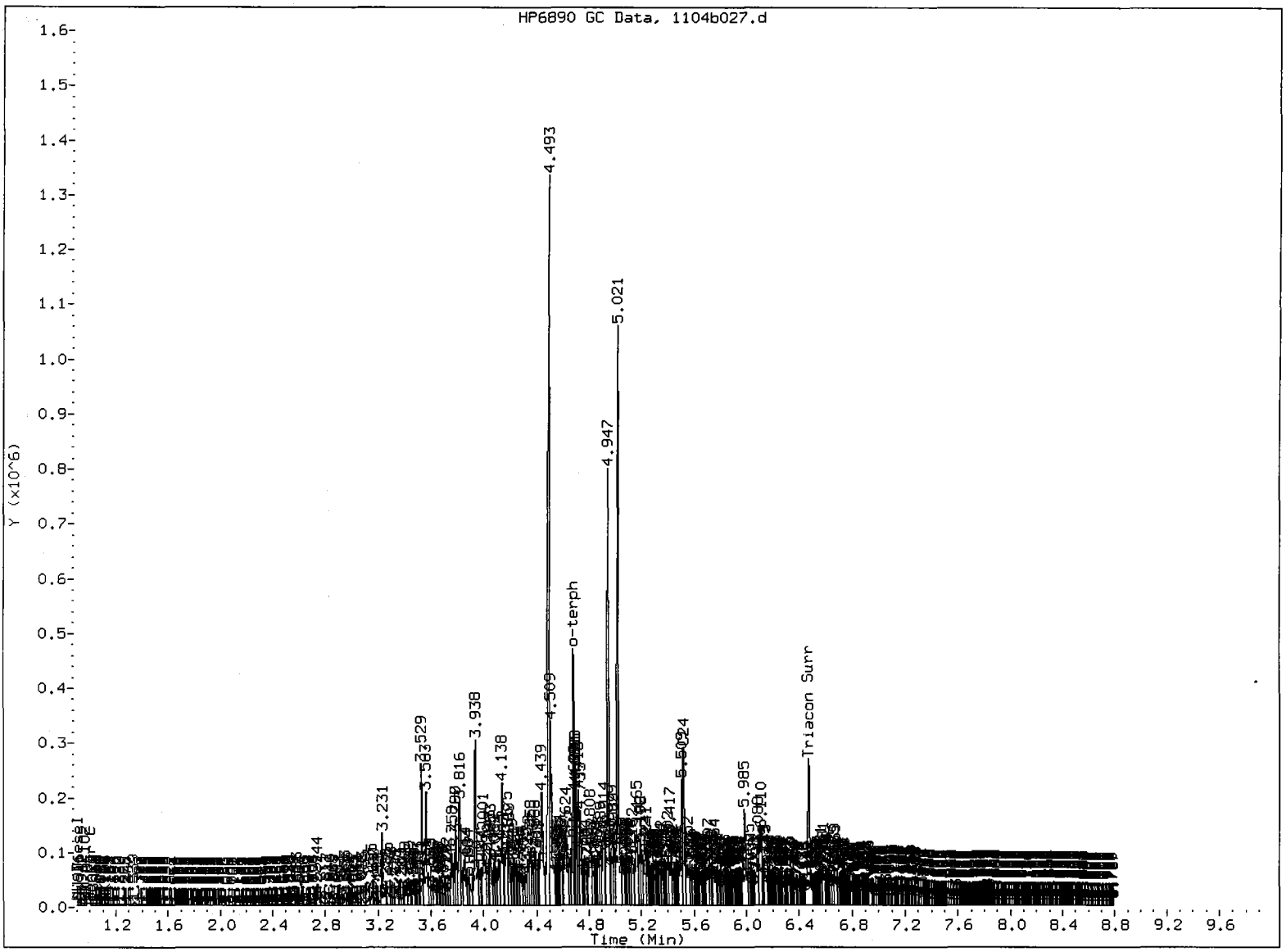
Operator: MS

Column diameter: 0.25

RS97:01153



FID:3B-2C/RTX-1 RS97O FID:3B SIGNAL



MANUAL INTEGRATION

1. Baseline correction
2. Poor chromatography
3. Peak not found
4. Totals calculation

5. Other _____

Analyst: _____ Date: 1/16/

RS97:01154

Analytical Resources Inc.
407S TPH Quantitation Report

Data file: /chem3/fid3b.i/20101104.b/1104b028.d
Method: /chem3/fid3b.i/20101104.b/ftphfid3b.m
Instrument: fid3b.i
Operator: MS
Report Date: 11/15/2010
Macro: FID:3B110110

ARI ID: RS97P
Client ID: DGS-07-9.710-101012
Injection: 05-NOV-2010 02:29
Dilution Factor: 10

FID:3B RESULTS

Compound	RT	Shift	Height	Area	Range	Total Area	Conc
Toluene	0.805	0.001	13621	18398	GAS (Tol-C12)	1244963	78
C8	1.029	0.000	3258	5105	DIESEL (C12-C24)	13286666	729
C10	2.718	-0.003	9785	5888	M.OIL (C24-C38)	3216783	277
C12	3.381	0.004	20800	8619	AK-102 (C10-C25)	14455844	697 M
C14	3.857	0.005	139339	149687	AK-103 (C25-C36)	2925116	335 M
C16	4.244	-0.004	97409	56758	OR.DIES (C10-C28)	16028942	631 M
C18	4.600	-0.006	73373	11622	OR.MOIL (C28-C40)	1609126	143 M
C20	4.925	-0.007	136430	29467			
C22	5.232	0.000	127948	167165	STODDARD (C8-C12)	1179087	43
C24	5.518	-0.014	254568	445359			
C25	5.681	-0.008	45231	16005			
C26	5.848	0.001	35400	11783			
C28	6.169	0.004	33226	19571			
C32	6.772	-0.002	20253	11084			
C34	7.056	-0.006	14530	10944	CREOSOT (C8-C22)	11886406	1858
Filter Peak	----						
C36	7.328	-0.002	11760	4850	BUNKERC (C10-C38)	17514569	2055
o-terph	4.681	-0.005	215950	146909	JET-A (C10-C18)	8506290	537
Triacon Surr	6.473	-0.008	122993	120242	IT.MOIL (C24-C40)	3460523	161

Range Times: NW Diesel(3.428 - 5.581) NW Gas(0.754 - 3.428) NW M.Oil(5.581 - 7.637)
AK102(2.671 - 5.639) AK103(5.639 - 7.380) Jet A(2.671 - 4.656)

Surrogate	Area	Amount	%Rec
o-Terphenyl	146909	8.6	192.2
Triacontane	120242	7.6	168.0

Analyte	RF	Curve Date
o-Terph Surr	16983.9	01-NOV-2010
Triacon Surr	15901.0	16-OCT-2010
Gas	15975.0	20-OCT-2010
Diesel	18232.0	01-NOV-2010
Motor Oil	11596.5	15-OCT-2010
AK102	20751.0	01-NOV-2010
AK103	8727.5	29-SEPT-2010
JetA	15848.0	27-JAN-2009
OR Diesel	25401.0	
OR M.Oil	11274.0	
IT M.Oil	21488.2	
Bunker C	8522.1	20-SEP-2010
Creosote	6396.0	17-JAN-2009

Data File: /chem3/fid3b.i/20101104.b/1104b028.d

Date : 05-NOV-2010 02:29

Client ID: DGS-07-9.710-101012

Sample Info: RS97P,10

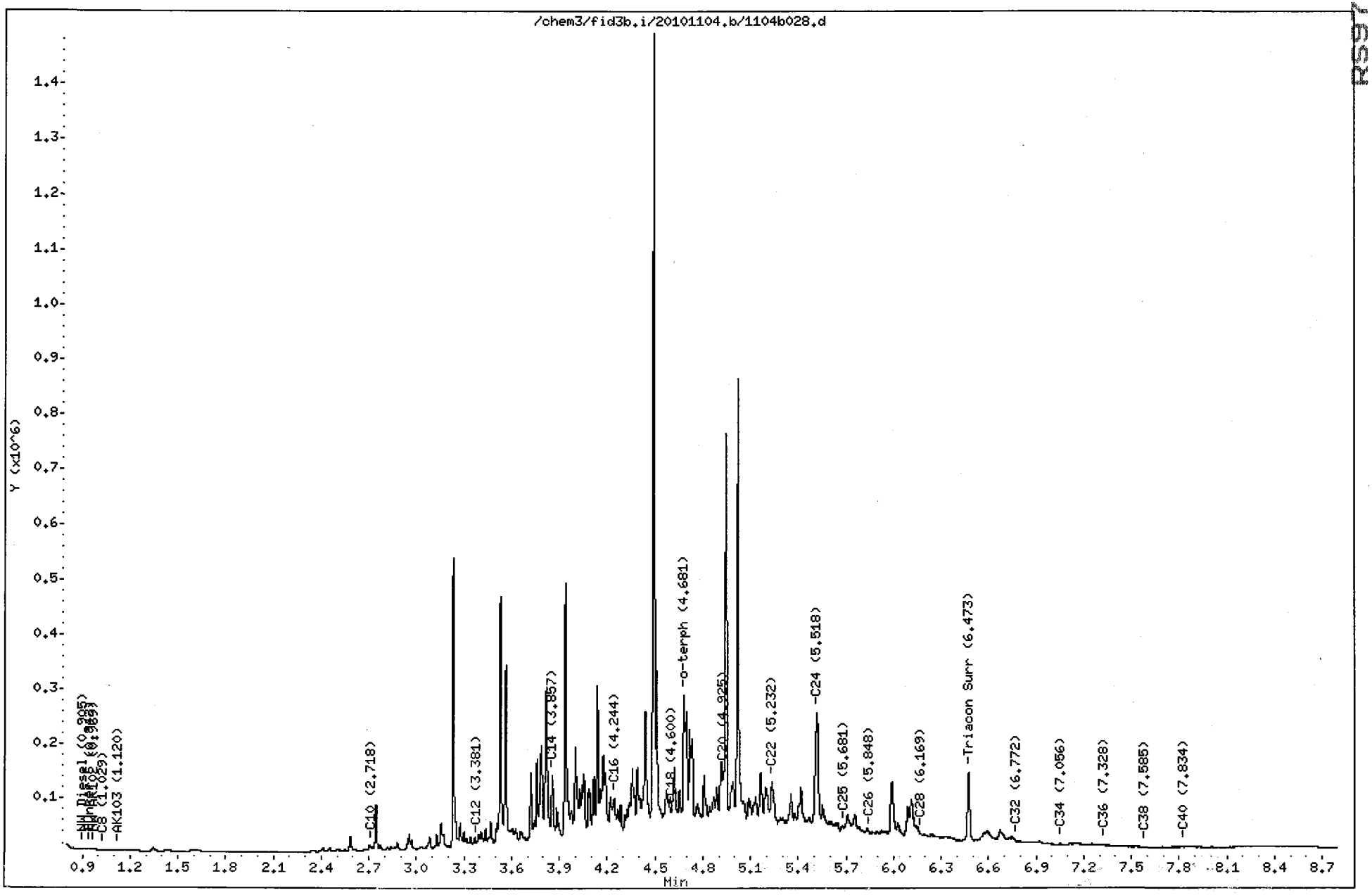
Column phase: ZB-1HT

Instrument: fid3b.i

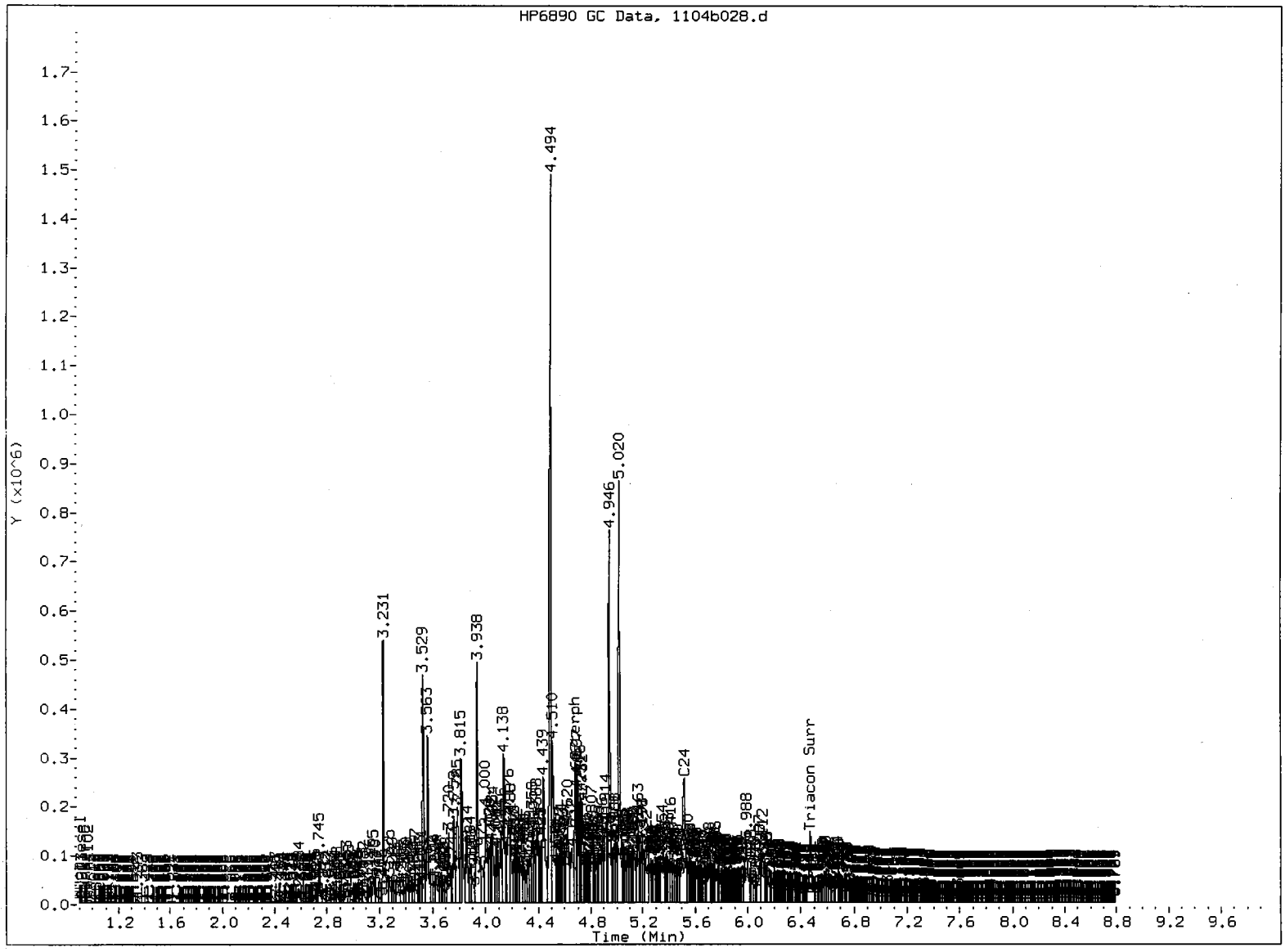
Operator: MS

Column diameter: 0.25

RS97:01155



FID:3B-2C/RTX-1 RS97P FID:3B SIGNAL



MANUAL INTEGRATION

1. Baseline correction
2. Poor chromatography
3. Peak not found
4. Totals calculation

5. Other _____

Analyst: _____ Date: _____

RS97:01157

Analytical Resources Inc.
407S TPH Quantitation Report

Data file: /chem3/fid3b.i/20101104.b/1104b029.d
Method: /chem3/fid3b.i/20101104.b/ftphfid3b.m
Instrument: fid3b.i
Operator: MS
Report Date: 11/15/2010
Macro: FID:3B110110

ARI ID: RS97Q
Client ID: DGS-07-10.610.9-101
Injection: 05-NOV-2010 02:46
Dilution Factor: 10

FID:3B RESULTS

Compound	RT	Shift	Height	Area	Range	Total Area	Conc
Toluene	0.803	-0.001	15739	21956	GAS (Tol-C12)	553811	35
C8	1.028	-0.001	3331	5191	DIESEL (C12-C24)	5573025	306
C10	2.718	-0.002	2898	1934	M.OIL (C24-C38)	2102647	181
C12	3.380	0.002	10614	6234	AK-102 (C10-C25)	6052661	292 M
C14	3.845	-0.007	27593	4312	AK-103 (C25-C36)	1909160	219 M
C16	4.241	-0.007	34869	26779	OR.DIES (C10-C28)	6942957	273 M
C18	4.600	-0.006	28727	11267	OR.MOIL (C28-C40)	1247673	111 M
C20	4.940	0.008	472947	375995			
C22	5.232	0.001	48341	52644	STODDARD (C8-C12)	498978	18
C24	5.517	-0.014	142230	131407			
C25	5.688	-0.001	21050	4526			
C26	5.847	0.001	18996	6102			
C28	6.160	-0.005	27856	17368			
C32	6.772	-0.002	15493	4526			
C34	7.066	0.004	9812	1556	CREOSOT (C8-C22)	4904406	767
Filter Peak	----						
C36	7.332	0.003	9990	6200	BUNKERC (C10-C38)	8075531	948
o-terph	4.678	-0.007	212840	145788	JET-A (C10-C18)	3320584	210
Triacon Surr	6.474	-0.008	122779	121468	IT.MOIL (C24-C40)	2339214	109

Range Times: NW Diesel(3.428 - 5.581) NW Gas(0.754 - 3.428) NW M.Oil(5.581 - 7.637)
AK102(2.671 - 5.639) AK103(5.639 - 7.380) Jet A(2.671 - 4.656)

Surrogate	Area	Amount	%Rec
o-Terphenyl	145788	8.6	190.8
Triacontane	121468	7.6	169.8

Analyte	RF	Curve Date
o-Terph Surr	16983.9	01-NOV-2010
Triacon Surr	15901.0	16-OCT-2010
Gas	15975.0	20-OCT-2010
Diesel	18232.0	01-NOV-2010
Motor Oil	11596.5	15-OCT-2010
AK102	20751.0	01-NOV-2010
AK103	8727.5	29-SEPT-2010
JetA	15848.0	27-JAN-2009
OR Diesel	25401.0	
OR M.Oil	11274.0	
IT M.Oil	21488.2	
Bunker C	8522.1	20-SEP-2010
Creosote	6396.0	17-JAN-2009

Data File: /chem3/fid3b.i/20101104.b/1104b029.d

Date : 05-NOV-2010 02:46

Client ID: DGS-07-10.610.9-101

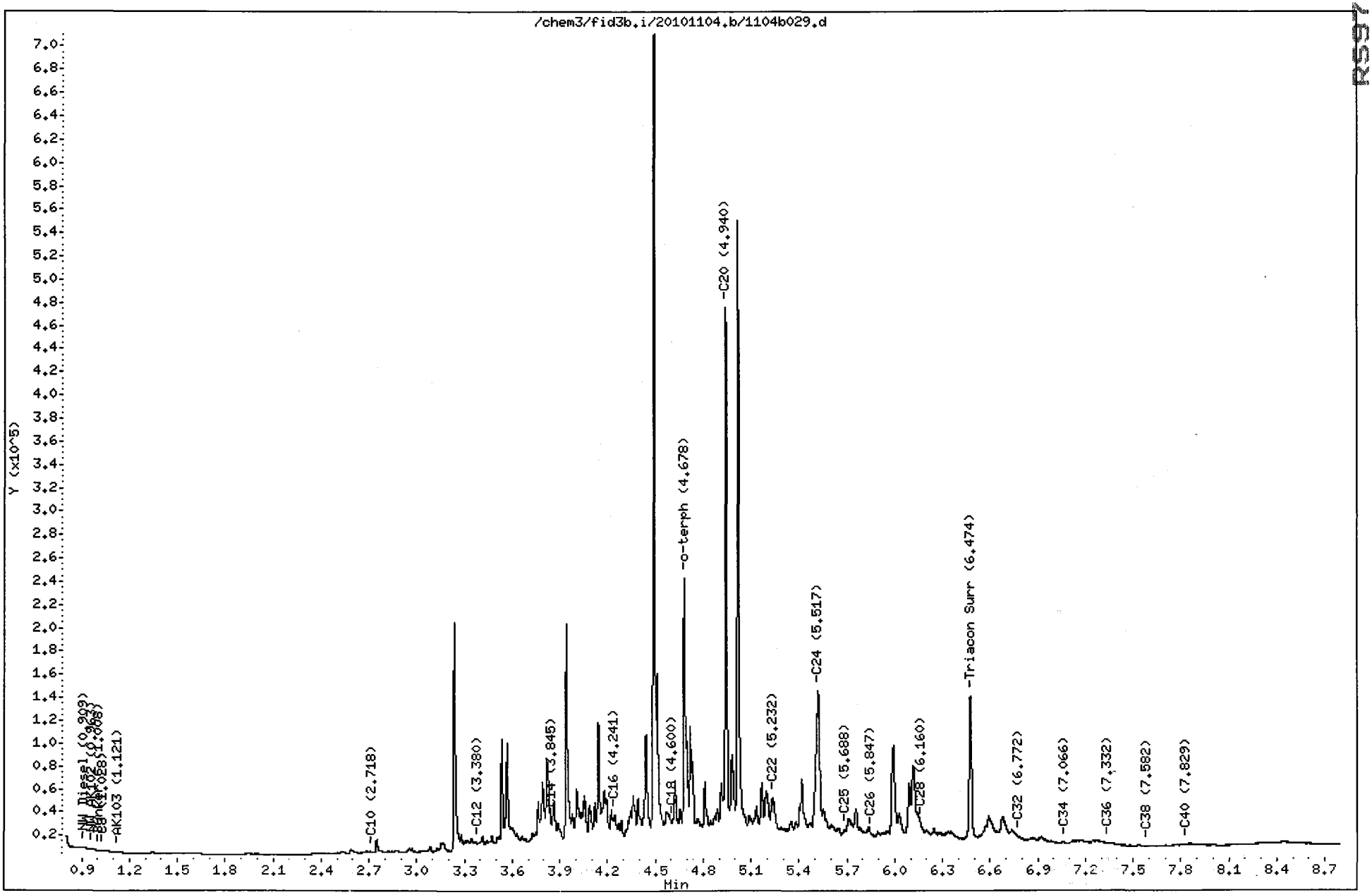
Sample Info: RS97Q.10

Column phase: ZB-1HT

Instrument: fid3b.i

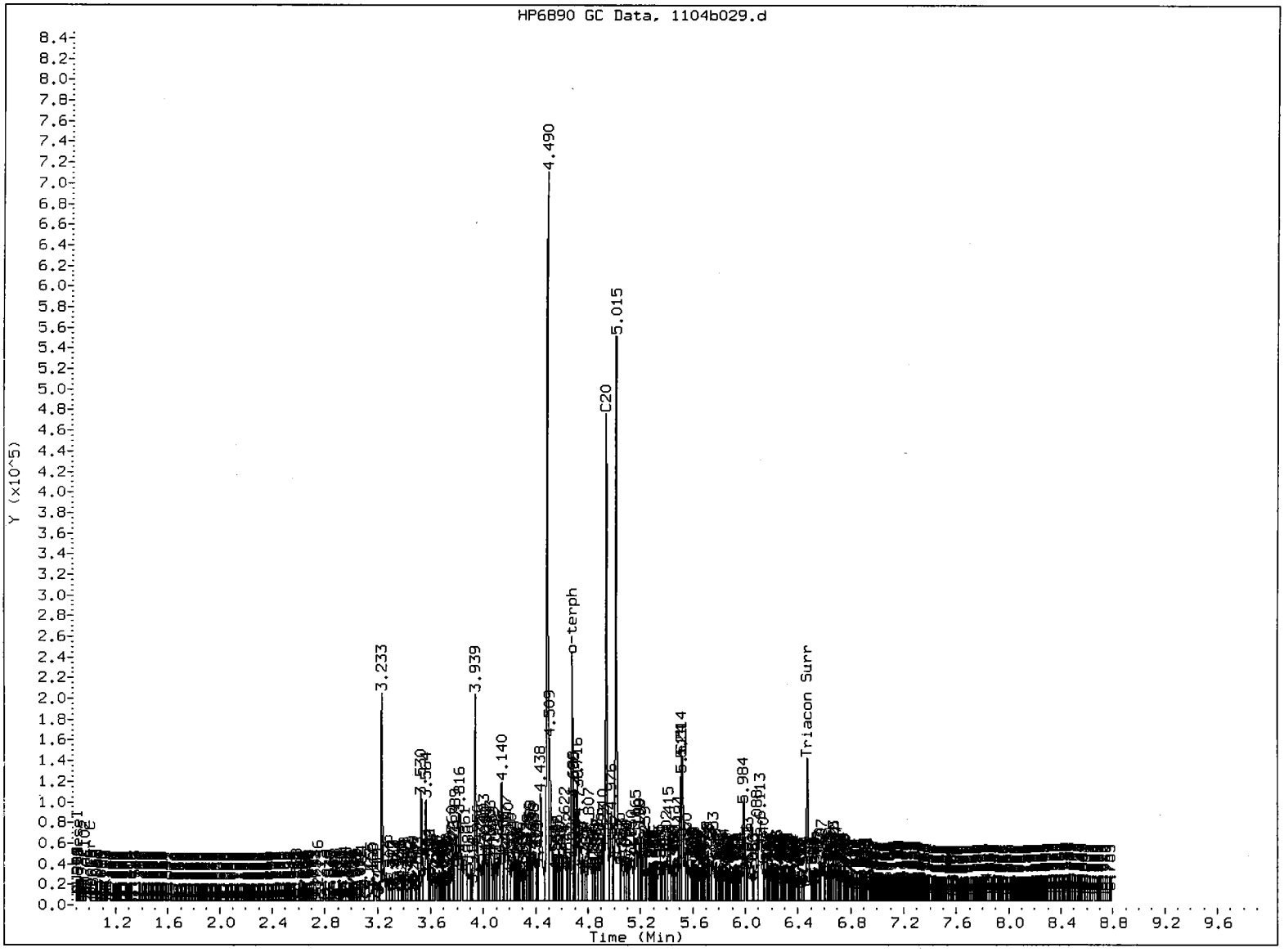
Operator: MS

Column diameter: 0.25



RS97:01159

FID:3B-2C/RTX-1 RS97Q FID:3B SIGNAL



MANUAL INTEGRATION

1. Baseline correction
2. Poor chromatography
3. Peak not found
4. Totals calculation

5. Other _____

Analyst: _____ Date: 11/16/16

RS97:01160

Analytical Resources Inc.
407S TPH Quantitation Report

Data file: /chem3/fid3b.i/20101104.b/1104b030.d
Method: /chem3/fid3b.i/20101104.b/ftphfid3b.m
Instrument: fid3b.i
Operator: MS
Report Date: 11/15/2010
Macro: FID:3B110110

ARI ID: RS97R
Client ID: DGS-07-11.611.8-101
Injection: 05-NOV-2010 03:04
Dilution Factor: 10

FID:3B RESULTS

Compound	RT	Shift	Height	Area	Range	Total Area	Conc
Toluene	0.804	0.000	18615	23198	GAS (Tol-C12)	789010	49
C8	1.027	-0.003	3360	4435	DIESEL (C12-C24)	11468282	629
C10	2.720	-0.001	5069	3752	M.OIL (C24-C38)	3257565	281
C12	3.383	0.005	20925	10299	AK-102 (C10-C25)	12180117	587 M
C14	3.858	0.006	129272	150087	AK-103 (C25-C36)	3004194	344 M
C16	4.246	-0.002	71808	58435	OR.DIES (C10-C28)	13680797	539 M
C18	4.605	-0.001	49462	7745	OR.MOIL (C28-C40)	1798558	160 M
C20	4.948	0.016	914437	709849			
C22	5.234	0.002	81216	86060	STODDARD (C8-C12)	719511	26
C24	5.521	-0.010	300908	294578			
C25	5.688	-0.001	30186	10351			
C26	5.854	0.007	25414	3990			
C28	6.158	-0.008	43624	29947			
C32	6.773	-0.001	20426	4017			
C34	7.065	0.003	14377	6357	CREOSOT (C8-C22)	10375128	1622
Filter Peak	----						
C36	7.329	-0.001	13888	3231	BUNKERC (C10-C38)	15330125	1799
o-terph	4.683	-0.003	200490	137624	JET-A (C10-C18)	7366889	465
Triacon Surr	6.474	-0.007	109133	113127	IT.MOIL (C24-C40)	3519922	164

Range Times: NW Diesel(3.428 - 5.581) NW Gas(0.754 - 3.428) NW M.Oil(5.581 - 7.637)
AK102(2.671 - 5.639) AK103(5.639 - 7.380) Jet A(2.671 - 4.656)

Surrogate	Area	Amount	%Rec
o-Terphenyl	137624	8.1	180.1
Triacontane	113127	7.1	158.1

Analyte	RF	Curve Date
o-Terph Surr	16983.9	01-NOV-2010
Triacon Surr	15901.0	16-OCT-2010
Gas	15975.0	20-OCT-2010
Diesel	18232.0	01-NOV-2010
Motor Oil	11596.5	15-OCT-2010
AK102	20751.0	01-NOV-2010
AK103	8727.5	29-SEPT-2010
JetA	15848.0	27-JAN-2009
OR Diesel	25401.0	
OR M.Oil	11274.0	
IT M.Oil	21488.2	
Bunker C	8522.1	20-SEP-2010
Creosote	6396.0	17-JAN-2009

Data File: /chem3/fid3b.i/20101104.b/1104b030.d

Date : 05-NOV-2010 03:04

Client ID: DGS-07-11.611.8-101

Sample Info: RS97R,10

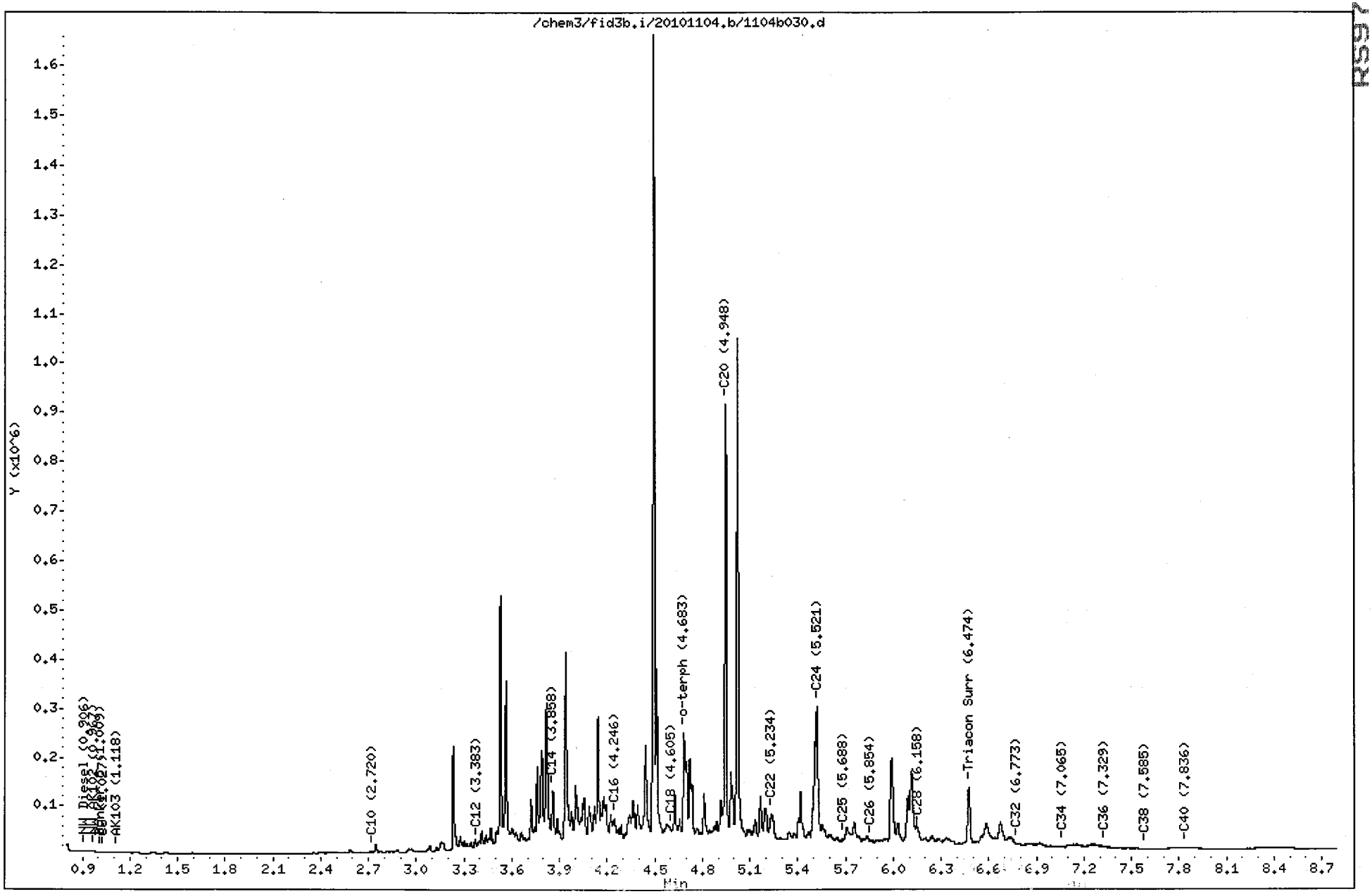
Column phase: ZB-1HT

Instrument: fid3b.i

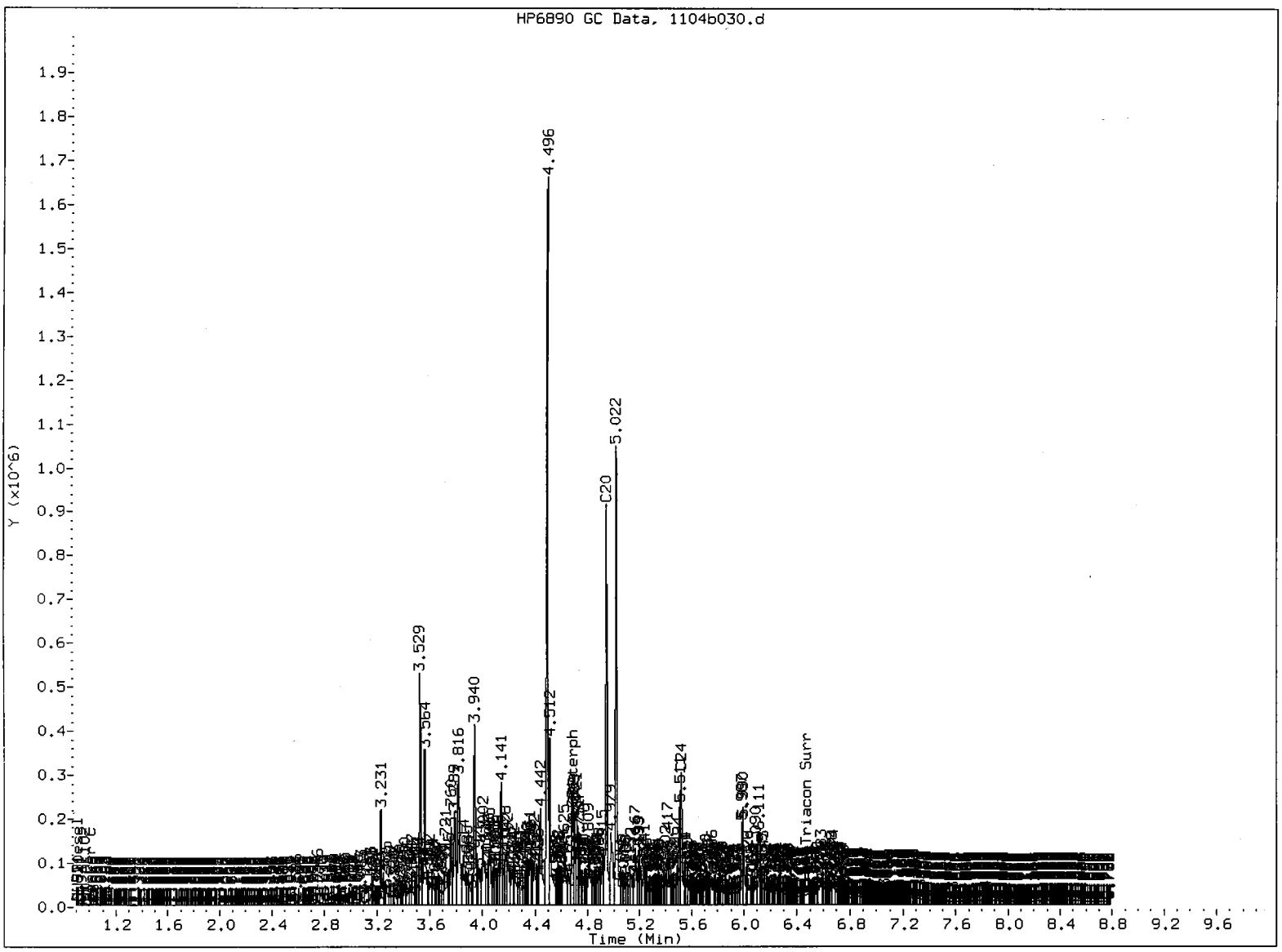
Operator: MS

Column diameter: 0.25

RS97:01162



FID:3B-2C/RTX-1 RS97R FID:3B SIGNAL



MANUAL INTEGRATION

1. Baseline correction
2. Poor chromatography
3. Peak not found
4. Totals calculation

5. Other _____

Analyst: _____ Date: 11/16/12

RS97:01163

Analytical Resources Inc.
407S TPH Quantitation Report

Data file: /chem3/fid3b.i/20101104.b/1104b031.d
Method: /chem3/fid3b.i/20101104.b/ftphfid3b.m
Instrument: fid3b.i
Operator: MS
Report Date: 11/15/2010
Macro: FID:3B110110

ARI ID: RS97S
Client ID: DGS-07-12.713.2-101
Injection: 05-NOV-2010 03:21
Dilution Factor: 5

FID:3B RESULTS

Compound	RT	Shift	Height	Area	Range	Total Area	Conc
Toluene	0.804	0.000	18318	24016	GAS (Tol-C12)	1090979	68
C8	1.030	0.000	3287	2743	DIESEL (C12-C24)	9467076	519
C10	2.720	0.000	3894	3717	M.OIL (C24-C38)	3470131	299
C12	3.381	0.003	14056	7530	AK-102 (C10-C25)	10477675	505 M
C14	3.860	0.008	67109	89697	AK-103 (C25-C36)	3224931	370 M
C16	4.244	-0.004	39183	29765	OR.DIES (C10-C28)	12048117	474 M
C18	4.601	-0.005	35953	4978	OR.MOIL (C28-C40)	1953488	173 M
C20	4.945	0.013	914014	773177			
C22	5.232	0.001	78037	82318	STODDARD (C8-C12)	1019718	37
C24	5.517	-0.014	268459	268318			
C25	5.683	-0.006	28584	21429			
C26	5.853	0.006	22651	3576			
C28	6.159	-0.006	40454	40117			
C32	6.776	0.002	21284	8549			
C34	7.061	-0.001	14286	10126	CREOSOT (C8-C22)	8367132	1308
Filter Peak	----						
C36	7.328	-0.001	14342	7777	BUNKERC (C10-C38)	13851308	1625
o-terph	4.681	-0.004	439064	272099	JET-A (C10-C18)	5609685	354
Triacon Surr	6.475	-0.007	244057	244511	IT.MOIL (C24-C40)	3864939	180

Range Times: NW Diesel(3.428 - 5.581) NW Gas(0.754 - 3.428) NW M.Oil(5.581 - 7.637)
AK102(2.671 - 5.639) AK103(5.639 - 7.380) Jet A(2.671 - 4.656)

Surrogate	Area	Amount	%Rec
o-Terphenyl	272099	16.0	178.0
Triacontane	244511	15.4	170.9

Analyte	RF	Curve Date
o-Terph Surr	16983.9	01-NOV-2010
Triacon Surr	15901.0	16-OCT-2010
Gas	15975.0	20-OCT-2010
Diesel	18232.0	01-NOV-2010
Motor Oil	11596.5	15-OCT-2010
AK102	20751.0	01-NOV-2010
AK103	8727.5	29-SEPT-2010
JetA	15848.0	27-JAN-2009
OR Diesel	25401.0	
OR M.Oil	11274.0	
IT M.Oil	21488.2	
Bunker C	8522.1	20-SEP-2010
Creosote	6396.0	17-JAN-2009

Data File: /chem3/fid3b.i/20101104.b/1104b031.d

Date : 05-NOV-2010 03:21

Client ID: DGS-07-12.713.2-101

Sample Info: RS97S,5

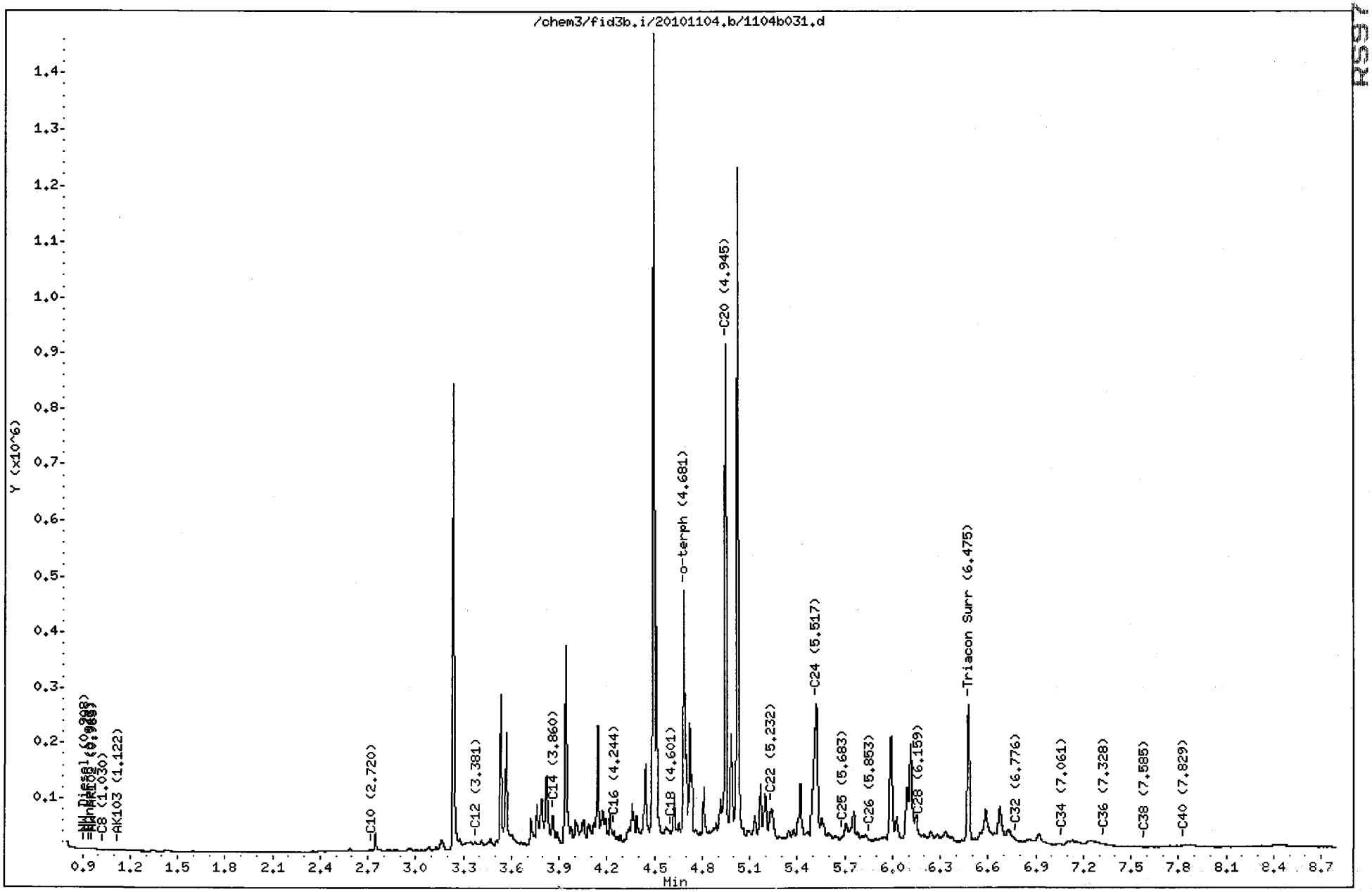
Column phase: ZB-1HT

Instrument: fid3b.i

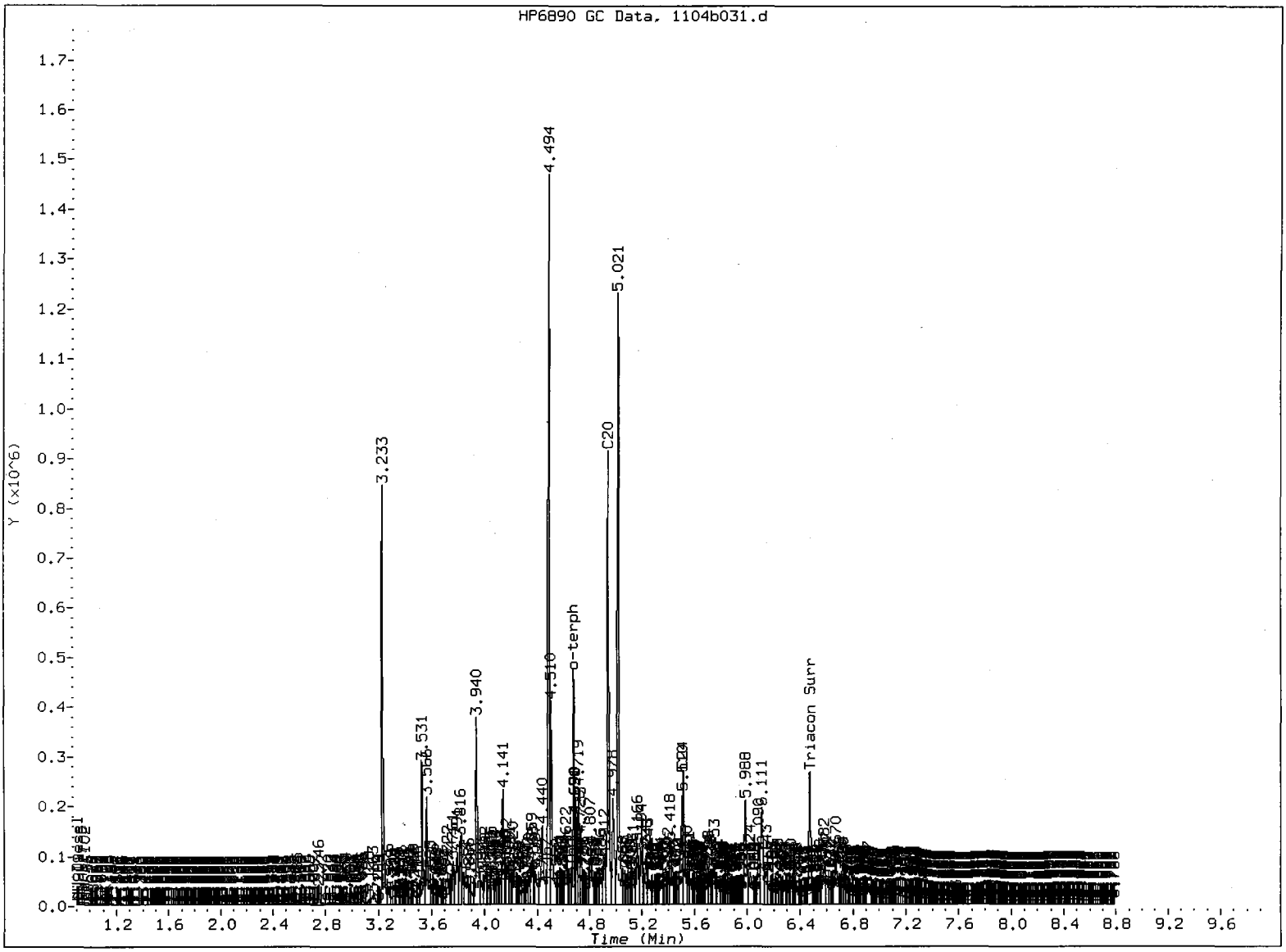
Operator: MS

Column diameter: 0.25

RS97:01165



FID:3B-2C/RTX-1 RS97S FID:3B SIGNAL



MANUAL INTEGRATION

1. Baseline correction
2. Poor chromatography
3. Peak not found
4. Totals calculation

5. Other _____

Analyst: _____ Date: _____

RS97:01166

Analytical Resources Inc.
407S TPH Quantitation Report

Data file: /chem3/fid3b.i/20101104.b/1104b032.d
Method: /chem3/fid3b.i/20101104.b/ftphfid3b.m
Instrument: fid3b.i
Operator: MS
Report Date: 11/16/2010
Macro: FID:3B110110

ARI ID: DIESEL#3
Client ID: NWN-INS
Injection: 05-NOV-2010 03:39
Dilution Factor: 1

FID:3B RESULTS

Compound	RT	Shift	Height	Area	Range	Total Area	Conc
Toluene	0.803	-0.001	14613	17979	GAS (Tol-C12)	797415	50
C8	1.028	-0.002	5053	6855	DIESEL (C12-C24)	4465775	245
C10	2.719	-0.001	14150	18395	M.OIL (C24-C38)	100619	9
C12	3.372	-0.006	35731	35194	AK-102 (C10-C25)	5016061	242 M
C14	3.862	0.009	35723	7797	AK-103 (C25-C36)	66606	8
C16	4.244	-0.004	167886	149666	OR.DIES (C10-C28)	5053126	199 M
C18	4.604	-0.002	146233	143026	OR.MOIL (C28-C40)	90507	8
C20	4.931	-0.001	84583	90158			
C22	5.235	0.003	29871	50392	STODDARD (C8-C12)	729772	26
C24	5.531	0.000	4446	793			
C25	5.683	-0.006	2589	1731			
C26	5.849	0.003	1112	597			
C28	6.166	0.000	191	115			
C32	6.769	-0.005	276	52			
C34	7.065	0.003	526	132	CREOSOT (C8-C22)	4322488	676
Filter Peak	----						
C36	7.323	-0.007	1110	551	BUNKERC (C10-C38)	5105609	599
o-terph	4.683	-0.002	1195040	707929	JET-A (C10-C18)	3700276	233
Triacon Surr	6.482	0.001	63	34	IT.MOIL (C24-C40)	138676	6

Range Times: NW Diesel(3.428 - 5.581) NW Gas(0.754 - 3.428) NW M.Oil(5.581 - 7.637)
AK102(2.671 - 5.639) AK103(5.639 - 7.380) Jet A(2.671 - 4.656)

Surrogate	Area	Amount	%Rec
o-Terphenyl	707929	41.7	92.6
Triacontane	34	0.0	0.0

Analyte	RF	Curve Date
o-Terph Surr	16983.9	01-NOV-2010
Triacon Surr	15901.0	16-OCT-2010
Gas	15975.0	20-OCT-2010
Diesel	18232.0	01-NOV-2010
Motor Oil	11596.5	15-OCT-2010
AK102	20751.0	01-NOV-2010
AK103	8727.5	29-SEPT-2010
JetA	15848.0	27-JAN-2009
OR Diesel	25401.0	
OR M.Oil	11274.0	
IT M.Oil	21488.2	
Bunker C	8522.1	20-SEP-2010
Creosote	6396.0	17-JAN-2009

Data File: /chem3/fid3b.i/20101104.b/1104b032.d

Date : 05-NOV-2010 03:39

Client ID: NWN-INS

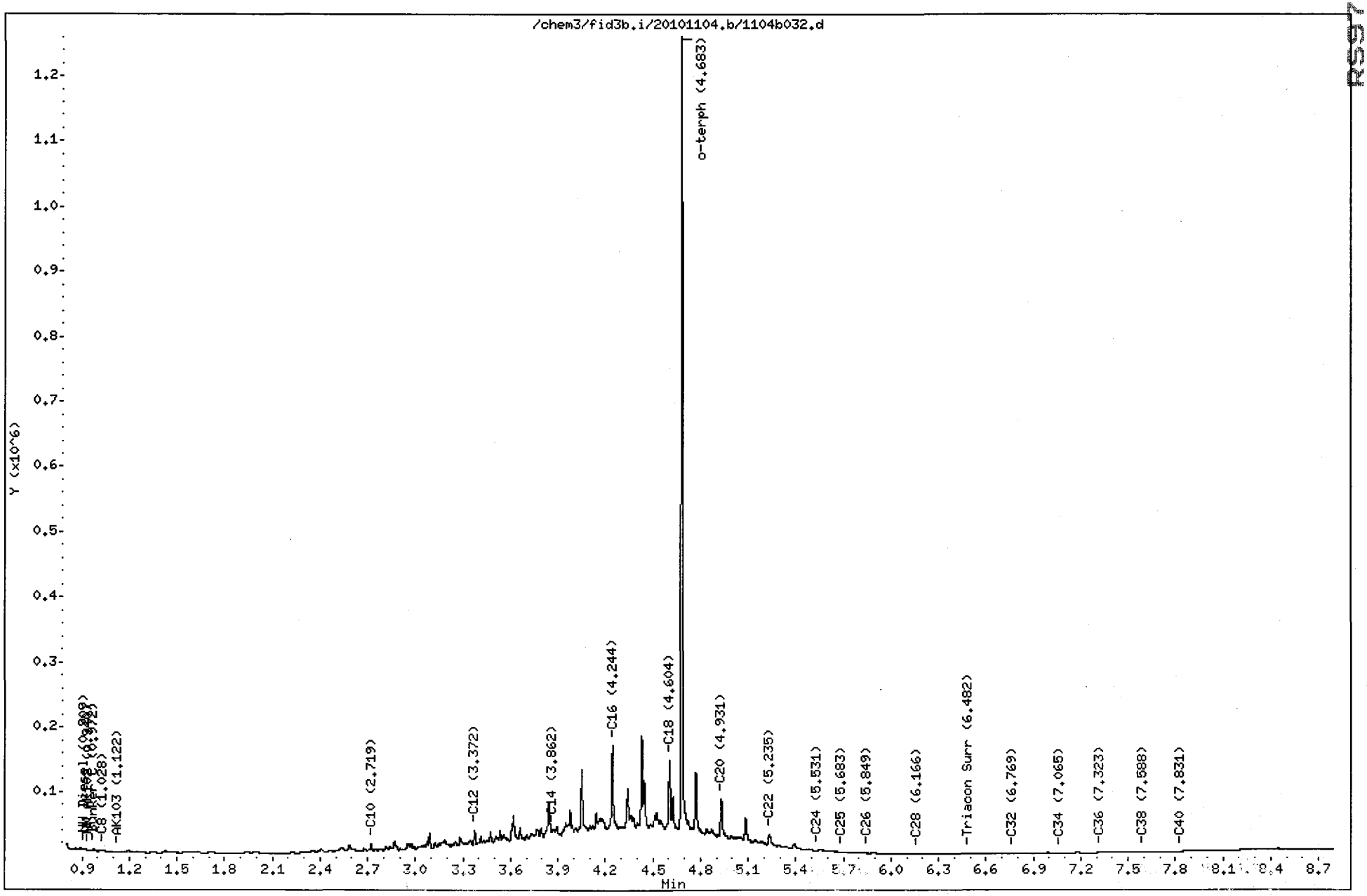
Sample Info: DIESEL#3

Column phase: ZB-1HT

Instrument: fid3b.i

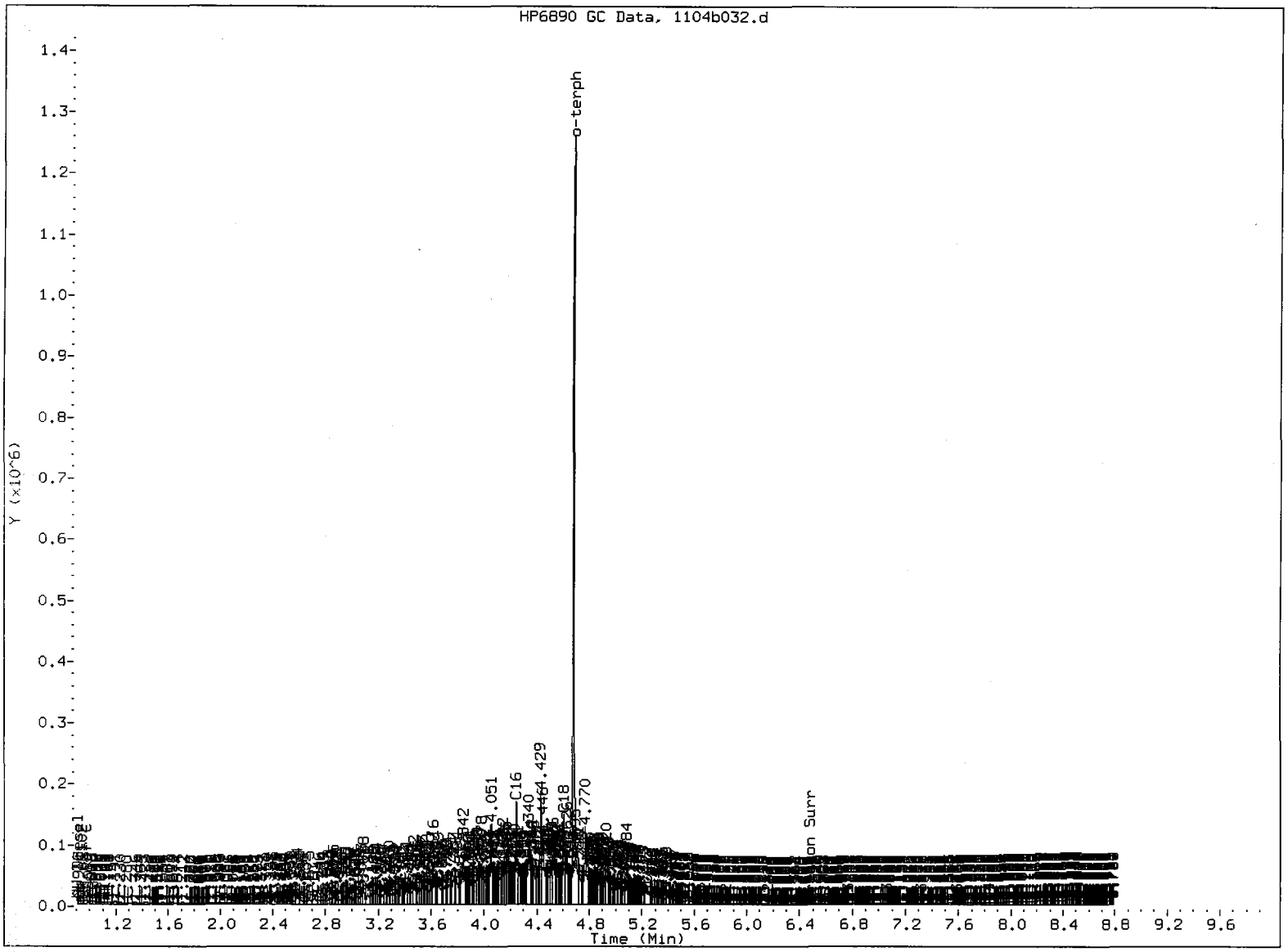
Operator: MS

Column diameter: 0.25



RS97 : 01168

FID:3B-2C/RTX-1 DIESEL#3 FID:3B SIGNAL



MANUAL INTEGRATION

1. Baseline correction
2. Poor chromatography
3. Peak not found
4. Totals calculation

5. Other _____

Analyst: _____ Date: 11/6/4

RS97:01169

Analytical Resources Inc.
407S TPH Quantitation Report

Data file: /chem3/fid3b.i/20101104.b/1104b033.d
Method: /chem3/fid3b.i/20101104.b/ftphfid3b.m
Instrument: fid3b.i
Operator: MS
Report Date: 11/16/2010
Macro: FID:3B110110

ARI ID: MOIL#3
Client ID: NWN-INS
Injection: 05-NOV-2010 03:56
Dilution Factor: 1

FID:3B RESULTS

Compound	RT	Shift	Height	Area	Range	Total Area	Conc
Toluene	0.875	0.071	6241	4578	GAS (Tol-C12)	197153	12
C8	1.026	-0.003	3220	1976	DIESEL (C12-C24)	757107	42
C10	2.724	0.004	1775	2327	M.OIL (C24-C38)	5235688	451
C12	3.379	0.002	1853	1285	AK-102 (C10-C25)	956652	46
C14	3.855	0.003	1180	395	AK-103 (C25-C36)	4592893	526 M
C16	4.253	0.005	776	300	OR.DIES (C10-C28)	2294440	90
C18	4.607	0.001	1107	365	OR.MOIL (C28-C40)	4136398	367 M
C20	4.933	0.001	4203	906			
C22	5.233	0.001	15745	9473	STODDARD (C8-C12)	153245	6
C24	5.535	0.004	27152	6984			
C25	5.688	-0.001	33456	7189			
C26	5.847	0.001	39009	28516			
C28	6.167	0.001	44240	9549			
C32	6.772	-0.002	52185	22347			
C34	7.065	0.003	49914	36695	CREOSOT (C8-C22)	340271	53
Filter Peak	----						
C36	7.329	-0.001	41321	17774	BUNKERC (C10-C38)	6078322	713
o-terph	4.684	-0.002	3497	4382	JET-A (C10-C18)	176095	11
Triacon Surr	6.481	-0.001	726444	732029	IT.MOIL (C24-C40)	6320233	294

Range Times: NW Diesel(3.428 - 5.581) NW Gas(0.754 - 3.428) NW M.Oil(5.581 - 7.637)
AK102(2.671 - 5.639) AK103(5.639 - 7.380) Jet A(2.671 - 4.656)

Surrogate	Area	Amount	%Rec
o-Terphenyl	4382	0.3	0.6
Triacontane	732029	46.0	102.3

Analyte	RF	Curve Date
o-Terph Surr	16983.9	01-NOV-2010
Triacon Surr	15901.0	16-OCT-2010
Gas	15975.0	20-OCT-2010
Diesel	18232.0	01-NOV-2010
Motor Oil	11596.5	15-OCT-2010
AK102	20751.0	01-NOV-2010
AK103	8727.5	29-SEPT-2010
JetA	15848.0	27-JAN-2009
OR Diesel	25401.0	
OR M.Oil	11274.0	
IT M.Oil	21488.2	
Bunker C	8522.1	20-SEP-2010
Creosote	6396.0	17-JAN-2009

Data File: /chem3/fid3b.i/20101104.b/1104b033.d

Date : 05-NOV-2010 03:56

Client ID: NWN-INS

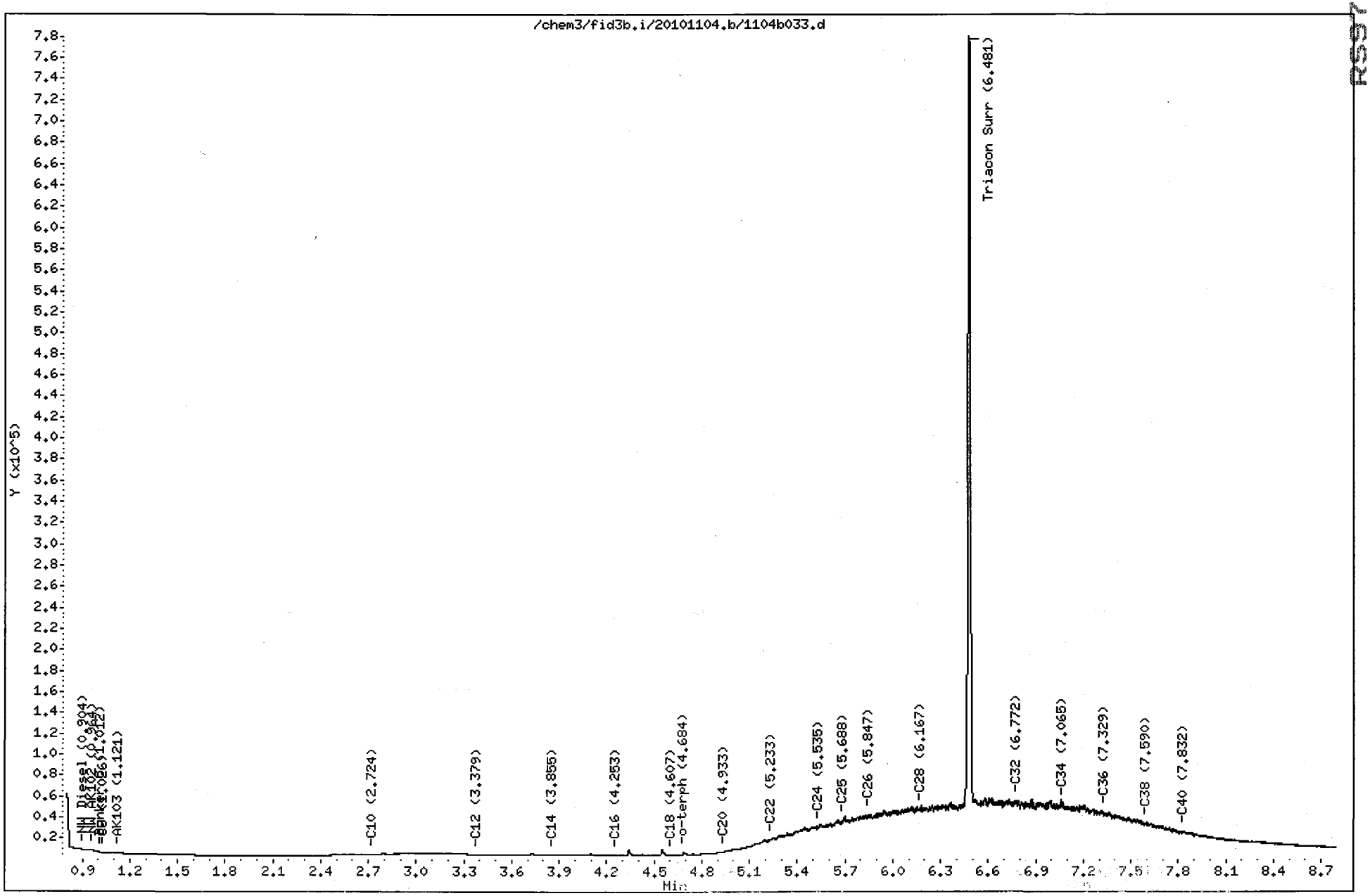
Sample Info: MOIL#3

Column phase: ZB-1HT

Instrument: fid3b.i

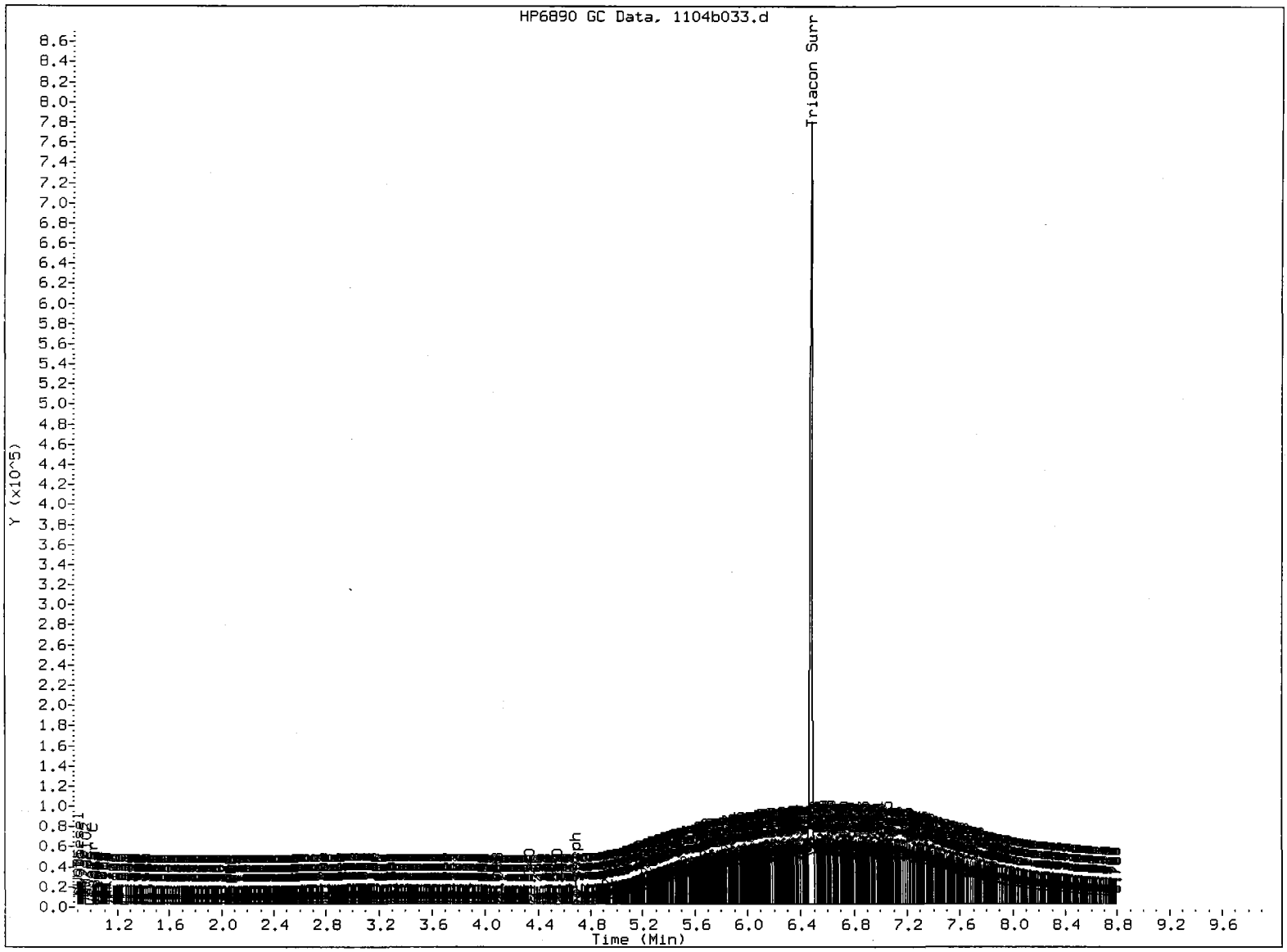
Operator: MS

Column diameter: 0.25



RS37 : 01171

FID:3B-2C/RTX-1 MOIL#3 FID:3B SIGNAL



MANUAL INTEGRATION

1. Baseline correction
2. Poor chromatography
3. Peak not found
4. Totals calculation

5. Other _____

Analyst: _____ Date: _____

RS97:01172

MANUAL INTEGRATION SUMMARY FOR DATABATCH - /chem3/fid3b.i/20101104.b

ARI Job No.: RINS Method: i/20101104.b/ftphfid3b.m Instrument: fid3b.i Date: 04-NOV-2010

Time	Filename	LabID	ClientId	DF	Manually Integrated Compounds
1837	1104b001.d	RINSE		1	NO MANUAL INTEGRATION
1854	1104b002.d	RINSE		1	NO MANUAL INTEGRATION
1911	1104b003.d	RT		1	NO MANUAL INTEGRATION
1928	1104b004.d	IB		1	NO MANUAL INTEGRATION
1946	1104b005.d	DIESEL#1		1	o-terph,
2003	1104b006.d	MOIL#1		1	Triacon Surr,
2021	1104b007.d	RS97MBS1	RS97MBS1	1	NO MANUAL INTEGRATION
2039	1104b008.d	RS97LCSS1	RS97LCSS1	1	o-terph, Triacon Surr,
2056	1104b009.d	RS97A	GSM-08SO-1	5	o-terph, Triacon Surr,
2114	1104b010.d	RS97B	DGS-19-3.3	10	o-terph, Triacon Surr,
2131	1104b011.d	RS97C	DGS-19-4.4	2	o-terph, Triacon Surr,
2149	1104b012.d	RS97D	DGS-19-10.	2	o-terph, Triacon Surr,
2206	1104b013.d	RS97E	DGS-08-4.4	10	o-terph, Triacon Surr,
2224	1104b014.d	RS97F	GST-09SO-1	50	NO MANUAL INTEGRATION
2242	1104b015.d	RS97G	DGS-36-066	5	o-terph, Triacon Surr,
2259	1104b016.d	RS97H	DGS-07-011	2	o-terph, Triacon Surr,
2317	1104b017.d	RS97HMS	DGS-07-011	2	o-terph, Triacon Surr,
2334	1104b018.d	RS97HMSD	DGS-07-011	2	o-terph, Triacon Surr,
2352	1104b019.d	DIESEL#2		1	o-terph,
2009	1104b020.d	MOIL#2		1	Triacon Surr,
2027	1104b021.d	RS97I	DGS-07-2.2	10	o-terph, Triacon Surr,

RS97 011173

MANUAL INTEGRATION SUMMARY FOR DATABATCH - /chem3/fid3b.i/20101104.b

Time	Filename	LabID	ClientId	DF	Manually Integrated Compounds
0044	1104b022.d	RS97J	DGS-07-034	10	o-terph, Triacon Surr,
0102	1104b023.d	RS97K	DGS-07-4.7	10	o-terph, Triacon Surr,
0119	1104b024.d	RS97L	DGS-07-5.6	5	o-terph, Triacon Surr,
0137	1104b025.d	RS97M	DGS-07-077	5	o-terph, Triacon Surr,
0154	1104b026.d	RS97N	DGS-07-7.9	2	o-terph, Triacon Surr,
0211	1104b027.d	RS97O	DGS-07-8.7	5	o-terph, Triacon Surr,
0229	1104b028.d	RS97P	DGS-07-9.7	10	o-terph, Triacon Surr,
0246	1104b029.d	RS97Q	DGS-07-10.	10	o-terph, Triacon Surr,
0304	1104b030.d	RS97R	DGS-07-11.	10	o-terph, Triacon Surr,
0321	1104b031.d	RS97S	DGS-07-12.	5	o-terph, Triacon Surr,
0339	1104b032.d	DIESEL#3		1	o-terph,
0356	1104b033.d	MOIL#3		1	Triacon Surr,

RS97.01174

Analytical Resources Inc.
407S TPH Quantitation Report

Data file: /chem3/fid3b.i/20101104.b/1104braw.b/1104b005.d ARI ID: DIESEL#1
Method: /chem3/fid3b.i/20101104.b/ftphfid3b.m Client ID:
Instrument: fid3b.i Injection: 04-NOV-2010 19:46
Operator: MS Dilution Factor: 1
Report Date: 11/15/2010
Macro: FID:3B110110

FID:3B RESULTS

Compound	RT	Shift	Height	Area	Range	Total Area	Conc
Toluene	0.803	-0.001	12756	16661	GAS (Tol-C12)	773164	48
C8	1.026	-0.003	4826	11127	DIESEL (C12-C24)	4243948	233
C10	2.721	0.001	14534	18551	M.OIL (C24-C38)	107977	9
C12	3.374	-0.004	36751	33396	AK-102 (C10-C25)	4772400	230
C14	3.842	-0.010	79276	88627	AK-103 (C25-C36)	75222	9
C16	4.244	-0.004	162088	181317	OR.DIES (C10-C28)	4806360	189
C18	4.603	-0.003	150893	142982	OR.MOIL (C28-C40)	110614	10
C20	4.929	-0.002	84485	95646			
C22	5.230	-0.002	29804	29760	STODDARD (C8-C12)	704157	25
C24	5.520	-0.011	4690	3387			
C25	5.688	-0.001	2273	1071			
C26	5.852	0.005	1039	612			
C28	6.161	-0.004	145	82			
C32	6.791	0.017	1354	2379			
C34	7.061	-0.001	703	151	CREOSOT (C8-C22)	4100413	641
Filter Peak	----						
C36	7.326	-0.003	1320	417	BUNKERC (C10-C38)	4872898	572
o-terph	4.683	-0.002	1228138	883891	JET-A (C10-C18)	3703049	234
Triacon Surr	6.477	-0.004	61	9	IT.MOIL (C24-C40)	152062	7

Range Times: NW Diesel(3.428 - 5.581) NW Gas(0.754 - 3.428) NW M.Oil(5.581 - 7.637)
AK102(2.671 - 5.639) AK103(5.639 - 7.380) Jet A(2.671 - 4.656)

Surrogate	Area	Amount	%Rec
o-Terphenyl	883891	52.0	115.7
Triacontane	9	0.0	0.0

Analyte	RF	Curve Date
o-Terph Surr	16983.9	01-NOV-2010
Triacon Surr	15901.0	16-OCT-2010
Gas	15975.0	20-OCT-2010
Diesel	18232.0	01-NOV-2010
Motor Oil	11596.5	15-OCT-2010
AK102	20751.0	01-NOV-2010
AK103	8727.5	29-SEPT-2010
JetA	15848.0	27-JAN-2009
OR Diesel	25401.0	
OR M.Oil	11274.0	
IT M.Oil	21488.2	
Bunker C	8522.1	20-SEP-2010
Creosote	6396.0	17-JAN-2009

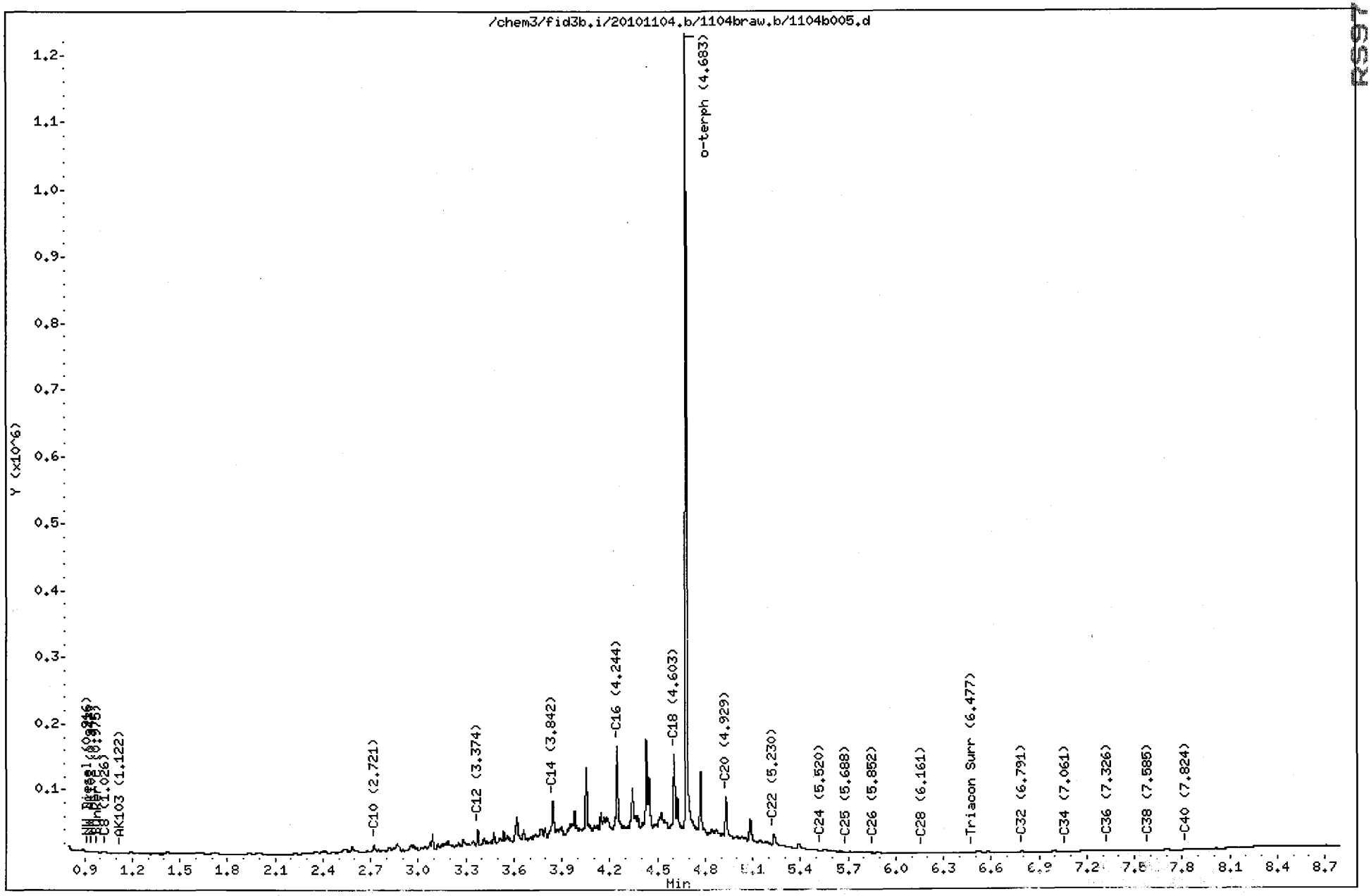
11/16/16

Data File: /chem3/fid3b.i/20101104.b/1104braw.b/1104b005.d
Date : 04-NOV-2010 19:46
Client ID:
Sample Info: DIESEL#1

Column phase: ZB-1HT

Instrument: fid3b.i

Operator: MS
Column diameter: 0.25



RS9T : 01176

Analytical Resources Inc.
407S TPH Quantitation Report

Data file: /chem3/fid3b.i/20101104.b/1104braw.b/1104b006.d ARI ID: MOIL#1
Method: /chem3/fid3b.i/20101104.b/ftphfid3b.m Client ID:
Instrument: fid3b.i Injection: 04-NOV-2010 20:03
Operator: MS Dilution Factor: 1
Report Date: 11/15/2010
Macro: FID:3B110110

FID:3B RESULTS

Compound	RT	Shift	Height	Area	Range	Total Area	Conc
Toluene	0.871	0.067	5699	3155	GAS (Tol-C12)	154072	10
C8	1.028	-0.002	2978	3626	DIESEL (C12-C24)	724993	40
C10	2.727	0.006	1726	1774	M.OIL (C24-C38)	4923354	425
C12	3.378	0.001	1656	823	AK-102 (C10-C25)	904951	44
C14	3.853	0.001	1052	208	AK-103 (C25-C36)	4297455	492
C16	4.239	-0.009	758	518	OR.DIES (C10-C28)	2179667	86
C18	4.605	-0.001	958	170	OR.MOIL (C28-C40)	3913514	347
C20	4.930	-0.001	3718	1088			
C22	5.232	0.001	14622	4553	STODDARD (C8-C12)	139448	5
C24	5.530	-0.002	26175	3603			
C25	5.687	-0.002	33078	20061			
C26	5.847	0.000	38860	16892			
C28	6.167	0.002	44714	15781			
C32	6.775	0.001	51806	22662			
C34	7.060	-0.002	51374	36734	CREOSOT (C8-C22)	312681	49
Filter Peak	----						
C36	7.326	-0.003	43562	17695	BUNKERC (C10-C38)	5726480	672
o-terph	4.692	0.006	3879	4064	JET-A (C10-C18)	160586	10
Triacon Surr	6.484	0.003	741475	891856	IT.MOIL (C24-C40)	6181912	288

Range Times: NW Diesel(3.428 - 5.581) NW Gas(0.754 - 3.428) NW M.Oil(5.581 - 7.637)
AK102(2.671 - 5.639) AK103(5.639 - 7.380) Jet A(2.671 - 4.656)

Surrogate	Area	Amount	%Rec
o-Terphenyl	4064	0.2	0.5
Triacontane	891856	56.1	124.6

11/16/10

Analyte	RF	Curve Date
o-Terph Surr	16983.9	01-NOV-2010
Triacon Surr	15901.0	16-OCT-2010
Gas	15975.0	20-OCT-2010
Diesel	18232.0	01-NOV-2010
Motor Oil	11596.5	15-OCT-2010
AK102	20751.0	01-NOV-2010
AK103	8727.5	29-SEPT-2010
JetA	15848.0	27-JAN-2009
OR Diesel	25401.0	
OR M.Oil	11274.0	
IT M.Oil	21488.2	
Bunker C	8522.1	20-SEP-2010
Creosote	6396.0	17-JAN-2009

Data File: /chem3/fid3b.i/20101104.b/1104braw.b/1104b006.d

Date : 04-NOV-2010 20:03

Client ID:

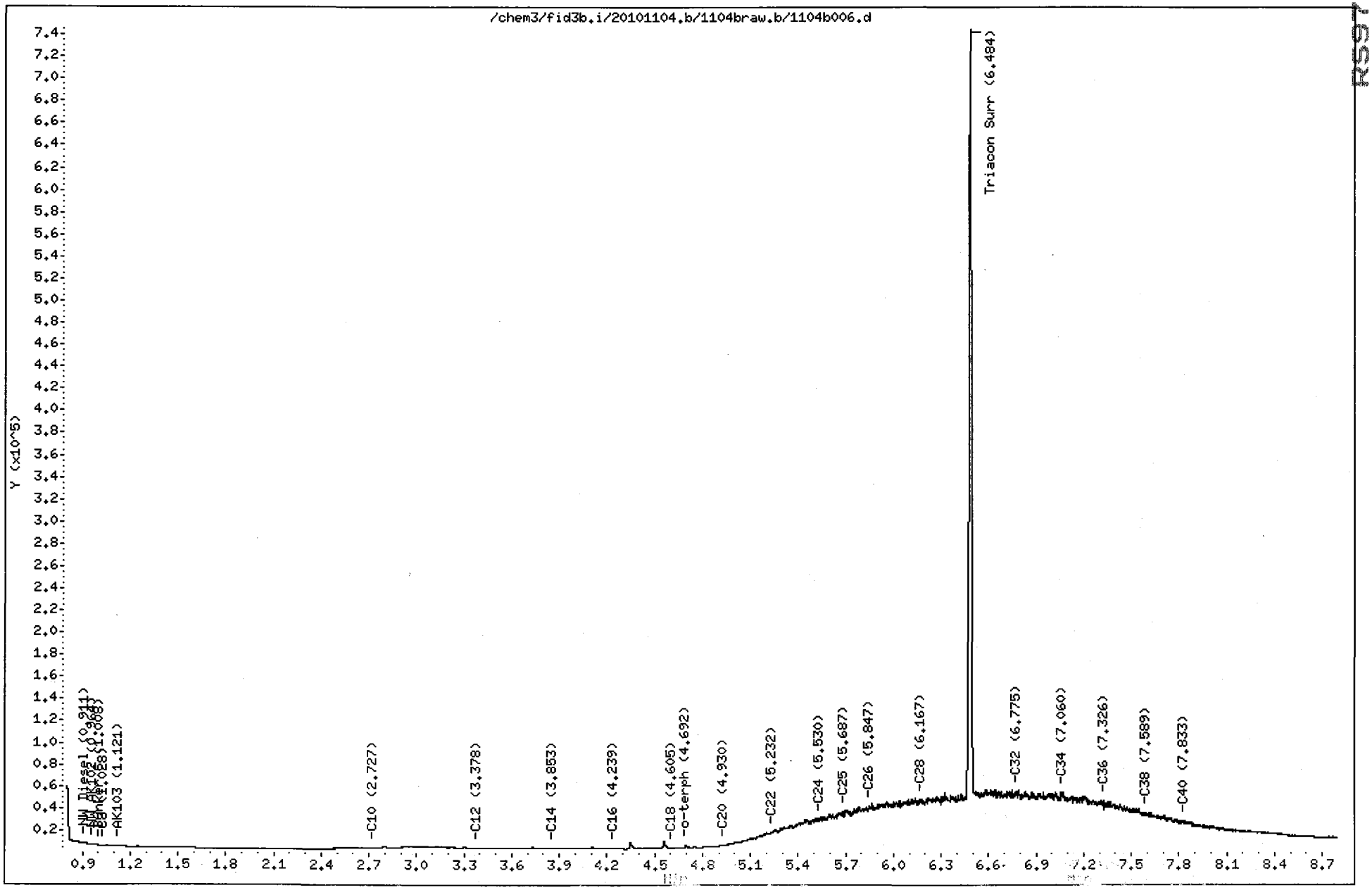
Sample Info: MOIL#1

Column phase: ZB-1HT

Instrument: fid3b.i

Operator: MS

Column diameter: 0.25



RS97:01178

Analytical Resources Inc.
407S TPH Quantitation Report

Data file: /chem3/fid3b.i/20101104.b/1104b008.d
Method: /chem3/fid3b.i/20101104.b/ftphfid3b.m
Instrument: fid3b.i
Operator: MS
Report Date: 11/15/2010
Macro: FID:3B110110

ARI ID: RS97LCSS1
Client ID: RS97LCSS1
Injection: 04-NOV-2010 20:39
Dilution Factor: 1

FID:3B RESULTS

Compound	RT	Shift	Height	Area	Range	Total Area	Conc
Toluene	0.840	0.036	10063	11473	GAS (Tol-C12)	5546919	347
C8	1.037	0.007	16713	31198	DIESEL (C12-C24)	35372831	1940
C10	2.720	-0.001	126052	143170	M.OIL (C24-C38)	747341	64
C12	3.372	-0.006	427856	321284	AK-102 (C10-C25)	39640734	1910
C14	3.843	-0.009	738313	898684	AK-103 (C25-C36)	641473	74
C16	4.251	0.003	1340854	1319319	OR.DIES (C10-C28)	39897771	1571
C18	4.612	0.006	1197326	1168798	OR.MOIL (C28-C40)	426680	38
C20	4.935	0.003	784350	729112			
C22	5.232	0.000	364767	323200	STODDARD (C8-C12)	5403713	195
C24	5.530	-0.001	89276	108196			
C25	5.691	0.002	40229	68616			
C26	5.847	0.000	15288	9950			
C28	6.164	-0.001	2249	2509			
C32	6.790	0.016	2631	3221			
C34	7.059	-0.003	158	102	CREOSOT (C8-C22)	34237579	5353
Filter Peak	----						
C36	7.333	0.003	615	96	BUNKERC (C10-C38)	40297497	4729
o-terph	4.689	0.003	1520256	1338423	JET-A (C10-C18)	29497049	1861
Triacon Surr	6.481	-0.001	571293	354931	IT.MOIL (C24-C40)	1129226	53

Range Times: NW Diesel(3.428 - 5.581) NW Gas(0.754 - 3.428) NW M.Oil(5.581 - 7.637)
AK102(2.671 - 5.639) AK103(5.639 - 7.380) Jet A(2.671 - 4.656)

Surrogate	Area	Amount	%Rec
o-Terphenyl	1338423	78.8	175.1
Triacontane	354931	22.3	49.6

Analyte	RF	Curve Date
o-Terph Surr	16983.9	01-NOV-2010
Triacon Surr	15901.0	16-OCT-2010
Gas	15975.0	20-OCT-2010
Diesel	18232.0	01-NOV-2010
Motor Oil	11596.5	15-OCT-2010
AK102	20751.0	01-NOV-2010
AK103	8727.5	29-SEPT-2010
JetA	15848.0	27-JAN-2009
OR Diesel	25401.0	
OR M.Oil	11274.0	
IT M.Oil	21488.2	
Bunker C	8522.1	20-SEP-2010
Creosote	6396.0	17-JAN-2009

11/16/10

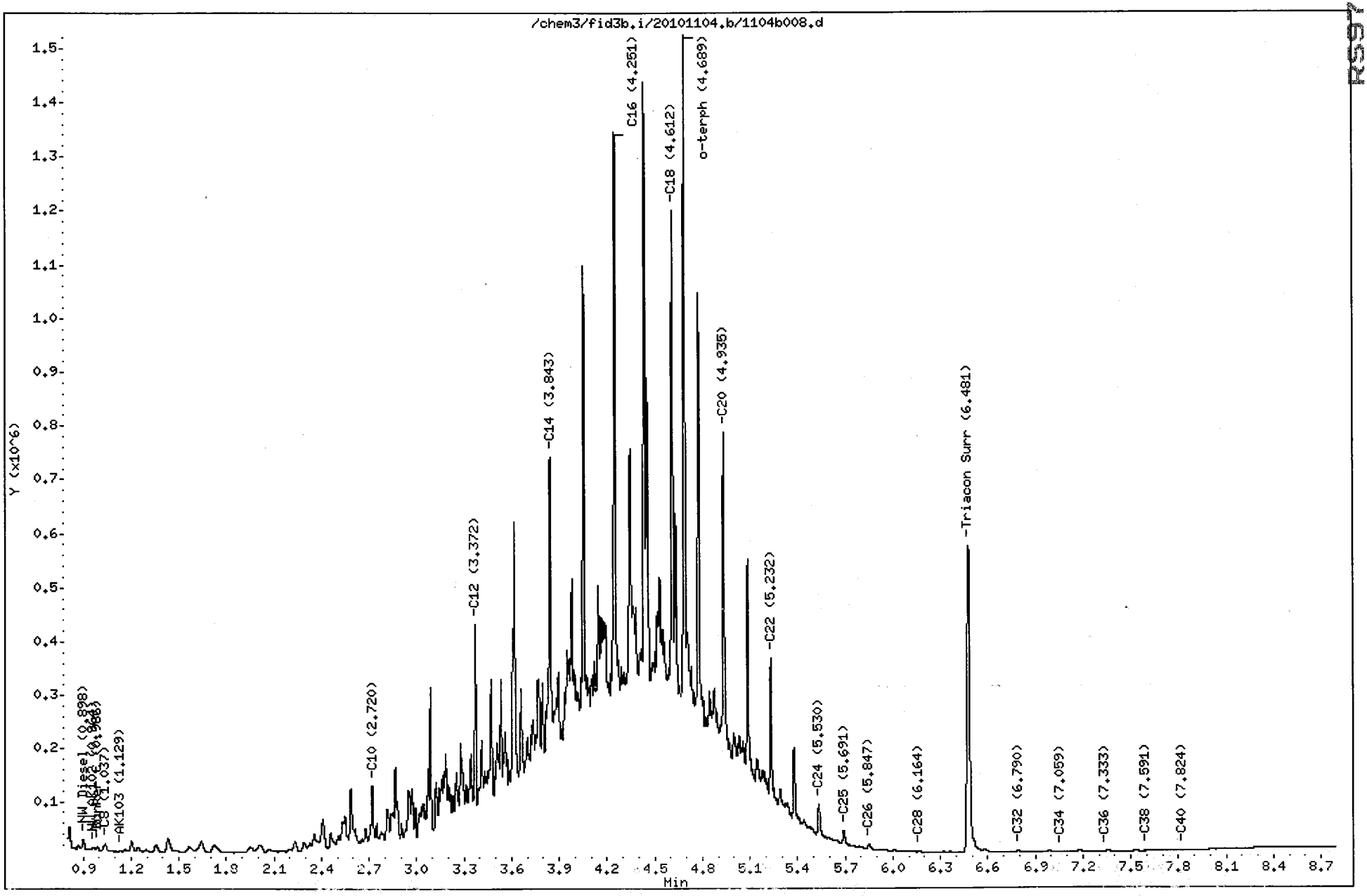
Data File: /chem3/fid3b.i/20101104.b/1104b008.d
Date : 04-NOV-2010 20:39
Client ID: RS97LCSS1
Sample Info: RS97LCSS1

Column phase: ZB-1HT

Instrument: fid3b.i

Operator: MS
Column diameter: 0.25

RS97 : 61180



Analytical Resources Inc.
407S TPH Quantitation Report

Data file: /chem3/fid3b.i/20101104.b/1104b009.d
Method: /chem3/fid3b.i/20101104.b/ftphfid3b.m
Instrument: fid3b.i
Operator: MS
Report Date: 11/15/2010
Macro: FID:3B110110

ARI ID: RS97A
Client ID: GSM-08SO-10-11-1009
Injection: 04-NOV-2010 20:56
Dilution Factor: 5

FID:3B RESULTS

Compound	RT	Shift	Height	Area	Range	Total Area	Conc
Toluene	0.805	0.001	30932	34926	GAS (Tol-C12)	4508128	282
C8	1.030	0.000	3303	3615	DIESEL (C12-C24)	16793242	921
C10	2.726	0.005	6050	3664	M.OIL (C24-C38)	5034780	434
C12	3.379	0.001	20673	3692	AK-102 (C10-C25)	21278026	1025
C14	3.858	0.006	176625	195387	AK-103 (C25-C36)	4655398	533
C16	4.244	-0.004	72706	49242	OR.DIES (C10-C28)	23796865	937
C18	4.623	0.017	153117	181734	OR.MOIL (C28-C40)	2513853	223
C20	4.923	-0.009	113514	22041			
C22	5.233	0.001	123206	148385	STODDARD (C8-C12)	4435035	160
C24	5.521	-0.011	486331	818222			
C25	5.691	0.002	49556	20713			
C26	5.856	0.010	36215	5031			
C28	6.150	-0.015	107042	188166			
C32	6.778	0.004	28431	16208			
C34	7.058	-0.004	19728	13740	CREOSOT (C8-C22)	15062838	2355
Filter Peak	----						
C36	7.331	0.001	18622	9437	BUNKERC (C10-C38)	26118877	3065
o-terph	4.683	-0.003	484024	408775	JET-A (C10-C18)	14032337	885
Triacon Surr	6.477	-0.004	285896	345622	IT.MOIL (C24-C40)	5572243	259

Range Times: NW Diesel(3.428 - 5.581) NW Gas(0.754 - 3.428) NW M.Oil(5.581 - 7.637)
AK102(2.671 - 5.639) AK103(5.639 - 7.380) Jet A(2.671 - 4.656)

Surrogate	Area	Amount	%Rec
o-Terphenyl	408775	24.1	267.4
Triacontane	345622	21.7	241.5

Analyte	RF	Curve Date
o-Terph Surr	16983.9	01-NOV-2010
Triacon Surr	15901.0	16-OCT-2010
Gas	15975.0	20-OCT-2010
Diesel	18232.0	01-NOV-2010
Motor Oil	11596.5	15-OCT-2010
AK102	20751.0	01-NOV-2010
AK103	8727.5	29-SEPT-2010
JetA	15848.0	27-JAN-2009
OR Diesel	25401.0	
OR M.Oil	11274.0	
IT M.Oil	21488.2	
Bunker C	8522.1	20-SEP-2010
Creosote	6396.0	17-JAN-2009

11/16/10

Data File: /chem3/fid3b.i/20101104.b/1104b009.d

Date : 04-NOV-2010 20:56

Client ID: GSM-08SO-10-11-1009

Sample Info: RS97A,5

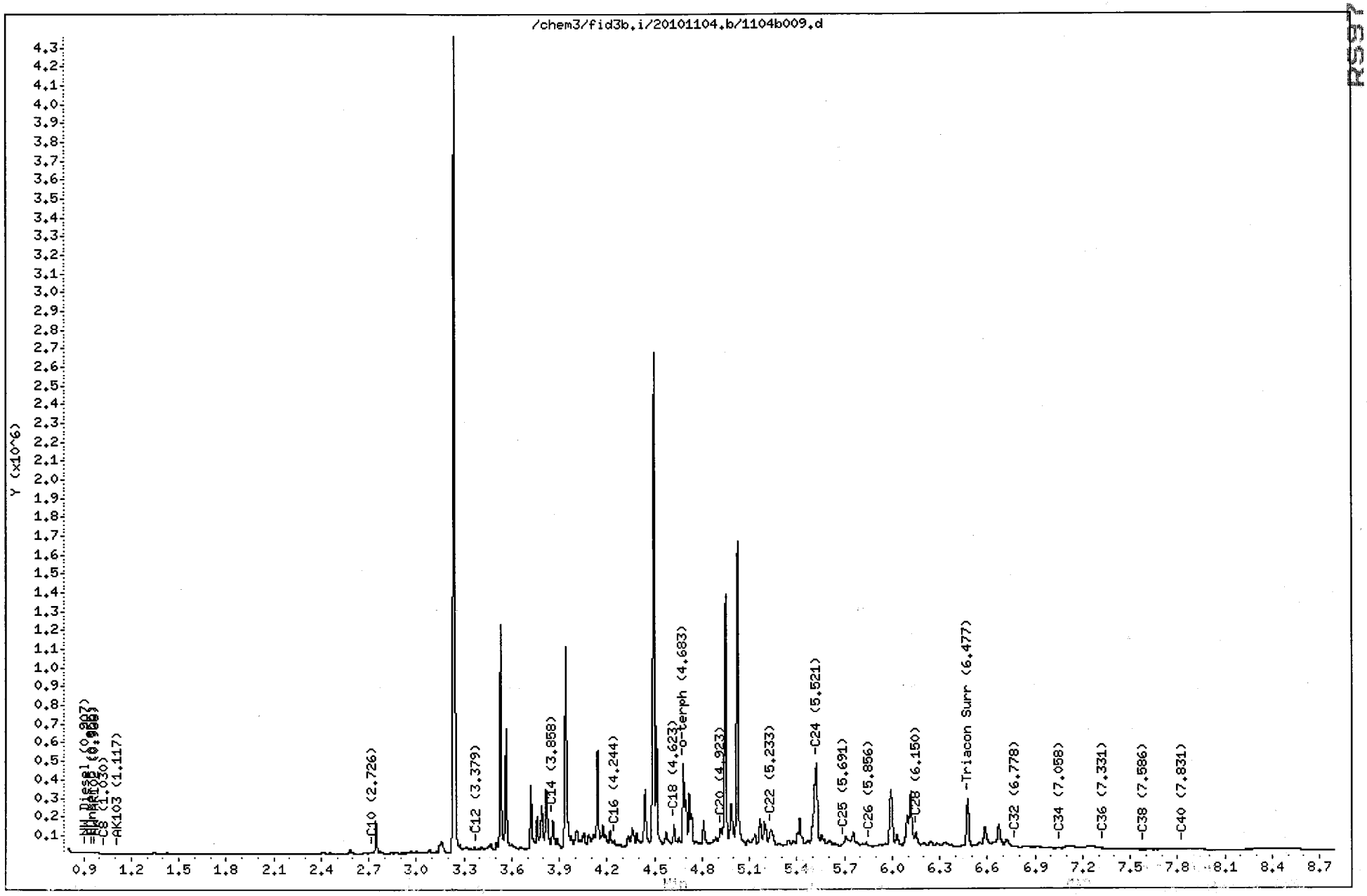
Column phase: ZB-1HT

Instrument: fid3b.i

Operator: MS

Column diameter: 0.25

RS97:01182



Analytical Resources Inc.
407S TPH Quantitation Report

Data file: /chem3/fid3b.i/20101104.b/1104b010.d
Method: /chem3/fid3b.i/20101104.b/ftphfid3b.m
Instrument: fid3b.i
Operator: MS
Report Date: 11/15/2010
Macro: FID:3B110110

ARI ID: RS97B
Client ID: DGS-19-3.34.1-10100
Injection: 04-NOV-2010 21:14
Dilution Factor: 10

FID:3B RESULTS

Compound	RT	Shift	Height	Area	Range	Total Area	Conc
Toluene	0.842	0.039	7162	2709	GAS (Tol-C12)	9793780	613
C8	1.030	0.001	3604	859	DIESEL (C12-C24)	13970230	766
C10	2.725	0.004	9957	6210	M.OIL (C24-C38)	3519522	303
C12	3.383	0.006	26925	10495	AK-102 (C10-C25)	23607548	1138
C14	3.859	0.007	165949	185944	AK-103 (C25-C36)	3259446	373
C16	4.244	-0.004	58254	52394	OR.DIES (C10-C28)	25375751	999
C18	4.622	0.016	107500	135444	OR.MOIL (C28-C40)	1779639	158
C20	4.946	0.014	1070219	841620			
C22	5.231	-0.001	93109	67594	STODDARD (C8-C12)	9718452	351
C24	5.519	-0.012	338081	321069			
C25	5.673	-0.016	27837	17871			
C26	5.849	0.002	24218	6625			
C28	6.183	0.018	28334	6703			
C32	6.772	-0.002	19496	6796			
C34	7.062	0.000	12392	2911	CREOSOT (C8-C22)	12698320	1985
Filter Peak	----						
C36	7.335	0.005	13300	3828	BUNKERC (C10-C38)	26997694	3168
o-terph	4.681	-0.004	243114	193082	JET-A (C10-C18)	18207402	1149
Triacon Surr	6.474	-0.007	136078	176683	IT.MOIL (C24-C40)	3853901	179

Range Times: NW Diesel(3.428 - 5.581) NW Gas(0.754 - 3.428) NW M.Oil(5.581 - 7.637)
AK102(2.671 - 5.639) AK103(5.639 - 7.380) Jet A(2.671 - 4.656)

Surrogate	Area	Amount	%Rec
o-Terphenyl	193082	11.4	252.6
Triacontane	176683	11.1	246.9

Analyte	RF	Curve Date
o-Terph Surr	16983.9	01-NOV-2010
Triacon Surr	15901.0	16-OCT-2010
Gas	15975.0	20-OCT-2010
Diesel	18232.0	01-NOV-2010
Motor Oil	11596.5	15-OCT-2010
AK102	20751.0	01-NOV-2010
AK103	8727.5	29-SEPT-2010
JetA	15848.0	27-JAN-2009
OR Diesel	25401.0	
OR M.Oil	11274.0	
IT M.Oil	21488.2	
Bunker C	8522.1	20-SEP-2010
Creosote	6396.0	17-JAN-2009

Data File: /chem3/fid3b.i/20101104.b/1104b010.d

Date : 04-NOV-2010 21:14

Client ID: DGS-19-3.34.1-10100

Sample Info: RS97B,10

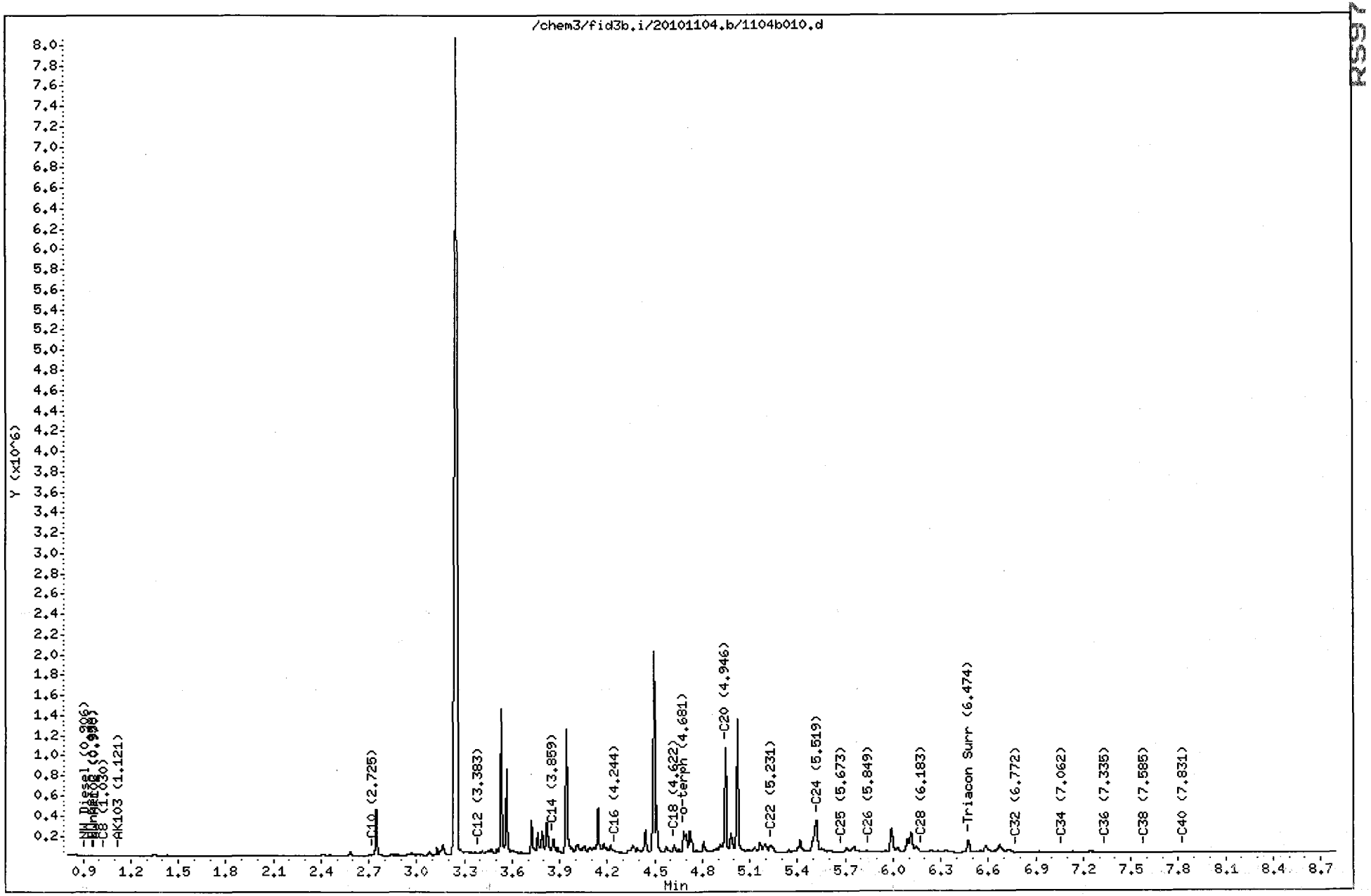
Column phase: ZB-1HT

Instrument: fid3b.i

Operator: MS

Column diameter: 0.25

RS97 : 01181



Analytical Resources Inc.
407S TPH Quantitation Report

Data file: /chem3/fid3b.i/20101104.b/1104b011.d
Method: /chem3/fid3b.i/20101104.b/ftphfid3b.m
Instrument: fid3b.i
Operator: MS
Report Date: 11/15/2010
Macro: FID:3B110110

ARI ID: RS97C
Client ID: DGS-19-4.48.2-10100
Injection: 04-NOV-2010 21:31
Dilution Factor: 2

FID:3B RESULTS

Compound	RT	Shift	Height	Area	Range	Total Area	Conc
Toluene	0.806	0.002	28012	34206	GAS (Tol-C12)	6219682	389
C8	1.029	0.000	3696	1976	DIESEL (C12-C24)	14543871	798
C10	2.727	0.006	5363	3824	M.OIL (C24-C38)	4111201	355
C12	3.385	0.007	22438	10389	AK-102 (C10-C25)	20704609	998
C14	3.862	0.010	149769	181738	AK-103 (C25-C36)	3779301	433
C16	4.247	-0.001	61411	59677	OR.DIES (C10-C28)	22684193	893
C18	4.602	-0.004	50685	12926	OR.MOIL (C28-C40)	2174229	193
C20	4.926	-0.006	92663	12849			
C22	5.234	0.002	99276	120459	STODDARD (C8-C12)	6149379	222
C24	5.521	-0.010	447698	723091			
C25	5.687	-0.002	36984	17208			
C26	5.836	-0.011	43160	39010			
C28	6.146	-0.019	82566	109262			
C32	6.777	0.003	23091	2757			
C34	7.057	-0.005	17008	11422	CREOSOT (C8-C22)	13084056	2046
Filter Peak	----						
C36	7.329	0.000	16114	9900	BUNKERC (C10-C38)	24678610	2896
o-terph	4.686	0.000	1015965	751952	JET-A (C10-C18)	14831480	936
Triacon Surr	6.478	-0.004	623209	695033	IT.MOIL (C24-C40)	4986047	232

Range Times: NW Diesel(3.428 - 5.581) NW Gas(0.754 - 3.428) NW M.Oil(5.581 - 7.637)
AK102(2.671 - 5.639) AK103(5.639 - 7.380) Jet A(2.671 - 4.656)

Surrogate	Area	Amount	%Rec
o-Terphenyl	751952	44.3	196.8
Triacontane	695033	43.7	194.3

Analyte	RF	Curve Date
o-Terph Surr	16983.9	01-NOV-2010
Triacon Surr	15901.0	16-OCT-2010
Gas	15975.0	20-OCT-2010
Diesel	18232.0	01-NOV-2010
Motor Oil	11596.5	15-OCT-2010
AK102	20751.0	01-NOV-2010
AK103	8727.5	29-SEPT-2010
JetA	15848.0	27-JAN-2009
OR Diesel	25401.0	
OR M.Oil	11274.0	
IT M.Oil	21488.2	
Bunker C	8522.1	20-SEP-2010
Creosote	6396.0	17-JAN-2009

11/16/10

Data File: /chem3/fid3b.i/20101104.b/1104b011.d

Date : 04-NOV-2010 21:31

Client ID: DGS-19-4.48.2-10100

Sample Info: RS97C,2

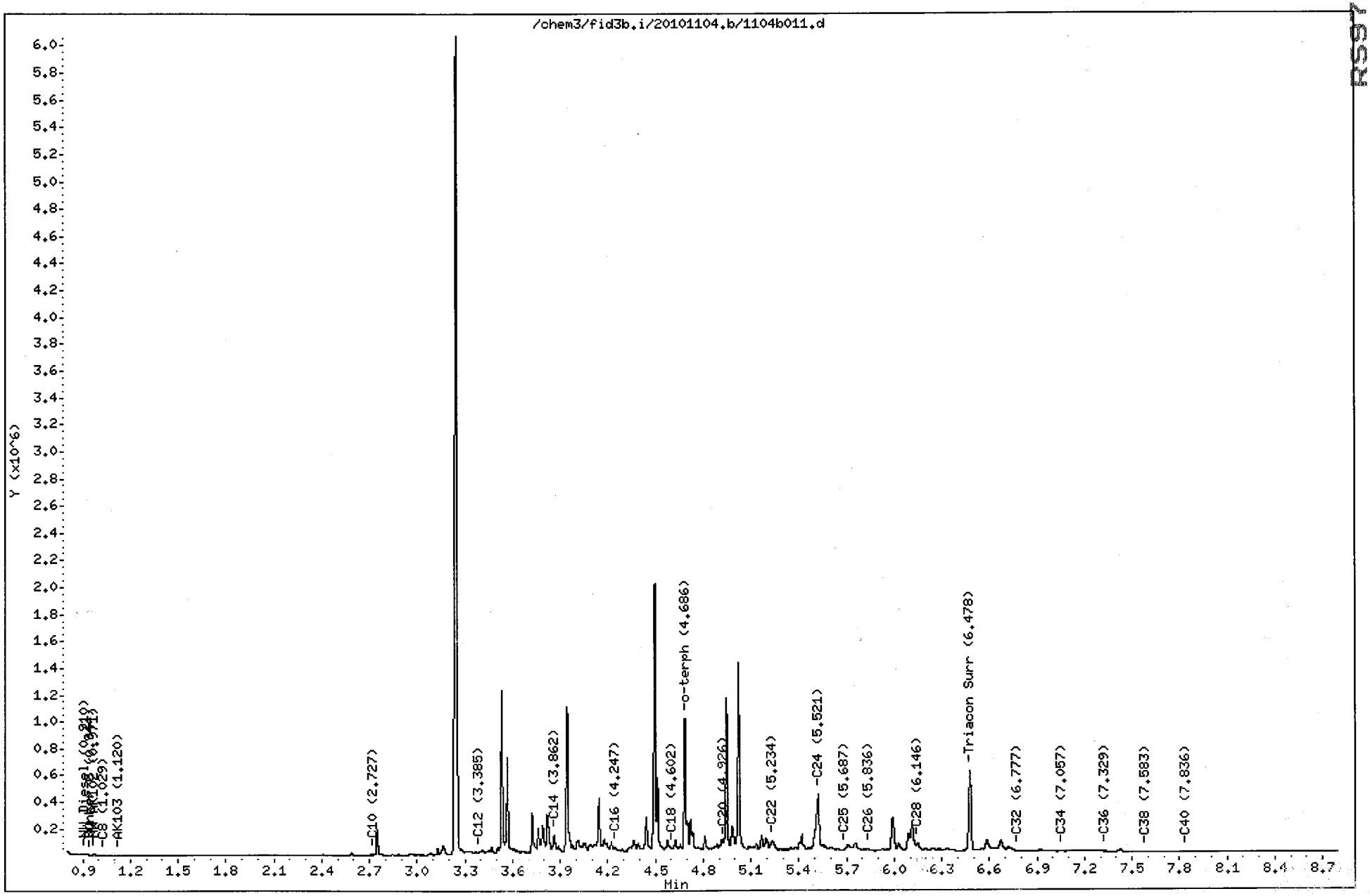
Column phase: ZB-1HT

Instrument: fid3b.i

Operator: MS

Column diameter: 0.25

RS97 : 91186



Analytical Resources Inc.
407S TPH Quantitation Report

Data file: /chem3/fid3b.i/20101104.b/1104b012.d
Method: /chem3/fid3b.i/20101104.b/ftphfid3b.m
Instrument: fid3b.i
Operator: MS
Report Date: 11/15/2010
Macro: FID:3B110110

ARI ID: RS97D
Client ID: DGS-19-10.210.9-101
Injection: 04-NOV-2010 21:49
Dilution Factor: 2

FID:3B RESULTS

Compound	RT	Shift	Height	Area	Range	Total Area	Conc
Toluene	0.805	0.001	29146	32739	GAS (Tol-C12)	523672	33
C8	1.028	-0.001	3552	1555	DIESEL (C12-C24)	13724483	753
C10	2.721	0.000	2431	1301	M.OIL (C24-C38)	3870135	334
C12	3.384	0.006	16602	8496	AK-102 (C10-C25)	14252417	687
C14	3.859	0.006	177587	200951	AK-103 (C25-C36)	3506962	402
C16	4.243	-0.005	84010	94682	OR.DIES (C10-C28)	16119204	635
C18	4.621	0.015	148304	185534	OR.MOIL (C28-C40)	1974003	175
C20	4.947	0.015	774400	584670			
C22	5.234	0.002	140671	132273	STODDARD (C8-C12)	439588	16
C24	5.521	-0.011	254326	277423			
C25	5.683	-0.006	47858	34993			
C26	5.853	0.006	37176	16234			
C28	6.169	0.003	41148	19261			
C32	6.776	0.002	23171	5048			
C34	7.061	-0.001	16687	12459	CREOSOT (C8-C22)	12267628	1918
Filter Peak	----						
C36	7.326	-0.004	14755	5967	BUNKERC (C10-C38)	17931526	2104
o-terph	4.684	-0.001	1180904	953361	JET-A (C10-C18)	8096483	511
Triacon Surr	6.479	-0.003	703997	779996	IT.MOIL (C24-C40)	4811812	224

Range Times: NW Diesel(3.428 - 5.581) NW Gas(0.754 - 3.428) NW M.Oil(5.581 - 7.637)
AK102(2.671 - 5.639) AK103(5.639 - 7.380) Jet A(2.671 - 4.656)

Surrogate	Area	Amount	%Rec
o-Terphenyl	953361	56.1	249.5
Triacontane	779996	49.1	218.0

Analyte	RF	Curve Date
o-Terph Surr	16983.9	01-NOV-2010
Triacon Surr	15901.0	16-OCT-2010
Gas	15975.0	20-OCT-2010
Diesel	18232.0	01-NOV-2010
Motor Oil	11596.5	15-OCT-2010
AK102	20751.0	01-NOV-2010
AK103	8727.5	29-SEPT-2010
JetA	15848.0	27-JAN-2009
OR Diesel	25401.0	
OR M.Oil	11274.0	
IT M.Oil	21488.2	
Bunker C	8522.1	20-SEP-2010
Creosote	6396.0	17-JAN-2009

11/16/10

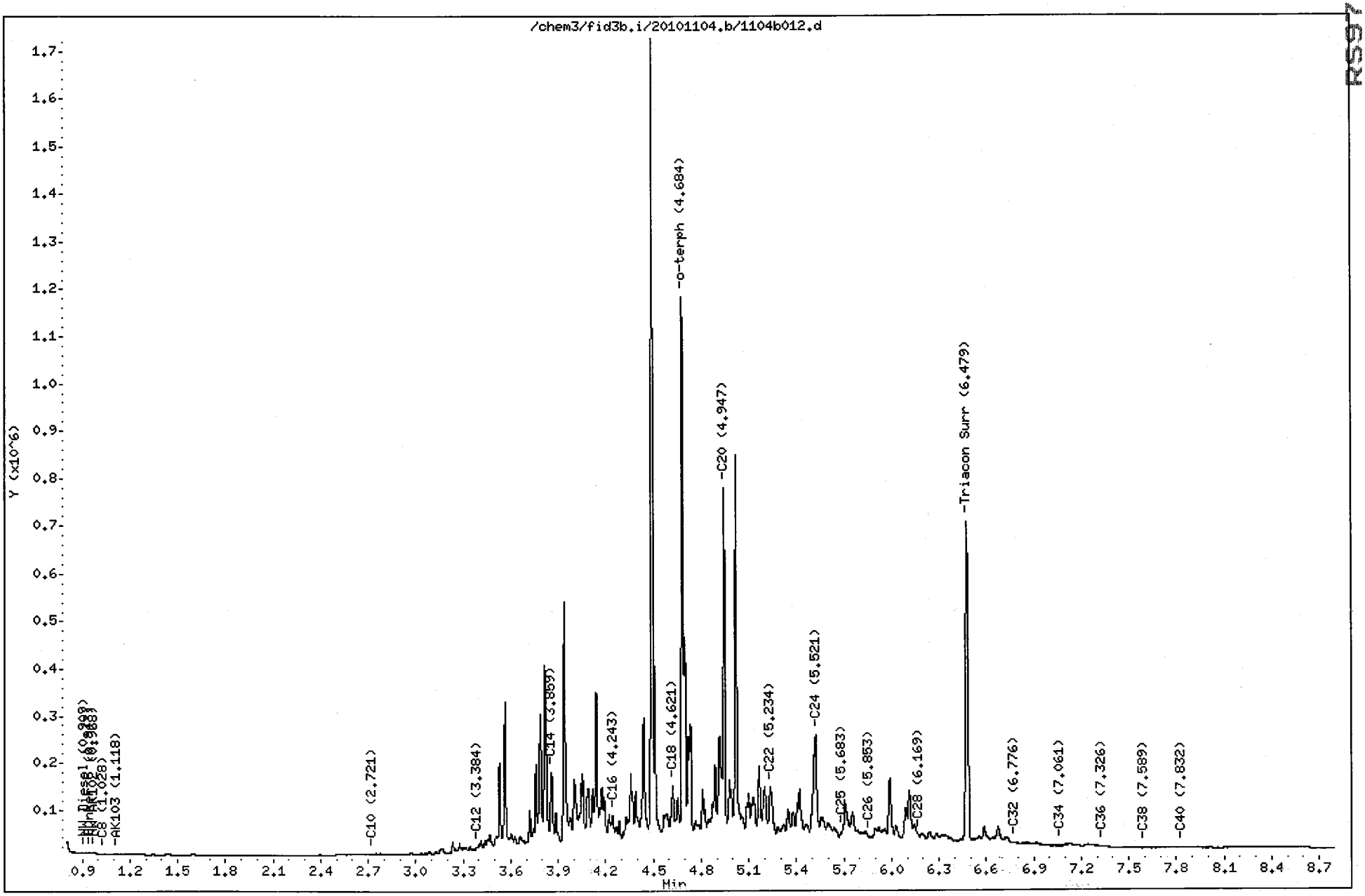
Data File: /chem3/fid3b.i/20101104.b/1104b012.d
Date : 04-NOV-2010 21:49
Client ID: DGS-19-10.210.9-101
Sample Info: RS97D,2

Column phase: ZB-1HT

Instrument: fid3b.i

Operator: MS
Column diameter: 0.25

RS97:91188



Analytical Resources Inc.
407S TPH Quantitation Report

Data file: /chem3/fid3b.i/20101104.b/1104b013.d
Method: /chem3/fid3b.i/20101104.b/ftphfid3b.m
Instrument: fid3b.i
Operator: MS
Report Date: 11/15/2010
Macro: FID:3B110110

ARI ID: RS97E
Client ID: DGS-08-4.44.6-10100
Injection: 04-NOV-2010 22:06
Dilution Factor: 10

FID:3B RESULTS

Compound	RT	Shift	Height	Area	Range	Total Area	Conc
Toluene	0.804	0.000	13939	21816	GAS (Tol-C12)	5639647	353
C8	1.029	0.000	3321	2104	DIESEL (C12-C24)	17303819	949
C10	2.728	0.008	9071	5955	M.OIL (C24-C38)	4462721	385
C12	3.384	0.007	32606	11492	AK-102 (C10-C25)	22846178	1101
C14	3.860	0.008	215293	238093	AK-103 (C25-C36)	4141581	475
C16	4.247	-0.001	86505	53736	OR.DIES (C10-C28)	24992842	984
C18	4.625	0.019	147753	183405	OR.MOIL (C28-C40)	2377610	211
C20	4.926	-0.005	123400	40962			
C22	5.233	0.001	139201	133906	STODDARD (C8-C12)	5572574	201
C24	5.521	-0.010	362966	368913			
C25	5.689	0.001	47287	9191			
C26	5.851	0.004	42029	18461			
C28	6.162	-0.003	53883	35515			
C32	6.766	-0.008	27091	23586			
C34	7.062	0.001	18181	2880	CREOSOT (C8-C22)	15784953	2468
Filter Peak	----						
C36	7.332	0.002	16969	4301	BUNKERC (C10-C38)	27176432	3189
o-terph	4.682	-0.003	277855	208444	JET-A (C10-C18)	16403967	1035
Triacon Surr	6.476	-0.005	164090	218440	IT.MOIL (C24-C40)	4875181	227

Range Times: NW Diesel(3.428 - 5.581) NW Gas(0.754 - 3.428) NW M.Oil(5.581 - 7.637)
AK102(2.671 - 5.639) AK103(5.639 - 7.380) Jet A(2.671 - 4.656)

Surrogate	Area	Amount	%Rec
o-Terphenyl	208444	12.3	272.7
Triacontane	218440	13.7	305.3

Analyte	RF	Curve Date
o-Terph Surr	16983.9	01-NOV-2010
Triacon Surr	15901.0	16-OCT-2010
Gas	15975.0	20-OCT-2010
Diesel	18232.0	01-NOV-2010
Motor Oil	11596.5	15-OCT-2010
AK102	20751.0	01-NOV-2010
AK103	8727.5	29-SEPT-2010
JetA	15848.0	27-JAN-2009
OR Diesel	25401.0	
OR M.Oil	11274.0	
IT M.Oil	21488.2	
Bunker C	8522.1	20-SEP-2010
Creosote	6396.0	17-JAN-2009

Data File: /chem3/fid3b.i/20101104.b/1104b013.d

Date : 04-NOV-2010 22:06

Client ID: DGS-08-4.44.6-10100

Sample Info: RS97E,10

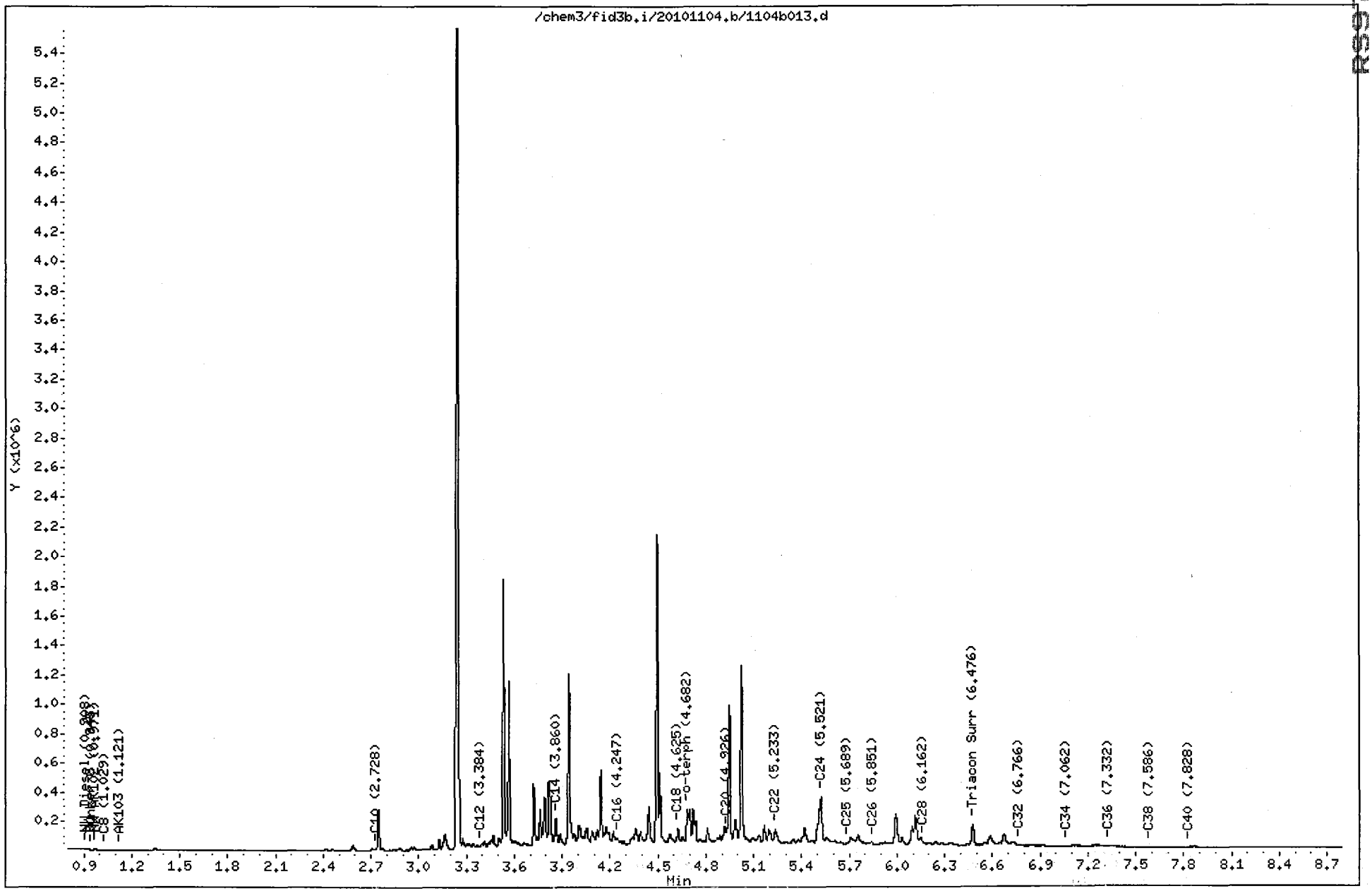
Column phase: ZB-1HT

Instrument: fid3b.i

Operator: MS

Column diameter: 0.25

RS97:01196



Analytical Resources Inc.
407S TPH Quantitation Report

Data file: /chem3/fid3b.i/20101104.b/1104b014.d
Method: /chem3/fid3b.i/20101104.b/ftphfid3b.m
Instrument: fid3b.i
Operator: MS
Report Date: 11/15/2010
Macro: FID:3B110110

ARI ID: RS97F
Client ID: GST-09SO-17-18-1010
Injection: 04-NOV-2010 22:24
Dilution Factor: 50

FID:3B RESULTS

Compound	RT	Shift	Height	Area	Range	Total Area	Conc
Toluene	0.806	0.002	25475	30972	GAS (Tol-C12)	4131389	259
C8	1.030	0.000	3391	3398	DIESEL (C12-C24)	12537112	688
C10	2.729	0.009	6623	5340	M.OIL (C24-C38)	3867488	334
C12	3.384	0.007	19570	8231	AK-102 (C10-C25)	16517972	796
C14	3.865	0.012	348000	311226	AK-103 (C25-C36)	3580591	410
C16	4.246	-0.002	68945	70520	OR.DIES (C10-C28)	18432729	726
C18	4.598	-0.008	55399	45615	OR.MOIL (C28-C40)	1984177	176
C20	4.947	0.015	1175850	939427			
C22	5.232	0.001	96222	147716	STODDARD (C8-C12)	4051685	146
C24	5.520	-0.011	400328	322292			
C25	5.689	0.000	36055	16870			
C26	5.856	0.009	26947	18934			
C28	6.186	0.021	33572	12157			
C32	6.777	0.003	20747	6428			
C34	7.064	0.002	12857	2037	CREOSOT (C8-C22)	11207108	1752
Filter Peak	----						
C36	7.329	-0.001	14539	6520	BUNKERC (C10-C38)	20243556	2375
o-terph	4.697	0.012	201440	280401	JET-A (C10-C18)	11197096	707
Triacon Surr	6.477	-0.005	45813	36602	IT.MOIL (C24-C40)	4077440	190

Range Times: NW Diesel(3.428 - 5.581) NW Gas(0.754 - 3.428) NW M.Oil(5.581 - 7.637)
AK102(2.671 - 5.639) AK103(5.639 - 7.380) Jet A(2.671 - 4.656)

Surrogate	Area	Amount	%Rec
o-Terphenyl	280401	16.5	1834.4
Triacontane	36602	2.3	255.8

Analyte	RF	Curve Date
o-Terph Surr	16983.9	01-NOV-2010
Triacon Surr	15901.0	16-OCT-2010
Gas	15975.0	20-OCT-2010
Diesel	18232.0	01-NOV-2010
Motor Oil	11596.5	15-OCT-2010
AK102	20751.0	01-NOV-2010
AK103	8727.5	29-SEPT-2010
JetA	15848.0	27-JAN-2009
OR Diesel	25401.0	
OR M.Oil	11274.0	
IT M.Oil	21488.2	
Bunker C	8522.1	20-SEP-2010
Creosote	6396.0	17-JAN-2009

Data File: /chem3/fid3b.i/20101104.b/1104b014.d

Date : 04-NOV-2010 22:24

Client ID: GST-09SO-17-18-1010

Sample Info: RS97F,50

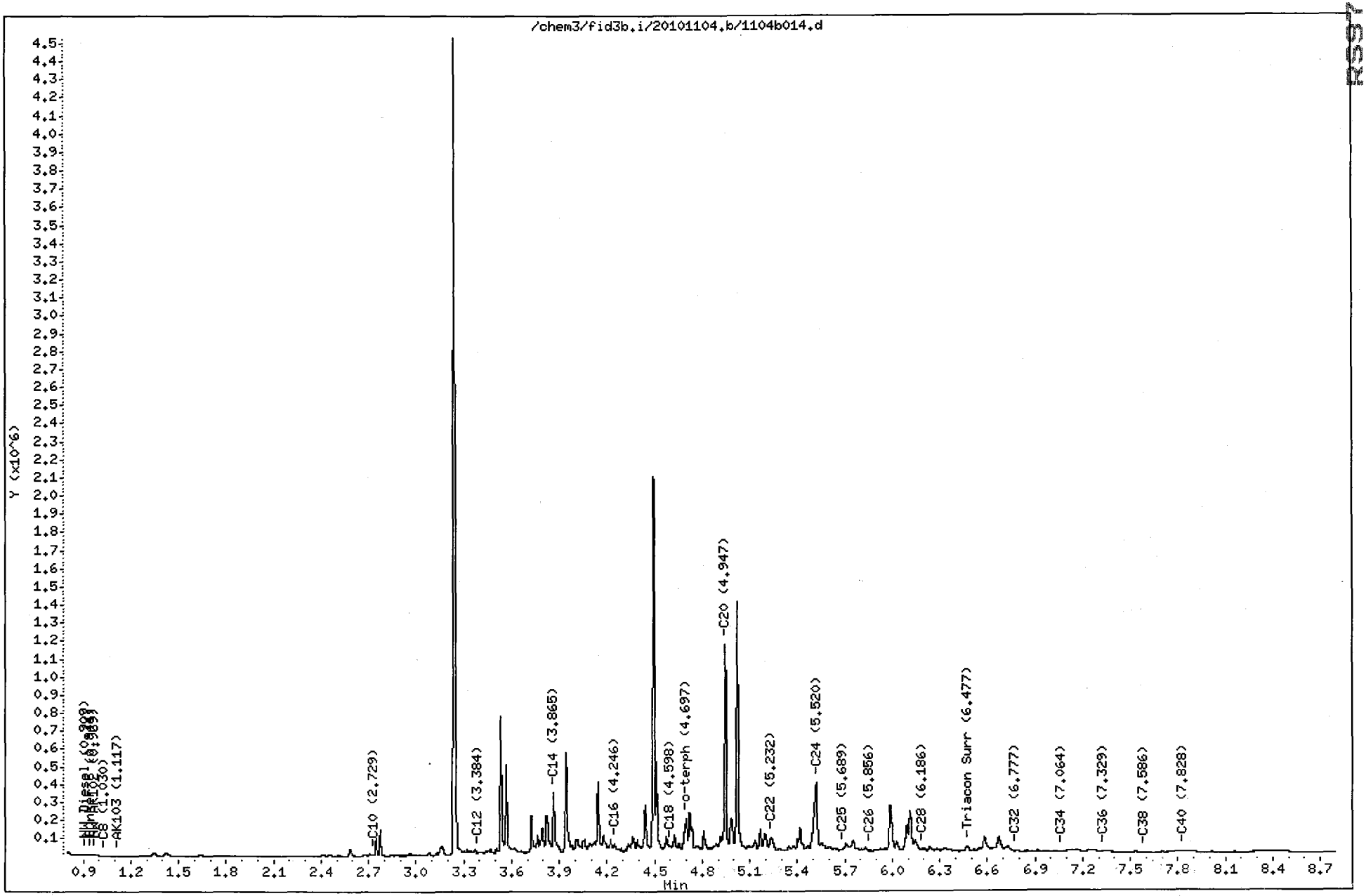
Column phase: ZB-1HT

Instrument: fid3b.i

Operator: MS

Column diameter: 0.25

RS97:01192



Analytical Resources Inc.
407S TPH Quantitation Report

Data file: /chem3/fid3b.i/20101104.b/1104b015.d
Method: /chem3/fid3b.i/20101104.b/ftphfid3b.m
Instrument: fid3b.i
Operator: MS
Report Date: 11/15/2010
Macro: FID:3B110110

ARI ID: RS97G
Client ID: DGS-36-066.7-101012
Injection: 04-NOV-2010 22:42
Dilution Factor: 5

FID:3B RESULTS

Compound	RT	Shift	Height	Area	Range	Total Area	Conc
Toluene	0.805	0.001	17556	25262	GAS (Tol-C12)	293930	18
C8	1.032	0.003	3339	1906	DIESEL (C12-C24)	4462424	245
C10	2.720	-0.001	1849	783	M.OIL (C24-C38)	2684309	231
C12	3.378	0.000	4463	1922	AK-102 (C10-C25)	4660002	225
C14	3.835	-0.017	24445	27039	AK-103 (C25-C36)	2452837	281
C16	4.252	0.004	21592	15499	OR.DIES (C10-C28)	5838637	230
C18	4.603	-0.003	24401	5319	OR.MOIL (C28-C40)	1600479	142
C20	4.918	-0.014	53443	55398			
C22	5.235	0.003	52878	53676	STODDARD (C8-C12)	225668	8
C24	5.522	-0.009	181403	224039			
C25	5.688	-0.001	23412	6433			
C26	5.840	-0.006	26324	30294			
C28	6.164	-0.002	32168	22401			
C32	6.774	0.000	18599	9207			
C34	7.062	0.000	14626	9111	CREOSOT (C8-C22)	3704921	579
Filter Peak	----						
C36	7.332	0.003	14468	6963	BUNKERC (C10-C38)	7277999	854
o-terph	4.686	0.001	407491	316801	JET-A (C10-C18)	1853241	117
Triacon Surr	6.476	-0.006	250341	280690	IT.MOIL (C24-C40)	3126116	145

Range Times: NW Diesel(3.428 - 5.581) NW Gas(0.754 - 3.428) NW M.Oil(5.581 - 7.637)
AK102(2.671 - 5.639) AK103(5.639 - 7.380) Jet A(2.671 - 4.656)

Surrogate	Area	Amount	%Rec
o-Terphenyl	316801	18.7	207.3
Triacontane	280690	17.7	196.1

Analyte	RF	Curve Date
o-Terph Surr	16983.9	01-NOV-2010
Triacon Surr	15901.0	16-OCT-2010
Gas	15975.0	20-OCT-2010
Diesel	18232.0	01-NOV-2010
Motor Oil	11596.5	15-OCT-2010
AK102	20751.0	01-NOV-2010
AK103	8727.5	29-SEPT-2010
JetA	15848.0	27-JAN-2009
OR Diesel	25401.0	
OR M.Oil	11274.0	
IT M.Oil	21488.2	
Bunker C	8522.1	20-SEP-2010
Creosote	6396.0	17-JAN-2009

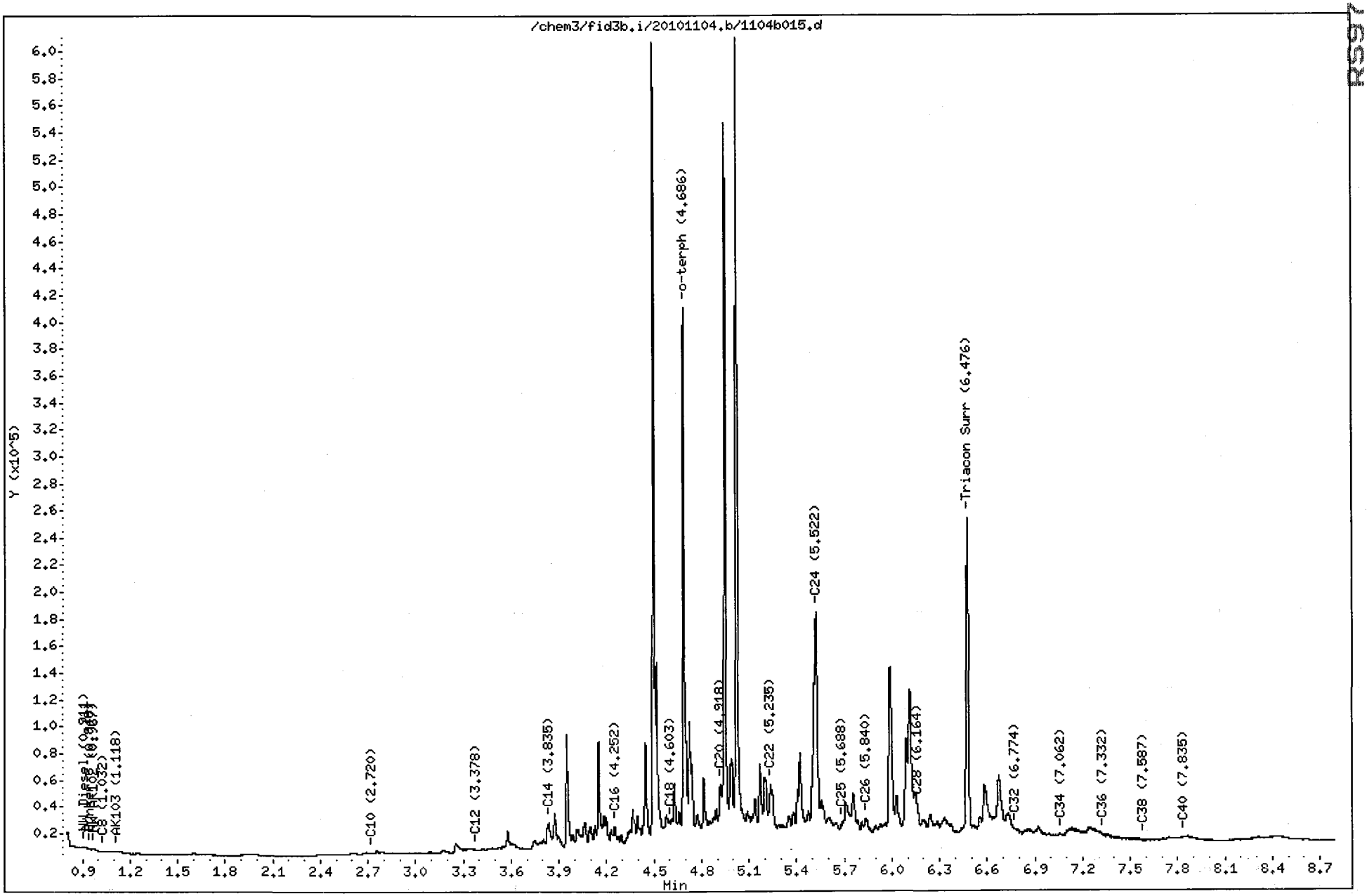
Data File: /chem3/fid3b.i/20101104.b/1104b015.d
Date : 04-NOV-2010 22:42
Client ID: DGS-36-066.7-101012
Sample Info: RS97G,5

Column phase: ZB-1HT

Instrument: fid3b.i

Operator: MS
Column diameter: 0.25

RS97:01191



Analytical Resources Inc.
407S TPH Quantitation Report

Data file: /chem3/fid3b.i/20101104.b/1104b016.d
Method: /chem3/fid3b.i/20101104.b/ftphfid3b.m
Instrument: fid3b.i
Operator: MS
Report Date: 11/15/2010
Macro: FID:3B110110

ARI ID: RS97H
Client ID: DGS-07-011.3-101012
Injection: 04-NOV-2010 22:59
Dilution Factor: 2

FID:3B RESULTS

Compound	RT	Shift	Height	Area	Range	Total Area	Conc
Toluene	0.842	0.038	7086	990	GAS (Tol-C12)	347211	22
C8	1.029	0.000	3430	1087	DIESEL (C12-C24)	4397185	241
C10	2.721	0.000	2387	1912	M.OIL (C24-C38)	4090007	353
C12	3.371	-0.006	5084	4401	AK-102 (C10-C25)	4676062	225
C14	3.854	0.001	14472	8023	AK-103 (C25-C36)	3723414	427
C16	4.245	-0.003	23208	21201	OR.DIES (C10-C28)	6292639	248
C18	4.607	0.001	34048	8695	OR.MOIL (C28-C40)	2561917	227
C20	4.933	0.001	60970	14297			
C22	5.232	0.001	67536	57040	STODDARD (C8-C12)	258209	9
C24	5.519	-0.012	151791	196018			
C25	5.691	0.002	41938	16917			
C26	5.847	0.000	36670	16907			
C28	6.168	0.003	43022	17417			
C32	6.776	0.002	30582	9695			
C34	7.062	0.000	26403	16580	CREOSOT (C8-C22)	3461374	541
Filter Peak	----						
C36	7.330	0.000	20263	10681	BUNKERC (C10-C38)	8642438	1014
o-terph	4.684	-0.002	962790	653113	JET-A (C10-C18)	1679634	106
Triacon Surr	6.481	0.000	613453	654640	IT.MOIL (C24-C40)	4956765	231

Range Times: NW Diesel(3.428 - 5.581) NW Gas(0.754 - 3.428) NW M.Oil(5.581 - 7.637)
AK102(2.671 - 5.639) AK103(5.639 - 7.380) Jet A(2.671 - 4.656)

Surrogate	Area	Amount	%Rec
o-Terphenyl	653113	38.5	170.9
Triacontane	654640	41.2	183.0

Analyte	RF	Curve Date
o-Terph Surr	16983.9	01-NOV-2010
Triacon Surr	15901.0	16-OCT-2010
Gas	15975.0	20-OCT-2010
Diesel	18232.0	01-NOV-2010
Motor Oil	11596.5	15-OCT-2010
AK102	20751.0	01-NOV-2010
AK103	8727.5	29-SEPT-2010
JetA	15848.0	27-JAN-2009
OR Diesel	25401.0	
OR M.Oil	11274.0	
IT M.Oil	21488.2	
Bunker C	8522.1	20-SEP-2010
Creosote	6396.0	17-JAN-2009

11/16/10

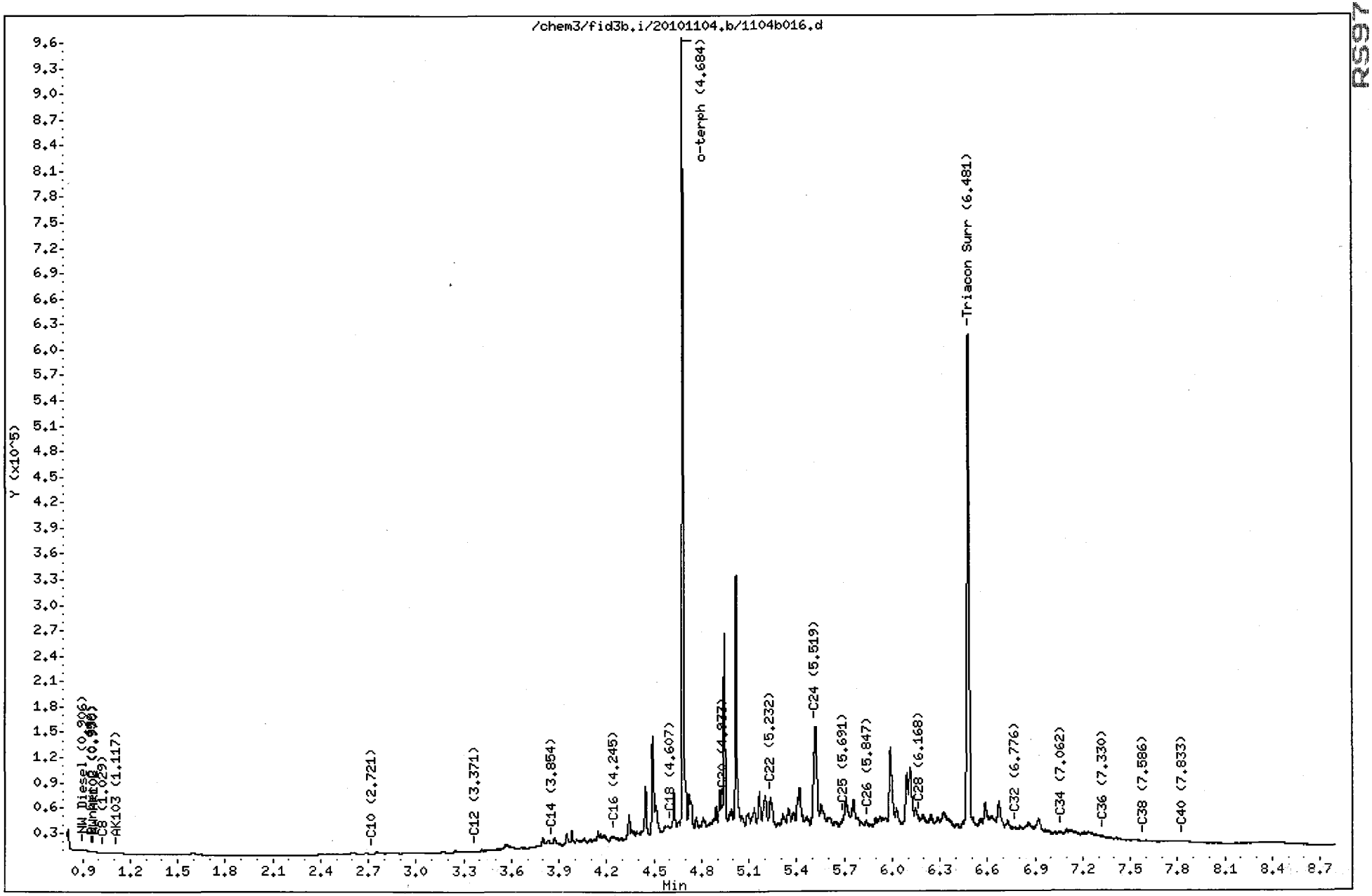
Data File: /chem3/fid3b.i/20101104.b/1104b016.d
Date : 04-NOV-2010 22:59
Client ID: DGS-07-011.3-101012
Sample Info: RS97H,2

Column phase: ZB-1HT

Instrument: fid3b.i

Operator: MS
Column diameter: 0.25

RS97:91196



Analytical Resources Inc.
407S TPH Quantitation Report

Data file: /chem3/fid3b.i/20101104.b/1104b017.d
Method: /chem3/fid3b.i/20101104.b/ftphfid3b.m
Instrument: fid3b.i
Operator: MS
Report Date: 11/15/2010
Macro: FID:3B110110

ARI ID: RS97HMS
Client ID: DGS-07-011.3-10 MS
Injection: 04-NOV-2010 23:17
Dilution Factor: 2

FID:3B RESULTS

Compound	RT	Shift	Height	Area	Range	Total Area	Conc
Toluene	0.805	0.001	45156	40937	GAS (Tol-C12)	2390111	150
C8	1.030	0.000	7993	8670	DIESEL (C12-C24)	18751420	1028
C10	2.718	-0.003	49474	49234	M.OIL (C24-C38)	3787479	327
C12	3.372	-0.006	177227	133079	AK-102 (C10-C25)	20727193	999
C14	3.841	-0.011	333071	397474	AK-103 (C25-C36)	3411528	391
C16	4.245	-0.003	599829	644796	OR.DIES (C10-C28)	22294003	878
C18	4.608	0.002	527917	523836	OR.MOIL (C28-C40)	2250204	200
C20	4.934	0.002	374368	312106			
C22	5.230	-0.002	201735	256276	STODDARD (C8-C12)	2278731	82
C24	5.524	-0.008	163826	214443			
C25	5.688	-0.001	55250	17896			
C26	5.845	-0.002	41979	28877			
C28	6.162	-0.003	46110	27421			
C32	6.773	-0.001	29108	17993			
C34	7.064	0.002	23834	18143	CREOSOT (C8-C22)	17410597	2722
Filter Peak	----						
C36	7.329	-0.001	18481	7791	BUNKERC (C10-C38)	24355431	2858
o-terph	4.687	0.001	1103902	953921	JET-A (C10-C18)	13863583	875
Triacon Surr	6.481	0.000	652575	713832	IT.MOIL (C24-C40)	4690087	218

Range Times: NW Diesel(3.428 - 5.581) NW Gas(0.754 - 3.428) NW M.Oil(5.581 - 7.637)
AK102(2.671 - 5.639) AK103(5.639 - 7.380) Jet A(2.671 - 4.656)

Surrogate	Area	Amount	%Rec
o-Terphenyl	953921	56.2	249.6
Triacontane	713832	44.9	199.5

Analyte	RF	Curve Date
o-Terph Surr	16983.9	01-NOV-2010
Triacon Surr	15901.0	16-OCT-2010
Gas	15975.0	20-OCT-2010
Diesel	18232.0	01-NOV-2010
Motor Oil	11596.5	15-OCT-2010
AK102	20751.0	01-NOV-2010
AK103	8727.5	29-SEPT-2010
JetA	15848.0	27-JAN-2009
OR Diesel	25401.0	
OR M.Oil	11274.0	
IT M.Oil	21488.2	
Bunker C	8522.1	20-SEP-2010
Creosote	6396.0	17-JAN-2009

Data File: /chem3/fid3b.i/20101104.b/1104b017.d

Date : 04-NOV-2010 23:17

Client ID: DGS-07-011.3-10 MS

Sample Info: RS97HMS,2

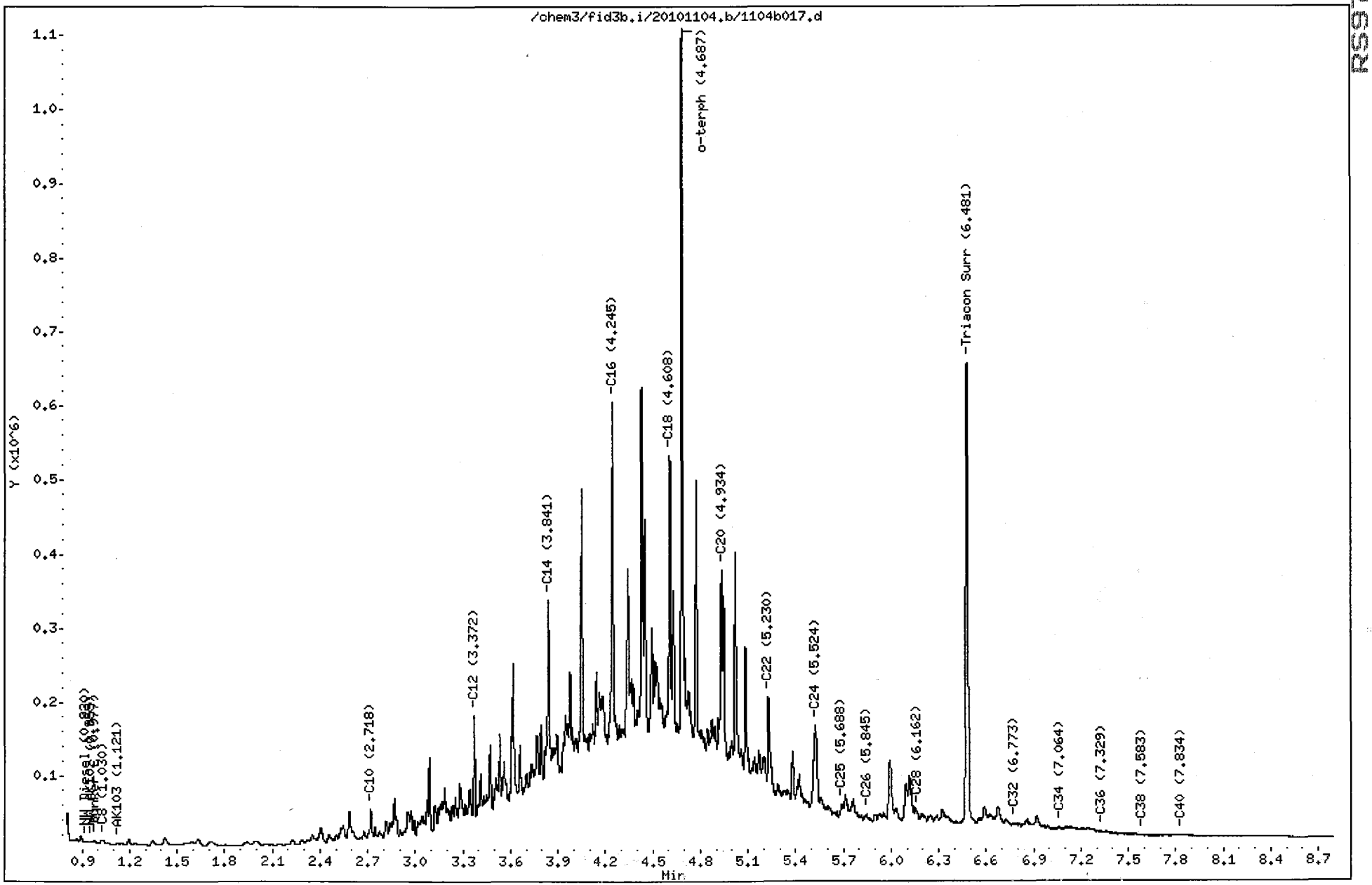
Column phase: ZB-1HT

Instrument: fid3b.i

Operator: MS

Column diameter: 0.25

RS97:01198



Analytical Resources Inc.
407S TPH Quantitation Report

Data file: /chem3/fid3b.i/20101104.b/1104b018.d
Method: /chem3/fid3b.i/20101104.b/ftphfid3b.m
Instrument: fid3b.i
Operator: MS
Report Date: 11/15/2010
Macro: FID:3B110110

ARI ID: RS97HMSD
Client ID: DGS-07-011.3-10 MSD
Injection: 04-NOV-2010 23:34
Dilution Factor: 2

FID:3B RESULTS

Compound	RT	Shift	Height	Area	Range	Total Area	Conc
Toluene	0.833	0.029	7429	8622	GAS (Tol-C12)	2366846	148
C8	1.033	0.003	7946	9077	DIESEL (C12-C24)	19084328	1047
C10	2.718	-0.003	48765	48838	M.OIL (C24-C38)	3960263	342
C12	3.370	-0.007	172698	139192	AK-102 (C10-C25)	21073413	1016
C14	3.841	-0.011	325982	390073	AK-103 (C25-C36)	3572431	409
C16	4.246	-0.002	614387	603319	OR.DIES (C10-C28)	22690644	893
C18	4.606	0.000	566561	518366	OR.MOIL (C28-C40)	2364970	210
C20	4.933	0.001	378350	324002			
C22	5.230	-0.002	210693	219375	STODDARD (C8-C12)	2268246	82
C24	5.520	-0.011	154858	307276			
C25	5.685	-0.004	56474	61443			
C26	5.850	0.003	41273	44370			
C28	6.166	0.001	42599	30505			
C32	6.772	-0.002	31136	12595			
C34	7.060	-0.002	25458	19176	CREOSOT (C8-C22)	17734294	2773
Filter Peak	----						
C36	7.331	0.001	19567	6649	BUNKERC (C10-C38)	24860834	2917
o-terph	4.685	-0.001	1181401	975269	JET-A (C10-C18)	14188626	895
Triacon Surr	6.478	-0.003	619004	704586	IT.MOIL (C24-C40)	4859629	226

Range Times: NW Diesel(3.428 - 5.581) NW Gas(0.754 - 3.428) NW M.Oil(5.581 - 7.637)
AK102(2.671 - 5.639) AK103(5.639 - 7.380) Jet A(2.671 - 4.656)

Surrogate	Area	Amount	%Rec
o-Terphenyl	975269	57.4	255.2
Triacontane	704586	44.3	196.9

Analyte	RF	Curve Date
o-Terph Surr	16983.9	01-NOV-2010
Triacon Surr	15901.0	16-OCT-2010
Gas	15975.0	20-OCT-2010
Diesel	18232.0	01-NOV-2010
Motor Oil	11596.5	15-OCT-2010
AK102	20751.0	01-NOV-2010
AK103	8727.5	29-SEPT-2010
JetA	15848.0	27-JAN-2009
OR Diesel	25401.0	
OR M.Oil	11274.0	
IT M.Oil	21488.2	
Bunker C	8522.1	20-SEP-2010
Creosote	6396.0	17-JAN-2009

Data File: /chem3/fid3b.i/20101104.b/1104b018.d

Date : 04-NOV-2010 23:34

Client ID: DGS-07-011.3-10 MSD

Sample Info: RS97HMSD,2

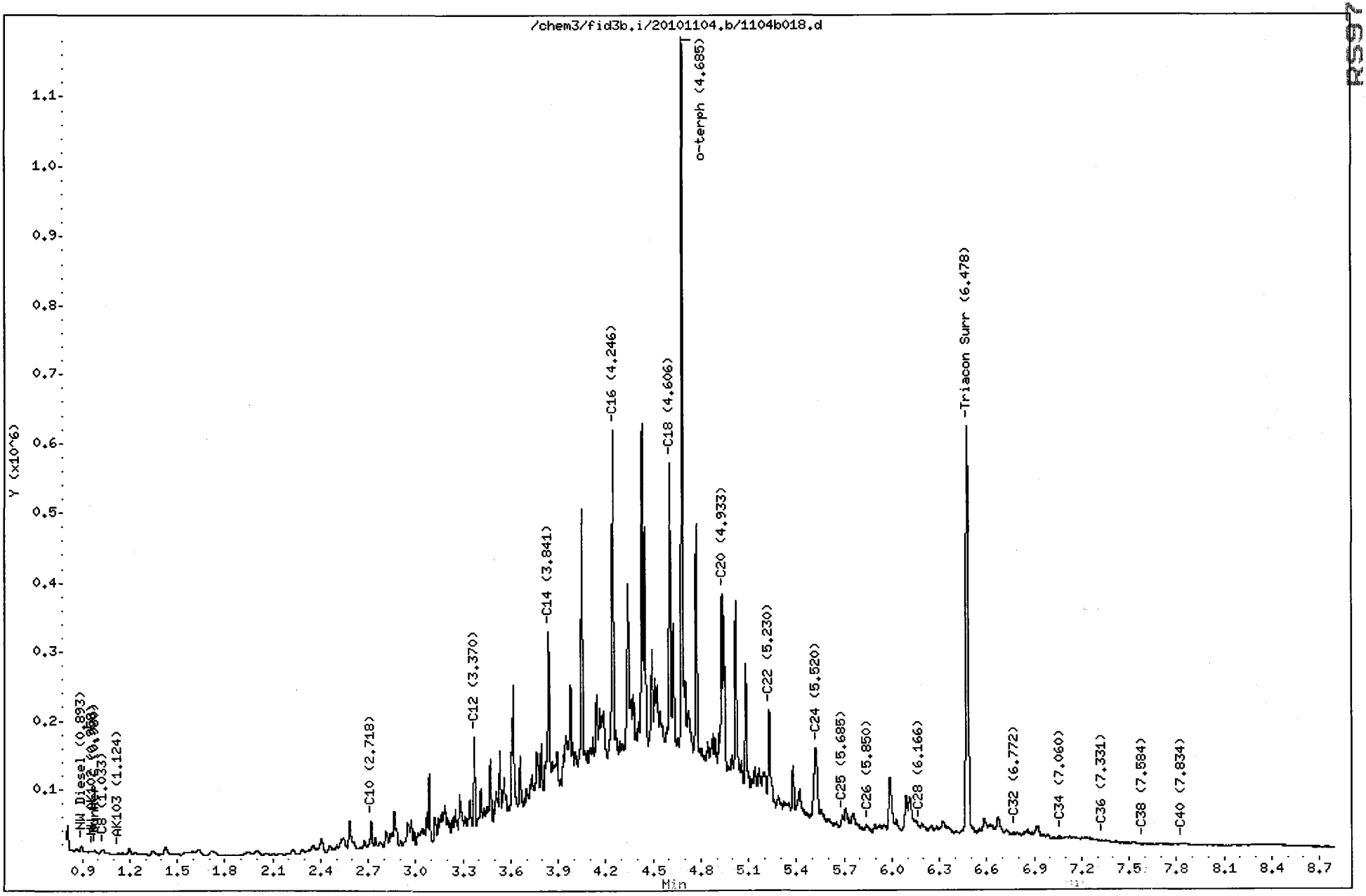
Column phase: ZB-1HT

Instrument: fid3b.i

Operator: MS

Column diameter: 0.25

RS97 : 01200



Analytical Resources Inc.
407S TPH Quantitation Report

Data file: /chem3/fid3b.i/20101104.b/1104braw.b/1104b019.d ARI ID: DIESEL#2
Method: /chem3/fid3b.i/20101104.b/ftphfid3b.m Client ID:
Instrument: fid3b.i Injection: 04-NOV-2010 23:52
Operator: MS Dilution Factor: 1
Report Date: 11/15/2010
Macro: FID:3B110110

FID:3B RESULTS

Compound	RT	Shift	Height	Area	Range	Total Area	Conc
Toluene	0.803	-0.001	14469	17087	GAS (Tol-C12)	789454	49
C8	1.027	-0.002	4962	10330	DIESEL (C12-C24)	4323332	237
C10	2.718	-0.003	13820	18282	M.OIL (C24-C38)	124408	11
C12	3.372	-0.006	35684	34566	AK-102 (C10-C25)	4867818	235
C14	3.862	0.010	34784	5522	AK-103 (C25-C36)	85020	10
C16	4.244	-0.004	174741	175265	OR.DIES (C10-C28)	4907210	193
C18	4.604	-0.002	149817	150853	OR.MOIL (C28-C40)	121836	11
C20	4.929	-0.003	84994	99859			
C22	5.235	0.003	29797	53092	STODDARD (C8-C12)	716303	26
C24	5.532	0.000	4853	674			
C25	5.687	-0.002	2435	1051			
C26	5.849	0.002	1209	810			
C28	6.166	0.001	341	177			
C32	6.771	-0.003	475	90			
C34	7.063	0.001	812	765	CREOSOT (C8-C22)	4182967	654
Filter Peak	----						
C36	7.329	-0.001	1428	397	BUNKERC (C10-C38)	4982587	585
o-terph	4.682	-0.004	1260084	859799	JET-A (C10-C18)	3695314	233
Triacon Surr	6.482	0.001	280	83	IT.MOIL (C24-C40)	170950	8

Range Times: NW Diesel(3.428 - 5.581) NW Gas(0.754 - 3.428) NW M.Oil(5.581 - 7.637)
AK102(2.671 - 5.639) AK103(5.639 - 7.380) Jet A(2.671 - 4.656)

Surrogate	Area	Amount	%Rec
o-Terphenyl	859799	50.6	112.5
Triacontane	83	0.0	0.0

Analyte	RF	Curve Date
o-Terph Surr	16983.9	01-NOV-2010
Triacon Surr	15901.0	16-OCT-2010
Gas	15975.0	20-OCT-2010
Diesel	18232.0	01-NOV-2010
Motor Oil	11596.5	15-OCT-2010
AK102	20751.0	01-NOV-2010
AK103	8727.5	29-SEPT-2010
JetA	15848.0	27-JAN-2009
OR Diesel	25401.0	
OR M.Oil	11274.0	
IT M.Oil	21488.2	
Bunker C	8522.1	20-SEP-2010
Creosote	6396.0	17-JAN-2009

Data File: /chem3/fid3b.i/20101104.b/1104braw.b/1104b019.d

Date : 04-NOV-2010 23:52

Client ID:

Sample Info: DIESEL#2

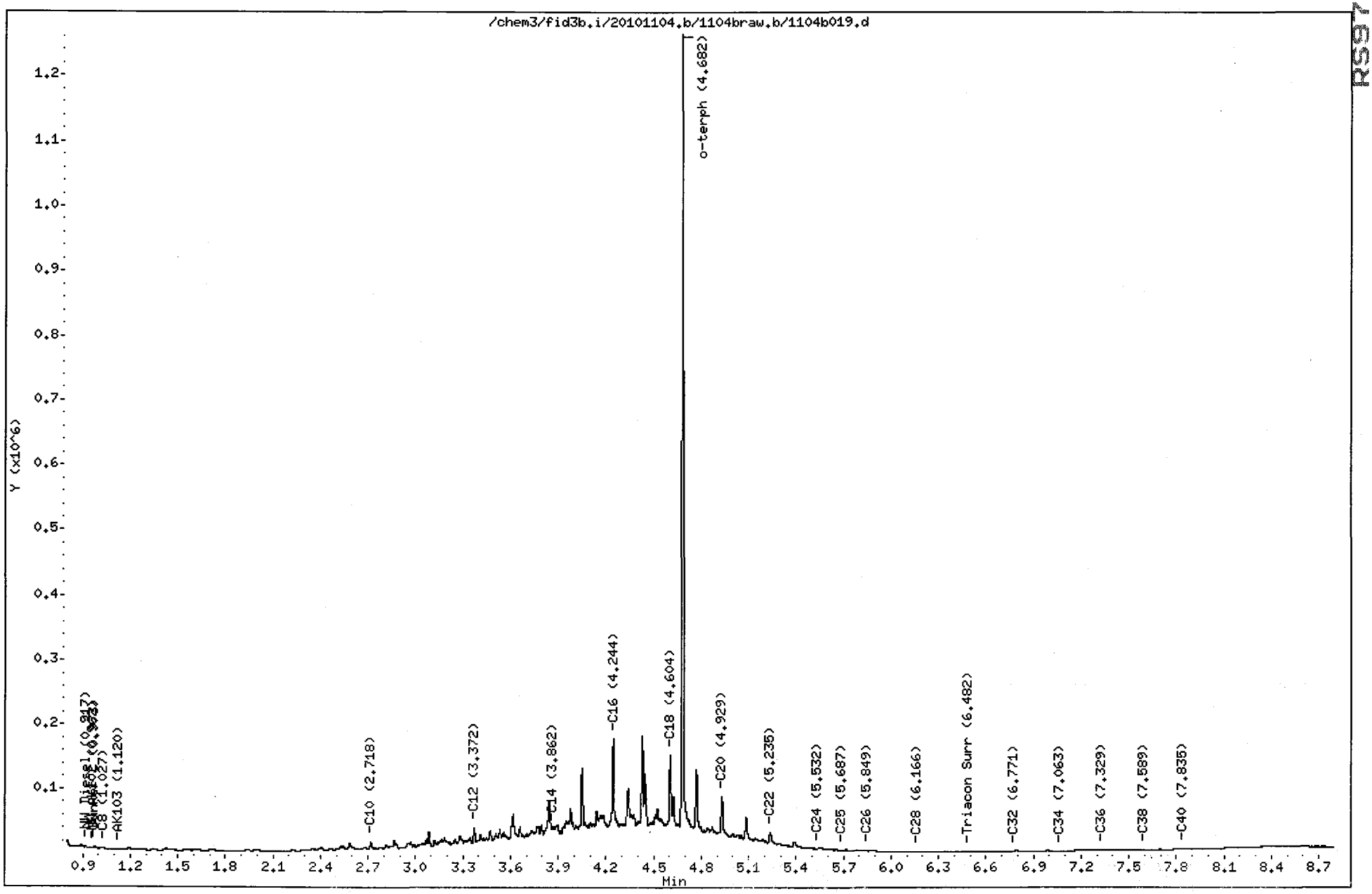
Column phase: ZB-1HT

Instrument: fid3b.i

Operator: MS

Column diameter: 0.25

RS97:01202



Analytical Resources Inc.
407S TPH Quantitation Report

Data file: /chem3/fid3b.i/20101104.b/1104braw.b/1104b020.d ARI ID: MOIL#2
Method: /chem3/fid3b.i/20101104.b/ftphfid3b.m Client ID:
Instrument: fid3b.i Injection: 05-NOV-2010 00:09
Operator: MS Dilution Factor: 1
Report Date: 11/15/2010
Macro: FID:3B110110

FID:3B RESULTS

Compound	RT	Shift	Height	Area	Range	Total Area	Conc
Toluene	0.875	0.071	6677	8771	GAS (Tol-C12)	209900	13
C8	1.032	0.003	3388	2221	DIESEL (C12-C24)	733801	40
C10	2.715	-0.006	1601	438	M.OIL (C24-C38)	5265109	454
C12	3.378	0.000	1889	261	AK-102 (C10-C25)	925584	45
C14	3.854	0.002	1231	438	AK-103 (C25-C36)	4678869	536
C16	4.251	0.003	773	330	OR.DIES (C10-C28)	2220233	87
C18	4.604	-0.002	1046	244	OR.MOIL (C28-C40)	4198839	372
C20	4.933	0.001	4284	2171			
C22	5.234	0.003	15410	4872	STODDARD (C8-C12)	167147	6
C24	5.532	0.000	27705	17207			
C25	5.693	0.004	34579	26201			
C26	5.845	-0.002	37151	7376			
C28	6.163	-0.003	43671	23231			
C32	6.773	-0.001	51610	29581			
C34	7.064	0.002	48538	21053	CREOSOT (C8-C22)	336438	53
Filter Peak	----						
C36	7.334	0.004	40642	21859	BUNKERC (C10-C38)	6085603	714
o-terph	4.685	0.000	3996	3953	JET-A (C10-C18)	180882	11
Triacon Surr	6.481	-0.001	727266	492911	IT.MOIL (C24-C40)	6091489	283

Range Times: NW Diesel(3.428 - 5.581) NW Gas(0.754 - 3.428) NW M.Oil(5.581 - 7.637)
AK102(2.671 - 5.639) AK103(5.639 - 7.380) Jet A(2.671 - 4.656)

Surrogate	Area	Amount	%Rec
o-Terphenyl	3953	0.2	0.5
Triacontane	492911	31.0	68.9

Analyte	RF	Curve Date
o-Terph Surr	16983.9	01-NOV-2010
Triacon Surr	15901.0	16-OCT-2010
Gas	15975.0	20-OCT-2010
Diesel	18232.0	01-NOV-2010
Motor Oil	11596.5	15-OCT-2010
AK102	20751.0	01-NOV-2010
AK103	8727.5	29-SEPT-2010
JetA	15848.0	27-JAN-2009
OR Diesel	25401.0	
OR M.Oil	11274.0	
IT M.Oil	21488.2	
Bunker C	8522.1	20-SEP-2010
Creosote	6396.0	17-JAN-2009

Data File: /chem3/fid3b.i/20101104.b/1104braw.b/1104b020.d

Date : 05-NOV-2010 00:09

Client ID:

Sample Info: MOIL#2

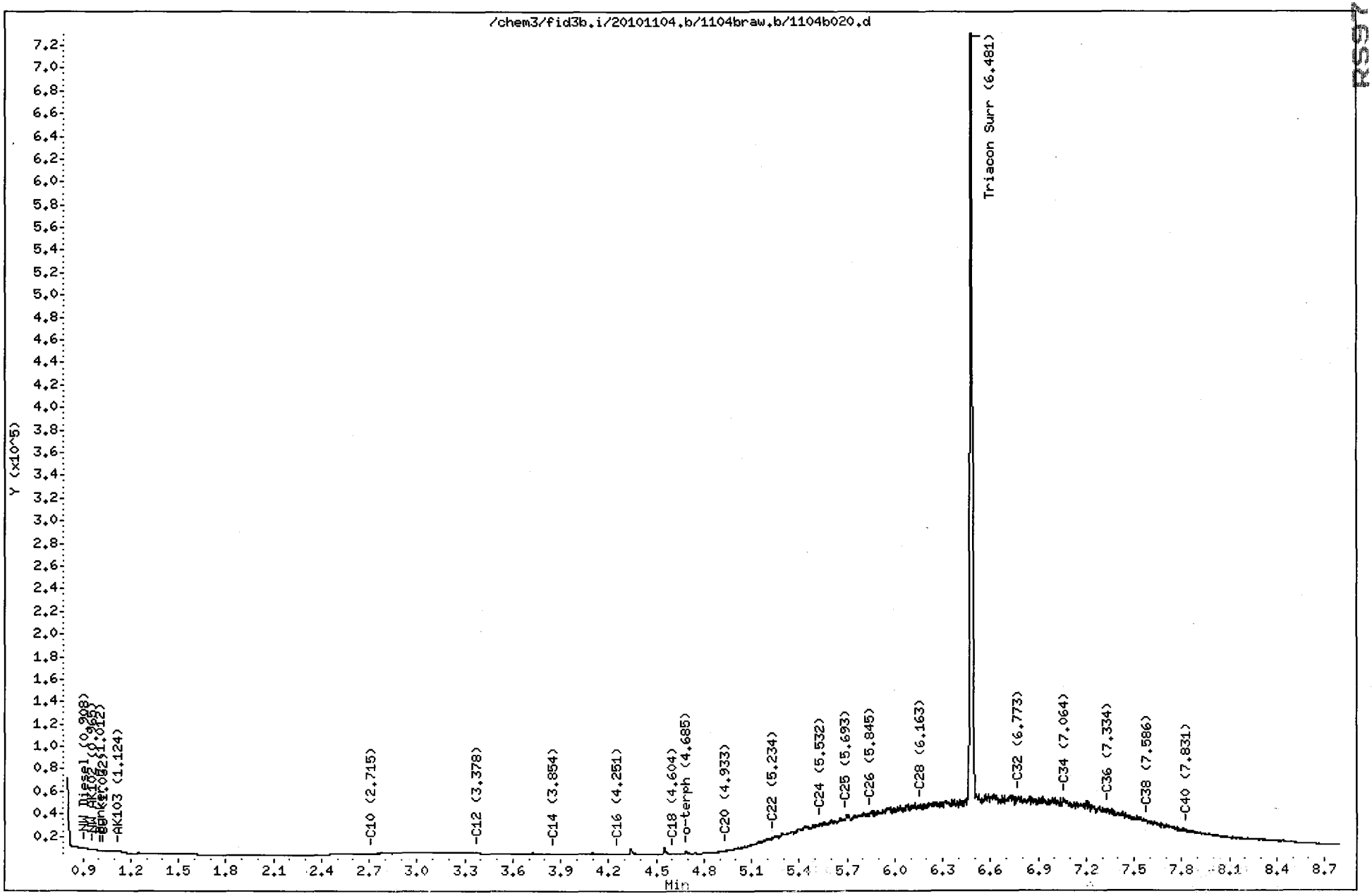
Column phase: ZB-1HT

Instrument: fid3b.i

Operator: MS

Column diameter: 0.25

RS57 : 012611



Analytical Resources Inc.
407S TPH Quantitation Report

Data file: /chem3/fid3b.i/20101104.b/1104b021.d
Method: /chem3/fid3b.i/20101104.b/ftphfid3b.m
Instrument: fid3b.i
Operator: MS
Report Date: 11/15/2010
Macro: FID:3B110110

ARI ID: RS97I
Client ID: DGS-07-2.22.7-10101
Injection: 05-NOV-2010 00:27
Dilution Factor: 10

FID:3B RESULTS

Compound	RT	Shift	Height	Area	Range	Total Area	Conc
Toluene	0.802	-0.002	16578	23620	GAS (Tol-C12)	292575	18
C8	1.029	0.000	3319	1901	DIESEL (C12-C24)	3658152	201
C10	2.722	0.002	1991	747	M.OIL (C24-C38)	3220106	278
C12	3.378	0.000	4221	1430	AK-102 (C10-C25)	3909606	188
C14	3.865	0.012	20387	30664	AK-103 (C25-C36)	2940932	337
C16	4.244	-0.004	19923	25185	OR.DIES (C10-C28)	5339678	210
C18	4.609	0.003	22903	11204	OR.MOIL (C28-C40)	1816590	161
C20	4.941	0.009	185149	147963			
C22	5.233	0.001	78542	67708	STODDARD (C8-C12)	223533	8
C24	5.516	-0.015	146103	177956			
C25	5.679	-0.010	31098	13033			
C26	5.848	0.001	27359	3808			
C28	6.171	0.006	33853	21022			
C32	6.774	0.000	22290	7057			
C34	7.058	-0.004	16273	15264	CREOSOT (C8-C22)	2844942	445
Filter Peak	----						
C36	7.328	-0.001	13850	9693	BUNKERC (C10-C38)	7013317	823
o-terph	4.680	-0.006	245443	180785	JET-A (C10-C18)	1400027	88
Triacon Surr	6.474	-0.008	155068	203915	IT.MOIL (C24-C40)	3566972	166

Range Times: NW Diesel(3.428 - 5.581) NW Gas(0.754 - 3.428) NW M.Oil(5.581 - 7.637)
AK102(2.671 - 5.639) AK103(5.639 - 7.380) Jet A(2.671 - 4.656)

Surrogate	Area	Amount	%Rec
o-Terphenyl	180785	10.6	236.5
Triacontane	203915	12.8	285.0

Analyte	RF	Curve Date
o-Terph Surr	16983.9	01-NOV-2010
Triacon Surr	15901.0	16-OCT-2010
Gas	15975.0	20-OCT-2010
Diesel	18232.0	01-NOV-2010
Motor Oil	11596.5	15-OCT-2010
AK102	20751.0	01-NOV-2010
AK103	8727.5	29-SEPT-2010
JetA	15848.0	27-JAN-2009
OR Diesel	25401.0	
OR M.Oil	11274.0	
IT M.Oil	21488.2	
Bunker C	8522.1	20-SEP-2010
Creosote	6396.0	17-JAN-2009

Data File: /chem3/fid3b.i/20101104.b/1104b021.d

Date : 05-NOV-2010 00:27

Client ID: DGS-07-2.22.7-10101

Sample Info: RS97I,10

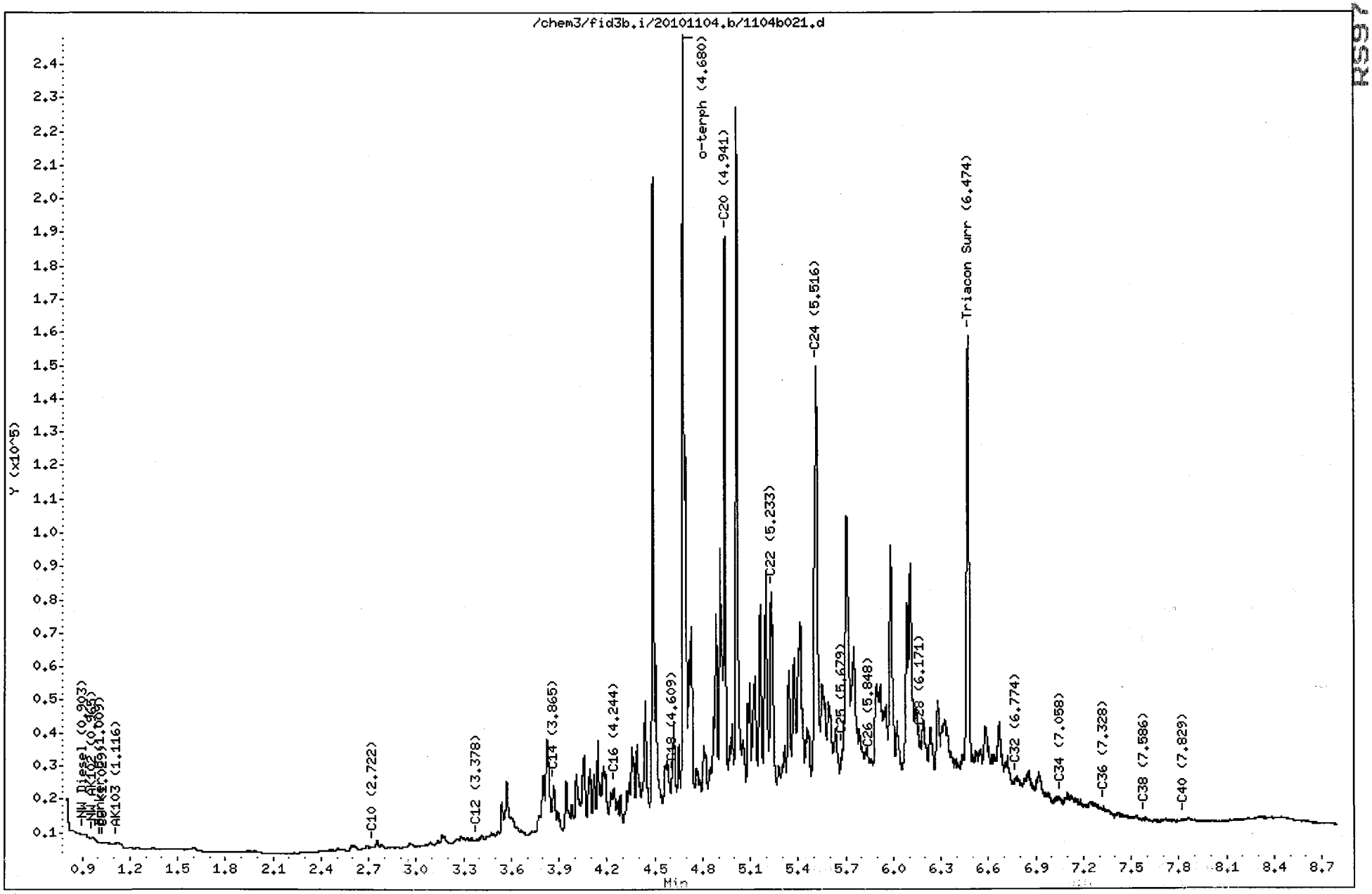
Column phase: ZB-1HT

Instrument: fid3b.i

Operator: MS

Column diameter: 0.25

RS97 : 01206



Analytical Resources Inc.
407S TPH Quantitation Report

Data file: /chem3/fid3b.i/20101104.b/1104b022.d
Method: /chem3/fid3b.i/20101104.b/ftphfid3b.m
Instrument: fid3b.i
Operator: MS
Report Date: 11/15/2010
Macro: FID:3B110110

ARI ID: RS97J
Client ID: DGS-07-034.2-101012
Injection: 05-NOV-2010 00:44
Dilution Factor: 10

FID:3B RESULTS

Compound	RT	Shift	Height	Area	Range	Total Area	Conc
Toluene	0.804	0.000	14422	22877	GAS (Tol-C12)	320526	20
C8	1.030	0.000	3380	2322	DIESEL (C12-C24)	5377802	295
C10	2.719	-0.002	2051	1141	M.OIL (C24-C38)	4600757	397
C12	3.375	-0.003	4781	3002	AK-102 (C10-C25)	5639309	272
C14	3.863	0.010	32345	33408	AK-103 (C25-C36)	4222675	484
C16	4.247	-0.001	31262	18709	OR.DIES (C10-C28)	7549968	297
C18	4.605	-0.001	31701	10895	OR.MOIL (C28-C40)	2803264	249
C20	4.928	-0.004	68510	21406			
C22	5.230	-0.002	95273	118976	STODDARD (C8-C12)	247740	9
C24	5.516	-0.016	206282	265460			
C25	5.690	0.001	44106	12257			
C26	5.842	-0.005	46789	38624			
C28	6.164	-0.001	49071	37852			
C32	6.775	0.001	31991	7605			
C34	7.057	-0.005	26786	17304	CREOSOT (C8-C22)	4303081	673
Filter Peak	----						
C36	7.333	0.003	21724	6854	BUNKERC (C10-C38)	10126621	1188
o-terph	4.680	-0.005	227556	179947	JET-A (C10-C18)	2266691	143
Triacon Surr	6.472	-0.010	154484	198008	IT.MOIL (C24-C40)	5025376	234

Range Times: NW Diesel(3.428 - 5.581) NW Gas(0.754 - 3.428) NW M.Oil(5.581 - 7.637)
AK102(2.671 - 5.639) AK103(5.639 - 7.380) Jet A(2.671 - 4.656)

Surrogate	Area	Amount	%Rec
o-Terphenyl	179947	10.6	235.4
Triacontane	198008	12.5	276.7

Analyte	RF	Curve Date
o-Terph Surr	16983.9	01-NOV-2010
Triacon Surr	15901.0	16-OCT-2010
Gas	15975.0	20-OCT-2010
Diesel	18232.0	01-NOV-2010
Motor Oil	11596.5	15-OCT-2010
AK102	20751.0	01-NOV-2010
AK103	8727.5	29-SEPT-2010
JetA	15848.0	27-JAN-2009
OR Diesel	25401.0	
OR M.Oil	11274.0	
IT M.Oil	21488.2	
Bunker C	8522.1	20-SEP-2010
Creosote	6396.0	17-JAN-2009

Data File: /chem3/fid3b.i/20101104.b/1104b022.d

Date : 05-NOV-2010 00:44

Client ID: DGS-07-034.2-101012

Sample Info: RS97J.10

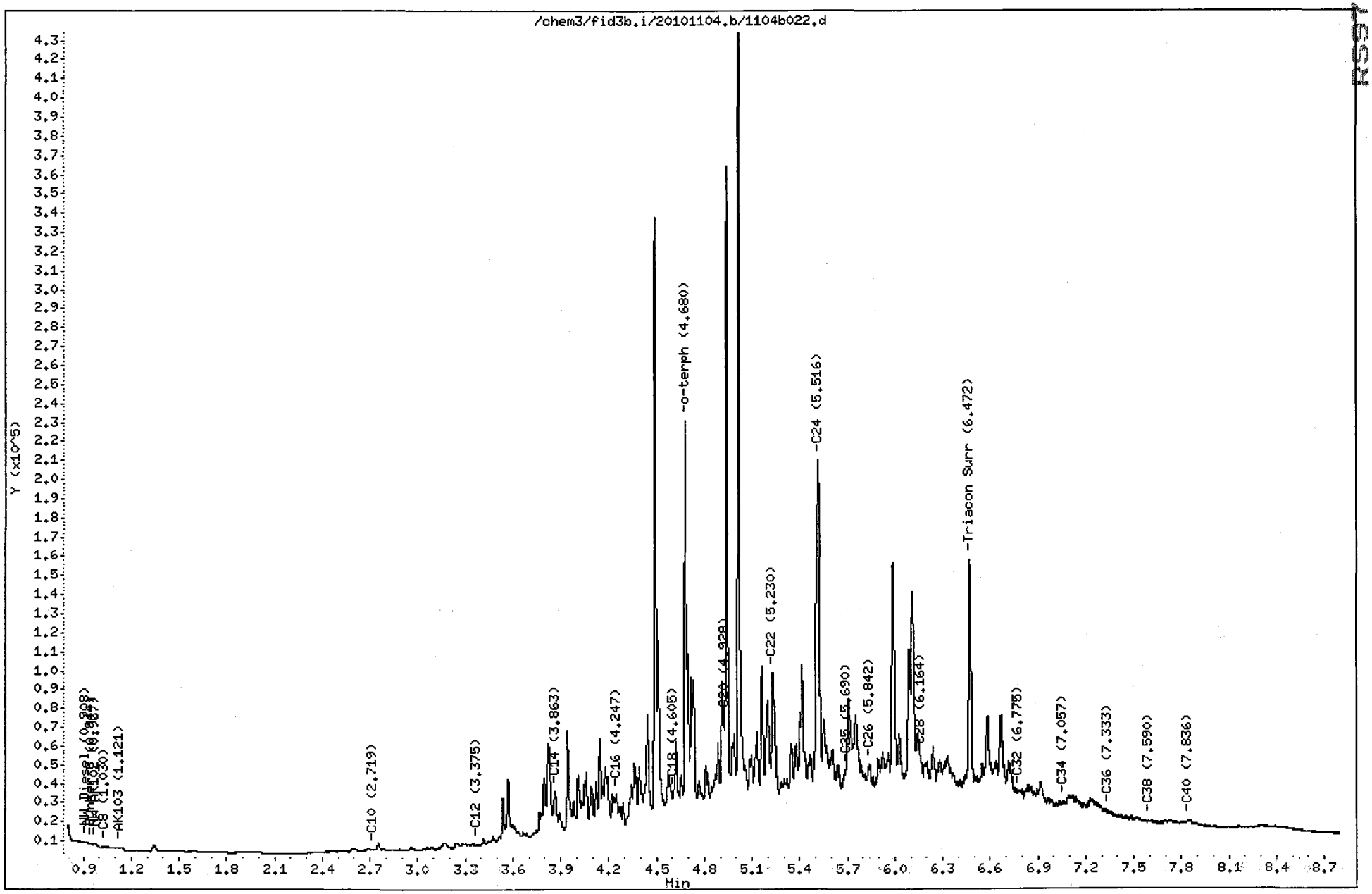
Column phase: ZB-1HT

Instrument: fid3b.i

Operator: MS

Column diameter: 0.25

RS97 : 91298



Analytical Resources Inc.
407S TPH Quantitation Report

Data file: /chem3/fid3b.i/20101104.b/1104b023.d
Method: /chem3/fid3b.i/20101104.b/ftphfid3b.m
Instrument: fid3b.i
Operator: MS
Report Date: 11/15/2010
Macro: FID:3B110110

ARI ID: RS97K
Client ID: DGS-07-4.75.2-10101
Injection: 05-NOV-2010 01:02
Dilution Factor: 10

FID:3B RESULTS

Compound	RT	Shift	Height	Area	Range	Total Area	Conc
Toluene	0.803	-0.001	14713	21672	GAS (Tol-C12)	299671	19
C8	1.026	-0.003	3310	2879	DIESEL (C12-C24)	5608905	308
C10	2.720	-0.001	1883	773	M.OIL (C24-C38)	7202111	621
C12	3.378	0.000	3628	2903	AK-102 (C10-C25)	6008071	290
C14	3.866	0.013	19989	29899	AK-103 (C25-C36)	6553829	751
C16	4.244	-0.004	18452	21959	OR.DIES (C10-C28)	8985530	354
C18	4.610	0.004	25262	12234	OR.MOIL (C28-C40)	4261458	378
C20	4.941	0.009	443095	342091			
C22	5.230	-0.002	136171	127273	STODDARD (C8-C12)	222624	8
C24	5.518	-0.013	398032	561679			
C25	5.681	-0.008	57150	11190			
C26	5.840	-0.007	72303	67677			
C28	6.163	-0.002	82526	58005			
C32	6.773	-0.001	49210	5871			
C34	7.059	-0.003	42033	31407	CREOSOT (C8-C22)	4024657	629
Filter Peak	----						
C36	7.330	0.001	33027	22513	BUNKERC (C10-C38)	12937166	1518
o-terph	4.679	-0.007	220608	188074	JET-A (C10-C18)	1642576	104
Triacon Surr	6.475	-0.007	184758	259720	IT.MOIL (C24-C40)	7771653	362

Range Times: NW Diesel(3.428 - 5.581) NW Gas(0.754 - 3.428) NW M.Oil(5.581 - 7.637)
AK102(2.671 - 5.639) AK103(5.639 - 7.380) Jet A(2.671 - 4.656)

Surrogate	Area	Amount	%Rec
o-Terphenyl	188074	11.1	246.1
Triacontane	259720	16.3	363.0

Analyte	RF	Curve Date
o-Terph Surr	16983.9	01-NOV-2010
Triacon Surr	15901.0	16-OCT-2010
Gas	15975.0	20-OCT-2010
Diesel	18232.0	01-NOV-2010
Motor Oil	11596.5	15-OCT-2010
AK102	20751.0	01-NOV-2010
AK103	8727.5	29-SEPT-2010
JetA	15848.0	27-JAN-2009
OR Diesel	25401.0	
OR M.Oil	11274.0	
IT M.Oil	21488.2	
Bunker C	8522.1	20-SEP-2010
Creosote	6396.0	17-JAN-2009

Data File: /chem3/fid3b.i/20101104.b/1104b023.d

Date : 05-NOV-2010 01:02

Client ID: DGS-07-4.75.2-10101

Sample Info: RS97K,10

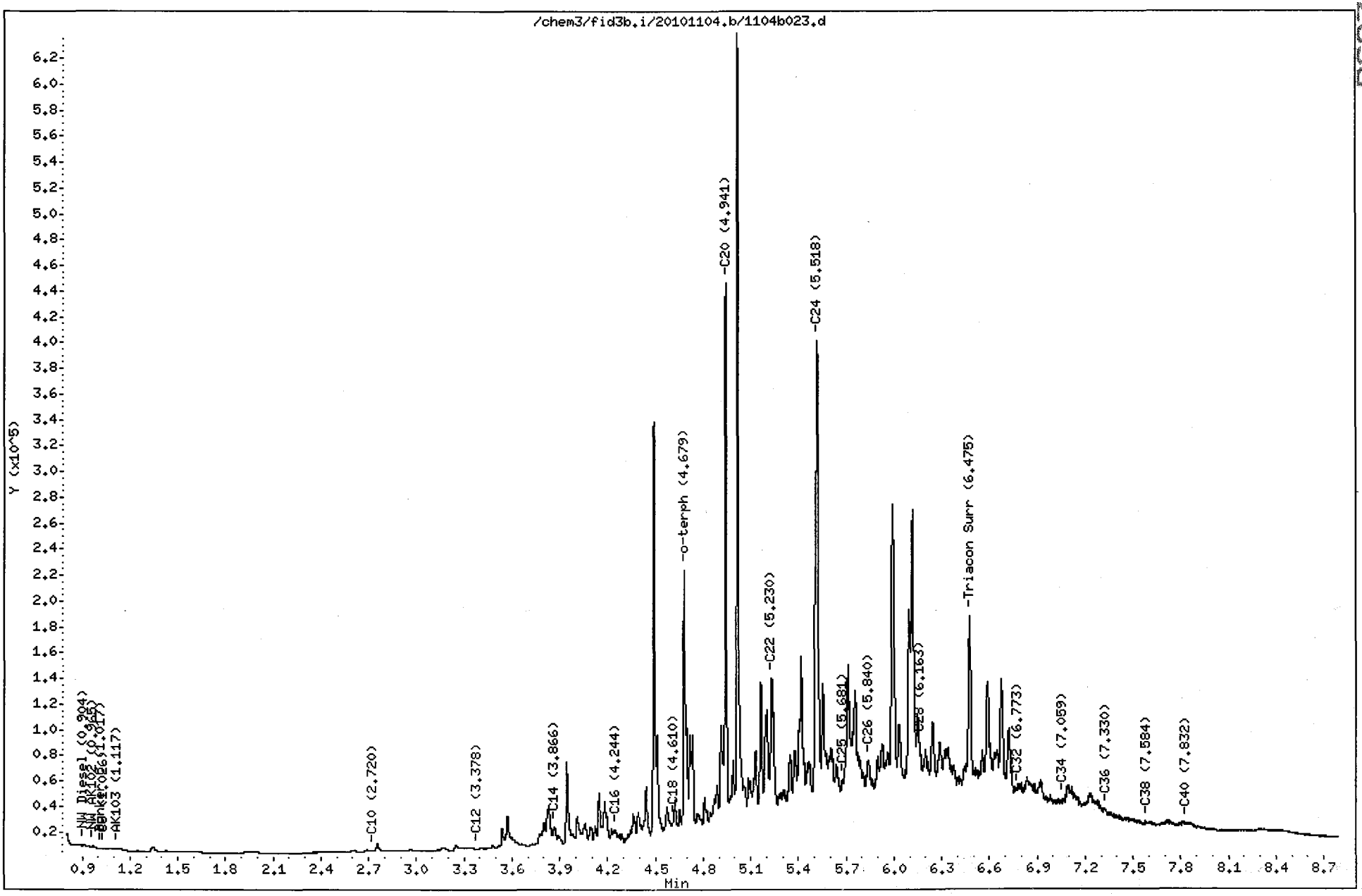
Column phase: ZB-1HT

Instrument: fid3b.i

Operator: MS

Column diameter: 0.25

RS97 : 01219



Analytical Resources Inc.
407S TPH Quantitation Report

Data file: /chem3/fid3b.i/20101104.b/1104b024.d
Method: /chem3/fid3b.i/20101104.b/ftphfid3b.m
Instrument: fid3b.i
Operator: MS
Report Date: 11/15/2010
Macro: FID:3B110110

ARI ID: RS97L
Client ID: DGS-07-5.66.7-10101
Injection: 05-NOV-2010 01:19
Dilution Factor: 5

FID:3B RESULTS

Compound	RT	Shift	Height	Area	Range	Total Area	Conc
Toluene	0.804	0.000	16763	22373	GAS (Tol-C12)	1330635	83
C8	1.026	-0.003	3264	2380	DIESEL (C12-C24)	8005095	439
C10	2.721	0.000	4468	2244	M.OIL (C24-C38)	3614468	312
C12	3.371	-0.006	15305	14409	AK-102 (C10-C25)	9267256	447
C14	3.869	0.016	84930	108665	AK-103 (C25-C36)	3315453	380
C16	4.248	0.000	34899	34585	OR.DIES (C10-C28)	10896455	429
C18	4.608	0.002	40211	10828	OR.MOIL (C28-C40)	2037293	181
C20	4.927	-0.005	92238	17950			
C22	5.232	0.000	89667	108463	STODDARD (C8-C12)	1265489	46
C24	5.519	-0.012	259768	297947			
C25	5.691	0.002	37082	9992			
C26	5.843	-0.003	37301	25615			
C28	6.174	0.009	32301	6903			
C32	6.769	-0.005	23364	10729			
C34	7.063	0.001	16634	6473	CREOSOT (C8-C22)	6887532	1077
Filter Peak	----						
C36	7.329	0.000	15016	3248	BUNKERC (C10-C38)	12757053	1497
o-terph	4.684	-0.001	462733	359467	JET-A (C10-C18)	4959905	313
Triacon Surr	6.477	-0.005	265933	316681	IT.MOIL (C24-C40)	4107844	191

Range Times: NW Diesel(3.428 - 5.581) NW Gas(0.754 - 3.428) NW M.Oil(5.581 - 7.637)
AK102(2.671 - 5.639) AK103(5.639 - 7.380) Jet A(2.671 - 4.656)

Surrogate	Area	Amount	%Rec
o-Terphenyl	359467	21.2	235.2
Triacontane	316681	19.9	221.3

Analyte	RF	Curve Date
o-Terph Surr	16983.9	01-NOV-2010
Triacon Surr	15901.0	16-OCT-2010
Gas	15975.0	20-OCT-2010
Diesel	18232.0	01-NOV-2010
Motor Oil	11596.5	15-OCT-2010
AK102	20751.0	01-NOV-2010
AK103	8727.5	29-SEPT-2010
JetA	15848.0	27-JAN-2009
OR Diesel	25401.0	
OR M.Oil	11274.0	
IT M.Oil	21488.2	
Bunker C	8522.1	20-SEP-2010
Creosote	6396.0	17-JAN-2009

Data File: /chem3/fid3b.i/20101104.b/1104b024.d

Date : 05-NOV-2010 01:19

Client ID: DGS-07-5.66.7-10101

Sample Info: RS97L,5

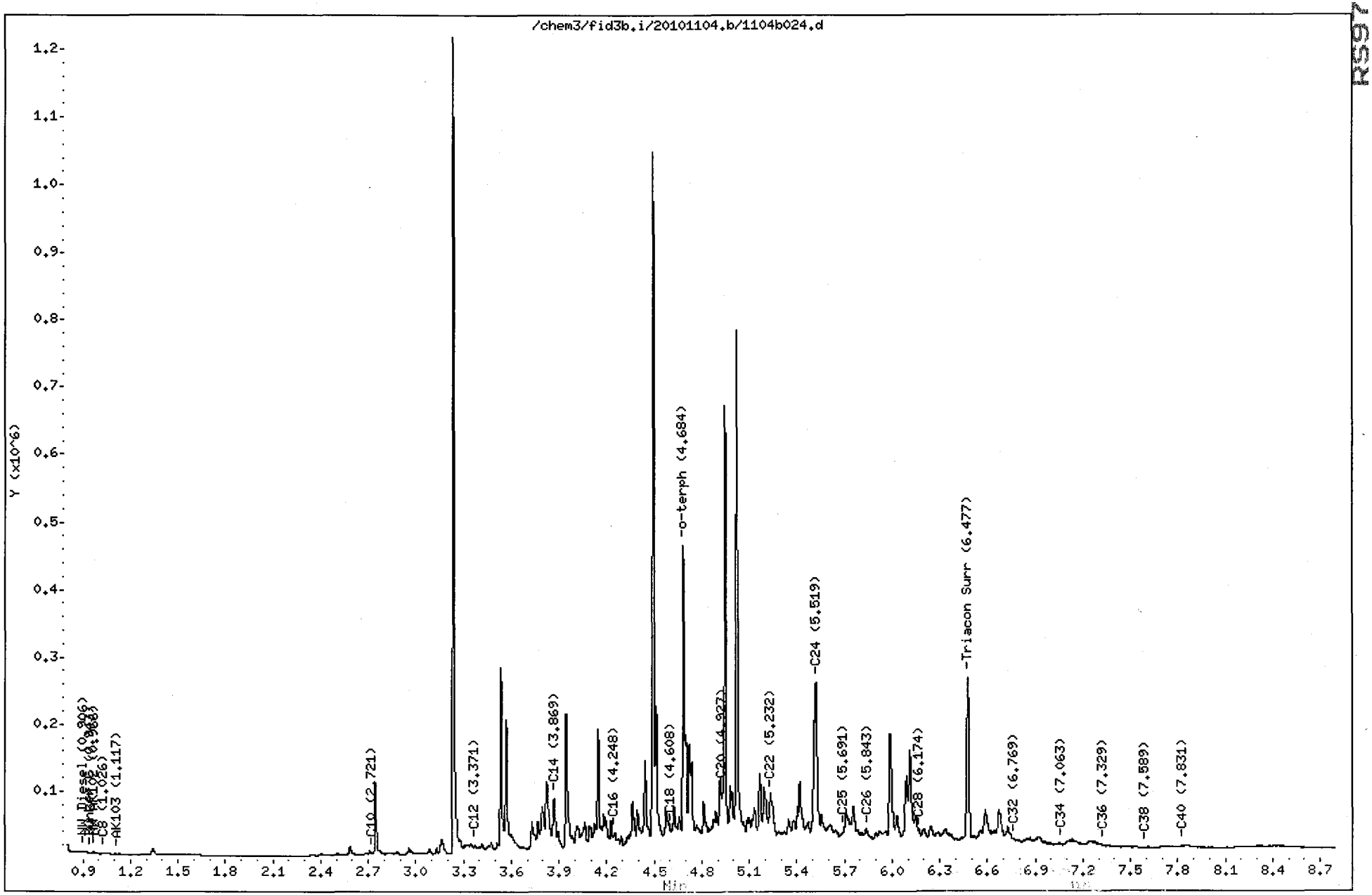
Column phase: ZB-1HT

Instrument: fid3b.i

Operator: MS

Column diameter: 0.25

RS97 : 01212



Analytical Resources Inc.
407S TPH Quantitation Report

Data file: /chem3/fid3b.i/20101104.b/1104b025.d
Method: /chem3/fid3b.i/20101104.b/ftphfid3b.m
Instrument: fid3b.i
Operator: MS
Report Date: 11/15/2010
Macro: FID:3B110110

ARI ID: RS97M
Client ID: DGS-07-077.3-101012
Injection: 05-NOV-2010 01:37
Dilution Factor: 5

FID:3B RESULTS

Compound	RT	Shift	Height	Area	Range	Total Area	Conc
Toluene	0.806	0.002	17312	22785	GAS (Tol-C12)	385835	24
C8	1.031	0.002	3284	1762	DIESEL (C12-C24)	4473392	245
C10	2.715	-0.006	2705	1920	M.OIL (C24-C38)	2641251	228
C12	3.377	0.000	6804	7208	AK-102 (C10-C25)	4761533	229
C14	3.833	-0.019	53333	50931	AK-103 (C25-C36)	2380361	273
C16	4.250	0.002	27635	15659	OR.DIES (C10-C28)	5797300	228
C18	4.615	0.009	31538	10362	OR.MOIL (C28-C40)	1678712	149
C20	4.934	0.002	51908	9178			
C22	5.234	0.002	46394	32193	STODDARD (C8-C12)	310529	11
C24	5.524	-0.007	84805	101907			
C25	5.686	-0.003	29066	6842			
C26	5.849	0.002	26958	13014			
C28	6.167	0.002	31596	20273			
C32	6.772	-0.002	22006	10330			
C34	7.058	-0.004	17229	9485	CREOSOT (C8-C22)	3826577	598
Filter Peak	----						
C36	7.326	-0.003	13657	7889	BUNKERC (C10-C38)	7321031	859
o-terph	4.685	0.000	416520	292950	JET-A (C10-C18)	2302578	145
Triacon Surr	6.478	-0.003	233143	286576	IT.MOIL (C24-C40)	3082807	143

Range Times: NW Diesel(3.428 - 5.581) NW Gas(0.754 - 3.428) NW M.Oil(5.581 - 7.637)
AK102(2.671 - 5.639) AK103(5.639 - 7.380) Jet A(2.671 - 4.656)

Surrogate	Area	Amount	%Rec
o-Terphenyl	292950	17.2	191.7
Triacontane	286576	18.0	200.3

Analyte	RF	Curve Date
o-Terph Surr	16983.9	01-NOV-2010
Triacon Surr	15901.0	16-OCT-2010
Gas	15975.0	20-OCT-2010
Diesel	18232.0	01-NOV-2010
Motor Oil	11596.5	15-OCT-2010
AK102	20751.0	01-NOV-2010
AK103	8727.5	29-SEPT-2010
JetA	15848.0	27-JAN-2009
OR Diesel	25401.0	
OR M.Oil	11274.0	
IT M.Oil	21488.2	
Bunker C	8522.1	20-SEP-2010
Creosote	6396.0	17-JAN-2009

Data File: /chem3/fid3b.i/20101104.b/1104b025.d

Date : 05-NOV-2010 01:37

Client ID: DGS-07-077.3-101012

Sample Info: RS97M.5

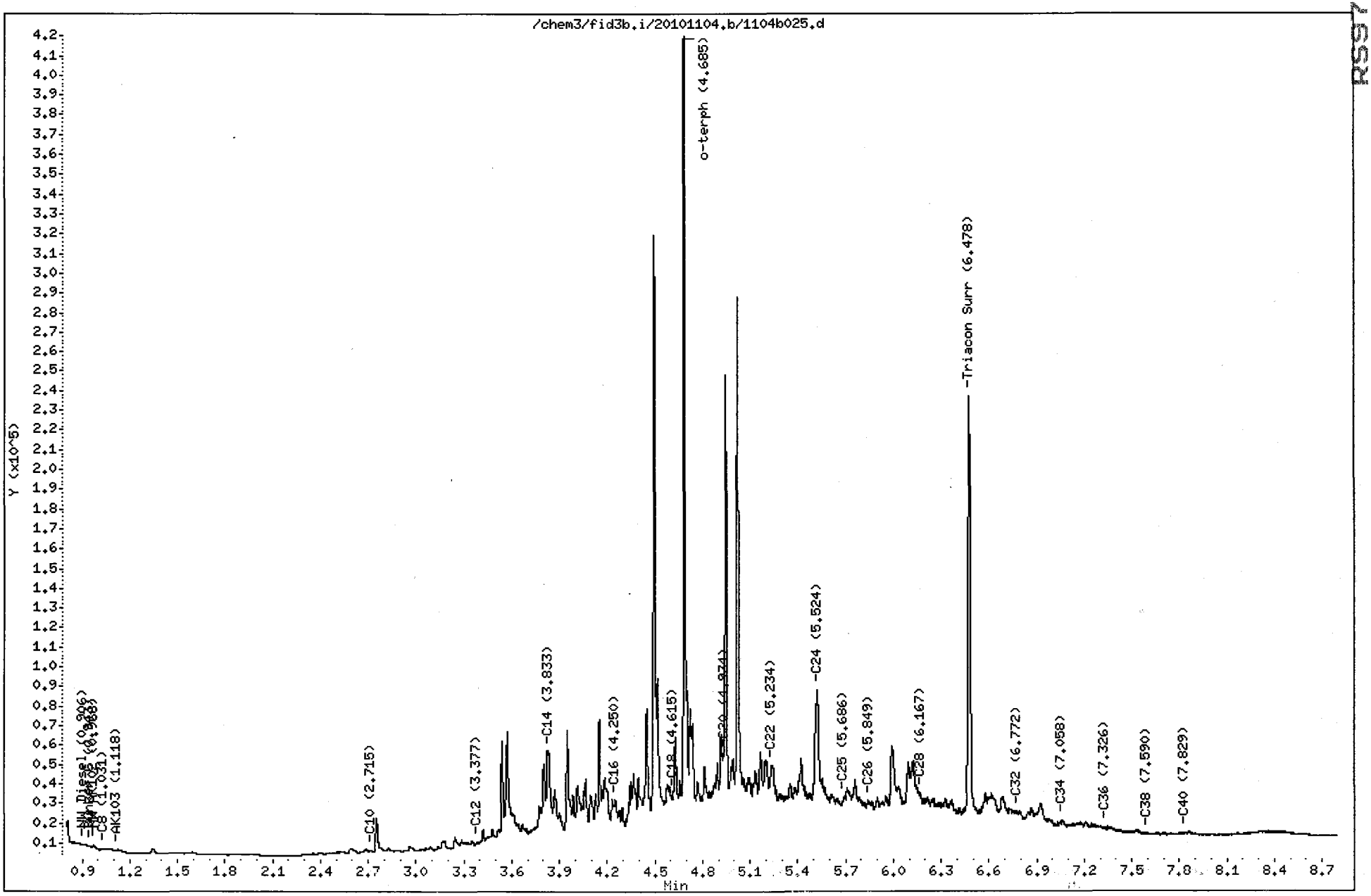
Column phase: ZB-1HT

Instrument: fid3b.i

Operator: MS

Column diameter: 0.25

RS97 : 01214



Analytical Resources Inc.
407S TPH Quantitation Report

Data file: /chem3/fid3b.i/20101104.b/1104b026.d
Method: /chem3/fid3b.i/20101104.b/ftphfid3b.m
Instrument: fid3b.i
Operator: MS
Report Date: 11/15/2010
Macro: FID:3B110110

ARI ID: RS97N
Client ID: DGS-07-7.98.4-10101
Injection: 05-NOV-2010 01:54
Dilution Factor: 2

FID:3B RESULTS

Compound	RT	Shift	Height	Area	Range	Total Area	Conc
Toluene	0.805	0.001	52037	50471	GAS (Tol-C12)	486329	30
C8	1.030	0.001	3366	3729	DIESEL (C12-C24)	8334614	457
C10	2.721	0.000	3419	2109	M.OIL (C24-C38)	4287479	370
C12	3.383	0.006	8718	5826	AK-102 (C10-C25)	8757131	422
C14	3.860	0.008	54361	75232	AK-103 (C25-C36)	3898360	447
C16	4.245	-0.003	51762	65364	OR.DIES (C10-C28)	10473816	412
C18	4.609	0.003	62933	29379	OR.MOIL (C28-C40)	2637110	234
C20	4.926	-0.006	94650	18652			
C22	5.232	0.000	99831	70545	STODDARD (C8-C12)	392532	14
C24	5.520	-0.011	224352	388686			
C25	5.688	-0.001	46943	22009			
C26	5.847	0.000	42674	21303			
C28	6.166	0.000	45787	12342			
C32	6.776	0.002	32180	16903			
C34	7.068	0.006	25864	13361	CREOSOT (C8-C22)	7111606	1112
Filter Peak	----						
C36	7.324	-0.005	21129	14998	BUNKERC (C10-C38)	12891224	1513
o-terph	4.683	-0.003	1069537	772169	JET-A (C10-C18)	4065816	257
Triacon Surr	6.480	-0.001	615603	713610	IT.MOIL (C24-C40)	5220792	243

Range Times: NW Diesel(3.428 - 5.581) NW Gas(0.754 - 3.428) NW M.Oil(5.581 - 7.637)
AK102(2.671 - 5.639) AK103(5.639 - 7.380) Jet A(2.671 - 4.656)

Surrogate	Area	Amount	%Rec
o-Terphenyl	772169	45.5	202.1
Triacontane	713610	44.9	199.5

Analyte	RF	Curve Date
o-Terph Surr	16983.9	01-NOV-2010
Triacon Surr	15901.0	16-OCT-2010
Gas	15975.0	20-OCT-2010
Diesel	18232.0	01-NOV-2010
Motor Oil	11596.5	15-OCT-2010
AK102	20751.0	01-NOV-2010
AK103	8727.5	29-SEPT-2010
JetA	15848.0	27-JAN-2009
OR Diesel	25401.0	
OR M.Oil	11274.0	
IT M.Oil	21488.2	
Bunker C	8522.1	20-SEP-2010
Creosote	6396.0	17-JAN-2009

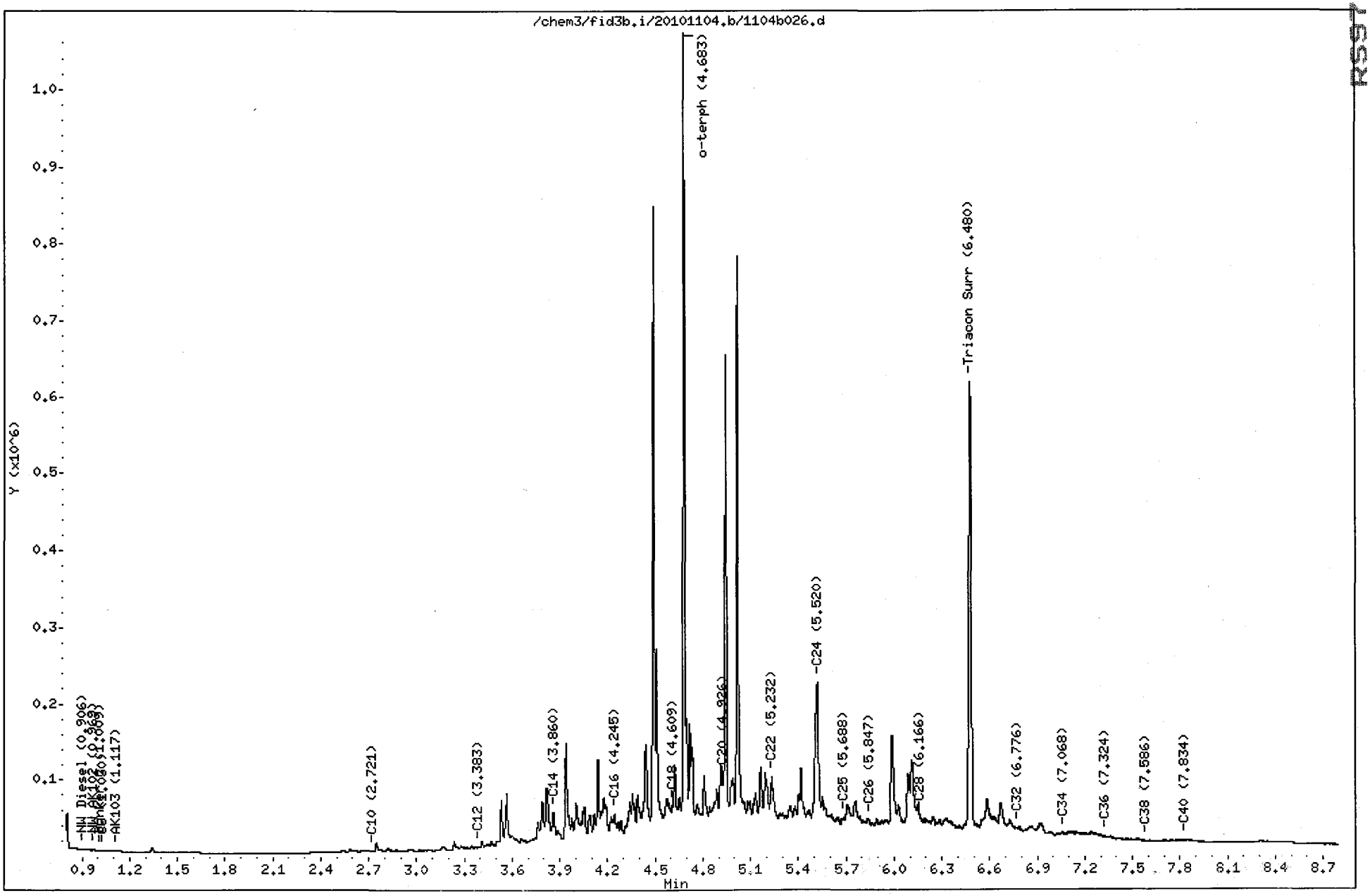
Data File: /chem3/fid3b.i/20101104.b/1104b026.d
Date : 05-NOV-2010 01:54
Client ID: DGS-07-7.98.4-10101
Sample Info: RS97N,2

Column phase: ZB-1HT

Instrument: fid3b.i

Operator: MS
Column diameter: 0.25

RS97 : 01215



Analytical Resources Inc.
407S TPH Quantitation Report

Data file: /chem3/fid3b.i/20101104.b/1104b027.d
Method: /chem3/fid3b.i/20101104.b/ftphfid3b.m
Instrument: fid3b.i
Operator: MS
Report Date: 11/15/2010
Macro: FID:3B110110

ARI ID: RS970
Client ID: DGS-07-8.79.1-10101
Injection: 05-NOV-2010 02:11
Dilution Factor: 5

FID:3B RESULTS

Compound	RT	Shift	Height	Area	Range	Total Area	Conc
Toluene	0.801	-0.003	18819	22667	GAS (Tol-C12)	690472	43
C8	1.027	-0.002	3828	4345	DIESEL (C12-C24)	10909004	598
C10	2.715	-0.006	4180	2226	M.OIL (C24-C38)	3895801	336
C12	3.384	0.006	14406	8072	AK-102 (C10-C25)	11555288	557
C14	3.858	0.006	89220	112590	AK-103 (C25-C36)	3550505	407
C16	4.242	-0.006	65434	52849	OR.DIES (C10-C28)	13258860	522
C18	4.607	0.001	61911	18967	OR.MOIL (C28-C40)	2229064	198
C20	4.926	-0.006	111161	27964			
C22	5.231	0.000	105214	118864	STODDARD (C8-C12)	625749	23
C24	5.518	-0.013	289287	306795			
C25	5.687	-0.002	44592	15346			
C26	5.848	0.001	38141	22174			
C28	6.169	0.003	38317	25702			
C32	6.777	0.003	26933	10392			
C34	7.061	-0.001	20268	12291	CREOSOT (C8-C22)	9545413	1492
Filter Peak	----						
C36	7.326	-0.004	17569	11122	BUNKERC (C10-C38)	15305087	1796
o-terph	4.682	-0.004	468232	348109	JET-A (C10-C18)	6071458	383
Triacon Surr	6.472	-0.009	267401	334371	IT.MOIL (C24-C40)	4413008	205

Range Times: NW Diesel(3.428 - 5.581) NW Gas(0.754 - 3.428) NW M.Oil(5.581 - 7.637)
AK102(2.671 - 5.639) AK103(5.639 - 7.380) Jet A(2.671 - 4.656)

Surrogate	Area	Amount	%Rec
o-Terphenyl	348109	20.5	227.7
Triacontane	334371	21.0	233.6

Analyte	RF	Curve Date
o-Terph Surr	16983.9	01-NOV-2010
Triacon Surr	15901.0	16-OCT-2010
Gas	15975.0	20-OCT-2010
Diesel	18232.0	01-NOV-2010
Motor Oil	11596.5	15-OCT-2010
AK102	20751.0	01-NOV-2010
AK103	8727.5	29-SEPT-2010
JetA	15848.0	27-JAN-2009
OR Diesel	25401.0	
OR M.Oil	11274.0	
IT M.Oil	21488.2	
Bunker C	8522.1	20-SEP-2010
Creosote	6396.0	17-JAN-2009

Data File: /chem3/fid3b.i/20101104.b/1104b027.d

Date : 05-NOV-2010 02:11

Client ID: DGS-07-8.79.1-10101

Sample Info: RS970,5

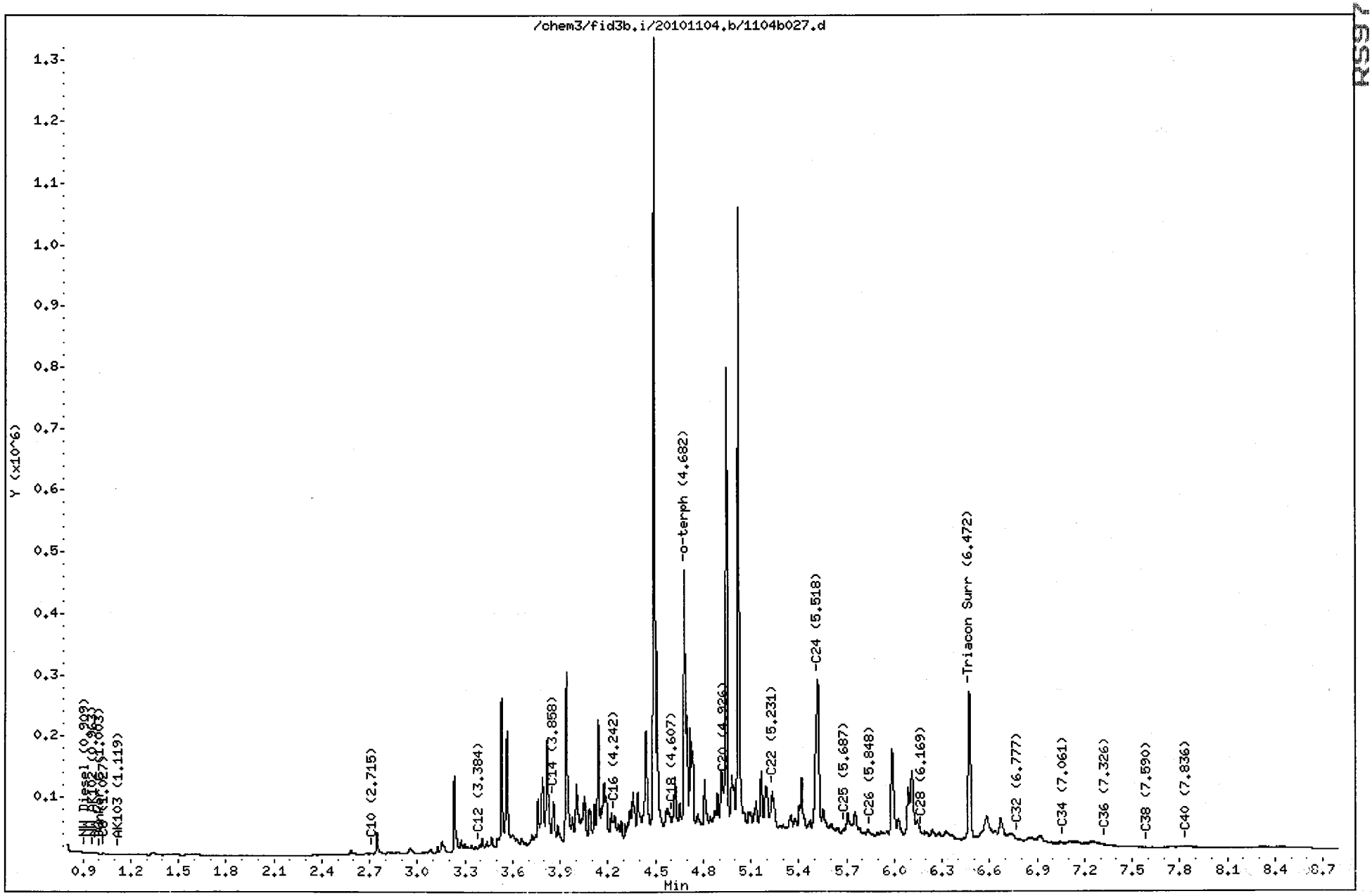
Column phase: ZB-1HT

Instrument: fid3b.i

Operator: MS

Column diameter: 0.25

RS97:01218



Analytical Resources Inc.
407S TPH Quantitation Report

Data file: /chem3/fid3b.i/20101104.b/1104b028.d
Method: /chem3/fid3b.i/20101104.b/ftphfid3b.m
Instrument: fid3b.i
Operator: MS
Report Date: 11/15/2010
Macro: FID:3B110110

ARI ID: RS97P
Client ID: DGS-07-9.710-101012
Injection: 05-NOV-2010 02:29
Dilution Factor: 10

FID:3B RESULTS

Compound	RT	Shift	Height	Area	Range	Total Area	Conc
Toluene	0.805	0.001	13621	18398	GAS (Tol-C12)	1244963	78
C8	1.029	0.000	3258	5105	DIESEL (C12-C24)	13133234	720
C10	2.718	-0.003	9785	5888	M.OIL (C24-C38)	3143223	271
C12	3.381	0.004	20800	8619	AK-102 (C10-C25)	14302412	689
C14	3.857	0.005	139339	149687	AK-103 (C25-C36)	2851556	327
C16	4.244	-0.004	97409	56758	OR.DIES (C10-C28)	15875510	625
C18	4.600	-0.006	73373	11622	OR.MOIL (C28-C40)	1535566	136
C20	4.925	-0.007	136430	29467			
C22	5.232	0.000	127948	167165	STODDARD (C8-C12)	1179087	43
C24	5.518	-0.014	254568	445359			
C25	5.681	-0.008	45231	16005			
C26	5.848	0.001	35400	11783			
C28	6.169	0.004	33226	19571			
C32	6.772	-0.002	20253	11084			
C34	7.056	-0.006	14530	10944	CREOSOT (C8-C22)	11732974	1834
Filter Peak	----						
C36	7.328	-0.002	11760	4850	BUNKERC (C10-C38)	17287578	2029
o-terph	4.681	-0.005	287623	292780	JET-A (C10-C18)	8506290	537
Triacon Surr	6.473	-0.008	145013	193383	IT.MOIL (C24-C40)	3460105	161

Range Times: NW Diesel(3.428 - 5.581) NW Gas(0.754 - 3.428) NW M.Oil(5.581 - 7.637)
AK102(2.671 - 5.639) AK103(5.639 - 7.380) Jet A(2.671 - 4.656)

Surrogate	Area	Amount	%Rec
o-Terphenyl	292780	17.2	383.1
Triacontane	193383	12.2	270.3

Analyte	RF	Curve Date
o-Terph Surr	16983.9	01-NOV-2010
Triacon Surr	15901.0	16-OCT-2010
Gas	15975.0	20-OCT-2010
Diesel	18232.0	01-NOV-2010
Motor Oil	11596.5	15-OCT-2010
AK102	20751.0	01-NOV-2010
AK103	8727.5	29-SEPT-2010
JetA	15848.0	27-JAN-2009
OR Diesel	25401.0	
OR M.Oil	11274.0	
IT M.Oil	21488.2	
Bunker C	8522.1	20-SEP-2010
Creosote	6396.0	17-JAN-2009

Data File: /chem3/fid3b.i/20101104.b/1104b028.d

Date : 05-NOV-2010 02:29

Client ID: DGS-07-9.710-101012

Sample Info: RS97P,10

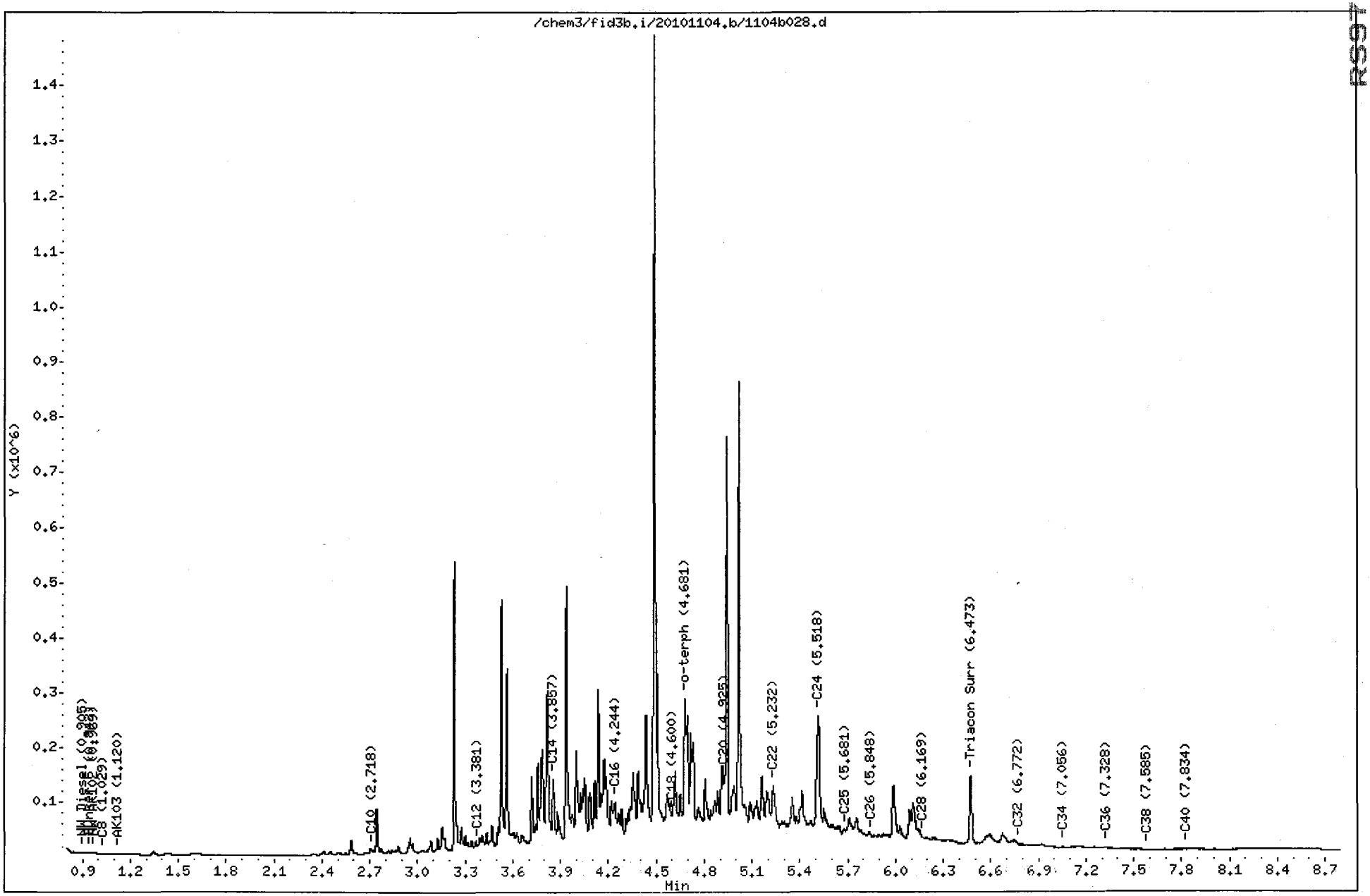
Column phase: ZB-1HT

Instrument: fid3b.i

Operator: MS

Column diameter: 0.25

RS97 : 01220



Analytical Resources Inc.
407S TPH Quantitation Report

Data file: /chem3/fid3b.i/20101104.b/1104b029.d
Method: /chem3/fid3b.i/20101104.b/ftphfid3b.m
Instrument: fid3b.i
Operator: MS
Report Date: 11/15/2010
Macro: FID:3B110110

ARI ID: RS97Q
Client ID: DGS-07-10.610.9-101
Injection: 05-NOV-2010 02:46
Dilution Factor: 10

FID:3B RESULTS

Compound	RT	Shift	Height	Area	Range	Total Area	Conc
Toluene	0.803	-0.001	15739	21956	GAS (Tol-C12)	553811	35
C8	1.028	-0.001	3331	5191	DIESEL (C12-C24)	5479762	301
C10	2.718	-0.002	2898	1934	M.OIL (C24-C38)	2048996	177
C12	3.380	0.002	10614	6234	AK-102 (C10-C25)	5959398	287
C14	3.845	-0.007	27593	4312	AK-103 (C25-C36)	1855509	213
C16	4.241	-0.007	34869	26779	OR.DIES (C10-C28)	6849694	270
C18	4.600	-0.006	28727	11267	OR.MOIL (C28-C40)	1194022	106
C20	4.940	0.008	472947	375995			
C22	5.232	0.001	48341	52644	STODDARD (C8-C12)	498978	18
C24	5.517	-0.014	142230	131407			
C25	5.688	-0.001	21050	4526			
C26	5.847	0.001	18996	6102			
C28	6.160	-0.005	27856	17368			
C32	6.772	-0.002	15493	4526			
C34	7.066	0.004	9812	1556	CREOSOT (C8-C22)	4811143	752
Filter Peak	----						
C36	7.332	0.003	9990	6200	BUNKERC (C10-C38)	7928617	930
o-terph	4.678	-0.007	239848	235926	JET-A (C10-C18)	3320584	210
Triacon Surr	6.474	-0.008	138146	174831	IT.MOIL (C24-C40)	2338926	109

Range Times: NW Diesel(3.428 - 5.581) NW Gas(0.754 - 3.428) NW M.Oil(5.581 - 7.637)
AK102(2.671 - 5.639) AK103(5.639 - 7.380) Jet A(2.671 - 4.656)

Surrogate	Area	Amount	%Rec
o-Terphenyl	235926	13.9	308.7
Triacontane	174831	11.0	244.3

Analyte	RF	Curve Date
o-Terph Surr	16983.9	01-NOV-2010
Triacon Surr	15901.0	16-OCT-2010
Gas	15975.0	20-OCT-2010
Diesel	18232.0	01-NOV-2010
Motor Oil	11596.5	15-OCT-2010
AK102	20751.0	01-NOV-2010
AK103	8727.5	29-SEPT-2010
JetA	15848.0	27-JAN-2009
OR Diesel	25401.0	
OR M.Oil	11274.0	
IT M.Oil	21488.2	
Bunker C	8522.1	20-SEP-2010
Creosote	6396.0	17-JAN-2009

Data File: /chem3/fid3b.i/20101104.b/1104b029.d

Date : 05-NOV-2010 02:46

Client ID: DGS-07-10.610.9-101

Sample Info: RS97Q.10

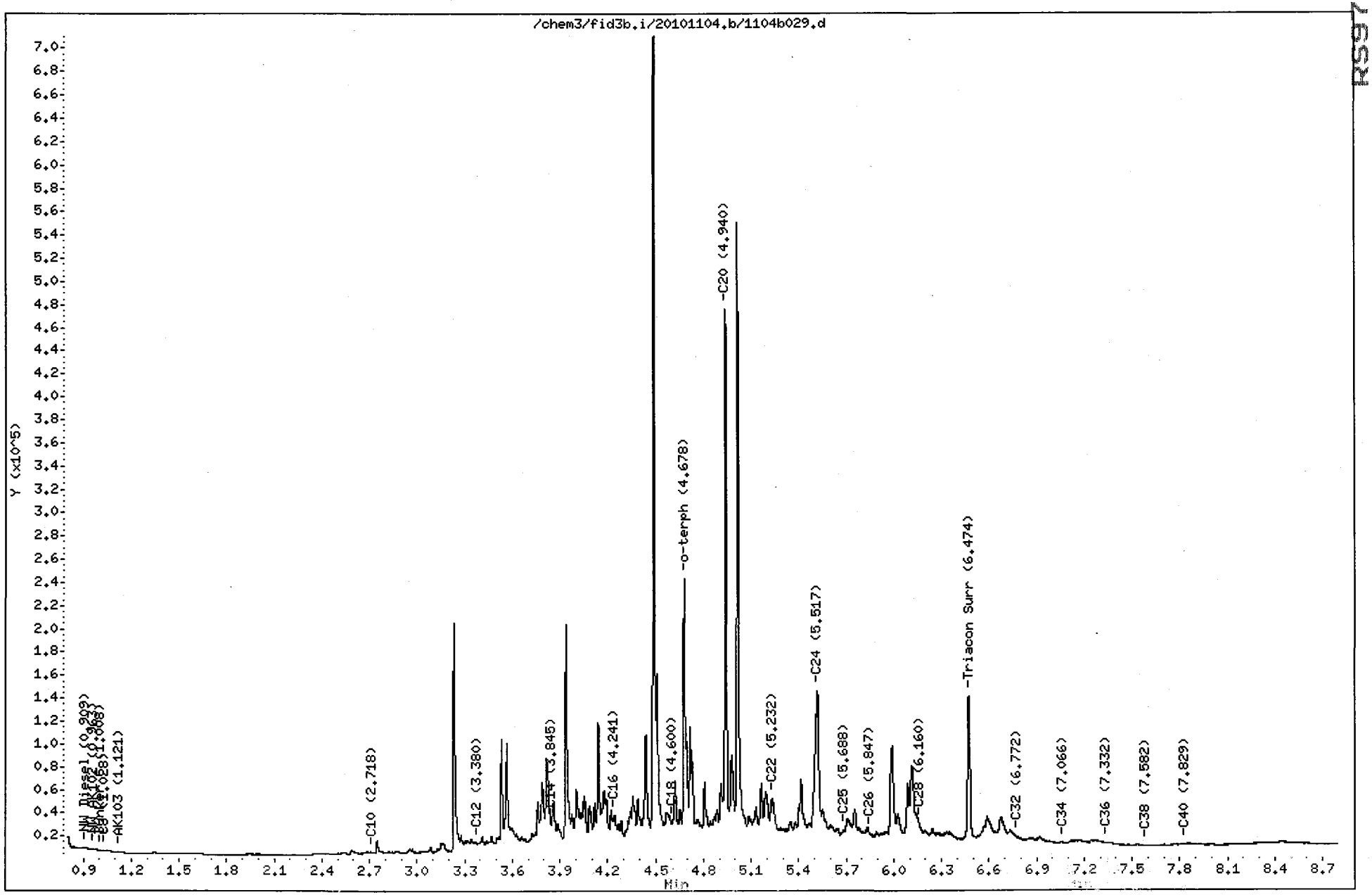
Column phase: ZB-1HT

Instrument: fid3b.i

Operator: MS

Column diameter: 0.25

RS97:01222



Analytical Resources Inc.
407S TPH Quantitation Report

Data file: /chem3/fid3b.i/20101104.b/1104b030.d
Method: /chem3/fid3b.i/20101104.b/ftphfid3b.m
Instrument: fid3b.i
Operator: MS
Report Date: 11/15/2010
Macro: FID:3B110110

ARI ID: RS97R
Client ID: DGS-07-11.611.8-101
Injection: 05-NOV-2010 03:04
Dilution Factor: 10

FID:3B RESULTS

Compound	RT	Shift	Height	Area	Range	Total Area	Conc
Toluene	0.804	0.000	18615	23198	GAS (Tol-C12)	789010	49
C8	1.027	-0.003	3360	4435	DIESEL (C12-C24)	11403335	625
C10	2.720	-0.001	5069	3752	M.OIL (C24-C38)	3198964	276
C12	3.383	0.005	20925	10299	AK-102 (C10-C25)	12115170	584
C14	3.858	0.006	129272	150087	AK-103 (C25-C36)	2945593	338
C16	4.246	-0.002	71808	58435	OR.DIES (C10-C28)	13615849	536
C18	4.605	-0.001	49462	7745	OR.MOIL (C28-C40)	1739957	154
C20	4.948	0.016	914437	709849			
C22	5.234	0.002	81216	86060	STODDARD (C8-C12)	719511	26
C24	5.521	-0.010	300908	294578			
C25	5.688	-0.001	30186	10351			
C26	5.854	0.007	25414	3990			
C28	6.158	-0.008	43624	29947			
C32	6.773	-0.001	20426	4017			
C34	7.065	0.003	14377	6357	CREOSOT (C8-C22)	10310180	1612
Filter Peak	----						
C36	7.329	-0.001	13888	3231	BUNKERC (C10-C38)	15206576	1784
o-terph	4.683	-0.003	247609	200365	JET-A (C10-C18)	7366889	465
Triacon Surr	6.474	-0.007	133420	140379	IT.MOIL (C24-C40)	3488573	162

Range Times: NW Diesel(3.428 - 5.581) NW Gas(0.754 - 3.428) NW M.Oil(5.581 - 7.637)
AK102(2.671 - 5.639) AK103(5.639 - 7.380) Jet A(2.671 - 4.656)

Surrogate	Area	Amount	%Rec
o-Terphenyl	200365	11.8	262.2
Triacontane	140379	8.8	196.2

Analyte	RF	Curve Date
o-Terph Surr	16983.9	01-NOV-2010
Triacon Surr	15901.0	16-OCT-2010
Gas	15975.0	20-OCT-2010
Diesel	18232.0	01-NOV-2010
Motor Oil	11596.5	15-OCT-2010
AK102	20751.0	01-NOV-2010
AK103	8727.5	29-SEPT-2010
JetA	15848.0	27-JAN-2009
OR Diesel	25401.0	
OR M.Oil	11274.0	
IT M.Oil	21488.2	
Bunker C	8522.1	20-SEP-2010
Creosote	6396.0	17-JAN-2009

Data File: /chem3/fid3b.i/20101104.b/1104b030.d

Date : 05-NOV-2010 03:04

Client ID: DGS-07-11.611.8-101

Sample Info: RS97R,10

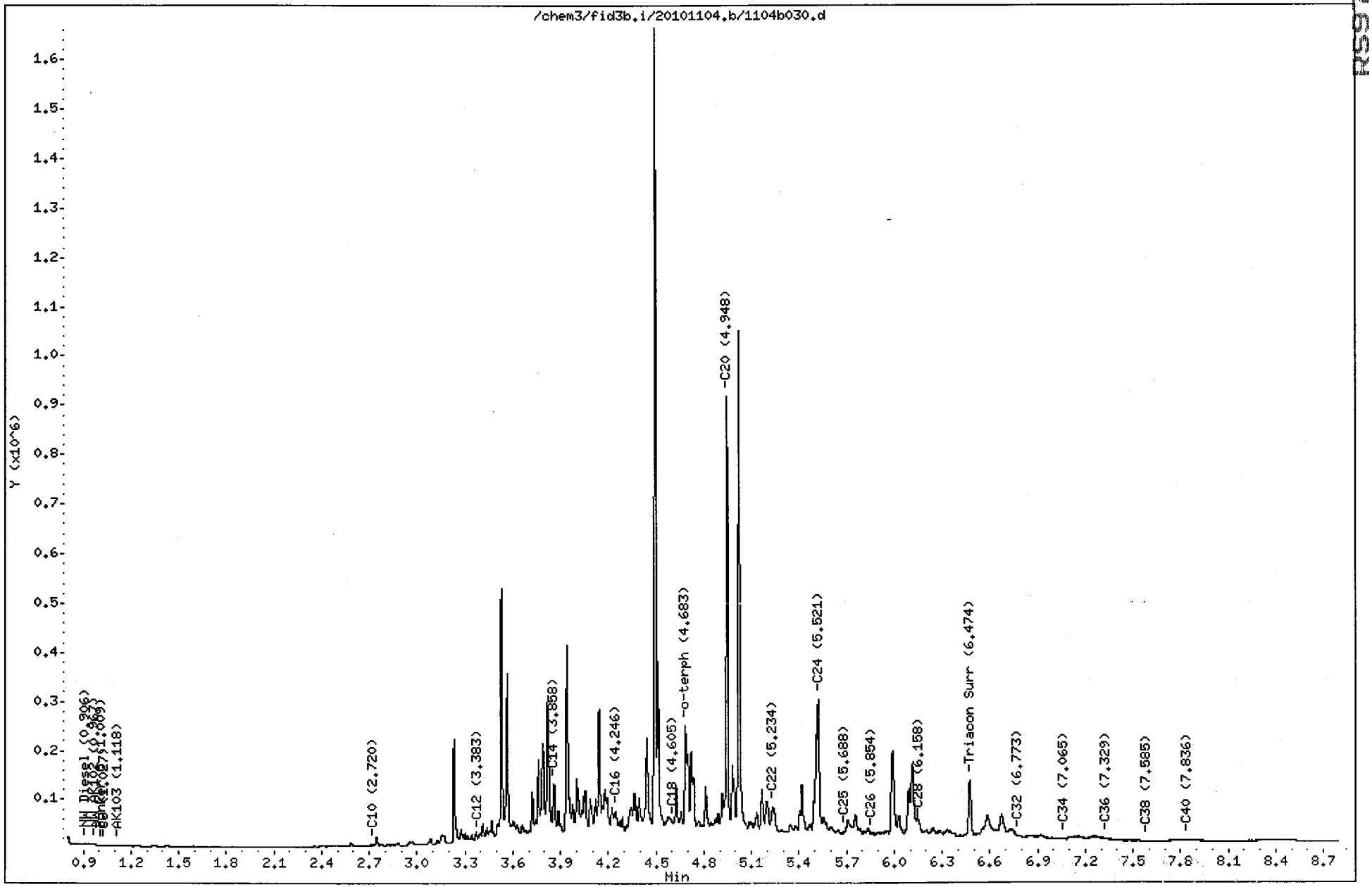
Column phase: ZB-1HT

Instrument: fid3b.i

Operator: MS

Column diameter: 0.25

RS97 : 01224



Analytical Resources Inc.
407S TPH Quantitation Report

Data file: /chem3/fid3b.i/20101104.b/1104b031.d
Method: /chem3/fid3b.i/20101104.b/ftphfid3b.m
Instrument: fid3b.i
Operator: MS
Report Date: 11/15/2010
Macro: FID:3B110110

ARI ID: RS97S
Client ID: DGS-07-12.713.2-101
Injection: 05-NOV-2010 03:21
Dilution Factor: 5

FID:3B RESULTS

Compound	RT	Shift	Height	Area	Range	Total Area	Conc
Toluene	0.804	0.000	18318	24016	GAS (Tol-C12)	1090979	68
C8	1.030	0.000	3287	2743	DIESEL (C12-C24)	9348418	513
C10	2.720	0.000	3894	3717	M.OIL (C24-C38)	3406994	294
C12	3.381	0.003	14056	7530	AK-102 (C10-C25)	10359017	499
C14	3.860	0.008	67109	89697	AK-103 (C25-C36)	3161795	362
C16	4.244	-0.004	39183	29765	OR.DIES (C10-C28)	11929459	470
C18	4.601	-0.005	35953	4978	OR.MOIL (C28-C40)	1890352	168
C20	4.945	0.013	914014	773177			
C22	5.232	0.001	78037	82318	STODDARD (C8-C12)	1019718	37
C24	5.517	-0.014	268459	268318			
C25	5.683	-0.006	28584	21429			
C26	5.853	0.006	22651	3576			
C28	6.159	-0.006	40454	40117			
C32	6.776	0.002	21284	8549			
C34	7.061	-0.001	14286	10126	CREOSOT (C8-C22)	8248474	1290
Filter Peak	----						
C36	7.328	-0.001	14342	7777	BUNKERC (C10-C38)	13669514	1604
o-terph	4.681	-0.004	474036	385151	JET-A (C10-C18)	5609685	354
Triacon Surr	6.475	-0.007	266299	307208	IT.MOIL (C24-C40)	3864500	180

Range Times: NW Diesel(3.428 - 5.581) NW Gas(0.754 - 3.428) NW M.Oil(5.581 - 7.637)
AK102(2.671 - 5.639) AK103(5.639 - 7.380) Jet A(2.671 - 4.656)

Surrogate	Area	Amount	%Rec
o-Terphenyl	385151	22.7	252.0
Triacontane	307208	19.3	214.7

Analyte	RF	Curve Date
o-Terph Surr	16983.9	01-NOV-2010
Triacon Surr	15901.0	16-OCT-2010
Gas	15975.0	20-OCT-2010
Diesel	18232.0	01-NOV-2010
Motor Oil	11596.5	15-OCT-2010
AK102	20751.0	01-NOV-2010
AK103	8727.5	29-SEPT-2010
JetA	15848.0	27-JAN-2009
OR Diesel	25401.0	
OR M.Oil	11274.0	
IT M.Oil	21488.2	
Bunker C	8522.1	20-SEP-2010
Creosote	6396.0	17-JAN-2009

Data File: /chem3/fid3b.i/20101104.b/1104b031.d

Date : 05-NOV-2010 03:21

Client ID: DGS-07-12,713,2-101

Sample Info: RS97S,5

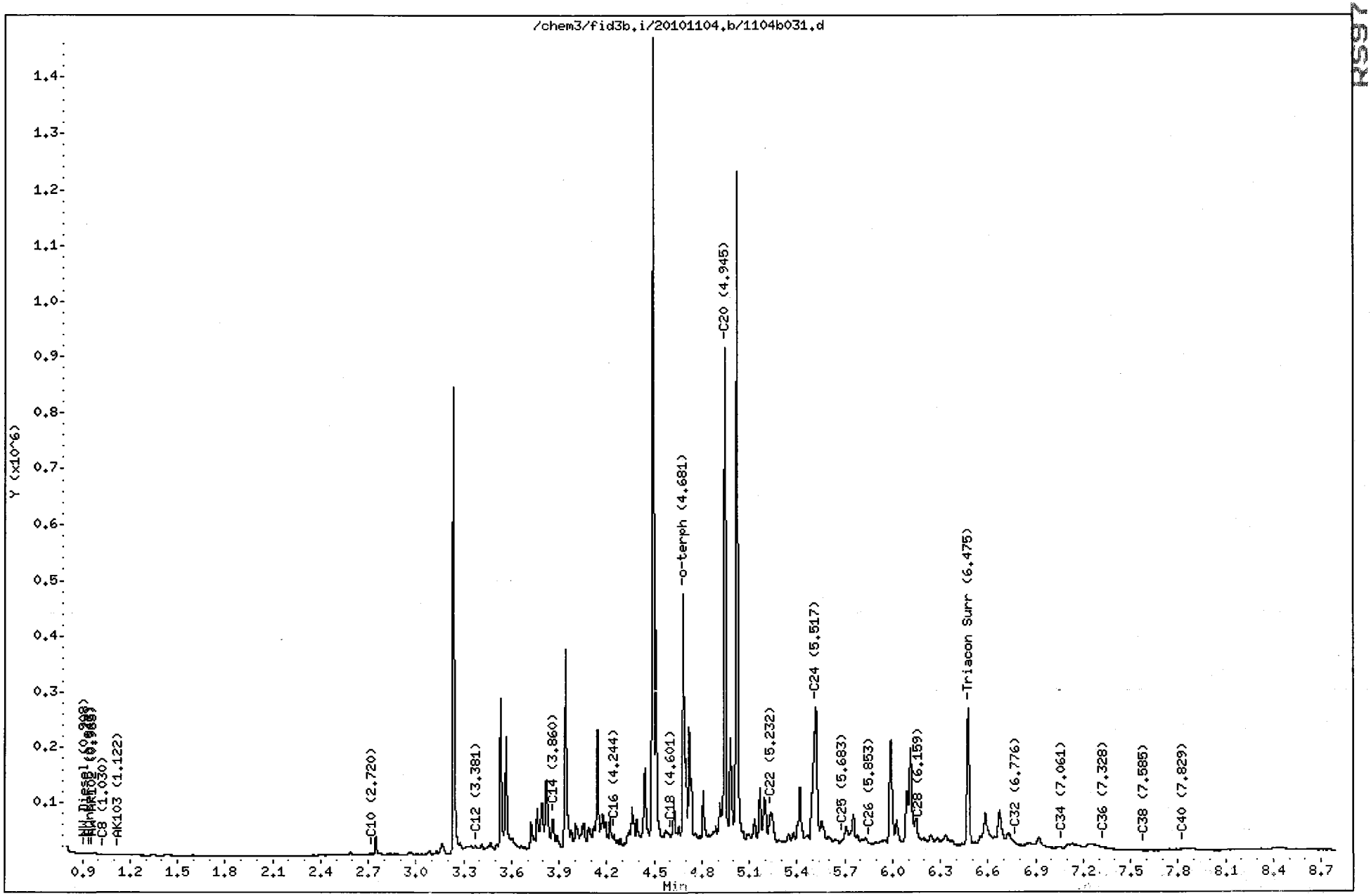
Column phase: ZB-1HT

Instrument: fid3b.i

Operator: MS

Column diameter: 0.25

RS97 : 01226



Analytical Resources Inc.
407S TPH Quantitation Report

Data file: /chem3/fid3b.i/20101104.b/1104braw.b/1104b032.d ARI ID: DIESEL#3
Method: /chem3/fid3b.i/20101104.b/ftphfid3b.m Client ID:
Instrument: fid3b.i Injection: 05-NOV-2010 03:39
Operator: MS Dilution Factor: 1
Report Date: 11/15/2010
Macro: FID:3B110110

FID:3B RESULTS

Compound	RT	Shift	Height	Area	Range	Total Area	Conc
Toluene	0.803	-0.001	14613	17979	GAS (Tol-C12)	797415	50
C8	1.028	-0.002	5053	6855	DIESEL (C12-C24)	4271317	234
C10	2.719	-0.001	14150	18395	M.OIL (C24-C38)	100619	9
C12	3.372	-0.006	35731	35194	AK-102 (C10-C25)	4821603	232
C14	3.862	0.009	35723	7797	AK-103 (C25-C36)	66606	8
C16	4.244	-0.004	167886	149666	OR.DIES (C10-C28)	4858667	191
C18	4.604	-0.002	146233	143026	OR.MOIL (C28-C40)	90507	8
C20	4.931	-0.001	84583	90158			
C22	5.235	0.003	29871	50392	STODDARD (C8-C12)	729772	26
C24	5.531	0.000	4446	793			
C25	5.683	-0.006	2589	1731			
C26	5.849	0.003	1112	597			
C28	6.166	0.000	191	115			
C32	6.769	-0.005	276	52			
C34	7.065	0.003	526	132	CREOSOT (C8-C22)	4128030	645
Filter Peak	----						
C36	7.323	-0.007	1110	551	BUNKERC (C10-C38)	4911151	576
o-terph	4.683	-0.002	1257168	901529	JET-A (C10-C18)	3700276	233
Triacon Surr	6.482	0.001	63	34	IT.MOIL (C24-C40)	138676	6

Range Times: NW Diesel(3.428 - 5.581) NW Gas(0.754 - 3.428) NW M.Oil(5.581 - 7.637)
AK102(2.671 - 5.639) AK103(5.639 - 7.380) Jet A(2.671 - 4.656)

Surrogate	Area	Amount	%Rec
o-Terphenyl	901529	53.1	118.0
Triacontane	34	0.0	0.0

Analyte	RF	Curve Date
o-Terph Surr	16983.9	01-NOV-2010
Triacon Surr	15901.0	16-OCT-2010
Gas	15975.0	20-OCT-2010
Diesel	18232.0	01-NOV-2010
Motor Oil	11596.5	15-OCT-2010
AK102	20751.0	01-NOV-2010
AK103	8727.5	29-SEPT-2010
JetA	15848.0	27-JAN-2009
OR Diesel	25401.0	
OR M.Oil	11274.0	
IT M.Oil	21488.2	
Bunker C	8522.1	20-SEP-2010
Creosote	6396.0	17-JAN-2009

Data File: /chem3/fid3b.i/20101104.b/1104braw.b/1104b032.d

Date : 05-NOV-2010 03:39

Client ID:

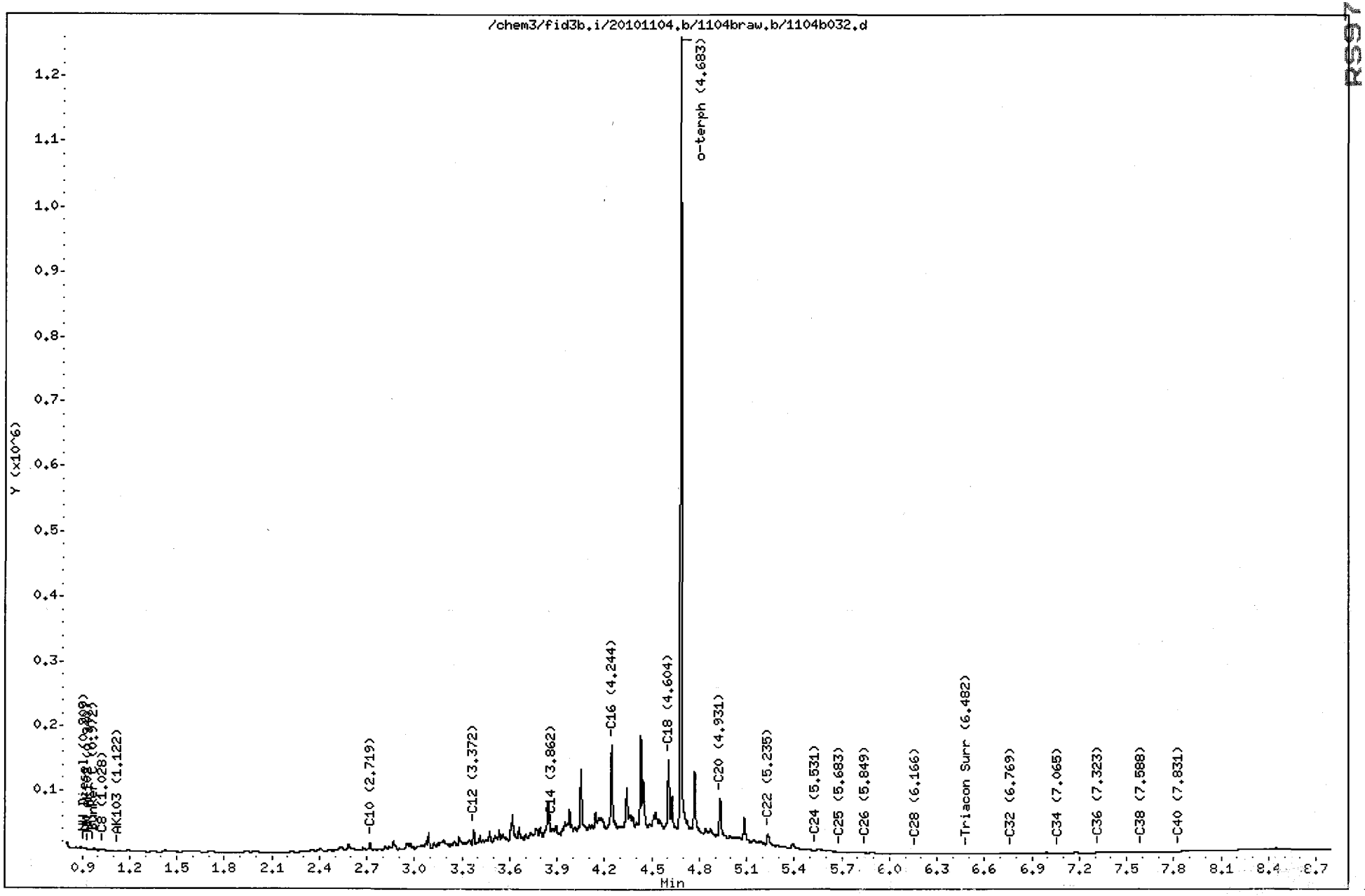
Sample Info: DIESEL#3

Column phase: ZB-1HT

Instrument: fid3b.i

Operator: MS

Column diameter: 0.25



R597-91228

Analytical Resources Inc.
407S TPH Quantitation Report

Data file: /chem3/fid3b.i/20101104.b/1104braw.b/1104b033.d ARI ID: MOIL#3
Method: /chem3/fid3b.i/20101104.b/ftphfid3b.m Client ID:
Instrument: fid3b.i Injection: 05-NOV-2010 03:56
Operator: MS Dilution Factor: 1
Report Date: 11/15/2010
Macro: FID:3B110110

FID:3B RESULTS

Compound	RT	Shift	Height	Area	Range	Total Area	Conc
Toluene	0.875	0.071	6241	4578	GAS (Tol-C12)	197153	12
C8	1.026	-0.003	3220	1976	DIESEL (C12-C24)	757107	42
C10	2.724	0.004	1775	2327	M.OIL (C24-C38)	5082859	438
C12	3.379	0.002	1853	1285	AK-102 (C10-C25)	956652	46
C14	3.855	0.003	1180	395	AK-103 (C25-C36)	4440064	509
C16	4.253	0.005	776	300	OR.DIES (C10-C28)	2294440	90
C18	4.607	0.001	1107	365	OR.MOIL (C28-C40)	3983570	353
C20	4.933	0.001	4203	906			
C22	5.233	0.001	15745	9473	STODDARD (C8-C12)	153245	6
C24	5.535	0.004	27152	6984			
C25	5.688	-0.001	33456	7189			
C26	5.847	0.001	39009	28516			
C28	6.167	0.001	44240	9549			
C32	6.772	-0.002	52185	22347			
C34	7.065	0.003	49914	36695	CREOSOT (C8-C22)	340271	53
Filter Peak	----						
C36	7.329	-0.001	41321	17774	BUNKERC (C10-C38)	5925493	695
o-terph	4.684	-0.002	3497	4382	JET-A (C10-C18)	176095	11
Triacon Surr	6.481	-0.001	777058	883865	IT.MOIL (C24-C40)	6319241	294

Range Times: NW Diesel(3.428 - 5.581) NW Gas(0.754 - 3.428) NW M.Oil(5.581 - 7.637)
AK102(2.671 - 5.639) AK103(5.639 - 7.380) Jet A(2.671 - 4.656)

Surrogate	Area	Amount	%Rec
o-Terphenyl	4382	0.3	0.6
Triacontane	883865	55.6	123.5

Analyte	RF	Curve Date
o-Terph Surr	16983.9	01-NOV-2010
Triacon Surr	15901.0	16-OCT-2010
Gas	15975.0	20-OCT-2010
Diesel	18232.0	01-NOV-2010
Motor Oil	11596.5	15-OCT-2010
AK102	20751.0	01-NOV-2010
AK103	8727.5	29-SEPT-2010
JetA	15848.0	27-JAN-2009
OR Diesel	25401.0	
OR M.Oil	11274.0	
IT M.Oil	21488.2	
Bunker C	8522.1	20-SEP-2010
Creosote	6396.0	17-JAN-2009

11/16/10

Data File: /chem3/fid3b.i/20101104.b/1104braw.b/1104b033.d

Date : 05-NOV-2010 03:56

Client ID:

Sample Info: MOIL#3

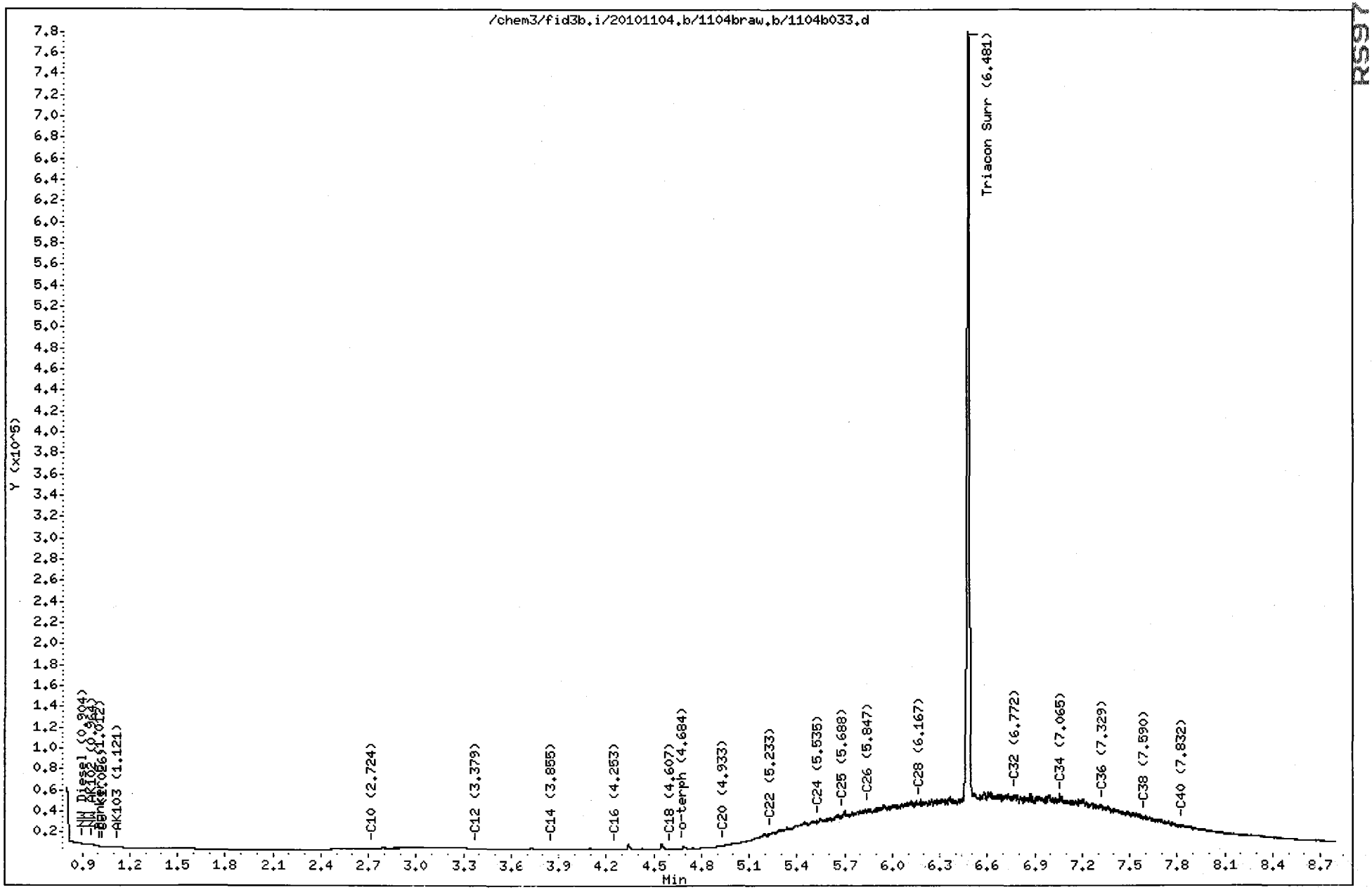
Column phase: ZB-1HT

Instrument: fid3b.i

Operator: MS

Column diameter: 0.25

RS97:01239



General Chemistry Raw Data
Analyst Notes and Raw Data

ARI Job ID: RS97

W

11-2-10

TOTAL SOLIDS/VOLATILE SOLIDS (TS / TVS) BENCHSHEET

SOLIDS *(dry at 104 (12-24 hr) then combust at 550 (30 min))*

DATE: 11/1/2010
ANALYST: CDE 17:33

Instrumentation **Drying Ovens:** CDE **Muffle Furnace:** N/A **Analytical Balance:** 1123230597

Batch drying time

record times as mm/dd/yy hh:mm

11/1/2010 17:33	date/time in oven	CDE
11/2/2010 11:54	date/time out	CDE
elapsed hrs =	18.4	

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*

Cal Weight ID		CV-02	CV-02	CV-02	CV-02				CV-02	CV-02			
Date & Time		11/1/10 16:43	11/1/10 16:24	11/2/10 12:06									
Cal Wt (g)	10.0000	10.0000	10.0000	10.0000									
record weights to 4 places		Cal OK!	Cal OK!	Cal OK!									

SAMPLE ID	DISH #	SAMPLE (grams)	TARE WT (grams)	DRY WT 104C (grams) 1			dry Wt (g)	TS (%)	ASH WT 550C (grams) 1	2		Ash Wt (g)	TVS (mg/kg)	(%)
Blank		0.0000	1.0882	1.0880			0.00							
RT68 A1		6.1626	1.0699	4.9029			3.83	75.3%						
RT97 B1		6.7895	1.0810	5.4126			4.33	75.9%						
RT97 C1		6.3183	1.0822	4.6097			3.53	67.4%						
RT97 D1		6.5296	1.0718	5.4306			4.36	79.9%						
RT97 E1		6.2968	1.0825	5.1540			4.07	78.1%						
RT97 F1		6.9516	1.0413	6.0000			4.96	83.9%						
RT97 G1		6.2456	1.0949	4.7176			3.62	70.3%						
RT97 H1		6.0900	1.0880	3.5543			2.47	49.3%						
RT97 I 1		6.3112	1.0782	3.6741			2.60	49.6%						
RT97 J1		6.1902	1.0948	3.6736			2.58	50.6%						
RT97 K1		6.2720	1.1012	3.5906			2.49	48.1%						
RT97 L1		6.0350	1.0597	3.6118			2.55	51.3%						
RT97 M1		6.0330	1.0595	3.5790			2.52	50.7%						
RT97 N1		6.3385	1.0791	4.0165			2.94	55.9%						
RT97 O1		6.7337	1.0762	3.9812			2.91	51.3%						
RT97 P1		6.3254	1.0751	3.6932			2.62	49.9%						
RT97 Q1		6.5687	1.0685	3.9893			2.92	53.1%						
RT97 R1		6.1861	1.0875	3.8750			2.79	54.7%						
RT97 S1		6.2405	1.0852	3.9626			2.88	55.8%						
RT97 A1		6.9417	1.0820	5.4033			4.32	73.7%						
RT97 A1 dup		6.2599	1.0669	4.8995			3.83	73.8%						
							RPD =	0.08%				RPD =	NA	
RT97 A1 trp		6.6363	1.0704	5.2197			4.15	74.5%						
							RSD =	0.60%				RSD =	NA	

11-2-10 CAL

Analytical Resources, Incorporated
Analytical Chemists and Consultants

TOTAL / VOLATILE SOLIDS (TS/TVS) BENCHSHEET

Analyst: CAK	Date: 11-1-10		Oven ID: 12	Balance ID: 1123230597	
Time in Oven: 17:33		Time Out of Oven: 11-2-10 CAK 11:54		Elapsed Time (> 12 Hrs):	

Dry at 104 °C (12-24 hrs) then combust at 550 °C for 30 min. Record Weights to 4 places

TS (%) calculated as:
Final Dry Weight (g) = (Dry Weight – Tare Weight)
TS = (Final Dry Weight) / (Grams Sample – Tare Weight)

TVS (mg/kg dry weight) calculated as:
Final Ash Weight (g) = (Minimum Ash Weight – Tare Weight)
TVS (mg/kg) = [(Dry Weight – Ash Weight) / (Dry Weight) * 1,000,000
If Ash Weight > Dry Weight then "Check for Error"
If Dry Weight – Ash Weight < 0.001 < (1/Dry Weight) * 1,000,000

Cal Weight ID	CV-02	CV-02	CV-02	CV-02	CV-02		CV-02	CV-02	CV-02
Date & Time:	11-1-10 16:43	11-1-10 16:24	11-2-10 12:06						
Cal Weight (10.0000):	10.0000 CAK	10.0000 CAK	10.0000 CAK						

Sample ID	Dish #	Sample	Tare	Dry Weight 104°C 1	Dry Weight 104°C 2	Dry Weight 104°C 3	Dry Weight grams	Ash Weight 550°C 1	Ash Weight 550°C 2	Ash Weight 550°C 3
BLANK	1	Ø	1.0882	1.0880						
RT68 A'	2	6.1626	1.0699	4.9029						
RS97 B'	3	6.7895	1.0810	5.4126						
C'	4	6.3183	1.0822	4.6097						
D'	5	6.5296	1.0718	5.4306						
E'	6	6.2968	1.0825	5.1540						
F'	7	6.9516	1.0413	6.0000						
G'	8	6.2456	1.0949	4.7176						
H'	9	6.0900	1.0880	3.5543						
I'	10	6.3112	1.0782	3.6741						
J'	11	6.1902	1.0948	3.6736						
K'	12	6.2720	1.1012	3.5906						
L'	13	6.0350	1.0597	3.6118						
M'	14	6.0330	1.0595	3.5790						
N'	15	6.3385	1.0791	4.0165						
O'	16	6.7337	~~1.07~~ 1.0762	3.9812						
P'	17	6.3254	1.0751	3.6932						
Q'	18	6.5687	1.0685	3.9893						
R'	19	6.1861	1.0875	3.8750						
S'	20	6.2405	1.0852	3.9626						
A'	21	6.9417	1.0820	5.4033						
A'dup	22	6.2599	1.0669	4.8995						
A'TP	23	6.6363	1.0704	5.2197						

@11-1-10 CAK

6053F

Revision 002
12/28/09

RS97 : 01233

11-4-10

TOC Solids Prep Log

acid purging to remove IC and drying at 70°C for TOC analysis

General notes regarding prep method and samples (identify the acid used)

DATE:	11/1/2010
ANALYST:	CDE 17:53

make no entry to shaded cells, they are calculated

Sample ID		IC Test	Gravimetric Data (grams)			%	*Sample description & notes*
ARI #	Client	+ / -	Tare Wt.	Wet wt.	70°C dry wt	Solids	*(homogeneity and exclusions)*
Blank			13.0903	0.0000	13.0904	0.1 mg	
RT68 A1		**unpurged**	13.0782	18.5100	17.4031	79.62%	
RTS97 B1		-	13.3559	18.8478	17.6790	78.72%	
RTS97 C1		-	13.2830	18.6277	17.0842	71.12%	
RTS97 D1		-	13.1543	18.6718	17.7651	83.57%	
RTS97 E1		-	13.0515	18.3018	17.3167	81.24%	
RTS97 F1		-	13.3459	18.5641	18.0532	90.21%	
RTS97 G1		-	13.1829	18.2576	16.8650	72.56%	
RTS97 H1		-	13.0845	18.7377	16.0398	52.28%	
RTS97 I 1		-	13.3264	18.3779	16.0155	53.23%	
RTS97 J1		-	13.0933	18.8736	16.2723	55.00%	
RTS97 K1		-	13.2702	18.3828	16.0927	55.21%	
RTS97 L1		-	13.3463	19.0427	16.5169	55.66%	
RTS97 M1		-	13.3994	18.3926	16.0897	53.88%	
RTS97 N1		-	13.2091	19.0591	16.6414	58.67%	
RTS97 O1		-	13.0767	18.2781	15.9584	55.40%	
RTS97 P1		-	13.3174	18.4008	16.1503	55.73%	
RTS97 Q1		-	13.2876	18.8480	16.4379	56.66%	
RTS97 R1		-	13.2789	18.9202	16.5134	57.34%	
RTS97 S1		-	13.2325	18.7989	16.4912	58.54%	
RTS97 A1		-	13.3598	18.1110	16.9997	76.61%	
RTS97 A1 dup		-	13.1992	18.4824	17.2725	77.10%	
RTS97 A1 trip		-	13.3386	18.6741	17.4775	77.57%	

11-5-10

① 11-1-10 cdh

② 13.0782 11-1-10 cdh
③ 18.5100

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TOC Solids Preparation Log

Acid purge to remove IC and drying 70 °C for TOC an alysis
Add general notes regarding samples and preparation and identify the acid used

Analyst cdh Date 11-1-10 12:53

Sample Idenification		IC	Gravimetric Data			% Solids	Sample description & notes
ARI #	Client ID	Test	Tare	Wet	70 °C		
Blank			13.0903	Ø	13.0904		
RT68 ~~RS97~~ A'	unpurged ~~unpurged~~		~~13.1299~~ ①	~~18.2658~~ ③	~~13.0782~~	17.4031	fine sand
RS97 B'		—	13.3559	18.8478	17.6790		fine sand & Diesel smell
C'		—	13.2830	18.6277	17.0842		
D'		—	13.1543	18.6718	17.7651		
E'		—	13.0515	18.3018	17.3167		
F'		—	13.3459	18.5641	18.0532		
G'		—	13.1829	18.2576	16.8650		Silt sand oily smell
H'		—	13.0845	18.7377	16.0398		Sed
I'		—	13.3264	18.3779	16.0155		oily smell
J'		—	13.0933	18.8736	16.2723		
K'		—	13.2702	18.3828	16.0927		
L'		—	13.3463	19.0427	16.5169		
M'		—	13.3994	18.5926	16.0897		
N'		—	13.2091	19.0591	16.6414		~~oily~~
O'		—	13.0767	18.2781	15.9584		oily smell
P'		—	13.3174	18.4009	16.1503		
Q'		—	13.2876	18.8480	16.4379		
R'		—	13.2789	18.9202	16.5134		
S'		—	13.2325	18.7989	16.4912		
RS97 ~~RT68~~ A'		—	13.3598	18.1110	16.9997		oily silt & sand
RS97 A'de		—	13.1992	18.4824	17.2725		
A'tp		—	13.3386	18.6741	17.4775		

11-1-10 cdh

TOC, Solids Data Analysis

DATE: 11/5/2010
ANALYST: KE 10:02

Instrument: Apollo 2
Mode: NPOC *Inlet:* Boat
Spike Std = **2,500** *ppm C*

Calibration Data

Cal Curve ID: **CAL 101210** *Conc:* 5,000 *ppm*
Calibration Curve Standard: **ARI # 00109 - 2** *Curve Date:* **10/12/10**
CalFact: 2.637E+05 *intercept:* -44385 *r2 :* 0.99946
Curve Range (ppm) 200 *to* 2,500
Curve Range (µgC): **8** *to* **100**

Verification Standard

Source: ***ERA# 0513 - 10 - 06*** *Conc:* **5,000** *ppm*
dilution : 10 *mL to* 50 **1,000** *ppm*

Standard Reference Material

Source: ***NIST 8704*** *Conc:* **33,510** *ppm*

Silica Blanks

Replicate determinations						Mean	RSD	condition
14.3	12.7	16.9				14.6	14.3%	OK

Sample Data

*"C corr" (with dilution) = ("C obs" - (Mean silica Blank * %Silica)) * Dilution Factor*

Sample ID	Dilution Data				Spike	Combustion Data			
	Sample wt. (mg)	Final wt. (mg)	Silica (%)	Dilution Factor	(µL Std)	Burn wt. (mg)	C obs (ppm C)	C corr (ppm C)	comments
ICV				1.00		40.0	1012	1,012	101.20%
Blank				1.00		40.0	8.54	9	Blank OK
NIST 8704				1.00		1.6	37199	37,199	111.01%
RT41 A1				1.00		3.6	5521	5,521	Range OK!
RT41 A1 dup				1.00		3.6	5929	5,929	RPD=7.1%
RT41 A1 trp				1.00		3.4	5561	5,561	RSD=4%
~~RT41 A1 ms~~			~~-~~	~~1.00~~	~~10~~	~~3.4~~	~~16836~~	~~16,836~~	~~Range OK!~~
~~Spike =~~	~~0.025~~	~~mg C to~~	~~3.4~~	~~mg samp=~~	~~7,353~~	~~ppm~~		~~154%~~	
RT41 A1 ms				1.00	20	2.1	29964	29,964	Range OK!
Spike =	0.05	mg C to	2.1	mg samp=	23,810	ppm		103%	
RT41 C1				1.00		2.8	1673	1,673	Range OK!
SB 1				1.00		38.2	14.31	14	Range OK!
SB 2				1.00		37.4	12.72	13	Low Scale
SB 3				1.00		38.2	16.87	17	Range OK!
CCV				1.00		40.0	1032	1,032	103.20%
Blank				1.00		40.0	10.79	11	Blank OK
~~RS97 A1~~	~~10.7~~	~~107.2~~	~~90.02%~~	~~10.02~~		~~2.8~~	~~29758~~	~~298,004~~	~~Range OK!~~
RS97 A1	10.7	107.2	90.02%	10.02		2.2	3459	34,523	Range OK!
RS97 A1 dup	10.3	102.6	89.96%	9.96		2.4	3209	31,834	RPD=8.1%
RS97 A1 trp	10.6	101.3	89.54%	9.56		2.2	3611	34,384	RSD=4.5%
RS97 A1 ms	10.7	107.2	90.02%	10.02	10	2.4	12850	128,608	Range OK!
Spike =	0.025	mg C to	0.2	mg samp=	104,361	ppm		90%	
RS97 B1	12.5	109.9	88.63%	8.79		2.3	4355	38,175	Range OK!
RS97 C1	10.3	88.2	88.32%	8.56		2.1	8895	76,058	Range OK!
RS97 D1	32.7	306.0	89.31%	9.36		2.7	4348	40,565	Range OK!
RS97 E1	17.3	178.5	90.31%	10.32		1.8	12070	124,401	Range OK!
RS97 F1	11.4	117.4	90.29%	10.30		1.7	27174	279,708	Range OK!

Sample Data

*"C corr" (with dilution) = ("C obs" - (Mean silica Blank * %Silica)) * Dilution Factor*

Sample ID	Dilution Data				Spike	Combustion Data			comments
	Sample wt. (mg)	Final wt. (mg)	Silica (%)	Dilution Factor	(µL Std)	Burn wt. (mg)	C obs (ppm C)	C corr (ppm C)	
RS97 G1				1.00		1.2	24860	24,860	*Range OK!*
CCV				1.00		40.0	1047	1,047	*104.70%*
Blank				1.00		40.0	3.63	4	*Blank OK*
RS97 H1				1.00		1.0	39159	39,159	*Range OK!*
RS97 I 1				1.00		0.8	61712	61,712	*Range OK!*
RS97 J 1				1.00		1.0	56977	56,977	*Range OK!*
RS97 K1				1.00		0.8	37892	37,892	*Range OK!*
RS97 L1				1.00		0.8	50000	50,000	*Range OK!*
RS97 M1				1.00		0.9	28875	28,875	*Range OK!*
RS97 N1				1.00		1.0	39856	39,856	*Range OK!*
RS97 O1				1.00		0.9	70831	70,831	*Range OK!*
RS97 P1				1.00		0.8	75755	75,755	*Range OK!*
RS97 Q1				1.00		0.9	79983	79,983	*Range OK!*
CCV				1.00		40.0	1048	1,048	*104.80%*
Blank				1.00		40.0	4.36	4	*Blank OK*
RS97 R1	28.3	193.4	85.37%	6.83		1.1	23813	162,651	*Range OK!*
RS97 S1	24.9	217.7	88.56%	8.74		1.0	9624	84,029	*Range OK!*
NIST 8704				1.00		2.3	35338	35,338	*105.46%*
CCV				1.00		40.0	1041	1,041	*104.10%*
Blank				1.00		40.0	22.07	22	*Blank OK*

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① 11-5-10 (W)

TOC Solids Sample Run Log
Apollo 9000

Page 1 of 2

Set-Up Parameters MODE: NPOC (Boat)		INLET: Boat Sampler
Standards:	**Source**	**Conc (ppm)**
Calibration:	ARI 00109-2	5000
Verification:	ERA 0513-10-06	5000 to 1000 for CUS
SRM:	NBS 8704	33510

10:02

Sample Sequence:

Sample ID	Dilution Data (mg)		Burn Wt	Matrix Spike Data		Comments
	Sample	+ Silica Gel	mg	mg/L	µL added	
ICV			40			
ICB			40			
NBS 8704			1.6			
RT41 A'			3.6			
op A'			3.6			
up A'			3.4			
MS A'			3.4	2500	10	hard to know
MSD A'			① ~~2.5~~ 2.1	2500	20	
C'			2.8			
SB 1			38.2			
2			37.4			
3			38.2			
CCV			40			
CCB			40			
RS97 A'	10.7	107.2	* ~~2.8~~ 2.2			wrong sample, NOT A * pipetted
A'	10.3	102.6	① ~~2.4~~ 2.4			
op A'	10.6	101.3	① ~~2.5~~ 2.2			
up A'	10.7	107.2	~~2.4~~	2500	10	
B'	12.5	109.9	2.3			
C'	10.3	88.2	2.1			
D'	32.7	306.0	2.7			
E'	17.3	178.5	1.8			
F'	11.4	117.4	1.7			
G'			1.2			
CCV			40			
CCB			40			
RS97 H'			1.0			
I'			0.8			
J'			1.0			
K'			0.8			
L'			0.8			
M'			0.9			

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Analytical Chemists and Consultants

① 11-5-10 ②

TOC Solids Sample Run Log
Apollo 9000

Page 2 of 2

Set-Up Parameters MODE: NPOC (Boat)			INLET: Boat Sampler
Standards:	Source	Conc (ppm)	
Calibration:	ARI 00109-2	5000	10:02
Verification:	ERA 0513-10-06	500 to 1000 for CVS	
SRM:	NBS 8704	33510	

Sample Sequence:

Sample ID	Dilution Data (mg)		Burn Wt	Matrix Spike Data		Comments
	Sample	+ Silica Gel	mg	mg/L	µL added	
RS97 N'			1.0			
O'			0.9			
P'			0.8			
Q			0.9			
CCV			40			
CCB			40			
RS97 R'	28.3	193.4	1.1			
S'	24.9	217.7	1.0			
NBS 8704			2.3			
CCV			40			
CCB			40			

11-5-10 ①

11-5-10 (a)

Detailed Analysis Report Print Date/Time: 2010/11/05 18:06:52

Sample ID: CVS BOAT 1000
Method: Boat Sampler
Cal. Curve: 101210 BOAT CAL
Operator ID: TRINA
Mode: TOC
Filename: 11051008
Timestamp: 2010/11/05 10:12
Sample Type: Cal. Verification

Rep #	ppm C	ug C	Raw Data	Beginning Baseline	Ending Baseline	Integration Time
1	1012.4394	40.4976	10634098	20.376	21.375	142

Sample ID: ICB BOAT
Method: Boat Sampler
Cal. Curve: 101210 BOAT CAL
Operator ID: TRINA
Mode: TOC
Filename: 11051017
Timestamp: 2010/11/05 10:22
Sample Type: Cal. Verification

Rep #	ppm C	ug C	Raw Data	Beginning Baseline	Ending Baseline	Integration Time
1	8.5448	0.3418	45739	20.577	20.621	120

Last Message: Low Sample Detected

Sample ID: NBS 8704
Method: Boat Sampler
Cal. Curve: 101210 BOAT CAL
Operator ID: TRINA
Mode: TOC
Filename: 11051031
Timestamp: 2010/11/05 10:37
Sample Type: Cal. Verification

Rep #	ppm C	ug C	Raw Data	Beginning Baseline	Ending Baseline	Integration Time
1	37198.6523	59.5178	15649401	20.877	21.877	272

Sample ID: RT41 A1
Method: Boat Sampler
Cal. Curve: 101210 BOAT CAL
Operator ID: TRINA
Mode: TOC
Filename: 11051051
Timestamp: 2010/11/05 10:55
Sample Type: Sample

Rep #	ppm C	ug C	Raw Data	Beginning Baseline	Ending Baseline	Integration Time
1	5520.9385	19.8754	5240780	21.574	22.574	154

Sample ID: RT41 A1 DP
Method: Boat Sampler
Cal. Curve: 101210 BOAT CAL
Operator ID: TRINA
Mode: TOC
Filename: 11051117
Timestamp: 2010/11/05 11:21
Sample Type: Sample

Rep #	ppm C	ug C	Raw Data	Beginning Baseline	Ending Baseline	Integration Time
1	5928.7705	21.3436	5627917	21.978	22.976	139

Sample ID: RT41 A1 d
Method: Boat Sampler
Cal. Curve: 101210 BOAT CAL
Operator ID: TRINA
Mode: TOC
Filename: 11051138
Timestamp: 2010/11/05 11:43
Sample Type: Sample

Rep #	ppm C	ug C	Raw Data	Beginning Baseline	Ending Baseline	Integration Time
1	5560.9248	18.9071	4985474	22.070	23.066	164

Sample ID: RT41 A1 MS
Method: Boat Sampler
Cal. Curve: 101210 BOAT CAL
Operator ID: TRINA
Mode: TOC
Filename: 11051145
Timestamp: 2010/11/05 11:49
Sample Type: Sample

AA 11-5-10 (w)

Rep #	ppm C	ug C	Raw Data	Beginning Baseline	Ending Baseline	Integration Time

RS97 : 01240

1	16835.7129	57.2414	15093534	22.620	23.618	154

Sample ID: RT41 A1 MS
Method: Boat Sampler
Cal. Curve: 101210 BOAT CAL
Operator ID: TRINA

Mode: TOC
Filename: 11051156
Timestamp: 2010/11/05 12:00
Sample Type: Sample

Rep #	ppm C	ug C	Raw Data	Beginning Baseline	Ending Baseline	Integration Time
1	12.0213	0.0301	7924	22.870	24.148	6

Last Message: Canceled

Sample ID: RT41 A1 MS
Method: Boat Sampler
Cal. Curve: 101210 BOAT CAL
Operator ID: TRINA

Mode: TOC
Filename: 11051236
Timestamp: 2010/11/05 12:40
Sample Type: Sample

Rep #	ppm C	ug C	Raw Data	Beginning Baseline	Ending Baseline	Integration Time
1	29964.2363	62.9249	16592165	23.091	24.089	160

Sample ID: RT41 C1
Method: Boat Sampler
Cal. Curve: 101210 BOAT CAL
Operator ID: TRINA

Mode: TOC
Filename: 11051244
Timestamp: 2010/11/05 12:47
Sample Type: Sample

Rep #	ppm C	ug C	Raw Data	Beginning Baseline	Ending Baseline	Integration Time
1	1673.2756	4.6852	1235396	22.865	23.858	100

Sample ID: SB 1
Method: Boat Sampler
Cal. Curve: 101210 BOAT CAL
Operator ID: TRINA

Mode: TOC
Filename: 11051259
Timestamp: 2010/11/05 13:01
Sample Type: Sample

Rep #	ppm C	ug C	Raw Data	Beginning Baseline	Ending Baseline	Integration Time
1	14.3099	0.5466	144139	22.902	23.897	64

Sample ID: SB 2
Method: Boat Sampler
Cal. Curve: 101210 BOAT CAL
Operator ID: TRINA

Mode: TOC
Filename: 11051307
Timestamp: 2010/11/05 13:09
Sample Type: Sample

Rep #	ppm C	ug C	Raw Data	Beginning Baseline	Ending Baseline	Integration Time
1	12.7152	0.4755	125394	23.022	24.017	61

Sample ID: SB 3
Method: Boat Sampler
Cal. Curve: 101210 BOAT CAL
Operator ID: TRINA

Mode: TOC
Filename: 11051316
Timestamp: 2010/11/05 13:18
Sample Type: Sample

Rep #	ppm C	ug C	Raw Data	Beginning Baseline	Ending Baseline	Integration Time
1	16.8673	0.6443	169898	23.064	24.063	61

Sample ID: CVS BOAT 1000
Method: Boat Sampler
Cal. Curve: 101210 BOAT CAL
Operator ID: TRINA

Mode: TOC
Filename: 11051320
Timestamp: 2010/11/05 13:23
Sample Type: Cal. Verification

Rep #	ppm C	ug C	Raw Data	Beginning	Ending	Integration

				Baseline	Baseline	Time
1	1031.9282	41.2771	10839652	23.289	24.287	136

Sample ID: ICB BOAT
Method: Boat Sampler
Cal. Curve: 101210 BOAT CAL
Operator ID: TRINA

Mode: TOC
Filename: 11051327
Timestamp: 2010/11/05 13:30
Sample Type: Cal. Verification

Rep #	ppm C	ug C	Raw Data	Beginning Baseline	Ending Baseline	Integration Time
1	10.7883	0.4315	69402	23.089	23.172	120

Last Message: Low Sample Detected

Sample ID: RS97 A1
Method: Boat Sampler
Cal. Curve: 101210 BOAT CAL
Operator ID: TRINA

AA 11-5-10 (W) wrong sample F not A Rerun

Mode: TOC
Filename: 11051336
Timestamp: 2010/11/05 13:40
Sample Type: Sample

Rep #	ppm C	ug C	Raw Data	Beginning Baseline	Ending Baseline	Integration Time
1	29757.7500	68.4428	18047144	23.130	24.128	174

Sample ID: RS97 A1
Method: Boat Sampler
Cal. Curve: 101210 BOAT CAL
Operator ID: TRINA

Mode: TOC
Filename: 11051344
Timestamp: 2010/11/05 13:47
Sample Type: Sample

Rep #	ppm C	ug C	Raw Data	Beginning Baseline	Ending Baseline	Integration Time
1	3459.1799	7.6102	2006672	23.345	24.339	96

Sample ID: RS97 A1 DP
Method: Boat Sampler
Cal. Curve: 101210 BOAT CAL
Operator ID: TRINA

Mode: TOC
Filename: 11051423
Timestamp: 2010/11/05 14:26
Sample Type: Sample

Rep #	ppm C	ug C	Raw Data	Beginning Baseline	Ending Baseline	Integration Time
1	3208.7566	7.7010	2030619	23.752	24.747	98

Sample ID: RS97 A1 HP
Method: Boat Sampler
Cal. Curve: 101210 BOAT CAL
Operator ID: TRINA

Mode: TOC
Filename: 11051431
Timestamp: 2010/11/05 14:34
Sample Type: Sample

Rep #	ppm C	ug C	Raw Data	Beginning Baseline	Ending Baseline	Integration Time
1	3611.4712	7.9452	2095016	23.677	24.675	97

Sample ID: RS97 A1 MS
Method: Boat Sampler
Cal. Curve: 101210 BOAT CAL
Operator ID: TRINA

Mode: TOC
Filename: 11051437
Timestamp: 2010/11/05 14:40
Sample Type: Sample

Rep #	ppm C	ug C	Raw Data	Beginning Baseline	Ending Baseline	Integration Time
1	12849.7314	30.8394	8131784	23.981	24.979	125

Sample ID: RS97 B1
Method: Boat Sampler
Cal. Curve: 101210 BOAT CAL
Operator ID: TRINA

Mode: TOC
Filename: 11051445
Timestamp: 2010/11/05 14:47
Sample Type: Sample

Rep #	ppm C	ug C	Raw Data	Beginning Baseline	Ending Baseline	Integration Time
1	4355.0796	10.0167	2641219	23.813	24.811	103

Sample ID: RS97 C1
Method: Boat Sampler
Cal. Curve: 101210 BOAT CAL
Operator ID: TRINA

Mode: TOC
Filename: 11051451
Timestamp: 2010/11/05 14:54
Sample Type: Sample

Rep #	ppm C	ug C	Raw Data	Beginning Baseline	Ending Baseline	Integration Time
1	8895.2637	18.6801	4925594	23.658	24.656	119

Sample ID: RS97 D1
Method: Boat Sampler
Cal. Curve: 101210 BOAT CAL
Operator ID: TRINA

Mode: TOC
Filename: 11051501
Timestamp: 2010/11/05 15:04
Sample Type: Sample

Rep #	ppm C	ug C	Raw Data	Beginning Baseline	Ending Baseline	Integration Time
1	4347.5200	11.7383	3095180	23.631	24.628	106

Sample ID: RS97 E1
Method: Boat Sampler
Cal. Curve: 101210 BOAT CAL
Operator ID: TRINA

Mode: TOC
Filename: 11051507
Timestamp: 2010/11/05 15:10
Sample Type: Sample

Rep #	ppm C	ug C	Raw Data	Beginning Baseline	Ending Baseline	Integration Time
1	12069.6367	21.7253	5728583	23.674	24.672	118

Sample ID: RS97 F1
Method: Boat Sampler
Cal. Curve: 101210 BOAT CAL
Operator ID: TRINA

Mode: TOC
Filename: 11051513
Timestamp: 2010/11/05 15:17
Sample Type: Sample

Rep #	ppm C	ug C	Raw Data	Beginning Baseline	Ending Baseline	Integration Time
1	27173.9863	46.1958	12180997	23.810	24.806	155

Sample ID: RS97 G1
Method: Boat Sampler
Cal. Curve: 101210 BOAT CAL
Operator ID: TRINA

Mode: TOC
Filename: 11051526
Timestamp: 2010/11/05 15:30
Sample Type: Sample

Rep #	ppm C	ug C	Raw Data	Beginning Baseline	Ending Baseline	Integration Time
1	24860.4219	29.8325	7866296	23.642	24.641	150

Sample ID: CVS BOAT 1000
Method: Boat Sampler
Cal. Curve: 101210 BOAT CAL
Operator ID: TRINA

Mode: TOC
Filename: 11051533
Timestamp: 2010/11/05 15:36
Sample Type: Cal. Verification

Rep #	ppm C	ug C	Raw Data	Beginning Baseline	Ending Baseline	Integration Time
1	1046.7549	41.8702	10996033	24.302	25.297	128

Sample ID: CVS BOAT 1000
Method: Boat Sampler
Cal. Curve: 101210 BOAT CAL
Operator ID: TRINA

Mode: TOC
Filename: 11051538
Timestamp: 2010/11/05 15:42
Sample Type: Cal. Verification

Rep #	ppm C	ug C	Raw Data	Beginning	Ending	Integration

				Baseline	Baseline	Time
1	3.6252	0.1450	-6149	23.830	23.757	120

Last Message: Out of Calibration

Sample ID: RS97 H1
Method: Boat Sampler
Cal. Curve: 101210 BOAT CAL
Operator ID: TRINA
Mode: TOC
Filename: 11051545
Timestamp: 2010/11/05 15:48
Sample Type: Sample

Rep #	ppm C	ug C	Raw Data	Beginning Baseline	Ending Baseline	Integration Time
1	39159.0156	39.1590	10325529	23.899	24.896	180

Sample ID: RS97 I 1
Method: Boat Sampler
Cal. Curve: 101210 BOAT CAL
Operator ID: TRINA
Mode: TOC
Filename: 11051551
Timestamp: 2010/11/05 15:56
Sample Type: Sample

Rep #	ppm C	ug C	Raw Data	Beginning Baseline	Ending Baseline	Integration Time
1	61711.7773	49.3694	13017829	23.673	24.671	204

Sample ID: RS97 J1
Method: Boat Sampler
Cal. Curve: 101210 BOAT CAL
Operator ID: TRINA
Mode: TOC
Filename: 11051621
Timestamp: 2010/11/05 16:25
Sample Type: Sample

Rep #	ppm C	ug C	Raw Data	Beginning Baseline	Ending Baseline	Integration Time
1	56976.9609	56.9770	15023801	23.970	24.966	197

Sample ID: RS97 K1
Method: Boat Sampler
Cal. Curve: 101210 BOAT CAL
Operator ID: TRINA
Mode: TOC
Filename: 11051629
Timestamp: 2010/11/05 16:32
Sample Type: Sample

Rep #	ppm C	ug C	Raw Data	Beginning Baseline	Ending Baseline	Integration Time
1	37891.7969	30.3134	7993108	24.113	25.113	152

Sample ID: RS97 L1
Method: Boat Sampler
Cal. Curve: 101210 BOAT CAL
Operator ID: TRINA
Mode: TOC
Filename: 11051638
Timestamp: 2010/11/05 16:43
Sample Type: Sample

Rep #	ppm C	ug C	Raw Data	Beginning Baseline	Ending Baseline	Integration Time
1	50000.1289	40.0001	10547309	23.989	24.988	192

Sample ID: RS97 M1
Method: Boat Sampler
Cal. Curve: 101210 BOAT CAL
Operator ID: TRINA
Mode: TOC
Filename: 11051646
Timestamp: 2010/11/05 16:51
Sample Type: Sample

Rep #	ppm C	ug C	Raw Data	Beginning Baseline	Ending Baseline	Integration Time
1	28875.4688	25.9879	6852548	24.030	25.028	183

Sample ID: RS97 N1
Method: Boat Sampler
Cal. Curve: 101210 BOAT CAL
Operator ID: TRINA
Mode: TOC
Filename: 11051654
Timestamp: 2010/11/05 16:58
Sample Type: Sample

Rep #	ppm C	ug C	Raw Data	Beginning Baseline	Ending Baseline	Integration Time
1	39856.2734	39.8563	10509383	23.964	24.963	180

Sample ID: RS97 O1
Method: Boat Sampler
Cal. Curve: 101210 BOAT CAL
Operator ID: TRINA

Mode: TOC
Filename: 11051700
Timestamp: 2010/11/05 17:05
Sample Type: Sample

Rep #	ppm C	ug C	Raw Data	Beginning Baseline	Ending Baseline	Integration Time
1	70830.8047	63.7477	16809130	23.999	24.998	207

Sample ID: RS97 P1
Method: Boat Sampler
Cal. Curve: 101210 BOAT CAL
Operator ID: TRINA

Mode: TOC
Filename: 11051707
Timestamp: 2010/11/05 17:11
Sample Type: Sample

Rep #	ppm C	ug C	Raw Data	Beginning Baseline	Ending Baseline	Integration Time
1	75754.8516	60.6039	15980155	24.029	25.026	189

Sample ID: RS97 Q1
Method: Boat Sampler
Cal. Curve: 101210 BOAT CAL
Operator ID: TRINA

Mode: TOC
Filename: 11051717
Timestamp: 2010/11/05 17:25
Sample Type: Sample

Rep #	ppm C	ug C	Raw Data	Beginning Baseline	Ending Baseline	Integration Time
1	79982.5781	71.9843	18980972	23.739	24.737	206

Sample ID: CVS BOAT 1000
Method: Boat Sampler
Cal. Curve: 101210 BOAT CAL
Operator ID: TRINA

Mode: TOC
Filename: 11051729
Timestamp: 2010/11/05 17:32
Sample Type: Cal. Verification

Rep #	ppm C	ug C	Raw Data	Beginning Baseline	Ending Baseline	Integration Time
1	1048.1919	41.9277	11011190	24.291	25.285	131

Sample ID: ICB BOAT
Method: Boat Sampler
Cal. Curve: 101210 BOAT CAL
Operator ID: TRINA

Mode: TOC
Filename: 11051733
Timestamp: 2010/11/05 17:36
Sample Type: Cal. Verification

Rep #	ppm C	ug C	Raw Data	Beginning Baseline	Ending Baseline	Integration Time
1	4.3602	0.1744	1603	24.160	23.740	120

Last Message: Low Sample Detected

Sample ID: RS97 R1
Method: Boat Sampler
Cal. Curve: 101210 BOAT CAL
Operator ID: TRINA

Mode: TOC
Filename: 11051739
Timestamp: 2010/11/05 17:42
Sample Type: Sample

Rep #	ppm C	ug C	Raw Data	Beginning Baseline	Ending Baseline	Integration Time
1	23813.4023	26.1947	6907083	23.805	24.804	132

Sample ID: RS97 S1
Method: Boat Sampler
Cal. Curve: 101210 BOAT CAL
Operator ID: TRINA

Mode: TOC
Filename: 11051744
Timestamp: 2010/11/05 17:47
Sample Type: Sample

Rep #	ppm C	ug C	Raw Data	Beginning Baseline	Ending Baseline	Integration Time
1	9624.0781	9.6241	2537696	23.895	24.889	116

Sample ID: NBS 8704
Method: Boat Sampler
Cal. Curve: 101210 BOAT CAL
Operator ID: TRINA

Mode: TOC
Filename: 11051749
Timestamp: 2010/11/05 17:55
Sample Type: Cal. Verification

Rep #	ppm C	ug C	Raw Data	Beginning Baseline	Ending Baseline	Integration Time
1	35338.2656	81.2780	21387164	23.775	25.583	301

Last Message: Max Integration Time Reached

Sample ID: CVS BOAT 1000
Method: Boat Sampler
Cal. Curve: 101210 BOAT CAL
Operator ID: TRINA

Mode: TOC
Filename: 11051757
Timestamp: 2010/11/05 18:01
Sample Type: Cal. Verification

Rep #	ppm C	ug C	Raw Data	Beginning Baseline	Ending Baseline	Integration Time
1	1040.7653	41.6306	10932859	24.431	25.429	206

Sample ID: ICB BOAT
Method: Boat Sampler
Cal. Curve: 101210 BOAT CAL
Operator ID: TRINA

Mode: TOC
Filename: 11051803
Timestamp: 2010/11/05 18:05
Sample Type: Cal. Verification

Rep #	ppm C	ug C	Raw Data	Beginning Baseline	Ending Baseline	Integration Time
1	22.0663	0.8827	188355	24.146	25.144	70

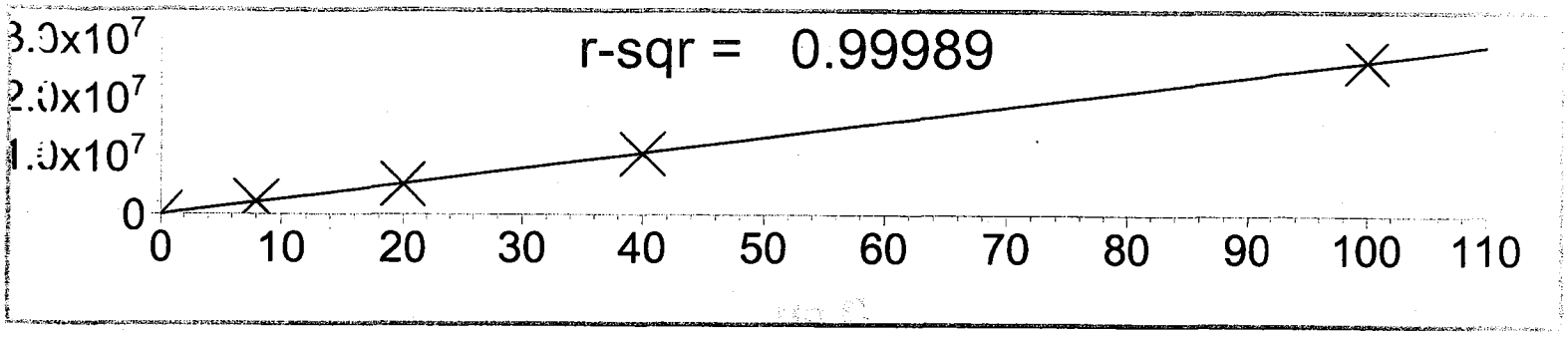
10-12-10 (W)

Calibration Report Print Date/Time: 2010/10/12 17:19:20

Cal. Curve ID: 101210 BOAT CAL
Created: 2010/10/12 17:19
Calibration Factor (m): 2.637e+05
Y Intercept (b): -44385
r-squared: 0.99989

Standard ID	Y Raw Data	X Expected ug C	Measured ug C	Message	Date & Time
DI WATER	42096	0.000	0.328	Low Sample De	2010/10/12 14:56
200 PPM	2146362	8.000	8.308		2010/10/12 15:23
500 PPM	5139030	20.000	19.658		2010/10/12 15:35
1000 PPM	10354417	40.000	39.437		2010/10/12 15:59
2500 PPM	26394752	100.000	100.269		2010/10/12 17:18

RS97:01247


r-sqr = 0.99989
3.0x10^7
2.0x10^7
1.0x10^7
0
0
10
20
30
40
50
60
70
80
90
100
110

Detailed Analysis Report Print Date/Time: 2010/10/12 17:55:50

Sample ID: DI WATER
Method: Boat Sampler
Cal. Curve: 101210 BOAT CAL
Operator ID: TRINA
Mode: TOC
Filename: 10121453
Timestamp: 2010/10/12 14:56
Sample Type: TOC Standard

Rep #	ppm C	ug C	Raw Data	Beginning Baseline	Ending Baseline	Integration Time
1			42096	20.557	20.796	120

Last Message: Low Sample Detected

Sample ID: 200 PPM
Method: Boat Sampler
Cal. Curve: 101210 BOAT CAL
Operator ID: TRINA
Mode: TOC
Filename: 10121514
Timestamp: 2010/10/12 15:17
Sample Type: TOC Standard

Rep #	ppm C	ug C	Raw Data	Beginning Baseline	Ending Baseline	Integration Time
1			2203684	21.239	22.237	121

Sample ID: 200 PPM
Method: Boat Sampler
Cal. Curve: 101210 BOAT CAL
Operator ID: TRINA
Mode: TOC
Filename: 10121520
Timestamp: 2010/10/12 15:23
Sample Type: TOC Standard

Rep #	ppm C	ug C	Raw Data	Beginning Baseline	Ending Baseline	Integration Time
1			2146363	21.277	22.277	124

Sample ID: 500 PPM
Method: Boat Sampler
Cal. Curve: 101210 BOAT CAL
Operator ID: TRINA
Mode: TOC
Filename: 10121526
Timestamp: 2010/10/12 15:29
Sample Type: TOC Standard

Rep #	ppm C	ug C	Raw Data	Beginning Baseline	Ending Baseline	Integration Time
1			4309993	21.466	22.465	153

Sample ID: 500 PPM
Method: Boat Sampler
Cal. Curve: 101210 BOAT CAL
Operator ID: TRINA
Mode: TOC
Filename: 10121532
Timestamp: 2010/10/12 15:35
Sample Type: TOC Standard

Rep #	ppm C	ug C	Raw Data	Beginning Baseline	Ending Baseline	Integration Time
1			5139030	21.540	22.536	146

Sample ID: 1000 PPM
Method: Boat Sampler
Cal. Curve: 101210 BOAT CAL
Operator ID: TRINA
Mode: TOC
Filename: 10121554
Timestamp: 2010/10/12 15:59
Sample Type: TOC Standard

Rep #	ppm C	ug C	Raw Data	Beginning Baseline	Ending Baseline	Integration Time
1			10354417	21.146	22.146	214

Sample ID: 1000 PPM
Method: Boat Sampler
Cal. Curve: 101210 BOAT CAL
Operator ID: TRINA
Mode: TOC
Filename: 10121613
Timestamp: 2010/10/12 16:18
Sample Type: TOC Standard

Rep #	ppm C	ug C	Raw Data	Beginning Baseline	Ending Baseline	Integration Time

1	10381796	21.552	22.548	181

Sample ID: 2500 PPM
Method: Boat Sampler
Cal. Curve: 101210 BOAT CAL
Operator ID: TRINA

Mode: TOC
Filename: 10121655
Timestamp: 2010/10/12 17:00
Sample Type: TOC Standard

Rep #	ppm C	ug C	Raw Data	Beginning Baseline	Ending Baseline	Integration Time
1			26842804	21.672	22.671	189

Sample ID: 2500 PPM
Method: Boat Sampler
Cal. Curve: 101210 BOAT CAL
Operator ID: TRINA

Mode: TOC
Filename: 10121713
Timestamp: 2010/10/12 17:18
Sample Type: TOC Standard

Rep #	ppm C	ug C	Raw Data	Beginning Baseline	Ending Baseline	Integration Time
1			26394752	21.517	22.513	231

Sample ID: CVS BOAT 1000
Method: Boat Sampler
Cal. Curve: 101210 BOAT CAL
Operator ID: TRINA

Mode: TOC
Filename: 10121721
Timestamp: 2010/10/12 17:25
Sample Type: Cal. Verification

Rep #	ppm C	ug C	Raw Data	Beginning Baseline	Ending Baseline	Integration Time
1	1025.3079	41.0123	10769825	21.200	22.199	189

Sample ID: ICB BOAT
Method: Boat Sampler
Cal. Curve: 101210 BOAT CAL
Operator ID: TRINA

Mode: TOC
Filename: 10121739
Timestamp: 2010/10/12 17:42
Sample Type: Cal. Verification

Rep #	ppm C	ug C	Raw Data	Beginning Baseline	Ending Baseline	Integration Time
1	11.6567	0.4663	78561	20.617	20.889	120

Last Message: Low Sample Detected

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Project: NWN-INS Northwest Natural

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BL
Signature

January-13-2011
Date

Analytical Resources, Incorporated
Analytical Chemists and Consultants

January 17, 2011

[redacted]

RE: Project: NWN-INS
ARI Job No: SC61

Dear[redacted]

Please find enclosed the original Chain-of-Custody (COC) records, sample receipt documentation, and the final data package for samples from the project referenced above.

Sample receipt and details of these analyses are discussed in the Case Narrative.

An electronic copy of this package will remain on file with ARI. Should you have any questions or problems, please feel free to contact me at your convenience.

Sincerely,

ANALYTICAL RESOURCES, INC

Susan Dunnihoo

Susan Dunnihoo
Director, Client Services
sue@arilabs.com
206-695-6207

Enclosures

cc: eFile SC61

SD/sdrd

4611 South 134th Place, Suite 100 • Tukwila WA 98168 • **206-695-6200** • **206-695-6201** fax

Chain of Custody Documentation

ARI Job ID: SC61

Chain of Custody Record & Laboratory Analysis Request

COC#

Date: 10/07/10
Laboratory : ARI
Project Name: Gasco Data Gaps
Project Number: 000029.02.23
Project Manager: Ryan Barth
Phone Number: 206.287.9130
Shipment Method: courier

ANCHOR QEA

Analytical Parameters

Line	Field Sample ID	Collection Date/Time	Matrix		TS,TOC,Cyanide	Metals	SVOC,PCB,Pest/Herb-D	VOC	CU-Trisx	EPH Archive -10°C	VPH Archive Hold Do Not Freeze	Archive -10°C	Geotech - Hold - Do Not Freeze	TCLP (All tests Table 1-3)	TCLP (VOC/GRO Table 1-3)	Waste Charct. (Corr,Ignit,pH)(Spectra Sub)	TCLP Bench Test Archive -10°C (16 oz)	TCLP Bencl Test Archive (2 oz) Hold No Freeze	TCLP Archive (16 oz) -10°C				Comments
1	GST-0650-19-20-101007	10/07/10 1050	SO	2			X	X															~~Hold Geotech Samples - Analysis to be determined at a later date~~
2	GST-0650-26-26.5-101007	1150	SO	2			X	X															
3	GST-0650-27-27.5-101007	1155	SO	2			X	X															
4	GST-0650-29-30-101007	1200	SO	2			X	X															
5																							
6																							
7																							
8																							
9																							
10																							
11																							
12																							

1 email sample confirmation report to labdata@anchorqea.com

2 See FSP for methods, analytes, and reporting limits

Additional notes/comments: NW Natural Additional Samples

Relinquished By:	Company: Anchor QEA LLC.	Received By:	
Matt Wilson	10/07/10 1605	Jennifer Millsap	ARI 10-8-10 1400
Signature/Printed Name	Date/Time	Signature/Printed Name	Date/Time
Relinquished By:	Company:	Received By:	
Signature/Printed Name	Date/Time	Signature/Printed Name	Date/Time

RRS1:00003

Distribution: A copy will be made for the laboratory and client The Project file will retain the original

Analytical Resources, Incorporated
Analytical Chemists and Consultants

Cooler Receipt Form

ARI Client: Anchor

COC No(s): _____ NA

Assigned ARI Job No: RR19

Project Name: Gasco Data Gaps

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

Tracking No: _____ NA

Preliminary Examination Phase:

Were intact, properly signed and dated custody seals attached to the outside of to 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)..... See below 25 coolers

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

Temp Gun ID#: 90877952

Cooler Accepted by: JM Date: 10/8/10 Time: 1400

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: _____

Was sufficient ice used (if appropriate)? ..... NA YES NO

Were all bottles sealed in individual plastic bags? ..... YES NO

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 _____

Was Sample Split by ARI : NA YES Date/Time: _____ Equipment: _____ Split by: _____

Samples Logged by: JM Date: 10/14/10 Time: 928

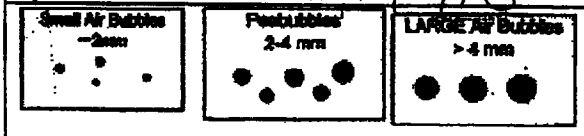
*** Notify Project Manager of discrepancies or concerns ***

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

Additional Notes, Discrepancies, & Resolutions:

4.9, 4.6, 1.6, 0.2, 2.3, 1.3, 1.9, 0.4, 1.4, 4.9, 1.2, 1.5, 3.8, 2.1, 0.3, 2.9, 1.4, 0.4, 4.8, 3.0, 0.1, 2.7, 5.9, 6.9, 2.4. Cooler with temp of 6.9 contained Geotech samples logged on different jobs.

By: JM Date: 10/14/10



Small → "sm"	
Peabubbles → "pb"	
Large → "lg"	
Headspace → "hs"	

RR19 : 00004
SC61 : 00004

Case Narrative, Data Qualifiers, Control Limits

ARI Job ID: SC61

Case Narrative

Client: NW Natural
Project: NWN-INS
ARI Job No.: SC61

Sample receipt

Four soil samples were received October 8, 2010, under ARI job RR19. Various cooler temperatures were recorded by IR thermometer following ARI SOP, between 0.2 and 6.9°C. For further details regarding sample receipt, please refer to the Cooler Receipt Form.

On December 12, 2010 ARI was instructed to pull archived samples and analyze for NWTPHDx with no cleanups and TOC, reported here.

NWTPH-Dx

The samples and associated laboratory QC were extracted and analyzed within the method recommended holding times for samples stored frozen. Samples were taken only to a 10 mL final effective volume due to the color and consistency of the samples.

The initial and continuing calibrations were within method requirements.

The surrogate percent recoveries were within the control limits, with the surrogates for all samples diluted below detection.

The method blank was clean at the reporting limit. The LCS percent recovery was within limits.

The matrix spike and matrix spike duplicate percent recoveries could not be evaluated as the parent sample concentration was more than 5 times the spike level. The RPD was within the advisory control limits.

General Chemistry (TOC/TS)

The samples and associated laboratory QC were prepared and analyzed within the method recommended holding times for samples stored frozen.

The method blank was clean at the reporting limits. The LCS percent recovery was within control limits.

The matrix spike percent recovery and replicate RPD were within control limits.

The SRM percent recoveries were within limits.

Analytical Resources, Incorporated
Analytical Chemists and Consultants

Data Reporting Qualifiers

Effective 7/10/2009

Inorganic Data

U Indicates that the target analyte was not detected at the reported concentration

* Duplicate RPD is not within established control limits

B Reported value is less than the CRDL but ≥ the Reporting Limit

N Matrix Spike recovery not within established control limits

NA Not Applicable, analyte not spiked

H The natural concentration of the spiked element is so much greater than the concentration spiked that an accurate determination of spike recovery is not possible

L Analyte concentration is ≤5 times the Reporting Limit and the replicate control limit defaults to ±1 RL instead of the normal 20% RPD

Organic Data

U Indicates that the target analyte was not detected at the reported concentration

* Flagged value is not within established control limits

B Analyte detected in an associated Method Blank at a concentration greater than one-half of ARI's Reporting Limit or 5% of the regulatory limit or 5% of the analyte concentration in the sample.

J Estimated concentration when the value is less than ARI's established reporting limits

D The spiked compound was not detected due to sample extract dilution

E Estimated concentration calculated for an analyte response above the valid instrument calibration range. A dilution is required to obtain an accurate quantification of the analyte.

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).

S Indicates an analyte response that has saturated the detector. The calculated concentration is not valid; a dilution is required to obtain valid quantification of the analyte

NA The flagged analyte was not analyzed for

NR Spiked compound recovery is not reported due to chromatographic interference

NS The flagged analyte was not spiked into the sample

M Estimated value for an analyte detected and confirmed by an analyst but with low spectral match parameters. This flag is used only for GC-MS analyses

M2 The sample contains PCB congeners that do not match any standard Aroclor pattern. The PCBs are identified and quantified as the Aroclor whose pattern most closely matches that of the sample. The reported value is an estimate.

N The analysis indicates the presence of an analyte for which there is presumptive evidence to make a "tentative identification"

Y The analyte is not detected at or above the reported concentration. The reporting limit is raised due to chromatographic interference. The Y flag is equivalent to the U flag with a raised reporting limit.

Y Estimated Maximum Possible Concentration (EMPC) defined in EPA Statement of Work DLM02.2 as a value "calculated for 2,3,7,8-substituted isomers for which the quantitation and /or confirmation ion(s) has signal to noise in excess of 2.5, but does not meet identification criteria" **(Dioxin/Furan analysis only)**

C The analyte was positively identified on only one of two chromatographic columns. Chromatographic interference prevented a positive identification on the second column

P The analyte was detected on both chromatographic columns but the quantified values differ by ≥40% RPD with no obvious chromatographic interference

X Analyte signal includes interference from polychlorinated diphenyl ethers. **(Dioxin/Furan analysis only)**

Z Analyte signal includes interference from the sample matrix or perfluorokerosene ions. **(Dioxin/Furan analysis only)**

Geotechnical Data

A The total of all fines fractions. This flag is used to report total fines when only sieve analysis is requested and balances total grain size with sample weight.

F Samples were frozen prior to particle size determination

SM Sample matrix was not appropriate for the requested analysis. This normally refers to samples contaminated with an organic product that interferes with the sieving process and/or moisture content, porosity and saturation calculations

SS Sample did not contain the proportion of "fines" required to perform the pipette portion of the grain size analysis

W Weight of sample in some pipette aliquots was below the level required for accurate weighting

SURR SOLUTIONS

LABEL	SOLN ID	TEST	CONC. UG/ML	SOLVENT	EXP.
A	1780-2	ABN	100/150	MEOH	05/15/11
B	1771-1	SIM PNA	15/75	ACETONE	10/05/11
C	1705-4	SIM ABN	25/37.5	MEOH	03/08/11
D	1795-4	LOW PCB	0.2	ACETONE	12/16/11
E	1771-3	HERB	62.5	MEOH	10/06/11
F	1791-3	PCP	12.5	ACETONE	12/09/11
G	1758-4	1,4DIOXANE	100	MEOH	02/11/11
H	1723-2	OP-PEST	25	MEOH	04/02/11
I	1771-2	LOW S. PNA	1.5	ACETONE	10/05/11
J	1787-2	TBT-PORE	0.125	MECL2	11/27/11
K	1795-2	MED PCB	20	ACETONE	12/16/11
L	1785-4	TBT	2.5	MECL2	11/27/11
M	1767-1	EPH	1500	MECL2	06/02/11
N	1795-3	PCB	2	ACETONE	12/16/11
O	1792-1	TPH	450	MECL2	08/05/11
P	1768-1	HCID	2250	MECL2	08/05/11
Q	NA	EDB	1	MEOH	NA
R	1757-3	RESIN ACID	250	ACETONE	08/14/11
S*	1568-5	PBDE	.25	MEOH	01/13/11
T	1768-2	ALKYL PNA	10	MEOH	07/22/11
U	NA	CONGENER	2.5	ACETONE	NA
V	1791-4	LOW PCP	1.25	ACETONE	12/09/11
*reverified solution					

LCS SOLUTIONS

LABL	SOLN ID	TEST	CONC. UG/ML	SOLVENT	EXP.
1	1789-3	PCB 1660	20	ACETONE	12/03/11
2#	NA	BCOC PEST	10	ACETONE	NA
3	1793-3	PEST	01/02/10	ACETONE	12/15/11
4	1806-2	LOW PEST	.1/.2/1	ACETONE	12/15/11
5	1779-1	EPH	1500	MECL2	11/11/11
6	1702-2	PCP	12.5/125	ACETONE	02/18/11
7	1789-2	ABN	100	MEOH	10/01/11
8	1785-3	TBT	2.5	MECL2	11/27/11
9	1786-3	PORE TBT	.125/.25	MECL2	11/27/11
10	1790-1	ABN ACID	100/200	MEOH	06/07/11
11	1777-2	TPHD	15000	ACETONE	11/01/11
12	1790-2	ABN BASE	200	MEOH	06/07/11
13	1716-2	LOW PCB	2	ACETONE	03/30/11
14	1753-3	LOW ABN ACID	10/20	MEOH	01/28/11
15	1771-4	SIM PNA	15/75	MEOH	01/29/11
16	1776-2	DIOXANE	100	MEOH	04/09/11
17	1772-3	1248 PCB	10	ACETONE	05/01/11
18	1771-5	LOW SIM PNA	1.5	ACETONE	01/29/11
19	1746-3	AK103	7500	ACETONE	12/01/10
20	1775-3	PNA	100	ACETONE	08/14/11
21	1725-1	SKY/BHT	100	MEOH	03/18/11
22	1781-1	HERB	05 to 4000	MEOH	04/15/11
23	1753-4	LW ABN BASE	20	MEOH	01/29/11
24	1758-2	LOW ABN	10	ACETONE	01/13/11
25#	NA	DIPHENYL	100	MEOH	NA
26	1789-1	OP-PEST	25	MEOH	04/02/11
27	NA	STEROLS	200	MEOH	NA
28#	1807-1	ADD. PEST	2	ACETONE	08/31/11
29#	NA	DECANES	100	MEOH	NA

LCS SOLUTIONS

30	NA	EDB/DBCP	0.2	MEOH	NA
31	1707-3	TERPINEOL	100	MEOH	03/19/11
32	1758-1	GUAIACOL	50-200	ACETONE	01/08/11
33	NA	RETENE	100	MEOH	NA
34	NA	CONGENERS	2.5	ACETONE	NA
35	NA	ALKYL PNA A	10	MEOH	NA
36	NA	ALKYL PNA B	10	MEOH	NA
37	1773-1	CAR/PERY	100	ACETONE	10/14/11
50	1757-4	FULL RESIN	250	ACETONE	08/14/11
51	1772-1	DDTS	0.01	ACETONE	04/24/11
52	NA	1232 PCB	20	ACETONE	NA
53	1780-1	DALAPON	50	MEOH	05/07/11
54	1753-1	T-CHLORDANE	10	ACETONE	07/21/11
55	1753-2	TOXAPHENE	50	ACETONE	07/21/11
#=PROJECT SPECIFIC SOLUTION					
*=REVERIFIED SOLUTION					

Analytical Resources,Incorporated
Analytical Chemists and Consultants

Spike Recovery Control Limits Hydrocarbon Identification (NWTPH-HCID) and Diesel Range Petroleum Hydrocarbons (NWTPH-D & AK-102) [1]

Effective 10/4/10

Control limits are updated periodically. Assure that you have ARI's current control limits by downloading the files at the time of use. http://www.arilabs.com/portal/downloads/ARI-CLs.zip

Method:	NWTPH-HCID [2]	NWTPH-D		AK102 [2]
Sample Matrix:	Water& Soil	Water [3]	Soil[4]	Water & Soil
Preparation:	500 to 1 mL	500 to 1 mL	10g to 1 mL	500 to 1 mL or 10g to 1 mL
LCS Spike Recovery [5]				
Diesel	-	60 - 111	64 - 116	75 - 125
Diesel with Acid & Silica Clean-up	-	49 - 107	59 - 108	(6)
Diesel with Silica Clean-up		49 - 107	59 - 108	75 - 125
Method Blank/LCS Surrogate Recovery				
o-Terphenyl	-	56 - 130	64 - 134	60 - 120
o-Terphenyl with Acid & Silica Clean-up	-	53 - 123	59 - 134	(6)
o-Terphenyl Silica Clean-up		53 - 123	59 - 134	60 - 120
Sample Surrogate Recovery				
o-Terphenyl	50 - 150	52 - 134	52 - 130	50 - 150
o-Terphenyl with Acid & Silica Clean-up	-	49 - 118	43 - 137	(6)
o-Terphenyl with Silica Clean-up	-	49 - 118	43 - 137	50 - 150

1. Control Limits calculated using all data generated 1/1/10 through 9/1/10
2. Method specified, non-prescriptive limits. The NWTPH-HCID Method does not include LCS or MS analyses.
3. Separatory Funnel Extraction – EPA Method 3510C
4. Microwave Extraction – EPA Method 3546
5. Laboratory Control Sample (LCS) spike recovery control limits also used as advisory control limits for sample matrix spike (MS) analyzes. MS recovery values are advisory and not used to assess the acceptability of an analytical batch.
6. Alaska State UST Methods do not allow acid cleanup of sample extracts.

SC61 : 00013

Analytical Resources, Incorporated
Analytical Chemists and Consultants

Spike Recovery Control Limits for Conventional Wet Chemistry Effective 5/1/09		
Control limits are updated periodically. Assure that you have ARI's current control limits by downloading the files at the time of use. http://www.arilabs.com/portal/downloads/ARI-CLs.zip		
	ARI's Control Limits	
Sample Matrix:	Water	Soil / Sediment
Matrix Spike Recoveries	% Recovery	% Recovery
Ammonia	75 - 125	75 - 125
Bromide	75 125	75 - 125
Chloride	75 125	75 - 125
Cyanide	75 - 125	75 - 125
Ferrous Iron	75 - 125	75 - 125
Fluoride	75 - 125	75 - 125
Formaldehyde	75 - 125	75 - 125
Hexane Extractable Material	-- - --	78 - 114
Hexavalent Chromium	75 - 125	75 - 125
Nitrate/Nitrite	75 - 125	75 - 125
Oil and Grease	75 - 125	75 - 125
Phenol	75 - 125	75 - 125
Phosphorous	75 - 125	75 - 125
Sulfate	75 - 125	75 - 125
Sulfide	75 - 125	75 - 125
Total Kjeldahl Nitrogen	75 - 125	75 - 125
Total Organic Carbon	75 - 125	75 - 125
Duplicate RPDs		
Acidity	±20%	±20%
Alkalinity	±20%	±20%
BOD	±20%	±20%
Cation Exchange	±20%	±20%
COD	±20%	±20%
Conductivity	±20%	±20%
Salinity	±20%	±20%
Solids	±20%	±20%
Turbidity	±20%	±20%

TPHD Analysis
Report and Summary QC Forms

ARI Job ID: SC61

ANALYTICAL RESOURCES INCORPORATED

ORGANICS ANALYSIS DATA SHEET
TOTAL DIESEL RANGE HYDROCARBONS
NWTPHD by GC/FID
Page 1 of 1
Matrix: Soil

QC Report No: SC61-NW Natural
Project: Northwest Natural
NWN-INS
Date Received: 10/08/10

Data Release Authorized:
Reported: 01/07/11

ARI ID	Sample ID	Extraction Date	Analysis Date	EFV DL	Range	RL	Result
MB-010311	Method Blank	01/03/11	01/04/11	1.00	Diesel	5.0	< 5.0 U
10-31897	HC ID: ---		FID4B	1.0	Motor Oil	10	< 10 U
					o-Terphenyl		78.2%
SC61A	GST-06SO-19-20-101007	01/03/11	01/04/11	10.0	**Diesel**	**580**	**5,000**
10-31897	HC ID: **DIESEL/MOTOR OIL**		FID4B	10	**Motor Oil**	**1,200**	**6,600**
					o-Terphenyl		D
SC61B	GST-06SO-26-26.5-1010	01/03/11	01/04/11	10.0	**Diesel**	**3,100**	**77,000**
10-31898	HC ID: **DIESEL/MOTOR OIL**		FID4B	50	**Motor Oil**	**6,200**	**35,000**
					o-Terphenyl		D
SC61C	GST-06SO-27-27.5-1010	01/03/11	01/04/11	10.0	**Diesel**	**2,900**	**46,000**
10-31899	HC ID: **DIESEL/MOTOR OIL**		FID4B	50	**Motor Oil**	**5,900**	**26,000**
					o-Terphenyl		D
SC61D	GST-06SO-29-30-101007	01/03/11	01/04/11	10.0	**Diesel**	**1,200**	**38,000**
10-31900	HC ID: **DIESEL/MOTOR OIL**		FID4B	20	**Motor Oil**	**2,400**	**23,000**
					o-Terphenyl		D

Reported in mg/kg (ppm)

EFV-Effective Final Volume in mL.
DL-Dilution of extract prior to analysis.
RL-Reporting limit.

Diesel quantitation on total peaks in the range from C12 to C24.
Motor Oil quantitation on total peaks in the range from C24 to C38.
HC ID: DRO/RRO indicates results of organics or additional hydrocarbons in ranges are not identifiable.

ANALYTICAL RESOURCES INCORPORATED

TPHD SURROGATE RECOVERY SUMMARY

Matrix: Soil

QC Report No: SC61-NW Natural
Project: Northwest Natural
NWN-INS

Client ID	OTER	TOT OUT
010311MBS	78.2%	0
010311LCS	82.0%	0
GST-06SO-19-20-101007	D	0
GST-06SO-19-20-101007 MS	D	0
GST-06SO-19-20-101007 MSD	D	0
GST-06SO-26-26.5-101007	D	0
GST-06SO-27-27.5-101007	D	0
GST-06SO-29-30-101007	D	0

	LCS/MB LIMITS	QC LIMITS
(OTER) = o-Terphenyl	(64-134)	(52-130)

Prep Method: SW3546
Log Number Range: 10-31897 to 10-31900

FORM-II TPHD

ANALYTICAL RESOURCES INCORPORATED

ORGANICS ANALYSIS DATA SHEET
NWTPHD by GC/FID

Sample ID: GST-06SO-19-20-101007
MS/MSD

Lab Sample ID: SC61A
LIMS ID: 10-31897
Matrix: Soil
Data Release Authorized:
Reported: 01/07/11

QC Report No: SC61-NW Natural
Project: Northwest Natural
NWN-INS
Date Sampled: 10/07/10
Date Received: 10/08/10

Date Extracted MS/MSD: 01/03/11

Date Analyzed MS: 01/04/11 05:07
MSD: 01/04/11 05:30
Instrument/Analyst MS: FID4B/MS
MSD: FID4B/MS

Sample Amount MS: 8.38 g-dry-wt
MSD: 8.54 g-dry-wt
Final Extract Volume MS: 10 mL
MSD: 10 mL
Dilution Factor MS: 10.0
MSD: 10.0
Percent Moisture: 16.7%

Range	Sample	MS	Spike Added-MS	MS Recovery	MSD	Spike Added-MSD	MSD Recovery	RPD
Diesel	4,990	6,610	179	NA	5,960	176	NA	10.3%

TPHD Surrogate Recovery

	MS	MSD
o-Terphenyl	D	D

Results reported in mg/kg
NA-No recovery due to high concentration of analyte in original sample and/or calculated negative recovery.
RPD calculated using sample concentrations per SW846.

ANALYTICAL RESOURCES INCORPORATED

ORGANICS ANALYSIS DATA SHEET
NWTPHD by GC/FID

Sample ID: LCS-010311
LAB CONTROL

Lab Sample ID: LCS-010311
LIMS ID: 10-31897
Matrix: Soil
Data Release Authorized:
Reported: 01/07/11

QC Report No: SC61-NW Natural
Project: Northwest Natural
NWN-INS
Date Sampled: NA
Date Received: NA

Date Extracted: 01/03/11
Date Analyzed: 01/04/11 04:21
Instrument/Analyst: FID4B/MS

Sample Amount: 10.0 g
Final Extract Volume: 1.0 mL
Dilution Factor: 1.00

Range	Lab Control	Spike Added	Recovery
Diesel	123	150	82.0%

TPHD Surrogate Recovery

o-Terphenyl	82.0%

Results reported in mg/kg

ANALYTICAL RESOURCES INCORPORATED

TOTAL DIESEL RANGE HYDROCARBONS-EXTRACTION REPORT

ARI Job: SC61
Project: Northwest Natural
NWN-INS

Matrix: Soil
Date Received: 10/08/10

ARI ID	Client ID	Client Amt	Final Vol	Basis	Prep Date
10-31897-010311MB1	Method Blank	10.0 g	1.00 mL	-	01/03/11
10-31897-010311LCS1	Lab Control	10.0 g	1.00 mL	-	01/03/11
10-31897-SC61A	GST-06SO-19-20-10	108.58 g	10.0 mL	D	01/03/11
10-31897-SC61AMS	GST-06SO-19-20-10	108.38 g	10.0 mL	D	01/03/11
10-31897-SC61AMSD	GST-06SO-19-20-10	108.54 g	10.0 mL	D	01/03/11
10-31898-SC61B	GST-06SO-26-26.5-1	08.01 g	10.0 mL	D	01/03/11
10-31899-SC61C	GST-06SO-27-27.5-1	08.49 g	10.0 mL	D	01/03/11
10-31900-SC61D	GST-06SO-29-30-10	108.42 g	10.0 mL	D	01/03/11

Basis: D=Dry Weight W=As Received

TPH METHOD BLANK SUMMARY

BLANK NO.

SC61MBS1

Lab Name: ANALYTICAL RESOURCES, INC

Client: NW NATURAL

SDG No.: SC61

Project No.: GASCO DATA GAPS

Date Extracted: 01/03/11

Matrix: SOLID

Date Analyzed : 01/04/11

Instrument ID : FID4B

Time Analyzed : 0358

THIS METHOD BLANK APPLIES TO THE FOLLOWING SAMPLES, MS, and MSD:

	CLIENT SAMPLE NO.	LAB SAMPLE ID	DATE ANALYZED
01	SC61LCSS1	SC61LCSS1	01/04/11
02	GST-06SO-19-	SC61A	01/04/11
03	GST-06SO-19-	SC61AMS	01/04/11
04	GST-06SO-19-	SC61AMSD	01/04/11
05	GST-06SO-26-	SC61B	01/04/11
06	GST-06SO-27-	SC61C	01/04/11
07	GST-06SO-29-	SC61D	01/04/11
08			
09			
10			
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FORM IV TPH

6a

NW DIESEL INITIAL CALIBRATION

Lab Name: ANALYTICAL RESOURCES, INC.

Client: NW NATURAL

Instrument: FID4B.I

Project: GASCO DATA GAPS

Calibration Date: 21-DEC-2010

SDG No.: SC61

Diesel Range	RF1 50	RF2 100	RF3 250	RF4 500	RF5 1000	RF6 2500	Ave RF	%RSD
WA Diesel	23376	23355	24019	23451	22779	23500	23413	1.7
AK Diesel	26601	26248	26759	26174	25386	26157	26221	1.8
OR Diesel	26788	26410	26936	26349	25549	26345	26396	1.8
o-Terph	22499	22472	23195	23420	22850	24783	23203	3.7

<- Indicates %RSD outside limits
Surrogate areas are not included in Diesel RF calculation.

Quant Ranges : WA Diesel C12-C24 (4.399-8.154)
AK Diesel C10-C25 (3.431-8.409)
OR Diesel C10-C28 (3.431-9.148)

Calibration Files	Analysis Time
1221b008.d	21-DEC-2010 16:06
1221b009.d	21-DEC-2010 16:29
1221b010.d	21-DEC-2010 16:53
1221b011.d	21-DEC-2010 17:16
1221b012.d	21-DEC-2010 17:40
1221b013.d	21-DEC-2010 18:03

6a

NW MOTOR OIL RANGE INITIAL CALIBRATION

Lab Name: ANALYTICAL RESOURCES, INC.

Client: NW NATURAL

Instrument: FID4B.I

Project: GASCO DATA GAPS

Calibration Date: 23-OCT-2010

SDG No.: SC61

Product Range	RF1 100	RF2 250	RF3 500	RF4 1000	RF5 2500	RF6 5000	Ave RF	%RSD
WA M.Oil C24-C38	11517	13245	14528	14590	15556	13774	13869	10.1
Triac Surr	15970	19250	21559	22046	23282	22475	20764	13.1

<- Indicates %RSD outside limits
Surrogate areas are not included in Motor Oil RF calculation.

Calibration Files	Analysis Time
1023b016.d	23-OCT-2010 22:01
1023b017.d	23-OCT-2010 22:24
1023b018.d	23-OCT-2010 22:47
1023b019.d	23-OCT-2010 23:10
1023b020.d	23-OCT-2010 23:33
1023b021.d	23-OCT-2010 23:56

FORM VI-M.Oil

DIESEL CONTINUING CALIBRATION VERIFICATION

Lab Name: ANALYTICAL RESOURCES, INC.
ICal Date: 21-DEC-2010
CCal Date: 04-JAN-2011
Analysis Time: 03:12
Instrument: FID4B.I

Client: NW NATURAL
Project: GASCO DATA GAPS
SDG No.: SC61
Lab ID: DIESEL#4
Lab File Name: 0103b035.d

Diesel Range	Area*	CalcAmnt	NomAmnt	% D
WADies(C12-C24)	6089820	260.1	250	4.0
AK102 (C10-C25)	6836107	260.7	250	4.3
Terphenyl	1042322	44.9	45	-0.2

* Surrogate areas are subtracted from range areas
<- Indicates a %D outside QC limits

Quant Ranges : WA Diesel C12-C24
AK Diesel C10-C25

7a

MOTOR OIL CONTINUING CALIBRATION VERIFICATION

Lab Name: ANALYTICAL RESOURCES, INC.
ICal Date: 23-OCT-2010
CCal Date: 04-JAN-2011
Analysis Time: 03:35
Instrument: FID4B.I

Client: NW NATURAL
Project: GASCO DATA GAPS
SDG No.: SC61
Lab ID: MOIL#4
Lab File Name: 0103b036.d

M.oil Range	Area*	CalcAmnt	NomAmnt	% D	
WAMoil(C24-C38)	6112233	440.7	500	-11.9	
AK103 (C25-C36)	5451087	825.3	500	65.1	<-
CRUDE(Tol-C40)	7409188	1296.9	500	159.4	
n-Triacontane	957915	46.1	45	2.5	

* Surrogate areas are subtracted from range areas
<- Indicates a %D outside QC limits

Quant Ranges : WA M.Oil C24-C38
AK M.Oil C25-C36

FORM VII-Diesel

7a

DIESEL CONTINUING CALIBRATION VERIFICATION

Lab Name: ANALYTICAL RESOURCES, INC.
ICal Date: 21-DEC-2010
CCal Date: 04-JAN-2011
Analysis Time: 07:02
Instrument: FID4B.I

Client: NW NATURAL
Project: GASCO DATA GAPS
SDG No.: SC61
Lab ID: DIESEL#5
Lab File Name: 0103b045.d

Diesel Range	Area*	CalcAmnt	NomAmnt	% D
WADies(C12-C24)	6210083	265.2	250	6.1
AK102 (C10-C25)	6968310	265.8	250	6.3
Terphenyl	1037923	44.7	45	-0.6

* Surrogate areas are subtracted from range areas
<- Indicates a %D outside QC limits

Quant Ranges : WA Diesel C12-C24
AK Diesel C10-C25

FORM VII-Diesel

7a

MOTOR OIL CONTINUING CALIBRATION VERIFICATION

Lab Name: ANALYTICAL RESOURCES, INC.
ICal Date: 23-OCT-2010
CCal Date: 04-JAN-2011
Analysis Time: 07:25
Instrument: FID4B.I

Client: NW NATURAL
Project: GASCO DATA GAPS
SDG No.: SC61
Lab ID: MOIL#5
Lab File Name: 0103b046.d

M.oil Range	Area*	CalcAmnt	NomAmnt	% D	
WAMoil(C24-C38)	6057108	436.7	500	-12.7	
AK103 (C25-C36)	5402822	818.0	500	63.6	<-
CRUDE(Tol-C40)	7327897	1282.7	500	156.5	
n-Triacontane	965269	46.5	45	3.3	

* Surrogate areas are subtracted from range areas
<- Indicates a %D outside QC limits

Quant Ranges : WA M.Oil C24-C38
AK M.Oil C25-C36

FORM VII-Diesel

TPH ANALYTICAL SEQUENCE

Lab Name: ANALYTICAL RESOURCES, INC Client: NW NATURAL

SDG No.: SC61 Project: GASCO DATA GAPS

Instrument ID: FID4B GC Column: RTX-1

Run Date: 01/03/11

THE ANALYTICAL SEQUENCE OF BLANKS, SAMPLES, AND STANDARDS, IS GIVEN BELOW:

SURROGATE RT FROM DAILY STANDARD
TERPH: 6.60 TRIAC: 9.66

	CLIENT SAMPLE NO.	LAB SAMPLE ID	DATE ANALYZED	TIME ANALYZED	TERPH RT #	TRIAC RT #
01	RT	RT	01/03/11	0926	6.60	9.66
02	IB	IB	01/03/11	0950	6.60	9.66
03	GASCO DATA G	DIESEL#4	01/04/11	0312	6.60	9.67
04	GASCO DATA G	MOIL#4	01/04/11	0335	6.61	9.66
05	SC61MBS1	SC61MBS1	01/04/11	0358	6.60	9.66
06	SC61LCSS1	SC61LCSS1	01/04/11	0421	6.60	9.66
07	GST-06SO-19-	SC61A	01/04/11	0444		
08	GST-06SO-19-	SC61AMS	01/04/11	0507		
09	GST-06SO-19-	SC61AMSD	01/04/11	0530		
10	GST-06SO-26-	SC61B	01/04/11	0553		
11	GST-06SO-27-	SC61C	01/04/11	0616		
12	GST-06SO-29-	SC61D	01/04/11	0639		
13	GASCO DATA G	DIESEL#5	01/04/11	0702	6.60	9.66
14	GASCO DATA G	MOIL#5	01/04/11	0725	6.61	9.66

	QC LIMITS
TERPH = o-terph	(+/- 0.05 MINUTES)
TRIAC = Triacon Surr	(+/- 0.05 MINUTES)

* Values outside of QC limits.

FORM VIII TPH

TPH ANALYTICAL SEQUENCE

Lab Name: ANALYTICAL RESOURCES, INC Client: NW NATURAL

SDG No.: SC61 Project: GASCO DATA GAPS

Instrument ID: FID4B GC Column: RTX-1

Run Date: 12/21/10

THE ANALYTICAL SEQUENCE OF BLANKS, SAMPLES, AND STANDARDS, IS GIVEN BELOW:

SURROGATE RT FROM DAILY STANDARD
TERPH: 6.61 TRIAC: 9.68

	CLIENT SAMPLE NO.	LAB SAMPLE ID	DATE ANALYZED	TIME ANALYZED	TERPH RT #	TRIAC RT #
01	RT	RT	12/21/10	1519	6.61	9.68
02	IB	IB	12/21/10	1542	6.61	9.67
03	DIESEL 50	DIESEL 50	12/21/10	1606	6.60	9.70
04	DIESEL 100	DIESEL 100	12/21/10	1629	6.60	9.70
05	DIESEL 250	DIESEL 250	12/21/10	1653	6.61	9.70
06	DIESEL 500	DIESEL 500	12/21/10	1716	6.62	9.72
07	DIESEL 1000	DIESEL 1000	12/21/10	1740	6.63	9.72
08	DIESEL 2500	DIESEL 2500	12/21/10	1803	6.66*	9.70
09		DIESEL ICV	12/21/10	1826	6.61	9.70

	QC LIMITS
TERPH = o-terph	(+/- 0.05 MINUTES)
TRIAC = Triacon Surr	(+/- 0.05 MINUTES)

* Values outside of QC limits.
(Peak shift at 450ppm occurs when column plates are close to overloaded. Sample surrogates are spiked at 45ppm. o-Terphenyl quants %3.7 RSD and meets Ical criteria. No further corrective action taken.)

FORM VIII TPH

TPH ANALYTICAL SEQUENCE

Lab Name: ANALYTICAL RESOURCES, INC Client: NW NATURAL

SDG No.: SC61 Project: GASCO DATA GAPS

Instrument ID: FID4B GC Column: RTX-1

Run Date: 10/23/10

THE ANALYTICAL SEQUENCE OF BLANKS, SAMPLES, AND STANDARDS, IS GIVEN BELOW:

SURROGATE RT FROM DAILY STANDARD
TERPH: 6.62 TRIAC: 9.66

	CLIENT SAMPLE NO.	LAB SAMPLE ID	DATE ANALYZED	TIME ANALYZED	TERPH RT #	TRIAC RT #
01		RT	10/23/10	1832	6.62	9.66
02		IB	10/23/10	1855	6.62	9.65
03		MOIL 100	10/23/10	2201	6.62	9.64
04		MOIL 250	10/23/10	2224	6.62	9.65
05		MOIL 500	10/23/10	2247	6.62	9.66
06		MOIL 1000	10/23/10	2310	6.61	9.67
07		MOIL 2500	10/23/10	2333	6.61	9.71*
08		MOIL 5000	10/23/10	2356	6.61	9.75*
09		MOIL ICV	10/24/10	0020	6.62	9.66
10		RINSE	10/24/10	0043	6.62	9.65
11		RINSE	10/24/10	0106	6.62	9.65
12		RINSE	10/24/10	0129	6.62	9.65

	QC LIMITS
TERPH = o-terph	(+/- 0.05 MINUTES)
TRIAC = Triacon Surr	(+/- 0.05 MINUTES)

* Values outside of QC limits.
(Peak shift at 225ppm and higher occurs when column plates are close to overloaded. Sample surrogates are spiked at 45ppm. n-Triacontane quants %13.1 RSD and meets Ical criteria. No further corrective action taken.)

FORM VIII TPH

General Chemistry Analysis
Report and Summary QC Forms

ARI Job ID: SC61

SAMPLE RESULTS-CONVENTIONALS
SC61-NW Natural

ANALYTICAL RESOURCES INCORPORATED

Matrix: Soil
Data Release Authorized:
Reported: 01/14/11

Project: Northwest Natural
Event: NWN-INS
Date Sampled: 10/07/10
Date Received: 10/08/10

Client ID: GST-06SO-19-20-101007
ARI ID: 10-31897 SC61A

Analyte	Date	Method	Units	RL	Sample
Total Solids	01/10/11 011011#1	EPA 160.3	Percent	0.01	83.80
Total Organic Carbon	01/13/11 011311#1	Plumb,1981	Percent	0.200	15.3

RL Analytical reporting limit
U Undetected at reported detection limit

SAMPLE RESULTS-CONVENTIONALS
SC61-NW Natural

ANALYTICAL RESOURCES INCORPORATED

Matrix: Soil
Data Release Authorized:
Reported: 01/14/11

Project: Northwest Natural
Event: NWN-INS
Date Sampled: 10/07/10
Date Received: 10/08/10

Client ID: GST-06SO-26-26.5-101007
ARI ID: 10-31898 SC61B

Analyte	Date	Method	Units	RL	Sample
Total Solids	01/10/11 011011#1	EPA 160.3	Percent	0.01	81.20
Total Organic Carbon	01/13/11 011311#1	Plumb,1981	Percent	0.270	84.3

RL Analytical reporting limit
U Undetected at reported detection limit

SAMPLE RESULTS-CONVENTIONALS
SC61-NW Natural

ANALYTICAL RESOURCES INCORPORATED

Matrix: Soil
Data Release Authorized:
Reported: 01/14/11

Project: Northwest Natural
Event: NWN-INS
Date Sampled: 10/07/10
Date Received: 10/08/10

Client ID: GST-06SO-27-27.5-101007
ARI ID: 10-31899 SC61C

Analyte	Date	Method	Units	RL	Sample
Total Solids	01/10/11 011011#1	EPA 160.3	Percent	0.01	84.50
Total Organic Carbon	01/13/11 011311#1	Plumb,1981	Percent	0.268	72.9

RL Analytical reporting limit
U Undetected at reported detection limit

SAMPLE RESULTS-CONVENTIONALS
SC61-NW Natural

ANALYTICAL RESOURCES INCORPORATED

Matrix: Soil
Data Release Authorized:
Reported: 01/14/11

Project: Northwest Natural
Event: NWN-INS
Date Sampled: 10/07/10
Date Received: 10/08/10

Client ID: GST-06SO-29-30-101007
ARI ID: 10-31900 SC61D

Analyte	Date	Method	Units	RL	Sample
Total Solids	01/10/11 011011#1	EPA 160.3	Percent	0.01	84.20
Total Organic Carbon	01/13/11 011311#1	Plumb,1981	Percent	0.290	19.7

RL Analytical reporting limit
U Undetected at reported detection limit

MS/MSD RESULTS-CONVENTIONALS
SC61-NW Natural

ANALYTICAL RESOURCES INCORPORATED

Matrix: Soil
Data Release Authorized:
Reported: 01/14/11

Project: Northwest Natural
Event: NWN-INS
Date Sampled: 10/07/10
Date Received: 10/08/10

Analyte	Date	Units	Sample	Spike	Spike Added	Recovery
ARI ID: SC61A Client ID: GST-06SO-19-20-101007						
Total Organic Carbon	01/13/11	Percent	15.3	33.8	16.7	110.9%

REPLICATE RESULTS-CONVENTIONALS
SC61-NW Natural

ANALYTICAL RESOURCES INCORPORATED

Matrix: Soil
Data Release Authorized:
Reported: 01/14/11

Project: Northwest Natural
Event: NWN-INS
Date Sampled: 10/07/10
Date Received: 10/08/10

Analyte	Date	Units	Sample	Replicate(s)	RPD/RSD
ARI ID: SC61A Client ID: GST-06SO-19-20-101007					
Total Solids	01/10/11	Percent	83.80	82.60 82.40	0.9%
Total Organic Carbon	01/13/11	Percent	15.3	16.8 14.8	6.7%

LAB CONTROL RESULTS-CONVENTIONALS
SC61-NW Natural

ANALYTICAL RESOURCES INCORPORATED

Matrix: Soil
Data Release Authorized:
Reported: 01/14/11

Project: Northwest Natural
Event: NWN-INS
Date Sampled: NA
Date Received: NA

Analyte/Method	QC ID	Date	Units	LCS	Spike Added	Recovery
Total Organic Carbon Plumb,1981	ICVL	01/13/11	Percent	0.103	0.100	103.0%

METHOD BLANK RESULTS-CONVENTIONALS
SC61-NW Natural

ANALYTICAL RESOURCES INCORPORATED

Matrix: Soil
Data Release Authorized:
Reported: 01/14/11

Project: Northwest Natural
Event: NWN-INS
Date Sampled: NA
Date Received: NA

Analyte	Date	Units	Blank
Total Solids	01/10/11	Percent	< 0.01 U
Total Organic Carbon	01/13/11	Percent	< 0.020 U

STANDARD REFERENCE RESULTS-CONVENTIONALS
SC61-NW Natural

ANALYTICAL RESOURCES INCORPORATED

Matrix: Soil
Data Release Authorized
Reported: 01/14/11

Project: Northwest Natural
Event: NWN-INS
Date Sampled: NA
Date Received: NA

Analyte/SRM ID	Date	Units	SRM	True Value	Recovery
Total Organic Carbon NIST #8704	01/13/11	Percent	3.76	3.35	112.2%

Total Solids

ARI Job ID: SC61

Extractions Total Solids-extts
Data By: Alex Choeng
Created: 1/ 3/11

Worklist: 3591
Analyst: RVR
Comments:

Oven ID:_____

Balance ID:_____

Samples In: Date:_____ Time:_____ Temp:_____ Analyst:_____

Samples Out: Date:_____ Time:_____ Temp:_____ Analyst:_____

	ARI ID CLIENT ID	Tare Wt (g)	Wet Wt (g)	Dry Wt (g)	% Solids	pH
1.	SC61A 10-31897 GST-06SO-19-20-101007	1.17	12.88	10.92	83.3	NR
2.	SC61B 10-31898 GST-06SO-26-26.5-101007	1.18	12.13	9.93	79.9	NR
3.	SC61C 10-31899 GST-06SO-27-27.5-101007	1.18	11.56	9.73	82.4	NR
4.	SC61D 10-31900 GST-06SO-29-30-101007	1.18	12.20	10.36	83.3	NR

Extractions Total Solids-extts
Data By: Alex Choeng
Created: 1/ 3/11

Worklist: 3591
Analyst: AC
Comments:

Oven ID: 015

Balance ID: 21754520

Samples In: Date: 1-3-11 Time: 14:00 Temp: 100°C Analyst: AC

Samples Out: Date: 1/4/11 Time: 06:25 Temp: 100° Analyst: RR

	ARI ID CLIENT ID	Tare Wt (g)	Wet Wt (g)	Dry Wt (g)	% Solids	pH
1.	SC61A 10-31897 GST-06SO-19-20-101007	1.17	12.88	10.92		NR
2.	SC61B 10-31898 GST-06SO-26-26.5-101007	1.18	12.13	9.93		NR
3.	SC61C 10-31899 GST-06SO-27-27.5-101007	1.18	11.56	9.75 3 RR 1/4/11		NR
4.	SC61D 10-31900 GST-06SO-29-30-101007	1.18	12.20	10.36		NR

TPHD Raw Data
Extraction Bench Sheets and Notes

ARI Job ID: SC61

Analytical Resources, Incorporated
Analytical Chemists and Consultants

Organic Extractions Benchsheet

NWTPHD-Soil
Microwave (3546) (SOP # 3304S)

Preparation Test TPHD # 3
ARI Job No(s) 5C61

In-House (5ppm)
Batch set up by: JH

Bottle #	Extraction Requirements	Verify Client ID	Volume Extracted (wet wt)	Transfer to Turbo Tube	TurboVap 1 2 3	Acid/Silica Clean (1:1) Y /(N)	TurboVap (1) 2 3	Final Effective Volume	Volume to Lab	Comments
	5C61 MBS	Date 1-3-11	10.00g					1mL	1mL	
	SBS									
	~~SBS Dup.~~									
1	5C61 A	verified	10.30					10mL		See Notes
	Ams		10.06							
	Amsd		10.25							
	B		10.03							
	C		10.30							
	D		10.11							
Analyst/Date:	AC 1-3-11						1/3/11	1/3/11	1/3/11	1/3/11

Standard	Standard ID	Volume	Expiration Date	Analyst	Witness
Surrogate	O3	100µL	8/05/11	AC	SP
Spike	11	100µL	11/01/11	AC	SP
Extraction Time: 1235			Balance ID: 2175452		

SPECIAL INSTRUCTIONS: 1. Weigh into 100mL beakers-dry with Sodium Sulfate. 2. Transfer to microwave vessel. 3. Add 20mL DCM to the vessel (if needed-Add 5mL increments until solvent is 1" above soil layer). 4. Add surr/spike. 5. Mix samples thoroughly before microwaving. 6. Microwave on appropriate power setting determined by # of samples. 7. After microwave-let cool 10-15 min. 8. Collect into turbo tube with sm. funnel containing glasswool and 1" sodium sulfate. 9. Add (2) 10mL DCM rinses to vessel and transfer to turbo tube. 10. TurboVap. 11. Acid/Silica Clean-up?= Y /(N) 12. TurboVap (if Silica Clean). 13. Vial in DCM.

A. Need Total Solids (Y)/ N B. Archive/Freeze Y /(N)

Analytical Resources, Incorporated
Analytical Chemists and Consultants

Organic Extractions Laboratory Analyst Notes

ARI Job No.: SC61

Client ID: NW Natural

Parameter: TPHD

Client Project: Gasco Data Gaps

Note problems, concerns, corrective actions	Analyst/Date
Screens: Soil/Sediment/Solid/Other:	
☐ No Anomalies (standard soil/sediment)	AC ~~1-3-11~~ 1-3-11
☐ Wet sediment/sludge=	AC
☐ Standing Water Decanted=	
☐ Standing Water Homogenized (Shared samples)=	
☒ Clay (Difficult to homogenize/Mixed with Kitchen Aid)= A-D,	
☐ Rocks/Organics=	
☒ Oily, obvious fuel/sulfur odors= A-D	
☐ Other (Details)=	
Aqueous:	
☐ No Anomalies	
☐ Turbid/Color=	
☐ Particulates=	
☐ Emulsions=	
☐ Other (Details)=	
☒ Other Notes/Comments= Samples were received Frozen.	JH 1/3/11
Extracts taken to 10mL Fev due to viscosity, Blanks taken to 1mL Fev	~~AW 1/2/11~~ AW 1/3/11

3056F

Revision 007
02/25/10

TPHD Raw Data
Initial Calibration

ARI Job ID: SC61

Analytical Resources, Incorporated
Analytical Chemists and Consultants

GC Analyst Notes / Corrective Action Log

ARI Project ID: Diesel#2, AK102, o-Terphenyl CURVE Client ID: ARI

ARI SOP: **403S**(PCB) **405S**(Herb) **407S**(TPH-D) **409S**(HCID) **412S**(PCP) **423S**(Pest) **427S**(Dir Inj) **428S**(EPH) **432S**(EDB) **Other**

Parameter(s): Diesel#2, AK102, o-Terphenyl

Instrument: FID-3A FID-3B FID-4A FID-4B FID-5 FID-7 FID-8 FID-9 ECD-1 ECD-3 ECD-4 ECD-5 ECD-6 ECD-7

Dates: Curve: 12/21/10 Analysis Start: 12/21/10

Endrin/DDT Breakdown <15%?	YES / NO / NA	Method Blank In Control?	YES / NO / NA
ICal Meets RF & %RSD Criteria?	YES / NO	LCS/LCSD Recovery In Control?	YES / NO
CCal Meets RF & %RSD Criteria?	YES / NO	Surrogate Recovery In Control?	YES / NO
Manual Integrations for ICal?	YES / NO	Manual Integrations for Samples?	YES / NO
Internal Standard Meets Criteria?	YES / NO / NA	Special Analysis Criteria Met?	YES / NO / NA

Detail problems, corrective actions and/or other pertinent information below (use reverse side when necessary):

The o-terphenyl surrogate at 450ppm shifted by +.052 minutes due to column overload. Sample surrogates are spiked at 45ppm. Default limits for RT shift is +/- .05 minutes. No further corrective action taken.
MS 12/22/10

Additional Details on Reverse: Yes / No

Analyst: MS **Date:** 12/22/10

Reviewer: [illegible] **Date:** 12/22/10

Report Date : 22-Dec-2010 13:37

Analytical Resources, Inc.
RETENTION TIME SUMMARY REPORT

Method File: /chem3/fid4b.i/20101221.b/ftphfid4b.m
Batch File: /chem3/fid4b.i/20101221.b
Inst ID: fid4b.i

ID:	RT01	RT02	RT03	RT04	RT05	RT06
FILENAME:	1221b008	1221b009	1221b010	1221b011	1221b012	1221b013
INJ.DATE:	21-DEC-2010	21-DEC-2010	21-DEC-2010	21-DEC-2010	21-DEC-2010	21-DEC-2010
INJ.TIME:	16:06	16:29	16:53	17:16	17:40	18:03

Compound	RT01	RT02	RT03	RT04	RT05	RT06	EXPEC RT	RT WINDOW	AVG RT	STD DEV
1 Toluene	1.600	1.601	1.606	1.613	1.618	1.623	1.585	1.485-1.685	1.610	0.009
40 Crude Oil	+++++	+++++	+++++	+++++	+++++	+++++	1.000	0.950-1.050	+++++	+++++
38 Creosote	+++++	+++++	+++++	+++++	+++++	+++++	1.000	0.950-1.050	+++++	+++++
2 C8	1.909	1.902	1.908	1.916	1.917	1.919	1.897	1.797-1.997	1.912	0.007
3 C10	3.425	3.433	3.430	3.432	3.431	3.437	3.431	3.381-3.481	3.431	0.004
4 C12	4.395	4.381	4.368	4.362	4.360	4.360	4.399	4.349-4.449	4.371	0.014
5 C14	5.172	5.166	5.161	5.159	5.160	5.167	5.165	5.115-5.215	5.164	0.005
6 C16	5.831	5.829	5.827	5.828	5.832	5.844	5.831	5.781-5.881	5.832	0.006
7 C18	6.451	6.450	6.452	6.454	6.460	6.478	6.455	6.405-6.505	6.457	0.011
$ 8 o-terph	6.601	6.601	6.609	6.618	6.631	6.663	6.611	6.561-6.661	6.620	0.024
9 C20	7.052	7.050	7.049	7.049	7.053	7.066	7.054	7.004-7.104	7.053	0.006
10 C22	7.619	7.617	7.616	7.615	7.616	7.623	7.622	7.572-7.672	7.618	0.003
11 C24	8.151	8.150	8.148	8.147	8.146	8.148	8.154	8.104-8.204	8.148	0.002
12 C25	8.403	8.402	8.402	8.401	8.398	8.398	8.409	8.359-8.459	8.401	0.002
13 C26	8.648	8.647	8.648	8.646	8.643	8.642	8.651	8.601-8.701	8.646	0.003
14 C28	9.143	9.142	9.143	9.144	9.142	9.135	9.148	9.098-9.198	9.141	0.003
$ 15 Triacon Surr	9.703	9.701	9.700	9.719	9.716	9.697	9.679	9.629-9.729	9.706	0.009

Reviewer 1 MM Date: 12/22/10
Reviewer 2 AB Date: 12/22/10

SC61:00049

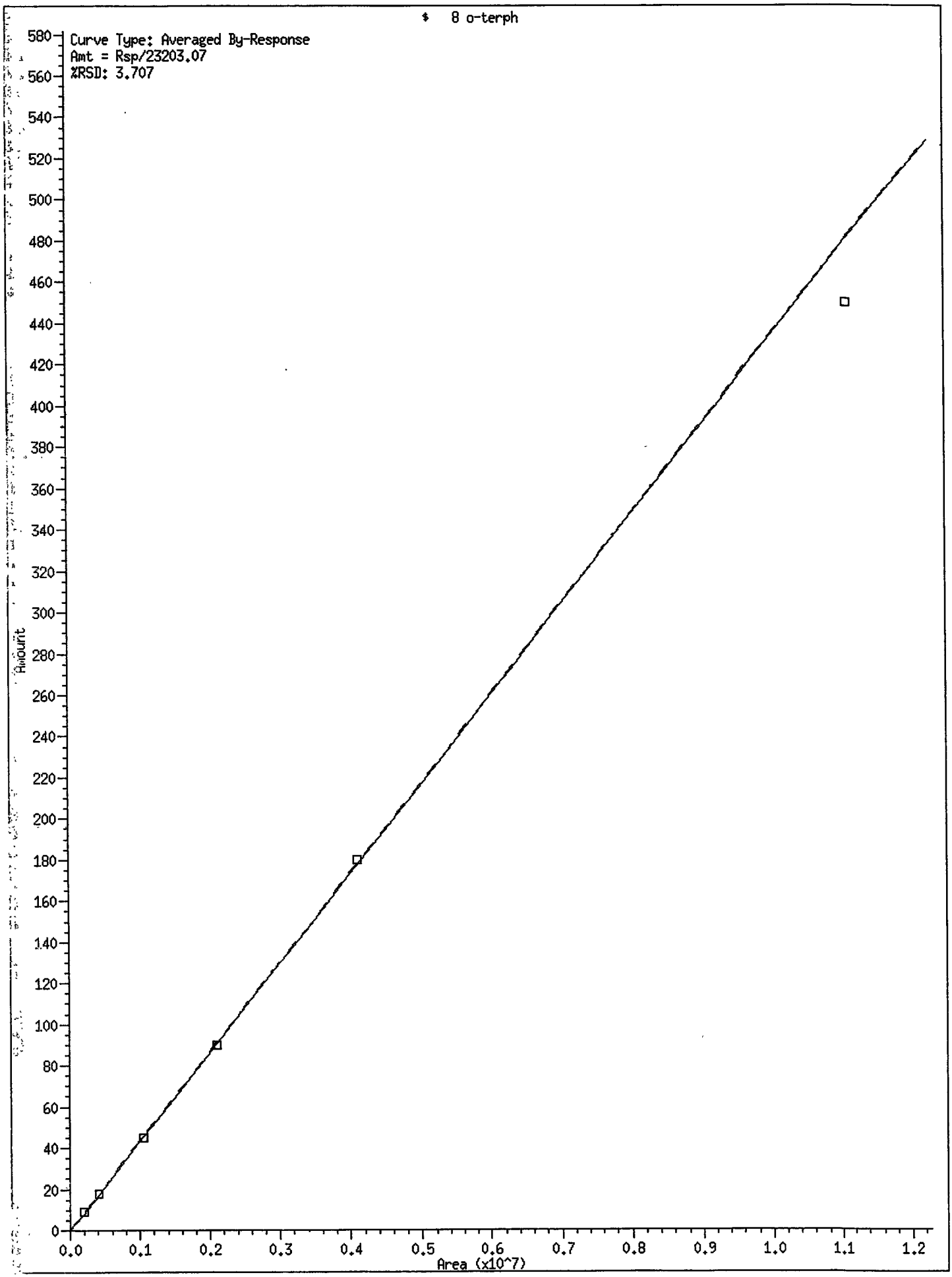
Report Date : 22-Dec-2010 13:37

Analytical Resources, Inc.
RETENTION TIME SUMMARY REPORT

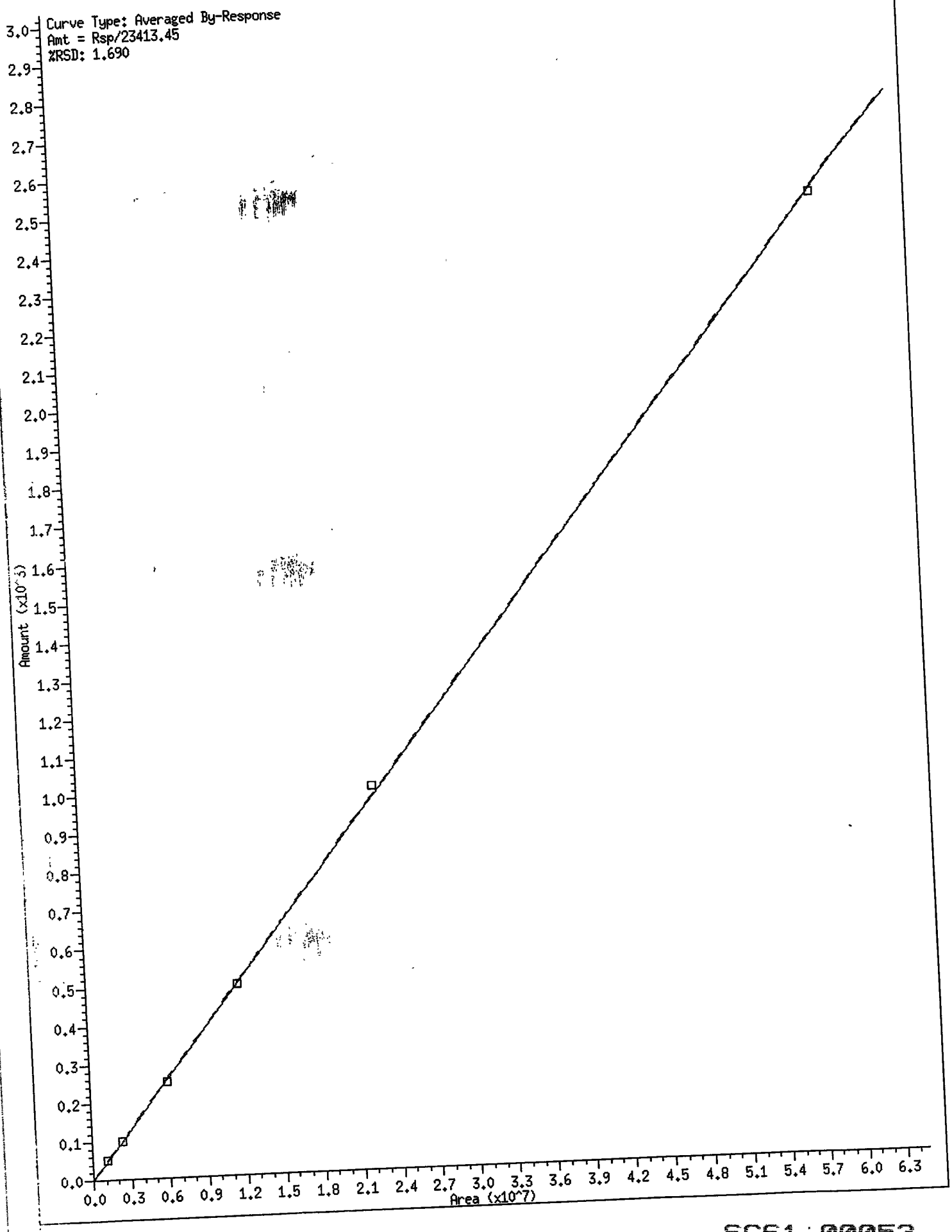
Method File: /chem3/fid4b.i/20101221.b/ftphfid4b.m
Batch File: /chem3/fid4b.i/20101221.b
Inst ID: fid4b.i

Compound	RT01	RT02	RT03	RT04	RT05	RT06	EXPEC RT	RT WINDOW	AVG RT	STD DEV
16 C32	10.170	10.169	10.169	10.174	10.167	10.166	10.184	10.134-10.234	10.169	0.003
17 C34	10.692	10.689	10.696	10.696	10.696	10.695	10.703	10.653-10.753	10.694	0.003
18 Filter Peak	12.811	12.809	12.805	12.798	12.795	12.796	12.813	12.713-12.913	12.802	0.007
19 C36	11.208	11.201	11.200	11.205	11.199	11.198	11.209	11.159-11.259	11.202	0.004
20 C38	11.708	11.708	11.710	11.719	11.724	11.717	11.699	11.649-11.749	11.714	0.007
21 C40	12.164	12.170	12.165	12.151	12.151	12.171	12.170	12.120-12.220	12.162	0.009
31 NW Diesel	+++++	+++++	+++++	+++++	+++++	+++++	0.521	0.471-0.571	+++++	+++++
32 OR Diesel	+++++	+++++	+++++	+++++	+++++	+++++	0.525	0.475-0.575	+++++	+++++
37 JET-A	+++++	+++++	+++++	+++++	+++++	+++++	1.253	1.203-1.303	+++++	+++++
33 AK Dies 102	+++++	+++++	+++++	+++++	+++++	+++++	0.584	0.534-0.634	+++++	+++++
30 NW MOil	+++++	+++++	+++++	+++++	+++++	+++++	1.000	0.950-1.050	+++++	+++++
34 OR MOil	+++++	+++++	+++++	+++++	+++++	+++++	1.000	0.950-1.050	+++++	+++++
35 AK MOil 103	+++++	+++++	+++++	+++++	+++++	+++++	0.506	0.456-0.556	+++++	+++++
36 Bunker C	+++++	+++++	+++++	+++++	+++++	+++++	0.715	0.665-0.765	+++++	+++++
39 Hydraulic Oil	+++++	+++++	+++++	+++++	+++++	+++++	1.000	0.950-1.050	+++++	+++++

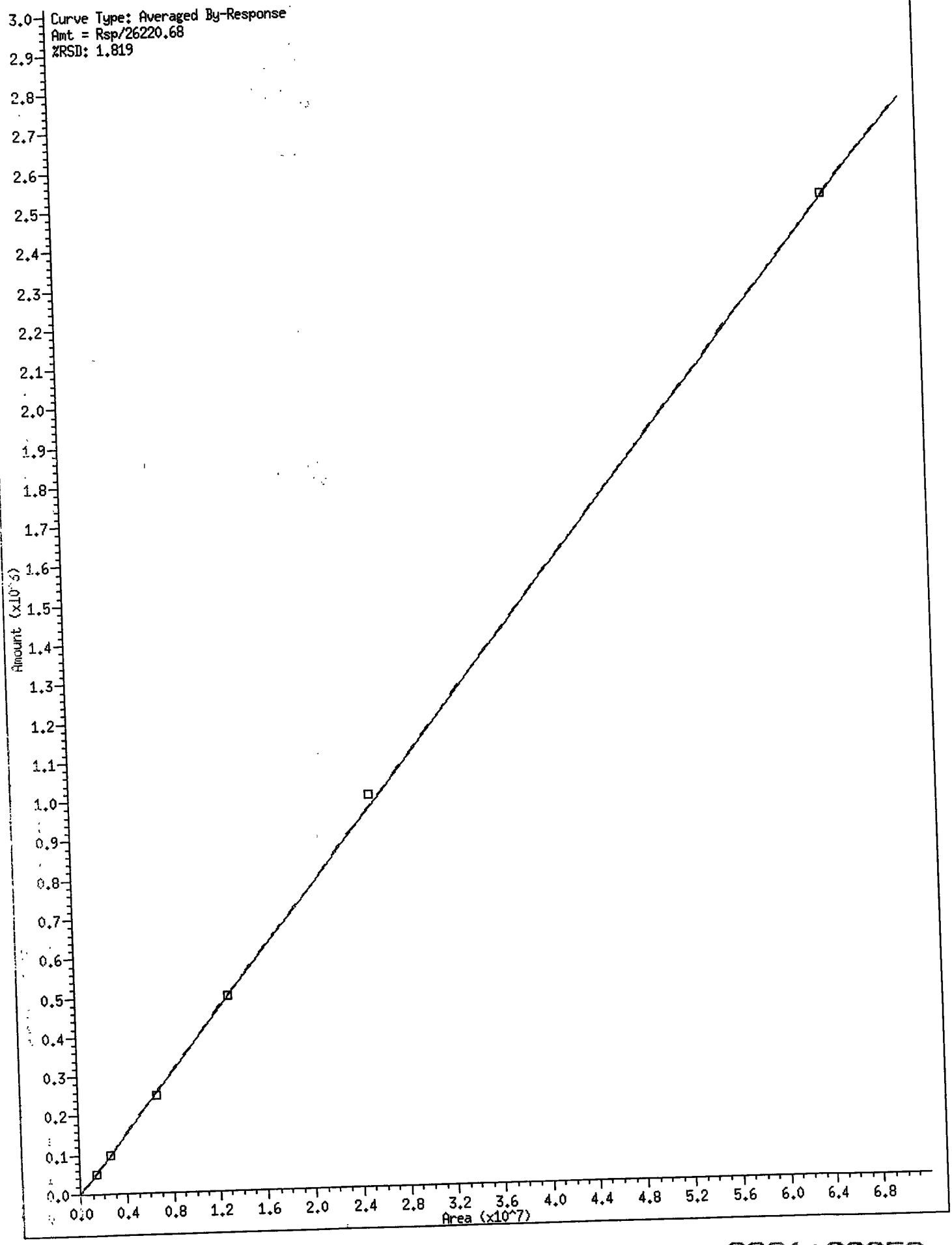
SC61 00050


$ 8 o-terph
Curve Type: Averaged By-Response
Amt = Rsp/23203.07
%RSD: 3.707
Amount
Area (x10^7)
0
20
40
60
80
100
120
140
160
180
200
220
240
260
280
300
320
340
360
380
400
420
440
460
480
500
520
540
560
580
0.0
0.1
0.2
0.3
0.4
0.5
0.6
0.7
0.8
0.9
1.0
1.1
1.2

31 NW Diesel


Curve Type: Averaged By-Response
Amt = Rsp/23413.45
%RSD: 1.690
Amount (x10^3)
Area (x10^7)
0.0 0.1 0.2 0.3 0.4 0.5 0.6 0.7 0.8 0.9 1.0 1.1 1.2 1.3 1.4 1.5 1.6 1.7 1.8 1.9 2.0 2.1 2.2 2.3 2.4 2.5 2.6 2.7 2.8 2.9 3.0
0.0 0.3 0.6 0.9 1.2 1.5 1.8 2.1 2.4 2.7 3.0 3.3 3.6 3.9 4.2 4.5 4.8 5.1 5.4 5.7 6.0 6.3

33 AK Dies 102



Analytical Resources Inc.
407S TPH Quantitation Report

Data file: /chem3/fid4b.i/20101221.b/1221b006.d
Method: /chem3/fid4b.i/20101221.b/ftphfid4b.m
Instrument: fid4b.i
Operator: MS
Report Date: 12/22/2010
Macro: 21-DEC-2010

ARI ID: RT
Client ID: RT
Injection: 21-DEC-2010 15:19

Dilution Factor: 1

FID:4B RESULTS

Compound	RT	Shift	Height	Area	Range	Total Area	Conc
Toluene	1.585	0.000	333088	365218	GAS (Tol-C12)	1874620	47
C8	1.897	0.000	160497	206366	DIESEL (C12-C24)	2429655	104
C10	3.431	0.000	493710	384556	M.OIL (C24-C38)	3294329	238
C12	4.399	0.000	455442	384772	AK-102 (C10-C25)	3248229	124
C14	5.165	0.000	547485	379579	AK-103 (C25-C36)	2973166	450
C16	5.831	0.000	631892	378747	OR.DIES (C10-C28)	4734002	450
C18	6.455	0.000	610554	383576	CRUDE (Tol-C40)	7802448	1366
C20	7.054	0.000	560388	391284			
C22	7.622	0.000	552719	397714			
C24	8.154	0.000	563844	415131			
C25	8.409	0.000	729458	579381			
C26	8.651	0.000	556844	431147			
C28	9.148	0.000	528245	440831			
C32	10.184	0.000	464973	484412			
C34	10.703	0.000	420273	472877	BUNKERC (C10-C38)	6530278	694
Filter Peak	12.813	0.000	1335	553	HYDRAUL (C24-C38)	3294329	292
C36	11.209	0.000	361318	413010			
C38	11.699	0.000	263686	285737			
C40	12.170	0.000	169204	185718			
o-terph	6.611	0.000	1574360	1340404	JET-A (C10-C18)	1975020	227
Triacon Surr	9.679	0.000	1062015	1385286			

M Indicates manual integration within range.
Range Times: NW Diesel(4.399 - 8.154) AK102(3.43 - 8.41) Jet A(3.43 - 6.45)
NW M.Oil(8.15 - 11.70) AK103(8.41 - 11.21) OR Diesel(3.43 - 9.15)

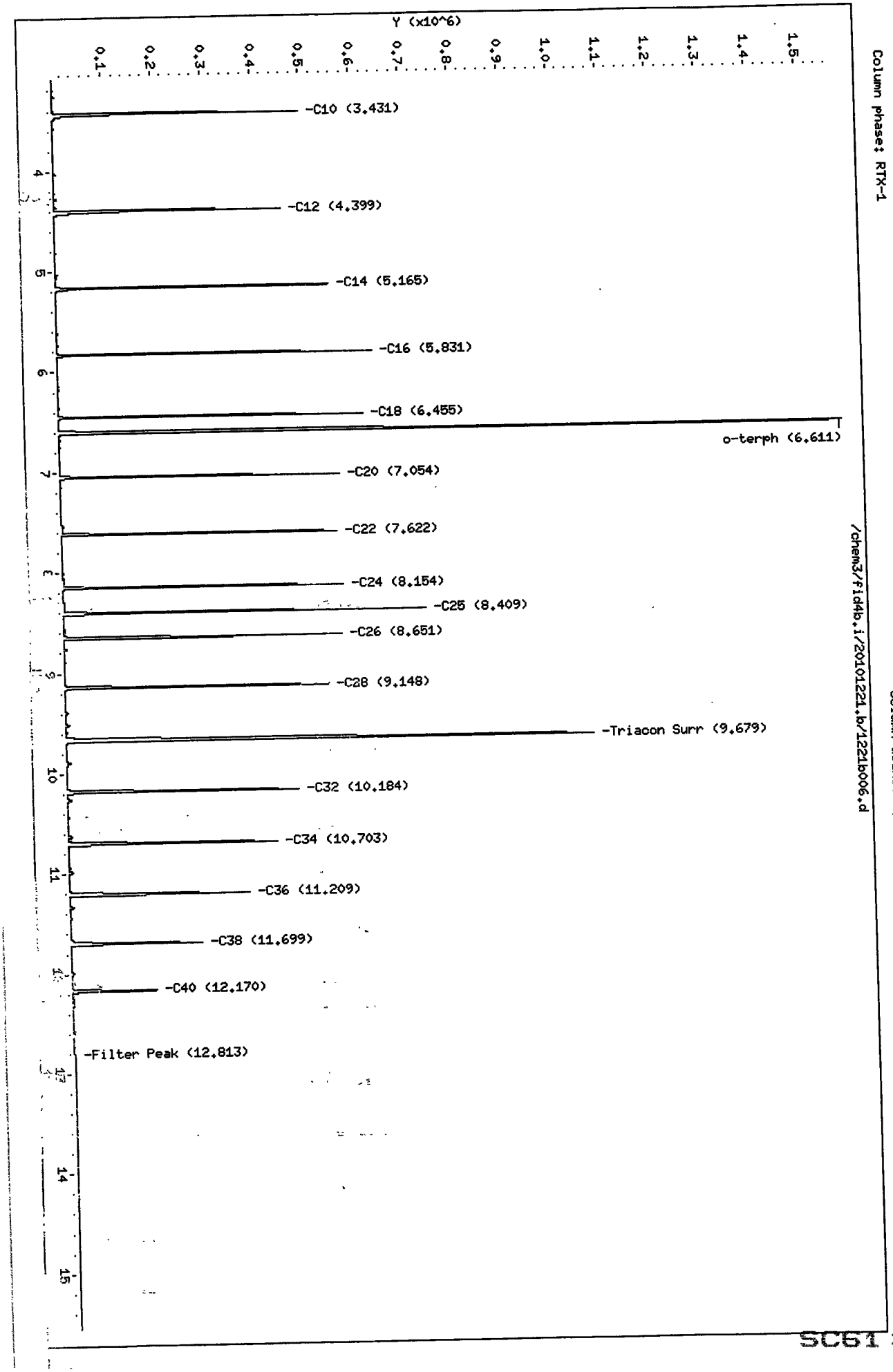
Surrogate	Area	Amount	%Rec
o-Terphenyl	1340404	57.8	128.4
Triacontane	1385286	66.7	148.3

MM 12/22/10

Analyte	RF	Curve Date
o-Terph Surr	23203.1	21-DEC-2010
Triacon Surr	20763.6	23-OCT-2010
Gas	39627.8	17-DEC-2010
Diesel	23413.5	21-DEC-2010
Motor Oil	13869.0	23-OCT-2010
AK102	26220.7	21-DEC-2010
AK103	6604.7	18-JUN-2010
JetA	8703.3	11-JAN-2010
OR Diesel	10525.0	22-JAN-2010
CRUDE	5712.9	22-MAY-2010
Bunker C	9416.3	24-JUL-2010
Hydraulic	11288.8	11-JAN-2010

Data File: /chem3/fid4b.i/20101221.b/1221b006.d
Date : 21-DEC-2010 15:19
Client ID: RT
Sample Info: RT
Column phase: RTX-1

Instrument: fid4b.i
Operator: MS
Column diameter: 0.25



/chem3/fid4b.i/20101221.b/1221b006.d

Analytical Resources Inc.
407S TPH Quantitation Report

Data file: /chem3/fid4b.i/20101221.b/1221b007.d
Method: /chem3/fid4b.i/20101221.b/ftphfid4b.m
Instrument: fid4b.i
Operator: MS
Report Date: 12/22/2010
Macro: 21-DEC-2010

ARI ID: IB
Client ID: IB
Injection: 21-DEC-2010 15:42

Dilution Factor: 1

FID:4B RESULTS

Compound	RT	Shift	Height	Area	Range	Total Area	Conc
Toluene	1.499	-0.085	27756	104110	GAS (Tol-C12)	211549	5
C8	1.862	-0.035	3892	6462	DIESEL (C12-C24)	48112	2
C10	3.436	0.006	1349	1278	M.OIL (C24-C38)	81808	6
C12	4.391	-0.008	1350	4178	AK-102 (C10-C25)	100997	4
C14	5.166	0.001	319	320	AK-103 (C25-C36)	59631	9
C16	5.823	-0.008	179	112	OR.DIES (C10-C28)	110965	11
C18	6.450	-0.005	129	115	CRUDE (Tol-C40)	362546	63
C20	7.049	-0.005	61	67			
C22	7.605	-0.017	1037	924			
C24	8.146	-0.008	133	188			
C25	8.390	-0.019	1719	1379			
C26	8.646	-0.005	127	183			
C28	9.140	-0.008	2917	2588			
C32	10.186	0.003	1018	2257			
C34	10.708	0.006	287	282	BUNKERC (C10-C38)	182280	19
Filter Peak	12.824	0.011	1358	986	HYDRAUL (C24-C38)	81808	7
C36	11.199	-0.010	383	727			
C38	11.707	0.008	571	390			
C40	12.167	-0.002	824	403			
o-terph	6.608	-0.003	1311906	1187086	JET-A (C10-C18)	86921	10
Triacon Surr	9.671	-0.008	873824	1029440			

M Indicates manual integration within range.
Range Times: NW Diesel(4.399 - 8.154) AK102(3.43 - 8.41) Jet A(3.43 - 6.45)
NW M.Oil(8.15 - 11.70) AK103(8.41 - 11.21) OR Diesel(3.43 - 9.15)

Surrogate	Area	Amount	%Rec
o-Terphenyl	1187086	51.2	113.7
Triacontane	1029440	49.6	110.2

Analyte	RF	Curve Date
o-Terph Surr	23203.1	21-DEC-2010
Triacon Surr	20763.6	23-OCT-2010
Gas	39627.8	17-DEC-2010
Diesel	23413.5	21-DEC-2010
Motor Oil	13869.0	23-OCT-2010
AK102	26220.7	21-DEC-2010
AK103	6604.7	18-JUN-2010
JetA	8703.3	11-JAN-2010
OR Diesel	10525.0	22-JAN-2010
CRUDE	5712.9	22-MAY-2010
Bunker C	9416.3	24-JUL-2010
Hydraulic	11288.8	11-JAN-2010

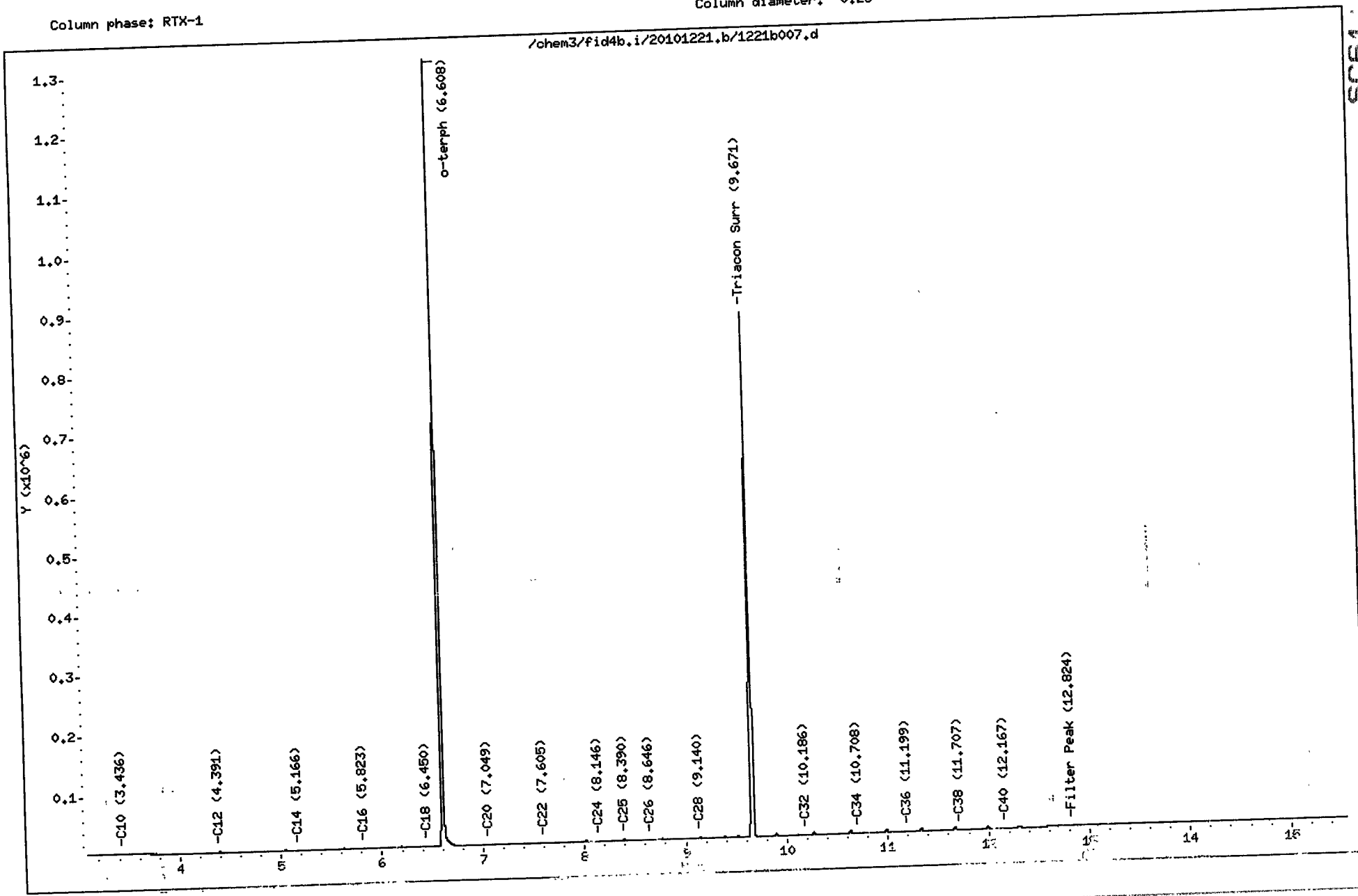
MM 12/22/10

Data File: /chem3/fid4b.i/20101221.b/1221b007.d
Date : 21-DEC-2010 15:42
Client ID: IB
Sample Info: IB

Instrument: fid4b.i

Operator: MS
Column diameter: 0.25

Column phase: RTX-1



SC61 : 00057

Analytical Resources Inc.
407S TPH Quantitation Report

Data file: /chem3/fid4b.i/20101221.b/1221b008.d
Method: /chem3/fid4b.i/20101221.b/ftphfid4b.m
Instrument: fid4b.i
Operator: MS
Report Date: 12/22/2010
Macro: 21-DEC-2010

ARI ID: DIESEL 50
Client ID: DIESEL 50
Injection: 21-DEC-2010 16:06

Dilution Factor: 1

FID:4B RESULTS

Compound	RT	Shift	Height	Area	Range	Total Area	Conc
Toluene	1.600	0.016	6831	24679	GAS (Tol-C12)	433687	11
C8	1.909	0.012	3925	30549	DIESEL (C12-C24)	1168821	50 M
C10	3.425	-0.006	1770	2572	M.OIL (C24-C38)	45770	3
C12	4.395	-0.004	4359	4262	AK-102 (C10-C25)	1330028	51 M
C14	5.172	0.007	23370	23734	AK-103 (C25-C36)	32934	5
C16	5.831	0.000	46864	30368	OR.DIES (C10-C28)	1339395	127 M
C18	6.451	-0.004	39679	34764	CRUDE (Tol-C40)	1656508	290 M
C20	7.052	-0.002	24287	20859			
C22	7.619	-0.002	10313	12090			
C24	8.151	-0.003	2817	3269			
C25	8.403	-0.006	2556	2662			
C26	8.648	-0.003	510	676			
C28	9.143	-0.005	1973	1739			
C32	10.170	-0.013	226	333			
C34	10.692	-0.010	226	399	BUNKERC (C10-C38)	1371876	146 M
Filter Peak	12.811	-0.001	727	270	HYDRAUL (C24-C38)	45770	4
C36	11.208	-0.001	101	95			
C38	11.708	0.010	165	147			
C40	12.164	-0.005	324	295			
o-terph	6.601	-0.009	301709	202487	JET-A (C10-C18)	980735	113
Triacon Surr	9.703	0.024	75	18			

M Indicates manual integration within range.
Range Times: NW Diesel(4.399 - 8.154) AK102(3.43 - 8.41) Jet A(3.43 - 6.45)
NW M.Oil(8.15 - 11.70) AK103(8.41 - 11.21) OR Diesel(3.43 - 9.15)

Surrogate	Area	Amount	%Rec
o-Terphenyl	202487	8.7	19.4
Triacontane	18	0.0	0.0

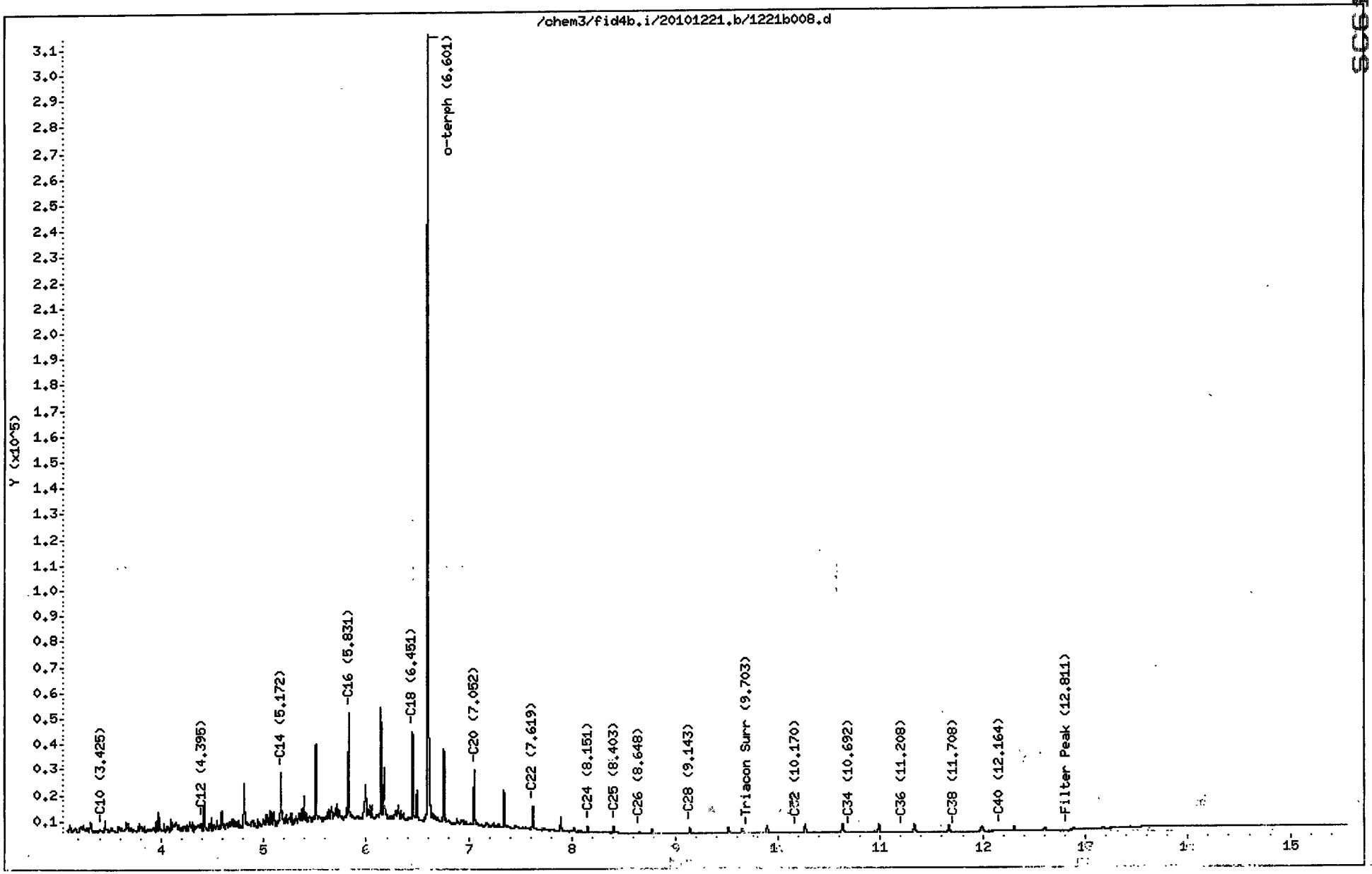
Analyte	RF	Curve Date
o-Terph Surr	23203.1	21-DEC-2010
Triacon Surr	20763.6	23-OCT-2010
Gas	39627.8	17-DEC-2010
Diesel	23413.5	21-DEC-2010
Motor Oil	13869.0	23-OCT-2010
AK102	26220.7	21-DEC-2010
AK103	6604.7	18-JUN-2010
JetA	8703.3	11-JAN-2010
OR Diesel	10525.0	22-JAN-2010
CRUDE	5712.9	22-MAY-2010
Bunker C	9416.3	24-JUL-2010
Hydraulic	11288.8	11-JAN-2010

Data File: /chem3/fid4b.i/20101221.b/1221b008.d
Date : 21-DEC-2010 16:06
Client ID: DIESEL 50
Sample Info: DIESEL 50

Column phase: RTX-1

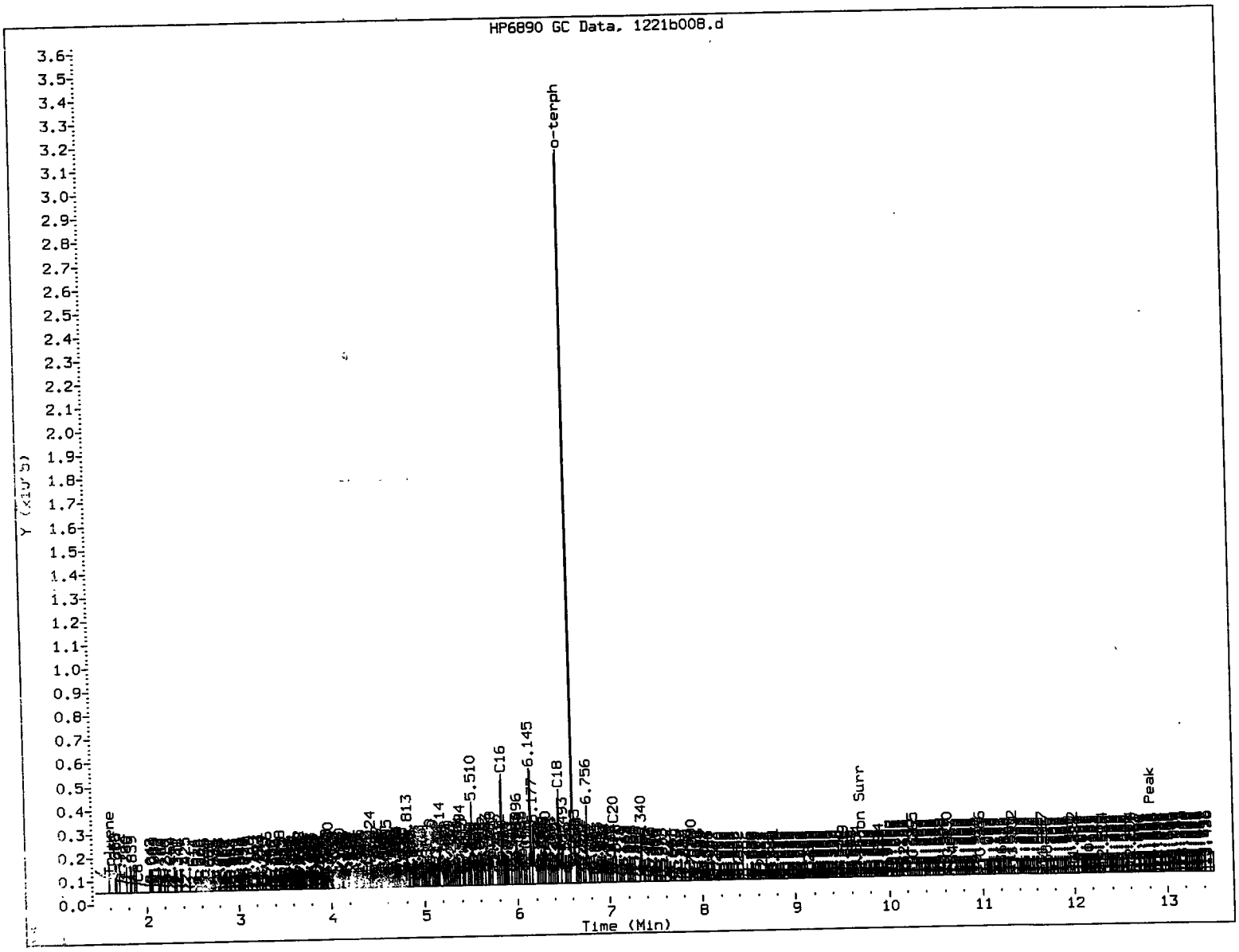
Instrument: fid4b.i

Operator: MS
Column diameter: 0.25



SGS1 : 00059

FID:4B-2C/RTX-1 DIESEL 50 FID:4B SIGNAL



MANUAL INTEGRATION

1. Baseline correction
2. Poor chromatography
3. Peak not found
4. Totals calculation

5. Other _____

Analyst: MM Date: 12/22/10

Analytical Resources Inc.
407S TPH Quantitation Report

Data file: /chem3/fid4b.i/20101221.b/1221b009.d
Method: /chem3/fid4b.i/20101221.b/ftphfid4b.m
Instrument: fid4b.i
Operator: MS
Report Date: 12/22/2010
Macro: 21-DEC-2010

ARI ID: DIESEL 100
Client ID: DIESEL 100
Injection: 21-DEC-2010 16:29

Dilution Factor: 1

FID:4B RESULTS

Compound	RT	Shift	Height	Area	Range	Total Area	Conc
Toluene	1.601	0.016	6191	18791	GAS (Tol-C12)	539199	14
C8	1.902	0.004	3128	6431	DIESEL (C12-C24)	2335470	100 M
C10	3.433	0.002	1806	1104	M.OIL (C24-C38)	46144	3
C12	4.381	-0.018	9804	10311	AK-102 (C10-C25)	2624782	100 M
C14	5.166	0.002	47661	48258	AK-103 (C25-C36)	30552	5
C16	5.829	-0.002	93263	59596	OR.DIES (C10-C28)	2640965	251 M
C18	6.450	-0.005	79030	70250	CRUDE (Tol-C40)	2929327	513 M
C20	7.050	-0.004	50315	39328			
C22	7.617	-0.005	21383	20529			
C24	8.150	-0.004	6166	6840			
C25	8.402	-0.007	3602	4598			
C26	8.647	-0.004	1013	1599			
C28	9.142	-0.006	1259	1111			
C32	10.169	-0.015	119	213			
C34	10.689	-0.014	167	248	BUNKERC (C10-C38)	2662526	283 M
Filter Peak	12.809	-0.003	830	524	HYDRAUL (C24-C38)	46144	4
C36	11.201	-0.008	123	169			
C38	11.708	0.009	203	102			
C40	12.170	0.000	363	196			
o-terph	6.601	-0.010	621781	404491	JET-A (C10-C18)	1914789	220
Triacon Surr	9.701	0.022	77	34			

M Indicates manual integration within range.
Range Times: NW Diesel(4.399 - 8.154) AK102(3.43 - 8.41) Jet A(3.43 - 6.45)
NW M.Oil(8.15 - 11.70) AK103(8.41 - 11.21) OR Diesel(3.43 - 9.15)

Surrogate	Area	Amount	%Rec
o-Terphenyl	404491	17.4	38.7
Triacontane	34	0.0	0.0

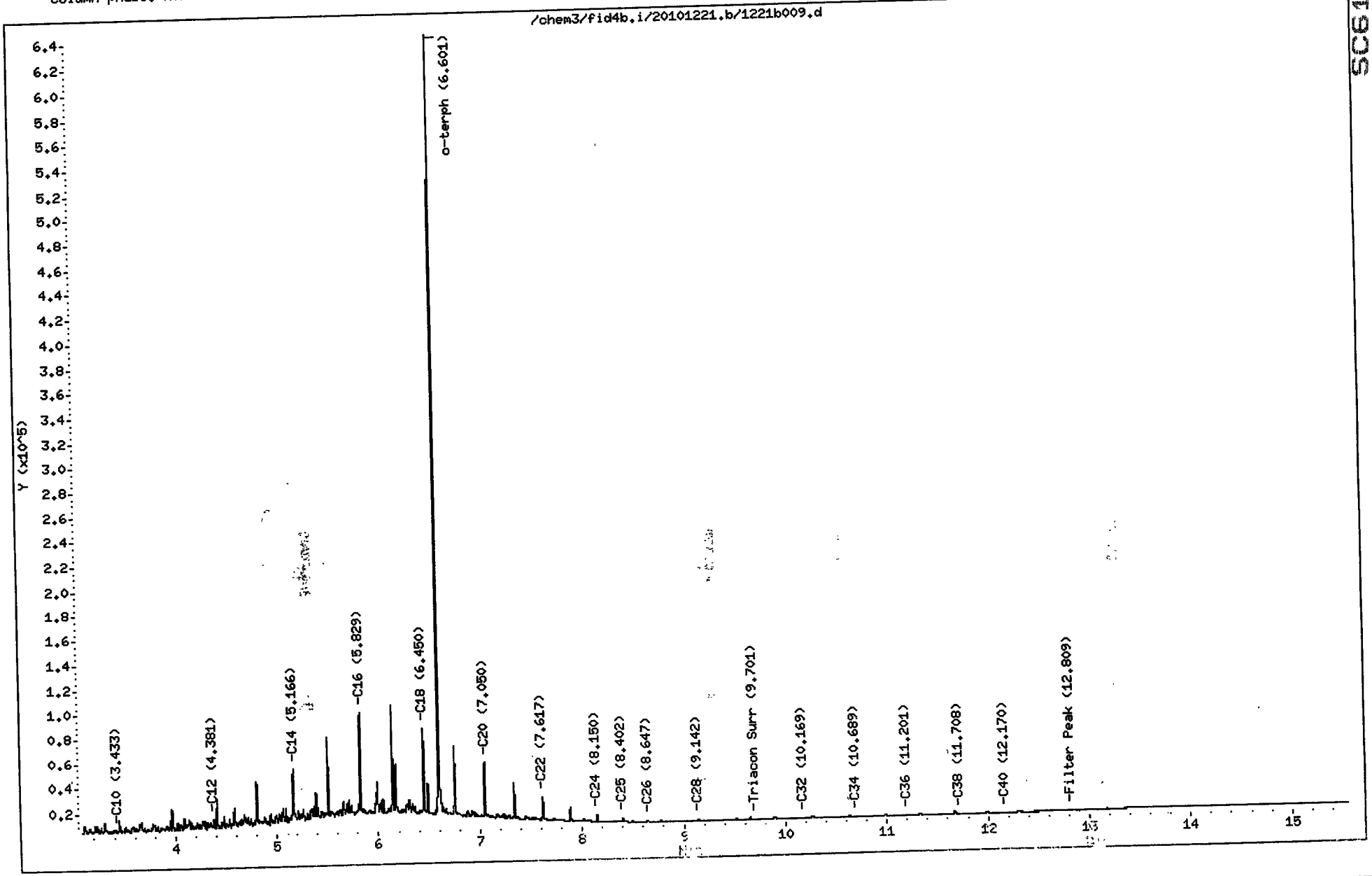
Analyte	RF	Curve Date
o-Terph Surr	23203.1	21-DEC-2010
Triacon Surr	20763.6	23-OCT-2010
Gas	39627.8	17-DEC-2010
Diesel	23413.5	21-DEC-2010
Motor Oil	13869.0	23-OCT-2010
AK102	26220.7	21-DEC-2010
AK103	6604.7	18-JUN-2010
JetA	8703.3	11-JAN-2010
OR Diesel	10525.0	22-JAN-2010
CRUDE	5712.9	22-MAY-2010
Bunker C	9416.3	24-JUL-2010
Hydraulic	11288.8	11-JAN-2010

Data File: /chem3/fid4b.i/20101221.b/1221b009.d
Date : 21-DEC-2010 16:29
Client ID: DIESEL 100
Sample Info: DIESEL 100

Column phase: RTX-1

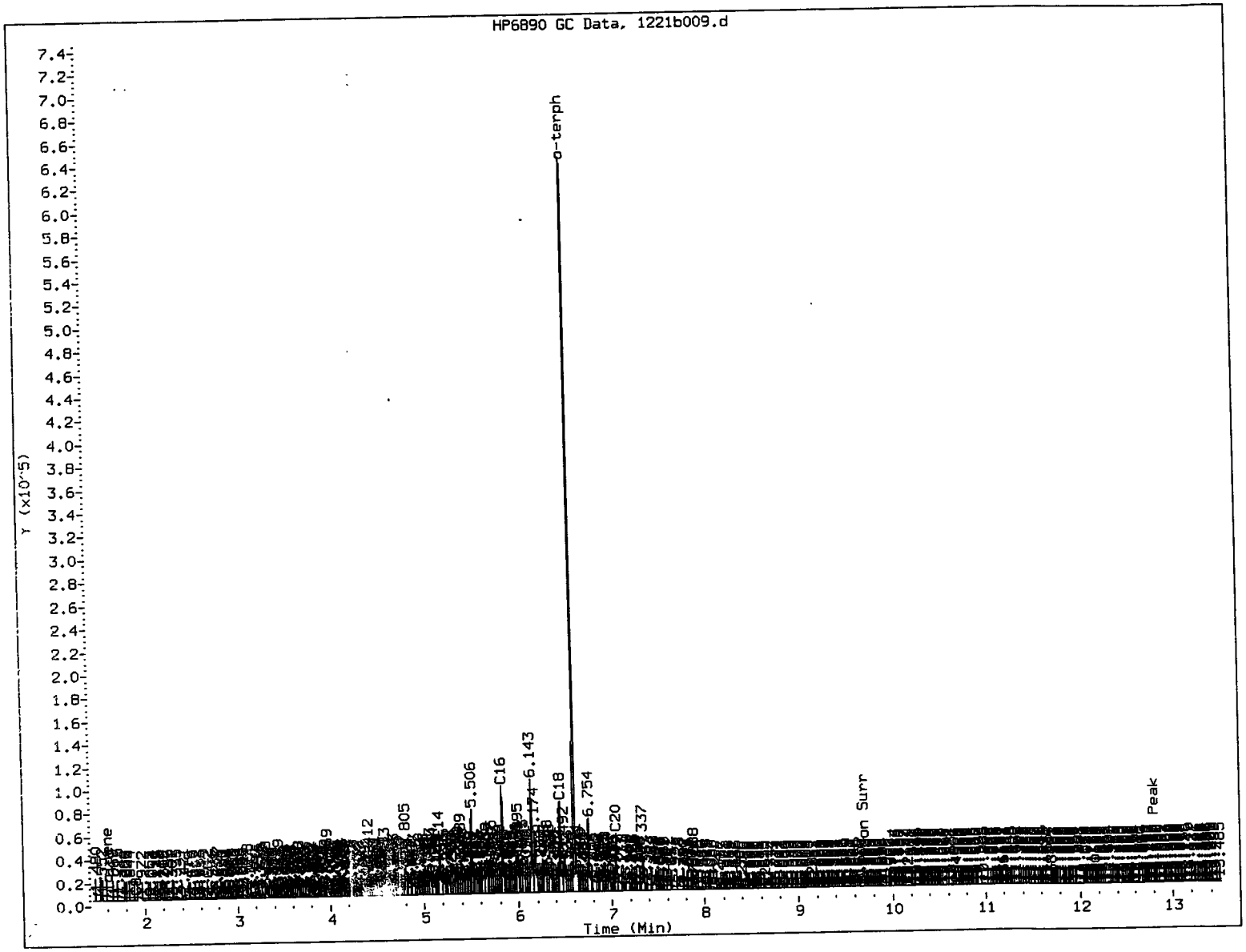
Instrument: fid4b.i

Operator: MS
Column diameter: 0.25



SC61 : 00062

FID:4B-2C/RTX-1 DIESEL 100 FID:4B SIGNAL



MANUAL INTEGRATION

1. Baseline correction
2. Poor chromatography
3. Peak not found
4. Totals calculation

5. Other _____

Analyst: MM Date: 12/22/10

Analytical Resources Inc.
407S TPH Quantitation Report

Data file: /chem3/fid4b.i/20101221.b/1221b010.d
Method: /chem3/fid4b.i/20101221.b/ftphfid4b.m
Instrument: fid4b.i
Operator: MS
Report Date: 12/22/2010
Macro: 21-DEC-2010

ARI ID: DIESEL 250
Client ID: DIESEL 250
Injection: 21-DEC-2010 16:53

Dilution Factor: 1

FID:4B RESULTS

Compound	RT	Shift	Height	Area	Range	Total Area	Conc
Toluene	1.606	0.021	9476	8386	GAS (Tol-C12)	1055116	27
C8	1.908	0.010	4316	16296	DIESEL (C12-C24)	6004803	256 M
C10	3.430	0.000	4482	2580	M.OIL (C24-C38)	104833	8
C12	4.368	-0.031	27970	27441	AK-102 (C10-C25)	6689657	255 M
C14	5.161	-0.003	120045	106457	AK-103 (C25-C36)	67166	10
C16	5.827	-0.004	238800	174502	OR.DIES (C10-C28)	6733901	640 M
C18	6.452	-0.003	199636	180559	CRUDE (Tol-C40)	7176439	1256 M
C20	7.049	-0.005	123421	100927			
C22	7.616	-0.006	58100	51401			
C24	8.148	-0.005	16755	18475			
C25	8.402	-0.007	8639	11284			
C26	8.648	-0.003	2812	4756			
C28	9.143	-0.006	2227	2395			
C32	10.169	-0.015	178	224			
C34	10.696	-0.007	173	260	BUNKERC (C10-C38)	6769039	719 M
Filter Peak	12.805	-0.007	844	1397	HYDRAUL (C24-C38)	104833	9
C36	11.200	-0.009	114	91			
C38	11.710	0.012	225	60			
C40	12.165	-0.005	388	362			
o-terph	6.609	-0.002	1279318	1043785	JET-A (C10-C18)	4878728	561
Triacon Surr	9.700	0.021	71	29			

M Indicates manual integration within range.
Range Times: NW Diesel(4.399 - 8.154) AK102(3.43 - 8.41) Jet A(3.43 - 6.45)
NW M.Oil(8.15 - 11.70) AK103(8.41 - 11.21) OR Diesel(3.43 - 9.15)

Surrogate	Area	Amount	%Rec
o-Terphenyl	1043785	45.0	100.0
Triacontane	29	0.0	0.0

Analyte	RF	Curve Date
o-Terph Surr	23203.1	21-DEC-2010
Triacon Surr	20763.6	23-OCT-2010
Gas	39627.8	17-DEC-2010
Diesel	23413.5	21-DEC-2010
Motor Oil	13869.0	23-OCT-2010
AK102	26220.7	21-DEC-2010
AK103	6604.7	18-JUN-2010
JetA	8703.3	11-JAN-2010
OR Diesel	10525.0	22-JAN-2010
CRUDE	5712.9	22-MAY-2010
Bunker C	9416.3	24-JUL-2010
Hydraulic	11288.8	11-JAN-2010

Data File: /chem3/fid4b.i/20101221.b/1221b010.d
Date : 21-DEC-2010 16:53
Client ID: DIESEL 250
Sample Info: DIESEL 250

Column phase: RTX-1

Instrument: fid4b.i

Operator: MS
Column diameter: 0.25

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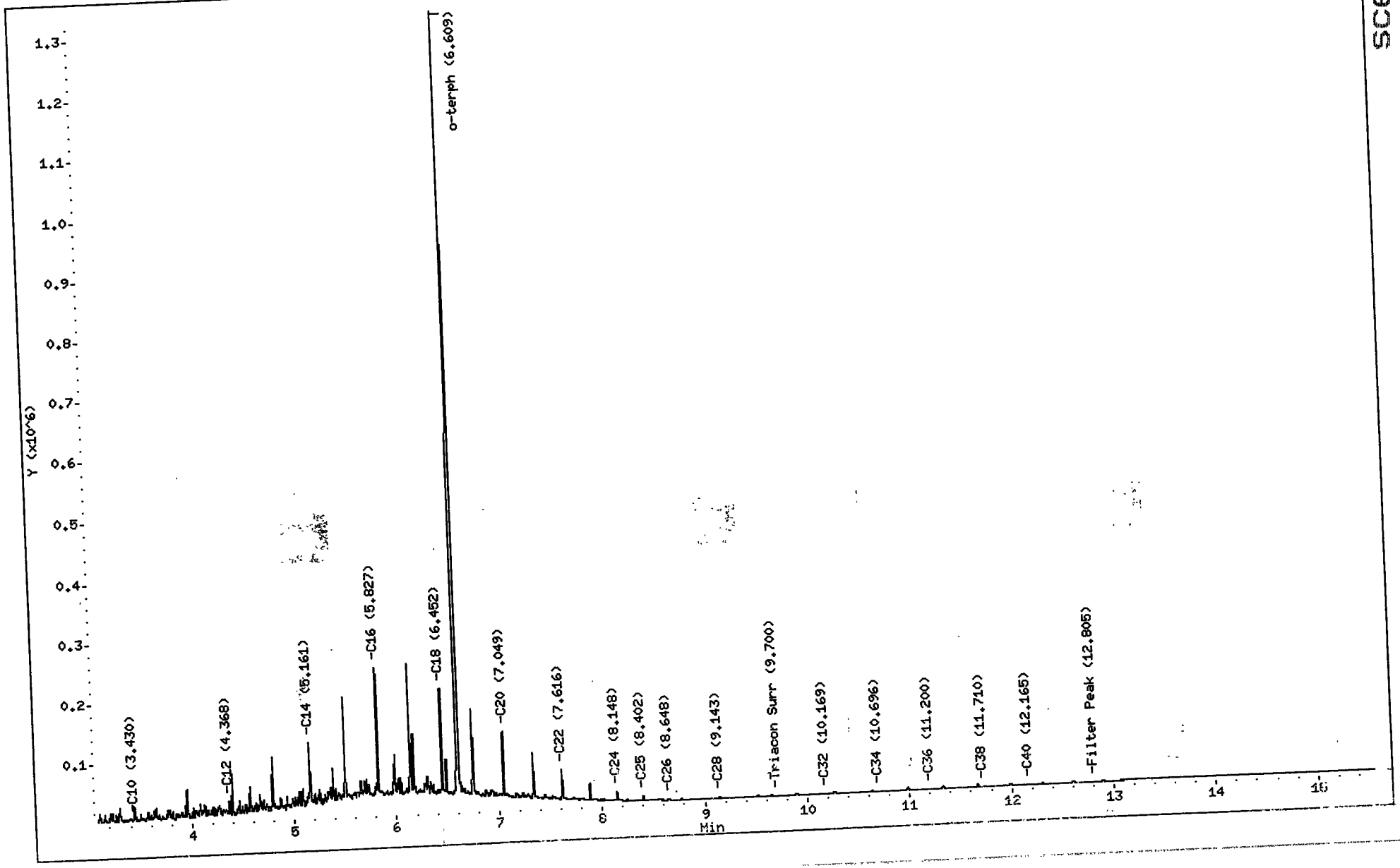
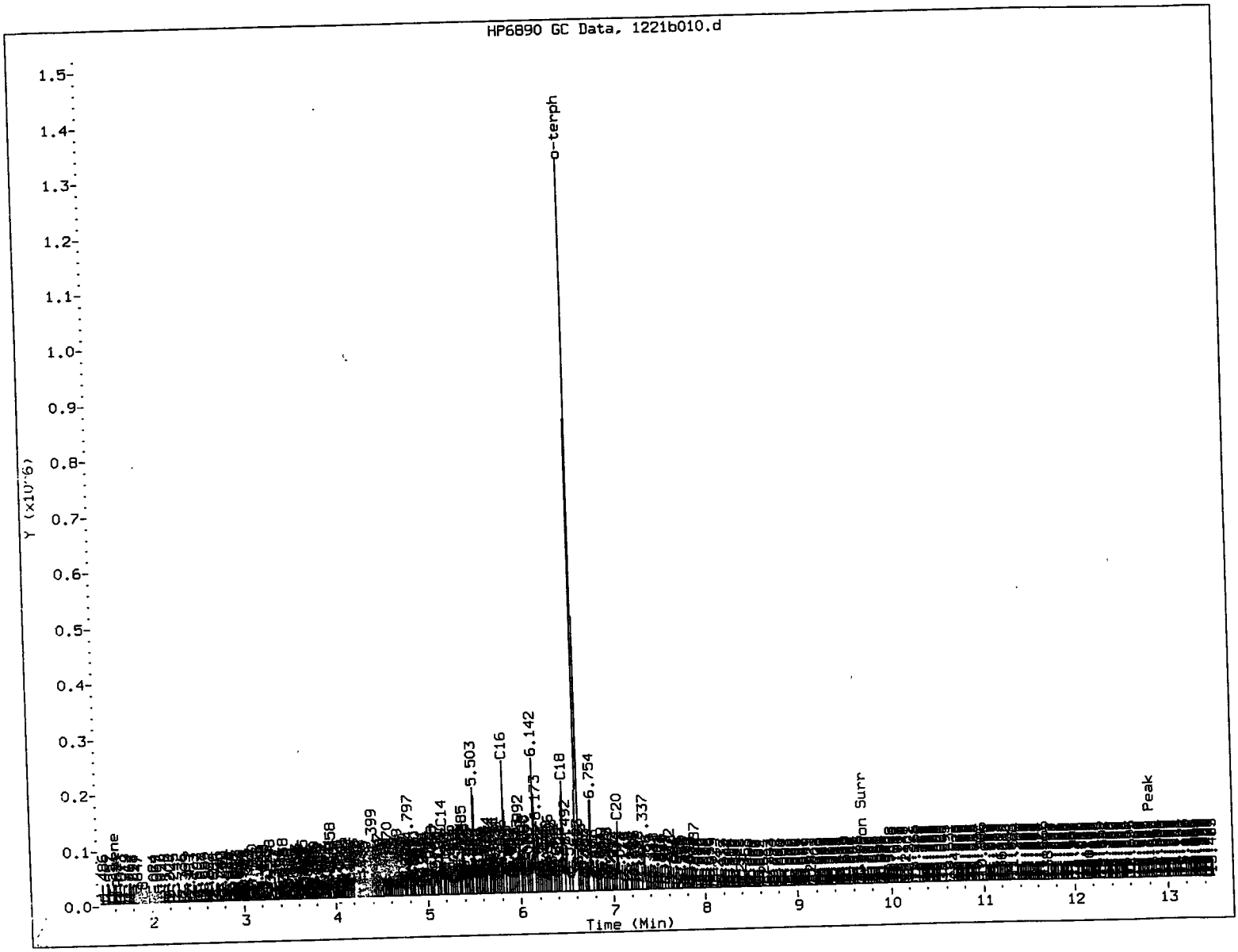


SC61 : 00065

FID:4B-2C/RTX-1 DIESEL 250 FID:4B SIGNAL



MANUAL INTEGRATION

1. Baseline correction
2. Poor chromatography
3. Peak not found
4. Totals calculation

5. Other _____

Analyst: NM Date: 12/22/10

SC61 : 00066

Analytical Resources Inc.
407S TPH Quantitation Report

Data file: /chem3/fid4b.i/20101221.b/1221b011.d
Method: /chem3/fid4b.i/20101221.b/ftphfid4b.m
Instrument: fid4b.i
Operator: MS
Report Date: 12/22/2010
Macro: 21-DEC-2010

ARI ID: DIESEL 500
Client ID: DIESEL 500
Injection: 21-DEC-2010 17:16

Dilution Factor: 1

FID:4B RESULTS

Compound	RT	Shift	Height	Area	Range	Total Area	Conc
Toluene	1.613	0.028	15557	26107	GAS (Tol-C12)	1989446	50
C8	1.916	0.019	6924	18745	DIESEL (C12-C24)	11725714	501 M
C10	3.432	0.002	54100	34249	M.OIL (C24-C38)	154434	11
C12	4.362	-0.037	56076	52920	AK-102 (C10-C25)	13086994	499 M
C14	5.159	-0.006	235171	218115	AK-103 (C25-C36)	104531	16
C16	5.828	-0.004	431169	340139	OR.DIES (C10-C28)	13174312	1252 M
C18	6.454	-0.001	342813	337353	CRUDE (Tol-C40)	13879577	2430 M
C20	7.049	-0.005	240455	204671			
C22	7.615	-0.006	109485	101950			
C24	8.147	-0.007	34018	35299			
C25	8.401	-0.008	16049	27503			
C26	8.646	-0.005	5827	10153			
C28	9.144	-0.005	2402	2364			
C32	10.174	-0.010	113	153			
C34	10.696	-0.007	175	371	BUNKERC (C10-C38)	13199896	1402 M
Filter Peak	12.798	-0.015	878	468	HYDRAUL (C24-C38)	154434	14
C36	11.205	-0.004	136	208			
C38	11.719	0.021	236	129			
C40	12.151	-0.019	417	245			
o-terph	6.618	0.007	1963747	2107779	JET-A (C10-C18)	9503484	1092
Triacon Surr	9.719	0.040	68	102			

M Indicates manual integration within range.
Range Times: NW Diesel(4.399 - 8.154) AK102(3.43 - 8.41) Jet A(3.43 - 6.45)
NW M.Oil(8.15 - 11.70) AK103(8.41 - 11.21) OR Diesel(3.43 - 9.15)

Surrogate	Area	Amount	%Rec
o-Terphenyl	2107779	90.8	201.9
Triacontane	102	0.0	0.0

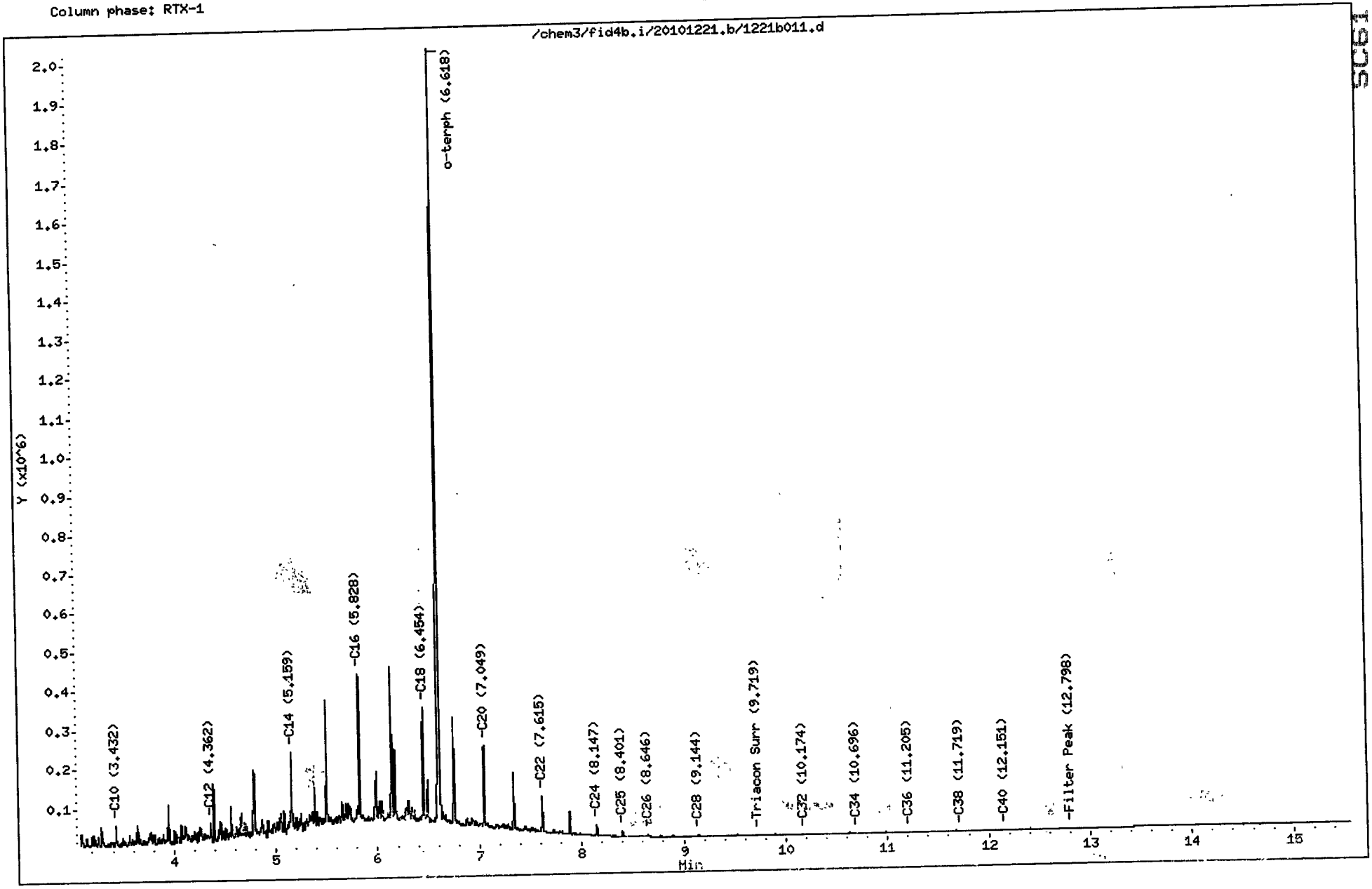
Analyte	RF	Curve Date
o-Terph Surr	23203.1	21-DEC-2010
Triacon Surr	20763.6	23-OCT-2010
Gas	39627.8	17-DEC-2010
Diesel	23413.5	21-DEC-2010
Motor Oil	13869.0	23-OCT-2010
AK102	26220.7	21-DEC-2010
AK103	6604.7	18-JUN-2010
JetA	8703.3	11-JAN-2010
OR Diesel	10525.0	22-JAN-2010
CRUDE	5712.9	22-MAY-2010
Bunker C	9416.3	24-JUL-2010
Hydraulic	11288.8	11-JAN-2010

Data File: /chem3/fid4b.i/20101221.b/1221b011.d
Date : 21-DEC-2010 17:16
Client ID: DIESEL 500
Sample Info: DIESEL 500

Instrument: fid4b.i

Operator: MS
Column diameter: 0.25

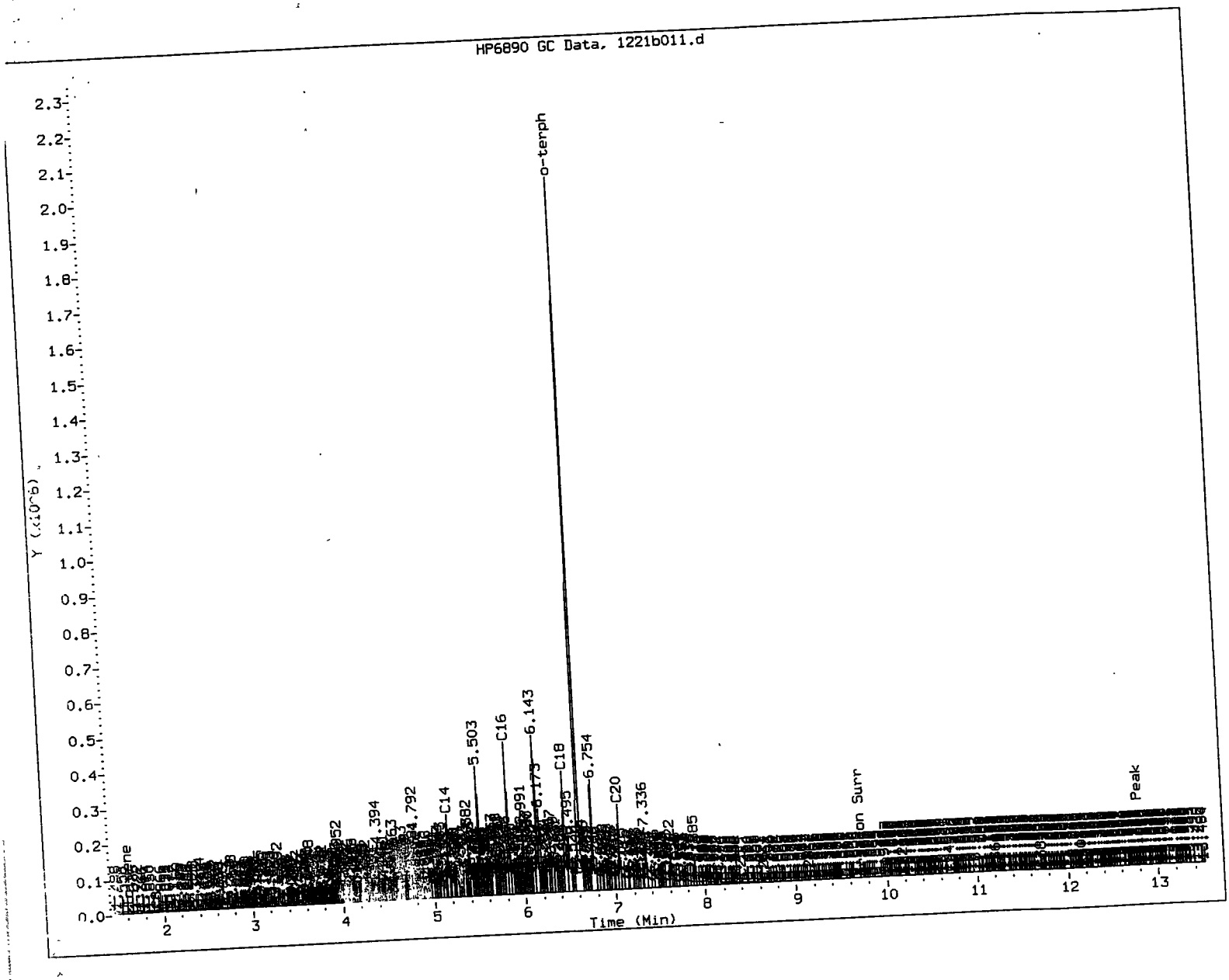
Column phase: RTX-1



SCS1 00068

FID:4B-2C/RTX-1 DIESEL 500

FID:4B SIGNAL



MANUAL INTEGRATION

1. Baseline correction
2. Poor chromatography
3. Peak not found
4. Totals calculation
5. Other _____

Analyst: _____ Date: 12/22/10

SC61:00069

Analytical Resources Inc.
407S TPH Quantitation Report

Data file: /chem3/fid4b.i/20101221.b/1221b012.d
Method: /chem3/fid4b.i/20101221.b/ftphfid4b.m
Instrument: fid4b.i
Operator: MS
Report Date: 12/22/2010
Macro: 21-DEC-2010

ARI ID: DIESEL 1000
Client ID: DIESEL 1000
Injection: 21-DEC-2010 17:40

Dilution Factor: 1

FID:4B RESULTS

Compound	RT	Shift	Height	Area	Range	Total Area	Conc
Toluene	1.618	0.034	21239	25273	GAS (Tol-C12)	3502312	88
C8	1.917	0.020	9404	25265	DIESEL (C12-C24)	22778996	973 M
C10	3.431	0.001	105021	64310	M.OIL (C24-C38)	288145	21
C12	4.360	-0.039	106333	102263	AK-102 (C10-C25)	25386065	968 M
C14	5.160	-0.004	457189	429148	AK-103 (C25-C36)	189812	29
C16	5.832	0.001	774225	652586	OR.DIES (C10-C28)	25548627	2427 M
C18	6.460	0.005	597992	656701	CRUDE (Tol-C40)	26580113	4653 M
C20	7.053	-0.001	440232	401536			
C22	7.616	-0.006	215268	190675			
C24	8.146	-0.008	71528	64523			
C25	8.398	-0.011	31560	36753			
C26	8.643	-0.008	11792	15595			
C28	9.142	-0.006	3366	3829			
C32	10.167	-0.016	182	298			
C34	10.696	-0.006	165	274	BUNKERC (C10-C38)	25587548	2717 M
Filter Peak	12.795	-0.017	812	207	HYDRAUL (C24-C38)	288145	26
C36	11.199	-0.010	65	78			
C38	11.724	0.025	204	306			
C40	12.151	-0.019	343	278			
o-terph	6.631	0.020	2972110	4112991	JET-A (C10-C18)	18441813	2119
Triacon Surr	9.716	0.037	121	241			

M Indicates manual integration within range.
Range Times: NW Diesel(4.399 - 8.154) AK102(3.43 - 8.41) Jet A(3.43 - 6.45)
NW M.Oil(8.15 - 11.70) AK103(8.41 - 11.21) OR Diesel(3.43 - 9.15)

Surrogate	Area	Amount	%Rec
o-Terphenyl	4112991	177.3	393.9
Triacontane	241	0.0	0.0

Analyte	RF	Curve Date
o-Terph Surr	23203.1	21-DEC-2010
Triacon Surr	20763.6	23-OCT-2010
Gas	39627.8	17-DEC-2010
Diesel	23413.5	21-DEC-2010
Motor Oil	13869.0	23-OCT-2010
AK102	26220.7	21-DEC-2010
AK103	6604.7	18-JUN-2010
JetA	8703.3	11-JAN-2010
OR Diesel	10525.0	22-JAN-2010
CRUDE	5712.9	22-MAY-2010
Bunker C	9416.3	24-JUL-2010
Hydraulic	11288.8	11-JAN-2010

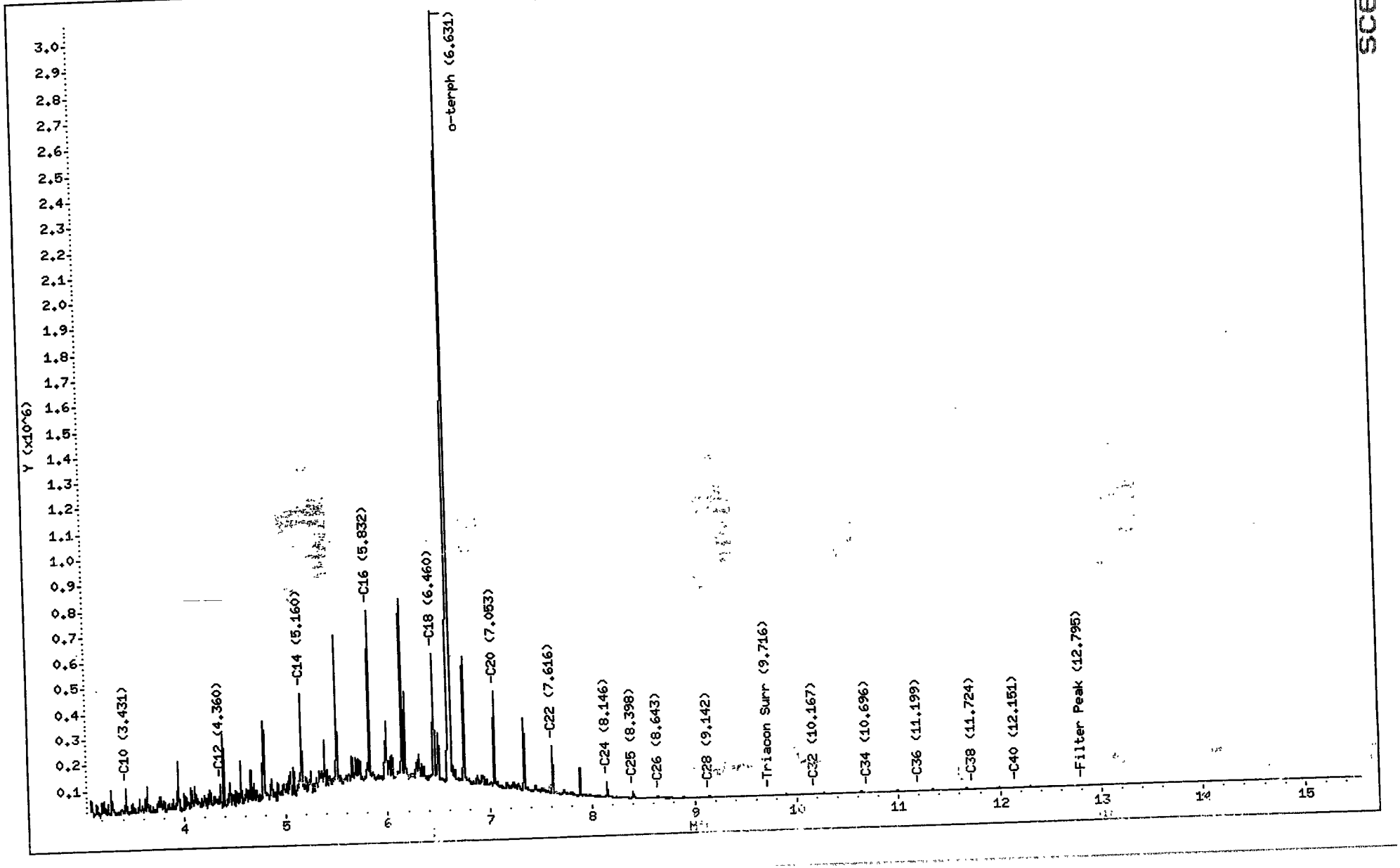
Data File: /chem3/fid4b.i/20101221.b/1221b012.d
Date : 21-DEC-2010 17:40
Client ID: DIESEL 1000
Sample Info: DIESEL 1000

Column phase: RTX-1

Instrument: fid4b.i

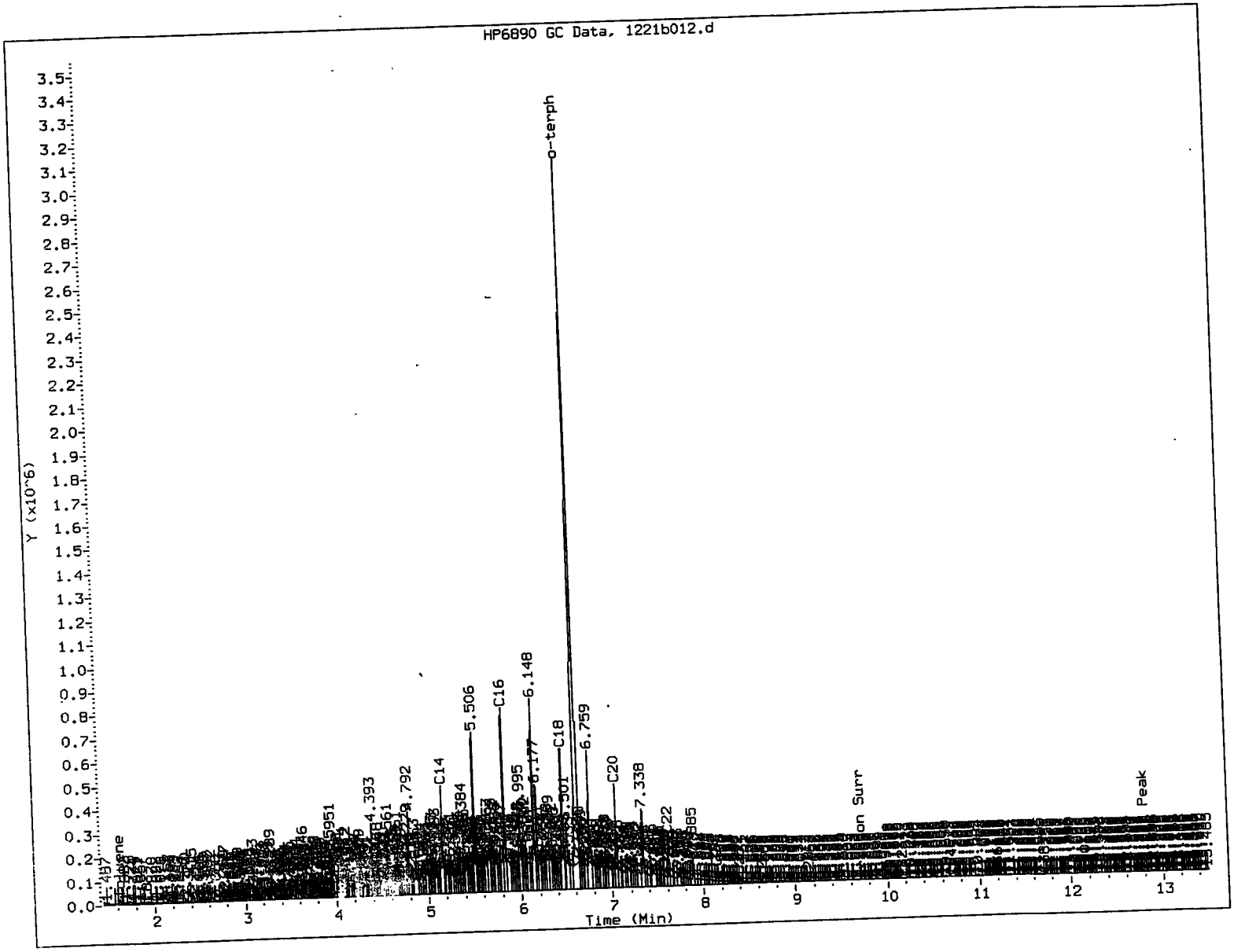
Operator: MS
Column diameter: 0.25

/chem3/fid4b.i/20101221.b/1221b012.d



SC61 00071

FID:4B-2C/RTX-1 DIESEL 1000 FID:4B SIGNAL



MANUAL INTEGRATION

1. Baseline correction
2. Poor chromatography
3. Peak not found
4. Totals calculation
5. Other _____

Analyst: NM Date: 12/22/10

SC61:00072

Analytical Resources Inc.
407S TPH Quantitation Report

Data file: /chem3/fid4b.i/20101221.b/1221b013.d
Method: /chem3/fid4b.i/20101221.b/ftphfid4b.m
Instrument: fid4b.i
Operator: MS
Report Date: 12/22/2010
Macro: 21-DEC-2010

ARI ID: DIESEL 2500
Client ID: DIESEL 2500
Injection: 21-DEC-2010 18:03

Dilution Factor: 1

FID:4B RESULTS

Compound	RT	Shift	Height	Area	Range	Total Area	Conc
Toluene	1.623	0.039	5800	12576	GAS (Tol-C12)	8676655	219
C8	1.919	0.021	11671	20971	DIESEL (C12-C24)	58749869	2509 M
C10	3.437	0.007	245366	163237	M.OIL (C24-C38)	944427	68
C12	4.360	-0.039	252225	289133	AK-102 (C10-C25)	65392570	2494 M
C14	5.167	0.003	881565	1343081	AK-103 (C25-C36)	623052	94
C16	5.844	0.013	1526507	2586832	OR.DIES (C10-C28)	65862116	6258 M
C18	6.478	0.023	1137075	1891952	CRUDE (Tol-C40)	68389990	11971 M
C20	7.066	0.012	1053710	1045036			
C22	7.623	0.002	534075	497368			
C24	8.148	-0.006	180231	162376			
C25	8.398	-0.011	98062	130672			
C26	8.642	-0.009	33482	34336			
C28	9.135	-0.013	27271	29161			
C32	10.166	-0.017	1133	1481	BUNKERC (C10-C38)	66048774	7014 M
C34	10.695	-0.008	247	426	HYDRAUL (C24-C38)	944427	84
Filter Peak	12.796	-0.017	754	474			
C36	11.198	-0.011	61	97			
C38	11.717	0.019	140	76			
C40	12.171	0.002	300	372			
o-terph	6.663	0.052	5027293	11152429	JET-A (C10-C18)	46708389	5367
Triacon Surr	9.697	0.018	554	1376			

M Indicates manual integration within range.
Range Times: NW Diesel(4.399 - 8.154) AK102(3.43 - 8.41) Jet A(3.43 - 6.45)
NW M.Oil(8.15 - 11.70) AK103(8.41 - 11.21) OR Diesel(3.43 - 9.15)

Surrogate	Area	Amount	%Rec
o-Terphenyl	11152429	480.6	1068.1
Triacontane	1376	0.1	0.1

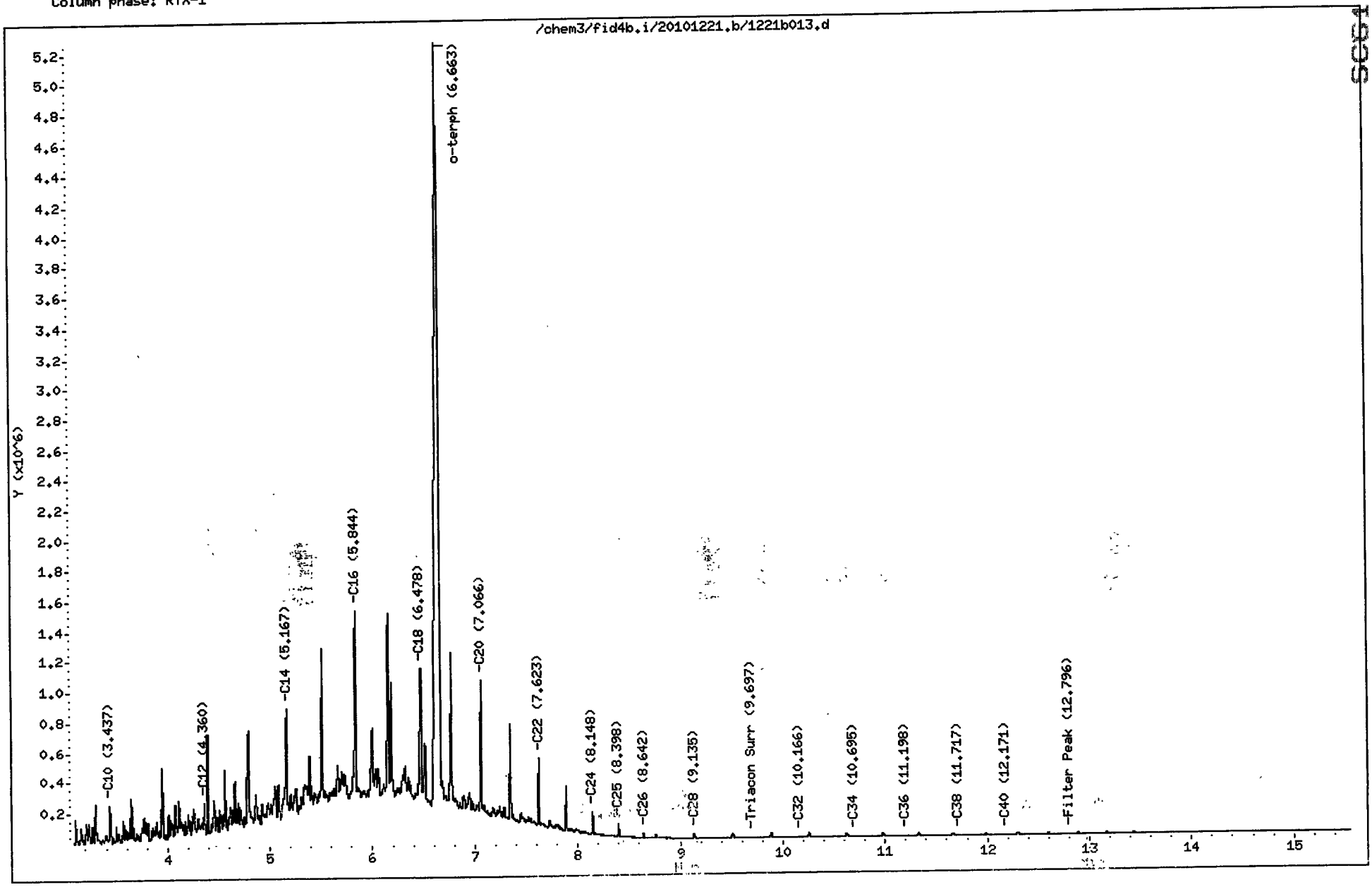
Analyte	RF	Curve Date
o-Terph Surr	23203.1	21-DEC-2010
Triacon Surr	20763.6	23-OCT-2010
Gas	39627.8	17-DEC-2010
Diesel	23413.5	21-DEC-2010
Motor Oil	13869.0	23-OCT-2010
AK102	26220.7	21-DEC-2010
AK103	6604.7	18-JUN-2010
JetA	8703.3	11-JAN-2010
OR Diesel	10525.0	22-JAN-2010
CRUDE	5712.9	22-MAY-2010
Bunker C	9416.3	24-JUL-2010
Hydraulic	11288.8	11-JAN-2010

Data File: /chem3/fid4b.i/20101221.b/1221b013.d
Date : 21-DEC-2010 18:03
Client ID: DIESEL 2500
Sample Info: DIESEL 2500

Column phase: RTX-1

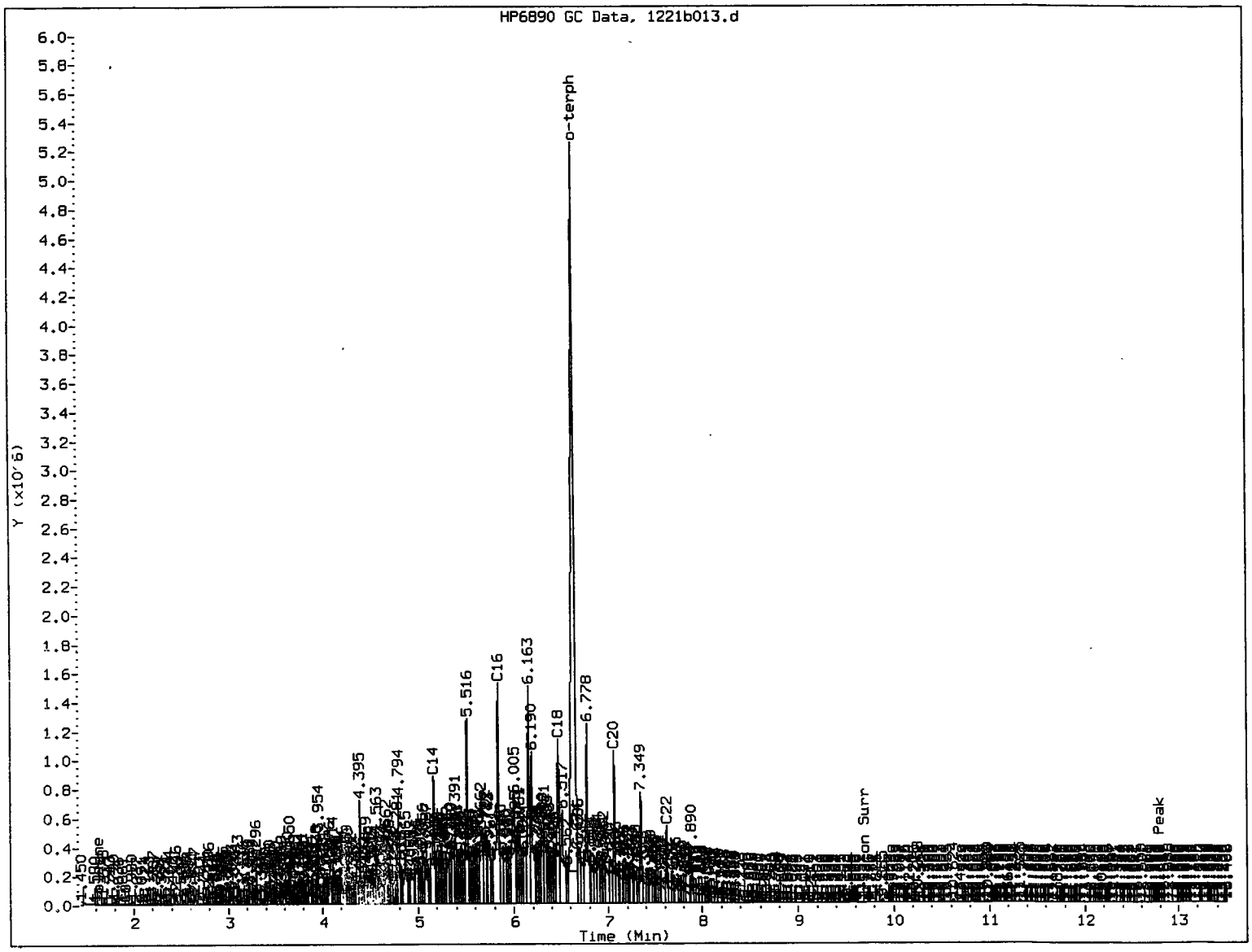
Instrument: fid4b.i

Operator: MS
Column diameter: 0.25



SGS1 : 000071

FID:4B-2C/RTX-1 DIESEL 2500 FID:4B SIGNAL



MANUAL INTEGRATION

1. Baseline correction
2. Poor chromatography
3. Peak not found
4. Totals calculation

5. Other _____

Analyst: MM Date: 12/22/10

Analytical Resources Inc.
407S TPH Quantitation Report

Data file: /chem3/fid4b.i/20101221.b/1221b014.d
Method: /chem3/fid4b.i/20101221.b/ftphfid4b.m
Instrument: fid4b.i
Operator: MS
Report Date: 12/22/2010
Macro: 21-DEC-2010

ARI ID: DIESEL ICV
Client ID:
Injection: 21-DEC-2010 18:26

Dilution Factor: 1

FID:4B RESULTS

Compound	RT	Shift	Height	Area	Range	Total Area	Conc
Toluene	1.602	0.018	13713	37946	GAS (Tol-C12)	1174713	30
C8	1.908	0.011	6669	11879	DIESEL (C12-C24)	5629574	240 M
C10	3.426	-0.005	4498	2369	M.OIL (C24-C38)	88842	6
C12	4.401	0.002	69448	44064	AK-102 (C10-C25)	6301940	240 M
C14	5.161	-0.004	111880	99301	AK-103 (C25-C36)	54852	8
C16	5.827	-0.004	220773	143364	OR.DIES (C10-C28)	6340953	602 M
C18	6.451	-0.004	187507	166734	CRUDE (Tol-C40)	6901160	1208 M
C20	7.048	-0.006	115389	95118			
C22	7.616	-0.006	54360	46471			
C24	8.148	-0.006	16035	16336			
C25	8.402	-0.007	7967	10266			
C26	8.647	-0.004	2697	4626			
C28	9.143	-0.005	1727	1615			
C32	10.188	0.005	55	76			
C34	10.691	-0.011	128	257	BUNKERC (C10-C38)	6364262	676 M
Filter Peak	12.822	0.010	714	898	HYDRAUL (C24-C38)	88842	8
C36	11.205	-0.004	82	73			
C38	11.726	0.027	146	179			
C40	12.170	0.000	296	169			
o-terph	6.607	-0.003	1235542	977387	JET-A (C10-C18)	4576699	526
Triacon Surr	9.704	0.025	69	37			

M Indicates manual integration within range.
Range Times: NW Diesel(4.399 - 8.154) AK102(3.43 - 8.41) Jet A(3.43 - 6.45)
NW M.Oil(8.15 - 11.70) AK103(8.41 - 11.21) OR Diesel(3.43 - 9.15)

Surrogate	Area	Amount	%Rec
o-Terphenyl	977387	42.1	93.6
Triacontane	37	0.0	0.0

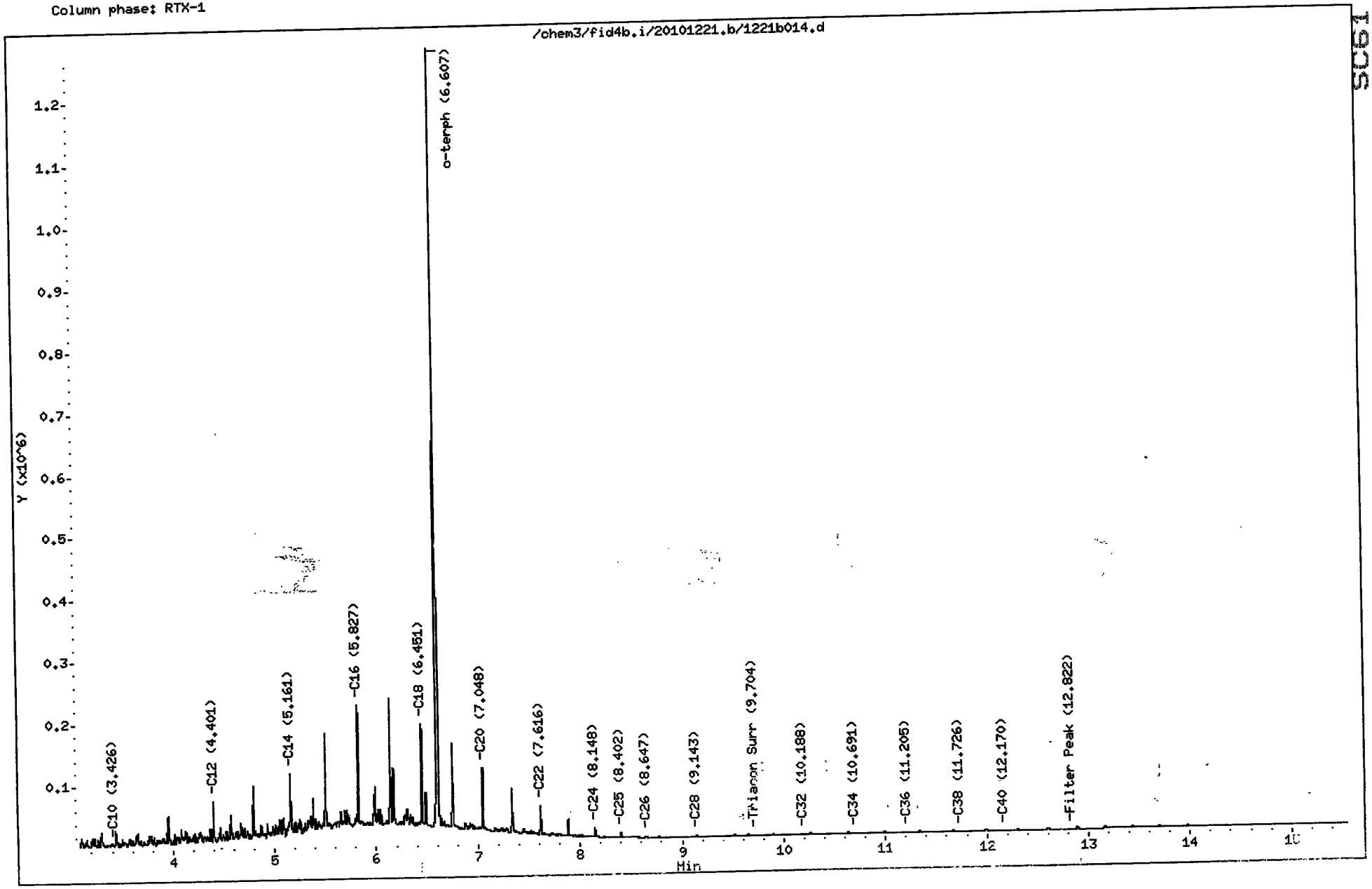
Analyte	RF	Curve Date
o-Terph Surr	23203.1	21-DEC-2010
Triacon Surr	20763.6	23-OCT-2010
Gas	39627.8	17-DEC-2010
Diesel	23413.5	21-DEC-2010
Motor Oil	13869.0	23-OCT-2010
AK102	26220.7	21-DEC-2010
AK103	6604.7	18-JUN-2010
JetA	8703.3	11-JAN-2010
OR Diesel	10525.0	22-JAN-2010
CRUDE	5712.9	22-MAY-2010
Bunker C	9416.3	24-JUL-2010
Hydraulic	11288.8	11-JAN-2010

Data File: /chem3/fid4b.i/20101221.b/1221b014.d
Date : 21-DEC-2010 18:26
Client ID:
Sample Info: DIESEL ICV

Column phase: RTX-1

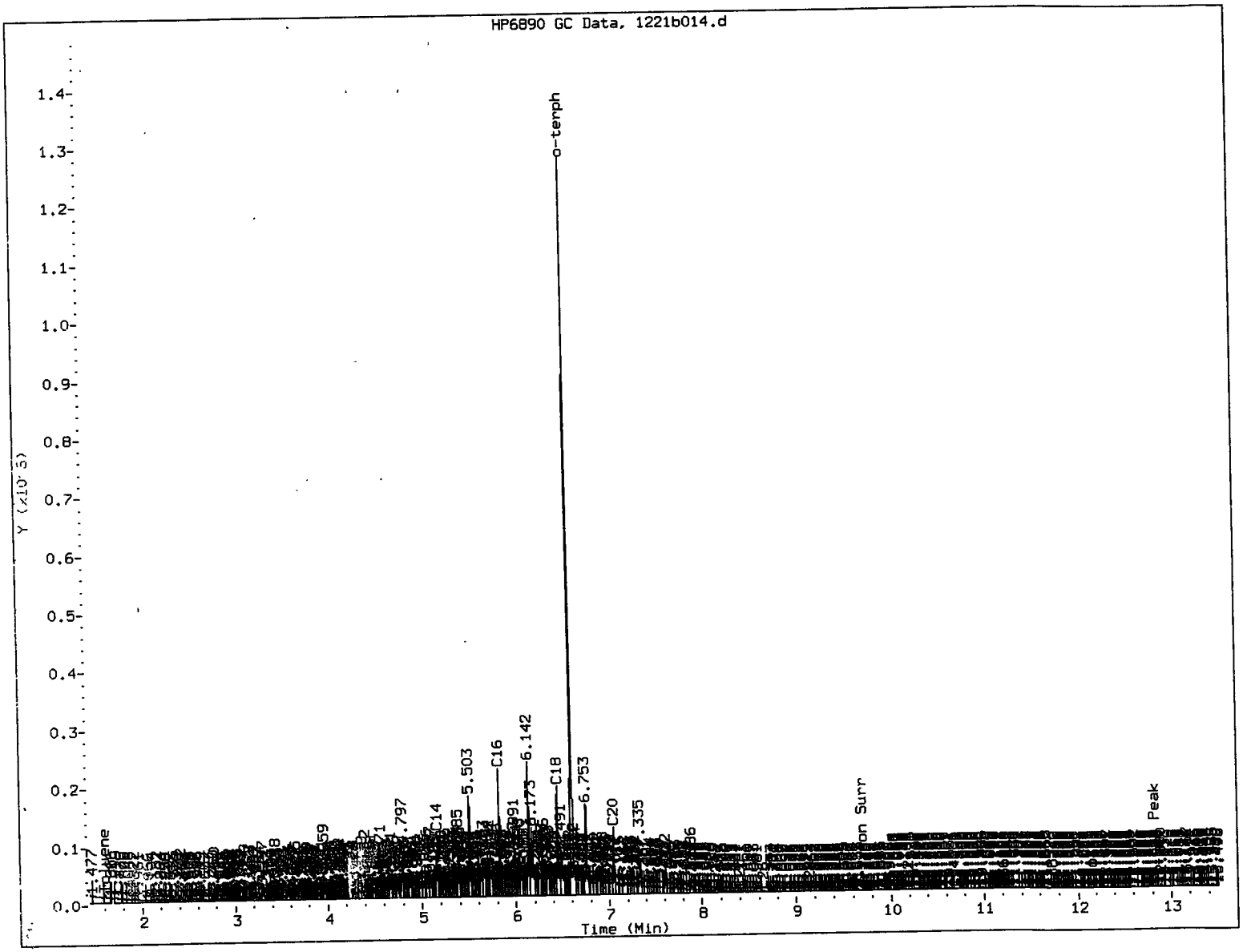
Instrument: fid4b.i

Operator: MS
Column diameter: 0.25



SC61 : 00077

FID:4B-2C/RTX-1 DIESEL ICV FID:4B SIGNAL



MANUAL INTEGRATION

1. Baseline correction
2. Poor chromatography
3. Peak not found
4. Totals calculation

5. Other _____

Analyst: MM Date: 12/22/15

SC61 : 00078

MANUAL INTEGRATION SUMMARY FOR DATABATCH - /chem3/fid4b.i/20101221.b

ARI Job No.: RT Method: i/20101221.b/ftphfid4b.m Instrument: fid4b.i Date: 21-DEC-2010

Time	Filename	LabID	ClientId	DF	Manually Integrated Compounds
1519	1221b006.d	RT	RT	1	Toluene, C8,
1542	1221b007.d	IB	IB	1	NO MANUAL INTEGRATION
1606	1221b008.d	DIESEL 50	DIESEL 50	1	o-terph,
1629	1221b009.d	DIESEL 100	DIESEL 100	1	o-terph,
1653	1221b010.d	DIESEL 250	DIESEL 250	1	o-terph,
1716	1221b011.d	DIESEL 500	DIESEL 500	1	o-terph,
1740	1221b012.d	DIESEL 1000	DIESEL 100	1	o-terph,
1803	1221b013.d	DIESEL 2500	DIESEL 250	1	o-terph,
1826	1221b014.d	DIESEL ICV		1	o-terph,

SC61:00079

Analytical Resources Inc.
407S TPH Quantitation Report

Data file: /chem3/fid4b.i/20101221.b/1221raw.b/1221b008.d ARI ID: DIESEL 50
Method: /chem3/fid4b.i/20101221.b/ftphfid4b.m Client ID: DIESEL 50
Instrument: fid4b.i Injection: 21-DEC-2010 16:06
Operator: MS
Report Date: 12/22/2010 Dilution Factor: 1
Macro: 21-DEC-2010

FID:4B RESULTS

Compound	RT	Shift	Height	Area	Range	Total Area	Conc
Toluene	1.600	0.016	6831	24679	GAS (Tol-C12)	433687	11
C8	1.909	0.012	3925	30549	DIESEL (C12-C24)	1136438	49
C10	3.425	-0.006	1770	2572	M.OIL (C24-C38)	45770	3
C12	4.395	-0.004	4359	4262	AK-102 (C10-C25)	1297645	49
C14	5.172	0.007	23370	23734	AK-103 (C25-C36)	32934	5
C16	5.831	0.000	46864	30368	OR.DIES (C10-C28)	1307012	124
C18	6.451	-0.004	39679	34764	CRUDE (Tol-C40)	1624125	284
C20	7.052	-0.002	24287	20859			
C22	7.619	-0.002	10313	12090			
C24	8.151	-0.003	2817	3269			
C25	8.403	-0.006	2556	2662			
C26	8.648	-0.003	510	676			
C28	9.143	-0.005	1973	1739			
C32	10.170	-0.013	226	333			
C34	10.692	-0.010	226	399	BUNKERC (C10-C38)	1339493	142
Filter Peak	12.811	-0.001	727	270	HYDRAUL (C24-C38)	45770	4
C36	11.208	-0.001	101	95			
C38	11.708	0.010	165	147			
C40	12.164	-0.005	324	295			
o-terph	6.601	-0.009	310381	234750	JET-A (C10-C18)	980735	113
Triacon Surr	9.703	0.024	75	18			

M Indicates manual integration within range.
Range Times: NW Diesel(4.399 - 8.154) AK102(3.43 - 8.41) Jet A(3.43 - 6.45)
NW M.Oil(8.15 - 11.70) AK103(8.41 - 11.21) OR Diesel(3.43 - 9.15)

Surrogate	Area	Amount	%Rec
o-Terphenyl	234750	10.1	22.5
Triacontane	18	0.0	0.0

Analyte	RF	Curve Date
o-Terph Surr	23203.1	21-DEC-2010
Triacon Surr	20763.6	23-OCT-2010
Gas	39627.8	17-DEC-2010
Diesel	23413.5	21-DEC-2010
Motor Oil	13869.0	23-OCT-2010
AK102	26220.7	21-DEC-2010
AK103	6604.7	18-JUN-2010
JetA	8703.3	11-JAN-2010
OR Diesel	10525.0	22-JAN-2010
CRUDE	5712.9	22-MAY-2010
Bunker C	9416.3	24-JUL-2010
Hydraulic	11288.8	11-JAN-2010

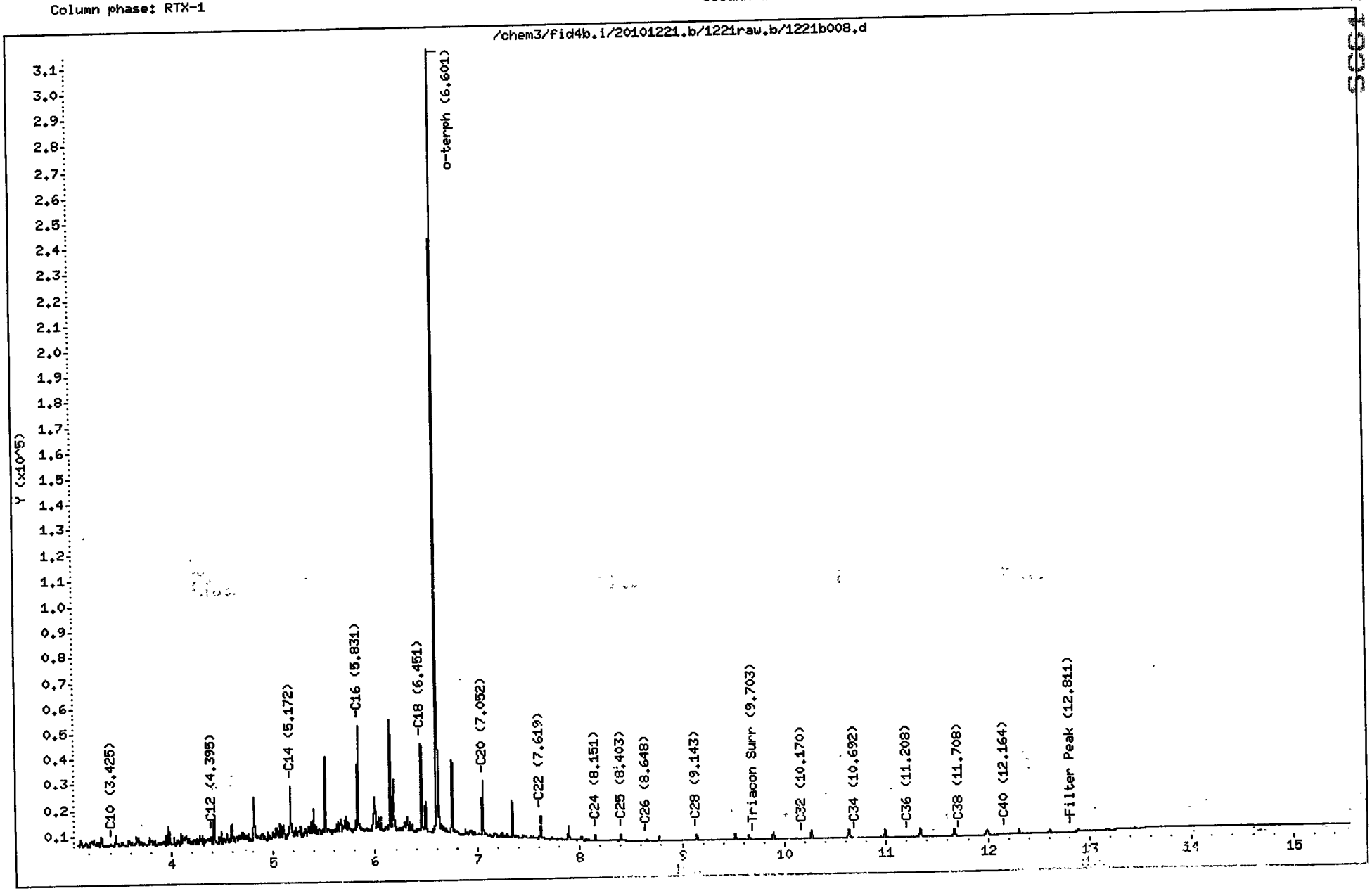
12/22/10

Data File: /chem3/fid4b.i/20101221.b/1221raw.b/1221b008.d
Date : 21-DEC-2010 16:06
Client ID: DIESEL 50
Sample Info: DIESEL 50

Column phase: RTX-1

Instrument: fid4b.i

Operator: MS
Column diameter: 0.25



SCG1 00081

Analytical Resources Inc.
407S TPH Quantitation Report

Data file: /chem3/fid4b.i/20101221.b/1221raw.b/1221b009.d ARI ID: DIESEL 100
Method: /chem3/fid4b.i/20101221.b/ftphfid4b.m Client ID: DIESEL 100
Instrument: fid4b.i Injection: 21-DEC-2010 16:29
Operator: MS
Report Date: 12/22/2010 Dilution Factor: 1
Macro: 21-DEC-2010

FID:4B RESULTS

Compound	RT	Shift	Height	Area	Range	Total Area	Conc
Toluene	1.601	0.016	6191	18791	GAS (Tol-C12)	539199	14
C8	1.902	0.004	3128	6431	DIESEL (C12-C24)	2278947	97
C10	3.433	0.002	1806	1104	M.OIL (C24-C38)	46144	3
C12	4.412	0.013	25963	19634	AK-102 (C10-C25)	2568259	98
C14	5.166	0.002	47661	48258	AK-103 (C25-C36)	30552	5
C16	5.829	-0.002	93263	59596	OR.DIES (C10-C28)	2584442	246
C18	6.450	-0.005	79030	70250	CRUDE (Tol-C40)	2872804	503
C20	7.050	-0.004	50315	39328			
C22	7.617	-0.005	21383	20529			
C24	8.150	-0.004	6166	6840			
C25	8.402	-0.007	3602	4598			
C26	8.647	-0.004	1013	1599			
C28	9.142	-0.006	1259	1111			
C32	10.169	-0.015	119	213			
C34	10.689	-0.014	167	248	BUNKERC (C10-C38)	2606002	277
Filter Peak	12.809	-0.003	830	524	HYDRAUL (C24-C38)	46144	4
C36	11.201	-0.008	123	169			
C38	11.708	0.009	203	102			
C40	12.170	0.000	363	196			
o-terph	6.601	-0.010	637572	460780	JET-A (C10-C18)	1914789	220
Triacon Surr	9.701	0.022	77	34			

M Indicates manual integration within range.
Range Times: NW Diesel(4.399 - 8.154) AK102(3.43 - 8.41) Jet A(3.43 - 6.45)
NW M.Oil(8.15 - 11.70) AK103(8.41 - 11.21) OR Diesel(3.43 - 9.15)

Surrogate	Area	Amount	%Rec
o-Terphenyl	460780	19.9	44.1
Triacontane	34	0.0	0.0

Analyte	RF	Curve Date
o-Terph Surr	23203.1	21-DEC-2010
Triacon Surr	20763.6	23-OCT-2010
Gas	39627.8	17-DEC-2010
Diesel	23413.5	21-DEC-2010
Motor Oil	13869.0	23-OCT-2010
AK102	26220.7	21-DEC-2010
AK103	6604.7	18-JUN-2010
JetA	8703.3	11-JAN-2010
OR Diesel	10525.0	22-JAN-2010
CRUDE	5712.9	22-MAY-2010
Bunker C	9416.3	24-JUL-2010
Hydraulic	11288.8	11-JAN-2010

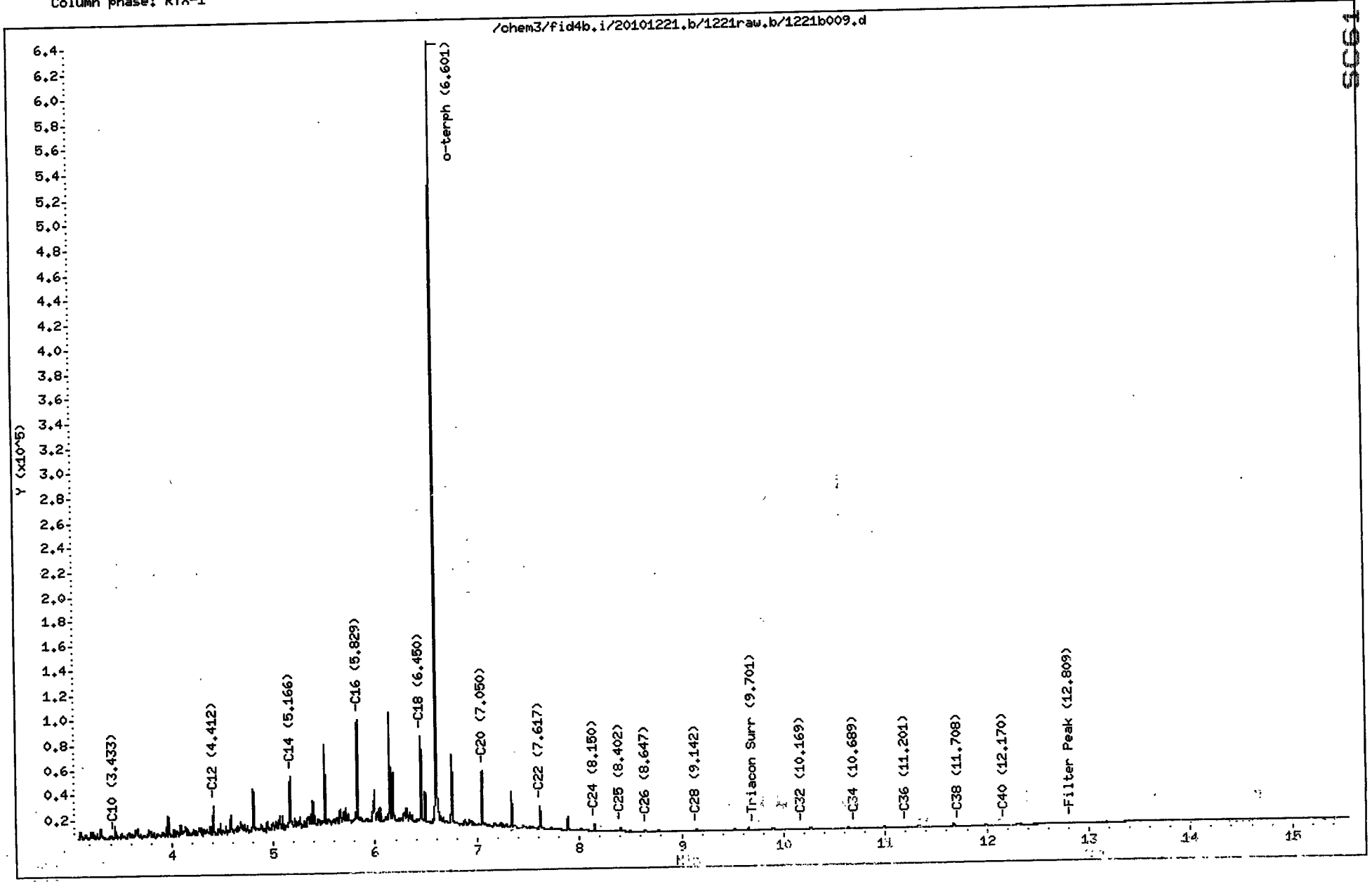
MM 12/22/10

Data File: /chem3/fid4b.i/20101221.b/1221raw.b/1221b009.d
Date : 21-DEC-2010 16:29
Client ID: DIESEL 100
Sample Info: DIESEL 100

Column phase: RTX-1

Instrument: fid4b.i

Operator: MS
Column diameter: 0.25



SC61 00083

Analytical Resources Inc.
407S TPH Quantitation Report

Data file: /chem3/fid4b.i/20101221.b/1221raw.b/1221b010.d ARI ID: DIESEL 250
Method: /chem3/fid4b.i/20101221.b/ftphfid4b.m Client ID: DIESEL 250
Instrument: fid4b.i Injection: 21-DEC-2010 16:53
Operator: MS
Report Date: 12/22/2010 Dilution Factor: 1
Macro: 21-DEC-2010

FID:4B RESULTS

Compound	RT	Shift	Height	Area	Range	Total Area	Conc
Toluene	1.606	0.021	9476	8386	GAS (Tol-C12)	1055116	27
C8	1.908	0.010	4316	16296	DIESEL (C12-C24)	5871226	251
C10	3.430	0.000	4482	2580	M.OIL (C24-C38)	104833	8
C12	4.399	0.000	74131	46557	AK-102 (C10-C25)	6556080	250
C14	5.161	-0.003	120045	106457	AK-103 (C25-C36)	67166	10
C16	5.827	-0.004	238800	174502	OR.DIES (C10-C28)	6600324	627
C18	6.452	-0.003	199636	180559	CRUDE (Tol-C40)	7042862	1233
C20	7.049	-0.005	123421	100927			
C22	7.616	-0.006	58100	51401			
C24	8.148	-0.005	16755	18475			
C25	8.402	-0.007	8639	11284			
C26	8.648	-0.003	2812	4756			
C28	9.143	-0.006	2227	2395			
C32	10.169	-0.015	178	224			
C34	10.696	-0.007	173	260	BUNKERC (C10-C38)	6635462	705
Filter Peak	12.805	-0.007	844	1397	HYDRAUL (C24-C38)	104833	9
C36	11.212	0.003	120	160			
C38	11.710	0.012	225	60			
C40	12.165	-0.005	388	362			
o-terph	6.609	-0.002	1320681	1176678	JET-A (C10-C18)	4878728	561
Triacon Surr	9.700	0.021	71	29			

M Indicates manual integration within range.
Range Times: NW Diesel(4.399 - 8.154) AK102(3.43 - 8.41) Jet A(3.43 - 6.45)
NW M.Oil(8.15 - 11.70) AK103(8.41 - 11.21) OR Diesel(3.43 - 9.15)

Surrogate	Area	Amount	%Rec
o-Terphenyl	1176678	50.7	112.7
Triacontane	29	0.0	0.0

Analyte	RF	Curve Date
o-Terph Surr	23203.1	21-DEC-2010
Triacon Surr	20763.6	23-OCT-2010
Gas	39627.8	17-DEC-2010
Diesel	23413.5	21-DEC-2010
Motor Oil	13869.0	23-OCT-2010
AK102	26220.7	21-DEC-2010
AK103	6604.7	18-JUN-2010
JetA	8703.3	11-JAN-2010
OR Diesel	10525.0	22-JAN-2010
CRUDE	5712.9	22-MAY-2010
Bunker C	9416.3	24-JUL-2010
Hydraulic	11288.8	11-JAN-2010

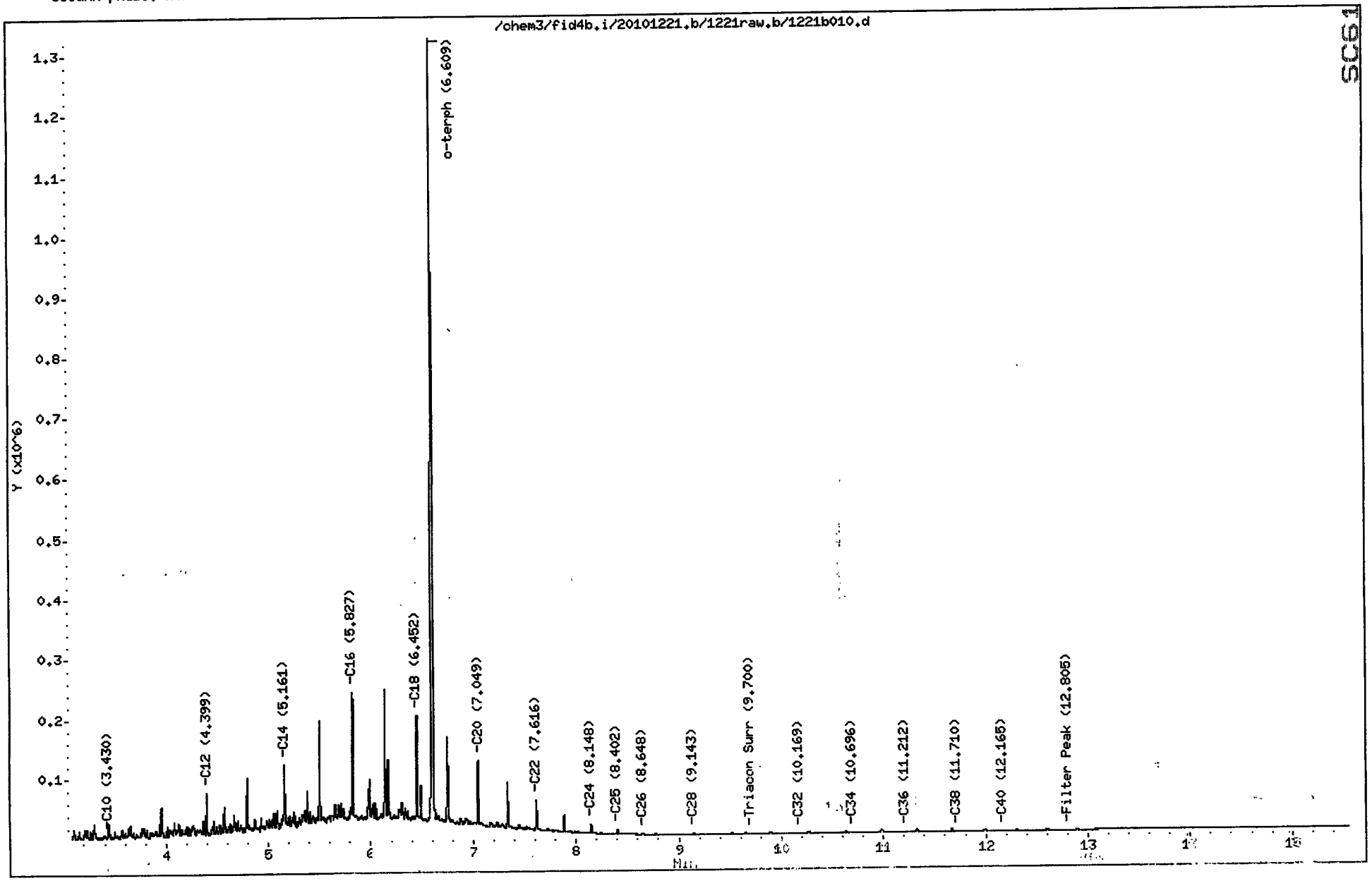
12/22/10

Data File: /chem3/fid4b.i/20101221.b/1221raw.b/1221b010.d
Date : 21-DEC-2010 16:53
Client ID: DIESEL 250
Sample Info: DIESEL 250

Column phase: RTX-1

Instrument: fid4b.i

Operator: MS
Column diameter: 0.25



SC61 00085

Analytical Resources Inc.
407S TPH Quantitation Report

Data file: /chem3/fid4b.i/20101221.b/1221raw.b/1221b011.d ARI ID: DIESEL 500
Method: /chem3/fid4b.i/20101221.b/ftphfid4b.m Client ID: DIESEL 500
Instrument: fid4b.i Injection: 21-DEC-2010 17:16
Operator: MS
Report Date: 12/22/2010 Dilution Factor: 1
Macro: 21-DEC-2010

FID:4B RESULTS

Compound	RT	Shift	Height	Area	Range		Total Area	Conc
Toluene	1.558	-0.027	6907	21028	GAS	(Tol-C12)	1989446	50
C8	1.916	0.019	6924	18745	DIESEL	(C12-C24)	11461043	490
C10	3.432	0.002	54100	34249	M.OIL	(C24-C38)	153565	11
C12	4.394	-0.005	154544	92800	AK-102	(C10-C25)	12822324	489
C14	5.159	-0.006	235171	218115	AK-103	(C25-C36)	103662	16
C16	5.828	-0.004	431169	340139	OR.DIES	(C10-C28)	12909642	1227
C18	6.454	-0.001	342813	337353	CRUDE	(Tol-C40)	13614038	2383
C20	7.049	-0.005	240455	204671				
C22	7.615	-0.006	109485	101950				
C24	8.147	-0.007	34018	35299				
C25	8.401	-0.008	16049	27503				
C26	8.646	-0.005	5827	10153				
C28	9.144	-0.005	2402	2364				
C32	10.174	-0.010	113	153				
C34	10.696	-0.007	175	371	BUNKERC	(C10-C38)	12934357	1374
Filter Peak	12.813	0.000	904	809	HYDRAUL	(C24-C38)	153565	14
C36	11.205	-0.004	136	208				
C38	11.719	0.021	236	129				
C40	12.182	0.013	436	1014				
o-terph	6.618	0.007	2020134	2371361	JET-A	(C10-C18)	9503484	1092
Triacon Surr	9.656	-0.023	766	971				

M Indicates manual integration within range.
Range Times: NW Diesel(4.399 - 8.154) AK102(3.43 - 8.41) Jet A(3.43 - 6.45)
NW M.Oil(8.15 - 11.70) AK103(8.41 - 11.21) OR Diesel(3.43 - 9.15)

Surrogate	Area	Amount	%Rec
o-Terphenyl	2371361	102.2	227.1
Triacontane	971	0.0	0.1

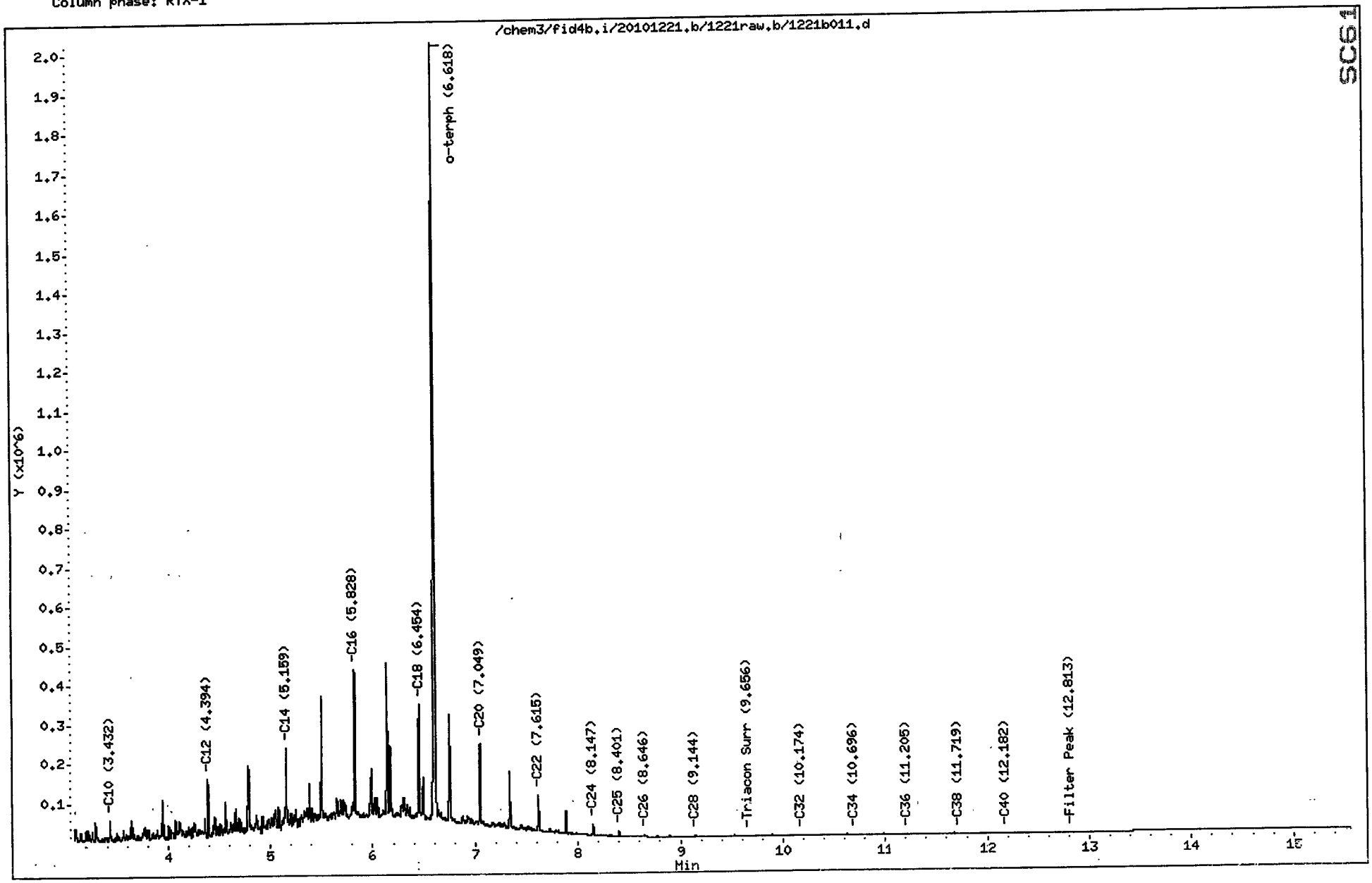
Analyte	RF	Curve Date
o-Terph Surr	23203.1	21-DEC-2010
Triacon Surr	20763.6	23-OCT-2010
Gas	39627.8	17-DEC-2010
Diesel	23413.5	21-DEC-2010
Motor Oil	13869.0	23-OCT-2010
AK102	26220.7	21-DEC-2010
AK103	6604.7	18-JUN-2010
JetA	8703.3	11-JAN-2010
OR Diesel	10525.0	22-JAN-2010
CRUDE	5712.9	22-MAY-2010
Bunker C	9416.3	24-JUL-2010
Hydraulic	11288.8	11-JAN-2010

Data File: /chem3/fid4b.i/20101221.b/1221raw.b/1221b011.d
Date : 21-DEC-2010 17:16
Client ID: DIESEL 500
Sample Info: DIESEL 500

Column phase: RTX-1

Instrument: fid4b.i

Operator: MS
Column diameter: 0.25



SC61 00087

Analytical Resources Inc.
407S TPH Quantitation Report

Data file: /chem3/fid4b.i/20101221.b/1221raw.b/1221b012.d ARI ID: DIESEL 1000
Method: /chem3/fid4b.i/20101221.b/ftphfid4b.m Client ID: DIESEL 1000
Instrument: fid4b.i Injection: 21-DEC-2010 17:40
Operator: MS
Report Date: 12/22/2010 Dilution Factor: 1
Macro: 21-DEC-2010

FID:4B RESULTS

Compound	RT	Shift	Height	Area	Range	Total Area	Conc
Toluene	1.618	0.034	21239	25273	GAS (Tol-C12)	3502312	88
C8	1.917	0.020	9404	25265	DIESEL (C12-C24)	22307844	953
C10	3.431	0.001	105021	64310	M.OIL (C24-C38)	287363	21
C12	4.393	-0.006	305400	185689	AK-102 (C10-C25)	24914913	950
C14	5.160	-0.004	457189	429148	AK-103 (C25-C36)	189030	29
C16	5.832	0.001	774225	652586	OR.DIES (C10-C28)	25077475	2383
C18	6.460	0.005	597992	656701	CRUDE (Tol-C40)	26108179	4570
C20	7.053	-0.001	440232	401536			
C22	7.616	-0.006	215268	190675			
C24	8.146	-0.008	71528	64523			
C25	8.398	-0.011	31560	36753			
C26	8.643	-0.008	11792	15595			
C28	9.142	-0.006	3366	3829			
C32	10.167	-0.016	182	298			
C34	10.696	-0.006	165	274	BUNKERC (C10-C38)	25115614	2667
Filter Peak	12.807	-0.005	817	741	HYDRAUL (C24-C38)	287363	25
C36	11.218	0.009	72	81			
C38	11.724	0.025	204	306			
C40	12.169	-0.001	366	476			
o-terph	6.631	0.020	3089371	4581970	JET-A (C10-C18)	18441813	2119
Triacon Surr	9.653	-0.026	595	1023			

M Indicates manual integration within range.
Range Times: NW Diesel(4.399 - 8.154) AK102(3.43 - 8.41) Jet A(3.43 - 6.45)
NW M.Oil(8.15 - 11.70) AK103(8.41 - 11.21) OR Diesel(3.43 - 9.15)

Surrogate	Area	Amount	%Rec
o-Terphenyl	4581970	197.5	438.8
Triacontane	1023	0.0	0.1

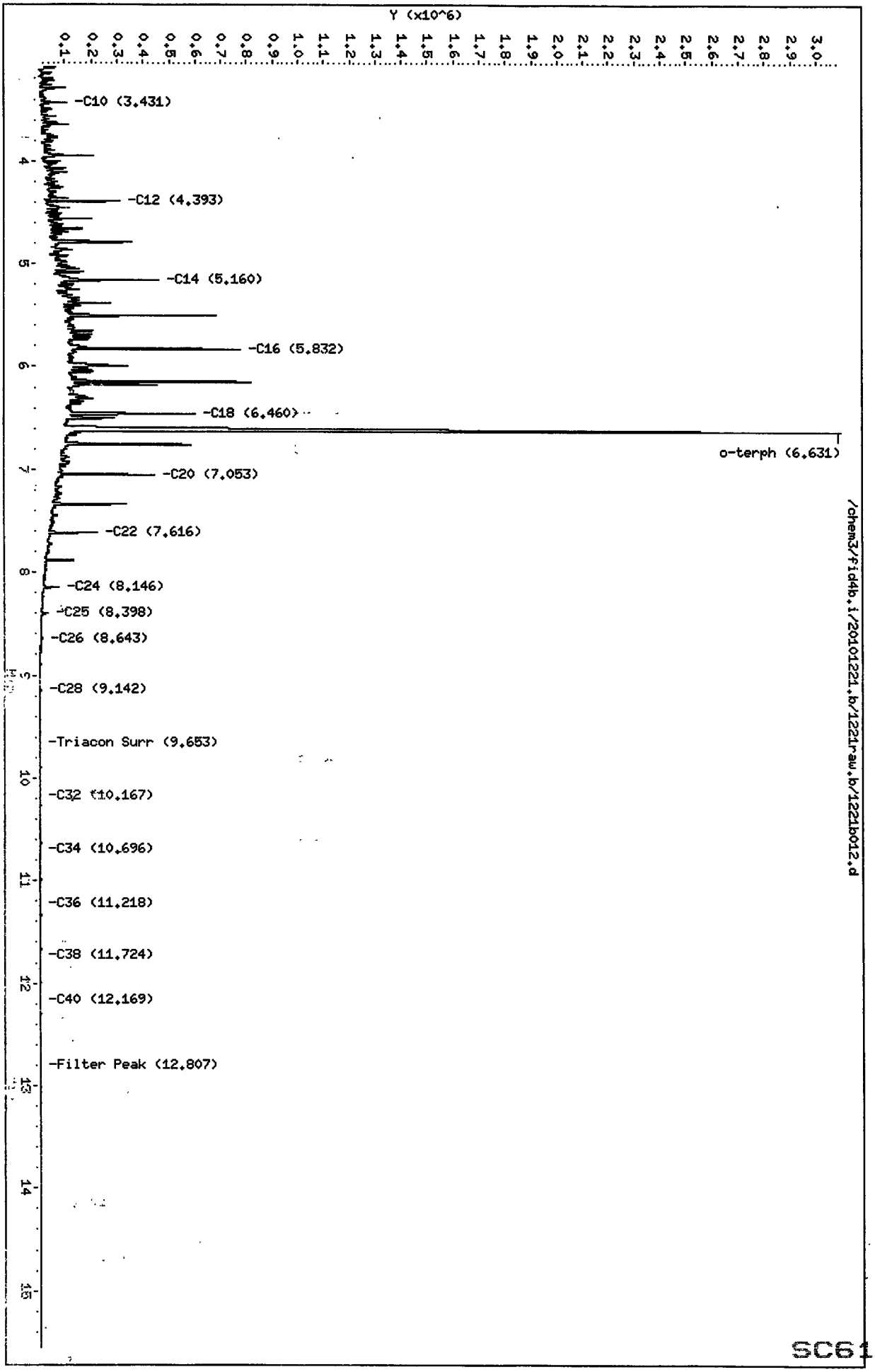
Analyte	RF	Curve Date
o-Terph Surr	23203.1	21-DEC-2010
Triacon Surr	20763.6	23-OCT-2010
Gas	39627.8	17-DEC-2010
Diesel	23413.5	21-DEC-2010
Motor Oil	13869.0	23-OCT-2010
AK102	26220.7	21-DEC-2010
AK103	6604.7	18-JUN-2010
JetA	8703.3	11-JAN-2010
OR Diesel	10525.0	22-JAN-2010
CRUDE	5712.9	22-MAY-2010
Bunker C	9416.3	24-JUL-2010
Hydraulic	11288.8	11-JAN-2010

12/22/10

Data File: /chem3/fid4b.i/20101221.b/1221raw.b/1221b012.d
Date : 21-DEC-2010 17:40
Client ID: DIESEL 1000
Sample Info: DIESEL 1000

Column phase: RTX-1

Instrument: fid4b.i
Operator: HS
Column diameter: 0.25



Analytical Resources Inc.
407S TPH Quantitation Report

Data file: /chem3/fid4b.i/20101221.b/1221raw.b/1221b013.d ARI ID: DIESEL 2500
Method: /chem3/fid4b.i/20101221.b/ftphfid4b.m Client ID: DIESEL 2500
Instrument: fid4b.i Injection: 21-DEC-2010 18:03
Operator: MS
Report Date: 12/22/2010 Dilution Factor: 1
Macro: 21-DEC-2010

FID:4B RESULTS

Compound	RT	Shift	Height	Area	Range	Total Area	Conc
Toluene	1.590	0.006	5945	8561	GAS (Tol-C12)	8676655	219
C8	1.881	-0.016	9113	24175	DIESEL (C12-C24)	69538938	2970
C10	3.437	0.007	245366	163237	M.OIL (C24-C38)	944427	68
C12	4.395	-0.004	714429	482044	AK-102 (C10-C25)	76181639	2905
C14	5.167	0.003	881565	1343081	AK-103 (C25-C36)	623052	94
C16	5.844	0.013	1526507	2586832	OR.DIES (C10-C28)	76651185	7283
C18	6.435	-0.019	305945	218455	CRUDE (Tol-C40)	79179059	13860
C20	7.066	0.012	1053710	1045036			
C22	7.623	0.002	534075	497368			
C24	8.148	-0.006	180231	162376			
C25	8.398	-0.011	98062	130672			
C26	8.642	-0.009	33482	34336			
C28	9.135	-0.013	27271	29161			
C32	10.166	-0.017	1133	1481			
C34	10.695	-0.008	247	426	BUNKERC (C10-C38)	76837843	8160
Filter Peak	12.806	-0.007	757	854	HYDRAUL (C24-C38)	944427	84
C36	11.198	-0.011	61	97			
C38	11.717	0.019	140	76			
C40	12.171	0.002	300	372			
o-terph	6.562	-0.048	258290	351047	JET-A (C10-C18)	46708389	5367
Triacon Surr	9.697	0.018	554	1376			

M Indicates manual integration within range.
Range Times: NW Diesel(4.399 - 8.154) AK102(3.43 - 8.41) Jet A(3.43 - 6.45)
NW M.Oil(8.15 - 11.70) AK103(8.41 - 11.21) OR Diesel(3.43 - 9.15)

Surrogate	Area	Amount	%Rec
o-Terphenyl	351047	15.1	33.6
Triacontane	1376	0.1	0.1

Analyte	RF	Curve Date
o-Terph Surr	23203.1	21-DEC-2010
Triacon Surr	20763.6	23-OCT-2010
Gas	39627.8	17-DEC-2010
Diesel	23413.5	21-DEC-2010
Motor Oil	13869.0	23-OCT-2010
AK102	26220.7	21-DEC-2010
AK103	6604.7	18-JUN-2010
JetA	8703.3	11-JAN-2010
OR Diesel	10525.0	22-JAN-2010
CRUDE	5712.9	22-MAY-2010
Bunker C	9416.3	24-JUL-2010
Hydraulic	11288.8	11-JAN-2010

MO 12/22/10

Data File: /chem3/fid4b.i/20101221.b/1221raw.b/1221b013.d

Date : 21-DEC-2010 18:03

Client ID: DIESEL 2500

Sample Info: DIESEL 2500

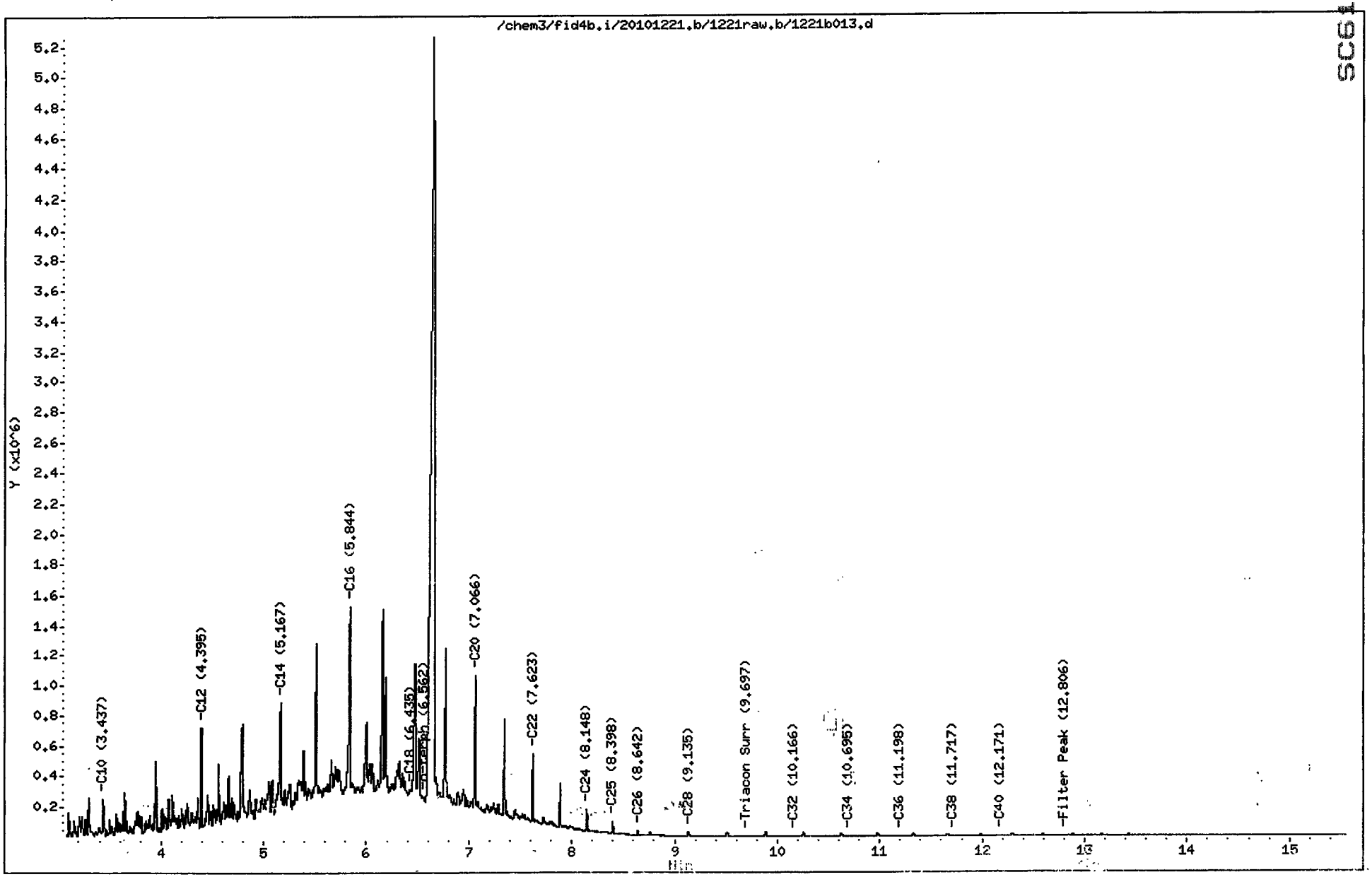
Column phase: RTX-1

Instrument: fid4b.i

Operator: MS

Column diameter: 0.25

SC61 00091



Analytical Resources Inc.
407S TPH Quantitation Report

Data file: /chem3/fid4b.i/20101221.b/1221raw.b/1221b014.d ARI ID: DIESEL ICV
Method: /chem3/fid4b.i/20101221.b/ftphfid4b.m Client ID:
Instrument: fid4b.i Injection: 21-DEC-2010 18:26
Operator: MS
Report Date: 12/22/2010 Dilution Factor: 1
Macro: 21-DEC-2010

FID:4B RESULTS

Compound	RT	Shift	Height	Area	Range	Total Area	Conc
Toluene	1.602	0.018	13713	37946	GAS (Tol-C12)	1174713	30
C8	1.908	0.011	6669	11879	DIESEL (C12-C24)	5499133	235
C10	3.426	-0.005	4498	2369	M.OIL (C24-C38)	88842	6
C12	4.401	0.002	69448	44064	AK-102 (C10-C25)	6171499	235
C14	5.161	-0.004	111880	99301	AK-103 (C25-C36)	54852	8
C16	5.827	-0.004	220773	143364	OR.DIES (C10-C28)	6210512	590
C18	6.451	-0.004	187507	166734	CRUDE (Tol-C40)	6770719	1185
C20	7.048	-0.006	115389	95118			
C22	7.616	-0.006	54360	46471			
C24	8.148	-0.006	16035	16336			
C25	8.402	-0.007	7967	10266			
C26	8.647	-0.004	2697	4626			
C28	9.143	-0.005	1727	1615			
C32	10.188	0.005	55	76			
C34	10.691	-0.011	128	257	BUNKERC (C10-C38)	6233821	662
Filter Peak	12.822	0.010	714	898	HYDRAUL (C24-C38)	88842	8
C36	11.205	-0.004	82	73			
C38	11.726	0.027	146	179			
C40	12.170	0.000	296	169			
o-terph	6.607	-0.003	1273739	1107277	JET-A (C10-C18)	4576699	526
Triacon Surr	9.704	0.025	69	37			

M Indicates manual integration within range.
Range Times: NW Diesel(4.399 - 8.154) AK102(3.43 - 8.41) Jet A(3.43 - 6.45)
NW M.Oil(8.15 - 11.70) AK103(8.41 - 11.21) OR Diesel(3.43 - 9.15)

Surrogate	Area	Amount	%Rec
o-Terphenyl	1107277	47.7	106.0
Triacontane	37	0.0	0.0

MS 01/22/10

Analyte	RF	Curve Date
o-Terph Surr	23203.1	21-DEC-2010
Triacon Surr	20763.6	23-OCT-2010
Gas	39627.8	17-DEC-2010
Diesel	23413.5	21-DEC-2010
Motor Oil	13869.0	23-OCT-2010
AK102	26220.7	21-DEC-2010
AK103	6604.7	18-JUN-2010
JetA	8703.3	11-JAN-2010
OR Diesel	10525.0	22-JAN-2010
CRUDE	5712.9	22-MAY-2010
Bunker C	9416.3	24-JUL-2010
Hydraulic	11288.8	11-JAN-2010

Data File: /chem3/fid4b.i/20101221.b/1221raw.b/1221b014.d

Date : 21-DEC-2010 18:26

Client ID:

Sample Info: DIESEL ICV

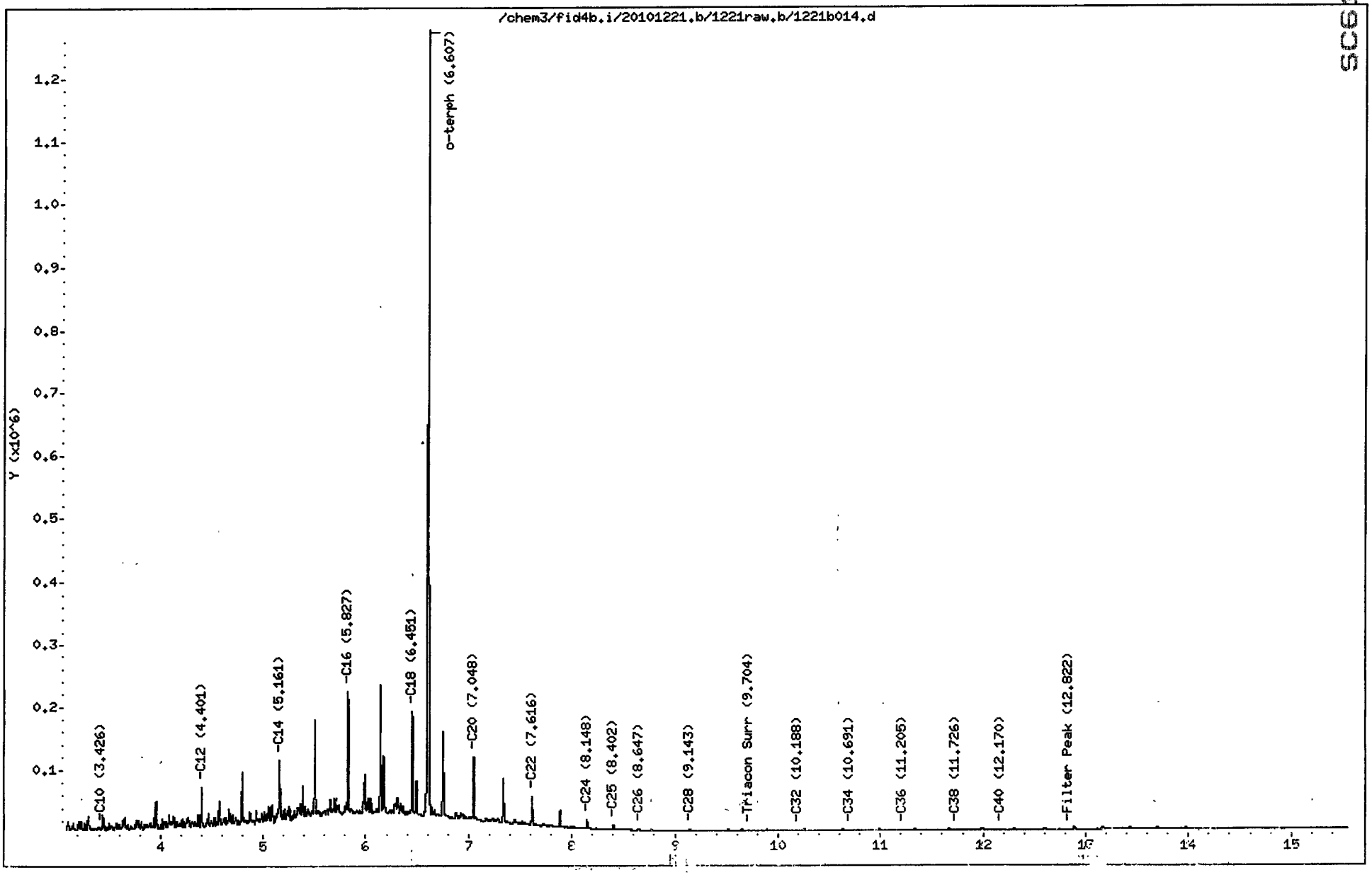
Column phase: RTX-1

Instrument: fid4b.i

Operator: MS

Column diameter: 0.25

SC61 : 00093



Analytical Resources, Incorporated
Analytical Chemists and Consultants

GC Analyst Notes / Corrective Action Log

ARI Project ID: 30 wt% Oil Core Client ID: AIQ

ARI SOP: 403S(PCB) 405S(Herb) 407S(TPH-D) 409S(HCID) 412S(PCP) 423S(Pest) 427S(Dir Inj) 428S(EPH) 432S(EDB) Other

Parameter(s): 30 wt % Oil, n-Tridecane

Instrument: FID-3A FID-3B FID-4A FID-4B FID-5 FID-7 FID-8 FID-9 ECD-1 ECD-3 ECD-4 ECD-5 ECD-6 ECD-7

Dates: Curve: 10/23/10 Analysis Start: 10/23/10

Endrin/DDT Breakdown <15%? YES / NO / NA Method Blank In Control? YES / NO

ICal Meets RF & %RSD Criteria? YES / NO LCS/LCSD Recovery In Control? YES / NO

CCal Meets RF & %RSD Criteria? YES / NO Surrogate Recovery In Control? YES / NO

Manual Integrations for ICal? YES / NO Manual Integrations for Samples? YES / NO

Internal Standard Meets Criteria? YES / NO / NA Special Analysis Criteria Met? YES / NO / NA

Detail problems, corrective actions and/or other pertinent information below (use reverse side when necessary):

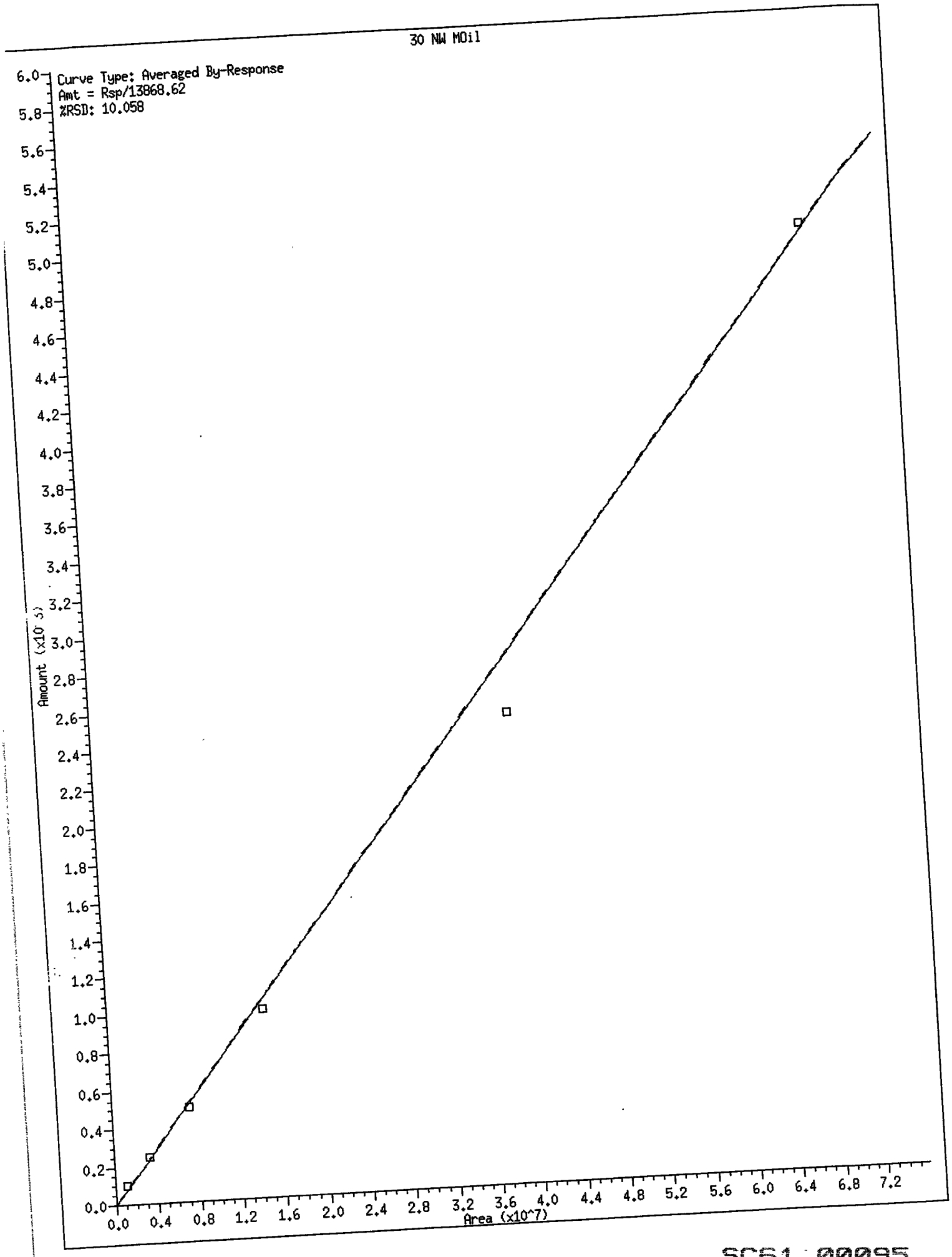
Additional Details on Reverse: Yes / No

Analyst: [signature] Date: 11/23/10

Reviewer: [signature] Date: 11/24/10

Form 4060F Version 007 6/18/10

SC61 : 00094


30 NW MOil
Curve Type: Averaged By-Response
Amt = Rsp/13868.62
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0.6
0.8
1.0
1.2
1.4
1.6
1.8
2.0
2.2
2.4
2.6
2.8
3.0
3.2
3.4
3.6
3.8
4.0
4.2
4.4
4.6
4.8
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5.2
5.4
5.6
5.8
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0.0
0.4
0.8
1.2
1.6
2.0
2.4
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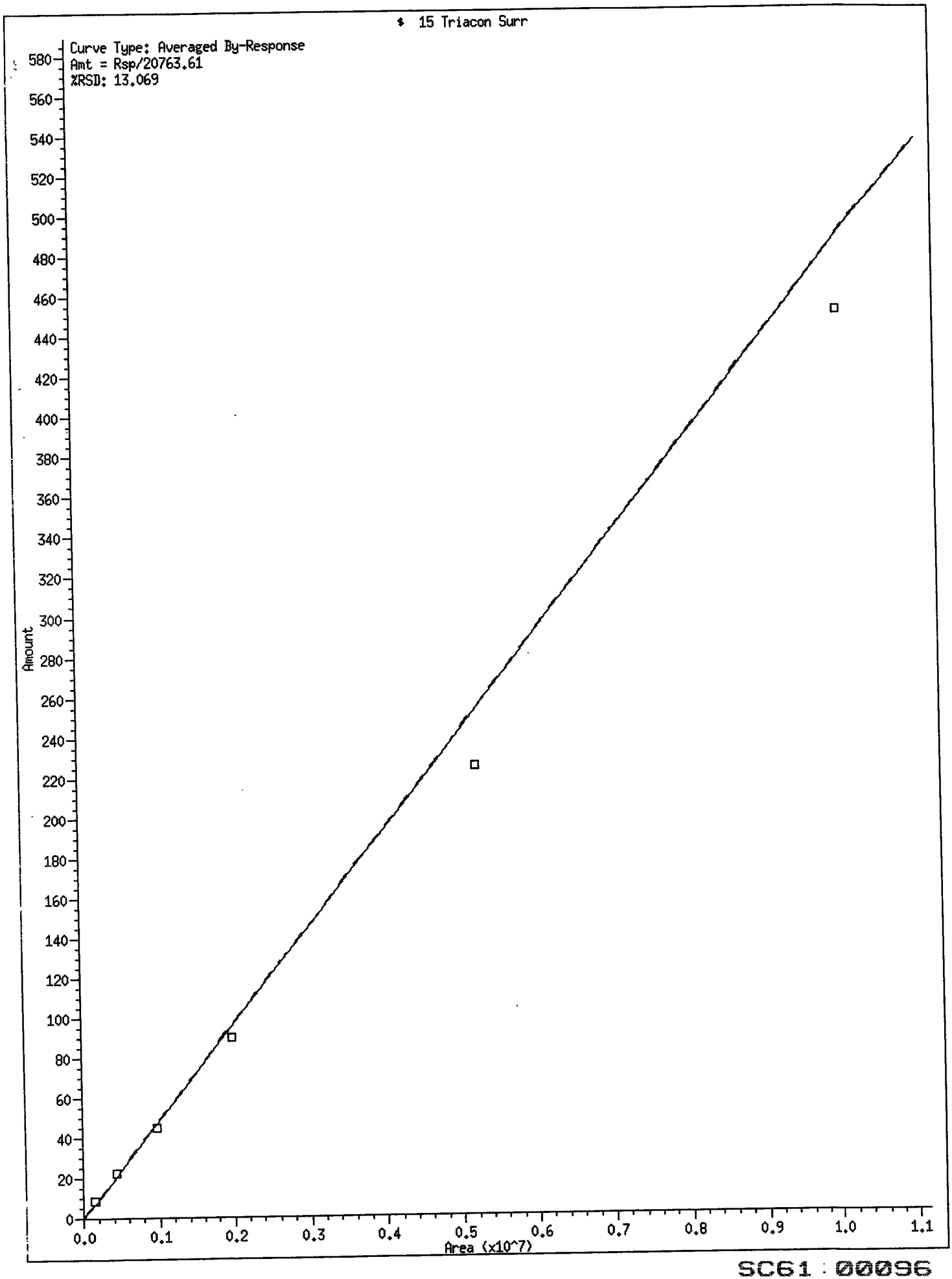
7.2


$ 15 Triacon Surr
Curve Type: Averaged By-Response
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%RSD: 13.069
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Area (x10^7)
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60
80
100
120
140
160
180
200
220
240
260
280
300
320
340
360
380
400
420
440
460
480
500
520
540
560
580
0.0
0.1
0.2
0.3
0.4
0.5
0.6
0.7
0.8
0.9
1.0
1.1

Analytical Resources Inc.
407S TPH Quantitation Report

Data file: /chem3/fid4b.i/20101023.b/1023b007.d
Method: /chem3/fid4b.i/20101023.b/ftphfid4b.m
Instrument: fid4b.i
Operator: ms
Report Date: 11/23/2010
Macro: 23-OCT-2010

ARI ID: RT
Client ID:
Injection: 23-OCT-2010 18:32

Dilution Factor: 1

FID:4B RESULTS

Compound	RT	Shift	Height	Area	Range	Total Area	Conc
Toluene	1.605	0.000	387373	458241	GAS (Tol-C12)	1550019	23
C8	1.928	0.000	150130	232368	DIESEL (C12-C24)	1701261	66
C10	3.452	0.000	457167	314452	M.OIL (C24-C38)	2267839	164
C12	4.418	0.000	396062	302755	AK-102 (C10-C25)	2367260	82
C14	5.181	0.000	464232	290904	AK-103 (C25-C36)	1920770	291
C16	5.844	0.000	500405	282034	OR.DIES (C10-C28)	3280088	312
C18	6.464	0.000	445152	275741	CRUDE (Tol-C40)	5821361	1019
C20	7.058	0.000	414200	267480			
C22	7.621	0.000	375637	259786			
C24	8.148	0.000	371119	259904			
C25	8.402	0.000	484025	361192			
C26	8.643	0.000	358397	264489			
C28	9.134	0.000	329629	268177			
C32	10.159	0.000	299001	292755			
C34	10.674	0.000	295819	319345	BUNKERC (C10-C38)	4625200	491
Filter Peak	12.788	0.000	877	450	HYDRAUL (C24-C38)	2267839	201
C36	11.181	0.000	311180	343147			
C38	11.671	0.000	280653	321296			
C40	12.144	0.000	254654	288138			
o-terph	6.620	0.000	1314744	1025850	JET-A (C10-C18)	1534012	176
Triacon Surr	9.657	0.000	811782	959467			

M- Indicates manual integration within range.
Range Times: NW Diesel(4.418 - 8.148) AK102(3.45 - 8.40) Jet A(3.45 - 6.46)
NW M.Oil(8.15 - 11.67) AK103(8.40 - 11.18) OR Diesel(3.45 - 9.13)

Surrogate	Area	Amount	%Rec
o-Terphenyl	1025850	42.5	94.4
Triacontane	959467	46.2	102.7

11/23/10

Analyte	RF	Curve Date
o-Terph Surr	24136.7	23-OCT-2010
Triacon Surr	20763.6	23-OCT-2010
Gas	68344.0	14-JUL-2010
Diesel	25628.0	23-OCT-2010
Motor Oil	13869.0	23-OCT-2010
AK102	28918.0	23-OCT-2010
AK103	6604.7	18-JUN-2010
JetA	8703.3	11-JAN-2010
OR Diesel	10525.0	22-JAN-2010
CRUDE	5712.9	22-MAY-2010
Bunker C	9416.3	24-JUL-2010
Hydraulic	11288.8	11-JAN-2010

Data File: /chem3/fid4b.i/20101023.b/1023b007.d
Date : 23-OCT-2010 18:32
Client ID:
Sample Info: RT

Column phase: RTX-1

Instrument: fid4b.i

Operator: ms
Column diameter: 0.25

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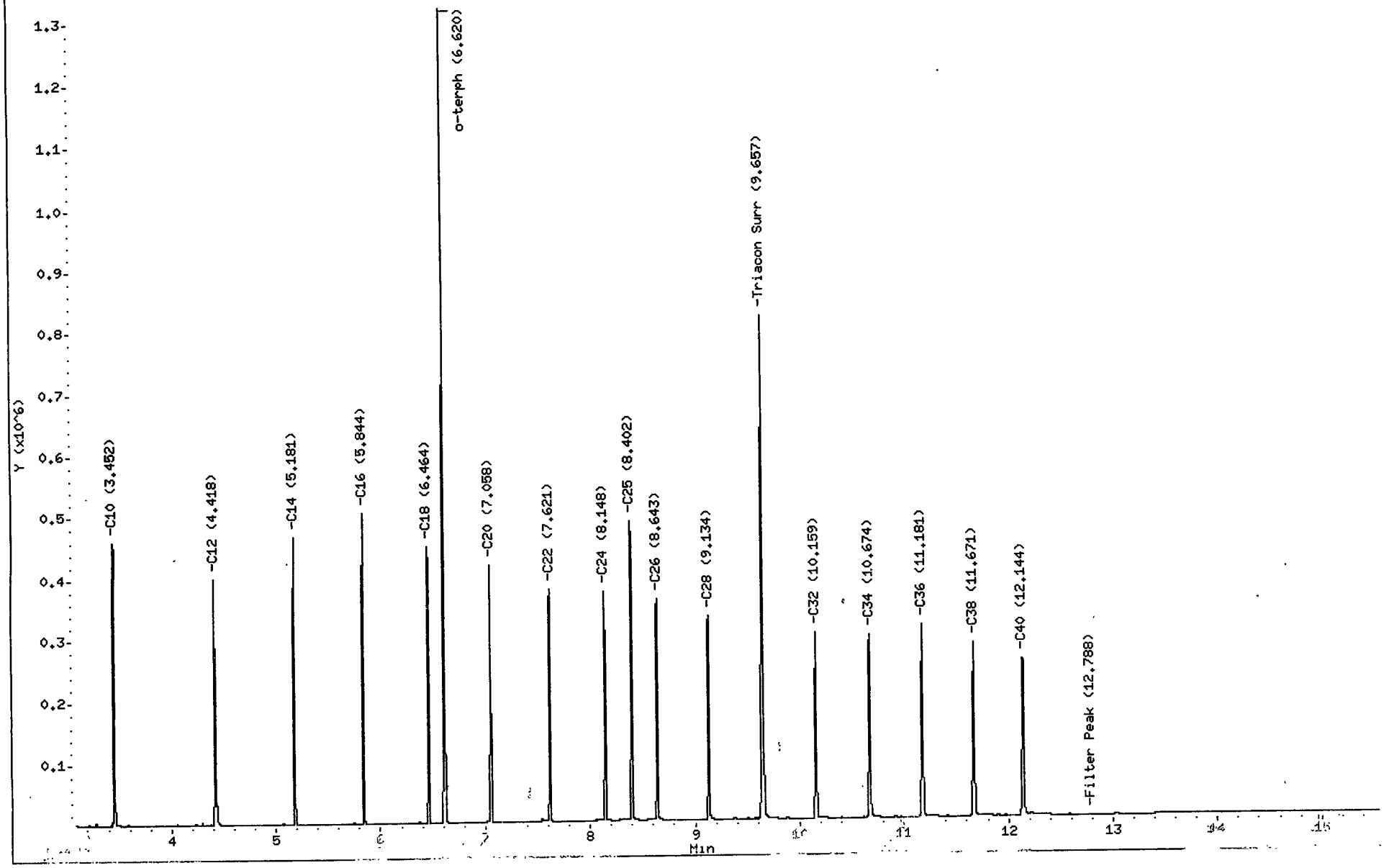

SC61 00098

Analytical Resources Inc.
407S TPH Quantitation Report

Data file: /chem3/fid4b.i/20101023.b/1023b008.d
Method: /chem3/fid4b.i/20101023.b/ftphfid4b.m
Instrument: fid4b.i
Operator: ms
Report Date: 11/23/2010
Macro: 23-OCT-2010

ARI ID: IB
Client ID:
Injection: 23-OCT-2010 18:55

Dilution Factor: 1

FID:4B RESULTS

Compound	RT	Shift	Height	Area	Range	Total Area	Conc
Toluene	1.529	-0.076	28210	82585	GAS (Tol-C12)	245274	4
C8	1.936	0.008	3370	4969	DIESEL (C12-C24)	30980	1
C10	3.449	-0.003	917	1170	M.OIL (C24-C38)	41269	3
C12	4.415	-0.003	790	1766	AK-102 (C10-C25)	78765	3
C14	5.180	-0.001	255	253	AK-103 (C25-C36)	34157	5
C16	5.835	-0.009	123	79	OR.DIES (C10-C28)	83704	8
C18	6.462	-0.002	70	62	CRUDE (Tol-C40)	324292	57
C20	7.052	-0.006	49	63			
C22	7.615	-0.006	297	441			
C24	8.153	0.005	110	33			
C25	8.394	-0.007	365	392			
C26	8.639	-0.003	95	119			
C28	9.139	0.006	1053	1371			
C32	10.154	-0.004	907	2592			
C34	10.675	0.001	159	207	BUNKERC (C10-C38)	119188	13
Filter Peak	12.792	0.004	524	393	HYDRAUL (C24-C38)	41269	4
C36	11.175	-0.006	175	236			
C38	11.646	-0.025	683	1173			
C40	12.137	-0.007	303	234			
o-terph	6.620	0.000	1307843	1033760	JET-A (C10-C18)	69811	8
Triacon Surr	9.652	-0.005	707911	784420			

M Indicates manual integration within range.
Range Times: NW Diesel(4.418 - 8.148) AK102(3.45 - 8.40) Jet A(3.45 - 6.46)
NW M.Oil(8.15 - 11.67) AK103(8.40 - 11.18) OR Diesel(3.45 - 9.13)

Surrogate	Area	Amount	%Rec
o-Terphenyl	1033760	42.8	95.2
Triacontane	784420	37.8	84.0

Analyte	RF	Curve Date
o-Terph Surr	24136.7	23-OCT-2010
Triacon Surr	20763.6	23-OCT-2010
Gas	68344.0	14-JUL-2010
Diesel	25628.0	23-OCT-2010
Motor Oil	13869.0	23-OCT-2010
AK102	28918.0	23-OCT-2010
AK103	6604.7	18-JUN-2010
JetA	8703.3	11-JAN-2010
OR Diesel	10525.0	22-JAN-2010
CRUDE	5712.9	22-MAY-2010
Bunker C	9416.3	24-JUL-2010
Hydraulic	11288.8	11-JAN-2010

11/23/10

Data File: /chem3/fid4b.i/20101023.b/1023b008.d
Date : 23-OCT-2010 18:55
Client ID:
Sample Info: IB

Instrument: fid4b.i

Operator: ms
Column diameter: 0.25

Column phase: RTX-1

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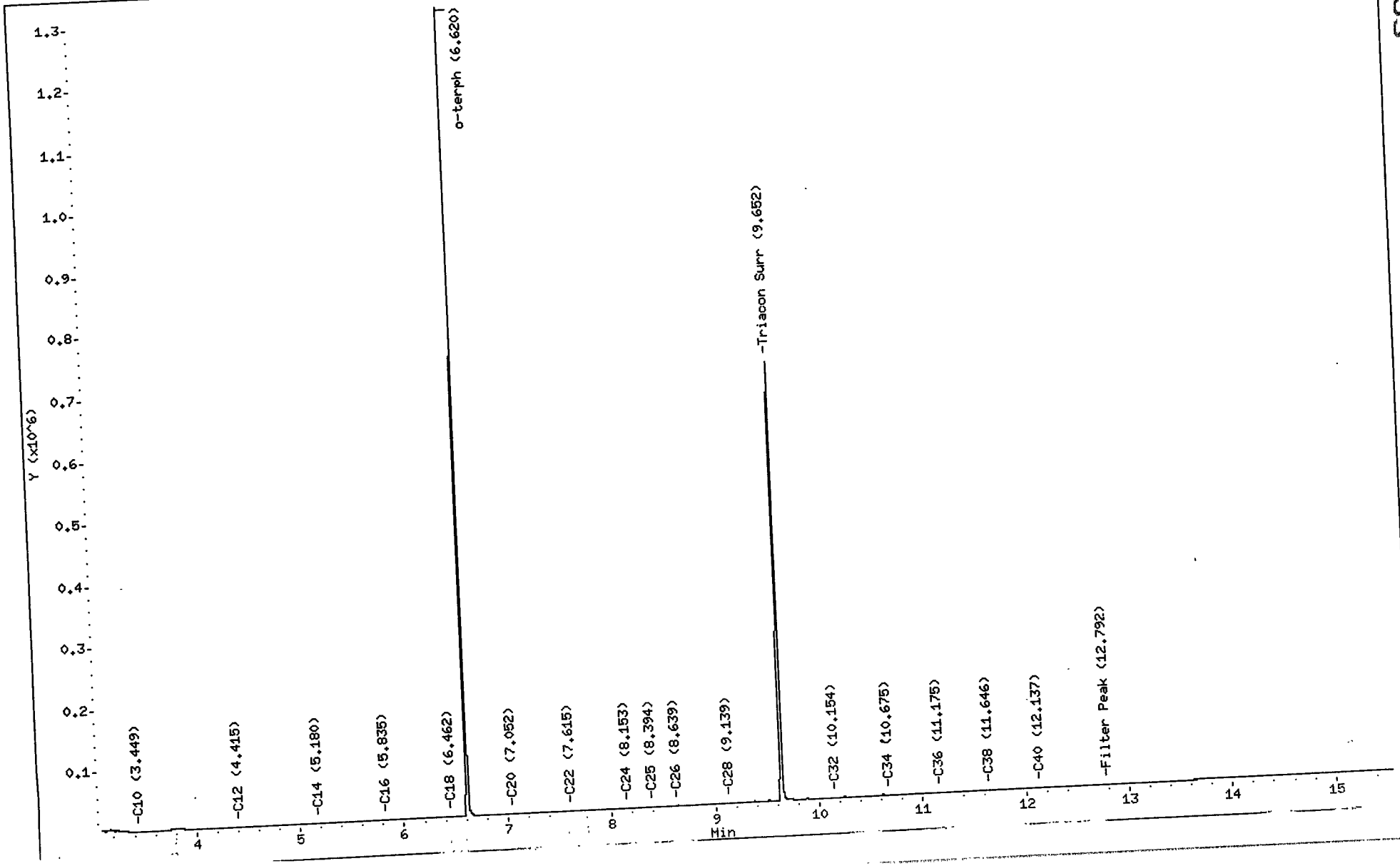


SC61 : 00100

Analytical Resources Inc.
407S TPH Quantitation Report

Data file: /chem3/fid4b.i/20101023.b/1023b016.d
Method: /chem3/fid4b.i/20101023.b/ftphfid4b.m
Instrument: fid4b.i
Operator: ms
Report Date: 11/23/2010
Macro: 23-OCT-2010

ARI ID: MOIL 100
Client ID:
Injection: 23-OCT-2010 22:01

Dilution Factor: 1

FID:4B RESULTS

Compound	RT	Shift	Height	Area	Range	Total Area	Conc
Toluene	1.600	-0.005	2517	9094	GAS (Tol-C12)	128705	2
C8	1.929	0.000	1441	1592	DIESEL (C12-C24)	138819	5
C10	3.449	-0.003	721	1593	M.OIL (C24-C38)	1151742	83 M
C12	4.416	-0.002	678	1398	AK-102 (C10-C25)	207301	7
C14	5.175	-0.006	187	144	AK-103 (C25-C36)	961232	146 M
C16	5.836	-0.008	91	43	OR.DIES (C10-C28)	444780	42
C18	6.470	0.006	167	151	CRUDE (Tol-C40)	1559102	273 M
C20	7.059	0.001	498	876			
C22	7.621	0.001	1602	1065			
C24	8.146	-0.002	3174	2822			
C25	8.401	-0.001	4189	5895			
C26	8.637	-0.006	4724	5187			
C28	9.136	0.002	6021	15677			
C32	10.149	-0.010	6325	11282			
C34	10.672	-0.002	6757	2537	BUNKERC (C10-C38)	1323986	141 M
Filter Peak	12.779	-0.009	3147	1872	HYDRAUL (C24-C38)	1151742	102
C36	11.173	-0.007	6268	10021			
C38	11.673	0.002	5606	2552			
C40	12.144	0.000	4662	3056			
o-terph	6.621	0.001	1450	983	JET-A (C10-C18)	55802	6
Triacon Surr	9.639	-0.018	171084	143729			

M Indicates manual integration within range.
Range Times: NW Diesel(4.418 - 8.148) AK102(3.45 - 8.40) Jet A(3.45 - 6.46)
NW M.Oil(8.15 - 11.67) AK103(8.40 - 11.18) OR Diesel(3.45 - 9.13)

Surrogate	Area	Amount	%Rec
o-Terphenyl	983	0.0	0.1
Triacontane	143729	6.9	15.4

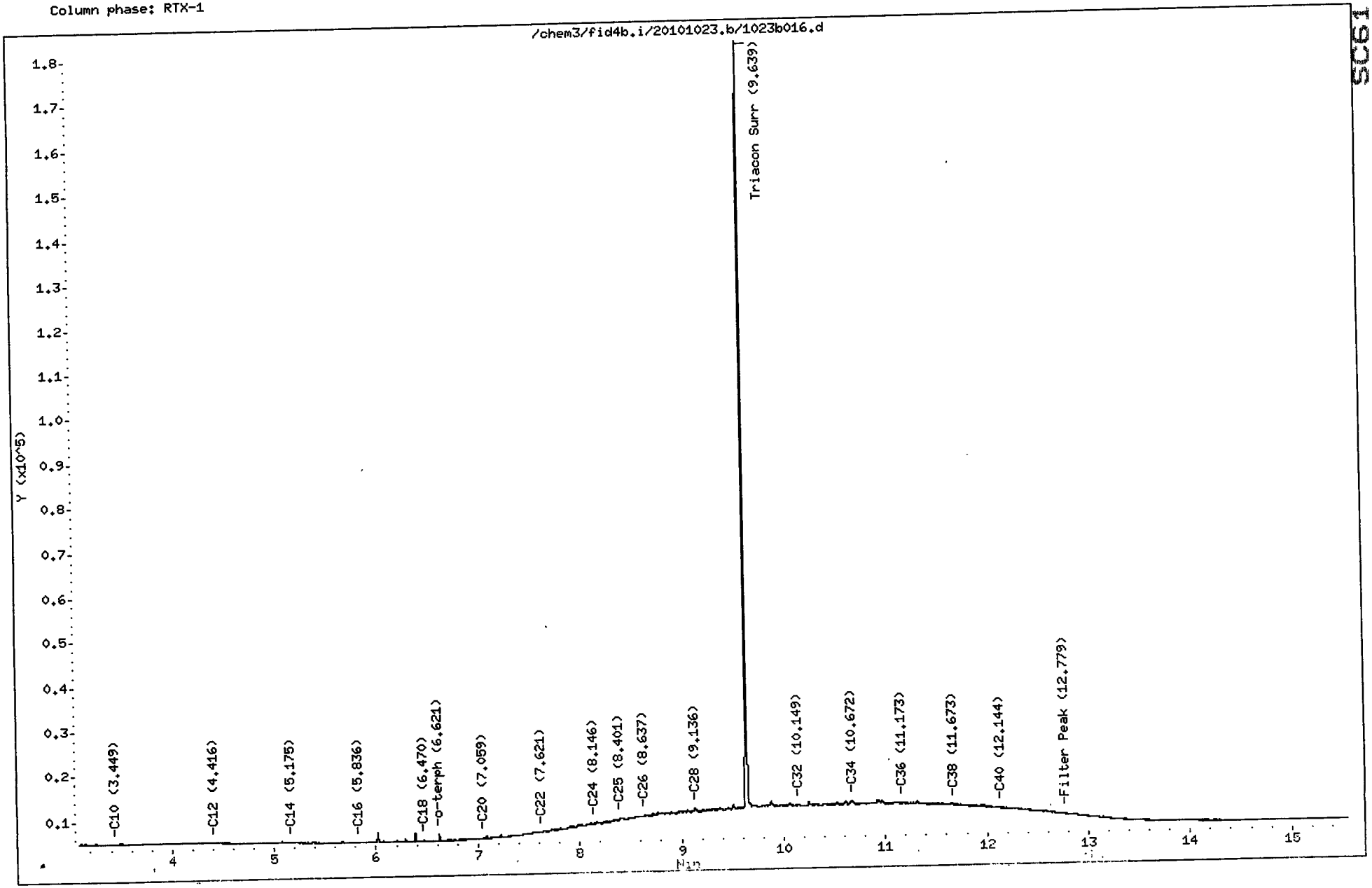
Analyte	RF	Curve Date
o-Terph Surr	24136.7	23-OCT-2010
Triacon Surr	20763.6	23-OCT-2010
Gas	68344.0	14-JUL-2010
Diesel	25628.0	23-OCT-2010
Motor Oil	13869.0	23-OCT-2010
AK102	28918.0	23-OCT-2010
AK103	6604.7	18-JUN-2010
JetA	8703.3	11-JAN-2010
OR Diesel	10525.0	22-JAN-2010
CRUDE	5712.9	22-MAY-2010
Bunker C	9416.3	24-JUL-2010
Hydraulic	11288.8	11-JAN-2010

Data File: /chem3/fid4b.i/20101023.b/1023b016.d
Date : 23-OCT-2010 22:01
Client ID:
Sample Info: MOIL 100

Column phase: RTX-1

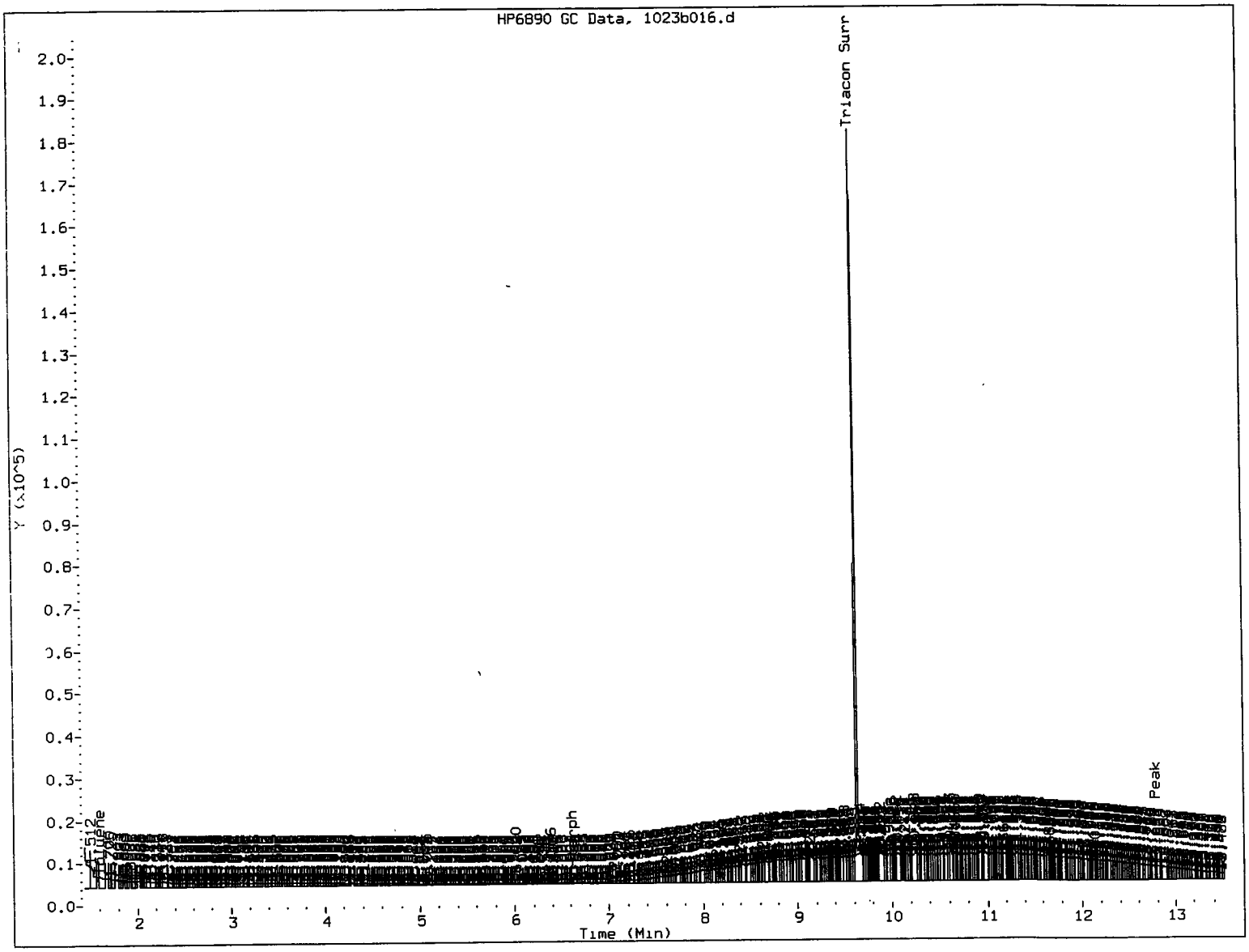
Instrument: fid4b.i

Operator: ms
Column diameter: 0.25



SC61 00102

FID:4B-2C/RTX-1 MOIL 100 FID:4B SIGNAL



MANUAL INTEGRATION

1. Baseline correction
2. Poor chromatography
3. Peak not found
4. Totals calculation

5. Other _____

Analyst: _____ Date: 11/22/1

Analytical Resources Inc.
407S TPH Quantitation Report

Data file: /chem3/fid4b.i/20101023.b/1023b017.d
Method: /chem3/fid4b.i/20101023.b/ftphfid4b.m
Instrument: fid4b.i
Operator: ms
Report Date: 11/23/2010
Macro: 23-OCT-2010

ARI ID: MOIL 250
Client ID:
Injection: 23-OCT-2010 22:24

Dilution Factor: 1

FID:4B RESULTS

Compound	RT	Shift	Height	Area	Range	Total Area	Conc
Toluene	1.602	-0.002	2794	3963	GAS (Tol-C12)	138633	2
C8	1.932	0.004	1595	1669	DIESEL (C12-C24)	374385	15
C10	3.454	0.002	708	712	M.OIL (C24-C38)	3311313	239 M
C12	4.408	-0.009	629	993	AK-102 (C10-C25)	497758	17
C14	5.184	0.004	215	172	AK-103 (C25-C36)	2776990	420 M
C16	5.838	-0.005	67	27	OR.DIES (C10-C28)	1179999	112
C18	6.466	0.002	293	305	CRUDE (Tol-C40)	4220369	739 M
C20	7.057	-0.001	1337	1750			
C22	7.630	0.009	4666	6921			
C24	8.145	-0.003	9119	11232			
C25	8.404	0.002	11919	6828			
C26	8.638	-0.005	13880	17054			
C28	9.125	-0.008	16572	20377			
C32	10.151	-0.007	18968	16822			
C34	10.668	-0.006	20459	39362	BUNKERC (C10-C38)	3719442	395 M
Filter Peak	12.788	0.001	8734	5854	HYDRAUL (C24-C38)	3311313	293
C36	11.188	0.008	18237	23018			
C38	11.671	0.000	16288	5799			
C40	12.152	0.009	13452	3745			
o-terph	6.618	-0.002	1233	1146	JET-A (C10-C18)	60240	7
Triacon Surr	9.647	-0.010	453490	433114			

M Indicates manual integration within range.
Range Times: NW Diesel(4.418 - 8.148) AK102(3.45 - 8.40) Jet A(3.45 - 6.46)
NW M.Oil(8.15 - 11.67) AK103(8.40 - 11.18) OR Diesel(3.45 - 9.13)

Surrogate	Area	Amount	%Rec
o-Terphenyl	1146	0.0	0.1
Triacontane	433114	20.9	46.4

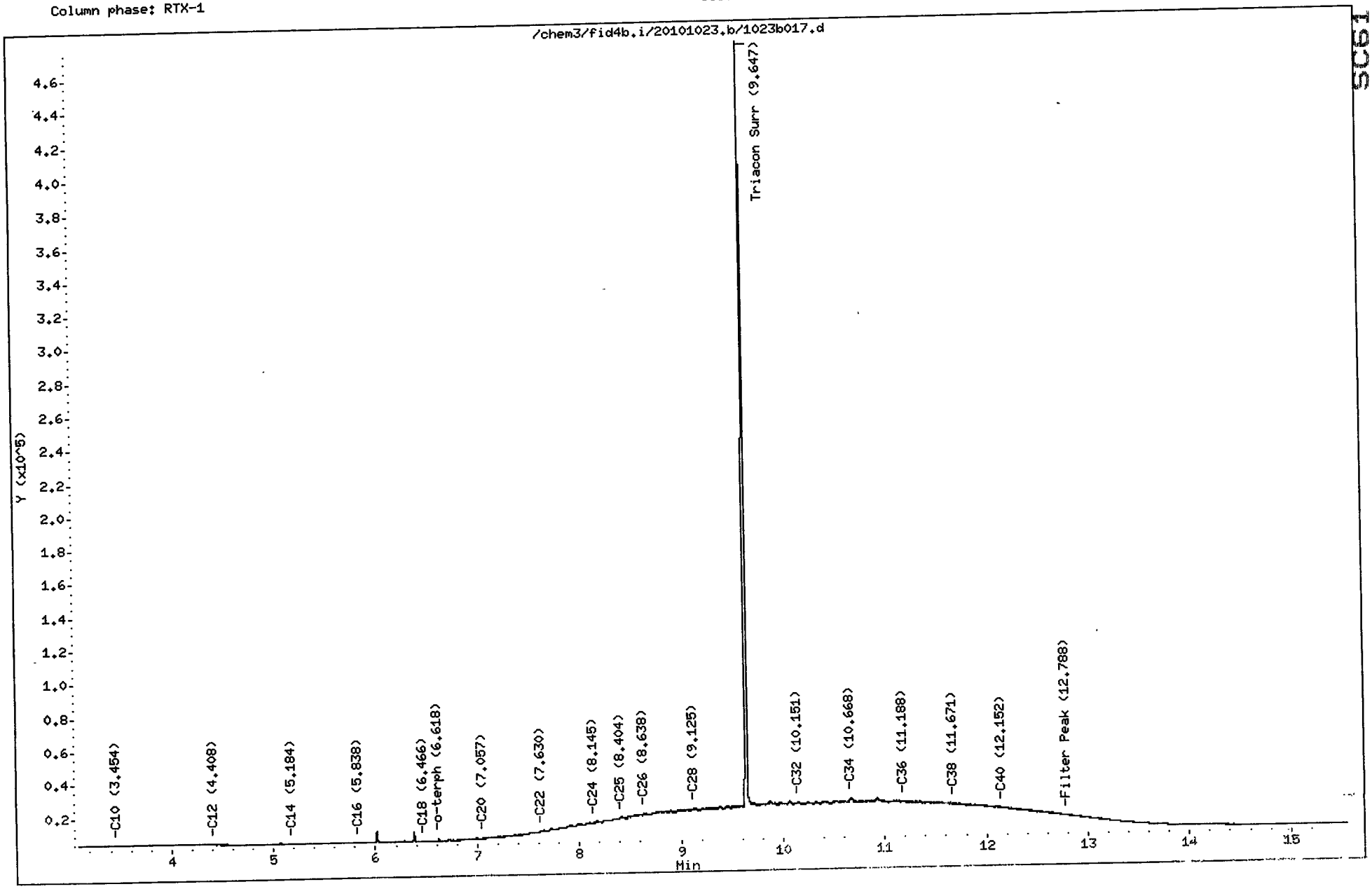
Analyte	RF	Curve Date
o-Terph Surr	24136.7	23-OCT-2010
Triacon Surr	20763.6	23-OCT-2010
Gas	68344.0	14-JUL-2010
Diesel	25628.0	23-OCT-2010
Motor Oil	13869.0	23-OCT-2010
AK102	28918.0	23-OCT-2010
AK103	6604.7	18-JUN-2010
JetA	8703.3	11-JAN-2010
OR Diesel	10525.0	22-JAN-2010
CRUDE	5712.9	22-MAY-2010
Bunker C	9416.3	24-JUL-2010
Hydraulic	11288.8	11-JAN-2010

Data File: /chem3/fid4b.i/20101023.b/1023b017.d
Date : 23-OCT-2010 22:24
Client ID:
Sample Info: MOIL 250

Column phase: RTX-1

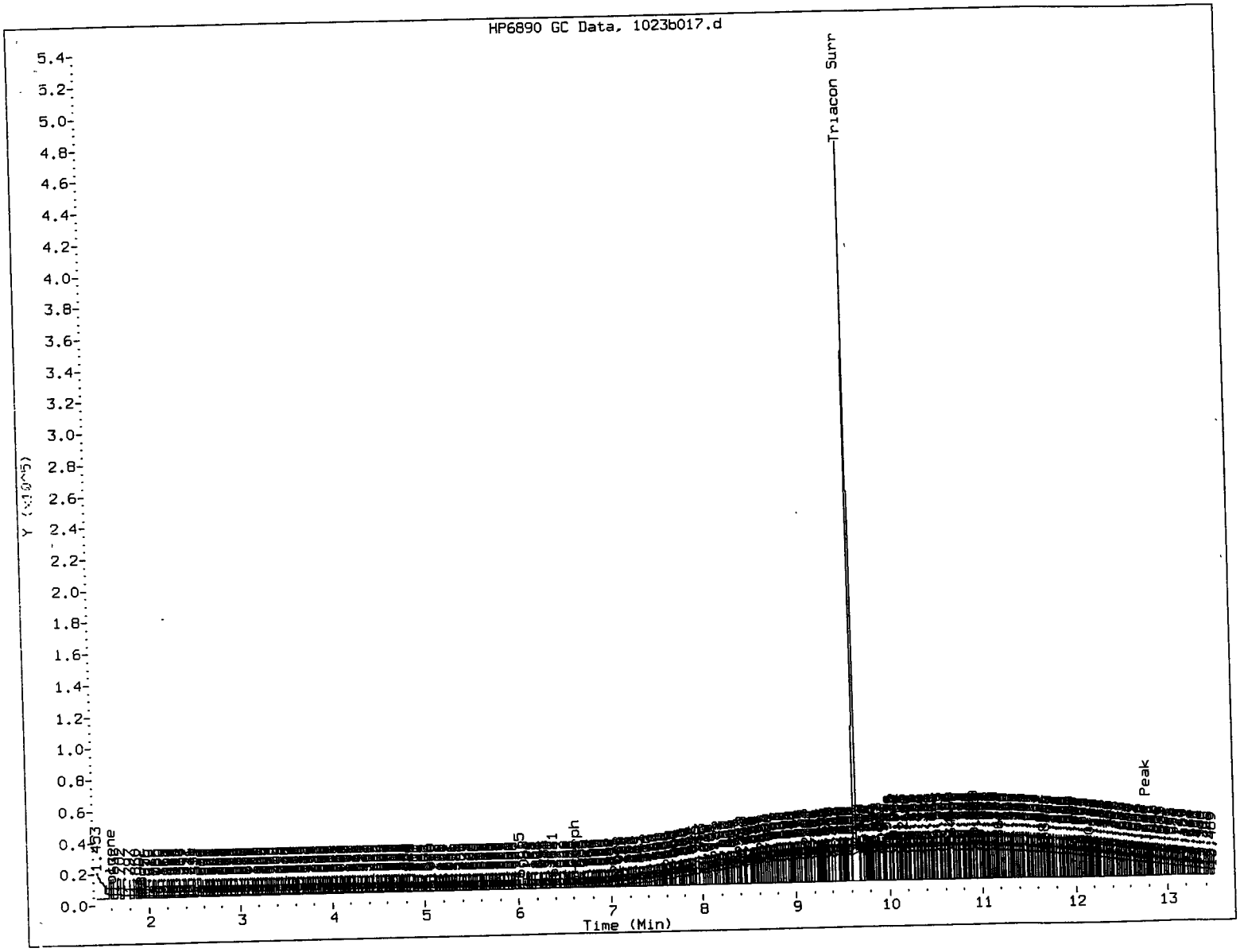
Instrument: fid4b.i

Operator: ms
Column diameter: 0.25



SC61 : 00105

FID:4B-2C/RTX-1 MOIL 250 FID:4B SIGNAL



MANUAL INTEGRATION

1. Baseline correction
2. Poor chromatography
3. Peak not found
4. Totals calculation

5. Other _____

Analyst: NM Date: 11/23/15

Analytical Resources Inc.
407S TPH Quantitation Report

Data file: /chem3/fid4b.i/20101023.b/1023b018.d
Method: /chem3/fid4b.i/20101023.b/ftphfid4b.m
Instrument: fid4b.i
Operator: ms
Report Date: 11/23/2010
Macro: 23-OCT-2010

ARI ID: MOIL 500
Client ID:
Injection: 23-OCT-2010 22:47

Dilution Factor: 1

FID:4B RESULTS

Compound	RT	Shift	Height	Area	Range	Total Area	Conc
Toluene	1.608	0.003	2863	2643	GAS (Tol-C12)	155434	2
C8	1.947	0.019	1560	835	DIESEL (C12-C24)	756344	30
C10	3.439	-0.013	719	896	M.OIL (C24-C38)	7263955	524 M
C12	4.429	0.011	512	393	AK-102 (C10-C25)	999283	35
C14	5.183	0.002	153	52	AK-103 (C25-C36)	6030622	913 M
C16	5.837	-0.007	46	15	OR.DIES (C10-C28)	2366557	225
C18	6.464	0.000	454	626	CRUDE (Tol-C40)	9007248	1577 M
C20	7.056	-0.002	2673	4176			
C22	7.620	-0.001	9428	13229			
C24	8.144	-0.004	18951	18061			
C25	8.399	-0.003	24754	22668			
C26	8.637	-0.006	29330	30445			
C28	9.121	-0.013	35055	39349			
C32	10.158	-0.001	42633	84055			
C34	10.677	0.003	44044	70082	BUNKERC (C10-C38)	8058955	856 M
Filter Peak	12.777	-0.011	17896	22239	HYDRAUL (C24-C38)	7263955	643
C36	11.180	-0.001	39597	53155			
C38	11.671	0.000	34356	33238			
C40	12.149	0.005	27852	12690			
o-terph	6.616	-0.004	926	959	JET-A (C10-C18)	73802	8
Triacon Surr	9.659	0.002	841458	970159			

M Indicates manual integration within range.
Range Times: NW Diesel(4.418 - 8.148) AK102(3.45 - 8.40) Jet A(3.45 - 6.46)
NW M.Oil(8.15 - 11.67) AK103(8.40 - 11.18) OR Diesel(3.45 - 9.13)

Surrogate	Area	Amount	%Rec
o-Terphenyl	959	0.0	0.1
Triacontane	970159	46.7	103.8

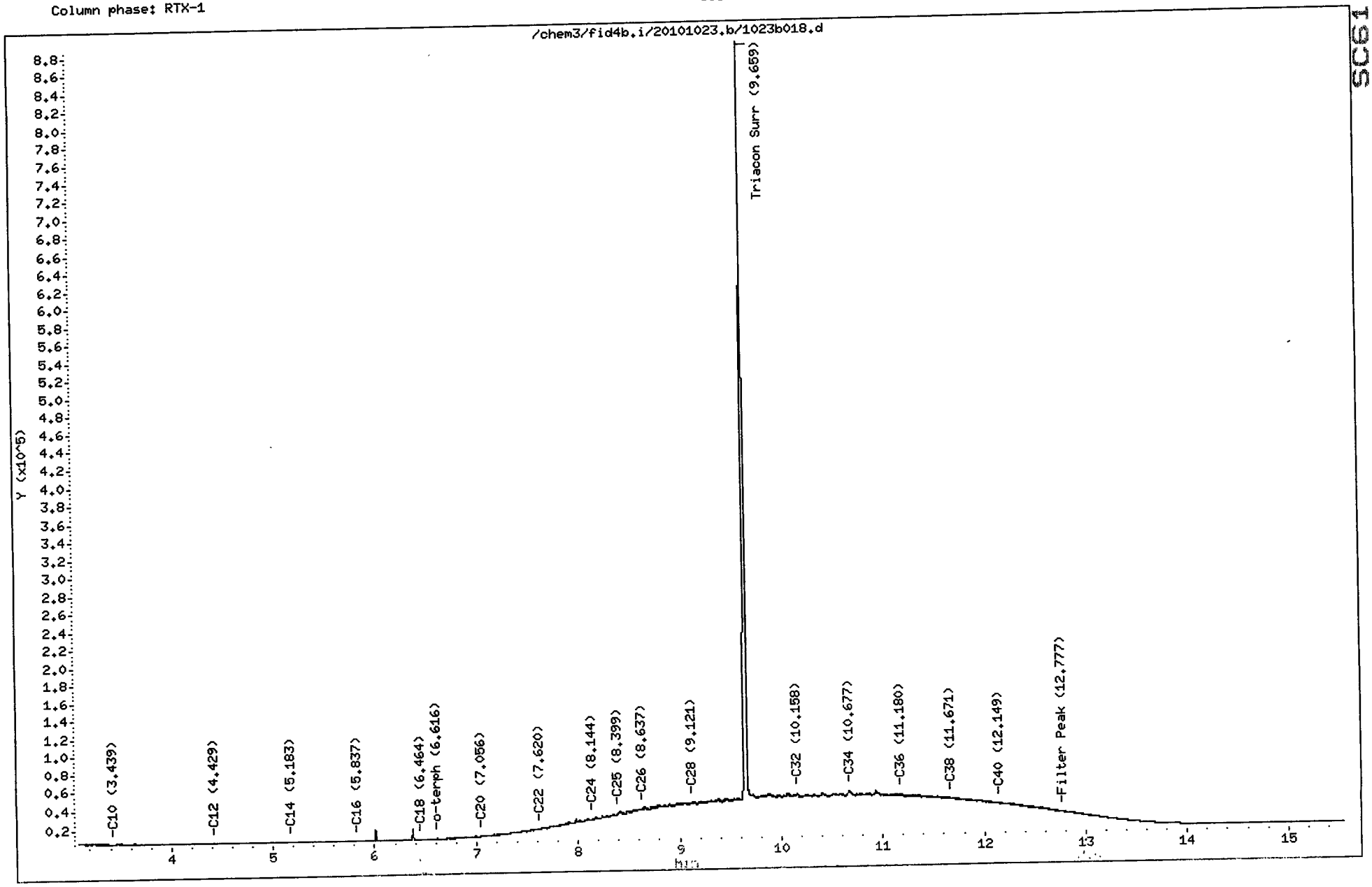
Analyte	RF	Curve Date
o-Terph Surr	24136.7	23-OCT-2010
Triacon Surr	20763.6	23-OCT-2010
Gas	68344.0	14-JUL-2010
Diesel	25628.0	23-OCT-2010
Motor Oil	13869.0	23-OCT-2010
AK102	28918.0	23-OCT-2010
AK103	6604.7	18-JUN-2010
JetA	8703.3	11-JAN-2010
OR Diesel	10525.0	22-JAN-2010
CRUDE	5712.9	22-MAY-2010
Bunker C	9416.3	24-JUL-2010
Hydraulic	11288.8	11-JAN-2010

Data File: /chem3/fid4b.i/20101023.b/1023b018.d
Date : 23-OCT-2010 22:47
Client ID:
Sample Info: MOIL 500

Column phase: RTX-1

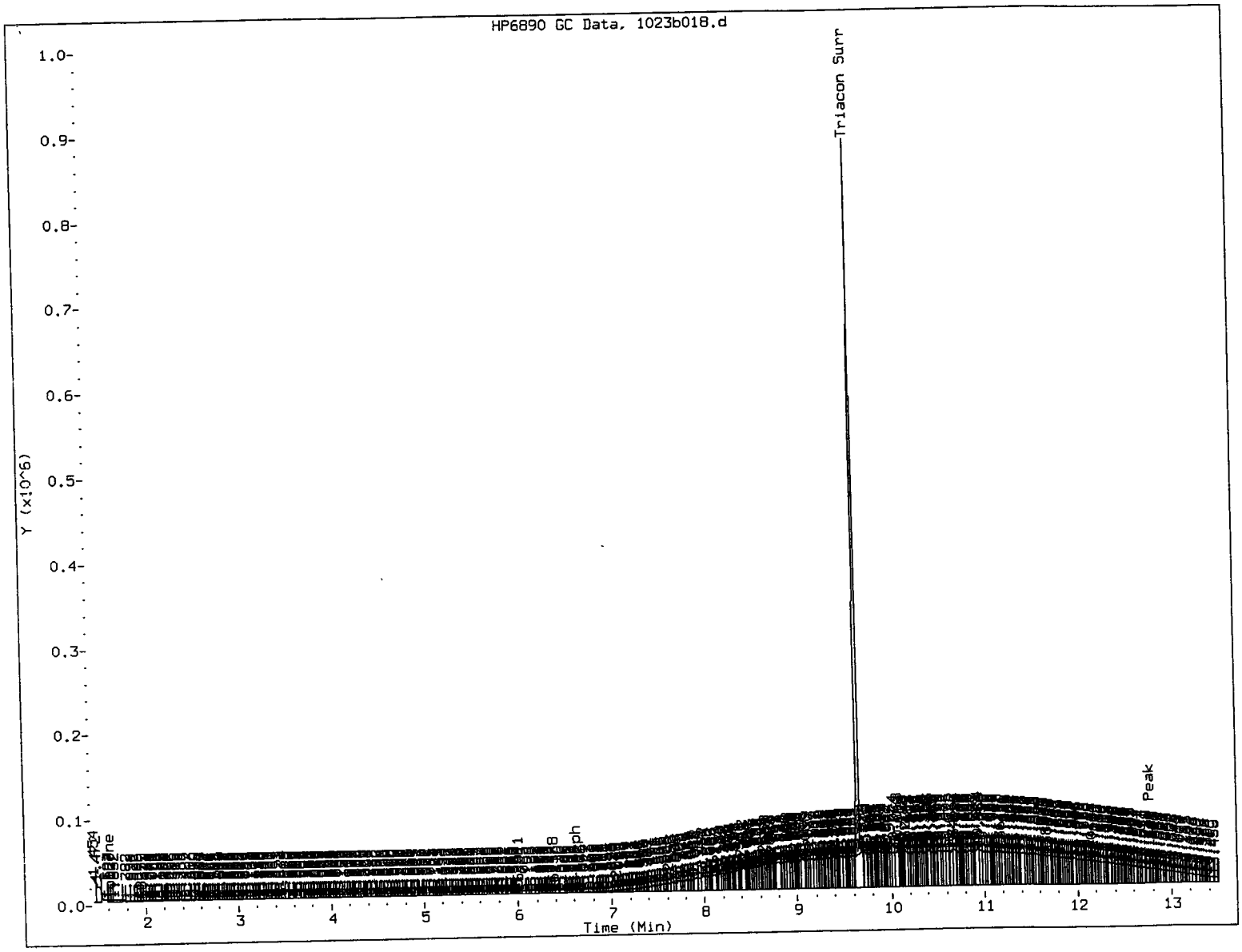
Instrument: fid4b.i

Operator: ms
Column diameter: 0.25



SC61 : 00108

FID:4B-2C/RTX-1 MOIL 500 FID:4B SIGNAL



MANUAL INTEGRATION

1. Baseline correction
2. Poor chromatography
3. Peak not found
4. Totals calculation

5. Other _____

Analyst: _____ Date: 11/2/11

Analytical Resources Inc.
407S TPH Quantitation Report

Data file: /chem3/fid4b.i/20101023.b/1023b019.d
Method: /chem3/fid4b.i/20101023.b/ftphfid4b.m
Instrument: fid4b.i
Operator: ms
Report Date: 11/23/2010
Macro: 23-OCT-2010

ARI ID: MOIL 1000
Client ID:
Injection: 23-OCT-2010 23:10

Dilution Factor: 1

FID:4B RESULTS

Compound	RT	Shift	Height	Area
Toluene	1.596	-0.009	2632	4523
C8	1.915	-0.013	1430	2003
C10	3.440	-0.012	688	975
C12	4.442	0.024	783	1628
C14	5.192	0.011	307	562
C16	5.848	0.004	329	277
C18	6.464	0.000	1007	1617
C20	7.056	-0.002	5438	9249
C22	7.629	0.008	18989	24483
C24	8.146	-0.003	37569	33141
C25	8.389	-0.013	47819	57674
C26	8.639	-0.004	59148	43675
C28	9.127	-0.007	71105	129054
C32	10.156	-0.003	86781	141833
C34	10.679	0.005	90336	49568
Filter Peak	12.782	-0.006	32873	18748
C36	11.185	0.004	79465	91120
C38	11.673	0.001	69664	63210
C40	12.137	-0.007	56421	71628
o-terph	6.615	-0.005	1644	1768
Triacon Surr	9.675	0.018	1311909	1984152

Range	Total Area	Conc
GAS (Tol-C12)	132473	2
DIESEL (C12-C24)	1454456	57
M.OIL (C24-C38)	14590479	1052 M
AK-102 (C10-C25)	1923212	67
AK-103 (C25-C36)	12214171	1849 M
OR.DIES (C10-C28)	4722269	449
CRUDE (Tol-C40)	17854562	3125 M
BUNKERC (C10-C38)	16077665	1707 M
HYDRAUL (C24-C38)	14590479	1292
JET-A (C10-C18)	88266	10

M Indicates manual integration within range.
Range Times: NW Diesel(4.418 - 8.148) AK102(3.45 - 8.40) Jet A(3.45 - 6.46)
NW M.Oil(8.15 - 11.67) AK103(8.40 - 11.18) OR Diesel(3.45 - 9.13)

Surrogate	Area	Amount	%Rec
o-Terphenyl	1768	0.1	0.2
Triacontane	1984152	95.6	212.4

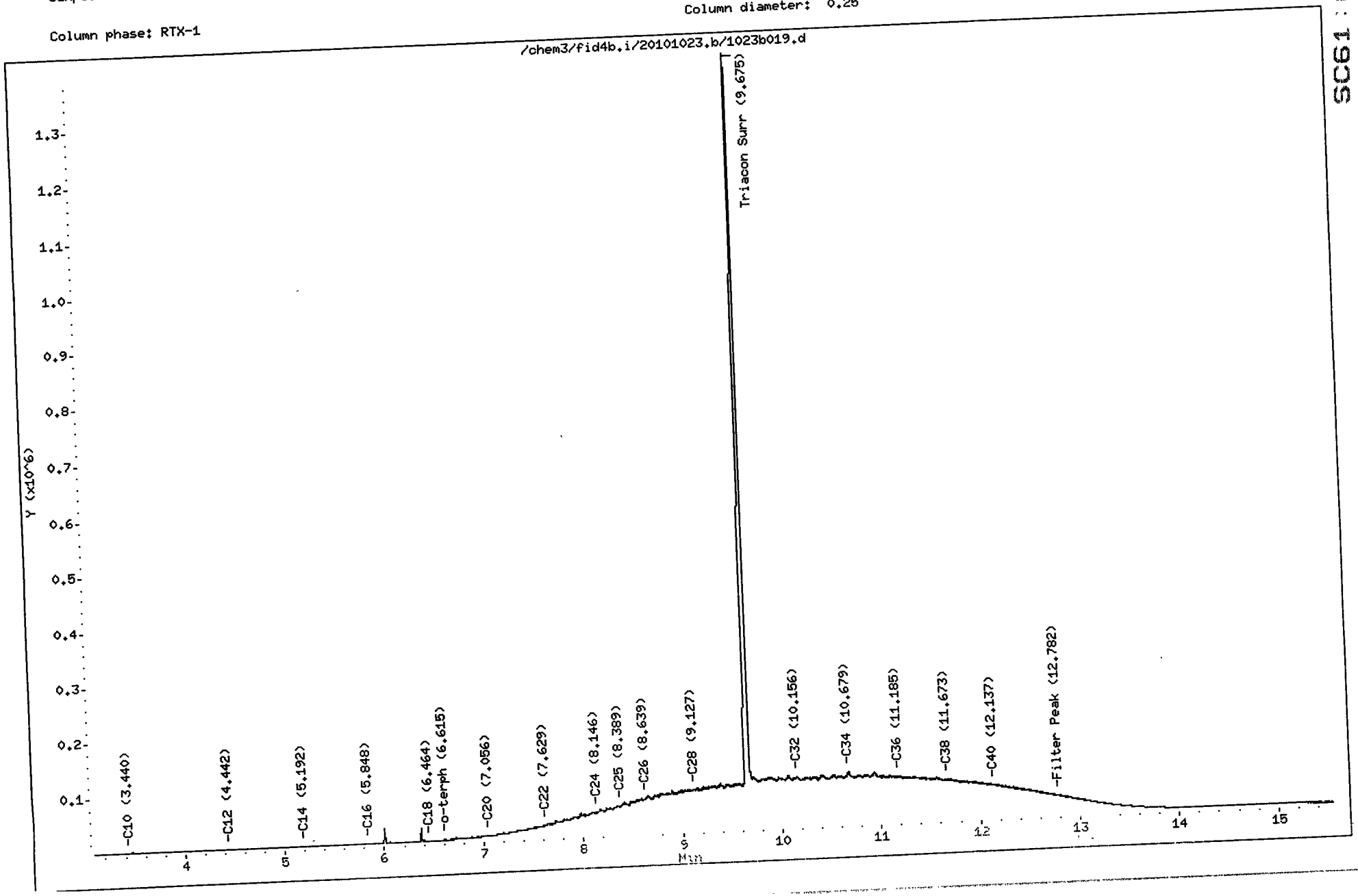
Analyte	RF	Curve Date
o-Terph Surr	24136.7	23-OCT-2010
Triacon Surr	20763.6	23-OCT-2010
Gas	68344.0	14-JUL-2010
Diesel	25628.0	23-OCT-2010
Motor Oil	13869.0	23-OCT-2010
AK102	28918.0	23-OCT-2010
AK103	6604.7	18-JUN-2010
JetA	8703.3	11-JAN-2010
OR Diesel	10525.0	22-JAN-2010
CRUDE	5712.9	22-MAY-2010
Bunker C	9416.3	24-JUL-2010
Hydraulic	11288.8	11-JAN-2010

Data File: /chem3/fid4b.i/20101023.b/1023b019.d
Date : 23-OCT-2010 23:10
Client ID:
Sample Info: MOIL 1000

Column phase: RTX-1

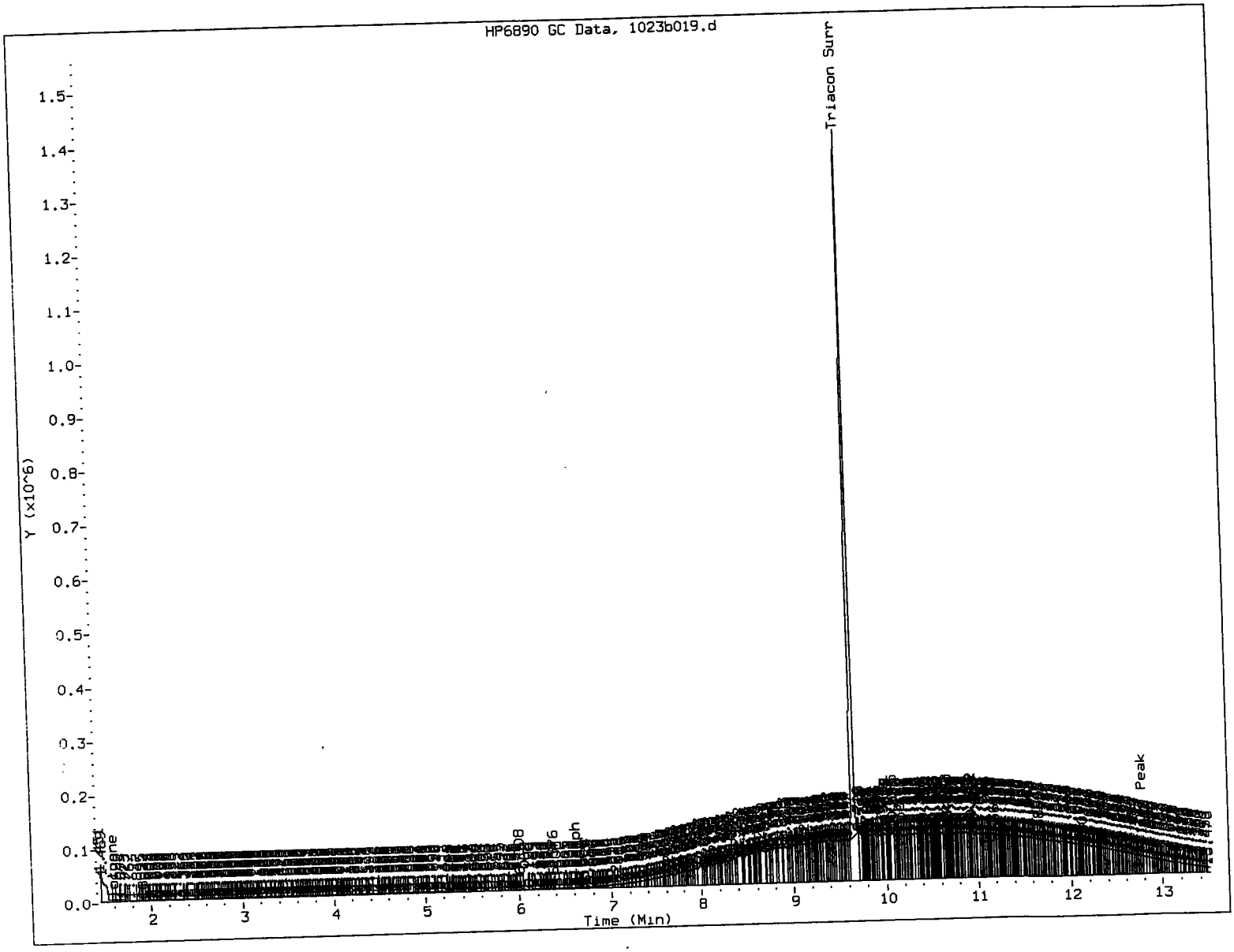
Instrument: fid4b.i

Operator: ms
Column diameter: 0.25



SC61 : 00111

FID:4B-2C/RTX-1 MOIL 1000 FID:4B SIGNAL



MANUAL INTEGRATION

1. Baseline correction
2. Poor chromatography
3. Peak not found
4. Totals calculation

5. Other _____

Analyst: MK Date: 11/23/

Analytical Resources Inc.
407S TPH Quantitation Report

Data file: /chem3/fid4b.i/20101023.b/1023b020.d
Method: /chem3/fid4b.i/20101023.b/ftphfid4b.m
Instrument: fid4b.i
Operator: ms
Report Date: 11/23/2010
Macro: 23-OCT-2010

ARI ID: MOIL 2500
Client ID:
Injection: 23-OCT-2010 23:33

Dilution Factor: 1

FID:4B RESULTS

Compound	RT	Shift	Height	Area	Range	Total Area	Conc
Toluene	1.609	0.004	3305	10608	GAS (Tol-C12)	131955	2
C8	1.931	0.003	1365	1494	DIESEL (C12-C24)	3758433	147
C10	3.462	0.010	2923	3009	M.OIL (C24-C38)	38890588	2804 M
C12	4.432	0.014	1575	1280	AK-102 (C10-C25)	4697778	162
C14	5.185	0.004	1082	1070	AK-103 (C25-C36)	33055395	5005 M
C16	5.843	0.000	888	699	OR.DIES (C10-C28)	12989038	1234
C18	6.461	-0.003	2697	3947	CRUDE (Tol-C40)	46041396	8059 M
C20	7.054	-0.003	13971	23350			
C22	7.623	0.002	48927	83770			
C24	8.149	0.000	101012	102330			
C25	8.404	0.003	134544	114847			
C26	8.647	0.005	160514	144920			
C28	9.123	-0.011	191790	285533			
C32	10.151	-0.007	221000	301359			
C34	10.675	0.001	215831	135736	BUNKERC (C10-C38)	42680804	4533 M
Filter Peak	12.784	-0.004	20091	42199	HYDRAUL (C24-C38)	38890588	3445
C36	11.178	-0.003	195941	50700			
C38	11.669	-0.002	159580	44306			
C40	12.137	-0.007	96375	116897			
o-terph	6.611	-0.009	3642	8348	JET-A (C10-C18)	154729	18
Triacon Surr	9.711	0.054	2258489	5238349			

M Indicates manual integration within range.
Range Times: NW Diesel(4.418 - 8.148) AK102(3.45 - 8.40) Jet A(3.45 - 6.46)
NW M.Oil(8.15 - 11.67) AK103(8.40 - 11.18) OR Diesel(3.45 - 9.13)

Surrogate	Area	Amount	%Rec
o-Terphenyl	8348	0.3	0.8
Triacontane	5238349	252.3	560.6

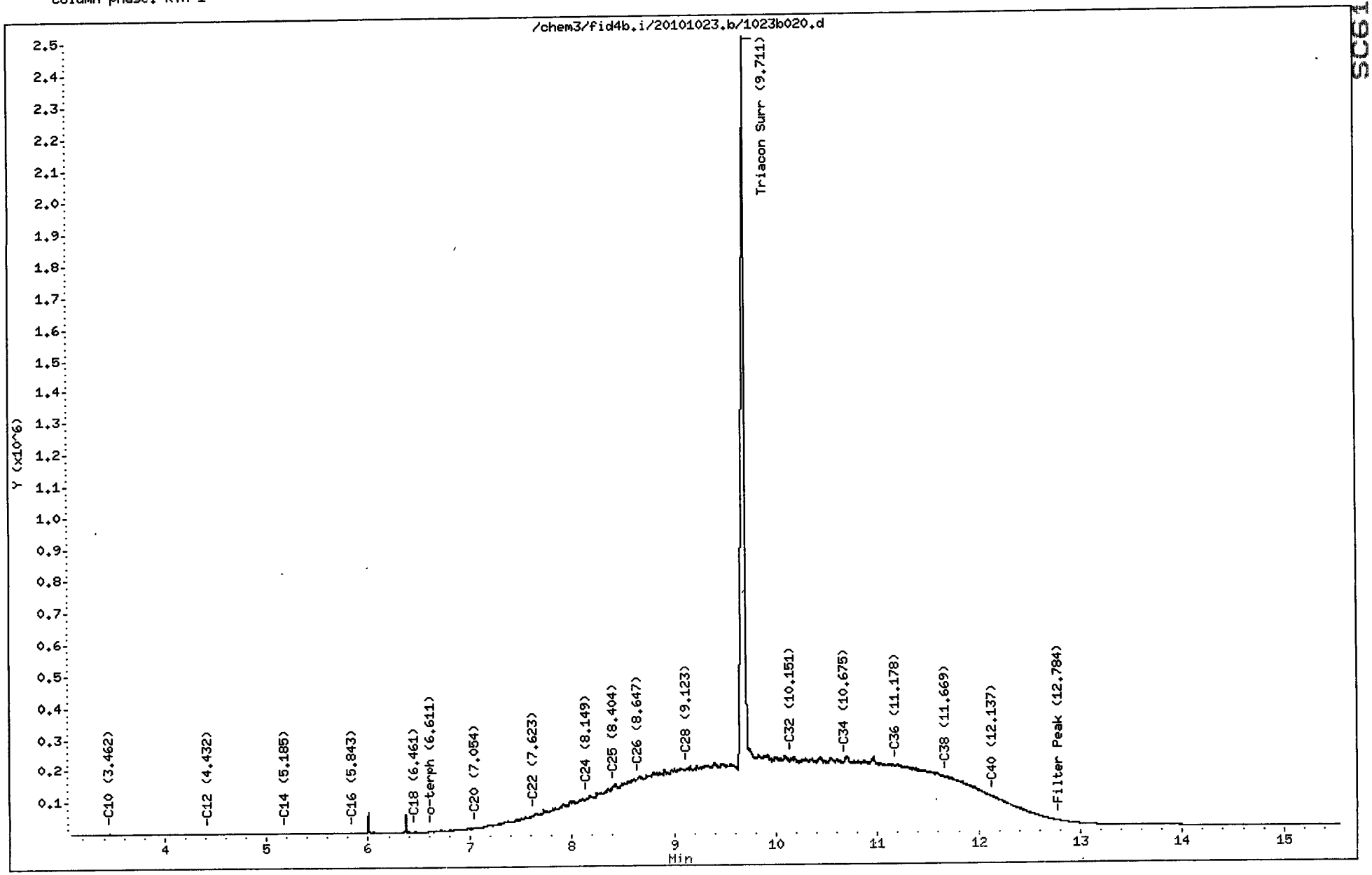
Analyte	RF	Curve Date
o-Terph Surr	24136.7	23-OCT-2010
Triacon Surr	20763.6	23-OCT-2010
Gas	68344.0	14-JUL-2010
Diesel	25628.0	23-OCT-2010
Motor Oil	13869.0	23-OCT-2010
AK102	28918.0	23-OCT-2010
AK103	6604.7	18-JUN-2010
JetA	8703.3	11-JAN-2010
OR Diesel	10525.0	22-JAN-2010
CRUDE	5712.9	22-MAY-2010
Bunker C	9416.3	24-JUL-2010
Hydraulic	11288.8	11-JAN-2010

Data File: /chem3/fid4b.i/20101023.b/1023b020.d
Date : 23-OCT-2010 23:33
Client ID:
Sample Info: MOIL 2500

Column phase: RTX-1

Instrument: fid4b.i

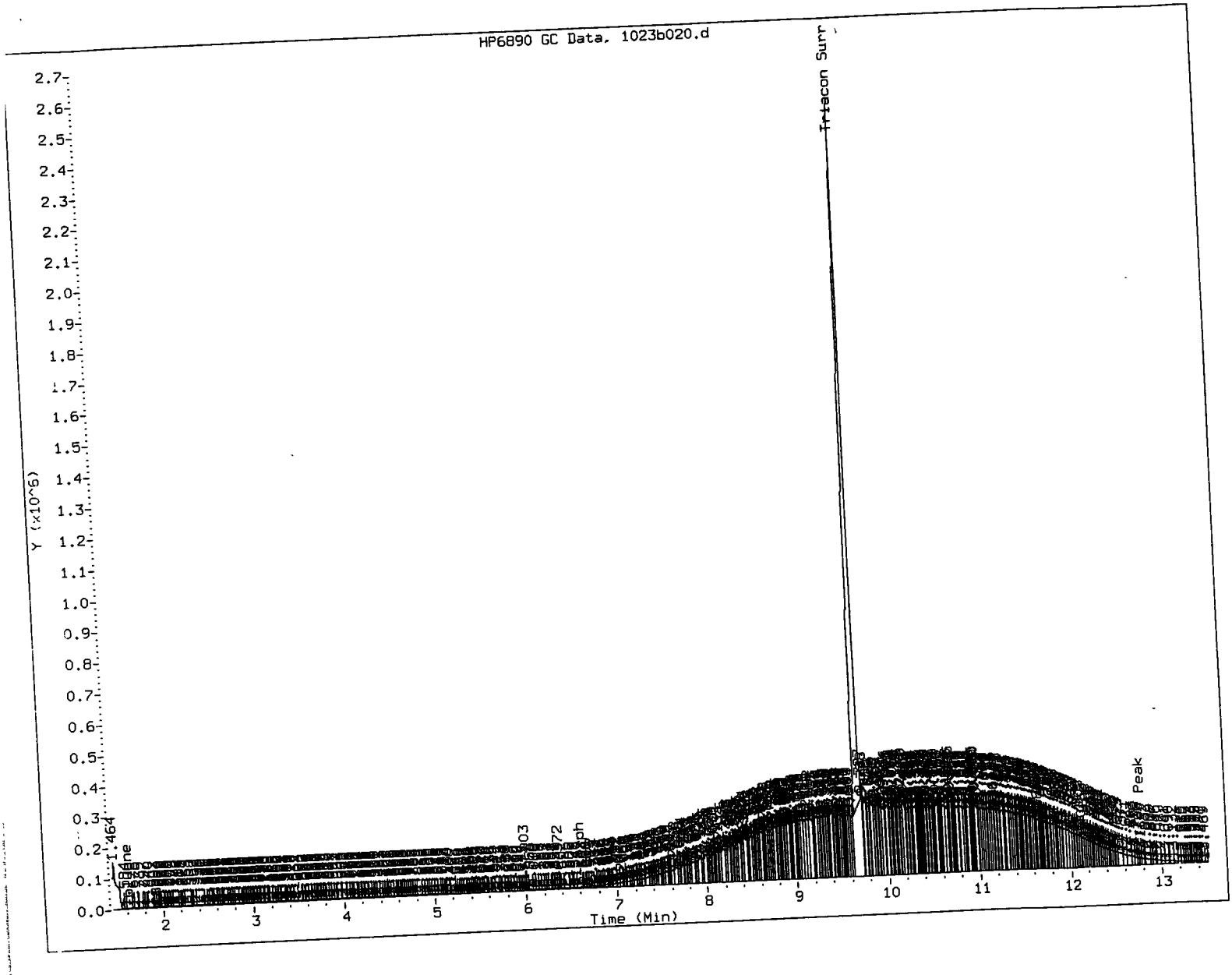
Operator: ms
Column diameter: 0.25



SC61 : 00114

FID:4B-2C/RTX-1 MOIL 2500

FID:4B SIGNAL



MANUAL INTEGRATION

1. Baseline correction
2. Poor chromatography
3. Peak not found
4. Totals calculation
5. Other _____

Analyst: _____ Date: 11/23/1

Analytical Resources Inc.
407S TPH Quantitation Report

Data file: /chem3/fid4b.i/20101023.b/1023b021.d
Method: /chem3/fid4b.i/20101023.b/ftphfid4b.m
Instrument: fid4b.i
Operator: ms
Report Date: 11/23/2010
Macro: 23-OCT-2010

ARI ID: MOIL 5000
Client ID:
Injection: 23-OCT-2010 23:56

Dilution Factor: 1

FID:4B RESULTS

Compound	RT	Shift	Height	Area	Range	Total Area	Conc
Toluene	1.603	-0.002	3892	3657	GAS (Tol-C12)	131647	2
C8	1.930	0.002	1176	604	DIESEL (C12-C24)	7106328	277
C10	3.460	0.008	5510	4526	M.OIL (C24-C38)	68872123	4966 M
C12	4.428	0.010	3077	2828	AK-102 (C10-C25)	8958526	310
C14	5.183	0.003	2545	1414	AK-103 (C25-C36)	60740192	9197 M
C16	5.842	-0.002	1776	1280	OR.DIES (C10-C28)	23990089	2279
C18	6.461	-0.004	5308	7204	CRUDE (Tol-C40)	78205143	13689 M
C20	7.054	-0.004	26336	45853			
C22	7.629	0.008	92302	101676			
C24	8.156	0.008	191514	194936			
C25	8.395	-0.007	245026	201800			
C26	8.643	0.000	300217	88980			
C28	9.134	0.000	364718	115060			
C32	10.142	-0.017	414468	713653			
C34	10.682	0.008	384397	167674	BUNKERC (C10-C38)	76018763	8073 M
Filter Peak	12.791	0.003	8595	13412	HYDRAUL (C24-C38)	68872123	6101
C36	11.178	-0.003	338479	579141			
C38	11.666	-0.006	188857	78260			
C40	12.117	-0.027	64543	186367			
o-terph	6.609	-0.011	6935	15957	JET-A (C10-C18)	267243	31
Triacon Surr	9.748	0.091	3252374	10113961			

M: Indicates manual integration within range.

Range Times: NW Diesel(4.418 - 8.148) AK102(3.45 - 8.40) Jet A(3.45 - 6.46)
NW M.Oil(8.15 - 11.67) AK103(8.40 - 11.18) OR Diesel(3.45 - 9.13)

Surrogate	Area	Amount	%Rec
o-Terphenyl	15957	0.7	1.5
Triacontane	10113961	487.1	1082.4

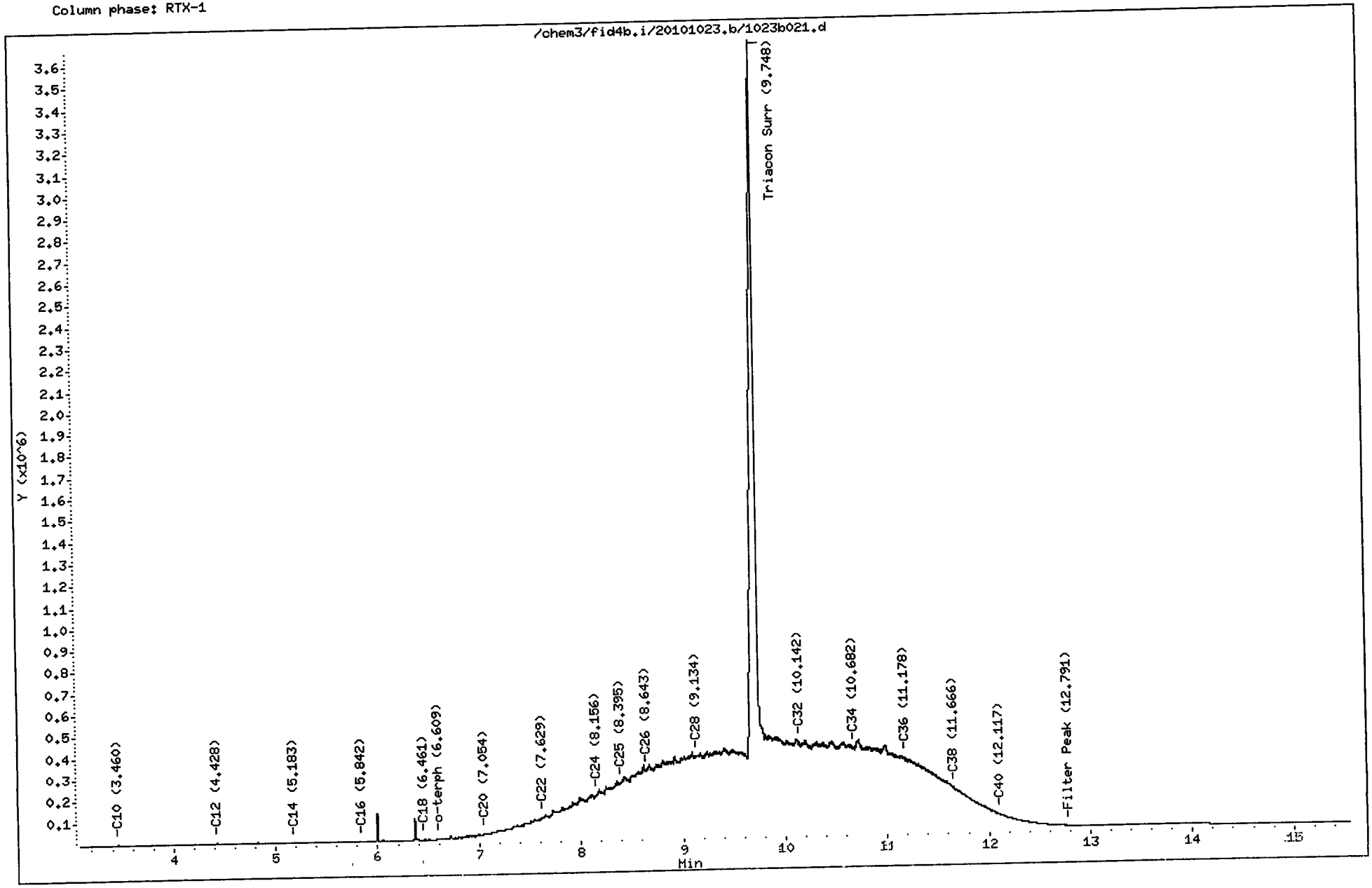
Analyte	RF	Curve Date
o-Terph Surr	24136.7	23-OCT-2010
Triacon Surr	20763.6	23-OCT-2010
Gas	68344.0	14-JUL-2010
Diesel	25628.0	23-OCT-2010
Motor Oil	13869.0	23-OCT-2010
AK102	28918.0	23-OCT-2010
AK103	6604.7	18-JUN-2010
JetA	8703.3	11-JAN-2010
OR Diesel	10525.0	22-JAN-2010
CRUDE	5712.9	22-MAY-2010
Bunker C	9416.3	24-JUL-2010
Hydraulic	11288.8	11-JAN-2010

Data File: /chem3/fid4b.i/20101023.b/1023b021.d
Date : 23-OCT-2010 23:56
Client ID:
Sample Info: MOIL 5000

Column phase: RTX-1

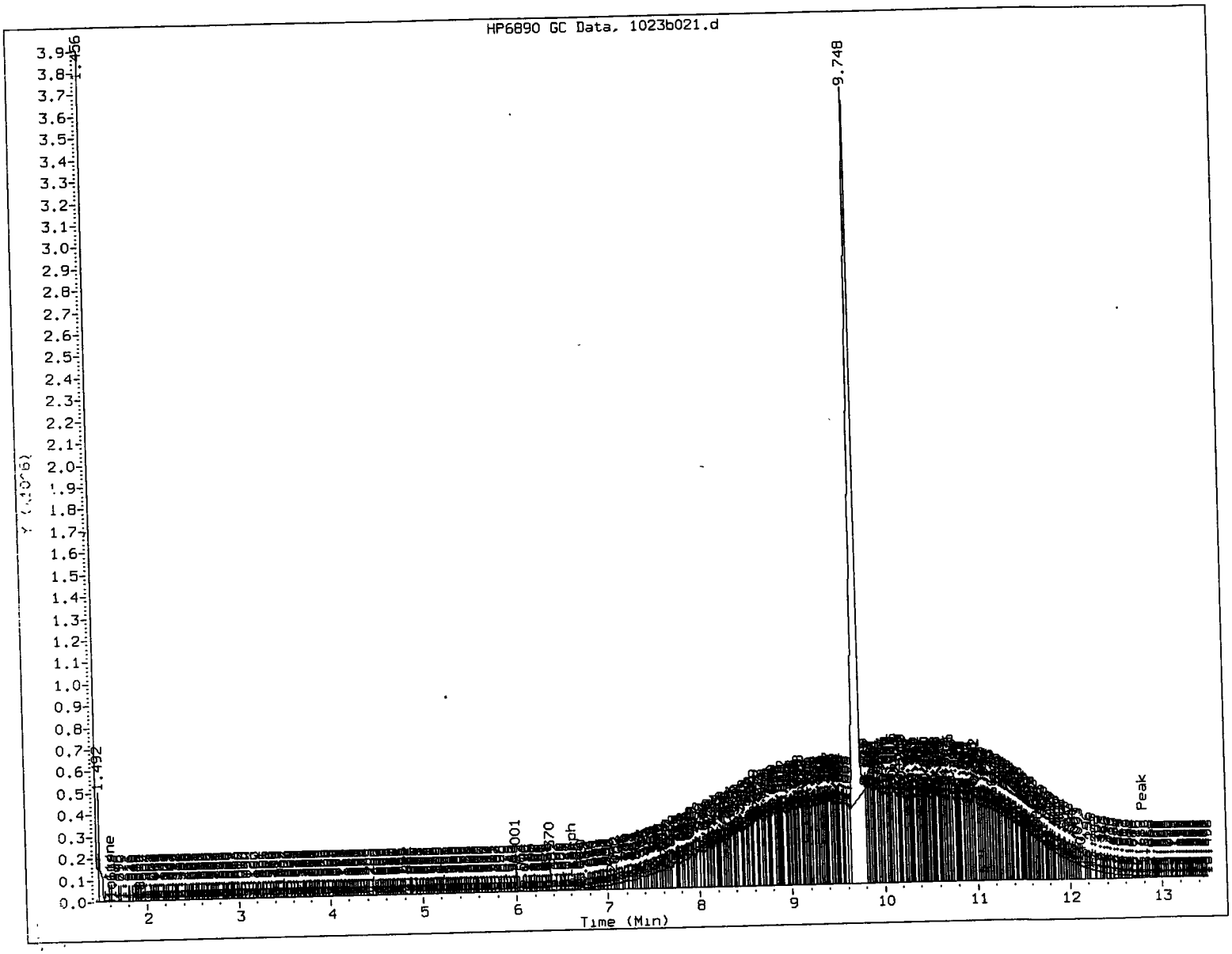
Instrument: fid4b.i

Operator: ms
Column diameter: 0.25



SC61 00117

FID:4B-2C/RTX-1 MOIL 5000 FID:4B SIGNAL



MANUAL INTEGRATION

1. Baseline correction
2. Poor chromatography
3. Peak not found
4. Totals calculation

5. Other _____

Analyst: _____ Date: 11/23/2

Analytical Resources Inc.
407S TPH Quantitation Report

Data file: /chem3/fid4b.i/20101023.b/1023b022.d
Method: /chem3/fid4b.i/20101023.b/ftphfid4b.m
Instrument: fid4b.i
Operator: ms
Report Date: 11/23/2010
Macro: 23-OCT-2010

ARI ID: MOIL ICV
Client ID:
Injection: 24-OCT-2010 00:20

Dilution Factor: 1

FID:4B RESULTS

Compound	RT	Shift	Height	Area	Range	Total Area	Conc
Toluene	1.598	-0.007	2464	4174	GAS (Tol-C12)	131695	2
C8	1.920	-0.008	1406	2399	DIESEL (C12-C24)	804979	31
C10	3.452	0.000	663	482	M.OIL (C24-C38)	7787801	562 M
C12	4.401	-0.017	651	1361	AK-102 (C10-C25)	1036348	36
C14	5.167	-0.014	176	221	AK-103 (C25-C36)	6479971	981 M
C16	5.849	0.005	181	180	OR.DIES (C10-C28)	2523045	240
C18	6.464	0.000	539	798	CRUDE (Tol-C40)	9626046	1685 M
C20	7.056	-0.002	2916	4619			
C22	7.625	0.004	10187	10345			
C24	8.145	-0.003	20204	17597			
C25	8.397	-0.005	25582	17716			
C26	8.633	-0.010	30252	30503			
C28	9.143	0.009	36912	23155			
C32	10.155	-0.004	44583	101767			
C34	10.674	0.000	47388	62529	BUNKERC (C10-C38)	8627203	916 M
Filter Peak	12.777	-0.011	18880	31183	HYDRAUL (C24-C38)	7787801	690
C36	11.177	-0.003	42366	52686			
C38	11.678	0.007	36826	18287			
C40	12.156	0.012	30232	25583			
o-terph	6.616	-0.004	861	900	JET-A (C10-C18)	72967	8
Triacon Surr	9.661	0.004	869152	1008943			

M Indicates manual integration within range.
Range Times: NW Diesel(4.418 - 8.148) AK102(3.45 - 8.40) Jet A(3.45 - 6.46)
NW M.Oil(8.15 - 11.67) AK103(8.40 - 11.18) OR Diesel(3.45 - 9.13)

Surrogate	Area	Amount	%Rec
o-Terphenyl	900	0.0	0.1
Triacontane	1008943	48.6	108.0

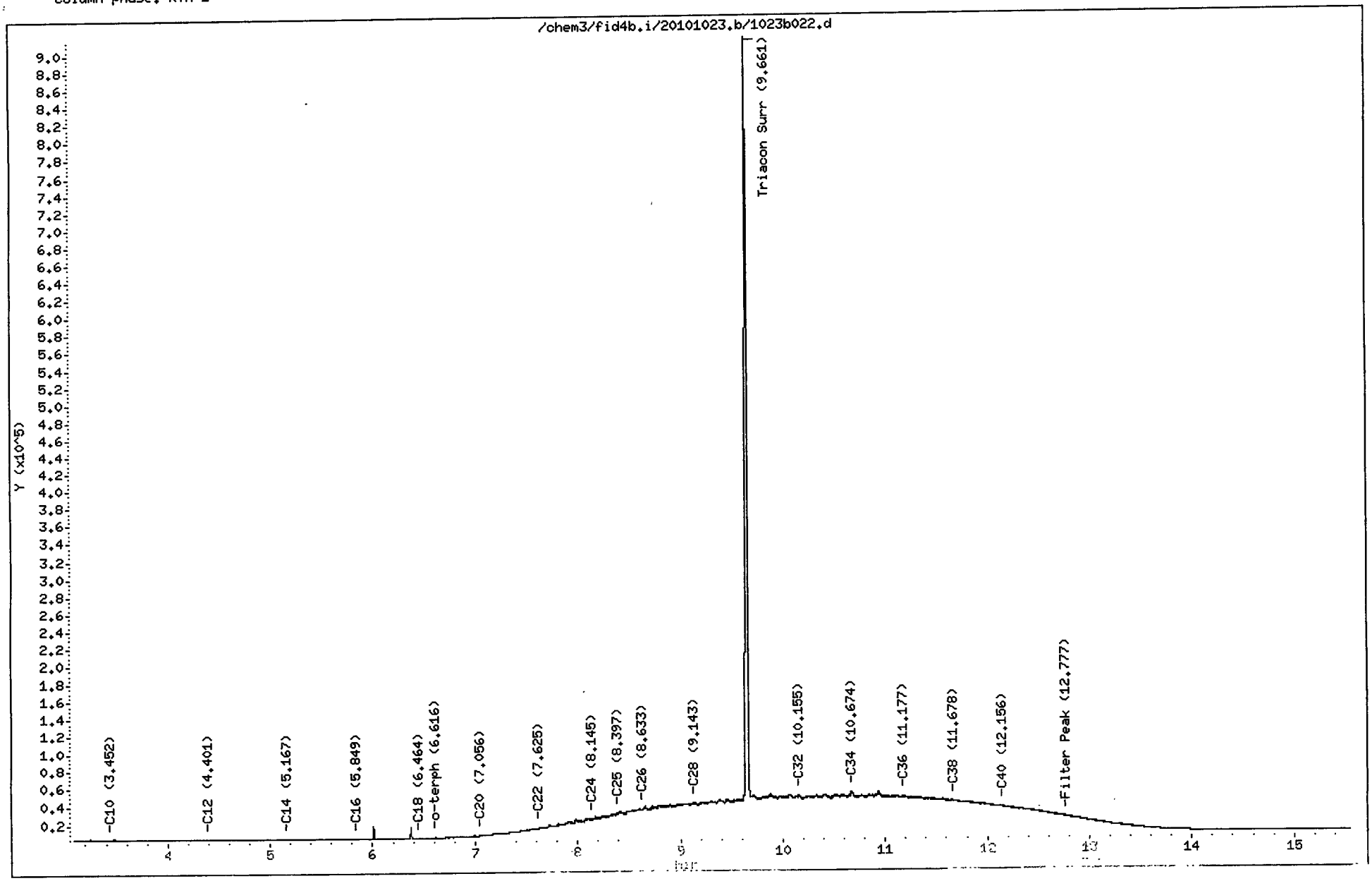
Analyte	RF	Curve Date
o-Terph Surr	24136.7	23-OCT-2010
Triacon Surr	20763.6	23-OCT-2010
Gas	68344.0	14-JUL-2010
Diesel	25628.0	23-OCT-2010
Motor Oil	13869.0	23-OCT-2010
AK102	28918.0	23-OCT-2010
AK103	6604.7	18-JUN-2010
JetA	8703.3	11-JAN-2010
OR Diesel	10525.0	22-JAN-2010
CRUDE	5712.9	22-MAY-2010
Bunker C	9416.3	24-JUL-2010
Hydraulic	11288.8	11-JAN-2010

Data File: /chem3/fid4b.i/20101023.b/1023b022.d
Date : 24-OCT-2010 00:20
Client ID:
Sample Info: MOIL ICV

Instrument: fid4b.i

Operator: ms
Column diameter: 0.25

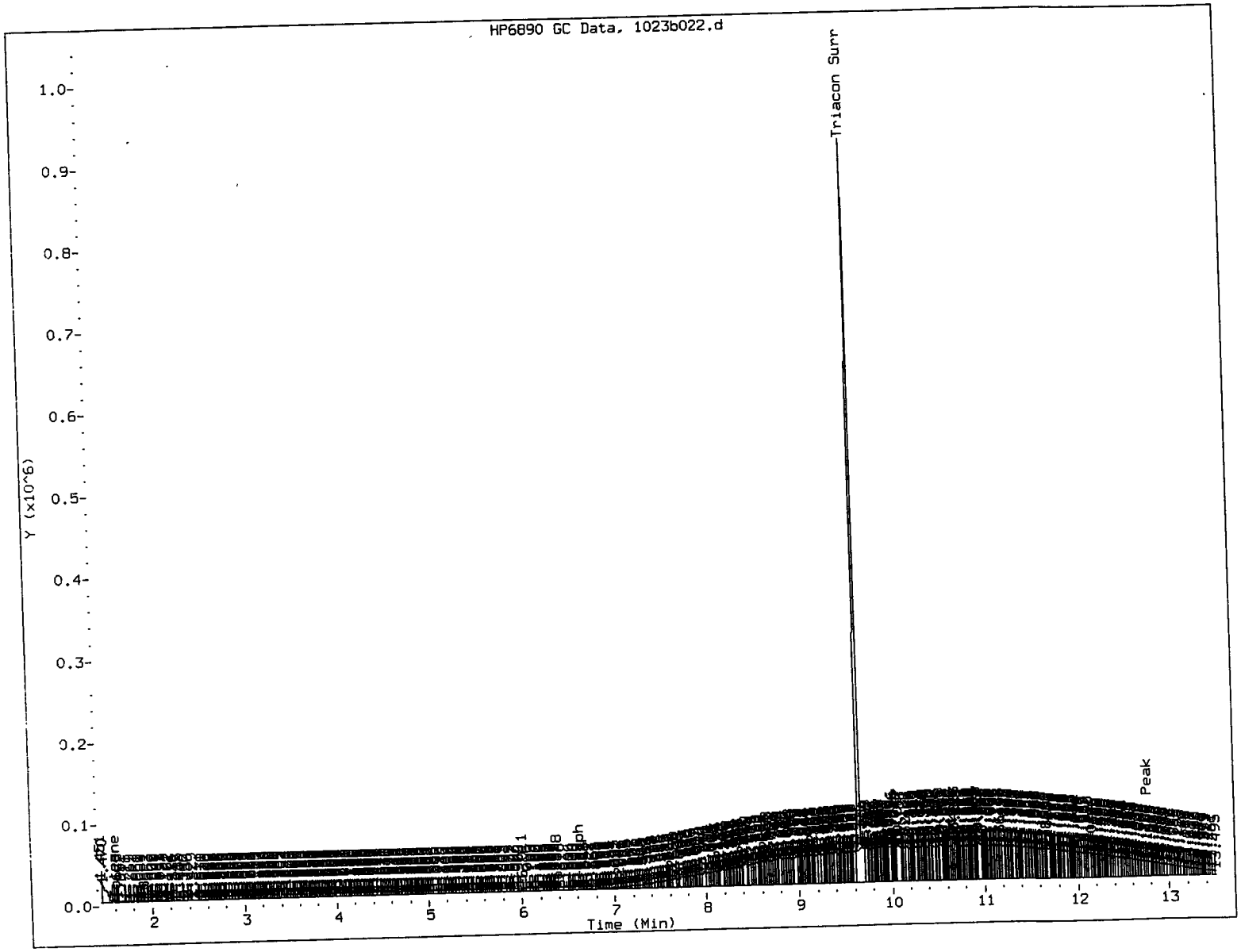
Column phase: RTX-1



SC61 : 00120

FID:4B-2C/RTX-1 MOIL ICV

FID:4B SIGNAL



MANUAL INTEGRATION

1. Baseline correction
2. Poor chromatography
3. Peak not found
4. Totals calculation

5. Other _____

Analyst: _____ Date: 11/23/9

MANUAL INTEGRATION SUMMARY FOR DATABATCH - /chem3/fid4b.i/20101023.b

ARI Job No.: MOIL Method: i/20101023.b/ftphfid4b.m Instrument: fid4b.i Date: 23-OCT-2010

Time	Filename	LabID	ClientId	DF	Manually Integrated Compounds
2201	1023b016.d	MOIL 100		1	Triacon Surr,
2224	1023b017.d	MOIL 250		1	Triacon Surr,
2247	1023b018.d	MOIL 500		1	Triacon Surr,
2310	1023b019.d	MOIL 1000		1	Triacon Surr,
2333	1023b020.d	MOIL 2500		1	Triacon Surr,
2356	1023b021.d	MOIL 5000		1	Triacon Surr,

Analytical Resources Inc.
407S TPH Quantitation Report

Data file: /chem3/fid4b.i/20101023.b/1023braw.b/1023b016.d ARI ID: MOIL 100
Method: /chem3/fid4b.i/20101023.b/ftphfid4b.m Client ID:
Instrument: fid4b.i Injection: 23-OCT-2010 22:01
Operator: ms
Report Date: 11/23/2010 Dilution Factor: 1
Macro: 23-OCT-2010

FID:4B RESULTS

Compound	RT	Shift	Height	Area	Range	Total Area	Conc
Toluene	1.600	-0.005	2517	9094	GAS (Tol-C12)	128705	2
C8	1.929	0.000	1441	1592	DIESEL (C12-C24)	138819	5
C10	3.449	-0.003	721	1593	M.OIL (C24-C38)	1121906	81
C12	4.416	-0.002	678	1398	AK-102 (C10-C25)	207301	7
C14	5.175	-0.006	187	144	AK-103 (C25-C36)	931397	141
C16	5.836	-0.008	91	43	OR.DIES (C10-C28)	444780	42
C18	6.470	0.006	167	151	CRUDE (Tol-C40)	1529267	268
C20	7.059	0.001	498	876			
C22	7.621	0.001	1602	1065			
C24	8.146	-0.002	3174	2822			
C25	8.401	-0.001	4189	5895			
C26	8.637	-0.006	4724	5187			
C28	9.136	0.002	6021	15677			
C32	10.149	-0.010	6325	11282			
C34	10.672	-0.002	6757	2537	BUNKERC (C10-C38)	1294151	137
Filter Peak	12.779	-0.009	3147	1872	HYDRAUL (C24-C38)	1121906	99
C36	11.173	-0.007	6268	10021			
C38	11.673	0.002	5606	2552			
C40	12.144	0.000	4662	3056			
o-terph	6.621	0.001	1450	983	JET-A (C10-C18)	55802	6
Triacon Surr	9.639	-0.018	177394	173446			

M Indicates manual integration within range.
Range Times: NW Diesel(4.418 - 8.148) AK102(3.45 - 8.40) Jet A(3.45 - 6.46)
NW M.Oil(8.15 - 11.67) AK103(8.40 - 11.18) OR Diesel(3.45 - 9.13)

Surrogate	Area	Amount	%Rec
o-Terphenyl	983	0.0	0.1
Triacontane	173446	8.4	18.6

Analyte	RF	Curve Date
o-Terph Surr	24136.7	23-OCT-2010
Triacon Surr	20763.6	23-OCT-2010
Gas	68344.0	14-JUL-2010
Diesel	25628.0	23-OCT-2010
Motor Oil	13869.0	23-OCT-2010
AK102	28918.0	23-OCT-2010
AK103	6604.7	18-JUN-2010
JetA	8703.3	11-JAN-2010
OR Diesel	10525.0	22-JAN-2010
CRUDE	5712.9	22-MAY-2010
Bunker C	9416.3	24-JUL-2010
Hydraulic	11288.8	11-JAN-2010

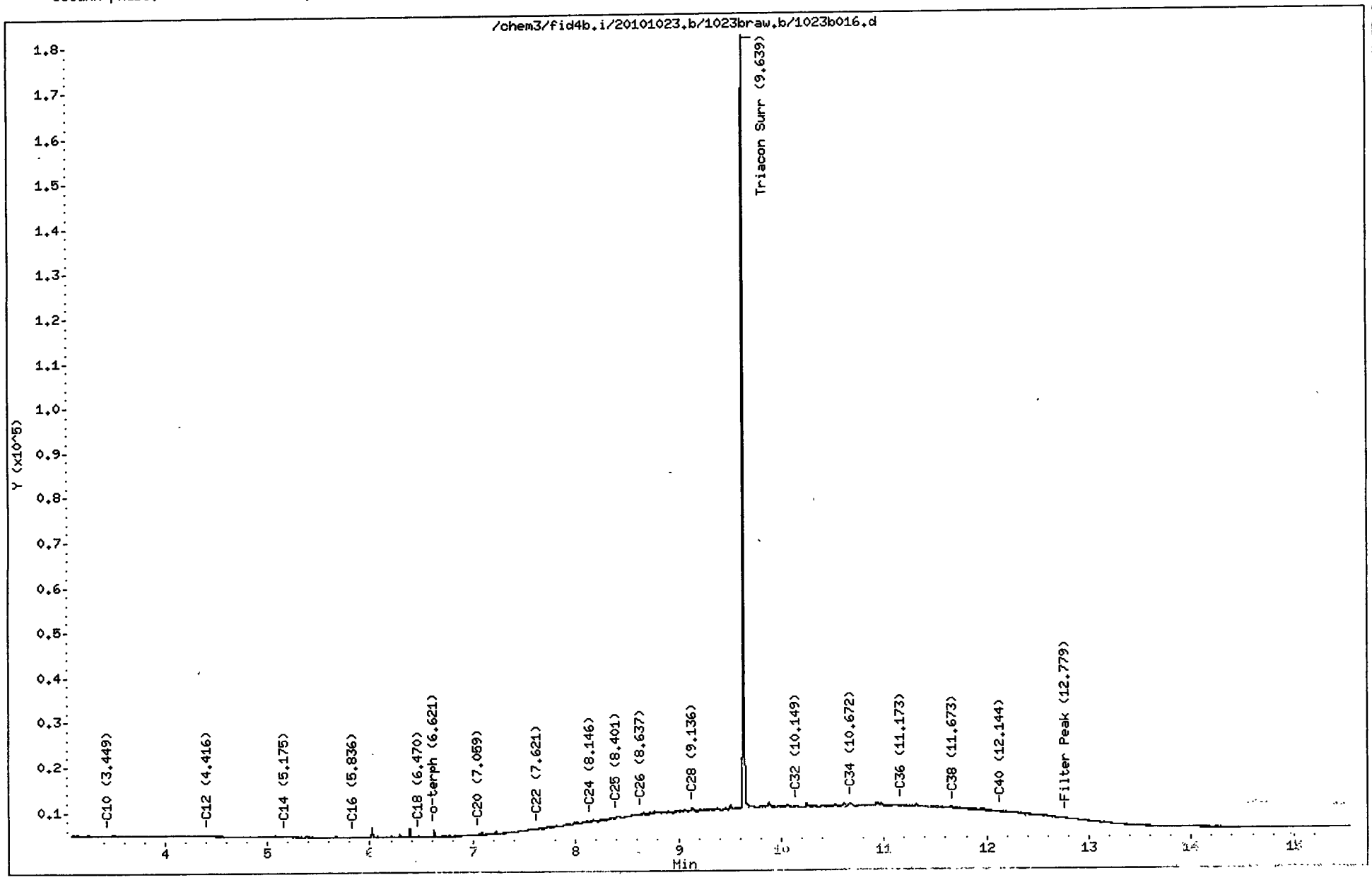
11/23/2

Data File: /chem3/fid4b.i/20101023.b/1023braw.b/1023b016.d
Date : 23-OCT-2010 22:01
Client ID:
Sample Info: MOIL 100

Column phase: RTX-1

Instrument: fid4b.i

Operator: ms
Column diameter: 0.25



SC61.00124

Analytical Resources Inc.
407S TPH Quantitation Report

Data file: /chem3/fid4b.i/20101023.b/1023braw.b/1023b017.d ARI ID: MOIL 250
Method: /chem3/fid4b.i/20101023.b/ftphfid4b.m
Instrument: fid4b.i
Operator: ms
Report Date: 11/23/2010
Macro: 23-OCT-2010

Client ID:
Injection: 23-OCT-2010 22:24

Dilution Factor: 1

FID:4B RESULTS

Compound	RT	Shift	Height	Area	Range		Total Area	Conc
Toluene	1.602	-0.002	2794	3963	GAS	(Tol-C12)	138633	2
C8	1.932	0.004	1595	1669	DIESEL	(C12-C24)	374385	15
C10	3.454	0.002	708	712	M.OIL	(C24-C38)	3227054	233
C12	4.408	-0.009	629	993	AK-102	(C10-C25)	497758	17
C14	5.184	0.004	215	172	AK-103	(C25-C36)	2692731	408
C16	5.838	-0.005	67	27	OR.DIES	(C10-C28)	1179999	112
C18	6.466	0.002	293	305	CRUDE	(Tol-C40)	4136110	724
C20	7.057	-0.001	1337	1750				
C22	7.630	0.009	4666	6921				
C24	8.145	-0.003	9119	11232				
C25	8.404	0.002	11919	6828				
C26	8.638	-0.005	13880	17054				
C28	9.125	-0.008	16572	20377				
C32	10.151	-0.007	18968	16822				
C34	10.668	-0.006	20459	39362	BUNKERC	(C10-C38)	3635183	386
Filter Peak	12.788	0.001	8734	5854	HYDRAUL	(C24-C38)	3227054	286
C36	11.188	0.008	18237	23018				
C38	11.671	0.000	16288	5799				
C40	12.152	0.009	13452	3745				
o-terph	6.618	-0.002	1233	1146	JET-A	(C10-C18)	60240	7
Triacon Surr	9.647	-0.010	471370	517019				

M Indicates manual integration within range.
Range Times: NW Diesel(4.418 - 8.148) AK102(3.45 - 8.40) Jet A(3.45 - 6.46)
NW M.Oil(8.15 - 11.67) AK103(8.40 - 11.18) OR Diesel(3.45 - 9.13)

Surrogate	Area	Amount	%Rec
o-Terphenyl	1146	0.0	0.1
Triacontane	517019	24.9	55.3

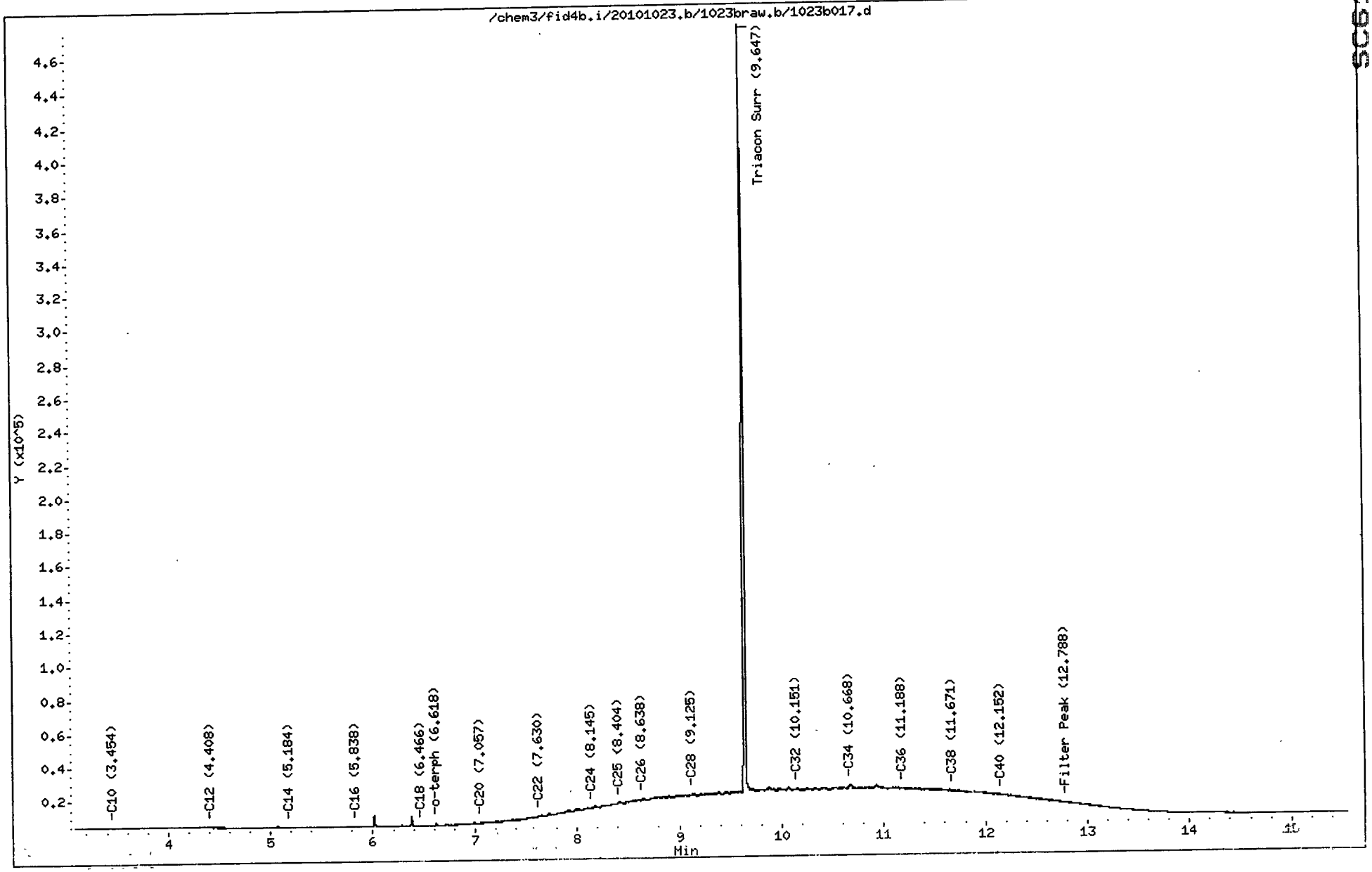
Analyte	RF	Curve Date
o-Terph Surr	24136.7	23-OCT-2010
Triacon Surr	20763.6	23-OCT-2010
Gas	68344.0	14-JUL-2010
Diesel	25628.0	23-OCT-2010
Motor Oil	13869.0	23-OCT-2010
AK102	28918.0	23-OCT-2010
AK103	6604.7	18-JUN-2010
JetA	8703.3	11-JAN-2010
OR Diesel	10525.0	22-JAN-2010
CRUDE	5712.9	22-MAY-2010
Bunker C	9416.3	24-JUL-2010
Hydraulic	11288.8	11-JAN-2010

Data File: /chem3/fid4b.i/20101023.b/1023braw.b/1023b017.d
Date : 23-OCT-2010 22:24
Client ID:
Sample Info: MOIL 250

Column phase: RTX-1

Instrument: fid4b.i

Operator: ms
Column diameter: 0.25



SC61 00126

Analytical Resources Inc.
407S TPH Quantitation Report

Data file: /chem3/fid4b.i/20101023.b/1023braw.b/1023b018.d ARI ID: MOIL 500
Method: /chem3/fid4b.i/20101023.b/ftphfid4b.m Client ID:
Instrument: fid4b.i Injection: 23-OCT-2010 22:47
Operator: ms
Report Date: 11/23/2010 Dilution Factor: 1
Macro: 23-OCT-2010

FID:4B RESULTS

Compound	RT	Shift	Height	Area	Range	Total Area	Conc
Toluene	1.608	0.003	2863	2643	GAS (Tol-C12)	155434	2
C8	1.947	0.019	1560	835	DIESEL (C12-C24)	756344	30
C10	3.439	-0.013	719	896	M.OIL (C24-C38)	7056922	509
C12	4.429	0.011	512	393	AK-102 (C10-C25)	999283	35
C14	5.183	0.002	153	52	AK-103 (C25-C36)	5823589	882
C16	5.837	-0.007	46	15	OR.DIES (C10-C28)	2366557	225
C18	6.464	0.000	454	626	CRUDE (Tol-C40)	8800215	1540
C20	7.056	-0.002	2673	4176			
C22	7.620	-0.001	9428	13229			
C24	8.144	-0.004	18951	18061			
C25	8.399	-0.003	24754	22668			
C26	8.637	-0.006	29330	30445			
C28	9.121	-0.013	35055	39349			
C32	10.158	-0.001	42633	84055			
C34	10.677	0.003	44044	70082	BUNKERC (C10-C38)	7851922	834
Filter Peak	12.777	-0.011	17896	22239	HYDRAUL (C24-C38)	7056922	625
C36	11.180	-0.001	39597	53155			
C38	11.671	0.000	34356	33238			
C40	12.149	0.005	27852	12690			
o-terph	6.616	-0.004	926	959	JET-A (C10-C18)	73802	8
Triacon Surr	9.659	0.002	881085	1176417			

M Indicates manual integration within range.
Range Times: NW Diesel(4.418 - 8.148) AK102(3.45 - 8.40) Jet A(3.45 - 6.46)
NW M.Oil(8.15 - 11.67) AK103(8.40 - 11.18) OR Diesel(3.45 - 9.13)

Surrogate	Area	Amount	%Rec
o-Terphenyl	959	0.0	0.1
Triacontane	1176417	56.7	125.9

Analyte	RF	Curve Date
o-Terph Surr	24136.7	23-OCT-2010
Triacon Surr	20763.6	23-OCT-2010
Gas	68344.0	14-JUL-2010
Diesel	25628.0	23-OCT-2010
Motor Oil	13869.0	23-OCT-2010
AK102	28918.0	23-OCT-2010
AK103	6604.7	18-JUN-2010
JetA	8703.3	11-JAN-2010
OR Diesel	10525.0	22-JAN-2010
CRUDE	5712.9	22-MAY-2010
Bunker C	9416.3	24-JUL-2010
Hydraulic	11288.8	11-JAN-2010

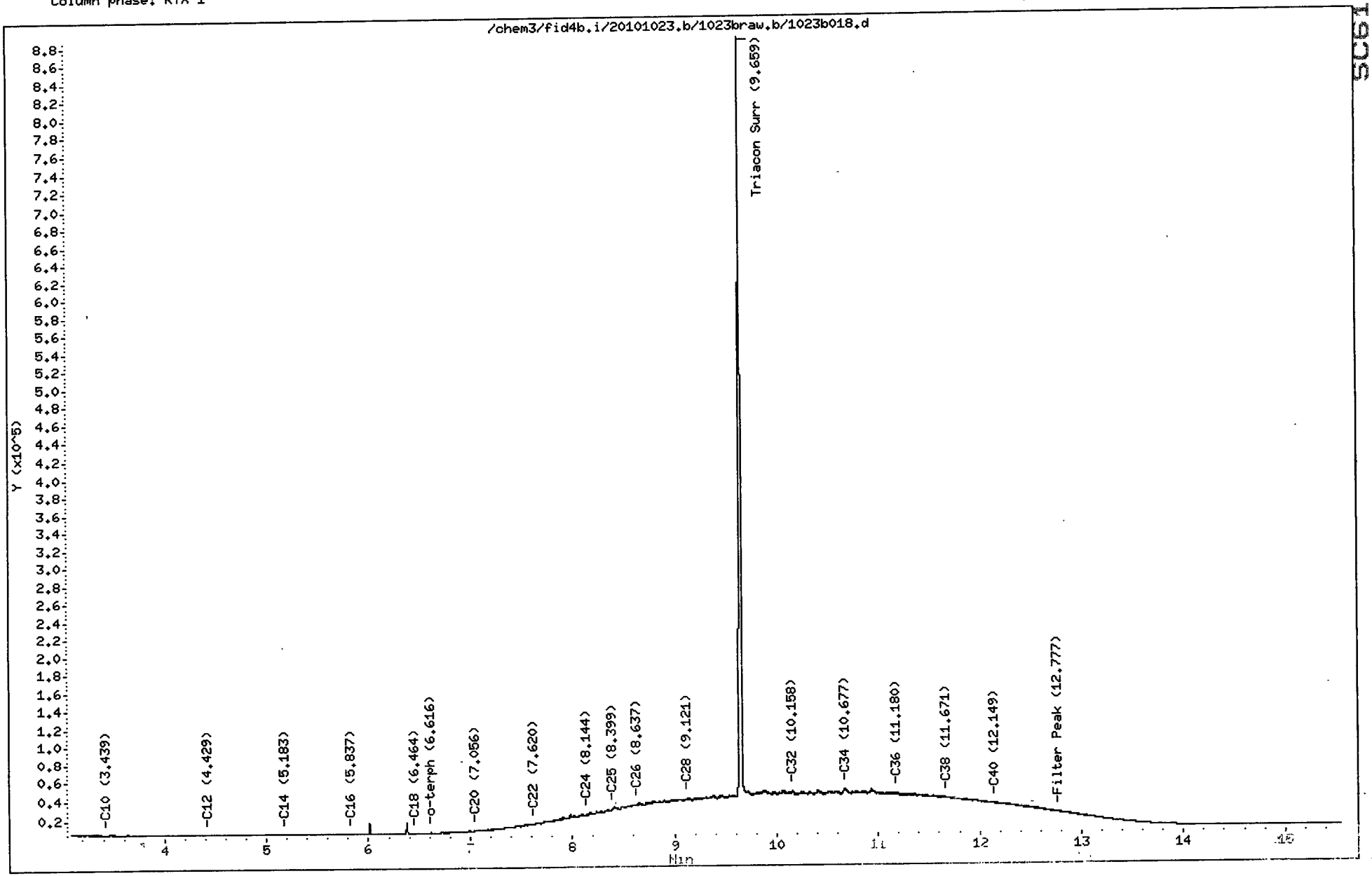
11/23/10

Data File: /chem3/fid4b.i/20101023.b/1023braw.b/1023b018.d
Date : 23-OCT-2010 22:47
Client ID:
Sample Info: MOIL 500

Instrument: fid4b.i

Operator: ms
Column diameter: 0.25

Column phase: RTX-1



SC61 : 00128

Analytical Resources Inc.
407S TPH Quantitation Report

Data file: /chem3/fid4b.i/20101023.b/1023braw.b/1023b019.d ARI ID: MOIL 1000
Method: /chem3/fid4b.i/20101023.b/ftphfid4b.m
Client ID:
Instrument: fid4b.i
Injection: 23-OCT-2010 23:10
Operator: ms
Report Date: 11/23/2010
Dilution Factor: 1
Macro: 23-OCT-2010

FID:4B RESULTS

Compound	RT	Shift	Height	Area	Range	Total Area	Conc
Toluene	1.596	-0.009	2632	4523	GAS (Tol-C12)	132473	2
C8	1.915	-0.013	1430	2003	DIESEL (C12-C24)	1454456	57
C10	3.440	-0.012	688	975	M.OIL (C24-C38)	14111356	1017
C12	4.442	0.024	783	1628	AK-102 (C10-C25)	1923212	67
C14	5.192	0.011	307	562	AK-103 (C25-C36)	11735048	1777
C16	5.848	0.004	329	277	OR.DIES (C10-C28)	4722269	449
C18	6.464	0.000	1007	1617	CRUDE (Tol-C40)	17375439	3041
C20	7.056	-0.002	5438	9249			
C22	7.629	0.008	18989	24483			
C24	8.146	-0.003	37569	33141			
C25	8.389	-0.013	47819	57674			
C26	8.639	-0.004	59148	43675			
C28	9.127	-0.007	71105	129054			
C32	10.156	-0.003	86781	141833			
C34	10.679	0.005	90336	49568	BUNKERC (C10-C38)	15598542	1657
Filter Peak	12.782	-0.006	32873	18748	HYDRAUL (C24-C38)	14111356	1250
C36	11.185	0.004	79465	91120			
C38	11.673	0.001	69664	63210			
C40	12.137	-0.007	56421	71628			
o-terph	6.615	-0.005	1644	1768	JET-A (C10-C18)	88266	10
Triacon Surr	9.675	0.018	1394482	2461692			

M Indicates manual integration within range.
Range Times: NW Diesel(4.418 - 8.148) AK102(3.45 - 8.40) Jet A(3.45 - 6.46)
NW M.Oil(8.15 - 11.67) AK103(8.40 - 11.18) OR Diesel(3.45 - 9.13)

Surrogate	Area	Amount	%Rec
o-Terphenyl	1768	0.1	0.2
Triacontane	2461692	118.6	263.5

Analyte	RF	Curve Date
o-Terph Surr	24136.7	23-OCT-2010
Triacon Surr	20763.6	23-OCT-2010
Gas	68344.0	14-JUL-2010
Diesel	25628.0	23-OCT-2010
Motor Oil	13869.0	23-OCT-2010
AK102	28918.0	23-OCT-2010
AK103	6604.7	18-JUN-2010
JetA	8703.3	11-JAN-2010
OR Diesel	10525.0	22-JAN-2010
CRUDE	5712.9	22-MAY-2010
Bunker C	9416.3	24-JUL-2010
Hydraulic	11288.8	11-JAN-2010

Data File: /chem3/fid4b.i/20101023.b/1023braw.b/1023b019.d

Date : 23-OCT-2010 23:10

Client ID:

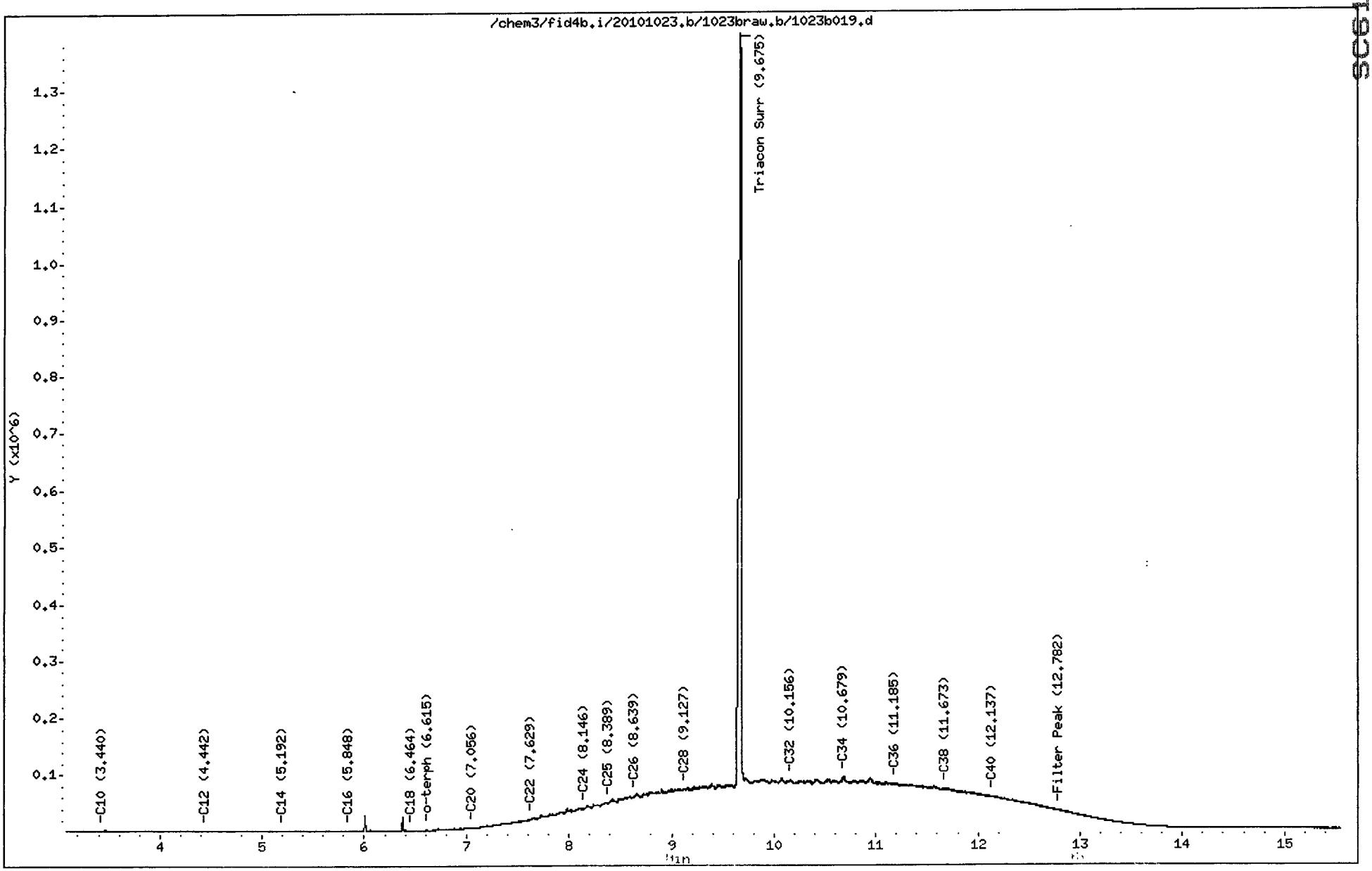
Sample Info: MOIL 1000

Column phase: RTX-1

Instrument: fid4b.i

Operator: ms

Column diameter: 0.25



SCGI : 001130

Analytical Resources Inc.
407S TPH Quantitation Report

Data file: /chem3/fid4b.i/20101023.b/1023braw.b/1023b020.d ARI ID: MOIL 2500
Method: /chem3/fid4b.i/20101023.b/ftphfid4b.m Client ID:
Instrument: fid4b.i Injection: 23-OCT-2010 23:33
Operator: ms
Report Date: 11/23/2010 Dilution Factor: 1
Macro: 23-OCT-2010

FID:4B RESULTS

Compound	RT	Shift	Height	Area	Range	Total Area	Conc
Toluene	1.609	0.004	3305	10608	GAS (Tol-C12)	131955	2
C8	1.931	0.003	1365	1494	DIESEL (C12-C24)	3758433	147
C10	3.462	0.010	2923	3009	M.OIL (C24-C38)	44124607	3182
C12	4.432	0.014	1575	1280	AK-102 (C10-C25)	4697778	162
C14	5.185	0.004	1082	1070	AK-103 (C25-C36)	38289413	5797
C16	5.843	0.000	888	699	OR.DIES (C10-C28)	12989038	1234
C18	6.461	-0.003	2697	3947	CRUDE (Tol-C40)	51275415	8975
C20	7.054	-0.003	13971	23350			
C22	7.623	0.002	48927	83770			
C24	8.149	0.000	101012	102330			
C25	8.404	0.003	134544	114847			
C26	8.647	0.005	160514	144920			
C28	9.123	-0.011	191790	285533			
C32	10.151	-0.007	221000	301359			
C34	10.675	0.001	215831	135736	BUNKERC (C10-C38)	47914822	5089
Filter Peak	12.784	-0.004	20091	42199	HYDRAUL (C24-C38)	44124607	3909
C36	11.178	-0.003	195941	50700			
C38	11.669	-0.002	159580	44306			
C40	12.137	-0.007	96375	116897			
o-terph	6.611	-0.009	3642	8348	JET-A (C10-C18)	154729	18
Triacon Surr	----						

M Indicates manual integration within range.
Range Times: NW Diesel(4.418 - 8.148) AK102(3.45 - 8.40) Jet A(3.45 - 6.46)
NW M.Oil(8.15 - 11.67) AK103(8.40 - 11.18) OR Diesel(3.45 - 9.13)

Surrogate	Area	Amount	%Rec
o-Terphenyl	8348	0.3	0.8
Triacontane	0	0.0	0.0

Analyte	RF	Curve Date
o-Terph Surr	24136.7	23-OCT-2010
Triacon Surr	20763.6	23-OCT-2010
Gas	68344.0	14-JUL-2010
Diesel	25628.0	23-OCT-2010
Motor Oil	13869.0	23-OCT-2010
AK102	28918.0	23-OCT-2010
AK103	6604.7	18-JUN-2010
JetA	8703.3	11-JAN-2010
OR Diesel	10525.0	22-JAN-2010
CRUDE	5712.9	22-MAY-2010
Bunker C	9416.3	24-JUL-2010
Hydraulic	11288.8	11-JAN-2010

Data File: /chem3/fid4b.i/20101023.b/1023braw.b/1023b020.d

Date : 23-OCT-2010 23:33

Client ID:

Sample Info: MOIL 2500

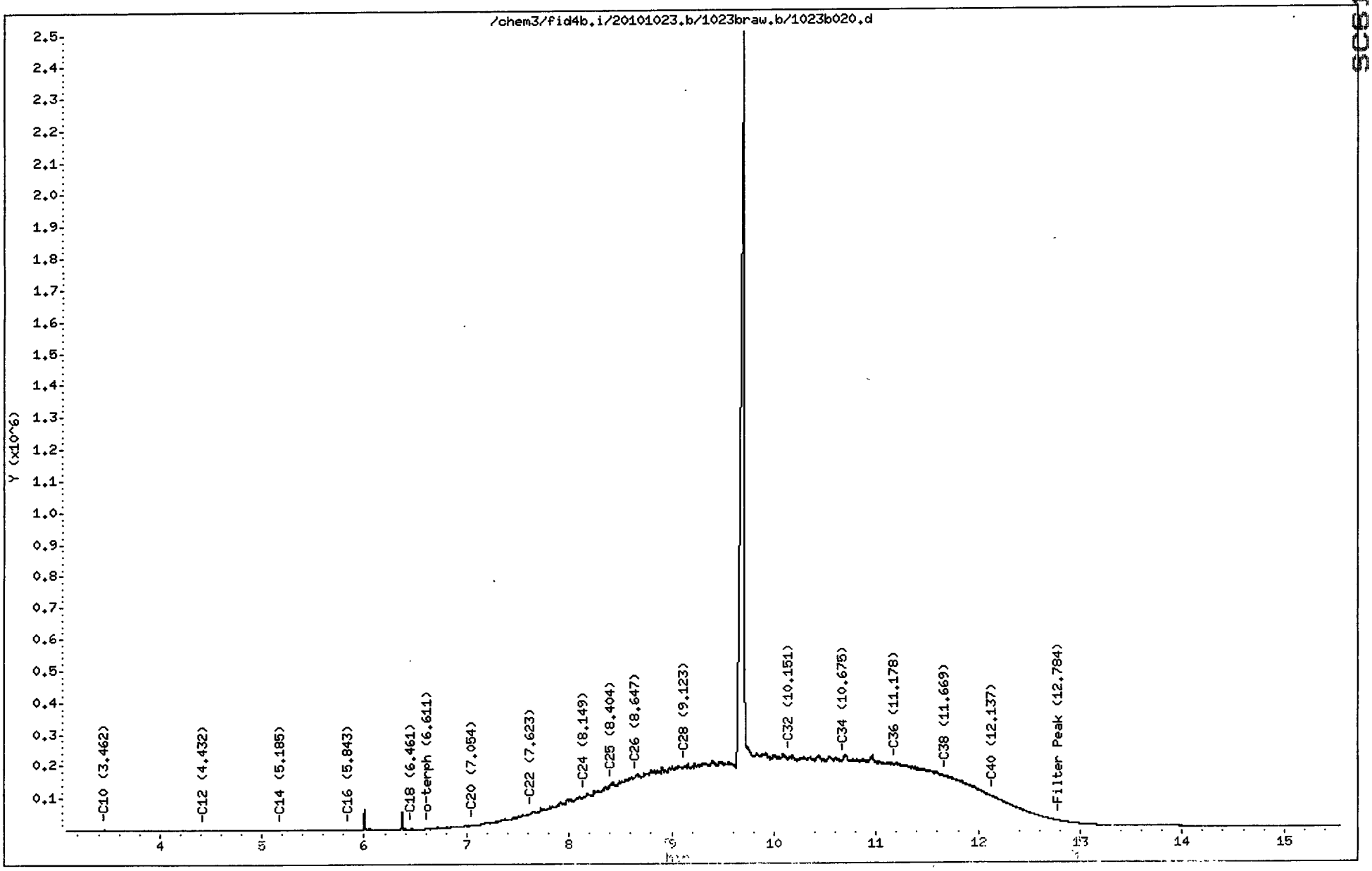
Column phase: RTX-1

Instrument: fid4b.i

Operator: ms

Column diameter: 0.25

SC61 : 00132



Analytical Resources Inc.
407S TPH Quantitation Report

Data file: /chem3/fid4b.i/20101023.b/1023braw.b/1023b021.d ARI ID: MOIL 5000
Method: /chem3/fid4b.i/20101023.b/ftphfid4b.m Client ID:
Instrument: fid4b.i Injection: 23-OCT-2010 23:56
Operator: ms
Report Date: 11/23/2010 Dilution Factor: 1
Macro: 23-OCT-2010

FID:4B RESULTS

Compound	RT	Shift	Height	Area	Range	Total Area	Conc
Toluene	1.603	-0.002	3892	3657	GAS (Tol-C12)	131647	2
C8	1.930	0.002	1176	604	DIESEL (C12-C24)	7106328	277
C10	3.460	0.008	5510	4526	M.OIL (C24-C38)	78374969	5651
C12	4.428	0.010	3077	2828	AK-102 (C10-C25)	8958526	310
C14	5.183	0.003	2545	1414	AK-103 (C25-C36)	70243038	10635
C16	5.842	-0.002	1776	1280	OR.DIES (C10-C28)	23990089	2279
C18	6.461	-0.004	5308	7204	CRUDE (Tol-C40)	87707989	15353
C20	7.054	-0.004	26336	45853			
C22	7.629	0.008	92302	101676			
C24	8.156	0.008	191514	194936			
C25	8.395	-0.007	245026	201800			
C26	8.643	0.000	300217	88980			
C28	9.134	0.000	364718	115060			
C32	10.142	-0.017	414468	713653			
C34	10.682	0.008	384397	167674	BUNKERC (C10-C38)	85521609	9082
Filter Peak	12.791	0.003	8595	13412	HYDRAUL (C24-C38)	78374969	6943
C36	11.178	-0.003	338479	579141			
C38	11.666	-0.006	188857	78260			
C40	12.117	-0.027	64543	186367			
o-terph	6.609	-0.011	6935	15957	JET-A (C10-C18)	267243	31
Triacon Surr	9.608	-0.049	369193	603371			

M Indicates manual integration within range.
Range Times: NW Diesel(4.418 - 8.148) AK102(3.45 - 8.40) Jet A(3.45 - 6.46)
NW M.Oil(8.15 - 11.67) AK103(8.40 - 11.18) OR Diesel(3.45 - 9.13)

Surrogate	Area	Amount	%Rec
o-Terphenyl	15957	0.7	1.5
Triacontane	603371	29.1	64.6

Analyte	RF	Curve Date
o-Terph Surr	24136.7	23-OCT-2010
Triacon Surr	20763.6	23-OCT-2010
Gas	68344.0	14-JUL-2010
Diesel	25628.0	23-OCT-2010
Motor Oil	13869.0	23-OCT-2010
AK102	28918.0	23-OCT-2010
AK103	6604.7	18-JUN-2010
JetA	8703.3	11-JAN-2010
OR Diesel	10525.0	22-JAN-2010
CRUDE	5712.9	22-MAY-2010
Bunker C	9416.3	24-JUL-2010
Hydraulic	11288.8	11-JAN-2010

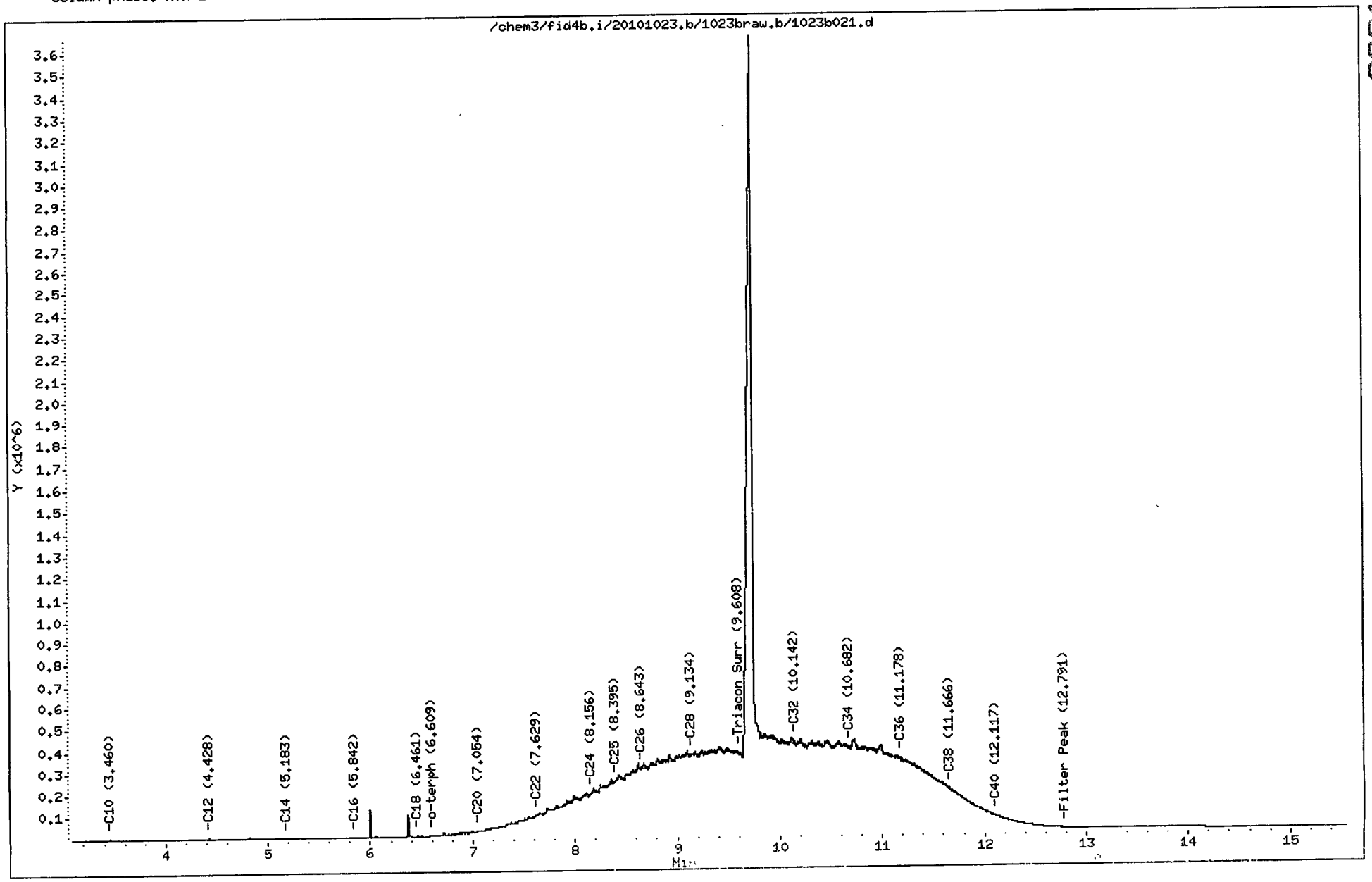
11/23/10

Data File: /chem3/fid4b.i/20101023.b/1023braw.b/1023b021.d
Date : 23-OCT-2010 23:56
Client ID:
Sample Info: MOIL 5000

Column phase: RTX-1

Instrument: fid4b.i

Operator: ms
Column diameter: 0.25



SC61 : 00134

TPHD Raw Data
Run Logs, Continuing Calibrations, and Raw Data

ARI Job ID: SC61

GC Analyst Notes / Corrective Action Log

ARI Project ID: SC01 Client ID: NW Natural

ARI SOP: **403S**(PCB) **405S**(Herb) **407S**(TPH-D) **409S**(HCID) **412S**(PCP) **423S**(Pest) **427S**(Dir Inj) **428S**(EPH) **432S**(EDB) **Other**

Parameter(s): Diesel, MO, Stoddard

Instrument: FID-3A FID-3B FID-4A FID-4B FID-5 FID-7 FID-8 FID-9 ECD-1 ECD-3 ECD-4 ECD-5 ECD-6 ECD-7

Dates: Curve: 12/21/10, 10/23/10 Analysis Start: 1/4/11

Endrin/DDT Breakdown <15%? YES / NO / NA

Method Blank In Control? YES / NO

ICal Meets RF & %RSD Criteria? YES / NO

LCS/LCSD Recovery In Control? YES / NO

CCal Meets RF & %RSD Criteria? YES / NO

Surrogate Recovery In Control? YES / NO

Manual Integrations for ICal? YES / NO

Manual Integrations for Samples? YES / NO

Internal Standard Meets Criteria? YES / NO / NA

Special Analysis Criteria Met? YES / NO / NA

Detail problems, corrective actions and/or other pertinent information below (use reverse side when necessary):

Additional Details on Reverse: Yes / No

Analyst: MO **Date:** 1/7/11

Reviewer: [illegible] **Date:** 1/7/11

Analytical Resources Inc.: Organics Instrument Log

FID-4B Serial No.: US00003247

Date: 1/3/11 Analysis: DUPHD Analyst: [illegible]

GC Program: TPH Column No: 910 2088 Column Type: RTX-1

Instrument Tune (.U or .CT.): — EM Voltage: —

Calibration File: — Curve Date: 12/21/10, 10/23/10

IS/SS	Ical/Ccal	LCS/ICV
	1786-1	
	1771-2	
	1777-3	
	1771-2	

	Inject Date/Time	Filename	DF	LabID	ClientID
1	03-JAN-2011 09:03	0103b001.d	1	RINSE	
2	03-JAN-2011 09:26	0103b002.d	1	RT	
3	03-JAN-2011 09:50	0103b003.d	1	IB	
4	03-JAN-2011 10:13	0103b004.d	1	DIESEL#1	
5	03-JAN-2011 10:36	0103b005.d	1	MOIL#1	
6	03-JAN-2011 11:58	0103b006.d	1	SC59A	
7	03-JAN-2011 12:21	0103b007.d	1	SC59MBW1	
8	03-JAN-2011 12:44	0103b008.d	1	SC59LCSW1	
9	03-JAN-2011 13:07	0103b009.d	1	SC59LCSDW1	
10	03-JAN-2011 13:31	0103b010.d	1	DIESEL#2	
1	03-JAN-2011 13:54	0103b011.d	1	MOIL#2	
2	03-JAN-2011 18:20	0103b012.d	1	RINSE	
3	03-JAN-2011 18:43	0103b013.d	1	I5891 DCM LOTCHK	
14	03-JAN-2011 19:06	0103b014.d	1	SC64MBW1	SC64MBW1
15	03-JAN-2011 19:29	0103b015.d	1	SC64LCSW1	SC64LCSW1
16	03-JAN-2011 19:53	0103b016.d	1	SC64LCSDW1	SC64LCSDW1
17	03-JAN-2011 20:16	0103b017.d	1	SC64A	IW-1-122810
18	03-JAN-2011 20:39	0103b018.d	1	SC64B	IW-2-122810
19	03-JAN-2011 21:02	0103b019.d	1	SC64C	IW-3-122810
20	03-JAN-2011 21:25	0103b020.d	1	SC64D	IW-4-122810
21	03-JAN-2011 21:48	0103b021.d	1	SC64E	IW-5-122810
22	03-JAN-2011 22:12	0103b022.d	1	SC64EMS	IW-5-122810 MS
23	03-JAN-2011 22:35	0103b023.d	1	SC64EMSD	IW-5-122810 MSD
24	03-JAN-2011 22:58	0103b024.d	1	DIESEL#3	
25	03-JAN-2011 23:21	0103b025.d	1	MOIL#3	
26	03-JAN-2011 23:44	0103b026.d	1	SC64F	IW-6-122810
27	04-JAN-2011 00:07	0103b027.d	1	SC64G	IW-7-122810
28	04-JAN-2011 00:30	0103b028.d	1	SC64H	IW-8-122810
29	04-JAN-2011 00:53	0103b029.d	1	SC64I	EW-1-122810
30	04-JAN-2011 01:16	0103b030.d	1	SC64J	WP-1-122810
31	04-JAN-2011 01:39	0103b031.d	1	SC64K	WP-2-122810
2	04-JAN-2011 02:02	0103b032.d	1	SC64L	WP-3-122810
3	04-JAN-2011 02:25	0103b033.d	1	SC64M	WP-4-122810
4	04-JAN-2011 02:48	0103b034.d	1	SC64N	DUP-1-122810
35	04-JAN-2011 03:12	0103b035.d	1	DIESEL#4	
36	04-JAN-2011 03:35	0103b036.d	1	MOIL#4	
37	04-JAN-2011 03:58	0103b037.d	1	SC61MBS1	
38	04-JAN-2011 04:21	0103b038.d	1	SC61LCSS1	
39	04-JAN-2011 04:44	0103b039.d	10	SC61A	
40	04-JAN-2011 05:07	0103b040.d	10	SC61AMS	
41	04-JAN-2011 05:30	0103b041.d	10	SC61AMSD	
42	04-JAN-2011 05:53	0103b042.d	50	SC61B	
43	04-JAN-2011 06:16	0103b043.d	50	SC61C	
44	04-JAN-2011 06:39	0103b044.d	20	SC61D	
45	04-JAN-2011 07:02	0103b045.d	1	DIESEL#5	
46	04-JAN-2011 07:25	0103b046.d	1	MOIL#5	

Maintenance / Comments

Maintenance Verification (Identify ICal or CCal that demonstrates the instrument is in control):

Every line must contain information or be lined out. Make all entries legible. Start a new page for each QC period.

Analytical Resources Inc.
407S TPH Quantitation Report

Data file: /chem3/fid4b.i/20110103.b/0103b002.d
Method: /chem3/fid4b.i/20110103.b/ftphfid4b.m
Instrument: fid4b.i
Operator: JR
Report Date: 01/07/2011
Macro: 22-DEC-2010

ARI ID: RT
Client ID: RT
Injection: 03-JAN-2011 09:26

Dilution Factor: 1

FID:4B RESULTS

Compound	RT	Shift	Height	Area	Range	Total Area	Conc
Toluene	1.573	0.000	238611	352834	GAS (Tol-C12)	1344957	34
C8	1.886	0.000	111491	245107	DIESEL (C12-C24)	1471965	63
C10	3.432	0.000	287167	249274	M.OIL (C24-C38)	2119095	153
C12	4.403	0.000	198594	236943	AK-102 (C10-C25)	2024643	77
C14	5.169	0.000	279676	231685	AK-103 (C25-C36)	1894925	287
C16	5.832	0.000	327761	226826	OR.DIES (C10-C28)	2953187	281
C18	6.451	0.000	340407	227238	CRUDE (Tol-C40)	5076497	889
C20	7.050	0.000	343277	231082			
C22	7.616	0.000	336466	236086			
C24	8.145	0.000	357592	247759			
C25	8.399	0.000	471060	353149			
C26	8.642	0.000	364912	264609			
C28	9.137	0.000	347995	290224			
C32	10.170	0.000	295715	296239			
C34	10.688	0.000	274062	280057	BUNKERC (C10-C38)	4137472	455
Filter Peak	12.826	0.000	464	334	HYDRAUL (C24-C38)	2119095	188
C36	11.195	0.000	236161	248217			
C38	11.685	0.000	173914	181965			
C40	12.158	0.000	82361	124546			
o-terph	6.603	0.000	1033568	794763	JET-A (C10-C18)	1278422	147
Triacon Surr	9.663	0.000	782207	892150			

M Indicates manual integration within range.
Range Times: NW Diesel(4.403 - 8.145) AK102(3.43 - 8.40) Jet A(3.43 - 6.45)
NW M.Oil(8.15 - 11.68) AK103(8.40 - 11.19) OR Diesel(3.43 - 9.14)

Surrogate	Area	Amount	%Rec
o-Terphenyl	794763	34.3	76.1
Triacontane	892150	43.0	95.5

Analyte	RF	Curve Date
o-Terph Surr	23203.1	21-DEC-2010
Triacon Surr	20763.6	23-OCT-2010
Gas	39627.8	17-DEC-2010
Diesel	23413.5	21-DEC-2010
Motor Oil	13869.0	23-OCT-2010
AK102	26220.7	21-DEC-2010
AK103	6604.7	18-JUN-2010
JetA	8703.3	11-JAN-2010
OR Diesel	10525.0	22-JAN-2010
CRUDE	571249	22-MAY-2010
Bunker C	9102.6	22-DEC-2010
Hydraulic	11288.8	11-JAN-2010

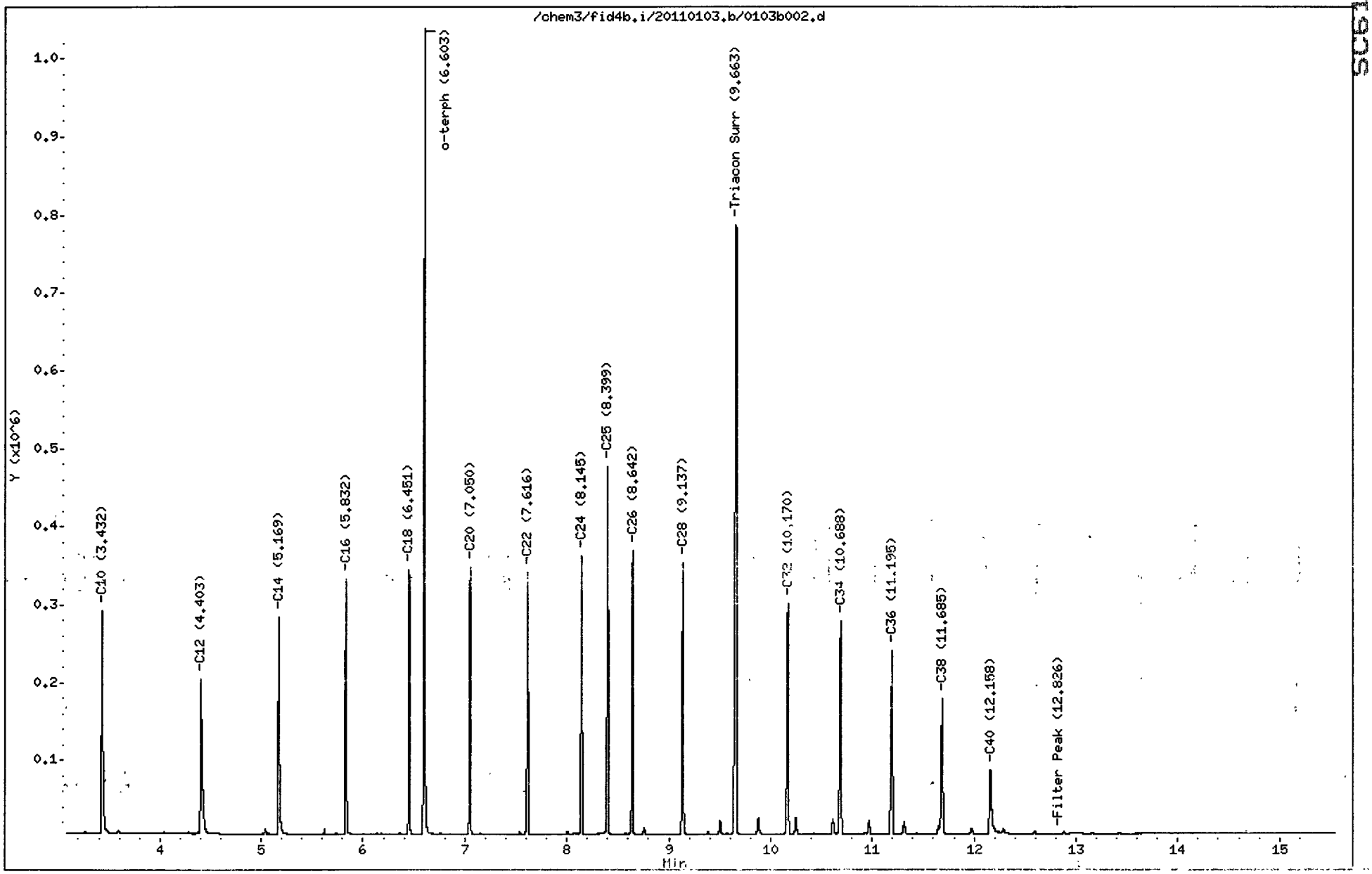
1/7/11

Data File: /chem3/fid4b.i/20110103.b/0103b002.d
Date : 03-JAN-2011 09:26
Client ID: RT
Sample Info: RT

Column phase: RTX-1

Instrument: fid4b.i

Operator: JR
Column diameter: 0.25



SC61 00139

Analytical Resources Inc.
407S TPH Quantitation Report

Data file: /chem3/fid4b.i/20110103.b/0103b003.d
Method: /chem3/fid4b.i/20110103.b/ftphfid4b.m
Instrument: fid4b.i
Operator: JR
Report Date: 01/07/2011
Macro: 22-DEC-2010

ARI ID: IB
Client ID: IB
Injection: 03-JAN-2011 09:50

Dilution Factor: 1

FID:4B RESULTS

Compound	RT	Shift	Height	Area	Range	Total Area	Conc
Toluene	1.582	0.009	7595	40059	GAS (Tol-C12)	382971	10
C8	1.893	0.006	4516	12325	DIESEL (C12-C24)	100157	4
C10	3.433	0.002	1739	1894	M.OIL (C24-C38)	151874	11
C12	4.385	-0.018	3609	10533	AK-102 (C10-C25)	203823	8
C14	5.178	0.009	619	976	AK-103 (C25-C36)	125533	19
C16	5.830	-0.002	283	143	OR.DIES (C10-C28)	228392	22
C18	6.450	-0.001	622	766	CRUDE (Tol-C40)	649782	114
C20	7.053	0.003	183	298			
C22	7.604	-0.011	1951	1661			
C24	8.155	0.009	814	791			
C25	8.401	0.002	1224	876			
C26	8.643	0.000	1006	952			
C28	9.131	-0.006	11137	10151			
C32	10.159	-0.011	424	765			
C34	10.683	-0.005	161	82	BUNKERC (C10-C38)	355087	39
Filter Peak	12.815	-0.011	510	725	HYDRAUL (C24-C38)	151874	13
C36	11.200	0.005	201	152			
C38	11.713	0.028	278	469			
C40	12.153	-0.005	477	353			
o-terph	6.602	-0.001	1068986	947058	JET-A (C10-C18)	174136	20
Triacon Surr	9.661	-0.002	756603	897213			

M Indicates manual integration within range.
Range Times: NW Diesel(4.403 - 8.145) AK102(3.43 - 8.40) Jet A(3.43 - 6.45)
NW M.Oil(8.15 - 11.68) AK103(8.40 - 11.19) OR Diesel(3.43 - 9.14)

Surrogate	Area	Amount	%Rec
o-Terphenyl	947058	40.8	90.7
Triacontane	897213	43.2	96.0

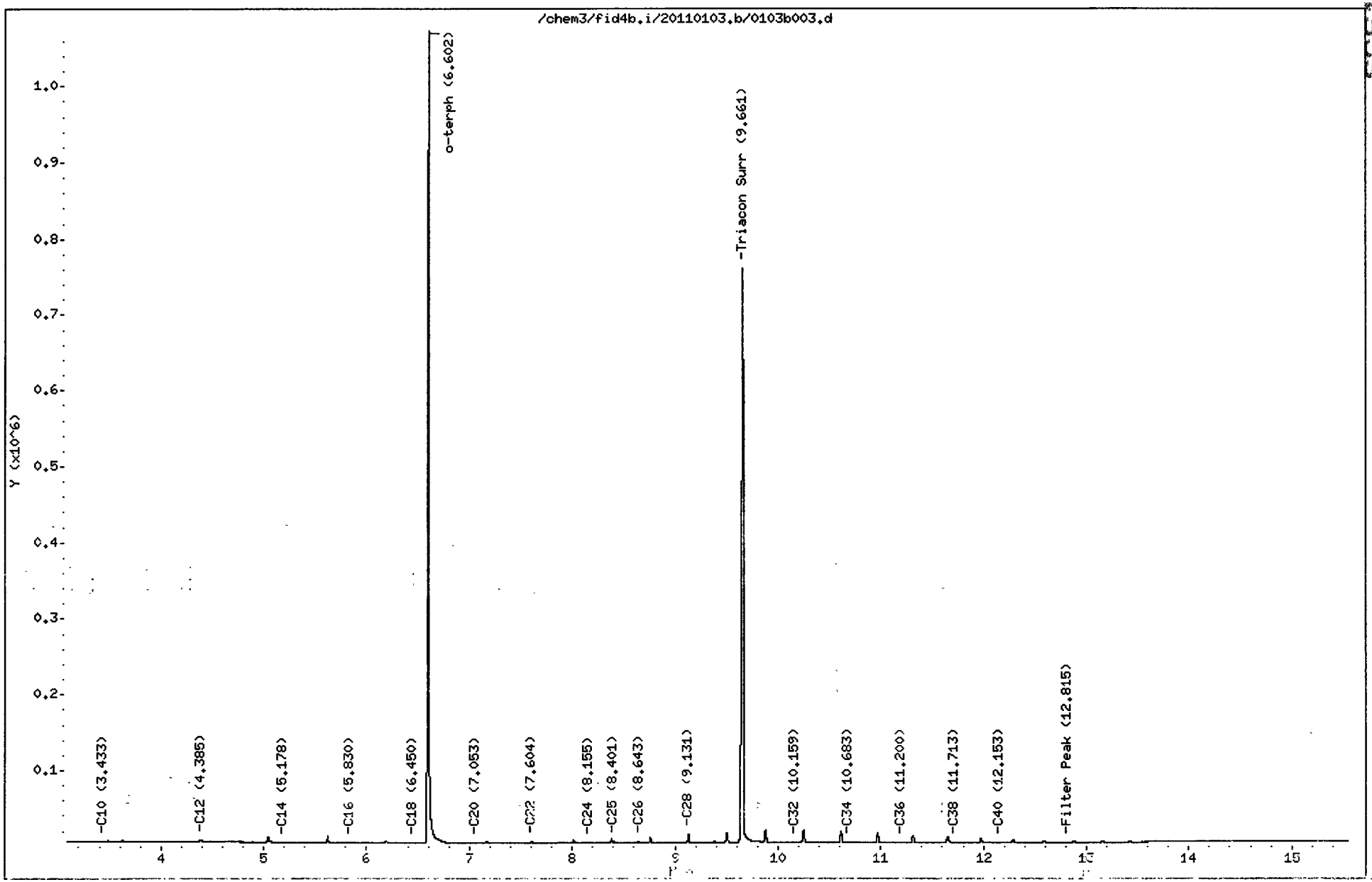
Analyte	RF	Curve Date
o-Terph Surr	23203.1	21-DEC-2010
Triacon Surr	20763.6	23-OCT-2010
Gas	39627.8	17-DEC-2010
Diesel	23413.5	21-DEC-2010
Motor Oil	13869.0	23-OCT-2010
AK102	26220.7	21-DEC-2010
AK103	6604.7	18-JUN-2010
JetA	8703.3	11-JAN-2010
OR Diesel	10525.0	22-JAN-2010
CRUDE	5712.9	22-MAY-2010
Bunker C	9102.6	22-DEC-2010
Hydraulic	11288.8	11-JAN-2010

Data File: /chem3/fid4b.i/20110103.b/0103b003.d
Date : 03-JAN-2011 09:50
Client ID: IB
Sample Info: IB

Column phase: RTX-1

Instrument: fid4b.i

Operator: JR
Column diameter: 0.25



SCB1 : 00141

Analytical Resources Inc.
407S TPH Quantitation Report

Data file: /chem3/fid4b.i/20110103.b/0103b035.d
Method: /chem3/fid4b.i/20110103.b/ftphfid4b.m
Instrument: fid4b.i
Operator: JR
Report Date: 01/07/2011
Macro: 22-DEC-2010

ARI ID: DIESEL#4
Client ID: GASCO DATA GAPS
Injection: 04-JAN-2011 03:12

Dilution Factor: 1

FID:4B RESULTS

Compound	RT	Shift	Height	Area	Range	Total Area	Conc
Toluene	1.592	0.018	12720	12628	GAS (Tol-C12)	1311630	33
C8	1.872	-0.015	5527	9654	DIESEL (C12-C24)	6089820	260 M
C10	3.431	-0.001	5511	3341	M.OIL (C24-C38)	102998	7
C12	4.401	-0.002	70023	46953	AK-102 (C10-C25)	6836107	261 M
C14	5.160	-0.009	116279	104310	AK-103 (C25-C36)	75244	11
C16	5.825	-0.007	231987	172926	OR.DIES (C10-C28)	6885244	654 M
C18	6.448	-0.003	197224	176882	CRUDE (Tol-C40)	7510565	1315 M
C20	7.046	-0.005	124460	102610			
C22	7.612	-0.004	56451	54159			
C24	8.148	0.003	11932	30470			
C25	8.397	-0.002	4534	5086			
C26	8.637	-0.005	1127	954			
C28	9.133	-0.004	3558	4154			
C32	10.157	-0.014	58	105			
C34	10.694	0.006	33	45	BUNKERC (C10-C38)	6918780	760 M
Filter Peak	12.833	0.007	438	461	HYDRAUL (C24-C38)	102998	9
C36	11.191	-0.004	69	60			
C38	11.685	0.001	151	150			
C40	12.163	0.005	217	78			
o-terph	6.605	0.002	1321228	1042322	JET-A (C10-C18)	4949672	569
Triacon Surr	9.670	0.007	80	64			

M Indicates manual integration within range.
Range Times: NW Diesel(4.403 - 8.145) AK102(3.43 - 8.40) Jet A(3.43 - 6.45)
NW M.Oil(8.145 - 11.68) AK103(8.40 - 11.19) OR Diesel(3.43 - 9.14)

Surrogate	Area	Amount	%Rec
o-Terphenyl	1042322	44.9	99.8
Triacontane	64	0.0	0.0

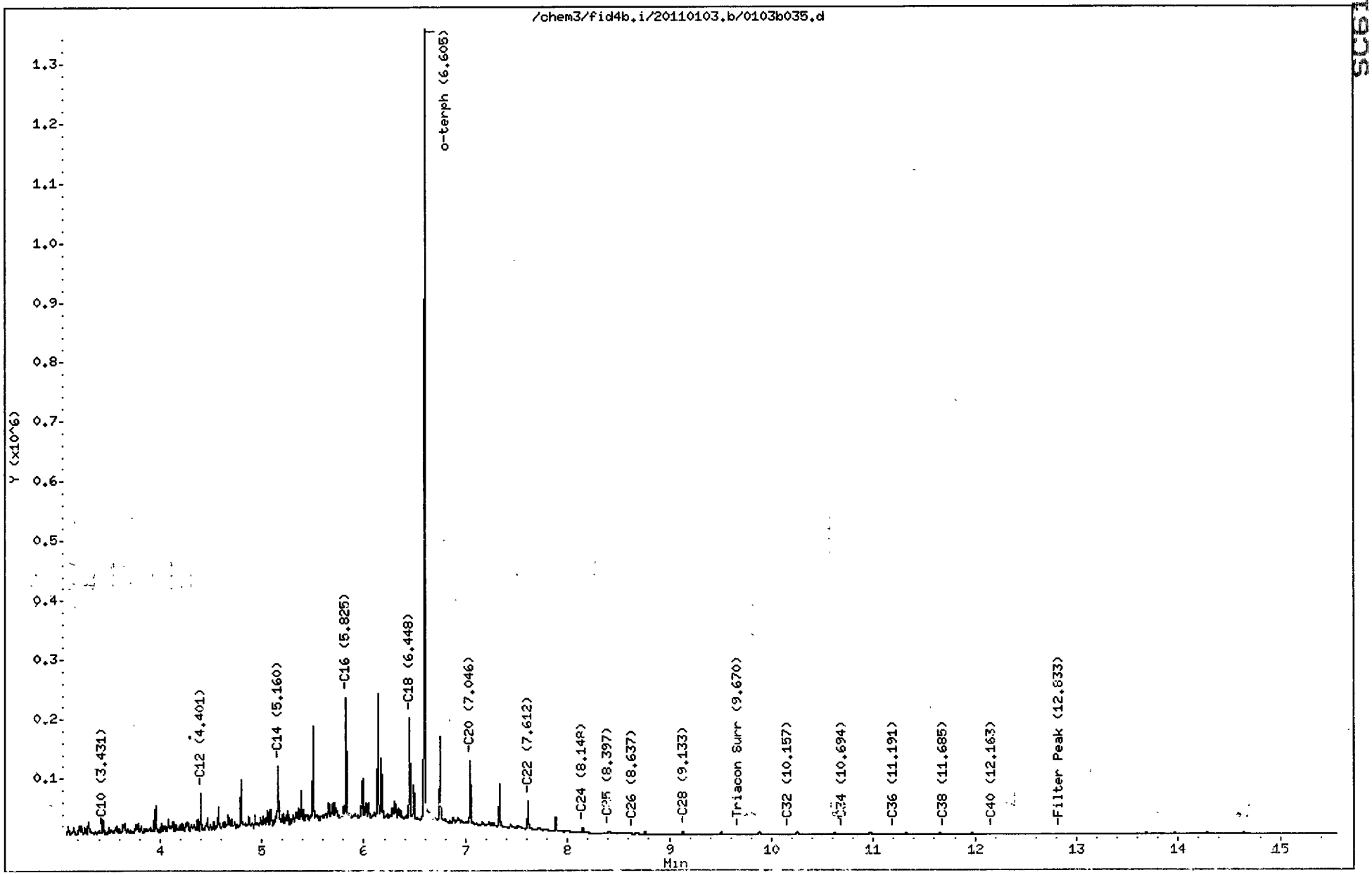
Analyte	RF	Curve Date
o-Terph Surr	23203.1	21-DEC-2010
Triacon Surr	20763.6	23-OCT-2010
Gas	39627.8	17-DEC-2010
Diesel	23413.5	21-DEC-2010
Motor Oil	13869.0	23-OCT-2010
AK102	26220.7	21-DEC-2010
AK103	6604.7	18-JUN-2010
JetA	8703.3	11-JAN-2010
OR Diesel	10525.0	22-JAN-2010
CRUDE	5712.9	22-MAY-2010
Bunker C	9102.6	22-DEC-2010
Hydraulic	11288.8	11-JAN-2010

Data File: /chem3/fid4b.i/20110103.b/0103b035.d
Date : 04-JAN-2011 03:12
Client ID: GASCO DATA GAPS
Sample Info: DIESEL#4

Column phase: RTX-1

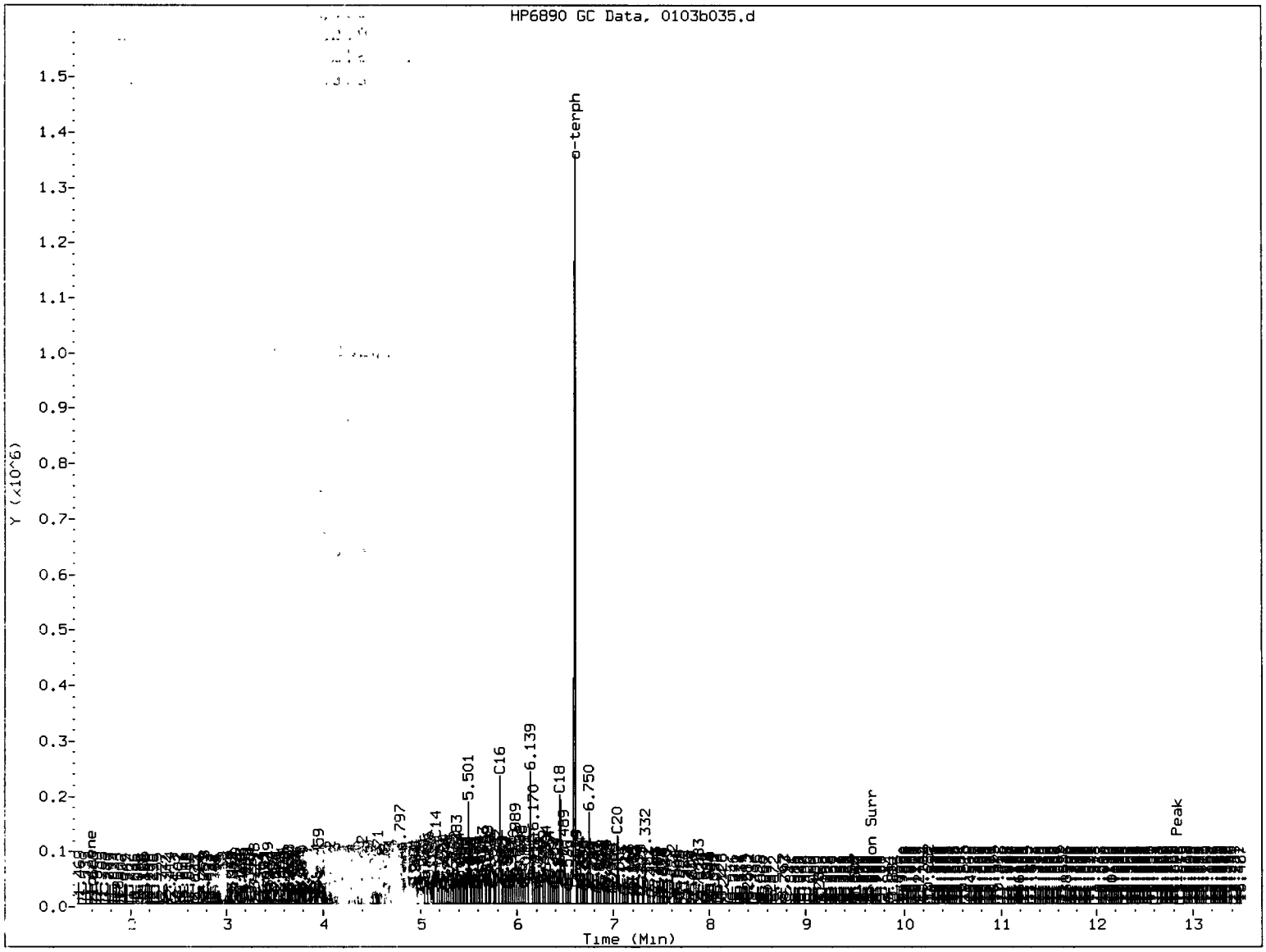
Instrument: fid4b.i

Operator: JR
Column diameter: 0.25



SC61 00143

FID:4B-2C/RTX-1 DIESEL#4 FID:4B SIGNAL



MANUAL INTEGRATION

1. Baseline correction
2. Poor chromatography
3. Peak not found
4. Totals calculation

5. Other _____

Analyst: _____ Date: 1/27/11

Analytical Resources Inc.
407S TPH Quantitation Report

Data file: /chem3/fid4b.i/20110103.b/0103b036.d
Method: /chem3/fid4b.i/20110103.b/ftphfid4b.m
Instrument: fid4b.i
Operator: JR
Report Date: 01/07/2011
Macro: 22-DEC-2010

ARI ID: MOIL#4
Client ID: GASCO DATA GAPS
Injection: 04-JAN-2011 03:35

Dilution Factor: 1

FID:4B RESULTS

Compound	RT	Shift	Height	Area	Range	Total Area	Conc
Toluene	1.551	-0.022	8180	24109	GAS (Tol-C12)	272661	7
C8	1.863	-0.023	4475	1954	DIESEL (C12-C24)	786507	34
C10	3.421	-0.011	1603	3197	M.OIL (C24-C38)	6112233	441 M
C12	4.381	-0.022	2708	6838	AK-102 (C10-C25)	1080293	41
C14	5.182	0.013	458	302	AK-103 (C25-C36)	5451087	825 M
C16	5.839	0.007	103	104	OR.DIES (C10-C28)	2636197	250
C18	6.458	0.006	294	447	CRUDE (Tol-C40)	7409188	1297 M
C20	7.050	-0.001	2606	4877			
C22	7.616	0.000	9575	8325			
C24	8.141	-0.005	20111	21156			
C25	8.414	0.015	28521	59987			
C26	8.634	-0.008	32064	37343			
C28	9.142	0.005	37578	18293			
C32	10.161	-0.009	38037	79344			
C34	10.691	0.003	31205	42463	BUNKERC (C10-C38)	6974296	766 M
Filter Peak	12.836	0.010	2436	915	HYDRAUL (C24-C38)	6112233	541
C36	11.187	-0.008	20677	21054			
C38	11.690	0.005	12037	20141			
C40	12.150	-0.008	6570	5954			
o-terph	6.607	0.004	2345	2163	JET-A (C10-C18)	123644	14
Triacon Surr	9.663	0.001	812325	957915			

M Indicates manual integration within range.
Range Times: NW Diesel(4.403 - 8.145) AK102(3.43 - 8.40) Jet A(3.43 - 6.45)
NW M.Oil(8.15 - 11.68) AK103(8.40 - 11.19) OR Diesel(3.43 - 9.14)

Surrogate	Area	Amount	%Rec
o-Terphenyl	2163	0.1	0.2
Triacontane	957915	46.1	102.5

Analyte	RF	Curve Date
o-Terph Surr	23203.1	21-DEC-2010
Triacon Surr	20763.6	23-OCT-2010
Gas	39627.8	17-DEC-2010
Diesel	23413.5	21-DEC-2010
Motor Oil	13869.0	23-OCT-2010
AK102	26220.7	21-DEC-2010
AK103	6604.7	18-JUN-2010
JetA	8703.3	11-JAN-2010
OR Diesel	10525.0	22-JAN-2010
CRUDE	5712.9	22-MAY-2010
Bunker C	9102.6	22-DEC-2010
Hydraulic	11288.8	11-JAN-2010

Data File: /chem3/fid4b.i/20110103.b/0103b036.d

Date : 04-JAN-2011 03:35

Client ID: GASCO DATA GAPS

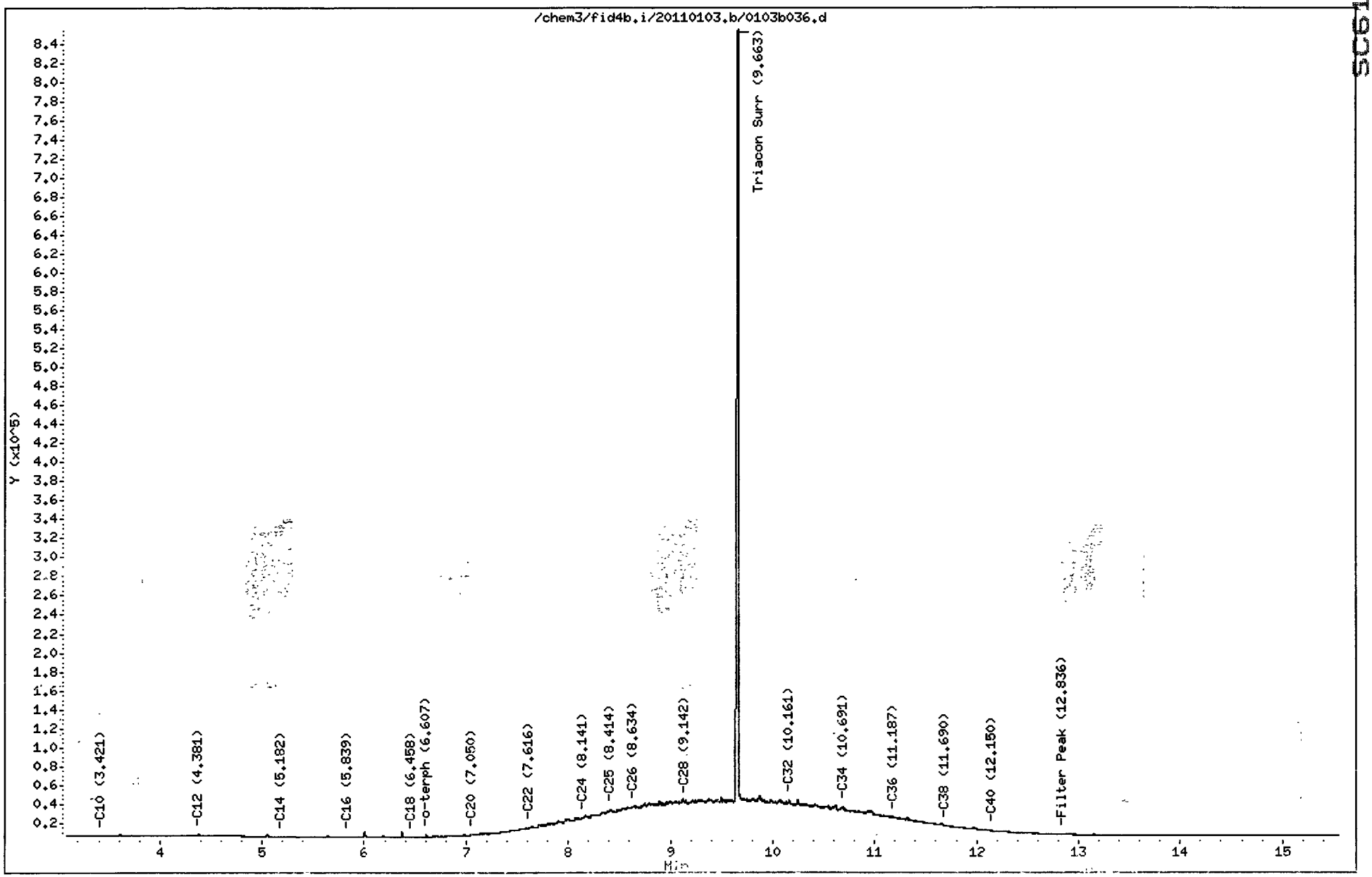
Sample Info: MOIL#4

Column phase: RTX-1

Instrument: fid4b.i

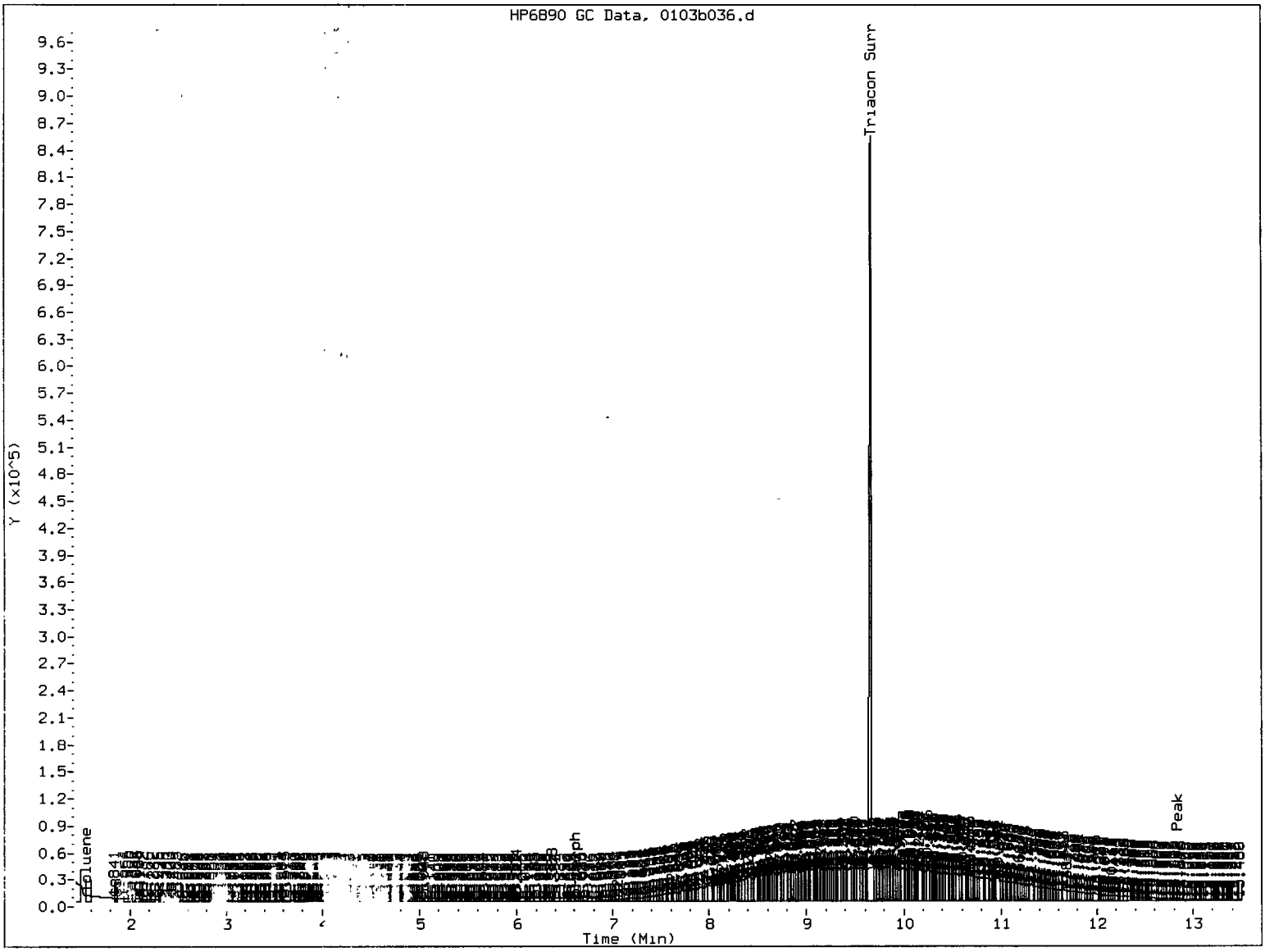
Operator: JR

Column diameter: 0.25



SC61 : 00146

FID:4B-2C/RTX-1 MOIL#4 FID:4B SIGNAL



MANUAL INTEGRATION

1. Baseline correction
2. Poor chromatography
3. Peak not found
4. Totals calculation

5. Other _____

Analyst: _____ Date: 1/7/11

Analytical Resources Inc.
407S TPH Quantitation Report

Data file: /chem3/fid4b.i/20110103.b/0103b037.d
Method: /chem3/fid4b.i/20110103.b/ftphfid4b.m
Instrument: fid4b.i
Operator: JR
Report Date: 01/07/2011
Macro: 22-DEC-2010

ARI ID: SC61MBS1
Client ID: SC61MBS1
Injection: 04-JAN-2011 03:58

Dilution Factor: 1

FID:4B RESULTS

Compound	RT	Shift	Height	Area	Range	Total Area	Conc
Toluene	1.584	0.011	8888	42698	GAS (Tol-C12)	483394	12
C8	1.857	-0.029	7768	24913	DIESEL (C12-C24)	74924	3
C10	3.415	-0.017	1965	4716	M.OIL (C24-C38)	51948	4
C12	4.396	-0.007	2219	3809	AK-102 (C10-C25)	156227	6
C14	5.166	-0.003	551	817	AK-103 (C25-C36)	42605	6
C16	5.849	0.018	311	644	OR.DIES (C10-C28)	165899	16
C18	6.450	-0.001	149	201	CRUDE (Tol-C40)	617668	108
C20	7.059	0.009	60	40			
C22	7.604	-0.012	900	687			
C24	8.143	-0.002	95	48			
C25	8.384	-0.014	1591	1214			
C26	8.642	0.000	63	66			
C28	9.133	-0.004	2695	2306			
C32	10.162	-0.008	137	269			
C34	10.689	0.002	84	32	BUNKERC (C10-C38)	207807	23
Filter Peak	12.818	-0.008	466	244	HYDRAUL (C24-C38)	51948	5
C36	11.187	-0.008	144	109			
C38	11.688	0.003	229	270			
C40	12.160	0.002	289	331			
o-terph	6.600	-0.002	937926	816644	JET-A (C10-C18)	131753	15
Triacon Surr	9.657	-0.006	747253	863268			

M Indicates manual integration within range.
Range Times: NW Diesel(4.403 - 8.145) AK102(3.43 - 8.40) Jet A(3.43 - 6.45)
NW M.Oil(8.15 - 11.68) AK103(8.40 - 11.19) OR Diesel(3.43 - 9.14)

Surrogate	Area	Amount	%Rec
o-Terphenyl	816644	35.2	78.2
Triacontane	863268	41.6	92.4

Analyte	RF	Curve Date
o-Terph Surr	23203.1	21-DEC-2010
Triacon Surr	20763.6	23-OCT-2010
Gas	39627.8	17-DEC-2010
Diesel	23413.5	21-DEC-2010
Motor Oil	13869.0	23-OCT-2010
AK102	26220.7	21-DEC-2010
AK103	6604.7	18-JUN-2010
JetA	8703.3	11-JAN-2010
OR Diesel	10525.0	22-JAN-2010
CRUDE	5712.9	22-MAY-2010
Bunker C	9102.6	22-DEC-2010
Hydraulic	11288.8	11-JAN-2010

1/7/11

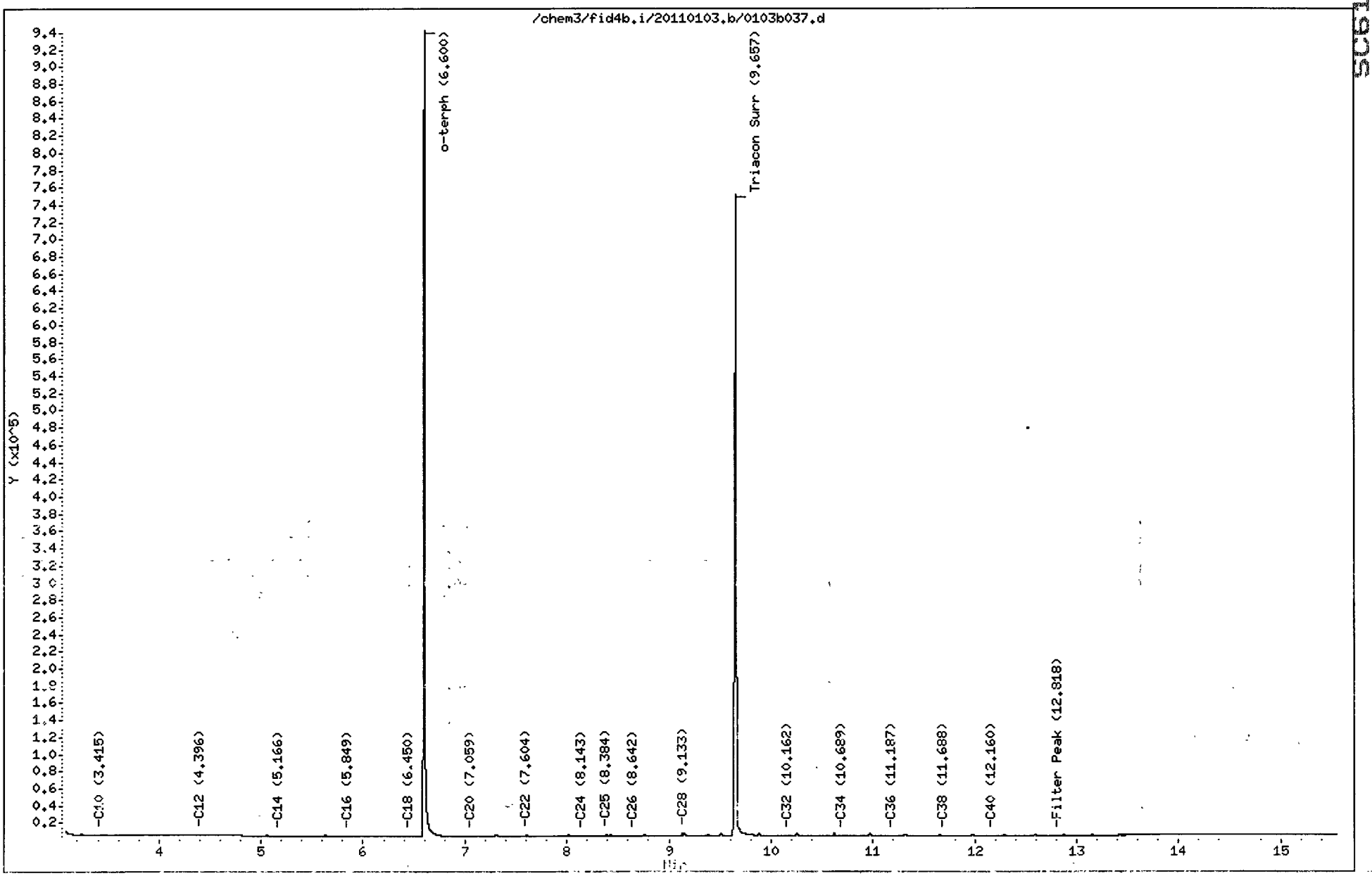
Data File: /chem3/fid4b.i/20110103.b/0103b037.d
Date : 04-JAN-2011 03:58
Client ID: SC61MBS1
Sample Info: SC61MBS1

Column phase: RTX-1

Instrument: fid4b.i

Operator: JR
Column diameter: 0.25

SC61 : 00149



Analytical Resources Inc.
407S TPH Quantitation Report

Befores

Data file: /chem3/fid4b.i/20110103.b/0103b038.d
Method: /chem3/fid4b.i/20110103.b/ftphfid4b.m
Instrument: fid4b.i
Operator: JR
Report Date: 01/07/2011
Macro: 22-DEC-2010

ARI ID: SC61LCSS1
Client ID: SC61LCSS1
Injection: 04-JAN-2011 04:21

Dilution Factor: 1

FID:4B RESULTS

Compound	RT	Shift	Height	Area	Range	Total Area	Conc
Toluene	1.589	0.016	28015	31325	GAS (Tol-C12)	4283712	108
C8	1.893	0.007	10198	12807	DIESEL (C12-C24)	28253849	1207
C10	3.426	-0.006	118260	77919	M.OIL (C24-C38)	439504	32
C12	4.391	-0.013	337083	246177	AK-102 (C10-C25)	31382992	1197
C14	5.176	0.007	124204	106869	AK-103 (C25-C36)	290062	44
C16	5.830	-0.002	909243	837883	OR.DIES (C10-C28)	31629517	3005
C18	6.457	0.005	798110	830048	CRUDE (Tol-C40)	32980173	5773
C20	7.050	0.000	546577	503759			
C22	7.612	-0.003	279279	256388			
C24	8.141	-0.004	89916	89087			
C25	8.393	-0.006	42186	46992			
C26	8.638	-0.005	16942	22699			
C28	9.132	-0.005	5459	5270			
C32	10.167	-0.003	280	684			
C34	10.679	-0.008	107	33	BUNKERC (C10-C38)	31678491	3480
Filter Peak	12.829	0.003	268	154	HYDRAUL (C24-C38)	439504	39
C36	11.188	-0.007	68	21			
C38	11.713	0.028	74	69			
C40	12.164	0.006	91	27			
o-terph	6.605	0.002	1207851	1448315	JET-A (C10-C18)	22791745	2619
Triacon Surr	9.660	-0.002	820703	933067			

M Indicates manual integration within range.
Range Times: NW Diesel(4.403 - 8.145) AK102(3.43 - 8.40) Jet A(3.43 - 6.45)
NW M.Oil(8.15 - 11.68) AK103(8.40 - 11.19) OR Diesel(3.43 - 9.14)

Surrogate	Area	Amount	%Rec
o-Terphenyl	1448315	62.4	138.7
Triacontane	933067	44.9	99.9

Analyte	RF	Curve Date
o-Terph Surr	23203.1	21-DEC-2010
Triacon Surr	20768.6	23-OCT-2010
Gas	39627.8	17-DEC-2010
Diesel	23413.5	21-DEC-2010
Motor Oil	13869.0	23-OCT-2010
AK102	26220.7	21-DEC-2010
AK103	6608.7	18-JUN-2010
JetA	8703.3	11-JAN-2010
OR Diesel	10525.0	22-JAN-2010
CRUDE	5712.9	22-MAY-2010
Bunker C	9102.6	22-DEC-2010
Hydraulic	11288.8	11-JAN-2010

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Data File: /chem3/fid4b.i/20110103.b/0103b038.d

Date : 04-JAN-2011 04:21

Client ID: SC61LCSS1

Sample Info: SC61LCSS1

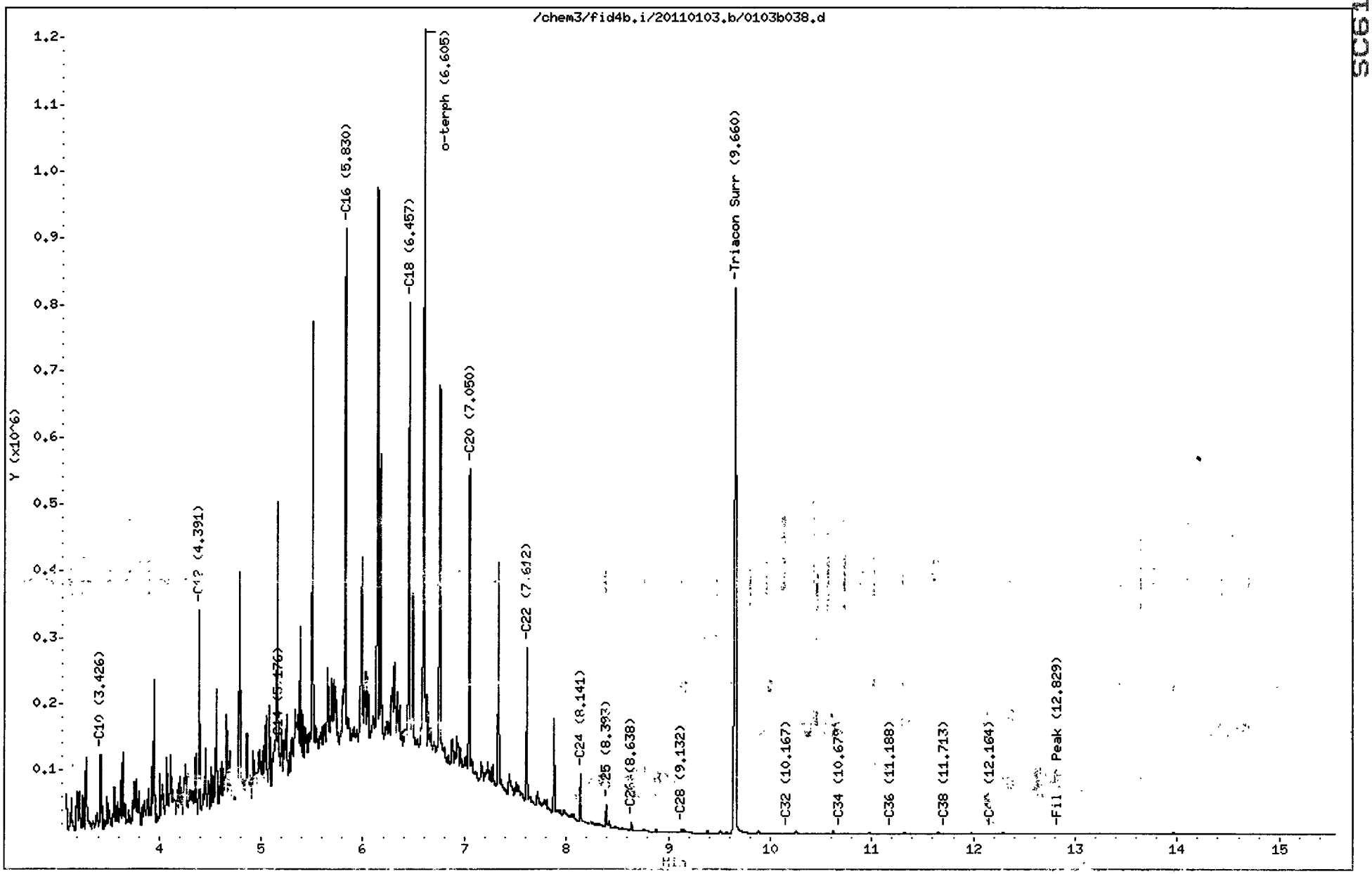
Column phase: RTX-1

Instrument: fid4b.i

Operator: JR

Column diameter: 0.25

SC61 : 00151



Analytical Resources Inc.
407S TPH Quantitation Report

Data file: /chem3/fid4b.i/20110103.b/0103b038.d
Method: /chem3/fid4b.i/20110103.b/ftphfid4b.m
Instrument: fid4b.i
Operator: JR
Report Date: 01/07/2011
Macro: 22-DEC-2010

ARI ID: SC61LCSS1
Client ID: SC61LCSS1
Injection: 04-JAN-2011 04:21

Dilution Factor: 1

FID:4B RESULTS

Compound	RT	Shift	Height	Area	Range	Total Area	Conc
Toluene	1.589	0.016	28015	31325	GAS (Tol-C12)	4283712	108
C8	1.893	0.007	10198	12807	DIESEL (C12-C24)	28849095	1232 M
C10	3.426	-0.006	118260	77919	M.OIL (C24-C38)	439504	32
C12	4.391	-0.013	337083	246177	AK-102 (C10-C25)	31978238	1220 M
C14	5.176	0.007	124204	106869	AK-103 (C25-C36)	290062	44
C16	5.830	-0.002	909243	837883	OR.DIES (C10-C28)	32224763	3062 M
C18	6.457	0.005	798110	830048	CRUDE (Tol-C40)	33575419	5877 M
C20	7.050	0.000	546577	503759			
C22	7.612	-0.003	279279	256388			
C24	8.141	-0.004	89916	89087			
C25	8.393	-0.006	42186	46992			
C26	8.638	-0.005	16942	22699			
C28	9.132	-0.005	5459	5270			
C32	10.167	-0.003	280	684			
C34	10.679	-0.008	107	33	BUNKERC (C10-C38)	32273737	3546 M
Filter Peak	12.879	0.003	268	154	HYDRAUL (C24-C38)	439504	39
C36	11.188	-0.007	68	21			
C38	11.713	0.028	74	69			
C40	12.164	0.006	91	27			
o-terph	6.605	0.002	1044305	856054	JET-A (C10-C18)	22791745	2619
Triacon Surr	9.660	-0.002	820703	933067			

M Indicates manual integration within range.
Range Times: NW Diesel(4.403 - 8.145) AK102(3.43 - 8.40) Jet A(3.43 - 6.45)
NW M.Oil(8.15 - 11.68) AK103(8.40 - 11.19) OR Diesel(3.43 - 9.14)

Surrogate	Area	Amount	%Rec
o-Terphenyl	856054	36.9	82.0
Triacontane	933067	44.9	99.9

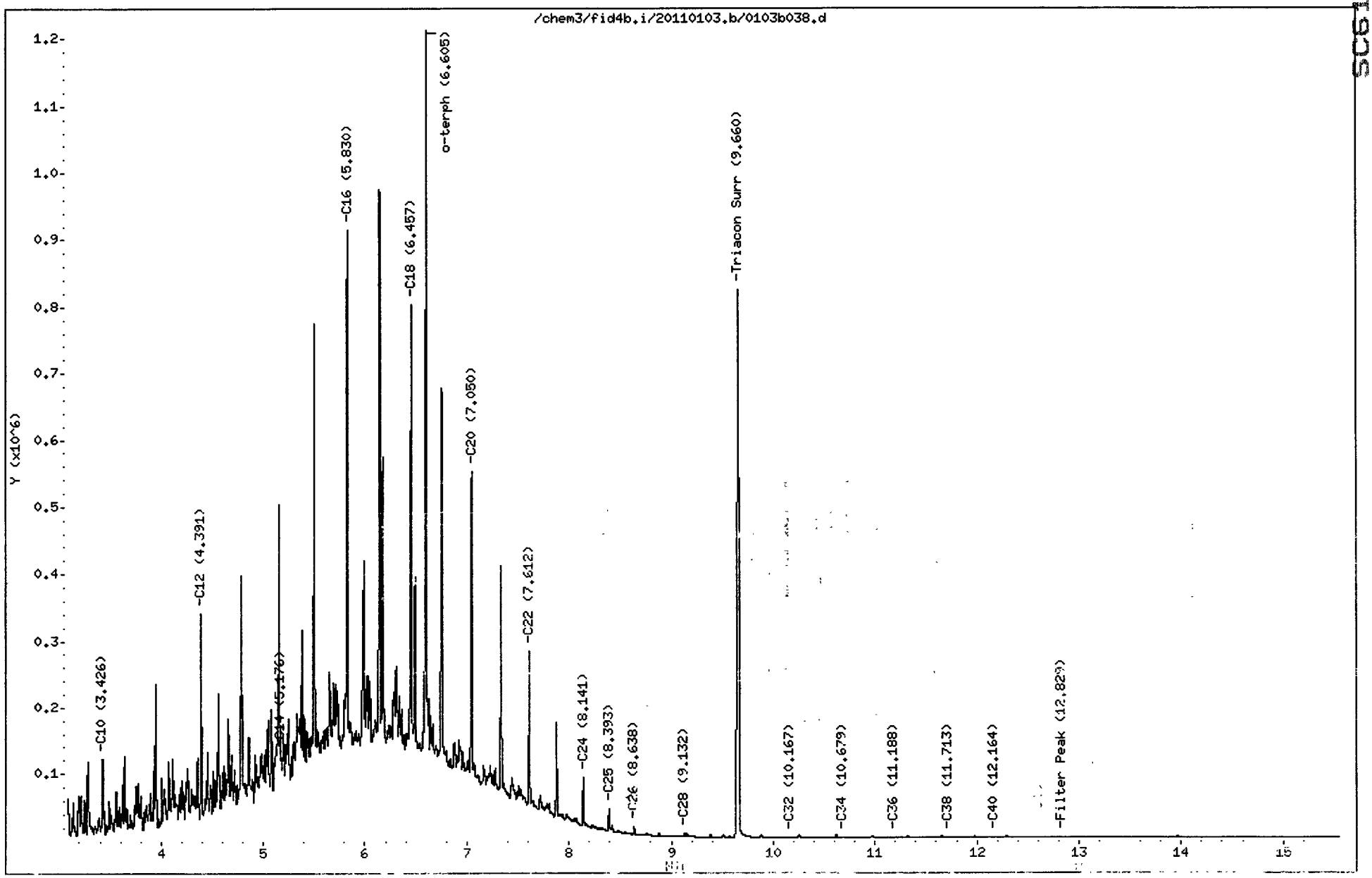
Analyte	RF	Curve Date
o-Terph Surr	23203.1	21-DEC-2010
Triacon Surr	20763.6	23-OCT-2010
Gas	39627.8	17-DEC-2010
Diesel	23413.5	21-DEC-2010
Motor Oil	13869.0	23-OCT-2010
AK102	26220.7	21-DEC-2010
AK103	6604.7	18-JUN-2010
JetA	8703.3	11-JAN-2010
OR Diesel	10525.0	22-JAN-2010
CRUDE	5712.9	22-MAY-2010
Bunker C	9102.6	22-DEC-2010
Hydraulic	11288.8	11-JAN-2010

Data File: /chem3/fid4b.i/20110103.b/0103b038.d
Date : 04-JAN-2011 04:21
Client ID: SC61LCSS1
Sample Info: SC61LCSS1

Column phase: RTX-1

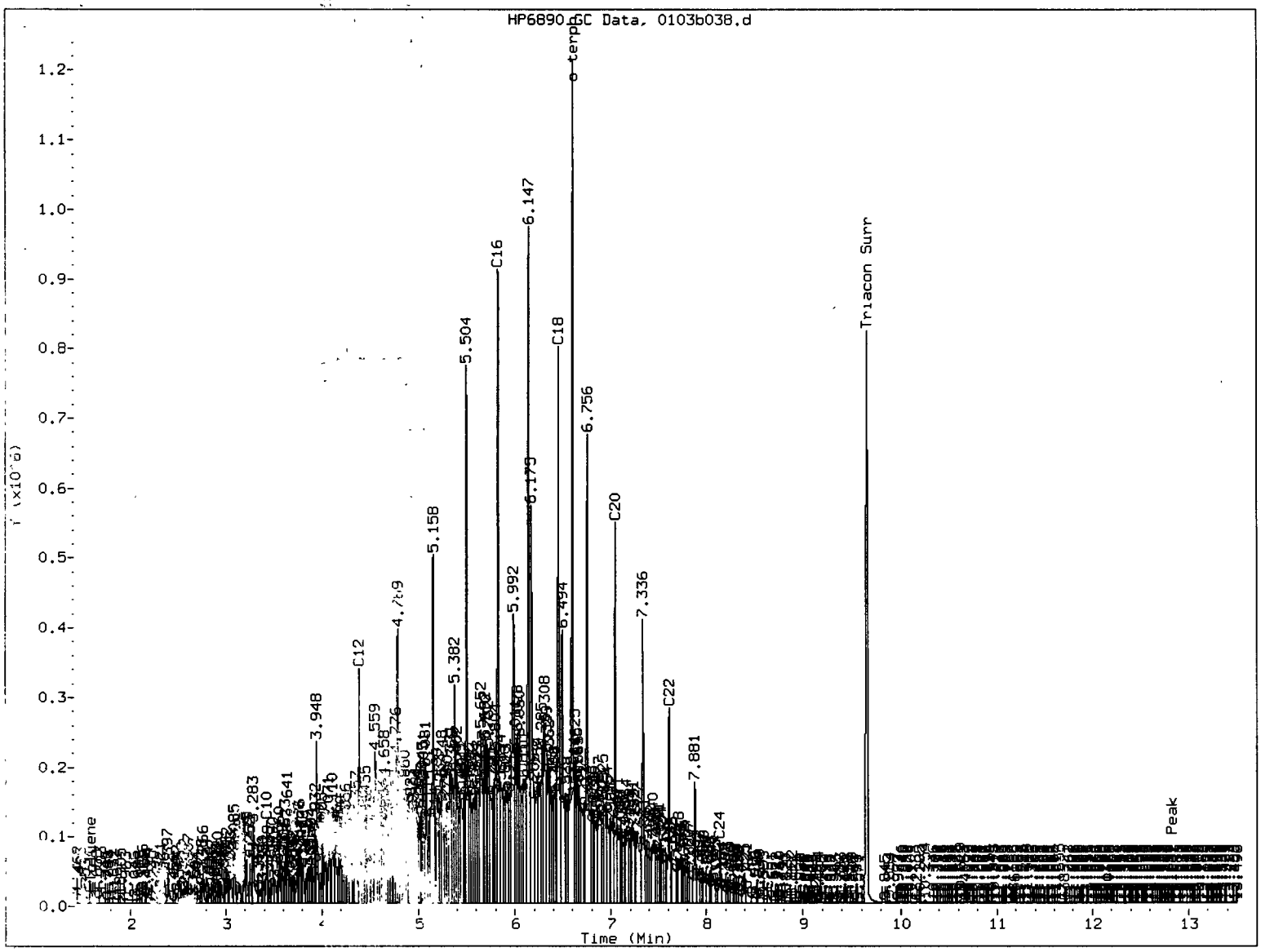
Instrument: fid4b.i

Operator: JR
Column diameter: 0.25



SC61 : 00153

FID:4B-2C/RTX-1 SC61LCSS1 FID:4B SIGNAL



MANUAL INTEGRATION

1. Baseline correction
2. Poor chromatography
3. Peak not found
4. Totals calculation

5. Other _____

Analyst: _____ Date: 6/4/11

SC61:00154

Analytical Resources Inc.
407S TPH Quantitation Report

Data file: /chem3/fid4b.i/20110103.b/0103b039.d
Method: /chem3/fid4b.i/20110103.b/ftphfid4b.m
Instrument: fid4b.i
Operator: JR
Report Date: 01/07/2011
Macro: 22-DEC-2010

ARI ID: SC61A
Client ID: GST-06SO-19-20-1010
Injection: 04-JAN-2011 04:44

Dilution Factor: 10

FID:4B RESULTS

Compound	RT	Shift	Height	Area	Range	Total Area	Conc
Toluene	1.584	0.010	11060	11942	GAS (Tol-C12)	1283707	32
C8	1.869	-0.017	3631	9328	DIESEL (C12-C24)	10022626	428
C10	3.416	-0.015	586	758	M.OIL (C24-C38)	7908948	570
C12	4.400	-0.004	14300	11705	AK-102 (C10-C25)	11505027	439
C14	5.162	-0.007	22897	24304	AK-103 (C25-C36)	7364086	1115
C16	5.834	0.002	25408	18614	OR.DIES (C10-C28)	14852444	1411
C18	6.446	-0.005	21770	16712	CRUDE (Tol-C40)	19305696	3379
C20	7.031	-0.019	69656	59718			
C22	7.610	-0.005	121366	138377			
C24	8.128	-0.019	445598	447088			
C25	8.397	-0.00[illegible]	51269	54083			
C26	8.627	-0.01[illegible]	53777	120800			
C28	9.142	0.005	48289	56404			
C32	10.178	0.008	28239	52565			
C34	10.699	0.012	15472	6979	BUNKERC (C10-C38)	19037280	2091
Filter Peak	12.825	-0.001	917	1177	HYDRAUL (C24-C38)	7908948	701
C36	11.208	0.013	8442	4302			
C38	11.703	0.018	4624	7886			
C40	12.133	-0.025	3664	3970			
o-terph	----				JET-A (C10-C18)	4480951	515
Triacon Surr	----						

M Indicates manual integration within range.
Range Times: NW Diesel(4.403 - 8.145) AK102(3.43 - 8.40) Jet A(3.43 - 6.45)
NW.M.Oil(8.15 - 11.68) AK103(8.40 - 11.19) OR Diesel(3.43 - 9.14)

Surrogate	Area	Amount	%Rec
o-Terphenyl	0	0.0	0.0
Triacontane	0	0.0	0.0

Analyte	RF	Curve Date
o-Terph Surr	23203.1	21-DEC-2010
Triacon Surr	20763.6	23-OCT-2010
Gas	39627.8	17-DEC-2010
Diesel	23413.5	21-DEC-2010
Motor Oil	13869.0	23-OCT-2010
AK102	26220.7	21-DEC-2010
AK103	6604.7	18-JUN-2010
JetA	8703.3	11-JAN-2010
OR.Diesel	10525.0	22-JAN-2010
CRUDE	5712.9	22-MAY-2010
Bunker C	9102.6	22-DEC-2010
Hydraulic	11288.8	11-JAN-2010

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Data File: /chem3/fid4b.i/20110103.b/0103b039.d

Date : 04-JAN-2011 04:44

Client ID: GST-06SO-19-20-1010

Sample Info: SC61A,10

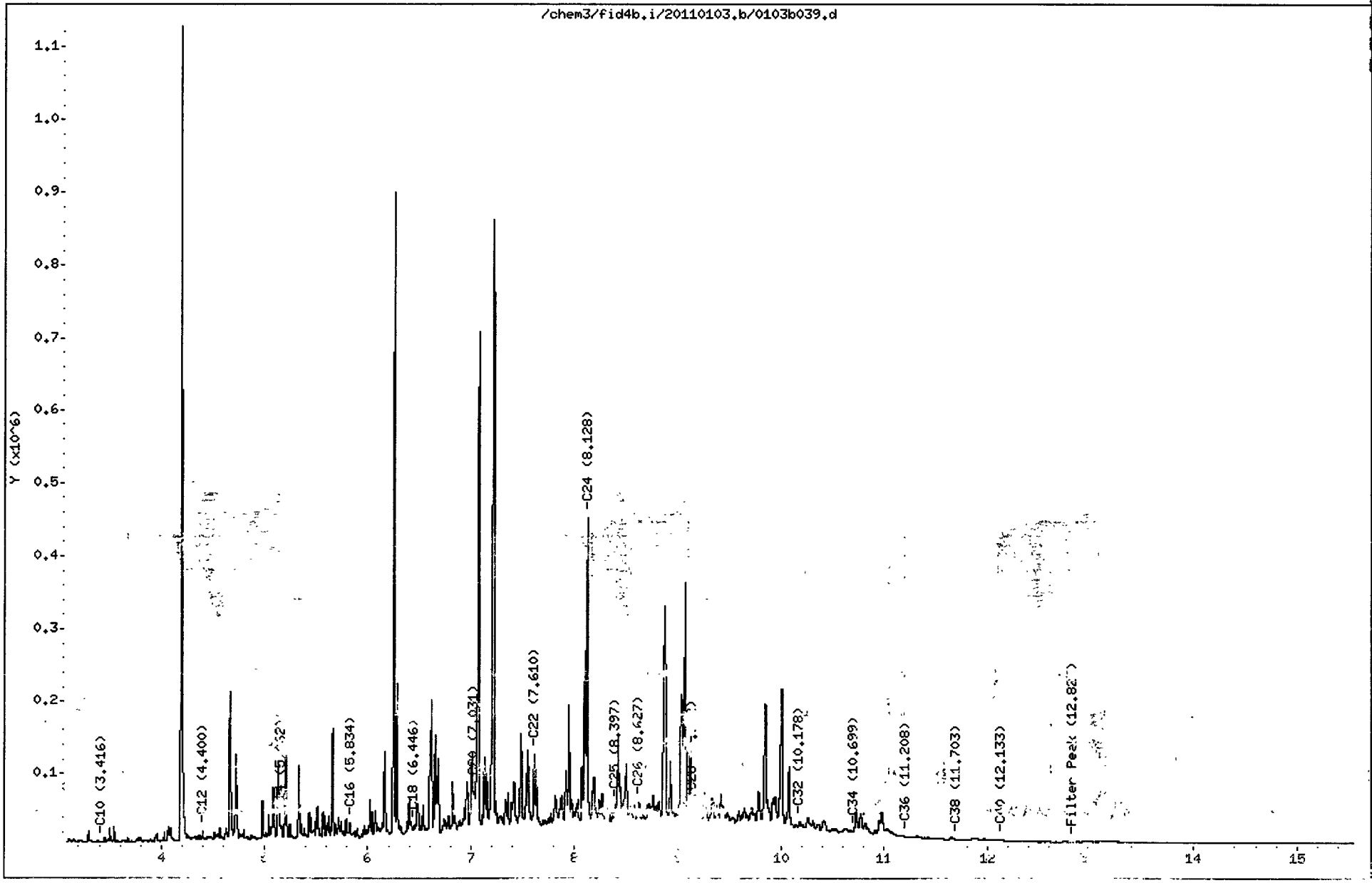
Column phase: RTX-1

Instrument: fid4b.i

Operator: JR

Column diameter: 0.25

SC61 : 00156



Analytical Resources Inc.
407S TPH Quantitation Report

Data file: /chem3/fid4b.i/20110103.b/0103b040.d
Method: /chem3/fid4b.i/20110103.b/ftphfid4b.m
Instrument: fid4b.i
Operator: JR
Report Date: 01/07/2011
Macro: 22-DEC-2010

ARI ID: SC61AMS
Client ID: GST-06SO-19-20- MS
Injection: 04-JAN-2011 05:07

Dilution Factor: 10

FID:4B RESULTS

Compound	RT	Shift	Height	Area	Range	Total Area	Conc
Toluene	1.583	0.010	13191	33929	GAS (Tol-C12)	1662398	42
C8	1.879	-0.008	3265	1365	DIESEL (C12-C24)	12963604	554
C10	3.448	0.017	8228	6716	M.OIL (C24-C38)	9900663	714
C12	4.396	-0.008	20485	15981	AK-102 (C10-C25)	14893372	568
C14	5.161	-0.008	32233	31325	AK-103 (C25-C36)	9235043	1398
C16	5.824	-0.007	43001	42308	OR.DIES (C10-C28)	19239092	1828
C18	6.446	-0.005	35554	38938	CRUDE (Tol-C40)	24642665	4313
C20	7.051	0.001	116918	100219			
C22	7.612	-0.003	153867	182960			
C24	8.134	-0.011	541729	575126			
C25	8.399	0.000	63206	75955			
C26	8.632	-0.010	70606	161571			
C28	9.129	-0.008	184295	210161			
C32	10.187	0.016	35520	64135			
C34	10.677	-0.010	20668	47194	BUNKERC (C10-C38)	24313726	2671
Filter Peak	12.826	0.001	1228	1764	HYDRAUL (C24-C38)	9900663	877
C36	11.204	0.010	9672	11318			
C38	11.699	0.014	5098	3200			
C40	12.130	-0.028	4370	5498			
o-terph	----				JET-A (C10-C18)	5836308	671
Triacon Surr	----						

M Indicates manual integration within range.
Range Times: NW Diesel(4.403 - 8.145) AK102(3.43 - 8.40) Jet A(3.43 - 6.45)
NW M.Oil(8.15 - 11.68) AK103(8.40 - 11.19) OR Diesel(3.43 - 9.14)

Surrogate	Area	Amount	%Rec
o-Terphenyl	0	0.0	0.0
Triacontane	0	0.0	0.0

D

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Analyte	RF	Curve Date
o-Terph Surr	23203.1	21-DEC-2010
Triacon Surr	20763.6	23-OCT-2010
Gas	39627.8	17-DEC-2010
Diesel	23413.5	21-DEC-2010
Motor Oil	13869.0	23-OCT-2010
AK102	26220.7	21-DEC-2010
AK103	6604.7	18-JUN-2010
JetA	8703.3	11-JAN-2010
OR Diesel	10525.0	22-JAN-2010
CRUDE	5712.9	22-MAY-2010
Bunker C	9102.6	22-DEC-2010
Hydraulic	11288.8	11-JAN-2010

Data File: /chem3/fid4b.i/20110103.b/0103b040.d

Date : 04-JAN-2011 05:07

Client ID: GST-06SO-19-20- MS

Sample Info: SC61AMS,10

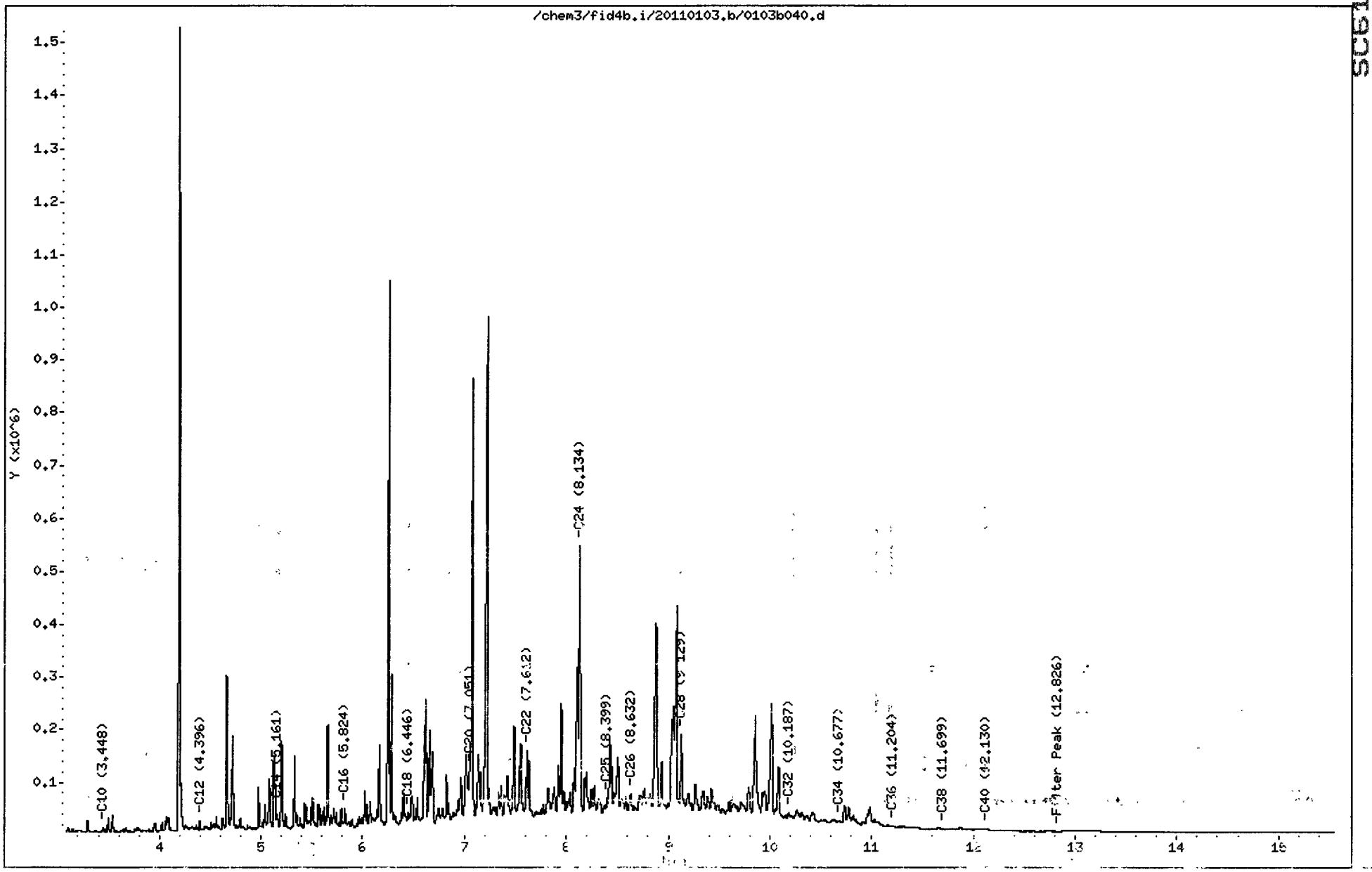
Column phase: RTX-1

Instrument: fid4b.i

Operator: JR

Column diameter: 0.25

SC61 : 00158



Analytical Resources Inc.
407S TPH Quantitation Report

Data file: /chem3/fid4b.i/20110103.b/0103b041.d
Method: /chem3/fid4b.i/20110103.b/ftphfid4b.m
Instrument: fid4b.i
Operator: JR
Report Date: 01/07/2011
Macro: 22-DEC-2010

ARI ID: SC61AMSD
Client ID: GST-06SO-19-20- MSD
Injection: 04-JAN-2011 05:30

Dilution Factor: 10

FID:4B RESULTS

Compound	RT	Shift	Height	Area	Range	Total Area	Conc
Toluene	1.579	0.006	11423	11018	GAS (Tol-C12)	1523149	38
C8	1.892	0.006	2539	4098	DIESEL (C12-C24)	11917644	509
C10	3.449	0.017	7606	5750	M.OIL (C24-C38)	8620065	622
C12	4.398	-0.006	18213	14426	AK-102 (C10-C25)	13688711	522
C14	5.162	-0.007	27984	27199	AK-103 (C25-C36)	8020356	1214
C16	5.824	-0.007	38814	57889	OR.DIES (C10-C28)	17553699	1668
C18	6.446	-0.005	31670	26228	CRUDE (Tol-C40)	22173825	3881
C20	7.083	0.033	829828	922539			
C22	7.611	-0.004	136504	158241			
C24	8.133	-0.012	527475	527948			
C25	8.400	0.001	56142	57819			
C26	8.629	-0.014	61738	142080			
C28	9.126	-0.011	165394	259120			
C32	10.178	0.008	29428	54062			
C34	10.679	-0.009	17440	32255	BUNKERC (C10-C38)	21884609	2404
Filter Peak	12.816	-0.010	1331	1777	HYDRAUL (C24-C38)	8620065	764
C36	11.211	0.016	8333	12939			
C38	11.697	0.012	4628	2818			
C40	12.134	-0.024	4101	8018			
o-terph	----				JET-A (C10-C18)	5361845	616
Triacon Surr	----						

M Indicates manual integration within range.
Range Times: NW Diesel(4.403 - 8.145) AK102(3.43 - 8.40) Jet A(3.43 - 6.45)
NW M.Oil(8.15 - 11.68) AK103(8.40 - 11.19) OR Diesel(3.43 - 9.14)

Surrogate	Area	Amount	%Rec
o-Terphenyl	0	0.0	0.0
Triacontane	0	0.0	0.0

D

Analyte	RF	Curve Date
o-Terph Surr	23203.1	21-DEC-2010
Triacon Surr	20763.6	23-OCT-2010
Gas	39627.8	17-DEC-2010
Diesel	23413.5	21-DEC-2010
Motor Oil	13869.0	23-OCT-2010
AK102	26220.7	21-DEC-2010
AK103	6604.7	18-JUN-2010
JetA	8703.3	11-JAN-2010
OR Diesel	10525.0	22-JAN-2010
CRUDE	5712.9	22-MAY-2010
Bunker C	9102.6	22-DEC-2010
Hydraulic	11288.8	11-JAN-2010

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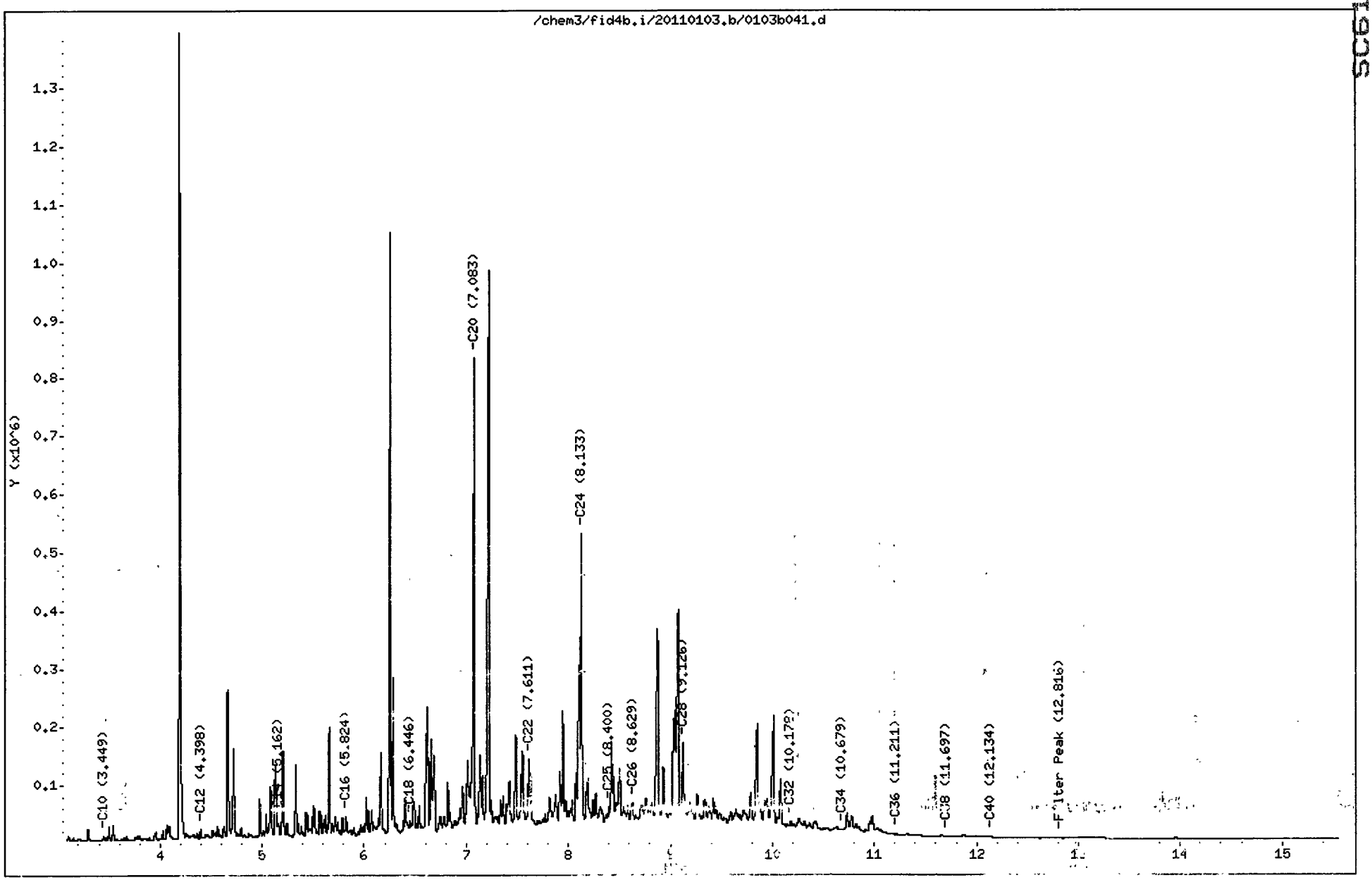
Data File: /chem3/fid4b.i/20110103.b/0103b041.d
Date : 04-JAN-2011 05:30
Client ID: GST-06SO-19-20- MSD
Sample Info: SC61AMSD,10

Column phase: RTX-1

Instrument: fid4b.i

Operator: JR
Column diameter: 0.25

SC61 : 00160



Analytical Resources Inc.
407S TPH Quantitation Report

Data file: /chem3/fid4b.i/20110103.b/0103b042.d
Method: /chem3/fid4b.i/20110103.b/ftphfid4b.m
Instrument: fid4b.i
Operator: JR
Report Date: 01/07/2011
Macro: 22-DEC-2010

ARI ID: SC61B
Client ID: GST-06SO-26-26.5-10
Injection: 04-JAN-2011 05:53

Dilution Factor: 50

FID:4B RESULTS

Compound	RT	Shift	Height	Area	Range	Total Area	Conc
Toluene	1.579	0.005	48624	54980	GAS (Tol-C12)	11929361	301
C8	1.898	0.011	2557	6906	DIESEL (C12-C24)	28816308	1231
C10	3.434	0.002	52858	41645	M.OIL (C24-C38)	7738028	558
C12	4.390	-0.014	67505	52940	AK-102 (C10-C25)	40362696	1539
C14	5.157	-0.012	64221	45878	AK-103 (C25-C36)	7293586	1104
C16	5.832	0.000	80445	130427	OR.DIES (C10-C28)	44102582	4190
C18	6.438	-0.014	44958	42060	CRUDE (Tol-C40)	48567717	8501
C20	7.016	-0.035	113790	269402			
C22	7.616	0.000	137807	133918			
C24	8.137	-0.009	595890	610305			
C25	8.400	0.001	47938	47933			
C26	8.630	-0.013	52336	95343			
C28	9.128	-0.009	196102	235451			
C32	10.180	0.009	20544	31396			
C34	10.675	-0.013	10620	24370	BUNKERC (C10-C38)	47753437	5246
Filter Peak	12.828	0.002	604	514	HYDRAUL (C24-C38)	7738028	685
C36	11.210	0.015	5161	7393			
C38	11.656	-0.029	4870	14512			
C40	12.133	-0.025	3951	6730			
o-terph	----				JET-A (C10-C18)	28752464	3304
Triacon Surr	----						

M Indicates manual integration within range.
Range Times: NW Diesel(4.403 - 8.145) AK102(3.43 - 8.40) Jet A(3.43 - 6.45)
NW M.Oil(8.15 - 11.68) AK103(8.40 - 11.19) OR Diesel(3.43 - 9.14)

Surrogate	Area	Amount	%Rec
o-Terphenyl	0	0.0	0.0
Triacontane	0	0.0	0.0

D

Analyte	RF	Curve Date
o-Terph Surr	23203.1	21-DEC-2010
Triacon Surr	20763.6	23-OCT-2010
Gas	39627.8	17-DEC-2010
Diesel	23413.5	21-DEC-2010
Motor Oil	13869.0	23-OCT-2010
AK102	26220.7	21-DEC-2010
AK103	6604.7	18-JUN-2010
JetA	8703.3	11-JAN-2010
OR Diesel	10525.0	22-JAN-2010
CRUDE	5712.9	22-MAY-2010
Bunker C	9102.6	22-DEC-2010
Hydraulic	11288.8	11-JAN-2010

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Data File: /chem3/fid4b.i/20110103.b/0103b042.d

Date : 04-JAN-2011 05:53

Client ID: GST-06SO-26-26.5-10

Sample Info: SC61B,50

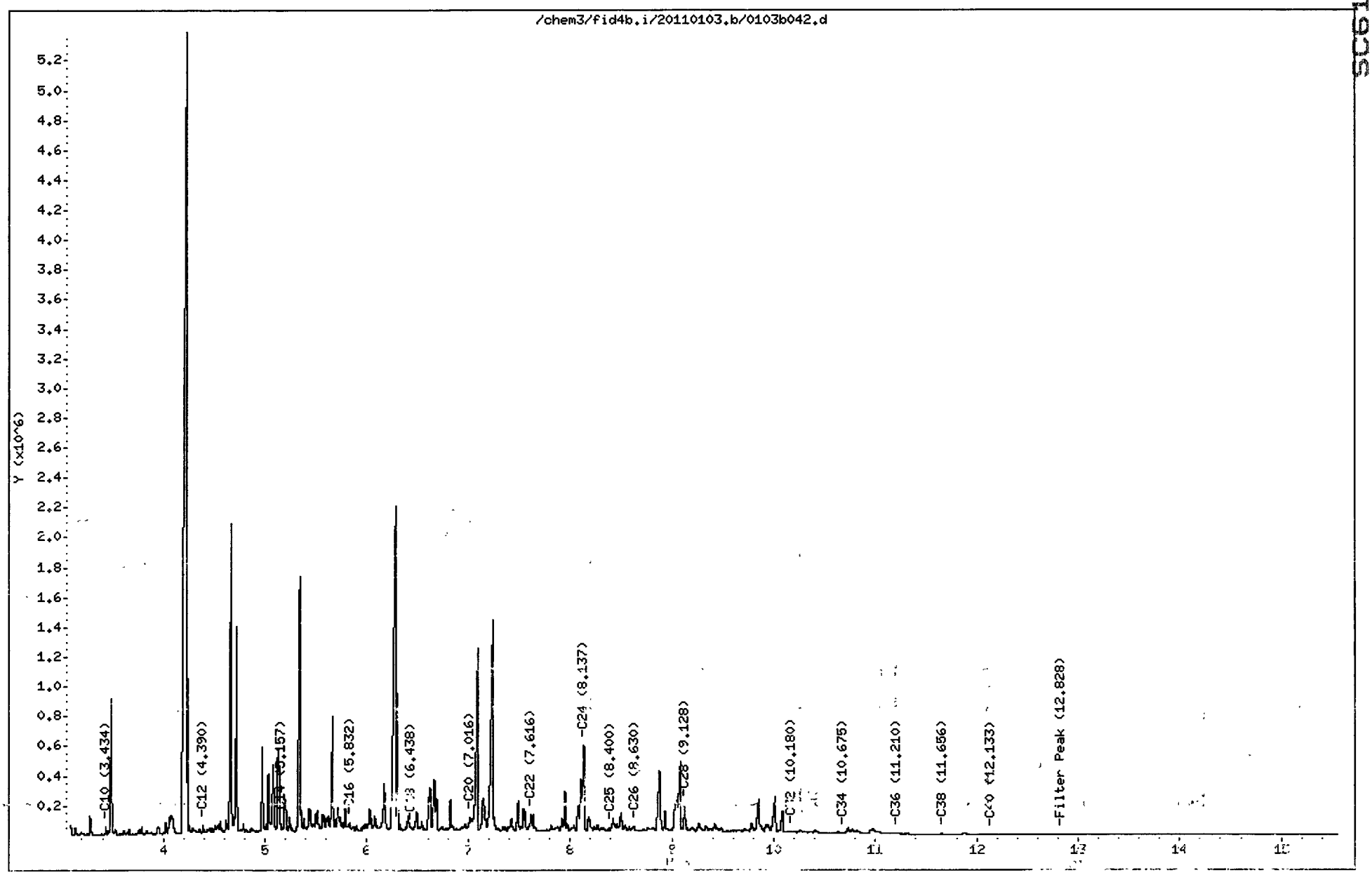
Column phase: RTX-1

Instrument: fid4b.i

Operator: JR

Column diameter: 0.25

SC61 : 00162



Analytical Resources Inc.
407S TPH Quantitation Report

Data file: /chem3/fid4b.i/20110103.b/0103b043.d
Method: /chem3/fid4b.i/20110103.b/ftphfid4b.m
Instrument: fid4b.i
Operator: JR
Report Date: 01/07/2011
Macro: 22-DEC-2010

ARI ID: SC61C
Client ID: GST-06SO-27-27.5-10
Injection: 04-JAN-2011 06:16

Dilution Factor: 50

FID:4B RESULTS

Compound	RT	Shift	Height	Area	Range	Total Area	Conc
Toluene	1.580	0.006	55084	59519	GAS (Tol-C12)	7050198	178
C8	1.887	0.000	2603	2329	DIESEL (C12-C24)	18219435	778
C10	3.437	0.006	26757	20257	M.OIL (C24-C38)	6216408	448
C12	4.391	-0.012	42484	33737	AK-102 (C10-C25)	25080728	957
C14	5.159	-0.010	86759	78114	AK-103 (C25-C36)	5859660	887
C16	5.823	-0.008	73229	93736	OR.DIES (C10-C28)	28133054	2673
C18	6.445	-0.006	41524	45109	CRUDE (Tol-C40)	31549429	5522
C20	7.015	-0.036	78290	133953			
C22	7.610	-0.006	99033	91445			
C24	8.134	-0.011	557507	577808			
C25	8.398	-0.001	38518	37816			
C26	8.629	-0.014	46797	83422			
C28	9.146	0.009	34044	39423			
C32	10.174	0.004	17194	26585			
C34	10.672	-0.015	9286	18347	BUNKERC (C10-C38)	31013905	3407
Filter Peak	12.819	-0.007	503	605	HYDRAUL (C24-C38)	6216408	551
C36	11.197	0.002	4453	2175			
C38	11.704	0.019	1918	711			
C40	12.146	-0.012	2783	3923			
o-terph	----				JET-A (C10-C18)	16628116	1911
Triacon Surr	----						

M Indicates manual integration within range.
Range Times: NW Diesel(4.403 - 8.145) AK102(3.43 - 8.40) Jet A(3.43 - 6.45)
NW M.Oil(8.15 - 11.68) AK103(8.40 - 11.19) OR Diesel(3.43 - 9.14)

Surrogate	Area	Amount	%Rec
o-Terphenyl	0	0.0	0.0
Triacontane	0	0.0	0.0

D

Analyte	RF	Curve Date
o-Terph Surr	23203.1	21-DEC-2010
Triacon Surr	20763.6	23-OCT-2010
Gas	39627.8	17-DEC-2010
Diesel	23413.5	21-DEC-2010
Motor Oil	13869.0	23-OCT-2010
AK102	26220.7	21-DEC-2010
AK103	6604.7	18-JUN-2010
JetA	8703.3	11-JAN-2010
OR Diesel	10525.0	22-JAN-2010
CRUDE	5712.9	22-MAY-2010
Bunker C	9102.6	22-DEC-2010
Hydraulic	11288.8	11-JAN-2010

1/7/11

Data File: /chem3/fid4b.i/20110103.b/0103b043.d

Date : 04-JAN-2011 06:16

Client ID: GST-06SO-27-27.5-10

Sample Info: SC61C,50

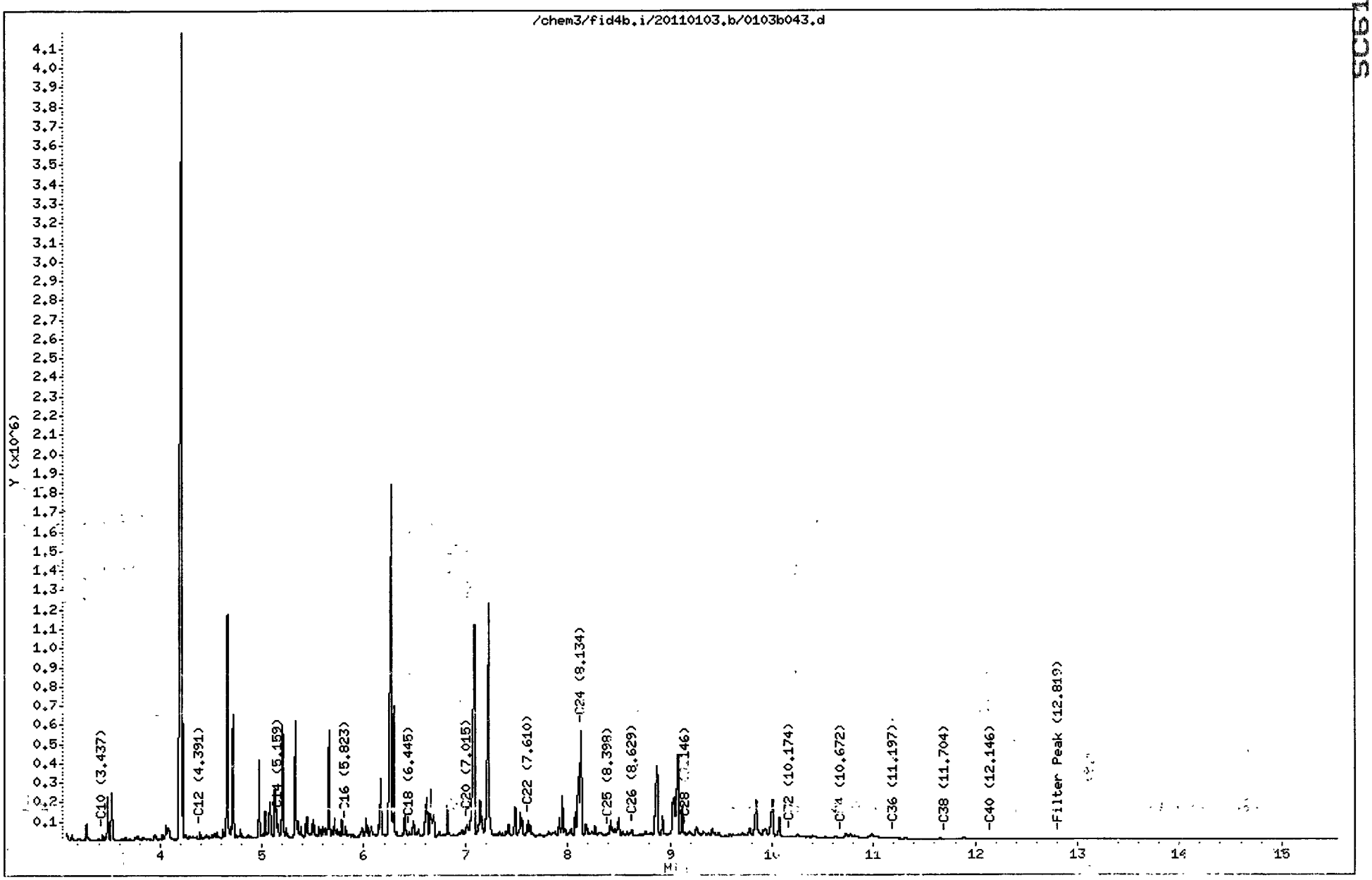
Column phase: RTX-1

Instrument: fid4b.i

Operator: JR

Column diameter: 0.25

SC61 : 00164



Analytical Resources Inc.
407S TPH Quantitation Report

Data file: /chem3/fid4b.i/20110103.b/0103b044.d
Method: /chem3/fid4b.i/20110103.b/ftphfid4b.m
Instrument: fid4b.i
Operator: JR
Report Date: 01/07/2011
Macro: 22-DEC-2010

ARI ID: SC61D
Client ID: GST-06SO-29-30-1010
Injection: 04-JAN-2011 06:39

Dilution Factor: 20

FID:4B RESULTS

Compound	RT	Shift	Height	Area	Range	Total Area	Conc
Toluene	1.580	0.007	221481	203123	GAS (Tol-C12)	16168146	408
C8	1.902	0.016	3152	8050	DIESEL (C12-C24)	36994790	1580
C10	3.434	0.003	53136	45223	M.OIL (C24-C38)	13299844	959
C12	4.412	0.009	17505	9257	AK-102 (C10-C25)	52755775	2012
C14	5.157	-0.012	188485	158364	AK-103 (C25-C36)	12412622	1879
C16	5.823	-0.008	112459	140832	OR.DIES (C10-C28)	59417115	5645
C18	6.446	-0.006	75153	69069	CRUDE (Tol-C40)	66581242	11654
C20	7.024	-0.027	118743	238086			
C22	7.623	0.007	193956	260824			
C24	8.153	0.008	883665	977348			
C25	8.407	0.008	73471	68683			
C26	8.637	-0.005	86985	110781			
C28	9.153	0.016	320715	434848			
C32	10.150	-0.020	27428	56711			
C34	10.681	-0.006	17767	25653	BUNKERC (C10-C38)	65329534	7177
Filter Peak	12.821	-0.005	1440	1115	HYDRAUL (C24-C38)	13299844	1178
C36	11.209	0.014	8607	14824			
C38	11.703	0.018	4647	9212			
C40	12.185	0.027	2945	2518			
o-terph	----				JET-A (C10-C18)	34398786	3952
Triacon Surr	----						

M Indicates manual integration within range.
Range Times: NW Diesel(4.403 - 8.145) AK102(3.43 - 8.40) Jet A(3.43 - 6.45)
NW M.Oil(8.15 - 11.68) AK103(8.40 - 11.19) OR Diesel(3.43 - 9.14)

Surrogate	Area	Amount	%Rec
o-Terphenyl	0	0.0	0.0
Triacontane	0	0.0	0.0

D

1/7/11

Analyte	RF	Curve Date
o-Terph Surr	23203.1	21-DEC-2010
Triacon Surr	20763.6	23-OCT-2010
Gas	39627.8	17-DEC-2010
Diesel	23413.5	21-DEC-2010
Motor Oil	13869.0	23-OCT-2010
AK102	26220.7	21-DEC-2010
AK103	6604.7	18-JUN-2010
JetA	8703.3	11-JAN-2010
OR Diesel	10525.0	22-JAN-2010
CRUDE	5712.9	22-MAY-2010
Bunker C	9102.5	22-DEC-2010
Hydraulic	11288.8	11-JAN-2010

Data File: /chem3/fid4b.i/20110103.b/0103b044.d

Date : 04-JAN-2011 06:39

Client ID: GST-06SO-29-30-1010

Sample Info: SC61D,20

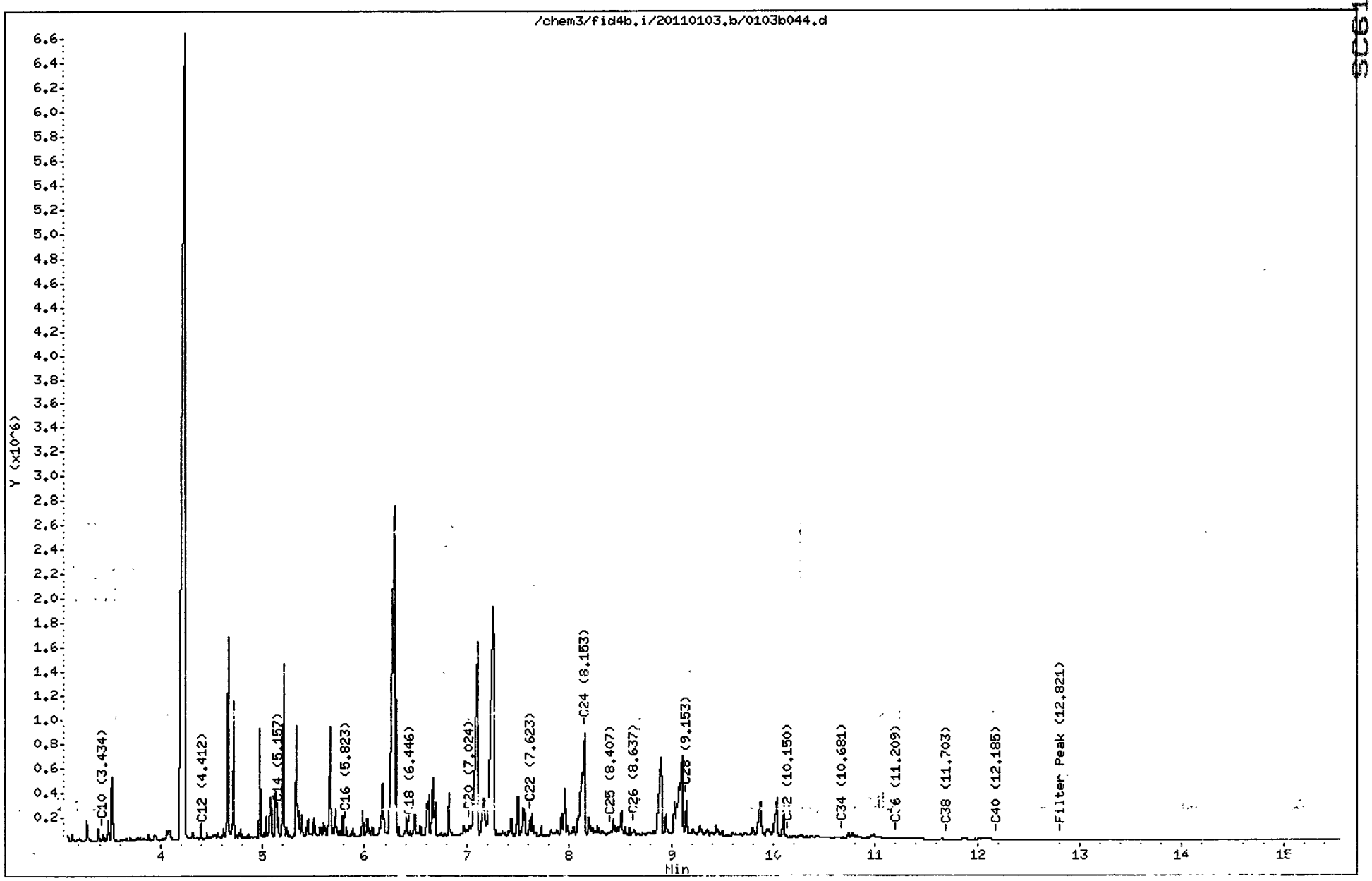
Column phase: RTX-1

Instrument: fid4b.i

Operator: JR

Column diameter: 0.25

SC61 : 001166



Analytical Resources Inc.
407S TPH Quantitation Report

Data file: /chem3/fid4b.i/20110103.b/0103b045.d
Method: /chem3/fid4b.i/20110103.b/ftphfid4b.m
Instrument: fid4b.i
Operator: JR
Report Date: 01/07/2011
Macro: 22-DEC-2010

ARI ID: DIESEL#5
Client ID: GASCO DATA GAPS
Injection: 04-JAN-2011 07:02

Dilution Factor: 1

FID:4B RESULTS

Compound	RT	Shift	Height	Area	Range	Total Area	Conc
Toluene	1.593	0.020	12495	14173	GAS (Tol-C12)	1297189	33
C8	1.902	0.016	7037	26256	DIESEL (C12-C24)	6210083	265 M
C10	3.430	-0.001	5242	3080	M.OIL (C24-C38)	98515	7
C12	4.401	-0.002	72804	48094	AK-102 (C10-C25)	6968310	266 M
C14	5.160	-0.009	119035	106390	AK-103 (C25-C36)	61382	9
C16	5.825	-0.007	232716	178946	OR.DIES (C10-C28)	7006383	666 M
C18	6.447	-0.004	200141	178535	CRUDE (Tol-C40)	7616979	1333 M
C20	7.045	-0.006	128649	105805			
C22	7.612	-0.004	57356	55364			
C24	8.148	0.003	11907	23429			
C25	8.405	0.006	4480	7662			
C26	8.665	0.023	1561	4802			
C28	9.135	-0.002	2476	2684			
C32	10.160	-0.010	86	85			
C34	10.684	-0.003	63	35	BUNKERC (C10-C38)	7039467	773 M
Filter Peak	12.832	0.006	768	364	HYDRAUL (C24-C38)	98515	9
C36	11.200	0.005	185	173			
C38	11.701	0.017	294	195			
C40	12.143	-0.015	476	684			
o-terph	6.604	0.001	1294378	1037923	JET-A (C10-C18)	5053407	581
Triacon Surr	9.658	-0.005	74	65			

M Indicates manual integration within range.
Range Times: NW Diesel(4.403 - 8.145) AK102(3.43 - 8.40) Jet A(3.43 - 6.45)
NW M.Oil(8.15 - 11.68) AK103(8.40 - 11.19) OR Diesel(3.43 - 9.14)

Surrogate	Area	Amount	%Rec
o-Terphenyl	1037923	44.7	99.4
Triacontane	65	0.0	0.0

Analyte	RF	Curve Date
o-Terph Surr	23203.1	21-DEC-2010
Triacon Surr	20763.6	23-OCT-2010
Gas	39627.8	17-DEC-2010
Diesel	23413.5	21-DEC-2010
Motor Oil	13869.0	23-OCT-2010
AK102	26220.7	21-DEC-2010
AK103	6604.7	18-JUN-2010
JetA	8703.3	11-JAN-2010
OR Diesel	10525.0	22-JAN-2010
CRUDE	5712.9	22-MAY-2010
Bunker C	9102.6	22-DEC-2010
Hydraulic	11288.8	11-JAN-2010

Data File: /chem3/fid4b.i/20110103.b/0103b045.d

Date : 04-JAN-2011 07:02

Client ID: GASCO DATA GAPS

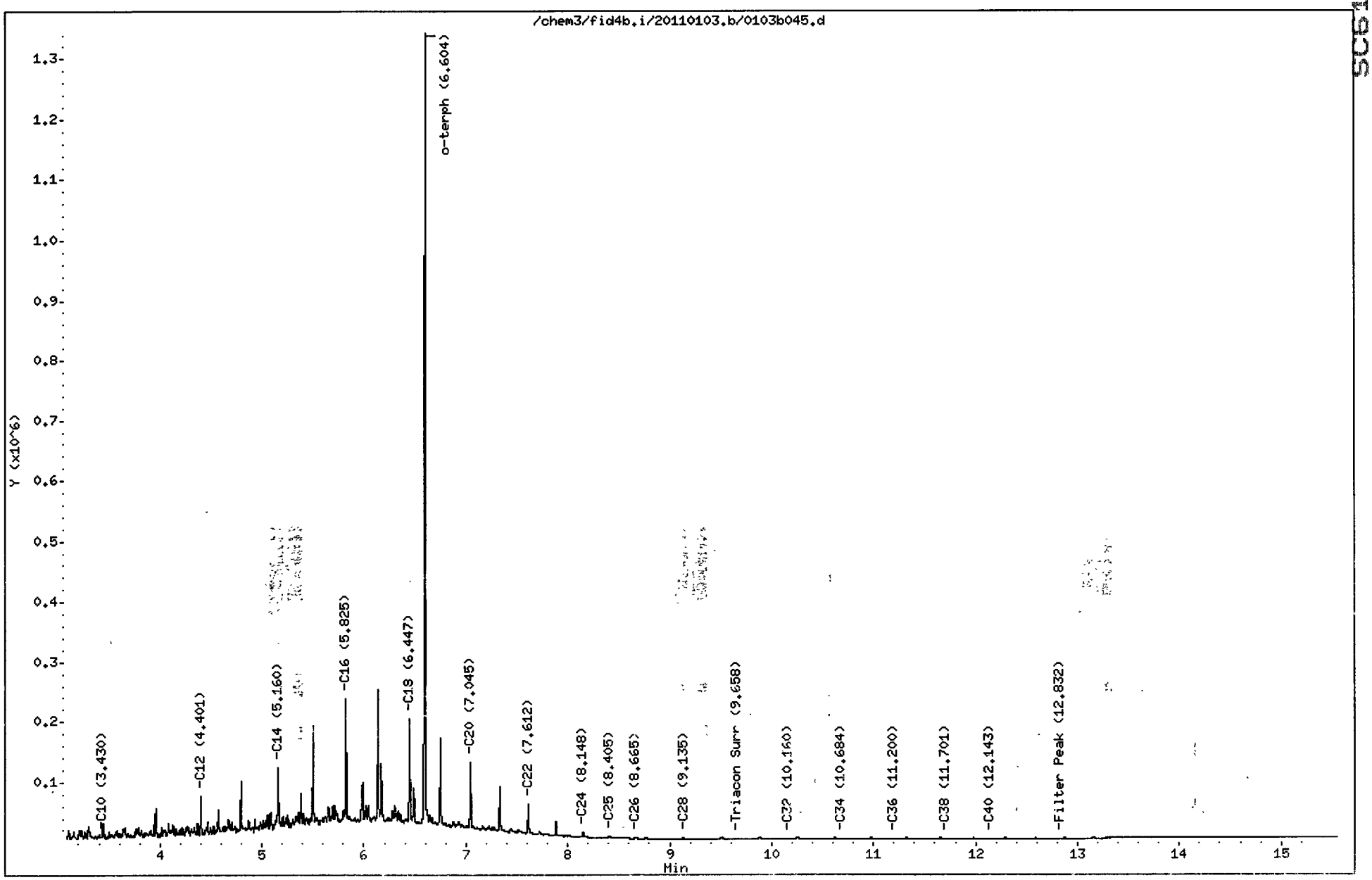
Sample Info: DIESEL#5

Column phase: RTX-1

Instrument: fid4b.i

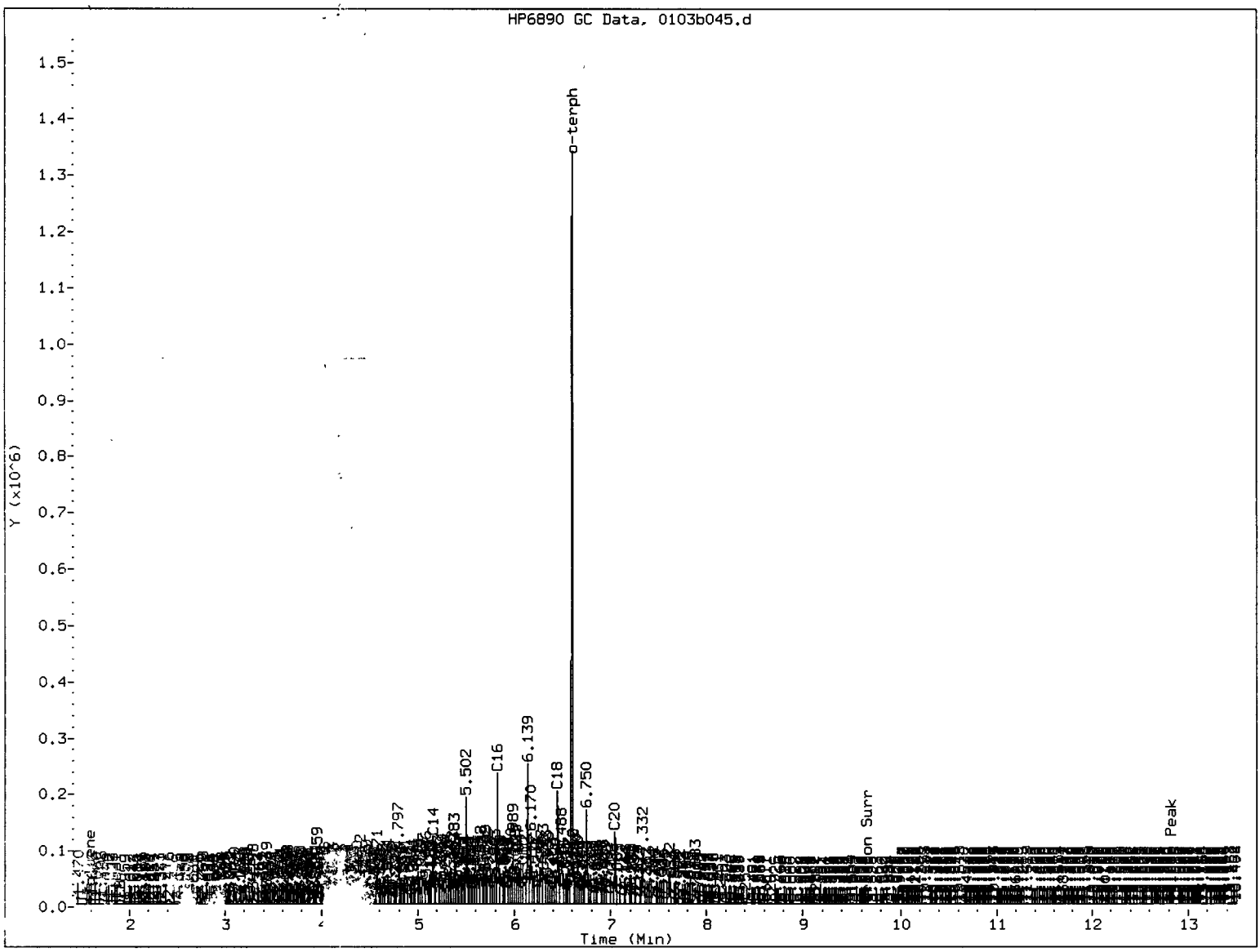
Operator: JR

Column diameter: 0.25



SCB1 : 00168

FID:4B-2C/RTX-1 DIESEL#5 FID:4B SIGNAL



MANUAL INTEGRATION

1. Baseline correction
2. Poor chromatography
3. Peak not found
4. Totals calculation

5. Other _____

Analyst: _____ Date: 1/7/11

Analytical Resources Inc.
407S TPH Quantitation Report

Data file: /chem3/fid4b.i/20110103.b/0103b046.d
Method: /chem3/fid4b.i/20110103.b/ftphfid4b.m
Instrument: fid4b.i
Operator: JR
Report Date: 01/07/2011
Macro: 22-DEC-2010

ARI ID: MOIL#5
Client ID: GASCO DATA GAPS
Injection: 04-JAN-2011 07:25

Dilution Factor: 1

FID:4B RESULTS

Compound	RT	Shift	Height	Area	Range	Total Area	Conc
Toluene	1.551	-0.022	8181	23120	GAS (Tol-C12)	274278	7
C8	1.829	-0.057	4578	10916	DIESEL (C12-C24)	777428	33
C10	3.428	-0.003	1591	1771	M.OIL (C24-C38)	6057108	437 M
C12	4.383	-0.021	2682	6154	AK-102 (C10-C25)	1082817	41
C14	5.180	0.011	454	176	AK-103 (C25-C36)	5402822	818 M
C16	5.813	-0.019	79	17	OR.DIES (C10-C28)	2677317	254
C18	6.458	0.007	321	481	CRUDE (Tol-C40)	7327897	1283 M
C20	7.047	-0.003	2581	5586			
C22	7.614	-0.002	9873	10547			
C24	8.139	-0.006	20760	28039			
C25	8.390	-0.009	27048	31851			
C26	8.637	-0.006	32825	19131			
C28	9.145	0.008	38084	51906			
C32	10.161	-0.009	36898	56026			
C34	10.684	-0.004	30554	69764	BUNKERC (C10-C38)	6908960	759 M
Filter Peak	12.824	-0.002	2734	2671	HYDRAUL (C24-C38)	6057108	537
C36	11.197	0.002	20006	15865			
C38	11.683	-0.002	11888	18696			
C40	12.145	-0.013	6398	8778			
o-terph	6.606	0.004	2703	2656	JET-A (C10-C18)	123941	14
Triacon Surr	9.663	0.000	817829	965269			

M Indicates manual integration within range.
Range Times: NW Diesel(4.403 - 8.145) AK102(3.43 - 8.40) Jet A(3.43 - 6.45)
NW M.Oil(8.15 - 11.68) AK103(8.40 - 11.19) OR Diesel(3.43 - 9.14)

Surrogate	Area	Amount	%Rec
o-Terphenyl	2656	0.1	0.3
Triacontane	965269	46.5	103.3

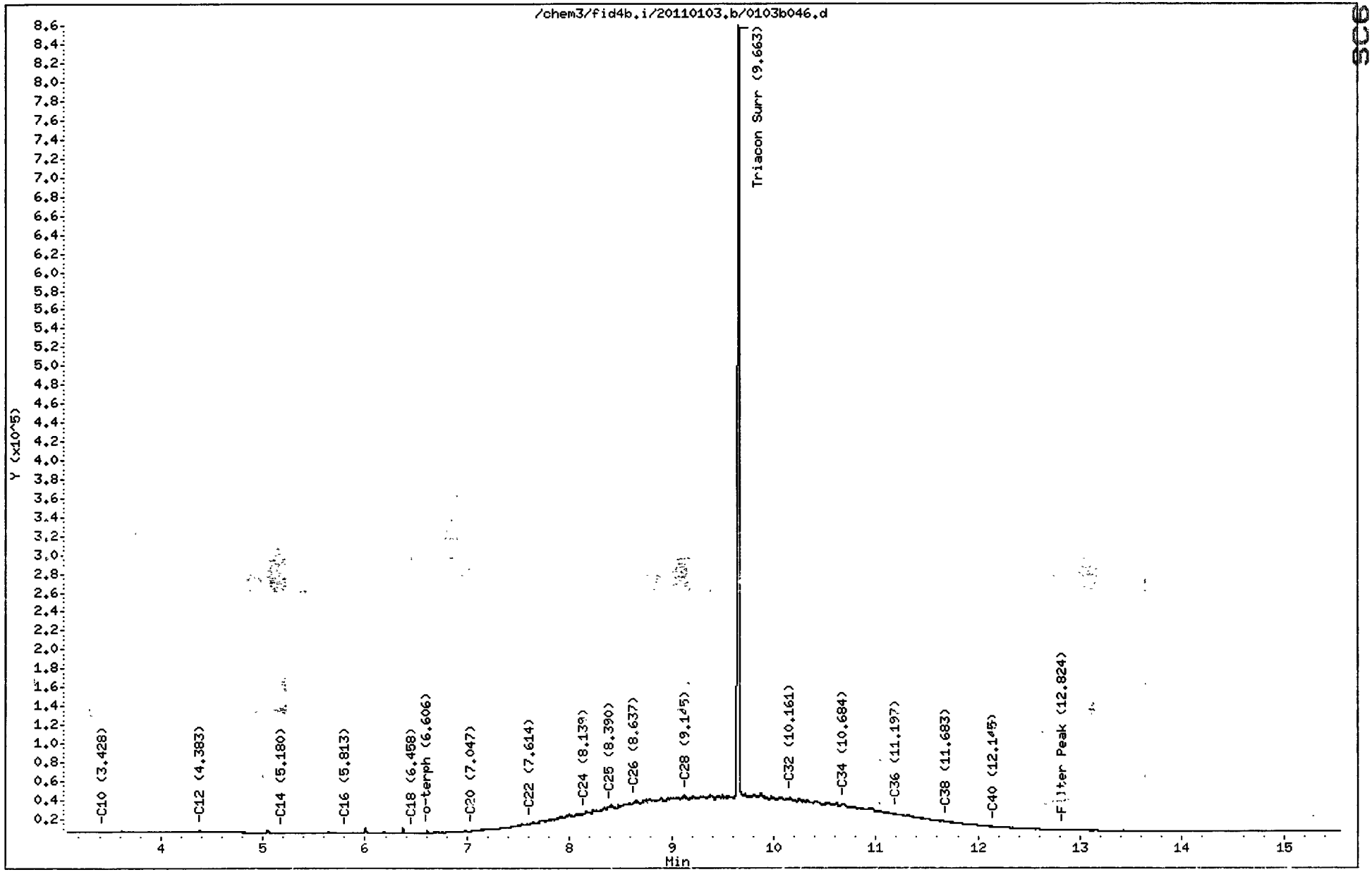
Analyte	RF	Curve Date
o-Terph Surr	23203.1	21-DEC-2010
Triacon Surr	20763.6	23-OCT-2010
Gas	39627.8	17-DEC-2010
Diesel	23413.5	21-DEC-2010
Motor Oil	13869.0	23-OCT-2010
AK102	26220.7	21-DEC-2010
AK103	6604.7	18-JUN-2010
JetA	8703.3	11-JAN-2010
OR Diesel	10525.0	22-JAN-2010
CRUDE	5712.9	22-MAY-2010
Bunker C	9102.6	22-DEC-2010
Hydraulic	11288.8	11-JAN-2010

Data File: /chem3/fid4b.i/20110103.b/0103b046.d
Date : 04-JAN-2011 07:25
Client ID: GASCO DATA GAPS
Sample Info: MOIL#5

Column phase: RTX-1

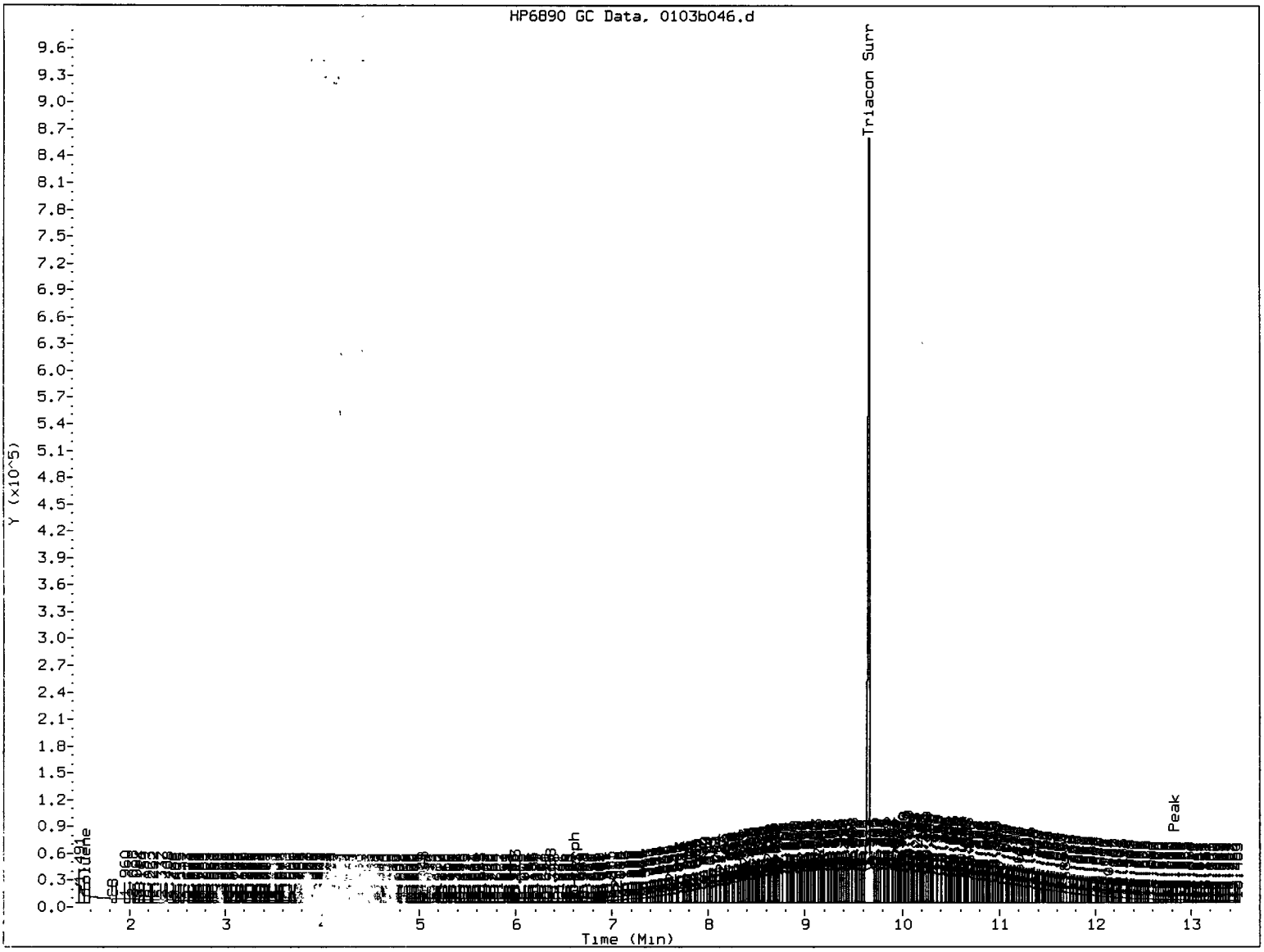
Instrument: fid4b.i

Operator: JR
Column diameter: 0.25



SC61 : 00171

FID:4B-2C/RTX-1 MOIL#5 FID:4B SIGNAL



MANUAL INTEGRATION

1. Baseline correction
2. Poor chromatography
3. Peak not found
4. Totals calculation

5. Other _____

Analyst: _____ Date: 1/7/11

General Chemistry Raw Data
Analyst Notes and Raw Data

ARI Job ID: SC61

1-11-11

TOTAL SOLIDS/VOLATILE SOLIDS (TS / TVS) BENCHSHEET

DATE: 1/10/2011

SOLIDS *(dry at 104 (12-24 hr) then combust at 550 (30 min))*

ANALYST: CDE / CVR

Instrumentation ***Drying Ovens:*** 12 ***Analytical Balance:*** 1123230597 / 3502279

Muffle Furnace: N/A

Batch drying time		
record times as mm/dd/yy hh:mm		
1/10/2011 17:48	date/time in oven	CDE
1/11/2011 9:43	date/time out	CDE
elapsed hrs =	15.9	

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*

	Cal Weight ID	CV-02	CV-02	CV-02	CV-02				CV-02	CV-02			
	Date & Time	1/10/11 16:39	1/10/11 16:05	1/11/11 9:59									
Cal Wt (g)	10.0000	10.0000	9.9990	10 0000									
	record weights to 4 places	*Cal OK!*	*Cal OK!*	*Cal OK!*									

SAMPLE ID	DISH #	SAMPLE (grams)	TARE WT (grams)	DRY WT 104C (grams) 1			dry Wt (g)	TS (%)	ASH WT 550C (grams) 1	2		Ash Wt (g)	TVS (mg/kg)	(%)
Blank		0.0000	1.0629	1.0627			0.00							
SC61 A1		5.5461	1.0820	4.8229			3.74	**83.8%**						
SC61 A1 dup		6.4897	1.0772	5.5489			4.47	**82.6%**						
							RPD =	1.42%				RPD =	NA	
SC61 A1 trp		5.4170	1.0815	4.6532			3.57	**82.4%**						
							RSD =	0.92%				RSD =	NA	
SC61 B1		6.0962	1.0684	5.1517			4.08	**81.2%**						
SC61 C1		7.2144	1.0864	6.2621			5.18	**84.5%**						
SC61 D1		7.1041	1.0793	6.1520			5.07	**84.2%**						
SD94 A1		6.4605	1.0886	5.9151			4.83	**89.8%**						
SD94 B1		7.8073	1.0565	6.5987			5.54	**82.1%**						
SD94 C1		6.6168	1.0840	5.9527			4.87	**88.0%**						
SD94 C1 dup		6.4778	1.0496	5.7914			4.74	**87.4%**						
							RPD =	0.73%				RPD =	NA	
SD94 C1 trp		7.6861	1.0689	6.6994			5.63	**85.1%**						
							RSD =	1.76%				RSD =	NA	
SD94 D1		6.3618	1.0865	5.6689			4.58	**86.9%**						
SD94 E1		5.7730	1.0828	5.2418			4.16	**88.7%**						
SD94 F1		6.6120	1.0889	5.9005			4.81	**87.1%**						

Dish# wt
5-6.0962
6-7.2144
7-7.1041
8-6.4605
1-10-11 cdl

@ 1-11-11 cdl

(A)

Analytical Resources, Incorporated
Analytical Chemists and Consultants

TOTAL / VOLATILE SOLIDS (TS/TVS) BENCHSHEET

3502279

Analyst: cdl / cdl	Date: 1-10-11 17:48	Oven ID: 12	Balance ID: 1123230597
Time in Oven: 17:48	Time Out of Oven: 1-11-11 9:43	Elapsed Time (> 12 Hrs):	

Dry at 104 ℃ (12-24 hrs) then combust at 550 ℃ for 30 min. Record Weights to 4 places

TS (%) calculated as:
Final Dry Weight (g) = (Dry Weight – Tare Weight)
TS = (Final Dry Weight) / (Grams Sample – Tare Weight)

TVS (mg/kg dry weight) calculated as:
Final Ash Weight (g) = (Minimum Ash Weight – Tare Weight)
TVS (mg/kg) = [(Dry Weight – Ash Weight) / (Dry Weight) * 1,000,000
If Ash Weight > Dry Weight then "Check for Error"
If Dry Weight – Ash Weight < 0.001 < (1/Dry Weight) * 1,000,000

Cal Weight ID		CV-02	CV-02	CV-02	CV-02	CV-02		CV-02	CV-02	CV-02
Date & Time:		1-10-11 16:39	1-10-11 15:55	1-11-11 9:59						
Cal Weight (10.0000):		10.0000 cdl	9.9999	10.0000 cdl						
Sample ID	Dish #	Sample	Tare	Dry Weight 104℃ 1	2	3	Dry Weight grams	Ash Weight 550℃ 1	2	3
BLANK	1	Ø	1.0689	1.0627						
SC61 A'	2	5.5461	1.0820	4.8229						
A' dp	3	6.4897	1.0772	5.5489						
A' TP	4	5.4170	1.0815	4.6532						
B'	5	~~6.5800~~	1.0684	5.1517						
C'	6	~~6.1536~~	1.0864	6.2621						
D'	7	~~6.4833~~	1.0793	6.1520						
SD94 A'	8	~~5.9551~~	1.0886	5.9151						
B'	9	7.8073	1.0565	6.5987						
C'	10	6.6168	1.0840	5.9527						
C' dp	11	6.4778	1.0496	5.7914						
C' TP	12	7.6861	1.0689	6.6994						
D'	13	6.3618	1.0865	5.6689						
E'	14	5.7730	1.0828	5.2418						
F'	15	6.6120	1.0889	5.9005						

1-10-11 cdl

SC61:00175

W

1-13-11

TOC Solids Prep Log

acid purging to remove IC and drying at 70ºC for TOC analysis

General notes regarding prep method and samples (identify the acid used)

DATE:	1/10/2011
ANALYST:	CDE 17:55

make no entry to shaded cells, they are calculated

Sample ID		IC Test	Gravimetric Data (grams)			%	*Sample description & notes*
ARI #	Client	+ / -	Tare Wt.	Wet wt.	70ºC dry wt	Solids	*(homogeneity and exclusions)*
Blank			13.2628	0.0000	13.2628	0 mg	
SC61 A1		+-	13.3285	17.7261	17.2635	89.48%	
SC61 A1 dup		+-	13.1393	17.4907	17.0024	88.78%	
SC61 A1 trip		+-	13.1145	17.3186	16.8921	89.86%	
SC61 B1		-	13.3250	17.5541	17.1168	89.66%	
SC61 C1		-	13.2103	18.9843	18.4042	89.95%	
SC61 D1		-	13.1525	19.4080	18.7811	89.98%	
SD94 A1		-	13.1896	17.3741	16.9932	90.90%	
SD94 B1		-	13.3021	17.9368	17.1488	83.00%	
SD94 C1		-	13.3267	20.9659	20.1375	89.16%	
SD94 C1 dup		-	13.3465	19.3799	18.6829	88.45%	
SD94 C1 trip		-	13.1738	18.4198	17.8416	88.98%	
SD94 D1		-	13.2904	19.9688	19.1894	88.33%	
SD94 E1		-	13.0906	19.4258	18.7685	89.62%	
SD94 F1		-	13.3370	18.5281	18.0412	90.62%	

SC61 00176

①1-12-10
[illegible]

Analytical Resources, Incorporated
Analytical Chemists and Consultants

TOC Solids Preparation Log

Acid purge to remove IC and drying 70 °C for TOC an alysis
Add general notes regarding samples and preparation and identify the acid used

Analyst [illegible] Date 1-10-11 17:55

Sample Idenification		IC	Gravimetric Data			% Solids	Sample description & notes
ARI #	Client ID	Test	Tare	Wet	70 °C		
Blank			13.2628	Ø	13.2628		
SC61 A'		+ -	13.3285	17.7261	~~17.1168~~ Ø	17.2635	Oily soil/sludge w/Rocks
A'dup		+ -	13.1393	17.4907	~~16.8921~~	17.0024	
A'TP		+ -	13.1145	17.3186	16.8921		
B'		-	13.3250	17.5541	17.1168		
C'		-	13.2103	18.7843	18.4042		
D'		-	13.1525	19.4080	18.7811		
SD94 A'		-	13.1896	17.3741	16.9932		Sand & Rocks
B'		-	13.3021	17.9368	17.1488		
C'		-	13.3267	20.9659	20.1375		watery
C'dup		-	13.3465	19.3799	18.6829		
C'TP		-	13.1738	18.4199	17.8416		
D'		-	13.2904	19.9688	19.1894		
E'		-	13.0906	19.4258	18.7685		dark
F'		-	13.3370	18.5281	18.0412		

1-10-11 [illegible]

TOC, Solids Data Analysis

DATE: 1/13/2010
ANALYST: KE 10:34

Instrument: Apollo 2
Mode: NPOC *Inlet:* Boat
Spike Std = **2,500** *ppm C*

Calibration Data

Cal Curve ID: **1112011 BOAT CAL** *Conc:* 5,000 *ppm*
Calibration Curve Standard: **ARI # 111-12** *Curve Date:* **01/12/11**
CalFact: *2.570E+05* *intercept:* -17955 *r2 :* 0.99965
Curve Range (ppm) 200 *to* 2,500
Curve Range (µgC): **8** *to* **100** *40 µL injections of designated standard*

Verification Standard Source: ***ERA# 0513 - 10 - 06*** *Conc:* **5,000** *ppm*
dilution : 10 *mL to* 50 **1,000** *ppm*

Standard Reference Material Source: ***NIST 8704*** *Conc:* **33,510** *ppm*

Silica Blanks

Replicate determinations						Mean	RSD	condition
58.4	42.5	37.5				46.1	23.7%	*OK*

Sample Data

*"C corr" (with dilution) = ("C obs" - (Mean silica Blank * %Silica)) * Dilution Factor*

Sample ID	Dilution Data				Spike	Combustion Data			
	Sample wt. (mg)	Final wt. (mg)	Silica (%)	Dilution Factor	(µL Std)	Burn wt. (mg)	C obs (ppm C)	C corr (ppm C)	*comments*
ICV				1.00		40.0	1027	1,027	*102.70%*
Blank				1.00		40.0	4.00	4	*Blank OK*
~~NIST 8704~~			-	~~1.00~~		~~1.7~~	~~6960~~	~~6,960~~	~~*20.77%*~~
NIST 8704				1.00		1.7	37647	37,647	*112.35%*
SB 1				1.00		39.4	58.44	58	*Low Scale*
SB 2				1.00		40.5	42.47	42	*Low Scale*
~~SB 3~~			-	~~1.00~~		~~41.1~~	~~29.57~~	~~30~~	~~*Low Scale*~~
SB 4				1.00		41.7	37.49	37	*Low Scale*
SC61 A1	10.6	105.8	89.98%	9.98		1.8	14412	143,434	*Range OK!*
SC61 A1 dup	10.6	105.9	89.99%	9.99		1.7	15763	157,067	*RPD=9.1%*
SC61 A1 trp	10.6	106.0	90.00%	10.00		1.8	13939	138,975	*RSD=6.4%*
SC61 A1 ms	10.6	105.8	89.98%	9.98	10	1.6	31778	316,766	*Range OK!*
Spike =	*0.025*	*mg C to*	*0.2*	*mg samp=*	*155,955*	*ppm*		*111%*	
CCV				1.00		40.0	1033	1,033	*103.30%*
Blank				1.00		40.0	8.95	9	*Blank OK*
SC61 B1	11.2	152.4	92.65%	13.61		1.2	56137	763,283	*Range OK!*
SC61 C1	10.8	145.2	92.56%	13.44		1.0	50998	685,066	*Range OK!*
SC61 D1	10.9	158.1	93.11%	14.50		1.2	12757	184,412	*Range OK!*
NIST 8704				1.00		1.9	37420	37,420	*111.67%*
CCV				1.00		40.0	1047	1,047	*104.70%*
Blank				1.00		40.0	25.40	25	*Blank OK*

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Analytical Chemists and Consultants

(1) (W) 1-13-11

TOC Solids Sample Run Log
Apollo 9000

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Set-Up Parameters MODE: UPOC (Boat) **INLET:** Boat Sampler

Standards:	Source	Conc (ppm)
Calibration:	ART 111-12	5000
Verification:	ERA 0573-10-06	5000 ~~10~~ 1000 for CUS
SRM:	NBS 8704	33570

10:34

Sample Sequence:

Sample ID	Dilution Data (mg) Sample	Dilution Data (mg) + Silica Gel	Burn Wt mg	Matrix Spike Data mg/L	Matrix Spike Data µL added	Comments
ICU			40			
ICB			40			
NBS 8704			1.7/1.7			Run in a 2:1 Rerun 2 inlets
SB 1			39.4			
2			40.5			
3			41.1			
4			41.7			
SC61 A'	10.6	105.8	1.8			
DPA'	10.6	105.9	1.7			
LPA'	10.6	106.0	1.8			
MSA'	10.6	105.8	1.6	2500	10	
CCU			40			
CCB			40			
SC61 B'	11.2	152.4	1.2			
C'	10.8	145.2	1.0			
D'	10.9	158.1	1.2			
NBS 8704			1.9			
CCU			40			
CCB			40			

1-13-11 (W)

1-13-11 (KW)

Detailed Analysis Report Print Date/Time: 2011/01/13 17:11:47

Sample ID: CVS BOAT 1000
Method: Boat Sampler
Cal. Curve: 01112011 BOAT CAL
Operator ID: TRINA
Mode: TOC
Filename: 01131030
Timestamp: 2011/01/13 10:35
Sample Type: Cal. Verification

Rep #	ppm C	ug C	Raw Data	Beginning Baseline	Ending Baseline	Integration Time
1	1026.7982	41.0719	10539121	28.562	29.562	128

Sample ID: ICB BOAT
Method: Boat Sampler
Cal. Curve: 01112011 BOAT CAL
Operator ID: TRINA
Mode: TOC
Filename: 01131054
Timestamp: 2011/01/13 10:57
Sample Type: Cal. Verification

Rep #	ppm C	ug C	Raw Data	Beginning Baseline	Ending Baseline	Integration Time
1	3.9998	0.1600	23169	28.039	27.890	120

Last Message: Low Sample Detected

Sample ID: NBS 8704
Method: Boat Sampler
Cal. Curve: 01112011 BOAT CAL
Operator ID: TRINA
Mode: TOC
Filename: 01131108
Timestamp: 2011/01/13 11:12
Sample Type: Cal. Verification

NA 1-13-11 (KW)

Rep #	ppm C	ug C	Raw Data	Beginning Baseline	Ending Baseline	Integration Time
1	6960.0547	49.4164	12683969	28.043	29.042	202

Last Message: Out of Calibration

Sample ID: NBS 8704
Method: Boat Sampler
Cal. Curve: 01112011 BOAT CAL
Operator ID: TRINA
Mode: TOC
Filename: 01131127
Timestamp: 2011/01/13 11:33
Sample Type: Cal. Verification

Rep #	ppm C	ug C	Raw Data	Beginning Baseline	Ending Baseline	Integration Time
1	37647.4531	64.0007	16432695	28.363	29.656	301

Last Message: Max Integration Time Reached

Sample ID: ~~NBS 8704~~ SB 1
Method: Boat Sampler
Cal. Curve: 01112011 BOAT CAL
Operator ID: TRINA
Mode: TOC
Filename: 01131156
Timestamp: 2011/01/13 11:59
Sample Type: Cal. Verification

Rep #	ppm C	ug C	Raw Data	Beginning Baseline	Ending Baseline	Integration Time
1	58.4379	2.3025	573865	28.248	29.244	79

Last Message: Out of Calibration

Sample ID: SB 2
Method: Boat Sampler
Cal. Curve: 01112011 BOAT CAL
Operator ID: TRINA
Mode: TOC
Filename: 01131207
Timestamp: 2011/01/13 12:09
Sample Type: Sample

Rep #	ppm C	ug C	Raw Data	Beginning Baseline	Ending Baseline	Integration Time
1	42.4699	1.7200	442114	28.057	29.057	73

Sample ID: SB 3
Mode: TOC

NA 1-13-11 (N)

Method: Boat Sampler
Cal. Curve: 01112011 BOAT CAL
Operator ID: TRINA

Filename: 01131220
Timestamp: 2011/01/13 12:23
Sample Type: Sample

Rep #	ppm C	ug C	Raw Data	Beginning Baseline	Ending Baseline	Integration Time
1	29.5671	1.2152	312355	28.101	29.092	69

Sample ID: SB 3
Method: Boat Sampler
Cal. Curve: 01112011 BOAT CAL
Operator ID: TRINA

Mode: TOC
Filename: 01131231
Timestamp: 2011/01/13 12:42
Sample Type: Sample

Rep #	ppm C	ug C	Raw Data	Beginning Baseline	Ending Baseline	Integration Time
1	37.4871	1.5632	401806	27.899	28.898	73

Sample ID: SC61 A1
Method: Boat Sampler
Cal. Curve: 01112011 BOAT CAL
Operator ID: TRINA

Mode: TOC
Filename: 01131455
Timestamp: 2011/01/13 14:59
Sample Type: Sample

Rep #	ppm C	ug C	Raw Data	Beginning Baseline	Ending Baseline	Integration Time
1	14411.9473	25.9415	6667971	27.086	28.085	173

Sample ID: SC61 A1
Method: Boat Sampler
Cal. Curve: 01112011 BOAT CAL
Operator ID: TRINA

Mode: TOC
Filename: 01131503
Timestamp: 2011/01/13 15:07
Sample Type: Sample

Rep #	ppm C	ug C	Raw Data	Beginning Baseline	Ending Baseline	Integration Time
1	15762.8232	26.7968	6887815	27.124	28.124	196

Sample ID: SC61 A1 TRIP
Method: Boat Sampler
Cal. Curve: 01112011 BOAT CAL
Operator ID: TRINA

Mode: TOC
Filename: 01131510
Timestamp: 2011/01/13 15:14
Sample Type: Sample

Rep #	ppm C	ug C	Raw Data	Beginning Baseline	Ending Baseline	Integration Time
1	13938.8320	25.0899	6449075	27.081	28.079	178

Sample ID: SC61 A1 MS
Method: Boat Sampler
Cal. Curve: 01112011 BOAT CAL
Operator ID: TRINA

Mode: TOC
Filename: 01131518
Timestamp: 2011/01/13 15:22
Sample Type: Sample

Rep #	ppm C	ug C	Raw Data	Beginning Baseline	Ending Baseline	Integration Time
1	31778.3594	50.8454	13069229	27.501	28.495	207

Sample ID: CVS BOAT 1000
Method: Boat Sampler
Cal. Curve: 01112011 BOAT CAL
Operator ID: TRINA

Mode: TOC
Filename: 01131534
Timestamp: 2011/01/13 15:38
Sample Type: Cal. Verification

Rep #	ppm C	ug C	Raw Data	Beginning Baseline	Ending Baseline	Integration Time
1	1033.4818	41.3393	10607838	27.473	28.468	144

Sample ID: CVS BOAT Blank
Method: Boat Sampler

Mode: TOC
Filename: 01131542

Cal. Curve: 01112011 BOAT CAL
Operator ID: TRINA
Timestamp: 2011/01/13 15:44
Sample Type: Cal. Verification

Rep #	ppm C	ug C	Raw Data	Beginning Baseline	Ending Baseline	Integration Time
1	8.9535	0.3581	74101	27.556	28.551	57

Last Message: Out of Calibration

Sample ID: SC61 B1
Method: Boat Sampler
Cal. Curve: 01112011 BOAT CAL
Operator ID: TRINA
Mode: TOC
Filename: 01131552
Timestamp: 2011/01/13 15:56
Sample Type: Sample

Rep #	ppm C	ug C	Raw Data	Beginning Baseline	Ending Baseline	Integration Time
1	56136.7461	67.3641	17315180	27.600	28.596	181

Sample ID: SC61 C1
Method: Boat Sampler
Cal. Curve: 01112011 BOAT CAL
Operator ID: TRINA
Mode: TOC
Filename: 01131606
Timestamp: 2011/01/13 16:10
Sample Type: Sample

Rep #	ppm C	ug C	Raw Data	Beginning Baseline	Ending Baseline	Integration Time
1	50998.3477	50.9983	13108550	27.784	28.777	169

Sample ID: SC61 D1
Method: Boat Sampler
Cal. Curve: 01112011 BOAT CAL
Operator ID: TRINA
Mode: TOC
Filename: 01131632
Timestamp: 2011/01/13 16:35
Sample Type: Sample

Rep #	ppm C	ug C	Raw Data	Beginning Baseline	Ending Baseline	Integration Time
1	12757.3027	15.3088	3934945	28.744	29.743	116

Sample ID: NBS 8704
Method: Boat Sampler
Cal. Curve: 01112011 BOAT CAL
Operator ID: TRINA
Mode: TOC
Filename: 01131650
Timestamp: 2011/01/13 16:55
Sample Type: Cal. Verification

Rep #	ppm C	ug C	Raw Data	Beginning Baseline	Ending Baseline	Integration Time
1	37420.3789	71.0987	18257168	28.722	29.737	301

Last Message: Max Integration Time Reached

Sample ID: CVS BOAT 1000
Method: Boat Sampler
Cal. Curve: 01112011 BOAT CAL
Operator ID: TRINA
Mode: TOC
Filename: 01131658
Timestamp: 2011/01/13 17:02
Sample Type: Cal. Verification

Rep #	ppm C	ug C	Raw Data	Beginning Baseline	Ending Baseline	Integration Time
1	1047.1281	41.8851	10748143	29.030	30.030	158

Sample ID: ICB BOAT
Method: Boat Sampler
Cal. Curve: 01112011 BOAT CAL
Operator ID: TRINA
Mode: TOC
Filename: 01131706
Timestamp: 2011/01/13 17:09
Sample Type: Cal. Verification

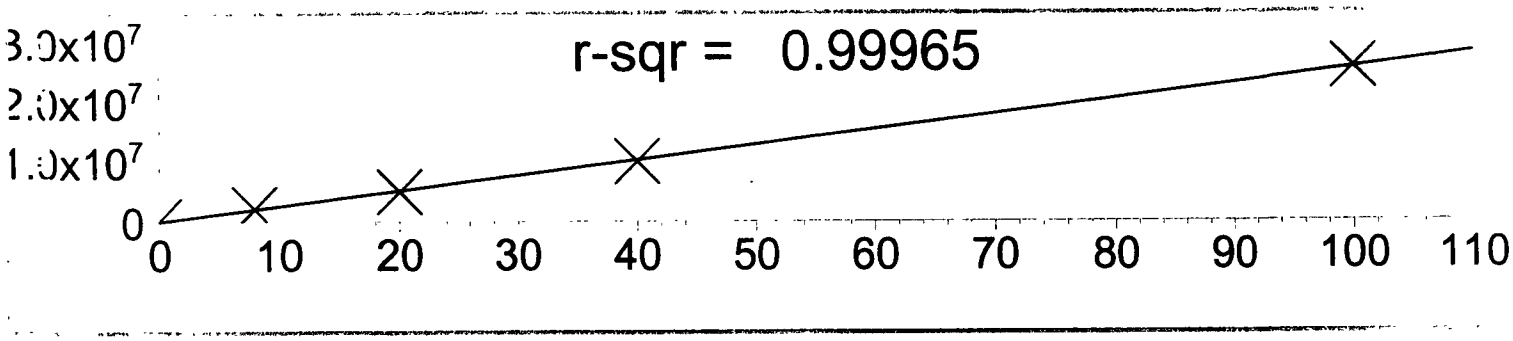
Rep #	ppm C	ug C	Raw Data	Beginning Baseline	Ending Baseline	Integration Time
1	25.4000	1.0160	243196	28.399	29.394	81

1-11-11

Calibration Report Print Date/Time: 2011/01/11 15:03:02

Cal. Curve ID: 01112011 BOAT CAL
Created: 2011/01/11 15:00
Calibration Factor (m): 2.570e+05
Y Intercept (b): -17955
r-squared: 0.99965

Standard ID	Y Raw Data	X Expected ug C	Measured ug C	Message	Date & Time
DI WATER	182693	0.000	0.781		2011/01/11 11:45
200 PPM	2117210	8.000	8.307		2011/01/11 12:05
500 PPM	4973010	20.000	19.417		2011/01/11 12:36
1000 PPM	10008015	40.000	39.006		2011/01/11 12:58
2500 PPM	25811800	100.000	100.490		2011/01/11 14:59


r-sqr = 0.99965
3.0x10^7
2.0x10^7
1.0x10^7
0
0
10
20
30
40
50
60
70
80
90
100
110

Detailed Analysis Report Print Date/Time: 2011/01/12 10:25:10

1-11-11

Sample ID: BOAT BURN
Method: Boat Sampler
Cal. Curve: 12172010 BOAT CAL
Operator ID: Carlos
Mode: TOC
Filename: 01111042
Timestamp: 2011/01/11 10:45
Sample Type: Sample

Rep #	ppm C	ug C	Raw Data	Beginning Baseline	Ending Baseline	Integration Time
1	21.2723	0.8509	206168	24.678	25.676	66

Sample ID: DI WATER
Method: Boat Sampler
Cal. Curve: 12172010 BOAT CAL
Operator ID: Carlos
Mode: TOC
Filename: 01111047
Timestamp: 2011/01/11 11:02
Sample Type: TOC Standard

Rep #	ppm C	ug C	Raw Data	Beginning Baseline	Ending Baseline	Integration Time
1			230175	24.980	25.972	70
2			63175	25.069	26.066	49
3			92043	25.078	26.077	58

<<<Statistics>>> Mean: 128464 Std Dev: 89259 RSD: 69.48

Sample ID: DI WATER
Method: Boat Sampler
Cal. Curve: 01112011 BOAT CAL
Operator ID: Carlos
Mode: TOC
Filename: 01111106
Timestamp: 2011/01/11 11:08
Sample Type: TOC Standard

Rep #	ppm C	ug C	Raw Data	Beginning Baseline	Ending Baseline	Integration Time
1			1330092	25.279	67.045	47

Last Message: Canceled

Sample ID: DI WATER
Method: Boat Sampler
Cal. Curve: 01112011 BOAT CAL
Operator ID: Carlos
Mode: TOC
Filename: 01111110
Timestamp: 2011/01/11 11:31
Sample Type: TOC Standard

Rep #	ppm C	ug C	Raw Data	Beginning Baseline	Ending Baseline	Integration Time
1			125596	25.466	26.462	60
2			2114945	25.780	26.775	104

<<<Statistics>>> Mean: 1120270 Std Dev: 1406682 RSD: 125.57

Sample ID: DI WATER
Method: Boat Sampler
Cal. Curve: 01112011 BOAT CAL
Operator ID: Carlos
Mode: TOC
Filename: 01111134
Timestamp: 2011/01/11 11:45
Sample Type: TOC Standard

Rep #	ppm C	ug C	Raw Data	Beginning Baseline	Ending Baseline	Integration Time
1			389240	25.911	26.909	80
2			83116	26.148	27.145	52
3			75723	26.346	27.336	54

<<<Statistics>>> Mean: 182693 Std Dev: 178913 RSD: 97.93

Sample ID: 200 PPM
Method: Boat Sampler
Cal. Curve: 01112011 BOAT CAL
Operator ID: Carlos
Mode: TOC
Filename: 01111151
Timestamp: 2011/01/11 12:05
Sample Type: TOC Standard

Rep #	ppm C	ug C	Raw Data	Beginning Baseline	Ending Baseline	Integration Time

1	2041401	26.955	27.954	94
2	2114790	27.419	28.419	115
3	2195439	28.165	29.165	93

<<<Statistics>>> Mean: 2117210 Std Dev: 77048 RSD: 3.64

Sample ID: 500 PPM
Method: Boat Sampler
Cal. Curve: 01112011 BOAT CAL
Operator ID: Carlos

Mode: TOC
Filename: 01111216
Timestamp: 2011/01/11 12:36
Sample Type: TOC Standard

Rep #	ppm C	ug C	Raw Data	Beginning Baseline	Ending Baseline	Integration Time
1			4367230	29.607	30.603	107
2			5358957	29.882	30.880	102
3			5192843	30.220	31.216	97

<<<Statistics>>> Mean: 4973010 Std Dev: 531155 RSD: 10.68

Sample ID: 1000 PPM
Method: Boat Sampler
Cal. Curve: 01112011 BOAT CAL
Operator ID: Carlos

Mode: TOC
Filename: 01111240
Timestamp: 2011/01/11 12:58
Sample Type: TOC Standard

Rep #	ppm C	ug C	Raw Data	Beginning Baseline	Ending Baseline	Integration Time
1			9834992	30.373	31.372	162
2			10019744	30.819	31.818	178
3			10169308	31.043	32.042	172

<<<Statistics>>> Mean: 10008015 Std Dev: 167466 RSD: 1.67

Sample ID: 5000 PPM
Method: Boat Sampler
Cal. Curve: 01112011 BOAT CAL
Operator ID: Carlos

Mode: TOC
Filename: 01111307
Timestamp: 2011/01/11 13:29
Sample Type: TOC Standard

Rep #	ppm C	ug C	Raw Data	Beginning Baseline	Ending Baseline	Integration Time
1			26970102	31.469	32.467	190
2			27472404	31.767	32.765	187
3			26821864	31.946	32.943	189

Last Message: Over-range
<<<Statistics>>> Mean: 27088122 Std Dev: 340951 RSD: 1.26

Sample ID: 2500 PPM
Method: Boat Sampler
Cal. Curve: 01112011 BOAT CAL
Operator ID: Carlos

Mode: TOC
Filename: 01111341
Timestamp: 2011/01/11 14:03
Sample Type: TOC Standard

Rep #	ppm C	ug C	Raw Data	Beginning Baseline	Ending Baseline	Integration Time
1			23559270	32.162	33.160	188
2			26181306	32.298	33.297	189
3			26963634	32.609	33.609	187

<<<Statistics>>> Mean: 25568070 Std Dev: 1783106 RSD: 6.97

Sample ID: 2500 PPM
Method: Boat Sampler
Cal. Curve: 01112011 BOAT CAL
Operator ID: Carlos

Mode: TOC
Filename: 01111408
Timestamp: 2011/01/11 14:26
Sample Type: TOC Standard

Rep #	ppm C	ug C	Raw Data	Beginning Baseline	Ending Baseline	Integration Time
1			25739248	32.204	33.202	211
2			25897196	32.474	33.471	197

3	25225868	32.643	33.641	194

<<<Statistics>>> Mean: 25620770 Std Dev: 350996 RSD: 1.37

Sample ID: 2500 PPM
Method: Boat Sampler
Cal. Curve: 01112011 BOAT CAL
Operator ID: Carlos

Mode: TOC
Filename: 01111438
Timestamp: 2011/01/11 14:59
Sample Type: TOC Standard

Rep #	ppm C	ug C	Raw Data	Beginning Baseline	Ending Baseline	Integration Time
1			25724288	32.565	33.564	215
2			25694276	32.623	33.622	234
3			26016832	32.645	33.642	170

Last Message: Over-range
<<<Statistics>>> Mean: 25811798 Std Dev: 178197 RSD: 0.69

Sample ID: CVS BOAT 1000
Method: Boat Sampler
Cal. Curve: 01112011 BOAT CAL
Operator ID: Carlos

Mode: TOC
Filename: 01111505
Timestamp: 2011/01/11 15:09
Sample Type: Cal. Verification

Rep #	ppm C	ug C	Raw Data	Beginning Baseline	Ending Baseline	Integration Time
1	1026.5562	41.0622	10536631	32.546	33.546	154

Sample ID: ICB BOAT
Method: Boat Sampler
Cal. Curve: 01112011 BOAT CAL
Operator ID: Carlos

Mode: TOC
Filename: 01111513
Timestamp: 2011/01/11 15:15
Sample Type: Cal. Verification

Rep #	ppm C	ug C	Raw Data	Beginning Baseline	Ending Baseline	Integration Time
1	36.2738	1.4510	354995	32.802	33.799	68