

# SDMS US EPA Region V

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**MATERIAL SAFETY DATA SHEETS  
ROCKWELL INTERNATIONAL FACILITY  
ALLEGAN, MICHIGAN**

**ALLEGAN**

**CHEMICAL LIST SUMMARY**

## LIST "A"

## LIST "B"

## MSDS's

1	Iron Chloride	Iron Chloride	<i>same</i>
2	Caustic Soda	Caustic Soda	<i>same</i>
3	Havaflok "C"	Poly Flocc C	<i>same as LIST "B"</i>
4	WMC #55	WMC #55	<i>same</i>
5		Sodium Nitrite	<i>same as LIST "B"</i>
6	Sodium Silicate	Sodium Silicate	<i>same</i>
7	Hydrochloric Acid	Hydrochloric Acid	<i>same</i>
8	Sulphuric Acid	Sulphuric Acid	Sulfuric Acid Fuming 20%
9	Nitric Acid	Nitric Acid	<i>same</i>
10	Chloroform	Chloroform	<i>same</i>
11	Trichlorotrifluoroethane	Trichlorotrifluoroethane	<i>same</i>
12	Par Quench 90	Par Quench	<i>same as LIST "B"</i>
13	Carbon Dioxide	Carbon Dioxide	<i>same</i>
14	Nitrogen	Nitrogen	<i>same</i>
15	Oxygen	Oxygen	<i>same</i>
16	Acetylene	Acetylene	Acetylene-Ethyne
17	Argon	Argon	<i>same</i>
18	Floor Sealer	Floor Sealer	<i>same</i>
19	Kleenz Germ	Kleenz Germ	<i>same</i>
20	HYGE Kleenz #11	HYGE Kleenz II	<i>same as LIST "B"</i>
21	Kleenz Scrub	Kleenz Scrub	<i>same</i>
22	Kleenz Mark	Kleenz Mark	<i>same</i>
23	Kleenz Germ FM 55	Kleenz Bowl White	*
24	Kleenz Bowl White	Kleenz Germ FM 55	<i>same as LIST "A"</i>
25	Old Dutch Cleanser	Old Dutch Cleanser	<i>same</i>
26	Deo-Block 24 oz.	Deo Block	<i>same as LIST "A"</i>
27	Heavy Duty Drain Cleaner Kleenz Drain Liquid	Heavy Duty Drain Cleaner Kleenz Drain Liquid	<i>same</i>
28	"Bordlan" Hand Soap	"Bordlan" Hand Soap	<i>same</i>
29	Pink Royal/Lotion Soap	Pink Royal/Lotion Soap	<i>same</i>
30	Big "D" Super Lemon Con.	Big D Lemon Deoderant	<i>same as LIST "B"</i>
31	Hydrochloric Acid Delimer	Hydrochloric Acid Delimer	*
32	Houghto-Safe 620	Houghto-Safe 620	<i>same</i>
33	Gum Solvent GSC	Gum Solvent GSC	<i>same</i>
34	Keyston HLC-4 oil #4	Keystone KLC-4 Oil	KLC-4
35	Gasoline	Gasoline	*
36	Shell Super Duty Grease #70400	Shell Super Dry Grease	<i>same as LIST "B"</i>
37		Shell Voluta 23 Oil	<i>same as LIST "B"</i>
38	Fiske High Temp. Grease	Fiske High Temp. Grease	Fiske Lubriplate High Temp.
39	Fiske Ball Bearing Grease	Fiske Ball Bearing Grease	Fiske Lubriplate Ball Bearing
40	Kleenz Brite Extra	Kleenz Brite Extra	Kleenz Brite Extra 1106
41		RCRA	*
42		Kwik Dry Solvent	<i>same as LIST "B"</i>
43	Super Scale (Magnus) Solvent #97N	Magnus Solvent 97N	*
44	Magnus #1073	Magnus #1073	*
45	Magnus #713	Magnus #713	*
46	Magnus Magno-Spray 205	Magnus Magno-Spray 205	*
47	Magnus Magno-Spray 105	Magnus Magno-Spray 105	*

## LIST "A"

## LIST "B"

## MSDS's

48	Cylinder Oil 600 W	Mobil 600 W Cylinder Oil	same as LIST "B"
49	Velocite #6	Mobil Velocite No. 6	same as LIST "B"
50	D.T.E. Oil/Mediums	Mobil DTE Oil Medium	same as LIST "B"
51	Vacuoline #1409	Vacuoline #1409	same
52	Velocite #10	Mobil Velocite #10	same as LIST "B"
53	Gargoyle #BRB-1 Grease	Gargoyle #BRB-1 Grease	*
54	Kerosine	Mobil Kerosene	same as LIST "B"
55	BRB Lub Time Grease	Mobil BRB Lifetime Grease	same as LIST "B"
56	Rycosol #69	Rycosol #69	same
57	Rycosol #66	Rycosol #66	same
58	Grinding #975 Compound Clifco	#975 Grinding Coolant	same as LIST "B"
59	Standard Oil Gear Lub #90	Amoco Gear Lube #90	same as LIST "B"
60	Ferrocote #5856-HF	Ferrocote #5856-HF	same
61	Harmony Oil #69	Harmony Oil #69	*
62	Harmony Oil #49	Harmony Oil #49	*
63	Solvent O.B.2 Odorless Kerosene	Odorless Kerosene	same as LIST "B"
64		Ucon Quench	UCON Quench A,B,C, & HT
65	Rust Bloc #30	Turco Rust Bloc #30	same as LIST "B"
66	Vantrol #5299-G	Vantrol #5299-G	same
67	Sunnen Stock HMB-30-55	MB-30 Honing Oil	same as LIST "B"
68	URSA #S-1 SAE-40	Texaco-1679 URSA Oil SAE 40	same as LIST "B"
69	Rando Oil F SAE-30	Texaco-2219 Rando Oil	Texaco-2219 Rando Oil 150
70	Regal Oil	Texaco-700 Regal Oil	Texaco-700 Regal Oil R&O 32
71	Meropa Oil #680	Texaco-2342 Meropa 680	same as LIST "B"
72	URSA Oil-H1-Temp #555	Texaco-555 URSA Oil	Texaco-555 URSA Oil 150
73	Motor Oil SAE 10W40	Texaco-2174 Havoline 10W-40	same as LIST "B"
74	Motor Oil SAE 10	Texaco Motor Oil SAE 10	*
75	Texamatic Trans. Fluid	Texaco Trans. Fluid	Texaco-1841 Texamate Fluid 9226
76	Texlad #2 Grease	Texaco #2 Grease	Texaco-1956 Texclad 2
77	Regal #2 Grease	Texaco Regal #2 Grease	Texaco-1982 Regal Starflak 2
78	MARFAC H.D. Grease #2	Texaco Marfak Heavy Duty #2 Grease	Texaco-1981 Marfak Heavy Duty 2
79	Way Lub #30	Way Lube #30	same as LIST "B"
80	Way Lub #100	Way Lube #100	same as LIST "B"
81	Ultramax H-W-30	Ultramax A-W-30	*
82	Ultramax A-W-15	Ultramax A-W-15	same as LIST "B"
83	Promox #1022 Cutting	Promox #1022 Cutting	same
84	8161 Chem Alloy	Promax II-333 Base Oil	Promax H-333
85	Econ #555	Econ #555	Econ #5 or 1
86	Valvoline Tectyl 858C	Tectyl 858-C	same
87	Valvoline X5EP Grease	Valvoline X5EP Grease	Valvoline X5EP Grease, Code 5140
88	Valvoline Multilube Litium	Valvoline Multilube Lithium	same as LIST "B"
89	Tectyl #511-H-F	Tectyl 511	same as LIST "A"
90	Tectyl #400-C	Tectyl 400	Tectyl #400-C-HF
91	Tectyl #810	Tectyl #810	same
92	Valvoline D.B.	Valvoline DB Grease	same as LIST "B"
93	Instapak Component A	Instapak Component A	same
94	Instapak Component B	Instapak Component B	Instapak 40 Component B
95		200 Safety Solvent	same as LIST "B"
96	Stainless Steel Buffing Compound	Formax Buffing Compound	*
97	Quench Tex C	Quench Tex C	*

**LIST "A"****LIST "B"****MSDS's**

98	Insultative Oil	Insultative Oil	600 Transformer Oil
99	TU 90 Part A & B	TU 90 Part A & B	1) Isocyanate Prepolymer 2) Polyurethane Curing Agent
00	B-224 Aqua Serv	B-224 Aqua Serv	*
101	Heavy Duty Machine Floor Cleaner	Heavy Duty Machine Floor Cleaner	<i>same</i>
102	Aqua Serv B-212	Aqua Serv B-212	*

**MSDS not present = \***

# CHEMICAL LIST "A"

## CHEMICAL LIST

1. Iron Chloride
2. Caustic Soda
3. ~~Polyfluo "C"~~ *Havafluk "C"*
4. WMC #55
5. ~~Sodium Nitrate~~
6. Sodium Silicate
7. Hydrochloric Acid
8. Sulphuric Acid
9. Nitric Acid
10. Chloroform
11. Trichlorotrifluoroethane
12. Par Quench 90
13. CO2
14. Nitrogen
15. O2
16. Acetylene
17. Argon
18. Floor Sealer
19. Kleenz Germ
20. HYGE Kleenz #11
21. Kleenz Scrub
22. Kleenz Mark
23. Kleenz Germ FM 55
24. Kleenz Bowl White
25. Old Dutch Cleanser
26. Dec-Block 24 oz.
27. Heavy Duty Drain Cleaner  
Kleenz Drain Liquid
28. "Bordlan" Hand Soap
29. Pink Royal/Lotion Soap
30. Big "D" Super Lemon Con.
31. Hydrochloric Acid Delimer
32. Houghto-Safe 620
33. Gum Solvent GSC
34. Keyston HLC-4 oil #4
35. Gasoline
36. Shell Super Duty Grease #70400
37. ~~Shell Volata 25 Quench Oil~~
38. Fiske High Temp. Grease
39. Fiske Ball Bearing Grease
40. Kleenz Brite Extra
41. ~~Kleenz Electro Solvent~~
42. ~~Kwik Dry Solvent~~
43. Super Scale (Magnus) Solvent #97N
44. Magnus #1073

45. Magnus #713
46. Magnus Magnu-Spray 205
47. Magnus Magnu-Spray 105
48. Cylinder Oil 600W
49. Velocite #6
50. D.T.E. Oil/Mediums
51. Vacuoline #1409
52. Velocite #10
53. Gargoyle #BRB-1 Grease
54. Kerosine
55. BRB Lub Time Grease
56. Rycosol #69
57. Rycosol #66
58. Grinding #975 Compound Clifco
59. Standard Oil Gear Lub #90
60. Ferrocote #5856-HF
61. Harmony Oil #69
62. Harmony Oil #49
63. Solvent O.B.2 Odorless Kerosene
64. ~~Low Temperature "A"~~
65. Rust Bloc #30
66. Vantrol #5299-G
67. Sunnen Stock HMB-30-55
68. URSA #S-1 SAE-40
69. Rando Oil F SAE 30
70. Regal Oil
71. Meropa Oil #680
72. URSA Oil-HI-Temp #555
73. Motor Oil SAE 10W40
74. Motor Oil SAE 10
75. Texapatic Trans. Fluid
76. Texlad #2 Grease
77. Regal #2 Grease
78. MARFAC H.D. Grease #2
79. Way Lub #30
80. Way Lub #100
81. Ultramox H-W-30
82. Ultramox A-W-15
83. Promox #1022 Cutting
84. ~~Promox #1022 Base Oil~~ 8161 Chemally
85. Econ #5
86. Valvoline Tectyl 858C
87. Valvoline X5EP Grease
88. Valvoline Multilube Litnium
89. Tectyl #511-H-F
90. Tectyl #400-C
91. Tectyl #810
92. Valvoline D.B.
93. Instapak Component A
94. Instapak Component B
95. ~~390~~
96. Stainless Steel Buffing Compound
97. Quench Tex C
98. Insultative Oil
99. TU 90 Part A & B
100. B-224 Aqua Serv
101. Heavy Duty Machine Floor Cleaner
102. Aqua Serv B-212



# Internal Letter



Rockwell International

Date: . February 11, 1981

No: .

TO: (Name, Organization, Internal Address)  
. Mr. Mike Spears  
. Mr. Craig Pryor  
. Mr. Ken Lundquist

FROM: (Name, Organization, Internal Address Phone)  
. Mr. Dan Mautte  
.  
.  
.

Subject: . IN-PLANT CHEMICAL CONTROL

This letter is a reminder that we have a strict plant policy to control chemicals. In order to recognize and evaluate potential toxic and hazardous substances used in our plant, all substances without exception must be authorized by Bill Sebright and myself before they are used in the plant. No such substance, not even a sample, is to be allowed in the plant until such authorization is obtained. See the attached letters dated 6/14/79 and 6/15/79 from Ken Lundquist regarding this policy.

Attached is a list of chemicals presently being used in the plant. If there are any additional chemicals being used, I need to know immediately, and the reason why they were allowed in the plant.

Thank you for your help in keeping our plant as safe as possible.

DANIEL F. MAUTTE  
Supervisor-Safety  
and Security

cc: P. McLewin      G. Hileski  
    J. Hinnegan     S. Kovacic  
    J. Boor          F. Haefner  
    J. Nash          G. Fowler  
    W. Sebright

Att. 3

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## CHEMICAL LIST "B"

Internal Letter



Rockwell International

Date . June 14, 1979

TO: (Name Organization Internal Address)  
Mr. Jack Nash

FROM: (Name Organization External Address, if any)  
Mr. Ken Lundquist

Subject: IN-PLANT CHEMICAL CONTROL

To ensure that none of our employees are exposed to harmful chemicals, the following procedure is to take effect immediately:

1. Chemicals may be solid or liquid and would involve but not be limited to the following:
  - a. Cutting Compounds
  - b. Cleaning Compounds
  - c. Oils
  - d. Solvents
  - e. Soaps
  - f. Packaging Compounds
  - g. Rust Preventatives
2. No purchase order is to be placed or sample accepted without written approval by both the Manager of Manufacturing Engineering and the Manager of Industrial Relations or their representatives.
3. Written approval is contingent upon review of chemical analysis sheets supplied by the vendors.
4. Chemicals must not represent a health hazard to our employees.
5. Chemicals must be compatible with our waste treatment procedures.

  
KEN LUNDQUIST  
Manager, Material Control

cc: J. Boor            G. Fowler  
    J. Hinnegan      F. Haefner  
    D. Mautte ✓      W. Sebright  
    E. Maurer

Internal Letter



Rockwell International

Date . June 15, 1979

TO: *(Name Organization Internal Address)*  
Mr. Jack Nash

FROM: *(Name Organization Internal Address)*  
Mr. Ken Lundquist

Subject . IN-PLANT CHEMICAL CONTROL (Addendum)

To ensure that the procedure as outlined in my memo of June 14 is adhered to, we must establish a system for filing approved chemical analysis sheets. This file is located within and maintained by the Industrial Relations Department.

The chemical analysis sheets for all chemicals presently in use or approved for use will bear the signatures of the representatives of Industrial Relations and Manufacturing Engineering. An approved chemical list will be published and updated as required. Only those requisitions for chemicals on the approved list or accompanied by a copy of the approved analysis sheet will be processed by the Purchasing Department.

Any person accepting delivery of a chemical sample is responsible for having an approved chemical analysis sheet prior to such acceptance. Copies of the two memos concerning In-Plant Chemical Control should be distributed to all members of the Manufacturing Engineering and Manufacturing Services Departments.

  
KENNETH E. LUNDQUIST  
Manager Material Control

cc: J. Boor  
J. Hinnegan  
D. Mautte ✓  
E. Maurer  
G. Fowler  
F. Haefner  
W. Sebright

**CHEMICAL INFORMATION**

NUMBER	PRODUCT	FLASHPOINT/CLASS		PROTECTIVE CLOTHING		STORAGE	SPECIAL CAUTIONS
				1. Rubber gloves 2. Splash goggles 3. Apron 4. Safety shower & Eye wash	5. Safety glasses 6. Rubber gauntlet gloves 7. Normal work clothing		
1	Iron Chloride	None	N/A	1,2,3,4		-----	-----
2	Caustic Soda	None	N/A	1,2,3,4		-----	-----
3	Poly Floe C	None	N/A	-----		-----	Keep from freezing
4	VMC #55	None	N/A	1,2,3,4		-----	-----
5	Sodium Nitrite	None	N/A	1,2,3,		Keep cool, dry	-----
6	Sodium Silicate	None	N/A	5		-----	Keep from freezing
7	Hydrochloric Acid	None	N/A	1,2,3		Keep cool, ventilated	-----
8	Sulphuric Acid	None	N/A	1,2		-----	-----
9	Nitric Acid	None	N/A	1,2,3		Ventilate	-----
10	Chloroform	None	N/A	1,2		Ventilate	-----
11	Trichlorotrifluoroethane	None	N/A	1,5		Keep dry	Do not heat above 125 F
12	Per-Quench	None	N/A	-----		-----	Do not store below 30 F
13	Carbon Dioxide	None	N/A	5		Ventilate	-----
14	Nitrogen	None	N/A	-----		-----	-----

**CHEMICAL INFORMATION**

NUMBER	PRODUCT	FLASHPOINT/CLASS		PROTECTIVE CLOTHING		STORAGE	SPECIAL CAUTIONS
				1. Rubber gloves 2. Splash goggles 3. Apron 4. Safety shower & Eye wash	5. Safety glasses 6. Rubber gauntlet gloves 7. Normal work clothing		
15	Oxygen	None	N/A	1,5		-----	-----
16	Acetylene			-----		Away from oxygen	-----
17	Argon	None	N/A	1,2,3		-----	Avoid Splashing
18	Floor Sealer	None	N/A	5		Do not pour unused material back into drum	Keep from freezing
19	Kleenz Germ	None	N/A	1,5		-----	Keep from freezing Use in diluted form
20	Hyge Kleenz II	None	N/A	1,5		-----	Keep from freezing Use in diluted form
21	Kleenz Scrub	None	N/A	1,2		-----	Keep from freezing
22	Kleenz Mark	None	N/A	1,2,5		Keep cool, not in sunlight	Avoid prolonged or repeated breathing of vapor
23	Kleenz Bowl White	None	N/A	1,3,5		-----	Keep from freezing
24	Kleenz Germ FM 55	No Longer Used					
23	Old Dutch Cleanser	None	N/A	-----		-----	-----
26	Don Block	None	N/A	-----		Keep cool, dry	-----

**CHEMICAL INFORMATION**

NUMBER	PRODUCT	FLASHPOINT/CLASS		PROTECTIVE CLOTHING	STORAGE	SPECIAL CAUTIONS
				1. Rubber gloves    5. Safety glasses 2. Splash goggles   6. Rubber gauntlet gloves 3. Apron            7. Normal work clothing 4. Safety shower & Eye wash		
27	Kleens Heavy Duty Drain Cleaner	None	N/A	1,2,3	Room Temp.	Only to be used by plant maint. <u>not janitors</u>
28	Bordian Hand Soap	None	N/A	- - - -	Keep cool, dry	- - - -
29	Fink Lotion Soap	None	N/A	- - - -	Keep cool, dry	- - - -
30	Pig D Lemon Deodorant	None	N/A	- - - -	Keep cool, dry	Use diluted
31	De-Limer (Hydrochloric Acid)	None	N/A	1,3,5	Store by itself	Flood with water if spilled
32	Houghto Safe 620	None	N/A	2	- - - -	Avoid contact with strong oxidizers
33	Gum Solvent GSC	160 F	III	1	Away from heat	Avoid strong Oxidizers
34	Keystone KLC-4 Oil	425 F	III	- - - -	- - - -	- - - -
35	Gasoline					
36	Shell Super Duty Grease	400 F	III	1	- - - -	- - - -
37	Shell Volute 23 Oil	325 F	III	Goggles if sprayed	- - - -	Avoid breathing mist
38	Fiske High Temp. Grease	570 F	III	- - - -	- - - -	- - - -
39	Fiske Ball Bearing Grease	380 F	III	- - - -	- - - -	- - - -

CHEMICAL INFORMATION

NUMBER	PRODUCT	FLASHPOINT/CLASS		PROTECTIVE CLOTHING							STORAGE	SPECIAL CAUTIONS
				1. Rubber gloves	2. Splash goggles	3. Apron	4. Safety shower & Eye wash	5. Safety glasses	6. Rubber gauntlet gloves	7. Normal work clothing		
40	Kleenz Brite Extra	None	N/A								-----	-----
41	<del>Kleenz Brite Extra</del>	185 F	III								Away from heat	-----
42	Kwik Dry Solvent	146 F	II								Away from heat	-----
43	Magnus Solvent 97W	None	N/A								Away from alkaline materials	-----
44	Magnus 1073	None	N/A								-----	-----
45	Magnus 713	350F	III								Away from flames & strong oxidizers	-----
46	Magnu-Spray 205	None	N/A								Away from acids	-----
47	Magnu-Spray 105	None	N/A								Away from acids	-----
48	Mobil 600 Cylinder Oil	540 F	III								-----	-----
49	Mobil Velocite No. 6	310 F	III								-----	-----
50	Mobil DTE Oil Medium	400 F	III								-----	-----
51	Vaculine 1409	390 F	III								-----	-----
52	Mobil Velocite No. 10	360 F	III								-----	-----
53	Garcoyle #DRB-1 Grease	No Longer Used										
54	Mobil Kerosine	120 F	II								Away from heat	Avoid breathing

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CHEMICAL INFORMATION

NUMBER	PRODUCT	FLASHPOINT/CLASS		PROTECTIVE CLOTHING							STORAGE	SPECIAL CAUTIONS
				1. Rubber gloves	2. Splash goggles	3. Apron	4. Safety shower & Eye wash	5. Safety glasses	6. Rubber gauntlet gloves	7. Normal work clothing		
55	Mobil DRB Lifetime Grease	None	N/A	---	---	---	---	---	---	---	---	---
56	Rycolol 69	300 F	III	---	---	---	---	---	---	---	---	---
57	Rycolol 68	300 F	III	Goggles if splashing.							---	---
58	975 Grinding Coolant	None	N/A	5	---	---	---	---	---	Away from heat	---	---
59	Anoco Gear Lube #90	435 F	III	1,5	---	---	---	---	---	---	---	---
60	Ferrocote 5856-HP	180 F.	III	1,5	---	---	---	---	---	Away from heat	---	---
61	Harmony Oil #69	810 F	III	1,5	---	---	---	---	---	---	---	Avoid prolonged skin contact or breathing of fumes
62	Harmony Oil #49	No Longer Used		---	---	---	---	---	---	---	---	---
63	Odorless Kerosine	144 F	III	---	---	---	---	---	---	Keep away from heat	---	Ground all equipment handling this materi
64	Ucon Quench	None	N/A	5	---	---	---	---	---	---	---	---
65	Turco Rust Bloc #30	100 F	II	2,5	---	---	---	---	---	Room temp. between 20 F & 130 F	---	---
66	Ventrol 5299-G <sup>o</sup> (Per Quench 90)	280 F	III	---	---	---	---	---	---	---	---	Bring to room temp. prior to use
67	WD-30 Honing Oil	315 F	III	---	---	---	---	---	---	---	---	---



**CHEMICAL INFORMATION**

NUMBER	PRODUCT	FLASHPOINT/CLASS		PROTECTIVE CLOTHING							STORAGE	SPECIAL CAUTIONS
				1. Rubber gloves	2. Splash goggles	3. Apron	4. Safety shoes & Eye wash	5. Safety glasses	6. Rubber gauntlet gloves	7. Normal work clothing		
68	Texaco-1679 URSA Oil SAE 40	440 F	III	-	-	-	-	-	-	-	-	-
69	Texaco-2219 Rando Oil	450 F	III	-	-	-	-	-	-	-	-	-
70	Texaco-700 Regal Oil	380 F	III	-	-	-	-	-	-	-	-	-
71	Texaco-2342 Nereps 680	440 F	III	-	-	-	-	-	-	-	-	-
72	Texaco-533 URSA Oil	370 F	III	-	-	-	-	-	-	-	-	-
73	Texaco-2174 Havoline 10W-40	400 F	III	-	-	-	-	-	-	-	-	-
74	Texaco Motor Oil SAE 10	None	N/A	-	-	-	-	-	-	-	-	-
75	Texaco Trans. Fluid	350 F	III	-	-	-	-	-	-	-	-	-
76	Texaco #2 Grease	None	N/A	-	-	-	-	-	-	-	-	-
77	Texaco Regal #2 Grease	None	N/A	-	-	-	-	-	-	-	-	-
78	Texaco Marfak Heavy Duty #2 Grease	None	N/A	-	-	-	-	-	-	-	-	-
79	Way Lube #30	400 F	III	1	5	7						
80	Way Lube #100	400 F	III	1	5	7						
81	Ultramax A-W-30	400 F	N/A	1	5	7						

CHEMICAL INFORMATION

NUMBER	PRODUCT	FLASHPOINT/CLASS		PROTECTIVE CLOTHING							STORAGE	SPECIAL CAUTIONS
				1. Rubber gloves	2. Splash goggles	3. Apron	4. Safety shower & Eye wash	5. Safety glasses	6. Rubber gaitlet gloves	7. Normal work clothing		
82	Ultramax AW-15	410 F	III								-----	-----
83	Promax 1022 Cutting Oil	200 F	III								-----	-----
84	Promax II-333 Base Oil	400 F	III								-----	-----
85	Econ #5 Oil	300 F	III								-----	-----
86	Tectyl 858-C	305 F	III								-----	-----
87	Valv. X-5 E P Grease	360 F.	III								Away from heat	-----
88	Valv. Multilube Lithium	450 F	III								Away from heat	-----
89	Tectyl 511	140 F	II								-----	-----
90	Tectyl 400	100 F	II								-----	-----
91	Tectyl 810	310 F	III								-----	-----
92	Valvoline DD Grease	500 F	III								-----	-----
93	Instapak A	213 F	III								Store between 20 F & 110 F	Before use should be 60 F - 90 F
94	Instapak B	None	N/A								Store cool area 20 F - 100 F	Containers above 80 F under pressure Open with care

**CHEMICAL INFORMATION**

NUMBER	PRODUCT	FLASHPOINT/CLASS	PROTECTIVE CLOTHING	STORAGE	SPECIAL CAUTIONS
			1. Rubber gloves 2. Splash goggles 3. Apron 4. Safety shower & Eye wash 5. Safety glasses 6. Rubber gauntlet gloves 7. Normal work clothing		
95	200 Safety Solvent	205 F III	1,5	Away from heat	Not biodegradable
96	Formax Buffing Compound	385 F III	5	-----	-----
97	Quench Tex C	None N/A	-----	-----	-----
98	Insulative Oil				
99	TU 90 Part A&B	270 F	1,5	Cool dry place keep containers closed when not using	Avoid contact with skin & eyes avoid breathing fumes
100	B-224 Aque Serv	None N/A	1,2	Keep from freezing	-----
101	Heavy Duty Machine Floor Cleaner	None N/A	1,5	Keep from freezing & away from sunshine	-----
102	Aque Serv B-212	141 F II	1,2	-----	Away from open flames

Mit (C) 246 > 3-2-81  
 Mit (H) 1451  
 Dow Ethylene Glycol 2-10-81

American Corp #68AM Waylube 300 - 6-4-81

OK Alcoa-Lubric Liquid Blue  
 2-10-84  
 (Lead Chemist - Sent Boston  
 Steam Cleaners Only)  
 5-9-84

# MATERIAL SAFETY DATA SHEET

Required under OSHA Safety and Health Regulations for Ship Repairing,  
Shipbuilding, and Shipbreaking (29 CFR 1915, 1916, 1917)

## SECTION I

MANUFACTURER'S NAME <b>K. A. Steel Chemicals Inc.</b>		EMERGENCY TELEPHONE NO. <b>312-257-2251</b>
ADDRESS (Number, Street, City, State, and ZIP Code) <b>1041 Main St., Homont, Ill: 60439</b>		
CHEMICAL NAME AND SYNONYMS <b>Ferric Chloride</b>		TRADE NAME AND SYNONYMS <b>Iron Chloride</b>
CHEMICAL FAMILY	FORMULA <b>FeCl<sub>3</sub></b>	

## SECTION II - HAZARDOUS INGREDIENTS

PAINTS, PRESERVATIVES, & SOLVENTS	%	TLV (Units)	ALLOYS AND METALLIC COATINGS	%	TLV (Units)
PIGMENTS			BASE METAL <b>Iron</b>	<b>14%</b>	
CATALYST			ALLOYS		
VEHICLE			METALLIC COATINGS		
SOLVENTS			FILLER METAL PLUS COATING OR CORE FLUX		
ADDITIVES			OTHERS		
OTHERS					
HAZARDOUS MIXTURES OF OTHER LIQUIDS, SOLIDS, OR GASES				%	TLV (Units)

## SECTION III - PHYSICAL DATA

BOILING POINT (°F.)	<b>229°F</b>	SPECIFIC GRAVITY (H <sub>2</sub> O=1)	<b>39%</b>	<b>1.415</b>
VAPOR PRESSURE (mm Hg.)	<b>100mm</b>	PERCENT VOLATILE BY VOLUME (%)		<b>60%</b>
VAPOR DENSITY (AIR=1)	<b>.9</b>	EVAPORATION RATE (_____ = 1)		<b>1</b>
SOLUBILITY IN WATER @ 68° F.	<b>47.86</b>			
APPEARANCE AND ODOR	<b>Reddish Brown Liquid - Iron</b>		<b>Odor</b>	

## SECTION IV - FIRE AND EXPLOSION HAZARD DATA

FLASH POINT (Methods used)	<b>None</b>	FLAMMABLE LIMITS	Lel	Uel
EXTINGUISHING MEDIA			<b>NONE</b>	<b>NONE</b>
SPECIAL FIRE FIGHTING PROCEDURES				
UNUSUAL FIRE AND EXPLOSION HAZARDS	There is a latent fire or explosion hazard when in contact with metals due to the generation of Hydrogen.			

**SECTION V - HEALTH HAZARD DATA**

<b>THRESHOLD LIMIT VALUE</b>	
<b>EFFECTS OF OVER EXPOSURE</b>	Irritating to skin and eyes; may cause burns
<b>EMERGENCY AND FIRST AID PROCEDURES</b>	Wash thoroughly with water; if eyes are contaminated flush thoroughly and see physician, same procedures apply for swallowing

**SECTION VI - REACTIVITY DATA**

<b>STABILITY</b>	<b>UNSTABLE</b>		<b>CONDITIONS TO AVOID</b>
	<b>STABLE</b>	<b>X</b>	Avoid contact with metals
<b>INCOMPATIBILITY (Materials to avoid)</b>			
<b>HAZARDOUS DECOMPOSITION PRODUCTS</b>			
<b>HAZARDOUS POLYMERIZATION</b>	<b>MAY OCCUR</b>		<b>CONDITIONS TO AVOID</b>
	<b>WILL NOT OCCUR</b>	<b>X</b>	

**SECTION VII - SPILL OR LEAK PROCEDURES**

<b>STEPS TO BE TAKEN IN CASE MATERIAL IS RELEASED OR SPILLED</b>	
flush area with water	
<b>WASTE DISPOSAL METHOD</b>	
Dilute with water to sewer	

**SECTION VIII - SPECIAL PROTECTION INFORMATION**

<b>RESPIRATORY PROTECTION (Specify type)</b> Filter type respirator if exposed to mist or fumes		
<b>VENTILATION</b>	<b>LOCAL EXHAUST</b> <b>X</b>	<b>SPECIAL</b>
	<b>MECHANICAL (General)</b>	<b>OTHER</b>
<b>PROTECTIVE GLOVES</b>	Rubber gloves	<b>EYE PROTECTION</b> Goggles
<b>OTHER PROTECTIVE EQUIPMENT</b> Rubber boots; apron; safety shower, eye wash		

**SECTION IX - SPECIAL PRECAUTIONS**

<b>PRECAUTIONS TO BE TAKEN IN HANDLING AND STORING</b>	
Do not get in eyes; on skin, or clothing. Do not take internally. Store in rubber lined tanks.	
<b>OTHER PRECAUTIONS</b>	

U.S. DEPARTMENT OF LABOR

WAGE AND LABOR STANDARDS ADMINISTRATION  
 Bureau of Labor Standards

HAZARDOUS MATERIALS INFORMATION REPORT

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SECTION I

MANUFACTURER'S NAME PPG Industries, Incorporated		EMERGENCY TELEPHONE NO. 412/434-3131
ADDRESS (Number, Street, City, State, and ZIP Code) One Gateway Center, Pittsburgh, Pennsylvania 15222		
CHEMICAL NAME AND SYNONYMS Flake and Solid Sodium Hydroxide		TRADE NAME AND SYNONYMS Flake, Beads, & Solid Caustic Sod.
CHEMICAL FAMILY Alkali	FORMULA NaOH	

SECTION II HAZARDOUS INGREDIENTS

PAINTS, PRESERVATIVES, & SOLVENTS	%	TLV (Units)	ALLOYS AND METALLIC COATINGS	%	TLV (Units)
PIGMENTS			BASE METAL		
CATALYST			ALLOYS		
VEHICLE			METALLIC COATINGS		
SOLVENTS			FILLER METAL PLUS COATING OR CORE FLUX		
ADDITIVES			OTHERS		
OTHERS					
HAZARDOUS MIXTURES OF OTHER LIQUIDS, SOLIDS, OR GASES				%	TLV (Units)

SECTION III PHYSICAL DATA

BOILING POINT (P.S.)	2534.7	1370.8	739	SPECIFIC GRAVITY (H <sub>2</sub> O=1)	2.130
VAPOR PRESSURE (mm Hg.)	1 mm @	739°C		PERCENT VOLATILE BY VOLUME (%)	NA
VAPOR DENSITY (AIR=1)		NA		EVAPORATION RATE (H <sub>2</sub> O=1)	NA
SOLUBILITY IN WATER	Appreciable				
APPEARANCE AND ODOR	White to slightly colored solid, no odor				

SECTION IV FIRE AND EXPLOSION HAZARD DATA

FLASH POINT (Closed Cup)	Noncombustible	FLAMMABLE LIMITS	Let	Uet
EXTINGUISHING MEDIA				
SPECIAL FIRE FIGHTING PROCEDURES				
UNUSUAL FIRE AND EXPLOSION HAZARDS				

## SECTION V HEALTH HAZARD DATA

THRESHOLD LIMIT VALUE

2 mg/m<sup>3</sup> (inst) (1969)

## EFFECTS OF OVEREXPOSURE

Solid caustic soda is destructive to tissues, producing severe burns. Dust inhalation can injure respiratory tract.

## EMERGENCY AND FIRST AID PROCEDURES

In case of contact, immediately flush skin or eyes with plenty of water for at least 15 minutes; for eyes, get immediate medical attention. Contaminated clothing and shoes should be removed and washed before re-use.

## SECTION VI REACTIVITY DATA

STABILITY	UNSTABLE	X	CONDITIONS TO AVOID
	STABLE		Avoid contact with some organic materials

INCOMPATIBILITY (Materials to avoid)

NA

HAZARDOUS DECOMPOSITION PRODUCTS

NA

HAZARDOUS  
POLYMERIZATION

MAY OCCUR

CONDITIONS TO AVOID

WILL NOT OCCUR

X

## SECTION VII SPILL OR LEAK PROCEDURES

STEPS TO BE TAKEN IN CASE MATERIAL IS RELEASED OR SPILLED

Spilled flake or solid caustic soda may be shoveled up, followed by flushing with water. Dilute acetic acid may be used to neutralize final traces of caustic immediately after flushing.

## WASTE DISPOSAL METHOD

Waste caustic soda solution should not be discharged directly into sewers or streams. Caustic should first be neutralized with dilute acid and then well diluted with water.

## SECTION VIII SPECIAL PROTECTION INFORMATION

## RESPIRATORY PROTECTION (Specify type)

Bureau of Mines approved filter-type dust respirators

VENTILATION	LOCAL EXHAUST	Must prevent dust accumulation	SPECIAL
	MECHANICAL (General)		OTHER

## PROTECTIVE GLOVES

Rubber Gloves

## EYE PROTECTION

Close-fitting safety goggles

## OTHER PROTECTIVE EQUIPMENT

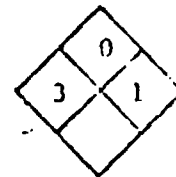
Rubber boots with safety toes, rubber aprons, PVC clothing, "hard" hat, safety shoes, eyewashing fountain.

## SECTION IX SPECIAL PRECAUTIONS

## PRECAUTIONS TO BE TAKEN IN HANDLING AND STORAGE

DO not get in eyes, on skin or clothing. Avoid breathing dust. DO NOT take internally. Wear safety equipment when handling caustic.

## OTHER PRECAUTIONS



ADAPTED FROM USDL  
FORM NO. 1511 - 005-4

**MATERIAL SAFETY DATA SHEET**

NFPA Designation

CHEMICAL NAME <u>Sodium Hydroxide, Solid, Flake or Crystal</u>		PLANT CODE	MATERIAL CODE NO.
MANUFACTURER'S NAME <u>Hooker Chemical Corporation</u>		EMERGENCY TELEPHONE NO.	
ADDRESS: NUMBER, STREET, CITY, STATE AND ZIP CODE			

CHEMICAL NAME AND SYNONYMS <u>Sodium Hydroxide</u>		TRADE NAME <u>Caustic Soda, Lye</u>	
CHEMICAL FORMULA <u>NaOH</u>	MOL. WT. <u>40.01</u>	USES <u>Mfg of chemicals, soap, textiles, paper, etc</u>	

**Physical Properties**

BOILING POINT (°F)	<u>1390°</u>	<u>2535° F</u>	SPECIFIC GRAVITY (H <sub>2</sub> O = 1)	<u>2.13</u>
VAPOR PRESSURE (mmHg)			PERCENT VOLATILE BY VOLUME (%)	
VAPOR DENSITY (AIR = 1)			EVAPORATION RATE (%)	
SOLUBILITY IN WATER	<u>@ 65°F</u>	<u>50%</u>		
APPEARANCE AND ODOR <u>White to off-white odorless solid</u>				

**Fire and Explosion Hazard Data**

FLASH POINT	METHOD	FLAMMABLE LIMITS		AUTOIGNITION TEMP.
<u>none</u>	<u>OF</u>	UEL --	LEL --	<u>none</u>

EXTINGUISHING MEDIA

SPECIAL FIRE FIGHTING PROCEDURES As appropriate for surrounding fire.

UNUSUAL FIRE AND EXPLOSION HAZARDS Hot or molten material will react violently with water liberating heat and causing splashing.

**Reactivity**

INCOMPATIBILITY Reacts with zinc, aluminum, tin, lead, etc, liberating flammable hydrogen; can react violently with acids and with many organic compounds.

HAZARDOUS DECOMPOSITION PRODUCTS --

CONDITIONS TO AVOID Wear protective equipment to avoid contact with body or inhalation of mist or dust. In processes, control rates of addition to control temperature and avoid violent reactions.



Health Related Data

THRESHOLD LIMIT VALUE 2 milligrams per cubic meter of air.

EFFECTS OF OVEREXPOSURE (SKIN, EYE, INHALATION, ETC.) Caustic soda is a primary irritant. 50% caustic and concentrated solutions are destructive to tissues and cause serious burn. Contact with any form may cause severe damage to eyes. Inhalation of dust or mist can cause injury to the entire respiratory tract. Ingestion damages mucous membranes and tissues of the gastrointestinal tract. Dilute solutions may cause burns which are not immediately evident.

EMERGENCY AND FIRST AID PROCEDURES For external exposures, flush with large amounts of water - speed of removal of caustic is of prime importance, especially for eyes. If taken internally, dilute by drinking water or milk - do not induce vomiting. If inhaled, remove to clean air. For all eye exposures and serious over-exposures, get medical attention.

SPECIAL MEDICAL PROCEDURES Unless directed otherwise by a physician: for skin exposures, avoid salves or ointments for 24 hours; in the case of ingestion, following dilution, fruit juice or dilute vinegar may be administered to neutralize caustic; for eye exposures, after the first 15 minutes of flushing, a few drops of

Special Protection Information pentocaine solution may be insti

VENTILATION As required to control dust or mist.

RESPIRATORY (TYPE) Filter or dust type.

GLOVES (TYPE) Rubber, neoprene or vinyl.

EYE (TYPE) Chemical safety goggles, plus face shield where appropriate.

OTHER Rubber safety toe shoes or boots, cotton coveralls, hard hat.

SPECIAL PRECAUTIONS FOR HANDLING AND STORAGE Store in a cool, dry place. Keep separate from acids, metals, explosives, organic peroxides and easily ignitable materials.

Wear complete protective equipment in handling product.

STEPS TO TAKE IN EVENT OF SPILL OR RELEASE Get complete protective equipment; shovel spilled material into steel containers. Flush area with ample water, rinse with diluted acid, preferably acetic, and finally with water.

WASTE DISPOSAL Dissolve and/or flush to retention area for pH adjustment and dilution before discharging to sewer or stream.

REMARKS Caustic soda and trichloroethylene are especially hazardous since they react to form spontaneously flammable dichloroacetylene.

REFERENCES (1) MCA Safety Data Sheet SD-9: Caustic Soda (1968).

(2) Sax, N I, Dangerous Properties of Industrial Materials, 3rd Edition (1969).

The information presented herein, while not guaranteed, was prepared by technically knowledgeable personnel and to the best of our knowledge is true and accurate. It is not intended to be all-inclusive and the manner and conditions of use and handling may involve other or additional considerations.

NAME G W Darling

LOC. Niagara-ICD

DATE December 1971

# HAZARDous SAFETY DATA SHEET

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Required under USOL Safety and Health Regulations for Ship Repairing,  
Shipbuilding, and Shipbreaking (29 CFR 1915, 1916, 1917)

## SECTION I

MANUFACTURER'S NAME <b>Howland Products Co.</b>		EMERGENCY TELEPHONE NO. <b>(616) 361-6691</b>
ADDRESS (Number, street, city, state, and ZIP Code) <b>421 Ann St., Grand Rapids, Mi. 49504</b>		
CHEMICAL NAME AND SYNONYMS <b>Synthetic Flocculant</b>		TRADE NAME AND SYNONYMS <b>Polyfloc C</b>
CHEMICAL FAMILY	FORMULA <b>Proprietary</b>	

## SECTION II - HAZARDOUS INGREDIENTS

PAINTS, PRESERVATIVES, & SOLVENTS	%	TLV (Units)	ALLOYS AND METALLIC COATINGS	%	TLV (Units)
PIGMENTS			BASE METAL		
CATALYST			ALLOYS		
VEHICLE			METALLIC COATINGS		
SOLVENTS			FILLER METAL PLUS COATING OR CORE FLUX		
ADDITIVES			OTHERS		
OTHERS					
HAZARDOUS MIXTURES OF OTHER LIQUIDS, SOLIDS, OR GASES				%	TLV (Units)
None					

## SECTION III - PHYSICAL DATA

BOILING POINT (°F.)	<b>215°F</b>	SPECIFIC GRAVITY (H <sub>2</sub> O=1)	
VAPOR PRESSURE (mm Hg.)		PERCENT VOLATILE BY VOLUME (%)	
VAPOR DENSITY (AIR=1)		EVAPORATION RATE (_____ = 1)	
SOLUBILITY IN WATER	<b>Very</b>		
APPEARANCE AND ODOR	<b>Colorless liquid, no odor.</b>		

## SECTION IV - FIRE AND EXPLOSION HAZARD DATA

FLASH POINT (Method used)	<b>None</b>	FLAMMABLE LIMITS	Lel	Uel
EXTINGUISHING MEDIA				
SPECIAL FIRE FIGHTING PROCEDURES				
UNUSUAL FIRE AND EXPLOSION HAZARDS				

**SECTION V - HEALTH HAZARD DATA**

THRESHOLD LIMIT VALUE

N/A

EFFECTS OF OVEREXPOSURE

None

EMERGENCY AND FIRST AID PROCEDURES

**SECTION VI - REACTIVITY DATA**

STABILITY

UNSTABLE

CONDITIONS TO AVOID

STABLE

X

INCOMPATIBILITY (Materials to avoid)

Product is cationic; may be precipitated by anionic materials.

HAZARDOUS DECOMPOSITION PRODUCTS

HAZARDOUS  
POLYMERIZATION

MAY OCCUR

CONDITIONS TO AVOID

WILL NOT OCCUR

X

**SECTION VII - SPILL OR LEAK PROCEDURES**

STEPS TO BE TAKEN IN CASE MATERIAL IS RELEASED OR SPILLED

Mop up and flush to drain. Material will cause slippery surface.

WASTE DISPOSAL METHOD

No special method - normal liquid disposal.

**SECTION VIII - SPECIAL PROTECTION INFORMATION**

RESPIRATORY PROTECTION (Specify type)

VENTILATION

LOCAL EXHAUST

SPECIAL

MECHANICAL (General)

OTHER

PROTECTIVE GLOVES

EYE PROTECTION

OTHER PROTECTIVE EQUIPMENT

Special handling not required.

**SECTION IX - SPECIAL PRECAUTIONS**

PRECAUTIONS TO BE TAKEN IN HANDLING AND STORING

Keep from freezing.

OTHER PRECAUTIONS

# MATERIAL SAFETY DATA SHEET

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Required under OSHA Safety and Health Regulations for Ship Repairing,  
Shipbuilding, and Shipbreaking (29 CFR 1915, 1916, 1917)

## SECTION I

MANUFACTURER'S NAME <b>HAVILAND PRODUCTS COMPANY</b>		EMERGENCY TELEPHONE NO. <b>(616) 361-6691</b>
ADDRESS (Number, Street, City, State, and ZIP Code) <b>421 Ann Street, NW., Grand Rapids, Michigan 49504</b>		
CHEMICAL NAME AND SYNONYMS <b>Caustic Cleaner</b>	TRADE NAME AND SYNONYMS <b>WMC #55</b>	
CHEMICAL FAMILY <b>Alkaline</b>	FORMULA <b>Proprietary</b>	

## SECTION II - HAZARDOUS INGREDIENTS

PAINTS, PRESERVATIVES, & SOLVENTS	%	TLV (Units)	ALLOYS AND METALLIC COATINGS	%	TLV (Units)
PIGMENTS			BASE METAL		
CATALYST			ALLOYS		
VEHICLE			METALLIC COATINGS		
SOLVENTS			FILLER METAL PLUS COATING OR CORE FLUX		
ADDITIVES			OTHERS		
OTHERS					
HAZARDOUS MIXTURES OF OTHER LIQUIDS, SOLIDS, OR GASES				%	TLV (Units)
<b>Alkaline in nature. Contains caustic soda.</b>					

## SECTION III - PHYSICAL DATA

BOILING POINT (°F.)	<b>N.A.</b>	SPECIFIC GRAVITY (H <sub>2</sub> O=1)	
VAPOR PRESSURE (mm Hg.)		PERCENT VOLATILE BY VOLUME (%)	
VAPOR DENSITY (AIR=1)		EVAPORATION RATE (---=1)	
SOLUBILITY IN WATER	<b>Soluble</b>		
APPEARANCE AND COLOR	<b>White powdered mixture.</b>		

## SECTION IV - FIRE AND EXPLOSION HAZARD DATA

FLASH POINT (Method used)	<b>N.A.</b>	FLAMMABLE LIMITS	LFL	UFL
EXTINGUISHING MEDIA	<b>Non-combustible</b>			
SPECIAL FIRE FIGHTING PROCEDURES	<b>None</b>			
UNUSUAL FIRE AND EXPLOSION HAZARDS				

### SECTION V - HEALTH HAZARD DATA

THRESHOLD LIMIT VALUE

*2 mg / 1000 liter air*

EFFECTS OF OVEREXPOSURE

W.M.C. #55 produces caustic burns. Dust inhalation can injure respiratory tract.

EMERGENCY AND FIRST AID PROCEDURES

Flush skin or eyes with large amounts of water. In case of eyes, obtain medical attention.

### SECTION VI - REACTIVITY DATA

STABILITY

UNSTABLE

STABLE

CONDITIONS TO AVOID

X

INCOMPATIBILITY (Materials to avoid)

Organic Matter

HAZARDOUS DECOMPOSITION PRODUCTS

Oxides of Nitrogen

HAZARDOUS POLYMERIZATION

MAY OCCUR

WILL NOT OCCUR

CONDITIONS TO AVOID

X

### SECTION VII - SPILL OR LEAK PROCEDURES

STEPS TO BE TAKEN IN CASE MATERIAL IS RELEASED OR SPILLED

Spilled flake or solid W.M.C. #55 may be shoveled up, followed by flushing with water. Dilute acetic acid may be used to neutralize final traces of caustic immediately after flushing.

WASTE DISPOSAL METHOD

W.M.C. #55 solution should not be discharged directly into sewers or streams. Caustic should first be neutralized with dilute acetic acid and then well diluted with water.

### SECTION VIII - SPECIAL PROTECTION INFORMATION

RESPIRATORY PROTECTION (Specify type)

Bureau of Mines approved filter-type dust respirators.

VENTILATION

LOCAL EXHAUST

Must prevent dust accumulation.

MECHANICAL (General)

SPECIAL

OTHER

PROTECTIVE CLOTHING

Rubber gloves

EYE PROTECTION

Close-fitting safety goggles.

OTHER PROTECTIVE EQUIPMENT

Rubber boots with safety toes, rubber aprons, PVC clothing, "hard" hat, safety shower, eye-washing fountain.

### SECTION IX - SPECIAL PRECAUTIONS

PRECAUTIONS TO BE TAKEN IN HANDLING AND STORING

Do not get in eyes, on skin or clothing. Avoid breathing dust.

DO NOT take internally. Wear safety equipment when handling W.M.C.

OTHER PRECAUTIONS

U.S. DEPARTMENT OF LABOR

WAGE AND LABOR STANDARDS ADMINISTRATION  
Bureau of Labor Standards

MATERIAL SAFETY DATA SHEET

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SECTION I	
MANUFACTURER'S NAME Alliced Chemical Corp., Industrial Chemicals Div	EMERGENCY TELEPHONE NO. 201-455-2000
ADDRESS (Number, Street, City, State, and ZIP Code) P.O. BOX 1130R, Morristown, N.J. 07960	
CHEMICAL NAME AND SYNONYMS Sodium Nitrite	TRADE NAME AND SYNONYMS Sodium Nitrite
CHEMICAL FAMILY Inorganic salt	FORMULA NaNO <sub>2</sub>

SECTION II HAZARDOUS INGREDIENTS					
PAINTS, PRESERVATIVES, & SOLVENTS	%	TLV (Units)	ALLOYS AND METALLIC COATINGS	%	TLV (Units)
PIGMENTS			BASE METAL		
CATALYST			ALLOYS		
VEHICLE			METALLIC COATINGS		
SOLVENTS			FILLER METAL PLUS COATING OR CORE FLUX		
ADDITIVES			OTHERS		
OTHERS					
HAZARDOUS MIXTURES OF OTHER LIQUIDS, SOLIDS, OR GASES				%	TLV (Units)
Not applicable - not a mixture					

SECTION III PHYSICAL DATA			
BOILING POINT (°F.)	n.a.	SPECIFIC GRAVITY (H <sub>2</sub> O=1) Density	2.17
VAPOR PRESSURE (mm Hg.)	n.a.	PERCENT VOLATILE BY VOLUME (%)	n.a.
VAPOR DENSITY (AIR=1)	n.a.	EVAPORATION RATE (H <sub>2</sub> O=1)	n.a.
SOLUBILITY IN WATER	appreciable		
APPEARANCE AND ODOR	Yellow-white crystalline solid. No appreciable odor.		

SECTION IV FIRE AND EXPLOSION HAZARD DATA					
FLASH POINT (Method used)	n.a.	FLAMMABLE LIMITS	<table border="1"> <tr> <td>LeL</td> <td>UeL</td> </tr> </table>	LeL	UeL
LeL	UeL				
EXTINGUISHING MEDIA	Use carbon dioxide where sodium nitrite is involved in a				
SPECIAL FIRE FIGHTING PROCEDURES	n.a. (fire)				
UNUSUAL FIRE AND EXPLOSION HAZARDS	Oxidizing agent. Will stimulate the combustion of organic matter. At high temperatures 600°-750° or above, will give off toxic vapors of nitrogen dioxide.				

All statements, information, and data given herein are believed to be accurate and reliable and are presented without guarantee, warranty, or responsibility of any kind, express or implied. Statements or suggestions concerning possible use of our products are made without representation or warranty that any such use is free of patent infringement, and are not recommendations to infringe any patent. The user should not assume that all safety measures are indicated or that other measures may not be required.

**SECTION V HEALTH DATA**

**THRESHOLD LIMIT VALUE** No data located

**EFFECTS OF OVER EXPOSURE**  
Flushed face, uneven heart action, tremors, dizziness, and nausea if

ingested. Contact can irritate skin and temporarily yellow skin in

**EMERGENCY AND FIRST AID PROCEDURES**  
Flush skin or eyes with plenty of water. |lengthy exposure.

For eyes get medical attention. For dust inhalation or ingestion

get prompt medical attention.

**SECTION VI REACTIVITY DATA**

<b>STABILITY</b>	<b>UNSTABLE</b>		<b>CONDITIONS TO AVOID</b> High temperatures and open flames. Avoid storage with combustibles and reducing agents
	<b>STABLE</b>	X	

**INCOMPATIBILITY (Materials to avoid)** Acidic and reducing materials (e.g. cyanides, thiocyanates, thiosulfates, etc.) ammonium salts and combustible organics

**HAZARDOUS DECOMPOSITION PRODUCTS** Oxides of nitrogen fumes

<b>HAZARDOUS POLYMERIZATION</b>	<b>MAY OCCUR</b>		<b>CONDITIONS TO AVOID</b>
	<b>WILL NOT OCCUR</b>	X	

**SECTION VII SPILL OR LEAK PROCEDURES**

**STEPS TO BE TAKEN IN CASE MATERIAL IS RELEASED OR SPILLED**  
Sweep up spills cleanly. Very small residues may be flushed away with

large volumes of water. Avoid contaminating sewers, streams, ponds, etc.

Avoid contact with acid or other incompatible materials. Paper, wood or other combustibles contaminated with sodium nitrite can become a fire hazard

**WASTE DISPOSAL METHOD**  
Reuse if possible. Removal by disposal contractor may be necessary. Disposal must be in accordance with applicable disposal regulations.

**SECTION VIII SPECIAL PROTECTION INFORMATION**

**RESPIRATORY PROTECTION (Specify type)** Respirator as recommended for sodium nitrite dust (or oxides of nitrogen) by NIOSH.

<b>VENTILATION</b>	<b>LOCAL EXHAUST</b> As required to eliminate dust	<b>SPECIAL</b>
	<b>MECHANICAL (General)</b>	<b>OTHER</b>

**PROTECTIVE GLOVES** Rubber gloves **EYE PROTECTION** Chemical safety goggles. Face shield

**OTHER PROTECTIVE EQUIPMENT**  
Rubber shoes, rubber apron and other protective clothing as necessary to prevent skin contact |as necessary

**SECTION IX SPECIAL PRECAUTIONS**

**PRECAUTIONS TO BE TAKEN IN HANDLING AND STORAGE**  
Store in cool dry place away from acids combustibles and reducing agents. Preferably in isolated non-combustible building.

**OTHER PRECAUTIONS**  
Mixtures with incompatible materials may react violently or explode. Sodium nitrite should not be mixed in quantity with other chemicals except when the behavior of the mixture is known in advance.

All statements, information, and data given herein are believed to be accurate and reliable but are presented without guaranty, warranty, or responsibility of any kind, express or implied. Statements or suggestions concerning possible use of our products are made without representation or warranty that any such use is free of patent infringement, and are not recommendations to infringe any patent. The user should not assume that all safety measures are indicated or that other measures may not be required.

# MATERIAL SAFETY DATA SHEET

(Approved by U.S. Department of Labor "Essentially Similar" to Form OSHA-204)

NPVLA 6-70-

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## Section I

MANUFACTURER'S NAME

Philadelphia Quartz Company

STREET ADDRESS

Public Ledger Building - Independence Square

CITY, STATE, AND ZIP CODE

Philadelphia, Pennsylvania 19106

TELEPHONE NO.

215 MA 7-7200

CHEMICAL NAME AND SYNONYMS

Sodium Silicate

TRADE NAME

"O"

CHEMICAL FAMILY

Alkali Silicates

FORMULA

$Na_2O \cdot 3.22 SiO_2$

### PAINTS, PRESERVATIVES, & SOLVENTS

PIGMENTS	%	TLV (Units)	SOLVENTS	%	TLV (Units)
CATALYST			ADDITIVES		
			OTHERS		

### HAZARDOUS MIXTURES OF OTHER LIQUIDS, SOLIDS, OR GASES

Contains 9.15%  $Na_2O$ , 29.46%  $SiO_2$ , balance water

BOILING POINT (°F.)	212°F	SPECIFIC GRAVITY (H <sub>2</sub> O=1)	1.411
VAPOR PRESSURE (mm Hg.)	N.A.	PERCENT VOLATILE BY VOLUME (%)	N.A.
VAPOR DENSITY (AIR=1)	N.A.	EVAPORATION RATE (.....=1)	N.A.
SOLUBILITY IN WATER	Soluble in all proportions		
APPEARANCE AND ODOR	Odorless and colorless		

FLASH POINT (METHOD USED)	None
EXTINGUISHING MEDIA	None
SPECIAL FIRE FIGHTING PROCEDURES	None Required



THRESHOLD LIMIT VALUE

Non Applicable

EFFECTS OF OVEREXPOSURE

May irritate skin and eyes.

EMERGENCY AND FIRST AID PROCEDURES

Flush skin and eyes immediately for fifteen minutes with plenty of water; for eyes, call a physician.

STABILITY

UNSTABLE

STABLE

X

CONDITIONS TO AVOID

Not Applicable.

COMPATIBILITY (Materials to avoid)

Not Applicable.

HAZARDOUS DECOMPOSITION PRODUCTS

None

HAZARDOUS POLYMERIZATION

MAY OCCUR

WILL NOT OCCUR

X

CONDITIONS TO AVOID

STEPS TO BE TAKEN IN CASE MATERIAL IS RELEASED OR SPILLED

Flush to sewer with large volume of water.

WASTE DISPOSAL METHOD

See above.

RESPIRATORY PROTECTION (Specify type)

VENTILATION

LOCAL EXHAUST

MECHANICAL (General)

None Required

SPECIAL

OTHER

PROTECTIVE GLOVES

EYE PROTECTION

Safety Glasses

OTHER PROTECTIVE EQUIPMENT

CAUTIONS TO BE TAKEN IN HANDLING AND STORAGE

Prevent from freezing.

OTHER PRECAUTIONS



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OCCUPATIONAL SAFETY and HEALTH ADMINISTRATION  
**MATERIAL SAFETY DATA SHEET**

SECTION I		
MANUFACTURER'S NAME	MALLINCKRODT, INC.	EMERGENCY TELEPHONE NO. 314-231-8980
ADDRESS (Number, Street, City, State, and ZIP Code) MALLINCKRODT & SECOND STREETS, ST. LOUIS, MO. 63147		
CHEMICAL NAME AND SYNONYMS <b>Hydrochloric Acid</b>		TRADE NAME AND SYNONYMS
CHEMICAL FAMILY <b>Inorganic acid</b>	FORMULA	<b>CHI (aqueous soln)</b>

SECTION II HAZARDOUS INGREDIENTS					
PAINTS, PRESERVATIVES, & SOLVENTS	%	TLV (Units)	ALLOYS AND METALLIC COATINGS	%	TLV (Units)
PIGMENTS			BASE METAL		
CATALYST			ALLOYS		
VEHICLE			METALLIC COATINGS		
SOLVENTS			FILLER METAL PLUS COATING OR CORE FLUX		
ADDITIVES			OTHERS		
OTHERS					
HAZARDOUS MIXTURES OF OTHER LIQUIDS, SOLIDS, OR GASES				%	TLV (Units)

SECTION III PHYSICAL DATA			
BOILING POINT (°F.)		SPECIFIC GRAVITY (H <sub>2</sub> O=1)	1.18
VAPOR PRESSURE (mm Hg.)		PERCENT VOLATILE BY VOLUME (%)	100
VAPOR DENSITY (AIR=1)	1.3	EVAPORATION RATE (WATER = 1)	about 1
SOLUBILITY IN WATER	Infinitely miscible		
APPEARANCE AND ODOR	Clear, colorless solution, pungent odor of hydrogen chloride.		

SECTION IV FIRE AND EXPLOSION HAZARD DATA			
FLASH POINT (Method used)	FLAMMABLE LIMITS		Let Uel
EXTINGUISHING MEDIA	Any media suitable for the supporting fire.		
SPECIAL FIRE FIGHTING PROCEDURES	Wear full protective clothing and self contained breathing apparatus.		
UNUSUAL FIRE AND EXPLOSION HAZARDS	Contact with metals produces hydrogen which forms explosive mixtures with air.		

**SECTION V HEALTH HAZARD DATA**

THRESHOLD LIMIT VALUE

5 ppm

EFFECTS OF OVEREXPOSURE

Concentrated solutions causes severe burns, permanent visual damage may occur.

Inhalation: Cough, choking, inflammation of respiratory tract. Ingestion: corrosive  
EMERGENCY AND FIRST AID PROCEDURES of mucous membranes, nausea, vomiting, diarrhea.

Contact areas: wash well for 15 minutes with water.

Ingestion and inhalation: see physician.

**SECTION VI REACTIVITY DATA**

STABILITY

UNSTABLE

CONDITIONS TO AVOID

STABLE

X

INCOMPATIBILITY (Materials to avoid)

Acids and metals

HAZARDOUS DECOMPOSITION PRODUCTS

Traces of hydrogen chloride and hydrogen in contact with metals, chlorine from oxidiz

HAZARDOUS  
POLYMERIZATION

MAY OCCUR

CONDITIONS TO AVOID

WILL NOT OCCUR

X

**SECTION VII SPILL OR LEAK PROCEDURES**

STEPS TO BE TAKEN IN CASE MATERIAL IS RELEASED OR SPILLED

Cover contaminated surface with sodium bicarbonate or a soda ash, slaked lime mix -  
ture (50-50). Mix and add water if necessary to form a slurry. Scoop up slurry and  
wash down drain with excess water. Wash site with soda ash solutions.

WASTE DISPOSAL METHOD

Add slowly to large volume of agitated solution of soda ash or slake lime. Add  
neutralized solution to excess running water to sewer. As an added precaution, the  
sink can be lined with protective matting and filled with coarse chipped marble.

**SECTION VIII SPECIAL PROTECTION INFORMATION**

RESPIRATORY PROTECTION (Specify type)

Mask with acid vapor canister or self breathing apparatus

VENTILATION

LOCAL EXHAUST

SPECIAL

MECHANICAL (General)

X

OTHER

PROTECTIVE GLOVES

Rubber

EYE PROTECTION

Goggles

OTHER PROTECTIVE EQUIPMENT

Rubber suit or lab coat.

**SECTION IX SPECIAL PRECAUTIONS**

PRECAUTIONS TO BE TAKEN IN HANDLING AND STORING

Protect against physical damage. Store in a  
cool, well ventilated place, separate from all oxidizing agents.

OTHER PRECAUTIONS

See Chemical Safety Data Sheet SD-30(MCA)



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OCCUPATIONAL SAFETY and HEALTH ADMINISTRATION  
**MATERIAL SAFETY DATA SHEET**

SECTION I	
MANUFACTURER'S NAME <b>MALLINCKRODT, INC.</b>	EMERGENCY TELEPHONE NO. <b>314-231-8980</b>
ADDRESS (Number, Street, City, State, and ZIP Code) <b>MALLINCKRODT &amp; SECOND STREETS, ST. LOUIS, MO. 63147</b>	
CHEMICAL NAME AND SYNONYMS <b>Sulfuric Acid Fuming 20%</b>	TRADE NAME AND SYNONYMS
CHEMICAL FAMILY <b>Inorganic acid</b>	FORMULA <b>H<sub>2</sub>SO<sub>4</sub> plus 20% excess SO<sub>3</sub></b>

SECTION II HAZARDOUS INGREDIENTS					
PAINTS, PRESERVATIVES, & SOLVENTS	%	TLV (Units)	ALLOYS AND METALLIC COATINGS	%	TLV (Units)
PIGMENTS			BASE METAL		
CATALYST			ALLOYS		
VEHICLE			METALLIC COATINGS		
SOLVENTS			FILLER METAL PLUS COATING OR CORE FLUX		
ADDITIVES			OTHERS		
OTHERS					
HAZARDOUS MIXTURES OF OTHER LIQUIDS, SOLIDS, OR GASES				%	TLV (Units)

SECTION III PHYSICAL DATA			
BOILING POINT (°F.)		SPECIFIC GRAVITY (H <sub>2</sub> O = 1)	
VAPOR PRESSURE (mm Hg.)		PERCENT VOLATILE BY VOLUME (%)	100
VAPOR DENSITY (AIR = 1)		EVAPORATION RATE (WATER = 1)	
SOLUBILITY IN WATER	Infinitely soluble		
APPEARANCE AND ODOR	Colorless to very light brown viscous liquid. Odor of SO <sub>3</sub>		

SECTION IV FIRE AND EXPLOSION HAZARD DATA			
FLASH POINT (Method used)	FLAMMABLE LIMITS	LeL	UeL
EXTINGUISHING MEDIA Fires involving small amounts of combustibles may be smothered with suitable dry chemical. Use water on combustibles burning in the vicinity of this acid results in evolution of heat and causes spattering. Wear full protective clothing. Wear self contained breathing apparatus.			
SPECIAL FIRE FIGHTING PROCEDURES this material but use care as water applied directly to this acid results in evolution of heat and causes spattering. Wear full protective clothing. Wear self contained breathing apparatus.			
UNUSUAL FIRE AND EXPLOSION HAZARDS Capable of igniting finely divided combustible material on contact. Reacts violently with water and organic materials with evolution of heat. Extremely hazardous with carbides, chlorates, fulminates, nitrates, picrates, powdered metals and other combustible materials. Attacks many metals releasing hydrogen.			

### SECTION V HEALTH HAZARD DATA

THRESHOLD LIMIT VALUE **1 mg/cu meter of air as SO<sub>2</sub>**

EFFECTS OF OVEREXPOSURE **Causes severe deep burns to tissue, very corrosive effect.**

EMERGENCY AND FIRST AID PROCEDURES  
**Contact areas - wash with copious amounts of water for 15 minutes, add enough water initially to dissipate that heat of solution. Inhalation and ingestion - see physician immediately.**

### SECTION VI REACTIVITY DATA

STABILITY	UNSTABLE	<b>X</b>	CONDITIONS TO AVOID <b>keep containers tightly closed.</b>
	STABLE		

INCOMPATIBILITY (Materials to avoid) **carbides chlorates, fulminates, nitrates, picrates, powdered metals, and other combustible materials.**

HAZARDOUS DECOMPOSITION PRODUCTS

HAZARDOUS POLYMERIZATION -	MAY OCCUR		CONDITIONS TO AVOID
	WILL NOT OCCUR	<b>X</b>	

### SECTION VII SPILL OR LEAK PROCEDURES

STEPS TO BE TAKEN IN CASE MATERIAL IS RELEASED OR SPILLED  
**Cover the contaminated surface with sodium bicarbonate or a soda ash, slaked lime mixture (50 - 50) Mix and add water if necessary to form a slurry. Scoop up slurry and wash down the drain with excess water. Wash site with soda solution.**

WASTE DISPOSAL METHOD  
**Add slowly to large volume of agitated solution of soda ash and slaked lime. Add neutralized solution to excess running water. As an added precaution the sink can be lined with protective matting and filled with coarse chipped marble.**

### SECTION VIII SPECIAL PROTECTION INFORMATION

RESPIRATORY PROTECTION (Specify type) **Self contained breathing apparatus.**

VENTILATION	LOCAL EXHAUST	SPECIAL
	MECHANICAL (General)	OTHER

PROTECTIVE GLOVES **Rubber**      EYE PROTECTION **Splash proof goggles**

OTHER PROTECTIVE EQUIPMENT

### SECTION IX SPECIAL PRECAUTIONS

PRECAUTIONS TO BE TAKEN IN HANDLING AND STORING  
**Do not store on wood or other combustible material. Separate from carbides, chlorates, fulminates, picrates, powdered metals and other combustible materials.**

OTHER PRECAUTIONS



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OCCUPATIONAL SAFETY and HEALTH ADMINISTRATION  
**MATERIAL SAFETY DATA SHEET**

SECTION I	
MANUFACTURER'S NAME	MALLINCKRODT, INC. EMERGENCY TELEPHONE NO. 314-231-8980
ADDRESS (Number, Street, City, State, and ZIP Code) MALLINCKRODT & SECOND STREETS, ST. LOUIS, MO. 63147	
CHEMICAL NAME AND SYNONYMS	TRADE NAME AND SYNONYMS
Nitric Acid	
CHEMICAL FAMILY	FORMULA
Inorganic Acid	HNO <sub>3</sub>

SECTION II HAZARDOUS INGREDIENTS					
PAINTS, PRESERVATIVES, & SOLVENTS	%	TLV (Units)	ALLOYS AND METALLIC COATINGS	%	TLV (Units)
PIGMENTS			BASE METAL		
CATALYST			ALLOYS		
VEHICLE			METALLIC COATINGS		
SOLVENTS			FILLER METAL PLUS COATING OR CORE FLUX		
ADDITIVES			OTHERS		
OTHERS					
HAZARDOUS MIXTURES OF OTHER LIQUIDS, SOLIDS, OR GASES				%	TLV (Units)

SECTION III PHYSICAL DATA			
BOILING POINT (°F.)	186.8°F	SPECIFIC GRAVITY (H <sub>2</sub> O=1)	1.42
VAPOR PRESSURE (mm Hg.)		PERCENT VOLATILE-BY VOLUME (%)	100
VAPOR DENSITY (AIR=1)		EVAPORATION RATE (H <sub>2</sub> O=1)	
SOLUBILITY IN WATER	Infinitely		
APPEARANCE AND ODOR	Clear to sl yellow liq. Char. odor		

SECTION IV FIRE AND EXPLOSION HAZARD DATA			
FLASH POINT (Method used)	FLAMMABLE LIMITS	Let	Uel
EXTINGUISHING MEDIA Use water spray, wear self-contained breathing apparatus			
SPECIAL FIRE FIGHTING PROCEDURES			
UNUSUAL FIRE AND EXPLOSION HAZARDS			

### SECTION V HEALTH HAZARD DATA

THRESHOLD LIMIT VALUE	2 ppm
EFFECTS OF OVEREXPOSURE	Discoloration of the skin and acid burns. Extremely corrosive to all body tissue
EMERGENCY AND FIRST AID PROCEDURES	Wash well with water, see physician

### SECTION VI REACTIVITY DATA

STABILITY	UNSTABLE		CONDITIONS TO AVOID
	STABLE	X	
INCOMPATIBILITY (Materials to avoid) strong bases, metallic powders, carbides, hydrogen sulfide and turpentine. Increases flammability of combustibles.			
HAZARDOUS DECOMPOSITION PRODUCTS oxides of nitrogen			
HAZARDOUS POLYMERIZATION	MAY OCCUR		CONDITIONS TO AVOID
	WILL NOT OCCUR	X	

### SECTION VII SPILL OR LEAK PROCEDURES

STEPS TO BE TAKEN IN CASE MATERIAL IS RELEASED OR SPILLED	Cover surface with sodium carbonate or soda ash, slaked lime mixture (50-50) Mix and add water if necessary. Scoop up slurry and wash down drain with excess water. Wash site with Soda ash solution.
WASTE DISPOSAL METHOD	Add slowly to large volume of soda ash solution with agitation. Add neutralization solution to running water and flush to sewer.

### SECTION VIII SPECIAL PROTECTION INFORMATION

RESPIRATORY PROTECTION (Specify type)			organic vapor canister or self contained apparatus
VENTILATION	LOCAL EXHAUST		SPECIAL
	MECHANICAL (General)	X	OTHER
PROTECTIVE GLOVES	rubber gloves	EYE PROTECTION	face shield or splash proof goggles.
OTHER PROTECTIVE EQUIPMENT	Rubber boots & apron		

### SECTION IX SPECIAL PRECAUTIONS

PRECAUTIONS TO BE TAKEN IN HANDLING AND STORING	Protect against physical damage. Separate from metallic powders, carbides, hydrogen sulfide & turpentine, organic acids and all combustibles and other readily oxidizable materials. Provide good ventilation and protect from direct sun-light.
OTHER PRECAUTIONS	



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OCCUPATIONAL SAFETY and HEALTH ADMINISTRATION  
**MATERIAL SAFETY DATA SHEET**

SECTION I	
MANUFACTURER'S NAME <b>MALLINCKRODT, INC.</b>	EMERGENCY TELEPHONE NO. <b>314-231-8980</b>
ADDRESS (Number, Street, City, State, and ZIP Code) <b>MALLINCKRODT &amp; SECOND STREETS, ST. LOUIS, MO. 63147</b>	
CHEMICAL NAME AND SYNONYMS <b>Chloroform</b>	TRADE NAME AND SYNONYMS
CHEMICAL FAMILY <b>Organic halide</b>	FORMULA <b>CHCl<sub>3</sub></b>

SECTION II HAZARDOUS INGREDIENTS					
PAINTS, PRESERVATIVES, & SOLVENTS	%	TLV (Units)	ALLOYS AND METALLIC COATINGS	%	TLV (Units)
PIGMENTS			BASE METAL		
CATALYST			ALLOYS		
VEHICLE			METALLIC COATINGS		
SOLVENTS			FILLER METAL PLUS COATING OR CORE FLUX		
ADDITIVES			OTHERS		
OTHERS					
HAZARDOUS MIXTURES OF OTHER LIQUIDS, SOLIDS, OR GASES				%	TLV (Units)

SECTION III PHYSICAL DATA			
BOILING POINT (°F.)	<b>141.8°F</b>	SPECIFIC GRAVITY (H <sub>2</sub> O=1)	<b>1.49</b>
VAPOR PRESSURE (mm Hg.) at 10.4°C	<b>100mm</b>	PERCENT VOLATILE BY VOLUME (%)	<b>100</b>
VAPOR DENSITY (AM=1)	<b>4.1</b>	EVAPORATION RATE (Ether=1)	<b>0.5</b>
SOLUBILITY IN WATER	<b>only slightly soluble</b>		
APPEARANCE AND ODOR <b>Clear, colorless liquid; ethereal odor</b>			

SECTION IV FIRE AND EXPLOSION HAZARD DATA			
FLASH POINT (Method used)	<b>None</b>	FLAMMABLE LIMITS	
		Loi	Uoi
EXTINGUISHING MEDIA		--	--
<b>Any media suitable for the supporting fire.</b>			
SPECIAL FIRE FIGHTING PROCEDURES			
<b>Wear self-contained breathing apparatus.</b>			
UNUSUAL FIRE AND EXPLOSION HAZARDS			
<b>When heated to decomposition it emits fumes of phosgene.</b>			



### SECTION V TOXIC HAZARD DATA

THRESHOLD LIMIT VALUE  
50 ppm

EFFECTS OF OVEREXPOSURE  
Has been used as inhalation anesthetic but has a narrow margin of safety. Large doses may cause hypotension, respiratory and myocardial depression and death.

EMERGENCY AND FIRST AID PROCEDURES  
Remove to fresh air. Call physician.

### SECTION VI REACTIVITY DATA

STABILITY	UNSTABLE		CONDITIONS TO AVOID
	STABLE	X	

INCOMPATIBILITY (Materials to avoid)

HAZARDOUS DECOMPOSITION PRODUCTS  
When heated to decomposition it emits fumes of phosphene.

HAZARDOUS POLYMERIZATION	MAY OCCUR		CONDITIONS TO AVOID
	WILL NOT OCCUR	X	

### SECTION VII SPILL OR LEAK PROCEDURES

STEPS TO BE TAKEN IN CASE MATERIAL IS RELEASED OR SPILLED  
Ventilate the area. Material will evaporate.

WASTE DISPOSAL METHOD  
Waste may be dumped on land fills to evaporate.

### SECTION VIII SPECIAL PROTECTION INFORMATION

RESPIRATORY PROTECTION (Specify type)  
Mask with organic vapor canister.

VENTILATION	LOCAL EXHAUST	SPECIAL
	MECHANICAL (General)	

PROTECTIVE GLOVES  
Rubber

EYE PROTECTION  
Goggles

OTHER PROTECTIVE EQUIPMENT

### SECTION IX PRECAUTIONS

PRECAUTIONS TO BE TAKEN IN HANDLING AND STORING  
Keep in a cool, well ventilated area.

OTHER PRECAUTIONS



# MATERIAL SAFETY DATA SHEET

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BURDICK & JACKSON LABORATORIES, INC.

1953 SOUTH HARVEY STREET MUSKEGON, MICHIGAN U.S.A. 49442 616-726-3171

## DISTILLED-IN-GLASS™ SOLVENTS

### SECTION I

CHEMICAL NAME AND SYNONYMS TRICHLOROTRIFLUOROETHANE		TRADE NAME AND SYNONYMS "Freon" 1F/PCA	
CHEMICAL FAMILY Halogenated Hydrocarbon		FORMULA CCl <sub>2</sub> FCCLF <sub>2</sub>	
RAW MATERIAL MANUFACTURER E. I. du Pont de Nemours & Company		EMERGENCY TELEPHONE NO. (302) 774-1000	
ADDRESS (NUMBER, STREET, CITY, AND ZIP CODE) "Freon". Prod. Division; Wilmington, Delaware 19898			

### SECTION II - HAZARDOUS INGREDIENTS

INGREDIENT	%	TLV (UNITS)	INGREDIENT	%	TLV (UNITS)
Not Applicable					

### SECTION III - PHYSICAL DATA

BOILING POINT (°F.)	117.6	SPECIFIC GRAVITY (H <sub>2</sub> O = 1) 77°F	1.57
VAPOR PRESSURE (mm Hg.) 77°F	334	PERCENT VOLATILE BY VOLUME (%)	100
VAPOR DENSITY (AIR = 1) 77°F	2.9	EVAPORATION RATE (CCl <sub>4</sub> 1=1)	0.3
SOLUBILITY IN WATER % by weight at 77°F	0.02		

APPEARANCE AND ODOR Colorless liquid - slight ethereal odor.

### SECTION IV - FIRE AND EXPLOSION HAZARD DATA

FLASH POINT (METHOD USED)	None	FLAMMABLE LIMITS	LEL	None	UEL	None
EXTINGUISHING MEDIA						
SPECIAL FIRE FIGHTING PROCEDURES						
UNUSUAL FIRE AND EXPLOSION HAZARDS						

ALL INFORMATION AND DATA GIVEN HEREIN ARE BELIEVED TO BE ACCURATE AND RELIABLE IN THAT THIS IS THE INFORMATION SUPPLIED US BY THE RAW MATERIAL MANUFACTURER. WE ASSUME NO GUARANTEE OR RESPONSIBILITY OF ANY KIND, EITHER EXPRESSED OR IMPLIED, FOR USE OF OR RELIANCE UPON THIS INFORMATION.

## SECTION V - HEALTH HAZARD DATA

THRESHOLD LIMIT VALUE 1000 ppm

EFFECTS OF OVEREXPOSURE Light-headedness, giddiness, shortness of breath, possible narcosis, possible cardiac arrhythmias at high concentrations.

EMERGENCY AND FIRST AID PROCEDURES Inhalation: Remove to fresh air, call a physician, do not give epinephrine or similar drugs. Skin or eye contact: Flush with water.

## SECTION VI - REACTIVITY DATA

STABILITY	UNSTABLE		CONDITIONS TO AVOID
	STABLE	X	Open flames or high temperatures.

INCOMPATIBILITY (MATERIALS TO AVOID)	Alkali or alkaline earth metals - powdered Al, zinc, beryllium, etc.
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HAZARDOUS DECOMPOSITION PRODUCTS	Hydrochloric and hydrofluoric acids - possible phosgene.
----------------------------------	--

HAZARDOUS POLYMERIZATION	MAY OCCUR		CONDITIONS TO AVOID
	WILL NOT OCCUR	X	

## SECTION VII - SPILL OR LEAK PROCEDURES

STEPS TO BE TAKEN IN CASE MATERIAL IS RELEASED OR SPILLED Ventilate area - especially low places where heavy vapors might collect. Remove open flames.

WASTE DISPOSAL METHOD Evaporate outdoors.

## SECTION VIII - SPECIAL PROTECTION INFORMATION

RESPIRATORY PROTECTION (SPECIFY TYPE) Use air mask in high concentrations.

VENTILATION	LOCAL EXHAUST	When large amounts are released.	SPECIAL
	MECHANICAL (GENERAL)	Especially in low places.	OTHER

PROTECTIVE GLOVES	Neoprene gloves	EYE PROTECTION	Safety glasses or face shield
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OTHER PROTECTIVE EQUIPMENT

## SECTION IX - SPECIAL PRECAUTIONS

PRECAUTIONS TO BE TAKEN IN HANDLING AND STORING Store containers in a clean, dry area. Do not heat above 125°F.

OTHER PRECAUTIONS

# MATERIAL SAFETY DATA SHEET

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Required under USCL Safety and Health Regulations for Ship Repairing,  
Shipbuilding, and Shipbreaking (29 CFR 1915, 1916, 1917)

## SECTION I

MANUFACTURER'S NAME <b>NEW CHEMICAL COMPANY</b>		EMERGENCY TELEPHONE NO. <b>313-895-7215</b>
ADDRESS (Number, Street, City, State, and ZIP Code) <b>2074 ... .., Detroit, Michigan 48204</b>		
CHEMICAL NAME AND SYNONYMS .....		TRADE NAME AND SYNONYMS <b>PA-2-QUENCH</b>
CHEMICAL FAMILY .....	FORMULA <b>N.A.</b>	

## SECTION II - HAZARDOUS INGREDIENTS

PAINTS, PRESERVATIVES, & SOLVENTS	%	TLV (Units)	ALLOYS AND METALLIC COATINGS	%	TLV (Units)
PIGMENTS			BASE METAL		
CATALYST			ALLOYS		
VEHICLE			METALLIC COATINGS		
SOLVENTS			FILLER METAL PLUS COATING OR CORE FLUX		
ADDITIVES			OTHERS		
OTHERS					
HAZARDOUS MIXTURES OF OTHER LIQUIDS, SOLIDS, OR GASES				%	TLV (Units)

## SECTION III - PHYSICAL DATA

BOILING POINT (°F.) (Approximately)	<b>213</b>	SPECIFIC GRAVITY (H <sub>2</sub> O=1)	<b>1.01</b>
VAPOR PRESSURE (mm Hg.) at 75°F	<b>23</b>	PERCENT VOLATILE BY VOLUME (%)	<b>N.A.</b>
VAPOR DENSITY (AIR=1)	<b>N.A.</b>	EVAPORATION RATE (_____ *1)	<b>N.A.</b>
SOLUBILITY IN WATER	<b>Complete</b>		
APPEARANCE AND ODOR <b>Yellow colored liquid with characteristic odor.</b>			

## SECTION IV - FIRE AND EXPLOSION HAZARD DATA

FLASH POINT (Method used)	<b>Non Flammable</b>	FLAMMABLE LIMITS	Let	Uet
EXTINGUISHING MEDIA	<b>N.A.</b>			
SPECIAL FIRE FIGHTING PROCEDURES	<b>N.A.</b>			
UNUSUAL FIRE AND EXPLOSION HAZARDS	<b>N.A.</b>			

SECTION V - HEALTH HAZARD DATA	
THRESHOLD LIMIT VALUE	N.A.
EFFECTS OF OVER EXPOSURE	Not Harmful
EMERGENCY AND FIRST AID PROCEDURES	
In case of excessive ingestion, seek medical assistance.	

SECTION VI - REACTIVITY DATA			
STABILITY	UNSTABLE		CONDITIONS TO AVOID
	STABLE	X	
INCOMPATABILITY (Materials to avoid) <span style="float: right;">None</span>			
HAZARDOUS DECOMPOSITION PRODUCTS <span style="float: right;">None Expected</span>			
HAZARDOUS POLYMERIZATION	MAY OCCUR		CONDITIONS TO AVOID
	WILL NOT OCCUR	X	

SECTION VII - SPILL OR LEAK PROCEDURES	
STEPS TO BE TAKEN IN CASE MATERIAL IS RELEASED OR SPILLED	
Flush with water to a sewer.	
WASTE DISPOSAL METHOD	
Discharge to a sewer. It does not need any treatment.	

SECTION VIII - SPECIAL PROTECTION INFORMATION			
RESPIRATORY PROTECTION (Specify type) <span style="float: right;">Not necessary</span>			
VENTILATION	LOCAL EXHAUST	SPECIAL	
	MECHANICAL (General) <span style="float: right;">X</span>	OTHER	
PROTECTIVE GLOVES <span style="float: right;">Not necessary</span>		EYE PROTECTION <span style="float: right;">Not necessary</span>	
OTHER PROTECTIVE EQUIPMENT			

SECTION IX - SPECIAL PRECAUTIONS	
PRECAUTIONS TO BE TAKEN IN HANDLING AND STORING	
Do not store at temperature lower than 30°F.	
OTHER PRECAUTIONS	

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# MATERIAL SAFETY DATA SHEET

Required under USDL Safety and Health Regulations for Ship Repairing,  
Shipbuilding, and Shipbreaking (29 CFR 1915, 1916, 1917)

## SECTION I

MANUFACTURER'S NAME <b>Airco Industrial Gases</b>		EMERGENCY TELEPHONE NO. <b>201-464-8100</b>
ADDRESS (Number, Street, City, State, and ZIP Code) <b>575 Mountain Avenue, Murray Hill, New Jersey 07974</b>		
CHEMICAL NAME AND SYNONYMS <b>Carbon Dioxide</b>		TRADE NAME AND SYNONYMS <b>Carbonic Anhydride</b>
CHEMICAL FAMILY	FORMULA <b>CO<sub>2</sub></b>	

## SECTION II - HAZARDOUS INGREDIENTS

PAINTS, PRESERVATIVES, & SOLVENTS	%	TLV (Units)	ALLOYS AND METALLIC COATINGS	%	TLV (Units)
PIGMENTS			BASE METAL		
CATALYST			ALLOYS		
VEHICLE			METALLIC COATINGS		
SOLVENTS			FILLER METAL PLUS COATING OR CORE FLUX		
ADDITIVES			OTHERS		
OTHERS					
HAZARDOUS MIXTURES OF OTHER LIQUIDS, SOLIDS, OR GASES				%	TLV (Units)
Carbon Dioxide				100%	5000ppm

## SECTION III - PHYSICAL DATA

sublimation				
BOILING POINT (°F.) @1atm.	-79°C	-109°F	SPECIFIC GRAVITY (H <sub>2</sub> O=1)	N/A
VAPOR PRESSURE (mm Hg.) @70°F.	1atm.	Gas	PERCENT, VOLATILE BY VOLUME (%)	100%
VAPOR DENSITY (AIR=1)		1.52	EVAPORATION RATE (_____ =1)	Gas
SOLUBILITY IN WATER @70°F.	1atm.	0.8 vol./vol. water		
APPEARANCE AND ODOR				

## SECTION IV - FIRE AND EXPLOSION HAZARD DATA

FLASH POINT (Method used)	Non-flammable	FLAMMABLE LIMITS	Let	Uel
EXTINGUISHING MEDIA				
SPECIAL FIRE FIGHTING PROCEDURES				
UNUSUAL FIRE AND EXPLOSION HAZARDS				

SECTION V - HEALTH HAZARD DATA	
THRESHOLD LIMIT VALUE	ACGIH 1975 = 5,000 ppm, 9,000 mg/m <sup>3</sup>
EFFECTS OF OVEREXPOSURE	High concentrations can paralyze respiratory center.
	Increased inhalation will cause increased breathing rate. Unconsciousness and death result
EMERGENCY AND FIRST AID PROCEDURES	Remove to uncontaminated area. Apply cardiopulmonary resuscitation as needed. Obtain medical assistance.

SECTION VI - REACTIVITY DATA			
STABILITY	UNSTABLE		CONDITIONS TO AVOID
	STABLE	X	
INCOMPATIBILITY (Materials to avoid)			
HAZARDOUS DECOMPOSITION PRODUCTS None			
HAZARDOUS POLYMERIZATION	MAY OCCUR		CONDITIONS TO AVOID
	WILL NOT OCCUR	X	

SECTION VII - SPILL OR LEAK PROCEDURES	
STEPS TO BE TAKEN IN CASE MATERIAL IS RELEASED OR SPILLED	
Evacuate personnel and ventilate.	
WASTE DISPOSAL METHOD	
Not recommended	

SECTION VIII - SPECIAL PROTECTION INFORMATION			
RESPIRATORY PROTECTION (Specify type)			
Self-contained			
VENTILATION	LOCAL EXHAUST	SPECIAL	
	MECHANICAL (General)	OTHER	
PROTECTIVE GLOVES	As required	EYE PROTECTION	Required
OTHER PROTECTIVE EQUIPMENT			

SECTION IX - SPECIAL PRECAUTIONS	
PRECAUTIONS TO BE TAKEN IN HANDLING AND STORING	
Storage in ventilated area recommended.	
OTHER PRECAUTIONS	

WAGE AND LABOR STANDARDS ADMINISTRATION  
Bureau of Labor Standards

MATERIAL SAFETY DATA SHEET

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<b>SECTION I</b>	
MANUFACTURER'S NAME <b>Airco Industrial Gases</b>	EMERGENCY TELEPHONE NO. <b>201-464-8100</b>
ADDRESS (Number, Street, City, State, and ZIP Code) <b>575 Mountain Avenue, Murray Hill, N.J. 07974</b>	
CHEMICAL NAME AND SYNONYMS <b>Nitrogen</b>	TRADE NAME AND SYNONYMS <b>Nitrogen</b>
CHEMICAL FAMILY <b>---</b>	FORMULA <b>N<sub>2</sub></b>

SECTION II HAZARDOUS INGREDIENTS					
PAINTS, PRESERVATIVES, & SOLVENTS	%	TLV (Units)	ALLOYS AND METALLIC COATINGS	%	TLV (Units)
PIGMENTS		-	BASE METAL		-
CATALYST		-	ALLOYS		-
VEHICLE		-	METALLIC COATINGS		-
SOLVENTS		-	FILLER METAL PLUS COATING OR CORE FLUX		-
ADDITIVES		-	OTHERS		-
OTHERS		-			-
HAZARDOUS MIXTURES OF OTHER LIQUIDS, SOLIDS, OR GASES				%	TLV (Units)
					-
					-
					-

SECTION III PHYSICAL DATA			
BOILING POINT (°F.) <b>-320.40° at 1 atm.</b>		SPECIFIC GRAVITY (H <sub>2</sub> O=1)	<b>Gas</b>
VAPOR PRESSURE (mm Hg.)	<b>Gas</b>	PERCENT VOLATILE BY VOLUME (%)	<b>-</b>
VAPOR DENSITY (AIR=1) <b>1.25° g/l at 0°C &amp; 1 atm.</b>		EVAPORATION RATE (---=1)	<b>-</b>
SOLUBILITY IN WATER <b>Slightly soluble in water</b>			
APPEARANCE AND ODOR <b>Colorless, Odorless, Tasteless Gas</b>			

SECTION IV FIRE AND EXPLOSION HAZARD DATA			
FLASH POINT (Method used) <b>Non-flammable</b>	FLAMMABLE LIMITS <b>---</b>	Lot	Uol
EXTINGUISHING MEDIA <b>---</b>			
SPECIAL FIRE FIGHTING PROCEDURES <b>None</b>			
UNUSUAL FIRE AND EXPLOSION HAZARDS <b>None</b>			



SECTION V HEALTH HAZARD DATA

THRESHOLD LIMIT VALUE

Non-toxic - Inert

EFFECTS OF OVEREXPOSURE

Nitrogen acts as a simple asphyxiant by displacing needed oxygen in air.

EMERGENCY AND FIRST AID PROCEDURES

If asphyxiation occurs, follow standard recommended procedures

SECTION VI REACTIVITY DATA

STABILITY	UNSTABLE		CONDITIONS TO AVOID
	STABLE	X	
INCOMPATABILITY (Materials to avoid)		None	
HAZARDOUS DECOMPOSITION PRODUCTS		None	
HAZARDOUS POLYMERIZATION	MAY OCCUR		CONDITIONS TO AVOID
	WILL NOT OCCUR	X	

SECTION VII SPILL OR LEAK PROCEDURES

STEPS TO BE TAKEN IN CASE MATERIAL IS RELEASED OR SPILLED

Nitrogen will readily dissipate in the atmosphere, if in confined spaces. Check for availability of oxygen before entering. If of oxygen, wear self-contained breathing apparatus.

WASTE DISPOSAL METHOD

None specified

SECTION VIII SPECIAL PROTECTION INFORMATION

RESPIRATORY PROTECTION (Specify type)

None necessary

VENTILATION	LOCAL EXHAUST	SPECIAL
	MECHANICAL (General)	OTHER
PROTECTIVE GLOVES	EYE PROTECTION	
OTHER PROTECTIVE EQUIPMENT Use whatever personal protective equipment appears necessary under local conditions.		

SECTION IX SPECIAL PRECAUTIONS

PRECAUTIONS TO BE TAKEN IN HANDLING AND STORING

No special precaution other than those for handling and storing compressed gases.

OTHER PRECAUTIONS

For additional info, refer Handbook of Compressed Gases--Compressed Gas Association, New York.

# MATERIAL SAFETY DATA SHEET

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Required under USDL Safety and Health Regulations for Ship Repairing,  
Shipbuilding, and Shipbreaking (29 CFR 1915, 1916, 1917)

## SECTION I

MANUFACTURER'S NAME <b>Airco Industrial Gases</b>		EMERGENCY TELEPHONE NO. <b>201-464-8100</b>
ADDRESS (Number, Street, City, State, and ZIP Code) <b>575 Mountain Avenue, Murray Hill, NJ 07974</b>		
CHEMICAL NAME AND SYNONYMS <b>Oxygen</b>	TRADE NAME AND SYNONYMS <b>Oxygen</b>	
CHEMICAL FAMILY	FORMULA <b>O<sub>2</sub></b>	

## SECTION II - HAZARDOUS INGREDIENTS

PAINTS, PRESERVATIVES, & SOLVENTS	%	TLV (Units)	ALLOYS AND METALLIC COATINGS	%	TLV (Units)
PIGMENTS			BASE METAL		
CATALYST			ALLOYS		
VEHICLE			METALLIC COATINGS		
SOLVENTS			FILLER METAL PLUS COATING OR CORE FLUX		
ADDITIVES			OTHERS		
OTHERS					
HAZARDOUS MIXTURES OF OTHER LIQUIDS, SOLIDS, OR GASES				%	TLV (Units)

## SECTION III - PHYSICAL DATA

BOILING POINT (°F.) <b>(-183°C)</b>	<b>-297°F</b>	SPECIFIC GRAVITY (H <sub>2</sub> O=1)	
VAPOR PRESSURE (mm Hg)	<b>Gas</b>	PERCENT. VOLATILE BY VOLUME (%) <b>Gas</b>	<b>100%</b>
VAPOR DENSITY (AIR=1) @ <b>0°C</b>	<b>1.429lg/l</b>	EVAPORATION RATE (_____ =1)	
SOLUBILITY IN WATER @ <b>0°C</b>	<b>1 vol O<sub>2</sub> / 32 vol H<sub>2</sub>O</b>		
APPEARANCE AND ODOR			

## SECTION IV - FIRE AND EXPLOSION HAZARD DATA

FLASH POINT (Method used) <b>Not flammable</b>	FLAMMABLE LIMITS <b>N/A</b>	Lel	Uel
EXTINGUISHING MEDIA <b>Usual extinguishing procedures</b>			
SPECIAL FIRE FIGHTING PROCEDURES <b>Remove source of oxygen. Oxygen will support combustion.</b>			
UNUSUAL FIRE AND EXPLOSION HAZARDS <b>Strong oxidizing agent. May result in explosion/intense fire if mixed with organic material.</b>			

SECTION V - HEALTH HAZARD DATA	
THRESHOLD LIMIT VALUE	None
EFFECTS OF OVEREXPOSURE	None
EMERGENCY AND FIRST AID PROCEDURES	

SECTION VI - REACTIVITY DATA			
STABILITY	UNSTABLE		CONDITIONS TO AVOID Avoid contact with organic or other easily oxidized material.
	STABLE	X	
INCOMPATIBILITY (Materials to avoid) Organic material			
HAZARDOUS DECOMPOSITION PRODUCTS None			
HAZARDOUS POLYMERIZATION	MAY OCCUR		CONDITIONS TO AVOID
	WILL NOT OCCUR	X	

SECTION VII - SPILL OR LEAK PROCEDURES	
STEPS TO BE TAKEN IN CASE MATERIAL IS RELEASED OR SPILLED Gas will dissipate quickly. Do not allow lighted cigarette or other burning material near area. Clothing immersed in O <sub>2</sub> will burn readily. Keep out of area and provide adequate ventilation.	

SECTION VIII - SPECIAL PROTECTION INFORMATION			
RESPIRATORY PROTECTION (Specify type) None			
VENTILATION	LOCAL EXHAUST	SPECIAL	
	MECHANICAL (General)	OTHER	
PROTECTIVE GLOVES	Recommended	EYE PROTECTION	Recommended
OTHER PROTECTIVE EQUIPMENT			

SECTION IX - SPECIAL PRECAUTIONS	
PRECAUTIONS TO BE TAKEN IN HANDLING AND STORING Take normal handling precautions.	
OTHER PRECAUTIONS	

# MATERIAL SAFETY DATA SHEET

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SECTION I	
MANUFACTURER'S NAME <b>Airco Industrial Gases</b>	EMERGENCY TELEPHONE NO.
ADDRESS (Number, Street, City, State, and ZIP Code) <b>575 Mountain Avenue, Murray Hill, N.J. 07974</b>	
CHEMICAL NAME AND SYNONYMS <b>Acetylene-Ethyne</b>	TRADE NAME AND SYNONYMS <b>Acetylene-Ethyne</b>
CHEMICAL FAMILY <b>Hydro-carbon</b>	FORMULA <b>C<sub>2</sub>H<sub>2</sub></b>

SECTION II HAZARDOUS INGREDIENTS					
PAINTS, PRESERVATIVES, & SOLVENTS	%	TLV (Units)	ALLOYS AND METALLIC COATINGS	%	TLV (Units)
PIGMENTS		-	BASE METAL		-
CATALYST		-	ALLOYS		-
VEHICLE		-	METALLIC COATINGS		-
SOLVENTS		-	FILLER METAL PLUS COATING OR CORE FLUX		-
ADDITIVES		-	OTHERS		-
OTHERS		-			
HAZARDOUS MIXTURES OF OTHER LIQUIDS, SOLIDS, OR GASES				%	TLV (Units)

SECTION III PHYSICAL DATA			
BOILING POINT (°F.)	-118.5°	SPECIFIC GRAVITY (H <sub>2</sub> O=1)	Gas
VAPOR PRESSURE (mm Hg.)	Gas	PERCENT VOLATILE BY VOLUME (%)	-
VAPOR DENSITY (AIR=1) 1.1719 g/l @ 0°C 1 atm.		EVAPORATION RATE (_____ = 1)	-
SOLUBILITY IN WATER Slightly soluble -1.1 vol. of gas per vol. of H <sub>2</sub> O @ 15.5°C			
APPEARANCE AND ODOR Colorless and tasteless with a distinctive garlic-like odor			

SECTION IV FIRE AND EXPLOSION HAZARD DATA							
FLASH POINT (Method used)	Gas	FLAMMABLE LIMITS	<table border="1"> <tr> <td>Lel</td> <td>Uel</td> </tr> <tr> <td>2.5</td> <td>85 in a</td> </tr> </table>	Lel	Uel	2.5	85 in a
Lel	Uel						
2.5	85 in a						
EXTINGUISHING MEDIA	Depending on class of fire						
SPECIAL FIRE FIGHTING PROCEDURES	Remove source of gas--then extinguish existing fire.						
UNUSUAL FIRE AND EXPLOSION HAZARDS	None						

### SECTION V HEALTH HAZARD DATA

THRESHOLD LIMIT VALUE	None
EFFECTS OF OVEREXPOSURE	Acetylene is an asphyxiant having anesthetic properties. However, exposure doesn't appear to have any ill effects on health.
EMERGENCY AND FIRST AID PROCEDURES	None

### SECTION VI REACTIVITY DATA

STABILITY	UNSTABLE		CONDITIONS TO AVOID
	STABLE	X	Acetylene in its free state under pressure may decompose violently
INCOMPATIBILITY (Materials to avoid)			
HAZARDOUS DECOMPOSITION PRODUCTS			
HAZARDOUS POLYMERIZATION	MAY OCCUR		CONDITIONS TO AVOID
	WILL NOT OCCUR	X	

### SECTION VII SPILL OR LEAK PROCEDURES

STEPS TO BE TAKEN IN CASE MATERIAL IS RELEASED OR SPILLED	Remove all sources of ignition in view of its large limits of flammability. If indoors, ventilate thoroughly. If outdoors, post "No Smoking" signs until gas has dissipated.
WASTE DISPOSAL METHOD	Gas will readily dissipate into the atmosphere.

### SECTION VIII SPECIAL PROTECTION INFORMATION

RESPIRATORY PROTECTION (Specify type)			Not necessary
VENTILATION	LOCAL EXHAUST	Only if a cylinder develops a leak	
	MECHANICAL (General)		
SPECIAL OTHER			
PROTECTIVE GLOVES	None	EYE PROTECTION	None
OTHER PROTECTIVE EQUIPMENT Use whatever personal protective devices appear necessary under local conditions.			

### SECTION IX SPECIAL PRECAUTIONS

PRECAUTIONS TO BE TAKEN IN HANDLING AND STORING	Do not store cylinder near oxygen cylinders. Store cylinders away from areas where smoking and open lights may exist. Quantity of acetylene cylinders stored in building should be limited. For additional information refer to Handbook of Compressed Gases--Compressed Gas Association, New York
OTHER PRECAUTIONS	

U.S. DEPARTMENT OF LABOR  
Occupational Safety and Health Administration

Form Approved  
O.S.H. No. 44-R1387

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# MATERIAL SAFETY DATA SHEET

Required under USDL Safety and Health Regulations for Ship Repairing,  
Shipbuilding, and Shipbreaking (29 CFR 1915, 1916, 1917)

## SECTION I

MANUFACTURER'S NAME <b>Airco Industrial Gases</b>		EMERGENCY TELEPHONE NO. <b>201-464-8100</b>
ADDRESS (Number, Street, City, State, and ZIP Code) <b>575 Mountain Avenue, Murray Hill, New Jersey 07974</b>		
CHEMICAL NAME AND SYNONYMS <b>Argon</b>		TRADE NAME AND SYNONYMS <b>Liquid Argon</b>
CHEMICAL FAMILY	FORMULA <b>Ar</b>	

## SECTION II - HAZARDOUS INGREDIENTS

PAINTS, PRESERVATIVES, & SOLVENTS	%	TLV (Units)	ALLOYS AND METALLIC COATINGS	%	TLV (Units)
PIGMENTS		-	BASE METAL		-
CATALYST		-	ALLOYS		-
VEHICLE		-	METALLIC COATINGS		-
SOLVENTS		-	FILLER METAL PLUS COATING OR CORE FLUX		-
ADDITIVES		-	OTHERS		-
OTHERS		-			-
HAZARDOUS MIXTURES OF OTHER LIQUIDS, SOLIDS, OR GASES				%	TLV (Units)
					-
					-
					-
					-

## SECTION III - PHYSICAL DATA

BOILING POINT (°F.) <b>-302.5 @ 1 atm.</b>	SPECIFIC GRAVITY (H <sub>2</sub> O=1)
VAPOR PRESSURE (mm Hg.)	PERCENT VOLATILE BY VOLUME (%)
VAPOR DENSITY (AIR=1) <b>1.3936 @ B.P. &amp; 1 atm.</b>	EVAPORATION RATE (_____ = 1)
SOLUBILITY IN WATER	

APPEARANCE AND ODOR **Gas is colorless, odorless, tasteless, liquid is pale blue-water white.**

## SECTION IV - FIRE AND EXPLOSION HAZARD DATA

FLASH POINT (Method used) <b>Non-flammable</b>	FLAMMABLE LIMITS	LeL	UeL
EXTINGUISHING MEDIA			
SPECIAL FIRE FIGHTING PROCEDURES			
UNUSUAL FIRE AND EXPLOSION HAZARDS			

**SECTION V - HEALTH HAZARD DATA**

THRESHOLD LIMIT VALUE      **Non-toxic**

EFFECTS OF OVEREXPOSURE  
**Due to its ability to displace air, it is a simple asphyxiant.**

EMERGENCY AND FIRST AID PROCEDURES  
**If asphyxiation occurs, use standard methods for resuscitation.**

**SECTION VI - REACTIVITY DATA**

STABILITY	UNSTABLE		CONDITIONS TO AVOID
	STABLE	<b>XX</b>	
INCOMPATIBILITY (Materials to avoid)			
HAZARDOUS DECOMPOSITION PRODUCTS			
HAZARDOUS POLYMERIZATION	MAY OCCUR		CONDITIONS TO AVOID
	WILL NOT OCCUR	<b>XX</b>	

**SECTION VII - SPILL OR LEAK PROCEDURES**

STEPS TO BE TAKEN IN CASE MATERIAL IS RELEASED OR SPILLED  
**Argon readily dissipates in air.**

WASTE DISPOSAL METHOD

**SECTION VIII - SPECIAL PROTECTION INFORMATION**

RESPIRATORY PROTECTION (Specify type) <b>None</b>		
VENTILATION	LOCAL EXHAUST	<b>None</b>
	MECHANICAL (General)	
PROTECTIVE GLOVES <b>Gloves for handling liquid</b>		EXE PROTECTION <b>Face shield when handling liquid</b>
OTHER PROTECTIVE EQUIPMENT <b>Protective garments because of extreme cold of liquid Argon</b>		

**SECTION IX - SPECIAL PRECAUTIONS**

PRECAUTIONS TO BE TAKEN IN HANDLING AND STORING  
**Avoid splashing liquid under any circumstances. Extreme cold will cause damage to tissues.**

OTHER PRECAUTIONS      **None**

# MATERIAL SAFETY DATA SHEET

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ive Operations

ION I

EMERGENCY TELEPHONE NO.  
 616-685-6101

CHEMICAL NAME AND SYNONYMS: POLYMETHYL METHACRYLATE EMULSION ACRYLIC SEALER + FINISH

TRADE NAME AND SYNONYMS: ACRYLIC SEALER + FINISH

CHEMICAL FAMILY: ACRYLIC POLYMER FORMULA

## SECTION II - HAZARDOUS INGREDIENTS

PAINTS, PRESERVATIVES, & SOLVENTS	%	TLV (Units)	ALLOYS AND METALLIC COATINGS	%	TLV (Units)
PIGMENTS		NONE	BASE METAL		NONE
CATALYST		}	ALLOYS		}
VEHICLE			METALLIC COATINGS		
SOLVENTS			FILLER METAL PLUS COATING OR CORE FLUX		
ADDITIVES			OTHER		
OTHERS					
HAZARDOUS MIXTURES OF OTHER LIQUIDS, SOLIDS, OR GASES				%	TLV (Units)
NONE					

## SECTION III - PHYSICAL DATA

BOILING POINT (°F.)	212°F	SPECIFIC GRAVITY (H <sub>2</sub> O=1)	1.03
VAPOR PRESSURE (mm Hg.)	17.5	PERCENT VOLATILE BY VOLUME (%)	84
VAPOR DENSITY (AIR=1)	1	EVAPORATION RATE (H <sub>2</sub> O=1)	1.7
SOLUBILITY IN WATER	INFINITE		
APPEARANCE AND ODOR	MILKY WHITE - SWEET		

## SECTION IV - FIRE AND EXPLOSION HAZARD DATA

FLASH POINT (Method used)	NONE	FLAMMABLE LIMITS	Loi	Uoi
EXTINGUISHING MEDIA				
SPECIAL FIRE FIGHTING PROCEDURES				
UNUSUAL FIRE AND EXPLOSION HAZARDS				



SECTION V - HEALTH HAZARD DATA	
THRESHOLD LIMIT VALUE	OVER 1000
EFFECTS OF OVEREXPOSURE	NONE
EMERGENCY AND FIRST AID PROCEDURES	NONE

SECTION VI - REACTIVITY DATA			
STABILITY	UNSTABLE		CONDITIONS TO AVOID
	STABLE	X	
INCOMPATIBILITY (Materials to avoid)		STRONG ACIDS AND ALKALINES	
HAZARDOUS DECOMPOSITION PRODUCTS			
HAZARDOUS POLYMERIZATION	MAY OCCUR		CONDITIONS TO AVOID
	WILL NOT OCCUR	X	

SECTION VII - SPILL OR LEAK PROCEDURES	
STEPS TO BE TAKEN IN CASE MATERIAL IS RELEASED OR SPILLED	CONTAIN SPILL - FLUSH WITH WATER
WASTE DISPOSAL METHOD	DEPENDS ON LOCAL LAWS BUT BEING AN EMULSION FLUSHING WITH COPIOUS AMOUNTS OF WATER INTO DRAIN SHOULD SUFFICE

SECTION VIII - SPECIAL PROTECTION INFORMATION			
RESPIRATORY PROTECTION (Specify type)			
NONE			
VENTILATION	LOCAL EXHAUST	X	SPECIAL
	MECHANICAL (General)		OTHER
PROTECTIVE GLOVES	NONE	EYE PROTECTION	RECOMMEND SAFETY GLASSES
OTHER PROTECTIVE EQUIPMENT			
NONE			

SECTION IX - SPECIAL PRECAUTIONS	
PRECAUTIONS TO BE TAKEN IN HANDLING AND STORAGE	KEEP FROM FREEZING.
OTHER PRECAUTIONS	DO NOT POUR UNUSED MATERIAL BACK INTO DRUM!

# MATERIAL SAFETY DATA SHEET

**LAD CHEMICALS INC.**  
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 PLAINWELL, MI 49080  
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Automotive Operations

SECTION I	
	EMERGENCY TELEPHONE NO. 616-685-6101

CHEMICAL NAME AND SYNONYMS <b>DISINFECTANT &amp; DEODORANT</b>	TRADE NAME AND SYNONYMS <b>KLEENZ GERM</b>
CHEMICAL FAMILY	FORMULA

SECTION II - HAZARDOUS INGREDIENTS						
PAINTS, PRESERVATIVES, & SOLVENTS	%	TLV (Units)	ALLOYS AND METALLIC COATINGS	%	TLV (Units)	
PIGMENTS		NONE	BASE METAL		NONE	
CATALYST			ALLOYS			
VEHICLE			METALLIC COATINGS			
SOLVENTS			FILLER METAL PLUS COATING OR CORE FLUX			
ADDITIVES			OTHER			
OTHERS						
HAZARDOUS MIXTURES OF OTHER LIQUIDS, SOLIDS, OR GASES					%	TLV (Units)
METHYL SILICATE						-
ALCOHOL						-
VEGETABLE OIL SOAP & MINT OIL						-
ORTHO-BENZYL PARA CHLOROPHENOL						700

SECTION III - PHYSICAL DATA			
BOILING POINT (°F.)	215°F	SPECIFIC GRAVITY (H <sub>2</sub> O=1)	1.1
VAPOR PRESSURE (mm Hg.)	15	PERCENT VOLATILE BY VOLUME (%)	87%
VAPOR DENSITY (AIR=1)	1.1	EVAPORATION RATE (WATER=1)	ETHER 1.5
SOLUBILITY IN WATER	INFINITE		
APPEARANCE AND COLOR	GREEN - MINT		

SECTION IV - FIRE AND EXPLOSION HAZARD DATA			
FLASH POINT (Method used)	NONE	FLAMMABLE LIMITS	Lo: Hi:
EXTINGUISHING MEDIA	-		
SPECIAL FIRE FIGHTING PROCEDURES	-		
UNUSUAL FIRE AND EXPLOSION HAZARDS	-		

SECTION V - HEALTH HAZARD DATA

THRESHOLD LIMIT VALUE 1000 +

EFFECTS OF OVEREXPOSURE NONE

EMERGENCY AND FIRST AID PROCEDURES  
 INGESTION - DRINK LARGE AMOUNTS OF MILK, EGG WHITES OR GELATIN - CALL PHYSICIAN - EYES RINSE WITH WATER - 15 MIN  
 CALL DOCTOR - SKIN - WASH WITH WATER.

SECTION VI - REACTIVITY DATA

STABILITY	UNSTABLE		CONDITIONS TO AVOID
	STABLE	X	MIXING WITH STRONG ACIDS

INCOMPATIBILITY (Materials to avoid) ACIDS

HAZARDOUS DECOMPOSITION PRODUCTS NONE

HAZARDOUS POLYMERIZATION	MAY OCCUR		CONDITIONS TO AVOID
	WILL NOT OCCUR	X	

SECTION VII - SPILL OR LEAK PROCEDURES

STEPS TO BE TAKEN IN CASE MATERIAL IS RELEASED OR SPILLED - CONTAIN LEAK - FLUSH WITH WATER

WASTE DISPOSAL METHOD OBSERVE LOCAL ORDINANCES - THIS IS AN EMULSION - CAN BE FLUSHED WITH WATER

SECTION VIII - SPECIAL PROTECTION INFORMATION

RESPIRATORY PROTECTION (Specify type) NONE

VENTILATION	LOCAL EXHAUST	X	SPECIAL
	MECHANICAL (General)		OTHER

PROTECTIVE GLOVES RECOMMENDED EYE PROTECTION RECOMMENDED

OTHER PROTECTIVE EQUIPMENT

SECTION IX - SPECIAL PRECAUTIONS

PRECAUTIONS TO BE TAKEN IN HANDLING AND STORING DO NOT ALLOW TO FREEZE

OTHER PRECAUTIONS USE IN DILUTED FORM.

HYGE KLEEN II

# MATERIAL SAFETY DATA SHEET

**LAD CHEMICALS INC.**  
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Automotive Operations

SECTION I	
	EMERGENCY TELEPHONE NO.

CHEMICAL NAME	TRADE NAME AND SYNONYMS
CHEMICAL FAMILY	FORMULA
DISINFECTANT DEODORANT	HYGE KLEEN II

## SECTION II - HAZARDOUS INGREDIENTS

PAINTS, PRESERVATIVES, & SOLVENTS	%	TLV (Units)	ALLOYS AND METALLIC COATINGS	%	TLV (Units)
PIGMENTS		NONE	BASE METAL		NONE
CATALYST		}	ALLOYS		}
VEHICLE			METALLIC COATINGS		
SOLVENTS			FILLER METAL PLUS COATING OR CORE FLUX		
ADDITIVES			OTHER		
OTHERS					
HAZARDOUS MIXTURES OF OTHER LIQUIDS, SOLIDS, OR GASES				%	TLV (Units)
METHY SILICATE					
ALCOHOL					
VEGETABLE OIL SOAP					
OPTIC O-BENZYL PARACHLOROPHENOL					700

## SECTION III - PHYSICAL DATA

BOILING POINT (°F.)	212°F	SPECIFIC GRAVITY (M, 0=1)	1.15
VAPOR PRESSURE (mm Hg.)	15	PERCENT VOLATILE BY VOLUME (%)	88.70
VAPOR DENSITY (AIR=1)	1.1	EVAPORATION RATE (—=1)	ETHER 1.5
SOLUBILITY IN WATER	INFINITE		
APPEARANCE AND ODOR	AMBER - CLEAN		

## SECTION IV - FIRE AND EXPLOSION HAZARD DATA

FLASH POINT (Method used)	NONE	FLAMMABLE LIMITS	LoL	UoL
EXTINGUISHING MEDIA				
SPECIAL FIRE FIGHTING PROCEDURES				
UNUSUAL FIRE AND EXPLOSION HAZARDS				

SECTION V - HEALTH HAZARD DATA	
THRESHOLD LIMIT VALUE	1000 T
EFFECTS OF OVEREXPOSURE	NONE
EMERGENCY AND FIRST AID PROCEDURES	
INGESTION DRINK LARGE AMOUNTS OF MILK, EGG WHITE OR GELATIN - CALL PHYSICIAN. EYES - RINSE WITH WATER IMMEDIATELY. CALL PHYSICIAN. SKIN - WASH WELL WITH SOAP & WATER	

SECTION VI - REACTIVITY DATA			
STABILITY	UNSTABLE		CONDITIONS TO AVOID
	STABLE	X	
INCOMPATIBILITY (Materials to avoid)			
ACIDS			
HAZARDOUS DECOMPOSITION PRODUCTS			
HAZARDOUS POLYMERIZATION	MAY OCCUR		CONDITIONS TO AVOID
	WILL NOT OCCUR	X	

SECTION VII - SPILL OR LEAK PROCEDURES	
STEPS TO BE TAKEN IN CASE MATERIAL IS RELEASED OR SPILLED	
CONTAIN LEAK, FLUSH WITH WATER	
WASTE DISPOSAL METHOD	
OBSERVE LOCAL ORDINANCES.	
THIS IS AN EMULSION - CAN BE FLUSHED WITH WATER	

SECTION VIII - SPECIAL PROTECTION INFORMATION			
RESPIRATORY PROTECTION (Specify type)			
NONE			
VENTILATION	LOCAL EXHAUST	X	SPECIAL
	MECHANICAL (General)		
PROTECTIVE GLOVES		RECOMMENDED	EYE PROTECTION
OTHER PROTECTIVE EQUIPMENT			RECOMMENDED.

SECTION IX - SPECIAL PRECAUTIONS	
PRECAUTIONS TO BE TAKEN IN HANDLING AND STORAGE	
DO NOT ALLOW TO FREEZE	
OTHER PRECAUTIONS	
USE IN DILUTED FORM	

KLEER SCRUB

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**MATERIAL SAFETY DATA SHEET**

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Automotive Operations

SECTION I

EMERGENCY TELEPHONE NO.  
 616-685-6101

CHEMICAL NAME AND SYNONYMS: MILD ALKALINE CLEANER  
 TRADE NAME AND SYNONYMS: KLEER SCRUB

CHEMICAL FAMILY: ALKALI  
 FORMULA:

SECTION II - HAZARDOUS INGREDIENTS					
PAINTS, PRESERVATIVES, & SOLVENTS	%	TLV (Units)	ALLOYS AND METALLIC COATINGS	%	TLV (Units)
PIGMENTS		NONE	BASE METAL		NONE
CATALYST			ALLOYS		
VEHICLE			METALLIC COATINGS		
SOLVENTS			FILLER METAL PLUS COATING OR CORE FLUX		
ADDITIVES			OTHER		
OTHERS					
HAZARDOUS MIXTURES OF OTHER LIQUIDS, SOLIDS, OR GASES				%	TLV (Units)
SODIUM METASILICATE					1000
ANIONIC SURFACTANT					1000

SECTION III - PHYSICAL DATA			
BOILING POINT (°F.)	225	SPECIFIC GRAVITY (H <sub>2</sub> O=1)	1.2
VAPOR PRESSURE (mm Hg.)		PERCENT. VOLATILE BY VOLUME (%)	90
VAPOR DENSITY (AIR=1)		EVAPORATION RATE (1)	1.2
SOLUBILITY IN WATER	∞		
APPEARANCE AND COLOR	THICK PINK - CITRUS		

SECTION IV - FIRE AND EXPLOSION HAZARD DATA			
FLASH POINT (Method used)	NONE	FLAMMABLE LIMITS	
		Lel	Uel
EXTINGUISHING MEDIA			
SPECIAL FIRE FIGHTING PROCEDURES			
UNUSUAL FIRE AND EXPLOSION HAZARDS			

SECTION V - HEALTH HAZARD DATA	
THRESHOLD LIMIT VALUE	1000
EFFECTS OF OVEREXPOSURE	INGESTION - DRINK LARGE QUANTITIES OF WATER - CALL PHYSICIAN. EYES: FLUSH WITH WATER. CALL PHYSICIAN. SKIN: FLUSH WITH WATER.
EMERGENT TOXICITY AND OTHER DATA	MILDLY ALKALINE PH 10.5

SECTION VI - REACTIVITY DATA		
STABILITY	UNSTABLE	PERCENT UNSTABLE
	STABLE	X
INCOMPATIBILITY (According to MSDS)	ACIDS WILL NEUTRALIZE ALKALINITY	
HAZARDOUS REACTION PRODUCTS	NONE	
HAZARDOUS POLYMERIZATION	MAY OCCUR	CONDITIONS TO AVOID
	WILL NOT OCCUR	X

SECTION VII - SPILL OR LEAK PROCEDURES	
STEPS TO BE TAKEN IN CASE MATERIAL IS RELEASED OR SPILLED	CONTAIN SPILL FLUSH WITH WATER
WASTE DISPOSAL METHOD	BIODEGRADABLE - FLUSH WITH WATER

SECTION VIII - SPECIAL PROTECTION INFORMATION		
RESPIRATORY PROTECTION (Specify type)	NONE	
VENTILATION	LOCAL EXHAUST	SPECIAL
	MECHANICAL (General)	X
PROTECTIVE GLOVES WILL DEFAAT SKIN IF USED UNDILUTED	EYE PROTECT ON	SAFETY GOGGLES
OTHER PROTECTIVE EQUIPMENT		

SECTION IX - SPECIAL PRECAUTIONS	
PRECAUTIONS TO BE TAKEN IN HANDLING AND STORING	DO NOT ALLOW TO FREEZE
OTHER PRECAUTIONS	NONE

KLEEN-2 MARK

# MATERIAL SAFETY DATA SHEET

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Automotive Operations

SECTION I	
EMERGENCY TELEPHONE NO.	
616-685-6101	

CHEMICAL NAME AND SYNONYMS <b>PAIN-T &amp; MARK REMOVER</b>	TRADE NAME AND SYNONYMS <b>KLEEN-2 MARK</b>
CHEMICAL FAMILY <b>CHLORINATED HYDROCARBON</b>	FORMULA <b>AEROSOL</b>

## SECTION II - HAZARDOUS INGREDIENTS

PAINTS, PRESERVATIVES, & SOLVENTS	%	TLV (Units)	ALLOYS AND METALLIC COATINGS	%	TLV (Units)
PIGMENTS		NONE	BASE METAL		NONE
CATALYST			ALLOYS		
VEHICLE			METALLIC COATINGS		
SOLVENTS	40	350	FILLER METAL PLUS COATING OR CORE FLUX		
ADDITIVES			OTHER		
OTHERS					
HAZARDOUS MIXTURES OF OTHER LIQUIDS, SOLIDS, OR GASES				%	TLV (Units)
METHYLENE CHLORIDE				10	350
CHLORINATED HYDROCARBON PROPPELLANT				22	350
ALIPHATIC SOLVENT				20	700

## SECTION III - PHYSICAL DATA

BOILING POINT (°F.)	110°	SPECIFIC GRAVITY (H <sub>2</sub> O=1)	1.4
VAPOR PRESSURE (mm Hg.)	—	PERCENT. VOLATILE BY VOLUME (%)	95.70
VAPOR DENSITY (AIR=1)	1.7	EVAPORATION RATE (—=1)	6.0
SOLUBILITY IN WATER	0		
APPEARANCE AND ODOR: CLEAR - CHLORINATED			

## SECTION IV - FIRE AND EXPLOSION HAZARD DATA

FLASH POINT (Method used)	0	FLAMMABLE LIMITS	Lo:	Hi:
EXTINGUISHING MEDIA				
SPECIAL FIRE FIGHTING PROCEDURES				
UNUSUAL FIRE AND EXPLOSION HAZARDS				



**SECTION V - HEALTH HAZARD DATA**

THRESHOLD LIMIT VALUE: **400**

EFFECTS OF OVEREXPOSURE: **IRRITATING TO RESPIRATORY TRACT LEADS TO NAUSEA, VOMITING, DIZZINESS CENTRAL NERVOUS DEPRESSION**

EMERGENCY AND FIRST AID PROCEDURES: **RESTORE TO FRESH AIR, GASTRIC LAVAGE IF SWALLOWED, EYES FLUSH WITH WATER - CONSULT PHYSICIAN. SKIN - FLUSH WITH SOAP AND WATER - WILL BURN SKIN**

**SECTION VI - REACTIVITY DATA**

STABILITY	UNSTABLE		CONDITIONS TO AVOID
	STABLE	<b>X</b>	

INCOMPATIBILITY (Materials to avoid): **WATER**

HAZARDOUS DECOMPOSITION PRODUCTS: **CARBON MONOXIDE, IF INCINERATED**

HAZARDOUS POLYMERIZATION	MAY OCCUR		CONDITIONS TO AVOID
	WILL NOT OCCUR	<b>X</b>	

**SECTION VII - SPILL OR LEAK PROCEDURES**

STEPS TO BE TAKEN IN CASE MATERIAL IS RELEASED OR SPILLED: **CONTAIN SPILL - VENTILATE AREA - CLEAN UP AREA BY SPRINKLING WITH SAWDUST - USE A PICK UP**

WASTE DISPOSAL METHOD: **ACCORDING TO LOCAL EXISTING POLLUTION REGULATIONS**

**SECTION VIII - SPECIAL PROTECTION INFORMATION**

RESPIRATORY PROTECTION (Specify type): **USE ONLY IN WELL VENTILATED AREA OR USE SELF CONTAINED BREATHING UNIT**

VENTILATION	LOCAL EXHAUST	SPECIAL
	MECHANICAL (General) <b>WELL VENTILATED AREAS</b>	OTHER

PROTECTIVE GLOVES: **RECOMMENDED STRONGLY** EYE PROTECTION: **MUST WEAR SAFETY GLASSES**

OTHER PROTECTIVE EQUIPMENT: **RUBBER OR VINYL APRON**

**SECTION IX - SPECIAL PRECAUTIONS**

PRECAUTIONS TO BE TAKEN IN HANDLING AND STORING: **DO NOT STORE NEAR HEAT - STORE IN COOL PLACE DO NOT STORE IN SUNLIGHT**

OTHER PRECAUTIONS: **ALWAYS AVOID PROLONGED AND REPEATED BREATHING OF VAPOR**

MATERIAL SAFETY DATA SHEET

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Automotive Operations

SECTION I

EMERGENCY TELEPHONE NO.  
 616-685-6101

CHEMICAL NAME AND SYNONYMS ACID CLEANER	TRADE NAME AND SYNONYMS KLEENZ BOWL WHITE
CHEMICAL CLASSIFICATION ACID	FORMULA

THIS MATERIAL HAS NO DETERIORATING EFFECTS ON VITREOUS CHINA.

SECTION II - HAZARDOUS INGREDIENTS

PAINTS, PRESERVATIVES, & SOLVENTS	%	TLV (Units)	ALLOYS AND METALLIC COATINGS	%	TLV (Units)
PIGMENTS		NONE	BASE METAL		NONE
CATALYST		}	ALLOYS		}
VEHICLE			METALLIC COATINGS		
SOLVENTS			FILLER METAL PLUS COATING OR CORE FLUX		
ADDITIVES		}	OTHER		}
OTHERS					
HAZARDOUS MIXTURES OF OTHER LIQUIDS, SOLIDS, OR GASES				%	TLV (Units)
HYDROGEN CHLORIDE				15	—
PHOSPHORIC ACID				11	—

SECTION III - PHYSICAL DATA

BOILING POINT (°F.)	275°	SPECIFIC GRAVITY (H <sub>2</sub> O=1)	1.16
VAPOR PRESSURE (mm Hg.)		PERCENT. VOLATILE BY VOLUME (%)	—
VAPOR DENSITY (AIR=1)		EVAPORATION RATE (WATER=1)	1.6
SOLUBILITY IN WATER	INFINITE		
APPEARANCE AND ODOR	MILKY - MINT - NON FUMING		

SECTION IV - FIRE AND EXPLOSION HAZARD DATA

FLASH POINT (Method used)	NONE	FLAMMABLE LIMITS	LeI	UeI
EXTINGUISHING MEDIA				
SPECIAL FIRE FIGHTING PROCEDURES				
UNUSUAL FIRE AND EXPLOSION HAZARDS				

SECTION V - HEALTH HAZARD DATA

THRESHOLD LIMIT VALUE	1000
EFFECTS OF OVEREXPOSURE	EYES - FLUSH WITH WATER - CALL PHYSICIAN
	INGESTION - DRINK PLENTY WATER
	SKIN - WASH WITH SOAP & WATER
EMERGENCY AND FIRST AID PROCEDURES	

SECTION VI - REACTIVITY DATA

STABILITY	UNSTABLE		CONDITIONS TO AVOID
	STABLE	X	
INCOMPATIBILITY (Materials to avoid) ALKALIS			
HAZARDOUS DECOMPOSITION PRODUCTS			
HAZARDOUS POLYMERIZATION	MAY OCCUR		CONDITIONS TO AVOID
	WILL NOT OCCUR	X	

SECTION VII - SPILL OR LEAK PROCEDURES

STEPS TO BE TAKEN IN CASE MATERIAL IS RELEASED OR SPILLED	CONTAIN SPILL - IF SPILLED ON CONCRETE FLOOR - FLUSH WITH WATER
WASTE DISPOSAL METHOD	COMPLY WITH LOCAL ORDINANCES - EMULSION PRODUCT - CAN BE FLUSHED INTO SEWER

SECTION VIII - SPECIAL PROTECTION INFORMATION

RESPIRATORY PROTECTION (Specify type)	NON FUMING	
VENTILATION	LOCAL EXHAUST	SPECIAL
	MECHANICAL (General)	OTHER
PROTECTIVE GLOVES	RECOMMENDED	EYE PROTECTION
OTHER PROTECTIVE EQUIPMENT	APRON - RUBBER	RECOMMENDED

SECTION IX - SPECIAL PRECAUTIONS

PRECAUTIONS TO BE TAKEN IN HANDLING AND STORING	DONOT ALLOW TO FREEZE
OTHER PRECAUTIONS	THIS PRODUCT CAN BE SAFELY USED TO DESTROY URINAL SALTS IN URINALS. SIMPLY POUR INTO URINAL TROUGH AND ALLOW TO STAND FOR AS LONG AS POSSIBLE, THEN FLUSH WITH WATER. PRODUCT WILL NOT CAUSE FUNGS.

CLEANSER POWDER - 14 02

# MATERIAL SAFETY DATA SHEET

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Automotive Operations

SECTION I	
EMERGENCY TELEPHONE NO.	616-635-6101

CHEMICAL NAME AND SYNONYMS ALKALI	TRADE NAME AND SYNONYMS OLD DUTCH CLEANSER
CHEMICAL FAMILY	FORMULA

SECTION II - HAZARDOUS INGREDIENTS					
PAINTS, PRESERVATIVES, & SOLVENTS	%	TLV (Units)	ALLOYS AND METALLIC COATINGS	%	TLV (Units)
PIGMENTS		NONE	BASE METAL		NONE
CATALYST		}	ALLOYS		}
VEHICLE			METALLIC COATINGS		
SOLVENTS			FILLER METAL PLUS COATING OR CORE FLUX		
ADDITIVES			OTHER		
OTHERS					
HAZARDOUS MIXTURES OF OTHER LIQUIDS, SOLIDS, OR GASES				%	TLV (Units)
NONE					

SECTION III - PHYSICAL DATA		
BOILING POINT (°F.)	NONE	SPECIFIC GRAVITY (H <sub>2</sub> O=1)
VAPOR PRESSURE (mm Hg.)		PERCENT. VOLATILE BY VOLUME (%)
VAPOR DENSITY (AIR=1)		EVAPORATION RATE (_____ #1)
SOLUBILITY IN WATER		
APPEARANCE AND ODOR	POWDER - CLEAN	

SECTION IV - FIRE AND EXPLOSION HAZARD DATA			
FLASH POINT (Method used)	NONE	FLAMMABLE LIMITS	
EXTINGUISHING MEDIA			
SPECIAL FIRE FIGHTING PROCEDURES			
UNUSUAL FIRE AND EXPLOSION HAZARDS			

SECTION V - HEALTH HAZARD DATA

THRESHOLD LIMIT VALUE	—
EFFECTS OF OVER EXPOSURE	EYES - FLUSH WITH WATER - CALL PHYSICIAN
EMERGENCY AND FIRST AID PROCEDURES	NONE

SECTION VI - REACTIVITY DATA

STABILITY	UNSTABLE		CONDITIONS TO AVOID
	STABLE	X	
INCOMPATIBILITY (Materials to avoid)		ACIDS	
HAZARDOUS DECOMPOSITION PRODUCTS			
HAZARDOUS POLYMERIZATION	MAY OCCUR		CONDITIONS TO AVOID
	WILL NOT OCCUR	X	

SECTION VII - SPILL OR LEAK PROCEDURES

STEPS TO BE TAKEN IN CASE MATERIAL IS RELEASED OR SPILLED	FLUSH WITH WATER
WASTE DISPOSAL METHOD	SWEEP UP AND PLACE IN CONTAINER

SECTION VIII - SPECIAL PROTECTION INFORMATION

RESPIRATORY PROTECTION (Specify type)	NONE	
VENTILATION	LOCAL EXHAUST	SPECIAL
	MECHANICAL (General)	OTHER
PROTECTIVE GLOVES	—	EYE PROTECTION
OTHER PROTECTIVE EQUIPMENT	—	—

SECTION IX - SPECIAL PRECAUTIONS

PRECAUTIONS TO BE TAKEN IN HANDLING AND STORING	NORMAL STORAGE
OTHER PRECAUTIONS	DON'T STORE IN OPEN WEATHER NONE

Q50-BLOCK - 34 02

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# MATERIAL SAFETY DATA SHEET

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Automotive Operations

**SECTION I**

EMERGENCY TELEPHONE NO.  
 616-685-6101

CHEMICAL NAME  
**PETRO DERIVATIVE**

TRADE NAME  
**DEO DORANT BLOCK**

**SECTION II - HAZARDOUS INGREDIENTS**

PAINTS, PRESERVATIVES, & SOLVENTS	%	TLV (Units)	ALLOYS AND METALLIC COATINGS	%	TLV (Units)
PIGMENTS		}	BASE METAL		}
CATALYST			ALLOYS		
VEHICLE			METALLIC COATINGS		
SOLVENTS			FILLER METAL PLUS COATING OR CORE FLUX		
ADDITIVES			OTHER		
OTHERS					
HAZARDOUS MIXTURES OF OTHER LIQUIDS, SOLIDS, OR GASES				%	TLV (Units)
<b>PARADICHLOROBENZENE</b>				<b>99%</b>	}
<b>PERFUME - CHERRY - MINT - SASSAFRASS</b>				<b>1%</b>	

**SECTION III - PHYSICAL DATA**

BOILING POINT (°F.)	<b>NONE</b>	SPECIFIC GRAVITY (H <sub>2</sub> O=1)	
VAPOR PRESSURE (mm Hg.)		PERCENT VOLATILE BY VOLUME (%)	
VAPOR DENSITY (AIR=1)		EVAPORATION RATE (H <sub>2</sub> O=1)	
SOLUBILITY IN WATER			
APPEARANCE AND ODOR	<b>SOLID BLOCK - MINT OR CHERRY</b>		

**SECTION IV - FIRE AND EXPLOSION HAZARD DATA**

FLASH POINT (Method used)	FLAMMABLE LIMITS		Lel	Uel
EXTINGUISHING MEDIA				
SPECIAL FIRE FIGHTING PROCEDURES				
UNUSUAL FIRE AND EXPLOSION HAZARDS				

**SECTION V - HEALTH HAZARD DATA**

THRESHOLD LIMIT VALUE \_\_\_\_\_

EFFECTS OF OVER EXPOSURE \_\_\_\_\_

EMERGENCY AND FIRST AID PROCEDURES \_\_\_\_\_

**SECTION VI - REACTIVITY DATA**

STABILITY	UNSTABLE		CONDITIONS TO AVOID
	STABLE	<b>X</b>	

INCOMPATIBILITY (Materials to avoid) \_\_\_\_\_

HAZARDOUS DECOMPOSITION PRODUCTS

HAZARDOUS POLYMERIZATION	MAY OCCUR		CONDITIONS TO AVOID
	WILL NOT OCCUR	<b>X</b>	

**SECTION VII - SPILL OR LEAK PROCEDURES**

STEPS TO BE TAKEN IN CASE MATERIAL IS RELEASED OR SPILLED  
**PICK UP AND PLACE IN CONTAINER**

WASTE DISPOSAL METHOD  
**WILL EVAPORATE IN OPEN AIR**

**SECTION VIII - SPECIAL PROTECTION INFORMATION**

RESPIRATORY PROTECTION (Specify type) **NONE**

VENTILATION	LOCAL EXHAUST		SPECIAL
	MECHANICAL (General)		OTHER

PROTECTIVE GLOVES **NO** EYE PROTECTION **NO**

OTHER PROTECTIVE EQUIPMENT **NONE**

**SECTION IX - SPECIAL PRECAUTIONS**

PRECAUTIONS TO BE TAKEN IN HANDLING AND STORING  
**STORE IN COOL DRY PLACE**

OTHER PRECAUTIONS

H/D KLEENZ DRAIN LIQUID - 1 QT

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Automotive Operations

SECTION I

EMERGENCY TELEPHONE NO.  
 616-685-6101

CHEMICAL TRADE NAME AND SYNONYMS  
**ACID DRAIN CLEANER**

TRADE NAME AND SYNONYMS  
**HEAVY DUTY DRAIN CLEANER**

CHEMICAL FORMULA

**NOTE - TO BE USED ONLY BY PROFESSIONAL MECHANICS & PROFESSIONAL MAINTENANCE PERSONNEL**

## SECTION II - HAZARDOUS INGREDIENTS

PAINTS, PRESERVATIVES, & SOLVENTS	%	TLV (Units)	ALLOYS AND METALLIC COATINGS	%	TLV (Units)
PIGMENTS			BASE METAL		
CATALYST			ALLOYS		
VEHICLE			METALLIC COATINGS		
SOLVENTS			FILLER METAL PLUS COATING OR CORE FLUX		
ADDITIVES			OTHER		
OTHERS					
HAZARDOUS MIXTURES OF OTHER LIQUIDS, SOLIDS, OR GASES				%	TLV (Units)
<b>SULPHURIC ACID</b>				<b>85</b>	<b>-</b>
<b>INHIBITORS</b>					
<b>SURFACTANTS</b>					
<b>WATER</b>					

## SECTION III - PHYSICAL DATA

BOILING POINT (°F.)	<b>185°F</b>	SPECIFIC GRAVITY (H <sub>2</sub> O=1)	<b>1.25</b>
VAPOR PRESSURE (mm Hg.)		PERCENT VOLATILE BY VOLUME (%)	
VAPOR DENSITY (AIR=1)		EVAPORATION RATE (1=1)	<b>SLOW</b>
SOLUBILITY IN WATER	<b>100%</b>	<b>MATERIAL IS LIQUID</b>	
APPEARANCE AND ODOR	<b>DARK STRONG AND ACID</b>		

## SECTION IV - FIRE AND EXPLOSION HAZARD DATA

FLASH POINT (Method used)	<b>NONE</b>	FLAMMABLE LIMITS	LOI	UOI
EXTINGUISHING MEDIA				
SPECIAL FIRE FIGHTING PROCEDURES				
UNUSUAL FIRE AND EXPLOSION HAZARDS				



SECTION V - HEALTH HAZARD DATA	
THRESHOLD LIMIT VALUE	—
EFFECTS OF OVEREXPOSURE	WILL CAUSE SEVERE IRRITATIONS TO EYES, THROAT AND SKIN - CALL PHYSICIAN
EMERGENCY AND FIRST AID PROCEDURES	EYES - FLUSH WITH WATER - CALL PHYSICIAN SKIN - " " INGESTED " "

SECTION VI - REACTIVITY DATA			
STABILITY	UNSTABLE		CONDITIONS TO AVOID
	STABLE	X	
INCOMPATIBILITY (Materials to avoid)		OILS.	
HAZARDOUS DECOMPOSITION PRODUCTS			
HAZARDOUS POLYMERIZATION	MAY OCCUR		CONDITIONS TO AVOID
	WILL NOT OCCUR	X	

SECTION VII - SPILL OR LEAK PROCEDURES	
STEPS TO BE TAKEN IN CASE MATERIAL IS RELEASED OR SPILLED	FLUSH WITH LARGE AMOUNTS OF WATER
WASTE DISPOSAL METHOD	LOCAL ORDINANCES

SECTION VIII - SPECIAL PROTECTION INFORMATION			
RESPIRATORY PROTECTION (Specify type)			
NONE			
VENTILATION	LOCAL EXHAUST	X	SPECIAL
	MECHANICAL (General)		OTHER
PROTECTIVE GLOVES	STRONG RECOMMENDATION	EYE PROTECTION	TOTAL FACE SHIELD
OTHER PROTECTIVE EQUIPMENT RUBBER APRON AND BOOTS			

SECTION IX - SPECIAL PRECAUTIONS	
PRECAUTIONS TO BE TAKEN IN HANDLING AND STORING	WHEN NOT IN USE STORE AT ROOM TEMPERATURE.
BEFORE USING READ DIRECTIONS CAREFULLY AND FULLY	
OTHER PRECAUTIONS	REPORT: TO BE USED ONLY BY PLUMBERS
PLANT MAINTENANCE PROFESSIONALS TO OPEN DRAINS AND PIPE LINES CLOSED BY ORGANIC MATTER. MAIDS AND JANITORS ARE STRICTLY FORBIDDEN TO USE THIS PRODUCT.	

"BOROLAN" POWDERED HAND SOAP  
(100 LB BARRELS)

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MATERIAL SAFETY DATA SHEET

LAD CHEMICALS INC.  
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550 Industrial Pkwy.  
PLAINWELL, MI 49080  
(616) 585-6101

Automotive Operations

SECTION I	
	EMERGENCY TELEPHONE NO. 616-685-6101

CHEMICAL NAME AND SYNONYMS POWDER ALKALIDETERGENT	TRADE NAME AND SYNONYMS BOROLAN HAND SOAP
CHEMICAL FAMILY ALKALI	FORMULA

SECTION II - HAZARDOUS INGREDIENTS					
PAINTS, PRESERVATIVES, & SOLVENTS	%	TLV (Units)	ALLOYS AND METALLIC COATINGS	%	TLV (Units)
PIGMENTS		}	BASE METAL		}
CATALYST			ALLOYS		
VEHICLE			METALLIC COATINGS		
SOLVENTS			FILLER METAL PLUS COATING OR CORE FLUX		
ADDITIVES			OTHER		
OTHERS					
HAZARDOUS MIXTURES OF OTHER LIQUIDS, SOLIDS, OR GASES				%	TLV (Units)
NONE					
POWDERED SURFACTANTS					
SOLUBLE SCRUBBERS					
PERFUME					

SECTION III - PHYSICAL DATA			
BOILING POINT (°F.)	---	SPECIFIC GRAVITY (H <sub>2</sub> O=1)	---
VAPOR PRESSURE (mm Hg.)	---	PERCENT. VOLATILE BY VOLUME (%)	---
VAPOR DENSITY (AIR=1)	---	EVAPORATION RATE (---=1)	---
SOLUBILITY IN WATER	---	PRODUCT IS POWDER	---
APPEARANCE AND COLOR			

SECTION IV - FIRE AND EXPLOSION HAZARD DATA			
FLASH POINT (Method used)	---	FLAMMABLE LIMITS	Lo: / Hi:
EXTINGUISHING MEDIA			
SPECIAL FIRE FIGHTING PROCEDURES			
UNUSUAL FIRE AND EXPLOSION HAZARDS			

SECTION V - HEALTH HAZARD DATA	
THRESHOLD LIMIT VALUE	—
EFFECTS OF OVER EXPOSURE	—
EMERGENCY AND FIRST AID PROCEDURES	—

SECTION VI - REACTIVITY DATA			
STABILITY	UNSTABLE		CONDITIONS TO AVOID
	STABLE	X	
INCOMPATIBILITY (Materials to avoid)			
HAZARDOUS DECOMPOSITION PRODUCTS			
HAZARDOUS POLYMERIZATION	MAY OCCUR		CONDITIONS TO AVOID
	WILL NOT OCCUR		

SECTION VII - SPILL OR LEAK PROCEDURES	
STEPS TO BE TAKEN IN CASE MATERIAL IS RELEASED OR SPILLED	SWEEP + PICK UP
WASTE DISPOSAL METHOD	SWEEP AND PUT INTO CONTAINER

SECTION VIII - SPECIAL PROTECTION INFORMATION			
RESPIRATORY PROTECTION (Specify type): <b>NONE</b>			
VENTILATION	LOCAL EXHAUST		SPECIAL
	MECHANICAL (General)		OTHER
PROTECTIVE GLOVES	No	EYE PROTECTION	No
OTHER PROTECTIVE EQUIPMENT: <b>NONE</b>			

SECTION IX - SPECIAL PRECAUTIONS	
PRECAUTIONS TO BE TAKEN IN HANDLING AND STORING	STORE IN COOL DRY PLACE
OTHER PRECAUTIONS	

ROYAL LOTION SOAP  
(55 GAL DRUM)

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**MATERIAL SAFETY DATA SHEET**

**LAD CHEMICALS INC.**  
Only the Finest Cleaning Materials  
950 Industrial Pkwy.  
PLAINWELL, MI 49080  
(616) 655-6101

Automotive Operations

SECTION I	
EMERGENCY TELEPHONE NO.	616-685-6101

CHEMICAL NAME AND SYNONYMS <b>LIQUID PASTE ALKALI</b>	TRADE NAME AND SYNONYMS <b>PINK LOTION SOAP</b>
CHEMICAL FAMILY <b>ALKALI - PH 7.8-8.2</b>	FORMULA

SECTION II - HAZARDOUS INGREDIENTS					
PAINTS, PRESERVATIVES, & SOLVENTS	%	TLV (Units)	ALLOYS AND METALLIC COATINGS	%	TLV (Units)
PIGMENTS		}	BASE METAL		}
CATALYST			ALLOYS		
VEHICLE			METALLIC COATINGS		
SOLVENTS			FILLER METAL PLUS COATING OR CORE FLUX		
ADDITIVES			OTHER		
OTHERS					
HAZARDOUS MIXTURES OF OTHER LIQUIDS, SOLIDS, OR GASES				%	TLV (Units)
<b>NONE</b>					
<b>LIQUID PASTE DETERGENTS</b>					
<b>EMULSIFIERS</b>					
<b>LANOLIN</b>					
<b>PERFUME</b>					

SECTION III - PHYSICAL DATA			
BOILING POINT (°F.)	210° F	SPECIFIC GRAVITY (H <sub>2</sub> O=1)	1.023
VAPOR PRESSURE (mm Hg.)		PERCENT. VOLATILE BY VOLUME (%)	
VAPOR DENSITY (AIR=1)		EVAPORATION RATE (_____ #/l)	
SOLUBILITY IN WATER (%)	100%		
APPEARANCE AND ODOR	PINK - FLORAL		

SECTION IV - FIRE AND EXPLOSION HAZARD DATA			
FLASH POINT (Method used)	NONE	FLAMMABLE LIMITS	LEL   UEL
EXTINGUISHING MEDIA			
SPECIAL FIRE FIGHTING PROCEDURES			
UNUSUAL FIRE AND EXPLOSION HAZARDS			

SECTION V - HEALTH HAZARD DATA	
THRESHOLD LIMIT VALUES	
EFFECTS OF OVER EXPOSURE NONE	
EMERGENCY AND FIRST AID PROCEDURES EYES FLUSH WITH WATER - CALL PHYSICIAN SKIN - NO EFFECT INGESTION - DRINK PLenty OF WATER	

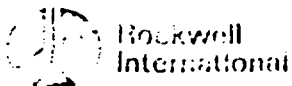
SECTION VI - REACTIVITY DATA			
STABILITY	UNSTABLE		CONDITIONS TO AVOID
	STABLE	X	
INCOMPATIBILITY (Materials to avoid)			
HAZARDOUS DECOMPOSITION PRODUCTS			
HAZARDOUS POLYMERIZATION	MAY OCCUR		CONDITIONS TO AVOID
	WILL NOT OCCUR	X	

SECTION VII - SPILL OR LEAK PROCEDURES	
STEPS TO BE TAKEN IN CASE MATERIAL IS RELEASED OR SPILLED FLUSH WITH WATER	
WASTE DISPOSAL METHOD BIODEGRADABLES	

SECTION VIII - SPECIAL PROTECTION INFORMATION			
RESPIRATORY PROTECTION (Specify type) NONE			
VENTILATION	LOCAL EXHAUST	X	SPECIAL
	MECHANICAL (General)		OTHER
PROTECTIVE GLOVES	NONE	EYE PROTECTION	NONE
OTHER PROTECTIVE EQUIPMENT			

SECTION IX - SPECIAL PRECAUTIONS	
PRECAUTIONS TO BE TAKEN IN HANDLING AND STORING STORE IN COOL DRY PLACE	
OTHER PRECAUTIONS NONE	





**BIG "D" SUPER LEMON CONCENTRATE (5 GAL)**

**30**

# MATERIAL SAFETY DATA SHEET

**LAD CHEMICALS INC.**  
 Only the Finest Cleaning Materials  
 950 Industrial Pkwy.  
 PLAINWELL, MI 48080  
 (616) 685-6101

Automotive Operations

**SECTION I**

EMERGENCY TELEPHONE NO.  
**616-685-7101**

CHEMICAL NAME AND SYNONYMS <b>PETRO EMULSION</b>	TRADE NAME AND SYNONYMS <b>BIG D LEMON DEODORANT</b>
CHEMICAL FAMILY	FORMULA

**SECTION II - HAZARDOUS INGREDIENTS**

PAINTS, PRESERVATIVES, & SOLVENTS	%	TLV (Units)	ALLOYS AND METALLIC COATINGS	%	TLV (Units)
PIGMENTS			BASE METAL		
CATALYST			ALLOYS		
VEHICLE			METALLIC COATINGS		
SOLVENTS			FILLER METAL PLUS COATING OR CORE FLUX		
ADDITIVES			OTHER		
OTHERS					
HAZARDOUS MIXTURES OF OTHER LIQUIDS, SOLIDS, OR GASES			<b>NONE</b>	%	TLV (Units)
<b>SOLUBLE OILS</b>					
<b>EMULSIFIERS</b>					
<b>PERFUMS</b>					
<b>WATER</b>					

**SECTION III - PHYSICAL DATA**

BOILING POINT (°F.)	<b>212°</b>	SPECIFIC GRAVITY (H <sub>2</sub> O=1)	<b>1.3</b>
VAPOR PRESSURE (mm Hg.)		PERCENT VOLATILE BY VOLUME (%)	
VAPOR DENSITY (AIR=1)		EVAPORATION RATE (1) (1)	<b>WATER</b>
SOLUBILITY IN WATER			
APPEARANCE AND ODOR	<b>WATERY LEMON COLOR + ODOR</b>		

**SECTION IV - FIRE AND EXPLOSION HAZARD DATA**

FLASH POINT (Method used)	<b>NONE</b>	FLAMMABLE LIMITS	Lower	Upper
EXTINGUISHING MEDIA				
SPECIAL FIRE FIGHTING PROCEDURES				
UNUSUAL FIRE AND EXPLOSION HAZARDS				

SECTION V - HEALTH HAZARD DATA	
THRESHOLD LIMIT VALUE	1000
EFFECTS OF OVEREXPOSURE	NONE
EMERGENCY AND FIRST AID PROCEDURES	
EYES - FLUSH WITH WATER - CALL PHYSICIAN	
SKIN - " " "	
INGESTION - DRINK PLENTY WATER " "	

SECTION VI - REACTIVITY DATA			
STABILITY	UNSTABLE		CONDITIONS TO AVOID
	STABLE	X	
INCOMPATIBILITY (Materials to avoid)			
HAZARDOUS DECOMPOSITION PRODUCTS			
HAZARDOUS POLYMERIZATION	MAY OCCUR		CONDITIONS TO AVOID
	WILL NOT OCCUR	V	

SECTION VII - SPILL OR LEAK PROCEDURES	
STEPS TO BE TAKEN IN CASE MATERIAL IS RELEASED OR SPILLED	FLUSH WITH WATER
WASTE DISPOSAL METHOD	FLUSH WITH WATER BIODEGRADABLE

SECTION VIII - SPECIAL PROTECTION INFORMATION			
RESPIRATORY PROTECTION (Specify type)			
VENTILATION	LOCAL EXHAUST	NONE LOCAL	SPECIAL
	MECHANICAL (General)		OTHER
PROTECTIVE GLOVES	NONE	EYE PROTECTION	NONE
OTHER PROTECTIVE EQUIPMENT			
NONE			

SECTION IX - SPECIAL PRECAUTIONS	
PRECAUTIONS TO BE TAKEN IN HANDLING AND STORING	STORE IN COOL DRY PLACE.
OTHER PRECAUTIONS	USE IN DILUTED STAGE PER INSTRUCTIONS ON LABEL



# MATERIAL SAFETY DATA SHEET

Re-issue  
7/29/77

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Required under USDL Safety and Health Regulations for Ship Repairing,  
Shipbuilding, and Shipbreaking (29 CFR 1915, 1916, 1917)

## SECTION I

MANUFACTURER'S NAME E. F. Houghton & Company		EMERGENCY TELEPHONE NO. 215- Re9-7100
ADDRESS (Number, Street, City, State, and ZIP Code) 303 W. Locust Avenue Philadelphia, Pa. 19133		
CHEMICAL NAME AND SYNONYMS		TRADE NAME AND SYNONYMS Houghto-Safe 620
CHEMICAL FAMILY Water Glycol Fire Resistant Hydraulic Fluid	FORMULA Water Glycol, Polyglycol, plus additives	

## SECTION II - HAZARDOUS INGREDIENTS

PAINTS, PRESERVATIVES, & SOLVENTS	%	TLV (Units)	ALLOYS AND METALLIC COATINGS	%	TLV (Units)
PIGMENTS			BASE METAL		
CATALYST			ALLOYS		
VEHICLE			METALLIC COATINGS		
SOLVENTS			FILLER METAL PLUS COATING OR CORE FLUX		
ADDITIVES			OTHERS		
OTHERS					
HAZARDOUS MIXTURES OF OTHER LIQUIDS, SOLIDS, OR GASES				%	TLV (Units)
Ethylene Glycol LD50 7.4 ml/kg (Rats)				36	N/A

## SECTION III - PHYSICAL DATA

BOILING POINT (°F.)	220	SPECIFIC GRAVITY (H <sub>2</sub> O=1)	1.05
VAPOR PRESSURE (mm Hg.)		PERCENT. VOLATILE BY VOLUME (%) (water content)	40
VAPOR DENSITY (AIR=1)		EVAPORATION RATE (_____ =1)	
SOLUBILITY IN WATER	Complete		
APPEARANCE AND ODOR	Red fluid, slight ammoniacal odor		

## SECTION IV - FIRE AND EXPLOSION HAZARD DATA

FLASH POINT (Method used)	None (contains water)	FLAMMABLE LIMITS	Lel	Uel
EXTINGUISHING MEDIA				
SPECIAL FIRE FIGHTING PROCEDURES	Product is a fire resistant fluid, not flammable as used			
UNUSUAL FIRE AND EXPLOSION HAZARDS	If water is removed will burn. Can be extinguished with water, CO <sub>2</sub> , foam.			

**SECTION V - HEALTH HAZARD DATA**

THRESHOLD LIMIT VALUE

Not available

EFFECTS OF OVEREXPOSURE

Skin - Mild irritant (PH - 9.0, - 9.5)

Eyes - Moderate irritant (PH - 9.0 - 9.5)

EMERGENCY AND FIRST AID PROCEDURES

Eye contact - Wash with water for 15 minutes. Consult a physician

If ingested - induce vomiting. Consult physician

**SECTION VI - REACTIVITY DATA**

STABILITY

UNSTABLE

CONDITIONS TO AVOID

STABLE

X

INCOMPATIBILITY (Materials to avoid)

Strong oxidizers

HAZARDOUS DECOMPOSITION PRODUCTS

Thermal decomposition - CO<sub>2</sub> and/or CO, oxides of nitrogen

HAZARDOUS POLYMERIZATION

MAY OCCUR

CONDITIONS TO AVOID

WILL NOT OCCUR

X

**SECTION VII - SPILL OR LEAK PROCEDURES**

STEPS TO BE TAKEN IN CASE MATERIAL IS RELEASED OR SPILLED

Flush area with water

WASTE DISPOSAL METHOD

Process through sewage or waste disposal system

which provides either air or biological oxidation. (If water content is below 35%, material may be burned with fuel oil.)

**SECTION VIII - SPECIAL PROTECTION INFORMATION**

RESPIRATORY PROTECTION (Specify type)

Not required

VENTILATION

LOCAL EXHAUST

No special precautions required

SPECIAL

MECHANICAL (General)

OTHER

PROTECTIVE GLOVES

Not normally required

EYE PROTECTION

Goggles recommended

OTHER PROTECTIVE EQUIPMENT

**SECTION IX - SPECIAL PRECAUTIONS**

PRECAUTIONS TO BE TAKEN IN HANDLING AND STORING

No special precautions needed, other

than to avoid contact with strong oxidizers

OTHER PRECAUTIONS

Avoid Ingestion

U.S. DEPARTMENT OF LABOR  
Occupational Safety and Health Administration

Form Approved  
OMB No. 44-R1387

# MATERIAL SAFETY DATA SHEET

RE-ISSUE  
1-25-78

33

Required under USDL Safety and Health Regulations for Ship Repairing,  
Shipbuilding, and Shipbreaking (29 CFR 1915, 1916, 1917)

## SECTION I

MANUFACTURER'S NAME <b>E. F. HOUGHTON &amp; COMPANY</b>		EMERGENCY TELEPHONE NO. <b>215-RE-9-7100</b>
ADDRESS (Number, Street, City, State, and ZIP Code) <b>303 W. Lehigh Avenue, Philadelphia, Pa. 19133</b>		
CHEMICAL NAME AND SYNONYMS		TRADE NAME AND SYNONYMS <b>GUM SOLVENT GSC</b>
CHEMICAL FAMILY	FORMULA	

## SECTION II - HAZARDOUS INGREDIENTS

PAINTS, PRESERVATIVES, & SOLVENTS	%	TLV (Units)	ALLOYS AND METALLIC COATINGS	%	TLV (Units)
PIGMENTS			BASE METAL		
CATALYST			ALLOYS		
VEHICLE			METALLIC COATINGS		
SOLVENTS			FILLER METAL PLUS COATING OR CORE FLUX		
ADDITIVES			OTHERS		
OTHERS					
HAZARDOUS MIXTURES OF OTHER LIQUIDS, SOLIDS, OR GASES				%	TLV (Units)
Ingredients not considered hazardous by present OSHA Regulations.					

## SECTION III - PHYSICAL DATA

BOILING POINT (°F.)		SPECIFIC GRAVITY (H <sub>2</sub> O=1)	0.875
VAPOR PRESSURE (mm Hg.)		PERCENT. VOLATILE BY VOLUME (%)	Negligible
VAPOR DENSITY (AIR=1)		EVAPORATION RATE (_____ =1)	
SOLUBILITY IN WATER	Insoluble		
APPEARANCE AND ODOR	Light colored oil; odor glycol ethers		

## SECTION IV - FIRE AND EXPLOSION HAZARD DATA

FLASH POINT (Method used)	160° F. PMCC	FLAMMABLE LIMITS °F.	Let	Uet
EXTINGUISHING MEDIA	CO <sub>2</sub> , Foam, Dry Chemical			
SPECIAL FIRE FIGHTING PROCEDURES	Not required			
UNUSUAL FIRE AND EXPLOSION HAZARDS				

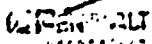
SECTION V - HEALTH HAZARD DATA	
THRESHOLD LIMIT VALUE	Unknown
EFFECTS OF OVEREXPOSURE	Skin-may defat. Eyes-Mild moderate irritant.
EMERGENCY AND FIRST AID PROCEDURES	
Skin-Wash with soap and water. Eyes-Wash with water for 15 minutes.	
Consult physician. Inhalation-remove patient to fresh air. If ingested- give vegetable oil demulcents. DO NOT INDUCE VOMITING! Consult physician.	

SECTION VI - REACTIVITY DATA			
STABILITY	UNSTABLE		CONDITIONS TO AVOID
	STABLE	X	
INCOMPATABILITY (Materials to avoid) Avoid contact with strong oxidizers.			
HAZARDOUS DECOMPOSITION PRODUCTS Small amounts oxides of nitrogen phosphorous and sulfur, CO <sub>2</sub> and/or			
HAZARDOUS POLYMERIZATION	MAY OCCUR		CONDITIONS TO AVOID
	WILL NOT OCCUR	X	

SECTION VII - SPILL OR LEAK PROCEDURES	
STEPS TO BE TAKEN IN CASE MATERIAL IS RELEASED OR SPILLED	Clean up with dry absorbent material.
WASTE DISPOSAL METHOD	Follow regulations for disposal of waste petroleum oils.

SECTION VIII - SPECIAL PROTECTION INFORMATION		
RESPIRATORY PROTECTION (Specify type) Not needed if ventilation is provided.		
VENTILATION	LOCAL EXHAUST	SPECIAL
	MECHANICAL (General)	Preferred
OTHER		
PROTECTIVE GLOVES Rubber-if in prolonged contact	EYE PROTECTION	
OTHER PROTECTIVE EQUIPMENT Not required		

SECTION IX - SPECIAL PRECAUTIONS	
PRECAUTIONS TO BE TAKEN IN HANDLING AND STORING Do not store near open flames or sources of heat. Avoid prolonged contact with skin.	
OTHER PRECAUTIONS Avoid contact with strong oxidizers.	



# MATERIAL SAFETY DATA SHEET

"ESSENTIALLY SIMILAR" TO OSHA FORM 20  
FORM 4040 (7-77)

ADDRESS: Pennwalt Corporation

34

900 First Avenue  
King of Prussia, PA 19406

IDENTIFICATION

Pennwalt Product Name

KLC-4

Pennwalt Code No.

3515

Emergency Phone Number(s)

(215) 265-3200

Chemical Name and Molecular Formula

NA

CAS No.(s)

NA

Synonyms

Lubricant

Chemical Family

Petroleum

HAZARDOUS INGREDIENTS

MATERIALS OR COMPONENTS

%

HAZARD DATA (TLV, LD50, LC50, etc.)

Mineral Oils

95

5 mg/m<sup>3</sup>

PHYSICAL PROPERTIES

Boiling Point/Range

NA °C

°F

Melting Point

NA °C

°F

Freezing Point

Pour Pt.

10°F

Molecular Weight (Calculated)

mixture

Specific Gravity (H<sub>2</sub>O=1)

0.89@

20/

20°C

Vapor Pressure (mm Hg)

NA @

°C

°F

Vapor Density (Air=1)

NA

Solubility in H<sub>2</sub>O

nil

% Volatiles by Volume

nil

%

Evaporation Rate

nil

Ether = 1

Water = 1

Butylacetate = 1

Appearance and Odor

Oily fluid

Other

FIRE EXPLOSION DATA

Flash Point

°C 425°F

Test Method

COC

Flammable Limits

Lower

Upper

Autoignition Temperature

°C

Fire Pt.

455°F

EXTINGUISHING MEDIA

Water-spray

Water-fog

Water Stream

CO<sub>2</sub>

Dry Chemical

Alcohol foam

Foam

Earth or sand

Other (specify):

Water may cause frothing

SPECIAL FIRE FIGHTING PROCEDURES

Do not enter building

Do not use water

Allow fire to burn

Other (specify)

UNUSUAL FIRE & EXPLOSION HAZARDS

Dust explosion hazard

Sensitive to shock

Contamination

Temperature

Other (specify):

REACTIVITY DATA

STABILITY

Stable

Unstable

CONDITIONS CONTRIBUTING TO UNSTABILITY

Thermal decomposition

Photo degradation

Polymerization

INCOMPATIBILITY - Avoid contact with

Strong acids

Strong alkalis

Strong oxidizers

Other (specify):

HAZARDOUS DECOMPOSITION PRODUCTS - THERMAL AND OTHER (list)

Oxides of carbon

CONDITIONS TO AVOID

Heat

Open flames

Sparks

Ignition sources

Other (specify):

LEAK

STEPS TO BE TAKEN IF MATERIAL IS RELEASED OR SPILLED

Flush with water

Absorb with sand or inert material

Neutralize

Sweep or scoop up and remove

Keep unwind. Evacuate enclosed spaces.

Prevent spread or spill

Other (specify):

WASTE DISPOSAL METHOD - Consult federal, state, or local authorities for proper disposal procedures.

Other (specify):

CONTINUED ON REVERSE SIDE

TOXICITY

Oral (acute)

Dermal (acute)

Eye

Inhalation

Chronic

Other

HEALTH EFFECTS AND IRRITATION

PERMISSIBLE EXPOSURE LIMIT

ACGIH 10

TLV

OSHA 19

TWA

Other:

IRRITATION

Skin

Eye

Severe

Moderate

Mild (transient)

CORROSIVITY

Skin

Eye

Reversible

Irreversible

May cause blindness

SENSITIZATION

Skin

Respiratory

Allergen

Narcotic effect

Cyanosis

Asphyxiant

LUNG EFFECTS (Specify):

OTHER (Specify):

Prolonged or repeated

SPECIAL PROTECTION INFORMATION

INGESTION

Induce vomiting

Do not induce vomiting

Get medical attention

Other (specify):

DERMAL

Flush with soap and water

Get medical attention

Other (specify):

EYE CONTACT

Flush with plenty of water for at least 15 minutes

Get medical attention

Other (specify):

INHALATION

Remove to fresh air

If not breathing, give artificial respiration

Give oxygen

Get medical attention

Other (specify):

VENTILATION REQUIREMENTS - Always maintain exposure below permissible exposure limits

Consult an industrial hygienist or environmental health specialist

Local exhaust

Use with adequate ventilation

Check for air contaminant and oxygen deficiency

Other (specify):

NA

EYE

Face shield

HAND (GLOVE TYPE)

Rubber

Polyvinyl alcohol

Other (specify):

Safety glasses

Goggles

Polyvinyl chloride

Neoprene

Natural rubber

Polyethylene

RESPIRATOR TYPE - Use only NIOSH / MESA approved equipment

Self-contained

Supplied air

Can or cartridge gas or vapor

Filter - dust, fume, mist

Other (specify):

OTHER PROTECTIVE EQUIPMENT

SPECIAL PRECAUTIONS

PRECAUTIONARY LABELING

Wash thoroughly after handling

Do not get in eyes, on skin or clothing

Do not breathe dust, vapor, mist, gas

Keep container closed

Keep away from heat, sparks, and open flames

Store in tightly closed containers

Do not store near combustibles

Keep from contact with clothing and other combustible materials

Empty container may contain hazardous residues

Use explosion proof equipment

Other (specify):

Other handling and storage conditions

Minimum contact with this and all chemicals is recommended as a good, general policy to follow.

Prepared by

Date

Address

Charles J. Matlack

12/77

900 First Avenue  
King of Prussia, Pennsylvania 19406

Phone

(215)  
265-3200

FASE NOTE

The above information is accurate to the best of our knowledge. However, since data, safety standards, and government regulations are subject to change and the conditions of handling and use, or misuse are beyond our control, Pennwalt MAKES NO WARRANTY, EITHER EXPRESS OR IMPLIED, WITH RESPECT TO THE COMPLETENESS OR CONTINUING ACCURACY OF THE INFORMATION CONTAINED HEREIN AND DISCLAIMS ALL LIABILITY FOR RELIANCE THEREON. User should satisfy himself that he has all pertinent information.

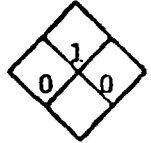


SHELL OIL COMPANY  
SHELL CHEMICAL COMPANY  
SHELL DEVELOPMENT COMPANY  
SHELL PIPE LINE CORPORATION

MSDS 5649-1

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HAZARD  
RATING



**MATERIAL SAFETY DATA SHEET**

Information on this form is furnished solely for the purpose of compliance with the Occupational Safety and Health Act of 1970 and shall not be used for any other purpose. Use or dissemination of all or any part of this information for any other purpose may result in a violation of law or constitute grounds for legal action.

SECTION I	
MANUFACTURER'S NAME Shell Oil Company	EMERGENCY TELEPHONE NO. (713) 473-9461
ADDRESS (Number, Street, City, State, and ZIP Code) One Shell Plaza, Houston, Texas 77002	
CHEMICAL NAME AND SYNONYMS Lubricating grease	TRADE NAME Shell Super Duty Grease
CHEMICAL FAMILY	FORMULA Code 70400

SECTION II HAZARDOUS INGREDIENTS*						
COMPOSITION	%	SPECIES	LD <sub>50</sub>		LC <sub>50</sub>	
			ORAL	DERMAL	CONCENTRATION	HOURS
Petroleum Hydrocarbons	83	Rat	>5 g/kg			
		Rabbit		>2 ml/kg		
Fatty oils and fatty acids	~6					
Polymers (C, H, O)	~5					
Phenolic & Amine antioxidants	<1					
Molybdenum disulfide	~1					
Lead dialkyldithiocarbonate	~2					
Lithium hydroxide	~1					
Because of the presence of a lead compound, certain precautions are recommended (See Section V).						

SECTION III PHYSICAL DATA			
BOILING POINT (°F)		SPECIFIC GRAVITY (H <sub>2</sub> O=1)	
VAPOR PRESSURE (mmHg)		PERCENT VOLATILE BY VOLUME (%)	
VAPOR DENSITY (AIR=1)		EVAPORATION RATE (_____ = 1)	
SOLUBILITY IN WATER	Insol.		
APPEARANCE AND ODOR	Gray smooth grease, slight odor.		

SECTION IV FIRE AND EXPLOSION HAZARD DATA			
FLASH POINT (Method used) of mineral oil component >400°F PMCC	FLAMMABLE LIMITS N.A.	LeI	UeI
EXTINGUISHING MEDIA Dry chemical type preferred			
SPECIAL FIRE FIGHTING PROCEDURES None special			
UNUSUAL FIRE AND EXPLOSION HAZARDS None unusual			

\*Modified by Shell Oil Company

MSDS 5649-1

## SECTION V HEALTH HAZARD DATA

THRESHOLD LIMIT VALUE

N.A.

EFFECTS OF OVEREXPOSURE Irritation to skin & eyes. Skin contact can result in absorption of lead into the bloodstream. Under normal conditions of use, the magnitude of absorption is insufficient to constitute a significant hazard. However, excessive skin contact should be avoided.

EMERGENCY AND FIRST AID PROCEDURES  
 Skin - remove grease by wiping or applying waterless hand cleaner, followed by washing with soap and water. Eyes - wash with copious quantity of water. Ingestion - call physician immediately.

## SECTION VI REACTIVITY DATA

STABILITY	UNSTABLE		CONDITIONS TO AVOID
		STABLE	X

INCOMPATIBILITY (Materials to avoid)

HAZARDOUS DECOMPOSITION PRODUCTS  
 Carbon monoxide, oxigenates and lead, lithium, molybdenum and sulfur oxides may form on combustion

HAZARDOUS POLYMERIZATION	MAY OCCUR		CONDITIONS TO AVOID
		WILL NOT OCCUR	X

## SECTION VII SPILL OR LEAK PROCEDURES

STEPS TO BE TAKEN IN CASE MATERIAL IS RELEASED OR SPILLED

Absorb with clay, diatomaceous earth, or other inert material.

WASTE DISPOSAL METHOD

Controlled burning or burying in compliance with local regulations.

## SECTION VIII SPECIAL PROTECTION INFORMATION

RESPIRATORY PROTECTION (Specify type)

Not normally required.

VENTILATION	LOCAL EXHAUST	SPECIAL
		MECHANICAL (General)

PROTECTIVE GLOVES Rubber

EYE PROTECTION Not normally required

OTHER PROTECTIVE EQUIPMENT

## SECTION IX SPECIAL PRECAUTIONS

PRECAUTIONS TO BE TAKEN IN HANDLING AND STORAGE

Avoid all skin contact. Do not use on food processing machinery.

Keep away from animals, feed, or food products.

OTHER PRECAUTIONS

NAME H. Low, Staff Technologist

TITLE Regulatory Affairs

COMPANY Shell Oil Company

SIGNATURE *H. Low*

DATE May, 1977

THE INFORMATION CONTAINED HEREIN IS BASED ON DATA CONSIDERED ACCURATE. HOWEVER, NO WARRANTY IS EXPRESSED OR IMPLIED REGARDING THE ACCURACY OF THESE DATA OR THE RESULTS TO BE OBTAINED FROM THE USE THEREOF.

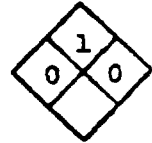
VENDEE ASSUMES NO RESPONSIBILITY FOR INJURY TO VENDEE OR TO NO PERSONS PROXIMATELY CAUSED BY THE MATERIAL IF REASONABLE SAFETY PRECAUTIONS ARE NOT ADHERED TO AS SET FORTH IN THE DATA SHEET AND TO QUALITY. VENDEE ASSUMES NO RESPONSIBILITY FOR INJURY TO VENDEE OR TO NO PERSONS PROXIMATELY CAUSED BY ABNORMAL USE OF THE MATERIAL EVEN IF REASONABLE SAFETY PRECAUTIONS ARE FOLLOWED. FURTHERMORE, VENDEE ASSUMES NO RESPONSIBILITY FOR INJURY TO NO PERSONS PROXIMATELY CAUSED BY THE MATERIAL.





SHELL OIL COMPANY  
SHELL CHEMICAL COMPANY  
SHELL DEVELOPMENT COMPANY  
SHELL PIPE LINE CORPORATION

HAZARD  
RATING



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MATERIAL SAFETY DATA SHEET

Information on this form is furnished solely for the purpose of compliance with the Occupational Safety and Health Act of 1970 and shall not be used for any other purpose. Use or dissemination of all or any part of this information for any other purpose may result in a violation of law or can constitute grounds for legal action.

SECTION I	
MANUFACTURER'S NAME Shell Oil Company	EMERGENCY TELEPHONE NO. (713) 473-9461
ADDRESS (Number, Street, City, State, and ZIP Code) One Shell Plaza, Houston, Texas 77002	
CHEMICAL NAME AND SYNONYMS Heat Treating Oil	TRADE NAME VOLUTA® Oil 23
- CHEMICAL FAMILY Hydrocarbon	FORMULA Code 62301

SECTION II HAZARDOUS INGREDIENTS*						
COMPOSITION	%	SPECIES	LD <sub>50</sub>		LC <sub>50</sub>	
			ORAL	DERMAL	CONCENTRATION	HOURS
VOLUTA Oil 23 is a mineral oil plus a small amount of antioxidant and dispersant.						
It is not a hazardous material by U.S. Department of Labor definition.						
[29 CFR 1501.2 (S)]						

SECTION III PHYSICAL DATA			
BOILING POINT (°F)		SPECIFIC GRAVITY (H <sub>2</sub> O=1)	0.87
VAPOR PRESSURE (mmHg)		PERCENT VOLATILE BY VOLUME (%)	
VAPOR DENSITY (AIR=1)		EVAPORATION RATE (H <sub>2</sub> O=1)	
SOLUBILITY IN WATER	Insoluble		
APPEARANCE AND ODOR	Light-colored liquid - slight odor		

SECTION IV FIRE AND EXPLOSION HAZARD DATA			
FLASH POINT (Method used)	> 325°F, Cleveland open cup	FLAMMABLE LIMITS	H.A.
EXTINGUISHING MEDIA	Dry chemical type preferred		
SPECIAL FIRE FIGHTING PROCEDURES	None		
UNUSUAL FIRE AND EXPLOSION HAZARDS	None		

**SECTION V HEALTH HAZARD DATA**

THRESHOLD LIMIT VALUE  
**5 mg/cubic meter (applies to oil mist)**

EFFECTS OF OVER EXPOSURE  
**Slight irritation to skin and eyes**

EMERGENCY AND FIRST AID PROCEDURES  
**Skin - remove oil by wiping or applying waterless hand cleaner, followed by washing with soap and water.**

**Eyes - wash with copious quantity of water.**

**SECTION VI REACTIVITY DATA**

STABILITY	UNSTABLE		CONDITIONS TO AVOID
	STABLE	X	

INCOMPATIBILITY (Materials to avoid)

HAZARDOUS DECOMPOSITION PRODUCTS  
**Carbon monoxide can be formed during combustion**

HAZARDOUS POLYMERIZATION	MAY OCCUR		CONDITIONS TO AVOID
	WILL NOT OCCUR	X	

**SECTION VII SPILL OR LEAK PROCEDURES**

STEPS TO BE TAKEN IN CASE MATERIAL IS RELEASED OR SPILLED  
**Absorb with clay, diatomaceous earth, or other inert material.**

WASTE DISPOSAL METHOD  
**Controlled burning**

**SECTION VIII SPECIAL PROTECTION INFORMATION**

RESPIRATORY PROTECTION (Specify type)  
**None normally required**

VENTILATION	LOCAL EXHAUST <b>As required if mist is being generated</b>	SPECIAL
	MECHANICAL (General)	OTHER

PROTECTIVE GLOVES  
**Not normally needed.**

OTHER PROTECTIVE EQUIPMENT

EYE PROTECTION  
**Goggles if oil is being sprayed or splashed.**

**SECTION IX SPECIAL PRECAUTIONS**

PRECAUTIONS TO BE TAKEN IN HANDLING AND STORAGE  
**No special precautions normally needed. However, avoid breathing of oil mist.**

OTHER PRECAUTIONS

NAME **H. Low**

TITLE **Head, Toxicology Section**

COMPANY **Shell Oil-MTM R&D-Mktg.**

SIGNATURE **H. Low**

DATE **5/25/73**

THE INFORMATION CONTAINED HEREIN IS BASED ON DATA CONSIDERED ACCURATE. HOWEVER, NO WARRANTY IS EXPRESSED OR IMPLIED REGARDING THE ACCURACY OF THESE DATA OR THE RESULTS TO BE OBTAINED FROM THE USE THEREOF.

VENOR ASSUMES NO RESPONSIBILITY FOR INJURY TO VENOR OR THIRD PERSONS PROXIMATELY CAUSED BY THE MATERIAL IF REASONABLE SAFETY PROCEDURES ARE NOT ADHERED TO AS STIPULATED IN THE DATA SHEET.

ADDITIONALLY, VENOR ASSUMES NO RESPONSIBILITY FOR INJURY TO VENOR OR THIRD PERSONS PROXIMATELY CAUSED BY ABNORMAL USE OF THE MATERIAL EVEN IF REASONABLE SAFETY PROCEDURES ARE FOLLOWED. FURTHERMORE, VENOR ASSUMES THE RISK IN HIS USE OF THE MATERIAL.

# MATERIAL SAFETY DATA SHEET

## SECTION I

MANUFACTURER'S NAME <b>FISKE BROTHERS REFINING COMPANY</b>		EMERGENCY TELEPHONE NO. <b>(419) 691-2101</b>
ADDRESS (Number, Street, City, State, and ZIP Code) <b>1500 Oakdale Avenue, P.O. Box 3033 Station A, Toledo, Ohio 43605</b>		
CHEMICAL NAME AND SYNONYMS <b>Lubricating grease</b>	TRADE NAME AND SYNONYMS <b>LUBRIPLATE High Temp</b>	
CHEMICAL FAMILY <b>Organic hydrocarbon</b>	FORMULA <b>Inorganic thickened mineral oil</b>	

## SECTION II HAZARDOUS INGREDIENTS

PAINTS, PRESERVATIVES, & SOLVENTS	%	TLV (Units)	ALLOYS AND METALLIC COATINGS	%	TLV (Units)
PIGMENTS			BASE METAL		
CATALYST			ALLOYS		
VEHICLE			METALLIC COATINGS		
SOLVENTS			FILLER METAL PLUS COATING OR CORE FLUX		
ADDITIVES			OTHERS		
OTHERS					
HAZARDOUS MIXTURES OF OTHER LIQUIDS, SOLIDS, OR GASES				%	TLV (Units)
NONE					

## SECTION III PHYSICAL DATA

BOILING POINT (°F.)		SPECIFIC GRAVITY (H <sub>2</sub> O=1)	0.976
VAPOR PRESSURE (mm Hg.)		PERCENT VOLATILE BY VOLUME (%)	
VAPOR DENSITY (AIR=1)		EVAPORATION RATE (=1)	
SOLUBILITY IN WATER	Nil		
APPEARANCE AND ODOR	cream color, smooth texture, bland odor		

## SECTION IV FIRE AND EXPLOSION HAZARD DATA

FLASH POINT (Method used)	570°F. C.O.C.	FLAMMABLE LIMITS	Loi	Uoi
EXTINGUISHING MEDIA	CO <sub>2</sub> Foam Water spray			
SPECIAL FIRE FIGHTING PROCEDURES	Same as for lubricating greases			
UNUSUAL FIRE AND EXPLOSION HAZARDS	None			

**SECTION V HEALTH HAZARD DATA**

THRESHOLD LIMIT VALUE	-
EFFECTS OF OVEREXPOSURE	-
EMERGENCY AND FIRST AID PROCEDURES	EXTERNAL - Normal good hygiene INTERNAL - See physician

**SECTION VI REACTIVITY DATA**

STABILITY	UNSTABLE		CONDITIONS TO AVOID
	STABLE	X	
INCOMPATIBILITY (Materials to avoid)			
-			
HAZARDOUS DECOMPOSITION PRODUCTS			
None			
HAZARDOUS POLYMERIZATION	MAY OCCUR		CONDITIONS TO AVOID
	WILL NOT OCCUR	X	

**SECTION VII SPILL OR LEAK PROCEDURES**

STEPS TO BE TAKEN IN CASE MATERIAL IS RELEASED OR SPILLED	
Normal cleanup plus oil absorbing materials.	
WASTE DISPOSAL METHOD	Incinerate or approved land dump

**SECTION VIII SPECIAL PROTECTION INFORMATION**

RESPIRATORY PROTECTION (Specify type)		
VENTILATION	LOCAL EXHAUST	SPECIAL
	MECHANICAL (General)	OTHER
PROTECTIVE GLOVES	None necessary	EYE PROTECTION Normal for foreign material
OTHER PROTECTIVE EQUIPMENT	Not necessary	

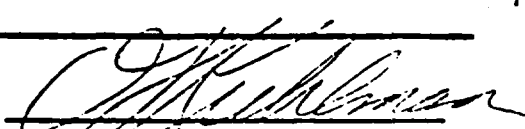
**SECTION IX SPECIAL PRECAUTIONS**

PRECAUTIONS TO BE TAKEN IN HANDLING AND STORING	
Normal storage and handling for lubricating grease	
OTHER PRECAUTIONS	None

COMPANY NAME FISKE BROTHERS REFINING CO.

PREPARED BY:

DATE PREPARED April 4, 1978

  
O. F. Kuhlman  
 Assistant Sales Manager

U.S. DEPARTMENT OF LABOR  
Occupational Safety & Health Administration

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# MATERIAL SAFETY DATA SHEET

SECTION I	
MANUFACTURER'S NAME <b>FISKE BROTHERS REFINING CO.</b>	EMERGENCY TELEPHONE NO. <b>(419) 691-2401</b>
ADDRESS (Number, Street, City, State, and ZIP Code) <b>1500 Oakdale Ave., P.O. Box 8038 - Station A, Toledo, Ohio 43605</b>	
CHEMICAL NAME AND SYNONYMS	TRADE NAME AND SYNONYMS <b>LUBRIPLATE Ball Bearing</b>
CHEMICAL FAMILY <b>Organic Hydrocarbon</b>	FORMULA <b>sodium soap thickened mineral oil plus zinc oxide</b>

SECTION II HAZARDOUS INGREDIENTS					
PAINTS, PRESERVATIVES, & SOLVENTS	%	TLV (Units)	ALLOYS AND METALLIC COATINGS	%	TLV (Units)
PIGMENTS			BASE METAL		
CATALYST			ALLOYS		
VEHICLE			METALLIC COATINGS		
SOLVENTS			FILLER METAL PLUS COATING OR CORE FLUX		
ADDITIVES			OTHERS		
OTHERS					
HAZARDOUS MIXTURES OF OTHER LIQUIDS, SOLIDS, OR GASES				%	TLV (Units)

SECTION III PHYSICAL DATA			
BOILING POINT (°F.)		SPECIFIC GRAVITY (H <sub>2</sub> O=1)	0.940
VAPOR PRESSURE (mm Hg.)		PERCENT VOLATILE BY VOLUME (%)	
VAPOR DENSITY (AIR=1)		EVAPORATION RATE ( =1)	
SOLUBILITY IN WATER	Partial		
APPEARANCE AND ODOR: <b>light beige - fibrous - bland odor</b>			

SECTION IV FIRE AND EXPLOSION HAZARD DATA			
FLASH POINT (Method used)	380°F. COC	FLAMMABLE LIMITS	Lel      Uel
EXTINGUISHING MEDIA	CO <sub>2</sub> - Foam - Water Spray		
SPECIAL FIRE FIGHTING PROCEDURES	Same as for lubricating greases		
UNUSUAL FIRE AND EXPLOSION HAZARDS	None		

### SECTION V HEALTH HAZARD DATA

THRESHOLD LIMIT VALUE	--
EFFECTS OF OVEREXPOSURE	None
EMERGENCY AND FIRST AID PROCEDURES	
	External - Normal good hygiene
	Internal - Consult physician

### SECTION VI REACTIVITY DATA

STABILITY	UNSTABLE		CONDITIONS TO AVOID
	STABLE	X	
INCOMPATIBILITY (Materials to avoid)			
HAZARDOUS DECOMPOSITION PRODUCTS			
HAZARDOUS POLYMERIZATION	MAY OCCUR		CONDITIONS TO AVOID
	WILL NOT OCCUR	X	

### SECTION VII SPILL OR LEAK PROCEDURES

STEPS TO BE TAKEN IN CASE MATERIAL IS RELEASED OR SPILLED	
Normal cleanup plus oil absorbing materials	
WASTE DISPOSAL METHOD	
Incinerate or approved land disposal	

### SECTION VIII SPECIAL PROTECTION INFORMATION

RESPIRATORY PROTECTION (Specify type)		
VENTILATION	LOCAL EXHAUST	X
	MECHANICAL (General)	X
PROTECTIVE GLOVES		EYE PROTECTION
Not required		Same as against any foreign object
OTHER PROTECTIVE EQUIPMENT		
None		

### SECTION IX SPECIAL PRECAUTIONS

PRECAUTIONS TO BE TAKEN IN HANDLING AND STORING	
Normal for handling lubricating greases	
OTHER PRECAUTIONS	
None	

COMPANY NAME FISKE BROTHERS REFINING CO.

PREPARED BY:

*[Signature]*  
G. E. Kuhlman

DATE PREPARED April 4, 1978

Assistant Sales Manager

and Technical Advisor

# KLEENZ BRITE EXTRA

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## MATERIAL SAFETY DATA SHEET

### SECTION I

Mfr.'s Name: <b>Lad Chemicals</b>	Emergency Telephone #: <b>616-685-6101</b>
Address: <b>959 Industrial Parkway, Plainwell, MI 49080</b>	
Chemical Name & Synonyms: <b>Detergent water soluble safety solvent</b>	Trade Name & Synonyms: <b>Kleenz Brite Extra 1106</b>
Chemical Family: <b>Surface active agents</b>	Formula: <b>Non-ionic + builders</b>

### SECTION II - HAZARDOUS INGREDIENTS

Paints, Preservatives & Solvents	%	TLV	Alloys & Metallic Coatings	%	TLV
Pigments	0		Base Metal	0	
Catalyst	0		Alloys	0	
Vehicle	0		Metallic Coatings	0	
Solvents	0		Filler Metal	0	
Additives	0		Others	0	
Others	0				

**Hazardous Mixtures of Other Liquids, Solids or Gases**

Contains 5% Sodium Orthosilicate	
Contains no butyl cellosolve or other toxic solvents or glycoethers	
Biodegradable	

### SECTION III - PHYSICAL DATA

Boiling Point (°F)	Near that of water	Specific Gravity (H <sub>2</sub> O=1)	1.058
Vapor Pressure (mm hg)	Not Known	Percent Volatile By Volume (%)	93.5%
Vapor Density (Air=1)	Not Known	Evaporation Rate (_____ = 1)	Similar to water
Solubility in Water		pH	12 to 13.2

**PURPLE**

Appearance and Odor: **Clear** color, clean odor

### SECTION IV - FIRE AND EXPLOSION HAZARD DATA

Flash Point (Method Used) <b>None - Tag closed cup</b>	Flammable Limits	Lel	Uel
Extinguishing Media <b>No special requirements</b>			
Special Fire Fighting Procedures <b>No special requirements</b>			
Unusual Fire and Explosion Hazards <b>None</b>			

### SECTION V - HEALTH HAZARD DATA

Threshold Limit Value: no hazardous fumes

Effects of Overexposure: no problem

Emergency & First Aid Procedures: If splashed in eyes or on skin, wash with much water. If ingested, drink diluted vinegar or lemon juice.

### SECTION VI - REACTIVITY DATA

Stability	Unstable		Conditions to Avoid:
	Stable	XX	

Incompatibility (Materials to avoid): Do not mix with acids

Hazardous Decomposition Products:

Hazardous	May Occur		Conditions to Avoid:
Polymerization	Will Not Occur	XX	

### SECTION VII - SPILL OR LEAK PROCEDURES

Steps to be taken in case material is released or spilled: Water to floor. Drain and flush.

Waste Disposal Method: Biodegradable material (pH 12 to 13). Wet vacuum pick up or water flush.

### SECTION VIII - SPECIAL PROTECTION INFORMATION

Respiratory Protection (specify type)

Ventilation	Local Exhaust	XX	Special
	Mechanical (general)		Other
Protective Gloves	Yes		Eye Protection
Other Protective Equipment	None		Yes

### SECTION IX - SPECIAL PRECAUTIONS

Precautions to be taken in handling and storing: Material will degrade when stored under heat above 90° and below 32° F.

Other Precautions: NOTE. Authorized by USDA Category A - general cleaning agent for use on all surfaces or for use with steam or mechanical cleaning devices in all departments in federally inspected meat and poultry plants.



WINDY DAY SOLVENT

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# HAZARD SAFETY DATA SHEET

**LAD CHEMICALS**  
 Only the Finest Chemicals Made  
 500 Industrial Ave.  
 Pleasant Hill, CA 94523  
 (916) 685-6101

Automotive Applications

SECTION I

EMERGENCY TELEPHONE NO.

616-685-6101

CHEMICAL NAME	ALIPHATIC SOLVENTS	WINDY DAY SOLVENT
CHEMICAL FAMILY	PETRO DERIVATIVE	

## SECTION II - HAZARDOUS INGREDIENTS

PAINTS, PRESERVATIVES, & SOLVENTS	%	TLV (Units)	ALLOYS AND METALLIC COATINGS	%	TLV (Units)
PIGMENTS			BASE METAL		
CATALYST			ALLOYS		
VEHICLE			METALLIC COATINGS		
SOLVENTS ALIPHATIC SOLVENTS 96.500			FILLER METAL PLUS COATINGS OR CORE FLUX		
ADDITIVES			OTHER		
OTHERS					
HAZARDOUS MIXTURES OF OTHER LIQUIDS, SOLIDS, OR GASES				%	TLV (Units)
INHIBITORS				2	—
SURFACTANTS				2	—

## SECTION III - PHYSICAL DATA

BOILING POINT (°F.)	208	SPECIFIC GRAVITY (H <sub>2</sub> O=1)	0.785
VAPOR PRESSURE (mm Hg.)	.5	PERCENT VOLATILE BY VOLUME (%)	96
VAPOR DENSITY (AIR=1)	1.1	EVAPORATION RATE (TOLUENE=1)	.02
SOLUBILITY IN WATER	2.0%		
APPEARANCE AND ODOR	CLEAR - MILDLY CHLORINATED		

## SECTION IV - FIRE AND EXPLOSION HAZARD DATA

FLASH POINT (Method used)	146°C OC	FLAMMABLE LIMITS	1.1	9.2
EXTINGUISHING MEDIA	FOAM OR DRY CHEMICALS			
SPECIAL FIRE FIGHTING PROCEDURES	IF SPILLAGE OCCURS, CONTAIN SPILL			
UNUSUAL FIRE AND EXPLOSION HAZARDS	SPRAY WITH AN EMULSION "FLUSH-A-WAY" AGITATE THEN FLUSH INTO SEWER WITH WATER.			
	DO NOT STORE NEAR OPEN FLAME OR HIGH HEAT			

SECTION V - HEALTH HAZARD DATA	
THRESHOLD LIMIT VALUE	500 PPM
EFFECTS OF OVER EXPOSURE	INHALATION - MOVE TO OPEN AREA INGESTION - DO NOT INDUCE VOMITING - CALL PHYSICIAN EYES - FLUSH WITH WATER - CALL PHYSICIAN
EMERGENCY AND FIRST AID	SKIN - WASH WITH SOAP + WATER - APPLY HAND LOTION.

SECTION VI - REACTIVITY DATA			
STABILITY	UNSTABLE		CONDITIONS TO AVOID
	STABLE	X	
INCOMPATIBILITY (WATER REQUIRED)	WATER		
HAZARDOUS DECOMPOSITION PRODUCTS			
HAZARDOUS POLYMERIZATION	MAY OCCUR		CONDITIONS TO AVOID
	DO NOT OCCUR	X	

SECTION VII - SPILL OR LEAK PROCEDURES	
STEPS TO BE TAKEN	STOP SPILLAGE - THEN CONTAIN SPILL - APPLY AND EMULSION "FLUSH-A-WAY" AGITATE THEN FLUSH DOWN SEWER.
WASTE DISPOSAL METHOD	THE ABOVE METHOD OR THERMAL INCINERATION

SECTION VIII - SPECIAL PROTECTION INFORMATION		
RESPIRATORY PROTECTION (Quantity Used)	NO	
VENTILATION	LOCAL EXHAUST	SPECIAL
	MECHANICAL (General)	OTHER
PROTECTIVE GLOVES	RECOMMENDED	EYE PROTECTION RECOMMENDED
OTHER PROTECTIVE EQUIPMENT	APRON - RUBBER - TO PROTECT CLOTHING FROM SPILLAGE.	

SECTION IX - SPECIAL PRECAUTIONS	
PRECAUTIONS TO BE TAKEN IN HANDLING AND STORAGE	DO NOT STORE NEAR HIGH HEAT OR OPEN FLAME. DO NOT STORE IN DIRECT SUNLIGHT
OTHER PRECAUTIONS	NOT EFFECTED BY FREEZING.

# MATERIAL SAFETY DATA SHEET

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Required under USDL Safety and Health Regulations for Ship Repairing,  
Shipbuilding, and Shipbreaking (29 CFR 1915, 1916, 1917)

## SECTION I

MANUFACTURER'S NAME Mobil Oil Corporation		EMERGENCY TELEPHONE NO. 212-883-4242
ADDRESS (Number, Street, City, State, and ZIP Code) 150 E. 42nd street, New York, New York 10017		
CHEMICAL NAME AND SYNONYMS		TRADE NAME AND SYNONYMS Mobil 600 W Cylinder Oil
CHEMICAL FAMILY	FORMULA	

## SECTION II - HAZARDOUS INGREDIENTS

PAINTS, PRESERVATIVES, & SOLVENTS	%	TLV (Unit)	ALLOYS AND METALLIC COATINGS	%	TLV (Unit)
PIGMENTS			BASE METAL		
CATALYST			ALLOYS		
VEHICLE			METALLIC COATINGS		
SOLVENTS			FILLER METAL PLUS COATING OR CORE FLUX		
ADDITIVES Tallow Oil.	5		OTHERS		
OTHERS Refined mineral oil	>95				
HAZARDOUS MIXTURES OF OTHER LIQUIDS, SOLIDS, OR GASES				%	TLV (Unit)
Product NOT considered hazardous by OSHA guidelines.					

## SECTION III - PHYSICAL DATA

BOILING POINT (°F.)	>600	SPECIFIC GRAVITY (H <sub>2</sub> O=1) 60/60°F	.9001
VAPOR PRESSURE (mm Hg.)	<0.005	PERCENT VOLATILE BY VOLUME (%)	
VAPOR DENSITY (AIR=1)	>1.0	EVAPORATION RATE (_____ =1)	
SOLUBILITY IN WATER	insol.	Auto ignition temperature	>700°F
APPEARANCE AND ODOR			

## SECTION IV - FIRE AND EXPLOSION HAZARD DATA

FLASH POINT (Method used)	540°F COC	FLAMMABLE LIMITS	L <sub>1</sub>	U <sub>1</sub>
EXTINGUISHING MEDIA	dry chemical, foam or CO <sub>2</sub>			
SPECIAL FIRE FIGHTING PROCEDURES	self-contained breathing apparatus			
UNUSUAL FIRE AND EXPLOSION HAZARDS	Avoid direct use of water stream.			

### SECTION V - HEALTH HAZARD DATA

**THRESHOLD LIMIT VALUE** None established; suggest 5 mg/M<sup>3</sup> (mineral oil mists)

**EFFECTS OF OVEREXPOSURE**  
Non-irritating to eyes or skin under acute exposures; Acute inhalation hazards not expected due to low volatility; low order acute oral toxicity.

**EMERGENCY AND FIRST AID PROCEDURES**  
Flush contacted eyes with large quantities of water; ingestion of large quantities induce vomiting by giving 2 glasses of water and sticking fingers down throat; ventilate area if misting occurs.

### SECTION VI - REACTIVITY DATA

<b>STABILITY</b>	UNSTABLE		<b>CONDITIONS TO AVOID</b> Strong Oxidation
	Stable	STABLE	X
<b>INCOMPATIBILITY</b> (Materials to avoid) Strong oxidizer			
<b>HAZARDOUS DECOMPOSITION PRODUCTS</b> primarily oxides of carbon (CO, CO <sub>2</sub> ) and nitrogen, carbon, H <sub>2</sub> O			
<b>HAZARDOUS POLYMERIZATION</b>	MAY OCCUR		<b>CONDITIONS TO AVOID</b>
	WILL NOT OCCUR	X	

### SECTION VII - SPILL OR LEAK PROCEDURES

**STEPS TO BE TAKEN IN CASE MATERIAL IS RELEASED OR SPILLED** Absorb on dry sand, vermiculite diatomaceous earth; sweep or scrape up and take to chemical disposal area.

**WASTE DISPOSAL METHOD** Dissolve or mix with suitable combustible solvent and incinerate according to local regulations.

### SECTION VIII - SPECIAL PROTECTION INFORMATION

<b>RESPIRATORY PROTECTION</b> (Specify type) None		
<b>VENTILATION</b>	LOCAL EXHAUST None	SPECIAL
	MECHANICAL (General) None	OTHER
<b>PROTECTIVE GLOVES</b> None		<b>EYE PROTECTION</b> Splash-proof safety goggles optional
<b>OTHER PROTECTIVE EQUIPMENT</b>		

### SECTION IX - SPECIAL PRECAUTIONS

**PRECAUTIONS TO BE TAKEN IN HANDLING AND STORING** No special requirements.

**OTHER PRECAUTIONS** Use good personal hygiene.

# MATERIAL SAFETY DATA SHEET

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Required under USDL Safety and Health Regulations for Ship Repairing,  
Shipbuilding, and Shipbreaking (29 CFR 1915, 1916, 1917)

## SECTION I

MANUFACTURER'S NAME Mobil Oil Corporation		EMERGENCY TELEPHONE NO. 212-883-4242
ADDRESS (Number, Street, City, State, and ZIP Code) 150 E. 42nd Street, New York, New York 10017		
CHEMICAL NAME AND SYNONYMS		TRADE NAME AND SYNONYMS Mobil Velocite No. 6
CHEMICAL FAMILY Refined Paraffinic oil	FORMULA Mixture	

## SECTION II - HAZARDOUS INGREDIENTS

PAINTS, PRESERVATIVES, & SOLVENTS	%	TLV (Unit)	ALLOYS AND METALLIC COATINGS	%	TLV (Unit)
PIGMENTS			BASE METAL		
CATALYST			ALLOYS		
VEHICLE			METALLIC COATINGS		
SOLVENTS			FILLER METAL PLUS COATING OR CORE FLUX		
ADDITIVES Additive package	<	1	OTHERS		
OTHERS Refined mineral oil	>	99			
HAZARDOUS MIXTURES OF OTHER LIQUIDS, SOLIDS, OR GASES				%	TLV (Units)
Product not considered hazardous by OSHA guidelines.					

## SECTION III - PHYSICAL DATA

BOILING POINT (°F.)		SPECIFIC GRAVITY (H <sub>2</sub> O=1)	60/60°F	0.845
VAPOR PRESSURE (mm Hg.)	low	PERCENT. VOLATILE BY VOLUME (%)		
VAPOR DENSITY (AIR=1)	>1.0	EVAPORATION RATE (_____ =1)		
SOLUBILITY IN WATER	insol.			
APPEARANCE AND ODOR				

## SECTION IV - FIRE AND EXPLOSION HAZARD DATA

FLASH POINT (Method used)	310°F	FLAMMABLE LIMITS	Low	High
EXTINGUISHING MEDIA	dry chemical, foam, CO <sub>2</sub>			
SPECIAL FIRE FIGHTING PROCEDURES	self-contained breathing apparatus			
UNUSUAL FIRE AND EXPLOSION HAZARDS	Avoid using direct water stream.			

SECTION V - HEALTH HAZARD DATA	
THRESHOLD LIMIT VALUE	Not established; suggest 5 mg/M <sup>3</sup> (mineral oil mist)
EFFECTS OF OVEREXPOSURE	Not irritating to eyes or skin under acute exposure conditions; low order of acute oral toxicity. Inhalation hazard nil due to low volatility.
EMERGENCY AND FIRST AID PROCEDURES	Flush eyes with large volumes of water. Wash contacted skin with soap or mild detergent. Induce vomiting by giving 2 glasses of water and sticking fingers down throat if large quantities are ingested. Ventilate area if excessive misting occurs.

SECTION VI - REACTIVITY DATA			
STABILITY Stable	UNSTABLE		CONDITIONS TO AVOID Strong oxidation
	STABLE	X	
INCOMPATIBILITY (Materials to avoid) Strong oxidizer			
HAZARDOUS DECOMPOSITION PRODUCTS oxides of carbon (CO, CO <sub>2</sub> ), carbon and water			
HAZARDOUS POLYMERIZATION	MAY OCCUR		CONDITIONS TO AVOID
	WILL NOT OCCUR	X	

SECTION VII - SPILL OR LEAK PROCEDURES	
STEPS TO BE TAKEN IN CASE MATERIAL IS RELEASED OR SPILLED	Absorb on dry sand, diatomaceous earth, vermiculite; sweep or scrape up and take to chemical disposal area.
WASTE DISPOSAL METHOD	Mix or dissolve in suitable combustible solvent and incinerate according to local regulations.

SECTION VIII - SPECIAL PROTECTION INFORMATION			
RESPIRATORY PROTECTION (Specify type) None			
VENTILATION	LOCAL EXHAUST	SPECIAL	
	MECHANICAL (General)	OTHER	
PROTECTIVE GLOVES None		EYE PROTECTION Splash-proof safety goggles	
OTHER PROTECTIVE EQUIPMENT			

SECTION IX - SPECIAL PRECAUTIONS	
PRECAUTIONS TO BE TAKEN IN HANDLING AND STORING	No special requirements.
OTHER PRECAUTIONS	Use good personal hygiene.

# MATERIAL SAFETY DATA SHEET

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Required under USOL Safety and Health Regulations for Ship Repairing,  
Shipbuilding, and Shipbreaking (29 CFR 1915, 1916, 1917)

<b>SECTION I</b>		60015
MANUFACTURER'S NAME Mobil Oil Corporation		EMERGENCY TELEPHONE NO. 212-883-4242
ADDRESS (Number, Street, City, State, and ZIP Code) 150 East 42nd St., New York, N. Y. 10017		
CHEMICAL NAME AND SYNONYMS		TRADE NAME AND SYNONYMS Mobil OTE Oil Medium
CHEMICAL FAMILY Refined Mineral Oil	FORMULA	

SECTION II - HAZARDOUS INGREDIENTS					
PAINTS, PRESERVATIVES, & SOLVENTS	%	TLV (Units)	ALLOYS AND METALLIC COATINGS	%	TLV (Units)
PIGMENTS			BASE METAL		
CATALYST			ALLOYS		
VEHICLE			METALLIC COATINGS		
SOLVENTS			FILLER METAL PLUS COATING OR CORE FLUX		
ADDITIVES			OTHERS		
OTHERS					
HAZARDOUS MIXTURES OF OTHER LIQUIDS, SOLIDS, OR GASES				%	TLV (Units)
This product contains more than 99% refined mineral oils and is not considered to be hazardous.					

SECTION III - PHYSICAL DATA			
BOILING POINT (°F.)	> 600	SPECIFIC GRAVITY (H <sub>2</sub> O=1)	0.873
VAPOR PRESSURE (mm Hg.)	< 0.005	PERCENT VOLATILE BY VOLUME (%)	--
VAPOR DENSITY (AIR=1)	> 1.0	EVAPORATION RATE (_____ = 1)	--
SOLUBILITY IN WATER	Insoluble	Viscosity @ 100°F. SUS	215/235
APPEARANCE AND ODOR	Mineral oil	Viscosity @ 210°F. SUS	44.0

SECTION IV - FIRE AND EXPLOSION HAZARD DATA			
FLASH POINT (Method used)	400°F (coc)	FLAMMABLE LIMITS	Lel Uel
EXTINGUISHING MEDIA	Extinguish with foam, CO <sub>2</sub> , or dry chemical.		
SPECIAL FIRE FIGHTING PROCEDURES	Firefighters must use self-contained breathing apparatus.		
UNUSUAL FIRE AND EXPLOSION HAZARDS	None		

**SECTION V - HEALTH HAZARD DATA**

<b>THRESHOLD LIMIT VALUE</b>	Not established. Suggest 5 mg/m <sup>3</sup> .
<b>EFFECTS OF OVEREXPOSURE</b>	Not expected to be a hazard.
<b>EMERGENCY AND FIRST AID PROCEDURES</b>	
Eyes: Flush with water. Skin: Wash exposed areas with soap and water. Ingestion: If large quantities are ingested, induce vomiting by giving two glasses of water and sticking finger down throat. Call a physician. Inhalation: Not expected to be a problem.	

**SECTION VI - REACTIVITY DATA**

<b>STABILITY</b>	<b>UNSTABLE</b>		<b>CONDITIONS TO AVOID</b>
	<b>STABLE</b>	X	Strong oxidation
<b>INCOMPATIBILITY (Materials to avoid)</b>		Strong oxidizers	
<b>HAZARDOUS DECOMPOSITION PRODUCTS</b>		CO, CO <sub>2</sub>	
<b>HAZARDOUS POLYMERIZATION</b>	<b>MAY OCCUR</b>		<b>CONDITIONS TO AVOID</b>
	<b>WILL NOT OCCUR</b>	X	

**SECTION VII - SPILL OR LEAK PROCEDURES**

<b>STEPS TO BE TAKEN IN CASE MATERIAL IS RELEASED OR SPILLED</b>	
Adsorb on sawdust, diatomaceous earth or other adsorbent. Shovel up and remove to chemical disposal area.	
<b>WASTE DISPOSAL METHOD</b>	
Dissolve waste in a flammable solvent and dispose by supervised incineration in compliance with local regulations. Alternately, dispose of waste in a chemical disposal area.	


**SECTION VIII - SPECIAL PROTECTION INFORMATION**

<b>RESPIRATORY PROTECTION (Specify type)</b>			
No special equipment required.			
<b>VENTILATION</b>	<b>LOCAL EXHAUST</b>	--	<b>SPECIAL</b>
	<b>MECHANICAL (General)</b>	--	<b>OTHER</b>
<b>PROTECTIVE GLOVES</b>		<b>EYE PROTECTION</b>	
No special equipment required.		No special equipment required.	
<b>OTHER PROTECTIVE EQUIPMENT</b>			

**SECTION IX - SPECIAL PRECAUTIONS**

<b>PRECAUTIONS TO BE TAKEN IN HANDLING AND STORING</b>	
Good personal hygiene is adequate.	
<b>OTHER PRECAUTIONS</b>	

A. E. Bertone  
Assistant Toxicologist  
Mobil Oil Corp.  
November 3, 1977





CHEMICAL AND PHYSIOLOGICAL DATA

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1. Product Name: VACUOLINE 1409

2. Manufacturer's Name and Address: Mobil Oil Corporation  
150 E. 42nd Street, New York, New York 10017

3. Chemical and Physical Properties:

- a. Specific gravity @ 60/60 F: 0.900
- b. Flash Point °F: 390
- c. Vapor pressure (mm Hg @ 25°C): < 0.005
- d. Fire Point °F: 450
- e. Vapor density (air = 1): --
- f. pH: N/A
- g. Auto ignition temperature °F: --
- h. Boiling point °F: Greater than 600
- i. Melting point °F: N/A
- j. Explosive limits (% vol. air): --
- k. Odor: Mineral oil
- l. Susceptibility to spontaneous heating: No
- m. Corrosiveness: Non-corrosive
- n. Stability: Stable
- o. Reactivity: Non-reactive
- p. Composition:

COMPOUND	PERCENT	COMPOUND	PERCENT
Blend of mineral oil	95.0		
Lard oil	5.0		
Anti-oxidant & anti-wear agent	< 0.2		

- q. Does the material decompose when exposed to: Air? No Water? No Heat? No  
 Strong Oxidizer? Yes
- r. Products formed from decomposition or fire: CO, CO<sub>2</sub>

4. Physiological Properties:

a. Acute oral toxicity (LD<sub>50</sub>): Estimated to be greater than 64 g/kg.

b. Local effects upon eyes: Not an eye irritant.

c. Local effects upon skin: Not a primary skin irritant.

d. Estimate of acute hazard by inhalation: Unlikely due to very low vapor pressure.

e. Estimated threshold limit: None established.

5. First Aid Treatment:

a. Skin contact: Wash with soap and water.

b. Eye contact: Flush with plenty of water.

c. Inhalation: Unlikely due to low vapor pressure.

d. Ingestion: No problem, low order of toxicity.

6. Precautions for Normal Use: No special precautions

7. Recommended Protective Equipment: None

8. Procedure in Case of Breakage or Leakage: Absorb on sand, sweep up.

9. Transportation and Storage Requirements: No special requirements

10. Prepared By:

*Lester Levin*

Title: **Chief Industrial Hygienist**

Company: **Mobil Oil Corporation**

Address: **150 E. 42nd Street, N.Y., N.Y. 10017**

Date:

U.S. DEPARTMENT OF LABOR  
Occupational Safety and Health Administration

Form Approved  
OMB No. 44-R1387

# MATERIAL SAFETY DATA SHEET

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Required under USDL Safety and Health Regulations for Ship Repairing,  
Shipbuilding, and Shipbreaking (29 CFR 1915, 1916, 1917)

### SECTION I

MANUFACTURER'S NAME Mobil Oil Corporation		EMERGENCY TELEPHONE NO. 212-883-4242
ADDRESS (Number, Street, City, State, and ZIP Code) 150 E. 42nd Street, New York, New York 10017		
CHEMICAL NAME AND SYNONYMS		TRADE NAME AND SYNONYMS Mobil Velocite No. 10
CHEMICAL FAMILY Refined Paraffinic Oil	FORMULA Mixture	

### SECTION II - HAZARDOUS INGREDIENTS

PAINTS, PRESERVATIVES, & SOLVENTS	%	TLV (Units)	ALLOYS AND METALLIC COATINGS	%	TLV (Units)
PIGMENTS			BASE METAL		
CATALYST			ALLOYS		
VEHICLE			METALLIC COATINGS		
SOLVENTS			FILLER METAL PLUS COATING OR CORE FLUX		
ADDITIVES Additive package	<	1	OTHERS		
OTHERS Refined Mineral Oil	>	99			
HAZARDOUS MIXTURES OF OTHER LIQUIDS, SOLIDS, OR GASES				%	TLV (Units)
Product not considered hazardous by OSHA guidelines.					

### SECTION III - PHYSICAL DATA

BOILING POINT (°F.)	-	SPECIFIC GRAVITY (H <sub>2</sub> O=1)	60/60°F	.868
VAPOR PRESSURE (mm Hg.)	low	PERCENT, VOLATILE BY VOLUME (%)		
VAPOR DENSITY (AIR=1)	-	EVAPORATION RATE (_____ #1)		
SOLUBILITY IN WATER	insol.			
APPEARANCE AND ODOR Typical oil odor.				

### SECTION IV - FIRE AND EXPLOSION HAZARD DATA

FLASH POINT (Method used)	360°F (COC)	FLAMMABLE LIMITS	Lel	Uel
EXTINGUISHING MEDIA	dry chemical, foam or CO <sub>2</sub>			
SPECIAL FIRE FIGHTING PROCEDURES	self-contained breathing apparatus			
UNUSUAL FIRE AND EXPLOSION HAZARDS	Avoid use of direct water stream.			

## SECTION V - HEALTH HAZARD DATA

THRESHOLD LIMIT VALUE None established; suggest  $5 \text{ mg/M}^3$  (mineral oil mist)EFFECTS OF OVEREXPOSURE  
Not irritating to eyes and skin under acute exposure contacts; inhalation not expected to be problem under normal temperatures; low order acute oral toxicity.EMERGENCY AND FIRST AID PROCEDURES  
Flush eyes with large volumes of water. Wash contacted skin with soap or mild detergent. Induce vomiting by giving 2 glasses of water and sticking fingers down throat if large amount is ingested.

## SECTION VI - REACTIVITY DATA

STABILITY	UNSTABLE		CONDITIONS TO AVOID
	Stable	X	Strong oxidation
INCOMPATIBILITY (Materials to avoid) Strong oxidizer			
HAZARDOUS DECOMPOSITION PRODUCTS oxides of carbon ( $\text{CO}$ , $\text{CO}_2$ ), carbon, water			
HAZARDOUS POLYMERIZATION	MAY OCCUR		CONDITIONS TO AVOID
	WILL NOT OCCUR	X	

## SECTION VII - SPILL OR LEAK PROCEDURES

STEPS TO BE TAKEN IN CASE MATERIAL IS RELEASED OR SPILLED  
Absorb on dry sand, diatomaceous earth, vermiculite; sweep or scrape up, take to chemical disposal area.WASTE DISPOSAL METHOD  
Mix or dissolve in suitable combustible solvent and incinerate according to local regulations.

## SECTION VIII - SPECIAL PROTECTION INFORMATION

RESPIRATORY PROTECTION (Specify type) None		
VENTILATION	LOCAL EXHAUST	SPECIAL
	MECHANICAL (General)	OTHER
PROTECTIVE GLOVES	None	EYE PROTECTION
OTHER PROTECTIVE EQUIPMENT		Splash-proof safety goggles

## SECTION IX - SPECIAL PRECAUTIONS

PRECAUTIONS TO BE TAKEN IN HANDLING AND STORING  
No special requirement.OTHER PRECAUTIONS  
Use good personal hygiene.

# MATERIAL SAFETY DATA SHEET

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Required under USDL Safety and Health Regulations for Ship Repairing,  
Shipbuilding, and Shipbreaking (29 CFR 1915, 1916, 1917)

## SECTION I

MANUFACTURER'S NAME <b>Mobil Oil Corporation</b>		EMERGENCY TELEPHONE NO. <b>212-883-4242</b>
ADDRESS (Number, Street, City, State, and ZIP Code) <b>150 E. 42nd Street, New York, N. Y. 10017</b>		
CHEMICAL NAME AND SYNONYMS --	TRADE NAME AND SYNONYMS <b>Mobil Kerosine</b>	
CHEMICAL FAMILY --	FORMULA <b>Mixture of Hydrocarbons</b>	

## SECTION II - HAZARDOUS INGREDIENTS

PAINTS, PRESERVATIVES, & SOLVENTS	%	TLV (Units)	ALLOYS AND METALLIC COATINGS	%	TLV (Units)
PIGMENTS			BASE METAL		
CATALYST			ALLOYS		
VEHICLE			METALLIC COATINGS		
SOLVENTS			FILLER METAL PLUS COATING OR CORE FLUX		
ADDITIVES			OTHERS		
OTHERS					
HAZARDOUS MIXTURES OF OTHER LIQUIDS, SOLIDS, OR GASES				%	TLV (Units)
Mixture of hydrocarbons, mostly saturated paraffinic and naphthenic hydrocarbons. There is no TLV established for kerosine. Suggest a TLV of 200 ppm.					

## SECTION III - PHYSICAL DATA

BOILING POINT (°F.)	350-565	SPECIFIC GRAVITY (H <sub>2</sub> O=1)	60/60°F	0.82
VAPOR PRESSURE (mm Hg.) @ 60°F	1.0	PERCENT VOLATILE BY VOLUME (%)		100
VAPOR DENSITY (AIR=1)	> 1.0	EVAPORATION RATE (_____=1)	slow	
SOLUBILITY IN WATER	Insoluble			
APPEARANCE AND ODOR	Clear, odorless liquid			

## SECTION IV - FIRE AND EXPLOSION HAZARD DATA

FLASH POINT (Method used)	CC 120°F	FLAMMABLE LIMITS	Let	Uet
			1.0	6.0
EXTINGUISHING MEDIA	CO <sub>2</sub> , foam or dry chemicals			
SPECIAL FIRE FIGHTING PROCEDURES	Same as any other combustible liquid. Follow procedures outlined in NFPA Code 49.			
UNUSUAL FIRE AND EXPLOSION HAZARDS	Keep container exposed to fire cool with water.			

SECTION V - HEALTH HAZARD DATA	
THRESHOLD LIMIT VALUE	None established. Suggest 200 ppm.
EFFECTS OF OVEREXPOSURE	At high concentrations in work air, it may produce narcosis. Acute Oral LD <sub>50</sub> 21.0 g/kg (rabbit). Acute Dermal LD <sub>50</sub> > 8.0 g/kg (rabbits). Mild eye irritant (rabbits).
EMERGENCY AND FIRST AID PROCEDURES	Not primary irritant to skin (rabbits).
Inhalation - Unlikely, remove from exposure. Eyes - flush with plenty of water. Skin - wash with soap and water.	

SECTION VI - REACTIVITY DATA			
STABILITY	UNSTABLE		CONDITIONS TO AVOID
	STABLE	X	
INCOMPATIBILITY (Materials to avoid)		Oxidizing agents	
HAZARDOUS DECOMPOSITION PRODUCTS		CO and CO <sub>2</sub>	
HAZARDOUS POLYMERIZATION	MAY OCCUR		CONDITIONS TO AVOID
	WILL NOT OCCUR	X	

SECTION VII - SPILL OR LEAK PROCEDURES	
STEPS TO BE TAKEN IN CASE MATERIAL IS RELEASED OR SPILLED	
Small amount may be absorbed on sand, then cleaned up. Larger spills should be diked, then liquid recovered.	
WASTE DISPOSAL METHOD	May be incinerated.

SECTION VIII - SPECIAL PROTECTION INFORMATION			
RESPIRATORY PROTECTION (Specify type) Usually not needed.			
VENTILATION	LOCAL EXHAUST	--	SPECIAL
	MECHANICAL (General)	(general ventilation)	--
PROTECTIVE GLOVES		No	EYE PROTECTION
OTHER PROTECTIVE EQUIPMENT		No	

SECTION IX - SPECIAL PRECAUTIONS	
PRECAUTIONS TO BE TAKEN IN HANDLING AND STORING	
Same as any other combustible liquid. Keep away from heat and open flame. Avoid prolonged breathing of mist or vapor. Avoid prolonged or repeated contact with skin.	
OTHER PRECAUTIONS	
Harmful or fatal if swallowed. If swallowed, do not induce vomiting. Call a physician immediately. Keep out of reach of children.	

**Mobil****Environmental Health  
and Toxicology**

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material safety  
data bulletinISSUED BY  
MOBIL OIL CORPORATION  
150 EAST 42ND STREET  
NEW YORK, NEW YORK 10017

<b>Product Identification</b>		PN 64029
MANUFACTURER Mobil Oil Corporation		EMERGENCY TELEPHONE NUMBER 212-883-4242
ADDRESS (NUMBER AND STREET) 150 East 42nd Street		
(CITY, STATE AND ZIP CODE) New York, N.Y. 10017		
CHEMICAL NAMES AND SYNONYMS Industrial Grease		OTHER TRADE NAMES (AND SYNGNYMS) Mobilgrease BRB Lifetime
CHEMICAL FAMILY Hydrocarbon		DESCRIPTIVE FORMULA Proprietary

**Chemical and Physical Properties**

APPEARANCE Amber-Smooth	VISCOSITY @ 100° F, SUS 150
SPECIFIC GRAVITY	VISCOSITY @ 210° F, SUS
BOILING POINT, °F	SOLUBILITY PH
VAPOR PRESSURE, MM Hg.	Drop Point ASTM °F.: 300

**Hazardous Ingredients**

NAME	% BY WT.	THRESHOLD LIMIT VALUE (TLV)	
		PPM	MG/M <sup>3</sup>
Contains more than 85% refined mineral oils and 14% fatty acids which are not considered to be hazardous.			

We believe all information given in this form is accurate and is offered in good faith, but without guarantee. Since conditions of use and suitability of the product covered herein for particular uses are beyond our control, all risks of use of the product covered herein are assumed by the user and we EXPRESSLY DISCLAIM ALL WARRANTIES OF EVERY KIND AND NATURE, INCLUDING THE WARRANTIES OF MERCHANTABILITY AND FITNESS FOR A PARTICULAR PURPOSE IN RESPECT TO THE USE OR SUITABILITY OF THE PRODUCT COVERED IN THIS FORM. Nothing herein shall be construed as a recommendation for uses which infringe valid patents or as extending license under valid patents.

Approved by U.S. Department of Labor "Essentially Similar" to Form OSHA 20.

CG-4557 (6-77)

**Fire and Explosion Hazard Data**

FLASH POINT (METHOD USED) --	FLAMMABLE LIMITS ▶	LEL --	VEL --
EXTINGUISHING MEDIA Extinguish with foam, CO <sub>2</sub> , dry chemical.			
SPECIAL FIRE FIGHTING PROCEDURE Firefighters must use self-contained breathing apparatus.			
UNUSUAL FIRE AND EXPLOSION HAZARDS None.			

**Health Hazard Data**

THRESHOLD LIMIT VALUE (NOT REQUIRED FOR MIXTURES) Not established. Suggest 5 mg/m <sup>3</sup> for mineral oil particulates.
EFFECTS OF OVER EXPOSURE  Not expected to be a problem.

**Emergency and First Aid Procedures**

EYE CONTACT Flush with water.
SKIN CONTACT Wash exposed areas with soap and water.
INHALATION Not expected to be a problem.
INGESTION If large quantities are ingested, induce vomiting by giving two glasses of water and sticking finger down throat. Get medical assistance and call a physician. Never give anything by mouth to an unconscious person.

**Reactivity Data**

STABILITY (THERMAL, LIGHT, ETC.)	
<input checked="" type="checkbox"/> STABLE <input type="checkbox"/> UNSTABLE	CONDITIONS TO AVOID Strong oxidation.
INCOMPATIBILITY (MATERIALS TO AVOID) Strong oxidizers.	
HAZARDOUS DECOMPOSITION PRODUCTS Oxides and carbonates of sodium, and calcium, oxides of nitrogen, CO, CO <sub>2</sub> , C.	
HAZARDOUS POLYMERIZATION	
<input type="checkbox"/> MAY OCCUR <input checked="" type="checkbox"/> WILL NOT OCCUR	CONDITIONS TO AVOID --



# MATERIAL SAFETY DATA SHEET

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Required under USDL Safety and Health Regulations for Ship Repairing,  
Shipbuilding, and Shipbreaking (29 CFR 1915, 1916, 1917)

## SECTION I

MANUFACTURER'S NAME <b>REILLY-WHITEMAN, INC.</b>		EMERGENCY TELEPHONE NO. <b>215-828-3800</b>
ADDRESS (Number, Street, City, State, and ZIP Code) <b>Washington &amp; Righter Sts., Conshohocken, PA 19428</b>		
CHEMICAL NAME AND SYNONYMS <b>Mixture</b>	TRADE NAME AND SYNONYMS <b>Rycosol 69</b>	
CHEMICAL FAMILY <b>Mixture</b>	FORMULA <b>Mixture</b>	

## SECTION II - HAZARDOUS INGREDIENTS

PAINTS, PRESERVATIVES, & SOLVENTS	%	TLV (Units)	ALLOYS AND METALLIC COATINGS	%	TLV (Units)
PIGMENTS			BASE METAL		
CATALYST			ALLOYS		
VEHICLE			METALLIC COATINGS		
SOLVENTS			FILLER METAL PLUS COATING OR CORE FLUX		
AUDITIVES			OTHERS		
OTHERS					
HAZARDOUS MIXTURES OF OTHER LIQUIDS, SOLIDS, OR GASES				%	TLV (Units)

## SECTION III - PHYSICAL DATA

BOILING POINT (°F.)	<b>475</b>	SPECIFIC GRAVITY (H <sub>2</sub> O=1)	<b>0.972</b>
VAPOR PRESSURE (mm Hg.)	<b>Below 0.1</b>	PERCENT VOLATILE BY VOLUME (%)	<b>less than 1%</b>
VAPOR DENSITY (AIR=1)	<b>(non-volatile)</b>	EVAPORATION RATE (_____/hr)	<b>(non-volatile)</b>
SOLUBILITY IN WATER	<b>Completely (dispensable)</b>		
APPEARANCE AND ODOR	<b>Brown colored liquid, pleasant odor.</b>		

## SECTION IV - FIRE AND EXPLOSION HAZARD DATA

FLASH POINT (Method used) (ASTM D-92)	<b>300°F.</b>	FLAMMABLE LIMITS	LeL	UeL
EXTINGUISHING MEDIA	<b>CO<sub>2</sub>, foam, dry chemical.</b>			
SPECIAL FIRE FIGHTING PROCEDURES				
UNUSUAL FIRE AND EXPLOSION HAZARDS				

**SECTION V - HEALTH HAZARD DATA**

<b>THRESHOLD LIMIT VALUE</b>
<b>EFFECTS OF OVEREXPOSURE</b>
<b>EMERGENCY AND FIRST AID PROCEDURES</b> Eyes, flush with water--consult physician. Ingestion, treat as for mineral oil (do not induce vomiting). Consult physician.

**SECTION VI - REACTIVITY DATA**

<b>STABILITY</b>	UNSTABLE		<b>CONDITIONS TO AVOID</b>
	STABLE	X	
<b>INCOMPATIBILITY (Materials to avoid)</b> Thermal decomposition may result in formation of carbon monoxide, hydrochloric acid and gaseous sulfur compounds.			
<b>HAZARDOUS DECOMPOSITION PRODUCTS</b>			
<b>HAZARDOUS POLYMERIZATION</b>	MAY OCCUR		<b>CONDITIONS TO AVOID</b>
	WILL NOT OCCUR	X	

**SECTION VII - SPILL OR LEAK PROCEDURES**

<b>STEPS TO BE TAKEN IN CASE MATERIAL IS RELEASED OR SPILLED</b>	Recover, flush with water.
<b>WASTE DISPOSAL METHOD</b> Treat with acid to separate oily from aqueous portion, followed by standard treatment.	

**SECTION VIII - SPECIAL PROTECTION INFORMATION**

<b>RESPIRATORY PROTECTION (Specify type)</b> Unnecessary		
<b>VENTILATION</b>	LOCAL EXHAUST	SPECIAL
	MECHANICAL (General)	OTHER
<b>PROTECTIVE GLOVES</b>	<b>EYE PROTECTION</b> Keep concentrate out of eyes.	
<b>OTHER PROTECTIVE EQUIPMENT</b>		

**SECTION IX - SPECIAL PRECAUTIONS**

<b>PRECAUTIONS TO BE TAKEN IN HANDLING AND STORING</b>	Unnecessary
<b>OTHER PRECAUTIONS</b>	

**Spill or Leak Procedure**

## ENVIRONMENTAL IMPACT

Notify local authorities if product enters water supply.

## PROCEDURES IF MATERIAL IS RELEASED OR SPILLED

Adsorb on sawdust, diatomaceous earth or other adsorbent. Shovel up and remove to chemical disposal area.

## WASTE DISPOSAL METHODS

Dilute waste with a flammable solvent to reduce its viscosity, and dispose by supervised incineration in compliance with local regulations. Alternately, dispose of waste in a chemical disposal area.

**Special Protection Information**

## EYE PROTECTION

No special equipment required.

## SKIN PROTECTION

No special equipment required.

## RESPIRATORY PROTECTION

No special equipment required.

## VENTILATION

No special equipment required.

## OTHER

Good personal hygiene.

**Special Precautions (Precautionary Label Text, If Required)**

## HANDLING AND STORING

No special requirements.

# Toxicological Data

## ACUTE

ORAL TOXICITY  
LD<sub>50</sub> - > 5.0 g/kg (rats). \*

DERMAL TOXICITY  
LD<sub>50</sub> - > 2.0 g/kg (rabbits). \*

INHALATION TOXICITY  
LC<sub>50</sub> - Not expected to be a problem. \*

EYE IRRITATION  
No detectable irritation to eyes expected. \*

SKIN IRRITATION  
May cause slight irritation to skin. Not a primary skin irritant. \*

## SUBACUTE AND MUTAGENICITY (SUMMARY)

\* Based on similar products tested.

## CHRONIC/SPECIALIZED (SUMMARY)

INFORMATION SUPPLIED BY

A. E. Bertone



TITLE

Assistant Toxicologist

DATE

12-21-77

**MATERIAL SAFETY DATA SHEET**

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Required under USDL Safety and Health Regulations for Ship Repairing,  
Shipbuilding, and Shipbreaking (29 CFR 1015, 1016, 1917)**SECTION I**

MANUFACTURER'S NAME <b>REILLY-WHITEMAN, INC.</b>		EMERGENCY TELEPHONE NO. <b>215-828-3800</b>
ADDRESS (Number, Street, City, State, and ZIP Code) <b>Washington &amp; Righter Sts., Conshohocken, PA 19428</b>		
CHEMICAL NAME AND SYNONYMS <b>Mixture</b>		TRADE NAME AND SYNONYMS <b>Rycosol 66</b>
CHEMICAL FAMILY <b>Mixture</b>	FORMULA <b>Mixture--not a single chemical compound.</b>	

**SECTION II - HAZARDOUS INGREDIENTS**

PAINTS, PRESERVATIVES, & SOLVENTS	%	TLV (Units)	ALLOYS AND METALLIC COATINGS	%	TLV (Units)
PIGMENTS			BASE METAL		
CATALYST			ALLOYS		
VEHICLE		None	METALLIC COATINGS		None
SOLVENTS			FILLER METAL PLUS COATING OR CORE FLUX		
ADDITIVES			OTHERS		
OTHERS					
HAZARDOUS MIXTURES OF OTHER LIQUIDS, SOLIDS, OR GASES				%	TLV (Units)
None					

**SECTION III - PHYSICAL DATA**

BOILING POINT (°F.)	Above 212	SPECIFIC GRAVITY (H <sub>2</sub> O=1)	1.052 @ 60/60°F
VAPOR PRESSURE (mm Hg.)	Below 50 @ 100°F.	PERCENT VOLATILE BY VOLUME (%)	59
VAPOR DENSITY (AIR=1)	(liquid)	EVAPORATION RATE (Water = 1)	ca 0.5
SOLUBILITY IN WATER	complete		
APPEARANCE AND ODOR	Thin red liquid with sweet odor.		

**SECTION IV - FIRE AND EXPLOSION HAZARD DATA**

FLASH POINT (Method used)	Above 300°F. (C.O.C.) *	FLAMMABLE LIMITS	Lel	Uel
EXTINGUISHING MEDIA	Water or any other standard method.			
SPECIAL FIRE FIGHTING PROCEDURES	None required.			
UNUSUAL FIRE AND EXPLOSION HAZARDS	None			
*Values above marked with an asterik are on the basis of the water free Rycosol.				

**SECTION V • HEALTH HAZARD DATA**

THRESHOLD LIMIT VALUE

EFFECTS OF OVEREXPOSURE No established hazard.

EMERGENCY AND FIRST AID PROCEDURES Product may be removed from the eye by washing with water. No other injury can occur except by an ingestion of a large quantity. (emetic)

**SECTION VI • REACTIVITY DATA**

STABILITY	UNSTABLE		CONDITIONS TO AVOID
	STABLE	X	

INCOMPATIBILITY (Materials to avoid)

HAZARDOUS DECOMPOSITION PRODUCTS

HAZARDOUS POLYMERIZATION	MAY OCCUR		CONDITIONS TO AVOID
	WILL NOT OCCUR	X	

**SECTION VII • SPILL OR LEAK PROCEDURES**

STEPS TO BE TAKEN IN CASE MATERIAL IS RELEASED OR SPILLED

WASTE DISPOSAL METHOD Active components may be separated as an oily substance by acidification.

**SECTION VIII • SPECIAL PROTECTION INFORMATION**

RESPIRATORY PROTECTION (Specify type) None required

VENTILATION	LOCAL EXHAUST	None required	SPECIAL
	MECHANICAL (General)		OTHER

PROTECTIVE GLOVES None required EYE PROTECTION Goggles recommended if danger of splashing

OTHER PROTECTIVE EQUIPMENT None required

**SECTION IX • SPECIAL PRECAUTIONS**

PRECAUTIONS TO BE TAKEN IN HANDLING AND STORING Steel drums or tanks suitable for storage.

OTHER PRECAUTIONS Product may solidify if stored below about 15° F.

# MATERIAL SAFETY DATA SHEET

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Required under USDL Safety and Health Regulations for Ship Repairing,  
Shipbuilding, and Shipbreaking (29 CFR 1915, 1916, 1917)

## SECTION I

MANUFACTURER'S NAME <b>Cliff Company</b>	EMERGENCY TELEPHONE NO. <b>312-656-5430</b>
ADDRESS (Number, Street, City, State, and ZIP Code) <b>5330 W. Pershing Road, Cicero, Ill. 60650</b>	
CHEMICAL NAME AND SYNONYMS	TRADE NAME AND SYNONYMS <b>#975 Grinding Coolant</b>
CHEMICAL FAMILY	FORMULA <b>Biodegradeable</b>

## SECTION II - HAZARDOUS INGREDIENTS

PAINTS, PRESERVATIVES, & SOLVENTS	%	TLV (Units)	ALLOYS AND METALLIC COATINGS	%	TLV (Units)
PIGMENTS		-	BASE METAL		-
CATALYST		-	ALLOYS		-
VEHICLE		-	METALLIC COATINGS		-
SOLVENTS		-	FILLER METAL PLUS COATING OR CORE FLUX		-
ADDITIVES		-	OTHERS		-
OTHERS		-			
HAZARDOUS MIXTURES OF OTHER LIQUIDS, SOLIDS, OR GASES				%	TLV (Units)
Not Applicable					

## SECTION III - PHYSICAL DATA

BOILING POINT (°F.)	212	SPECIFIC GRAVITY (H <sub>2</sub> O=1)	1.1
VAPOR PRESSURE (mm Hg.)		PERCENT VOLATILE BY VOLUME (%)	66.3
VAPOR DENSITY (AIR=1)		EVAPORATION RATE (_____ =1)	
SOLUBILITY IN WATER	100%		
APPEARANCE AND ODOR	Green Color Pleasant Odor		

## SECTION IV - FIRE AND EXPLOSION HAZARD DATA

FLASH POINT (Method used)	None	FLAMMABLE LIMITS	Let	Uet
		Non-Flammable	None	None
EXTINGUISHING MEDIA	None Needed- Will Not Burn			
SPECIAL FIRE FIGHTING PROCEDURES	None Needed- Will Not Burn			
UNUSUAL FIRE AND EXPLOSION HAZARDS	None			

## SECTION V - HEALTH HAZARD DATA

THRESHOLD LIMIT VALUE None Under Normal Use

EFFECTS OF OVEREXPOSURE None

EMERGENCY AND FIRST AID PROCEDURES

Wash Off Any Effected Area With Soap And Water

## SECTION VI - REACTIVITY DATA

STABILITY	UNSTABLE		CONDITIONS TO AVOID
	STABLE	X	
INCOMPATIBILITY (Materials to avoid) Acids			
HAZARDOUS DECOMPOSITION PRODUCTS None			
HAZARDOUS POLYMERIZATION	MAY OCCUR		CONDITIONS TO AVOID
	WILL NOT OCCUR	X	Temps. Above 212 F

## SECTION VII - SPILL OR LEAK PROCEDURES

STEPS TO BE TAKEN IN CASE MATERIAL IS RELEASED OR SPILLED

Flush Material Down Sanitary Sewer

WASTE DISPOSAL METHOD

Biodegradeable- Can Be Flushed Down Sanitary Sewer.

## SECTION VIII - SPECIAL PROTECTION INFORMATION

RESPIRATORY PROTECTION (Specify type) None Needed Under Normal Conditions		
VENTILATION	LOCAL EXHAUST X	SPECIAL
	MECHANICAL (General)	OTHER
PROTECTIVE GLOVES None Needed	EYE PROTECTION Normal Glasses	
OTHER PROTECTIVE EQUIPMENT		

## SECTION IX - SPECIAL PRECAUTIONS

PRECAUTIONS TO BE TAKEN IN HANDLING AND STORING

Keep Away From Excessive Heat Temperatures Over 212 F

OTHER PRECAUTIONS None





Industrial Hygiene Toxicology and Safety Data Sheet  
Environmental Health Services  
Medical and Health Services Department

Section I

Trade Name and Synonyms Amoco Multi-Purpose Gear Lubricant No. 90	
Manufacturer's Name Amoco Oil Company	Emergency Telephone No. (312) 856-5371
Address (Number, Street, City, State and Zip Code) 200 East Randolph Drive, Chicago, IL 60601	
Chemical Name and/or Family Petroleum hydrocarbon	Formula

Section II Physiological Properties


Effects of Exposure	
Acute:	
Eyes	May cause irritation
Skin	May cause irritation
Respiratory System	N/A
Other	
Chronic: N/A	
Sensitization Properties (Species): Skin: Yes _____ No _____ Unknown <u>X</u> Respiratory Yes _____ No _____ Unknown <u>X</u>	
Median Lethal Dose (LD <sub>50</sub> , LC <sub>50</sub> ): (Species)	Irritation Index, Estimation of Irritation (Species)
Oral <u>LD<sub>50</sub> greater than 10.0 g/kg - rats</u>	Skin <u>None to mild - rabbits</u>
Inhalation <u>N/A</u>	Eyes <u>Minimal - rabbits - FHSA Test</u>
Dermal <u>LD<sub>50</sub> greater than 5.0 g/kg - rabbits</u>	Symptoms of Exposure
Other _____	- - -

Section III Chemical and Physical Properties

Boiling Point (°F)	N/A	Vapor Pressure	N/A	Vapor Density	N/A	Specific Gravity	0.901
Melting Point (°F)		(mm Hg at 20°C)		(Air = 1)		(H <sub>2</sub> O = 1)	
pH	N/A	Appearance and Odor	Oily liquid	Ignition Temp. °F	N/A	Flashpoint °F (Method)	435 (COC)
Flammable Limits % Lower	N/A	Upper	N/A	Solubility in Water	Negligible		
Products Evolved When Subjected to Heat or Combustion		Carbon, carbon monoxide, carbon dioxide, various hydrocarbons & hydrocarbon derivatives					
Hazardous Polymerization:		Occurs		Does not Occur <u>X</u>			
The Material Reacts Violently With:							
Air		<u>NO</u>		Water		<u>NO</u>	
Heat		<u>NO</u>		Strong Oxidizers		<u>NO</u>	
Others (Specify)		_____					
List of All Toxic and Hazardous Components (%)				List of all Nuisance Components (%)			
_____				_____			
_____				_____			
_____				_____			
This Product is Classified as:				Hazardous		Nuisance (Only) <u>X</u>	

N/A - Data not available

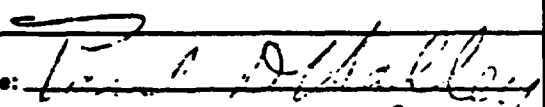
**Section IV Control Procedures**

<b>A. Occupational</b>	
Protective Equipment (Type)	
Eyes	<u>Eye protection if contact is likely</u>
Skin	<u>Protective gloves to avoid repeated or prolonged contact</u>
Inhalation	<u>Not required</u>
Ventilation (Type Required) <u>General area</u>	
Precautionary Label (may be attached) <u>None</u>	
Permissible Concentrations:	Air TLV for oil mist <u>5 mg/m<sup>3</sup></u> Biological - - -
Monitoring Procedures	Air - - - Biological - - -
<b>First Aid</b>	
Eyes	<u>Flush with water for 15 minutes; get medical attention if irritation persists</u>
Skin	<u>Wash exposed skin with soap and water</u>
Ingestion	<u>Induce vomiting; get medical attention</u>
Inhalation	<u>Not applicable</u>
<b>B. Environmental</b>	
Product is Biodegradable	<u>N/A</u> Product is a Pollutant if discharged into:
Not Biodegradable	Water <u>Yes</u>
	Air <u>Yes</u>
Waste Disposal Method	<u>Controlled incineration or sanitary landfill. Consult local ordinances for compliance.</u>
<b>C. Recommended Fire Extinguishing Agents and Special Procedures</b>	
<u>Dry chemical (B-C), carbon dioxide, water fog, foam</u>	
<b>D. Unusual Fire and Explosive Hazards</b>	
<u>None</u>	
<b>E. Procedures in Case of Breakage or Leakage</b>	
<u>Contain on an absorbent material</u>	
<b>F. Requirements for Transportation, Handling and Storage</b>	
<u>No special storage requirements</u>	
<b>G. NFPA Symbol</b>	
	

**Section V U. S. Government and Other Regulatory Agency Controls**

<b>A. Marketing and use Regulated by (Specific Regulation)</b>	
FDA <u>N/A</u>	USDA <u>"BB" Approval</u> EPA <u>N/A</u> Others (Specify) _____
<b>B. State or Local Regulations Affecting the use of this Material (Restriction on Amount Released or Discharged into Air or Water, Etc.)</b>	
<u>N/A</u>	

**Section VI Comments**

<b>Additional Health and Safety Information Known About This Product</b>	
Information Supplied By: <u>Paul D. Halley</u>	Signature: 
Title: <u>Director Industrial Hygiene &amp; Toxicology</u>	Date: <u>Revised February 1978</u>

# MATERIAL SAFETY DATA SHEET

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Required under USDL Safety and Health Regulations for Ship Repairing,  
Shipbuilding, and Shipbreaking (29 CFR 1915, 1916, 1917)

### SECTION I

MANUFACTURER'S NAME <b>QUAKER CHEMICAL CORPORATION</b>		EMERGENCY TELEPHONE NO. <b>215-828-4250</b>
ADDRESS (Number, Street, City, State, and ZIP Code) <b>CONSHOHOCKEN, PA. 19428</b>		
CHEMICAL NAME AND SYNONYMS		TRADE NAME AND SYNONYMS <b>FERROCOTE 5856-HF</b>
CHEMICAL FAMILY	FORMULA <b>Mineral oil; sulfonate; fatty acids; alkanolamine; aliphatic solvent; perfume</b>	

### SECTION II - HAZARDOUS INGREDIENTS

PAINTS, PRESERVATIVES, & SOLVENTS	%	TLV (Units)	ALLOYS AND METALLIC COATINGS	%	TLV (Units)
PIGMENTS			BASE METAL		
CATALYST			ALLOYS		
VEHICLE			METALLIC COATINGS		
SOLVENTS			FILLER METAL PLUS COATING OR CORE FLUX		
ADDITIVES			OTHERS		
OTHERS					

HAZARDOUS MIXTURES OF OTHER LIQUIDS, SOLIDS, OR GASES	%	TLV (Units)

### SECTION III - PHYSICAL DATA

BOILING POINT (°F.)		SPECIFIC GRAVITY (H <sub>2</sub> O=1)	<b>0.88</b>
VAPOR PRESSURE (mm Hg.)	<b>N. A.</b>	PERCENT VOLATILE BY VOLUME (%)	<b>N. A.</b>
VAPOR DENSITY (AIR=1)	<b>N. A.</b>	EVAPORATION RATE (_____ =1)	<b>-----</b>
SOLUBILITY IN WATER	<b>Insoluble</b>		
APPEARANCE AND ODOR	<b>Sparkling clear amber liquid-perfumed</b>		

### SECTION IV - FIRE AND EXPLOSION HAZARD DATA

FLASH POINT (Method used)	<b>180°F COC</b>	FLAMMABLE LIMITS		
EXTINGUISHING MEDIA	<b>CO<sub>2</sub> or foam</b>			
SPECIAL FIRE FIGHTING PROCEDURES	<b>Treat as with mineral oil</b>			
UNUSUAL FIRE AND EXPLOSION HAZARDS	<b>-----</b>			

**SECTION V - HEALTH HAZARD DATA**

THRESHOLD LIMIT VALUE **N. A.**

EFFECTS OF OVEREXPOSURE **None known**

**EMERGENCY AND FIRST AID PROCEDURES**

**SKIN:** Wash with mild soap & water.

**EYES:** Flush with cool running water for 15 min. & seek medical aid.

**INGESTION:** Contact physician and refer to formula.

**SECTION VI - REACTIVITY DATA**

STABILITY	UNSTABLE		CONDITIONS TO AVOID
	STABLE	X	

INCOMPATIBILITY (Materials to avoid)

HAZARDOUS DECOMPOSITION PRODUCTS **None to our knowledge.**

HAZARDOUS POLYMERIZATION	MAY OCCUR		CONDITIONS TO AVOID
	WILL NOT OCCUR	X	

**SECTION VII - SPILL OR LEAK PROCEDURES**

STEPS TO BE TAKEN IN CASE MATERIAL IS RELEASED OR SPILLED  
**Wash up with solvent or soap & water.**

WASTE DISPOSAL METHOD **Insoluble in water-- dispose of as with mineral oil**

**SECTION VIII - SPECIAL PROTECTION INFORMATION**

RESPIRATORY PROTECTION (Specify type) **Adequate ventilation required.**

VENTILATION	LOCAL EXHAUST	X	SPECIAL
	MECHANICAL (General)		OTHER

PROTECTIVE GLOVES **Wear impervious gloves**      EYE PROTECTION **Use safety glasses**

OTHER PROTECTIVE EQUIPMENT -----

**SECTION IX - SPECIAL PRECAUTIONS**

PRECAUTIONS TO BE TAKEN IN HANDLING AND STORING **Store away from excessive heat or open flame.**

OTHER PRECAUTIONS -----

*Magnaflex  
Product*

# MATERIAL SAFETY DATA SHEET

Required under OSHA Safety and Health Regulations for Ship Repairing,  
Shipbuilding and Ship Docking (29 CFR 1915, 1917)

**Distributed By:** **SECTION I**  
**ADDRESS:** GHS Solvents & Chemicals Division  
 1750 N. Kingsbury St., Chicago, IL 60614  
**CHEMICAL NAME AND SYNONYMS:** Paraffinic, Naphthenic Solvent / Odorless Kerosene  
**FORMULA:** Alkane Hydrocarbon (Non-Aromatic)  $CH_2 (CH_2)_{11} CH_3$  (Avg)

EMERGENCY TELEPHONE NO.  
312-664-3500

SECTION II - HAZARDOUS INGREDIENTS					
PAINTS, PRESERVATIVES, & SOLVENTS	%	TLV (Units)	ALLOYS AND METALLIC COATINGS	%	TLV (Units)
PIGMENTS			BASE METAL		
CATALYST			ALLOYS		
VEHICLE			METALLIC COATINGS		
SOLVENTS			FILLER METAL PLUS COATINGS OR CORE FLUX		
ADDITIVES			OTHERS		
OTHERS					
HAZARDOUS MIXTURES OF OTHER LIQUIDS, SOLIDS, OR GASES				%	TLV (Units)

SECTION III - PHYSICAL DATA			
BOILING POINT (°F.)	370-518	SPECIFIC GRAVITY (H <sub>2</sub> O=1)	.806
VAPOR PRESSURE (MM Hg.)	.5 @60°	PERCENT VOLATILE BY VOLUME (%)	100
VAPOR DENSITY (AIR=1)	6.3	EVAPORATION RATE (G/GM-HR @ 68°F)	
SOLUBILITY IN WATER	Nil.		
APPEARANCE AND ODOOR: Water White Oily Liquid, Hydrocarbon			

**SECTION IV - FIRE AND EXPLOSION HAZARD DATA**

FLASH POINT (Closed Cup): 144°F (P.M.)

EXTINGUISHING MEDIA: Foam, Carbon Dioxide, Dry Chemicals

SPECIAL FIRE FIGHTING PROCEDURES: Stop source of fuel before attempting to extinguish. Keep adjacent equipment cool with water spray.

UNUSUAL FIRE AND EXPLOSION HAZARDS:

**SECTION V - HEALTH HAZARD DATA**

500 PPM

Ingestion can typical symptoms of paraffinic hydrocarbons: a burning sensation, vomiting, diarrhea, drowsiness, and pulmonary adema if aspirated into lungs.  
 Wash spills on skin with soap and water. Remove from exposure to fresh air supply.

**SECTION VI - REACTIVITY DATA**

STABILITY	UNSTABLE		CONDITIONS TO AVOID
	STABLE	X	
INCOMPATIBILITY (When mixed)			
HAZARDOUS DECOMPOSITION PRODUCTS			
HAZARDOUS POLYMERIZATION	MAY OCCUR		CONDITIONS TO AVOID
	WILL NOT OCCUR	X	

**SECTION VII - SPILL OR LEAK PROCEDURES**

STEPS TO BE TAKEN IN CASE MATERIAL IS RELEASED OR SPILLED

Remove any source of ignition. Contain spill and pick up.

Keep out of sewers.

WASTE DISPOSAL METHOD

Incineration or fuel

**SECTION VIII - SPECIAL PROTECTION INFORMATION**

RESPIRATORY PROTECTION (If any)

VENTILATION

HAZARDOUS  
 MECHANICAL (If used)

SPECIAL  
 OTHER

PROTECTIVE GLOVES

EYE PROTECTION

OTHER PROTECTIVE EQUIPMENT

**SECTION IX - SPECIAL PRECAUTIONS**

PRECAUTIONS TO BE TAKEN IN HANDLING THIS MATERIAL

Keep away from heat or flame. Avoid "free fall" that could generate a static spark. Ground all equipment handling this material.

OTHER PRECAUTIONS

U.S. DEPARTMENT OF LABOR  
Occupational Safety and Health Administration

Form Approved  
OMB No. 44-11387

# MATERIAL SAFETY DATA SHEET

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Required under USDL Safety and Health Regulations for Ship Repairing,  
Shipbuilding, and Shipbreaking (29 CFR 1915, 1916, 1917)

### SECTION I

MANUFACTURER'S NAME <b>Tenaxol, Inc.</b>	EMERGENCY TELEPHONE NO. <b>414/476-1400</b>
ADDRESS: Number, Street, City, State, and ZIP Code <b>5801 W. National Avenue Milwaukee, Wis. 53214</b>	
CHEMICAL NAME AND SYNONYMS <b>Polyalkylene Glycol Solution In water</b>	TRADE NAME AND SYNONYMS <b>UCON Quenchant A,B,C &amp; HT</b>
CHEMICAL FAMILY <b>Polyalkylene Glycol</b>	FORMULA <b>HO(CH<sub>2</sub>CH<sub>2</sub>O)<sub>n</sub>(CH<sub>2</sub>CH(CH<sub>2</sub>)O)<sub>m</sub>H</b>

### SECTION II - HAZARDOUS INGREDIENTS

PAINTS, PRESERVATIVES, & SOLVENTS	%	TLV (Units)	ALLOYS AND METALLIC COATINGS	%	TLV (Units)
PIGMENTS		NA	BASE METAL		NA
CATALYST		NA	ALLOYS		NA
VEHICLE		NA	METALLIC COATINGS		NA
SOLVENTS		NA	FILLER METAL PLUS COATING OR CORE FLUX		NA
ADDITIVES		NA	OTHERS		NA
OTHERS			(NA = Not Applicable)		
HAZARDOUS MIXTURES OF OTHER LIQUIDS, SOLIDS, OR GASES				%	TLV (Units)
None					
Products are 45% to 65% water as sold					
(80% to 95% water as used)					

### SECTION III - PHYSICAL DATA

BOILING POINT (°F.)	212	SPECIFIC GRAVITY (H <sub>2</sub> O=1)	1.1
VAPOR PRESSURE (mm Hg.)	24	PERCENT VOLATILE BY VOLUME (%)	45-65
VAPOR DENSITY (AIR=1)	0.935	EVAPORATION RATE (water = 1)	0.5
SOLUBILITY IN WATER	Complete	A&B below 165°F C & HT below 194°F	
APPEARANCE AND ODOR <b>Pale Yellow - Odorless</b>			

### SECTION IV - FIRE AND EXPLOSION HAZARD DATA

FLASH POINT (Method used)	None	FLAMMABLE LIMITS	Let	Uet
EXTINGUISHING MEDIA	Small fires - Water large fires - water			
SPECIAL FIRE FIGHTING PROCEDURES	None - Product is soluble in water below 165°F			
UNUSUAL FIRE AND EXPLOSION HAZARDS				
RECEIVED				

APR 1 1978

PERSONNEL DEPT.

**SECTION V - HEALTH HAZARD DATA**

THRESHOLD LIMIT VALUE

*Not yet established*

EFFECTS OF OVEREXPOSURE

*None expected*

EMERGENCY AND FIRST AID PROCEDURES

*None required*

*Suggest flush eye contact with water*

**SECTION VI - REACTIVITY DATA**

STABILITY

UNSTABLE

CONDITIONS TO AVOID

STABLE

*X*

INCOMPATIBILITY (Materials to avoid)

*None*

HAZARDOUS DECOMPOSITION PRODUCTS

*Small amounts of Aldehydes, Ketones, organic acids and esters*

HAZARDOUS POLYMERIZATION

MAY OCCUR

CONDITIONS TO AVOID

WILL NOT OCCUR

*X*

**SECTION VII - SPILL OR LEAK PROCEDURES**

STEPS TO BE TAKEN IN CASE MATERIAL IS RELEASED OR SPILLED

*Flush with water to sewer*

WASTE DISPOSAL METHOD

*Can incinerate, but high water content indicates land.*

**SECTION VIII - SPECIAL PROTECTION INFORMATION**

RESPIRATORY PROTECTION (Specify type)

VENTILATION

LOCAL EXHAUST

*Satisfactory*

SPECIAL

*None*

MECHANICAL (General)

*Satisfactory*

OTHER

*None*

PROTECTIVE GLOVES

*None*

EYE PROTECTION

*Safety Glasses*

OTHER PROTECTIVE EQUIPMENT

*None*

**SECTION IX - SPECIAL PRECAUTIONS**

PRECAUTIONS TO BE TAKEN IN HANDLING AND STORING

*None*

OTHER PRECAUTIONS

*None*



U.S. DEPARTMENT OF LABOR  
Occupational Safety and Health Administration

Form Approved  
OMB No. 44-1113-17

# MATERIAL SAFETY DATA SHEET

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Required under USDL Safety and Health Regulations for Ship Repairing,  
Shipbuilding, and Shipbreaking (29 CFR 1915, 1916, 1917)

### SECTION I

MANUFACTURER'S NAME <b>Turco Products, Inc.</b>		EMERGENCY TELEPHONE NO.
ADDRESS (Number, Street, City, State, and ZIP Code) <b>24600 South Main Street, Carson, California 90745</b>		
CHEMICAL NAME AND SYNONYMS		TRADE NAME AND SYNONYMS <b>Turco Rust Bloc #30</b>
CHEMICAL FAMILY	FORMULA	

### SECTION II - HAZARDOUS INGREDIENTS

PAINTS, PRESERVATIVES, & SOLVENTS	%	TLV (Units)	ALLOYS AND METALLIC COATINGS	%	TLV (Units)
PIGMENTS			BASE METAL		
CATALYST			ALLOYS		
VEHICLE			METALLIC COATINGS		
SOLVENTS			FILLER METAL PLUS COATING OR CORE FLUX		
ADDITIVES			OTHERS		
OTHERS					
HAZARDOUS MIXTURES OF OTHER LIQUIDS, SOLIDS, OR GASES				%	TLV (Units)
Aliphatic petroleum solvent				65	200PPM
Other components not defined as hazardous by US Dept. of Labor					
Carcinogens				None	

### SECTION III - PHYSICAL DATA

BOILING POINT (°F.)	<b>360°F</b>	SPECIFIC GRAVITY (H <sub>2</sub> O=1)	<b>0.84</b>
VAPOR PRESSURE (mm Hg.)	<b>Less than 1mm</b>	PERCENT. VOLATILE BY VOLUME (%)	<b>65%</b>
VAPOR DENSITY (AIR=1)	<b>More than 1</b>	EVAPORATION RATE	<b>Butyl acetate Less than 1</b>
SOLUBILITY IN WATER	<b>Negligible</b>		
APPEARANCE AND ODOR	<b>Thick dark brown liquid</b>		

### SECTION IV - FIRE AND EXPLOSION HAZARD DATA

FLASH POINT (Method used)	<b>100°F T.C.C.</b>	FLAMMABLE LIMITS	Let	Uel
		<b>unknown</b>		
EXTINGUISHING MEDIA	<b>Carbon dioxide, dry chemical</b>			
SPECIAL FIRE FIGHTING PROCEDURES				
UNUSUAL FIRE AND EXPLOSION HAZARDS				

SECTION V - HEALTH HAZARD DATA	
THRESHOLD LIMIT VALUE	See Section II
EFFECTS OF OVEREXPOSURE	Headache, dizziness
EMERGENCY AND FIRST AID PROCEDURES	
Skin; wash with soap and water. Eyes; flush with water, obtain medical attention if irritation persists. Ingestion; Do not induce vomiting, obtain medical attention	

SECTION VI - REACTIVITY DATA			
STABILITY	UNSTABLE		CONDITIONS TO AVOID
	STABLE	X	
INCOMPATIBILITY (Materials to avoid)		Avoid strong oxidizers	
HAZARDOUS DECOMPOSITION PRODUCTS		Carbon monoxide, dioxide	
HAZARDOUS POLYMERIZATION	MAY OCCUR		CONDITIONS TO AVOID
	WILL NOT OCCUR	X	

SECTION VII - SPILL OR LEAK PROCEDURES	
STEPS TO BE TAKEN IN CASE MATERIAL IS RELEASED OR SPILLED	
Ventilate area, wipe up spillage	
WASTE DISPOSAL METHOD	
As for petroleum solvents	

SECTION VIII - SPECIAL PROTECTION INFORMATION			
RESPIRATORY PROTECTION (Specify type)			
Fresh air type			
VENTILATION	LOCAL EXHAUST	X	SPECIAL
	MECHANICAL (General)		OTHER
PROTECTIVE GLOVES	X	EYE PROTECTION	X
OTHER PROTECTIVE EQUIPMENT			

SECTION IX - SPECIAL PRECAUTIONS	
PRECAUTIONS TO BE TAKEN IN HANDLING AND STORING	
Transport and store at temperatures between 20° and 130°F	
OTHER PRECAUTIONS	

# MATERIAL SAFETY DATA SHEET

66

Required under USDL Safety and Health Regulations for Ship Repairing,  
Shipbuilding, and Shipbreaking (29 CFR 1915, 1916, 1917)

## SECTION I

MANUFACTURER'S NAME <b>VAN STRAATEN CHEMICAL COMPANY</b>		EMERGENCY TELEPHONE NO. <b>312/454-1000</b>
ADDRESS (Number, Street, City, State, and ZIP Code) <b>630 West Washington Blvd., Chicago, Illinois</b>		
CHEMICAL NAME AND SYNONYMS		TRADE NAME AND SYNONYMS <b>Vantrol 5299-G - Cutting &amp; Grinding</b>
CHEMICAL FAMILY	FORMULA <b>Fluid</b>	

## SECTION II - HAZARDOUS INGREDIENTS

PAINTS, PRESERVATIVES, & SOLVENTS	%	TLV (Units)	ALLOYS AND METALLIC COATINGS	%	TLV (Units)
PIGMENTS			BASE METAL		
CATALYST			ALLOYS		
VEHICLE			METALLIC COATINGS		
SOLVENTS			FILLER METAL PLUS COATING OR CORE FLUX		
ADDITIVES			OTHERS		
OTHERS					
HAZARDOUS MIXTURES OF OTHER LIQUIDS, SOLIDS, OR GASES				%	TLV (Units)
Contains no toxic or hazardous materials.					

## SECTION III - PHYSICAL DATA

BOILING POINT (°F.)		SPECIFIC GRAVITY (H <sub>2</sub> O=1)	0.918
VAPOR PRESSURE (mm Hg.)		PERCENT VOLATILE BY VOLUME (%)	
VAPOR DENSITY (AIR=1)		EVAPORATION RATE (_____ = 1)	
SOLUBILITY IN WATER	Insoluble		
APPEARANCE AND ODOR	Brown, transparent oil		

## SECTION IV - FIRE AND EXPLOSION HAZARD DATA

FLASH POINT (Method used)	<b>COC - 280°F</b>	FLAMMABLE LIMITS	Lel	Uel
EXTINGUISHING MEDIA	<b>Carbon dioxide, foam, water mist</b>			
SPECIAL FIRE FIGHTING PROCEDURES	Same as used for an oil fire.			
UNUSUAL FIRE AND EXPLOSION HAZARDS	No unusual hazards.			

### SECTION V - HEALTH HAZARD DATA

THRESHOLD LIMIT VALUE

EFFECTS OF OVEREXPOSURE

EMERGENCY AND FIRST AID PROCEDURES

None required.

### SECTION VI - REACTIVITY DATA

STABILITY	UNSTABLE		CONDITIONS TO AVOID
	STABLE	X	
INCOMPATIBILITY (Materials to avoid)			
HAZARDOUS DECOMPOSITION PRODUCTS			
HAZARDOUS POLYMERIZATION	MAY OCCUR		CONDITIONS TO AVOID
	WILL NOT OCCUR	X	

### SECTION VII - SPILL OR LEAK PROCEDURES

STEPS TO BE TAKEN IN CASE MATERIAL IS RELEASED OR SPILLED

Remove with an oil absorbent.

WASTE DISPOSAL METHOD

Dispose of by incineration or sale to oil reclaimers.

### SECTION VIII - SPECIAL PROTECTION INFORMATION

RESPIRATORY PROTECTION (Specify type) None required

VENTILATION	LOCAL EXHAUST	SPECIAL
	MECHANICAL (General) <span style="float: right;">X</span>	OTHER
PROTECTIVE GLOVES <span style="float: right;"><del>Not</del> required</span>	EYE PROTECTION <span style="float: right;">Not required</span>	
OTHER PROTECTIVE EQUIPMENT <span style="float: right;">None required.</span>		

### SECTION IX - SPECIAL PRECAUTIONS

PRECAUTIONS TO BE TAKEN IN HANDLING AND STORING No special precautions necessary with this product except to bring to room temperature prior to use.

OTHER PRECAUTIONS



**U.S. DEPARTMENT OF LABOR**  
**WORKPLACE STANDARDS ADMINISTRATION**  
 Bureau of Labor Standards

**MATERIAL SAFETY DATA SHEET**

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SECTION I	
MANUFACTURER'S NAME <b>THE WHITE &amp; BAGLEY COMPANY</b>	EMERGENCY TELEPHONE NO.
ADDRESS (Number, Street, City, State, and ZIP Code) <b>150 Worcester Center Blvd., Worcester, Massachusetts 01608</b>	
CHEMICAL NAME AND SYNONYMS <b>Not applicable</b>	TRADE NAME AND SYNONYMS <b>MB-30 HONING OIL</b>
CHEMICAL FAMILY <b>Petroleum &amp; Fatty Oil Hydrocarbons</b>	FORMULA <b>Not applicable</b>

SECTION II HAZARDOUS INGREDIENTS					
PAINTS, PRESERVATIVES, & SOLVENTS	%	TLV (Units)	ALLOYS AND METALLIC COATINGS	%	TLV (Units)
PIGMENTS			BASE METAL		
CATALYST			ALLOYS		
VEHICLE			METALLIC COATINGS		
SOLVENTS			FILLER METAL PLUS COATING OR CORE FLUX		
ADDITIVES			OTHERS		
OTHERS			<b>Not applicable</b>		
<b>Not applicable</b>					
HAZARDOUS MIXTURES OF OTHER LIQUIDS, SOLIDS, OR GASES				%	TLV (Units)
<b>amended 8-23-68</b>					

SECTION III PHYSICAL DATA			
BOILING POINT (°F.)	700	SPECIFIC GRAVITY (H <sub>2</sub> O=1)	0.89
VAPOR PRESSURE (mm Hg.)	0.01	PERCENT VOLATILE BY VOLUME (%)	nil
VAPOR DENSITY (AIR=1)	0.8	EVAPORATION RATE (_____ = 1)	nil
SOLUBILITY IN WATER	negligible		
APPEARANCE AND ODOR	<b>Dark-colored viscous petroleum oil; odor of sulfurized fatty oil.</b>		

SECTION IV FIRE AND EXPLOSION HAZARD DATA			
FLASH POINT (Method used)	315°F Cleveland Open Cup	FLAMMABLE LIMITS	
EXTINGUISHING MEDIA	CO <sub>2</sub> or foam	Let	Uol
SPECIAL FIRE FIGHTING PROCEDURES	Same as for petroleum	40	80
UNUSUAL FIRE AND EXPLOSION HAZARDS	None		

### SECTION V HEALTH HAZARD DATA

THRESHOLD LIMIT VALUE	1000 PPM air/volume mist
EFFECTS OF OVEREXPOSURE	Possible oil dermatitis for some individuals
EMERGENCY AND FIRST AID PROCEDURES	
eye contact: flush with water	

### SECTION VI REACTIVITY DATA

STABILITY	UNSTABLE		CONDITIONS TO AVOID
	STABLE	X	
INCOMPATIBILITY (Materials to avoid)			
water; and alkaline compounds which will thicken the oil			
HAZARDOUS DECOMPOSITION PRODUCTS			
CO; CO <sub>2</sub> ; SO <sub>2</sub> ; ( by burning )			
HAZARDOUS POLYMERIZATION	MAY OCCUR		CONDITIONS TO AVOID
	WILL NOT OCCUR	X	

### SECTION VII SPILL OR LEAK PROCEDURES

STEPS TO BE TAKEN IN CASE MATERIAL IS RELEASED OR SPILLED	Oil vacuum cleaning, or manual squeegee and scooping followed by absorbant granules (Speedi-Dry) and floor wash.
WASTE DISPOSAL METHOD	Incineration

### SECTION VIII SPECIAL PROTECTION INFORMATION

RESPIRATORY PROTECTION (Specify type)		
Not required		
VENTILATION	LOCAL EXHAUST	SPECIAL
	MECHANICAL (General)	OTHER
PROTECTIVE GLOVES	No required.	EYE PROTECTION
		Not required.
OTHER PROTECTIVE EQUIPMENT		
None required, except for plastic apron possibly.		

### SECTION IX SPECIAL PRECAUTIONS

PRECAUTIONS TO BE TAKEN IN HANDLING AND STORING	Drums stored outdoors should be sealed and tipped at an angle to shed water, and allowed to warm to 40°F before transfer of the oil.
OTHER PRECAUTIONS	No reaction hazards as a function of handling or storage life.

**TEXACO INC. — HEALTH DIVISION  
INDUSTRIAL HYGIENE, TOXICOLOGY, AND MATERIAL  
SAFETY DATA SHEET**



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NOTE: NO REPRESENTATION IS MADE AS TO THE ACCURACY OF THE INFORMATION  
HEREIN. SEE PAGE 4 FOR CONDITIONS UNDER WHICH DATA ARE FURNISHED.

Trade Name and Synonyms 1679 Ursa Oil Extra Duty SAE 40	
Manufacturer's Name Texaco Inc.	Emergency Telephone No. (914) 253-4000 Ext. 2387
Address 2000 Westchester Ave., White Plains, N.Y. 10650	
Chemical Name and/or Family or Description N.A.	
THIS PRODUCT IS CLASSIFIED AS: _____ <input checked="" type="checkbox"/> NOT HAZARDOUS: _____ HAZARDOUS BY DEFINITION NO.(S) _____ ON ATTACHED EXPLANATION SHEET 4.	
<b>WARNING STATEMENT:</b> None considered necessary.	
<b>PHYSIOLOGICAL EFFECTS:</b>	
Effects of Exposure	
Acute:	
Eyes N.D. Believed to be minimally irritating.	
Skin N.D. Believed to be minimally irritating.	
Respiratory System N.D. Believed to be minimally irritating if not in excess of permissible concentrations; see page 2.	
Chronic N.D.	Other-
Sensitization Properties	
Skin: Yes _____ No <input checked="" type="checkbox"/> Unknown _____	Respiratory: Yes _____ No <input checked="" type="checkbox"/> Unknown _____
Median Lethal Dose (LD <sub>50</sub> , LC <sub>50</sub> ) (Species)	Irritation Index, Estimation of Irritation (Species)
Oral N.D. Believed to be > 5 gm/kg (rat)	Skin N.D.; see above
Inhalation N.D.	Eyes N.D.; see above
Dermal N.D. Believed to be >10 gm/kg (rabbit)	Symptoms of Exposure N.D. None expected other than possible minimal irritation.
Other -	
<b>EMERGENCY AND FIRST AID PROCEDURES</b>	
First Aid	
Eyes As with most foreign materials, should eye contact occur, flush eyes with plenty of water.	
Skin None considered necessary.	
Ingestion None considered necessary.	
Inhalation None considered necessary.	
Other Instructions None	

\*N.D.—Not Determined; \*N.A.—Not Applicable  
(—Less Than; >—Greater Than

**OCCUPATIONAL CONTROL PROCEDURES**

Code No. 1679

**Protective Equipment (Type)**

- Eyes** Protective goggles or face shield optional.
- Skin** Exposed employees should exercise reasonable personal cleanliness; this includes cleansing exposed skin areas several times daily with soap and water, and laundering or dry cleaning soiled work clothing at least weekly.
- Inhalation** None required if exposures are within permissible concentrations; see below.

Ventilation Required: Normal  Other**Precautionary Label**

None Considered Necessary.

**Permissible Concentrations:**Air 5 mg/m<sup>3</sup> of air for mineral oil mist averaged over an 8 hour daily exposure. Other -**Requirements for Transportation, Handling and Storage**

No Special Requirements.  
 DOT Proper Shipping Name: N.A.  
 DOT Hazard Class (if applicable) N.A.

**CHEMICAL AND PHYSICAL PROPERTIES**Boiling Point (°F) N.D. Vapor Pressure Nil (mmHg)Specific Gravity 0.898 (H<sub>2</sub>O = 1) Vapor Density N.D. (Air = 1)Appearance and Odor Dark palepH of undiluted product N.D. Solubility InsolublePercent Volatile by Volume Nil Evaporation N.D. ( ) = 1Viscosity 900 SUS @ 100°FOther -Hazardous Polymerizations Occur  Do not occurThe Material Reacts Violently With: None of those listed below.Air Water Heat Strong Oxidizers Others**FIRE PROTECTION INFORMATION**Ignition Temp. °F N.D. Flash Point F. (Method) 440 COCFlammable limits % Lower N.D. Upper N.D.Products Evolved When Subjected to Heat or Combustion Carbon monoxide, carbon dioxide, oxides of nitrogen, oxides of sulfur, aldehydes and ketones.

Recommended Fire Extinguishing Agents and Special Procedures According to the National Fire Protection Association Guide 325M, mineral oil fires may be extinguished by water spray, dry chemical, foam, or carbon dioxide. Caution: Water or foam may cause frothing.

Unusual Fire or Explosive Hazards None indicated.



COMPOSITION		Code No. 1679	
Components Presenting a Significant Hazard	Wgt %	Other Components	Wgt %
None.		Mineral oil Methacrylate copolymer Proprietary additive package containing calcium, zinc, sulfur, and phosphorus Silicone anti-foamant	96 0.2  4 150ppm
<b>ENVIRONMENTAL PROTECTION</b>			
<p><b>Waste Disposal Method</b> Dispose in accordance with local laws and regulations governing disposal of oily wastes. A waste oil contractor or disposal specialist is suggested.</p> <p><b>Procedures in Case of Breakage or Leakage</b> Contain spill. Absorb with inert porous material. Dispose in accordance with local laws and regulations governing disposal of oily wastes. Contact a waste oil contractor or disposal specialist if necessary.</p> <p><b>Remarks:</b> None.</p>			
<b>ADDITIONAL COMMENTS</b>			
<p>TEXACO INTENDS TO COMPLY FULLY WITH PROVISIONS OF THE TOXIC SUBSTANCES CONTROL ACT</p> <p>State of Michigan Critical Materials Act (Revised 1977)</p> <p>0.084% zinc; conversion factor 7.5 pounds per gallon.</p> <p>To determine applicability or effect of any law or regulation with respect to this product, user should consult his legal advisor or the appropriate government agency. Texaco does not undertake to furnish advice on such matters.</p>			
By: <u>R. T. Richards</u>		Title: <u>Mgr, Industrial Hygiene and Toxicology</u>	
Date: <u>1-1-78</u>		<input checked="" type="checkbox"/> New <input type="checkbox"/> Revised, Supersedes	

**TEXACO INC. — HEALTH DIVISION  
INDUSTRIAL HYGIENE, TOXICOLOGY, AND MATERIAL  
SAFETY DATA SHEET**



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NOTE: NO REPRESENTATION IS MADE AS TO THE ACCURACY OF THE INFORMATION  
HEREIN. SEE PAGE 4 FOR CONDITIONS UNDER WHICH DATA ARE FURNISHED.

Trade Name and Synonyms 1679 Ursa Oil Extra Duty SAE 40	
Manufacturer's Name Texaco Inc.	Emergency Telephone No. (914) 253-4000 Ext. 2387
Address 2000 Westchester Ave., White Plains, N.Y. 10650	
Chemical Name and/or Family or Description N.A.	
THIS PRODUCT IS CLASSIFIED AS: <input checked="" type="checkbox"/> NOT HAZARDOUS: <input type="checkbox"/> HAZARDOUS BY DEFINITION NO.(S) _____ ON ATTACHED EXPLANATION SHEET 4.	
<b>WARNING STATEMENT:</b> None considered necessary.	
<b>PHYSIOLOGICAL EFFECTS:</b>	
Effects of Exposure	
Acute:	
Eyes N.D. Believed to be minimally irritating.	
skin N.D. Believed to be minimally irritating.	
Respiratory System N.D. Believed to be minimally irritating if not in excess of permissible concentrations; see page 2.	
Chronic N.D.	Other-
Sensitization Properties	
Skin: Yes _____ No <input checked="" type="checkbox"/> Unknown _____	Respiratory: Yes _____ No <input checked="" type="checkbox"/> Unknown _____
Median Lethal Dose (LD <sub>50</sub> , LC <sub>50</sub> ) (Species)	Irritation Index, Estimation of Irritation (Species)
Oral N.D. Believed to be > 5 gm/kg (rat)	skin N.D.; see above
Inhalation N.D.	Eyes N.D.; see above
Dermal N.D. Believed to be >10 gm/kg (rabbit)	Symptoms of Exposure N.D. None expected other
Other -	than possible minimal irritation.
<b>EMERGENCY AND FIRST AID PROCEDURES</b>	
First Aid	
Eyes As with most foreign materials, should eye contact occur, flush eyes with plenty of water.	
Skin None considered necessary.	
Ingestion None considered necessary.	
Inhalation None considered necessary.	
Other Instructions None	

\*N.D.—Not Determined; \*N.A.—Not Applicable  
<—Less Than; >—Greater Than

**OCCUPATIONAL CONTROL PROCEDURES**

Code No. 1679

**Protective Equipment (Type)****Eyes** Protective goggles or face shield optional.**Skin** Exposed employees should exercise reasonable personal cleanliness; this includes cleansing exposed skin areas several times daily with soap and water, and laundering or dry cleaning soiled work clothing at least weekly.**Inhalation** None required if exposures are within permissible concentrations; see below.Ventilation Required: Normal  Other**Precautionary Label**

None Considered Necessary.

**Permissible Concentrations:**Air 5 mg/m<sup>3</sup> of air for mineral oil mist averaged over an 8 hour daily exposure. Other -**Requirements for Transportation, Handling and Storage**

No Special Requirements.

DOT Proper Shipping Name: N.A.

DOT Hazard Class (if applicable) N.A.

**CHEMICAL AND PHYSICAL PROPERTIES**Boiling Point (°F) N.D.Vapor Pressure Nil (mmHg)Specific Gravity 0.898 (H<sub>2</sub>O = 1)Vapor Density N.D. (Air = 1)Appearance and Odor Dark palepH of undiluted product N.D.Solubility InsolublePercent Volatile by Volume NilEvaporation N.D. ( ) = 1Viscosity 900 SLIS @ 100°FOther -Hazardous Polymerizations        Occur  Do not occurThe Material Reacts Violently With: **None of those listed below.**Air  Water  Heat  Strong Oxidizers  Others **FIRE PROTECTION INFORMATION**Ignition Temp. °F N.D.Flash Point F. (Method) 440 COCFlammable limits % Lower N.D.Upper N.D.

Products Evolved When Subjected to Heat or Combustion Carbon monoxide, carbon dioxide, oxides of nitrogen, oxides of sulfur, aldehydes and ketones.

Recommended Fire Extinguishing Agents and Special Procedures According to the National Fire Protection Association Guide 325M, mineral oil fires may be extinguished by water spray, dry chemical, foam, or carbon dioxide. Caution: Water or foam may cause frothing.

Unusual Fire or Explosive Hazards **None indicated.**

COMPOSITION		Code No. 2342	
Components Presenting a Significant Hazard	Wgt %	Other Components	Wgt %
None.		Mineral oil	95
		Methacrylate terpolymer	2
		Proprietary additive package containing sulfur and nitrogen	4
		Silicone anti-foamant	100ppm
<b>ENVIRONMENTAL PROTECTION</b>			
<p><b>Waste Disposal Method</b> Dispose in accordance with local laws and regulations governing disposal of oily wastes. A waste oil contractor or disposal specialist is suggested.</p> <p><b>Procedures in Case of Breakage or Leakage</b> Contain spill. Absorb with inert porous material. Dispose in accordance with local laws and regulations governing disposal of oily wastes. Contact a waste oil contractor or disposal specialist if necessary.</p> <p><b>Remarks:</b> None.</p>			
<b>ADDITIONAL COMMENTS</b>			
<p>TEXACO INTENDS TO COMPLY FULLY WITH PROVISIONS OF THE TOXIC SUBSTANCES CONTROL ACT</p> <p>State of Michigan Critical Materials Act (Revised 1977)</p> <p>0.3% amine; conversion factor 7.6 pounds per gallon.</p> <p>To determine applicability or effect of any law or regulation with respect to this product, user should consult his legal advisor or the appropriate government agency. Texaco does not undertake to furnish advice on such matters.</p>			
By: <u>R. T. Richards</u>		Title: <u>Mgr., Industrial Hygiene and Toxicology</u>	
Date: <u>1-1-78</u>		<input checked="" type="checkbox"/> New <input type="checkbox"/> Revised, Supersedes	

**TEXACO INC. — HEALTH DIVISION  
INDUSTRIAL HYGIENE, TOXICOLOGY, AND MATERIAL  
SAFETY DATA SHEET**



NOTE: NO REPRESENTATION IS MADE AS TO THE ACCURACY OF THE INFORMATION  
HEREIN. SEE PAGE 4 FOR CONDITIONS UNDER WHICH DATA ARE FURNISHED.

Trade Name and Synonyms <b>2342 Meropa 680</b>	
Manufacturer's Name <b>Texaco Inc.</b>	Emergency Telephone No. <b>(914) 253-4000 Ext. 2387</b>
Address <b>2000 Westchester Ave., White Plains, N.Y. 10650</b>	
Chemical Name and/or Family or Description <b>N.A.</b>	
THIS PRODUCT IS CLASSIFIED AS: _____ <input checked="" type="checkbox"/> NOT HAZARDOUS: _____ HAZARDOUS BY DEFINITION NO.(S) _____ ON ATTACHED EXPLANATION SHEET 4.	
<b>WARNING STATEMENT:</b> None considered necessary.	
<b>PHYSIOLOGICAL EFFECTS:</b>	
Effects of Exposure	
Acute:	
Eyes <b>N.D. Believed to be minimally irritating.</b>	
Skin <b>N.D. Believed to be minimally irritating.</b>	
Respiratory System <b>N.D. Believed to be minimally irritating if not in excess of permissible concentrations; see page 2.</b>	
Chronic <b>N.D.</b> Other <b>-</b>	
Sensitization Properties	
Skin: Yes _____ No <input checked="" type="checkbox"/> Unknown _____	
Respiratory: Yes _____ No <input checked="" type="checkbox"/> Unknown _____	
Median Lethal Dose (LD <sub>50</sub> , LC <sub>50</sub> ) (Species)	Irritation Index, Estimation of Irritation (Species)
Oral <b>N.D. Believed to be &gt; 5 gm/kg (rat)</b>	Skin <b>N.D.; see above</b>
Inhalation <b>N.D.</b>	Eyes <b>N.D.; see above</b>
Dermal <b>N.D. Believed to be &gt; 10 gm/kg (rabbit)</b>	Symptoms of Exposure <b>N.D. None expected other than possible minimal irritation.</b>
Other <b>-</b>	
<b>EMERGENCY AND FIRST AID PROCEDURES</b>	
First Aid	
Eyes <b>As with most foreign materials, should eye contact occur, flush eyes with plenty of water.</b>	
Skin <b>None considered necessary.</b>	
Ingestion <b>None considered necessary.</b>	
Inhalation <b>None considered necessary.</b>	
Other Instructions <b>None</b>	

\*N.D.—Not Determined; \*N.A.—Not Applicable

<—Less Than; >—Greater Than

**OCCUPATIONAL CONTROL PROCEDURES**Code  
No. 2342**Protective Equipment (Type)**

- Eyes** Protective goggles or face shield optional.
- Skin** Exposed employees should exercise reasonable personal cleanliness; this includes cleansing exposed skin areas several times daily with soap and water, and laundering or dry cleaning soiled work clothing at least weekly.
- Inhalation** None required if exposures are within permissible concentrations; see below.

Ventilation Required: Normal  Other**Precautionary Label**

None Considered Necessary.

**Permissible Concentrations:**Air 5 mg/m<sup>3</sup> of air for mineral oil mist averaged over an 8 hour daily exposure. Other -**Requirements for Transportation, Handling and Storage**

No Special Requirements.

DOT Proper Shipping Name: N.A.

DOT Hazard Class (if applicable) N.A.

**CHEMICAL AND PHYSICAL PROPERTIES**

Bolling Point (°F) N.D. Vapor Pressure Nil (mmHg)

Specific Gravity 0.916 (H<sub>2</sub>O = 1) Vapor Density N.D. (Air = 1)

Appearance and Odor Dark green

pH of undiluted product N.D. Solubility Insoluble

Percent Volatile by Volume Nil Evaporation N.D. ( ) = 1

Viscosity 3850 SUS @ 100°F Other -

Hazardous Polymerizations Occur  Do not occur

The Material Reacts Violently With: None of those listed below.

Air Water Heat Strong Oxidizers Others

**FIRE PROTECTION INFORMATION**

Ignition Temp. °F N.D. Flash Point F. (Method) 440 COC

Flammable limits % Lower N.D. Upper N.D.

Products Evolved When Subjected to Heat or Combustion Carbon monoxide, carbon dioxide, oxides of nitrogen, oxides of sulfur, aldehydes and ketones.

Recommended Fire Extinguishing Agents and Special Procedures According to the National Fire Protection Association Guide 325M; mineral oil fires may be extinguished by water spray, dry chemical, foam, or carbon dioxide. Caution: Water or foam may cause frothing.

Unusual Fire or Explosive Hazards None indicated.

COMPOSITION		Code No. 700	
Components Presenting a Significant Hazard	Wgt %	Other Components	Wgt %
None.		Mineral oil Proprietary additive package containing nitrogen and phosphorus Methacrylate copolymer 4-methyl-2,6-ditertiary butylphenol Proprietary sulfur inhibitor Defoamant	99 0.1 0.5 0.5 0.1 50ppm
<b>ENVIRONMENTAL PROTECTION</b>			
<p><b>Waste Disposal Method</b> Dispose in accordance with local laws and regulations governing disposal of oily wastes. A waste oil contractor or disposal specialist is suggested.</p> <p><b>Procedures in Case of Breakage or Leakage</b> Contain spill. Absorb with inert porous material. Dispose in accordance with local laws and regulations governing disposal of oily wastes. Contact a waste oil contractor or disposal specialist if necessary.</p> <p><b>Remarks:</b> None.</p>			
<b>ADDITIONAL COMMENTS</b>			
<p>TEXACO INTENDS TO COMPLY FULLY WITH PROVISIONS OF THE TOXIC SUBSTANCES CONTROL ACT</p> <p>State of Michigan Critical Materials Act (Revised 1977)</p> <p>0.5% substituted phenol; Conversion factor 7.2 pounds/gallon.</p> <p>To determine applicability or effect of any law or regulation with respect to this product, user should consult his legal advisor or the appropriate government agency. Texaco does not undertake to furnish advice on such matters.</p>			
By: <u>R. T. Richards</u>		Title: <u>Mgr, Industrial Hygiene and Toxicology</u>	
Date: <u>1-1-78</u>		<input checked="" type="checkbox"/> New <input type="checkbox"/> Revised, Supersedes	

COMPOSITION		Code No. 1679	
Components Presenting a Significant Hazard	Wgt %	Other Components	Wgt %
None.		Mineral oil Methacrylate copolymer Proprietary additive package containing calcium, zinc, sulfur, and phosphorus Silicone anti-foamant	96 0.2  4 50ppm
<b>ENVIRONMENTAL PROTECTION</b>			
<p><b>Waste Disposal Method</b> Dispose in accordance with local laws and regulations governing disposal of oily wastes. A waste oil contractor or disposal specialist is suggested.</p> <p><b>Procedures in Case of Breakage or Leakage</b> Contain spill. Absorb with inert porous material. Dispose in accordance with local laws and regulations governing disposal of oily wastes. Contact a waste oil contractor or disposal specialist if necessary.</p> <p><b>Remarks:</b> None.</p>			
<b>ADDITIONAL COMMENTS</b>			
<p>TEXACO INTENDS TO COMPLY FULLY WITH PROVISIONS OF THE TOXIC SUBSTANCES CONTROL ACT</p> <p>State of Michigan Critical Materials Act (Revised 1977)</p> <p>0.084% zinc; conversion factor 7.5 pounds per gallon.</p> <p>To determine applicability or effect of any law or regulation with respect to this product, user should consult his legal advisor or the appropriate government agency. Texaco does not undertake to furnish advice on such matters.</p>			
By: <u>R. T. Richards</u>		Title: <u>Mgr, Industrial Hygiene and Toxicology</u>	
Date: <u>1-1-78</u>		<input checked="" type="checkbox"/> New <input type="checkbox"/> Revised, Supersedes	



**TEXACO INC. — HEALTH DIVISION  
INDUSTRIAL HYGIENE, TOXICOLOGY, AND MATERIAL  
SAFETY DATA SHEET**



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NOTE: NO REPRESENTATION IS MADE AS TO THE ACCURACY OF THE INFORMATION  
HEREIN. SEE PAGE 4 FOR CONDITIONS UNDER WHICH DATA ARE FURNISHED.

Trade Name and Synonyms 2219 Rando Oil 150	
Manufacturer's Name Texaco Inc.	Emergency Telephone No. (914) 253-4000 Ext. 2387
Address 2000 Westchester Ave., White Plains, N.Y. 10650	
Chemical Name and/or Family or Description N.A.	
THIS PRODUCT IS CLASSIFIED AS: _____ <input checked="" type="checkbox"/> NOT HAZARDOUS: _____ HAZARDOUS BY DEFINITION NO.(S) _____ ON ATTACHED EXPLANATION SHEET 4.	
<b>WARNING STATEMENT:</b> None considered necessary.	
<b>PHYSIOLOGICAL EFFECTS:</b>	
Effects of Exposure	
Acute:	
Eyes N.D. Believed to be minimally irritating.	
Skin N.D. Believed to be minimally irritating.	
Respiratory System N.D. Believed to be minimally irritating if not in excess of permissible concentrations; see page 2.	
Chronic N.D. Other -	
Sensitization Properties	
Skin: Yes _____ No <input checked="" type="checkbox"/> Unknown _____	
Respiratory: Yes _____ No <input checked="" type="checkbox"/> Unknown _____	
Median Lethal Dose (LD <sub>50</sub> , LC <sub>50</sub> ) (Species)	Irritation Index, Estimation of Irritation (Species)
Oral N.D. Believed to be > 5 gm/kg (rat)	Skin N.D.; see above
Inhalation N.D.	Eyes N.D.; see above
Dermal N.D. Believed to be > 10 gm/kg (rabbit)	Symptoms of Exposure N.D. None expected other than possible minimal irritation.
Other -	
<b>EMERGENCY AND FIRST AID PROCEDURES</b>	
First Aid	
Eyes As with most foreign materials, should eye contact occur, flush eyes with plenty of water.	
Skin None considered necessary.	
Ingestion None considered necessary.	
Inhalation None considered necessary.	
Other Instructions None	

\*N.D.—Not Determined; \*N.A.—Not Applicable  
(—Less Than; )—Greater Than

**OCCUPATIONAL CONTROL PROCEDURES**

Code No. 2219

**Protective Equipment (Type)**

- Eyes** Protective goggles or face shield optional.
- Skin** Exposed employees should exercise reasonable personal cleanliness; this includes cleansing exposed skin areas several times daily with soap and water, and laundering or dry cleaning soiled work clothing at least weekly.
- Inhalation** None required if exposures are within permissible concentrations; see below.

Ventilation Required: Normal  Other**Precautionary Label**

None Considered Necessary.

**Permissible Concentrations:**Air 5 mg/m<sup>3</sup> of air for mineral oil mist averaged over an 8 hour daily exposure. Other**Requirements for Transportation, Handling and Storage**

No Special Requirements.  
 DOT Proper Shipping Name: N.A.  
 DOT Hazard Class (if applicable) N.A.

**CHEMICAL AND PHYSICAL PROPERTIES**

Bolling Point (°F) N.D. Vapor Pressure NIL (mmHg)

Specific Gravity 0.887 (H<sub>2</sub>O = 1) Vapor Density N.D. (Air = 1)

Appearance and Odor Clear, dark pale

pH of undiluted product N.D. Solubility Insoluble

Percent Volatile by Volume NIL Evaporation N.D. ( ) = 1

Viscosity 750 SUS @ 100°F Other \_\_\_\_\_

Hazardous Polymerizations \_\_\_\_\_ Occur  Do not occur

The Material Reacts Violently With: **None of those listed below.**  
 Air \_\_\_\_\_ Water \_\_\_\_\_ Heat \_\_\_\_\_ Strong Oxidizers \_\_\_\_\_ Others \_\_\_\_\_

**FIRE PROTECTION INFORMATION**

Ignition Temp. °F 555 COC Flash Point F. (Method) 450 COC

Flammable limits % Lower N.D. Upper N.D.

Products Evolved When Subjected to Heat or Combustion Carbon monoxide, carbon dioxide, oxides of nitrogen, oxides of sulfur, aldehydes and ketones.

Recommended Fire Extinguishing Agents and Special Procedures According to the National Fire Protection Association Guide 325M, mineral oil fires may be extinguished by water spray, dry chemical, foam, or carbon dioxide. Caution: Water or foam may cause frothing.

Unusual Fire or Explosive Hazards None indicated.

COMPOSITION		Code No.	2219
Components Presenting a Significant Hazard	Wgt %	Other Components	Wgt %
None		Mineral Oil Terpene P <sub>2</sub> S <sub>5</sub> Reaction Product  Methacrylate copolymer Phenyl-alpha-naphthylamine Proprietary additive package containing calcium  Defoamant	99 0.1  0.1 0.3 0.1  10PPM

### ENVIRONMENTAL PROTECTION

**Waste Disposal Method** Dispose in accordance with local laws and regulations governing disposal of oily wastes. A waste oil contractor or disposal specialist is suggested.

**Procedures in Case of Breakage or Leakage** Contain spill. Absorb with inert porous material. Dispose in accordance with local laws and regulations governing disposal of oily wastes. Contact a waste oil contractor or disposal specialist if necessary.

**Remarks:**  
None.

### ADDITIONAL COMMENTS

TEXACO INTENDS TO COMPLY FULLY WITH PROVISIONS OF THE TOXIC SUBSTANCES CONTROL ACT

State of Michigan Critical Materials Act (Revised 1977)

0.3% Phenyl-alpha-naphthyl-amine; conversion factor 7.4 pounds per gallon.

To determine applicability or effect of any law or regulation with respect to this product, user should consult his legal advisor or the appropriate government agency. Texaco does not undertake to furnish advice on such matters.

By: R. T. Richards Title: Mgr., Industrial Hygiene and Toxicology

Date: 1-1-78  New  Revised, Supersedes

**TEXACO INC. — HEALTH DIVISION  
INDUSTRIAL HYGIENE, TOXICOLOGY, AND MATERIAL  
SAFETY DATA SHEET**



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NOTE: NO REPRESENTATION IS MADE AS TO THE ACCURACY OF THE INFORMATION  
HEREIN. SEE PAGE 4 FOR CONDITIONS UNDER WHICH DATA ARE FURNISHED.

Trade Name and Synonyms 700 Regal Oil R&O 32	
Manufacturer's Name Texaco Inc.	Emergency Telephone No. (914) 253-4000 Ext. 2387
Address 2000 Westchester Ave., White Plains, N.Y. 10650	
Chemical Name and/or Family or Description N.A.	
THIS PRODUCT IS CLASSIFIED AS: _____ <input checked="" type="checkbox"/> NOT HAZARDOUS: _____ HAZARDOUS BY DEFINITION NO.(S) _____ ON ATTACHED EXPLANATION SHEET 4.	
<b>WARNING STATEMENT:</b> None considered necessary.	
<b>PHYSIOLOGICAL EFFECTS:</b>	
Effects of Exposure	
Acute:	
Eyes N.D. Believed to be minimally irritating.	
Skin N.D. Believed to be minimally irritating.	
Respiratory System N.D. Believed to be minimally irritating if not in excess of permissible concentrations; see page 2.	
Chronic N.D. Other -	
Sensitization Properties	
Skin: Yes _____ No <input checked="" type="checkbox"/> Unknown _____	
Respiratory: Yes _____ No <input checked="" type="checkbox"/> Unknown _____	
Median Lethal Dose (LD <sub>50</sub> , LC <sub>50</sub> ) (Species)	Irritation Index, Estimation of Irritation (Species)
Oral N.D. Believed to be $\geq 5$ gm/kg (rat)	Skin N.D.; see above
Inhalation N.D.	Eyes: N.D.; see above
Dermal N.D. Believed to be $\geq 10$ gm/kg (rabbit)	Symptoms of Exposure N.D. None expected other than possible minimal irritation.
Other -	
<b>EMERGENCY AND FIRST AID PROCEDURES</b>	
First Aid	
Eyes As with most foreign materials, should eye contact occur, flush eyes with plenty of water.	
Skin None considered necessary.	
Ingestion None considered necessary.	
Inhalation None considered necessary.	
Other Instructions None	

\*N.D.—Not Determined; \*N.A.—Not Applicable

<—Less Than; >—Greater Than

**OCCUPATIONAL CONTROL PROCEDURES**Code  
No. 700**Protective Equipment (Type)****Eyes** Protective goggles or face shield optional.**Skin** Exposed employees should exercise reasonable personal cleanliness; this includes cleansing exposed skin areas several times daily with soap and water, and laundering or dry cleaning soiled work clothing at least weekly.**Inhalation** None required if exposures are within permissible concentrations; see below.Ventilation Required: Normal  Other**Precautionary Label**

None Considered Necessary.

**Permissible Concentrations:**Air 5 mg/m<sup>3</sup> of air for mineral oil mist averaged over an 8 hour daily exposure.

Other

**Requirements for Transportation, Handling and Storage**

No Special Requirements.

DOT Proper Shipping Name: N.A.

DOT Hazard Class (if applicable) N.A.

**CHEMICAL AND PHYSICAL PROPERTIES**Boiling Point (°F) N.D.Vapor Pressure Nil (mmHg)Specific Gravity 0.865 (H<sub>2</sub>O = 1)Vapor Density N.D. (Air = 1)Appearance and Odor Very light palepH of undiluted product N.D.Solubility InsolublePercent Volatile by Volume NilEvaporation N.D. ( ) = 1Viscosity 157 SUS @ 100°FOther -Hazardous Polymerizations Occur  Do not occurThe Material Reacts Violently With: None of those listed below.

Air      Water      Heat      Strong Oxidizers      Others

**FIRE PROTECTION INFORMATION**Ignition Temp. °F N.D.Flash Point F. (Method) 380 COCFlammable limits % Lower N.D.Upper N.D.Products Evolved When Subjected to Heat or Combustion Carbon monoxide, carbon dioxide, oxides of nitrogen, oxides of sulfur, aldehydes and ketones.Recommended Fire Extinguishing Agents and Special Procedures According to the National Fire Protection Association Guide 325M, mineral oil fires may be extinguished by water spray, dry chemical, foam, or carbon dioxide. Caution: Water or foam may cause frothing.Unusual Fire or Explosive Hazards None indicated.

**TEXACO INC. — HEALTH DIVISION  
INDUSTRIAL HYGIENE, TOXICOLOGY, AND MATERIAL  
SAFETY DATA SHEET**



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NOTE: NO REPRESENTATION IS MADE AS TO THE ACCURACY OF THE INFORMATION  
HEREIN. SEE PAGE 4 FOR CONDITIONS UNDER WHICH DATA ARE FURNISHED.

Trade Name and Synonyms 555 Ursa Oil 150	
Manufacturer's Name Texaco Inc.	Emergency Telephone No. (914) 253-4000 Ext. 2387
Address 2000 Westchester Ave., White Plains, N.Y. 10650	
Chemical Name and/or Family or Description N.A.	
THIS PRODUCT IS CLASSIFIED AS: <input checked="" type="checkbox"/> NOT HAZARDOUS: <input type="checkbox"/> HAZARDOUS BY DEFINITION NO.(S) <input type="checkbox"/> ON ATTACHED EXPLANATION SHEET 4.	
<b>WARNING STATEMENT:</b> None considered necessary.	
<b>PHYSIOLOGICAL EFFECTS:</b>	
Effects of Exposure	
Acute:	
Eyes N.D. Believed to be minimally irritating.	
Skin N.D. Believed to be minimally irritating.	
Respiratory System N.D. Believed to be minimally irritating if not in excess of permissible concentrations; see page 2.	
Chronic N.D.	Other -
Sensitization Properties	
Skin: Yes <input type="checkbox"/> No <input checked="" type="checkbox"/> Unknown <input type="checkbox"/>	Respiratory: Yes <input type="checkbox"/> No <input checked="" type="checkbox"/> Unknown <input type="checkbox"/>
Median Lethal Dose (LD <sub>50</sub> , LC <sub>50</sub> ) (Species)	Irritation Index, Estimation of Irritation (Species)
Oral N.D. Believed to be > 5 gm/kg (rat)	Skin N.D.; see above
Inhalation N.D.	Eyes N.D.; see above
Dermal N.D. Believed to be > 10 gm/kg (rabbit)	Symptoms of Exposure N.D. None expected other than possible minimal irritation.
Other -	
<b>EMERGENCY AND FIRST AID PROCEDURES</b>	
First Aid	
Eyes As with most foreign materials, should eye contact occur, flush eyes with plenty of water.	
Skin None considered necessary.	
Ingestion None considered necessary.	
Inhalation None considered necessary.	
Other Instructions None	

\*N.D.—Not Determined; \*N.A.—Not Applicable

<—Less Than; >—Greater Than

**OCCUPATIONAL CONTROL PROCEDURES**Code  
No. 555

## Protective Equipment (Type)

- Eyes** Protective goggles or face shield optional.
- Skin** Exposed employees should exercise reasonable personal cleanliness; this includes cleansing exposed skin areas several times daily with soap and water, and laundering or dry cleaning soiled work clothing at least weekly.
- Inhalation** None required if exposures are within permissible concentrations; see below.

Ventilation Required: Normal 

Other

## Precautionary Label

None Considered Necessary.

## Permissible Concentrations:

Air 5 mg/m<sup>3</sup> of air for mineral oil mist averaged over an 8 hour daily exposure. Other -

## Requirements for Transportation, Handling and Storage

No Special Requirements.

DOT Proper Shipping Name: N.A.

DOT Hazard Class (if applicable) N.A.

**CHEMICAL AND PHYSICAL PROPERTIES**Boiling Point (°F) N.D. Vapor Pressure Nil (mmHg)Specific Gravity 0.928 (H<sub>2</sub>O = 1) Vapor Density N.D. (Air = 1)Appearance and Odor Yellow liquid, greenish-blue bloompH of undiluted product N.D. Solubility InsolublePercent Volatile by Volume Nil Evaporation N.D. (= 1)Viscosity 780 SUS @ 100°F Other -Hazardous Polymerizations        Occur  Do not occurThe Material Reacts Violently With: None of those listed below.Air        Water        Heat        Strong Oxidizers        Others       **FIRE PROTECTION INFORMATION**Ignition Temp. °F 455 COC Flash Point F. (Method) 390 COCFlammable limits % Lower N.D. Upper N.D.Products Evolved When Subjected to Heat or Combustion Carbon monoxide, carbon dioxide, oxides of nitrogen, oxides of sulfur, aldehydes and ketones.Recommended Fire Extinguishing Agents and Special Procedures According to the National Fire Protection Association Guide 325M, mineral oil fires may be extinguished by water spray, dry chemical, foam, or carbon dioxide. Caution: Water or foam may cause frothing.Unusual Fire or Explosive Hazards None indicated.

<b>COMPOSITION</b>		Code No. 555
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Components Presenting a Significant Hazard	Wgt %	Other Components	Wgt %
None.		Mineral oil	100

**ENVIRONMENTAL PROTECTION**

**Waste Disposal Method** Dispose in accordance with local laws and regulations governing disposal of oily wastes. A waste oil contractor or disposal specialist is suggested.

**Procedures in Case of Breakage or Leakage** Contain spill. Absorb with inert porous material. Dispose in accordance with local laws and regulations governing disposal of oily wastes. Contact a waste oil contractor or disposal specialist if necessary.

**Remarks:**  
None.

**ADDITIONAL COMMENTS**

TEXACO INTENDS TO COMPLY FULLY WITH PROVISIONS OF THE TOXIC SUBSTANCES CONTROL ACT

State of Michigan Critical Materials Act (Revised 1977)

None present

To determine applicability or effect of any law or regulation with respect to this product, user should consult his legal advisor or the appropriate government agency. Texaco does not undertake to furnish advice on such matters.

By: R. T. Richards Title: Mgr, Industrial Hygiene and Toxicology

Date: 1-1-78  New  Revised, Supersedes



**TEXACO INC. — HEALTH DIVISION  
INDUSTRIAL HYGIENE, TOXICOLOGY, AND MATERIAL  
SAFETY DATA SHEET**



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NOTE: NO REPRESENTATION IS MADE AS TO THE ACCURACY OF THE INFORMATION  
HEREIN. SEE PAGE 4 FOR CONDITIONS UNDER WHICH DATA ARE FURNISHED.

Trade Name and Synonyms 2174 Havoline Super Premium MO 10W-40	
Manufacturer's Name Texaco Inc.	Emergency Telephone No. (914) 253-4000 Ext. 2387
Address 2000 Westchester Ave., White Plains, N.Y. 10650	
Chemical Name and/or Family or Description N.A.	
THIS PRODUCT IS CLASSIFIED AS: <input checked="" type="checkbox"/> NOT HAZARDOUS: <input type="checkbox"/> HAZARDOUS BY DEFINITION NO.(S) <input type="checkbox"/> ON ATTACHED EXPLANATION SHEET 4.	
<b>WARNING STATEMENT:</b> None considered necessary.	
<b>PHYSIOLOGICAL EFFECTS:</b>	
Effects of Exposure	
Acute:	
Eyes N.D. Believed to be minimally irritating.	
Skin N.D. Believed to be minimally irritating.	
Respiratory System N.D. Believed to be minimally irritating if not in excess of permissible concentrations; see page 2.	
Chronic N.D.	Other -
Sensitization Properties	
Skin: Yes <input type="checkbox"/> No <input checked="" type="checkbox"/> Unknown <input type="checkbox"/>	Respiratory: Yes <input type="checkbox"/> No <input checked="" type="checkbox"/> Unknown <input type="checkbox"/>
Median Lethal Dose (LD <sub>50</sub> , LC <sub>50</sub> ) (Species)	Irritation Index, Estimation of Irritation (Species)
Oral N.D. Believed to be >5 gm/kg (rat)	Skin N.D.; see above
Inhalation N.D.	Eyes N.D.; see above
Dermal N.D. Believed to be >10 gm/kg (rabbit)	Symptoms of Exposure N.D. None expected other than possible minimal irritation.
Other -	
<b>EMERGENCY AND FIRST AID PROCEDURES</b>	
First Aid	
Eyes As with most foreign materials, should eye contact occur, flush eyes with plenty of water.	
Skin None considered necessary.	
Ingestion None considered necessary.	
Inhalation None considered necessary.	
Other Instructions None	

\*N.D.—Not Determined; \*N.A.—Not Applicable  
<—Less Than; >—Greater Than

**OCCUPATIONAL CONTROL PROCEDURES**Code  
No.

2174

**Protective Equipment (Type)**

- Eyes** Protective goggles or face shield optional.  
**Skin** Exposed employees should exercise reasonable personal cleanliness; this includes cleansing exposed skin areas several times daily with soap and water, and laundering or dry cleaning soiled work clothing at least weekly.  
**Inhalation** None required if exposures are within permissible concentrations; see below.

Ventilation Required: Normal 

Other

**Precautionary Label**

None Considered Necessary.

**Permissible Concentrations:**Air 5 mg/m<sup>3</sup> of air for mineral oil mist averaged over an 8 hour daily exposure. Other -**Requirements for Transportation, Handling and Storage**

No Special Requirements.  
DOT Proper Shipping Name: N.A.  
DOT Hazard Class (if applicable) N.A.

**CHEMICAL AND PHYSICAL PROPERTIES**Boiling Point (°F) N.D.Vapor Pressure Nil (mmHg)Specific Gravity 0.882 (H<sub>2</sub>O = 1)Vapor Density N.D. (Air = 1)Appearance and Odor Light redpH of undiluted product N.D.Solubility InsolublePercent Volatile by Volume NilEvaporation N.D. ( ) = 1Viscosity 76 SUS @ 210°FOther -Hazardous Polymerizations Occur  Do not occurThe Material Reacts Violently With: None of those listed below.

Air

Water

Heat

Strong Oxidizers

Others

**FIRE PROTECTION INFORMATION**Ignition Temp. °F 430 COCFlash Point F. (Method) 400 COCFlammable limits % Lower N.D.Upper N.D.Products Evolved When Subjected to Heat or Combustion Carbon monoxide, carbon dioxide, oxides of nitrogen, oxides of sulfur, aldehydes and ketones.

Recommended Fire Extinguishing Agents and Special Procedures According to the National Fire Protection Association Guide 325M, mineral oil fires may be extinguished by water spray, dry chemical, foam, or carbon dioxide. Caution: Water or foam may cause frothing.

Unusual Fire or Explosive Hazards None indicated.

COMPOSITION		Code No. 2174	
Components Presenting a Significant Hazard	Wgt %	Other Components	Wgt %
None.		Mineral oil Zinc dithiophosphate Methacrylate terpolymer Ethylene-propylene copolymer Proprietary additive package containing calcium, zinc, phosphorus, sulfur, and nitrogen Silicone anti-foamant	- 77 0.2 4 7 12 60ppm

**ENVIRONMENTAL PROTECTION**

**Waste Disposal Method** Dispose in accordance with local laws and regulations governing disposal of oily wastes. A waste oil contractor or disposal specialist is suggested.

**Procedures in Case of Breakage or Leakage** Contain spill. Absorb with inert porous material. Dispose in accordance with local laws and regulations governing disposal of oily wastes. Contact a waste oil contractor or disposal specialist if necessary.

**Remarks:**  
None.

**ADDITIONAL COMMENTS**

TEXACO INTENDS TO COMPLY FULLY WITH PROVISIONS OF THE TOXIC SUBSTANCES CONTROL ACT

State of Michigan Critical Materials Act (Revised 1977)

0.023% zinc; conversion factor 7.3 pounds per gallon.

To determine applicability or effect of any law or regulation with respect to this product, user should consult his legal advisor or the appropriate government agency. Texaco does not undertake to furnish advice on such matters.

By: R. T. Richards Title: Mgr. Industrial Hygiene and Toxicology

Date: 1-1-78  New  Revised, Supersedes

**TEXACO INC. — HEALTH DIVISION  
INDUSTRIAL HYGIENE, TOXICOLOGY, AND MATERIAL  
SAFETY DATA SHEET**



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NOTE: NO REPRESENTATION IS MADE AS TO THE ACCURACY OF THE INFORMATION  
HEREIN. SEE PAGE 4 FOR CONDITIONS UNDER WHICH DATA ARE FURNISHED.

Trade Name and Synonyms 1841 Texamatic Fluid 9226	
Manufacturer's Name Texaco Inc.	Emergency Telephone No. (914) 253-4000 Ext. 2387
Address 2000 Westchester Ave., White Plains, N.Y. 10650	
Chemical Name and/or Family or Description N.A.	
THIS PRODUCT IS CLASSIFIED AS: _____ <input checked="" type="checkbox"/> NOT HAZARDOUS: _____ HAZARDOUS BY DEFINITION NO.(S) _____ ON ATTACHED EXPLANATION SHEET 4.	
<b>WARNING STATEMENT:</b> None considered necessary.	
<b>PHYSIOLOGICAL EFFECTS:</b>	
Effects of Exposure	
Acute:	
Eyes N.D. Believed to be minimally irritating.	
Skin N.D. Believed to be minimally irritating.	
Respiratory System N.D. Believed to be minimally irritating if not in excess of permissible concentrations; see page 2.	
Chronic N.D. Other -	
Sensitization Properties	
Skin: Yes _____ No <input checked="" type="checkbox"/> Unknown _____	
Respiratory: Yes _____ No <input checked="" type="checkbox"/> Unknown _____	
Median Lethal Dose (LD <sub>50</sub> , LC <sub>50</sub> ) (Species)	Irritation Index, Estimation of Irritation (Species)
Oral N.D. Believed to be > 5 gm/kg (rat)	skin N.D.; see above
Inhalation N.D.	Eyes N.D.; see above
Dermal N.D. Believed to be > 10 gm/kg (rabbit)	Symptoms of Exposure N.D. None expected other than possible minimal irritation.
Other -	
<b>EMERGENCY AND FIRST AID PROCEDURES</b>	
First Aid	
Eyes As with most foreign materials, should eye contact occur, flush eyes with plenty of water.	
Skin None considered necessary.	
Ingestion None considered necessary.	
Inhalation None considered necessary.	
Other instructions None	

\*N.D.—Not Determined; \*N.A.—Not Applicable  
(—Less Than; )—Greater Than

**OCCUPATIONAL CONTROL PROCEDURES**Code  
No. 1841**Protective Equipment (Type)****Eyes** Protective goggles or face shield optional.**Skin** Exposed employees should exercise reasonable personal cleanliness; this includes cleansing exposed skin areas several times daily with soap and water, and laundering or dry cleaning soiled work clothing at least weekly.**Inhalation** None required if exposures are within permissible concentrations; see below.Ventilation Required: Normal 

Other

**Precautionary Label**

None Considered Necessary.

**Permissible Concentrations:**Air  $5 \text{ mg/m}^3$  of air for mineral oil mist averaged over an 8 hour daily exposure.

Other -

**Requirements for Transportation, Handling and Storage**

No Special Requirements.

DOT Proper Shipping Name: N.A.

DOT Hazard Class (if applicable) N.A.

**CHEMICAL AND PHYSICAL PROPERTIES**Boiling Point ( $^{\circ}\text{F}$ ) N.D.Vapor Pressure Nil (mmHg)Specific Gravity 0.865 (H<sub>2</sub>O = 1)Vapor Density N.D. (Air = 1)Appearance and Odor RedpH of undiluted product N.D.Solubility InsolublePercent Volatile by Volume NilEvaporation N.D. ( ) = 1Viscosity 183 SUS @ 100 $^{\circ}$ FOther -Hazardous Polymerizations Occur  Do not occurThe Material Reacts Violently With: None of those listed below.Air Water Heat Strong Oxidizers Others**FIRE PROTECTION INFORMATION**Ignition Temp.  $^{\circ}\text{F}$  400 COCFlash Point F. (Method) 350 COCFlammable limits % Lower N.D.Upper N.D.Products Evolved When Subjected to Heat or Combustion Carbon monoxide, carbon dioxide, oxides of nitrogen, oxides of sulfur, aldehydes and ketones.Recommended Fire Extinguishing Agents and Special Procedures According to the National Fire Protection Association Guide 325M, mineral oil fires may be extinguished by water spray, dry chemical, foam, or carbon dioxide. Caution: Water or foam may cause frothing.Unusual Fire or Explosive Hazards None indicated.

COMPOSITION		Code No. 1841	
Components Presenting a Significant Hazard	Wgt %	Other Components	Wgt %
None.		Mineral oil Methacrylate terpolymer Proprietary additive package containing barium, nitrogen, sulfur, and phosphorus Red dye	91 4 5 128ppm
<b>ENVIRONMENTAL PROTECTION</b>			
<p><b>Waste Disposal Method</b> Dispose in accordance with local laws and regulations governing disposal of oily wastes. A waste oil contractor or disposal specialist is suggested.</p> <p><b>Procedures in Case of Breakage or Leakage</b> Contain spill. Absorb with inert porous material. Dispose in accordance with local laws and regulations governing disposal of oily wastes. Contact a waste oil contractor or disposal specialist if necessary.</p> <p><b>Remarks:</b> None.</p>			
<b>ADDITIONAL COMMENTS</b>			
<p>TEXACO INTENDS TO COMPLY FULLY WITH PROVISIONS OF THE TOXIC SUBSTANCES CONTROL ACT</p> <p>State of Michigan Critical Materials Act (Revised 1977)</p> <p>None present.</p> <p>To determine applicability or effect of any law or regulation with respect to this product, user should consult his legal advisor or the appropriate government agency. Texaco does not undertake to furnish advice on such matters.</p>			
By: <u>R. T. Richards</u>		Title: <u>Mgr. Industrial Hygiene and Toxicology</u>	
Date: <u>1-1-78</u>		<input checked="" type="checkbox"/> New <input type="checkbox"/> Revised, Supersedes	

**TEXACO INC. — HEALTH DIVISION  
INDUSTRIAL HYGIENE, TOXICOLOGY, AND MATERIAL  
SAFETY DATA SHEET**



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NOTE: NO REPRESENTATION IS MADE AS TO THE ACCURACY OF THE INFORMATION  
HEREIN. SEE PAGE 4 FOR CONDITIONS UNDER WHICH DATA ARE FURNISHED.

Trade Name and Synonyms 1956 Texclad 2	
Manufacturer's Name Texaco Inc.	Emergency Telephone No. (914) 253-4000 Ext. 2387
Address 2000 Westchester Ave., White Plains, N.Y. 10650	
Chemical Name and/or Family or Description N.A.	
THIS PRODUCT IS CLASSIFIED AS: _____ <input checked="" type="checkbox"/> NOT HAZARDOUS: _____ HAZARDOUS BY DEFINITION NO.(S) _____ ON ATTACHED EXPLANATION SHEET 4.	
<b>WARNING STATEMENT:</b> None considered necessary.	
<b>PHYSIOLOGICAL EFFECTS:</b>	
Effects of Exposure	
Acute:	
Eyes N.D. Believed to be minimally irritating.	
Skin N.D. Believed to be minimally irritating.	
Respiratory System N.D. Believed to be minimally irritating.	
Chronic N.D. Other -	
Sensitization Properties	
Skin: Yes _____ No <input checked="" type="checkbox"/> Unknown _____	
Respiratory: Yes _____ No <input checked="" type="checkbox"/> Unknown _____	
Median Lethal Dose (LD <sub>50</sub> , LC <sub>50</sub> ) (Species)	Irritation Index, Estimation of Irritation (Species)
Oral N.D. Believed to be > 5 gm/kg (rat)	Skin N.D.; see above
Inhalation N.D.	Eyes N.D.; see above
Dermal N.D. Believed to be >10 gm/kg (rabbit)	Symptoms of Exposure N.D. None expected other
Other -	than possible minimal irritation.
<b>EMERGENCY AND FIRST AID PROCEDURES</b>	
First Aid	
Eyes As with most foreign materials, should eye contact occur, flush eyes with plenty of water.	
Skin None considered necessary.	
Ingestion None considered necessary.	
Inhalation None considered necessary.	
Other Instructions None	

\*N.D.—Not Determined; \*N.A.—Not Applicable

<—Less Than; >—Greater Than

**OCCUPATIONAL CONTROL PROCEDURES**Code  
No. 1956**Protective Equipment (Type)****Eyes** Protective goggles or face shield optional.**Skin** Exposed employees should exercise reasonable personal cleanliness; this includes cleansing exposed skin areas several times daily with soap and water, and laundering or dry cleaning soiled work clothing at least weekly.**Inhalation** None required.Ventilation Required: Normal 

Other

**Precautionary Label**

None Considered Necessary.

**Permissible Concentrations:**

Air None established for greases.

Other -

**Requirements for Transportation, Handling and Storage**

No Special Requirements.

DOT Proper Shipping Name: N.A.

DOT Hazard Class (if applicable) N.A.

**CHEMICAL AND PHYSICAL PROPERTIES**Boiling Point (°F) N.D.Vapor Pressure Nil (mmHg)Specific Gravity N.D. (H<sub>2</sub>O = 1)Vapor Density N.D. (Air = 1)Appearance and Odor Blackish, smooth and butterypH of undiluted product N.D.Solubility InsolublePercent Volatile by Volume NilEvaporation N.D. ( ) = 1Viscosity N.D.Other -Hazardous Polymerizations Occur  Do not occurThe Material Reacts Violently With: None of those listed below.

Air

Water

Heat

Strong Oxidizers

Others

**FIRE PROTECTION INFORMATION**Ignition Temp. °F N.D.Flash Point F. (Method) N.D. for greasesFlammable limits % Lower N.D.Upper N.D.Products Evolved When Subjected to Heat or Combustion Carbon monoxide, carbon dioxide, oxides of nitrogen, oxides of sulfur, aldehydes and ketones.Recommended Fire Extinguishing Agents and Special Procedures According to the National Fire Protection Association Guide 325M, mineral oil fires may be extinguished by water spray, dry chemical, foam, or carbon dioxide. Caution: Water or foam may cause frothing.Unusual Fire or Explosive Hazards None indicated.



COMPOSITION		Code No.	1956
Components Presenting a Significant Hazard	Wgt %	Other Components	Wgt %
None.		Mineral oil Water Hydrated lime Hard tallow Synthetic graphite Molybdenum disulfide	63 1 1 9 22 3
<b>ENVIRONMENTAL PROTECTION</b>			
<p><b>Waste Disposal Method</b> Dispose in accordance with local laws and regulations governing disposal of oily wastes. A waste oil contractor or disposal specialist is suggested.</p> <p><b>Procedures in Case of Breakage or Leakage</b> Contain spill. Absorb with inert porous material. Dispose in accordance with local laws and regulations governing disposal of oily wastes. Contact a waste oil contractor or disposal specialist if necessary.</p> <p><b>Remarks:</b> None.</p>			
<b>ADDITIONAL COMMENTS</b>			
<p>TEXACO INTENDS TO COMPLY FULLY WITH PROVISIONS OF THE TOXIC SUBSTANCES CONTROL ACT</p> <p>State of Michigan Critical Materials Act (Revised 1977)</p> <p>None present.</p> <p>Maximum usable temperature 175°F.</p> <p>To determine applicability or effect of any law or regulation with respect to this product, user should consult his legal advisor or the appropriate government agency. Texaco does not undertake to furnish advice on such matters.</p>			
By: R. T. Richards _____		Title: Mgr, Industrial Hygiene and Toxicology _____	
Date: 1-1-78 _____		<input checked="" type="checkbox"/> New <input type="checkbox"/> Revised, Supersedes	

**TEXACO INC. — HEALTH DIVISION**  
**INDUSTRIAL HYGIENE, TOXICOLOGY, AND MATERIAL**  
**SAFETY DATA SHEET**



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NOTE: NO REPRESENTATION IS MADE AS TO THE ACCURACY OF THE INFORMATION  
 HEREIN. SEE PAGE 4 FOR CONDITIONS UNDER WHICH DATA ARE FURNISHED.

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Trade Name and Synonyms 1982 Regal Starfak 2	
Manufacturer's Name Texaco Inc.	Emergency Telephone No. (914) 253-4000 Ext. 2387
Address 2000 Westchester Ave., White Plains, N.Y. 10650	
Chemical Name and/or Family or Description N.A.	
THIS PRODUCT IS CLASSIFIED AS: _____ <input checked="" type="checkbox"/> NOT HAZARDOUS: _____ HAZARDOUS BY DEFINITION NO.(S) _____ ON ATTACHED EXPLANATION SHEET 4.	
<b>WARNING STATEMENT:</b> None considered necessary.	
<b>PHYSIOLOGICAL EFFECTS:</b>	
Effects of Exposure	
Acute:	
Eyes N.D. Believed to be minimally irritating.	
Skin N.D. Believed to be minimally irritating.	
Respiratory System N.D. Believed to be minimally irritating.	
Chronic N.D.	Other -
Sensitization Properties	
Skin: Yes _____ No <input checked="" type="checkbox"/> Unknown _____	Respiratory: Yes _____ No <input checked="" type="checkbox"/> Unknown _____
Median Lethal Dose (LD <sub>50</sub> , LC <sub>50</sub> ) (Species)	Irritation Index, Estimation of Irritation (Species)
Oral <u>N.D. Believed to be &gt;5 gm/kg (rat)</u>	Skin <u>N.D.; see above</u>
Inhalation <u>N.D.</u>	Eyes <u>N.D.; see above</u>
Dermal <u>N.D. Believed to be &gt;10 gm/kg (rabbit)</u>	Symptoms of Exposure <u>N.D. None expected other than possible minimal irritation.</u>
Other <u>-</u>	
<b>EMERGENCY AND FIRST AID PROCEDURES</b>	
First Aid	
Eyes As with most foreign materials, should eye contact occur, flush eyes with plenty of water.	
Skin None considered necessary.	
Ingestion None considered necessary.	
Inhalation None considered necessary.	
Other Instructions None	

\*N.D.—Not Determined; \*N.A.—Not Applicable  
 <—Less Than; >—Greater Than

**OCCUPATIONAL CONTROL PROCEDURES**

Code No. 1982

**Protective Equipment (Type)**

Eyes Protective goggles or face shield optional.

Skin Exposed employees should exercise reasonable personal cleanliness; this includes cleansing exposed skin areas several times daily with soap and water, and laundering or dry cleaning soiled work clothing at least weekly.

Inhalation None required.

Ventilation Required: Normal 

Other

**Precautionary Label**

None Considered Necessary.

**Permissible Concentrations:**

Air None established for greases.

Other -

**Requirements for Transportation, Handling and Storage**

No Special Requirements.

DOT Proper Shipping Name: N.A.

DOT Hazard Class (if applicable) N.A.

**CHEMICAL AND PHYSICAL PROPERTIES**Boiling Point (°F) N.D.Vapor Pressure Nil (mmHg)Specific Gravity N.D. (H<sub>2</sub>O = 1)Vapor Density N.D. (Air = 1)Appearance and Odor Orange, smooth, buttery texturepH of undiluted product N.D.Solubility InsolublePercent Volatile by Volume NilEvaporation N.D. ( ) = 1Viscosity N.D.Other -Hazardous Polymerizations        Occur  Do not occurThe Material Reacts Violently With: None of those listed below.

Air

~~Water~~

Heat

Strong Oxidizers

Others

**FIRE PROTECTION INFORMATION**Ignition Temp. °F N.D.Flash Point F. (Method) N.D. for greasesFlammable limits % Lower N.D.Upper N.D.Products Evolved When Subjected to Heat or Combustion Carbon monoxide, carbon dioxide, oxides of nitrogen, oxides of sulfur, aldehydes and ketones.Recommended Fire Extinguishing Agents and Special Procedures According to the National Fire Protection Association Guide 325M, mineral oil fires may be extinguished by water spray, dry chemical, foam, or carbon dioxide. Caution: Water or foam may cause frothing.Unusual Fire or Explosive Hazards None indicated.

COMPOSITION		Code No. 1982	
Components Presenting a Significant Hazard	Wgt %	Other Components	Wgt %
None.		Mineral oil	76
		Sodium Nitrite	3
		Caustic soda	4
		Hydrated lime	0.3
		Hydrogenated castor oil	17
		Diphenylamine	0.5
		Yellow dye 0.6 lb/1000lbs.	
<b>ENVIRONMENTAL PROTECTION</b>			
<p>Waste Disposal Method Dispose in accordance with local laws and regulations governing disposal of oily wastes. A waste oil contractor or disposal specialist is suggested.</p> <p>Procedures in Case of Breakage or Leakage Contain spill. Absorb with inert porous material. Dispose in accordance with local laws and regulations governing disposal of oily wastes. Contact a waste oil contractor or disposal specialist if necessary.</p> <p>Remarks: None.</p>			
<b>ADDITIONAL COMMENTS</b>			
<p>TEXACO INTENDS TO COMPLY FULLY WITH PROVISIONS OF THE TOXIC SUBSTANCES CONTROL ACT</p> <p>State of Michigan Critical Materials Act (Revised 1977)</p> <p>0.5% diphenylamine</p> <p>To determine applicability or effect of any law or regulation with respect to this product, user should consult his legal advisor or the appropriate government agency. Texaco does not undertake to furnish advice on such matters.</p>			
By: <u>R. T. Richards</u>		Title: <u>Mgr, Industrial Hygiene and Toxicology</u>	
Date: <u>1-1-78</u>		<input checked="" type="checkbox"/> New <input type="checkbox"/> Revised, Supersedes	

**TEXACO INC. — HEALTH DIVISION  
INDUSTRIAL HYGIENE, TOXICOLOGY, AND MATERIAL  
SAFETY DATA SHEET**



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**NOTE: NO REPRESENTATION IS MADE AS TO THE ACCURACY OF THE INFORMATION  
HEREIN. SEE PAGE 4 FOR CONDITIONS UNDER WHICH DATA ARE FURNISHED.**

Trade Name and Synonyms 1981 Marfak Heavy Duty 2	
Manufacturer's Name Texaco Inc.	Emergency Telephone No. (914) 253-4000 Ext. 2387
Address 2000 Westchester Ave., White Plains, N.Y. 10650	
Chemical Name and/or Family or Description N.A.	
THIS PRODUCT IS CLASSIFIED AS: <input checked="" type="checkbox"/> NOT HAZARDOUS: <input type="checkbox"/> HAZARDOUS BY DEFINITION NO.(S) <input type="checkbox"/> ON ATTACHED EXPLANATION SHEET 4.	
<b>WARNING STATEMENT:</b> None considered necessary.	
<b>PHYSIOLOGICAL EFFECTS:</b>	
Effects of Exposure	
Acute:	
Eyes N.D. Believed to be minimally irritating.	
Skin N.D. Believed to be minimally irritating.	
Respiratory System N.D. Believed to be minimally irritating.	
Chronic N.D. Other -	
Sensitization Properties	
Skin: Yes <input type="checkbox"/> No <input checked="" type="checkbox"/> Unknown <input type="checkbox"/> Respiratory: Yes <input type="checkbox"/> No <input checked="" type="checkbox"/> Unknown <input type="checkbox"/>	
Median Lethal Dose (LD <sub>50</sub> , LC <sub>50</sub> ) (Species)	Irritation Index, Estimation of Irritation (Species)
Oral N.D. Believed to be > 5 gm/kg (rat)	Skin N.D.; see above
Inhalation N.D.	Eyes N.D.; see above
Dermal N.D. Believed to be > 10 gm/kg (rabbit)	Symptoms of Exposure N.D. None expected other than possible minimal irritation.
Other -	
<b>EMERGENCY AND FIRST AID PROCEDURES</b>	
First Aid	
Eyes As with most foreign materials, should eye contact occur, flush eyes with plenty of water.	
Skin None considered necessary.	
Ingestion None considered necessary.	
Inhalation None considered necessary.	
Other Instructions None	

\*N.D.—Not Determined; \*N.A.—Not Applicable  
<—Less Than; >—Greater Than

**OCCUPATIONAL CONTROL PROCEDURES**Code  
No. 1981**Protective Equipment (Type)****Eyes** Protective goggles or face shield optional.**Skin** Exposed employees should exercise reasonable personal cleanliness; this includes cleansing exposed skin areas several times daily with soap and water, and laundering or dry cleaning soiled work clothing at least weekly.**Inhalation** None required.Ventilation Required: Normal 

Other

**Precautionary Label**

None Considered Necessary.

**Permissible Concentrations:**

- Air None established for greases

Other -

**Requirements for Transportation, Handling and Storage**

No Special Requirements.

DOT Proper Shipping Name: N.A.

DOT Hazard Class (if applicable) N.A.

**CHEMICAL AND PHYSICAL PROPERTIES**Boiling Point (°F) N.D.Vapor Pressure Nil (mmHg)Specific Gravity N.D. (H<sub>2</sub>O = 1)Vapor Density N.D. (Air = 1)Appearance and Odor Dark green, short fiberpH of undiluted product N.D.Solubility InsolublePercent Volatile by Volume NilEvaporation N.D. ( ) = 1Viscosity N.D.Other -Hazardous Polymerizations        Occur.  Do not occurThe Material Reacts Violently With: None of those listed below.

Air

Water

Heat

Strong Oxidizers

Others

**FIRE PROTECTION INFORMATION**Ignition Temp. °F N.D.Flash Point F. (Method) N.D. for greasesFlammable Limits % Lower N.D.Upper N.D.Products Evolved When Subjected to Heat or Combustion Carbon monoxide, carbon dioxide, oxides of nitrogen, oxides of sulfur, aldehydes and ketones.Recommended Fire Extinguishing Agents and Special Procedures According to the National Fire Protection Association Guide 325M, mineral oil fires may be extinguished by water spray, dry chemical, foam, or carbon dioxide. Caution: Water or foam may cause frothing.Unusual Fire or Explosive Hazards None indicated.

COMPOSITION		Code No. 1981	
Components Presenting a Significant Hazard	Wgt %	Other Components	Wgt %
None.		Mineral oil	84
		Caustic soda	3
		Hard tallow	4
		Tallow fatty acid	8
		Silicone anti-foamant	150ppm

**ENVIRONMENTAL PROTECTION**

**Waste Disposal Method** Dispose in accordance with local laws and regulations governing disposal of oily wastes. A waste oil contractor or disposal specialist is suggested.

**Procedures In Case of Breakage or Leakage** Contain spill. Absorb with inert porous material. Dispose in accordance with local laws and regulations governing disposal of oily wastes. Contact a waste oil contractor or disposal specialist if necessary.

**Remarks:**  
None.

**ADDITIONAL COMMENTS**

TEXACO INTENDS TO COMPLY FULLY WITH PROVISIONS OF THE TOXIC SUBSTANCES CONTROL ACT

State of Michigan Critical Materials Act (Revised 1977)

None present. Maximum usable temperature 275°F.

To determine applicability or effect of any law or regulation with respect to this product, user should consult his legal advisor or the appropriate government agency. Texaco does not undertake to furnish advice on such matters.

By: R. T. Richards Title: Mgr, Industrial Hygiene and Toxicology

Date: 1-1-78  New  Revised, Supersedes



ASHLAND OIL, INC.  
P. O. Box 2458  
COLUMBUS, OHIO 43216

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7099G  
MATERIAL SAFETY DATA SHEET

SUPERSEDES PREVIOUS SHEET DATED:

GENERAL INFORMATION

ACCEPTED BY OSHA AS ESSENTIALLY SIMILAR TO OSHA FORM 20.

The information accumulated herein is believed to be accurate but is not warranted to be whether originating with Ashland or not. Recipients are advised to confirm in advance of need that the information is current, applicable, and suitable to their circumstances.

PRODUCT NAME Waylube 30	DATA SHEET NO. 01	DATE PREPARED 7-6-78	CODE NUMBER
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PRODUCT IDENTIFICATION

PRODUCT CLASS Petroleum Oil	GENERAL OR GENERIC IDENTIFICATION
PASSES DOT TEST FOR HAZARDOUS CLASSIFICATION None	HAZARD CLASSIFICATION
	99



HAZARDOUS COMPONENTS  
SEE DEFINITION ON REVERSE SIDE

INGREDIENT	%	TLV	INGREDIENT	%	TLV
Petroleum Oil	>60	5 mg/M <sup>3</sup> for oil mist			



PHYSICAL DATA

INITIAL BOILING POINT	IF LIQUID AT 100°F <input checked="" type="checkbox"/> Product <input type="checkbox"/> Component ( ) %	>600 °F @ 760 mmHg	SPECIFIC GRAVITY	<input type="checkbox"/> Greater than water <input type="checkbox"/> Equal to water <input checked="" type="checkbox"/> Less than water	°F
VAPOR PRESSURE	IF LIQUID AT 100°F OR WHICH SUBLIMES <input type="checkbox"/> Product <input type="checkbox"/> Component ( ) %	unknown mmHg	PERCENT VOLATILES	INGREDIENT WITH INITIAL BOILING POINT BELOW 100°F	0
VAPOR DENSITY	FOR VOLATILE PORTION OF PRODUCT <input checked="" type="checkbox"/> Lighter than air <input checked="" type="checkbox"/> Heavier than air	(air = 1)	EVAPORATION RATE	<input type="checkbox"/> Faster than ether <input checked="" type="checkbox"/> Slower than ether	( = 1)



FIRE AND EXPLOSION DATA

FLASH POINT (Closed Cup)	<input type="checkbox"/> Less than 73°F <input type="checkbox"/> 73-100°F	<input type="checkbox"/> 100-200 °F <input type="checkbox"/> More than 200°F	>400 °F	LOWER EXPLOSION LIMIT	<input type="checkbox"/> Product <input type="checkbox"/> Lowest value of component	unknown
HAZARDOUS DECOMPOSITION PRODUCTS	KNOWN HAZARDOUS PRODUCTS RESULTING FROM HEATING, BURNING, ETC. OR UNREACTED RAW MATERIALS May form toxic materials: Carbon Dioxide and Carbon Monoxide, and various Hydrocarbons.					



**IV****FIRE AND EXPLOSION DATA**  
CONTINUED**SPECIAL FIRE FIGHTING PROCEDURES**

INDICATE EQUIPMENT TO PROTECT FIREMEN FROM TOXIC PRODUCTS/COMBUSTION, OR IF WATER IS NOT TO BE USED.

CODE NUMBER

Water or foam may cause frothing which can be violent and possibly endanger the life of the firefighter. Self-contained breathing apparatus with a full facepiece operated in pressure-demand or other positive pressure mode and full body protective clothing.

**UNUSUAL FIRE AND EXPLOSION HAZARDS**

Not applicable.

**EXTINGUISHING MEDIA**
 DRY CHEMICAL       WATER FOG       CARBON DIOXIDE       ALCOHOL FOAM  
 REGULAR FOAM  
 OTHER-
**V****HEALTH HAZARD DATA****THRESHOLD LIMIT VALUE**

OSHA ESTABLISHED VALUE. IF NONE, INDICATE ACGIH - ADOPTED TLV.

Not established for product. See Section II.

**EFFECTS OF OVEREXPOSURE FOR**  
 PRODUCT  
 COMPONENT

KNOWN EFFECTS LISTED, UNLESS NOT APPLICABLE DUE TO PHYSICAL FORM OF PRODUCT

Eyes-can cause moderate irritation, redness, tearing. Skin-prolonged or repeated contact can cause moderate irritation defatting, dermatitis. Swallowing-can cause gastrointestinal irritation, nausea, vomiting, diarrhea. Breathing-of mist can cause irritation of nasal and respiratory passages.**SPECIAL FIRST AID ACTION**

IF ON SKIN

Thoroughly wash exposed area with soap and water. Remove contaminated clothing. Launder contaminated clothing before re-use.

IF IN EYES

Flush with large amounts of water, lifting upper and lower lids occasionally.

IF SWALLOWED

Give two glasses of water; induce vomiting immediately by sticking finger down throat. Call a physician. Never give anything by mouth to an unconscious person.

IF BREATHED

Remove individual to fresh air.

<b>VI</b>  <b>REACTIVITY DATA</b>	<b>HAZARDOUS POLY-MERIZATION</b>	<small>CONDITIONS TO AVOID HAZARDOUS POLYMERIZATION RESULTING IN A LARGE RELEASE OF ENERGY</small> <input type="checkbox"/> CAN OCCUR <input checked="" type="checkbox"/> CANNOT OCCUR	<small>CODE NUMBER</small>  
	<b>STABILITY</b>	<small>CONDITIONS TO AVOID IF UNSTABLE UNDER NORMAL CONDITIONS</small> <input checked="" type="checkbox"/> STABLE <input type="checkbox"/> UNSTABLE	
	<b>INCOMPATIBILITY (MATERIALS TO AVOID)</b>	<small>COMMON MATERIALS OR CONTAMINANTS WHICH WOULD RESULT IN A HAZARDOUS REACTION WITH THE PRODUCT ARE SHOWN</small> Strong oxidizing agents (e. g. nitric acid, permanganates, etc.).	
<b>VII</b>  <b>SPILL OR LEAK PROCEDURES</b>  <small>REASONABLE PRECAUTIONS TO BE TAKEN AND THE METHODS OF CLEANUP TO BE USED IN THE EVENT OF SPILLAGE OF THE PRODUCT.</small>	<b>STEPS TO BE TAKEN IN CASE MATERIAL IS RELEASED OR SPILLED</b>	<small>SMALL SPILL</small> Absorb liquid on paper, vermiculite, floor absorbent, or other absorbent material and transfer to hood.  <small>LARGE SPILL</small> Persons not wearing protective equipment should be excluded from area of spill until clean-up has been completed. Stop spill at source, dike area of spill to prevent spreading, pump liquid to salvage tank. Remaining liquid may be taken up on sand, clay, earth, floor absorbent, or other absorbent material and shovel into containers.	
	<b>WASTE DISPOSAL METHOD</b>	<small>SMALL SPILL</small> Destroy by incineration.  <small>LARGE SPILL</small> Destroy by liquid incineration. Deposit in a posted toxic substance landfill.	
<b>VIII</b>  <b>PROTECTIVE EQUIPMENT TO BE USED</b>	<b>RESPIRATORY PROTECTION</b>	Allow to evaporate.	
	<b>PROTECTIVE GLOVES</b>	Wear resistant gloves such as: Neoprene. Buna-N.	
	<b>EYE PROTECTION</b>	Wear safety glasses in compliance with OSHA regulations.	
	<b>VENTILATION</b>	Not required under normal conditions of use.	
	<b>OTHER PROTECTIVE EQUIPMENT</b>	Normal work clothing covering arms and legs.	



Containers of this material may be hazardous when emptied. Since emptied containers retain product residues (vapor, liquid, and/or solid), all hazard precautions given in this data sheet must be observed.

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**A HAZARDOUS INGREDIENT IS ONE WHICH MEETS ONE OR MORE OF THE FOLLOWING CRITERIA:**

1. It is listed in the annual Registry of Toxic Effects of Chemical Substances, or is known to be toxic within the parameters of that Registry, and is present at a level of 4% or greater. DOT Poisons are listed if present at any level.
2. It has an OSHA established 8-hour time-weighted average or acceptable ceiling concentration (c), or an American Conference of Governmental Industrial Hygienists' (ACGIH) Threshold Limit Value, and by the nature of the product or its known use, is likely to become airborne.
3. It contributes to one or more of the following hazards of the product:
  - a. Flashpoint below 200 F (cc), or subject to spontaneous heating or decomposition.
  - b. Causes skin burns. (DOT)
  - c. Strong oxidizing agent. (DOT)
  - d. Subject to hazardous polymerization.

Each hazardous ingredient is listed by chemical, generic, or proprietary name, its level in the product is expressed as 1% or less, 1-10%, 10-30%, 30-60%, or greater than 60%, or by other means if such information is proprietary. Adopted ACGIH values are only listed, with appropriate notation, where OSHA values are not available.

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**SUPERSEDES PREVIOUS SHEET DATED:**

**7000C MATERIAL SAFETY DATA SHEET**

ACCEPTED BY OSHA AS ESSENTIALLY SIMILAR TO OSHA FORM 20.

The information accumulated herein is believed to be accurate but is not warranted to be whether originating with Ashland or not. Recipients are advised to confirm in advance of need that the information is current, applicable, and suitable to their circumstances.

**GENERAL INFORMATION**

<b>PRODUCT NAME</b> Waylube 100	<b>DATA SHEET NO.</b> 01	<b>DATE PREPARED</b> 7-6-78	<b>CODE NUMBER</b>
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**PRODUCT IDENTIFICATION**

<b>PRODUCT CLASS</b>	<b>GENERAL OR GENERIC IDENTIFICATION</b> Petroleum Oil
<b>PASSES DOT TEST FOR HAZARDOUS CLASSIFICATION</b>	<b>HAZARD CLASSIFICATION</b> None



**HAZARDOUS COMPONENTS**  
SEE DEFINITION ON REVERSE SIDE

INGREDIENT	%	TLV	INGREDIENT	%	TLV
Petroleum Oil	>60	5 mg/M <sup>3</sup> *			
*For oil mist					




**PHYSICAL DATA**




<b>INITIAL BOILING POINT</b>	IF LIQUID AT 60°F <input checked="" type="checkbox"/> Product <input type="checkbox"/> Component ( % )	>600 °F 760 mmHg	<b>SPECIFIC GRAVITY</b>	<input type="checkbox"/> Greater than water <input type="checkbox"/> Equal to water <input checked="" type="checkbox"/> Less than water
<b>VAPOR PRESSURE</b>	IF LIQUID AT 60°F OR WHEN BOILING <input type="checkbox"/> Product <input type="checkbox"/> Component ( % )	unknown mmHg	<b>PERCENT VOLATILES</b>	INGREDIENT WITH INITIAL BOILING POINT BELOW 425°F
<b>VAPOR DENSITY</b>	FOR VOLATILE PORTION OF PRODUCT <input type="checkbox"/> Lighter than air <input checked="" type="checkbox"/> Heavier than air	(air = 1)	<b>EVAPORATION RATE</b>	<input type="checkbox"/> Faster than ether <input checked="" type="checkbox"/> Slower than ether



**FIRE AND EXPLOSION DATA**

<b>FLASH POINT (closed cup)</b>	<input type="checkbox"/> Less than 73°F <input type="checkbox"/> 73-100°F <input type="checkbox"/> 100-200 °F <input type="checkbox"/> More than 200°F	>400 °F	<b>LOWER EXPLOSION LIMIT</b>	<input type="checkbox"/> Product <input type="checkbox"/> Lowest value of component
<b>HAZARDOUS DECOMPOSITION PRODUCTS</b>	KNOWN HAZARDOUS PRODUCTS RESULTING FROM HEATING, BURNING, ETC. OR UNREACTED RAW MATERIALS May form toxic materials: Carbon Monoxide and Carbon Dioxide and various Hydrocarbons.			

<p><b>IV</b></p> <p><b>FIRE AND EXPLOSION DATA</b> CONTINUED</p>	<p><b>SPECIAL FIRE FIGHTING PROCEDURES</b></p>	<p>INDICATE EQUIPMENT TO PROTECT FIREMEN FROM TOXIC PRODUCTS/COMBUSTION, OR IF WATER IS NOT TO BE USED.</p> <p>Water or foam may cause frothing which can be violent and possibly endanger the life of the firefighter. Self-contained breathing apparatus with full facepiece operated in pressure-demand or other positive pressure mode and full body protective clothing.</p>	<p>CODE NUMBER</p>
	<p><b>UNUSUAL FIRE AND EXPLOSION HAZARDS</b></p>	<p>Not applicable.</p>	
	<p><b>EXTINGUISHING MEDIA</b></p>	<p><input checked="" type="checkbox"/> DRY CHEMICAL      <input type="checkbox"/> WATER FOG      <input checked="" type="checkbox"/> CARBON DIOXIDE      <input type="checkbox"/> ALCOHOL FOAM  <input type="checkbox"/> REGULAR FOAM  <input type="checkbox"/> OTHER-</p>	
<p><b>V</b></p> <p><b>HEALTH HAZARD DATA</b></p>	<p><b>THRESHOLD LIMIT VALUE</b></p>	<p>OSHA ESTABLISHED VALUE. IF NONE, INDICATE ACGIH - ADOPTED TLV.</p> <p>Not established for product. See Section II.</p>	
	<p><b>EFFECTS OF OVEREXPOSURE FOR PRODUCT COMPONENT</b></p>	<p>KNOWN EFFECTS LISTED, UNLESS NOT APPLICABLE DUE TO PHYSICAL FORM OF PRODUCT</p> <p><u>Eyes</u>- can cause moderate irritation, redness, tearing.  <u>Skin</u>- prolonged or repeated contact can cause moderate irritation, defatting, dermatitis. <u>Swallowing</u>- can cause gastrointestinal irritation, nausea, vomiting, diarrhea.  <u>Breathing</u>- of mist can cause irritation of nasal and respiratory passages.</p>	
	<p> <b>SPECIAL FIRST AID ACTION</b></p>	<p><b>IF ON SKIN</b></p> <p>Thoroughly wash exposed area with soap and water. Remove contaminated clothing. Launder contaminated clothing before re-use.</p> <hr/> <p><b>IF IN EYES</b></p> <p>Flush with large amounts of water, lifting upper and lower lids occasionally.</p> <hr/> <p><b>IF SWALLOWED</b></p> <p>Give two glasses of water; induce vomiting immediately by sticking finger down throat. Call a physician. <u>Never</u> give anything by mouth to an unconscious person.</p> <hr/> <p><b>IF BREATHED</b></p> <p>Remove individual to fresh air.</p>	

  <b>REACTIVITY DATA</b>	<b>HAZARDOUS POLY-MERIZATION</b> <input type="checkbox"/> CAN OCCUR <input checked="" type="checkbox"/> CANNOT OCCUR	<small>CONDITIONS TO AVOID HAZARDOUS POLYMERIZATION RESULTING IN A LARGE RELEASE OF ENERGY</small> <div style="border: 1px solid black; width: 100px; height: 30px; float: right; text-align: center; font-size: 8px;">CODE NUMBER</div>
	<b>STABILITY</b> <input checked="" type="checkbox"/> STABLE <input type="checkbox"/> UNSTABLE	<small>CONDITIONS TO AVOID IF UNSTABLE UNDER NORMAL CONDITIONS</small>
	<b>INCOMPATIBILITY (MATERIALS TO AVOID)</b>	<small>COMMON MATERIALS OR CONTAMINANTS WHICH WOULD RESULT IN A HAZARDOUS REACTION WITH THE PRODUCT ARE SHOWN</small> Strong oxidizing agents (e.g. nitric acid, permanganates, etc.).
  <b>SPILL OR LEAK PROCEDURES</b>  <small>REASONABLE PRECAUTIONS TO BE TAKEN AND THE METHODS OF CLEANUP TO BE USED IN THE EVENT OF SPILLAGE OF THE PRODUCT.</small>	<b>STEPS TO BE TAKEN IN CASE MATERIAL IS RELEASED OR SPILLED</b>	<small>SMALL SPILL</small>  Absorb liquid on paper, vermiculite, floor absorbent, or other absorbent material and transfer to hood.
		<small>LARGE SPILL</small> Person not wearing protective equipment should be excluded from area of spill until clean-up has been completed. Stop spill at source, dike area of spill to prevent spreading, pump liquid to salvage tank. Remaining liquid may be taken up on sand, clay, earth, floor absorbent, or other absorbent material and shovel into containers.
	<b>WASTE DISPOSAL METHOD</b>	<small>SMALL SPILL</small>  Destroy by incineration.
		<small>LARGE SPILL</small> Destroy by liquid incineration. Deposit in a posted toxic substance landfill.
  <b>PROTECTIVE EQUIPMENT TO BE USED</b>	<b>RESPIRATORY PROTECTION</b>	Allow to evaporate.
	<b>PROTECTIVE GLOVES</b>	Wear resistant gloves such as: Neoprene and Buna-N.
	<b>EYE PROTECTION</b>	Wear safety glasses in compliance with OSHA regulations.
	<b>VENTILATION</b>	Not required under normal conditions of use.
	<b>OTHER PROTECTIVE EQUIPMENT</b>	Normal work clothing covering arms and legs.



Containers of this material may be hazardous when emptied. Since emptied containers retain product residues (vapor, liquid, and/or solid), all hazard precautions given in this data sheet must be observed.

---

**A HAZARDOUS INGREDIENT IS ONE WHICH MEETS ONE OR MORE OF THE FOLLOWING CRITERIA:**

1. It is listed in the annual Registry of Toxic Effects of Chemical Substances, or is known to be toxic within the parameters of that Registry, and is present at a level of 4% or greater. DOT Poisons are listed if present at any level.
2. It has an OSHA established 8-hour time-weighted average or acceptable ceiling concentration (c), or an American Conference of Governmental Industrial Hygienists' (ACGIH) Threshold Limit Value, and by the nature of the product or its known use, is likely to become airborne.
3. It contributes to one or more of the following hazards of the product:
  - a. Flashpoints below 200 F (cc), or subject to spontaneous heating or decomposition.
  - b. Causes skin burns. (DOT)
  - c. Strong oxidizing agent. (DOT)
  - d. Subject to hazardous polymerization.

Each hazardous ingredient is listed by chemical, generic, or proprietary name, its level in the product is expressed as 1% or less, 1-10%, 10-30%, 30-60%, or greater than 60%, or by other means if such information is proprietary. Adopted ACGIH values are only listed, with appropriate notation, where OSHA values are not available.

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7099C  
**MATERIAL SAFETY DATA SHEET**

**SUPERSEDES PREVIOUS SHEET DATED:**

ACCEPTED BY OSHA AS ESSENTIALLY SIMILAR TO OSHA FORM 20.

The information accumulated herein is believed to be accurate but is not warranted to be whether originating with Ashland or not. Recipients are advised to confirm in advance of need that the information is current, applicable, and suitable to their circumstances.

**GENERAL INFORMATION**

<b>PRODUCT NAME</b> Ultramax AW 15 Oil	<b>DATA SHEET NO.</b> 01	<b>DATE PREPARED</b> 7-6-78	<b>CODE NUMBER</b>
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**PRODUCT IDENTIFICATION**

<b>PRODUCT CLASS</b>	<b>GENERAL OR GENERIC IDENTIFICATION</b> Petroleum Oil
<b>PASSES DOT TEST FOR HAZARDOUS CLASSIFICATION</b>	<b>HAZARD CLASSIFICATION</b> None

**HAZARDOUS COMPONENTS**  
SEE DEFINITION ON REVERSE SIDE

INGREDIENT	%	TLV	INGREDIENT	%	TLV
Petroleum Oil	>60	5 mg/M <sup>3</sup> *			
*For oil mist					

**PHYSICAL DATA**

<b>INITIAL BOILING POINT</b>	<input checked="" type="checkbox"/> Product <input type="checkbox"/> Component ( ) %	> 600 °F 760 mmHg	<b>SPECIFIC GRAVITY</b>	<input type="checkbox"/> Greater than water <input type="checkbox"/> Equal to water <input checked="" type="checkbox"/> Less than water	°F
<b>VAPOR PRESSURE</b>	<input type="checkbox"/> Product <input checked="" type="checkbox"/> Component ( ) %	unknown mmHg	<b>PERCENT VOLATILES</b>	<b>INGREDIENT WITH INITIAL BOILING POINT BELOW 410 °F</b>	0
<b>VAPOR DENSITY</b>	<input type="checkbox"/> Volatile portion of product <input checked="" type="checkbox"/> Lighter than air <input type="checkbox"/> Heavier than air	(air = 1)	<b>EVAPORATION RATE</b>	<input type="checkbox"/> Faster than ether <input checked="" type="checkbox"/> Slower than ether	( = 1)

**FIRE AND EXPLOSION DATA**


<b>FLASH POINT (closed cup)</b>	<input type="checkbox"/> Less than 73°F <input type="checkbox"/> 73-100°F <input type="checkbox"/> 100-200°F <input type="checkbox"/> More than 200°F	410 °F	<b>LOWER EXPLOSION LIMIT</b>	<input type="checkbox"/> Product <input type="checkbox"/> Lowest value of component	unknown
<b>HAZARDOUS DECOMPOSITION PRODUCTS</b>	KNOWN HAZARDOUS PRODUCTS RESULTING FROM HEATING, BURNING, ETC. OR UNREACTED RAW MATERIALS May form toxic materials: Carbon Dioxide and Carbon Monoxide and various Hydrocarbons.				






**IV****FIRE AND EXPLOSION DATA**  
CONTINUED

SPECIAL FIRE FIGHTING PROCEDURES	<small>INDICATE EQUIPMENT TO PROTECT FIREMEN FROM TOXIC PRODUCTS/COMBUSTION, OR IF WATER IS NOT TO BE USED.</small> Water or foam may cause frothing which can be violent and possibly endanger the life of the firefighter. Self-contained breathing apparatus with a full facepiece operated in pressure-demand or other positive pressure mode and full body protective clothing.	COGUE NUMBER
UNUSUAL FIRE AND EXPLOSION HAZARDS	Not applicable.	
EXTINGUISHING MEDIA	<input checked="" type="checkbox"/> DRY CHEMICAL <input type="checkbox"/> WATER FOG <input checked="" type="checkbox"/> CARBON DIOXIDE <input type="checkbox"/> ALCOHOL FOAM <input type="checkbox"/> REGULAR FOAM <input type="checkbox"/> OTHER-	

**V****HEALTH HAZARD DATA**

THRESHOLD LIMIT VALUE	<small>OSHA ESTABLISHED VALUE. IF NONE, INDICATE ACGIH - ADOPTED TLV.</small> Not established for product. See Section II.	
EFFECTS OF OVEREXPOSURE FOR <input checked="" type="checkbox"/> PRODUCT <input type="checkbox"/> COMPONENT	<small>KNOWN EFFECTS LISTED, UNLESS NOT APPLICABLE DUE TO PHYSICAL FORM OF PRODUCT</small> <u>Eyes</u> - can cause moderate irritation, redness, tearing. <u>Skin</u> - prolonged or repeated contact can cause moderate irritation, defatting, dermatitis. <u>Swallowing</u> - can cause gastrointestinal irritation, nausea, vomiting, diarrhea. <u>Breathing</u> - of mist can cause irritation of nasal and respiratory passages.	
 <b>SPECIAL FIRST AID ACTION</b>	<small>IF ON SKIN</small> Thoroughly wash exposed area with soap and water. Remove contaminated clothing. Launder contaminated clothing before re-use.	
	<small>IF IN EYES</small> Flush with large amounts of water, lifting upper and lower lids occasionally.	
	<small>IF SWALLOWED</small> Give two glasses of water; induce vomiting immediately by sticking finger down throat. Call a physician. <u>Never</u> give anything by mouth to an unconscious person.	
	<small>IF BREATHED</small> Remove individual to fresh air.	

  <b>REACTIVITY DATA</b>	<b>HAZARDOUS POLYMERIZATION</b> <input type="checkbox"/> CAN OCCUR <input checked="" type="checkbox"/> CANNOT OCCUR	CONDITIONS TO AVOID HAZARDOUS POLYMERIZATION RESULTING IN A LARGE RELEASE OF ENERGY CODE NUMBER
	<b>STABILITY</b> <input checked="" type="checkbox"/> STABLE <input type="checkbox"/> UNSTABLE	CONDITIONS TO AVOID IF UNSTABLE UNDER NORMAL CONDITIONS
	<b>INCOMPATIBILITY (MATERIALS TO AVOID)</b> Strong oxidizing agents (e.g. nitric acid, permanganates, etc.).	COMMON MATERIALS OR CONTAMINANTS WHICH WOULD RESULT IN A HAZARDOUS REACTION WITH THE PRODUCT ARE SHOWN
  <b>SPILL OR LEAK PROCEDURES</b>  REASONABLE PRECAUTIONS TO BE TAKEN AND THE METHODS OF CLEANUP TO BE USED IN THE EVENT OF SPILLAGE OF THE PRODUCT.	<b>STEPS TO BE TAKEN IN CASE MATERIAL IS RELEASED OR SPILLED</b>	<b>SMALL SPILL</b> Absorb liquid on paper, vermiculite, floor absorbent, or other absorbent material and transfer to hood.
	<b>WASTE DISPOSAL METHOD</b>	<b>LARGE SPILL</b> Person not wearing protective equipment should be excluded from area of spill until clean-up has been completed. Stop spill at source, dike area of spill to prevent spreading, pump liquid to salvage tank. Remaining liquid may be taken up on sand, clay, earth, floor absorbent, or other absorbent material and shovel into containers.
		<b>SMALL SPILL</b> Destroy by incineration.
  <b>PROTECTIVE EQUIPMENT TO BE USED</b>	<b>RESPIRATORY PROTECTION</b>	Allow to evaporate.
	<b>PROTECTIVE GLOVES</b>	Wear resistant gloves such as: Neoprene and Buna-N.
	<b>EYE PROTECTION</b>	Wear safety glasses in compliance with OSHA regulations.
	<b>VENTILATION</b>	Not required under normal conditions of use.
	<b>OTHER PROTECTIVE EQUIPMENT</b>	Normal work clothing covering arms and legs.



Containers of this material may be hazardous when emptied. Since emptied containers retain product residues (vapor, liquid, and/or solid), all hazard precautions given in this data sheet must be observed.

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**A HAZARDOUS INGREDIENT IS ONE WHICH MEETS ONE OR MORE OF THE FOLLOWING CRITERIA:**

1. It is listed in the annual Registry of Toxic Effects of Chemical Substances, or is known to be toxic within the parameters of that Registry, and is present at a level of 4% or greater. DOT Poisons are listed if present at any level.
2. It has an OSHA established 8-hour time-weighted average or acceptable ceiling concentration (c), or an American Conference of Governmental Industrial Hygienists' (ACGIH) Threshold Limit Value, and by the nature of the product or its known use, is likely to become airborne.
3. It contributes to one or more of the following hazards of the product:
  - a. Flashpoint below 200 F (cc), or subject to spontaneous heating or decomposition.
  - b. Causes skin burns. (DOT)
  - c. Strong oxidizing agent. (DOT)
  - d. Subject to hazardous polymerization.

Each hazardous ingredient is listed by chemical, generic, or proprietary name, its level in the product is expressed as 1% or less, 1-10%, 10-30%, 30-60%, or greater than 60%, or by other means if such information is proprietary. Adopted ACGIH values are only listed, with appropriate notation, where OSHA values are not available.



ASHLAND OIL, INC.  
P. O. Box 2458  
COLUMBUS, OHIO 43216

SUPERSEDES PREVIOUS  
SHEET DATED: **83**

**MATERIAL SAFETY DATA SHEET**

**GENERAL INFORMATION**

ACCEPTED BY OSHA AS ESSENTIALLY  
SIMILAR TO OSHA FORM 20

The information accumulated herein is believed to be accurate but is not warranted to be whether originating with Ashland or not. Recipients are advised to confirm in advance of need that the information is current, applicable, and suitable to their circumstances.

PRODUCT NAME: **Promax 1022** DATA SHEET NO.: **01** DATE PREPARED: **6-15-78** CODE NUMBER: **99**

<b>II</b>	PRODUCT CLASS	GENERAL OR GENERIC IDENTIFICATION
	PASSES DOT TEST FOR HAZARDOUS CLASSIFICATION	HAZARD CLASSIFICATION
		<b>Petroleum Oil</b>
		<b>None</b>

<b>III</b>	HAZARDOUS COMPONENTS SEE DEFINITION ON REVERSE SIDE	INGREDIENT	%	TLV	INGREDIENT	%	TLV
		100 Sulfurized Pale Oil	>60	5 mg/M <sup>3</sup> *			
200 Sulfurized Pale Oil	1-10	5 mg/M <sup>3</sup> *					
		<b>*For oil mist</b>					


<b>IV</b>	INITIAL BOILING POINT	<input type="checkbox"/> Product <input checked="" type="checkbox"/> Component >60	>300 °F 760 mmHg	SPECIFIC GRAVITY	<input type="checkbox"/> Greater than water <input type="checkbox"/> Equal to water <input checked="" type="checkbox"/> Less than water	
	VAPOR PRESSURE	<input type="checkbox"/> Product <input type="checkbox"/> Component	unknown mmHg	PERCENT VOLATILES	INGREDIENT WITH INITIAL BOILING POINT BELOW 100 °F	0
	VAPOR DENSITY	<input type="checkbox"/> Volatile portion of product <input checked="" type="checkbox"/> Lighter than air <input type="checkbox"/> Heavier than air	(air = 1)	EVAPORATION RATE	<input type="checkbox"/> Faster than ether <input checked="" type="checkbox"/> Slower than ether	(=1)

<b>V</b>	FLASH POINT (CLOUPE)	<input type="checkbox"/> Less than 7.4°F (45°C) <input type="checkbox"/> 7.3-100°F <input checked="" type="checkbox"/> More than 100°F	or	LOWER EXPLOSION LIMIT	<input type="checkbox"/> Product <input checked="" type="checkbox"/> Lowest value of component	~ 0.8%
	HAZARDOUS DECOMPOSITION PRODUCTS	KNOWN HAZARDOUS PRODUCTS RESULTING FROM HEATING, BURNING, ETC. OR UNREACTED RAW MATERIALS <b>May form toxic materials: Carbon Dioxide and Carbon Monoxide. Various Hydrocarbons. Sulfur Compounds.</b>				

**IV****FIRE AND EXPLOSION DATA**  
CONTINUED

SPECIAL FIRE FIGHTING PROCEDURES	<small>INDICATE EQUIPMENT TO PROTECT FIREMEN FROM TOXIC PRODUCTS/COMBUSTION, OR IF WATER IS NOT TO BE USED.</small> Water or foam may cause frothing which can be violent and possibly endanger the life of the firefighter. Self-contained breathing apparatus with a full facepiece operated in pressure-demand or other positive pressure mode.	CODE NUMBER
UNUSUAL FIRE AND EXPLOSION HAZARDS	Not Applicable.	
EXTINGUISHING MEDIA	<input checked="" type="checkbox"/> DRY CHEMICAL <input type="checkbox"/> WATER FOG <input checked="" type="checkbox"/> CARBON DIOXIDE <input type="checkbox"/> ALCOHOL FOAM <input type="checkbox"/> REGULAR FOAM <input type="checkbox"/> OTHER--	

**V****HEALTH HAZARD DATA**

THRESHOLD LIMIT VALUE	<small>OSHA ESTABLISHED VALUE. IF NONE, INDICATE ACGIH - ADOPTED TLV.</small> Not established for product. See Section II.	
EFFECTS OF OVEREXPOSURE FOR <input checked="" type="checkbox"/> PRODUCT <input type="checkbox"/> COMPONENT	<small>KNOWN EFFECTS LISTED, UNLESS NOT APPLICABLE DUE TO PHYSICAL FORM OF PRODUCT.</small> <u>Eyes</u> -can cause severe irritation, redness, tearing, blurred vision. <u>Skin</u> -prolonged or repeated contact can cause moderate irritation, defatting, dermatitis. <u>Breathing</u> -mist can cause damage to nasal and respiratory passages. <u>Swallowing</u> -can cause gastrointestinal irritation, nausea, vomiting, diarrhea.	
 <b>SPECIAL FIRST AID ACTION</b>	<small>IF ON SKIN</small> Thoroughly wash exposed area with soap and water. Remove contaminated clothing. Launder contaminated clothing before re-use.	
	<small>IF IN EYES</small> Flush with large amounts of water, lifting upper and lower lids occasionally.	
	<small>IF SWALLOWED</small> Give two glasses of water; induce vomiting immediately by sticking finger down throat. Call a physician. <u>Never</u> give anything by mouth to an unconscious person.	
	<small>IF BREATHED</small> Remove individual to fresh air.	

VI REACTIVITY DATA	HAZARDOUS POLYMERIZATION	<small>CONDITIONS TO AVOID HAZARDOUS POLYMERIZATION RESULTING IN A LARGE RELEASE OF ENERGY</small> <input type="checkbox"/> CAN OCCUR <input checked="" type="checkbox"/> CANNOT OCCUR	CODE NUMBER
	STABILITY	<small>CONDITIONS TO AVOID IF UNSTABLE UNDER NORMAL CONDITIONS</small> <input checked="" type="checkbox"/> STABLE <input type="checkbox"/> UNSTABLE	
	INCOMPATIBILITY (MATERIALS TO AVOID)	<small>COMMON MATERIALS OR CONTAMINANTS WHICH WOULD RESULT IN A HAZARDOUS REACTION WITH THE PRODUCT ARE SHOWN</small> Strong oxidizing agents (e.g. nitric acid, permanganates, etc.).	
VII SPILL OR LEAK PROCEDURES	STEPS TO BE TAKEN IN CASE MATERIAL IS RELEASED OR SPILLED	<small>SMALL SPILL</small> Absorb liquid on paper, vermiculite, floor absorbent, or other absorbent material and transfer to hood.	
	REASONABLE PRECAUTIONS TO BE TAKEN AND THE METHODS OF CLEANUP TO BE USED IN THE EVENT OF SPILLAGE OF THE PRODUCT.	<small>LARGE SPILL</small> Persons not wearing protective equipment should be excluded from area of spill until clean-up has been completed. Stop spill at source, dike area of spill to prevent spreading, pump liquid to salvage tank. Remaining liquid may be taken up on sand, clay, earth, floor absorbent, or other absorbent material and shovel into containers.	
VIII PROTECTIVE EQUIPMENT TO BE USED	WASTE DISPOSAL METHOD	<small>SMALL SPILL</small> Destroy by incineration.	
		<small>LARGE SPILL</small> Destroy by liquid incineration with off-gas scrubber. Deposit in a posted toxic substance landfill.	
IX PROTECTIVE EQUIPMENT TO BE USED	RESPIRATORY PROTECTION	Not required under normal conditions of use.	
	PROTECTIVE GLOVES	Wear resistant gloves such as: Neoprene, Buna-N.	
	EYE PROTECTION	Wear safety glasses in compliance with OSHA regulations. (See your safety equipment supplier).	
	VENTILATION	Not required under normal conditions of use.	
	OTHER PROTECTIVE EQUIPMENT	Normal work clothing covering arms and legs.	



Containers of this material may be hazardous when emptied. Since emptied containers retain product residues (vapor, liquid, and/or solid), all hazard precautions given in this data sheet must be observed.

**A HAZARDOUS INGREDIENT IS ONE WHICH MEETS ONE OR MORE OF THE FOLLOWING CRITERIA:**

1. It is listed in the annual Registry of Toxic Effects of Chemical Substances, or is known to be toxic within the parameters of that Registry, and is present at a level of 4% or greater. DOT Poisons are listed if present at any level.
2. It has an OSHA established 8-hour time-weighted average or acceptable ceiling concentration (c), or an American Conference of Governmental Industrial Hygienists' (ACGIH) Threshold Limit Value, and by the nature of the product or its known use, is likely to become airborne.
3. It contributes to one or more of the following hazards of the product:
  - a. Flashpoint below 200 F (cc), or subject to spontaneous heating or decomposition.
  - b. Causes skin burns. (DOT)
  - c. Strong oxidizing agent. (DOT)
  - d. Subject to hazardous polymerization.

Each hazardous ingredient is listed by chemical, generic, or proprietary name, its level in the product is expressed as 1% or less, 1-10%, 10-30%, 30-60%, or greater than 60%, or by other means if such information is proprietary. Adopted ACGIH values are only listed, with appropriate notation, where OSHA values are not available.



ASHLAND OIL, INC.  
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COLUMBUS, OHIO 43219

SUPERSEDES PREVIOUS SHEET DATED:

ACCEPTED BY OSHA AS ESSENTIALLY SIMILAR TO OSHA FORM 20.

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The information accumulated herein is believed to be accurate but is not warranted to be whether originating with Ashland or not. Recipients are advised to confirm in advance of need that the information is current, applicable, and suitable to their circumstances.

20028 MATERIAL SAFETY DATA SHEET

GENERAL INFORMATION

PRODUCT NAME	DATA SHEET NO.	DATE PREPARED	CODE NUMBER
Promax H-333	01	6-16-78	-



PRODUCT IDENTIFICATION

PRODUCT CLASS	GENERAL OR GENERIC IDENTIFICATION
PASSES DOT TEST FOR HAZARDOUS CLASSIFICATION	HAZARD CLASSIFICATION
	99



HAZARDOUS COMPONENTS  
SEE DEFINITION ON REVERSE SIDE

INGREDIENT	%	TLV	INGREDIENT	%	TLV
Sulfurized lard oil	>60	5mg/m <sup>3</sup> *			
*For oil mist					



PHYSICAL DATA

INITIAL BOILING POINT	unknown °F	SPECIFIC GRAVITY	Greater than water
VAPOR PRESSURE	unknown mmHg	PERCENT VOLATILES	0
VAPOR DENSITY	(air = 1)	EVAPORATION RATE	Slower than other



FIRE AND EXPLOSION DATA

FLASH POINT (closed cup)	> 400 °F	LOWER EXPLOSION LIMIT	unknown
HAZARDOUS DECOMPOSITION PRODUCTS May form toxic materials: carbon dioxide and carbon monoxide, various hydrocarbons,			



**IV**

CODE NUMBER

SPECIAL  
FIRE  
FIGHTING  
PROCEDURES

INDICATE EQUIPMENT TO PROTECT FIREMEN FROM TOXIC PRODUCTS/COMBUSTION, OR IF WATER IS NOT TO BE USED.

Water or foam may cause frothing which can be violent and possibly endanger the life of the firefighter. Self-contained breathing apparatus with a full facepiece operated in pressure-demand or other positive pressure mode.

FIRE  
AND  
EXPLOSION  
DATA  
CONTINUEDUNUSUAL  
FIRE  
AND  
EXPLOSION  
HAZARDS

Not applicable

EXTINGUISHING  
MEDIA

DRY CHEMICAL



WATER FOG



CARBON DIOXIDE



ALCOHOL FOAM



REGULAR FOAM



OTHER-

**V**THRESHOLD  
LIMIT VALUE

OSHA ESTABLISHED VALUE. IF NONE, INDICATE ACGIH - ADOPTED TLV

Not established for product. See Section II.

EFFECTS  
OF  
OVEREXPOSURE  
FOR  
 PRODUCT  
 COMPONENT

KNOWN EFFECTS LISTED, UNLESS NOT APPLICABLE DUE TO PHYSICAL FORM OF PRODUCT

Eyes-can cause moderate irritation redness, tearing. Skin-can cause slight irritation. Breathing-mist can cause damage to nasal and respiratory passages. Swallowing-can cause gastrointestinal irritation, nausea, vomiting, diarrhea.HEALTH  
HAZARD  
DATASPECIAL  
FIRST  
AID  
ACTION

IF ON SKIN

Thoroughly wash exposed area with soap and water. Remove contaminated clothing. Launder contaminated clothing before reuse.

IF IN EYES




Flush with large amounts of water, lifting upper and lower lids occasionally.

IF SWALLOWED

Give two glasses of water; induce vomiting immediately by sticking finger down throat. Call a physician. Never give anything by mouth to an unconscious person.

IF BREATHED

Remove individual to fresh air.

  REACTIVITY DATA	HAZARDOUS POLYMERIZATION <input type="checkbox"/> CAN OCCUR <input checked="" type="checkbox"/> CANNOT OCCUR	CONDITIONS TO AVOID HAZARDOUS POLYMERIZATION RESULTING IN A LARGE RELEASE OF ENERGY	CODE NUMBER
	STABILITY <input checked="" type="checkbox"/> STABLE <input type="checkbox"/> UNSTABLE	CONDITIONS TO AVOID IF UNSTABLE UNDER NORMAL CONDITIONS	
	INCOMPATIBILITY (MATERIALS TO AVOID)	COMMON MATERIALS OR CONTAMINANTS WHICH WOULD RESULT IN A HAZARDOUS REACTION WITH THE PRODUCT ARE SHOWN Strong oxidizing agents (e.g. nitric acid, permanganates, etc.).	
  SPILL OR LEAK PROCEDURES  REASONABLE PRECAUTIONS TO BE TAKEN AND THE METHODS OF CLEANUP TO BE USED IN THE EVENT OF SPILLAGE OF THE PRODUCT	STEPS TO BE TAKEN IN CASE MATERIAL IS RELEASED OR SPILLED	SMALL SPILL Absorb liquid on paper, vermiculite, floor absorbent, or other absorbent material and transfer to hood.  LARGE SPILL Eliminate all ignition sources (flares, flames, including pilot lights electrical sparks). Persons not wearing protective equipment should be excluded from area of spill until cleanup has been completed. Stop spill at source, dike area of spill to prevent spreading, pump liquid to salvage tank.	
	WASTE DISPOSAL METHOD	SMALL SPILL Destroy by incineration.  LARGE SPILL Destroy by liquid incineration with off-gas scrubber. Deposit in a posted toxic substance landfill.	
  PROTECTIVE EQUIPMENT TO BE USED	RESPIRATORY PROTECTION	If TLV of the product or any component is exceeded, a NIOSH/MESA jointly approved self-contained breathing apparatus with a full facepiece operated in pressure-demand or other positive pressure mode is advised; however, OSHA regulations also permit other NIOSH/MESA respirators under specified conditions. (See your safety equipment supplier.)	
	PROTECTIVE GLOVES	Wear resistant gloves. (See your safety equipment supplier.) Neoprene, Buna-N	
	EYE PROTECTION	Wear safety glasses in compliance with OSHA regulations. (See your safety equipment supplier.)	
	VENTILATION	Not required under normal conditions of use.	
	OTHER PROTECTIVE EQUIPMENT	Normal work clothing covering arms and legs.	



SPECIAL PRECAUTIONS OR OTHER COMMENTS:

CODE NUMBER

Containers of this material may be hazardous when emptied. Since emptied containers retain product residues (vapor, liquid, and/or solid), all hazard precautions given in this data sheet must be observed.

**A HAZARDOUS INGREDIENT IS ONE WHICH MEETS ONE OR MORE OF THE FOLLOWING CRITERIA:**

1. It is listed in the annual Registry of Toxic Effects of Chemical Substances, or is known to be toxic within the parameters of that Registry, and is present at a level of 4% or greater. DOT Poisons are listed if present at any level.
2. It has an OSHA established 8-hour time-weighted average or acceptable ceiling concentration (c), or an American Conference of Governmental Industrial Hygienists (ACGIH) Threshold Limit Value; and by the nature of the product or its known use, is likely to become airborne.
3. It contributes to one or more of the following hazards of the product:
  - a. Flashpoint below 200 F (93), or subject to spontaneous heating or decomposition.
  - b. Causes skin burns. (DOT)
  - c. Strong oxidizing agent. (DOT)
  - d. Subject to hazardous polymerization.

Each hazardous ingredient is listed by chemical, generic, or proprietary name, its level in the product is expressed as 1% or less, 1% to 10%, 10% to 40-60%, or greater than 60%, or by other means if such information is proprietary. Adopted ACGIH values are only listed, with appropriate notation, where OSHA's values are not available.



ASHLAND OIL, INC.  
P. O. Box 2458  
COLUMBUS, OHIO 43216

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7000B  
MATERIAL SAFETY DATA SHEET

SUPERSEDES PREVIOUS SHEET DATED:

ACCEPTED BY OSHA AS ESSENTIALLY SIMILAR TO OSHA FORM 20.

GENERAL INFORMATION

The information accumulated herein is believed to be accurate but is not warranted to be whether originating with Ashland or not. Recipients are advised to confirm in advance of need that the information is current, applicable, and suitable to their circumstances.


PRODUCT NAME Econ #5 Oil	DATA SHEET NO. 01	DATE PREPARED 6-15-78	CODE NUMBER
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PRODUCT IDENTIFICATION	PRODUCT CLASS Petroleum Oil	GENERAL OR GENERIC IDENTIFICATION
	PASSES DOT TEST FOR HAZARDOUS CLASSIFICATION None	HAZARD CLASSIFICATION

HAZARDOUS COMPONENTS	INGREDIENT	%	TLV	INGREDIENT	%	TLV
SEE DEFINITION ON REVERSE SIDE	Petroleum Oil	60	5 mg/M <sup>3</sup> *			
	*For oil mist					

PHYSICAL DATA	INITIAL BOILING POINT	<input checked="" type="checkbox"/> Product <input type="checkbox"/> Component ( % )	585 of 760 mmHg	SPECIFIC GRAVITY	<input type="checkbox"/> Greater than water <input type="checkbox"/> Equal to water <input type="checkbox"/> Less than water	0.8473 @ 60 F
	VAPOR PRESSURE	<input type="checkbox"/> Product <input type="checkbox"/> Component ( % )	unknown mmHg	PERCENT VOLATILES	INGREDIENT WITH INITIAL BOILING POINT BELOW 212° F	0
	VAPOR DENSITY	<input type="checkbox"/> Lighter than air <input checked="" type="checkbox"/> Heavier than air	(air = 1)	EVAPORATION RATE	<input type="checkbox"/> Faster than ether <input checked="" type="checkbox"/> Slower than ether	( = 1 )

FIRE AND EXPLOSION DATA	FLASH POINT (closed cup)	<input type="checkbox"/> Less than 73°F <input type="checkbox"/> 73-100°F <input type="checkbox"/> 100-200°F <input type="checkbox"/> More than 200°F	300 of	LOWER EXPLOSION LIMIT	<input type="checkbox"/> Product <input type="checkbox"/> Lowest value of component	unknown
	HAZARDOUS DECOMPOSITION PRODUCTS	KNOWN HAZARDOUS PRODUCTS RESULTING FROM HEATING, BURNING, ETC. OR UNREACTED RAW MATERIALS May form toxic materials: Carbon Dioxide and Carbon Monoxide. Various Hydrocarbons.				

<p><b>IV</b></p> <p><b>FIRE AND EXPLOSION DATA</b> CONTINUED</p>	<p><b>SPECIAL FIRE FIGHTING PROCEDURES</b></p>	<p><small>INDICATE EQUIPMENT TO PROTECT FIREMEN FROM TOXIC PRODUCTS/COMBUSTION, OR IF WATER IS NOT TO BE USED</small> Water or foam may cause frothing which can be violent and possibly endanger the life of the firefighter. Self-contained breathing apparatus with a full facepiece operated in pressure-demand or other positive pressure mode and *full body protective clothing.</p>	<p><small>CODE NUMBER</small></p>	
<p><b>UNUSUAL FIRE AND EXPLOSION HAZARDS</b></p>	<p>Not Applicable.</p>			
<p><b>EXTINGUISHING MEDIA</b></p>	<p><input checked="" type="checkbox"/> DRY CHEMICAL      <input type="checkbox"/> WATER FOG      <input checked="" type="checkbox"/> CARBON DIOXIDE      <input type="checkbox"/> ALCOHOL FOAM  <input type="checkbox"/> REGULAR FOAM  <input type="checkbox"/> OTHER-</p>			
<p><b>V</b></p> <p><b>HEALTH HAZARD DATA</b></p>	<p><b>THRESHOLD LIMIT VALUE</b></p>	<p><small>OSHA ESTABLISHED VALUE. IF NONE, INDICATE ACGIH - ADOPTED TLV.</small> Not established for product. See Section II.</p>		
<p><b>EFFECTS OF OVEREXPOSURE FOR PRODUCT COMPONENT</b></p>	<p><small>KNOWN EFFECTS LISTED, UNLESS NOT APPLICABLE DUE TO PHYSICAL FORM OF PRODUCT</small> <u>Eyes</u>-can cause moderate irritation, redness, tearing. <u>Skin</u>-prolonged or repeated contact can cause moderate irritation: defatting, dermatitis. <u>Breathing</u>-of mist can cause irritation: of nasal and respiratory passages. <u>Swallowing</u>-can cause gastrointestinal irritation, nausea, vomiting, diarrhea. Aspiration of material into the lungs can cause chemical pneumonitis.</p>			
<p><b>SPECIAL FIRST AID ACTION</b></p> 	<p><small>IF ON SKIN</small> Thoroughly wash exposed area with soap and water. Remove contaminated clothing. Launder contaminated clothing before re-use.</p> <hr/> <p><small>IF IN EYES</small> Flush with large amounts of water, lifting upper and lower lids occasionally.</p> <hr/> <p><small>IF SWALLOWED</small> Do <u>Not</u> induce vomiting, keep person warm, quiet, and get medical attention. Aspiration of material into the lungs due to vomiting can cause chemical pneumonitis which can be fatal.</p> <hr/> <p><small>IF BREATHED</small> Remove individual to fresh air.</p>			

 VI OF ACTIVITY DATA	HAZARDOUS POLYMERIZATION <input type="checkbox"/> CAN OCCUR <input checked="" type="checkbox"/> CANNOT OCCUR	CONDITIONS TO AVOID HAZARDOUS POLYMERIZATION RESULTING IN A LARGE RELEASE OF ENERGY CODE NUMBER
	STABILITY <input checked="" type="checkbox"/> STABLE <input type="checkbox"/> UNSTABLE	CONDITIONS TO AVOID, IF UNSTABLE UNDER NORMAL CONDITIONS
	INCOMPATIBILITY (MATERIALS TO AVOID)	COMMON MATERIALS OR CONTAMINANTS WHICH WOULD RESULT IN A HAZARDOUS REACTION WITH THE PRODUCT ARE SHOWN Strong oxidizing agents. (e.g. nitric acid, permanganates, etc.).
 VII SPILL OR LEAK PROCEDURES AVAILABLE PRECAUTIONS TO BE TAKEN AND THE METHODS OF CLEANUP TO BE USED IN THE EVENT OF SPILLAGE OF THE PRODUCT.	STEPS TO BE TAKEN IN CASE MATERIAL IS RELEASED OR SPILLED	SMALL SPILL Absorb liquid on paper, vermiculite, floor absorbent, or other absorbent material and transfer to hood.  LARGE SPILL Persons not wearing protective equipment should be excluded from area of spill until clean-up has been completed. Stop spill at source, dike area of spill to prevent spreading, pump liquid to salvage tank. Remaining liquid may be taken up on sand, clay, earth, floor absorbent, or other absorbent material and shovel into containers.
	WASTE DISPOSAL METHOD	SMALL SPILL Destroy by incineration.  LARGE SPILL Destroy by liquid incineration. Deposit in a posted toxic substance landfill.
 VIII PROTECTIVE EQUIPMENT TO BE USED	RESPIRATORY PROTECTION	Allow to evaporate.
	PROTECTIVE GLOVES	Wear resistant gloves.
	EYE PROTECTION	Wear safety glasses in compliance with OSHA regulations. (See your safety equipment supplier).
	VENTILATION	Not required under normal conditions of use.
	OTHER PROTECTIVE EQUIPMENT	Normal work clothing covering arms and legs.



Containers of this material may be hazardous when emptied. Since emptied containers retain product residues (vapor, liquid, and/or solid), all hazard precautions given in this data sheet must be observed.

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**A HAZARDOUS INGREDIENT IS ONE WHICH MEETS ONE OR MORE OF THE FOLLOWING CRITERIA:**

1. It is listed in the annual Registry of Toxic Effects of Chemical Substances, or is known to be toxic within the parameters of that Registry, and is present at a level of 4% or greater. DOT Poisons are listed if present at any level.
2. It has an OSHA established 8-hour time-weighted average or acceptable ceiling concentration (c), or an American Conference of Governmental Industrial Hygienists' (ACGIH) Threshold Limit Value, and by the nature of the product or its known use, is likely to become airborne.
3. It contributes to one or more of the following hazards of the product:
  - a. Flashpoint below 200 F (cc), or subject to spontaneous heating or decomposition.
  - b. Causes skin burns. (DOT)
  - c. Strong oxidizing agent. (DOT)
  - d. Subject to hazardous polymerization.

Each hazardous ingredient is listed by chemical, generic, or proprietary name, its level in the product is expressed as 1% or less, 1-10%, 10-30%, 30-60%, or greater than 60%, or by other means if such information is proprietary. Adopted ACGIH values are only listed, with appropriate notation, where OSHA values are not available.

## MATERIAL SAFETY DATA SHEET

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Required under USDL Safety and Health Regulations for Ship Repairing,  
Shipbuilding, and Shipbreaking (29 CFR 1915, 1916, 1917)

## SECTION I

MANUFACTURER'S NAME Southwest Grease & Oil Co. (Wichita), Inc.		EMERGENCY TELEPHONE NO. 265-3111
ADDRESS (Number, Street, City, State, and ZIP Code) 220 West Waterman - Wichita, Kansas, 67202		
CHEMICAL NAME AND SYNONYMS N. A.		TRADE NAME AND SYNONYMS Valv. X-5 E. P., Code 5140
CHEMICAL FAMILY Hydrocarbon	FORMULA N. A.	

## SECTION II - HAZARDOUS INGREDIENTS

PAINTS, PRESERVATIVES, & SOLVENTS	%	TLV (Units)	ALLOYS AND METALLIC COATINGS	%	TLV (Units)
PIGMENTS			BASE METAL		
CATALYST			ALLOYS		
VEHICLE			METALLIC COATINGS		
SOLVENTS			FILLER METAL PLUS COATING OR CORE FLUX		
ADDITIVES			OTHERS		
OTHERS					
HAZARDOUS MIXTURES OF OTHER LIQUIDS, SOLIDS, OR GASES				%	TLV (Units)
This material is essentially lubricating oils thickened with barium soap and containing an E. P. agent. It is not believed to be a hazardous material by U. S. Department of Labor definition* and would not require a warning label as specified in the Hazardous Substance Act. **					

## SECTION III - PHYSICAL DATA

BOILING POINT (°F.)	None	SPECIFIC GRAVITY (H <sub>2</sub> O=1)	0.9
OR PRESSURE (mm Hg.)	Unknown	PERCENT, VOLATILE BY VOLUME (%)	Slight
VAPOR DENSITY (AIR=1)	Unknown	EVAPORATION RATE (_____ = 1)	Unknown
SOLUBILITY IN WATER	Slight		
APPEARANCE AND ODOR <b>Amber</b> grease, lube oil odor.			

## SECTION IV - FIRE AND EXPLOSION HAZARD DATA

FLASH POINT (Method used)	360° F. C. O. C.	FLAMMABLE LIMITS	Let	Uet
		Unknown		
EXTINGUISHING MEDIA <b>CO<sub>2</sub>, dry chemicals, foam</b>				
SPECIAL FIRE FIGHTING PROCEDURES <b>Do not direct water directly into fire.</b>				
UNUSUAL FIRE AND EXPLOSION HAZARDS <b>None</b>				



**SECTION V - HEALTH HAZARD DATA**

LD50 (GROSS WEIGHT VALUE)

Unknown

EFFECTS OF OVER EXPOSURE

Irritation and redness to eyes

EMERGENCY AND FIRST AID PROCEDURES

Wash eyes with water or eyewash

**SECTION VI - REACTIVITY DATA**

STABILITY

UNSTABLE

STABLE

X

CONDITIONS TO AVOID

INCOMPATIBILITY (Materials to avoid)

None

HAZARDOUS DECOMPOSITION PRODUCTS

Dense black smoke, CO, CO<sub>2</sub>

HAZARDOUS POLYMERIZATION

MAY OCCUR

WILL NOT OCCUR

X

CONDITIONS TO AVOID

**SECTION VII - SPILL OR LEAK PROCEDURES**

STEPS TO BE TAKEN IN CASE MATERIAL IS RELEASED OR SPILLED

Remove all sources of ignition. Shovel up excess and scrape and sweep up remainder with floor sweep.

WASTE DISPOSAL METHOD

Controlled burning if allowed by Federal, State, and local laws.

**SECTION VIII - SPECIAL PROTECTION INFORMATION**

RESPIRATORY PROTECTION (Specify type)

None

VENTILATION

LOCAL EXHAUST

MECHANICAL (General)

SPECIAL

OTHER

None

PROTECTIVE GLOVES

None

EYE PROTECTION

Sufficient to avoid direct contact.

OTHER PROTECTIVE EQUIPMENT

None

**SECTION IX - SPECIAL PRECAUTIONS**

PRECAUTIONS TO BE TAKEN IN HANDLING AND STORAGE

Store away from high heat and open flames.

OTHER PRECAUTIONS

Product should be used only for the purpose for which it was intended.

# MATERIAL SAFETY DATA SHEET

Required under USDL Safety and Health Regulations for Ship Repairing,  
Shipbuilding, and Shipbreaking (29 CFR 1915, 1916, 1917)

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## SECTION I

MANUFACTURER'S NAME <b>Southwest Grease &amp; Oil Co. (Wichita), Inc.</b>		EMERGENCY TELEPHONE NO. <b>265-3111</b>
ADDRESS (Number, Street, City, State, and ZIP Code) <b>220 West Waterman - Wichita, Kansas, 67202</b>		
CHEMICAL NAME AND SYNONYMS <b>N. A.</b>		TRADE NAME AND SYNONYMS <b>Valv. Multi-Lube Lithium, Code 5438</b>
CHEMICAL FAMILY <b>Hydrocarbon</b>	FORMULA <b>N. A.</b>	

## SECTION II - HAZARDOUS INGREDIENTS

PAINTS, PRESERVATIVES, & SOLVENTS	%	TLV (Units)	ALLOYS AND METALLIC COATINGS	%	TLV (Units)
PIGMENTS			BASE METAL		
CATALYST			ALLOYS		
VEHICLE			METALLIC COATINGS		
SOLVENTS			FILLER METAL PLUS COATING OR CORE FLUX		
ADDITIVES			OTHERS		
OTHERS					
HAZARDOUS MIXTURES OF OTHER LIQUIDS, SOLIDS, OR GASES				%	TLV (Units)
This material is essentially lubricating oils thickened with lithium soap and containing corrosion and oxidation inhibitors. It is not believed to be a hazardous material by U. S. Department of Labor definition* and would not require a warning label as specified in the Hazardous Substance Act. **					

## SECTION III - PHYSICAL DATA

BOILING POINT (°F.)	None	SPECIFIC GRAVITY (H <sub>2</sub> O=1)	0.9
VAPOR PRESSURE (mm Hg.)	Unknown	PERCENT VOLATILE BY VOLUME (%)	Slight
VAPOR DENSITY (AIR=1)	Unknown	EVAPORATION RATE (_____ =1)	Unknown
SOLUBILITY IN WATER	Slight		
APPEARANCE AND ODOR: <b>Dark amber grease, lube oil odor.</b>			

## SECTION IV - FIRE AND EXPLOSION HAZARD DATA

FLASH POINT (Method used)	<b>450° F. C. O. C.</b>	FLAMMABLE LIMITS	Let	Uet
		<b>Unknown</b>		
EXTINGUISHING MEDIA	<b>CO<sub>2</sub>, dry chemicals, foam</b>			
SPECIAL FIRE FIGHTING PROCEDURES	<b>Do not direct water directly into fire.</b>			
UNUSUAL FIRE AND EXPLOSION HAZARDS				

**SECTION V - HEALTH HAZARD DATA**

THE PERMITTED LIMIT VALUE Unknown

EFFECTS OF OVER EXPOSURE Irritation and redness to eyes

EMERGENCY AND FIRST AID PROCEDURES Wash eyes with water or eyewash

**SECTION VI - REACTIVITY DATA**

STABILITY	UNSTABLE		CONDITIONS TO AVOID
	STABLE	X	
INCOMPATIBILITY (Materials to avoid) <u>None</u>			
HAZARDOUS DECOMPOSITION PRODUCTS <u>Dense black smoke, CO, CO<sub>2</sub></u>			
HAZARDOUS POLYMERIZATION	MAY OCCUR		CONDITIONS TO AVOID
	WILL NOT OCCUR	X	

**SECTION VII - SPILL OR LEAK PROCEDURES**

STEPS TO BE TAKEN IN CASE MATERIAL IS RELEASED OR SPILLED  
Remove all sources of ignition. Shovel up excess and scrape and sweep up remainder with floor sweep.

WASTE DISPOSAL METHOD Controlled burning if allowed by Federal, State, and local laws.

**SECTION VIII - SPECIAL PROTECTION INFORMATION**

RESPIRATORY PROTECTION (Specify type) None

VENTILATION	LOCAL EXHAUST	SPECIAL OTHER
	MECHANICAL (General)	

PROTECTIVE GLOVES None EYE PROTECTION Sufficient to avoid direct contact.

OTHER PROTECTIVE EQUIPMENT None

**SECTION IX - SPECIAL PRECAUTIONS**

PRECAUTIONS TO BE TAKEN IN HANDLING AND STORAGE  
Store away from high heat and open flames.

OTHER PRECAUTIONS  
Product should be used only for the purpose for which it was intended.



ASHLAND OIL, INC.  
P. O. Box 2458  
COLUMBUS, OHIO 43216

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1986 MATERIAL SAFETY DATA SHEET

SUPERSEDES PREVIOUS SHEET DATED:

ACCEPTED BY OSHA AS ESSENTIALLY SIMILAR TO OSHA FORM 20.

GENERAL INFORMATION

The information accumulated herein is believed to be accurate but is not warranted to be whether originating with Ashland or not. Recipients are advised to confirm in advance of need that the information is current, applicable, and suitable to their circumstances.

PRODUCT NAME <b>Tectyl 511-HF</b>	DATA SHEET NO. <b>02</b>	DATE PREPARED <b>12-20-77</b>	CODE NUMBER
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I PRODUCT IDENTIFICATION	PRODUCT CLASS <b>Rust preventive in aliphatic solvent</b>	GENERAL OR GENERIC IDENTIFICATION
	PASSES DOT TEST FOR HAZARDOUS CLASSIFICATION <b>Combustible Liquid (173.115)</b>	HAZARD CLASSIFICATION

HAZARDOUS COMPONENTS SEE DEFINITION ON REVERSE SIDE	INGREDIENT			INGREDIENT		
		%	TLV		%	TLV
	Aliphatic Hydrocarbon Solvent (140 Solvent)	30-60	500 ppm *			
	100 Pale Oil	10-30	5 mg/M <sup>3</sup> for oil mist			10
	*NIOSH recommends a TLV of 350 mg/M <sup>3</sup> .					

III PHYSICAL DATA	INITIAL BOILING POINT	<input type="checkbox"/> Product <input checked="" type="checkbox"/> Component ( 1-10 %)	340 °F 760 mmHg	SPECIFIC GRAVITY	<input type="checkbox"/> Greater than water <input type="checkbox"/> Equal to water <input type="checkbox"/> Less than water	0.86 60 °F
	VAPOR PRESSURE	<input type="checkbox"/> Product <input checked="" type="checkbox"/> Component ( 30-60 %)	0.5 mmHg °F	PERCENT VOLATILES	(INGREDIENT WITH INITIAL BOILING POINT BELOW 100 °F)	30-60
	VAPOR DENSITY	<input type="checkbox"/> Lighter than air <input checked="" type="checkbox"/> Heavier than air	(air = 1)	EVAPORATION RATE	<input type="checkbox"/> Faster than ether <input checked="" type="checkbox"/> Slower than ether	( = 1)

IV FIRE AND EXPLOSION DATA	FLASH POINT (CLOSED CUP)	<input type="checkbox"/> Less than 73°F <input type="checkbox"/> 73-100°F	<input type="checkbox"/> 100-200 °F <input type="checkbox"/> More than 200°F	140 °F	LOWER EXPLOSION LIMIT	<input type="checkbox"/> Product <input checked="" type="checkbox"/> Lowest value of component	0.9%
	HAZARDOUS DECOMPOSITION PRODUCTS	KNOWN HAZARDOUS PRODUCTS RESULTING FROM HEATING, BURNING, ETC. OR UNREACTED RAW MATERIALS					

May form toxic materials: Carbon Dioxide, Carbon Monoxide, various Hydrocarbons, Sulfur Compounds, etc.

<p><b>IV</b></p> <p><b>FIRE AND EXPLOSION DATA</b> CONTINUED</p>	<p><b>SPECIAL FIRE FIGHTING PROCEDURES</b></p>	<p>INDICATE EQUIPMENT TO PROTECT FIREMEN FROM TOXIC PRODUCTS/COMBUSTION, OR IF WATER IS NOT TO BE USED.</p> <p>Water may be ineffective. Self-contained breathing apparatus with a full facepiece operated in pressure-demand or other positive pressure mode.</p>	<p>CODE NUMBER</p>
	<p><b>UNUSUAL FIRE AND EXPLOSION HAZARDS</b></p>	<p>Vapors are heavier than air and may travel along the ground or be moved by ventilation and ignited by heat, pilot lights, other flames and ignition sources at locations distant from material handling point. Never use welding or cutting torch on or near drum (even empty) because product (even just residue) can ignite explosively.</p>	
	<p><b>EXTINGUISHING MEDIA</b></p>	<p><input checked="" type="checkbox"/> DRY CHEMICAL      <input type="checkbox"/> WATER FOG      <input checked="" type="checkbox"/> CARBON DIOXIDE      <input type="checkbox"/> ALCOHOL FOAM</p> <p><input checked="" type="checkbox"/> REGULAR FOAM</p> <p><input type="checkbox"/> OTHER-</p>	
<p><b>V</b></p> <p><b>HEALTH HAZARD DATA</b></p>	<p><b>THRESHOLD LIMIT VALUE</b></p>	<p>OSHA ESTABLISHED VALUE. IF NONE, INDICATE ACGIH - ADOPTED TLV.</p> <p>Not established for product. See Section II.</p>	
	<p><b>EFFECTS OF OVEREXPOSURE FOR</b> <input type="checkbox"/> PRODUCT <input checked="" type="checkbox"/> COMPONENT</p>	<p>KNOWN EFFECTS LISTED, UNLESS NOT APPLICABLE DUE TO PHYSICAL FORM OF PRODUCT</p> <p><u>Eyes</u> - can cause severe irritation, redness, tearing, blurred vision. <u>Skin</u> - prolonged or repeated contact can cause moderate irritation, defatting, dermatitis. <u>Breathing</u> - excessive inhalation of vapors can cause nasal and respiratory irritation, dizziness, weakness, fatigue, nausea, headache, possible unconsciousness, and even asphyxiation. <u>Swallowing</u> - can cause gastrointestinal irritation, nausea, vomiting, diarrhea, aspiration of material into the lungs resulting in chemical pneumonitis which can be fatal.</p>	
	<p> <b>SPECIAL FIRST AID ACTION</b></p>	<p><b>IF ON SKIN</b></p> <p>Thoroughly wash exposed area with soap and water. Remove contaminated clothing. Launder contaminated clothing before re-use.</p> <hr/> <p><b>IF IN EYES</b></p> <p>Flush with large amounts of water, lifting upper and lower lids occasionally. Get medical attention</p> <hr/> <p><b>IF SWALLOWED</b></p> <p>Do Not induce vomiting, keep person warm, quiet, and get medical attention. Aspiration of material into the lungs due to vomiting can cause chemical pneumonitis which can be fatal.</p> <hr/> <p><b>IF BREATHED</b></p> <p>If affected, remove individual to fresh air. If breathing is difficult, administer oxygen. If breathing has stopped, give artificial respiration. Keep person warm, quiet, and get medical attention.</p>	

VI  REACTIVITY DATA	HAZARDOUS POLY-MERIZATION	CONDITIONS TO AVOID HAZARDOUS POLYMERIZATION RESULTING IN A LARGE RELEASE OF ENERGY <input type="checkbox"/> CAN OCCUR <input checked="" type="checkbox"/> CANNOT OCCUR	CODE NUMBER
	STABILITY	CONDITIONS TO AVOID IF UNSTABLE UNDER NORMAL CONDITIONS <input checked="" type="checkbox"/> STABLE <input type="checkbox"/> UNSTABLE	
	INCOMPATIBILITY (MATERIALS TO AVOID)	COMMON MATERIALS OR CONTAMINANTS WHICH WOULD RESULT IN A HAZARDOUS REACTION WITH THE PRODUCT ARE SHOWN  Avoid contact with strong oxidizing agents.	
VII  SPILL OR LEAK PROCEDURES	STEPS TO BE TAKEN IN CASE MATERIAL IS RELEASED OR SPILLED	SMALL SPILL  Absorb liquid on paper, vermiculite, floor absorbent, or other absorbent material and transfer to hood.	
		LARGE SPILL  Eliminate all ignition sources (flares, flames including pilot lights, electrical sparks). Persons not wearing protective equipment should be excluded from area of spill until clean-up has been completed. Stop spill at source, dike area of spill to prevent spreading, pump liquid to salvage tank. Remaining liquid may be taken up on sand, clay, earth, floor absorbent or other absorbent material and shovel into containers.	
REASONABLE PRECAUTIONS TO BE TAKEN AND THE METHODS OF CLEANUP TO BE USED IN THE EVENT OF SPILLAGE OF THE PRODUCT.	WASTE DISPOSAL METHOD	SMALL SPILL  Allow volatile portion to evaporate in hood. Allow sufficient time for vapors to completely clear hood duct work. Destroy remaining material by burning in an iron pan.	
		LARGE SPILL  Destroy by liquid incineration with off-gas scrubber.	
VIII  PROTECTIVE EQUIPMENT TO BE USED	RESPIRATORY PROTECTION	If TLV of the product or any component is exceeded, a NIOSH/MESA jointly approved self-contained breathing apparatus with a full facepiece operated in pressure-demand or other positive pressure mode is advised; however, OSHA regulations also permit other NIOSH/MESA respirators under specified conditions. (See your safety equipment supplier).	
	PROTECTIVE GLOVES	Wear Buna-N, Neoprene, or other resistant gloves.	
	EYE PROTECTION	Chemical splash goggles in compliance with OSHA regulations are advised; however, OSHA regulations also permit other type safety glasses. (See your safety equipment supplier).	
	VENTILATION	Provide sufficient mechanical (general) and/or local exhaust ventilation to maintain exposure below TLV's.	
	OTHER PROTECTIVE EQUIPMENT	To prevent repeated or prolonged skin contact, wear impervious clothing and boots.	



SPECIAL PRECAUTIONS OR OTHER COMMENTS:

CODE NUMBER

Containers of this material may be hazardous when emptied. Since emptied containers retain product residues (vapor, liquid, and/or solid), all hazard precautions given in this data sheet must be observed.

**A HAZARDOUS INGREDIENT IS ONE WHICH MEETS ONE OR MORE OF THE FOLLOWING CRITERIA:**

1. It is listed in the annual Registry of Toxic Effects of Chemical Substances, or is known to be toxic within the parameters of that Registry, and is present at a level of 4% or greater. DOT Poisons are listed if present at any level.
2. It has an OSHA established 8-hour time-weighted average or acceptable ceiling concentration (c), or an American Conference of Governmental Industrial Hygienists' (ACGIH) Threshold Limit Value, and by the nature of the product or its known use, is likely to become airborne.
3. It contributes to one or more of the following hazards of the product:
  - a. Flashpoint below 200 F (cc), or subject to spontaneous heating or decomposition.
  - b. Causes skin burns. (DOT)
  - c. Strong oxidizing agent. (DOT)
  - d. Subject to hazardous polymerization.

Each hazardous ingredient is listed by chemical, generic, or proprietary name, its level in the product is expressed as 1% or less, 1-10%, 10-30%, 30-60%, or greater than 60%, or by other means if such information is proprietary. Adopted ACGIH values are only listed, with appropriate notation, where OSHA values are not available.



ASHLAND OIL, INC.  
P. O. Box 2458  
COLUMBUS, OHIO 43216

**MATERIAL SAFETY DATA SHEET**

**SUPERSEDES PREVIOUS SHEET DATED:**

**GENERAL INFORMATION**

ACCEPTED BY OSHA AS ESSENTIALLY SIMILAR TO OSHA FORM 20.

The information accumulated herein is believed to be accurate but is not warranted to be whether originating with Ashland or not. Recipients are advised to confirm in advance of need that the information is current, applicable, and suitable to their circumstances.

<b>PRODUCT NAME</b> Tectyl 400-C-HF	<b>DATA SHEET NO.</b> 02	<b>DATE PREPARED</b> 12-20-77	<b>CODE NUMBER</b>
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**PRODUCT IDENTIFICATION**

<b>PRODUCT CLASS</b>	<b>GENERAL OR GENERIC IDENTIFICATION</b> Rust preventive in Aliphatic Hydrocarbon Solvent
<b>PASSES DOT TEST FOR HAZARDOUS CLASSIFICATION</b>	<b>HAZARD CLASSIFICATION</b> Combustible Liquid (173.115)

**HAZARDOUS COMPONENTS**  
SEE DEFINITION ON REVERSE SIDE

INGREDIENT	%	TLV	INGREDIENT	%	TLV
1. Aliphatic Hydrocarbon Solvent (140 Solvent)	30-60	500ppm *			

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\*NIOSH recommends a TLV of 350 mg/M<sup>3</sup>.


**PHYSICAL DATA**

<b>INITIAL BOILING POINT</b>	<input type="checkbox"/> Product <input checked="" type="checkbox"/> Component ( 30-60 %) ●	360°F 760 mmHg	<b>SPECIFIC GRAVITY</b>	<input type="checkbox"/> Greater than water <input type="checkbox"/> Equal to water <input checked="" type="checkbox"/> Less than water ●	of
<b>VAPOR PRESSURE</b>	<input type="checkbox"/> Product <input checked="" type="checkbox"/> Component ( 30-60 %) ●	0.5 mmHg 68 of	<b>PERCENT VOLATILES</b>	<b>INGREDIENT WITH INITIAL BOILING POINT BELOW 100°F</b>	30-60
<b>VAPOR DENSITY</b>	<input type="checkbox"/> Lighter than air <input checked="" type="checkbox"/> Heavier than air	(air = 1)	<b>EVAPORATION RATE</b>	<input type="checkbox"/> Faster than ether <input checked="" type="checkbox"/> Slower than ether	( =1)
<b>FLASH POINT (Closed Cup)</b>	<input type="checkbox"/> Less than 73°F <input checked="" type="checkbox"/> 73-100°F <input type="checkbox"/> More than 200°F	100-200 °F	<b>LOWER EXPLOSION LIMIT</b>	<input type="checkbox"/> Product <input checked="" type="checkbox"/> Lowest value of component	0.9%

**FIRE AND OXIDATION DATA**

<b>HAZARDOUS DECOMPOSITION PRODUCTS</b>	<b>KNOWN HAZARDOUS PRODUCTS RESULTING FROM HEATING, BURNING, ETC. OR UNREACTED RAW MATERIALS</b> May form toxic materials: Carbon Monoxide, Carbon Dioxide, various Hydrocarbons, Sulfur Compounds, etc.
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<b>IV</b>  <b>FIRE AND EXPLOSION DATA</b> CONTINUED	<b>SPECIAL FIRE FIGHTING PROCEDURES</b>	<small>INDICATE EQUIPMENT TO PROTECT FIREMEN FROM TOXIC PRODUCTS/COMBUSTION, OR IF WATER IS NOT TO BE USED.</small>  Self-contained breathing apparatus with a full facepiece operated in pressure-demand or other positive pressure mode.	<small>CODE NUMBER</small>	
	<b>UNUSUAL FIRE AND EXPLOSION HAZARDS</b>	Vapors are heavier than air and may travel along the ground, or be moved by ventilation and ignited by heat, pilot lights, other flames and ignition sources at locations distant from material handling point. Never use welding or cutting torch on or near drum (even empty) because product (even just residue) can ignite explosively.		
	<b>EXTINGUISHING MEDIA</b>	<input checked="" type="checkbox"/> DRY CHEMICAL <input type="checkbox"/> WATER FOG <input checked="" type="checkbox"/> CARBON DIOXIDE <input type="checkbox"/> ALCOHOL FOAM <input checked="" type="checkbox"/> REGULAR FOAM <input type="checkbox"/> OTHER-		
<b>V</b>  <b>HEALTH HAZARD DATA</b>	<b>THRESHOLD LIMIT VALUE</b>	<small>OSHA ESTABLISHED VALUE. IF NONE, INDICATE ACGIH - ADOPTED TLV.</small>  Not established for product. See Section II.		
	<b>EFFECTS OF OVEREXPOSURE FOR</b> <input type="checkbox"/> PRODUCT <input checked="" type="checkbox"/> COMPONENT	<small>KNOWN EFFECTS LISTED, UNLESS NOT APPLICABLE DUE TO PHYSICAL FORM OF PRODUCT</small>  <u>Eyes</u> - can cause severe irritation, redness, tearing, blurred vision. <u>Skin</u> - prolonged or repeated contact can cause moderate irritation, defatting, dermatitis. <u>Breathing</u> - excessive inhalation of vapors can cause nasal and respiratory irritation, dizziness, weakness, fatigue, nausea, headache, possible unconsciousness, and even asphyxiation. <u>Swallowing</u> - can cause gastrointestinal irritation, nausea, vomiting, diarrhea.		
	 <b>SPECIAL FIRST AID ACTION</b>	<small>IF ON SKIN</small>  Thoroughly wash exposed area with soap and water. Remove contaminate clothing. Launder contaminated clothing before re-use.		
		<small>IF IN EYES</small>  Flush with large amounts of water, lifting upper and lower lids occasionally.		
<small>IF SWALLOWED</small>  Give two glasses of water; induce vomiting immediately by sticking finger down throat. Call a physician. <u>Never</u> give anything by mouth to an unconscious person.				
	<small>IF BREATHED</small>  If affected, remove individual to fresh air. If breathing is difficult administer oxygen. If breathing has stopped, give artificial respiration. Keep person warm, quiet, and get medical attention.			

<b>VI</b>  <b>REACTIVITY DATA</b>	<b>HAZARDOUS POLYMERIZATION</b> <input type="checkbox"/> CAN OCCUR <input checked="" type="checkbox"/> CANNOT OCCUR	CONDITIONS TO AVOID HAZARDOUS POLYMERIZATION RESULTING IN A LARGE RELEASE OF ENERGY <div style="border: 1px solid black; width: 100px; height: 20px; float: right; text-align: center;">CODE NUMBER</div>
	<b>STABILITY</b> <input checked="" type="checkbox"/> STABLE <input type="checkbox"/> UNSTABLE	CONDITIONS TO AVOID IF UNSTABLE UNDER NORMAL CONDITIONS
	<b>INCOMPATIBILITY (MATERIALS TO AVOID)</b> Avoid contact with strong oxidizing agents.	COMMON MATERIALS OR CONTAMINANTS WHICH WOULD RESULT IN A HAZARDOUS REACTION WITH THE PRODUCT ARE SHOWN
<b>VI</b>  <b>SPILL OR LEAK PROCEDURES</b>  <small>REASONABLE PRECAUTIONS TO BE TAKEN AND THE METHODS OF CLEANUP TO BE USED IN THE EVENT OF SPILLAGE OF THE PRODUCT.</small>	<b>STEPS TO BE TAKEN IN CASE MATERIAL IS RELEASED OR SPILLED</b>	<b>SMALL SPILL</b>  Absorb liquid on paper, vermiculite, floor absorbent, or other absorbent material and transfer to hood. Allow to evaporate.
	<b>WASTE DISPOSAL METHOD</b>	<b>LARGE SPILL</b> Eliminate all ignition sources (flares, flames including pilot lights, electrical sparks). Persons not wearing protective equipment should be excluded from area of spill until clean-up has been completed. Stop spill at source, dike area of spill to prevent spreading, pump liquid to salvage tank. Remaining liquid may be taken up on sand, clay, earth, floor absorbent, or other absorbent material and shovel into containers.
<b>VI</b>  <b>PROTECTIVE EQUIPMENT TO BE USED</b>	<b>RESPIRATORY PROTECTION</b>	If TLV of the product or any component is exceeded, a NIOSH/MESA jointly approved self-contained breathing apparatus with a full facepiece operated in pressure-demand or other positive pressure mode is advised; however, OSHA regulations also permit other NIOSH/MESA respirators under specified conditions. (See your safety equipment supplier).
	<b>PROTECTIVE GLOVES</b>	Wear resistant gloves such as: Neoprene, or Buna-N.
	<b>EYE PROTECTION</b>	Chemical splash goggles in compliance with OSHA regulations are advised; however, OSHA regulations also permit other type safety glasses. (See your safety equipment supplier).
	<b>VENTILATION</b>	Provide sufficient mechanical (general) and/or local exhaust ventilation to maintain exposure below TLV's.
	<b>OTHER PROTECTIVE EQUIPMENT</b>	To prevent repeated or prolonged skin contact, wear impervious clothing and boots.



SPECIAL PRECAUTIONS OR OTHER COMMENTS:

CODE NUMBER

Containers of this material may be hazardous when emptied. Since emptied containers retain product residue (vapor, liquid, and/or solid), all hazard precautions given in this data sheet must be observed.

**A HAZARDOUS INGREDIENT IS ONE WHICH MEETS ONE OR MORE OF THE FOLLOWING CRITERIA:**

1. It is listed in the annual Registry of Toxic Effects of Chemical Substances, or is known to be toxic within the parameters of that Registry, and is present at a level of 4% or greater. DOT Poisons are listed if present at any level.
2. It has an OSHA established 8-hour time-weighted average or acceptable ceiling concentration (c), or an American Conference of Governmental Industrial Hygienists' (ACGIH) Threshold Limit Value, and by the nature of the product or its known use, is likely to become airborne.
3. It contributes to one or more of the following hazards of the product:
  - a. Flashpoint below 200 F (cc), or subject to spontaneous heating or decomposition.
  - b. Causes skin burns. (DOT)
  - c. Strong oxidizing agent. (DOT)
  - d. Subject to hazardous polymerization.

Each hazardous ingredient is listed by chemical, generic, or proprietary name, its level in the product is expressed as 1% or less, 1-10%, 10-30%, 30-60%, or greater than 60%, or by other means if such information is proprietary. Adopted ACGIH values are only listed, with appropriate notation where OSHA values are not available.

2033C MATERIAL SAFETY DATA SHEET

SUPERSEDES PREVIOUS SHEET DATED: 9/27/77

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GENERAL INFORMATION

ACCEPTED BY OSHA AS ESSENTIALLY SIMILAR TO OSHA FORM 20.

The information accumulated herein is believed to be accurate but is not warranted to be whether originating with Ashland or not. Recipients are advised to confirm in advance of need that the information is current, applicable, and suitable to their circumstances.

PRODUCT NAME Tectyl 810	DATA SHEET NO. 01	DATE PREPARED 9/27/77	CODE NUMBER
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PRODUCT IDENTIFICATION

PRODUCT CLASS	GENERAL OR GENERIC IDENTIFICATION Petroleum Base Rust Preventive
PASSES DOT TEST FOR HAZARDOUS CLASSIFICATION	HAZARD CLASSIFICATION None.

HAZARDOUS COMPONENTS  
SEE DEFINITION ON REVERSE SIDE

INGREDIENT	%	TLV	INGREDIENT	%	TLV
1. 100 Pale Oil	> 60	500 mg/M <sup>3</sup>	for oil mist		

PHYSICAL DATA

INITIAL BOILING POINT	IF LIQUID AT 60°F <input type="checkbox"/> Product <input checked="" type="checkbox"/> Component (> 60%) @	560 °F 760 mmHg	SPECIFIC GRAVITY	<input type="checkbox"/> Greater than water <input type="checkbox"/> Equal to water <input type="checkbox"/> Less than water	0.9200 60
VAPOR PRESSURE	IF LIQUID AT 60°F OR WHICH SUBLIMES <input type="checkbox"/> Product <input checked="" type="checkbox"/> Component (> 60%) @	< 5 mmHg 68 °F	PERCENT VOLATILES	INGREDIENT WITH INITIAL BOILING POINT BELOW 425 °F	0
VAPOR DENSITY	FOR VOLATILE PORTION OF PRODUCT <input type="checkbox"/> Lighter than air <input checked="" type="checkbox"/> Heavier than air	(air = 1)	EVAPORATION RATE	<input type="checkbox"/> Faster than ether <input checked="" type="checkbox"/> Slower than ether	( = 1)

FIRE AND EXPLOSION DATA


FLASH POINT (CLOSED CUP)	<input type="checkbox"/> Less than 73°F <input type="checkbox"/> 73-100°F <input type="checkbox"/> 100-200°F <input type="checkbox"/> More than 200°F	310 °F	LOWER EXPLOSION LIMIT	<input type="checkbox"/> Product <input checked="" type="checkbox"/> Lowest value of component	= 0.8%
HAZARDOUS DECOMPOSITION PRODUCTS	KNOWN HAZARDOUS PRODUCTS RESULTING FROM HEATING, BURNING, ETC. OR UNREACTED RAW MATERIALS May form toxic materials: Carbon Monoxide, Carbon Dioxide, various Hydrocarbons, Sulfur Compounds, etc.				

**FIRE AND EXPLOSION DATA**  
CONTINUED

<p><b>SPECIAL FIRE FIGHTING PROCEDURES</b></p>	<p>Water or foam may cause frothing which can be violent and possibly endanger the life of the firefighter. Self-contained breathing apparatus with a full facepiece operated in pressure-demand or other positive pressure mode.</p>
<p><b>UNUSUAL FIRE AND EXPLOSION HAZARDS</b></p>	<p>None.</p>
<p><b>EXTINGUISHING MEDIA</b></p>	<p> <input checked="" type="checkbox"/> DRY CHEMICAL      <input type="checkbox"/> WATER FOG      <input checked="" type="checkbox"/> CARBON DIOXIDE      <input type="checkbox"/> ALCOHOL FO  <input type="checkbox"/> REGULAR FOAM  <input type="checkbox"/> OTHER-         </p>

**VI**

**HEALTH HAZARD DATA**

<p><b>THRESHOLD LIMIT VALUE</b></p>	<p>OSHA ESTABLISHED VALUE. IF NONE, INDICATE ACCIN - ADOPTED TLV. Not established for product. See Section II.</p>
<p><b>EFFECTS OF OVEREXPOSURE FOR</b> <input type="checkbox"/> PRODUCT <input checked="" type="checkbox"/> COMPONENT</p>	<p>KNOWN EFFECTS LISTED, UNLESS NOT APPLICABLE DUE TO PHYSICAL FORM OF PRODUCT</p> <p>.....</p> <p><u>Eyes</u> - can cause severe irritation, redness, tearing, blurred vision  <u>Skin</u> - prolonged or repeated contact can cause moderate irritation, defatting, dermatitis. <u>Breathing</u> - excessive inhalation of vapors cause nasal and respiratory irritation, dizziness, weakness, fatigue, nausea, headache, possible unconsciousness, and even asphyxiation.  <u>Swallowing</u> - can cause gastrointestinal irritation, nausea, vomiting, diarrhea.</p>
	<p><b>IF ON SKIN</b></p> <p>Thoroughly wash exposed area with soap and water. Remove contaminated clothing. Launder contaminated clothing before re-use.</p>
<p> <b>SPECIAL FIRST AID ACTION</b></p>	<p><b>IF IN EYES</b></p> <p>Flush with large amounts of water, lifting upper and lower lids occasionally. Get medical attention.</p>
	<p><b>IF SWALLOWED</b></p> <p>Give two glasses of water; induce vomiting immediately by sticking finger down throat. Call a physician. <u>Never</u> give anything by mouth to an unconscious person.</p>
	<p><b>IF BREATHED</b></p> <p>If affected, remove individual to fresh air. If breathing is difficult, administer oxygen. If breathing has stopped, give artificial respiration. Keep person warm, quiet, and get medical attention.</p>

REACTIVITY DATA	MERIZATION	<input checked="" type="checkbox"/> CANNOT OCCUR
	STABILITY	CONDITIONS TO AVOID IF UNSTABLE UNDER NORMAL CONDITIONS <input checked="" type="checkbox"/> STABLE <input type="checkbox"/> UNSTABLE
	INCOMPATIBILITY (MATERIALS TO AVOID)	COMMON MATERIALS OR CONTAMINANTS WHICH WOULD RESULT IN A HAZARDOUS REACTION WITH THE PRODUCT ARE SHOWN Avoid contact with strong oxidizing agents.
SPILL OR LEAK PROCEDURES	STEPS TO BE TAKEN IN CASE MATERIAL IS RELEASED OR SPILLED	SMALL SPILL Absorb liquid on paper, vermiculite, floor absorbent, or other absorbent material and transfer to hood. Allow to evaporate. Eliminate all ignition sources such as flares, flames (including pilot lights), and electrical sparks.
		LARGE SPILL Eliminate all ignition sources (flares, flames including pilot lights; electrical sparks). Persons not wearing protective equipment should be excluded from area of spill until clean-up has been completed. Stop spill at source, dike area of spill to prevent spreading, pump liquid salvage tank. Remaining liquid may be taken up with sand, clay, earth, floor absorbent, or other absorbent material and shovel into container.
REASONABLE PRECAUTIONS TO BE TAKEN AND METHODS OF CLEANUP TO BE USED IN THE EVENT OF SPILLAGE OF THE PRODUCT.	WASTE DISPOSAL METHOD	SMALL SPILL Allow volatile portion to evaporate in hood. Allow sufficient time for vapors to completely clear hood duct work. Destroy remaining material by burning in an iron pan.
		LARGE SPILL Destroy by liquid incineration with off-gas scrubber.
PROTECTIVE EQUIPMENT TO BE USED	RESPIRATORY PROTECTION	If TLV of the product or any component is exceeded, a NIOSH/MESA joint approved self-contained breathing apparatus with a full facepiece operated in pressure-demand or other positive pressure mode is advised; however, OSHA regulations also permit other NIOSH/MESA respirators under specified conditions. (See your safety equipment supplier).
	PROTECTIVE GLOVES	Wear Buna-N, Neoprene, or other resistant gloves.
	EYE PROTECTION	Chemical splash goggles in compliance with OSHA regulations are advised; however, OSHA regulations also permit other type safety glasses. (See your safety equipment supplier).
	VENTILATION	Provide sufficient mechanical (general) and/or local exhaust ventilation to maintain exposure below TLV's.
	OTHER PROTECTIVE EQUIPMENT	To prevent repeated or prolonged skin contact, wear impervious clothing and boots.

Containers of this material may be hazardous when emptied. Since emptied containers retain product residue (vapor, liquid, and/or solid), all hazard precautions given in this data sheet must be observed.

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**A HAZARDOUS INGREDIENT IS ONE WHICH MEETS ONE OR MORE OF THE FOLLOWING CRITERIA:**

1. It is listed in the annual Registry of Toxic Effects of Chemical Substances, or is known to be toxic within the parameters of that Registry, and is present at a level of 4% or greater. DOT Poisons are listed if present at any level.
2. It has an OSHA established 8-hour time-weighted average or acceptable ceiling concentration (c), or an American Conference of Governmental Industrial Hygienists' (ACGIH) Threshold Limit Value, and by the nature of the product or its known use, is likely to become airborne.
3. It contributes to one or more of the following hazards of the product:
  - a. Flashpoint below 200 F (cc), or subject to spontaneous heating or decomposition.
  - b. Causes skin burns. (DOT)
  - c. Strong oxidizing agent. (DOT)
  - d. Subject to hazardous polymerization.

Each hazardous ingredient is listed by chemical, generic, or proprietary name, its level in the product is expressed as 1% or less, 1-10%, 10-30%, 30-60%, or greater than 60%, or by other means if such information is proprietary. Adopted ACGIH values are only listed, with appropriate notation, where OSHA values are not available.



ASHLAND OIL, INC.  
P. O. Box 2458  
COLUMBUS, OHIO 43216

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74000  
MATERIAL SAFETY DATA SHEET

SUPERSEDES PREVIOUS SHEET DATED:

ACCEPTED BY OSHA AS ESSENTIALLY SIMILAR TO OSHA FORM 20.

GENERAL INFORMATION

The information accumulated herein is believed to be accurate but is not warranted to be whether originating with Ashland or not. Recipients are advised to confirm in advance of need that the information is current, applicable, and suitable to their circumstances.

PRODUCT NAME	DATA SHEET NO.	DATE PREPARED	CODE NUMBER
Valvoline DB Wheel Bearing Grease	01	8/3/77	

PRODUCT IDENTIFICATION	PRODUCT CLASS	GENERAL OR GENERIC IDENTIFICATION
	PASSES DOT TEST FOR HAZARDOUS CLASSIFICATION	HAZARD CLASSIFICATION
	Lubricating Grease	None.
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HAZARDOUS COMPONENTS	INGREDIENT	%	TLV	INGREDIENT	%	TLV
	SEE DEFINITION ON REVERSE SIDE	1. Mineral Oil	> 60	5mg/M <sup>3</sup>	for oil mist	

PHYSICAL DATA	INITIAL BOILING POINT	<input type="checkbox"/> LIQUID AT 60°F <input type="checkbox"/> Product <input checked="" type="checkbox"/> Component ( ) %	N.A.	OF mmHg	SPECIFIC GRAVITY	<input type="checkbox"/> Greater than water <input type="checkbox"/> Equal to water <input checked="" type="checkbox"/> Less than water	F
	VAPOR PRESSURE	<input type="checkbox"/> LIQUID AT 60°F OR WHEN SUBLING <input type="checkbox"/> Product <input checked="" type="checkbox"/> Component ( ) %	N.A.	mmHg OF	PERCENT VOLATILES	INGREDIENT WITH INITIAL BOILING POINT BELOW 110°F	0
	VAPOR DENSITY	<input type="checkbox"/> LIGHTER THAN AIR <input checked="" type="checkbox"/> HEAVIER THAN AIR	(air = 1)		EVAPORATION RATE	<input type="checkbox"/> Faster than ether <input checked="" type="checkbox"/> Slower than ether	( = 1)

FIRE AND EXPLOSION DATA	FLASH POINT (closed cup)	<input type="checkbox"/> Less than 73°F <input type="checkbox"/> 73-100°F <input type="checkbox"/> 100-200°F <input checked="" type="checkbox"/> More than 200°F	500°F	LOWER EXPLOSION LIMIT	<input type="checkbox"/> Product <input type="checkbox"/> Lowest value of component	N.A.
	HAZARDOUS DECOMPOSITION PRODUCTS	KNOWN HAZARDOUS PRODUCTS RESULTING FROM HEATING, BURNING, ETC. OR UNREACTED RAW MATERIALS  May form toxic materials: Carbon Monoxide, Carbon Dioxide, various Hydrocarbons, etc.				






INDICATE EQUIPMENT TO PROTECT FIREMEN FROM TOXIC PRODUCTS, COMBUSTION, OR IF WATER IS NOT TO BE USED. CODE NUMBER

FIRE AND EXPLOSION DATA CONTINUED

SPECIAL FIRE FIGHTING PROCEDURES	Water may be ineffective. Self-contained breathing apparatus with a full facepiece operated in pressure-demand or other positive pressure mode.
UNUSUAL FIRE AND EXPLOSION HAZARDS	None.
EXTINGUISHING MEDIA	<input checked="" type="checkbox"/> DRY CHEMICAL <input type="checkbox"/> WATER FOG <input checked="" type="checkbox"/> CARBON DIOXIDE <input type="checkbox"/> ALCOHOL FOAM <input checked="" type="checkbox"/> REGULAR FOAM <input type="checkbox"/> OTHER-



HEALTH HAZARD DATA

THRESHOLD LIMIT VALUE	OSHA ESTABLISHED VALUE. IF NONE, INDICATE ACGIH - ADOPTED TLV. Not established for product. See Section II.
EFFECTS OF OVEREXPOSURE FOR <input type="checkbox"/> PRODUCT <input checked="" type="checkbox"/> COMPONENT	KNOWN EFFECTS LISTED, UNLESS NOT APPLICABLE DUE TO PHYSICAL FORM OF PRODUCT  Eyes- can cause irritation. Skin - prolonged or repeated contact can cause moderate irritation. Swallowing - can cause gastrointestinal irritation, nausea, vomiting, diarrhea.
 SPECIAL FIRST AID ACTION	IF ON SKIN  Thoroughly wash exposed area with soap and water. Remove contaminated clothing. Launder contaminated clothing before re-use.
	IF IN EYES  Flush with large amounts of water, lifting upper and lower lids occasionally.
	IF SWALLOWED  Give two glasses of water; induce vomiting immediately by sticking finger down throat. Call a physician. Never give anything by mouth to an unconscious person.
	IF BREATHED  If affected, remove individual to fresh air. If breathing is difficult, administer oxygen. If breathing has stopped, give artificial respiration. Keep person warm, quiet, and get medical attention.

ACTIVITY DATA	HAZARDOUS POLYMERIZATION	<p>CONDITIONS TO AVOID HAZARDOUS POLYMERIZATION RESULTING IN A LARGE RELEASE OF ENERGY</p> <input type="checkbox"/> CAN OCCUR <input checked="" type="checkbox"/> CANNOT OCCUR	COUR NUMBER
	STABILITY	<p>CONDITIONS TO AVOID IF UNSTABLE UNDER NORMAL CONDITIONS</p> <input checked="" type="checkbox"/> STABLE <input type="checkbox"/> UNSTABLE	
	INCOMPATIBILITY (MATERIALS TO AVOID)	<p>COMMON MATERIALS OR CONTAMINANTS WHICH WOULD RESULT IN A HAZARDOUS REACTION WITH THE PRODUCT ARE SHOWN</p> <p>Avoid contact with strong oxidizing agents.</p>	
SPILL OR LEAK PROCEDURES	STEPS TO BE TAKEN IN CASE MATERIAL IS RELEASED OR SPILLED	<p>SMALL SPILL</p> <p>Absorb liquid on paper, vermiculite, floor absorbent, or other absorbent material and transfer to hood.</p>	
		<p>LARGE SPILL</p> <p>Persons not wearing protective equipment should be excluded from area of spill until clean-up has been completed. Stop spill at source, dike area of spill to prevent spreading, pump liquid to salvage tank. Remaining liquid may be taken up on sand, clay, earth, floor absorbent, or other absorbent material and shovel into containers.</p>	
REASONABLE CAUTIONS TO BE TAKEN AND METHODS OF CLEANUP TO BE USED IN THE EVENT OF SPILL OF THE PRODUCT.	WASTE DISPOSAL METHOD	<p>SMALL SPILL</p> <p>Destroy by incineration.</p>	
		<p>LARGE SPILL</p> <p>Destroy by liquid incineration with off-gas scrubber.</p>	
PROTECTIVE EQUIPMENT TO BE USED	RESPIRATORY PROTECTION	<p>If TLV of the product or any component is exceeded, a NIOSH/MESA jointly approved self-contained breathing apparatus with a full facepiece operated in pressure-demand or other positive pressure mode is advised; however, OSHA regulations also permit other NIOSH/MESA respirators under specified conditions. (See your safety equipment supplier).</p>	
	PROTECTIVE GLOVES	<p>Wear Buna-N, Neoprene, or other resistant gloves.</p>	
	EYE PROTECTION	<p>Chemical splash goggles in compliance with OSHA regulations are advised; however, OSHA regulations also permit other type safety glasses. (See your safety equipment supplier).</p>	
	VENTILATION	<p>Provide sufficient mechanical (general) and/or local exhaust ventilation to maintain exposure below TLV's.</p>	
	OTHER PROTECTIVE EQUIPMENT	<p>To prevent repeated or prolonged skin contact, wear impervious clothing and boots.</p>	

Containers of this material may be hazardous when emptied. Since emptied containers retain product residue (vapor, liquid, and/or solid), all hazard precautions given in this data sheet must be observed.

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**A HAZARDOUS INGREDIENT IS ONE WHICH MEETS ONE OR MORE OF THE FOLLOWING CRITERIA:**

1. It is listed in the annual Registry of Toxic Effects of Chemical Substances, or is known to be toxic within the parameters of that Registry, and is present at a level of 4% or greater. DOT Poisons are listed if present at any level.
2. It has an OSHA established 8-hour time-weighted average or acceptable ceiling concentration (c), or an American Conference of Governmental Industrial Hygienists' (ACGIH) Threshold Limit Value, and by the nature of the product or its known use, is likely to become airborne.
3. It contributes to one or more of the following hazards of the product:
  - a. Flashpoint below 200 F (cc), or subject to spontaneous heating or decomposition.
  - b. Causes skin burns. (DOT)
  - c. Strong oxidizing agent. (DOT)
  - d. Subject to hazardous polymerization.

Each hazardous ingredient is listed by chemical, generic, or proprietary name. Its level in the product is expressed as 1% or less, 1-10%, 10-30%, 30-60%, or greater than 60%, or by other means if such information is proprietary. Adopted ACGIH values are only listed, with appropriate notation, where OSHA values are not available.

## PRODUCT DATA SHEET

### SECTION I

MANUFACTURER'S NAME Instapak Division, Sealed Air Corporation		EMERGENCY TELEPHONE NO. 203-792-2360
ADDRESS (Number, Street, City, State, and ZIP Code) Old Sherman Turnpike, Danbury, Ct. 06810		
CHEMICAL NAME AND SYNONYMS Diphenyl Methane Diisocyanate		TRADE NAME AND SYNONYMS Instapak Component A
CHEMICAL FAMILY Polymeric Isocyanate	FORMULA	

### SECTION II - HAZARDOUS INGREDIENTS

PAINTS, PRESERVATIVES, & SOLVENTS	%	TLV (Units)	ALLOYS AND METALLIC COATINGS	%	TLV (Units)
PIGMENTS			BASE METAL		
CATALYST			ALLOYS		
VEHICLE			METALLIC COATINGS		
SOLVENTS			FILLER METAL PLUS COATING OR CORE FLUX		
ADDITIVES			OTHERS		
OTHERS					
HAZARDOUS MIXTURES OF OTHER LIQUIDS, SOLIDS, OR GASES				%	TLV (Units)
Diphenylmethane diisocyanate			Approx.	50	02
Higher polymers of similar structure			Approx.	50	not established

### SECTION III - PHYSICAL DATA

BOILING POINT (°F.) at 5mm Hg	208°C	SPECIFIC GRAVITY (H <sub>2</sub> O=1)	1.24
VAPOR PRESSURE (mm Hg.) at 25°C	< 0.001 mmHg	PERCENT VOLATILE BY VOLUME (%)	
VAPOR DENSITY (AIR=1)		EVAPORATION RATE (_____%)	
SOLUBILITY IN WATER	Insol.		
APPEARANCE AND ODOR: Brown viscous liquid, slightly aromatic odor			

### SECTION IV - FIRE AND EXPLOSION HAZARD DATA

FLASH POINT (Method used)	213°C (C.O.C.)	FLAMMABLE LIMITS	Lel	Uel
		FIRE POINT	232°C	
EXTINGUISHING MEDIA CO <sub>2</sub> , dry chemical, chemical foam or water for				
SPECIAL FIRE FIGHTING PROCEDURES Provide usual firemans' protective clothing plus self-contained breathing apparatus to protect from product vapors.				
UNUSUAL FIRE AND EXPLOSION HAZARDS				

### SECTION V - HEALTH HAZARD DATA

THRESHOLD LIMIT VALUE

.02 ppm for Diphenylmethane diisocyanate

EFFECTS OF OVEREXPOSURE

Irritation of mucous membrane, tightness of chest, irritation of respiratory tract coughing, headache and shortness of breath. Repeated over exposure can lead to allergic sensitivity.

EMERGENCY AND FIRST AID PROCEDURES

Skin - wash with soap & water for at least 5 min. Eyes - wash with large amounts of water for at least 15 min., consult eye physician. Internal - induce vomiting; consult physician. Inhalation - remove to uncontaminated area; administer oxygen, if necessary, consult physician.

### SECTION VI - REACTIVITY DATA

STABILITY	UNSTABLE		CONDITIONS TO AVOID Avoid temperature below 32°F (causes crystallization)
	STABLE	X	or above 120°F (causes slow increase in viscosity).

INCOMPATIBILITY (Materials to avoid)

Avoid contact with water, alcohols, strong bases, metal compounds, surface active agents

HAZARDOUS DECOMPOSITION PRODUCTS

HAZARDOUS POLYMERIZATION	MAY OCCUR		CONDITIONS TO AVOID Avoid contact with moisture or other
	WILL NOT OCCUR	X	materials that react with isocyanates.

### SECTION VII - SPILL OR LEAK PROCEDURES

STEPS TO BE TAKEN IN CASE MATERIAL IS RELEASED OR SPILLED.

Absorb in sawdust or sweeping compound; remove from area in open drums and wet with water containing about 1% ammonia before disposal.

WASTE DISPOSAL METHOD

In accordance with environmental consideration and control regulations.

### SECTION VIII - SPECIAL PROTECTION INFORMATION

RESPIRATORY PROTECTION (Specify type) Canister type gas masks for organic vapors, masks supplied from external air source or self-contained breathing apparatus.

VENTILATION	LOCAL EXHAUST To maintain vapor concentration below TLV.	SPECIAL
	MECHANICAL (General)	OTHER

PROTECTIVE GLOVES: Chemically resistant

EYE PROTECTION: Safety goggles

OTHER PROTECTIVE EQUIPMENT: Safety showers and eye wash stations should be available.

### SECTION IX - SPECIAL PRECAUTIONS

PRECAUTIONS TO BE TAKEN IN HANDLING AND STORING

This isocyanate should be protected from humid air and should be stored at 20 - 110°F. Before using containers should be brought within the range of 60-90°F.

# INSTAPAK™

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## PRODUCT DATA SHEET

### SECTION I

MANUFACTURER'S NAME Instapak Division, Sealed Air Corporation		EMERGENCY TELEPHONE NO. 203-792-2360
ADDRESS (Number, Street, City, State, and ZIP Code) Old Sherman Turnpike, Danbury, Ct. 06810		
CHEMICAL NAME AND SYNONYMS Urethane Resin		TRADE NAME AND SYNONYMS Instapak 40 Component B
CHEMICAL FAMILY	FORMULA	

### SECTION II - HAZARDOUS INGREDIENTS

PAINTS, PRESERVATIVES, & SOLVENTS	%	TLV (Units)	ALLOYS AND METALLIC COATINGS	%	TLV (Units)
PIGMENTS			BASE METAL		
CATALYST			ALLOYS		
VEHICLE			METALLIC COATINGS		
SOLVENTS			FILLER METAL PLUS COATING OR CORE FLUX		
ADDITIVES			OTHERS		
OTHERS					
HAZARDOUS MIXTURES OF OTHER LIQUIDS, SOLIDS, OR GASES				%	TLV (Units)
Not classified as hazardous under Department of Labor Definitions.					

### SECTION III - PHYSICAL DATA

BOILING POINT (°F.)	Approx.	100°F	SPECIFIC GRAVITY (H <sub>2</sub> O=1)	1.09
VAPOR PRESSURE (mm Hg.)	@100°F	900	PERCENT VOLATILE BY VOLUME (%)	20
VAPOR DENSITY (AIR=1)		Heavier	EVAPORATION RATE (_____%)	
SOLUBILITY IN WATER		Miscible		
APPEARANCE AND ODOR Straw colored, viscous liquid, fluorocarbon odor.				

### SECTION IV - FIRE AND EXPLOSION HAZARD DATA

FLASH POINT (Method used)	Not Flammable	FLAMMABLE LIMITS	Loi	Uei
EXTINGUISHING MEDIA				
SPECIAL FIRE FIGHTING PROCEDURES Water may be used.				
UNUSUAL FIRE AND EXPLOSION HAZARDS Pressure will develop with heat.				

**SECTION V - HEALTH HAZARD DATA**

**THRESHOLD LIMIT VALUE**

For fluorocarbon component, 1000 ppm (See Fluorotrichloromethane)

**EFFECTS OF OVER EXPOSURE**

Contact with eyes may be irritating. Repeated contact with skin may be irritating.

High concentrations of vapors may cause narcosis, anesthesia or suffocation.

**EMERGENCY AND FIRST AID PROCEDURES**

Classified as practically non-toxic by ingestion. Eyes - flush thoroughly with large quantities of water. Skin - wash with soap & water. Inhalation - for excessive exposure; remove to fresh air, administer oxygen if necessary, consult a physician.

**SECTION VI - REACTIVITY DATA**

STABILITY	UNSTABLE		CONDITIONS TO AVOID Avoid temperatures below 20°F (causes crystallization) and above 80°F containers will be under pressure. Heating causes pressure in containers.
	STABLE	X	

INCOMPATIBILITY (Materials to avoid)

HAZARDOUS DECOMPOSITION PRODUCTS

HAZARDOUS POLYMERIZATION	MAY OCCUR		CONDITIONS TO AVOID
	WILL NOT OCCUR	X	

**SECTION VII - SPILL OR LEAK PROCEDURES**

**STEPS TO BE TAKEN IN CASE MATERIAL IS RELEASED OR SPILLED**

Wash away with water or absorb on sweeping compound or other absorbant material.

Provide sufficient ventilation to keep fluorocarbon vapor concentration below TL of 1000 ppm.

**WASTE DISPOSAL METHOD**

Bury or incinerate in accordance with environmental considerations and control regulations.

**SECTION VIII - SPECIAL PROTECTION INFORMATION**

**RESPIRATORY PROTECTION (Specify type)**

If vapor concentrations are extreme, provide organic vapors gas mask or outside air.

VENTILATION	LOCAL EXHAUST	SPECIAL	source or self-contained breathing apparatus.
	MECHANICAL (General)	OTHER	

PROTECTIVE GLOVES	Chemically resistant	EYE PROTECTION	Safety goggles
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OTHER PROTECTIVE EQUIPMENT

**SECTION IX - SPECIAL PRECAUTIONS**

**PRECAUTIONS TO BE TAKEN IN HANDLING AND STORING**

Store in cool area. Maximum storage temperature range 20 - 100°F. Containers above about 80°F will be under pressure and must be opened with care.

U.S. DEPARTMENT OF LABOR  
 WORKPLACE STANDARDS ADMINISTRATION  
 Bureau of Labor Standards

JEAN

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MATERIAL SAFETY DATA SHEET

SECTION I

MANUFACTURER'S NAME Total Petroleum, Inc.		EMERGENCY TELEPHONE NO. 517-463-1164
ADDRESS (Number, Street, City, State, and ZIP Code) E. Superior Street, Alma, Michigan 48801		
CHEMICAL NAME AND SYNONYMS 205 Flash Solvent (200 SAFETY SOLVENT)	TRADE NAME AND SYNONYMS L-4252	
CHEMICAL FAMILY Hydrocarbon	FORMULA C <sub>n</sub> H <sub>2n+2</sub>	

SECTION II HAZARDOUS INGREDIENTS

PAINTS, PRESERVATIVES, & SOLVENTS	%	TLV (Units)	ALLOYS AND METALLIC COATINGS	%	TLV (Units)
PIGMENTS			BASE METAL		
CATALYST			ALLOYS		
VEHICLE			METALLIC COATINGS		
SOLVENTS	100	*u	FILLER METAL PLUS COATING OR CORE FLUX		
ADDITIVES			OTHERS		
OTHERS					
HAZARDOUS MIXTURES OF OTHER LIQUIDS, SOLIDS, OR GASES				%	TLV (Units)
Oxidizing Agents					

SECTION III PHYSICAL DATA

BOILING POINT (°F.)	410/525	SPECIFIC GRAVITY (H <sub>2</sub> O=1)	.8156/ 8398
VAPOR PRESSURE (mm Hg.)	<1 mm Hg	PERCENT VOLATILE BY VOLUME (%)	100
VAPOR DENSITY (AIR=1)	~4.5	EVAPORATION RATE (=1)	unknown
SOLUBILITY IN WATER	insol.		
APPEARANCE AND ODOR	Nearly colorless liquid, oil-like odor		

SECTION IV FIRE AND EXPLOSION HAZARD DATA

FLASH POINT (Method used)	205° F. Min., COC	FLAMMABLE LIMITS	LeI	UeI
EXTINGUISHING MEDIA	CO <sub>2</sub> , fog, dry chemical, foam		~0.7	~5.0
SPECIAL FIRE FIGHTING PROCEDURES	Avoid use of water			
UNUSUAL FIRE AND EXPLOSION HAZARDS	Exposure to open flame or high temperature. Will react with strong oxidizing agents.			

\*unknown



### SECTION V HEALTH HAZARD DATA

THRESHOLD LIMIT VALUE **unknown**

EFFECTS OF OVEREXPOSURE **Inhalation of high concentrations can cause headache and stupor.**

**Ingestion causes irritation accompanied by nausea and vomiting. Skin irritant.**

EMERGENCY AND FIRST AID PROCEDURES

**Inhalation - remove to vapor-free area.**

**Ingestion - seek medical attention.**

**Eyes - flush with copious quantities of water. Skin - wash with soap and water.**

### SECTION VI REACTIVITY DATA

STABILITY	UNSTABLE		CONDITIONS TO AVOID
	STABLE	X	Avoid open flame and oxidizing agents.

INCOMPATIBILITY (Materials to avoid) **Oxidizing agents.**

HAZARDOUS DECOMPOSITION PRODUCTS **None**

HAZARDOUS POLYMERIZATION	MAY OCCUR		CONDITIONS TO AVOID
	WILL NOT OCCUR	X	

### SECTION VII SPILL OR LEAK PROCEDURES

STEPS TO BE TAKEN IN CASE MATERIAL IS RELEASED OR SPILLED

**Use of commercial absorbents**

WASTE DISPOSAL METHOD **Incineration**

### SECTION VIII SPECIAL PROTECTION INFORMATION

RESPIRATORY PROTECTION (Specify type) **Not normally needed**

VENTILATION	LOCAL EXHAUST		SPECIAL
	MECHANICAL (General)	X	OTHER

PROTECTIVE GLOVES **Not normally needed** EYE PROTECTION **Not normally needed**

OTHER PROTECTIVE EQUIPMENT **To ensure safe use, use of face shield and rubber protective clothing recommended.**

### SECTION IX SPECIAL PRECAUTIONS

PRECAUTIONS TO BE TAKEN IN HANDLING AND STORING **Store away from extreme heat and open flame.**

OTHER PRECAUTIONS **Product is not biodegradable and will interfere with the normal bacteriological sanitary sewage treatment process. It is an oil and should be disposed of accordingly.**

**BENZENE content: 0.70 volume percent**

**TEXACO INC.  
INDUSTRIAL HYGIENE, TOXICOLOGY, AND MATERIAL  
SAFETY DATA SHEET**



NOTE: NO REPRESENTATION IS MADE AS TO THE ACCURACY OF THE INFORMATION  
HEREIN. SEE PAGE 4 FOR CONDITIONS UNDER WHICH DATA ARE FURNISHED.

<b>Trade Name and Synonyms</b> 600 Transformer Oil	
<b>Manufacturer's Name</b> Texaco Inc.	<b>Emergency Telephone No.</b> (914) 831-3400 Ext. 406
<b>Address</b> P.O. Box 509, Beacon, NY 12508	
<b>Chemical Name and/or Family or Description</b> N.A.	
THIS PRODUCT IS CLASSIFIED AS: _____ <input checked="" type="checkbox"/> NOT HAZARDOUS: _____ HAZARDOUS BY DEFINITION NO.(S) _____ ON ATTACHED EXPLANATION SHEET 4.	
<b>WARNING STATEMENT:</b> None considered necessary.	
<b>PHYSIOLOGICAL EFFECTS:</b>	
<b>Effects of Exposure</b>	
<b>Acute:</b>	
<b>Eyes</b>	N.D. Believed to be minimally irritating.
<b>Skin</b>	N.D. Believed to be minimally irritating.
<b>Respiratory System</b>	N.D. Believed to be minimally irritating if not in excess of permissible concentrations; see page 2.
<b>Chronic</b>	N.D. Other -
<b>Sensitization Properties</b>	
Skin: Yes _____ No <input checked="" type="checkbox"/> Unknown _____	Respiratory: Yes _____ No <input checked="" type="checkbox"/> Unknown _____
<b>Median Lethal Dose (LD<sub>50</sub>, LC<sub>50</sub>) (Species)</b>	<b>Irritation Index, Estimation of Irritation (Species)</b>
Oral _____ N.D. Believed to be 5 gm/kg (rat)	Skin _____ N.D.; see above
Inhalation _____ N.D.	Eyes _____ N.D.; see above
Dermal _____ N.D. Believed to be 10 gm/kg (rabbit)	Symptoms of Exposure _____ N.D. None expected
Other _____ -	_____ other than possible minimal irritation.
<b>EMERGENCY AND FIRST AID PROCEDURES</b>	
<b>First Aid</b>	
<b>Eyes</b>	As with most foreign materials, should eye contact occur, flush eyes with plenty of water.
<b>Skin</b>	None considered necessary.
<b>Ingestion</b>	None considered necessary.
<b>Inhalation</b>	None considered necessary.
<b>Other Instructions</b>	None

\*N.D.—Not Determined; \*N.A.—Not Applicable  
<—Less Than; >—Greater Than

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5A49

**OCCUPATIONAL CONTROL PROCEDURES**Code  
No. 600**Protective Equipment (Type)****Eyes** Protective goggles or face shield optional.**Skin** Exposed employees should exercise reasonable personal cleanliness; this includes cleansing exposed skin areas several times daily with soap and water, and laundering or dry cleaning soiled work clothing at least weekly.**Inhalation** None required if exposures are within permissible concentrations; see below.Ventilation Required: Normal  Other**Precautionary Label**

None Considered Necessary.

**Permissible Concentrations:**Air 5 mg/m<sup>3</sup> of air for mineral oil mist averaged over an 8 hour daily exposure. Other -**Requirements for Transportation, Handling and Storage**

No Special Requirements

DOT Proper Shipping Name: N.A.

DOT Hazard Class (if applicable) N.A.

**CHEMICAL AND PHYSICAL PROPERTIES**Boiling Point (°F) 568 Vapor Pressure Nil (mmHg)Specific Gravity 0.893 (H<sub>2</sub>O = 1) Vapor Density N.D. (Air = 1)Appearance and Odor Very light pale liquidpH of undiluted product N.D. Solubility InsolublePercent Volatile by Volume Nil Evaporation N.D. ( ) = 1Viscosity 60 SUS @ 100°FOther -Hazardous Polymerizations        Occur  Do not occur

The Material Reacts Violently With: None of those listed below.

Air        Water        Heat        Strong Oxidizers        Others       **FIRE PROTECTION INFORMATION**Ignition Temp. °F 330 C/C Flash Point F. (Method) 300 C/CFlammable limits % Lower N.D. Upper N.D.Products Evolved When Subjected to Heat or Combustion Carbon monoxide, carbon dioxide, oxides of nitrogen, oxides of sulfur, aldehydes and ketones.Recommended Fire Extinguishing Agents and Special Procedures According to the National Fire Protection Association Guide 325M, mineral oil fires may be extinguished by water spray, dry chemical, foam, or carbon dioxide. Caution: Water or foam may cause frothing.Unusual Fire or Explosive Hazards None indicated.

COMPOSITION		Code No. 600	
Components Presenting a Significant Hazard	%	Other Components	%
None.		Mineral oil	100

**ENVIRONMENTAL PROTECTION**

Waste Disposal Method      Dispose in accordance with local laws and regulations governing disposal of oily wastes. A waste oil contractor or disposal specialist is suggested.

Procedures in Case of Breakage or Leakage      Contain spill. Absorb with inert porous material. Dispose in accordance with local laws and regulations governing disposal of oily wastes. Contact a waste oil contractor or disposal specialist if necessary.

Remarks:  
None.

**ADDITIONAL COMMENTS**

TEXACO INTENDS TO COMPLY FULLY WITH PROVISIONS OF THE TOXIC SUBSTANCES CONTROL ACT

State of Michigan Critical Materials Act (Revised 1978)

None present.

To determine applicability or effect of any law or regulation with respect to this product, user should consult his legal advisor or the appropriate government agency. Texaco does not undertake to furnish advice on such matters.

By: R. T. Richards      Title: Manager, Industrial Hygiene and Toxicology

Date: 1/1/78       New       Revised, Supersedes

NOTE: THIS DATA IS FURNISHED GRATUITOUSLY AT YOUR REQUEST INDEPENDENT OF ANY SALE OF THE PRODUCT, ONLY FOR YOUR INVESTIGATION AND INDEPENDENT VERIFICATION. WHILE THE INFORMATION IS BELIEVED TO BE CORRECT, TEXACO INC. MAKES NO REPRESENTATION AS TO THE ACCURACY OF THE INFORMATION CONTAINED HEREIN. TEXACO INC. DOES NOT ACCEPT RESPONSIBILITY TO CORRECT DATA HEREIN IF TEXACO INC. ACQUIRES ADDITIONAL INFORMATION NOR DOES TEXACO INC. ACCEPT RESPONSIBILITY TO FURNISH REVISED INFORMATION IN THE EVENT TEXACO'S FORMULA IS CHANGED. TEXACO INC. SHALL IN NO EVENT BE RESPONSIBLE FOR ANY DAMAGES OF WHATSOEVER NATURE DIRECTLY OR INDIRECTLY RESULTING FROM THE PUBLICATION OR USE OF OR RELIANCE UPON DATA CONTAINED HEREIN. NO WARRANTY, EITHER EXPRESS OR IMPLIED OF MERCHANTABILITY OR FITNESS OR OF ANY NATURE WITH RESPECT TO THE PRODUCT OR TO THE DATA HEREIN IS MADE HEREUNDER.

### EXPLANATION OF THE INDUSTRIAL HYGIENE, TOXICOLOGY, AND MATERIAL SAFETY DATA SHEET

#### Product Information

##### Trade Name and Synonyms

Refer to the code number and name under which the product is marketed and the common commercial name of the product.

Manufacturer's Name and Address Self explanatory.

##### Chemical Name and/or Family or Description

Refers to chemical, generic, or descriptive name of single elements and compounds.

For purposes of this form, a product is defined as hazardous if it possesses one or more of the following characteristics: (1) has a flash-point below 200°F, closed cup or subject to spontaneous heating; (2) has a threshold limit value below 500 ppm for gases and vapor, below 5 mg/m<sup>3</sup> for dusts, fumes and mist, and below 25 MPPCF for mineral dust; (3) a single dose oral LD50 below 500 mg/kg; (4) causes burns to the skin in the short-term exposure or is systemically toxic by skin contact; (5) has been demonstrated to be a skin or eye irritant or causes respiratory irritation; (6) may cause skin or respiratory sensitization; (7) has teratogenic, mutagenic or other toxic effects; (8) may cause asphyxia or pneumoconiosis; (9) in the course of normal operations may produce dusts, gases, fumes, vapors, mist or smoke which have one or more of the above characteristics.

##### Physiological Effects

##### Acute Exposure (Eye, Skin, Respiratory System)

Refers to the most common effects that would be expected to occur from direct contact with the product.

##### Chronic

Refers to the effects that are most likely to occur from repeated or prolonged exposure.

##### Sensitizer

Means a substance which will cause on or in normal living tissue, through an allergic or photodynamic process, a hypersensitivity which becomes evident on reapplication of, or exposure to, the same substance.

##### Median Lethal Dose or Concentration (LD50, LC50)

Refers to that dose or concentration of the material which will produce death in 50 per cent of the animals. For inhalation, exposure time is indicated.

##### Irritation Index

Refers to an empirical score (Draize Method) for eye and skin irritation when tested by the method described. If numbers are not available, a yes or no answer indicates whether or not the material is an irritant.

##### Emergency and First Aid Procedures

Gives first aid and emergency procedures in case of eye and/or skin contact, ingestion and inhalation.

##### Occupational Control Procedures

##### Protective Equipment

Type of protective equipment that is necessary for the safe handling and use of this product.

##### Ventilation

Ventilation: type, i.e. local exhaust, mechanical, etc.

##### Precautionary Label

Label that is required or recommended.

##### Permissible Concentrations

Indicates Threshold Limit Value (TLV) and/or Time Weighted Average (TWA) as established by the American Conference of Governmental Industrial Hygienists and/or standards promulgated by the Occupational Safety and Health Administration.

##### Requirements for Transportation, Handling and Storage

Specifies handling and storage procedures. Gives ICC, DOT, or other regulations related to safety and health for transportation.

## **Chemical and Physical Properties**

### **Boiling Point (or Range)**

In degrees F. (or C.), Boiling Point at 760 mmHg.

### **Vapor Pressure**

Refers to pressure of saturated vapor above the liquid expressed in mm of Hg. at 20°C. or 68°F.

### **Specific Gravity**

The ratio of the density of the product to the density of water.

### **Vapor Density**

The ratio of the density of the vapor at saturation concentrations (20°C. or 68°F. to the density of air at 760 mmHg.)

### **Appearance and Odor**

Refers to the general characterization of the material, e.g. powder, colorless liquid, aromatic odor, etc.

### **pH**

Refers to the degree of acidity or basicity of the material in a specific concentration.

pH1-5 —strongly acidic

pH5-7 —weakly acidic

pH7-9 —weakly basic

pH9-14—strongly basic

### **Solubility**

Refers to the solubility of a material by weight in water at room temperature. The terms negligible, less than 0.1 percent; slight, 0.1 to 1%; moderate, 1 to 10%; appreciable 10% or greater. Gives solubility in organic solvents where appropriate.

Percent volatile by volume amount volatilized at 20°C. or 68°F. when allowed to evaporate.

### **Evaporation**

Gives the rate of evaporation compared to a standard.

### **Viscosity**

Measure of flow characteristics in Kinematic viscosity or Saybolt Universal Seconds.

### **Hazardous Polymerization**

Hazardous polymerization is that reaction which takes place at a rate which releases large amounts of energy. Indicates whether it may or may not occur and under what storage conditions.

## **Does the Material React Violently**

Indicates whether the material will react violently, releasing large amounts of energy when exposed under conditions listed.

## **Fire Protection Information**

### **Ignition Temperature**

Refers to the minimum temperature at which ignition will occur and burning will continue without further heating or application of flame.

### **Flash Point (State Method Used)**

Refers to the temperature in degrees F., at which a liquid will give off enough flammable vapor to ignite.

### **Flammable Limits**

Refers to the range of gas or vapor concentration (percent by volume in air) which will burn or explode if an ignition source is present. Lower means the lower flammable limit and upper means the upper flammable limit given in percent.

### **Products Evolved When Subjected to Heat or Combustion**

The products evolved when this material is subjected to heat or combustion. Includes temperature at which oxidation or other forms of degradation occurs.

### **Recommended Fire Extinguishing Agents and Special Procedures**

Specifies the fire fighting agents that should be used to extinguish fires. If unusual fire hazards are involved or special procedures indicated, this is specified.

### **Unusual Fire or Explosive Hazards**

Specific hazards to personnel in case of fire, explosive danger.

### **Composition**

Components of the product as manufactured.

### **Environmental Protection**

Specifies how this product can be successfully disposed of.

Indicates precautions necessary in the event that leakage or breakage occurs. Included are (a) clean-up procedures, (b) personal protective equipment if necessary, and (c) hazards that may be created, i.e. fire, explosion, etc.

Texaco Inc.  
2000 Westchester Avenue  
White Plains, New York 10650  
Phone (914) 253-4000 (White Plains)  
(914) 831-3400 (Beacon)

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# CONAP INC.

CONTROLLED MATERIALS APPLICATIONS  
Allegany, New York 14706



99  
Form No. LSD-005-4

## MATERIAL SAFETY DATA SHEET

SECTION I	
MANUFACTURER'S NAME CONAP, INC.	EMERGENCY TELEPHONE NO. 716-372-9650
ADDRESS (Number, Street, City, State, and ZIP Code) 1405 Buffalo Street, Olean, New York 14760	
CHEMICAL NAME AND SYNONYMS Isocyanate Prepolymer	TRADE NAME AND SYNONYMS CONATHANE TU-90, Part A
CHEMICAL FAMILY Urethane	FORMULA Proprietary

SECTION II HAZARDOUS INGREDIENTS					
PAINTS, PRESERVATIVES, & SOLVENTS	%	TLV (Units)	ALLOYS AND METALLIC COATINGS	%	TLV (Units)
PIGMENTS			BASE METAL		
CATALYST			ALLOYS		
VEHICLE			METALLIC COATINGS		
SOLVENTS			FILLER METAL PLUS COATING OR CORE FLUX		
ADDITIVES			OTHERS		
OTHERS					
HAZARDOUS MIXTURES OF OTHER LIQUIDS, SOLIDS, OR GASES				%	TLV (Units)
Toluene Diisocyanate				8	.02

SECTION III PHYSICAL DATA			
BOILING POINT (°F.)	>480°F	SPECIFIC GRAVITY (H <sub>2</sub> O=1)	1.08
VAPOR PRESSURE (mm Hg.)		PERCENT VOLATILE BY VOLUME (%)	
VAPOR DENSITY (AIR=1)		EVAPORATION RATE (H <sub>2</sub> O=1)	
SOLUBILITY IN WATER	Insol.		
APPEARANCE AND ODOR	Clear, light amber liquid, sharp pungent odor.		

SECTION IV FIRE AND EXPLOSION HAZARD DATA			
FLASH POINT (Method used)	270°F (c.o.c.)	FLAMMABLE LIMITS	Let Uol
EXTINGUISHING MEDIA	Water spray, CO <sub>2</sub> or dry chemical powder		
SPECIAL FIRE FIGHTING PROCEDURES	Protect against nitrogen dioxide fumes and toluene diisocyanate vapors using self-contained breathing apparatus.		
UNUSUAL FIRE AND EXPLOSION HAZARDS	Not considered explosive		

**SECTION V HEALTH HAZARD DATA**

THRESHOLD LIMIT VALUE TDI-.02 ppm

EFFECTS OF OVEREXPOSURE  
May cause irritation to skin, eyes and respiratory tract due to traces of  
Toluene Diisocyanate

EMERGENCY AND FIRST AID PROCEDURES  
Skin Contact: Wash thoroughly with soap and water  
Eye Contact: Eye bath wash for 15 minutes - consult physician  
Inhalation: Remove to fresh air, administer oxygen if necessary

**SECTION VI REACTIVITY DATA**

STABILITY	UNSTABLE		CONDITIONS TO AVOID Moisture. Store in closed containers
	STABLE	X	cool, dry place.
INCOMPATIBILITY (Materials to avoid) Moisture, strong oxidizers, alcohols, amines			
HAZARDOUS DECOMPOSITION PRODUCTS Misc. fumes of nitrogen & hydrogen. Should be considered Toxic			
HAZARDOUS POLYMERIZATION	MAY OCCUR		CONDITIONS TO AVOID
	WILL NOT OCCUR	X	

**SECTION VII SPILL OR LEAK PROCEDURES**

STEPS TO BE TAKEN IN CASE MATERIAL IS RELEASED OR SPILLED Cover with absorbent, scrape up immediately and discard into vented containers.	
Treat with dilute ammonium hydroxide or alcohol and water in open containers before disposing.	
WASTE DISPOSAL METHOD	Bury in landfill

**SECTION VIII SPECIAL PROTECTION INFORMATION**

RESPIRATORY PROTECTION (Specify type) Have respirators available, suitable for organic vapors, should ventilation system fail.		
VENTILATION	LOCAL EXHAUST Yes	SPLCIAL
	MECHANICAL (General) Yes, to keep vapor concentration below TLV	OTHER
PROTECTIVE GLOVES Yes, rubber or plastic	EYE PROTECTION Safety glasses with side shields	
OTHER PROTECTIVE EQUIPMENT		

**SECTION IX SPECIAL PRECAUTIONS**

PRECAUTIONS TO BE TAKEN IN HANDLING AND STORAGE Avoid contact with skin and eyes. Avoid inhalation of fumes. Store in closed containers in cool dry place.	
OTHER PRECAUTIONS	

Legal responsibility is assumed only for the fact that all studies reported here and all opinions are those of qualified experts.



# CONAP INC.

CONTROLLED MATERIALS APPLICATIONS  
 Allegany, New York 14706



## MATERIAL SAFETY DATA SHEET

<b>SECTION I</b>			
MANUFACTURER'S NAME CONAP, INC.		EMERGENCY TELEPHONE NO. 716-372-9650	
ADDRESS (Number, Street, City, State, and ZIP Code) 1405 Buffalo Street, Olean, New York 14760			
CHEMICAL NAME AND SYNONYMS Polyurethane Curing Agent		TRADE NAME AND SYNONYMS CONVATANE TU-90, Part B	
CHEMICAL FAMILY Polyether Polyol/Diamine Blend		FORMULA Proprietary	

<b>SECTION II HAZARDOUS INGREDIENTS</b>					
PAINTS, PRESERVATIVES, & SOLVENTS	%	TLV (Units)	ALLOYS AND METALLIC COATINGS	%	TLV (Units)
PIGMENTS			BASE METAL		
CATALYST			ALLOYS		
VEHICLE			METALLIC COATINGS		
SOLVENTS			FILLER METAL PLUS COATING OR CORE FLUX		
ADDITIVES			OTHERS		
OTHERS					
HAZARDOUS MIXTURES OF OTHER LIQUIDS, SOLIDS, OR GASES				%	TLV (Units)
4,4'-Methylene-bis-(2-chloroaniline)		(MOCA)		<	40
CAUTION: When using this material, the directives of the Occupational Safety & Health Administration (OSHA) shall be complied with.					
(See Federal Register, Vol. 39, No. 20, Part III, dated 29 January 1974).					

<b>SECTION III PHYSICAL DATA</b>			
BOILING POINT (°F.)	N.A.	SPECIFIC GRAVITY (H <sub>2</sub> O=1)	1.09
VAPOR PRESSURE (mm Hg)	Nil	PERCENT VOLATILE BY VOLUME (%)	< 0.1%
VAPOR DENSITY (AIR=1)	N.A.	EVAPORATION RATE (H <sub>2</sub> O=1)	
SOLUBILITY IN WATER	sl. to good		
APPEARANCE AND ODOR	Light amber liquid, slight odor.		

<b>SECTION IV FIRE AND EXPLOSION HAZARD DATA</b>			
FLASH POINT (Method used)	> 400°F (c.o.c.)	FLAMMABLE LIMITS	Let Ucl
EXTINGUISHING MEDIA	Water Fog, Foam, CO <sub>2</sub> or Dry Chemical		
SPECIAL FIRE FIGHTING PROCEDURES	No special equipment required		
UNUSUAL FIRE AND EXPLOSION HAZARDS	Will support combustion - No explosion hazard		

### SECTION V HEALTH HAZARD DATA

**THRESHOLD LIMIT VALUE** See CAUTION Note on page one.

**EFFECTS OF OVEREXPOSURE** Exposure could cause irritation, headaches, allergic sensitivity.  
Skin can absorb MOCA into the body.

**EMERGENCY AND FIRST AID PROCEDURES**  
**Skin Contact:** Wash thoroughly with soap & water after any skin contact.  
**Eye Contact:** Wash thoroughly with running water for 10-15 minutes.

Consult a physician

### SECTION VI REACTIVITY DATA

<b>STABILITY</b>	<b>UNSTABLE</b>		<b>CONDITIONS TO AVOID</b> Heating above 150°C
	<b>STABLE</b>	X	
<b>INCOMPATIBILITY (Materials to avoid)</b> Oxidizing Materials			
<b>HAZARDOUS DECOMPOSITION PRODUCTS</b> CO <sub>2</sub> , H <sub>2</sub> O Misc. Nitrogen, Aromatic and Chlorinated fumes which should be considered Toxic.			
<b>HAZARDOUS POLYMERIZATION</b>	<b>MAY OCCUR</b>		<b>CONDITIONS TO AVOID</b>
	<b>WILL NOT OCCUR</b>	X	

### SECTION VII SPILL OR LEAK PROCEDURES

**STEPS TO BE TAKEN IN CASE MATERIAL IS RELEASED OR SPILLED**  
Cover with an absorbent material and clean up as soon as possible.

**WASTE DISPOSAL METHOD** Incinerate or land-fill

### SECTION VIII SPECIAL PROTECTION INFORMATION

<b>RESPIRATORY PROTECTION (Specify type)</b>		
<b>VENTILATION</b>	<b>LOCAL EXHAUST</b> Preferred	<b>SPECIAL</b>
	<b>MECHANICAL (General)</b>	<b>OTHER</b>
<b>PROTECTIVE GLOVES</b> Rubber or plastic	<b>EYE PROTECTION</b> Side shield glasses	
<b>OTHER PROTECTIVE EQUIPMENT</b> Eye wash & safety showers. Workers should remove & wash clothing each day.		

### SECTION IX SPECIAL PRECAUTIONS

**PRECAUTIONS TO BE TAKEN IN HANDLING AND STORAGE**  
Keep containers tightly closed when not using. Good ventilation is recommended when using material and care should be taken against breathing fumes.

**OTHER PRECAUTIONS**  
Avoid contact with the skin.

Legal responsibility is assumed only for the fact that all studies reported here and all opinions are those of qualified experts.

# GENERAL MOTORS CORPORATION MATERIAL SAFETY DATA SHEET

## SECTION I

PRODUCT NAME (Full Name)		MANUFACTURER'S NAME	
PRODUCT NUMBER		MANUFACTURER'S ADDRESS	
MATERIALS DESCRIPTION AND PROPER SHIPPING NAME (29 CFR 172.101)		HAZARD CLASS (49 CFR 172.101)	
FORMULA			

## SECTION II — INGREDIENTS (list all ingredients)

INGREDIENT NAME	CAS REGISTRY NO.	PERCENT
Sulfuric Acid	7704-34-0	1.0
Sodium Dichromate	1333-83-2	1.0
Sodium Sulfate	6878-92-9	1.0
Sulfuric Acid	1302-71-0	1.0
Sodium Chloride	7647-14-0	1.0
Sulfuric Acid	7664-93-9	1.0
Sulfuric Acid	7664-93-9	1.0
Sulfuric Acid	7664-93-9	1.0
Sulfuric Acid	7664-93-9	1.0
Sulfuric Acid	7664-93-9	1.0

## SECTION III — PHYSICAL DATA

APPEARANCE AND COLOR	1.2	SPECIFIC GRAVITY (H <sub>2</sub> O=1)	1.2
SMELL		PERCENT VOLATILE BY VOLUME (%)	
EVAPORATION RATE		EVAPORATION RATE	
SOLUBILITY IN WATER			
IS MATERIAL GAS		IS MATERIAL LIQUID	
IS MATERIAL SOLID		IS MATERIAL PASTY	
IS MATERIAL POWDER			

## SECTION IV — FIRE AND EXPLOSION HAZARD DATA

FLAMMABLE RANGE (LFL, UFL)	FLAMMABLE LIMITS
EXPLOSION RISK	
SPECIAL PRECAUTIONS	
REACTIVITY WITH WATER	
REACTIVITY WITH AIR	
REACTIVITY WITH OTHER SUBSTANCES	

## SECTION V — HEALTH HAZARD DATA

TOXICITY DATA	
ACUTE TOXICITY	
CHRONIC TOXICITY	
ENVIRONMENTAL DATA	
ECOLOGICAL TOXICITY	