Mr. Joe Kessler, PE

Engineer

West Virginia Division of Air Quality

601-57th St., SE

Charleston, WV 25304

Dear Sir:

Attached is a revised Permit Determination Form being submitted in response to your request and subsequent certified letter dated January 28, 2015 from William F. Durham.
All data has been updated to reflect the most recent and accurate documentation and reformatted to comply directly with the requirements of your instructions for preparation and submission of information.
Some of the data is being submitted in electronic format as an attachment to the PDF form to facilitate your review and reduce the amount of paper needed.
Please note that no tanks under the care, custody, or control of Lexycon contain any 4-Methylcyclohexanemethanol (MCHM).
Please let me know if you have any questions

Regards,

Kevin Skiles, President
attachments

LEXYCON

WEST VIRGINIA
DEPARTMENT OF ENVIRONMENTAL PROTECTION
DIVISION OF AIR QUALITY
601 57th Street, SE
Charleston, WV 25304
Phone: (304) 926-0475
www.dep.wv.gov/daq

PERMIT DETERMINATION FORM (PDF)

FOR AGENCY USE ONLY: PLANT I.D. # _____

PDF # _____ PERMIT WRITER: _____

1. NAME OF APPLICANT (AS REGISTERED WITH THE WV SECRETARY OF STATE'S OFFICE):
Lexycon LLC

2. NAME OF FACILITY (IF DIFFERENT FROM ABOVE):
LexBlend

3. NORTH AMERICAN INDUSTRY CLASSIFICATION SYSTEM (**NAICS**) CODE:
424690

4A. MAILING ADDRESS: P.O. Box 8
Nitro, WV 25143

4B. PHYSICAL ADDRESS: PAR Industrial Park
Nitro, WV 25143

5A. DIRECTIONS TO FACILITY (PLEASE PROVIDE **MAP** AS **ATTACHMENT A**): Turn right off of Rt. 25 in Nitro at 19th street onto Republic Way; proceed to Plant Road and entrance to PAR Industrial Park; subject Facility on right after entering PAR Industrial Park.

5B. NEAREST ROAD:
PAR Industrial Park Access

5C. NEAREST CITY OR TOWN:
Nitro

5D. COUNTY:
Putnam

5E. UTM NORTHING (KM):
4253.31

5F. UTM EASTING (KM):
424.37

5G. UTM ZONE:
17

6A. INDIVIDUAL TO CONTACT IF MORE INFORMATION IS REQUIRED:
Mr. Shawn Lanier

6B. TITLE:
EH&S Manager

6C. TELEPHONE:
304 755 5737

6D. FAX:
304 755 5739

6E. E-MAIL:
slanier@lexyconllc.com

7A. DAQ PLANT I.D. NO. (FOR AN EXISTING FACILITY ONLY):
0_ _7_ _9_ – _x_ _x_ _x_ _x_ _x_

7B. PLEASE LIST ALL CURRENT 45CSR13, 45CSR14, 45CSR19 AND/OR TITLE V (45CSR30) PERMIT NUMBERS ASSOCIATED WITH **THIS** PROCESS (FOR AN EXISTING FACILITY ONLY):
N/A

7C. IS THIS PDF BEING SUBMITTED AS THE RESULT OF AN ENFORCEMENT ACTION? IF YES, PLEASE LIST: Letter from WVDEP dated 1/16/14 requiring updated PDF on or before February 2, 2014, subsequently extended on January 30, 2014 to February 12, 2014.

8A. TYPE OF EMISSION SOURCE (CHECK ONE):
☐ **NEW SOURCE** ☐ **ADMINISTRATIVE UPDATE**
☐ **MODIFICATION** ☒ **OTHER** (PLEASE EXPLAIN IN 11B)

8B. IF ADMINISTRATIVE UPDATE, DOES DAQ HAVE THE APPLICANT'S CONSENT TO UPDATE THE EXISTING PERMIT WITH THE INFORMATION CONTAINED HEREIN?
☐ **YES** ☐ **NO**

9. IS *DEMOLITION* OR PHYSICAL *RENOVATION* AT AN EXISTING FACILITY INVOLVED? ☐ **YES** ☒ **NO**

10A. DATE OF ANTICIPATED INSTALLATION OR CHANGE: N/A
_____/_____/20___.

10B. DATE OF ANTICIPATED START-UP: N/A
_____/_____/20___.

11A. PLEASE PROVIDE A **DETAILED PROCESS FLOW DIAGRAM** SHOWING EACH PROPOSED OR MODIFIED PROCESS EMISSION POINT AS **ATTACHMENT B**. See tank data

11B. PLEASE PROVIDE A **DETAILED PROCESS DESCRIPTION** AS **ATTACHMENT C**. See individual tank data.

12. PLEASE PROVIDE **MATERIAL SAFETY DATA SHEETS (MSDS)** FOR ALL MATERIALS PROCESSED, USED OR PRODUCED AS **ATTACHMENT D**. FOR CHEMICAL PROCESSE, PLEASE PROVIDE A MSDS FOR EACH COMPOUND EMITTED TO AIR.

13A. **REGULATED AIR POLLUTANT EMISSIONS:**

⇒ **FOR A NEW FACILITY,** PLEASE PROVIDE PLANT WIDE EMISSIONS BASED ON THE POTENTIAL TO EMIT (PTE) FOR THE FOLLOWING AIR POLLUTANTS INCLUDING ALL PROCESSES.

⇒ **FOR AN EXISTING FACILITY,** PLEASE PROVIDE THE PROPOSED CHANGE IN EMISSIONS BASED ON THE PTE OF ALL PROCESS CHANGES FOR THE FOLLOWING AIR POLLUTANTS.

PTE FOR A GIVEN POLLUTANT IS TYPICALLY BEFORE AIR POLLUTION CONTROL DEVICES AND IS COLLECTED BASED ON THE MAXIMUM DESIGN CAPACITY OF PROCESS EQUIPMENT.

POLLUTANT	**HOURLY PTE** (LB/HR)	**YEARLY PTE** (TON/YR) (HOURLY PTE MULTIPLIED BY 8760 HR/YR) DIVIDED BY 2000 LB/TON
PM	.014476	.063405
PM_{10}	.014476	.063405
VOCs	2.309 using maximum loading at 8 locations	3.908 with maximum loading
CO	0.16	.7008
NO_x	.19048	.83428
SO_2	.001142	.005002
Pb	0.00000096	.0000042
HAPs (AGGREGATE AMOUNT)	0.0029	.00801
TAPs (INDIVIDUALLY)*	0	0
Boiler VOC (Combined)*	.010476	

* Boiler VOCs listed combined

13B. PLEASE PROVIDE ALL **SUPPORTING CALCULATIONS** AS **ATTACHMENT E**.

CALCULATE AN HOURLY AND YEARLY PTE OF EACH PROCESS EMISSION POINT (SHOWN IN YOUR DETAILED PROCESS FLOW DIAGRAM) FOR ALL AIR POLLUTANTS LISTED ABOVE INCLUDING INDIVIDUAL HAP'S (LISTED IN SECTION 112[b] OF THE 1990 CAAA), TAP'S (LISTED IN 45CSR27), AND OTHER AIR POLLUTANTS (E.G. POLLUTANTS LISTED IN TABLE 45-13A OF 45CSR13, MINERAL ACIDS PER 45CSR7, ETC.).

14. **CERTIFICATION OF DATA**

I, KEVIN SKILES (*TYPE NAME*) ATTEST THAT ALL THE REPRESENTATIONS CONTAINED IN THIS APPLICATION, OR APPENDED HERETO, ARE TRUE, ACCURATE, AND COMPLETE TO THE BEST OF MY KNOWLEDGE BASED ON INFORMATION AND BELIEF AFTER REASONABLE INQUIRY, AND THAT I AM A ***RESPONSIBLE OFFICIAL*** (*PRESIDENT, VICE PRESIDENT, SECRETARY OR TREASURER, GENERAL PARTNER OR SOLE PROPRIETOR*) OF THE APPLICANT.

SIGNATURE OF RESPONSIBLE OFFICIAL: _____

TITLE: PRESIDENT DATE: _____.

** THE DEFINITION OF THE PHRASE '***RESPONSIBLE OFFICIAL***' CAN BE FOUND AT 45CSR13, SECTION 2.23.

NOTE: PLEASE CHECK ENCLOSED ATTACHMENTS:

☒ **ATTACHMENT A** ☒ **ATTACHMENT B** ☒ **ATTACHMENT C** ☒ **ATTACHMENT D** ☒ **ATTACHMENT E**

RECORDS ON ALL CHANGES ARE REQUIRED TO BE KEPT AND MAINTAINED ON-SITE FOR TWO (2) YEARS.

THE PERMIT DETERMINATION FORM WITH THE INSTRUCTIONS CAN BE FOUND ON DAQ'S PERMITTING SECTION WEB SITE:

www.dep.wv.gov/daq

west virginia department of environmental protection

Division of Air Quality
601 57th Street SE
Charleston, WV 25304
Phone: 304 926 0475 • FAX: 304 926 0479

Earl Ray Tomblin, Governor
Randy C. Huffman, Cabinet Secretary
www.dep.wv.gov

January 28, 2014

CERTIFIED MAIL
Article # 91 7108 2133 3936 1549 8137

Lexycon, LLC
Mr. Kevin Skiles, President
P. O. Box 8
Nitro, WV 25143

RE: Air Quality Permit Determination
Facility ID#: 079-00185

Dear Mr. Skiles:

The Division of Air Quality (DAQ) hereby requires the Lexycon, LLC (formerly Poca Blending) facility located in Nitro, WV to submit an official updated permit determination within fifteen (15) business days of receipt of this letter. This request is made pursuant to WV Code § 22-5-4-a (14), which gives the director the authority "To require any and all persons who are directly or indirectly discharging air pollutants into the air to file with the director such information as the director may require in a form or manner prescribed by him or her for such purpose, including, but not limited to, location, size and height of discharge outlets, processes employed, fuels used and the nature and time periods of duration of discharges. Such information shall be filed with the director, when and in such reasonable time, and in such manner as the director may prescribe".

The DAQ received a Permit Determination (PD14-145) on October 29, 2014. On November 18, 2014, the DAQ notified Lexycon, LLC that Permit Determination (PD14-145) lacked sufficient detail to determine whether a permit is required. Also, the DAQ conducted an inspection on January 23, 2015 and determined the facility still did not have an updated permit determination on-site sufficient to determine whether an air permit is required.

The DAQ requires Lexycon, LLC to specifically respond to the questions detailed in the November 18, 2014 letter (which is attached) and provide Material Safety Data Sheets (MSDS) for all materials/chemicals handled. Also, information shall include, but not be limited to, site information, plans, descriptions, specifications, and drawings relating to all materials handled at the site, the manner in which it will be operated, maximum emission rates and emissions control equipment data, method of operation providing a detailed process description, the potential emissions of any regulated air pollutant and all supporting calculations, and a detailed plot plan of the entire facility, including potential air pollution sources both inside and outside of building enclosures.

The Division looks forward to your timely written response to the information requested.

Sincerely,

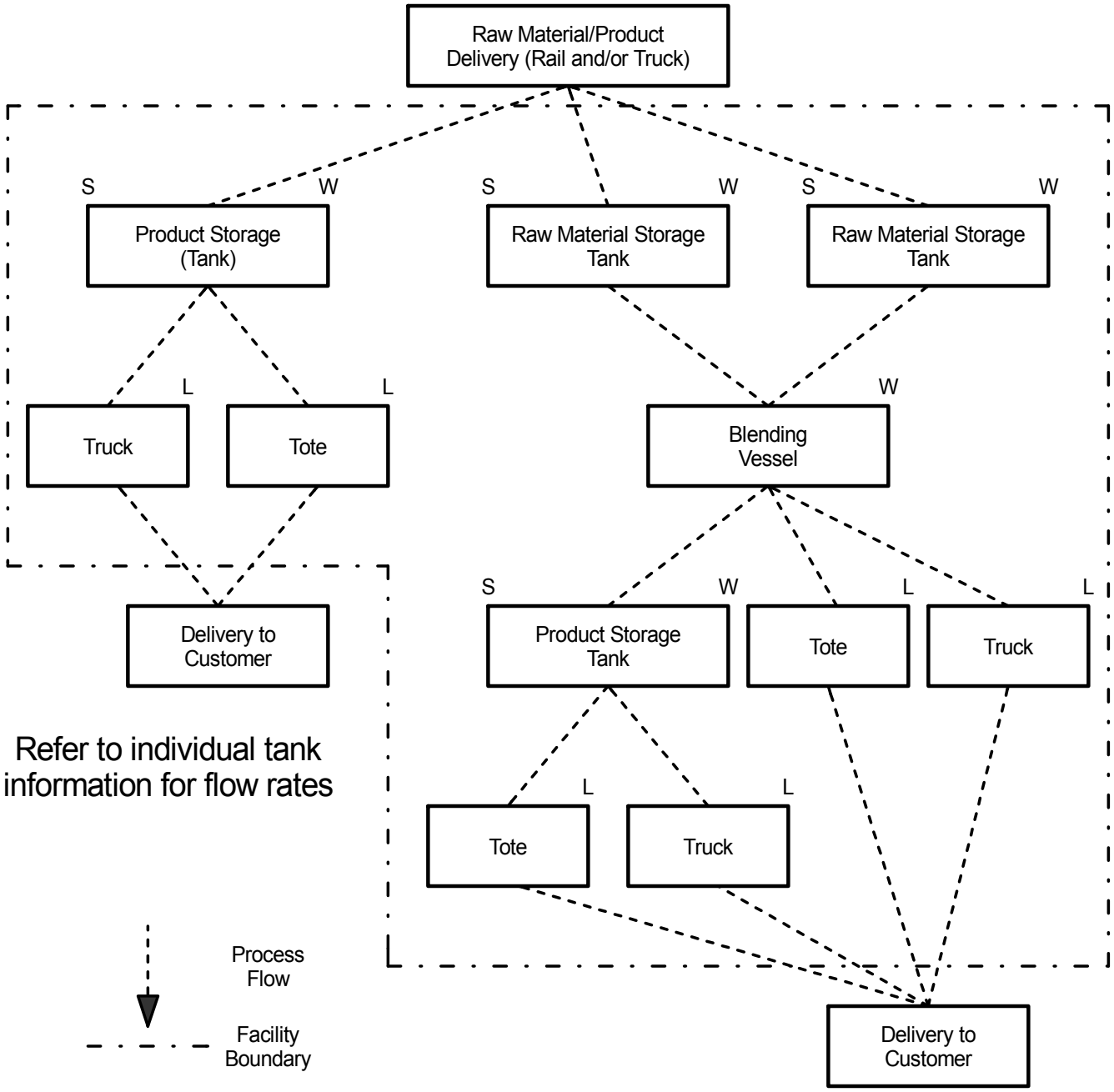
William F. Durham
Director

Location Map
nts

Attachment A

LexBlend Facility
Lexycon, LLC
P. O. Box 8
Nitro, WV 25143

LexBlend Generalized PFD



Refer to individual tank information for flow rates

Process Flow

Facility Boundary

W Working Loss

S Standing Loss

L Loading Loss

Attachment B - PDF Submission

Attachment C

Description of Process

Lexycon operates a permanent chemical blending facility and a temporary storage and load out area at the Lex Blending Facility located in the Par Industrial Park located in Nitro WV.

The permanent blending facility receives, stores, blends, and distributes chemicals for various industrial facilities primarily in the mining industry. The chemicals are typically used for extraction and processing, pH control, dust control, treatment of mine discharge water, and freeze protection as well as water clarification chemicals typically referred to as flocculants.

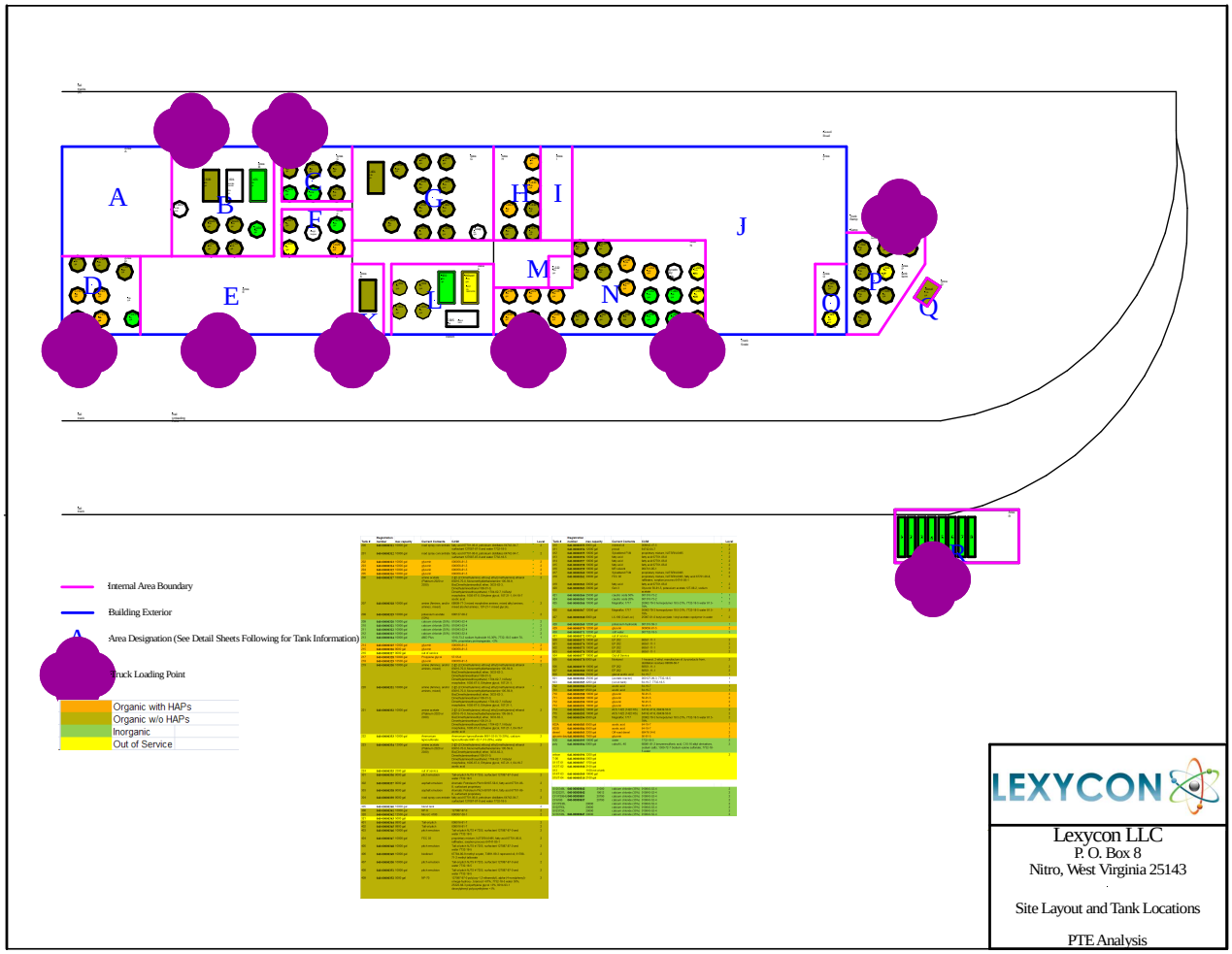
The blending process begins with the offloading of liquid raw materials from tank trucks or rail cars into storage tanks. The liquid raw materials are then combined, on a batch basis, with water and other additives in various blending tanks to achieve the desired composition and consistency for the final product. The products may then be held in storage tanks prior to truck loading or being packaged in drums or totes for hauling off-site.

Final product may be loaded into tanker trucks for hauling off-site from one of seven (7) organic material load outs. All storage tanks except seven (Tanks 500 through 507) are located inside a building. Additionally, there are two natural gas-fired boilers located at the facility with each rated at a Maximum Design Heat Input (MDHI) of 1.0 mmBtu/hr.

Presented on the following page is a drawing outlining the various tank locations along with a summary table showing the tank contents and various classifications. Tanks designated as green contain non organic materials (salts, caustics, etc.) that do not result in emissions of Volatile Organic Compounds (VOCs). Yellow tanks are tanks that are registered with the State of West Virginia, but have been taken out of service as a result of needed repairs or future repurposing. Dark yellow tanks are tanks that contain materials composed in whole or in part of VOCs, but have no Hazardous Air Pollutants (HAPs) within their formulation. Orange tanks are tanks containing VOCs with varying percentages of HAPs.

No tanks under the care, custody, or control of Lexycon contain any 4-Methylcyclo-hexanemethanol (MCHM),

Adobe PDF images of the drawing and MSDS sheets are included with this report to allow the reader to look at larger scale for purposes of clarity.



LexBlend Facility Layout

The following table illustrates the same tank information grouped by category to facilitate the reader's review of the data:

Table 1 – Tank Inventory with Associated Contents

Tank #	Registration number	max capacity	Current Contents	CAS#	Level
202	**040-00000313**	10000 gal	glycerin	56-81-5	2
203	**040-00000314**	10000 gal	glycerin	56-81-5	2
204	**040-00000315**	10000 gal	glycerin	56-81-5	2
205	**040-00000316**	10000 gal	glycerin	56-81-5	2
214	**040-00000325**	10000 gal	glycerin	56-81-5	2
215	**040-00000326**	8000 gal	glycerin	56-81-5	2
218	**040-00000329**	10500 gal	glycerin	56-81-5	2
429	**040-00000370**	12000 gal	glycerin	56-81-5	2
710	**040-00000388**	10000 gal	glycerin	56-81-5	2
711	**040-00000389**	10000 gal	glycerin	56-81-5	2
712	**040-00000390**	10000 gal	glycerin	56-81-5	2
713	**040-00000391**	10000 gal	glycerin	56-81-5	2
217	**040-00000328**	10000 gal	Propylene glycol	57-55-6	2
diesel	**040-00000303**	2200 gal	Off-road diesel	68476-34-6	2
207	**040-00000318**	10000 gal	amine (Amines, and/or amines, mixed)	68909-77-3 mixed morpholine amine mixed alkyl amines, mixed alcohol amines, 107-21-1 mixed glycols,	2
208	**040-00000319**	10000 gal	potassium acetate (50	000127-08-2	2
320	**040-00000342**	12500 gal	MicroC 4100	000057-50-1	2
401	**040-00000344**	8800 gal	Tall-oil pitch	008016-81-7	2
402	**040-00000345**	8800 gal	Tall-oil pitch	008016-81-7	2
410	**040-00000353**	8000 gal	mineral oil	008042-47-5	2
416	**040-00000359**	10000 gal	MR solvent	064741-85-1	2
306	**040-00000341**	10000 gal	NP-9	127087-87-0	2
409	**040-00000352**	5000 gal	NP-70	127087-87-0 poly(oxy-1,2-ethanediyl alpha-(4-nonylphenyl)-omega-hydrox branced >67%; 7732-18-5 water 30% 25322-68-3 polyethylene glycol <3%; 9014-93-1 dinonylphenyl polyoxyeth <1%	2
505	**040-00000378**	8000 gal	Montanol	1-hexanol, 2-ethyl, manufacture of, b products from, distillation residues 68609-68-7	2

206	**040-00000317**	10000 gal	amine acetate (Platinu 2020 or 2030)	2-[[2-(2-Dimethylamino) ethoxy] ethy methylamino] ethanol 83016-70-0, Monomethyldiethanolamine 105-59- Bis(Dimethylaminoethyl) ether, 3033 3, Dimethylaminoethanol 108-01-0, Dimethylaminoethoxyethanol, 1704- N-Butyl morpholine, 1005-67-0, Ethyl glycol, 107-21-1, 64-19-7 acetic acid	2
219	**040-00000330**	10000 gal	amine (Amines, and/or amines, mixed)	2-[[2-(2-Dimethylamino) ethoxy] ethy methylamino] ethanol 83016-70-0, Monomethyldiethanolamine 105-59- Bis(Dimethylaminoethyl) ether, 3033 3, Dimethylaminoethanol 108-01-0, Dimethylaminoethoxyethanol, 1704- N-Butyl morpholine, 1005-67-0, Ethyl glycol, 107-21-1,	2
220	**040-00000331**	10000 gal	amine (Amines, and/or amines, mixed)	2-[[2-(2-Dimethylamino) ethoxy] ethy methylamino] ethanol 83016-70-0, Monomethyldiethanolamine 105-59- Bis(Dimethylaminoethyl) ether, 3033 3, Dimethylaminoethanol 108-01-0, Dimethylaminoethoxyethanol, 1704- N-Butyl morpholine, 1005-67-0, Ethyl glycol, 107-21-1,	2
221	**040-00000332**	10000 gal	amine acetate (Platinu 2020 or 2030)	2-[[2-(2-Dimethylamino) ethoxy] ethy methylamino] ethanol 83016-70-0, Monomethyldiethanolamine 105-59- Bis(Dimethylaminoethyl) ether, 3033 3, Dimethylaminoethanol 108-01-0, Dimethylaminoethoxyethanol, 1704- N-Butyl morpholine, 1005-67-0, Ethyl glycol, 107-21-1, 64-19-7 acetic acid	2
223	**040-00000334**	12000 gal	amine acetate (Platinu 2020 or 2030)	2-[[2-(2-Dimethylamino) ethoxy] ethy methylamino] ethanol 83016-70-0, Monomethyldiethanolamine 105-59- Bis(Dimethylaminoethyl) ether, 3033 3, Dimethylaminoethanol 108-01-0, Dimethylaminoethoxyethanol, 1704- N-Butyl morpholine, 1005-67-0, Ethyl glycol, 107-21-1, 64-19-7 acetic acid	2
427	**040-00000368**	8000 gal	LX-100 (Coal Loc)	25067-01-0 butyl acrylate / vinyl acet copolymer in water	2
425	**040-00000366**	10500 gal	Magnafloc 1717	26062-79-3 homopolymer 18.5-21%, 7732-18-5 water 81.5-79%	2
426	**040-00000367**	12000 gal	Magnafloc 1717	26062-79-3 homopolymer 18.5-21%, 7732-18-5 water 81.5-79%	2
716	**040-00000394**	8500 gal	Magnafloc 1717	26062-79-3 homopolymer 18.5-21%, 7732-18-5 water 81.5-79%	2
600	**040-00000381**	25000 gal	glacial acetic acid	64-19-7	1
602A	**040-00000383**	8500 gal	acetic acid	64-19-7	1
602B	**040-00000384**	8500 gal	acetic acid	64-19-7	1

702	**040-00000386**	8500 gal	acetic acid	64-19-7	1
703	**040-00000387**	8500 gal	acetic acid	64-19-7	1
411	**040-00000354**	12000 gal	prosol	64742-04-7	2
714	**040-00000392**	10000 gal	ACS 1422 (1422 RS)	64742-47-8, 68439-50-9	2
715	**040-00000393**	10000 gal	ACS 1422 (1422 RS)	64742-47-8, 68439-50-9	2
406	**040-00000349**	10000 gal	biodiesel	67784-80-9 methyl soyate, 73891-99 rapeseed oil, 61788-71-2 methyl tallowate	2
500	**040-00000373**	10000 gal	EP 202	68551-11-1	2
501	**040-00000374**	10000 gal	EP 202	68551-11-1	2
502	**040-00000375**	10000 gal	EP 202	68551-11-1	2
503	**040-00000376**	10000 gal	EP 202	68551-11-1	2
506	**040-00000379**	10000 gal	EP 202	68551-11-1	2
507	**040-00000380**	10000 gal	EP 202	68551-11-1	2
302	**040-00000337**	8000 gal	asphalt emulsion	Aromatic Petroleum Pitch 68187-58-(fatty acid 67701-06-8, surfactant proprietary	2
303	**040-00000338**	8000 gal	asphalt emulsion	Aromatic Petroleum Pitch 68187-58-(fatty acid 67701-06-8, surfactant proprietary	2
413	**040-00000356**	10000 gal	fatty acid	fatty acid 67701-06-8	2
414	**040-00000357**	10000 gal	fatty acid	fatty acid 67701-06-8	2
415	**040-00000358**	10000 gal	fatty acid	fatty acid 67701-06-8	2
419	**040-00000362**	30000 gal	fatty acid	fatty acid 67701-06-8	2
200	**040-00000311**	10000 gal	road spray concentrate	fatty acid 67701-06-8, petroleum distillates 64742-04-7, surfactant 127 87-0 and water 7732-18-5	2
201	**040-00000312**	10000 gal	road spray concentrate	fatty acid 67701-06-8, petroleum distillates 64742-04-7, surfactant 127 87-0 and water 7732-18-5	2
304	**040-00000339**	8000 gal	road spray concentrate	fatty acid 67701-06-8, petroleum distillates 64742-04-7, surfactant 127 87-0 and water 7732-18-5	2
420	**040-00000363**	30000 gal	Gen 3	Glycerin 56-81-5, potassium acetate : 08-2, sodium acetate	2
412	**040-00000355**	10000 gal	Sylvablend FVM	proprietary mixture, NJTSRN-6495	2
417	**040-00000360**	10000 gal	Sylvablend FVM	proprietary mixture, NJTSRN-6495	2
404	**040-00000347**	10000 gal	FEC 03	proprietary mixture, NJTSRN-6495, fa acid 67701-06-8, raffinates, sorption process 64741-85-1	2
418	**040-00000361**	30000 gal	FEC 02	proprietary mixture, NJTSRN-6495, fa acid 67701-06-8, raffinates, sorption process 64741-85-1	2
301	**040-00000336**	8000 gal	pitch emulsion	Tall-oil pitch NJTS # 7255, surfactant 127087-87-0 and water 7732-18-5	2
403	**040-00000346**	10000 gal	pitch emulsion	Tall-oil pitch NJTS # 7255, surfactant 127087-87-0 and water 7732-18-5	2
405	**040-00000348**	10000 gal	pitch emulsion	Tall-oil pitch NJTS # 7255, surfactant 127087-87-0 and water 7732-18-5	2

407	**040-00000350**	10000 gal		pitch emulsion	Tall-oil pitch NJTS # 7255, surfactant 127087-87-0 and water 7732-18-5	2
408	**040-00000351**	10000 gal		pitch emulsion	Tall-oil pitch NJTS # 7255, surfactant 127087-87-0 and water 7732-18-5	2
428	**040-00000369**	12000 gal		potassium hydroxide	001310-58-3	1
421	**040-00000364**	25000 gal		caustic soda 50%	001310-73-2	1
424	**040-00000365**	15000 gal		caustic soda 20%	001310-73-2	1
430	**040-00000371**	12000 gal		soft water	007732-18-5	3
209	**040-00000320**	10000 gal		calcium chloride (35%)	010043-52-4	2
210	**040-00000321**	10000 gal		calcium chloride (35%)	010043-52-4	2
211	**040-00000322**	10000 gal		calcium chloride (35%)	010043-52-4	2
212	**040-00000323**	10000 gal		calcium chloride (35%)	010043-52-4	2
CFA186	**040-00000637**		2	calcium chloride (35%)	010043-52-4	2
CFVP20(	**040-00000651**		2	calcium chloride (35%)	010043-52-4	2
CFVP23(		20000		calcium chloride (35%)	010043-52-4	2
SV22227	**040-00000642**		1	calcium chloride (35%)	010043-52-4	2
SV2279:		20000		calcium chloride (35%)	010043-52-4	2

SV2372		20000	calcium chloride (35%)	010043-52-4	2
SV2534	**040-00000643**	2	calcium chloride (35%)	010043-52-4	2
SV3518	**040-00000647**	20000	calcium chloride (35%)	010043-52-4	2
213	**040-00000324**	10000 gal	AMD Plus	1310-73-2 sodium hydroxide 10-30%, 7732-18-5 water 70-90%, proprietary permanganate, <2%	1
poly	**040-00000304**	6000 gal	calsoft L-40	68081-81-2 benzenesulfonic acid, C1 alkyl derivatives, sodium salts; 1300- Sodium xylene sulfonate; 7732-18-5 water	2
H20	**040-00000395**	10000 gal	water	7732-18-5	2
305	**040-00000340**	10000 gal	blend tank		2
601	**040-00000382**	25000 gal	(acetate reactor)	000127-09-3; 7732-18-5	1
603	**040-00000385**	4200 gal	(scrub tank)	64-19-7, 7732-18-5	1
glycerin tank	**040-00000302**	7500 gal	glycerin	56-81-5	2
222	**040-00000333**	10000 gal	Ammonium lignosulfo	Ammonium lignosulfonate 8061-53- 20%), calcium lignosulfonate 8061-52 (15-20%), water	2
216	**040-00000327**	8000 gal	out of service		
224	**040-00000335**	2500 gal	out of service		
321	**040-00000343**	5000 gal			
431	**040-00000372**	6000 gal	out of service		
504	**040-00000377**	10000 gal	Out of Service		
T-00	**040-00000306**	5000 gal			
wilson	**040-00000396**	3200 gal			2
X11/T-0	**040-00000307**	1700 gal			
X12/T-0	**040-00000308**	2100 gal			
X13		1100-not a tank			
X14/T-0	**040-00000309**	10000 gal			
X15/T-0	**040-00000310**	2100 gal			

Organic with HAPs

Organic w/o HAPs

Inorganic

Out of Service

Methodology

Emissions were estimated using EPA's AP-42: Chapter 7 Method. Since all tanks containing organic materials (with the exception of the 500 series tanks in Area P) are inside a building the standing losses are diminished due to the lack of solar radiation contributing to the standing loss.

Throughput volumes were estimated by taking the largest annual volumes (calendar year 2013) multiplied by two and rounded up to a higher value. These volumes then flow through to individual tank calculations on a distributed basis that assumes all tanks process equal amounts of product.

Loading losses are calculated using the average discharge rate from the individual tanks. In order to assess the worst case situation, all loading points that are capable of loading trucks are assumed to be in continual operation for a 24 hour period. Since 12 tanks are dedicated to the receiving, storage, and loading of glycerin, 8 loading points were assumed to be loading glycerin. This decision was made since this is the highest volume organic material processed through the facility that also contains a HAP.

Table 2 summarizes the working, standing, and loading emissions for each of the tanks not containing HAPs. Following this are two additional tables (Tables 3 and 4) summarizing the potential emissions associated with glycerin and propylene glycol that documents VOC and HAP emissions and the associated "worst case" analysis of material loading.

Table 2 - VOC Materials without HAPs

Name	Tanks	Working Loss per year	Standing Loss per year	Working Loss per hour	Standing Loss per hour	Working and Standing Losses per hour	PTE VOC per year	Loading VOC emissions per hour	PTE VOC emissions per year including loading
		lbs	lbs	lbs	lbs	lbs	tons	lbs	tons
EP 202	503	2.003071	865.727399	0.000229	0.098827	0.099056	0.433865	0.299072	0.436856
EP 202	500	2.003071	865.727399	0.000229	0.098827	0.099056	0.433865	0.000000	0.433865
EP 202	501	2.003071	865.727399	0.000229	0.098827	0.099056	0.433865	0.000000	0.433865
EP 202	502	2.003071	865.727399	0.000229	0.098827	0.099056	0.433865	0.000000	0.433865
EP 202	506	2.003071	865.727399	0.000229	0.098827	0.099056	0.433865	0.000000	0.433865
EP 202	507	2.003071	865.727399	0.000229	0.098827	0.099056	0.433865	0.000000	0.433865
NP 70	409	389.179373	150.104798	0.044427	0.017135	0.061562	0.269642	0.000000	0.269642
FEC 02	418	268.900755	163.317156	0.030696	0.018644	0.049340	0.216109	2.230483	0.253284
Montanol	505	1.031619	337.358454	0.000118	0.038511	0.038629	0.169195	0.115521	0.169708
FEC 03	404	179.267170	51.265876	0.020464	0.005852	0.026317	0.115267	2.230483	0.140050
Diesel	Diesel	173.257143	98.031040	0.019778	0.011191	0.030969	0.135644	Negligible	0.135644
FVM	412	42.575953	51.265876	0.004860	0.005852	0.010713	0.046921	0.000000	0.046921
FVM	417	42.575953	51.265876	0.004860	0.005852	0.010713	0.046921	0.000000	0.046921
Acetic Acid	600	13.023901	47.121116	0.001487	0.005379	0.006866	0.030073	0.000000	0.030073
Gen 3	420	16.885749	15.032661	0.001928	0.001716	0.003644	0.015959	0.720330	0.024363
Acetic Acid	602A	13.023901	18.626177	0.001487	0.002126	0.003613	0.015825	0.000000	0.015825
Acetic Acid	602B	13.023901	18.626177	0.001487	0.002126	0.003613	0.015825	0.000000	0.015825
Acetic Acid	702	13.023901	18.626177	0.001487	0.002126	0.003613	0.015825	0.000000	0.015825
Acetic Acid	703	13.023901	18.626177	0.001487	0.002126	0.003613	0.015825	0.000000	0.015825
Biodiesel	406	1.381429	16.092612	0.000158	0.001837	0.001995	0.008737	0.000000	0.008737
Platinum 2020	223	3.663574	11.172823	0.000418	0.001275	0.001694	0.007418	1.189122	0.008330
Mixed Amines	207	8.210197	7.830866	0.000937	0.000894	0.001831	0.008021	0.000000	0.008021
Potassium Acetate	208	8.210197	7.830866	0.000937	0.000894	0.001831	0.008021	0.000000	0.008021
Platinum 2020	206	3.663574	9.343500	0.000418	0.001067	0.001485	0.006504	0.000000	0.006504
Platinum 2020	219	3.663574	9.343500	0.000418	0.001067	0.001485	0.006504	0.000000	0.006504
Platinum 2020	220	3.663574	9.343500	0.000418	0.001067	0.001485	0.006504	0.000000	0.006504
Platinum 2020	221	3.663574	9.343500	0.000418	0.001067	0.001485	0.006504	0.000000	0.006504
Magnafloc 1717	426	2.544284	1.245794	0.000290	0.000142	0.000433	0.001895	0.042736	0.003794
RDC-600	201	2.445866	1.929758	0.000279	0.000220	0.000500	0.002188	0.243456	0.003405
LX-100	427	3.684291	2.327233	0.000421	0.000266	0.000686	0.003006	0.000000	0.003006
ClearFloc 1423	715	2.385267	1.133202	0.000272	0.000129	0.000402	0.001759	0.085473	0.002946
RDC-600	200	2.445866	1.929758	0.000279	0.000220	0.000500	0.002188	0.000000	0.002188
RDC-600	304	2.445866	1.642954	0.000279	0.000188	0.000467	0.002044	0.000000	0.002044
Magnafloc 1717	425	2.544284	1.133202	0.000290	0.000129	0.000420	0.001839	0.000000	0.001839
Pitch Emulsion	403	0.000000	3.527968	0.000000	0.000403	0.000403	0.001764	0.000000	0.001764
Pitch Emulsion	405	0.000000	3.527968	0.000000	0.000403	0.000403	0.001764	0.000000	0.001764
Pitch Emulsion	407	0.000000	3.527968	0.000000	0.000403	0.000403	0.001764	0.000000	0.001764
Pitch Emulsion	408	0.000000	3.527968	0.000000	0.000403	0.000403	0.001764	0.000000	0.001764
ClearFloc 1422	714	2.385267	1.133202	0.000272	0.000129	0.000402	0.001759	0.000000	0.001759
Magnafloc 1717	716	2.544284	0.964272	0.000290	0.000110	0.000401	0.001754	0.000000	0.001754
Pitch Emulsion	301	0.000000	3.003767	0.000000	0.000343	0.000343	0.001502	0.000000	0.001502
MR Solvent	416	2.514200	0.458934	0.000287	0.000052	0.000339	0.001487	0.000000	0.001487
Asphault Emulsion	302	0.000000	2.478802	0.000000	0.000283	0.000283	0.001239	0.000000	0.001239
Asphault Emulsion	303	0.000000	2.478802	0.000000	0.000283	0.000283	0.001239	0.000000	0.001239
MicroC 4100	320	0.000000	2.350420	0.000000	0.000268	0.000268	0.001175	0.272585	0.001175
Fatty Acid	415	0.998646	0.364955	0.000114	0.000042	0.000156	0.000682	0.000000	0.000682
Fatty Acid	413	0.998609	0.364941	0.000114	0.000042	0.000156	0.000682	0.000000	0.000682
Fatty Acid	414	0.998609	0.364941	0.000114	0.000042	0.000156	0.000682	0.000000	0.000682
Fatty Acid	419	0.998646	0.000000	0.000114	0.000000	0.000114	0.000499	0.000000	0.000499
NP 9 Surfactant	306	0.104228	0.351366	0.000012	0.000040	0.000052	0.000228	0.001729	0.000235
Prosol	411	0.064517	0.070273	0.000007	0.000008	0.000015	0.000067	0.000000	0.000067
Mineral Oil	410	0.172679	5.796965	0.000020	0.000662	0.000681	0.002985	0.028647	0.000012
Tall-oil Pitch	401	0.000000	0.015558	0.000000	0.000002	0.000002	0.000008	0.000000	0.000008
Tall-oil Pitch	402	0.000000	0.015558	0.000000	0.000002	0.000002	0.000008	0.000000	0.000008
Total VOC w/o HAPs		**#########**	**6359.599651**	**0.143517**	**0.725982**	**0.869498**	**3.808403**	**7.459636**	**3.884519**

Table 3 - VOC HAP Emissions

Name	Tanks	Working Loss per year	Standing Loss per year	Working Loss per hour	Standing Loss per hour	Working and Standing Losses per hour	Working and Standing PTE VOC per year	Loading VOC emissions per hour	PTE VOC emissions per year including loading	Loading HAP emissions per hour	PTE HAP emissions per day including loading	PTE HAP emissions per year including loading
		lbs	lbs	lbs	lbs	lbs	tons	lbs	tons	lbs	lbs	tons
Glycerin	202	0.914053381	0.650130472	0.000104344	7.42158E-05	0.00017856	0.000782092	0.284958335	0.001441718	0.000284958	0.006839	6.59626E-07
	203	0.914053381	0.650130472	0.000104344	7.42158E-05	0.00017856	0.000782092	0.284958335	0.001441718	0.000284958	0.006839	6.59626E-07
	204	0.914053381	0.650130472	0.000104344	7.42158E-05	0.00017856	0.000782092	0.284958335	0.001441718	0.000284958	0.006839	6.59626E-07
	205	0.914053381	0.650130472	0.000104344	7.42158E-05	0.00017856	0.000782092	0.284958335	0.001441718	0.000284958	0.006839	6.59626E-07
	214	0.914053381	0.650130472	0.000104344	7.42158E-05	0.00017856	0.000782092	0.142479167	0.001441718	0.000142479	0.0034195	6.59626E-07
	215	0.914053381	0.650130472	0.000104344	7.42158E-05	0.00017856	0.000782092	0.028495833	0.001441718	2.84958E-05	0.0006839	6.59626E-07
	218	0.914053381	0.650130472	0.000104344	7.42158E-05	0.00017856	0.000782092	0.237465279	0.001441718	0.000237465	0.005699167	6.59626E-07
	429	0.914053381	0.650130472	0.000104344	7.42158E-05	0.00017856	0.000782092	0.237465279	0.001441718	0.000237465	0.005699167	6.59626E-07
	710	0.914053381	0.650130472	0.000104344	7.42158E-05	0.00017856	0.000782092	0.142479167	0.001441718	0.000142479	0.0034195	6.59626E-07
	711	0.914053381	0.650130472	0.000104344	7.42158E-05	0.00017856	0.000782092	0.142479167	0.001441718	0.000142479	0.0034195	6.59626E-07
	712	0.914053381	0.650130472	0.000104344	7.42158E-05	0.00017856	0.000782092	0.142479167	0.001441718	0.000142479	0.0034195	6.59626E-07
	713	0.914053381	0.650130472	0.000104344	7.42158E-05	0.00017856	0.000782092	0.142479167	0.001441718	0.000142479	0.0034195	6.59626E-07
Tank Total		**10.96864057**	**7.801565666**	**0.001252128**	**0.00089059**	**0.002142718**	**0.009385103**	**2.355655566**	**0.017300612**	**0.002355656**	**0.056535734**	**7.91551E-06**
RR Cars		n/a	n/a	n/a	n/a	n/a	n/a	0.096036439	0.004001518	1.60061E-08	3.84146E-07	0.008003037
Total		**10.96864057**	**7.801565666**	**0.001252128**	**0.00089059**	**0.002142718**	**0.009385103**	**2.451692005**	**0.021302131**	**0.002355672**	**0.056536118**	**0.008010952**
Propylene glycol	217	1.01725135	1.497944701	0.000116125	0.000170998	0.000287123	0.000508626	0.55057387	0.002037998	0.000550574	0.013213773	1.52937E-06
Total		**1.017251350**	**1.497944701**	**0.000116125**	**0.000170998**	**0.000287123**	**0.000508626**	**0.550573870**	**0.002037998**	**0.000550574**	**0.013213773**	**0.000001529**
Total VOC & HAPs		**11.985891918**	**9.299510367**	**0.001368253**	**0.001061588**	**0.002429840**	**0.009893729**	**3.002265875**	**0.023340128**	**0.002906245**	**0.069749891**	**0.008012481**

Table 4 Worst Case Loading VOC HAP

Name	Tanks	Working and Standing Losses per hour	Working and Standing PTE VOC per year	Loading VOC emissions per hour	VOC W, S, and Loading per hour	PTE VOC emissions per year including loading	Loading HAP emissions per hour	PTE HAP emissions per day including loading	PTE HAP emissions per year including loading
		lbs	tons	lbs	lbs	tons	lbs	lbs	tons
Propylene glycol	217	0.0002871	0.0005086	0.5505739	0.5508610	0.0020380	0.0005506	0.0132138	0.0000015
Glycerin	202	0.0001786	0.0007821	0.2849583	0.2851369	0.0014417	0.0002850	0.0068390	0.0000007
	203	0.0001786	0.0007821	0.2849583	0.2851369	0.0014417	0.0002850	0.0068390	0.0000007
	204	0.0001786	0.0007821	0.2849583	0.2851369	0.0014417	0.0002850	0.0068390	0.0000007
	205	0.0001786	0.0007821	0.2849583	0.2851369	0.0014417	0.0002850	0.0068390	0.0000007
	218	0.0001786	0.0007821	0.2374653	0.2376438	0.0014417	0.0002375	0.0056992	0.0000007
	429	0.0001786	0.0007821	0.2374653	0.2376438	0.0014417	0.0002375	0.0056992	0.0000007
	214	0.0001786	0.0007821	0.1424792	0.1426577	0.0014417	0.0001425	0.0034195	0.0000007
Largest 8 Loading Point Totals		**0.0015370**	**0.0059833**	**2.3078169**	**2.3093540**	**0.0121300**	**0.0023078**	**0.0553876**	**0.0000061**
	710	0.0001786	0.0007821	0.1424792		0.0014417	0.0001425	0.0034195	0.0000007
	711	0.0001786	0.0007821	0.1424792		0.0014417	0.0001425	0.0034195	0.0000007
	712	0.0001786	0.0007821	0.1424792		0.0014417	0.0001425	0.0034195	0.0000007
	713	0.0001786	0.0007821	0.1424792		0.0014417	0.0001425	0.0034195	0.0000007
	215	0.0001786	0.0007821	0.0284958		0.0014417	0.0000285	0.0006839	0.0000007
Rail Car		n/a	n/a	0.0960364		8.0030366	0.0000000	0.0000004	0.0080030

Natural Gas Air Emissions (Small Wall-Fired Boilers < 100 MMBtu/hr)
Lexycon Blending Facility, Nitro, WV

Boiler Number 1

Enter Btu/hr maximum heat input	**1,000,000**
heat value of natural gas is 1050 Btu/scf	
ft^3/hr Btu/hr X 1 ft3/1050 Btu	952.381 ft3/hr
ft^3/year ft3/hr X 8760 hr/yr	8342857.14 ft3/yr
Btu = British thermal unit	
scf = standard cubic foot = ft^3	

Potential Emissions

ft^3 burned/yr	Sulfur Dioxide (SO2)	Nitrogen Oxides (NOX)	Volatile Organic Compounds (VOC)	Carbon Monoxide (CO)	Particulate Matter (PM)	Particulate Matter <10 microns (PM10)	Lead (Pb)
natural gas	ton/yr	ton/yr	ton/yr	ton/yr	ton/yr	ton/yr	ton/year
8342857.14	B X .0000006 / 2000	B X .0001 / 2000	B X .0000055 / 2000	B X .000084/2000	B X .0000076/2000	B X .0000076/2000	B X .0000000005/2000

Total PTE	**tons/year**	**0.002503**	**0.417143**	**0.022943**	**0.350400**	**0.031703**	**0.031703**	**0.000002**
	pounds/hour	**0.000571**	**0.095238**	**0.005238**	**0.080000**	**0.007238**	**0.007238**	**0.00000048**

Emissions factors from AP - 42 Fifth Edition, Volume 1

Natural Gas Air Emissions (Small Wall-Fired Boilers < 100 MMBtu/hr)
Lexycon Blending Facility, Nitro, WV

Boiler Number 2

Enter Btu/hr maximum heat input	**1,000,000**
heat value of natural gas is 1050 Btu/scf	
ft^3/hr Btu/hr X 1 ft3/1050 Btu	952.381 ft3/hr
ft^3/year ft3/hr X 8760 hr/yr	8342857.14 ft3/yr
Btu = British thermal unit	
scf = standard cubic foot = ft^3	

Potential Emissions

ft^3 burned/yr natural gas	Sulfur Dioxide (SO2)	Nitrogen Oxides (NOX)	Volatile Organic Compounds (VOC)	Carbon Monoxide (CO)	Particulate Matter (PM)	Particulate Matter <10 microns (PM10)	Lead (Pb)
	ton/yr	ton/yr	ton/yr	ton/yr	ton/yr	ton/yr	ton/year
8342857.14	B X .0000006 / 2000	B X .0001 / 2000	B X .0000055 / 2000	B X .000084/2000	B X .0000076/2000	B X .0000076/2000	B X .0000000005/2000

Total PTE	**tons/year**	**0.002503**	**0.417143**	**0.022943**	**0.350400**	**0.031703**	**0.031703**	**0.000002**
	pounds/hour	**0.000571**	**0.095238**	**0.005238**	**0.080000**	**0.007238**	**0.007238**	**0.000000**

Emissions factors from AP - 42 Fifth Edition, Volume 1

FIXED ROOF TANK CALCULATION (AP-42: Chapter 7 Method)

Working Loss per year	Standing Loss per year	Working Loss per hour	Standing Loss per hour	Working and Standing Losses per hour	PTE VOC per year	Loading VOC emissions per hour	PTE VOC emissions per year including loading
lbs	lbs	lbs	lbs	lbs	tons	lbs	tons
8.2102	7.83087	0.00094	0.00089	0.00183	0.008021	0.000	0.00802

Attachment: E - 207
Permit: N/A PTE analysis
Date: 02/10/15
Tank: 207
Name: Amine
Charge Rate 175 gpm max
Discharge Rate 250 gpm max

Basic Input Data

Tank Number	207	
liquid TVP =	0.072767	P_{VA}
if TVP is entered, enter TVP temperature (°F) =	60	
tank heated {yes, no} =	no	
if tank is heated, enter temp (°F) =	N/A	
vapor recovery system present? {yes, no} =	no	
breather vent pressure setting range (psi) (def = 0.06):	0	

Tank Data

diameter (feet) =	10	D (R_S x 2)	
nominal capacity (gal)	10,000		gal
conical or dome roof? {c, d} =	d		
shell height (feet) =	18	H_S	
roof height:	2	H_R	
average liquid height (feet):	9	H_L	
color {1:Spec Al, 2:Diff Al, 3:Lite, 4:Med, 5:Rd, 6:Wh} =		N/A	tanks are inside bldg.
condition {1: Good, 2: Poor} =		N/A	tanks are inside bldg.
tank maximum liquid volume	1272	V_{LX}	c.f. (90 % shell height)

Tank Contents

Constituent	mol wt	VP (Torr)	%	P_{VA} (by Raoult's Law)	
Amine	82	0.01	92	7544	0.01
Glycol	60	15.7	5	300	0.49
Water	18	17.5	3	1800	3.27
	78.98		100	9644	3.7625 mm Hg

Vapor Pressure (P_{VA})= 0.072767 psi for mixture

Liquid Data

maximum daily throughput =			gal
maximum tank feed/withdrawl rate	213		gpm
annual throughput (gal)	60,000	Q	gal
annual throughput (bbl0	1,429	Q	bbl
RVP (psia):	0.072767	P_{VA}	psi

Computed Values

vapor space outage		10.05	H_{VO}	ft
roof outage		1.05	H_{RO}	ft
vapor space volume (cubic feet):		790	V_V	c.f.
turnovers :		6.30	N	
working loss turnover factor :		1.00	K_N	
paint factor :			N/A	tanks are inside bldg.
surface temperatures (°R, °F)				
average :	514.98	54.98	T_{AA}	
maximum :	525.75	65.75	T_{AX}	
minimum :	504.21	44.21	T_{AN}	
working loss product factor :		1.00	K_P	
liquid bulk temperature		514.98	T_B	°R tanks are inside bldg.
vapor molecular weight		78.98	M_V	
vented vapor saturation factor		0.96	K_S	
vapor density		0.001040	W_V	lb/c.f.
daily average liquid surface temperature		514.98	T_{LA}	°R tanks are inside bldg.
daily ambient temperature range		15.51	ΔT_V	°R tanks are inside bldg.
vapor space expansion factor :		0.0271404	K_E	dimensionless

Charleston WV	54.98	avg Daily Temp - °F	514.98	°R
	65.75	avg Annual Max Temp - °F	525.75	°R
	44.21	avg Annual Min Temp - °F	504.21	°R
	6.05	avg Wind Speed mph	N/A	tanks are inside bldg.
	1250.57	avg Annual Solar Insolation	N/A	tanks are inside bldg.
	14.25	avg Atmospheric Pressure psia		

Example Calculation
Spreadsheet Workbook

working loss	8.21	L_W	lb/year =	0.00	lb/hr =	0.00 tons/year
standing storage loss	7.83	L_S	lb/year =	0.00	lb/hr =	0.00 tons/year
Total Losses	**16.04**		**lb/year =**	**0.002**	**lb/hr =**	**0.008 tons/year**

FIXED ROOF TANK CALCULATION (AP-42: Chapter 7 Method)

Working Loss per year	Standing Loss per year	Working Loss per hour	Standing Loss per hour	Working and Standing Losses per hour	PTE VOC per year	Loading VOC emissions per hour	PTE VOC emissions per year including loading	Loading HAP emissions per hour	PTE HAP emissions per day including loading	PTE HAP emissions per year including loading
lbs	lbs	lbs	lbs	lbs	tons	lbs	tons	lbs	lbs	tons
0.914	0.650	0.0001	0.0001	0.0002	0.0008	0.2850	0.0014	0.0002850	0.006839	6.596E-07

Attachment: E - 202
Permit: N/A PTE analysis
Date: 02/10/15
Tank: 202
Name: Glycerine
Charge Rate 200 gpm
Discharge Rate 300 gpm

Basic Input Data

Tank Number	202	
liquid TVP =	0.00554	P_{VA}
if TVP is entered, enter TVP temperature (°F) =	60	
tank heated {yes, no} =	no	
if tank is heated, enter temp (°F) =	N/A	
vapor recovery system present? {yes, no} =	no	
breather vent pressure setting range (psi) (def = 0.06):	0	

Tank Data

diameter (feet) =	10	D (R_S x 2)	
nominal capacity (gal)	10,000		gal
conical or dome roof? {c, d} =	d		
shell height (feet) =	18	H_S	
roof height:	2	H_R	
average liquid height (feet):	9	H_L	
color {1:Spec Al, 2:Diff Al, 3:Lite, 4:Med, 5:Rd, 6:Wh} =		N/A	tanks are inside bldg.
condition {1: Good, 2: Poor} =		N/A	tanks are inside bldg.
tank maximum liquid volume	1272	V_{LX}	c.f. (90 % shell height)

Tank Contents

Constituent	mol wt	VP (Torr)	%	P_{VA}	(by Raoult's Law)
Glycerine	92.09	0.001	88	8104	0.00
Water	18.01	11	11.99	216	0.29
Methanol	32	97.7	0.1	0	0.00
	83.16		100.09	8320	0.2865 mm Hg

Vapor Pressure (P_{VA})= 0.00554 psi for mixture

Liquid Data

maximum daily throughput =	N/A		gal
tank fill rate	200		gpm
annual throughput (gal)	83,333	Q	gal
annual throughput (bbl0	1,984	Q	bbl
RVP (psia):	0.00554	P_{VA}	psi

Example Calculation
SCEI-HAP Workbook

Computed Values

vapor space outage		10.05	H_{VO}	ft
roof outage		1.05	H_{RO}	ft
vapor space volume (cubic feet):		790	V_V	c.f.
turnovers :		9	N	
working loss turnover factor :		1.00	K_N	
paint factor :			N/A	tanks are inside bldg.
surface temperatures (°R, °F)				
average :	514.98	54.98	T_{AA}	
maximum :	525.75	65.75	T_{AX}	
minimum :	504.21	44.21	T_{AN}	
working loss product factor :		1.00	K_P	
liquid bulk temperature		514.98	T_B	°R tanks are inside bldg.
vapor molecular weight		83.16	M_V	
vented vapor saturation factor		1.00	K_S	
vapor density		0.000083	W_V	lb/c.f.
daily average liquid surface temperature		514.98	T_{LA}	°R tanks are inside bldg.
daily ambient temperature range		15.51	ΔT_V	°R tanks are inside bldg.
vapor space expansion factor :		0.0271404	K_E	dimensionless

Charleston WV	54.98	avg Daily Temp - °F	514.98	°R
	65.75	avg Annual Max Temp - °F	525.75	°R
	44.21	avg Annual Min Temp - °F	504.21	°R
	6.05	avg Wind Speed mph	N/A	tanks are inside bldg.
	1250.57	avg Annual Solar Insolation	N/A	tanks are inside bldg.
	14.25	avg Atmospheric Pressure psia		

working loss	0.914	L_W	lb/year =	0.0001	lb/hr =	0.0005 tons/year
standing storage loss	0.650	L_S	lb/year =	0.0001	lb/hr =	0.0003 tons/year
Loading Emissions (from below)	1.319			0.2850		0.0007 tons/year
Total Losses	**1.564**		**lb/year =**	**0.2851**	**lb/hr =**	**0.0014 tons/year**

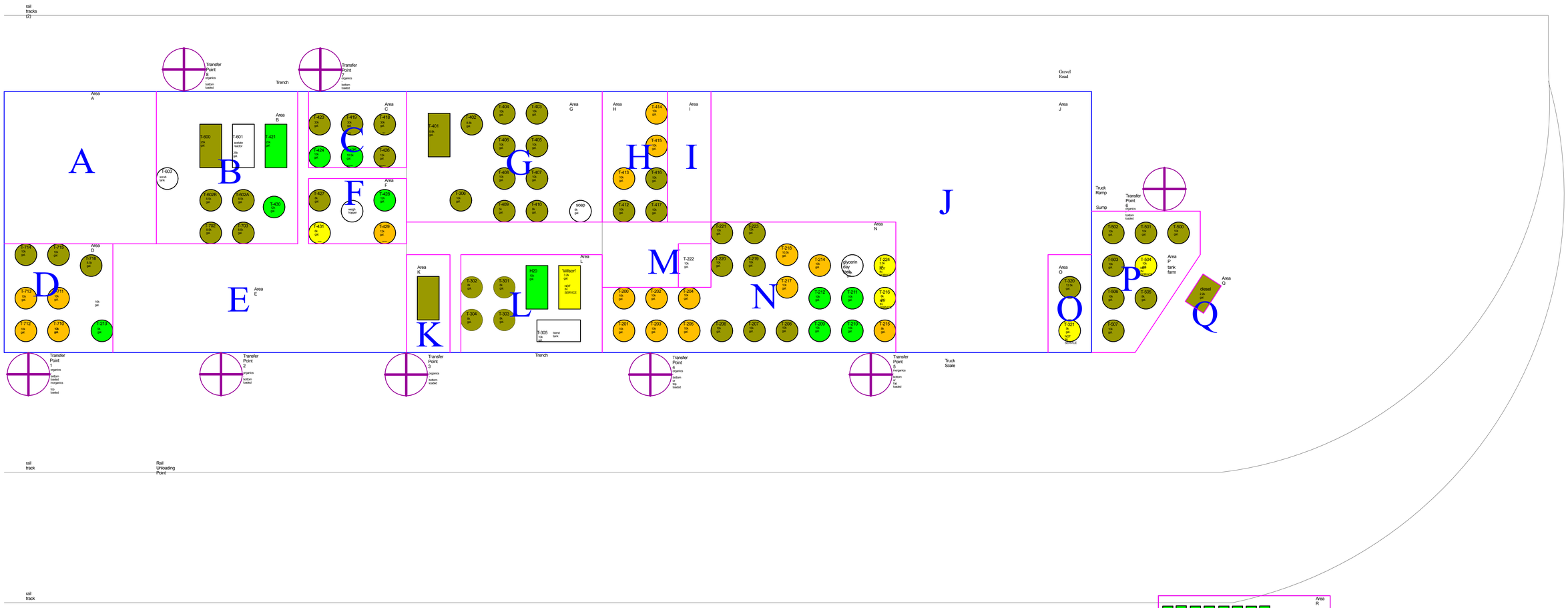
Truck Loading Analysis

Truck Loading Rate	300	gal/min
Truck Capacity	5000	gal
Truck Loading Time	17	minutes
Truck Loads per hour	3.6	
Loading Emssions	0.285	lbs VOC
Loading Emissions	0.000	lbs HAP
Loading Emissions per gal	1.583E-05	lbs VOC
Loading Emissions per gal	1.583E-08	lbs HAP

Truck Loading Emission Factor Derivation

1.45	S	Saturation Factor
0.00554	P	True Vapor Pressure
83.16	M	Molecular Weight of Vapors
525.75	T	Temperature of Bulk Liquid °R (°F + 460)
0	eff	Control Efficiency
0.10%		Max HAP %
0.0158	L_L	pounds per 1000 gallons of liquid loaded

S Values
- 0.50 Submerged loading of a clean cargo tank
- 0.60 Submerged loading dedicated normal service
- 1.00 Submerged loading dedicated vapor balance service
- 1.45 Splash loading of a clean cargo tank
- 1.45 Splash loading dedicated normal service
- 1.00 Plash loading dedicated vapor balance service



Internal Area Boundary

Building Exterior

A Area Designation (See Detail Sheets Following for Tank Information)

Truck Loading Point

	Organic with HAPs
	Organic w/o HAPs
	Inorganic
	Out of Service

Tank #	Registration number	max capacity	Current Contents	CAS#		Level
200	040-00000311	10000 gal	road spray concentrate	fatty acid 67701-06-8, petroleum distillates 64742-04-7, surfactant 127087-87-0 and water 7732-18-5	✓	2
201	040-00000312	10000 gal	road spray concentrate	fatty acid 67701-06-8, petroleum distillates 64742-04-7, surfactant 127087-87-0 and water 7732-18-5	✓	2
202	040-00000313	10000 gal	glycerin	000056-81-5	✓	2
203	040-00000314	10000 gal	glycerin	000056-81-5	✓	2
204	040-00000315	10000 gal	glycerin	000056-81-5	✓	2
205	040-00000316	10000 gal	glycerin	000056-81-5	✓	2
206	040-00000317	10000 gal	amine acetate (Platinum 2020 or 2030)	2-[2-(2-Dimethylamino) ethoxy] ethyl] methylamino] ethanol 83016-70-0, Monomethyldiethanolamine 105-59-9, Bis(Dimethylaminoethyl) ether, 3033-62-3, Dimethylaminoethanol 108-01-0, Dimethylaminoethoxyethanol, 1704-62-7, N-Butyl morpholine, 1005-67-0, Ethylene glycol, 107-21-1, 64-19-7 acetic acid	✓	2
207	040-00000318	10000 gal	amine (Armines, and/or amines, mixed)	68909-77-3 mixed morpholine amines, mixed alkyl amines, mixed alcohol amines, 107-21-1 mixed glycols,	✓	2
208	040-00000319	10000 gal	potassium acetate (50%)	000127-08-2	✓	2
209	040-00000320	10000 gal	calcium chloride (35%)	010043-52-4	✓	2
210	040-00000321	10000 gal	calcium chloride (35%)	010043-52-4	✓	2
211	040-00000322	10000 gal	calcium chloride (35%)	010043-52-4	✓	2
212	040-00000323	10000 gal	calcium chloride (35%)	010043-52-4	✓	2
213	040-00000324	10000 gal	AMD Plus	1310-73-2 sodium hydroxide 10-30%, 7732-18-5 water 70-90%, proprietary permangaate, <2%	✓	1
214	040-00000325	10000 gal	glycerin	000056-81-5	✓	2
215	040-00000326	8000 gal	glycerin	000056-81-5	✓	2
216	040-00000327	8000 gal	out of service			
217	040-00000328	10000 gal	Propylene glycol	57-55-6	✓	2
218	040-00000329	10500 gal	glycerin	000056-81-5	✓	2
219	040-00000330	10000 gal	amine (Armines, and/or amines, mixed)	2-[2-(2-Dimethylamino) ethoxy] ethyl] methylamino] ethanol 83016-70-0, Monomethyldiethanolamine 105-59-9, Bis(Dimethylaminoethyl) ether, 3033-62-3, Dimethylaminoethanol 108-01-0, Dimethylaminoethoxyethanol, 1704-62-7, N-Butyl morpholine, 1005-67-0, Ethylene glycol, 107-21-1	✓	2
220	040-00000331	10000 gal	amine (Armines, and/or amines, mixed)	2-[2-(2-Dimethylamino) ethoxy] ethyl] methylamino] ethanol 83016-70-0, Monomethyldiethanolamine 105-59-9, Bis(Dimethylaminoethyl) ether, 3033-62-3, Dimethylaminoethanol 108-01-0, Dimethylaminoethoxyethanol, 1704-62-7, N-Butyl morpholine, 1005-67-0, Ethylene glycol, 107-21-1	✓	2
221	040-00000332	10000 gal	amine acetate (Platinum 2020 or 2030)	2-[2-(2-Dimethylamino) ethoxy] ethyl] methylamino] ethanol 83016-70-0, Monomethyldiethanolamine 105-59-9, Bis(Dimethylaminoethyl) ether, 3033-62-3, Dimethylaminoethanol 108-01-0, Dimethylaminoethoxyethanol, 1704-62-7, N-Butyl morpholine, 1005-67-0, Ethylene glycol, 107-21-1, 64-19-7 acetic acid		2
222	040-00000333	10000 gal	Ammonium lignosulfonate	Ammonium lignosulfonate 8061-53-8 (15-20%), calcium lignosulfonate 8061-52-7 (15-20%), water		2
223	040-00000334	12000 gal	amine acetate (Platinum 2020 or 2030)	2-[2-(2-Dimethylamino) ethoxy] ethyl] methylamino] ethanol 83016-70-0, Monomethyldiethanolamine 105-59-9, Bis(Dimethylaminoethyl) ether, 3033-62-3, Dimethylaminoethanol 108-01-0, Dimethylaminoethoxyethanol, 1704-62-7, N-Butyl morpholine, 1005-67-0, Ethylene glycol, 107-21-1, 64-19-7 acetic acid		2
224	040-00000335	2500 gal	out of service			
301	040-00000336	8000 gal	pitch emulsion	Tall-oil pitch NJTS # 7255, surfactant 127087-87-0 and water 7732-18-5		2
302	040-00000337	8000 gal	asphalt emulsion	Aromatic Petroleum Pitch 68187-58-6, fatty acid 67701-06-8, surfactant proprietary		2
303	040-00000338	8000 gal	asphalt emulsion	Aromatic Petroleum Pitch 68187-58-6, fatty acid 67701-06-8, surfactant proprietary		2
304	040-00000339	8000 gal	road spray concentrate	fatty acid 67701-06-8, petroleum distillates 64742-04-7, surfactant 127087-87-0 and water 7732-18-5		2
305	040-00000340	10000 gal	blend tank			2
306	040-00000341	10000 gal	NP-9	127087-87-0		2
320	040-00000342	12500 gal	MicroC 4100	000057-50-1		2
321	040-00000343	5000 gal				
401	040-00000344	8800 gal	Tall-oil pitch	008016-81-7		2
402	040-00000345	8800 gal	Tall-oil pitch	008016-81-7		2
403	040-00000346	10000 gal	pitch emulsion	Tall-oil pitch NJTS # 7255, surfactant 127087-87-0 and water 7732-18-5		2
404	040-00000347	10000 gal	FEC 03	proprietary mixture, NJTSRN-6495, fatty acid 67701-06-8, raffinates, sorption process 64741-85-1		2
405	040-00000348	10000 gal	pitch emulsion	Tall-oil pitch NJTS # 7255, surfactant 127087-87-0 and water 7732-18-5		2
406	040-00000349	10000 gal	biodiesel	67784-80-9 methyl soyate, 73891-99-3 rapeseed oil, 61788-71-2 methyl tallowate		2
407	040-00000350	10000 gal	pitch emulsion	Tall-oil pitch NJTS # 7255, surfactant 127087-87-0 and water 7732-18-5		2
408	040-00000351	10000 gal	pitch emulsion	Tall-oil pitch NJTS # 7255, surfactant 127087-87-0 and water 7732-18-5		2
409	040-00000352	5000 gal	NP-70	127087-87-0 poly(oxy-1,2-ethanediyl), alpha-(4-nonylphenyl)-omega-hydroxy-, branced >67%, 7732-18-5 water 30%, 25322-68-3 polyethylene glycol <3%, 9014-93-1 dinonylphenyl polyoxyethylene <1%		2

Tank #	Registration number	max capacity	Current Contents	CAS#		Level
410	040-00000353	8000 gal	mineral oil	000042-47-5	✓	2
411	040-00000354	12000 gal	grossl	64742-04-7	✓	2
412	040-00000355	10000 gal	Sylvabend FVM	proprietary mixture, NJTSRN-6495	✓	2
413	040-00000356	10000 gal	fatty acid	fatty acid 67701-06-8	✓	2
414	040-00000357	10000 gal	fatty acid	fatty acid 67701-06-8	✓	2
415	040-00000358	10000 gal	fatty acid	fatty acid 67701-06-8	✓	2
416	040-00000359	10000 gal	MR solvent	064741-85-1	✓	2
417	040-00000360	10000 gal	Sylvabend FVM	proprietary mixture, NJTSRN-6495	✓	2
418	040-00000361	30000 gal	FEC 02	proprietary mixture, NJTSRN-6495, fatty acid 67701-06-8, raffinates, sorption process 64741-85-1	✓	2
419	040-00000362	30000 gal	fatty acid	fatty acid 67701-06-8	✓	2
420	040-00000363	30000 gal	Gen 3	Glycerin 56-81-5, potassium acetate 127-08-2, sodium acetate	✓	2
421	040-00000364	25000 gal	caustic soda 50%	001310-73-2	✓	1
424	040-00000365	15000 gal	caustic soda 20%	001310-73-2	✓	1
425	040-00000366	10500 gal	Magnaflloc 1717	26062-79-3 homopolymer 18.5-21%, 7732-18-5 water 81.5-79%	✓	2
426	040-00000367	12000 gal	Magnaflloc 1717	26062-79-3 homopolymer 18.5-21%, 7732-18-5 water 81.5-79%	✓	2
427	040-00000368	8000 gal	LX-100 (Coal Loc)	25067-01-0 butyl acrylate / vinyl acetate copolymer in water	✓	2
428	040-00000369	12000 gal	potassium hydroxide	001310-58-3		1
429	040-00000370	12000 gal	glycerin	000056-81-5		2
430	040-00000371	12000 gal	soft water	007732-18-5		3
431	040-00000372	6000 gal	out of service			
500	040-00000373	10000 gal	EP 202	68551-11-1		2
501	040-00000374	10000 gal	EP 202	68551-11-1		2
502	040-00000375	10000 gal	EP 202	68551-11-1		2
503	040-00000376	10000 gal	EP 202	68551-11-1		2
504	040-00000377	10000 gal	Out of Service			
505	040-00000378	8000 gal	Montanol	1-hexanol, 2-ethyl, manufacture of, by-products from, distillation residues 68608-08-7		2
506	040-00000379	10000 gal	EP 202	68551-11-1		2
507	040-00000380	10000 gal	EP 202	68551-11-1		2
600	040-00000381	25000 gal	glacial acetic acid	64-19-7		1
601	040-00000382	25000 gal	(acetate reactor)	000127-08-3, 7732-18-5		1
603	040-00000385	4200 gal	(scrub tank)	64-19-7, 7732-18-5		1
702	040-00000386	8500 gal	acetic acid	64-19-7		1
703	040-00000387	8500 gal	acetic acid	64-19-7		1
710	040-00000388	10000 gal	glycerin	56-81-5		2
711	040-00000389	10000 gal	glycerin	56-81-5		2
712	040-00000390	10000 gal	glycerin	56-81-5		2
713	040-00000391	10000 gal	glycerin	56-81-5		2
714	040-00000392	10000 gal	ACS 1422 (1422 RS)	64742-47-8, 68439-50-9		2
715	040-00000393	10000 gal	ACS 1422 (1422 RS)	64742-47-8, 68439-50-9		2
716	040-00000394	8500 gal	Magnaflloc 1717	26062-79-3 homopolymer 18.5-21%, 7732-18-5 water 81.5-79%		2
602A	040-00000383	8500 gal	acetic acid	64-19-7		1
602B	040-00000384	8500 gal	acetic acid	64-19-7		1
diesel	040-00000303	2200 gal	Off-road diesel	68476-34-6		2
glycerin dry	040-00000302	7500 gal	glycerin	56-81-5		2
H20	040-00000395	10000 gal	water	7732-18-5		2
poly	040-00000304	6000 gal	calsoft L-40	68081-81-2 benzenesulfonic acid, C10-16-alkyl derivatives, sodium salts; 1300-72-7 Sodium xylene sulfonate; 7732-18-5 water		2
wilson	040-00000396	3200 gal				2
T-00	040-00000306	5000 gal				
X11/T-01	040-00000307	1700 gal				
X12/T-02	040-00000308	2100 gal				
X13		1100-not a tank				
X14/T-03	040-00000309	10000 gal				
X15/T-04	040-00000310	2100 gal				

SV25348L	040-00000643	21000	calcium chloride (35%)	010043-52-4		2
SV22273L	040-00000642	19612	calcium chloride (35%)	010043-52-4		2
CFVP2064L	040-00000651	20790	calcium chloride (35%)	010043-52-4		2
CFA186	040-00000637	20790	calcium chloride (35%)	010043-52-4		2
CFVP236L		20000	calcium chloride (35%)	010043-52-4		2
SV22783L		20000	calcium chloride (35%)	010043-52-4		2
SV23724L		20000	calcium chloride (35%)	010043-52-4		2
SV35186L	040-00000647	20000	calcium chloride (35%)	010043-52-4		2

LEXYCON

Lexycon LLC
P. O. Box 8
Nitro, West Virginia 25143

Site Layout and Tank Locations

PTE Analysis

LEXYCON

Lexycon LLC

P. O. Box 8

Nitro, West Virginia 25143

MSDS Sheets

Potential to Emit Analysis

Permit Determination Form (PDF)

February, 2015

MSDS	Product Name	Common Name/Use	Page
001	Acetic Acid, Glacial	Acetic Acid, Glacial	3
002	ClearFloc 1422	Anionic Polymer Emulsion	17
003	Platinum 2020	Amine Acetate	24
004	GEN3 64	Runway Deicing Fluid	31
005	Asphalt Emulsion	Asphalt Emulsion	39
006	Prosol Emulsion	Prosol Emulsion	46
007	Biodiesel	Biodiesel	53
008	Calsoft L-40	Calsoft L-40	58
009	Magnafloc 1717	Magnafloc 1717	63
010	Low Sulfur Diesel Fuel	Off Road Diesel Fuel	69
011	Diethylene Glycol	Diethylene Glycol	76
012	CMS	Concentrated Molasses Solids	82
013	Removed from Inventory		83
014	EP-202 MP	Alcohol, Ether, Aldehydes	84
015	Fatty Acids	N/A	91
016	FEC-02	Flotation Collector	98
017	FEC-03	Flotation Collector	105
018	ClearCat 7122	Liquid Cationic Polymer	112
019	SylvaBlend FVM	Terpenes and Derivatives	119
020	Glycerin	Crude Glycerin	126
021	Glycerin	Tech Grade Glycerin	148
022	Norlig 24C	Calcium/Sodium Lignosulfonate	156
023	MWRR 20	Mixed Amines	158
024	MR Solvent	Paraffinic Napthenic Solvent	166
025	Tergitol NP-70	Surfactant	174
026	NP-9 Surfactant	Surfactant	189
027	RDC-400	Tall Oil Pitch Emulsion	198
028	FCA-4000	Pocassium Acetate Freezeproofing	204
029	Propylene Glycol 70%	Propylene Glycol	211
030	Prosol 224	Aromatic Hydrocarbons	216
031	Chemsolv PVA Binder	PVA Latex Emulsion	220
032	FCA-8000	Sodium Acetate Solution	224
033	Sylfat DP-8	Tall Pitch Residue	231
034	Removed from Inventory		237
035	PMP S-45	Sodium Gluconate Solution in Water	238
036	Naphthenic Oil	Naphthenic Oil	240
037	Penreco Parol	Mineral Oil	245
038	LX-100P	Latex Emulsion	251
039	RDC-600	Road Spray Concentrate	257
040	Montanol 800	Collecter/Foaming Agent	264

ASTRO PRODUCT CODE # 6056

Celanese
CHEMICALS

Product name:	ACETIC ACID, GLACIAL .
MSDS number:	2
Material number:	91000001
Published date:	03/22/2001

MATERIAL SAFETY DATA SHEET

1. Product and Company Identification

Product Name: Acetic acid, glacial
MSDS number: 2
Material number: 91000001

Synonyms: Ethanoic acid; Methanecarboxylic acid.

Celanese Ltd.
1601 W. LBJ Freeway
P.O. Box 819005
Dallas, TX 75381-9005
United States
972 443 4000

Celanese Canada, Inc.
P.O. Box 99 Station Main
Edmonton, Alberta,
Canada T5J 2H7
780 471 0425

Transportation emergency phone numbers:
In USA, call 800 424 9300
Outside USA, call 703 527 3887, collect calls accepted
In Canada, call 780 477 8339.

2. Composition / Information on Ingredients

Component & CAS Number	Weight %	OSHA hazard category:
ACETIC ACID 64-19-7	99.85	Hazardous

3. Hazards Identification

Product name:	ACETIC ACID, GLACIAL
MSDS number:	2
Material number:	91000001
Published date:	03/22/2001

Celanese CHEMICALS

Emergency Overview:

DANGER!
Causes skin, eye and digestive tract burns.
Flammable liquid and vapor.
Causes respiratory tract irritation.

Product Description

Appearance:	Clear, colorless mobile liquid.
Odor:	Strong, acrid, vinegar-like odor.

Potential health effects

Routes of exposure: Skin, eyes, inhalation, ingestion.

Immediate effects:

Skin: Causes skin burns. May be harmful if absorbed through skin. Symptoms of exposure may include: Redness or discoloration, swelling, itching, burning or blistering of skin.

Eyes: Exposure to liquid Causes severe eye burns, damage irreversible. Exposure to vapors Causes eye irritation. Symptoms of exposure may include: Eye irritation, burning sensation, pain, watering, and/or change of vision.

Inhalation: Causes respiratory tract irritation. Harmful if inhaled. Symptoms of exposure may include: Nasal discharge, hoarseness, coughing, chest pain and breathing difficulty. Accumulation of fluid in the lungs (pulmonary edema); symptoms can be delayed for several hours.

Ingestion: Causes digestive tract burns. Symptoms of exposure may include: Nausea, vomiting, loss of appetite, gastrointestinal irritation and/or diarrhea. Inflammation of mouth, throat, esophagus and/or stomach.

Delayed / long-term effects: See "Section 11 - Toxicological Information" for studies with experimental animals.

Reproductive: No evidence of reproductive effects.

Carcinogenic: No evidence of carcinogenicity.

Mutagenic: Shows mixed results for mutagenic potential in vitro.

Target Organ Effects:

Overexposure (prolonged or repeated exposure) may cause:
Injury to the eyes
Digestive tract damage
Respiratory tract damage
Skin damage.

Medical Conditions which may be Aggravated by Exposure:

Significant exposure to this chemical may adversely affect people with acute or chronic disease of the:
Respiratory Tract
Skin
Eyes

For further information, see:
Section 4 - First Aid Measures
Scetion 5 - Fire Fighting Measures
Section 6 - Accidental Release Measures
Section 8 - Exposure Contols/Personal Protection
Section 9 - Physical and Chemical Properties
Section 10 - Stability and Reactivity

4. *First Aid Measures*

Skin:
Immediately flush skin with plenty of water for at least 15 minutes while removing contaminated clothing and shoes. Get medical attention immediately. Wash clothing before reuse. Destroy contaminated shoes.

Eyes:
Immediately flush eyes with plenty of water for at least 15 minutes. If easy to do, remove contact lenses, if worn. Get medical attention immediately.

Inhalation:
Remove to fresh air. If not breathing, give artificial respiration. If breathing is difficult, give oxygen. Call a physician.

Ingestion:
DO NOT induce vomiting. Get medical attention immediately. If victim is fully conscious, give a cupful of water. Never give anything by mouth to an unconscious person.

Note to Physician:
Observe for latent pulmonary edema.

Celanese
CHEMICALS

Product name:	ACETIC ACID, GLACIAL.
MSDS number:	2
Material number:	91000001
Published date:	03/22/2001

5. Fire Fighting Measures

NFPA: Health: 3 Flammability: 2 Reactivity: 0

Flammable properties:
Flash point (test method): 39 C (103 F) (Closed Cup)

Flammable limits in air, % by volume:
Upper (%): 19.9%
Lower (%): 4%

Autoignition temperature: 516 C (961 F)

Products of Combustion: Carbon Monoxide.

Extinguishing Media: Use alcohol type aqueous film forming foam for large fires. Use CO_2 or dry chemical for small fires.

Fire Fighting Environmental Concerns: Water run-off and vapor cloud may be corrosive. Dike and collect water used to fight fire for neutralization before release. Water streams should not be directed to the liquid, as this will cause the liquid to boil and generate more vapor. Thoroughly decontaminate bunker gear and other fire-fighting equipment before re-use.

Fire Fighting Instructions: Water spray should be used to cool fire-exposed structures and vessels. Water spray can be used to reduce the intensity of flames and to dilute spills to a non-flammable mixture. Keep personnel removed from and upwind of fire. If potential for exposure to vapors or products of combustion exists, wear full fire fighting turnout gear and NIOSH approved self-contained breathing apparatus. Oxidizing chemicals may accelerate the burning rate in a fire situation.

6. Accidental Release Measures

Spill or Leak Instructions:
Eliminate ignition sources. See Section 8 for appropriate personal protective equipment. Contain spill with dikes of soil or

nonflammable absorbent to minimize contaminated area. If fire potential exists, blanket spill with alcohol type aqueous film-forming foam or use water fog stream to disperse vapors. Avoid run-off into storm sewers and ditches leading to waterways. If required, notify state and local authorities. Place leaking containers in well-ventilated area. Neutralize with lime or sodium bicarbonate. Clean up small spills by using a nonflammable absorbent or flushing sparingly with water. Contain larger spills with nonflammable diking or absorbent. Clean up by vacuuming or sweeping.

Within the United States, call the National Response Center (800-424-8802) and appropriate state and local authorities if the quantity released over 24 hours is equal to or greater than the reportable quantity listed below:
5,000 lbs. of the material as is, based on a Reportable Quantity of 5,000 lbs. of acetic acid.

Keep unnecessary people away: isolate hazard area and deny entry. Stay upwind; keep out of low areas. Isolate for 800 meters or 0.5 miles in all directions if tank, rail car, or tank truck in involved in fire. Evacuate downwind areas as conditions warrant to prevent exposure and to allow vapors or fumes to dissipate. Spills may expose downwind areas to toxic or flammable concentrations over considerable distances in some cases.

For more information, see "Section 15 - Regulatory Information".

7. Handling and Storage

Handling:

Use with adequate ventilation. Keep containers closed when not in use. Always open containers slowly to allow any excess pressure to vent. Avoid breathing vapor. Avoid contact with eyes, skin or clothing. Wash thoroughly with soap and water after handling. Decontaminate soiled clothing thoroughly before re-use. Destroy contaminated leather clothing.

This product may generate a static charge. Ground/bond equipment when transferring material to prevent static accumulation. Electrical equipment and circuits in all storage and handling must conform to requirements of National Electric Code (Article 500 and 501) for hazardous location.

Storage:

Keep all containers tightly closed when not in use. Store out of direct sunlight and on an impermeable floor.
Do not store with incompatible materials. See Section 10. Stability and Reactivity.

8. Exposure Controls / Personal Protection

Engineering Controls:

General or dilution ventilation is frequently insufficient as the sole means of controlling employee exposure. Local ventilation is usually preferred.

Protective Equipment

A safety shower and eyebath should be readily available.

Celanese
CHEMICALS

Product name:	ACETIC ACID, GLACIAL
MSDS number:	2
Material number:	91000001
Published date:	03/22/2001

Skin Protection:

Wear impervious clothing and gloves to prevent contact. Neoprene is recommended. Other protective material may be used, depending on the situation, if adequate degradation and permeation data is available. If other chemicals are used in conjunction with this chemical, material selection should be based on protection for all chemicals present.

Eye/face protection:

Wear chemical goggles when there is a reasonable chance of eye contact. In addition to goggles, wear a face shield if there is a reasonable chance for splash to the face.

Respiratory Protection:

Based on workplace contaminant level and working limits of the respirator, use a respirator approved by NIOSH. The following is the minimum recommended equipment for an occupational exposure level. To estimate an occupational exposure level see Section 3, Section 8 and Section 11.

For concentrations > 1 and < 10 times the occupational exposure level: Use air-purifying respirator with full facepiece and organic vapor cartridge(s) or air-purifying full facepiece respirator with an organic vapor canister or a full facepiece powered air-purifying respirator fitted with organic vapor cartridge(s). The air purifying element must have an end of service life indicator, or a documented change out schedule must be established. Otherwise, use supplied air.

For concentrations more than 10 times the occupational exposure level and less than the lower of either 100 times the occupational exposure level or the IDLH: Use Type C full facepiece supplied-air respirator operated in positive-pressure or continuous-flow mode.

For concentrations > 100 times the occupational exposure level or greater than the IDLH level or unknown concentrations (such as in emergencies): Use self-contained breathing apparatus with full facepiece in positive-pressure mode or Type C positive-pressure full facepiece supplied-air respirator with an auxiliary positive-pressure self-contained breathing apparatus escape system.

For escape: Use self-contained breathing apparatus with full facepiece or any respirator specifically approved for escape.

Exposure guidelines

Component & CAS Number	Weight %	ACGIH TWA	ACGIH STEL	ACGIH CEILING	OSHA TWA	OSHA STEL	OSHA CEILING
ACETIC ACID 64-19-7	99.85	10 PPM	15 PPM	-	10 PPM	-	-

Celanese
CHEMICALS

Product name:	ACETIC ACID, GLACIAL
MSDS number:	2
Material number:	91000001
Published date:	03/22/2001

Component & CAS Number	Weight %	1990 NIOSH IDLH (Recognized by OSHA)	1994 NIOSH IDLH
ACETIC ACID 64-19-7	99.85	1,000 ppm	50 PPM

Comments:

Celanese has adopted the ACGIH TLVs

9. Physical and Chemical Properties

Appearance:	Clear, colorless mobile liquid.
Odor:	Strong, acrid, vinegar-like odor.
Vapor pressure:	15.7 mm Hg @ 25 deg C
Vapor density (Air=1 @ 20 deg C):	2.07
Boiling point (760 mmHgA):	118 C (244 F)
Freezing point:	16.6 C (61.9 F)
Solubility in water @ 20 deg C:	100 %
Specific gravity:	1.0492 at 20 deg C
Molecular weight:	60.05
Evaporation rate:	0.97

10. Stability and Reactivity

Stability:	Stable.
Conditions to Avoid:	Avoid exposure to heat; may cause containers to rupture or explode.
Incompatibility:	Keep away from caustic soda, lime and strong alkalis, oxidizing agents such as nitric acid, peroxides, amines, sulfuric acid, perchloric acid or chromium trioxide.
Hazardous Combustion or Decomposition Products:	Thermal decomposition products may include oxides of carbon.

Celanese
CHEMICALS

Product name:	ACETIC ACID, GLACIAL.
MSDS number:	2
Material number:	91000001
Published date:	03/22/2001

Hazardous Polymerization: Hazardous polymerization will not occur.

11. Toxicological Information

Component & CAS Number	Weight %	Component Toxicological Information:
ACETIC ACID 64-19-7	99.85	**Acute Exposure:** **Oral LD50:** 3.2-5.6 g/kg (rats); slightly toxic to animals. **Inhalation LC50:** > 16000 ppm (rats, 4 hours); practically nontoxic to animals. **Skin:** Corrosive to rabbit skin. Moderately toxic to animals (LD50. rabbits: 1.1 g/kg). **Eyes:** Corrosive to rabbit eyes. **Mutagenicity:** Mixed results *in vitro* (negative in the Ames and Chinese hamster ovary assay; positive in human lymphocytes for SCEs and in some DNA damage assays). The positive results are thought to be due to artifacts caused by acidification of the culture media. **Carcinogenicity:** No studies conducted according to accepted scientific principles. **Reproductive/Developmental Effects:** No reproductive effects were found after oral administration of 1.6 g apple cider vinegar per day (5% acetic acid) to pregnant rabbits, rats or mice. **Repeated Exposure:** Acetic acid was administered to rats in the drinking water at concentrations up to 0.5% (up to 390 mg/kg) for 2 to 4 months. Reduced food intake and growth were noted in the 390 mg/kg group but no effects were noted in concentrations of 8 to 195 mg/kg. Administration of 0.5 ml of 3% acetic acid to rats (approx. 60 mg/kg/treatment) in water by stomach tube 3 times/week for 8 months induced cell proliferation of the gullet and forestomach.

12. Ecological Information

Celanese
CHEMICALS

Product name:	ACETIC ACID, GLACIAL
MSDS number:	2
Material number:	91000001
Published date:	03/22/2001

Component & CAS Number	Weight %	Component Ecological Information:
ACETIC ACID 64-19-7	99.85	**Ecotoxicity:** The aquatic toxicity and biodegradation of acetic acid are expected to be influenced by its potential to lower pH. Acetic acid exhibits slight acute toxicity to aquatic species. The 24-, 48- and 96-hour LC50 values for the fathead minnow are 106-122, 92-106 and 79-88 ppm, respectively. The 48-hour LC50 values for rainbow trout and carp are 105 and 49 ppm, respectively. The 96-hour LC50 for mosquitofish is 251 ppm. The 24-hour EC50 for the water flea (daphnid) is 6000 ppm. Toxicity thresholds for green algae (Scenedesmus quadricauda), blue-green algae (Anacystis aeruginosa), and euglenoid (Entosiphon sulcatum) are 4000, 90 and 78 ppm, respectively. **Environmental Fate:** **Degradation:** Acetic acid will biodegrade readily if released to water (e.g., 5-Day BOD's 63-81%) or soil. The atmospheric photochemical degradation half-life is estimated to be 26.7 days. **Bioaccumulation:** The log n-octanol water partition coefficient for acetic acid is -0.17. This suggests that acetic acid has low potential to bioaccumulate.

13. Disposal Considerations

Dispose of spilled material in accordance with state and local regulations for hazardous waste. Recommended methods are incineration or biological treatment at a federally or state-permitted disposal facility. Note that this information applies to the material as manufactured; processing, use, or contamination may make this information inappropriate, inaccurate, or incomplete.

Note that this handling and disposal information may also apply to empty containers, liners and rinsate. State or local regulations or restrictions are complex and may differ from federal regulations. This information is intended as an aid to proper handling and disposal; the final responsibility for handling and disposal is with the owner of the waste. See Section 9 - Physical and Chemical Properties.

EPA Hazardous Waste Code(s): D001, D002

Celanese
CHEMICALS

Product name:	ACETIC ACID, GLACIAL
MSDS number:	2
Material number:	91000001
Published date:	03/22/2001

14. Transport Information

US Department of Transportation

Shipping name:	ACETIC ACID, GLACIAL
Hazard Class:	8 (Corrosive Material)
UN/NA Number:	UN 2789
Packing Group:	II
Subsidary hazard:	3 (Flammable Liquid)
DOT Reportable Quantity (RQ):	5000 lbs./ 2270 kg
Emergency Response Guide:	132

ICAO/IATA:

Proper Shipping Name:	ACETIC ACID, GLACIAL
Hazard Classification:	8 (Corrosive Material)
IATA UN Number:	UN 2789
Packing group:	I
Subsidiary Hazard:	3 (Flammable Liquid)
Label:	Class 9.

Flammable Liquid.

IMDG:

Proper Shipping Name:	ACETIC ACID, GLACIAL
Hazard Class:	8 (Corrosive Material)
International Marine UN Number:	UN 2789
Packing Group:	II
Subsidiary Hazard:	3 (Flammable Liquid)
MFAG Table No.:	700
EMS No.:	8-04

Transport Canada

Proper Shipping Name:	Acetic acid, glacial
Class:	8 (9.2)
Subsidiary Risk:	3

Trade Information

Celanese
CHEMICALS

Product name:	ACETIC ACID, GLACIAL
MSDS number:	2
Material number:	91000001
Published date:	03/22/2001

Harmonization Code (import): 2915.21.0000

15. Regulatory Information

US State regulations
Chemicals associated with the product which are subject to the state right-to-know regulations are listed along with the applicable state(s):

ACETIC ACID 99.85 **64-19-7**

Pennsylvania	Listed
New York	Listed
New Jersey	Listed
Illinois	Listed
Massachusetts	Listed
Rhode Island	Listed

U.S. REGULATORY RULES

TSCA Inventory:
We certify that all components are either on the TSCA inventory or qualify for an exemption.

ACETIC ACID 99.85 **64-19-7**

CERCLA Hazardous Substances Data-	Listed
SARA 311:	
Acute health:	Yes
Chronic health:	No
Fire:	Yes
Sudden release of pressure:	No
Reactive:	No

International Regulations

International chemical inventories:

Listed on the chemical inventories of the following countries or qualifies for an exemption:
AUSTRALIA,CHINA,CANADA,EUROPE,JAPAN,KOREA,PHILIPPINES

Canadian Regulations:

WHMIS Classification: Class B, Division 3. Class E. Class D, Division 2, Subdivision B.

Product name:	ACETIC ACID, GLACIAL
MSDS number:	2
Material number:	91000001
Published date:	03/22/2001

This product has been classified in accordance with the hazard criteria of the CPR and the MSDS contains all the information required by the CPR.

16. Other Information

Prepared by: Product Stewardship Dept.

Hazard ratings This information is intended solely for the use of individuals trained in the NFPA and/or HMIS systems.

NFPA: Health: 3 Flammability: 2 Reactivity: 0
HMIS: Health: 3 Flammability: 2 Reactivity: 0

Note: The information contained herein is accurate to the best of our knowledge. We do not suggest or guarantee that any hazards listed herein are the only ones which exist. Celanese Ltd. makes no warranty of any kind, express or implied, concerning the safe use of this material in your process or in combination with other substances. Effects can be aggravated by other materials and/or this material may aggravate or add to the effects of other materials. This material may be released from gas, liquid, or solid materials made directly or indirectly from it. User has the sole responsibility to determine the suitability of the materials for any use and the manner of use contemplated. User must meet all applicable safety and health standards. Material safety data sheets are provided on the Internet by Celanese, Ltd. as a service to its customers. Possession of an Internet MSDS does not indicate that the possessor of the MSDS was a purchaser or user of the subject product.

#002

SECTION 1 - CHEMICAL PRODUCT AND COMPANY IDENTIFICATION

SDS REVISION #: New

PRODUCT IDENTIFIER: ClearFloc 1422

OTHER IDENTIFIERS: Anionic, water-soluble polymer emulsion

CHEMICAL FORMULA: Mixture

RELEVANT USES: Flocculant for industrial applications

DISTRIBUTED BY: Lexycon LLC.
P.O. Box 8
Nitro, WV 25143

PHONE NUMBERS: Business - (304) 755-5737 (business hours)
CHEMTREC - (800) 424-9300 (transportation emergencies)

SECTION 2 - HAZARDS IDENTIFICATION

GHS CLASSIFICATION:
Eye irritant (Category 2B)

SIGNAL WORD:
Warning!

PICTOGRAM:
None required

HAZARD STATEMENTS:
Causes eye irritation

PRECAUTIONARY STATEMENTS:

Prevention
Wash exposed areas thoroughly after handling.

Response
If in eyes: Rinse cautiously with water for several minutes. Remove contact lenses, if present and easy to do. Continue rinsing. If irritation persists, get medical advice or attention.

Storage
Not applicable

Disposal
Not applicable

HAZARDS NOT OTHERWISE CLASSIFIED: None

SECTION 3 - COMPOSITION / INFORMATION ON INGREDIENTS

Component	%	CAS No.
Anionic polymer emulsion	100	Proprietary*

*The specific chemical identity is being withheld as "trade secret" in accordance with 29 CFR 1910.1200(i)

SECTION 4 - FIRST AID MEASURES

IN CASE OF EYE CONTACT:

Wipe off excess material, and then flush with large amounts of water, lifting upper and lower lids occasionally. Remove contact lenses, if present and easy to do. Continue rinsing. If irritation persists, get medical advice or attention.

IN CASE OF SKIN CONTACT:

Scrape or wipe off excess material, then wash exposed area with lots of soap and water. Remove contaminated clothing and launder before reuse. If irritation persists, get medical attention.

IF SWALLOWED:

Wipe or scrape excess material from mouth. Do NOT induce vomiting; vomiting may cause material to be aspirated into the lungs, which may result in chemical pneumonitis. If vomiting occurs, keep head below shoulders. Never give anything by mouth to an unconscious person. If irritation or nausea develops, contact a physician.

IF INHALED:

If affected, move to fresh air.

MOST IMPORTANT SYMPTOMS AND EFFECTS:

Can cause eye irritation and mild skin irritation, especially in sensitive individuals.

NOTE TO PHYSICIAN:

Treat symptomatically

SECTION 5 - FIRE FIGHTING MEASURES

FLAMMABLE PROPERTIES:

This material is not easily ignited, but will burn if heated sufficiently. It meets the NFPA definition of a Class IIIB – combustible liquid.

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Section 5 continued on next page

SECTION 5 - FIRE FIGHTING MEASURES (continued)

EXTINGUISHING MEDIA:

Use water fog, foam, dry chemical or carbon dioxide.

PROTECTION OF FIREFIGHTERS:

Keep personnel removed from and upwind. Wear full protective clothing and self-contained breathing apparatus with full face-piece. Cool containers with water. Water or foam may cause frothing which can be violent, especially if sprayed into containers of hot, burning liquid. Combustion products include carbon monoxide, carbon dioxide and nitrogen compounds. Spilled material is very slippery.

SECTION 6 - ACCIDENTAL RELEASE MEASURES

PRECAUTIONS, PROTECTIVE EQUIPMENT & EMERGENCY PROCEDURES:

Persons not wearing protective equipment should be excluded from the area of the spill until cleanup has been completed. Spilled product is very slippery.

CONTAINMENT & CLEAN-UP:

Dike area of spill to prevent spreading and pump liquid to salvage tank. Absorb remaining liquid on vermiculite, floor absorbent or other absorbent material and shovel into containers. Flush area of spill with water until it's no longer slippery.

SECTION 7 - HANDLING AND STORAGE

SAFE HANDLING:

Avoid contact with skin, eyes and clothing. Wash thoroughly after handling.

STORAGE:

Keep in closed or covered containers when not in use. Store at temperatures between 32 and 86° F (0-30° C) to maintain product integrity. To avoid product degradation and equipment corrosion, do not use iron, copper or aluminum containers or equipment.

SECTION 8 - EXPOSURE CONTROLS / PERSONAL PROTECTION

EXPOSURE GUIDELINES:

Not established for product or components

ENGINEERING CONTROLS:

Provide sufficient ventilation to maintain exposure below level of overexposure.

EYE / FACE PROTECTION:

Chemical splash goggles, in compliance with OSHA regulations, are advised.

Section 8 continued on next page

#002

SECTION 8 - EXPOSURE CONTROLS / PERSONAL PROTECTION (continued)

SKIN PROTECTION:

Wear protective gloves such as Neoprene or Buna-N and work clothing covering arms and legs.

RESPIRATORY PROTECTION:

Not required under normal conditions of use; however, a nuisance dust mask may be used in dusty conditions.

SECTION 9 - PHYSICAL AND CHEMICAL PROPERTIES

Appearance: Milky, viscous liquid @ 68° F (20° C)
Odor: Aliphatic
pH: 6-8 (0.5% in water)
Freezing Point: Unavailable
Initial Boiling Point: Unavailable
Flash Point: >212° F (100° C) PMCC
Evaporation Rate: Slower (Ethyl Ether = 1)
Upper Explosion Limit: Unavailable
Lower Explosion Limit: Unavailable
Vapor Pressure: Unavailable
Vapor Density: Unavailable
Relative Density: ~1.05 @ 77° F (25° C)
Weight per gallon: ~8.7 lb./gal
VOC: ~25% (calculated)
Solubility in Water: Soluble with an increase in viscosity
Volatile %: Unavailable
Autoignition Temperature: Unavailable
Decomposition Temperature: Unavailable

SECTION 10 - STABILITY AND REACTIVITY

REACTIVITY:

Reacts violently with strong oxidizers

STABILITY (conditions to avoid):

Stable under normal conditions of 70° F (21° C) and 14.7 psig (760 mm Hg)

POSSIBILITY OF HAZARDOUS REACTIONS:

Reacts violently with strong oxidizers

CONDITIONS TO AVOID:

None known

INCOMPATIBILE MATERIALS:

Avoid contact with strong oxidizing agents, strong acids and strong bases

HAZARDOUS DECOMPOSITION PRODUCTS:

Thermal decomposition products include carbon monoxide, carbon dioxide and nitrogen compounds.

DECOMPOSITION:

None known

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SECTION 11 - TOXICOLOGICAL INFORMATION

LIKELY ROUTES OF EXPOSURE:
Skin and eye contact

SYMPTOMS:
Eyes: Tearing, redness and irritation

Skin: Redness

Breathing: None known

Swallowing: Nausea

EFFECTS FROM EXPOSURE:
Immediate: Causes eye irritation

Delayed: None known

Chronic: Prolonged or repeated skin contact may result in defatting and dermatitis

TOXICITY DATA (based on a similar product)
Oral LD_{50} (rat) – >5,000 mg/kg

CARCINOGENICITY
This product is not reported to have any carcinogenic effects. This product (or components >0.1%) is not listed in IARC Monographs, the current NTP Report on Carcinogens or the current ACGIH TLVs as a carcinogen or potential carcinogen. OSHA does not regulate it as a carcinogen.

SECTION 12 - ECOLOGICAL INFORMATION

ECOTOXICITY (based on a similar product:
96-hr. LC_{50} (fish) - >100 mg/L (OECD 203)
48-hr EC_{50} (daphnia) - >100 mg/L (OECD 202)
72-hr. IC_{50} (*Scenedesmus subspicatus*) - >100 mg/L (OECD 201)

PERSISTENCE AND BIODEGRADABILITY
Not readily biodegradable

BIOACCUMULATIVE POTENTIAL:
No data available

MOBILITY IN SOIL:
No data available

Section 13 continued on next page

#002

SECTION 12 - ECOLOGICAL INFORMATION (continued)

PBT & vPvB ASSESSMENT:
No data available

OTHER ADVERSE EFFECTS:
None known

SECTION 13 - DISPOSAL CONSIDERATIONS

Incineration is the recommended disposal method for all chemical wastes. Empty containers and material collected on absorbent material may be deposited in a landfill in accordance with all applicable local, state and federal regulations.

This product, if disposed of, is not considered a hazardous waste under current RCRA definitions.

SECTION 14 - TRANSPORT INFORMATION

Not regulated under current U.S DOT, TDG (Canadian), ICAO (air) or IMO (water) transport regulations.

SECTION 15 - REGULATORY INFORMATION

TSCA INFORMATION:
All components in this product are in compliance with TSCA Inventory requirements or exempt from reporting.

CEPA:
All components in this product are listed on the Canadian Domestic Substances List (DSL).

SARA:
CERCLA/SARA 302: Not applicable
CERCLA/SARA 311/312: Not applicable
CERCLA/SARA 313: Not applicable

#002

SECTION 16 - OTHER INFORMATION

PREPARATION DATE: July 8, 2014
SUPERCEDES: Not applicable
REASON FOR REVISION: New SDS

The product information contained herein is believed to be accurate as of the date of the Safety Data Sheet, and is provided without warranty, expressed or implied, as to the results of use of this information or the product to which it relates. Recipient assumes all responsibility for the use of this information and the use (alone or in combination with any other product), storage or disposal of the product, including any resultant personal injury or property damage.

END OF REPORT

SECTION 1 - CHEMICAL PRODUCT AND COMPANY IDENTIFICATION

MSDS REVISION #: 001

PRODUCT NAME:	Platinum 2020
USE:	Grinding aid
DISTRIBUTED BY:	Crete Technologies LLC 1015 Barlow Drive Charleston, WV 25311
PHONE NUMBERS:	Business - (304) 720-8065 ChemTrec - (800) 424-9300

SECTION 2 - HAZARDS IDENTIFICATION

********** **EMERGENCY OVERVIEW** **********

Caution! Product is a brown liquid with a slight vinegar odor. The material can cause severe skin and eye irritation. May cause allergic skin reaction. Vapors, especially upon heating, can cause irritation to the respiratory tract.

Avoid contact with skin, eyes and clothing. Avoid inhalation of vapors. Wear protective goggles and gloves when handling this product. Wash thoroughly after handling.

****

This product is considered hazardous under the OSHA HazCom Standard (29 CFR 1910.1200)

POTENTIAL HEALTH EFFECTS

LIKELY ROUTES OF EXPOSURE:
Eye and skin contact and inhalation

EYES:
Can cause irritation, which may be severe and result in permanent eye damage.

SKIN:
Causes irritation, even burns upon prolonged contact. May cause allergic skin reaction. Persons with pre-existing skin conditions are particularly susceptible.

INGESTION (swallowing):
Causes severe irritation to the mouth and throat. May cause nausea, vomiting and diarrhea.

Section 2 continued on next page

#003

#003

SECTION 2 - HAZARDS IDENTIFICATION (continued)

INHALATION (breathing):

Vapors, especially upon heating, can cause irritation to the nose, throat and lungs.

CHRONIC EFFECTS/CARCINOGENICITY:

This product (or component) is not listed in IARC Monographs, the NTP Eleventh Report on Carcinogens or the ACGIH TLVs as a carcinogen or potential carcinogen. OSHA does not regulate it as a carcinogen.

SECTION 3 - COMPOSITION / INFORMATION ON INGREDIENTS

Component	%	CAS No.
Amine acetate	60-80	Proprietary
Acetic acid	<5	64-19-7
Water	20-40	7732-18-5

SECTION 4 - FIRST AID MEASURES

EYE CONTACT:

Flush with large amounts of water for at least 15 minutes, lifting upper and lower lids occasionally. Get medical attention.

SKIN CONTACT:

Wash exposed area with soap and water for at least 15 minutes. Remove contaminated clothing and launder before reuse. If reddening persists or open sores develop, contact a physician

INGESTION (swallowing):

Immediately drink two large glasses of water. Never give anything by mouth to an unconscious person. Call a physician.

INHALATION (breathing):

If affected, move to fresh air.

#003

SECTION 5 - FIRE FIGHTING MEASURES

FLAMMABLE PROPERTIES:

This product contains a large amount of water, and would not normally burn.

EXTINGUISHING MEDIA:

Use water fog, foam, dry chemical or carbon dioxide as appropriate for other materials involved in the fire.

PROTECTION OF FIREFIGHTERS:

Keep personnel removed from and upwind. Wear full protective clothing and self-contained breathing apparatus with full face-piece. Cool containers with water.

SECTION 6 - ACCIDENTAL RELEASE MEASURES

Persons not wearing protective equipment should be excluded from the area of the spill until clean up has been completed. Dike area of spill to prevent spreading and pump liquid to salvage tank. Absorb remaining liquid on vermiculite, floor absorbent or other absorbent material and shovel into containers.

This product is toxic to fish and other aquatic organisms: prevent run-off to sewers, streams and other bodies of water.

SECTION 7 - HANDLING AND STORAGE

HANDLING:

Avoid contact with skin, eyes and clothing. Avoid inhalation of vapors. Wash thoroughly after handling.

STORAGE:

Keep in closed or covered containers when not in use. Store in cool dry place with adequate ventilation.

#003

SECTION 8 - EXPOSURE CONTROLS / PERSONAL PROTECTION

EXPOSURE GUIDELINES:

Acetic acid (CAS# 64-19-7)	OSHA PEL - 10 ppm NIOSH IDLH - 50 ppm ACGIH STEL - 15 ppm

ENGINEERING CONTROLS:

Provide sufficient ventilation to maintain exposure below established exposure limits.

EYE / FACE PROTECTION:

Chemical splash goggles, in compliance with OSHA regulations, and full-face shield are advised.

SKIN PROTECTION:

Wear protective gloves such as Neoprene or Buna-N.

RESPIRATORY PROTECTION:

Not required under normal conditions of use; however, a NIOSH/MSHA approved respirator with acid gas cartridge is recommended where there is insufficient ventilation to maintain exposure below established exposure limits.

SECTION 9 - PHYSICAL AND CHEMICAL PROPERTIES

Appearance: Brown to dark-brown liquid @ 68° F (20° C)
Odor: Slight vinegar
Specific Gravity: 1.04-1.1
Evaporation Rate: Slower (Ethyl Ether = 1)
Solubility in Water: 100%
Vapor Pressure: 17.5 @ 68° F (20° C) (water)
Initial Boiling Point: >212° F (100° C)
Volatile %: 20-40
pH: 6-8
Flash Point: >200° F (93° C) PMCC
Upper Explosion Limit: Unavailable
Lower Explosion Limit: Unavailable
Autoignition Temperature: Unavailable

#003

SECTION 10 - STABILITY AND REACTIVITY

STABILITY (conditions to avoid):
Stable under normal conditions of 70° F (21° C) and 14.7 psig (760 mm Hg).

INCOMPATIBILITIES (materials to avoid):
Avoid contact with oxidizers and strong mineral acids

DECOMPOSITION:
Carbon dioxide, carbon monoxide, and nitrogen compounds

HAZARDOUS POLYMERIZATION:
Not known to occur

SECTION 11 - TOXICOLOGICAL INFORMATION

No data available for product

SECTION 12 - ECOLOGICAL INFORMATION

No data available for product

SECTION 13 - DISPOSAL CONSIDERATIONS

Material that cannot be recovered or reused should be sent to a licensed disposal facility for drying and disposal. Incineration is the recommended disposal method for all chemical wastes. Material collected on absorbent material may be deposited in a landfill in accordance with all applicable local, state and federal regulations.

This product, if disposed of, is not considered a hazardous waste under current RCRA definitions.

SECTION 14 - TRANSPORT INFORMATION

Not regulated under current U.S DOT, TDG (Canadian), ICAO (air) or IMO (water) transport regulations.

SECTION 15 - REGULATORY INFORMATION

TSCA INFORMATION:

All components in this product are in compliance with TSCA Inventory requirements.

SARA 313 INFORMATION:

SARA requires submission of annual reports of release of toxic chemicals that appear in 40 CFR 372. This information must be included in all MSDS that are copied and distributed for this material.

Components present in this product at a level that could require reporting under the statute are: None

SECTION 16 - OTHER INFORMATION

HAZARD RATING:

HEALTH	2	0 - LEAST
FIRE	0	1 - SLIGHT
REACTIVITY	0	2 - MODERATE
OTHER	-	3 - HIGH
		4 - EXTREME

HAZARD RATING METHOD: NFPA

REASON FOR REVISION:

Changed format to ANSI Standard

The product information contained herein is believed to be accurate as of the date of the Material Safety Data Sheet, and is provided without warranty, expressed or implied, as to the results of use of this information or the product to which it relates. Recipient assumes all responsibility for the use of this information and the use (alone or in combination with any other product), storage or disposal of the product, including any resultant personal injury or property damage.

END OF REPORT

MATERIAL SAFETY DATA SHEET
RUNWAY DEICING FLUID: GEN3 64™

SECTION 1: CHEMICAL PRODUCT AND COMPANY IDENTIFICATION

Effective Date: June 8, 2011

RUNWAY DEICING FLUID (GEN3 64™) Formulation is non-hazardous (RCRA), non-glycol, non-sorbitol based deicing fluid (blend of polyol(s) & organic salts) concentrate.

Data provided assumes material is used for its intended use and according applicable use guidelines.

LNT Solutions Incorporated
PO Box 224, Jordan Station
Ontario, Ontario
Canada, L0R 1S0
Technical Information: Kelvin Williamson
Office 905-562-0770
Fax 905-562-0880
Emergency Phone: 906-562-0770

SECTION 2: Hazards Identification

Signal Word	Warning					
Hazard Statements	May be harmful if swallowed or contact with skin. Harmful if inhaled.					
NFPA Rating	**Health**	1	**Fire**	0	**Reactivity**	0
Symbols						

SECTION 3: Composition/Information on Ingredients

Synonyms/Common Name	RDF
Formula/Chemical Identity	Trade Secret Mixture

Components

Chemical Name	Percent	Chemical Abstract System (CAS) Registry Number
Non-Toxic Proprietary Polyol	35-45%	Trade Secret
Organic Salts	20-30%	Trade Secret
Water	30-40%	7732-18-5

SECTION 4: First-aid Measures

Inhalation	Acute Effects	Inhaling mist may cause respiratory tract irritation.	
	Delayed Effects	Unknown	
	First-Aid	General	If inhaled, remove to fresh air. Seek medical attention for any breathing difficulty.
		Immediate/Special (If Applicable)	None known.
Skin	Acute Effects	Extended contact with skin may cause irritation.	
	Delayed Effects	Unknown	
	First-Aid	General	If contact occurs, flush skin with plenty of water for at least 15 minutes. Remove contaminated clothing and shoes. Seek medical attention if irritation develops.
		Immediate/Special (If Applicable)	Wash clothing before reuse. Thoroughly clean shoes before reuse.
Eye	Acute Effects	May cause irritation.	
	Delayed Effects	Unknown	
	First-Aid	General	Immediately flush with a steady stream of water for at least 15 minutes. Get medical attention if irritation persists.
		Immediate/Special (If Applicable)	None known.
Ingestion	Acute Effects	If large amounts are ingested, it may cause irritation to the gastrointestinal tract. Symptoms may include nausea, vomiting and diarrhea.	
	Delayed Effects	Unknown	
	First-Aid	General	Never give anything by mouth to an unconscious person. DO NOT induce vomiting. Get medical attention if large amounts are swallowed or if there is abdominal pain, sore throat, nausea, and/or vomiting.
		Immediate/Special (If Applicable)	None known.

#004

SECTION 5: Fire-fighting Measures

Suitable (and unsuitable) extinguishing media:	Dry chemical, carbon dioxide, foam, water fog or spray
Hazardous combustion products/special hazards:	Unknown
Special protective equipment/ precautions for fire fighters:	None

SECTION 6: Accidental Release Measures

Personal precautions/ protective equipment/ emergency procedures	See Section 8: "Exposure Controls/Personal Protection."
Environmental precautions	Handle in accordance with federal, state and local regulations.
Methods/materials for containment and clean-up	Product has low toxicity and is soluble in water. Absorbent materials could be used to soak up any liquid spills. Handle in accordance with federal, state and local regulations.

SECTION 7: Handling and Storage

Precautions for safe handling	Avoid breathing mist. Avoid contact with eyes, skin or clothing. Wash thoroughly after use.
Conditions for safe storage	Store in a cool, dry location away from incompatible materials.
Incompatibilities	Avoid contact with strong oxidizing agents (such as Nitric Acid or other strong acids), Chromium Trioxide, Potassium Chlorate, Potassium Permanganate, and strong bases.

SECTION 8: Exposure Controls/ Personal Protection

Occupational Exposure Limits*

Component	CAS Number	% w/w	Exposure Limits in Air				
			ACGIH-TLVs		OSHA-PELs		OTHER
			TWA	STEL	TWA	STEL	TWA
Non-Toxic Proprietary Polyol	Trade Secret	35-45%	10 mg/m^3	Not Established	5 mg/m^3 (Respirable) 15 mg/m^3 (Total Dust)	Not Established	Not Established
Organic Salts	Trade Secret	20-30%	Not Established	Not Established	Not Established	Not Established	Not Established
Water	7732-18-5	30-40%	Not Established	Not Established	Not Established	Not Established	Not Established

*** NOTE: Occupational Exposure Limits are provided for individual components of the mixture.**

Personal Protective Equipment

Appropriate engineering controls:	Use in well ventilated area if aerosolizing.	
Personal Protective Equipment (PPE) (minimum):	**Respiratory Protection**	If mists could be generated above the occupational exposure, an appropriate NIOSH/MSHA approved respirator should be used. A NIOSH/MSHA approved self-contained breathing apparatus or air-supplied respirator is recommended if the concentration exceeds the capacity of the cartridge respirator.
	Dermal/Hand Protection:	Compatible chemical gloves. When transferring bulk material, if splash is possible upgrade to chemical apron or chemical resistant suit (as appropriate).
	Eye/Face Protection:	Safety Glasses with side shields. If splash is possible, upgrade to goggles with face shield.

SECTION 9: Physical and Chemical Properties

Physical State	Liquid	**Evaporation Rate**	Unknown	
Color	Clear or Blue	**Flammability**	Unknown	
Odor	Odorless	**Upper/Lower explosive limit**	**LEL (%)**	**UEL (%)**
			Unknown	Unknown
Odor Threshold	Unknown	**Vapor Pressure (torr)**	Unknown	
pH	10-11	**Vapor Density**	Unknown	
Melting Point (ºF/ºC)	Unknown	**Specific Gravity (H_2O = 1)**	1.24 to 1.27 g/ml	
Freezing Point (ºF/ºC)	< -54°F	**Solubility(ies)**	Water	
Initial Boiling Point (ºF/ºC)	>120 °C	**Partition Coefficient (n-octanol/ water)**	Unknown	
Boiling Range (ºF/ºC)	Unknown	**Auto-ignition Temperature (ºF/ºC)**	Unknown	
Flash Point (ºF/ºC)	>100 °C	**Decomposition Temperature (ºF/ºC)**	Unknown	

SECTION 10: Stability and Reactivity

Chemical Stability	Stable at normal temperature and pressure (NTP). Hazardous polymerization will not occur.
Possible Hazardous Reactions	Unknown
Conditions to Avoid	Heat and Chemical incompatibilities.
Incompatible Materials	Avoid contact with strong oxidizing agents (such as nitric acid or other strong acids), Chromium Trioxide, Potassium Chlorate, Potassium Permanganate, and strong bases.
Hazardous Decomposition Products	May release acrolein at temperatures above 400 ºF, oxides of nitrogen, carbon and phosphorus, phenol, or benzene.

SECTION 11: Toxicological Information*

Toxicological Information Based Upon Exposure Route		
Inhalation	**Acute**	Unknown
	Chronic	Unknown
Ingestion	**Acute**	Unknown
	Chronic	Unknown
Skin	**Acute**	Unknown
	Chronic	Unknown
Eye	**Acute**	Unknown
	Chronic	Unknown

Toxicological Testing Data			
Unknown	----------	**Unknown**	----------

Carcinogen Status			
OSHA	Not Listed	**NTP**	Not Listed
IARC	Not Listed	**Other (Identify)**	None

***Note: Toxicological information for the mixture has not been determined. No individual ingredients are listed as a carcinogen.**

SECTION 12: Ecological Information

Ecotoxicity	Aquatic Toxicity LC_{50} (Daphnia Magna, 48 hr) >12,000 mg/L LC_{50} (Pimephales Promelas, 96 hr) >11,000 mg/L
Persistence and Degradability	BOD_5 20ºC = 0.30 kgO_2/kg fluid COD = 0.66 kgO_2/kg fluid
Bioaccumulative Potential	Unknown
Mobility in Soil	Unknown
Other Adverse Effects	Unknown

SECTION 13: Disposal Considerations

Waste Handling Procedures (including contaminated packaging)	Dispose of spill clean-up material and packaging in accordance with Federal, State and Local regulations.

SECTION 14: Transport Information

UN Number	Not a DOT Hazardous Material
UN Proper Shipping Name	Not a DOT Hazardous Material
Transport Hazard Class(es)	Not a DOT Hazardous Material
Packing Group (if applicable)	Not a DOT Hazardous Material
Marine Pollutant (Yes/No)	Unknown
Emergency Response Guide Number	None
Special Precautions	None

SECTION 15: Regulatory Information

Safety/Health Regulations	29 CFR 1910.1000 (OSHA Exposure Limits)
Environmental Regulations	Not considered a RCRA hazardous waste
Other Regulations	None

SECTION 16: Other Information

This is a research material. There has not been a specific occupational exposure limit established for this material. See Section 8 for published exposure limits of chemical components.

Exposures to this material would most likely be due to skin/eye contact or inhalation of mist. Engineering controls, administrative procedures and personal protective equipment should be implemented to minimize employee exposure.

References

1. 29 Code of Federal Regulations 1910.1000 (Subpart Z- Toxic and Hazardous Substances)
2. American Conference of Governmental Industrial Hygienists, Threshold Limit Values for Chemical Substances and Physical Agents & Biological Exposure Indices, 2005.

Acronyms

ACGIH	American Conference of Governmental Industrial Hygienists
IARC	International Agency for Research on Cancer
LEL	Lower Explosive Limit
mg/m^3	Milligrams per cubic meter
N/A	Not Applicable.
NTP	National Toxicology Program
ºC	Degree Celsius
ºF	Degree Fahrenheit
OSHA	Occupational Safety and Health Administration
PEL	OSHA Permissible Exposure Limit
ppm	Parts Per Million
STEL	Short Term Exposure Limit
TLV	ACGIH Threshold Limit Value
TWA	Time Weighted Average
UEL	Upper Explosive Limit
UN	United Nations

Disclaimer:

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Asphalt Emulsion

Preparation date: August 15, 2014

Safety Data Sheet

SECTION 1 - CHEMICAL PRODUCT AND COMPANY IDENTIFICATION

SDS REVISION #: New

PRODUCT IDENTIFIER:	Asphalt Emulsion
OTHER IDENTIFIERS:	None
CHEMICAL FORMULA:	Mixture
RELEVANT USES:	Intermediate for dust control products
DISTRIBUTED BY:	Lexycon LLC. P.O. Box 8 Nitro, WV 25143
PHONE NUMBERS:	Business - (304) 755-5737 (business hours) CHEMTREC - (800) 424-9300 (transportation emergencies)

SECTION 2 - HAZARDS IDENTIFICATION

GHS CLASSIFICATION:

Eye irritant (Category 2)
Carcinogenicity (Category 1B)
Reproductive toxicity (Category 2)
STOT – repeated exposure (Category 1)

SIGNAL WORD:

Danger!

HAZARD STATEMENTS:

Causes serious eye irritation. May cause cancer. Suspected of damaging fertility or the unborn child. Causes damage to liver through prolonged or repeated exposure.

PRECAUTIONARY STATEMENTS:

Prevention

Do not handle until all safety precautions have been read and understood. Obtain special instructions before use. Wear protective gloves and protective clothing and eye and face protection. Do not breathe vapors or spray. Wash exposed areas thoroughly after handling. Do not eat, drink or smoke when using this product.

Section 2 continued on next page

#005

SECTION 2 - HAZARDS IDENTIFICATION (continued)

PRECAUTIONARY STATEMENTS (continued):

Response

If in eyes: Rinse cautiously with water for several minutes. Remove contact lenses, if present and easy to do. Continue rinsing. If irritation persists, get medical advice or attention. If exposed or concerned: Get medical advice/attention. Get medical advice/attention if you feel unwell.

Storage

Store locked up

Disposal

Dispose of contents and container in accordance with all applicable local, state and federal regulations.

HAZARDS NOT OTHERWISE CLASSIFIED: None

SECTION 3 - COMPOSITION / INFORMATION ON INGREDIENTS

Component	%	CAS No.
Petroleum distillates (asphalt), emulsion	100	Proprietary Mixture*

*The specific chemical identity and is being withheld as “trade secret” in accordance with 29 CFR 1910.1200(i)

SECTION 4 - FIRST AID MEASURES

IN CASE OF EYE CONTACT:

Immediately flush with large amounts of water for at least 15 minutes, lifting upper and lower lids occasionally. Remove contact lenses, if present and easy to do. Continue rinsing. If irritation persists, get medical advice or attention.

IN CASE OF SKIN CONTACT:

Wash exposed area with soap and water. Remove contaminated clothing and launder before reuse.

Section 4 continued on next page

#005

SECTION 4 - FIRST AID MEASURES (continued)

IF SWALLOWED:

Immediately drink two glasses of water. Do **not** induce vomiting; vomiting may cause material to be aspirated into the lungs, which may result in chemical pneumonitis. Get immediate medical attention.

IF INHALED:

If affected, move to fresh air.

MOST IMPORTANT SYMPTOMS AND EFFECTS:

Can cause eye irritation. Prolonged or repeated excessive exposure may cause liver damage and cancer.

NOTE TO PHYSICIAN:

Treat symptomatically

SECTION 5 - FIRE FIGHTING MEASURES

FLAMMABLE PROPERTIES:

This product contains a large amount of water, and would not normally burn.

EXTINGUISHING MEDIA:

Use water fog, foam, dry chemical or carbon dioxide as appropriate for other materials involved in the fire.

PROTECTION OF FIREFIGHTERS:

Keep personnel removed from and upwind. Wear full protective clothing and self-contained breathing apparatus with full face-piece. Cool containers with water. Combustion products include carbon monoxide and carbon dioxide.

SECTION 6 - ACCIDENTAL RELEASE MEASURES

PRECAUTIONS, PROTECTIVE EQUIPMENT & EMERGENCY PROCEDURES:

Persons not wearing protective equipment should be excluded from the area of the spill until cleanup has been completed.

CONTAINMENT & CLEAN-UP:

Dike area of spill to prevent spreading and pump liquid to salvage tank. Absorb remaining liquid on vermiculite, floor absorbent or other absorbent material and shovel into containers.

#005

SECTION 7 - HANDLING AND STORAGE

HANDLING:

Avoid contact with skin, eyes and clothing. Wash thoroughly after handling.

STORAGE:

Keep in closed or covered containers when not in use. Store in cool dry place with adequate ventilation.

SECTION 8 - EXPOSURE CONTROLS / PERSONAL PROTECTION

EXPOSURE GUIDELINES:

Asphalt ACGIH TLV – 0.5 mg/M^3 (fume)

ENGINEERING CONTROLS:

Provide sufficient ventilation to maintain exposure below established exposure limits.

EYE / FACE PROTECTION:

Chemical splash goggles in compliance with OSHA regulations are advised.

SKIN PROTECTION:

Wear protective gloves such as Neoprene or Buna-N.

RESPIRATORY PROTECTION:

Not required under normal conditions of use; however, a NIOSH/MSHA approved respirator with organic vapor cartridge is recommended where there is insufficient ventilation to maintain exposures below established exposure limits.

SECTION 9 - PHYSICAL AND CHEMICAL PROPERTIES

Appearance: Tan or brown liquid @ 68° F (20° C)
Odor: Slight asphalt
Relative Density: 0.9-1 @ 77° F (25° C)
Evaporation Rate: Slower (Ethyl Ether = 1)
Solubility in Water: Dispersible
Vapor Pressure: 17.5 @ 68° F (20° C) (water)
Initial Boiling Point: >212° F (100° C)
Volatile %: >40%
pH: Unavailable
Flash Point: >212° F (100° C) PMCC
Upper Explosion Limit: Unavailable
Lower Explosion Limit: Unavailable
Autoignition Temperature: Unavailable

#005

SECTION 10 - STABILITY AND REACTIVITY

REACTIVITY:
Reacts violently with strong oxidizing agents

STABILITY:
Stable under normal conditions of 70° F (21° C) and 14.7 psig (760 mm Hg)

POSSIBILITY OF HAZARDOUS REACTIONS:
Reacts violently with strong oxidizing agents

CONDITIONS TO AVOID:
None known

INCOMPATIBILE MATERIALS:
Avoid contact with strong oxidizing agents

HAZARDOUS DECOMPOSITION PRODUCTS:
Not anticipated under normal conditions of use.

DECOMPOSITION:
Unavailable

SECTION 11 - TOXICOLOGICAL INFORMATION

LIKELY ROUTES OF EXPOSURE:
Skin and eye contact and inhalation

SYMPTOMS:
Eyes: Tearing, redness and irritation

Skin: Dryness, defatting, dermatitis

Breathing: Breathing spray may result in mild respiratory irritation

Swallowing: Nausea

EFFECTS FROM EXPOSURE:
Immediate: Causes eye irritation

Delayed: Can damage fertility and the unborn child

Chronic: May cause cancer and liver damage

Section 11 continued on next page

#005

SECTION 11 - TOXICOLOGICAL INFORMATION (continued)

TOXICITY DATA:

No data available for product

CARCINOGENICITY

The International Agency for Research on Cancer (IARC) has concluded that untreated and mildly treated oils, such as those found in this product, are capable of causing cancer in humans.

This product (or component) is not listed in the current NTP Report on Carcinogens or the ACGIH TLVs as a carcinogen or potential carcinogen. OSHA does not regulate it as a carcinogen.

SECTION 12 - ECOLOGICAL INFORMATION

ECOTOXICITY:

No data available for product

PERSISTENCE AND BIODEGRADABILITY

No data available

BIOACCUMULATIVE POTENTIAL:

No data available

MOBILITY IN SOIL:

No data available

PBT & vPvB ASSESSMENT:

No data available

OTHER ADVERSE EFFECTS:

None known

SECTION 13 - DISPOSAL CONSIDERATIONS

Material that cannot be recovered or reused should be sent to a licensed disposal facility for drying and disposal in a landfill. Material collected on absorbent material may be deposited in a landfill in accordance with all applicable local, state and federal regulations.

This product, if disposed of, is not considered a hazardous waste under current RCRA definitions.

#005

SECTION 14 - TRANSPORT INFORMATION

Not regulated under current U.S DOT, TDG (Canadian), ICAO (air) or IMO (water) transport regulations.

SECTION 15 - REGULATORY INFORMATION

TSCA INFORMATION:

All components in this product are in compliance with TSCA Inventory requirements or exempt from reporting.

SARA:

CERCLA/SARA 302: Not applicable
CERCLA/SARA 311/312: Acute, chronic
CERCLA/SARA 313: Not applicable

SECTION 16 - OTHER INFORMATION

PREPARATION DATE: August 15, 2014
SUPERCEDES: Not applicable
REASON FOR REVISION: New SDS

The product information contained herein is believed to be accurate as of the date of the Safety Data Sheet, and is provided without warranty, expressed or implied, as to the results of use of this information or the product to which it relates. Recipient assumes all responsibility for the use of this information and the use (alone or in combination with any other product), storage or disposal of the product, including any resultant personal injury or property damage.

END OF REPORT

Prosol Emulsion

Preparation date: August 15, 2014

Safety Data Sheet

SECTION 1 - CHEMICAL PRODUCT AND COMPANY IDENTIFICATION

SDS REVISION #: New

PRODUCT IDENTIFIER: Prosol Emulsion

OTHER IDENTIFIERS: None

CHEMICAL FORMULA: Mixture

RELEVANT USES: Intermediate for dust control products

DISTRIBUTED BY: Lexycon LLC.
P.O. Box 8
Nitro, WV 25143

PHONE NUMBERS: Business - (304) 755-5737 (business hours)
CHEMTREC - (800) 424-9300 (transportation emergencies)

SECTION 2 - HAZARDS IDENTIFICATION

GHS CLASSIFICATION:

Eye irritant (Category 2)
Carcinogenicity (Category 1B)
Reproductive toxicity (Category 2)
STOT – repeated exposure (Category 1)

SIGNAL WORD:

Danger!

HAZARD STATEMENTS:

Causes serious eye irritation. May cause cancer. Suspected of damaging fertility or the unborn child. Causes damage to liver through prolonged or repeated exposure.

PRECAUTIONARY STATEMENTS:

Prevention

Do not handle until all safety precautions have been read and understood. Obtain special instructions before use. Wear protective gloves and protective clothing and eye and face protection. Do not breathe vapors or spray. Wash exposed areas thoroughly after handling. Do not eat, drink or smoke when using this product.

Section 2 continued on next page

SECTION 2 - HAZARDS IDENTIFICATION (continued)

PRECAUTIONARY STATEMENTS (continued):

Response

If in eyes: Rinse cautiously with water for several minutes. Remove contact lenses, if present and easy to do. Continue rinsing. If irritation persists, get medical advice or attention. If exposed or concerned: Get medical advice/attention. Get medical advice/attention if you feel unwell.

Storage

Store locked up

Disposal

Dispose of contents and container in accordance with all applicable local, state and federal regulations.

HAZARDS NOT OTHERWISE CLASSIFIED: None

SECTION 3 - COMPOSITION / INFORMATION ON INGREDIENTS

Component	%	CAS No.
Petroleum distillates, emulsion	100	Proprietary Mixture*

*The specific chemical identity and is being withheld as “trade secret” in accordance with 29 CFR 1910.1200(i)

SECTION 4 - FIRST AID MEASURES

IN CASE OF EYE CONTACT:

Immediately flush with large amounts of water for at least 15 minutes, lifting upper and lower lids occasionally. Remove contact lenses, if present and easy to do. Continue rinsing. If irritation persists, get medical advice or attention.

IN CASE OF SKIN CONTACT:

Wash exposed area with soap and water. Remove contaminated clothing and launder before reuse.

Section 4 continued on next page

#006

SECTION 4 - FIRST AID MEASURES (continued)

IF SWALLOWED:

Immediately drink two glasses of water. Do **not** induce vomiting; vomiting may cause material to be aspirated into the lungs, which may result in chemical pneumonitis. Get immediate medical attention.

IF INHALED:

If affected, move to fresh air.

MOST IMPORTANT SYMPTOMS AND EFFECTS:

Can cause eye irritation. Prolonged or repeated excessive exposure may cause liver damage and cancer.

NOTE TO PHYSICIAN:

Treat symptomatically

SECTION 5 - FIRE FIGHTING MEASURES

FLAMMABLE PROPERTIES:

This product contains a large amount of water, and would not normally burn.

EXTINGUISHING MEDIA:

Use water fog, foam, dry chemical or carbon dioxide as appropriate for other materials involved in the fire.

PROTECTION OF FIREFIGHTERS:

Keep personnel removed from and upwind. Wear full protective clothing and self-contained breathing apparatus with full face-piece. Cool containers with water. Combustion products include carbon monoxide and carbon dioxide.

SECTION 6 - ACCIDENTAL RELEASE MEASURES

PRECAUTIONS, PROTECTIVE EQUIPMENT & EMERGENCY PROCEDURES:

Persons not wearing protective equipment should be excluded from the area of the spill until cleanup has been completed.

CONTAINMENT & CLEAN-UP:

Dike area of spill to prevent spreading and pump liquid to salvage tank. Absorb remaining liquid on vermiculite, floor absorbent or other absorbent material and shovel into containers.

#006

SECTION 7 - HANDLING AND STORAGE

HANDLING:

Avoid contact with skin, eyes and clothing. Wash thoroughly after handling.

STORAGE:

Keep in closed or covered containers when not in use. Store in cool dry place with adequate ventilation.

SECTION 8 - EXPOSURE CONTROLS / PERSONAL PROTECTION

EXPOSURE GUIDELINES:

Petroleum distillates OSHA PEL - 5 mg/M^3 (supplier MSDS)

ENGINEERING CONTROLS:

Provide sufficient ventilation to maintain exposure below established exposure limits.

EYE / FACE PROTECTION:

Chemical splash goggles in compliance with OSHA regulations are advised.

SKIN PROTECTION:

Wear protective gloves such as Neoprene or Buna-N.

RESPIRATORY PROTECTION:

Not required under normal conditions of use; however, a NIOSH/MSHA approved respirator with organic vapor cartridge is recommended where there is insufficient ventilation to maintain exposures below established exposure limits.

SECTION 9 - PHYSICAL AND CHEMICAL PROPERTIES

Appearance: Yellow or tan liquid @ 68° F (20° C)
Odor: Slight
Relative Density: ~0.99 @ 77° F (25° C)
Weight per Gallon: ~8.25
Evaporation Rate: Slower (Ethyl Ether = 1)
Solubility in Water: Dispersible

Vapor Pressure: 17.5 @ 68° F (20° C) (water)
Initial Boiling Point: >212° F (100° C)
Volatile %: >40%
pH: Unavailable
Flash Point: >212° F (100° C) PMCC
Upper Explosion Limit: Unavailable
Lower Explosion Limit: Unavailable
Autoignition Temperature: Unavailable

#006

SECTION 10 - STABILITY AND REACTIVITY

REACTIVITY:
Reacts violently with strong oxidizing agents

STABILITY:
Stable under normal conditions of 70° F (21° C) and 14.7 psig (760 mm Hg)

POSSIBILITY OF HAZARDOUS REACTIONS:
Reacts violently with strong oxidizing agents

CONDITIONS TO AVOID:
None known

INCOMPATIBILE MATERIALS:
Avoid contact with strong oxidizing agents

HAZARDOUS DECOMPOSITION PRODUCTS:
Not anticipated under normal conditions of use.

DECOMPOSITION:
Unavailable

SECTION 11 - TOXICOLOGICAL INFORMATION

LIKELY ROUTES OF EXPOSURE:
Skin and eye contact and inhalation

SYMPTOMS:
Eyes: Tearing, redness and irritation

Skin: Dryness, defatting, dermatitis

Breathing: Breathing spray may result in mild respiratory irritation

Swallowing: Nausea

EFFECTS FROM EXPOSURE:
Immediate: Causes eye irritation

Delayed: Can damage fertility and the unborn child

Chronic: May cause cancer and liver damage

Section 11 continued on next page

#006

SECTION 11 - TOXICOLOGICAL INFORMATION (continued)

TOXICITY DATA:

No data available for product

CARCINOGENICITY

The International Agency for Research on Cancer (IARC) has concluded that untreated and mildly treated oils, such as those found in this product, are capable of causing cancer in humans.

This product (or component) is not listed in the current NTP Report on Carcinogens or the ACGIH TLVs as a carcinogen or potential carcinogen. OSHA does not regulate it as a carcinogen.

SECTION 12 - ECOLOGICAL INFORMATION

ECOTOXICITY:

48-hr. LC_{50} (*Ceriodaphnia dubia*) – 2.68 ppm

PERSISTENCE AND BIODEGRADABILITY

No data available

BIOACCUMULATIVE POTENTIAL:

No data available

MOBILITY IN SOIL:

No data available

PBT & vPvB ASSESSMENT:

No data available

OTHER ADVERSE EFFECTS:

None known

SECTION 13 - DISPOSAL CONSIDERATIONS

Material that cannot be recovered or reused should be sent to a licensed disposal facility for drying and disposal in a landfill. Material collected on absorbent material may be deposited in a landfill in accordance with all applicable local, state and federal regulations.

This product, if disposed of, is not considered a hazardous waste under current RCRA definitions.

#006

SECTION 14 - TRANSPORT INFORMATION

Not regulated under current U.S DOT, TDG (Canadian), ICAO (air) or IMO (water) transport regulations.

SECTION 15 - REGULATORY INFORMATION

TSCA INFORMATION:

All components in this product are in compliance with TSCA Inventory requirements or exempt from reporting.

SARA:

CERCLA/SARA 302: Not applicable
CERCLA/SARA 311/312: Acute, chronic
CERCLA/SARA 313: Not applicable

SECTION 16 - OTHER INFORMATION

PREPARATION DATE: August 15, 2014
SUPERCEDES: Not applicable
REASON FOR REVISION: New SDS

The product information contained herein is believed to be accurate as of the date of the Safety Data Sheet, and is provided without warranty, expressed or implied, as to the results of use of this information or the product to which it relates. Recipient assumes all responsibility for the use of this information and the use (alone or in combination with any other product), storage or disposal of the product, including any resultant personal injury or property damage.

END OF REPORT

MATERIAL
SAFETY DATA SHEET

1. CHEMICAL PRODUCT

General Product Name:
Biodiesel
Synonyms:
Methyl Soyate, Rapeseed Methyl Ester (RME),
Methyl Tallowate
Product Description:
Methyl esters from lipid sources
CAS Number:
Methyl Soyate: 67784-80-9; RME: 73891-99-3;
Methyl Tallowate: 61788-71-2

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2. COMPOSITION/INFORMATION ON INGREDIENTS

This product contains no hazardous materials.

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3. HAZARDS IDENTIFICATION

Potential Health Effects:
INHALATION:
Negligible unless heated to produce vapors. Vapors or finely misted materials may irritate the mucous membranes and cause irritation, dizziness, and nausea. Remove to fresh air.
EYE CONTACT:
May cause irritation. Irrigate eye with water for at least 15 to 20 minutes. Seek medical attention if symptoms persist.
SKIN CONTACT:
Prolonged or repeated contact is not likely to cause significant skin irritation. Material is sometimes encountered at elevated temperatures. Thermal burns are possible.
INGESTION:
No hazards anticipated from ingestion incidental to industrial exposure.

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4. FIRST AID MEASURES

EYES:
Irrigate eyes with a heavy stream of water for at least 15 to 20 minutes.
SKIN:
Wash exposed areas of the body with soap and water.
INHALATION:
Remove from area of exposure, seek medical attention if symptoms persist.
INGESTION:
Give one or two glasses of water to drink. If gastro-intestinal symptoms develop, consult medical personnel. (Never give anything by mouth to an unconscious person.)

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5. FIRE FIGHTING MEASURES
Flash Point (Method Used): 130.0° C min (ASTM 93)
Flammability Limits: None known
EXTINGUISHING MEDIA:
Dry chemical, foam, halon, CO_2, water spray (fog). Water stream may splash the burning liquid and spread fire.
SPECIAL FIRE FIGHTING PROCEDURES:
Use water spray to cool drums exposed to fire.
UNUSUAL FIRE AND EXPLOSION HAZARDS:
Oil soaked rags can cause spontaneous combustion if not handled properly. Before disposal, wash rags with soap and water and dry in well ventilated area. Firefighters should use self-contained breathing apparatus to avoid exposure to smoke and vapor.

6.
ACCIDENTAL RELEASE MEASURES SPILL CLEAN-UP PROCEDURES
Remove sources of ignition, contain spill to smallest area possible. Stop leak if possible. Pick up small spills with absorbent materials such as paper towels, "Oil Dry", sand or dirt.
Recover large spills for salvage or disposal. Wash hard surfaces with safety solvent or detergent to remove remaining oil film. Greasy nature will result in a slippery surface.

7.
HANDLING AND STORAGE
Store in closed containers between 50°F and 120°F.
Keep away from oxidizing agents, excessive heat, and ignition sources.
Store and use in well ventilated areas.
Do not store or use near heat, spark, or flame, store out of sun.
Do not puncture, drag, or slide this container.
Drum is not a pressure vessel; never use pressure to empty.

8.
EXPOSURE CONTROL /PERSONAL PROTECTION
RESPIRATORY PROTECTION:
If vapors or mists are generated, wear a NIOSH approved organic vapor/mist respirator.
PROTECTIVE CLOTHING:
Safety glasses, goggles, or face shield recommended to protect eyes from mists or splashing. PVC coated gloves recommended to prevent skin contact.
OTHER PROTECTIVE MEASURES:
Employees must practice good personal hygiene, washing exposed areas of skin several times daily and laundering contaminated clothing before re-use.

9.
PHYSICAL AND CHEMICAL PROPERTIES
Boiling Point, 760 mm Hg:>200°C
Volatiles, % by Volume: <2
Specific Gravity (H_2O=1): 0.88
Solubility in H_2O, % by Volume: insoluble
Vapor Pressure, mm Hg: <2
Evaporation Rate, Butyl Acetate=1: <1
Vapor Density, Air=1:>1
Appearance and Odor: pale yellow liquid, mild odor

10.
STABILITY AND REACTIVITY
GENERAL:
This product is stable and hazardous polymerization will not occur.
INCOMPATIBLE MATERIALS AND CONDITIONS TO AVOID:
Strong oxidizing agents
HAZARDOUS DECOMPOSITION PRODUCTS:
Combustion produces carbon monoxide, carbon dioxide along with thick smoke.

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11. DISPOSAL CONSIDERATIONS
WASTE DISPOSAL:
Waste may be disposed of by a licensed waste disposal company. Contaminated absorbent material may be disposed of in an approved landfill. Follow local, state and federal disposal regulations.
12. TRANSPORT INFORMATION
UN HAZARD CLASS: N/A
NMFC (National Motor Freight Classification):
PROPER SHIPPING NAME: Fatty acid ester
IDENTIFICATION NUMBER: 144920
SHIPPING CLASSIFICATION: 65

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13. REGULATORY INFORMATION:

OSHA STATUS:

This product is not hazardous under the criteria of the Federal OSHA Hazard Communication Standard 29 CFR 1910.1200.

However, thermal processing and decomposition fumes from this product may be hazardous as noted in Sections 2 and 3.

TSCA STATUS:

This product is listed on TSCA.

CERCLA (Comprehensive Response Compensation and Liability Act):

NOT reportable.

SARA TITLE III (Superfund Amendments and Reauthorization Act):

Section 312 Extremely Hazardous Substances:

None

Section 311/312 Hazard Categories:

Non-hazardous under Section 311/312

Section 313 Toxic Chemicals:

None

RCRA STATUS:

If discarded in its purchased form, this product would not be a hazardous waste either by listing or by characteristic. However, under RCRA, it is the responsibility of the product user to determine at the time of disposal, whether a material containing the product or derived from the product should be classified as a hazardous waste,

(40 CFR 261.20-24)

CALIFORNIA PROPOSITION 65:

The following statement is made in order to comply with the California Safe Drinking Water and Toxic Enforcement Act of 1986. This product contains no chemicals known to the state of California to cause cancer.

14. OTHER INFORMATION:

This information relates only to the specific material designated and may not be valid for such material used in combination with any other materials or in any other process. Such information is to the best of the company's knowledge and believed accurate and reliable as of the date indicated. However, no representation, warranty or guarantee of any kind, express or implied, is made as to its accuracy, reliability or completeness and we assume no responsibility for any loss, damage or expense, direct or consequential, arising out of use. It is the user's responsibility to satisfy himself as to the suitableness and completeness of such information for his own particular use.

CALSOFT® L-40

1. CHEMICAL PRODUCT AND COMPANY IDENTIFICATION

Product Name: CALSOFT® L-40
Company Address 2744 East Kemper Road
Cincinnati, Ohio 45241
Emergency Telephone Number Chemtrec 1-800-424-9300
Pilot Chemical Corporate Office 1-513-326-0600

2. COMPOSITION/INFORMATION ON INGREDIENTS

Component	CAS-No	Weight %	OSHA PEL
Benzenesulfonic acid, C10-16-alkyl derivatives, sodium salts	68081-81-2	36-38	
Sodium xylene sulfonate	1300-72-7	1-4	
Water	7732-18-5	60-62	

3. HAZARD INFORMATION

Emergency Overview Irritant

Potential Health Effects

Eyes Irritating to eyes.
Skin Irritating to skin.
Inhalation Irritating to mucous membranes.
Ingestion Ingestion may cause gastrointestinal irritation, nausea, vomiting and diarrhea.

Chronic Effects Prolonged contact may cause persistent irritation or dermatitis.

4. FIRST AID MEASURES

Eye Contact Rinse thoroughly with plenty of water for at least 15 minutes and consult a physician

Skin Contact Wash off immediately with soap and plenty of water removing all contaminated clothes and shoes

Inhalation Move to fresh air

Ingestion Drink plenty of water. Do not induce vomiting without medical advice. Consult a physician.

#008

5. FIRE FIGHTING MEASURES

Flammable Properties	Non-flammable water solution.
Flammable Limits	Not Determined.
Hazardous Combustion Products	Not available
FIRE FIGHTING INSTRUCTIONS:	
Method	Water mist may be used to cool closed containers
Suitable Extinguishing Media	Water spray. Carbon dioxide (CO_2). Foam. Dry powder.
Unusual Fire & Explosive Hazards	None

6. ACCIDENTAL RELEASE MEASURES

Small Spill	Recover all usable material. Soak up balance with sand or dirt.
Large Spill	In case of a large spill by truck use small spill procedure and a vacuum truck. Call CHEMTREC at 1-800-424-9300.

7. HANDLING AND STORAGE

Handling	Spilled material is very slippery. Foams when hit with a stream of water.
Storage	Store above 45 °F. Avoid excessive heat.

8. EXPOSURE CONTROLS/PERSONAL PROTECTION

Engineering Controls	Ensure adequate ventilation, especially in confined areas
Eye/face Protection	Tightly fitting safety goggles
Skin Protection	Long sleeved clothing
Respiratory Protection	No special protective equipment required

9. PHYSICAL AND CHEMICAL PROPERTIES

Flash Point	Not available
Boiling Point/Range	Not available
Vapor Pressure	Not available
% Volatile by Weight	57-60 % Volatile by Weight
Water Solubility	Soluble in water
Specific Gravity	1.08
Density	8.94 Lbs./Gal
pH	7.5
Odor	Slight
Appearance	Colorless to pale yellow
Physical State	Liquid

#008

10. STABILITY AND REACTIVITY

Chemical Stability	Stable under normal conditions
Incompatible Materials	No materials to be especially mentioned
Conditions to Avoid	No information available.
Hazardous Decomposition Products	None under normal use
Hazardous Polymerization	No information available

11. TOXICOLOGICAL INFORMATION

Eyes	May cause significant eye irritation
Skin	Skin Irritation
Ingestion	Unknown
Inhalation	Unknown
Chronic Toxicity	Prolonged contact may cause persistent irritation or dermatitis
Carcinogenicity	Product is not listed.
Hazard Type	Skin/Eye Irritant.

12. ECOLOGICAL INFORMATION

Ecotoxicity effects	No information available
Chemical Fate	Materially is readily biodegradable.

13. DISPOSAL CONSIDERATIONS

Waste Disposal Method	Dispose of contents/container in accordance with local regulation

#008

14. TRANSPORTATION INFORMATION

DOT

Proper Shipping Name	Environmentally hazardous substances,liquid,n.o.s.
Hazard Class	9
UN-No	UN3082
Packing Group	III
Description	Environmentally hazardous substances,liquid,n.o.s(alkylbenzene sulfonate),9,UN3082,PG III,Marine Pollutant,

ICAO

UN-No	UN3082
Proper Shipping Name	Environmentally hazardous substance, liquid, n.o.s.
Hazard Class	9
Packing Group	III
Description	Environmentally hazardous substance, liquid, n.o.s.,9,UN3082,PG III

IATA

UN-No	UN3082
Proper Shipping Name	Environmentally hazardous substance, liquid, n.o.s.
Hazard Class	9
Packing Group	III
ERG Code	9L
Description	UN3082,Environmentally hazardous substance, liquid, n.o.s.,9,PG III

IMDG/IMO

Proper Shipping Name	Environmentally hazardous substance, liquid, n.o.s.
Hazard Class	9
UN-No	UN3082
Packing Group	III
EmS No.	F-A, S-F

RID

Proper Shipping Name	Environmentally hazardous substance, liquid, n.o.s.
Hazard Class	9
UN-No	UN3082
Packing Group	III
Classification Code	M6
ADR/RID-Labels	9

ADR

Proper Shipping Name	Environmentally hazardous substance, liquid, n.o.s.
Hazard Class	9
UN-No	UN3082
Packing Group	III
Classification Code	M6
ADR/RID-Labels	9

15. REGULATORY INFORMATION

International Inventories

Component	TSCA	DSL	NDSL	EINECS	ELINCS	ENCS	CHINA	KECL	PICCS	AICS
Sodium xylene sulfonate	Present	X	-	215-090-9	-	X	X	KE-11217 X	X	X
Benzenesulfonic acid, C10-16-alkyl derivatives, sodium salts	Present	X	-	268-356-1	-	-	X	KE-02630 X	X	X
Water	Present	X	-	231-791-2	-	X	X	KE-35400	X	X

USA

Federal Regulations

SARA 313
Section 313 of Title III of the Superfund Amendments and Reauthorization Act of 1986 (SARA). This product does not contain any chemicals which are subject to the reporting requirements of the Act and Title 40n of the Code of Federal Regulations, Part 372.

SARA 311/312 Hazardous Categorization

Acute Health Hazard	Yes
Chronic Health Hazard	No
Fire Hazard	No
Sudden Release of Pressure Hazard	No
Reactive Hazard	No

Clean Air Act, Section 112 Hazardous Air Pollutants (HAPs) (see 40 CFR 61)
This product does not contain any HAPs.

State Regulations

California Proposition 65
This product does not contain any Proposition 65 chemicals.

16. OTHER INFORMATION

Revision Date 9/19/2007

Prepared By Matthew J. Leary

Disclaimer
The information provided on this MSDS is correct to the best of our knowledge, information and belief at the date of its publication. The information given is designed only as a guide for safe handling, use, processing, storage, transportation, disposal and release and is not to be considered as a warranty or quality specification. The information relates only to the specific material designated and may not be valid for such material used in combination with any other material or in any process, unless specified in the text.

BASF
The Chemical Company

#009

Safety Data Sheet
MAGNAFLOC® 1717

1. Product and Company Identification

Use: Product for the printing industry

Company
BASF CORPORATION
100 Campus Drive
Florham Park, NJ 07932, USA

24 Hour Emergency Response Information
CHEMTREC: 1-800-424-9300
BASF HOTLINE: 1-800-832-HELP

Chemical family: Aqueous solution based on: homopolymer, cationic

2. Hazards Identification

Emergency overview

CAUTION:
The product can cause skin and eye irritation.
Frequent and prolonged contact can lead to skin irritation.
Spills are very slippery.

State of matter: liquid
Colour: straw yellow
Odour: amine-like, slight odour

Potential health effects

Primary routes of exposure:
Routes of entry for solids and liquids include eye and skin contact, ingestion and inhalation. Routes of entry for gases include inhalation and eye contact. Skin contact may be a route of entry for liquified gases.

Chronic toxicity:

Carcinogenicity: None of the components in this product at concentrations greater than 0.1% are listed by IARC; NTP, OSHA or ACGIH as a carcinogen.

Reproductive toxicity: No data available concerning reproduction toxicity.

Teratogenicity: No data available concerning teratogenic effects.

Genotoxicity: No data was available concerning mutagenic activity.

Potential environmental effects

Aquatic toxicity:
The product has not been tested. The statement has been derived from products of a similar structure or composition.

3. Composition / Information on Ingredients

CAS Number	Content (W/W)	Chemical name
26062-79-3	18.5 - 21.0 %	2-Propen-1-aminium, N,N-dimethyl-N-2-propenyl-, chloride, homopolymer

4. First-Aid Measures

General advice:
Remove contaminated clothing.

If inhaled:
Keep patient calm, remove to fresh air, seek medical attention. Assist in breathing if necessary.

If on skin:
Wash thoroughly with soap and water.

If irritation develops, seek medical attention.

If in eyes:
Wash affected eyes for at least 15 minutes under running water with eyelids held open.

Seek medical attention.

If swallowed:
Rinse mouth and then drink plenty of water. Do not induce vomiting. Immediate medical attention required.

Note to physician
Treatment: Treat according to symptoms (decontamination, vital functions), no known specific antidote.

5. Fire-Fighting Measures

Flash point: A flash point determination is unnecessary due to the high water content.

Suitable extinguishing media:
water spray, dry powder, foam

Additional information:
If water is used, restrict pedestrian and vehicular traffic in areas where slip hazard may exist.

Protective equipment for fire-fighting:
Firefighters should be equipped with self-contained breathing apparatus and turn-out gear.

Further information:
Contaminated extinguishing water must be disposed of in accordance with official regulations.

6. Accidental release measures

Personal precautions:
Use personal protective clothing.

#009

Environmental precautions:
Do not discharge into drains/surface waters/groundwater.

Cleanup:
For small amounts: Pick up with absorbent material (e.g. sand, sawdust, general-purpose binder). Dispose of absorbed material in accordance with regulations.
For large amounts: Pump off product.

Further information:
High risk of slipping due to leakage/spillage of product.

7. Handling and Storage

Handling

General advice:
No special measures necessary provided product is used correctly.

Protection against fire and explosion:
No special precautions necessary.

Storage

Storage stability:
Storage temperature: > 0 °C

Temperature tolerance
Protect from temperatures below: 0 °C
Frost sensitive

8. Exposure Controls and Personal Protection

Personal protective equipment

Respiratory protection:
Respiratory protection not required.

Hand protection:
Chemical resistant protective gloves

Eye protection:
Safety glasses with side-shields.

General safety and hygiene measures:
Wear protective clothing as necessary to minimize contact. Handle in accordance with good industrial hygiene and safety practice.

9. Physical and Chemical Properties

Form:	liquid
Odour:	amine-like, slight odour
Colour:	straw yellow
pH value:	approx. 6
Boiling point:	> 100 °C
Density:	approx. 1.0 g/cm3
Relative density:	1.035

Bulk density:	approx. 690 kg/m3
Solubility in water:	miscible

10. Stability and Reactivity

Conditions to avoid:
Avoid excessive temperatures. Avoid freezing.

Substances to avoid:
strong acids, strong bases, strong oxidizing agents

Hazardous reactions:
No hazardous reactions when stored and handled according to instructions.
The product is chemically stable.

Decomposition products:
Hazardous decomposition products: No hazardous decomposition products if stored and handled as prescribed/indicated.

11. Toxicological information

Acute toxicity

Oral:
Type of value: LD50
Species: rat
Value: > 5,000 mg/kg

Irritation / corrosion

Skin:
Species: rabbit
Result: non-irritant
Method: OECD Guideline 404

Eye:
Species: rabbit
Result: non-irritant
Method: OECD Guideline 405

Other Information:

The product has not been tested. The statements on toxicology have been derived from products of a similar structure and composition.

12. Ecological Information

Fish

Acute:
LC50 (96 h): 10 - 100 mg/l

Aquatic invertebrates

Acute:
EC50 (48 h): 10 - 100 mg/l

Degradability / Persistence
Biological / Abiological Degradation

Evaluation: Not readily biodegradable (by OECD criteria).

13. Disposal considerations

Waste disposal of substance:
Dispose of in accordance with national, state and local regulations. It is the waste generator's responsibility to determine if a particular waste is hazardous under RCRA.

Container disposal:
Dispose of in a licensed facility. Recommend crushing, puncturing or other means to prevent unauthorized use of used containers.

RCRA:
Not a hazardous waste under RCRA (40 CFR 261).

14. Transport Information

Land transport
USDOT

Not classified as a dangerous good under transport regulations

Sea transport
IMDG

Not classified as a dangerous good under transport regulations

Air transport
IATA/ICAO

Not classified as a dangerous good under transport regulations

15. Regulatory Information

Federal Regulations

Registration status:
Chemical TSCA, US released / listed

OSHA hazard category: This material is classified as hazardous under OSHA regulations.;

EPCRA 311/312 (Hazard categories): Acute;

State regulations

CA Prop. 65:
THIS PRODUCT CONTAINS A CHEMICAL(S) KNOWN TO THE STATE OF CALIFORNIA TO CAUSE CANCER. .

16. Other Information

NFPA Hazard codes:
Health : 1 Fire: 0 Reactivity: 0 Special: -

HMIS III rating
Health: 1 Flammability: 0 Physical hazard: 0

NFPA and HMIS use a numbering scale ranging from 0 to 4 to indicate the degree of hazard. A value of zero means that the substance possesses essentially no hazard; a rating of four indicates extreme danger. Although similar, the two rating systems are intended for different purposes, and use different criteria. The NFPA system was developed to provide an on-the-spot alert to the hazards of a material, and their severity, to emergency responders. The HMIS system was designed to communicate workplace hazard information to employees who handle hazardous chemicals.

We support worldwide Responsible Care® initiatives. We value the health and safety of our employees, customers, suppliers and neighbors, and the protection of the environment. Our commitment to Responsible Care is integral to conducting our business and operating our facilities in a safe and environmentally responsible fashion, supporting our customers and suppliers in ensuring the safe and environmentally sound handling of our products, and minimizing the impact of our operations on society and the environment during production, storage, transport, use and disposal of our products.

MSDS Prepared by:
BASF NA Product Regulations
msds@basf.com
MSDS Prepared on: 2010/09/15

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IMPORTANT: WHILE THE DESCRIPTIONS, DESIGNS, DATA AND INFORMATION CONTAINED HEREIN ARE PRESENTED IN GOOD FAITH AND BELIEVED TO BE ACCURATE , IT IS PROVIDED FOR YOUR GUIDANCE ONLY. BECAUSE MANY FACTORS MAY AFFECT PROCESSING OR APPLICATION/USE, WE RECOMMEND THAT YOU MAKE TESTS TO DETERMINE THE SUITABILITY OF A PRODUCT FOR YOUR PARTICULAR PURPOSE PRIOR TO USE. NO WARRANTIES OF ANY KIND, EITHER EXPRESSED OR IMPLIED, INCLUDING WARRANTIES OF MERCHANTABILITY OR FITNESS FOR A PARTICULAR PURPOSE, ARE MADE REGARDING PRODUCTS DESCRIBED OR DESIGNS, DATA OR INFORMATION SET FORTH, OR THAT THE PRODUCTS, DESIGNS, DATA OR INFORMATION MAY BE USED WITHOUT INFRINGING THE INTELLECTUAL PROPERTY RIGHTS OF OTHERS. IN NO CASE SHALL THE DESCRIPTIONS, INFORMATION, DATA OR DESIGNS PROVIDED BE CONSIDERED A PART OF OUR TERMS AND CONDITIONS OF SALE. FURTHER, YOU EXPRESSLY UNDERSTAND AND AGREE THAT THE DESCRIPTIONS, DESIGNS, DATA, AND INFORMATION FURNISHED BY BASF HEREUNDER ARE GIVEN GRATIS AND BASF ASSUMES NO OBLIGATION OR LIABILITY FOR THE DESCRIPTION, DESIGNS, DATA AND INFORMATION GIVEN OR RESULTS OBTAINED, ALL SUCH BEING GIVEN AND ACCEPTED AT YOUR RISK.

Due to the merger of CIBA and BASF Group all Material Safety Data Sheets have been reassessed on the basis of consolidated information. This may have resulted in changes of the Material Safety Data Sheets. In case you have questions concerning such changes please contact us at the address mentioned in Section I.

END OF DATA SHEET

#010

AMERADA HESS CORPORATION

NFPA 704 (Section 16)

MATERIAL SAFETY DATA SHEET

Low Sulfur Diesel Fuel **MSDS No. 9904**

1. CHEMICAL PRODUCT and COMPANY INFORMATION (rev. Jan-98)

Amerada Hess Corporation
1 Hess Plaza
Woodbridge, NJ 07095-0961

EMERGENCY TELEPHONE NUMBER (24 hrs): **CHEMTREC (800) 424-9300**
COMPANY CONTACT (business hours): Corporate Safety (732) 750-6000

SYNONYMS: Diesel Fuel #2; Hess Premium Diesel; Low Sulfur Diesel; Motor Vehicle Diesel Fuel

See Section 16 for abbreviations and acronyms.

2. COMPOSITION and INFORMATION ON INGREDIENTS (rev. Sep-98)

INGREDIENT NAME	EXPOSURE LIMITS		CONCENTRATION PERCENT BY WEIGHT
Diesel Fuel CAS NUMBER: 68476-34-6	OSHA PEL-TWA: ACGIH TLV-TWA:	5 mg/m, as mineral oil mist 1997 NOIC- 100 mg/m^3, skin, A3	100
Naphthalene CAS NUMBER: 91-20-3	OSHA PEL: ACGIH TLV-TWA/STEL:	10 ppm 10 / 15 ppm, A4	Typically < 0.01

A complex mixture of hydrocarbons with carbon numbers in the range C9 and higher. Premium Diesel Fuel contains a multifunctional additive.

3. HAZARDS IDENTIFICATION (rev. Sep-98; Tox-98)

EMERGENCY OVERVIEW
CAUTION!
OSHA/NFPA COMBUSTIBLE LIQUID - SLIGHT TO MODERATE IRRITANT - EFFECTS CENTRAL NERVOUS SYSTEM - HARMFUL OR FATAL IF SWALLOWED

Moderate fire hazard. Avoid breathing vapors or mists. May cause dizziness and drowsiness. May cause moderate eye irritation and skin irritation (rash). Long-term, repeated exposure may cause skin cancer.

If ingested, do NOT induce vomiting, as this may cause chemical pneumonia (fluid in the lungs).

EYES
Contact with liquid or vapor may cause mild irritation.

SKIN
May cause skin irritation with prolonged or repeated contact. Practically non-toxic if absorbed following acute (single) exposure. Liquid may be absorbed through the skin in toxic amounts if large areas of skin are repeatedly exposed.

INGESTION
The major health threat of ingestion occurs from the danger of aspiration (breathing) of liquid drops into the lungs, particularly from vomiting. Aspiration may result in chemical pneumonia (fluid in the lungs), severe lung damage, respiratory failure and even death.

Ingestion may cause gastrointestinal disturbances, including irritation, nausea, vomiting and diarrhea, and central nervous system (brain) effects similar to alcohol intoxication. In severe cases, tremors, convulsions, loss of consciousness, coma, respiratory arrest, and death may occur.

INHALATION
Excessive exposure may cause irritations to the nose, throat, lungs and respiratory tract. Central nervous system (brain) effects may include headache, dizziness, loss of balance and coordination, unconsciousness, coma, respiratory failure, and death.

WARNING: the burning of any hydrocarbon as a fuel in an area without adequate ventilation may result in hazardous levels of combustion products, including carbon monoxide, and inadequate oxygen levels, which may cause unconsciousness, suffocation, and death.

CHRONIC EFFECTS and CARCINOGENICITY

Similar products produced skin cancer and systemic toxicity in laboratory animals following repeated applications. The significance of these results to human exposures has not been determined - see Section 11 Toxicological Information.

IARC classifies whole diesel fuel exhaust particulates as probably carcinogenic to humans (Group 2A). NIOSH regards whole diesel fuel exhaust particulates as a potential cause of occupational lung cancer based on animal studies and limited evidence in humans.

MEDICAL CONDITIONS AGGRAVATED BY EXPOSURE

Irritation from skin exposure may aggravate existing open wounds, skin disorders, and dermatitis (rash).

4. FIRST AID MEASURES (rev. Jan-98; Tox-98)

EYES

In case of contact with eyes, immediately flush with clean, low-pressure water for at least 15 min. Hold eyelids open to ensure adequate flushing. Seek medical attention.

SKIN

Remove contaminated clothing. Wash contaminated areas thoroughly with soap and water or waterless hand cleanser. Obtain medical attention if irritation or redness develops.

INGESTION

DO NOT INDUCE VOMITING. Do not give liquids. Obtain immediate medical attention. If spontaneous vomiting occurs, lean victim forward to reduce the risk of aspiration. Monitor for breathing difficulties. Small amounts of material which enter the mouth should be rinsed out until the taste is dissipated.

INHALATION

Remove person to fresh air. If person is not breathing provide artificial respiration. If necessary, provide additional oxygen once breathing is restored if trained to do so. Seek medical attention immediately.

5. FIRE FIGHTING MEASURES (rev. Oct-96)

FLAMMABLE PROPERTIES:

FLASH POINT:	> 125 ^{o}F (> 52 ^{o}C) minimum PMCC
AUTOIGNITION POINT:	494 ^{o}F (257 ^{o}C)
OSHA/NFPA FLAMMABILITY CLASS:	2 (COMBUSTIBLE)
LOWER EXPLOSIVE LIMIT (%):	0.6
UPPER EXPLOSIVE LIMIT (%):	7.5

FIRE AND EXPLOSION HAZARDS

Vapors may be ignited rapidly when exposed to heat, spark, open flame or other source of ignition. When mixed with air and exposed to an ignition source, flammable vapors can burn in the open or explode in confined spaces. Being heavier than air, vapors may travel long distances to an ignition source and flash back. Runoff to sewer may cause fire or explosion hazard.

EXTINGUISHING MEDIA

SMALL FIRES: Any extinguisher suitable for Class B fires, dry chemical, CO2, water spray, fire fighting foam, or Halon.

LARGE FIRES: Water spray, fog or fire fighting foam. Water may be ineffective for fighting the fire, but may be used to cool fire-exposed containers.

FIRE FIGHTING INSTRUCTIONS

Small fires in the incipient (beginning) stage may typically be extinguished using handheld portable fire extinguishers and other fire fighting equipment.

Firefighting activities that may result in potential exposure to high heat, smoke or toxic by-products of combustion should require NIOSH/MSHA- approved pressure-demand self-contained breathing apparatus with full facepiece and full protective clothing.

Isolate area around container involved in fire. Cool tanks, shells, and containers exposed to fire and excessive heat with water. For massive fires the use of unmanned hose holders or monitor nozzles may be advantageous to further minimize personnel exposure. Major fires may require withdrawal, allowing the tank to burn. Large storage tank fires typically require specially trained personnel and equipment to extinguish the fire, often including the need for properly applied fire fighting foam.

See Section 16 for the NFPA 704 Hazard Rating.

6. ACCIDENTAL RELEASE MEASURES (rev. Jan-98)

ACTIVATE FACILITY'S SPILL CONTINGENCY OR EMERGENCY RESPONSE PLAN.

Evacuate nonessential personnel and remove or secure all ignition sources. Consider wind direction; stay upwind and uphill, if possible. Evaluate the direction of product travel, diking, sewers, etc. to confirm spill areas. Spills may infiltrate subsurface soil and groundwater; professional assistance may be necessary to determine the extent of subsurface impact.

Carefully contain and stop the source of the spill, if safe to do so. Protect bodies of water by diking, absorbents, or absorbent boom, if possible. Do not flush down sewer or drainage systems, unless system is designed and permitted to handle such material. The use of fire fighting foam may be useful in certain situations to reduce vapors. The proper use of water spray may effectively disperse product vapors or the liquid itself, preventing contact with ignition sources or areas/equipment that require protection.

Take up with sand or other oil absorbing materials. Carefully shovel, scoop or sweep up into a waste container for reclamation or disposal - caution, flammable vapors may accumulate in closed containers. Response and clean-up crews must be properly trained and must utilize proper protective equipment (see Section 8).

7. HANDLING and STORAGE (rev. Jan-98)

HANDLING PRECAUTIONS

Handle as a combustible liquid. Keep away from heat, sparks, and open flame! Electrical equipment should be approved for classified area. Bond and ground containers during product transfer to reduce the possibility of static-initiated fire or explosion.

Special slow load procedures for "switch loading" must be followed to avoid the static ignition hazard that can exist when higher flash point material (such as fuel oil) is loaded into tanks previously containing low flash point products (such as this product) - see API Publication 2003, "Protection Against Ignitions Arising Out Of Static, Lightning and Stray Currents.

STORAGE PRECAUTIONS

Keep away from flame, sparks, excessive temperatures and open flame. Use approved vented containers. Keep containers closed and clearly labeled. Empty product containers or vessels may contain explosive vapors. Do not pressurize, cut, heat, weld or expose such containers to sources of ignition.

Store in a well-ventilated area. This storage area should comply with NFPA 30 "Flammable and Combustible Liquid Code". Avoid storage near incompatible materials. The cleaning of tanks previously containing this product should follow API Recommended Practice (RP) 2013 "Cleaning Mobile Tanks In Flammable and Combustible Liquid Service" and API RP 2015 "Cleaning Petroleum Storage Tanks".

WORK/HYGIENIC PRACTICES

Emergency eye wash capability should be available in the near proximity to operations presenting a potential splash exposure. Use good personal hygiene practices. Avoid repeated and/or prolonged skin exposure. Wash hands before eating, drinking, smoking, or using toilet facilities. Do not use as a cleaning solvent on the skin. Do not use solvents or harsh abrasive skin cleaners for washing this product from exposed skin areas. Waterless hand cleaners are effective. Promptly remove contaminated clothing and launder before reuse. Use care when laundering to prevent the formation of flammable vapors which could ignite via washer or dryer. Consider the need to discard contaminated leather shoes and gloves.

8. EXPOSURE CONTROLS and PERSONAL PROTECTION (rev. Jan-98)

ENGINEERING CONTROLS

Use adequate ventilation to keep vapor concentrations of this product below occupational exposure and flammability limits, particularly in confined spaces.

EYE/FACE PROTECTION

Safety glasses or goggles are recommended where there is a possibility of splashing or spraying.

SKIN PROTECTION

Gloves constructed of nitrile, neoprene, or PVC are recommended. Chemical protective clothing such as of E.I. DuPont TyChem®, Saranex® or equivalent recommended based on degree of exposure. Note: The resistance of specific material may vary from product to product as well as with degree of exposure. Consult manufacturer specifications for further information.

RESPIRATORY PROTECTION

A NIOSH/MSHA-approved air-purifying respirator with organic vapor cartridges or canister may be permissible under certain circumstances where airborne concentrations are or may be expected to exceed exposure limits or for odor or irritation. Protection provided by air-purifying respirators is limited. Refer to OSHA 29 CFR 1910.134, ANSI Z88.2-1992, NIOSH Respirator Decision Logic, and the manufacturer for additional guidance on respiratory protection selection.

Use a positive pressure, air-supplied respirator if there is a potential for uncontrolled release, exposure levels are not known, in oxygen-deficient atmospheres, or any other circumstance where an air-purifying respirator may not provide adequate protection.

9. PHYSICAL and CHEMICAL PROPERTIES (rev. Jan-94)

APPEARANCE

Clear, straw-yellow liquid

ODOR

Mild, petroleum distillate odor

BASIC PHYSICAL PROPERTIES

BOILING RANGE:	320 to 690 ^{o}F (160 to 366 ^{o}C)
VAPOR PRESSURE:	0.009 psia @ 70 ^{o}F (21 ^{o}C)
VAPOR DENSITY (air = 1):	> 1.0
SPECIFIC GRAVITY (H_2O = 1):	0.83 to 0.86 @ 60 ^{o}F (16 ^{o}C)
PERCENT VOLATILES:	100 %
EVAPORATION RATE:	Slow; varies with conditions
SOLUBILITY (H_2O):	Negligible

10. STABILITY and REACTIVITY (rev. Jan-94)

STABILITY: Stable. Hazardous polymerization will not occur.

CONDITIONS TO AVOID and INCOMPATIBLE MATERIALS

Avoid high temperatures, open flames, sparks, welding, smoking and other ignition sources. Keep away from strong oxidizers; Viton ® ; Fluorel ®

HAZARDOUS DECOMPOSITION PRODUCTS

Carbon monoxide, carbon dioxide and non-combusted hydrocarbons (smoke).

11. TOXICOLOGICAL PROPERTIES (rev. Mar-00; Tox-98)

ACUTE TOXICITY

Acute dermal LD50 (rabbits): > 5 ml/kg
Acute oral LD50 (rats): 9 ml/kg
Primary dermal irritation: extremely irritating (rabbits)
Draize eye irritation: non-irritating (rabbits)
Guinea pig sensitization: negative

CHRONIC EFFECTS AND CARCINOGENICITY

Carcinogenic: OSHA: NO IARC: NO NTP: NO ACGIH: 1997 NOIC: A3

Studies have shown that similar products produce skin tumors in laboratory animals following repeated applications without washing or removal. The significance of this finding to human exposure has not been determined. Other studies with active skin carcinogens have shown that washing the animal's skin with soap and water between applications reduced tumor formation.

MUTAGENICITY (genetic effects)

This material has been positive in a mutagenicity study.

12. ECOLOGICAL INFORMATION (rev. Jan-98)

Keep out of sewers, drainage areas, and waterways. Report spills and releases, as applicable, under Federal and State regulations.

13. DISPOSAL CONSIDERATIONS (rev. Jan-98)

Consult federal, state and local waste regulations to determine appropriate disposal options.

14. TRANSPORTATION INFORMATION (rev. Jan-98)

PROPER SHIPPING NAME:	Diesel Fuel
HAZARD CLASS and PACKING GROUP:	3, PG III
DOT IDENTIFICATION NUMBER:	NA 1993
DOT SHIPPING LABEL:	None

15. REGULATORY INFORMATION (rev. Feb-01)

U.S. FEDERAL, STATE, and LOCAL REGULATORY INFORMATION

This product and its constituents listed herein are on the EPA TSCA Inventory. Any spill or uncontrolled release of this product, including any substantial threat of release, may be subject to federal, state and/or local reporting requirements. This product and/or its constituents may also be subject to other regulations at the state and/or local level. Consult those regulations applicable to your facility/operation.

CLEAN WATER ACT (OIL SPILLS)

Any spill or release of this product to "navigable waters" (essentially any surface water, including certain wetlands) or adjoining shorelines sufficient to cause a visible sheen or deposit of a sludge or emulsion must be reported immediately to the National Response Center (1-800-424-8802) or, if not practical, the U.S. Coast Guard with follow-up to the National Response Center, as required by U.S. Federal Law. Also contact appropriate state and local regulatory agencies as required.

CERCLA SECTION 103 and SARA SECTION 304 (RELEASE TO THE ENVIRONMENT)

The CERCLA definition of hazardous substances contains a "petroleum exclusion" clause which exempts crude oil, refined, and unrefined petroleum products and any indigenous components of such. However, other federal reporting requirements (e.g., SARA Section 304 as well as the Clean Water Act if the spill occurs on navigable waters) may still apply.

SARA SECTION 311/312 - HAZARD CLASSES

ACUTE HEALTH	CHRONIC HEALTH	FIRE	SUDDEN RELEASE OF PRESSURE	REACTIVE
X	X	X	--	--

SARA SECTION 313 - SUPPLIER NOTIFICATION

This product may contain listed chemicals below the *de minimis* levels which therefore are not subject to the supplier notification requirements of Section 313 of the Emergency Planning and Community Right-To-Know Act (EPCRA) of 1986 and of 40 CFR 372. If you may be required to report releases of chemicals listed in 40 CFR 372.28, you may contact Amerada Hess Corporate Safety if you require additional information regarding this product.

CANADIAN REGULATORY INFORMATION (WHMIS)

Class B, Division 3 (Combustible Liquid) and Class D, Division 2, Subdivision B (Toxic by other means)

16. OTHER INFORMATION (rev. Feb-01)

NFPA® HAZARD RATING	HEALTH:	0	Negligible
	FIRE:	2	Moderate
	REACTIVITY:	0	Negligible
HMIS® HAZARD RATING	HEALTH:	1 *	Slight
	FIRE:	2	Moderate
	REACTIVITY:	0	Negligible
			* Chronic

SUPERSEDES MSDS DATED: 03/07/00

ABBREVIATIONS:

AP = Approximately < = Less than > = Greater than
N/A = Not Applicable N/D = Not Determined ppm = parts per million

ACRONYMS:

ACGIH	American Conference of Governmental Industrial Hygienists
AIHA	American Industrial Hygiene Association
ANSI	American National Standards Institute (212) 642-4900
API	American Petroleum Institute (202) 682-8000
CERCLA	Comprehensive Emergency Response, Compensation, and Liability Act
DOT	U.S. Department of Transportation [General info: (800) 467-4922]
EPA	U.S. Environmental Protection Agency
HMIS	Hazardous Materials Information System
IARC	International Agency For Research On Cancer
MSHA	Mine Safety and Health Administration
NFPA	National Fire Protection Association (617)770-3000
NIOSH	National Institute of Occupational Safety and Health
NOIC	Notice of Intended Change (proposed change to ACGIH TLV)
NTP	National Toxicology Program
OPA	Oil Pollution Act of 1990
OSHA	U.S. Occupational Safety & Health Administration
PEL	Permissible Exposure Limit (OSHA)
RCRA	Resource Conservation and Recovery Act
REL	Recommended Exposure Limit (NIOSH)
SARA	Superfund Amendments and Reauthorization Act of 1986 Title III
SCBA	Self-Contained Breathing Apparatus
SPCC	Spill Prevention, Control, and Countermeasures
STEL	Short-Term Exposure Limit (generally 15 minutes)
TLV	Threshold Limit Value (ACGIH)
TSCA	Toxic Substances Control Act
TWA	Time Weighted Average (8 hr.)
WEEL	Workplace Environmental Exposure Level (AIHA)
WHMIS	Canadian Workplace Hazardous Materials Information System

DISCLAIMER OF EXPRESSED AND IMPLIED WARRANTIES

Information presented herein has been compiled from sources considered to be dependable, and is accurate and reliable to the best of our knowledge and belief, but is not guaranteed to be so. Since conditions of use are beyond our control, we make no warranties, expressed or implied, except those that may be contained in our written contract of sale or acknowledgment.

Vendor assumes no responsibility for injury to vendee or third persons proximately caused by the material if reasonable safety procedures are not adhered to as stipulated in the data sheet. Additionally, vendor assumes no responsibility for injury to vendee or third persons proximately caused by abnormal use of the material, even if reasonable safety procedures are followed. Furthermore, vendee assumes the risk in their use of the material.

ASTRO PRODUCT CODE # 10087

#011

Shell

MATERIAL SAFETY DATA SHEET

SHELL MSDS: 5260-12 10/17/96

DIETHYLENE GLYCOL

TELEPHONE NUMBER:

24 HOUR EMERGENCY ASSISTANCE
SHELL: 713-473-9461
CHEMTREC: 800-424-9300

GENERAL MSDS ASSISTANCE
SHELL: 713-241-4819

MANUFACTURER'S NAME AND ADDRESS

SHELL OIL COMPANY
PRODUCT SAFETY & COMPLIANCE
P.O. BOX 4320
HOUSTON, TX 77210

SECTION I NAME

PRODUCT: DIETHYLENE GLYCOL
CHEM NAME: DEG
CHEM FAMILY: GLYCOL
SHELL CODE: 32376
32472

HEALTH HAZARD: 2 **FIRE HAZARD:** 1 **REACTIVITY:** 0

SECTION II-A INGREDIENTS

NO.	COMPOSITION	CAS NO.	PERCENT
P	DIETHYLENE GLYCOL	111-46-6	100
1	DIETHYLENE GLYCOL	111-46-6	>99
2	ETHYLENE GLYCOL	107-21-1	<1
3	TRIETHYLENE GLYCOL	112-27-6	<1

SECTION II-B ACUTE TOXICITY DATA

NO.	ACUTE ORAL LD50	ACUTE DERMAL LD50	ACUTE INHALATION LD50
1	14.8 G/KG (RAT)	11.9 G/KG (RAT)	NONE
2	4.0 G/KG (RAT)	NONE	NONE

BASED UPON DATA AVAILABLE TO SHELL, COMPONENT 3 IN THIS PRODUCT IS NOT HAZARDOUS UNDER OSHA HAZARD COMMUNICATION (29 CFR 1910.1200).

SECTION III HEALTH INFORMATION

THE HEALTH EFFECTS NOTED BELOW ARE CONSISTENT WITH REQUIREMENTS UNDER THE OSHA HAZARD COMMUNICATION STANDARD (29 CFR 1910.1200).

EYE CONTACT:
BASED ON PRODUCT TESTING, PRODUCT IS MILDLY IRRITATING TO THE EYES.

SKIN CONTACT:
BASED ON PRODUCT TESTING, PRODUCT IS MILDLY IRRITATING TO THE SKIN AND IS SLIGHTLY TOXIC ON PROLONGED OR REPEATED EXPOSURE.

INHALATION:
VAPORS OR AEROSOLS MAY BE IRRITATING TO THE RESPIRATORY SYSTEM AND MAY BE TOXIC ON PROLONGED OR REPEATED EXPOSURE.

INGESTION:
PRODUCT MAY BE HARMFUL OR FATAL IF SWALLOWED; MAY PRODUCE CENTRAL NERVOUS SYSTEM (CNS) DEPRESSION AND KIDNEY DAMAGE, WHICH MAY BE FATAL AND LIVER DAMAGE.

SIGNS AND SYMPTOMS:
IRRITATION AS NOTED ABOVE. EARLY TO MODERATE CNS (CENTRAL NERVOUS SYSTEM) DEPRESSION MAY BE EVIDENCED BY GIDDINESS, HEADACHE, DIZZINESS AND NAUSEA; IN EXTREME CASES, UNCONSCIOUSNESS AND DEATH MAY OCCUR. KIDNEY DAMAGE MAY BE EVIDENCED BY CHANGES IN URINE OUTPUT, URINE APPEARANCE OR EDEMA (SWELLING FROM FLUID RETENTION). LIVER DAMAGE MAY BE EVIDENCED BY LOSS OF APPETITE, JAUNDICE (YELLOWISH SKIN COLOR) AND SOMETIMES PAIN IN THE UPPER ABDOMEN ON THE RIGHT SIDE.

AGGRAVATED MEDICAL CONDITIONS:
PREEXISTING SKIN, EYE AND RESPIRATORY DISORDERS MAY BE AGGRAVATED BY EXPOSURE TO DIETHYLENE GLYCOL. IMPAIRED KIDNEY, LIVER AND CNS FUNCTIONS FROM PREEXISTING DISORDERS MAY BE AGGRAVATED BY EXPOSURE TO THIS PRODUCT.

OTHER HEALTH EFFECTS:
INTENTIONAL ABUSE, MISUSE OR OTHER MASSIVE EXPOSURE MAY CAUSE MULTIPLE ORGAN DAMAGE AND/OR DEATH.
SEE SECTION VI FOR ADDITIONAL HEALTH INFORMATION.

SECTION IV OCCUPATIONAL EXPOSURE LIMITS

COMP	OSHA		ACGIH		
NO.	PEL/TWA	PEL/CEILING	TLV/TWA	TLV/STEL	OTHER
2		50 PPM	50 PPMC(*)		

* AS ETHYLENE GLYCOL-VAPOR. C-CEILING LIMIT.

SECTION V EMERGENCY AND FIRST AID PROCEDURES

EYE CONTACT:
FLUSH EYES WITH PLENTY OF WATER FOR 15 MINUTES WHILE HOLDING EYELIDS OPEN. GET MEDICAL ATTENTION.

SKIN CONTACT:
FLUSH SKIN WITH WATER. IF IRRITATION OCCURS, GET MEDICAL ATTENTION.

INHALATION:
REMOVE VICTIM TO FRESH AIR AND PROVIDE OXYGEN IF BREATHING IS DIFFICULT. GET MEDICAL ATTENTION.

INGESTION:
DO NOT GIVE LIQUIDS IF VICTIM IS UNCONSCIOUS OR VERY DROWSY. OTHERWISE, GIVE NO MORE THAN 2 GLASSES OF WATER AND INDUCE VOMITING BYGIVING 30CC (2 TABLESPOONS) SYRUP OF IPECAC.* IF IPECAC IS UNAVAILABLE, GIVE 2 GLASSES OF WATER AND INDUCE VOMITING BY TOUCHING FINGER TO BACK OF VICTIM'S THROAT. KEEP VICTIM'S HEAD BELOW HIPS WHILE VOMITING. GET MEDICAL ATTENTION.

NOTE TO PHYSICIAN:
*IF VICTIM IS A CHILD, GIVE NO MORE THAN 1 GLASS OF WATER AND 15CC (1 TABLESPOON) SYRUP OF IPECAC. IF SYMPTOMS SUCH AS LOSS OF GAG REFLEX, CONVULSIONS OR UNCONSCIOUSNESS OCCUR BEFORE EMESIS, GASTRIC LAVAGE SHOULD BE CONSIDERED FOLLOWING INTUBATION WITH A CUFFED ENDOTRACHEAL TUBE.

SECTION VI SUPPLEMENTAL HEALTH INFORMATION

IN ONE STUDY, DIETHYLENE GLYCOL ADMINISTERED ORALLY AT HIGH DOSES TO PREGNANT RATS AND MICE CAUSED TOXICITY TO THE EMBRYOFETUS INCLUDING DECREASED FETAL BODY WEIGHTS AND INCREASED VARIATIONS, BUT NO BIRTH DEFECTS WERE OBSERVED. THERE WAS ALSO MATERNAL TOXICITY INCLUDING SOME LETHALITY.

IN ANOTHER STUDY, DIETHYLENE GLYCOL ADMINISTERED TO HAMSTERS BY I.P. INJECTION AT DOSES OF 2.5 - 4.48 G/KG ON THE 8TH DAY OF GESTATION RESULTED IN NEURAL TUBE ABNORMALITIES IN ALL DOSE GROUPS BUT NOT IN THE CONTROLS. THERE WAS EVIDENCE OF MATERNAL TOXICITY IN TREATED ANIMALS. UNDER THE CONDITIONS OF THIS STUDY, DEG CAUSED DEVELOPMENTAL EFFECTS IN HAMSTERS. THE SIGNIFICANCE OF THIS INFORMATIONTO MAN IS UNKNOWN.

SECTION VII PHYSICAL DATA

BOILING POINT (DEG F): 473

SPECFIC GRAVITY (H2O = 1): 1.1

VAPOR PRESSURE (MM HG): .02 @ 68 DEG F

MELTING POINT (DEG F): 18

SOLUBILITY IN WATER: COMPLETE

VAPOR DENSITY (AIR = 1): 3.5

VOC: 100% @ 9.28 LB/GAL

EVAPORATION RATE (NORMAL BUTYL ACETATE = 1): <0.001

APPEARANCE AND ODOR:
COLORLESS, SLIGHTLY VISCOUS LIQUID. MILD ODOR.

SECTION VIII FIRE AND EXPLOSION HAZARDS

FLASH POINT AND METHOD: 244 DEG TCC

FLAMMABLE LIMITS/PERCENT VOLUME IN AIR: LOWER: N/AP UPPER: N/AP

EXTINGUISHING MEDIA:
USE WATER FOG, "ALCOHOL" FOAM, DRY CHEMICAL OR CO2.

SPECIAL FIRE FIGHTING PROCEDURES AND PRECAUTIONS:
MATERIAL WILL NOT BURN UNLESS PREHEATED. DO NOT ENTER CONFINED FIRE SPACE WITHOUT FULL BUNKER GEAR (HELMET WITH FACE SHIELD, BUNKERCOATS, GLOVES AND RUBBER BOOTS), INCLUDING A POSITIVE PRESSURE NIOSH APPROVED SELF-CONTAINED BREATHING APPARATUS. COOL FIRE, EXPOSEDCONTAINERS WITH WATER.

UNUSUAL FIRE AND EXPLOSION HAZARDS:
NONE IDENTIFIED

SECTION IX REACTIVITY

STABLITY: STABLE

HAZARDOUS POLYMERIZATION: WILL NOT OCCUR

CONDITIONS AND MATERIALS TO AVOID:
AVOID CONTACT WITH STRONG OXIDIZING AGENTS

HAZARDOUS DECOMPOSITION PRODUCTS:
CARBON MONOXIDE AND UNIDENTIFIED ORGANIC COMPOUNDS MAY BE FORMED DURING COMBUSTION.

SECTION X EMPLOYEE PROTECTION

RESPIRATORY PROTECTION:
USE A NIOSH-APPROVED RESPIRATOR AS REQUIRED TO PREVENT OVEREXPOSURE. IN ACCORD WITH 29 CFR 1910.134, USE EITHER AN ATMOSPHERE-SUPPLYING RESPIRATOR OR AN AIR-PURIFYING RESPIRATOR FOR ORGANIC VAPORS.

PROTECTIVE CLOTHING
AVOID CONTACT WITH EYES. WEAR CHEMICAL GOGGLES IF THERE IS LIKELIHOOD OF CONTACT WITH EYES. AVOID PROLONGED OR REPEATED CONTACT WITH SKIN. WEAR CHEMICAL-RESISTANT GLOVES AND OTHER CLOTHING AS REQUIRED TO MINIMIZE CONTACT.

ADDITIONAL PROTECTIVE MEASURES:
USE VENTILATION AS REQUIRED TO CONTROL VAPOR CONCENTRATIONS. EYE WASH FOUNTAINS AND SAFETY SHOWERS SHOULD BE AVAILABLE FOR EMERGENCY USE.

SECTION XI ENVIRONMENTAL PROTECTION

SPILL OR LEAK PROCEDURES:
MAY BURN ALTHOUGH NOT READILY IGNITABLE. USE CAUTIOUS JUDGMENT WHEN CLEANING UP LARGE SPILLS. *** LARGE SPILLS *** WEAR RESPIRATORAND PROTECTIVE CLOTHING AS APPROPRIATE. SHUT OFF SOURCE OF LEAK IF SAFE TO DO SO. DIKE AND CONTAIN. REMOVE WITH VACUUM TRUCKS OR PUMP TO STORAGE/SALVAGE VESSELS. SOAK UP RESIDUE WITH AN ABSORBENT SUCH AS CLAY, SAND OR OTHER SUITABLE MATERIAL; DISPOSE OF PROPERLY. FLUSH AREA WITH WATER TO REMOVE TRACE RESIDUE. *** SMALL SPILLS *** TAKE UP WITH AN ABSORBENT MATERIAL AND DISPOSE OF PROPERLY.

SECTION XII SPECIAL PRECAUTIONS

STORE IN A COOL, DRY PLACE WITH ADEQUATE VENTILATION. KEEP AWAY FROM OPEN FLAMES AND HIGH TEMPERATURES.
WASH WITH SOAP AND WATER BEFORE EATING, DRINKING, SMOKING OR USING TOILET FACILITIES.
LAUNDER CONTAMINATED CLOTHING BEFORE REUSE.
DO NOT PRESSURIZE DRUM CONTAINERS TO EMPTY THEM.
NOT FOR USE IN THE MANUFACTURE OF FOODS OR PHARMACEUTICALS.

SECTION XIII TRANSPORTATION REQUIREMENTS

DEPARTMENT OF TRANSPORTATION CLASSIFICATION:
NOT HAZARDOUS BY D.O.T. REGULATIONS

DOT PROPER SHIPPING NAME:
NONE

OTHER REQUIREMENTS:
NONE

SECTION XIV OTHER REGULATORY CONTROLS

THIS PRODUCT IS LISTED ON THE EPA/TSCA INVENTORY OF CHEMICAL SUBSTANCES.
PROTECTION OF STRATOSPHERIC OZONE (PURSUANT TO SECTION 611 OF THE CLEAN AIR ACT AMENDMENTS OF 1990): PER 40 CFR PART 82, THIS PRODUCT DOES NOT CONTAIN NOR WAS IT DIRECTLY MANUFACTURED WITH ANY CLASS I OR CLASS II OZONE DEPLETING SUBSTANCES.
IN ACCORDANCE WITH SARA TITLE III, SECTION 313, THE ATTACHED ENVIRONMENTAL DATA SHEET (EDS) SHOULD ALWAYS BE COPIED AND SENT WITH THE MSDS.

SECTION XV STATE REGULATORY INFORMATION

THE FOLLOWING CHEMICALS ARE SPECIFICALLY LISTED BY INDIVIDUAL STATES; OTHER PRODUCT SPECIFIC HEALTH AND SAFETY DATA IN OTHER SECTIONS OF THE MSDS MAY ALSO BE APPLICABLE FOR STATE

REQUIREMENTS. FOR DETAILS ON YOUR REGULATORY REQUIREMENTS YOU SHOULD CONTACT THE APPROPRIATE AGENCY IN YOUR STATE.

STATE LISTED COMPONENT	CAS NO.	PERCENT	STATE CODE
DIETHYLENE GLYCOL	111-46-6	>99	CA, MN, PA, RI

CA = CALIFORNIA HAZ. SUBST. LIST; CA65C, CA65R, CA65C/R = CALIFORNIA SAFE DRINKING WATER AND TOXICS ENFORCEMENT ACT OF 1986 OR PROPOSITION 65 LIST; CT = CONNECTICUT TOXIC. SUBST. LIST; FL = FLORIDA SUBST. LIST; IL = ILLINOIS TOX. SUBST. LIST; LA = LOUISIANA HAZ. SUBST. LIST; MA = MASSACHUSETTS SUBST. LIST; ME = MAINE HAZ. SUBST. LIST; MN = MINNESOTA HAZ. SUBST. LIST; NJ = NEW JERSEY HAZ. SUBST. LIST; PA = PENNSYLVANIA HAZ. SUBST. LIST; RI = RHODE ISLAND HAZ. SUBST. LIST.

SECTION XVI SPECIAL NOTES

THIS MSDS REVISION HAS CHANGES IN SECTION XII.

THE INFORMATION CONTAINED HEREIN IS BASED ON THE DATA AVAILABLE TO US AND IS BELIEVED TO BE CORRECT. HOWEVER, SHELL MAKES NO WARRANTY, EXPRESSED OR IMPLIED REGARDING THE ACCURACY OF THESE DATA OR THE RESULTS TO BE OBTAINED FROM THE USE THEREOF. SHELL ASSUMES NO RESPONSIBILITY FOR INJURY FROM THE USE OF THE PRODUCT DESCRIBED HEREIN.

WE ARE PROVIDING OUR MOST RECENT MATERIAL SAFETY DATA SHEET AND/OR ENVIRONMENTAL DATA SHEET. IF YOU WISH TO RECEIVE UPDATES TO THIS INFORMATION, PLEASE CALL SHELL'S GENERAL MSDS ASSISTANCE LINE (713-241-4819) TO ENSURE THAT YOU ARE ADDED TO SHELL'S REGULAR MSDS DISTRIBUTION SYSTEM.

BE SAFE. READ OUR PRODUCT SAFETY INFORMATION...AND PASS IT ON. (PRODUCT LIABILITY LAW REQUIRES IT)

SHELL OIL COMPANY
PRODUCT SAFETY AND COMPLIANCE
P. O. BOX 4320
HOUSTON, TX. 77210

Shell

ENVIRONMENTAL DATA SHEET

SHELL EDS: 5260-02 08/23/93

DIETHYLENE GLYCOL

TELEPHONE NUMBER:

24 HOUR EMERGENCY ASSISTANCE
SHELL: 713-473-9461
CHEMTREC: 800-424-9300

GENERAL MSDS ASSISTANCE
SHELL: 713-241-4819

MANUFACTURER'S NAME AND ADDRESS

SHELL OIL COMPANY
PRODUCT SAFETY & COMPLIANCE
P.O. BOX 4320
HOUSTON, TX 77210

PRODUCT CODE: 32376
32472

ASTRO PRODUCT CODE # 10087

#011

SECTION I PRODUCT COMPOSITION

NO.	COMPOSITION	CAS	PERCENT
P	DIETHYLENE GLYCOL	111-46-6	100
1	DIETHYLENE GLYCOL	111-46-6	>99
2	ETHYLENE GLYCOL	107-21-1	<1
3	TRIETHYLENE GLYCOL	112-27-6	<1

SECTION II SARA TITLE III INFORMATION

NO.	EHS RQ (*1)	EHS TPQ (*2)	SEC-313 (*3)	313 CATEGORY (*4)	311/312 CATEGO (*5)
P					H-1, H-2
2			YES		

*1 = REPORTABLE QUANTITY OF EXTREMELY HAZARDOUS SUBSTANCE, SEC 302
*2 = THRESHOLD PLANNING QUANTITY, EXTREMELY HAZARDOUS SUBSTANCE, SEC 302
*3 = TOXIC CHEMICAL, SEC 313
*4 = CATEGORY AS REQUIRED BY SEC 313 (40 CFR 372.65 C), MUST BE USED ON TOXIC RELEASE INVENTORY FORM
*5 = CATEGORY (FOR AGGREGATE REPORTING REQUIREMENTS UNDER SARA 311, 312)
HEALTH: H-1 = IMMEDIATE (ACUTE) HEALTH HAZARD
H-2 = DELAYED (CHRONIC) HEALTH HAZARD
PHYSICAL: P-3 = FIRE HAZARD
P-4 = SUDDEN RELEASE OF PRESSURE HAZARD
P-5 = REACTIVE HAZARD

SECTION III ENVIRONMENTAL RELEASE INFORMATION

KEEP OUT OF SURFACE WATERS, SEWERS, AND WATERWAYS ENTERING OR LEADING TO SURFACE WATERS. NOTIFY AUTHORITIES IF ANY EXPOSURE TO THE GENERAL PUBLIC OR ENVIRONMENT OCCURS OR IS LIKELY TO OCCUR.UNDER THE 1990 AMENDMENTS TO THE CLEAN AIR ACT ADDITIONAL CHEMICALS WERE DESIGNATED AS SUPERFUND HAZARDOUS SUBSTANCES. THESE SUBSTANCES WERE GIVEN A STATUTORY REPORTABLE QUANTITY (RQ) OF ONE POUND. EPA IS CURRENTLY REVIEWING ALL CHEMICALS WITH THIS DEFAULT RQ ANDPLANS TO REVISE THE LEVEL BASED ON SCIENTIFIC EVIDENCE OF HAZARD. THIS PRODUCT CONTAINS ETHYLENE GLYCOL WHICH, UNTIL THE EPA REVIEWIS COMPLETED, IS SUBJECT TO THE ONE POUND RQ.

SECTION IV RCRA INFORMATION

IF THIS PRODUCT BECOMES A WASTE, IT WOULD NOT BE A HAZARDOUS WASTE BY RCRA CRITERIA (40 CFR 261). PLACE IN AN APPROPRIATE DISPOSAL FACILITY IN COMPLIANCE WITH LOCAL REGULATIONS.

DATE PREPARED: 08/23/93

SHELL OIL COMPANY
P.O. BOX 4320
HOUSTON, TX 77210

FOR ADDITIONAL INFORMATION ON THIS ENVIRONMENTAL DATA PLEASE CALL
(713) 241-2252

#012

MATERIAL SAFETY DATA SHEET
Concentrated Molasses Solids (CMS)

Emergency Contact: (989) 686-0161, Arnel Negranza or Roger Roslund Email: info@michigansugar.com
Date Created: July 1, 2002 Reviewed: October 26, 2005

I. PRODUCT IDENTIFICATION

Name:	Concentrated Molasses Solids (CMS)
Manufacturer:	**Michigan Sugar Company** **2700 S. Euclid Ave.** **Bay City, MI 48706**
Use:	Animal Feed Supplement
Chemical Components:	Sucrose (approx. 15.0%), Non-Sucrose (approx. 45.0%), and Water (approx. 40.0%)
Chemical Formula:	Sucrose ($C_{12}H_{22}O_{11}$) , Non-Sucrose (N.A.), Water (H_2O)

II. HAZARDOUS MATERIAL IDENTIFICATION

1- Sticky
2- Non-toxic

III. PHYSICAL AND CHEMICAL DATA

Description:	Dark brown syrup
Specific Gravity:	10.7 lbs/ga or 1,300 kg/cu. meter
Viscosity:	100 centipoise at 22^{0}C or 700 centipoise at –5^{0}C
Solubility:	Soluble in warm water in all proportion
pH:	8.0 – 9.0 in water solution
Reactivity:	Not at normal temperature and use. Can react exothermally at high temperatures.
Volatility:	N.A.
Boiling Point:	270 - 310^{0}F (120 – 140^{0}C)
Freezing Point	-5^{0}F (-24^{0}C)

IV. FIRE AND EXPLOSION HAZARD DATA

Combustion Data:	Non-combustible
Ignition temperature:	N.A.

V. REACTIVITY DATA

Stability:	Stable at normal temperature
Decomposition:	Above 186^{0}C

VI. HEALTH HAZARD DATA

Symptoms:	N.A.
Emergency Treatment:	N.A.
Carcinogenic:	Not Carcinogenic

VII. HANDLING AND CONTROL MEASURES

Storage:	Store at below 80^{0}F
Spill and Clean-up:	Flush to sewer with water.
Waste Disposal:	Observe municipal, state, and Federal regulations relative to waste disposal
Ignition Sources:	Non-flammable
Housekeeping:	Minimize accumulation on floors, equipment, etc.

#013

REMOVED FROM INVENTORY

BASF
The Chemical Company

Safety Data Sheet
EP-202 MP

1. Product and Company Identification

Use: Chemical

Company
BASF CORPORATION
100 Campus Drive
Florham Park, NJ 07932, USA

24 Hour Emergency Response Information
CHEMTREC: 1-800-424-9300
BASF HOTLINE: 1-800-832-HELP

Chemical family:	alcohol, ether, aldehydes
Synonyms:	Butanol Distillation Heavy Ends

2. Hazards Identification

Emergency overview

WARNING:
COMBUSTIBLE LIQUID.
Causes eye irritation.
RISK OF SERIOUS DAMAGE TO EYES.
May cause sensitization by skin contact.
Ensure adequate ventilation.
Avoid inhalation of mists/vapours.
Avoid contact with the skin, eyes and clothing.
Wear NIOSH-certified chemical goggles.
Wear chemical resistant protective gloves.
Eye wash fountains and safety showers must be easily accessible.

State of matter: liquid
Colour: amber
Odour: alcohol-like

Potential health effects

Primary routes of exposure:
Routes of entry for solids and liquids include eye and skin contact, ingestion and inhalation. Routes of entry for gases include inhalation and eye contact. Skin contact may be a route of entry for liquified gases.

Acute toxicity:
Virtually nontoxic after a single ingestion.

Irritation / corrosion:
Not irritating to the skin. May cause severe damage to the eyes.

Sensitization:

Caused skin sensitization in animal studies. The product has not been tested. The statement has been derived from the properties of the individual components.

Chronic toxicity:

Repeated dose toxicity: May affect the liver and kidneys as indicated in animal studies. The substance may cause damage to the lung even after repeated inhalation of low doses, as shown in animal studies.

Reproductive toxicity: The substance may cause damage to the testes after repeated ingestion, as shown in animal studies.

Genotoxicity: The substance was not mutagenic in bacteria. The substance was not mutagenic in mammalian cell culture.

Potential environmental effects

Aquatic toxicity:
Acutely harmful for aquatic organisms.

3. Composition / Information on Ingredients

CAS Number	Content (W/W)	Chemical name
68551-11-1	100.0 %	1-Propene, hydroformylation products, high-boiling
71-36-3		n-butanol
645-62-5		2-ethylhex-2-enal

4. First-Aid Measures

If inhaled:
Keep patient calm, remove to fresh air, seek medical attention.

If on skin:
Wash affected areas thoroughly with soap and water. Remove contaminated clothing. If irritation develops, seek medical attention.

If in eyes:
Wash affected eyes for at least 15 minutes under running water with eyelids held open. If irritation develops, seek medical attention.

If swallowed:
Immediately rinse mouth and then drink plenty of water, do not induce vomiting, seek medical attention.

5. Fire-Fighting Measures

Flash point:	41 °C	
	105 °F	
Autoignition:	> 370 °F	
	> 187 °C	
Flammability:	not readily ignited	(other)
Self-ignition temperature:	> 187 °C	
	> 370 °F	

Suitable extinguishing media:
water spray, foam, dry powder

Protective equipment for fire-fighting:
Firefighters should be equipped with self-contained breathing apparatus and turn-out gear.

Further information:
Cool endangered containers with water-spray.

6. Accidental release measures

Personal precautions:
Avoid contact with the skin, eyes and clothing. Ensure adequate ventilation.

Environmental precautions:
Do not discharge into waterways or sewer systems without proper authorization. This product is regulated by RCRA. This product is not regulated by CERCLA ('Superfund').

Cleanup:
For small amounts: Spills should be contained, solidified, and placed in suitable containers for disposal.
For large amounts: Pump off product. Place into suitable containers for reuse or disposal in a licensed facility.

7. Handling and Storage

Handling

General advice:
Keep container tightly sealed. Ensure thorough ventilation of stores and work areas.

Protection against fire and explosion:
Ground all transfer equipment properly to prevent electrostatic discharge.

Storage

General advice:
Keep in a cool, well-ventilated place. Keep container tightly closed. Avoid all sources of ignition: heat, sparks, open flame.

Storage incompatibility:
General advice: Segregate from oxidizing agents. Segregate from alkalies and alkalizing substances. Segregate from caustics.

Storage stability:
Contents are stable at room temperature.

8. Exposure Controls and Personal Protection

Components with workplace control parameters

n-butanol	OSHA	PEL	100 ppm 300 mg/m3 ;
	ACGIH	TWA value	20 ppm ;

Advice on system design:
Provide local exhaust ventilation to control vapours/mists.

Personal protective equipment

Respiratory protection:
Wear a NIOSH-certified (or equivalent) organic vapour/particulate respirator as needed. Observe OSHA regulations for respirator use (29 CFR 1910.134).

Hand protection:
Chemical resistant protective gloves, Consult with glove manufacturer for testing data.

Eye protection:
Safety glasses with side-shields. Wear face shield or tightly fitting safety goggles (chemical goggles) if splashing hazard exists.

Body protection:
Body protection must be chosen depending on activity and possible exposure, e.g. head protection, apron, protective boots, chemical-protection suit.

General safety and hygiene measures:
Eye wash fountains and safety showers must be easily accessible.

9. Physical and Chemical Properties

Form:	liquid	
Odour:	alcohol-like	
Colour:	amber	
pH value:		not applicable, of very low solubility
Freezing point:	< -50 °C	(760 mmHg)
Boiling point:	89 °C	(760 mmHg)
Vapour pressure:	approx. 1.3 hPa	(25 °C) (calculated)
Density:	0.90 g/cm3	(20 °C, 1.013 hPa)
Partitioning coefficient n-octanol/water (log Pow):	0.6 - 3.2	(23 °C) (OECD Guideline 117)
Viscosity, dynamic:	40.1 mPa.s	(20 °C)
Viscosity, kinematic:	43.8 mm2/s	(20 °C) (OECD 114)
Particle size:		The substance / product is marketed or used in a non solid or granular form.
Solubility in water:		slightly soluble
Other Information:	No data available.	

10. Stability and Reactivity

Decomposition products:
carbon monoxide, carbon dioxide

Corrosion to metals:
No corrosive effect on metal.

Oxidizing properties:
not fire-propagating (other)

11. Toxicological information

Acute toxicity

Oral:
Type of value: LD50
Species: rat
Value: > 5,000 mg/kg (BASF-Test)

Irritation / corrosion

Skin:
Species: rabbit
Result: non-irritant
Method: OECD Guideline 404

Eye:
Species: rabbit
Result: Risk of serious damage to eyes.
Method: OECD Guideline 405

Repeated dose toxicity

Experimental/calculated data:
OECD Guideline 407 rat (Wistar) (male/female) gavage , Testes
NOAEL: 300 mg/kg
LOAEL: 1,000 mg/kg

Genetic toxicity

Experimental/calculated data:
OECD Guideline 474 Micronucleus assay mouse (NMRI) (male) gavage negative

12. Ecological Information

Fish

Acute:
OECD Guideline 203 semistatic
Brachydanio rerio/LC50 (96 h): 68 mg/l
The details of the toxic effect relate to the nominal concentration. The product is highly volatile. Tested in a closed test system.

Aquatic invertebrates

Acute:
OECD Guideline 202, part 1 static
Daphnia magna/EC50 (48 h): 63.6 mg/l
The details of the toxic effect relate to the nominal concentration. The product is highly volatile. Tested in a closed test system.

Chronic:
OECD Guideline 211 semistatic Daphnia magna (NOEC) 21 d 10 mg/l
The details of the toxic effect relate to the nominal concentration. The product is highly volatile. Tested in a closed test system.

Aquatic plants

Toxicity to aquatic plants:
OECD Guideline 201 static
green algae/EC50 (72 h): 98 mg/l
The details of the toxic effect relate to the nominal concentration. The product is highly volatile. Tested in a closed test system.

Degradability / Persistence
Biological / Abiological Degradation

Test method:	OECD 301F; ISO 9408; 92/69/EEC, C.4-D (aerobic), activated sludge, domestic
Method of analysis:	BOD of the ThOD
Degree of elimination:	approx. 100 % (28 d)
Evaluation:	Readily biodegradable (according to OECD criteria).

13. Disposal considerations

Waste disposal of substance:
Do not discharge into waterways or sewer systems without proper authorization. Dispose of in accordance with national, state and local regulations.

Container disposal:
Dispose of container and any rinsate in an environmentally safe manner.

RCRA: D001

14. Transport Information

Land transport
USDOT

Hazard class:	3
Packing group:	III
ID number:	UN 1989
Hazard label:	3
Proper shipping name:	ALDEHYDES, N.O.S. (contains BUTYRALDEHYDE, ISOBUTYRALDEHYDE)

Sea transport
IMDG

Hazard class:	3
Packing group:	III
ID number:	UN 1989
Hazard label:	3
Marine pollutant:	NO
Proper shipping name:	ALDEHYDES, N.O.S. (contains BUTYRALDEHYDE, ISOBUTYRALDEHYDE)

Air transport
IATA/ICAO

Hazard class:	3
Packing group:	III
ID number:	UN 1989
Hazard label:	3
Proper shipping name:	ALDEHYDES, N.O.S. (contains BUTYRALDEHYDE, ISOBUTYRALDEHYDE)

15. Regulatory Information

Federal Regulations

Registration status:
Chemical TSCA, US released / listed

OSHA hazard category: Chronic target organ effects reported; Combustible Liquid; Sensitizer; Skin and/or eye irritant

EPCRA 311/312 (Hazard categories): Chronic; Acute; Fire

State regulations

State RTK	CAS Number	Chemical name
MA, NJ, PA	71-36-3	n-butanol

#014

MA, PA	645-62-5	2-ethylhex-2-enal

16. Other Information

NFPA Hazard codes:
Health : 2 Fire: 2 Reactivity: 0 Special:

HMIS III rating
Health: 2¤ Flammability: 2 Physical hazard: 0

NFPA and HMIS use a numbering scale ranging from 0 to 4 to indicate the degree of hazard. A value of zero means that the substance possesses essentially no hazard; a rating of four indicates extreme danger. Although similar, the two rating systems are intended for different purposes, and use different criteria. The NFPA system was developed to provide an on-the-spot alert to the hazards of a material, and their severity, to emergency responders. The HMIS system was designed to communicate workplace hazard information to employees who handle hazardous chemicals.

We support worldwide Responsible Care® initiatives. We value the health and safety of our employees, customers, suppliers and neighbors, and the protection of the environment. Our commitment to Responsible Care is integral to conducting our business and operating our facilities in a safe and environmentally responsible fashion, supporting our customers and suppliers in ensuring the safe and environmentally sound handling of our products, and minimizing the impact of our operations on society and the environment during production, storage, transport, use and disposal of our products.

MSDS Prepared by:
BASF NA Product Regulations
msds@basf.com
MSDS Prepared on: 2010/09/14

IMPORTANT: WHILE THE DESCRIPTIONS, DESIGNS, DATA AND INFORMATION CONTAINED HEREIN ARE PRESENTED IN GOOD FAITH AND BELIEVED TO BE ACCURATE , IT IS PROVIDED FOR YOUR GUIDANCE ONLY. BECAUSE MANY FACTORS MAY AFFECT PROCESSING OR APPLICATION/USE, WE RECOMMEND THAT YOU MAKE TESTS TO DETERMINE THE SUITABILITY OF A PRODUCT FOR YOUR PARTICULAR PURPOSE PRIOR TO USE. NO WARRANTIES OF ANY KIND, EITHER EXPRESSED OR IMPLIED, INCLUDING WARRANTIES OF MERCHANTABILITY OR FITNESS FOR A PARTICULAR PURPOSE, ARE MADE REGARDING PRODUCTS DESCRIBED OR DESIGNS, DATA OR INFORMATION SET FORTH, OR THAT THE PRODUCTS, DESIGNS, DATA OR INFORMATION MAY BE USED WITHOUT INFRINGING THE INTELLECTUAL PROPERTY RIGHTS OF OTHERS. IN NO CASE SHALL THE DESCRIPTIONS, INFORMATION, DATA OR DESIGNS PROVIDED BE CONSIDERED A PART OF OUR TERMS AND CONDITIONS OF SALE. FURTHER, YOU EXPRESSLY UNDERSTAND AND AGREE THAT THE DESCRIPTIONS, DESIGNS, DATA, AND INFORMATION FURNISHED BY BASF HEREUNDER ARE GIVEN GRATIS AND BASF ASSUMES NO OBLIGATION OR LIABILITY FOR THE DESCRIPTION, DESIGNS, DATA AND INFORMATION GIVEN OR RESULTS OBTAINED, ALL SUCH BEING GIVEN AND ACCEPTED AT YOUR RISK.
END OF DATA SHEET

SECTION 1 - CHEMICAL PRODUCT AND COMPANY IDENTIFICATION

SDS REVISION #: New

PRODUCT IDENTIFIER: Fatty Acids, Recovered

OTHER IDENTIFIERS: None

CHEMICAL FORMULA: Mixture

RELEVANT USES: Production intermediate

DISTRIBUTED BY: Lexycon LLC.
P.O. Box 8
Nitro, WV 25143

PHONE NUMBERS: Business - (304) 755-5737 (business hours)
CHEMTREC - (800) 424-9300 (transportation emergencies)

SECTION 2 - HAZARDS IDENTIFICATION

GHS CLASSIFICATION:
Eye irritant (Category 2B)

SIGNAL WORD:
Warning!

PICTOGRAM: None required

HAZARD STATEMENTS:
Causes eye irritation

PRECAUTIONARY STATEMENTS:

Prevention
Wash exposed areas thoroughly after handling.

Response
If in eyes: Rinse cautiously with water for several minutes. Remove contact lenses, if present and easy to do. Continue rinsing. If irritation persists, get medical advice or attention.

Storage
Not applicable

Disposal
Not applicable

HAZARDS NOT OTHERWISE CLASSIFIED: None

#015

SECTION 3 - COMPOSITION / INFORMATION ON INGREDIENTS

Component	%	CAS No.
Fatty acids & glycerides	---	Mixture
Water	---	7732-18-5

SECTION 4 - FIRST AID MEASURES

IN CASE OF EYE CONTACT:

Flush with large amounts of water for at least 15 minutes, lifting upper and lower lids occasionally. Remove contact lenses, if present and easy to do. Continue rinsing. If irritation persists, get medical advice or attention.

IN CASE OF SKIN CONTACT:

Wash with soap and water. Remove contaminated clothing and launder before reuse.

IF SWALLOWED:

Rinse mouth with water and drink two glasses of water. If irritation or nausea develops, contact a physician.

IF INHALED:

If affected, move to fresh air.

MOST IMPORTANT SYMPTOMS AND EFFECTS:

Can cause eye irritation

NOTE TO PHYSICIAN:

Treat symptomatically

SECTION 5 - FIRE FIGHTING MEASURES

FLAMMABLE PROPERTIES:

This material is not easily ignited, but will burn if heated sufficiently. It meets the NFPA definition of a Class IIIB – combustible liquid.

EXTINGUISHING MEDIA:

Use water fog, foam, dry chemical or carbon dioxide.

PROTECTION OF FIREFIGHTERS:

Keep personnel removed from and upwind. Wear full protective clothing and self-contained breathing apparatus with full face-piece. Cool containers with water. Water or foam may cause frothing which can be violent, especially if sprayed into containers of hot, burning liquid. Combustion products include carbon monoxide, carbon dioxide and nitrogen compounds.

SECTION 6 - ACCIDENTAL RELEASE MEASURES

PRECAUTIONS, PROTECTIVE EQUIPMENT & EMERGENCY PROCEDURES:

Persons not wearing protective equipment should be excluded from the area of the spill until cleanup has been completed.

CONTAINMENT & CLEAN-UP:

Dike area of spill to prevent spreading and pump liquid to salvage tank. Absorb remaining liquid on vermiculite, floor absorbent or other absorbent material and shovel into containers.

SECTION 7 - HANDLING AND STORAGE

SAFE HANDLING:

Avoid contact with skin, eyes and clothing. Wash thoroughly after handling.

STORAGE:

Keep in closed or covered containers when not in use. Store in cool dry place with adequate ventilation.

SECTION 8 - EXPOSURE CONTROLS / PERSONAL PROTECTION

EXPOSURE GUIDELINES:

Not established for product or components

ENGINEERING CONTROLS:

Not required under normal conditions of use.

EYE / FACE PROTECTION:

Chemical splash goggles are advised.

SKIN PROTECTION:

Wear protective gloves such as Neoprene or Buna-N.

RESPIRATORY PROTECTION:

Not required under normal conditions of use.

SECTION 9 - PHYSICAL AND CHEMICAL PROPERTIES

Appearance: Amber liquid or paste @ 68° F (20° C)
Odor: fatty or rancid odor
Specific Gravity: <1 @ 77° F (25° C)
Evaporation Rate: Slower (Ethyl Ether = 1)
Solubility in Water: nil
Vapor Pressure: Unavailable
Initial Boiling Point: >212° F (100° C)
Volatile %: unavailable
pH: Unavailable
Flash Point: >212° F (100° C) PMCC
Upper Explosion Limit: Unavailable
Lower Explosion Limit: Unavailable
Autoignition Temperature: Unavailable

SECTION 10 - STABILITY AND REACTIVITY

REACTIVITY:
Reacts violently with strong oxidizers

STABILITY (conditions to avoid):
Stable under normal conditions of 70° F (21° C) and 14.7 psig (760 mm Hg)

POSSIBILITY OF HAZARDOUS REACTIONS:
Reacts violently with strong oxidizers

CONDITIONS TO AVOID:
None known

INCOMPATIBILE MATERIALS:
Avoid contact with strong oxidizing agents

HAZARDOUS DECOMPOSITION PRODUCTS:
Thermal decomposition may generate carbon dioxide, carbon monoxide, acrid smoke and fumes.

DECOMPOSITION:
None known

#015

SECTION 11 - TOXICOLOGICAL INFORMATION

LIKELY ROUTES OF EXPOSURE:
Skin and eye contact and inhalation

SYMPTOMS:
Eyes: Tearing, redness and irritation

Skin: Redness

Breathing: None known

Swallowing: Nausea

EFFECTS FROM EXPOSURE:
Immediate: Causes eye irritation

Delayed: None known

Chronic: None known

TOXICITY DATA:
No data available

CARCINOGENICITY
This product is not reported to have any carcinogenic effects. This product (or components) is not listed in IARC Monographs, the current NTP Report on Carcinogens or the current ACGIH TLVs as a carcinogen or potential carcinogen. OSHA does not regulate it as a carcinogen.

SECTION 12 - ECOLOGICAL INFORMATION

ECOTOXICITY:
No data available for product

PERSISTENCE AND BIODEGRADABILITY
Expected to be completely biodegradable

BIOACCUMULATIVE POTENTIAL:
Not bioaccumulative

Section 12 continued on next page

#015

SECTION 12 - ECOLOGICAL INFORMATION (continued)

MOBILITY IN SOIL:
No data available

PBT & vPvB ASSESSMENT:
No data available

OTHER ADVERSE EFFECTS:
None known

SECTION 13 - DISPOSAL CONSIDERATIONS

Material that cannot be recovered or reused should be sent to a licensed disposal facility for drying and disposal in a landfill. Material collected on absorbent material may be deposited in a landfill in accordance with all applicable local, state and federal regulations.

This product, if disposed of, is not considered a hazardous waste under current RCRA definitions.

SECTION 14 - TRANSPORT INFORMATION

Not regulated under current U.S DOT, TDG (Canadian), ICAO (air) or IMO (water) transport regulations.

SECTION 15 - REGULATORY INFORMATION

TSCA INFORMATION:
All components in this product are in compliance with TSCA Inventory requirements or exempt from reporting.

CEPA:
All components in this product are listed on the Canadian Domestic Substances List (DSL).

SARA:
CERCLA/SARA 302: Not applicable
CERCLA/SARA 311/312: Not applicable
CERCLA/SARA 313: Not applicable

#015

SECTION 16 - OTHER INFORMATION

PREPARATION DATE: August 15, 2014
SUPERCEDES: Not applicable
REASON FOR REVISION: New SDS

The product information contained herein is believed to be accurate as of the date of the Safety Data Sheet, and is provided without warranty, expressed or implied, as to the results of use of this information or the product to which it relates. Recipient assumes all responsibility for the use of this information and the use (alone or in combination with any other product), storage or disposal of the product, including any resultant personal injury or property damage.

END OF REPORT

FEC-02

Preparation date: August 15, 2014

Safety Data Sheet

SECTION 1 - CHEMICAL PRODUCT AND COMPANY IDENTIFICATION

SDS REVISION #: New

PRODUCT IDENTIFIER: FEC-03

OTHER IDENTIFIERS: None

CHEMICAL FORMULA: Mixture

RELEVANT USES: Flotation collector

DISTRIBUTED BY: Lexycon LLC.
P.O. Box 8
Nitro, WV 25143

PHONE NUMBERS: Business - (304) 590-2266 (business hours)
CHEMTREC - (800) 424-9300 (transportation emergencies)

SECTION 2 - HAZARDS IDENTIFICATION

GHS CLASSIFICATION:
Skin irritant (Category 2), Serious eye damage (Category 1),
Combustible liquid (Category 4)

SIGNAL WORD:
Danger!

HAZARD STATEMENTS:
Causes skin irritation and serious eye damage. Combustible liquid.

PRECAUTIONARY STATEMENTS:

Prevention

Wear protective gloves and eye and face protection. Wash exposed areas thoroughly after handling. Keep away from flames and hot surfaces. – No smoking..

Response

If in eyes: Rinse cautiously with water for several minutes. Remove contact lenses, if present and easy to do. Continue rinsing. Immediately call a physician. If on skin: Wash with plenty of soap and water. Take off contaminated clothing and wash it before reuse. If irritation occurs: get medical attention. In case of fire: Use water fog, foam, dry chemical or carbon dioxide.

Section 2 continued on next page

#016

SECTION 2 - HAZARDS IDENTIFICATION (continued)

PRECAUTIONARY STATEMENTS (continued):

Storage

Store in a well-ventilated place. Keep cool.

Disposal

Dispose of container in accordance with all applicable regulations.

HAZARDS NOT OTHERWISE CLASSIFIED: None

SECTION 3 - COMPOSITION / INFORMATION ON INGREDIENTS

Component	%	CAS No.
Blend of lipids & heavy naphthenics	100	Proprietary*

*The specific chemical identity is being withheld as “trade secret” in accordance with 29 CFR 1910.1200(i)

SECTION 4 - FIRST AID MEASURES

IN CASE OF EYE CONTACT:

Immediately flush with large amounts of water for at least 15 minutes, lifting upper and lower lids occasionally. Remove contact lenses, if present and easy to do. Get immediate medical attention. Do not use chemical antidote.

IN CASE OF SKIN CONTACT:

Immediately flush exposed area with water, and then wash with soap and water. If reddening persists, or if open sores or blisters develop, see a physician. Remove contaminated clothing and launder before re-use.

IF SWALLOWED:

Immediately rinse mouth with water. If conscious, give two large glasses of milk, if available, or water. Never give anything by mouth to an unconscious person. Call a physician.

IF INHALED:

Move to fresh air. If breathing has stopped, give artificial respiration. Get immediate medical attention.

MOST IMPORTANT SYMPTOMS AND EFFECTS:

Contact with eyes may cause severe, permanent damage.

NOTE TO PHYSICIAN:

Treat symptomatically

SECTION 5 - FIRE FIGHTING MEASURES

FLAMMABLE PROPERTIES:

This material is a combustible liquid. Heating product above its flash point will generate vapors sufficient to support combustion. Vapors are heavier than air, and may travel along the ground to remote ignition sources. Vapors may then ignite explosively.

This material meets the NFPA definition of a Class IIIA – combustible liquid.

EXTINGUISHING MEDIA:

Use water fog, foam, dry chemical or carbon dioxide

PROTECTION OF FIREFIGHTERS:

Keep personnel removed from and upwind. Wear full protective clothing and self-contained breathing apparatus with full face-piece. Cool containers with water. Water or foam may cause frothing which can be violent, especially if sprayed into containers of hot, burning liquid. Combustion products include carbon monoxide, carbon dioxide and various hydrocarbons.

SECTION 6 - ACCIDENTAL RELEASE MEASURES

PRECAUTIONS, PROTECTIVE EQUIPMENT & EMERGENCY PROCEDURES:

Eliminate all open flames, heat, sparks and other ignition sources from the area of the spill. Use only explosion-proof equipment. Persons not wearing protective equipment should be excluded from the area of the spill until cleanup has been completed.

CONTAINMENT & CLEAN-UP:

Dike area of spill to prevent spreading and pump liquid to salvage tank. Pump liquid to salvage tank. Absorb remaining liquid on vermiculite, floor absorbent or other non-combustible absorbent material and shovel into containers.

SECTION 7 - HANDLING AND STORAGE

SAFE HANDLING:

Avoid contact with skin, eyes and clothing. Avoid inhalation of vapors. Wash thoroughly after handling. When transferring product from containers, protect against static discharge in accordance with NFPA 77 Part 7.13.

STORAGE:

Keep in closed or covered containers when not in use. Store in cool dry place with adequate ventilation, away from heat, sparks and open flames.

SECTION 8 - EXPOSURE CONTROLS / PERSONAL PROTECTION

EXPOSURE GUIDELINES:

Heavy naphthenic	No exposure limits established; however, the raw material supplier recommended exposure limit is that of Stoddard Solvent – Petroleum Distillate ACGIH TLV – 20 ppm

ENGINEERING CONTROLS:

Provide sufficient ventilation to maintain exposure below level of overexposure and established exposure limits.

EYE / FACE PROTECTION:

Chemical splash goggles in compliance with OSHA regulations are advised.

SKIN PROTECTION:

Wear protective gloves such as Neoprene or Buna-N and normal work clothing covering arms and legs.

RESPIRATORY PROTECTION:

Not required under normal conditions of use; however, a NIOSH/MSHA approved respirator with organic vapor cartridge is recommended where there is insufficient ventilation to maintain exposure below established exposure limits.

SECTION 9 - PHYSICAL AND CHEMICAL PROPERTIES

Appearance: Brown liquid @ 68° F (20° C)
Odor: Strong
Specific Gravity: 0.88-0.92 @ 77° F (25° C)
Evaporation Rate: Slower
(Ethyl Ether = 1)
Solubility in Water: nil
Vapor Pressure: Unavailable

Initial Boiling Point: Unavailable
Volatile %: >50
pH: Unavailable
Flash Point: >150° F (65.5^{o} C) PMCC
Upper Explosion Limit: Unavailable
Lower Explosion Limit: Unavailable
Autoignition Temperature: Unavailable

#016

SECTION 10 - STABILITY AND REACTIVITY

REACTIVITY:

Reacts with strong oxidizing agents, strong acids, chlorine and hypochlorites

STABILITY (conditions to avoid):

Stable under normal conditions of 70° F (21° C) and 14.7 psig (760 mm Hg)

POSSIBILITY OF HAZARDOUS REACTIONS:

Contact with strong acids or oxidizers may result in a violent reaction.

CONDITIONS TO AVOID:

Keep away from heat, sparks, open flames or other sources of ignition

INCOMPATIBILE MATERIALS:

Avoid contact with strong oxidizing agents, strong acids, chlorine and hypochlorites

HAZARDOUS DECOMPOSITION PRODUCTS:

Not anticipated under normal conditions of use.

DECOMPOSITION:

Thermal decomposition can produce carbon monoxide, carbon dioxide, acrid smoke and fumes.

SECTION 11 - TOXICOLOGICAL INFORMATION

LIKELY ROUTES OF EXPOSURE:

Skin and eye contact and inhalation

SYMPTOMS:

Eyes: Symptoms include pain and irritation.
Skin: Symptoms include redness and irritation.
Inhalation: Symptoms include headache, dizziness, nausea and irritation of the nose and throat

EFFECTS FROM EXPOSURE:

Immediate: Material can cause severe eye irritation. In severe cases, of eye contact, ulceration and permanent blindness may occur. May cause skin irritation.
Delayed: Prolonged or repeated inhalation of vapors, spray or mist, in excess of the established exposure limit, may cause damage to lungs and kidneys.
Chronic: Unavailable

Section 11 continued on next page

SECTION 11 - TOXICOLOGICAL INFORMATION (continued)

TOXICITY DATA::

No data available for product

CARCINOGENICITY

This product is not reported to have any carcinogenic effects. This product (or components) is not listed in IARC Monographs, the current NTP Report on Carcinogens or the current ACGIH TLVs as a carcinogen or potential carcinogen. OSHA does not regulate it as a carcinogen.

SECTION 12 - ECOLOGICAL INFORMATION

ECOTOXICITY:

No data available for product

PERSISTENCE AND BIODEGRADABILITY

No data available

BIOACCUMULATIVE POTENTIAL:

No data available

MOBILITY IN SOIL:

No data available

OTHER ADVERSE EFFECTS:

No data available

SECTION 13 - DISPOSAL CONSIDERATIONS

Incineration is the recommended disposal method for all chemical wastes. Material collected on absorbent material may be deposited in a landfill in accordance with all applicable local, state and federal regulations.

This product, if disposed of, is not considered a hazardous waste under current RCRA definitions.

SECTION 14 - TRANSPORT INFORMATION

U.S. DOT TRANSPORT INFORMATION:

Identification Number:	NA 1993
Shipping name:	Combustible liquids, NOS
Technical Description:	(contains heavy naphthenics)
Class:	3
Packing Group:	III

Placard:

This material is not regulated in containers of 119 gallons (450 L) capacity or less for domestic surface transportation (49 CFR 173.150(f)).

IMO (WATER) AND ICAO (AIR) TRANSPORT INFORMATION:

Not regulated for transport

SECTION 15 - REGULATORY INFORMATION

TSCA INFORMATION:

All components in this product are in compliance with TSCA Inventory requirements or exempt from reporting.

SARA:

CERCLA/SARA 302: None
CERCLA/SARA 311/312: Acute, fire
CERCLA/SARA 313: None

SECTION 16 - OTHER INFORMATION

PREPARATION DATE: August 15, 2014
SUPERCEDES: Not applicable
REASON FOR REVISION: New SDS

The product information contained herein is believed to be accurate as of the date of the Safety Data Sheet, and is provided without warranty, expressed or implied, as to the results of use of this information or the product to which it relates. Recipient assumes all responsibility for the use of this information and the use (alone or in combination with any other product), storage or disposal of the product, including any resultant personal injury or property damage.

END OF REPORT

FEC-03

Preparation date: August 15, 2014

Safety Data Sheet

SECTION 1 - CHEMICAL PRODUCT AND COMPANY IDENTIFICATION

SDS REVISION #: 001

PRODUCT IDENTIFIER:	FEC-03
OTHER IDENTIFIERS:	None
CHEMICAL FORMULA:	Mixture
RELEVANT USES:	Flotation collector
DISTRIBUTED BY:	Lexycon LLC. P.O. Box 8 Nitro, WV 25143
PHONE NUMBERS:	Business - (304) 590-2266 (business hours) CHEMTREC - (800) 424-9300 (transportation emergencies)

SECTION 2 - HAZARDS IDENTIFICATION

GHS CLASSIFICATION:

Skin irritant (Category 2), Serious eye damage (Category 1), Combustible liquid (Category 4)

SIGNAL WORD:

Danger!

HAZARD STATEMENTS:

Causes skin irritation and serious eye damage. Combustible liquid.

PRECAUTIONARY STATEMENTS:

Prevention

Wear protective gloves and eye and face protection. Wash exposed areas thoroughly after handling. Keep away from flames and hot surfaces. – No smoking..

Response

If in eyes: Rinse cautiously with water for several minutes. Remove contact lenses, if present and easy to do. Continue rinsing. Immediately call a physician. If on skin: Wash with plenty of soap and water. Take off contaminated clothing and wash it before reuse. If irritation occurs: get medical attention. In case of fire: Use water fog, foam, dry chemical or carbon dioxide.

Section 2 continued on next page

SECTION 2 - HAZARDS IDENTIFICATION (continued)

PRECAUTIONARY STATEMENTS (continued):

Storage

Store in a well-ventilated place. Keep cool.

Disposal

Dispose of container in accordance with all applicable regulations.

HAZARDS NOT OTHERWISE CLASSIFIED: None

SECTION 3 - COMPOSITION / INFORMATION ON INGREDIENTS

Component	%	CAS No.
Blend of lipids & heavy naphthenics	100	Proprietary*

*The specific chemical identity is being withheld as "trade secret" in accordance with 29 CFR 1910.1200(i)

SECTION 4 - FIRST AID MEASURES

IN CASE OF EYE CONTACT:

Immediately flush with large amounts of water for at least 15 minutes, lifting upper and lower lids occasionally. Remove contact lenses, if present and easy to do. Get immediate medical attention. Do not use chemical antidote.

IN CASE OF SKIN CONTACT:

Immediately flush exposed area with water, and then wash with soap and water. If reddening persists, or if open sores or blisters develop, see a physician. Remove contaminated clothing and launder before re-use.

IF SWALLOWED:

Immediately rinse mouth with water. If conscious, give two large glasses of milk, if available, or water. Never give anything by mouth to an unconscious person. Call a physician.

IF INHALED:

Move to fresh air. If breathing has stopped, give artificial respiration. Get immediate medical attention.

MOST IMPORTANT SYMPTOMS AND EFFECTS:

Contact with eyes may cause severe, permanent damage.

NOTE TO PHYSICIAN:

Treat symptomatically

SECTION 5 - FIRE FIGHTING MEASURES

FLAMMABLE PROPERTIES:

This material is a combustible liquid. Heating product above its flash point will generate vapors sufficient to support combustion. Vapors are heavier than air, and may travel along the ground to remote ignition sources. Vapors may then ignite explosively.

This material meets the NFPA definition of a Class IIIA – combustible liquid.

EXTINGUISHING MEDIA:

Use water fog, foam, dry chemical or carbon dioxide

PROTECTION OF FIREFIGHTERS:

Keep personnel removed from and upwind. Wear full protective clothing and self-contained breathing apparatus with full face-piece. Cool containers with water. Water or foam may cause frothing which can be violent, especially if sprayed into containers of hot, burning liquid. Combustion products include carbon monoxide, carbon dioxide and various hydrocarbons.

SECTION 6 - ACCIDENTAL RELEASE MEASURES

PRECAUTIONS, PROTECTIVE EQUIPMENT & EMERGENCY PROCEDURES:

Eliminate all open flames, heat, sparks and other ignition sources from the area of the spill. Use only explosion-proof equipment. Persons not wearing protective equipment should be excluded from the area of the spill until cleanup has been completed.

CONTAINMENT & CLEAN-UP:

Dike area of spill to prevent spreading and pump liquid to salvage tank. Pump liquid to salvage tank. Absorb remaining liquid on vermiculite, floor absorbent or other non-combustible absorbent material and shovel into containers.

SECTION 7 - HANDLING AND STORAGE

SAFE HANDLING:

Avoid contact with skin, eyes and clothing. Avoid inhalation of vapors. Wash thoroughly after handling. When transferring product from containers, protect against static discharge in accordance with NFPA 77 Part 7.13.

STORAGE:

Keep in closed or covered containers when not in use. Store in cool dry place with adequate ventilation, away from heat, sparks and open flames.

SECTION 8 - EXPOSURE CONTROLS / PERSONAL PROTECTION

EXPOSURE GUIDELINES:

Heavy naphthenic	No exposure limits established; however, the raw material supplier recommended exposure limit is that of Stoddard Solvent – Petroleum Distillate ACGIH TLV – 20 ppm

ENGINEERING CONTROLS:

Provide sufficient ventilation to maintain exposure below level of overexposure and established exposure limits.

EYE / FACE PROTECTION:

Chemical splash goggles in compliance with OSHA regulations are advised.

SKIN PROTECTION:

Wear protective gloves such as Neoprene or Buna-N and normal work clothing covering arms and legs.

RESPIRATORY PROTECTION:

Not required under normal conditions of use; however, a NIOSH/MSHA approved respirator with organic vapor cartridge is recommended where there is insufficient ventilation to maintain exposure below established exposure limits.

SECTION 9 - PHYSICAL AND CHEMICAL PROPERTIES

Appearance: Brown liquid @ 68° F (20° C)
Odor: Strong
Specific Gravity: 0.88-0.92 @ 77° F (25° C)
Evaporation Rate: Slower
(Ethyl Ether = 1)
Solubility in Water: nil
Vapor Pressure: Unavailable

Initial Boiling Point: Unavailable
Volatile %: >50
pH: Unavailable
Flash Point: >150° F (65.5^{o} C) PMCC
Upper Explosion Limit: Unavailable
Lower Explosion Limit: Unavailable
Autoignition Temperature: Unavailable

SECTION 10 - STABILITY AND REACTIVITY

REACTIVITY:

Reacts with strong oxidizing agents, strong acids, chlorine and hypochlorites

STABILITY (conditions to avoid):

Stable under normal conditions of 70° F (21° C) and 14.7 psig (760 mm Hg)

POSSIBILITY OF HAZARDOUS REACTIONS:

Contact with strong acids or oxidizers may result in a violent reaction.

CONDITIONS TO AVOID:

Keep away from heat, sparks, open flames or other sources of ignition

INCOMPATIBILE MATERIALS:

Avoid contact with strong oxidizing agents, strong acids, chlorine and hypochlorites

HAZARDOUS DECOMPOSITION PRODUCTS:

Not anticipated under normal conditions of use.

DECOMPOSITION:

Thermal decomposition can produce carbon monoxide, carbon dioxide, acrid smoke and fumes.

SECTION 11 - TOXICOLOGICAL INFORMATION

LIKELY ROUTES OF EXPOSURE:

Skin and eye contact and inhalation

SYMPTOMS:

Eyes: Symptoms include pain and irritation.
Skin: Symptoms include redness and irritation.
Inhalation: Symptoms include headache, dizziness, nausea and irritation of the nose and throat

EFFECTS FROM EXPOSURE:

Immediate: Material can cause severe eye irritation. In severe cases, of eye contact, ulceration and permanent blindness may occur. May cause skin irritation.
Delayed: Prolonged or repeated inhalation of vapors, spray or mist, in excess of the established exposure limit, may cause damage to lungs and kidneys.
Chronic: Unavailable

Section 11 continued on next page

SECTION 11 - TOXICOLOGICAL INFORMATION (continued)

TOXICITY DATA::

No data available for product

CARCINOGENICITY

This product is not reported to have any carcinogenic effects. This product (or components) is not listed in IARC Monographs, the current NTP Report on Carcinogens or the current ACGIH TLVs as a carcinogen or potential carcinogen. OSHA does not regulate it as a carcinogen.

SECTION 12 - ECOLOGICAL INFORMATION

ECOTOXICITY:

No data available for product

PERSISTENCE AND BIODEGRADABILITY

No data available

BIOACCUMULATIVE POTENTIAL:

No data available

MOBILITY IN SOIL:

No data available

OTHER ADVERSE EFFECTS:

No data available

SECTION 13 - DISPOSAL CONSIDERATIONS

Incineration is the recommended disposal method for all chemical wastes. Material collected on absorbent material may be deposited in a landfill in accordance with all applicable local, state and federal regulations.

This product, if disposed of, is not considered a hazardous waste under current RCRA definitions.

SECTION 14 - TRANSPORT INFORMATION

U.S. DOT TRANSPORT INFORMATION:

Identification Number:	NA 1993
Shipping name:	Combustible liquids, NOS
Technical Description:	(contains heavy naphthenics)
Class:	3
Packing Group:	III

Placard:

This material is not regulated in containers of 119 gallons (450 L) capacity or less for domestic surface transportation (49 CFR 173.150(f)).

IMO (WATER) AND ICAO (AIR) TRANSPORT INFORMATION:
Not regulated for transport

SECTION 15 - REGULATORY INFORMATION

TSCA INFORMATION:
All components in this product are in compliance with TSCA Inventory requirements or exempt from reporting.

SARA:
CERCLA/SARA 302: None
CERCLA/SARA 311/312: Acute, fire
CERCLA/SARA 313: None

SECTION 16 - OTHER INFORMATION

PREPARATION DATE: August 15, 2014
SUPERCEDES: New SDS dated May 14, 2014
REASON FOR REVISION: Updated to GHS

The product information contained herein is believed to be accurate as of the date of the Safety Data Sheet, and is provided without warranty, expressed or implied, as to the results of use of this information or the product to which it relates. Recipient assumes all responsibility for the use of this information and the use (alone or in combination with any other product), storage or disposal of the product, including any resultant personal injury or property damage.

END OF REPORT

SECTION 1 - CHEMICAL PRODUCT AND COMPANY IDENTIFICATION

SDS REVISION #: New

PRODUCT IDENTIFIER:	ClearCat 7122
OTHER IDENTIFIERS:	Liquid cationic polymer
CHEMICAL FORMULA:	Mixture
RELEVANT USES:	Flocculant for industrial applications
DISTRIBUTED BY:	Lexycon LLC. P.O. Box 8 Nitro, WV 25143
PHONE NUMBERS:	Business - (304) 755-5737 (business hours) CHEMTREC - (800) 424-9300 (transportation emergencies)

SECTION 2 - HAZARDS IDENTIFICATION

GHS CLASSIFICATION:

Eye irritant (Category 2B)
Aquatic toxicity, acute & chronic (category 1)

SIGNAL WORD:

Warning!

HAZARD STATEMENTS:

Causes eye irritation. Very toxic to aquatic life with long-lasting effects

PRECAUTIONARY STATEMENTS:

Prevention

Wash exposed areas thoroughly after handling. Avoid release to the environment.

Response

If in eyes: Rinse cautiously with water for several minutes. Remove contact lenses, if present and easy to do. Continue rinsing. If irritation persists, get medical advice or attention. Collect spillage

Storage

Not applicable

Disposal

Dispose of container and contents in accordance with all applicable Federal, State and local regulations.

HAZARDS NOT OTHERWISE CLASSIFIED: None

SECTION 3 - COMPOSITION / INFORMATION ON INGREDIENTS

Component	%	CAS No.
Propenaminium homopolymer emulsion	100	Proprietary*

*The specific chemical identity is being withheld as “trade secret” in accordance with 29 CFR 1910.1200(i)

SECTION 4 - FIRST AID MEASURES

IN CASE OF EYE CONTACT:

Wipe off excess material, and then flush with large amounts of water, lifting upper and lower lids occasionally. Remove contact lenses, if present and easy to do. Continue rinsing. If irritation persists, get medical advice or attention.

IN CASE OF SKIN CONTACT:

Wipe off excess material, then wash exposed area with lots of soap and water. Remove contaminated clothing and launder before reuse. If irritation persists, get medical attention.

IF SWALLOWED:

Wipe excess material from mouth. Do NOT induce vomiting; vomiting may cause material to be aspirated into the lungs, which may result in chemical pneumonitis. If vomiting occurs, keep head below shoulders. Never give anything by mouth to an unconscious person. If irritation or nausea develops, contact a physician.

IF INHALED:

If affected, move to fresh air.

MOST IMPORTANT SYMPTOMS AND EFFECTS:

Can cause eye irritation and mild skin irritation, especially in sensitive individuals.

NOTE TO PHYSICIAN:

Treat symptomatically

SECTION 5 - FIRE FIGHTING MEASURES

FLAMMABLE PROPERTIES:

Product will not, under normal conditions, burn.

EXTINGUISHING MEDIA:

Use water fog, foam, dry chemical or carbon dioxide.

Section 5 continued on next page

SECTION 5 - FIRE FIGHTING MEASURES (continued)

PROTECTION OF FIREFIGHTERS:

Keep personnel removed from and upwind. Wear full protective clothing and self-contained breathing apparatus with full face-piece. Cool containers with water. Combustion products include carbon monoxide, carbon dioxide and nitrogen compounds. This product is toxic to fish and other aquatic organisms: prevent run-off to sewers, streams and other bodies of water. Spilled material is very slippery.

SECTION 6 - ACCIDENTAL RELEASE MEASURES

PRECAUTIONS, PROTECTIVE EQUIPMENT & EMERGENCY PROCEDURES:

Persons not wearing protective equipment should be excluded from the area of the spill until cleanup has been completed. Spilled product is very slippery.

CONTAINMENT & CLEAN-UP:

Dike area of spill to prevent spreading and pump liquid to salvage tank. Absorb remaining liquid on vermiculite, floor absorbent or other absorbent material and shovel into containers. Flush area of spill with water until no longer slippery and pump to a salvage tank.

This product is toxic to fish and other aquatic organisms: prevent run-off to sewers, streams and other bodies of water.

SECTION 7 - HANDLING AND STORAGE

HANDLING:

Avoid contact with skin, eyes and clothing. Wash thoroughly after handling.

STORAGE:

Keep in closed or covered containers when not in use. Store in cool dry place with adequate ventilation. Product may freeze, and stratify upon thawing. Warm slowly and mix thoroughly before using.

SECTION 8 - EXPOSURE CONTROLS / PERSONAL PROTECTION

EXPOSURE GUIDELINES:

Not established for product or components

ENGINEERING CONTROLS:

Provide sufficient ventilation to maintain exposure below level of overexposure.

EYE / FACE PROTECTION:

Chemical splash goggles, in compliance with OSHA regulations, are advised.

Section 8 continued on next page

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SECTION 8 - EXPOSURE CONTROLS / PERSONAL PROTECTION (continued)

SKIN PROTECTION:

Wear protective gloves such as Neoprene or Buna-N.

RESPIRATORY PROTECTION:

Not required under normal conditions of use.

SECTION 9 - PHYSICAL AND CHEMICAL PROPERTIES

Appearance: Viscous, straw-colored liquid @ 68 ^{o}F (20 ^{o}C)
Odor: Slight amine or musty odor
Relative Density: 1.02-1.04 @ 77 ^{o}F (25 ^{o}C)
Weight per gallon: ~8.63 lbs./gal.
Evaporation Rate: Slower (Ethyl Ether = 1)
Solubility in Water: Completely miscible with an increase in viscosity

Vapor Pressure: Unavailable
Vapor Density: Unavailable
Initial Boiling Point: >212 ^{o}F (100 ^{o}C)
VOC %: nil
pH: 4-8
Flash Point: >212 ^{o}F (100 ^{o}C) CC
Upper Explosion Limit: Unavailable
Lower Explosion Limit: Unavailable
Autoignition Temperature: >392 oF (200 ^{o}C)

SECTION 10 - STABILITY AND REACTIVITY

REACTIVITY:

Reacts violently with strong oxidizers

STABILITY (conditions to avoid):

Stable under normal conditions of 70 ^{o}F (21 ^{o}C) and 14.7 psig (760 mm Hg)

POSSIBILITY OF HAZARDOUS REACTIONS:

Reacts violently with strong oxidizers

CONDITIONS TO AVOID:

None known

INCOMPATIBILE MATERIALS:

Avoid contact with strong oxidizing agents, iron, mild steel, copper, copper alloys or aluminum

HAZARDOUS DECOMPOSITION PRODUCTS:

Thermal decomposition products include carbon monoxide, carbon dioxide and nitrogen compounds.

DECOMPOSITION:

None known

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SECTION 11 - TOXICOLOGICAL INFORMATION

LIKELY ROUTES OF EXPOSURE:
Skin and eye contact

SYMPTOMS:
Eyes: Tearing, redness and irritation

Skin: Redness

Breathing: None known

Swallowing: Nausea

EFFECTS FROM EXPOSURE:
Immediate: Causes eye irritation

Delayed: None known

Chronic: None known

TOXICITY DATA:
Acute Oral LD_{50} (rat) – >2,000 mg/kg
Primary dermal Irritation – not irritating. No effects observed after 24 hours.
Eye irritation – minor, transient irritation

AMES Test - not mutagenic
Micronucleus test on mice - not mutagenic
Not teratogenic - NOEL= 175 mg/kg

Chronic
90-day Oral (rat) NOEL – 5,000 mg/kg

Two-year feeding studies on rats and dogs did not reveal any adverse health effects.

CARCINOGENICITY
This product is not reported to have any carcinogenic effects. This product (or components >0.1%) is not listed in IARC Monographs, the current NTP Report on Carcinogens or the current ACGIH TLVs as a carcinogen or potential carcinogen. OSHA does not regulate it as a carcinogen.

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SECTION 12 - ECOLOGICAL INFORMATION

ECOTOXICITY (based on a similar product):

96-hr LC_{50} (rainbow trout) - 0.42 mg/L
96-hr LC_{50} (*Danio rerio*) - >10 mg/L (OECD 203)
96-hr LC_{50} (fathead minnow, bluegill sunfish) – 0.42-1.28 mg/L
48-hr LC_{50} (daphnia) – 0.33 mg/L
48-hr EC_{50} (*Daphnia magna*) – >10 mg/L (OECD 202)
72-hr EC_{50} (algae) – 0.16 mg/L
72-hr NOEC (algae) – 0.065 mg/L

BOD5 = 44,000 mg/L
COD = 250,000 mg/L

PERSISTENCE AND BIODEGRADABILITY

Not readily biodegradable (~40% after 28 days)

BIOACCUMULATIVE POTENTIAL:

Does not bioaccumulate

MOBILITY IN SOIL:

No data available

PBT & vPvB ASSESSMENT:

No data available

OTHER ADVERSE EFFECTS:

None known

SECTION 13 - DISPOSAL CONSIDERATIONS

Incineration is the recommended disposal method for all chemical wastes. Empty containers and material collected on absorbent material may be deposited in a landfill in accordance with all applicable local, state and federal regulations.

This product, if disposed of, is not considered a hazardous waste under current RCRA definitions.

SECTION 14 - TRANSPORT INFORMATION

Not regulated under current U.S DOT, TDG (Canadian), ICAO (air) or IMO (water) transport regulations.

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SECTION 15 - REGULATORY INFORMATION

TSCA INFORMATION:

All components in this product are in compliance with TSCA Inventory requirements or exempt from reporting.

CEPA:

All components in this product are listed on the Canadian Domestic Substances List (DSL).

SARA:

CERCLA/SARA 302: Not applicable
CERCLA/SARA 311/312: Not applicable
CERCLA/SARA 313: Not applicable

SECTION 16 - OTHER INFORMATION

PREPARATION DATE: April 15, 2014
SUPERCEDES: Not applicable
REASON FOR REVISION: New SDS

The product information contained herein is believed to be accurate as of the date of the Safety Data Sheet, and is provided without warranty, expressed or implied, as to the results of use of this information or the product to which it relates. Recipient assumes all responsibility for the use of this information and the use (alone or in combination with any other product), storage or disposal of the product, including any resultant personal injury or property damage.

END OF REPORT

Material Safety Data Sheet

Section 1. Chemical Product and Company Identification

Product/Trade Name	SYLVABLEND® FVM	**Code**	FVM
		MSDS#	6495
		Validation Date	2/7/2005
		Print Date	2/7/2005
Supplier / Manufacturer	Arizona Chemical P.O. Box 550850 Jacksonville, FL 32255-0850 USA (800) 526-5294 / (904) 928-8700	**EMERGENCY PHONE** CHEMTREC: 1-800-424-9300 (transportation and medical)	
Chemical Name	Terpenes and Derivatives		

Section 2. Composition and Information on Ingredients

Name	CAS #	% by Weight
1) Proprietary Mixture	Proprietary, NJTSRN-6495	100

See Section 8 for Exposure Controls/ Exposure Limits/ Personal Protection Information.

Section 3. Hazards Identification

EMERGENCY OVERVIEW

Combustible liquid and vapor and will burn when exposed to heat, spark or flame. Vapors may travel a long distance to a source of ignition and flash back. After prolonged contact with highly porous materials, this product may spontaneously combust. Product is a brown semi-viscous liquid with a citrus-licorice to strong pine and sulfury odor. Eye, skin and mucous membrane irritant. Vapors may also produce eye, skin and mucous membrane irritation. Harmful if inhaled, swallowed or absorbed through skin. Excessive inhalation of this material may cause dizziness, nausea, and respiratory tract congestion. Excessive exposure may result in phneumonitis, pulmonary edema, rapid heart rate, and central nevous system depression. Ingestion of this product may cause nausea, vomiting and diarrhea.

HMIS

HEALTH:	2
FIRE:	2
REACTIVITY:	0
PPE:	see Section 8 of this MSDS.

0=Minimal; 1=Slight; 2=Moderate; 3=Serious; 4=Severe; (*)=Chronic health hazard.

Potential Health Effects

Eye Contact	Product and product vapors are severely irritating to the eyes. Contact may cause severe pain, burns and corneal injury.
Skin Contact	Product is irritating to the skin. Irritation may be severe. Product may be absorbed through skin. Prolonged or repeated absorption may produce central nervous system depression associated with nausea, headache, dizziness, and respiratory depression. Prolonged or repeated contact may cause drying/defatting of the skin. Chronic skin contact may cause allergic skin sensitization.
Inhalation	Vapors and mists are irritating to mucous membranes and respiratory system. Excessive inhalation may result in pneumonitis, pulmonary edema, rapid heart rate, and central nervous system depression. Severe overexposure may produce more serious symptoms, including coma and risk of kidney damage. Aspiration into lungs may cause severe damage, including chemical pneumonitis and pulmonary edema.
Ingestion	Ingestion may cause gastrointestinal irritation, including burning, nausea, vomiting and diarrhea. Ingestion of large amounts may cause ataxia, confusion, rapid heartbeat, kidney and bladder damage, seizures, respiratory depression, coma and death.

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Section 4. First Aid Measures

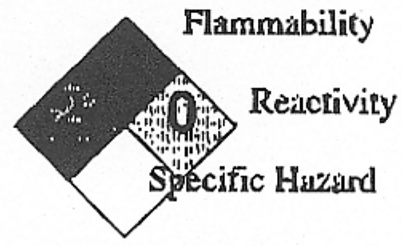
Eye Contact	Immediately flush eyes with flooding amounts of cool, low pressure water for at least 15 minutes. Seek immediate medical attention immediately.
Skin Contact	In case of skin contact, wash immediately with soap and water. If irritation develops or persists, get medical attention. Launder contaminated clothing before reuse.
Inhalation	Move person to non-contaminated air. If affected person is not breathing, apply artificial respiration. Seek medical attention.
Ingestion	If swallowed, contact a physician or poison control center immediately. DO NOT induce vomiting.
Notes to Physician	If aspirated into lungs, this material may cause chemical pneumonitis; Treat the affected person appropriately.

****If victims of chemical over-exposure are taken for medical attention, give a copy of the label or MSDS to the physician/health professional.****

Section 5. Fire and Explosion Data

Flammability of the Product	Combustible liquid.
Auto-Ignition Temperature	Not available
Flash Point	CLOSED CUP: >60°C (140°F). (Setaflash Closed Cup.)
Flammable Limits	Not available.

NFPA 704



0=Minimal; 1=Slight; 2=Moderate; 3=Serious; 4=Severe

This information is for people trained in the National Fire Protection Association's (NFPA 704) Identification of the Fire Hazards of Materials.

General Fire Hazards	DANGEROUS when exposed to heat or flame. Vapor may travel considerable distance to source of ignition and flash back. Empty container may retain product residue, including flammable or explosive vapors. Do not cut, drill, grind, or weld near full, partially full, or empty product containers.
Hazardous Decomposition Products	Upon decomposition, product emits carbon monoxide, carbon dioxide and/or low molecular weight hydrocarbons.
Extinguishing Media	Carbon dioxide, dry chemical or water. Avoid accumulation of water. Floating product may reignite on the surface of the water.
Fire Fighting Equipment and Instructions	Wear full protective clothing, including self-contained positive pressure/pressure demand breathing apparatus, helmet, and protective clothing. Use water spray to cool fire-exposed containers and to protect personnel.

Section 6. Accidental Release Measures

Containment	Eliminate all sources of ignition or flammables that may come into contact with a spill of this material. Dike spilled material, where this is possible. Do not allow product to enter public drainage systems or open water courses.
Clean-up Procedures	Spills may present a slipping (physical) hazard. Wear appropriate protective equipment and clothing during clean-up. Avoid skin and eye contact. Ventilate contaminated area. Absorb spilled material with an inert material. Use spark proof tools. Shovel material into appropriate container for disposal. Thoroughly wash spill area with water after clean-up. WATER SPILL: product may be regulated as an oil under the Clean Water Act. Follow all applicable regulations. Follow all Local, State, Federal and Provincial regulations for disposal.
Evacuation Procedures	Isolate area. Keep personnel away. In case of large spills, follow all facility emergency response procedures.
Special Instructions	Avoid inhalation of vapors or mists from the spilled material. Avoid contact with skin and eyes. Remove soiled clothing and launder before reuse.

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Section 7. Handling and Storage

Handling

Avoid eye and skin contact. Avoid breathing vapors or mists of this material. Use only with adequate ventilation. Keep away from heat, sparks, or open flame. Do not use air pressure or apply heat with open flame to remove contents of drum. After emptied, drum may retain solid, liquid, and/or vapor residues. Continue to observe all precautions on label as if drum were full. Do not cut, puncture, torch, or weld on or near the emptied drum. Do not use for other purposes. Empty drums should be triple-rinsed and reprocessed or disposed of in compliance with Local, State, Federal, and Provincial Environmental Regulations. Follow guidelines as established for NFPA Class II Combustible Liquids, NFPA 30 Flammable and Combustible Liquids Code. Maintain good housekeeping. Some porous materials such as clothing, rags, paper, insulation, or clay when wetted with this product may undergo spontaneous combustion. Keep such wetted materials well ventilated to prevent possible heat buildup. An explanation of spontaneous combustion is available in Technical bulletin #2. Please contact customer service to request a copy. Wash thoroughly after handling. Never eat, drink, or smoke in work areas. Practice good personal hygiene after using this material, especially before eating, drinking, smoking, using the toilet or applying cosmetics.

Storage

Store at atmospheric pressure. Avoid warm storage. Store in tightly closed/properly vented containers. Protect containers against physical damage. Store in a cool, dry, well-ventilated place away from strong oxidizers and corrosives. Follow guidelines as established for NFPA Class II Combustible Liquids, NFPA 30 Flammable and Combustible Liquids Code. Do not store in opened or unlabeled containers.

Section 8. Exposure Controls/Personal Protection

Engineering Controls

Provide local exhaust and general ventilation systems to maintain airborne concentrations below OSHA, ACGIH, and manufacturer recommended exposure limits. Local exhaust ventilation is preferred because it prevents contaminant dispersion into work areas by controlling it at its source. Use local and general exhaust ventilation to effectively remove and prevent buildup of vapors/mists generated from the handling of this product. Use electrically grounded, explosion-proof equipment for ventilation or any handling of this product.

Personal Protection

Eye/Face: Wear chemical goggles: face shield if splashing is possible. Ensure compliance with OSHA's personal protective equipment (PPE) standard for eye and face protection, 29 CFR 1910.133.

Skin: Use impervious gloves. Work clothing sufficient to prevent all skin contact should be worn, such as coveralls and long sleeves. Ensure compliance with OSHA's personal protective equipment (PPE) standard, 29 CFR 1910.132 (general) and 138 (hand protection).

Respiratory: GAS/VAPOR: Respirators should be selected by and used under the direction of a trained health and safety professional following requirements found in OSHA's respirator standard (29 CFR 1910.134) and ANSI's standard for respiratory protection (Z88.2-1992). A written respiratory protection program, including provisions for medical certification, training, fit-testing, exposure assessments, maintenance, inspection, cleaning, and convenient, sanitary storage, must be implemented. For concentrations above the TLV and/or PEL but less than 10 times these limits, a NIOSH approved half-facepiece respirator equipped with appropriate chemical cartridges may be used. For concentrations greater than 10 times the TLV and/or PEL, consult the NIOSH respirator decision logic found in Publicaton No. 87-116 or ANSI Z88.2-1992. Warning! Air-purifying respirators do not protect workers in oxygen-deficient atmospheres.

General: Use good industrial hygiene practices in handling this material. Remove contaminated clothing immediately and do not reuse without laundering. Eye wash fountains and emergency showers are recommended.

Observe exposure limits for turpentine:
ACGIH TLV TWA: 100 ppm (556 mg/m^3);
OSHA PEL TWA: 100 ppm (560 mg/m^3).

Observe exposure limits for Oil Mist (NOC):
ACGIH TLV TWA: 5 mg/m^3; **STEL TWA:** 10 mg/m^3;
OSHA PEL TWA: 5 mg/m^3.

Chemical Name or Product Name	CAS #	OSHA PEL	ACGIH TLV
1) Proprietary Mixture	Proprietary, NJTSRN-6495	Not established Note: OSHA and ACGIH Recommended exposure limit is 100ppm (557 mg/m^3) / 8hr TWA based on turpentine.	Not established

NOTE: The 1989 OSHA PELSs were vacated in 1993 and are not currently enforceable by Federal OSHA. However, some state OSHA programs may still enforce the 1989 limits.

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Section 9. Physical and Chemical Properties

Physical state and appearance	Liquid. (semi-viscous)	Vapor Density	Not available.
Odor	Citrus/licorice to pine oil/sulfury odor	Percent Volatile (EPA Method 24)	100%
Color	Brown. (Dark.)	Solubility (water)	Negligible
Molecular Weight	Not applicable.	Density (vs. water)	Not available.
Specific Gravity	<1 (Water = 1)	Flash Point	CLOSED CUP: >60°C (140°F). (Setaflash Closed Cup.)
Boiling Point	Not available	R/B Softening Point	Not applicable.
pH	Not applicable.	Acid No. (per ASTM D-465)	Not available.

Section 10. Stability and Reactivity Data

Chemical Stability	The product is stable.
Conditions to avoid	Avoid strong oxidizng agents. This product may react with strong acids. Avoid prolonged contact with porous materials. Avoid prolonged storage in hot areas. Keep away from ignition sources.
Incompatibility	May react with strong oxidizing agents. May react with strong acids.
Hazardous Decomposition Products	Upon decomposition, product emits carbon monoxide, carbon dioxide and/or low molecular weight hydrocarbons.
Hazardous Polymerization	Violent polymerization may occur from contamination with acids.

Section 11. Toxicological Information

Toxicity to Animals

Toxicological information is not available on this product as a whole, however, this product may contain some or all of the following components:

Trans-anethole:
ORAL, rat, LD50 = 2090 mg/kg;
DERMAL, rabbit, LD50 = > 5 g/kg.

Reproductive effects on fertility were seen in rats receiving 800 mg/kg trans-anethole exposed during day 1 to day 10 of pregnancy. Trans anethole was shown to be a hepatocarcinogen in female rats only at the highest dose tested, which exceeded the maximum tolerated dose (MTD). Doses at or below the MTD caused neither carcinomas nor alterations in liver function. However, anethole has been shown to cause modest heptatic enzyme induction in rats.

Cis-anethole:
ORAL, rat, LD50 = 150 mg/kg

Toxicological information is not available on this product as a whole, however, information of the components is as follows:

Terpene resin:
ORAL, rats, LD50 = > 10,000 mg/kg;
DERMAL, rabbits, LD50 = > 10,000 mg/kg;
INHALATION, rats, LC50 = 627 mg/l/min.

In laboratory tests, rabbits exhibited mild eye irritation only when sample remained in contact with eyes for 24 hours.

Limonene:
ORAL, rat, LD50 = >5000 mg/kg.
Dermal, rabbit, LD50 = >2000 mg/kg.

Skin irritation studies in rabbits have shown limonene to be a moderate irritatant. Skin sensitization has been shown in guinea pig studies using air-oxidized limonene. No significant reactions were obtained using limonene of 98% purity, while limonene after exposure to air for 2 months sensitized guinea pigs. Two-year studies showed clear evidence of carcinogenicity in the kidneys of male rats. There was no evidence of carcinogenic activity for female rats or mice of either sex. Inhibition of cholesterol biosynthesis occured in the small intestine of rats after administration of limonene for 7 days, but no significant effect on the secretion of radiolabeled cholesterol into bile and feces was observed. Ames

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Salmonella Assay showed limonene to be non-mutagenic. Some teratogenic effects have been seen in rats and mice. Maternal toxicity was seen in rabbits.

Pine Oil:
ORAL, rat, LD50 = 2700 mg/kg;
DERMAL, rabbit, LD50 = >2000 mg/kg;
INHALATION, rats, LC50 = > 3.8 mg/l.

Skin irritation studies in rabbits have shown Pine oil to be a moderate irritant at 72 hours. Product was not found to be a skin sensitizer in guinea pigs. Primary eye irritation studies in rabbits showed corneal opacity that was not reversible within seven days; pine oil showed no corrositivity. Animals exposed to product exhibited symptoms including salivation, lethargy, ataxia, respiratory distress, and bilateral ocular discharge. Changes in brain, kidneys, adrenals, lungs, thymus and gastrointestinal tract were noted in rats that died during the study. Skin lesions of varying degrees of severity were observed in dermal animal studies. Pine oil was found to be non-teratogenic. Various mutagenic studies showed pine oil to be non-mutagenic.

Toxicity to Humans

Material is irritating to mucous membranes and upper respiratory tract. Aspiration may cause chemical pneumonitis and pulmonary edema/hemmorhage.

Excessive inhalation of this material may cause central nervous system depression. Symptoms include headache, dizziness, nausea and incoordination. Severe overexposure may produce more serious symptoms, including hypotension, bradycardia, respiratory depression, ataxia, coma and possible kidney damage. Skin sensitization, characterized by redness, inflammation, itching and/or burning may result from prolonged or repeated contact.

CARCINOGENIC EFFECTS: None of this product's components are listed as carcinogens by ACGIH, IARC, NIOSH, NTP or OSHA. **MUTAGENIC EFFECTS:** Not available. **TERATOGENIC EFFECTS:** Not available. No information available on the toxicity of this product to the reproductive system.

Section 12. Ecological Information

Ecotoxicity

A spill of this product may produce significant toxicity to aquatic organisms and ecosystems. Concentrations of a similar product, at approximately 100 ppm have been demonstrated to be toxic to fish in 96 hour exposures (species not identified). However, some studies have shown that certain bacteria and fungus have the ability to degrade terpenes and thus decrease their toxicity to fish.

Information on Pine Oil (a potential component) is as follows:
Pine oil:
ORAL, Northern Bobwhite, LD50 = > 2250 mg/kg (NOEL = 486 mg/kg);
DIETARY, Northern Bobwhite, LC50 = > 5620 ppm (NOEL = 55620 ppm);
ORAL, Mallard, LD50 = > 2250 mg/kg (NOEL = 292 mg/kg);
DIETARY, Mallard, LC50 = > 5620 ppm (NOEL = 3160 ppm);

Acute Fish toxicity (Bluegill):
LC50 = 53 mg/l;

Acute Fish toxicity (Rainbow trout):
LC50 = 18 mg/l;

Acute toxicity (Daphnia magna):
EC50 = 24 mg/l.

When spilled, this product may act as an oil, causing a film, sheen, emulsion, or sludge at or beneath the surface of a body of water. Oils of any kind can cause: (a) drowning of waterfowl due to lack of bouancy, loss of insulating capacity of feathers, starvation and vulnerability to predators due to lack of mobility; (b) lethal effect on fish by coating gill surfaces, preventing respiration; (c) potential fish kills resulting from alteration in biochemical oxygen demand; (d) asphyxiation of benthic life forms when floating masses become engaged with surface debris and settle on the bottom; and (e) adverse aesthetic effects of fouled shoreline and beaches.

Environmental Fate

Based on similar products, this product may interfere with water treatment processes, including settling and floc formation, and may plug filters and exchange beds.

Continued on Next Page

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Section 13. Disposal Considerations

Waste Disposal	Do not allow this material to drain into sewers/water supplies. Wastes may be classified as an ignitable waste (DOO1). Wastes must be tested using methods described in 40 CFR 261 to determine if it meets applicable definitions of hazardous waste. No EPA Waste Numbers are applicable for this product's components. Dispose of waste material according to Local, State, Federal, and Provincial Environmental Regulations. Write to the address listed in Section 1 for information on heavy metals analysis and other disposal information.

Section 14. Transport Information

DOT Classification	DOT CLASS 3: Combustible liquid with a flash point greater than 60.556°C (141°F).
Proper Shipping Name	Combustible liquid, n.o.s. (terpenes)
DOT Identification Number	UN1993
Packing Group	III
Hazardous Substances Reportable Quantity	Not available.
Special Provisions for Transport	No additional information.
Additional Shipping Information	Marine Pollutant
International Transportation Regulations	Not Determined

Section 15. Regulatory Information

Federal and State Regulations

OSHA: Hazardous by definition of Hazard Communication Standard (29 CFR 1910.1200).

SARA TITLE III:
SARA Section 302 (40 CFR 355 Appendix A): **None of this product's components are listed;**
SARA Section 311/312: **Fire Hazard, Immediate (Acute) Health Hazard;**
SARA Section 313 (40 CFR 372.65): **None of this product's components are listed;**
CERCLA (40 CFR 302.4): **None of this product's components are listed.**

EPA, Clean Water Act: Regulated as a non-petroleum based oil. Spills of this material to navigable waters in quantities sufficient to produce "sheen" are reportable.

TSCA Inventory: All of this product's components are listed.

State Lists: None of this product's components are listed in CA, FL, MA, MN, NJ, or PA.

This product may contain trace levels of ethylbenzene, a component of xylene, which is currently on the California List of Known Carcinogens and Reproductive Toxins.

Section 16. Other Information

Key/Legend ACGIH = American Conference of Governmental Industrial Hygienists. ANSI = American National Standards Institute. ASTM = American Society for Testing and Materials. CERCLA = Comprehensive Environmental Response, Compensation and Liability Act. DOT = Department of Transportation. EPA = Environmental Protection Agency. IARC = International Agency for Research on Cancer. LD = Lethal Dose. NIOSH = National Institute of Occupational Health and Safety. NTP = National Toxicology Program. OSHA = Occupational Safety and Health Administration. PEL = Permissible Exposure Limit. SARA = Superfund Amendments and Reauthorization Act. TLV = Threshold Limit Value. TSCA = Toxic Substance Control Act.

Validated by Cindy Smith on 2/7/2005.

Verified by Product Regulatory Affairs.

Printed 2/7/2005.

Supersedes Date 04/23/02 **Reason for Revision** **Updated Section 15.**

Notice to Reader

Reasonable care has been taken in the preparation of this information, but the manufacturer makes no warranty of merchantability or any other warranty, expressed or implied, with respect to this information. The manufacturer makes no representations and assumes no liability for any direct, incidental or consequential damages resulting form its use.

Continued on Next Page

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#016

Material Safety Data Sheet

#020

NFPA	HMIS	PPE	Transport Symbol

Issuing Date 22-Aug-2007 **Revision Date** **Revision Number** 0

1. PRODUCT AND COMPANY IDENTIFICATION

Product Name **Crude Glycerin**

Recommended Use Cosmetic agent. Food additive. Pharmaceutical excipient. Lubricant. Antifreeze.

Supplier Address

Renewable Energy Group, Inc.
416 S. Bell Ave.
Ames, IA 50010
TEL: 1-888-734-8686

Company Emergency Phone Number 1-800-633-8253

Emergency Telephone Number CHEMTREC: +1-703-527-3887 (INTERNATIONAL)
1-800-424-9300 (NORTH AMERICA)

2. HAZARDS IDENTIFICATION

CAUTION!

Emergency Overview

May cause skin and eye irritation
May cause irritation of respiratory tract
May cause adverse kidney effects

Appearance Colorless to brown **Physical State** Liquid **Odor** Musty

Potential Health Effects
Principle Routes of Exposure Inhalation, Skin contact, Eye contact.

Acute Toxicity

Eyes	May cause slight irritation.
Skin	Substance may cause slight skin irritation.
Inhalation	Inhalation of vapors in high concentration may cause irritation of respiratory system.
Ingestion	Ingestion may cause gastrointestinal irritation, nausea, vomiting and diarrhea.

Chronic Effects No known effect based on information supplied.

Aggravated Medical Conditions Preexisting eye disorders. Kidney disorders. Skin disorders.

Environmental Hazard See Section 12 for additional Ecological Information.

3. COMPOSITION/INFORMATION ON INGREDIENTS

Common Name Crude Glycerin.
Chemical Family Glycerin, containing water, salt and residual methanol.
Formula $C_3H_8O_3$

Chemical Name	CAS-No	Weight %
Glycerol	56-81-5	60-100
Water	7732-18-5	10-30
Sodium chloride (NaCl)	7647-14-5	5-10
Methyl alcohol	67-56-1	<0.1

4. FIRST AID MEASURES

Eye Contact Rinse thoroughly with plenty of water for at least 15 minutes and consult a physician.

Skin Contact Wash skin with soap and water. In the case of skin irritation or allergic reactions see a physician.

Inhalation Move to fresh air. If symptoms persist, call a physician.

Ingestion Do not induce vomiting. Rinse mouth. Drink 1 or 2 glasses of water. Never give anything by mouth to an unconscious person. If symptoms persist, call a physician.

Notes to Physician Treat symptomatically.

5. FIRE-FIGHTING MEASURES

Flammable Properties Combustible material: may burn but does not ignite readily.

Flash Point 160°C / 320°F

Suitable Extinguishing Media Water spray. Carbon dioxide (CO_2). Dry chemical. Dry powder. Alcohol-resistant foam.

Hazardous Combustion Products Carbon monoxide, Carbon dioxide (CO_2), Formaldehyde.

Explosion Data
Sensitivity to mechanical impact None
Sensitivity to static discharge None

Specific Hazards Arising from the Chemical Keep product and empty container away from heat and sources of ignition.

Protective Equipment and Precautions for Firefighters As in any fire, wear self-contained breathing apparatus pressure-demand, MSHA/NIOSH (approved or equivalent) and full protective gear.

NFPA	**Health Hazard** 1	**Flammability** 1	**Stability** 0	**Physical and Chemical Hazards** -
HMIS	**Health Hazard** 1	**Flammability** 1	**Stability** 0	**Personal Precautions** B

6. ACCIDENTAL RELEASE MEASURES

Personal Precautions Use personal protective equipment. Ensure adequate ventilation.

Methods for Containment Dike to collect large liquid spills. Cover with dry sand/earth. Prevent further leakage or spillage if safe to do so.

Methods for Cleaning Up Dam up. Cover liquid spill with sand, earth or other noncombustible absorbent material. Take up mechanically and collect in suitable container for disposal. Clean contaminated surface thoroughly. After cleaning, flush away traces with water.

Other Information Refer to protective measures listed in Sections 7 and 8.

7. HANDLING AND STORAGE

Handling Wear personal protective equipment. Ensure adequate ventilation. Avoid contact with skin and eyes.

Storage Keep tightly closed in a dry and cool place.

8. EXPOSURE CONTROLS / PERSONAL PROTECTION

Exposure Guidelines

Chemical Name	ACGIH TLV	OSHA PEL	NIOSH IDLH
Glycerol	TWA: 10 mg/m^3	TWA: 15 mg/m^3 TWA: 5 mg/m^3 (vacated) TWA: 10 mg/m^3 (vacated) TWA: 5 mg/m^3	

Engineering Measures Showers, eyewash stations, and ventilation systems.

Personal Protective Equipment

Eye/Face Protection Safety glasses with side-shields.

Skin and Body Protection Protective gloves.

Respiratory Protection If exposure limits are exceeded or irritation is experienced, NIOSH/MSHA approved respiratory protection should be worn. Positive-pressure supplied air respirators may be required for high airborne contaminant concentrations. Respiratory protection must be provided in accordance with current local regulations.

Hygiene Measures Handle in accordance with good industrial hygiene and safety practice. Provide regular cleaning of equipment, work area and clothing.

9. PHYSICAL AND CHEMICAL PROPERTIES

Appearance	Colorless to brown	**Odor**	None
Odor Threshold	No information available	**Physical State**	Liquid
pH	5-7.5		
Flash Point	160°C / 320°F	**Autoignition Temperature**	No information available
Decomposition Temperature	280°C	**Boiling Point**	290°C / 554°F (at 1 atm)
Melting Point	< 0°C (< 32°F)		
Flammability Limits in Air	No information available	**Explosion Limits**	No information available
Specific Gravity	1.26 @ 20°C	**Water Solubility**	Soluble in water
Solubility	No information available	**Evaporation Rate**	No information available
Vapor Pressure	No data available	**Vapor Density**	No data available
VOC Content	<0.2% (residual methanol only)	**Viscosity**	21 cP @ 40°C
Partition Coefficient (n-octanol/water)	No data available		

10. STABILITY AND REACTIVITY

Stability	Stable under recommended storage conditions.
Incompatible Products	Strong oxidizing agents. Strong acids.
Conditions to Avoid	Exposure to air or moisture over prolonged periods.
Hazardous Decomposition Products	Carbon monoxide (CO). Carbon dioxide (CO_2). Formaldehyde. Acrolein.
Hazardous Polymerization	Hazardous polymerization does not occur.

11. TOXICOLOGICAL INFORMATION

Acute Toxicity

Product Information

Irritation May cause skin and eye irritation. May cause irritation to mucous membranes and respiratory tract.

Component Information

Chronic Toxicity

Chronic Toxicity No known effect based on information supplied.

Target Organ Effects Eyes, Respiratory system, Skin, Kidney.

12. ECOLOGICAL INFORMATION

Ecotoxicity

Ecotoxicity effects of component substances.

Chemical Name	Toxicity to Algae	Toxicity to Fish	Microtox	Daphnia Magna (Water Flea)
Glycerol		LC50 51000 - 57000 mg/L Oncorhynchus mykiss 96 h		EC50 > 500 mg/L 24 h
Sodium chloride (NaCl)	N/A	N/A	N/A	EC50 = 1000 mg/L 48 h
Methyl alcohol		LC50= 13200 mg/L Oncorhynchus mykiss 96 h	EC50 = 39000 mg/L 25 min	

Persistence and Degradability Product is biodegradable.

Bioaccumulation/ Accumulation Does not bioaccumulate.

Mobility Will likely be mobile in the environment due to its water solubility but will likely degrade over time.

Chemical Name	Log Pow
Glycerol	-1.76
Methyl alcohol	-0.77

13. DISPOSAL CONSIDERATIONS

Waste Disposal Method This material, as supplied, is not a hazardous waste according to Federal regulations (40 CFR 261). This material could become a hazardous waste if it is mixed with or otherwise comes in contact with a hazardous waste, if chemical additions are made to this material, or if the material is processed or otherwise altered. Consult 40 CFR 261 to determine whether the altered material is a hazardous waste. Consult the appropriate state, regional, or local regulations for additional requirements.

Contaminated Packaging Dispose of in accordance with local regulations.

14. TRANSPORT INFORMATION

DOT Not regulated

TDG Not regulated

MEX Not regulated

ICAO Not regulated

IATA Not regulated

IMDG/IMO Not regulated

RID Not regulated

ADR Not regulated

14. TRANSPORT INFORMATION

ADN Not regulated

#020

#020

15. REGULATORY INFORMATION

International Inventories

TSCA	Complies
DSL	Complies
EINECS/ELINCS	Complies
ENCS	Complies
IECSC	Complies
KECL	Complies
PICCS	Complies
AICS	Complies

U.S. Federal Regulations

SARA 313

Section 313 of Title III of the Superfund Amendments and Reauthorization Act of 1986 (SARA). This product contains a chemical or chemicals which are subject to the reporting requirements of the Act and Title 40 of the Code of Federal Regulations, Part 372:

Chemical Name	CAS-No	Weight %	SARA 313 - Threshold Values %
Methyl alcohol	67-56-1	<0.1	1.0

SARA 311/312 Hazard Categories

Acute Health Hazard	No
Chronic Health Hazard	No
Fire Hazard	No
Sudden Release of Pressure Hazard	No
Reactive Hazard	No

Clean Water Act

This product does not contain any substances regulated as pollutants pursuant to the Clean Water Act (40 CFR 122.21 and 40 CFR 122.42).

CERCLA

This material, as supplied, does not contain any substances regulated as hazardous substances under the Comprehensive Environmental Response Compensation and Liability Act (CERCLA) (40 CFR 302) or the Superfund Amendments and Reauthorization Act (SARA) (40 CFR 355). There may be specific reporting requirements at the local, regional, or state level pertaining to releases of this material.

U.S. State Regulations

California Proposition 65

This product does not contain any Proposition 65 chemicals.

U.S. State Right-to-Know Regulations

Chemical Name	Massachusetts	New Jersey	Pennsylvania	Illinois	Rhode Island
Glycerol	X		X		X

International Regulations

Mexico - Grade Slight risk, Grade 1

Chemical Name	Carcinogen Status	Exposure Limits
Glycerol		Mexico: TWA= 10 mg/m^3

Canada

This product has been classified in accordance with the hazard criteria of the Controlled Products Regulations (CPR) and the MSDS contains all the information required by the CPR.

WHMIS Hazard Class
Non-controlled

16. OTHER INFORMATION

Issuing Date	22-Aug-2007
Revision Date	
Revision Note	No information available

Disclaimer
The information provided on this MSDS is correct to the best of our knowledge, information and belief at the date of its publication. The information given is designed only as a guide for safe handling, use, processing, storage, transportation, disposal and release and is not to be considered as a warranty or quality specification. The information relates only to the specific material designated and may not be valid for such material used in combination with any other material or in any process, unless specified in the text.

End of MSDS

#020

REG Ralston, LLC.
33321 215th St
Ralston, IA 51459

Bill of Lading

Order Date	07/03/2014	Ship To:	
Ship Date	07/07/2014		
Appt Time	15:30:07	LEXYCON, LLC (ACH)	
Order Number	189398	FOB Destination	
PO Number	LPO-00151	NITRO	WV
			25143

EPA Generator ID
EPA Facility ID: 82614
EPA Company ID: 4985

EPA Facility ID:
EPA Company ID:

Purchase Order/Contract:
REG Contract No: 140703-7451

Item Number	4452	Qty Shipped	48,040 LBS
Description	INT-CRUDE GLYCERIN	Gross	79,880 LBS
Form	POUNDS	Tare	31,840 LBS
		Net	48,040 LBS
Hauler	Wegner	Avg Temp	0 °F
Driver	Brian	Converted volume to 60 °F	
Signature	Brian Bank		
Inspected By		Truck Number	24
Loaded By	kirk	Trailer Number	68061

Lot Number	701G80140605T132
Seal Number	7166525/7166526
Comments	

The sulfur content of this diesel fuel additive does not exceed 15 ppm.

Gary Arch 7/8/14

REG Renewable Energy Group	Certificate of Analysis Crude Glycerin FM.LB.01 Crude Glycerin Certificate of Analysis 20130417	**BQ-9000 Producer**

Sample ID Number:	IRE-20140819-T7	Date Reported:	August 25 2014

Test Parameters	Results	Limits	Units	Test Method
Glycerin Content	80.49	80, min	% mass	AOCS Ea 6-51
Methanol Content	0.01	0.1, max	% mass	AOCS Ba13-87
Water Content	11.72	12, max	% mass	ASTM E 203
Total Fatty Acid	0.04	1.0, max	% mass	AOCS Ca 5b-71
pH	5.98	5 - 7.5	N/A	Meter
Ash	6.45	8, max	% mass	AOAC 942.05 (modified)
Gardner Color	5	Report	N/A	AOCS Td-1A-64

MONG ("Matter Organic Not Glycerin") is a calculated value that is sometimes included in glycerin Certificates of Analysis.
If desired, MONG can be calculated by subtracting the reported percentages of glycerin, water, and ash from 100%.

Prepared By: _ *Richard Bartley* *Lab Manager* *Iowa Renewable Energy, LLC* *19 August 2014*

Name Title Facility Date

Please call REG Inside Sales, Renewable Energy Group, Inc at (515) 239-8000 with any questions regarding this product

.1175 DLVD

Bill of Lading

Iowa Renewable Energy, LLC.

1701 East 7th Street
Washington, IA 52353

Voice: (319) 653-2890
Fax: (319) 653-3330

Ship Date: 8/22/14
Load Number: 232
Sales Order Number:

Bill To:
REG M&L
416 S. Bell Avenue
Ames, IA 50010-0888

Ship To:
REG

LPO-00232
LEXYCON, LLC; NITRO, WV

Carrier:	Truck Number	Trailer Number	Railcar Number
C.P.RAILROAD			FURX 125693

Driver:	Trailer Inspected by:	Loaded By:	Seal Numbers:
	JIM D.	JIM D.	004308, 004349, 004311

Description	Gross Loaded	Net Loaded	Lot Number
GLYCERIN		175010.0	IRE 20140718 T7

SEALS LEFT ON: NONE
SEALS REMOVED: NONE

Driver Signature:

IRE Signature:

Form	Railcar Inspection & Loading Checklist
	FM.LO.07 Railcar Inspection Checklist 20110920.doc

Railcar Pre-Loading Checklist

1. Railcar positioned for loading. YES ☑ NO ☐
2. Post "Tank Car Connected" sign on rail. YES ☑ NO ☐
3. Chock wheels and set brake. YES ☑ NO ☐
4. Railcar is empty, clean, and dry? YES ☑ NO ☐

   If "No", Action Taken: ☐ Railcar was refused; Marketer notified or,

   ☐ QMR or Plant Manager Authorized Loading (Signature Required): _____

   Additional Comments: _____
5. Is bottom valve in fully closed position? YES ☑ NO ☐
6. Grounding cable connected to railcar? YES ☑ NO ☐
7. Railcar number FUKX 125693 has passed all of the above inspections.

   Verified by (Initials): JL

Railcar Loading Checklist

1. Product being loaded: Glycerin
2. If B99.9, quantity of petroleum diesel added: — Gal.
3. Proper Lot Tank Valves Open/Closed and Lane 4 Coned Off? YES ☑ NO ☐
4. Customer: RCC
5. Date: 9-22-14
6. Purchase Order Number: LO-00232
7. Order Number: 00232
8. Quantity Ordered: 175,000.0 (Lbs) / Gallons
9. Metered Quantity Loaded: 175,010.0 (Lbs) / Gallons
10. Converted Net Quantity Loaded: 175,010.0 (Lbs) / Gallons
11. Lot Number: IRC 20140719 77
12. Fill arm in position for filling? YES ☑ NO ☐
13. Retain sample taken? YES ☑ NO ☐
14. Visual Inspection (Haze Rating) (Higher than 1 Contact Plant or QA Manager) —

    Verified by (Initials): JL

Railcar Post-Loading Checklist

1. Fill arm moved back in resting position away from railcar/track movement? YES ☑ NO ☐
2. Lid and valves closed? YES ☑ NO ☐
3. Lid bolts tightened and verified? YES ☑ NO ☐
4. Valves are not leaking? YES ☑ NO ☐
5. Take chocks off, leave brakes on? YES ☑ NO ☐
6. Take down "Tank Car Connected" sign? YES ☑ NO ☐
7. IRE Seal Numbers Applied: 1) 004309 2) 004349 3) 004301 4) _____
8. Seals Left On: 1) None 2) _____ 3) _____
9. Seals Removed: 1) None 2) _____ 3) _____

   Verified by (Initials): JL

REG Renewable Energy Group	Certificate of Analysis Crude Glycerin FM.L8.01 Crude Glycerin Certificate of Analysis 20130417	BQ-9000 Producer

Sample ID Number:	IRE-20140718-T7	Date Reported:	7/30/2014

Test Parameters	Results	Limits	Units	Test Method
Glycerin Content	81.77	80, min	% mass	AOCS Ea 6-51
Methanol Content	0.01	0.1, max	% mass	AOCS Ba13-87
Water Content	11.96	12, max	% mass	ASTM E 203
Total Fatty Acid	0.04	1.0, max	% mass	AOCS Ca 5b-71
pH	5.96	5 - 7.5	N/A	Meter
Ash	6.26	8, max	% mass	AOAC 942.05 (modified)
Gardner Color	6	Report	N/A	AOCS Td-1A-64

MONG ("Matter Organic Not Glycerin") is a calculated value that is sometimes included in glycerin Certificates of Analysis.
If desired, MONG can be calculated by subtracting the reported percentages of glycerin, water, and ash from 100%.

Prepared By: *Richard Bartley, Lab Manager, Iowa Renewable Energy, LLC* *30 July 2014*

Name Title Facility Date

Please call REG Inside Sales, Renewable Energy Group, Inc at (515) 239-8000 with any questions regarding this product

FURX 125693

LOADING DOCKET

Date	08/22/2014
Time Started	15:45:28
Time Stopped	16:45:03
Calibration number	1
Transaction no	166
Bay no	6
Load no	00232

Arm 1 (GLYPMP12)

Unit	Pound
Unconverted (Gross)	175010
Accumulated (Gross)	16092289
Status	0

TOTAL GLYPMP12 - Unit:	Pound
Unconverted (Gross)	175010
Converted (Net)	175010

#020

SHPX 201709

#020

LOADING DOCKET

Date	08/29/2014
Time Started	16:36:51
Time Stopped	17:42:51
Calibration number	1
Transaction no	171
Bay no	6
Load no	00234

Arm 2 (GLYPMP13)

Unit	pound
Unconverted (Gross)	190020
Accumulated (Gross)	13647867
Status	0

TOTAL GLYPMP13 - Unit:	pound
Unconverted (Gross)	190020
Converted (Net)	190020

Iowa Renewable Energy, LLC.

1701 East 7th Street
Washington, IA 52353

Voice: (319) 653-2890
Fax: (319) 653-3330

Bill of Lading

#520

Ship Date:	8/29/14
Load Number:	234
Sales Order Number:	LPO-00234

Bill To:
REG M&L
416 S. Bell Avenue
Ames, IA 50010-0888

Ship To:
REG

Carrier:	Truck Number	Trailer Number	Railcar Number
C.P. RAILROAD			SHPX 201709

Driver:	Trailer Inspected by:	Loaded By:	Seal Numbers:
	SEAN	SEAN	004321, 004346, 004360

Description	Gross Loaded	Net Loaded	Lot Number
GLYCERIN		190020.0	IRE 20140811 T8

SEALS REMOVED: NONE
SEALS LEFT ON: NONE

Driver Signature: _____

IRE Signature: _____

Form	Railcar Inspection & Loading Checklist
	FM.LO.07 Railcar Inspection Checklist 20110929.doc

#020

Railcar Pre-Loading Checklist

1. Railcar positioned for loading. YES ☑ NO ☐
2. Post "Tank Car Connected" sign on rail. YES ☑ NO ☐
3. Chock wheels and set brake. YES ☑ NO ☐
4. Railcar is empty, clean, and dry? YES ☑ NO ☐

   If "No", Action Taken: ☐ Railcar was refused; Marketer notified or,

   ☐ QMR or Plant Manager Authorized Loading (Signature Required): _____

   Additional Comments: _____
5. Is bottom valve in fully closed position? YES ☑ NO ☐
6. Grounding cable connected to railcar? YES ☑ NO ☐
7. Railcar number SHPX 201709 has passed all of the above inspections.

   Verified by (Initials): [illegible]

Railcar Loading Checklist

1. Product being loaded: Glycerin
2. If B99.9, quantity of petroleum diesel added: — Gal.
3. Proper Lot Tank Valves Open/Closed and Lane 4 Coned Off? YES ☑ NO ☐
4. Customer: REG
5. Date: 8-29-14
6. Purchase Order Number: LPO - 00234
7. Order Number: 00234
8. Quantity Ordered: 190,000.0 (Lbs) / Gallons
9. Metered Quantity Loaded: _____ (Lbs) / Gallons
10. Converted Net Quantity Loaded: _____ (Lbs) / Gallons
11. Lot Number: IRE 20140811T8
12. Fill arm in position for filling? YES ☑ NO ☐
13. Retain sample taken? YES ☑ NO ☐
14. Visual Inspection (Haze Rating) (Higher than 1 Contact Plant or QA Manager) —

    Verified by (Initials): [illegible]

Railcar Post-Loading Checklist

1. Fill arm moved back in resting position away from railcar/track movement? YES ☑ NO ☐
2. Lid and valves closed? YES ☑ NO ☐
3. Lid bolts tightened and verified? YES ☑ NO ☐
4. Valves are not leaking? YES ☑ NO ☐
5. Take chocks off, leave brakes on? YES ☑ NO ☐
6. Take down "Tank Car Connected" sign? YES ☑ NO ☐
7. IRE Seal Numbers Applied: 1) 004321 2) 004346 3) 004360 4) _____
8. Seals Left On: 1) NONE 2) _____ 3) _____
9. Seals Removed: 1) NONE 2) _____ 3) _____

   Verified by (Initials): [illegible]

REG Renewable Energy Group	Certificate of Analysis Crude Glycerin FM.LB.01 Crude Glycerin Certificate of Analysis 20130417	BQ-9000 Producer

Sample ID Number:	IRE-20140811-T8	Date Reported:	8/15/2014

Test Parameters	Results	Limits	Units	Test Method
Glycerin Content	81.31	80, min	% mass	AOCS Ea 6-51
Methanol Content	0.02	0.1, max	% mass	AOCS Ba13-87
Water Content	12.0	12, max	% mass	ASTM E 203
Total Fatty Acid	0.08	1.0, max	% mass	AOCS Ca 5b-71
pH	6.11	5 - 7.5	N/A	Meter
Ash	6.04	8, max	% mass	AOAC 942.05 (modified)
Gardner Color	7	Report	N/A	AOCS Td-1A-64

MONG ("Matter Organic Not Glycerin") is a calculated value that is sometimes included in glycerin Certificates of Analysis.
If desired, MONG can be calculated by subtracting the reported percentages of glycerin, water, and ash from 100%.

Prepared By: _ *Richard Bartley* *Lab Manager* *Iowa Renewable Energy, LLC* *August 15 2014*

Name Title Facility Date

Please call REG Inside Sales, Renewable Energy Group, Inc at (515) 239-8000 with any questions regarding this product

ACFX 72320

#020

LOADING DOCKET

Date	08/29/2014
Time Started	15:24:11
Time Stopped	16:24:28
Calibration number	1
Transaction no	170
Bay no	6
Load no	00231

Arm 2 (GLYPMP13)

Unit	pound
Unconverted (Gross)	175025
Accumulated (Gross)	13457847
Status	0

TOTAL GLYPMP13 - Unit:	pound
Unconverted (Gross)	175025
Converted (Net)	175025

Iowa Renewable Energy, LLC.

1701 East 7th Street
Washington, IA 52353

Voice: (319) 653-2890
Fax: (319) 653-3330

Bill of Lading

#525

Ship Date:	8/29/14
Load Number:	231
Sales Order Number:	LPO-00231

Bill To:	Ship To:
REG M&L 416 S. Bell Avenue Ames, IA 50010-0888	REG

Carrier:	Truck Number	Trailer Number	Railcar Number
C.P. RAILROAD			ACFX 72320

Driver:	Trailer Inspected by:	Loaded By:	Seal Numbers:
	SEAN	SEAN	004326, 004332, 004350

Description	Gross Loaded	Net Loaded	Lot Number
GLYCERIN		175025.0	IRE 20140811 T8

Driver Signature: _____

IRE Signature: _____

Form	Railcar Inspection & Loading Checklist
	FM.LO.07 Railcar Inspection Checklist 20110929.doc

#520

Railcar Pre-Loading Checklist

1. Railcar positioned for loading. YES ☑ NO ☐
2. Post "Tank Car Connected" sign on rail. YES ☑ NO ☐
3. Chock wheels and set brake. YES ☑ NO ☐
4. Railcar is empty, clean, and dry? YES ☑ NO ☐

   If "No", Action Taken: ☐ Railcar was refused; Marketer notified or,

   ☐ QMR or Plant Manager Authorized Loading (Signature Required): _____

   Additional Comments: _____
5. Is bottom valve in fully closed position? YES ☑ NO ☐
6. Grounding cable connected to railcar? YES ☑ NO ☐
7. Railcar number ACFX 72320 has passed all of the above inspections.

   Verified by (Initials): JR

Railcar Loading Checklist

1. Product being loaded: Glycerin
2. If B99.9, quantity of petroleum diesel added: — Gal.
3. Proper Lot Tank Valves Open/Closed and Lane 4 Coned Off? YES ☑ NO ☐
4. Customer: REG
5. Date: 8-29-14
6. Purchase Order Number: LPO-00231
7. Order Number: 00231
8. Quantity Ordered: 175,000.0 (Lbs) / Gallons
9. Metered Quantity Loaded: 175,025.0 (Lbs) / Gallons
10. Converted Net Quantity Loaded: 175,025.0 (Lbs) / Gallons
11. Lot Number: IRE 20140811T8
12. Fill arm in position for filling? YES ☑ NO ☐
13. Retain sample taken? YES ☑ NO ☐
14. Visual Inspection (Haze Rating) (Higher than 1 Contact Plant or QA Manager) —

    Verified by (Initials): JR

Railcar Post-Loading Checklist

1. Fill arm moved back in resting position away from railcar/track movement? YES ☑ NO ☐
2. Lid and valves closed? YES ☑ NO ☐
3. Lid bolts tightened and verified? YES ☑ NO ☐
4. Valves are not leaking? YES ☑ NO ☐
5. Take chocks off, leave brakes on? YES ☑ NO ☐
6. Take down "Tank Car Connected" sign? YES ☑ NO ☐
7. IRE Seal Numbers Applied: 1) 004326 2) 004332 3) 004350 4) _____
8. Seals Left On: 1) None 2) _____ 3) _____
9. Seals Removed: 1) None 2) _____ 3) _____

   Verified by (Initials): JR

REG Renewable Energy Group	Certificate of Analysis Crude Glycerin FM.LB.01 Crude Glycerin Certificate of Analysis 20130417	BQ-9000 Producer

Sample ID Number:	IRE-20140811-T8	Date Reported:	8/15/2014

Test Parameters	Results	Limits	Units	Test Method
Glycerin Content	81.31	80, min	% mass	AOCS Ea 6-51
Methanol Content	0.02	0.1, max	% mass	AOCS Ba13-87
Water Content	12.0	12, max	% mass	ASTM E 203
Total Fatty Acid	0.08	1.0, max	% mass	AOCS Ca 5b-71
pH	6.11	5 - 7.5	N/A	Meter
Ash	6.04	8, max	% mass	AOAC 942.05 (modified)
Gardner Color	7	Report	N/A	AOCS Td-1A-64

MONG ("Matter Organic Not Glycerin") is a calculated value that is sometimes included in glycerin Certificates of Analysis.
If desired, MONG can be calculated by subtracting the reported percentages of glycerin, water, and ash from 100%.

Prepared By: _ *Richard Bartley* *Lab Manager* *Iowa Renewable Energy, LLC* *August 15 2014*
Name Title Facility Date

Please call REG Inside Sales, Renewable Energy Group, Inc at (515) 239-8000 with any questions regarding this product

1. PRODUCT AND COMPANY IDENTIFICATION

Product Name	Tech Grade Glycerin
Supplier	J.P. Morgan Ventures Energy Corporation 383 Madison Avenue, 10th Floor New York, NY 10017
Synonyms	1,2,3-Propanetriol, Glycerin, Glycol Alcohol, Glycerol
Chemical Family	Polyhydric Alcohols
Intended Use	Industrial Use
24 Hour Emergency Numbers	Chemtrec: 800-424-9300 J.P. Morgan Technical Information: 212-834-5788 California Poison Action Line: 800-222-1222

2. COMPOSITION / INFORMATION ON INGREDIENTS

Hazardous Components Name/CAS No.	Concentration (%)	ACGIH Exposure Limits	OSHA Exposure Limits	NIOSH Exposure Limits
Glycerin 56-81-5	> 98	10 mg/m^3 TWA (Glycerin Mist)	5 mg/m^3 PEL (Glycerin Mist-Respirable Fraction) 15 mg/m^3 PEL (Glycerin Mist-Total Dust) 5 mg/m^3 TWA (Glycerin Mist-Respirable Fraction)	
Water 7732-18-5	< 2			

Note: State, local or other agencies or advisory groups may have established more stringent limits. Consult an industrial hygienist or similar professional for further information.

ACGIH - American Conference of Government Industrial Hygienists, OSHA - Occupational Safety and Health Administration, NIOSH - National Institute for Industrial Safety and Health, TWA - Time Weighted Average (8 hour average for ACGIH and OSHA, 10 hour average for NIOSH), STEL - 15 Minute Short Term Exposure Level, Skin - indicates potential for cutaneous absorption, Ceiling - Ceiling Level, Peak - Acceptable peak over the ceiling concentration for a specified number of minutes, IDLH - Immediately Dangerous to Life and Health

3. HAZARDS IDENTIFICATION

Emergency Overview

This product is a clear liquid with a mild odor. High mist concentrations may cause irritation of the respiratory tract. Keep away from heat, sparks, flames and other sources of ignition. Never siphon this product by mouth. If swallowed, this product may be aspirated into the lungs and cause lung damage or death.

Potential Acute Health Effects

Inhalation

Breathing high mist concentrations may be harmful. Mist or vapor can irritate the throat and lungs. Effects of overexposure include irritation of the eyes, nose, throat and respiratory tract and blurred vision.

Eye Contact

This product can cause eye irritation from short-term contact with liquid, mists or vapors. Symptoms include stinging, watering, redness and swelling. Effects may be more serious with repeated or prolonged contact.

Skin Contact

Mild to moderate skin irritant. Contact may cause redness, itching, burning and skin damage. Prolonged or repeated skin contact may cause drying and cracking of the skin, dermatitis (inflammation), burns and severe skin damage.

#021

3. HAZARDS IDENTIFICATION

Ingestion Ingestion may result in nausea, vomiting, diarrhea and restlessness. Aspiration (inadvertent suction) of liquid into the lungs must be avoided as even small quantities in the lungs can produce lung inflammation and damage.

Potential Chronic Health Effects

Signs and Symptoms Chronic effects of overexposure are similar to acute effects including irritation, nausea and discomfort. May cause kidney injury..

Carcinogenic Potential Specific subchronic toxicity studies have not been conducted, but this product is considered to have a low order of oral and dermal toxicity.

Target Organs Lungs, Kidneys.

Conditions Aggravated by Overexposure Persons with pre-existing skin disorders or eye problems or impaired liver or kidney function may be more susceptible to the effects of this substance.

4. FIRST AID MEASURES

Inhalation Move the exposed person to fresh air. If not breathing, clear airways and give artificial respiration. If breathing is difficult, humidified oxygen should be administered by qualified personnel. Seek medical attention if breathing difficulties continue.

Eye Flush eyes with water for at least 15 minutes. Hold eyelids apart to ensure complete irrigation of the eye. Remove contact lenses, if worn, after initial flushing. Do not use eye ointment. Seek medical attention.

Skin Remove contaminated shoes and clothing, and flush affected areas with large amounts of water. If skin surface is damaged, apply a clean dressing and seek medical attention. If skin surface is not damaged, clean affected area thoroughly with mild soap and water. Seek medical attention if tissue appears damaged or if pain or irritation persists. Launder or discard contaminated clothing.

Ingestion Aspiration hazard. Do not induce vomiting or give anything by mouth because the material can enter the lungs and cause severe lung damage. If spontaneous vomiting is about to occur, place victim's head below knees. If victim is drowsy or unconscious, place on the left side with head down. Do not leave victim unattended and observe closely for adequacy of breathing. Seek medical attention.

Notes to Physician No Data Available.

5. FIRE FIGHTING MEASURES

Flammability Classification OSHA Classification (29 CFR 1910.1200): Not Classified by OSHA as a Flammable or Combustible Liquid
NFPA Ratings: Health: 1, Flammability: 1, Reactivity: 0

Flash Point >120°C, >250°F Closed Cup (Pensky-Martens)

Flammable Limits Lower Limit: No Data Available

#021

5. FIRE FIGHTING MEASURES

Upper Limit: No Data Available

Autoignition Temperature > 500°F

Combustion Products Highly dependent on combustion conditions. Fume, smoke, carbon monoxide, carbon dioxide, sulfur and nitrogen oxides, unburned hydrocarbons.

Fire and Explosion Hazards This material is not a combustible liquid per the OSHA Hazard Communication Standard, but will ignite and burn at temperatures exceeding the flash point. Vapors are heavier than air and can accumulate in low areas. May create vapor/air explosion hazard indoors, in confined spaces, outdoors or in sewers. Vapors may travel considerable distances to a remote source of ignition where they can ignite, flash back or explode. A product container, if not properly cooled, can rupture in the heat of a fire.

Extinguishing Media Dry chemical, carbon dioxide or foam is recommended. Water spray is recommended to cool or protect exposed materials or structures. Carbon dioxide can displace oxygen. Use caution when applying carbon dioxide in confined spaces. Water may be ineffective for extinguishment, unless used under favorable conditions by experienced fire fighters.

Fire Fighting Instructions Use water spray to cool fire-exposed containers and to protect personnel. Isolate immediate hazard area and keep unauthorized personnel out. Water spray may be useful in minimizing or dispersing vapors and to protect personnel. Cool equipment exposed to fire with water. Avoid spreading burning liquid with water used for cooling.

For fires beyond the incipient stage, emergency responders in the immediate hazard area should wear bunker gear. When the potential chemical hazard is unknown, in enclosed or confined spaces, or when explicitly required by regulations, a self-contained breathing apparatus should be worn. Wear other appropriate protective equipment as conditions warrant.

6. ACCIDENTAL RELEASE MEASURES

Protective Measures Keep all sources of ignition and hot metal surfaces away from spill/release. The use of explosion-proof electrical equipment is recommended. Stay upwind and away from spill/release. Isolate immediate hazard area and keep unauthorized personnel out. Wear appropriate protective equipment as conditions warrant per Exposure Controls/Personal Protection guidelines.

Spill Management Stop the leak if it can be done without risk. Prevent spilled material from entering waterways, sewers, basements or confined areas. Contain release to prevent further contamination of soils, surface water or groundwater. Clean up spill as soon as possible using appropriate techniques such as applying non-combustible absorbent materials or pumping. Where feasible and appropriate, remove contaminated soil. Dispose of contaminated materials in a manner consistent with applicable regulations.

Reporting Report spills/releases as required, to appropriate local, state and federal authorities. US Coast Guard and Environmental Protection Agency regulations require immediate reporting of spills/release that could reach any waterway including intermittent dry creeks. Report spill/release to the National Response Center at (800) 424-8802. In case of accident or road spill, notify Chemtrec at (800) 424-9300.

7. HANDLING AND STORAGE

Handling Do NOT siphon by mouth. Use non-sparking tools and explosion-proof equipment. Open container slowly to relieve any pressure. Bond and ground all equipment when transferring from

7. HANDLING AND STORAGE

one vessel to another. Can accumulate static charge by flow or agitation. Can be ignited by static discharge. Explosion-proof electrical equipment is recommended and may be required by fire codes.

Storage

Use and store this material in cool, dry, well-ventilated areas away from heat, direct sunlight, hot metal surfaces and all sources of ignition. Post area warnings: 'No Smoking or Open Flame'. Keep away from incompatible material. Outdoor or detached storage of portable containers is preferred. Indoor storage should meet OSHA standards and appropriate fire codes.

Special Precautions

To prevent and minimize fire or explosion risk from static accumulation and discharge, effectively bond and/or ground product transfer system. Electrical equipment and fittings should comply with local fire codes.

Portable Containers

Use only approved containers. Keep containers tightly closed. Place the container on the ground before filling. Keep the nozzle in contact with the container during filling.

Empty Container Warning

Empty containers retain liquid and vapor residues and can be dangerous. Do NOT pressurize, cut, weld, braze, solder, drill, grind or expose containers to heat, flame, sparks, static electricity or other sources of ignition; they may explode and cause injury or death. Do not attempt to refill or clean containers since residue is difficult to remove. Empty drums should be completely drained, properly closed and returned to the supplier or a qualified drum reconditioner. All containers should be disposed of in an environmentally safe manner in accordance with government regulations.

8. EXPOSURE CONTROL / PERSONAL PROTECTION

General Considerations

Consider the potential hazards of this material, applicable exposure limits, job activities and other substances in the work place when designing engineering controls and selecting personal protective equipment.

Engineering Controls

Use process enclosures, local exhaust ventilation or other engineering controls to maintain airborne levels below the recommended exposure limits. An emergency eye wash station and safety shower should be located near the work station.

Personal Protective Equipment

If engineering controls or work practices are not adequate to prevent exposure to harmful levels of this material, personal protective equipment (PPE) is recommended. A hazard assessment of the work should be conducted by a qualified professional to determine what PPE is required.

Respiratory Protection

When airborne concentrations are expected to exceed the established exposure limits given in Section 2, use a NIOSH approved organic vapor respirator. Use a full-face positive-pressure supplied air respirator in circumstances where air-purifying respirators may not provide adequate protection. If internal combustion devices are used in an enclosed space, carbon monoxide will be present in the exhaust. If the airborne concentrations are above the occupational exposure limit for carbon monoxide, use a positive pressure air-supplying respirator.

Eye Protection

Safety glasses equipped with side shields are recommended as minimum protection in industrial settings. Chemical goggles should be worn during transfer operations or when there is a likelihood of misting, splashing or spraying of this material.

8. EXPOSURE CONTROL / PERSONAL PROTECTION

Skin and Body Protection Avoid skin contact. Wear long-sleeved fire-retardant garments while working with flammable and combustible liquids. Additional chemical-resistant protective gear may be required if splashing or spraying conditions exist. This may include an apron, arm covers, impervious gloves, boots and additional facial protection.

Hand Protection Avoid skin contact. Use impervious gloves (e.g., PVC, neoprene, nitrile rubber). Wash hands with plenty of mild soap and water before eating, drinking, smoking, using toilet facilities or leaving work.

9. PHYSICAL AND CHEMICAL PROPERTIES

Appearance	Clear	**Physical Form**	Liquid
Odor	Mild	**Odor Threshold**	Not Established
pH	Neutral	**Vapor Pressure**	<0.03 psi 100°F, 38°C
Vapor Density	> 3 (air = 1)	**Boiling Point/Range**	>266°F/130°C
Percent Volatile	Minimal	**Partition Coefficient**	Not established
Specific Gravity	Approx. 1.2 @ 60°F	**Density**	Approx. 10 lb/gal @ 60°F
Molecular Weight	90 – 100	**Evaporation Rate**	Not established
Flash Point	>250°F/>120°C	**Test Method**	Closed Cup (Pensky-Martens)
Explosive Limits	2.6% LEL, 11.3% UEL	**Autoignition Temperature**	> 500°F/260°C
Solubility in Water	Miscible		

10. STABILITY AND REACTIVITY

Stability Stable under normal anticipated storage and handling temperatures and pressures.

Conditions to Avoid Avoid all possible sources of ignition.

Incompatibility (Materials to Avoid) Avoid contact with strong oxidizing agents such as strong acids, caustics (e.g., ammonia, ammonium hydroxide, calcium hydroxide, potassium hydroxide, sodium hydroxide), isocyanates, aliphatic amines, chlorine and other halogens, acetic anhydride, dichromates or permanganates, which can cause fire or explosion.

Hazardous Decomposition Products Will not occur.

Hazardous Polymerization Will not occur

11. TOXICOLOGICAL INFORMATION

Glycerol 56-81-5

Acute Toxicity:
Dermal LD50 = >10 gm/kg (Rabbit)
Inhalation LC50 = >570 mg/m$^{3/}$1 hr (Rat)
Oral LD50 = 12,600 mg/kg (Rat), 4090 mg/kg (Mouse), 27 gm/kg (Rabbit)
Draize Test, Rabbit: Eye-126 mg Mild, Eye 500 mg/24 Hr Mild, Skin-500 mg/24 hr Mild
Carcinogenicity: Not listed by ACGIH, IARC, NIOSH, NTP or OSHA

12. ECOLOGICAL INFORMATION

Ecotoxicity 96 hours LC50: 50 mg/l (Rainbow Trout), >5000 mg/l (Goldfish) for Glycerin

Environmental Fate This product does not concentrate or accumulate in the food chain. If released to soil and water, this product is expected to biodegrade under both aerobic and anaerobic conditions.

13. DISPOSAL CONSIDERATIONS

This material, if discarded as produced, is not a RCRA "listed" hazardous waste. However, it should be fully characterized prior to disposal (40 CFR 261). Use which results in chemical or physical change or contamination may subject it to regulation as a hazardous waste. Along with properly characterizing all waste materials, consult state and local regulations regarding the proper disposal of this material.

Container contents should be completely used and containers should be emptied prior to discard. Container rinsate could be considered a RCRA hazardous waste and must be disposed of with care and in full compliance with federal, state and local regulations. Larger empty containers, such as drums, should be returned to the distributor or to a qualified drum reconditioner. To assure proper disposal of smaller empty containers, consult with state and local regulations and disposal authorities.

14. TRANSPORTATION INFORMATION

United States Department of Transportation (US DOT) **Transportation of Dangerous Goods (TDG) Canada**	**Shipping Description:** This material is not regulated as a hazardous material or dangerous goods by DOT regulations. **Shipping Name:** Glycerine (National Motor Freight Classification) **ID Number:** 044610 (National Motor Freight Classification) **Shipping Classification:** 55 (National Motor Freight Classification) **Reportable Quantity:** None established for this material **MARPOL III Status:** Not a DOT Marine Pollutant per 49 CFR 171.8
International Maritime Organization International Maritime Dangerous Goods Code (IMO/IMDG)	**Shipping Description:** This material is not regulated as a hazardous material or dangerous goods for transportation. **MARPOL III Status:** Not a DOT Marine Pollutant per 49 CFR 71.8
European Agreements Concerning the International Carriage by Rail (RID) and by Road (ADR)	**Shipping Name**: This material is not regulated as a hazardous material or dangerous goods for transportation.
International Civil Aviation Organization / International Air Transport Association (ICAO/IATA)	**Shipping Name:** This material is not regulated as a hazardous material or dangerous goods for transportation.

15. REGULATORY INFORMATION

United States Federal Regulatory Information

EPA TSCA Inventory This product and/or its components are listed on the Toxic Substances Control Act (TSCA) Inventory

EPA SARA 302/304 Emergency Planning and Notification This material contains the following chemicals subject to reporting under the Superfund Amendments and Reauthorization Act of 1986 (SARA): Product is not listed as an extremely hazardous substance

15. REGULATORY INFORMATION

EPA SARA 311/312 (Title III Hazard Categories)

Acute Health: Yes
Chronic Health: No
Fire Hazard: No
Pressure Hazard: No
Reactive Hazard: No

EPA SARA Toxic Chemical Notification and Release Reporting (40 CFR 372) and CERCLA Reportable Quantities (40 CFR 302.4)

Component	CAS Number	Concentration	RQ
None			

EPA CWA and OPA

This product does not contain any substances regulated as pollutants pursuant to the Clean Water Act (CWA). This product is considered an oil and is subject to federal oil spill reporting requirements.

Canadian Regulatory Information

DSL/NDSL Inventory

This product and/or its constituents are listed either on the Domestic Substances List (DSL), the Non Domestic Substances List (NDSL) or are exempt.

Workplace Hazardous Materials Information System (WHMIS) Hazard Class

This product is not regulated by the WHMIS.

European Union Regulatory Information

Labeling

Product is not dangerous as defined by the European Union Dangerous Substances / Preparations Directives

California Proposition 65

This product contains a chemical known to the State of California to cause cancer, birth defects, or other reproductive harm. Chemicals known to the State of California to cause cancer, birth defects or other reproductive harm are created by the combustion of this product.

Carcinogen Identification by International Agency for Research on Cancer

Group 1	Carcinogenic to Humans	None
Group 2A	Probably Carcinogenic to Humans	None t
Group 2B	Possibly Carcinogenic to Humans	None
Group 3	Not Classifiable	None

16. OTHER INFORMATION

Prepared By

J.P. Morgan Ventures Energy Corporation
383 Madison Avenue, 10th Floor
New York, NY 10017

Precautionary Label

CAUTION!

HIGH MIST CONCENTRATIONS MAY CAUSE IRRITATION TO SKIN, EYES AND

16. OTHER INFORMATION

RESPIRATORY TRACT. MAY AFFECT KIDNEYS.

Keep away from heat and flame. Avoid prolonged or repeated overexposure by skin contact or inhalation. Use with adequate ventilation. Keep container closed. Keep out of reach of children.

In case of contact, wash skin with soap and water. Immediately remove contaminated clothing, including shoes. Destroy or wash clothing before reuse. If swallowed, seek immediate medical attention. Do not induce vomiting. Only induce vomiting at the instruction of a physician.

This warning is given to comply with California Health and Safety Code 25249.6 and does not constitute an admission or a waiver of rights. This product contains a chemical known to the State of California to cause cancer, birth defects, or other reproductive harm. Chemicals known to the State of California to cause cancer, birth defects, or other reproductive harm are created by the combustion of this product. Refer to product Material Safety Data Sheet for further safety and health information.

The information presented in this Material Safety Data Sheet is based on data believed to be accurate as of the date this Material Safety Data Sheet was prepared. HOWEVER, NO WARRANTY OF MERCHANTABILITY, FITNESS FOR ANY PARTICULAR PURPOSE, OR ANY OTHER WARRANTY IS EXPRESSED OR IS TO BE IMPLIED REGARDING THE ACCURACY OR COMPLETENESS OF THE INFORMATION PROVIDED ABOVE, THE RESULTS TO BE OBTAINED FROM THE USE OF THIS INFORMATION OR THE PRODUCT, THE SAFETY OF THIS PRODUCT, OR THE HAZARDS RELATED TO ITS USE. No responsibility is assumed for any damage or injury resulting from abnormal use or from any failure to adhere to recommended practices. The information provided above, and the product, are furnished on the condition that the person receiving them shall make their own determination as to the suitability of the product for their particular purpose and on the condition that they assume the risk of their use. In addition, no authorization is given nor implied to practice any patented invention without a license.

LignoTech USA
100 Grand Ave
Rothschild, WI 54474

Tel: +1 715-359-6544
Fax: +1 715-355-3648

Norlig 24C – 53%
Spec. No.: A-561
Effective Date: Sep-10-1985
Revision Date: March-10-2006

Norlig 24C – 53%

Product Description

Norlig 24C is a purified calcium/sodium lignosulfonate based product used primarily as a dispersant in concrete admixtures.

CAS No. 8061-52-7 (Calcium lignosulfonate).
CAS No. 8061-51-6 (Sodium lignosulfonate).

Sales Specifications

	Minimum	Maximum	Test Method
pH (As Is)	5.0	6.0	QC-002
% Solids	51.0	54.0	QC-012
% Insolubles	--	0.3	QC-007

Only active customers are notified of specification changes.

Typical Analysis*

Chemical Data

Parameter	Unit
pH	5.2
Sodium	2.9%
Calcium	3.8%
Sulfonate sulfur	4.0%
Total Sulfur	5.0%
Reducing Sugars	2.1%
Chloride	<0.1%
Alkali	<5.0%

Physical Data

Parameter	Specification
Color	Brown
% Solids	53%
lbs. solids/gallon	5.62
Viscosity (cps)	140 at 25°C

*The above analyses are not formal specifications and values may change.

Storage Stability:

May vary from a few months to several years dependent upon the specific product and storage conditions.

Compatibility:

Lignosulfonates are compatible with anionic and non-ionic materials, dispersants, wetting agents and most organic and inorganic materials.

Packaging:

Liquid products are available in drums, tank trucks, or rail cars.

Lead Time:

Two weeks lead time is typical.

Material Safety Data Sheets are available upon request.

The information given here is based on our best knowledge and we believe it to be true and accurate. However, Borregaard LignoTech does not warrant or guarantee in any manner whatsoever, including the warranty of merchant-ability or fitness for the end user the accuracy of the information and procedures listed herein and will not be responsible for any damage resulting from their use.

This is NOT a controlled document unless viewed from LignoTech USA's ISO database.

Please contact your LignoTech Sales Representative for additional product information.

#022

The information given here is based on our best knowledge and we believe it to be true and accurate. However, Borregaard LignoTech does not warrant or guarantee in any manner whatsoever, including the warranty of merchant-ability or fitness for the end user the accuracy of the information and procedures listed herein and will not be responsible for any damage resulting from their use.

This is NOT a controlled document unless viewed from LignoTech USA's ISO database.

Southern Indiana Chemical Resources, LLC
MATERIAL SAFETY DATA SHEET
Effective January 1, 2004

MWRR 20

Southern Indiana Chemical Resources, LLC (SICR) urges each customer or recipient of this MSDS to study it carefully to become aware of and understand the hazards associated with the product. The reader should consider consulting reference works or individuals who are experts in ventilation, toxicology and fire prevention, as necessary or appropriate to use and understand the data contained in this MSDS.

To promote safe handling, each customer or recipient should: (1) notify its employees, agents, contractors and others whom it knows or believes will use this material or the information in this MSDS and any other information regarding hazards or safety; (2) furnish this same information to each of its customers for the product; and (3) request its customers to notify their employees, customers and other users of the product, of this information.

The product outlined in this MSDS is a new (2004) by-product stream that not only contains complex amines and glycols, but also varies considerably in component percentages. Although we believe that most of the components have been identified, there are some in trace quantities that have not. Analyzing for specific amines in a mixture of this nature is very difficult. Typical properties, where stated, are to be considered as representative of current production and are not to be treated as specification.

While all data presented in this MSDS is believed to be reliable and to represent the best available data, no guarantee, warranty, or representations are made, intended or implied as to the correctness or sufficiency of any information or as to the suitability of this product for any particular use. Each user is urged to conduct his own investigation to determine the suitability of his application.

1. CHEMICAL PRODUCT AND COMPANY IDENTIFICATION

PRODUCT CODE AND NAME:	MWRR 20
CHEMICAL FAMILY:	Amines
FORMULA:	Not applicable - Mixture
MOLECULAR WEIGHT:	Not applicable – Mixture
COMPANY INFORMATION:	SOUTHERN INDIANA CHEMICAL RESOURCES, LLC 453 W. Norton Avenue Muskegon, MI 49441
	CAS number: Not Yet Assigned

TELEPHONE	
Company:	231-737-3400
Chem Trec:	800-424-9300
Transportation Emergency:	260-436-1122
Medical:	409-722-9673 (24 hours)
MSDS:	231-737-3400
Technical:	231-737-3400
Sales:	440-564-7584

MWRR 20

2. COMPOSITION AND INFORMATION

* Mixed Morpholine Amines	68909-77-3	20-40%
* Mixed Alkyl Amines	N/A	20-40%
* Mixed Alcohol Amines	N/A	20-40%
Mixed Glycols	107-21-1	1-5%
Water	N/A	3-10%

* Due to the difficulty in analysis of amines, some products within these categories have never been isolated for testing.

3. HAZARDS IDENTIFICATION

A. EMERGENCY OVERVIEW:

Appearance: Dark liquid
Odor: Ammonical like odor (fishy smell)
Warning: Causes eye and skin irritation
Do not add nitrates – may form suspected cancer causing nitro s amines

Hazards Material Information System:

Health	3
Fire	1
Reactivity	0
Personal Protection	

B. POTENTIAL HEALTH EFFECTS:

PRIMARY ROUTE OF EXPOSURE:

Eye **X** Skin **X** Inhalation **X** Ingestion

EFFECTS OF OVEREXPOSURE:

ACUTE:

Eyes: Causes irritation, experienced as pain, with excess blinking and tear production and seen as extreme redness and swelling of the eye and chemical burns of the eye. Sever eye damage may cause blindness.

MWRR 20

3. HAZARDS IDENTIFICATION (continued)

Skin: Causes sever irritation with pain, severe excess redness and swelling with chemical burns, blister formation, and possible tissue destruction. Other than the potential skin irritation effects noted above, acute (short term) adverse effects are not expected from brief skin contact; see other effects, below, and Section 11 for information regarding potential long term effects.

Inhalation: Vapors or mist, in excess of permissible concentrations, or in unusually high concentrations generated from spraying, heating the material or as from exposure in poorly ventilated areas or confined spaces, may cause irritation of the nose and throat, headache, nausea and drowsiness.

Ingestion: If more than several mouthfuls are swalled, abdominal discomfort, nausea and diarrhea may occur.

Sensitization Properties: Unknown

CHRONIC:

Repeated skin contact may cause a persistent irritation or dermatitis.

MEDICAL CONDITIONS AGGRAVATED BY EXPOSURE:

Skin contact may aggravate an existing dermatitis (skin condition).

4. FIRST AID MEASURES

Eyes: Immediately flush eyes with large amounts of running water for at least 15 minutes. Hold eyelids apart while flushing to rinse entire surface of eye and lids with water. Do not attempt to neutralize with chemical agents. Obtain medical attention immediately. Continue flushing for an additional 15 minutes if medical attention is not immediately available.

Skin: Immediately remove contaminated clothing and shoes. Under a safety shower, flush skin thoroughly with large amounts of running water for at least 15 minutes. Do not attempt to neutralize with chemical agents. Get medical attention immediately. Discard or decontaminate clothing and shoes before reuse.

Ingestion: If more than several mouthfuls for this material are swallowed, give two glasses of water (16 oz.). Get medical attention.

Inhalation: If irritation, headache, nausea, or drowsiness occurs, remove to fresh air. Get medical attention if breathing becomes difficult or respiratory irritation persists.

Other Instructions: None

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5. FIRE FIGHTING MEASURES

IGNITION TEMPERATURE – AIT (degrees C):
Not determined

FLASH POINT (degrees C):
151.7 (305 F) (PMCC)

FLAMMABLE LIMITS % (Lower – Upper):

Lower: Not Determined
Upper: Not Determined

RECOMMENDED FIRE EXTINGUISHING AGENTS AND SPECIAL PROCEDURES:

Use water spray, dry chemical, foam or carbon dioxide to extinguish flames. Use water spray to cool fire-exposed containers. Water or foam may cause frothing.

SPECIAL PROTECTIVE EQUIPMENT FOR FIRE FIGHTERS:

Wear special chemical protective clothing and positive pressure self-contained breathing apparatus. Approach fire from upwind to avoid hazardous vapors and toxic decomposition products. Decontaminate or discard any clothing that may contain chemical residues.

6. ACCIDENTAL RELEASE MEASURES

PROCEDURES IN CASE OF ACCIDENTAL RELEASE, BREAKAGE OR LEAKAGE:

Ventilate area. Avoid breathing vapor. Pressure demand air supplied respirators should always be worn when the airborne concentration of the contaminant or oxygen is unknown. Otherwise, wear respiratory protection and other personal protective equipment as appropriate for the potential exposure hazard. Contain spill if possible. Shovel up material and place in air-tight container. Avoid contact with skin, eyes, or clothing.

7. HANDLING AND STORAGE

PRECAUTIONS TO BE TAKEN IN:

Handling: Eye wash should be available nearby when this product is handled or used.

Storage: Periods of exposure to high temperatures should be minimized. Water contamination should be avaoided. Do not use coper and copper alloys for storage or shipping containers. Store above 72 F (22 C) to prevent crystallization.

8. EXPOSURE CONTROLS / PERSONAL PROTECTION

PROTECTIVE EQUIPMENT (Type)

Eye/Face Protection:	Avoid eye contact. Chemical type goggles with face shield must be worn. Do no wear contact lenses.
Skin Protection:	Protective clothing such as coveralls or lab coats must be worn. Launder or dry-clean when soiled. Gloves resistant to chemical snad petroleum distillates required. When handling large quantities, impervious suits, gloves, and rubber boots must b worn.
Respiratory Protection:	Airborne concentration should b kept to lowest levels possible. If vapor, mist or dust is generated and the occupational exposure limit of the product, or any component of the product, is exceeded, use appropriate NIOSH or MSHA approved air purifying or air supplied respirator after determining the airborne concentration of the contaminant. Air supplied respirators should always be worn when airborne concentration of the contaminant or oxygen content is unknown.
Ventilation:	Local exhaust ventilation recommended if generating vapor, dust or mist. If exhaust ventilation in snot available or inadequate, use MSHA or NIOSH approved respirator as appropriate.

Exposure Limit for the Total Product:
None established for this product.

9. PHYSICAL AND CHEMICAL PROPERTIES

APPEARANCE:	Dark Liquid
ODOR:	Ammonia-like odor
BOILING POINT (degrees C):	~250 C
MELTING/FREEZING POINT (degrees C):	~20 C
SPECIFIC GRAVITY (water = 1):	~1.1
pH:	~12
VAPOR PRESSURE:	< 1 MMhG AT 20 C (68 F)
VISCOSITY:	100 – 300 cSt at 100 F
VOC CONTENT:	~52% by ASTM D 2369
VAPOR DENSITY (air = 1)	>1
SOLUBILITY IN WATER (%):	Infinite

10. STABILITY AND REACTIVITY

THIS MATERIAL REACTS VIOLENTLY WITH:

Air Water Heat Stong Oxidizers **X** Others (see below)

Others:
Do not add or formulate with nitrites. See Section 16, OTHER INFORMATION. This material reacts violently with certain acids.

Products Evolved When Subjected to Combustion:
Toxic levels of ammonia, combustion products of nitrogen, carbon monoxide, carbon dioxide, irritating aldehydes and ketones may be formed on burning in a limited air supply.

Hazardous Polymerizations:
None

11. TOXICOLOGICAL INFORMATION

TOXICOLOGICAL INFORMATION (Animal Toxicity Data -- taken from various procedures and consolidated)

ORAL: LD50 8.75 g/kg (rat) practically non-toxic

INHALATION: Not determined

DERMAL: LD50 3.85 g/kg (rabbit) practically non-toxic

IRRITATION INDEX, ESTIMATION OF IRRITATION (species):

SKIN: (Draize) Believed to be > 6.50 – 8.00 /8.0 (rabbit) extremely irritating

EYES: (Draize) Believed to be > 80.00 – 110.00 /110 (rabbit) extremely irritating

SENSITIZATION: Not determined

12. DISPOSAL CONSIDERATIONS

WATER DISPOSAL METHODS:

This material is not a listed hazardous waste material. Under RCRA, it is the responsibility of the user of the product to determine at the time of disposal, whether the product meets RCRA criterial for hazardous waste. This is because product uses, transformations, mixtures, processes, etc. may render th resulting materials hazardous.

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13. TRANSPORT INFORMATION

TRANSPORTATION:

DOT:

Proper Shipping Name:	Not Regulated
Hazard Class:	Not Regulated
Identification Number:	Not Regulated
Packing Group:	Not Regulated
Label Required:	Not Regulated

LMDG:

Proper Shipping Name:	Not Evaluated

ICAO:

Proper Shipping Name:	Not Evaluated

TDG:

Proper Shipping Name:	Not Regulated
Hazard Class:	Not Regulated
Identification Number:	Not Regulated
Label Required:	Not Regulated

14. REGULATORY INFORMATION

FEDERAL REGULATIONS:

SARA Title III:

Section 302/304 Extremely Hazardous Substances: None

Section 311 Hazardous Categorization:

Acute **X** Chronic Fire Pressure Reactive N/A

CERCLA 102(a)/DOT Hazardous Substances:

Chemical Name	CAS Number	Range in %	RQ
NONE			

States Right-to-Know Regulations:

Chemical Name: *NONE*

State List: CT (Connecticut), FL (Florida), IL (Illinois), MI (Michigan), LA (Louisiana), MA (Massachusetts), NJ, (New Jersey), PA (Pennsylvania), RI (Rhode Island)

California Prop. 65:
The following detectable components of this product are substances, or belong to classes of substances, known to the State of California to cause cancer and/or reproductive toxicity.

Chemical Name	CAS Number
NONE	

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14. REGULATORY INFORMATION (continued)

OTHER:

TSCA Inventory Status:
This product, or its components, are listed on, or are exempt from, the toxic Substance Control Act (TSCA) Chemical Substance Inventory.

WHMIS Classification:
Class D, Div 2, Subdiv B; Irritant

Canadian Inventory Status:
This product, or it components, are listed on, or are exempt from, the Canadian Domestic Substance List (DSL).

EINECS Inventory Status:
This product, or its components, are listed on, or are exempt from, the European Inventory of Existing Chemical Substances (EINECS) or the European List of Notified Chemical Substances (ELINCS).

15. ENVIRONMENTAL INFORMATION

AQUATIC TOXICITY:	Not Determined
MOBILITY:	Not Determined
PERSISTANCE AND BIODEGRADABILITY:	Not Determined
POTENTIAL TO BIOACCUMULATE:	Not Determined

16. OTHER INFORMATION

Do not add nitrates. This product contains amines which can combine with nitrites or other nitrosating agents to form nitrosamines. Many nitrosamines have been found to cause cancer in laboratory animals.

INQUIRIES REGARDING MSDS SHOULD BE DIRECTED TO:

Southern Indian Chemical Resources, LLC
453 W. Norton Avenue
Muskegon, MI 49441

Material Safety Data Sheet

SECTION 1 PRODUCT AND COMPANY IDENTIFICATION

Trade name	MR Solvent	
Synonyms	Paraffinic Naphthenic Solvent	
Use	Industrial, Industrial & Institutional cleaning, Oilfield Drilling	
Manufacturer/Supplier	Sasol North America Inc.	
Address	900 Threadneedle, Ste 100, Houston, TX 77079	
Telephone	CHEMTREC North America Transportation Emergency (24-hr)	(800) 424-9300
	CHEMTREC World Wide	(703) 527-3887
	Other Emergencies (24-hr)	(337) 494-5142
	MSDS and Product Information (8:00am-4:30pm CST)	(281) 588-3491
	Health and Safety Information (8:00am-4:00pm CST)	(281) 588-3492
E-mail address	info@us.sasol.com	

SECTION 2 HAZARDS IDENTIFICATION

Emergency Overview

Appearance clear liquid

Odour hydrocarbon-like

Precautions **CAUTION!** COMBUSTIBLE LIQUID AND VAPOR. MAY CAUSE SKIN IRRITATION. Avoid contact with skin, eyes and clothing. Wash thoroughly after handling. Keep away from heat and flame.

Environmental precautions Not toxic to aquatic organisms (fish, daphnia, algae) up to water solubility. May adsorb to sediments and possibly cause toxic effects to organisms. Inherently biodegradable.

Potential Health Effects

Eyes Exposure is not expected to cause significant irritation.

Skin Prolonged skin contact may cause skin irritation and/or dermatitis. High standards of skin care and personal hygiene should be exercised at all times.

Inhalation Harmful: danger of serious damage to health by prolonged exposure through inhalation and if swallowed.

Ingestion Ingestion may cause gastrointestinal irritation, nausea, vomiting and diarrhoea.

(See Section 11 for Toxicological Information)

SECTION 3 COMPOSITION AND INFORMATION ON INGREDIENTS

Components	CAS-No.	Weight %
Raffinates (Petroleum), Sorption Process	64741-85-1	100

See Section 8 for Exposure Guidelines and Section 15 for Regulatory Classifications.

SECTION 4 FIRST AID MEASURES

Eye contact Rinse thoroughly with plenty of water for at least 15 minutes and consult a physician.

Skin contact Wash off immediately with soap and plenty of water while removing all contaminated clothes and shoes. When symptoms persist or in all cases of doubt seek medical advice. Wash contaminated clothing before re-use.

Inhalation Remove to fresh air. If breathing is irregular or stopped, administer artificial respiration. In case of shortness of breath, give oxygen. Call a physician immediately.

Ingestion If swallowed, call a poison control centre or doctor immediately. Do not induce vomiting without medical advice. Never give anything by mouth to an unconscious person.

SECTION 5 FIRE-FIGHTING MEASURES

FLAMMABLE PROPERTIES

Flash point Average 64 °C 148 °F ASTM D 56

Autoignition temperature 229 °C 445 °F

Flammable limits in air % by volume **Lower explosion limit:** 0.6 %(V)
Upper explosion limit: 7.0 %(V)

Fire and explosion NFPA Class IIIA combustible liquid.

Extinguishing media Water spray or fog, foam, dry chemical, CO_2.

Fire fighting instructions Wear self-contained breathing apparatus and protective suit.

Further information Keep containers and surroundings cool with water spray.

SECTION 6 ACCIDENTAL RELEASE MEASURES

Steps to be taken in case of spill or leak Contain spillage, and then collect with non-combustible absorbent material, (e.g. sand, earth, diatomaceous earth, vermiculite) and place in container for disposal according to local / national regulations (see section 13).

SECTION 7 HANDLING AND STORAGE

Safe handling advice Ensure all equipment is electrically grounded before beginning transfer operations.

Storage/Transport temperature Ambient

Storage/Transport pressure Ambient

Load/Unload temperature Ambient

SECTION 8 EXPOSURE CONTROLS/PERSONAL PROTECTION

ENGINEERING MEASURES

Air contaminant levels should be controlled below the PEL or TLV for this product (see Exposure Guidelines).

PERSONAL PROTECTIVE EQUIPMENT

Eyes Chemical resistant goggles must be worn. Face-shield

Skin Wear suitable protective clothing, gloves and eye/face protection.

Inhalation Respiratory protection is normally not required except in emergencies or when conditions cause excessive airborne levels of mists or vapors. Use NIOSH approved respiratory protection.

EXPOSURE GUIDELINES

Components	Exposure limit(s)
	Contains no substances with occupational exposure limit values. The following Sasol internal standard would apply: 100 ppm (525) mg/m3) for 8-hour TWA (Exposure limits for Petroleum Distillate - Stoddard Solvent)

PEL= Permissible Exposure Limits
TLV= Threshold Limit Value
EL= Excursion Limit
TWA= Time Weighted Average (8 hr.)
STEL= Short Term Exposure Limit (15 min.)
WEEL= Workplace Environmental Exposure Level

SECTION 9 PHYSICAL AND CHEMICAL PROPERTIES

Appearance	liquid
Colour	clear
Odour	hydrocarbon-like
Form	liquid
Boiling point/boiling range	191 - 258 °C 376 - 496 °F
Vapour pressure	0.20 mm Hg @ 20 °C API Calculation 0.23 psi @ Reid (D-323)
Vapour density	5.7
Solubility(water)	negligible
Viscosity	1.6 cSt @ 20 °C
Melting point/range	< -68 °C < -90 °F
Density	0.812 g/cm3 @ 20 °C

SECTION 10 STABILITY AND REACTIVITY

Conditions to avoid	Keep away from heat and sources of ignition.
Hazardous decomposition products	Hazardous gases and vapors produced in fire are oxides of carbon.
Materials to avoid	Oxidizing agents
Hazardous polymerization	None.

SECTION 11 TOXICOLOGICAL INFORMATION

Eyes	Primary irritation (rabbit): 3.3 (Maximum score is 110.)
Skin	Primary irritation (rabbit): 2.62 (Maximum score is 8.0.) Acute dermal LD50 (rabbit): 3,000 - 4,000 mg/kg

Inhalation Acute 4 hours (rat): 1.6 mg/l All rats survived at indicated concentration.

Ingestion Acute oral LD50 (rat): > 5,000 mg/kg

CARCINOGENICITY

Contains no ingredient listed as a carcinogen

SECTION 12 ECOLOGICAL INFORMATION

Aquatic toxicity Not toxic to aquatic organisms (fish, daphnia, algae) up to water solubility. May adsorb to sediments and possibly cause toxic effects to organisms.

LL50 (Pimephales promelas (fathead minnow)) 96 hours: 16%
The product has low solubility in the test medium. An aqueous dispersion was tested.

LL50 (Daphnia pulex (Water flea)) 48 hours: 7.3%
The product has low solubility in the test medium. An aqueous dispersion was tested.

EL50 (S. capricornutum (green algae)) 96 hours: 31.6%The product has low solubility in the test medium. An aqueous dispersion was tested.

Biodegradation Inherently biodegradable.

SECTION 13 DISPOSAL CONSIDERATIONS

Waste Code Any unused product or empty containers may be disposed of as non-hazardous in accordance with state and federal requirements.Re-evaluation of the product may be required by the user at the time of disposal, since the product uses, transformations, mixtures, contamination, and spillage may change the classification.If the resulting material is determined to be hazardous, please dispose in accordance with state and federal (40 CFR 262) hazardous waste regulations.

Disposal methods Dispose of only in accordance with local, state, and federal regulations.

Empty containers. Empty containers retain product residue (liquid and/or vapor) and can be dangerous. DO NOT PRESSURIZE, CUT, WELD, BRAZE, SOLDER, DRILL, GRIND, OR EXPOSE SUCH CONTAINERS TO HEAT, FLAME, SPARKS, STATIC ELECTRICITY, OR OTHER SOURCES OF IGNITION; THEY MAY EXPLODE AND CAUSE INJURY OR DEATH. Empty drums should be completely drained, triple-rinsed, properly bunged and promptly returned to a drum reconditioner, or properly disposed.

SECTION 14 TRANSPORT INFORMATION

DOT Not regulated. Not classified as supporting combustion according to the transport regulations.

IATA Not regulated.

IMDG Not regulated.

SECTION 15 REGULATORY INFORMATION

U.S. FEDERAL REGULATIONS

OSHA Hazards
Combustible liquid

TSCA Inventory Listing

Components	CAS-No.
Raffinates (Petroleum), Sorption Process	64741-85-1

SARA 302 Status

Components	CAS-No.	Weight %

Contains no chemicals subject to SARA 302 reporting.

SARA 311/312 Classification
"Fire hazard"

SARA 313 Chemical

Components	CAS-No.	Weight %

SARA 313: This material does not contain any chemical components with known CAS numbers that exceed the threshold (De Minimis) reporting levels established by SARA Title III, Section 313.

CERCLA Hazardous Substance

Components	Reportable Quantity	Weight %
none		

INTERNATIONAL REGULATIONS

Workplace Hazardous Materials Information System (WHMIS) Classification
Class B, Division 3: Combustible liquid.

European Union
Classification and labelling according to Directi ve 67/548/EEC.

Xn: Harmful
R65 Harmful: may cause lung damage if swallowed.
R66 Repeated exposure may cause skin dryness or cracking.

Australian Inventory of Chemical Substances (AICS) Listing
Listed

Japanese Minister of International Trade and Industry (MITI) Inventory Listing
Listed

Canadian Domestic Substance List (DSL) Inventory Listing
Listed

Canadian Non-Domestic Substance Listing (NDSL)
Not listed

European Inventory of Existing Commercial Chemical Substances (EINECS) Listing
Listed

Philippines Inventory List (PICCS)
Listed

Korean Inventory List
Listed

China Inventory List
Listed

STATE REGULATIONS

California Prop. 65

Components	CAS-No.
none	

SECTION 16 OTHER INFORMATION

HAZARD RATINGS

	Health	Flammability	Reactivity
HMIS	1	2	0
NFPA	1	2	0

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1. CHEMICAL PRODUCT AND COMPANY IDENTIFICATION

1.1 IDENTIFICATION

Product Name TERGITOL(TM) NP-70 (70% AQ) SURFACTANT

1.2 COMPANY IDENTIFICATION

The Dow Chemical Company
Midland, MI 48674

1.3 EMERGENCY TELEPHONE NUMBER

24-HOUR EMERGENCY TELEPHONE NUMBER: (989)636-4400.
Customer Information Number: 1-800-258-2436.

* or ® Indicates a Trademark of The Dow Chemical Company.

2. COMPOSITION INFORMATION

Component	CAS #	Amount (%W/W)
Poly(oxy-1,2-ethanediyl), alpha-(4-nonylphenyl)-omega-hydroxy-, branched	127087-87-0	> 67 %
Water	7732-18-5	30 %
Polyethylene glycol	25322-68-3	< 3%
Dinonylphenyl polyoxyethylene	9014-93-1	< 1%

3. HAZARDS IDENTIFICATION

3.1 EMERGENCY OVERVIEW

Appearance Colorless to brown

Physical State Solid

Odor Mild

Hazards of product NORMAL PRECAUTIONS SHOULD BE FOLLOWED IN HANDLING, STORAGE AND USE.

3.2 POTENTIAL HEALTH EFFECTS

Effects of Single Acute Overexposure

Inhalation Short-term harmful health effects are not expected from vapor generated at ambient temperature.

Eye Contact May cause mild discomfort.

Skin Contact Brief contact may cause slight irritation with itching and local redness.

Skin Absorption No evidence of harmful effects from available information.

Swallowing No evidence of harmful effects from available information.

Chronic, Prolonged or Repeated Overexposure

Effects of Repeated Overexposure No adverse effects anticipated from available information.
Other Effects of Overexposure None currently known.

Medical Conditions Aggravated by Exposure

A knowledge of the available toxicology information and of the physical and chemical properties of the material suggests that overexposure is unlikely to aggravate existing medical conditions.

See Section 11 for toxicological information and additional information about potential health effects.

3.3 POTENTIAL ENVIRONMENTAL EFFECTS

Not harmful to aquatic organisms.

4. FIRST AID PROCEDURES

4.1 INHALATION

No emergency care anticipated.

4.2 EYE CONTACT

Flush eyes thoroughly with water for several minutes. Remove contact lenses, if worn.

4.3 SKIN CONTACT

Wash skin with plenty of water.

4.4 SWALLOWING

No emergency care anticipated.

4.5 NOTES TO PHYSICIAN

Toxicology studies have shown this or similar material to be of very low acute toxicity. There is

no specific antidote. Treatment of overexposure should be directed at the control of symptoms and the clinical condition of the patient.

5. FIRE FIGHTING MEASURES

5.1 FLAMMABLE PROPERTIES - REFER TO SECTION 9, PHYSICAL AND CHEMICAL PROPERTIES

5.2 EXTINGUISHING MEDIA

Non-flammable (aqueous solution): After water evaporates, remaining material will burn. Use alcohol-type or all-purpose-type foam, applied by manufacturer's recommended techniques for large fires. Use carbon dioxide or dry chemical media for small fires.

5.3 FIRE FIGHTING PROCEDURES

Do not direct a solid stream of water or foam into hot, burning pools; this may cause frothing and increase fire intensity.

5.4 SPECIAL PROTECTIVE EQUIPMENT FOR FIREFIGHTERS

Use self-contained breathing apparatus and protective clothing.

5.5 UNUSUAL FIRE AND EXPLOSION HAZARDS

Avoid accumulation of water. Product may be carried across water surface spreading fire or contacting an ignition source.

5.6 HAZARDOUS COMBUSTION PRODUCTS

Burning can produce the following products: Carbon monoxide and/or carbon dioxide. Carbon monoxide is highly toxic if inhaled; carbon dioxide in sufficient concentrations can act as an asphyxiant.

6. ACCIDENTAL RELEASE MEASURES

Steps to be Taken if Material is Released or Spilled:
Contain spills immediately with inert materials (e.g., sand, earth). Transfer liquids and solid diking material to suitable containers for recovery or disposal. To avoid gelling and foaming problems, do not use water to flush away spills.

Personal Precautions: Wear eye protection. Floor may be slippery; use care to avoid falling. See Section 8.2 - Personal Protection.

Environmental Precautions: Avoid discharge to natural waters.

7. HANDLING AND STORAGE

7.1 HANDLING

General Handling
Keep container closed.
Use with adequate ventilation.
Wash thoroughly after handling.

FOR INDUSTRY USE ONLY.

Ventilation
Provide general and/or local exhaust ventilation to control airborne levels below the exposure guidelines.

Other Precautions
Surfactants can cause foaming problems in biological wastewater treatment plants and other high shear operations. This product may contain trace amounts of ethylene oxide (CAS No. 75-21-8), a condition which creates the potential for accumulation of ethylene oxide in the head space of shipping and storage containers and in enclosed areas where the product is being handled or used. Ethylene oxide is listed by OSHA as probably carcinogenic to humans, IARC as carcinogenic to humans, and NTP as known to be a human carcinogen. OSHA considers that, at excessive levels, ethylene oxide may present reproductive, mutagenic, genotoxic, neurologic and sensitization hazards. If this product is handled with adequate ventilation, the presence of these trace amounts is not expected to result in any short or long term hazard. This product may not be exempt from OSHA's ethylene oxide standard, 29 CFR 1910.1047. Users should comply with all applicable provisions. Personnel should be monitored to determine levels of exposure to ethylene oxide. If necessary, protective measures should be taken. The OSHA permissible exposure limit for ethylene oxide is 1 ppm TWA8, the action level is 0.5 ppm TWA8, the ACGIH TLV is 1 ppm TWA8 and OSHA has established an excursion limit of 5 ppm (15 minute average).

7.2 STORAGE

Store in accordance with good industrial practices. Storage information may be obtained from product-specific Storage and Handling Guides, or by calling Dow's Customer Information Group at 1-800-258-2436 (U.S.) or 1-800-331-6451 (Canada).

8. EXPOSURE CONTROLS AND PERSONAL PROTECTION

8.1 EXPOSURE LIMITS

Component	Exposure Limits	Skin	Form
Polyethylene glycol	10 mg/m3 TWA8 AIHA WEEL		Aerosol

In the Exposure Limits Chart above, if there is no specific qualifier (i.e., Aerosol) listed in the Form Column for a particular limit, the listed limit includes all airborne forms of the substance that can be inhaled.

A "Yes" in the Skin Column indicates a potential significant contribution to overall exposure by the cutaneous (skin) route, including mucous membranes and the eyes, either by contact with vapors or by direct skin contact with the substance. A "Blank" in the Skin Column indicates that exposure by the cutaneous (skin) route is not a potential significant contributor to overall exposure.

8.2 PERSONAL PROTECTION

Respiratory Protection: Atmospheric levels should be maintained below the exposure guideline.
When airborne exposure guidelines and/or comfort levels may be exceeded, use an approved air-purifying respirator.
For emergency response or for situations where the atmospheric level is unknown, use an approved positive-pressure self-contained breathing apparatus or positive-pressure airline with auxiliary self-contained air supply.

Ventilation: Provide general and/or local exhaust ventilation to control airborne levels below the exposure guidelines.

Eye Protection: Monogoggles

Protective Gloves: Polyvinyl chloride coated

Other Protective Equipment: Eye Bath, Safety Shower

9. PHYSICAL AND CHEMICAL PROPERTIES

Physical State: Solid

Appearance: Colorless to brown

Odor: Mild

Flash Point - Closed Cup: None, aqueous system

Flammable Limits In Air:
Lower *Not Determined, Aqueous System*
Upper *Not Determined, Aqueous System*

Autoignition Temperature: *Not currently available.*

Vapor Pressure: **16 mmHg** *20 °C*

Boiling Point (760 mmHg): **102 °C 216 °F**

Vapor Density (air = 1): **0.6** Volatile portion

Specific Gravity (H2O = 1): **1.0966** *30 °C / 20 °C*

Freezing Point: **12 °C 53.6 °F**

Melting Point: *Not determined.*

Solubility in Water (by weight): **100 %** Completely soluble but some compositions may form gels

pH: *Not currently available.*

Evaporation Rate (Butyl Acetate = 1): **0.7** Volatile portion

10. STABILITY AND REACTIVITY

10.1 STABILITY/INSTABILITY Stable

Conditions to Avoid: Prolonged excessive heat may cause product decomposition.

Incompatible Materials: Normally unreactive; however, avoid strong bases at high temperatures, strong acids, strong oxidizing agents and materials reactive with hydroxyl compounds.

10.2 HAZARDOUS POLYMERIZATION Will not occur.

11. TOXICOLOGICAL INFORMATION

SIGNIFICANT DATA WITH POSSIBLE RELEVANCE TO HUMANS

In two-year feeding studies, the 4-mole ethoxylate of nonylphenol (NPE4) at doses of 200 mg/kg/day or 40 mg/kg/day in rats and dogs, respectively, produced no significant effects. The 9-mole ethoxylate (NPE9) at doses of 140 or 30 mg/kg/day in the diet of rats or dogs, respectively, produced no adverse effects. Parameters evaluated included body and organ weights and histopathology of 28 tissues. A dose of 1000 mg/kg/day of NPE9 resulted in reduced body weights and enlarged livers in rats and reduced weight, emesis, and minimal blood changes in dogs. A dose of 88 mg/kg/day NPE9 produced increased liver to body weight ratios in dogs which was attributed to decreased food consumption. Rats fed dietary concentrations of a related alkylphenol ethoxylate, the 40-mole ethoxylate of octylphenol (OPE40), up to 14000 ppm (700 mg/kg/day) for two years showed no adverse effects on growth or survival, feed consumption, hematologic values, urine measurements, organ weights or histopathologic lesions.

Alkylphenol Ethoxylate Toxicity: In studies with rabbits, sustained occluded skin contact of some undiluted surfactants caused inflammatory changes in the lung. Developmental effects including extra ribs and other skeletal variations were observed in the fetuses of rats treated with maternally toxic levels of a 9-mole ethoxylate of octylphenol, or a 4-mole or 9-mole ethoxylate of nonylphenol. The significance of these findings to humans is unclear as several human studies did not show any association of congenital effects in children and maternal exposure to spermicides containing octyl or nonylphenol ethoxylates. Alkylphenol Toxicity: Several studies with nonylphenol have resulted in slightly increased kidney weights in male rats continuously exposed to dietary concentrations of 200 ppm or greater (approximately >10 mg/kg/body weight/day). No histological lesions of the kidney were observed in one study but histopathological lesions, primarily tubule mineralization, were observed at 2000 ppm in one study and in a dose-related manner at concentrations >=200 ppm in a third study. These results indicate that continuous exposure to high concentrations of nonylphenol may be toxic to the kidney. While nonylphenol has been shown to bind to the estrogen receptor and to have weak estrogen mimetic activity in several in vitro and in vivo screening assays, treatment of rats at dietary concentrations of nonylphenol up to 2000 ppm in their diet for 90 days did not result in alterations in estrous cycles, sperm measurements, or endocrine organ weights or histopathology. In addition, a three generation (F0 through F3 weaning) study conducted by the NIEHS indicated that nonylphenol did not affect reproductive parameters at dietary concentrations up to 2000 ppm in any generation. Effects in juvenile females consistent with those seen in screening assays (e.g., premature vaginal opening) were observed following high

level exposure post-weaning (F1, F2, and F3) at 650 and 2000 ppm. Sperm counts were reduced at 650 and 2000 ppm in the F2 adults compared to controls from the same generation. These results and other inconsistent or potentially body weight related findings are considered of questionable significance. The No Observed Adverse Effect Level (NOAEL) for reproduction was 2000 ppm and for all effects was 200 ppm (except as noted for kidneys above). Considering the high doses (e.g., 100-350 mg/kg/day for females in the 2000 ppm group; the higher doses occurring post-weaning), the lack of permanent/prolonged effects is considered significant. Based on the results of these studies, exposure to low doses of nonylphenol, such as from workplace or environmental exposure, would not be expected to result in effects on mammalian reproduction. In a 2-generation reproduction study with octylphenol at dietary concentrations of 0.2 to 2000 ppm, treatment-related effects in adult F0, F1, and F2 animals were limited to reduced body weights and feed consumption at 2000 ppm. No effects on any reproductive parameters were observed in either generation. No effects on sperm measurements, estrous cyclicity, or reproductive organs were observed in adult animals. Pup body weights during lactation were reduced at 2000 ppm. The NOAEL for systemic and postnatal toxicity was 200 ppm (approximately 15 mg/kg/day) and for reproductive toxicity was >2000 ppm (approximately 150 mg/kg/day). Although octylphenol has weak estrogen mimetic activity in some screening assays, no estrogenic or reproductive effects occurred from dietary exposure to rats for two generations over a 10,000 fold dose range.

12. ECOLOGICAL INFORMATION

12.1 ENVIRONMENTAL FATE

Information may be available, call Dow.

12.2 ECOTOXICITY

Toxicity to Micro-organisms
Bacterial/NA; IC50
Result value: > 1000 mg/l

Toxicity to Aquatic Invertebrates
Daphnia; 48 h; LC50
Result value: > 1000 mg/l

Toxicity to Fish
Fathead Minnow; 96 h; LC50
Result value: > 60 mg/l

12.3 FURTHER INFORMATION

Appropriate treatment of effluents will reduce levels of nonylphenol ethoxylate (NPE) residues to concentrations that should pose no harm to the environment, including protection for weak estrogen-mimetic activity observed for some degradation intermediates.

13. DISPOSAL CONSIDERATIONS

13.1 DISPOSAL

DO NOT DUMP INTO ANY SEWERS, ON THE GROUND, OR INTO ANY BODY OF WATER. All disposal practices must be in compliance with all Federal, State/Provincial and local laws and regulations. Regulations may vary in different locations. Waste characterizations and compliance with applicable laws are the responsibility solely of the waste generator. DOW HAS NO CONTROL OVER THE MANAGEMENT PRACTICES OR MANUFACTURING PROCESSES OF PARTIES HANDLING OR USING THIS MATERIAL. THE INFORMATION PRESENTED HERE PERTAINS ONLY TO THE PRODUCT AS SHIPPED IN ITS INTENDED CONDITION AS DESCRIBED IN MSDS SECTION 2 (Composition/ Information on Ingredients). FOR UNUSED & UNCONTAMINATED PRODUCT, the preferred options include sending to a licensed, permitted: incinerator or other thermal destruction device. waste water treatment system. As a service to its customers, Dow can provide names of information resources to help identify waste management companies and other facilities which recycle, reprocess or manage chemicals or plastics, and that manage used drums. Telephone Dow's Customer Information Group at 1-800-258-2436 or 1-989-832-1556 (U.S.), or 1-800-331-6451 (Canada) for further details .

14. TRANSPORT INFORMATION

14.1 U.S. D.O.T.

NON-BULK
Proper Shipping Name : NOT REGULATED

BULK
Proper Shipping Name : NOT REGULATED

This information is not intended to convey all specific regulatory or operational requirements/information relating to this product. Additional transportation system information can be obtained through an authorized sales or customer service representative. It is the responsibility of the transporting organization to follow all applicable laws, regulations and rules relating to the transportation of the material.

15. REGULATORY INFORMATION

15.1 FEDERAL/NATIONAL

COMPREHENSIVE ENVIRONMENTAL RESPONSE, COMPENSATION, AND LIABILITY ACT OF 1980 (CERCLA) SECTION 103

This product contains the following substances subject to CERCLA Section 103 reporting requirements and are listed in 40 CFR Part 302.4.

Component	CAS #	Amount
Ethylene oxide	75-21-8	<= 0.0020%
1,4-Dioxane	123-91-1	<= 0.0015%
Acetaldehyde	75-07-0	<= 0.0006%
Formaldehyde	50-00-0	<= 0.0004%

SUPERFUND AMENDMENTS AND REAUTHORIZATION ACT OF 1986 TITLE III (EMERGENCY PLANNING AND COMMUNITY RIGHT TO KNOW ACT) SECTION 302

To the best of our knowledge this product does not contain chemicals at levels which require reporting under this statute.

SUPERFUND AMENDMENTS AND REAUTHORIZATION ACT OF 1986 TITLE III (EMERGENCY PLANNING AND COMMUNITY RIGHT TO KNOW ACT) SECTION 313

To the best of our knowledge this product does not contain chemicals at levels which require reporting under this statute.

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SUPERFUND AMENDMENTS AND REAUTHORIZATION ACT OF 1986 TITLE III (EMERGENCY PLANNING AND COMMUNITY RIGHT TO KNOW ACT)SECTIONS 311 AND 312

Delayed (Chronic) Health Hazard : Yes
Fire Hazard : No
Immediate (Acute) Health Hazard : Yes
Reactive Hazard : No
Sudden Release of Pressure Hazard : No

TOXIC SUBSTANCES CONTROL ACT (TSCA)

All components of this product are on the TSCA Inventory or are exempt from TSCA Inventory requirements.

CEPA - DOMESTIC SUBSTANCES LIST (DSL)

All substances contained in this product are listed on the Canadian Domestic Substances List (DSL) or are not required to be listed.

15.2 STATE/LOCAL

PENNSYLVANIA (WORKER AND COMMUNITY RIGHT TO KNOW ACT): PENNSYLVANIA HAZARDOUS SUBSTANCES LIST AND/OR PENNSYLVANIA ENVIRONMENTAL HAZARDOUS SUBSTANCE LIST:

To the best of our knowledge this product does not contain chemicals at levels which require reporting under this statute.

PENNSYLVANIA (WORKER AND COMMUNITY RIGHT TO KNOW ACT): PENNSYLVANIA SPECIAL HAZARDOUS SUBSTANCES LIST:

To the best of our knowledge this product does not contain chemicals at levels which require reporting under this statute.

CALIFORNIA PROPOSITION 65 (SAFE DRINKING WATER AND TOXIC ENFORCEMENT ACT OF 1986)

WARNING: This product contains a chemical(s) known to the State of California to cause cancer.

Component	CAS #	Amount
1,4-Dioxane	123-91-1	<= 0.0015%
Acetaldehyde	75-07-0	<= 0.0006%
Formaldehyde	50-00-0	<= 0.0004%

CALIFORNIA PROPOSITION 65 (SAFE DRINKING WATER AND TOXIC ENFORCEMENT ACT OF 1986)

WARNING: This product contains a chemical(s) known to the State of California to cause birth defects or other reproductive harm.

Component	CAS #	Amount
Ethylene oxide	75-21-8	<= 0.0020%

CALIFORNIA SCAQMD RULE 443.1 (SOUTH COAST AIR QUALITY MANAGEMENT DISTRICT RULE 443.1, LABELING OF MATERIALS CONTAINING ORGANIC SOLVENTS)

VOC: Vapor pressure 16 mmHg @ 20° C
0 g/L

This section provides selected regulatory information on this product including its components. This is not intended to include all regulations. It is the responsibility of the user to know and comply with all applicable rules, regulations and laws relating to the product being used.

16. OTHER INFORMATION

16.1 ADDITIONAL INFORMATION

Additional information on this product may be obtained by calling Dow's Customer Information Group at 1-800-258-2436 (U.S.) or 1-800-331-6451 (Canada).

16.2 HAZARD RATING SYSTEM

NFPA ratings for this product are: H - 1 F - 1 R - 0

These ratings are part of a specific hazard communication program and should be disregarded where individuals are not trained in the use of this hazard rating system. You should be familiar with the hazard communication programs applicable to your workplace.

16.3 RECOMMENDED USES AND RESTRICTIONS

FOR INDUSTRY USE ONLY

16.4 REVISION

Version: 6.
Revision: 01/27/2003
Most recent revision(s) are noted by the bold, double bars in left-hand margin throughout this document.

16.5 LEGEND

Bacterial/NA	Non Acclimated Bacteria
F	Fire
H	Health
IHG	Industrial Hygiene Guideline
N/A	Not available
NFPA	National Fire Protection Association
O	Oxidizer
R	Reactivity
TS	Trade secret
VOL/VOL	Volume/Volume
W	Water Reactive
W/W	Weight/Weight

NOTICE: Dow urges each customer or recipient of this MSDS to study it carefully and consult appropriate expertise, as necessary or appropriate, to become aware of and understand the data contained in this MSDS and any hazards associated with the product. The information herein is provided in good faith and believed to be accurate as of the effective date shown above. However, no warranty, express or implied, is given., Regulatory requirements are subject to change and may differ between various locations. It is the buyer's/user's responsibility to ensure that its activities comply with all federal, state, provincial or local laws. The information presented here pertains only to the product as shipped. Since conditions for use of the product are not under the control of Dow, it is the buyer's/user's duty to determine the conditions necessary for the safe use of this product., Due to the proliferation of sources for information

such as manufacturer-specific MSDSs, Dow is not and cannot be responsible for MSDSs obtained from any source other than Dow. If you have obtained a Dow MSDS from a non-Dow source or if you are not sure that a Dow MSDS is current, please contact Dow for the most current version.

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Material Safety Data Sheet
The Dow Chemical Company

Product Name: NP-9 SURFACTANT REGULAR

Issue Date: 01/08/2014
Print Date: 09 Jan 2014

The Dow Chemical Company encourages and expects you to read and understand the entire (M)SDS, as there is important information throughout the document. We expect you to follow the precautions identified in this document unless your use conditions would necessitate other appropriate methods or actions.

1. Product and Company Identification

Product Name
NP-9 SURFACTANT REGULAR

COMPANY IDENTIFICATION
The Dow Chemical Company
2030 Willard H. Dow Center
Midland, MI 48674
United States

Customer Information Number: 800-258-2436

EMERGENCY TELEPHONE NUMBER

24-Hour Emergency Contact: 989-636-4400
Local Emergency Contact: 989-636-4400

2. Hazards Identification

Emergency Overview
Color: Yellow
Physical State: Liquid.
Odor: Mild
Hazards of product:

WARNING! Causes eye irritation. May be harmful if swallowed. Isolate area.

OSHA Hazard Communication Standard
This product is a "Hazardous Chemical" as defined by the OSHA Hazard Communication Standard, 29 CFR 1910.1200.

Potential Health Effects
Eye Contact: May cause severe eye irritation. May cause severe corneal injury.
Skin Contact: Prolonged contact may cause slight skin irritation with local redness.
Skin Absorption: Prolonged skin contact is unlikely to result in absorption of harmful amounts.
Inhalation: Prolonged excessive exposure to mist may cause serious adverse effects, even death. Vapor may cause irritation of the upper respiratory tract (nose and throat).

Ingestion: Low toxicity if swallowed. Small amounts swallowed incidentally as a result of normal handling operations are not likely to cause injury; however, swallowing larger amounts may cause injury.
Aspiration hazard: Based on physical properties, not likely to be an aspiration hazard.
Effects of Repeated Exposure: For this family of materials: In animals, effects have been reported on the following organs: Kidney. Liver.
Birth Defects/Developmental Effects: For this family of materials: Has been toxic to the fetus in laboratory animals at doses toxic to the mother.

3. Composition Information

Component	CAS #	Amount
Nonylphenol polyethylene glycol ether	127087-87-0	>= 97.0 %
Poly(ethylene oxide)	25322-68-3	<= 3.0 %
Dinonylphenyl polyoxyethylene	9014-93-1	<= 2.0 %

4. First-aid measures

Description of first aid measures

General advice: First Aid responders should pay attention to self-protection and use the recommended protective clothing (chemical resistant gloves, splash protection). If potential for exposure exists refer to Section 8 for specific personal protective equipment.
Inhalation: Move person to fresh air. If not breathing, give artificial respiration; if by mouth to mouth use rescuer protection (pocket mask, etc). If breathing is difficult, oxygen should be administered by qualified personnel. Call a physician or transport to a medical facility.
Skin Contact: Wash skin with plenty of water.
Eye Contact: Immediately flush eyes with water; remove contact lenses, if present, after the first 5 minutes, then continue flushing eyes for at least 15 minutes. Obtain medical attention without delay, preferably from an ophthalmologist. Suitable emergency eye wash facility should be immediately available.
Ingestion: If swallowed, seek medical attention. Do not induce vomiting unless directed to do so by medical personnel.

Most important symptoms and effects, both acute and delayed
Aside from the information found under Description of first aid measures (above) and Indication of immediate medical attention and special treatment needed (below), any additional important symptoms and effects are described in Section 11: Toxicology Information.

Indication of immediate medical attention and special treatment needed
Maintain adequate ventilation and oxygenation of the patient. No specific antidote. Treatment of exposure should be directed at the control of symptoms and the clinical condition of the patient.

5. Fire Fighting Measures

Suitable extinguishing media
Water fog or fine spray. Dry chemical fire extinguishers. Carbon dioxide fire extinguishers. Foam. Alcohol resistant foams (ATC type) are preferred. General purpose synthetic foams (including AFFF) or protein foams may function, but will be less effective.
Extinguishing Media to Avoid: Do not use direct water stream. May spread fire.

Special hazards arising from the substance or mixture

Hazardous Combustion Products: During a fire, smoke may contain the original material in addition to combustion products of varying composition which may be toxic and/or irritating. Combustion products may include and are not limited to: Carbon monoxide. Carbon dioxide.
Unusual Fire and Explosion Hazards: Violent steam generation or eruption may occur upon application of direct water stream to hot liquids.

Advice for firefighters

Fire Fighting Procedures: Keep people away. Isolate fire and deny unnecessary entry. Burning liquids may be extinguished by dilution with water. Do not use direct water stream. May spread fire. Burning liquids may be moved by flushing with water to protect personnel and minimize property damage.
Special Protective Equipment for Firefighters: Wear positive-pressure self-contained breathing apparatus (SCBA) and protective fire fighting clothing (includes fire fighting helmet, coat, trousers, boots, and gloves). If protective equipment is not available or not used, fight fire from a protected location or safe distance.

6. Accidental Release Measures

Personal precautions, protective equipment and emergency procedures: Isolate area. Keep unnecessary and unprotected personnel from entering the area. Keep upwind of spill. Ventilate area of leak or spill. Use appropriate safety equipment. For additional information, refer to Section 8, Exposure Controls and Personal Protection. Refer to Section 7, Handling, for additional precautionary measures.

Environmental precautions: Prevent from entering into soil, ditches, sewers, waterways and/or groundwater. See Section 12, Ecological Information.

Methods and materials for containment and cleaning up: Contain spilled material if possible. Absorb with materials such as: Sand. Dirt. Collect in suitable and properly labeled containers. Do not use water for cleanup. See Section 13, Disposal Considerations, for additional information.
Ignition Sources Removal: Keep away from sources of ignition.
Dust Control: Not applicable.

7. Handling and Storage

Handling
General Handling: Avoid contact with eyes, skin, and clothing. Avoid breathing vapor. Do not swallow. Wash thoroughly after handling. Keep container closed. Use with adequate ventilation. See Section 8, EXPOSURE CONTROLS AND PERSONAL PROTECTION.

Storage
No specific requirements. Additional storage and handling information on this product may be obtained by calling your sales or customer service contact. The shelf life given is for unopened containers stored under moderate temperature conditions.

Shelf life: Use within
24 Months

8. Exposure Controls / Personal Protection

Exposure Limits

Component	List	Type	Value

Poly(ethylene oxide)	AIHA WEEL	TWA Particulate.	10 mg/m3

Personal Protection

Eye/Face Protection: Use chemical goggles.
Skin Protection: Wear clean, body-covering clothing.

Hand protection: Use gloves chemically resistant to this material when prolonged or frequently repeated contact could occur. Examples of preferred glove barrier materials include: Butyl rubber. Ethyl vinyl alcohol laminate ("EVAL"). Examples of acceptable glove barrier materials include: Natural rubber ("latex"). Neoprene. Nitrile/butadiene rubber ("nitrile" or "NBR"). Polyvinyl chloride ("PVC" or "vinyl"). NOTICE: The selection of a specific glove for a particular application and duration of use in a workplace should also take into account all relevant workplace factors such as, but not limited to: Other chemicals which may be handled, physical requirements (cut/puncture protection, dexterity, thermal protection), potential body reactions to glove materials, as well as the instructions/specifications provided by the glove supplier.

Respiratory Protection: Respiratory protection should be worn when there is a potential to exceed the exposure limit requirements or guidelines. If there are no applicable exposure limit requirements or guidelines, use an approved respirator. Selection of air-purifying or positive-pressure supplied-air will depend on the specific operation and the potential airborne concentration of the material. For emergency conditions, use an approved positive-pressure self-contained breathing apparatus. The following should be effective types of air-purifying respirators: Organic vapor cartridge with a particulate pre-filter.
Ingestion: Use good personal hygiene. Do not consume or store food in the work area. Wash hands before smoking or eating.

Engineering Controls

Ventilation: Use engineering controls to maintain airborne level below exposure limit requirements or guidelines. If there are no applicable exposure limit requirements or guidelines, use only with adequate ventilation. Local exhaust ventilation may be necessary for some operations.

9. Physical and Chemical Properties

Appearance	
Physical State	Liquid.
Color	Yellow
Odor	Mild
Odor Threshold	No test data available
pH	No test data available
Melting Point	Not applicable to liquids
Freezing Point	3.8 °C (38.8 °F) *Calculated*
Boiling Point (760 mmHg)	> 250 °C (> 482 °F) *Calculated* Decomposes before boiling.
Flash Point - Closed Cup	247 °C (477 °F) *ASTM D93*
Flash Point - Open Cup	282 °C (540 °F) *ASTM D92*
Evaporation Rate (Butyl Acetate = 1)	No test data available
Flammability (solid, gas)	Not applicable to liquids
Flammable Limits In Air	**Lower**: No test data available **Upper**: No test data available
Vapor Pressure	< 0.01 mmHg @ 20 °C *Calculated*
Vapor Density (air = 1)	>1 *Calculated*
Specific Gravity (H2O = 1)	1.057 20 °C/20 °C *Calculated*
Solubility in water (by weight)	Completely soluble but some compositions may form gels
Partition coefficient, n-octanol/water (log Pow)	2.1 - 3.4 *Calculated*
Autoignition Temperature	No test data available

Decomposition Temperature	No test data available
Kinematic Viscosity	237 cSt @ 25 °C *Calculated*
Explosive properties	no data available
Oxidizing properties	no data available
Molecular Weight	616 g/mol *Calculated*

10. Stability and Reactivity

Reactivity
No dangerous reaction known under conditions of normal use.

Chemical stability
Thermally stable at typical use temperatures.

Possibility of hazardous reactions
Polymerization will not occur.

Conditions to Avoid: Exposure to elevated temperatures can cause product to decompose.

Incompatible Materials: Avoid contact with: Strong acids. Strong bases. Strong oxidizers.

Hazardous decomposition products
Decomposition products depend upon temperature, air supply and the presence of other materials.

11. Toxicological Information

Acute Toxicity
Ingestion
Typical for this family of materials. LD50, rat 960 - 3,980 mg/kg
Dermal
Typical for this family of materials. LD50, rabbit 2,000 - 2,991 mg/kg
Inhalation
Typical for this family of materials. LC50, 4 h, Aerosol, rat 1.15 mg/l
Eye damage/eye irritation
May cause severe eye irritation. May cause severe corneal injury.
Skin corrosion/irritation
Prolonged contact may cause slight skin irritation with local redness.
Sensitization
Skin
For this family of materials: Did not cause allergic skin reactions when tested in humans.
Respiratory
No relevant data found.
Repeated Dose Toxicity
For this family of materials: In animals, effects have been reported on the following organs: Kidney. Liver.
Chronic Toxicity and Carcinogenicity
For this family of materials: Did not cause cancer in laboratory animals.
Developmental Toxicity
For this family of materials: Has been toxic to the fetus in laboratory animals at doses toxic to the mother. For this family of materials: Did not cause birth defects in laboratory animals.
Reproductive Toxicity
No relevant data found.
Genetic Toxicology
For this family of materials: In vitro genetic toxicity studies were negative.

#026

12. Ecological Information

Toxicity

For this family of materials: Material is moderately toxic to aquatic organisms on an acute basis (LC50/EC50 between 1 and 10 mg/L in the most sensitive species tested).

Fish Acute & Prolonged Toxicity
For this family of materials: LC50, Pimephales promelas (fathead minnow), 96 h: 3.8 - 6.2 mg/l
Aquatic Invertebrate Acute Toxicity
For this family of materials: LC50, Daphnia magna (Water flea), 48 h: 9.3 - 21.4 mg/l
Toxicity to Micro-organisms
For this family of materials: IC50; Bacteria, 16 h: > 1,000 mg/l

Persistence and Degradability

For this family of materials: Based on stringent OECD test guidelines, this material cannot be considered as readily biodegradable; however, these results do not necessarily mean that the material is not biodegradable under environmental conditions.
OECD Biodegradation Tests:

Biodegradation	Exposure Time	Method	10 Day Window
< 60 %	28 d	OECD 301B Test	Not applicable

Chemical Oxygen Demand: 2.09 - 2.25 mg/mg
Theoretical Oxygen Demand: 2.15 - 2.25 mg/mg

Bioaccumulative potential

Partition coefficient, n-octanol/water (log Pow): 2.1 - 3.4 Calculated
Bioconcentration Factor (BCF): 5.9 - 48; Fish; Estimated.

Mobility in soil

Mobility in soil: No relevant data found.

13. Disposal Considerations

DO NOT DUMP INTO ANY SEWERS, ON THE GROUND, OR INTO ANY BODY OF WATER. All disposal practices must be in compliance with all Federal, State/Provincial and local laws and regulations. Regulations may vary in different locations. Waste characterizations and compliance with applicable laws are the responsibility solely of the waste generator. AS YOUR SUPPLIER, WE HAVE NO CONTROL OVER THE MANAGEMENT PRACTICES OR MANUFACTURING PROCESSES OF PARTIES HANDLING OR USING THIS MATERIAL. THE INFORMATION PRESENTED HERE PERTAINS ONLY TO THE PRODUCT AS SHIPPED IN ITS INTENDED CONDITION AS DESCRIBED IN MSDS SECTION: Composition Information. FOR UNUSED & UNCONTAMINATED PRODUCT, the preferred options include sending to a licensed, permitted: Incinerator or other thermal destruction device. Waste water treatment system.

14. Transport Information

DOT Non-Bulk
NOT REGULATED

#026

DOT Bulk
Proper Shipping Name: ENVIRONMENTALLY HAZARDOUS SUBSTANCE, LIQUID, N.O.S.
Technical Name: Nonylphenol polyethylene glycol ether
Hazard Class: 9 **ID Number:** UN3082 **Packing Group:** PG III

IMDG
Proper Shipping Name: ENVIRONMENTALLY HAZARDOUS SUBSTANCE, LIQUID, N.O.S.
Technical Name: Nonylphenol polyethylene glycol ether
Hazard Class: CLASS 9 **ID Number:** UN 3082 **Packing Group:** PG III
EMS Number: F-A,S-F
Marine pollutant: Yes
Transport in bulk according to Annex II of MARPOL 73/78 and the IBC Code
Product Name: Nonylphenol poly(4+)ethoxylate
Ship Type: 2
Pollution Category: Y

ICAO/IATA
Proper Shipping Name: ENVIRONMENTALLY HAZARDOUS SUBSTANCE, LIQUID, N.O.S.
Technical Name: Nonylphenol polyethylene glycol ether
Hazard Class: 9 **ID Number:** UN3082 **Packing Group:** PG III
Cargo Packing Instruction: 964
Passenger Packing Instruction: 964
Additional Information

MARINE POLLUTANT

This information is not intended to convey all specific regulatory or operational requirements/information relating to this product. Additional transportation system information can be obtained through an authorized sales or customer service representative. It is the responsibility of the transporting organization to follow all applicable laws, regulations and rules relating to the transportation of the material.

15. Regulatory Information

OSHA Hazard Communication Standard
This product is a "Hazardous Chemical" as defined by the OSHA Hazard Communication Standard, 29 CFR 1910.1200.

Superfund Amendments and Reauthorization Act of 1986 Title III (Emergency Planning and Community Right-to-Know Act of 1986) Sections 311 and 312

Immediate (Acute) Health Hazard	Yes
Delayed (Chronic) Health Hazard	No
Fire Hazard	No
Reactive Hazard	No
Sudden Release of Pressure Hazard	No

Superfund Amendments and Reauthorization Act of 1986 Title III (Emergency Planning and Community Right-to-Know Act of 1986) Section 313
To the best of our knowledge, this product does not contain chemicals at levels which require reporting under this statute.

Pennsylvania (Worker and Community Right-To-Know Act): Pennsylvania Hazardous Substances List and/or Pennsylvania Environmental Hazardous Substance List:
To the best of our knowledge, this product does not contain chemicals at levels which require reporting under this statute.

Pennsylvania (Worker and Community Right-To-Know Act): Pennsylvania Special Hazardous Substances List:

To the best of our knowledge, this product does not contain chemicals at levels which require reporting under this statute.

California Proposition 65 (Safe Drinking Water and Toxic Enforcement Act of 1986)
This product contains no listed substances known to the State of California to cause cancer, birth defects or other reproductive harm, at levels which would require a warning under the statute.

US. Toxic Substances Control Act
All components of this product are on the TSCA Inventory or are exempt from TSCA Inventory requirements under 40 CFR 720.30
CEPA - Domestic Substances List (DSL)
All substances contained in this product are listed on the Canadian Domestic Substances List (DSL) or are not required to be listed.
European Inventory of Existing Commercial Chemical Substances (EINECS)
This product is a polymer according to the definition in Directive 92/32/EEC (7th Amendment to Directive 67/548/EEC) and all of its starting materials and intentional additives are listed in the European Inventory of Existing Commercial Chemical Substances (EINECS) or in compliance with European (EU) chemical inventory requirements.

16. Other Information

Product Literature
Additional information on this and other products may be obtained by visiting our web page. Additional information on this product may be obtained by calling your sales or customer service contact. Ask for a product brochure.

Hazard Rating System

NFPA	Health	Fire	Reactivity
	2	1	0

Recommended Uses and Restrictions
Identified uses
Multi-purpose surfactant. NOTICE! NOT TO BE USED AS A BIOCIDE IN INTRAVAGINAL END-USE APPLICATIONS (INCLUDING SPERMICIDES). FOR INDUSTRY USE ONLY. We recommend that you use this product in a manner consistent with the listed use. If your intended use is not consistent with the stated use, please contact your sales or technical service representative.

Revision
Identification Number: 2033 / 0000 / Issue Date 01/08/2014 / Version: 6.0
Most recent revision(s) are noted by the bold, double bars in left-hand margin throughout this document.

Legend

N/A	Not available
W/W	Weight/Weight
OEL	Occupational Exposure Limit
STEL	Short Term Exposure Limit
TWA	Time Weighted Average
ACGIH	American Conference of Governmental Industrial Hygienists, Inc.
DOW IHG	Dow Industrial Hygiene Guideline
WEEL	Workplace Environmental Exposure Level
HAZ_DES	Hazard Designation
Action Level	A value set by OSHA that is lower than the PEL which will trigger the need for activities such as exposure monitoring and medical surveillance if exceeded.

The Dow Chemical Company urges each customer or recipient of this (M)SDS to study it carefully and consult appropriate expertise, as necessary or appropriate, to become aware of and understand the data contained in this (M)SDS and any hazards associated with the product. The information herein is provided in good faith and believed to be accurate as of the effective date shown above. However, no warranty, express or implied, is given. Regulatory requirements are subject to change and may differ between various locations. It is the buyer's/user's responsibility to ensure that his activities comply with all federal, state, provincial or local laws. The information presented here pertains only to the product as shipped. Since conditions for use of the product are not under the control of the manufacturer, it is the buyer's/user's duty to determine the conditions necessary for the safe use of this product. Due to the proliferation of sources for information such as manufacturer-specific (M)SDSs, we are not and cannot be responsible for (M)SDSs obtained from any source other than ourselves. If you have obtained an (M)SDS from another source or if you are not sure that the (M)SDS you have is current, please contact us for the most current version.

SECTION 1 - CHEMICAL PRODUCT AND COMPANY IDENTIFICATION

SDS REVISION #: New

PRODUCT IDENTIFIER: Pitch Emulsion

OTHER IDENTIFIERS: Tall-oil pitch emulsion, RDC-400

CHEMICAL FORMULA: Mixture

RELEVANT USES: Dust control intermediate

DISTRIBUTED BY: Lexycon LLC.
P.O. Box 8
Nitro, WV 25143

PHONE NUMBERS: Business - (304) 755-5737 (business hours)
CHEMTREC - (800) 424-9300 (transportation emergencies)

SECTION 2 - HAZARDS IDENTIFICATION

GHS CLASSIFICATION:
Eye irritant (Category 2B)

SIGNAL WORD:
Warning!

PICTOGRAM: None required

HAZARD STATEMENTS:
Causes eye irritation

PRECAUTIONARY STATEMENTS:

Prevention
Wash exposed areas thoroughly after handling.

Response
If in eyes: Rinse cautiously with water for several minutes. Remove contact lenses, if present and easy to do. Continue rinsing. If irritation persists, get medical advice or attention.

Storage
Not applicable

Disposal
Not applicable

HAZARDS NOT OTHERWISE CLASSIFIED: None

SECTION 3 - COMPOSITION / INFORMATION ON INGREDIENTS

Component	%	CAS No.
Tall-oil pitch emulsion	100	Mixture

SECTION 4 - FIRST AID MEASURES

IN CASE OF EYE CONTACT:

Flush with large amounts of water for at least 15 minutes, lifting upper and lower lids occasionally. Remove contact lenses, if present and easy to do. Continue rinsing. If irritation persists, get medical advice or attention.

IN CASE OF SKIN CONTACT:

Wash with soap and water.

IF SWALLOWED:

Rinse mouth with water and drink two glasses of water. If irritation or nausea develops, contact a physician.

IF INHALED:

If affected, move to fresh air.

MOST IMPORTANT SYMPTOMS AND EFFECTS:

Can cause eye irritation

NOTE TO PHYSICIAN:

Treat symptomatically

SECTION 5 - FIRE FIGHTING MEASURES

FLAMMABLE PROPERTIES:

This product contains a large amount of water, and would not normally burn.

EXTINGUISHING MEDIA:

Use water fog, foam, dry chemical or carbon dioxide as appropriate for other materials involved in the fire.

PROTECTION OF FIREFIGHTERS:

Keep personnel removed from and upwind. Wear full protective clothing and self-contained breathing apparatus with full face-piece. Cool containers with water.

SECTION 6 - ACCIDENTAL RELEASE MEASURES

PRECAUTIONS, PROTECTIVE EQUIPMENT & EMERGENCY PROCEDURES:

Persons not wearing protective equipment should be excluded from the area of the spill until cleanup has been completed.

CONTAINMENT & CLEAN-UP:

Dike area of spill to prevent spreading, and pump liquid to salvage tank. Absorb remaining liquid on vermiculite, floor absorbent or other absorbent material and shovel into containers.

SECTION 7 - HANDLING AND STORAGE

SAFE HANDLING:

Avoid contact with skin, eyes and clothing. Wash thoroughly after handling.

STORAGE:

Keep in closed or covered containers when not in use. Store in cool dry place with adequate ventilation. Do not store in or near metal containers which may be corroded by this product.

SECTION 8 - EXPOSURE CONTROLS / PERSONAL PROTECTION

EXPOSURE GUIDELINES:

Not established for product or components

ENGINEERING CONTROLS:

Not required under normal conditions of use

EYE / FACE PROTECTION:

Chemical splash goggles are advised when handling any chemical substance.

SKIN PROTECTION:

Wear protective gloves such as Neoprene or Buna-N.

RESPIRATORY PROTECTION:

Not required under normal conditions of use

SECTION 9 - PHYSICAL AND CHEMICAL PROPERTIES

Appearance: Brown liquid @ 68° F (20° C)
Odor: Bland or rancid
pH: 5-7 (as is)
Freezing Point: ~32° F (0° C)
Initial Boiling Point: >212° F (100° C)
Flash Point: >500° F (260° C) PMCC
Evaporation Rate: Slower
(Ethyl Ether = 1)
Upper Explosion Limit: Unavailable
Lower Explosion Limit: Unavailable
Vapor Pressure: 17.5 @ 68° F (20° C) (water)
Vapor Density: Unavailable
Relative Density: ~1 @ 77° F (25° C)
Weight per gallon: ~8.34
Solubility in Water: Dispersible
Volatile %: 30-50
Autoignition Temperature: Unavailable
Decomposition Temperature: Unavailable

SECTION 10 - STABILITY AND REACTIVITY

REACTIVITY:
May react violently with strong oxidizers

STABILITY (conditions to avoid):
Stable under normal conditions of 70° F (21° C) and 14.7 psig (760 mm Hg)

POSSIBILITY OF HAZARDOUS REACTIONS:
May react violently with strong oxidizers

CONDITIONS TO AVOID:
None known

INCOMPATIBILE MATERIALS:
Avoid contact with strong oxidizing agents, strong bases and strong acids

HAZARDOUS DECOMPOSITION PRODUCTS:
Unavailable

DECOMPOSITION:
None known

SECTION 11 - TOXICOLOGICAL INFORMATION

LIKELY ROUTES OF EXPOSURE:
Skin and eye contact and inhalation

SYMPTOMS:
Eyes: Tearing, redness and irritation
Skin: None known
Breathing: Breathing spray may result in mild respiratory irritation in certain individuals
Swallowing: None known

Section 11 continued on next page

SECTION 11 - TOXICOLOGICAL INFORMATION (continued)

EFFECTS FROM EXPOSURE:

Immediate: Causes eye irritation

Delayed: None known

Chronic: None known

TOXICITY DATA:

No data available for product

CARCINOGENICITY

This product is not reported to have any carcinogenic effects. This product (or components) is not listed in IARC Monographs, the current NTP Report on Carcinogens or the current ACGIH TLVs as a carcinogen or potential carcinogen. OSHA does not regulate it as a carcinogen.

SECTION 12 - ECOLOGICAL INFORMATION

ECOTOXICITY:

No data available for product

PERSISTENCE AND BIODEGRADABILITY

Expected to be completely biodegradable

BIOACCUMULATIVE POTENTIAL:

Not expected to be bioaccumulative

MOBILITY IN SOIL:

No data available

PBT & vPvB ASSESSMENT:

No data available

OTHER ADVERSE EFFECTS:

None known

SECTION 13 - DISPOSAL CONSIDERATIONS

Material that cannot be recovered or reused should be sent to a licensed disposal facility for drying and disposal in a landfill. Material collected on absorbent material may be deposited in a landfill in accordance with all applicable local, state and federal regulations.

This product, if disposed of, is not considered a hazardous waste under current RCRA definitions.

SECTION 14 - TRANSPORT INFORMATION

Not regulated under current U.S DOT, TDG (Canadian), ICAO (air) or IMO (water) transport regulations.

SECTION 15 - REGULATORY INFORMATION

TSCA INFORMATION:

All components in this product are in compliance with TSCA Inventory requirements or exempt from reporting.

CEPA:

All components in this product are listed on the Canadian Domestic Substances List (DSL).

SARA:

CERCLA/SARA 302: Not applicable
CERCLA/SARA 311/312: Not applicable
CERCLA/SARA 313: Not applicable

SECTION 16 - OTHER INFORMATION

PREPARATION DATE: August 15, 2014
SUPERCEDES: Not applicable
REASON FOR REVISION: New SDS

The product information contained herein is believed to be accurate as of the date of the Safety Data Sheet, and is provided without warranty, expressed or implied, as to the results of use of this information or the product to which it relates. Recipient assumes all responsibility for the use of this information and the use (alone or in combination with any other product), storage or disposal of the product, including any resultant personal injury or property damage.

END OF REPORT

SECTION 1 - CHEMICAL PRODUCT AND COMPANY IDENTIFICATION

SDS REVISION #: New

PRODUCT IDENTIFIER: Potassium Acetate Solution

OTHER IDENTIFIERS: FCA-4000

CHEMICAL FORMULA: CH_3COOK

RELEVANT USES: Freeze conditioning

DISTRIBUTED BY: Lexycon LLC.
P.O. Box 8
Nitro, WV 25143

PHONE NUMBERS: Business - (304) 755-5737 (business hours)
CHEMTREC - (800) 424-9300 (transportation emergencies)

SECTION 2 - HAZARDS IDENTIFICATION

GHS CLASSIFICATION:
Eye irritant (Category 2B)

SIGNAL WORD:
Warning!

PICTOGRAM: None required

HAZARD STATEMENTS:
Causes eye irritation

PRECAUTIONARY STATEMENTS:

Prevention
Wash exposed areas thoroughly after handling.

Response
If in eyes: Rinse cautiously with water for several minutes. Remove contact lenses, if present and easy to do. Continue rinsing. If irritation persists, get medical advice or attention.

Storage
Not applicable

Disposal
Not applicable

HAZARDS NOT OTHERWISE CLASSIFIED: None

SECTION 3 - COMPOSITION / INFORMATION ON INGREDIENTS

Component	%	CAS No.
Potassium acetate	20-40	127-08-2
Water	60-80	7732-18-5

SECTION 4 - FIRST AID MEASURES

IN CASE OF EYE CONTACT:
Flush with large amounts of water for at least 15 minutes, lifting upper and lower lids occasionally. Remove contact lenses, if present and easy to do. Continue rinsing. If irritation persists, get medical advice or attention.

IN CASE OF SKIN CONTACT:
Wash with soap and water.

IF SWALLOWED:
Rinse mouth with water and drink two glasses of water. If irritation or nausea develops, contact a physician.

IF INHALED:
If affected, move to fresh air.

MOST IMPORTANT SYMPTOMS AND EFFECTS:
Can cause eye irritation

NOTE TO PHYSICIAN:
Treat symptomatically

SECTION 5 - FIRE FIGHTING MEASURES

FLAMMABLE PROPERTIES:
This product contains a large amount of water, and would not normally burn.

EXTINGUISHING MEDIA:
Use water fog, foam, dry chemical or carbon dioxide as appropriate for other materials involved in the fire.

PROTECTION OF FIREFIGHTERS:
Keep personnel removed from and upwind. Wear full protective clothing and self-contained breathing apparatus with full face-piece. Cool containers with water.

SECTION 6 - ACCIDENTAL RELEASE MEASURES

PRECAUTIONS, PROTECTIVE EQUIPMENT & EMERGENCY PROCEDURES:

Persons not wearing protective equipment should be excluded from the area of the spill until cleanup has been completed.

CONTAINMENT & CLEAN-UP:

Dike area of spill to prevent spreading, and pump liquid to salvage tank. Absorb remaining liquid on vermiculite, floor absorbent or other absorbent material and shovel into containers.

SECTION 7 - HANDLING AND STORAGE

SAFE HANDLING:

Avoid contact with skin, eyes and clothing. Wash thoroughly after handling.

STORAGE:

Keep in closed or covered containers when not in use. Store in cool dry place with adequate ventilation. Do not store in or near metal containers which may be corroded by this product.

SECTION 8 - EXPOSURE CONTROLS / PERSONAL PROTECTION

EXPOSURE GUIDELINES:

Not established for product or components

ENGINEERING CONTROLS:

Not required under normal conditions of use

EYE / FACE PROTECTION:

Chemical splash goggles are advised when handling any chemical substance.

SKIN PROTECTION:

Wear protective gloves such as Neoprene or Buna-N.

RESPIRATORY PROTECTION:

Not required under normal conditions of use

SECTION 9 - PHYSICAL AND CHEMICAL PROPERTIES

Appearance: Clear, colorless liquid @ 68° F (20° C)
Odor: Slight vinegar odor
pH: Unavailable
Freezing Point: <-20° F (-28° C)
Initial Boiling Point: >212° F (100° C)
Flash Point: >212° F (100° C) PMCC
Evaporation Rate: Slower (Ethyl Ether = 1)
Upper Explosion Limit: Unavailable
Lower Explosion Limit: Unavailable
Vapor Pressure: 17.5 @ 68° F (20° C) (water)
Vapor Density: Unavailable
Relative Density: ~1.14 @ 77° F (25° C)
Weight per gallon: ~9.55
Solubility in Water: 100%
Volatile %: 60-80
Autoignition Temperature: Unavailable
Decomposition Temperature: Unavailable

SECTION 10 - STABILITY AND REACTIVITY

REACTIVITY:
May react violently with strong oxidizers

STABILITY (conditions to avoid):
Stable under normal conditions of 70° F (21° C) and 14.7 psig (760 mm Hg)

POSSIBILITY OF HAZARDOUS REACTIONS:
May react violently with strong oxidizers

CONDITIONS TO AVOID:
None known

INCOMPATIBILE MATERIALS:
Avoid contact with strong oxidizing agents, strong bases and strong acids

HAZARDOUS DECOMPOSITION PRODUCTS:
Unavailable

DECOMPOSITION:
None known

SECTION 11 - TOXICOLOGICAL INFORMATION

LIKELY ROUTES OF EXPOSURE:
Skin and eye contact and inhalation

SYMPTOMS:
Eyes: Tearing, redness and irritation

Skin: None known

Breathing: Breathing spray may result in mild respiratory irritation in certain individuals

Swallowing: None known

EFFECTS FROM EXPOSURE:
Immediate: Causes eye irritation

Delayed: None known

Chronic: None known

TOXICITY DATA:
Oral LD_{50} (rat) – >3250 mg/kg

CARCINOGENICITY
This product is not reported to have any carcinogenic effects. This product (or components) is not listed in IARC Monographs, the current NTP Report on Carcinogens or the current ACGIH TLVs as a carcinogen or potential carcinogen. OSHA does not regulate it as a carcinogen.

SECTION 12 - ECOLOGICAL INFORMATION

ECOTOXICITY:
No data available for product; however, results from testing a similar product are:

BOD (TOD) – 0.30 g O_2/g
BOD_{20} @ 36° F (2° C) - 0.30 g O_2/g
BOD_{20} @ 68° F (20° C) - 0.30 g O_2/g
BOD_5 @ 68° F (20° C) - 0.14 g O_2/g

LC50 (*Daphnia magna*) – greater than 500 mg/L
LC50 (*Pimephales promelas*) – greater than 1000 mg/L

Section 12 continued on next page

SECTION 12 - ECOLOGICAL INFORMATION (continued)

PERSISTENCE AND BIODEGRADABILITY
Expected to be completely biodegradable

BIOACCUMULATIVE POTENTIAL:
Not expected to be bioaccumulative

MOBILITY IN SOIL:
No data available

PBT & vPvB ASSESSMENT:
No data available

OTHER ADVERSE EFFECTS:
None known

SECTION 13 - DISPOSAL CONSIDERATIONS

Material that cannot be recovered or reused should be sent to a licensed disposal facility for drying and disposal in a landfill. Material collected on absorbent material may be deposited in a landfill in accordance with all applicable local, state and federal regulations.

This product, if disposed of, is not considered a hazardous waste under current RCRA definitions.

SECTION 14 - TRANSPORT INFORMATION

Not regulated under current U.S DOT, TDG (Canadian), ICAO (air) or IMO (water) transport regulations.

SECTION 15 - REGULATORY INFORMATION

TSCA INFORMATION:
All components in this product are in compliance with TSCA Inventory requirements or exempt from reporting.

CEPA:
All components in this product are listed on the Canadian Domestic Substances List (DSL).

SARA:
CERCLA/SARA 302: Not applicable
CERCLA/SARA 311/312: Not applicable
CERCLA/SARA 313: Not applicable

SECTION 16 - OTHER INFORMATION

PREPARATION DATE: August 8, 2014
SUPERCEDES: Not applicable
REASON FOR REVISION: New SDS

The product information contained herein is believed to be accurate as of the date of the Safety Data Sheet, and is provided without warranty, expressed or implied, as to the results of use of this information or the product to which it relates. Recipient assumes all responsibility for the use of this information and the use (alone or in combination with any other product), storage or disposal of the product, including any resultant personal injury or property damage.

END OF REPORT

J&B Blending & Technologies, Inc.
Nichol Avenue, M.R.I.E. Bldg. 162/164
McKees Rocks, PA 15136
Phone: 412-331-2825
Fax: 412-331-2848

MATERIAL SAFETY DATA SHEET

#029

SECTION 1 IDENTITY AND MANUFACTURING INFORMATION

PRODUCT NAME: PROPYLENE GLYCOL, 70%

PRODUCT CODE: 10-112R70

NAME OF DISTRIBUTOR: J&B BLENDING AND TECHNOLOGIES

EMERGENCY TELEPHONE (CHEMTEL) #: 1-888-255-3924

PRODUCT USE: INDUSTRIAL USE

DATE PREPARED: 12- 20- 06 REVISED: 06-30-12

DOT HAZARD CLASSIFICATION: LIQUID, N.O.S. (PROPYLENE GLYCOL SOLUTION), NOT REGULATED BY D.O.T.

SECTION 2 INGREDIENTS / IDENTITY INFORMATION

INGREDIENTS	CAS#	WT %
PROPYLENE GLYCOL	57-55-6	65.0 – 75.0

NOTE: N/E = NOT ESTABLISHED

SECTION 3 HAZARDS IDENTIFICATION

ROUTE (S) OF ENTRY: EYES, SKIN, INGESTION, INHALATION.

HEALTH HAZARDS: 1. ACUTE: NO 2. CHRONIC: NO

SLIGHT EYE IRRITANT, INHALTION AND SKIN IRRITATION OR ABSORPTION HAZARDS IDENTIFIED.

CHEMICAL LISTED AS CARCINOGEN OR POTENTIAL CARCINOGEN:
NATIONAL TOXICOLOGY PROGRAM: NO
I.A.R.C. MONOGRAPHS: NO
OSHA: NO

SIGNS AND SYMPTOMS OF EXPOSURE: PROLONGED CONTACT WITH PRODUCT MAY CAUSE DERMATITIS AND EYE IRRITATION. PRODUCT IS NON-HAZARDOUS PER OSHA 1910. 1200

MEDICAL CONDITIONS GENERALLY AGGRAVATED BY EXPOSURE: PREEXISTING SKIN IRRITATIONS, CUTS AND EXISTING DERMATITIS CONDITIONS AS WELLAS RESPIRATORY CONDITIONS

SECTION 4 **EMERGENCY AND FIRST AID PROCEDURES**

EYES: IMMEDIATELY FLUSH EYES THOROUGHLY WITH WATER FOR 15 MINUTES MINIMUM, HOLDING THE EYELIDS APART, TO ENSURE COMPLETE WATER CONTACT WITH ALL EYE SURFACES. IF DISCOMFORT OCCURS, SEEK IMMEDIATE MEDICAL ATTENTION.

SKIN: CONTACT WITH SKIN NOT NORMALLY IRRITATING. PROLONGED CONTACT, AS WITH CLOTHING SATURATED WITH MATERIAL, MAY CAUSE DEFATTING OF SKIN TISSUE WITH SUBSEQUENT IRRITATION. REMOVE CONTAMINATED CLOTHING AND WASH CONTAMINATED AREAS WITH LARGE AMOUNTS OF SOAP AND WATER. RINSE COMPLETELY AND DRY THOROUGHLY. LAUNDER ALL CLOTHING BEFORE RE-USE. IF IRRITATION DEVELOPS OR PERSISTS, SEEK MEDICAL ATTENTION.

INGESTION: IF PERSON IS CONSCIOUS AND CAN SWALLOW, GIVE TWO GLASSES OF WATER (16 OZ.) BUT DO NOT INDUCE VOMITING. IF VOMITING OCCURS, GIVE FLUIDS AGAIN. HAVE MEDICAL PERSONNEL DETERMINE IF EVACUATION OF STOMACH OR INDUCTION OF VOMITING IS NECESSARY. DO NOT GIVE ANYTHING BY MOUTH TO AN UNCONSCIOUS PERSON.

INHALATION: IF IRRITATION, HEADACHE, NAUSEA OR DROWSINESS OCCURS, REMOVE TO FRESH AIR. GET MEDICAL ATTENTION IF BREATHING BECOMES DIFFICULT OR RESPIRATORY PROBLEMS OCCUR.

SECTION 5 **FIRE FIGHTING MEASURES**

FLASH POINT AND METHOD: NONE, WATER BASED MATERIAL.

FLAMMABLE LIMITS: N/A

AUTOIGNITION TEMPERATURE: N/A

HAZARDOUS DECOMPOSITION PRODUCTS: CARBON MONOXIDE AND DIOXIDE CAN BE FORMED ON BURNING WITH A LIMITEDAIR SUPPLY.

MEANS OF EXTINCTION: PRODUCT WILL NOT BURN BY ITSELF. FIRE INVOLVING OTHER MATERIALS AND THIS PRODUCT CAN BE EXTINGUISHED BY WATER, DRY CHEMICAL, CARBON DIOXIDE OR FOAM.

SPECIAL FIRE FIGHTING PROCEDURES: WEAR POSITIVE-PRESSURE SELF-CONTAINED BREATHING APPARATUS (SCBA) AND PROTECTIVE FIRE FIGHTING CLOTHING. IF PROTECTIVE EQUIPMENT IS NOT AVAILABLE OR NOT USED, FIGHT FIRE FROM A PROTECTED LOCATION OR SAFE DISTANCE.

SECTION 6 **ACCIDENTAL RELEASE PROCEEDURES**

STEPS TO BE TAKEN IN CASE MATERIAL IS RELEASED OR SPILLED: PREVENT MATERIAL FROM ENTERING SOIL, DITCHES, SEWERS, WATERWAYS AND GROUNDWATER SUPPLIES.

LARGE SPILL: HALT SPILL IF THERE IS NO RISK FOR PERSONAL INJURY. CONTAIN SPILL BY DIKING SPILL AREA WITH ABSORBENT MATERIAL SUCH AS CLAY, SOIL OR CHEMICAL ABSORBANT. WHEN COLLECTED, SHOVEL ABSORBANT MATERIAL INTO APPROVED CONTAINERS FOR PROPER DISPOSAL. DISPOSE OF ALL ABSORBANT AND COLLECTED IN ACCORDANCE WITH ALL APPLICABLE REGULATIONS.

SMALL SPILL: ABSORB ON ABSORBANT MATERIAL SUCH AS OIL DRY, CAT LITTER, SAND, SAWDUST. COLLECT AND PLACE IN APPROVED CONTAINER FOR LEGAL DISPOSAL.

WASTE DISPOSAL METHOD: CHECK LOCAL, STATE, AND FEDERAL REGULATIONS REGARDING DISPOSAL FOR YOUR AREA.

PRECAUTIONS TO BE TAKEN IN HANDLING AND STORAGE: KEEP CONTAINER CLOSED WHEN NOT IN USE.

SECTION 7 HANDLING AND STORAGE

STORAGE: KEEP CONTAINERS TIGHTLY CLOSED. STORE IN A COOL, DRY, WELL-VENTILATED LOCATION AWAY FROM STRONG OXIDIZERS, POTENTIAL FIRE HAZARDS AND INCOMPATIBLE CHEMICALS.

SECTION 8 CONTROL MEASURES

EXPIRATORY PROTECTION (SPECIFY TYPE): NONE NEEDED IF EXPOSURE LIMITS ARE NOT EXCEEDED. IF AIRBORNE CONCENTRATIONS EXCEED TLV, ANY SELF-CONTAINED BREATHING APPARATUS WITH A FULL FACE PIECE AND OPERATED IN A PRESSURE-DEMAND OR OTHER POSITIVE PRESSURE MODE IS RCOMMENDED.

VENTILATION: LOCAL EXHAUST: MAINTAIN TLV OTHER: NOT GENERALLY REQUIRED
MECHANICAL (GEN): SPECIAL:

PROTECTIVE GLOVES: YES, NEOPRENE, NITRILE OR NATURAL RUBBER RECOMMENDED.

GOGGLES: YES, CHEMICAL GOGGLES AND/OR FACE SHIELD. CONTACT LENSES SHOULD NOT BE WORN WHEN WORKING WITH THIS OR OTHER CHEMICAL SOLUTIONS.

OTHER PROTECTIVE CLOTHING OR EQUIPMENT: NORMAL CLOTHING COVERING ARMS AND LEGS.

WORK/HYGIENE PRACTICES: KEEP OUT OF EYES AND OFF OF SKIN AND CLOTHING. WASH CLOTHING BEFORE REUSE.

SECTION 9 PHYSICAL AND CHEMICAL PROPERTIES

APPEARANCE/ODOR:	**WATER WHITE TO STRAW COLOR / MILD ODOR**
PHYSICAL STATE:	**LIQUID**
pH:	**6.0-8.0**
VAPOR PRESSURE (mmHg):	**AS WATER**
VAPOR DENSITY (AIR=1):	**AS WATER**
SPECIFIC GRAVITY:	**1.041 (WATER=1) +/- 0.03**
DENSITY (Water = 1):	**8. 67 lbs / gallon +/- 0.3 lbs/gallon**
EVAPORATION RATE:	**AS WATER**
SOLUBILITY IN WATER:	**COMPLETE**

#029

SECTION 10 **STABILITY AND REACTIVITY**

STABILITY: STABLE UNDER NORMAL CONDITIONS OF USE AND STORAGE.

INCOMPATIBILITY (MATERIALS TO AVOID): STRONG OXIDIZING AGENTS, STRONG ACIDS, AND POLYMERIZATION CATALYSTS.

HAZARDOUS DECOMPOSITION: CAN CONTRIBUTE TO CARBON MONOXIDE/DIOXIDE COMBUSTION PRODUCTS IF BURNED WITH OTHER COMBUSTIBLE PRODUCTS.

HAZARDOUS POLYMERIZATION: WILL NOT OCCUR

SECTION 11 **TOXICOLOGCAL INFORMATION**

TOXICOLOGICAL INFORMATION (ANIMAL TOXICITY DATA):
ORAL: LD50 > 5 gms/kg (rat), practically non-toxic

INHALATION: Believed to be non-toxic.

DERMAL: LD50 > 3 gms/kg (rabbit), practically non-toxic.

SECTION 12 **DISPOSAL**

WASTE DISPOSAL REQUIREMENTS: DO NOT DISCHARGE TO SEWER. COLLECT OR PICK-UP WITH SAND, VERMICULITE OR SIMILAR INERT RAW MATERIAL. DISPOSE OF IN ACCORDANCE WITH ALL EXISTING FEDERAL, STATE AND LOCAL REGULATIONS REGARDING DISPOSAL OF WASTE MATERIALS. DOES NOT MEET RCRA DESIGNATION OF A HAZARDOUS WASTE IF DISPOSED OF IN ITS PURCHASED FORM.

SECTION 13 **TRANSPORT INFORMATION**

PROPER SHIPPING NAME: LIQUID, NOS (PROPYLENE GLYCOL SOLUTION)

HAZARD CLASS: NOT REGULATED

IDENTIFICATION NUMBER: NOT LISTED

GUIDE NUMBER: NOT LISTED

PACKING GROUP: NOT LISTED

LABEL REQUIRED: YES, NOT REGULATED BY D.O.T.

SECTION 14 **REGULATORY INFORMATION**

SECTION 302/304 REPORTING: NONE

SECTION 311/312 REPORTING: DELAYED HEALTH HAZARD ---------- NO
FIRE HAZARD ---------- NO
IMMEDIATE HEALTH HAZARD ---------- NO
REACTIVE HAZARD ---------- NO
SUDDEN RELEASE OF PRESSURE HAZARD--- NO

#029

CERCLA 102 REPORTING: NONE

STATES RIGHT TO KNOW: PENNSYLVANIA

CALIFORNIA PROP. 65: MEETS CALIFORNIA GUIDELINES FOR ALLOWABLE LIMITS.

TOXIC SUBSTANCES CONTROL ACT(TSCA): LISTED, REPORT NOT REQUIRED

DOMESTIC SUBSTANCES ACT(DSL): LISTED, REPORT NOT REQUIRED

SECTION 15 ENVIROMENTAL INFORMATION

AQUATIC TOXICITY: > 100.00 mg / liter, practically non-toxic

MOBILITY: NOT DETERMINED

PERSISTENCE AND BIODEGRABILITY: PRODUCT IS REPORTED TO HAVE A MODERATE RATE OF BIODEGRADATION ; 30% OVER A TEST PERIOD OF 28 DAYS OR LESS.

BIOACCUMULATION: LOW POTENTIAL TO BIOCONCENTRATE

OTHER: None.

SECTION 16 OTHER INFORMATION

NOTICE:

THIS PRODUCT HAS BEEN CLASSIFIED IN ACCORDANCE WITH THE HAZARD CRITERIA OF THE CFR AND THE MSDS CONTAINS ALL THE INFORMATION REQUIRED BY THE CFR.

DISCLAIMER: THE INFORMATION HEREIN IS GIVEN IN GOOD FAITH, BUT NO WARRANTY, EXPRESSED OR IMPLIED, IS MADE. FINAL DETERMINATION OF SUITABILITY OF ANY MATERIAL IS THE SOLE RESPONSIBILITY OF THE USER. ALL MATERIALS MAY PRESENT UNKNOWN HAZARDS AND SHOULD BE USED WITH CAUTION. ALTHOUGH CERTAIN HAZARDS ARE DESCRIBED HEREIN, WE CANNOT GUARANTEE THAT THESE ARE THE ONLY HAZARDS WHICH EXIST.

HAZARD RATING:		RATING:
HEALTH:	1	4 = EXTREME
FIRE:	0	3 = HIGH
REACTIVITY:	0	2 = MODERATE
SPECIAL:	0	1 = SLIGHT
		0 = INSIGNIFICANT

WJO 17212

#030

LINDER OIL COMPANY, INC.
Material Safety Data Sheet For:

PROSOL 2224

ACUTE HEALTH	FIRE	REACTIVIY	Hazard Rating:	Least – 0
2	1	0	Slight – 1 High – 3	Moderate – 2 Extreme - 4

I. PRODUCT AND COMPANY IDENTIFICATION

PRODUCT NAME: **PROSOL 2224**
SUPPLIER: **LINDER OIL COMPANY, INC.**
820 INDUSTRIAL PARKWAY
OSSIAN, IN 46777

Product and MSDS Information: 260/622-4680
CHEMTREC: 800/424-9300

II. COMPOSTION/INFORMATION ON INGREDIENTS

CHEMICAL NAMES AND SYNONYMS: AROMATIC HYDROCARBONS

1. Distillate Solvent Extract, Petroleum Heavy . **CAS #:** **64742-04-7** 100%
(Likely to contain >05% 4-6 membered condensed ring Polycyclic Aromatic Hydrocarbons.)
. Sulfur Compounds, % WT Max **5.4**

This product is considered to be a potential carcinogen.

III. HAZARDS IDENTIFICATION

EMERGENCY RESPONSE DATA: Dark Brown Liquid to black liquid
DOT ERG #- NA
EFFECTS OF OVEREXPOSURE: No significant effects expected.
EYE CONTACT: Tests on similar materials suggests that no significant eye irritation is expected to occur upon short-term exposure.
SKIN CONTACT: Tests suggest that after prolonged or repeated contact with large amounts of this material, absorption through the skin may occur and produce toxic effects. Prolonged and repeated contact can cause dermatitis, folliculitis, oil acne or skin tumors. May cause skin sensitization. Absorption through the skin may result in liver damage.
INHALATION: Inhalation of vapors or oil mists may cause pulmonary irritation, dizziness, nausea and loss of consciousness.

INGESTION: Product is presumed to be slightly toxic (single dose). Significant ingestion could result in Liver damage.
CARCINOGEN LISTING: The international agency for research on cancer (IARC) concluded that there was sufficient evidence that aromatic oils including extracts from solvent treatment of distillates (class 6.1) are carcinogenic to animals. The international agency for research on cancer (IARC) and the national toxicology program have concluded that certain Polycyclic Aromatic Hydrocarbon, I.E. Benzo (A) Pyrene, Benz (A) Anthracene and Indeno (1,2,3-CD) Pyrene are probably carcinogenic to humans (Group 2A and B).
SIGNS AND SYMPTIOMS: Irritations as noted above.
AGGRAVATED MEDICAL CONDITIONS: Pre-existing skin conditions, impaired liver function, and respiratory disorders may be aggravated by exposure to this product.

IV. OCCUPATIONAL EXPOSURE LIMITS.

PEL/ TWA	5mg/m^3	PEL/CEILING	None
TLV/TWA	5 mg/m^3	TLA/STEL	10 mg/m^3

V. FIRST AID MEASURES

EYE CONTACT: Flush eyes with water for at least 15 minutes. If irritation persists, obtain medical attention.
SKIN CONTACT: Remove contaminated clothing. Wash contact areas with soap and water.
INHALATION: Remove from further exposure. Obtain medical attention if there are signs of breathing difficulties.
INGESTION: In general no treatment is necessary unless large quantities of product are ingested. If uncomfortable seek medical attention.

VI. PHYSICAL AND CHEMICAL DATA

Typical physical properties are given below. Consult product bulletin for specific details.

APPEARANCE: Liquid
COLOR: Dark Brown to black
ODOR: Aromatic Sweet
BOILING POINT: 700° F
FLASH POINT: 400° F
FLAMMABLE LIMITS: Not Available
VAPOR PRESSURE, mm, hg: mm Hg:<0.01
SPECIFIC GRAVITY: .99

VII. FIRE AND EXPLOSION HAZARDS

FLASH POINT and METHOD 400°F (C.O.C.)

FLAMMABLE LIMTIS % VOLUME OF AIR Not Available
EXTINGUISHING MEDIA: Dry chemical and CO_2. Use water fog. Do not use direct stream of water.
SPECIAL FIRE FIGHTING PROCEDURES AND PRECAUTIONS: Do not enter confined fire space without proper protective equipment. This may include self-contained breathing apparatus to protect against the hazardous effect of combustion products and oxygen deficiencies. Cool fire exposed containers with water.

VIII. STABILITY AND REACTIVITY

STABILITY: Stable
CONDITIONS TO AVOID: Extreme heat and open flames.
MATERIALS TO AVOID: Strong oxidizers.
HAZARDOUS DECOMPOSITION PRODUCTS: Burning or excessive heat may produce carbon monoxide.
HAZARDOUS POLYMERIZATION: Will not occur.

IX. EXPOSURE CONTROLS/PERSONAL PROTECTION

VENTILTATION: Use in well-ventilated area.
RESPIRATORY PROTECTION: None is needed under normal conditions with adequate ventilation.
EYE PROTECTION: Normal industrial eye protection practices should be employed.
SKIN PROTECTON: Wear chemical resistant gloves and other protective clothing as required to minimize skin contact. Good personal hygiene practices should always be followed.
EXPOSURE LIMITS: This product does not contain any components that have recognized exposure limits. However, an exposure limit of $5.00 mg/m^3$ is suggested for oil mist.

X. ACCIDENTAL RELEASE MEASURES

SPILL OR LEAK PROCEDURES: Contain spill and prevent from entering all water bodies. Safely stop source of leak and/or spill. Dike and contain. Remove with pumps for salvage or dispose into properly labeled containers. Soak up remainder with absorbant such as clay.
WASTE DISPOSAL: Dispose of according to local, state and federal laws.
ENVIRONMENTAL HAZARDS: This product is classified as an oil. Spills that enter surface water or sewers leading to surface waters must be reported.

XI. TRANSPORTATION REQUIREMENTS

USA DOT: Not Regulated by USA DOT

XII. REGULATORY INFORMATION

GOVERNMENTAL INVENTORY STATUS: This product is listed on the EPA/TSCA inventory of chemical substances.

#030

US SUPERFUND AMENDMENTS AND REAUTHORIZATION ACT: (SARA) TITLE III: this product contains no "EXTREMELY HAZARDOUS SUBSTANCES".

XIII. OTHER INFORMATION

Information contained herein is based on data available and is offered in good faith as accurate. However this information is provided without any representations or warranty, expressed or implied, regarding it's accuracy or correctness. The conditions of handling, storage, use and disposal are beyond our control and may be beyond our knowledge, all risks of the use of this product are therefore assumed by the user and we do not assume responsibility and expressly disclaim liability for loss, damage or expense, arising out of the handling, storage, use, or disposal of this product.

LINDER OIL COMPANY, INC.
820 Industrial Parkway
Ossian, IN 46777
Phone: 260/622-4680
Fax: 260/622-4689
E-mail: linderoil@worldnet.att.net

MATERIAL SAFETY DATA SHEET

NFPA Designation 704

DEGREE OF HAZARD
4 = EXTREME
3 = HIGH
2 = MODERATE
1 = SLIGHT
0 = INSIGNIFICANT

FLAMMABILITY	0
HEALTH	0
	0
SPECIAL HAZARD	

CHEMSOLV PVA BINDER

SECTION I:==========IDENTIFICATION==========

Effective Date: 9/1/00 Revised: NONE

Name and Address:
Chemsolv, Inc.
P.O. Box 13847
Roanoke, VA 24037
540-427-4000
540-427-3207

Phone:
Emergency Phone: CHEMTREC 800-424-9300

Chemical Name: NOT APPLICABLE
Synonyms: PVA Latex Emulsion
Shipping Name:
D.O.T. Hazard Class: NONE

Formula: SEE SECTION II
Chemical Family: Complex Mixture

Code No. NONE

SECTION II:==========INGREDIENTS==========

A. Hazardous Ingredients % TLV

NONE

B. Other Ingredients %* TLV

*Legend: L=<5%; M=5-20%; H=>20%

SECTION III:==========PHYSICAL PROPERTIES==========

Boiling Point: > 212 deg. F
Percent Volatile (volume): <75
Vapor Pressure (mm Hg): N.D.
Vapor Density (air=1): N.D.

Specific Gravity: 0.98
pH (5% Solution): 5.5 - 6.5
Solubility in Water: COMPLETE
Evaporation Rate (water=1): N.D.

Appearance and Odor: WHITE VISCOUS LIQUID WITH PRACTICALLY NO ODOR

SECTION IV:==========FIRE AND EXPLOSION HAZARD DATA==========

Flash Point (method used): NONE
Flammable Limits in Air (lower): N.A. (upper): N.A.
Extinguishing Media: ANY MEDIA SUITABLE FOR THE SURROUNDING FIRE
Special Fire Fighting
Procedures: FIREFIGHTERS SHOULD WEAR NORMAL PROTECTIVE EQUIPMENT. SELF-CONTAINED BREATHING APPARATUS SHOULD BE USED IN CONFINED AREAS.
Unusual Fire or Explosion Hazards: NONE

SECTION V:==========HEALTH HAZARD DATA==========

A. TLV and Source: NONE DETERMINED FOR PRODUCT OR INGREDIENTS
B. Effects of a Single Overexposure by
1. Ingestion: NOT TOXIC
2. Inhalation: NOT TOXIC
3. Skin Contact: NOT A SKIN IRRITANT
4. Eye Contact: NOT A EYE IRRITANT
C. Effects of Repeated Overexposures: OTHER THAN ACUTE EFFECTS, NONE KNOWN.

NFPA Designation 704

DEGREE OF HAZARD
4 = EXTREME
3 = HIGH
2 = MODERATE
1 = SLIGHT
0 = INSIGNIFICANT

FLAMMABILITY	0
HEALTH	0
REACTIVITY	0
SPECIAL HAZARD	

CHEMSOLV PVA BINDER

D. Emergency and First Aid Procedures for
1. Ingestion: DRINK SEVERAL GLASSES OF WATER AND GET IMMEDIATE MEDICAL ATTENTION.
2. Inhalation: REMOVE VICTIM TO FRESH AIR AND GET MEDICAL ATTENTION IF SYMPTOMS PERSIST.
3. Skin Contact: WASH WITH PLAIN WATER.
4. Eye Contact: IMMEDIATELY FLUSH WITH CLEAR WATER FOR 15 MINUTES AND IF IRRITATION PERSISTS, GET MEDICAL ATTENTION.

SECTION VI:==========PERSONNEL PROTECTION DATA==========
Respiratory Protection: NOT NORMALLY REQUIRED
Ventilation: NORMAL VENTILATION SATISFACTORY
Protective Gloves: OPTIONAL Eye Protection: OPTIONAL
Other Protective Equipment: NONE

SECTION VII:==========REACTIVITY DATA==========
A. Product Stability: STABLE Conditions to Avoid: NONE
B. Incompatibility: NONE KNOWN
C. Hazardous Combustion or Decomposition Products: OXIDES OF CARBON MAY BE RELEASED IF THE MATERIAL IS DIRECTLY INVOLVED IN THE FIRE.
D. Hazardous Polymerization: WILL NOT OCCUR Conditions to Avoid: NONE

SECTION VIII:==========ENVIRONMENTAL DATA==========
A. Spill or Leak Procedures: WASH SMALL SPILLS THOROUGHLY WITH WATER. USE CARE WHEN WASHING AS THE EFFECTED AREA MAY BE SLIPPERY TO WALK ON.
B: Waste Disposal: SMALL QUANTITIES MAY BE DILUTED WITH WATER AND FLUSHED TO A SANITARY SEWER. LARGER QUANTITIES MAY BE BURIED IN AN APPROVED LANDFILL. HOWEVER, OBEY ALL FEDERAL, STATE OR LOCAL REGULATIONS.
C. Other Environmental Data: AQUATIC TOXICITY FOR THE PRODUCT UNKNOWN. ALL ACTIVE INGREDIENTS ARE BIODEGRADABLE. HOWEVER, PRODUCT SPILLS SHOULD BE PREVENTED FROM ENTERING NATURAL WATERWAYS.

SECTION IX:==========SPECIAL PRECAUTIONS==========
A. Handling and Storage: STORE IN A COOL DRY PLACE. KEEP CONTAINERS TIGHTLY CLOSED WHEN NOT IN USE.
B. Other Precautions: NONE

SECTION X:==========REGULATORY INFORMATION==========
The following regulations are known to apply to the use and disposal of this product. Additional Federal, State and Local regulations may also be applicable

NFPA Designation 704

DEGREE OF HAZARD
4 = EXTREME
3 = HIGH
2 = MODERATE
1 = SLIGHT
0 = INSIGNIFICANT

FLAMMABILITY	0
HEALTH	0
[illegible]	0
SPECIAL HAZARD	

CHEMSOLV PVA BINDER

CERCLA (Comprehensive Environmental Response, Compensation and Liability Act):
Unless listed below, this product does not contain greater than 0.1% of any listed hazardous substance(s) - 40 CFR 302.4.

SUBSTANCE	AMOUNT (Lbs/Gal)
NONE	

SARA (Superfund Amendments and Reauthorization Act):
Unless listed below, this product does not contain greater than the reportable amounts of toxic chemicals as defined under the various regulations under SARA.

Section 302: Extremely Hazardous Substances List - 40 CFR 355, Appendix A

SUBSTANCE	AMOUNT (Lbs/Gal)
NONE	

Section 311/312: This product falls in the following categories.

CATEGORY	HAZARD
NONE	

Section 313: Toxic Chemicals List - 40 CFR 372.45

SUBSTANCE	AMOUNT (Lbs/Gal)
NONE	

RCRA (Resource Conservation and Recovery Act):
Unless shown below, all components of this product listed as a hazardous waste under 40 CFR 261 are listed elsewhere in this MSDS. However, prior to disposal of the neat product, applicable regulatory agencies should be consulted.

SUBSTANCE	AMOUNT (Lbs/Gal)
NONE	

CWA (Clean Water Act):
Unless shown below, all components in this product at greater than 0.1% which are listed under 40 CFR 401.15, are listed elsewhere in this MSDS.

SUBSTANCE	AMOUNT (Lbs/Gal)
NONE	

OSHA (Hazard Communication Standard):
All components listed under this standard 29 CFR 1910.1200 are listed in Section II of this MSDS.

TSCA (Toxic Substances Control Act):
All ingredients in this product are listed in the TSCA inventory.

STATE REGULATIONS

CALIFORNIA (Safe Drinking Water and Toxic Enforcement Act - Proposition 65):
The following chemicals and associated hazard are listed:

SUBSTANCE	HAZARD

MATERIAL
SAFETY
DATA
SHEET

NFPA Designation 704

DEGREE OF HAZARD
4 = EXTREME
3 = HIGH
2 = MODERATE
1 = SLIGHT
0 = INSIGNIFICANT

FLAMMABILITY	0
HEALTH	0
REACTIVITY	0
SPECIAL HAZARD	

CHEMSOLV PVA BINDER

NONE

OTHER STATES: Certain states maintain their own ingredients lists which differ slightly from the Federal standards. States listed below have regulations on ingredients contained in this product. However, unless shown below, other sections of this MSDS contain the required reporting information.

STATE	ADDITIONAL INGREDIENTS	AMOUNT (Lbs/Gal)
MA, NJ, PA	NONE	

Prepared By: J.G. Austin

The data contained in this Material Safety Data Sheet has been prepared based upon an evaluation of the ingredients in the product, their concentration in the product and potential interactions. The information is offered in good faith and is believed to be accurate. It is furnished to the customer who is urged to study it carefully to become aware of hazards, if any, in the storage, handling, use and disposal of the product; and to insure his employees are properly informed and advised of all safety precautions required. The information is furnished for compliance with the "Occupational Safety and Health Act" of 1970, the "Hazards Communication Act" of 1983 as well as various other Federal, State and Local regulations. Use or dissemination of all or part of this information for any other purpose is prohibited by law.

#932

SECTION 1 - CHEMICAL PRODUCT AND COMPANY IDENTIFICATION

SDS REVISION #: New

PRODUCT IDENTIFIER: Sodium Acetate solution

OTHER IDENTIFIERS: FCA-8000

CHEMICAL FORMULA: Mixture

RELEVANT USES: Freeze conditioning

DISTRIBUTED BY: Lexycon LLC.
P.O. Box 8
Nitro, WV 25143

PHONE NUMBERS: Business - (304) 755-5737 (business hours)
CHEMTREC - (800) 424-9300 (transportation emergencies)

SECTION 2 - HAZARDS IDENTIFICATION

GHS CLASSIFICATION:
Eye irritant (Category 2B)

SIGNAL WORD:
Warning!

PICTOGRAM: None required

HAZARD STATEMENTS:
Causes eye irritation

PRECAUTIONARY STATEMENTS:

Prevention
Wash exposed areas thoroughly after handling.

Response
If in eyes: Rinse cautiously with water for several minutes. Remove contact lenses, if present and easy to do. Continue rinsing. If irritation persists, get medical advice or attention.

Storage
Not applicable

Disposal
Not applicable

HAZARDS NOT OTHERWISE CLASSIFIED: None

#032

SECTION 3 - COMPOSITION / INFORMATION ON INGREDIENTS

Component	%	CAS No.
Sodium acetate	20-40	127-09-3
Stabilizer	---	Proprietary*
Water	60-80	7732-18-5

*The specific chemical identity is being withheld as "trade secret" in accordance with 29 CFR 1910.1200(i)

SECTION 4 - FIRST AID MEASURES

IN CASE OF EYE CONTACT:
Flush with large amounts of water for at least 15 minutes, lifting upper and lower lids occasionally. Remove contact lenses, if present and easy to do. Continue rinsing. If irritation persists, get medical advice or attention.

IN CASE OF SKIN CONTACT:
Wash with soap and water.

IF SWALLOWED:
Rinse mouth with water and drink two glasses of water. If irritation or nausea develops, contact a physician.

IF INHALED:
If affected, move to fresh air.

MOST IMPORTANT SYMPTOMS AND EFFECTS:
Can cause eye irritation

NOTE TO PHYSICIAN:
Treat symptomatically

SECTION 5 - FIRE FIGHTING MEASURES

FLAMMABLE PROPERTIES:
This product contains a large amount of water, and would not normally burn.

Section 5 continued on next page

#032

SECTION 5 - FIRE FIGHTING MEASURES (continued)

EXTINGUISHING MEDIA:

Use water fog, foam, dry chemical or carbon dioxide as appropriate for other materials involved in the fire.

PROTECTION OF FIREFIGHTERS:

Keep personnel removed from and upwind. Wear full protective clothing and self-contained breathing apparatus with full face-piece. Cool containers with water.

SECTION 6 - ACCIDENTAL RELEASE MEASURES

PRECAUTIONS, PROTECTIVE EQUIPMENT & EMERGENCY PROCEDURES:

Persons not wearing protective equipment should be excluded from the area of the spill until cleanup has been completed.

CONTAINMENT & CLEAN-UP:

Dike area of spill to prevent spreading and pump liquid to salvage tank. Absorb remaining liquid on vermiculite, floor absorbent or other absorbent material and shovel into containers.

SECTION 7 - HANDLING AND STORAGE

HANDLING:

Avoid contact with skin, eyes and clothing. Wash thoroughly after handling.

STORAGE:

Keep in closed or covered containers when not in use. Store in cool dry place with adequate ventilation.

SECTION 8 - EXPOSURE CONTROLS / PERSONAL PROTECTION

EXPOSURE GUIDELINES:

1,2,3-Propanetriol	OSHA PEL - 15 mg/M^3 (mist)
(component of the stabilizer)	OSHA PEL - 5 mg/M^3 (respirable fraction)
(CAS# 56-81-5)	ACGIH TLV - 10 mg/M^3 (mist)

ENGINEERING CONTROLS:

Provide sufficient ventilation to maintain exposure below established exposure limits.

EYE / FACE PROTECTION:

Chemical splash goggles are advised.

Section 8 continued on next page

#032

SECTION 8 - EXPOSURE CONTROLS / PERSONAL PROTECTION (continued)

SKIN PROTECTION:
Wear protective gloves such as Neoprene or Buna-N.

RESPIRATORY PROTECTION:
Not required under normal conditions of use; however, a NIOSH/MSHA approved respirator with organic vapor cartridge is recommended where there is insufficient ventilation to maintain exposure below established exposure limits.

SECTION 9 - PHYSICAL AND CHEMICAL PROPERTIES

Appearance: Amber liquid @ 68° F (20° C)
Odor: Slight vinegar
pH: Unavailable
Freezing Point: <-20° F (-28° C)
Initial Boiling Point: >212° F (100° C)
Flash Point: >212° F (100° C) PMCC
Evaporation Rate: Slower
(Ethyl Ether = 1)
Upper Explosion Limit: Unavailable
Lower Explosion Limit: Unavailable
Vapor Pressure: 17.5 @ 68° F (20° C) (water)
Vapor Density: Unavailable
Relative Density: ~1.11 @ 77° F (25° C)
Weight per gallon: ~9.28
Solubility in Water: 100%
Volatile %: 60-80
Autoignition Temperature: Unavailable
Decomposition Temperature: Unavailable

SECTION 10 - STABILITY AND REACTIVITY

REACTIVITY:
Reacts violently with strong oxidizers

STABILITY (conditions to avoid):
Stable under normal conditions of 70° F (21° C) and 14.7 psig (760 mm Hg)

POSSIBILITY OF HAZARDOUS REACTIONS:
Reacts violently with strong oxidizers

CONDITIONS TO AVOID:
None known

INCOMPATIBILE MATERIALS:
Avoid contact with strong oxidizing agents

HAZARDOUS DECOMPOSITION PRODUCTS:
Thermal decomposition may generate carbon dioxide, carbon monoxide, acrid smoke and fumes.

DECOMPOSITION:
None known

#032

SECTION 11 - TOXICOLOGICAL INFORMATION

LIKELY ROUTES OF EXPOSURE:
Skin and eye contact and inhalation

SYMPTOMS:
Eyes: Tearing, redness and irritation

Skin: Redness

Breathing: Breathing spray may result in mild respiratory irritation

Swallowing: Nausea

EFFECTS FROM EXPOSURE:
Immediate: Causes eye irritation

Delayed: None known

Chronic: None known

TOXICITY DATA:
Unavailable for product

CARCINOGENICITY
This product is not reported to have any carcinogenic effects. This product (or components) is not listed in IARC Monographs, the current NTP Report on Carcinogens or the current ACGIH TLVs as a carcinogen or potential carcinogen. OSHA does not regulate it as a carcinogen.

SECTION 12 - ECOLOGICAL INFORMATION

ECOTOXICITY:
No data available for product

PERSISTENCE AND BIODEGRADABILITY
Expected to be completely biodegradable

BIOACCUMULATIVE POTENTIAL:
Not bioaccumulative

Section 12 continued on next page

#032

SECTION 12 - ECOLOGICAL INFORMATION (continued)

MOBILITY IN SOIL:
No data available

PBT & vPvB ASSESSMENT:
No data available

OTHER ADVERSE EFFECTS:
None known

SECTION 13 - DISPOSAL CONSIDERATIONS

Material that cannot be recovered or reused should be sent to a licensed disposal facility for drying and disposal in a landfill. Material collected on absorbent material may be deposited in a landfill in accordance with all applicable local, state and federal regulations.

This product, if disposed of, is not considered a hazardous waste under current RCRA definitions.

SECTION 14 - TRANSPORT INFORMATION

Not regulated under current U.S DOT, TDG (Canadian), ICAO (air) or IMO (water) transport regulations.

SECTION 15 - REGULATORY INFORMATION

TSCA INFORMATION:
All components in this product are in compliance with TSCA Inventory requirements or exempt from reporting.

CEPA:
All components in this product are listed on the Canadian Domestic Substances List (DSL).

SARA:
CERCLA/SARA 302: Not applicable
CERCLA/SARA 311/312: Not applicable
CERCLA/SARA 313: Not applicable

#031

SECTION 16 - OTHER INFORMATION

PREPARATION DATE: August 8, 2014
SUPERCEDES: Not applicable
REASON FOR REVISION: New SDS

The product information contained herein is believed to be accurate as of the date of the Safety Data Sheet, and is provided without warranty, expressed or implied, as to the results of use of this information or the product to which it relates. Recipient assumes all responsibility for the use of this information and the use (alone or in combination with any other product), storage or disposal of the product, including any resultant personal injury or property damage.

END OF REPORT

SECTION 1 CHEMICAL PRODUCT AND COMPANY IDENTIFICATION

Arizona Chemical Company
P.O. Box 550850
Jacksonville, FL 32255

24 Hour Emergency Assistance:
Chemtrec: 800/424-9300
Other Information: 800/733-1374

Product Name: **SYLFAT® DP-8**

Chemical Identity: Trade Secret

Generic Name: Tall Oil Pitch Residue

Chemical Family: Tall Oil Pitch

CAS Number: **Confidential (See Section 15)**

SECTION 2 COMPOSITION/INFORMATION OF INGREDIENTS

	ACGIH TLV	OSHA PEL
Exposure limit for total product	Not established	Not established

SECTION 3 HAZARDS IDENTIFICATION

EMERGENCY OVERVIEW:

Black viscous liquid with a mild odor.

ACCORDING TO ARIZONA CHEMICAL COMPANY'S INTERPRETATION OF THE OSHA HAZARD COMMUNICATION STANDARD, THIS PRODUCT IS NOT A HAZARDOUS SUBSTANCE.

POTENTIAL HEALTH EFFECTS:

EYE: Direct contact may cause mild irritation.

SKIN: Direct contact for prolonged periods of time may cause mild skin irritation. Danger of thermal burns if the material is stored at high temperature.

INHALATION: Inhalation of vapors from the heated product may cause mild irritation of the nose and throat in sensitive individuals.

INGESTION: Not a probable route of entry into the body.

SUBCHRONIC EFFECTS (Target Organ Effects): No effects known.

CHRONIC EFFECTS: No known effects.

#033

SECTION 4 FIRST AID MEASURES

EYE CONTACT: In case of contact, flush eyes with plenty of water. Call a physician if signs of irritation appear or in case of contact with heated product.

SKIN CONTACT: As good industrial hygiene practice, at the end of each work shift, wash skin with plenty of soap and water. Call a physician if signs of irritation appear or in case of contact with heated product.

INHALATION: Remove to fresh air if effects occur from inhalation of vapors from the heated product. If symptoms persist, call a physician. If not breathing, give artificial respiration. If breathing is difficult, give oxygen. Call a physician.

INGESTION: Emergency care should not be needed. If swallowed, obtain medical advice.

SECTION 5 FIRE FIGHTING MEASURES

Flash point:	>201°F (Cleveland Open Cup)
Upper/lower flammable limits:	Unknown
Autoignition temperature:	Unknown
Flammability classification:	Non-hazardous
Flame propagation rate:	Not applicable
Extinguishing media:	Water fog, foam, carbon dioxide or dry chemical.
Special precautions:	Toxic gases such as carbon monoxide may be released during fire. Use positive-pressure, self-contained breathing apparatus and full protective clothing.
Unusual Fire and Explosion Hazards:	None known to Arizona Chemical Company.

SECTION 6 ACCIDENTAL RELEASE MEASURES

Large spills: In a clean area, dike and recover for reuse. Dispose of contaminated material.

Small spills: Mix with absorbent material and dispose.

SECTION 7 HANDLING AND STORAGE

Use with adequate ventilation. Avoid contact with skin and eyes. Wash thoroughly after handling. Avoid inhalation of vapors and fumes from the molten product.

#033

SECTION 8 EXPOSURE CONTROLS/PERSONAL PROTECTION

EYES: Use safety glasses. An eye wash is recommended.

SKIN: As good industrial hygiene practice, impervious (for example, nitrile) gloves are recommended. Heat-resistant gloves and other protective clothing should be worn to prevent body contact when handling heated product.

INHALATION: For normal operations, no respiratory protection is required. For high concentrations of vapors from the heated product, an air purifying respirator designed for organic vapors should provide adequate protection.

ENGINEERING CONTROLS: For the product at ambient temperatures, use adequate ventilation. For the heated product, use exhaust ventilation to remove vapor.

SECTION 9 PHYSICAL AND CHEMICAL PROPERTIES

Appearance/state:	Black viscous liquid
Odor:	Mild
Ph:	Not applicable
Vapor Pressure:	<0.001 mm Hg at 20°C (68°F)
Vapor density:	Not applicable
Boiling point:	Not determined
Pour point:	98.6°F (37°C)
Solubility in water:	<0.1% at 25°C (77°F)
Specific gravity:	1.2 at 25°C/25°C (water=1.00); 0.96 @ 100°C
Evaporation rate:	Approx. 0 (n-BuAc=1)
% Volatile by weight:	0 estimated

SECTION 10 STABILITY AND REACTIVITY

Chemical stability: Stable under normal temperatures and pressures.

Conditions to avoid: This product is not reactive with water.

Chemicals to avoid: Strong oxidizing agents.

Hazardous Polymerization: Will not occur under normal temperatures and pressures.

Hazardous Decomposition Products: Thermal decomposition products include toxic oxides of carbon.

SECTION 11 TOXICOLOGICAL INFORMATION

This product is not on the International Agency for Research on Cancer (IARC) or National Toxicology Program (NTP) or OSHA lists of carcinogens or potential carcinogens.

TOXICITY DATA: The following data on test animals indicate that this product has low acute toxicity potential and is not a skin or eye irritant by OSHA criteria.

COMPONENT	ROUTE-SPECIES	TEST	DOSAGE	UNITS	IRRITATION DATA
Fatty Acids					
-Oleic Acid	Oral-rat	LD50	74	g/kg	Skin-rabbit Mild Eye-rabbit Mild
-Linoleic Acid	Oral-rat	LD50	>3.2	g/kg	Skin-rabbit Mild Eye-rabbit Mild
Rosin Acids	Oral-rat	LD50	7.6	g/kg	Skin-rabbit Slight irritant
	Oral-mouse	LD50	4.6	g/kg	

OTHER: Molten material can cause thermal burns.

SECTION 12 ECOLOGICAL INFORMATION

No data available

SECTION 13 DISPOSAL CONSIDERATIONS

Dispose of waste by incineration in accordance with all local, state and federal regulations.

Resource Conservation and Recovery Act (RCRA): This product is not included in the lists of hazardous substances (40 CFR 261.33), nor does it exhibit the characteristics of hazardous waste (40 CFR 261.20-24).

#033

SECTION 14 TRANSPORT INFORMATION

DOT - Department of Transportation Hazardous Materials Regulations

DOT Hazard Class:	Not regulated
DOT Proper Shipping Name:	Not applicable
Technical Name:	Not applicable
DOT Identification Number:	Not applicable
Packing Group:	Not applicable

IF SHIPPED OVER 100° C (but less than product flash point): DOT Shipping Name: Elevated temperature liquid, n.o.s.; Hazard Class: 9; UN/NA Number: UN3257; Packing group III (bulk shipping requires "HOT" placard).

SECTION 15 REGULATORY INFORMATION

Toxic Substances Control Act (TSCA): All components of this product are on the TSCA Inventory.

SARA, Title III, Section 313 (40 CFR 372): This product contains the following substances which are reportable under SARA Toxic Chemical Release Reporting Regulations:

Chemical Name	CAS #	Wt%
None		

SARA 311/312 Hazard Categories: This product has the following hazard categories: None.

New Jersey Worker and Community Right To Know Act: This product contains the following top five ingredients:

Chemical Name	CAS or NJTS#	Wt%
Trade Secret	NJTS # 7255	100

Pennsylvania Worker and Community Right To Know Act: This product contains the following substances which appear on the Hazardous Substance List:

Chemical Name	CAS #	Wt%
None		

California Proposition 65: This product may contain trace levels of chemicals known to the state of California to cause cancer and/or reproductive harm.

#033

SECTION 16 OTHER INFORMATION

Hazard Ratings: NFPA 1 Health 1 Fire 0 Reactivity

Revision Note: Revision 6. Revised Sections 1 and 15.

Prepared by: C. P. Smith

Title: Product Regulatory Specialist

The information contained herein is based on data believed to be reliable, but is furnished without warranty or guaranty of any kind, and Arizona Chemical Company disclaims any liability incurred from the use or reliance upon the same.

END OF MSDS

#034

REMOVED FROM INVENTORY

#035

PMP FERMENTATION PRODUCTS, INC.

900 N.E. Adams Street • Peoria, Illinois 61603 • (309) 637-0400 • Fax (309) 637-9302

MATERIAL SAFETY DATA SHEET

PRODUCT NAME: PMP S-45

Formula: $C_6H_{11}O_7Na$ + Water

Chemical Name: Sodium Gluconate Solution in Water

CAS No.: 527-07-1

Revision Date July 1, 2001

DOT Shipping Name: None (No DOT hazard)

HAZARDOUS INGREDIENTS	TLV	CARCINOGEN
None		

CHEMICAL AND PHYSICAL PROPERTIES

Appearance: Amber Liquid
Odor: None
pH: 4.5 - 8.0
Water Solubility: Soluble
Other: _____

Boiling Point: 212°F.
Freezing Point: 10.5°F.
Spec. Gravity(H_2O=1): 1.23 - 1.29
Vapor Pressure (mm Hg): n/a

FIRE AND EXPLOSION HAZARDS

Flash Point (Method): None
Extinguishing Media: n/a

Explosion Limits: Upper: n/a Lower: n/a

Special Firefighting Procedures and Hazards: None

REACTIVITY INFORMATION

Stable: X Unstable: ___ Precautions: _____
Incompatibility: None
Hazardous Decomposition Products: n/a
Hazardous Polymerization Occurs: ___ Does Not Occur: X

REGULATORY INFORMATION

Reportable for SARA Title III, S.313 (Form R): _____

Post-it® Fax Note 7671	Date	# of pages ▶
To L. CHAPMAN	From JOSE	
Co./Dept.	Co. PMP	
Phone #	Phone #	
Fax # 304-755-5787		

PMP FERMENTATION PRODUCTS, INC.
900 N.E. Adams Street • Peoria, Illinois 61603 • (309) 637-0400 • Fax (309) 637-9302

#035

PMP S-45

HEALTH HAZARDS - PROTECTIVE MEASURES - FIRST AID

Inhalation: No effects known. Wear NIOSH approved vapor/mist respirator if effects occur. Remove to fresh air. If adverse effects persist, get medical attention.

Skin: May cause irritation with prolonged exposure. Wear protective gloves and clothing as needed. Remove contaminated clothing. Provide convenient safety showers. Wash thoroughly with soap and water. If adverse effects persist, get medical attention.

Eyes: May cause irritation. Wear splash proof goggles. Provide convenient eyewash stations. Flush immediately with water for 15 minutes. Get prompt medical attention if irritation persists.

Ingestion: No effects known. Avoid swallowing. Wear face shield if face contact is likely. Drink lots of water. Get medical attention if adverse effects persist.

Most likely routes of entry: Skin, Eyes.

Other Important Medical or Precautionary Information: None.

PRECAUTIONS FOR SAFE HANDLING AND USE

Spills and Leaks: Small spills can be flushed into normal drainage or into ground with copious amounts of water, or taken up with absorbent material. Larger spills should be contained by diking or otherwise and held for collection and disposal. Do not allow contact with skin or eyes. Spills tend to be tacky and slippery.

Storage and Handling: Use corrosion-resistant acid containers.

Waste Disposal: In accordance with applicable regulations for liquid wastes. Not a hazardous waste under current RCRA criteria.

Empty Containers: No special precautions.

Other Precautions: None.

The information herein has been compiled from sources believed to be reliable and is accurate to the best of our knowledge. However, PMP Fermentation Products, Inc. cannot give any guarantees regarding information from other sources, and expressly does not make any warranties, nor assumes any liability, for its use.

JONELL OIL CORPORATION

JONELL CHEMICAL PRODUCTS DIVISION

13649 LIVE OAK LN. • IRWINDALE, CA 91706

(626) 303-4691 • FAX (626) 359-0399

#036

ARTICLE 1 CHEMICAL PRODUCT AND COMPANY IDENTIFICATION

Product: [redacted]

General Uses: Process oil. Chemical Carrier. Lubricant.

Product Description: Amber Liquid. Hydrocarbon Odor.

ARTICLE 2 COMPOSITION INFORMATION

COMMON NAME: Naphthenic Oil

CHEMICAL FAMILY: Petroleum Hydrocarbon

HAZARDOUS INGREDIENTS: None Known

INGREDIENTS	CAS #	% Vol	ACGIH TWA	OSHA PEL	OSHA STEL	Hazard Class *	Risk Phrase *
Naphthenic Oil Grades <100	64742-53-6	100	5 mg/m³ (oil mist)	5 mg/m³ (oil mist)	10 mg/m³ (oil mist)	N/A	N/A
Naphthenic Oil Grades >100	64742-52-5	100	5 mg/m³ (oil mist)	5 mg/m³ (oil mist)	10 mg/m³ (oil mist)	N/A	N/A

* Hazard Class & Risk Phrase: These columns are only completed for ingredients which are classified as hazardous under EU Directive (67/548/EEC, as amended) and are present in sufficient concentration to make the overall substance hazardous. In all situations, the column will be completed as "Not Applicable".

ARTICLE 3 IDENTIFICATION EMERGENCY OVERVIEW

- Clear light to dark amber liquid.
- Mild hydrocarbon odor.
- Can burn in a fire.

INHALATION: Will not produce vapors unless heated to temperatures of ~300 °F.

EYE CONTACT: Irritating, but will not permanently injure eye tissue.

SKIN CONTACT: Prolonged or repeated contact may cause skin irritation.

[redacted]

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#036

INGESTION: Small amounts (tablespoonful) swallowed are not likely to cause injury. Larger amounts may cause nausea and vomiting.

CHRONIC (CANCER) INFORMATION: IARC Monographs state that when laboratory animals are exposed to severely hydrotreated oils, such as these product(s). there is **insufficient evidence** for cancer. Thus, these oils are **Unlabeled** in accordance with 29 CFR 1910.1200. Consult a physician promptly.

	NFPA 704	NPCA-HMIS	KEY
HEALTH:	1	1	0 = Minimal
FIRE:	1	1	1 = Slight
REACTIVITY:	0	0	2 = Moderate
SPECIFIC HAZARD:	NONE	N/A	3 = Serious
PROTECTION INDEX:	N/A	B	4 = Severe

Precautionary Labels: NONE REQUIRED

ARTICLE 4 FIRST AID MEASURES

EYE CONTACT: Flush eyes with plenty of water for several minutes. Get medical attention if eye irritation persists.

SKIN: Wash skin with plenty of soap and water for several minutes. Get medical attention of skin irritation develops or persists.

INGESTION: If more than several mouthfuls have been swallowed, give two glasses of water (16 Oz.). **Get medical attention.**

INHALATION: If irritation. Headache, nausea or drowsiness occurs, remove to fresh air. Get medical attention if breathing becomes difficult or symptoms persist.

ARTICLE 5 FIRE FIGHTING MEASURES

Flash Point: °C (Method)	See Section 9
Ignition Temp.: °C	Not Determined
Flammability Limit (%)	Not Determined

RECOMMENDED FIRE EXTINGUISHING AGENTS AND SPECIAL PROCEDURES

- According to NFPA Guide; use water spray, dry chemical, foam or carbon dioxide. Water or foam may cause frothing.
- Use water to cool fire exposed containers. If a leak or spill has not ignited, use water spray to disperse the vapors and to provide protection for persons attempting to stop the leak.

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#0366

EXPLOSIVE HAZARDS:

ARTICLE 6 ACCIDENTAL RELEASE MEASURES

- Notify the appropriate authorities immediately.
- Contain spill. if possible.
- Avoid breathing vapor.
- Use self- contained breathing apparatus or supplied air for large spills or in confined areas.
- Wipe up or use suitable absorbent material and shovel into appropriate container for disposal.
- Prevent entry into sewers or waterways.
- Avoid contact with skin, eyes or clothing.

ARTICLE 7 HANDLING AND STORAGE

PRECAUTIONS:

- Minimum feasible handling temperatures should be maintained.
- Periods of exposure to high temperature should be minimized.
- Water contamination should be avoided.

ARTICLE 8 EXPOSURE CONTROLS / PERSONAL PROTECTION

PROTECTIVE EQUIPMENT

EYE / FACE PROTECTION:	Chemical-type goggles or face shield recommended to prevent eye exposure.
SKIN PROTECTION:	Workers should wash exposed skin several times daily with soap and water. Soiled clothing should be laundered or dry-cleaned at least weekly.
RESPIRATORY PROTECTION:	Airborne concentrations should be kept to lowest levels. If vapor is generated, use respirator approved by OSHA or NIOSH as appropriate. Supplied air respiratory protection should be used for cleaning large spills or upon entry into tanks, vessels, or other confined spaces. See Exposure Limit below.
VENTILATION:	Must be adequate to meet exposure limits below.
EXPOSURE LIMIT (TOTAL PRODUCT)	5 mg/m3 for mineral oil mist over an 8 hour daily exposure (ACGIH).

ARTICLE 9 PHYSICAL AND CHEMICAL PROPERTIES

APPEARANCE:	Bright, clear liquid, mineral odor
FREEZING POINT:	Not Applicable

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#036

9. PHYSICAL AND CHEMICAL PROPERTIES

APPEARANCE: Bright, clear liquid, mineral odor
FREEZING POINT: Not Applicable
% VOLATILES: Essentially Zero
VAPOR DENSITY (Air =1): 1+
pH: Not available
SOLUBILITY IN WATER: Insoluble

GRADE	VISCOSITY, cSt @ 40°C	FLASH, °C (COC)	SPECIFIC GRAVITY	VOC, % Wt. ASTM D-972	Vapor Pressure, torr @ 24°C	BOILING POINT, °C
[redacted]	99.0	206	.923	2.6	<0.0001	388

10. STABILITY AND REACTIVITY

- This material reacts violently with strong oxidizers.
- Evolves toxic levels of carbon monoxide, carbon dioxide, irritating aldehydes and keytones when heated to combustion.
- Hazardous polymerization does not occur.

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[redacted]

11. TOXICOLOGICAL INFORMATION

TOXOLOGICAL INFORMATION (ANIMAL TOXICITY DATA)

Median Lethal Dose (LD50 LC50)	(Species)
Oral:	Believed to be >5g/kg (rat); practically non-toxic
Inhalation:	Not Determined
Dermal:	Believed to be >3 g/kg (rat); practically non-toxic.
Irritation Index:	Estimation of Irritation (Species).
Skin:	Believed to be <0.5/8.0 (rabbit); no appreciable effect
Eyes:	Believed to be <15/110 (rabbit); no appreciable effect
Sensitization:	Not Available
Other:	None

12. ECOLOGICAL INFORMATION

If applied to leaves, this product may kill grasses and small plants by interfering with transpiration and respiration. This product is toxic to fish but may coat gill structures resulting in suffocation if spilled in shallow, running water. Product may be moderately toxic to amphilbians by preventing dermal respiration. This product may cause gastrointestinal distress in birds and mammals through ingestion.

This product is rapidly bisdegradable. Biogradation is possible with 100 to 120 days in aerobic environments at temperatures above 70F (21C).

A film or sheen will cause discoloration of the water surface or adjoining shoreline.

13. DISPOSAL CONSIDERATIONS

This product has been evaluated for RCRA characteristics and *does not* meet the criteria of a hazardous waste if discarded in its purchased form. Under RCRA it is the responsibility of the user of the product to determine at the time of disposal, whether the product meets RCRA criteria for hazardous waste. This product is subject in service to chemical alteration, which may render the resulting material hazardous.

14. TRANSPORT INFORMATION

PRODUCT	DOT CLASS	DOT PLACARD NO.	PACKAGING
Not App.	Not App	Not App.	Not App.

15. REGULATORY INFORMATION

TSCA: All components of this material are listed in the U.S. TSCA Inventory.

OSHA: IARC Monographs state that when laboratory animals are exposed to severely hydrotreated oils, such as these product(s), there is **insufficient evidence** for cancer. Thus, these oils are **Unlabeled** in accordance with 29 CFR 1910.1200.

SARA TITLE III

Section 302/304 Extremely Hazardous Substance	None
Section 313 Toxic Chemicals	None

CERCLA

#037

MATERIAL SAFETY DATA SHEET

Penreco® Parol® Low Viscosity Mineral Oil Tech

1. PRODUCT AND COMPANY IDENTIFICATION

Product Name: Penreco® Parol® Low Viscosity Mineral Oil Tech

Synonyms:
Penreco MSDS #14341
Penreco® Parol® 40C, 60C, 60CM
Penreco® Parol® 50V
Penreco® Parol® 60BSO, 75BSO
Penreco® Parol® 60HP, 70HP, 80HP, 85HP, 90HP, 100HP, 150HP, 160HP
Penreco® Parol® 6970LP
Penreco® Parol® 70, 80, 130, 170

Chemical Family: Petroleum Hydrocarbon

Responsible Party: Penreco
138 Petrolia Street
Karns City, PA 16041-9799

For Additional MSDSs 1-800-762-0942

Technical Information: 1-800-245-3952

EMERGENCY OVERVIEW

24 Hour Emergency Telephone Numbers:
Spill, Leak, Fire or Accident
Call CHEMTREC
North America: (800)424-9300
Others: (703)527-3887 (collect)

California Poison Control System: (800) 356-3129

Health Hazards/Precautionary Measures: Aspiration hazard if swallowed. Can enter lungs and cause damage. Do not taste or swallow.

Physical Hazards/Precautionary Measures: Keep away from all sources of ignition.

Appearance: Clear
Physical form: Liquid
Odor: Odorless

NFPA Hazard Class:

Health: 0 (Least)
Flammability: 1 (Slight)
Reactivity: 0 (Least)

HMIS Hazard Class

Health: 0 (Least)
Flammability: 1 (Slight)
Physical Hazard: 0 (Least)

2. COMPOSITION/INFORMATION ON INGREDIENTS

No hazardous components identified per 29 CFR 1910.1200.

OTHER COMPONENTS	% WEIGHT	EXPOSURE GUIDELINE		
		Limits	Agency	Type
Technical White Mineral Oil	100	(See: Oil Mist, If Generated)		

CAS# 8042-47-5

REFERENCE	EXPOSURE GUIDELINE		
	Limits	Agency	Type
Oil Mist, If Generated CAS# None	5 mg/m3	ACGIH	TWA
	10 mg/m3	ACGIH	STEL
	5 mg/m3	OSHA	TWA
	2500 mg/m3	NIOSH	IDLH
	5 mg/m3	NOHSC	TWA

Note: State, local or other agencies or advisory groups may have established more stringent limits. Consult an industrial hygienist or similar professional, or your local agencies, for further information.

1%=10,000 PPM.

All components are listed on the TSCA inventory.

3. HAZARDS IDENTIFICATION

Potential Health Effects:

Eye: Not known to be an eye irritant.

Skin: Not known to be a skin irritant. No harmful effects from skin absorption have been reported.

Inhalation (Breathing): No harmful effects reported.

Ingestion (Swallowing): No harmful effects reported from ingestion. ASPIRATION HAZARD - This material can enter lungs during swallowing or vomiting and cause lung inflammation and damage.

Signs and Symptoms: Effects of overexposure may include irritation of the nose and throat, irritation of the digestive tract and diarrhea.

Cancer: No evidence of cancer has been demonstrated in several well conducted animal studies.

Target Organs: No data available for this material.

Developmental: No data available for this material.

Pre-Existing Medical Conditions: None Known

4. FIRST AID MEASURES

Eye: If irritation or redness develops, move victim away from exposure and into fresh air. Flush eyes with clean water. If symptoms persist, seek medical attention.

Skin: First aid is not normally required. However, it is good practice to wash any chemical from the skin.

Inhalation (Breathing): First aid is not normally required. If breathing difficulties develop, move victim away from source of exposure and into fresh air. Seek immediate medical attention.

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Ingestion (Swallowing): Aspiration hazard: Do not induce vomiting or give anything by mouth because this material can enter the lungs and cause severe lung damage. If victim is drowsy or unconscious and vomiting, place on the left side with the head down. If possible, do not leave victim unattended and observe closely for adequacy of breathing. Seek medical attention.

Note To Physicians: Acute aspirations of large amounts of oil-laden material may produce a serious aspiration pneumonia. Patients who aspirate these oils should be followed for the development of long-term sequelae. Inhalation exposure to oil mists below current workplace exposure limits is unlikely to cause pulmonary abnormalities.

5. FIRE FIGHTING MEASURES

Flammable Properties:
Flash Point: >280°F/>137.8°C (COC)
OSHA Flammability Class: Not regulated
LEL/UEL%: No Data
Autoignition Temperature: No Data

Unusual Fire & Explosion Hazards: This material may burn, but will not ignite readily. Vapors are heavier than air and can accumulate in low areas. If container is not properly cooled, it can rupture in the heat of a fire.

Extinguishing Media: Dry chemical, carbon dioxide, foam, or water spray is recommended. Water or foam may cause frothing of materials heated above 212°F. Carbon dioxide can displace oxygen. Use caution when applying carbon dioxide in confined spaces.

Fire Fighting Instructions: For fires beyond the incipient stage, emergency responders in the immediate hazard area should wear bunker gear. When the potential chemical hazard is unknown, in enclosed or confined spaces, or when explicitly required by DOT, a self contained breathing apparatus should be worn. In addition, wear other appropriate protective equipment as conditions warrant (see Section 8).

Isolate immediate hazard area, keep unauthorized personnel out. Stop spill/release if it can be done with minimal risk. Move undamaged containers from immediate hazard area if it can be done with minimal risk.

Water spray may be useful in minimizing or dispersing vapors and to protect personnel. Cool equipment exposed to fire with water, if it can be done with minimal risk. Avoid spreading burning liquid with water used for cooling purposes.

6. ACCIDENTAL RELEASE MEASURES

This material may burn, but will not ignite readily. Keep all sources of ignition away from spill/release. Stay upwind and away from spill/release. Notify persons down wind of the spill/release, isolate immediate hazard area and keep unauthorized personnel out. Stop spill/release if it can be done with minimal risk. Wear appropriate protective equipment including respiratory protection as conditions warrant (see Section 8).

Prevent spilled material from entering sewers, storm drains, other unauthorized drainage systems, and natural waterways. Dike far ahead of spill for later recovery or disposal. Spilled material may be absorbed into an appropriate absorbent material.

Notify fire authorities and appropriate federal, state, and local agencies. Immediate cleanup of any spill is recommended. If spill of any amount is made into or upon navigable waters, the contiguous zone, or adjoining shorelines, notify the National Response Center (phone number 800-424-8802).

7. HANDLING AND STORAGE

Handling: Do not enter confined spaces such as tanks or pits without following proper entry procedures such as ASTM D-4276 and 29CFR 1910.146. The use of appropriate respiratory protection is advised when concentrations exceed any established exposure limits (see Sections 2 and 8).

Do not wear contaminated clothing or shoes. Use good personal hygiene practices.

"Empty" containers retain residue and may be dangerous. Do not pressurize, cut, weld, braze, solder, drill, grind, or expose such containers to heat, flame, sparks, or other sources of ignition. They may explode and cause injury or death. "Empty" drums should be completely drained, properly bunged, and promptly shipped to the supplier or a drum reconditioner. All containers should be disposed of in an environmentally safe manner and in accordance with governmental regulations.

Before working on or in tanks which contain or have contained this material, refer to OSHA regulations, ANSI Z49.1 and other references pertaining to cleaning, repairing, welding, or other contemplated operations.

Storage: Keep container(s) tightly closed. Use and store this material in cool, dry, well-ventilated areas away from heat and all sources of ignition. Store only in approved containers. Keep away from any incompatible material (see Section 10). Protect container(s) against physical damage.

8. EXPOSURE CONTROLS/PERSONAL PROTECTION

Engineering controls: If current ventilation practices are not adequate to maintain airborne concentrations below the established exposure limits (see Section 2), additional engineering controls may be required.

Personal Protective Equipment (PPE):

Respiratory: None

Skin: Not required based on the hazards of the material. However, it is considered good practice to wear gloves when handling chemicals.

Eye/Face: While contact with this material is not expected to cause irritation, the use of approved eye protection to safeguard against potential eye contact is considered good practice.

Other Protective Equipment: A source of clean water should be available in the work area for flushing eyes and skin. Impervious clothing should be worn as needed.

Suggestions for the use of specific protective materials are based on readily available published data. Users should check with specific manufacturers to confirm the performance of their products.

9. PHYSICAL AND CHEMICAL PROPERTIES

Note: Unless otherwise stated, values are determined at 20℃ (68℉) and 760 mm Hg (1 atm).
Appearance: Clear
Physical State: Liquid
Odor: Odorless
pH: Not applicable
Vapor Pressure (mm Hg): <1
Vapor Density (air=1): >1
Boiling Point/Range: >520℉ / >271.1℃
Freezing/Melting Point: No Data
Solubility in Water: Insoluble
Specific Gravity: 0.83-0.87
Percent Volatile: 0 vol.%
Evaporation Rate (nBuAc=1): <1
Bulk Density: 6.92 lbs/gal
Flash Point: >280℉ / >137.8℃ (COC)
Flammable/Explosive Limits (%): No Data

10. STABILITY AND REACTIVITY

#037

Stability: Stable under normal ambient and anticipated storage and handling conditions of temperature and pressure.

Conditions To Avoid: None Known

Materials to Avoid (Incompatible Materials): Avoid contact with strong oxidizing agents.

Hazardous Decomposition Products: Combustion can yield carbon dioxide and carbon monoxide.

Hazardous Polymerization: Will not occur.

11. TOXICOLOGICAL INFORMATION

No definitive information available on carcinogenicity, mutagenicity, target organs or developmental toxicity.

12. ECOLOGICAL INFORMATION

Not evaluated at this time

13. DISPOSAL CONSIDERATIONS

This material, if discarded as produced, is not a RCRA "listed" hazardous waste. However, it should be fully characterized for toxicity prior to disposal (40 CFR 261). Use which results in chemical or physical change or contamination may subject it to regulation as a hazardous waste. Along with properly characterizing all waste materials, consult state and local regulations regarding the proper disposal of this material.

Container contents should be completely used and containers should be emptied prior to discard. Container rinsate could be considered a RCRA hazardous waste and must be disposed of with care and in full compliance with
federal, state and local regulations. Larger empty containers, such as drums, should be returned to the distributor or to a drum reconditioner. To assure proper disposal of smaller empty containers, consult with state and local regulations and disposal authorities.

14. TRANSPORT INFORMATION

DOT Shipping Description: Not regulated

15. REGULATORY INFORMATION

EPA SARA 311/312 (Title III Hazard Categories):

Acute Health:	No
Chronic Health:	No
Fire Hazard:	No
Pressure Hazard:	No
Reactive Hazard:	No

SARA 313 and 40 CFR 372:
This material contains the following chemicals subject to the reporting requirements of SARA 313 and 40 CFR 372:

--None--

California Proposition 65:

Warning: This material contains the following chemicals which are known to the State of California to cause cancer, birth defects or other reproductive harm, and are subject to the requirements of California Proposition 65 (CA Health & Safety Code Section 25249.5):

--None Known--

Carcinogen Identification:

This material has not been identified as a carcinogen by NTP, IARC, or OSHA.

EPA (CERCLA) Reportable Quantity:

--None--

Canada - Domestic Substances List: Listed

WHMIS Class:

Not regulated

This product has been classified in accordance with the hazard criteria of the Controlled Products Regulations (CPR) and the MSDS contains all the information required by the CPR.

16. OTHER INFORMATION

Issue Date: 12/04/02
Previous Issue Date: 05/06/02
Revised Sections: None
MSDS Number: 776540
Status: Final

Disclaimer of Expressed and Implied Warranties:

The information presented in this Material Safety Data Sheet is based on data believed to be accurate as of the date this Material Safety Data Sheet was prepared. HOWEVER, NO WARRANTY OF MERCHANTABILITY, FITNESS FOR ANY PARTICULAR PURPOSE, OR ANY OTHER WARRANTY IS EXPRESSED OR IS TO BE IMPLIED REGARDING THE ACCURACY OR COMPLETENESS OF THE INFORMATION PROVIDED ABOVE, THE RESULTS TO BE OBTAINED FROM THE USE OF THIS INFORMATION OR THE PRODUCT, THE SAFETY OF THIS PRODUCT, OR THE HAZARDS RELATED TO ITS USE. No responsibility is assumed for any damage or injury resulting from abnormal use or from any failure to adhere to recommended practices. The information provided above, and the product, are furnished on the condition that the person receiving them shall make their own determination as to the suitability of the product for their particular purpose and on the condition that they assume the risk of their use. In addition, no authorization is given nor implied to practice any patented invention without a license.

#037

SECTION 1 - CHEMICAL PRODUCT AND COMPANY IDENTIFICATION

SDS REVISION #: 002

PRODUCT IDENTIFIER: LX-100P

OTHER IDENTIFIERS: Latex emulsion

CHEMICAL FORMULA: Mixture

RELEVANT USES: Dust control

DISTRIBUTED BY: Lexycon LLC
P.O. Box 8
Nitro, WV 25143

PHONE NUMBERS: Business - (304) 755-5737 (business hours)
CHEMTREC - (800) 424-9300 (transportation emergencies)

SECTION 2 - HAZARDS IDENTIFICATION

GHS CLASSIFICATION:
Eye irritant (Category 2B)

SIGNAL WORD:
Warning!

PICTOGRAM:
None required

HAZARD STATEMENTS:
Causes eye irritation

PRECAUTIONARY STATEMENTS:

Prevention
Wash exposed areas thoroughly after handling.

Response
If in eyes: Rinse cautiously with water for several minutes. Remove contact lenses, if present and easy to do. Continue rinsing. If irritation persists, get medical advice or attention.

Storage
Not applicable

Disposal
Not applicable

HAZARDS NOT OTHERWISE CLASSIFIED: None

SECTION 3 - COMPOSITION / INFORMATION ON INGREDIENTS

Component	%	CAS No.
Latex emulsion	---	9003-20-7
Polyol-based plasticizer	---	Proprietary*

*The specific chemical identity is being withheld as "trade secret" in accordance with 29 CFR 1910.1200(i)

SECTION 4 - FIRST AID MEASURES

IN CASE OF EYE CONTACT:
Flush with large amounts of water for at least 15 minutes, lifting upper and lower lids occasionally. Remove contact lenses, if present and easy to do. Continue rinsing. If irritation persists, get medical advice or attention.

IN CASE OF SKIN CONTACT:
Wash with soap and water.

IF SWALLOWED:
Rinse mouth with water and drink two glasses of water. If irritation or nausea develops, contact a physician.

IF INHALED:
If affected, move to fresh air.

MOST IMPORTANT SYMPTOMS AND EFFECTS:
Can cause eye irritation.

NOTE TO PHYSICIAN:
Treat symptomatically

SECTION 5 - FIRE FIGHTING MEASURES

FLAMMABLE PROPERTIES:
This product contains a large amount of water, and would not normally burn.

EXTINGUISHING MEDIA:
Use water fog, foam, dry chemical or carbon dioxide as appropriate for other materials involved in the fire.

PROTECTION OF FIREFIGHTERS:

Keep personnel removed from and upwind. Wear full protective clothing and self-contained breathing apparatus with full face-piece. Cool containers with water.

SECTION 6 - ACCIDENTAL RELEASE MEASURES

PRECAUTIONS, PROTECTIVE EQUIPMENT & EMERGENCY PROCEDURES:

Persons not wearing protective equipment should be excluded from the area of the spill until cleanup has been completed.

CONTAINMENT & CLEAN-UP:

Dike area of spill to prevent spreading and pump liquid to salvage tank. Absorb remaining liquid on vermiculite, floor absorbent or other absorbent material and shovel into containers.

SECTION 7 - HANDLING AND STORAGE

HANDLING:

Avoid contact with skin, eyes and clothing. Wash thoroughly after handling.

STORAGE:

Keep in closed or covered containers when not in use.

SECTION 8 - EXPOSURE CONTROLS / PERSONAL PROTECTION

EXPOSURE GUIDELINES:

1,2,3-Propanetriol (component of Polyol plasticizer)	OSHA PEL - 15 mg/M^3 (mist) OSHA PEL - 5 mg/M^3 (respirable fraction) ACGIH TLV - 10 mg/M^3 (mist)

ENGINEERING CONTROLS:

Provide sufficient ventilation to maintain exposure below established exposure limits.

EYE / FACE PROTECTION:

Chemical splash goggles are advised.

SKIN PROTECTION:

Wear protective gloves such as Neoprene or Buna-N.

RESPIRATORY PROTECTION:

Not required under normal conditions of use; however, a NIOSH/MSHA approved respirator with organic vapor cartridge is recommended where there is insufficient ventilation to maintain exposure below established exposure limits.

SECTION 9 - PHYSICAL AND CHEMICAL PROPERTIES

Appearance: Milky, white liquid @ 68 °F (20 °C)
Odor: Mild acetate
pH: 7-9 (as is)
Freezing Point: ~7 °F (-14 °C)
Initial Boiling Point: >212 °F (100 °C)
Flash Point: >212° F (100 °C) PMCC
Evaporation Rate: Slower (Ethyl Ether = 1)
Upper Explosion Limit: Unavailable
Lower Explosion Limit: Unavailable
Vapor Pressure: 17.5 @ 68 °F (20 °C) (water)
Vapor Density: Unavailable
Relative Density: ~1.11
Weight per gallon: ~9.24 lbs. /gal
Solubility in Water: 100%
Volatile %: 40-50
Autoignition Temperature: Unavailable
Decomposition Temperature: Unavailable

SECTION 10 - STABILITY AND REACTIVITY

REACTIVITY:
Reacts violently with strong oxidizers

STABILITY (conditions to avoid):
Stable under normal conditions of 70 °F (21 °C) and 14.7 psig (760 mm Hg)

POSSIBILITY OF HAZARDOUS REACTIONS:
Reacts violently with strong oxidizers

CONDITIONS TO AVOID:
None known

INCOMPATIBILE MATERIALS:
Avoid contact with strong oxidizing agents

HAZARDOUS DECOMPOSITION PRODUCTS:
Thermal decomposition may generate carbon dioxide, carbon monoxide, acrid smoke and fumes.

DECOMPOSITION:
None known

SECTION 11 - TOXICOLOGICAL INFORMATION

LIKELY ROUTES OF EXPOSURE:
Skin and eye contact and inhalation

Section 11 continued on next page

SECTION 11 - TOXICOLOGICAL INFORMATION (continued)

SYMPTOMS:

Eyes: Tearing, redness and irritation

Skin: Redness

Breathing: Breathing spray may result in mild respiratory irritation

Swallowing: Nausea

EFFECTS FROM EXPOSURE:

Immediate: Causes eye irritation

Delayed: None known

Chronic: None known

TOXICITY DATA:

No data available

CARCINOGENICITY

This product is not reported to have any carcinogenic effects. This product (or components) is not listed in IARC Monographs, the current NTP Report on Carcinogens or the current ACGIH TLVs as a carcinogen or potential carcinogen. OSHA does not regulate it as a carcinogen.

SECTION 12 - ECOLOGICAL INFORMATION

ECOTOXICITY:

No data available

PERSISTENCE AND BIODEGRADABILITY

Expected to be completely biodegradable

BIOACCUMULATIVE POTENTIAL:

Not bioaccumulative

MOBILITY IN SOIL:

No data available

PBT & vPvB ASSESSMENT:

No data available

OTHER ADVERSE EFFECTS:

None known

SECTION 13 - DISPOSAL CONSIDERATIONS

Material that cannot be recovered or reused should be sent to a licensed disposal facility for drying and disposal in a landfill. Material collected on absorbent material may be deposited in a landfill in accordance with all applicable local, state and federal regulations.

This product, if disposed of, is not considered a hazardous waste under current RCRA definitions.

SECTION 14 - TRANSPORT INFORMATION

Not regulated under current U.S DOT, TDG (Canadian), ICAO (air) or IMO (water) transport regulations.

SECTION 15 - REGULATORY INFORMATION

TSCA INFORMATION:

All components in this product are in compliance with TSCA Inventory requirements or exempt from reporting.

CEPA:

All components in this product are listed on the Canadian Domestic Substances List (DSL).

WHMIS:

Not a WHMIS controlled material

SARA:

CERCLA/SARA 302: Not applicable
CERCLA/SARA 311/312: Not applicable
CERCLA/SARA 313: Not applicable

SECTION 16 - OTHER INFORMATION

PREPARATION DATE: September 30, 2014
SUPERCEDES: Revision 1, dated June 3, 2014
REASON FOR REVISION: Corrected NFPA diamond (Section 5)

The product information contained herein is believed to be accurate as of the date of the Safety Data Sheet, and is provided without warranty, expressed or implied, as to the results of use of this information or the product to which it relates. Recipient assumes all responsibility for the use of this information and the use (alone or in combination with any other product), storage or disposal of the product, including any resultant personal injury or property damage.

END OF REPORT

SECTION 1 - CHEMICAL PRODUCT AND COMPANY IDENTIFICATION

SDS REVISION #: New

PRODUCT IDENTIFIER: RDC-600 series (RDC-600, RDC-600-11, RDC-600-21, RDC-600-31, RDC-600-41, RDC-600-51, RDC-600M)

OTHER IDENTIFIERS: None

CHEMICAL FORMULA: Mixture

RELEVANT USES: Road dust control

DISTRIBUTED BY: Lexycon LLC.
P.O. Box 8
Nitro, WV 25143

PHONE NUMBERS: Business - (304) 755-5737 (business hours)
CHEMTREC - (800) 424-9300 (transportation emergencies)

SECTION 2 - HAZARDS IDENTIFICATION

GHS CLASSIFICATION:

Eye irritant (Category 2)
Carcinogenicity (Category 1B)
Reproductive toxicity (Category 2)
STOT – repeated exposure (Category 1)

SIGNAL WORD:

Danger!

HAZARD STATEMENTS:

Causes serious eye irritation. May cause cancer. Suspected of damaging fertility or the unborn child. Causes damage to liver through prolonged or repeated exposure.

PRECAUTIONARY STATEMENTS:

Prevention

Do not handle until all safety precautions have been read and understood. Obtain special instructions before use. Wear protective gloves and protective clothing and eye and face protection. Do not breathe vapors or spray. Wash exposed areas thoroughly after handling. Do not eat, drink or smoke when using this product.

Section 2 continued on next page

SECTION 2 - HAZARDS IDENTIFICATION (continued)

PRECAUTIONARY STATEMENTS (continued):

Response

If in eyes: Rinse cautiously with water for several minutes. Remove contact lenses, if present and easy to do. Continue rinsing. If irritation persists, get medical advice or attention. If exposed or concerned: Get medical advice/attention. Get medical advice/attention if you feel unwell.

Storage

Store locked up

Disposal

Dispose of contents and container in accordance with all applicable local, state and federal regulations.

HAZARDS NOT OTHERWISE CLASSIFIED: None

SECTION 3 - COMPOSITION / INFORMATION ON INGREDIENTS

Component	%	CAS No.
Petroleum distillates , split vegetable-oil emulsion	100	Proprietary Mixture*

*The specific chemical identity and is being withheld as “trade secret” in accordance with 29 CFR 1910.1200(i)

SECTION 4 - FIRST AID MEASURES

IN CASE OF EYE CONTACT:

Immediately flush with large amounts of water for at least 15 minutes, lifting upper and lower lids occasionally. Remove contact lenses, if present and easy to do. Continue rinsing. If irritation persists, get medical advice or attention.

IN CASE OF SKIN CONTACT:

Wash exposed area with soap and water. Remove contaminated clothing and launder before reuse.

Section 4 continued on next page

SECTION 4 - FIRST AID MEASURES (continued)

IF SWALLOWED:

Immediately drink two glasses of water. Do **not** induce vomiting; vomiting may cause material to be aspirated into the lungs, which may result in chemical pneumonitis. Get immediate medical attention.

IF INHALED:

If affected, move to fresh air.

MOST IMPORTANT SYMPTOMS AND EFFECTS:

Can cause eye irritation. Prolonged or repeated excessive exposure may cause liver damage and cancer.

NOTE TO PHYSICIAN:

Treat symptomatically

SECTION 5 - FIRE FIGHTING MEASURES

FLAMMABLE PROPERTIES:

This product contains a large amount of water, and would not normally burn.

EXTINGUISHING MEDIA:

Use water fog, foam, dry chemical or carbon dioxide as appropriate for other materials involved in the fire.

PROTECTION OF FIREFIGHTERS:

Keep personnel removed from and upwind. Wear full protective clothing and self-contained breathing apparatus with full face-piece. Cool containers with water. Combustion products include carbon monoxide and carbon dioxide.

SECTION 6 - ACCIDENTAL RELEASE MEASURES

PRECAUTIONS, PROTECTIVE EQUIPMENT & EMERGENCY PROCEDURES:

Persons not wearing protective equipment should be excluded from the area of the spill until cleanup has been completed.

CONTAINMENT & CLEAN-UP:

Dike area of spill to prevent spreading and pump liquid to salvage tank. Absorb remaining liquid on vermiculite, floor absorbent or other absorbent material and shovel into containers.

SECTION 7 - HANDLING AND STORAGE

HANDLING:

Avoid contact with skin, eyes and clothing. Wash thoroughly after handling.

STORAGE:

Keep in closed or covered containers when not in use. Store in cool dry place with adequate ventilation.

SECTION 8 - EXPOSURE CONTROLS / PERSONAL PROTECTION

EXPOSURE GUIDELINES:

Petroleum distillates OSHA PEL - 5 mg/M^3 (supplier MSDS)

ENGINEERING CONTROLS:

Provide sufficient ventilation to maintain exposure below established exposure limits.

EYE / FACE PROTECTION:

Chemical splash goggles in compliance with OSHA regulations are advised.

SKIN PROTECTION:

Wear protective gloves such as Neoprene or Buna-N.

RESPIRATORY PROTECTION:

Not required under normal conditions of use; however, a NIOSH/MSHA approved respirator with organic vapor cartridge is recommended where there is insufficient ventilation to maintain exposures below established exposure limits.

SECTION 9 - PHYSICAL AND CHEMICAL PROPERTIES

Appearance: Yellow or tan liquid @ 68° F (20° C)
Odor: Slight
Relative Density: ~0.99 @ 77° F (25° C)
Weight per Gallon: ~8.25
Evaporation Rate: Slower (Ethyl Ether = 1)
Solubility in Water: Dispersible

Vapor Pressure: 17.5 @ 68° F (20° C) (water)
Initial Boiling Point: >212° F (100° C)
Volatile %: >40%
pH: Unavailable
Flash Point: >212° F (100° C) PMCC
Upper Explosion Limit: Unavailable
Lower Explosion Limit: Unavailable
Autoignition Temperature: Unavailable

SECTION 10 - STABILITY AND REACTIVITY

REACTIVITY:
Reacts violently with strong oxidizing agents

STABILITY:
Stable under normal conditions of 70° F (21° C) and 14.7 psig (760 mm Hg)

POSSIBILITY OF HAZARDOUS REACTIONS:
Reacts violently with strong oxidizing agents

CONDITIONS TO AVOID:
None known

INCOMPATIBILE MATERIALS:
Avoid contact with strong oxidizing agents

HAZARDOUS DECOMPOSITION PRODUCTS:
Not anticipated under normal conditions of use.

DECOMPOSITION:
Unavailable

SECTION 11 - TOXICOLOGICAL INFORMATION

LIKELY ROUTES OF EXPOSURE:
Skin and eye contact and inhalation

SYMPTOMS:
Eyes: Tearing, redness and irritation

Skin: Dryness, defatting, dermatitis

Breathing: Breathing spray may result in mild respiratory irritation

Swallowing: Nausea

EFFECTS FROM EXPOSURE:
Immediate: Causes eye irritation

Delayed: Can damage fertility and the unborn child

Chronic: May cause cancer and liver damage

Section 11 continued on next page

SECTION 11 - TOXICOLOGICAL INFORMATION (continued)

TOXICITY DATA:
No data available for product

CARCINOGENICITY
The International Agency for Research on Cancer (IARC) has concluded that untreated and mildly treated oils, such as those found in this product, are capable of causing cancer in humans.

This product (or component) is not listed in the current NTP Report on Carcinogens or the ACGIH TLVs as a carcinogen or potential carcinogen. OSHA does not regulate it as a carcinogen.

SECTION 12 - ECOLOGICAL INFORMATION

ECOTOXICITY:
48-hr. LC_{50} (*Ceriodaphnia dubia*) – 1.33 ppm

PERSISTENCE AND BIODEGRADABILITY
No data available

BIOACCUMULATIVE POTENTIAL:
No data available

MOBILITY IN SOIL:
No data available

PBT & vPvB ASSESSMENT:
No data available

OTHER ADVERSE EFFECTS:
None known

SECTION 13 - DISPOSAL CONSIDERATIONS

Material that cannot be recovered or reused should be sent to a licensed disposal facility for drying and disposal in a landfill. Material collected on absorbent material may be deposited in a landfill in accordance with all applicable local, state and federal regulations.

This product, if disposed of, is not considered a hazardous waste under current RCRA definitions.

SECTION 14 - TRANSPORT INFORMATION

Not regulated under current U.S DOT, TDG (Canadian), ICAO (air) or IMO (water) transport regulations.

SECTION 15 - REGULATORY INFORMATION

TSCA INFORMATION:

All components in this product are in compliance with TSCA Inventory requirements or exempt from reporting.

SARA:

CERCLA/SARA 302: Not applicable
CERCLA/SARA 311/312: Acute, chronic
CERCLA/SARA 313: Not applicable

SECTION 16 - OTHER INFORMATION

PREPARATION DATE: June 4, 2014
SUPERCEDES: Not applicable
REASON FOR REVISION: New SDS

The product information contained herein is believed to be accurate as of the date of the Safety Data Sheet, and is provided without warranty, expressed or implied, as to the results of use of this information or the product to which it relates. Recipient assumes all responsibility for the use of this information and the use (alone or in combination with any other product), storage or disposal of the product, including any resultant personal injury or property damage.

END OF REPORT

040

MATERIAL SAFETY DATA SHEET

CLARIANT

Montanol 800 (TO)/900 kg IBC

Substance key: SXR097671	Revision Date: 09/11/2013
Version : 3 - 4 / USA	Date of printing :12/19/2013

Section 01 - Product and company identification

Identification of the company:	Clariant Corporation 4000 Monroe Road Charlotte, NC, 28205 Telephone No.: +1 704 331 7000 **Information of the substance/preparation:** Product Safety 1-704-331-7710 **Emergency tel. number:** +1 800-424-9300 CHEMTREC

Trade name:	**Montanol 800 (TO)/900 kg IBC**
Material number:	121507
CAS number:	68609-68-7
Chemical family:	
Primary product use:	Collecter/ foaming agent for flotation
Chemical family:	1-Hexanol, 2-ethyl-, manufacture of, by-products from, distillation residues

Section 02 - Hazards identification

Emergency overview:	Yellow liquid. Causes skin irritation.
Expected Route of entry:	
Inhalation:	May cause respiratory tract irritation.
Skin contact:	Causes skin irritation.
Eye contact:	May cause mild eye irritation
Ingestion:	Not expected to be toxic.
Known effects on other illnesses:	None known.
Listed carcinogen:	IARC: No NTP: No OSHA: No Other: No

HMIS:

Health: 1	Flammability: 1	Reactivity: 0	Personal protection: G

Section 03 - Composition/information on ingredients

Hazardous ingredients:

Component	CAS-no. (Trade secret no.)	Concentration
1-Hexanol, 2-ethyl-, manuf. of, by-products from, distn. residues	68609-68-7	100 %

Section 04 - First aid measures

After inhalation:
Get victim to fresh air. Give artificial respiration or oxygen if breathing has stopped. Get prompt medical attention. Do not give fluids if victim is unconscious.

After contact with skin:
Wash thoroughly with soap and water for 15 minutes. If skin irritation occurs, seek medical attention.

After contact with eyes:
Flush thoroughly with water for 15 minutes. Get immediate medical help.

After ingestion:
Seek medical attention immediately.

Advice to doctor / Treatment:
None known.

Section 05 - Fire fighting measures

Flashpoint:	approx. 204 °F Method: Pensky-Martens (DIN EN ISO 2719) (closed cup)
Lower explosion limit:	not tested.
Upper explosion limit:	not tested.
Self ignition:	approx. 482 °F
Ignition temperature:	not tested.

Hazardous combustion products:
In case of fires, hazardous combustion gases are formed: Carbon monoxide (CO) Carbon dioxide (CO2)

Extinguishing media:	carbon dioxide water spray jet dry powder alcohol-resistant foam

Special fire fighting procedure:
Use self-contained breathing apparatus and full protective clothing.

Section 06 - Accidental release measures

Steps to be taken in case of spill or leak:
Contain spill. Ensure adequate ventilation and wear appropriate personal protective equipment. Collect onto inert absorbent. Place in sealable container. Do not allow to contaminate water sources or sewers.

Section 07 - Handling and storage

Advice on safe handling:
Use only with adequate ventilation and proper protective eyewear, gloves, and clothing.

Further info on storage conditions:
Keep containers closed.

Section 08 - Exposure controls / personal protection

Respiratory protection:	If airborne concentrations pose a health hazard, become irritating, or exceed recommended limits, use a NIOSH approved respirator in accordance with OSHA respiratory protection requirements under 29CFR1910.134.
Hand protection:	Butyl rubber or nitrile.
Eye protection:	Safety glasses with side shields.
Other protective equipment:	Clothing suitable to prevent skin contact.

Section 09 - Physical and chemical properties

Form:	Liquid
Color:	light brown
Odor:	characteristic
Odor limit:	not tested.
pH:	approx. 6 (20 °C, 3 g/l)
Solubility in water:	approx. 0.8 g/l (20 °C)
Soluble in ... :	fat not tested.
Density:	approx. 0.93 g/cm3 (20 °C)
Melting point :	< -4 °F Method: DIN/ISO 3016
Boiling range :	approx. 393 - 689 °F Method: DIN 53171
Vapor pressure:	0.11 Torr (0 °C)
Vapor pressure:	0.14 Torr (25 °C)
Vapor pressure:	0.59 Torr (50 °C)
Bulk density:	Not applicable
Relative vapor density:	not tested.
Partitioning coef. octanol/water:	approx.1.6
Partitioning coef. octanol/water:	approx.1.6
Viscosity / (dynamic):	approx. 34 mPa.s (20 °C)
Viscosity / (kinematic):	approx. 37 mm2/s (20 °C)

Section 10 - Stability and reactivity

Thermal decomposition:	> 270 °C (Heating rate:3 K/min) Method: DSC
Chemical stability:	Under normal conditions the product is stable.
Hazardous Polymerization:	Will not occur.
Conditions to avoid:	Avoid excessive heat, flame, and spark.

Section 11 - Toxicological information

Product information:

Acute oral toxicity:	LD50 > 5,000 mg/kg (rat) Method: OECD 401
Acute inhalation toxicity:	LC50 > 5.4 mg/l Method: OECD 403
Acute dermal toxicity:	not tested.
Skin irritation:	irritant (rabbit) Method: OECD 404
Eye irritation:	slight irritant effect - does not require labelling (rabbit eye) Method: OECD 405
Sensitization:	non-sensitizing Method: OECD Test Guideline 406

Section 12 - Ecological information

Product information:

Biodegradation:	not readily degradable Method: OECD 301 B
Fish toxicity:	LC50 approx. 50 mg/l (96 h, zebra fish) Method: OECD 203
Daphnia toxicity:	EC50 > 38 mg/l (48 h) Method: OECD 202
	NOEC = 38 mg/l Method: OECD 202
Algae toxicity:	EC50 > 34 mg/l (72 h, Scenedesmus subspicatus) Method: OECD 201
	NOEC 19 mg/l Method: OECD 201
Bacteria toxicity:	EC50 1,655 mg/l (3 h) Method: OECD 209

Remarks:
Do not allow product to reach the drainage.

Section 13 - Disposal considerations

Waste disposal information:
Recommended disposal is by incineration in approved facilities.

RCRA hazardous waste:
No -- Not as sold.

Section 14 - Transport information

DOT	not restricted
IATA	not restricted
IMDG	not restricted

Section 15 - Regulatory information

TSCA Status:
All components of this product are listed on the TSCA Inventory.

SARA (section 311/312):

Reactive hazard:	no
Pressure hazard:	no
Fire hazard:	no
Immediate/acute:	yes
Delayed/chronic:	no

SARA 313 information:
This product is not subject to SARA Title III Section 313 reporting requirements under 40 CFR 372.

Clean Water Act:
Contains no known priority pollutants at concentrations greater than 0.1%.

Section 16 - Other information

Label information:

CAUTION!

MAY CAUSE SKIN AND RESPIRATORY IRRITATION

Avoid breathing fumes, vapors, mists, or spray. Avoid contact with skin, eyes and clothing. Do not swallow. Use with adequate ventilation and/or approved respiratory protection. Wear proper protective equipment. Wash thoroughly after handling. Keep container closed when not in use.

Skin contact: wash thoroughly with soap and water for 15 minutes. If skin irritation occurs, seek medical attention. Wash contaminated clothing before reuse. Eye contact: flush with water for at least 15 minutes while holding eyelids open. Seek immediate medical attention. INGESTION: Seek medical attention immediately. Inhalation: remove to fresh air. If not breathing, give artificial respiration. If breathing is difficult, give oxygen. Seek medical attention if respiratory irritation continues.

This information is supplied under the OSHA Hazard Communication Standard, 29 CFR 1910.1200, and is offered in good faith based on data available to us that we believe to be true and accurate. The recommended industrial hygiene and safe handling procedures are believed to be generally applicable to the material. However, each user should review these recommendations in the specific context of the intended use and determine whether they are appropriate for that use. No warranty, express or implied, is made regarding the accuracy of this data, the hazards connected with the use of the material, or the results to be obtained from the use thereof. We assume no responsibility for damage or injury from the use of the product described herein. Data provided here are typical and not intended for use as product specifications.

Table 4 Worst Case Loading VOC HAP

Name	Tanks	Working and Standing Losses per hour	Working and Standing PTE VOC per year	Loading VOC emissions per hour	VOC W, S, and Loading per hour	PTE VOC emissions per year including loading	Loading HAP emissions per hour	PTE HAP emissions per day including loading	PTE HAP emissions per year including loading
		lbs	tons	lbs	lbs	tons	lbs	lbs	tons
Propylene glycol	217	0.0002871	0.0005086	0.5505739	0.5508610	0.0020380	0.0005506	0.0132138	0.0000015
Glycerin	202	0.0001786	0.0007821	0.2849583	0.2851369	0.0014417	0.0002850	0.0068390	0.0000007
	203	0.0001786	0.0007821	0.2849583	0.2851369	0.0014417	0.0002850	0.0068390	0.0000007
	204	0.0001786	0.0007821	0.2849583	0.2851369	0.0014417	0.0002850	0.0068390	0.0000007
	205	0.0001786	0.0007821	0.2849583	0.2851369	0.0014417	0.0002850	0.0068390	0.0000007
	218	0.0001786	0.0007821	0.2374653	0.2376438	0.0014417	0.0002375	0.0056992	0.0000007
	429	0.0001786	0.0007821	0.2374653	0.2376438	0.0014417	0.0002375	0.0056992	0.0000007
	214	0.0001786	0.0007821	0.1424792	0.1426577	0.0014417	0.0001425	0.0034195	0.0000007
Largest 8 Loading Point Totals		**0.0015370**	**0.0059833**	**2.3078169**	**2.3093540**	**0.0121300**	**0.0023078**	**0.0553876**	**0.0000061**
	710	0.0001786	0.0007821	0.1424792		0.0014417	0.0001425	0.0034195	0.0000007
	711	0.0001786	0.0007821	0.1424792		0.0014417	0.0001425	0.0034195	0.0000007
	712	0.0001786	0.0007821	0.1424792		0.0014417	0.0001425	0.0034195	0.0000007
	713	0.0001786	0.0007821	0.1424792		0.0014417	0.0001425	0.0034195	0.0000007
	215	0.0001786	0.0007821	0.0284958		0.0014417	0.0000285	0.0006839	0.0000007
Rail Car		n/a	n/a	0.0960364		8.0030366	0.0000000	0.0000004	0.0080030

Natural Gas Air Emissions (Small Wall-Fired Boilers < 100 MMBtu/hr)
Lexycon Blending Facility, Nitro, WV

Boiler Number 2

Enter Btu/hr maximum heat input	**1,000,000**
heat value of natural gas is 1050 Btu/scf	
ft^3/hr Btu/hr X 1 ft3/1050 Btu	952.381 ft3/hr
ft^3/year ft3/hr X 8760 hr/yr	8342857.14 ft3/yr
Btu = British thermal unit	
scf = standard cubic foot = ft^3	

Potential Emissions

ft^3 burned/yr natural gas	Sulfur Dioxide (SO2)	Nitrogen Oxides (NOX)	Volatile Organic Compounds (VOC)	Carbon Monoxide (CO)	Particulate Matter (PM)	Particulate Matter <10 microns (PM10)	Lead (Pb)
	ton/yr	ton/yr	ton/yr	ton/yr	ton/yr	ton/yr	ton/year
8342857.14	B X .0000006 / 2000	B X .0001 / 2000	B X .0000055 / 2000	B X .000084/2000	B X .0000076/2000	B X .0000076/2000	B X .0000000005/2000

Total PTE	**tons/year**	**0.002503**	**0.417143**	**0.022943**	**0.350400**	**0.031703**	**0.031703**	**0.000002**
	pounds/hour	**0.000571**	**0.095238**	**0.005238**	**0.080000**	**0.007238**	**0.007238**	**0.000000**

Emissions factors from AP - 42 Fifth Edition, Volume 1

Table 2 - VOC Materials without HAPs

Name	Tanks	Working Loss per year	Standing Loss per year	Working Loss per hour	Standing Loss per hour	Working and Standing Losses per hour	PTE VOC per year	Loading VOC emissions per hour	PTE VOC emissions per year including loading
		lbs	lbs	lbs	lbs	lbs	tons	lbs	tons
EP 202	503	2.003071	865.727399	0.000229	0.098827	0.099056	0.433865	0.299072	0.436856
EP 202	500	2.003071	865.727399	0.000229	0.098827	0.099056	0.433865	0.000000	0.433865
EP 202	501	2.003071	865.727399	0.000229	0.098827	0.099056	0.433865	0.000000	0.433865
EP 202	502	2.003071	865.727399	0.000229	0.098827	0.099056	0.433865	0.000000	0.433865
EP 202	506	2.003071	865.727399	0.000229	0.098827	0.099056	0.433865	0.000000	0.433865
EP 202	507	2.003071	865.727399	0.000229	0.098827	0.099056	0.433865	0.000000	0.433865
NP 70	409	389.179373	150.104798	0.044427	0.017135	0.061562	0.269642	0.000000	0.269642
FEC 02	418	268.900755	163.317156	0.030696	0.018644	0.049340	0.216109	2.230483	0.253284
Montanol	505	1.031619	337.358454	0.000118	0.038511	0.038629	0.169195	0.115521	0.169708
FEC 03	404	179.267170	51.265876	0.020464	0.005852	0.026317	0.115267	2.230483	0.140050
Diesel	Diesel	173.257143	98.031040	0.019778	0.011191	0.030969	0.135644	Negligible	0.135644
FVM	412	42.575953	51.265876	0.004860	0.005852	0.010713	0.046921	0.000000	0.046921
FVM	417	42.575953	51.265876	0.004860	0.005852	0.010713	0.046921	0.000000	0.046921
Acetic Acid	600	13.023901	47.121116	0.001487	0.005379	0.006866	0.030073	0.000000	0.030073
Gen 3	420	16.885749	15.032661	0.001928	0.001716	0.003644	0.015959	0.720330	0.024363
Acetic Acid	602A	13.023901	18.626177	0.001487	0.002126	0.003613	0.015825	0.000000	0.015825
Acetic Acid	602B	13.023901	18.626177	0.001487	0.002126	0.003613	0.015825	0.000000	0.015825
Acetic Acid	702	13.023901	18.626177	0.001487	0.002126	0.003613	0.015825	0.000000	0.015825
Acetic Acid	703	13.023901	18.626177	0.001487	0.002126	0.003613	0.015825	0.000000	0.015825
Biodiesel	406	1.381429	16.092612	0.000158	0.001837	0.001995	0.008737	0.000000	0.008737
Platinum 2020	223	3.663574	11.172823	0.000418	0.001275	0.001694	0.007418	1.189122	0.008330
Mixed Amines	207	8.210197	7.830866	0.000937	0.000894	0.001831	0.008021	0.000000	0.008021
Potassium Acetate	208	8.210197	7.830866	0.000937	0.000894	0.001831	0.008021	0.000000	0.008021
Platinum 2020	206	3.663574	9.343500	0.000418	0.001067	0.001485	0.006504	0.000000	0.006504
Platinum 2020	219	3.663574	9.343500	0.000418	0.001067	0.001485	0.006504	0.000000	0.006504
Platinum 2020	220	3.663574	9.343500	0.000418	0.001067	0.001485	0.006504	0.000000	0.006504
Platinum 2020	221	3.663574	9.343500	0.000418	0.001067	0.001485	0.006504	0.000000	0.006504
Magnafloc 1717	426	2.544284	1.245794	0.000290	0.000142	0.000433	0.001895	0.042736	0.003794
RDC-600	201	2.445866	1.929758	0.000279	0.000220	0.000500	0.002188	0.243456	0.003405
LX-100	427	3.684291	2.327233	0.000421	0.000266	0.000686	0.003006	0.000000	0.003006
ClearFloc 1423	715	2.385267	1.133202	0.000272	0.000129	0.000402	0.001759	0.085473	0.002946
RDC-600	200	2.445866	1.929758	0.000279	0.000220	0.000500	0.002188	0.000000	0.002188
RDC-600	304	2.445866	1.642954	0.000279	0.000188	0.000467	0.002044	0.000000	0.002044
Magnafloc 1717	425	2.544284	1.133202	0.000290	0.000129	0.000420	0.001839	0.000000	0.001839
Pitch Emulsion	403	0.000000	3.527968	0.000000	0.000403	0.000403	0.001764	0.000000	0.001764
Pitch Emulsion	405	0.000000	3.527968	0.000000	0.000403	0.000403	0.001764	0.000000	0.001764
Pitch Emulsion	407	0.000000	3.527968	0.000000	0.000403	0.000403	0.001764	0.000000	0.001764
Pitch Emulsion	408	0.000000	3.527968	0.000000	0.000403	0.000403	0.001764	0.000000	0.001764
ClearFloc 1422	714	2.385267	1.133202	0.000272	0.000129	0.000402	0.001759	0.000000	0.001759
Magnafloc 1717	716	2.544284	0.964272	0.000290	0.000110	0.000401	0.001754	0.000000	0.001754
Pitch Emulsion	301	0.000000	3.003767	0.000000	0.000343	0.000343	0.001502	0.000000	0.001502
MR Solvent	416	2.514200	0.458934	0.000287	0.000052	0.000339	0.001487	0.000000	0.001487
Asphault Emulsion	302	0.000000	2.478802	0.000000	0.000283	0.000283	0.001239	0.000000	0.001239
Asphault Emulsion	303	0.000000	2.478802	0.000000	0.000283	0.000283	0.001239	0.000000	0.001239
MicroC 4100	320	0.000000	2.350420	0.000000	0.000268	0.000268	0.001175	0.272585	0.001175
Fatty Acid	415	0.998646	0.364955	0.000114	0.000042	0.000156	0.000682	0.000000	0.000682
Fatty Acid	413	0.998609	0.364941	0.000114	0.000042	0.000156	0.000682	0.000000	0.000682
Fatty Acid	414	0.998609	0.364941	0.000114	0.000042	0.000156	0.000682	0.000000	0.000682
Fatty Acid	419	0.998646	0.000000	0.000114	0.000000	0.000114	0.000499	0.000000	0.000499
NP 9 Surfactant	306	0.104228	0.351366	0.000012	0.000040	0.000052	0.000228	0.001729	0.000235
Prosol	411	0.064517	0.070273	0.000007	0.000008	0.000015	0.000067	0.000000	0.000067
Mineral Oil	410	0.172679	5.796965	0.000020	0.000662	0.000681	0.002985	0.028647	0.000012
Tall-oil Pitch	401	0.000000	0.015558	0.000000	0.000002	0.000002	0.000008	0.000000	0.000008
Tall-oil Pitch	402	0.000000	0.015558	0.000000	0.000002	0.000002	0.000008	0.000000	0.000008
Total VOC w/o HAPs		**#########**	**6359.599651**	**0.143517**	**0.725982**	**0.869498**	**3.808403**	**7.459636**	**3.884519**