

Appendix – H
Safety Data Sheets (SDS's)



SAFETY DATA SHEET

Section 1. PRODUCT AND COMPANY IDENTIFICATION

Product Name: ABC Dry Chemical Fire Extinguishant
 Other Identifiers: Multi-purpose Dry Chemical
 Product Code(s): CH550, F15, F18
 Model Code(s) for Extinguishers: 411, 417, 419, 423, 424, 425, 441, 443, 450, 456, 461, 464, 467, 470, 473, 476, 481, 487, 488, 491, 495, 500, 564, 567, 573, 581, 589, 592, 594, 668, 692, 720, 760, 763, 781.
 Recommended Use: Fire suppression, not for human or animal drug use.
 Manufacturer: AMEREX CORPORATION
 Internet Address: www.amerex-fire.com
 Address: 7595 Gadsden Highway, P.O. Box 81
 Trussville, AL 35173-0081
 Company Telephone: (205) 655-3271
 E-mail Address: info@amerex-fire.com
 Emergency Contacts: Chemtrec 1(800) 424-9300 or (703) 527-3887
 Revised: January 2015

Section 2. HAZARDS IDENTIFICATION

GHS – Classification

Health	Environmental	Physical
Acute Toxicity: Category 5	None	None
Skin Corrosion/Irritation: Category 2	None	None
Skin Sensitization: NO	None	None
Eye: Category 2B	None	Warning
Carcinogen: Category None	None	None

GHS – Label Symbol(s): None

GHS – Signal Word(s): **Warning**

Other Hazards Not Resulting in Classification: None

GHS – Hazard Phrases

GHS Hazard	GHS Codes(s)	Code Phrase(s)
Physical	None	
Health	H303 313 320 333	May be harmful if swallowed May be harmful in contact with skin Causes eye irritation May be harmful if inhaled
Environmental	None	
Precautionary:		
General	P101 102	If medical advice is needed, have product container or label at hand Keep out of reach of children
Prevention	234 251 261 264 270 281 285	Keep in original container Pressurized container; do not pierce or burn, even after use Avoid breathing dust Wash hands and face thoroughly after handling Do not eat, drink, or smoke when using this product Use personal protective equipment as required In case of inadequate ventilation, wear respiratory protection
Response	P301+322+331 302+352 304+313+341 305+351+338 308+313 337+313	If swallowed, drink 2-3 glasses of water and do not induce vomiting If on skin, wash with soap and water If inhaled, and if distress occurs, remove victim to fresh air and keep at rest in a position comfortable for breathing. Seek medical advice/attention If in eyes, rinse cautiously with water for several minutes. Remove contact lenses if present and easy to do, and continue to rinse If exposed or concerned, get medical advice/attention If eye irritation persists; get medical advice/attention
Storage	P401+402+403	Store in original container or extinguisher in a dry, well ventilated place

Section 3. COMPOSITION/INFORMATION ON INGREDIENTS

Chemical Name	EC No.	REACH Reg. No.	CAS-No.	Weight %
Mono-ammonium phosphate	NA	NA	7722-76-1	55-75
Ammonium sulfate	231-984-1	NA	7783-20-2	20-40
Fullers earth magnesium aluminum silicate	NA	Not Available	8031-18-3	<3
Mica- potassium aluminum silicate	NA	Not Available	12001-26-2	1-2
Silicone oil methyl hydrogen polysiloxane	NA	Not Available	63148-57-2	<1
Calcium carbonate	215-279-6	Not Available	1317-65-3	<1
Amorphous silica precipitated synthetic zeolite	262-373-8	Not Available	112926-00-8	<1
Yellow 14 pigment – diazo dye	228-767-9	Not Available	5468-75-7	<1

Emergency overview:

Light yellow, fine solid powder, odorless.

Adverse health effects and symptoms:

Irritant to the respiratory system; Irritating to eyes and skin. Symptoms may include coughing, shortness of breath, and irritation of the lungs, eyes, and skin.

Ingestion, although unlikely, may cause cramps, nausea and diarrhea.

Cut-off Levels

Chemical Name	Reproductive Toxicity	Carcinogenicity	Mutagenicity	Other Hazard Classes
Mono-ammonium Phosphate	NA	NA	NA	NA
Ammonium Sulfate	NA	NA	NA	NA
Fullers earth magnesium aluminum silicate	NA	NA	NA	NA
Mica- potassium aluminum silicate	NA	NA	NA	NA
Silicone oil methyl hydrogen polysiloxane	NA	NA	NA	NA
Calcium carbonate	NA	NA	NA	NA
Amorphous silica precipitated synthetic zeolite	NA	NA	NA	NA
Yellow 14 pigment – di-azo dye	NA	NA	NA	NA

Section 4. FIRST AID MEASURES

Eye Exposure:

May cause irritation. Irrigate eyes with water and repeat until pain free. Seek medical attention if irritation develops, or if vision changes occur.

Skin Exposure:

May cause skin irritation. In case of contact, wash with plenty of soap and water. Seek medical attention if irritation persists.

Inhalation:

May cause irritation, along with coughing. If respiratory irritation or distress occurs, remove victim to fresh air. Seek medical attention if irritation persists.

Ingestion:

Overdose symptoms may include numbness or tingling in hands or feet, uneven heart rate, paralysis, feeling faint, chest pain or heavy feeling, pain spreading to the arm or shoulder, nausea, diarrhea, sweating, general ill feeling, or seizure (convulsions). If victim is conscious and alert, give 2-3 glasses of water to drink. If conscious, do not induce vomiting. Seek immediate medical attention. Do not leave victim unattended. To prevent aspiration of swallowed product, lay victim on side with head lower than waist.

Medical conditions possibly aggravated by exposure:

Inhalation of product may aggravate existing chronic respiratory problems such as asthma, emphysema, or bronchitis. Skin contact may aggravate existing skin

disease. Chronic overexposure may cause pneumoconiosis (“dusty lung” disease).

Section 5. FIRE-FIGHTING MEASURES

Flammable Properties:	Not flammable
Flash Point:	Not determined
Suitable Extinguishing Media:	Non-combustible. Use extinguishing media suitable for surrounding conditions.
Hazardous Combustion Products:	Carbon and sulfur oxides
<u>Explosion Data:</u>	
Sensitivity to Mechanical Impact:	Not sensitive
Sensitivity to Static Discharge:	Not sensitive
Unusual fire/explosion hazards:	In a fire this material may decompose, releasing oxides of carbon, sulfur, potassium and nitrogen (see Section 10).
Protective Equipment and Precautions for Firefighters:	As in any fire, wear self-contained breathing apparatus in pressure-demand, NIOSH approved or equivalent and full protective gear.

Section 6. ACCIDENTAL RELEASE MEASURES

Personal Precautions:	Avoid contact with skin, eyes, and clothing.
Personal Protective Equipment:	Minimum - safety glasses, gloves, and a dust respirator.
Emergency Procedures:	NA
Methods for Containment:	Prevent further leakage or spillage if safe to do so.
Methods for Clean Up:	Avoid dust formation; clean up released material using vacuum or wet sweep and shovel to minimize generation of dust. Bag and transfer to properly labeled containers. Ventilate area and wash spill site after material pickup is complete.
Environmental Precautions:	Prevent material from entering waterways.
Other:	If product is contaminated, use PPE and containment appropriate to the nature of the most toxic chemical/material in the mixture.

Section 7. HANDLING AND STORAGE

Personal Precautions:

Use appropriate PPE when handling or maintaining equipment, and wash thoroughly after handling (see Section 8).

Conditions for Safe Storage/Handling:

Keep product in original container or extinguisher. Contents may be under pressure – inspect for extinguisher rust periodically to ensure container integrity.

Incompatible Products:

Do not mix with other extinguishing agents, particularly potassium bicarbonate and sodium bicarbonate. Incompatible with strong oxidizing agents and strong acids. Do not store in high humidity. Do not combine with chlorine compounds.

Section 8. EXPOSURE CONTROLS/PERSONAL PROTECTION

Chemical Name	OSHA PEL	ACGIH TLV	DFG MAK *	EU BLV
Mono-ammonium phosphate	PNOC** Total dust, 15 mg/m ³ Respirable fraction, 5 mg/m ³	PNOC Total dust, 10 mg/m ³ Respirable fraction, 3 mg/m ³	PNOC Total dust, 4 mg/m ³ Respirable fraction, 1.5 mg/m ³	NA
Ammonium Sulfate	PNOC** Total dust, 15 mg/m ³ Respirable fraction, 5 mg/m ³	PNOC Total dust, 10 mg/m ³ Respirable fraction, 3 mg/m ³	PNOC Total dust, 4 mg/m ³ Respirable fraction, 1.5 mg/m ³	NA
Mica	6 mg/m ³	3 mg/m ³	NR	NA
Fullers Earth	PNOC** Total dust, 15 mg/m ³ Respirable fraction, 5 mg/m ³	PNOC Total dust, 10 mg/m ³ Respirable fraction, 3 mg/m ³	PNOC Total dust, 4 mg/m ³ Respirable fraction, 1.5 mg/m ³	
Silicone oil	NR**	NR	NR	NA
Calcium carbonate	PNOC Total dust, 15 mg/m ³ Respirable fraction, 5 mg/m ³	PNOC Total dust, 10 mg/m ³ Respirable fraction, 3 mg/m ³	-----	NA
Amorphous silica	80 mg/m ³ % silica	10 mg/m ³	4 mg/m ³	NA
Yellow 14 pigment	NR	NR	NR	NA

*German regulatory limits **PNOC = Particulates not otherwise classified (ACGIH) also known as Particulates not otherwise regulated (OSHA) *** NR = Not Regulated. All values are 8 hour time weighted average concentrations.

Engineering Controls:

Showers
Eyewash stations
Ventilation systems

Personal Protective Equipment – PPE Code E:



Eye/Face Protection:
Skin and Body Protection:
Respiratory Protection:

Tightly fitting safety goggles
Wear protective gloves/coveralls
If exposure limits are exceeded or irritation is experienced, NIOSH approved respiratory protection should be worn. Use N95 dust mask for limited exposure; use air-purifying respirator (APR) with high efficiency particulate air (HEPA) filters for prolonged exposure. Positive-pressure-demand supplied air respirators may be required for high airborne contaminant concentrations. Respiratory protection must be provided in accordance with current local regulations. The need for respiratory protection is not likely for short-term use in well ventilated areas.

Hygiene Measures:

Good personal hygiene practices essential, such as avoiding food, tobacco products, or other hand-to-mouth contact when handling. Wash thoroughly after handling.

Section 9. PHYSICAL AND CHEMICAL PROPERTIES

Appearance:	Light yellow powder, finely divided odorless solid
Molecular Weight:	NH ₄ H ₂ PO ₄ : 115.03; (NH ₄) ₂ SO ₄ : 132.14
Odor:	Odorless
Odor Threshold:	No information available
Decomposition Temperature °C:	100 - 120
Freezing Point °C:	No information available
Initial Boiling Point °C:	No information available
Physical State:	Crystalline Powder

pH:	Mixture approximately 4 to 5; NH ₄ H ₂ PO ₄ : 4.2 in 0.2 molar solution; (NH ₄) ₂ SO ₄ : 5.5 in 0.1 molar solution
Flash Point °C:	None
Auto-ignition Temperature °C:	None
Boiling Point/Range °C:	Not Applicable
Melting Point/Range °C:	NH ₄ H ₂ PO ₄ : 190; (NH ₄) ₂ SO ₄ : 280
Flammability:	Not Flammable
Flammability Limits in Air °C:	Upper – Not Flammable; Lower-Not Flammable
Explosive Properties:	None
Oxidizing Properties:	None
Volatile Component (%vol)	Not Applicable
Evaporation Rate:	Not Applicable
Vapor Density:	Not Applicable
Vapor Pressure:	Not Applicable
Specific gravity at 25 C:	NH ₄ H ₂ PO ₄ : 1.80; (NH ₄) ₂ SO ₄ : 1.77
Solubility:	Coated-Not Immediately Soluble in Water
Partition Coefficient:	NH ₄ H ₂ PO ₄ Est: -4.11; (NH ₄) ₂ SO ₄ : Est: -0.48
Viscosity:	Not Applicable

NOTE: NH₄H₂PO₄ – Monoammonium Phosphate; (NH₄)₂SO₄: – Ammonium Sulfate

Section 10. STABILITY AND REACTIVITY

Stability:	Stable under recommended storage and handling conditions.
Reactivity:	
Incompatibles:	Strong alkalis (bases), magnesium, strong oxidizers, isocyanuric acids and chlorine compounds.
Conditions to Avoid:	Storage or handling near incompatibles.
Hazardous Decomposition Products:	Heat of fire may release carbon monoxide, carbon dioxide, and sulfur dioxide. Also ammonia, oxides of phosphorous and nitrogen oxides may be released during decomposition.
Possibility of Hazardous Reactions:	Slight
Hazardous Polymerization	Does not occur

Section 11. TOXICOLOGICAL INFORMATION

Likely Routes of Exposure:	Inhalation, skin, and eye contact.
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Symptoms:

Immediate:

Inhalation:

Eyes:

Skin:

Delayed:

Acute Toxicity:

Chronic Toxicity:

Short-term Exposure:

Long-term Exposure:

Irritation, coughing.

Irritation.

Irritation.

Symptoms appear to be relatively immediate

Relatively non-toxic.

None known.

As with all dusts, pneumoconiosis, or “dusty lung” disease, may result from chronic exposure.

Acute Toxicity Values - Health

Chemical Name	LD50		LC50 (Inhalation)
	Oral	Dermal	
Mono-ammonium phosphate	5750 mg/kg (rat)	>7940 mg/kg (rabbit)	Not available
Ammonium Sulfate	2840 mg/kg (rat)	Not available	Not available
Mica	None	None	None
Fullers Earth	None	None	None
Silicone oil	None	None	None
Calcium carbonate	6450 mg/kg (rat)	500 mg/24 hr (rabbit)	Not available
Amorphous silica	>5000 mg/kg (rat)	>2000 mg/kg (rabbit)	>2.2 mg/L (rat)
Yellow 14 pigment	>17000 mg/kg (rat)	>3000 mg/kg (rat)	>4448 mg/m3 (rat)

Reproductive Toxicity:

Target Organs and Effects (TOST):

This product’s ingredients are not known to have reproductive or teratogenic effects.

Respiratory system irritant).

This product is a mild irritant to epithelial tissue, (eyes, mucous membranes, skin) and may aggravate dermatitis. No information was found indicating the product causes sensitization.

Other Toxicity Categories

Chemical Name	Germ Cell Mutagenicity	Carcinogenicity	Reproductive	TOST Single Exp	TOST Repeated Exp	Aspiration
Mono-ammonium phosphate	None	None	None	Cat 3	None	None
Ammonium Sulfate	None	None	None	Cat 3	None	None
Fullers earth	None	None	None	None	None	None
Mica	None	None	None	None	None	None
Silicone oil	None	None	None	None	None	None
Calcium carbonate	None	None	None	None	None	None
Amorphous silica	None	None	None	None	None	None
Yellow 14 pigment	None	None	None	None	None	None

Section 12. ECOLOGICAL INFORMATION

Ecotoxicity:	Negative effects unknown. Provides nutrient nitrogen and phosphorus to plant life.
Persistence/Degradability:	Degrades rapidly in humid/wet environment.
Probability of rapid biodegradation:	NH ₄ H ₂ PO ₄ Est: 0.693 (Rapid); (NH ₄) ₂ SO ₄ : Est: 0.684 (Rapid)
Anaerobic biodegradation probability:	NH ₄ H ₂ PO ₄ Est: 0.398 (Slow); (NH ₄) ₂ SO ₄ : Est: 0.398 (Slow)
Bioaccumulation potential:	Low.
Bioconcentration factor:	NH ₄ H ₂ PO ₄ : 3.16 L/kg; (NH ₄) ₂ SO ₄ : 3.16 L/kg (wet weight)
Bioaccumulation:	Extent unknown.
Mobility in soil:	Slow evaporation rate; water soluble, may leach to groundwater
Log Koc:	NH ₄ H ₂ PO ₄ Est: -1.25; (NH ₄) ₂ SO ₄ : Est: 1.35
Log Koa:	NH ₄ H ₂ PO ₄ Est: 16.72; (NH ₄) ₂ SO ₄ : Est: 20.10
Log Kaw:	NH ₄ H ₂ PO ₄ Est: -20.86; (NH ₄) ₂ SO ₄ : Est: -19.62

NOTE: NH₄H₂PO₄ – Monoammonium Phosphate; (NH₄)₂SO₄: – Ammonium Sulfate

Other Adverse Ecological Effects: No other known effects at this time

Aquatic Toxicity Values – Environment – Research

Chemical Name	Acute (LC50)	Chronic (LC50)
Monoammonium phosphate	N/A	N/A
Ammonium Sulfate	N/A	N/A
Mica	N/A	N/A
Fullers Earth	N/A	N/A
Silicone oil	N/A	N/A
Calcium carbonate	N/A	N/A
Amorphous silica	N/A	N/A
Yellow 14 pigment	N/A	N/A

Aquatic Toxicity Values – Environment – Estimates

Chemical Name	Acute (LC50)	EC50
Monoammonium phosphate	2.91e+07 mg/L Fish 96 hr; 9.4e+06 mg/l Daphnid 48 hr;	6.70e+05 mg/L Gr. Algae 96 hr
Ammonium Sulfate	2521 mg/L Fish 96 hr; 1244 mg/l Daphnid 48 hr;	518 mg/L Gr. Algae 96 hr
Mica	N/A	N/A
Fullers Earth	N/A	N/A
Silicone oil	N/A	N/A
Calcium carbonate	N/A	N/A
Amorphous silica	N/A	N/A
Yellow 14 pigment	N/A	N/A

Section 13. DISPOSAL CONSIDERATIONS

Safe Handling	Use appropriate PPE when handling, and wash thoroughly after handling (see Section 8).
Waste Disposal Considerations	Dispose in accordance with federal, state, and local regulations.
Contaminated Packaging	Dispose in accordance with federal, state, and local regulations.

NOTES:

This product is not a RCRA characteristically hazardous or listed hazardous waste. Dispose of according to state or local laws, which may be more restrictive than federal laws or regulations. Used product may be altered or contaminated, creating different disposal considerations.

Section 14. TRANSPORT INFORMATION

UN Number:	NA
UN Proper Shipping Name:	NA
Transport Hazard Class:	NA
Packing Group:	NA
Marine Pollutant?:	NO
IATA	Not regulated
DOT	Not regulated

NOTES:

This product is not defined as a hazardous material under U.S. Department of Transportation (DOT) 49 CFR 172, or by Transport Canada "Transportation of Dangerous Goods" regulations.

Special Precautions for Shipping:

If shipped in a stored pressure-type fire extinguisher, and pressurized with a non-flammable, non-toxic inert expellant gas, the fire extinguisher is considered a hazardous material by the US Department of Transportation and Transport Canada. The proper shipping name shall be FIRE EXTINGUISHER and the UN designation is UN 1044. The DOT hazard class is Limited Quantity when pressurized to less than 241 psig and when shipped via highway or rail. Use a Non-Flammable Gas label (class 2.2) when shipping via air.

Section 15. REGULATORY INFORMATION

International Inventory Status: All ingredients are on the following inventories

Country(ies)	Agency	Status
United States of America	TSCA	Yes
Canada	DSL	Yes
Europe	EINECS/ELINCS	Yes
Australia	AICS	Yes
Japan	MITI	Yes
South Korea	KECL	Yes

REACH Title VII Restrictions: No information available

Chemical Name	Dangerous Substances	Organic Solvents	Harmful Substances Whose Names Are to be Indicated on Label	Pollution Release and Transfer Registry (Class II)	Pollution Release and Transfer Registry (Class I)	Poison and Deleterious Substances Control Law
Monoammonium Phosphate	Not Applicable	Not Applicable	Not Applicable	Not Applicable	Not Applicable	Not Applicable
Ammonium Sulfate	Not Applicable	Not Applicable	Not Applicable	Not Applicable	Not Applicable	Not Applicable

Component	ISHA – Harmful Substances Prohibited for Manufacturing, Importing, Transferring, or Supplying	ISHA – Harmful Substances Requiring Permission	Toxic Chemical Classification Listing (TCCL) – Toxic Chemicals	Toxic Release Inventory (TRI) – Group I	Toxic Release Inventory (TRI) – Group II
Monoammonium Phosphate 7722-76-1	Not Applicable	Not Applicable	Not Applicable	Not Applicable	Not Applicable
Ammonium Sulphate	Not Applicable	Not Applicable	Not Applicable	Not Applicable	Not Applicable
Fullers earth magnesium aluminum silicate 8031-18-3 (>4)	Not Applicable	Not Applicable	Not Applicable	Not Applicable	Not Applicable
Mica-potassium aluminum silicate 120001-26-2 (>2)	Not Applicable	Not Applicable	Not Applicable	Not Applicable	Not Applicable
Calcium carbonate 471-34-1	Not Applicable	Not Applicable	Not Applicable	Not Applicable	Not Applicable
Amorphous silica 69012-64-2	Not Applicable	Not Applicable	Not Applicable	Not Applicable	Not Applicable
Yellow 14 pigment 5468-75-7	Not Applicable	Not Applicable	Not Applicable	Not Applicable	Not Applicable

European Risk and Safety phrases:

EU Classification: Irritant

R Phrases:	20	Harmful by inhalation.
	36/37	Irritating to eyes, respiratory system.
S Phrases:	22	Do not breath dust.
	24/25	Avoid contact with skin and eyes
	26	In case of contact with eyes, rinse immediately with plenty of water and seek medical advice.
	36	Wear suitable protective clothing.

U.S. Federal Regulatory Information:

SARA 313:

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

None of the chemicals in this product are under SARA reporting requirements or have SARA threshold planning quantities (TPQs) or CERCLA reportable quantities (RQs), or are regulated under TSCA 8(d).

SARA 311/312 Hazard Categories:

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

* - Only applicable if material is in a pressurized extinguisher.

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)

Clean Air Act, Section 112 Hazardous Air Pollutants (HAPs) (see 40 CFR 61)

This product does not contain any substances regulated as hazardous air pollutants (HAPs) under Section 112 of the Clean Air Act Amendments of 1990.

U.S. State Regulatory Information:

Chemicals in this product are covered under specific State regulations, as denoted below:

Alaska - Designated Toxic and Hazardous Substances: None

California – Permissible Exposure Limits for Chemical Contaminants: None

Florida – Substance List: Mica Dust **Illinois**
 – Toxic Substance List: None **Kansas** –
 Section 302/303 List: None **Massachusetts** –
 Substance List: Mica Dust
Minnesota – List of Hazardous Substances: None
Missouri – Employer Information/Toxic Substance List: None
New Jersey – Right to Know Hazardous Substance List: None
North Dakota – List of Hazardous Chemicals, Reportable Quantities: None
Pennsylvania – Hazardous Substance List: None
Rhode Island – Hazardous Substance List: Mica Dust
Texas – Hazardous Substance List: No
West Virginia – Hazardous Substance List: None
Wisconsin – Toxic and Hazardous Substances: None

California Proposition 65: No component is listed on the California Proposition 65 list.

Other:

Mexico – Grade	No component listed
Canada – WHMIS Hazard Class	No component listed

Section 16. OTHER INFORMATION

This SDS conforms to requirements under U.S., U.K., Canadian, Australian, and EU regulations or standards, and conforms to the proposed 2003 ANSI Z400.1 format.

Issuing Date	17-June-2012
Revision Date	17-October-2013
Revision Date	06-January-2015
Revision Notes	None

The information herein is given in good faith but no warranty, expressed or implied, is made.
 Updated by William F. Garvin, CIH.

SAFETY DATA SHEET



TRANSGARD ATF MERCON V (633122001)

Section 1. Identification

GHS product identifier : TRANSGARD ATF MERCON V (633122001)
Synonyms : Automatic Transmission Fluid
Code : 633122

Supplier's details : CITGO Petroleum Corporation
P.O. Box 4689
Houston, TX 77210
sdsvend@citgo.com

Emergency telephone number : Technical Contact: (800) 248-4684
Medical Emergency: (832) 486-4700
CHEMTREC Emergency: (800) 424-9300
(United States Only)

Section 2. Hazards identification

OSHA/HCS status : This material is considered hazardous by the OSHA Hazard Communication Standard (29 CFR 1910.1200).

Classification of the substance or mixture : SKIN SENSITIZATION - Category 1B

GHS label elements

Hazard pictograms :



Signal word : Warning

Hazard statements : May cause an allergic skin reaction.

Precautionary statements

General : Avoid contact with eyes, skin and clothing. May be harmful if swallowed. IF IN EYES: Rinse cautiously with water for several minutes. If swallowed, do not induce vomiting. After handling, always wash hands thoroughly with soap and water. If you feel unwell, seek medical attention and show the label when possible. Keep out of reach of children.

Prevention : Wear protective gloves. Avoid breathing vapor. Contaminated work clothing should not be allowed out of the workplace.

Response : IF ON SKIN: Wash with plenty of soap and water. Wash contaminated clothing before reuse. If skin irritation or rash occurs: Get medical attention.

Storage : Store in a dry place and/or in closed container. Store in accordance with all local, regional, national and international regulations.

Disposal : Dispose of contents and container in accordance with all local, regional, national and international regulations.

Hazards not otherwise classified : None known.

Section 3. Composition/information on ingredients

Substance/mixture : Mixture
Other means of identification : Automatic Transmission Fluid

CAS number/other identifiers

CAS number : Not applicable.

Section 3. Composition/information on ingredients

Ingredient name	%	CAS number
Distillates (petroleum), hydrotreated light naphthenic	1 - 5	Proprietary
Alkyl Amines	1 - 5	Proprietary

* = Various ** = Mixture *** = Proprietary

Any concentration shown as a range is to protect confidentiality or is due to process variation.

Occupational exposure limits, if available, are listed in Section 8.

Section 4. First aid measures

Description of necessary first aid measures

- Eye contact** : Immediately flush eyes with plenty of water, occasionally lifting the upper and lower eyelids. Check for and remove any contact lenses. Continue to rinse for at least 10 minutes. Get medical attention if irritation occurs.
- Inhalation** : Remove victim to fresh air and keep at rest in a position comfortable for breathing. If not breathing, if breathing is irregular or if respiratory arrest occurs, provide artificial respiration or oxygen by trained personnel. It may be dangerous to the person providing aid to give mouth-to-mouth resuscitation. Get medical attention if adverse health effects persist or are severe. If unconscious, place in recovery position and get medical attention immediately. Maintain an open airway. Loosen tight clothing such as a collar, tie, belt or waistband. In case of inhalation of decomposition products in a fire, symptoms may be delayed. The exposed person may need to be kept under medical surveillance for 48 hours.
- Skin contact** : Wash with plenty of soap and water. Remove contaminated clothing and shoes. Wash contaminated clothing thoroughly with water before removing it, or wear gloves. Continue to rinse for at least 10 minutes. Get medical attention. In the event of any complaints or symptoms, avoid further exposure. Wash clothing before reuse. Clean shoes thoroughly before reuse.
- Ingestion** : Wash out mouth with water. Remove dentures if any. Remove victim to fresh air and keep at rest in a position comfortable for breathing. Do not induce vomiting unless directed to do so by medical personnel. If vomiting occurs, the head should be kept low so that vomit does not enter the lungs. Get medical attention if adverse health effects persist or are severe. Never give anything by mouth to an unconscious person. If unconscious, place in recovery position and get medical attention immediately. Maintain an open airway. Loosen tight clothing such as a collar, tie, belt or waistband.

Most important symptoms/effects, acute

Potential acute health effects

- Eye contact** : No known significant effects or critical hazards.
- Inhalation** : Exposure to decomposition products may cause a health hazard. Serious effects may be delayed following exposure.
- Skin contact** : May cause an allergic skin reaction.
- Ingestion** : No known significant effects or critical hazards.

Over-exposure signs/symptoms

- Eye contact** : No specific data.
- Inhalation** : No specific data.
- Skin contact** : Adverse symptoms may include the following:
irritation
redness
- Ingestion** : No specific data.

Indication of immediate medical attention and special treatment needed, if necessary

- Notes to physician** : In case of inhalation of decomposition products in a fire, symptoms may be delayed. The exposed person may need to be kept under medical surveillance for 48 hours.
- Specific treatments** : Treat symptomatically and supportively.

Section 4. First aid measures

- Protection of first-aiders** : No action shall be taken involving any personal risk or without suitable training. It may be dangerous to the person providing aid to give mouth-to-mouth resuscitation. Wash contaminated clothing thoroughly with water before removing it, or wear gloves.

See toxicological information (Section 11)

Section 5. Fire-fighting measures

- Specific hazards arising from the chemical** : In a fire or if heated, a pressure increase will occur and the container may burst.

Extinguishing media

- Suitable extinguishing media** : Use an extinguishing agent suitable for the surrounding fire.

- Unsuitable extinguishing media** : None known.

- Hazardous thermal decomposition products** : Decomposition products may include the following materials:
carbon dioxide
carbon monoxide
nitrogen oxides
sulfur oxides

- Special protective actions for fire-fighters** : Promptly isolate the scene by removing all persons from the vicinity of the incident if there is a fire. No action shall be taken involving any personal risk or without suitable training.

- Special protective equipment for fire-fighters** : Fire-fighters should wear appropriate protective equipment and self-contained breathing apparatus (SCBA) with a full face-piece operated in positive pressure mode.

Section 6. Accidental release measures

Personal precautions, protective equipment and emergency procedures

- For non-emergency personnel** : No action shall be taken involving any personal risk or without suitable training. Evacuate surrounding areas. Keep unnecessary and unprotected personnel from entering. Do not touch or walk through spilled material. Avoid breathing vapor or mist. Provide adequate ventilation. Wear appropriate respirator when ventilation is inadequate. Put on appropriate personal protective equipment.

- For emergency responders** : If specialised clothing is required to deal with the spillage, take note of any information in Section 8 on suitable and unsuitable materials. See also the information in "For non-emergency personnel".

- Environmental precautions** : Avoid dispersal of spilled material and runoff and contact with soil, waterways, drains and sewers. Inform the relevant authorities if the product has caused environmental pollution (sewers, waterways, soil or air).

Methods and materials for containment and cleaning up

- Small spill** : Stop leak if without risk. Move containers from spill area. Dilute with water and mop up if water-soluble. Alternatively, or if water-insoluble, absorb with an inert dry material and place in an appropriate waste disposal container. Dispose of via a licensed waste disposal contractor.

- Large spill** : Stop leak if without risk. Move containers from spill area. Approach release from upwind. Prevent entry into sewers, water courses, basements or confined areas. Wash spillages into an effluent treatment plant or proceed as follows. Contain and collect spillage with non-combustible, absorbent material e.g. sand, earth, vermiculite or diatomaceous earth and place in container for disposal according to local regulations (see Section 13). Dispose of via a licensed waste disposal contractor. Contaminated absorbent material may pose the same hazard as the spilled product. Note: see Section 1 for emergency contact information and Section 13 for waste disposal.

Section 7. Handling and storage

Precautions for safe handling

- Protective measures** : Put on appropriate personal protective equipment (see Section 8). Persons with a history of skin sensitization problems should not be employed in any process in which this product is used. Do not get in eyes or on skin or clothing. Do not ingest. Avoid breathing vapor or mist. Keep in the original container or an approved alternative made from a compatible material, kept tightly closed when not in use. Empty containers retain product residue and can be hazardous. Do not reuse container.
- Advice on general occupational hygiene** : Eating, drinking and smoking should be prohibited in areas where this material is handled, stored and processed. Workers should wash hands and face before eating, drinking and smoking. Remove contaminated clothing and protective equipment before entering eating areas. See also Section 8 for additional information on hygiene measures.
- Conditions for safe storage, including any incompatibilities** : Store in accordance with local regulations. Store in original container protected from direct sunlight in a dry, cool and well-ventilated area, away from incompatible materials (see Section 10) and food and drink. Keep container tightly closed and sealed until ready for use. Containers that have been opened must be carefully resealed and kept upright to prevent leakage. Do not store in unlabeled containers. Use appropriate containment to avoid environmental contamination.
- Bulk Storage Conditions:** Maintain all storage tanks in accordance with applicable regulations. Use necessary controls to monitor tank inventories. Inspect all storage tanks on a periodic basis. Test tanks and associated piping for tightness. Maintain the automatic leak detection devices to assure proper working condition.

Section 8. Exposure controls/personal protection

Control parameters

Occupational exposure limits

Ingredient name	Exposure limits
Distillates (petroleum), hydrotreated light naphthenic	<p>ACGIH TLV (United States, 6/2013). TWA: 5 mg/m³ 8 hours. Form: Inhalable fraction</p> <p>ACGIH (United States). TWA: 5 mg/m³ 8 hours. STEL: 10 mg/m³ 15 minutes.</p> <p>OSHA (United States). TWA: 5 mg/m³ 8 hours.</p> <p>OSHA PEL (United States, 2/2013). TWA: 5 mg/m³ 8 hours.</p>

- Appropriate engineering controls** : Good general ventilation should be sufficient to control worker exposure to airborne contaminants.
- Environmental exposure controls** : Emissions from ventilation or work process equipment should be checked to ensure they comply with the requirements of environmental protection legislation. In some cases, vapor controls, filters or engineering modifications to the process equipment will be necessary to reduce emissions to acceptable levels.

Individual protection measures

- Hygiene measures** : Wash hands, forearms and face thoroughly after handling chemical products, before eating, smoking and using the lavatory and at the end of the working period. Appropriate techniques should be used to remove potentially contaminated clothing. Contaminated work clothing should not be allowed out of the workplace. Wash contaminated clothing before reusing. Ensure that eyewash stations and safety showers are close to the workstation location.

Section 8. Exposure controls/personal protection

- Eye/face protection** : Safety glasses equipped with side shields are recommended as minimum protection in industrial settings. If contact is possible, the following protection should be worn, unless the assessment indicates a higher degree of protection: Splash goggles. Safety eyewear complying with an approved standard should be used when a risk assessment indicates this is necessary to avoid exposure to liquid splashes, mists, gases or dusts. If inhalation hazards exist, a full-face respirator may be required instead.
- Skin protection**
- Hand protection** : Chemical-resistant gloves complying with an approved standard should be worn at all times when handling chemical products if a risk assessment indicates this is necessary. Considering the parameters specified by the glove manufacturer, check during use that the gloves are still retaining their protective properties. It should be noted that the time to breakthrough for any glove material may be different for different glove manufacturers.
- Body protection** : Personal protective equipment for the body should be selected based on the task being performed and the risks involved and should be approved by a specialist before handling this product.
- Other skin protection** : Appropriate footwear and any additional skin protection measures should be selected based on the task being performed and the risks involved and should be approved by a specialist before handling this product.
- Respiratory protection** : Use a properly fitted, air-purifying or supplied-air respirator complying with an approved standard if a risk assessment indicates this is necessary. Respirator selection must be based on known or anticipated exposure levels, the hazards of the product and the safe working limits of the selected respirator.

Section 9. Physical and chemical properties

- Physical state** : Liquid.
- Color** : Red.
- Odor** : Hydrocarbon. [Slight]
- pH** : Not available.
- Boiling point** : Not available.
- Flash point** : Open cup: 214°C (417.2°F) [Cleveland.]
- Lower and upper explosive (flammable) limits** : Not available.
- Vapor pressure** : Not available.
- Vapor density** : Not available.
- Relative density** : Not available.
- Density lbs/gal** : 7.18 lbs/gal
- Gravity, °API** : 32.6 @ 60 F
- Viscosity** : Kinematic (40°C (104°F)): 0.37 cm²/s (37 cSt)
- Viscosity SUS** : 180 SUS @100 F

Section 10. Stability and reactivity

- Reactivity** : Not expected to be Explosive, Self-Reactive, Self-Heating, or an Organic Peroxide under US GHS Definition(s).
- Chemical stability** : The product is stable.
- Possibility of hazardous reactions** : Under normal conditions of storage and use, hazardous reactions will not occur.
- Conditions to avoid** : No specific data.
- Incompatible materials** : No specific data.

Section 10. Stability and reactivity

Hazardous decomposition products : Under normal conditions of storage and use, hazardous decomposition products should not be produced.

Section 11. Toxicological information

Information on toxicological effects

Acute toxicity

Product/ingredient name	Result	Species	Dose	Exposure
Distillates (petroleum), hydrotreated light naphthenic	LD50 Oral	Rat	>5000 mg/kg	-

Conclusion/Summary : **Distillates (petroleum), hydrotreated heavy paraffinic**: Mineral oil mists derived from highly refined oils are reported to have low acute and sub-acute toxicities in animals. Effects from single and short-term repeated exposures to high concentrations of mineral oil mists well above applicable workplace exposure levels include lung inflammatory reaction, lipid granuloma formation and lipid pneumonia. In acute and sub-acute studies involving exposures to lower concentrations of mineral oil mists at or near current work place exposure levels produced no significant toxicological effects.

Distillates (petroleum), solvent-dewaxed heavy paraffinic: Mineral oil mists derived from highly refined oils are reported to have low acute and sub-acute toxicities in animals. Effects from single and short-term repeated exposures to high concentrations of mineral oil mists well above applicable workplace exposure levels include lung inflammatory reaction, lipid granuloma formation and lipid pneumonia. In acute and sub-acute studies involving exposures to lower concentrations of mineral oil mists at or near current work place exposure levels produced no significant toxicological effects.

Distillates (petroleum), hydrotreated light naphthenic: INHALATION (LC50) Acute: 9.6 mg/L (Female Rat).
 INHALATION (LC50) Acute: 10.5 mg/L (Male Rat).
 DRAIZE EYE Acute: Non-irritating (Rabbit).
 DRAIZE DERMAL Acute: Mild skin irritant (Rabbit).
 BUEHLER DERMAL Acute: Non-sensitizing (Guinea Pig).
 28-Day DERMAL Sub-Chronic: Mild to moderate skin irritant (Rabbit & Rat).

A life-time dermal application of severely hydrotreated light naphthenic oils produced skin masses on mice which correlated with the skin irritation response levels of the test animals. Additional studies attribute these masses to a weak promotional activity. These studies indicate that light naphthenic oils are not mutagenic, tumor initiators nor complete chemical carcinogens. These materials have not been determined to be carcinogenic by IARC, NTP or OSHA.

Irritation/Corrosion

Product/ingredient name	Result	Species	Score	Exposure	Observation
Distillates (petroleum), hydrotreated light naphthenic Alkyl Amines	Skin - Moderate irritant	Rabbit	-	24 hours 0.5 Milliliters	-
	Skin - Moderate irritant	Mammal - species unspecified	-	-	-
	Eyes - Moderate irritant	Mammal - species unspecified	-	-	-

Skin : No additional information.

Eyes : No additional information.

Respiratory : No additional information.

Sensitization

Product/ingredient name	Route of exposure	Species	Result
Alkyl Amines	skin	Mammal - species unspecified	Sensitizing

Skin : No additional information.

Section 11. Toxicological information

Respiratory : No additional information.

Mutagenicity

Conclusion/Summary : No additional information.

Carcinogenicity

Conclusion/Summary : No additional information.

Reproductive toxicity

Conclusion/Summary : No additional information.

Teratogenicity

Conclusion/Summary : No additional information.

Specific target organ toxicity (single exposure)

Not available.

Specific target organ toxicity (repeated exposure)

Not available.

Aspiration hazard

Name	Result
Distillates (petroleum), hydrotreated light naphthenic	ASPIRATION HAZARD - Category 1

Information on the likely routes of exposure : Not available.

Potential acute health effects

Eye contact : No known significant effects or critical hazards.

Inhalation : Exposure to decomposition products may cause a health hazard. Serious effects may be delayed following exposure.

Skin contact : May cause an allergic skin reaction.

Ingestion : No known significant effects or critical hazards.

Symptoms related to the physical, chemical and toxicological characteristics

Eye contact : No specific data.

Inhalation : No specific data.

Skin contact : Adverse symptoms may include the following:
irritation
redness

Ingestion : No specific data.

Potential chronic health effects

General : Once sensitized, a severe allergic reaction may occur when subsequently exposed to very low levels.

Carcinogenicity : No known significant effects or critical hazards.

Mutagenicity : No known significant effects or critical hazards.

Teratogenicity : No known significant effects or critical hazards.

Developmental effects : No known significant effects or critical hazards.

Fertility effects : No known significant effects or critical hazards.

Section 12. Ecological information

Toxicity

Conclusion/Summary : Not available.

Persistence and degradability

Not available.

Conclusion/Summary : Not available.

Bioaccumulative potential

Not available.

Mobility in soil

Soil/water partition coefficient (K_{oc}) : Not available.

Other adverse effects : No known significant effects or critical hazards.

Section 13. Disposal considerations

Disposal methods : The generation of waste should be avoided or minimized wherever possible. Disposal of this product, solutions and any by-products should at all times comply with the requirements of environmental protection and waste disposal legislation and any regional local authority requirements. Dispose of surplus and non-recyclable products via a licensed waste disposal contractor. Waste should not be disposed of untreated to the sewer unless fully compliant with the requirements of all authorities with jurisdiction. Waste packaging should be recycled. This material and its container must be disposed of in a safe way. Care should be taken when handling emptied containers that have not been cleaned or rinsed out. Empty containers or liners may retain some product residues. Avoid dispersal of spilled material and runoff and contact with soil, waterways, drains and sewers.

Section 14. Transport information

	DOT Classification	IMDG	IATA
UN number	Not regulated.	Not regulated.	Not regulated.
UN proper shipping name	-	-	-
Transport hazard class(es)	-	-	-
Packing group	-	-	-
Environmental hazards	No.	No.	No.
Additional information	-	-	-

Special precautions for user : **Transport within user's premises:** always transport in closed containers that are upright and secure. Ensure that persons transporting the product know what to do in the event of an accident or spillage.

Section 14. Transport information

Transport in bulk according to Annex II of MARPOL 73/78 and the IBC Code : Not available.

Section 15. Regulatory information

U.S. Federal regulations : **United States inventory (TSCA 8b)**: All components are listed or exempted.
This material is classified as an oil under Section 311 of the Clean Water Act (CWA) and the Oil Pollution Act of 1990 (OPA). Discharges or spills which produce a visible sheen on waters of the United States, their adjoining shorelines, or into conduits leading to surface waters must be reported to the EPA's National Response Center at (800) 424-8802.

SARA 302/304

Composition/information on ingredients

SARA 304 RQ : Not applicable.

SARA 311/312

Classification : Immediate (acute) health hazard

Composition/information on ingredients

Name	%	Fire hazard	Sudden release of pressure	Reactive	Immediate (acute) health hazard	Delayed (chronic) health hazard
Alkyl Amines	<2	No.	No.	No.	Yes.	No.

State regulations

Massachusetts : None of the components are listed.
New York : None of the components are listed.
New Jersey : The following components are listed: Amines, polyethylenepoly-, reaction products with succinic anhydride polyisobutenyl derivs., borated
Pennsylvania : The following components are listed: Amines, polyethylenepoly-, reaction products with succinic anhydride polyisobutenyl derivs., borated

International regulations

International lists : **Australia inventory (AICS)**: At least one component is not listed.
China inventory (IECSC): Not determined.
Japan inventory: At least one component is not listed.
Korea inventory: All components are listed or exempted.
Malaysia Inventory (EHS Register): Not determined.
New Zealand Inventory of Chemicals (NZIoC): At least one component is not listed.
Philippines inventory (PICCS): At least one component is not listed.
Taiwan inventory (CSNN): Not determined.

Canada inventory : All components are listed or exempted.
EU Inventory : At least one component is not listed in EINECS but all such components are listed in ELINCS.
Please contact your supplier for information on the inventory status of this material.
WHMIS (Canada) : Class D-2B: Material causing other toxic effects (Toxic).

Section 16. Other information

National Fire Protection Association (U.S.A.)



Section 16. Other information

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Copyright ©2001, National Fire Protection Association, Quincy, MA 02269. This warning system is intended to be interpreted and applied only by properly trained individuals to identify fire, health and reactivity hazards of chemicals. The user is referred to certain limited number of chemicals with recommended classifications in NFPA 49 and NFPA 325, which would be used as a guideline only. Whether the chemicals are classified by NFPA or not, anyone using the 704 systems to classify chemicals does so at their own risk.

History

Date of issue/Date of revision : 9/4/2014.

Key to abbreviations

: ATE = Acute Toxicity Estimate
 BCF = Bioconcentration Factor
 GHS = Globally Harmonized System of Classification and Labelling of Chemicals
 IATA = International Air Transport Association
 IBC = Intermediate Bulk Container
 IMDG = International Maritime Dangerous Goods
 LogPow = logarithm of the octanol/water partition coefficient
 MARPOL 73/78 = International Convention for the Prevention of Pollution From Ships, 1973 as modified by the Protocol of 1978. ("Marpol" = marine pollution)
 UN = United Nations

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Safety Data Sheet

Section 1 – Chemical Products and Company Identification

Product Names: BioSolve® Pinkwater®

Product Uses: Remediation of hydrocarbon (oil, fuel, petrochemical) contamination, including: impacted soils, suppression of VOCs, surface cleaning of equipment and protective clothing.

Manufacturer: The BioSolve Company
329 Massachusetts Avenue
Lexington, MA 02420 USA

Contact Information: +1 (800) 225-3909 US, Canada, Mexico and Puerto Rico
+1 (781) 482-7900 All other locations

Section 2 – Hazards Identification

Health Hazards: Eye Contact: Causes transient eye irritation
Skin Contact: May cause mild, transient irritation
Ingestion: May be harmful if swallowed; can cause gastrointestinal irritation, nausea, vomiting and/or diarrhea

Hazard Mitigation: Wear protective gloves and eye/face protection
Avoid prolonged breathing of spray

Environmental Hazards: Moderately toxic to aquatic life. Avoid discharge to storm drains and waterways

GHS Classification: Toxic to aquatic life, Acute Category 2

Section 3 – Composition/Information on Ingredients

Proprietary formulation with nonionic surfactants (32% active ingredients in water)

BioSolve products contain no caustic, d-limonene or hydrocarbon solvents.

BioSolve products do not contain any hazardous ingredients as defined by CERCLA, Massachusetts Right to Know Law and California Prop 65. All ingredients are TSCA compliant.

Safety Data Sheet

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Section 4 – First Aid Measures

- Eyes:** Immediately flush eyes with water for at least 15 minutes. Hold eyelids apart while flushing to rinse entire surface of eye and lids with water. Seek medical attention for lasting irritation.
- Skin:** Rinse exposed area and wash with mild soap and water for several minutes. Seek medical attention if irritation develops.
- Ingestion:** Seek medical attention in the event of serious or persistent abdominal discomfort, nausea or diarrhea.
- Inhalation:** Inhalation of concentrated vapors resulting from spraying or heating in confined or poorly ventilated areas may cause irritation of nose and throat. Remove person to fresh air and seek medical attention if irritation persists.

Section 5 – Fire Fighting Measures

Suitable Extinguishing Media: None required; BioSolve products are non-flammable

Special Protective Equipment for Firefighters: None necessary

Unusual Fire or Explosive Hazards: None

Section 6 – Accidental Release Measures

In case of accidental release, breakage or leakage: Eliminate or contain source with inert material, such as sand, earth, absorbent pads, etc. Transfer liquid to suitable containers for recovery, re-use or disposal. Wipe up or mop up using water. Hard surfaces (e.g., floors, driveways) may be slippery; use care to avoid falling.

Rinse area with water. Avoid flow of run-off to surface waters. Always check with local regulations before discharging effluent to storm drains or sewers.

Section 7 – Handling and Storage

- Handling:** Minimize periods of exposure to extreme temperatures. Keep from freezing. If frozen, separation may occur; thaw and stir thoroughly prior to use. Freezing will not affect product performance.
- Precautions:** Chemical resistant gloves and eye protection are recommended while mixing and using.
- Incompatibilities:** Avoid contact with strong acids or strong oxidants.
- Storage:** Recommended storage temperature: 35° – 120° F (1° – 48° C).
- Shelf Life:** If unopened, more than 10 years.
-

Safety Data Sheet

Section 8 – Exposure Controls / Personal Protection

- Eyes Protection:** Safety glasses; chemical goggles or face shield recommended when spraying to protect against backsplash and drift.
- Skin Protection:** Rubber or latex gloves recommended.
- Respiratory Protection:** None required, except if application results in significant misting of product. If so, use of an approved air purifying respirator is recommended.
- Engineering Controls:** For indoor use or for use in a confined space, normal ventilation is generally satisfactory.

Section 9 – Physical and Chemical Properties

- Appearance:** Deep red
- Odor:** Mild, pleasant sassafras fragrance
- Concentration:** ~32% active ingredients as sold

Boiling Point	265°F/129°C	Vapor Pressure mm/Hg	Not available
Melting/Freezing Point	28°F/-2°C	Vapor Density (Air=1)	Not available
Flash Point	Non-flammable	Surface Tension*	29 Dyne/cm @25°C
Flammability Limits	Not applicable	Viscosity (concentrate)	490 centipoise
Reactivity with Water	None	Viscosity (6% solution)	1.5 centipoise
Evaporation Rate	Not determined	Solubility in Water	100%
Specific Gravity	1.01 gms/cc	VOC Content	Not determined
	8.43 lbs/U.S. gal	pH	9.1 +/- 0.3

*6% solution

Section 10 – Stability and Reactivity

Chemical Stability: Stable; will not decompose if used according to manufacturer's directions.

Conditions to Avoid: Prolonged exposure to heat may cause product degradation. Freezing should also be avoided as discussed in Section 7.

Incompatible Materials: Normally unreactive. Avoid strong alkalis, strong acids, strong oxidizing agents and materials with reactive hydroxyl compounds. These materials could damage the product and reduce its effectiveness during application.

Hazardous Decomposition Products: None are known.

Hazardous Polymerization: Will not occur.

Safety Data Sheet

Section 11 – Toxicological Information

Overview: No adverse acute or chronic health effects expected if product used in accordance with manufacturer’s directions.

Carcinogenicity: No ingredient has been shown to cause cancer in laboratory animals.

Specific Organ Toxicity: None are known.

Section 12 – Ecological Considerations

Persistence and Degradability: The total of the organic components contained in this product is not classified as readily biodegradable (OECD-301 A-F). However, this product is inherently biodegradable with 60% degradation in 28 days (OECD-301B) and estimated >95% degradation in 120 days.

Bioaccumulation Potential: The bioaccumulation factor in fish has been estimated to be low, ranging from 87 to 344.

Mobility: No data available

Aquatic Toxicity:

LC₅₀ of Concentrate (As shipped)		
<i>Mysidopsis bahia</i>	48-hours	3.6 mg/L
<i>Menidia beryllina</i>	96-hours	6.4 mg/L
LC₅₀ of 3% Dilute Solution (As Used)		
<i>Mysidopsis bahia</i>	48-hours	185 mg/L
<i>Menidia beryllina</i>	96-hours	247 mg/L
LC₅₀ of 6% Dilute Solution (As Used)		
<i>Daphnia magna</i>	48-hours	287 mg/L
<i>Pimephales promelas</i>	96-hours	124 mg/L
<i>Onchorhynchus mykiss</i>	96-hours	177 mg/L

Section 13 - Disposal

DO NOT DUMP INTO STORM DRAINS OR INTO ANY BODY OF WATER. All disposal practices must be in compliance with all Federal, State/Provincial and local laws and regulations. As manufactured, BioSolve products do not meet the definition of a hazardous waste. Small quantities of unused and uncontaminated product may be discharged to a qualified wastewater treatment facility. Always obtain approval from local and Federal regulatory agencies prior to discarding this product into public sewers.

As your supplier, we have no control over your handling and use of this product. However, the intended use of this product as a remediation and/or surface washing agent may produce wastewater containing emulsified or dispersed hydrocarbons that may be classified as a hazardous waste and should be treated and disposed of accordingly.

Safety Data Sheet

Section 14 – Transportation Information

USDOT Freight Class 55 (Liquid Cleaning Compound, Non-Hazardous)
This product is not regulated by USDOT or Canadian TDG when shipped domestically by land.

North American Industry Classification System (NAICS) # 325613

U.S. ITC, Harmonized Tariff Schedule B Classification: 3402.90.30.00

Section 15 – Regulatory Information

This product is considered non-hazardous as defined by CERCLA, according to OSHA, Massachusetts Right to Know Law and California Prop 65.

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: All substances contained in this product are listed on the Canadian Domestic Substances List (DSL) or not required to be listed.

Canadian CPR Compliance: This product has been classified in accordance with the hazard criteria of the Canadian Controlled Products Regulations (CPR) and the SDS contains all the information required by the CPR

WHMIS Classification: D2B Eye or skin irritant

Regulatory requirements are subject to change and may differ from one location to another; it is the buyer's responsibility to ensure that its activities comply with Federal, state or provincial and local laws.

Safety Data Sheet

Section 16 – Other Information

HMIS Rating

Health Hazard:	1 (Eye/Skin Irritant)
Fire Hazard:	0
Reactivity:	0
Personal Protective Equipment:	Rubber gloves, safety glasses or face shield

NFPA Rating

Health:	1 (Eye/Skin Irritant)
Flammability:	0
Reactivity:	0
Other Hazard:	None

BioSolve Pinkwater is on the US Environmental Protection Agency's NCP Product Schedule. This listing does NOT mean that EPA approves, recommends, licenses, certifies or authorizes the use of BioSolve Pinkwater on an oil discharge. This listing means only that data have been submitted to EPA as required by Subpart J of the National Contingency Plan, 40 CFR Section 300.915.

SDS Effective Date: May 12, 2016

The information contained herein is accurate to the best of our knowledge. The BioSolve Company makes no warranty of any kind, express or implied, concerning the safe use of this material in your process or application or in combination with other substances.

For more information, visit: www.biosolve.com



BlueDEF Diesel Exhaust Fluid

Safety Data Sheet

according to Federal Register / Vol. 77, No. 58 / Monday, March 26, 2012 / Rules and Regulations

SECTION 1: Identification of the substance/mixture and of the company/undertaking

1.1. Product identifier

Product form : Mixture
Product name : BlueDEF Diesel Exhaust Fluid

1.2. Relevant identified uses of the substance or mixture and uses advised against

Use of the substance/mixture : Solution for NOx reduction in SCR systems

1.3. Details of the supplier of the safety data sheet

Old World Industries, LLC
4065 Commercial Ave.
Northbrook, IL 60062 - USA
T (847) 559-2000
www.oldworldind.com

1.4. Emergency telephone number

Emergency number : (800) 424-9300; (703) 527 3887 (International)
Chemtrec

SECTION 2: Hazards identification

2.1. Classification of the substance or mixture

GHS-US classification

Not classified

2.2. Label elements

GHS-US labelling

Signal word (GHS-US) : None
Hazard statements (GHS-US) : None
Precautionary statements (GHS-US) : None

2.3. Other hazards

No additional information available

2.4. Unknown acute toxicity (GHS US)

No data available

SECTION 3: Composition/information on ingredients

3.1. Substance

Not applicable

3.2. Mixture

Name	Product identifier	% by wt	GHS-US classification
water	(CAS No) 7732-18-5	67.5	Not classified
urea	(CAS No) 57-13-6	32.5	Not classified

SECTION 4: First aid measures

4.1. Description of first aid measures

First-aid measures general : Never give anything by mouth to an unconscious person. If you feel unwell, seek medical advice (show the label where possible).
First-aid measures after inhalation : Allow victim to breathe fresh air. Allow the victim to rest.
First-aid measures after skin contact : Remove affected clothing and wash all exposed skin area with mild soap and water, followed by warm water rinse.
First-aid measures after eye contact : Rinse immediately with plenty of water. Obtain medical attention if pain, blinking or redness persist.
First-aid measures after ingestion : Rinse mouth. Do NOT induce vomiting. Obtain emergency medical attention.

4.2. Most important symptoms and effects, both acute and delayed

Symptoms/injuries : Not expected to present a significant hazard under anticipated conditions of normal use.

BlueDEF Diesel Exhaust Fluid

Safety Data Sheet

according to Federal Register / Vol. 77, No. 58 / Monday, March 26, 2012 / Rules and Regulations

4.3. Indication of any immediate medical attention and special treatment needed

No additional information available

SECTION 5: Firefighting measures

5.1. Extinguishing media

Suitable extinguishing media : Foam. Dry powder. Carbon dioxide. Sand.
Unsuitable extinguishing media : Do not use a heavy water stream.

5.2. Special hazards arising from the substance or mixture

No additional information available

5.3. Advice for firefighters

Firefighting instructions : Use water spray or fog for cooling exposed containers. Exercise caution when fighting any chemical fire. Prevent fire-fighting water from entering environment.

Protection during firefighting : Do not enter fire area without proper protective equipment, including respiratory protection.

SECTION 6: Accidental release measures

6.1. Personal precautions, protective equipment and emergency procedures

General measures : The EPA has no established reportable quantity for spills for this material, secondary containment is not specified.

6.1.1. For non-emergency personnel

Emergency procedures : Evacuate unnecessary personnel.

6.1.2. For emergency responders

Protective equipment : Equip cleanup crew with proper protection.

Emergency procedures : Ventilate area.

6.2. Environmental precautions

Prevent entry to sewers and public waters. Notify authorities if liquid enters sewers or public waters.

6.3. Methods and material for containment and cleaning up

Methods for cleaning up : Soak up spills with inert solids, such as clay or diatomaceous earth as soon as possible. Collect spillage. Store away from other materials. For minor spillages wash down with excess of water. Mop up small spills.

6.4. Reference to other sections

See Heading 8. Exposure controls and personal protection.

SECTION 7: Handling and storage

7.1. Precautions for safe handling

Precautions for safe handling : Wash hands and other exposed areas with mild soap and water before eating, drinking or smoking and when leaving work. Provide good ventilation in process area to prevent formation of vapor.

7.2. Conditions for safe storage, including any incompatibilities

Storage conditions : Keep only in the original container in a cool, well ventilated place away from : Direct sunlight, Heat sources. Keep container closed when not in use.

Incompatible products : Strong bases. Strong acids.

Incompatible materials : Sources of ignition. Direct sunlight.

7.3. Specific end use(s)

No additional information available

SECTION 8: Exposure controls/personal protection

8.1. Control parameters

No additional information available

8.2. Exposure controls

Personal protective equipment : Avoid all unnecessary exposure. Gloves. Protective goggles.



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Hand protection	: Wear protective gloves.
Eye protection	: Chemical goggles or safety glasses.
Respiratory protection	: Wear appropriate mask.
Other information	: Do not eat, drink or smoke during use.

SECTION 9: Physical and chemical properties

9.1. Information on basic physical and chemical properties

Physical state	: Liquid
Color	: Colorless
Odor	: characteristic ammonia odor
Odor threshold	: No data available
pH	: 9 - 10
Relative evaporation rate (butylacetate=1)	: < 1
Freezing point	: -11 °C (12 °F)
Boiling point	: > 100 °C (212 °F)
Flash point	: No data available
Auto-ignition temperature	: No data available
Decomposition temperature	: No data available
Flammability (solid, gas)	: No data available
Vapor pressure	: Not Applicable
Relative vapor density at 20 °C	: 0.6 H ₂ O, >1
Specific Gravity	: 1.09
Solubility	: Soluble in water. Water: 100 %
Log Pow	: No data available
Log Kow	: No data available
Viscosity, kinematic	: No data available
Viscosity, dynamic	: No data available
Explosive properties	: No data available
Oxidizing properties	: No data available
Explosive limits	: No data available

9.2. Other information

No additional information available

SECTION 10: Stability and reactivity

10.1. Reactivity

No additional information available

10.2. Chemical stability

Stable under normal conditions.

10.3. Possibility of hazardous reactions

Not established.

10.4. Conditions to avoid

No additional information available

10.5. Incompatible materials

Strong acids. Strong bases. oxidizing agents (peroxides, chromates, dichromates).

10.6. Hazardous decomposition products

Carbon monoxide. Carbon dioxide. Fume.

SECTION 11: Toxicological information

11.1. Information on toxicological effects

Acute toxicity	: Not classified
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urea (57-13-6)	
LD50 oral rat	8,471.00 mg/kg (Rat; OECD 401: Acute Oral Toxicity; Literature study; 14300 mg/kg bodyweight; Rat; Experimental value)
LD50 dermal rat	> 3,200.00 mg/kg (Rat; Literature study)
LD50 dermal rabbit	> 21,000.00 mg/kg (Rabbit; Literature study)
ATE US (oral)	8,471.00 mg/kg bodyweight

Skin corrosion/irritation	: Not classified pH: 9 - 10
Serious eye damage/irritation	: Not classified pH: 9 - 10
Respiratory or skin sensitisation	: Not classified
Germ cell mutagenicity	: Not classified
Carcinogenicity	: Not classified
Reproductive toxicity	: Not classified
Specific target organ toxicity (single exposure)	: Not classified
Specific target organ toxicity (repeated exposure)	: Not classified
Aspiration hazard	: Not classified
Potential adverse human health effects and symptoms	: Based on available data, the classification criteria are not met.

SECTION 12: Ecological information

12.1. Toxicity

urea (57-13-6)	
LC50 fish 1	> 6,810.00 mg/l (96 h; Leuciscus idus; Nominal concentration)
EC50 Daphnia 1	> 10,000.00 mg/l (48 h; Daphnia magna; Nominal concentration)
LC50 fish 2	17,500.00 mg/l (96 h; Poecilia reticulata)
EC50 Daphnia 2	> 10,000.00 mg/l (24 h; Daphnia magna)
TLM fish 1	17500 ppm (96 h; Poecilia reticulata)
Threshold limit other aquatic organisms 1	120000 mg/l (16 h; Bacteria; Toxicity test)
Threshold limit other aquatic organisms 2	> 10000 mg/l (Pseudomonas putida)
Threshold limit algae 1	> 10000 mg/l (168 h; Scenedesmus quadricauda; Growth rate)
Threshold limit algae 2	47 mg/l (192 h; Microcystis aeruginosa; Growth rate)

12.2. Persistence and degradability

urea (57-13-6)	
Persistence and degradability	Inherently biodegradable. Hydrolysis in water. Highly mobile in soil.
ThOD	0.27 g O ₂ /g substance

12.3. Bioaccumulative potential

urea (57-13-6)	
BCF fish 1	1.00 (72 h; Brachydanio rerio; Fresh water)
BCF other aquatic organisms 1	11,700.00 (Chlorella sp.)
Log Pow	< -1.73 (Experimental value; EU Method A.8: Partition Coefficient)
Bioaccumulative potential	Bioaccumulation: not applicable.

12.4. Mobility in soil

urea (57-13-6)	
Mobility in soil	Not applicable

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12.5. Other adverse effects

- Effect on ozone layer : No additional information available
- Effect on global warming : No known ecological damage caused by this product.
No additional information available
- Other information : Avoid release to the environment.

SECTION 13: Disposal considerations

13.1. Waste treatment methods

- Waste disposal recommendations : As a non-hazardous liquid waste, it should be solidified with stabilizing agents such as sand, fly ash, or clay absorbent, so that no free liquid remains before disposal to an industrial waste landfill.
- Ecology - waste materials : Avoid release to the environment.

SECTION 14: Transport information

- In accordance with DOT
- Not a dangerous good in sense of transport regulations
- Other information : Not regulated by DOT.

ADR

- UN-No. (ADR) : Not regulated by ADR

Transport by sea

- UN-No. (IMDG) : Not regulated by IMDG

Air transport

- UN-No. (IATA) : Not regulated by IATA

SECTION 15: Regulatory information

15.1. US Federal regulations

BlueDEF Diesel Exhaust Fluid	
EPA TSCA Regulatory Flag	Toxic Substances Control Act (TSCA): The intentional ingredients of this product are listed
RQ (Reportable quantity, section 304 of EPA's List of Lists)	None. This material is not classified as hazardous under U.S. EPA regulations.
SARA Section 302 Threshold Planning Quantity (TPQ)	No extremely hazardous substances are in this product.
SARA Section 311/312 Hazard Classes	Urea. No hazards resulting from the material as supplied.
urea (57-13-6)	
EPA TSCA Regulatory Flag	Toxic Substances Control Act (TSCA): The intentional ingredients of this product are listed
SARA Section 311/312 Hazard Classes	Immediate (acute) health hazard

15.2. International regulations

CANADA

WHMIS Classification

Uncontrolled product
according to WHMIS
classification criteria

urea (57-13-6)	
WHMIS Classification	Uncontrolled product according to WHMIS classification criteria

EU-Regulations

No additional information available

Classification according to Regulation (EC) No. 1272/2008 [CLP]

No additional information available

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Classification according to Directive 67/548/EEC [DSD] or 1999/45/EC [DPD]

Not classified

National regulations

BlueDEF Diesel Exhaust Fluid
DSL (Canada): The intentional ingredients of this product are listed
urea (57-13-6)
DSL (Canada): The intentional ingredients of this product are listed EINECS (Europe): The intentional ingredients of this product are listed

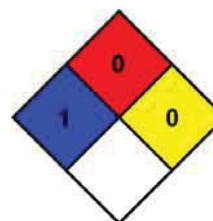
15.3. US State regulations

SECTION 16: Other information

NFPA health hazard : 1 - Exposure could cause irritation but only minor residual injury even if no treatment is given.

NFPA fire hazard : 0 - Materials that will not burn.

NFPA reactivity : 0 - Normally stable, even under fire exposure conditions, and are not reactive with water.



HMS III Rating

Health : 1 Slight Hazard - Irritation or minor reversible injury possible

Flammability : 0 Minimal Hazard - Materials that will not burn

Physical : 0 Minimal Hazard - Materials that are normally stable, even under fire conditions, and will NOT react with water, polymerize, decompose, condense, or self-react. Non-Explosives.

Personal Protection B - Safety glasses, Gloves

SDS GHS US (GHS HazCom 2012) OWI

Old World Industries, LLC makes no warranty, representation or guarantee as to the accuracy, sufficiency or completeness of the material set forth herein. It is the user's responsibility to determine the safety, toxicity and suitability of his own use, handling and disposal of this product. Since actual use by others is beyond our control, no warranty, expressed or implied, is made by Old World Industries, LLC as to the effects of such use, the results to be obtained or the safety and toxicity of this product, nor does Old World Industries, LLC assume liability arising out of the use by others of this product referred to herein. The data in this SDS relates only to the specific material designated herein and does not relate to use in combination with any other material or in any process.

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1. IDENTIFICATION OF THE SUBSTANCE/MIXTURE AND OF THE COMPANY/UNDERTAKING

Ashland	Regulatory Information Number	1-800-325-3751
P.O. Box 2219	Telephone	614-790-3333
Columbus, OH 43216	Emergency telephone number	1-800-ASHLAND (1-800-274-5263)
Product name	Valvoline Professional Series™ DOT 3 & 4 BRAKE FLUID	
Product code	502878	

2. HAZARDS IDENTIFICATION

Emergency Overview

Appearance: liquid, yellow

WARNING! MAY AFFECT THE CENTRAL NERVOUS SYSTEM CAUSING DIZZINESS, HEADACHE OR NAUSEA. MAY BE HARMFUL IF SWALLOWED. MAY CAUSE EYE IRRITATION. MAY CAUSE SKIN AND RESPIRATORY TRACT IRRITATION. PROLONGED OR REPEATED CONTACT MAY DRY SKIN AND CAUSE DERMATITIS AND BURNS.

Potential Health Effects

Exposure routes

Inhalation, Skin absorption, Skin contact, Eye Contact, Ingestion

Eye contact

Can cause eye irritation. Symptoms include stinging, tearing, redness, and swelling of eyes.

Skin contact

Can cause skin irritation. Symptoms may include redness and burning of skin, and other skin damage. Skin absorption of this material (or a component) may be increased through injured skin. Although rare, skin contact with ethylene glycol may cause allergic skin reaction (delayed skin rash which may be followed by blistering, scaling and other skin effects).

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Ingestion

Swallowing small amounts of this material during normal handling is not likely to cause harmful effects. Swallowing large amounts may be harmful. Liver, kidney and brain damage in humans has resulted from swallowing lethal or near-lethal amounts of ethylene glycol. Ingestion of medications contaminated with diethylene glycol has caused kidney failure and death in humans. Products containing diethylene glycol should be considered toxic by ingestion.

Inhalation

It is possible to breathe this material under certain conditions of handling and use (for example, during heating, spraying, or stirring). Breathing small amounts of this material during normal handling is not likely to cause harmful effects. Breathing large amounts may be harmful. Symptoms are not expected at air concentrations below the recommended exposure limits, if applicable (see Section 8.).

Aggravated Medical Condition

Preexisting disorders of the following organs (or organ systems) may be aggravated by exposure to this material: lung (for example, asthma-like conditions), skin, Liver, kidney, Central nervous system, Upper respiratory tract

Symptoms

Signs and symptoms of exposure to this material through breathing, swallowing, and/or passage of the material through the skin may include: stomach or intestinal upset (nausea, vomiting, diarrhea), irritation (nose, throat, airways), central nervous system depression (dizziness, drowsiness, weakness, fatigue, nausea, headache, unconsciousness), pain in the abdomen and lower back, acute kidney failure (sudden slowing or stopping of urine production), lung edema (fluid buildup in the lung tissue)

Target Organs

Overexposure to this material (or its components) has been suggested as a cause of the following effects in laboratory animals: male reproductive effects, kidney damage, liver damage, central nervous system damage, Overexposure to this material (or its components) has been suggested as a cause of the following effects in humans: liver damage, kidney damage

Carcinogenicity

This material is not listed as a carcinogen by the International Agency for Research on Cancer (IARC), the National Toxicology Program (NTP), or the Occupational Safety and Health Administration (OSHA).

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Reproductive hazard

This material (or a component) has been shown to cause harm to the fetus in laboratory animal studies. Harm to the fetus occurs only at exposure levels that harm the pregnant animal. The relevance of these findings to humans is uncertain.

3. COMPOSITION/INFORMATION ON INGREDIENTS

Hazardous Components	CAS-No. / Trade Secret No.	Concentration
POLYETHYLENE GLYCOL MONOMETHYL ETHER	9004-74-4	>=20-<30%
TRIETHYLENE GLYCOL MONOMETHYL ETHER	112-35-6	>=20-<30%
TRIETHYLENE GLYCOL MONOBUTYL ETHER	143-22-6	>=15-<20%
TETRAETHYLENE GLYCOL	112-60-7	>=5-<10%
DIETHYLENE GLYCOL	111-46-6	>=1.5-<5%
TRIETHYLENE GLYCOL	112-27-6	>=1.5-<5%
SODIUM HYDROXIDE	1310-73-2	>=1-<1.5%
DIISOPROPANOLAMINE	110-97-4	>=1-<1.5%

4. FIRST AID MEASURES

Eyes

If symptoms develop, immediately move individual away from exposure and into fresh air. Flush eyes gently with water for at least 15 minutes while holding eyelids apart; seek immediate medical attention.

Skin

Remove contaminated clothing. Flush exposed area with large amounts of water. If skin is damaged, seek immediate medical attention. If skin is not damaged and symptoms persist, seek medical attention. Launder clothing before reuse.

Ingestion

Seek medical attention. If individual is drowsy or unconscious, do not give anything by mouth; place individual on the left side with the head down. Contact a physician, medical facility, or poison

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control center for advice about whether to induce vomiting. If possible, do not leave individual unattended.

Inhalation

If symptoms develop, move individual away from exposure and into fresh air. If symptoms persist, seek medical attention. If breathing is difficult, administer oxygen. Keep person warm and quiet; seek immediate medical attention.

Notes to physician

Hazards: Ingestion or other significant exposure to this material (or a component) may cause metabolic acidosis.

Treatment: Fomepizole (4-methylpyrazole) is an effective antagonist of alcohol dehydrogenase, and as such, may be used as an antidote in the treatment of ethylene glycol, diethylene glycol and methanol poisoning.

5. FIREFIGHTING MEASURES

Suitable extinguishing media

Dry chemical, Carbon dioxide (CO₂), Alcohol-resistant foam, Water spray

Hazardous combustion products

Alcohols, Aldehydes, ethers, carbon dioxide and carbon monoxide, nitrogen oxides (NO_x), toxic fumes, various hydrocarbons

Precautions for fire-fighting

Wear full firefighting turn-out gear (full Bunker gear), and respiratory protection (SCBA). DO NOT direct a solid stream of water or foam into hot, burning pools of liquid since this may cause frothing and increase fire intensity. Frothing can be violent and possibly endanger any firefighter standing too close to the burning liquid. Use water spray to cool fire exposed containers and structures until fire is out if it can be done with minimal risk. Avoid spreading burning material with water used for cooling purposes.

NFPA Flammable and Combustible Liquids Classification

Combustible Liquid Class IIIB

6. ACCIDENTAL RELEASE MEASURES

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Personal precautions

For personal protection see section 8. Persons not wearing protective equipment should be excluded from area of spill until clean-up has been completed.

Environmental precautions

Prevent spreading over a wide area (e.g. by containment or oil barriers). Do not let product enter drains. Do not flush into surface water or sanitary sewer system.

Methods for cleaning up

Keep in suitable, closed containers for disposal. Soak up with inert absorbent material (e.g. sand, silica gel, acid binder, universal binder, sawdust).

Other information

Comply with all applicable federal, state, and local regulations.

7. HANDLING AND STORAGE

Handling

Containers of this material may be hazardous when emptied. Since emptied containers retain product residues (vapor, liquid, and/or solid), all hazard precautions given in the data sheet must be observed.

Storage

Store in a cool, dry, ventilated area.

8. EXPOSURE CONTROLS/PERSONAL PROTECTION

Exposure Guidelines

SODIUM HYDROXIDE		1310-73-2
ACGIH	Ceiling Limit Value:	2 mg/m3
NIOSH	Ceiling Limit Value and Time Period (if specified):	2 mg/m3
OSHA Z1	Permissible exposure limit	2 mg/m3

General advice

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These recommendations provide general guidance for handling this product. Personal protective equipment should be selected for individual applications and should consider factors which affect exposure potential, such as handling practices, chemical concentrations and ventilation. It is ultimately the responsibility of the employer to follow regulatory guidelines established by local authorities.

Exposure controls

Provide sufficient mechanical (general and/or local exhaust) ventilation to maintain exposure below exposure guidelines (if applicable) or below levels that cause known, suspected or apparent adverse effects.

Eye protection

Wear chemical splash goggles when there is the potential for exposure of the eyes to liquid, vapor or mist. Maintain eye wash station near work area.

Skin and body protection

Wear resistant gloves (consult your safety equipment supplier).
Wear normal work clothing including long pants, long-sleeved shirts and foot covering to prevent direct contact of the product with the skin. Launder clothing before reuse. If skin irritation develops, contact your facility health and safety professional or your local safety equipment supplier to determine the proper personal protective equipment for your use.

Respiratory protection

A NIOSH-approved air-purifying respirator with an appropriate cartridge and/or filter may be permissible under certain circumstances where airborne concentrations are expected to exceed exposure limits (if applicable) or if overexposure has otherwise been determined. Protection provided by air-purifying respirators is limited. Use a positive pressure, air-supplied respirator if there is any potential for uncontrolled release, exposure levels are not known or any other circumstances where an air-purifying respirator may not provide adequate protection.

9. PHYSICAL AND CHEMICAL PROPERTIES

Physical state	liquid
Colour	yellow
Odour	ammoniacal
Boiling point/boiling range	(>)446 °F / 230 °C @ 760.00 mmHg
pH	(Average) 8.0 5% aqueous solution

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Flash point	250 °F / 121 °C Closed Cup
Vapour pressure	(<)0.167 hPa @ 68 °F / 20 °C
Relative vapour density	(>)10 AIR=1
Density	(Average) 1.055 g/cm3 @ 68 °F / 20 °C
	8.76 lb/gal
Water solubility	soluble
Autoignition temperature	(>)419 °F / 215 °C

10. STABILITY AND REACTIVITY

Stability

Stable.

Conditions to avoid

Avoid heat, open flame, and prolonged storage at elevated temperatures.

Incompatible products

Avoid contact with: acids, acid anhydrides, Alkaline earth metals, Alkali metals, aluminum, salts of strong bases, strong bases, strong oxidizing agents, Sulphur compounds

Hazardous decomposition products

acetaldehyde, Alcohols, Aldehydes, carbon dioxide and carbon monoxide, dioxolanes, ethers, formaldehyde-like, ketones, nitrogen oxides (NOx), Organic acids, various hydrocarbons

Hazardous reactions

Product will not undergo hazardous polymerization.

11. TOXICOLOGICAL INFORMATION

Acute oral toxicity

Acute oral toxicity - : no data available
Product

Acute oral toxicity - Components

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TRIETHYLENE GLYCOL MONOMETHYL ETHER	: LD 50: 11,300 mg/kg Species: Rat
TRIETHYLENE GLYCOL MONOBUTYL ETHER	: LD 50: 5,300 mg/kg Species: Rat
TETRAETHYLENE GLYCOL	: LD 50: ca. 30,000 mg/kg Species: Rat
DIETHYLENE GLYCOL	: LD 50: 12,565 mg/kg Species: Rat
TRIETHYLENE GLYCOL	: LD 50: 15,000 - 22,000 mg/kg Species: Rat
SODIUM HYDROXIDE	: LD Lo: 500 mg/kg Species: Rabbit
DIISOPROPANOLAMIN E	: LD 50: 2,000 mg/kg Species: Rat

Acute inhalation toxicity

Acute inhalation toxicity - Product	: no data available
--	---------------------

Acute inhalation toxicity - Components

DIETHYLENE GLYCOL	: LC Lo: 130 mg/m3 Exposure time: 2 h Species: Mouse
TRIETHYLENE GLYCOL	: LC 50: > 3.9 mg/l Exposure time: 4 h Species: Rat

Acute dermal toxicity

Acute dermal toxicity - Product	: no data available
------------------------------------	---------------------

Acute dermal toxicity - Components

TRIETHYLENE GLYCOL MONOBUTYL ETHER	: LD 50: 3,502 mg/kg Species: Rabbit
TETRAETHYLENE GLYCOL	: LD 50: 22,460 mg/kg Species: Rabbit
DIETHYLENE GLYCOL	: LD 50: 11,890 mg/kg Species: Rabbit

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TRIETHYLENE GLYCOL	: LD 50: > 22.6 g/kg Species: Rabbit
SODIUM HYDROXIDE	: LD 50: 1,350 mg/kg Species: Rabbit
DIISOPROPANOLAMINE	: LD 50: 8,000 mg/kg Species: Rabbit

Acute toxicity (other routes of administration)

Acute toxicity (other routes of administration)	: no data available
---	---------------------

Acute toxicity (other routes of administration) - Components

TRIETHYLENE GLYCOL	: LD 50: 11,700 mg/kg Application Route: Intravenous Species: Rat
--------------------	--

12. ECOLOGICAL INFORMATION

Biodegradability

Biodegradability - Product	: no data available
----------------------------	---------------------

Biodegradability - Components

TETRAETHYLENE GLYCOL	: 40 % Method: OECD Test Guideline 301D
----------------------	---

DIETHYLENE GLYCOL	: 92 %
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Bioaccumulation

Bioaccumulation - Product	: no data available
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Bioaccumulation - Components

TRIETHYLENE GLYCOL	: Species: Sheepshead minnow (Cyprinodon variegatus) Exposure time: 28 d Concentration: 7.8 mg/l Bioconcentration factor (BCF): 1,700 Method: Flow through
--------------------	--

Ecotoxicity effects

Toxicity to fish

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Toxicity to fish - Product	: no data available
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Toxicity to fish - Components

TETRAETHYLENE GLYCOL	: LC 50: > 1,000 mg/l Exposure time: 96 h Species: Pimephales promelas (fathead minnow)
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DIETHYLENE GLYCOL	: LC 50: > 32,000 mg/l Exposure time: 96 h Species: Western mosquitofish (Gambusia affinis) Method: Static Remarks: Mortality
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TRIETHYLENE GLYCOL	: LC 50: > 10,000 mg/l Exposure time: 96 h Species: Bluegill (Lepomis macrochirus) Method: Static Remarks: Mortality
-----------------------	--

SODIUM HYDROXIDE	: LC 50: 125 mg/l Exposure time: 96 h Species: Western mosquitofish (Gambusia affinis) Method: Static Remarks: Mortality
------------------	--

DIISOPROPANOLAMIN E	: LC 50: 1,100 mg/l Exposure time: 24 h Species: Carassius auratus (goldfish) Test Type: static test
------------------------	---

Toxicity to daphnia and other aquatic invertebrates.

Toxicity to daphnia and other aquatic invertebrates. - Product	: no data available
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Toxicity to daphnia and other aquatic invertebrates. - Components

TETRAETHYLENE	: LC 50: 7,746 mg/l
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GLYCOL	Exposure time: 48 h Species: Water flea (<i>Daphnia magna</i>)
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DIETHYLENE GLYCOL	: LC 50: > 10,000 mg/l Exposure time: 24 h Species: Water flea (<i>Daphnia magna</i>) Method: Static Remarks: Mortality
-------------------	---

TRIETHYLENE GLYCOL	: EC 50: 46,500 mg/l Exposure time: 48 h Species: Water flea (<i>Daphnia magna</i>) Method: Static Remarks: Intoxication
-----------------------	--

SODIUM HYDROXIDE	: EC 50: 34.59 - 47.13 mg/l Exposure time: 48 h Species: Water flea (<i>Daphnia magna</i>) Remarks: Intoxication
------------------	---

Toxicity to algae

Toxicity to algae - Product	: no data available
--------------------------------	---------------------

Toxicity to algae - Components

TETRAETHYLENE GLYCOL	: IC50: > 1,000 mg/l Species: <i>Pseudokirchneriella subcapitata</i> (green algae)
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Toxicity to bacteria

Toxicity to bacteria - Product	: no data available
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13. DISPOSAL CONSIDERATIONS

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Waste disposal methods

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

14. TRANSPORT INFORMATION

REGULATION

ID NUMBER	PROPER SHIPPING NAME	*HAZARD CLASS	SUBSIDIARY HAZARDS	PACKING GROUP	MARINE POLLUTANT / LTD. QTY.
-----------	----------------------	---------------	--------------------	---------------	------------------------------

U.S. DOT - ROAD

Not dangerous goods

U.S. DOT - RAIL

Not dangerous goods

U.S. DOT - INLAND WATERWAYS

Not dangerous goods

TRANSPORT CANADA - ROAD

Not dangerous goods

TRANSPORT CANADA - RAIL

Not dangerous goods

TRANSPORT CANADA - INLAND WATERWAYS

Not dangerous goods

INTERNATIONAL MARITIME DANGEROUS GOODS

Not dangerous goods

INTERNATIONAL AIR TRANSPORT ASSOCIATION - CARGO

Not dangerous goods

INTERNATIONAL AIR TRANSPORT ASSOCIATION - PASSENGER

Not dangerous goods

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MEXICAN REGULATION FOR THE LAND TRANSPORT OF HAZARDOUS MATERIALS AND WASTES

Not dangerous goods

*ORM = ORM-D, CBL = COMBUSTIBLE LIQUID

Dangerous goods descriptions (if indicated above) may not reflect quantity, end-use or region-specific exceptions that can be applied. Consult shipping documents for descriptions that are specific to the shipment.

15. REGULATORY INFORMATION

California Prop. 65

This product does not contain any chemicals known to State of California to cause cancer, birth defects, or any other reproductive harm.	
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SARA Hazard Classification

SARA 311/312 Classification

Acute Health Hazard

SARA 313 Component(s)

TRIETHYLENE GLYCOL MONOMETHYL ETHER	30.00 %
TRIETHYLENE GLYCOL MONOBUTYL ETHER	18.00 %

New Jersey RTK Label Information

Triethylene glycol monomethyl ether, borate	30989-05-0
POLYETHYLENE GLYCOL MONOMETHYL ETHER	9004-74-4
TRIETHYLENE GLYCOL MONOMETHYL ETHER	112-35-6
TRIETHYLENE GLYCOL MONOBUTYL ETHER	143-22-6
POLYOXYETHYLENE MONOBUTYL ETHER	9004-77-7
SODIUM HYDROXIDE	1310-73-2

Pennsylvania RTK Label Information

Triethylene glycol monomethyl ether, borate	30989-05-0
POLYETHYLENE GLYCOL MONOMETHYL ETHER	9004-74-4
TRIETHYLENE GLYCOL MONOMETHYL ETHER	112-35-6

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Version: 1.11

Valvoline Professional Series™ DOT 3 & 4

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TRIETHYLENE GLYCOL MONOBUTYL ETHER	143-22-6
POLYOXYETHYLENE MONOBUTYL ETHER	9004-77-7
TETRAETHYLENE GLYCOL	112-60-7
DIETHYLENE GLYCOL	111-46-6
TRIETHYLENE GLYCOL	112-27-6
PENTAETHYLENE GLYCOL	4792-15-8
SODIUM HYDROXIDE	1310-73-2
DIISOPROPANOLAMINE	110-97-4

Notification status

EU. EINECS	y (positive listing)
US. Toxic Substances Control Act	y (positive listing)
Australia. Industrial Chemical (Notification and Assessment) Act	n (Negative listing)
Canada. Canadian Environmental Protection Act (CEPA). Domestic Substances List (DSL). (Can. Gaz. Part II, Vol. 133)	y (positive listing)
Japan. Kashin-Hou Law List	y (positive listing)
Philippines. The Toxic Substances and Hazardous and Nuclear Waste Control Act	y (positive listing)
China. Inventory of Existing Chemical Substances	y (positive listing)

Reportable quantity - Product

US. EPA CERCLA Hazardous Substances (40 CFR 302)	66671 lbs
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Reportable quantity-Components

SODIUM HYDROXIDE	1310-73-2	1000 lbs
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	HMIS	NFPA
Health	2	1
Flammability	1	1
Physical hazards	0	
Instability		0
Specific Hazard	--	--

16. OTHER INFORMATION

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Valvoline Professional Series™ DOT 3 & 4
BRAKE FLUID
502878

The information accumulated herein is believed to be accurate but is not warranted to be whether originating with the company or not. Recipients are advised to confirm in advance of need that the information is current, applicable, and suitable to their circumstances. This MSDS has been prepared by Ashland's Environmental Health and Safety Department (1-800-325-3751).



SAFETY DATA SHEET

Issuing Date January 5, 2015

Revision Date New

Revision Number 0

1. IDENTIFICATION OF THE SUBSTANCE/PREPARATION AND OF THE COMPANY/UNDERTAKING

Product identifier

Product Name Clorox Healthcare® Bleach Germicidal Cleaner

Other means of identification

EPA Registration Number 56392-7

Recommended use of the chemical and restrictions on use

Recommended use Disinfecting bleach spray

Uses advised against No information available

Details of the supplier of the safety data sheet

Supplier Address

The Clorox Company
1221 Broadway
Oakland, CA 94612

Phone: 1-510-271-7000

Emergency telephone number

Emergency Phone Numbers

For Medical Emergencies call: 1-800-446-1014

For Transportation Emergencies, call Chemtrec: 1-800-424-9300

2. HAZARDS IDENTIFICATION

Classification

This product is not considered hazardous by the 2012 OSHA Hazard Communication Standard (29 CFR 1910.1200).

GHS Label elements, including precautionary statements

Emergency Overview

This product is not considered hazardous by the 2012 OSHA Hazard Communication Standard (29 CFR 1910.1200).

Appearance Clear, colorless **Physical State** Thin liquid **Odor** Fruity, floral, bleach

Precautionary Statements - Prevention

None

Precautionary Statements - Response

None

Precautionary Statements - Storage

None

Precautionary Statements - Disposal

None

Hazards not otherwise classified (HNOC)

Not applicable

Unknown Toxicity

0.03% of the mixture consists of ingredient(s) of unknown toxicity

Other information

No information available

Interactions with Other Chemicals

Reacts with ammonia or acids such as vinegar, rust removers, or toilet bowl cleaners to produce hazardous gases, such as chlorine and other chlorinated compounds.

3. COMPOSITION/INFORMATION ON INGREDIENTS

This product contains no substances that at their given concentrations are considered to be hazardous to health.

4. FIRST AID MEASURES

First aid measures

General Advice	Show this safety data sheet to the doctor in attendance.
Eye Contact	Hold eye open and rinse slowly and gently with water for 15–20 minutes. If present, remove contact lenses after the first 5 minutes of rinsing, then continue rinsing eye. Call a poison control center or doctor for further treatment advice.
Skin Contact	Rinse skin with plenty of water. If irritation persists, call a doctor.
Inhalation	Move to fresh air. If breathing problems develop, call a doctor.
Ingestion	Drink a glassful of water. Call a doctor or poison control center.

Most important symptoms and effects, both acute and delayed

Most Important Symptoms and Effects	May cause eye irritation.
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Indication of any immediate medical attention and special treatment needed

Notes to Physician	Treat symptomatically.
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5. FIRE-FIGHTING MEASURES

Suitable Extinguishing Media

Use extinguishing measures that are appropriate to local circumstances and the surrounding environment.

Unsuitable Extinguishing Media

CAUTION: Use of water spray when fighting fire may be inefficient.

Specific Hazards Arising from the Chemical

Hazardous Combustion Products

Oxides of carbon.

Explosion Data

Sensitivity to Mechanical Impact No.

Sensitivity to Static Discharge No.

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.

6. ACCIDENTAL RELEASE MEASURES

Personal precautions, protective equipment and emergency procedures

Personal Precautions	Avoid contact with eyes.
Other Information	Refer to protective measures listed in Sections 7 and 8.

Environmental precautions

Environmental Precautions	See Section 12 for additional ecological information.
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Methods and material for containment and cleaning up

Methods for Containment	Prevent further leakage or spillage if safe to do so.
Methods for Cleaning Up	Absorb and containerize. Wash residual down to sanitary sewer. Contact the sanitary treatment facility in advance to assure ability to process washed-down material.

7. HANDLING AND STORAGE

Precautions for safe handling

Handling	Handle in accordance with good industrial hygiene and safety practice. Avoid contact with eyes, skin, and clothing. Do not eat, drink, or smoke when using this product.
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Conditions for safe storage, including any incompatibilities

Storage	Keep containers tightly closed in a dry, cool, and well-ventilated place.
Incompatible Products	Ammonia or acids such as vinegar, rust removers, or toilet bowl cleaners.

8. EXPOSURE CONTROLS/PERSONAL PROTECTION

Control parameters

Exposure Guidelines	This product does not contain any ingredients with occupational exposure limits that are at concentrations below their cut-off values/concentrations and that contribute to the hazard classification of the product.
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Appropriate engineering controls

Engineering Measures	Showers Eyewash stations Ventilation systems
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Individual protection measures, such as personal protective equipment

Eye/Face Protection	No special protective equipment required.
Skin and Body Protection	No special protective equipment required.
Respiratory Protection	No protective equipment is needed under normal use conditions. If irritation is experienced, ventilation and evacuation may be required.
Hygiene Measures	Handle in accordance with good industrial hygiene and safety practice.

9. PHYSICAL AND CHEMICAL PROPERTIES

Physical and Chemical Properties

Physical State	Thin liquid	Odor	Fruity, floral, bleach
Appearance	Clear	Odor Threshold	No information available
Color	Colorless		

Property	Values	Remarks/ Method
pH	12 - 12.7	None known
Melting/freezing point	No data available	None known
Boiling point / boiling range	No data available	None known
Flash Point	No data available	None known
Evaporation rate	No data available	None known
Flammability (solid, gas)	No data available	None known
Flammability Limits in Air		
Upper flammability limit	No data available	None known
Lower flammability limit	No data available	None known
Vapor pressure	No data available	None known
Vapor density	No data available	None known
Specific Gravity	~1.0	None known
Water Solubility	Complete	None known
Solubility in other solvents	No data available	None known
Partition coefficient: n-octanol/water	No data available	None known
Autoignition temperature	No data available	None known
Decomposition temperature	No data available	None known
Kinematic viscosity	No data available	None known
Dynamic viscosity	No data available	None known
Explosive Properties	Not explosive	
Oxidizing Properties	No data available	

Other Information

Softening Point	No data available
VOC Content (%)	No data available
Particle Size	No data available
Particle Size Distribution	No data available

10. STABILITY AND REACTIVITY

Reactivity

Reacts with ammonia or acids such as vinegar, rust removers, or toilet bowl cleaners to produce hazardous gases, such as chlorine and other chlorinated compounds.

Chemical stability

Stable under recommended storage conditions.

Possibility of Hazardous Reactions

None under normal processing.

Conditions to avoid

None known based on information supplied.

Incompatible materials

Ammonia or acids such as vinegar, rust removers, or toilet bowl cleaners.

Hazardous Decomposition Products

None known based on information supplied.

11. TOXICOLOGICAL INFORMATION

Information on likely routes of exposure

Product Information

Inhalation	Exposure to vapor or mist may irritate respiratory tract.
Eye Contact	May cause irritation.
Skin Contact	May cause slight irritation.
Ingestion	Ingestion may cause slight irritation to mucous membranes and gastrointestinal tract.

Component Information

Chemical Name	LD50 Oral	LD50 Dermal	LC50 Inhalation
Sodium hypochlorite 7681-52-9	8200 mg/kg (Rat)	>10000 mg/kg (Rabbit)	-

Information on toxicological effects

Symptoms Liquid may cause redness and tearing of eyes.

Delayed and immediate effects as well as chronic effects from short and long-term exposure

Sensitization No information available.

Mutagenic Effects No information available.

Carcinogenicity The table below indicates whether each agency has listed any ingredient as a carcinogen.

Chemical Name	ACGIH	IARC	NTP	OSHA
Sodium hypochlorite 7681-52-9	-	Group 3	-	-

*IARC (International Agency for Research on Cancer)
Group 3 - Not Classifiable as to Carcinogenicity in Humans*

Reproductive Toxicity No information available.

STOT - single exposure No information available.

STOT - repeated exposure No information available.
Chronic Toxicity No known effect based on information supplied.
Target Organ Effects Respiratory system, eyes, skin, gastrointestinal tract (GI).

Aspiration Hazard No information available.

Numerical measures of toxicity - Product Information

The following values are calculated based on chapter 3.1 of the GHS document

No information available.

12. ECOLOGICAL INFORMATION**Ecotoxicity**

No information available.

Persistence and Degradability

No information available.

Bioaccumulation

No information available.

Other adverse effects

No information available.

13. DISPOSAL CONSIDERATIONS**Disposal methods**

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

Contaminated Packaging

Do not reuse empty containers. Dispose of in accordance with all applicable federal, state, and local regulations.

14. TRANSPORT INFORMATION**DOT** Not regulated.**TDG** Not regulated.**ICAO** Not regulated.**IATA** Not regulated**IMDG/IMO** Not regulated**15. REGULATORY INFORMATION****Chemical Inventories****TSCA** All components of this product are either on the TSCA 8(b) Inventory or otherwise exempt from listing.**DSL/NDSL** All components are on the DSL or NDSL.**TSCA** - United States Toxic Substances Control Act Section 8(b) Inventory**DSL/NDSL** - Canadian Domestic Substances List/Non-Domestic Substances List**U.S. 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 40 of the Code of Federal Regulations, Part 372

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

CWA (Clean Water Act)

This product contains the following substances which are regulated pollutants pursuant to the Clean Water Act (40 CFR 122.21 and 40 CFR 122.42)

Chemical Name	CWA - Reportable Quantities	CWA - Toxic Pollutants	CWA - Priority Pollutants	CWA - Hazardous Substances
Sodium hypochlorite 7681-52-9	100 lb			X
Sodium hydroxide 1310-73-2	1000 lb			X

CERCLA

This material, as supplied, contains one or more substances regulated as a hazardous substance under the Comprehensive Environmental Response Compensation and Liability Act (CERCLA) (40 CFR 302)

Chemical Name	Hazardous Substances RQs	Extremely Hazardous Substances RQs	RQ
Sodium hypochlorite 7681-52-9	100 lb		RQ 100 lb final RQ RQ 45.4 kg final RQ
Sodium hydroxide 1310-73-2	1000 lb	-	RQ 1000 lb final RQ RQ 454 kg final RQ

EPA Statement

This chemical is a pesticide product registered by the Environmental Protection Agency and is subject to certain labeling requirements under federal pesticide law. These requirements differ from the classification criteria and hazard information required for safety data sheets and for workplace labels of non-pesticide chemicals. Following is the hazard information as required on the pesticide label:

CAUTION: Causes moderate eye irritation. Avoid contact with eyes or clothing. Wash thoroughly with soap and water after handling.

US State Regulations

California Proposition 65

This product does not contain any Proposition 65 chemicals.

U.S. State Right-to-Know Regulations

Chemical Name	New Jersey	Massachusetts	Pennsylvania	Rhode Island	Illinois
Sodium hypochlorite 7681-52-9	X	X	X	X	
Sodium hydroxide 1310-73-2	X	X	X	X	

International Regulations

Canada

WHMIS Hazard Class

Non-controlled

16. OTHER INFORMATION

NFPA Health Hazard 1 Flammability 0 Instability 1 Physical and Chemical Hazards none

HMS Health Hazard 1 Flammability 0 Physical Hazard 1 Personal Protection A

Prepared By Product Stewardship
23 British American Blvd.
Latham, NY 12110
1-800-572-6501

Preparation/Revision Date January 5, 2015

Revision Note New

Reference CLX166469-001/1138504/166469.001

General Disclaimer

The information provided in this Safety Data Sheet 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 guidance for safe handling, use, processing, storage, transportation, disposal, and release and is not to be considered 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 materials or in any process, unless specified in the text.

End of Safety Data Sheet

SAFETY DATA SHEET

Acetylene

Section 1. Identification

GHS product identifier	: Acetylene
Chemical name	: acetylene
Other means of identification	: Ethyne; Ethine; Narcylen; C ₂ H ₂ ; Acetylen; UN 1001; Vinylene
Product use	: Synthetic/Analytical chemistry.
Synonym	: Ethyne; Ethine; Narcylen; C ₂ H ₂ ; Acetylen; UN 1001; Vinylene
SDS #	: 001001
Supplier's details	: Airgas USA, LLC and its affiliates 259 North Radnor-Chester Road Suite 100 Radnor, PA 19087-5283 1-610-687-5253
24-hour telephone	: 1-866-734-3438

Section 2. Hazards identification

OSHA/HCS status	: This material is considered hazardous by the OSHA Hazard Communication Standard (29 CFR 1910.1200).
Classification of the substance or mixture	: FLAMMABLE GASES - Category 1 GASES UNDER PRESSURE - Compressed gas

GHS label elements

Hazard pictograms



Signal word : Danger

Hazard statements : Extremely flammable gas.
May form explosive mixtures with air.
Contains gas under pressure; may explode if heated.
May displace oxygen and cause rapid suffocation.

Precautionary statements

General	: Read and follow all Safety Data Sheets (SDS'S) before use. Read label before use. Keep out of reach of children. If medical advice is needed, have product container or label at hand. Close valve after each use and when empty. Use equipment rated for cylinder pressure. Do not open valve until connected to equipment prepared for use. Fusible plugs in top, bottom, or valve melt at 98°C to 107°C (208°F to 224°F). Do not discharge at pressures above 15psig (103kpa). Use a back flow preventative device in the piping. Use only equipment of compatible materials of construction. Approach suspected leak area with caution.
Prevention	: Keep away from heat, hot surfaces, sparks, open flames and other ignition sources. No smoking.
Response	: Leaking gas fire: Do not extinguish, unless leak can be stopped safely. Eliminate all ignition sources if safe to do so.
Storage	: Protect from sunlight when ambient temperature exceeds 52°C/125°F. Store in a well-ventilated place.
Disposal	: Not applicable.
Hazards not otherwise classified	: In addition to any other important health or physical hazards, this product may displace oxygen and cause rapid suffocation.

Section 3. Composition/information on ingredients

Substance/mixture : Substance
Chemical name : acetylene
Other means of identification : Ethyne; Ethine; Narcylen; C2H2; Acetylen; UN 1001; Vinylene

CAS number/other identifiers

CAS number : 74-86-2
Product code : 001001

Ingredient name	%	CAS number
acetylene	100	74-86-2

Any concentration shown as a range is to protect confidentiality or is due to batch variation.

There are no additional ingredients present which, within the current knowledge of the supplier and in the concentrations applicable, are classified as hazardous to health or the environment and hence require reporting in this section.

Occupational exposure limits, if available, are listed in Section 8.

Section 4. First aid measures

Description of necessary first aid measures

Eye contact : Immediately flush eyes with plenty of water, occasionally lifting the upper and lower eyelids. Check for and remove any contact lenses. Continue to rinse for at least 10 minutes. Get medical attention if irritation occurs.

Inhalation : Remove victim to fresh air and keep at rest in a position comfortable for breathing. If not breathing, if breathing is irregular or if respiratory arrest occurs, provide artificial respiration or oxygen by trained personnel. It may be dangerous to the person providing aid to give mouth-to-mouth resuscitation. Get medical attention if adverse health effects persist or are severe. If unconscious, place in recovery position and get medical attention immediately. Maintain an open airway. Loosen tight clothing such as a collar, tie, belt or waistband.

Skin contact : Flush contaminated skin with plenty of water. Remove contaminated clothing and shoes. To avoid the risk of static discharges and gas ignition, soak contaminated clothing thoroughly with water before removing it. Get medical attention if symptoms occur. Wash clothing before reuse. Clean shoes thoroughly before reuse.

Ingestion : As this product is a gas, refer to the inhalation section.

Most important symptoms/effects, acute and delayed

Potential acute health effects

Eye contact : Contact with rapidly expanding gas may cause burns or frostbite.
Inhalation : No known significant effects or critical hazards.
Skin contact : Contact with rapidly expanding gas may cause burns or frostbite.
Frostbite : Try to warm up the frozen tissues and seek medical attention.
Ingestion : As this product is a gas, refer to the inhalation section.

Over-exposure signs/symptoms

Eye contact : No specific data.
Inhalation : No specific data.
Skin contact : No specific data.
Ingestion : No specific data.

Indication of immediate medical attention and special treatment needed, if necessary

Notes to physician : Treat symptomatically. Contact poison treatment specialist immediately if large quantities have been ingested or inhaled.
Specific treatments : No specific treatment.

Section 4. First aid measures

Protection of first-aiders : No action shall be taken involving any personal risk or without suitable training. It may be dangerous to the person providing aid to give mouth-to-mouth resuscitation.

See toxicological information (Section 11)

Section 5. Fire-fighting measures

Extinguishing media

Suitable extinguishing media : Use an extinguishing agent suitable for the surrounding fire.

Unsuitable extinguishing media : None known.

Specific hazards arising from the chemical : Contains gas under pressure. Extremely flammable gas. In a fire or if heated, a pressure increase will occur and the container may burst, with the risk of a subsequent explosion.

Hazardous thermal decomposition products : Decomposition products may include the following materials:
carbon dioxide
carbon monoxide

Special protective actions for fire-fighters : Promptly isolate the scene by removing all persons from the vicinity of the incident if there is a fire. No action shall be taken involving any personal risk or without suitable training. Contact supplier immediately for specialist advice. Move containers from fire area if this can be done without risk. Use water spray to keep fire-exposed containers cool. If involved in fire, shut off flow immediately if it can be done without risk. If this is impossible, withdraw from area and allow fire to burn. Fight fire from protected location or maximum possible distance. Eliminate all ignition sources if safe to do so.

Special protective equipment for fire-fighters : Fire-fighters should wear appropriate protective equipment and self-contained breathing apparatus (SCBA) with a full face-piece operated in positive pressure mode.

Section 6. Accidental release measures

Personal precautions, protective equipment and emergency procedures

For non-emergency personnel : Accidental releases pose a serious fire or explosion hazard. No action shall be taken involving any personal risk or without suitable training. Evacuate surrounding areas. Keep unnecessary and unprotected personnel from entering. Shut off all ignition sources. No flares, smoking or flames in hazard area. Avoid breathing gas. Provide adequate ventilation. Wear appropriate respirator when ventilation is inadequate. Put on appropriate personal protective equipment.

For emergency responders : If specialised clothing is required to deal with the spillage, take note of any information in Section 8 on suitable and unsuitable materials. See also the information in "For non-emergency personnel".

Environmental precautions : Ensure emergency procedures to deal with accidental gas releases are in place to avoid contamination of the environment. Inform the relevant authorities if the product has caused environmental pollution (sewers, waterways, soil or air).

Methods and materials for containment and cleaning up

Small spill : Immediately contact emergency personnel. Stop leak if without risk. Use spark-proof tools and explosion-proof equipment.

Large spill : Immediately contact emergency personnel. Stop leak if without risk. Use spark-proof tools and explosion-proof equipment. Note: see Section 1 for emergency contact information and Section 13 for waste disposal.

Section 7. Handling and storage

Precautions for safe handling

Protective measures : Put on appropriate personal protective equipment (see Section 8). Contains gas under pressure. Avoid contact with eyes, skin and clothing. Avoid breathing gas. Use only with adequate ventilation. Wear appropriate respirator when ventilation is inadequate. Do not enter storage areas and confined spaces unless adequately ventilated. Store and use away from heat, sparks, open flame or any other ignition source. Use explosion-proof electrical (ventilating, lighting and material handling) equipment. Use only non-sparking tools. Empty containers retain product residue and can be hazardous. Do not puncture or incinerate container. Use equipment rated for cylinder pressure. Close valve after each use and when empty. Protect cylinders from physical damage; do not drag, roll, slide, or drop. Use a suitable hand truck for cylinder movement.

Advice on general occupational hygiene : Eating, drinking and smoking should be prohibited in areas where this material is handled, stored and processed. Workers should wash hands and face before eating, drinking and smoking. Remove contaminated clothing and protective equipment before entering eating areas. See also Section 8 for additional information on hygiene measures.

Conditions for safe storage, including any incompatibilities : Store in accordance with local regulations. Store in a segregated and approved area. Store away from direct sunlight in a dry, cool and well-ventilated area, away from incompatible materials (see Section 10). Eliminate all ignition sources. Keep container tightly closed and sealed until ready for use. Cylinders should be stored upright, with valve protection cap in place, and firmly secured to prevent falling or being knocked over. Cylinder temperatures should not exceed 52 °C (125 °F).

Section 8. Exposure controls/personal protection

Control parameters

Occupational exposure limits

Ingredient name	Exposure limits
acetylene	NIOSH REL (United States, 10/2013). CEIL: 2662 mg/m ³ CEIL: 2500 ppm

Appropriate engineering controls : Use only with adequate ventilation. Use process enclosures, local exhaust ventilation or other engineering controls to keep worker exposure to airborne contaminants below any recommended or statutory limits. The engineering controls also need to keep gas, vapor or dust concentrations below any lower explosive limits. Use explosion-proof ventilation equipment.

Environmental exposure controls : Emissions from ventilation or work process equipment should be checked to ensure they comply with the requirements of environmental protection legislation. In some cases, fume scrubbers, filters or engineering modifications to the process equipment will be necessary to reduce emissions to acceptable levels.

Individual protection measures

Hygiene measures : Wash hands, forearms and face thoroughly after handling chemical products, before eating, smoking and using the lavatory and at the end of the working period. Appropriate techniques should be used to remove potentially contaminated clothing. Wash contaminated clothing before reusing. Ensure that eyewash stations and safety showers are close to the workstation location.

Eye/face protection : Safety eyewear complying with an approved standard should be used when a risk assessment indicates this is necessary to avoid exposure to liquid splashes, mists, gases or dusts. If contact is possible, the following protection should be worn, unless the assessment indicates a higher degree of protection: safety glasses with side-shields.

Skin protection

Section 8. Exposure controls/personal protection

- Hand protection** : Chemical-resistant, impervious gloves complying with an approved standard should be worn at all times when handling chemical products if a risk assessment indicates this is necessary. Considering the parameters specified by the glove manufacturer, check during use that the gloves are still retaining their protective properties. It should be noted that the time to breakthrough for any glove material may be different for different glove manufacturers. In the case of mixtures, consisting of several substances, the protection time of the gloves cannot be accurately estimated.
- Body protection** : Personal protective equipment for the body should be selected based on the task being performed and the risks involved and should be approved by a specialist before handling this product. When there is a risk of ignition from static electricity, wear anti-static protective clothing. For the greatest protection from static discharges, clothing should include anti-static overalls, boots and gloves.
- Other skin protection** : Appropriate footwear and any additional skin protection measures should be selected based on the task being performed and the risks involved and should be approved by a specialist before handling this product.
- Respiratory protection** : Use a properly fitted, air-purifying or air-fed respirator complying with an approved standard if a risk assessment indicates this is necessary. Respirator selection must be based on known or anticipated exposure levels, the hazards of the product and the safe working limits of the selected respirator.

Section 9. Physical and chemical properties

Appearance

- Physical state** : Gas.
- Color** : Colorless.
- Molecular weight** : 26.04 g/mole
- Molecular formula** : C₂H₂
- Melting/freezing point** : -81°C (-113.8°F)
- Critical temperature** : 35.25°C (95.5°F)
- Odor** : Mild. Ethereal.
- Odor threshold** : Not available.
- pH** : Not available.
- Flash point** : Closed cup: -18.15°C (-0.67°F)
- Burning time** : Not applicable.
- Burning rate** : Not applicable.
- Evaporation rate** : Not available.
- Flammability (solid, gas)** : Extremely flammable in the presence of the following materials or conditions: open flames, sparks and static discharge, heat and oxidizing materials.
- Lower and upper explosive (flammable) limits** : Lower: 2.5%
Upper: 100%
- Vapor pressure** : 635 (psig)
- Vapor density** : 0.907 (Air = 1)
- Specific Volume (ft³/lb)** : 14.7058
- Gas Density (lb/ft³)** : 0.0691
- Relative density** : Not applicable.
- Solubility** : Not available.
- Solubility in water** : 1.2 g/l
- Partition coefficient: n-octanol/water** : 0.37
- Auto-ignition temperature** : 305°C (581°F)
- Decomposition temperature** : Not available.
- SADT** : Not available.
- Viscosity** : Not applicable.

Section 10. Stability and reactivity

- Reactivity** : No specific test data related to reactivity available for this product or its ingredients.
- Chemical stability** : The product is stable.
- Possibility of hazardous reactions** : Under normal conditions of storage and use, hazardous reactions will not occur.
- Conditions to avoid** : Avoid all possible sources of ignition (spark or flame). Do not pressurize, cut, weld, braze, solder, drill, grind or expose containers to heat or sources of ignition.
- Incompatible materials** : Oxidizers
- Hazardous decomposition products** : Under normal conditions of storage and use, hazardous decomposition products should not be produced.
- Hazardous polymerization** : Under normal conditions of storage and use, hazardous polymerization will not occur.

Section 11. Toxicological information

Information on toxicological effects

Acute toxicity

Not available.

Irritation/Corrosion

Not available.

Sensitization

Not available.

Mutagenicity

Not available.

Carcinogenicity

Not available.

Reproductive toxicity

Not available.

Teratogenicity

Not available.

Specific target organ toxicity (single exposure)

Not available.

Specific target organ toxicity (repeated exposure)

Not available.

Aspiration hazard

Not available.

Information on the likely routes of exposure : Not available.

Potential acute health effects

Eye contact : Contact with rapidly expanding gas may cause burns or frostbite.

Inhalation : No known significant effects or critical hazards.

Section 11. Toxicological information

- Skin contact** : Contact with rapidly expanding gas may cause burns or frostbite.
Ingestion : As this product is a gas, refer to the inhalation section.

Symptoms related to the physical, chemical and toxicological characteristics

- Eye contact** : No specific data.
Inhalation : No specific data.
Skin contact : No specific data.
Ingestion : No specific data.

Delayed and immediate effects and also chronic effects from short and long term exposure

Short term exposure

- Potential immediate effects** : Not available.
Potential delayed effects : Not available.

Long term exposure

- Potential immediate effects** : Not available.
Potential delayed effects : Not available.

Potential chronic health effects

Not available.

- General** : No known significant effects or critical hazards.
Carcinogenicity : No known significant effects or critical hazards.
Mutagenicity : No known significant effects or critical hazards.
Teratogenicity : No known significant effects or critical hazards.
Developmental effects : No known significant effects or critical hazards.
Fertility effects : No known significant effects or critical hazards.

Numerical measures of toxicity

Acute toxicity estimates

Not available.

Section 12. Ecological information

Toxicity

Not available.

Persistence and degradability

Not available.

Bioaccumulative potential

Product/ingredient name	LogP _{ow}	BCF	Potential
acetylene	0.37	-	low

Mobility in soil

- Soil/water partition coefficient (K_{oc})** : Not available.






Section 12. Ecological information

Other adverse effects : No known significant effects or critical hazards.

Section 13. Disposal considerations

Disposal methods : The generation of waste should be avoided or minimized wherever possible. Disposal of this product, solutions and any by-products should at all times comply with the requirements of environmental protection and waste disposal legislation and any regional local authority requirements. Dispose of surplus and non-recyclable products via a licensed waste disposal contractor. Waste should not be disposed of untreated to the sewer unless fully compliant with the requirements of all authorities with jurisdiction. Empty Airgas-owned pressure vessels should be returned to Airgas. Waste packaging should be recycled. Incineration or landfill should only be considered when recycling is not feasible. This material and its container must be disposed of in a safe way. Empty containers or liners may retain some product residues. Do not puncture or incinerate container.

Section 14. Transport information

	DOT	TDG	Mexico	IMDG	IATA
UN number	UN1001	UN1001	UN1001	UN1001	UN1001
UN proper shipping name	ACETYLENE, DISSOLVED	ACETYLENE, DISSOLVED	ACETYLENE, DISSOLVED	ACETYLENE, DISSOLVED	ACETYLENE, DISSOLVED
Transport hazard class(es)	2.1 	2.1 	2.1 	2.1 	2.1 
Packing group	-	-	-	-	-
Environment	No.	No.	No.	No.	No.
Additional information	<p>Limited quantity Yes.</p> <p>Packaging instruction Passenger aircraft Quantity limitation: Forbidden.</p> <p>Cargo aircraft Quantity limitation: 15 kg</p>	<p>Product classified as per the following sections of the Transportation of Dangerous Goods Regulations: 2.13-2.17 (Class 2).</p> <p>Explosive Limit and Limited Quantity Index 0</p> <p>Passenger Carrying Ship Index 75</p> <p>Passenger Carrying Road or Rail Index Forbidden</p> <p>Special provisions 38</p>	-	-	<p>Passenger and Cargo AircraftQuantity limitation: 0 Forbidden Cargo Aircraft Only Quantity limitation: 15 kg</p>

“Refer to CFR 49 (or authority having jurisdiction) to determine the information required for shipment of the product.”

Special precautions for user : **Transport within user’s premises:** always transport in closed containers that are upright and secure. Ensure that persons transporting the product know what to do in the event of an accident or spillage.

Transport in bulk according to Annex II of MARPOL 73/78 and the IBC Code : Not available.

Section 15. Regulatory information

U.S. Federal regulations : TSCA 8(a) CDR Exempt/Partial exemption: Not determined
 United States inventory (TSCA 8b): This material is listed or exempted.
 Clean Air Act (CAA) 112 regulated flammable substances: acetylene

Clean Air Act Section 112 : Not listed

(b) Hazardous Air
 Pollutants (HAPs)

Clean Air Act Section 602 : Not listed
 Class I Substances

Clean Air Act Section 602 : Not listed
 Class II Substances

DEA List I Chemicals : Not listed
 (Precursor Chemicals)

DEA List II Chemicals : Not listed
 (Essential Chemicals)

SARA 302/304

Composition/information on ingredients

No products were found.

SARA 304 RQ : Not applicable.

SARA 311/312

Classification : Fire hazard
 Sudden release of pressure

Composition/information on ingredients

Name	%	Fire hazard	Sudden release of pressure	Reactive	Immediate (acute) health hazard	Delayed (chronic) health hazard
acetylene	100	Yes.	Yes.	No.	No.	No.

State regulations

Massachusetts : This material is listed.

New York : This material is not listed.

New Jersey : This material is listed.

Pennsylvania : This material is listed.

International regulations

International lists

National inventory

Australia : This material is listed or exempted.

Canada : This material is listed or exempted.

China : This material is listed or exempted.

Europe : This material is listed or exempted.

Japan : This material is listed or exempted.

Malaysia : Not determined.

New Zealand : This material is listed or exempted.

Philippines : This material is listed or exempted.

Republic of Korea : This material is listed or exempted.

Taiwan : This material is listed or exempted.

Canada

WHMIS (Canada) : Class A: Compressed gas.
 Class B-1: Flammable gas.
 Class F: Dangerously reactive material.

Section 15. Regulatory information

CEPA Toxic substances: This material is not listed.

Canadian ARET: This material is not listed.

Canadian NPRI: This material is listed.

Alberta Designated Substances: This material is not listed.

Ontario Designated Substances: This material is not listed.

Quebec Designated Substances: This material is not listed.

Section 16. Other information

Canada Label requirements : Class A: Compressed gas.
Class B-1: Flammable gas.
Class F: Dangerously reactive material.

Hazardous Material Information System (U.S.A.)

Health	1
Flammability	4
Physical hazards	2

Caution: HMIS® ratings are based on a 0-4 rating scale, with 0 representing minimal hazards or risks, and 4 representing significant hazards or risks. Although HMIS® ratings are not required on SDSs under 29 CFR 1910.1200, the preparer may choose to provide them. HMIS® ratings are to be used with a fully implemented HMIS® program. HMIS® is a registered mark of the National Paint & Coatings Association (NPCA). HMIS® materials may be purchased exclusively from J. J. Keller (800) 327-6868.

The customer is responsible for determining the PPE code for this material.

National Fire Protection Association (U.S.A.)



Note: The instability hazard rating for acetylene, dissolved (stabilized acetylene) is 2.

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Copyright ©2001, National Fire Protection Association, Quincy, MA 02269. This warning system is intended to be interpreted and applied only by properly trained individuals to identify fire, health and reactivity hazards of chemicals. The user is referred to certain limited number of chemicals with recommended classifications in NFPA 49 and NFPA 325, which would be used as a guideline only. Whether the chemicals are classified by NFPA or not, anyone using the 704 systems to classify chemicals does so at their own risk.

Procedure used to derive the classification

Classification	Justification
Flam. Gas 1, H220 Press. Gas Comp. Gas, H280	Expert judgment According to package

History

Date of printing : 6/7/2016
Date of issue/Date of revision : 6/7/2016
Date of previous issue : 5/24/2016
Version : 0.03

Section 16. Other information

Key to abbreviations

: ATE = Acute Toxicity Estimate
BCF = Bioconcentration Factor
GHS = Globally Harmonized System of Classification and Labelling of Chemicals
IATA = International Air Transport Association
IBC = Intermediate Bulk Container
IMDG = International Maritime Dangerous Goods
LogPow = logarithm of the octanol/water partition coefficient
MARPOL 73/78 = International Convention for the Prevention of Pollution From Ships, 1973 as modified by the Protocol of 1978. ("Marpol" = marine pollution)
UN = United Nations

References

: Not available.

✔ Indicates information that has changed from previously issued version.

Notice to reader

To the best of our knowledge, the information contained herein is accurate. However, neither the above-named supplier, nor any of its subsidiaries, assumes any liability whatsoever for the accuracy or completeness of the information contained herein.

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 that exist.

SAFETY DATA SHEET



Oxygen

Section 1. Identification

GHS product identifier	: Oxygen
Chemical name	: oxygen
Other means of identification	: Molecular oxygen; Oxygen molecule; Pure oxygen; O ₂ ; UN 1072; Dioxygen; Oxygen USP, Aviator's Breathing Oxygen (ABO)
Product use	: Synthetic/Analytical chemistry.
Synonym	: Molecular oxygen; Oxygen molecule; Pure oxygen; O ₂ ; UN 1072; Dioxygen; Oxygen USP, Aviator's Breathing Oxygen (ABO)
SDS #	: 001043
Supplier's details	: Airgas USA, LLC and its affiliates 259 North Radnor-Chester Road Suite 100 Radnor, PA 19087-5283 1-610-687-5253
24-hour telephone	: 1-866-734-3438

Section 2. Hazards identification

OSHA/HCS status	: This material is considered hazardous by the OSHA Hazard Communication Standard (29 CFR 1910.1200).
Classification of the substance or mixture	: OXIDIZING GASES - Category 1 GASES UNDER PRESSURE - Compressed gas

GHS label elements

Hazard pictograms



Signal word : Danger

Hazard statements : May cause or intensify fire; oxidizer.
Contains gas under pressure; may explode if heated.

Precautionary statements

General : Read and follow all Safety Data Sheets (SDS'S) before use. Read label before use. Keep out of reach of children. If medical advice is needed, have product container or label at hand. Close valve after each use and when empty. Use equipment rated for cylinder pressure. Do not open valve until connected to equipment prepared for use. Use a back flow preventative device in the piping. Use only equipment of compatible materials of construction. Open valve slowly. Use only with equipment cleaned for Oxygen service.

Prevention : Keep away from clothing, incompatible materials and combustible materials. Keep reduction valves, valves and fittings free from oil and grease.

Response : In case of fire: Stop leak if safe to do so.

Storage : Protect from sunlight when ambient temperature exceeds 52°C/125°F. Store in a well-ventilated place.

Disposal : Not applicable.

Hazards not otherwise classified : None known.

Section 3. Composition/information on ingredients

Substance/mixture : Substance
Chemical name : oxygen
Other means of identification : Molecular oxygen; Oxygen molecule; Pure oxygen; O₂; UN 1072; Dioxygen; Oxygen USP, Aviator's Breathing Oxygen (ABO)

CAS number/other identifiers

CAS number : 7782-44-7
Product code : 001043

Ingredient name	%	CAS number
oxygen	100	7782-44-7

Any concentration shown as a range is to protect confidentiality or is due to batch variation.

There are no additional ingredients present which, within the current knowledge of the supplier and in the concentrations applicable, are classified as hazardous to health or the environment and hence require reporting in this section.

Occupational exposure limits, if available, are listed in Section 8.

Section 4. First aid measures

Description of necessary first aid measures

Eye contact : Immediately flush eyes with plenty of water, occasionally lifting the upper and lower eyelids. Check for and remove any contact lenses. Continue to rinse for at least 10 minutes. Get medical attention.

Inhalation : Remove victim to fresh air and keep at rest in a position comfortable for breathing. If not breathing, if breathing is irregular or if respiratory arrest occurs, provide artificial respiration or oxygen by trained personnel. It may be dangerous to the person providing aid to give mouth-to-mouth resuscitation. Get medical attention if adverse health effects persist or are severe. If unconscious, place in recovery position and get medical attention immediately. Maintain an open airway. Loosen tight clothing such as a collar, tie, belt or waistband.

Skin contact : Flush contaminated skin with plenty of water. Remove contaminated clothing and shoes. Get medical attention if symptoms occur. Wash clothing before reuse. Clean shoes thoroughly before reuse.

Ingestion : As this product is a gas, refer to the inhalation section.

Most important symptoms/effects, acute and delayed

Potential acute health effects

Eye contact : Contact with rapidly expanding gas may cause burns or frostbite.
Inhalation : No known significant effects or critical hazards.
Skin contact : Contact with rapidly expanding gas may cause burns or frostbite.
Frostbite : Try to warm up the frozen tissues and seek medical attention.
Ingestion : As this product is a gas, refer to the inhalation section.

Over-exposure signs/symptoms

Eye contact : No specific data.
Inhalation : No specific data.
Skin contact : No specific data.
Ingestion : No specific data.

Indication of immediate medical attention and special treatment needed, if necessary

Notes to physician : Treat symptomatically. Contact poison treatment specialist immediately if large quantities have been ingested or inhaled.
Specific treatments : No specific treatment.

Section 4. First aid measures

Protection of first-aiders : No action shall be taken involving any personal risk or without suitable training. It may be dangerous to the person providing aid to give mouth-to-mouth resuscitation.

See toxicological information (Section 11)

Section 5. Fire-fighting measures

Extinguishing media

Suitable extinguishing media : Use an extinguishing agent suitable for the surrounding fire.

Unsuitable extinguishing media : None known.

Specific hazards arising from the chemical : Contains gas under pressure. Oxidizing material. This material increases the risk of fire and may aid combustion. Contact with combustible material may cause fire. In a fire or if heated, a pressure increase will occur and the container may burst or explode.

Hazardous thermal decomposition products : No specific data.

Special protective actions for fire-fighters : Promptly isolate the scene by removing all persons from the vicinity of the incident if there is a fire. No action shall be taken involving any personal risk or without suitable training. Contact supplier immediately for specialist advice. Move containers from fire area if this can be done without risk. Use water spray to keep fire-exposed containers cool. If involved in fire, shut off flow immediately if it can be done without risk.

Special protective equipment for fire-fighters : Fire-fighters should wear appropriate protective equipment and self-contained breathing apparatus (SCBA) with a full face-piece operated in positive pressure mode.

Section 6. Accidental release measures

Personal precautions, protective equipment and emergency procedures

For non-emergency personnel : No action shall be taken involving any personal risk or without suitable training. Evacuate surrounding areas. Keep unnecessary and unprotected personnel from entering. Shut off all ignition sources. No flares, smoking or flames in hazard area. Avoid breathing gas. Provide adequate ventilation. Wear appropriate respirator when ventilation is inadequate. Put on appropriate personal protective equipment.

For emergency responders : If specialised clothing is required to deal with the spillage, take note of any information in Section 8 on suitable and unsuitable materials. See also the information in "For non-emergency personnel".

Environmental precautions : Ensure emergency procedures to deal with accidental gas releases are in place to avoid contamination of the environment. Inform the relevant authorities if the product has caused environmental pollution (sewers, waterways, soil or air).

Methods and materials for containment and cleaning up

Small spill : Immediately contact emergency personnel. Stop leak if without risk. Use spark-proof tools and explosion-proof equipment.

Large spill : Immediately contact emergency personnel. Stop leak if without risk. Use spark-proof tools and explosion-proof equipment. Note: see Section 1 for emergency contact information and Section 13 for waste disposal.

Section 7. Handling and storage

Precautions for safe handling

Section 7. Handling and storage

- Protective measures** : Put on appropriate personal protective equipment (see Section 8). Contains gas under pressure. Avoid contact with eyes, skin and clothing. Avoid breathing gas. Keep away from clothing, incompatible materials and combustible materials. Keep reduction valves free from grease and oil. Empty containers retain product residue and can be hazardous. Do not puncture or incinerate container. Use equipment rated for cylinder pressure. Close valve after each use and when empty. Protect cylinders from physical damage; do not drag, roll, slide, or drop. Use a suitable hand truck for cylinder movement.
- Advice on general occupational hygiene** : Eating, drinking and smoking should be prohibited in areas where this material is handled, stored and processed. Workers should wash hands and face before eating, drinking and smoking. Remove contaminated clothing and protective equipment before entering eating areas. See also Section 8 for additional information on hygiene measures.
- Conditions for safe storage, including any incompatibilities** : Store in accordance with local regulations. Store in a segregated and approved area. Store away from direct sunlight in a dry, cool and well-ventilated area, away from incompatible materials (see Section 10). Separate from acids, alkalis, reducing agents and combustibles. Keep container tightly closed and sealed until ready for use. Cylinders should be stored upright, with valve protection cap in place, and firmly secured to prevent falling or being knocked over. Cylinder temperatures should not exceed 52 °C (125 °F).

Section 8. Exposure controls/personal protection

Control parameters

Occupational exposure limits

oxygen

None.

- Appropriate engineering controls** : Good general ventilation should be sufficient to control worker exposure to airborne contaminants.
- Environmental exposure controls** : Emissions from ventilation or work process equipment should be checked to ensure they comply with the requirements of environmental protection legislation. In some cases, fume scrubbers, filters or engineering modifications to the process equipment will be necessary to reduce emissions to acceptable levels.

Individual protection measures

- Hygiene measures** : Wash hands, forearms and face thoroughly after handling chemical products, before eating, smoking and using the lavatory and at the end of the working period. Appropriate techniques should be used to remove potentially contaminated clothing. Wash contaminated clothing before reusing. Ensure that eyewash stations and safety showers are close to the workstation location.
- Eye/face protection** : Safety eyewear complying with an approved standard should be used when a risk assessment indicates this is necessary to avoid exposure to liquid splashes, mists, gases or dusts. If contact is possible, the following protection should be worn, unless the assessment indicates a higher degree of protection: safety glasses with side-shields.
- Skin protection**
- Hand protection** : Chemical-resistant, impervious gloves complying with an approved standard should be worn at all times when handling chemical products if a risk assessment indicates this is necessary. Considering the parameters specified by the glove manufacturer, check during use that the gloves are still retaining their protective properties. It should be noted that the time to breakthrough for any glove material may be different for different glove manufacturers. In the case of mixtures, consisting of several substances, the protection time of the gloves cannot be accurately estimated.
- Body protection** : Personal protective equipment for the body should be selected based on the task being performed and the risks involved and should be approved by a specialist before handling this product.

Section 8. Exposure controls/personal protection

- Other skin protection** : Appropriate footwear and any additional skin protection measures should be selected based on the task being performed and the risks involved and should be approved by a specialist before handling this product.
- Respiratory protection** : Use a properly fitted, air-purifying or air-fed respirator complying with an approved standard if a risk assessment indicates this is necessary. Respirator selection must be based on known or anticipated exposure levels, the hazards of the product and the safe working limits of the selected respirator.

Section 9. Physical and chemical properties

Appearance

- Physical state** : Gas. [Compressed gas.]
- Color** : Colorless. Blue.
- Molecular weight** : 32 g/mole
- Molecular formula** : O₂
- Boiling/condensation point** : -183°C (-297.4°F)
- Melting/freezing point** : -218.4°C (-361.1°F)
- Critical temperature** : -118.15°C (-180.7°F)
- Odor** : Odorless.
- Odor threshold** : Not available.
- pH** : Not available.
- Flash point** : [Product does not sustain combustion.]
- Burning time** : Not applicable.
- Burning rate** : Not applicable.
- Evaporation rate** : Not available.
- Flammability (solid, gas)** : Extremely flammable in the presence of the following materials or conditions: reducing materials, combustible materials and organic materials.
- Lower and upper explosive (flammable) limits** : Not available.
- Vapor pressure** : Not available.
- Vapor density** : 1.1 (Air = 1)
- Specific Volume (ft³/lb)** : 12.0482
- Gas Density (lb/ft³)** : 0.083
- Relative density** : Not applicable.
- Solubility** : Not available.
- Solubility in water** : Not available.
- Partition coefficient: n-octanol/water** : 0.65
- Auto-ignition temperature** : Not available.
- Decomposition temperature** : Not available.
- SADT** : Not available.
- Viscosity** : Not applicable.

Section 10. Stability and reactivity

- Reactivity** : No specific test data related to reactivity available for this product or its ingredients.
- Chemical stability** : The product is stable.

Section 10. Stability and reactivity

Possibility of hazardous reactions : Hazardous reactions or instability may occur under certain conditions of storage or use. Conditions may include the following:
contact with combustible materials
Reactions may include the following:
risk of causing fire

Conditions to avoid : No specific data.

Incompatible materials : Highly reactive or incompatible with the following materials:
combustible materials
reducing materials
grease
oil

Hazardous decomposition products : Under normal conditions of storage and use, hazardous decomposition products should not be produced.

Hazardous polymerization : Under normal conditions of storage and use, hazardous polymerization will not occur.

Section 11. Toxicological information

Information on toxicological effects

Acute toxicity

Not available.

Irritation/Corrosion

Not available.

Sensitization

Not available.

Mutagenicity

Not available.

Carcinogenicity

Not available.

Reproductive toxicity

Not available.

Teratogenicity

Not available.

Specific target organ toxicity (single exposure)

Not available.

Specific target organ toxicity (repeated exposure)

Not available.

Aspiration hazard

Not available.

Information on the likely routes of exposure : Not available.

Potential acute health effects

Eye contact : Contact with rapidly expanding gas may cause burns or frostbite.

Inhalation : No known significant effects or critical hazards.

Section 11. Toxicological information

- Skin contact** : Contact with rapidly expanding gas may cause burns or frostbite.
Ingestion : As this product is a gas, refer to the inhalation section.

Symptoms related to the physical, chemical and toxicological characteristics

- Eye contact** : No specific data.
Inhalation : No specific data.
Skin contact : No specific data.
Ingestion : No specific data.

Delayed and immediate effects and also chronic effects from short and long term exposure

Short term exposure

- Potential immediate effects** : Not available.
Potential delayed effects : Not available.

Long term exposure

- Potential immediate effects** : Not available.
Potential delayed effects : Not available.

Potential chronic health effects

Not available.

- General** : No known significant effects or critical hazards.
Carcinogenicity : No known significant effects or critical hazards.
Mutagenicity : No known significant effects or critical hazards.
Teratogenicity : No known significant effects or critical hazards.
Developmental effects : No known significant effects or critical hazards.
Fertility effects : No known significant effects or critical hazards.

Numerical measures of toxicity

Acute toxicity estimates

Not available.

Section 12. Ecological information

Toxicity

Not available.

Persistence and degradability

Not available.

Bioaccumulative potential

Product/ingredient name	LogP _{ow}	BCF	Potential
oxygen	0.65	-	low

Mobility in soil

- Soil/water partition coefficient (K_{oc})** : Not available.






Section 12. Ecological information

Other adverse effects : No known significant effects or critical hazards.

Section 13. Disposal considerations

Disposal methods : The generation of waste should be avoided or minimized wherever possible. Disposal of this product, solutions and any by-products should at all times comply with the requirements of environmental protection and waste disposal legislation and any regional local authority requirements. Dispose of surplus and non-recyclable products via a licensed waste disposal contractor. Waste should not be disposed of untreated to the sewer unless fully compliant with the requirements of all authorities with jurisdiction. Empty Airgas-owned pressure vessels should be returned to Airgas. Waste packaging should be recycled. Incineration or landfill should only be considered when recycling is not feasible. This material and its container must be disposed of in a safe way. Empty containers or liners may retain some product residues. Do not puncture or incinerate container.

Section 14. Transport information

	DOT	TDG	Mexico	IMDG	IATA
UN number	UN1072	UN1072	UN1072	UN1072	UN1072
UN proper shipping name	OXYGEN, COMPRESSED	OXYGEN, COMPRESSED	OXYGEN, COMPRESSED	OXYGEN, COMPRESSED	OXYGEN, COMPRESSED
Transport hazard class(es)	2.2 (5.1) 	2.2 	2.2 (5.1) 	2.2 (5.1) 	2.2 (5.1) 
Packing group	-	-	-	-	-
Environment	No.	No.	No.	No.	No.
Additional information	<p>Limited quantity Yes.</p> <p>Packaging instruction Passenger aircraft Quantity limitation: 75 kg</p> <p>Cargo aircraft Quantity limitation: 150 kg</p> <p>Special provisions A52</p>	<p>Product classified as per the following sections of the Transportation of Dangerous Goods Regulations: 2.13-2.17 (Class 2), 2.23-2.25 (Class 5).</p> <p>Explosive Limit and Limited Quantity Index 0.125</p> <p>ERAP Index 3000</p> <p>Passenger Carrying Ship Index 50</p> <p>Passenger Carrying Road or Rail Index 75</p> <p>Special provisions 42</p>	-	-	<p>Passenger and Cargo AircraftQuantity limitation: 75 kg Cargo Aircraft Only Quantity limitation: 150 kg</p>

“Refer to CFR 49 (or authority having jurisdiction) to determine the information required for shipment of the product.”

Special precautions for user : **Transport within user’s premises:** always transport in closed containers that are upright and secure. Ensure that persons transporting the product know what to do in the event of an accident or spillage.

Section 14. Transport information

Transport in bulk according to Annex II of MARPOL 73/78 and the IBC Code : Not available.

Section 15. Regulatory information

U.S. Federal regulations : **TSCA 8(a) CDR Exempt/Partial exemption:** This material is listed or exempted.
United States inventory (TSCA 8b): This material is listed or exempted.

Clean Air Act Section 112 (b) Hazardous Air Pollutants (HAPs) : Not listed

Clean Air Act Section 602 Class I Substances : Not listed

Clean Air Act Section 602 Class II Substances : Not listed

DEA List I Chemicals (Precursor Chemicals) : Not listed

DEA List II Chemicals (Essential Chemicals) : Not listed

SARA 302/304

Composition/information on ingredients

No products were found.

SARA 304 RQ : Not applicable.

SARA 311/312

Classification : Sudden release of pressure

Composition/information on ingredients

Name	%	Fire hazard	Sudden release of pressure	Reactive	Immediate (acute) health hazard	Delayed (chronic) health hazard
oxygen	100	No.	Yes.	No.	No.	No.

State regulations

Massachusetts : This material is listed.

New York : This material is not listed.

New Jersey : This material is listed.

Pennsylvania : This material is listed.

International regulations

International lists

National inventory

Australia : This material is listed or exempted.

Canada : This material is listed or exempted.

China : This material is listed or exempted.

Europe : This material is listed or exempted.

Japan : Not determined.

Malaysia : Not determined.

New Zealand : This material is listed or exempted.

Philippines : This material is listed or exempted.

Republic of Korea : This material is listed or exempted.

Taiwan : This material is listed or exempted.

Section 15. Regulatory information

Canada

WHMIS (Canada)

: Class A: Compressed gas.
Class C: Oxidizing material.

CEPA Toxic substances: This material is not listed.

Canadian ARET: This material is not listed.

Canadian NPRI: This material is not listed.

Alberta Designated Substances: This material is not listed.

Ontario Designated Substances: This material is not listed.

Quebec Designated Substances: This material is not listed.

Section 16. Other information

Canada Label requirements : Class A: Compressed gas.
Class C: Oxidizing material.

Hazardous Material Information System (U.S.A.)

Health	0
Flammability	0
Physical hazards	3

Caution: HMIS® ratings are based on a 0-4 rating scale, with 0 representing minimal hazards or risks, and 4 representing significant hazards or risks. Although HMIS® ratings are not required on SDSs under 29 CFR 1910.1200, the preparer may choose to provide them. HMIS® ratings are to be used with a fully implemented HMIS® program. HMIS® is a registered mark of the National Paint & Coatings Association (NPCA). HMIS® materials may be purchased exclusively from J. J. Keller (800) 327-6868.

The customer is responsible for determining the PPE code for this material.

National Fire Protection Association (U.S.A.)



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Copyright ©2001, National Fire Protection Association, Quincy, MA 02269. This warning system is intended to be interpreted and applied only by properly trained individuals to identify fire, health and reactivity hazards of chemicals. The user is referred to certain limited number of chemicals with recommended classifications in NFPA 49 and NFPA 325, which would be used as a guideline only. Whether the chemicals are classified by NFPA or not, anyone using the 704 systems to classify chemicals does so at their own risk.

Procedure used to derive the classification

Classification	Justification
Ox. Gas 1, H270 Press. Gas Comp. Gas, H280	Expert judgment According to package

History

Date of printing : 8/26/2015
Date of issue/Date of revision : 8/26/2015
Date of previous issue : No previous validation
Version : 0.01

Section 16. Other information

Key to abbreviations

: ATE = Acute Toxicity Estimate
BCF = Bioconcentration Factor
GHS = Globally Harmonized System of Classification and Labelling of Chemicals
IATA = International Air Transport Association
IBC = Intermediate Bulk Container
IMDG = International Maritime Dangerous Goods
LogPow = logarithm of the octanol/water partition coefficient
MARPOL 73/78 = International Convention for the Prevention of Pollution From Ships, 1973 as modified by the Protocol of 1978. ("Marpol" = marine pollution)
UN = United Nations

References

: Not available.

▣ Indicates information that has changed from previously issued version.

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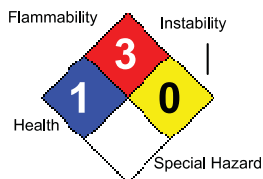
Final determination of suitability of any material is the sole responsibility of the user. All materials may present unknown hazards and should be used with caution. Although certain hazards are described herein, we cannot guarantee that these are the only hazards that exist.

SAFETY DATA SHEET

Denatured Alcohol

Page: 1

HEALTH	*	2
FLAMMABILITY		3
PHYSICAL		0
PPE		X



Printed: 04/15/2013
Revision: 04/15/2013
Supersedes Revision: 06/08/2012

1. Product and Company Identification

Product Code: 1625.6
Product Name: Denatured Alcohol
Manufacturer Information
Company Name: W. M. Barr
2105 Channel Avenue
Memphis, TN 38113
Phone Number: (901)775-0100
Emergency Contact: 3E 24 Hour Emergency Contact (800)451-8346
Information: W.M. Barr Customer Service (800)398-3892
Web site address: www.wmbarr.com
Preparer Name: W.M. Barr EHS Dept (901)775-0100
Synonyms
CSL26, DSL26, GSL26, QSL26

2. Hazards Identification

GHS Classification

GHS Hazard Phrases

No data available.

GHS Precaution Phrases

No data available.

GHS Response Phrases

No data available.

GHS Storage and Disposal Phrases

No data available.

Potential Health Effects (Acute and Chronic)

Inhalation Acute Exposure Effects:

Vapor harmful. May cause dizziness, headache, watering of eyes, irritation of respiratory tract, irritation to the eyes, drowsiness, nausea, other central nervous system effects, spotted or blurry vision, dilation of pupils, and convulsions.

Skin Contact Acute Exposure Effects:

May cause irritation, drying of skin, redness, and dermatitis. May cause symptoms listed under inhalation. May be absorbed through damaged skin.

Eye Contact Acute Exposure Effects:

May cause irritation.

Ingestion Acute Exposure Effects:

Poison. Cannot be made non-poisonous. May be fatal or cause blindness. May produce fluid in the lungs and pulmonary edema. May cause dizziness, headache, nausea, drowsiness, loss of coordination, stupor, reddening of face and or neck, liver, kidney and heart damage, coma, and death. May produce symptoms listed under inhalation.

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Chronic Exposure Effects:

May cause symptoms listed under inhalation, dizziness, fatigue, tremors, permanent central nervous system changes, blindness, pancreatic damage, and death.

Target Organs:

Liver, kidneys, pancreas, heart, lungs, brain, central nervous system, eyes

Medical Conditions Generally Aggravated By Exposure

Diseases of the liver, skin, lung, kidney, central nervous system, pancreas, and heart; asthma; inflammatory or fibrotic pulmonary disease; any preexisting condition sensitive to a decrease in available oxygen, such as chronic lung disease, coronary artery disease, or anemias

OSHA Regulatory Status:

This material is classified as hazardous under OSHA regulations.

3. Composition/Information on Ingredients

Hazardous Components (Chemical Name)	CAS #	Concentration
1. Ethyl alcohol {Ethanol}	64-17-5	40.0 -50.0 %
2. Methanol {Methyl alcohol; Carbinol; Wood alcohol}	67-56-1	50.0 -55.0 %
3. Methyl isobutyl ketone {Hexone; Isopropylacetone; MIBK; 4-Methyl-2-pentanone}	108-10-1	1.0 -4.0 %
4. Acetic acid, ethyl ester {Ethyl acetate}	141-78-6	0.5 -1.5 %
5. Heptane	142-82-5	0.5 -1.5 %

4. First Aid Measures

Emergency and First Aid Procedures

Skin:

Immediately begin washing the skin thoroughly with large amounts of water and mild soap, if available, while removing contaminated clothing. Seek medical attention if irritation persists.

Eyes:

Immediately begin to flush eyes with water, remove any contact lens. Continue to flush the eyes for at least 15 minutes, then seek immediate medical attention.

Inhalation:

Remove to fresh air. If not breathing, give artificial respiration. If breathing is difficult, give oxygen. Get immediate medical attention.

Ingestion:

If swallowed, do NOT induce vomiting. Seek immediate medical attention. Call a physician, hospital emergency room, or poison control center immediately. Never give anything by mouth to an unconscious person.

Note to Physician

Poison. This product contains methanol. Methanol is metabolized to formaldehyde and formic acid. These metabolites may cause metabolic acidosis, visual disturbances and blindness. Since metabolism is required for these toxic symptoms, their onset may be delayed from 6 to 30 hours following ingestion. Ethanol competes for the same metabolic pathway and has been used as an antidote. Methanol is effectively removed by hemodialysis. Call your local poison control center for further instructions.

Signs and Symptoms Of Exposure

See Potential Health Affects

5. Fire Fighting Measures

Flammability Classification:	OSHA Class IB
Flash Pt:	45 F Method Used: Setaflash Closed Cup (Rapid Setaflash)
Explosive Limits:	LEL: No data. UEL: No data.
Autoignition Pt:	No data available.

Fire Fighting Instructions

Self-contained respiratory protection should be provided for fire fighters fighting fires in buildings or confined area. Storage containers exposed to fire should be kept cool with water spray to prevent pressure build-up. Stay away from heads of containers that have been exposed to intense heat or flame.

Flammable Properties and Hazards

Vapors are heavier than air. Vapor may travel considerable distance to source of ignition and flash back.

Hazardous Combustion Products

carbon monoxide, carbon dioxide

Suitable Extinguishing Media

Use carbon dioxide, dry powder, or alcohol resistant foam.

Unsuitable Extinguishing Media

Water may be ineffective. Solid streams of water will likely spread the fire.

6. Accidental Release Measures

Steps To Be Taken In Case Material Is Released Or Spilled

Vapors are heavier than air. Vapors may cause flash fire or ignite explosively.

Clean up: Keep unnecessary people away; isolate hazard area and deny entry. Stay upwind, out of low areas, and ventilate closed spaces before entering. Shut off ignition sources; keep flares, smoking or flames out of hazard area. Use non-sparking tools. Use proper bonding and grounding methods for all equipment and processes. Keep out of waterways and bodies of water. Be cautious of vapors collecting in small enclosed spaces, sewers, low lying areas, confined spaces, etc.

Small spills: Take up with sand, earth or other noncombustible absorbent material and place in a plastic container where applicable.

Large spills: Dike far ahead of spill for later disposal.

Waste Disposal: Dispose in accordance with applicable local, state and federal regulations.

7. Handling and Storage

Precautions To Be Taken in Handling

Read carefully all cautions and directions on product label before use. Since empty container retains residue, follow all label warnings even after container is empty. Dispose of empty container according to all regulations. Do not reuse this container.

Do not use this product near any source of heat or open flame, furnace areas, pilot lights, stoves, etc.

Do not use in small enclosed spaces, such as basements and bathrooms where vapors can accumulate. Vapors can accumulate and explode if ignited.

Do not use this product if the work area is not well ventilated. Use only with adequate ventilation to prevent build up of vapors.

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Do not spread this product over large surface areas because fire and health safety risks will increase dramatically.

Use proper bonding and grounding when transferring material. Be aware of static electricity generation when handling material.

Precautions To Be Taken in Storing

Keep container tightly closed when not in use. Store in a cool, dry place. Do not store near any source of heat or open flame, furnace areas, pilot lights, stoves, etc.

8. Exposure Controls/Personal Protection

Hazardous Components (Chemical Name)	CAS #	OSHA PEL	ACGIH TWA	Other Limits
1. Ethyl alcohol {Ethanol}	64-17-5	PEL: 1000 ppm	TLV: 1000 ppm	No data.
2. Methanol {Methyl alcohol; Carbinol; Wood alcohol}	67-56-1	PEL: 200 ppm	TLV: 200 ppm STEL: 250 ppm	No data.
3. Methyl isobutyl ketone {Hexone; Isopropylacetone; MIBK; 4-Methyl-2-pentanone}	108-10-1	PEL: 100 ppm	TLV: 50 ppm STEL: 75 ppm	No data.
4. Acetic acid, ethyl ester {Ethyl acetate}	141-78-6	PEL: 400 ppm	TLV: 400 ppm	No data.
5. Heptane	142-82-5	PEL: 500 ppm	TLV: 400 ppm	No data.

Respiratory Equipment (Specify Type)

For use in areas with inadequate ventilation or fresh air, wear a properly maintained and properly fitted NIOSH approved respirator for organic solvent vapors.

For OSHA controlled work places and other regular users - Use only with adequate ventilation under engineered air control systems designed to prevent exceeding the appropriate TLV.

A dust mask does not provide protection against vapors.

Eye Protection

Chemical splash goggles should be worn to prevent eye contact.

Protective Gloves

Wear gloves with as much resistance to the chemical ingredients as possible. Glove materials such as nitrile, natural rubber, and neoprene will provide protection. Glove selection should be based on chemicals being used and conditions of use. Consult your glove supplier for additional information. Gloves contaminated with product should be discarded and not reused.

Other Protective Clothing

Various application methods can dictate the use of additional protective safety equipment, such as impermeable aprons, etc., to minimize exposure.

Engineering Controls (Ventilation etc.)

Use process enclosures, local exhaust ventilation, or other engineering controls to control airborne levels below recommended exposure limits.

Use only with adequate ventilation to prevent buildup of vapors. Do not use in areas where vapors can accumulate and concentrate, such as basements, bathrooms or small enclosed areas. Whenever possible, use outdoors in an open air area. If using indoors open all windows and doors and maintain a cross ventilation of moving fresh air across the work area. If strong odor is noticed or you experience slight dizziness, headache, nausea or eye-watering -- STOP -- ventilation is inadequate. Leave area immediately and move to fresh air.

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Work/Hygienic/Maintenance Practices

Wash hands thoroughly after use and before eating, drinking, smoking, or using the restroom.

Do not eat, drink, or smoke in the work area.

Discard any clothing or other protective equipment that cannot be decontaminated.

Facilities storing or handling this material should be equipped with an emergency eyewash and safety shower.

9. Physical and Chemical Properties

Physical States:	[] Gas [X] Liquid [] Solid
Melting Point:	No data.
Boiling Point:	150 F
Autoignition Pt:	No data.
Flash Pt:	45 F Method Used: Setaflash Closed Cup (Rapid Setaflash)
Specific Gravity (Water = 1):	0.7934 - 0.8108
Density:	6.646 LB/GL
Vapor Pressure (vs. Air or mm Hg):	76 MM HG at 68 F
Vapor Density (vs. Air = 1):	> 1
Evaporation Rate:	> 1
Solubility in Water:	No data.
Percent Volatile:	100 % by weight.
VOC / Volume:	790 G/L

Appearance and Odor

Water white, alcohol odor

10. Stability and Reactivity

Stability: Unstable [] Stable [X]

Conditions To Avoid - Instability

No data available.

Incompatibility - Materials To Avoid

Incompatible with strong oxidizing agents, strong acids, reactive metals, halogens, strong inorganic acids, and aldehydes.

Hazardous Decomposition Or Byproducts

Decomposition may produce carbon monoxide and carbon dioxide.

Possibility of Hazardous Reactions: Will occur [] Will not occur [X]

Conditions To Avoid - Hazardous Reactions

No data available.

11. Toxicological Information

Toxicological Information

Ethanol:

ACUTE TOXICITY:

LD50 Rat oral 7060 mg/kg

LC50 Rat inhalation 20000 ppm/ 10 hr

SKIN CORROSION / IRRITATION: Skin irritant.

SERIOUS EYE DAMAGE / IRRITATION: Eye irritant. Will cause burning and stinging.

RESPIRATORY OR SKIN SENSITIZATION: Ethanol has been shown to have a weak skin sensitizing potential in a very small percentage of the population.

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ASPIRATION HAZARD: No data.

MUTAGENIC DATA: No data.

IMMUNOTOXICITY: No data.

NEUROTOXICITY: The clinical features of ethanol intoxication in a nontolerant individual are related to blood alcohol levels: at 50 to 150 mg/dL (0.05 to 0.15%), there is mild intoxication: slight impairment of visual acuity, muscular incoordination, and reaction time; and mood personality, and behavioral changes; at 150 to 300 mg/dL (0.15 to 0.30%), moderate intoxication occurs, resulting in visual impairment, sensory loss, muscular incoordination, slowed reaction time, and slurred speech; at 300 to 500 mg/dL (0.30 to 0.50%), there is severe intoxication characterized by marked muscular incoordination, blurred or double vision, sometimes stupor and hypothermia, vomiting and nausea, and occasional hypoglycemia and convulsions; and at > 400 mg/dL (0.40%), there are coma, respiratory depression, hypotension and hypothermia, and death from respiratory or circulatory failure or as a result of aspiration of stomach contents in the absence of a gag reflex.

DEVELOPMENTAL/REPRODUCTIVE: Prenatal exposure to ethanol (as alcoholic beverages) is associated with a distinct pattern of congenital malformations that have been collectively termed the fetal alcohol syndrome. There have been no reports of fetal alcohol syndrome as a result of industrial exposure by the oral, dermal, or inhalation routes.

CARCINOGEN STATUS: Not classifiable as a human carcinogen.

Ethyl Acetate:

ACUTE TOXICITY:

LD50, rat, oral, 5,600 mg/kg

LC50, rat, inhalation, 16,000 ppm, 6 hr

LD50, rabbit, skin, >20 mL/kg

SKIN CORROSION / IRRITATION: Causes slight skin irritation.

SERIOUS EYE DAMAGE / IRRITATION: Causes eye irritation.

RESPIRATORY OR SKIN SENSITIZATION: Not a sensitizer.

ASPIRATION HAZARD: No data.

MUTAGENIC DATA: Ethyl acetate was negative for mutagenicity in Salmonella typhimurium assays.

IMMUNOTOXICITY: No data.

NEUROTOXICITY: High concentrations may cause CNS depression.

DEVELOPMENTAL/REPRODUCTIVE: No data.

CARCINOGEN STATUS: No data.

Heptane:

LD50 Mouse iv 222 mg/kg

LD50 Mouse inhalation 75 g/cu m/2 hr

LC50 Rat inhalation 103 g/cu m/4 hr

Methanol:

ACUTE TOXICITY:

LD50 Rat oral 5628 mg/kg

LC50 Rat inhalation 64000 ppm/4 hr

LC50 Rat inhalation 87.5 mg/L/6 hr

LD50 Mouse oral 7300 mg/kg

SKIN CORROSION / IRRITATION: LD50 Rabbit dermal 15,800 mg/kg bw

SERIOUS EYE DAMAGE / IRRITATION: Methanol is a mild to moderate eye irritant.

RESPIRATORY OR SKIN SENSITIZATION: Not a respiratory or skin sensitizer.

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ASPIRATION HAZARD: Methanol presents an aspiration hazard.

MUTAGENIC DATA: No data.

IMMUNOTOXICITY: No data.

NEUROTOXICITY: Overexposure to methanol has been suggested as causing central nervous system damage in laboratory animals.

DEVELOPMENTAL/REPRODUCTIVE: The inhalation of methanol by pregnant rodents throughout the period of embryogenesis induces a wide range of concentration-dependent teratogenic and embryo-lethal effects.

Methanol has caused birth defects in laboratory animals, but only when inhaled at extremely high vapor concentrations. The relevance of this finding to humans is uncertain.

CARCINOGEN STATUS: There is no evidence from animal studies to suggest methanol is a carcinogen.

Methyl Isobutyl Ketone:

LD50 Rabbit dermal >16000 mg/kg bw

LC50 Rat inhalation 8.2-16.4 mg/L/4 hr

LD50 Mouse ip 590 mg/kg bw

LD50 Guinea pig ip 0.919 mL/kg

LC50 Mouse inhalation, CF-1, 74.2 + or - 25.8 mg/L/45 min

LD50 Rat ip 1.14 mL/kg

LD50 Mouse oral 2850 mg/kg bw

LD50 Mouse oral 1900 mg/kg bw

LD50 Rat oral 4600 mg/kg bw

LD50 Rat oral 2.08 g/kg

CAS# 67-56-1:

Reproductive Effects:, TDLo, Oral, Rat, 42.00 mL/kg, 21 day after birth.

Result:

Effects on Newborn: Behavioral.

- Neurotoxicology and Teratology., Pergamon Press Inc., Maxwell House, Fairview Park, Elmsford, NY 10523, Vol/p/yr: 24,519, 2002

Mutagenicity:, Mutation test: DNA damage., Oral, Rat, 10.00 UMOL/KG.

Result:

Tumorigenic: Equivocal tumorigenic agent by RTECS criteria.

Tumorigenic:Tumors at site of application.

- Environmental Mutagenesis., For publisher information, see EMMUEG, New York, NY, Vol/p/yr: 4,317, 1982

Acute toxicity, LD50, Oral, Rat, 5628. MG/KG.

Result:

Effects on Embryo or Fetus: Fetotoxicity (except death, e.g., stunted fetus).

- Gigiena Truda i Professional'nye Zabolevaniya.(Labor Hygiene and Occupational Disease), V/O Mezhdunarodnaya Kniga, Moscow 113095 Russia, Vol/p/yr: 19(11),27, 1975

Acute toxicity, LC50, Inhalation, Rat, 64000. PPM, 4 H.

Result:

Behavioral: Altered sleep time (including change in righting reflex).

Behavioral: Somnolence (general depressed activity).

Lungs, Thorax, or Respiration:Dyspnea.

- Raw Material Data Handbook, Vol.1: Organic Solvents, 1974., National Assoc. of Printing Ink Research Institute, Francis McDonald Sinclair Memorial Labor, Lehigh Univ., Bethlehem, PA 18015, Vol/p/yr: 1,74, 1974

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Acute toxicity, TDLo, Oral, Rat, 3.000 gm/kg.

Result:

Liver: Other changes.

- Toxicologist., Soc. of Toxicology, Inc., 475 Wolf Ledge Parkway, Akron, OH 44311, Vol/p/yr: 72,315, 2003

Standard Draize Test, Skin, Species: Rabbit, 20.00 MG, 24 H, Moderate.

Result:

Blood:Other changes.

Biochemical: Metabolism (Intermediary): Other proteins.

- Prehled Prumyslove Toxikologie, Marhold, J., Organicke Latky, Prague Czechoslovakia, Vol/p/yr: -,187, 1986

Standard Draize Test, Eyes, Species: Rabbit, 40.00 MG, Moderate.

Result:

Blood:Other hemolysis with or without anemia.

Blood:Other changes.

Biochemical: Metabolism (Intermediary): Other proteins.

- Union Carbide Data Sheet, Union Carbide Corp., 39 Old Ridgebury Rd., Danbury, CT 06817, Vol/p/yr: 3/24, 1970

Standard Draize Test, Eyes, Species: Rabbit, 100.0 MG, 24 H, Moderate.

Result:

Blood:Changes in serum composition (e.g.

Biochemical:Enzyme inhibition, induction, or change in blood or tissue levels: Phosphatases.

Biochemical:Enzyme inhibition, induction, or change in blood or tissue levels: Transaminases.

- Prehled Prumyslove Toxikologie, Marhold, J., Organicke Latky, Prague Czechoslovakia, Vol/p/yr: -,187, 1986

Chronic Toxicological Effects

No data available.

Carcinogenicity/Other Information

IARC 2B - Possibly Carcinogenic to Humans

ACGIH A4 - Not Classifiable as a Human Carcinogen.

IARC has determined that the consumption of alcoholic beverages is casually related to the occurrence of malignant tumors of the oral cavity, pharynx, larynx, esophagus, and liver in humans. The carcinogenic response attributed to drinking alcoholic beverages has not been verified in studies with laboratory animals. Established uses of denatured ethanol and non-beverage use of pure ethanol are not considered to pose any significant cancer hazard.

Hazardous Components (Chemical Name)	CAS #	NTP	IARC	ACGIH	OSHA
1. Ethyl alcohol {Ethanol}	64-17-5	n.a.	1	A4	n.a.
2. Methanol {Methyl alcohol; Carbinol; Wood alcohol}	67-56-1	n.a.	n.a.	n.a.	n.a.
3. Methyl isobutyl ketone {Hexone; Isopropylacetone; MIBK; 4-Methyl-2-pentanone}	108-10-1	n.a.	2B	n.a.	n.a.
4. Acetic acid, ethyl ester {Ethyl acetate}	141-78-6	n.a.	n.a.	n.a.	n.a.
5. Heptane	142-82-5	n.a.	n.a.	n.a.	n.a.

12. Ecological Information

General Ecological Information

Ethanol:

TOXICITY:

LC50 *Salmo gairdnerii* (Rainbow trout) 13000 mg/L/96 hr at 12 deg C (95% Confidence limit 12000-16000 mg/L), wt 0.8 g /Static bioassay/

LC50 *Pimephales promelas* (fathead minnows) 15.3 g/L/96 hr (95% confidence limit 14.0-16.6 g/L); age 30 days old, water hardness 47.3 mg/L (CaCO₃), temp 24.3 deg C, pH 7.60, dissolved oxygen 6.8 mg/L, alkalinity 43.7 mg/L (CaCO₃); tank vol: 6.3 L; additions: 3.81 vol/day /Flow-through bioassay/

PERSISTENCE AND DEGRADABILITY: If released to the atmosphere, an extrapolated vapor pressure of 59.3 mm Hg at 25 deg C indicates that ethanol will exist solely in the vapor phase. Vapor phase ethanol is degraded in the atmosphere by reaction with photochemically-produced hydroxyl radicals; the half-life for this reaction in air is estimated to be 5 days. Volatilization from moist soil surfaces is expected to be an important fate process based upon a Henry's Law constant of 5×10^{-6} atm-cu m/mole. Ethanol may also volatilize from dry soils based upon its vapor pressure. Biodegradation is expected to occur rapidly in the environment based on numerous screening tests using different types of inocula and incubation periods. Ethanol was degraded with half-lives on the order of a few days using microcosms constructed with a low organic sandy soil and groundwater, indicating it is unlikely to be persistent in the environment.

BIOACCUMULATIVE POTENTIAL: If released into water, ethanol is not expected to adsorb to suspended solids and sediment based upon the estimated K_{oc}. An estimated BCF of 3 suggests the potential for bioconcentration in aquatic organisms is low.

MOBILITY IN SOIL: If released to soil, ethanol is expected to have very high mobility based upon an estimated K_{oc} of 1.

OTHER ADVERSE EFFECTS: No data.

Ethyl Acetate:

Toxicity:

LC50 *HETEROPNEUSTES FOSSILIS* (COMMON INDIAN CATFISH) 212.5 PPM/96 HR /

LC50 *Pimephales promelas* (fathead minnow) 230 mg/l/96 hr

EC50 *Pimephales promelas* (fathead minnow) 220 mg/l/96 hr

Persistence and Degradability: Biodegradation is expected to be an important process in both soil and water.

Bioaccumulative Potential: If released into water, ethyl acetate is not expected to adsorb to suspended solids and sediment in water based on the estimated K_{oc}. An estimated BCF of 3.2 suggests the potential for bioconcentration in aquatic organisms is low.

Mobility in Soil: Expected to have high mobility based upon an estimated K_{oc} of 59.

Methanol:

TOXICITY: Methanol is of low toxicity to aquatic organisms. LC50 *Pimephales promelas* (fathead minnows) 29.4 g/L/96 hr, (28-29 days old), confidence limit= 28.5-30.4; Test conditions: Water temp= 25 deg C, dissolved oxygen= 7.3 mg/L, water hardness= 43.5 mg/l calcium carbonate, alkalinity= 46.6 calcium carbonate, tank volume= 6.3 L, additions= 5.71 V/D, pH= 7.66 (0.03).

PERSISTENCE AND DEGRADABILITY: If released to the atmosphere, a vapor pressure of 127 mm Hg at 25 deg C indicates that methanol will exist solely in the vapor phase. Vapor phase methanol is degraded in the atmosphere by reaction with photochemically-produced hydroxyl radicals; the half-life for this reaction in air is estimated to be 17 days. Volatilization from moist soil surfaces is expected to be an important fate process based upon a Henry's Law constant of 4.55×10^{-6} atm-cu m/mole. Methanol may also volatilize from dry soils based upon its vapor pressure. Biodegradation of methanol in soils is expected to occur rapidly based on half-lives in a sandy silt loam from Texas and a sandy loam from Mississippi of 1 and 3.2 days, respectively. If released into

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water, methanol is not expected to adsorb to suspended solids and sediment based upon the estimated Koc. Volatilization from water surfaces is expected to be an important fate process based upon this compound's Henry's Law constant. Estimated volatilization half-lives for a model river and model lake are 3 and 35 days, respectively. Biodegradation is expected to occur in natural waters since methanol is degraded quickly in soils and was biodegraded rapidly in various aqueous screening tests using sewage seed or activated sludge. Hydrolysis of methanol and photolysis in sunlit surface waters are not expected since methanol lacks functional groups that are susceptible to hydrolysis or photolysis under environmental conditions.

BIOACCUMULATIVE POTENTIAL: BCF values of less than 10, measured in fish suggests bioconcentration in aquatic organisms is low.

MOBILITY IN SOIL: If released to soil, methanol is expected to have very high mobility based upon an estimated Koc of 1.

Methyl Isobutyl Ketone:

Toxicity:

LC50 fathead minnow 96 hr 780 mg/L

LC50 water flea 48 hr >1,000 mg/L

LC50 bacteria 16 hr >1,000 mg/L

Persistence and Degradability: A biodegradation rate of 0.24 1/hr using activated sludge suggests that biodegradation is an important environmental fate process.

Bioaccumulative Potential: An estimated BCF of 2 suggests the potential for bioconcentration in aquatic organisms is low.

Mobility in Soil: Expected to have high mobility based upon an estimated Koc of 120.

Results of PBT and vPvB assessment

CAS# 67-56-1:

LC50, Fathead Minnow (*Pimephales promelas*), 28400. MG/L, 24 H, Mortality, Water temperature: 25 C C.

Result:

Sex Effects.

- Toxicity and Metabolism Studies with EPA (Environmental Protection Agency) Priority Pollutants and Related Chemicals in Freshwater Organisms, Call, D.J., L.T. Brooke, N. Ahmad, and J.E. Richter, 1983

LC50, Fathead Minnow (*Pimephales promelas*), 28400. MG/L, 48 H, Mortality, Water temperature: 25 C C.

Result:

Sex Effects.

- Toxicity and Metabolism Studies with EPA (Environmental Protection Agency) Priority Pollutants and Related Chemicals in Freshwater Organisms, Call, D.J., L.T. Brooke, N. Ahmad, and J.E. Richter, 1983

LC50, Fathead Minnow (*Pimephales promelas*), 28100. MG/L, 96 H, Mortality, Water temperature: 25 C C.

Result:

Sex Effects.

- Toxicity and Metabolism Studies with EPA (Environmental Protection Agency) Priority Pollutants and Related Chemicals in Freshwater Organisms, Call, D.J., L.T. Brooke, N. Ahmad, and J.E. Richter, 1983

LC50, Water Flea (*Daphnia magna*), larva(e), 100000. UG/L, 96 H, Mortality, Water temperature: 20 C C, pH: 8.50.

Result:

Sex Effects.

- Simultaneous Evaluation of the Acute Effects of Chemicals on Seven Aquatic Species, Ewell, W.S., J.W. Gorsuch, R.O. Kringle, K.A. Robillard, and R.C. Spiegel, 1986

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LC50, Water Flea (Daphnia magna), neonate, 4816. MG/L, 24 H, Mortality, Water temperature: 20 C C.

Result:

Age Effects.

- Acute Toxicity Test with Daphnia magna: An Alternative to Mammals in the Prescreening of Chemical Toxicity?, Guilhermino, L., T. Diamantino, M.C. Silva, and A.M.V.M. Soares, 2000

LC50, Water Flea (Daphnia magna), neonate, 3289. MG/L, 48 H, Mortality, Water temperature: 20 C C.

Result:

Age Effects.

- Acute Toxicity Test with Daphnia magna: An Alternative to Mammals in the Prescreening of Chemical Toxicity?, Guilhermino, L., T. Diamantino, M.C. Silva, and A.M.V.M. Soares, 2000

13. Disposal Considerations

Waste Disposal Method

Dispose in accordance with applicable local, state, and federal regulations.

14. Transport Information

LAND TRANSPORT (US DOT)

DOT Proper Shipping Name	Alcohols, n.o.s. (Ethyl Alcohol, Methanol)
DOT Hazard Class:	3
DOT Hazard Label:	FLAMMABLE LIQUID
UN/NA Number:	UN1987
Packing Group:	II

Additional Transport Information

The transportation information listed above is suitable for all modes of transportation. IMO/IMDG, ICAO/IATA, 49 CFR

For D.O.T. information, contact W.M. Barr Technical Services at 1-800-398-3892.

The shipper / supplier may apply one of the following exceptions: Combustible Liquid, Consumer Commodity, Limited Quantity, Viscous Liquid, Does Not Sustain Combustion, or others, as allowed under 49CFR Hazmat Regulations. Please consult 49CFR Subchapter C to ensure that subsequent shipments comply with these exceptions.

15. Regulatory Information

US EPA SARA Title III

Hazardous Components (Chemical Name)	CAS #	Sec.302 (EHS)	Sec.304 RQ	Sec.313 (TRI)	Sec.110
1. Ethyl alcohol {Ethanol}	64-17-5	No	No	No	No
2. Methanol {Methyl alcohol; Carbinol; Wood alcohol}	67-56-1	No	Yes 5000 LB	Yes	No
3. Methyl isobutyl ketone {Hexone; Isopropylacetone; MIBK; 4-Methyl-2-pentanone}	108-10-1	No	Yes 5000 LB	Yes	Yes
4. Acetic acid, ethyl ester {Ethyl acetate}	141-78-6	No	Yes 5000 LB	No	No
5. Heptane	142-82-5	No	No	No	No

Other US EPA or State Lists

Hazardous Components (Chemical Name)	CAS #	CAA HAP,ODC	CWA NPDES	TSCA	CA PROP.65
1. Ethyl alcohol {Ethanol}	64-17-5	No	No	Inventory	No

SAFETY DATA SHEET

Denatured Alcohol

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Supersedes Revision: 06/08/2012

Hazardous Components (Chemical Name)	CAS #	CAA HAP,ODC	CWA NPDES	TSCA	CA PROP.65
2. Methanol {Methyl alcohol; Carbinol; Wood alcohol}	67-56-1	HAP	No	Inventory	Yes
3. Methyl isobutyl ketone {Hexone; Isopropylacetone; MIBK; 4-Methyl-2-pentanone}	108-10-1	HAP	No	Inventory	Yes
4. Acetic acid, ethyl ester {Ethyl acetate}	141-78-6	No	No	Inventory, 4 Test	No
5. Heptane	142-82-5	No	No	Inventory, 4 Test, 8A PAIR	No

EPA Hazard Categories:

This material meets the EPA 'Hazard Categories' defined for SARA Title III Sections 311/312 as indicated:

Yes No Acute (immediate) Health Hazard

Yes No Chronic (delayed) Health Hazard

Yes No Fire Hazard

Yes No Sudden Release of Pressure Hazard

Yes No Reactive Hazard

Regulatory Information Statement

All components of this material are listed on the TSCA Inventory or are exempt.

16. Other Information

Company Policy or Disclaimer

The information contained herein is presented in good faith and believed to be accurate as of the effective date shown above. This information is furnished without warranty of any kind. Employers should use this information only as a supplement to other information gathered by them and must make independent determination of suitability and completeness of information from all sources to assure proper use of these materials and the safety and health of employees. Any use of this data and information must be determined by the user to be in accordance with applicable federal, state and local laws and regulations.

Revision Date: 04/15/2013

SAFETY DATA SHEET

SECTION 1 PRODUCT AND COMPANY IDENTIFICATION

PRODUCT

Product Name: POWER GUARD HEAVY DUTY DIESEL ENGINE OIL FOR DETROIT DIESEL 2-CYCLE
Product Description: Base Oil and Additives
Product Code: 20203010F540, 451070-00, 97AS50
Intended Use: Engine oil

COMPANY IDENTIFICATION

Supplier: EXXON MOBIL CORPORATION
22777 Springwoods Village Parkway
Spring, TX. 77389 USA

24 Hour Health Emergency 609-737-4411
Transportation Emergency Phone 800-424-9300 or 703-527-3887 CHEMTREC
Product Technical Information 800-662-4525
MSDS Internet Address <http://www.exxon.com>, <http://www.mobil.com>

SECTION 2 HAZARDS IDENTIFICATION

This material is not hazardous according to regulatory guidelines (see (M)SDS Section 15).

Other hazard information:

HAZARD NOT OTHERWISE CLASSIFIED (HNOC): None as defined under 29 CFR 1910.1200.

PHYSICAL / CHEMICAL HAZARDS

No significant hazards.

HEALTH HAZARDS

High-pressure injection under skin may cause serious damage. Excessive exposure may result in eye, skin, or respiratory irritation.

ENVIRONMENTAL HAZARDS

No significant hazards.

NFPA Hazard ID:	Health: 0	Flammability: 1	Reactivity: 0
HMIS Hazard ID:	Health: 0	Flammability: 1	Reactivity: 0

NOTE: This material should not be used for any other purpose than the intended use in Section 1 without expert advice. Health studies have shown that chemical exposure may cause potential human health risks which may vary from person to person.

SECTION 3 COMPOSITION / INFORMATION ON INGREDIENTS

This material is defined as a mixture.

Hazardous Substance(s) or Complex Substance(s) required for disclosure

Name	CAS#	Concentration*	GHS Hazard Codes
ZINC DITHIOPHOSPHATE	68649-42-3	1 - 2.5%	H315, H318, H401, H411

* All concentrations are percent by weight unless material is a gas. Gas concentrations are in percent by volume.

As per paragraph (i) of 29 CFR 1910.1200, formulation is considered a trade secret and specific chemical identity and exact percentage (concentration) of composition may have been withheld. Specific chemical identity and exact percentage composition will be provided to health professionals, employees, or designated representatives in accordance with applicable provisions of paragraph (i).

SECTION 4 FIRST AID MEASURES

INHALATION

Remove from further exposure. For those providing assistance, avoid exposure to yourself or others. Use adequate respiratory protection. If respiratory irritation, dizziness, nausea, or unconsciousness occurs, seek immediate medical assistance. If breathing has stopped, assist ventilation with a mechanical device or use mouth-to-mouth resuscitation.

SKIN CONTACT

Wash contact areas with soap and water. If product is injected into or under the skin, or into any part of the body, regardless of the appearance of the wound or its size, the individual should be evaluated immediately by a physician as a surgical emergency. Even though initial symptoms from high pressure injection may be minimal or absent, early surgical treatment within the first few hours may significantly reduce the ultimate extent of injury.

EYE CONTACT

Flush thoroughly with water. If irritation occurs, get medical assistance.

INGESTION

First aid is normally not required. Seek medical attention if discomfort occurs.

SECTION 5 FIRE FIGHTING MEASURES

EXTINGUISHING MEDIA

Appropriate Extinguishing Media: Use water fog, foam, dry chemical or carbon dioxide (CO₂) to extinguish flames.

Inappropriate Extinguishing Media: Straight Streams of Water

FIRE FIGHTING

Fire Fighting Instructions: Evacuate area. Prevent runoff from fire control or dilution from entering streams,

sewers, or drinking water supply. Firefighters should use standard protective equipment and in enclosed spaces, self-contained breathing apparatus (SCBA). Use water spray to cool fire exposed surfaces and to protect personnel.

Hazardous Combustion Products: Smoke, Fume, Aldehydes, Sulfur oxides, Oxides of carbon, Incomplete combustion products

FLAMMABILITY PROPERTIES

Flash Point [Method]: >200°C (392°F) [ASTM D-92]

Flammable Limits (Approximate volume % in air): LEL: 0.9 UEL: 7.0

Autoignition Temperature: N/D

SECTION 6

ACCIDENTAL RELEASE MEASURES

NOTIFICATION PROCEDURES

In the event of a spill or accidental release, notify relevant authorities in accordance with all applicable regulations. US regulations require reporting releases of this material to the environment which exceed the applicable reportable quantity or oil spills which could reach any waterway including intermittent dry creeks. The National Response Center can be reached at (800)424-8802.

PROTECTIVE MEASURES

Avoid contact with spilled material. See Section 5 for fire fighting information. See the Hazard Identification Section for Significant Hazards. See Section 4 for First Aid Advice. See Section 8 for advice on the minimum requirements for personal protective equipment. Additional protective measures may be necessary, depending on the specific circumstances and/or the expert judgment of the emergency responders.

For emergency responders: Respiratory protection: respiratory protection will be necessary only in special cases, e.g., formation of mists. Half-face or full-face respirator with filter(s) for dust/organic vapor or Self Contained Breathing Apparatus (SCBA) can be used depending on the size of spill and potential level of exposure. If the exposure cannot be completely characterized or an oxygen deficient atmosphere is possible or anticipated, SCBA is recommended. Work gloves that are resistant to hydrocarbons are recommended. Gloves made of polyvinyl acetate (PVA) are not water-resistant and are not suitable for emergency use. Chemical goggles are recommended if splashes or contact with eyes is possible. Small spills: normal antistatic work clothes are usually adequate. Large spills: full body suit of chemical resistant, antistatic material is recommended.

SPILL MANAGEMENT

Land Spill: Stop leak if you can do it without risk. Recover by pumping or with suitable absorbent.

Water Spill: Stop leak if you can do it without risk. Confine the spill immediately with booms. Warn other shipping. Remove from the surface by skimming or with suitable absorbents. Seek the advice of a specialist before using dispersants.

Water spill and land spill recommendations are based on the most likely spill scenario for this material; however, geographic conditions, wind, temperature, (and in the case of a water spill) wave and current direction and speed may greatly influence the appropriate action to be taken. For this reason, local experts should be consulted. Note: Local regulations may prescribe or limit action to be taken.

ENVIRONMENTAL PRECAUTIONS

Large Spills: Dike far ahead of liquid spill for later recovery and disposal. Prevent entry into waterways, sewers, basements or confined areas.

SECTION 7 HANDLING AND STORAGE

HANDLING

Avoid contact with used product. Prevent small spills and leakage to avoid slip hazard. Material can accumulate static charges which may cause an electrical spark (ignition source). When the material is handled in bulk, an electrical spark could ignite any flammable vapors from liquids or residues that may be present (e.g., during switch-loading operations). Use proper bonding and/or ground procedures. However, bonding and grounds may not eliminate the hazard from static accumulation. Consult local applicable standards for guidance. Additional references include American Petroleum Institute 2003 (Protection Against Ignitions Arising out of Static, Lightning and Stray Currents) or National Fire Protection Agency 77 (Recommended Practice on Static Electricity) or CENELEC CLC/TR 50404 (Electrostatics - Code of practice for the avoidance of hazards due to static electricity).

Static Accumulator: This material is a static accumulator.

STORAGE

The container choice, for example storage vessel, may effect static accumulation and dissipation. Do not store in open or unlabelled containers.

SECTION 8 EXPOSURE CONTROLS / PERSONAL PROTECTION

Exposure limits/standards for materials that can be formed when handling this product: When mists/aerosols can occur the following are recommended: 5 mg/m³ - ACGIH TLV (inhalable fraction), 5 mg/m³ - OSHA PEL.

NOTE: Limits/standards shown for guidance only. Follow applicable regulations.

No biological limits allocated.

ENGINEERING CONTROLS

The level of protection and types of controls necessary will vary depending upon potential exposure conditions. Control measures to consider:

No special requirements under ordinary conditions of use and with adequate ventilation.

PERSONAL PROTECTION

Personal protective equipment selections vary based on potential exposure conditions such as applications, handling practices, concentration and ventilation. Information on the selection of protective equipment for use with this material, as provided below, is based upon intended, normal usage.

Respiratory Protection: If engineering controls do not maintain airborne contaminant concentrations at a level which is adequate to protect worker health, an approved respirator may be appropriate. Respirator selection, use, and maintenance must be in accordance with regulatory requirements, if applicable. Types of respirators to be considered for this material include:

No special requirements under ordinary conditions of use and with adequate ventilation.

For high airborne concentrations, use an approved supplied-air respirator, operated in positive pressure mode. Supplied air respirators with an escape bottle may be appropriate when oxygen levels are inadequate, gas/vapor warning properties are poor, or if air purifying filter capacity/rating may be exceeded.

Hand Protection: Any specific glove information provided is based on published literature and glove manufacturer data. Glove suitability and breakthrough time will differ depending on the specific use conditions. Contact the glove manufacturer for specific advice on glove selection and breakthrough times for your use conditions. Inspect and replace worn or damaged gloves. The types of gloves to be considered for this material include:

No protection is ordinarily required under normal conditions of use.

Eye Protection: If contact is likely, safety glasses with side shields are recommended.

Skin and Body Protection: Any specific clothing information provided is based on published literature or manufacturer data. The types of clothing to be considered for this material include:

No skin protection is ordinarily required under normal conditions of use. In accordance with good industrial hygiene practices, precautions should be taken to avoid skin contact.

Specific Hygiene Measures: Always observe good personal hygiene measures, such as washing after handling the material and before eating, drinking, and/or smoking. Routinely wash work clothing and protective equipment to remove contaminants. Discard contaminated clothing and footwear that cannot be cleaned. Practice good housekeeping.

ENVIRONMENTAL CONTROLS

Comply with applicable environmental regulations limiting discharge to air, water and soil. Protect the environment by applying appropriate control measures to prevent or limit emissions.

SECTION 9 PHYSICAL AND CHEMICAL PROPERTIES

Note: Physical and chemical properties are provided for safety, health and environmental considerations only and may not fully represent product specifications. Contact the Supplier for additional information.

GENERAL INFORMATION

Physical State: Liquid
Form: Clear
Color: Brown
Odor: Characteristic
Odor Threshold: N/D

IMPORTANT HEALTH, SAFETY, AND ENVIRONMENTAL INFORMATION

Relative Density (at 15 °C): 0.893
Flammability (Solid, Gas): N/A
Flash Point [Method]: >200°C (392°F) [ASTM D-92]
Flammable Limits (Approximate volume % in air): LEL: 0.9 UEL: 7.0
Autoignition Temperature: N/D
Boiling Point / Range: > 316°C (600°F)
Decomposition Temperature: N/D
Vapor Density (Air = 1): N/D
Vapor Pressure: < 0.013 kPa (0.1 mm Hg) at 20 °C
Evaporation Rate (n-butyl acetate = 1): N/D

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pH: N/A

Log Pow (n-Octanol/Water Partition Coefficient): > 3.5

Solubility in Water: Negligible

Viscosity: 160 cSt (160 mm²/sec) at 40 °C | 15.5 cSt (15.5 mm²/sec) at 100°C

Oxidizing Properties: See Hazards Identification Section.

OTHER INFORMATION

Freezing Point: N/D

Melting Point: N/A

Pour Point: -15°C (5°F)

DMSO Extract (mineral oil only), IP-346: < 3 %wt

SECTION 10	STABILITY AND REACTIVITY
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REACTIVITY: See sub-sections below.

STABILITY: Material is stable under normal conditions.

CONDITIONS TO AVOID: Excessive heat. High energy sources of ignition.

MATERIALS TO AVOID: Strong oxidizers

HAZARDOUS DECOMPOSITION PRODUCTS: Material does not decompose at ambient temperatures.

POSSIBILITY OF HAZARDOUS REACTIONS: Hazardous polymerization will not occur.

SECTION 11	TOXICOLOGICAL INFORMATION
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INFORMATION ON TOXICOLOGICAL EFFECTS

<u>Hazard Class</u>	<u>Conclusion / Remarks</u>
Inhalation	
Acute Toxicity: No end point data for material.	Minimally Toxic. Based on assessment of the components.
Irritation: No end point data for material.	Negligible hazard at ambient/normal handling temperatures.
Ingestion	
Acute Toxicity: No end point data for material.	Minimally Toxic. Based on assessment of the components.
Skin	
Acute Toxicity: No end point data for material.	Minimally Toxic. Based on assessment of the components.
Skin Corrosion/Irritation: No end point data for material.	Negligible irritation to skin at ambient temperatures. Based on assessment of the components.
Eye	
Serious Eye Damage/Irritation: No end point data for material.	May cause mild, short-lasting discomfort to eyes. Based on assessment of the components.
Sensitization	
Respiratory Sensitization: No end point data for material.	Not expected to be a respiratory sensitizer.
Skin Sensitization: No end point data for material.	Not expected to be a skin sensitizer. Based on assessment of the components.
Aspiration: Data available.	Not expected to be an aspiration hazard. Based on

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	physico-chemical properties of the material.
Germ Cell Mutagenicity: No end point data for material.	Not expected to be a germ cell mutagen. Based on assessment of the components.
Carcinogenicity: No end point data for material.	Not expected to cause cancer. Based on assessment of the components.
Reproductive Toxicity: No end point data for material.	Not expected to be a reproductive toxicant. Based on assessment of the components.
Lactation: No end point data for material.	Not expected to cause harm to breast-fed children.
Specific Target Organ Toxicity (STOT)	
Single Exposure: No end point data for material.	Not expected to cause organ damage from a single exposure.
Repeated Exposure: No end point data for material.	Not expected to cause organ damage from prolonged or repeated exposure. Based on assessment of the components.

OTHER INFORMATION

For the product itself:

Diesel engine oils: Not carcinogenic in animals tests. Used and unused diesel engine oils did not produce any carcinogenic effects in chronic mouse skin painting studies.

Oils that are used in gasoline engines may become hazardous and display the following properties: Carcinogenic in animal tests. Caused mutations in vitro. Possible allergen and photoallergen. Contains polycyclic aromatic compounds (PAC) from combustion products of gasoline and/or thermal degradation products.

Contains:

Base oil severely refined: Not carcinogenic in animal studies. Representative material passes IP-346, Modified Ames test, and/or other screening tests. Dermal and inhalation studies showed minimal effects; lung non-specific infiltration of immune cells, oil deposition and minimal granuloma formation. Not sensitizing in test animals.

The following ingredients are cited on the lists below: None.

--REGULATORY LISTS SEARCHED--

1 = NTP CARC

3 = IARC 1

5 = IARC 2B

2 = NTP SUS

4 = IARC 2A

6 = OSHA CARC

SECTION 12

ECOLOGICAL INFORMATION

The information given is based on data available for the material, the components of the material, and similar materials.

ECOTOXICITY

Material -- Not expected to be harmful to aquatic organisms.

MOBILITY

Base oil component -- Low solubility and floats and is expected to migrate from water to the land. Expected to partition to sediment and wastewater solids.

PERSISTENCE AND DEGRADABILITY

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Biodegradation:

Base oil component -- Expected to be inherently biodegradable

BIOACCUMULATION POTENTIAL

Base oil component -- Has the potential to bioaccumulate, however metabolism or physical properties may reduce the bioconcentration or limit bioavailability.

SECTION 13**DISPOSAL CONSIDERATIONS**

Disposal recommendations based on material as supplied. Disposal must be in accordance with current applicable laws and regulations, and material characteristics at time of disposal.

DISPOSAL RECOMMENDATIONS

Product is suitable for burning in an enclosed controlled burner for fuel value or disposal by supervised incineration at very high temperatures to prevent formation of undesirable combustion products. Protect the environment. Dispose of used oil at designated sites. Minimize skin contact. Do not mix used oils with solvents, brake fluids or coolants.

REGULATORY DISPOSAL INFORMATION

RCRA Information: The unused product, in our opinion, is not specifically listed by the EPA as a hazardous waste (40 CFR, Part 261D), nor is it formulated to contain materials which are listed as hazardous wastes. It does not exhibit the hazardous characteristics of ignitability, corrosivity or reactivity and is not formulated with contaminants as determined by the Toxicity Characteristic Leaching Procedure (TCLP). However, used product may be regulated.

Empty Container Warning Empty Container Warning (where applicable): Empty containers may contain residue and can be dangerous. Do not attempt to refill or clean containers without proper instructions. Empty drums should be completely drained and safely stored until appropriately reconditioned or disposed. Empty containers should be taken for recycling, recovery, or disposal through suitably qualified or licensed contractor and in accordance with governmental regulations. **DO NOT PRESSURISE, 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.**

SECTION 14**TRANSPORT INFORMATION**

LAND (DOT): Not Regulated for Land Transport

LAND (TDG): Not Regulated for Land Transport

SEA (IMDG): Not Regulated for Sea Transport according to IMDG-Code

Marine Pollutant: No

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AIR (IATA): Not Regulated for Air Transport

SECTION 15	REGULATORY INFORMATION
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OSHA HAZARD COMMUNICATION STANDARD: This material is not considered hazardous in accordance with OSHA HazCom 2012, 29 CFR 1910.1200.

Listed or exempt from listing/notification on the following chemical inventories: TSCA

EPCRA SECTION 302: This material contains no extremely hazardous substances.

SARA (311/312) REPORTABLE HAZARD CATEGORIES: None.

SARA (313) TOXIC RELEASE INVENTORY:

Chemical Name	CAS Number	Typical Value
ZINC DITHIOPHOSPHATE	68649-42-3	1 - 2.5%

The following ingredients are cited on the lists below:

Chemical Name	CAS Number	List Citations
ZINC DITHIOPHOSPHATE	68649-42-3	13, 15, 17, 19

--REGULATORY LISTS SEARCHED--

- | | | | |
|---------------|------------------|-------------------|-------------|
| 1 = ACGIH ALL | 6 = TSCA 5a2 | 11 = CA P65 REPRO | 16 = MN RTK |
| 2 = ACGIH A1 | 7 = TSCA 5e | 12 = CA RTK | 17 = NJ RTK |
| 3 = ACGIH A2 | 8 = TSCA 6 | 13 = IL RTK | 18 = PA RTK |
| 4 = OSHA Z | 9 = TSCA 12b | 14 = LA RTK | 19 = RI RTK |
| 5 = TSCA 4 | 10 = CA P65 CARC | 15 = MI 293 | |

Code key: CARC=Carcinogen; REPRO=Reproductive

SECTION 16	OTHER INFORMATION
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N/D = Not determined, N/A = Not applicable

KEY TO THE H-CODES CONTAINED IN SECTION 3 OF THIS DOCUMENT (for information only):

- H315: Causes skin irritation; Skin Corr/Irritation, Cat 2
- H318: Causes serious eye damage; Serious Eye Damage/Irr, Cat 1
- H401: Toxic to aquatic life; Acute Env Tox, Cat 2
- H411: Toxic to aquatic life with long lasting effects; Chronic Env Tox, Cat 2

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THIS SAFETY DATA SHEET CONTAINS THE FOLLOWING REVISIONS:

Updates made in accordance with implementation of GHS requirements.

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Internal Use Only

MHC: 0B, 0B, 0, 0, 0, 0

PPEC: A

DGN: 7079908XUS (543376)

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Safety Data Sheet

1. IDENTIFICATION OF THE SUBSTANCE/PREPARATION AND COMPANY/UNDERTAKING

Material Name : Diesel (ULSD/Gasoil)
Recommended Use / Restrictions of Use : Fuel for on-road diesel-powered engines. Fuel for use in off-road diesel engines, boilers, gas turbines and other combustion equipment.

Supplier : Shell Eastern Trading (PTE) Ltd
9 North Buona Vista Drive,
#07-01,
Tower 1, The Metropolis
Singapore 138588
Singapore

Telephone : +65-6384 8000
Emergency Telephone Number : +44 (0) 151 350 4595

2. HAZARDS IDENTIFICATION

GHS Classification : Flammable liquids, Category 3
Aspiration hazard, Category 1
Acute toxicity, Category 4, Inhalation
Skin corrosion/irritation, Category 2
Carcinogenicity, Category 2
Specific target organ toxicity - repeated exposure, Category 2,
Blood., Thymus., Liver
Hazardous to the aquatic environment - Long-term Hazard,
Category 2
Acute hazards to the aquatic environment, Category 2

GHS Label Elements Symbol(s) :



Signal Words : Danger

Hazard Statement : PHYSICAL HAZARDS:
H226: Flammable liquid and vapour.

HEALTH HAZARDS:

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H304: May be fatal if swallowed and enters airways.
H315: Causes skin irritation.
H332: Harmful if inhaled.
H351: Suspected of causing cancer.
H373: May cause damage to organs or organ systems through prolonged or repeated exposure.

ENVIRONMENTAL HAZARDS:

H411: Toxic to aquatic life with long lasting effects.
H401: Toxic to aquatic life.

GHS Precautionary Statements

Prevention : P210: Keep away from heat/sparks/open flames/hot surfaces. - No smoking.
P261: Avoid breathing dust/fume/gas/mist/vapours/spray.
P280: Wear protective gloves/protective clothing/eye protection/face protection.

Response : P301+P310: IF SWALLOWED: Immediately call a POISON CENTER or doctor/physician.
P331: Do NOT induce vomiting.

Disposal: : P501: Dispose of contents and container to appropriate waste site or reclaimer in accordance with local and national regulations.

Other Hazards which do not result in classification : Vapour in the headspace of tanks and containers may ignite and explode at temperatures exceeding auto-ignition temperature, where vapour concentrations are within the flammability range.
May ignite on surfaces at temperatures above auto-ignition temperature.
This material is a static accumulator. Even with proper grounding and bonding, this material can still accumulate an electrostatic charge. If sufficient charge is allowed to accumulate, electrostatic discharge and ignition of flammable air-vapour mixtures can occur.

Additional Information : This product is intended for use in closed systems only.

3. COMPOSITION/INFORMATION ON INGREDIENTS

Mixture Description : Complex mixture of hydrocarbons consisting of paraffins, cycloparaffins, aromatic and olefinic hydrocarbons with carbon

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numbers predominantly in the C9 to C25 range. May also contain several additives at <0.1% v/v each. May contain cetane improver (Ethyl Hexyl Nitrate) at <0.2% v/v.

May contain catalytically cracked oils in which polycyclic aromatic compounds, mainly 3-ring but some 4- to 6-ring species are present.

Classification of components according to GHS

Chemical Identity	Synonyms	CAS	Hazard Class (category)	Hazard Statement	Conc.
Fuels, diesel	Fuels, diesel	68334-30-5	Flam. Liq., 3; Asp. Tox., 1; Acute Tox., 4; Skin Corr., 2; Carc., 2; STOT RE, 2; Aquatic Chronic, 2; Aquatic Acute, 2;	H226; H304; H332; H315; H351; H373; H411; H401;	60.00 - 100.00 %
Distillates (Fischer-Tropsch) C8-26 - Branched and Linear	Distillates (Fischer-Tropsch) C8-26 - Branched and Linear	848301-67-7	Asp. Tox., 1; Flam. Liq., 4;	H304; H227;	0.00 - 30.00 %
Kerosine (Fischer Tropsch), Full range, C8-C16 branched and linear alkanes	Kerosine (Fischer Tropsch), Full range, C8-C16 branched and linear alkanes	848301-66-6	Asp. Tox., 1; Flam. Liq., 3;	H304; H226;	0.00 - 10.00 %

Additional Information : Dyes and markers can be used to indicate tax status and prevent fraud. Contains Cumene, CAS# 98-82-8 Contains Naphthalene, CAS # 91-20-3.

Refer to Ch 16 for full text of H phrases.

4. FIRST-AID MEASURES

Inhalation : Remove to fresh air. If rapid recovery does not occur, transport to nearest medical facility for additional treatment.

Skin Contact : Remove contaminated clothing. Immediately flush skin with

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Eye Contact	: large amounts of water for at least 15 minutes, and follow by washing with soap and water if available. If redness, swelling, pain and/or blisters occur, transport to the nearest medical facility for additional treatment. When using high pressure equipment, injection of product under the skin can occur. If high pressure injuries occur, the casualty should be sent immediately to a hospital. Do not wait for symptoms to develop.
Ingestion	: Flush eye with copious quantities of water. If persistent irritation occurs, obtain medical attention.
Most Important Symptoms/Effects, Acute & Delayed	: If swallowed, do not induce vomiting: transport to nearest medical facility for additional treatment. If vomiting occurs spontaneously, keep head below hips to prevent aspiration. If any of the following delayed signs and symptoms appear within the next 6 hours, transport to the nearest medical facility: fever greater than 101° F (38.3°C), shortness of breath, chest congestion or continued coughing or wheezing. Give nothing by mouth.
Immediate medical attention, special treatment	: If material enters lungs, signs and symptoms may include coughing, choking, wheezing, difficulty in breathing, chest congestion, shortness of breath, and/or fever. The onset of respiratory symptoms may be delayed for several hours after exposure. Skin irritation signs and symptoms may include a burning sensation, redness, or swelling.
	: Treat symptomatically.

5. FIRE-FIGHTING MEASURES

Clear fire area of all non-emergency personnel.

Specific hazards arising from Chemicals	: Hazardous combustion products may include: A complex mixture of airborne solid and liquid particulates and gases (smoke). Oxides of sulphur. Unidentified organic and inorganic compounds. Carbon monoxide may be evolved if incomplete combustion occurs. Will float and can be reignited on surface water. Flammable vapours may be present even at temperatures below the flash point. The vapour is heavier than air, spreads along the ground and distant ignition is possible.
Suitable Extinguishing Media	: Foam, water spray or fog. Dry chemical powder, carbon dioxide, sand or earth may be used for small fires only.
Unsuitable Extinguishing Media	: Do not use direct water jets on the burning product as they could cause a steam explosion and spread of the fire. Simultaneous use of foam and water on the same surface is to be avoided as water destroys the foam.

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- Protective Equipment & Precautions for Fire Fighters** : Proper protective equipment including chemical resistant gloves are to be worn; chemical resistant suit is indicated if large contact with spilled product is expected. Self-Contained Breathing Apparatus must be worn when approaching a fire in a confined space. Select fire fighter's clothing approved to relevant Standards (e.g. Europe: EN469).
- Additional Advice** : Keep adjacent containers cool by spraying with water. If possible remove containers from the danger zone. If the fire cannot be extinguished the only course of action is to evacuate immediately. Contain residual material at affected sites to prevent material from entering drains (sewers), ditches, and waterways.

6. ACCIDENTAL RELEASE MEASURES

Avoid contact with spilled or released material. For guidance on selection of personal protective equipment see Chapter 8 of this Material Safety Data Sheet. See Chapter 13 for information on disposal. Observe the relevant local and international regulations. Evacuate the area of all non-essential personnel. Ventilate contaminated area thoroughly. Take precautionary measures against static discharges.

- Personal Precautions, Protective Equipment and Emergency Procedures** : Do not breathe fumes, vapour. Do not operate electrical equipment. Shut off leaks, if possible without personal risks. Remove all possible sources of ignition in the surrounding area and evacuate all personnel. Attempt to disperse the gas or to direct its flow to a safe location for example by using fog sprays. Take precautionary measures against static discharge. Ensure electrical continuity by bonding and grounding (earthing) all equipment. Monitor area with combustible gas meter.
- Environmental Precautions** : Take measures to minimise the effects on groundwater. Contain residual material at affected sites to prevent material from entering drains (sewers), ditches, and waterways. Prevent from spreading or entering into drains, ditches or rivers by using sand, earth, or other appropriate barriers.
- Methods and Material for Containment and Cleaning Up** : Take precautionary measures against static discharges. For small liquid spills (< 1 drum), transfer by mechanical means to a labelled, sealable container for product recovery or safe disposal. Allow residues to evaporate or soak up with an appropriate absorbent material and dispose of safely. Remove contaminated soil and dispose of safely. For large liquid spills (> 1 drum), transfer by mechanical means such as vacuum truck to a salvage tank for recovery or safe disposal. Do not flush away residues with water. Retain as contaminated waste. Allow residues to evaporate or soak up with an appropriate

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- absorbent material and dispose of safely. Remove contaminated soil and dispose of safely. Shovel into a suitable clearly marked container for disposal or reclamation in accordance with local regulations.
- Additional Advice** : Notify authorities if any exposure to the general public or the environment occurs or is likely to occur. Local authorities should be advised if significant spillages cannot be contained. Maritime spillages should be dealt with using a Shipboard Oil Pollution Emergency Plan (SOPEP), as required by MARPOL Annex 1 Regulation 26.

7. HANDLING AND STORAGE

- General Precautions** : Avoid breathing vapours or contact with material. Only use in well ventilated areas. Wash thoroughly after handling. For guidance on selection of personal protective equipment see Chapter 8 of this Material Safety Data Sheet. Use the information in this data sheet as input to a risk assessment of local circumstances to help determine appropriate controls for safe handling, storage and disposal of this material. Air-dry contaminated clothing in a well-ventilated area before laundering. Prevent spillages. Use local exhaust ventilation if there is risk of inhalation of vapours, mists or aerosols. Never siphon by mouth. Contaminated leather articles including shoes cannot be decontaminated and should be destroyed to prevent reuse.
Maintenance and Fuelling Activities - Avoid inhalation of vapours and contact with skin.
- Precautions for Safe Handling** : Avoid inhaling vapour and/or mists. Avoid prolonged or repeated contact with skin. When using do not eat or drink. Extinguish any naked flames. Do not smoke. Remove ignition sources. Avoid sparks. Earth all equipment. Properly dispose of any contaminated rags or cleaning materials in order to prevent fires. Use local exhaust ventilation if there is risk of inhalation of vapours, mists or aerosols. The vapour is heavier than air, spreads along the ground and distant ignition is possible.
- Conditions for Safe Storage** : Drum and small container storage: Drums should be stacked to a maximum of 3 high. Use properly labelled and closeable containers. Tank storage: Tanks must be specifically designed for use with this product. Bulk storage tanks should be diked (bunded). Locate tanks away from heat and other sources of ignition. Must be stored in a diked (bunded) well-ventilated area, away from sunlight, ignition sources and other sources of heat. Vapours from tanks should not be released to

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atmosphere. Breathing losses during storage should be controlled by a suitable vapour treatment system. The vapour is heavier than air. Beware of accumulation in pits and confined spaces. Keep container tightly closed and in a cool, well-ventilated place. Keep in a cool place. Electrostatic charges will be generated during pumping. Electrostatic discharge may cause fire. Ensure electrical continuity by bonding and grounding (earthing) all equipment to reduce the risk. The vapours in the head space of the storage vessel may lie in the flammable/explosive range and hence may be flammable. Refer to section 15 for any additional specific legislation covering the packaging and storage of this product. Keep in a bonded area with a sealed (low permeability) floor, to provide containment against spillage. Prevent ingress of water.

Product Transfer

: Avoid splash filling. Wait 2 minutes after tank filling (for tanks such as those on road tanker vehicles) before opening hatches or manholes. Wait 30 minutes after tank filling (for large storage tanks) before opening hatches or manholes. Keep containers closed when not in use. Contamination resulting from product transfer may give rise to light hydrocarbon vapour in the headspace of tanks that have previously contained gasoline. This vapour may explode if there is a source of ignition. Partly filled containers present a greater hazard than those that are full, therefore handling, transfer and sampling activities need special care. Even with proper grounding and bonding, this material can still accumulate an electrostatic charge. If sufficient charge is allowed to accumulate, electrostatic discharge and ignition of flammable air-vapour mixtures can occur. Be aware of handling operations that may give rise to additional hazards that result from the accumulation of static charges. These include but are not limited to pumping (especially turbulent flow), mixing, filtering, splash filling, cleaning and filling of tanks and containers, sampling, switch loading, gauging, vacuum truck operations, and mechanical movements. These activities may lead to static discharge e.g. spark formation. Restrict line velocity during pumping in order to avoid generation of electrostatic discharge (≤ 1 m/s until fill pipe submerged to twice its diameter, then ≤ 7 m/s). Avoid splash filling. Do NOT use compressed air for filling, discharging, or handling operations.

Recommended Materials

: For containers, or container linings use mild steel, stainless steel. Aluminium may also be used for applications where it does not present an unnecessary fire hazard. Examples of suitable materials are: high density polyethylene (HDPE) and Viton (FKM), which have been specifically tested for compatibility with this product. For container linings, use

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- amine-adduct cured epoxy paint. For seals and gaskets use: graphite, PTFE, Viton A, Viton B.
- Unsuitable Materials** : Some synthetic materials may be unsuitable for containers or container linings depending on the material specification and intended use. Examples of materials to avoid are: natural rubber (NR), nitrile rubber (NBR), ethylene propylene rubber (EPDM), polymethyl methacrylate (PMMA), polystyrene, polyvinyl chloride (PVC), polyisobutylene. However, some may be suitable for glove materials.
- Container Advice** : Containers, even those that have been emptied, can contain explosive vapours. Do not cut, drill, grind, weld or perform similar operations on or near containers.
- Other Advice** : Ensure that all local regulations regarding handling and storage facilities are followed. See additional references that provide safe handling practices for liquids that are determined to be static accumulators: American Petroleum Institute 2003 (Protection Against Ignitions Arising out of Static, Lightning and Stray Currents) or National Fire Protection Agency 77 (Recommended Practices on Static Electricity). CENELEC CLC/TR 50404 (Electrostatics – Code of practice for the avoidance of hazards due to static electricity).

8. EXPOSURE CONTROLS/PERSONAL PROTECTION

If the American Conference of Governmental Industrial Hygienists (ACGIH) value is provided on this document, it is provided for information only.

Occupational Exposure Limits

Material	Source	Type	ppm	mg/m3	Notation
Naphthalene	ACGIH	TWA	10 ppm		
	ACGIH	STEL	15 ppm		
	ACGIH	SKIN_DES			Can be absorbed through the skin.
	SG OEL	TWA	10 ppm	52 mg/m3	
	SG OEL	STEL	15 ppm	79 mg/m3	

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Fuels, diesel	ACGIH	SKIN_DES(Inhalable fraction and vapor.)			Can be absorbed through the skin.as total hydrocarbons
	ACGIH	TWA(Inhalable fraction and vapor.)		100 mg/m3	as total hydrocarbons
Cumene	ACGIH	TWA	50 ppm		
	SG OEL	TWA	50 ppm	246 mg/m3	

Additional Information : Skin notation means that significant exposure can also occur by absorption of liquid through the skin and of vapour through the eyes or mucous membranes.

Biological Exposure Index (BEI)

Material	Determinant	Sampling Time	BEI	Reference
Naphthalene	1-Naphthol, with hydrolysis + 2-Naphthol, with hydrolysis	Sampling time: End of shift.		ACGIH BEL (02 2013)

Appropriate Engineering Controls : The level of protection and types of controls necessary will vary depending upon potential exposure conditions. Select controls based on a risk assessment of local circumstances. Appropriate measures include: Use sealed systems as far as possible. Adequate explosion-proof ventilation to control airborne concentrations below the exposure guidelines/limits. Local exhaust ventilation is recommended. Eye washes and showers for emergency use. Always observe good personal hygiene measures, such as washing hands after handling the material and before eating, drinking, and/or smoking. Routinely wash work clothing and protective equipment to remove contaminants. Discard contaminated clothing and footwear that cannot be cleaned. Practice good housekeeping. Define procedures for safe handling and maintenance of controls.

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- Educate and train workers in the hazards and control measures relevant to normal activities associated with this product. Ensure appropriate selection, testing and maintenance of equipment used to control exposure, e.g. personal protective equipment, local exhaust ventilation. Firewater monitors and deluge systems are recommended. Drain down system prior to equipment break-in or maintenance. Retain drain downs in sealed storage pending disposal or for subsequent recycle.
- Individual Protection Measures** : Personal protective equipment (PPE) should meet recommended national standards. Check with PPE suppliers.
- Respiratory Protection** : If engineering controls do not maintain airborne concentrations to a level which is adequate to protect worker health, select respiratory protection equipment suitable for the specific conditions of use and meeting relevant legislation. Check with respiratory protective equipment suppliers. Where air-filtering respirators are suitable, select an appropriate combination of mask and filter. Where air-filtering respirators are unsuitable (e.g. airborne concentrations are high, risk of oxygen deficiency, confined space) use appropriate positive pressure breathing apparatus. All respiratory protection equipment and use must be in accordance with local regulations. Select a filter suitable for combined particulate/organic gases and vapours [boiling point >65°C(149 °F)].
- Hand Protection** : Personal hygiene is a key element of effective hand care. Gloves must only be worn on clean hands. After using gloves, hands should be washed and dried thoroughly. Application of a non-perfumed moisturizer is recommended. Suitability and durability of a glove is dependent on usage, e.g. frequency and duration of contact, chemical resistance of glove material, dexterity. Always seek advice from glove suppliers. Contaminated gloves should be replaced. For continuous contact we recommend gloves with breakthrough time of more than 240 minutes with preference for > 480 minutes where suitable gloves can be identified. For short-term/splash protection we recommend the same, but recognise that suitable gloves offering this level of protection may not be available and in this case a lower breakthrough time may be acceptable so long as appropriate maintenance and replacement regimes are followed. Glove thickness is not a good predictor of glove resistance to a chemical as it is dependent on the exact composition of the glove material. Select gloves tested to a relevant standard (e.g. Europe EN374, US F739). When prolonged or frequent repeated contact occurs, Nitrile gloves may be suitable. (Breakthrough

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Eye Protection	: time of > 240 minutes.) For incidental contact/splash protection Neoprene, PVC gloves may be suitable. : Chemical splash goggles (chemical monogoggles). If a local risk assessment deems it so, then chemical splash goggles may not be required and safety glasses may provide adequate eye protection.
Protective Clothing	: Chemical resistant gloves/gauntlets, boots, and apron (where risk of splashing).
Thermal Hazards	: Not applicable.
Monitoring Methods	: Monitoring of the concentration of substances in the breathing zone of workers or in the general workplace may be required to confirm compliance with an OEL and adequacy of exposure controls. For some substances biological monitoring may also be appropriate. Validated exposure measurement methods should be applied by a competent person and samples analysed by an accredited laboratory. Examples of sources of recommended exposure measurement methods are given below or contact the supplier. Further national methods may be available. National Institute of Occupational Safety and Health (NIOSH), USA: Manual of Analytical Methods http://www.cdc.gov/niosh/ Occupational Safety and Health Administration (OSHA), USA: Sampling and Analytical Methods http://www.osha.gov/
Environmental Exposure Controls	: Local guidelines on emission limits for volatile substances must be observed for the discharge of exhaust air containing vapour. Information on accidental release measures are to be found in section 6. Take appropriate measures to fulfil the requirements of relevant environmental protection legislation. Avoid contamination of the environment by following advice given in Chapter 6. If necessary, prevent undissolved material from being discharged to waste water. Waste water should be treated in a municipal or industrial waste water treatment plant before discharge to surface water.

9. PHYSICAL AND CHEMICAL PROPERTIES

Appearance	: Colourless to yellowish. Liquid.
Odour	: May contain a reodorant
Odour threshold	: Data not available
pH	: Not applicable
Initial Boiling Point and Boiling Range	: 170 - 390 °C / 338 - 734 °F
Pour point	: ≤ 6 °C / 43 °F
Flash point	: > 55 °C / 131 °F
Upper / lower Flammability or	: 1 - 6 %(V)

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Explosion limits

Auto-ignition temperature	: > 220 °C / 428 °F
Vapour pressure	: 1 hPa at 20 °C / 68 °F
Relative Density	: Data not available
Density	: 0.8 - 0.89 g/cm ³ at 15 °C / 59 °F
Water solubility	: Data not available
Solubility in other solvents	: Data not available

n-octanol/water partition coefficient (log Pow) : 3 - 6

Dynamic viscosity	: Data not available
Kinematic viscosity	: 1.5 - 6 mm ² /s at 40 °C / 104 °F
Vapour density (air=1)	: Data not available
Electrical conductivity	: Low conductivity: < 100 pS/m, The conductivity of this material makes it a static accumulator., A liquid is typically considered nonconductive if its conductivity is below 100 pS/m and is considered semi-conductive if its conductivity is below 10 000 pS/m., Whether a liquid is nonconductive or semi-conductive, the precautions are the same., A number of factors, for example liquid temperature, presence of contaminants, and anti-static additives can greatly influence the conductivity of a liquid.
Evaporation rate (nBuAc=1)	: Data not available
Decomposition Temperature	: Data not available
Flammability	: Not applicable.

10. STABILITY AND REACTIVITY

Chemical stability	: Stable under normal use conditions.
Possibility of Hazardous Reactions	: No hazardous reaction is expected when handled and stored according to provisions.
Conditions to Avoid	: Avoid heat, sparks, open flames and other ignition sources.
Incompatible Materials	: Strong oxidising agents.
Hazardous Decomposition Products	: Hazardous decomposition products are not expected to form during normal storage. Thermal decomposition is highly dependent on conditions. A complex mixture of airborne solids, liquids and gases, including carbon monoxide, carbon dioxide and other organic compounds will be evolved when this material undergoes combustion or thermal or oxidative degradation.
Sensitivity to Static Discharge	: Yes, in certain circumstances product can ignite due to static electricity.

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11. TOXICOLOGICAL INFORMATION

Information on Toxicological effects

- Basis for Assessment** : Information given is based on product data, a knowledge of the components and the toxicology of similar products. Unless indicated otherwise, the data presented is representative of the product as a whole, rather than for individual component(s).
- Likely Routes of Exposure** : Exposure may occur via inhalation, ingestion, skin absorption, skin or eye contact, and accidental ingestion.
- Acute Oral Toxicity** : Low toxicity: LD50 > 5000 mg/kg , Rat
- Acute Dermal Toxicity** : Low toxicity: LD50 >2000 mg/kg , Rabbit
- Acute Inhalation Toxicity** : Harmful if inhaled. LC50 > 1.0 - <= 5.0 mg/l , 4 h, Rat
High concentrations may cause central nervous system depression resulting in headaches, dizziness and nausea; continued inhalation may result in unconsciousness and/or death.
- Skin corrosion/irritation** : Irritating to skin.
- Serious eye damage/irritation** : Expected to be slightly irritating.
- Respiratory Irritation** : Inhalation of vapours or mists may cause irritation to the respiratory system.
- Respiratory or skin sensitisation** : Not expected to be a sensitiser.
- Aspiration Hazard** : Aspiration into the lungs when swallowed or vomited may cause chemical pneumonitis which can be fatal.
- Germ cell mutagenicity** : Positive in in-vitro, but negative in in-vivo mutagenicity assays.
- Carcinogenicity** : Limited evidence of carcinogenic effect.
Repeated skin contact has resulted in irritation and skin cancer in animals.

Material	:	Carcinogenicity Classification
Naphthalene	:	ACGIH Group A4: Not classifiable as a human carcinogen.
Naphthalene	:	NTP: Reasonably Anticipated to be a Human Carcinogen.
Naphthalene	:	IARC 2B: Possibly carcinogenic to humans.
Naphthalene	:	GHS / CLP: Carcinogenicity Category 2

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Fuels, diesel	:	ACGIH Group A3: Confirmed animal carcinogen with unknown relevance to humans.
Fuels, diesel	:	GHS / CLP: Carcinogenicity Category 2
Distillates (Fischer-Tropsch) C8-26 - Branched and Linear	:	GHS / CLP: No carcinogenicity classification
Kerosine (Fischer Tropsch), Full range, C8-C16 branched and linear alkanes	:	GHS / CLP: No carcinogenicity classification
Cumene	:	IARC 2B: Possibly carcinogenic to humans.
Cumene	:	GHS / CLP: No carcinogenicity classification

Reproductive and Developmental Toxicity	:	Not expected to impair fertility. Not expected to be a developmental toxicant.
Specific target organ toxicity - single exposure	:	Not classified.
Specific target organ toxicity - repeated exposure	:	May cause damage to organs or organ systems through prolonged or repeated exposure. Blood. Thymus. Liver.
Additional Information	:	Classifications by other authorities under varying regulatory frameworks may exist.

12. ECOLOGICAL INFORMATION

Basis for Assessment	:	Information given is based on a knowledge of the components and the ecotoxicology of similar products. Fuels are typically made from blending several refinery streams. Ecotoxicological studies have been carried out on a variety of hydrocarbon blends and streams but not those containing additives. Unless indicated otherwise, the data presented is representative of the product as a whole, rather than for individual component(s).
Acute Toxicity	:	Expected to be toxic: LL/EL/IL50 > 1 <= 10 mg/l (to aquatic organisms) LL/EL50 expressed as the nominal amount of product required to prepare aqueous test extract.
Fish	:	Expected to be toxic: LL/EL/IL50 > 1 <= 10 mg/l
Aquatic crustacea	:	Expected to be toxic: LL/EL/IL50 > 1 <= 10 mg/l
Algae/aquatic plants	:	Expected to be toxic: LL/EL/IL50 > 1 <= 10 mg/l
Microorganisms	:	Expected to be practically non toxic: LL/EL/IL50 > 100 mg/l
Chronic Toxicity	:	
Fish	:	NOEC/NOEL expected to be > 0.01 - <= 0.1 mg/l (based on

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Aquatic crustacea	: modeled data) NOEC/NOEL expected to be > 0.1 - <= 1.0 mg/l (based on modeled data)
Mobility	: Partly evaporates from water or soil surfaces, but a significant proportion will remain after one day. If product enters soil, one or more constituents will be mobile and may contaminate groundwater. Large volumes may penetrate soil and could contaminate groundwater. Floats on water.
Persistence/degradability	: Major constituents are inherently biodegradable. The volatile constituents will oxidize rapidly by photochemical reactions in air.
Bioaccumulative Potential	: Contains constituents with the potential to bioaccumulate. Log Kow > =4
Other Adverse Effects	: Films formed on water may affect oxygen transfer and damage organisms.

13. DISPOSAL CONSIDERATIONS

Material Disposal	: Recover or recycle if possible. It is the responsibility of the waste generator to determine the toxicity and physical properties of the material generated to determine the proper waste classification and disposal methods in compliance with applicable regulations. Do not dispose into the environment, in drains or in water courses. Do not dispose of tank water bottoms by allowing them to drain into the ground. This will result in soil and groundwater contamination. Waste arising from a spillage or tank cleaning should be disposed of in accordance with prevailing regulations, preferably to a recognised collector or contractor. The competence of the collector or contractor should be established beforehand.
Container Disposal	: Send to drum recoverer or metal reclaimer. Drain container thoroughly. After draining, vent in a safe place away from sparks and fire. Residues may cause an explosion hazard if heated above the flash point. Do not puncture, cut or weld uncleaned drums. Do not pollute the soil, water or environment with the waste container. Comply with any local recovery or waste disposal regulations.
Local Legislation	: Disposal should be in accordance with applicable regional, national, and local laws and regulations. Local regulations may be more stringent than regional or national requirements and must be in compliance.

14. TRANSPORT INFORMATION

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Land (as per ADR classification): Regulated

Class : 3
Packing group : III
Hazard identification no. : 30
UN number : 1202
Danger label (primary risk) : 3
Proper shipping name : DIESEL FUEL
Environmentally Hazardous : Yes

IMDG

Identification number : UN 1202
Proper shipping name : DIESEL FUEL
Class / Division : 3
Packing group : III
Environmental hazards: Yes

IATA (Country variations may apply)

UN number : 1202
Proper shipping name : Diesel fuel
Class / Division : 3
Packing group : III

Transport in bulk according to Annex II of MARPOL 73/78 and the IBC Code

Pollution Category : Not applicable.
Ship Type : Not applicable.
Product Name : Not applicable.
Special Precaution : Not applicable.
Additional Information : MARPOL Annex 1 rules apply for bulk shipments by sea.

15. REGULATORY INFORMATION

The regulatory information is not intended to be comprehensive. Other regulations may apply to this material.

Local Regulations

Workplace Safety and Health Act & Workplace Safety and Health (General Provision) Regulations : This product is subject to the requirement in the Act/Regulations.
Environmental Protection and Management Act and Environmental Protection and Management : This product is subject to the requirement in the Act/Regulations.

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(Hazardous Substances)
Regulations

Maritime and Port Authority of Singapore (Dangerous Goods, Petroleum and Explosives) Regulations : This product is subject to the requirement in the Act/ Regulations.

Fire Safety Act and Fire Safety (Petroleum & Flammable Materials) Regulations : This product is subject to the requirement in the Act/ Regulations.

Classification triggering components : Contains fuels, diesel.

Other Information : IARC has classified diesel exhaust emissions as a Class 1 carcinogen - carcinogenic to humans. Steps should be taken to prevent personal exposure to diesel exhaust emissions.

16. OTHER INFORMATION**Hazard Statement**

H226 Flammable liquid and vapour.
H227 Combustible liquid.
H304 May be fatal if swallowed and enters airways.
H315 Causes skin irritation.
H332 Harmful if inhaled.
H351 Suspected of causing cancer.
H373 May cause damage to organs or organ systems through prolonged or repeated exposure.
H401 Toxic to aquatic life.
H411 Toxic to aquatic life with long lasting effects.

Additional Information : This document contains important information to ensure the safe storage, handling and use of this product. The information in this document should be brought to the attention of the person in your organisation responsible for advising on safety matters.

SDS Version Number : 1.1

SDS Effective Date : 10.03.2014

SDS Revisions : A vertical bar (|) in the left margin indicates an amendment from the previous version.

Uses and Restrictions : This product must not be used in applications other than those recommended in Section 1, without first seeking the advice of the supplier.
This product is not to be used as a solvent or cleaning agent;

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for lighting or brightening fires; as a skin cleanser.

- SDS Distribution** : The information in this document should be made available to all who may handle the product.
- Key/Legend to Abbreviations used in this SDS** : The standard abbreviations and acronyms used in this document can be looked up in reference literature (e.g. scientific dictionaries) and/or websites.
- | | |
|------------|--|
| Flam. Liq. | Flammable liquids |
| Asp. Tox. | Aspiration hazard |
| Acute Tox. | Acute toxicity |
| Skin Corr. | Skin corrosion/irritation |
| Carc. | Carcinogenicity |
| STOT RE | Specific target organ toxicity - repeated exposure |
- Key Literature References** : The quoted data are from, but not limited to, one or more sources of information (e.g. toxicological data from Shell Health Services, material suppliers' data, CONCAWE, EU IUCLID date base, EC 1272 regulation, etc).
- Disclaimer** : This information is based on our current knowledge and is intended to describe the product for the purposes of health, safety and environmental requirements only. It should not therefore be construed as guaranteeing any specific property of the product.

Section 1 Identification.

Product name:

NOCO® Battery Cleaner and Acid Detector

Product code:

E404

Other means of identification: Not available.

Product type: Aerosol.

Relevant identified uses of the substance or mixture and uses advised against: Not applicable.

Manufacturer: The NOCO Company Glenwillow, OH 44139

Emergency telephone number of the company: (800) 424-9300

Section 2 Hazards identification.

OSHA/HCS status: This material is considered hazardous by the OSHA Hazard Communication Standard (29 CFR 1910.1200).

Product code: FLAMMABLE AEROSOLS - Category 1
GASES UNDER PRESSURE - Compressed gas
SPECIFIC TARGET ORGAN TOXICITY (REPEATED EXPOSURE) - Category 2
Percentage of the mixture consisting of ingredient(s) of unknown toxicity: 3.2%

GHS label elements:

Hazard pictograms:



Signal word: Danger.

Hazard statements: Extremely flammable aerosol.
Contains gas under pressure; may explode if heated.
May cause damage to organs through prolonged or repeated exposure.

Precautionary statements:

General: Read label before use. Keep out of reach of children. If medical advice is needed, have product container or label at hand.

Prevention: Keep away from heat, hot surfaces, sparks, open flames and other ignition sources. No smoking. Pressurized container: Do not pierce or burn, even after use. Do not spray on an open flame or other ignition source. Do not breathe dust or mist.

Response: Get medical attention if you feel unwell.

Storage: Protect from sunlight. Do not expose to temperatures exceeding 50 °C/122 °F. Store in a well-ventilated place.

Disposal: Dispose of contents and container in accordance with all local, regional, national and international regulations.

Supplemental label elements: DELAYED EFFECTS FROM LONG TERM OVEREXPOSURE. Contains solvents which can cause permanent brain and nervous system damage. Intentional misuse by deliberately concentrating and inhaling the contents can be harmful or fatal. WARNING: This product contains chemicals known to the State of California to cause cancer and birth defects or other reproductive harm. FOR INDUSTRIAL USE ONLY. Please refer to the SDS for additional information. Keep upright in a cool, dry place. Do not discard empty can in trash compactor.

Hazards not otherwise classified: None known.

Section 3 Composition/information on ingredients.

Substance/mixture: Mixture

Other means of identification: Not available.

CAS number/other identifiers

Ingredient name	% by weight	CAS number
Butane	6.8	106-97-8
2-Propanol	5.9	67-63-0
Propane	3.1	74-98-6
Sodium Bicarbonate	3.0	144-55-8

There are no additional ingredients present which, within the current knowledge of the supplier and in the concentrations applicable, are classified as hazardous to health or the environment and hence require reporting in this section. Occupational exposure limits, if available, are listed in Section 8.

Section 4 First aid measures.

Description of necessary first aid measures:

Eye Contact: Immediately flush eyes with plenty of water, occasionally lifting the upper and lower eyelids. Check for and remove any contact lenses. Continue to rinse for at least 10 minutes. Get medical attention following exposure or if feeling unwell.

- Inhalation:** Remove victim to fresh air and keep at rest in a position comfortable for breathing. If not breathing, if breathing is irregular or if respiratory arrest occurs, provide artificial respiration or oxygen by trained personnel. It may be dangerous to the person providing aid to give mouth-to-mouth resuscitation. Get medical attention following exposure or if feeling unwell. If unconscious, place in recovery position and get medical attention immediately. Maintain an open airway. Loosen tight clothing such as a collar, tie, belt or waistband.
- Skin contact:** Flush contaminated skin with plenty of water. Remove contaminated clothing and shoes. Wash contaminated clothing thoroughly with water before removing it, or wear gloves. Continue to rinse for at least 10 minutes. Get medical attention. Wash clothing before reuse. Clean shoes thoroughly before reuse.
- Ingestion:** Wash out mouth with water. Remove dentures if any. Remove victim to fresh air and keep at rest in a position comfortable for breathing. If material has been swallowed and the exposed person is conscious, give small quantities of water to drink. Stop if the exposed person feels sick as vomiting may be dangerous. Do not induce vomiting unless directed to do so by medical personnel. If vomiting occurs, the head should be kept low so that vomit does not enter the lungs. Get medical attention following exposure or if feeling unwell. Never give anything by mouth to an unconscious person. If unconscious, place in recovery position and get medical attention immediately. Maintain an open airway. Loosen tight clothing such as a collar, tie, belt or waistband.

Most important symptoms/effects, acute and delayed potential acute health effects:

- Eye contact:** No known significant effects or critical hazards.
- Inhalation:** No known significant effects or critical hazards.
- Skin contact:** No known significant effects or critical hazards.
- Ingestion:** No known significant effects or critical hazards.

Over-exposure signs/symptoms:

- Eye contact:** Adverse symptoms may include the following:
irritation
redness
- Inhalation:** Adverse symptoms may include the following:
respiratory tract irritation
coughing
- Skin contact:** No specific data.
- Ingestion:** No specific data.

Indication of immediate medical attention and special treatment needed, if necessary

Notes to physician: Treat symptomatically. Contact poison treatment specialist immediately if large quantities have been ingested or inhaled.

Specific treatments: No specific treatment.

Protection of first-aiders: No action shall be taken involving any personal risk or without suitable training. It may be dangerous to the person providing aid to give mouth-to-mouth resuscitation.

Section 5 Firefighting measures.

Extinguishing media:

Suitable extinguishing media: Use an extinguishing agent suitable for the surrounding fire.

Unsuitable extinguishing media: None known.

Specific hazards arising from the chemical: Extremely flammable aerosol. In a fire or if heated, a pressure increase will occur and the container may burst, with the risk of a subsequent explosion. Gas may accumulate in low or confined areas or travel a considerable distance to a source of ignition and flash back, causing fire or explosion. Bursting aerosol containers may be propelled from a fire at high speed. Runoff to sewer may create fire or explosion hazard.

Hazardous thermal decomposition products: Decomposition products may include the following materials:
carbon dioxide
carbon monoxide
metal oxide/oxides

Special protective actions for fire-fighters: Promptly isolate the scene by removing all persons from the vicinity of the incident if there is a fire. No action shall be taken involving any personal risk or without suitable training. Move containers from fire area if this can be done without risk. Use water spray to keep fire-exposed containers cool.

Special protective equipment for fire-fighters: Fire-fighters should wear appropriate protective equipment and self-contained breathing apparatus (SCBA) with a full face-piece operated in positive pressure mode.

Section 6 Accidental release measures.

Personal precautions, protective equipment and emergency procedures:

For non-emergency personnel: No action shall be taken involving any personal risk or without suitable training. Evacuate surrounding areas. Keep unnecessary and unprotected personnel from entering. In the case of aerosols being ruptured, care should be taken due to the rapid escape of the pressurized contents and propellant. If a large number of containers are ruptured, treat as a bulk material spillage according to the instructions in the clean-up section. Do not touch or walk through spilled material. Shut off all ignition sources. No flares, smoking or flames in hazard area. Avoid breathing vapor or mist. Provide adequate ventilation. Wear appropriate respirator when ventilation is inadequate. Put on appropriate personal protective equipment.

For emergency responders: If specialised clothing is required to deal with the spillage, take note of any information in Section 8 on suitable and unsuitable materials. See also the information in "For non-emergency personnel".

Environmental precautions: Avoid dispersal of spilled material and runoff and contact with soil, waterways, drains and sewers. Inform the relevant authorities if the product has caused environmental pollution (sewers, waterways, soil or air).

Methods and materials for containment and cleaning up:

Small spill: Stop leak if without risk. Move containers from spill area. Use spark-proof tools and explosion-proof equipment. Dilute with water and mop up if water-soluble. Alternatively, or if water-insoluble, absorb with an inert dry material and place in an appropriate waste disposal container. Dispose of via a licensed waste disposal contractor.

Large spill: Stop leak if without risk. Move containers from spill area. Use spark-proof tools and explosion-proof equipment. Approach release from upwind. Prevent entry into sewers, water courses, basements or confined areas. Wash spillages into an effluent treatment plant or proceed as follows. Contain and collect spillage with non-combustible, absorbent material e.g. sand, earth, vermiculite or diatomaceous earth and place in container for disposal according to local regulations (see Section 13). Dispose of via a licensed waste disposal contractor. Contaminated absorbent material may pose the same hazard as the spilled product. Note: see Section 1 for emergency contact information and Section 13 for waste disposal.

Section 7 Handling and storage.

Precautions for safe handling:

Protective measures: Put on appropriate personal protective equipment (see Section 8). Pressurized container: protect from sunlight and do not expose to temperatures exceeding 50°C. Do not pierce or burn, even after use. Do not breathe vapor or mist. Do not ingest. Avoid contact with eyes, skin and clothing. Avoid breathing gas. Use only with adequate ventilation. Wear appropriate respirator when ventilation is inadequate. Store and use away from heat, sparks, open flame or any other ignition source. Use explosion-proof electrical (ventilating, lighting and material handling) equipment. Use only non-sparking tools. Empty containers retain product residue and can be hazardous.

Advice on general occupational hygiene: Eating, drinking and smoking should be prohibited in areas where this material is handled, stored and processed. Workers should wash hands and face before eating, drinking and smoking. Remove contaminated clothing and protective equipment before entering eating areas. See also Section 8 for additional information on hygiene measures.

Conditions for safe storage, including any incompatibilities: Store in accordance with local regulations. Store away from direct sunlight in a dry, cool and well-ventilated area, away from incompatible materials (see Section 10) and food and drink. Protect from sunlight. Eliminate all ignition sources. Use appropriate containment to avoid environmental contamination.

Section 8 Exposure controls/personal protection.

Control parameters, occupational exposure limits:

Ingredient name	Exposure limits
Butane	NIOSH REL (United States, 10/2013). TWA: 800 ppm 10 hours. TWA: 1900 mg/m ³ 10 hours. ACGIH TLV (United States, 6/2013). STEL: 1000 ppm 15 minutes.
2-Propanol	ACGIH TLV (United States, 6/2013). TWA: 200 ppm 8 hours. STEL: 400 ppm 15 minutes. NIOSH REL (United States, 10/2013). TWA: 400 ppm 10 hours. TWA: 980 mg/m ³ 10 hours. STEL: 500 ppm 15 minutes. STEL: 1225 mg/m ³ 15 minutes. OSHA PEL (United States, 2/2013). TWA: 400 ppm 8 hours. TWA: 980 mg/m ³ 8 hours
Propane	NIOSH REL (United States, 10/2013). TWA: 1000 ppm 10 hours. TWA: 1800 mg/m ³ 10 hours. OSHA PEL (United States, 2/2013). TWA: 1000 ppm 8 hours. TWA: 1800 mg/m ³ 8 hours.

Appropriate engineering controls: Use only with adequate ventilation. If user operations generate dust, fumes, gas, vapor or mist, use process enclosures, local exhaust ventilation or other engineering controls to keep worker exposure to airborne contaminants below any recommended or statutory limits. The engineering controls also need to keep gas, vapor or dust concentrations below any lower explosive limits. Use explosion-proof ventilation equipment.

Environmental exposure controls: Emissions from ventilation or work process equipment should be checked to ensure they comply with the requirements of environmental protection legislation. In some cases, fume scrubbers, filters or engineering modifications to the process equipment will be necessary to reduce emissions to acceptable levels.

Individual protection measures:

Hygiene measures: Wash hands, forearms and face thoroughly after handling chemical products, before eating, smoking and using the lavatory and at the end of the working period. Appropriate techniques should be used to remove potentially contaminated clothing. Wash contaminated clothing before reusing. Ensure that eyewash stations and safety showers are close to the workstation location.

Eye/face protection: Safety eyewear complying with an approved standard should be used when a risk assessment indicates this is necessary to avoid exposure to liquid splashes, mists, gases or dusts. If contact is possible, the following protection should be worn, unless the assessment indicates a higher degree of protection: safety glasses with sideshields.

Skin protection:

- Hand protection: Chemical-resistant, impervious gloves complying with an approved standard should be worn at all times when handling chemical products if a risk assessment indicates this is necessary. Considering the parameters specified by the glove manufacturer, check during use that the gloves are still retaining their protective properties. It should be noted that the time to breakthrough for any glove material may be different for different glove manufacturers. In the case of mixtures, consisting of several substances, the protection time of the gloves cannot be accurately estimated.
- Body protection: Personal protective equipment for the body should be selected based on the task being performed and the risks involved and should be approved by a specialist before handling this product. When there is a risk of ignition from static electricity, wear antistatic protective clothing. For the greatest protection from static discharges, clothing should include anti-static overalls, boots and gloves.
- Other skin protection: Appropriate footwear and any additional skin protection measures should be selected based on the task being performed and the risks involved and should be approved by a specialist before handling this product.
- Respiratory protection: Use a properly fitted, air-purifying or air-fed respirator complying with an approved standard if a risk assessment indicates this is necessary. Respirator selection must be based on known or anticipated exposure levels, the hazards of the product and the safe working limits of the selected respirator.

Section 9 Physical and chemical properties.

Appearance:

- Physical state: Liquid.
- Color: Not available.
- Odor: Not available.
- Odor threshold : Not available.
- pH: 7
- Melting point: Not available.
- Boiling point: Not available.
- Flash point: Closed cup: -29°C (-20.2°F) [Pensky-Martens Closed Cup]
- Evaporation rate: 1.44 (butyl acetate = 1)
- Flammability (solid, gas): Not available.

Lower and upper explosive (flammable) limits: Lower: 1.9%
Upper: 12.7%

Vapor pressure: 13.5 kPa (101.325 mm Hg) [at 20°C]

Vapor density: 1 [Air = 1]

Relative density: 0.92

Solubility: Not available.

Partition coefficient: n- octanol/
water: Not available.

Auto-ignition temperature: Not available.

Decomposition temperature: Not available.

Viscosity: Kinematic (40°C (104°F)): <0.07 cm²/s (>7 cSt)

Aerosol product:

Type of aerosol: Spray

Heat of combustion: 6.056 kJ/g

Section 10 Stability and reactivity.

Reactivity: No specific test data related to reactivity available for this product or its ingredients.

Chemical stability: The product is stable.

Possibility of hazardous reactions: Under normal conditions of storage and use, hazardous reactions will not occur.

Conditions to avoid: Avoid all possible sources of ignition (spark or flame).

Incompatible materials: No specific data.

Hazardous decomposition products: Under normal conditions of storage and use, hazardous decomposition products should not be produced.

Section 11 Toxicological information.

Information on toxicological effects:

Acute toxicity:

Product/ingredient name	Result	Species	Dose	Exposure
Butane	LC50 Inhalation Vapor	Rat	658000 mg/m ³	4 hours
2-Propanol	LD50 Dermal	Rabbit	12800 mg/kg	-
	LD50 Oral	Rat	5000 mg/kg	-
Sodium Bicarbonate	LD50 Oral	Rat	4220 mg/kg	-

Irritation/corrosion:

Product/ingredient name	Result	Species	Score	Exposure	Observation
2-Propanol	Eyes - Moderate irritant	Rabbit	-	24 hours 100mg	
	Eyes - Moderate irritant	Rabbit	-	10mg	
	Eyes - Severe irritant	Rabbit	-	100mg	
	Skin - Mild irritant	Rabbit	-	500mg	
Sodium Bicarbonate	Eyes - Mild irritant	Rabbit	-	0.5 minutes 100mg	-
	Skin - Mild irritant	Human	-	72 hours 30mg Intermittent	-

Sensitization:

Not available.

Mutagenicity:

Not available.

Carcinogenicity:

Not available.

Classification:

Product/ingredient name	OSHA	IARC	NTP
2-Propanol	-	3	-

Reproductive toxicity:

Not available.

Teratogenicity:

Not available.

Specific target organ toxicity (single exposure):

Name	Category	Route of exposure	Target organs
Butane	3	Not applicable.	Respiratory tract irritation and narcotic effects.
2-Propanol	3	Not applicable.	Respiratory tract irritation and narcotic effects.
Propane	3	Not applicable.	Respiratory tract irritation and narcotic effects.

Specific target organ toxicity (repeated exposure):

Name	Category	Route of exposure	Target organs
Butane	2	Not determined.	Not determined.
2-Propanol	2	Not determined.	Not determined.
Propane	2	Not determined.	Not determined.

Aspiration hazard:

Name	Result
Propane	ASPIRATION HAZARD - Category 1

Information on the likely routes of exposure: Not available.

Potential acute health effects:

Eye contact: No known significant effects or critical hazards.

Inhalation: No known significant effects or critical hazards.

Skin contact: No known significant effects or critical hazards.

Ingestion: No known significant effects or critical hazards.

Symptoms related to the physical, chemical, and toxicological characteristics:

Eye contact: Adverse symptoms may include the following:
irritation
redness

Inhalation: Adverse symptoms may include the following:
respiratory tract irritation
coughing

Skin contact: No specific data.

Ingestion: No specific data.

Delayed and immediate effects and also chronic effects from short term exposure:

Potential immediate effects: Not available.

Potential delayed effects: Not available.

Delayed and immediate effects and also chronic effects from long term exposure:

Potential immediate effects: Not available.

Potential delayed effects: Not available.

Potential chronic health effects:

Chronic health effects: Not available.

General: May cause damage to organs through prolonged or repeated exposure.

Carcinogenicity: No known significant effects or critical hazards.

Mutagenicity: No known significant effects or critical hazards.

Teratogenicity: No known significant effects or critical hazards.

Developmental effects: No known significant effects or critical hazards.

Fertility effects: No known significant effects or critical hazards.

Numerical measures of toxicity.

Acute toxicity estimates:

Route	ATE value
Oral	52884.9 mg/kg

Section 12 Ecological information.

Toxicity:

Product/ingredient name	Result	Species	Exposure
2-Propanol	Acute LC50 1400000 µg/l Marine water	Crustaceans - Crangon crangon	48 hours
	Acute LC50 1400000 µg/l	Fish - Gambusia affinis	96 hours

Product/ingredient name	Result	Species	Exposure
Sodium Bicarbonate	Acute EC50 650000 µg/l Fresh water	Algae - Navicula seminulum	96 hours
	Acute LC50 767.87 mg/l Marine water	Crustaceans - Americamysis bahia	48 hours
	Acute LC50 7550 ppm Fresh water	Fish - Gambusia affinis - Adult	96 hours
	Chronic NOEC 576 mg/l Fresh water	Daphnia - Daphnia magna - Neonate	3 weeks

Persistence and degradability:

Not available.

Bioaccumulative potential:

Not available.

Mobility in soil:






Soil/water partition coefficient (K_{oc}): Not available.

Other adverse effects: No known significant effects or critical hazards.

Section 13 Disposal considerations.

Disposal methods: The generation of waste should be avoided or minimized wherever possible. Disposal of this product, solutions and any by-products should at all times comply with the requirements of environmental protection and waste disposal legislation and any regional local authority requirements. Dispose of surplus and non-recyclable products via a licensed waste disposal contractor. Waste should not be disposed of untreated to the sewer unless fully compliant with the requirements of all authorities with jurisdiction. Waste packaging should be recycled. Incineration or landfill should only be considered when recycling is not feasible. This material and its container must be disposed of in a safe way. Empty containers or liners may retain some product residues. Do not puncture or incinerate container.

Section 14 Transport information.

	DOT Classification	TDG Classification	Mexico Classification	IATA	IMDG
UN number	UN1950	UN1950	UN1950	UN1950	UN1950
UN proper shipping name	AEROSOLS	AEROSOLS	AEROSOLS	AEROSOLS, flammable	AEROSOLS
Transport hazard class(es)	2.1	2.1	2.1	2.1	2.1
					
Packing group	-	-	-	-	-
Environmental hazards	No.	No.	No.	No.	No.
Additional information	Special provisions LIMITED QUANTITY	Special provisions LIMITED QUANTITY	Special provisions (ERG#126)	Special provisions LIMITED QUANTITY	Emergency schedules (EmS) LIMITED QUANTITY, F-D, S-U

Special precautions for user: Multi-modal shipping descriptions are provided for informational purposes and do not consider container sizes. The presence of a shipping description for a particular mode of transport (sea, air, etc.), does not indicate that the product is packaged suitably for that mode of transport. All packaging must be reviewed for suitability prior to shipment, and compliance with the applicable regulations is the sole responsibility of the person offering the product for transport. People loading and unloading dangerous goods must be trained on all of the risks deriving from the substances and on all actions in case of emergency situations.

Transport in bulk according to Annex II of MARPOL 73/78 and the IBC Code: Not available.

Section 15 Regulatory information.

U.S. Federal regulations:

State regulations:

California Prop. 65: WARNING: This product contains chemicals known to the State of California to cause cancer and birth defects or other reproductive harm.

Section 16 Other information.

Prepared on: May 20, 2015

Hazardous Material Information System (U.S.A.):

Health	2
Flammability	2
Physical hazards	0

Caution: HMIS® ratings are based on a 0-4 rating scale, with 0 representing minimal hazards or risks, and 4 representing significant hazards or risks. Although HMIS® ratings are not required on SDSs under 29 CFR 1910.1200, the preparer may choose to provide them. HMIS® ratings are to be used with a fully implemented HMIS® program. HMIS® is a registered mark of the National Paint & Coatings Association (NPCA). HMIS® materials may be purchased exclusively from J. J. Keller (800) 327-6868. The customer is responsible for determining the PPE code for this material.

Notice to reader:

It is recommended that each customer or recipient of this Safety Data Sheet (SDS) study it carefully and consult resources, as necessary or appropriate, to become aware of and understand the data contained in this SDS and any hazards associated with the product. This information is provided in good faith and believed to be accurate as of the effective date herein. However, no warranty, express or implied, is given. The information presented here applies only to the product as shipped. The addition of any material can change the composition, hazards and risks of the product. Regulatory requirements are subject to change and may differ between various locations and jurisdictions. The customer/buyer/user is responsible to ensure that his activities comply with all country, federal, state, provincial or local laws. The conditions for use of the product are not under the control of the manufacturer; the customer/buyer/user is responsible to determine the conditions necessary for the safe use of this product. The customer/buyer/user should not use the product for any purpose other than the purpose shown in the applicable section of this SDS without first referring to the supplier and obtaining written handling instructions. Due to the proliferation of sources for information such as manufacturer-specific SDS, the manufacturer cannot be responsible for SDSs obtained from any other source.

**GHS
SAFETY DATA SHEET**

I. PRODUCT IDENTIFICATION		
MANUFACTURER/SUPPLIER GNB Industrial Power A division of Exide Technologies 3950 Sussex Avenue Aurora, IL 60504-7932	CHEMICAL/TRADE NAME (as used on label) PRODUCT ID	PDX 57 Flooded Lead Acid Battery UN2794
FOR FURTHER INFORMATION Primary Contact: Exide SDS Support (770) 421-3485 Secondary Contact: Joe Bolea (423) 989-6377 Fred Ganster (610) 921-4052	CHEMICAL FAMILY/ CLASSIFICATION FOR EMERGENCY CHEMTREC (800) 424-9300 (703) 527-3887 – Collect 24-hour Emergency Response Contact Ask for Environmental Coordinator	Electric Storage Battery

II. HAZARD IDENTIFICATION

Signal Word: Danger

Category:	GHS Codes	Description
Health: STOT RE 2 Acute Tox. 4 Repr. 1A Skin Corr. 1A Flamm Gas 1 Aquatic Acute 1 Aquatic Chronic 1	H302 H314 H332 H360 H373 H220 H410 P260 P301/330/331 P303/361/353 P304/340 P305/351/338 P310	Harmful if swallowed. Causes severe skin burns and eye damage. Harmful if inhaled. May damage fertility or the unborn child. May cause damage to organs through prolonged or repeated exposure. Extremely flammable gas (hydrogen) Very toxic to aquatic life with long lasting effects. Do not breathe dust/fume/gas/mist/vapors/spray. IF SWALLOWED: rinse mouth. Do NOT induce vomiting. IF ON SKIN (or hair): Remove/Take off immediately all contaminated clothing. Rinse skin with water/shower. IF INHALED: Remove victim to fresh air and keep at rest in a position comfortable for breathing. IF IN EYES: Rinse cautiously with water for several minutes. Remove contact lenses, if present and easy to do. Continue rinsing. Immediately call a POISON CENTER or doctor/physician.
Handling:	P210 P260 P264 P280 P403 P405 P391 P273 P501	Keep away from heat/sparks/open flames/hot surfaces. No smoking Do not breathe dust/fume/gas/mist/vapors/spray Wash thoroughly after handling. Wear protective gloves/protective clothing/eye protection/face protection. Store in well-ventilated area Store locked up. Collect spillage Avoid release to the environment Dispose of contents/container in accordance with local/regional/national/international regulation.

WARNING: Batteries subjected to abusive charging at excessively high currents for prolonged periods of time without vent caps in place may create a surrounding atmosphere of the offensive strong inorganic acid mist containing sulfuric acid.

Reactivity: Organic materials, chlorates, carbides, fulminates, water, powdered metals. Reacts violently with water with evolution of heat. Corrosive to metals. Strong oxidizers, hydrogen peroxide, acids.

III. COMPOSITION/INFORMATION ON INGREDIENTS

Ingredient	CAS Number	% by Wt.
Inorganic compounds of:		
Lead	7439-92-1	75-80
Copper	7440-50-8	1-3
Electrolyte (sulfuric acid)	7664-93-9	15-20
Case Material:		
Polypropylene (liner)	9003-07-0	<1
Polycarbonate (cover, jar)	25766-59-0	4-6
Polyethylene (braces)	9002-88-4	<1
Rubber Separator	N/A	1-3

Note:

Inorganic lead and electrolyte (water and sulfuric acid solution) are the primary components of every battery manufactured by Exide Technologies or its subsidiaries. Other ingredients may be present dependent upon battery type.

IV. FIRST AID MEASURES

Take proper precautions to ensure you own health and safety before attempting to rescue a victim and provide first aid.

Inhalation: Electrolyte: Remove to fresh air immediately. If breathing is difficult, give oxygen.
Lead/copper compounds: Remove from exposure, gargle, wash nose and lips; consult physician.

Skin Contact: Electrolyte: Flush with large amounts of water for at least 15 minutes; remove contaminated clothing completely, including shoes, and do not wear again until cleaned. If acid is splashed on shoes, remove and discard if they contain leather.
Lead/copper compounds: Wash immediately with soap and water. Lead compounds are not readily absorbed through the skin.

Eye Contact: Electrolyte and Lead/copper compounds: Flush immediately with large amounts of water for at least 15 minutes; consult physician immediately.

Ingestion: Electrolyte: Give large quantities of water; **do not** induce vomiting; consult physician.
Lead/copper compounds: Consult physician immediately.

V. FIRE FIGHTING MEASURES

Flash Point: Not Applicable
Flammable Limits: LEL = 4.1% (hydrogen gas in air) ; UEL = 74.2%
Extinguishing media: CO₂; foam; dry chemical

Fire Fighting Procedures:
 Use positive pressure, self-contained breathing apparatus. Beware of acid splatter during water application and wear acid-resistant clothing, gloves, face and eye protection. If batteries are on charge, shut off power to the charging equipment, but, note that strings of series connected batteries may still pose risk of electric shock even when charging equipment is shut down.

Hazardous Combustion Products:
 In operation, or when on charge, batteries generate and release flammable hydrogen and oxygen gases (hydrogen is highly flammable and oxygen supports combustion). They must always be assumed to contain this gas which, if ignited by burning cigarette, naked flame or spark, may cause battery explosion with dispersion of casing fragments and corrosive liquid electrolyte. Carefully follow manufacturer's instructions for installation and service. Keep away all sources of gas ignition and do not allow metallic articles to simultaneously contact the negative and positive terminals of a battery.

VI. ACCIDENTAL RELEASE MEASURES

Remove combustible materials and all sources of ignition. Stop flow of material and contain spill by diking with soda ash, etc. Carefully neutralize spill with soda ash, etc. Make certain mixture is neutral then collect residue and place in a drum or other suitable container with a label specifying "contains hazardous waste" or (if uncertain call distributor regarding proper labeling procedures). Dispose of as hazardous waste. If battery is leaking, place battery in a heavy duty plastic bag. Wear acid resistant boots, face shield, chemical splash goggles and acid resistant gloves. **Do not allow discharge of acid to sewer.** Acid must be managed in accordance with approved local, state, and federal requirements. Consult state environmental agency and/or federal EPA.

VII. HANDLING AND STORAGE

Handling:
 Single batteries pose no risk of electric shock but there may be increasing risk of electric shock from strings of connected batteries exceeding three 12-volt units. Batteries are non-spillable - potential for exposure to contents only during recycling or if outer casing is cracked or damaged.

Storage:
 Store batteries under roof in cool, dry, well-ventilated areas that are separated from incompatible materials and from activities which may create flames, sparks, or heat. Keep away from metallic objects that could bridge the terminals on a battery and create a dangerous short-circuit.

Charging:

There is a possible risk of electric shock from charging equipment and from strings of series connected batteries, whether or not being charged. Shut-off power to chargers whenever not in use and before detachment of any circuit connections. Batteries being charged will generate and release flammable hydrogen gas. Charging space should be ventilated. Keep battery vent caps in position. Prohibit smoking and avoid creation of flames and sparks nearby. Wear face and eye protection when near batteries being charged.

VIII. EXPOSURE CONTROLS AND PERSONAL PROTECTION

Ingredient:	Occupational Exposure Limits (mg/m ³)					
	US OSHA	US ACGIH	US NIOSH	Quebec PEV	Ontario OEL	EU OEL
Inorganic forms of:						
Lead	0.05	0.05	0.05	0.05	0.05	0.15(b)
Copper	1	1	1	1	1(a)	0.1(d)
Electrolyte (sulfuric acid/water solution)	1	0.2	1	1	0.2	0.05(c)

NOTES:

- (a) as dusts/mists
- (b) as inhalable aerosol
- (c) thoracic fraction
- (d) based on OEL for Netherlands

Engineering Controls (Ventilation):

Store and handle in well-ventilated area. If mechanical ventilation is used, components must be acid-resistant. Handle batteries cautiously. Make certain vent caps are on securely. If battery case is damaged, avoid bodily contact with internal components. Wear protective clothing, eye and face protection, when charging or handling batteries. Follow all manufacturers' recommendations when stacking or palletizing. Do not allow metallic materials to simultaneously contact both the positive and negative terminals of the batteries. Use a battery carrier to lift a battery or place hands at opposite corners to avoid spilling acid through the vents. Avoid contact with internal components of the batteries.

Hygiene Practices:

Wash hands thoroughly before eating, drinking or smoking after handling batteries.

Respiratory Protection (NIOSH/MSHA approved):

None required under normal conditions. If an overcharging or overheating condition exists and concentrations of sulfuric acid mist are known or suspected to exceed PEL, use NIOSH or MSHA-approved respiratory protection.

Skin Protection:

None required under normal conditions. If battery case is damaged, use rubber or plastic acid-resistant gloves with elbow-length gauntlet, acid-resistant apron, clothing, and boots.

Eye Protection:

None required under normal conditions. If battery case is damaged, chemical goggles or face shield.

Other Protection:

In areas where water and sulfuric acid solutions are handled in concentrations greater than 1%, emergency eyewash stations and showers should be provided, with unlimited water supply.

IX. PHYSICAL AND CHEMICAL PROPERTIES - ELECTROLYTE

Boiling Point@760 mm Hg	219 to 237° F	Specific Gravity @ 77°F (H ₂ O=1)	1.1394 to 1.3028
Melting Point	Not Applicable	Vapor Pressure (mm Hg)	13.5 to 20.8
% Solubility in Water	100	pH	Greater than 1
Evaporation Rate (Butyl acetate=1)	Less Than 1	Vapor Density (AIR=1)	Greater than 1
Appearance and Odor Threshold	Sulfuric Acid: A clear liquid with a sharp, penetrating, pungent odor. A battery is a manufactured article; no apparent odor.	Viscosity	Not applicable
Octanol Water Partition Coefficient (K _{ow})	Not Applicable	% Volatiles by Volume @70°F	Not Applicable

Note: The properties above reflect 20-40% Sulfuric acid

X. STABILITY & REACTIVITY DATA

Stability: Stable

Conditions to Avoid: Prolonged overcharging and overheating current; sparks and other sources of ignition.

Incompatibilities: (materials to avoid)

Electrolyte: Contact with combustibles and organic materials may cause fire and explosion. Also reacts violently with strong reducing agents, most metals, carbides, chlorates, nitrates, picrate, sulfur trioxide gas, strong oxidizers, and water. Contact with metals may produce toxic sulfur dioxide fumes and may release flammable hydrogen gas. No further concern for mechanical impact.

Lead compounds: Avoid contact with strong acids, bases, halides, halogenates, potassium nitrate, permanganate, peroxides, nascent hydrogen, potassium, carbides, sulfides phosphorus, sulfur and reducing agents.

Copper compounds: Avoid contact with oxidizers, alkalis, sodium azide, and acetylene. No further concern for mechanical impact.

Hazardous Decomposition Products:

Electrolyte: Sulfur trioxide, carbon monoxide, sulfuric acid mist, sulfur dioxide, hydrogen sulfide, hydrogen.

Lead compounds: Temperatures above the melting point are likely to produce toxic metal fume, vapor, or dust; contact with strong acid or base or presence of nascent hydrogen may generate highly toxic arsine gas.

Hazardous Polymerization: Will Not Occur

XI. TOXICOLOGICAL DATA

Routes of Entry:

Electrolyte: Harmful by all routes of entry. Under normal conditions of use, sulfuric acid vapors and mist are not generated. Sulfuric acid vapors and mist may be generated when product is overheated, oxidized, or otherwise processed or damaged.

Lead compounds: Under normal conditions of use, lead dust, vapors, and fumes are not generated. Hazardous exposure can occur only when product is heated above the melting point, oxidized or otherwise processed or damaged to create dust, vapor, or fume.

Copper compounds: Under normal conditions of use, copper dust/fumes/vapors are not generated. Hazardous exposure can occur only when product is heated above melting point, oxidized or otherwise processed or damaged to create dust, vapor, or fume.

Acute Toxicity:

Inhalation LD₅₀:

Electrolyte: LC₅₀ rat: 375 mg/m³; LC₅₀: guinea pig: 510 mg/m³

Elemental Lead: Acute Toxicity Point Estimate = 4500 ppmV (based on lead bullion)

Copper: LC₅₀ rat: 2.77-2.83 mg/L

Oral LD₅₀:

Electrolyte: rat: 2140 mg/kg

Elemental lead: Acute Toxicity Estimate (ATE) = 500 mg/kg body weight (based on lead bullion)

Copper: LD₅₀: >2500 mg/kg

Inhalation:

Electrolyte: Breathing of sulfuric acid vapors or mists may cause severe respiratory irritation.

Lead compounds: Inhalation of lead dust or fumes may cause irritation of upper respiratory tract and lungs.

Copper compounds: Inhalation of lead dust or fumes may cause irritation of upper respiratory tract and lungs.

Ingestion:

Electrolyte: May cause severe irritation of mouth, throat, esophagus, and stomach.

Lead compounds: Acute ingestion may cause abdominal pain, nausea, vomiting, diarrhea, and severe cramping. This may lead rapidly to systemic toxicity. Acute ingestion should be treated by physician.

Copper compounds: Acute symptoms include a metallic taste

Skin Contact:

Electrolyte: Severe irritation, burns, and ulceration. Sulfuric acid is not readily absorbed through the skin and is not a dermal sensitizer.

Lead compounds: Not readily absorbed through the skin and is not a dermal sensitizer.

Copper compounds: May cause irritation to skin.

Eye Contact:

Electrolyte: Severe irritation, burns, cornea damage, blindness.

Lead compounds: May cause eye irritation.

Copper compounds: May cause irritation to eyes.

Synergistic Products:

Electrolyte: No known synergistic products

Lead compounds: Synergistic effects have been noted with heavy metals (arsenic, cadmium, mercury), N-nitroso-N-(hydroxyethyl)ethylamine, N-(4-fluoro-4-biphenyl)acetamide, 2-(nitrosoethylamine)ethanol, and benzo[a]pyrene.

Copper: Exposure to dietary cadmium, ferrous iron, and stannous tin can result in decreased copper absorption

Additional Information:

Medical Conditions Generally Aggravated by Exposure:

Overexposure to sulfuric acid mist may cause lung damage and aggravate pulmonary conditions. Contact of electrolyte (water and sulfuric acid solution) with skin may aggravate skin diseases such as eczema and contact dermatitis. Contact of electrolyte (water and sulfuric acid solution) with eyes may damage cornea and/or cause blindness. Lead and its compounds can aggravate some forms of kidney, liver, and neurologic diseases.

Additional Health Data:

All heavy metals, including the hazardous ingredients in this product, are taken into the body primarily by inhalation and ingestion. Most inhalation problems can be avoided by adequate precautions such as ventilation and respiratory protection covered in Section VIII. Follow good personal hygiene to avoid inhalation and ingestion: wash hands, face, neck and arms thoroughly before eating, smoking or leaving the work site. Keep contaminated clothing out of non-contaminated areas, or wear cover clothing when in such areas. Restrict the use and presence of food, tobacco and cosmetics to non-contaminated areas. Work clothes and work equipment used in contaminated areas must remain in designated areas and never taken home nor laundered with personal non-contaminated clothing.

This product is intended for industrial use only and should be isolated from children and their environment.

XII. ECOLOGICAL INFORMATION

Environmental Fate: lead is very persistent in soil and sediments. No data on environmental degradation. Mobility of metallic lead between ecological compartments is slow. Bioaccumulation of lead occurs in aquatic and terrestrial animals and plants but little bioaccumulation occurs through the food chain. Most studies include lead compounds and not elemental lead.

Environmental Toxicity: Aquatic Toxicity:

Sulfuric acid: 24-hr LC₅₀, freshwater fish (*Brachydanio rerio*): 82 mg/L
96 hr- LOEC, freshwater fish (*Cyprinus carpio*): 22 mg/L
Lead: 48 hr LC₅₀ (modeled for aquatic invertebrates): <1 mg/L, based on lead bullion
Copper: 96 hr LC₅₀, freshwater fish (*Cyprinus carpio*): 0.81 mg/L

XIII. DISPOSAL INFORMATION

US

Sulfuric Acid:	Neutralize as described above for a spill, collect residue and place in a container labeled as containing hazardous waste. Dispose of as a hazardous waste. If uncertain about labeling procedures, call your local battery distributor or listed contact. DO NOT FLUSH LEAD CONTAMINATED ACID TO SEWER.
Spent batteries	Send to secondary lead smelter for recycling following applicable federal, state, and local regulations.

XIV. TRANSPORT INFORMATION

GROUND – US-DOT/CAN-TDG/EU-ADR/APEC-ADR:

Batteries, Wet, Filled with Acid
UN 2794, 8, PG III
Label: "Corrosive"

AIRCRAFT – ICAO-IATA:

Batteries, Wet, Filled with Acid
UN 2794, 8
Label: "Corrosive"
Reference IATA packing instructions 870

VESSEL – IMO-IMDG:

Batteries, Wet, Filled with Acid
UN 2794, 8
Label: "Corrosive"
Reference IMDG packing instructions P801

Additional Information:

- Batteries must be kept upright at all times and packaged as required to prevent short circuits.
- Transport may require packaging and paperwork, including the Nature and Quantity of goods, per applicable origin/destination/customs points as-shipped.

XV. REGULATORY INFORMATION

United States:

EPA SARA Title III

Section 302 EPCRA Extremely Hazardous Substances (EHS):

Sulfuric acid is a listed "Extremely Hazardous Substance" under EPCRA, with a Threshold Planning Quantity (TPQ) of

1,000 lbs.

EPCRA Section 302 notification is required if **500 lbs** or more of sulfuric acid is present at one site (40 CFR 370.10). An average automotive/commercial battery contains approximately 5 lbs of sulfuric acid. Contact your Exide representative for additional information.

Section 304 CERCLA Hazardous Substances:

Reportable Quantity (RQ) for spilled 100% sulfuric acid under CERCLA (Superfund) and EPCRA (Emergency Planning and Community Right to Know Act) is **1,000 lbs.** State and local reportable quantities for spilled sulfuric acid may vary.

Section 311/312 Hazard Categorization:

EPCRA Section 312 Tier Two reporting is required for non-automotive batteries if sulfuric acid is present in quantities of **500 lbs** or more and/or if lead is present in quantities of **10,000 lbs** or more.

Section 313 EPCRA Toxic Substances:

Supplier Notification: This product contains a toxic chemical or chemicals subject to the reporting requirements of section 313 of (Title) III of the Superfund Amendments and Reauthorization Act of 1986 and 40 CFR Part 372.

<u>Chemical</u>	<u>CAS</u>	<u>Percent by Weight</u>
Lead (Pb)	7439-92-1	75-80
Electrolyte: Sulfuric Acid (H ₂ SO ₄)	7664-93-9	15-20
Copper (Cu)	7740-50-8	1-3

If you distribute this product to other manufacturers in SIC Codes 20 through 39, this information must be provided with the first shipment of each calendar year. **Note:** The Section 313 supplier notification requirement does not apply to batteries that are "consumer products".

TSCA: Each ingredient chemical listed in Section III of this SDS is also listed on the TSCA Registry.

OSHA: Considered hazardous under Hazard Communication Act (29CFR1910.1200)

RCRA: Spent lead-acid batteries are not regulated as hazardous waste when recycled. Spilled sulfuric acid is a characteristic hazardous waste; EPA hazardous waste number D002 (corrosivity).

CAA: Exide Technologies supports preventative actions concerning ozone depletion in the atmosphere due to emissions of CFC's and other ozone depleting chemicals (ODC's), defined by the USEPA as Class I substances. Pursuant to Section 611 of the Clean Air Act Amendments (CAAA) of 1990, finalized on January 19, 1993, Exide established a policy to eliminate the use of Class I ODC's prior to the May 15, 1993 deadline.

NFPA Hazard Rating for sulfuric acid:

Flammability (Red)	=	0
Health (Blue)	=	3
Reactivity (Yellow)	=	2

US State Notifications & Warnings:	Identification	Notifications/Warning
California	California Proposition 65	"WARNING: This product contains lead, a chemical known to the State of California to cause cancer, or birth defects or other reproductive harm."
		Battery posts, terminals, and related accessories contain lead and lead compounds, chemicals known to the State of California to cause cancer and reproductive harm. Batteries also contain other chemicals known to the State of California to cause cancer. Wash hands after handling.
		The following chemicals identified to exist in the finished product as distributed into commerce are known to the State of California to cause cancer, birth defects or to cause reproductive harm: 1. Strong inorganic acid mists including sulfuric acid; CAS #: NA; 15-20% wt 2. Lead – CAS No. 7439-92-1; 75-80% wt.
	Consumer Product Volatile Organic Compound Emissions	This product is not regulated as a consumer product for purposes of CARB/OTC VOC Regulations, as sold for the intended purpose and into the industrial/commercial supply chain.

Country/Organization	Identification	Notifications/Warning
Canada	All chemical substances in this product are listed on the CEPA DSL/NDSL or are exempt from list requirements.	"This product has been classified in accordance with the hazard criteria of the Controlled Products Regulations and the SDS contains all the information required by the Controlled Products Regulations.

		Refer to the Controlled Products Regulation for product labeling requirements												
	NPRI and Ontario Regulation 127/01	This product contains the following chemicals subject to the reporting requirements of Canada NPRI and/or Ont. Reg. 127/01: <table border="1"> <thead> <tr> <th>Chemical</th> <th>CAS #</th> <th>%wt</th> </tr> </thead> <tbody> <tr> <td>Lead</td> <td>7439-92-1</td> <td>75-80</td> </tr> <tr> <td>Sulfuric acid</td> <td>7664-93-9</td> <td>15-20</td> </tr> <tr> <td>Copper</td> <td>7440-50-8</td> <td>1-3</td> </tr> </tbody> </table>	Chemical	CAS #	%wt	Lead	7439-92-1	75-80	Sulfuric acid	7664-93-9	15-20	Copper	7440-50-8	1-3
Chemical	CAS #	%wt												
Lead	7439-92-1	75-80												
Sulfuric acid	7664-93-9	15-20												
Copper	7440-50-8	1-3												
	Toxic Substances List	Lead												
EU	European Inventory of Existing Commercial Chemical Substances (EINECS):	All ingredients remaining in the finished product as distributed into commerce are exempt from, or included on, the European Inventory of Existing Commercial Chemical Substances.												

XVI. OTHER INFORMATION

DATE ISSUED: September 11, 2013

OTHER INFORMATION:

Distribution into Quebec to follow Canadian Controlled Product Regulations (CPR) 24(1) and 24(2). Distribution into the EU to follow applicable Directives to the Use, Import/Export of the product as-sold.

SOURCES OF INFORMATION:

International Agency for Research on Cancer (1987), IARC Monographs on the Evaluation of Carcinogenic Risks to Humans: Overall Evaluations of Carcinogenicity: An updating of IARC Monographs Volumes 1-42, Supplement 7, Lyon, France. Ontario Ministry of Labor Regulation 654/86. Regulations Respecting Exposure to Chemical or Biological Agents.

PREPARED BY: GNB INDUSTRIAL POWER
A DIVISION OF EXIDE TECHNOLOGIES
3950 SUSSEX AVENUE
AURORA, IL 60504-7932

VENDEE AND THIRD PERSONS ASSUME THE RISK OF INJURY PROXIMATELY CAUSED BY THE MATERIAL IF REASONABLE SAFETY PROCEDURES ARE NOT FOLLOWED AS PROVIDED FOR IN THE DATA SHEET, AND VENDOR SHALL NOT BE LIABLE FOR INJURY TO VENDEE OR THIRD PERSONS PROXIMATELY CAUSED BY ABNORMAL USE OF THE MATERIAL EVEN IF REASONABLE PROCEDURES ARE FOLLOWED.

ALL PERSONS USING THIS PRODUCT, ALL PERSONS WORKING IN AN AREA WHERE THIS PRODUCT IS USED, AND ALL PERSONS HANDLING THIS PRODUCT SHOULD BE FAMILIAR WITH THE CONTENTS OF THIS DATA SHEET. THIS INFORMATION SHOULD BE EFFECTIVELY COMMUNICATED TO EMPLOYEES AND OTHERS WHO MIGHT COME IN CONTACT WITH THE PRODUCT.

WHILE THE INFORMATION ACCUMULATED AND SET FORTH HEREIN IS BELIEVED TO BE ACCURATE AS OF THE DATE HEREOF, EXIDE TECHNOLOGIES MAKES NO WARRANTY WITH RESPECT THERETO AND DISCLAIMS ALL LIABILITY FROM RELIANCE THEREON. RECIPIENTS ARE ADVISED TO CONFIRM IN ADVANCE OF NEED THAT THE INFORMATION IS CURRENT, APPLICABLE, AND SUITABLE FOR THEIR PARTICULAR CIRCUMSTANCES.

ANY PHOTOCOPY MUST BE OF THIS ENTIRE DOCUMENT

PRODUCT SAFETY DATA SHEET
PSDS No. 1.1
FLUORESCENT LAMPS



SYLVANIA brand Fluorescent Lamps, manufactured by OSRAM / OSRAM SYLVANIA, are exempted from the requirements of the OSHA Hazard Communication Standard (29 CFR 1910.1200) because they are "articles." The following information is provided by OSRAM SYLVANIA as a courtesy to its customers.

I. PRODUCT IDENTIFICATION

Trade Name: **SYLVANIA Fluorescent Lamps**

- This data sheet covers Sylvania linear "White" (Cool White, Warm White, Daylight, etc; 700, 800, 900 series triphosphor) standard, "Sylvania ECO" brand, and Safeline® ① linear, T12 & Octron Curvalume® (6" spacing), and T9 Circline fluorescent lamps for general lighting.
- This data sheet does **not** cover compact fluorescent②, Pentron® (T5), plant, aquarium/vivarium, photocopy, germicidal, blacklight, or any colored or other special application fluorescent lamps.
 - ①Safeline lamps are encased in a Polyethylene Terephthalate (PET) heat shrinkable tubing manufactured by EncapSulite International Inc., Stafford, TX.
 - ②See PSDS No. 1.1.5 for Compact Fluorescent Lamps.
 - ③See PSDS No. 1.1.8 for Pentron Fluorescent Lamps.

Manufacturer: OSRAM SYLVANIA 100 Endicott Street
 Danvers, MA 01923 Phone: (978) 777-1900

II. HAZARDOUS INGREDIENTS:

THERE ARE NO KNOWN HEALTH HAZARDS FROM EXPOSURE TO LAMPS THAT ARE INTACT.

If the lamp is broken, the following materials may be released:

Chemical Name	CAS Number	% by Wt.	Exposure Limits in Air (mg/M ³)	
			ACGIH (TLV)	OSHA (PEL)
Glass (soda-lime)	----	75-95	10 ⁽²⁾	15 ⁽²⁾
Mercury ^(1,4)	7439-97-6	0.002-0.02	0.025	0.1 Ceiling
Aluminum Oxide	001-344-281	0-2.0	10 ⁽²⁾	15 ⁽²⁾
Fluorescent Phosphor and cathodes may contain:	----	0.5-3.0	10 ⁽²⁾	15 ⁽²⁾
Fluoride (as F)	----	0-0.1	2.5	2.5
Manganese ⁽³⁾ (as dust)	7439-96-5	0-0.1	0.2	5.0 Ceiling
Tin ⁽³⁾ (as dust)	7440-31-5	0-0.1	2.0	2.0
Yttrium ⁽³⁾ (as dust)	7440-65-5	0-0.5	1.0	1.0
Barium ⁽³⁾ (as dust)	7440-39-3	<0.1	0.5	0.5
Tungsten ⁽³⁾ (as dust)	7440-33-7	<0.1	1	15 ⁽²⁾
Strontium ⁽³⁾ (as dust)	7440-24-6	0-0.1	10 ⁽²⁾	15 ⁽²⁾
Magnesium ⁽³⁾ (as dust)	7439-95-4	0-0.1	10 ⁽²⁾	15 ⁽²⁾
Calcium ⁽³⁾ (as dust)	----	0-0.1	10 ⁽²⁾	15 ⁽²⁾
Antimony ⁽³⁾ (as dust)	7440-36-0	0-0.1	0.5	0.5
Zinc ⁽³⁾ (as dust)	7440-66-6	0-0.1	10 ⁽²⁾	15 ⁽²⁾
Europium ⁽³⁾ (as dust)	7440-53-1	0-0.1	10 ⁽²⁾	15 ⁽²⁾
Cerium ⁽³⁾ (as dust)	7440-45-1	0-0.1	10 ⁽²⁾	15 ⁽²⁾
Lanthanum ⁽³⁾ (as dust)	7439-91-0	0-0.1	10 ⁽²⁾	15 ⁽²⁾
Terbium ⁽³⁾ (as dust)	7440-27-9	0-0.1	10 ⁽²⁾	15 ⁽²⁾
Aluminum ⁽³⁾ (as dust)	7429-90-5	0-0.1	10 ⁽²⁾	15 ⁽²⁾
6" Curvalume® U-shaped Lamps contain a center support strap consisting of all, or a portion of the following:	----	~02.9	Within permissible exposure limits	
Carbonic Acid, Polymer with 4,4'-(1-methylethylidene) bis (2,6-dibromophenol) and 4,4'-(1-methylethylidene) bis [phenol]	32844-27-2			
Fiber Glass	1333-86-4			
Titanium Dioxide	13463-67-7			

(1) These chemicals are subject to the reporting requirements of section 313 of Title III of the Superfund Amendments and Reauthorization Act of 1986 and 40 CFR Part 372.
 (2) Limits as nuisance particulate.
 (3) These elements are contained in the material as part of its chemical structure; the material is not a mixture.
 (4) The mercury in this product is a substance known to the state of California to cause reproductive toxicity if ingested. [California Safe Drinking Water and Toxic Enforcement Act of 1986 (Proposition 65).]

III. PHYSICAL PROPERTIES : Not applicable to intact lamp.

IV. FIRE & EXPLOSION HAZARDS

Flammability: Non-combustible.

Fire Extinguishing Materials: Use extinguishing agents suitable for surrounding fire.

Special Firefighting Procedure: Use a self-contained breathing apparatus to prevent inhalation of dust and/or fumes that may be generated from broken lamps during firefighting activities.

Unusual Fire and Explosion Hazards: When exposed to high temperature, toxic fumes may be released from broken lamps.

V. HEALTH HAZARDS

THERE ARE NO KNOWN HEALTH HAZARDS FROM EXPOSURE TO LAMPS THAT ARE INTACT. No adverse effects are expected from occasional exposure to broken lamps. As a matter of good practice, avoid prolonged or frequent exposure to broken lamps unless there is adequate ventilation. The major hazard from broken lamps is the possibility of sustaining glass cuts.

NIOSH/OSHA Occupational Health Guidelines for Chemical Hazards and/or NIOSH Pocket Guide to Chemical Hazards lists the following effects of overexposure to the chemicals/materials tabulated below when they are inhaled, ingested, or contacted with skin or eye:

Mercury - Contact, inhalation, or ingestion may cause one or more of the following symptoms: eye irritation, skin irritation, cough, chest pain, dyspnea, bronchitis, pneumonitis, tremor, insomnia, irritability, indecision, headache, fatigue, weakness, stomatitis, salivation, GI tract disturbance, anorexia, weight loss, and proteinuria.

Glass - Glass dust is considered to be physiologically inert and as such has an OSHA exposure limit of 15 mg/M³ for total dust and 5 mg/M³ for respirable dust. The ACGIH TLVs for particulates not otherwise classified are 10 mg/M³ for total dust and 3 mg/M³ for respirable dust.

Tin - Contact, ingestion, or inhalation may cause one or more of the following symptoms: eye irritation, skin irritation, and respiratory system irritation.

Manganese - Contact, ingestion, or inhalation may cause one or more of the following symptoms: Parkinson's, asthenia, insomnia, mental confusion, metal fume fever, dry throat, cough, chest tightness, dyspnea, rales, flu-like fever, low-back pain, vomiting, malaise, fatigue, and kidney damage.

Fluoride - Fluoride-containing dust may cause irritation of the eyes and respiratory tract. Swallowing fluoride may cause a salty or soapy taste, vomiting, abdominal pain, diarrhea, shortness of breath, difficulty in speaking, thirst, weakness of the pulse, disturbed color vision, muscular weakness, convulsions, loss of consciousness, and death. Kidney injury and bleeding from the stomach may occur. Repeated exposure to fluoride may cause excessive calcification of the bone and calcification of ligaments of the ribs, pelvis, and spinal column. Stiffness and limitation of motion may result. Repeated or prolonged exposure of the skin to fluoride-containing dust may cause a skin rash.

Aluminum Oxide (Alumina) - Alumina is a non-toxic material. Sharp-edged particles can irritate the eyes, skin, and respiratory system.

Phosphor - Phosphor dust is considered to be physiologically inert and as such has an OSHA exposure limit of 15 mg/cubic meter for total dust and 5 mg/cubic meter for respirable dust.

Yttrium - Contact, ingestion, or inhalation may cause one or more of the following symptoms: eye irritation, pulmonary irritation, and possible liver damage.

Barium (soluble compounds) - Contact, ingestion, or inhalation may cause one or more of the following symptoms: eye irritation, skin irritation, upper respiratory system irritation, skin burns, gastroenteritis, muscle spasm, slow pulse, extrasystole, and hypokalemia.

Tungsten - Contact, ingestion, or inhalation may cause one or more of the following symptoms: eye irritation, respiratory system irritation, diffuse pulmonary fibrosis, loss of appetite, nausea, cough, and blood changes.

Antimony - Contact, ingestion, or inhalation may cause one or more of the following symptoms: eye irritation, skin irritation, nose irritation, throat irritation, mouth irritation, cough, dizziness, headache, nausea, vomiting, diarrhea, stomach cramps, insomnia, anorexia, and unable to smell properly.

V. HEALTH HAZARDS (Continued)

EMERGENCY AND FIRST AID PROCEDURES

Glass Cuts: Perform normal first aid procedures. Seek medical attention as required.

Inhalation: If discomfort, irritation or symptoms of pulmonary involvement develop, remove from exposure and seek medical attention.

Ingestion: In the unlikely event of ingestion of a large quantity of material, seek medical attention.

Contact, Skin: Thoroughly wash affected area with mild soap or detergent and water and prevent further contact. Seek medical attention if irritation occurs.

Contact, Eye: Wash eyes, including under eyelids, immediately with copious amounts of water for 15 minutes. Seek medical attention.

CARCINOGENIC ASSESSMENT (NTP ANNUAL REPORT, IARC MONOGRAPHS, OTHER): None

VI. REACTIVITY DATA

Stability: Stable

Conditions to avoid: None for intact lamps.

Incompatibility (materials to avoid): None for intact lamps.

Hazardous Decomposition Products (including combustion products): None for intact lamps.

Hazardous Polymerization Products: Will not occur.

VII. PROCEDURES FOR DISPOSAL OF LAMPS

OSRAM SYLVANIA recommends that all mercury-containing lamps be recycled. For a list of lamp recyclers and to obtain state regulatory disposal information, log onto www.lamprecycle.org.

If lamps are broken, ventilate area where breakage occurred. Clean-up with a special mercury vacuum cleaner (not a standard vacuum cleaner) or other suitable means that avoids dust and mercury vapor generation. Take usual precautions for collection of broken glass. Clean-up requires special care due to mercury droplet proliferation. Place materials in closed containers to avoid generating dust.

It is the responsibility of the waste generator to ensure proper classification and disposal of waste products. To that end, TCLP tests should be conducted on all waste products, including this one, to determine the ultimate disposition in accordance with applicable federal, state and local regulations. Some states have specific disposal requirements for lamps containing mercury.

Lamps which pass the EPA's TCLP test are considered non-hazardous waste in most states. Always review your local and state regulations which can vary. Based upon the NEMA* Standard LL 1 (*Procedures for Linear Fluorescent Lamp Sample Preparation and the TCLP*) testing protocol, ECOLOGIC® lamps, marked "ECO," pass the TCLP test.

*NEMA (National Electrical Manufacturers Association) standard may be obtained from NEMA, 1300 North 17th Street, Suite 1847, Rosslyn, VA 22209.

VIII. SPECIAL HANDLING INFORMATION - FOR BROKEN LAMPS

Ventilation: Use adequate general and local exhaust ventilation to maintain exposure levels below the PEL or TLV limits. If such ventilation is unavailable, use respirators as specified below.

Respiratory Protection: Use appropriate NIOSH approved respirator if airborne dust concentrations exceed the pertinent PEL or TLV limits. All appropriate requirements set forth in 29 CFR 1910.134 should be met.

Eye Protection: OSHA specified safety glasses, goggles or face shield are recommended if lamps are being broken.

Protective Clothing: OSHA specified cut and puncture resistant gloves are recommended for dealing with broken lamps.

Hygienic Practices: After handling broken lamps, wash hands and face thoroughly before eating, smoking or handling tobacco products, applying cosmetics, or using toilet facilities.

Although OSRAM SYLVANIA Inc. attempts to provide current and accurate information herein, it makes no representations regarding the accuracy or completeness of the information and assumes no liability for any loss, damage or injury of any kind which may result from, or arise out of, the use of/or reliance on the information by any person.

Issue Date: July 27, 2012

Supersedes: April 26, 2011

Rev G. (Osram SYLVANIA name/logo edits)

In case of questions, please call:
OSRAM SYLVANIA Inc.
Product Safety Engineer
(978) 777-1900

SAFETY DATA SHEET

CITGO AW Hydraulic Oil 100



Section 1. Identification

GHS product identifier : CITGO AW Hydraulic Oil 100
Synonyms : Hydraulic Fluid
Code : 633440001

Supplier's details : CITGO Petroleum Corporation
P.O. Box 4689
Houston, TX 77210
sdsvend@citgo.com

Emergency telephone number : Technical Contact: (800) 248-4684
Medical Emergency: (832) 486-4700
CHEMTREC Emergency: (800) 424-9300
(United States Only)

Section 2. Hazards identification

OSHA/HCS status : While this material is not considered hazardous by the OSHA Hazard Communication Standard (29 CFR 1910.1200), this SDS contains valuable information critical to the safe handling and proper use of the product. This SDS should be retained and available for employees and other users of this product.

Classification of the substance or mixture : Not classified.

GHS label elements

Signal word : Warning

Hazard statements : Injection under the skin can cause severe injury.
Most damage occurs in the first few hours.
Initial symptoms may be minimal.

Precautionary statements

General : Avoid contact with eyes, skin and clothing. MAY BE HARMFUL IF SWALLOWED. IF IN EYES: Rinse cautiously with water for several minutes. IF SWALLOWED: After handling, wash hands, contacted skin and soiled clothing thoroughly with soap and water. Keep out of reach of children.

Prevention : Not applicable.

Response : Not applicable.

Storage : Store in a dry place and/or in closed container. Store in accordance with all local, regional, national and international regulations.

Disposal : Dispose of contents and container in accordance with all local, regional, national and international regulations.

Hazards not otherwise classified : Injection of petroleum hydrocarbons requires immediate medical attention

Section 3. Composition/information on ingredients

Substance/mixture : Mixture

Other means of identification : Hydraulic Fluid

CAS number/other identifiers

CAS number : Not applicable.

Section 3. Composition/information on ingredients

Any concentration shown as a range is to protect confidentiality or is due to process variation.

There are no ingredients present which, within the current knowledge of the supplier and in the concentrations applicable, are classified as hazardous to health or the environment and hence require reporting in this section.

Occupational exposure limits, if available, are listed in Section 8.

Section 4. First aid measures

Description of necessary first aid measures

- | | |
|---------------------|--|
| Eye contact | : Immediately flush eyes with plenty of water, occasionally lifting the upper and lower eyelids. Check for and remove any contact lenses. Get medical attention if irritation occurs. |
| Inhalation | : Remove victim to fresh air and keep at rest in a position comfortable for breathing. Get medical attention if symptoms occur. |
| Skin contact | : Flush contaminated skin with plenty of water. Remove contaminated clothing and shoes. Get medical attention if symptoms occur. |
| Ingestion | : Wash out mouth with water. Remove victim to fresh air and keep at rest in a position comfortable for breathing. Do not induce vomiting unless directed to do so by medical personnel. Get medical attention if symptoms occur. |

Most important symptoms/effects, acute

Potential acute health effects

- | | |
|---------------------|--|
| Eye contact | : No known significant effects or critical hazards. |
| Inhalation | : No known significant effects or critical hazards. |
| Skin contact | : Injection of pressurized hydrocarbons can cause severe permanent tissue damage. Initial symptoms may be minor. |
| Ingestion | : No known significant effects or critical hazards. |

Over-exposure signs/symptoms

- | | |
|---------------------|---------------------|
| Eye contact | : No specific data. |
| Inhalation | : No specific data. |
| Skin contact | : No specific data. |
| Ingestion | : No specific data. |

Indication of immediate medical attention and special treatment needed, if necessary

- | | |
|-----------------------------------|---|
| Notes to physician | : Treat symptomatically. Contact poison treatment specialist immediately if large quantities have been ingested or inhaled. |
| Specific treatments | : Treat symptomatically and supportively. |
| Protection of first-aiders | : No action shall be taken involving any personal risk or without suitable training. |

See toxicological information (Section 11)

Section 5. Fire-fighting measures

- | | |
|---|---|
| Specific hazards arising from the chemical | : In a fire or if heated, a pressure increase will occur and the container may burst. |
|---|---|

Extinguishing media

- | | |
|---|--|
| Suitable extinguishing media | : Use an extinguishing agent suitable for the surrounding fire. |
| Unsuitable extinguishing media | : None known. |
| Hazardous thermal decomposition products | : Decomposition products may include the following materials:
carbon dioxide
carbon monoxide |

Section 5. Fire-fighting measures

- Special protective actions for fire-fighters** : Promptly isolate the scene by removing all persons from the vicinity of the incident if there is a fire. No action shall be taken involving any personal risk or without suitable training.
- Special protective equipment for fire-fighters** : Fire-fighters should wear appropriate protective equipment and self-contained breathing apparatus (SCBA) with a full face-piece operated in positive pressure mode.

Section 6. Accidental release measures

Personal precautions, protective equipment and emergency procedures

- For non-emergency personnel** : No action shall be taken involving any personal risk or without suitable training. Evacuate surrounding areas. Keep unnecessary and unprotected personnel from entering. Do not touch or walk through spilled material. Put on appropriate personal protective equipment.
- For emergency responders** : If specialised clothing is required to deal with the spillage, take note of any information in Section 8 on suitable and unsuitable materials. See also the information in "For non-emergency personnel".
- Environmental precautions** : Avoid dispersal of spilled material and runoff and contact with soil, waterways, drains and sewers. Inform the relevant authorities if the product has caused environmental pollution (sewers, waterways, soil or air).

Methods and materials for containment and cleaning up

- Small spill** : Stop leak if without risk. Move containers from spill area. Dilute with water and mop up if water-soluble. Alternatively, or if water-insoluble, absorb with an inert dry material and place in an appropriate waste disposal container. Dispose of via a licensed waste disposal contractor.
- Large spill** : Stop leak if without risk. Move containers from spill area. Prevent entry into sewers, water courses, basements or confined areas. Wash spillages into an effluent treatment plant or proceed as follows. Contain and collect spillage with non-combustible, absorbent material e.g. sand, earth, vermiculite or diatomaceous earth and place in container for disposal according to local regulations (see Section 13). Dispose of via a licensed waste disposal contractor. Note: see Section 1 for emergency contact information and Section 13 for waste disposal.

Section 7. Handling and storage

Precautions for safe handling

- Protective measures** : Put on appropriate personal protective equipment (see Section 8).
- Advice on general occupational hygiene** : Eating, drinking and smoking should be prohibited in areas where this material is handled, stored and processed. Workers should wash hands and face before eating, drinking and smoking. Remove contaminated clothing and protective equipment before entering eating areas. See also Section 8 for additional information on hygiene measures.
- Conditions for safe storage, including any incompatibilities** : Store in accordance with local regulations. Store in original container protected from direct sunlight in a dry, cool and well-ventilated area, away from incompatible materials (see Section 10) and food and drink. Keep container tightly closed and sealed until ready for use. Containers that have been opened must be carefully resealed and kept upright to prevent leakage. Do not store in unlabeled containers. Use appropriate containment to avoid environmental contamination.
- Bulk Storage Conditions:** Maintain all storage tanks in accordance with applicable regulations. Use necessary controls to monitor tank inventories. Inspect all storage tanks on a periodic basis. Test tanks and associated piping for tightness. Maintain the automatic leak detection devices to assure proper working condition.

Section 8. Exposure controls/personal protection

Control parameters

Occupational exposure limits

None identified.

- Appropriate engineering controls** : Good general ventilation should be sufficient to control worker exposure to airborne contaminants.
- Environmental exposure controls** : Emissions from ventilation or work process equipment should be checked to ensure they comply with the requirements of environmental protection legislation. In some cases, vapor controls, filters or engineering modifications to the process equipment will be necessary to reduce emissions to acceptable levels.

Individual protection measures

- Hygiene measures** : Wash hands, forearms and face thoroughly after handling chemical products, before eating, smoking and using the lavatory and at the end of the working period. Appropriate techniques should be used to remove potentially contaminated clothing. Wash contaminated clothing before reusing. Ensure that eyewash stations and safety showers are close to the workstation location.
- Eye/face protection** : Safety glasses equipped with side shields are recommended as minimum protection in industrial settings. If contact is possible, the following protection should be worn, unless the assessment indicates a higher degree of protection: Splash goggles. Safety eyewear complying with an approved standard should be used when a risk assessment indicates this is necessary to avoid exposure to liquid splashes, mists, gases or dusts. If inhalation hazards exist, a full-face respirator may be required instead.
- Skin protection**
- Hand protection** : Chemical-resistant gloves complying with an approved standard should be worn at all times when handling chemical products if a risk assessment indicates this is necessary.
- Body protection** : Personal protective equipment for the body should be selected based on the task being performed and the risks involved and should be approved by a specialist before handling this product.
- Other skin protection** : Appropriate footwear and any additional skin protection measures should be selected based on the task being performed and the risks involved and should be approved by a specialist before handling this product.
- Respiratory protection** : Use a properly fitted, air-purifying or supplied-air respirator complying with an approved standard if a risk assessment indicates this is necessary. Respirator selection must be based on known or anticipated exposure levels, the hazards of the product and the safe working limits of the selected respirator.

Section 9. Physical and chemical properties

- Physical state** : Liquid.
- Color** : Light Amber to Amber [Light]
- Odor** : Mild petroleum odor [Slight]
- pH** : Not available.
- Boiling point** : Not applicable.
- Flash point** : Open cup: 244°C (471.2°F) [Cleveland.]
- Lower and upper explosive (flammable) limits** : Not available.
- Vapor pressure** : <0.0013 kPa (<0.01 mm Hg) [room temperature]
- Vapor density** : >1 [Air = 1]
- Relative density** : Not available.
- Density lbs/gal** : 7.36 lbs/gal
- Gravity, °API** : 30.3 @ 60F F
- Viscosity** : Kinematic (40°C (104°F)): 0.98 cm²/s (98 cSt)
- Viscosity SUS** : 450 SUS @100 F

Section 10. Stability and reactivity

Reactivity	: Not expected to be Explosive, Self-Reactive, Self-Heating, or an Organic Peroxide under US GHS Definition(s).
Chemical stability	: The product is stable.
Possibility of hazardous reactions	: Under normal conditions of storage and use, hazardous reactions will not occur.
Conditions to avoid	: No specific data.
Incompatible materials	: No specific data.
Hazardous decomposition products	: Under normal conditions of storage and use, hazardous decomposition products should not be produced.

Section 11. Toxicological information

Information on toxicological effects

Acute toxicity

Conclusion/Summary : **Distillates (petroleum), hydrotreated heavy paraffinic**: Mineral oil mists derived from highly refined oils are reported to have low acute and sub-acute toxicities in animals. Effects from single and short-term repeated exposures to high concentrations of mineral oil mists well above applicable workplace exposure levels include lung inflammatory reaction, lipoid granuloma formation and lipoid pneumonia. In acute and sub-acute studies involving exposures to lower concentrations of mineral oil mists at or near current work place exposure levels produced no significant toxicological effects.

Irritation/Corrosion

Skin : No additional information.
Eyes : No additional information.
Respiratory : No additional information.

Sensitization

Skin : No additional information.
Respiratory : No additional information.

Mutagenicity

Conclusion/Summary : No additional information.

Carcinogenicity

Conclusion/Summary : No additional information.

Reproductive toxicity

Conclusion/Summary : No additional information.

Teratogenicity

Conclusion/Summary : No additional information.

Specific target organ toxicity (single exposure)

Not available.

Specific target organ toxicity (repeated exposure)

Not available.

Aspiration hazard

Not available.

Information on the likely routes of exposure : Not available.

Section 11. Toxicological information

Potential acute health effects

- Eye contact** : No known significant effects or critical hazards.
- Inhalation** : No known significant effects or critical hazards.
- Skin contact** : Injection of pressurized hydrocarbons can cause severe permanent tissue damage. Initial symptoms may be minor.
- Ingestion** : No known significant effects or critical hazards.

Symptoms related to the physical, chemical and toxicological characteristics

- Eye contact** : No specific data.
- Inhalation** : No specific data.
- Skin contact** : No specific data.
- Ingestion** : No specific data.

Potential chronic health effects

- General** : No known significant effects or critical hazards.
- Carcinogenicity** : No known significant effects or critical hazards.
- Mutagenicity** : No known significant effects or critical hazards.
- Teratogenicity** : No known significant effects or critical hazards.
- Developmental effects** : No known significant effects or critical hazards.
- Fertility effects** : No known significant effects or critical hazards.

Section 12. Ecological information

Toxicity

- Conclusion/Summary** : Not available.

Persistence and degradability

- Conclusion/Summary** : Not available.

Bioaccumulative potential

Not available.

Mobility in soil

- Soil/water partition coefficient (K_{oc})** : Not available.

- Other adverse effects** : No known significant effects or critical hazards.

Section 13. Disposal considerations

- Disposal methods** : The generation of waste should be avoided or minimized wherever possible. Disposal of this product, solutions and any by-products should at all times comply with the requirements of environmental protection and waste disposal legislation and any regional local authority requirements. Dispose of surplus and non-recyclable products via a licensed waste disposal contractor. Waste should not be disposed of untreated to the sewer unless fully compliant with the requirements of all authorities with jurisdiction. Waste packaging should be recycled. This material and its container must be disposed of in a safe way. Empty containers or liners may retain some product residues. Avoid dispersal of spilled material and runoff and contact with soil, waterways, drains and sewers.

Section 14. Transport information

	DOT Classification	IMDG	IATA
UN number	Not regulated.	Not regulated.	Not regulated.
UN proper shipping name	-	-	-
Transport hazard class(es)	-	-	-
Packing group	-	-	-
Environmental hazards	No.	No.	No.
Additional information	-	-	-

Special precautions for user : **Transport within user's premises:** always transport in closed containers that are upright and secure. Ensure that persons transporting the product know what to do in the event of an accident or spillage.

Transport in bulk according to Annex II of MARPOL 73/78 and the IBC Code : Not available.

Section 15. Regulatory information

U.S. Federal regulations : **United States inventory (TSCA 8b):** All components are listed or exempted.
Clean Water Act (CWA) 307: Zinc and zinc compounds; toluene; phenol; lead; Cadmium (Non-pyrophoric); benzene
Clean Water Act (CWA) 311: toluene; phenol; benzene
 This material is classified as an oil under Section 311 of the Clean Water Act (CWA) and the Oil Pollution Act of 1990 (OPA). Discharges or spills which produce a visible sheen on waters of the United States, their adjoining shorelines, or into conduits leading to surface waters must be reported to the EPA's National Response Center at (800) 424-8802.

SARA 302/304

Composition/information on ingredients

SARA 304 RQ : Not applicable.

SARA 311/312

Classification : Not applicable.

Composition/information on ingredients

State regulations

Massachusetts : None of the components are listed.

New York : None of the components are listed.

New Jersey : None of the components are listed.

Pennsylvania : None of the components are listed.

California Prop. 65

Section 15. Regulatory information

WARNING: This product contains less than 0.1% of a chemical known to the State of California to cause cancer.

WARNING: This product contains less than 1% of a chemical known to the State of California to cause birth defects or other reproductive harm.

Ingredient name	%	Cancer	Reproductive	No significant risk level	Maximum acceptable dosage level
toluene	<0.01	No.	Yes.	No.	7000 µg/day (ingestion)
ethyl acrylate	<0.0001	Yes.	No.	No.	No.
lead	trace	Yes.	Yes.	15 µg/day (ingestion)	Yes.
Cadmium (Non-pyrophoric)	trace	Yes.	Yes.	0.05 µg/day (inhalation)	4.1 µg/day (ingestion)
benzene	trace	Yes.	Yes.	6.4 µg/day (ingestion) 13 µg/day (inhalation)	24 µg/day (ingestion) 49 µg/day (inhalation)

International regulations

International lists

- : **Australia inventory (AICS):** All components are listed or exempted.
- : **China inventory (IECSC):** All components are listed or exempted.
- : **Japan inventory:** All components are listed or exempted.
- : **Korea inventory:** All components are listed or exempted.
- : **Malaysia Inventory (EHS Register):** Not determined.
- : **New Zealand Inventory of Chemicals (NZIoC):** All components are listed or exempted.
- : **Philippines inventory (PICCS):** All components are listed or exempted.
- : **Taiwan inventory (CSNN):** Not determined.

Canada inventory

- : All components are listed or exempted.

EU Inventory

- : All components are listed or exempted.

WHMIS (Canada)

- : Not controlled under WHMIS (Canada).

Section 16. Other information

National Fire Protection Association (U.S.A.)



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Copyright ©2001, National Fire Protection Association, Quincy, MA 02269. This warning system is intended to be interpreted and applied only by properly trained individuals to identify fire, health and reactivity hazards of chemicals. The user is referred to certain limited number of chemicals with recommended classifications in NFPA 49 and NFPA 325, which would be used as a guideline only. Whether the chemicals are classified by NFPA or not, anyone using the 704 systems to classify chemicals does so at their own risk.

History

Date of issue/Date of revision : 11/24/2014.

Key to abbreviations

- : ATE = Acute Toxicity Estimate
- : BCF = Bioconcentration Factor
- : GHS = Globally Harmonized System of Classification and Labelling of Chemicals
- : IATA = International Air Transport Association
- : IBC = Intermediate Bulk Container
- : IMDG = International Maritime Dangerous Goods
- : LogPow = logarithm of the octanol/water partition coefficient
- : MARPOL 73/78 = International Convention for the Prevention of Pollution From Ships,

Section 16. Other information

1973 as modified by the Protocol of 1978. ("Marpol" = marine pollution)
UN = United Nations

Notice to reader

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Safety Data Sheet

Per GHS Standard Format

SECTION 1: CHEMICAL PRODUCT AND COMPANY IDENTIFICATION

Product Identifier

Product Name: LBC (Lead Barrier Compound) No. 5800, No. 5801 White, 5800 Antique Linen (or 5899 Custom tint)

Recommended Use of Product: Lead Encapsulant

Information on the Supplier of the Safety Data Sheet

Manufactured For:
Fiberlock Technologies, Inc.

150 Dascomb Road

Andover, MA 01810

P: 800-342-3755 F: 978-475-6205

Emergency Telephone Numbers:

CHEM TEL: (U.S.): 1-800-255-3924

(Outside the U.S.): 813-248-0585

Poison Control Center (Medical): 800-222-1222

SECTION 2: HAZARDS IDENTIFICATION

Signal Word: **WARNING**



GHS Label Statements

Hazard Statements:

Harmful if inhaled.

Causes serious eye irritation.

May cause an allergic skin reaction.

Suspected of causing cancer.

GHS Classifications

This product is considered hazardous by The 2012 OSHA Hazard Communication Standard (29 CFR 1910.1200)

Acute Toxicity-Inhalation (Vapors) Category 4

Acute Toxicity-Inhalation (Dust-mists) Category 2

Serious eye damage/eye irritation – Category 2

Skin sensitization – Category 1

Carcinogenicity – Category 2

PRECAUTIONARY STATEMENTS

Prevention: Obtain special instructions before use. Do not handle until all safety precautions have been read and understood. Use personal protection (eye protection, gloves) during application. When grinding/sanding dry films, wear respiratory protection.

Response: If on skin, wash with plenty of soap and water. If in eyes, rinse cautiously for several minutes. Remove contact lenses if present and easy to do. Continue rinsing. If inhaled, remove victim to fresh air. If exposed or concerned, get medical advice.

Storage: Keep closures tight and containers upright to prevent leakage. KEEP FROM FREEZING. Product is non-combustible.

Disposal: The coating and any contaminated diking material should be thoroughly air dried and collected into drums. The drums should be sealed and labeled and land-filled or incinerated according to local, regional and national regulations.

Hazards Not Otherwise Classified (NHOC): Not applicable

Unknown Toxicity: Over 70% of the mixture consists of ingredients of unknown toxicity.

Other Information: Toxic to aquatic life with long lasting effects. Repeated or prolonged skin contact may cause allergic reactions with susceptible persons.

SECTION 3: COMPOSITION INFORMATION ON INGREDIENTS

<u>Chemical Name</u>	<u>CAS No.</u>	<u>Weight, %*</u>
Titanium dioxide	13463-67-7	10-30
Calcium carbonate	1317-65-3	10-30
Propylene glycol	57-55-6	3-7
Chlorothalonil	1897-45-6	0.1-1
Methylchloroisothiazolinone	26172-55-4	0.1-1
Zinc oxide	1314-13-2	1-4

*The exact concentration of composition has been withheld as a trade secret.

SECTION 4: FIRST AID MEASURES

General Advice

Show this safety data sheet to the doctor in attendance. Immediate medical attention is required.

Eye Contact

If symptoms persist, call a physician. Rinse immediately with plenty of water, also under the eyelids, for at least 15 minutes. Remove contact lenses, if present and easy to do. Continue rinsing. Keep eye wide open while rinsing. Do not rub affected area.

Skin Contact

Wash skin with soap and water. In the case of skin irritation or allergic reactions see a physician. May cause an allergic skin reaction.

Inhalation

Remove to fresh air. If symptoms persist, call a physician. If breathing has stopped, give artificial respiration. Get medical attention immediately. If not breathing, give artificial respiration. Do not breathe dust.

Ingestion

Do NOT induce vomiting. Rinse mouth immediately and drink plenty of water. Never give anything by mouth to an unconscious person. Get medical attention.

Self-Protection of the First Aider

Avoid contact with skin, eyes or clothing. Use personal protective equipment as required. Wear personal protective clothing (see section 8). Ensure that medical personnel are aware of the material(s) involved, take precautions to protect themselves and prevent spread of contamination. Avoid breathing vapors or mists.

Most important symptoms and effects, both acute and delayed

Most Important Symptoms and Effects

Burning sensation. Coughing and/or wheezing. Difficulty in breathing. Itching. Rashes. Hives.

Indication of any immediate medical attention and special treatment needed

Notes to Physician

Treat symptomatically. May cause sensitization of susceptible persons.

SECTION 5: FIRE-FIGHTING MEASURES

Suitable Extinguishing Media: Use extinguishing measures that are appropriate to local circumstances and the surrounding environment.

Unsuitable Extinguishing Media: CAUTION: Use of water spray when fighting fire may be inefficient.

Specific Hazards Arising from the Chemical: Product is/or contains a sensitizer. May cause sensitization by skin contact.

Uniform Fire Code

Sensitizer: Liquid Toxic: Liquid

Hazardous Combustion Products: Carbon oxides

Explosion Data

Sensitivity to mechanical impact No.

Sensitivity to static impact No.

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.

SECTION 6: ACCIDENTAL RELEASE MEASURES

Personal Precautions, Protective Equipment and Emergency Procedures

Personal Precautions: Avoid contact with skin, eyes or clothing. Use personal protective equipment as required. Ensure adequate ventilation. Avoid breathing vapors or mists. Avoid generation of dust.

Other Information: Refer to protective measures listed in Sections 7 & 8

Environmental Precautions

Environmental Precautions: Refer to protective measures listed in Sections 7 & 8.

Methods and Material for Containment and Cleaning Up

Methods for Containment: Prevent further leakage or spillage if safe to do so.

Methods for Cleaning Up: Immediately place absorbent material in a sealed water-filled metal container to avoid spontaneous combustion of absorbent material contaminated with this product. Pick up and transfer to properly labeled containers.

SECTION 7: HANDLING AND STORAGE

Precautions for Safe Handling

Handling: Handle in accordance with good industrial hygiene and safety practice. Avoid contact with skin, eyes or clothing. Do not eat, drink or smoke when using this product. Avoid breathing vapors or mists. Ensure adequate ventilation. In case of insufficient ventilation, wear suitable respiratory equipment. Take off contaminated clothing and wash before reuse. Keep away from contact with clothing and other combustible materials to avoid fire.

Conditions for Safe Storage, Including any Incompatibilities

Storage: Keep containers tightly closed in a dry, cool and well-ventilated place. Keep out of the reach of children.

Incompatible Products: None known based on information supplied.

SECTION 8: EXPOSURE CONTROLS/PERSONAL PROTECTION

Exposure Guidelines

Chemical Name	ACGIH TLV	OSHA PEL	NIOSH IDLH
Titanium dioxide 13463-67-7	TWA: 10 mg/m ³	TWA: 15 mg/m ³ total dust (vacated) TWA: 10 mg/m ³ total dust	IDLH: 5000 mg/m ³
Calcium carbonate 1317-65-3		TWA: 15mg/m ³ TWA: 5 mg/m ³ (vacated) TWA: 15 mg/m ³ (vacated) TWA: 5 mg/m ³	TWA: 5 mg/m ³ respirable dust TWA: 10 mg/m ³ total dust
Zinc oxide 1314-13-2	TWA: 5 mg/m ³	TWA: 5 STEL 100 CSI; 25 mg/m ³	No data available

ACGIH TLV: American Conference of Governmental Industrial Hygienists – Threshold Limit Value OSHA PEL: Occupational Safety and Health Administration – Permissible Exposure Limits NIOSH IDLH Immediately Dangerous to Life or Health

Other Exposure Guidelines

Vacated limits revoked by the Court of Appeals decision in AFL-CIO v. OSHA, 965 F.2d 962 (11th Cir., 1992). See section 15 for national exposure control parameters

Appropriate Engineering Controls

Engineering Measures: Showers / Eyewash Stations / Ventilation Systems

Individual Protection Measures, such as Personal Protective Equipment

Eye/Face Protection: If splashes are likely to occur, wear safety glasses with side shields (or goggles). None required for consumer use.

Skin and Body Protection: Wear protective gloves and protective clothing

Respiratory Protection: No protective equipment is needed under normal use conditions. If exposure limits are exceeded or irritation is experienced, ventilation and evacuation may be required.

Hygiene Measures: Handle in accordance with good industrial hygiene and safety practice. Take off contaminated clothing and wash before reuse. Avoid contact with skin, eyes or clothing. Wear suitable gloves and eye/face protection. Do not eat, drink or smoke when using this product. Wash hands before breaks and immediately after handling the product.

SECTION 9: PHYSICAL AND CHEMICAL PROPERTIES

Physical State:	Viscous liquid	Odor:	Very Slight
Appearance:	White	Odor Threshold:	No information available
Color:	No information available		

<u>Property</u>	<u>Values</u>	<u>Remarks/Method</u>
pH	8.5	None known
Melting/freezing point	No data available	None known
Boiling point/boiling range	No data available	None known
Flash Point	No data available	None known
Evaporation rate	No data available	None known
Flammability (solid, gas)	No data available	None known
Flammability Limit in Air		
Upper flammability limit	No data available	None known
Lower flammability limit	No data available	None known
Vapor pressure	No data available	None known
Vapor density	No data available	None known
Specific Gravity	No data available	None known
Water Solubility	Miscible in water	None known
Solubility in other solvents	No data available	None known
Partition coefficient: n-octanol/water	No data available	None known
Autoignition temperature	No data available	None known
Decomposition temperature	No data available	None known
Kinematic viscosity	No data available	None known
Dynamic viscosity	No data available	None known
Explosive properties	No data available	
Oxidizing properties	No data available	

Other Information

Softening Point	No data available
VOC Content (%)	No data available
Particle size	No data available

Particle size distribution

No data available

SECTION 10: STABILITY AND REACTIVITY

Reactivity

No data available

Conditions to Avoid

Excessive heat

Chemical Stability

Stable under recommended storage conditions

Incompatible Materials

None known based on information supplied

Possibility of Hazardous Reactions

None under normal processing

Hazardous Decomposition Products

Carbon oxides

Hazardous Polymerization

Hazardous polymerization does not occur

SECTION 11: TOXICOLOGICAL INFORMATION

Information on Likely Routes of Exposure

Product Information: Product does not present an acute toxicity hazard based on known or supplied information

Inhalation: Specific test data for the substance or mixture is not available. May cause irritation of respiratory tract. Harmful by inhalation (based on components).

Eye Contact: Specific test data for the substance or mixture is not available. Expected to be an irritant based on components. May cause redness, itching, and pain. May cause temporary eye irritation.

Skin Contact: Specific test data for the substance or mixture is not available. May cause irritation. Prolonged contact may cause redness and irritation.

Ingestion: Specific test data for the substance or mixture is not available. Ingestion may cause irritation to mucous membranes. Ingestion may cause gastrointestinal irritation, nausea, vomiting and diarrhea.

Component Information

Chemical Name	Oral LD50	Dermal LD50	Inhalation LC50
Titanium dioxide 13463-67-7	> 10000 mg/kg (Rat)		

Propylene Glycol 57-55-6	= 20000 mg/kg (Rat)	= 20800 mg/kg (Rabbit)	
Chlorothalonil 1897-45-6		> 10 g/kg (Rabbit)	= 310 mg/m ³ (Rat) 1 h
Methylchloroisothiazolinone 26172-55-4	= 481 mg/kg (Rat)	> 1008 mg/kg (Rat)	= 1.23 mg/L (Rat) 4 h
Zinc oxide – 1314-13-2	7950 mg/kg (Mouse)	No data available	No data available

Information on Toxicological Effects

Symptoms: May cause redness and tearing of the eyes, coughing and/or wheezing, itching, rashes and hives.

Delayed and Immediate Effects as well as Chronic Effects from Short and Long-Term Exposure

Sensitization: May cause sensitization of susceptible persons. May cause sensitization by skin contact.

Mutagenic Effects: No information available

Carcinogenicity: The table below indicates whether each agency has listed any ingredient as a carcinogen

Chemical Name	ACGIH	IARC	NTP	OSHA
Titanium dioxide 13463-67-7		Group 2B		X
Chlorothalonil 1897-45-6		Group 2B		X

ACGIH (American Conference of Governmental Industrial Hygienists)

A2 – Suspected Human Carcinogen

IARC (International Agency for Research on Cancer)

Group 2B – Possibly Carcinogenic to Humans

OSHA (Occupational Safety and Health Administration of the US Department of Labor)

X-Present

Reproductive Toxicity, STOT Single Exposure, STOT Repeated Exposure: No information available

Chronic Toxicity: Titanium dioxide has been classified by the International Agency for Research on Cancer (IARC) as possibly carcinogenic to humans (Group 2B) by inhalation. Contains a known or suspected carcinogen.

Target Organ Effects: Eyes, respiratory system, skin, gastrointestinal tract (GI) & lungs.

Aspiration Hazard: No information available

Numerical Measures of Toxicity Product Information

The following values are calculated based on chapter 3.1 of the GHS document

_ATEmix (oral) 8,711.00 mg/kg	ATEmix (inhalation-dust/mist) 2.41 mg/l
---	---

ATEmix (dermal)
 21,608.00 mg/kg (ATE)
ATEmix (inhalation-gas)
 3,118.00 ppm (4hr)

ATEmix (inhalation-vapor)
 16.00 ATEmix

SECTION 12: ECOLOGICAL INFORMATION

Ecotoxicity: Toxic to aquatic life with long lasting effects

<i>Chemical Name</i>	<i>Toxicity to Algae</i>	<i>Toxicity to Fish</i>	<i>Toxicity to Microorganisms</i>	<i>Daphnia Magna (Water Flea)</i>
Propylene Glycol 57-55-6	96h EC50: = mg/L (Pseudokirchneriella Subcapitata)	96h LC50: = 51600 mg/L (Oncorhynchus mykiss) 96h LC50: 41-47 mL/L (Oncorhynchus mykiss) 96h LC50: 51400 mg/L (Pimephales promelas) 96h LC50: = 710 mg/L (Pimephales promelas)		24h EC50: > 10000 mg/L 48h EC50: > 1000 mg/L
Chlorothalonil 1897-45-6	72h EC50: = 0.57 mg/L (Desmodesmus Subspicatus) 72h EC50: = 0.0068 mg/L (Pseudokirchneriella Subcapitata)	96h LC50: = 0.012 mg/L (Oncorhynchus mykiss) 96h LC50: 0.0076 mg/L (Oncorhynchus mykiss) 96h LC50: 0.0221-0.032 mg/L (Lepomis macrochirus) 96h LC50: 0.045-0.057 mg/L (Lepomis macrochirus)		48h EC50: 0.0342-0.143 mg/L
Methylchloroisothiazolinone 26172-55-4	72h EC50: 0.11-0.16mg/L (Pseudokirchneriella Subcapitata) 96h EC50: 0.03-0.13 mg/L (Pseudokirchneriella subcapitata) 120h EC50: = 0.31 mg/L (Anabaena Flos-aquae)	96h LC50: = 1.6 mg/L (Oncorhynchus mykiss)	EC50 = 5.7 mg/L 16h	48 th EC50: = 4.71 mg/L 48h EC50: 0.12-0.3 mg/L 48h EC50: 0.71-0.99 mg/L

Persistence and Degradability: No information available

Bioaccumulation

<i>Chemical Name</i>	<i>Log Pow</i>
Chlorothalonil 1897-45-6	2.9
Methylchloroisothiazolinone 26172-55-4	-0.71-0.75

Other Adverse Effects: No information available

SECTION 13: DISPOSAL CONSIDERATIONS

Waste Treatment Methods

Disposal Methods: 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 contents/containers in accordance with local regulations

California Hazardous Waste Codes: 331

SECTION 14: TRANSPORT INFORMATION

<u>DOT</u>	Not Regulated
Proper Shipping Name	Non-Regulated
Hazard Class	N/A
<u>TDG</u>	
Un-No.	UN3082
Proper Shipping Name	Environmentally Hazardous Substance, Liquid, N.O.S.
Hazard Class	9
Packing Group	III
Description	UN3082, Environmentally Hazardous Substance, Liquid, N.O.S. (Chlorothalonil), 9, III, Marine Pollutant

<u>IATA</u>	
Un-No.	3082
Proper Shipping Name	Environmentally Hazardous Substance, Liquid, N.O.S.
Hazard Class	9
Packing Group	III
Description	UN3082, Environmentally Hazardous Substance, Liquid, N.O.S. (Chlorothalonil), 9, III

<u>IMDG/IMO</u>	
Un-No.	3082
Proper Shipping Name	Environmentally Hazardous Substance, Liquid, N.O.S.
Hazard Class	9
Packing Group	III
EmS No.	F-A, S-F
Marine Pollutant Description	Product is a marine pollutant according to the criteria set by IMDG/IMO UN3082, Environmentally Hazardous Substance, Liquid, N.O.S. (Chlorothalonil), 9, III, Marine Pollutant

SECTION 15: REGULATORY INFORMATION

International Inventories

TSCA	Complies
DSL	All components are listed either on the DSL or NDSL

TSCA – United States Toxic Substances Control Act Section 8(b) Inventory
DSL/NDSL – Canadian Domestic Substances List/Non-Domestic Substances List

US 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.

<i>Chemical Name</i>	<i>CAS No.</i>	<i>Weight - %</i>	<i>SARA 313 – Threshold Values %</i>
Chlorothalonil	1897-45-6	0.1-1	0.1

SARA 311/312 Hazard Categories

Acute Health Hazard	Yes
Chronic Health Hazard	Yes
Fire Hazard	No
Sudden release of pressure hazard	No
Reactive Hazard	No

CWA (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.

US State Regulations

California Proposition 65

This product contains the following Proposition 65 chemicals:

<i>Chemical Name</i>	<i>California Proposition 65</i>
Titanium dioxide – 13463-67-7	Carcinogen
Chlorothalonil – 1897-45-6	Carcinogen

U.S. State Right-to-Know Regulations

<i>Chemical Name</i>	<i>New Jersey</i>	<i>Massachusetts</i>	<i>Pennsylvania</i>	<i>Rhode Island</i>	<i>Illinois</i>
Titanium dioxide – 13463-67-4	X	X	X		
Calcium carbonate – 1317-65-3	X	X	X		
Propylene Glycol – 57-55-6	X		X		
Chlorothalonil – 1897-45-6	X	X	X	X	
Zinc oxide – 1314-13-2	X	X	X		

International Regulations

Canada

WHMIS Hazard Class

D2A – Very toxic materials

D2B – Toxic materials



SECTION 16: OTHER INFORMATION

NFPA	Health Hazards 2	Flammability 0	Instability 0	Physical and Chemical Hazards
HMIS	Health Hazards 2*	Flammability 0	Physical Hazard 0	Personal Protection X

Chronic Hazard Star Legend * = Chronic Health Hazard

WARNING! If you scrape, sand or remove old paint, you may release lead dust. LEAD IS TOXIC. EXPOSURE TO LEAD DUST CAN CAUSE SERIOUS ILLNESS, SUCH AS BRAIN DAMAGE, ESPECIALLY IN CHILDREN. PREGNANT WOMEN SHOULD ALSO AVOID EXPOSURE. Wear NIOSH-approved respirator to control lead exposure. Clean up carefully with a HEPA vacuum and wet mop. Before you start, find out how to protect yourself and your family by contacting the National Lead Information Hotline at 1-800-424-LEAD (5323) or log on to: www.epa.gov/lead

LEAD METAL SAFETY DATA SHEET

SECTION 1. IDENTIFICATION

Product Identity: Lead Metal

Trade Names and Synonyms: Lead; Pb; Plumbum; Metallic Lead; Inorganic Lead; ASTM B29; TADANAC Lead, Low-Alpha Lead.

Manufacturer:

Teck Metals Ltd.
Trail Operations
Trail, British Columbia
V1R 4L8
Emergency Telephone: 250-364-4214

Supplier:

In U.S.:
Teck American Metal Sales
Incorporated
501 North Riverpoint Blvd, Suite 300
Spokane, WA
USA, 99202

Preparer:

Teck Metals Ltd.
Suite 3300 – 550 Burrard Street
Vancouver, British Columbia
V6C 0B3

Other than U.S.:

Teck Metals Ltd.
#1700 – 11 King Street West
Toronto, Ontario
M5H 4C7

Date of Last Review: June 29, 2015.

Date of Last Edit: June 29, 2015.


Product Use: Used as a construction material for tank linings, piping, and equipment used in the manufacture of sulphuric acid and the refining and processing of petroleum; used in x-ray and atomic radiation shielding; used in the manufacture of paint pigments, organic and inorganic lead compounds, lead shot, lead wire for bullets, ballast, and lead solders; used as a bearing metal or alloy; used in the manufacture of storage batteries, ceramics, plastics, and electronic devices; used in the metallurgy of steel and other metals; and used in the form of lead oxide for batteries.

SECTION 2. HAZARDS IDENTIFICATION

CLASSIFICATION:

Health	Physical	Environmental
Acute Toxicity (Oral, Inhalation) – Does not meet criteria Skin Corrosion/Irritation – Does not meet criteria Eye Damage/Eye Irritation – Does not meet criteria Respiratory or Skin Sensitization – Does not meet criteria Mutagenicity – Does not meet criteria Carcinogenicity – Category 2 Reproductive Toxicity – Category 1A Specific Target Organ Toxicity Chronic Exposure – Category 1	Does not meet criteria for any Physical Hazard	Aquatic Toxicity – Short Term (Acute) Category 3

LABEL:

Symbols: 	Signal Word: DANGER
Hazard Statements DANGER! Causes damage to kidneys, blood-forming systems, central nervous system and digestive tract through prolonged or repeated exposure. May damage the unborn child. May cause harm to breast-fed children. Suspected of damaging fertility. Suspected of causing cancer. Harmful to aquatic life.	Precautionary Statements: Obtain special instructions before use. Do not handle until all safety precautions have been read and understood. Wear protective gloves/protective clothing/eye protection. Do not breathe dust or fumes. Wash hands thoroughly after handling. Do not eat, drink or smoke when using this product. If exposed or concerned or you feel unwell: Get medical advice/attention. Avoid release to the environment.

Emergency Overview: A bluish-white to silvery-grey, heavy, soft metal that does not burn in bulk. Finely-divided lead dust clouds are a moderate fire and explosion hazard, however. When heated strongly in air, highly toxic lead oxide fumes can be generated. Inhalation or ingestion of lead may produce both acute and chronic health effects. Possible cancer and reproductive hazard. SCBA and full protective clothing are required for fire emergency response personnel.

Potential Health Effects: Inhalation or ingestion of lead may result in headache, nausea, vomiting, abdominal spasms, fatigue, sleep disturbances, weight loss, anemia and leg, arm, and joint pain. Prolonged exposure may also cause central nervous system damage, hypertension, gastrointestinal disturbances, anemia, kidney dysfunction and possible reproductive effects. Pregnant women should be protected from excessive exposure in order to prevent lead crossing the placental barrier and causing infant neurological disorders. Lead and inorganic lead compounds are listed as an *A3 Carcinogen (Confirmed Animal Carcinogen with Unknown Relevance to Humans)* by the ACGIH. IARC has listed lead compounds as *Group 2A Carcinogens (Probably Carcinogenic to Humans)* while lead metal is listed as *Group 2B (Possibly Carcinogenic to Humans)*. The NTP lists lead and lead compounds as *Reasonably Anticipated to be a Human Carcinogen*. OSHA and the EU does not currently list lead as a human carcinogen (see Toxicological Information, Section 11).

Potential Environmental Effects: Lead metal has relatively low bioavailability; however, compounds which it forms with other elements can be toxic to both aquatic and terrestrial organisms at low concentrations. These compounds can be particularly toxic in the aquatic environment. Lead bioaccumulates in plants and animals in both aquatic and terrestrial environments (see Ecological Information, Section 12).

SECTION 3. COMPOSITION / INFORMATION ON INGREDIENTS

HAZARDOUS COMPONENT	CAS Registry No.	CONCENTRATION (% wgt/wgt)
Lead	7439-92-1	99+%

Note: See Section 8 for Occupational Exposure Guidelines.

SECTION 4. FIRST AID MEASURES

Eye Contact: *Symptoms:* Eye irritation, redness. Gently brush product off face if necessary. Do not rub eye(s). Let the eye(s) water naturally for a few minutes. Look right and left, then up and down. If particle/dust does not dislodge, cautiously rinse eye(s) with lukewarm, gently flowing water for 5 minutes or until particle/dust is removed, while holding eyelid(s) open. If irritation persists, get medical advice/attention. DO NOT attempt to manually remove anything stuck to the eye.

Skin Contact: *Symptoms:* Skin soiling, mild irritation. Gently brush away excess dust. Wash gently and thoroughly with lukewarm, gently flowing water and non-abrasive soap for 5 minutes, or until product is removed. If skin irritation occurs or you feel unwell, get medical advice/attention. *Molten Metal:* Flush contact area to solidify and cool but do not attempt to remove encrusted material or clothing. Cover burns and seek medical attention immediately.

Inhalation: *Symptoms:* Respiratory irritation. Remove source of exposure or move person to fresh air and keep comfortable for breathing. Seek medical attention if you feel unwell.

Ingestion: *Symptoms:* Stomach upset. If you feel unwell or are concerned, get medical advice/attention.

SECTION 5. FIRE FIGHTING MEASURES

Fire and Explosion Hazards: Massive metal is not flammable or combustible. Finely-divided lead dust or powder is a moderate fire hazard and moderate explosion hazard when dispersed in the air at high concentrations and exposed to heat, flame, or other ignition sources. Explosions may also occur upon contact with certain incompatible materials (see Stability and Reactivity, Section 10).

Extinguishing Media: Use any means of extinction appropriate for surrounding fire conditions such as water spray, carbon dioxide, dry chemical, or foam.

Fire Fighting: Do not use direct water streams on fires where molten metal is present, due to the risk of a steam explosion that could potentially eject molten metal uncontrollably. Use a fine water mist on the front-running edge of the spill and on the top of the molten metal to cool and solidify it. If possible, move solid material from fire area or cool material exposed to flame to prevent melting of the metal ingots. Highly toxic lead oxide fumes may evolve in fires. Fire fighters must be fully trained and wear full protective clothing including an approved, self-contained breathing apparatus which supplies a positive air pressure within a full face-piece mask.

SECTION 6. ACCIDENTAL RELEASE MEASURES

Procedures for Cleanup: Control source of spillage if possible to do so safely. Restrict access to the area until completion of clean-up. Clean up spilled material immediately, observing precautions outlined below. Molten metal should be allowed to solidify before cleanup. If solid metal, wear gloves, pick up and return to process. If dust, wear recommended personal protective equipment (see below) and use methods which will minimize dust generation (e.g., vacuum solids). Return uncontaminated spilled material to the process if possible. Place contaminated material in suitable labelled containers for later recovery or disposal. Treat or dispose of waste material in accordance with all local, regional, and national requirements.

Personal Precautions: Persons responding to an accidental release should wear protective clothing, gloves and a respirator (see also Section 8). Close-fitting safety goggles may be necessary in some circumstances to prevent eye contact with dust and fume. Where molten metal is involved, wear heat-resistant gloves and suitable clothing for protection from hot-metal splash as well as a respirator to protect against inhalation of lead fume. Workers should wash and change clothing following cleanup of a lead spill to prevent personal contamination with lead dust.

Environmental Precautions: Lead metal has low bioavailability; however, compounds which it forms with other elements can be toxic to aquatic and terrestrial organisms. Releases of the product to water and soil should be prevented.

SECTION 7. HANDLING AND STORAGE

Store in a DRY, covered area, separate from strong acids, other incompatible materials, active metals and food or feedstuffs. Solid metal suspected of containing moisture should be THOROUGHLY DRIED before being added to a molten bath. Otherwise, entrained moisture could expand explosively and spatter molten metal out of the bath. No special packaging materials are required. Lead metal, in contact with wood or other surfaces, may leave traces of lead particulate that can accumulate over time. Cleaning or disposal of these surfaces requires review to ensure that any effluent or solid waste disposal meets the requirements of regulations in the applicable jurisdiction.

SECTION 8. EXPOSURE CONTROLS / PERSONAL PROTECTION

Occupational Exposure Guidelines:

<u>Component</u>	<u>ACGIH TLV</u>	<u>OSHA PEL</u>	<u>NIOSH REL</u>
Lead	0.05 mg/m ³	0.05 mg/m ³	0.05 mg/m ³

NOTE: OEGs for individual jurisdictions may differ from those given above. Check with local authorities for the applicable OEGs in your jurisdiction.

ACGIH - American Conference of Governmental Industrial Hygienists; OSHA - Occupational Safety and Health Administration; NIOSH - National Institute for Occupational Safety and Health. TLV – Threshold Limit Value, PEL – Permissible Exposure Limit, REL – Recommended Exposure Limit.

NOTE: The selection of the necessary level of engineering controls and personal protective equipment will vary depending upon the conditions of use and the potential for exposure. The following are therefore only general guidelines that may not fit all circumstances. Control measures to consider include:

Ventilation: Use adequate local or general ventilation to maintain the concentration of lead fumes in the working environment well below recommended occupational exposure limits. Supply sufficient replacement air to make up for air removed by the exhaust system. Local exhaust is recommended for melting, casting, welding, grinding, flame cutting or burning, and use of lead powders.

Protective Clothing: Gloves and coveralls or other work clothing are recommended to prevent prolonged or repeated direct skin contact when lead is processed. Appropriate eye protection should be worn where fume or dust is generated. Where hot or molten metal is handled, heat resistant gloves, goggles or face shield, and clothing to protect from radiant heat and hot metal splash should be worn. Safety type boots are recommended.

Respirators: Where lead dust or fumes are generated and cannot be controlled to within acceptable levels by engineering means, use appropriate NIOSH-approved respiratory protection equipment (a 42CFR84 Class N, R or P-100 particulate filter cartridge). When exposure levels are obviously high but the actual concentration is unknown, a self-contained breathing apparatus which supplies a positive air pressure within a full face-piece mask should be worn.

General Hygiene Considerations: Do not eat, drink or smoke in work areas. Thoroughly wash hands before eating, drinking, or smoking in appropriate, designated areas as well as at the end of the workday. A double locker-shower system with separate clean and dirty sides is usually required for lead handling operations to avoid cross-contamination of street clothes. Contaminated clothing should be changed frequently and laundered before each reuse. Inform laundry personnel of contaminants' hazards. Workers should not take dirty work clothes home and launder them with other personal clothing.

SECTION 9. PHYSICAL AND CHEMICAL PROPERTIES

Appearance: Malleable, bluish-white to silvery-grey solid metal	Odour: None	Odour Threshold: Not Applicable	pH: Not Applicable
Vapour Pressure: (negligible @ 20°C)	Vapour Density: Not Applicable	Melting Point/Range: 328°C	Boiling Point/Range: 1,740°C
Relative Density (Water = 1): 11.34	Evaporation Rate: Not Applicable	Coefficient of Water/Oil Distribution: Not Applicable	Solubility: Insoluble in water
Flash Point: None	Flammable Limits (LEL/UEL): Not Flammable	Auto-ignition Temperature: None	Decomposition Temperature: None

SECTION 10. STABILITY AND REACTIVITY

Stability & Reactivity: Massive metal is stable and not considered reactive under normal temperatures and pressures. Hazardous polymerization or runaway reactions will not occur. Freshly cut or cast lead surfaces tarnish rapidly due to the formation of an insoluble protective layer of basic lead carbonate.

Incompatibilities: Lead reacts vigorously with strong acids (e.g., hot concentrated nitric acid, boiling concentrated hydrochloric acid, etc.), strong oxidizers such as peroxides, chlorates, nitrates and halogen or interhalogen compounds such as chlorine trifluoride. Powdered lead metal in contact with disodium acetylide, chlorine trifluoride, sodium carbide or fused ammonium nitrate poses a risk of explosion. Solutions of sodium azide in contact with lead metal can form lead azide, which is a detonating compound. Vigorous reactions can also occur between molten lead and active metals, such as sodium, potassium, lithium and calcium. A lead-zirconium alloy (10-70% Zr) will ignite when struck with a hammer.

Hazardous Decomposition Products: High temperature operations such as oxy-acetylene cutting or burning, electric arc welding or overheating a molten bath will generate highly toxic lead oxide fume. Lead oxide is highly soluble in body fluids and the particle size of the metal fumes is largely within the respirable size range, which increases the likelihood of inhalation and deposition of the fume within the body.

SECTION 11. TOXICOLOGICAL INFORMATION

General: Lead accumulates in bone and body organs once it enters the body. Elimination from the body is slow. Initial and periodic medical examinations are advised for persons repeatedly exposed to levels at or above the exposure limits of lead dust or fumes. Once lead enters the body, it can affect a variety of organ systems, including the nervous system, kidneys, reproductive system, blood formation, and gastrointestinal system. The primary routes of exposure to lead are inhalation or ingestion of dust and fumes.

Acute:

Skin/Eye: Contact with dust or fume may cause local irritation but would not cause tissue damage.

Inhalation: Exposure to lead dust or fume may cause headache, nausea, vomiting, abdominal spasms, fatigue, sleep disturbances, weight loss, anemia, and pain in legs, arms, and joints. An intense, short-term exposure to lead could cause acute encephalopathy with seizures, coma, and death. However, short-term exposures of this magnitude are unlikely in industry today. Kidney damage, as well as anemia, can occur from acute exposure.

Ingestion: Symptoms due to ingestion of lead dust or fume would be similar to those from inhalation. Other health effects such as metallic taste in the mouth and constipation or bloody diarrhea might also occur.

Chronic:

Prolonged exposure to lead dust and fume may produce many of the symptoms of short-term exposure and may also cause central nervous system damage, gastrointestinal disturbances, anemia, and, rarely, wrist drop. Reduced hemoglobin production has been associated with low lead exposures. Symptoms of central nervous system damage due to moderate lead exposure include fatigue, headaches, tremors and hypertension. Very high lead exposure can result in lead encephalopathy with symptoms of hallucinations, convulsions, and delirium. Kidney dysfunction and possible injury has also been associated with chronic lead poisoning. Chronic over-exposure to lead has been implicated as a causative agent for the impairment of male and female reproductive capacity. Pregnant women should be protected from excessive exposure as lead can cross the placental barrier and unborn children may suffer neurological damage or developmental problems due to excessive lead exposure. Teratogenic and mutagenic effects from exposure to lead have been reported in some studies but not in others. The literature is inconsistent and no firm conclusions can be drawn at this time. Lead and lead compounds are listed as an *A3 Carcinogen (Confirmed Animal Carcinogen with Unknown Relevance to Humans)* by the ACGIH. IARC has listed lead compounds as *Group 2A Carcinogens (Probably Carcinogenic to Humans)* while lead metal is listed as *Group 2B (Possibly Carcinogenic to Humans)*. The NTP lists lead and lead compounds as *Reasonably Anticipated to be a Human Carcinogen*. OSHA and the EU do not currently list lead as a human carcinogen.

Animal Toxicity:

<u>Hazardous Ingredient:</u>	<u>Acute Oral Toxicity:</u>	<u>Acute Dermal Toxicity:</u>	<u>Acute Inhalation Toxicity:</u>
Lead	No Data	No Data	No Data

SECTION 12. ECOLOGICAL INFORMATION

While lead metal is relatively insoluble, its processing or extended exposure in aquatic and terrestrial environments may lead to the release of lead compounds in more bioavailable forms. While lead compounds are not particularly mobile in the aquatic environment, they can be toxic to aquatic organisms, especially fish, at low concentrations. Water hardness, pH and dissolved organic carbon content are three major factors which regulate the degree of lead toxicity. Lead in soil is generally neither very mobile nor bioavailable, as it can become strongly sorbed onto soil particles, increasingly so over time, to a degree related to physical properties of the soil. Lead bioaccumulates in plants and animals in both aquatic and terrestrial environments.

SECTION 13. DISPOSAL CONSIDERATIONS

If material cannot be returned to process or salvage, dispose of in accordance with applicable regulations.

SECTION 14. TRANSPORT INFORMATION

PROPER SHIPPING NAME Not a regulated product in ingot form.
 TRANSPORT CANADA AND U.S. DOT CLASSIFICATION..... Not Applicable

TRANSPORT CANADA AND U.S. DOT PIN Not Applicable
MARINE POLLUTANT No
IMO CLASSIFICATION Not Regulated

SECTION 15. REGULATORY INFORMATION

U.S.

Ingredient Listed on TSCA Inventory Yes
Hazardous Under Hazard Communication Standard Yes
CERCLA Section 103 Hazardous Substances Lead RQ: 10 lbs. (4.54 kg.)*
*reporting not required when diameter of the pieces of solid metal released is equal to or exceeds 100 micrometers (0.004 inches).
EPCRA Section 302 Extremely Hazardous Substance No
EPCRA Section 311/312 Hazard Categories Delayed (chronic) health hazard - Carcinogen
Delayed (chronic) health hazard – Reproductive toxin
EPCRA Section 313 Toxic Release Inventory Lead CAS No. 7439-92-1
Percent by Weight - At least 99%

SECTION 16. OTHER INFORMATION

Date of Original Issue: July 23, 1997 **Version:** 01 (*First edition*)
Date of Latest Revision: June 29, 2015 **Version:** 13

The information in this Safety Data Sheet is based on the following references:

- American Conference of Governmental Industrial Hygienists, 2004, Documentation of the Threshold Limit Values and Biological Exposure Indices, Seventh Edition plus updates.
- American Conference of Governmental Industrial Hygienists, 2015, Threshold Limit Values for Chemical Substances and Physical Agents and Biological Exposure Indices.
- American Conference of Governmental Industrial Hygienists, Guide to Occupational Exposure Values – 2015.
- Bretherick's Handbook of Reactive Chemical Hazards, 20th Anniversary Edition. (P. G. Urban, Ed), 1995.
- Canadian Centre for Occupational Health and Safety, Hamilton, ON, CHEMINFO Record No. 608 - Lead (Rev. 2009-05).
- European Regulation (EC) No. 1272/2008 on classification, labelling and packaging of substances and mixtures, amending and repealing directives 67/548/EEC and 1999/45/EC, and amending Regulation (EC) No 1907/2006 (REACH).
- Health Canada, SOR/2015-17, Hazardous Products Regulations, 30 January 2015.
- International Agency for Research on Cancer (IARC), Monographs on the Evaluation of the Carcinogenic Risk of Chemicals to Man, 1972 – present, (multi-volume work), World Health Organization, Geneva.
- International Chemical Safety Cards (WHO/IPCS/ILO), ICSC:0052 - Lead.
- Merck & Co., Inc., 2001, The Merck Index, An Encyclopedia of Chemicals, Drugs, and Biologicals, Thirteenth Edition.
- National Library of Medicine, National Toxicology Information Program, Hazardous Substance Data Bank (online version).
- Patty's Toxicology, Fifth Edition, 2001: E. Bingham, B. Cohrssen & C.H. Powell, Ed.
- U.S. Dept. of Health and Human Services, National Institute of Environmental Health Sciences, National Toxicology Program (NTP), 13th Report on Carcinogens, October 2014.
- U.S. Dept. of Health and Human Services, National Institute for Occupational Safety and Health, NIOSH Pocket Guide to Chemical Hazards, on-line edition.
- U.S. Dept. of Health and Human Services, Public Health Service, Agency for Toxic Substances and Disease Registry, Toxicological Profile for Lead, September 2005.
- U.S. Occupational Safety and Health Administration, 1989, Code of Federal Regulations, Title 29, Part 1910.

Notice to Reader

Although reasonable precautions have been taken in the preparation of the data contained herein, it is offered solely for your information, consideration and investigation. Teck American Metal Sales Incorporated and Teck Metals Ltd. extend no warranty and assume no responsibility for the accuracy of the content and expressly disclaim all liability for reliance thereon. This safety data sheet provides guidelines for the safe handling and processing of this product; it does not and cannot advise on all possible situations. Therefore, your specific use of this product should be evaluated to determine if additional precautions are required. Individuals exposed to this product should read and understand this information and be provided pertinent training prior to working with this product.

PRODUCT SAFETY DATA SHEET
PSDS No. 1.2.6
MERCURY LAMPS (FOSHAN)



Sylvania brand Mercury Lamps, manufactured by OSRAM SYLVANIA Inc., are exempted from the requirements of the OSHA Hazard Communication Standard (29 CFR 1910.1200) because they are "articles." The following information is provided by OSRAM SYLVANIA as a courtesy to its customers.

I. PRODUCT IDENTIFICATION

Trade Name (as labeled): Sylvania Mercury Lamps (For General Lighting)
(Mercury Vapor Lamps, High Pressure Mercury Lamps)

Manufacturer: OSRAM China Lighting LTD.
No. 1 North Industrial Road
Foshan, Guangdong, 52800

II. HAZARDOUS INGREDIENTS

THERE ARE NO KNOWN HEALTH HAZARDS FROM EXPOSURE TO LAMPS THAT ARE INTACT. If a lamp is broken, the following materials may be released:

Chemical Name	CAS Number	% by wt.	Exposure Limits in Air (mg/cubic m)	
			ACGIH (TLV)	OSHA (PEL)
(1, 2) Lead Solder (as Pb)	7439-92-1	0-<1.0	0.05	0.05
(1, 2) Mercury	7439-97-6	0.01-<0.1	0.025	0.1 Ceiling
Quartz, Fused	60676-86-0	5-15	0.1 Resp. Dust	0.1
(1, 2) Glass (Lead Borosilicate)	---	0-75	10 (3)	15 (3)
(1, 2) (as Lead Oxide, 6%)	1317-36-8	---	0.05	0.05
Glass (Borosilicate)	---	0-75	10 (3)	15 (3)
Yttrium Vanadate	13566-12-6	0-<0.5	1.0	1.0
Aluminum Oxide	1344-28-1	0-<0.03	10 (3)	15 (3)

- (1) These chemicals are subject to the reporting requirements of section 313 of Title III of the Superfund Amendments and Reauthorization Act of 1986 and 40 CFR Part 372.
- (2) The mercury and lead in this product are substances known to the state of California to cause reproductive toxicity if ingested. [California Safe Drinking Water and Toxic Enforcement Act of 1986 (Proposition 65).]
- (3) Limits as nuisance particulate.

III. PHYSICAL PROPERTIES

Not Applicable to intact lamp.

IV. FIRE & EXPLOSION HAZARDS

Flammability: Non-combustible

Fire Extinguishing Materials: Use extinguishing agents suitable for surrounding fire.

Special Firefighting Procedure: Use a self-contained breathing apparatus to prevent inhalation of dust and/or fumes that may be generated from broken lamps during firefighting activities.

Unusual Fire and Explosion Hazards: When exposed to high temperature, toxic fumes may be released from broken lamps.

V. HEALTH HAZARDS

A. OPERATING LAMPS

Consult the OSRAM SYLVANIA Product Catalog or relevant technical data sheets for complete warnings, operating and installation guides for specific lamp types.

WARNING:

- **Mercury lamp arc-tubes operate at high pressure and high temperature and may unexpectedly rupture.**
- **If the outer jacket is broken and the lamp continues to operate, ultraviolet radiation which may cause skin and eye irritation with prolonged exposure will be emitted. Immediately shut power off and replace lamp.**
- **Mercury lamps must be operated only in suitably designed fixtures.**

B. LAMP MATERIALS

THERE ARE NO KNOWN HEALTH HAZARDS FROM EXPOSURE TO LAMPS THAT ARE INTACT. No adverse effects are expected from occasional exposure to broken lamps. As a matter of good practice, avoid prolonged or frequent exposure to broken lamps unless there is adequate ventilation. The major hazard from broken lamps is the possibility of sustaining glass cuts.

NIOSH/OSHA Occupational Health Guidelines for Chemical Hazards and/or NIOSH Pocket Guide to Chemical Hazards lists the following effects of overexposure to the chemicals/materials tabulated below when they are inhaled, ingested, or contacted with skin or eye:

Lead - Ingestion and inhalation of lead dust or fume must be avoided. Irritation of the eyes and respiratory tract may occur. Excessive lead absorption is toxic and may include symptoms such as anemia, weakness, abdominal pain, and kidney disease.

Mercury - Exposure to high concentrations of vapors for brief periods can cause acute symptoms such as pneumonitis, chest pains, shortness of breath, coughing, gingivitis, salivation and possibly stomatitis. May cause redness and irritation as a result of contact with skin and/or eyes.

Quartz, Fused - Fibrosis of the lungs causing shortness of breath and coughing has been associated with silica exposure.

Glass - Glass dust is considered to be physiologically inert and as such, has an OSHA exposure limit of 15 mg/cubic meter for total dust and 5 mg/cubic meter for respirable dust. The ACGIH TLVs for particulates not otherwise classified are 10 mg/cubic meter for total dust and 3 mg/cubic meter for respirable dust.

Yttrium Vanadate - Inhalation of vanadium compounds can cause irritation of the nose, throat, and respiratory tract. Eye contact and prolonged, repeated skin contact may also cause irritation. Studies of workers exposed to this material showed no evidence of chronic or systemic effects.

Aluminum Oxide (Alumina) - Alumina is a non-toxic material which is very low in free-silica content. Sharp-edged particles can irritate the eyes, perhaps the skin, and definitely the mucous membranes of the respiratory tract.

EMERGENCY AND FIRST AID PROCEDURES:

Glass Cuts: Normal first aid procedures. Seek medical attention as required.

Inhalation: If discomfort, irritation or symptoms of pulmonary involvement develop, remove from exposure and seek medical attention.

Ingestion: Seek medical attention.

Contact, Skin: Thoroughly wash affected area with mild soap or detergent and water and prevent further contact. Seek medical attention if irritation occurs.

Contact, Eye: Wash eyes, including under eyelid, immediately with copious amounts of water for 15 minutes. Seek medical attention.

CARCINOGENIC ASSESSMENT (NTP ANNUAL REPORT, IARC MONOGRAPHS, OTHER): None

VI. REACTIVITY DATA

Stability: Stable

Conditions to avoid: None for intact lamps.

Incompatibility (materials to avoid): None for intact lamps.

Hazardous Decomposition Products (including combustion products): None for intact lamps.

Hazardous Polymerization Products: Will not occur.

VII. PROCEDURES FOR DISPOSAL OF LAMPS

OSRAM SYLVANIA recommends that all mercury-containing lamps be recycled. For a list of lamp recyclers and to obtain state regulatory disposal information, log onto www.lamprecycle.org.

If lamps are broken, ventilate area where breakage occurred. Clean-up with a special mercury vacuum cleaner (not a standard vacuum cleaner) or other suitable means that avoid dust and mercury vapor generation. Take usual precautions for collection of broken glass. Clean-up requires special care due to mercury droplet proliferation. Place materials in closed containers to avoid generating dust.

It is the responsibility of the waste generator to ensure proper classification and disposal of waste products. To that end, TCLP tests should be conducted on all waste products, including this one, to determine the ultimate disposition in accordance with applicable federal, state and local regulations. Some states have specific disposal requirements for lamps containing mercury.

VIII. SPECIAL HANDLING INFORMATION - FOR BROKEN LAMPS

Ventilation: Use adequate general and local exhaust ventilation to maintain exposure levels below the PEL or TLV limits. If such ventilation is unavailable, use respirators as specified below.

Respiratory Protection: Use appropriate NIOSH approved respirator if airborne dust concentrations exceed the pertinent PEL or TLV limits. All appropriate requirements set forth in 29 CFR 1910.134 should be met.

Eye Protection: OSHA specified safety glasses, goggles or face shield are recommended if lamps are being broken. In the event an outer jacket is broken, the lamp should be shut off and replaced to avoid exposure to ultraviolet radiation.

Protective Clothing: OSHA specified cut and puncture-resistant gloves are recommended for dealing with broken lamps.

Hygienic Practices: After handling broken lamps, wash thoroughly before eating, smoking or handling tobacco products, applying cosmetics, or using toilet facilities.

Although OSRAM SYLVANIA Products Inc. attempts to provide current and accurate information herein, it makes no representations regarding the accuracy or completeness of the information and assumes no liability for any loss, damage or injury of any kind which may result from, or arise out of, the use of/or reliance on the information by any person.

Issue Date: 05/19/2011

Supersedes: --

In case of questions please call:

OSRAM SYLVANIA Inc.
Product Safety and Compliance Manager
(978) 750 2581

MERCURY

Safety Data Sheet

according to the federal final rule of hazard communication revised on 2012 (HazCom 2012)
Date of issue: 11/19/2013

SECTION 1: Identification of the substance/mixture and of the company/undertaking

1.1. Product identifier

Trade name : MERCURY
CAS No : 7439-97-6
Other means of identification : Colloidal Mercury, Quick Silver, Liquid Silver, NCI-C60399, Hydrargyrum

1.2. Relevant identified uses of the substance or mixture and uses advised against

Use of the substance/mixture : Variety of industrial, analytical and research applications.

1.3. Details of the supplier of the safety data sheet

Bethlehem Apparatus Company

809 Front Street
Hellertown, Pa 18055

Phone: 610-838-7034

1.4. Emergency telephone number

Emergency number : 1-800-424-9300

SECTION 2: Hazards identification

2.1. Classification of the substance or mixture

GHS-US classification

Acute Tox. 1 (Inhalation:dust,mist) H330
Repr. 1B H360
STOT RE 1 H372
Aquatic Acute 1 H400
Aquatic Chronic 1 H410

2.2. Label elements

GHS-US labelling

Hazard pictograms (GHS-US) :



GHS06



GHS08



GHS09



GHS05

Signal word (GHS-US) :

Danger

Hazard statements (GHS-US) :

H330 - Fatal if inhaled
H360 - May damage fertility or the unborn child
H372 - Causes damage to organs through prolonged or repeated exposure
H400 - Very toxic to aquatic life
H410 - Very toxic to aquatic life with long lasting effects

Precautionary statements (GHS-US) :

P201 - Obtain special instructions before use
P202 - Do not handle until all safety precautions have been read and understood
P260 - Do not breathe vapors, gas
P264 - Wash skin, hands thoroughly after handling
P270 - Do not eat, drink or smoke when using this product
P271 - Use only outdoors or in a well-ventilated area
P273 - Avoid release to the environment
P280 - Wear eye protection, protective clothing, protective gloves, Face mask
P284 - [In case of inadequate ventilation] wear respiratory protection
P304+P340 - IF INHALED: Remove person to fresh air and keep comfortable for breathing
P308+P313 - IF exposed or concerned: Get medical advice/attention
P310 - Immediately call a POISON CENTER/doctor/...
P314 - Get medical advice and attention if you feel unwell
P320 - Specific treatment is urgent (see First aid measures on this label)
P391 - Collect spillage
P403+P233 - Store in a well-ventilated place. Keep container tightly closed
P405 - Store locked up
P501 - Dispose of contents/container to comply with applicable local, national and international regulation.

2.3. Other hazards

other hazards which do not result in classification :

When inhaled, Mercury will be rapidly distributed throughout the body. During this time, Mercury will cross the blood-brain barrier, and become oxidized to the Hg (II) oxidation state. The oxidized species of Mercury cannot cross the blood-brain barrier and thus accumulates in the

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brain. Mercury in other organs is removed slowly from the body via the kidneys. The average half-time for clearance of Mercury for different parts of the human body is as follows: lung: 1.7 days; head: 21 days; kidney region: 64 days; chest: 43 days; whole body: 58 days. Mercury can be irritating to contaminated skin and eye. Prolonged contact may lead to ulceration of the skin. Allergic reactions (i.e. rashes, welts) may occur in sensitive individuals. Mercury can be irritating to contaminated skin and eyes. Short-term over-exposures to high concentrations of mercury vapors can lead to breathing difficulty, coughing, acute, and potentially fatal lung disorders. Depending on the concentration of inhalation over-exposure, heart problems, damage to the kidney, liver or nerves and effects on the brain may occur.

2.4. Unknown acute toxicity (GHS-US)

No data available

SECTION 3: Composition/information on ingredients

3.1. Substance

Not applicable

Full text of H-phrases: see section 16

3.2. Mixture

Name	Product identifier	%	GHS-US classification
Mercury	(CAS No) 7439-97-6	100	Acute Tox. 2 (Inhalation), H330 Repr. 1B, H360 STOT RE 1, H372 Aquatic Acute 1, H400 Aquatic Chronic 1, H410

SECTION 4: First aid measures

4.1. Description of first aid measures

- First-aid measures general : Never give anything by mouth to an unconscious person. If exposed or concerned: Get medical advice/attention.
- First-aid measures after inhalation : Remove to fresh air and keep at rest in a position comfortable for breathing. Assure fresh air breathing. Allow the victim to rest. Immediately call a POISON CENTER or doctor/physician. In case of irregular breathing or respiratory arrest provide artificial respiration.
- First-aid measures after skin contact : Wash immediately with lots of water (15 minutes)/shower. Remove affected clothing and wash all exposed skin area with mild soap and water, followed by warm water rinse. Seek immediate medical advice.
- First-aid measures after eye contact : Rinse immediately and thoroughly, pulling the eyelids well away from the eye (15 minutes minimum). Keep eye wide open while rinsing. Seek medical attention immediately.
- First-aid measures after ingestion : Immediately call a POISON CENTER or doctor/physician. Rinse mouth. If conscious, give large amounts of water and induce vomiting. Give water or milk if the person is fully conscious. Obtain emergency medical attention.

4.2. Most important symptoms and effects, both acute and delayed

- Symptoms/injuries after inhalation : Short-term over-exposures to high concentrations of mercury vapors can lead to breathing difficulty, coughing, acute, chemical pneumonia, and pulmonary edema (a potentially fatal accumulation of fluid in the lungs) . Depending on the concentration of over-exposure, cardiac abnormalities, damage to the kidney, liver or nerves and effects on the brain may occur. Long-term inhalation over-exposures can lead to the development of a wide variety of symptoms, including the following: excessive salivation, gingivitis, anorexia, chills, fever, cardiac abnormalities, anemia, digestive problems, abdominal pains, frequent urination, an inability to urinate, diarrhea, peripheral neuropathy (numbness, weakness, or burning sensations in the hands or feet), tremors (especially in the hands, fingers, eyelids, lips, cheeks, tongue, or legs), alteration of tendon reflexes, slurred speech, visual disturbances, and deafness. Allergic reactions (i.e. breathing difficulty) may also occur in sensitive individuals.
- Symptoms/injuries after skin contact : Symptoms of skin exposure can include redness, dry skin, and pain. Prolonged contact may lead to ulceration of the skin. Allergic reactions (i.e. rashes, welts) may occur in sensitive individuals. Dermatitis (redness and inflammation of the skin) may occur after repeated skin exposures.
- Symptoms/injuries after eye contact : Symptoms of eye exposure can include redness, pain, and watery eyes. A symptom of Mercury exposure is discoloration of the lens of the eyes.
- Symptoms/injuries after ingestion : If Mercury is swallowed, symptoms of such over-exposure can include metallic taste in mouth, nausea, vomiting, central nervous system effects, and damage to the kidneys. Metallic mercury is not usually absorbed sufficiently from the gastrointestinal tract to induce an acute, toxic response. Damage to the tissues of the mouth, throat, esophagus, and other tissues of the digestive system may occur. Ingestion may be fatal, due to effects on gastrointestinal system and kidneys.
- Chronic symptoms : Long-term over-exposure can lead to a wide range of adverse health effects. Anyone using Mercury must pay attention to personality changes, weight loss, skin or gum discolorations, stomach pains, and other signs of Mercury over-exposure. Gradually developing syndromes ("Erethism" and "Acrodynia") are indicative of potentially severe health problems. Mercury can cause the development of allergic reactions (i.e. dermatitis, rashes, breathing difficulty) upon prolonged or repeated exposures. Refer to Section 11 (Toxicology Information) for additional data.

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4.3. Indication of any immediate medical attention and special treatment needed

Treatment for Mercury over-exposure must be given. The following treatment protocol for ingestion of Mercury is from Clinical Toxicology of Commercial Products (5th Edition, 1984).

SECTION 5: Firefighting measures

5.1. Extinguishing media

Suitable extinguishing media : Foam. Dry powder. Carbon dioxide. Water spray. Sand.
Unsuitable extinguishing media : Do not use a heavy water stream.

5.2. Special hazards arising from the substance or mixture

Fire hazard : Not flammable. Mercury vapors and oxides generated during fires involving this product are toxic.
Reactivity : Stable. Reacts with (some) metals. Mercury can react with metals to form amalgams.

5.3. Advice for firefighters

Firefighting instructions : Use water spray or fog for cooling exposed containers. Exercise caution when fighting any chemical fire. Prevent fire-fighting water from entering environment. Do not allow run-off from fire fighting to enter drains or water courses.
Protective equipment for firefighters : Do not enter fire area without proper protective equipment, including respiratory protection.
Other information : Decontaminate all equipment thoroughly after the conclusion of fire-fighting activities.

SECTION 6: Accidental release measures

6.1. Personal precautions, protective equipment and emergency procedures

General measures : Uncontrolled release should be responded to by trained personnel using pre-planned procedures. Evacuate area. Evacuate personnel to a safe area.

6.1.1. For non-emergency personnel

Emergency procedures : Evacuate unnecessary personnel.

6.1.2. For emergency responders

Protective equipment : Equip cleanup crew with proper protection. In the event of a release under 1 pound: the minimum level "C" Personal Protective Equipment is needed. Triple-gloves (rubber gloves and nitril gloves over latex gloves), chemical resistant suit and boots, hard-hat, and Air-Purifying Respirator with Cartridge appropriate for Mercury.
In the event of a release over 1 pound or when concentration of oxygen in atmosphere is less than 19.5% or unknown, the level "B" Personal Protective Equipments which includes Self-Contained Breathing Apparatus must be worn.
Emergency procedures : Ventilate area.

6.2. Environmental precautions

Prevent entry to sewers and public waters. Notify authorities if liquid enters sewers or public waters. Avoid release to the environment.

6.3. Methods and material for containment and cleaning up

For containment : For larger spills, dike area and pump into waste containers. Put into a labelled container and provide safe disposal.
Methods for cleaning up : There are a variety of methods which can be used to clean-up Mercury spills. Use a commercially available Mercury Spill Kit for small spills. A suction pump with aspirator can also be used during clean-up operations. For larger release, a Mercury vacuum can be used. Calcium polysulfide or excess sulfur can be also used for clean-up. Mercury can migrate into cracks and other difficult-to-clean areas; calcium polysulfide and sulfur can be sprinkled effectively into these areas. Decontaminate the area thoroughly. The area should be inspected visually and with colorimetric tubes for Mercury to ensure all traces have been removed prior to re-occupation by non-emergency personnel. Decontaminate all equipment used in response thoroughly. If such equipments cannot be adequately decontaminated, it must be discarded with other spill residue. Place all spill residues in an appropriate container, seal immediately, and label appropriately. Dispose of in accordance with federal, state, and local hazardous waste disposal requirements. (Refer to Section 13 of this SDS).

6.4. Reference to other sections

See Heading 8. Exposure controls and personal protection.

SECTION 7: Handling and storage

7.1. Precautions for safe handling

Additional hazards when processed : Supervisors and responsible personnel must be aware of personality changes, weight loss, or other sign of Mercury over-exposure in employees using this product; These symptoms can develop gradually and are indicative of potentially severe health effects related to Mercury contamination.

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- Precautions for safe handling : As with all chemicals, avoid getting Mercury ON YOU or IN YOU. Do not handle until all safety precautions have been read and understood. Obtain special instructions before use. Wash hands and other exposed areas with mild soap and water before eating, drinking or smoking and when leaving work. Provide good ventilation in process area to prevent formation of vapor. Report all Mercury releases promptly. Open container slowly on a stable surface. Drums, flasks and bottles of this product must be properly labeled. Empty containers may contain residual amounts of Mercury and should be handled with care.
- Hygiene measures : Do not eat, drink or smoke when using this product. Always wash hands and face immediately after handling this product, and once again before leaving the workplace. Remove contaminated clothing immediately.

7.2. Conditions for safe storage, including any incompatibilities

- Technical measures : Follow practice indicated in Section 6. Make certain that application equipment is locked and tagged-out safely. Always use this product in areas where adequate ventilation is provided. Decontaminate equipment thoroughly before maintenance begins.
- Storage conditions : Keep container tightly closed. Store drums, flasks and bottles in a cool, dry location, away from direct sunlight, source of intense heat, or where freezing is possible. Store away from incompatible materials. Material should be stored in secondary container or in a diked area, as appropriate.
- Incompatible materials : Acetylene and acetylene derivatives, amines, ammonia, 3-bromopropyne, boron diiodophosphide, methyl azide, sodium carbide, heated sulfuric acid, methylsilane/oxygen mixtures, nitric acid/alcohol mixtures, tetracarbonylnickel/oxygen mixtures, alkyne/silver perchlorate mixtures, halogens and strong oxidizers. Mercury can attack copper alloys. Mercury can react with many metals (i.e. calcium, lithium, potassium, sodium, rubidium, aluminum) to form amalgams.
- Prohibitions on mixed storage : Mercury can attack copper alloys. Mercury can react with many metals (i.e. calcium, lithium, potassium, sodium, rubidium, aluminum) to form amalgams.
- Storage area : Storage area should be made of fire-resistant materials.
- Special rules on packaging : Inspect all incoming containers before storage to ensure containers are properly labeled and not damaged.

7.3. Specific end use(s)

No additional information available

SECTION 8: Exposure controls/personal protection

8.1. Control parameters

Mercury (7439-97-6)		
USA ACGIH	ACGIH TWA (mg/m ³)	0.025 mg/m ³
USA OSHA	OSHA PEL (Ceiling) (mg/m ³)	0.1 mg/m ³

8.2. Exposure controls

- Appropriate engineering controls : Ensure adequate ventilation. Ensure exposure is below occupational exposure limits (where available). Emergency eye wash fountains and safety showers should be available in the immediate vicinity of any potential exposure.
- Personal protective equipment : Avoid all unnecessary exposure. Gloves. Protective clothing. Safety glasses. Mist formation: aerosol mask.



- Hand protection : Wear neoprene gloves for routine industrial use. Use triple gloves for spill response, as stated in Section 6 of this SDS.
- Eye protection : Splash goggles or safety glasses. For operation involving the use of more than 1 pound of Mercury, or if the operation may generate a spray of Mercury, the use of a faceshield is recommended.
- Skin and body protection : Wear suitable protective clothing.
- Respiratory protection : Maintain airborne contaminants concentration below provided exposure limits. If respiratory protection is needed, use only protection authorized in 29 CFR 1910.134 or applicable state regulations. Use supplied air respiration protection if oxygen levels are below 19.5% or are unknown.
- Other information : Do not eat, drink or smoke during use.

SECTION 9: Physical and chemical properties

9.1. Information on basic physical and chemical properties

- Physical state : Liquid
- Colour : Silver white.

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Odor	: Odorless.
Odor threshold	: Not applicable
pH	: Not applicable
Relative evaporation rate (butylacetate=1)	: No data available
Melting point	: No data available
Freezing point	: -38,87 °C (-37.97 F)
Boiling point	: No data available
Flash point	: Not applicable
Self ignition temperature	: Not applicable
Decomposition temperature	: No data available
Flammability (solid, gas)	: No data available
Vapour pressure	: 0,002 mm Hg at 25°C
Relative vapor density at 20 °C	: 6,9 (Air = 1)
Relative density	: No data available
Relative density of saturated gas/air mixture	: 13,6
Solubility	: No data available
Log Pow	: No data available
Log Kow	: No data available
Viscosity, kinematic	: No data available
Viscosity, dynamic	: No data available
Explosive properties	: No data available
Oxidizing properties	: No data available
Explosive limits	: Not applicable

9.2. Other information

No additional information available

SECTION 10: Stability and reactivity

10.1. Reactivity

Stable. Reacts with (some) metals. Mercury can react with metals to form amalgams.

10.2. Chemical stability

Not established.

10.3. Possibility of hazardous reactions

Not established. Hazardous polymerization will not occur.

10.4. Conditions to avoid

Direct sunlight. Extremely high or low temperatures.

10.5. Incompatible materials

Acetylene and acetylene derivatives, amines, ammonia, 3-bromopropyne, boron diiodophosphide, methyl azide, sodium carbide, heated sulfuric acid, methylsilane/oxygen mixtures, nitric acid/alcohol mixtures, tetracarbonylnickel/oxygen mixtures, alkyne/silver perchlorate mixtures, halogens and strong oxidizers. Mercury can attack copper alloys. Mercury can react with many metals (i.e. calcium, lithium, potassium, sodium, rubidium, aluminum) to form amalgams.

10.6. Hazardous decomposition products

If this product is exposed to extremely high temperature in the presence of oxygen or air, toxic vapor of mercury and mercury oxides will be generated.

SECTION 11: Toxicological information

11.1. Information on toxicological effects

Acute toxicity	: Fatal if inhaled.
Skin corrosion/irritation	: Not classified pH: Not applicable
Serious eye damage/irritation	: Not classified pH: Not applicable
Respiratory or skin sensitisation	: Not classified
Germ cell mutagenicity	: Not classified Based on available data, the classification criteria are not met
Carcinogenicity	: Not classified

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Mercury (7439-97-6)	
IARC group	3
Reproductive toxicity	: May damage fertility or the unborn child. Based on available data, the classification criteria are not met
Specific target organ toxicity (single exposure)	: Not classified
Specific target organ toxicity (repeated exposure)	: Causes damage to organs through prolonged or repeated exposure. Based on available data, the classification criteria are not met Causes damage to organs through prolonged or repeated exposure
Aspiration hazard	: Not classified Based on available data, the classification criteria are not met
Potential adverse human health effects and symptoms	: Based on available data, the classification criteria are not met. Fatal if inhaled.
Symptoms/injuries after inhalation	: Short-term over-exposures to high concentrations of mercury vapors can lead to breathing difficulty, coughing, acute, chemical pneumonia, and pulmonary edema (a potentially fatal accumulation of fluid in the lungs). Depending on the concentration of over-exposure, cardiac abnormalities, damage to the kidney, liver or nerves and effects on the brain may occur. Long-term inhalation over-exposures can lead to the development of a wide variety of symptoms, including the following: excessive salivation, gingivitis, anorexia, chills, fever, cardiac abnormalities, anemia, digestive problems, abdominal pains, frequent urination, an inability to urinate, diarrhea, peripheral neuropathy (numbness, weakness, or burning sensations in the hands or feet), tremors (especially in the hands, fingers, eyelids, lips, cheeks, tongue, or legs), alteration of tendon reflexes, slurred speech, visual disturbances, and deafness. Allergic reactions (i.e. breathing difficulty) may also occur in sensitive individuals.
Symptoms/injuries after skin contact	: Symptoms of skin exposure can include redness, dry skin, and pain. Prolonged contact may lead to ulceration of the skin. Allergic reactions (i.e. rashes, welts) may occur in sensitive individuals. Dermatitis (redness and inflammation of the skin) may occur after repeated skin exposures.
Symptoms/injuries after eye contact	: Symptoms of eye exposure can include redness, pain, and watery eyes. A symptom of Mercury exposure is discoloration of the lens of the eyes.
Symptoms/injuries after ingestion	: If Mercury is swallowed, symptoms of such over-exposure can include metallic taste in mouth, nausea, vomiting, central nervous system effects, and damage to the kidneys. Metallic mercury is not usually absorbed sufficiently from the gastrointestinal tract to induce an acute, toxic response. Damage to the tissues of the mouth, throat, esophagus, and other tissues of the digestive system may occur. Ingestion may be fatal, due to effects on gastrointestinal system and kidneys.
Chronic symptoms	: Long-term over-exposure can lead to a wide range of adverse health effects. Anyone using Mercury must pay attention to personality changes, weight loss, skin or gum discolorations, stomach pains, and other signs of Mercury over-exposure. Gradually developing syndromes ("Erethism" and "Acrodynia") are indicative of potentially severe health problems. Mercury can cause the development of allergic reactions (i.e. dermatitis, rashes, breathing difficulty) upon prolonged or repeated exposures. Refer to Section 11 (Toxicology Information) for additional data.

SECTION 12: Ecological information

12.1. Toxicity

Ecology - water : Very toxic to aquatic life. Toxic to aquatic life with long lasting effects.

Mercury (7439-97-6)	
LC50 fishes 1	0,5 mg/l (Exposure time: 96 h - Species: Cyprinus carpio)
EC50 Daphnia 1	5,0 µg/l (Exposure time: 96 h - Species: water flea)
LC50 fish 2	0,16 mg/l (Exposure time: 96 h - Species: Cyprinus carpio [semi-static])

12.2. Persistence and degradability

MERCURY (7439-97-6)	
Persistence and degradability	May cause long-term adverse effects in the environment.

12.3. Bioaccumulative potential

MERCURY (7439-97-6)	
Bioaccumulative potential	Not established.

12.4. Mobility in soil

No additional information available

12.5. Other adverse effects

Other information : Avoid release to the environment.

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SECTION 13: Disposal considerations

13.1. Waste treatment methods

- Waste disposal recommendations : Dispose in a safe manner in accordance with local/national regulations. Waste disposal must be in accordance with appropriate federal, state, and local regulations. This product, if unaltered by use, should be recycled. If altered by use, recycling may be possible. Consult Bethlehem Apparatus Company for information. If Mercury must be disposed of as hazardous waste, it must be handled at a permitted facility or as advised by your local hazardous waste regulatory authority.
- Ecology - waste materials : Hazardous waste due to toxicity. Avoid release to the environment.

SECTION 14: Transport information

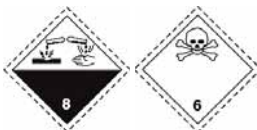
In accordance with DOT

14.1. UN number

- UN-No.(DOT) : 2809
DOT NA no. UN2809

14.2. UN proper shipping name

- DOT Proper Shipping Name : Mercury
Department of Transportation (DOT) Hazard Classes : 8 - Class 8 - Corrosive material 49 CFR 173.136
Hazard labels (DOT) : 8 - Corrosive substances
6.1 - Toxic substances



- DOT Symbols : A - Material is regulated as a hazardous material only when transported by air, W - Material is regulated as a hazardous material only when transported by water
- Packing group (DOT) : III - Minor Danger
- DOT Packaging Exceptions (49 CFR 173.xxx) : 164
- DOT Packaging Non Bulk (49 CFR 173.xxx) : 164
- DOT Packaging Bulk (49 CFR 173.xxx) : 240

14.3. Additional information

- Other information : No supplementary information available.

Overland transport

No additional information available

Transport by sea

- DOT Vessel Stowage Location : B - (i) The material may be stowed "on deck" or "under deck" on a cargo vessel and on a passenger vessel carrying a number of passengers limited to not more than the larger of 25 passengers, or one passenger per each 3 m of overall vessel length; and (ii) "On deck only" on passenger vessels in which the number of passengers specified in paragraph (k)(2)(i) of this section is exceeded.
- DOT Vessel Stowage Other : 40 - Stow "clear of living quarters", 97 - Stow "away from" azides

Air transport

- DOT Quantity Limitations Passenger aircraft/rail (49 CFR 173.27) : 35 kg
- DOT Quantity Limitations Cargo aircraft only (49 CFR 175.75) : 35 kg

SECTION 15: Regulatory information

15.1. US Federal regulations

Mercury (7439-97-6)	
Listed on the United States TSCA (Toxic Substances Control Act) inventory Listed on SARA Section 313 (Specific toxic chemical listings)	
EPA TSCA Regulatory Flag	S - S - indicates a substance that is identified in a proposed or final Significant New Uses Rule.
SARA Section 313 - Emission Reporting	1,0 %

15.2. International regulations

CANADA

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Mercury (7439-97-6)	
Listed on the Canadian DSL (Domestic Substances List) inventory.	
WHMIS Classification	Class D Division 1 Subdivision A - Very toxic material causing immediate and serious toxic effects Class D Division 2 Subdivision A - Very toxic material causing other toxic effects Class E - Corrosive Material

EU-Regulations

Mercury (7439-97-6)
Listed on the EEC inventory EINECS (European Inventory of Existing Commercial Chemical Substances) substances.

Classification according to Regulation (EC) No. 1272/2008 [CLP]

Classification according to Directive 67/548/EEC or 1999/45/EC

Not classified

15.2.2. National regulations

Mercury (7439-97-6)
Listed on the AICS (the Australian Inventory of Chemical Substances) Listed on Inventory of Existing Chemical Substances (IECSC) Listed on the Korean ECL (Existing Chemical List) inventory. Listed on New Zealand - Inventory of Chemicals (NZIoC) Listed on Inventory of Chemicals and Chemical Substances (PICCS) Poisonous and Deleterious Substances Control Law Pollutant Release and Transfer Register Law (PRTR Law) Listed on the Canadian Ingredient Disclosure List

15.3. US State regulations

Mercury (7439-97-6)				
U.S. - California - Proposition 65 - Carcinogens List	U.S. - California - Proposition 65 - Developmental Toxicity	U.S. - California - Proposition 65 - Reproductive Toxicity - Female	U.S. - California - Proposition 65 - Reproductive Toxicity - Male	No significance risk level (NSRL)
	Yes			

SECTION 16: Other information

Other information : None.

Full text of H-phrases: see section 16:

Acute Tox. 1 (Inhalation:dust,mist)	Acute toxicity (inhalation:dust,mist) Category 1
Acute Tox. 2 (Inhalation)	Acute toxicity (inhalation) Category 2
Aquatic Acute 1	Hazardous to the aquatic environment — AcuteHazard, Category 1
Aquatic Chronic 1	Hazardous to the aquatic environment — Chronic Hazard, Category 1
Repr. 1B	Reproductive toxicity Category 1B
STOT RE 1	Specific target organ toxicity (repeated exposure) Category 1
H330	Fatal if inhaled
H360	May damage fertility or the unborn child
H372	Causes damage to organs through prolonged or repeated exposure
H400	Very toxic to aquatic life
H410	Very toxic to aquatic life with long lasting effects

NFPA health hazard

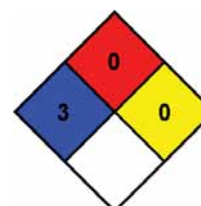
: 3 - Short exposure could cause serious temporary or residual injury even though prompt medical attention was given.

NFPA fire hazard

: 0 - Materials that will not burn.

NFPA reactivity

: 0 - Normally stable, even under fire exposure conditions, and are not reactive with water.



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SDS US (GHS HazCom 2012)

This information is based on our current knowledge and is intended to describe the product for the purposes of health, safety and environmental requirements only. It should not therefore be construed as guaranteeing any specific property of the product

THIS SDS PURCHASED FROM INTERTEK CHEMICALS & PHARMACEUTICALS, 2 RIVERWAY, SUITE 500, HOUSTON, TX 77056.

SAFETY DATA SHEET

SECTION 1 PRODUCT AND COMPANY IDENTIFICATION

As of the revision date above, this (M)SDS meets the regulations in the United Kingdom & Ireland.

PRODUCT

Product Name: MOBIL 1 ESP FORMULA 5W-30
Product Description: Synthetic Base Stocks and Additives
Product Code: 2015101010K0, 482497-60
Intended Use: Engine oil

COMPANY IDENTIFICATION

Supplier: EXXONMOBIL LUBRICANTS & SPECIALTIES EUROPE, A DIVISION OF EXXONMOBIL
PETROLEUM & CHEMICAL, BVBA (EMPC)
POLDERDIJKWEG
B-2030 Antwerpen
Belgium

**24 Hour Environmental / Health Emergency
Telephone
e-mail**

(UK) 01372 222 000 / (IRELAND) 44 1372 222 000

SDS-UK@EXXONMOBIL.COM

SECTION 2 HAZARDS IDENTIFICATION

This material is not considered to be hazardous according to regulatory guidelines see Section 15.

HEALTH HAZARDS

Low order of toxicity. Excessive exposure may result in eye, skin, or respiratory irritation. High-pressure injection under skin may cause serious damage.

Note: This material should not be used for any other purpose than the intended use in Section 1 without expert advice. Health studies have shown that chemical exposure may cause potential human health risks which may vary from person to person.

SECTION 3 COMPOSITION / INFORMATION ON INGREDIENTS

Reportable Hazardous Substance(s) or Complex Substance(s)

Name	CAS#	EINECS / ELINCS	Concentration *	Symbols/Risk Phrases
POLYOLEFIN POLYAMINE SUCCINIMIDE	147880-09-9		1 - 5%	R53

* All concentrations are percent by weight unless ingredient is a gas. Gas concentrations are in percent by volume.

Product Name: MOBIL 1 ESP FORMULA 5W-30

Revision Date: 10Nov2008

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SECTION 4 FIRST AID MEASURES

INHALATION

Remove from further exposure. For those providing assistance, avoid exposure to yourself or others. Use adequate respiratory protection. If respiratory irritation, dizziness, nausea, or unconsciousness occurs, seek immediate medical assistance. If breathing has stopped, assist ventilation with a mechanical device or use mouth-to-mouth resuscitation.

SKIN CONTACT

Wash contact areas with soap and water. If product is injected into or under the skin, or into any part of the body, regardless of the appearance of the wound or its size, the individual should be evaluated immediately by a physician as a surgical emergency. Even though initial symptoms from high pressure injection may be minimal or absent, early surgical treatment within the first few hours may significantly reduce the ultimate extent of injury.

EYE CONTACT

Flush thoroughly with water. If irritation occurs, get medical assistance.

INGESTION

First aid is normally not required. Seek medical attention if discomfort occurs.

SECTION 5 FIRE FIGHTING MEASURES

EXTINGUISHING MEDIA

Appropriate Extinguishing Media: Use water fog, foam, dry chemical or carbon dioxide (CO₂) to extinguish flames.

Inappropriate Extinguishing Media: Straight streams of water

FIRE FIGHTING

Fire Fighting Instructions: Evacuate area. Prevent run-off from fire control or dilution from entering streams, sewers or drinking water supply. Fire-fighters should use standard protective equipment and in enclosed spaces, self-contained breathing apparatus (SCBA). Use water spray to cool fire exposed surfaces and to protect personnel.

Hazardous Combustion Products: Smoke, Fume, Aldehydes, Incomplete combustion products, Oxides of carbon

FLAMMABILITY PROPERTIES

Flash Point [Method]: >200C (392F) [ASTM D-92]

Flammable Limits (Approximate volume % in air): LEL: 0.9 UEL: 7.0

Autoignition Temperature: N/D

SECTION 6 ACCIDENTAL RELEASE MEASURES

NOTIFICATION PROCEDURES

In the event of a spill or accidental release, notify relevant authorities in accordance with all applicable

Product Name: MOBIL 1 ESP FORMULA 5W-30

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regulations.

SPILL MANAGEMENT

Land Spill: Stop leak if you can do so without risk. Recover by pumping or with suitable absorbent.

Water Spill: Stop leak if you can do so without risk. Confine the spill immediately with booms. Warn other shipping. Remove from the surface by skimming or with suitable absorbents. Seek the advice of a specialist before using dispersants.

Water spill and land spill recommendations are based on the most likely spill scenario for this material; however, geographic conditions, wind, temperature, (and in the case of a water spill) wave and current direction and speed may greatly influence the appropriate action to be taken. For this reason, local experts should be consulted. Note: Local regulations may prescribe or limit action to be taken.

ENVIRONMENTAL PRECAUTIONS

Large Spills: Dyke far ahead of liquid spill for later recovery and disposal. Prevent entry into waterways, sewers, basements or confined areas.

SECTION 7

HANDLING AND STORAGE

HANDLING

Avoid contact with used product. Prevent small spills and leakage to avoid slip hazard.

Static Accumulator: This material is a static accumulator.

STORAGE

Do not store in open or unlabelled containers.

SECTION 8

EXPOSURE CONTROLS / PERSONAL PROTECTION

Exposure limits/standards for materials that can be formed when handling this product: When mists / aerosols can occur, the following are recommended: 5 mg/m³ - ACGIH TLV, 10 mg/m³ - ACGIH STEL.

Note: Information about recommended monitoring procedures can be obtained from the relevant agency(ies)/institute(s):

UK Health and Safety Executive (HSE)

ENGINEERING CONTROLS

The level of protection and types of controls necessary will vary depending upon potential exposure conditions. Control measures to consider:

No special requirements under ordinary conditions of use and with adequate ventilation.

PERSONAL PROTECTION

Personal protective equipment selections vary based on potential exposure conditions such as applications, handling practices, concentration and ventilation. Information on the selection of protective equipment for use with this material, as provided below, is based upon intended, normal usage.

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Respiratory Protection: If engineering controls do not maintain airborne contaminant concentrations at a level which is adequate to protect worker health, an approved respirator may be appropriate. Respirator selection, use, and maintenance must be in accordance with regulatory requirements, if applicable. Types of respirators to be considered for this material include:

No special requirements under ordinary conditions of use and with adequate ventilation.

For high airborne concentrations, use an approved supplied-air respirator, operated in positive pressure mode. Supplied air respirators with an escape bottle may be appropriate when oxygen levels are inadequate, gas/vapour warning properties are poor, or if air purifying filter capacity/rating may be exceeded.

Hand Protection: Any specific glove information provided is based on published literature and glove manufacturer data. Glove suitability and breakthrough time will differ depending on the specific use conditions. Contact the glove manufacturer for specific advice on glove selection and breakthrough times for your use conditions. Inspect and replace worn or damaged gloves. The types of gloves to be considered for this material include:

No protection is ordinarily required under normal conditions of use.

Eye Protection: If contact is likely, safety glasses with side shields are recommended.

Skin and Body Protection: Any specific clothing information provided is based on published literature or manufacturer data. The types of clothing to be considered for this material include:

No skin protection is ordinarily required under normal conditions of use. In accordance with good industrial hygiene practices, precautions should be taken to avoid skin contact.

Specific Hygiene Measures: Always observe good personal hygiene measures, such as washing after handling the material and before eating, drinking, and/or smoking. Routinely wash work clothing and protective equipment to remove contaminants. Discard contaminated clothing and footwear that cannot be cleaned. Practice good housekeeping.

ENVIRONMENTAL CONTROLS

See Sections 6, 7, 12, 13.

SECTION 9

PHYSICAL AND CHEMICAL PROPERTIES

Typical physical and chemical properties are given below. Consult the Supplier in Section 1 for additional data.

GENERAL INFORMATION

Physical State: Liquid

Colour: Amber

Odour: Characteristic

Odour Threshold: N/D

IMPORTANT HEALTH, SAFETY, AND ENVIRONMENTAL INFORMATION

Relative Density (at 15 C): 0.85

Flash Point [Method]: >200C (392F) [ASTM D-92]

Flammable Limits (Approximate volume % in air): LEL: 0.9 UEL: 7.0

Autoignition Temperature: N/D

Boiling Point / Range: > 316C (601F)

Vapour Density (Air = 1): > 2 at 101 kPa

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Vapour Pressure: < 0.013 kPa (0.1 mm Hg) at 20°C
Evaporation Rate (N-Butyl Acetate = 1): N/D
pH: N/A
Log Pow (n-Octanol/Water Partition Coefficient): > 3.5
Solubility in Water: Negligible
Viscosity: 72.8 cSt (72.8 mm²/sec) at 40°C | 11.9 cSt (11.9 mm²/sec) at 100C
Oxidising properties: See Sections 3, 15, 16.

OTHER INFORMATION

Freezing Point: N/D
Melting Point: N/A
Pour Point: -36°C (-33°F)

SECTION 10	STABILITY AND REACTIVITY
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STABILITY: Material is stable under normal conditions.

CONDITIONS TO AVOID: Excessive heat. High energy sources of ignition.

MATERIALS TO AVOID: Strong oxidisers

HAZARDOUS DECOMPOSITION PRODUCTS: Material does not decompose at ambient temperatures.

HAZARDOUS POLYMERIZATION: Will not occur.

SECTION 11	TOXICOLOGICAL INFORMATION
-------------------	----------------------------------

Acute Toxicity

<u>Route of Exposure</u>	<u>Conclusion / Remarks</u>
INHALATION	
Toxicity: LC50 > 5000 mg/m ³	Minimally Toxic. Based on test data for structurally similar materials.
Irritation: No end point data.	Negligible hazard at ambient/normal handling temperatures. Based on assessment of the components.
INGESTION	
Toxicity: LD50 > 5000 mg/kg	Minimally Toxic. Based on test data for structurally similar materials.
Skin	
Toxicity: LD50 > 5000 mg/kg	Minimally Toxic. Based on test data for structurally similar materials.
Irritation: Data available.	Negligible irritation to skin at ambient temperatures. Based on test data for structurally similar materials.
Eye	
Irritation: Data available.	May cause mild, short-lasting discomfort to eyes. Based on test data for structurally similar materials.

CHRONIC/OTHER EFFECTS

For the product itself:

Diesel engine oils: Not carcinogenic in animals tests. Used and unused diesel engine oils did not produce any

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carcinogenic effects in chronic mouse skin painting studies. Oils that are used in gasoline engines may become hazardous and display the following properties: Carcinogenic in animal tests. Caused mutations in vitro. Possible allergen and photoallergen. Contains polycyclic aromatic compounds (PAC) from combustion products of gasoline and/or thermal degradation products.

Contains:

Synthetic base oils: Not expected to cause significant health effects under conditions of normal use, based on laboratory studies with the same or similar materials. Not mutagenic or genotoxic. Not sensitising in test animals and humans.

Additional information is available by request.

SECTION 12	ECOLOGICAL INFORMATION
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The information given is based on data available for the material, the components of the material, and similar materials.

ECOTOXICITY

Material -- Not expected to be harmful to aquatic organisms.

MOBILITY

Base oil component -- Low solubility and floats and is expected to migrate from water to the land. Expected to partition to sediment and wastewater solids.

SECTION 13	DISPOSAL CONSIDERATIONS
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Disposal recommendations based on material as supplied. Disposal must be in accordance with current applicable laws and regulations, and material characteristics at time of disposal.

DISPOSAL RECOMMENDATIONS

Product is suitable for burning in an enclosed controlled burner for fuel value or disposal by supervised incineration at very high temperatures to prevent formation of undesirable combustion products.

REGULATORY DISPOSAL INFORMATION

European Waste Code: 13 02 06

NOTE: These codes are assigned based upon the most common uses for this material and may not reflect contaminants resulting from actual use. Waste producers need to assess the actual process used when generating the waste and its contaminants in order to assign the proper waste disposal code(s).

This material is considered as hazardous waste pursuant to Directive 91/689/EEC on hazardous waste, and subject to the provisions of that Directive unless Article 1(5) of that Directive applies.

Empty Container Warning Empty Container Warning (where applicable): Empty containers may contain residue and can be dangerous. Do not attempt to refill or clean containers without proper instructions. Empty drums should be

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completely drained and safely stored until appropriately reconditioned or disposed. Empty containers should be taken for recycling, recovery, or disposal through suitably qualified or licensed contractor and in accordance with governmental regulations. DO NOT PRESSURISE, 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.

SECTION 14	TRANSPORT INFORMATION
-------------------	------------------------------

LAND (ADR/RID) : Not Regulated for Land Transport

INLAND WATERWAYS (ADNR) : Not Regulated for Inland Waterways Transport

SEA (IMDG) : Not Regulated for Sea Transport according to IMDG-Code

AIR (IATA) : Not Regulated for Air Transport

SECTION 15	REGULATORY INFORMATION
-------------------	-------------------------------

Material is not dangerous as defined by the EU Dangerous Substances/Preparations Directives.

EU LABELING: Not regulated according to EC Directives

REGULATORY STATUS AND APPLICABLE LAWS AND REGULATIONS

Complies with the following national/regional chemical inventory requirements: AICS, IECSC, DSL, ENCS, KECI, PICCS, TSCA

Special Cases:

Inventory	Status
ELINCS	Restrictions Apply

SECTION 16	OTHER INFORMATION
-------------------	--------------------------

N/D = Not determined, N/A = Not applicable

KEY TO THE RISK CODES CONTAINED IN SECTION 2 AND 3 OF THIS DOCUMENT (for information only):

R53; May cause long-term adverse effects in the aquatic environment.

THIS SAFETY DATA SHEET CONTAINS THE FOLLOWING REVISIONS:

Revision Changes:

Section 07: Handling and Storage - Storage was modified.

Section 05: Hazardous Combustion Products was modified.

Section 15: National Chemical Inventory Listing was modified.



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Internal Use Only

MHC: 0B, 0B, 0, 0, 0, 0

PPEC: A

DGN: 7010404XGB (1005867)

NAPA® ANTIFREEZE COOLANT
NP001

1. IDENTIFICATION OF THE SUBSTANCE/MIXTURE AND OF THE COMPANY/UNDERTAKING

Ashland	Regulatory Information Number	1-800-325-3751
P.O. Box 2219	Telephone	614-790-3333
Columbus, OH 43216	Emergency telephone	1-800-ASHLAND (1-800-274-5263)

Product name	NAPA® ANTIFREEZE COOLANT
Product code	NP001
Product Use Description	No data

2. HAZARDS IDENTIFICATION

Emergency Overview

Appearance: liquid, green

WARNING! MAY AFFECT THE CENTRAL NERVOUS SYSTEM CAUSING DIZZINESS, HEADACHE OR NAUSEA. HARMFUL IF SWALLOWED. MAY CAUSE EYE IRRITATION. MAY CAUSE SKIN AND RESPIRATORY TRACT IRRITATION.

Potential Health Effects

Exposure routes

Skin absorption, Skin contact, Eye Contact, Inhalation, Ingestion

Eye contact

Can cause eye irritation. Symptoms include stinging, tearing, redness, and swelling of eyes.

Skin contact

May cause mild skin irritation. Symptoms may include redness and burning of skin. Although rare, skin contact with ethylene glycol may cause allergic skin reaction (delayed skin rash which may be followed by blistering, scaling and other skin effects). Passage of this material into the body through the skin is possible, but it is unlikely that this would result in harmful effects during safe handling and use.

Ingestion

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Swallowing this material may be harmful. Liver, kidney and brain damage in humans has resulted from swallowing lethal or near-lethal amounts of ethylene glycol. Ingestion of medications contaminated with diethylene glycol has caused kidney failure and death in humans. Products containing diethylene glycol should be considered toxic by ingestion.

Inhalation

Breathing of vapor or fume is possible. Breathing small amounts of this material during normal handling is not likely to cause harmful effects. Breathing large amounts may be harmful. Symptoms are not expected at air concentrations below the recommended exposure limits, if applicable (see Section 8.).

Aggravated Medical Condition

Preexisting disorders of the following organs (or organ systems) may be aggravated by exposure to this material: lung (for example, asthma-like conditions), Liver, Kidney, Exposure to this material may aggravate any preexisting condition sensitive to a decrease in available oxygen, such as chronic lung disease, coronary artery disease or anemias.

Symptoms

Signs and symptoms of exposure to this material through breathing, swallowing, and/or passage of the material through the skin may include: stomach or intestinal upset (nausea, vomiting, diarrhea), irritation (nose, throat, airways), Cough, central nervous system excitation (giddiness, liveliness, light-headed feeling) followed by central nervous system depression (dizziness, drowsiness, weakness, fatigue, nausea, headache, unconsciousness) and other central nervous system effects, involuntary eye movement, cyanosis (causes blue coloring of the skin and nails from lack of oxygen), lung edema (fluid buildup in the lung tissue), acute kidney failure (sudden slowing or stopping of urine production), liver damage, Convulsions, coma

Target Organs

Overexposure to this material (or its components) has been suggested as a cause of the following effects in laboratory animals: reproductive effects, kidney damage, liver damage, Overexposure to this material (or its components) has been suggested as a cause of the following effects in humans: kidney damage, liver damage

Carcinogenicity

This material is not listed as a carcinogen by the International Agency for Research on Cancer (IARC), the National Toxicology Program (NTP), or the Occupational Safety and Health Administration (OSHA).

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Reproductive hazard

Ethylene glycol has caused birth defects in animal studies at high oral doses. However, it did not cause harm to the pregnant animal or to the fetus when applied to the skin of the pregnant animal.

3. COMPOSITION/INFORMATION ON INGREDIENTS

Components	CAS-No.	Concentration
ETHYLENE GLYCOL	107-21-1	>=90-<=100%
DIETHYLENE GLYCOL	111-46-6	>=1.5-<5%
INORGANIC SALT	NJTS# 254504001-5237	>=1.5-<5%

4. FIRST AID MEASURES

Eyes

If symptoms develop, immediately move individual away from exposure and into fresh air. Flush eyes gently with water for at least 15 minutes while holding eyelids apart; seek immediate medical attention.

Skin

Remove contaminated clothing. Flush exposed area with large amounts of water. If skin is damaged, seek immediate medical attention. If skin is not damaged and symptoms persist, seek medical attention. Launder clothing before reuse.

Ingestion

Seek medical attention. If individual is drowsy or unconscious, do not give anything by mouth; place individual on the left side with the head down. Contact a physician, medical facility, or poison control center for advice about whether to induce vomiting. If possible, do not leave individual unattended.

Inhalation

If symptoms develop, move individual away from exposure and into fresh air. If symptoms persist, seek medical attention. If breathing is difficult, administer oxygen. Keep person warm and quiet; seek immediate medical attention.

Notes to physician

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Hazards: Effects of acute ethylene glycol poisoning appear in three fairly distinct stages. The initial stage occurs shortly after exposure, lasts 6-12 hours, and is characterized by central nervous system effects (transient exhilaration, nausea, vomiting, and in severe cases, coma, convulsions, and possible death). The second stage lasts from 12-36 hours after exposure and is initiated by the onset of coma. This phase is characterized by tachypnea, tachycardia, mild hypotension, cyanosis, and in severe cases, pulmonary edema, bronchopneumonia, cardiac enlargement, and congestive failure. The final stage occurs 24-72 post-exposure and is characterized by renal failure, ranging from a mild increase in blood urea nitrogen and creatinine followed by recovery, to complete anuria with acute tubular necrosis that can lead to death. Oxaluria is found in most cases. The most significant laboratory finding in ethylene glycol intoxication is severe metabolic acidosis.

Treatment: This product contains ethylene glycol. Ethanol decreases the metabolism of ethylene glycol to toxic metabolites. Ethanol should be administered as soon as possible in cases of severe poisoning since the elimination half-life of ethylene glycol is 3 hours. If medical care will be delayed several hours, give the patient three to four 1-ounce oral "shots" of 86-proof or higher whiskey before or during transport to the hospital. Fomepizole (4-methylpyrazole) is an effective antagonist of alcohol dehydrogenase, and as such, may be used as an antidote in the treatment of ethylene glycol poisoning. Hemodialysis effectively removes ethylene glycol and its metabolites from the body.

5. FIRE-FIGHTING MEASURES

Suitable extinguishing media

Water spray, Dry chemical, Carbon dioxide (CO2)

Hazardous combustion products

carbon dioxide and carbon monoxide, various hydrocarbons

Precautions for fire-fighting

Never use welding or cutting torch on or near drum (even empty) because product (even just residue) can ignite explosively. Wear full firefighting turn-out gear (full Bunker gear), and respiratory protection (SCBA). DO NOT direct a solid stream of water or foam into hot, burning pools of liquid since this may cause frothing and increase fire intensity. Frothing can be violent and possibly endanger any firefighter standing too close to the burning liquid. Use water spray to cool fire exposed containers and structures until fire is out if it can be done with minimal risk. Avoid spreading burning liquid with water used for cooling purposes.

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Flammability Class for Flammable Liquids
Combustible Liquid Class IIIB

6. ACCIDENTAL RELEASE MEASURES

Personal precautions

For personal protection see section 8. Persons not wearing protective equipment should be excluded from area of spill until clean-up has been completed.

Environmental precautions

Prevent spreading over a wide area (e.g. by containment or oil barriers). Do not let product enter drains. Do not flush into surface water or sanitary sewer system.

Methods for cleaning up

Keep in suitable, closed containers for disposal. Soak up with inert absorbent material (e.g. sand, silica gel, acid binder, universal binder, sawdust).

Other information

Comply with all applicable federal, state, and local regulations.

7. HANDLING AND STORAGE

Handling

Containers of this material may be hazardous when emptied. Since emptied containers retain product residues (vapor, liquid, and/or solid), all hazard precautions given in the data sheet must be observed. Containers of this material may be hazardous when emptied. Since emptied containers retain product residues (vapor, liquid, and/or solid), all hazard precautions given in the data sheet must be observed.

Storage

Store in a cool, dry, ventilated area.

8. EXPOSURE CONTROLS/PERSONAL PROTECTION

Exposure Guidelines

ETHYLENE GLYCOL

107-21-1

ACGIH

Ceiling Limit Value:

100 mg/m³

Aerosol.

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General advice

These recommendations provide general guidance for handling this product. Personal protective equipment should be selected for individual applications and should consider factors which affect exposure potential, such as handling practices, chemical concentrations and ventilation. It is ultimately the responsibility of the employer to follow regulatory guidelines established by local authorities.

Exposure controls

General room ventilation should be adequate for normal conditions of use. However, if unusual operating conditions exist, provide sufficient mechanical (general and/or local exhaust) ventilation to maintain exposure below exposure guidelines (if applicable) or below levels that cause known, suspected or apparent adverse effects.

Eye protection

Wear chemical splash goggles when there is the potential for exposure of the eyes to liquid, vapor or mist.

Skin and body protection

Wear normal work clothing including long pants, long-sleeved shirts and foot covering to prevent direct contact of the product with the skin. Launder clothing before reuse. If skin irritation develops, contact your facility health and safety professional or your local safety equipment supplier to determine the proper personal protective equipment for your use.

Wear resistant gloves such as:

- Neoprene
- polyvinyl chloride
- Nitrile rubber

Respiratory protection

Respiratory protection is not required under normal conditions of use.

9. PHYSICAL AND CHEMICAL PROPERTIES

Physical state	liquid
Form	No data
Colour	green
Odour	No data
Boiling point/boiling range	330.00 °F / 330 °F@ 760.00 mmHg
pH	(+/- 0.7) 10.7

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Flash point 250 °F / 121 °C
Evaporation rate No data
Explosion limits 3.2 %(V) 15.3 %(V)
Vapour pressure 23.33 hPa @ 68 °F / 20 °C
Vapour density No data
Density (Average) 1.236 g/cm³ @ 60.01 °F / 15.56 °C
9.41 lb/gal @ 60.1 °F / 15.6 °C
Solubility soluble in water
Partition coefficient: n-octanol/water No data
log Pow no data available
Autoignition temperature No data

10. STABILITY AND REACTIVITY

Stability

Stable.

Conditions to avoid

None known.

Incompatible products

Strong oxidizing agents

Hazardous decomposition products

carbon dioxide and carbon monoxide, various hydrocarbons

Hazardous reactions

Product will not undergo hazardous polymerization.

Thermal decomposition

No data

11. TOXICOLOGICAL INFORMATION

Acute oral toxicity

ETHYLENE GLYCOL	LD 50 Rat: 6,140 mg/kg
DIETHYLENE GLYCOL	LD 50 Rat: 12,565 mg/kg
INORGANIC SALT	LD 50 Rat: > 500 mg/kg

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Acute inhalation toxicity

ETHYLENE GLYCOL	no data available
DIETHYLENE GLYCOL	LC Lo Mouse: 130 mg/m ³ , 2 h
INORGANIC SALT	no data available

Acute dermal toxicity

ETHYLENE GLYCOL	LD 50 Rabbit: 9,530 mg/kg
DIETHYLENE GLYCOL	LD 50 Rabbit: 11,890 mg/kg
INORGANIC SALT	LD 50 Rabbit: > 300 mg/kg

12. ECOLOGICAL INFORMATION

Aquatic toxicity

Acute and Prolonged Toxicity to Fish

No data

Acute Toxicity to Aquatic Invertebrates

No data

Environmental fate and pathways

No data

13. DISPOSAL CONSIDERATIONS

Waste disposal methods

Destroy by liquid incineration. Dispose of in accordance with all applicable local, state and federal regulations. For assistance with your waste management needs - including disposal, recycling and waste stream reduction, contact Ashland Distribution's Environmental Services Group at 800-637-7922.

14. TRANSPORT INFORMATION

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Dangerous goods descriptions (if indicated above) may not reflect quantity, end-use or region-specific exceptions that can be applied. Consult shipping documents for descriptions that are specific to the shipment.

15. REGULATORY INFORMATION

California Prop. 65

Proposition 65 warnings are not required for this product based on the results of a risk assessment.

SARA Hazard Classification Acute Health Hazard

SARA 313 Component(s)

ETHYLENE GLYCOL	107-21-1	95.01%
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New Jersey RTK Label Information

ETHYLENE GLYCOL	107-21-1
DIETHYLENE GLYCOL	111-46-6
WATER	7732-18-5
INORGANIC SALT	NJTS 254504001-5237

Pennsylvania RTK Label Information

ETHYLENE GLYCOL	107-21-1
DIETHYLENE GLYCOL	111-46-6

Reportable quantity - Product

US. EPA CERCLA Hazardous Substances (40 CFR 302)	5262 lbs
--	----------

Reportable quantity - Components

ETHYLENE GLYCOL	107-21-1	5000 lbs
DIETHYLENE GLYCOL	111-46-6	none
INORGANIC SALT	NJTS# 254504001-5237	none

	Health	Flammability	Reactivity	Other
HMIS	2*	1	0	
NFPA	1	1	0	

16. OTHER INFORMATION

ASHLAND
SAFETY DATA SHEET

Page: 10
Revision Date: 11/12/2009
Print Date: 1/27/2011
MSDS Number: R0311762
Version: 2.5

NAPA® ANTIFREEZE COOLANT
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The information accumulated herein is believed to be accurate but is not warranted to be whether originating with the company or not. Recipients are advised to confirm in advance of need that the information is current, applicable, and suitable to their circumstances. This MSDS has been prepared by Ashland's Environmental Health and Safety Department (1-800-325-3751).

1. IDENTIFICATION

Product Name Nashua 357 Spray Adhesive

Recommended use of the chemical and restrictions on use

Identified uses Spray Adhesive

Company Identification Berry Plastics Corporation
25 Forge Parkway
Franklin, MA 02038

Customer Information Number (800) 248-7659 (Monday – Friday 8:00 am to 5:00 pm)
msdstechical@berryplastics.com

Emergency Telephone Number

Chemtrec Number Within USA and Canada: 1-800-424-9300 CCN22955
Outside USA and Canada: +1 703-741-5970 (collect calls accepted)

Issue Date May 6, 2014

Supersedes Date May 29, 2013

Safety Data Sheet prepared in accordance with OSHA's Hazard Communication Standard (29 CFR 1910.1200) and the Globally Harmonized System of Classification and Labelling of Chemicals (GHS)

2. HAZARD IDENTIFICATION

Hazard Classification

Flammable Aerosols - Category 1
Serious eye damage/eye irritation - Category 2A
Skin corrosion/irritation - Category 2
Specific Target Organ Toxicity Repeat Exposure - Category 2
Specific Target Organ Toxicity Single Exposure - Category 3
Toxic to Reproduction - Category 2
Aspiration hazard - Category 1

Label Elements

Hazard Symbols



Signal Word: Danger

Hazard Statements

Extremely flammable aerosol.
Causes serious eye irritation.
Causes skin irritation.
May cause drowsiness or dizziness
May cause damage to organs (nervous system) through prolonged or repeated exposure (Inhalation).
May be fatal if swallowed and enters airways.

2. HAZARD IDENTIFICATION

Precautionary Statements**Prevention**

Pressurized container: Do not pierce or burn, even after use.
Do not spray on an open flame or other ignition source.
Keep away from heat/sparks/open flame/hot surfaces. - No smoking.
Wear eye protection/face protection/protective gloves/protective clothing.
Do not handle until all safety precautions have been read and understood.
Obtain special instructions before use.
Avoid breathing fume/gas/mist/vapors/spray.
Wash hands thoroughly after handling.
Use only outdoors or in a well-ventilated area.

Response

If swallowed: Immediately call a poison center/doctor/physician. Do not induce vomiting.
If in eyes: Rinse cautiously with water for several minutes. Remove contact lenses, if present and easy to do. Continue rinsing.
If eye irritation persists, get medical advice/attention.
Take off contaminated clothing and wash before re-use.
If exposed or concerned: Get medical attention/advice.
If on skin: Wash with plenty of soap and water.
If skin irritation occurs, get medical advice/attention.
If inhaled: Remove person to fresh air and keep comfortable for breathing.
Call a poison center or doctor/physician if you feel unwell.

Storage

Protect from sunlight.
Store in a well-ventilated place. Keep container tightly closed.
Do not expose to temperatures exceeding 50 °C/122 °F.
Store locked up.

Disposal

Dispose of contents/container in accordance with local regulation.

Other Hazards

None identified.

2. HAZARD IDENTIFICATION

Specific Concentration Limits

The values listed below represent the percentages of ingredients of unknown toxicity.

Acute oral toxicity	55 - 65 %
Acute dermal toxicity	55 - 65 %
Acute inhalation toxicity	70 - 80%
Acute aquatic toxicity	70 - 80%

3. COMPOSITION/INFORMATION ON INGREDIENTS

Synonyms:

This product is a mixture.

3. COMPOSITION/INFORMATION ON INGREDIENTS

Component	CAS Number	Concentration
Acetone	67-64-1	20 - 30%
n-Hexane	110-54-3	10 - 20%
Dimethyl Ether	115-10-6	10 - 20%
Propane	74-98-6	10 - 20%
2-methylpentane	107-83-5	1 - 10%
3-methylpentane	96-14-0	1 - 10%

4. FIRST- AID MEASURES

Description of necessary first-aid measures**Eyes**

Immediately flood the eye with plenty of water for at least 15 minutes, holding the eye open. Obtain medical attention if soreness or redness persists.

Skin

Immediately flood the skin with large quantities of water for at least 15 minutes, preferably under a shower. Remove contaminated clothing and continue washing. Contaminated clothing should be washed or dry-cleaned before re-use. Obtain medical attention if blistering occurs or redness persists.

Ingestion

Do not induce vomiting. Have victim drink 1-3 glasses of water to dilute stomach contents. If there is difficulty in breathing, give oxygen. Obtain medical attention immediately. Never give anything by mouth to an unconscious or convulsing person.

Inhalation

Remove from exposure. If there is difficulty in breathing, give oxygen. Obtain medical attention immediately.

Most important symptoms/effects, acute and delayed

Aside from the information found under Description of necessary first aid measures (above) and Indication of immediate medical attention and special treatment needed, no additional symptoms and effects are anticipated.

Indication of immediate medical attention and special treatment needed**Notes to Physicians**

Treat symptomatically.

5. FIRE - FIGHTING MEASURES

Suitable Extinguishing Media

Use foam, dry chemical or carbon dioxide. Be aware of the possibility of re-ignition. Keep containers and surroundings cool with water spray.

Specific hazards arising from the chemical

Vapors can travel a considerable distance to a source of ignition and flashback. Flashback can occur if air temperature exceeds flash point. Be aware of possibility of re-ignition. For aerosol products – exposure to temperature over 130°F may cause containers to burst and release highly flammable gas.

Special Protective Actions for Fire-Fighters

Wear full protective clothing and self-contained breathing apparatus.

6. ACCIDENTAL RELEASE MEASURES

Personal precautions, protective equipment and emergency procedures

Wear appropriate protective clothing. Eliminate all sources of ignition. Use non-sparking scoops for flammable materials.

Environmental Precautions

Prevent the material from entering drains or watercourses. Notify authorities if spill has entered watercourse or sewer or has contaminated soil or vegetation. Dispose in accordance with federal, state and local regulations.

Methods and materials for containment and cleaning up

Contain and absorb using earth, sand or other inert material. Transfer into suitable containers for recovery or disposal.

7. HANDLING AND STORAGE

Precautions for safe handling

Keep from reach of children. Do not puncture, incinerate or place aerosol product containers in compactors. Use in well ventilated area. Use local exhaust ventilation. Avoid inhaling vapor. Avoid contact with eyes, skin and clothing. Keep container tightly closed when not in use. Do not flame cut, braze or use welding torch on container. Intentional misuse by deliberately concentrating or inhaling the vapors from this product may be harmful or fatal.

Conditions for safe storage

Store away from sources of heat or ignition. Storage area should be: cool - dry - well ventilated - away from incompatible materials - out of direct sunlight - away from sources of ignition (heat, sparks, flames, and pilot lights) Do not store above 120°F.

8. EXPOSURE CONTROLS/PERSONAL PROTECTION

Control parameters

Exposure limits are listed below, if they exist.

Hexane

ACGIH: TLV 50ppm 8h TWA. (skin)

OSHA: PEL 500ppm (1800 mg/m³) 8h TWA.

Can be absorbed through skin.

Acetone

ACGIH: TLV 500 ppm 8h TWA.

ACGIH (STEL): 750 ppm 15min.

OSHA: PEL 1000 ppm (2400 mg/m³) 8h TWA.

Propane

ACGIH: See ACGIH Appendix F: Minimal Oxygen Content.

OSHA: PEL 1000ppm (1800 mg/m³) 8h TWA.

2-Methylpentane as Hexane, Isomers other than n-Hexane

ACGIH: TLV 500 ppm 8h TWA.

ACGIH (STEL): 1000 ppm 15min

3-Methylpentane as Hexane, Isomers other than n-Hexane

ACGIH: TLV 500 ppm 8h TWA.

ACGIH (STEL): 1000 ppm 15min

8. EXPOSURE CONTROLS/PERSONAL PROTECTION

Appropriate engineering controls

Engineering methods to prevent or control exposure are preferred. Methods include process or personnel enclosure, mechanical ventilation (dilution and local exhaust), and control of process conditions.

Individual protection measures**Respiratory Protection**

Wear respiratory protection if there is a risk of exposure to high vapor concentrations, aerosols or if applied to hot surfaces. The specific respirator selected must be based on the airborne concentration found in the workplace and must not exceed the working limits of the respirator.

Skin Protection

Butyl gloves are recommended.

Eye/Face Protection

Chemical goggles or safety glasses with side shields.

Body Protection

If there is danger of splashing, wear: overall or apron

9. PHYSICAL AND CHEMICAL PROPERTIES

Appearance

	Physical State	Aerosol
	Color	No data available
Odor		No data available
Odor Threshold		No data available
pH		Not applicable
Specific Gravity		0.703 estimated
Boiling Range/Point (°C/F)		Not determined
Melting Point (°C/F)		Not determined
Flash Point (PMCC) (°C/F)		-104.44 °C/-156°F Propellant estimated
Vapor Pressure		Not determined
Evaporation Rate		Faster than butyl acetate
Solubility in Water		No data available
Vapor Density (Air = 1)		Heavier than air
VOC (g/l)		No data available
VOC (%)		No data available
Partition coefficient (n-octanol/water)		Not applicable
Viscosity		No data available
Auto-ignition Temperature		No data available
Decomposition Temperature		No data available
Upper explosive limit		No data available
Lower explosive limit		No data available
Flammability (solid, gas)		No data available

10. STABILITY AND REACTIVITY

Reactivity

Data is not available

Chemical Stability

Stable under normal conditions.

Possibility of hazardous reactions

Hazardous polymerization will not occur.

Conditions to Avoid

Heat, sparks, flames - contact with incompatible materials

Incompatible Materials

Strong oxidizers

Hazardous Decomposition Products

Oxides of carbon - aldehydes

11. TOXICOLOGICAL INFORMATION

Acute ToxicityAcetone

Oral LD50 (rat) 5800 mg/kg

Dermal LD50 (rabbit) 20,000 mg/kg

Inhalation LC50 (rat) 76 mg/l 4hr

n-Hexane

Oral LD50 (rat) >16,000 mg/kg

Dermal LD50 (rabbit) >2000 mg/kg

Specific Target Organ Toxicity (STOT) – single exposure

Inhalation of this product may cause narcotic effects such as drowsiness or dizziness (Hexane, Acetone, 2-methylpentane, 3-methylpentane).

Specific Target Organ Toxicity (STOT) – repeat exposure

Hexane: May cause adverse effects to the nervous system through repeated inhalation exposure..

Serious Eye damage/Irritation

Acetone: Undiluted acetone was severely irritating to rabbit eyes, mild irritation was observed for acetone concentrations of 30% and lower.

Hexane: Not irritating to eyes in rabbit studies.

Skin Corrosion/Irritation

Acetone: Repeated exposure may cause skin dryness and cracking.

Hexane: Irritating to skin in animal studies.

2-methylpentane: May cause skin irritation.

3-methylpentane: May cause skin irritation.

Respiratory or Skin Sensitization

Acetone: No indications of a sensitizing potential of acetone were found in a guinea pig maximization test.

Hexane: Not sensitizing to skin in Mouse local lymph node assay (LLNA)

11. TOXICOLOGICAL INFORMATION

Carcinogenicity

Not considered carcinogenic by NTP, IARC, and OSHA.

Germ Cell Mutagenicity

Available data indicates this product is not expected to be mutagenic.

Reproductive Toxicity

Hexane: In animal studies adverse reproductive and developmental effects were seen.

Aspiration Hazard

Available data indicates this product may be an aspiration hazard. May be fatal if swallowed and enters airways.

12. ECOLOGICAL INFORMATION

Ecotoxicity

Hexane: Aquatic Chronic 2: Toxic to aquatic life with long lasting effects. (ECHA)

2-methylpentane: Aquatic Chronic 2: Toxic to aquatic life with long lasting effects. (ECHA)

3-methylpentane: Aquatic Chronic 2: Toxic to aquatic life with long lasting effects. (ECHA)

Mobility in soil

No relevant studies identified.

Persistence/Degradability

No relevant studies identified.

Bioaccumulative Potential

No relevant studies identified.

Other adverse effects

No relevant studies identified.

13. DISPOSAL CONSIDERATIONS

Disposal Methods

Dispose of in accordance with all applicable local and national regulations. Labels should not be removed from containers until they have been cleaned. Do not cut, puncture or weld on or near to the container. Use non-sparking tools. Do not incinerate closed containers. Empty containers may contain hazardous residues. Dispose of containers with care.

14. TRANSPORT INFORMATION

DOT CFR 172.101 Data	Consumer Commodity, ORM-D (US ground shipment only)
UN Proper Shipping Name	Aerosols
UN Class	(2.1)
UN Number	UN1950
UN Packaging Group	None
Classification for AIR Transportation (IATA)	Consult current IATA Regulations prior to shipping by air.
Environmental Hazards	Not a marine pollutant

15. REGULATORY INFORMATION

United States TSCA Inventory

All ingredients have been verified for inclusion or are exempt from listing on the EPA Toxic Substance Control Act Chemical Substance Inventory.

Canada DSL and NDSL Inventory

All ingredients in this product have been verified for inclusion or are exempt from listing on the Domestic Substance List (DSL).

WHMIS Classification

B5. D.2 A

This product was classified in accordance with the hazard criteria of the Canadian Controlled Products Regulations and the MSDS contains all the information required by these regulations.

California Proposition 65

This product does not contain materials which the State of California has found to cause cancer, birth defects or other reproductive harm.

SARA Title III Sect. 311/312 Categorization

Immediate (Acute) Health Hazard, Delayed (Chronic) Health Hazard, Fire Hazard, Sudden Release of Pressure

SARA Title III Sect. 313

This product contains a chemical that is listed in Section 313 at or above de minimis concentrations. The following listed chemicals are present: Hexane (110-54-3)

16. OTHER INFORMATION

NFPA Ratings

NFPA Code for Health - 2
NFPA Code for Flammability - 4
NFPA Code for Reactivity - 0
NFPA Code for Special Hazards - None

HMIS Ratings

HMIS Code for Health - 2*
HMIS Code for Flammability - 4
HMIS Code for Physical Hazard - 0
HMIS Code for Personal Protection - See Section 8
*Chronic

Legend

ACGIH: American Conference of Governmental Industrial Hygienists
CAS#: Chemical Abstracts Service Number
ECHA: European Chemicals Agency
EC50: Effect Concentration 50%
IARC: International Agency for Research on Cancer
LC50: Lethal Concentration 50%
LD50: Lethal Dose 50%
N/A: Denotes no applicable information found or available
OSHA: Occupational Safety and Health Administration
PEL: Permissible Exposure Limit
STEL: Short Term Exposure Limit

16. OTHER INFORMATION

TLV: Threshold Limit Value
TSCA: Toxic Substance Control Act

Information Source and References

This SDS is prepared by Hazard Communication Specialists based on information provided by internal company references.

Prepared By: EnviroNet LLC.

The information and recommendations presented in this SDS are based on sources believed to be accurate. Berry Plastics Corporation assumes no liability for the accuracy or completeness of this information. It is the user's responsibility to determine the suitability of the **material** for their particular purposes. In particular, we make **NO WARRANTY OF MERCHANTABILITY OR ANY OTHER WARRANTY, EXPRESS OR IMPLIED**, with respect to such information, and we assume no liability resulting from its use. Users should ensure that any use **or disposal** of the material is in accordance with applicable Federal, State, and local laws and regulations.

Section 1 Identification.

Product name:

NOCO® NCP-2 Battery Corrosion Preventative

Product code:

NW728289

Other means of identification: Not available.

Product type: Aerosol

Relevant identified uses of the substance or mixture and uses advised against: Not applicable.

Manufacturer: For Balkamp by The NOCO Company Glenwillow, OH 44139

Emergency telephone number of the company: (800) 424-9300

Section 2 Hazards identification.

OSHA/HCS status: This material is considered hazardous by the OSHA Hazard Communication Standard (29 CFR 1910.1200).

Product code: FLAMMABLE AEROSOLS - Category 1
 GASES UNDER PRESSURE - Compressed gas
 ACUTE TOXICITY (inhalation) - Category 4
 SKIN CORROSION/IRRITATION - Category 2
 SERIOUS EYE DAMAGE/ EYE IRRITATION - Category 2A
 CARCINOGENICITY - Category 2
 SPECIFIC TARGET ORGAN TOXICITY (SINGLE EXPOSURE) (Respiratory tract irritation and Narcotic effects) - Category 3
 SPECIFIC TARGET ORGAN TOXICITY (REPEATED EXPOSURE) - Category 2
 ASPIRATION HAZARD - Category 1
 Percentage of the mixture consisting of ingredient(s) of unknown toxicity: 55%

GHS label elements:

Hazard pictograms:



Signal word: Danger.

Hazard statements: Extremely flammable aerosol.
 Contains gas under pressure; may explode if heated.
 Harmful if inhaled.
 Causes serious eye irritation.
 Causes skin irritation.
 Suspected of causing cancer.
 May be fatal if swallowed and enters airways.

May cause respiratory irritation.
May cause drowsiness and dizziness.
May cause damage to organs through prolonged or repeated exposure.

Precautionary statements:

- General:** Read label before use. Keep out of reach of children. If medical advice is needed, have product container or label at hand.
- Prevention:** Obtain special instructions before use. Do not handle until all safety precautions have been read and understood. Use personal protective equipment as required. Wear protective gloves. Wear eye or face protection. Keep away from heat, hot surfaces, sparks, open flames and other ignition sources. No smoking. Pressurized container: Do not pierce or burn, even after use. Do not spray on an open flame or other ignition source. Use only outdoors or in a well-ventilated area. Do not breathe dust or mist. Wash hands thoroughly after handling.
- Response:** Get medical attention if you feel unwell. IF exposed or concerned: Get medical attention. IF INHALED: Remove victim to fresh air and keep at rest in a position comfortable for breathing. Call a POISON CENTER or physician if you feel unwell. IF SWALLOWED: Immediately call a POISON CENTER or physician. Do NOT induce vomiting. IF ON SKIN: Wash with plenty of soap and water. Take off contaminated clothing. Wash contaminated clothing before reuse. If skin irritation occurs: Get medical attention. IF IN EYES: Rinse cautiously with water for several minutes. Remove contact lenses, if present and easy to do. Continue rinsing. If eye irritation persists: Get medical attention.
- Storage:** Store locked up. Protect from sunlight. Do not expose to temperatures exceeding 50 °C/122 °F. Store in a well-ventilated place.
- Disposal:** Dispose of contents and container in accordance with all local, regional, national and international regulations.

Supplemental label elements: DELAYED EFFECTS FROM LONG TERM OVEREXPOSURE. Contains solvents which can cause permanent brain and nervous system damage. Intentional misuse by deliberately concentrating and inhaling the contents can be harmful or fatal. WARNING: This product contains chemicals known to the State of California to cause cancer and birth defects or other reproductive harm. FOR INDUSTRIAL USE ONLY.
Please refer to the SDS for additional information. Keep upright in a cool, dry place. Do not discard empty can in trash compactor.

Hazards not otherwise classified: None known.

Section 3 Composition/information on ingredients.

Substance/mixture: Mixture.

Other means of identification: Not available.

CAS number/other identifiers:

Ingredient name	% by weight	CAS Number
Paraffin oil	33.8	64742-62-7
Acetone	20.0	67-64-1
Propane	15.0	74-98-6
Xylene	12.7	1330-20-7
Methyl Ethyl Ketone	10.0	78-93-3
Ethylbenzene	2.3	100-41-4

There are no additional ingredients present which, within the current knowledge of the supplier and in the concentrations applicable, are classified as hazardous to health of the environment and hence require reporting in this section. Occupational exposure limits, if available, are listed in Section 8.

Section 4 First aid measures.

Description of necessary first aid measures:

- Eye contact:** Immediately flush eyes with plenty of water, occasionally lifting the upper and lower eyelids. Check for and remove any contact lenses. Continue to rinse for at least 10 minutes. Get medical attention.
- Inhalation:** Remove victim to fresh air and keep at rest in a position comfortable for breathing. If it is suspected that fumes are still present, the rescuer should wear an appropriate mask or self-contained breathing apparatus. If not breathing, if breathing is irregular or if respiratory arrest occurs, provide artificial respiration or oxygen by trained personnel. It may be dangerous to the person providing aid to give mouth-to-mouth resuscitation. Get medical attention. If necessary, call a poison center or physician. If unconscious, place in recovery position and get medical attention immediately. Maintain an open airway. Loosen tight clothing such as a collar, tie, belt or waistband.
- Skin contact:** Flush contaminated skin with plenty of water. Remove contaminated clothing and shoes. Continue to rinse for at least 10 minutes. Get medical attention. Wash clothing before reuse. Clean shoes thoroughly before reuse.
- Ingestion:** Get medical attention immediately. Call a poison center or physician. Wash out mouth with water. Remove dentures if any. Remove victim to fresh air and keep at rest in a position comfortable for breathing. If material has been swallowed and the exposed person is conscious, give small quantities of water to drink. Stop if the exposed person feels sick as vomiting may be dangerous. Aspiration hazard if swallowed. Can enter lungs and cause damage. Do not induce vomiting. If vomiting occurs, the head should be kept low so that vomit does not enter the lungs. Never give anything by mouth to an unconscious person. If unconscious, place in recovery position and get medical attention immediately. Maintain an open airway. Loosen tight clothing such as a collar, tie, belt or waistband.

Description of necessary first aid measures:

- Eye contact:** Causes serious eye irritation.
- Inhalation:** Harmful if inhaled. Can cause central nervous system (CNS) depression. May cause drowsiness and dizziness. May cause respiratory irritation.

Most important symptoms/effects, acute and delayed.

Potential acute health effects:

Skin contact: Causes skin irritation.

Ingestion: Can cause central nervous system (CNS) depression. May be fatal if swallowed and enters airways. Irritating to mouth, throat and stomach.

Over-exposure signs/symptoms:

Eye contact: Adverse symptoms may include the following:
pain or irritation
watering
redness

Inhalation: Adverse symptoms may include the following:
respiratory tract irritation
coughing
nausea or vomiting
headache
drowsiness/fatigue
dizziness/vertigo
unconsciousness

Skin contact: Adverse symptoms may include the following:
irritation
redness

Ingestion: Adverse symptoms may include the following:
nausea of vomiting

Indication of immediate medical attention and special treatment needed, if necessary.

Notes to physician: Treat symptomatically. Contact poison treatment specialist immediately if large quantities have been ingested or inhaled.

Specific treatments: No specific treatment.

Protection of first-aiders: No action shall be taken involving any personal risk or without suitable training. If it is suspected that fumes are still present, the rescuer should wear an appropriate mask or self-contained breathing apparatus. It may be dangerous to the person providing aid to give mouth-to-mouth resuscitation.

Section 5 Fire-fighting measures.

Extinguishing media:

Suitable extinguishing media: Use an extinguishing agent suitable for the surrounding fire.

Unsuitable extinguishing media: None known.

Specific hazards arising from the chemical:	Extremely flammable aerosol. In a fire or if heated, a pressure increase will occur and the container may burst, with the risk of a subsequent explosion. Gas may accumulate in low or confined areas or travel a considerable distance to a source of ignition and flash back, causing fire or explosion. Bursting aerosol containers may be propelled from a fire at high speed. Runoff to sewer may create fire or explosion hazard.
Hazardous thermal decomposition products:	Decomposition products may include the following materials: carbon dioxide carbon monoxide
Special protective actions for fire-fighters:	Promptly isolate the scene by removing all persons from the vicinity of the incident if there is a fire. No action shall be taken involving any personal risk or without suitable training. Move containers from fire area if this can be done without risk. Use water spray to keep fire-exposed containers cool.
Special protective equipment for fire-fighters:	Fire-fighters should wear appropriate protective equipment and self-contained breathing apparatus (SCBA) with a full face-piece operated in positive pressure mode.

Section 6 Accidental release measures.

Personal precautions, protective equipment and emergency procedures:

- For non-emergency personnel: No action shall be taken involving any personal risk or without suitable training. Evacuate surrounding areas. Keep unnecessary and unprotected personnel from entering. In the case of aerosols being ruptured, care should be taken due to the rapid escape of the pressurized contents and propellant. If a large number of containers are ruptured, treat as a bulk material spillage according to the instructions in the clean-up section. Do not touch or walk through spilled material. Shut off all ignition sources. No flares, smoking or flames in hazard area. Avoid breathing vapor or mist. Provide adequate ventilation. Wear appropriate respirator when ventilation is inadequate. Put on appropriate personal protective equipment.
- For emergency responders: If specialized clothing is required to deal with the spillage, take note of any information in Section 8 on suitable and unsuitable materials. See also the information in "For non-emergency personnel."
- Environmental precautions: Avoid dispersal of spilled material and runoff and contact with soil, waterways, drains and sewers. Inform the relevant authorities if the product has caused environmental pollution (sewers, waterways, soil or air).

Methods and materials for containment and cleaning up:

- Small spill: Stop leak if without risk. Move containers from spill area. Use spark-proof tools and explosion-proof equipment. Dilute with water and mop up if water-soluble. Alternatively, or if water-insoluble, absorb with an inert dry material and place in an appropriate waste disposal container. Dispose of via a licensed waste disposal contractor.

Large spill: Stop leak if without risk. Move containers from spill area. Use spark-proof tools and explosion-proof equipment. Approach release from upwind. Prevent entry into sewers, water courses, basements or confined areas. Wash spillages into an effluent treatment plant or proceed as follows. Contain and collect spillage with non-combustible, absorbent material e.g. sand, earth, vermiculite or diatomaceous earth and place in container for disposal according to local regulations (see Section 13). Dispose of via a licensed waste disposal contractor. Contaminated absorbent material may pose the same hazard as the spilled product. Note: see Section 1 for emergency contact information and Section 13 for waste disposal.

Environmental precautions: Avoid dispersal of spilled material and runoff and contact with soil, waterways, drains and sewers. Inform the relevant authorities if the product has caused environmental pollution (sewers, waterways, soil or air).

Section 7 Handling and storage.

Precautions for safe handling:

Protective measures: Put on appropriate personal protective equipment (see Section 8). Pressurized container: protect from sunlight and do not expose to temperatures exceeding 50°C. Do not pierce or burn, even after use. Avoid exposure - obtain special instructions before use. Do not handle until all safety precautions have been read and understood. Do not get in eyes or on skin or clothing. Do not breathe vapor or mist. Do not swallow. Avoid breathing gas. Use only with adequate ventilation. Wear appropriate respirator when ventilation is inadequate. Store and use away from heat, sparks, open flame or any other ignition source. Use explosion-proof electrical (ventilating, lighting and material handling) equipment. Use only non-sparking tools. Empty containers retain product residue and can be hazardous.

Advice on general occupational hygiene: Eating, drinking and smoking should be prohibited in areas where this material is handled, stored and processed. Workers should wash hands and face before eating, drinking and smoking. Remove contaminated clothing and protective equipment before entering eating areas. See also Section 8 for additional information on hygiene measures.

Conditions for safe storage, including any incompatibilities: Store in accordance with local regulations. Store away from direct sunlight in a dry, cool and well-ventilated area, away from incompatible materials (see Section 10) and food and drink. Protect from sunlight. Store locked up. Eliminate all ignition sources. Use appropriate containment to avoid environmental contamination.

Section 8 Exposure controls/personal protection.

Control parameters, occupational exposure limits:

Paraffin Oil

ACGIH TLV (United States, 6/2013).

TWA: 5 mg/m³ 8 hours. Form: Inhalable fraction

NIOSH REL (United States, 10/2013).

TWA: 5 mg/m³ 10 hours. Form: Mist

STEL: 10 mg/m³ 15 minutes. Form: Mist

OSHA PEL (United States, 2/2013).

TWA: 5 mg/m³ 8 hours.

Acetone: ACGIH TLV (United States, 6/2013).
TWA: 500 ppm 8 hours.
TWA: 1188 mg/m³ 8 hours.
STEL: 750 ppm 15 minutes.
STEL: 1782 mg/m³ 15 minutes.
NIOSH REL (United States, 10/2013).
TWA: 250 ppm 10 hours.
TWA: 590 mg/m³ 10 hours.
OSHA PEL (United States, 2/2013).
TWA: 1000 ppm 8 hours.
TWA: 2400 mg/m³ 8 hours.

Propane: NIOSH REL (United States, 10/2013).
TWA: 1000 ppm 10 hours.
TWA: 1800 mg/m³ 10 hours.
OSHA PEL (United States, 2/2013).
TWA: 1000 ppm 8 hours.
TWA: 1800 mg/m³ 8 hours.

Xylene: ACGIH TLV (United States, 6/2013).
TWA: 100 ppm 8 hours.
TWA: 434 mg/m³ 8 hours.
STEL: 150 ppm 15 minutes.
STEL: 651 mg/m³ 15 minutes.
OSHA PEL (United States, 2/2013).
TWA: 100 ppm 8 hours.
TWA: 435 mg/m³ 8 hours.

Methyl Ethyl Ketone: ACGIH TLV (United States, 6/2013).
TWA: 200 ppm 8 hours.
TWA: 590 mg/m³ 8 hours.
STEL: 300 ppm 15 minutes.
STEL: 885 mg/m³ 15 minutes.
NIOSH REL (United States, 10/2013).
TWA: 200 ppm 10 hours.
TWA: 590 mg/m³ 10 hours.
STEL: 300 ppm 15 minutes.
STEL: 885 mg/m³ 15 minutes.
OSHA PEL (United States, 2/2013).
TWA: 200 ppm 8 hours.
TWA: 590 mg/m³ 8 hours.

Ethylbenzene: ACGIH TLV (United States, 6/2013).
TWA: 20 ppm 8 hours.
NIOSH REL (United States, 10/2013).
TWA: 100 ppm 10 hours.
TWA: 435 mg/m³ 10 hours.
STEL: 125 ppm 15 minutes.
STEL: 545 mg/m³ 15 minutes.
OSHA PEL (United States, 2/2013).
TWA: 100 ppm 8 hours.
TWA: 435 mg/m³ 8 hours.

Appropriate engineering controls: Use only with adequate ventilation. Use process enclosures, local exhaust ventilation or other engineering controls to keep worker exposure to airborne contaminants below any recommended or statutory limits. The engineering controls also need to keep gas, vapor or dust concentrations below any lower explosive limits. Use explosion-proof ventilation equipment.

Environmental exposure controls: Emissions from ventilation or work process equipment should be checked to ensure they comply with the requirements of environmental protection legislation. In some cases, fume scrubbers, filters or engineering modifications to the process equipment will be necessary to reduce emissions to acceptable levels.

Individual protection measures:

Hygiene measures: Wash hands, forearms and face thoroughly after handling chemical products, before eating, smoking and using the lavatory and at the end of the working period. Appropriate techniques should be used to remove potentially contaminated clothing. Wash contaminated clothing before reusing. Ensure that eyewash stations and safety showers are close to the workstation location.

Eye/face protection: Safety eyewear complying with an approved standard should be used when a risk assessment indicates this is necessary to avoid exposure to liquid splashes, mists, gases or dusts. If contact is possible, the following protection should be worn, unless the assessment indicates a higher degree of protection: chemical splash goggles.

Skin protection:

Hand protection: Chemical-resistant, impervious gloves complying with an approved standard should be worn at all times when handling chemical products if a risk assessment indicates this is necessary. Considering the parameters specified by the glove manufacturer, check during use that the gloves are still retaining their protective properties. It should be noted that the time to breakthrough for any glove material may be different for different glove manufacturers. In the case of mixtures, consisting of several substances, the protection time of the gloves cannot be accurately estimated.

Body protection: Personal protective equipment for the body should be selected based on the task being performed and the risks involved and should be approved by a specialist before handling this product. When there is a risk of ignition from static electricity, wear antistatic protective clothing. For the greatest protection from static discharges, clothing should include anti-static overalls, boots and gloves.

Other skin protection: Appropriate footwear and any additional skin protection measures should be selected based on the task being performed and the risks involved and should be approved by a specialist before handling this product.

Respiratory protection: Use a properly fitted, air-purifying or air-fed respirator complying with an approved standard if a risk assessment indicates this is necessary. Respirator selection must be based on known or anticipated exposure levels, the hazards of the product and the safe working limits of the selected respirator.

Section 9 Physical and chemical properties.

Appearance:

Physical state: Liquid.

Color: Not available.

Odor: Not available.

Odor threshold: Not available.

pH: Not available.

Melting point: Not available.

Boiling point: Not available.

Flash point: Closed cup: -29°C (-20.2°F) [Pensky-Martens Closed Cup]

Evaporation rate: 5.6 (butyl acetate = 1)

Flammability (solid, gas): Not available.

Lower and upper explosive (flammable) limits: Lower: 1%
Upper: 12.8%

Vapor pressure: 13.5 kPa (101.325 mm Hg) [at 20°C]

Vapor density: 1.55 [Air = 1]

Relative density: 0.76

Solubility: Not available.

Partition coefficient: Not available.
n-octanol/water

Auto-ignition temperature: Not available.

Decomposition temperature: Not available.

Viscosity: Kinematic (40°C (104°F)): <0.07 cm² /s (<7 cSt)

Aerosol product:

Type of aerosol: Spray

Heat of combustion: 32.91 kJ/g

Section 10 Stability and reactivity.

Reactivity: No specific test data related to reactivity available for this product or its ingredients.

Chemical stability: The product is stable.

Possibility of hazardous reactions: Under normal conditions of storage and use, hazardous reactions will not occur.

Conditions to avoid: Avoid all possible sources of ignition (spark or flame).

Incompatible materials: No specific data.

Hazardous decomposition products: Under normal conditions of storage and use, hazardous decomposition products should not be produced.

Section 11 Toxicological information.

Information on toxicological effects:

Acute toxicity:

Product/ ingredient name	Result	Species	Dose	Exposure
Acetone	LD50 Oral	Rat	5800 mg/kg	-
Xylene	LD50 Inhalation Gas	Rat	5000 ppm	4 hours
	LD50 Oral	Rat	4300 mg/kg	-
			6480 mg/kg	-
Methyl Ethyl Ketone	LD50 Dermal	Rabbit	2737 mg/kg	-
	LD50 Oral	Rat		
Ethylbenzene	LD50 Dermal	Rabbit	>5000 mg/kg	-
	LD50 Oral	Rat	3500 mg/kg	

Irritation/Corrosion:

Product/ ingredient name	Result	Species	Exposure
Acetone	Eyes- Mild irritant	Human	186300 parts per million
	Eyes- Mild irritant	Rabbit	10 microliters
	Eyes- Moderate irritant	Rabbit	24 hours 20 milligrams
	Eyes- Severe irritant	Rabbit	20 milligrams
	Skin- Mild irritant	Rabbit	24 hours 500 milligrams
	Skin- Mild irritant	Rabbit	395 milligrams
Xylene	Eyes- Mild irritant	Rabbit	87 milligrams
	Eyes- Severe irritant	Rabbit	24 hours 5 milligrams
	Skin- Mild irritant	Rat	8 hours 60 microliters
	Skin- Moderate irritant	Rabbit	24 hours 500 milligrams
	Skin- Moderate irritant	Rabbit	100 Percent
Methyl Ethyl Ketone	Skin- Mild irritant	Rabbit	24 hours 14 milligrams
	Skin- Moderate irritant	Rabbit	24 hours 500 milligrams
Ethylbenzene	Eyes- Severe irritant	Rabbit	500 milligrams
	Skin- Mild irritant	Rabbit	24 hours 15 milligrams

Sensitization:

Not available.

Mutagenicity:

Not available.

Carcinogenicity:

Not available.

Classification:

Product/ ingredient name	OSHA	IARC	NTP
Xylene	-	3	-
Ethylbenzene	-	2B	-

Reproductive toxicity:

Not available.

Teratogenicity:

Not available.

Specific target organ toxicity (single exposure):

Name	Category	Route of exposure	Target organs
Paraffin Oil	Category 3	Not applicable.	Respiratory tract irritation and Narcotic effects
Acetone	Category 3	Not applicable.	Respiratory tract irritation and Narcotic effects
Propane	Category 3	Not applicable.	Respiratory tract irritation and Narcotic effects
Xylene	Category 3	Not applicable.	Respiratory tract irritation and Narcotic effects
Methyl Ethyl Ketone	Category 3	Not applicable.	Respiratory tract irritation and Narcotic effects
Ethylbenzene	Category 3	Not applicable.	Respiratory tract irritation and Narcotic effects

Specific target organ toxicity (repeated exposure):

Name	Category	Route of exposure	Target organs
Paraffin Oil	Category 2	Not determined.	Not determined.
Acetone	Category 2	Not determined.	Not determined.
Propane	Category 2	Not determined.	Not determined.
Xylene	Category 2	Not determined.	Not determined.
Methyl Ethyl Ketone	Category 2	Not determined.	Not determined.
Ethylbenzene	Category 2	Not determined.	Not determined.

Aspiration hazard:

Name	Result
Propane	ASPIRATION HAZARD-Category 1
Ethylbenzene	ASPIRATION HAZARD-Category 1

Information on the likely routes of exposure: Not available.

Potential acute health effects:

Eye contact: Causes serious eye irritation.

Inhalation: Harmful if inhaled. Can cause central nervous system (CNS) depression. May cause drowsiness and dizziness. May cause respiratory irritation.

Skin contact: Causes skin irritation.

Ingestion: Can cause central nervous system (CNS) depression. May be fatal if swallowed and enters airways. Irritating to mouth, throat and stomach.

Symptoms related to the physical, chemical and toxicological characteristics:

Eye contact: Adverse symptoms may include the following:
pain or irritation
watering
redness

Inhalation: Adverse symptoms may include the following:
respiratory tract irritation
coughing
nausea or vomiting
headache
drowsiness/fatigue
dizziness/vertigo
unconsciousness

Skin contact: Adverse symptoms may include the following:
irritation
redness

Ingestion: Adverse symptoms may include the following:
nausea or vomiting

Delayed and immediate effects and also chronic effects from short and long term exposure:

Short term exposure:

Potential immediate effects Not available.

Potential delayed effects Not available.

Long term exposure:

Potential immediate effects Not available.

Potential delayed effects Not available.

Potential chronic health effects:

Not available.

General: May cause damage to organs through prolonged or repeated exposure.

Carcinogenicity: Suspected of causing cancer. Risk of cancer depends on duration and level of exposure.

Mutagenicity: No known significant effects or critical hazards.

Teratogenicity: No known significant effects or critical hazards.

Developmental effects: No known significant effects or critical hazards.

Fertility effects: No known significant effects or critical hazards.

Numerical measures of toxicity:

Acute toxicity estimates:

Route	ATE value
Oral	6201.2 mg/kg
Inhalation (gases)	17676.3 ppm

Section 12 Ecological information.

Toxicity:

Product/ingredient name	Result	Species	Exposure
Acetone	Acute EC50 20.565 mg/l Marine water	Algae - <i>Ulva pertusa</i>	96 hours
	Acute LC50 6000000 µg/l Fresh water	Crustaceans - <i>Gammarus pulex</i>	48 hours
	Acute LC50 10000 µg/l Fresh water	Daphnia - <i>Daphnia magna</i>	48 hours
	Acute LC50 100 mg/l Fresh water	Fish - <i>Pimephales promelas</i> - Juvenile (Fledgling, Hatchling, Weanling)	96 hours
	Chronic NOEC 4.95 mg/l Marine water	Algae - <i>Ulva pertusa</i>	96 hours
	Chronic NOEC 0.016 ml/L Fresh water	Crustaceans - Daphniidae	21 days
	Chronic NOEC 0.1 ml/L Fresh water	Daphnia - <i>Daphnia magna</i> - Neonate	21 days
Chronic NOEC 5 µg/l Marine water	Fish - <i>Gasterosteus aculeatus</i> - Larvae	42 days	
Xylene	Acute LC50 8500 µg/l Marine water	Crustaceans - <i>Palaemonetes pugio</i>	48 hours
Methyl Ethyl Ketone	Acute LC50 13400 µg/l Fresh water	Fish - <i>Pimephales promelas</i>	96 hours
	Acute EC50 500000 µg/l Marine water	Algae - <i>Skeletonema costatum</i>	96 hours
	Acute LC50 520000 µg/l Fresh water	Daphnia - <i>Daphnia magna</i>	48 hours
	Acute LC50 400 ppm Marine water	Fish - <i>Cyprinodon variegatus</i> - Juvenile (Fledgling, Hatchling, Weanling)	96 hours

Toxicity:

Product/ingredient name	Result	Species	Exposure
Ethylbenzene	Acute EC50 4600 µg/l Fresh water	Algae - Pseudokirchneriella subcapitata	72 hours
	Acute EC50 3600 µg/l Fresh water	Algae - Pseudokirchneriella subcapitata	96 hours
	Acute EC50 2930 µg/l Fresh water	Daphnia - Daphnia magna - Neonate	48 hours
	Acute LC50 5200 µg/l Marine water	Crustaceans - Americamysis bahia	48 hours
	Acute LC50 4200 µg/l Fresh water	Fish - Oncorhynchus mykiss	96 hours
	Chronic NOEC 1000 µg/l Fresh water	Algae - Pseudokirchneriella subcapitata	96 days

Persistence and degradability:

Product/ingredient name	Aquatic half-life	Photolysis	Biodegradability
Acetone	-	-	Readily

Bioaccumulative potential:

Product/ingredient name	LogP _{ow}	BCF	Potential
Xylene	-	8.1 to 25.9	low

Mobility in soil:





Soil/water partition coefficient (K_{ow}): Not available.

Other adverse effects: No known significant effects or critical hazards.

Section 13 Disposal considerations.

Disposal methods: The generation of waste should be avoided or minimized wherever possible. Disposal of this product, solutions and any by-products should at all times comply with the requirements of environmental protection and waste disposal legislation and any regional local authority requirements. Dispose of surplus and non-recyclable products via a licensed waste disposal contractor. Waste should not be disposed of untreated to the sewer unless fully compliant with the requirements of all authorities with jurisdiction. Waste packaging should be recycled. Incineration or landfill should only be considered when recycling is not feasible. This material and its container must be disposed of in a safe way. Empty containers or liners may retain some product residues. Do not puncture or incinerate container.

Section 14 Transport information.

	DOT Classification	TDG Classification	Mexico Classification	IATA	IMDG
UN number	UN1950	UN1950	UN1950	UN1950	UN1950
UN proper shipping name	AEROSOLS	AEROSOLS	AEROSOLS	AEROSOLS, flammable	AEROSOLS
Transport hazard class(es)	2.1	2.1	2.1	2.1	2.1
Packing group	- 	- 	- 	- 	- 
Environmental hazards	No.	No.	No.	No.	No.
Additional information	Special provisions LIMITED QUANTITY	Special provisions LIMITED QUANTITY	Special provisions LIMITED QUANTITY	Special provisions LIMITED QUANTITY	Special provisions LIMITED QUANTITY

Special precautions for user: Multi-modal shipping descriptions are provided for informational purposes and do not consider container sizes. The presence of a shipping description for a particular mode of transport (sea, air, etc.), does not indicate that the product is packaged suitably for that mode of transport. All packaging must be reviewed for suitability prior to shipment, and compliance with the applicable regulations is the sole responsibility of the person offering the product for transport. People loading and unloading dangerous goods must be trained on all of the risks deriving from the substances and on all actions in case of emergency situations.

Transport in bulk according to Annex II of MARPOL 73/78 and the IBC Code: Not available.

Section 15 Regulatory information.

U.S. Federal regulations:

SARA 313: SARA 313 (40 CFR 372.45) supplier notification can be found on the Environmental Data Sheet.

State regulations:

California Prop. 65 WARNING: This product contains chemicals known to the State of California to cause cancer and birth defects or other reproductive harm.

Section 16 Other information.

Prepared on: May 22, 2015

Hazardous Material Information System (U.S.A.):

Health	*	2
Flammability		4
Physical hazards		0

Caution: HMIS® ratings are based on a 0-4 rating scale, with 0 representing minimal hazards or risks, and 4 representing significant hazards or risks. Although HMIS® ratings are not required on SDSs under 29 CFR 1910. 1200, the preparer may choose to provide them. HMIS® ratings are to be used with a fully implemented HMIS® program. HMIS® is a registered mark of the National Paint & Coatings Association (NPCA). HMIS® materials may be purchased exclusively from J. J. Keller (800) 327-6868. The customer is responsible for determining the PPE code for this material.

Notice to reader:

It is recommended that each customer or recipient of this Safety Data Sheet (SDS) study it carefully and consult resources, as necessary or appropriate, to become aware of and understand the data contained in this SDS and any hazards associated with the product. This information is provided in good faith and believed to be accurate as of the effective date herein. However, no warranty, express or implied, is given. The information presented here applies only to the product as shipped. The addition of any material can change the composition, hazards and risks of the product. Regulatory requirements are subject to change and may differ between various locations and jurisdictions. The customer/buyer/user is responsible to ensure that his activities comply with all country, federal, state, provincial or local laws. The conditions for use of the product are not under the control of the manufacturer; the customer/buyer/user is responsible to determine the conditions necessary for the safe use of this product. The customer/buyer/user should not use the product for any purpose other than the purpose shown in the applicable section of this SDS without first referring to the supplier and obtaining written handling instructions. Due to the proliferation of sources for information such as manufacturer-specific SDS, the manufacturer cannot be responsible for SDSs obtained from any other source.

SAFETY DATA SHEET

1. SUBSTANCE AND SOURCE IDENTIFICATION

Product Identifier

SRM Number: 3090
SRM Name: Aroclors in Transformer Oil
Other Means of Identification: Not Applicable.

Recommended Use of This Material and Restrictions of Use

This Standard Reference Material (SRM) is a set of six different solutions of individual Aroclors in transformer oil and consists of six 2-mL ampoules, each containing approximately 1.2 mL of each of the following SRMs: SRM 3075, Aroclor 1016 in Transformer Oil; SRM 3076, Aroclor 1232 in Transformer Oil; SRM 3077, Aroclor 1242 in Transformer Oil; SRM 3078, Aroclor 1248 in Transformer Oil; SRM 3079, Aroclor 1254 in Transformer Oil; and SRM 3080; Aroclor 1260 in Transformer Oil. This SRM is intended primarily for calibrating chromatographic instrumentation and methods of analysis used for the determination of Aroclors and polychlorinated biphenyls (PCBs) in transformer oil.

Company Information

National Institute of Standards and Technology
 Standard Reference Materials Program
 100 Bureau Drive, Stop 2300
 Gaithersburg, Maryland 20899-2300

Telephone: 301-975-2200
 FAX: 301-948-3730
 E-mail: SRMMSDS@nist.gov
 Website: <http://www.nist.gov/srm>

Emergency Telephone ChemTrec:
 1-800-424-9300 (North America)
 +1-703-527-3887 (International)

2. HAZARDS IDENTIFICATION

Classification

Physical Hazard: Not classified.
Health Hazard: Carcinogenicity Category 1B
 Reproductive Toxicity Category 2
 Aspiration Hazard Category 1

Label Elements

Symbol



Signal Word

DANGER

Hazard Statement(s)

H304 May be fatal if swallowed and enters airways.
 H350 May cause cancer <inhalation, ingestion>.
 H361 Suspected of damaging fertility or the unborn child.

Precautionary Statement(s):

P201 Obtain special instructions before use.
 P202 Do not handle until all safety precautions have been read and understood.
 P280 Wear protective gloves, protective clothing, and eye protection.

P308+P313 If exposed or concerned: Get medical attention.

P301+P310 If swallowed: Immediately call a doctor.

- P331 Do NOT induce vomiting.
 P405 Store locked up.
 P501 Dispose of contents and container according to local regulations.

Hazards Not Otherwise Classified: Not applicable.

Ingredients(s) with Unknown Acute Toxicity: Not applicable.

3. COMPOSITION AND INFORMATION ON HAZARDOUS INGREDIENTS

Substance: Aroclor 1260 in transformer oil.

Other Designations:

Transformer oil (hydrotreated light naphthenic distillate (petroleum), hydraulic petroleum oil, distillates, petroleum).

Aroclor 1232: PCB 1232; chlorodiphenyl (32 % Cl); polychlorinated biphenyl; chlorobiphenyls; PCB; PCBs.

Aroclor 1242: PCB 1242; chlorodiphenyl (42 % Cl); polychlorinated biphenyl; chlorobiphenyls; PCB; PCBs.

Aroclor 1248: PCB 1248; chlorodiphenyl (48 % Cl); polychlorinated biphenyl; chlorobiphenyls; PCB; PCBs.

Aroclor 1254: PCB 1254; chlorodiphenyl (54 % Cl); polychlorinated biphenyl; chlorobiphenyls; PCB; PCBs.

Aroclor 1260: PCB 1260; chlorodiphenyl (60 % Cl); polychlorinated biphenyl; chlorobiphenyls; PCB; PCBs.

Components are listed in compliance with OSHA 29 CFR 1910.1200.

Hazardous Component(s)	CAS Number	EC Number ^(a) (EINECS)	Nominal Mass Concentration (%)
SRM 3075			
Transformer Oil	64742-53-6	265-156-6	>99.99
SRM 3076			
Transformer Oil	64742-53-6	265-156-6	balance
Aroclor 1232	11141-16-5	215-648-1	0.43
SRM 3077			
Transformer Oil	64742-53-6	265-156-6	balance
Aroclor 1242	53469-21-9	215-648-1	0.41
SRM 3078			
Transformer Oil	64742-53-6	265-156-6	balance
Aroclor 1248	12672-29-6	215-648-1	0.37
SRM 3079			
Transformer Oil	64742-53-6	265-156-6	balance
Aroclor 1254	11097-69-1	215-648-1	0.36
SRM 3080			
Transformer Oil	64742-53-6	265-156-6	balance
Aroclor 1260	11096-82-5	215-648-1	0.11

^(a) EC Number as PCB, polychlorinated biphenyl

4. FIRST AID MEASURES

Description of First Aid Measures:

Inhalation: If adverse effects occur, remove to uncontaminated area. If not breathing, give artificial respiration or oxygen by qualified personnel. Seek immediate medical attention.

Skin Contact: Wash exposed skin with soap and water for at least 15 minutes. Seek medical attention if needed.

Eye Contact: Immediately flush eyes, including under the eyelids with copious amounts of water for at least 15 minutes. Seek immediate medical attention.

Ingestion: Aspiration hazard. Do not induce vomiting. If vomiting occurs, keep head lower than hips to prevent aspiration. If not breathing, give artificial respiration by qualified personnel. Seek immediate medical attention.

Most Important Symptoms/Effects, Acute and Delayed: Irritation, dizziness, nausea, coughing, and aspiration.

Indication of any immediate medical attention and special treatment needed, if necessary: Not applicable.

5. FIRE FIGHTING MEASURES

Fire and Explosion Hazards: Slight fire hazard. See Section 9, “Physical and Chemical Properties” for flammability properties.

Extinguishing Media:

Suitable: Regular dry chemical, carbon dioxide, regular foam.

Unsuitable: Straight streams of water.

Specific Hazards Arising from the Chemical: None listed.

Special Protective Equipment and Precautions for Fire-Fighters: Avoid inhalation of material or combustion byproducts. Wear full protective clothing and NIOSH approved self-contained breathing apparatus (SCBA).

NFPA Ratings (0 = Minimal; 1 = Slight; 2 = Moderate; 3 = Serious; 4 = Severe)

Health = 2

Fire = 1

Reactivity = 0

6. ACCIDENTAL RELEASE MEASURES

Personal Precautions, Protective Equipment and Emergency Procedures: Use suitable protective equipment; see Section 8, “Exposure Controls and Personal Protection”.

Methods and Materials for Containment and Clean up: Absorb spilled material with sand or non-combustible material and collect in appropriate container for disposal. Keep out of water supplies and sewers.

7. HANDLING AND STORAGE

Safe Handling Precautions: See Section 8, “Exposure Controls and Personal Protection”.

Storage: Store and handle in accordance with all current regulations and standards. The storage floor must be impermeable and form a collecting basin so that, in the event of an accident spillage, the liquid cannot spread beyond the storage area.

8. EXPOSURE CONTROLS AND PERSONAL PROTECTION

Exposure Limits:

Transformer oil: No occupational exposure limits established.

Aroclors: NIOSH (TWA): 0.001 mg/m³ (related to 1,1'-Biphenyl, chloro derivatives)

Engineering Controls: Provide local exhaust or process enclosure ventilation system. Ensure compliance with applicable exposure limits.

Personal Protection Measures: In accordance with OSHA 29 CFR 1910.132, subpart I, wear appropriate Personal Protective Equipment (PPE) to minimize exposure to this material.

Respiratory Protection: If workplace conditions warrant a respirator, a respiratory protection program that meets OSHA 29CFR 1910.134 must be followed. Refer to NIOSH 42 CFR 84 for applicable certified respirators.

Eye/Face Protection: Wear splash resistant safety goggles with a face shield. An eye wash station should be readily available near areas of use.

Skin and Body Protection: Personal protective equipment for the body should be selected based on the task being performed and the risks involved and should be approved by a specialist before handling this product. Chemical-resistant gloves should be worn at all times when handling chemicals.

9. PHYSICAL AND CHEMICAL PROPERTIES

Descriptive Properties

Appearance (physical state, color, etc.):	Transformer oil (>99 %) clear, yellow liquid
Molecular Formula:	not applicable
Molar Mass (g/mol):	not applicable
Odor:	not available
Odor threshold:	not available
pH:	not available
Evaporation rate:	not available
Melting point/freezing point:	-55 °C (-67 °F)
Pour point:	-40 °C (-40 °F)
Density:	0.8912 g/mL at 22 °C ^(b)
Vapor Pressure:	0.1 mmHg 20 °C ^(a)
Vapor Density (air = 1):	>5 at 101 kPa ^(a)
Kinematic Viscosity:	12 cSt (12 mm ² /s) at 40 °C
Solubility(ies):	insoluble in water
Partition coefficient (n-octanol/water):	>6.5 ^(a)

Thermal Stability Properties

Autoignition Temperature:	>315 °C (599 °F) ^(a)
Thermal Decomposition:	not available
Initial boiling point and boiling range:	260 °C to 371 °C (500 °F to 700 °F)
Explosive Limits, LEL:	not available
Explosive Limits, UEL:	not available
Flash Point:	>145 °C (293 °F) ^(a)
Flammability (solid, gas):	not applicable

^(a) Physical property listed in the NIST Certificate of Analysis. Values are not certified.

^(b) Vendor supplied health and safety information.

10. STABILITY AND REACTIVITY

Reactivity: Stable at normal temperatures and pressure.

Stability: X Stable Unstable

Possible Hazardous Reactions: None listed.

Conditions to Avoid: Avoid excessive heat; high energy ignition sources.

Incompatible Materials: Oxidizers.

Fire/Explosion Information: See Section 5, "Fire Fighting Measures".

Hazardous Decomposition: Oxides of carbon, sulfur oxides, aldehydes.

Hazardous Polymerization: Will Occur X Will Not Occur

11. TOXICOLOGICAL INFORMATION

Route of Exposure: X Inhalation X Skin X Ingestion

Symptoms Related to the Physical, Chemical and Toxicological Characteristics: Dizziness, nausea, coughing.

Potential Health Effects (Acute, Chronic and Delayed):

Inhalation: Acute exposure to high levels of vapor from transformer oil may cause central nervous system depression, headache, dizziness, nausea, vomiting, anorexia, incoordination and unconsciousness. Prolonged or repeated exposure may cause irritation. Short term exposure to Aroclors may cause irritation or liver damage; long term exposure may cause rash, itching, hair loss, digestive issues, headache, dizziness, impotence, coma, and cancer.

Skin Contact: Short term and long term contact with transformer oil may cause skin irritation and dermatitis. Short-term exposure to Aroclors may cause skin irritation or liver damage; long term exposure to Aroclors may cause same effects as for inhalation, plus hair loss and reproductive effects.

Eye Contact: Acute exposure of liquid or vapor may cause irritation.

Ingestion: Acute ingestion of transformer oil may cause abdominal pain, nausea, and vomiting. Small amounts of oil aspirated during ingestion or vomiting may cause lung damage; no information available for long-term exposure to transformer oil. Short term exposure to Aroclors may cause liver damage; long term exposure to Aroclors may cause same effects as for inhalation, plus hyperactivity, menstrual disorders, reproductive effects.

Numerical Measures of Toxicity:

Acute Toxicity: Not classified.

Component: Transformer oil

Rat, Oral LD50: >5000 mg/kg

Rat, Inhalation LC50: 2180 mg/m³ (4 h)

Rabbit, Skin LD50: >2000 mg/kg

Component: Aroclor 1232

Rat, Oral LD50: 4470 mg/kg

Component: Aroclor 1242

Rat, Oral LD50: 4250 mg/kg

Component: Aroclor 1248

Rat, Oral LD50: 11000 mg/kg

Component: Aroclor 1254

Rat, Oral LD50: 1010 mg/kg

Component: Aroclor 1260

Rat, Oral LD50: 1315 mg/kg

Skin Corrosion/Irritation: Not classified.

Transformer oil, Rabbit, skin: 0.5 mL/24 h, moderate

Serious Eye Damage/ Eye Irritation: Not classified.

Transformer oil, Rabbit, eye: 0.1 mL, mild

Respiratory Sensitization: No data available; not classified.

Skin Sensitization: No data available; not classified.

Germ Cell Mutagenicity: No data available; not classified.

Carcinogenicity: Category 1B

Listed as a Carcinogen/Potential Carcinogen X Yes No

Transformer oil is not listed by NTP, IARC, or OSHA as a carcinogen/potential carcinogen.

Aroclors are listed by NTP as *reasonably anticipated to be a human carcinogen* (as PCB, polychlorinated biphenyl, CAS number 1336-36-3) and by IARC as Group 1, *carcinogenic to humans* (related to Polychlorinated biphenyls).

Reproductive Toxicity: Category 2

Aroclors: Overexposure has resulted in decreased birth weight in offspring of exposed mothers. Significant exposure to PCBs that reach the fetus can cause teratogenic effects.

Component: Aroclor 1232

Oral Rat TDLo: 420 mg/kg TDLo (21 days)

Component: Aroclor 1242

Oral Rat TDLo: 945 mg/kg TDLo (prior to copulation, 36 week)

Component: Aroclor 1248

Monkey, Oral TDLo: 32 mg/kg (pregnant 1-23 week, 91 days)

Component: Aroclor 1254

Oral Mammal TDLo - species unspecified: 14 mg/kg, prior to copulation 30 day(s)

Component: Aroclor 1260

Oral Rat TDLo: 210 mg/kg, pregnant 14-20 days

STOT, Single Exposure: No data available; not classified.

STOT, Repeated Exposure: Not classified; this SRM contains less than 1 % of Aroclor, a Category 2 target organ toxicant.

Aspiration Hazard: Category 1

Transformer oil is a human aspiration toxicity hazard.

12. ECOLOGICAL INFORMATION

Ecotoxicity Data:

Transformer oil: Fish, Rainbow Trout (*Oncorhynchus mykiss*) LC50: >5000 mg/L (96 h)
Invertebrate, Water flea (*Daphnia magna*) EC50: >1000 mg/L (48 h)
Aroclor 1232: No data available.
Aroclor 1242: Fish, Fathead minnow (*Pimephales promelas*) LC50 (flow-through, newly hatched): 0.015 mg/L (96 h)
Aroclor 1248: No data available.
Aroclor 1254: No data available.
Aroclor 1260: No data available.

Persistence and Degradability: Has the potential to biodegradable.

Bioaccumulative Potential: No data available

Mobility in Soil: Expected to migrate from land to water and vice versa.

Other Adverse effects: Keep out of water supplies.

13. DISPOSAL CONSIDERATIONS

Waste Disposal: Dispose of waste in accordance with all applicable federal, state, and local regulations.

14. TRANSPORTATION INFORMATION

U.S. DOT and IATA: This material is not regulated by IATA or DOT.

15. REGULATORY INFORMATION

U.S. Regulations:

CERCLA Sections 102a/103 (40 CFR 302.4): Aroclors 1 lb. (0.454 kg) final RQ.

SARA Title III Section 302 (40 CFR 355.30): Not regulated.

SARA Title III Section 304 (40 CFR 355.40): Not regulated.

SARA Title III Section 313 (40 CFR 372.65): Aroclors, 0.1 % supplier notification limit (related or polychlorinated biphenyls).

OSHA Process Safety (29 CFR 1910.119): Not regulated.

SARA Title III Sections 311/312 Hazardous Categories (40 CFR 370.21):

ACUTE HEALTH:	Yes.
CHRONIC HEALTH:	Yes.
FIRE:	No.
REACTIVE:	No.
PRESSURE:	No.

State Regulations:

California Proposition 65:

WARNING! This product contains a chemical (Aroclors 1232, 1242, 1248, 1254 and 1260, related to PCBs) known to the state of California to cause cancer, reproductive, and/or developmental effects.

U.S. TSCA Inventory: Transformer oil is listed.

TSCA 12(b), Export Notification: Aroclors 1232, 1242, 1248, 1254 and 1260 is listed in Section 6, 50 ppm de minimus concentration (see 40 CFR 761, related to polychlorinated biphenyls).

Canadian Regulations:

WHMIS Information: Not provided for this material.

16. OTHER INFORMATION

Issue Date: 27 May 2015

Sources: ChemADVISOR, Inc., SDS, *Aroclor 1232*, 20 March 2015
 ChemADVISOR, Inc., SDS, *Aroclor 1242*, 20 March 2015
 ChemADVISOR, Inc., SDS, *Aroclor 1248*, 20 March 2015
 ChemADVISOR, Inc., SDS, *Aroclor 1254*, 20 March 2015
 ChemADVISOR, Inc., SDS, *Aroclor 1260*, 20 March 2015.
 ChemADVISOR, Inc., SDS, *Transformer Oil*, 20 March 2015.
 Vendor MSDS, Exxon Mobile Corporation, UNIVOLT N 61 B, 30 May 2014.

Key of Acronyms:

ACGIH	American Conference of Governmental Industrial Hygienists	NRC	Nuclear Regulatory Commission
ALI	Annual Limit on Intake	NTP	National Toxicology Program
CAS	Chemical Abstracts Service	OSHA	Occupational Safety and Health Administration
CERCLA	Comprehensive Environmental Response, Compensation, and Liability Act	PEL	Permissible Exposure Limit
CFR	Code of Federal Regulations	RCRA	Resource Conservation and Recovery Act
DOT	Department of Transportation	REL	Recommended Exposure Limit
EINECS	European Inventory of Existing Commercial Chemical Substances	RQ	Reportable Quantity
EPCRA	Emergency Planning and Community Right-to-Know Act	RTECS	Registry of Toxic Effects of Chemical Substances
IARC	International Agency for Research on Cancer	SARA	Superfund Amendments and Reauthorization Act
IATA	International Air Transportation Agency	SCBA	Self-Contained Breathing Apparatus
IDLH	Immediately Dangerous to Life and Health	RM	Reference Material
LC50	Lethal Concentration	STEL	Short Term Exposure Limit
LD50	Median Lethal Dose or Lethal Dose, 50 %	STOT	Specific Target Organ Toxicity
LEL	Lower Explosive Limit	TLV	Threshold Limit Value
MSDS	Material Safety Data Sheet	TPQ	Threshold Planning Quantity
NFPA	National Fire Protection Association	TSCA	Toxic Substances Control Act
NIOSH	National Institute for Occupational Safety and Health	TWA	Time Weighted Average
NIST	National Institute of Standards and Technology	UEL	Upper Explosive Limit
		WHMIS	Workplace Hazardous Materials Information System

Disclaimer: Physical and chemical data contained in this SDS are provided only for use in assessing the hazardous nature of the material. The SDS was prepared carefully, using current references; however, NIST does not certify the data in the SDS. The certified values for this material are given in the NIST Certificate of Analysis.

Users of this SRM should ensure that the SDS in their possession is current. This can be accomplished by contacting the SRM Program: telephone (301) 975-2200; fax (301) 948-3730; e-mail srmmsds@nist.gov; or via the Internet at <http://www.nist.gov/srm>.



SAFETY DATA SHEET

Issue Date 01-Jan-2008

Revision Date 28-Aug-2015

Version 1

1. PRODUCT AND COMPANY IDENTIFICATION

Product Identifier

Product Name Peel Away 1

Other Means of Identification

SDS # DCI-009

UN/ID No UN1823

Recommended Use of the Chemical and Restrictions on Use

Recommended Use Paint remover.

Details of the Supplier of the Safety Data Sheet

Supplier Address

Dumond Chemicals, Inc.
83 General Warren Blvd
Suite 190
Malvern, PA 19355

Emergency Telephone Number

Company Phone Number 1-609-655-7700
Emergency Telephone INFOTRAC 1-352-323-3500 (International)
1-800-535-5053 (North America)

2. HAZARDS IDENTIFICATION

Classification

Skin corrosion/irritation	Category 1 Sub-category B
Serious eye damage/eye irritation	Category 1
Specific target organ toxicity (single exposure)	Category 3

Signal Word

Danger

Hazard Statements

Causes severe skin burns and eye damage
May cause respiratory irritation. May cause drowsiness or dizziness



Appearance White paste

Physical State Paste

Odor None

Precautionary Statements - Prevention

Do not breathe dust/fume/gas/mist/vapors/spray
 Wash face, hands and any exposed skin thoroughly after handling
 Wear protective gloves/protective clothing/eye protection/face protection
 Use only outdoors or in a well-ventilated area

Precautionary Statements - Response

Immediately call a POISON CENTER or doctor/physician
 IF IN EYES: Rinse cautiously with water for several minutes. Remove contact lenses, if present and easy to do. Continue rinsing
 Immediately call a POISON CENTER or doctor/physician
 IF ON SKIN (or hair): Remove/Take off immediately all contaminated clothing. Rinse skin with water/shower
 Wash contaminated clothing before reuse
 IF INHALED: Remove victim to fresh air and keep at rest in a position comfortable for breathing
 Immediately call a POISON CENTER or doctor/physician
 Call a POISON CENTER or doctor/physician if you feel unwell
 IF SWALLOWED: Rinse mouth. DO NOT induce vomiting

Precautionary Statements - Storage

Store locked up
 Store in a well-ventilated place. Keep container tightly closed

Precautionary Statements - Disposal

Dispose of contents/container to an approved waste disposal plant

3. COMPOSITION/INFORMATION ON INGREDIENTS

Chemical Family Alkaline.

Chemical Name	CAS No	Weight-%
Calcium hydroxide	1305-62-0	21
Magnesium hydroxide	1309-42-8	16
Sodium hydroxide	1310-73-2	9

4. FIRST AID MEASURES

First Aid Measures

Inhalation Remove to fresh air. Immediate medical attention is required.

Eye Contact Immediately flush with plenty of water. After initial flushing, remove any contact lenses and continue flushing for at least 15 minutes. Call a physician immediately.

Ingestion If conscious, give water or milk. Do NOT induce vomiting. Get medical attention if necessary.

Skin Contact Wash off immediately with plenty of water for at least 15 minutes. Remove contaminated clothing and shoes. Get medical attention if irritation occurs.

Most Important Symptoms and Effects, both Acute and Delayed

Symptoms May cause dermatitis or irritation in some individuals upon prolonged contact. May cause severe chemical burns with reddening and pain. Causes eye irritation. Causes skin irritation. May cause irritation to the mucous membranes and upper respiratory tract. Ingestion may cause severe burns to mouth, throat or stomach.

Indication of any Immediate Medical Attention and Special Treatment Needed

Note to Physicians Treat symptomatically. Individuals with chronic respiratory or skin diseases may be at risk from exposure.

5. FIRE-FIGHTING MEASURES**Suitable Extinguishing Media**

Use extinguishing measures that are appropriate to local circumstances and the surrounding environment.

Unsuitable Extinguishing Media Not determined.

Specific Hazards Arising from the Chemical

At elevated temperatures, containers may rupture. Contents are corrosive and all personal contact must be avoided.

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. Cool containers with flooding quantities of water until well after fire is out.

6. ACCIDENTAL RELEASE MEASURES**Personal Precautions, Protective Equipment and Emergency Procedures**

Personal Precautions Use personal protective equipment as required.

Environmental Precautions Do not allow into any sewer, on the ground or into any body of water.

Methods and Material for Containment and Cleaning Up

Methods for Containment Prevent further leakage or spillage if safe to do so.

Methods for Cleaning Up Keep in suitable, closed containers for disposal. Wash spill area with plenty of water. Spills and releases may have to be reported to Federal and/or local authorities. See section 15.

7. HANDLING AND STORAGE**Precautions for Safe Handling**

Advice on Safe Handling Handle in accordance with good industrial hygiene and safety practice. Wash face, hands, and any exposed skin thoroughly after handling. Do not breathe dust/fume/gas/mist/vapors/spray. Use only in well-ventilated areas.

Conditions for Safe Storage, Including any Incompatibilities

Storage Conditions Store in a cool, well ventilated area away from acids and other incompatible substances. Store locked up.

Incompatible Materials Acids. Organic halogen compounds. Nitromethane. Flammable liquid. Metals such as aluminum, tin, and zinc.

8. EXPOSURE CONTROLS/PERSONAL PROTECTION**Exposure Guidelines**

Chemical Name	ACGIH TLV	OSHA PEL	NIOSH IDLH
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Calcium hydroxide 1305-62-0	TWA: 5 mg/m ³	TWA: 15 mg/m ³ total dust TWA: 5 mg/m ³ respirable fraction (vacated) TWA: 5 mg/m ³ not in effect as a result of reconsideration	TWA: 5 mg/m ³
Sodium hydroxide 1310-73-2	Ceiling: 2 mg/m ³	TWA: 2 mg/m ³ (vacated) Ceiling: 2 mg/m ³	IDLH: 10 mg/m ³ Ceiling: 2 mg/m ³

Appropriate Engineering Controls**Engineering Controls**

Apply technical measures to comply with the occupational exposure limits. Use in a Well-ventilated location (eg. local exhaust ventilation, fans). Shower (On site portable shower is an acceptable method). Eye Wash Station.

Individual Protection Measures, such as Personal Protective Equipment**Eye/Face Protection**

Chemical safety goggles/faceshield.

Skin and Body Protection

Wear suitable protective clothing. Rubber, neoprene, or other impervious gloves are recommended to prevent skin contact. Selection of specific items such as face shield, boots, apron, or full body suit will depend on the task.

Respiratory Protection

Ensure adequate ventilation, especially in confined areas. For spray application, a NIOSH approved dust respirator and eye protection.

General Hygiene Considerations

Handle in accordance with good industrial hygiene and safety practice.

9. PHYSICAL AND CHEMICAL PROPERTIES**Information on Basic Physical and Chemical Properties**

Physical State	Paste	Odor	None
Appearance	White paste	Odor threshold	Not determined
Color	White		

<u>Property</u>	<u>Values</u>	<u>Remarks • Method</u>
pH	12	
Melting point/freezing point	Not determined	
Boiling point/boiling range	> 100 °C / >212 °F	
Flash point	None	
Evaporation rate	Same as water	
Flammability (solid, gas)	Not determined	
Flammability limits in air		
Upper flammability limits	Not applicable	
Lower flammability limit	Not applicable	
Vapor pressure	Same as water	@ 20 C
Vapor density	Same as water	
Specific gravity	1.33	
Water solubility	Completely soluble	
Solubility in other solvents	Not determined	
Partition coefficient	Not determined	
Autoignition temperature	None	
Decomposition temperature	Not determined	
Kinematic viscosity	Not determined	
Dynamic viscosity	Not determined	
Explosive properties	Not determined	
Oxidizing Properties	Not determined	

Other Information

VOC Content (%)	0%
------------------------	----

VOC Content 0 lbs/gal

10. STABILITY AND REACTIVITY

Reactivity

Not reactive under normal conditions

Chemical Stability

Stable under recommended storage conditions.

Possibility of Hazardous Reactions

None under normal processing.

Conditions to Avoid

Keep out of reach of children.

Incompatible Materials

Acids. Organic halogen compounds. Nitromethane. Flammable liquid. Metals such as aluminum, tin, and zinc.

Hazardous Decomposition Products

None known based on information supplied.

11. TOXICOLOGICAL INFORMATION

Information on Likely Routes of Exposure

Product Information

Inhalation	Avoid breathing vapors or mists.
Eye Contact	Causes severe eye damage.
Skin Contact	Causes severe skin burns.
Ingestion	Do not taste or swallow.

Component Information

Chemical Name	Oral LD50	Dermal LD50	Inhalation LC50
Water 7732-18-5	> 90 mL/kg (Rat)	-	-
Calcium hydroxide 1305-62-0	= 7340 mg/kg (Rat)	-	-
Magnesium hydroxide 1309-42-8	= 8500 mg/kg (Rat)	-	-
Sodium hydroxide 1310-73-2	-	= 1350 mg/kg (Rabbit)	-

Information on Physical, Chemical and Toxicological Effects

Symptoms

May cause dermatitis or irritation in some individuals upon prolonged contact. May cause severe chemical burns with reddening and pain. May cause skin and eye irritation. May cause irritation to the mucous membranes and upper respiratory tract. May cause burns to mouth and gastrointestinal corrosion.

Delayed and Immediate Effects as well as Chronic Effects from Short and Long-term Exposure

Carcinogenicity

This product does not contain any carcinogens or potential carcinogens as listed by OSHA, IARC or NTP.

STOT - single exposure May cause respiratory irritation. May cause drowsiness or dizziness.

Numerical Measures of Toxicity- Product

Not determined

The following values are calculated based on chapter 3.1 of the GHS document .

ATEmix (oral) 21097 mg/kg
ATEmix (dermal) 9445 mg/kg

12. ECOLOGICAL INFORMATION

Ecotoxicity

An environmental hazard cannot be excluded in the event of unprofessional handling or disposal

Chemical Name	Algae/aquatic plants	Fish	Toxicity to microorganisms	Crustacea
Calcium hydroxide 1305-62-0		160: 96 h <i>Gambusia affinis</i> mg/L LC50 static		
Sodium hydroxide 1310-73-2		45.4: 96 h <i>Oncorhynchus mykiss</i> mg/L LC50 static		

Persistence and Degradability

Not determined.

Bioaccumulation

Not determined.

Mobility

Not determined.

Other Adverse Effects

Not determined

13. DISPOSAL CONSIDERATIONS

Waste Treatment Methods

Disposal of Wastes Disposal should be in accordance with applicable regional, national and local laws and regulations.

Contaminated Packaging Disposal should be in accordance with applicable regional, national and local laws and regulations.

Chemical Name	California Hazardous Waste Status
Calcium hydroxide 1305-62-0	Corrosive
Sodium hydroxide 1310-73-2	Toxic Corrosive

14. TRANSPORT INFORMATION

Note Based on package size, product may be eligible for limited quantity exception

DOT

UN/ID No	UN1823
Proper Shipping Name	Sodium hydroxide, solid, mixture
Hazard Class	8
Packing Group	II

IATA

UN/ID No	UN1823
Proper Shipping Name	Sodium hydroxide, solid, mixture
Hazard Class	8
Packing Group	II

IMDG

UN/ID No	UN1823
Proper Shipping Name	Sodium hydroxide, solid, mixture
Hazard Class	8
Packing Group	II

15. REGULATORY INFORMATION

International Inventories**Legend:***TSCA - United States Toxic Substances Control Act Section 8(b) Inventory**DSL/NDSL - Canadian Domestic Substances List/Non-Domestic Substances List**EINECS/ELINCS - European Inventory of Existing Chemical Substances/European List of Notified Chemical Substances**ENCs - Japan Existing and New Chemical Substances IECSC**- China Inventory of Existing Chemical Substances KECL -**Korean Existing and Evaluated Chemical Substances**PICCS - Philippines Inventory of Chemicals and Chemical Substances***US Federal Regulations****SARA 311/312 Hazard Categories**

Chemical Name	CWA - Reportable Quantities	CWA - Toxic Pollutants	CWA - Priority Pollutants	CWA - Hazardous Substances
Sodium hydroxide 1310-73-2	1000 lb			X
Chemical Name	Hazardous Substances RQs	CERCLA/SARA RQ		Reportable Quantity (RQ)
Sodium hydroxide 1310-73-2	1000 lb			RQ 1000 lb final RQ RQ 454 kg final RQ

US State Regulations**U.S. State Right-to-Know Regulations**

Chemical Name	New Jersey	Massachusetts	Pennsylvania
Calcium hydroxide 1305-62-0	X	X	X
Sodium hydroxide 1310-73-2	X	X	X

U.S. EPA Label Information

16. OTHER INFORMATION

NFPA**Health Hazards****Flammability****Instability****Special Hazards**

Not determined

Not determined

Not determined

Not determined

HMIS**Health Hazards****Flammability****Physical Hazards****Personal Protection**

3

0

0

Not determined

Issue Date

01-Jan-2008

Revision Date

12-Dec-2012

Revision Note

New format

Disclaimer

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End of Safety Data Sheet



SAFETY DATA SHEET

Issue Date 18-Apr-2007

Revision Date 3-Mar-2015

Version 1

1. PRODUCT AND COMPANY IDENTIFICATION

Product Identifier

Product Name Peel Away 7

Other Means of Identification

SDS # DCI-014

Recommended Use of the Chemical and Restrictions on Use

Recommended Use Paint remover.

Details of the Supplier of the Safety Data Sheet

Supplier Address

Dumond Chemicals, Inc.
83 General Warren Blvd
Suite 190
Malvern, PA 19355

Emergency Telephone Number

Company Phone Number 1-609-655-7700
Emergency Telephone INFOTRAC 1-352-323-3500 (International)
1-800-535-5053 (North America)

2. HAZARDS IDENTIFICATION

Classification

Acute toxicity - Inhalation (Vapors)	Category 4
Acute toxicity - Inhalation (Dusts/Mists)	Category 4
Skin corrosion/irritation	Category 2
Serious eye damage/eye irritation	Category 2
Reproductive toxicity	Category 1B
Specific target organ toxicity (single exposure)	Category 3

Signal Word

Danger

Hazard Statements

Harmful if inhaled
 Causes skin irritation
 Causes severe eye irritation
 May damage fertility or the unborn child
 May cause respiratory irritation. May cause drowsiness or dizziness

**Appearance** Light brown paste**Physical State** Paste**Odor** Slight Sweet**Precautionary Statements - Prevention**

Obtain special instructions before use
 Do not handle until all safety precautions have been read and understood
 Use personal protective equipment as required
 Avoid breathing dust/fume/gas/mist/vapors/spray
 Use only outdoors or in a well-ventilated area
 Wash face, hands and any exposed skin thoroughly after handling
 Wear eye/face protection

Precautionary Statements - Response

IF exposed or concerned: Get medical advice/attention
 IF IN EYES: Rinse cautiously with water for several minutes. Remove contact lenses, if present and easy to do. Continue rinsing
 Get medical attention if irritation occurs
 IF ON SKIN: Wash with plenty of soap and water
 If skin irritation occurs: Get medical advice/attention
 Take off contaminated clothing and wash before reuse
 IF INHALED: Remove victim to fresh air and keep at rest in a position comfortable for breathing

Precautionary Statements - Storage

Store locked up
 Store in a well-ventilated place. Keep container tightly closed

Precautionary Statements - Disposal

Dispose of contents/container to an approved waste disposal plant

Hazards Not Otherwise Classified (HNOC)

May be harmful if swallowed
 May be harmful in contact with skin

Other Hazards

Toxic to aquatic life with long lasting effects
 Toxic to aquatic life

3. COMPOSITION/INFORMATION ON INGREDIENTS

Chemical Name	CAS No	Weight-%
Benzyl alcohol	100-51-6	20-40
1-Methyl-2-pyrrolidone	872-50-4	10-20
alpha-(4-nonylphenyl)-omega-hydroxy-poly(oxy-1,2-ethanediyl) branched	127087-87-0	<2

Chemical Additions

Contains 10-20% dibasic ester, which is a mixture of dimethyl glutarate (CAS# 1119-40-0) and dimethyl adipate (CAS# 627-93-0)
 Water

4. FIRST AID MEASURES

First Aid Measures

General advice	If exposed or concerned: Get medical advice/attention.
Inhalation	Remove victim to fresh air and keep at rest in a position comfortable for breathing. If not breathing, give artificial respiration. If breathing is difficult, give oxygen. Call a physician immediately.
Eye Contact	Immediately flush with plenty of water. After initial flushing, remove any contact lenses and continue flushing for at least 15 minutes. Get medical attention if irritation occurs.
Ingestion	If conscious give 1 glass of water to dilute. Do NOT induce vomiting. Never give anything by mouth to an unconscious person. Call a physician or poison control center immediately.
Skin Contact	Wash with soap and water. Take off contaminated clothing. Wash contaminated clothing before reuse. If skin irritation occurs: Get medical advice/ attention.

Most Important Symptoms and Effects, both Acute and Delayed

Symptoms	Mists and vapors cause irritation of the eyes, mucous membranes, and upper respiratory tract. May cause irritation, redness and pain. Area of contact may become numb due to anesthetic effects. May cause gastrointestinal irritation, nausea, diarrhea, and vomiting.
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Indication of any Immediate Medical Attention and Special Treatment Needed

Note to Physicians	Treat symptomatically. Individuals with chronic respiratory or skin diseases may be at risk from exposure.
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5. FIRE-FIGHTING MEASURES

Suitable Extinguishing Media

Water spray (fog). Alcohol resistant foam. Carbon dioxide (CO₂). Dry chemical.

Unsuitable Extinguishing Media Not determined.

Specific Hazards Arising from the Chemical

At elevated temperatures, containers may rupture. Cool containers exposed to flames with water until well after the fire is out. Vapors may form explosive mixtures with air.

Hazardous combustion products Carbon oxides. Nitrogen oxides (NO_x).

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.

6. ACCIDENTAL RELEASE MEASURES

Personal Precautions, Protective Equipment and Emergency Procedures

Personal Precautions	Use personal protective equipment as required. Remove all sources of ignition.
Environmental Precautions	Do not allow into any sewer, on the ground or into any body of water.

Methods and Material for Containment and Cleaning Up

Methods for Containment Prevent further leakage or spillage if safe to do so. Dike the spilled material, where this is possible. Collect using an inert absorbent material and place in appropriate containers for disposal.

Methods for Cleaning Up Keep in suitable, closed containers for disposal. Wash spill area with plenty of water. Spills and releases may have to be reported to Federal and/or local authorities. See section 15.

7. HANDLING AND STORAGE

Precautions for Safe Handling

Advice on Safe Handling Obtain special instructions before use. Do not handle until all safety precautions have been read and understood. Use personal protection recommended in Section 8. Avoid breathing vapors or mists. Use only in well-ventilated areas. Wash face, hands, and any exposed skin thoroughly after handling. Protect container from physical damage. Avoid contact with skin, eyes or clothing. Wash contaminated clothing before reuse. Follow all SDS/label precautions even after container is emptied because it may retain product residues.

Conditions for Safe Storage, Including any Incompatibilities

Storage Conditions Keep containers tightly closed in a dry, cool and well-ventilated place. Store locked up. Store away from incompatible materials.

Incompatible Materials Strong acids. Strong bases. Strong oxidizing agents. Strong reducing agents.

8. EXPOSURE CONTROLS/PERSONAL PROTECTION

Exposure Guidelines

Chemical Name	ACGIH TLV	OSHA PEL	NIOSH IDLH
Kaolin 1332-58-7	TWA: 2 mg/m ³ particulate matter containing no asbestos and <1% crystalline silica, respirable fraction	TWA: 15 mg/m ³ total dust TWA: 5 mg/m ³ respirable fraction (vacated) TWA: 10 mg/m ³ total dust (vacated) TWA: 5 mg/m ³ respirable fraction	TWA: 10 mg/m ³ total dust TWA: 5 mg/m ³ respirable dust

Appropriate Engineering Controls

Engineering Controls Apply technical measures to comply with the occupational exposure limits. If the recommended exposure limit is exceeded increased mechanical ventilation such as local exhaust may be required. Showers. Eyewash stations.

Individual Protection Measures, such as Personal Protective Equipment

Eye/Face Protection Wear approved safety goggles. Face Mask. Do not wear contact lenses.

Skin and Body Protection Wear protective butyl rubber gloves. Selection of specific items such as face shield, boots, apron, or full body suit will depend on the task.

Respiratory Protection If occupational exposure limits are exceeded, use NIOSH approved respirator with organic vapor cartridges and dust/mist pre-filter. For higher concentrations (greater than 10 times the recommended exposure limit) an approved supplied air respirator (with escape bottle if required) or self-contained breathing apparatus may be required. Selection of respiratory protection depends on the contaminant type, form, and concentration. Select in accordance with OSHA 1910.134 and good industrial hygiene practice.

General Hygiene Considerations Handle in accordance with good industrial hygiene and safety practice.

9. PHYSICAL AND CHEMICAL PROPERTIES

Information on Basic Physical and Chemical Properties

Physical State	Paste	Odor	Slight Sweet
Appearance	Light brown paste	Odor threshold	Not determined
Color	Light brown		

<u>Property</u>	<u>Values</u>	<u>Remarks • Method</u>
pH	6	
Melting point/freezing point	Not available	
Boiling point/boiling range	Not available	
Flash point	> 93.3 °C / > 200 °F	
Evaporation rate	<1	Cleveland Open Cup (butyl alcohol = 1)
Flammability (solid, gas)	Not determined	
Flammability limits in air		
Upper flammability limits	Not available	
Lower flammability limit	Not determined	
Vapor pressure	<0.3	(n-methyl-2-pyrrolidone)
Vapor density	3-4	(Air=1)
Specific gravity	12.0 lbs/gal	
Water solubility	partially soluble	
Solubility in other solvents	Not determined	
Partition coefficient	Not available	
Autoignition temperature	Not determined	
Decomposition temperature	Not determined	
Kinematic viscosity	Not determined	
Dynamic viscosity	Not determined	
Explosive properties	Not determined	
Oxidizing Properties	Not determined	

Other Information

VOC Content (%)	15.64%
VOC Content	1.88 lbs/gal

10. STABILITY AND REACTIVITY**Reactivity**

Not reactive under normal conditions

Chemical Stability

Stable under recommended storage conditions.

Possibility of Hazardous Reactions

None under normal processing.

Conditions to Avoid

Keep out of reach of children.

Incompatible Materials

Strong acids. Strong bases. Strong oxidizing agents. Strong reducing agents.

Hazardous Decomposition Products

Thermal decomposition may produce oxides of carbon and nitrogen.

11. TOXICOLOGICAL INFORMATION**Information on Likely Routes of Exposure**

Product Information

Inhalation	Harmful if inhaled.
Eye Contact	Causes severe eye irritation.
Skin Contact	Causes skin irritation. May be harmful in contact with skin.
Ingestion	May be harmful if swallowed.

Component Information

Chemical Name	Oral LD50	Dermal LD50	Inhalation LC50
Benzyl alcohol 100-51-6	= 1230 mg/kg (Rat)	= 2000 mg/kg (Rabbit)	= 8.8 mg/L (Rat) 4 h
1-Methyl-2-pyrrolidone 872-50-4	= 3598 mg/kg (Rat)	= 2500 mg/kg (Rat) > 5000 mg/kg (Rabbit)	= 3.1 mg/L (Rat) 4 h
Dimethyl Adipate 627-93-0	= 1920 mg/kg (Rat)	-	-
Dimethyl Glutarate 1119-40-0	= 8191 mg/kg (Rat)	-	> 5.6 mg/L (Rat) 4 h

Information on Physical, Chemical and Toxicological Effects

Symptoms Mists and vapors cause irritation of the eyes, mucous membranes, and upper respiratory tract. May cause irritation, redness and pain. Area of contact may become numb due to anesthetic effects. May cause gastrointestinal irritation, nausea, diarrhea, and vomiting.

Delayed and Immediate Effects as well as Chronic Effects from Short and Long-term Exposure

Carcinogenicity This product does not contain any carcinogens or potential carcinogens as listed by OSHA, IARC or NTP.

Reproductive toxicity May damage fertility or the unborn child.

STOT - single exposure May cause respiratory irritation. May cause drowsiness or dizziness.

Numerical Measures of Toxicity- Product

Not determined

The following values are calculated based on chapter 3.1 of the GHS document .

ATEmix (oral)	2017 mg/kg
ATEmix (dermal)	2311 mg/kg
ATEmix (inhalation-gas)	809 mg/l
ATEmix (inhalation-dust/mist)	0.1 mg/l
ATEmix (inhalation-vapor)	10.5 mg/l

12. ECOLOGICAL INFORMATION**Ecotoxicity**

Toxic to aquatic life with long lasting effects

Chemical Name	Algae/aquatic plants	Fish	Toxicity to microorganisms	Crustacea

Benzyl alcohol 100-51-6	35: 3 h Anabaena variabilis mg/L EC50	460: 96 h Pimephales promelas mg/L LC50 static 10: 96 h Lepomis macrochirus mg/L LC50 static	EC50 = 50 mg/L 5 min EC50 = 63.7 mg/L 15 min EC50 = 63.7 mg/L 5 min EC50 = 71.4 mg/L 30 min	23: 48 h water flea mg/L EC50
1-Methyl-2-pyrrolidone 872-50-4	500: 72 h Desmodemus subspicatus mg/L EC50	832: 96 h Lepomis macrochirus mg/L LC50 static 4000: 96 h Leuciscus idus mg/L LC50 static 1072: 96 h Pimephales promelas mg/L LC50 static 1400: 96 h Poecilia reticulata mg/L LC50 static		4897: 48 h Daphnia magna mg/L EC50
Dimethyl Glutarate 1119-40-0		19.6 - 26.2: 96 h Pimephales promelas mg/L LC50 static		122.1 - 163.5: 48 h Daphnia magna mg/L EC50

Persistence and Degradability

Material is readily biodegradable.

Bioaccumulation

The product has low potential for bioaccumulation.

Mobility

Not determined.

Chemical Name	Partition coefficient
Benzyl alcohol 100-51-6	1.1
1-Methyl-2-pyrrolidone 872-50-4	-0.46

Other Adverse Effects

Not determined

13. DISPOSAL CONSIDERATIONS**Waste Treatment Methods****Disposal of Wastes**

Disposal should be in accordance with applicable regional, national and local laws and regulations.

Contaminated Packaging

Disposal should be in accordance with applicable regional, national and local laws and regulations.

14. TRANSPORT INFORMATION**Note**

Please see current shipping paper for most up to date shipping information, including exemptions and special circumstances

DOT

Not regulated

IATA

Not regulated

IMDG

Not regulated

15. REGULATORY INFORMATION

International Inventories

TSCA Listed
DSL Listed

Legend:

TSCA - United States Toxic Substances Control Act Section 8(b) Inventory

DSL/NDL - Canadian Domestic Substances List/Non-Domestic Substances List

EINECS/ELINCS - European Inventory of Existing Chemical Substances/European List of Notified Chemical Substances

ENCS - Japan Existing and New Chemical Substances IECSC

- China Inventory of Existing Chemical Substances KECL -

Korean Existing and Evaluated Chemical Substances

PICCS - Philippines Inventory of Chemicals and Chemical Substances

US Federal Regulations

Chemical Name	CAS No	Weight-%	SARA 313 - Threshold Values %
1-Methyl-2-pyrrolidone - 872-50-4	872-50-4	10-20	1.0

SARA 311/312 Hazard Categories

Acute health hazard	Yes
Chronic Health Hazard	No
Fire hazard	No
Sudden release of pressure hazard	No
Reactive Hazard	No

US State Regulations

Chemical Name	California Proposition 65
1-Methyl-2-pyrrolidone - 872-50-4	Developmental

U.S. State Right-to-Know Regulations

Chemical Name	New Jersey	Massachusetts	Pennsylvania
Benzyl alcohol 100-51-6		X	X
Kaolin 1332-58-7	X	X	X
1-Methyl-2-pyrrolidone 872-50-4	X	X	X

U.S. EPA Label Information

16. OTHER INFORMATION

<u>NFPA</u>	Health Hazards	Flammability	Instability	Special Hazards
	2	1	0	Not determined
<u>HMIS</u>	Health Hazards	Flammability	Physical Hazards	Personal Protection
	Not determined	Not determined	Not determined	Not determined

Issue Date 18-Apr-2007
Revision Date 12-Dec-2012
Revision Note New format

Disclaimer

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End of Safety Data Sheet

Issue Date 23-Jun-2011

Revision Date 3-Mar-2015

Version 1

1. PRODUCT AND COMPANY IDENTIFICATION

Product Identifier

Product Name Peel Away ST-1

Other Means of Identification

SDS # DCI-026

UN/ID No UN1823

Recommended Use of the Chemical and Restrictions on Use

Recommended Use Paint removal from steel structures.

Details of the Supplier of the Safety Data Sheet

Supplier Address

Dumond Chemicals, Inc.
83 General Warren Blvd
Suite 190
Malvern, PA 19355

Emergency Telephone Number

Company Phone Number 1-609-655-7700
Emergency Telephone INFOTRAC 1-352-323-3500 (International)
1-800-535-5053 (North America)

2. HAZARDS IDENTIFICATION

Classification

Skin corrosion/irritation	Category 1 Sub-category B
Serious eye damage/eye irritation	Category 1
Specific target organ toxicity (single exposure)	Category 3

Signal Word

Danger

Hazard Statements

Causes severe skin burns and eye damage
May cause respiratory irritation. May cause drowsiness or dizziness



Appearance blue paste

Physical State Paste

Odor No odor

Precautionary Statements - Prevention

Do not breathe dust/fume/gas/mist/vapors/spray
 Wash face, hands and any exposed skin thoroughly after handling
 Wear protective gloves/protective clothing/eye protection/face protection
 Use only outdoors or in a well-ventilated area

Precautionary Statements - 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 POISON CENTER or doctor/physician
 IF ON SKIN (or hair): Remove/Take off immediately all contaminated clothing. Rinse skin with water/shower
 Wash contaminated clothing before reuse
 IF INHALED: Remove victim to fresh air and keep at rest in a position comfortable for breathing
 Immediately call a POISON CENTER or doctor/physician
 Call a POISON CENTER or doctor/physician if you feel unwell
 IF SWALLOWED: Rinse mouth. DO NOT induce vomiting

Precautionary Statements - Storage

Store locked up
 Store in a well-ventilated place. Keep container tightly closed

Precautionary Statements - Disposal

Dispose of contents/container to an approved waste disposal plant

3. COMPOSITION/INFORMATION ON INGREDIENTS

Chemical Name	CAS No	Weight-%
Calcium hydroxide	1305-62-0	21
Magnesium hydroxide	1309-42-8	16
Sodium hydroxide	1310-73-2	9
Water	N/A	46

4. FIRST AID MEASURES

First Aid Measures

Inhalation	Remove to fresh air. If not breathing, give artificial respiration. If breathing is difficult, give oxygen. Seek immediate medical attention/advice.
Eye Contact	Immediately flush with plenty of water. After initial flushing, remove any contact lenses and continue flushing for at least 15 minutes. Seek immediate medical attention/advice.
Ingestion	If conscious, give 1 glass of water or milk to dilute. Do NOT induce vomiting. Never give anything by mouth to an unconscious person. Get medical attention if necessary.
Skin Contact	Wash thoroughly with soap and water (15-30 minutes) until no traces of the chemical remain. Remove contaminated clothing and shoes. Get medical attention if irritation occurs.

Most Important Symptoms and Effects, both Acute and Delayed

Symptoms	Causes painful stinging or burning of eyes and lids, watering of eyes. May cause severe chemical burns with reddening and pain. Mists and vapors cause irritation of the eyes, mucous membranes, and upper respiratory tract. May cause burns to mouth, esophagus and stomach. Swallowing large quantities may cause gastrointestinal tract irritation, nausea, vomiting, and diarrhea.
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Indication of any Immediate Medical Attention and Special Treatment Needed

Note to Physicians Treat symptomatically.

5. FIRE-FIGHTING MEASURES**Suitable Extinguishing Media**

Use extinguishing measures that are appropriate to local circumstances and the surrounding environment.

Unsuitable Extinguishing Media Not determined.

Specific Hazards Arising from the Chemical

At elevated temperatures, containers may rupture. Contents are corrosive and all personal contact must be avoided. Cool containers exposed to flames with water until well after the fire is out.

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.

6. ACCIDENTAL RELEASE MEASURES**Personal Precautions, Protective Equipment and Emergency Procedures**

Personal Precautions Use personal protective equipment as required.

Environmental Precautions Do not allow into any sewer, on the ground or into any body of water.

Methods and Material for Containment and Cleaning Up

Methods for Containment Prevent further leakage or spillage if safe to do so. Collect using an inert absorbent material and place in appropriate containers for disposal.

Methods for Cleaning Up Keep in suitable, closed containers for disposal. Wash spill area with plenty of water. Spills and releases may have to be reported to Federal and/or local authorities. See section 15.

7. HANDLING AND STORAGE**Precautions for Safe Handling**

Advice on Safe Handling Handle in accordance with good industrial hygiene and safety practice. Protect container from physical damage. Since empty container retains residue, follow all label warnings even after container is empty. Avoid contact with skin, eyes or clothing. Do not breathe mists or aerosols. Remove contaminated clothing and shoes. Wash thoroughly after handling before eating, drinking, smoking, or using toilet facilities. Use personal protection recommended in Section 8. Use only in well-ventilated areas.

Conditions for Safe Storage, Including any Incompatibilities

Storage Conditions Keep away from acids and other incompatible materials. Keep container tightly closed and store in a cool, dry and well-ventilated place. Store locked up.

Incompatible Materials Acids. Flammable liquid. Organic halogen compounds. Nitromethane. Metals such as aluminum, tin, and zinc.

8. EXPOSURE CONTROLS/PERSONAL PROTECTION

Exposure Guidelines

Chemical Name	ACGIH TLV	OSHA PEL	NIOSH IDLH
Calcium hydroxide 1305-62-0	TWA: 5 mg/m ³	TWA: 15 mg/m ³ total dust TWA: 5 mg/m ³ respirable fraction (vacated) TWA: 5 mg/m ³ not in effect as a result of reconsideration	TWA: 5 mg/m ³
Sodium hydroxide 1310-73-2	Ceiling: 2 mg/m ³	TWA: 2 mg/m ³ (vacated) Ceiling: 2 mg/m ³	IDLH: 10 mg/m ³ Ceiling: 2 mg/m ³

Appropriate Engineering Controls**Engineering Controls**

For operations where contact can occur, a safety shower and an eye wash facility should be available. Good general room ventilation (equivalent to outdoors) should be adequate under normal conditions.

Individual Protection Measures, such as Personal Protective Equipment**Eye/Face Protection**

Use chemical safety goggles and/or full-face shield where dusting is possible. Do not wear contact lenses.

Skin and Body Protection

Wear impervious protective clothing, including boots, gloves, lab coat, apron or coveralls, as appropriate, to prevent skin contact. Rubber, neoprene, or other impervious gloves are recommended to prevent skin contact.

Respiratory Protection

None needed under normal use conditions with adequate ventilation. If the occupational exposure limits are exceeded, a NIOSH approved respirator with acid gas cartridges or supplied air respirator appropriate for the form and concentration of the contaminants should be used. Selection and use of respiratory equipment must be in accordance with OSHA 1910.134 and good industrial hygiene practice.

General Hygiene Considerations

Handle in accordance with good industrial hygiene and safety practice.

9. PHYSICAL AND CHEMICAL PROPERTIES**Information on Basic Physical and Chemical Properties**

Physical State	Paste	Odor	No odor
Appearance	blue paste	Odor threshold	Not determined
Color	Blue		

<u>Property</u>	<u>Values</u>	<u>Remarks • Method</u>
pH	12	
Melting point/freezing point	Not available	
Boiling point/boiling range	> 100 °C / 212 °F	
Flash point	None	
Evaporation rate	Same as water	
Flammability (solid, gas)	Not determined	
Flammability limits in air		
Upper flammability limits	Not applicable	
Lower flammability limit	Not applicable	
Vapor pressure	Similar to water	
Vapor density	Same as water	
Specific gravity	1.33	
Water solubility	Completely soluble	
Solubility in other solvents	Not determined	
Partition coefficient	Not available	
Autoignition temperature	Not established	

Decomposition temperature	Not determined
Kinematic viscosity	Not determined
Dynamic viscosity	Not determined
Explosive properties	Not determined
Oxidizing Properties	Not determined

Other Information

VOC Content (%)	0%
VOC Content	0 lbs/gal

10. STABILITY AND REACTIVITY

Reactivity

Not reactive under normal conditions

Chemical Stability

Stable under recommended storage conditions.

Possibility of Hazardous Reactions

None under normal processing.

Conditions to Avoid

Keep out of reach of children.

Incompatible Materials

Acids. Flammable liquid. Organic halogen compounds. Nitromethane. Metals such as aluminum, tin, and zinc.

Hazardous Decomposition Products

None known.

11. TOXICOLOGICAL INFORMATION

Information on Likely Routes of Exposure**Product Information**

Inhalation	Avoid breathing vapors or mists.
Eye Contact	Causes serious eye damage.
Skin Contact	Causes severe skin burns.
Ingestion	Do not taste or swallow.

Component Information

Chemical Name	Oral LD50	Dermal LD50	Inhalation LC50
Water 7732-18-5	> 90 mL/kg (Rat)	-	-
Calcium hydroxide 1305-62-0	= 7340 mg/kg (Rat)	-	-
Magnesium hydroxide 1309-42-8	= 8500 mg/kg (Rat)	-	-
Sodium hydroxide 1310-73-2	-	= 1350 mg/kg (Rabbit)	-

Information on Physical, Chemical and Toxicological Effects

Symptoms Causes painful stinging or burning of eyes and lids, watering of eyes. May cause severe chemical burns with reddening and pain. Mists and vapors cause irritation of the eyes, mucous membranes, and upper respiratory tract. May cause burns to mouth and gastrointestinal corrosion.

Delayed and Immediate Effects as well as Chronic Effects from Short and Long-term Exposure

Carcinogenicity This product does not contain any carcinogens or potential carcinogens as listed by OSHA, IARC or NTP.

STOT - single exposure May cause respiratory irritation. May cause drowsiness or dizziness.

Numerical Measures of Toxicity- Product

Not determined

The following values are calculated based on chapter 3.1 of the GHS document .

ATEmix (oral) 21097 mg/kg

ATEmix (dermal) 9445 mg/kg

12. ECOLOGICAL INFORMATION

Ecotoxicity

An environmental hazard cannot be excluded in the event of unprofessional handling or disposal

Chemical Name	Algae/aquatic plants	Fish	Toxicity to microorganisms	Crustacea
Calcium hydroxide 1305-62-0		160: 96 h <i>Gambusia affinis</i> mg/L LC50 static		
Sodium hydroxide 1310-73-2		45.4: 96 h <i>Oncorhynchus mykiss</i> mg/L LC50 static		

Persistence and Degradability

Not determined.

Bioaccumulation

Not determined.

Mobility

Not determined.

Other Adverse Effects

Not determined

13. DISPOSAL CONSIDERATIONS

Waste Treatment Methods

Disposal of Wastes Disposal should be in accordance with applicable regional, national and local laws and regulations.

Contaminated Packaging Disposal should be in accordance with applicable regional, national and local laws and regulations.

Chemical Name	California Hazardous Waste Status
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Calcium hydroxide 1305-62-0	Corrosive
Sodium hydroxide 1310-73-2	Toxic Corrosive

14. TRANSPORT INFORMATION

Note Based on package size, product may be eligible for limited quantity exception

DOT

UN/ID No UN1823
Proper Shipping Name Sodium hydroxide, solid, mixture
Hazard Class 8
Packing Group II

IATA

UN/ID No UN1823
Proper Shipping Name Sodium hydroxide, solid, mixture
Hazard Class 8
Packing Group II

IMDG

UN/ID No UN1823
Proper Shipping Name Sodium hydroxide, solid, mixture
Hazard Class 8
Packing Group II

15. REGULATORY INFORMATION

International Inventories

TSCA Listed

Legend:

TSCA - United States Toxic Substances Control Act Section 8(b) Inventory

DSL/NDSL - Canadian Domestic Substances List/Non-Domestic Substances List

EINECS/ELINCS - European Inventory of Existing Chemical Substances/European List of Notified Chemical Substances

ENCS - Japan Existing and New Chemical Substances IECSC

- China Inventory of Existing Chemical Substances KECL -

Korean Existing and Evaluated Chemical Substances

PICCS - Philippines Inventory of Chemicals and Chemical Substances

US Federal Regulations

SARA 311/312 Hazard Categories

Acute health hazard	Yes
Chronic Health Hazard	No
Fire hazard	No
Sudden release of pressure hazard	No
Reactive Hazard	No

Chemical Name	CWA - Reportable Quantities	CWA - Toxic Pollutants	CWA - Priority Pollutants	CWA - Hazardous Substances
Sodium hydroxide 1310-73-2	1000 lb			X
Chemical Name	Hazardous Substances RQs	CERCLA/SARA RQ		Reportable Quantity (RQ)
Sodium hydroxide 1310-73-2	1000 lb			RQ 1000 lb final RQ RQ 454 kg final RQ

US State Regulations

U.S. State Right-to-Know Regulations

Chemical Name	New Jersey	Massachusetts	Pennsylvania
Calcium hydroxide 1305-62-0	X	X	X
Sodium hydroxide 1310-73-2	X	X	X

U.S. EPA Label Information

16. OTHER INFORMATION

<u>NFPA</u>	Health Hazards 3	Flammability 0	Instability 0	Special Hazards Not determined
<u>HMIS</u>	Health Hazards Not determined	Flammability Not determined	Physical Hazards Not determined	Personal Protection Not determined

Issue Date	23-Jun-2011
Revision Date	12-Dec-2012
Revision Note	New format

Disclaimer

The information provided in this Safety Data Sheet 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 guidance for safe handling, use, processing, storage, transportation, disposal and release and is not to be considered 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 materials or in any process, unless specified in the text.

End of Safety Data Sheet



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Penetone® Corporation, 700 Gotham Parkway, Carlstadt, NJ 07072
CAGE 56883

PENETONE® 19

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Date Prepared: April 15, 2015
MSDS No.: 1862

SECTION 1: IDENTIFICATION

Product name: PENETONE 19

Recommended use: Gas turbine compressor cleaning

Physical Description: Clear amber liquid with mild solvent odor

Generic Ingredients: Water, surfactants and soap, aromatic hydrocarbons and other solvents

Manufacturer:

Penetone Corporation
700 Gotham Parkway
Carlstadt, NJ 07072
800-631-1652 or 201-567-3000

Business Contact:

Customer Service
800-631-1652 x2602 or 2272
Product Safety
800-631-1652 x2211 or 2257

Emergency Phone Numbers: PENETONE 201-567-3000 CHEMTREC 800-424-9300

SECTION 2: HAZARDS IDENTIFICATION

GHS CLASSIFICATION:

<p>Health: Skin irritation: 2 Eye irritation: 2A Carcinogenicity: 2</p>	<p>Specific target organ toxicity - single exposure: 3 Aspiration hazard: 1 Physical: Flammable liquid: 4</p>
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DANGER!

May Be Fatal If Swallowed and Enters Airways.
Causes Skin and Serious Eye Irritation.
Suspected of Causing Cancer.
May Cause Drowsiness or Dizziness.
Combustible Liquid.



Precautionary Statements:	
<p><u>Prevention:</u> Obtain special instruction before use. Do not handle until all safety precautions have been read and understood. Avoid breathing fumes, vapors or mists if inhalable mists occur during use. Use only outdoors or in a well-ventilated area. Wear protective gloves, eye protection, and face protection. Wash hands and exposed skin thoroughly after handling. Keep away from flames and hot surfaces.—No smoking.</p> <p><u>Response:</u> <i>If in eyes:</i> Rinse cautiously with water for several minutes. Remove contact lenses, if present and easy to do. Continue rinsing. If eye irritation persists: Get medical advice/attention. <i>If on skin (or hair):</i> Take off immediately all contaminated clothing. Rinse skin with water or shower. A mild soap may be used. Wash contaminated clothing before reuse. If skin irritation or rash occurs: Get medical advice/attention.</p>	<p><i>If inhaled:</i> Remove person to fresh air and keep comfortable for breathing. Call a poison center, doctor, emergency room or 911 if you feel unwell. <i>If swallowed,</i> immediately call a poison center, doctor, emergency room, or 911. Do NOT induce vomiting. <i>In case of fire:</i> Use dry chemical, carbon dioxide, water spray, water fog, or foam. Do not use solid water stream as this may spread the fire. <i>If exposed or concerned:</i> Get medical advice/attention.</p> <p><u>Storage:</u> Store locked up. Store in a well-ventilated place. Keep container tightly closed.</p> <p><u>Disposal:</u> Dispose of contents/container in accordance with local, regional, and national regulations (see Sections 13 and 15 of SDS for disposal and reporting requirements).</p>



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SECTION 3: COMPOSITION / INFORMATION ON INGREDIENTS

Chemical Name	CAS#	Concentration Wt% (1)
Water	7732-18-5	25-50
Ethoxylated nonylphenol	127087-87-0	10-25
Aromatic petroleum naphtha	64742-94-5	10-25
Hexylene glycol	107-41-5	10-25
Diethanolamine	111-42-2	1-10
Diethanolamine soap	68002-82-4	1-10

(1) Exact percentages being withheld under trade secret provision of OSHA HCS 1910.1200(i)

SECTION 4: FIRST-AID MEASURES

General Description of Symptoms & First-Aid Measures

Most likely work-place exposure routes will be *skin contact* or *inhalation*.

For *skin contact*, typically no immediate effects will be observed. Slight reddening or minor irritation could develop some time after exposure if product is not quickly washed off. For sensitive individuals, a rash may appear.

Inhalation exposure may produce varied effects, particularly if exposure occurs above the recommended workplace exposure limits (see SECTION 8). Typical symptoms would include headaches, dizziness, and drowsiness. In extreme cases, unconsciousness and other central nervous effects may occur.

Eyes

If in eyes: Rinse cautiously with water for several minutes. Remove contact lenses, if present and easy to do. Continue rinsing. If eye irritation persists or develops: Get medical advice or attention. Penetone recommends that after any eye exposure a physician be seen immediately.

Ingestion

If swallowed: Immediately call a poison center, doctor, physician or other competent medical authority. Rinse mouth. Product presents an aspiration hazard. DO NOT INDUCE VOMITING.

Inhalation

If inhaled: Remove person to fresh air and keep comfortable for breathing. Call a poison center, doctor, physician or other competent medical authority if you feel unwell.

Skin

If on skin (or hair): Take off immediately all contaminated clothing. Rinse skin with water or shower. A mild soap may be used to wash skin. Wash contaminated clothing before reuse. If skin irritation or rash occurs: Get medical advice or attention.

Special Treatment / Other

None

SECTION 5: FIRE FIGHTING MEASURES

Flammable Properties

Classification: 4

Flash Point: 155°F PMCC

Autoignition Temperature: not determined

Lower Flammable Limit: not determined Upper Flammable Limit: not determined

Specific Hazards

Combustible liquid. Can form combustible mixtures at or above the flash point. Although the product is combustible,



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it is water based and water dilutable and will self extinguish with addition of water.

Extinguishing Media

Suitable: SMALL FIRE: Use dry chemical, carbon dioxide (CO₂), water spray or regular foam. LARGE FIRE: water spray, water fog, or foam.

Unsuitable: Do not use solid water stream as this may spread fire.

Protection & Precautions for Firefighters

Protective Equipment & Clothing: Wear positive pressure self-contained breathing apparatus (SCBA). Structural firefighters protective clothing will only provide limited protection.

Fire Fighting Guidance: Cool containers with flooding quantities of water until well after fire is out. Move containers from fire area if you can do it safely. Dike fire control water for later disposal; do not scatter material. Containers can expand and explode under fire conditions due to vapor buildup. Always stay away from containers engulfed in fire.

Hazardous Combustion Products: Smoke, fumes, and oxides of carbon and nitrogen.

SECTION 6: ACCIDENTAL RELEASE MEASURES

Land Spill

Eliminate sources of ignition. Do not touch or walk through spilled material. Stop leak if you can do it safely. For large spills, dike and pump into properly labeled containers for reclamation or disposal. For small spill, soak up with absorbent material and place in properly labeled containers for disposal.

Water Spill

Product forms emulsion with water which may make cleanup difficult. Avoid agitation to minimize emulsion formation. Remove product from water surface by skimming or with suitable absorbents. Put into properly labeled containers for reclamation or disposal. If allowed by local environmental regulatory agencies, you may use a suitable dispersant. Check with local environmental regulatory agencies for reporting requirements.

See SECTION 8 for EXPOSURE CONTROLS and PERSONAL PROTECTION.

SECTION 7: HANDLING & STORAGE

Handling

Do not handle near heat, sparks, or flame. Avoid contact with oxidizing agents. Use only with adequate ventilation/personal protection (SEE section 8). Avoid contact with eyes, skin and clothing. After handling, always wash hands thoroughly with soap and water. Avoid personal contact with any residue. Dispose of empty containers with care. Empty containers can contain flammable residue and explosive vapors. **Do not cut, weld, or reuse empty container.**

Storage

Store in a well-ventilated place. Keep container tightly closed. Store locked up. Do not store near heat, sparks, open flame, or other ignition sources. Do not store near strong oxidizing agents. Do not store in direct sunlight. Avoid storing above 120°F (49°C).

SECTION 8: EXPOSURE CONTROLS and PERSONAL PROTECTION

Engineering Controls

Use process enclosures, local exhaust ventilation, or other engineering controls to keep airborne levels below recommended exposure limits.



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Personal Protection

Inhalation A respiratory protection program that meets OSHA's 29 CFR 1910.134 or ANSI Z88.2 requirements must be followed whenever workplace conditions warrant respirator use. Use of an organic vapor mask or respirator is recommended.

Skin Wear chemical resistant gloves such as: rubber, nitrile, neoprene, or latex when skin contact is possible. Protective clothing including gloves, apron, sleeves, boots, head and face protection should be worn depending on how the product is used. PPE should be cleaned thoroughly after each use.

Eyes Penetone recommends always wearing safety glasses as a minimum in any workplace. Conditions may warrant the use of chemical goggles and possibly a face shield. Consult your standard operating procedure or safety professional for advice. Use protective eye and face devices that comply with ANSI Z87.1-1987.

Additional Remarks

Selection of appropriate personal protective equipment should be based on an evaluation of the performance characteristics of the protective equipment relative to the task(s) to be performed, conditions present, duration of use, and the hazards and/or potential hazards that may be encountered during use.

Occupational Exposure Limits

Component Name	Source	Value	Type	Notation
Aromatic petroleum naphtha	ACGIH	100 mg/m ³	TWA	Appendix H
	NIOSH	350 mg/m ³	TWA	
		1800 mg/m ³	Ceiling	
Diethanolamine	OSHA Z1	500 ppm	TWA	skin; A3
	ACGIH	1 mg/m ³ (IFV)	TWA	
	NIOSH	3 ppm	TWA	

SECTION 9: PHYSICAL & CHEMICAL PROPERTIES

Appearance: clear amber liquid
Odor: mild solvent
Odor Threshold: not determined
pH: about 10
Melting Point / Freezing: about 30°F
Boiling Point / Boiling Point Range: about 212°F
Flash Point: 155°F PMCC
Evaporation Rate: equal to water
Flammability: not applicable
Lower Flammable Limit: not determined
Upper Flammable Limit: not determined
Explosive Properties: not applicable
Vapor Pressure: equal to water
Relative Vapor Density: not determined
Relative Density: 0.99
Solubility (Water): forms emulsion (separate in one to 12 hours)
Partition Coefficient (K_{ow}): not determined
Auto-ignition temperature: not determined
Decomposition temperature: not determined
Viscosity: 10-50 centipoise at room temperature



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SECTION 10: STABILITY & REACTIVITY

Reactivity

Product is stable and only reactive under extreme conditions (very high heat/pressure) or in the presence of specific incompatible materials (see below).

Chemical Stability

Product is stable.

Hazardous Reactions

Hazardous polymerization will not occur.

Conditions to Avoid

Combustible liquid. Do not store near sources of heat, sparks, open flame, or other ignition sources.

Incompatible Materials

Strong oxidizing agents.

Hazardous Decomposition Products

Carbon monoxide and dioxide and nitrogen oxides when taken to dryness and burned.

SECTION 11: TOXICOLOGICAL INFORMATION

Product Summary

Product is irritating to the skin and eyes. Vapor/aerosol concentrations above recommended exposure levels are irritating to the eyes and respiratory tract, and may cause headaches, dizziness, drowsiness, unconsciousness and other central nervous system effects.

Acute Toxicity:

Dermal: Rabbits, LD50 > 4,000 mg/kg (estimated using additivity formula)

Inhalation: no data available

Oral: Rats, LD50 > 2,000 mg/kg (estimated using additivity formula)

Skin Corrosion/Irritation

Product when tested as a whole was only mildly irritating.

Serious Eye Damage/Irritation

Based upon component data, product as a whole may cause moderate to serious eye irritation.

Sensitization - Respiratory or Skin

Based upon component data, not expected to be a skin sensitizer.

Germ Cell Mutagenicity

No data available

Carcinogenicity

Diethanolamine is listed by IARC as Group 2B: possibly carcinogenic to humans and by ACGIH as Group 3A: confirmed animal carcinogen with unknown relevance to humans.

Diethanolamine in the presence of nitrites can form suspected cancer causing nitrosamines.

Reproductive Toxicity

No data available.

The nonionic surfactant used in this product has produced effects in the fetus only at levels that were toxic to the



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parent animals.

Diethanolamine has been found to be toxic to the fetus at doses toxic to the mother animal. Effects have been reported on male reproductive organs.

Hexylene glycol delayed development of the fetus at doses that were toxic to the mother animal.

Specific Target Organ Effects - Single Exposure

No data available.

Specific Target Organ Effects - Repeated or Prolonged Exposure

No data available.

Repeated exposure in lab animals to diethanolamine includes anemia (rats) and effects on the kidney (rats & mice) and liver (mice). Heart and nervous system effects were also observed in animals given exaggerated doses of diethanolamine.

The aromatic hydrocarbon caused kidney effects in male rats which are not considered relevant to humans.

Hexylene glycol produced effects on the kidney, liver, stomach, and irritation of gastric mucosa in rats. However no significant impairment of function was observed.

Aspiration Hazard

Based upon available data and comparison to similar materials, if swallowed, may pose a lung aspiration hazard during vomiting. Lung aspiration may result in chemical pneumonitis, pulmonary edema, and damage to lung tissue or death.

SECTION 12: ECOLOGICAL INFORMATION

Product Summary

Product is expected to be toxic to fish, aquatic invertebrates, algae, and microorganisms. (Acute aquatic toxicity category 2 by European Union classification).

Ecotoxicity

LC/EC/IC 1-10 mg/l (estimated using additivity formula)

Persistence and Degradability

Based upon component data, product is expected to be inherently biodegradable.

Bioaccumulative Potential

No data available for the product. Aromatic solvent used in this product has the potential to bioaccumulate.

Mobility in soil

No data available for the product. Product is a complex mixture. Components will partition into water and soil phases depending on inherent solubility of component in water.

Other Adverse Effects

None known

SECTION 13: DISPOSAL CONSIDERATIONS

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

Note: Contaminated product, soil, water, container residues and spill cleanup materials may be hazardous wastes. Appropriate hazardous waste designation is the responsibility of the user.



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SECTION 14: TRANSPORT INFORMATION

ID No.: none
Proper Shipping Name: nonhazardous (nonregulated) material
Hazard Class: none
Packing Group: none
Label: none
Marine Pollutant: No
RQ: Yes
Special Precautions: None

SECTION 15: REGULATORY INFORMATION

TSCA

The ingredients in this product are listed on the TSCA inventory.

RCRA HAZARD CLASS

Nonhazardous waste

SARA 311/312 REPORTABLE HAZARD CATEGORIES: Immediate (Acute) Health

REPORTING REQUIREMENTS (all quantities in pounds)

Component	CAS / 313 Code	Section 302 (EHS) TPQ	Section 304 EHS RQ	CERCLA RQ (1)	Section 313	CAA 112(r) TQ	CWA / OPA
Diethanolamine	111-42-2			100	313		
Product RQ for component				2,500 300 gal			
Hexylene glycol	N230			(2)	313		

(1) Releases exceeding the RQ just be reported to the National Response Center, 800-424-8802 and may be subject to state and local reporting.

(2) CERCLA hazardous substance with no assigned RQ

NEW JERSEY RIGHT-TO-KNOW INFORMATION

This product contains water (CAS# 7732-18-5), ethoxylated nonylphenol (CAS 127087-87-0), aromatic petroleum naphtha (CAS 64742-94-5), hexylene glycol (CAS 107-41-5), and diethanolamine (CAS 111-42-2).

CALIFORNIA PROPOSITION 65 INFORMATION

This product contains a chemical recognized by the state of California to cause cancer: diethanolamine (CAS# 111-42-2)

SCAQMD INFORMATION

Is there a photochemically reactive material present? Yes
What is the % by volume of photochemically reactive material? 15-20
What is the VOC content? 280 g/l
What is the vapor pressure of VOC's? 0.03 mm Hg @ 20°C



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SECTION 16: OTHER INFORMATION

REVISION SUMMARY

New GHS format

SUPERSEDES ISSUE DATE

September 20, 2011

HAZARD RATING SYSTEMS:

	<u>HMIS</u>	<u>NFPA</u>
HEALTH	1	1
FLAMMABILITY	2	2
REACTIVITY	0	0
	B	

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

FOR ADDITIONAL PRODUCT INFORMATION, CONTACT YOUR SALES ENGINEER
FOR ADDITIONAL HEALTH/SAFETY INFORMATION, CALL 201-567-3000

THE INFORMATION PRESENTED HEREIN HAS BEEN COMPILED FROM SOURCES CONSIDERED TO BE DEPENDABLE AND ACCURATE TO THE BEST OF PENETONE'S KNOWLEDGE. THE INFORMATION RELATES TO THIS SPECIFIC MATERIAL. IT MAY NOT BE VALID FOR THIS MATERIAL IF USED IN COMBINATION WITH ANY OTHER MATERIALS OR IN ANY PROCESS. IT IS THE USER'S RESPONSIBILITY TO SATISFY ONESELF AS TO THE SUITABILITY AND COMPLETENESS OF THIS INFORMATION FOR HIS OWN PARTICULAR USE.



POWER CLEANER® 155

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 Date Prepared: January 25, 2015
 MSDS No.: 1870

SECTION 1: IDENTIFICATION

Product name: POWER CLEANER 155

Recommended use: Cleaner, degreaser

Physical Description: Clear water white liquid with mild odor

Generic Ingredients: Water, builders, surfactants, and chelate

Manufacturer:

Penetone Corporation
 700 Gotham Parkway
 Carlstadt, NJ 07072
 800-631-1652 or 201-567-3000

Business Contact:

Customer Service
 800-631-1652 x2602 or 2272
 Product Safety
 800-631-1652 x2211 or 2257

Emergency Phone Numbers: PENETONE 201-567-3000 CHEMTREC 800-424-9300

SECTION 2: HAZARDS IDENTIFICATION

GHS CLASSIFICATION:

<p>Health: Skin corrosion: 1C Eye damage: 1</p>	<p>Physical: not classified</p>
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DANGER!

Causes Severe Skin Burns and Eye Damage.



<p>Precautionary Statements:</p>	
<p><u>Prevention:</u> Do not breathe mists if inhalable mists occur during use. Wear protective gloves, clothing, eye protection, and face protection. Wash hands and exposed skin thoroughly after handling.</p> <p><u>Response:</u> <i>If swallowed:</i> Rinse mouth. Do NOT induce vomiting. <i>If on skin or hair:</i> Take off immediately all contaminated clothing. Rinse skin with water or shower. Wash contaminated clothing before reuse. <i>If in eyes:</i> Rinse cautiously with water for several minutes. Remove contact lenses, if present and easy to do. Continue rinsing.</p>	<p><i>If inhaled:</i> Remove person to fresh air and keep comfortable for breathing. Immediately call a poison center, doctor, emergency room, or 911.</p> <p><u>Storage:</u> Store locked up.</p> <p><u>Disposal:</u> Dispose of contents/container in accordance with local, regional, and national regulations (see Sections 13 and 15 of SDS for disposal and reporting requirements).</p>

SECTION 3: COMPOSITION / INFORMATION ON INGREDIENTS

Chemical Name	CAS#	Concentration Wt% (1)
Water	7732-18-5	75-90
Tripotassium phosphate	7758-53-2	1-10
Sodium xylene sulfonate	1300-72-7	1-10
Tetrapotassium pyrophosphate	7320-34-5	1-10
Trisodium hydroxylethylethylenediamine triacetate	139-89-1	1-10
Potassium silicate	1312-76-1	1-10
Alkoxylated linear alcohol	68551-13-3	<1



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Diisooctyl acid phosphate	27215-10-7	0.95
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(1) Exact percentages being withheld under trade secret provision of OSHA HCS 1910.1200(i)

SECTION 4: FIRST-AID MEASURES

General Description of Symptoms & First-Aid Measures

Most likely work-place exposure routes will be *skin contact* or *inhalation*.

For *skin contact*, typically no immediate effects will be observed. A tingling or burning sensation might be felt some time after exposure. Slight reddening or minor irritation could also develop if product is not quickly washed off. If product not washed off or left in contact with skin for some time, skin burn could result.

Inhalation exposure may produce varied effects, particularly if exposure occurs above the recommended workplace exposure limits (see SECTION 8). Typical symptoms could include coughing, sneezing, and a tingling or burning sensation in the nose, throat, and lungs.

Eyes

If in eyes: Rinse cautiously with water for several minutes. Remove contact lenses, if present and easy to do. Continue rinsing. Immediately call a local Poison Control Center, doctor, physician or other competent medical authority for medical advice. Penetone recommends that after any eye exposure a physician be seen immediately.

Ingestion

If swallowed: Rinse mouth. DO NOT INDUCE VOMITING. Immediately call a poison center, doctor, physician or other competent medical authority for medical advice.

Inhalation

If inhaled: Remove person to fresh air and keep comfortable for breathing. Immediately call a local Poison Control Center, physician, or other competent medical authority for medical advice.

Skin

If on skin (or hair): Take off immediately all contaminated clothing. Rinse skin with water or shower. A mild soap may be used to wash skin. Wash contaminated clothing before reuse. Immediately call a local Poison Control Center, doctor, physician or other competent medical authority for medical advice.

Special Treatment / Other

None

SECTION 5: FIRE FIGHTING MEASURES

Flammable Properties

Classification: Non-flammable

Flash Point: None-to-boil

Autoignition Temperature: not determined

Lower Flammable Limit: Not applicable **Upper Flammable Limit:** Not applicable

Specific Hazards

Product is water based and presents no unusual fire hazards.

Extinguishing Media

Use extinguishing agents appropriate for controlling surrounding fire.

Unsuitable: None.

Protection & Precautions for Firefighters

Protective Equipment & Clothing: Wear positive pressure self-contained breathing apparatus (SCBA). Structural



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firefighters protective clothing will only provide limited protection.

Fire Fighting Guidance: Cool containers with flooding quantities of water until well after fire is out. Move containers from fire area if you can do it safely. Dike fire control water for later disposal; do not scatter material. Containers can expand and explode under fire conditions due to vapor buildup. Always stay away from containers engulfed in fire.

Hazardous Combustion Products: Smoke, fumes, and oxides of carbon, nitrogen, phosphorus and sulfur when taken to dryness.

SECTION 6: ACCIDENTAL RELEASE MEASURES

Land Spill

Adsorb spillage to prevent material damage. Stop leak if you can do it safely. For large spills, dike and pump into properly labeled containers for reclamation or disposal. For small spill, soak up with absorbent material and place in properly labeled containers for disposal. Neutralize residue with dilute acid and follow with a liberal covering of sodium bicarbonate or other acceptable drying agent.

Water Spill

This is a water based product and will completely mix/dissolve in water making recovery difficult. This product is alkaline and may raise the pH of surface waters with low buffering capacity. Check with local environmental regulatory agencies for reporting requirements.

See SECTION 8 for EXPOSURE CONTROLS and PERSONAL PROTECTION.

SECTION 7: HANDLING & STORAGE

Handling

Avoid contact with eyes, skin and clothing. After handling, always wash hands thoroughly with soap and water. Avoid personal contact with any residue. Do not cut, weld, or reuse empty container.

Storage

Store locked up. Keep container tightly closed when not in use. Do not store near strong acids. Do not store in direct sunlight. Avoid storing above 120°F (49°C).

SECTION 8: EXPOSURE CONTROLS and PERSONAL PROTECTION

Engineering Controls

Use process enclosures, local exhaust ventilation, or other engineering controls to keep airborne levels below recommended exposure limits.

Personal Protection

Inhalation A respiratory protection program that meets OSHA's 29 CFR 1910.134 or ANSI Z88.2 requirements must be followed whenever workplace conditions warrant respirator use. Use of an organic vapor mask or respirator is recommended.

Skin Wear chemical resistant gloves such as: rubber, nitrile, neoprene, or latex when skin contact is possible. Protective clothing including gloves, apron, sleeves, boots, head and face protection should be worn depending on how the product is used. PPE should be cleaned thoroughly after each use.

Eyes Penetone recommends always wearing safety glasses as a minimum in any workplace. Conditions may warrant the use of chemical goggles and possibly a face shield. Consult your standard operating procedure or safety professional for advice. Use protective eye and face devices that comply with ANSI Z87.1-1987.



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Additional Remarks

Selection of appropriate personal protective equipment should be based on an evaluation of the performance characteristics of the protective equipment relative to the task(s) to be performed, conditions present, duration of use, and the hazards and/or potential hazards that may be encountered during use.

Occupational Exposure Limits

<u>Component Name</u>	<u>Source</u>	<u>Value</u>	<u>Type</u>	<u>Notation</u>
	Product has no components with established OELs.			
	Because of product pH of 12-12.5, Penetone recommends using:			
Potassium hydroxide	ACGIH	2 mg/m ³	C	
	NIOSH	2 mg/m ³	C	

SECTION 9: PHYSICAL & CHEMICAL PROPERTIES

Appearance: clear water white liquid
Odor: mild
Odor Threshold: not determined
pH: 12-12.5
Melting Point / Freezing: about 25°F
Boiling Point / Boiling Point Range: about 212°F
Flash Point: not applicable
Evaporation Rate: equal to water
Flammability: not applicable
Lower Flammable Limit: not applicable
Upper Flammable Limit: not applicable
Explosive Properties: not applicable
Vapor Pressure: equal to water
Relative Vapor Density: equal to water
Relative Density: 1.13
Solubility (Water): soluble in water
Partition Coefficient (K_{ow}): not determined
Auto-ignition temperature: not applicable
Decomposition temperature: not applicable
Viscosity: less than 5 centipoise at room temperature

SECTION 10: STABILITY & REACTIVITY

Reactivity

Product will react with acids, giving off heat and possible splattering.

Chemical Stability

Stable.

Hazardous Reactions

Mixing with acids will give off heat and may cause splattering. Hazardous polymerization will not occur.

Conditions to Avoid

Alkaline liquid. Do not store near strong bases.

Incompatible Materials

Strong acids.



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Hazardous Decomposition Products

Oxides of carbon, nitrogen, phosphorus and sulfur when taken to dryness.

SECTION 11: TOXICOLOGICAL INFORMATION

Product Summary

This product contains highly alkaline materials. This product contains highly alkaline materials. The product should be considered corrosive to all tissues. Contact with skin and/or eyes, ingestion, or inhalation of spray mist may be corrosive. Possible effects include severe irritation, burns, and permanent damage to exposed tissues if immediate action is not taken.

Acute Toxicity:

Dermal: LD50 > 5,000 g/kg rabbit (estimated using additivity formula)

Inhalation: No data available

Oral: LD50 > 5,000 mg/kg rat (estimated using additivity formula)

Skin Corrosion/Irritation

Short term exposure may be irritating. Longer term exposure may cause severe irritation or possibly burns. Prolonged or repeat skin exposures can result in dermatitis.

Serious Eye Damage/Irritation

Short term exposure may be irritating. Longer term exposure can cause serious eye damage which can result in severe irritation, pain and burns, and permanent damage including blindness.

Sensitization - Respiratory or Skin

Based upon components, product is not expected to be a respiratory or skin sensitizer.

Germ Cell Mutagenicity

Based upon components, product is not expected to result in germ cell mutagenicity.

Carcinogenicity

No material in this product is listed by IARC, NTP, or OSHA as a carcinogen.

Reproductive Toxicity

No data for the product. Insufficient data for the components to evaluate. Given the product's tissue corrosiveness, other more pronounced effects would be seen making evaluation of reproductive toxicity unlikely.

Specific Target Organ Effects - Single Exposure

No data.

Specific Target Organ Effects - Repeated or Prolonged Exposure

No data available.

Frequent ingestion over extended periods of time of gram quantities of sodium silicate are associated with kidney stone formation and other siliceous urinary calculi in humans

Inorganic phosphates have been extensively studied because of their use as food additives. Very high oral doses (1% in the diet) have produced toxic effects on the kidneys and parathyroid glands.

Aspiration Hazard

Based upon components, product not expected to be an aspiration hazard.

SECTION 12: ECOLOGICAL INFORMATION

Product Summary

This material is alkaline and may raise the pH of surface waters with low buffering capacity. Product considered



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nontoxic to aquatic organisms.

Ecotoxicity

Fathead minnow LC50 96 hr 620 ppm

Water flea LC50 48 hr 720 ppm

Persistence and Degradability

No data available. Surfactant used in this product is readily biodegradable.

Bioaccumulative Potential

No data available. Because of ready biodegradability of surfactant, bioaccumulation potential considered low.

Mobility in soil

No data available. Inorganic materials will stay in water.

Other Adverse Effects

None known.

SECTION 13: DISPOSAL CONSIDERATIONS

Product is a D002 Corrosive Hazardous Waste under RCRA definitions. Dispose of contents/container in accordance with all applicable federal, state, and local regulations.

Note: Contaminated product, soil, water, container residues and spill cleanup materials may be hazardous wastes. Appropriate hazardous waste designation is the responsibility of the user.

SECTION 14: TRANSPORT INFORMATION

ID No.: UN3266
Proper Shipping Name: CORROSIVE LIQUID, BASIC, INORGANIC, N.O.S., (contains potassium silicate)
Hazard Class: 8
Packing Group: III
Label: CORROSIVE
Marine Pollutant: No
RQ: not applicable
Special Precautions: none

SECTION 15: REGULATORY INFORMATION

TSCA

The ingredients in this product are listed on the TSCA inventory.

RCRA HAZARD CLASS

D002 corrosive hazardous waste

SARA 311/312 REPORTABLE HAZARD CATEGORIES: Immediate (Acute) Health



SAFETY DATA SHEET

Penetone® Corporation, 700 Gotham Parkway, Carlstadt, NJ 07072

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REPORTING REQUIREMENTS (all quantities in pounds)

Component	CAS / 313 Code	Section 302 (EHS) TPQ	Section 304 EHS RQ	CERCLA RQ	Section 313	CAA 112(r) TQ	CWA / OPA
no components subject to reporting							

NEW JERSEY RIGHT-TO-KNOW INFORMATION

This product contains water (CAS# 7732-18-5), sodium xylene sulfonate (CAS# 1300-72-7), tripotassium phosphate (CAS# 7778-53-2), tetrapotassium pyrophosphate (CAS# 7320-34-5), and trisodium n-hydroxyethylethylenediamine triacetate (CAS# 139-89-9).

CALIFORNIA PROPOSITION 65 INFORMATION

This product does not contain any chemicals recognized by the state of California to cause cancer and/or birth defects or reproductive harm.

SCAQMD INFORMATION

Is there a photochemically reactive material present? No
What is the % by volume of photochemically reactive material? 0
What is the VOC content? 0
What is the vapor pressure of VOC's? 0

SECTION 16: OTHER INFORMATION

REVISION SUMMARY

New GHS format

SUPERSEDES ISSUE DATE

July 23, 2010

HAZARD RATING SYSTEMS:

	<u>HMIS</u>	<u>NFPA</u>
HEALTH	2	2
FLAMMABILITY	0	0
REACTIVITY	0	0
	B	

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

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FOR ADDITIONAL HEALTH/SAFETY INFORMATION, CALL 201-567-3000

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Pyroil™ POWER STEERING FLUID
PYPSF1

1. IDENTIFICATION OF THE SUBSTANCE/MIXTURE AND OF THE COMPANY/UNDERTAKING

Ashland	Regulatory Information Number	1-800-325-3751
P.O. Box 2219	Telephone	614-790-3333
Columbus, OH 43216	Emergency telephone number	1-800-ASHLAND (1-800-274-5263)
Product name	Pyroil™ POWER STEERING FLUID	
Product code	PYPSF1	

2. HAZARDS IDENTIFICATION

Emergency Overview

Appearance: liquid, amber

CAUTION! PROLONGED OR REPEATED CONTACT MAY DRY THE SKIN AND CAUSE IRRITATION AND BURNS.

Potential Health Effects

Exposure routes

Inhalation, Skin absorption, Skin contact, Eye Contact, Ingestion

Eye contact

May cause mild eye irritation. Symptoms include stinging, tearing, and redness.

Skin contact

May cause slight skin irritation. Prolonged or repeated contact may dry the skin. Symptoms may include redness, burning, and drying and cracking of skin, skin burns, and other skin damage.

Ingestion

Swallowing small amounts of this material during normal handling is not likely to cause harmful effects. Swallowing large amounts may be harmful.

Inhalation

Pyroil™ POWER STEERING FLUID
PYPSF1

It is possible to breathe this material under certain conditions of handling and use (for example, during heating, spraying, or stirring). Breathing small amounts of this material during normal handling is not likely to cause harmful effects. Breathing large amounts may be harmful. Symptoms are not expected at air concentrations below the recommended exposure limits, if applicable (see Section 8.).

Aggravated Medical Condition

Preexisting disorders of the following organs (or organ systems) may be aggravated by exposure to this material: Skin, lung (for example, asthma-like conditions)

Symptoms

Signs and symptoms of exposure to this material through breathing, swallowing, and/or passage of the material through the skin may include: stomach or intestinal upset (nausea, vomiting, diarrhea), irritation (nose, throat, airways)

Target Organs

No data

Carcinogenicity

This material is not listed as a carcinogen by the International Agency for Research on Cancer (IARC), the National Toxicology Program (NTP), or the Occupational Safety and Health Administration (OSHA).

Reproductive hazard

There are no data available for assessing risk to the fetus from maternal exposure to this material.

3. COMPOSITION/INFORMATION ON INGREDIENTS

Hazardous Components	CAS-No. / Trade Secret No.	Concentration
HEAVY PARAFFINIC DISTILLATE	64742-54-7	>=90-<=100%
LUBRICATING OILS, PETROLEUM, HYDROTREATED SPENT	64742-58-1	>=5-<10%
MIXTURE OF SEVERELY HYDROTREATED AND HYDROCRACKED BASE OIL (PETROLEUM)		>=1-<1.5%

4. FIRST AID MEASURES

Pyroil™ POWER STEERING FLUID
PYPSF1

Eyes

If symptoms develop, move individual away from exposure and into fresh air. Flush eyes gently with water while holding eyelids apart. If symptoms persist or there is any visual difficulty, seek medical attention.

Skin

Remove contaminated clothing. Wash exposed area with soap and water. If symptoms persist, seek medical attention. Launder clothing before reuse.

Ingestion

Seek medical attention. If individual is drowsy or unconscious, do not give anything by mouth; place individual on the left side with the head down. Contact a physician, medical facility, or poison control center for advice about whether to induce vomiting. If possible, do not leave individual unattended.

Inhalation

If symptoms develop, move individual away from exposure and into fresh air. If symptoms persist, seek medical attention. If breathing is difficult, administer oxygen. Keep person warm and quiet; seek immediate medical attention.

Notes to physician

Hazards: Acute aspiration 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. Repeated aspiration of small quantities of mineral oil can produce chronic inflammation of the lungs (i.e. lipoid pneumonia) that may progress to pulmonary fibrosis. Symptoms are often subtle and radiological changes appear worse than clinical abnormalities. Occasionally, persistent cough, irritation of the upper respiratory tract, shortness of breath with exertion, fever, and bloody sputum occur. Inhalation exposure to oil mists below current workplace exposure limits is unlikely to cause pulmonary abnormalities.

Treatment: No information available.

5. FIREFIGHTING MEASURES

Suitable extinguishing media

Dry chemical, Carbon dioxide (CO₂), Water spray

Hazardous combustion products

carbon dioxide and carbon monoxide, Hydrocarbons

Pyroil™ POWER STEERING FLUID
PYPSF1

Precautions for fire-fighting

Wear full firefighting turn-out gear (full Bunker gear), and respiratory protection (SCBA). DO NOT direct a solid stream of water or foam into hot, burning pools of liquid since this may cause frothing and increase fire intensity. Frothing can be violent and possibly endanger any firefighter standing too close to the burning liquid. Use water spray to cool fire exposed containers and structures until fire is out if it can be done with minimal risk. Avoid spreading burning material with water used for cooling purposes.

NFPA Flammable and Combustible Liquids Classification

Combustible Liquid Class IIIB

6. ACCIDENTAL RELEASE MEASURES

Personal precautions

For personal protection see section 8. Persons not wearing protective equipment should be excluded from area of spill until clean-up has been completed.

Environmental precautions

Prevent spreading over a wide area (e.g. by containment or oil barriers). Do not let product enter drains. Do not flush into surface water or sanitary sewer system.

Methods for cleaning up

Keep in suitable, closed containers for disposal. Soak up with inert absorbent material (e.g. sand, silica gel, acid binder, universal binder, sawdust).

Other information

Comply with all applicable federal, state, and local regulations.

7. HANDLING AND STORAGE

Handling

Containers of this material may be hazardous when emptied. Since emptied containers retain product residues (vapor, liquid, and/or solid), all hazard precautions given in the data sheet must be observed.

Storage

Keep containers closed when not in use. Store in a cool, dry, ventilated area.

Pyroil™ POWER STEERING FLUID
PYPSF1

8. EXPOSURE CONTROLS/PERSONAL PROTECTION

Exposure Guidelines

Contains no substances with occupational exposure limit values.

General advice

These recommendations provide general guidance for handling this product. Personal protective equipment should be selected for individual applications and should consider factors which affect exposure potential, such as handling practices, chemical concentrations and ventilation. It is ultimately the responsibility of the employer to follow regulatory guidelines established by local authorities.

Exposure controls

Provide sufficient mechanical (general and/or local exhaust) ventilation to maintain exposure below exposure guidelines (if applicable) or below levels that cause known, suspected or apparent adverse effects.

Eye protection

Not required under normal conditions of use. Wear splash-proof safety goggles if material could be misted or splashed into eyes.

Skin and body protection

Wear normal work clothing including long pants, long-sleeved shirts and foot covering to prevent direct contact of the product with the skin. Launder clothing before reuse. If skin irritation develops, contact your facility health and safety professional or your local safety equipment supplier to determine the proper personal protective equipment for your use. Wear resistant gloves (consult your safety equipment supplier).

Respiratory protection

Respiratory protection is not required under normal conditions of use.

9. PHYSICAL AND CHEMICAL PROPERTIES

Physical state	liquid
Colour	amber
Boiling point/boiling range	424.99 °F / 218.33 °C @ 1,013.33 hPa Calculated Phase Transition Liquid/Gas
Flash point	347.00 °F / 175.00 °C Open Cup

Pyroil™ POWER STEERING FLUID
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Evaporation rate	(>)1 Ethyl Ether
Vapour pressure	0.000 hPa Calculated Vapor Pressure
Density	0.87 g/cm ³
	7.2200 lb/gal @ 60.00 °F / 15.56 °C

10. STABILITY AND REACTIVITY

Stability

Stable.

Conditions to avoid

None known.

Incompatible products

Strong oxidizing agents

Hazardous decomposition products

carbon dioxide and carbon monoxide, Hydrocarbons

Hazardous reactions

Product will not undergo hazardous polymerization.

11. TOXICOLOGICAL INFORMATION

Acute oral toxicity

Acute oral toxicity -
Product : no data available

Acute oral toxicity - Components

HEAVY PARAFFINIC
DISTILLATE : LD 50: > 15 g/kg Species: Rat

MIXTURE OF
SEVERELY
HYDROTREATED AND
HYDROCRACKED
BASE OIL : LD50: > 5,000 mg/kg Species: rat

Pyroil™ POWER STEERING FLUID
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(PETROLEUM)

Acute inhalation toxicity

Acute inhalation toxicity - : no data available
Product

Acute dermal toxicity

Acute dermal toxicity - : no data available
Product

Acute dermal toxicity - Components

HEAVY PARAFFINIC : LD 50: > 5 g/kg Species: Rabbit
DISTILLATE

MIXTURE OF : LD50: > 2,000 mg/kg Species: rabbit
SEVERELY
HYDROTREATED AND
HYDROCRACKED
BASE OIL
(PETROLEUM)

Acute toxicity (other routes of administration)

Acute toxicity (other : no data available
routes of administration)

12. ECOLOGICAL INFORMATION

Biodegradability

Biodegradability - Product : no data available

Bioaccumulation

Bioaccumulation - Product : no data available

Ecotoxicity effects

Toxicity to fish

Toxicity to fish - Product : no data available

Pyroil™ POWER STEERING FLUID
PYPSF1

Toxicity to daphnia and other aquatic invertebrates

Toxicity to daphnia and other aquatic invertebrates : no data available
- Product

Toxicity to algae

Toxicity to algae - Product : no data available

Toxicity to bacteria

Toxicity to bacteria - Product : no data available

13. DISPOSAL CONSIDERATIONS

Waste disposal methods

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

14. TRANSPORT INFORMATION

REGULATION

ID NUMBER	PROPER SHIPPING NAME	*HAZARD CLASS	SUBSIDIARY HAZARDS	PACKING GROUP	MARINE POLLUTANT / LTD. QTY.
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U.S. DOT - ROAD

Not dangerous goods

U.S. DOT - RAIL

Not dangerous goods

U.S. DOT - INLAND WATERWAYS

Pyroil™ POWER STEERING FLUID
PYPSF1

Not dangerous goods

TRANSPORT CANADA - ROAD

Not dangerous goods

TRANSPORT CANADA - RAIL

Not dangerous goods

TRANSPORT CANADA - INLAND WATERWAYS

Not dangerous goods

INTERNATIONAL MARITIME DANGEROUS GOODS

Not dangerous goods

INTERNATIONAL AIR TRANSPORT ASSOCIATION - CARGO

Not dangerous goods

INTERNATIONAL AIR TRANSPORT ASSOCIATION - PASSENGER

Not dangerous goods

MEXICAN REGULATION FOR THE LAND TRANSPORT OF HAZARDOUS MATERIALS AND WASTES

Not dangerous goods

*ORM = ORM-D, CBL = COMBUSTIBLE LIQUID

Dangerous goods descriptions (if indicated above) may not reflect quantity, end-use or region-specific exceptions that can be applied. Consult shipping documents for descriptions that are specific to the shipment.

15. REGULATORY INFORMATION

California Prop. 65

Proposition 65 warnings are not required for this product based on the results of a risk assessment.

Pyroil™ POWER STEERING FLUID
PYPSF1

SARA Hazard Classification

SARA 311/312 Classification

No SARA Hazards

SARA 313 Component(s)

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.

New Jersey RTK Label Information

HEAVY PARAFFINIC DISTILLATE	64742-54-7
LUBRICATING OILS, PETROLEUM, HYDROTREATED SPENT	64742-58-1
MIXTURE OF SEVERELY HYDROTREATED AND HYDROCRACKED BASE OIL (PETROLEUM)	

Pennsylvania RTK Label Information

HEAVY PARAFFINIC DISTILLATE	64742-54-7
LUBRICATING OILS, PETROLEUM, HYDROTREATED SPENT	64742-58-1

Notification status

US. Toxic Substances Control Act	y (positive listing)
Canada. Canadian Environmental Protection Act (CEPA). Domestic Substances List (DSL). (Can. Gaz. Part II, Vol. 133)	y (positive listing)
Australia. Industrial Chemical (Notification and Assessment) Act	y (positive listing)
New Zealand. Inventory of Chemicals (NZIoC), as published by ERMA New Zealand	n (Negative listing)
Japan. Kashin-Hou Law List	y (positive listing)
Korea. Toxic Chemical Control Law (TCCL) List	y (positive listing)
Philippines. The Toxic Substances and Hazardous and Nuclear Waste Control Act	y (positive listing)
China. Inventory of Existing Chemical Substances	y (positive listing)

	HMIS	NFPA
Health	1	1
Flammability	1	1
Physical hazards	0	

ASHLAND®

SAFETY DATA SHEET

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Revision Date: 11/05/2012

Print Date: 1/30/2014

MSDS Number: R0177840

Version: 3.11

Pyroil™ POWER STEERING FLUID
PYPSF1

Instability		0
Specific Hazard	--	--

16. OTHER INFORMATION

The information accumulated herein is believed to be accurate but is not warranted to be whether originating with the company or not. Recipients are advised to confirm in advance of need that the information is current, applicable, and suitable to their circumstances. This MSDS has been prepared by Ashland's Environmental Health and Safety Department (1-800-325-3751).

SAFETY DATA SHEET



Propane

Section 1. Identification

GHS product identifier	: Propane
Chemical name	: propane
Other means of identification	: Propyl hydride; n-Propane; Dimethyl methane; Bottled gas; propane in gaseous state; propane liquefied, n-Propane; Dimethylmethane; Freon 290; Liquefied petroleum gas; Lpg; Propyl hydride; R 290; C3H8; UN 1075; UN 1978; A-108; Hydrocarbon propellant.
Product use	: Synthetic/Analytical chemistry.
Synonym	: Propyl hydride; n-Propane; Dimethyl methane; Bottled gas; propane in gaseous state; propane liquefied, n-Propane; Dimethylmethane; Freon 290; Liquefied petroleum gas; Lpg; Propyl hydride; R 290; C3H8; UN 1075; UN 1978; A-108; Hydrocarbon propellant.
SDS #	: 001045
Supplier's details	: Airgas USA, LLC and its affiliates 259 North Radnor-Chester Road Suite 100 Radnor, PA 19087-5283 1-610-687-5253
24-hour telephone	: 1-866-734-3438

Section 2. Hazards identification

OSHA/HCS status	: This material is considered hazardous by the OSHA Hazard Communication Standard (29 CFR 1910.1200).
Classification of the substance or mixture	: FLAMMABLE GASES - Category 1 GASES UNDER PRESSURE - Liquefied gas

GHS label elements

Hazard pictograms



Signal word

: Danger

Hazard statements

: Extremely flammable gas.
Contains gas under pressure; may explode if heated.
May cause frostbite.
May form explosive mixtures in Air.
May displace oxygen and cause rapid suffocation.

Precautionary statements

General

: Read and follow all Safety Data Sheets (SDS'S) before use. Read label before use. Keep out of reach of children. If medical advice is needed, have product container or label at hand. Close valve after each use and when empty. Use equipment rated for cylinder pressure. Do not open valve until connected to equipment prepared for use. Use a back flow preventative device in the piping. Use only equipment of compatible materials of construction. Always keep container in upright position. Approach suspected leak area with caution.

Prevention

: Keep away from heat, hot surfaces, sparks, open flames and other ignition sources. No smoking.

Response

: Leaking gas fire: Do not extinguish, unless leak can be stopped safely. Eliminate all ignition sources if safe to do so.

Storage

: Protect from sunlight when ambient temperature exceeds 52°C/125°F. Store in a well-ventilated place.

Section 2. Hazards identification

- Disposal** : Not applicable.
- Hazards not otherwise classified** : In addition to any other important health or physical hazards, this product may displace oxygen and cause rapid suffocation.

Section 3. Composition/information on ingredients

- Substance/mixture** : Substance
- Chemical name** : propane
- Other means of identification** : Propyl hydride; n-Propane; Dimethyl methane; Bottled gas; propane in gaseous state; propane liquefied, n-Propane; Dimethylmethane; Freon 290; Liquefied petroleum gas; Lpg; Propyl hydride; R 290; C3H8; UN 1075; UN 1978; A-108; Hydrocarbon propellant.

CAS number/other identifiers

CAS number : 74-98-6

Product code : 001045

Ingredient name	%	CAS number
Propane	100	74-98-6

Any concentration shown as a range is to protect confidentiality or is due to batch variation.

There are no additional ingredients present which, within the current knowledge of the supplier and in the concentrations applicable, are classified as hazardous to health or the environment and hence require reporting in this section.

Occupational exposure limits, if available, are listed in Section 8.

Section 4. First aid measures

Description of necessary first aid measures

- Eye contact** : Immediately flush eyes with plenty of water, occasionally lifting the upper and lower eyelids. Check for and remove any contact lenses. Continue to rinse for at least 10 minutes. Get medical attention if irritation occurs.
- Inhalation** : Remove victim to fresh air and keep at rest in a position comfortable for breathing. If not breathing, if breathing is irregular or if respiratory arrest occurs, provide artificial respiration or oxygen by trained personnel. It may be dangerous to the person providing aid to give mouth-to-mouth resuscitation. Get medical attention if adverse health effects persist or are severe. If unconscious, place in recovery position and get medical attention immediately. Maintain an open airway. Loosen tight clothing such as a collar, tie, belt or waistband.
- Skin contact** : Wash contaminated skin with soap and water. Remove contaminated clothing and shoes. To avoid the risk of static discharges and gas ignition, soak contaminated clothing thoroughly with water before removing it. Get medical attention if symptoms occur. Wash clothing before reuse. Clean shoes thoroughly before reuse.
- Ingestion** : As this product is a gas, refer to the inhalation section.

Most important symptoms/effects, acute and delayed

Potential acute health effects

- Eye contact** : No known significant effects or critical hazards.
- Inhalation** : No known significant effects or critical hazards.
- Skin contact** : No known significant effects or critical hazards.
- Frostbite** : Try to warm up the frozen tissues and seek medical attention.
- Ingestion** : As this product is a gas, refer to the inhalation section.

Over-exposure signs/symptoms

- Eye contact** : No specific data.
- Inhalation** : No specific data.
- Skin contact** : No specific data.

Section 4. First aid measures

Ingestion : No specific data.

Indication of immediate medical attention and special treatment needed, if necessary

Notes to physician : Treat symptomatically. Contact poison treatment specialist immediately if large quantities have been ingested or inhaled.

Specific treatments : No specific treatment.

Protection of first-aiders : No action shall be taken involving any personal risk or without suitable training. It may be dangerous to the person providing aid to give mouth-to-mouth resuscitation.

See toxicological information (Section 11)

Section 5. Fire-fighting measures

Extinguishing media

Suitable extinguishing media : Use an extinguishing agent suitable for the surrounding fire.

Unsuitable extinguishing media : None known.

Specific hazards arising from the chemical : Contains gas under pressure. Extremely flammable gas. In a fire or if heated, a pressure increase will occur and the container may burst, with the risk of a subsequent explosion.

Hazardous thermal decomposition products : Decomposition products may include the following materials:
carbon dioxide
carbon monoxide

Special protective actions for fire-fighters : Promptly isolate the scene by removing all persons from the vicinity of the incident if there is a fire. No action shall be taken involving any personal risk or without suitable training. Contact supplier immediately for specialist advice. Move containers from fire area if this can be done without risk. Use water spray to keep fire-exposed containers cool. If involved in fire, shut off flow immediately if it can be done without risk. If this is impossible, withdraw from area and allow fire to burn. Fight fire from protected location or maximum possible distance. Eliminate all ignition sources if safe to do so.

Special protective equipment for fire-fighters : Fire-fighters should wear appropriate protective equipment and self-contained breathing apparatus (SCBA) with a full face-piece operated in positive pressure mode.

Section 6. Accidental release measures

Personal precautions, protective equipment and emergency procedures

For non-emergency personnel : Accidental releases pose a serious fire or explosion hazard. No action shall be taken involving any personal risk or without suitable training. Evacuate surrounding areas. Keep unnecessary and unprotected personnel from entering. Shut off all ignition sources. No flares, smoking or flames in hazard area. Avoid breathing gas. Provide adequate ventilation. Wear appropriate respirator when ventilation is inadequate. Put on appropriate personal protective equipment.

For emergency responders : If specialised clothing is required to deal with the spillage, take note of any information in Section 8 on suitable and unsuitable materials. See also the information in "For non-emergency personnel".

Environmental precautions : Ensure emergency procedures to deal with accidental gas releases are in place to avoid contamination of the environment. Inform the relevant authorities if the product has caused environmental pollution (sewers, waterways, soil or air).

Methods and materials for containment and cleaning up

Small spill : Immediately contact emergency personnel. Stop leak if without risk. Use spark-proof tools and explosion-proof equipment.

Section 6. Accidental release measures

- Large spill** : Immediately contact emergency personnel. Stop leak if without risk. Use spark-proof tools and explosion-proof equipment. Note: see Section 1 for emergency contact information and Section 13 for waste disposal.

Section 7. Handling and storage

Precautions for safe handling

- Protective measures** : Put on appropriate personal protective equipment (see Section 8). Contains gas under pressure. Avoid contact with eyes, skin and clothing. Avoid breathing gas. Use only with adequate ventilation. Wear appropriate respirator when ventilation is inadequate. Do not enter storage areas and confined spaces unless adequately ventilated. Store and use away from heat, sparks, open flame or any other ignition source. Use explosion-proof electrical (ventilating, lighting and material handling) equipment. Use only non-sparking tools. Empty containers retain product residue and can be hazardous. Do not puncture or incinerate container. Use equipment rated for cylinder pressure. Close valve after each use and when empty. Protect cylinders from physical damage; do not drag, roll, slide, or drop. Use a suitable hand truck for cylinder movement.

- Advice on general occupational hygiene** : Eating, drinking and smoking should be prohibited in areas where this material is handled, stored and processed. Workers should wash hands and face before eating, drinking and smoking. Remove contaminated clothing and protective equipment before entering eating areas. See also Section 8 for additional information on hygiene measures.

- Conditions for safe storage, including any incompatibilities** : Store in accordance with local regulations. Store in a segregated and approved area. Store away from direct sunlight in a dry, cool and well-ventilated area, away from incompatible materials (see Section 10). Eliminate all ignition sources. Keep container tightly closed and sealed until ready for use. Cylinders should be stored upright, with valve protection cap in place, and firmly secured to prevent falling or being knocked over. Cylinder temperatures should not exceed 52 °C (125 °F).

Section 8. Exposure controls/personal protection

Control parameters

Occupational exposure limits

Ingredient name	Exposure limits
Propane	<p>NIOSH REL (United States, 10/2013). TWA: 1800 mg/m³ 10 hours. TWA: 1000 ppm 10 hours.</p> <p>OSHA PEL (United States, 2/2013). TWA: 1800 mg/m³ 8 hours. TWA: 1000 ppm 8 hours.</p> <p>OSHA PEL 1989 (United States, 3/1989). TWA: 1800 mg/m³ 8 hours. TWA: 1000 ppm 8 hours.</p>

- Appropriate engineering controls** : Use only with adequate ventilation. Use process enclosures, local exhaust ventilation or other engineering controls to keep worker exposure to airborne contaminants below any recommended or statutory limits. The engineering controls also need to keep gas, vapor or dust concentrations below any lower explosive limits. Use explosion-proof ventilation equipment.

- Environmental exposure controls** : Emissions from ventilation or work process equipment should be checked to ensure they comply with the requirements of environmental protection legislation. In some cases, fume scrubbers, filters or engineering modifications to the process equipment will be necessary to reduce emissions to acceptable levels.

Individual protection measures

Section 8. Exposure controls/personal protection

- Hygiene measures** : Wash hands, forearms and face thoroughly after handling chemical products, before eating, smoking and using the lavatory and at the end of the working period. Appropriate techniques should be used to remove potentially contaminated clothing. Wash contaminated clothing before reusing. Ensure that eyewash stations and safety showers are close to the workstation location.
- Eye/face protection** : Safety eyewear complying with an approved standard should be used when a risk assessment indicates this is necessary to avoid exposure to liquid splashes, mists, gases or dusts. If contact is possible, the following protection should be worn, unless the assessment indicates a higher degree of protection: safety glasses with side-shields.
- Skin protection**
- Hand protection** : Chemical-resistant, impervious gloves complying with an approved standard should be worn at all times when handling chemical products if a risk assessment indicates this is necessary. Considering the parameters specified by the glove manufacturer, check during use that the gloves are still retaining their protective properties. It should be noted that the time to breakthrough for any glove material may be different for different glove manufacturers. In the case of mixtures, consisting of several substances, the protection time of the gloves cannot be accurately estimated.
- Body protection** : Personal protective equipment for the body should be selected based on the task being performed and the risks involved and should be approved by a specialist before handling this product. When there is a risk of ignition from static electricity, wear anti-static protective clothing. For the greatest protection from static discharges, clothing should include anti-static overalls, boots and gloves.
- Other skin protection** : Appropriate footwear and any additional skin protection measures should be selected based on the task being performed and the risks involved and should be approved by a specialist before handling this product.
- Respiratory protection** : Use a properly fitted, air-purifying or air-fed respirator complying with an approved standard if a risk assessment indicates this is necessary. Respirator selection must be based on known or anticipated exposure levels, the hazards of the product and the safe working limits of the selected respirator.

Section 9. Physical and chemical properties

Appearance

- Physical state** : Gas. [Liquefied compressed gas.]
- Color** : Colorless.
- Molecular weight** : 44.11 g/mole
- Molecular formula** : C3-H8
- Boiling/condensation point** : -161.48°C (-258.7°F)
- Melting/freezing point** : -187.6°C (-305.7°F)
- Critical temperature** : 96.55°C (205.8°F)
- Odor** : Odorless.BUT MAY HAVE SKUNK ODOR ADDED.
- Odor threshold** : Not available.
- pH** : Not available.
- Flash point** : Closed cup: -104°C (-155.2°F)
Open cup: -104°C (-155.2°F)
- Burning time** : Not applicable.
- Burning rate** : Not applicable.
- Evaporation rate** : Not available.
- Flammability (solid, gas)** : Extremely flammable in the presence of the following materials or conditions: open flames, sparks and static discharge and oxidizing materials.
- Lower and upper explosive (flammable) limits** : Lower: 1.8%
Upper: 8.4%
- Vapor pressure** : 109 (psig)
- Vapor density** : 1.6 (Air = 1)

Section 9. Physical and chemical properties

Specific Volume (ft³/lb)	: 8.6206
Gas Density (lb/ft³)	: 0.116 (25°C / 77 to °F)
Relative density	: Not applicable.
Solubility	: Not available.
Solubility in water	: 0.0244 g/l
Partition coefficient: n-octanol/water	: 1.09
Auto-ignition temperature	: 287°C (548.6°F)
Decomposition temperature	: Not available.
SADT	: Not available.
Viscosity	: Not applicable.

Section 10. Stability and reactivity

Reactivity	: No specific test data related to reactivity available for this product or its ingredients.
Chemical stability	: The product is stable.
Possibility of hazardous reactions	: Under normal conditions of storage and use, hazardous reactions will not occur.
Conditions to avoid	: Avoid all possible sources of ignition (spark or flame). Do not pressurize, cut, weld, braze, solder, drill, grind or expose containers to heat or sources of ignition.
Incompatible materials	: Oxidizers
Hazardous decomposition products	: Under normal conditions of storage and use, hazardous decomposition products should not be produced.
Hazardous polymerization	: Under normal conditions of storage and use, hazardous polymerization will not occur.

Section 11. Toxicological information

Information on toxicological effects

Acute toxicity

Not available.

IDLH : 2100 ppm

Irritation/Corrosion

Not available.

Sensitization

Not available.

Mutagenicity

Not available.

Carcinogenicity

Not available.

Reproductive toxicity

Not available.

Teratogenicity

Not available.

Section 11. Toxicological information

Specific target organ toxicity (single exposure)

Not available.

Specific target organ toxicity (repeated exposure)

Not available.

Aspiration hazard

Not available.

Information on the likely routes of exposure : Not available.

Potential acute health effects

Eye contact : No known significant effects or critical hazards.
Inhalation : No known significant effects or critical hazards.
Skin contact : No known significant effects or critical hazards.
Ingestion : As this product is a gas, refer to the inhalation section.

Symptoms related to the physical, chemical and toxicological characteristics

Eye contact : No specific data.
Inhalation : No specific data.
Skin contact : No specific data.
Ingestion : No specific data.

Delayed and immediate effects and also chronic effects from short and long term exposure

Short term exposure

Potential immediate effects : Not available.
Potential delayed effects : Not available.

Long term exposure

Potential immediate effects : Not available.
Potential delayed effects : Not available.

Potential chronic health effects

Not available.

General : No known significant effects or critical hazards.
Carcinogenicity : No known significant effects or critical hazards.
Mutagenicity : No known significant effects or critical hazards.
Teratogenicity : No known significant effects or critical hazards.
Developmental effects : No known significant effects or critical hazards.
Fertility effects : No known significant effects or critical hazards.

Numerical measures of toxicity

Acute toxicity estimates

Not available.

Section 12. Ecological information

Toxicity

Not available.

Persistence and degradability

Not available.

Bioaccumulative potential

Product/ingredient name	LogP _{ow}	BCF	Potential
Propane	1.09	-	low

Mobility in soil






Soil/water partition coefficient (K_{oc}) : Not available.

Other adverse effects : No known significant effects or critical hazards.

Section 13. Disposal considerations

Disposal methods : The generation of waste should be avoided or minimized wherever possible. Disposal of this product, solutions and any by-products should at all times comply with the requirements of environmental protection and waste disposal legislation and any regional local authority requirements. Dispose of surplus and non-recyclable products via a licensed waste disposal contractor. Waste should not be disposed of untreated to the sewer unless fully compliant with the requirements of all authorities with jurisdiction. Empty Airgas-owned pressure vessels should be returned to Airgas. Waste packaging should be recycled. Incineration or landfill should only be considered when recycling is not feasible. This material and its container must be disposed of in a safe way. Empty containers or liners may retain some product residues. Do not puncture or incinerate container.

Section 14. Transport information

	DOT	TDG	Mexico	IMDG	IATA
UN number	UN1978	UN1978	UN1978	UN1978	UN1978
UN proper shipping name	PROPANE	PROPANE	PROPANE	PROPANE	PROPANE
Transport hazard class(es)	2.1 	2.1 	2.1 	2.1 	2.1 
Packing group	-	-	-	-	-
Environment	No.	No.	No.	No.	No.
Additional information	<p>Limited quantity Yes.</p> <p>Packaging instruction Passenger aircraft Quantity limitation: Forbidden.</p> <p>Cargo aircraft Quantity limitation: 150 kg</p> <p>Special provisions 19, T50</p>	<p>Product classified as per the following sections of the Transportation of Dangerous Goods Regulations: 2.13-2.17 (Class 2).</p> <p>Explosive Limit and Limited Quantity Index 0.125</p> <p>ERAP Index 3000</p>	-	-	<p>Passenger and Cargo AircraftQuantity limitation: 0 Forbidden Cargo Aircraft Only Quantity limitation: 150 kg</p>

Section 14. Transport information

		<u>Passenger Carrying Ship Index</u> 65			
		<u>Passenger Carrying Road or Rail Index</u> Forbidden			
		<u>Special provisions</u> 29, 42			

“Refer to CFR 49 (or authority having jurisdiction) to determine the information required for shipment of the product.”

Special precautions for user : **Transport within user’s premises:** always transport in closed containers that are upright and secure. Ensure that persons transporting the product know what to do in the event of an accident or spillage.

Transport in bulk according to Annex II of MARPOL 73/78 and the IBC Code : Not available.

Section 15. Regulatory information

U.S. Federal regulations : **TSCA 8(a) CDR Exempt/Partial exemption:** Not determined
United States inventory (TSCA 8b): This material is listed or exempted.
Clean Air Act (CAA) 112 regulated flammable substances: propane

Clean Air Act Section 112 (b) Hazardous Air Pollutants (HAPs) : Not listed

Clean Air Act Section 602 Class I Substances : Not listed

Clean Air Act Section 602 Class II Substances : Not listed

DEA List I Chemicals (Precursor Chemicals) : Not listed

DEA List II Chemicals (Essential Chemicals) : Not listed

SARA 302/304

Composition/information on ingredients

No products were found.

SARA 304 RQ : Not applicable.

SARA 311/312

Classification : Fire hazard
Sudden release of pressure

Composition/information on ingredients

Name	%	Fire hazard	Sudden release of pressure	Reactive	Immediate (acute) health hazard	Delayed (chronic) health hazard
Propane	100	Yes.	Yes.	No.	No.	No.

State regulations

Massachusetts : This material is listed.

New York : This material is not listed.

Section 15. Regulatory information

New Jersey : This material is listed.

Pennsylvania : This material is listed.

International regulations

International lists

National inventory

Australia : This material is listed or exempted.

Canada : This material is listed or exempted.

China : This material is listed or exempted.

Europe : This material is listed or exempted.

Japan : This material is listed or exempted.

Malaysia : This material is listed or exempted.

New Zealand : This material is listed or exempted.

Philippines : This material is listed or exempted.

Republic of Korea : This material is listed or exempted.

Taiwan : This material is listed or exempted.

Canada

WHMIS (Canada)

: Class A: Compressed gas.
Class B-1: Flammable gas.

CEPA Toxic substances: This material is not listed.

Canadian ARET: This material is not listed.

Canadian NPRI: This material is listed.

Alberta Designated Substances: This material is not listed.

Ontario Designated Substances: This material is not listed.

Quebec Designated Substances: This material is not listed.

Section 16. Other information

Canada Label requirements : Class A: Compressed gas.
Class B-1: Flammable gas.

Hazardous Material Information System (U.S.A.)

Health	*	1
Flammability		4
Physical hazards		2

Caution: HMIS® ratings are based on a 0-4 rating scale, with 0 representing minimal hazards or risks, and 4 representing significant hazards or risks. Although HMIS® ratings are not required on SDSs under 29 CFR 1910.1200, the preparer may choose to provide them. HMIS® ratings are to be used with a fully implemented HMIS® program. HMIS® is a registered mark of the National Paint & Coatings Association (NPCA). HMIS® materials may be purchased exclusively from J. J. Keller (800) 327-6868.

The customer is responsible for determining the PPE code for this material.

National Fire Protection Association (U.S.A.)



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Section 16. Other information

Copyright ©2001, National Fire Protection Association, Quincy, MA 02269. This warning system is intended to be interpreted and applied only by properly trained individuals to identify fire, health and reactivity hazards of chemicals. The user is referred to certain limited number of chemicals with recommended classifications in NFPA 49 and NFPA 325, which would be used as a guideline only. Whether the chemicals are classified by NFPA or not, anyone using the 704 systems to classify chemicals does so at their own risk.

Procedure used to derive the classification

Classification	Justification
Flam. Gas 1, H220 Press. Gas Liq. Gas, H280	Expert judgment Expert judgment

History

Date of printing	: 10/20/2015
Date of issue/Date of revision	: 10/20/2015
Date of previous issue	: No previous validation
Version	: 0.01
Key to abbreviations	: ATE = Acute Toxicity Estimate BCF = Bioconcentration Factor GHS = Globally Harmonized System of Classification and Labelling of Chemicals IATA = International Air Transport Association IBC = Intermediate Bulk Container IMDG = International Maritime Dangerous Goods LogPow = logarithm of the octanol/water partition coefficient MARPOL 73/78 = International Convention for the Prevention of Pollution From Ships, 1973 as modified by the Protocol of 1978. ("Marpol" = marine pollution) UN = United Nations

References : Not available.

▣ Indicates information that has changed from previously issued version.

Other special considerations : The information below is given to call attention to the issue of "Naturally occurring radioactive materials". Although Radon-222 levels in the product represented by this MSDS do not present any direct Radon exposure hazard, customers should be aware of the potential for Radon daughter build up within their processing systems, whatever the source of their product streams. Radon-222 is a naturally occurring radioactive gas which can be a contaminant in natural gas. During subsequent processing, Radon tends to be concentrated in Liquefied Petroleum Gas streams and in product streams having a similar boiling point range. Industry experience has shown that this product may contain small amounts of Radon-222 and its radioactive decay products, called Radon "daughters". The actual concentration of Radon-222 and radioactive daughters in the delivered product is dependent on the geographical source of the natural gas and storage time prior to delivery. Process equipment (i.e. lines, filters, pumps and reaction units) may accumulate significant levels of radioactive daughters and show a gamma radiation reading during operation. A potential external radiation hazard exists at or near any pipe valve or vessel containing a Radon enriched stream, or containing internal deposits of radioactive material due to the transmission of gamma radiation through its wall. Field studies reported in the literature have not shown any conditions that subject workers to cumulative exposures in excess of general population limits. Equipment emitting gamma radiation should be presumed to be internally contaminated with alpha emitting decay products which may be a hazard if inhaled or ingested. Protective equipment such as coveralls, gloves, and respirator (NIOSH/MHSA approved for high efficiency particulates and radionuclides, or supplied air) should be worn by personnel entering a vessel or working on contaminated process equipment to prevent skin contamination, ingestion, or inhalation of any residues containing alpha radiation. Airborne contamination may be minimized by handling scale and/or contaminated materials in a wet state.

Notice to reader

Section 16. Other information

To the best of our knowledge, the information contained herein is accurate. However, neither the above-named supplier, nor any of its subsidiaries, assumes any liability whatsoever for the accuracy or completeness of the information contained herein.

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 that exist.



SAFETY DATA SHEET

1. Identification

Product identifier	Regulare Clear Cement
Other means of identification	
Product code	1100EB
Synonyms	Part Numbers: 31016RB, 31958RB, 31960RB, 31961RB, 31959RB
Recommended use	Joining PVC Pipes
Recommended restrictions	None known.
Manufacturer/Importer/Supplier/Distributor information	
Company Name	Oatey Co.
Address	4700 West 160th St. Cleveland, OH 44135
Telephone	216-267-7100
E-mail	info@oatey.com
Transport Emergency	Chemtrec 1-800-424-9300 (Outside the US 1-703-527-3887)
Emergency First Aid	1-877-740-5015
Contact person	MSDS Coordinator

2. Hazard(s) identification

Physical hazards	Flammable liquids	Category 2
Health hazards	Acute toxicity, oral	Category 4
	Skin corrosion/irritation	Category 2
	Serious eye damage/eye irritation	Category 2A
	Specific target organ toxicity, single exposure	Category 3 respiratory tract irritation
	Specific target organ toxicity, single exposure	Category 3 narcotic effects
	Aspiration hazard	Category 1
OSHA defined hazards	Not classified.	

Label elements



Signal word	Danger
Hazard statement	Highly flammable liquid and vapor. Harmful if swallowed. May be fatal if swallowed and enters airways. Causes skin irritation. Causes serious eye irritation. May cause respiratory irritation. May cause drowsiness or dizziness.
Precautionary statement	
Prevention	Keep away from heat/sparks/open flames/hot surfaces. - No smoking. Keep container tightly closed. Ground/bond container and receiving equipment. Use explosion-proof electrical/ventilating/lighting equipment. Use only non-sparking tools. Take precautionary measures against static discharge. Avoid breathing mist or vapor. Wash thoroughly after handling. Do not eat, drink or smoke when using this product. Use only outdoors or in a well-ventilated area. Wear protective gloves/protective clothing/eye protection/face protection.
Response	If swallowed: Immediately call a poison center/doctor. If on skin (or hair): Take off immediately all contaminated clothing. Rinse skin with water/shower. If inhaled: Remove person to fresh air and keep comfortable for breathing. If in eyes: Rinse cautiously with water for several minutes. Remove contact lenses, if present and easy to do. Continue rinsing. Call a poison center/doctor if you feel unwell. Rinse mouth. Do NOT induce vomiting. If skin irritation occurs: Get medical advice/attention. If eye irritation persists: Get medical advice/attention. Take off contaminated clothing and wash before reuse. In case of fire: Use appropriate media to extinguish.

Storage	Store in a well-ventilated place. Keep container tightly closed. Keep cool. Store locked up.
Disposal	Dispose of contents/container in accordance with local/regional/national/international regulations.
Hazard(s) not otherwise classified (HNOC)	Frequent or prolonged contact may defat and dry the skin, leading to discomfort and dermatitis. May form explosive peroxides. Contains a chemical classified by the US EPA as a suspected possible carcinogen.
Supplemental information	Not applicable.

3. Composition/information on ingredients

Mixtures

Chemical name	CAS number	%
Furan, Tetrahydro-	109-99-9	40-60
Acetone	67-64-1	10-25
Polyvinyl chloride	9002-86-2	12-20
Cyclohexanone	108-94-1	5-15
Methyl ethyl ketone	78-93-3	5-15

*Designates that a specific chemical identity and/or percentage of composition has been withheld as a trade secret.

4. First-aid measures

Inhalation	Remove victim to fresh air and keep at rest in a position comfortable for breathing. Call a POISON CENTER or doctor/physician if you feel unwell.
Skin contact	Take off immediately all contaminated clothing. Wash with plenty of soap and water. If skin irritation occurs: Get medical advice/attention.
Eye contact	Immediately flush eyes with plenty of water for at least 15 minutes. Remove contact lenses, if present and easy to do. Continue rinsing. If eye irritation persists: Get medical advice/attention.
Ingestion	Call a physician or poison control center immediately. Do not induce vomiting. If vomiting occurs, keep head low so that stomach content doesn't get into the lungs. Aspiration may cause pulmonary edema and pneumonitis.
Most important symptoms/effects, acute and delayed	Irritation of nose and throat. Aspiration may cause pulmonary edema and pneumonitis. Severe eye irritation. Symptoms may include stinging, tearing, redness, swelling, and blurred vision. May cause respiratory irritation. Vapors have a narcotic effect and may cause headache, fatigue, dizziness and nausea. Skin irritation. May cause redness and pain.
Indication of immediate medical attention and special treatment needed	Provide general supportive measures and treat symptomatically. Thermal burns: Flush with water immediately. While flushing, remove clothes which do not adhere to affected area. Call an ambulance. Continue flushing during transport to hospital. In case of shortness of breath, give oxygen. Keep victim warm. Keep victim under observation. Symptoms may be delayed.
General information	Take off all contaminated clothing immediately. Ensure that medical personnel are aware of the material(s) involved, and take precautions to protect themselves. Wash contaminated clothing before reuse.

5. Fire-fighting measures

Suitable extinguishing media	Alcohol resistant foam. Water fog. Dry chemical powder. Carbon dioxide (CO2).
Unsuitable extinguishing media	Do not use water jet as an extinguisher, as this will spread the fire.
Specific hazards arising from the chemical	Vapors may form explosive mixtures with air. Vapors may travel considerable distance to a source of ignition and flash back. During fire, gases hazardous to health may be formed.
Special protective equipment and precautions for firefighters	Self-contained breathing apparatus and full protective clothing must be worn in case of fire.
Fire fighting equipment/instructions	In case of fire and/or explosion do not breathe fumes. Move containers from fire area if you can do so without risk.
Specific methods	Use standard firefighting procedures and consider the hazards of other involved materials.
General fire hazards	Highly flammable liquid and vapor. This product contains tetrahydrofuran that may form explosive organic peroxide when exposed to air or light or with age.

6. Accidental release measures

Personal precautions, protective equipment and emergency procedures

Keep unnecessary personnel away. Keep people away from and upwind of spill/leak. Keep out of low areas. Eliminate all ignition sources (no smoking, flares, sparks, or flames in immediate area). Wear appropriate protective equipment and clothing during clean-up. Avoid breathing mist or vapor. Do not touch damaged containers or spilled material unless wearing appropriate protective clothing. Ventilate closed spaces before entering them. Local authorities should be advised if significant spillages cannot be contained. For personal protection, see section 8 of the SDS.

Methods and materials for containment and cleaning up

Eliminate all ignition sources (no smoking, flares, sparks, or flames in immediate area). Take precautionary measures against static discharge. Use only non-sparking tools. Keep combustibles (wood, paper, oil, etc.) away from spilled material. This product is miscible in water.

Large Spills: Stop the flow of material, if this is without risk. Use water spray to reduce vapors or divert vapor cloud drift. Dike the spilled material, where this is possible. Cover with plastic sheet to prevent spreading. Use a non-combustible material like vermiculite, sand or earth to soak up the product and place into a container for later disposal. Prevent entry into waterways, sewer, basements or confined areas. Following product recovery, flush area with water.

Small Spills: Absorb with earth, sand or other non-combustible material and transfer to containers for later disposal. Wipe up with absorbent material (e.g. cloth, fleece). Clean surface thoroughly to remove residual contamination.

Never return spills to original containers for re-use. For waste disposal, see section 13 of the SDS. Avoid discharge into drains, water courses or onto the ground.

Environmental precautions

7. Handling and storage

Precautions for safe handling

Vapors may form explosive mixtures with air. Do not handle, store or open near an open flame, sources of heat or sources of ignition. Protect material from direct sunlight. Explosion-proof general and local exhaust ventilation. Take precautionary measures against static discharges. All equipment used when handling the product must be grounded. Use non-sparking tools and explosion-proof equipment. Avoid breathing mist or vapor. Avoid contact with eyes, skin, and clothing. Avoid prolonged exposure. Do not taste or swallow. When using, do not eat, drink or smoke. Wear appropriate personal protective equipment. Wash hands thoroughly after handling. Observe good industrial hygiene practices.

Conditions for safe storage, including any incompatibilities

Store locked up. Keep away from heat, sparks and open flame. Prevent electrostatic charge build-up by using common bonding and grounding techniques. Store in a cool, dry place out of direct sunlight. Store in original tightly closed container. Store in a well-ventilated place. Store away from incompatible materials (see Section 10 of the SDS).

8. Exposure controls/personal protection

Occupational exposure limits

US. OSHA Specifically Regulated Substances (29 CFR 1910.1001-1050)

Components	Type	Value
Polyvinyl chloride (CAS 9002-86-2)	STEL	5 ppm
	TWA	1 ppm

US. OSHA Table Z-1 Limits for Air Contaminants (29 CFR 1910.1000)

Components	Type	Value	Form
Acetone (CAS 67-64-1)	PEL	2400 mg/m3	
		1000 ppm	
Cyclohexanone (CAS 108-94-1)	PEL	200 mg/m3	
		50 ppm	
Furan, Tetrahydro- (CAS 109-99-9)	PEL	590 mg/m3	
		200 ppm	
Methyl ethyl ketone (CAS 78-93-3)	PEL	590 mg/m3	
		200 ppm	
Polyvinyl chloride (CAS 9002-86-2)	PEL	5 mg/m3	Respirable fraction.
		15 mg/m3	Total dust.

US. ACGIH Threshold Limit Values

Components	Type	Value	Form
Acetone (CAS 67-64-1)	STEL	750 ppm	
	TWA	500 ppm	
Cyclohexanone (CAS 108-94-1)	STEL	50 ppm	
	TWA	20 ppm	
Furan, Tetrahydro- (CAS 109-99-9)	STEL	100 ppm	
	TWA	50 ppm	
Methyl ethyl ketone (CAS 78-93-3)	STEL	300 ppm	
	TWA	200 ppm	
Polyvinyl chloride (CAS 9002-86-2)	TWA	1 mg/m3	Respirable fraction.

US. NIOSH: Pocket Guide to Chemical Hazards

Components	Type	Value
Acetone (CAS 67-64-1)	TWA	590 mg/m3 250 ppm
	TWA	100 mg/m3
Cyclohexanone (CAS 108-94-1)	TWA	25 ppm
	STEL	735 mg/m3
Furan, Tetrahydro- (CAS 109-99-9)	TWA	250 ppm 590 mg/m3 200 ppm
	STEL	885 mg/m3
Methyl ethyl ketone (CAS 78-93-3)	TWA	300 ppm 590 mg/m3 200 ppm

Biological limit values

ACGIH Biological Exposure Indices

Components	Value	Determinant	Specimen	Sampling Time
Acetone (CAS 67-64-1)	50 mg/l	Acetone	Urine	*
Cyclohexanone (CAS 108-94-1)	80 mg/l	1,2-Cyclohexanediol, with hydrolysis	Urine	*
		Cyclohexanol, with hydrolysis	Urine	*
Furan, Tetrahydro- (CAS 109-99-9)	2 mg/l	Tetrahydrofuran	Urine	*
Methyl ethyl ketone (CAS 78-93-3)	2 mg/l	MEK	Urine	*

* - For sampling details, please see the source document.

Exposure guidelines

US - California OELs: Skin designation

Cyclohexanone (CAS 108-94-1)

Can be absorbed through the skin.

US - Minnesota Haz Subs: Skin designation applies

Cyclohexanone (CAS 108-94-1)

Skin designation applies.

US - Tennessee OELs: Skin designation

Cyclohexanone (CAS 108-94-1)

Can be absorbed through the skin.

US ACGIH Threshold Limit Values: Skin designation

Cyclohexanone (CAS 108-94-1)

Can be absorbed through the skin.

Furan, Tetrahydro- (CAS 109-99-9)

Can be absorbed through the skin.

US. NIOSH: Pocket Guide to Chemical Hazards

Cyclohexanone (CAS 108-94-1)

Can be absorbed through the skin.

Appropriate engineering controls	Explosion-proof general and local exhaust ventilation. Good general ventilation (typically 10 air changes per hour) should be used. Ventilation rates should be matched to conditions. If applicable, use process enclosures, local exhaust ventilation, or other engineering controls to maintain airborne levels below recommended exposure limits. If exposure limits have not been established, maintain airborne levels to an acceptable level. Eye wash facilities and emergency shower must be available when handling this product.
Individual protection measures, such as personal protective equipment	
Eye/face protection	Face shield is recommended. Wear safety glasses with side shields (or goggles).
Skin protection	
Hand protection	Wear appropriate chemical resistant gloves.
Other	Wear appropriate chemical resistant clothing.
Respiratory protection	If engineering controls do not maintain airborne concentrations below recommended exposure limits (where applicable) or to an acceptable level (in countries where exposure limits have not been established), an approved respirator must be worn.
Thermal hazards	Wear appropriate thermal protective clothing, when necessary.
General hygiene considerations	When using, do not eat, drink or smoke. Always observe good personal hygiene measures, such as washing after handling the material and before eating, drinking, and/or smoking. Routinely wash work clothing and protective equipment to remove contaminants.

9. Physical and chemical properties

Appearance

Physical state	Liquid.
Form	Opaque liquid.
Color	Gray.
Odor	Solvent.
Odor threshold	Not available.
pH	Not available.
Melting point/freezing point	Not available.
Initial boiling point and boiling range	151 °F (66.11 °C)
Flash point	-4.0 °F (-20.0 °C)
Evaporation rate	5.5 - 8
Flammability (solid, gas)	Not available.

Upper/lower flammability or explosive limits

Flammability limit - lower (%)	1.8
Flammability limit - upper (%)	11.8
Explosive limit - lower (%)	Not available.
Explosive limit - upper (%)	Not available.
Vapor pressure	145 mm Hg @ 20 C
Vapor density	2.5
Relative density	0.9 +/- 0.02
Solubility(ies)	
Solubility (water)	Negligible
Partition coefficient (n-octanol/water)	Not available.
Auto-ignition temperature	Not available.
Decomposition temperature	Not available.
Viscosity	80 - 500 cP
Other information	
VOC (Weight %)	488 g/l SCAQMD 1168/M316A

10. Stability and reactivity

Reactivity	The product is stable and non-reactive under normal conditions of use, storage and transport.
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Chemical stability	Material is stable under normal conditions.
Possibility of hazardous reactions	No dangerous reaction known under conditions of normal use.
Conditions to avoid	Avoid heat, sparks, open flames and other ignition sources. Avoid temperatures exceeding the flash point. Contact with incompatible materials.
Incompatible materials	Acids. Strong oxidizing agents. Ammonia. Amines. Isocyanates. Caustics.
Hazardous decomposition products	No hazardous decomposition products are known.

11. Toxicological information

Information on likely routes of exposure

Inhalation	May be fatal if swallowed and enters airways. Headache. Nausea, vomiting. May cause irritation to the respiratory system. Vapors have a narcotic effect and may cause headache, fatigue, dizziness and nausea. Prolonged inhalation may be harmful.
Skin contact	Causes skin irritation.
Eye contact	Causes serious eye irritation.
Ingestion	May be fatal if swallowed and enters airways. Harmful if swallowed. Harmful if swallowed. Droplets of the product aspirated into the lungs through ingestion or vomiting may cause a serious chemical pneumonia.

Symptoms related to the physical, chemical and toxicological characteristics Irritation of nose and throat. Aspiration may cause pulmonary edema and pneumonitis. Severe eye irritation. Symptoms may include stinging, tearing, redness, swelling, and blurred vision. May cause respiratory irritation. Skin irritation. May cause redness and pain. Symptoms of overexposure may be headache, dizziness, tiredness, nausea and vomiting.

Information on toxicological effects

Acute toxicity May be fatal if swallowed and enters airways. Narcotic effects. May cause respiratory irritation.

Components	Species	Test Results
Acetone (CAS 67-64-1)		
Acute		
<i>Dermal</i>		
LD50	Rabbit	20 ml/kg
<i>Inhalation</i>		
LC50	Rat	50 mg/l, 8 Hours
<i>Oral</i>		
LD50	Rat	5800 mg/kg
Cyclohexanone (CAS 108-94-1)		
Acute		
<i>Dermal</i>		
LD50	Rabbit	948 mg/kg
<i>Inhalation</i>		
LC50	Rat	8000 ppm, 4 hours
<i>Oral</i>		
LD50	Rat	1540 mg/kg

* Estimates for product may be based on additional component data not shown.

Skin corrosion/irritation	Causes skin irritation.
Serious eye damage/eye irritation	Causes serious eye irritation.
Respiratory or skin sensitization	
Respiratory sensitization	Not available.
Skin sensitization	This product is not expected to cause skin sensitization.
Germ cell mutagenicity	No data available to indicate product or any components present at greater than 0.1% are mutagenic or genotoxic.

Carcinogenicity

In 2012 USEPA Integrated Risk Information System (IRIS) reviewed a two species inhalation lifetime study on THF conducted by NTP (1998). Male rats developed renal tumors and female mice developed liver tumors while neither the female rats nor the male mice showed similar results. Because the carcinogenic mechanisms could not be identified clearly in either species for either tumor, the EPA determined that the male rat and female mouse findings are relevant to the assessment of carcinogenic potential in humans. Therefore, the IRIS review concludes that these data in aggregate indicate that there is "suggestive evidence of carcinogenic potential" following exposure to THF by all routes of exposure.

IARC Monographs. Overall Evaluation of Carcinogenicity

Cyclohexanone (CAS 108-94-1)

3 Not classifiable as to carcinogenicity to humans.

Polyvinyl chloride (CAS 9002-86-2)

3 Not classifiable as to carcinogenicity to humans.

OSHA Specifically Regulated Substances (29 CFR 1910.1001-1050)

Polyvinyl chloride (CAS 9002-86-2)

Cancer

Reproductive toxicity

This product is not expected to cause reproductive or developmental effects.

Specific target organ toxicity - single exposure

Narcotic effects. May cause drowsiness and dizziness. Respiratory tract irritation.

Specific target organ toxicity - repeated exposure

Not classified.

Aspiration hazard

May be fatal if swallowed and enters airways.

Chronic effects

Prolonged inhalation may be harmful.

12. Ecological information

Ecotoxicity

The product is not classified as environmentally hazardous. However, this does not exclude the possibility that large or frequent spills can have a harmful or damaging effect on the environment.

Components	Species	Test Results
Acetone (CAS 67-64-1)		
Aquatic		
Fish	LC50	Fathead minnow (<i>Pimephales promelas</i>) > 100 mg/l, 96 hours
Cyclohexanone (CAS 108-94-1)		
Aquatic		
Fish	LC50	Fathead minnow (<i>Pimephales promelas</i>) 481 - 578 mg/l, 96 hours

* Estimates for product may be based on additional component data not shown.

Persistence and degradability

No data is available on the degradability of this product.

Bioaccumulative potential

No data available.

Partition coefficient n-octanol / water (log Kow)

Acetone (CAS 67-64-1)

-0.24

Cyclohexanone (CAS 108-94-1)

0.81

Furan, Tetrahydro- (CAS 109-99-9)

0.46

Methyl ethyl ketone (CAS 78-93-3)

0.29

Mobility in soil

No data available.

Other adverse effects

No other adverse environmental effects (e.g. ozone depletion, photochemical ozone creation potential, endocrine disruption, global warming potential) are expected from this component.

13. Disposal considerations

Disposal instructions

Collect and reclaim or dispose in sealed containers at licensed waste disposal site. This material and its container must be disposed of as hazardous waste. Do not allow this material to drain into sewers/water supplies. Do not contaminate ponds, waterways or ditches with chemical or used container. Dispose of contents/container in accordance with local/regional/national/international regulations.

Local disposal regulations

Dispose in accordance with all applicable regulations.

Hazardous waste code

The waste code should be assigned in discussion between the user, the producer and the waste disposal company.

Waste from residues / unused products

Dispose of in accordance with local regulations. Empty containers or liners may retain some product residues. This material and its container must be disposed of in a safe manner (see: Disposal instructions).

Contaminated packaging

Empty containers should be taken to an approved waste handling site for recycling or disposal. Since emptied containers may retain product residue, follow label warnings even after container is emptied.

14. Transport information

DOT

UN number	UN1993
UN proper shipping name	Flammable liquids, n.o.s. (Methyl ethyl ketone RQ = 37202 LBS, Acetone RQ = 37397 LBS)
Transport hazard class(es)	
Class	3
Subsidiary risk	-
Label(s)	3
Packing group	II
Special precautions for user	Read safety instructions, SDS and emergency procedures before handling.
Special provisions	IB2, T7, TP1, TP8, TP28
Packaging exceptions	150
Packaging non bulk	202
Packaging bulk	242

IATA

UN number	UN1993
UN proper shipping name	Flammable liquid, n.o.s. (Methyl ethyl ketone, Acetone)
Transport hazard class(es)	
Class	3
Subsidiary risk	-
Packing group	II
Environmental hazards	No.
ERG Code	3H
Special precautions for user	Read safety instructions, SDS and emergency procedures before handling.

IMDG

UN number	UN1993
UN proper shipping name	FLAMMABLE LIQUID, N.O.S. (Methyl ethyl ketone, Acetone)
Transport hazard class(es)	
Class	3
Subsidiary risk	-
Packing group	II
Environmental hazards	
Marine pollutant	No.
EmS	F-E, S-E
Special precautions for user	Read safety instructions, SDS and emergency procedures before handling.

Transport in bulk according to Annex II of MARPOL 73/78 and the IBC Code Not available.

15. Regulatory information

US federal regulations This product is a "Hazardous Chemical" as defined by the OSHA Hazard Communication Standard, 29 CFR 1910.1200.
All components are on the U.S. EPA TSCA Inventory List.

TSCA Section 12(b) Export Notification (40 CFR 707, Subpt. D)

Not regulated.

OSHA Specifically Regulated Substances (29 CFR 1910.1001-1050)

Polyvinyl chloride (CAS 9002-86-2)	Cancer
	Central nervous system
	Liver
	Blood
	Flammability

CERCLA Hazardous Substance List (40 CFR 302.4)

Acetone (CAS 67-64-1)	LISTED
Cyclohexanone (CAS 108-94-1)	LISTED
Furan, Tetrahydro- (CAS 109-99-9)	LISTED
Methyl ethyl ketone (CAS 78-93-3)	LISTED

Superfund Amendments and Reauthorization Act of 1986 (SARA)

Hazard categories Immediate Hazard - Yes
Delayed Hazard - No
Fire Hazard - Yes
Pressure Hazard - No
Reactivity Hazard - No

SARA 302 Extremely hazardous substance

Not listed.

SARA 311/312 Hazardous chemical No

SARA 313 (TRI reporting)

Not regulated.

Other federal regulations

Clean Air Act (CAA) Section 112 Hazardous Air Pollutants (HAPs) List

Not regulated.

Clean Air Act (CAA) Section 112(r) Accidental Release Prevention (40 CFR 68.130)

Not regulated.

Safe Drinking Water Act (SDWA) Not regulated.

Drug Enforcement Administration (DEA). List 2, Essential Chemicals (21 CFR 1310.02(b) and 1310.04(f)(2) and Chemical Code Number

Acetone (CAS 67-64-1) 6532

Methyl ethyl ketone (CAS 78-93-3) 6714

Drug Enforcement Administration (DEA). List 1 & 2 Exempt Chemical Mixtures (21 CFR 1310.12(c))

Acetone (CAS 67-64-1) 35 %WV

Methyl ethyl ketone (CAS 78-93-3) 35 %WV

DEA Exempt Chemical Mixtures Code Number

Acetone (CAS 67-64-1) 6532

Methyl ethyl ketone (CAS 78-93-3) 6714

US state regulations

US. Massachusetts RTK - Substance List

Acetone (CAS 67-64-1)

Cyclohexanone (CAS 108-94-1)

Furan, Tetrahydro- (CAS 109-99-9)

Methyl ethyl ketone (CAS 78-93-3)

US. New Jersey Worker and Community Right-to-Know Act

Acetone (CAS 67-64-1)

Cyclohexanone (CAS 108-94-1)

Furan, Tetrahydro- (CAS 109-99-9)

Methyl ethyl ketone (CAS 78-93-3)

Polyvinyl chloride (CAS 9002-86-2)

US. Pennsylvania Worker and Community Right-to-Know Law

Acetone (CAS 67-64-1)

Cyclohexanone (CAS 108-94-1)

Furan, Tetrahydro- (CAS 109-99-9)

Methyl ethyl ketone (CAS 78-93-3)

US. Rhode Island RTK

Acetone (CAS 67-64-1)

Cyclohexanone (CAS 108-94-1)

Furan, Tetrahydro- (CAS 109-99-9)

Methyl ethyl ketone (CAS 78-93-3)

US. California Proposition 65

California Safe Drinking Water and Toxic Enforcement Act of 1986 (Proposition 65): This material is not known to contain any chemicals currently listed as carcinogens or reproductive toxins.

International Inventories

Country(s) or region	Inventory name	On inventory (yes/no)*
Canada	Domestic Substances List (DSL)	Yes

Country(s) or region	Inventory name	On inventory (yes/no)*
United States & Puerto Rico	Toxic Substances Control Act (TSCA) Inventory	No

*A "Yes" indicates this product complies with the inventory requirements administered by the governing country(s).

A "No" indicates that one or more components of the product are not listed or exempt from listing on the inventory administered by the governing country(s).

16. Other information, including date of preparation or last revision

Issue date	05-28-2015
Revision date	-
Version #	01
HMIS® ratings	Health: 2 Flammability: 3 Physical hazard: 0

NFPA ratings



Disclaimer

The information in the sheet was written based on the best knowledge and experience currently available. Oatey Co. cannot anticipate all conditions under which this information and its product, or the products of other manufacturers in combination with its product, may be used. It is the user's responsibility to ensure safe conditions for handling, storage and disposal of the product, and to assume liability for loss, injury, damage or expense due to improper use.

Safety Data Sheet



1. Identification

Product Name:	PRO LSPPR 6PK MARK FLUORESCENT ORANGE	Revision Date:	6/5/2015
Product Identifier:	2554838	Supersedes Date:	New SDS
Product Use/Class:	Marking Paint/Aerosols		
Supplier:	Rust-Oleum Corporation 11 Hawthorn Parkway Vernon Hills, IL 60061 USA	Manufacturer:	Rust-Oleum Corporation 11 Hawthorn Parkway Vernon Hills, IL 60061 USA
Preparer:	Regulatory Department		
Emergency Telephone:	24 Hour Hotline: 847-367-7700		

2. Hazard Identification

Classification

Symbol(s) of Product



Signal Word

Danger

Possible Hazards

60% of the mixture consists of ingredient(s) of unknown acute toxicity

GHS HAZARD STATEMENTS

Flammable Aerosol, category 1	H222	Extremely flammable aerosol.
Acute Toxicity, Dermal, category 4	H312	Harmful in contact with skin.
Germ Cell Mutagenicity, category 1B	H340	May cause genetic defects . Classified as mutagenic Category 1 if one ingredient is present at or above 0.1% Applies to liquids, Solids (w/w units) and gases (v/v). The substance may also have its own exposure limit. Routes of exposure are dependant on ingredient form.
Carcinogenicity, category 1B	H350	May cause cancer. Classified as carcinogenic Category 1 on the basis of epidemiological and/or animal data. Mixtures are classified as carcinogenic when at least 1 ingredient has been classified as carcinogenic and is present at 0.1% or above Routes of exposure are dependant on ingredient form.

GHS LABEL PRECAUTIONARY STATEMENTS

P201	Obtain special instructions before use.
P211	Do not spray on an open flame or other ignition source.
P251	Do not pierce or burn, even after use.
P280	Wear protective gloves/protective clothing/eye protection/face protection.
P281	Use personal protective equipment as required.
P308+P313	IF exposed or concerned: Get medical advice/attention.
P312	Call a POISON CENTER or doctor/physician if you feel unwell.
P410+P412	Protect from sunlight. Do no expose to temperatures exceeding 50°C/ 122°F.

3. Composition/Information On Ingredients

HAZARDOUS SUBSTANCES

<u>Chemical Name</u>	<u>CAS-No.</u>	<u>Wt.% Range</u>	<u>GHS Symbols</u>	<u>GHS Statements</u>
Aliphatic Hydrocarbon	64742-89-8	10-25	GHS08	H304-340-350
Propane	74-98-6	10-25	No Information	No Information
Limestone	1317-65-3	10-25	No Information	No Information
Hydrous Magnesium Silicate	14807-96-6	2.5-10	No Information	No Information
n-Butane	106-97-8	2.5-10	No Information	No Information
Acetone	67-64-1	2.5-10	GHS02-GHS07	H225-319-336
n-Butyl Acetate	123-86-4	2.5-10	GHS02-GHS07	H226-336
Hydrotreated Light Distillate	64742-47-8	2.5-10	GHS06-GHS08	H304-331
Naphtha, Petroleum, Hydrotreated Light	64742-49-0	1.0-2.5	GHS08	H304-340-350
Organoclay	68911-87-5	1.0-2.5	No Information	No Information
Stoddard Solvent	8052-41-3	0.1-1.0	GHS08	H304-340-350-372
Ethylbenzene	100-41-4	0.1-1.0	GHS02-GHS07	H225-332

The text for GHS Hazard Statements shown above (if any) is given in the "16. Other Information" section.

4. First-aid Measures

FIRST AID - EYE CONTACT: Immediately flush eyes with plenty of water for at least 15 minutes holding eyelids open. Get medical attention. Do NOT allow rubbing of eyes or keeping eyes closed.

FIRST AID - SKIN CONTACT: Wash skin with soap and water. Remove contaminated clothing. Get medical attention if irritation develops or persists.

FIRST AID - INHALATION: Remove to fresh air. If not breathing, give artificial respiration. If breathing is difficult, give oxygen. Get immediate medical attention. Do NOT use mouth-to-mouth resuscitation. If you experience difficulty in breathing, leave the area to obtain fresh air. If continued difficulty is experienced, get medical assistance immediately.

FIRST AID - INGESTION: Aspiration hazard: Do not induce vomiting or give anything by mouth because this material can enter the lungs and cause severe lung damage. Get immediate medical attention. If swallowed, get medical attention.

5. Fire-fighting Measures

EXTINGUISHING MEDIA: Alcohol Film Forming Foam, Carbon Dioxide, Dry Chemical, Dry Sand, Water Fog

UNUSUAL FIRE AND EXPLOSION HAZARDS: FLASH POINT IS LESS THAN 20°F. EXTREMELY FLAMMABLE LIQUID AND VAPOR! Water spray may be ineffective. Closed containers may explode when exposed to extreme heat due to buildup of steam. Closed containers may explode when exposed to extreme heat. Vapors may form explosive mixtures with air. Vapors can travel to a source of ignition and flash back. Keep containers tightly closed. Isolate from heat, electrical equipment, sparks and open flame. Perforation of the pressurized container may cause bursting of the can. No unusual fire or explosion hazards noted.

SPECIAL FIREFIGHTING PROCEDURES: Water may be used to cool closed containers to prevent pressure buildup and possible autoignition or explosion. Full protective equipment including self-contained breathing apparatus should be used. Evacuate area and fight fire from a safe distance. Use water spray to keep fire-exposed containers cool. Containers may explode when heated.

6. Accidental Release Measures

STEPS TO BE TAKEN IF MATERIAL IS RELEASED OR SPILLED: Contain spilled liquid with sand or earth. DO NOT use combustible materials such as sawdust. Isolate the hazard area and deny entry to unnecessary and unprotected personnel. Remove all sources of ignition, ventilate area and remove with inert absorbent and non-sparking tools. Dispose of according to local, state (provincial) and federal regulations. Do not incinerate closed containers. Ventilate area, isolate spilled material, and remove with inert absorbent. Dispose of contaminated absorbent, container, and unused contents in accordance with local, state, and federal regulations.

7. Handling and Storage

HANDLING: Wash thoroughly after handling. Wash hands before eating. Remove contaminated clothing and launder before reuse. Use only in a well-ventilated area. Use only with adequate ventilation. Follow all MSDS/label precautions even after container is emptied because it may retain product residues. Avoid breathing fumes, vapors, or mist. Avoid contact with eyes, skin and clothing.

STORAGE: Store in a dry, well ventilated place. Keep container tightly closed when not in use. Keep containers tightly closed. Isolate from heat, electrical equipment, sparks and open flame. Contents under pressure. Do not store above 120 ° F. Store large quantities in buildings designed and protected for storage of NFPA Class I flammable liquids. Keep away from heat, sparks, flame and sources of ignition. Contents under pressure. Do not expose to heat or store above 120 ° F. Avoid excess heat. Product should be stored in tightly sealed containers and protected from heat, moisture, and foreign materials.

8. Exposure Controls/Personal Protection

Chemical Name	CAS-No.	Weight % Less Than	ACGIH TLV- TWA	ACGIH TLV- STEL	OSHA PEL-TWA	OSHA PEL- CEILING
Aliphatic Hydrocarbon	64742-89-8	20.0	N.E.	N.E.	N.E.	N.E.
Propane	74-98-6	20.0	1000 ppm	N.E.	1000 ppm	N.E.
Limestone	1317-65-3	20.0	N.E.	N.E.	15 mg/m3	N.E.
Hydrous Magnesium Silicate	14807-96-6	10.0	2 mg/m3	N.E.	N.E.	N.E.
n-Butane	106-97-8	10.0	N.E.	1000 ppm	N.E.	N.E.
Acetone	67-64-1	10.0	500 ppm	750 ppm	1000 ppm	N.E.
n-Butyl Acetate	123-86-4	5.0	150 ppm	200 ppm	150 ppm	N.E.
Hydrotreated Light Distillate	64742-47-8	5.0	N.E.	N.E.	N.E.	N.E.
Naphtha, Petroleum, Hydrotreated Light	64742-49-0	5.0	N.E.	N.E.	N.E.	N.E.
Organoclay	68911-87-5	5.0	N.E.	N.E.	N.E.	N.E.
Stoddard Solvent	8052-41-3	1.0	100 ppm	N.E.	500 ppm	N.E.
Ethylbenzene	100-41-4	1.0	20 ppm	N.E.	100 ppm	N.E.

PERSONAL PROTECTION

ENGINEERING CONTROLS: Use process enclosures, local exhaust ventilation, or other engineering controls to control airborne levels below recommended exposure limits. Use explosion-proof ventilation equipment. Provide general dilution of local exhaust ventilation in volume and pattern to keep TLV of hazardous ingredients below acceptable limits. Prevent build-up of vapors by opening all doors and windows to achieve cross-ventilation.

RESPIRATORY PROTECTION: A respiratory protection program that meets OSHA 1910.134 and ANSI Z88.2 requirements must be followed whenever workplace conditions warrant a respirator's use. A NIOSH/MSHA approved air purifying respirator with organic vapor cartridge or canister may be permissible under certain circumstances where airborne concentrations are expected to exceed exposure limits.

SKIN PROTECTION: Use gloves to prevent prolonged skin contact. Use impervious gloves to prevent skin contact and absorption of this material through the skin. Nitrile or Neoprene gloves may afford adequate skin protection.

EYE PROTECTION: Use safety eyewear designed to protect against splash of liquids.

OTHER PROTECTIVE EQUIPMENT: Refer to safety supervisor or industrial hygienist for further guidance regarding types of personal protective equipment and their applications. Refer to safety supervisor or industrial hygienist for further information regarding personal protective equipment and its application.

HYGIENIC PRACTICES: Wash thoroughly with soap and water before eating, drinking or smoking. Remove contaminated clothing immediately and launder before reuse.

9. Physical and Chemical Properties

Appearance:	Aerosolized Mist	Physical State:	Liquid
Odor:	Solvent Like	Odor Threshold:	N.E.
Relative Density:	0.871	pH:	N.A.
Freeze Point, °C:	N.D.	Viscosity:	N.D.
Solubility in Water:	Slight	Partition Coefficient, n-octanol/ water:	N.D.
Decomposition Temp., °C:	N.D.	Explosive Limits, vol%:	0.9 - 13.0
Boiling Range, °C:	-24 - 537	Flash Point, °C:	-96
Flammability:	Supports Combustion	Auto-ignition Temp., °C:	N.D.
Evaporation Rate:	Faster than Ether	Vapor Pressure:	N.D.
Vapor Density:	Heavier than Air		

(See "Other information" Section for abbreviation legend)

10. Stability and Reactivity

CONDITIONS TO AVOID: Avoid temperatures above 120 °F (49°C) Avoid contact with strong acid and strong bases. Avoid all possible sources of ignition.

INCOMPATIBILITY: Incompatible with strong oxidizing agents, strong acids and strong alkalis.

HAZARDOUS DECOMPOSITION: By open flame, carbon monoxide and carbon dioxide. When heated to decomposition, it emits acrid smoke and irritating fumes. Contains solvents which may form carbon monoxide, carbon dioxide, and formaldehyde.

HAZARDOUS POLYMERIZATION: Will not occur under normal conditions.

STABILITY: This product is stable under normal storage conditions.

11. Toxicological information

EFFECTS OF OVEREXPOSURE - EYE CONTACT: Causes Serious Eye Irritation

EFFECTS OF OVEREXPOSURE - SKIN CONTACT: Substance may cause slight skin irritation. May cause skin irritation. Allergic reactions are possible. Prolonged or repeated contact may cause skin irritation.

EFFECTS OF OVEREXPOSURE - INHALATION: Harmful if inhaled. High gas, vapor, mist or dust concentrations may be harmful if inhaled. Avoid breathing fumes, spray, vapors, or mist. High vapor concentrations are irritating to the eyes, nose, throat and lungs. Prolonged or excessive inhalation may cause respiratory tract irritation.

EFFECTS OF OVEREXPOSURE - INGESTION: Harmful if swallowed. Aspiration hazard if swallowed; can enter lungs and cause damage.

EFFECTS OF OVEREXPOSURE - CHRONIC HAZARDS: May cause central nervous system disorder (e.g., narcosis involving a loss of coordination, weakness, fatigue, mental confusion, and blurred vision) and/or damage. High concentrations may lead to central nervous system effects (drowsiness, dizziness, nausea, headaches, paralysis, and blurred vision) and/or damage. Reports have associated repeated and prolonged occupational overexposure to solvents with permanent brain and nervous system damage. IARC lists Ethylbenzene as a possible human carcinogen (group 2B).

PRIMARY ROUTE(S) OF ENTRY: Eye Contact, Ingestion, Inhalation, Skin Absorption, Skin Contact

ACUTE TOXICITY VALUES

The acute effects of this product have not been tested. Data on individual components are tabulated below:

<u>CAS-No.</u>	<u>Chemical Name</u>	<u>Oral LD50</u>	<u>Dermal LD50</u>	<u>Vapor LC50</u>
64742-89-8	Aliphatic Hydrocarbon	N.I.	3000 mg/kg Rabbit	N.I.
74-98-6	Propane	N.I.	N.I.	658 mg/L Rat
123-86-4	n-Butyl Acetate	N.I.	>17600 mg/kg Rabbit	N.I.
64742-47-8	Hydrotreated Light Distillate	>5000 mg/kg Rat	>2000 mg/kg Rabbit	>5.2 mg/L Rat
64742-49-0	Naphtha, Petroleum, Hydrotreated Light	>5000 mg/kg Rat	>3160 mg/kg Rabbit	N.I.
100-41-4	Ethylbenzene	3500 mg/kg Rat	15354 mg/kg Rabbit	17.2 mg/L Rat

N.I. - No Information

12. Ecological Information

ECOLOGICAL INFORMATION: Product is a mixture of listed components. Product is a mixture of listed components.

13. Disposal Information

DISPOSAL INFORMATION: Dispose of material in accordance to local, state, and federal regulations and ordinances. Do not allow to enter waterways, wastewater, soil, storm drains or sewer systems.

14. Transport Information

	<u>Domestic (USDOT)</u>	<u>International (IMDG)</u>	<u>Air (IATA)</u>	<u>TDG (Canada)</u>
UN Number:	N.A.	1950	1950	N.A.
Proper Shipping Name:	Paint Products in Limited Quantities	Aerosols	Aerosols	Paint Products in Limited Quantities
Hazard Class:	N.A.	2.1	2.1	N.A.
Packing Group:	N.A.	N.A.	N.A.	N.A.
Limited Quantity:	Yes	Yes	Yes	Yes

15. Regulatory Information

U.S. Federal Regulations:**CERCLA - SARA Hazard Category**

This product has been reviewed according to the EPA 'Hazard Categories' promulgated under Sections 311 and 312 of the Superfund Amendment and Reauthorization Act of 1986 (SARA Title III) and is considered, under applicable definitions, to meet the following categories:

Fire Hazard, Pressure Hazard, Acute Health Hazard, Chronic Health Hazard

Sara Section 313:

This product contains the following substances subject to the reporting requirements of Section 313 of Title III of the Superfund Amendment and Reauthorization Act of 1986 and 40 CFR part 372:

<u>Chemical Name</u>	<u>CAS-No.</u>
Ethylbenzene	100-41-4

Toxic Substances Control Act:

This product contains the following chemical substances subject to the reporting requirements of TSCA 12(b) if exported from the United States:

No TSCA 12(b) components exist in this product.

16. Other Information**HMIS RATINGS**

Health: 2* Flammability: 4 Physical Hazard: 0 Personal Protection: X

NFPA RATINGS

Health: 2 Flammability: 4 Instability: 0

VOLATILE ORGANIC COMPOUNDS, g/L: 522

MSDS REVISION DATE: 6/5/2015

REASON FOR REVISION:

Legend: N.A. - Not Applicable, N.E. - Not Established, N.D. - Not Determined

Text for GHS Hazard Statements shown in Section 3 describing each ingredient:

H225	Highly flammable liquid and vapour.
H226	Flammable liquid and vapour.
H304	May be fatal if swallowed and enters airways.
H319	Causes serious eye irritation.
H331	Toxic if inhaled.
H332	Harmful if inhaled.
H336	May cause drowsiness or dizziness.
H340	May cause genetic defects.
H350	May cause cancer.
H372	Causes damage to organs through prolonged or repeated exposure.

Icons for GHS Pictograms shown in Section 3 describing each ingredient:

GHS02



GHS06



GHS07



GHS08



Rust-Oleum Corporation believes, to the best of its knowledge, information and belief, the information contained herein to be accurate and reliable as of the date of this safety data sheet. However, because the conditions of handling, use, and storage of these materials are beyond our control, we assume no responsibility or liability for personal injury or property damage incurred by the use of these materials. Rust-Oleum Corporation makes no warranty, expressed or implied, regarding the accuracy or reliability of the data or results obtained from their use. All materials may present unknown hazards and should be used with caution. The information and recommendations in this material safety data sheet are offered for the users' consideration and examination. It is the responsibility of the user to determine the final suitability of this information and to comply with all applicable international, federal, state, and local laws and regulations.

SAFETY DATA SHEET



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Shell Retinax Grease LX 2

1. Identification of the substance/mixture and of the company/undertaking

1.1 Product identifier

Shell Retinax Grease LX 2

1.2 Relevant identified uses of the substance or mixture and uses advised against

Area of use: Automotive and industrial grease.

1.3 Details of the supplier of the safety data sheet

Supplier:

ALFA LAVAL Tumba AB

Hans Stahles väg
SE-147 80 Tumba
Sweden

Tel: +46 8 53 06 50 00
Fax: + 46 8 53 06 52 59

Manufacture:

Univar AB

Box 4072
SE-203 11 Malmö
Sweden

Tel: 040-352800
Fax: 040-125172

e-mail: sds.question@alfalaval.com

1.4 Emergency telephone number: Dial in case of emergency poisoning and ask for Poison Information both day and night. Dial + 46 (0) 8-331231 if you have other questions concerning acute poisonings mon-fri 9.00-17.00

2. Hazards identification

2.1 Classification of the substance or mixture

This product is not classified as hazardous according to current regulations.

2.2 Label elements

Safety data sheet available for professional users on request.

2.3 Other hazards

Expected to cause slight irritation to skin and eyes. Inhalation of vapors or mists may cause irritation. Prolonged or repeated skin contact without proper cleaning can clog the pores of the skin resulting in disorders such as oil acne/folliculitis. High-pressure injection under the skin may cause serious damage including local necrosis. Used oil may contain harmful impurities.

Shell Retinax Grease LX 2

3. Composition/information on ingredients

3.2 Mixtures

Declaration of the constituents according to CLP 1272/2008/EC

Substances	Registration No.	Weight - (%)	CAS No.	EC No	Classification
Zinc naphthenate	-	1,00-2,00	12001-85-3	234-409-2	Eye irrit. 2; H319 Skinn Irrit. 2; H315 Aquatic Chronic 2; H411

Declaration of ingredients constituents to 1999/45/EC

Substances	Registration No.	Weight - (%)	CAS No.	EC No	Classification
Zinc naphthenate	-	1,00-2,00	12001-85-3	234-409-2	Xi; R36/38; N; R51/53

Preparation Description: A lubricating grease containing highly-refined mineral oils and additives.

The highly refined mineral oil contains <3% (w/w) DMSO-extract, according to IP346.

See section 16 for explanation to R-phrases and/or Hazard statements

4. First aid measures

4.1 Description of first aid measures

General recommendations

Not expected to be a health hazard when used under normal conditions. Consult a physician. Show this safety data sheet to a physician.

First aid – eye contact

Flush eye with copious quantities of water. If persistent irritation occurs, obtain medical attention.

First aid- skin contact

Remove contaminated clothing. Flush exposed area with water and follow by washing with soap if available. If persistent irritation occurs, obtain medical attention. When using high pressure equipment, injection of product under the skin can occur. If high pressure injuries occur, the casualty should be sent immediately to a hospital. Do not wait for symptoms to develop. Obtain medical attention even in the absence of apparent wounds.

First aid- ingestion

In general no treatment is necessary unless large quantities are swallowed, however, get medical advice.

First aid- inhalation

No treatment necessary under normal conditions of use. If symptoms persist, obtain medical advice.

4.2 Most important symptoms and effects, both acute and delayed

Oil acne/folliculitis signs and symptoms may include formation of black pustules and spots on the skin of exposed areas. Local necrosis is evidenced by delayed onset of pain and tissue damage a few hours following injection. Ingestion may result in nausea, vomiting and/or diarrhoea.

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4.3 Indication of any immediate medical attention and special treatment needed	Treat symptomatically. High pressure injection injuries require prompt surgical intervention and possibly steroid therapy, to minimise tissue damage and loss of function. Because entry wounds are small and do not reflect the seriousness of the underlying damage, surgical exploration to determine the extent of involvement may be necessary. Local anaesthetics or hot soaks should be avoided because they can contribute to swelling, vasospasm and ischaemia. Prompt surgical decompression, debridement and evacuation of foreign material should be performed under general anaesthetics, and wide exploration is essential.
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5. Firefighting measures	
5.1 Extinguishing media	Foam, water spray or fog. Dry chemical powder, carbon dioxide, sand or earth may be used for small fires only.
a) Suitable extinguishing media	
b) Unsuitable extinguishing media	Do not use water jet.
5.2 Special hazards arising from the substance or mixture	Hazardous combustion products may include: A complex mixture of airborne solid and liquid particulates and gases (smoke). Carbon monoxide. Unidentified organic and inorganic compounds.
5.3 Advice for firefighters	Proper protective equipment including breathing apparatus must be worn when approaching a fire in a confined space.

6. Accidental release measures	
6.1 Personal precautions, protective equipment and emergency procedures	Use personal protection clothing according to section 8. Avoid contact with spilled or released material. Avoid contact with skin and eyes.
6.2 Environmental precautions	Use appropriate containment to avoid environmental contamination. Prevent from spreading or entering drains, ditches or rivers by using sand, earth, or other appropriate barriers.
6.3 Methods and material for containment and cleaning up Large/Small spills	Shovel into a suitable clearly marked container for disposal or reclamation in accordance with local regulations.
6.4 Reference to other sections	Personal protection, see section 8. Disposal, see section 13.

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7. Handling and storage

7.1 Precautions for safe handling

Avoid prolonged or repeated contact with skin. Avoid inhaling vapour and/or mists. When handling product in drums, safety footwear should be worn and proper handling equipment should be used.

Use local exhaust ventilation if there is risk of inhalation of vapours, mists or aerosols. Properly dispose of any contaminated rags or cleaning materials in order to prevent fires.

7.2 Conditions for safe storage, including any incompatibilities

Keep container tightly closed and in a cool, well-ventilated place. Use properly labelled and closeable containers. Storage Temperature: 0 - 50 °C / 32 - 122 °F.

Recommended materials: For containers or container linings, use mild steel or high density polyethylene.

Unsuitable Materials : PVC

Additional Information: Polyethylene containers should not be exposed to high temperatures because of possible risk of distortion.

7.3 Specific end use

No information.

8. Exposure controls/personal protection

8.1 Control parameters

National occupational exposure limit values that correspond to Community occupational exposure limit values in accordance with Directive 98/24/EC, including any notations as referred to in Article 2(1) of Commission Decision 95/320/EC

Substance	CAS No	Limit value – Short term		Limit value - 8 h		Notifications
		ppm	mg/m ³	ppm	mg/m ³	
Oil mist, metal working fluids					1	

GESTIS United Kingdom

8.2 Exposure controls

Appropriate engineering controls

Ensure adequate ventilation.

Eye/face protection

Wear safety glasses or full face shield if splashes are likely to occur. Approved by EU-standard EN166.

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Hand protection	Where hand contact with the product may occur the use of gloves approved to relevant standards (e.g. Europe: EN374, US: F739) made from the following materials may provide suitable chemical protection: PVC, neoprene or nitrile rubber gloves. Suitability and durability of a glove is dependent on usage. Contaminated gloves should be replaced. Personal hygiene is a key element of effective hand care. Gloves must only be worn on clean hands. After using gloves, hands should be washed and dried thoroughly. Application of a non-perfumed moisturizer is recommended.
Respiratory protection	No respiratory protection is ordinarily required under normal conditions of use. Select respiratory protection equipment suitable for the specific conditions of use. Check with respiratory protective equipment suppliers. Where air-filtering respirators are suitable, select an appropriate combination of mask and filter. Select a filter suitable for combined particulate/organic gases and vapours [boiling point >65 °C (149 °F)].
Other protection	Skin protection not ordinarily required beyond standard issue work clothes.
Environmental exposure controls	See section 6.

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9. Physical and chemical properties

9.1 Information on basic physical and chemical properties

Appearance	Red. Semi-solid.
Odour	Slight hydrocarbon.
Odour threshold	No information
pH (X °C)	Not applicable.
Melting point/freezing point	No information
Initial boiling point and boiling range	No information
Flash point	> 150 °C / 302 °F (COC)
Evaporation rate	No information
Flammability (solid, gas)	No information
Upper/lower flammability or explosive limits	Typical 1 - 10 %(V) (based on mineral oil)
Vapour pressure	< 0.5 Pa at 20 °C / 68 °F (estimated value(s))
Vapour density	Relative vapour density (air=1): > 1 (estimated value(s))
Relative density	No information
Solubility(ies)	Water solubility: Negligible.
Partition coefficient: n-octanol/water	> 6 (based on information on similar products)
Auto-ignition temperature	> 320 °C / 608 °F
Decomposition temperature	No information
Viscosity	Kinematic viscosity: not applicable
Explosive properties	No information
Oxidising properties	No information
9.2 Other information	Pour point: Typical >245 °C / 473 °F Density: Typical 900 kg/m ³ at 15 °C / 59 °F

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10. Stability and reactivity

10.1 Reactivity	May react with strong oxidising agents.
10.2 Chemical stability	Stable.
10.3 Possibility of hazardous reactions	No information.
10.4 Conditions to avoid	Extremes of temperature and direct sunlight.
10.5 Incompatible materials	Strong oxidising agents.
10.6 Hazardous decomposition products	Hazardous decomposition products are not expected to form during normal storage.

11. Toxicological information

11.1 Information on toxicological effects

Acute toxicity	Expected to be of low toxicity: LD50 > 5000 mg/kg , Rat Expected to be of low toxicity: LD50 > 5000 mg/kg , Rabbit
Irritation	Expected to be slightly irritating to skin and eyes. Inhalation of vapours or mists may cause irritation.
Corrosivity	No information.
Sensitisation	Not expected to be a skin sensitiser.
Repeated dose toxicity	Prolonged or repeated skin contact without proper cleaning can clog the pores of the skin resulting in disorders such as oil acne/folliculitis.
Carcinogenicity	Product contains mineral oils of types shown to be noncarcinogenic in animal skin-painting studies. Highly refined mineral oils are not classified as carcinogenic by the International Agency for Research on Cancer (IARC). Other components are not known to be associated with carcinogenic effects.
Mutagenicity	Not considered a mutagenic hazard.
Toxicity for reproduction.	Not expected to be a hazard.
Additional information	Used oils may contain harmful impurities that have accumulated during use. The concentration of such impurities will depend on use and they may present risks to health and the environment on disposal. ALL used oil should be handled with caution and skin contact avoided as far as possible. High pressure injection of product into the skin may lead to local necrosis if the product is not surgically removed. Information given is based on data on the components and the toxicology of similar products.

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12. Ecological information	
12.1 Toxicity	Poorly soluble mixture. May cause physical fouling of aquatic organisms. Expected to be practically non toxic: LL/EL/IL50 > 100 mg/l (to aquatic organisms) (LL/EL50 expressed as the nominal amount of product required to prepare aqueous test extract). Mineral oil is not expected to cause any chronic effects to aquatic organisms at concentrations less than 1 mg/l.
12.2 Persistence and degradability	Expected to be not readily biodegradable. Major constituents are expected to be inherently biodegradable, but the product contains components that may persist in the environment.
12.3 Bio accumulative potential	Contains components with the potential to bio accumulate.
12.4 Mobility in soil	Semi-solid under most environmental conditions. Floats on water. If it enters soil, it will adsorb to soil particles and will not be mobile.
12.5 Results of PBT and vPvB assessment	No information.
12.6 Other adverse effects	None known.
Other Adverse Effects	<p>Eco toxicological data have not been determined specifically for this product. Information given is based on knowledge of the components and the ecotoxicology of similar products.</p> <p>Product is a mixture of non-volatile components, which are not expected to be released to air in any significant quantities. Not expected to have ozone depletion potential, photochemical ozone creation potential or global warming potential.</p>

Shell Retinax Grease LX 2

13. Disposal considerations

13.1 Waste treatment methods

Material Disposal: Do not dispose into the environment, in drains or in water courses.
Product residues, waste, etc. are hazardous waste. Disposal, transport, storage and handling of waste shall be in accordance with applicable regulations.

Container Disposal: Dispose in accordance with applicable regulations, preferably to a recognized collector or contractor.

Local regulations: Disposal should be in accordance with applicable regional, national and local laws and regulations.

EWC code:

According to the European Waste Catalogue, Waste Codes are not product specific, but application specific. Waste codes should be assigned by the user, preferably in discussion with the waste disposal authorities.

Example of EWC codes:

12 01 12 spent waxes and fats.

Proposal for empty packaging: 15 01 02 plastic packaging 15 01 04 metallic packaging. Packaging containing residues that have not been emptied until drip dry must be handled as hazardous waste and must be properly sealed before disposal. Examples of waste code: 15 01 10: packaging containing residues of or contaminated by dangerous substances.

14. Transport information

	ADR/RID-S	IMDG	IATA
14.1 UN number	Not classified as dangerous goods.	Not classified as dangerous goods.	Not classified as dangerous goods.
14.2 UN proper shipping name	Not relevant.	Not relevant.	Not relevant.
14.3 Transport hazard class(es)	Not relevant.	Not relevant.	Not relevant.
14.4 Packing group	Not relevant.	Not relevant.	Not relevant.
14.5 Environmental hazards	Not relevant.	Not relevant.	Not relevant.
14.6 Special precautions for user	Not relevant.	Not relevant.	Not relevant.

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14.7 Transport in bulk according to Annex II of MARPOL 73/78 and the IBC Code	Not relevant.	Not relevant.	Not relevant.
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15. Regulatory information

15.1 Safety, health and environmental regulations/legislation specific for the substance or mixture	Gestis, International Limit Values European Waste Catalogue and Hazardous Waste List
15.2 Chemical safety assessment	No.

16. Other information

Hazard statements/Risk phrases	R36/38 Irritating to eyes and skin. R51/53 Toxic to aquatic organisms, may cause long-term adverse effects in the aquatic environment H315 Causes skin irritation. H319 Causes serious eye irritation. H411 Toxic to aquatic life with long lasting effects.
Important changes have been made in section	General update according to EU 453/2010.

LIMITATION OF LIABILITY

This document is only intended to be used as guidance as regards the risks of which we are aware that are associated with the product. Every individual who works with the product or in close proximity of it must receive suitable training. Individuals who come into contact with the product must be capable of using their own judgement as regards conditions or methods for handling, storing and using the product. Alfa Laval is not liable for demands, losses or damage of any kind that arise from flaws or deficiencies in this document or from using, handling, storing or disposing of the product unless it can be proven that Alfa Laval has acted in a grossly negligent manner. **Beyond what has been agreed upon and specified in writing with Alfa Laval in the individual case, Alfa Laval makes no promises or assumes any liability, including but not limited to implicit guarantees regarding marketability or appropriateness in terms of both the information provided in this document and the product to which the information refers.**

Section 1: PRODUCT & COMPANY IDENTIFICATION

Product Name: Simple Green® All-Purpose Cleaner
 Additional Names: Simple Green® Industrial Cleaner & Degreaser

Manufacturer's Part Number: **Please refer to Section 16*

Company: Sunshine Makers, Inc.
 15922 Pacific Coast Highway
 Huntington Beach, CA 92649 USA
 Telephone: 800-228-0709 • 562-795-6000 Fax: 562-592-3830
Monday – Friday, 8am – 5pm PST
 Emergency Phone: Chem-Tel 24-Hour Emergency Service: 800-255-3924

Section 2: HAZARDS IDENTIFICATION

Emergency Overview: This is a green colored liquid with a sassafras added odor. No expected health hazards.

Routes of Exposures: Eye Contact, Skin Contact, Inhalation

Potential Health Effects

Eye Contact: Not expected to cause eye irritation.

Skin Contact: Not expected to cause skin irritation.

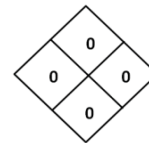
Ingestion: May cause upset stomach. See section 11.

Inhalation: Not expected to cause respiratory irritation.

Medical Conditions Aggravated by Exposure: Dermally sensitive users may experience dry skin.

Target Organs: None.

Environmental Effects: Not harmful.



NFPA/HMIS Rating:
 Health, Fire, Reactivity,
 and Special = 0 = minimal

This mixture is not considered Hazardous by the OSHA Hazard Communication Standard (29 CFR 1910.1200)

Section 3: COMPOSITION/INFORMATION ON INGREDIENTS

<u>Ingredient</u>	<u>CAS Number</u>	<u>Percent by weight</u>
Water	7732-18-5	≥ 85%
Ethoxylated Alcohol	68439-46-3	≤ 5%
Sodium Citrate	68-04-2	≤ 5%
Tetrasodium <i>N,N</i> -bis(carboxymethyl)-L-glutamate	51981-21-6	≤ 1%
Sodium Carbonate	497-19-8	≤ 1%
Citric Acid	77-92-9	≤ 1%
Fragrance	Proprietary Mixture	≤ 1%
Colorant	Proprietary Mixture	≤ 1%

Section 4: FIRST AID MEASURES

If Inhaled: If adverse effect occurs, move to fresh air.
If on skin: If adverse effect occurs, rinse skin with water.
If in eyes: If adverse effect occurs, flush eyes with water.
If ingested: Drink plenty of water to dilute.

Section 5: FIRE FIGHTING MEASURES**Flammability:** Non-flammable.**Flash Point:** No flash point seen at or below 212°F (100°C), ASTM D-93**Suitable Extinguishing Media:** Use Dry chemical, CO₂, water spray or "alcohol" foam.**Extinguishing Media to Avoid:** High volume jet water.**Products of Combustion:** In event of fire, fire created carbon oxides may be formed.**Special Protective Equipment:** Firefighters should wear self-contained breathing apparatus and full fire-fighting turn-out gear.**Section 6: ACCIDENTAL RELEASE MEASURES****Personal Precautions:** Use personal protection recommended in section 8.**Environmental Precautions:** Prevent runoff from entering drains, sewers or waterways.**Method for Containment:** Dike or soak up with inert absorbent material.**Method for Clean Up:** Dilute with water and rinse into sanitary sewer system or dispose into suitable container.**Section 7: HANDLING AND STORAGE****Handling:** Ensure adequate ventilation. Keep out of reach of children. Keep away from heat, sparks, open flame and direct sunlight. Do not pierce any part of the container.**Storage:** Keep container tightly closed. Keep in cool dry area. Avoid prolonged exposure to sunlight. Do not store at temperatures above 109°F (42.7°C). If separation occurs, mix the product for reconstitution.**Section 8: EXPOSURE CONTROLS / PERSONAL PROTECTION****Exposure Limit Values:** No components listed with TWA or STEL values under OSHA or ACGIH.**Engineering Controls:** Not applicable.**Exposure Controls:**

Eye Contact: Use protective glasses if splashing or spray-back is likely.

Respiratory: Use in well ventilated areas.

Skin Contact: Dermal sensitive individuals should use protective gloves.

General Hygiene Considerations: Wash thoroughly after handling and before eating or drinking.

Section 9: PHYSICAL AND CHEMICAL PROPERTIES**Appearance:** Green Liquid**Odor:** Added sassafras (sweet herbal) odor**Physical State:** Liquid**Odor Threshold:** Not available**Boiling Point** ASTM D-1120: 101°C (213.8°F)**Freezing Point** ASTM D-1177: 0 - 3.33°C (32 - 38°F)**Specific Gravity** ASTM D-891: 1.01 – 1.03**Evaporation Rate** ASTM D-1901: ½ Butyl Acetate @ 25°C**Vapor Pressure** ASTM D-323: 0.60 PSI @77°F, 2.05 PSI @100°F**Vapor Density:** Not applicable**pH** ASTM D-1293: 9.0 ± 0.5**Flash Point** ASTM D-93: Not applicable**Flammability:** Not applicable**Autoignition Temperature:** Not applicable**Decomposition Temperature:** Not applicable**Density** ASTM D-4017: 8.552 lb/gal**Water Solubility:** 100%**Partial Coefficient:** Not available

Section 9: PHYSICAL AND CHEMICAL PROPERTIES - continued

VOCs:	SCAQMD 304-91 / EPA 24:	0 g/L	0 lb/gal	0 %	
	CARB Method 310**:	2.5 g/L	0.021 lb/gal	0.25%	**Water & fragrance exemption in calculation
	SCAQMD Method 313:	Not tested			
VOC composite Partial Pressure:	Not Determined				
Nutrient Content:	Phosphorous: 0.0%				

Section 10: STABILITY AND REACTIVITY

Stability:	Stable under normal conditions 70°F (21°C) and 14.7 psig (760 mmHg).
Reactivity:	Non-Reactive.
Conditions to Avoid:	None known.
Incompatible Materials:	None known.
Hazardous Decomposition Products:	Normal products of combustion - CO, CO2.
Possibility of Hazardous Reactions:	None known.

Section 11: TOXICOLOGICAL INFORMATION

Effects of Exposure: Not expected to be hazardous under typical use conditions.

Acute Toxicity:	Oral LD ₅₀ (rat)	> 5 g/kg body weight
	Dermal LD ₅₀ (rabbit)	> 5 g/kg body weight

calculated via OECD Harmonized Integrated Classification System for Human Health & Environmental Hazards of Chemical Substances & Mixtures

Carcinogens: No ingredients are listed by OSHA, IARC, or NTP as known or suspected carcinogens.

Eyes: Minimal irritant per Ocular Irritation® assay modeling. No animal testing performed.

Skin: Non-irritant per Dermal Irritation® assay modeling. No animal testing performed.

Section 12: ECOLOGICAL INFORMATION

Aquatic Toxicity: Low, based on OECD 201, 202, 203 + Microtox: EC₅₀ & IC₅₀ ≥100 mg/L.

Terrestrial Toxicity: Low, based on toxicology profile.

Persistence and degradability: Readily Biodegradable per OECD 301D, Closed Bottle Test.

Mobility: No data available.

Bioaccumulation: Not applicable.

Section 13: DISPOSAL CONSIDERATIONS

Appropriate Method for Disposal:

Unused Product: *Dilute with water and dispose by sanitary sewer.

Used Product: *Used product may be hazardous depending on the cleaning application and resulting contaminants.

Empty Containers: *Triple-rinse with water and offer for recycling if available in your area.

*Dispose of used or unused product, and empty containers in accordance with the local, State, Provincial, and Federal regulations for your location. Never dispose of used degreasing rinsates into lakes, streams, and open bodies of water or storm drains.

Section 14: TRANSPORT INFORMATION

U.S. (DOT) / Canadian TDG: Not Regulated for shipping.

IMO / IDMG: Not classified as Hazardous

ICAO/ IATA: Not classified as Hazardous

ADR/RID: Not classified as Hazardous

U.N. Number: Not applicable

Proper Shipping Name: Detergent/Cleaning Solution

Hazard Class: Non-Hazardous

Marine Pollutant: No

Section 15: REGULATORY INFORMATION

All components are listed on: EINECS, TSCA, DSL, AICS and NZIoC Inventory.

SARA Title III: Sections 311/312 – Not applicable.

Sections 313 – Not applicable.

Sections 302 – Not applicable.

State Right To Know Lists No ingredients listed.

CA Prop 65: None listed.

Texas ESL:

Ethoxylated Alcohol	68439-46-3	60 µg/m3 long term	600 µg/m3 short term
Sodium Citrate	68-04-2	5 µg/m3 long term	50 µg/m3 short term
Sodium Carbonate	497-19-8	5 µg/m3 long term	50 µg/m3 short term
Citric Acid	77-92-9	10 µg/m3 long term	100 µg/m3 short term

WHMIS Classification – Non Hazardous, not classifiable.

Name
No

Toxic Substances List – Schedule 1 – CEPA
No

NPRI Inventory
No

This product has been classified according to the hazard criteria of the CPR and the MSDS contains all the information required by Canada’s Controlled Products Regulation.

Section 16: OTHER INFORMATION

PART NUMBER:

SIZE:

- 2710001213022 22 oz. Trigger Spray 12/case
- 2710001213012 24 oz. Trigger Spray 12/case
- 2710001213033 32 oz. Trigger Spray 12/case
- 2710200613005 1-gallon Bottle 6/case
- 2740116800128 1-gallon Bottle
- 2710000213225 2.5-gallon Bottle 2/case
- 2700000113006 5-gallon Pail each
- 2700000113008 55-gallon Drum each
- 2700000113275 275-gallon Tote each

BATCH CODING:

Containers of this formula will be batch coded as follows:
Example: AT3001002, GG3001002 where...
AT & GG are codes for production facilities,
“3” is the last digit of the year product was produced,
“001” is the Julian date product was produced, and
“002” is the batch number for that product in that year.

2710001213013 24 oz. Trigger Spray 12/case

USA part numbers listed only. Not all part numbers listed. USA part numbers may not be valid for international sale.

Prepared / Revised By: Sunshine Makers, Inc., Regulatory Department.

This SDS has been revised in the following sections: ALL

DISCLAIMER: The information provided with this MSDS is furnished in good faith and without warranty of any kind. Personnel handling this material must make independent determinations of the suitability and completeness of information from all sources to assure proper use and disposal of this material and the safety and health of employees and customers. Sunshine Makers, Inc. assumes no additional liability or responsibility resulting from the use of, or reliance on this information.



SAFETY DATA SHEET

Issue Date 23-Jun-2011

Revision Date 3-Mar-2015

Version 1

1. PRODUCT AND COMPANY IDENTIFICATION

Product Identifier

Product Name Smart Strip

Other Means of Identification

SDS # DCI-039

Recommended Use of the Chemical and Restrictions on Use

Recommended Use Paint remover.

Details of the Supplier of the Safety Data Sheet

Supplier Address

Dumond Chemicals, Inc.
83 General Warren Blvd
Suite 190
Malvern, PA 19355

Emergency Telephone Number

Company Phone Number 1-609-655-7700
Emergency Telephone INFOTRAC 1-352-323-3500 (International)
1-800-535-5053 (North America)

2. HAZARDS IDENTIFICATION

Classification

Appearance White viscous liquid

Physical State Liquid

Odor Faint aromatic odor

Hazards Not Otherwise Classified (HNOC)

May be harmful if swallowed
May be harmful in contact with skin

Other Hazards

Toxic to aquatic life with long lasting effects
Toxic to aquatic life

3. COMPOSITION/INFORMATION ON INGREDIENTS

Chemical Name	CAS No	Weight-%
Water	7732-18-5	40-60

Benzyl alcohol	100-51-6	30-50
Titanium dioxide	13463-67-7	1-5

4. FIRST AID MEASURES

First Aid Measures

Inhalation	Remove to fresh air. Oxygen or artificial respiration if needed. Get medical attention if necessary.
Eye Contact	Rinse immediately with plenty of water, also under the eyelids, for at least 15 minutes. Get medical attention if necessary.
Ingestion	If conscious give 2 glasses of water to dilute. Do NOT induce vomiting. Never give anything by mouth to an unconscious person. Get medical attention if necessary.
Skin Contact	Wash thoroughly with soap and water until no traces of the chemical remain. Remove contaminated clothing and shoes. Get medical attention if irritation occurs.

Most Important Symptoms and Effects, both Acute and Delayed

Symptoms	May cause skin and eye irritation. May be harmful if absorbed through the skin. Mists and vapors cause irritation of the eyes, mucous membranes, and upper respiratory tract.
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Indication of any Immediate Medical Attention and Special Treatment Needed

Note to Physicians	Treat symptomatically. Individuals with chronic respiratory or skin diseases may be at risk from exposure.
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5. FIRE-FIGHTING MEASURES

Suitable Extinguishing Media

Water spray (fog). Foam. Dry chemical or CO2.

Unsuitable Extinguishing Media Not determined.

Specific Hazards Arising from the Chemical

Decomposition may be hazardous. Vapors may form explosive mixtures with air in confined areas. Sealed containers may rupture when heated. Cool containers exposed to flames with water until well after the fire is out.

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.

6. ACCIDENTAL RELEASE MEASURES

Personal Precautions, Protective Equipment and Emergency Procedures

Personal Precautions	Use personal protective equipment as required.
Environmental Precautions	Do not allow into any sewer, on the ground or into any body of water. See Section 12 for additional ecological information.

Methods and Material for Containment and Cleaning Up

Methods for Containment Prevent further leakage or spillage if safe to do so. Remove all sources of ignition. Dike spill and prevent spill from entering sewers and waterways. Collect using an inert absorbent material and place in appropriate containers for disposal.

Methods for Cleaning Up Keep in suitable, closed containers for disposal. Wash spill area with plenty of water. Spills and releases may have to be reported to Federal and/or local authorities. See section 15.

7. HANDLING AND STORAGE

Precautions for Safe Handling

Advice on Safe Handling Use personal protective equipment as required. Avoid contact with skin, eyes or clothing. Protect container from physical damage. Avoid breathing vapors or mists. Remove contaminated clothing and shoes. Wash thoroughly after handling before eating, drinking, smoking, or using toilet facilities. Since empty container retains residue, follow all label warnings even after container is empty.

Conditions for Safe Storage, Including any Incompatibilities

Storage Conditions Keep containers tightly closed in a dry, cool and well-ventilated place. Keep away from oxidizers and incompatible materials.

Incompatible Materials Strong acids. Bases. Reducing agent. Strong oxidizing agents.

8. EXPOSURE CONTROLS/PERSONAL PROTECTION

Exposure Guidelines

Chemical Name	ACGIH TLV	OSHA PEL	NIOSH IDLH
Titanium dioxide 13463-67-7	TWA: 10 mg/m ³	TWA: 15 mg/m ³ total dust (vacated) TWA: 10 mg/m ³ total dust	IDLH: 5000 mg/m ³

Appropriate Engineering Controls

Engineering Controls For operations where contact can occur, a safety shower and an eye wash facility should be available. Provide natural or mechanical ventilation to control exposure levels below airborne exposure limits.

Individual Protection Measures, such as Personal Protective Equipment

Eye/Face Protection Chemical safety goggles/faceshield. Do not wear contact lenses.

Skin and Body Protection Wear impervious protective clothing, including boots, gloves, lab coat, apron or coveralls, as appropriate, to prevent skin contact. Butyl rubber or other impervious gloves are required.

Respiratory Protection If occupational exposure limits are exceeded, use NIOSH approved respirator with organic vapor cartridges and dust/mist pre-filter. For higher concentrations (greater than 10 times the recommended exposure limit) an approved supplied air respirator (with escape bottle if required) or self-contained breathing apparatus may be required. Selection of respiratory protection depends on the contaminant type, form, and concentration. Select in accordance with OSHA 1910.134 and good industrial hygiene practice.

General Hygiene Considerations Handle in accordance with good industrial hygiene and safety practice.

9. PHYSICAL AND CHEMICAL PROPERTIES

Information on Basic Physical and Chemical Properties

Physical State	Liquid	Odor	Faint aromatic odor
Appearance	White viscous liquid	Odor threshold	Not determined
Color	White		

<u>Property</u>	<u>Values</u>	<u>Remarks • Method</u>
pH	6	
Melting point/freezing point	-15 °C / 5 °F	
Boiling point/boiling range	96 °C / 205 °F	
Flash point	None	
Evaporation rate	< 1	
Flammability (solid, gas)	Not determined	
Flammability limits in air		
Upper flammability limits	Not available	
Lower flammability limit	Not available	
Vapor pressure	0.1 mmHg	@ 30 °C
Vapor density	3-4	(Air=1)
Specific gravity	10.54 lbs/gal	
Water solubility	Partially soluble	
Solubility in other solvents	Not determined	
Partition coefficient	Not available	
Autoignition temperature	Not available	
Decomposition temperature	Not determined	
Kinematic viscosity	Not determined	
Dynamic viscosity	Not determined	
Explosive properties	Not determined	
Oxidizing Properties	Not determined	

Other Information

VOC Content (%)	0%
VOC Content	0 lbs/gal

10. STABILITY AND REACTIVITY**Reactivity**

Not reactive under normal conditions

Chemical Stability

Stable under recommended storage conditions.

Possibility of Hazardous Reactions

None under normal processing.

Conditions to Avoid

Keep out of reach of children.

Incompatible Materials

Strong acids. Bases. Reducing agent. Strong oxidizing agents.

Hazardous Decomposition Products

Carbon monoxide. Carbon dioxide (CO₂). Nitrogen oxides (NO_x). May oxidize with air to form benzaldehyde and benzoic acid.

11. TOXICOLOGICAL INFORMATION**Information on Likely Routes of Exposure****Product Information**

Inhalation	Avoid breathing vapors or mists.
Eye Contact	Avoid contact with eyes.
Skin Contact	May be harmful in contact with skin.
Ingestion	May be harmful if swallowed.

Component Information

Chemical Name	Oral LD50	Dermal LD50	Inhalation LC50
Water 7732-18-5	> 90 mL/kg (Rat)	-	-
Benzyl alcohol 100-51-6	= 1230 mg/kg (Rat)	= 2000 mg/kg (Rabbit)	= 8.8 mg/L (Rat) 4 h
Titanium dioxide 13463-67-7	> 10000 mg/kg (Rat)	-	-

Information on Physical, Chemical and Toxicological Effects

Symptoms May cause skin and eye irritation. May be harmful if absorbed through the skin. Mists and vapors cause irritation of the eyes, mucous membranes, and upper respiratory tract.

Delayed and Immediate Effects as well as Chronic Effects from Short and Long-term Exposure

Carcinogenicity Titanium dioxide is a possible carcinogen when it appears as a respirable dust.

Chemical Name	ACGIH	IARC	NTP	OSHA
Titanium dioxide 13463-67-7		Group 2B		X

Chronic toxicity Individuals with chronic respiratory or skin diseases may be at risk from exposure.

Numerical Measures of Toxicity- Product

Not determined

The following values are calculated based on chapter 3.1 of the GHS document .

ATEmix (oral)	3047 mg/kg
ATEmix (dermal)	5000 mg/kg
ATEmix (inhalation-gas)	1750 mg/l
ATEmix (inhalation-dust/mist)	0.1 mg/l

12. ECOLOGICAL INFORMATION**Ecotoxicity**

An environmental hazard cannot be excluded in the event of unprofessional handling or disposal

Chemical Name	Algae/aquatic plants	Fish	Toxicity to microorganisms	Crustacea
Benzyl alcohol 100-51-6	35: 3 h Anabaena variabilis mg/L EC50	460: 96 h Pimephales promelas mg/L LC50 static 10: 96 h Lepomis macrochirus mg/L LC50 static	EC50 = 50 mg/L 5 min EC50 = 63.7 mg/L 15 min EC50 = 63.7 mg/L 5 min EC50 = 71.4 mg/L 30 min	23: 48 h water flea mg/L EC50

Persistence and Degradability

Material is readily biodegradable.

Bioaccumulation

The product has low potential for bioaccumulation.

Mobility

Not determined.

Chemical Name	Partition coefficient
Benzyl alcohol 100-51-6	1.1

Other Adverse Effects

Not determined

13. DISPOSAL CONSIDERATIONS

Waste Treatment Methods**Disposal of Wastes**

Disposal should be in accordance with applicable regional, national and local laws and regulations.

Contaminated Packaging

Disposal should be in accordance with applicable regional, national and local laws and regulations.

14. TRANSPORT INFORMATION

Note

Please see current shipping paper for most up to date shipping information, including exemptions and special circumstances

DOT

Not regulated

IATA

Not regulated

IMDG

Not regulated

15. REGULATORY INFORMATION

International Inventories

TSCA Listed
DSL Listed

Legend:

TSCA - United States Toxic Substances Control Act Section 8(b) Inventory

DSL/NDSL - Canadian Domestic Substances List/Non-Domestic Substances List

EINECS/ELINCS - European Inventory of Existing Chemical Substances/European List of Notified Chemical Substances

ENCS - Japan Existing and New Chemical Substances IECSC

- China Inventory of Existing Chemical Substances KECL -

Korean Existing and Evaluated Chemical Substances

PICCS - Philippines Inventory of Chemicals and Chemical Substances

US Federal Regulations

SARA 311/312 Hazard Categories

Acute health hazard	Yes
Chronic Health Hazard	Yes
Fire hazard	No
Sudden release of pressure hazard	No
Reactive Hazard	No

US State Regulations

Chemical Name	California Proposition 65
Titanium dioxide - 13463-67-7	Carcinogen

U.S. State Right-to-Know Regulations

Chemical Name	New Jersey	Massachusetts	Pennsylvania
Benzyl alcohol 100-51-6		X	X
Titanium dioxide 13463-67-7	X	X	X

U.S. EPA Label Information

16. OTHER INFORMATION

<u>NFPA</u>	Health Hazards	Flammability	Instability	Special Hazards
	2	1	0	Not determined
<u>HMIS</u>	Health Hazards	Flammability	Physical Hazards	Personal Protection
	Not determined	Not determined	Not determined	Not determined

Issue Date	23-Jun-2011
Revision Date	12-Dec-2012
Revision Note	New format

Disclaimer

The information provided in this Safety Data Sheet 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 guidance for safe handling, use, processing, storage, transportation, disposal and release and is not to be considered 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 materials or in any process, unless specified in the text.

End of Safety Data Sheet

Issue Date 21-Aug-2012

Revision Date 3-Mar-2015

Version 1

1. PRODUCT AND COMPANY IDENTIFICATION

Product Identifier

Product Name Smart Strip Pro

Other Means of Identification

SDS # DCI-66

Recommended Use of the Chemical and Restrictions on Use

Recommended Use Paint remover.

Details of the Supplier of the Safety Data Sheet

Supplier Address

Dumond Chemicals, Inc.
83 General Warren Blvd
Suite 190
Malvern, PA 19355

Emergency Telephone Number

Company Phone Number 1-609-655-7700
Emergency Telephone INFOTRAC 1-352-323-3500 (International)
1-800-535-5053 (North America)

2. HAZARDS IDENTIFICATION

Classification

Skin corrosion/irritation	Category 2
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Signal Word

Warning

Hazard Statements

Causes skin irritation



Appearance White paste

Physical State Paste

Odor Slight characteristic odor

Precautionary Statements - Prevention

Wash face, hands and any exposed skin thoroughly after handling
Wear protective gloves/protective clothing/eye protection/face protection

Precautionary Statements - Response

IF ON SKIN: Wash with plenty of soap and water
 If skin irritation occurs: Get medical advice/attention
 Take off contaminated clothing and wash before reuse

Hazards Not Otherwise Classified (HNOC)

May be harmful if swallowed
 May be harmful in contact with skin

Other Hazards

Toxic to aquatic life with long lasting effects
 Toxic to aquatic life

3. COMPOSITION/INFORMATION ON INGREDIENTS

Chemical Name	CAS No	Weight-%
Water	7732-18-5	40-60
Benzyl alcohol	100-51-6	30-50
Titanium dioxide	13463-67-7	1-5
Formic acid	64-18-6	1-5

4. FIRST AID MEASURES**First Aid Measures**

Inhalation	Remove to fresh air. Oxygen or artificial respiration if needed. Get medical attention if necessary.
Eye Contact	Rinse immediately with plenty of water, also under the eyelids, for at least 15 minutes. Get medical attention if necessary.
Ingestion	If conscious give 2 glasses of water to dilute. Do NOT induce vomiting. Never give anything by mouth to an unconscious person. Get medical attention if necessary.
Skin Contact	Wash thoroughly with soap and water until no traces of the chemical remain. Remove contaminated clothing and shoes. Get medical attention if irritation occurs.

Most Important Symptoms and Effects, both Acute and Delayed

Symptoms	May cause skin and eye irritation. May be harmful if absorbed through the skin. Mists and vapors cause irritation of the eyes, mucous membranes, and upper respiratory tract.
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Indication of any Immediate Medical Attention and Special Treatment Needed

Note to Physicians	Treat symptomatically.
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5. FIRE-FIGHTING MEASURES**Suitable Extinguishing Media**

Water spray (fog). Foam. Dry chemical or CO₂.

Unsuitable Extinguishing Media Not determined.

Specific Hazards Arising from the Chemical

Sealed containers may rupture when heated. At elevated temperatures, vapors may form explosive mixtures with air in confined areas. Decomposition may be hazardous. Cool containers exposed to flames with water until well after the fire is out.

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.

6. ACCIDENTAL RELEASE MEASURES

Personal Precautions, Protective Equipment and Emergency Procedures

Personal Precautions	Wear appropriate protective clothing and equipment to prevent contact.
Environmental Precautions	See Section 12 for additional ecological information. Do not allow into any sewer, on the ground or into any body of water.

Methods and Material for Containment and Cleaning Up

Methods for Containment	Prevent further leakage or spillage if safe to do so.
Methods for Cleaning Up	Scoop up and collect with an inert absorbent and place into closable containers for disposal. Wash spill area with plenty of water. Spills and releases may have to be reported to Federal and/or local authorities. See section 15.

7. HANDLING AND STORAGE

Precautions for Safe Handling

Advice on Safe Handling	Avoid contact with skin, eyes or clothing. Avoid breathing vapors or mists. Use personal protective equipment as required. Remove Personal Protective Equipment immediately after handling this product. Wash thoroughly after handling before eating, drinking, smoking, or using toilet facilities. Protect container from physical damage. Follow all SDS/label precautions even after container is emptied because it may retain product residues.
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Conditions for Safe Storage, Including any Incompatibilities

Storage Conditions	Keep in a dry, cool and well-ventilated place. Keep away from oxidizers and incompatible materials.
Incompatible Materials	Strong acids. Bases. strong oxidizers and reducing agents.

8. EXPOSURE CONTROLS/PERSONAL PROTECTION

Exposure Guidelines

Chemical Name	ACGIH TLV	OSHA PEL	NIOSH IDLH
Titanium dioxide 13463-67-7	TWA: 10 mg/m ³ In Powder Form	TWA: 15 mg/m ³ total dust (vacated) TWA: 10 mg/m ³ total dust	IDLH: 5000 mg/m ³
Formic acid 64-18-6	STEL: 10 ppm TWA: 5 ppm	TWA: 5 ppm TWA: 9 mg/m ³ (vacated) TWA: 5 ppm (vacated) TWA: 9 mg/m ³	IDLH: 30 ppm TWA: 5 ppm TWA: 9 mg/m ³

Appropriate Engineering Controls

Engineering Controls For operations where contact can occur, a safety shower and an eye wash facility should be available. Good general room ventilation (equivalent to outdoors) should be adequate under normal conditions.

Individual Protection Measures, such as Personal Protective Equipment

Eye/Face Protection	Chemical safety goggles/faceshield. Do not wear contact lenses.
Skin and Body Protection	Wear impervious protective clothing, including boots, gloves, lab coat, apron or coveralls, as appropriate, to prevent skin contact. Butyl rubber or other impervious gloves are required.
Respiratory Protection	None needed under normal use conditions with adequate ventilation. If the occupational exposure limits are exceeded, a NIOSH approved respirator with acid gas cartridges or supplied air respirator appropriate for the form and concentration of the contaminants should be used. Selection and use of respiratory equipment must be in accordance with OSHA 1910.134 and good industrial hygiene practice.

General Hygiene Considerations Handle in accordance with good industrial hygiene and safety practice.

9. PHYSICAL AND CHEMICAL PROPERTIES**Information on Basic Physical and Chemical Properties**

Physical State	Paste	Odor	Slight characteristic odor
Appearance	White paste	Odor threshold	28.2 ppm (formic acid)
Color	White		

<u>Property</u>	<u>Values</u>	<u>Remarks • Method</u>
pH	2	
Melting point/freezing point	Not available	
Boiling point/boiling range	Not available	
Flash point	None	
Evaporation rate	Not determined	
Flammability (solid, gas)	Not determined	
Flammability limits in air		
Upper flammability limits	Not available	
Lower flammability limit	Not available	
Vapor pressure	Not determined	
Vapor density	Not determined	
Specific gravity	1.085	
Water solubility	Partially soluble	
Solubility in other solvents	Not determined	
Partition coefficient	Not available	
Autoignition temperature	Not determined	
Decomposition temperature	Not determined	
Kinematic viscosity	Not determined	
Dynamic viscosity	Not determined	
Explosive properties	Not determined	
Oxidizing Properties	Not determined	

Other Information

VOC Content	35.2 g/l
VOC Content (%)	5%
VOC Content	0.5 lbs/gal

10. STABILITY AND REACTIVITY

Reactivity

Not reactive under normal conditions

Chemical Stability

Stable under recommended storage conditions.

Possibility of Hazardous Reactions

None under normal processing.

Conditions to Avoid

Keep out of reach of children.

Incompatible Materials

Strong acids. Bases. strong oxidizers and reducing agents.

Hazardous Decomposition ProductsCarbon monoxide. Carbon dioxide (CO₂). Nitrogen oxides (NO_x). May oxidize with air to form benzaldehyde and benzoic acid.**11. TOXICOLOGICAL INFORMATION****Information on Likely Routes of Exposure**

Product Information	The product has not been tested
Inhalation	Avoid breathing vapors or mists.
Eye Contact	Avoid contact with eyes.
Skin Contact	May be harmful in contact with skin. Causes skin irritation.
Ingestion	May be harmful if swallowed.

Component Information

Chemical Name	Oral LD50	Dermal LD50	Inhalation LC50
Water 7732-18-5	> 90 mL/kg (Rat)	-	-
Benzyl alcohol 100-51-6	= 1230 mg/kg (Rat)	= 2000 mg/kg (Rabbit)	= 8.8 mg/L (Rat) 4 h
Titanium dioxide 13463-67-7	> 10000 mg/kg (Rat)	-	-
Formic acid 64-18-6	= 730 mg/kg (Rat)	-	-

Information on Physical, Chemical and Toxicological Effects

Symptoms May cause skin and eye irritation. May be harmful if absorbed through the skin. Mists and vapors cause irritation of the eyes, mucous membranes, and upper respiratory tract.

Delayed and Immediate Effects as well as Chronic Effects from Short and Long-term Exposure

Carcinogenicity Titanium dioxide is a possible carcinogen when it appears as a respirable dust.

Chemical Name	ACGIH	IARC	NTP	OSHA
Titanium dioxide 13463-67-7		Group 2B		X

Numerical Measures of Toxicity- Product

Not determined

The following values are calculated based on chapter 3.1 of the GHS document .

ATEmix (oral)	2708 mg/kg
ATEmix (dermal)	5000 mg/kg
ATEmix (inhalation-dust/mist)	22 mg/l

12. ECOLOGICAL INFORMATION

Ecotoxicity

Toxic to aquatic life with long lasting effects

Chemical Name	Algae/aquatic plants	Fish	Toxicity to microorganisms	Crustacea
Benzyl alcohol 100-51-6	35: 3 h Anabaena variabilis mg/L EC50	460: 96 h Pimephales promelas mg/L LC50 static 10: 96 h Lepomis macrochirus mg/L LC50 static	EC50 = 50 mg/L 5 min EC50 = 63.7 mg/L 15 min EC50 = 63.7 mg/L 5 min EC50 = 71.4 mg/L 30 min	23: 48 h water flea mg/L EC50
Formic acid 64-18-6	25: 96 h Desmodesmus subspicatus mg/L EC50 26.9: 72 h Desmodesmus subspicatus mg/L EC50	175: 24 h Lepomis macrochirus mg/L LC50 static	EC50 = 46.7 mg/L 17 h	120: 48 h Daphnia magna mg/L EC50 138 - 165.6: 48 h Daphnia magna mg/L EC50 Static

Persistence and Degradability

Material is readily biodegradable.

Bioaccumulation

The product has low potential for bioaccumulation.

Mobility

Not determined.

Chemical Name	Partition coefficient
Benzyl alcohol 100-51-6	1.1
Formic acid 64-18-6	-0.54

Other Adverse Effects

Not determined

13. DISPOSAL CONSIDERATIONS

Waste Treatment Methods

Disposal of Wastes

Disposal should be in accordance with applicable regional, national and local laws and regulations.

Contaminated Packaging

Disposal should be in accordance with applicable regional, national and local laws and regulations.

Chemical Name	RCRA	RCRA - Basis for Listing	RCRA - D Series Wastes	RCRA - U Series Wastes
Formic acid 64-18-6	U123	Included in waste streams: K009, K010		U123

Chemical Name	California Hazardous Waste Status
Formic acid 64-18-6	Toxic Corrosive

14. TRANSPORT INFORMATION

Note	Please see current shipping paper for most up to date shipping information, including exemptions and special circumstances
<u>DOT</u>	Not regulated
<u>IATA</u>	Not regulated
<u>IMDG</u>	Not regulated

15. REGULATORY INFORMATION

International Inventories

TSCA Listed
DSL Listed

Legend:

TSCA - United States Toxic Substances Control Act Section 8(b) Inventory

DSL/NDL - Canadian Domestic Substances List/Non-Domestic Substances List

EINECS/ELINCS - European Inventory of Existing Chemical Substances/European List of Notified Chemical Substances

ENCS - Japan Existing and New Chemical Substances IECSC

- China Inventory of Existing Chemical Substances KECL -

Korean Existing and Evaluated Chemical Substances

PICCS - Philippines Inventory of Chemicals and Chemical Substances

US Federal Regulations

Chemical Name	CAS No	Weight-%	SARA 313 - Threshold Values %
Formic acid - 64-18-6	64-18-6	1-5	1.0

SARA 311/312 Hazard Categories

Acute health hazard Yes
Chronic Health Hazard Yes
Fire hazard No
Sudden release of pressure hazard No
Reactive Hazard No

Chemical Name	CWA - Reportable Quantities	CWA - Toxic Pollutants	CWA - Priority Pollutants	CWA - Hazardous Substances
Formic acid 64-18-6	5000 lb			X
Chemical Name	Hazardous Substances RQs	CERCLA/SARA RQ		Reportable Quantity (RQ)
Formic acid 64-18-6	5000 lb			RQ 5000 lb final RQ RQ 2270 kg final RQ

US State Regulations

Chemical Name	California Proposition 65
Titanium dioxide - 13463-67-7	Carcinogen

U.S. State Right-to-Know Regulations

Chemical Name	New Jersey	Massachusetts	Pennsylvania
Benzyl alcohol 100-51-6		X	X
Titanium dioxide 13463-67-7	X	X	X
Formic acid 64-18-6	X	X	X

U.S. EPA Label Information

16. OTHER INFORMATION

<u>NFPA</u>	Health Hazards 2	Flammability 1	Instability 0	Special Hazards Not determined
<u>HMIS</u>	Health Hazards Not determined	Flammability Not determined	Physical Hazards Not determined	Personal Protection Not determined

Issue Date	21-Aug-2012
Revision Date	12-Dec-2012
Revision Note	New format

Disclaimer

The information provided in this Safety Data Sheet 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 guidance for safe handling, use, processing, storage, transportation, disposal and release and is not to be considered 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 materials or in any process, unless specified in the text.

End of Safety Data Sheet

STIHL HP ULTRA 2-CYCLE ENGINE OIL

Packaged for Stihl Incorporated, 536 Viking Drive, Virginia Beach, VA 23452



Safety Data Sheet

Conforms to HCS 2012 (29 CFR 1910.1200)

Section 1. Identification

Product identifier

Product Name: STIHL HP ULTRA 2-CYCLE ENGINE OIL
Other names: F2020, Stihl High Performance Ultra "Fully Synthetic" Engine Oil
Part/Product Number(s): 0781-313-8002, 0781-313-8004, 0781-313-8005, 0781-313-8007, 0781-313-8008, 0781-313-8010, 0781-313-8011, 0781-313-8013, 0781-313-8014, 0781-313-8016, 0781-313-8017, 7010-871-0173, 7010-871-0210.
Material Use: 2-cycle engine fuel additive
Uses advised against: Not for use in non-2-cycle engines
Manufacturer: Omni Specialty Packaging, LLC
10399 Hwy 1 South
Shreveport, LA 71115
1-318-524-1100
Issuing date: May 21, 2015
Revision date: June 2, 2015
Revision number: 001
Company contact: OMNI EHS Department; E-Mail: sds@osp.cc; Contact phone: 318-524-1100 (Monday-Friday, 8:00 AM – 4:00 PM, CST)
In case of emergency: CHEMTREC: Within USA and Canada: 1 (800) 524-9300 (24/7)
CHEMTREC Outside USA and Canada: +1 703-527-3887 (24/7)

Section 2. Hazards Identification

OSHA/HCS Status: This product is not considered hazardous by the 2012 OSHA Hazard Communication Standard (29 CFR 1910.1200).

Classification of the substance or Mixture: Not classified

GHS Label Elements

Hazard pictograms:

Signal word: None

Appearance: Green **Physical State:** Liquid **Odor:** Petroleum distillates

Hazard statement: None

Precautionary statements

General: Read label before use. Keep out of reach of children. If medical advice is needed, have product container or label at hand.

Prevention: Not applicable

Response: Not applicable

Storage: Not applicable

Disposal: Not applicable

Hazards not otherwise classified (HNOC): Defatting to the skin.

Other information: Product diluted with gasoline must be handled with the same precautions used for gasoline. Before mixing, the Safety Data Sheet for gasoline should be consulted for any precautionary measures necessary.

Section 3. Composition/Information on Ingredients

Petroleum mineral oil lubricant base stock with proprietary performance additives mixture.

Substance/mixture: Mixture

<u>Components Name</u>	<u>CAS number</u>	<u>Weight %*</u>
Base Oil: Trimethylolpropane Complex Ester	Various	80 – 100
2-Cycle Engine Oil Additives Mixture	Proprietary	0 – 20

This product does not contain known hazardous materials at the $\geq 1\%$ level or known carcinogens at the $\geq 0.1\%$ level as defined by 29 CFR 1910.1200.

* The exact percentage of composition has been withheld as a trade secret.

Section 4. First Aid Measures

Description of necessary first aid measures

- General Advice:** No specific first aid measures are required. Get medical attention if irritation develops and persists.
- Eye contact:** In case of contact, immediately flush eyes with plenty of water for at least 15 minutes. Eyelids should be held away from the eyeball to ensure thorough rinsing. Check for and remove any contact lenses. Get medical attention if irritation develops and persists.
- Skin contact:** Wash off immediately with soap and plenty of water while removing all contaminated clothes and shoes. Get medical attention if irritation or allergic reaction develops and persists.
- Inhalation:** In case of inhalation of decomposition products in a fire, symptoms may be delayed. If inhaled, remove to fresh air. The exposed person may need to be kept under medical surveillance for 48 hours. Get medical attention if symptoms occur.
- Ingestion:** Do NOT induce vomiting. Drink plenty of water. If symptoms persist, call a physician.
- Protection of first-aiders:** No action shall be taken involving any personal risk or without suitable training. Remove all sources of ignition. Ensure that medical personnel are aware of the material(s) involved, take precautions to protect themselves and prevent spread of contamination. Wear personal protective clothing (see section 8).

Most important symptoms and effects, both acute and delayed

See Section 11 for more detailed information on health effects and symptoms.

Most Important

Symptoms and Effects: Personnel with pre-existing skin disorders should avoid contact with this product. Under normal use conditions, no adverse effects to health are known.

- Eye contact:** Not expected to cause prolonged or significant eye irritation.
- Skin contact:** Contact with skin is not expected to cause prolonged or significant irritation. Contact with skin is not expected to cause an allergic skin response. Not expected to be harmful to internal organs if absorbed through the skin.
- Inhalation:** Not expected to be harmful if inhaled. Contains petroleum-based mineral oil. May cause respiratory irritation or other pulmonary effects following prolonged or repeated inhalation of oil mist at airborne levels above the recommended oil mist exposure limit. Symptoms of respiratory irritation may include coughing and difficult breathing.
- Ingestion:** Not expected to be harmful if swallowed.
- Note to physician:** Treat symptomatically.

Section 5. Fire-Fighting Measures

Uniform Fire Code:	Class IIIB
Flash Point:	220°C (428°F)
<u>Extinguishing Media</u>	
Suitable Media:	In case of fire, use extinguishing measures that are appropriate to local circumstances and the surrounding environment. Use water fog, alcohol resistant foam, dry chemical, carbon dioxide (CO ₂) extinguisher or spray.
Unsuitable Media:	CAUTION: Use of water spray when fighting fire may be inefficient.
Specific Hazards Arising from the Chemical:	Keep product and empty container away from heat and sources of ignition as product will burn. Contact with strong oxidizers may cause fire. In the event of fire, cool tanks with water spray. Fire residues and contaminated fire extinguishing water must be contained, prevented from being discharged to any waterway, sewer or drain and disposed of in accordance with local regulations.
Hazardous Combustion Products:	Combustion products may include the following: Carbon dioxide (CO ₂) Carbon monoxide (CO), and Nitrogen oxides.
Protection of Fire Fighters:	Promptly isolate the scene by removing all persons from the vicinity of the incident if there is a fire. No action shall be taken involving any personal risk or without suitable training. As in any fire, wear self-contained breathing apparatus pressure-demand, MSHA/NIOSH (approved or equivalent) and full protective gear.

Section 6. Accidental Release Measures

Personal precautions, protective equipment and emergency procedures

For non-emergency personnel:	No action shall be taken involving any personal risk or without suitable training. Evacuate surrounding areas. Keep unnecessary and unprotected personnel from entering. ELIMINATE all ignition sources (no smoking, flares, sparks or flames in immediate area). Do not touch or walk through spilled material. Put on appropriate personal protective equipment. Floors may be slippery; use care to avoid falling.
For emergency responders:	If specialized clothing is required to deal with the spillage, take note of any information in Section 8 on suitable and unsuitable materials. Ensure adequate ventilation. Keep people away from and upwind of spill/leak. Pay attention to flashback. Take precautionary measures against static discharges. All equipment used when handling the product must be grounded. See also the information in "For non-emergency personnel".
Environmental precautions:	Avoid dispersal of spilled material and runoff and contact with soil, waterways, drains and sewers. Inform the relevant authorities if the product has caused environmental pollution (sewers, waterways, soil or air). See Section 12 for ecological information.

Methods and materials for containment and cleaning up

Small Spills:	Stop leak if without risk. Move containers from spill area. Absorb with an inert material and place in an appropriate waste disposal container. Dispose of via a licensed waste disposal contractor.
Large Spills:	Stop leak if without risk. Move containers from spill area. Prevent entry into sewers, water courses, basements or confined areas. Contain and collect spillage with non-combustible, absorbent material e.g. sand, earth, vermiculite or diatomaceous earth and place in container for disposal according to local regulations. Dispose of via a licensed waste disposal contractor.

NOTE: If RQ (Reportable Quantity) is exceeded or if spills enter a body of water, report immediately to the USEPA's National Response Center at (800) 424-8802. Check with your local and state regulators regarding their reporting requirements.

Section 7. Handling and Storage

Precautions for safe handling

Protective measures: Eye protection and face shield should be used if material is used under conditions that increase the chances of splattering. Put on appropriate personal protective equipment (see Section 8). Keep out of reach of children.

NOTE: Product diluted with gasoline must be handled with the same precautions used for gasoline. Before mixing, the Safety Data Sheet for gasoline should be consulted for any precautionary measures necessary.

Advice on general occupational hygiene:

Do not get in eyes, on skin or on clothing. Eating, drinking and smoking should be prohibited in areas where this material is handled, stored and processed. Wash thoroughly after handling. Remove contaminated clothing and protective equipment before entering eating areas.

See also Section 8 for additional information on hygiene measures.

Conditions for safe storage,

Including any incompatibilities:

Store in accordance with local regulations. Store in original container protected from direct sunlight in a dry, cool and well-ventilated area, away from incompatible materials, strong oxidizing agents (see Section 10) and food and drink. Keep away from heat, sparks, flame and other sources of ignition (i.e., pilot lights, electric motors and static electricity). Keep container tightly closed and sealed until ready for use. Containers that have been opened must be carefully resealed and kept upright to prevent leakage. Use appropriate containment to avoid environmental contamination. Avoid contaminating soil or releases into sewage or drainage systems and bodies of water.

Section 8. Exposure Controls/Personal Protection

Control parameters

Occupational Exposure Limits

Chemical name	ACGIH		OSHA		NIOSH	
	TLV	STEL	PEL	STEL	TWA	Ceiling
Base Oil: Trimethylolpropane Complex Ester	-	-	-	-	-	-

Appropriate engineering controls: Good general ventilation should be sufficient to control worker exposure to airborne contaminants. Emergency shower and eyewash station.

Environmental exposure controls: Emissions from ventilation or work process equipment should be checked to ensure they comply with the requirements of environmental protection legislation. In some cases, fume scrubbers, filters or engineering modifications to the process equipment will be necessary to reduce emissions to acceptable levels.

Individual protection measures

Hygiene measures: Wash hands, forearms and face thoroughly after handling chemical products, before eating, smoking and using the lavatory and at the end of the working period. Appropriate techniques should be used to remove potentially contaminated clothing. Wash contaminated clothing before reusing. Ensure that eyewash stations and safety showers are close to the workstation location.

Eye/Face Protection: Wear safety glasses with side shields. A face shield may be necessary under some conditions.

Skin and Body Protection

Hand protection: Wear protective gloves if prolonged or repeated contact is likely. Wear chemical resistant gloves. Recommended: Nitrile gloves. Consult your supervisor or Standard Operating Procedure (SOP) for special handling instructions.

Body protection: No protective equipment is needed under normal use conditions. For non-routine tasks, personal protection equipment for the body should be selected based on the task being performed and the risks involved.

Other skin protection:	Appropriate footwear and any additional skin protection measures should be selected based on the task being performed and the risks involved.
Respiratory protection:	No respiratory protection is normally required. If user operation generates an oil mist, determine if airborne concentrations are below the occupational exposure limit for mineral oil mist. If not, wear an approved respirator that provides adequate protection from measured concentrations of this material. The correct choice of respiratory protection depends upon the chemicals being handled, the conditions of work and use, and the condition of the respiratory equipment. For air-purifying respirators use a particulate cartridge. Use a positive pressure air-supplying respirator in circumstances where air-purifying respirators may not provide adequate protection.

Section 9. Physical and Chemical Properties

<u>Appearance</u>	<u>(Typical or Target)</u>
Physical State:	Liquid
Color:	Green
Odor:	Petroleum distillates
Odor threshold:	Not available
pH:	Not applicable
Boiling Point:	Not available
Flash Point (Closed cup):	220°C (428°F) (Typical or Target)
Pour Point:	-39°C (-38.2°F) (Typical or Target)
Evaporation rate (Butyl acetate = 1):	Not available
Flammability (solid, gas):	Not applicable. Based on - Physical state
Flammable) Limit in Air	Not available
Vapor pressure:	Not available
Vapor density (Air = 1):	>1
Relative density:	0.93 - 0.94 g/cm ³ at 15°C (Typical or Target)
Solubility:	In soluble in water
Partition coefficient (n-Octanol/water):	Not available
Auto-ignition temperature:	Not available
Decomposition temperature:	Not available
Viscosity – Kinematic (cSt (mm ² /s)@ 40°C):	46.0 to 52.0
Viscosity – Kinematic (cSt (mm ² /s) @ 100°C):	7.9 to 8.9
VOC %:	<0.026%

Section 10. Stability and Reactivity

Reactivity:	Not reactive under normal storage conditions
Chemical stability:	Stable under normal storage conditions
Possibility of hazardous reactions:	None under normal processing.
Hazardous polymerization:	Hazardous polymerization does not occur.
Conditions to avoid:	Heat, flames and sparks.
Incompatible materials:	Oxidizing agents, Halogens, Halogenated compounds
Hazardous decomposition products:	May include: Fumes, Oil vapors, Smoke, Carbon Oxides (including carbon monoxide and carbon dioxide), Aldehydes, Nitrogen oxides, and incomplete combustion products.

Section 11. Toxicological Information

Information on toxicological effects

Basis for Assessment: Information given is based on product data, a knowledge of the components and the toxicity of similar products.

Likely Routs of Exposure: Exposure may occur via skin absorption, skin or eye contact, inhalation, ingestion.

Substance/Mixture

<u>Acute Toxicity</u>	<u>Oral LD50</u>	<u>Dermal LD50</u>	<u>Inhalation LC50</u>
Base Oil: Trimethylolpropane Complex Ester	Not Classified	Not Classified	Not Classified

Aspiration hazard:	Not expected to be an aspiration hazard.
Skin Corrosion/Irritation:	No known significant effects or critical hazards.
Serious Eye Damage/Irritation:	No known significant effects or critical hazards.
Skin Sensitization:	No known significant effects or critical hazards.
Respiratory Sensitization:	No known significant effects or critical hazards.
Specific Target Organ Toxicity (Single Exposure) - STOT-SE:	No known significant effects or critical hazards.
Specific Target Organ Toxicity (Repeated Exposure) – STOT-RE:	No known significant effects or critical hazards.
Carcinogenicity:	No known significant effects or critical hazards.
Germ Cell Mutagenicity:	No known significant effects or critical hazards.
Reproductive Toxicity	No known significant effects or critical hazards.

Information on Toxicity Effects of Compounds

Lubricant Base Mineral Oil (Petroleum)

Mineral oils are known to cause cancer because of carcinogenic components (e.g. Benzene). The lubricant base mineral oils in this product have been highly refined by a variety of processes including severe solvent extraction, severe hydro cracking or severe hydro treating to reduce aromatics and improve performance characteristics. The oils in the is product meets the IP-346 criteria of less than 3 percent PHA's and are not considered to be a carcinogen by the International Agency for Research on Cancer.

None of the oils in this product requires a cancer warning under the OSHA Hazard Communication Standard (29 CFR 1910.1200). These oils have not been listed in the National Toxicology Program (NTP) Annual Report nor have they been classified by the International Agency for Research on Cancer (IRAC) as: carcinogenic to humans (Group 1), probably carcinogenic to humans (Group 2A), or possibly carcinogenic to humans (Group 2B). These oils have not been classified by the American Conference of Governmental Industrial Hygienists (ACGIH) as: confirmed human carcinogen (A1), suspected human carcinogen (A2), or confirmed animal carcinogen with unknown relevance to humans (A3).

2-Cycle engine oils mix with gasoline:

2-cycle engine oils diluted with gasoline must be handled with the same precautions used for gasoline. Before mixing, the Safety Data Sheet for gasoline should be consulted for any precautionary measures necessary.

Section 12. Ecological Information

The information is based on data available for the material, the components of the material, and similar materials.

Ecotoxicity: No testing has been performed by the manufacturer. Ecotoxicity hazard is based on an evaluation of data for the components or a similar material. Not expected to be harmful to aquatic organisms.

Mobility: Base oil component – Low solubility and floats and is expected to migrate from water to land. Expected to partition to sediment and wastewater solids.

Soil/water partition coefficient (K_{oc}): Not available.

Persistence and degradation

Biodegradation: The material is not expected to be readily biodegradable. The biodegradability of this material is based on an evaluation of data for the components or a similar material.

Bioaccumulative potential

Bioaccumulation: This product is not expected to bioaccumulate through food chain in the environment.

Other adverse effects: No known significant effects or critical hazards.

Other ecological information: Spills may form a film on water surfaces causing physical damage to organisms. Oxygen transfer could also be impaired.

Section 13. Disposal Considerations

Disposal recommendations based on material supplied.

Waste treatment methods: This material, as supplied, is not a hazardous waste according to Federal regulations (40 CFR 261). Consult the appropriate state, regional, or local regulations for additional requirements. The generation of waste should be avoided or minimized wherever possible.

Product waste: Significant quantities of waste product residues should not be disposed of via the sanitary sewer but processed in a suitable effluent treatment plant. Dispose of surplus and non-recyclable products via a licensed waste disposal contractor. Disposal of this product, solutions and any by-products should at all times comply with the requirements of environmental protection and waste disposal legislation and any regional local authority requirements. Incineration or landfill should only be considered when recycling is not feasible. Oil collection services are available for used oil recycling.

Contaminated packaging: Empty containers or liners may retain some product residues and could pose a potential fire and explosion hazard. Do not cut, puncture, or weld containers.

Other information: Avoid dispersal of spilled material and runoff and contact with soil, waterways, drains and sewers.

Section 14. Transport Information

General information: Petroleum Lubricating oil - Not regulated.

	DOT Classification	IMDG	IATA
Stihl HP ULTRA	Not Regulated	Not Regulated	Not Regulated

Special precautions for user: Transport within user's premises: Always transport in closed containers that are upright and secure. Ensure that persons transporting the product know what to do in the event of an accident or spillage.

Section 15. Regulatory Information

United States Regulations

United States Inventory (TSCA 8b): All components are listed or exempted.

SARA 302/304: No products were found.

SARA 311/312:

Immediate (Acute) Health Effects:	Yes
Delayed (Chronic) Health Effects:	No
Fire Hazard:	No
Sudden Release of Pressure Hazard:	No
Reactivity Hazard:	No

SARA 313:

The following components of this material are found on the EPCRA 313 list:
None

Supplier notification: This product does not contain any hazardous ingredients at or above regulated thresholds.

CWA (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 a hazardous substance under the Comprehensive Environmental Response Compensation and Liability Act (CERCLA) (40 CFR 302).

State Regulations

Massachusetts: None of the components are at or above regulated thresholds.
New Jersey: None of the components are at or above regulated thresholds.
Pennsylvania: None of the components are at or above regulated thresholds.
California Proposition 65: WARNING: This product contains a chemical known to the State of California to cause cancer.

Naphthalene - <0.1

Canada**WHMIS Hazard Class:** Not regulated.**International Chemical Inventories:**

All components comply with the following chemical inventory requirements: DSL (Canada)

Section 16. Other Information

NFPA Rating:	Health Hazard – 1	Flammability – 1	Instability/Reactivity – 0
HMIS Rating:	Health Hazard – 1	Flammability – 1	Physical Hazards – 0

(NFPA & HMIS Hazard Rating Key: 0 - Minimum Hazard; 1 - Slight Hazard; 2 - Moderate Hazard; 3 - High Hazard; 4 - Extreme Hazard; * - Chronic Hazard Indicator, & PPE - Personal Protective Equipment Index A to L. These values are obtained using the guidelines or published evaluations prepared by the National Fire Protection Association (NFPA) or the National Paint and Coating Association (for HMIS or Hazardous Material Identification System).

Key to abbreviations:

OSHA = Occupational Safety and Health Administration
 ACGIH = American Conference of Industrial Hygienists
 ATE = Acute Toxicity Estimate
 BCF = Bioconcentration Factor
 CAS = Chemical Abstracts Service Registry Number
 cSt = Centistroke (mm²/s)
 GHS = Global Harmonized System of Classification and Labeling Of Chemicals
 IATA = International Air Transport Association
 IBC = Intermediate Bulk Container
 IMDG = International Maritime Dangerous Goods

LogPow = logarithm of the octanol/water partition coefficient
 OEL = Occupational Exposure Limit
 SDS = Safety Data Sheet
 STEL = Short term exposure Limit
 UN = United Nations
 UN Number = United Nations Number, a four digit number assigned by the United Nations Committee of Experts on the Transportation of Dangerous Goods

Prepared By: OMNI Specialty Packaging EH&S Department**Revision Date:** June 2, 2015**Status:** Final**Revision Note:** Revision 001 of OSHA GHS SDS Format.Consumer Product Improvement Act of 2008, General Conformity Certification

For Consumer Product Packages: This product has been evaluated and is certified to be labeled and packaged in compliance with the applicable provisions of the Federal Hazardous Substance Act as stated in 16 CFR 1500 and enforced by the Consumer Product Safety Commission. Where applicable the products that require Child Resistant Closures are packaged in accordance with the Poison Prevention Packaging Act as stated in 16 CFR 1700 and enforced by the Consumer Product Safety Commission. All closures have been tested in accordance with the latest protocols. No testing is required to certify compliance with the provisions. The date of the manufacturing is stamped on the product container.

Disclaimer

All reasonably practicable steps have been taken to ensure the information provided in this Safety Data Sheet is correct to the best of our knowledge, information and belief at the date of its publication. The information given is designed only as guidance for safe handling, use, processing, storage, transportation, disposal and release and is not to be considered 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 materials or in any process, unless specified in the text. This information is furnished upon condition that the person receiving it shall make their own determination of the suitability of the material for their particular purpose.

End of Safety Data Sheet

SAFETY DATA SHEET

Product Name: Masonry Insulation
SDS ID Number: Z-01792

SDS Date: 4/17/2015

SECTION 1 – CHEMICAL PRODUCT AND COMPANY IDENTIFICATION

Product Name: Masonry Insulation
SDS Number: Z-01792
Cancelled MSDS Number: Z-01713
Chemical Family Name: Expanded Vermiculite (Enoree, South Carolina); Magnesium-Aluminosilicate Mineral
Product Use: Aggregate Insulating Material for Masonry Applications
Chemical Formula: $(\text{Mg, Ca, K, Fe}^{\text{II}})_3 (\text{Si, Al, Fe}^{\text{III}})_4 \text{O}_{10} (\text{OH})_2 \cdot 4(\text{H}_2\text{O})$
CAS # (Chemical Abstract Service Number): Mixture-N/A
Manufactured by:
Specialty Vermiculite
26383 Hwy 221 N
Enoree, SC 29335
Specialty Vermiculite
14810- 123rd Avenue
Edmonton, Alberta T5L 2Y5

In Case of Emergency Call:

Enoree Plant: (800)342.2017

Edmonton Plant: (780)454.4511

SECTION 2 – HAZARDS IDENTIFICATION

Classifications:

Acute toxicity (oral, dermal, inhalation): Category 4

Pictogram:



Signal Word:

WARNING

Hazard Statements:

H305: May be harmful if swallowed and enters airways.

H320: Causes eye irritation

Precautionary Statements:

P270: Do not eat, drink or smoke when using this product.

P280: Wear protective gloves/protective clothing/eye protection/face protection

Response:

P301: IF SWALLOWED: Dilute with large quantities of water. Consult a physician if symptoms develop.

Never give anything by mouth to an unconscious person.

P302: IF ON SKIN: Wash with soap and water. If discomfort or irritation persists, consult a physician.

Remove contaminated clothing and wash before reuse.

P304: IF INHALED: Get fresh air. If symptoms persist, consult a physician. If breathing has stopped, give artificial respiration then oxygen if needed.

P305: IF IN EYES: Flush eyes with water for at least 15 minutes while holding eyelids open. If discomfort or irritation persists, consult a physician.

Storage:

P402: Store in a dry place.

Disposal:

P501: Consult all regulations (federal, state, provincial, local) or a qualified waste disposal firm when characterizing waste for disposal. According to EPA (40 CFR § 261), waste of this product is not defined as hazardous. Dispose of waste in accordance with all applicable regulations. According to US EPA (40 CFR § 261.3) waste of this product is not defined as hazardous.

SECTION 3 – COMPOSITION/INFORMATION ON INGREDIENTS

Component	CAS#	Percent (max)
Vermiculite	001318-00-9	50-100
Quartz	014808-60-7	1-10

SECTION 4 – FIRST AID MEASURES:

Skin Contact: Wash with soap and water. If discomfort or irritation persists, consult a physician. Remove contaminated clothing and wash before reuse.

Eye Contact: Flush eyes with water for at least 15 minutes while holding eyelids open. If discomfort or irritation persists, consult a physician.

Ingestion: Dilute with large quantities of water. Consult a physician if symptoms develop. Never give anything by mouth to an unconscious person.

Inhalation: If symptoms develop, get fresh air. If symptoms persist, consult a physician. If breathing has stopped, give artificial respiration then oxygen if needed.

SECTION 5 – FIRE FIGHTING MEASURES

Extinguishing Media: Not Applicable. Product will not burn.

Special Fire Fighting Procedures: None

No special procedures specific to this product.

Unusual Fire and Explosion Hazards: None.

SECTION 6 – ACCIDENTAL RELEASE MEASURES:

Spills/Leaks: Carefully shovel or sweep up spilled material and place in suitable container for recycle or disposal. Dampen with water spray or use other methods to clean spill which avoid creating dust. Discard empty packaging promptly. Avoid excessive handling of empty packaging, which may result in unnecessary release of airborne particulates.

SECTION 7 – HANDLING AND STORAGE

Handling Procedures:

Material is for professional use only. Keep out of the reach of children.

Precautionary Measures:

Avoid contact with eyes, skin and clothing.

Avoid creating and inhaling airborne dust or particulates.

Do not take internally.

Practice good personal hygiene to avoid ingestion.

Use only with adequate ventilation.

Wash clothing before reuse.

Respiratory Protection: Respiratory protection may be desirable if dust is created in handling and is required at or above the Permissible Exposure Limit (PELs). A dust respirator such as a 3M type P-95 is recommended.

Skin Protection: Gloves are recommended.

Eye Protection: Safety glasses or goggles should be worn.

Work/Hygienic Practices: Use good personal hygiene practices.

SECTION 8 – EXPOSURE CONTROLS AND PERSONAL PROTECTIVE EQUIPMENT

EXPOSURE GUIDELINES (US)

Ingredient	ACGIH TLV			OSHA PEL			Other
	TWA	STEL	Ceiling	TWA	STEL	Ceiling	
Vermiculite	—	—	—	—	—	—	—
Quartz	0.025 mg/m ³ TWA (respirable fraction)			0.1 mg/m ³ TWA (respirable dust)			

In addition to the exposure limits referenced above, the following non-specific limits for dust apply to this product; OSHA, 15 mg/m³- TWA or Total Dust and 5 mg/m³- TWA as Respirable Dust, ACGIH, 10 mg/m³- TWA as Total Dust and 3 mg/m³- TWA as Respirable Dust.

EXPOSURE GUIDELINES (CANADA)

Employers should consult local Provincial regulatory limits for exposure guidelines which may vary locally.

Engineering Controls: General ventilation may be desirable and should be used where appropriate.

Personal Protective Equipment:

Respiratory Protection: Respiratory protect may be desirable if dust is created in handling and is required at or above the Permissible Exposure Limit (PEL) for nuisance particulates.

Skin Protection: Gloves are recommended.

Eye Protection: Safety glasses or goggles should be worn.

Work/Hygienic Practices: Use good personal hygiene practices.

Quartz (Crystalline silica) is a naturally occurring mineral that is commonly contained in materials that are mined from the earth's surface such as sand, limestone, clay and gypsum (calcium sulfate). Total quartz is a value usually representing the combined fraction of large, non-respirable sized particles and of respirable sized particles (less than ten micros in aerodynamic diameter). It is only the respirable sized fraction of total quartz that is recognized as hazardous by professionals in the field of Occupational Health and by most regulatory agencies

SECTION 9 – PHYSICAL AND CHEMICAL PROPERTIES

Physical State:	Solid
Appearance/Odor:	Brown or Grey free flowing aggregate
Odor Threshold: (ppm)	Not Determined
pH:	Not Applicable
Melting point/Freezing point:	>1320°C
Vapor Pressure: (Mm Hg)	Unknown
Vapor Density: (Air = 1)	Unknown
Solubility In Water:	Negligible
Specific Gravity: (Water = 1)	Not Applicable
Evaporation Rate: (Butyl Acetate=1)	Not Applicable
Boiling Point:	Not Applicable
Flammability:	Not Available
Viscosity:	Not Applicable
Bulk Density: (pounds/Cubic Foot) (Pcf)	4-10 PCF
% Volatiles (gr/L): (70°F) (21°C)	Not Available
Partition coefficient: n-octanol/water	Not Available
Flash Point:	Not Applicable
Flash Point Method:	Not Applicable
Lower Explosion Limit:	Not Available
Upper Explosion Limit:	Not Available
Auto-Ignition Temperature:	Not Available
Decomposition Temperature:	Not Available

SECTION 10 – STABILITY AND REACTIVITY

Chemical Stability: Stable

Hazardous Reactivity Potential: Will not occur

Conditions to Avoid: Expanded Vermiculite is often used as a chemical absorbent. When contact with highly reactive chemicals or chemicals that can off-gas at temperatures above room temperature (such as Hydrogen peroxide solutions) care should be taken to neutralize or make these materials inert prior to absorption. If possible consult the SDS or supplier of the material being absorbed.

Hazardous Polymerization: Will not polymerize.

Hazardous Decomposition Products: None known for this product.

SECTION 11 – TOXICOLOGICAL INFORMATION

Ingredient (No data unless listed.) **CAS Number** **LD50 and LC50**

Carcinogenicity:

Ingredient	IARC Group 1	IARC Group 2A	IARC Group 2B	NTP Known	NTP Suspect	OSHA
Vermiculite	No	No	No	No	No	No
Quartz	Yes	No	No	Yes	No	Yes

Mutagenicity: Not applicable.

Teratogenicity: Not applicable.

Reproductive Toxicity: Not applicable.

Possible routes of exposure:

Inhalation: May cause irritation.

Ingestion: May cause irritation.

Skin: May cause irritation.

Eyes: May cause irritation.

SECTION 12 – ECOLOGICAL INFORMATION

Environmental Fate: No data available for product.

Ecotoxicity: No data available for product.

SECTION 13 – DISPOSAL CONSIDERATIONS**Waste Disposal Procedures:**

Consult all regulations (federal, state, provincial, local) or a qualified waste disposal firm when characterizing waste for disposal. According to EPA (40 CFR § 261), waste of this product is not defined as hazardous. Dispose of waste in accordance with all applicable regulations. According to US EPA (40 CFR § 261.3) waste of this product is not defined as hazardous.

SECTION 14 – TRANSPORTATION INFORMATION

Proper Shipping Name: Not Applicable

UN/NA Number: Not Applicable

Domestic Hazard Class: Nonhazardous

Surface Freight Classification: Vermiculite, other than Crude

Label/Placard Required: Not Applicable

SECTION 15 – REGULATORY INFORMATION**REGULATORY CHEMICAL LISTS:****CERCLA (Comprehensive Response Compensation and Liability Act):**

(None present unless listed below)

<u>Chemical Name</u>	<u>CAS#</u>	<u>Wt %</u>	<u>CERCLA RQ</u>
SARA Title III (Superfund Amendments and Reauthorization Act)			

SARA Section 312/Tier I & II Hazard Categories

Health Immediate (acute)	Yes
Health Delayed (chronic)	Yes
Flammable	No
Reactive	No
Pressure	No

302 Reportable Ingredients (Identification Threshold 1 %.):

Chemical Name **CAS#** **Wt %** **SARA 302 TPQ**

313 Reportable Ingredients (Chemicals present below reporting threshold are exempt):

Chemical Name **CAS#** **Wt %**

National Volatile Organic Compound Emission Standards For Architectural Coatings:

Volatile Organic Content: (gr/L) Not Applicable

WHMIS Classification(s): D2 B

This product has been classified in accordance with the hazard criteria of the Controlled Products Regulations (CPR). This MSDS contains all the information required by the CPR.

State Regulatory Information:

California Proposition 65: WARNING! This product contains substances known to the state of California to cause cancer, birth defects or other reproductive harm.

Massachusetts Hazardous Substance List (Identification threshold 0.001% (1 ppm)):

Chemical Name **CAS#** **Wt %**
Quartz 014808-60-7 < 1%

New Jersey Hazardous Substance List (Identification threshold (0.1%)):

Chemical Name **CAS#** **Wt**

Pennsylvania Hazardous Substance List (Identification threshold 0.01%):

Chemical Name **CAS#** **Wt %**

CHEMICAL INVENTORY STATUS:

All chemicals in this product are listed or exempt from listing in the following countries:

US	CANADA		EUROPE	AUSTRALIA	JAPAN	KOREA	PHILIPPINES
TSCA	DSL	NDSL	EINECS/ELINCS	AICS	ENCS	ECL	PICCS
Yes	Yes	No	Yes	Yes	Yes	Yes	Yes

SECTION 16 – OTHER INFORMATION

Non-Hazardous Ingredient Disclosure:

Chemical Name

CAS Number

Vermiculite

WARNING



May be harmful if swallowed and enters airways. Causes eye irritation.

Do not eat, drink or smoke when using this product. Wear Protective gloves/protective clothing/eye protection/face protection.

If SWALLOWED: Dilute with large quantities of water. Consult a physician if symptoms develop. Never give anything by mouth to an unconscious person.

If ON SKIN: Wash with soap and water. If discomfort or irritation persists, consult a physician. Remove contaminated clothing and wash before reuse.

If INHALED: Get fresh air. If symptoms persist, consult a physician. If breathing has stopped, give artificial respiration then oxygen if needed.

If IN EYES: Flush eyes with water for at least 15 minutes while holding eyelids open. If discomfort or irritation persist, consult a physician.

Store in a dry place.

Specialty Vermiculite Corp. 26383 Hwy 221N, Enoree, SC 29335 800-342-2017

Vermiculite (GHS)

Prepared by: EH&S Department

Approved by:

Approved Date:

Disclaimer:

"The data included herein are presented in accordance with various environment, health and safety regulations. It is the responsibility of a recipient of the data to remain currently informed on chemical hazard information, to design and update its own program and to comply with all national, federal, state and local laws and regulations applicable to safety, occupational health, right-to-know and environmental protection."

For additional information please contact Sales Technician for your area:

Southeast
Donna Frassrand
(770)262.0396

West
David Jeffery
(830)714.5447

Canada
Brian Colbert
(905)302.5824

Customer Service Contacts:

Laura Cody
Enoree Plant
(800)342.2017

Donna Ernst
Pompano Plant
(800)432.7394

Grace Cruz
Phoenix Plant
(602)272.6663

Darlene Lord
Winnipeg Plant
(204)786.5681

Linda Ardnt
Edmonton Plant
(780)454.4511

SPV Corp & SPV Canada Corp Plant & Office Locations:

ENOREE, SC
26383 Hwy 221 N
Enoree, SC 29335
P(864)969.3353
F(864)969.9923

PHOENIX, AZ
4220 West Glenrosa
Phoenix, AZ 85019
P(602)272.6663
F(602)278.5504

POMPANO BEACH, FL
1200 NW 15th Avenue
Pompano Beach, FL 33069
P(800)432.7394
F(954)968.5586

ALBERTA
14810- 123rd Avenue
Edmonton, Alberta T5L 2Y5
P(780)454.4511
F(403)452.1883

MANITOBA
1140 Pacific Avenue
Winnipeg, MB R3E 1G6
P(204)786.5681
F(204)783.0308

We hope that the information given here will be helpful. It is based on data and knowledge considered to be true and accurate and is offered for the user's consideration, investigation and verification but we do not warrant the results to be obtained. Please read all statements, recommendations or suggestions in conjunction with our conditions of sale which apply to all goods supplied by us. No statement, recommendation or suggestion is intended for any use which would infringe any patent or copyright.

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1. IDENTIFICATION OF THE SUBSTANCE/MIXTURE AND OF THE COMPANY/UNDERTAKING

Ashland	Regulatory Information Number	1-800-325-3751
P.O. Box 2219	Telephone	614-790-3333
Columbus, OH 43216	Emergency telephone number	1-800-ASHLAND (1-800-274-5263)
Product name	Pyroil™ STARTING FLUID	
Product code	PYSFR11	

2. HAZARDS IDENTIFICATION

Emergency Overview

Appearance: aerosol

DANGER! EXTREMELY FLAMMABLE LIQUID AND VAPOR. VAPOR MAY CAUSE FLASH FIRE. CONTENTS UNDER PRESSURE. MAY AFFECT THE CENTRAL NERVOUS SYSTEM CAUSING DIZZINESS, HEADACHE OR NAUSEA. CAUSES EYE IRRITATION. PROLONGED OR REPEATED CONTACT MAY DRY THE SKIN AND CAUSE IRRITATION AND BURNS.

Potential Health Effects

Exposure routes

Inhalation, Skin absorption, Skin contact, Eye Contact, Ingestion

Eye contact

Can cause severe eye irritation. Symptoms include stinging, tearing, redness, and swelling of eyes. Can injure eye tissue.

Skin contact

May cause slight skin irritation. Prolonged or repeated contact may dry the skin. Symptoms may include redness, burning, and drying and cracking of skin, skin burns, and other skin damage.

Ingestion

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Swallowing small amounts of this material during normal handling is not likely to cause harmful effects. Swallowing large amounts may be harmful. This material can get into the lungs during swallowing or vomiting. This results in lung inflammation and other lung injury.

Inhalation

Breathing aerosol and/or mist is possible when material is sprayed. Aerosol and mist may present a greater risk of injury because more material may be present in the air than from vapor alone. Breathing small amounts of this material during normal handling is not likely to cause harmful effects. Breathing large amounts may be harmful. Symptoms are not expected at air concentrations below the recommended exposure limits, if applicable (see Section 8.).

Aggravated Medical Condition

Preexisting disorders of the following organs (or organ systems) may be aggravated by exposure to this material: Skin, lung (for example, asthma-like conditions), Liver, Central nervous system, male reproductive system, Individuals with preexisting heart disorders maybe more susceptible to arrhythmias (irregular heartbeats) if exposed to high concentrations of this material.

Symptoms

Signs and symptoms of exposure to this material through breathing, swallowing, and/or passage of the material through the skin may include: stomach or intestinal upset (nausea, vomiting, diarrhea), irritation (nose, throat, airways), Cough, central nervous system depression (dizziness, drowsiness, weakness, fatigue, nausea, headache, unconsciousness), loss of appetite, respiratory depression (slowing of the breathing rate), Lack of coordination, confusion, irregular heartbeat, respiratory failure, coma

Target Organs

This product contains ethanol. Alcoholic beverage consumption has been associated with brain damage, heart damage, and pancreatitis in humans. The relevance of these findings to ethanol exposure in industrial environments is uncertain. Exposure to this material (or a component) has been found to cause kidney damage in male rats. The mechanism by which this toxicity occurs is specific to the male rat and the kidney effects are not expected to occur in humans. Overexposure to this material (or its components) has been suggested as a cause of the following effects in laboratory animals: pancreatic damage, liver damage, brain damage, testis damage, Overexposure to this material (or its components) has been suggested as a cause of the following effects in humans: liver damage, Repeated exposure to hydroquinone vapor or dust for more than 5 years has caused brownish staining and damage to the surface of the cornea with reduction in vision.

Carcinogenicity

Ethyl chloride has been shown to cause cancer in laboratory animals. The relevance of this finding to humans is uncertain. This product contains ethanol. The International Agency for Research on Cancer (IARC) has determined that exposure to ethanol through chronic human consumption of

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alcoholic beverages can cause cancer. The relevance of this finding to ethanol exposure in industrial environments is uncertain.

Reproductive hazard

This product contains ethanol. Alcoholic beverage consumption has been associated with birth defects in humans. The relevance of this finding to ethanol exposure in industrial environments is uncertain.

3. COMPOSITION/INFORMATION ON INGREDIENTS

Hazardous Components	CAS-No. / Trade Secret No.	Concentration
SOLVENT NAPHTHA (PETROLEUM), LIGHT ALIPHATIC	64742-89-8	>=70-<80%
ETHYL ETHER	60-29-7	>=15-<20%
CARBON DIOXIDE	124-38-9	>=1.5-<5%
ETHANOL	64-17-5	>=1-<1.5%
DISTILLATES (PETROLEUM), HYDROTREATED LIGHT NAPHTHENIC	64742-53-6	>=0.5-<1%
ETHYL CHLORIDE	75-00-3	>=0.1-<0.5%

4. FIRST AID MEASURES

Eyes

If symptoms develop, immediately move individual away from exposure and into fresh air. Flush eyes gently with water for at least 15 minutes while holding eyelids apart; seek immediate medical attention.

Skin

Remove contaminated clothing. Wash exposed area with soap and water. If symptoms persist, seek medical attention. Launder clothing before reuse.

Ingestion

Seek medical attention. If individual is drowsy or unconscious, do not give anything by mouth; place individual on the left side with the head down. Contact a physician, medical facility, or poison control center for advice about whether to induce vomiting. If possible, do not leave individual unattended.

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Inhalation

If symptoms develop, move individual away from exposure and into fresh air. If symptoms persist, seek medical attention. If breathing is difficult, administer oxygen. Keep person warm and quiet; seek immediate medical attention.

Notes to physician

Hazards: Inhalation of high concentrations of this material, as could occur in enclosed spaces or during deliberate abuse, may be associated with cardiac arrhythmias. Sympathomimetic drugs may initiate cardiac arrhythmias in persons exposed to this material. This material is an aspiration hazard. Potential danger from aspiration must be weighed against possible oral toxicity (See Section 2 - Swallowing) when deciding whether to induce vomiting. Acute aspiration 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. Repeated aspiration of small quantities of mineral oil can produce chronic inflammation of the lungs (i.e. lipoid pneumonia) that may progress to pulmonary fibrosis. Symptoms are often subtle and radiological changes appear worse than clinical abnormalities. Occasionally, persistent cough, irritation of the upper respiratory tract, shortness of breath with exertion, fever, and bloody sputum occur. Inhalation exposure to oil mists below current workplace exposure limits is unlikely to cause pulmonary abnormalities.

Treatment: Sympathomimetic drugs may initiate cardiac arrhythmias in persons exposed to this material.

5. FIREFIGHTING MEASURES

Suitable extinguishing media

Water spray, Carbon dioxide (CO₂), Foam, Dry chemical

Hazardous combustion products

Aldehydes, carbon dioxide and carbon monoxide, formaldehyde-like, Hydrocarbons, organic compounds

Precautions for fire-fighting

Wear full firefighting turn-out gear (full Bunker gear), and respiratory protection (SCBA). Use water spray to cool fire exposed containers and structures until fire is out if it can be done with minimal risk. Avoid spreading burning material with water used for cooling purposes.

NFPA Flammable and Combustible Liquids Classification

not applicable

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6. ACCIDENTAL RELEASE MEASURES

Personal precautions

For personal protection see section 8. Eliminate all ignition sources (flares, flames including pilot lights, electrical sparks). Persons not wearing protective equipment should be excluded from area of spill until clean-up has been completed.

Environmental precautions

Do not flush into surface water or sanitary sewer system.

Methods for cleaning up

Suppress (knock down) gases/vapours/mists with a water spray jet. Contain spillage, soak up with non-combustible absorbent material, (e.g. sand, earth, diatomaceous earth, vermiculite) and transfer to a container for disposal according to local / national regulations (see section 13).

Other information

Comply with all applicable federal, state, and local regulations.

7. HANDLING AND STORAGE

Handling

Containers of this material may be hazardous when emptied. Since emptied containers retain product residues (vapor, liquid, and/or solid), all hazard precautions given in the data sheet must be observed.

Storage

Do not store near extreme heat, open flame, or sources of ignition. Store in a cool, dry, ventilated area. Maximum recommended storage temperature 50 degrees C (122 degrees F).

8. EXPOSURE CONTROLS/PERSONAL PROTECTION

Exposure Guidelines

SOLVENT NAPHTHA (PETROLEUM), LIGHT ALIPHATIC		64742-89-8
OSHA Z1	time weighted average	500 ppm
ACGIH	time weighted average	300 ppm
OSHA Z1	time weighted average	2,000 mg/m3

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ACGIH	time weighted average	1,370 mg/m3
ETHYL ETHER		60-29-7
ACGIH	time weighted average	400 ppm
ACGIH	Short term exposure limit	500 ppm
OSHA Z1	Permissible exposure limit	400 ppm
OSHA Z1	Permissible exposure limit	1,200 mg/m3
CARBON DIOXIDE		124-38-9
ACGIH	time weighted average	5,000 ppm
ACGIH	Short term exposure limit	30,000 ppm
NIOSH	Recommended exposure limit (REL):	5,000 ppm
NIOSH	Recommended exposure limit (REL):	9,000 mg/m3
NIOSH	Short term exposure limit	30,000 ppm
NIOSH	Short term exposure limit	54,000 mg/m3
OSHA Z1	Permissible exposure limit	5,000 ppm
OSHA Z1	Permissible exposure limit	9,000 mg/m3
ETHANOL		64-17-5
NIOSH	Recommended exposure limit (REL):	1,000 ppm
NIOSH	Recommended exposure limit (REL):	1,900 mg/m3
OSHA Z1	Permissible exposure limit	1,000 ppm
OSHA Z1	Permissible exposure limit	1,900 mg/m3
ACGIH	Short term exposure limit	1,000 ppm

General advice

These recommendations provide general guidance for handling this product. Personal protective equipment should be selected for individual applications and should consider factors which affect exposure potential, such as handling practices, chemical concentrations and ventilation. It is ultimately the responsibility of the employer to follow regulatory guidelines established by local authorities.

Exposure controls

Provide sufficient mechanical (general and/or local exhaust) ventilation to maintain exposure below exposure guidelines (if applicable) or below levels that cause known, suspected or apparent adverse effects.

Eye protection

Wear chemical splash goggles when there is the potential for exposure of the eyes to liquid, vapor or mist. Maintain eye wash station near work area.

Skin and body protection

Wear normal work clothing including long pants, long-sleeved shirts and foot covering to prevent direct contact of the product with the skin. Launder clothing before reuse. If skin irritation

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develops, contact your facility health and safety professional or your local safety equipment supplier to determine the proper personal protective equipment for your use.
Wear resistant gloves (consult your safety equipment supplier).

Respiratory protection

Respiratory protection is not required under normal conditions of use.

9. PHYSICAL AND CHEMICAL PROPERTIES

Physical state	aerosol
Boiling point/boiling range	94.3 °F / 34.6 °C @ 1,013.23 hPa Calculated Phase Transition Liquid/Gas
Flash point	-49 °F / -45 °C Calculated Flash Point
Lower explosion limit/Upper explosion limit	1.05 %(V) / 36.5 %(V)
Vapour pressure	717.261 hPa @ 77 °F / 25 °C Calculated Vapor Pressure
Density	0.7114 g/cm ³ @ 60.01 °F / 15.56 °C

10. STABILITY AND REACTIVITY

Stability

Stable.

Conditions to avoid

Heat, flames and sparks.

Incompatible products

Acids, Alkali metals, Ammonia, Bases, halogens, Oxidizing agents, sodium, Sulphur compounds

Hazardous decomposition products

Aldehydes, carbon dioxide and carbon monoxide, formaldehyde-like, Hydrocarbons, organic compounds

Hazardous reactions

Product will not undergo hazardous polymerization.

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11. TOXICOLOGICAL INFORMATION

Acute oral toxicity

Acute oral toxicity - Product : no data available

Acute oral toxicity - Components

SOLVENT NAPHTHA (PETROLEUM), LIGHT ALIPHATIC : LD 50: > 8,000 mg/kg Species: Rat

ETHYL ETHER : LD 50: 3,230 - 3,920 mg/kg Species: Rat

ETHANOL : LD 50: 7,060 mg/kg Species: Rat

DISTILLATES (PETROLEUM), HYDROTREATED LIGHT NAPHTHENIC : LD 50: > 5 g/kg Species: Rat

Acute inhalation toxicity

Acute inhalation toxicity - Product : no data available

Acute inhalation toxicity - Components

SOLVENT NAPHTHA (PETROLEUM), LIGHT ALIPHATIC : LC 50: 3400 ppm Exposure time: 4 h Species: Rat

ETHYL ETHER : LC 50: 32,000 mg/l Exposure time: 4 h Species: Rat

ETHANOL : LC 50: 117 - 125 mg/l Exposure time: 4 h Species: Rat

ETHYL CHLORIDE : LC 50: > 19000 ppm Exposure time: 4 h Species: Rat
Method: OECD Test Guideline 403

Acute dermal toxicity

Acute dermal toxicity - Product : no data available

Acute dermal toxicity - Components

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SOLVENT NAPHTHA (PETROLEUM), LIGHT ALIPHATIC	: LD 50: > 4,000 mg/kg Species: Rat
ETHANOL	: LD Lo: 20 g/kg Species: Rabbit
DISTILLATES (PETROLEUM), HYDROTREATED LIGHT NAPHTHENIC	: LD 50: > 2,000 mg/kg Species: Rabbit

Acute toxicity (other routes of administration)

Acute toxicity (other routes of administration) : no data available

12. ECOLOGICAL INFORMATION

Biodegradability

Biodegradability - Product : no data available

Biodegradability - Components

ETHYL CHLORIDE : 0 % Method: Closed Bottle test Remarks: Not readily biodegradable.

Bioaccumulation

Bioaccumulation - Product : no data available

Ecotoxicity effects

Toxicity to fish

Toxicity to fish - Product : no data available

Toxicity to fish - Components

ETHANOL : LC 50: 12,000 - 16,000 mg/l
Exposure time: 96 h
Species: Rainbow trout,donaldson trout (Oncorhynchus mykiss)
Test Type: static test

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Toxicity to daphnia and other aquatic invertebrates

Toxicity to daphnia and other aquatic invertebrates
- Product : no data available

Toxicity to daphnia and other aquatic invertebrates - Components

ETHANOL : EC 50: > 10,000 mg/l
Exposure time: 48 h
Species: Water flea (*Daphnia magna*)
Test Type: static test

ETHYL CHLORIDE : LC 50: 58 mg/l
Exposure time: 48 h
Species: Water flea (*Daphnia hyalina*)
Test Type: static test

Toxicity to algae

Toxicity to algae - Product : no data available

Toxicity to algae - Components

ETHYL CHLORIDE : 118 mg/l
Exposure time: 72 h
Species: *Desmodesmus subspicatus* (green algae)
Test Type: static test

Toxicity to bacteria

Toxicity to bacteria - Product : no data available

13. DISPOSAL CONSIDERATIONS

Waste disposal methods

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

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14. TRANSPORT INFORMATION

REGULATION

ID NUMBER	PROPER SHIPPING NAME	*HAZARD CLASS	SUBSIDIARY HAZARDS	PACKING GROUP	MARINE POLLUTANT / LTD. QTY.
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U.S. DOT - ROAD

	ORM-D, CONSUMER COMMODITY	ORM			
--	---------------------------	-----	--	--	--

U.S. DOT - RAIL

	ORM-D, CONSUMER COMMODITY	ORM			
--	---------------------------	-----	--	--	--

U.S. DOT - INLAND WATERWAYS

	ORM-D, CONSUMER COMMODITY	ORM			
--	---------------------------	-----	--	--	--

TRANSPORT CANADA - ROAD

UN	1950	AEROSOLS	2.1		
----	------	----------	-----	--	--

TRANSPORT CANADA - RAIL

UN	1950	AEROSOLS	2.1		
----	------	----------	-----	--	--

TRANSPORT CANADA - INLAND WATERWAYS

UN	1950	AEROSOLS	2.1		
----	------	----------	-----	--	--

INTERNATIONAL MARITIME DANGEROUS GOODS

UN	1950	AEROSOLS	2.1		MARINE POLLUTANT: (ALIPHATIC PETROLEUM NAPHTHA) LIMITED QUANTITY
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INTERNATIONAL AIR TRANSPORT ASSOCIATION - CARGO

UN	1950	Aerosols, flammable (engine starting fluid)	2.1		
----	------	---	-----	--	--

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INTERNATIONAL AIR TRANSPORT ASSOCIATION - PASSENGER

UN	1950	Aerosols, flammable (engine starting fluid)	2.1
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MEXICAN REGULATION FOR THE LAND TRANSPORT OF HAZARDOUS MATERIALS AND WASTES

UN	1950	AEROSOLS	2
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*ORM = ORM-D, CBL = COMBUSTIBLE LIQUID

Dangerous goods descriptions (if indicated above) may not reflect quantity, end-use or region-specific exceptions that can be applied. Consult shipping documents for descriptions that are specific to the shipment.

15. REGULATORY INFORMATION

California Prop. 65

Proposition 65 warnings are not required for this product based on the results of a risk assessment.

SARA Hazard Classification

SARA 311/312 Classification

Acute Health Hazard
Fire Hazard
Sudden Release of Pressure Hazard
Chronic Health Hazard

SARA 313 Component(s)

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.

New Jersey RTK Label Information

SOLVENT NAPHTHA (PETROLEUM), LIGHT ALIPHATIC	64742-89-8
ETHYL ETHER	60-29-7
CARBON DIOXIDE	124-38-9
ETHANOL	64-17-5
DISTILLATES (PETROLEUM), HYDROTREATED LIGHT NAPHTHENIC	64742-53-6
TOLUENE	108-88-3

Pennsylvania RTK Label Information

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SOLVENT NAPHTHA (PETROLEUM), LIGHT ALIPHATIC	64742-89-8
ETHYL ETHER	60-29-7
CARBON DIOXIDE	124-38-9
ETHANOL	64-17-5

Notification status

US. Toxic Substances Control Act	y (positive listing)
Canada. Canadian Environmental Protection Act (CEPA). Domestic Substances List (DSL). (Can. Gaz. Part II, Vol. 133)	y (positive listing)
Australia. Industrial Chemical (Notification and Assessment) Act	y (positive listing)
New Zealand. Inventory of Chemicals (NZIoC), as published by ERMA New Zealand	y (positive listing)
Japan. Kashin-Hou Law List	n (Negative listing)
Korea. Toxic Chemical Control Law (TCCL) List	y (positive listing)
Philippines. The Toxic Substances and Hazardous and Nuclear Waste Control Act	y (positive listing)
China. Inventory of Existing Chemical Substances	y (positive listing)

Reportable quantity - Product

US. EPA CERCLA Hazardous Substances (40 CFR 302)	511 lbs
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Reportable quantity-Components

ETHYL ETHER	60-29-7	100 lbs
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	HMIS	NFPA
Health	2	1
Flammability	4	4
Physical hazards	0	
Instability		0
Specific Hazard	--	--

16. OTHER INFORMATION

The information accumulated herein is believed to be accurate but is not warranted to be whether originating with the company or not. Recipients are advised to confirm in advance of need that the

ASHLAND®

SAFETY DATA SHEET

Page: 14

Revision Date: 08/16/2012

Print Date: 1/30/2014

MSDS Number: R0340954

Version: 6.0

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PYSFR11

information is current, applicable, and suitable to their circumstances. This MSDS has been prepared by Ashland's Environmental Health and Safety Department (1-800-325-3751).

Safety Data Sheet

1. IDENTIFICATION OF THE SUBSTANCE/PREPARATION AND COMPANY/UNDERTAKING

Material Name : **Gasoline**
Other Names / Synonyms : MOGAS, ULG 95, 88 RON, 90 RON, 91 RON, 92 RON, 93 RON, 95 RON, 97 UNLD, 91 UNLD
Recommended Use / Restrictions of Use : Fuel for spark ignition engines designed to run on unleaded fuel.

Supplier : **Shell Eastern Trading (PTE) Ltd**

9 North Buona Vista Drive,
#07-01,
Tower 1, The Metropolis
Singapore 138588
Singapore

Telephone : +65-6384 8000
Emergency Telephone Number : +44 (0) 151 350 4595

2. HAZARDS IDENTIFICATION

GHS Classification : Flammable liquids, Category 1
Skin corrosion/irritation, Category 2
Aspiration hazard, Category 1
Toxic to reproduction, Category 2
Germ cell mutagenicity, Category 1B
Carcinogenicity, Category 1B
Specific target organ toxicity - single exposure, Category 3,
Inhalation, Narcotic effects.
Acute hazards to the aquatic environment, Category 2
Hazardous to the aquatic environment - Long-term Hazard,
Category 2

GHS Label Elements Symbol(s) :



Signal Words : Danger

Hazard Statement : PHYSICAL HAZARDS:

Safety Data Sheet

H224: Extremely flammable liquid and vapour.

HEALTH HAZARDS:

H304: May be fatal if swallowed and enters airways.

H315: Causes skin irritation.

H336: May cause drowsiness or dizziness.

H340: May cause genetic defects.

H350: May cause cancer.

H361: Suspected of damaging fertility or the unborn child.

ENVIRONMENTAL HAZARDS:

H401: Toxic to aquatic life.

H411: Toxic to aquatic life with long lasting effects.

GHS Precautionary Statements

- Prevention** : P201: Obtain special instructions before use.
P210: Keep away from heat/sparks/open flames/hot surfaces. - No smoking.
P280: Wear protective gloves/protective clothing/eye protection/face protection.
- Response** : P301+P310: IF SWALLOWED: Immediately call a POISON CENTER or doctor/physician.
- Storage** : P403+P233: Store in a well-ventilated place. Keep container tightly closed.
- Disposal:** : P501: Dispose of contents and container to appropriate waste site or reclaimer in accordance with local and national regulations.
- Other Hazards which do not result in classification** : Liquid evaporates quickly and can ignite leading to a flash fire, or an explosion in a confined space. This material is a static accumulator. Even with proper grounding and bonding, this material can still accumulate an electrostatic charge. If sufficient charge is allowed to accumulate, electrostatic discharge and ignition of flammable air-vapour mixtures can occur.
Slightly irritating to respiratory system. This product contains benzene which may cause leukaemia (AML - acute myelogenous leukaemia). May cause MDS (Myelodysplastic Syndrome).
- Additional Information** : This product is intended for use in closed systems only.

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3. COMPOSITION/INFORMATION ON INGREDIENTS

- Mixture Description** : Complex mixture of hydrocarbons consisting of paraffins, cycloparaffins, aromatic and olefinic hydrocarbons with carbon numbers predominantly in the C4 to C12 range. Includes benzene at 0.1 - 5% v/v. Contains oxygenated hydrocarbons which may include methyl tertiary butyl ether (MTBE) and other ethers. May also contain several additives at <0.1% v/v each.
- Synonyms** : MOGAS, ULG 95, 88 RON, 90 RON, 91 RON, 92 RON, 93 RON, 95 RON, 97 UNLD, 91 UNLD

Classification of components according to GHS

Chemical Identity	Synonyms	CAS	Hazard Class (category)	Hazard Statement	Conc.
Gasoline, low boiling point naphtha	Gasoline, low boiling point naphtha	86290-81-5	Flam. Liq., 1; Skin Corr., 2; Asp. Tox., 1; Muta., 1B; Carc., 1B; STOT SE, 3; Aquatic Chronic, 2; Aquatic Acute, 2; Repr., 2;	H224; H315; H304; H340; H350; H336; H411; H401; H361;	85.00 - 100.00 %
Ethyl tertiary butyl ether	Ethyl tertiary butyl ether	637-92-3	Flam. Liq., 2; STOT SE, 3; Asp. Tox., 2; Aquatic Acute, 3;	H225; H336; H305; H402;	0.00 - 15.00 %
Methyl tertiary butyl ether	Methyl tertiary butyl ether	1634-04-4	Flam. Liq., 2; Skin Corr., 3; Acute Tox., 5; Asp. Tox., 2;	H225; H316; H303; H305;	0.00 - 15.00 %
Tertiary amyl methyl ether	Tertiary amyl methyl ether	994-05-8	Flam. Liq., 2; Acute Tox., 4; STOT SE, 3;	H225; H302; H336;	0.00 - 15.00 %

- Additional Information** : Contains Benzene, CAS # 71-43-2. Contains Toluene, CAS # 108-88-3. Contains Ethylbenzene, CAS # 100-41-4. Contains n-Hexane, CAS # 110-54-3. Contains Xylene (Mixed Isomers), CAS # 1330-20-7. Contains Cyclohexane, CAS# 110-82-7. Contains Cumene, CAS# 98-82-8. Contains Tri-methyl-benzene (all isomers), CAS# 25551-13-7.

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Contains Naphthalene, CAS # 91-20-3.

The amount of oxygenated components is limited at 2.7 % m/m calculated as oxygen. Alcohols may be present at <0.1%v. Dyes and markers can be used to indicate tax status and prevent fraud. Refer to Ch 16 for full text of H phrases.

Refer to chapter 16 for full text of EC R-phrases.

4. FIRST-AID MEASURES

- Inhalation** : Remove to fresh air. If rapid recovery does not occur, transport to nearest medical facility for additional treatment.
- Skin Contact** : Remove contaminated clothing. Immediately flush skin with large amounts of water for at least 15 minutes, and follow by washing with soap and water if available. If redness, swelling, pain and/or blisters occur, transport to the nearest medical facility for additional treatment. When using high pressure equipment, injection of product under the skin can occur. If high pressure injuries occur, the casualty should be sent immediately to a hospital. Do not wait for symptoms to develop.
- Eye Contact** : Flush eyes with water while holding eyelids open. Rest eyes for 30 minutes. If redness, burning, blurred vision, or swelling persist transport to the nearest medical facility for additional treatment.
- Ingestion** : If swallowed, do not induce vomiting; transport to nearest medical facility for additional treatment. If vomiting occurs spontaneously, keep head below hips to prevent aspiration. If any of the following delayed signs and symptoms appear within the next 6 hours, transport to the nearest medical facility: fever greater than 101° F (38.3°C), shortness of breath, chest congestion or continued coughing or wheezing.
- Most Important Symptoms/Effects, Acute & Delayed** : Skin irritation signs and symptoms may include a burning sensation, redness, or swelling. Eye irritation signs and symptoms may include a burning sensation and a temporary redness of the eye. If material enters lungs, signs and symptoms may include coughing, choking, wheezing, difficulty in breathing, chest congestion, shortness of breath, and/or fever. The onset of respiratory symptoms may be delayed for several hours after exposure. Breathing of high vapour concentrations may cause central nervous system (CNS) depression resulting in dizziness, light-headedness, headache, nausea and loss of coordination. Continued inhalation may result in unconsciousness and death. Auditory system effects may include temporary hearing loss and/or ringing in the ears.

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Immediate medical attention, special treatment : Treat symptomatically.

5. FIRE-FIGHTING MEASURES

Clear fire area of all non-emergency personnel.

- Specific hazards arising from Chemicals** : Hazardous combustion products may include: A complex mixture of airborne solid and liquid particulates and gases (smoke). Carbon monoxide may be evolved if incomplete combustion occurs. Unidentified organic and inorganic compounds. The vapour is heavier than air, spreads along the ground and distant ignition is possible. Will float and can be reignited on surface water.
- Suitable Extinguishing Media** : Foam, water spray or fog. Dry chemical powder, carbon dioxide, sand or earth may be used for small fires only.
- Unsuitable Extinguishing Media** : Do not use direct water jets on the burning product as they could cause a steam explosion and spread of the fire. Simultaneous use of foam and water on the same surface is to be avoided as water destroys the foam.
- Protective Equipment & Precautions for Fire Fighters** : Proper protective equipment including chemical resistant gloves are to be worn; chemical resistant suit is indicated if large contact with spilled product is expected. Self-Contained Breathing Apparatus must be worn when approaching a fire in a confined space. Select fire fighter's clothing approved to relevant Standards (e.g. Europe: EN469).
- Additional Advice** : Keep adjacent containers cool by spraying with water. If possible remove containers from the danger zone. If the fire cannot be extinguished the only course of action is to evacuate immediately. Contain residual material at affected sites to prevent material from entering drains (sewers), ditches, and waterways.

6. ACCIDENTAL RELEASE MEASURES

Avoid contact with skin, eyes and clothing. Evacuate the area of all non-essential personnel. Ventilate contaminated area thoroughly. If contamination of sites occurs remediation may require specialist advice. Avoid contact with spilled or released material. Immediately remove all contaminated clothing. For guidance on selection of personal protective equipment see Chapter 8 of this Material Safety Data Sheet. For guidance on disposal of spilled material see Chapter 13 of this Material Safety Data Sheet. Ensure electrical continuity by bonding and grounding (earthing) all equipment. Observe the relevant local and international regulations. Take precautionary measures against static discharges.

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- Personal Precautions, Protective Equipment and Emergency Procedures** : Do not breathe fumes, vapour. Do not operate electrical equipment. Shut off leaks, if possible without personal risks. Remove all possible sources of ignition in the surrounding area. Vapour can travel for considerable distances both above and below the ground surface. Underground services (drains, pipelines, cable ducts) can provide preferential flow paths. Evacuate all personnel. Attempt to disperse vapour or to direct its flow to a safe location for example using fog sprays.
- Environmental Precautions** : Take measures to minimise the effects on groundwater. Contain residual material at affected sites to prevent material from entering drains (sewers), ditches, and waterways. Prevent from spreading or entering into drains, ditches or rivers by using sand, earth, or other appropriate barriers.
- Methods and Material for Containment and Cleaning Up** : Take precautionary measures against static discharges. For large liquid spills (> 1 drum), transfer by mechanical means such as vacuum truck to a salvage tank for recovery or safe disposal. Do not flush away residues with water. Retain as contaminated waste. Allow residues to evaporate or soak up with an appropriate absorbent material and dispose of safely. Remove contaminated soil and dispose of safely. For small liquid spills (< 1 drum), transfer by mechanical means to a labelled, sealable container for product recovery or safe disposal. Allow residues to evaporate or soak up with an appropriate absorbent material and dispose of safely. Remove contaminated soil and dispose of safely.
- Additional Advice** : Notify authorities if any exposure to the general public or the environment occurs or is likely to occur. Local authorities should be advised if significant spillages cannot be contained. Maritime spillages should be dealt with using a Shipboard Oil Pollution Emergency Plan (SOPEP), as required by MARPOL Annex 1 Regulation 26. To the extent that this product, including its chemical components (e.g. methyl tertiary butyl ether) may impact surface or groundwater, appropriate assessment and remediation (if necessary) should be implemented.

7. HANDLING AND STORAGE

- General Precautions** : Avoid breathing vapours or contact with material. Only use in well ventilated areas. Wash thoroughly after handling. For guidance on selection of personal protective equipment see Chapter 8 of this Material Safety Data Sheet. Use the information in this data sheet as input to a risk assessment of local circumstances to help determine appropriate controls for

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safe handling, storage and disposal of this material. Air-dry contaminated clothing in a well-ventilated area before laundering. Prevent spillages. Turn off all battery operated portable electronic devices (examples include: cellular phones, pagers and CD players) before operating gasoline pump. Contaminated leather articles including shoes cannot be decontaminated and should be destroyed to prevent reuse. Do not use as a cleaning solvent or other non-motor fuel uses. Vehicle fueling and vehicle workshop areas - Avoid inhalation of vapours and contact with skin, when filling or emptying a vehicle.

Precautions for Safe Handling

: When using do not eat or drink. Extinguish any naked flames. Do not smoke. Remove ignition sources. Avoid sparks. Never siphon by mouth. The vapour is heavier than air, spreads along the ground and distant ignition is possible. Avoid exposure. Use local exhaust ventilation if there is risk of inhalation of vapours, mists or aerosols. Properly dispose of any contaminated rags or cleaning materials in order to prevent fires.

Conditions for Safe Storage

: Drum and small container storage: Keep containers closed when not in use. Drums should be stacked to a maximum of 3 high. Use properly labelled and closeable containers. Packaged product must be kept tightly closed and stored in a diked (bunded) well-ventilated area, away from, ignition sources and other sources of heat. Take suitable precautions when opening sealed containers, as pressure can build up during storage. Tank storage: Tanks must be specifically designed for use with this product. Bulk storage tanks should be diked (bunded). Locate tanks away from heat and other sources of ignition. Cleaning, inspection and maintenance of storage tanks is a specialist operation, which requires the implementation of strict procedures and precautions. Keep in a cool place. Electrostatic charges will be generated during pumping. Electrostatic discharge may cause fire. Ensure electrical continuity by bonding and grounding (earthing) all equipment to reduce the risk. The vapours in the head space of the storage vessel may lie in the flammable/explosive range and hence may be flammable. Refer to section 15 for any additional specific legislation covering the packaging and storage of this product.

Product Transfer

: Wait 2 minutes after tank filling (for tanks such as those on road tanker vehicles) before opening hatches or manholes. Wait 30 minutes after tank filling (for large storage tanks) before opening hatches or manholes. Even with proper grounding and bonding, this material can still accumulate an electrostatic charge. If sufficient charge is allowed to

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accumulate, electrostatic discharge and ignition of flammable air-vapour mixtures can occur. Be aware of handling operations that may give rise to additional hazards that result from the accumulation of static charges. These include but are not limited to pumping (especially turbulent flow), mixing, filtering, splash filling, cleaning and filling of tanks and containers, sampling, switch loading, gauging, vacuum truck operations, and mechanical movements. These activities may lead to static discharge e.g. spark formation. Restrict line velocity during pumping in order to avoid generation of electrostatic discharge (≤ 1 m/s until fill pipe submerged to twice its diameter, then ≤ 7 m/s). Avoid splash filling. Do NOT use compressed air for filling, discharging, or handling operations.

- Recommended Materials** : For containers, or container linings use mild steel, stainless steel. Aluminium may also be used for applications where it does not present an unnecessary fire hazard. Examples of suitable materials are: high density polyethylene (HDPE), polypropylene (PP), and Viton (FKM), which have been specifically tested for compatibility with this product. For container linings, use amine-adduct cured epoxy paint. For seals and gaskets use: graphite, PTFE, Viton A, Viton B.
- Unsuitable Materials** : Some synthetic materials may be unsuitable for containers or container linings depending on the material specification and intended use. Examples of materials to avoid are: natural rubber (NR), nitrile rubber (NBR), ethylene propylene rubber (EPDM), polymethyl methacrylate (PMMA), polystyrene, polyvinyl chloride (PVC), polyisobutylene. However, some may be suitable for glove materials.
- Container Advice** : Containers, even those that have been emptied, can contain explosive vapours. Do not cut, drill, grind, weld or perform similar operations on or near containers. Gasoline containers must not be used for storage of other products.
- Other Advice** : Ensure that all local regulations regarding handling and storage facilities are followed. See additional references that provide safe handling practices for liquids that are determined to be static accumulators: American Petroleum Institute 2003 (Protection Against Ignitions Arising out of Static, Lightning and Stray Currents) or National Fire Protection Agency 77 (Recommended Practices on Static Electricity), CENELEC CLC/TR 50404 (Electrostatics – Code of practice for the avoidance of hazards due to static electricity).

8. EXPOSURE CONTROLS/PERSONAL PROTECTION

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If the American Conference of Governmental Industrial Hygienists (ACGIH) value is provided on this document, it is provided for information only.

Occupational Exposure Limits

Material	Source	Type	ppm	mg/m3	Notation
Gasoline, low boiling point naphtha	ACGIH	TWA	300 ppm		
	ACGIH	STEL	500 ppm		
	SG OEL	TWA	300 ppm	890 mg/m3	
Trimethylbenzene, all isomers	ACGIH	TWA	25 ppm		
	SG OEL	STEL	500 ppm	1,480 mg/m3	
	SG OEL	TWA	25 ppm	123 mg/m3	
Ethylbenzene	ACGIH	TWA	20 ppm		
	SG OEL	TWA	100 ppm	434 mg/m3	
	SG OEL	STEL	125 ppm	543 mg/m3	
n-hexane	ACGIH	TWA	50 ppm		
	ACGIH	SKIN_DES			Can be absorbed through the skin.
	SG OEL	TWA	50 ppm	176 mg/m3	
Benzene	ACGIH	TWA	0.5 ppm		
	ACGIH	STEL	2.5 ppm		
	ACGIH	SKIN_DES			Can be absorbed through the skin.
	SG OEL	TWA	1 ppm	3.18 mg/m3	

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	SHELL IS	TWA	0.5 ppm	1.6 mg/m3	
	SHELL IS	STEL	2.5 ppm	8 mg/m3	
Toluene	ACGIH	TWA	20 ppm		
	SG OEL	TWA	50 ppm	188 mg/m3	
Xylene	ACGIH	TWA	100 ppm		
	ACGIH	STEL	150 ppm		
	SG OEL	TWA	100 ppm	434 mg/m3	
	SG OEL	STEL	150 ppm	651 mg/m3	
Cyclohexane	ACGIH	TWA	100 ppm		
	SG OEL	TWA	300 ppm	1,030 mg/m3	
Naphthalene	ACGIH	TWA	10 ppm		
	ACGIH	STEL	15 ppm		
	ACGIH	SKIN_DES			Can be absorbed through the skin.
	SG OEL	TWA	10 ppm	52 mg/m3	
	SG OEL	STEL	15 ppm	79 mg/m3	
Ethyl tertiary butyl ether	ACGIH	TWA	25 ppm		
Methyl tertiary butyl ether	ACGIH	TWA	50 ppm		
	SG OEL	TWA	40 ppm	144 mg/m3	
Tertiary amyl methyl ether	ACGIH	TWA	20 ppm		
Cumene	ACGIH	TWA	50 ppm		
	SG OEL	TWA	50 ppm	246 mg/m3	

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Additional Information : SHELL IS is the Shell Internal Standard. Skin notation means that significant exposure can also occur by absorption of liquid through the skin and of vapour through the eyes or mucous membranes.

Biological Exposure Index (BEI)

Material	Determinant	Sampling Time	BEI	Reference
Benzene	t,t-Muconic acid in Creatinine in urine	Sampling time: End of shift.	500 µg/g	ACGIH BEL (2011)
	S-Phenylmercapturic acid in Creatinine in urine	Sampling time: End of shift.	25 µg/g	ACGIH BEL (2011)
n-hexane	2,5-Hexanedion, without hydrolysis in Urine	Sampling time: End of shift at end of work week.	0.4 mg/l	ACGIH BEL (2011)
Toluene	o-Cresol, with hydrolysis in Creatinine in urine	Sampling time: End of shift.	0.3 mg/g	ACGIH BEL (2011)
	toluene in Blood	Sampling time: Prior to last shift of work week.	0.02 mg/l	ACGIH BEL (2011)
	toluene in Urine	Sampling time: End of shift.	0.03 mg/l	ACGIH BEL (2011)

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Ethylbenzene	Sum of mandelic acid and phenylglyoxylic acid in Creatinine in urine	Sampling time: End of shift at end of work week.	0.7 g/g	ACGIH BEL (2011)
	Ethyl benzene in End-exhaled air	Sampling time: Not critical.		ACGIH BEL (2011)
Xylene	Methylhippuric acids in Creatinine in urine	Sampling time: End of shift.	1.5 g/g	ACGIH BEL (2011)
Naphthalene	1-Naphthol, with hydrolysis + 2-Naphthol, with hydrolysis	Sampling time: End of shift.		ACGIH BEL (02 2013)

Appropriate Engineering Controls : The level of protection and types of controls necessary will vary depending upon potential exposure conditions. Select controls based on a risk assessment of local circumstances. Appropriate measures include: Use sealed systems as far as possible. Adequate explosion-proof ventilation to control airborne concentrations below the exposure guidelines/limits. Local exhaust ventilation is recommended. Eye washes and showers for emergency use. Always observe good personal hygiene measures, such as washing hands after handling the material and before eating, drinking, and/or smoking. Routinely wash work clothing and protective equipment to remove contaminants. Discard contaminated clothing and footwear that cannot be cleaned. Practice good housekeeping. Define procedures for safe handling and maintenance of controls. Educate and train workers in the hazards and control measures relevant to normal activities associated with this product. Ensure appropriate selection, testing and maintenance of equipment used to control exposure, e.g. personal protective equipment, local exhaust ventilation. Firewater monitors and deluge systems are recommended. Drain down system prior to equipment break-in or maintenance. Retain drain downs in sealed storage pending disposal or for subsequent recycle.

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- Individual Protection Measures** : Personal protective equipment (PPE) should meet recommended national standards. Check with PPE suppliers.
- Respiratory Protection** : If engineering controls do not maintain airborne concentrations to a level which is adequate to protect worker health, select respiratory protection equipment suitable for the specific conditions of use and meeting relevant legislation. Check with respiratory protective equipment suppliers. Where air-filtering respirators are suitable, select an appropriate combination of mask and filter. Where air-filtering respirators are unsuitable (e.g. airborne concentrations are high, risk of oxygen deficiency, confined space) use appropriate positive pressure breathing apparatus. All respiratory protection equipment and use must be in accordance with local regulations. Select a filter suitable for combined particulate/organic gases and vapours [boiling point >65°C(149 °F)].
- Hand Protection** : Personal hygiene is a key element of effective hand care. Gloves must only be worn on clean hands. After using gloves, hands should be washed and dried thoroughly. Application of a non-perfumed moisturizer is recommended. Suitability and durability of a glove is dependent on usage, e.g. frequency and duration of contact, chemical resistance of glove material, dexterity. Always seek advice from glove suppliers. Contaminated gloves should be replaced. For continuous contact we recommend gloves with breakthrough time of more than 240 minutes with preference for > 480 minutes where suitable gloves can be identified. For short-term/splash protection we recommend the same, but recognise that suitable gloves offering this level of protection may not be available and in this case a lower breakthrough time may be acceptable so long as appropriate maintenance and replacement regimes are followed. Glove thickness is not a good predictor of glove resistance to a chemical as it is dependent on the exact composition of the glove material. Select gloves tested to a relevant standard (e.g. Europe EN374, US F739). When prolonged or frequent repeated contact occurs, Nitrile gloves may be suitable. (Breakthrough time of > 240 minutes.) For incidental contact/splash protection Neoprene, PVC gloves may be suitable.
- Eye Protection** : Chemical splash goggles (chemical monogoggles). If a local risk assessment deems it so, then chemical splash goggles may not be required and safety glasses may provide adequate eye protection.
- Protective Clothing** : Chemical resistant gloves/gauntlets, boots, and apron (where risk of splashing).
- Thermal Hazards** : Not applicable.

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- Monitoring Methods** : Monitoring of the concentration of substances in the breathing zone of workers or in the general workplace may be required to confirm compliance with an OEL and adequacy of exposure controls. For some substances biological monitoring may also be appropriate. Validated exposure measurement methods should be applied by a competent person and samples analysed by an accredited laboratory. Examples of sources of recommended exposure measurement methods are given below or contact the supplier. Further national methods may be available.
National Institute of Occupational Safety and Health (NIOSH), USA: Manual of Analytical Methods <http://www.cdc.gov/niosh/>
Occupational Safety and Health Administration (OSHA), USA: Sampling and Analytical Methods <http://www.osha.gov/>
- Environmental Exposure Controls** : Local guidelines on emission limits for volatile substances must be observed for the discharge of exhaust air containing vapour. Take appropriate measures to fulfil the requirements of relevant environmental protection legislation. Avoid contamination of the environment by following advice given in Chapter 6. If necessary, prevent undissolved material from being discharged to waste water. Waste water should be treated in a municipal or industrial waste water treatment plant before discharge to surface water.

9. PHYSICAL AND CHEMICAL PROPERTIES

- Appearance** : Yellow. Clear, bright liquid.
Odour : Hydrocarbon
Odour threshold : Data not available
pH : Data not available
Initial Boiling Point and Boiling Range : 25 - 220 °C / 77 - 428 °F
Freezing Point : Data not available
Flash point : -40 °C / -40 °F (Tagliabue Closed Cup)
Upper / lower : 1 - 8 %(V)
Flammability or Explosion limits
Auto-ignition temperature : > 250 °C / 482 °F
Vapour pressure : Typical 570 hPa at 37.8 °C / 100.0 °F
Relative Density : Data not available
Density : Typical 0.740 g/cm³ at 15 °C / 59 °F
Water solubility : Negligible.
Solubility in other solvents : Data not available
- n-octanol/water partition** : 2 - 7

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coefficient (log Pow)	:	
Dynamic viscosity	:	Data not available
Kinematic viscosity	:	0.5 - 0.75 mm ² /s at 40 °C / 104 °F
Vapour density (air=1)	:	Data not available
Electrical conductivity	:	Low conductivity: < 100 pS/m, The conductivity of this material makes it a static accumulator., A liquid is typically considered nonconductive if its conductivity is below 100 pS/m and is considered semi-conductive if its conductivity is below 10 000 pS/m., Whether a liquid is nonconductive or semi-conductive, the precautions are the same., A number of factors, for example liquid temperature, presence of contaminants, and anti-static additives can greatly influence the conductivity of a liquid.
Evaporation rate (nBuAc=1)	:	Data not available
Decomposition Temperature	:	Data not available
Flammability	:	Extremely flammable.

10. STABILITY AND REACTIVITY

Chemical stability	:	Stable under normal conditions of use.
Possibility of Hazardous Reactions	:	No hazardous reaction is expected when handled and stored according to provisions.
Conditions to Avoid Incompatible Materials	:	Avoid heat, sparks, open flames and other ignition sources. Strong oxidising agents.
Hazardous Decomposition Products	:	Hazardous decomposition products are not expected to form during normal storage. Thermal decomposition is highly dependent on conditions. A complex mixture of airborne solids, liquids and gases, including carbon monoxide, carbon dioxide and other organic compounds will be evolved when this material undergoes combustion or thermal or oxidative degradation.
Hazardous Polymerisation	:	No
Sensitivity to Mechanical Impact	:	No
Sensitivity to Static Discharge	:	Yes, in certain circumstances product can ignite due to static electricity.

11. TOXICOLOGICAL INFORMATION

Information on Toxicological effects

Basis for Assessment	:	Information given is based on product data, a knowledge of the components and the toxicology of similar products. Unless indicated otherwise, the data presented is representative of the
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	product as a whole, rather than for individual component(s).
Likely Routes of Exposure	: Exposure may occur via inhalation, ingestion, skin absorption, skin or eye contact, and accidental ingestion.
Acute Oral Toxicity	: Low toxicity: LD50 > 5000 mg/kg
Acute Dermal Toxicity	: Low toxicity: LD50 >2000 mg/kg , Rabbit
Acute Inhalation Toxicity	: Low toxicity: LC50 >5 mg/l , 4 h, Rat
Skin corrosion/irritation	: Irritating to skin.
Serious eye damage/irritation	: Expected to be slightly irritating.
Respiratory Irritation	: Based on human experience, breathing of vapours or mists may cause a temporary burning sensation to nose, throat and lungs.
Respiratory or skin sensitisation	: Not expected to be a sensitiser.
Aspiration Hazard	: Aspiration into the lungs when swallowed or vomited may cause chemical pneumonitis which can be fatal.
Germ cell mutagenicity	: May cause heritable genetic damage. (Benzene) Mutagenicity studies on gasoline and gasoline blending streams have shown predominantly negative results.
Carcinogenicity	: Known human carcinogen. (Benzene) May cause leukaemia (AML - acute myelogenous leukemia). (Benzene) Inhalation exposure to mice causes liver tumours, which are not considered relevant to humans.

Material	Carcinogenicity Classification
Gasoline, low boiling point naphtha	: ACGIH Group A3: Confirmed animal carcinogen with unknown relevance to humans.
Gasoline, low boiling point naphtha	: IARC 2B: Possibly carcinogenic to humans.
Gasoline, low boiling point naphtha	: GHS / CLP: Carcinogenicity Category 1B
Trimethylbenzene, all isomers	: GHS / CLP: No carcinogenicity classification
Ethylbenzene	: IARC 2B: Possibly carcinogenic to humans.
Ethylbenzene	: GHS / CLP: No carcinogenicity classification
n-hexane	: GHS / CLP: No carcinogenicity classification

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Benzene	:	ACGIH Group A1: Confirmed human carcinogen.
Benzene	:	NTP: Known To Be Human Carcinogen.
Benzene	:	IARC 1: Carcinogenic to humans.
Benzene	:	GHS / CLP: Carcinogenicity Category 1A
Toluene	:	ACGIH Group A4: Not classifiable as a human carcinogen.
Toluene	:	IARC 3: Not classifiable as to carcinogenicity to humans.
Toluene	:	GHS / CLP: No carcinogenicity classification
Xylene	:	ACGIH Group A4: Not classifiable as a human carcinogen.
Xylene	:	IARC 3: Not classifiable as to carcinogenicity to humans.
Xylene	:	GHS / CLP: No carcinogenicity classification
Cyclohexane	:	GHS / CLP: No carcinogenicity classification
Naphthalene	:	ACGIH Group A4: Not classifiable as a human carcinogen.
Naphthalene	:	NTP: Reasonably Anticipated to be a Human Carcinogen.
Naphthalene	:	IARC 2B: Possibly carcinogenic to humans.
Naphthalene	:	GHS / CLP: Carcinogenicity Category 2
Ethyl tertiary butyl ether	:	ACGIH Group A4: Not classifiable as a human carcinogen.
Ethyl tertiary butyl ether	:	GHS / CLP: No carcinogenicity classification
Methyl tertiary butyl ether	:	IARC 3: Not classifiable as to carcinogenicity to humans.
Methyl tertiary butyl ether	:	GHS / CLP: No carcinogenicity classification
Tertiary amyl methyl ether	:	GHS / CLP: No carcinogenicity classification
Cumene	:	IARC 2B: Possibly carcinogenic to humans.
Cumene	:	GHS / CLP: No carcinogenicity classification

Reproductive and Developmental Toxicity : Causes foetotoxicity at doses which are maternally toxic. (Toluene)
May impair fertility at doses which produce other toxic effects. (n-hexane)
Many case studies involving abuse during pregnancy indicate that toluene can cause birth defects, growth retardation and learning difficulties. (Toluene)
Inhalation of high concentrations of gasoline vapour containing Methyl tertiary butyl ether produced a very low incidence of rare birth defects (ventral midline closure failure) in mice.

Specific target organ toxicity - single exposure : High concentrations may cause central nervous system depression resulting in headaches, dizziness and nausea; continued inhalation may result in unconsciousness and/or death.

Specific target organ toxicity - repeated exposure : Kidney: caused kidney effects in male rats which are not considered relevant to humans
Blood-forming organs: repeated exposure affects the bone

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marrow.

- Additional Information** : Prolonged and repeated exposures to high concentrations have resulted in hearing loss in rats. Solvent abuse and noise interaction in the work environment may cause hearing loss. (Toluene)
- Abuse of vapours has been associated with organ damage and death. (Toluene)
- Exposure to very high concentrations of similar materials has been associated with irregular heart rhythms and cardiac arrest.
- May cause MDS (Myelodysplastic Syndrome). (Benzene)
- Classifications by other authorities under varying regulatory frameworks may exist.

12. ECOLOGICAL INFORMATION

- Basis for Assessment** : Fuels are typically made from blending several refinery streams. Ecotoxicological studies have been carried out on a variety of hydrocarbon blends and streams but not those containing additives. Information given is based on a knowledge of the components and the ecotoxicology of similar products. Unless indicated otherwise, the data presented is representative of the product as a whole, rather than for individual component(s).
- Acute Toxicity** : Expected to be toxic: LL/EL/IL50 > 1 <= 10 mg/l (to aquatic organisms) LL/EL50 expressed as the nominal amount of product required to prepare aqueous test extract.
- Fish** : Expected to be toxic: LL/EL/IL50 > 1 <= 10 mg/l
- Aquatic crustacea** : Expected to be toxic: LL/EL/IL50 > 1 <= 10 mg/l
- Algae/aquatic plants** : Expected to be toxic: LL/EL/IL50 > 1 <= 10 mg/l
- Microorganisms** : Expected to be harmful: LL/EL/IL50 >10 <= 100 mg/l
- Chronic Toxicity**
- Fish** : NOEC/NOEL expected to be > 1.0 - <= 10 mg/l
- Aquatic crustacea** : NOEC/NOEL expected to be > 1.0 - <= 10 mg/l
- Mobility** : Evaporates within a day from water or soil surfaces. Large volumes may penetrate soil and could contaminate groundwater. Toxic to aquatic organisms; may cause long-term adverse effects in the aquatic environment. Ether oxygenates are significantly more water soluble and less biodegradable

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- than benzene, toluene, ethyl benzene and xylenes (BTEX). Consequently ether oxygenates have the potential to migrate relatively longer distances than BTEX in groundwater. Contains volatile components. Floats on water. Methyl tertiary butyl ether degradation may result in the formation of tert-butyl alcohol (TBA).
- Persistence/degradability** : Major constituents are expected to be inherently biodegradable, but the product contains components that may persist in the environment. The volatile constituents will oxidize rapidly by photochemical reactions in air. While biodegradation of Methyl tertiary butyl ether has been documented, it is generally less biodegradable than many petroleum hydrocarbons and has a potential to migrate relatively longer distances in groundwater.
- Bioaccumulative Potential** : Contains constituents with the potential to bioaccumulate. Log Kow > =4
- Other Adverse Effects** : Films formed on water may affect oxygen transfer and damage organisms.

13. DISPOSAL CONSIDERATIONS

- Material Disposal** : Recover or recycle if possible. It is the responsibility of the waste generator to determine the toxicity and physical properties of the material generated to determine the proper waste classification and disposal methods in compliance with applicable regulations. Waste arising from a spillage or tank cleaning should be disposed of in accordance with prevailing regulations, preferably to a recognised collector or contractor. The competence of the collector or contractor should be established beforehand. Do not dispose into the environment, in drains or in water courses. Do not dispose of tank water bottoms by allowing them to drain into the ground. This will result in soil and groundwater contamination.
- Container Disposal** : Drain container thoroughly. After draining, vent in a safe place away from sparks and fire. Residues may cause an explosion hazard. Do not puncture, cut, or weld uncleaned drums. Send to drum recoverer or metal reclaimer. Do not pollute the soil, water or environment with the waste container.
- Local Legislation** : Disposal should be in accordance with applicable regional, national, and local laws and regulations. Local regulations may be more stringent than regional or national requirements and must be in compliance.

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14. TRANSPORT INFORMATION

Land (as per ADR classification): Regulated

Class : 3
Packing group : II
Hazard identification no. : 33
UN number : 1203
Danger label (primary risk) : 3
Proper shipping name : GASOLINE (UNLEADED)
Environmentally Hazardous : Yes

IMDG

Identification number : UN 1203
Proper shipping name : GASOLINE
Technical name : (UNLEADED)
Class / Division : 3
Packing group : II
Environmental hazards: Yes

IATA (Country variations may apply)

UN number : 1203
Proper shipping name : Gasoline
Technical name : (UNLEADED)
Class / Division : 3
Packing group : II

Transport in bulk according to Annex II of MARPOL 73/78 and the IBC Code

Pollution Category : Not applicable.
Ship Type : Not applicable.
Product Name : Not applicable.
Special Precaution : Not applicable.
Additional Information : MARPOL Annex 1 rules apply for bulk shipments by sea.

15. REGULATORY INFORMATION

The regulatory information is not intended to be comprehensive. Other regulations may apply to this material.

Local Regulations

Workplace Safety and Health Act & Workplace : This product is subject to the requirement in the Act/ Regulations.

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Safety and Health (General Provision) Regulations

Environmental Protection and Management Act and Regulations : This product is subject to the requirement in the Act/ Regulations.

Environmental Protection and Management (Hazardous Substances) Regulations

Maritime and Port Authority of Singapore (Dangerous Goods, Petroleum and Explosives) Regulations : This product is subject to the requirement in the Act/ Regulations.

Fire Safety Act and Fire Safety (Petroleum & Flammable Materials) Regulations

: This product is subject to the requirement in the Act/ Regulations.

Classification triggering components

: Contains gasoline, low boiling point naphtha, unspecified.

16. OTHER INFORMATION

Hazard Statement

H224	Extremely flammable liquid and vapour.
H225	Highly flammable liquid and vapour.
H302	Harmful if swallowed.
H303	May be harmful if swallowed.
H304	May be fatal if swallowed and enters airways.
H305	May be harmful if swallowed and enters airways.
H315	Causes skin irritation.
H316	Causes mild skin irritation.
H336	May cause drowsiness or dizziness.
H340	May cause genetic defects.
H350	May cause cancer.
H361	Suspected of damaging fertility or the unborn child.
H401	Toxic to aquatic life.
H402	Harmful to aquatic life.
H411	Toxic to aquatic life with long lasting effects.

Additional Information : This document contains important information to ensure the safe storage, handling and use of this product. The information in this document should be brought to the attention of the person in your organisation responsible for advising on safety matters.

SDS Version Number : 1.0

SDS Effective Date : 10.03.2014

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- SDS Revisions** : A vertical bar (|) in the left margin indicates an amendment from the previous version.
- Uses and Restrictions** : This product must not be used in applications other than those recommended in Section 1, without first seeking the advice of the supplier.
This product is not to be used as a solvent or cleaning agent; for lighting or brightening fires; as a skin cleanser.
This product is designed only to suit automotive applications and no provision is made for the requirements of aviation applications.
- SDS Distribution** : The information in this document should be made available to all who may handle the product.
- Key/Legend to Abbreviations used in this SDS** : The standard abbreviations and acronyms used in this document can be looked up in reference literature (e.g. scientific dictionaries) and/or websites.
- | | |
|------------|--|
| Flam. Liq. | Flammable liquids |
| Asp. Tox. | Aspiration hazard |
| Muta. | Germ cell mutagenicity |
| Carc. | Carcinogenicity |
| Skin Corr. | Skin corrosion/irritation |
| STOT SE | Specific target organ toxicity - single exposure
Toxic for Reproduction |
- Key Literature References** : The quoted data are from, but not limited to, one or more sources of information (e.g. toxicological data from Shell Health Services, material suppliers' data, CONCAWE, EU IUCLID date base, EC 1272 regulation, etc).
- Disclaimer** : This information is based on our current knowledge and is intended to describe the product for the purposes of health, safety and environmental requirements only. It should not therefore be construed as guaranteeing any specific property of the product.



Safety Data Sheet

1 – Product Identifier & Identity for the Chemical

<p>Manufacturer: WD-40 Company Australia Pty Ltd</p> <p>Address: 41 Rawson Street (Level 2, Suite 23) Epping NSW, 2121, Australia</p> <p>Telephone: Information: +61 2 9868 2200 Emergency only: 1800 024 973</p> <p>Poisons Information Centre: Australia: 13 11 26 New Zealand: 0800 764 766</p> <p>New Zealand Contact Details: Name: Eproducts New Zealand Limited Address: 7D Orbit Drive Albany New Zealand Telephone: Information: 09 916 6750</p>	<p>Product Name: WD-40 Aerosol</p> <p>Chemical Name: Mixture</p> <p>Product Use: Lubricant, Penetrant, Drives Out Moisture, Removes and Protects Surfaces From Corrosion</p> <p>Restriction on Use: None Identified</p> <p>SDS Date Of Preparation: 23 July 2015</p>
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2 – Hazards Identification

Classification of the Hazardous Chemical (in accordance with WHS Regulation)

Health	Environmental	Physical
Aspiration Toxicity Category 1 Eye Irritant Category 2A Skin Irritant Category 2	Aquatic Acute Toxicity Category 3 Aquatic Chronic Toxicity Category 3	Flammable Aerosol Category 1 Gas Under Pressure: Compressed Gas

Label Elements



Contains: Naphtha (petroleum), hydrodesulfurized heavy; 1,2,4-Trimethyl benzene; 1,3,5-Trimethyl benzene; Xylene, Mixed Isomers; and Surfactant

Danger!

H222 Extremely flammable aerosol.
H280 Contains gas under pressure: may explode if heated.
H304 May be fatal if swallowed and enters airways.
H315 Causes skin irritation.
H319 Causes serious eye irritation.
H412 Harmful to aquatic life with long lasting effects.

Prevention

P210 Keep away from heat, sparks, open flames and hot surfaces.-No smoking.

P211 Do not spray on an open flame or other ignition source.

P251 Pressurized container: Do not pierce or burn, even after use.

P264 Wash thoroughly after handling.

P273 Avoid release to the environment.

P280 Wear protective gloves and eye protection.

Response

P302+P352 IF ON SKIN: Wash with plenty of soap and water.

P332+P313 If skin irritation occurs: Get medical attention.

P362 Take off contaminated clothing and wash it before reuse.

P305+P351+P338 IF IN EYES: Rinse cautiously with water for several minutes. Remove contact lenses, if present and easy to do. Continue rinsing.

P337+P313 If eye irritation persists: Get medical attention.

P301+P310 IF SWALLOWED: Immediately call a POISON CENTER or doctor or physician.

P331 Do NOT induce vomiting.

Storage

P410+P412 Protect from sunlight. Do not expose to temperatures exceeding 50°C/122°F.

P403+P235 Store in a well-ventilated place. Keep cool.

P405 Store locked up.

Disposal

P501 Dispose of contents and container in accordance with local and national regulations.

Other Hazards that do not Result in Classification: None

3 - Composition/Information on Ingredients

Ingredient	CAS #	Weight Percent	Substance Classification
Naphtha (petroleum), hydrodesulfurized heavy	64742-82-1	>60%	Flam. Liq. Cat 3 (H226) Asp. Tox. Cat 1 (H304)
Distillates, Hydrotreated Heavy Paraffinic (contains <3% DMSO)	64742-54-7	10-20%	Not Hazardous
Non-Hazardous Ingredients	Mixture	>10%	Not Hazardous
1,2,4-Trimethyl benzene	95-63-6	<10%	Flam. Liq. Cat 3 (H226) Acute Tox. Cat 4 (H332) Eye Irrit. Cat 2 (H319) Skin Irrit. Cat 2 (H315) STOT SE Cat 3 (H335) Aq. Chronic Cat 2 (H411)
1,3,5-Trimethyl benzene	108-67-8	<10%	Flam. Liq. Cat 3 (H226) STOT SE Cat 3 (H335) Aq. Chronic Cat 2 (H411)
Xylene, Mixed Isomers	1330-20-7	<10%	Flam. Liq. Cat 3 (H226) Acute Tox. Cat 4 (H312) Acute Tox. Cat 4 (H332) Skin Irrit. Cat 2 (H315)
Carbon Dioxide	124-38-9	2-4%	Not Hazardous
Surfactant	Proprietary	<1%	Eye Dam. Cat 1 (H318) Skin Irrit. Cat 2 (H315)

See Section 16 for full text of GHS Classification and H phrases

4 – First Aid Measures

Ingestion (Swallowed): Aspiration Hazard. DO NOT induce vomiting. Call a Poisons Information Center (phone 13 11 26 from anywhere in Australia or 0800 764 766 in New Zealand) immediately.

Eye Contact: Flush thoroughly with water. Remove contact lenses if present after the first 5 minutes and continue flushing for several more minutes. Get medical attention if irritation persists.

Skin Contact: Wash with soap and water. If irritation develops and persists, get medical attention.

Inhalation (Breathing): If irritation is experienced, move to fresh air. Get medical attention if irritation or other symptoms develop and persist.

Most Important Symptoms: May cause eye, skin, and respiratory irritation. Prolonged skin contact may cause drying of the skin. Inhalation may cause headache, dizziness, nausea and other symptoms of central nervous system depression. Accidental ingestion may cause gastrointestinal effects with irritation, nausea, vomiting, dizziness, coma and death. Aspiration into the lungs during ingestion or vomiting may cause lung damage.

Indication of Immediate Medical Attention and Special Treatment, if Needed: Immediate medical attention is required for ingestion.

5 – Fire Fighting Measures

Suitable Extinguishing Media: Use water fog, dry chemical, carbon dioxide or foam. Do not use water jet or flooding amounts of water. Burning product will float on the surface and spread fire.

Specific Hazards Arising from the Chemical: Extremely flammable aerosol. Contents under pressure. Keep away from ignition source and open fire. Exposure of containers to extreme heat and flames can cause them to rupture often with violent force. Vapors are heavier than air and may travel along surfaces to remote ignition sources and flash back. A vapor and air mixture can create an explosion hazard in confined spaces.

Special Protective Equipment and Precautions for Fire-Fighters: Firefighters should always wear positive pressure self-contained breathing apparatus and full protective clothing. Use shielding to protect against bursting containers. Cool fire-exposed containers with water.

6 – Accidental Release Measures

Personal Precautions, Protective Equipment and Emergency Procedures: Wear appropriate protective clothing (see Section 8). Eliminate all sources of ignition and ventilate area.

Environmental Precautions: Avoid releases to the environment. Report spills to authorities as required.

Methods and Materials for Containment/Cleanup: Leaking cans should be placed in a plastic bag or open pail until the pressure has dissipated. Contain and collect liquid with an inert absorbent and place in a container for disposal. Clean spill area thoroughly.

7 – Handling and Storage

Precautions for Safe Handling: Avoid contact with eyes and skin. Avoid breathing vapors or aerosols. Intentional misuse by deliberately concentrating vapors and inhaling can be harmful or fatal. Use only with adequate ventilation. Keep away from heat, sparks, pilot lights, hot surfaces and open flames. Unplug electrical tools, motors and appliances before spraying or bringing the can near any source of electricity. Electricity can burn a hole in the can and cause contents to burst into flames. To avoid serious burn injury, do not let the can touch battery terminals, electrical connections on motors or appliances or any other source of electricity. Wash thoroughly with soap and water after handling. Keep containers closed when not in use. Keep out of the reach of children. Do not puncture, crush or incinerate containers, even when empty.

Conditions for Safe Storage, including any incompatibilities: Store in a cool, dry ventilated area away from incompatible materials. Protect from physical damage. Do not store in direct sunlight, near open flames or above temperatures greater than 50°C.

8 – Exposure Controls /Personal Protection

Chemical	Occupational Exposure Limits	Biological Limit Value
Naphtha (petroleum), hydrodesulfurized heavy	350 mg/m ³ TWA (manufacturer recommended) 5 mg/m ³ TWA AU OEL (as oil mist, refined mineral) 5 mg/m ³ TWA, 10 mg/m ³ STEL NZ OEL (as oil mist, mineral) 5 mg/m ³ TWA ACGIH TLV (inhalable) (as mineral oil)	None Established
Distillates, Hydrotreated Heavy Paraffinic	5 mg/m ³ TWA AU OEL (as oil mist, refined mineral) 5 mg/m ³ TWA, 10 mg/m ³ STEL NZ OEL (as oil mist, mineral) 5 mg/m ³ TWA ACGIH TLV (inhalable) (as mineral oil)	None Established
Non-Hazardous Ingredients	None Established	None Established
1,2,4-Trimethyl benzene	25 ppm TWA ACGIH TLV/AU/NZ OEL (as Trimethyl benzene, all isomers)	None Established
1,3,5-Trimethyl benzene	25 ppm TWA ACGIH TLV/AU/NZ OEL (as Trimethyl benzene, all isomers)	None Established
Xylene, Mixed Isomers	80 ppm TWA, 150 ppm STEL AU OEL 50 ppm TWA NZ OEL 100 ppm TWA, 150 ppm STEL ACGIH TLV	Methylhippuric acids in urine, End of shift, 1.5 g/g creatinine.
Carbon Dioxide	5000 ppm TWA, 30000 ppm STEL ACGIH TLV/AU/NZ OEL	None Established
Surfactant	None Established	None Established

The Following Controls are Recommended for Normal Consumer Use of this Product

Appropriate Engineering Controls: Use in a well-ventilated area.

Personal Protection:

Eye Protection: Avoid eye contact. Always spray product away from your face.

Skin Protection: Avoid prolonged or repeated skin contact. Chemical resistant gloves recommended for operations where skin contact is likely.

Respiratory Protection: None needed for normal use with adequate ventilation.

For Bulk Processing or Workplace Use the Following Controls are Recommended

Appropriate Engineering Controls: Use adequate general and local exhaust ventilation to maintain exposure levels below that occupational exposure limits.

Personal Protection:

Eye Protection: Safety goggles recommended where eye contact is possible.

Skin Protection: Wear chemical resistant gloves.

Respiratory Protection: None required if ventilation is adequate. If the occupational exposure limits are exceeded, wear an approved respirator. Respirator selection and use should be based on contaminant type, form and concentration. Follow applicable regulations and good Industrial Hygiene practice.

Work/Hygiene Practices: Eye wash facilities should be available. Wash hands after handling.

Other Protective Equipment: None required.

9 – Physical and Chemical Properties

Appearance and Odor:	Aerosol spray. Pleasant odor.	Partition Coefficient of n-octanol/water:	Not determined
Odor Threshold:	Not determined	Auto-ignition temperature:	Not determined
pH:	Not determined	Decomposition Temperature:	Not determined
Melting/Freezing Point:	Not applicable	Viscosity:	Not determined
Boiling Point / Range:	162-192°C (324-378°F) (Concentrate)	Specific Heat Value:	Not determined
Flash Point:	41-42°C (106-108°F) (Concentrate)	Particle Size:	Not applicable
Evaporation Rate (Butyl Acetate = 1):	Not determined	VOC:	49.5%
Flammability (solid, gas):	Not applicable	Percent Volatile:	78%
Flammable Limits:	LEL 0.7% UEL 7.0% (Concentrate)	Saturated Vapor Concentration:	Not determined
Vapor Pressure:	724 kPa @ 21°C (69.8°F)	Release of invisible flammable vapors and gases:	Yes
Vapor Density (air = 1):	>1	Aerosol Protection Level (NFPA 30B):	3
Relative Density (Water = 1):	Not determined	Solubility:	Insoluble in water

10 – Stability and Reactivity

Reactivity: Non-reactive

Chemical Stability: Stable under normal storage conditions.

Possibility of Hazardous Reactions: Will not occur.

Conditions to Avoid: Avoid extreme heat, flames and other sources of ignition. Avoid physical damage to aerosol can.

Incompatible Materials: Strong oxidizers.

Hazardous Decomposition Products: Carbon monoxide and carbon dioxide.

11 – Toxicological Information

Health Hazards:

Ingestion: Swallowing is an unlikely route of exposure for an aerosol product. Swallowing large amounts may produce gastrointestinal irritation, nausea, vomiting and diarrhea. This product is an aspiration hazard. If swallowed, can enter the lungs and may cause chemical pneumonitis, severe lung damage and death.

Eye Contact: Liquid sprayed into eyes may cause irritation. May cause redness, stinging, swelling, and tearing.

Skin Contact: May produce mild irritation. Prolonged and/or repeated contact may cause defatting with possible dermatitis.

Inhalation: Mist or vapor can irritate the throat and lungs. High concentrations may cause nasal and respiratory irritation and central nervous system effects such as headache, dizziness and nausea. Intentional abuse may be harmful or fatal.

Chronic Exposure: None known.

Medical Conditions Aggravated by Exposure: Preexisting eye, skin and respiratory conditions may be aggravated by exposure.

Acute Toxicity Values:

Naphtha (petroleum), hydrodesulfurized heavy: Oral rat LD50- >5000 mg/kg; Skin rabbit LD50- >3160 mg/kg.

Distillates, Hydrotreated Heavy Paraffinic: Oral rat LD50->15 gm/kg

Non-Hazardous Ingredients: No toxicity data available

1, 2, 4-Trimethyl benzene: Oral rat LD50 3400-6000 mg/kg; Skin rabbit LD50 - >3160 mg/kg

1, 3, 5-Trimethyl benzene: Inhalation rat LC50- 24000 mg/m³/4hr
Xylene, Mixed Isomers: Oral rat LD50 – 4300 mg/kg; Inhalation rat LC50 – 6350 ppm/4hr; Skin rabbit LD50- 1700 mg/kg
Surfactant: Oral rat LD50->3000 mg/kg

Skin Corrosion/Irritation: No data available for mixture. Based on the ingredients, 1, 2, 4-Trimethyl benzene and Xylene, this product is classified as a skin irritant.

Serious Eye Damage/Irritation: No data available for mixture. Based on the ingredients, 1, 2, 4-Trimethyl benzene and Surfactant, this product is classified as an eye irritant.

Respiratory or Skin Sensitization: This product is not expected to cause sensitization.

Germ Cell Mutagenicity: None of the components have been found to be mutagenic.

Carcinogenicity: None of the components are listed as a carcinogen or suspected carcinogen by IARC, NTP, ACGIH, US OSHA or the EU CLP.

Reproductive Toxicity: None of the components are known to cause adverse reproductive effects.

Specific Target Organ Toxicity:

Single Exposure: No data available.

Repeated Exposure: No data available.

Aspiration Hazard: No data available. Based on the ingredients, this product is expected to present an aspiration hazard and may be harmful if the contents are swallowed.

12 – Ecological Information

Ecotoxicity:

Naphtha (petroleum), hydrodesulfurized heavy: 96 hr LC50 Fathead minnow – 8.2 mg/L; 96 hr LC50 Crangon Crangon – 4.3 mg/L

1, 2, 4-Trimethyl benzene: 96 hr LC50 Fathead minnows – 7.72 mg/L; 48 hr EC50 Daphnia magna – 6.14 mg/L

1, 3, 5-Trimethyl benzene: 96 hr LC50 Goldfish - 12.52 mg/L; 48 hr LC50 Daphnia magna- 6.0 mg/L

Xylene, Mixed Isomers: 96 hr LC50 Goldfish- 36.81 mg/L; 96 hr LC50 Rainbow trout – 13.5 mg/L

This product has been classified as harmful to the aquatic environment with long lasting effects based on the components. Releases to the environment should be avoided.

Persistence and Degradability: No data available.

Bioaccumulative Potential: No data available.

Mobility in Soil: No data available.

Other Adverse Effects: None Known

13 - Disposal Considerations

Safe Handling and Disposal Method: Aerosol containers should not be punctured, compacted in home trash compactors or incinerated.

Disposal of Contaminated Packaging: Empty containers may be disposed of through normal waste management options.

Environmental Regulations: Dispose of all waste product, absorbents, and other materials in accordance with applicable Federal, state and local regulations.

14 – Transportation Information

IMDG Shipping Name: Aerosols

IMDG Hazard Class: 2.1

UN Number: UN1950

Marine Pollutant: No

IATA Shipping Name: Aerosols, Flammable

IATA Hazard Class: 2.1

UN Number: UN1950

ADG Shipping Name: Aerosols

ADG Hazard Class: 2.1

UN Number: UN1950

Hazchem (Emergency Action) Code: 2YE

Special Precautions for User: WD-40 Company does not test aerosol cans to assure that they meet the pressure and other requirements for transport by air. We do not recommend that our aerosol products be transported by air.

15 – Regulatory Information

Montreal Protocol (Ozone Depleting Substances): None present

The Stockholm Convention (Persistent Organic Pollutants): None present

The Rotterdam Convention (Prior Informed Consent): Not applicable

Basel Convention: Not applicable

International Convention for the Prevention of Pollution from Ships (MARPOL): 1, 2, 4-Trimethyl benzene and 1, 3, 5-Trimethyl benzene are listed.

Standard for the Uniform Scheduling of Medicines and Poisons (SUSMP): Not applicable

Australian Inventory of Chemical Substances: All of the components of this product are listed on the AICS inventory.

New Zealand:

HSNO Approval Number: HSR002515

Considered a Hazardous Substance according to the criteria of the New Zealand Hazardous Substances New Organisms legislation. Classified as Dangerous Good for transport purposes.

HSNO Hazard Classes: 2.1.2A, 6.1E, 6.3A, 6.4A, 9.1C, 9.1D

New Zealand Inventory: All the ingredients comply with the HSNO regulations.

16 – Other Information

REVISION DATE: 23 July 2015

SUPERSEDES: 11 July 2014

Prepared By: Industrial Health & Safety Consultants, Inc.

Full Text of GHS Classification and H Phrases from Section 3:

Acute Tox. Cat 4 Acute Toxicity Category 4

Aq. Chronic Cat 2 Aquatic Chronic Toxicity Category 2

Asp. Tox. Cat 1 Aspiration Toxicity Category 1

Eye Dam. Cat 1 Eye Damage Category 1

Eye Irrit. Cat 2 Eye Irritant Category 2

Flam. Liq. Cat 3 Flammable Liquid Category 3

Skin Irrit. Cat 2 Skin Irritant Category 2

STOT SE Cat 3 Specific Target Organ Toxicity Single Exposure Category 3

H226 Flammable liquid and vapor.

H304 May be fatal if swallowed and enters airways.

H312 Harmful in contact with skin.

H315 Causes skin irritation.

H318 Causes serious eye damage.

H319 Causes serious eye irritation.

H332 Harmful if inhaled.

