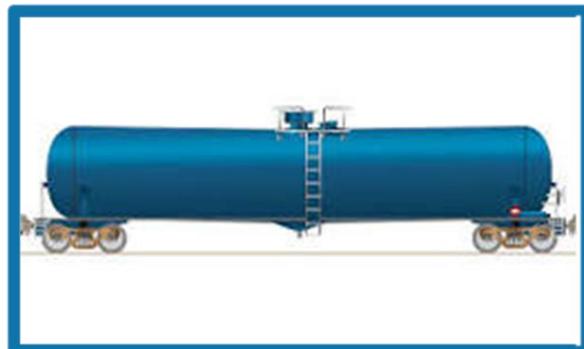


## Offer Sheet

Product	Dimethyl Ether
Quantity	96,000 gal. in pressurized rail car
Net weight	~500,000 lbs.
Condition	Virgin
Availability	One time
Location	Santa Barbara, CA
Date	3/2/26
COA & SDS	Attached below



**Brian Svrusis**

Solvent Systems International  
575 Bennett Road  
Elk Grove Village, IL 60007  
847-323-6718 call or text  
Click here for: [Surplus Inventory](#)  
[Solvent-Systems.com](http://Solvent-Systems.com)

**Dimethyl Ether (DME)** is a **volatile oxygenated hydrocarbon (ether)** used primarily as a **propellant, fuel, and chemical intermediate**. It is valued for its clean combustion, high vapor pressure, and good solvency. Below are the principal commercial uses relevant to industrial and resale markets.

---

### Chemical profile

- Formula: C<sub>2</sub>H<sub>6</sub>O
- CAS: 115-10-6
- Physical state: liquefied gas under pressure
- Boiling point: -24.8 °C
- Vapor pressure: high (similar handling to LPG)
- Polarity: moderately polar ether

**Positioning:** between LPG and light oxygenated solvents.

---

### Major commercial uses

#### 1. Aerosol propellant (largest global volume)

##### Applications

- Personal care sprays (hair spray, deodorant)
- Household aerosols
- Technical sprays (lubricants, cleaners)
- Paint sprays

##### Why formulators use DME

- Excellent spray atomization
- Water miscibility (unique vs propane/butane)
- Lower VOC profile in some jurisdictions
- Good solvency for resins and actives

**Market reality:** This is the single biggest commercial outlet.

---

#### 2. LPG blending and clean fuel

DME is increasingly used as a **clean-burning fuel substitute**.

##### Applications

- LPG blending
- Residential cooking fuel (Asia focus)
- Diesel substitute fuel
- Power generation fuel

##### Advantages

- Soot-free combustion
- No C-C bonds → low particulate
- High cetane (~55-60)
- Can be produced from methanol or syngas

**Growth area:** particularly in Asia and emerging energy markets.

---

#### 3. Chemical intermediate

DME serves as a **feedstock or intermediate** in several syntheses.

##### Used to produce

- Dimethyl sulfate
- Acetic acid derivatives
- Olefins (via MTO routes in some processes)
- Specialty oxygenates

Volume here is smaller than propellant/fuel but strategically important.

---

#### 4. Extraction and specialty solvent applications

Because of its polarity and volatility, DME is used in niche extraction.

##### Examples

- Specialty extractions
- Pharmaceutical processing (limited)
- Precision cleaning blends

This is a **smaller but high-value niche**.

---

#### 5. Foam blowing and specialty formulations (limited)

Occasionally used in:

- Foam systems
  - specialty aerosol foams
  - niche polymer processing
- 

Most likely secondary buyers:

1. Aerosol contract fillers
2. Technical spray manufacturers
3. LPG blenders (if spec allows)
4. Industrial gas distributors
5. Chemical intermediates producers



845 15<sup>th</sup> Street, Suite 103 #49216  
San Diego, CA 92101 USA 1.619.255.9361

## Certificate of Analysis Renewable Dimethyl Ether

Date:	09/26/2023			
Lot:	D-400			
		Specifications		
Parameters	Units	Results	Method	
Renewable Dimethyl Ether	mass %	>99.5	ISO17196	
Methanol	ppm	424	ISO17196	
Water	mass %	<0.02	ISO17196	
Methyl Formate	ppm	45	ISO17196	
Quality Control Supervisor:		<i>R. Allan Morrison, Jr.</i> R. Allan Morrison, Jr. (Oct 12, 2023 21:14 PDT)		

# 2023-09-26 Lot D-400 DME COA

Final Audit Report

2023-10-13

Created:	2023-10-13
By:	Allan Morrison (allan_morrison@yahoo.com)
Status:	Signed
Transaction ID:	CBJCHBCAABAATLbrBVK_gDFigFUc3euDQOnKVXfiT9-I

## "2023-09-26 Lot D-400 DME COA" History

-  Document created by Allan Morrison (allan\_morrison@yahoo.com)  
2023-10-13 - 4:12:52 AM GMT
-  Document emailed to amt4info@gmail.com for signature  
2023-10-13 - 4:13:27 AM GMT
-  Email viewed by amt4info@gmail.com  
2023-10-13 - 4:13:51 AM GMT
-  Signer amt4info@gmail.com entered name at signing as R. Allan Morrison, Jr.  
2023-10-13 - 4:14:43 AM GMT
-  Document e-signed by R. Allan Morrison, Jr. (amt4info@gmail.com)  
Signature Date: 2023-10-13 - 4:14:45 AM GMT - Time Source: server
-  Agreement completed.  
2023-10-13 - 4:14:45 AM GMT



Adobe Acrobat Sign

SDS Revision: 1.2

## 1. PRODUCT & COMPANY IDENTIFICATION

1.1	Product Name:	<b>DIMETHYL ETHER</b>
1.2	Chemical Name:	Dimethyl Ether
1.3	Synonyms:	Methyl Ether
1.4	Trade Names:	Dimethyl Ether
1.5	Product Use:	Fuel
1.6	Distributor's Name:	Oberon Fuels
1.7	Distributor's Address:	2445 Fifth Avenue, Suite 200, San Diego, CA 92101
1.8	Emergency Phone:	<b>CHEMTREC: +1 (703) 527-3887 / +1 (800) 424-9300 (CCN 697087)</b>
1.9	Business Phone / Fax:	+1 (619) 255-9361

## 2. HAZARDS IDENTIFICATION

2.1	Hazard Identification:	This product is classified as a hazardous substance and as dangerous goods according to the classification criteria of [NOHSC: 1088 (2004)] and ADG Code (Australia). <b>DANGER! EXTREMELY FLAMMABLE GAS. CONTAINS GAS UNDER PRESSURE; MAY EXPLODE IF HEATED.</b> Hazard Statements (H): H220 – Extremely flammable gas. H280 – Contains gas under pressure; may explode if heated. Precautionary Statements (P): P210 – Keep away from heat/sparks/open flames/hot surfaces – No Smoking. P410 + P403 – Protect from sunlight. Store in a well-ventilated place.	
2.2	Effects of Exposure:	<u>Ingestion:</u> Ingestion of the gas is unlikely. <u>Eyes:</u> Irritation, frostbite, swelling. <u>Skin:</u> Irritation and frostbite at the site of contact. <u>Inhalation:</u> Respiratory tract irritation, headache, drowsiness, dizziness, loss of coordination, blurred visions, unconsciousness, central nervous system depression.	
2.3	Symptoms of Overexposure:	<u>Ingestion:</u> Ingestion of the gas is unlikely. <u>Eyes:</u> Irritation, frostbite, swelling, redness. <u>Skin:</u> Irritation and frostbite at the site of contact. <u>Inhalation:</u> Irritation, cough, difficulty breathing, headache, drowsiness, dizziness, loss of coordination, blurred vision, and unconsciousness.	
2.4	Acute Health Effects:	Contact with rapidly expanding gas may cause burns or frostbite. Acts as a simple asphyxiant.	
2.5	Chronic Health Effects:	NA	
2.6	Target Organs:	Eyes, skin, respiratory system.	

NA = Not Available; ND = Not Determined; NE = Not Established; NF = Not Found; C = Ceiling Limit; See Section 16 for Additional Definitions of Terms Used  
 NOTE: All WHMIS required information is included. It is located in appropriate sections based on the ANSI Z400.1-2010 format.

## 3. COMPOSITION & INGREDIENT INFORMATION

CHEMICAL NAME(S)	CAS No.	RTECS No.	EINECS No.	%	EXPOSURE LIMITS IN AIR (mg/m <sup>3</sup> )									OTHER
					ACGIH		NOHSC			OSHA				
					TLV	STEL	ppm			ppm				
DIMETHYL ETHER	115-10-6	PM4780000	204-065-8	60-100	NA	NA	NF	NF	NF	NA	NA	NA		
Flammable Gas 1; Gases under Pressure (Liquefied Gas); H220, H280														

## 4. FIRST AID MEASURES

4.1	First Aid:	<u>Eyes:</u> Check for and remove any contact lenses. Immediately flush eyes with plenty of water for at least 15 minutes, occasionally lifting the upper and lower eyelids. Get medical attention immediately. <u>Skin:</u> In case of contact, immediately flush skin with plenty of water for at least 15 minutes while removing contaminated clothing and shoes. To avoid the risk of static discharges and gas ignition, soak contaminated clothing thoroughly with water before removing it. Wash clothing before reuse. Clean shoes thoroughly before reuse. Get medical attention immediately. <u>Frostbite:</u> Try to warm up the frozen tissues and seek medical attention. <u>Inhalation:</u> Move exposed person to fresh air. If not breathing, if breathing is irregular or if respiratory arrest occurs, provide artificial respiration or oxygen by trained personnel. Loosen tight clothing such as a collar, tie, belt or waistband. Get medical attention immediately. <u>Ingestion:</u> See inhalation (above).											
4.2	Medical Conditions Aggravated by Exposure:	Pre-existing disorders involving any target organs mentioned in this Safety Data Sheet as being at risk may be aggravated by over-exposure to this product.	<table border="1" style="width: 100%; border-collapse: collapse;"> <tr> <td style="background-color: #0000FF; color: white;"><b>HEALTH</b></td> <td style="text-align: center;"><b>1</b></td> </tr> <tr> <td style="background-color: #FF0000; color: white;"><b>FLAMMABILITY</b></td> <td style="text-align: center;"><b>4</b></td> </tr> <tr> <td style="background-color: #FFA500; color: white;"><b>PHYSICAL HAZARDS</b></td> <td style="text-align: center;"><b>1</b></td> </tr> <tr> <td style="background-color: #000000; color: white;"><b>PROTECTIVE EQUIPMENT</b></td> <td style="text-align: center;"><b>C</b></td> </tr> <tr> <td><b>EYES</b></td> <td><b>SKIN</b></td> </tr> </table>	<b>HEALTH</b>	<b>1</b>	<b>FLAMMABILITY</b>	<b>4</b>	<b>PHYSICAL HAZARDS</b>	<b>1</b>	<b>PROTECTIVE EQUIPMENT</b>	<b>C</b>	<b>EYES</b>	<b>SKIN</b>
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<b>PHYSICAL HAZARDS</b>	<b>1</b>												
<b>PROTECTIVE EQUIPMENT</b>	<b>C</b>												
<b>EYES</b>	<b>SKIN</b>												

## 5. FIREFIGHTING MEASURES

5.1	Fire & Explosion Hazards:	Flammable gas. May cause flash fire. Contents under pressure. In a fire or if heated, a pressure increase will occur and the container may burst, with the risk of a subsequent explosion. Keep away from heat, sparks and flame. Do not puncture or incinerate container. Use only with adequate ventilation. Keep container closed.	
5.2	Extinguishing Methods:	Use water spray (fog), alcohol-resistant foam, dry chemical or carbon dioxide.	
5.3	Firefighting Procedures:	In case of fire, allow gas to burn if flow cannot be shut off immediately. Apply water from a safe distance to cool container and protect surrounding area. If involved in fire, shut off flow immediately if it can be done without risk. Fire-fighters should wear appropriate protective equipment and self-contained breathing apparatus (SCBA) with a full face-piece operated in positive pressure mode.	

## 6. ACCIDENTAL RELEASE MEASURES

6.1	Spills:	<p>Before cleaning any spill or leak, individuals involved in spill cleanup must wear appropriate Personal Protective Equipment. Avoid breathing vapors, mist or gas. Evacuate personnel to safe area. Beware of vapors accumulating to form explosive concentrations. Vapors can accumulate in low areas.</p> <p>Wear appropriate personal protective equipment (e.g., goggles, gloves). Deny entry to all unprotected individuals. Maximize ventilation (open doors and windows) and secure all sources of ignition. Immediately contact emergency personnel. Stop leak if without risk. Use spark-proof tools and explosion-proof equipment.</p> <p>Use ONLY non-sparking tools for recovery and cleanup. Dike and contain spill with inert material (e.g., sand or earth) if safe to do so. Transfer absorbent to containers for recovery or disposal and solid diking material to separate containers for proper disposal. Remove contaminated clothing promptly and wash affected skin areas with soap and water. Keep spills and cleaning runoffs out of municipal sewers and open bodies of water and do not let product enter drains if safe to do so.</p>
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## 7. HANDLING & STORAGE INFORMATION

7.1	Work & Hygiene Practices:	Use only with adequate ventilation. Use explosion-proof electrical (ventilating, lighting and material handling) equipment. High pressure gas. Do not puncture or incinerate container.
7.2	Storage & Handling:	Use equipment rated for cylinder pressure. Close valve after each use and when empty. Keep container closed. Keep away from heat, sparks and flame. To avoid fire, eliminate ignition sources. Protect cylinders from physical damage; do not drag, roll, slide, or drop. Use a suitable hand truck for cylinder movement. Keep container in a cool, well-ventilated area. Keep container tightly closed and sealed until ready for use. Avoid all possible sources of ignition (spark or flame). Segregate from oxidizing materials. Cylinders should be stored upright, with valve protection cap in place, and firmly secured to prevent falling or being knocked over.
7.3	Special Precautions:	Cylinder temperatures should not exceed 52 °C (125 °F).

## 8. EXPOSURE CONTROLS & PERSONAL PROTECTION

8.1	Ventilation & 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.	
8.2	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.	
8.3	Eye 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 or dusts.	
8.4	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.	
8.5	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.	

## 9. PHYSICAL & CHEMICAL PROPERTIES

9.1	Appearance:	Liquefied gas
9.2	Odor:	Ethereal odor
9.3	Odor Threshold:	NA
9.4	pH:	NA
9.5	Melting Point/Freezing Point:	-141 °C (-221.8 °F)
9.6	Initial Boiling Point/Boiling Range:	-24.8 °C (-12.4 °F)
9.7	Flashpoint:	-41 °C (-41.8 °F)
9.8	Upper/Lower Flammability Limits:	27% / 3.4%
9.9	Vapor Pressure:	533.3 kPa (77.3 psig) at 20 °C (68 °F)
9.10	Vapor Density:	1.59 (Air = 1.0)
9.11	Relative Density:	NA
9.12	Solubility:	353 g/l at 24 °C (75.2 °F)
9.13	Partition Coefficient (log P <sub>ow</sub> ):	NA
9.14	Autoignition Temperature:	226 °C (438.8 °F) at 1.013 – 1.027 hPa
9.15	Decomposition Temperature:	NA
9.16	Viscosity:	NA
9.17	Other Information:	NA

## 10. STABILITY & REACTIVITY

10.1	Stability:	Stable under recommended storage conditions.
10.2	Hazardous Decomposition Products:	Under normal conditions of storage and use, hazardous decomposition products should not be produced.
10.3	Hazardous Polymerization:	Under normal conditions of storage and use, hazardous polymerization will not occur.
10.4	Conditions to Avoid:	Heat, flames and sparks. Extremes of temperature and direct sunlight.
10.5	Incompatible Substances:	Highly reactive or incompatible with the following materials: oxidizing materials, strong acids and metals.

## 11. TOXICOLOGICAL INFORMATION

11.1	Routes of Entry:	Inhalation: YES	Absorption: NO	Ingestion: NO
11.2	Toxicity Data:	LC <sub>50</sub> (Inh-4h, rat): 309 g/m <sup>3</sup> ; LC <sub>50</sub> (Inh-1h, rat): 82000 ppm		
11.3	Acute Toxicity:	See section 2.4.		
11.4	Chronic Toxicity:	Causes damage to the following organs: skin, eyes. See also section 2.5.		
11.5	Suspected Carcinogen:	No known significant effects or critical hazards.		
11.6	Reproductive Toxicity:	No known significant effects or critical hazards.		
	Mutagenicity:	No known significant effects or critical hazards.		
	Embryotoxicity:	No known significant effects or critical hazards.		
	Teratogenicity:	No known significant effects or critical hazards.		
	Reproductive Toxicity:	No known significant effects or critical hazards.		
11.7	Irritancy of Product:	NE		
11.8	Biological Exposure Indices:	NA		
11.9	Physician Recommendations:	Treat symptomatically. Possible frostbite to areas of skin exposed to liquefied gas.		

## 12. ECOLOGICAL INFORMATION

12.1	Environmental Stability:	Products of degradation: carbon oxides (CO, CO <sub>2</sub> ) and water.
12.2	Effects on Plants & Animals:	No known significant effects or critical hazards.
12.3	Effects on Aquatic Life:	No known significant effects or critical hazards.

## 13. DISPOSAL CONSIDERATIONS

13.1	Waste Disposal:	Burn in a chemical incinerator equipped with an afterburner and scrubber but exBurn in a chemical incinerator equipped with an afterburner and scrubber but ext extra care in igniting as this material is highly flammable. Offer surplus and non-recyclable solutions to a licensed disposal company.
13.2	Special Considerations:	

## 14. TRANSPORTATION INFORMATION

The basic description (ID Number, proper shipping name, hazard class & division, packing group) is shown for each mode of transportation. Additional descriptive information may be required by 49 CFR, IATA/ICAO, IMDG and the CTDGR.

14.1	49 CFR (GND):	UN1033, DIMETHYL ETHER, 2.1 (LTD QTY ≤ 0.12 L)
14.2	IATA (AIR):	UN1033, DIMETHYL ETHER, 2.1 – forbidden aboard passenger aircraft
14.3	IMDG (OCN):	UN1033, DIMETHYL ETHER, 2.1 (LTD QTY ≤ 0.12 L)
14.4	TDGR (Canadian GND):	UN1033, DIMETHYL ETHER, 2.1 (LTD QTY ≤ 0.12 L)
14.5	ADR/RID (EU):	UN1033, DIMETHYL ETHER, 2.1 (LTD QTY ≤ 0.12 L)
14.6	SCT (MEXICO):	UN1033, ETER METILICO, 2.1 (CANTIDAD LIMITADA ≤ 0.12 L)



Prepared to OSHA, ACC, ANSI, NOHSC, WHMIS, 2001/58 & 1272/2008/EC Standards	SDS Revision: 1.2	SDS Revision Date: 6/2/2016
14.7 ADGR (AUS):	UN1033, DIMETHYL ETHER, 2.1 (LTD QTY ≤ 0.12 L)	

## 15. REGULATORY INFORMATION

15.1	SARA Reporting Requirements:	None of the components in this mixture are subject to SARA Title III, Section 313 reporting requirements.
15.2	SARA Threshold Planning Quantity:	NA
15.3	TSCA Inventory Status:	The components of this product are listed on the TSCA Inventory.
15.4	CERCLA Reportable Quantity (RQ):	NA
15.5	Other Federal Requirements:	CAA 112(r) TQ: 10,000 lbs (4540 kg)
15.6	Other Canadian Regulations:	This product has been classified according to the hazard criteria of the CPR and the MSDS contains all of the information required by the CPR. The components of this product are listed on the DSL/NDSL. None of the components of this product are listed on the Priorities Substances List. WHMIS Class A (Compressed Gas), Class B1 (Flammable Gas). 
15.7	State Regulatory Information:	<u>Dimethyl ether</u> is found on the following state criteria lists: Florida Toxic Substances List (FL), Massachusetts Hazardous Substances List (MA), Minnesota Hazardous Substances List (MN), New Jersey Right-to-Know List (NJ) and Pennsylvania Right-to-Know List (PA). No other ingredients in this product, present in a concentration of 1.0% or greater, are listed on any of the following state criteria lists: California Proposition 65 (CA65), Delaware Air Quality Management List (DE), Florida Toxic Substances List (FL), Massachusetts Hazardous Substances List (MA), Michigan Critical Substances List (MI), Minnesota Hazardous Substances List (MN), New Jersey Right-to-Know List (NJ), New York Hazardous Substances List (NY), Pennsylvania Right-to-Know List (PA), Washington Permissible Exposures List (WA), Wisconsin Hazardous Substances List (WI).
15.8	Other Requirements:	The primary components of this product are listed in Annex I of EU Directive 67/548/EEC. <u>Dimethyl Ether</u> : Extremely Flammable (F+). <u>Risk Phrases</u> (R): R12 – Extremely flammable. <u>Safety Phrases</u> (S): S(2)-9-16-33 – Keep out of the reach of children. Keep container in a well-ventilated place. Keep away from sources of ignition – No Smoking. Take precautionary measures against static electricity. 

## 16. OTHER INFORMATION

16.1	Other Information:	<b>DANGER! EXTREMELY FLAMMABLE GAS. CONTAINS GAS UNDER PRESSURE; MAY EXPLODE IF HEATED.</b> Avoid breathing fumes, mist, vapours, spray. Keep out of the reach of children. Keep container in a well-ventilated place. Keep away from sources of ignition – No Smoking. Take precautionary measures against static electricity.	
16.2	Terms & Definitions:	See last page of this Safety Data Sheet.	
16.3	Disclaimer:	This Safety Data Sheet is offered pursuant to OSHA's Hazard Communication Standard, 29 CFR §1910.1200. Other government regulations must be reviewed for applicability to this product. To the best of ShipMate's & Oberon Fuels' knowledge, the information contained herein is reliable and accurate as of this date; however, accuracy, suitability or completeness is not guaranteed and no warranties of any type, either expressed or implied, are provided. The information contained herein relates only to the specific product(s). If this product(s) is combined with other materials, all component properties must be considered. Data may be changed from time to time. Be sure to consult the latest edition.	
16.4	Prepared for:	<b>Oberon Fuels</b> 2445 Fifth Avenue Suite 200 San Diego, CA 92101 Tel: +1 (619) 255-9361 <a href="http://www.oberonfuels.com">http://www.oberonfuels.com</a>	
16.5	Prepared by:	<b>ShipMate, Inc.</b> P.O. Box 787 Sisters, Oregon 97759-0787 USA Tel: +1 (310) 370-3600 Fax: +1 (310) 370-5700 <a href="http://www.shipmate.com">http://www.shipmate.com</a>	

## DEFINITION OF TERMS

A large number of abbreviations and acronyms appear on a SDS. Some of these that are commonly used include the following:

### GENERAL INFORMATION:

CAS No.	Chemical Abstract Service Number
---------	----------------------------------

### EXPOSURE LIMITS IN AIR:

ACGIH	American Conference on Governmental Industrial Hygienists
TLV	Threshold Limit Value
OSHA	U.S. Occupational Safety and Health Administration
PEL	Permissible Exposure Limit
IDLH	Immediately Dangerous to Life and Health

### FIRST AID MEASURES:

CPR	Cardiopulmonary resuscitation - method in which a person whose heart has stopped receives manual chest compressions and breathing to circulate blood and provide oxygen to the body.
-----	--

<b>G</b>	
<b>H</b>	
<b>I</b>	
<b>J</b>	
<b>K</b>	
<b>X</b>	Consult your supervisor or SOPs for special handling directions.

### HAZARDOUS MATERIALS IDENTIFICATION SYSTEM: HMIS

#### HEALTH, FLAMMABILITY & REACTIVITY RATINGS:

0	Minimal Hazard
1	Slight Hazard
2	Moderate Hazard
3	Severe Hazard
4	Extreme Hazard

HEALTH
FLAMMABILITY
PHYSICAL HAZARDS
PERSONAL PROTECTION

### PERSONAL PROTECTION RATINGS:

NA	Not Available
NR	No Results
NE	Not Established
ND	Not Determined
ML	Maximum Limit
SCBA	Self-Contained Breathing Apparatus
Flam.	Flammable
Liq.	Liquid
Sol.	Solid
Tox.	Toxicity
Irrit.	Irritation
Sens.	Sensitization
Ox.	Oxidizing
Corr.	Corrosion
Repr.	Reproductive (Harm)
Asp.	Aspiration
Inh.	Inhalation
Dam.	Damage
STOT SE	Specific Target Organ Toxicity – Single Exposure
STOT RE	Specific Target Organ Toxicity – Repeated Exposure

### OTHER STANDARD ABBREVIATIONS:

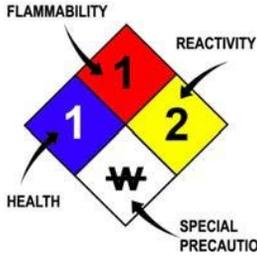
**NATIONAL FIRE PROTECTION ASSOCIATION: NFPA**

**FLAMMABILITY LIMITS IN AIR:**

<b>Autoignition Temperature</b>	Minimum temperature required to initiate combustion in air with no other source of ignition
<b>LEL</b>	Lower Explosive Limit - lowest percent of vapor in air, by volume, that will explode or ignite in the presence of an ignition source
<b>UEL</b>	Upper Explosive Limit - highest percent of vapor in air, by volume, that will explode or ignite in the presence of an ignition source

**HAZARD RATINGS:**

0	Minimal Hazard
1	Slight Hazard
2	Moderate Hazard
3	Severe Hazard
4	Extreme Hazard
<b>ACD</b>	Acidic
<b>ALK</b>	Alkaline
<b>COR</b>	Corrosive
<b>W</b>	Use No Water
<b>OX</b>	Oxidizer
<b>TREFOIL</b>	Radioactive



**TOXICOLOGICAL INFORMATION:**

<b>LD<sub>50</sub></b>	Lethal Dose (solids & liquids) which kills 50% of the exposed animals
<b>LC<sub>50</sub></b>	Lethal concentration (gases) which kills 50% of the exposed animal

<b>ppm</b>	Concentration expressed in parts of material per million parts
<b>TD<sub>10</sub></b>	Lowest dose to cause a symptom
<b>TCLo</b>	Lowest concentration to cause a symptom
<b>TD<sub>10</sub>, LD<sub>10</sub>, &amp; LD<sub>01</sub> or TC, TC<sub>01</sub>, LC<sub>10</sub>, &amp; LC<sub>01</sub></b>	Lowest dose (or concentration) to cause lethal or toxic effects
<b>IARC</b>	International Agency for Research on Cancer
<b>NTP</b>	National Toxicology Program
<b>RTECS</b>	Registry of Toxic Effects of Chemical Substances
<b>BCF</b>	Bioconcentration Factor
<b>TL<sub>m</sub></b>	Median threshold limit
<b>log Kow or log Koc</b>	Coefficient of Oil/Water Distribution

**REGULATORY INFORMATION:**

<b>WHMIS</b>	Canadian Workplace Hazardous Material Information System
<b>DOT</b>	U.S. Department of Transportation
<b>TC</b>	Transport Canada
<b>EPA</b>	U.S. Environmental Protection Agency
<b>DSL</b>	Canadian Domestic Substance List
<b>NDSL</b>	Canadian Non-Domestic Substance List
<b>PSL</b>	Canadian Priority Substances List
<b>TSCA</b>	U.S. Toxic Substance Control Act
<b>EU</b>	European Union (European Union Directive 67/548/EEC)
<b>WGK</b>	Wassergefährdungsklassen (German Water Hazard Class)

**WORKPLACE HAZARDOUS MATERIALS IDENTIFICATION (WHMIS) SYSTEM:**

Class A	Class B	Class C	Class D1	Class D2	Class D3	Class E	Class F
Compressed	Flammable	Oxidizing	Toxic	Irritation	Infectious	Corrosive	Reactive

**EC (67/548/EEC) INFORMATION:**

C	E	F	N	O	T	Xi	Xn
Corrosive	Explosive	Flammable	Harmful	Oxidizing	Toxic	Irritant	Harmful

**CLP/GHS (1272/2008/EC) PICTOGRAMS:**

GHS01	GHS02	GHS03	GHS04	GHS05	GHS06	GHS07	GHS08	GHS09
Explosive	Flammable	Oxidizer	Pressurized	Corrosive	Toxic	Harmful Irritating	Health Hazard	Environment