

Prepared to OSHA, ACC, ANSI, NOHSC, WHMIS, GHS &amp; 1272/2008/EC Standards



SDS Revision: 4.2

SDS Revision Date: 9/18/2018

## 1. PRODUCT &amp; COMPANY IDENTIFICATION

1.1	Product Name:	<b>OPI ABSOLUTE LIQUID MONOMER</b>
1.2	Chemical Name:	Methacrylate Solution
1.3	Synonyms:	NA
1.4	Trade Names:	NA
1.5	Product Use:	Professional Use Only
1.6	Distributor's Name:	OPI Products, Inc.
1.7	Distributor's Address:	4500 Park Granada Blvd, Calabasas, CA 91302 USA
1.8	Emergency Phone:	<b>CHEMTREC: +1 (703) 527-3887 / +1 (800) 424-9300 (CCN 16377)</b>
1.9	Business Phone / Fax:	Tel: +1 (818) 999-5112

## 2. HAZARDS IDENTIFICATION

2.1	Hazard Identification:	<p>This product is classified as a hazardous substance and as dangerous goods according to the classification criteria of NOHSC: 1008 (2004) and ADG Code (Australia).</p> <p><b>DANGER! HIGHLY FLAMMABLE LIQUID AND VAPOR. MAY CAUSE AN ALLERGIC SKIN REACTION. CAUSES EYE IRRITATION.</b></p> <p>Classification: Flam. Liq. 2; Skin Sens. 1A; Eye Irrit. 2B</p>	
2.2	Label Elements:	<p><u>Hazard Statements</u> (H): H225 – Highly flammable liquid and vapor. H317 – May cause an allergic skin reaction. H320 – Causes eye irritation.</p> <p><u>Precautionary Statements</u> (P): P210 – Keep away from heat/sparks/open flame/hot surfaces – No Smoking. P233 – Keep container tightly closed. P243 – Take precautionary measures against static discharge. P261 – Avoid breathing fume/mist/vapors/spray. P264 – Wash exposed skin areas thoroughly with soap and water after handling. P272 – Contaminated work clothing should not be allowed out of the workplace. P280 – Wear protective gloves/eye protection/face protection. P302+P352 – IF ON SKIN: Wash with soap and water. P305+P351+P338 – IF IN EYES: Rinse continuously with water for several minutes. Remove contact lenses if present and easy to do – continue rinsing. P333+P313 – If skin irritation or a rash occurs – Get medical advice/attention. P321 – For specific first aid treatment (See Section 4 of this Safety Data Sheet). P363 – Wash contaminated clothing before reuse. P370+P378 – In case of fire, CO<sub>2</sub>, Halon (if permitted), dry chemical, or foam for extinction. P403+P235 – Store in a well-ventilated place. Keep cool. P501 – Dispose of contents/container to a licensed treatment, storage or disposal facility (TSDf).</p>	 
2.3	Other Warnings:	<b>KEEP OUT OF REACH OF CHILDREN.</b>	

## 3. COMPOSITION &amp; INGREDIENT INFORMATION

CHEMICAL NAME(S)	CAS No.	RTECS No.	EINECS No.	%	EXPOSURE LIMITS IN AIR (mg/m <sup>3</sup> )									OTHER
					ACGIH		NOHSC			OSHA				
					ppm		ppm			ppm				
					TLV	STEL	ES-TWA	ES-STEL	ES-PEAK	PEL	STEL	IDLH		
ETHYL METHACRYLATE	97-63-2	OZ4550000	202-597-5	60-100	(15)	NA	NF	NF	NF	(10)	NA	NA		
	Flam. Liq. 2; Skin Irrit. 2; Skin Sens. 1; Eye Irrit. 2; STOT SE 3, H225, H315, H317, H319, H335													
HYDROXYPROPYL METHACRYLATE	27813-02-1	UD3442500	248-666-3	7-13	NA	NA	NF	NF	NF	NA	NA	NA		
	Skin Sens. 1; Eye Irrit. 2; H317, H319													
GLYCOL HEMA-METHACRYLATE	97-90-5	OZ4400000	202-617-2	1-5	NA	NA	NF	NF	NF	NA	NA	NA		
	STOT SE 3; Skin Sens. 1; H335, H317													
HYDROXYETHYL METHYLTOLYLAMINE	2842-44-6	NA	220-638-5	1-5	NA	NA	NF	NF	NF	NA	NA	NA		
DROMETRIZOLE	2440-22-4	GO6860000	219-470-5	0.1-1	NA	NA	NF	NF	NF	NA	NA	NA		
BUTYLATED HYDROXYTOLUENE (BHT)	128-37-0	GO7875000	204-881-4	0-0.1	NA	NA	NF	10	NF	NA	NA	NA		
	Acute Aq. Tox. 1; Chronic Aq. Tox. 1; H400, H410													
CI 60725 (VIOLET 2)	81-48-1	CB7700000	201-353-5	0-0.1	NA	NA	NF	NF	NF	NA	NA	NA		


## 4. FIRST AID MEASURES

4.1	First Aid:	<p><u>Ingestion:</u> If ingested, do not induce vomiting! Contact the nearest Poison Control Center or local emergency number. Provide an estimate of the time at which the material was ingested and the amount of the substance that was swallowed.</p> <p><u>Eyes:</u> If product gets in the eyes, flush with copious amounts of lukewarm water for at least 15 minutes. Open and close eyelid(s) to ensure thorough irrigation. If problem persists, seek immediate medical attention.</p> <p><u>Skin:</u> If irritation occurs &amp; product is on the skin, rinse thoroughly with lukewarm water, followed by a thorough washing of the affected area with plenty of soap and water. Do not wear contaminated clothing until after it has been properly cleaned. If irritation, redness or swelling persists, consult a physician immediately.</p> <p><u>Inhalation:</u> Remove victim to fresh air at once. If breathing stops, perform artificial respiration at once. Seek immediate medical attention.</p>
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## 4. FIRST AID MEASURES

4.2	Effects of Exposure:	<p><u>Ingestion:</u> If product is swallowed, may cause nausea, vomiting and/or diarrhea and central nervous system depression.</p> <p><u>Eyes:</u> Irritating to the eyes. Symptoms of overexposure may include redness, itching, irritation and watering.</p> <p><u>Skin:</u> May be irritating to skin in some sensitive individuals, especially after prolonged and/or repeated contact.</p> <p><u>Inhalation:</u> Vapors of this product may be slightly irritating to the nose, throat and other tissues of the respiratory system. Symptoms of overexposure can include coughing, wheezing, nasal congestion, and difficulty breathing. Inhalation of vapors exceeding the levels listed in Section 3 (Composition and Ingredient Information) can cause central nervous system depression (e.g., drowsiness, dizziness, headaches, nausea).</p>															
4.3	Symptoms of Overexposure:	Symptoms of skin overexposure may include redness, itching, and irritation of affected areas. Overexposure in eyes may cause redness, itching and watering. The product can cause allergic skin reactions (e.g., rashes, welts, dermatitis) upon prolonged or repeated exposure.															
4.4	Acute Health Effects:	Moderate irritation to eyes and skin near affected areas. Additionally, high concentrations of vapors can cause drowsiness, dizziness, headaches and nausea.															
4.5	Chronic Health Effects:	None known															
4.6	Target Organs:	Eyes, Skin, Respiratory System.															
4.7	Medical Conditions Aggravated by Exposure:	Pre-existing dermatitis, other skin conditions, and disorders of the target organs (eyes, skin, and respiratory system).															
		<table><tr><td colspan="2">HEALTH</td><td>2</td></tr><tr><td colspan="2">FLAMMABILITY</td><td>3</td></tr><tr><td colspan="2">PHYSICAL HAZARDS</td><td>2</td></tr><tr><td colspan="2">PROTECTIVE EQUIPMENT</td><td>B</td></tr><tr><td>EYES</td><td>SKIN</td><td></td></tr></table>	HEALTH		2	FLAMMABILITY		3	PHYSICAL HAZARDS		2	PROTECTIVE EQUIPMENT		B	EYES	SKIN	
HEALTH		2															
FLAMMABILITY		3															
PHYSICAL HAZARDS		2															
PROTECTIVE EQUIPMENT		B															
EYES	SKIN																

## 5. FIREFIGHTING MEASURES

5.1	Fire & Explosion Hazards:	<b>DANGER! HIGHLY FLAMMABLE LIQUID AND VAPOR!</b> Keep away from heat, lit cigarettes, sparks & open flame. Keep container closed.	
5.2	Extinguishing Methods:	CO <sub>2</sub> , Halon (if permitted), Dry Chemical, Foam, as authorized.	
5.3	Firefighting Procedures:	<p>This product is a Class IB flammable liquid. When involved in a fire, this product will ignite readily and decompose to produce carbon oxides. Vapors of this product are heavier than air and may travel to a source of ignition and flash back to a leaking or open container.</p> <p>First responders should wear eye protection. Structural firefighters must wear SCBAs and full protective equipment. Use a water spray or fog to reduce or direct vapors. Water may not be effective in actually extinguishing a fire involving this product.</p> <p>HazChem Code: 3(Y)E</p> <p>Hazard Identification Number: 33</p>	

## 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.</p> <p>For <u>small spills</u> (e.g., &lt; 1 gallon (3.8 L)) wear appropriate personal protective equipment (e.g., goggles, gloves). Maximize ventilation (open doors and windows) and secure all sources of ignition. Remove spilled material with absorbent material and place into appropriate closed container(s) for disposal. Dispose of properly in accordance with local, state and federal regulations. Wash all affected areas and outside of container with plenty of warm water and soap. Remove any contaminated clothing and wash thoroughly before reuse.</p> <p>For <u>large spills</u> (e.g., ≥ 1 gallon (3.8 L)), deny entry to all unprotected individuals. Dike and contain spill with inert material (e.g., sand or earth). Use ONLY non-sparking tools for recovery and cleanup. Transfer liquid 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 drains, municipal sewers and open bodies of water.</p>
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## 7. HANDLING &amp; STORAGE INFORMATION

7.1	Work & Hygiene Practices:	Avoid prolonged contact with this material. Avoid breathing the vapors generated by this product. Use in a well-ventilated location (e.g., local exhaust ventilation, fans). Wash exposed skin thoroughly with plenty of soap & water after using this product. If necessary, use a moisturizer after washing. Do not eat, drink, or smoke while handling this product.
7.2	Storage & Handling:	Use and store in a cool, dry, well-ventilated location (e.g., local exhaust ventilation, fans). Keep away from excessive heat, open flames, sparks, and other possible sources of ignition. Keep away from incompatible materials listed in Section 10. Do not store in damaged or unmarked containers or storage devices. Keep containers securely closed when not in use. Open slowly on a level, stable surface. Empty containers may contain residual amounts of this product; therefore, empty containers should be handled with care. As a precaution against exposure to the eyes, nose, throat and face, this product should not be stored higher than waist level. Keep away from children at all times!
7.3	Special Precautions:	Open containers slowly on a stable surface. Keep container tightly closed when not in use. Empty containers may contain residual amounts of this product; therefore, empty containers should be handled with care.

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## 8. EXPOSURE CONTROLS &amp; PERSONAL PROTECTION

8.1	Exposure Limits: ppm (mg/m <sup>3</sup> )	CHEMICAL NAME(S)	ACGIH		NOHSC			OSHA			OTHER
			TLV	STEL	ES-TWA	ES-STEL	ES-PEAK	PEL	STEL	IDLH	
		ETHYL METHACRYLATE	(15)	NA	NF	NF	NF	(10)	NA	NA	
		BUTYLATED HYDROXYTOLUENE (BHT)	NA	NA	NF	10	NF	NA	NA	NA	
8.2	Ventilation & Engineering Controls:	When working with large quantities of product, provide adequate ventilation (e.g., local exhaust ventilation, fans). Ensure that an eyewash station, sink or washbasin is available in case of exposure to eyes.									
8.3	Respiratory Protection:	No special respiratory protection is required under typical circumstances of use or handling. If necessary, use only respiratory protection authorized per U.S. OSHA's requirement in 29 CFR §1910.134, or applicable U.S. state regulations, or the appropriate standards of Canada, its provinces, EU member states, or Australia.									
8.4	Eye Protection:	Depending on the use of this product, splash or safety glasses may be worn. If necessary, refer to U.S. OSHA 29 CFR §1910.133, Canadian standards, or the European Standard EN166.									
8.5	Hand Protection:	<b>AVOID SKIN CONTACT DUE TO SENSITIZING POTENTIAL.</b> If anticipated that prolonged & repeated skin contact will occur during use of this product, wear latex or rubber gloves for routine industrial use. If necessary, refer to U.S. OSHA 29 CFR §1910.138, the appropriate standards of Canada, of the EU member states.									
8.6	Body Protection:	<b>AVOID SKIN CONTACT DUE TO SENSITIZING POTENTIAL.</b> However, no special body protection is required under typical circumstances of use and handling. If necessary, refer to appropriate standards of Canada, the EU member states, or U.S. OSHA.									

## 9. PHYSICAL &amp; CHEMICAL PROPERTIES

9.1	Appearance:	Blue liquid
9.2	Odor:	Mild acrylic odor
9.3	Odor Threshold:	NE
9.4	pH:	NA
9.5	Melting Point/Freezing Point:	NE
9.6	Initial Boiling Point/Boiling Range:	117 °C (243 °F)
9.7	Flashpoint:	21 °C (70 °F)
9.8	Upper/Lower Flammability Limits:	ND
9.9	Vapor Pressure:	NA
9.10	Vapor Density:	Vapor density (Air=1): > 1.0
9.11	Relative Density:	0.918
9.12	Solubility:	Slightly soluble
9.13	Partition Coefficient (log P <sub>ow</sub> ):	NA
9.14	Autoignition Temperature:	ND
9.15	Decomposition Temperature:	NA
9.16	Viscosity:	NE
9.17	Other Information:	NA

## 10. STABILITY &amp; REACTIVITY

10.1	Stability:	Relatively stable under ambient conditions when stored properly.
10.2	Hazardous Decomposition Products:	If exposed to <u>extremely high temperatures</u> , products of thermal decomposition may include irritating vapors and toxic gases (e.g., oxides of carbon & nitrogen).
10.3	Hazardous Polymerization:	May occur, if exposed to extremely high temperatures.
10.4	Conditions to Avoid:	Exposure or contact to extreme temperatures, incompatible chemicals, strong light sources, sparks, flame.
10.5	Incompatible Substances:	Strong oxidizers, peroxides, strong alkalis or acids.

## 11. TOXICOLOGICAL INFORMATION

11.1	Routes of Entry:	Inhalation: YES	Absorption: YES	Ingestion: YES
11.2	Toxicity Data:	This product has not been tested on animals to obtain toxicological data. There are toxicology data for the components of this product, which are found in the scientific literature. This data has not been presented in this document.		
11.3	Acute Toxicity:	See Section 4.4		
11.4	Chronic Toxicity:	See Section 4.5		
11.5	Suspected Carcinogen:	This product contains <u>Butylated Hydroxytoluene (BHT)</u> which is not carcinogenic to humans, but is listed as Group 3 carcinogens by the IARC. <b>WARNING:</b> This product can expose you to chemicals including Dimethyltolylamine, which is known to the State of California to cause cancer. For more information, go to <a href="http://www.P65Warnings.ca.gov">www.P65Warnings.ca.gov</a> .		

**11. TOXICOLOGICAL INFORMATION – cont'd**

11.6	Reproductive Toxicity:	This product is not reported to produce reproductive toxicity in humans.
	Mutagenicity:	This product is not reported to produce mutagenic effects in humans. However, animal mutation data are available for the components of this product.
	Embryotoxicity:	This product is not reported to produce embryotoxic effects in humans.
	Teratogenicity:	This product is not reported to produce teratogenic effects in humans.
	Reproductive Toxicity:	This product is not reported to produce reproductive effects in humans.
11.7	Irritancy of Product:	See Section 4.3
11.8	Biological Exposure Indices:	NE
11.9	Physician Recommendations:	Treat symptomatically.

**12. ECOLOGICAL INFORMATION**








12.1	Environmental Stability:	This product will slowly volatile from soil. Components of this product will slowly decompose into organic compounds.
12.2	Effects on Plants & Animals:	There are no specific data available for this product.
12.3	Effects on Aquatic Life:	There are no specific data available for this product. Releases of large volumes may be harmful or fatal to overexposed aquatic life. Aquatic toxicity data for components of this product are available, but are not presented in this Safety Data Sheet.

**13. DISPOSAL CONSIDERATIONS**

13.1	Waste Disposal:	Waste disposal must be in accordance with appropriate Federal, state, and local regulations.
13.2	Special Considerations:	U.S. EPA Characteristic Waste: D001 (characteristic - ignitable)

**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):	UN2277, ETHYL METHACRYLATE, STABILIZED, 3, II, (LTD QTY, IP VOL ≤ 1.0 L); or CONSUMER COMMODITY, ORM-D – until 01/01/2021	
14.2	IATA (AIR):	UN2277, ETHYL METHACRYLATE, STABILIZED, 3, II, , (LTD QTY, IP VOL ≤ 0.5 L); or ID8000, CONSUMER COMMODITY, 9 (IP VOL ≤ 0.5 L)	
14.3	IMDG (OCN):	UN2277, ETHYL METHACRYLATE, STABILIZED, 3, II, (LTD QTY, IP VOL ≤ 1.0 L)	
14.4	TDGR (Canadian GND):	UN2277, ETHYL METHACRYLATE, STABILIZED, 3, II, (LTD QTY, IP VOL ≤ 1.0 L)	
14.5	ADR/RID (EU):	UN2277, ETHYL METHACRYLATE, STABILIZED, 3, II, (LTD QTY, IP VOL ≤ 1.0 L)	
14.6	SCT (MEXICO):	UN2277, ETIL METACRILATO, STABILIZADO, 3, II, (CANT. LTDA., IP VOL ≤ 1.0 L)	
14.7	ADGR (AUS):	UN2277, ETHYL METHACRYLATE, STABILIZED, 3, II, (LTD QTY, IP VOL ≤ 1.0 L)	

**15. REGULATORY INFORMATION**


15.1	SARA Reporting Requirements:	This product does not contain any substances subject to SARA Title III, Section 313 reporting requirements.
15.2	SARA Threshold Planning Quantity:	There are no specific Threshold Planning Quantities for the components of this product.
15.3	TSCA Inventory Status:	The components of this product are listed on the TSCA Inventory or are otherwise exempt.
15.4	CERCLA Reportable Quantity (RQ):	<u>Ethyl Methacrylate</u> : 454 kg (1,000 lbs)
15.5	Other Federal Requirements:	This product complies with the appropriate sections of the Food and Drug Administration's 21 CFR subchapter G (Cosmetics).
15.6	Other Canadian Regulations:	This product has been classified according to the hazard criteria of the CPR and the Safety Data Sheet contains all of the information required by the CPR. The components of this product are listed on the DSL/NDL. None of the components of this product are listed on the Priorities Substances List. WHMIS B2, D2B (Flammable Liquid, Other Toxic Effects)
15.7	State Regulatory Information:	<p><u>Ethyl Methacrylate</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), Pennsylvania Right-to-Know List (PA), and Wisconsin Hazardous Substances List (WI).</p> <p><u>Glycol Hema-Methacrylate</u> is found on the following state criteria lists: NJ and PA.</p> <p><u>Butylated Hydroxytoluene</u> (BHT) is found on the following state criteria lists: FL, MA, MN, PA, and WA.</p> <p><u>Dimethyltolylamine</u> is found on the following state criteria lists: CA65, NJ and PA.</p> <p>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).</p>



## 15. REGULATORY INFORMATION – cont'd

15.8	Other Requirements:	This product does not contain any chemicals known to the State of California to cause cancer or other reproductive harm. For more information, go to <a href="http://www.P65warnings.ca.gov">www.P65warnings.ca.gov</a> .
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## 16. OTHER INFORMATION

16.1	Other Information	<b>DANGER! HIGHLY FLAMMABLE LIQUID AND VAPOR. MAY BE HARMFUL IN CONTACT WITH SKIN. MAY CAUSE AN ALLERGIC SKIN REACTION. CAUSES SERIOUS EYE IRRITATION. MAY CAUSE RESPIRATORY IRRITATION.</b> Keep away from heat/sparks/open flame/hot surfaces – No Smoking. Keep container tightly closed. Take precautionary measures against static discharge. Avoid breathing fume/mist/vapors/spray. Wash exposed skin areas thoroughly with soap and water after handling. Wear protective gloves/eye protection/face protection. IF ON SKIN: Wash with soap and water. IF IN EYES: Rinse continuously with water for several minutes. Remove contact lenses if present and easy to do – continue rinsing. If skin irritation or a rash occurs – Get medical advice/attention. Store in a well-ventilated place. Keep cool. Precisely follow directions and Safety Data Sheet (available through your supplier) for use. Avoid skin contact. If redness or other signs of adverse reaction occur, discontinue use immediately. Use only in a well-ventilated area. A ventilation system that expels vapors to the outdoors is recommended. <b>KEEP OUT OF REACH OF CHILDREN. FOR PROFESSIONAL USE ONLY!</b>	
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 & OPI's 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>OPI Products, Inc.</b> 4500 Park Granada Blvd Calabasas, CA 91302 USA Tel: +1 (818) 999-5112 <a href="http://www.opi.com">http://www.opi.com</a>	<b>O·P·I</b>
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>	 <b>ShipMate®</b> <i>Dangerous Goods Training &amp; Consulting</i>



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## 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
RTECS No.	Registry of Toxic Effects of Chemical Substances Number
EINECS No.	European Inventory of Existing Commercial Chemical Substances Number

## EXPOSURE LIMITS IN AIR:

ACGIH	American Conference on Governmental Industrial Hygienists
IDLH	Immediately Dangerous to Life and Health
NOHSC	National Occupational Health and Safety Commission (Australia)
OSHA	U.S. Occupational Safety and Health Administration
PEL	Permissible Exposure Limit
STEL	Short Term Exposure Limit
TLV	Threshold Limit Value
TWA	Time Weighted Average

## 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.
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## HAZARDOUS MATERIALS IDENTIFICATION SYSTEM: HMIS

## HEALTH, FLAMMABILITY &amp; 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:

A	
B	
C	
D	
E	
F	

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

Safety Glasses	Splash Goggles	Face Shield & Protective Eyewear	Gloves
Boots	Protective Apron	Protective Clothing & Full Suit	Dust Respirator
Full Face Respirator	Dust & Vapor Half-Mask Respirator	Full Face Respirator	Airline Hood/Mask or SCBA

## OTHER STANDARD ABBREVIATIONS:

Carc	Carcinogenic
Irrit	Irritant
NA	Not Available
NR	No Results
ND	Not Determined
NE	Not Established
NF	Not Found
SCBA	Self-Contained Breathing Apparatus
Sens	Sensitization
STOT RE	Specific Target Organ Toxicity - Repeat Exposure
STOT SE	Specific Target Organ Toxicity - Single Exposure

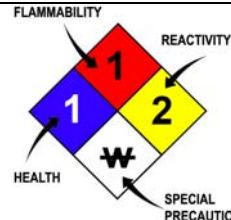
## NATIONAL FIRE PROTECTION ASSOCIATION: NFPA

## FLAMMABILITY LIMITS IN AIR:

Autoignition Temperature	Minimum temperature required to initiate combustion in air with no other source of ignition
LEL	Lower Explosive Limit - lowest percent of vapor in air, by volume, that will explode or ignite in the presence of an ignition source
UEL	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
ACD	Acidic
ALK	Alkaline
COR	Corrosive
W	Use No Water
OX	Oxidizer
TREFOIL	Radioactive



## TOXICOLOGICAL INFORMATION:

LD <sub>50</sub>	Lethal Dose (solids & liquids) which kills 50% of the exposed animals
LC <sub>50</sub>	Lethal concentration (gases) which kills 50% of the exposed animal
ppm	Concentration expressed in parts of material per million parts
TD <sub>01</sub>	Lowest dose to cause a symptom
TCLo	Lowest concentration to cause a symptom
TD <sub>01</sub> , LD <sub>01</sub> & LD <sub>01</sub> or TC, TC <sub>01</sub> , LC <sub>01</sub> & LC <sub>01</sub>	Lowest dose (or concentration) to cause lethal or toxic effects
IARC	International Agency for Research on Cancer
NTP	National Toxicology Program
RTECS	Registry of Toxic Effects of Chemical Substances
BCF	Bioconcentration Factor
TL <sub>m</sub>	Median threshold limit
log K <sub>OW</sub> or log K <sub>OC</sub>	Coefficient of Oil/Water Distribution

## REGULATORY INFORMATION:

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

## 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