



SAFETY DATA SHEET

Prepared to OSHA, ACC, ANSI, NOHSC, WHMIS, GHS & 1272/2008/EC Standards SDS Revision: 2.1 SDS Revision Date: 10/25/2018

1. PRODUCT & COMPANY IDENTIFICATION

NZ DISTRIBUTOR
Steve's Wholesale Ltd. Units 5 – 7 / 408 The Esplanade
Island Bay Wellington 6023
team@steveswholesale.nz
Emergency Contact: Steve Collings
0800 303 303
0274 905 708
Poison Control 0800 POISON (0800 764 766)

1.1	Product Name:	BIRCHWOOD CASEY® BORE SCRUBBER® LIQUID
1.2	Chemical Name:	Mixture
1.3	Synonyms:	33632
1.4	Trade Names:	Birchwood Casey® Bore Scrubber® Liquid
1.5	Product Use:	Cleaner/ Protector
1.6	Distributor's Name:	Birchwood Casey, LLC
1.7	Distributor's Address:	3260 Winpark Drive, New Hope, MN., 55427 USA
1.8	Emergency Phone:	ChemTrec +1 (800) 424-9300 / +1 (703) 527-3887 or Poison Control Center +1 (866) 291-7152
1.9	Business Phone / Fax:	+1 (952) 388-6717

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). DANGER! MAY BE FATAL IF SWALLOWED AND ENTERS AIRWAYS. MAY CAUSE CANCER. FLAMMABLE LIQUID AND VAPOR. MAY CAUSE AN ALLERGIC SKIN REACTION. CAUSES EYE IRRITATION. Classification: Asp. Tox. 1, Flam. Liq. 3, Carc. 1A, Skin Sens. 1B, Eye Irrit. 2B	
2.2	Label Elements:	<p>Hazard Statements (H): H304 – May be fatal if swallowed and enters airways. H350 – May Cause Cancer. H226 – Flammable liquid and vapor. H317 – May cause an allergic skin reaction. H320 – Causes eye irritation.</p> <p>Precautionary Statements (P): P201 – Obtain special instructions before use. P202 – Do not handle until all safety precautions have been read and understood. P210 – Keep away from heat, hot surfaces, sparks, open flames and other ignition sources. No smoking. P233 – Keep container tightly closed. P261 – Avoid breathing fume/mist/vapors/spray. P272 – Contaminated work clothing should not be allowed out of the workplace. P264 – Wash thoroughly with soap and water after handling. P280 – Wear protective gloves/ eye protection/ face protection. P301+P310 – IF SWALLOWED: Immediately call a POISON CENTER/doctor. P331 – Do NOT induce vomiting. P303+P361+P353 – IF ON SKIN (or hair): Take off immediately all contaminated clothing. Rinse skin with water [or shower]. 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 advice/attention. P308+P313 – IF exposed or concerned: Get medical advice/ attention. P370+P378 – In case of fire: Use Water, Foam, CO₂, Dry Chemical to extinguish. P403+P235 – Store in a well-ventilated place. Keep cool. P501 – Dispose of contents/container through licensed treatment, storage or disposal facility.</p>	
2.3	Other Warnings:	In the event of an exposure or medical inquiry involving this product, please contact a physician or local poison control center, who may seek advice from the U.S. manufacturer, and show them this SDS. KEEP OUT OF REACH OF CHILDREN.	

3. COMPOSITION & INGREDIENT INFORMATION

CHEMICAL NAME(S)	CAS No.	RTECS No.	EINECS No.	%	EXPOSURE LIMITS IN AIR (mg/m ³)									OTHER
					ACGIH		NOHSC			OSHA				
					ppm		ppm			ppm				
					TLV	STEL	ES-TWA	ES-STEL	ES-PEAK	PEL	STEL	IDLH		
DIPROPYLENE GLYCOL MONOMETHYL ETHER	34590-94-8	JM1575000	252-104-2	30-60	100	150	50	308	NF	100	NA	600		
KEROSENE (PETROLEUM)	8008-20-6	OA5500000	230-366-4	15-30	200	NA	NF	NF	NF	100	NA	NA	SKIN	
OLEIC ACID	112-80-1	RG2275000	204-007-1	3.0-15	NA	NA	NF	NF	NF	NA	NA	NA		
PROPYLENE GLYCOL	57-55-6	TY2000000	200-338-0	2.0-10	NA	NA	(150)	474	NF	NA	NA	NA	(10) WEEL	
MONOETHANOLAMINE	141-43-5	KJ5775000	205-483-3	1.0-5.0	3	NA	3	NF	NF	3	NA	30	3 NIOSH	
HEAVY PETROLEUM OXYGENATES, BARIUM NEUTRALIZED	64741-53-3	NA	265-054-1	1.0-5.0	(5)	NA	(5)	NF	NF	(5)	10	NA	OIL MIST	
NAPHTHENIC PETROLEUM OIL	64742-53-6	NA	265-156-6	0.1-3.0	(5)	NA	(5)	NF	NF	(5)	10	NA	OIL MIST	



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4. FIRST AID MEASURES

4.1	First Aid:	<p>Ingestion: DO NOT INDUCE VOMITING. Contact Poison Control Center +1 (866) 291-7152 or the nearest Poison Control Center or local emergency telephone number for assistance and instructions. Seek immediate medical attention. If vomiting occurs spontaneously, keep victim's head lowered (forward) to reduce the risk of aspiration.</p> <p>Eyes: If product gets in the eyes, flush eyes thoroughly with copious amounts of water for at least 15 minutes, holding eyelid(s) open to ensure complete flushing. If the eyes or face become swollen during or following use, consult a physician or emergency room immediately.</p> <p>Skin: Remove contaminated clothing and wash affected areas with soap and water. If discomfort persists and/or the skin reaction worsens, contact a physician immediately. Do not wear contaminated clothing until after it has been properly cleaned.</p> <p>Inhalation: Remove victim to fresh air at once. Under extreme conditions, if breathing stops, perform artificial respiration. Seek immediate medical attention.</p>																				
4.2	Effects of Exposure:	<p>Ingestion: If product is swallowed, may cause nausea, temporary gastrointestinal irritation. Vomiting and/or diarrhea.</p> <p>Eyes: Moderately irritating to the eyes. Symptoms of overexposure may include redness, itching, irritation and watering.</p> <p>Skin: May be irritating to skin. The product can cause allergic skin reactions (e.g., rashes, welts, dermatitis) in some sensitive individuals.</p> <p>Inhalation: None expected.</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:	The material may accentuate any pre-existing dermatitis condition.																				
4.6	Target Organs:	Eyes, Skin, Respiratory System																				
4.7	Medical Conditions Aggravated by Exposure:	Persons with pre-existing skin disorders, eye problems, or impaired kidney function may be more susceptible to the effects of the substance.																				
		<table border="1"> <tr> <td colspan="3">HEALTH</td> <td>3</td> </tr> <tr> <td colspan="3">FLAMMABILITY</td> <td>2</td> </tr> <tr> <td colspan="3">PHYSICAL HAZARDS</td> <td>0</td> </tr> <tr> <td colspan="3">PROTECTIVE EQUIPMENT</td> <td>B</td> </tr> <tr> <td>EYES</td> <td>SKIN</td> <td>LUNGS</td> <td></td> </tr> </table>	HEALTH			3	FLAMMABILITY			2	PHYSICAL HAZARDS			0	PROTECTIVE EQUIPMENT			B	EYES	SKIN	LUNGS	
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EYES	SKIN	LUNGS																				

5. FIREFIGHTING MEASURES

5.1	Fire & Explosion Hazards:	This product is not flammable. However, if involved in a fire, this product may decompose at high temperatures to form toxic gases (e.g., CO, CO _x).	
5.2	Extinguishing Methods:	Water, Foam, CO ₂ , Dry Chemical. Use water spray to cool unopened containers.	
5.3	Firefighting Procedures:	Fight fires as for surrounding materials. As in any fire, wear MSHA/NIOSH approved self-contained breathing apparatus (pressure-demand) and full protective gear. Keep containers cool until well after the fire is out. Use water spray to cool fire-exposed surfaces and to protect personal. Fight fire upwind. Avoid spraying water directly into storage containers because of danger of boil-over. Prevent runoff from fire control or dilution from entering sewers, drains, drinking water supply, or any natural waterway. Firefighters must use full bunker gear including NIOSH-approved positive pressure self-contained breathing apparatus to protect against potential hazardous combustion or decomposition products and oxygen deficiencies.	

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. CAUTION – may be slippery if spilled.</p> <p>For <u>small spills</u> (e.g., < 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 municipal sewers and open bodies of water.</p>
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7. HANDLING & STORAGE INFORMATION

7.1	Work & Hygiene Practices:	Avoid prolonged contact with the product. Avoid breathing vapors of this product. Use in a well-ventilated location (e.g., local exhaust ventilation, fans). After use, wash hands and exposed skin with soap and water. Do not eat, drink or smoke while handling product.
7.2	Storage & Handling:	Keep this material away from heat, sparks and open flame. Open containers slowly on a stable surface. Keep container closed tightly when not in use. Empty container may contain residual amounts of this product; therefore, empty containers should be handled with care. Store containers in a cool, dry location, away from direct sunlight, other light sources, or sources of intense heat. Storage temperature: 32-120 °F (0-49 °C). Take precautionary measures against static discharge. Store away from incompatible materials (See Section 10).
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.

8. EXPOSURE CONTROLS & PERSONAL PROTECTION

8.1	Exposure Limits: ppm (mg/m ³)	ACGIH		NOHSC			OSHA			OTHER
		TLV	STEL	ES-TWA	ES-STEL	ES-PEAK	PEL	STEL	IDLH	
	CHEMICAL NAME(S)									
	DIPROPYLENE GLYCOL MONOMETHYL ETHER	100	150	100	NF	NF	100	150	NA	
	KEROSENE (PETROLEUM)	200	NA	NF	NF	NF	100	NA	NA	SKIN
	PROPYLENE GLYCOL	NA	NA	(150)	474	NF	NA	NA	NA	(10) WEEL
	MONOETHANOLAMINE	3	NA	3	NF	NF	3	NA	30	3 NIOSH
	HEAVY PETROLEUM OXYGENATES, BARIUM NEUTRALIZED	(5)	NA	(5)	NF	NF	(5)	10	NA	OIL MIST
	NAPHTHENIC PETROLEUM OIL	(5)	NA	(5)	NF	NF	(5)	10	NA	OIL MIST
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, E.C. member states, or Australia.								
8.4	Eye Protection:	Wear protective eyewear (e.g., safety glasses with side-shield) at all times when handling this product. Always use protective eyewear when cleaning spills or leaks. Contact lenses pose a special hazard; soft lenses may absorb and concentrate irritants.								
8.5	Hand Protection:	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 E.C. member states.								
8.6	Body Protection:	No apron required when handling small quantities. When handling large quantities (e.g., ≥ 1 gallon), eye wash stations and deluge showers should be available. Upon completion of work activities involving large quantities of this product, wash any exposed areas thoroughly with soap and water.								



9. PHYSICAL & CHEMICAL PROPERTIES

9.1	Appearance:	Yellowish liquid
9.2	Odor:	Kerosene odor
9.3	Odor Threshold:	NA
9.4	pH:	9.0
9.5	Melting Point/Freezing Point:	NA
9.6	Initial Boiling Point/Boiling Range:	> 97.7 °C (> 208 °F)
9.7	Flashpoint:	52.7 °C (127 °F) CC
9.8	Upper/Lower Flammability Limits:	NA
9.9	Vapor Pressure:	NA
9.10	Vapor Density:	> 1
9.11	Relative Density:	0.926
9.12	Solubility:	Miscible
9.13	Partition Coefficient (log P _{ow}):	NA
9.14	Autoignition Temperature:	NA
9.15	Decomposition Temperature:	NA
9.16	Viscosity:	NA
9.17	Other Information:	VOC: 84%; Evaporation rate < 1 (Ethyl Ether = 1)



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10. STABILITY & 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:	Will not occur.
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 or strong 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 toxicology data. Toxicology data, found in scientific literature, is available for some of the components of the product and is presented below: LD ₅₀ (oral, rat): 5,130 mg/kg (Dipropylene Glycol Monomethyl Ether); 1,720 mg/kg (mono-Ethanolamine)		
11.3	Acute Toxicity:	Moderate irritation to eyes and skin near affected areas. Additionally, high concentrations of vapors can cause drowsiness, dizziness, headaches and nausea.		
11.4	Chronic Toxicity:	This material may aggravate any pre-existing skin condition (e.g., dermatitis).		
11.5	Suspected Carcinogen:	<u>Kerosene (Petroleum)</u> : AGIH A3 (confirmed animal carcinogen with unknown relevance to humans)		
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.		
	Embryotoxicity:	This product is not reported to produce embryotoxic effects in humans.		
	Teratogenicity:	This product is not reported to cause teratogenic effects in humans.		
	Reproductive Toxicity:	This product is not reported to cause reproductive effects in humans.		
11.7	Irritancy of Product:	The product can cause allergic skin reactions (e.g., rashes, welts, dermatitis) upon prolonged or repeated exposure.		
11.8	Biological Exposure Indices:	NE		
11.9	Physician Recommendations:	Treat symptomatically.		

12. ECOLOGICAL INFORMATION

12.1	Environmental Stability:	There are no specific data available for this product.
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.

13. DISPOSAL CONSIDERATIONS

13.1	Waste Disposal:	Review current local, state and federal laws, codes, statutes and regulations to determine current status and appropriate disposal method for the ingredients listed in Section 2. Any disposal practice must be in compliance with local, state, and federal laws and regulations. Contact the appropriate agency for specific information. Treatment, transport, storage and disposal of hazardous waste must be provided by a licensed facility or waste hauler.
13.2	Special Considerations:	U.S. EPA Waste Number: 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):	CONSUMER COMMODITY, ORM-D – until 12/31/2020; or UN1993, FLAMMABLE LIQUID, N.O.S., (PETROLEUM NAPHTHA), 3, III (LTD QTY, IP VOL ≤ 5.0 L)	
14.2	IATA (AIR)*:	ID8000, CONSUMER COMMODITY, 9 (IP VOL ≤ 0.5 L); or UN1993, FLAMMABLE LIQUID, N.O.S., (PETROLEUM NAPHTHA), 3, III (LTD QTY, IP VOL ≤ 2.5 L)	
14.3	IMDG (OCN):	UN1993, FLAMMABLE LIQUID, N.O.S., (PETROLEUM NAPHTHA), 3, III (LTD QTY, IP VOL ≤ 5.0 L)	
14.4	TDGR (Canadian GND):	UN1993, FLAMMABLE LIQUID, N.O.S., (PETROLEUM NAPHTHA), 3, III (LTD QTY, IP VOL ≤ 5.0 L)	
14.5	ADR/RID (EU):	UN1993, FLAMMABLE LIQUID, N.O.S., (PETROLEUM NAPHTHA), 3, III (LTD QTY, IP VOL ≤ 5.0 L)	
14.6	SCT (MEXICO):	UN1993, LIQUIDOS, INFLAMABLES, N.E.P. (PETROLEUM NAPHTHA), 3, III (CANT LTDA, IP VOL ≤ 5.0 L)	
14.7	ADGR (AUS):	UN1993, FLAMMABLE LIQUID, N.O.S., (PETROLEUM NAPHTHA), 3, III (LTD QTY, IP VOL ≤ 5.0 L)	
14.8	EXCEPTED QUANTITY	This product may also be shipped as an Excepted Quantity (Inner Package Volume ≤ 30 mL, Total Quantity ≤ 500 mL per Outer Package)	



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15. REGULATORY INFORMATION

HSR002652

15.1	SARA Reporting Requirements:	This product does not contain any substances subject to SARA Title III, Section 313 reporting requirements.	
15.2	SARA TPQ:	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.	
15.4	CERCLA Reportable Quantity:	NA	
15.5	Other Federal Requirements:	NA	
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 B3, D2B (Flammable Liquid, Other Toxic Effects).	
15.7	State Regulatory Information:	<u>Dipropylene Glycol Monomethyl Ether</u> is found on the following state criteria lists: FL, MA, MN, PA, and WA. <u>Kerosene (Petroleum)</u> is found n the following state criteria lists: MA, NJ and PA. <u>Heavy Petroleum Oxygenates, Barium Neutralized</u> is found on the following state criteria list: MA. <u>Propylene Glycol</u> is found on the following state criteria lists: MN, and 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:	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 www.P65Warnings.ca.gov .	

16. OTHER INFORMATION

SW revised 30.12.2020

16.1	Other Information:	DANGER! MAY BE FATAL IF SWALLOWED AND ENTERS AIRWAYS. MAY CAUSE CANCER. FLAMMABLE LIQUID AND VAPOR. MAY CAUSE AN ALLERGIC SKIN REACTION. CAUSES EYE IRRITATION. Obtain special instructions before use. Do not handle until all safety precautions have been read and understood. Keep away from heat, hot surfaces, sparks, open flames and other ignition sources. No smoking. Keep container tightly closed. Avoid breathing fume/mist/vapors/spray. Contaminated work clothing should not be allowed out of the workplace. Wash thoroughly with soap and water after handling. Wear protective gloves/ eye protection/ face protection. IF SWALLOWED: Immediately call a POISON CENTER/doctor. Do NOT induce vomiting. IF ON SKIN (or hair): Take off immediately all contaminated clothing. Rinse skin with water [or shower]. 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. IF exposed or concerned: Get medical advice/ attention. In case of fire: Use Water, Foam, CO ₂ , Dry Chemical to extinguish. Store in a well-ventilated place. Keep cool. KEEP LOCKED UP AND OUT OF REACH OF CHILDREN.	
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 & Birchwood Casey, LLC 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:	Birchwood Casey, LLC 3260 Winpark Drive New Hope, MN 55427 USA Tel: +1 (952) 388-6717 Email: customerservice@birchwoodcasey.com http://www.birchwoodCasey.com	
16.5	Prepared by:	ShipMate, Inc. P.O. Box 787 Sisters, Oregon 97759-0787 USA Tel: +1 (310) 370-3600 Fax: +1 (310) 370-5700 http://www.shipmate.com	



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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 & 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		G	
B		H	
C		I	
D		J	
E		K	
F		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 ₅₀	Lethal Dose (solids & liquids) which kills 50% of the exposed animals
LC ₅₀	Lethal concentration (gases) which kills 50% of the exposed animal
ppm	Concentration expressed in parts of material per million parts
TD ₁₀	Lowest dose to cause a symptom
TCLo	Lowest concentration to cause a symptom
TD ₁₀ , LD ₁₀ , & LD ₀ or TC, TC ₀ , LC ₁₀ , & LC ₀	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 _m	Median threshold limit
log K _{OW} or log K _{OC}	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