SAFETY DATA SHEET

Prepared to OSHA, ACC, ANSI, NOHSC, WHMIS, GHS & 1272/2008/EC Standards | SDS Revision: 1.0 | SDS Revision Date: 10/25/2018

1. PRODUCT & COMPANY IDENTIFICATION

1.1	Product Name:	**CASE CLEANER CONCENTRATE**
1.2	Chemical Name:	NA
1.3	Synonyms:	33845
1.4	Trade Names:	Brass Cartridge Case Cleaner
1.5	Product Use:	Brass Cleaner
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

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)~~

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! HARMFUL IF SWALLOWED OR INHALED. CAUSES SEVERE SKIN BURNS AND EYE DAMAGE.** Classification: Acute Tox. 4, Skin Corr. 1B, Eye Dam 1
2.2	Label Elements:	Hazard Statements (H): H302+332– Harmful if swallowed or inhaled. H314 – Causes severe skin burns and eye damage. Precautionary Statements (P): P260 – Do not breathe dust or mist. P264 – Wash thoroughly with soap and water after handling. P270 – Do not eat, drink or smoke when using this product. P280 – Wear protective gloves/protective clothing/eye protection/face protection. P301+P312 – IF SWALLOWED: Call a POISON CENTER/doctor if you feel unwell. P330 – Rinse mouth. P303+P361+P353 – IF ON SKIN (or hair): Take off immediately all contaminated clothing. Rinse skin with water or shower. P363 – Wash contaminated clothing before reuse. P304+P340 – IF INHALED: Remove person to fresh air and keep comfortable for breathing. P310 – Immediately call a POINSON CENTER/doctor. 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. P321 – Specific treatment see section 4 of this SDS. P405 – Store locked up. P501 – Dispose of contents/container to licenses treatment, storage and disposal facility (TSDF).
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/m³) ACGIH ppm TLV	ACGIH ppm STEL	NOHSC ppm ES-TWA	NOHSC ppm ES-STEL	NOHSC ppm ES-PEAK	OSHA ppm PEL	OSHA ppm STEL	OSHA ppm IDLH	OTHER
DODECYLBENZENE SULFONIC ACID	27176-87-0		248-289-4	< 25	NA	NA	NF	NF	NF	NA	NA	NA	
	Acute Tox. 4; Skir Corr. 1B; H302, H314												
PHOSPHORIC ACID	7664-38-2	TB6300000	231-633-2	< 20	(1)	(3)	NF	NF	NF	NA	NA	1000	
	Metal Corrosion 1; Skin Corrosion1B; H290, H314												
GLYCOLIC ACID	79-14-1	MC5250000	201-180-5	< 7	10	NA	NF	NF	NF	10	NA	NA	
	Skin Corr. 1B; Eye Dam. 1; Acute Tox. 4; H314, H318, H332												
DIPROPYLENE GLYCOL MONOMETHYL ETHER	34590-94-8	JM1575000	252-104-2	< 7	100	150	50	308	NF	100	NA	600	
BENZOTRIAZOLE	95-14-7	DM1225000	202-394-1	< 1	NA	NA	NF	NF	NF	NA	NA	NA	

4. FIRST AID MEASURES

4.1	First Aid:	Ingestion: DO NOT INDUCE VOMITING! Consult physician immediately or contact the nearest Poison Control Center or local emergency number. Provide an estimate of the time and amount of the substance that was swallowed. Do not give anything by mouth to a convulsing or unconscious person. Eyes: If product gets in the eyes, flush with copious amounts of lukewarm water for at least 15 minutes. If irritation occurs, contact a physician. Skin: If irritation occurs and product is on the skin, rinse thoroughly with lukewarm water, followed by a thorough washing of the affected area with soap and water for at least 15 minutes. Get immediate medical attention. If irritation persists, contact a physician immediately. Inhalation: Remove victim to fresh air. If not breathing clear victims airway and start artificial respiration. If victim is having trouble breathing, give supplemental oxygen, if available. Seek immediate medical attention.

4. FIRST AID MEASURES – cont'd

4.2	Effects of Exposure:	Ingestion:	If product is swallowed, may cause nausea, immediate burning in mouth, throat and abdomen and severe swelling of the larynx, skeletal muscle paralysis affecting the ability to breathe, circulatory shock and convulsions.
		Skin:	May be irritating to skin in (especially in some sensitive individuals). Direct or prolonged contact can produce severe irritation to the skin especially after prolonged and/or repeated contact.
		Eyes:	It is anticipated that this material will be corrosive to the eyes upon direct or prolonged contact. Strongly irritating to the eyes. Direct contact can produce severe eye damage.
		Inhalation:	Inhalation of vapors and mist of products can produce irritation of mucous membranes; however, inhalation of vapors in excess of the levels listed in Section 2 (Composition and Ingredient Information) can cause central nervous system depression (e.g., drowsiness, dizziness, headaches, nausea).
4.3	Symptoms of Overexposure:	Inhalation:	Strong irritating to mucous membranes in the nose, throat and respiratory tract. Prolonged contact can cause chronic irritation, pulmonary edema and central nervous system depression.
		Skin:	Prolonged and repeated exposure to dilute solutions often causes irritation, redness, pain and drying and cracking of the skin.
		Eyes:	Strongly irritating to eyes. Exposure to vapor can cause tearing, conjunctivitis and burning of the eyes. Eye contact may cause a corneal injury. The severity of the effects depend on the concentration and how soon after exposure the eyes are washed with water. In severe exposure cases, glaucoma, cataracts and permanent blindness may occur.
		Ingestion:	Can cause severe corrosion of and damage to the gastrointestinal tract (including mouth, throat, and esophagus). Nausea, vomiting, abdominal pain, diarrhea, bleeding, and/or tissue ulceration characterize exposure.
4.4	Acute Health Effects:	Olfactory fatigue may occur. Contact with the eyes may cause permanent damage. Harmful by inhalation and ingestion. Strongly irritating to mucous membranes in the nose, throat and respiratory tract.	
4.5	Chronic Health Effects:	Prolonged contact can cause chronic irritation, pulmonary edema and central nervous system depression. Repeated inhalation exposure may cause impairment of lung function and permanent lung damage. Prolonged and repeated exposure to dilute solutions often causes irritation redness, pain and drying and cracking of the skin.	
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).	

HEALTH	2
FLAMMABILITY	0
PHYSICAL HAZARDS	0
PROTECTIVE EQUIPMENT	B

EYES	SKIN	LUNGS

5. FIREFIGHTING MEASURES

5.1	Fire & Explosion Hazards:	This material is nonflammable but is decomposed by heat and light, causing a pressure build-up, which could result in an explosion. When heated, it may release chlorine gas or hydrochloric acid. Vigorous reaction with oxidizing or organic materials may result in fire.
5.2	Extinguishing Methods:	Large amounts of water. Do not use dry chemicals or foams. Product supplies own oxygen, therefore attempts to smother fire with a wet blanket, carbon dioxide, dry chemical extinguisher or other means are not effective. Product has potential to cause violent reaction if dry chemical fire extinguishers are used.
5.3	Firefighting Procedures:	First responders should wear eye protection. Structural firefighters must wear SCBAs and full protective equipment. Prevent runoff from fire control or dilution from entering sewers, drains, drinking water supply, or any natural waterway. Firefighters should wear full-face, self-contained breathing apparatus (MSHA/NIOSH approved or the equivalent) and impervious clothing.

6. ACCIDENTAL RELEASE MEASURES

6.1	Spills:	Before cleaning any spill or leak, individuals involved in spill cleanup must wear appropriate Personal Protective Equipment. For small spills (e.g., < 1 gallon (3.8 L)) wear appropriate personal protective equipment (e.g., goggles, gloves). Maximize ventilation (open doors and windows). 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. For large spills (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). 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.

7. HANDLING & STORAGE INFORMATION

7.1	Work & Hygiene Practices:	Avoid prolonged contact with the product. After use, wash hands and exposed skin with soap and water. Do not eat, drink or smoke while handling product. Use only in with adequate ventilation. Keep container closed. If possible, isolate container in well-ventilated area. Wash thoroughly after handling.
7.2	Storage & Handling:	Keep this material away from heat, sparks and open flame. Store at temperatures below 80ºF. Keep containers closed until used. 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. Keep product from entering sewers, drains, drinking water supply, or any natural waterway. Store containers in a cool, dry location, away from direct sunlight, other light sources, or sources of intense heat. Store away from incompatible materials (see Section 10, Stability and Reactivity). Material should be stored in secondary containers as appropriate.
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
CHEMICAL NAME(S)	TLV	STEL	ES-TWA	ES-STEL	ES-PEAK	PEL	STEL	IDLH	
PHOSPHORIC ACID	(1)	(3)	NF	NF	NF	NA	NA	1000	
GLYCOLIC ACID	10	NA	NF	NF	NF	10	NA	NA	
DIPROPYLENE GLYCOL MONOMETHYL ETHER	100	150	100	NF	NF	100	150	NA	

8.2	Ventilation & Engineering Controls:	When working with large quantities of product, provide adequate ventilation (e.g., local exhaust ventilation, fans). In process where TLV may be exceeded, or mist and or vapors may be generated proper ventilation must be provided. Ensure that an eyewash station, sink, washbasin and safety shower are available in case of exposure to eyes and/or skin.
8.3	Respiratory Protection:	No special respiratory protection is required under typical circumstances of use or handling. Where mist or vapors are generated by the process or if recommended TWA/TLV for ethyl alcohol is exceeded, 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:	**AVOID EYE CONTACT DUE TO IRRITATION POTENTIAL.** Wear protective eyewear (e.g., safety glasses with side-shield) at all times when handling large quantities (e.g., ≥ 1 gallon (3.8 L)) of 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:	**AVOID SKIN CONTACT DUE TO IRRITATION POTENTIAL** 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. If necessary, refer to appropriate standards of Canada, the E.C. member states, or U.S. OSHA.

9. PHYSICAL & CHEMICAL PROPERTIES

9.1	Appearance:	Carmel colored liquid
9.2	Odor:	Slight ethereal odor
9.3	Odor Threshold:	NA
9.4	pH:	< 1
9.5	Melting Point/Freezing Point:	NA
9.6	Initial Boiling Point/Boiling Range:	> 100 ºC (212 ºF)
9.7	Flashpoint:	100 ºC (212 ºF) TCC
9.8	Upper/Lower Flammability Limits:	NA
9.9	Vapor Pressure:	NA
9.10	Vapor Density:	<1 (Air = 1)
9.11	Relative Density:	1.126
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:	Evaporation Rate: > 1 (Ether = 1)

10. STABILITY & REACTIVITY

10.1	Stability:	Relatively stable under ambient conditions when stored properly.
10.2	Hazardous Decomposition Products:	Contact with metals such as aluminum and zinc may produce hydrogen gas. Thermal decomposition may produce phosphoric, sulfur and nitrogen oxides..
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. Contact with metals such as aluminum and zinc.
10.5	Incompatible Substances:	Cyanides, strong oxidizer, strong bases, water-reactive substances, chlorinated cleaners or sanitizers, metals such as aluminum, zinc and magnesium. May generate heat or form flammable gases with mixed with a wide variety of substances.

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. Based on animal test results for similar products and materials (available from scientific literature), the acute toxicity of this product is expected to be: Phosphoric Acid: LD_{50} (oral, rat) = 1,530 mg/kg; LD_{50} (oral, rat) = 4,640 mg/kg; $LD_{50,}$ (oral, rat): 5,130 mg/kg (Dipropylene Glycol Monomethyl Ether); 1,720 mg/kg (mono-Ethanolamine)					
11.3	Acute Toxicity:	See Section 4.4					
11.4	Chronic Toxicity:	See Section 4.5					
11.5	Suspected Carcinogen:	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.					
11.6	Reproductive Toxicity:	This product is not reported to cause 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:	See Section 4.2					
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:	Do not contaminate domestic or irrigation water supplies, lakes, streams, ponds, or rivers. Mammals and birds, exposed wildlife would be subject to skin irritation and burns due to the irritating nature of this material.
12.3	Effects on Aquatic Life:	Very toxic to aquatic life with long lasting effects. Phosphoric Acid: EC_{50} (Daphnia magna, 12h) = 4.6 mg/L

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 3. 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 Hazardous Waste: D002 (Characteristic, Corrosivity)

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):	UN1760, CORROSIVE LIQUIDS, N.O.S. (phosphoric and glycolic acid), 8, III, (LTD QTY, IP VOL ≤ 5.0 L); or CONSUMER COMMODITY, ORM-D (IP VOL ≤ 5.0 L)	
14.2	IATA (AIR):	UN1760, CORROSIVE LIQUIDS, N.O.S. (phosphoric and glycolic acid), 8, III, (LTD QTY, IP VOL ≤ 1.0 L)	
14.3	IMDG (OCN):	UN1760, CORROSIVE LIQUIDS, N.O.S. (phosphoric and glycolic acid), 8, III, (LTD QTY, IP VOL ≤ 5.0 L)	
14.4	TDGR (Canadian GND):	UN1760, CORROSIVE LIQUIDS, N.O.S. (phosphoric and glycolic acid), 8, III, (LTD QTY, IP VOL ≤ 5.0 L)	
14.5	ADR/RID (EU):	UN1760, CORROSIVE LIQUIDS, N.O.S. (phosphoric and glycolic acid), 8, III, (LTD QTY, IP VOL ≤ 5.0 L)	
14.6	SCT (MEXICO):	UN1760, LIQUIDOS CORROSIVOS, N.E.P (ácido fosfórico y glicólico), 8, III, (CANT. LTDA., IP VOL ≤ 5.0 L)	
14.7	ADGR (AUS):	UN1760, CORROSIVE LIQUIDS, N.O.S. (phosphoric and glycolic acid), 8, III, (LTD QTY, IP VOL ≤ 5.0 L)	

15. REGULATORY INFORMATION

HSR002526

15.1	SARA Reporting Requirements:	This product contains Phosphoric Acid, substance 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:	Phosphoric Acid: 5,000 lbs (2,270 kg)
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 E (Corrosive Material). WHMIS Class D1 (Materials Causing Immediate and Serious Toxic Effects). 
15.7	State Regulatory Information:	Phosphoric Acid is found on the following state criteria lists: FL, MA, MN, and PA. Dipropylene Glycol Monomethyl Ether is found on the following state criteria lists: FL, MA, MN, PA, and WA. Benzotriazole can be found on the following state criteria list: MA, NJ 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! HARMFUL IF SWALLOWED OR INHALED. CAUSES SEVERE SKIN BURNS AND EYE DAMAGE.** Do not breathe dust or mist. Wash thoroughly with soap and water after handling. Do not eat, drink or smoke when using this product. Wear protective gloves/protective clothing/eye protection/face protection. IF SWALLOWED: Call a POISON CENTER/doctor if you feel unwell. Rinse mouth. IF ON SKIN(or hair): Take off immediately all contaminated clothing. Rinse skin with water or shower. Wash contaminated clothing before reuse. IF INHALED: Remove person to fresh air and keep comfortable for breathing. Immediately call a POINSON CENTER/doctor. 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. Specific treatment see section 4 of this SDS. Store locked up. **KEEP 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 Fax: +1 (952) 388-6702 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

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.

HAZARDOUS MATERIALS IDENTIFICATION SYSTEM: HMIS

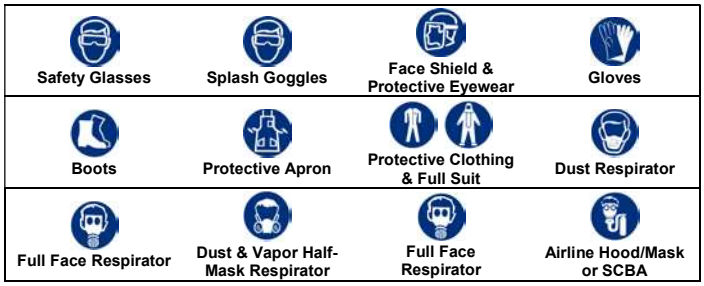
HEALTH, FLAMMABILITY & REACTIVITY RATINGS:

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	
B	
C	
D	
E	
F	
G	
H	
I	
J	
K	
X	**Consult your supervisor or SOPs for special handling directions.**



OTHER STANDARD ABBREVIATIONS:

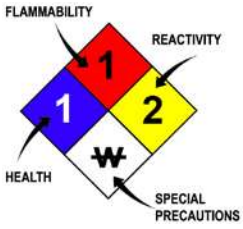
Carc	Carcinogenic
Irrit	Irritant
NA	Not Available
NR	No Results
ND	Not Determined
NE	Not Established
NF	Not Found
SCBA	Self-Contained Breathing Apparatus
Sens	Sensitization
STOT RE	Specific Target Organ Toxicity – Repeat Exposure
STOT SE	Specific Target Organ Toxicity – Single Exposure

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



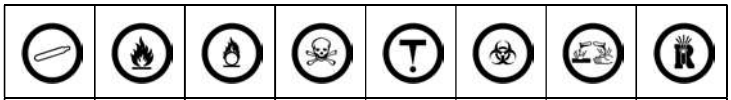
TOXICOLOGICAL INFORMATION:

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_{lo}	Lowest dose to cause a symptom
TCLo	Lowest concentration to cause a symptom
TD_{lo}, LD_{lo}, & LD_o or TC, TC_o, LC_{lo}, & LC_o	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:

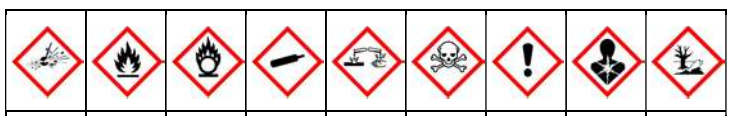
WHMIS	Canadian Workplace Hazardous Material Information System
DOT	U.S. Department of Transportation
TC	Transport Canada
EPA	U.S. Environmental Protection Agency
DSL	Canadian Domestic Substance List
NDSL	Canadian Non-Domestic Substance List
PSL	Canadian Priority Substances List
TSCA	U.S. Toxic Substance 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