



SAFETY DATA SHEET

Page 1 of 6
MPI-0003

Prepared to OSHA, ACC, ANSI, NOHSC, WHMIS, 2001/58 & 1272/2008/EC Standards

SDS Revision: 1.0

SDS Revision Date: 6/8/2015

1. PRODUCT & COMPANY IDENTIFICATION

1.1	Product Name:	PHYSAN 20™ DISINFECTANT GERMICIDE
1.2	Chemical Name:	Quaternary Ammonium Compound
1.3	Synonyms:	EPA No. 55364-5
1.4	Trade Names:	Physan 20™ Disinfectant Germicide
1.5	Product Uses & Restrictions:	Disinfectant/Sanitizer
1.6	Distributor's Name:	Maril Products, Inc.
1.7	Distributor's Address:	15421 Red Hill Ave, Tustin, CA 92780 USA
1.8	Emergency Phone:	Poison Control Center 800-222-1222
1.9	Business Phone / Fax:	Tel: +1 (800) 546-7711

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:1088 (2004) and ADG Code (Australia).</p> <p>DANGER! HARMFUL IF SWALLOWED OR IN CONTACT WITH SKIN. CAUSES SEVERE SKIN BURNS AND EYE DAMAGE.</p> <p><u>Classification:</u> Acute Tox. Oral 4; Acute Tox. Dermal 4; Eye Dam 1, Aquatic Acute 1</p> <p><u>Hazard Statements (H):</u> H302+H312 - Harmful if swallowed or in contact with skin. H314 - Causes severe skin burns and eye damage. H400 - Very toxic to aquatic life.</p> <p><u>Precautionary Statements (P):</u> P260 - Do not breathe mist/fumes/vapors/spray. P264 - Wash thoroughly after handling. P270 - Do not eat, drink or smoke when using this product. P273 - Avoid release to the environment. P280 - Wear protective gloves/ eye protection. P301+P312 - IF SWALLOWED: Call a POISON CENTER/doctor if you feel unwell. P330 - Rinse mouth. P303+P361+P353 - IF ON SKIN: Take off immediately all contaminated clothing. Rinse skin with water. P304+P340 - IF INHALED: Remove person to fresh air and keep comfortable for breathing. P305+P351+P338 - IF IN EYES: Rinse cautiously with water for several minutes. Remove contact lenses, if present and easy to do. Continue rinsing. P391 - Collect spillage. P405 - Store locked up. P501 - Dispose of contents/container to a licensed treatment, storage or disposal facility (TSDF).</p>	
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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		
ALKYL DIMETHYL BENZYL AMMONIUM CHLORIDES C12-C18	68391-01-5	NA	269-919-4	7-13	NA	NA	NF	NF	NF	NA	NA	NA		
ALKYL DIMETHYL ETHYL BENZYL AMMONIUM CHLORIDES C12-C14	85409-23-0	NA	287-090-7	7-13	NA	NA	NF	NF	NF	NA	NA	NA		
ETHANOL	64-17-5	KQ6300000	200-578-6	0.1-1	1000	3000	1000	1800	NF	1000	1900	3300	Flam. Liq. 2; H225	

4. FIRST AID MEASURES

4.1	First Aid:	<p><u>Ingestion:</u> If ingested, DO NOT INDUCE VOMITING. If product has been swallowed, drink plenty of water or milk IMMEDIATELY. If the patient is vomiting, continue to offer water or milk. Never give water or milk to an unconscious person. 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 lifting upper and lower lids, occasionally.</p> <p><u>Skin:</u> Wash thoroughly with soap and water. In case of contact, immediately flush skin with plenty of water for at least 15 minutes.</p> <p><u>Inhalation:</u> Remove victim to fresh air at once. If breathing is difficult, administer oxygen. If breathing stops give artificial respiration. Keep person warm, quiet and get medical attention immediately.</p>
4.2	Effects of Exposure:	<p><u>Ingestion:</u> If product is swallowed, 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.</p> <p><u>Eyes:</u> It is anticipated that this material will be corrosive to the eyes upon direct or prolonged contact. Irritating to the eyes direct contact can produce severe eye damage.</p> <p><u>Skin:</u> It is anticipated that this material will be corrosive to the skin upon direct or prolonged contact. 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.</p> <p><u>Inhalation:</u> Inhalation 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).</p>

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4. FIRST AID MEASURES – cont'd

4.3	Symptoms of Overexposure:	<p>Ingestion: Sensation of burning in mouth, throat and abdomen and severe swelling of the larynx, skeletal muscle paralysis affecting the ability to breathe, circulatory shock and convulsions.</p> <p>Eyes: Exposure to vapors/fumes/mist/spray may cause eye irritation. 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: Coughing, wheezing, shortness of breath, impaired pulmonary function. Irritation or soreness in throat, nose and respiratory tract. Additionally, high concentrations of vapors can cause drowsiness, dizziness, headaches and nausea.</p>												
4.4	Acute Health Effects:	Causes corrosive burns. Brief exposures may cause irritation and defatting of the skin. Causes burns and may result in permanent injury to eyes including blindness. Mists and vapors can irritate the throat and respiratory tract. High vapor concentrations may cause central nervous system effects. May be fatal if inhaled. Symptoms may include headaches, dizziness, and drowsiness.												
4.5	Chronic Health Effects:	Ingestion of ethanol by pregnant women can cause reproductive toxicity to the fetus.												
4.6	Target Organs:	Eyes, Skin, Respiratory System, Digestive Tract, Central Nervous System (CNS).												
4.7	Medical Conditions Aggravated by Exposure:	Pre-existing dermatitis, other skin conditions, and disorders of the target organs (eyes, skin) or impaired kidney function may be more susceptible to the effects of this substance.												
		<table border="1"> <tr> <td>HEALTH</td> <td>3</td> </tr> <tr> <td>FLAMMABILITY</td> <td>0</td> </tr> <tr> <td>PHYSICAL HAZARDS</td> <td>0</td> </tr> <tr> <td>PROTECTIVE EQUIPMENT</td> <td>X</td> </tr> <tr> <td>EYES</td> <td>SKIN</td> </tr> <tr> <td>LUNGS</td> <td></td> </tr> </table>	HEALTH	3	FLAMMABILITY	0	PHYSICAL HAZARDS	0	PROTECTIVE EQUIPMENT	X	EYES	SKIN	LUNGS	
HEALTH	3													
FLAMMABILITY	0													
PHYSICAL HAZARDS	0													
PROTECTIVE EQUIPMENT	X													
EYES	SKIN													
LUNGS														

5. FIREFIGHTING MEASURES

5.1	Fire & Explosion Hazards:	Explosive mixtures can form with air. Combustion products are toxic. Solvent vapors can travel to an ignition source and flash back.	
5.2	Extinguishing Methods:	Water, Foam, CO ₂ , Dry Chemical	
5.3	Firefighting Procedures:	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 personnel. Fight fire upwind. 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>Isolate spill or leak area immediately. Keep unauthorized personnel away. Stay upwind. Keep out of low areas where vapors may accumulate. Eliminate all ignition sources (no smoking, flares, sparks or flames in immediate area).</p> <p>Spills: Ventilate closed spaces before entering. All equipment used when handling the product must be grounded. Floor will be slippery. Do not touch or walk through spilled material. Stop leak if you can do it without risk. A vapor suppressing foam may be used to reduce vapors. Prevent entry into waterways, sewers, basements or confined areas. Absorb or cover with dry earth, sand or other non-combustible material and transfer to containers. Use clean non-sparking tools to collect absorbed materials.</p> <p>Large Spills: Dike far ahead of liquid spill. Water spray may reduce vapor but increase foaming.</p>
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7. HANDLING & STORAGE INFORMATION

7.1	Work & Hygiene Practices:	Avoid contact with skin and eyes. Use good personal hygiene practices. Wash hands before eating, drinking, smoking, or using toilet facilities. Wash thoroughly after work using soap and water.
7.2	Storage & Handling:	Keep the container tightly closed and in a cool, well ventilated place. Keep from freezing. Do not handle or store near an open flame, heat, or other sources of ignition. Prevent electrostatic charge buildup by using common bonding and grounding techniques.
7.3	Special Precautions:	NA

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	
		ETHANOL	1000	3000	1000	1800	NF	1000	1900	3300	
8.2	Ventilation & Engineering Controls:	Use local or general exhaust ventilation to effectively remove and prevent buildup of vapors or mist generated from the handling of this product. Ensure appropriate decontamination equipment is available (e.g., sink, safety shower, eye-wash station).									

8. EXPOSURE CONTROLS & PERSONAL PROTECTION – cont'd

8.3	Respiratory Protection:	If exposure limits are exceeded or if irritation is experienced, NIOSH approved respiratory protection should be worn. Ventilation and other forms of engineering controls are often the preferred means for controlling chemical exposures. Respiratory protection may be needed for non-routine or emergency situations. 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:	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. Wear goggles and/or face shield if splashing or spraying is anticipated. Contact lenses pose a special hazard; soft lenses may absorb and concentrate irritants. Have suitable eye wash water available. Use equipment for eye protection tested and approved under appropriate government standards such as NIOSH (US) or EN 166(EU).	
8.5	Hand Protection:	Use gloves constructed of chemical-resistant materials such as neoprene or heavy nitrile rubber if frequent or prolonged contact is expected. If necessary, refer to U.S. OSHA 29 CFR §1910.138, the appropriate standards of Canada, or the EU member states.	
8.6	Body Protection:	Avoid prolonged and/or repeated skin contact. Use clean and impervious protective clothing (e.g., neoprene or Tyvek®) if splashing or spraying conditions are present. Protective clothing should include long-sleeves, apron, boots and additional facial protection. If necessary, refer to appropriate standards of Canada, the EU member states, or U.S. OSHA.	

9. PHYSICAL & CHEMICAL PROPERTIES

9.1	Appearance:	Clear, colorless to straw liquid
9.2	Odor:	Benzaldehyde odor
9.3	Odor Threshold:	NA
9.4	pH:	6.5- 8.5 for 10% Aqueous Solution
9.5	Melting Point/Freezing Point:	NA
9.6	Initial Boiling Point/Boiling Range:	NA
9.7	Flashpoint:	>200°F (>94°C) – Pensky Martin Closed Cup
9.8	Upper/Lower Flammability Limits:	NA
9.9	Vapor Pressure:	NA
9.10	Vapor Density:	> 1
9.11	Relative Density:	0.988 (8.2 lbs/gal)
9.12	Solubility:	NA
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:	NA

10. STABILITY & REACTIVITY

10.1	Stability:	This product is stable.
10.2	Hazardous Decomposition Products:	Carbon monoxide, carbon dioxide, toxic hydrogen chloride vapors.
10.3	Hazardous Polymerization:	Will not occur.
10.4	Conditions to Avoid:	Open flames, sparks and incompatible substances and direct sunlight.
10.5	Incompatible Substances:	Strong oxidizing agents, sources of ignition.

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): 507 mg/kg; LD ₅₀ (dermal, rat): > 2000 mg/kg.		
11.3	Acute Toxicity:	Corrosive to skin and eyes. See also Section 4.4.		
11.4	Chronic Toxicity:	See Section 4.5		
11.5	Suspected Carcinogen:	NA		
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:	The product can cause allergic skin reactions (e.g., rashes, welts, dermatitis) upon prolonged or repeated exposure.		

11. TOXICOLOGICAL INFORMATION

11.8	Biological Exposure Indices:	NE
11.9	Physician Recommendations:	Treat symptomatically. Probable mucosal damage may contraindicate the use of gastric lavage.

12. ECOLOGICAL INFORMATION

12.1	Environmental Stability:	This product is biodegradable.
12.2	Effects on Plants & Animals:	There are no specific data available for this product.
12.3	Effects on Aquatic Life:	Very toxic to aquatic organisms.

13. DISPOSAL CONSIDERATIONS

13.1	Waste Disposal:	The transportation, storage, treatment, and disposal of this waste material must be conducted in compliance with all applicable Federal, state, provincial and local regulations.
13.2	Special Considerations:	Although not considered a hazardous waste, the discarding or disposal of this material should be done at a properly permitted facility in accordance with the regulations of 40 CFR 262,263,264, and 268.

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 (IP VOL ≤ 5.0 L) – until 12/31/2020; or UN1903, DISINFECTANTS, LIQUID, CORROSIVE, N.O.S. (QUATERNARY AMMONIUM COMPOUNDS), 8, III (LTD QTY, IP VOL ≤ 5.0 L)	
14.2	IATA (AIR):	UN1903, DISINFECTANTS, LIQUID, CORROSIVE, N.O.S. (QUATERNARY AMMONIUM COMPOUNDS), 8, III (LTD QTY, IP VOL ≤ 0.5 L)	
14.3	IMDG (OCN):	UN1903, DISINFECTANTS, LIQUID, CORROSIVE, N.O.S. (QUATERNARY AMMONIUM COMPOUNDS), 8, III (LTD QTY, IP VOL ≤ 5.0 L)	
14.4	TDGR (Canadian GND):	UN1903, DISINFECTANTS, LIQUID, CORROSIVE, N.O.S. (QUATERNARY AMMONIUM COMPOUNDS), 8, III (LTD QTY, IP VOL ≤ 5.0 L)	
14.5	ADR/RID (EU):	UN1903, DESINFECTANTE LIQUIDO CORROSIVO, N.E.P., N.O.S. (COMPUESTOS DE AMONIO CUATERNARIO), 8, III (LTD QTY, IP VOL ≤ 5.0 L)	
14.6	SCT (MEXICO):	UN1903, DISINFECTANTS, LIQUID, CORROSIVE, N.O.S. (QUATERNARY AMMONIUM COMPOUNDS), 8, III (LTD QTY, IP VOL ≤ 5.0 L)	
14.7	ADGR (AUS):	UN1903, DISINFECTANTS, LIQUID, CORROSIVE, N.O.S. (QUATERNARY AMMONIUM COMPOUNDS), 8, III (LTD QTY, IP VOL ≤ 5.0 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:	While three of four ingredients are listed on the TSCA Chemical Inventory, this product is regulated as a pesticide under the Federal Insecticide, Fungicide and Rodenticide Act (FIFRA) and not subject to the TSCA Inventory rules for FIFRA uses.	
15.4	CERCLA Reportable Quantity (RQ):	NA	
15.5	Other Federal Requirements:	None of the ingredients are listed as Hazardous Air Pollutants (HAPs). None of the ingredients are listed as Toxic Pollutants under the Clean Water Act (CWA). None of the ingredients are listed as Priority Pollutants under the Clean Water Act (CWA). This product does not contain any Class 1 or Class 2 ozone depleters.	
15.6	Other Canadian Regulations:	This product has been classified according to the hazard criteria of the CPR and the SDS contains all of the information required by the CPR. The components of this product are listed on the DSL/NDL. WHMIS Class E, D1B (Corrosive, Toxic).	
15.7	State Regulatory Information:	<p><u>Quaternary Ammonium Compounds</u> is found on the following state criteria list: California Director's List of Hazardous Substances (CA); Massachusetts Hazardous Substances List (MA), Minnesota Hazardous Substances List (MN), New Jersey Right-to-Know List (NJ) and Pennsylvania Right-to-Know List (PA).</p> <p><u>Ethanol</u> is found on the following state criteria lists: AZ, CA, CT, FL, ID, MA, MN, NJ, PA and RI.</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:	The primary components of this product are not listed in Annex I of EU Directive 67/548/EEC: Alkyl Dimethyl Benzyl Ammonium Chloride: Corrosive, Harmful, Harmful to the Environment (C, Xn, N). Risk Phrases (R): R21/22-34-50 - - Harmful in contact with skin and if swallowed. Causes burns. Very toxic to aquatic organisms. Safety Phrases (S): (2) – Keep out of reach of children. S26-28-36/37/39-61 - In case of contact with eyes, rinse immediately with plenty of water and seek medical advice. After contact with skin, wash immediately with plenty of water and soap. Wear suitable protective clothing, gloves and eye/face protection. Avoid release to the environment. Refer to special instructions/safety data sheet. All components in this product are in compliance with the EU Biocidal Product Directive 98/8/EC (BPD).	
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16. OTHER INFORMATION

16.1	Other Information:	DANGER! HARMFUL IF SWALLOWED OR IN CONTACT WITH SKIN. CAUSES SEVERE SKIN BURNS AND EYE DAMAGE. Do not breathe mist/fumes/vapors/spray. Wash thoroughly after handling. Do not eat, drink or smoke when using this product. Avoid release to the environment. Wear protective gloves/ eye protection. IF SWALLOWED: Call a POISON CENTER/doctor if you feel unwell. Rinse mouth. IF ON SKIN: Take off immediately all contaminated clothing. Rinse skin with water. IF INHALED: Remove person to fresh air and keep comfortable for breathing. IF IN EYES: Rinse cautiously with water for several minutes. Remove contact lenses, if present and easy to do. Continue rinsing. Collect spillage. 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 & Maril Products, Inc.'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:	Maril Products, Inc. 15421 Red Hill Ave, Suite D Tustin, CA 92780 USA Tel: +1 (714) 544-7711 Fax: +1 (714) 544-4830 http://www.physan.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
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EXPOSURE LIMITS IN AIR:

ACGIH	American Conference on Governmental Industrial Hygienists
C	Ceiling Limit
ES	Exposure Standard (Australia)
IDLH	Immediately Dangerous to Life and Health
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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HMIS-III 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	Synthetic 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:

ML	Maximum Limit
mg/m ³	milligrams per cubic meter
NA	Not Available
ND	Not Determined
NE	Not Established
NF	Not Found
NR	No Results
ppm	parts per million
SCBA	Self-Contained Breathing Apparatus

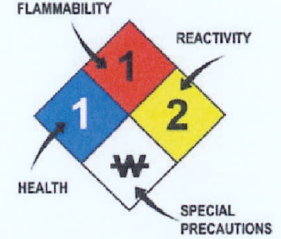
NATIONAL FIRE PROTECTION ASSOCIATION: NFPA

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 ₀₁	Lowest dose to cause a symptom
TCLo	Lowest concentration to cause a symptom
TD ₀₁ , LD ₀₁ , & LD ₀₁ or TC, TC ₀₁ , LC ₀₁ , & LC ₀₁	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
NOHSC	National Occupational Health and Safety Commission (Australia)
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)
HMIS-III	National Paint & Coatings Association Hazardous Materials Identification System

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