



Univar USA Inc Material Safety Data Sheet

MSDS No:

Version No:

Order No:

Univar USA Inc., 17425 NE Union Hill Rd., Redmond WA 98052
(425) 889 3400

Emergency Assistance

For emergency assistance involving chemicals call
Chemtrec - (800) 424-9300


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Prepared to OSHA, ACC, ANSI, NOHSC, WHMIS, 2001/58 & 1272/2008/EC Standards	SDS Revision: 1.3	SDS Revision Date: 11/6/2013
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1. PRODUCT & COMPANY IDENTIFICATION

1.1	Product Name:	SODIUM PERSULFATE
1.2	Chemical Name:	Sodium Persulfate
1.3	Synonyms:	NA
1.4	Trade Names:	Sodium Persulfate
1.5	Product Use:	NA
1.6	Distributor's Name:	Mitsubishi International Polymer Trade Corporation
1.7	Distributor's Address:	2 Penn Plaza East - 11th Floor, Newark, NJ 07105 USA
1.8	Emergency Phone:	CHEMTEC +1 (800) 424-9300 / +1 (703) 527-3887 (CCN 14423)
1.9	Business Phone / Fax:	+1 (732) 357-2029 / +1 (732) 357-2097

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! MAY INTENSIFY FIRE; OXIDIZER. HARMFUL IF SWALLOWED. CAUSES SKIN IRRITATION. MAY CAUSE AN ALLERGIC SKIN REACTION. CAUSES SERIOUS EYE IRRITATION. MAY CAUSE ALLERGY OR ASTHMA SYMPTOMS OR BREATHING DIFFICULTIES IF INHALED. MAY CAUSE RESPIRATORY IRRITATION.</p> <p><u>Hazard Statements (H):</u> H272 – May intensify fire; oxidizer. H302 – Harmful if swallowed. H315 - Causes skin irritation. H317 - May cause an allergic skin reaction. H319 - Causes serious eye irritation. H334 - May cause allergy or asthma symptoms or breathing difficulties if inhaled. H335 - May cause respiratory irritation.</p> <p><u>Precautionary Statements (P):</u> P280 - Wear protective gloves/ protective clothing/ eye protection/ face protection. P264 – Wash skin and exposed skin areas with soap and warm water thoroughly after handling. P301+P312 - IF SWALLOWED: Call a POISON CENTER or doctor/physician if you feel unwell. P302+P352 - IF ON SKIN: Wash with plenty of soap and water. P333+P313 - If skin irritation or rash occurs: Get medical advice/attention. P304+P340 - IF INHALED: Remove victim to fresh air and keep at rest in a position comfortable for breathing. P337+P313 - If eye irritation persists: Get medical advice/attention. P305+P351+P338 IF IN EYES: Rinse cautiously with water for several minutes. Remove contact lenses, if present and easy to do. Continue rinsing. Keep away from heat/sparks/open flames/hot surfaces. - No smoking. P220 - Keep/Store away from clothing/combustible materials. P221 - Take any precaution to avoid mixing with combustibles. P261 - Avoid breathing dust/vapours. P270 - Do not eat, drink or smoke when using this product. P271 - Use only outdoors or in a well-ventilated area. P285 In case of inadequate ventilation wear respiratory protection. P403+P233 - Store in a well-ventilated place. Keep container tightly closed. P501 - Dispose of contents/ container to an approved waste disposal plant.</p>	
2.2	Effects of Exposure:	<p><u>Eyes:</u> Severe or permanent eye damage.</p> <p><u>Skin:</u> Harmful if absorbed through skin. Causes skin irritation.</p> <p><u>Ingestion:</u> Harmful if swallowed.</p> <p><u>Inhalation:</u> Harmful by inhalation. May cause severe irritation or burns in respiratory tract and mucous membranes. Possible lung damage.</p>	
2.3	Symptoms of Overexposure:	<p><u>Eyes:</u> Redness, burning, irritation, and swelling around eyes</p> <p><u>Skin:</u> Redness, burning, itching, rash, blistering of skin.</p> <p><u>Ingestion:</u> Nausea, vomiting, severe abdominal pain.</p> <p><u>Inhalation:</u> Coughing, wheezing, swelling of throat, irritation in mucous membranes, difficulty breathing.</p>	
2.4	Acute Health Effects:	May be harmful if inhaled. Material is extremely destructive to the tissue of the mucous membranes and upper respiratory tract. Harmful if swallowed. May be harmful if absorbed through skin. Causes skin irritation.	
2.5	Chronic Health Effects:	May cause allergic respiratory and skin reactions.	
2.6	Target Organs:	Eyes, skin, respiratory system.	

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	TLV	STEL	IDLH	TLV	STEL	IDLH				
SODIUM PERSULFATE	7775-27-1	SE0535000	231-892-1	60-100	0.1	NE	NF	NF	NF	NE	NE	NE		
Ox. Sol. 3; Acute Tox. 4; Skin Irrit. 2; Skin Sens. 1; Eye Irrit. 2; Resp. Sens. 1; STOT SE 3; H272, H302, H315, H317, H319, H334, H335														


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

<h1 style="margin: 0;">SAFETY DATA SHEET</h1>		Page 2 of 6 MIP-003
Prepared to OSHA, ACC, ANSI, NOHSC, WHMIS, 2001/58 & 1272/2008/EC Standards	SDS Revision: 1.3	SDS Revision Date: 11/6/2013

4. FIRST AID MEASURES

4.1	First Aid:	<p>Ingestion: DO NOT INDUCE VOMITING. Contact ChemTrec at +1 (800) 424-9300 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	Medical Conditions Aggravated by Exposure:	<p>Pre-existing dermatitis, other skin conditions, and disorders of the target organs (eyes, skin, and respiratory system) or impaired kidney function may be more susceptible to the effects of this substance.</p> <table border="1" style="width: 100%; border-collapse: collapse; margin-top: 10px;"> <tr> <td style="background-color: #0056b3; color: white;">HEALTH</td> <td style="text-align: center;">2</td> </tr> <tr> <td style="background-color: #ff0000; color: white;">FLAMMABILITY</td> <td style="text-align: center;">0</td> </tr> <tr> <td style="background-color: #ff8c00; color: white;">PHYSICAL HAZARDS</td> <td style="text-align: center;">1</td> </tr> <tr> <td style="background-color: #000000; color: white;">PROTECTIVE EQUIPMENT</td> <td style="text-align: center;">F</td> </tr> <tr> <td style="background-color: #cccccc;">EYES</td> <td style="background-color: #cccccc;">SKIN</td> </tr> <tr> <td style="background-color: #cccccc;">LUNGS</td> <td style="background-color: #cccccc;"></td> </tr> </table>	HEALTH	2	FLAMMABILITY	0	PHYSICAL HAZARDS	1	PROTECTIVE EQUIPMENT	F	EYES	SKIN	LUNGS	
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LUNGS														

5. FIREFIGHTING MEASURES

5.1	Fire & Explosion Hazards:	Non-flammable. May react with metals to release hydrogen gas, which can form explosive mixtures with air. May intensify fire; oxidizer.	
5.2	Extinguishing Methods:	Use fire-extinguishing media appropriate for surrounding materials.	
5.3	Firefighting Procedures:	As with any fire, firefighters should wear appropriate protective equipment including a MSHA/NIOSH approved or equivalent self-contained breathing apparatus (SCBA) and protective clothing. Fight fires as for surrounding materials. Hazardous decomposition products may be released. Thermal degradation may produce oxides of carbon, phosphorous, selenium and/or nitrogen, hydrocarbons and/or derivatives. Fire should be fought from a safe distance. 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. Prevent runoff from fire control or dilution from entering sewers, drains, drinking water supply, or any natural waterway.	

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 (PPE). Use safety glasses or safety goggles and face shield; use gloves and other protective clothing (e.g., apron, boots, etc.) to prevent skin contact.</p> <p>Small Spills: Wear appropriate protective equipment including gloves and protective eyewear. Use a non-combustible, inert material such as vermiculite or sand to soak up the product and place into a container for later disposal.</p> <p>Large Spills: Keep incompatible materials (e.g., organics such as oil) away from spill. Stay upwind and away from spill or release. Isolate immediate hazard area and keep unauthorized personnel out of area. Stop spill or release if it can be done with minimal risk. Wear appropriate protective equipment including respiratory protection as conditions warrant. Recover as much free liquid as possible and collect in acid-resistant container. Use absorbent to pick up residue. Avoid discharging liquid directly into a sewer or surface waters.</p>
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7. HANDLING & STORAGE INFORMATION

7.1	Work & Hygiene Practices:	Avoid breathing mists or spray. Avoid eye and skin contact. Wear protective equipment when handling product. Keep out of the reach of children. Do not eat, drink or smoke when handling this product. Wash thoroughly after handling. Do not expose to heat and flame. Use only in ventilated areas. Keep out of the reach of children. Immediately clean-up and decontaminate any spills or residues.
7.2	Storage & Handling:	Use and store in a cool, dry, well-ventilated location (e.g., local exhaust ventilation, fans) away from heat and direct sunlight. Store in acid-resistant containers. Keep containers covered when not in use. Avoid temperatures above 40°C (120°F). Keep away from incompatible substances (see Section 10). Protect containers from physical damage.
7.3	Special Precautions:	Empty containers may retain hazardous product residues.

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8. EXPOSURE CONTROLS & PERSONAL PROTECTION



8.1	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). Handle in accordance with good industrial hygiene and safety practice. Wash hands before breaks and at the end of workday.	
8.2	Respiratory Protection:	Where risk assessment shows air-purifying respirators are appropriate use a full-face particle respirator type N100 (US) or type P3 (EN 143) respirator cartridges as a backup to engineering controls. If the respirator is the sole means of protection, use a full-face supplied air respirator. Use respirators and components tested and approved under appropriate government standards such as NIOSH (US) or CEN (EU).	
8.3	Eye Protection:	Face shield and safety glasses. Use equipment for eye protection tested and approved under appropriate government standards such as NIOSH (US) or EN 166(EU).	
8.4	Hand Protection:	Handle with gloves. Gloves must be inspected prior to use. Use proper glove removal technique (without touching glove's outer surface) to avoid skin contact with this product. Dispose of contaminated gloves after use in accordance with applicable laws and good laboratory practices. Wash and dry hands. If used in solution, or mixed with other substances, and under conditions which differ from EN 374, contact the supplier of the approved gloves. This recommendation is advisory only and must be evaluated by an Industrial Hygienist familiar with the specific situation of anticipated use by our customers. It should not be construed as offering an approval for any specific use scenario.	
8.5	Body Protection:	A chemical resistant apron and/or protective clothing are recommended when handling or using this product. Complete suit protecting against chemicals, The type of protective equipment must be selected according to the concentration and amount of the dangerous substance at the specific workplace.	



9. PHYSICAL & CHEMICAL PROPERTIES

9.1	Appearance:	White powder
9.2	Odor:	Slightly pungent odor
9.3	Odor Threshold:	NA
9.4	pH:	2.5 - 4.0
9.5	Melting Point/Freezing Point:	292 °C
9.6	Initial Boiling Point/Boiling Range:	NA
9.7	Flashpoint:	NA
9.8	Upper/Lower Flammability Limits:	NA
9.9	Vapor Pressure:	NA
9.10	Vapor Density:	NA
9.11	Relative Density:	2.549 g/cm ³
9.12	Solubility:	238.1 g / L H ₂ O @ 20 °C (68 °F)
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:	Stable under recommended storage conditions.
10.2	Hazardous Decomposition Products:	Reaction with organics and strong reducing agents may cause fire. Hazardous decomposition products formed during fire may include sulfur oxides (SO _x).
10.3	Hazardous Polymerization:	Will not occur.
10.4	Conditions to Avoid:	Excessive moisture, shock, friction.
10.5	Incompatible Substances:	Organic materials, strong reducing agents, powdered metals, strong bases, alcohols, phosphorous, anhydrides, halogens, acids, chlorates, and perchlorates.

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11. TOXICOLOGICAL INFORMATION						
11.1	Routes of Entry:	Inhalation: YES	Absorption: YES	Ingestion: YES		
11.2	Toxicity Data:	Sodium Persulfate: LD ₅₀ (oral, rat) = 895 mg/kg; LC ₅₀ (inh-4h, rat) > 47.9 mg/kg				
11.3	Acute Toxicity:	See Section 2.4				
11.4	Chronic Toxicity:	See Section 2.5				
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:	See Section 2.3. May cause an allergic skin and respiratory reaction (OECD Test Guideline 406).				
11.8	Biological Exposure Indices:	NE				
11.9	Physician Recommendations:	Treat symptomatically.				
12. ECOLOGICAL INFORMATION						
12.1	Environmental Stability:	No data available.				
12.2	Effects on Plants & Animals:	No data available.				
12.3	Effects on Aquatic Life:	Harmful to aquatic life. Sodium Persulfate: LC ₅₀ (Oncorhynchus mykiss (rainbow trout), 96h) = 163 mg/L; EC ₅₀ (Daphnia magna, 48h) = 133 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 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. Burn in a chemical incinerator equipped with an afterburner and scrubber but exert extra care in igniting as this material is highly flammable. Offer surplus and non-recyclable solutions to a licensed disposal company. Contact a licensed professional waste disposal service to dispose of this material. Dissolve or mix the material with a combustible solvent and burn in a chemical incinerator equipped with an afterburner and scrubber.				
13.2	Special Considerations:	U.S. EPA Hazardous Waste – Characteristic - Reactivity (D003)				
14. TRANSPORTATION INFORMATION						
		ID NUMBER	PROPER SHIPPING NAME	HAZARD CLASS	PACKING GROUP	
14.1	49 CFR (GND):	UN1505	SODIUM PERSULFATE	5.1	III	
14.2	IATA (AIR):	UN1505	SODIUM PERSULFATE	5.1	III	
14.3	IMDG (OCN):	UN1505	SODIUM PERSULFATE	5.1	III	
14.4	TDGR (Canadian GND):	UN1505	SODIUM PERSULFATE	5.1	III	
14.5	ADR/RID (EU):	UN1505	SODIUM PERSULFATE	5.1	III	
14.6	SCT (MEXICO):	UN1505	PERSULFATO DE SODIO	5.1	III	
14.7	ADGR (AUS):	UN1505	SODIUM PERSULFATE	5.1	III	
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:	No chemicals in this material are subject to the reporting requirements of SARA Title III, Section 302.				
15.3	TSCA Inventory Status:	The components of this product are listed on the TSCA Inventory.				
15.4	CERCLA Reportable Quantity (RQ):	NA				
15.5	Other Federal Requirements:	NA				
15.6	Other Canadian Regulations:	This product has been classified according to the hazard criteria of the Controlled Product Regulations (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/NDSL. None of the components of this product are listed on the Priorities Substances List. WHMIS Class C, D2B (Oxidizing Material, Other Toxic Effects).				
15.7	State Regulatory Information:	Sodium Persulfate is found on the following state criteria lists: New Jersey Right-to-Know List (NJ), and Pennsylvania Right-to-Know List (PA). No other ingredients in this product, present in a concentration of 1.0% or greater, are listed on any of the following state criteria lists: California Proposition 65 (CA65), Delaware Air Quality Management List (DE), Florida Toxic Substances List (FL), Massachusetts Hazardous Substances List (MA), Michigan Critical Substances List (MI), Minnesota Hazardous Substances List (MN), New Jersey Right-to-Know List (NJ), New York Hazardous Substances List (NY), Pennsylvania Right-to-Know List (PA), Washington Permissible Exposures List (WA), Wisconsin Hazardous Substances List (WI).				

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15. REGULATORY INFORMATION – cont'd				
15.8	Other Requirements:	<p>The primary components of this product are listed in Annex I of EU Directive 67/548/EEC.</p> <p>Sodium Persulfate: Oxidizing, Harmful, Irritant (O, Xn, Xi).</p> <p>Risk Phrases (R): 8-22-36/37/38-42/43 – Contact with combustible material may cause fire. Harmful if swallowed. Irritating to eyes, respiratory system and skin. May cause sensitization by inhalation and by skin contact.</p> <p>Safety Phrases (S): S(2-)22-24-26-37 - Keep locked up and out of the reach of children. Keep container tightly closed and in a well-ventilated place. Avoid contact with skin and eyes. In case of contact with eyes, rinse immediately with plenty of water and seek medical advice. After contact with skin, wash with plenty of soap and warm water. If swallowed, seek medical advice immediately and show this container or label.</p>		
16. OTHER INFORMATION				
16.1	Other Information:	DANGER! May intensify fire; oxidizer. Harmful if swallowed. Causes skin irritation. May cause an allergic skin reaction. Causes serious eye irritation. May cause allergy or asthma symptoms or breathing difficulties if inhaled. May cause respiratory irritation.		
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 & Mitsubishi'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:	Mitsubishi International PolymerTrade Corporation 2 Penn Plaza East - 11th Floor Newark, NJ 07105 Tel: +1 (732) 357-2029 Fax: +1 (732) 357-2097 http://www.mipna.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
TLV	Threshold Limit Value
OSHA	U.S. Occupational Safety and Health Administration
PEL	Permissible Exposure Limit
IDLH	Immediately Dangerous to Life and Health

FIRST AID MEASURES:

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

<table border="1" style="width:100%; border-collapse: collapse;"> <tr><td style="text-align: center;">A</td><td></td></tr> <tr><td style="text-align: center;">B</td><td></td></tr> <tr><td style="text-align: center;">C</td><td></td></tr> <tr><td style="text-align: center;">D</td><td></td></tr> <tr><td style="text-align: center;">E</td><td></td></tr> <tr><td style="text-align: center;">F</td><td></td></tr> </table>	A		B		C		D		E		F		<table border="1" style="width:100%; border-collapse: collapse;"> <tr><td style="text-align: center;">G</td><td></td></tr> <tr><td style="text-align: center;">H</td><td></td></tr> <tr><td style="text-align: center;">I</td><td></td></tr> <tr><td style="text-align: center;">J</td><td></td></tr> <tr><td style="text-align: center;">K</td><td></td></tr> <tr><td style="text-align: center;">X</td><td>Consult your supervisor or SOPs for special handling directions.</td></tr> </table>	G		H		I		J		K		X	Consult your supervisor or SOPs for special handling directions.
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K																									
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:

NA	Not Available
NR	No Results
NE	Not Established
ND	Not Determined
ML	Maximum Limit
SCBA	Self-Contained Breathing Apparatus

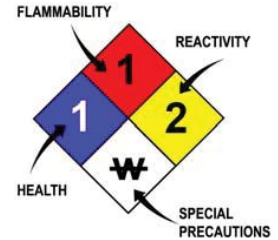
NATIONAL FIRE PROTECTION ASSOCIATION: NFPA

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:

LD₅₀	Lethal Dose (solids & liquids) which kills 50% of the exposed animals
LC₅₀	Lethal concentration (gases) which kills 50% of the exposed animal
ppm	Concentration expressed in parts of material per million parts
TD₁₀	Lowest dose to cause a symptom
TCLo	Lowest concentration to cause a symptom
TD₁₀, LD₁₀, & LD₀ or TC, TC₀, LC₁₀, & LC₀	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

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

Univar USA Inc Material Safety Data Sheet

For Additional Information contact MSDS Coordinator during business hours, Pacific time: (425) 889-3400

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