

# SAFETY DATA SHEET

Prepared to U.S. OSHA and Canadian WHMIS Standards

DATE OF PREPARATION: December 6, 2019

DATE OF REVISION: September 17, 2020

## 1. IDENTIFICATION OF THE SUBSTANCE/MIXTURE AND OF THE COMPANY UNDERTAKING

### IDENTIFICATION of the SUBSTANCE or PREPARATION:

TRADE NAME (AS LABELED):

**SRP Velocity 050**

PRODUCT CODE:

1971

### RELEVANT USES of the SUBSTANCE:

Automotive Glass Pre-Cleaner and Activator

### USES ADVISED AGAINST:

Other than Relevant Use

### COMPANY/UNDERTAKING IDENTIFICATION:

U.S. DISTRIBUTOR'S NAME:

**SRP**

ADDRESS:

650 Pelham Boulevard, Suite 100  
St Paul, MN 55114

CANADIAN DISTRIBUTOR'S NAME:

**FIX AUTO**

ADDRESS:

99 Émilien-Marcoux Suite 101  
Blainville, Québec J7C 0B4, Canada

### EMERGENCY NUMBER:

MEDICAL EMERGENCIES:

1-800-420-8036 (ProPharma) 24 hours

TRANSPORT EMERGENCIES:

1-800-424-9300 (ChemTrec) 24 hours

EMAIL ADDRESS FOR MSDS INFORMATION:

[msds-info@novusglass.com](mailto:msds-info@novusglass.com)

## 2. HAZARD IDENTIFICATION

This product has been classified per GHS Standards under OSHA's Hazard Communication Standard (29CFR §1910.1200), and Canada's Hazardous Product Regulation (HPR). This is a self-classification.

### GHS CLASSIFICATION:

Flammable Liquid Category 2

Aspiration Toxicity Category 1

Serious Eye Damage Category 1

Skin Irritation Category 2

Skin Sensitization Category 1

Specific Target Organ Toxicity (Single Exposure) Category 3 (Narcotic Effects)

### LABEL ELEMENTS:

Signal Word: Danger

### Hazard Statement Codes:

H225: Highly flammable liquid and vapor.

H304: May be fatal if swallowed and enters airways.

H318: Causes serious eye damage.

H315: Causes skin irritation.

H317: May cause an allergic skin reaction.

H336: May cause drowsiness or dizziness.

### Precautionary Statement Codes:

#### Prevention:

P210: Keep away from sparks/open flames - no smoking.

P240: Ground/bond container and receiving equipment.

P241: Use explosion-proof ventilating equipment.

P242: Use only non-sparking tools.

P243: Take precautionary measures against static discharge.

P261: Avoid breathing vapors.

P264: Wash skin thoroughly after handling.

P271: Use only outdoors or in a well-ventilated area.

P272: Contaminated clothing should not be allowed out of the workplace.

P280: Wear protective gloves and clothing and eye and face protection.

## 2. HAZARD IDENTIFICATION, continued

Precautionary Statement Codes (continued):

Response:

P370+P378: IN CASE OF FIRE: Use dry sand, dry chemical or alcohol-resistant foam for extinction.  
 P304+P340: IF INHALED: Remove victim to fresh air and keep at rest in a position comfortable for breathing.  
 P312: Call a Poison Center or doctor/physician if you feel unwell.  
 P303+P361+P362+P353+P352: IF ON SKIN (OR HAIR): Take off immediately all contaminated clothing. (Wash clothing before reuse.) Rinse skin with water/shower. Wash skin with plenty of soap and water.  
 P332+P313: If skin irritation occurs, get medical advice/attention.  
 P321: Specific treatment (remove from exposure and treat symptoms).  
 P305+P351+P338+P310: IF IN EYES: Rinse cautiously with water for several minutes. Remove contact lenses, if present and easy to do. Continue rinsing. Immediately call a Poison Center or doctor/physician.  
 P301+P310+P331: IF SWALLOWED: Immediately call a Poison Center or doctor/physician. Do NOT induce vomiting.

Storage:

P403+P405+P233+P235: Store locked up in a well-ventilated place. Keep container tightly closed and cool.

Disposal:

P501: Dispose of contents/container in accordance with local/regional/national/international regulations.

Hazard Symbols/Pictograms: GHS02, GHS05, GHS08, GHS07



## 3. COMPOSITION and INFORMATION ON INGREDIENTS

SUBSTANCE/MIXTURE:

Mixture

CHEMICAL NAME/CLASS:

Hydrocarbon Mixture

CHEMICAL NAME	CAS #	% w/w	OSHA/WHMIS Classification Hazard Statement and Pictogram Codes
Hydrocarbons, C <sub>7</sub> , N-alkanes, Isoalkanes, Cyclics	64742-49-0	85 - <87%	Classification: Flammable Liquid Cat. 2, Aspiration Toxicity Cat. 1, Skin Irritation Cat. 2, STOT SE 3 (Narcotic Effects), Aquatic Toxicity (Chronic) Cat. 1 Hazard Statement Codes: H225, H304, H315, H336, H410 Hazard Pictograms: GHS02, GHS08, GHS07, GHS09
Ethyl Acetate	141-78-6	9 - <10%	PUBLISHED CLASSIFICATION Classification: Flammable Liquid Cat. 2, Eye Irritation Category 2, STOT SE 3 (Narcotic Effects) Hazard Statement Codes: H225, H319, H336, H066 Hazard Pictograms: GHS02, GHS08
Bis[3-(trimethoxysilyl)propyl]amine	82985-35-1	4 - <4.5%	MANUFACTURER CLASSIFICATION Classification: Acute toxicity (Inhalation) Cat. 4, Skin Irritation Cat. 2, Serious Eye Damage Cat. 1, Specific Target Organ Toxicity - Single Exposure Cat. 3, Respiratory system Hazard Statement Codes: H332, H315, H318, H335 Hazard Pictograms: GHS05, GHS07
(3-Mercaptopropyl)trimethoxysilane	4420-74-0	0.7 - <1%	MANUFACTURER CLASSIFICATION Classification: Acute toxicity, Oral Cat. 4, Skin Sensitization Cat. 1, Acute Aquatic Toxicity Cat. 2, Chronic Aquatic Toxicity Cat. 2 Hazard Statement Codes: H302, H317, H411 Hazard Pictograms: GHS07, GHS09

## 4. FIRST-AID MEASURES

**DESCRIPTION OF FIRST AID MEASURES:** Contaminated individuals should be taken for medical attention if they feel unwell or if adverse effects occur. Take copy of label and SDS to physician or health professional with contaminated individual.

**SKIN EXPOSURE:** If this material contaminates the skin, begin decontamination with running water. Recommended flushing is for 15 minutes if any sign of skin irritation develops. Contaminated individual should seek immediate medical attention if any adverse exposure symptoms develop.

**EYE EXPOSURE:** If this product enters the eyes, open contaminated individual's eyes while under gently running water. Use sufficient force to open eyelids. Have contaminated individual "roll" eyes. Minimum flushing is for 15 minutes. Do not interrupt flushing. Contaminated individual must seek medical attention if any adverse effect occurs.

**INHALATION:** If this product is inhaled, remove contaminated individual to fresh air. If adverse effect occurs, seek medical attention.

**INGESTION:** If this material is swallowed, CALL PHYSICIAN OR POISON CONTROL CENTER FOR MOST CURRENT INFORMATION. If professional advice is not available, do not induce vomiting. Victim should drink milk, egg whites, or large quantities of water. Never induce vomiting or give diluents (milk or water) to someone who is unconscious, having convulsions, or unable to swallow.

**MOST IMPORTANT SYMPTOMS/EFFECTS:** See Sections 2 (Hazard Identification) and 11 (Toxicological Information) for description of possible health effects from exposure to this product.

**MEDICAL CONDITIONS AGGRAVATED BY EXPOSURE:** Skin disorders and central nervous system conditions may be aggravated by prolonged overexposure to this product.

**INDICATION OF IMMEDIATE MEDICAL ATTENTION AND SPECIAL TREATMENT IF NEEDED:** Treat symptoms and eliminate overexposure. Consider gastric lavage with activated charcoal in event of ingestion. Consideration should be given to the use of an intratracheal tube to prevent aspiration. Individuals intoxicated by petroleum distillates should be hospitalized immediately, with acute and continuing attention to neurologic and cardiopulmonary function. Positive pressure ventilation may be necessary. After the initial episode, individuals should be followed for changes in blood variables and the delayed appearance of pulmonary edema and chemical pneumonitis. Such patients should be followed for several days or weeks for delayed effects, including bone marrow toxicity and hepatic and renal impairment. Individuals with chronic pulmonary disease will be more seriously impaired, and recovery from inhalation exposure may be complicated.

## 5. FIRE-FIGHTING MEASURES

**FIRE EXTINGUISHING MEDIA:** Use extinguishing material suitable to the surrounding fire, including halon, carbon dioxide, dry chemical and ABC class. Water spray may be used for cooling of containers.

**UNSUITABLE EXTINGUISHING MEDIA:** Water jet.

**SPECIAL HAZARDS ARISING FROM THE SUBSTANCE:** This product is a flammable liquid. When involved in a fire, this material may decompose and produce irritating vapors and toxic gases (e.g., carbon dioxide, carbon monoxide, nitrogen oxides, hydrogen cyanide, reactive hydrocarbons and aldehydes). The vapors of this product may travel to a source of ignition, and flashback to a leak or open container.

**Explosion Sensitivity to Mechanical Impact:** Not applicable.

**Explosion Sensitivity to Static Discharge:** Vapors of this product may be ignited by static discharge if a high concentration is allowed to accumulate.

**SPECIAL PROTECTIVE ACTIONS FOR FIRE-FIGHTERS:** Structural fire-fighters must wear Self-Contained Breathing Apparatus and full protective equipment. Chemical resistant clothing may be necessary. Move containers from fire area if it can be done without risk to personnel. Due to the low flash point of this product, water may be ineffective to extinguish fires involving this product). Water spray can be used to cool fire-exposed containers. Water fog or spray can also be used by trained fire-fighters to disperse this product's vapors and to protect personnel. If possible, prevent runoff water from entering storm drains, bodies of water, or other environmentally sensitive areas. Rinse contaminated equipment thoroughly with soapy water before returning such equipment to service.

## 6. ACCIDENTAL RELEASE MEASURES

**PERSONAL PRECAUTIONS AND EMERGENCY PROCEDURES:** Proper protective equipment should be used. In case of a spill, clear the affected area and protect people. Eliminate all sources of ignition before clean-up begins. Use non-sparking tools. Care should be taken as vapors of this product are heavier than air and can accumulate in low-lying pockets, creating a fire hazard. The atmosphere must have levels of components lower than those listed in Section 8, (Exposure Controls-Personal Protection) and at least 19.5 percent oxygen before personnel can be allowed into the area without Self-Contained Breathing Apparatus (SCBA).

**PERSONAL PROTECTIVE EQUIPMENT:**

Small spills: Wear gloves, goggles and apron.

Large Spills: Not applicable due to small size of product packaging.

**METHODS FOR CLEANUP AND CONTAINMENT:**

Small spills: Absorb spilled liquid with polypads or other suitable absorbent materials.

Large Spills: Not applicable due to small size of product packaging.

All spills: Place all spill residue in a double plastic bag and seal. Dispose of in accordance with applicable U.S. Federal, State, or local procedures, or appropriate Canadian Standards (see Section 13, Disposal Considerations).

**ENVIRONMENTAL PRECAUTIONS:** Avoid release to the environment. Run-off water may be contaminated by other materials and should be contained to prevent possible environmental damage.

**REFERENCE TO OTHER SECTIONS:** See information in Section 8 (Exposure Controls – Personal Protection) and Section 13 (Disposal Considerations) for additional information.

## 7. HANDLING and STORAGE

**PRECAUTIONS FOR SAFE HANDLING:** As with all chemicals, avoid getting this product ON YOU or IN YOU. Wash thoroughly after handling this product. Do not eat, drink, smoke, or apply cosmetics while handling this product. Avoid breathing vapors or mists generated by this product. Use in a well-ventilated location. Remove contaminated clothing immediately. All employees who handle this material should be trained to handle it safely. Keep away from heat, sparks, and other sources of ignition. Keep container tightly closed when not in use. Use non-sparking tools. Bond and ground containers during transfers of material. If this product is transferred into another container, only use portable containers and dispensing equipment (faucet, pump, drip can) approved for flammable liquids.

**CONDITIONS FOR SAFE STORAGE:** Store containers in a cool, dry location, away from direct sunlight, sources of intense heat, or where freezing is possible. Store containers away from incompatible chemicals (see Section 10, Stability and Reactivity). Containers should be separated from oxidizing materials by a minimum distance of 20 ft. or by a barrier of non-combustible material at least 5 ft. high having a fire-resistance rating of at least 0.5 hours. Storage areas should be made of fire resistant materials. Post warning and "NO SMOKING" signs in storage and use areas, as appropriate. Have appropriate extinguishing equipment in the storage area (i.e., sprinkler system, portable fire extinguishers). Inspect all incoming containers before storage to ensure containers are properly labeled and not damaged. Refer to NFPA 30, *Flammable and Combustible Liquids Code*, for additional information on storage. Empty containers may contain residual liquid or vapors which are flammable; therefore, empty containers should be handled with care. Never perform any welding, cutting, soldering, drilling, or other hot work on an empty container or piping until all liquid, vapors, and residue have been cleared.

**SPECIFIC END USES:** This product is used as a surface primer with windshield replacement adhesives.

## 8. EXPOSURE CONTROLS - PERSONAL PROTECTION

### EXPOSURE LIMITS:

#### OCCUPATIONAL/WORKPLACE EXPOSURE LIMITS/GUIDELINES:

CHEMICAL NAME	CAS #	EXPOSURE LIMITS IN AIR							OTHER mg/m <sup>3</sup>
		ACGIH-TLVS		OSHA-PELS		NIOSH-RELS		NIOSH	
		TWA ppm	STEL ppm	TWA ppm	STEL ppm	TWA ppm	STEL ppm	IDLH ppm	
Ethyl Acetate	141-78-6	400	NE	400	NE	400	NE	2000 (based on LEL)	CANADA: SK: TWA=400; STEL=500 YK: TWA=400; STEL=400 BC: TWA=150 Other Provinces, Territories: see ACGIH
Hydrocarbons, C <sub>7</sub> , N-alkanes, Isoalkanes, Cyclics	64742-49-0	500	NE	500	NE	NE	NE	NE	NE
Bis[3-(trimethoxysilyl)propyl]amine	82985-35-1	NE	NE	NE	NE	NE	NE	NE	NE
(3-Mercaptopropyl)trimethoxysilane	4420-74-0	NE	NE	NE	NE	NE	NE	NE	NE

NE = Not Established.

### CONTROL PARAMETERS:

**BIOLOGICAL EXPOSURES INDICES (BEIs):** Currently, there are no Biological Exposure Indices (BEIs) for any component of this product.

**VENTILATION AND ENGINEERING CONTROLS:** Use with adequate ventilation. Use a mechanical fan or vent area to outside. Where appropriate, use a non-sparking, grounded ventilation system separate from other exhaust ventilation systems. Ensure eyewash/safety shower stations are available near areas where this product is used.

**PROTECTIVE EQUIPMENT:** *The following information on appropriate Personal Protective Equipment is provided to assist employers in complying with OSHA regulations found in 29 CFR Subpart I (beginning at 1910.132) or equivalent standards of Canada. Please reference applicable regulations and standards for relevant details.*

**RESPIRATORY PROTECTION:** Maintain airborne contaminant concentrations below guidelines listed in this section, if applicable. If respiratory protection is needed, use only protection authorized in 29 CFR 1910.134 or applicable State regulations. For operations in which mists or sprays of this product will be generated use only respiratory protection authorized in the U.S. Federal OSHA Respiratory Protection Standard (29 CFR 1910.134), equivalent U.S. State standards.

**EYE PROTECTION:** If necessary, refer to U.S. OSHA 29 CFR 1910.133 or Canadian CSA Standard Z94.3-07, for further information.

**HAND PROTECTION:** Polyvinyl alcohol, polyethylene/ethylene vinyl alcohol, 4H™, Barricade™, or Responder™ gloves. Natural rubber, butyl rubber, neoprene, polyvinyl chloride, and nitrile gloves are not recommended. If necessary, refer to U.S. OSHA 29 CFR 1910.138 or appropriate Standards of Canada for further information.

**BODY PROTECTION:** None normally needed under typical circumstances of use. If necessary, use body protection appropriate for task (e.g., Tyvek suit, rubber apron). If necessary, refer to the OSHA Technical Manual (Section VII: Personal Protective Equipment) or appropriate Standards of Canada.

## 9. PHYSICAL and CHEMICAL PROPERTIES

PHYSICAL STATE: Liquid.

COLOR: Clear, colorless.

MOLECULAR FORMULA: Mixture.

MOLECULAR WEIGHT: Mixture.

ODOR: Hydrocarbon.

ODOR THRESHOLD: Not established for product.

pH: Not established.

MELTING/FREEZING POINT: Not established for product.

BOILING POINT: 75°C (167°F)

BOILING RANGE: Not established for product

FLASH POINT: -4°C (24.8°F)

EVAPORATION RATE (nBuAc = 1): Not established for product.

LOWER FLAMMABLE LIMIT (in air by volume, %): 0.6%

UPPER FLAMMABLE LIMIT (in air by volume, %): 7%

VAPOR PRESSURE, mm Hg @ 20°C: >1 hPa.

RELATIVE VAPOR DENSITY (air = 1): Not established for product.

SPECIFIC GRAVITY (water = 1): 0.7

SOLUBILITY IN WATER: Not established for product.

COEFFICIENT OF OIL/WATER DISTRIBUTION (PARTITION COEFFICIENT): Not established for product.

AUTOIGNITION TEMPERATURE: Not established for product.

VISCOSITY (cP): <5 mPa-s (<5 cP)

## 10. STABILITY and REACTIVITY

REACTIVITY: Product is not considered a reactivity hazard.

CHEMICAL STABILITY: Stable under typical, environmental conditions in a workplace in the absence of contaminants.

DECOMPOSITION PRODUCTS: *Combustion*: Irritating vapors and toxic gases (e.g., carbon dioxide, carbon monoxide, nitrogen oxides). *Hydrolysis*: None known.

MATERIALS WITH WHICH SUBSTANCE IS INCOMPATIBLE: This product is incompatible with strong oxidizing agents.

POSSIBILITY OF HAZARDOUS REACTIONS: None known.

CONDITIONS TO AVOID: Contact with incompatible chemicals, exposure to elevated temperatures.

## 11. TOXICOLOGICAL INFORMATION

### INFORMATION ON TOXICOLOGICAL EFFECTS

ACUTE TOXICITY:	Not Classified.
SKIN CORROSION/IRRITATION:	Skin Irritation, Category 2.
SERIOUS EYE DAMAGE/IRRITATION: Data for Bis[3-(trimethoxysilyl)propyl]amine: (Eye-Rabbit): Severely Irritating	Eye Damage, Category 1.
RESPIRATORY SENSITIZATION:	Not Classified.
SKIN SENSITIZATION Data for (3-Mercaptopropyl)trimethoxysilane: Guinea Pig: May cause sensitization by skin contact.	Category 1.
GERM CELL MUTAGENICITY:	Not Classified.
CARCINOGENICITY:	Not Classified.
REPRODUCTIVE TOXICITY:	Not Classified.
SPECIFIC TARGET ORGAN TOXICITY (SINGLE EXPOSURE): Data for Bis[3-(trimethoxysilyl)propyl]amine: May cause respiratory irritation  Data for Ethyl Acetate: TCLo (Inhalation-Mouse) 200 ppm/6 minutes: Lungs, Thorax, or Respiration: respiratory depression	STOT SE Category 3.
SPECIFIC TARGET ORGAN TOXICITY (REPEATED EXPOSURE):	Not Classified.
ASPIRATION HAZARD	Aspiration Toxicity, Category 1.

### SYMPTOMS/EFFECTS BY ROUTE OF EXPOSURE

#### INHALATION:

If high concentrations of vapors of this product are inhaled (as may occur if this material is used in a poorly ventilated area), symptoms of central nervous system depression may occur (e.g., headaches, dizziness, nausea, incoordination, light-headedness, and drowsiness). Inhalation may cause irritation of the nose, throat, and respiratory system, especially if inhalation exposure is prolonged. Symptoms may include coughing, sneezing and difficulty breathing. Repeated or prolonged exposures may cause behavioral (neurological) changes and kidney and central nervous system damage, loss of appetite, and visual disturbances.

#### CONTACT WITH SKIN or EYES:

Skin contact may cause reddening, discomfort, and irritation. Skin inflammation is characterized by itching, scaling, reddening or occasionally, blistering. Repeated or prolonged contact may result in defatting, redness, itching, inflammation, cracking and possible secondary infection. Direct contact with the eyes can be severely irritating and will result in immediate pain, tearing. Redness, itching, burning sensation and visual disturbances may indicate excessive eye contact. Vapors of the product may cause watering and irritation of the eyes.

#### SKIN ABSORPTION:

Absorption from prolonged or massive skin contact may cause systemic poisoning.

#### INGESTION:

Ingestion is not anticipated to be a likely route of exposure to this product. If this material is swallowed, it may cause nausea, diarrhea, and vomiting and symptoms of central nervous system depression, such as described under "Inhalation". A danger of aspiration into the lungs exists after ingestion and can cause damage to the tissues of the lungs, resulting in chemical pneumonia and edema (accumulation of fluid in the lungs). Ingestion of large quantities of this product may be fatal.

## 12. ECOLOGICAL INFORMATION

ALL WORK PRACTICES MUST BE AIMED AT ELIMINATING ENVIRONMENTAL CONTAMINATION.

**ECOTOXICITY:** This product has not been tested for ecotoxicity. The following aquatic toxicity data are available for some components of this product:

**ETHYL ACETATE:**

BCF (*Chlorella fusca* algae) (wet wt): 13,500  
EC<sub>0</sub> (*Pseudomonas putida* bacteria): 16 hours = 650 mg/L  
EC<sub>0</sub> (*Microcystis aeruginosa* algae): 8 days = 550 mg/L  
EC<sub>0</sub> (*Scenedesmus quadricauda* green algae) 7 days = 15 mg/L  
EC<sub>0</sub> (*Entosiphon sulcatum* protozoa) 72 hours = 202 mg/L  
EC<sub>0</sub> (*Uronema parduczi* Chatton-Lwoff protozoa) = 1,620 mg/L

**ETHYL ACETATE (continued):**

LC<sub>50</sub> (Mexican axolotl) [3-4 w after hatching] 48 hours = 150 mg/L  
LC<sub>50</sub> (clawed toad) [3-4 w after hatching] 48 hours = 180 mg/L  
**3-(MERCAPTOPROPYL)TRIMETHOXSILANE:**  
LC<sub>50</sub> (*Brachydanio rerio*) 439mg/L (96hr)  
EC<sub>50</sub> (*Daphnia magna*) 6.7mg/L (48hr)  
EC<sub>50</sub> (*Scenedesmus subspicatus*) 267mg/L (72hr)  
NOEC (Chronic)(*Scenedesmus subspicatus*) 40mg/L

**HYDROCARBONS, C7, N-ALKANES, ISOALKANES, CYCLICS:**

LC<sub>50</sub> (*Oncorhynchus mykiss*) >13.4mg/L (96hr)  
EC<sub>50</sub> (*Daphnia magna* – water flea) 3.2mg/L (48hr)  
EL<sub>50</sub> (*Pseudokirchneriella subcapitata* – green algae) 12mg/L (72hr)  
**BIS[3-(TRIMETHOXSILYL)PROPYL]AMINE:**  
LC<sub>50</sub> (*Oncorhynchus mykiss*) 130mg/L (96hr)  
EC<sub>50</sub> (*Scenedesmus subspicatus*) >100mg/L (72hr)  
EC<sub>50</sub> (*Daphnia magna*) >100mg/L (48hr)  
NOEC (Chronic)(*Scenedesmus subspicatus*) 22mg/L

**PERSISTENCE AND BIODEGRADABILITY:** This product has not been tested for persistence or biodegradability. The hydrocarbon fraction may be considered biodegradable in water and in air, although it will mostly disperse into air. The small non-biodegradable amount which spreads into water tends to accumulate in fish.

**BIO-ACCUMULATION POTENTIAL:** This product has not been tested for bio-accumulation potential.

**ETHYL ACETATE:**

Bioconcentration: An estimated BCF of 3.2 was calculated for Ethyl Acetate, using a log Kow of 0.73 and a regression-derived equation. According to a classification scheme, this BCF suggests the potential for bioconcentration in aquatic organisms is low.

**MOBILITY:** This product has not been tested for mobility in soil.

**ETHYL ACETATE:**

The Koc of Ethyl Acetate is estimated as 59, using a log Kow of 0.73 and a regression-derived equation. According to a classification scheme, this estimated Koc value suggests that Ethyl Acetate is expected to have high mobility in soil.

**OTHER ADVERSE EFFECTS:** Components of this product are not listed as having ozone depletion potential.

**ENVIRONMENTAL EXPOSURE CONTROLS:** Controls should be engineered to prevent release to the environment, including procedures to prevent spills, atmospheric release, and release to waterways.

**RESULTS OF PBT and vPvB ASSESSMENT:** No data available. PBT and vPvB assessments are part of the chemical safety report required for some substances in European Union Regulation (EC) 1907/2006, Article 14.

## 13. DISPOSAL CONSIDERATIONS

**DISPOSAL METHODS:** It is the responsibility of the generator to determine at the time of disposal whether the product meets the criteria of a hazardous waste per regulations of the area in which the waste is generated and/or disposed of. Waste disposal must be in accordance with appropriate Federal, State, Provincial, and local regulations. This product, if unaltered by use, may be disposed of by treatment at a permitted facility or as advised by your local hazardous waste regulatory authority. Shipment of wastes must be done with appropriately permitted and registered transporters.

**DISPOSAL CONTAINERS:** Waste materials must be placed in and shipped in impermeable containers (such as poly or metal waste pails or drums). Permeable cardboard containers are not appropriate and should not be used. Ensure that any required marking or labeling of the containers be done to all applicable regulations.

**PRECAUTIONS TO BE FOLLOWED DURING WASTE HANDLING:** Wear proper protective equipment when handling waste materials.

**EPA WASTE NUMBER:** D001, Characteristic-Ignitability

## 14. TRANSPORTATION INFORMATION

UN NUMBER

1206

UN PROPER SHIPPING NAME

Heptanes

TRANSPORT HAZARD CLASS(ES)

3 (Flammable)

PACKING GROUP

II

ENVIRONMENTAL HAZARDS

This product meets the criteria of environmentally hazardous according to the criteria of the UN Model Regulations (as reflected in the IMDG Code, ADR, RID, and ADN); Heptane meets the criteria listed in Annex III under MARPOL 73/78 governing Marine Pollutants.

SPECIAL PRECAUTIONS FOR USER

None

TRANSPORT IN BULK ACCORDING TO ANNEX II OF MARPOL 73/78 AND THE IBC CODE

Not applicable to shipments of this product.

## 15. REGULATORY INFORMATION

**U.S. STATE AND FEDERAL REGULATIONS:**

U.S. SARA REPORTING REQUIREMENTS: Components listed below are subject to the reporting requirements of Sections 313 of Title III of the Superfund Amendments and Reauthorization Act. No components are subject to reporting requirements under Section 302 or 304 of the same Act.

CHEMICAL NAME	SARA 302 (40 CFR 355, Appendix A)	SARA 304 (40 CFR Table 302.4)	SARA 313 (40 CFR 372.65)
Ethyl Acetate	No	No	Yes

U.S. SARA THRESHOLD PLANNING QUANTITY: There are no specific Threshold Planning Quantities for this product. The default Federal SDS submission and inventory requirement filing threshold of 10,000 lb (4,540 kg) may apply, per 40 CFR 370.20.

U.S. CERCLA REPORTABLE QUANTITY (RQ): Ethyl Acetate = 5000 lb (2270 kg)

U.S. TSCA INVENTORY STATUS: The components of this product are listed on the TSCA Inventory.

STATE REGULATIONS:

CALIFORNIA SAFE DRINKING WATER AND TOXIC ENFORCEMENT ACT (PROPOSITION 65): This product does not contain any chemicals known to the State of California to cause cancer, birth defects, or any other reproductive harm.

**ADDITIONAL CANADIAN REGULATIONS:**

CANADIAN WHMIS CLASSIFICATION AND LABELING: See Section 2.

CANADIAN DSL/NDL INVENTORY: The components of this product listed by CAS # are listed on the DSL Inventory.

CANADIAN ENVIRONMENTAL PROTECTION AGENCY (CEPA) PRIORITY SUBSTANCES LISTS: The components of this product are not on the Priority Substances Lists.

CHEMICALS MANAGEMENT PLAN: The components of the product are not included in a Chemicals Management Plan.

LIST OF TOXIC SUBSTANCES: No components of this product are on the List of Toxic Substances.

VIRTUAL ELIMINATION LIST: No components of this product are on the Virtual Elimination List.

## 16. OTHER INFORMATION

**PREPARED BY:**

SRP

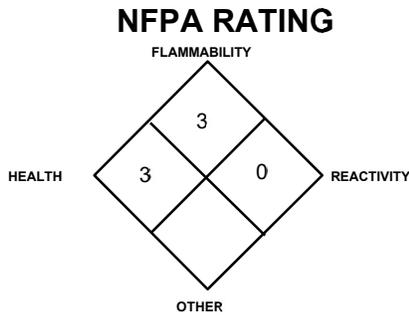
650 Pelham Boulevard, Suite 100, St Paul MN 55114 • (800) 728-1817

**REVISION DETAILS:**

December 2019: First Edition.

July 2020: Company Name Change.

September 2020: Update product formula.



Hazard Scale: **0** = Minimal **1** = Slight **2** = Moderate  
**3** = Serious **4** = Severe

HAZARDOUS MATERIAL IDENTIFICATION SYSTEM			
<b>HEALTH HAZARD</b>	(BLUE)		3
<b>FLAMMABILITY HAZARD</b>	(RED)		3
<b>PHYSICAL HAZARD</b>	(YELLOW)		0
PROTECTIVE EQUIPMENT			
EYES	RESPIRATORY	HANDS	BODY
	SEE SECTION 8		SEE SECTION 8
For Routine Industrial Use and Handling Applications			

Hazard Scale: **0** = Minimal **1** = Slight **2** = Moderate  
**3** = Serious **4** = Severe \* = Chronic hazard

## DEFINITIONS OF TERMS

A large number of abbreviations and acronyms appear on a MSDS. Some of these which are commonly used include the following:

**CAS #:** This is the Chemical Abstract Service Number that uniquely identifies each constituent.

### EXPOSURE LIMITS IN AIR:

**CEILING LEVEL:** The concentration that shall not be exceeded during any part of the working exposure.

**DFG MAK Germ Cell Mutagen Categories:** **1:** Germ cell mutagens which have been shown to increase the mutant frequency in the progeny of exposed humans. **2:** Germ cell mutagens which have been shown to increase the mutant frequency in the progeny of exposed mammals. **3A:** Substances which have been shown to induce genetic damage in germ cells of human or animals, or which produce mutagenic effects in somatic cells of mammals *in vivo* and have been shown to reach the germ cells in an active form. **3B:** Substances which are suspected of being germ cell mutagens because of their genotoxic effects in mammalian somatic cell *in vivo*; in exceptional cases, substances for which there are no *in vivo* data, but which are clearly mutagenic *in vitro* and structurally related to known *in vivo* mutagens. **4:** Not applicable (Category 4 carcinogenic substances are those with non-genotoxic mechanisms of action. By definition, germ cell mutagens are genotoxic. Therefore, a Category 4 for germ cell mutagens cannot apply. At some time in the future, it is conceivable that a Category 4 could be established for genotoxic substances with primary targets other than DNA [e.g. purely aneugenic substances] if research results make this seem sensible.) **5:** Germ cell mutagens, the potency of which is considered to be so low that, provided the MAK value is observed, their contribution to genetic risk for humans is expected not to be significant.

**DFG MAK Pregnancy Risk Group Classification:** **Group A:** A risk of damage to the developing embryo or fetus has been unequivocally demonstrated. Exposure of pregnant women can lead to damage of the developing organism, even when MAK and BAT (Biological Tolerance Value for Working Materials) values are observed. **Group B:** Currently available information indicates a risk of damage to the developing embryo or fetus must be considered to be probable. Damage to the developing organism cannot be excluded when pregnant women are exposed, even when MAK and BAT values are observed. **Group C:** There is no reason to fear a risk of damage to the developing embryo or fetus when MAK and BAT values are observed. **Group D:** Classification in one of the groups A-C is not yet possible because, although the data available may indicate a trend, they are not sufficient for final evaluation.

**IDLH-Immediately Dangerous to Life and Health:** This level represents a concentration from which one can escape within 30-minutes without suffering escape-preventing or permanent injury.

**LOQ:** Limit of Quantitation.

**SKIN:** Used when there is a danger of cutaneous absorption.

**STEL-Short Term Exposure Limit:** Short Term Exposure Limit, usually a 15-minute time-weighted average (TWA) exposure that should not be exceeded at any time during a workday, even if the 8-hr TWA is within the TLV-TWA, PEL-TWA or REL-TWA.

**TLV-Threshold Limit Value:** An airborne concentration of a substance that represents conditions under which it is generally believed that nearly all workers may be repeatedly exposed without adverse effect. The duration must be considered, including the 8-hour.

**TWA-Time Weighted Average:** Time Weighted Average exposure concentration for a conventional 8-hr (TLV, PEL) or up to a 10-hr (REL) workday and a 40-hr workweek.

### HAZARDOUS MATERIALS IDENTIFICATION SYSTEM HAZARD RATINGS:

This rating system was developed by the National Paint and Coating Association and has been adopted by industry to identify the degree of chemical hazards.

#### HEALTH HAZARD:

**0 (Minimal Hazard):** No significant health risk, irritation of skin or eyes not anticipated. *Skin Irritation:* Essentially non-irritating. PII or Draize = "0". *Eye Irritation:* Essentially non-irritating, or minimal effects which clear in < 24 hours [e.g. mechanical irritation]. Draize = "0". *Oral Toxicity LD<sub>50</sub> Rat:* < 5000 mg/kg. *Dermal Toxicity LD<sub>50</sub> Rat or Rabbit:* < 2000 mg/kg. *Inhalation Toxicity 4-hrs LC<sub>50</sub> Rat:* < 20 mg/L.; **1 (Slight Hazard):** Minor reversible injury may occur; slightly or mildly irritating. *Skin Irritation:* Slightly or mildly irritating. *Eye Irritation:* Slightly or mildly irritating. *Oral Toxicity LD<sub>50</sub> Rat:* > 500-5000 mg/kg. *Dermal Toxicity LD<sub>50</sub> Rat or Rabbit:* > 1000-2000 mg/kg. *Inhalation Toxicity LC<sub>50</sub> 4-hrs Rat:* > 2-20 mg/L.; **2 (Moderate Hazard):** Temporary or transitory injury may occur. *Skin Irritation:* Moderately irritating; primary irritant; sensitizer. PII or Draize > 0, < 5. *Eye Irritation:* Moderately to severely irritating and/or corrosive; reversible corneal opacity; corneal involvement or irritation clearing in 8-21 days. Draize > 0, ≤ 25. *Oral Toxicity LD<sub>50</sub> Rat:* > 50-500 mg/kg. *Dermal Toxicity LD<sub>50</sub> Rat or Rabbit:* > 200-1000 mg/kg. *Inhalation Toxicity LC<sub>50</sub> 4-hrs Rat:* > 0.5-2 mg/L.; **3 (Serious Hazard):** Major injury likely unless prompt action is taken and medical treatment is given; high level of toxicity; corrosive. *Skin Irritation:* Severely irritating and/or corrosive; may destroy dermal tissue, cause skin burns, dermal necrosis. PII or Draize > 5-8 with destruction of tissue. *Eye Irritation:* Corrosive, irreversible destruction of ocular tissue; corneal involvement or irritation persisting for more than 21 days. Draize > 80 with effects irreversible in 21 days. *Oral Toxicity LD<sub>50</sub> Rat:* > 1-50 mg/kg. *Dermal Toxicity LD<sub>50</sub> Rat or Rabbit:* > 20-200 mg/kg. *Inhalation Toxicity LC<sub>50</sub> 4-hrs Rat:* > 0.05-0.5 mg/L.; **4 (Severe Hazard):** Life-threatening; major or permanent damage may result from single or repeated exposure. *Skin Irritation:* Not appropriate. Do not rate as a "4", based on skin irritation alone. *Eye Irritation:* Not appropriate. Do not rate as a "4", based on eye irritation alone. *Oral Toxicity LD<sub>50</sub> Rat:* ≤ 1 mg/kg. *Dermal Toxicity LD<sub>50</sub> Rat or Rabbit:* ≤ 20 mg/kg. *Inhalation Toxicity LC<sub>50</sub> 4-hrs Rat:* ≤ 0.05 mg/L).

### HAZARDOUS MATERIALS IDENTIFICATION SYSTEM HAZARD RATINGS (continued):

#### FLAMMABILITY HAZARD:

**0 (Minimal Hazard-Materials)** that will not burn in air when exposure to a temperature of 815.5°C [1500°F] for a period of 5 minutes.; **1 (Slight Hazard-Materials)** that must be pre-heated before ignition can occur. Material require considerable pre-heating, under all ambient temperature conditions before ignition and combustion can occur, including: Materials that will burn in air when exposed to a temperature of 815.5°C (1500°F) for a period of 5 minutes or less; Liquids, solids and semisolids having a flash point at or above 93.3°C [200°F] (e.g. OSHA Class III B, or; Most ordinary combustible materials [e.g. wood, paper, etc.]; **2 (Moderate Hazard-Materials)** that must be moderately heated or exposed to relatively high ambient temperatures before ignition can occur. Materials in this degree would not, under normal conditions, form hazardous atmospheres in air, but under high ambient temperatures or moderate heating may release vapor in sufficient quantities to produce hazardous atmospheres in air, including: Liquids having a flash-point at or above 37.8°C [100°F] Solid materials in the form of coarse dusts that may burn rapidly but that generally do not form explosive atmospheres; Solid materials in a fibrous or shredded form that may burn rapidly and create flash fire hazards (e.g. cotton, sisal, hemp; Solids and semisolids that readily give off flammable vapors.); **3 (Serious Hazard-Liquids and solids)** that can be ignited under almost all ambient temperature conditions. Materials in this degree produce hazardous atmospheres with air under almost all ambient temperatures, or, unaffected by ambient temperature, are readily ignited under almost all conditions, including: Liquids having a flash point below 22.8°C [73°F] and having a boiling point at or above 38°C [100°F] and below 37.8°C [100°F] [e.g. OSHA Class IB and IC]; Materials that on account of their physical form or environmental conditions can form explosive mixtures with air and are readily dispersed in air [e.g., dusts of combustible solids, mists or droplets of flammable liquids]; Materials that burn extremely rapidly, usually by reason of self-contained oxygen [e.g. dry nitrocellulose and many organic peroxides]; **4 (Severe Hazard-Materials)** that will rapidly or completely vaporize at atmospheric pressure and normal ambient temperature or that are readily dispersed in air, and which will burn readily, including: Flammable gases; Flammable cryogenic materials; Any liquid or gaseous material that is liquid while under pressure and has a flash point below 22.8°C [73°F] and a boiling point below 37.8°C [100°F] [e.g. OSHA Class IA; Material that ignite spontaneously when exposed to air at a temperature of 54.4°C [130°F] or below [e.g. pyrophoric].

#### PHYSICAL HAZARD:

**0 (Water Reactivity):** Materials that do not react with water. *Organic Peroxides:* Materials that are normally stable, even under fire conditions and will not react with water. *Explosives:* Substances that are Non-Explosive. *Unstable Compressed Gases:* No Rating. *Pyrophorics:* No Rating. *Oxidizers:* No "0" rating allowed. *Unstable Reactives:* Substances that will not polymerize, decompose, condense or self-react.; **1 (Water Reactivity):** Materials that change or decompose upon exposure to moisture. *Organic Peroxides:* Materials that are normally stable, but can become unstable at high temperatures and pressures. These materials may react with water, but will not release energy. *Explosives:* Division 1.5 & 1.6 substances that are very insensitive explosives or that do not have a mass explosion hazard. *Compressed Gases:* Pressure below OSHA definition. *Pyrophorics:* No Rating. *Oxidizers:* Packaging Group III; *Solids:* any material that in either concentration tested, exhibits a mean burning time less than or equal to the mean burning time of a 3:7 potassium bromate/cellulose mixture and the criteria for Packing Group I and II are not met. *Liquids:* any material that exhibits a mean pressure rise time less than or equal to the pressure rise time of a 1:1 nitric acid (65%)/cellulose mixture and the criteria for Packing Group I and II are not met. *Unstable Reactives:* Substances that may decompose, condense or self-react, but only under conditions of high temperature and/or pressure and have little or no potential to cause significant heat generation or explosive hazard. Substances that readily undergo hazardous polymerization in the absence of inhibitors.; **2 (Water Reactivity):** Materials that may react violently with water. *Organic Peroxides:* Materials that, in themselves, are normally unstable and will readily undergo violent chemical change, but will not detonate. These materials may also react violently with water. *Explosives:* Division 1.4 – Explosive substances where the explosive effect are largely confined to the package and no projection of fragments of appreciable size or range are expected. An external fire must not cause virtually instantaneous explosion of almost the entire contents of the package. *Compressed Gases:* Pressurized and meet OSHA definition but < 514.7 psi absolute at 21.1°C (70°F) [500 psig]. *Pyrophorics:* No Rating. *Oxidizers:* Packing Group II *Solids:* any material that, either in concentration tested, exhibits a mean burning time of less than or equal to the mean burning time of a 2:3 potassium bromate/cellulose mixture and the criteria for Packing Group I are not met. *Liquids:* any material that exhibits a mean pressure rise time less than or equal to the pressure rise of a 1:1 aqueous sodium chlorate solution (40%)/cellulose mixture and the criteria for Packing Group I are not met. *Unstable Reactives:* Substances that may polymerize, decompose, condense, or self-react at ambient temperature and/or pressure, but have a low potential for significant heat generation or explosion. Substances that readily form peroxides upon exposure to air or oxygen at room temperature);

## DEFINITIONS OF TERMS (Continued)

### HAZARDOUS MATERIALS IDENTIFICATION SYSTEM HAZARD RATINGS (continued):

**3 (Water Reactivity):** Materials that may form explosive reactions with water. *Organic Peroxides:* Materials that are capable of detonation or explosive reaction, but require a strong initiating source, or must be heated under confinement before initiation; or materials that react explosively with water. *Explosives:* Division 1.2 – Explosive substances that have a fire hazard and either a minor blast hazard or a minor projection hazard or both, but do not have a mass explosion hazard. *Compressed Gases:* Pressure  $\geq 514.7$  psi absolute at 21.1°C (70°F) [500 psig]. No Rating. *Oxidizers:* Packing Group I *Solids:* any material that, in either concentration tested, exhibits a mean burning time less than the mean burning time of a 3:2 potassium bromate/cellulose mixture. *Liquids:* Any material that spontaneously ignites when mixed with cellulose in a 1:1 ratio, or which exhibits a mean pressure rise time less than the pressure rise time of a 1:1 perchloric acid (50%) / cellulose mixture. *Unstable Reactives:* Substances that may polymerize, decompose, condense or self-react at ambient temperature and/or pressure and have a moderate potential to cause significant heat generation or explosion.; **4 (Water Reactivity):** Materials that react explosively with water without requiring heat or confinement. *Organic Peroxides:* Materials that are readily capable of detonation or explosive decomposition at normal temperature and pressures. *Explosives:* Division 1.1 & 1.2-explosive substances that have a mass explosion hazard or have a projection hazard. A mass explosion is one that affects almost the entire load instantaneously. *Compressed Gases:* No Rating. *Pyrophorics:* Add to the definition of Flammability “4”. *Oxidizers:* No “4” rating. *Unstable Reactives:* Substances that may polymerize, decompose, condense or self-react at ambient temperature and/or pressure and have a high potential to cause significant heat generation or explosion.).

### NATIONAL FIRE PROTECTION ASSOCIATION HAZARD RATINGS:

**HEALTH HAZARD: 0** (materials that, under emergency conditions, would offer no hazard beyond that of ordinary combustible materials): Gases and vapors whose LC<sub>50</sub> for acute inhalation toxicity is greater than 10,000 ppm. Dusts and mists whose LC<sub>50</sub> for acute inhalation toxicity is greater than 200 mg/L. Materials whose LD<sub>50</sub> for acute dermal toxicity is greater than 2000 mg/kg. Materials whose LD<sub>50</sub> for acute oral toxicity is greater than 2000 mg/kg. Materials that are essentially non-irritating to the respiratory tract, eyes and skin. **1** (materials that, under emergency conditions, can cause significant irritation): Gases and vapors whose LC<sub>50</sub> for acute inhalation toxicity is greater than 5,000 ppm but less than or equal to 10,000 ppm. Dusts and mists whose LC<sub>50</sub> for acute inhalation toxicity is greater than 10 mg/L but less than or equal to 200 mg/L. Materials whose LD<sub>50</sub> for acute dermal toxicity is greater than 1000 mg/kg but less than or equal to 2000 mg/kg. Materials whose LD<sub>50</sub> for acute oral toxicity is greater than 500 mg/kg but less than or equal to 2000 mg/kg. Materials that cause slight to moderate irritation to the respiratory tract, eyes and skin. **2** (materials that, under emergency conditions, can cause temporary incapacitation or residual injury): Gases and vapors whose LC<sub>50</sub> for acute inhalation toxicity is greater than 3,000 ppm but less than or equal to 5,000 ppm. Dusts and mists whose LC<sub>50</sub> for acute inhalation toxicity is greater than 2 mg/L but less than or equal to 10 mg/L. Materials whose LD<sub>50</sub> for acute dermal toxicity is greater than 200 mg/kg but less than or equal to 1000 mg/kg. Materials whose LD<sub>50</sub> for acute oral toxicity is greater than 50 mg/kg but less than or equal to 500 mg/kg. Any liquid whose saturated vapor concentration at 20°C (68°F) is equal to or greater than one-fifth its LC<sub>50</sub> for acute inhalation toxicity, if its LC<sub>50</sub> is less than or equal to 5000 ppm and that does not meet the criteria for either degree of hazard 3 or degree of hazard 4. Compressed liquefied gases with boiling points between -30°C (-22°F) and -55°C (-66.5°F) that cause severe tissue damage, depending on duration of exposure. Materials that are respiratory irritants. Materials that cause severe, but reversible irritation to the eyes or are lachrymators. Materials that are primary skin irritants or sensitizers. **3** (materials that, under emergency conditions, can cause serious or permanent injury): Gases and vapors whose LC<sub>50</sub> for acute inhalation toxicity is greater than 1,000 ppm but less than or equal to 3,000 ppm. Dusts and mists whose LC<sub>50</sub> for acute inhalation toxicity is greater than 0.5 mg/L but less than or equal to 2 mg/L. Materials whose LD<sub>50</sub> for acute dermal toxicity is greater than 40 mg/kg but less than or equal to 200 mg/kg. Materials whose LD<sub>50</sub> for acute oral toxicity is greater than 5 mg/kg but less than or equal to 50 mg/kg. Any liquid whose saturated vapor concentration at 20°C (68°F) is equal to or greater than one-fifth its LC<sub>50</sub> for acute inhalation toxicity, if its LC<sub>50</sub> is less than or equal to 3000 ppm and that does not meet the criteria for degree of hazard 4. Compressed liquefied gases with boiling points between -30°C (-22°F) and -55°C (-66.5°F) that cause frostbite and irreversible tissue damage. Materials that are respiratory irritants. Cryogenic gases that cause frostbite and irreversible tissue damage. Materials that are corrosive to the respiratory tract. Materials that are corrosive to the eyes or cause irreversible corneal opacity. Materials that are corrosive to the skin. **4** (materials that, under emergency conditions, can be lethal): Gases and vapors whose LC<sub>50</sub> for acute inhalation toxicity is less than or equal to 1,000 ppm. Dusts and mists whose LC<sub>50</sub> for acute inhalation toxicity is less than or equal to 0.5 mg/L. Materials whose LD<sub>50</sub> for acute dermal toxicity is less than or equal to 40 mg/kg. Materials whose LD<sub>50</sub> for acute oral toxicity is less than or equal to 5 mg/kg. Any liquid whose saturated vapor concentration at 20°C (68°F) is equal to or greater than one-fifth its LC<sub>50</sub> for acute inhalation toxicity, if its LC<sub>50</sub> is less than or equal to 1000 ppm.

### NATIONAL FIRE PROTECTION ASSOCIATION HAZARD RATINGS (continued):

**FLAMMABILITY HAZARD: 0** Materials that will not burn under typical fire conditions, including intrinsically noncombustible materials such as concrete, stone, and sand: Materials that will not burn in air when exposed to a temperature of 816°C (1500°F) for a period of 5 minutes in accordance with Annex D. **1** Materials that must be preheated before ignition can occur. Materials in this degree require considerable preheating, under all ambient temperature conditions, before ignition and combustion can occur: Materials that will burn in air when exposed to a temperature of 816°C (1500°F) for a period of 5 minutes in accordance with Annex D. Liquids, solids and semisolids having a flash point at or above 93.4°C (200°F) (i.e. Class IIIB liquids). Liquids with a flash point greater than 35°C (95°F) that do not sustain combustion when tested using the Method of Testing for Sustained Combustibility, per 49 CFR 173, Appendix H or the UN Recommendation on the Transport of Dangerous Goods, Model Regulations (current edition) and the related Manual of Tests and Criteria (current edition). Liquids with a flash point greater than 35°C (95°F) in a water-miscible solution or dispersion with a water non-combustible liquid/solid content of more than 85 percent by weight. Liquids that have no fire point when tested by ASTM D 92 Standard Test Method for Flash and Fire Points by Cleveland Open Cup, up to a boiling point of the liquid or up to a temperature at which the sample being tested shows an obvious physical change. Combustible pellets with a representative diameter of greater than 2 mm (10 mesh). Solids containing greater than 0.5 percent by weight of a flammable or combustible solvent are rated by the closed up flash point of the solvent. Most ordinary combustible materials. **2** Materials that must be moderately heated or exposed to relatively high ambient temperatures before ignition can occur. Materials in this degree would not under normal conditions form hazardous atmospheres with air, but under high ambient temperatures or under moderate heating could release vapor in sufficient quantities to produce hazardous atmospheres with air: Liquids having a flash point at or above 37.8°C (100°F) and below 93.4°C (200°F) (i.e. Class II and Class IIIA liquids.) Solid materials in the form of powders or coarse dusts of representative diameter between 420 microns (40 mesh) and 2 mm (10 mesh) that burn rapidly but that generally do not form explosive mixtures in air. Solid materials in fibrous or shredded form that burn rapidly and create flash fire hazards, such as cotton, sisal and hemp. Solids and semisolids that readily give off flammable vapors. Solids containing greater than 0.5 percent by weight of a flammable or combustible solvent are rated by the closed cup flash point of the solvent. **3** Liquids and solids that can be ignited under almost all ambient temperature conditions. Materials in this degree produce hazardous atmospheres with air under almost all ambient temperatures or, though unaffected by ambient temperatures, are readily ignited under almost all conditions: Liquids having a flash point below 22.8°C (73°F) and having a boiling point at or above 37.8°C (100°F) and those liquids having a flash point at or above 22.8°C (73°F) and below 37.8°C (73°F) and below 37.8°C (100°F) (i.e. Class IB and IC liquids). Materials that, on account of their physical form or environmental conditions, can form explosive mixtures with air and are readily dispersed in air. Flammable or combustible dusts with a representative diameter less than 420 microns (40 mesh). Materials that burn with extreme rapidity, usually by reason of self-contained oxygen (e.g. dry nitrocellulose and many organic peroxides). Solids containing greater than 0.5 percent by weight of a flammable or combustible solvent are rated by the closed cup flash point of the solvent. **4** Materials that will rapidly or completely vaporize at atmospheric pressure and normal ambient temperature or that are readily dispersed in air and will burn readily: Flammable gases. Flammable cryogenic materials. Any liquid or gaseous materials that is liquid while under pressure and has a flash point below 22.8°C (73°F) and a boiling point below 37.8°C (100°F) (i.e. Class IA liquids). Materials that ignite when exposed to air, Solids containing greater than 0.5 percent by weight of a flammable or combustible solvent are rated by the closed cup flash point of the solvent.

**INSTABILITY HAZARD: 0** Materials that in themselves are normally stable, even under fire conditions: Materials that have an estimated instantaneous power density (product of heat of reaction and reaction rate) at 250°C (482°F) below 0.01 W/mL. Materials that do not exhibit an exotherm at temperatures less than or equal to 500°C (932°F) when tested by differential scanning calorimetry. **1** Materials that in themselves are normally stable, but that can become unstable at elevated temperatures and pressures: Materials that have an estimated instantaneous power density (product of heat of reaction and reaction rate) at 250°C (482°F) at or above 0.01 W/mL and below 10 W/mL. **2** Materials that readily undergo violent chemical change at elevated temperatures and pressures: Materials that have an estimated instantaneous power density (product of heat of reaction and reaction rate) at 250°C (482°F) at or above 10 W/mL and below 100W/mL. **3** Materials that in themselves are capable of detonation or explosive decomposition or explosive reaction, but that require a strong initiating source or that must be heated under confinement before initiation: Materials that have an estimated instantaneous power density (product of heat of reaction and reaction rate) at 250°C (482°F) at or above 100 W/mL and below 1000 W/mL. Materials that are sensitive to thermal or mechanical shock at elevated temperatures and pressures. **4** Materials that in themselves are readily capable of detonation or explosive decomposition or explosive reaction at normal temperatures and pressures: Materials that have an estimated instantaneous power density (product of heat of reaction and reaction rate) at 250°C (482°F) of 1000 W/mL or greater. Materials that are sensitive to localized thermal or mechanical shock at normal temperatures and pressures.

## DEFINITIONS OF TERMS (Continued)

### FLAMMABILITY LIMITS IN AIR:

Much of the information related to fire and explosion is derived from the National Fire Protection Association (NFPA). **Flash Point** - Minimum temperature at which a liquid gives off sufficient vapors to form an ignitable mixture with air. **Autoignition Temperature**: The minimum temperature required to initiate combustion in air with no other source of ignition. **LEL** - the lowest percent of vapor in air, by volume, that will explode or ignite in the presence of an ignition source. **UEL** - the highest percent of vapor in air, by volume, that will explode or ignite in the presence of an ignition source.

### TOXICOLOGICAL INFORMATION:

**Human and Animal Toxicology:** Possible health hazards as derived from human data, animal studies, or from the results of studies with similar compounds are presented. Definitions of some terms used in this section are: **LD<sub>50</sub>** - Lethal Dose (solids & liquids) which kills 50% of the exposed animals; **LC<sub>50</sub>** - Lethal Concentration (gases) which kills 50% of the exposed animals; **ppm** concentration expressed in parts of material per million parts of air or water; **mg/m<sup>3</sup>** concentration expressed in weight of substance per volume of air; **mg/kg** quantity of material, by weight, administered to a test subject, based on their body weight in kg. Other measures of toxicity include **TDLo**, the lowest dose to cause a symptom and **TCLo** the lowest concentration to cause a symptom; **TDo**, **LDLo**, and **LDo**, or **TC**, **TCo**, **LCLo**, and **LCo**, the lowest dose (or concentration) to cause lethal or toxic effects. **Cancer Information:** The sources are: **IARC** - the International Agency for Research on Cancer; **NTP** - the National Toxicology Program, **RTECS** - the Registry of Toxic Effects of Chemical Substances, **OSHA** and **CAL/OSHA**. IARC and NTP rate chemicals on a scale of decreasing potential to cause human cancer with rankings from 1 to 4. Subrankings (2A, 2B, etc.) are also used. **Other Information:** **BEI** - ACGIH Biological Exposure Indices, represent the levels of determinants which are most likely to be observed in specimens collected from a

healthy worker who has been exposed to chemicals to the same extent as a worker with inhalation exposure to the TLV.

### ECOLOGICAL INFORMATION:

EC is the effect concentration in water. **BCF** = Bioconcentration Factor, which is used to determine if a substance will concentrate in lifeforms which consume contaminated plant or animal matter. **TL<sub>m</sub>** = median threshold limit; Coefficient of Oil/Water Distribution is represented by **log K<sub>ow</sub>** or **log K<sub>oc</sub>** and is used to assess a substance's behavior in the environment.

### REGULATORY INFORMATION:

#### U.S. and CANADA:

**ACGIH:** American Conference of Governmental Industrial Hygienists, a professional association which establishes exposure limits.

This section explains the impact of various laws and regulations on the material. **EPA** is the U.S. Environmental Protection Agency. **NIOSH** is the National Institute of Occupational Safety and Health, which is the research arm of the U.S. Occupational Safety and Health Administration (**OSHA**). **WHMIS** is the Canadian Workplace Hazardous Materials Information System. **DOT** and **TC** are the U.S. Department of Transportation and the Transport Canada, respectively. Superfund Amendments and Reauthorization Act (**SARA**); the Canadian Domestic/Non-Domestic Substances List (**DSL/NDL**); the U.S. Toxic Substance Control Act (**TSCA**); Marine Pollutant status according to the **DOT**; the Comprehensive Environmental Response, Compensation, and Liability Act (**CERCLA** or **Superfund**); and various state regulations. This section also includes information on the precautionary warnings which appear on the material's package label. **OSHA** - U.S. Occupational Safety and Health Administration. **EC**, European Economic Community).