SAFETY DATA SHEET

Klereseal® 910-W / 920-W

PART I  What is the material and what do I need to know in an emergency?

1. PRODUCT IDENTIFICATION

IDENTIFICATION of the SUBSTANCE or PREPARATION

<table>
<thead>
<tr>
<th>TRADE NAME (AS LABELED):</th>
<th>Klereseal® 910-W and 920-W</th>
</tr>
</thead>
<tbody>
<tr>
<td>PRODUCT DESCRIPTION:</td>
<td>Silicone</td>
</tr>
<tr>
<td>CHEMICAL NAME/CLASS:</td>
<td>Silane Mixture</td>
</tr>
<tr>
<td>SYNONYMS:</td>
<td>None</td>
</tr>
<tr>
<td>RELEVANT USE:</td>
<td>Water-Based Penetrating Masonry Sealer</td>
</tr>
<tr>
<td>USES ADVISED AGAINST:</td>
<td>Other Than Relevant Use</td>
</tr>
</tbody>
</table>

COMPANY/UNDERTAKING IDENTIFICATION:

<table>
<thead>
<tr>
<th>SUPPLIER/MANUFACTURER'S NAME:</th>
<th>Pecora Corporation</th>
</tr>
</thead>
<tbody>
<tr>
<td>ADDRESS:</td>
<td>165 Wambold Road, Harleysville, PA 19438</td>
</tr>
<tr>
<td>EMERGENCY PHONE:</td>
<td>800-424-9300 (CHEMTREC, 24-hours)</td>
</tr>
<tr>
<td>BUSINESS PHONE:</td>
<td>215-723-6051 (Mon–Fri, 8 AM–5 PM ET)</td>
</tr>
<tr>
<td>PREPARATION DATE:</td>
<td>January 2005</td>
</tr>
<tr>
<td>REVISION DATE:</td>
<td>September 23, 2014</td>
</tr>
</tbody>
</table>

This product is sold for commercial use. This SDS has been developed to address safety concerns of those individuals working with bulk quantities of this material, as well as those of potential users of this product in industrial/occupational settings. ALL United States Occupational Safety and Health Administration Standard (29 CFR 1910.1200), U.S. State equivalent Standards, and Canadian WHMIS [Controlled Products Regulations] and the Global Harmonization Standard required information is included in appropriate sections based on the U.S. ANSI Z400.1-2010 format. This product has been classified in accordance with the hazard criteria of the countries listed above.

2. HAZARD IDENTIFICATION

GLOBAL HARMONIZATION LABELING AND CLASSIFICATION: This product has been classified per GHS Standards.

Classification: Flammable Liquid Cat. 3, Skin Irritation Cat. 2, Eye Irritation Cat. 2A, STOT (Inhalation-Respiratory Irritation, Central Nervous System) SE Cat. 3

Signal Word: Danger


Hazard Symbols/Pictograms: GHS02, GHS07

EMERGENCY OVERVIEW:

Physical Description: WARNING! Flammable liquid. This product is a clear, pale yellow, flammable liquid with an alcohol odor.

Health Hazards: This product may cause respiratory, skin and eye irritation. May be harmful if swallowed. Exposure may cause adverse central nervous system effects.

Flammability Hazard: This product is flammable and will ignite if exposed to its flash point [25°C (77°F)] or direct flame. Vapor can readily form explosive flammable concentrations in air. Vapors can travel to an ignition source and flash point.

Reactivity Hazard: Reaction with water may cause a decrease of the flash point due to formation of volatile organic compounds (VOC), including methanol and ethanol. As a result of hydrolysis flammable vapors may accumulate in the container head space of containers.

Environmental Hazard: This product has not been tested for environmental impact. All release to the environment should be avoided.

HAZARDOUS MATERIALS IDENTIFICATION SYSTEM (HMIS®)

<table>
<thead>
<tr>
<th>Health</th>
<th>2</th>
</tr>
</thead>
<tbody>
<tr>
<td>Flammability</td>
<td>3</td>
</tr>
<tr>
<td>Physical Hazard</td>
<td>1</td>
</tr>
</tbody>
</table>

See Section 16 for definitions of ratings

0 = Minimal  3 = Serious
1 = Slight   4 = Severe
2 = Moderate  * = Chronic

HMIS® is a registered trademark of the National Paint and Coatings Association.

CANadian WHMIS CLASSIFICATION: D2B and Class B2. See Section 15 (Regulatory Information) for all classification details.

U.S. OSHA REGULATORY STATUS: This material is classified as hazardous under OSHA regulations.

3. COMPOSITION AND INFORMATION ON INGREDIENTS (Continued)

<table>
<thead>
<tr>
<th>Chemical Name</th>
<th>CAS #</th>
<th>W/W%</th>
<th>GHS Classification Hazard Statements</th>
</tr>
</thead>
<tbody>
<tr>
<td>Isooctyl Dimethyldisilane</td>
<td>34396-03-7</td>
<td>30.0-60.0</td>
<td>SELF CLASSIFICATION Classification: Flammable Liquid Cat. 2, Skin Irritation Cat. 2, Eye Irritation Cat. 2B, STOT (Inhalation-Respiratory Irritation) SE Cat. 3 Hazard Statement Codes: H225, H315, H319, H335</td>
</tr>
<tr>
<td>Amino Functional Polydimethylsiloxane</td>
<td>67923-07-3</td>
<td>10.0-30.0</td>
<td>SELF CLASSIFICATION Classification: Skin Irritation Cat. 2, Eye Irritation Cat. 2B, STOT (Inhalation-Respiratory Irritation) SE Cat. 3 Hazard Statement Codes: H315, H319, H335</td>
</tr>
</tbody>
</table>

See Section 16 for full text of Ingredient Hazard and Precautionary Statements.
3. COMPOSITION AND INFORMATION ON INGREDIENTS (Continued)

<table>
<thead>
<tr>
<th>Chemical Name</th>
<th>CAS #</th>
<th>W/W%</th>
<th>GHS Classification</th>
<th>Hazard Statements</th>
</tr>
</thead>
<tbody>
<tr>
<td>Ethyl Silicate</td>
<td>78-10-4</td>
<td>10.0-30.0</td>
<td>Classification: Flammable Liquid Cat. 3, Acute Inhalation Toxicity Cat. 4, Eye Irritation Cat. 2A, STOT (Inhalation-Respiratory)</td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>Hazard Codes: H226, H332, H319, H335</td>
<td></td>
</tr>
<tr>
<td>Acetic Acid</td>
<td>64-19-7</td>
<td>5.0-10.0%</td>
<td>Classification: Flammable Liquid Cat. 3, Skin Corrosion Cat. 1A</td>
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<tr>
<td></td>
<td></td>
<td></td>
<td>Hazard Statement Codes: H226, H314</td>
<td></td>
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<tr>
<td>Ethanol</td>
<td>64-17-5</td>
<td>Trace</td>
<td>Classification: Flammable Liquid Cat. 2</td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>Hazard Statement Codes: H225</td>
<td></td>
</tr>
<tr>
<td>Methanol</td>
<td>67-56-1</td>
<td>Trace</td>
<td>Classification: Flammable Liquid Cat. 2, Acute Oral Toxicity Cat. 3, Acute Dermal Toxicity Cat. 3, Acute Inhalation Toxicity Cat. 3, STOT (Ingestion-Eyes) SE Cat. 1 STOT (Inhalation) SE Cat. 3</td>
<td>Hazard Statement Codes: H225, H301, H311, H331, H370</td>
</tr>
</tbody>
</table>

See Section 16 for full text of Ingredient Hazard and Precautionary Statements

PART II What should I do if a hazardous situation occurs?

4. FIRST-AID MEASURES

PROTECTION OF FIRST AID RESPONDERS: Rescuers should not attempt to retrieve victims of exposure to this material without adequate personal protective equipment. Rescuers should be taken for medical attention, if necessary. Fire protective gear may be necessary.

DESCRIPTION OF FIRST AID MEASURES: Remove victim(s) to fresh air, as quickly as possible. Only trained personnel should administer supplemental oxygen and/or cardio-pulmonary resuscitation, if necessary. Remove and isolate contaminated clothing and shoes. Seek immediate medical attention. Take copy of label and SDS to physician or other health professional with victim(s).

Inhalation: If mists, sprays or fumes of this material are inhaled, remove victim to fresh air. If necessary, use artificial respiration to support vital functions.

Skin Exposure: If the material contaminates the skin, immediately begin decontamination with running water. Minimum flushing is for 20 minutes. Do not interrupt flushing. Remove exposed or contaminated clothing, taking care not to contaminate eyes. Victim must seek immediate medical attention.

Eye Exposure: If this product enters the eyes, open victim's eyes while under gently running water. Use sufficient force to open eyelids. Have victim "roll" eyes. Minimum flushing is for 20 minutes. Do not interrupt flushing.

Ingestion: If this material is swallowed, CALL PHYSICIAN OR POISON CONTROL CENTER FOR MOST CURRENT INFORMATION. DO NOT INDUCE VOMITING, unless directly by medical personnel. Have victim rinse mouth with water or give several cupfuls of water, if conscious. Never induce vomiting or give diluents (milk or water) to someone who is unconscious, having convulsions, or unable to swallow. If vomiting occurs, lean patient forward or place on left side (head-down position, if possible) to maintain an open airway and prevent aspiration.

MEDICAL CONDITIONS AGGRAVATED BY EXPOSURE: Acute or chronic respiratory conditions, and central nervous system conditions or skin problems may be aggravated by overexposure to this product.

INDICATION OF IMMEDIATE MEDICAL ATTENTION AND SPECIAL TREATMENT IF NEEDED: Treat symptoms and eliminate overexposure.

5. FIRE-FIGHTING MEASURES

FLASH POINT: 25°C (77°F)
AUTOIGNITION: 310°C (590°F)
FLAMMABLE LIMITS IN AIR: Not determined for product. For Ethyl Silicate: LEL: 1.3%, UEL: 23.0%

EXTINGUISHING MEDIA:
Suitable Extinguishing Media: Use materials appropriate for surrounding materials.
Unsuitable Extinguishing Media: None known.

PROTECTION OF FIREFIGHTERS:
Special Hazards Arising from the Substance: This is a highly flammable liquid. Reaction with water may cause a decrease of the flash point due to formation of volatile organic compound(s) (VOC). As a result of hydrolysis flammable vapors may accumulate in the container head space. Not sensitive to mechanical impact under normal conditions. Vapors may form explosive mixtures in air. Vapors are heavier than air and can accumulate in confined spaces creating an explosion hazard. Vapors can travel long distances and flashback to ignition source. Closed containers may develop pressure and rupture in event of fire.

Special Protective Actions for Fire-Fighters: Contact with water can produce methanol and ethanol, increasing the fire hazard. Incipient fire responders should wear eye protection. Structural firefighters must wear Self-Contained Breathing Apparatus and full protective equipment. Move containers from fire area if it can be done without risk to personnel. If possible, prevent runoff water from entering storm drains, bodies of water, or other environmentally sensitive areas.

6. ACCIDENTAL RELEASE MEASURES

PERSONAL PRECAUTIONS AND EMERGENCY PROCEDURES: An accidental release can result in a fire. Uncontrolled releases should be responded to by trained personnel using pre-planned procedures. Proper protective equipment should be used. Eliminate any possible sources of ignition, and provide maximum explosion-proof ventilation. Use only non-sparking tools and equipment during the response. The atmosphere must at least 19.5 percent Oxygen before non-emergency personnel can be allowed in the area without Self-Contained Breathing Apparatus and fire protection.
6. ACCIDENTAL RELEASE MEASURES (Continued)

PERSONAL PROTECTIVE EQUIPMENT: Responders should wear the level of protection appropriate to the type of chemical released, the amount of the material spilled, and the location where the incident has occurred.

Small Spills: For releases of 1 drum or less, Level D Protective Equipment (gloves, chemical resistant apron, boots, and eye protection) should be worn. Large Spills: Minimum Personal Protective Equipment should be rubber gloves, rubber boots, face shield, and Tyvek suit. Minimum level of personal protective equipment for releases in which the level of oxygen is less than 19.5% or is unknown must be Level B: triple-gloves (rubber gloves and nitrile gloves over latex gloves), chemical resistant suit, fire-retardant clothing and boots, hard hat, and Self-Contained Breathing Apparatus.

METHODS FOR CLEAN-UP AND CONTAINMENT:

All Spills: Access to the spill area should be restricted. Spread should be limited by gently covering the spill with polyponds. Absorb spilled liquid with clay, sand, polyponds, or other suitable inert absorbent materials. All contaminated absorbents and other materials should be placed in an appropriate container and seal. Do not mix with wastes from other materials. Dispose of in accordance with applicable Federal, State, and local procedures (see Section 13, Disposal Considerations). Dispose of recovered material and report spill per regulatory requirements. Remove all residue before decontamination of spill area. Clean spill area with soap and copious amounts of water. Monitor area for combustible vapor levels and confirm levels are below exposure limits given in Section 8 (Exposure Controls-Personal Protection), if applicable, and that levels are below applicable LELs (see Section 5 – Fire Fighting Measures) before non-response personnel are allowed into the spill area. Purge equipment with inert gas prior to reuse.

ENVIRONMENTAL PRECAUTIONS: Minimize use of water to prevent environmental contamination. Prevent spill or rinsate from contaminating storm drains, sewers, soil or groundwater. Place all spill residues in a suitable container and seal. Do not discharge effluent containing this product into streams, ponds, estuaries, oceans or other waters unless in accordance with the requirements of a National Pollutant Discharge Elimination System (NPDES) permit and the permitting authority has been notified in writing prior to discharge. Do not discharge effluent containing this product to sewer systems without previously notifying the local sewage treatment plant authority. For guidance, contact your State Water Board or Regional Office of the EPA.

OTHER INFORMATION: U.S. regulations may require reporting of spills of this material that reach surface waters if a sheen is formed. If necessary, the toll-free phone number for the US Coast Guard National Response Center is 1-800-424-8802.

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

PART III

How can I prevent hazardous situations from occurring?

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 or drink while handling this material. Avoid contact with eyes, skin, and clothing. Avoid breathing fumes, dusts, vapors or mist. Do not taste or swallow. Use only with adequate ventilation. Contaminated clothing needs to be laundered prior to reuse. Keep away from heat and flame. In the event of a spill, follow practices indicated in Section 6: ACCIDENTAL RELEASE MEASURES. Empty containers may contain residual product; therefore, empty containers should be handled with care. Decontaminate empty containers by filling with water or a solution of ammonium hydroxide (0-10%), detergent (2-5%), Isopropyl Alcohol (0-20%): may create a fire or vapor hazard in some situations, e.g. confined spaces; if so, do not use), water (balance of solution), Heat and CO2 gas are released when isocyanates reacts with water or solution. Let stand uncovered or closed for at least 24 hours. Decontaminate (using above solution) and clean isocyanate handling equipment after use. Stand upwind of all opening, pouring and mixing operations. Keeping work areas clean is essential. Use work surfaces that can be easily decontaminated. Maintain good personal hygiene.

CONDITIONS FOR SAFE STORAGE: Keep container tightly closed when not in use. Store containers in a cool, dry location, away from direct sunlight, sources of intense heat, or where freezing is possible. Material should be stored in secondary containers or in a diked area, as appropriate. Inspect all incoming containers before storage, to ensure containers are properly labeled and not damaged. 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. Local Fire Departments should be notified of the storage of this product on site. Storage and processing areas of this product should be identified with a NFPA 704 placard (diamond) large enough to be seen from a distance. Post warning and “NO SMOKING” signs in storage and use areas, as appropriate. Refer to NFPA 30, Flammable and Combustible Liquids Code, for additional information on storage. Have appropriate extinguishing equipment in the storage area (such as sprinkler systems or portable fire extinguishers). Inspect all incoming containers before storage to ensure containers are properly labeled and not damaged.

PRODUCT USE: This product is used as a water-based penetrating sealant. Follow all industry standards for use of this product.

8. EXPOSURE CONTROLS - PERSONAL PROTECTION

EXPOSURE LIMITS/CONTROL PARAMETERS:

Ventilation and Engineering Controls: Use with adequate, explosion proof ventilation to ensure exposure levels are maintained below the limits provided above.

Occupational/Workplace Exposure Limits/Guidelines:

<table>
<thead>
<tr>
<th>Chemical Name</th>
<th>CAS #</th>
<th>Guideline</th>
<th>Value</th>
</tr>
</thead>
<tbody>
<tr>
<td>Acetic Acid</td>
<td>64-19-7</td>
<td>ACGIH TLV TWA</td>
<td>10 ppm</td>
</tr>
<tr>
<td></td>
<td></td>
<td>ACGIH TLV STEL/CEIL(C)</td>
<td>15 ppm</td>
</tr>
<tr>
<td></td>
<td></td>
<td>OSHA PEL TWA</td>
<td>10 ppm</td>
</tr>
<tr>
<td></td>
<td></td>
<td>NIOSH REL TWA</td>
<td>10 ppm</td>
</tr>
<tr>
<td></td>
<td></td>
<td>NIOSH REL STEL/CEIL(C)</td>
<td>15 ppm</td>
</tr>
<tr>
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<td></td>
<td>DFG MAK TWA</td>
<td>10 ppm</td>
</tr>
<tr>
<td></td>
<td></td>
<td>DFG MAK PEAK/CEIL(C)</td>
<td>2xMAK 15 minute average value, 1-hr interval 4 per shift</td>
</tr>
<tr>
<td></td>
<td></td>
<td>DFG MAK Pregnancy Risk Class</td>
<td>C</td>
</tr>
</tbody>
</table>

NE = Not Established. See Section 16 for Definitions of Terms Used.
8. EXPOSURE CONTROLS - PERSONAL PROTECTION

EXPOSURE LIMITS/CONTROL PARAMETERS (continued):

OCCUPATIONAL/WORKPLACE EXPOSURE LIMITS/GUIDELINES (continued):

<table>
<thead>
<tr>
<th>Chemical Name</th>
<th>CAS #</th>
<th>Guideline</th>
<th>Value</th>
</tr>
</thead>
<tbody>
<tr>
<td>Amino Functional Polydimethylsiloxane</td>
<td>67923-07-3</td>
<td>None</td>
<td>None</td>
</tr>
<tr>
<td>Ethanol</td>
<td>64-17-5</td>
<td>ACGIH TLV STEL</td>
<td>1000 ppm</td>
</tr>
<tr>
<td></td>
<td></td>
<td>OSHA PEL TWA</td>
<td>1000 ppm</td>
</tr>
<tr>
<td></td>
<td></td>
<td>NIOSH REL TWA</td>
<td>1000 ppm</td>
</tr>
<tr>
<td></td>
<td></td>
<td>DFG MAK TWA</td>
<td>500 ppm</td>
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<tr>
<td></td>
<td></td>
<td>DFG MAK PEAK</td>
<td>2*MAK 15 minute average value, 1-hr interval 4 per shift</td>
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<td>Ethyl Silicate</td>
<td>78-10-4</td>
<td>ACGIH TLV TWA</td>
<td>85 mg/m³</td>
</tr>
<tr>
<td></td>
<td></td>
<td>OSHA PEL TWA</td>
<td>850 mg/m³</td>
</tr>
<tr>
<td></td>
<td></td>
<td>NIOSH REL TWA</td>
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</tr>
<tr>
<td></td>
<td></td>
<td>NIOSH LD LH</td>
<td>700 ppm</td>
</tr>
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<td></td>
<td></td>
<td>DFG MAK TWA</td>
<td>86 mg/m³</td>
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<tr>
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<td>DFG MAK PEAK</td>
<td>1*MAK 15 min. Average value, 1-hr interval, 4 per shift</td>
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<tr>
<td></td>
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<td>DFG MAK Pregnancy Category</td>
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<tr>
<td>Isocetyl Trimethylsiline</td>
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</tr>
<tr>
<td>Methanol</td>
<td>67-56-1</td>
<td>ACGIH TLV TWA</td>
<td>200 ppm (skin)</td>
</tr>
<tr>
<td></td>
<td></td>
<td>OSHA PEL TWA</td>
<td>250 ppm (skin)</td>
</tr>
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<td></td>
<td></td>
<td>OSHA PEL STEL</td>
<td>200 ppm (skin)</td>
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<td></td>
<td>NIOSH REL TWA</td>
<td>200 ppm (skin)</td>
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<tr>
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<td>NIOSH REL STEL</td>
<td>250 ppm (skin)</td>
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<td>NIOSH LD LH</td>
<td>6000 ppm</td>
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<td>DFG MAK TWA</td>
<td>200 ppm (skin)</td>
</tr>
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<td></td>
<td></td>
<td>DFG MAK PEAK</td>
<td>1*MAK 15 minute average value, 1-hr interval 4 per shift</td>
</tr>
</tbody>
</table>

NE = Not Established.  See Section 16 for Definitions of Terms Used.


Eye/Face Protection: Use approved safety goggles or safety glasses. If necessary, refer to appropriate regulations.

Skin Protection: Wear chemical impervious gloves (e.g., Nitrile or Neoprene). Use triple gloves for spill response. If necessary, refer to appropriate regulations.

Body Protection: Use body protection appropriate for task (e.g., lab coat, coveralls, Tyvek suit). If necessary, refer to the OSHA Technical Manual (Section VII: Personal Protective Equipment) or appropriate Standards of Canada. If a hazard of injury to the feet exists due to falling objects, rolling objects, where objects may pierce the soles of the feet or where employee’s feet may be exposed to electrical hazards, use foot protection, as described in appropriate regulations.

Respiratory Protection: If mists or sprays from this product are created during use, use appropriate respiratory protection. If necessary, use only respiratory protection authorized in appropriate regulations. Oxygen levels below 19.5% are considered IDLH by OSHA. In such atmospheres, use of a full-facepiece pressure/demand SCBA or a full facepiece, supplied air respirator with auxiliary self-contained air supply is required under appropriate regulations. The following are NIOSH respiratory equipment guidelines are presented for additional assistance in respiratory protective equipment selection.

ETHYL SILICATE

CONCENTRATION RESPIRATORY PROTECTION

BASED ON NIOSH REL.
Up to 100 ppm: Any Supplied-Air Respirator (SAR).
Up to 250 ppm: Any SAR operated in a continuous-flow mode.
Up to 500 ppm: Any Self-Contained Breathing Apparatus (SCBA) with a full facepiece, or any SAR with a full facepiece.
Up to 700 ppm: Any SAR that has a full facepiece and is operated in a pressure-demand or other positive-pressure mode.

Emergency or Planned Entry into Unknown Concentrations or IDLH Conditions: Any SCBA that has a full facepiece and is operated in a pressure-demand or other positive-pressure mode, or any SAR that has a full facepiece and is operated in a pressure-demand or other positive-pressure mode in combination with an auxiliary self-contained breathing apparatus operated in pressure-demand or other positive-pressure mode.

Escape: Any Air-Purifying, Full-Facepiece Respirator (gas mask) with a chin-style, front- or back-mounted organic vapor canister, or any appropriate escape-type, SCBA.

9. PHYSICAL and CHEMICAL PROPERTIES

FORM: Liquid.
MOLECULAR WEIGHT: Mixture.
ODOR: Slight
VISCOSITY: Not determined
VAPOR DENSITY: (air = 1) > 1
BOILING POINT: > 65°C (> 149°F)
FREEZING/MELTING POINT: Not available.
SPECIFIC GRAVITY (water = 1) @ 25°C: 0.95-0.97 g/cm³
SOLUBILITY IN WATER: Completely miscible
COEFFICIENT WATER/OIL DISTRIBUTION: Not available.
PERCENT VOC: 30%
COLOR: Clear, pale yellow.
MOLECULAR FORMULA: Mixture.
ODOR THRESHOLD: Not available
VISCOSITY DYNAMIC @ 25°C: 1-10 mPa.s
VAPOR PRESSURE @ 20°C: Not determined
FLASH POINT: 25°C (77°F)
PH @ 25°C: 5-6
EVAPORATION RATE (nBuAc = 1): > 1
OTHER SOLUBILITIES: Not available.
PERCENT SOLIDS: Not available.
VOC CONTENT: 318 g/L
10. STABILITY and REACTIVITY

CHEMICAL STABILITY: Stable under normal circumstances of use and handling. Reaction with water may cause a decrease of the flash point due to formation of volatile organic compound(s) (VOC). As a result of hydrolysis flammable vapors may accumulate in the container head space.

CONDITIONS TO AVOID: Avoid contact with incompatible chemicals and exposure to extreme temperatures.

INCOMPATIBLE MATERIALS: Based upon component incompatibility, this product may be incompatible with strong oxidizers and water.

HAZARDOUS DECOMPOSITION PRODUCTS: Combustion: Thermal decomposition of this product can generate carbon and nitrogen oxides, formaldehyde, silicon dioxide. Hydrolysis: Ethanol, methanol, silanol and/or siloxanol compounds.

POSSIBILITY OF HAZARDOUS REACTIONS/POLYMERIZATION: Not expected to occur.

PART IV  Is there any other useful information about this material?

11. TOXICOLOGICAL INFORMATION

POTENTIAL HEALTH EFFECTS: The most significant routes of occupational overexposure are inhalation and contact with skin and eyes. The symptoms of overexposure to this product are as follows:

Contact with Skin or Eyes: Depending on the duration of skin contact, skin exposures can cause reddening, discomfort or irritation. Brief contact with the liquid or vapors from this product and the eyes can cause irritation, reddening and watering and disturbances to the vision. Eye contact may more severe irritation, depending on the duration and concentration of exposure.

Skin Absorption: Prolonged skin contact may cause adverse systemic toxicity by skin absorption as described under ingestion or inhalation.

Ingestion: If the product is swallowed, it can irritate the mouth, throat, and other tissues of the gastro-intestinal system and may cause nausea, vomiting, and diarrhea as well as adverse effects on the central nervous system. Symptoms can include dizziness, vomiting and incoordination. Ingestion of large amounts may be harmful and cause systemic toxicity and severe irritation or burns to the digestive system. Ingestion of large amount may be fatal.

Inhalation: Inhalation of vapors, mists, or sprays of this product can moderately irritate the tissues of the nose, mouth, throat, and upper respiratory system. Symptoms of overexposure may include coughing, sneezing, and difficulty breathing.

Injection: Accidental injection of this product (e.g. puncture with a contaminated object) may cause burning, redness, and swelling in the wound.

TARGET ORGANS: Acute: Skin, eyes, respiratory system. Chronic: Skin, respiratory and central nervous systems.

TOXICITY DATA: There are currently no toxicity data available for this product; the following toxicology data are available for components greater than 1% in concentration. Due to the large volume of data available for components, only irritation data, human data, LD50 oral-rat or mouse, LD50 skin-rabbit or rat and LC50 inhalation-rat or mouse data are included in this SDS. Contact Pecora on other data available for components.

ACETIC ACID:

Standard Draize Test (Skin-Human) 50 mg/24 hours: Mild
TDLo (Inhalation-Human) 816 ppm/3 minutes: Sense Organs and Special Senses (Olfaction); effect, not otherwise specified; Sense Organs and Special Senses (Eye); effect, not otherwise specified; Lungs, Thorax, or Respiration: other changes TDLo (Inhalation-Human) 10 ppm/2 hours: Sense Organs and Special Senses (Olfaction); effect, not otherwise specified
TDLo (Oral-Human) 1470 µg/kg: Gastrointestinal: changes in function or structure of esophagus, ulceration or bleeding from small intestine, ulceration or bleeding from large intestine TDLo (Rectal-Human) 281 µL/kg: Gastrointestinal: alteration in gastric secretion; Liver: liver function tests impaired; Kidney/Ureter/Bladder: changes in tubules (including acute renal failure, acute tubular necrosis) LDLo (Unreported-Man) 308 mg/kg
LC50 (In vitro-Human-Liver Tumor) 57 mmol/L/24 hours: In Vitro Toxicity Studies: cell protein synthesis

Standard Draize Test (Skin-Rabbit) 50 mg/24 hours: Mild
Open Irritation Test (Skin-Rabbit) 525 mg: Severe
Rinsed with Water (Eye-Rabbit) 5 µg/5 seconds: Mild
LC50 (Inhalation-Rat) 11,000 ppm/4 hours
LC50 (Inhalation-Mouse) 5620 ppm/1 hour: Sense Organs and Special Senses (Eye): conjunctive irritation, effect, not otherwise specified; Blood: other changes
LC50 (Inhalation-Mouse) 5820 ppm/24 hours
LC50 (Inhalation-Mammal-Species Unspecified) 11.4 g/m³/4 hours
LD50 (Oral-Rat) 3310 mg/kg
LD50 (Oral-Mouse) 4960 mg/kg
LD50 (Oral-Mammal-Species Unspecified) 4960 mg/kg
LD50 (Skin-Rabbit) 1060 µL/kg
LD50 (Skin-Rabbit) 1060 µg/kg
LD50 (Skin-Mammal-Species Unspecified) 1060 µg/kg
LD50 (Intravenous-Mouse) 5.25 mg/kg: Behavioral: convulsions or effect on seizure threshold
LD50 (Intravenous-Mouse) 5.25 mg/kg
LC50 (Inhalation-Rat) 16,000 ppm/4 hours
LDLo (Oral-Rabbit) 600 mg/kg
LDLo (Subcutaneous-Rabbit) 600 mg/kg
LDLo (Rectal-Rabbit) 600 mg/kg
TDLo (Oral-Rat) 0.33 mL/kg/1 minute: Gastrointestinal: ulceration or bleeding from stomach
TDLo (Oral-Rat) 0.48 mL/kg: Gastrointestinal: ulceration or bleeding from stomach
TDLo (Oral-Rat) 0.57 mL/kg/32 weeks- intermittent: Tumorogenic: equivocal tumorogenic agent by RTECS criteria; Gastrointestinal: tumors Tumorogenic: facilitates action of known carcinogen
TDLo (Oral-Rat) 700 mg/kg: lactating female 18 days post-birth: Reproductive: Effects on Newborn: behavioral
TDLo (Oral-Rat) 22.680 mg/kg/9 weeks- continuous: Behavioral: food intake (animal); Nutritional and Gross Metabolic: weight loss or decreased weight gain

ACETIC ACID (continued):

TDLo (Skin-Rat) 0.25 mg/kg: Gastrointestinal: ulceration or bleeding from duodenum
TDLo (Skin-Rabbit) 0.04 g/kg/24 hours: Skin and Appendages: primary irritation (after topical exposure)
TDLo (Intrathecental-Rat) 400 mg/kg: male 1 day(s) pre-mating: Reproductive: Fertility: male fertility index (e.g. # males impregnating females per # males exposed to fertile non-pregnant females)
TDLo (Intrapertioneal-Mouse) 50 mg/kg: Behavioral: analgesia
TDLo (Intrapertioneal-Mouse) 93.75 mg/kg: Behavioral: convulsions or effect on seizure threshold
TDLo (Implant-Rat) 10 mg/kg: Gastrointestinal: ulceration or bleeding from stomach; Biochemical: Enzyme inhibition, induction, or change in blood or tissue levels: other oxidoreductases; Metabolism (Intermediary): effect on inflammation or mediation of inflammation
TDLo (Rectal-Rat) 200 mg/kg: Gastrointestinal: other changes; Biochemical: Enzyme inhibition, induction, or change in blood or tissue levels: other oxidoreductases
TDLo (Rectal-Rat) 0.24 mL/kg: Gastrointestinal: ulceration or bleeding from large intestine
TDLo (Rectal-Rat) 300 mg/kg: Gastrointestinal: ulceration or bleeding from large intestine, necrotic changes; Biochemical: Enzyme inhibition, induction, or change in blood or tissue levels: multiple enzyme effects
TDLo (Rectal-Rat) 240 mg/kg: Gastrointestinal: ulceration or bleeding from large intestine; Biochemical: Enzyme inhibition, induction, or change in blood or tissue levels: other oxidoreductases; Metabolism (Intermediary): effect on inflammation or mediation of inflammation
TDLo (Rectal-Rat) 0.34 mL/kg: Gastrointestinal: ulceration or bleeding from large intestine; Biochemical: Enzyme inhibition, induction, or change in blood or tissue levels: other oxidoreductases; Biochemical: Metabolism (Intermediary): effect on inflammation or mediation of inflammation
TDLo (Parenteral-Rat) 0.265 mL/kg: Gastrointestinal: ulceration or bleeding from stomach, other changes

TCLo (Inhalation-Rat) 5070 µg/m³/24 hours/95 days-continuous: Kidney/Ureter/Bladder: other changes in urine composition; Blood: changes in leukocyte (WBC) count; Biochemical: Enzyme inhibition, induction, or change in blood or tissue levels: true cholinesterase
TCLo (Inhalation-Rat) 23 ppm/17 days-continuous: Kidney/Ureter/Bladder: changes in kidney weight; Endocrine: changes in spleen weight; Nutritional and Gross Metabolic: weight loss or decreased weight gain
TCLo (Inhalation-Rat) 15 ppm/22 days-continuous: Behavioral: somnolence (general depression activity)

TCLo (Inhalation-Mouse) 12 ppm/6 minutes: Lungs, Thorax, or Respiration: respiratory depression
TCLo (Inhalation-Mouse) 330 ppm: Sense Organs and Special Senses (Olfaction): effect, not otherwise specified

Sixier Chromatid Exchange (Human Lymphocyte) 5 µmol/L
Mutation in Microorganisms (Bacteria-Escherichia coli) 300 ppm/3 hours
Sex Chromosome Loss and Non-Disjunction (Oval-Drosophila melanogaster) 1000 ppm
11. TOXICOLOGICAL INFORMATION (Continued)

TOXICITY DATA (continued):

ACETIC ACID (continued):
- Sex Chromosome Loss and Non-Disjunction (Inhalation-Drosophila melanogaster) 1000 ppm/24 hours
- Cyto genetic Analysis (Parenteral-grasshopper) 40 n mole/L
- Cyto genetic Analysis (Hamster-Ovary) 10 n mole/mL
- Unscheduled DNA Synthesis (Skin-Mouse) 79.279 g/kg
- Mutation Test Systems-Not Otherwise Specified (Skin-Mouse) 1201 mg/kg

ETHYL SILICATE:
- Standard Draize Test (Eye-Human) 3000 ppm
- Standard Draize Test (Skin-Rabbit) 500 mg/24 hours: Moderate
- Standard Draize Test (Eye-Rabbit) 100 mg: Mild
- Standard Draize Test (Eye-Human) 500 mg/24 hours: Mild
- Standard Draize Test (Skin-Guinea Pig) 2500 ppm/2 hours: Severe

LD₅₀ (Oral-Rat) 6207 mg/kg
LD₅₀ (Skin-Rat) 6380 mg/kg
LC₅₀ (Inhalation-Mouse) 30 g/m³: Behavioral: ataxia; Lungs, Thorax, or Respiration: acute pulmonary edema; Gastrointestinal: changes in structure or function of salivary glands

BIOLOGICAL EXPOSURES INDICES (BEIs):

REPRODUCTIVE TOXICITY INFORMATION:
Currently, no information is available for components.

IRRITANCY OF PRODUCT:
This product is irritating by all routes of exposure.

ETHTYL SILICATE (continued):
LC₅₀ (Inhalation-Rat) 10 g/m³/3 hours: Peripheral Nerve and Sensation: recording from peripheral motor nerve; Sense Organs and Special Senses (Eye): corneal damage; Behavioral: tremor
LC₅₀ (Inhalation-Rat) 1000 ppm/4 hours
LC₅₀ (Inhalation-Rat) 21 g/m³/3 hours: Vascular: other changes; Lungs, Thorax, or Respiration: changes in pulmonary vascular resistance, acute pulmonary edema
LC₅₀ (Inhalation-Rat) 21 g/m³/3 hours: Brain and Coverings: changes in circulation (hemorrhage, thrombosis, etc.); Behavioral: ataxia; kidney/Ureter/Bladder: changes in tubes (including acute renal failure, acute tubular necrosis)
LC₅₀ (Inhalation-Mouse) 1 g/m³/2 hours: Behavioral: general anesthetic; Lungs, Thorax, or Respiration: structural or functional change in trachea or bronchii; Kidney/Ureter/Bladder: changes in tubes (including acute renal failure, acute tubular necrosis)
LC₅₀ (Inhalation-Mouse) 20 g/m³: kidney/Ureter/Bladder: intestinal necrosis; Blood: changes in erythrocyte (RBC) count, changes in leukocyte (WBC) count
LC₅₀ (Inhalation-Guinea Pig) 700 ppm/6 hours: Behavioral: general anesthetic; Lungs, Thorax, or Respiration: structural or functional change in trachea or bronchi; Kidney/Ureter/Bladder: changes in tubes (including acute renal failure, acute tubular necrosis)

CARCINOGENIC POTENTIAL:
The following table summarizes the carcinogenicity listing for the components of this product.

<table>
<thead>
<tr>
<th>CHEMICAL</th>
<th>IARC</th>
<th>EPA</th>
<th>NTP</th>
<th>NIOSH</th>
<th>ACGIH</th>
<th>OSHA</th>
<th>PROP 65</th>
</tr>
</thead>
<tbody>
<tr>
<td>Acetic Acid</td>
<td>No</td>
<td>No</td>
<td>No</td>
<td>No</td>
<td>No</td>
<td>No</td>
<td>No</td>
</tr>
<tr>
<td>Amino Functional Polydimethylsiloxane</td>
<td>No</td>
<td>No</td>
<td>No</td>
<td>No</td>
<td>No</td>
<td>No</td>
<td>No</td>
</tr>
<tr>
<td>Ethanol</td>
<td>No</td>
<td>No</td>
<td>No</td>
<td>No</td>
<td>A3</td>
<td>No</td>
<td>No</td>
</tr>
<tr>
<td>Ethyl Silicate</td>
<td>No</td>
<td>No</td>
<td>No</td>
<td>No</td>
<td>No</td>
<td>No</td>
<td>No</td>
</tr>
<tr>
<td>Isooctyl Trimethylsilane</td>
<td>No</td>
<td>No</td>
<td>No</td>
<td>No</td>
<td>No</td>
<td>No</td>
<td>No</td>
</tr>
<tr>
<td>Methanol</td>
<td>No</td>
<td>No</td>
<td>No</td>
<td>No</td>
<td>No</td>
<td>No</td>
<td>No</td>
</tr>
</tbody>
</table>

ACGIH TLV:A3: Confirmed Animal Carcinogen with Unknown Relevance to Humans.

IRRITANT OF PRODUCT: This product is irritating by all routes of exposure.

REPRODUCTIVE TOXICITY INFORMATION: This product has not been tested for reproductive toxicity. The following information is available for some components.

Mutagenicity / Embryotoxicity / Teratogenicity / Reproductive Toxicity: No information is available for components.

12. ECOLOGICAL INFORMATION

ALL WORK PRACTICES MUST BE AIMED AT ELIMINATING ENVIRONMENTAL CONTAMINATION.

MOBILITY: This product has not been tested for mobility in soil. The following information is available for the main solvent components.

ETHYL SILICATE: Using a structure estimation method based on molecular connectivity indices, the Koc can be estimated to be 1. According to a classification scheme, this estimated Koc value suggests that this compound is expected to have very high mobility in soil.
12. ECOLOGICAL INFORMATION (Continued)

PERSISTENCE AND BIODEGRADABILITY: This product has not been tested for persistence or biodegradability. The following information is available for the main solvent components.

ETHYL SILICATE: If released to air, a vapor pressure of 1.88 mm Hg at 25°C indicates this compound will exist solely in the vapor phase in the atmosphere. Vapor-phase material will be degraded in the atmosphere by reaction with photochemically-produced hydroxyl radicals; the half-life for this reaction in air is estimated to be 16 hours. This compound does not contain chromophores that absorb at wavelengths >290 nm and therefore is not expected to be susceptible to direct photolysis by sunlight. If released to soil, this material is expected to have very high mobility based upon an estimated Koc of 1. Volatilization from moist soil surfaces may be an important fate process based upon an estimated Henry’s Law constant of 2.0X10^-5 atm-cu m/mole. This compound may volatilize from dry soil surfaces based upon its vapor pressure. Biodegradation data were not available. If released into water, tetraethyl silicate is not expected to adsorb to suspended solids and sediment based upon the estimated Koc. Volatilization from water surfaces may be an important fate process based upon this compound’s estimated Henry’s Law constant. Estimated volatilization half-lives for a model river and model lake are 2.9 and 25 days respectively. This compound is expected to undergo hydrolysis in aqueous environmental conditions, or on contact with water, without special precautions, tetraethoxysilane hydrolyzes to a gel in about 10 days.

BIO-ACCUMULATION POTENTIAL: This product has not been tested for bio-accumulation potential. The following values are available for the Ethyl Silicate component.

ETHYL SILICATE: An estimated BCF of 3 was calculated for this compound, using an estimated log Kow of 0.04(1) and a regression-derived equation. According to a classification scheme, this BCF suggests the potential for bioconcentration in aquatic organisms is low.

ECOTOXICITY: This product has not been tested for aquatic or animal toxicity. All release to terrestrial, atmospheric and aquatic environments should be avoided. No data are available.

OTHER ADVERSE EFFECTS: This material is not expected to have any 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.

13. DISPOSAL CONSIDERATIONS

PREPARING WASTES FOR DISPOSAL: As supplied, this product would be a hazardous waste as defined by U.S. federal regulation (40 CFR 261) if discarded or disposed. It has the characteristic of Ignitibility. State and local regulations may differ from federal regulations. The generator of the waste is responsible for proper waste determination and management.

U.S. EPA WASTE NUMBER: D001.

14. TRANSPORTATION INFORMATION

U.S. DEPARTMENT OF TRANSPORTATION: This product is classified as Dangerous Goods, per U.S. DOT regulations, under 49 CFR 172.101.

<table>
<thead>
<tr>
<th>UN Identification Number</th>
<th>UN 1993</th>
</tr>
</thead>
<tbody>
<tr>
<td>Proper Shipping Name</td>
<td>Flammable liquid, n.o.s. (Trimethoxy(2,4,4-trimethylpentyl)silane)</td>
</tr>
<tr>
<td>Hazard Class Number and Description</td>
<td>3 (Flammable)</td>
</tr>
<tr>
<td>Packing Group</td>
<td>PG III</td>
</tr>
<tr>
<td>Hazard Shipping Label(s) Required</td>
<td>Class 3 (Flammable)</td>
</tr>
<tr>
<td>North American Emergency Response Guidebook Number</td>
<td>128</td>
</tr>
<tr>
<td>Marine Pollutant</td>
<td>No component meets the criteria of a Marine Pollutant (as defined by 49 CFR 172.101.</td>
</tr>
</tbody>
</table>

TRANSPORT CANADA TRANSPORTATION OF DANGEROUS GOODS REGULATIONS: This product is classified as Dangerous Goods, per regulations of Transport Canada.

<table>
<thead>
<tr>
<th>UN Identification Number</th>
<th>UN 1993</th>
</tr>
</thead>
<tbody>
<tr>
<td>Proper Shipping Name</td>
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<tr>
<td>Packing Group</td>
<td>PG III</td>
</tr>
<tr>
<td>Hazard Shipping Label(s) Required</td>
<td>Class 3 (Flammable)</td>
</tr>
<tr>
<td>Explosive Limit &amp; Limited Quantity Index</td>
<td>16</td>
</tr>
<tr>
<td>ERAP Index</td>
<td>None</td>
</tr>
<tr>
<td>Passenger Carrying Ship Index</td>
<td>None</td>
</tr>
<tr>
<td>Passenger Carrying Road or Rail Vehicle Index</td>
<td>60</td>
</tr>
</tbody>
</table>

INTERNATIONAL AIR TRANSPORT ASSOCIATION SHIPPING INFORMATION (IATA): This product is classified as dangerous goods, per the International Air Transport Association.

<table>
<thead>
<tr>
<th>UN Identification Number</th>
<th>UN 1993</th>
</tr>
</thead>
<tbody>
<tr>
<td>Proper Shipping Name</td>
<td>Flammable liquid, n.o.s. (Trimethoxy(2,4,4-trimethylpentyl)silane)</td>
</tr>
<tr>
<td>Hazard Class Number and Description</td>
<td>3 (Flammable)</td>
</tr>
<tr>
<td>Packing Group</td>
<td>PG III</td>
</tr>
<tr>
<td>Hazard Shipping Label(s) Required</td>
<td>Class 3 (Flammable)</td>
</tr>
<tr>
<td>Passenger and Cargo Aircraft Maximum Net Quantity per Pkg.</td>
<td>60 L</td>
</tr>
<tr>
<td>Passenger and Cargo Aircraft Limited Quantity Packing Instruction</td>
<td>Y344</td>
</tr>
<tr>
<td>Cargo and Cargo Aircraft Limited Quantity Maximum Net Quantity per Pkg.</td>
<td>10 L</td>
</tr>
</tbody>
</table>

INTERNATIONAL MARITIME ORGANIZATION SHIPPING INFORMATION (IMO): This product is classified as dangerous goods, per the International Maritime Organization.

<table>
<thead>
<tr>
<th>UN No.</th>
<th>1993</th>
</tr>
</thead>
<tbody>
<tr>
<td>Proper Shipping Name</td>
<td>Flammable liquid, n.o.s. (Trimethoxy(2,4,4-trimethylpentyl)silane)</td>
</tr>
<tr>
<td>Hazard Class Number</td>
<td>3 (Flammable)</td>
</tr>
<tr>
<td>Packing Group</td>
<td>III</td>
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</tbody>
</table>
14. TRANSPORTATION INFORMATION (Continued)

INTERNATIONAL MARITIME ORGANIZATION SHIPPING INFORMATION (IMO) [continued]:

<table>
<thead>
<tr>
<th>Labels:</th>
<th></th>
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<tbody>
<tr>
<td>Special Provisions:</td>
<td>Class 3 (Flammable)</td>
</tr>
<tr>
<td>Limited Quantities:</td>
<td>223, 274, 955</td>
</tr>
<tr>
<td>Excepted Quantities:</td>
<td>5 L</td>
</tr>
<tr>
<td>Packing:</td>
<td>E1</td>
</tr>
<tr>
<td>IBCs:</td>
<td>Instructions: P001; Provisions: LP01</td>
</tr>
<tr>
<td>Tanks:</td>
<td>Instructions: T7; Provisions: TP1, TP29</td>
</tr>
<tr>
<td>EmS:</td>
<td>F-E, S-E</td>
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<tr>
<td>Stowage Category:</td>
<td>Category A</td>
</tr>
<tr>
<td>Marine Pollutant:</td>
<td>No component meets the criteria of a marine pollutant.</td>
</tr>
</tbody>
</table>

15. REGULATORY INFORMATION

ADDITIONAL U.S. REGULATIONS:

U.S. SARA Reporting Requirements: No component of this product is subject to the reporting requirements of Sections 302, 304, and 313 of Title III of the Superfund Amendments and Reauthorization Act.

U.S. SARA Hazard Categories (Section 311/312, 40 CFR 370-21): ACUTE: Yes; CHRONIC: No; FIRE: No; REACTIVE: No; SUDDEN RELEASE: No

U.S. TSCA Inventory Status: All components of this product are in compliance with the inventory listing requirements of the U.S. Toxic Substances Control Act (TSCA) Chemical Substance Inventory.

U.S. CERCLA Reportable Quantity (RQ): Not applicable.

U.S. Clean Air Act (CA 112r) Threshold Quantity (TQ): Not applicable.

U.S. Clean Water Act Requirements: Not applicable.

California Safe Drinking Water and Toxic Enforcement Act (Proposition 65): No component is on the California Proposition 65 lists.

ADDITIONAL CANADIAN REGULATIONS:

Canadian DSL/NDSL Inventory Status: The components of this product are on the DSL Inventory.

Canadian Environmental Protection Act (CEPA) Priorities Substances Lists: Not applicable.

Canadian WHMIS Regulations: This product is classified as a Controlled Product, Hazard Classes B2 (Flammable Liquid); D2B (Poisonous and Infectious Material, Other effects/Toxic: Eye Irritation, Skin Irritation) as per the Controlled Product Regulations.

ADDITIONAL MEXICAN REGULATIONS:

Mexican Workplace Regulations (NOM-018-STPS-2000): This product is classified as hazardous.

16. OTHER INFORMATION

U.S. ANSI STANDARD LABELING (Precautionary Statements): DANGER! FLAMMABLE LIQUID. MAY BE HARMFUL IF INHALED OR INGESTED. MAY CAUSE EYE, SKIN AND RESPIRATORY IRRITATION; EYE IRRITATION MAY BE SEVERE. INGESTION AND VAPORS MAY CAUSE CENTRAL NERVOUS SYSTEM EFFECTS. Avoid contact with eyes, skin, and clothing. Avoid breathing mist, vapors or fume. Do not taste or swallow. Wash thoroughly after handling. Keep container tightly closed. Use only with adequate ventilation. Keep away from heat and flame. Wear gloves, eye protection, respiratory protection, and appropriate body protection. FIRST-AID: In case of contact, immediately flush skin and eyes with plenty of water. Remove contaminated clothing and shoes. Get medical attention if irritation develops or persists. If inhaled, remove to fresh air. If not breathing, give artificial respiration. If breathing is difficult, give oxygen. If swallowed, do not induce vomiting. Get medical attention. IN CASE OF FIRE: Use water fog, foam, dry chemical, or CO2. IN CASE OF SPILL: Absorb spilled product with polypads or other suitable absorbing material. Place all spill residue in an appropriate container and seal. Dispose of in accordance with U.S. Federal, State, and local hazardous waste disposal regulations and those of Canada.

GLOBAL HARMONIZATION SYSTEM CLASSIFICATION:

- Classification: Flammable Liquid Category 3, Skin Irritation Category 2, Eye Irritation Category 2A, Specific Target Organ Toxicity (Inhalation-Central Nervous System, Respiratory Irritation) Single Exposure Category 2, Specific Target Organ Toxicity (Inhalation-Central Nervous System) Single Exposure Category 3
- Signal Word: Danger
- Precautionary Statements:
  - Response: P370 + P378: In case of fire: Use materials appropriate for surrounding fire for extinction. Water should be used with care. P303 + P361 + P353: IF ON SKIN (or hair): Remove/Take off immediately all contaminated clothing. Rinse skin with water/shower. 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. P305 + P351 + P338: IF IN EYES: Rinse cautiously with water for several minutes. Remove contact lenses, if present and easy to do. P302 + P352: IF ON SKIN: Wash with plenty of soap and water. P332 + P313: If skin irritation occurs, get medical attention. P362 + P364: Take off contaminated clothing and wash it before reuse. P321: Specific treatment (remove from exposure and treat symptoms).
  - Disposal: P501: Dispose of contents/containers in accordance with all local, regional, national and international regulations.
- Hazard Symbols/Pictograms: GHS02, GHS07
DISCLAIMER OF EXPRESSED AND IMPLIED WARRANTIES

The information presented in this Safety Data Sheet is presented in good faith based on data believed to be accurate as of the date this Safety Data Sheet was prepared. HOWEVER, NO WARRANTY OF MERCHANTABILITY, FITNESS FOR ANY PARTICULAR PURPOSE, OR ANY OTHER WARRANTY IS EXPRESSED OR IS TO BE IMPLIED REGARDING THE ACCURACY OR COMPLETENESS OF THE INFORMATION CONTAINED HEREIN. THE USER SHOULD BE AWARE OF LOCAL LAWS AND REGULATIONS. THE INFORMATION PROVIDED ABOVE, AND THE PRODUCT, ARE FURNISHED ON THE CONDITION THAT THE PERSON RECEIVING THEM SHALL MAKE THEIR OWN DETERMINATION AS TO THE SUITABILITY OF THE PRODUCT FOR THEIR PARTICULAR PURPOSE AND ON THE CONDITION THAT THEY ASSUME THE RISK OF THEIR USE. IN ADDITION, NO AUTHORIZATION IS GIVEN OR IMPLIED TO PRACTICE ANY PATENTED INVENTION WITHOUT A LICENSE.

REFERENCES AND DATA SOURCES:

Contact the supplier for information.

METHODS OF DISPOSAL OR WASTE CLASSIFICATION: Bridging principles were used to classify this product.

REVISION DETAILS: May 2012: Up-date and revise entire SDS to include current GHS requirements; change in formulation. March 2013: Change of flash point and upper limit of flash point and upper limit of flash point.

DATE OF PRINTING: September 25, 2014

DEFINITIONS OF TERMS

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

KEY ACRONYMS:

CHEMTREC: Chemical Transport Emergency Center, a 24-hour emergency information and/or emergency assistance for recovering victims.

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

DG MAK: Federal Republic of Germany Maximum Concentration Values in the workplace. Exposure limits are given as TWA (Time-Averaged) or PEAK (short-term exposure) values.

DG MAK Germ Cell Mutagen Categories:

1. Germ cell mutagens that have been shown to increase the mutant frequency in the progeny of exposed humans. 2. Germ cell mutagens that have been shown to increase the mutant frequency in the progeny of exposed mammals. 3A: Substances that have been shown to induce genetic damage in germ cells of human animals, or which produce mutagenic effects in somatic cells of mammals in vivo and have been shown to reduce the germ cell mutagenic activity in vivo. 3B: Substances that are suspected of causing increasing genetic damage in germ cells of human or animal species in the progeny. 4: Category of substances that under no-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 germ cell mutagens, but that is not higher than any other (such as 3A or 3B). 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 considered to be negligible.

DG 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 organs or systems. 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. Group C: A risk to the developing embryo or fetus when pregnant women are exposed cannot be excluded. There is no reason to believe that the fetus has been unequivocally demonstrated. Exposure of pregnant women can lead to damage of the developing embryo or fetus when pregnant women are exposed.


NIOSH: National Institute for Occupational Safety and Health.

PEL: OSHA’s Permissible Exposure Limits. This exposure value means exactly the same as a TLV, except that it is enforced by OSHA. The OSHA Permissible Exposure Limits are based in the 1989 PELs and the June, 1993 Air Contaminants Rule (Federal Register: 58, 35358-35551 and 58, 40195). Both the current PELs and the threshold limit values are used in this documentation. The phrase “Vacated 1989 PEL” is placed next to the PEL that was vacated by OSHA.

SKIN: Used in a manner that there is a danger of cutaneous absorption.

STL: 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-hour TWA is below the STL in the TWA, TEL, PEL-TWA or REL.

TWA: Time-Weighted Average exposure concentration for a conventional 8-hr (TWA), 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 modified and expanded to a degree of certification.

HEALTH HAZARD 0: Minimal Hazard: No significant health risk, irritation of skin or eyes not anticipated. Skin Irritation: Essentially non-irritating. Mechanical irritation may occur. PII or Draize = 0. Eye irritation: Essentially non-irritating. Chemical irritation may occur. PII or Draize = 0. Skin Sensitization: Essentially non-sensitizing. PII or Draize = 0. Oral Toxicity LD50s Rat: ≤ 5000 mg/kg. Dermal Toxicity LD50 or Rab: ≤ 2000 mg/kg. Inhalation Toxicity 4-hrs LC50 Rat: ≤ 20 mg/m3. 1 Slight Hazard: Minor injury may occur. May irritate the stomach or esophagus, especially at high concentrations. PII or Draize = 5. Oral Toxicity LD50s Rat: ≤ 1000 mg/kg. Dermal Toxicity LD50 or Rab: ≤ 1000-2000 mg/kg. Inhalation Toxicity 4-hrs LC50 Rat: ≤ 20 mg/m3. 2 Moderate Hazard: Temporary or transitory injury resulting from exposure for a period of more than 21 days. Inhalation toxicity LD50 or Rab: ≤ 500 mg/kg. Dermal Toxicity LD50 or Rab: ≤ 50 mg/kg. Inhalation Toxicity 4-hrs LC50 Rat: ≤ 5 mg/m3. 3 Severe Hazard: Major injury may occur. Exposure may cause permanent injury or death. PII or Draize > 80. Oral Toxicity LD50s Rat: > 1000 mg/kg. Dermal Toxicity LD50 or Rab: > 20 mg/kg. Inhalation Toxicity 4-hrs LC50 Rat: > 0.5 mg/m3. 4 Severe Hazard: Moderate to severe injury or death may result from brief contact. Skin irritation: Not appropriate. Do not rate as 4, based on skin irritation alone. Eye irritation: Not appropriate. Do not rate as 4, based on eye irritation alone. Oral Toxicity LD50s Rat: > 2000 mg/kg. Dermal Toxicity LD50 or Rab: ≤ 50 mg/kg. Inhalation Toxicity 4-hrs LC50 Rat: ≤ 0.2 mg/m3. 5 Severe Hazard: Major injury may result from a single or repeated exposures. In extremely toxic: irreversible injury may result from brief contact. Skin irritation: Not appropriate. Do not rate as 4, based on skin irritation alone. Eye irritation: Not appropriate. Do not rate as 4, based on eye irritation alone. Oral Toxicity LD50s Rat: > 2000 mg/kg. Dermal Toxicity LD50 or Rab: > 20 mg/kg. Inhalation Toxicity 4-hrs LC50 Rat: > 0.1 mg/m3.

HAZARDOUS MATERIALS IDENTIFICATION SYSTEM HAZARD RATINGS:

Ratings 0-3 are given in terms of degree of chronicity. Ratings 4 and 5 are given in terms of degree of acuteness.
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 with an LC50 for acute inhalation toxicity
greater than 10,000 ppm. Dusts and mists with an LD50 for acute inhalation toxicity greater than
200 mg/kg. Materials in which the lethal concentration of LD50 for acute oral toxicity is greater than
2000 mg/kg. Materials essentially non-irritating to the respiratory tract, eyes, and skin. 1 Materials that,
dergent to emergency conditions, can cause significant irritation. Oxidizers are rated by an LC50 for
acute inhalation toxicity greater than 5,000 ppm but less than or equal to 10,000 ppm. Dusts and mists
with an LC50 for acute inhalation toxicity greater than or equal to 10 mg/L but less than or equal to
200 mg/L. Materials with an LD50 for acute dermal toxicity greater than 1000 mg/kg but less than or
equal to 2000 mg/kg. Materials that slightly to moderately irritate the respiratory tract, eyes and
skin. Materials with an LD50 for acute oral toxicity greater than 500 mg/kg but less than or equal to
2000 mg/kg. 2 Materials that, under emergency conditions, can cause temporary incapacitation or
residual injury. Gases with an LC50 for acute inhalation toxicity greater than 3,000 ppm but
less than or equal to 5,000 ppm. Any liquid whose saturated vapor concentration at 20°C (68°F) is
equal to or greater than one-fifth its LC50 for acute inhalation toxicity, if its LC50 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. Dusts and mists with an LC50 for acute inhalation toxicity greater than 2 mg/L
but less than or equal to 10 mg/L. Materials with an LD50 for acute dermal toxicity greater than
200 mg/kg but less than or equal to 1000 mg/kg. Compressed liquefied gases with boiling points
between -55°C (-67°F) and -30°C (-22°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 lacrhomys. Materials that are primary skin irritants or sensitizers. Materials whose
LD50 for acute oral toxicity is greater than 50 mg/kg but less than or equal to 500 mg/kg. 3 Materials
that, under emergency conditions, can cause serious or permanent injury to the respiratory tract.

HAZARD (Continued):

DEFINITIONS OF TERMS (Continued):

1. Acute: Pertaining to 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 of NFPA 251. 1 Materials with acute inhalation toxicity of LC50 that does not meet
the criteria for degree of hazard for acute inhalation toxicity. 4. Dusts and mists with an LC50 for
acute inhalation toxicity greater than 0.5 mg/L but less than or equal to 2 mg/L. Materials with an LD50
for acute dermal toxicity greater than 40 mg/kg but less than or equal to 200 mg/kg. Materials that are
corrosive to the respiratory tract. Materials that cause severe, but temporary incapacitation or
residual injury. Gases with boiling points between -57°C (-70°F) and -30°C (-22°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 lacrhomys. Materials that are
primary skin irritants or sensitizers. Materials whose LD50 for acute oral toxicity is greater than
500 mg/kg but less than or equal to 2000 mg/kg. Materials that, under emergency conditions, can
cause temporary incapacitation or residual injury. Gases with an LC50 for acute inhalation toxicity
greater than 3,000 ppm but less than or equal to 5,000 ppm. Any liquid whose saturated vapor
concentration at 20°C (68°F) is equal to or greater than one-fifth its LC50 for acute inhalation toxicity,
if its LC50 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. Dusts and mists with an LC50 for acute inhalation toxicity greater than
2 mg/L but less than or equal to 10 mg/L. Materials with an LD50 for acute dermal toxicity greater than
200 mg/kg but less than or equal to 1000 mg/kg. Compressed liquefied gases with boiling points
between -55°C (-67°F) and -30°C (-22°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 lacrhomys. Materials that are primary skin irritants or sensitizers. Materials whose
LD50 for acute oral toxicity is greater than 50 mg/kg but less than or equal to 500 mg/kg. 3 Materials
that, under emergency conditions, can cause serious or permanent injury to the respiratory tract.

HAZARD (Continued):

2. Acute inhalation: Gases and vapors with an LC50 for acute inhalation toxicity
greater than 1,000 ppm but less than or equal to 3,000 ppm. Any liquid whose saturated vapor
concentration at 20°C (68°F) is equal to or greater than ten times its LC50 for acute inhalation toxicity,
if its LC50 is less than or equal to 300 ppm and that does not meet the criteria for any degree of
hazard. Materials that, under emergency conditions, can cause temporary incapacitation or
residual injury. Gases with an LC50 for acute inhalation toxicity greater than 2 mg/L but less than or
equal to 10 mg/L. Materials with an LD50 for acute dermal toxicity greater than 40 mg/kg but less than or
equal to 200 mg/kg. Materials that, under emergency conditions, can cause temporary incapacitation or
residual injury. Gases with boiling points between -55°C (-67°F) and -30°C (-22°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 lacrhomys. Materials that are
primary skin irritants or sensitizers. Materials whose LD50 for acute oral toxicity is greater than
500 mg/kg but less than or equal to 2000 mg/kg. Materials that, under emergency conditions, can
cause temporary incapacitation or residual injury. Gases with an LC50 for acute inhalation toxicity
greater than 3,000 ppm but less than or equal to 5,000 ppm. Any liquid whose saturated vapor
concentration at 20°C (68°F) is equal to or greater than one-fifth its LC50 for acute inhalation toxicity,
if its LC50 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. Dusts and mists with an LC50 for acute inhalation toxicity greater than
2 mg/L but less than or equal to 10 mg/L. Materials with an LD50 for acute dermal toxicity greater than
200 mg/kg but less than or equal to 1000 mg/kg. Compressed liquefied gases with boiling points
between -55°C (-67°F) and -30°C (-22°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 lacrhomys. Materials that are primary skin irritants or sensitizers. Materials whose
LD50 for acute oral toxicity is greater than 50 mg/kg but less than or equal to 500 mg/kg. 3 Materials
that, under emergency conditions, can cause serious or permanent injury to the respiratory tract.

HAZARD (Continued):

3. Acute dermal: Materials that, under emergency conditions, can cause serious or permanent injury
to the respiratory tract, eyes, and skin. Materials with an LD50 for acute oral toxicity greater than
5000 mg/kg but less than or equal to 2000 mg/kg. Materials that slightly to moderately irritate the
respiratory tract, eyes and skin. Materials with an LD50 for acute oral toxicity greater than 500 mg/kg
but less than or equal to 2000 mg/kg. 2 Materials that, under emergency conditions, can cause temporary
incapacitation or residual injury. Gases with an LC50 for acute inhalation toxicity greater than
3,000 ppm but less than or equal to 5,000 ppm. Any liquid whose saturated vapor concentration at
20°C (68°F) is equal to or greater than one-fifth its LC50 for acute inhalation toxicity, if its LC50 is less
than or equal to 5000 ppm and that does not meet the criteria for any degree of hazard. Materials that,
dergent to emergency conditions, can cause significant irritation. Oxidizers are rated by an LC50 for
acute inhalation toxicity greater than 5,000 ppm but less than or equal to 10,000 ppm. Dusts and mists
with an LC50 for acute inhalation toxicity greater than or equal to 10 mg/L but less than or equal to
200 mg/L. Materials with an LD50 for acute dermal toxicity greater than 200 mg/kg but less than or
equal to 1000 mg/kg. Compressed liquefied gases with boiling points between -55°C (-67°F) and
-30°C (-22°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
lacrhomys. Materials that are primary skin irritants or sensitizers. Materials whose LD50 for acute
oral toxicity is greater than 50 mg/kg but less than or equal to 500 mg/kg. 3 Materials that, under
emergency conditions, can cause serious or permanent injury to the respiratory tract.