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**SAFETY DATA SHEET**

# KlereSeal 910-W and 920-W

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

### 1.1 IDENTIFICATION of the SUBSTANCE or PREPARATION

| | |
|---|---|
| PRODUCT IDENTIFIER/TRADE NAME (AS LABELED) | **KlereSeal 910-W and 920W** |
| OTHER MEANS OF IDENTIFICATION | None |
| RECOMMENDED PRODUCT USE: | Water-Based Penetrating Masonry Sealer |
| RESTRICTIONS ON USE: | Other than recommended use |

### 1.2 U.S. COMPANY/UNDERTAKING IDENTIFICATION:

| | |
|---|---|
| U.S. SUPPLIER/MANUFACTURER'S NAME: | **Pecora Corporation** |
| ADDRESS: | 165 Wambold Road, Harleysville, PA 19438 |
| EMERGENCY PHONE: | 800-424-9300 (CHEMTREC, 24-hours) |
| BUSINESS PHONE: | 215-723-6051 (Mon–Fri, 8 AM–5 PM ET) |
| PREPARATION DATE: | May 14, 2026 |
| REVISION DATE: | New |

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.

## 2. HAZARD IDENTIFICATION

**2.1 GLOBAL HARMONIZATION LABELING AND CLASSIFICATION:** Classified in accordance with Global Harmonization Standard under U.S. OSHA Hazard Communication Standard, Canadian WHMIS HPR-GHS 2015.

**2.1.1 Classification:** Skin Irritation Category 2

**2.1.2 Signal Word:** Danger

**2.1.3 Hazard Statements:** H315: Causes skin irritation.

**2.1.4 Hazards Not Otherwise Classified (HNOC):** None known.

**2.1.5 Physical Hazards Not Otherwise Classified (PHNOC):** None known.

**2.1.6 Precautionary Statements:**

2.1.6.1 Prevention:

P264: Wash hands and other contamination areas thoroughly after handling. P270: Do not eat, drink or smoke when using this product. P271: Use only outdoors or in a well-ventilated area. P280: Wear protective gloves, clothing, eye protection and face protection.

2.6.1.2 Response:

P302+P352: IF ON SKIN: wash with plenty of water. P332+P317: If skin irritation occurs: Get medical help. P362+P364: Take off contaminated clothing and wash it before reuse. H321+H323: Specific treatment (remove from exposure and treat symptoms; see information on the Safety Data Sheet).

2.6.1.3 Storage:

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

2.6.1.4 Disposal:

P501: Dispose of contents/containers in accordance with all local, regional, national and international regulations.

**2.1.7 Hazard Symbols/Pictograms:** GHS07

**2.2 Percent of Unknown Acute Toxicity:** This product is a mixture; the following are percentages of unknown acute toxicity, by route of exposure. Oral: > 70%; Dermal: > 70%; Inhalation: 80%

## 3. COMPOSITION AND INFORMATION ON INGREDIENTS

| Chemical Name | CAS # | W/W% | LABEL ELEMENTS<br>GHS Classification under U.S. OSHA Hazard Communication Standard & Canadian WHMIS (HPR-GHS) 2015<br>Hazard Statement Codes |
|---|---|---|---|
| Proprietary Trialkoxysilane | | 15-30% | Notified Classification: Skin Irritation Cat. 2<br>Hazard Statements: : H315:Causes skin irritation. |
| Proprietary Non-Ionic Surfactant | | 0.1-0.8% | Notified Classification: Skin Irritation Cat. 2<br>Hazard Statements: : H315:Causes skin irritation. |
| Water and other non-hazardous Ingredients | | Balane | Classification: Not Classified |

The specific chemical identity and/or exact percentage (concentration) of composition has been withheld as a trade secret.

## 4. FIRST-AID MEASURES

**4.1 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.

**4.2 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

**4.2.1 Inhalation:** If aerosols of this material are inhaled, remove victim to fresh air. If necessary, use artificial respiration to support vital functions.

**4.2.1.1 GHS Precautionary Statements for Inhalation Exposure:** None applicable.

**4.2.2 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.

**4.2.2.1 GHS Precautionary Statements for Skin Exposure:** P302+P352: IF ON SKIN: wash with plenty of water. P332+P317: If skin irritation occurs: Get medical help. P362+P364: Take off contaminated clothing and wash it before reuse. H321+H323: Specific treatment (remove from exposure and treat symptoms; see information on the Safety Data Sheet).

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

**4.2.3 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.

**4.2.3.1 GHS Precautionary Statements for Eye Exposure:** None applicable

**4.2.4 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.

**4.2.4.1 GHS Precautionary Statements for Ingestion Exposure:** None applicable.

**4.3 MEDICAL CONDITIONS AGGRAVATED BY EXPOSURE:** Acute or chronic respiratory or skin conditions may be aggravated by exposure to this product.

**4.4 IMPORTANT SYMPTOMS AND EFFECTS, WHETHER ACUTE OR DELAYED:** See Sections 2 (Hazard Identification) and 11 (Toxicological Information) for more detailed information.

**4.4.1 Acute:**

Symptoms/Effects: May be harmful if swallowed. Irritant to skin, and may cause minor eye and respiratory system irritation. All potential effects are dependent on concentration and duration of exposure.
Symptoms/Effects After Inhalation: EXPOSURE TO HIGH CONCENTRATIONS: Coughing, dry or sore throat, dizziness, headache.
Symptoms/Effects After Skin Contact: Dermatitis, dry skin.
Symptoms/Effects After Eye Contact: Mild irritation of eye tissue.
Symptoms/Effects After Ingestion: AFTER ABSORPTION OF LARGE QUANTITIES: Possible nausea and stomach upset or vomiting.

**4.4.2 Chronic:**

Symptoms/Effects After Skin Contact: Dermatitis (dry, red skin, itching, cracking of the skin).
Symptoms/Effects After Accidental Injection/Ingestion/Eye Contact: None known.
Symptoms/Effects After Inhalation: None known.

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

## 5. FIRE-FIGHTING MEASURES

**5.1 FLASH POINT:** 118°C (244°F)

**5.2 AUTOIGNITION:** Not tested.

**5.3 FLAMMABLE LIMITS IN AIR:** Not tested.

**5.4 FIRE EXTINGUISHING MEDIA:** Use materials appropriate for surrounding materials. ABC extinguishers, carbon dioxide, foam, dry chemical and flooding quantities of water.

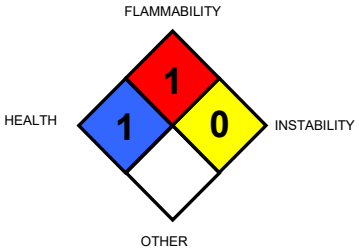
**5.5 UNSUITABLE EXTINGUISHING MEDIA:** None known.

**5.6 SPECIAL HAZARDS ARISING FROM THE PRODUCT:** May ignite if involved in a fire and water evaporates. Not sensitive to mechanical impact under normal conditions. Closed containers may develop pressure and rupture violently in event of fire or if contaminated with water. Combustion by-products may be hazardous if inhaled.

**5.6.1 Explosion Sensitivity to Mechanical Impact:** Not sensitive.

**5.6.2 Explosion Sensitivity to Static Discharge:** Not sensitive.

**NFPA RATING**




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

**5.7 SPECIAL PROTECTIVE ACTIONS FOR FIRE-FIGHTERS:** 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.

water, or other environmentally sensitive areas.

**5.7.1 GHS Precautionary Statements Fire Response:** None applicable.

## 6. ACCIDENTAL RELEASE MEASURES

**6.1 PERSONAL PRECAUTIONS AND EMERGENCY PROCEDURES:** An accidental release may 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. Avoid contact with water.

**6.2 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.

**6.2.1 Small Spills:** For releases of 1 drum or less, Level D Protective Equipment (gloves, chemical resistant apron, boots, and eye protection) should be worn.

**6.2.2 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.**

**6.3 METHODS AND MATERIALS FOR CONTAINMENT AND CLEANING UP:**

**6.3.1 All Spills:** Access to the spill area should be restricted. Spread should be limited by gently covering the spill with polypads. Absorb spilled liquid with clay, sand, polypads, or other suitable inert absorbent materials. Due to reactivity of isocyanate components, use of a stabilizer for isocyanates should be considered. 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.

**6.4 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.

**6.4.1 GHS Precautionary Statements for Environmental Precaution:** None required.

**6.5 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.

**6.6 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

**7.1 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, vapors or mist. Do not taste or swallow. Use only with adequate ventilation. Wash hands after handling this product. Contaminated clothing should 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. Keeping work areas clean is essential. Use work surfaces that can be easily decontaminated. Maintain good personal hygiene.

**7.1.1 GHS Statements for Safe Handling:** P264: Wash hands and other contamination areas thoroughly after handling. P270: Do not eat, drink or smoke when using this product. P271: Use only outdoors or in a well-ventilated area. P280: Wear protective gloves, clothing, eye protection and face protection.

**7.2 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. Empty containers may contain residual product; therefore, empty containers should be handled with care. Do not burn, cut, torch, weld, braise, solder, or expose containers to heat or flames. Empty drums may not be used for other purposes. Store container below 27°C (80°F) to avoid possible reactions related to heat and overpressure of containers.

**7.2.1 GHS Statements for Storage:** P403 + P233 + P235: Store in a well-ventilated place. Keep container tightly closed. Keep cool. P405: Store locked up.

**7.3 PRODUCT USE:** This product is used as penetrating masonry sealant. Follow all industry standards for use of this product.

## 8. EXPOSURE CONTROLS - PERSONAL PROTECTION

**8.1 EXPOSURE LIMITS/CONTROL PARAMETERS:**

**8.1.1 Ventilation and Engineering Controls:** Use with adequate, explosion proof ventilation to ensure exposure levels are maintained below the limits provided further in this section.

**8.1.2 U.S. Occupational/Workplace Exposure Limits/Guidelines:** Currently, there are no exposure limits in force for components.

**8.1.3 Biological Exposure Indices (BEIs):** Currently, no BEI's have been established for components.

**8.2 PERSONAL PROTECTIVE EQUIPMENT (PPE):** 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, including the Respiratory Protection Standard (29 CFR 1910.134), Eye Protection Standard 29 CFR 1910.13, the Hand Protection Standard 29 CFR 1910.138, and the Foot Protection Standard 29 CFR 1910.136), equivalent standards of Canada (including the Canadian CSA Respiratory Standard Z94.4-93-02, the CSA Eye Protection Standard Z94.3-M1982, Industrial Eye and Face Protectors and the Canadian CSA Foot Protection Standard Z195-M1984, *Protective Footwear*). Please reference applicable regulations and standards for relevant details.

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

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

**8.2.3 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.

**8.2.4 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.

## 9. PHYSICAL and CHEMICAL PROPERTIES

**9.1 FORM:** Liquid.
**9.2 COLOR:** White.
**9.3 MOLECULAR WEIGHT:** Mixture.
**9.4 MOLECULAR FORMULA:** Mixture.
**9.5 ODOR:** Mild.
**9.6 ODOR THRESHOLD:** Not determined.
**9.7 BOILING POINT:** Not available.
**9.8 FREEZING/MELTING POINT:** Not available.
**9.9 RELATIVE DENSITY/SPECIFIC GRAVITY (water = 1):** 0.975
**9.10 VAPOR DENSITY: (air = 1):** > 1
**9.11 VAPOR PRESSURE:** Not available.
**9.12 pH:** 3.5-5.5 (slightly basic)
**9.13 SOLUBILITY IN WATER:** Not available.
**9.14 OTHER SOLUBILITIES:** Not known.
**9.15 EVAPORATION RATE (nBuAc = 1):** Not available.
**9.16 VOLATILE ORGANIC COMPOUNDS (VOC):** Not available.
**9.17 FLAMMABILITY:** Flammable liquid and vapor.
**9.18 FLASH POINT:** 118°C (244°F)
**9.19 AUTOIGNITION TEMPERATURE:** Not determined.
**9.20 FLAMMABLE LIMITS IN AIR:** Not tested.
**9.21 PERCENT VOLATILE BY VOLUME:** Not determined.
**9.22 COEFFICIENT WATER/OIL DISTRIBUTION:** Not available.
**9.23 VISCOSITY:** Not available.
**9.24 HOW TO DETECT THIS SUBSTANCE (WARNING PROPERTIES):** The slight odor of this product may act as warning properties in the event of an accidental release.

## 10. STABILITY and REACTIVITY

**10.1 POSSIBILITY OF HAZARDOUS REACTIONS:** No hazardous reactions expected due to the high water content; however, if the product is heated sufficiently to evaporate the water, explosive reaction could happen if it is continued to be heated, especially in a closed container, due to the Proprietary Trialkoxysilane component and if the stabilizing non-ironic stabilizer is depleted. The product should not be heated.

**10.2 CHEMICAL STABILITY:** Stable under normal circumstances of use and handling and at room temperature. Do not heat product.

**10.3 POSSIBILITY OF POLYMERIZATION:** Not expected to undergo polymerization.

**10.4 CONDITIONS TO AVOID:** Avoid contact with incompatible chemicals and exposure to ignition sources, heating or extreme temperatures.

## 10. STABILITY and REACTIVITY (Continued)

**10.5 INCOMPATIBLE MATERIALS:** This product is not compatible with strong acids, strong bases, and strong oxidizing agents (e.g., carbon and nitrogen oxides, acrolein), and heating.

**10.6 HAZARDOUS DECOMPOSITION PRODUCTS:**

**10.6.1 Combustion:** Thermal decomposition of this product can generate carbon and silicon oxides, ethanol.

**10.6.2 Hydrolysis:** Contact with water may generate ethanol due to the presence of Proprietary Trialkoxysilane.

**10.6.3 Air Oxidization:** The Proprietary Non-Ionic Surfactant component can oxidize upon air exposure to form secondary products, including aldehydes and formaldehyde, which are known skin sensitizers and irritants.

## 11. TOXICOLOGICAL INFORMATION

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

**11.1.1 Contact with Skin:** Causes skin irritation. Depending on the duration of skin contact, skin exposure can cause reddening, discomfort or irritation.

**11.1.1 Contact with Eyes:** May cause eye irritation. Brief contact with the liquid or vapors from this product and the eyes can cause irritation, reddening and watering.

**11.1.2 Skin Absorption:** No information available.

**11.1.3 Ingestion:** May be harmful if swallowed. If swallowed, irritation of the mouth, throat, and other tissues of the gastro-intestinal system can occur, as well as cause nausea, vomiting, and diarrhea.

**11.1.4 Inhalation:** May cause respiratory irritation. Inhalation of vapors, mists, or sprays of this product may irritate the tissues of the nose, mouth, throat, and upper respiratory system. Symptoms of exposure may include coughing, sneezing, and difficulty breathing. Inhalation can cause systemic effects.

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

**11.1.6: Other Effects:** None known.

**11.2 DELAYED and IMMEDIATE EFFECTS and CHRONIC EFFECTS FROM SHORT-TERM and LONG-TERM EXPOSURE:**

**11.2.1 Short-Term:** This product may be harmful by inhalation or ingestion. Skin contact may be irritating. Eye contact and inhalation may cause transient irritation.

**11.2.2 Long-Term:** Prolonged or chronic skin contact may cause dermatitis.

**11.3 TARGET ORGANS:**

**11.3.1 Short Term:** Skin, eyes, respiratory system.

**11.3.2 Long Term:** Skin, respiratory system.

**11.4 OVERALL ACUTE TOXICITY ESTIMATES (ATE) FOR PRODUCT:**

**11.4.1 Oral ATE:** > 22,000 mg/kg (> 70% unknown)

**11.4.2 Dermal ATE:** > 20,800mg/kg (> 70% unknown)

**11.4.3 Inhalation Vapor ATE:** 110 mg/L (80% unknown)

**11.5 TOXICITY DATA:** The following toxicology data are available for components greater than 1% in concentration. Only human data, LD50 Oral-Rat or Mouse, LD50 Skin-Rat or Mouse, LC50 Inhalation-Rat or Mouse and skin irritation data are provided in this SDS. Contact Pecora for more information.

**Proprietary Trialkoxysilane:**

$LD_{50}$ (Oral-Rat) > 5110 mg/kg

$LD_{50}$ (Skin-Rabbit) 8000 mg/kg

$LC_{50}$ (Inhalation-Rat) 4 hours: > 22 mg/L

**11.6 CARCINOGENIC POTENTIAL:** Currently no components is considered to be or suspected to be a carcinogen by agencies tracking carcinogenic potential of chemicals used in the workplace.

**Additional Information on Carcinogenic Potential:** No information.

**11.5 IRRITANCY OF PRODUCT:** This product is irritating by skin contact. Eye contact and inhalation of mists, sprays or vapors may cause mild irritation. See below for specific information on the components.

**Proprietary Non-Ionic Surfactant:** In an acute dermal toxicity study conducted using a protocol comparable to OECD Test Guideline 402, and in compliance with GLP (BRRC, 1992) the $LD_{50}$ for male rabbits was 6730 mg/kg bw, and for females was at least 8000 mg/kg bw. Dermal reactions included erythema, oedema, necrosis, fissuring, desquamation and alopecia (signs of skin irritation at all doses in both sexes). Signs of toxicity included sluggishness, an unsteady gait, labored breathing, forelimb paralysis (one male that died), hindlimb paresis (reversible weakness to temporary loss of ability to stand), nephritis, slight wetness of the perinasal fur, head with swaying motion. Recovery of survivors was 2-14 days. There were no treatment-related microscopic findings.

**Proprietary Trialkoxysilane:** Skin Irritation: In an occlusive skin irritation study conducted according to OECD 404 and in compliance with GLP (reliability score 1) Proprietary Trialkoxysilane was irritating to the skin of rabbits. Irritation had completely reversed by day 10. There were no systemic effects.

**11.6 SENSITIZATION TO THE PRODUCT:**

**11.6.1 Skin Sensitization:** No component is reported to cause skin sensitization in humans. Animal data do not indicate sensitization effects.

**11.6.2 Respiratory Sensitization:** No component is reported to cause respiratory sensitization in humans. Animal data do not indicate sensitization effects.

## 11. TOXICOLOGICAL INFORMATION (Continued)

**11.7 TOXICOLOGICAL SYNERGISTIC PRODUCTS:** Proprietary Non-Ionic Surfactant exhibits synergistic toxicological effects primarily in environmental contexts, particularly by increasing the toxicity of pesticides. While generally considered safe in household detergents, it can oxidize to form sensitizing peroxides, and its mixtures with other substances often show additive toxicity to aquatic organisms.

**11.8 REPRODUCTIVE TOXICITY INFORMATION:** This product has not been tested for reproductive toxicity.

**11.8.1 Mutagenicity:** No human or animal data indicate mutagenic effects from any component.

**11.8.2 Embryotoxicity/Teratogenicity:** No human or animal data indicate embryotoxic or teratogenic effects from any component..

**11.8.3 Reproductive Toxicity:** No human or animal data indicate reproductive effects from any component.

## 12. ECOLOGICAL INFORMATION

ALL WORK PRACTICES MUST BE AIMED AT ELIMINATING ENVIRONMENTAL CONTAMINATION.

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

**12.2 PERSISTENCE AND BIODEGRADABILITY:** This product has not been tested for persistence or biodegradability.

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

**12.4 ECOTOXICITY:** This product has not been tested for aquatic or animal toxicity. All release to terrestrial, atmospheric and aquatic environments should be avoided. Although data are available for the Proprietary Trialkoxysilane component, it does not indicate significant toxicity to aquatic organisms.

**12.5 OTHER ADVERSE EFFECTS:** This product is not expected to have any ozone depletion potential.

**12.6 ENDOCRINE DISRUPTING PROPERTIES:** No component has shown or is known to cause endocrine disrupting properties.

**12.7 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

**13.1 PREPARING WASTES FOR DISPOSAL:** As supplied, this product is not a hazardous waste as defined by U.S. federal regulation (40 CFR 261) if discarded or disposed. State and local regulations may differ from federal regulations. The generator of the waste is responsible for proper waste determination and management.

**13.1 GHS Statements for Preparing Wastes for Disposal:** P501: Dispose of contents of containers in accordance with all local, regional, national and international regulations.

**13.2 U.S. EPA WASTE NUMBER:** Wastes of this product should be tested to see if they meet the criteria of D001 (Ignitability characteristic).

## 14. TRANSPORTATION INFORMATION

**14.1 U.S. DEPARTMENT OF TRANSPORTATION (DOT):** Not classified as Dangerous Goods or regulated by the U.S. DOT regulations, under 49 CFR 172.101.

**14.2 TRANSPORT CANADA TRANSPORTATION OF DANGEROUS GOODS REGULATIONS (TDG):** Not classified as Dangerous Goods or regulated by Transport Canada.

**14.3 INTERNATIONAL AIR TRANSPORT ASSOCIATION SHIPPING INFORMATION (IATA):** Not classified as Dangerous Goods or regulated by the International Air Transport Association.

**14.4 INTERNATIONAL MARITIME ORGANIZATION SHIPPING INFORMATION (IMO):** Not classified as Dangerous Goods or regulated by the International Maritime Organization.

## 15. REGULATORY INFORMATION

**15.1 U.S. REGULATIONS:**

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

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

**15.1.3 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.

**15.1.4 U.S. CERCLA Reportable Quantity (RQ):** None applicable.

**15.1.5 U.S. Clean Air Act (CA 112r) Threshold Quantity (TQ):** None applicable.

**15.1.6 U.S. Clean Water Act Requirements:** None applicable.

**15.1.7 California Safe Drinking Water And Toxic Enforcement Act (Proposition 65):** No component is listed on the California Proposition 65 lists.

**15.2 CANADIAN REGULATIONS:**

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

**15.2.2 Canadian Environmental Protection Act (CEPA) Priorities Substances Lists:** No component is listed.

**15.2.3 Canadian WHMIS (HPR-GHS) 2015 Classification and Symbols:** See Section 16 in Classification and Symbols under HPR-GHS 2015.

# 16. OTHER INFORMATION

**16.1 HAZARDOUS MATERIALS IDENTIFICATION SYSTEM (HMIS®)**

| | |
|---|---|
| **Health** | **1** |
| **Flammability** | **1** |
| **Physical Hazard** | **0** |

See Section 16 for definitions of ratings

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

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**16.2 REFERENCES AND DATA SOURCES:** Contact the supplier for information.

**16.3 METHODS OF EVALUATING INFORMATION FOR THE PURPOSE OF CLASSIFICATION:** Bridging principles were used to classify this product.

**16.4 DATE OF PREPARATION:** May 14, 2026

**16.5 REVISION DETAILS:** New.

**16.6 DISCLAIMER OF EXPRESSED AND IMPLIED WARRANTIES**

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# DEFINITIONS OF TERMS

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

**KEY ACRONYMS:**

**CHEMTREC:** Chemical Transportation Emergency Center, a 24-hour emergency information and/or emergency assistance to emergency responders.

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

**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.

**NE:** Not Established. When no exposure guidelines are established, an entry of NE is made for reference.

**NIC:** Notice of Intended Change.

**NIOSH CEILING:** The exposure that shall not be exceeded during any part of the workday. If instantaneous monitoring is not feasible, the ceiling shall be assumed as a 15-minute TWA exposure (unless otherwise specified) that shall not be exceeded at any time during a workday.

**NIOSH RELs:** NIOSH's Recommended Exposure Limits.

**PEL:** OSHA's Permissible Exposure Limits. This exposure value means exactly the same as a TLV, except that it is enforceable by OSHA. The OSHA Permissible Exposure Limits are based in the 1989 PELs and the June 1993 Air Contaminants Rule (Federal Register: 58: 35338-35351 and 58: 40191). Both the current PELs and the vacated PELs are indicated. The phrase, "Vacated 1989 PEL" is placed next to the PEL that was vacated by Court Order.

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

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

**WEEL:** Workplace Environmental Exposure Limits from the AIHA.

**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. Mechanical irritation may occur. PII or Draize = 0. *Eye Irritation*: Essentially non-irritating, minimal effects clearing in < 24 hours. Mechanical irritation may occur. Draize = 0. *Oral Toxicity $LD_{50}$ Rat*: > 5000 mg/kg. *Dermal Toxicity $LD_{50}$ Rat or Rabbit*: > 2000 mg/kg. *Inhalation Toxicity 4-hrs $LC_{50}$ Rat*: > 20 mg/L. **1** Slight Hazard: Minor reversible injury may occur; may irritate the stomach if swallowed; may defat the skin and exacerbate existing dermatitis. *Skin Irritation*: Slightly or mildly irritating. PII or Draize > 0 < 5. *Eye Irritation*: Slightly to mildly irritating, but reversible within 7 days. Draize > 0 ≤ 25. *Oral Toxicity $LD_{50}$ Rat*: > 500–5000 mg/kg. *Dermal Toxicity $LD_{50}$ Rat or Rabbit*: > 1000–2000 mg/kg. *Inhalation Toxicity $LC_{50}$ 4-hrs Rat*: > 2–20 mg/L. **2** Moderate Hazard: Temporary or transitory injury may occur; prolonged exposure may affect the CNS. *Skin Irritation*: Moderately irritating; primary irritant; sensitizer. PII or Draize ≥ 5, with no destruction of dermal tissue. *Eye Irritation*: Moderately to severely irritating; reversible corneal opacity; corneal involvement or irritation clearing in 8–21 days. Draize = 26–100, with reversible effects. *Oral Toxicity $LD_{50}$ Rat*: > 50–500 mg/kg. *Dermal Toxicity $LD_{50}$ Rat or Rabbit*: > 200–1000 mg/kg. *Inhalation Toxicity $LC_{50}$ 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 cause destruction of dermal tissue, skin burns, and 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 $LD_{50}$ Rat*: > 1–50 mg/kg. *Dermal Toxicity $LD_{50}$ Rat or Rabbit*: > 20–200 mg/kg. *Inhalation Toxicity $LC_{50}$ 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; extremely toxic; irreversible injury may result from brief contact. *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 $LD_{50}$ Rat*: ≤ 1 mg/kg. *Dermal Toxicity $LD_{50}$ Rat or Rabbit*: ≤ 20 mg/kg. *Inhalation Toxicity $LC_{50}$ 4-hrs Rat*: ≤ 0.05 mg/L.

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 requires considerable pre-heating, under all ambient temperature conditions before ignition and combustion can occur. This usually includes the following: 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 IIIB); and Most ordinary combustible materials (e.g., wood, paper, etc.).

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

FLAMMABILITY HAZARD (continued): **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 with air. This usually includes the following: Liquids having a flash-point at or above 37.8°C (100°F); Solid materials in the form of course 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); and Solids and semisolids (e.g., viscous and slow flowing as asphalt) 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. This usually includes the following: Liquids having a flash point below 22.8°C (73°F) and having a boiling point at or above 38°C (100°F) and those liquids having a flash point at or above 22.8°C (73°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); and 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 that will burn readily. This usually includes the following: 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); and Materials that ignite spontaneously when exposed to air at a temperature of 54.4°C (130°F) or below (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. *Compressed Gases*: No Rating. *Pyrophorics*: No Rating. *Oxidizers*: No 0 rating. *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 These materials may react with water but will not release energy violently. that are normally stable but can become unstable at high temperatures and pressures. *Explosives*: Division 1.5 & 1.6 explosives. 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 oxidizers; 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 explosion 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 explosives. Explosive substances where the explosive effects 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 oxidizers. 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. *Reactives*: Substances that may polymerize, decompose, condense, or self-react at ambient temperature and/or pressure, but have a low potential (or low risk) for significant heat generation or explosion. Substances that readily form peroxides upon exposure to air or oxygen at room temperature. **3** *Water Reactivity*: Materials that may form explosive reactions with water.

# 16. OTHER INFORMATION (Continued)

## DEFINITIONS OF TERMS (Continued)

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

PHYSICAL HAZARD (continued): **3 (continued):** *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 1.3 explosives. 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 ≥ 514.7 psi absolute at 21.1°C (70°F) [500 psig]. *Pyrophorics*: No Rating. *Oxidizers*: Packing Group I oxidizers. 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 (or moderate risk) 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. **4 (continued):** *Explosives*: Division 1.1 & 1.2 explosives. 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 (or high risk) to cause significant heat generation or explosion. *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 (or high risk) 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 with an $LC_{50}$ for acute inhalation toxicity greater than 10,000 ppm. Dusts and mists with an $LC_{50}$ for acute inhalation toxicity greater than 200 mg/L. Materials with an $LD_{50}$ for acute dermal toxicity greater than 2000 mg/kg. Materials with an $LD_{50}$ for acute oral toxicity greater than 2000 mg/kg. Materials essentially non-irritating to the respiratory tract, eyes, and skin. **1** Materials that, under emergency conditions, can cause significant irritation. Gases and vapors with an $LC_{50}$ for acute inhalation toxicity greater than 5,000 ppm but less than or equal to 10,000 ppm. Dusts and mists with an $LC_{50}$ for acute inhalation toxicity greater than 10 mg/L but less than or equal to 200 mg/L. Materials with an $LD_{50}$ 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 $LD_{50}$ 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 $LC_{50}$ 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 $LC_{50}$ for acute inhalation toxicity, if its $LC_{50}$ 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 $LC_{50}$ for acute inhalation toxicity greater than 2 mg/L but less than or equal to 10 mg/L. Materials with an $LD_{50}$ 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 -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. Materials whose $LD_{50}$ 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. Gases with an $LC_{50}$ 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 its $LC_{50}$ for acute inhalation toxicity, if its $LC_{50}$ is less than or equal to 3000 ppm and that does not meet the criteria for degree of hazard 4. Dusts and mists with an $LC_{50}$ for acute inhalation toxicity greater than 0.5 mg/L but less than or equal to 2 mg/L. Materials with an $LD_{50}$ 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 are corrosive to the eyes or cause irreversible corneal opacity. Materials corrosive to the skin. Cryogenic gases that cause frostbite and irreversible tissue damage. Compressed liquefied gases with boiling points below -55°C (-66.5°F) that cause frostbite and irreversible tissue damage. Materials with an $LD_{50}$ for acute oral toxicity greater than 5 mg/kg but less than or equal to 50 mg/kg. **4** Materials that, under emergency conditions, can be lethal. Gases with an $LC_{50}$ for acute inhalation toxicity less than or equal to 1,000 ppm. Any liquid whose saturated vapor concentration at 20°C (68°F) is equal to or greater than ten times its $LC_{50}$ for acute inhalation toxicity, if its $LC_{50}$ is less than or equal to 1000 ppm. Dusts and mists whose $LC_{50}$ for acute inhalation toxicity is less than or equal to 0.5 mg/L. Materials whose $LD_{50}$ for acute dermal toxicity is less than or equal to 40 mg/kg. Materials whose $LD_{50}$ for acute oral toxicity is less than or equal to 5 mg/kg.

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 according with Annex D of NFPA 704. **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 according with Annex D of NFPA 704. Liquids, solids, and semisolids having a flash point at or above 93.4°C (200°F) (e.g., 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 *Recommendations 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% 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 the 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). Most ordinary combustible materials. Solids containing greater than 0.5% by weight of a flammable or combustible solvent are rated by the closed cup flash point of the solvent. **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) (e.g., Class II and Class IIIA liquids.)

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

FLAMMABILITY HAZARD (continued): **2 (continued):** 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 with 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% 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 (100°F) (e.g., 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 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% 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) (e.g., Class IA liquids). Materials that ignite when exposed to air, Solids containing greater than 0.5% 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 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 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 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 are sensitive to localized thermal or mechanical shock 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.

### 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 vapor to form an ignitable mixture with air near the surface of the liquid or within the test vessel used. Autoignition Temperature: Minimum temperature of a solid, liquid, or gas required to initiate or cause self-sustained combustion in air with no other source of ignition. LEL: Lowest concentration of a flammable vapor or gas/air mixture that will ignite and burn with a flame. UEL: Highest concentration of a flammable vapor or gas/air mixture that will ignite and burn with a flame.

### 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. $LD_{50}$: Lethal Dose (solids & liquids) that kills 50% of the exposed animals. $LC_{50}$: Lethal Concentration (gases) that kills 50% of the exposed animals. ppm: Concentration expressed in parts of material per million parts of air or water. $mg/m^3$: 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. TDLo: Lowest dose to cause a symptom. TCLo: Lowest concentration to cause a symptom. TDo, LDLo, and LDo, or TC, TCo, LCLo, and LCo: Lowest dose (or concentration) to cause lethal or toxic effects.

**Cancer Information:** IARC: International Agency for Research on Cancer. NTP: National Toxicology Program. RTECS: Registry of Toxic Effects of Chemical Substances. 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.

### REPRODUCTIVE INFORMATION:

A mutagen is a chemical that causes permanent changes to genetic material (DNA) such that the changes will propagate through generational lines. An embryotoxin is a chemical that causes damage to a developing embryo (e.g., within the first eight weeks of pregnancy in humans), but the damage does not propagate across generational lines. A teratogen is a chemical that causes damage to a developing fetus, but the damage does not propagate across generational lines. A reproductive toxin is any substance that interferes in any way with the reproductive process.

### ECOLOGICAL INFORMATION:

EC: Effect concentration in water. BCF: Bioconcentration Factor, which is used to determine if a substance will concentrate in life forms that consume contaminated plant or animal matter. TLm: Median threshold limit. log $K_{OW}$ or log $K_{OC}$: Coefficient of Oil/Water Distribution is used to assess a substance's behavior in the environment.

### REGULATORY INFORMATION:

**U.S.:**

EPA: U.S. Environmental Protection Agency. ACGIH: American Conference of Governmental Industrial Hygienists, a professional association that establishes exposure limits. OSHA: U.S. Occupational Safety and Health Administration. NIOSH: National Institute of Occupational Safety and Health, which is the research arm of OSHA. DOT: U.S. Department of Transportation. TC: Transport Canada. SARA: Superfund Amendments and Reauthorization Act. TSCA: U.S. Toxic Substance Control Act. CERCLA: Comprehensive Environmental Response, Compensation, and Liability Act. Marine Pollutant status according to the DOT; CERCLA or Superfund; and various state regulations. This section also includes information on the precautionary warnings that appear on the material's package label.

**CANADA:**

WHMIS: Canadian Workplace Hazardous Materials Information System. TC: Transport Canada. DSL/NDSL: Canadian Domestic/Non-Domestic Substances List.