SpecSeal Fast Tack AWG

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)	**SpecSeal Fast Tack AWG**
OTHER MEANS OF IDENTIFICATION	None
RECOMMENDED PRODUCT USE:	Sealant Paint
RESTRICTIONS ON USE:	Other than recommended use

1.2 U.S. COMPANY/UNDERTAKING IDENTIFICATION:

U.S. SUPPLIER/MANUFACTURER'S NAME:	**Specified Technologies Inc.**
ADDRESS:	200 Evans Way, Somerville, NJ 08876
EMERGENCY PHONE:	800-255-3934 (24 hrs)
BUSINESS PHONE:	908-526-8000 (Mon–Fri, 8 AM–5 PM ET)
PREPARATION DATE:	January 22, 2023
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:

Flammable Liquid Category 3, Germ Cell Mutagen Category 1B, Carcinogen Category 1B, Reproductive Toxicity Category 1B, Skin Irritation Category 2; Eye Corrosion/Irritation Category 2, Skin Sensitization Category 1B, Specific Target Organ Toxicity (Inhalation-Narcotic Effects) Single Exposure Cat. 3, Aquatic Acute Toxicity Category 1, Aquatic Chronic Toxicity Category 1

2.1.2 Signal Word: Danger

2.1.3 Hazard Statements:

H226: Flammable liquid and vapor. H340: May cause genetic effects. H350: May cause cancer. H360FD: May damage fertility. May damage the unborn child. H315: Causes skin irritation. H317: May cause an allergic skin reaction. H319: Causes serious eye irritation. H336: May cause drowsiness or dizziness. H400: Very toxic to aquatic life. H410: Very toxic to aquatic life with long-lasting effects.

2.1.4 Hazards Not Otherwise Classified (HNOC): Contains component that is under assessment as an endocrine disruptor.

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

2.1.6 Precautionary Statements:

2.1.6.1 Prevention:

P210: Keep away from heat, sparks, open flames, hot surfaces. — No smoking. P240: Ground and bond container and receiving equipment. P241: Use explosion-proof electrical, ventilating and lighting equipment. P242: Use only non-sparking tools. P243: Take precautionary measures against static discharge. P203: Obtain, read and follow all safety instructions before use. P261: Avoid breathing vapors. P264 + P265: Wash hands and other contamination areas thoroughly after handling. Do not touch eyes. P270: Do not eat, drink or smoke when using this product. P271: Use only outdoors or in a well-ventilated area. P272: Contaminated work clothing should not be allowed out of the workplace. P273: Avoid release to the environment. P280: Wear protective gloves, clothing, eye protection and face protection.

2.6.1.2 Response:

P370 + P378: In case of fire: Use materials appropriate for surrounding fire for extinction. P303 + P361 + P353: IF ON SKIN (or hair): Remove or take off immediately all contaminated clothing. Rinse skin with water or instant-acting shower. P333 + P313: If skin irritation or rash occurs, get medical attention. P362 + P364: Take off contaminated clothing and wash it before reuse. P305 + P351 + P338: IF IN EYES: Rinse cautiously with water for several minutes. Remove contact lenses, if present and easy to do. P337 + P317: If eye irritation persists: get medical help. P304 + P340: If inhaled, remove victim to fresh air and keep at rest in a position comfortable for breathing. P318: If exposed or concerned, get medical advice. P321: Specific treatment (remove from exposure and treat symptoms). P391: Collect spillage.

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: GHS02, GHS07, GHS08, GHS09

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: > 14% Dermal 31%, and Inhalation: > 63%.

3. COMPOSITION AND INFORMATION ON INGREDIENTS

Chemical Name	CAS #	W/W%	LABEL ELEMENTS GHS Classification under U.S. OSHA Hazard Communication Standard & Canadian WHMIS (HPR-GHS) 2015 Hazard Statement Codes
Limestone	1317-65-3	20-35	Notified Classification: Skin Irritation Cat. 2 Hazard Statements: H315:Causes skin irritation.
Naphtha Petroleum Heavy Alkylate	64741-65-7	5-10	Harmonized Classification: Germ Cell Mutagen Cat. 1B, Carcinogen Cat. 1B, Aspiration Hazard Cat. 1 Notified Classification: Flammable Liquid Cat. 2, Skin Irritation Cat. 2, Specific Target Organ Toxicity (Inhalation-Narcotic Effect) Single Exposure Cat. 3, Aquatic Chronic Toxicity Cat. 2 Hazard Statements: H340: May cause genetic effects. H350: May cause cancer. H304: May be fatal if swallowed and enters airways. H225: Highly flammable liquid and vapor. H336: May cause drowsiness or dizziness. H411: Toxic to aquatic life with long-lasting effects.
Vinyltrimethoxy-silane	2768-02-7	1-3	Harmonized Classification: Skin Sensitization Cat. 1B Notified Classification: Flammable Liquid Cat. 3, Acute Inhalation Toxicity Cat. 4 Hazard Statements: H226: Flammable liquid and vapor. H317: May cause an allergic skin reaction. H332: Harmful if inhaled.
Reaction product of decanoic acid, 12-hydrostearic acid & 1,2-ethanediamine	Proprietary	1-3	Mfg Classification: Skin Sensitization Cat. 1, Aquatic Chronic Toxicity Cat. 2 Hazard Statements: H317: May cause an allergic skin reaction. H411: Toxic to aquatic life with long-lasting effects. U.S. PNOC Hazard: Combustible Dust Hazard
Triphenyl Phosphate	115-86-6	1-3	Notified Classification: Aquatic Acute Toxicity Cat. 1, Aquatic Chronic Toxicity Cat. 1 Hazard Statements: H400: Very toxic to aquatic life. H410: Very toxic to aquatic life with long-lasting effects. Other Hazards: Under Assessment for Endocrine Toxicity
Dibutyltin Diacetonate	22673-19-4	0.5-0.9	Harmonized Classification: Reproductive Toxicity Cat. 1B, Specific Target Organ Toxicity (Immune System) Repeated Exposure Cat. 1 Notified Classification: Germ Cell Mutagen Cat. 2, Acute Oral Toxicity Cat. 4, Skin Corrosion/Irritation Cat. 1C, Skin Sensitization Cat. 1, Eye Damage Cat. 1, Specific Target Organ Toxicity (Immune System, Thymus) Single Exposure Cat. 1, Aquatic Acute Toxicity Cat. 1, Aquatic Chronic Toxicity Cat. 1 Hazard Statements: H341: Suspected of causing genetic effects. H360FD: May damage fertility. May damage the unborn child. H317: May cause an allergic skin reaction. H370: Causes damage to thymus, immune system. H372: Causes damages to immune system through prolonged or repeated exposure. H400: Very toxic to aquatic life. H410: Very toxic to aquatic life with long-lasting effects.
Titanium Dioxide	13463-67-7	0.1-0.8	Harmonized Classification: Carcinogen Category 2 Hazard Statements: H351i: Suspected to cause cancer by inhalation.
Proprietary Methyltrimethoxysilane		0.1-0.5	Notified Classification: Flammable Liquid Cat. 2 Hazard Statements: H225: Highly flammable liquid and vapor.
Tall Fatty Acids	61790-12-3	0.1-0.5	Notified Classification: Skin Sensitization Cat. 1 Hazard Statements: H317: May cause an allergic skin reaction.
N-(2-Aminoethyl-3-Aminopropyl) dimethoxysilane	3069-29-2	0.1-0.5	Notified Classification: Acute Oral Toxicity Cat. 4, Skin Irritation Cat. 2, Skin Sensitization Cat. 1A, Eye Damage Cat. 1 Hazard Statements: H302: May be harmful if swallowed. H315: Causes skin irritation. H317: May cause an allergic skin reaction. H318: Causes serious eye damage.
Quartz	14808-60-7	0.1-0.3	Notified Classification: Carcinogen Category 1B, Specific Target Organ Toxicity (Inhalation-Lungs) Repeated Exposure Cat. 1 Hazard Statements: H350i: May cause cancer by inhalation. H372: Causes damages to organs through prolonged or repeated exposure.
Other components not classified, with no exposure limits and/or in less than 0.1%		Balance	Classification: Not Applicable

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 health professional with victim(s).

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: P304 + P340: If inhaled, remove victim to fresh air and keep at rest in a position comfortable for breathing.

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. FIRST-AID MEASURES (Continued)

4.2 DESCRIPTION OF FIRST AID MEASURES (continued):

4.2.2.1 GHS Precautionary Statements for Skin Exposure: P264: Wash contaminated tissues after handling. P302 + P352: IF ON SKIN: Wash with plenty of soap and water. P333 + P317: If skin irritation or rash occurs, get medical attention. P362 + P364: Take off contaminated clothing and wash it before reuse.

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: P305 + P351 + P338: IF IN EYES: Rinse cautiously with water for several minutes. Remove contact lenses, if present and easy to do. P337 + P317: If eye irritation persists: get medical help.

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.

4.3 MEDICAL CONDITIONS AGGRAVATED BY EXPOSURE: Acute or chronic respiratory conditions or conditions involving the thymus or immune system 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: Fumes from heated product are an irritant to eyes and respiratory system. Direct eye contact may cause eye irritation. Direct skin contact may cause irritation. Inhalation of fumes or aerosols may affect the central nervous system (drowsiness, lightheadedness, dizziness). All potential effects are dependent on concentration and duration of exposure.

Symptoms/Effects After Inhalation of Fumes from Heated Product: Due to the paste form of the product, inhalation is only likely if the product is heated to decomposition: If heated: coughing, dry or sore throat, mucosal irritations, shortness of breath. Inhalation of fumes from product cause irritation of the respiratory tract and central nervous system effects as described above.

Symptoms/Effects After Skin Contact: Dermatitis, dry skin.

Symptoms/Effects After Direct Eye Contact: Moderate to serious irritation of eye tissue from direct eye contact. Fumes may cause eye irritation.

Symptoms/Effects After Ingestion: Irritation of mucous membranes in the mouth, pharynx, esophagus and gastrointestinal tract.

4.4.2 Chronic:

Symptoms/Effects After Skin Contact: Dermatitis (dry, red skin, itching, cracking of the skin, skin inflammation), allergic skin reaction.

Symptoms/Effects After Accidental Injection/Ingestion: None known.

Symptoms/Effects After Inhalation of Fumes from Heated Product: Possible chronic irritation.

Symptoms/Effects No Specific Route of Exposure: Potential adverse effects on the bladder, thymus, immune system, reproductive system, carcinogenic effects and mutagenic effects.

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: 47.83°C (118°F)

5.2 AUTOIGNITION: Not tested.

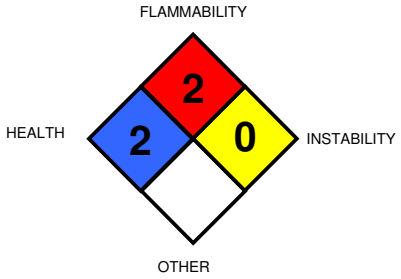
5.3 FLAMMABLE LIMITS IN AIR: Not tested.

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: Flammable liquid and vapor. Not sensitive to mechanical impact under normal conditions. Vapors may form explosive mixtures in air. Vapors can travel long distances and flashback to ignition source. Closed containers may develop pressure and rupture in event of fire or if contaminated with water.

NFPA RATING



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

5.6.1 Explosion Sensitivity to Mechanical Impact: Not sensitive.

5.6.2 Explosion Sensitivity to Static Discharge: May be sensitive. Fumes may collect in contained spaces, creating an explosion hazard from static discharge.

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.

5.7.1 GHS Statements for Fire Response: P370 + P378: In case of fire: Use materials appropriate for surrounding fire for extinction.

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 be 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)

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. 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.

6.3.2 GHS Statements for Spill Response: P391: Collect spillage.

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.

6.5 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 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. 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: P303 + P361 + P353: IF ON SKIN (or hair): Remove or take off immediately all contaminated clothing. Rinse skin with water or instant-acting shower. P333 + P313: If skin irritation or rash occurs, get medical attention. P362 + P364: Take off contaminated clothing and wash it before reuse. P305 + P351 + P338: IF IN EYES: Rinse cautiously with water for several minutes. Remove contact lenses, if present and easy to do. P337 + P317: If eye irritation persists: get medical help. P304 + P340: If inhaled, remove victim to fresh air and keep at rest in a position comfortable for breathing. P318: If exposed or concerned, get medical advice.

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 an 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. Store container below 27°C (80°F) to avoid possible reactions related to heat and overpressure of containers.

7.2.1 GHS Statements for Safe Handling: 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 a paint sealant. Follow all industry standards for use of this product.

8. EXPOSURE CONTROLS - PERSONAL PROTECTION

8.1 CONTROL PARAMETERS, INCLUDING OCCUPATIONAL EXPOSURE GUIDELINES OR BIOLOGICAL EXPOSURE LIMITS AND THE SOURCE OF THOSE VALUES:

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:

Chemical Name	CAS #	Guideline	Value
Calcium Carbonate	1317-65-3	ACGIH TLV TWA NIOSH TWA	15 mg/m^3 (total dust); 5 mg/m^3 (respirable fraction) 10 mg/m^3 (total dust); 5 mg/m^3 (respirable fraction)
Dibutyltin Diacetyldiacetonate (as an organic tin compound, as Sn)	22673-19-4	ACGIH TLV TWA ACGIH TLV STEL OSHA PEL TWA NIOSH REL TWA DFG MAK TWA DFG MAK PEAK	0.1 mg/m^3 (skin) 0.2 mg/m^3 (skin) 0.1 mg/m^3 0.1 mg/m^3 (skin) 0.1 mg/m^3 (inhalable fraction) skin 2●MAK; 15 minutes average value, 4 per shift, 1-hr interval (skin)
Quartz (Crystalline Silica)	14808-60-7	ACGIH TLV TWA OSHA PEL TWA NIOSH REL TWA NIOSH REL STEL	0.025 mg/m^3 (respirable fraction) 0.005 mg/m^3 (respirable dust); 1/2 the value calculated from the respirable dust formulae for Quartz** 0.005 mg/m^3 (respirable dust); See NIOSH Pocket Guide Appendix A See NIOSH Pocket Guide Appendix A **This standard applies to any operations or sectors for which the Respirable crystalline silica standard, 1910.1053, is stayed or is otherwise is not in effect.
Titanium Dioxide	13463-67-7	ACGIH TLV TWA OSHA PEL TWA NIOSH REL TWA DFG MAK TWA DFG MAK PEAK	10 mg/m^3; Notice of Intended Change: 2.5 mg/m^3 (respirable fraction) ultrafine particles 15 mg/m^3 (total dust) See Pocket Guide 0.3 mg/m^3 (respirable fraction; multiplied with the material density); inhalable fraction except for ultrafine particles 8●MAK; Excursion Factor: 1, 15 minutes average value, 4 per shift, 1-hr interval
Triphenyl Phosphate	115-86-6	ACGIH TLV TWA OSHA PEL TWA NIOSH REL TWA DFG MAK TWA DFG MAK PEAK	3 mg/m^3 3 mg/m^3 3 mg/m^3 10 mg/m^3 (inhalable fraction) 2●MAK; 15 minutes average value, 4 per shift, 1-hr interval

See Section 16 for Definitions of Terms Used.

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

8.2 INDIVIDUAL PROTECTION MEASURES, SUCH AS PERSONAL PROTECTIVE EQUIPMENT: The following information on appropriate Personal Protective Equipment is provided to assist employers in complying with OSHA regulations found in 29 CFR Subpart I (beginning at 1910.132, 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: Viscous liquid.
9.2 COLOR: Various colors.
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): 1.157
9.10 VAPOR DENSITY: (air = 1): > 1
9.11 VAPOR PRESSURE: Not available.
9.12 pH: Not available.
9.13 SOLUBILITY IN WATER: Not soluble.

9. PHYSICAL and CHEMICAL PROPERTIES (Continued)

9.14 OTHER SOLUBILITIES: Not known.
9.15 EVAPORATION RATE (nBuAc = 1): Not available.
9.16 VOLATILE ORGANIC COMPOUNDS (VOC): <100 g/L
9.17 FLAMMABILITY: Not flammable.
9.18 FLASH POINT: 47.83°C (118°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 viscous form of this product may act as a warning property in the event of an accidental release.

10. STABILITY and REACTIVITY

10.1 REACTIVITY: This product is not known to be reactive under normal circumstances of use and handling.
10.2 CHEMICAL STABILITY: Stable under normal circumstances of use and handling.
10.3 POSSIBILITY OF HAZARDOUS REACTIONS/POLYMERIZATION: This product is not expected polymerize.
10.4 CONDITIONS TO AVOID: Avoid contact with incompatible chemicals and exposure to ignition sources, prolonged heating or extreme temperatures.
10.5 INCOMPATIBLE MATERIALS: This product is not compatible with oxidizers, strong acids, strong bases, alkaline earths, alkaline metals and isocyanates.
10.6 HAZARDOUS DECOMPOSITION PRODUCTS:
10.6.1 Combustion: Thermal decomposition of this product can generate carbon, silicon, phosphate and nitrogen oxides, and amines.
10.6.2 Hydrolysis: None known.

11. TOXICOLOGICAL INFORMATION

11.1 POTENTIAL HEALTH EFFECTS: The most significant routes of occupational exposure are 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. Contains a compound that may cause skin sensitization and allergic reaction in susceptible individuals. Symptoms can include reddening of skin, rash, welts and itching. Once sensitized, exposure to very small amount can cause reactions.
11.1.1 Contact with Eyes: Although unlikely due to the form of the product, direct eye contact may cause serious eye irritation. Contact with fumes from heated product and the eyes can cause irritation, reddening and watering.
11.1.2 Skin Absorption: Prolonged skin contact may be harmful by skin absorption as described under ingestion or inhalation.
11.1.3 Ingestion: Although ingestion is unlikely in the workplace, 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: Effects by inhalation are not likely to the paste form of the product. If heated to decomposition, inhalation of fumes may cause respiratory irritation. Inhalation of fumes may irritate the tissues of the nose, mouth, throat, and upper respiratory system and may cause adverse effects on the central nervous system, such as dizziness, headache, incoordination. Symptoms of exposure may include coughing, sneezing, and difficulty breathing.
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: A component of this product is a suspect endocrine disruptor. A trace component of this compound may cause acute and chronic adverse effects on the thymus and immune system. Contains multiple suspect mutagens and carcinogens. A trace component is a suspect reproductive toxin.
11.2 DELAYED and IMMEDIATE EFFECTS and CHRONIC EFFECTS FROM SHORT-TERM and LONG-TERM EXPOSURE:
11.2.1 Short-Term: Direct eye contact may cause irritation. Skin contact and inhalation of fumes from heating the product may be irritating.
11.2.2 Long-Term: Prolonged or chronic skin contact may cause dermatitis or skin sensitization and allergic reaction in susceptible individuals. Data from the Vinyltrimethoxysilane component indicate chronic exposure to this product may cause adverse effects on the bladder. Data from the Dibutyltin Diacetyldiacetonate trace compound indicates possible damage to the thymus and reproductive system.
11.3 TARGET ORGANS:
11.3.1 Short Term: Skin, eyes, respiratory system, immune system.
11.3.2 Long Term: Skin, respiratory system, bladder, thymus, reproductive and immune systems.
11.4 OVERALL ACUTE TOXICITY ESTIMATES (ATE) FOR PRODUCT:
11.4.1 Oral ATE: > 3100 mg/kg (14% unknown)
11.4.2 Dermal ATE: > 13,000 mg/kg (31% unknown)
11.4.3 Inhalation Vapor ATE: > 5.3 mg/L (63% unknown)

11. TOXICOLOGICAL INFORMATION

11.5 ACUTE TOXICITY DATA: The following acute toxicology data are available for components greater than 1% in concentration. Due to the large amount of data, 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.

Dioctyl Phthalate:
LD_{50} (Oral-Rat) > 5000 mg/kg (no study guideline given)

Isodecyl Diphenyl Phosphate:
LD_{50} (Oral-Rat) > 15,800 mg/kg (no study guideline given)
LD_{50} (Skin-Rabbit) 24 hours: > 2010 mg/kg (OECD 402)
LC_{50} (Inhalation-Rat) 4 hours: > 6.3 mg/L (OECD 403; no deaths)

Limestone (calcium carbonate):
LD_{50} (Oral-Rat) 2000 mg/kg (no study guideline given)
LD_{50} (Skin-Rabbit) 2000 mg/kg (no study guideline given)

Reaction product of Decanoic Acid, 12-hydrostearic Acid & 1,2-Ethanediamine:
LD_{50} (Oral-Rat) > 5000 mg/kg (mfg data; no guideline given)

Reaction product of Decanoic Acid, 12-hydrostearic Acid & 1,2-Ethanediamine (continued):
LD_{50} (Skin-Rat) > 2000 mg/kg (mfg data; no guideline given)

Triphenyl Phosphate:
LD_{50} (Oral-Rat) > 20,000 mg/kg (OECD 401)
LD_{50} (Skin-Rabbit) > 10,000 mg/kg (OECD 402)
LC_{50} (Inhalation-Rat) No significant effects; no animals died (OECD 403)

Vinyltrimethoxysilane:
Standard Draize Test (Skin-Rabbit) 500 mg/24 hours: Mild
Standard Draize Test (Skin-Rabbit) 500 mg/24 hours: Mild
LD_{50} (Oral-Rat) 6899-7012 mg/kg (OECD 401)
LD_{50} (Skin-Rabbit) 3158-3760 mg/kg (OECD 402)
LC_{50} (Inhalation-Rat) 4 hours: 16.8 mg/L (OECD 403)

11.6 REPEATED DOSE TOXICITY: The following information is for a trace component regarding repeated dose toxicity.

Dibutyltin Diacetyldiacetonate: The concern for this compound is due to its properties as toxic to the reproductive system and the immune system (thymus). Hence, it has a harmonized classification as STOT RE 1 (H372, immune system) based on a read-across (category) approach mainly to dibutyltin dichloride (DBTC, EC/CAS no 211-670-0 / 683-18-1).

11.7 CARCINOGENIC POTENTIAL: The following table summarizes the carcinogenicity listing for the components of this product. "NO" indicates that the substance is not considered to be or suspected to be a carcinogen by the listed agency, see section 16 for definitions of other ratings.

CHEMICAL	IARC	EPA	NTP	NIOSH	ACGIH	OSHA	PROP 65
Crystalline Silicas	1	No	K*	Ca	A2	No	Yes (airborne particles of respirable size)
Dibutyltin Diacetyldiacetonate (as an organic tin compound, as Sn)	No	No	No	No	A4	No	No
Stearic Acid (as a stearate compound)	No	No	No	No	A4	No	No
Titanium Dioxide	2B	No	No	Ca	A3	No	Yes (airborne particles of respirable size)

ACGIH TLV-A3: Confirmed Animal Carcinogen with Unknown Relevance to Humans. ACGIH TLV-A4: Not Classifiable as a Human Carcinogen. IARC-1: Carcinogenic to Humans. IARC-2B: Possibly Carcinogenic to Humans. NIOSH-Ca: Potential Occupational Carcinogen with no Further Categorization. NTP-K: Known to Be a Human Carcinogen * Respirable Fraction

11.7.1 Additional Information on Carcinogenic Potential: None.

11.8 IRRITANCY OF PRODUCT: This product is irritating by skin exposure and direct contact is irritating to the eyes. Fumes from heated product may be irritating to the respiratory system and the eyes. The following information is available for several trace components.

N-(2-Aminoethyl-3-aminopropyl)dimethoxymethylsilane): Skin Irritancy: A reliable study, conducted according to OECD Test Guideline 405 and in compliance with GLP, reported corneal opacity, iridial inflammation and severe conjunctival irritation and a Draize score of 85 out of 110, in a single rabbit. The score was judged in the report to indicate that the test material was a very severe to extremely severe irritant to the eyes of rabbits, and would be considered to cause irreversible eye effects according to EU criteria.

Dibutyltin Diacetyldiacetonate:
Skin Irritancy: Testing under OECD 431 '*In-vitro* Skin Corrosion: Human Skin Model Test", this compound was considered to be corrosive to the skin; adverse effect observed (corrosive). The substance was assigned a classification of Category 1C Corrosive with the risk phrase H314 under the regulation (EC) No.: 1272/2008.

Eye Irritancy: Following assessment of the *in vitro* data for all endpoints, the test material was considered to have the potential to cause severe ocular irritancy *in vivo*. The data indicates that the substance may be considered severely irritating to the eyes and so it will therefore be classified as a Category 1 irritant and so will have the hazard statement H318: causes serious eye damage.

11.9 SENSITIZATION TO THE PRODUCT: Multiple components have been classified as skin sensitizers as indicated below.

11.9.1 Skin Sensitization: The following information is available for the components that have been found to have skin sensitizing effects.

N-(2-Aminoethyl-3-aminopropyl)dimethoxymethylsilane): This trace compound is reported to be an extreme sensitizer to guinea pig skin in a study conducted according to OECD Test Guideline 406 and in compliance with GLP. Category 1A (indication of significant skin sensitizing potential) based on GHS criteria.

Dibutyltin Diacetyldiacetonate: Under GHS, the substance is assigned to Category 1 Hazard statement: H317 May cause an allergic reaction). In a dermal sensitization study according to OECD 406, 10 week old male and female Pirbright White Guinea Pigs were exposed to TK 11638/1 in a maximization test. The test substance was found to be sensitizing according Regulation (EC) no 1272/2008.

Reaction product of decanoic acid, 12-hydroxystearic acid and 1,2-ethanediamine: This compound is classified by the manufacturer to be a skin sensitizer, although no specific data are available.

Tall Oil Fatty Acids: This trace compound has been given a notified classification by the EU ECHA of H317 (Skin Sensitizer Cat. 1), but no additional information is available.

Vinyltrimethoxysilane: Based on the sensitization incidence index of 100%, Vinyltrimethoxysilane was found to be an extremely sensitizing agent.

11.9.2 Respiratory Sensitization: No data.

11.10 ENDOCRINE TOXICITY: The Triphenyl Phosphate component is under assessment as an endocrine disruptor. Endocrine disruptors can cause adverse effects on the hormonal and immune systems. See Section 12 for further information.

11.11 TOXICOLOGICAL SYNERGISTIC PRODUCTS: None known.

11. TOXICOLOGICAL INFORMATION (Continued)

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

11.12.1 Mutagenicity: Product not tested; the following information is available for trace components of 0.1% or greater concentration.

Crystalline Silica: The ECHA Database indicates the following for Crystalline Silica: Suspected Mutagen: The outcome in CTA assay is positive according to ISSCTA.

Dibutyltin Diacetyldiacetonate: Read across data from Dibutyl tin chloride: assessment of clastogenic action on bone marrow erythrocytes in the micronucleus test was positive (reliability score 1). Based on this read-across from dibutyltin dichloride to Dibutyltin Diacetyldiacetonate, it is assigned a reliability score of 2.

11.12.2 Embryotoxicity/Teratogenicity: No data.

11.12.3 Reproductive Toxicity: Product not tested; the following information is available for trace components of 0.1% or greater concentration.

Dibutyltin Diacetyldiacetonate: Based on experimental studies, all dibutyltin compounds are assumed to degrade into dibutyltin and the appropriate ligand, and so on this basis, it is possible to read-across between the different dibutyltin compounds to address the toxicity to reproduction endpoints. As no toxicity to reproduction data are available for Dibutyltin Diacetyldiacetonate this endpoint has been addressed by the submission of studies performed on dibutyltin dichloride and using read-across from these studies. Treatment with DBT resulted in a significantly lower maternal weight gain, lower fetal weight and higher post-implantation embryo lethality. A significantly and markedly increased incidence of fetuses with malformations was observed in both groups treated with DBT. In the oral (gavage) teratogenicity study in the rat the test material was determined, not to be toxic maternally, but was teratogenic to developing fetuses. In the Reproduction/developmental toxicity screening test in rats, examination of the thymus revealed severe to very severe lymphoid depletion in 12/12 high-dose females, and moderate to severe lymphoid depletion in 6/12 (pregnant) mid-dose females. Three females showed late resorptions (autolytic fetuses) in the uterus during necropsy. Based on these study results, Dibutyltin Diacetyldiacetonate has been given a Harmonized Classification of Repr. 1B (H360FD).

11.12 OTHER TOXICITY (Single Dose Systemic Toxicity):

Dibutyltin Diacetyldiacetonate: This trace component is classified and labelled with H370 SE Cat. 1 due to toxicity to the immune system at doses below 50 mg/kg bw/day. Further, the substance is assigned to Single Exp. Category 1 based on results in testing which indicate 50% reduction of thymus weight following a single oral dose of 18 mg/kg. Hazard statement: H370 Causes damage to thymus.

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. The following aquatic toxicity data are available for minor components that presents a toxicity hazard to aquatic organisms.

Dibutyltin Diacetyldiacetonate:

EC_{50} (*Fundulus majalis* killifish) 96 hours: > 2 mg/L (OECD 203)
EC_{50} (*Daphnia magna* giant water flea) 48 hours: 0.004 mg/L (OECD 202)
EC_{50} (*Scenedesmus subcapitata* freshwater green algae) 72 hours: > 2 mg/L (OECD 201)

Reaction product of Decanoic Acid, 12-hydrostearic Acid & 1,2-Ethanediamine:

LC_{50} (*Oncorhynchus mykiss* rainbow trout) 96 hours: > 1000 mg/L (mfg data; no guideline given)
LC_{50} (*Daphnia magna* giant water flea) 48 hours: > 15.63 mg/L (mfg data; no guideline given)
EC_{50} (green algae) 72 hours: 4.08 mg/L (mfg data; no guideline given)
EC_{50} (*Skeletonema costalum* centric diatom) 48 hours: 4.48 mg/L (mfg data; no guideline given)

Triphenyl Phosphate:

EC_{50} (*Oncorhynchus mykiss* rainbow trout) 96 hours: 0.4 mg/L (EPA 660/3-75-090)
EC_{50} (*Mysida malacostraca* mysid shrimp) 48 hours: 0.18 mg/L (EPA 660/3-75-090)
EC_{50} (*Raphidocelis subcapitata* freshwater green algae) 72 hours: 0.5-5 mg/L (OECD 201)

12.4.1 GHS Statements for Environmental Hazards: P273: Avoid release to the environment.

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

12.6 ENDOCRINE DISRUPTORS: The Triphenyl Phosphate component is under assessment to determine whether it is an environmental endocrine disruptor. Refer to the following information:

Triphenyl Phosphate: Initial data indicate a reduction in fecundity in female fish resulting from exposure to Triphenyl Phosphate is observed in two endocrine disrupter (ED) screening studies (X Liu et al, 2013 and Japanese Ministry of Environment, 2012) which are level 3 tests according to the Conceptual Framework (CF) outlined in the revised Guidance Document 150 on Standardized Test Guidelines for Evaluating Chemicals for Endocrine Disruption (OECD, 2018) and Fish Sexual Development Test (OECD TG 234). Other data from these and further studies indicate changes in vitellogenin and sex hormone levels in fish. Together these effects provide a potential concern for environmental endocrine disruption and further information is required to investigate this.

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 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. he generator of the waste is responsible for proper waste determination and management.

13.1.1 GHS Statements for Disposal: P501: Dispose of contents/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): Regulated per U.S. DOT regulations, under 49 CFR 172.101.

UN Identification Number:	UN 1263
Proper Shipping Name:	Paint
Hazard Class Number and Description:	3 (Flammable)
Packing Group:	PG III
DOT Label(s) Required:	Class 3 (Flammable)
Excepted Quantities:	E1
North American Emergency Response Guidebook Number (2020):	128

Marine Pollutant: No component is on the U.S. DOT Marine Pollutant List (49 CFR 172.101, Appendix B).

14.2 TRANSPORT CANADA TRANSPORTATION OF DANGEROUS GOODS REGULATIONS (TDG): Per regulations of Transport Canada.

UN Identification Number:	UN 1263
Proper Shipping Name:	Paint
Hazard Class Number and Description:	3 (Flammable)
Packing Group:	PG III
Hazard Shipping Label(s) Required:	Class 3 (Flammable)
Special Provisions:	59, 142
Explosive Limit & Limited Quantity Index:	5 L
Excepted Quantities:	E1
ERAP Index:	None
Passenger Carrying Ship Index:	None
Passenger Carrying Road Or Rail Vehicle Index:	60 L

14.3 INTERNATIONAL AIR TRANSPORT ASSOCIATION SHIPPING INFORMATION (IATA): Per the International Air Transport Association.

UN Identification Number:	UN 1263
Proper Shipping Name:	Paint
Hazard Class or Division:	3 (Flammable)
Hazard Label(s) Required:	Class 3 (Flammable)
Packing Group:	III
Excepted Quantities:	E1
Passenger and Cargo Aircraft Packing Instruction:	355
Passenger and Cargo Aircraft Maximum Net Quantity per Pkg.:	60 L
Passenger and Cargo Aircraft Limited Quantity Packing Instruction:	Y344
Passenger and Cargo Aircraft Limited Quantity Maximum Net Quantity per Pkg.:	10 L
Cargo Aircraft Only Packing Instruction:	366
Cargo Aircraft Only Maximum Net Quantity per Pkg.:	220 L
Special Provisions:	A3, A72, A192
ERG Code:	3L

14.4 INTERNATIONAL MARITIME ORGANIZATION SHIPPING INFORMATION (IMO): Per the International Maritime Organization.

UN No.:	1263
Proper Shipping Name:	Paint
Class or Division:	3 (Flammable)
Labels:	Class 3 (Flammable)
Packing Group:	III
Special Provisions:	163, 223, 36, 955
Limited Quantities:	5 L
Excepted Quantities:	E1
Packing:	Instructions: P001, LP01; Provisions: PP1
IBCs:	Instructions: IBC03; Provisions: None
Portable Tanks and Bulk Containers:	Instructions: T2; Provisions: T1, TP29
EmS:	F-E, S-E
Stowage Category:	Category A.
Segregation:	None.

Marine Pollutant: Several components of this product meet the criteria of the IMO to be Marine Pollutants.

15. REGULATORY INFORMATION

15.1 U.S. REGULATIONS:

15.1.1 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.

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 listed by CAS# in Section 3 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): Not applicable.

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

15. REGULATORY INFORMATION (Continued)

15.1 U.S. REGULATIONS (continued):

15.1.7 California Safe Drinking Water And Toxic Enforcement Act (Proposition 65): The Crystalline Silica and Titanium Dioxide components are listed on the Proposition 65 lists, but only as airborne, unbound particles of respirable size, which is not applicable to this product. As such, the Proposition 65 warning for Crystalline Silica and Titanium Dioxide is not applicable to this product.

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: Not applicable.

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	**2***
Flammability	**2**
Physical Hazard	**0**

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.

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: January 22 2023

16.5 REVISION DETAILS: New.

16.6 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 PROVIDED ABOVE, THE RESULTS TO BE OBTAINED FROM THE USE OF THIS INFORMATION OR THE PRODUCT, THE SAFETY OF THIS PRODUCT, OR THE HAZARDS RELATED TO ITS USE. In no case shall the descriptions, information, data or designs provided be considered a part of our terms and conditions of sale.

All materials may present hazards and should be used with caution. Because many factors may affect processing or application/use, we recommend that you make tests to determine the suitability of a product for your particular purpose prior to use. No responsibility is assumed for any damage or injury resulting from abnormal use or from any failure to adhere to recommended practices or applicable federal, state, or local laws or 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 nor implied to practice any patented invention without a license.

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 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.). **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.

HAZARDOUS MATERIALS IDENTIFICATION SYSTEM HAZARD RATINGS (continued):

FLAMMABILITY HAZARD (continued): 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 that are normally stable but can become unstable at high temperatures and pressures. These materials may react with water but will not release energy violently. *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. *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.

DEFINITIONS OF TERMS (Continued)

HAZARDOUS MATERIALS IDENTIFICATION SYSTEM HAZARD RATINGS (continued):

PHYSICAL HAZARD (continued): 4 *Water Reactivity*: Materials that react explosively with water without requiring heat or confinement. *Organic Peroxides*: Materials that are readily capable of detonation or explosive decomposition at normal temperature and pressures. *Explosives*: Division 1.1 & 1.2 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 accordance 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.) 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.

NATIONAL FIRE PROTECTION ASSOCIATION HAZARD RATINGS (continued):

FLAMMABILITY HAZARD (continued): 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.