

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

### PRODUCT IDENTIFIER

**Product Identifier/Trade Name (As Labeled):** PRESERVA WOOD® PREMIUM TIMBER OIL ALL COLORS  
**Other Means Of Identification:** Canyon Brown; Heart Redwood; Mountain Cedar; Natural Timber; Bleached Gray  
**Recommended Product Use:** Linseed and Mineral Spirits-Based Wood Oil Stains  
**Restrictions On Use:** Other Than Recommended Use

### SUPPLIER OF THE SAFETY DATA SHEET

**U.S. Supplier/Manufacturer's Name:** Preserva Products Ltd.  
**Address:** 12860 Earhart Avenue  
 Auburn, CA 95602  
**Emergency Phone:** 800-797-2537 M-Th, 9am-4pm PST  
**Business Phone:** 800-797-2537 M-Th, 9 am-4pm PST  
**Email Address For Product Information:** info@preservaproducts.com  
**Date of Preparation:** April 18, 2019  
**Date of Revision:** April 11, 2023

NOTE: ALL United States Occupational Safety and Health Administration Standard (29 CFR 1910.1200), U.S. State equivalent Standards, Canadian WHMIS 2015 and the Global Harmonization required information is included in appropriate sections based on the Global Harmonization Standard format. These products have been classified in accordance with the hazard criteria of the countries listed above and the SDS contains all the information required by the Canadian WHMIS 2015 [HPR-GHS], the Global Harmonization Standard and OSHA 1910.120.

## 2. HAZARD IDENTIFICATION

**Global Harmonization Labeling and Classification:** Classified in accordance with Global Harmonization Standard under U.S. OSHA Hazard Communication Standard, and the Canadian WHMIS HPR-GHS 2015.

**Classification:** Germ Cell Mutagen Category 1B, Carcinogenic Category 1A, Reproductive Toxicity Category 2, Aspiration Hazard Category 1, Skin Irritation Category 2, Eye Corrosion/Irritation Category 2A, Skin Sensitization Category 1, Specific Target Organ Toxicity (Central Nervous System) Repeated Exposure Cat. 1, Specific Target Organ Toxicity (Inhalation-Respiratory Irritation) Single Exposure Cat. 3, Specific Target Organ Toxicity (Blood System Effects) Repeated Exposure Category 2, Aquatic Acute Toxicity Category 4

**Hazard Statements:** H340: May cause genetic effects. H350: May cause cancer. H361d: Suspected of damaging the unborn child. H304: May be fatal if swallowed and enters airways. H315: Causes skin irritation. H319: Causes serious eye irritation. H317: May cause an allergic skin reaction. H335: May cause respiratory irritation. H372: Causes damages to central nervous system through prolonged or repeated exposure. H373: May cause damage to blood system through prolonged or repeated exposure. H413: May cause long-lasting harmful effects to aquatic life.

**Hazards Not Otherwise Classification (HNOC):** The 3-Iso-2-Propyl Butylcarbamate component is a suspect endocrine disruptor.

**Signal Word:** Danger

#### Precautionary Statements:

**Prevention:** P203: Obtain, read and follow all safety instructions before use. P260: Due not breathe mists, sprays or fume. 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, protective clothing, eye protection and face protection.

**Response:** P319: Get medical help if you feel unwell. P301 + P316: IF SWALLOWED: Get emergency medical help immediately. P331: Do NOT induce vomiting. P302 + P352: IF ON SKIN: Wash with plenty of soap and water. P333 + P313: If skin irritation or rash occurs: Get medical advice/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 + P313: If eye irritation persists: Get medical advice/attention. P321: Specific treatment (remove from exposure and treat symptoms).

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

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

**Hazard Symbols/Pictograms:** GHS07, GHS08



**Percent of Unknown Toxicity by Route of Toxicity:** Oral: 3%; Dermal: 77%; Inhalation: 77%

**Product Description:** These products are combustible liquids which can range from amber to various light-to-dark-browns (if pigmented) and have a mild solvent odor. **Health Hazards:** Inhalation exposure to the vapors of these products can cause central-nervous system effects (dizziness, drowsiness, nausea, and headaches); chronic inhalation may cause damage to the central nervous system. Eye contact with fumes or the liquid can cause moderate or more severe irritation, depending on duration and concentration of contact. Skin contact may be irritating, especially if contact is prolonged; may cause defatting of the skin. Ingestion may cause central nervous system effects. Ingestion of large quantities may be fatal. Ingestion may lead to aspiration into the lungs and development of chemical pneumonia, which can be life-threatening. Evidence exists that the Linseed Oil and 3-Iso-2-Propyl Butylcarbamate components are skin sensitizers; allergic reactions may occur in persons susceptible to these compounds. The trace Stoddard Solvent component has a published GHS classification of a level 1B germ cell mutagen and carcinogen due to the possible presence of Benzene. In addition, some of the pigmented products contain other trace amounts of skin sensitizers, suspected or probable carcinogens and suspected reproductive toxins.

## 2. HAZARD IDENTIFICATION (Continued)

**Flammability Hazards:** These products are combustible and may form potentially explosive mixtures with air if subjected to high ambient temperatures or if highly heated. **WARNING!** Rags, paper or other combustible materials soaked in these products can cause an extreme fire hazard when not disposed of properly. See Section 7 (Handling and Storage) for more information. Vapors of these products may travel to a source of ignition and flashback to a leak or open container. If involved in a fire, these products will release smoke, acrid vapors and toxic gases (e.g., barium, calcium, carbon, iron, manganese and nitrogen oxides, silicates, aromatic hydrocarbons, methane, formaldehyde reactive hydrocarbons and aldehydes). **Reactivity Hazards:** These products are not reactive. **Environmental Hazards:** Not tested. These products contain multiple compounds that are toxic or harmful to aquatic organisms; release of these products to the environment may cause harm to plants and animals. Although not tested for environmental toxicity, all release to aquatic or terrestrial environments should be avoided. Release to waterways may cause fouling, and creation of hypoxic environments. **Emergency Response Considerations:** Emergency responders must wear proper personal protective equipment (and have appropriate fire protection) suitable for the situation to which they are responding.

## 3. COMPOSITION and INFORMATION ON INGREDIENTS

| CHEMICAL NAME   | CAS #      | % w/w               | LABEL ELEMENTS<br>GHS Classification under U.S. OSHA Hazard Communication Standard and Canadian WHMIS 2015<br>Hazard Statement Codes  |
|---|------------|---------------------|---|
| Mineral Spirits   | 64742-88-7 | 20-30%              | HARMONIZED EU ECHA CLASSIFICATION:<br>Classification: Aspiration Hazard Cat. 1, Specific Target Organ Toxicity (Central Nervous System) Repeated Exposure Cat. 1<br>Hazard Statements: H304: May be fatal if swallowed and enters airways. H372: Causes damages to central nervous system through prolonged or repeated exposure.   |
| Linseed Oil   | 8001-26-1  | 20-30%              | NOTIFIED EU ECHA CLASSIFICATION:<br>Classification: Acute Oral Toxicity Cat. 4, Acute Dermal Toxicity Cat. 4, Acute Inhalation Toxicity Cat. 4, Skin Irritation Cat. 2, Eye Irritation Cat. 2A, Skin Sensitization Cat. 1B, Specific Target Organ Toxicity (Inhalation-Respiratory Irritation) Single Exposure Cat. 3<br>Hazard Statements: H302 + H312 + H332: Harmful if swallowed, in contact with skin or if inhaled. H315: Causes skin irritation. H317: May cause an allergic skin reaction. H319: Causes serious eye irritation. H335: May cause respiratory irritation.   |
| Proprietary Vegetable Oil   |            | 20-30%              | Classification: Not classified.   |
| Proprietary Alkyd Resin Mixture   |            | 10-15%              | Classification: No Information Available.   |
| Proprietary Long Oil Alkyd Resin Mixture  |            | 10-15%              | MFG/SELF CLASSIFICATION:<br>Classification: Skin Irritation Cat. 3, Eye Corrosion/Irritation Cat. 2B<br>Hazard Statements: H316: Causes mild skin irritation. H320: Causes eye irritation.  |
| Mineral Spirits   | 64742-88-7 | (0.17%)             | See Classification information given previously.  |
| Proprietary Alkyd Resin Blend   |            | 5-8%                | SELF CLASSIFICATION:<br>Classification: Skin Irritation Cat. 3, Eye Corrosion/Irritation Cat. 2B<br>Hazard Statements: H316: Causes mild skin irritation. H320: Causes eye irritation.  |
| Pigments<br>The following colors of Preserva products contain pigment mixtures that are classified under GHS and contain either skin sensitizers, carcinogens, reproductive toxins or germ cell mutagens in 0.1% or greater | Mixture    | 3-6%                | SELF CLASSIFICATION:<br>Classification: See Below for Individual Colors<br>Hazard Statements: See Below for Individual Colors   |
| Mountain Cedar Product Color Pigment contains:  |            | As given previously | SELF CLASSIFICATION:<br>Classification: Germ Cell Mutagen Cat. 1B, Carcinogenic Cat. 1A, Skin Irritation Cat. 2, Skin Sensitization Cat. 1, Eye Corrosion/Irritation Cat. 2B, Specific Target Organ Toxicity Repeated Exposure (Blood System) Repeated Exposure Cat. 2<br>Hazard Statement Codes: H340: May cause genetic effects. H350: May cause cancer. H315: Causes skin irritation. H317: May cause an allergic skin reaction. H320: Causes eye irritation. H373: May cause damage to blood system through prolonged or repeated exposure.   |
| Hydrocarbon Mixture   | 64741-65-7 | (0.8% max)          | HARMONIZED EU ECHA CLASSIFICATION:<br>Classification: Germ Cell Mutagen Cat. 1B, Carcinogenic Cat. 1B, Aspiration Hazard Cat. 1<br>ADDITIONAL NOTIFIED EU ECHA CLASSIFICATION:<br>Classification: Flammable Liquid Cat. 3, Skin Irritation Cat. 2, Specific Target Organ Toxicity (Inhalation-Narcotic Effect) Single Exposure Cat. 3, Aquatic Chronic Toxicity Cat. 2<br>Hazard Statements: H226: Flammable liquid and vapor. H340: May cause genetic effects. H350: May cause cancer. H304: May be fatal if swallowed and enters airways. H315: Causes skin irritation. H336: May cause drowsiness or dizziness. H411: Toxic to aquatic life with long-lasting effects. |

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

### 3. COMPOSITION and INFORMATION ON INGREDIENTS (Continued)

| CHEMICAL NAME   | CAS #      | % w/w               | LABEL ELEMENTS<br>GHS Classification under U.S. OSHA Hazard Communication Standard and Canadian WHMIS 2015<br>Hazard Statement Codes   |
|---|------------|---------------------|--|
| Mountain Cedar Product Color Pigment (continued)<br>contains: |            | As given previously | See Classification information given previously.   |
| Stoddard Solvent  | 8052-41-3  | (0.28% max.)        | HARMONIZED EU ECHA CLASSIFICATION:<br>Classification: Germ Cell Mutagen Cat. 1B, Carcinogenic Cat. 1B, Aspiration Hazard Cat. 1, Specific Target Organ Toxicity (Oral-CNS) Repeated Exposure Cat. 1<br>ADDITIONAL NOTIFIED EU ECHA CLASSIFICATION:<br>Classification: Flammable Liquid Cat. 3, Skin Irritation Cat. 2, Aquatic Chronic Toxicity Cat. 3<br>Hazard Statements: H226: Flammable liquid and vapour. H340: May cause genetic effects. H350: May cause cancer. H304: May be fatal if swallowed and enters airways. H315: Causes skin irritation. H372: Causes damages to central nervous system through prolonged or repeated exposure. H412: Harmful to aquatic life with long-lasting effects.   |
| Crystalline Silica  | 14808-60-7 | (0.15% Max)         | NOTIFIED EU ECHA CLASSIFICATION:<br>Classification: Carcinogenic Cat. 1A, Specific Target Organ Toxicity Repeated Exposure Cat. 2<br>Hazard Statements: H350i: May cause cancer by inhalation. H373: May cause damage to organs through prolonged or repeated exposure.<br>ECHA Hazards of Concern: Suspected Mutagen: The outcome in CTA assay is positive according to ISSCTA  |
| 2-Butanone Oxime (Ethyl Methyl Ketoxime)                      | 96-29-7    | (0.14% max.)        | HARMONIZED EU ECHA CLASSIFICATION:<br>Classification: Carcinogenic Cat. 1A, Acute Oral Toxicity Cat. 3, Skin Irritation Cat. 2, Skin Sensitization Cat. 1, Eye Corrosion/Damage Cat. 1, Specific Target Organ Toxicity (Inhalation-Narcotic Effect) Single Exposure Cat. 3, Specific Target Organ Toxicity (Inhalation-Upper Respiratory Tract) Single Exposure Cat. 1, Specific Target Organ Toxicity Repeated Exposure (Blood System) Repeated Exposure Cat. 2<br>Hazard Statements: H350: May cause cancer. H301: Toxic if swallowed. H315: Causes skin irritation. H317: May cause an allergic skin reaction. H318: Causes serious eye damage. H336: May cause drowsiness or dizziness. H370: Causes damage to upper respiratory tract by inhalation. H373: May cause damage to blood system through prolonged or repeated exposure. |
| Trimanganese Tetraoxide                                       | 1317-35-7  | (0.02% max.)        | NOTIFIED EU ECHA CLASSIFICATION:<br>Classification: Reproductive Toxicity Cat. 2<br>Hazard Statements: H361d: Suspected of damaging the unborn child.  |
| Heart Redwood Product Color Pigment<br>contains:              |            | As given previously | SELF CLASSIFICATION:<br>Classification: Germ Cell Mutagen Cat. 1B, Carcinogenic Cat. 1A, Skin Irritation Cat. 2, Skin Sensitization Cat. 1, Eye Corrosion/Irritation Cat. 2B<br>Hazard Statement Codes: H340: May cause genetic effects. H350: May cause cancer. H315: Causes skin irritation. H317: May cause an allergic skin reaction. H320: Causes eye irritation.   |
| Hydrocarbon Mixture   | 64741-65-7 | (0.4% max)          | See Classification information given previously.   |
| Stoddard Solvent  | 8052-41-3  | (0.13% max.)        | See Classification information given previously.   |
| Crystalline Silica  | 14808-60-7 | (0.1% Max)          | See Classification information given previously.   |
| Trimanganese Tetraoxide                                       | 1317-35-7  | (0.02% max.)        | NOTIFIED EU ECHA CLASSIFICATION:<br>Classification: Reproductive Toxicity Cat. 2<br>Hazard Statements: H361d: Suspected of damaging the unborn child.  |
| Natural Timber Product Color Pigment<br>contains:             |            | 1-5%                | SELF CLASSIFICATION:<br>Classification: Germ Cell Mutagen Cat. 1B, Carcinogenic Cat. 1A, Skin Irritation Cat. 2, Eye Corrosion/Irritation Cat. 2B, Specific Target Organ Toxicity (Inhalation-Narcotic Effect) Single Exposure Cat. 3<br>Hazard Statement Codes: H340: May cause genetic effects. H350: May cause cancer. H315: Causes skin irritation. H320: Causes eye irritation. H336: May cause drowsiness or dizziness.  |
| Hydrocarbon Mixture   | 64741-65-7 | (0.8% max)          | See Classification information given previously.   |
| 2-Butanone Oxime (Ethyl Methyl Ketoxime)                      | 96-29-7    | (0.2% max.)         | See Classification information given previously.   |
| Bleached Gray Product Color Pigment<br>contains:              |            | As given previously | SELF CLASSIFICATION:<br>Classification: Germ Cell Mutagen Cat. 1B, Carcinogenic Cat. 1A, Skin Irritation Cat. 2, Eye Corrosion/Irritation Cat. 2B<br>Hazard Statement Codes: H340: May cause genetic effects. H350: May cause cancer. H315: Causes skin irritation. H320: Causes eye irritation.   |
| Titanium Dioxide  | 13463-67-7 | (2.8% max)          | HARMONIZED EU ECHA CLASSIFICATION:<br>Classification: Carcinogenic Cat. 2<br>Hazard Statements: H351i: Suspected to cause cancer by inhalation.  |
| Stoddard Solvent  | 8052-41-3  | (0.2% max.)         | See Classification information given previously.   |
| Canyon Brown Product Color Pigment<br>contains:               |            | As given previously | SELF CLASSIFICATION:<br>Classification: Germ Cell Mutagen Cat. 1B, Carcinogenic Cat. 1A, Skin Irritation Cat. 2, Skin Sensitization Cat. 1, Eye Corrosion/Irritation Cat. 2B<br>Hazard Statement Codes: H340: May cause genetic effects. H350: May cause cancer. H315: Causes skin irritation. H317: May cause an allergic skin reaction. H320: Causes eye irritation.   |
| Hydrocarbon Mixture   | 64741-65-7 | (0.35% max)         | See Classification information given previously.   |
| Carbon Black  | 1333-86-4  | (0.18% max.)        | SELF-CLASSIFICATION:<br>Classification: Carcinogenic Cat. 2<br>Hazard Statements: H351: Suspected of causing cancer.   |
| Stoddard Solvent  | 8052-41-3  | (0.18% max.)        | See Classification information given previously.   |
| Crystalline Silica  | 14808-60-7 | (0.12% Max)         | See Classification information given previously.   |

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

### 3. COMPOSITION and INFORMATION ON INGREDIENTS (Continued)

| CHEMICAL NAME   | CAS #      | % w/w               | LABEL ELEMENTS<br>GHS Classification under U.S. OSHA Hazard Communication Standard and Canadian WHMIS 2015<br>Hazard Statement Codes  |
|---|------------|---------------------|---|
| Canyon Brown Product Color Pigment (continued) contains:  |            | As given previously | SELF CLASSIFICATION:<br>Classification: Germ Cell Mutagen Cat. 1B, Carcinogenic Cat. 1A, Reproductive Toxicity Cat. 2, Skin Irritation Cat. 2, Skin Sensitization Cat. 1, Eye Corrosion/Irritation Cat. 2B<br>Hazard Statement Codes: H340: May cause genetic effects. H350: May cause cancer. H361d: Suspected of damaging the unborn child. H315: Causes skin irritation. H317: May cause an allergic skin reaction. H320: Causes eye irritation.   |
| Trimanganese Tetraoxide   | 1317-35-7  | (0.12% max.)        | See Classification information given previously.  |
| 2-Butanone Oxime (Ethyl Methyl Ketoxime)  | 96-29-7    | (0.06% max.)        | See Classification information given previously.  |
| Proprietary Paint Preservative Mixture<br>Contains the following components that have hazards that affect this mixture. Remaining components do not increase the mixture hazard:  |            | 1.1%                | SELF CLASSIFICATION:<br>Classification: Flammable Liquid Cat. 3, Germ Cell Mutagen Cat. 1B, Carcinogenic Cat. 1B, Skin Irritation Cat. 2, Skin Sensitization Cat. 1, Eye Corrosion/Irritation Cat. 2A, , Specific Target Organ Toxicity (Inhalation-Larynx) Repeated Exposure Cat. 1, Specific Target Organ Toxicity (Inhalation-Narcotic Effect) Single Exposure Cat. 3, Aquatic Chronic Toxicity Cat. 3<br>Hazard Statement Codes: H226: Flammable liquid and vapor. H340: May cause genetic effects. H350: May cause cancer. H315: Causes skin irritation. H317: May cause an allergic skin reaction. H319: Causes serious eye irritation. H336: May cause drowsiness or dizziness. H372: Causes damages to the larynx through prolonged or repeated exposure by inhalation. H412: Harmful to aquatic life with long-lasting effects.      |
| 3-Ido-2-Propyl Butylcarbamate   | 55406-53-6 | (0.44%)             | HARMONIZED EU ECHA CLASSIFICATION:<br>Classification: Acute Inhalation Toxicity Cat. 2, Eye Damage Cat. 1, Acute Oral Toxicity Cat. 4, Specific Target Organ Toxicity (Inhalation-Larynx) Repeated Exposure Cat. 1, Skin Sensitization Cat. 1, Aquatic Acute Toxicity Cat. 1, Aquatic Chronic Toxicity Cat. 1<br>ECHA Properties of Concern/Health Hazard Not Otherwise Classified: Under assessment as an Endocrine Disruptor<br>Hazard Statements: H331: Toxic if inhaled. H302: Harmful if swallowed. H317: May cause an allergic skin reaction. H318: Causes serious eye damage. H372: Causes damages to the larynx through prolonged or repeated exposure by inhalation. H400: Very toxic to aquatic life. H410: Very toxic to aquatic life with long-lasting effects.   |
| Solvent Naphtha Petroleum Light Aromatic  | 64742-95-6 | (0.1-0.28)          | HARMONIZED EU ECHA CLASSIFICATION:<br>Classification: Germ Cell Mutagen Cat. 1B, Carcinogenic Cat. 1B, Aspiration Hazard Cat. 1<br>ADDITIONAL NOTIFIED EU ECHA CLASSIFICATION:<br>Classification: Flammable Liquid Cat. 2, Skin Irritation Cat. 2, Specific Target Organ Toxicity (Inhalation-Narcotic Effects) Single Exposure Cat. 3, Aquatic Chronic Toxicity Cat. 2<br>Hazard Statements: H225: Extremely flammable liquid and vapour. H340: May cause genetic effects. H350: May cause cancer. H304: May be fatal if swallowed and enters airways. H315: Causes skin irritation. H336: May cause drowsiness or dizziness. H411: Toxic to aquatic life with long-lasting effects.   |
| Proprietary Mixed Metal Carboxylate Mixture<br>Contains the following components that have hazards that affect this mixture. *Note: the manufacturer does not give specific percentages for any of the following compounds. As such the Self-Classification is based on hazards of all these compounds, assuming a percentage over 0.1%                     |            | 1-3%                | SELF CLASSIFICATION:<br>Classification: Carcinogenic Cat. 2, Reproductive Toxicity Cat. 2, Skin Irritation Cat. 2, Skin Sensitization Cat. 1, Eye Corrosion/Irritation Cat. 2A, , Specific Target Organ Toxicity (Inhalation-Gastrointestinal Tract) Repeated Exposure Cat. 1, Specific Target Organ Toxicity (Inhalation-Brain Effects) Repeated Exposure Cat. 2<br>Hazard Statements: H351: Suspected to cause cancer. H361d: Suspected of damaging the unborn child. H315: Causes skin irritation. H317: May cause an allergic skin reaction. H319: Causes serious eye irritation. H334: May cause allergy or asthma symptoms or breathing difficulties if inhaled. H372: Causes damages to the gastrointestinal tract through prolonged or repeated exposure. H373: May cause damage to the brain through prolonged or repeated exposure. |
| Calcium 2-Ethylhexanoate CAS# 136-51-6<br>Calcium Neodecanoate CAS# 27253-33-4<br>Calcium Propionate CAS# 4075-81-4<br>Manganese 2-Ethylhexanoate CAS# 1595-58-8<br>Manganese Neodecanoate CAS# 27253-32-3<br>Neodecanoic Acid Cobalt Salt CAS# 27253-31-2<br>Neo C9-13 Acids Cobalt Salt CAS# 68955-83-9<br>Zirconium 2-Ethylhexanoate Acid CAS# 2244-99-9 |            | (0.73%)             | Classification: See above for classification of this group of compounds as a mixture.   |
| Other Trace Ingredients that do not add hazards to these products or are less than 1% or 0.1% for sensitizers, carcinogens, mutagens & reproductive toxins.   |            | 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

**Protection of First Aid Responders:** Rescuers should be taken for medical attention if necessary. Remove or cover gross contamination to avoid exposure to rescuers.

**Description of First Aid Measures:** Get medical help if you feel unwell. Contaminated individuals must seek medical attention if any adverse effect occurs. Take a copy of label and SDS to physician or health professional with the contaminated individual.

**Skin Exposure:** IF ON SKIN: Wash with plenty of soap and water. If skin irritation or rash occurs: Get medical advice or attention.

**Eye Exposure:** Rinse cautiously with water for several minutes. Remove contact lenses, if present and easy to do. Use sufficient force to open eyelids. Have victim roll their eyes to facilitate full decontamination. If eye irritation persists: Get medical advice or attention.

**Inhalation:** If vapors, mists, or sprays of these products are inhaled, remove victim to fresh air. If necessary, use artificial respiration to support vital functions. Seek medical attention if adverse effect occurs after removal to fresh air.

**Ingestion:** IF SWALLOWED: Get emergency medical help immediately. Do NOT induce vomiting, unless directly by medical personnel. Have victim rinse mouth with water or give several cupfuls of water if conscious.

## 4. FIRST-AID MEASURES (Continued)

### Description of First Aid Measures (continued):

**Ingestion (continued):** 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.

**Important Symptoms and Effects, Whether Acute or Delayed:** See Sections 2 (Hazard Identification) and 11 (Toxicological Information) for more detailed information.

#### Acute:

**Symptoms/Effects Overview:** All potential effects are dependent on concentration and duration of exposure. Ingestion may lead to aspiration into the lungs and lung damage or pneumonia. Acute exposure not considered to be significantly harmful by inhalation. Dermatitis, dry skin. Not considered to be harmful in contact with skin. Not toxic by eye contact; may cause serious eye irritation.

**Symptoms/Effects After Inhalation:** EXPOSURE TO HIGH CONCENTRATIONS: Coughing, dry or sore throat. Irritation of respiratory system.

**Symptoms/Effects After Skin Contact:** Mild irritant to skin.

**Symptoms/Effects After Eye Contact:** Moderate to severe irritation of eye tissue.

**Symptoms/Effects After Ingestion:** AFTER ABSORPTION OF LARGE QUANTITIES: Vomiting, digestive system upset, diarrhea.

**Symptoms/Effects After Accidental Injection:** Irritation at site of skin puncture, swelling and redness.

#### Chronic:

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

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

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

**Symptoms/Effects After Inhalation:** May cause damage to central nervous system from chronic inhalation exposure.

**By Unspecified Route:** Possible effects on the fetus, fertility. Possible mutagenic effects. Possible adverse effects on blood system.

**Immediate Medical Attention and Special Treatment Needed:** Treat symptoms and eliminate exposure. Provide oxygen, if necessary. Pulmonary function tests, chest X-rays, and nervous system evaluations may prove useful.

## 5. FIRE-FIGHTING MEASURES

**Flash Point:** For Lubricating Oils, Petroleum, Hydrotreated Spent: 165°C (329°F)

**Autoignition Temperature:** Not determined.

**Flammable Limits (in air by volume, %):** Not determined.

**Fire Extinguishing Media:** Fire extinguishing materials that can be used against fires of these products include carbon dioxide, dry chemical powder, or appropriate foam. Consideration for surrounding materials must be taken into account.

**Unsuitable Fire Extinguishing Media:** None known.

**Special Hazards Arising from the Substance:** These products must be heated to a high temperature before ignition can occur. When involved in a fire, these products may ignite and produce irritating vapors and toxic gases (e.g., see Section 10 for information on thermal decomposition products). Product can float on water and may travel to distant locations and/or spread fire. **WARNING!** By themselves, these products will not spontaneously combust, but rags and waste soaked in the product can catch fire when the product dries. The drying reaction is exothermic, and the heat given off in that process can cause the rags, as well as combustible materials such as paper or wood to ignite. See Section 7 (Handling and Storage) for more information.

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

**Explosion Sensitivity to Static Discharge:** The vapors of these products may be ignited by static electrical energy.

**Special Protective Actions for Fire-Fighters:** Structural firefighters must wear Self-Contained Breathing Apparatus and full protective equipment. Chemical resistant clothing may be necessary. Move containers from fire area if it can be done without risk to personnel. Water spray can be used to cool fire-exposed containers. Water fog or spray can also be used by trained firefighters to disperse these products' vapors and to protect personnel. If possible, prevent runoff water from entering storm drains, bodies of water, or other environmentally sensitive areas. Rinse contaminated equipment thoroughly with soapy water before returning such equipment to service.

## 6. ACCIDENTAL RELEASE MEASURES

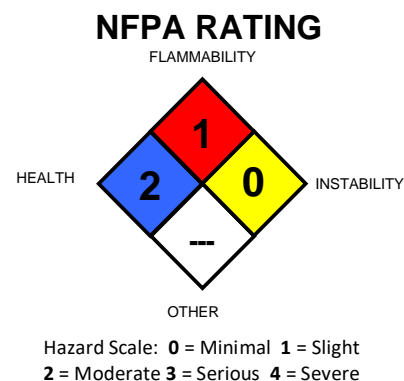
**Personal Precautions and Emergency Procedures:** Uncontrolled releases should be responded to by trained personnel using pre-planned procedures. Proper protective equipment should be used. Call CHEMTREC (1-800-424-9300) for emergency assistance. Or if in Canada, call CANUTEC (613-996-6666). The atmosphere 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.

### Protective Equipment:

**Small Spills:** Wear rubber gloves, splash goggles, and appropriate body protection.

**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 and boots, hard hat, and Self-Contained Breathing Apparatus.**

**Methods for Cleanup and Containment:** Eliminate all sources of ignition before cleanup begins. Use non-sparking tools. **DO NOT** use organic absorbents due to potential ignition. See next Section for precautions specific to product-soaked wastes.



## 6. ACCIDENTAL RELEASE MEASURES (Continued)

### Methods for Cleanup and Containment (continued):

**Small Spills:** Wipe up spilled liquid with polypads or other suitable absorbent materials.

**Large Spills:** Absorb spilled liquid with clay or other suitable absorbent materials.

**All Spills:** Decontaminate the area of the spill thoroughly using detergent and water. WARNING! Rags, paper or other combustible materials soaked in these products can cause an extreme fire hazard when not disposed of properly. See Section 7 (Handling and Storage) for more information. All contaminated materials and other spilled material must be placed in sealed containers and disposed of properly. Do not mix with wastes from other materials. If necessary, discard contaminated response equipment or rinse with soapy water before returning such equipment to service. Dispose of in accordance with applicable international, national, state, and local procedures (see Section 13, Disposal Considerations). Dispose of recovered material and report spill per regulatory requirements.

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

**Reference To Other Sections:** See information in Section 8 (Exposure Controls – Personal Protection) and Section 13 (Disposal Considerations) for additional information.

## 7. HANDLING and STORAGE

**Precautions For Safe Handling:** WARNING! Wadded up and oil-soaked paper towels, rags or other combustible materials thrown into the trash pose an extreme fire hazard when placed in trash, or left in a pile and can start a fire. The same is true if the absorbent used to clean up a spill is paper, wood or other combustible material; Do NOT throw in trash. All materials contaminated by these products should be placed in sealed containers and treated as highly flammable. Avoid spontaneous combustion by soaking rags, brushes rollers, etc. contaminated with product, in water then place into a sealed metal container before proper disposal. All employees who handle these products should be trained to handle them safely. As with all chemicals, avoid getting these products ON YOU or IN YOU. Use in a well-ventilated location. Keep away from heat, sparks, and other sources of ignition. Use non-sparking tools. Open containers slowly on a stable surface. Bond and ground containers during transfers of material. Do not expose containers to extreme temperatures. Avoid breathing airborne mists, sprays, or vapors generated by these products. Wash thoroughly after using these products. Do not eat or drink while using these products. Remove contaminated clothing immediately.

**Conditions For Safe Storage And Incompatibilities:** Product should be stored in a sealed metal container. Store in a dry location at the recommended temperature of 10-32.2°C (50-90°F). Keep container tightly closed when not in use. Empty containers may contain residual amounts of these products; therefore, empty containers should be handled with care. Store away from incompatible materials (see Section 10, Stability and Reactivity). Material should be stored in secondary containers, as appropriate. Containers should be separated from oxidizing materials by a minimum distance of 20 ft. or by a barrier of non-combustible material at least 5 ft. high having a fire-resistance rating of at least 0.5 hours. Storage areas should be made of fire-resistant materials. Post warning and “NO SMOKING” signs in storage and use areas, as appropriate. Have appropriate extinguishing equipment in the storage area (e.g., sprinkler system, portable fire extinguishers). Inspect all incoming containers before storage to ensure containers are properly labeled and not damaged. Refer to NFPA 30, *Flammable and Combustible Liquids Code*, for additional information on storage. Empty containers may contain residual liquid or vapors that are flammable; therefore, empty containers should be handled with care. Never perform any welding, cutting, soldering, drilling, or other hot work on an empty container or piping until all liquid, vapors, and residue have been cleared.

**Incompatibilities:** These products are incompatible with oxidizers. See Section 10 for information further information on incompatible materials.

**Specific End Use(s):** These products are used as oil-based stains for roofing. Follow all industry standards for use of these products.

**Protective Practices During Maintenance of Contaminated Equipment:** Follow practices indicated in Section 6 (Accidental Release Measures). If necessary, ensure that application equipment is locked and tagged-out safely. Collect all rinsates and dispose of according to applicable Federal, State, or local procedures.

## 8. EXPOSURE CONTROLS - PERSONAL PROTECTION

### Control Parameters, Including Occupational Exposure Guidelines or Biological Exposure Limits and the Source of those Values:

**Ventilation and Engineering Controls:** Use with adequate ventilation to ensure exposure levels are maintained below the limits provided in this section, if applicable. Exhaust directly to the outside, taking necessary precautions for environmental protection. Ensure eyewash/safety shower stations and appropriate fire protection is available near areas where these products are used.

### Occupational/Workplace Exposure Limits/Guidelines (continued):

| CHEMICAL NAME                            | CAS #   | EXPOSURE LIMITS IN AIR   |                           |                          |                           |                          |                           |                           | OTHER<br>mg/m <sup>3</sup>   |
|--|---------|--------------------------|---------------------------|--------------------------|---------------------------|--------------------------|---------------------------|---------------------------|--|
|  |         | ACGIH-TLVs               |                           | OSHA-PELs                |                           | NIOSH-RELS               |                           | NIOSH                     |  |
|  |         | TWA<br>mg/m <sup>3</sup> | STEL<br>mg/m <sup>3</sup> | TWA<br>mg/m <sup>3</sup> | STEL<br>mg/m <sup>3</sup> | TWA<br>mg/m <sup>3</sup> | STEL<br>mg/m <sup>3</sup> | IDLH<br>mg/m <sup>3</sup> |  |
| 2-Butanone Oxime (Ethyl Methyl Ketoxime) | 96-29-7 | NE                       | NE                        | NE                       | NE                        | NE                       | NE                        | NE                        | DFG MAKs:<br>TWA: Skin<br>PEAK: Skin<br>Danger of Sensitization of the Skin<br>AIHA & OARS WEELS:<br>TWA: 10, DSEN |

## 8. EXPOSURE CONTROLS - PERSONAL PROTECTION (Continued)

Control Parameters, Including Occupational Exposure Guidelines or Biological Exposure Limits and the Source of those Values (continued):

### Occupational/Workplace Exposure Limits/Guidelines (continued):

| CHEMICAL NAME  | CAS #                   | EXPOSURE LIMITS IN AIR                               |                           |   |                           |   |                              |                           |   |
|--|-------------------------|--|---------------------------|---|---------------------------|---|------------------------------|---------------------------|---|
|  |                         | ACGIH-TLVs   |                           | OSHA-PELs   |                           | NIOSH-RELS  |                              | NIOSH                     | OTHER   |
|  |                         | TWA<br>mg/m <sup>3</sup>                             | STEL<br>mg/m <sup>3</sup> | TWA<br>mg/m <sup>3</sup>  | STEL<br>mg/m <sup>3</sup> | TWA<br>mg/m <sup>3</sup>  | STEL<br>mg/m <sup>3</sup>    | IDLH<br>mg/m <sup>3</sup> |   |
| 2-Butanone Oxime<br>(Ethyl Methyl<br>Ketoxime)   | 96-29-7                 | NE   | NE                        | NE  | NE                        | NE  | NE                           | NE                        | DFG MAKs:<br>TWA: Skin<br>PEAK: Skin<br>Danger of Sensitization of the Skin<br>AIHA & OARS WEELS:<br>TWA: 10, DSEN  |
| Carbon Black   | 1333-86-4               | 3 (inhal.<br>fract.)                                 | NE                        | 3.5   | NE                        | 3.5 (in<br>presence of<br>PAHS)<br>See Pocket Guide<br>Appendices A & C | NE                           | 1750                      | DFG MAKs:<br>Inhalable dusts.<br>Carcinogen: IARC-2B, ACGIH TLV-A3,<br>MAK-3B. NIOSH-Ca (in presence of<br>PAHS)  |
| 3-Ido-2-Propyl<br>Butylcarbamate   | 54406-53-6              | NE   | NE                        | NE  | NE                        | NE  | NE                           | NE                        | DFG MAKs:<br>TWA: 0.058 (can also occur as vapor<br>and aerosol)<br>PEAK: 2•MAK, 15 min., average value,<br>1-hr interval, 4 per shift<br>Danger of Sensitization of the Skin<br>DFG MAK Pregnancy Risk<br>Classification: C                  |
| Mineral Spirits<br>Stoddard Solvent<br>Exposure limits are<br>for Stoddard Solvent<br>(CAS# 8052-41-3) | 64742-88-7<br>8052-41-3 | 525  | NE                        | 2500<br>525 (vacated<br>1989 PEL)   | NE                        | 300   | 1800<br>(ceiling 15<br>min.) | 20,000                    | NE  |
| Crystalline<br>Silica/Quartz   | 14808-60-7              | 0.025<br>mg/m <sup>3</sup><br>(resp.<br>fract.)      | NE                        | 0.05 (resp.<br>dust)<br><u>30 (total<br/>dust)</u> ***<br>% SO <sub>2</sub> + 2<br><u>250 mppcf (resp. dust)</u> ***<br>% SiO <sub>2</sub> + 5<br>or<br><u>10 (resp. dust)</u> ***<br>% SO <sub>2</sub> + 2<br>***This standard applies to any<br>operations or sectors for which<br>the Respirable Crystalline Silica<br>Standard 1910.1053 is stayed or<br>otherwise not in effect. | NE                        | 0.05 mg/m <sup>3</sup><br>(resp. dust)<br>See Pocket Guide App. A       | NE                           | 50<br>(quartz)            | DFG MAK: Respirable fraction<br>Carcinogen: IARC-1, MAK-1 (resp.<br>fract., NIOSH-Ca, NTP-K (resp. fract.),<br>ACGIH TLV-A2   |
| Trimanganese<br>Tetraoxide (as<br>Manganese &<br>Inorganic<br>Compounds, as Mn)                        | 1317-35-7               | 0.02<br>(resp.<br>fract.); 0.1<br>(inhal.<br>fract.) | NE                        | 5 (ceiling)<br>(vacated<br>1989 PEL)  | 5 (ceiling)               | 1   | 3                            | 500 as<br>Mn              | DFG MAKs:<br>TWA: 0.02 (inhalable fraction); 0.2<br>(respirable fraction); Skin<br>PEAK: 8•MAK, 15 min., average value,<br>1-hr interval, 4 per shift; Skin<br>DFG MAK Pregnancy Risk<br>Classification: C<br>Carcinogen: EPA-D, ACGIH TLV-A4 |
| Titanium Dioxide   | 13463-67-7              | 0.2 (resp.<br>fract.);<br>finescale<br>partides      | NE                        | 15 (total<br>dust); 10<br>(vacated<br>1989 PEL)   | NE                        | See Pocket Guide App. A   |                              | 5000<br>(Ca)              | DFG MAKs:<br>DFG MAK Pregnancy Risk<br>Classification: C<br>Carcinogen: IARC-2B, MAK-3A, NIOSH-<br>Ca, ACGIH TLV-A4   |
| Dehydrated Castor<br>Oil (limits given are<br>for vegetable oils)                                      | 64147-40-6              | NE   | NE                        | 15 (total<br>dust); 15<br>(resp. fract.)  | NE                        | 15 (total<br>dust); 10<br>(resp. fract.)                                | NE                           | NE                        | Carcinogen: IARC-2B, MAK-2, ACGIH<br>TLV-A4   |

DSEN: Dermal Sensitizer

NE = Not Established.

See Section 16 for Definitions of Terms Used.

**ACGIH Biological Exposure Indices:** Currently, there are no ACGIH Biological Exposure Indices (BEIs) determined for the components of these products.

**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), U.S. Federal OSHA Respiratory Protection Standard (29 CFR 1910.134), 29 CFR 1910.133 for eye protection, 29 CFR 1910.138 for hand protection, 29 CFR 1910.136 for foot protection, or equivalent standards of Canada (including CSA Standard Z94.4-02, CSA Standard Z94.3-02, CSA Standard Z94.4-93 for respiratory protection, CSA Standard Z94.3-M1982, *Industrial Eye and Face Protectors* and CSA Standard Z195-M1984, *Protective Footwear*). Please reference applicable regulations and standards for relevant details.

## 8. EXPOSURE CONTROLS - PERSONAL PROTECTION (Continued)

### Personal Protective Equipment (continued):

**Respiratory Protection:** Maintain airborne contaminant concentrations below exposure limits listed in this section, if applicable. If respiratory protection is needed, use only protection authorized in the U.S. Federal OSHA Standard (29 CFR 1910.134), applicable U.S. State regulations, or the Canadian CSA Standard Z94.4-93. 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 OSHA's Respiratory Protection Standard (1910.134-1998). The following are NIOSH respiratory protection guidelines for Stoddard Solvent (a related chemical to the Mineral Spirits component).

#### STODDARD SOLVENT

| <u>Concentration</u>   | <u>Respiratory Protection</u>   |
|--|---|
| Up to 3500 mg/m <sup>3</sup> :   | Any Chemical Cartridge Respirator with organic vapor cartridge(s), or any Supplied-Air Respirator (SAR).  |
| Up to 8750 mg/m <sup>3</sup> :   | Any SAR operated in a continuous-flow mode, or any Powered, Air-Purifying Respirator (PAPR) with organic vapor cartridge(s).  |
| Up to 17,500 mg/m <sup>3</sup> :   | Any Chemical Cartridge Respirator with a full facepiece and organic vapor cartridge(s), or any Air-Purifying, Full-Facepiece Respirator (gas mask) with a chin-style, front- or back-mounted organic vapor canister, or any Powered, Air-Purifying Respirator (PAPR) with a tight-fitting facepiece and organic vapor cartridge(s), or any Self-Contained Breathing Apparatus (SCBA) with a full facepiece, or any SAR with a full facepiece. |
| Up to 20,000 mg/m <sup>3</sup> :   | Any SAR that has a full facepiece and is operated in a pressure-demand or other positive-pressure mode.   |
| Emergency or Planned Entry into Unknown Concentrations or IDLH Conditions: | Any SCBA that has a full facepiece and is operated in a pressure-demand or other positive-pressure mode, or any SAR that has a full facepiece and is operated in a pressure-demand or other positive-pressure mode in combination with an auxiliary SCBA operated in pressure-demand or other positive-pressure mode.   |
| Escape:  | Any Air-Purifying, Full-Facepiece Respirator (gas mask) with a chin-style, front- or back-mounted organic vapor canister, or any appropriate escape-type, SCBA.   |

**Hand Protection:** Wear butyl rubber, Teflon™, Barricade™, Chemrel™, nitrile or similar gloves for routine industrial use. Use triple gloves for spill response, as stated in Section 6 (Accidental Release Measures) of this SDS. If necessary, refer to applicable regulations and standards.

**Eye Protection:** Splash goggles or safety glasses. If necessary, refer to applicable regulations and standards for further information.

**Body Protection:** When chemical contact is possible, use splash apron, work uniform, and shoes or coverlets to prevent skin contact. Full-body chemical protective clothing is recommended for emergency response procedures. If necessary, refer to applicable regulations and standards. 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 and standard.

## 9. PHYSICAL and CHEMICAL PROPERTIES

|  |   |
|--|---|
| <b>Form:</b> Liquid.   | <b>Color:</b> Various amber to brown or dark brown, if pigmented. |
| <b>Odor:</b> Mild solvent-like.  | <b>Odor Threshold:</b> Not available.                             |
| <b>Vapor Pressure:</b> Not tested.   | <b>Evaporation Rate (n-BuAc = 1):</b> Not tested.                 |
| <b>Viscosity Dynamic:</b> Not tested.  | <b>Boiling Point:</b> Not tested.                                 |
| <b>Vapor Density:</b> Heavier than air.  | <b>Melting/Freezing Point:</b> Not tested.                        |
| <b>Flammability:</b> Combustible.  | <b>Flash Point:</b> 61.1°C (142°F)                                |
| <b>Autoignition Temperature:</b> Not determined for product. For Mineral Spirits: 245°C (473°F)  | <b>pH:</b> Not determined.  |
| <b>Saturation Vapor Concentration:</b> Not tested.   | <b>VOC (Volatile Organic Carbon) Content in %:</b> 244 g/L        |
| <b>Specific Gravity @ 15.5°C (water = 1):</b> 0.929  | <b>Solubility in Other Liquids:</b> Not tested.                   |
| <b>Solubility in Water:</b> Practically insoluble.   |   |
| <b>Coefficient Of Oil/Water Distribution (Partition Coefficient):</b> For Mineral Spirits: Log P(oct) = 3.7-6.7  |   |
| <b>How to Detect These Substances (identification properties):</b> The oily appearance and odor of these products may be an identification property in event of an accidental release. |   |

## 10. STABILITY and REACTIVITY

|  |
|--|
| <b>Chemical Stability:</b> Stable under conditions of standard temperature and pressure.   |
| <b>Decomposition Products:</b> <b>Combustion:</b> Barium, calcium, carbon, iron, manganese, nitrogen and sulfur oxides, silicates, hydrogen chloride, hydrogen iodide aromatic hydrocarbons, methane, formaldehyde reactive hydrocarbons and aldehydes. <b>Hydrolysis:</b> None known. |
| <b>Materials With Which Substance is Incompatible:</b> These products would be incompatible with strong oxidizing agents.  |
| <b>Possibility of Hazardous Polymerization:</b> Will not occur.  |
| <b>Conditions to Avoid:</b> Avoid exposure or contact to ignition sources, extreme temperatures, incompatible chemicals. See Section 7 (Handling and Storage) for additional cautionary information related to materials contaminated with these products.                             |

## 11. TOXICOLOGICAL INFORMATION

**Symptoms of Exposure by Route of Exposure:** The most significant routes of occupational exposure are inhalation and contact with skin and eyes. All symptoms are dependent of concentration and duration of contact.

**Inhalation:** Inhalation exposure to the vapors of these products can cause central-nervous system effects (dizziness, drowsiness, nausea, and headaches); chronic inhalation may cause damage to the central nervous system.

**Contact with Eyes:** Vapors or aerosols of these products can irritate the eyes, causing redness, tearing and temporary blurring of vision and moderate irritation to the eyes These products will cause immediate pain and severe irritation if splashed into the eyes.

**Contact with Skin:** Skin contact may cause irritation. Prolonged or repeated skin exposure can cause dermatitis (dry red skin).



## 11. TOXICOLOGICAL INFORMATION (Continued)

### Symptoms of Exposure by Route of Exposure (continued):

**Contact with Skin (continued):** These products contain multiple components that are potential or known skin sensitizers, causing allergic reaction in susceptible individuals. Symptoms may include swelling, raised welts or weels, redness and itching.

**Skin Absorption:** Some components of these products can be absorbed through intact skin. Symptoms describing under 'Contact with Skin' may occur.

**Ingestion:** Ingestion is not anticipated to be a significant route of exposure for these products. If these products are swallowed, it may irritate the mouth, throat, esophagus and other tissues of the digestive system. Symptoms of ingestion may include vomiting, diarrhea, and nausea. Ingestion may also cause symptoms of depression of the central nervous system, as described under "Inhalation." If these products are aspirated into the lungs after ingestion, chemical pneumonia and edema (accumulation of fluid in the lungs) may result. Ingestion of large quantities of these products may be fatal.

**Injection:** Injection is not anticipated to be a significant route of exposure for these products. Injection of these products (via puncture with a contaminated object) can cause pain and irritation, in addition to the wound.

**Other Health Effects:** A component in the base product and another in certain colors of these products (as identified in Section 3: Composition and Information on Ingredients) are germ cell mutagens. Other trace ingredients of pigments are suspected carcinogens and reproductive toxins. Prolonged or repeated exposure to these products (especially if proper personal protective equipment is not used during use and application), may result in adverse health effects from these trace compounds. Mutagenic and carcinogenic effects are not expected if proper methods on the use and application of these products is followed, including ventilation controls, use of adequate personal protective equipment, proper hygiene procedures and proper clean-up and disposal methods.

### Repeated Dose Toxicity:

#### 2-Butanone Oxime (Ethyl Methyl Ketoxime):

Several oral and inhalation studies reporting effects indicative of anemia at doses sufficiently low to justify classification. Several aspects of toxicity to the blood system that can be related to these criteria, including: premature deaths in anemic animals; clinical signs of hypoxia, cyanosis, dyspnea; marked increase of hemosiderosis in the spleen, liver or kidney in combination with other changes indicating significant hemolytic anemia and in combination with microscopic effects like necrosis, fibrosis or cirrhosis.

#### Stoddard Solvent:

Although Stoddard Solvent has been given a STOT RE Cat. 2 classification by the EU ECHA, no data are available.

### Delayed And Immediate Effects and Chronic Effects from Short and Long-Term Exposure:

**Acute/Immediate:** Exposure to these products can irritate contaminated skin, eyes, and mucous membranes. Ingestion may cause adverse digestive system effects.

**Chronic:** Prolonged or repeated skin exposure can cause dermatitis (dry, red skin) and allergic reactions. Possible systemic toxicity. Repeated inhalation may cause adverse blood effects due to the trace 2-Butanone Oxime (Ethyl Methyl Ketoxime) component present in several colors of these products.

### Target Organs:

**Acute:** Respiratory system, skin, eyes.

**Chronic:** Skin, blood, reproductive and central nervous system.

**Toxicity Data for Product:** Testing has not been performed on this product to determine toxicity by any route of exposure.

**Acute Toxicity Estimates (ATEs) by Route of Exposure:** All Routes: Not possible to calculate due to lack of data.

**Toxicity Data for Components:** The specific toxicology data available for components present in 1% or greater concentration are as follows:

#### Proprietary Vegetable Oil:

LD<sub>50</sub> (Oral-Rat) > 4763 mg/kg

#### 3-Iodo-2-Propynyl Butylcarbamate:

Standard Draize Test (Skin-Human) 0.3%/48 hours

LD<sub>50</sub> (Oral-Rat) 1470 mg/kg; Behavioral: ataxia; Liver: other changes; Kidney/Ureter/Bladder: other changes

#### Linseed Oil:

Standard Draize Test (Skin-Human) 300 mg/3 days-intermittent: Moderate

#### Mineral Spirits:

LD<sub>50</sub> (Oral-Rat) > 5000 mg/kg (migrated data)

LD<sub>50</sub> (Dermal-Rabbit) > 2000 mg/kg



LC<sub>50</sub> (Oral-Rat) 4 hours: > 5.28 mg/L

**Carcinogenic Potential:** Components of these products are listed by the following organizations tracking the carcinogenic potential of chemical compounds (e.g., U.S. EPA, U.S. NTP, U.S. OSHA, U.S. NIOSH, GERMAN MAK, IARC, or ACGIH).

**Carbon Black:** ACGIH TLV-A3 (Confirmed Animal Carcinogen with Unknown Relevance to Humans), IARC-2B (Possibly Carcinogenic to Humans), MAK-3B (Substances for which *in vitro* tests or animal studies have yielded evidence of carcinogenic effects that is not sufficient for classification of the substance in one of the other categories. Further studies are required before a final classification can be made)., NIOSH-Ca (Potential Occupational Carcinogen, with no further categorization [in presence of PAHs]).

**Crystalline Silica:** ACGIH TLV-A2 (Human data are accepted as adequate in quality but are conflicting or insufficient to classify the agent as a confirmed human carcinogen; or, the agent is carcinogenic in experimental animals at dose(s), by route(s) of exposure, at site(s), of histologic type(s), or by mechanism(s) considered relevant to worker exposure)., IARC-1 (Carcinogenic to Humans), MAK-1 (Substances that cause cancer in man and can be assumed to make a significant contribution to cancer risk [resp. fract.]), NIOSH-Ca Potential Occupational Carcinogen, with no further categorization (Potential Occupational Carcinogen, with no further categorization)., NTP-K (Known to Be a Human Carcinogen [resp. fract.])

**Trimanganese Tetraoxide (as an inorganic manganese compound):** ACGIH TLV-A4 (Not Classifiable as a Human Carcinogen); EPA-D (Not Classifiable as to Human Carcinogenicity)

| HAZARDOUS MATERIAL IDENTIFICATION SYSTEM  |               |   |               |
|---|---------------|---|---------------|
| HEALTH HAZARD (BLUE)  |               | 2*  |               |
| FLAMMABILITY HAZARD (RED)   |               | 1   |               |
| PHYSICAL HAZARD (YELLOW)  |               | 0   |               |
| PROTECTIVE EQUIPMENT  |               |   |               |
| EYES  | RESPIRATORY   | HANDS   | BODY          |
|  | SEE SECTION 8 |  | SEE SECTION 8 |
| For Routine Industrial Use and Handling Applications                                |               |   |               |

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

---

## 11. TOXICOLOGICAL INFORMATION (Continued)

---

### Carcinogenic Potential (continued):

**Titanium Dioxide:** ACGIH TLV-A4 (Not Classifiable as a Human Carcinogen), IARC-2B (Possibly Carcinogenic to Humans), MAK-3A (Substances for which the criteria for classification in Category 4 or 5 are fulfilled but for which the database is insufficient for the establishment of a MAK value.), NIOSH-Ca (Potential Occupational Carcinogen, with no further categorization).

**Stoddard Solvent:** IARC-3 (Not Classifiable as to Carcinogenicity in Humans)

**Vegetable Oil (mist):** ACGIH TLV-A4 (Not Classifiable as a Human Carcinogen), MAK-2 (Substances that are considered to be carcinogenic for man because sufficient data from long-term animal studies or limited evidence from animal studies substantiated by evidence from epidemiological studies indicate that they can make a significant contribution to cancer risk.); IARC-2B (Possibly Carcinogenic to Humans)

**Irritancy of Product:** These products can be irritating to contaminated respiratory system, skin and eyes.

**Endocrine Toxicity:** The 3-Iso-2-Propyl Butylcarbamate component is a suspect endocrine disruptor.

**Sensitization to the Product:** Multiple components of this product are considered to be skin sensitizers. Once sensitized, those susceptible can experience allergic skin reactions after very low concentration exposure.

**Reproductive Toxicity Information:** No specific information on human mutagenic, embryotoxic, teratogenic or reproductive toxicity effects is available for these products. The following data is available for some components.

**Mutagenicity:** No specific data are available for the trace Stoddard Solvent and the Hydrocarbon Mixture components, although they are listed in the EU ECHA database as Germ Cell Mutagen Category 1B.

**Reproductive Toxicity:** In accordance with the criteria for classification as defined in Annex I, Regulation (EC) No 1272/2008, the trace Trimanganese Tetraoxide component is classified for reproduction, Category 2 (d) on the basis of adverse effects on the fetus in the key developmental toxicity study detected at 750 mg/kg bw/day which cannot be attributed to maternal toxicity.

---

## 12. ECOLOGICAL INFORMATION

---

ALL WORK PRACTICES MUST BE AIMED AT ELIMINATING ENVIRONMENTAL CONTAMINATION.

**Mobility:** These products have not been tested for mobility in soil, but are expected to be highly mobile.

**Persistence and Biodegradability:** These products have not been tested for persistence or biodegradability.

**Bio-Accumulation Potential:** These products have not been tested for bio-accumulation potential.

**Aquatic Toxicity:** These products have not been tested for aquatic toxicity; all release to the environment should be avoided. This product contains multiple trace components that are toxic or very toxic to aquatic organisms; this product may be chronically harmful to aquatic organisms.

**Endocrine Disrupting Properties:** The 3-Iso-2-Propyl Butylcarbamate component is a suspect endocrine disruptor. Endocrine disruptors that find their way into the environment can cause adverse effects on aquatic and terrestrial organisms.

**Other Adverse Effects:** These products do not contain any component with known ozone depletion potential.

**Environmental Exposure Controls:** Controls should be engineered to prevent release to the environment, including procedures to prevent spills, atmospheric release and release to waterways.

---

## 13. DISPOSAL CONSIDERATIONS

---

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

**Disposal Containers:** Waste materials must be placed in and shipped in appropriate 5-gallon or 55-gallon poly or metal waste pails or drums. Permeable cardboard containers are not appropriate and should not be used. Ensure that any required marking or labeling of the containers be done to all applicable regulations.

**Precautions to be Followed During Waste Handling:** Wear proper protective equipment when handling waste materials. Dispose of in accordance with applicable Federal, State, and local procedures and standards.

**U.S. EPA Waste Number:** Wastes of these products should be tested for waste characteristic ignitability (D001).

---

## 14. TRANSPORTATION INFORMATION

---

**U.S. Department of Transportation Regulations:** These products can be classified as dangerous goods, per U.S. DOT regulations, under 49 CFR 172.101. NOTE: The classification of Combustible liquid, n.o.s. applies only to shipments of these products via ground within the United States. There is no classification for 'Combustible Liquid' under Canadian TDG, IATA or the IMO.

|   |   |
|---|---|
| <b>Proper Shipping Name:</b>                | Combustible liquid, n.o.s. (mineral spirits, vegetable oils)        |
| <b>Hazard Class Number and Description:</b> | Combustible Liquid  |
| <b>UN Identification Number:</b>            | NA 1993   |
| <b>Packing Group:</b>                       | III   |
| <b>DOT Label(s) Required:</b>               | No label is required for a material classed as a combustible liquid |
| <b>Special Provisions:</b>                  | IB3, T1, T4, TP1  |

---

## 14. TRANSPORTATION INFORMATION (Continued)

### U.S. Department of Transportation Regulations (continued):

|   |  |
|---|--|
| Proper Shipping Name:                                     | Combustible liquid, n.o.s. (mineral spirits, vegetable oils)                       |
| Hazard Class Number and Description:                      | Combustible Liquid   |
| UN Identification Number:                                 | NA 1993  |
| Packing Group:  | III  |
| DOT Label(s) Required:                                    | No label is required for a material classed as a combustible liquid                |
| Special Provisions:                                       | IB3, T1, T4, TP1   |
| Packaging:  | Exceptions: 150; Non-Bulk: 203; Bulk: 241  |
| Quantity Limitations Passenger Aircraft:                  | 60 L   |
| Quantity Limitations Cargo Aircraft:                      | 220 L  |
| Vessel Storage:   | Location: A; Other: None.  |
| North American Emergency Response Guidebook Number, 2016: | 128  |
| Marine Pollutant:   | No component is classified as a Marine Pollutant, per Appendix B to 49 CFR 172.101 |

**Transport Canada, Transportation of Dangerous Goods Regulations:** These products are NOT classified as Dangerous Goods, per regulations of Transport Canada.

**International Air Transport Association/ICAO (IATA/ICAO):** These products are NOT classified as dangerous goods, per rules of IATA.

**International Maritime Organization (IMO):** These products are NOT classified as Dangerous Goods, per rules of IMO.

**Environmental Hazards:** These products do not meet the criteria of environmentally hazardous according to the criteria of the UN Model Regulations (as reflected in the IMDG Code, ADR, RID, and ADN); components of these products are not specifically listed in Annex III under MARPOL 73/78.

## 15. REGULATORY INFORMATION

### U.S. Regulations:

**U.S. SARA Reporting Requirements:** The 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 and are listed as follows:

| CHEMICAL NAME                                     | SECTION 302 EHS (TPQ)<br>(40 CFR 355, Appendix A) | SECTION 304 EHS (TPQ)<br>(40 CFR 355, Appendix A) | SECTION 313 TRI (Threshold)<br>(40 CFR 372.65) |
|---|---|---|--|
| Ido-3-2-Propynl Butylcarbamate                    | No  | No  | Yes  |
| Trimanganese Tetraoxide (as a manganese compound) | No  | No  | Yes (N450)                                     |

**U.S. SARA 302 Extremely Hazardous Threshold Planning Quantity (TPQ):** There are no specific Threshold Planning Quantities for the components of these products. The default Federal SDS submission and inventory requirement filing threshold of 10,000 lb (4,540 kg) may apply, per 40 CFR 370.20.

**U.S. SARA 304 Extremely Hazardous Reportable Quantity (RQ):** Not applicable.

**U.S. CERCLA Reportable Quantity (RQ):** As a manganese compound, Trimanganese Tetraoxide is a CERCLA hazardous substance, although specific RQ value has been assigned.

**U.S. TSCA Inventory Status:** The components of these products listed by CAS# in Section 3 (Composition and Information on Ingredients) are listed on the TSCA Inventory.

**California Safe Drinking Water and Toxic Enforcement Act (Proposition 65):** The Crystalline Silica, Titanium Dioxide and Carbon Black components are on the California Proposition 65 lists. However, this listing applies only to airborne, unbound particles of respirable size of these materials and so the Proposition 65 requirements are not applicable to these products.

### Canadian Regulations:

**Canadian DSL/NDL Inventory Status:** The components of these products listed by CAS# in Section 3 (Composition and Information on Ingredients) are listed on the DSL or NDL Inventories.

**Canadian Environmental Protection Act (CEPA) Priority Substances Lists:** The components of these products are not on the CEPA Priority Substances Lists.

**Canadian WHMIS (HPR-GHS) 2015 Classification and Symbols:** See Section 2 (Hazard Identification) for in Classification and Symbols under HPR-GHS 2015.

## 16. OTHER INFORMATION

**Revisions Details:** April 2023: Review and up-date entire SDS for current regulations and format. Up-date SDS due to new formulation.

**References and Data Sources:** Contact the supplier for information.

**Methods of Evaluating Information for the Purpose of Classification:** Global Harmonization Standard criteria were used to classify these products.

**Prepared By:** CHEMICAL SAFETY ASSOCIATES, Inc. • PO Box 1961, Hilo, HI 96721 • (808) 969-4846

The information contained herein is based on data considered accurate. However, no warranty is expressed or implied regarding the accuracy of these data or the results to be obtained from the use thereof. Preserva Wood assumes no responsibility for injury to the vendee or third persons proximately caused by the material if reasonable safety procedures are not adhered to as stipulated in the data sheet. Additionally, Preserva Wood assumes no responsibility for injury to vendee or third persons proximately caused by abnormal use of the material even if reasonable safety procedures are followed. Furthermore, vendee assumes the risk in his use of the material.

## 16. OTHER INFORMATION (Continued)

### Definition of Terms:

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

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

#### EXPOSURE LIMITS IN AIR:

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

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

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

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

**LOQ:** Limit of Quantitation.

**MAK:** Federal Republic of Germany Maximum Concentration Values in the workplace.

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

**NI:** 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.

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

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

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

**HAZARDOUS MATERIALS IDENTIFICATION SYSTEM HAZARD RATINGS:** This rating system was developed by the National Paint and Coating Association and has been adopted by industry to identify the degree of chemical hazards.

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

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

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

**Physical Hazard: 0 (Water Reactivity):** Materials that do not react with water. **Organic Peroxides:** Materials that are normally stable, even under fire conditions and will not react with water. **Explosives:** Substances that are Non-Explosive. **Unstable Compressed Gases:** No Rating. **Pyrophorics:** No Rating. **Oxidizers:** No "0" rating allowed. **Unstable Reactives:** Substances that will not polymerize, decompose, condense or self-react.; **1 (Water Reactivity):** Materials that change or decompose upon exposure to moisture. **Organic Peroxides:** Materials that are normally stable, but can become unstable at high temperatures and pressures. These materials may react with water, but will not release energy. **Explosives:** Division 1.5 & 1.6 substances that are very insensitive explosives or that do not have a mass explosion hazard. **Compressed Gases:** Pressure below OSHA definition. **Pyrophorics:** No Rating. **Oxidizers:** Packaging Group III; **Solids:** any material that in either concentration tested, exhibits a mean burning time less than or equal to the mean burning time of a 3:7 potassium bromate/cellulose mixture and the criteria for Packing Group I and II are not met. **Liquids:** any material that exhibits a mean pressure rise time less than or equal to the pressure rise time of a 1:1 nitric acid (65%)/cellulose mixture and the criteria for Packing Group I and II are not met. **Unstable Reactives:** Substances that may decompose, condense or self-react, but only under conditions of high temperature and/or pressure and have little or no potential to cause significant heat generation or explosive hazard. Substances that readily undergo hazardous polymerization in the absence of inhibitors.; **2 (Water Reactivity):** Materials that may react violently with water. **Organic Peroxides:** Materials that, in themselves, are normally unstable and will readily undergo violent chemical change, but will not detonate. These materials may also react violently with water. **Explosives:** Division 1.4 – Explosive substances where the explosive effect are largely confined to the package and no projection of fragments of appreciable size or range are expected. An external fire must not cause virtually instantaneous explosion of almost the entire contents of the package. **Compressed Gases:** Pressurized but < 514.7 psi absolute at 21.1°C (70°F) [500 psig]. **Pyrophorics:** No Rating. **Oxidizers:** Packing Group II; **Solids:** any material that, either in concentration tested, exhibits a mean burning time of less than or equal to the mean burning time of a 2:3 potassium bromate/cellulose mixture and the criteria for Packing Group I are not met. **Liquids:** any material that exhibits a mean pressure rise time less than or equal to the pressure rise of a 1:1 aqueous sodium chlorate solution (40%)/cellulose mixture and the criteria for Packing Group I are not met. **Unstable Reactives:** Substances that may polymerize, decompose, condense, or self-react at ambient temperature and/or pressure, but have a low potential for significant heat generation or explosion. Substances that readily form peroxides upon exposure to air or oxygen at room temperature); **3 (Water Reactivity):** Materials that may form explosive reactions with water. **Organic Peroxides:** Materials that are capable of detonation or explosive reaction, but require a strong initiating source, or must be heated under confinement before initiation; or materials that react explosively with water. **Explosives:** Division 1.2 – Explosive substances that have a fire hazard and either a minor blast hazard or a minor projection hazard or both, but do not have a mass explosion hazard. **Compressed Gases:** Pressure ≥ 514.7 psi absolute at 21.1°C (70°F) [500 psig]. **Pyrophorics:** No Rating. **Oxidizers:** Packing Group I; **Solids:** any material that, in either concentration tested, exhibits a mean burning time less than the mean burning time of a 3:2 potassium bromate/cellulose mixture. **Oxidizers: Liquids:** Any material that spontaneously ignites when mixed with cellulose in a 1:1 ratio, or which exhibits a mean pressure rise time less than the pressure rise time of a 1:1 perchloric acid (50%)/cellulose mixture. **Unstable Reactives:** Substances that may polymerize, decompose, condense or self-react at ambient temperature and/or pressure and have a moderate potential to cause significant heat generation or explosion.; **4 (Water Reactivity):** Materials that react explosively with water without requiring heat or confinement. **Organic Peroxides:** Materials that are readily capable of detonation or explosive decomposition at normal temperature and pressures. (**Water Reactivity: Explosives:** Division 1.1 & 1.2-explosive substances that have a mass explosion hazard or have a projection hazard. A mass explosion is one that affects almost the entire load instantaneously. **Compressed Gases:** No Rating. **Pyrophorics:** Add to the definition of Flammability "4". **Oxidizers:** No "4" rating. **Unstable Reactives:** Substances that may polymerize, decompose, condense or self-react at ambient temperature and/or pressure and have a high potential to cause significant heat generation or explosion.).

## 16. OTHER INFORMATION (continued)

### Definition of Terms (continued):

#### NATIONAL FIRE PROTECTION ASSOCIATION HAZARD RATINGS:

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

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

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

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

#### FLAMMABILITY LIMITS IN AIR:

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

#### TOXICOLOGICAL INFORMATION:

**Human and Animal Toxicology:** Possible health hazards as derived from human data, animal studies, or from the results of studies with similar compounds are presented. Definitions of some terms used in this section are: **LD<sub>50</sub>** - Lethal Dose (solids & liquids) which kills 50% of the exposed animals; **LC<sub>50</sub>** - Lethal Concentration (gases) which kills 50% of the exposed animals; **ppm** concentration expressed in parts of material per million parts of air or water; **mg/m<sup>3</sup>** concentration expressed in weight of substance per volume of air; **mg/kg** quantity of material, by weight, administered to a test subject, based on their body weight in kg. **Human and Animal Toxicology (continued):** Other measures of toxicity include **TDLo**, the lowest dose to cause a symptom and **TCLo** the lowest concentration to cause a symptom; **TDo**, **LDLo**, and **LD<sub>01</sub>**, or **TC**, **TCo**, **LCLo**, and **LC<sub>01</sub>**, the lowest dose (or concentration) to cause lethal or toxic effects. **Cancer Information:** The sources are: **IARC** - the International Agency for Research on Cancer; **NTP** - the National Toxicology Program, **RTECS** - the Registry of Toxic Effects of Chemical Substances, **OSHA** and **CAL/OSHA**. **IARC** and **NTP** rate chemicals on a scale of decreasing potential to cause human cancer with rankings from 1 to 4. Subrankings (2A, 2B, etc.) are also used.

**Other Information:** **BEI** - ACGIH Biological Exposure Indices, represent the levels of determinants which are most likely to be observed in specimens collected from a healthy worker who has been exposed to chemicals to the same extent as a worker with inhalation exposure to the TLV.

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

#### REGULATORY INFORMATION:

**U.S. and CANADA:** **ACGIH**: American Conference of Governmental Industrial Hygienists, a professional association which establishes exposure limits. This section explains the impact of various laws and regulations on the material. **EPA** is the U.S. Environmental Protection Agency. **NIOSH** is the National Institute of Occupational Safety and Health, which is the research arm of the U.S. Occupational Safety and Health Administration (**OSHA**). **WHMIS** is the Canadian Workplace Hazardous Materials Information System. **DOT** and **TC** are the U.S. Department of Transportation and the Transport Canada, respectively. Superfund Amendments and Reauthorization Act (**SARA**); the Canadian Domestic/Non-Domestic Substances List (**DSL/NDSL**); the U.S. Toxic Substance Control Act (**TSCA**); Marine Pollutant status according to the **DOT**; t. Comprehensive Environmental Response, Compensation, and Liability Act (**CERCLA** or **Superfund**); and various state regulations. This section also includes information on the precautionary warnings which appear on the material's package label. **OSHA** - U.S. Occupational Safety and Health Administration.