SAFETY DATA SHEET
STI Marine Firestop Putty (MPU)

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

IDENTIFICATION OF THE MIXTURE

TRADE/MATERIAL NAME: STI Marine Firestop Putty (MPU)

RELEVANT USE of the SUBSTANCE: Firestop and Sound Transmission

USES ADVISED AGAINST: none

SUPPLIER/MANUFACTURER'S NAME (USA/Canada): STI Marine: A division of Specified Technologies, Inc.

Address: 210 Evans Way,
Somerville, New Jersey 08876

Business Phone: (908) 526-8000 (8:00am to 5:00pm Eastern Standard Time)

Emergency Phone: U.S., Canada: 1-800-255-3924 (24 hrs)

International: +1-813-248-0585 (collect-24 hrs)

SUPPLIER/IMPORTER'S NAME (Asia):

Address:

Business Phone:

EMAIL of Competent Person for Information on SDS: techserv@stimarine.com

NOTE: ALL United States Occupational Safety and Health Administration Standard (29 CFR 1910.1200), U.S. State equivalent Standards, Canadian WHMIS [Controlled Products Regulations], Mexican NOM018-STPS 2000, SPRING Singapore, and Japanese JIS Z7250 required information is included in appropriate sections based on the U.S. ANSI Z400.1-2010 format. This product has been classified in accordance with the hazard criteria of the countries listed above.

2. HAZARD IDENTIFICATION

GLOBAL HARMONIZATION AND JAPANESE JIS Z7253 LABELING AND CLASSIFICATION: This product has been classified per UN GHS Standards under U.S., Japanese and other applicable regulations that require Global Harmonization compliance.

Classification: Carcinogenic Category 2, Germ Cell Mutagen Category 2, Acute Dermal Toxicity Category 5, Eye Irritation Category 2A, Skin Irritation Category 2, Skin Sensitization Category 1, Specific Target Organ Toxicity Repeated Exposure Category 2

Signal Word: Warning


Precautionary Statements:

Prevention: P201: Obtain special instructions before use. P202: Do not handle until all safety precautions have been read and understood. P260: Do not breathe vapors/fume. P271: Use only outdoors or in a well-ventilated area. P272: Contaminated work clothing should not be allowed out of the workplace. P280: Wear protective gloves, clothing, eye protection and face protection.

Response: P308 + P313: IF exposed or concerned: Get medical advice/attention. 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. P302 + P352: IF ON SKIN: Wash with plenty of soap and water. P333 + P313: If skin irritation or rash occurs: Get medical advice/attention. P312: Call a POISON CENTER or doctor if you feel unwell. P362 + P364: Take off contaminated clothing and wash it before reuse. P321: Specific treatment (remove from exposure and treat symptoms).


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

Hazard Symbols: GHS07, GHS08

KOREAN ISHA (Notice 2009-68) LABELING AND CLASSIFICATION: Classified in accordance with ISHA Notice 2009-68. Under ISHA, no differences in classification are applicable.

3. COMPOSITION and INFORMATION ON INGREDIENTS

<table>
<thead>
<tr>
<th>Chemical Name</th>
<th>CAS #</th>
<th>Chinese IECSC Inventory</th>
<th>Japanese ENCS #</th>
<th>Korean ECL #</th>
<th>Taiwan NESCI ECS</th>
<th>WT%</th>
<th>LABEL ELEMENTS</th>
</tr>
</thead>
<tbody>
<tr>
<td>Aluminum Trihydrate</td>
<td>21645-51-2</td>
<td>Listed</td>
<td>1-17</td>
<td>KE-00980</td>
<td>Listed</td>
<td>50-60%</td>
<td>SELF CLASSIFICATION GHS &amp; JAPANESE JIS Z7253 Classification</td>
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<tr>
<td>Proprietary Polymer</td>
<td>Listed</td>
<td>Proprietary</td>
<td>Proprietary</td>
<td>Listed</td>
<td>20-30%</td>
<td>Classification Not Applicable</td>
<td></td>
</tr>
</tbody>
</table>

See Section 16 for full text of Classification
3. COMPOSITION and INFORMATION ON INGREDIENTS (Continued)

<table>
<thead>
<tr>
<th>Chemical Name</th>
<th>CAS #</th>
<th>Chinese IESC Inventory</th>
<th>Japanese ENCS #</th>
<th>Korean ECL #</th>
<th>Taiwanese NESCI ECS</th>
<th>WT%</th>
<th>LABEL ELEMENTS</th>
</tr>
</thead>
<tbody>
<tr>
<td>Formaldehyde Polymer with Ammonia and Phenol</td>
<td>35297-54-2</td>
<td>Listed</td>
<td>Not Listed</td>
<td>KE-17082</td>
<td>Listed</td>
<td>10-15%</td>
<td>SELF CLASSIFICATION &lt;br&gt; GHS &amp; JAPANESE JIS Z7253, KOREAN ISHA: &lt;br&gt; Classification: Acute Oral Toxicity Cat. 5, Skin Sensitization Cat. 1B, STOT Re Cat. 3 &lt;br&gt; Hazard Codes: H303, H317, H373</td>
</tr>
<tr>
<td>Phenol</td>
<td>108-95-2</td>
<td>Listed</td>
<td>3-381</td>
<td>KE-28209</td>
<td>Listed</td>
<td>1-3%</td>
<td>GHS &amp; JAPANESE JIS Z7253, KOREAN ISHA: &lt;br&gt; Classification: Mutagenic Cat. 2, Acute Oral Toxicity Cat. 3, Acute Dermal Toxicity Cat. 3, Acute Inhalation Toxicity Cat. 3, Skin Corrosion Cat. 1B, STOT RE Cat. 2 &lt;br&gt; Hazard Codes: H341, H301 + H311 + H331, H314, H373</td>
</tr>
<tr>
<td>Sulfuric Acid Compound with Graphite</td>
<td>12777-87-6</td>
<td>Not Listed</td>
<td>Not Listed</td>
<td>KE-32585</td>
<td>Listed</td>
<td>2-5%</td>
<td>SELF CLASSIFICATION &lt;br&gt; GHS &amp; JAPANESE JIS Z7253, KOREAN ISHA: &lt;br&gt; Classification: Carcinogenic Cat. 2 &lt;br&gt; Hazard Codes: H351i</td>
</tr>
<tr>
<td>Crystalline Silica</td>
<td>14806-60-7</td>
<td>Listed</td>
<td>1-548</td>
<td>KE-29986</td>
<td>Listed</td>
<td>Trace</td>
<td>GHS &amp; JAPANESE JIS Z7253, KOREAN ISHA: &lt;br&gt; Classification: Carcinogenic Cat. 1, STOT (Inhalation-Lungs) RE Cat. 2 &lt;br&gt; Hazard Statement Codes: H350, H373</td>
</tr>
<tr>
<td>Formaldehyde</td>
<td>50-00-0</td>
<td>Listed</td>
<td>2-482</td>
<td>KE-17074</td>
<td>Listed</td>
<td>Trace</td>
<td>GHS &amp; JAPANESE JIS Z7253, KOREAN ISHA: &lt;br&gt; Classification: Carcinogenic Cat. 2, Acute Oral Toxicity Cat. 3, Acute Dermal Toxicity Cat. 3, Acute Inhalation Toxicity Cat. 3, Skin Corrosion Cat. 1B, Skin Sensitization Cat. 1 &lt;br&gt; Hazard Codes: H351, H301 + H311 + H331, H314, H317</td>
</tr>
</tbody>
</table>

Water and Other Trace Ingredients: Balance Classification Not Applicable

See Section 16 for full text of Classification

4. FIRST-AID MEASURES

DESCRIPTION OF FIRST AID MEASURES:

Skin Exposure: If adverse skin effects occur, discontinue use and flush contaminated area. Seek medical attention if adverse effect occurs after flushing.

Inhalation: If fumes or vapors are inhaled, remove victim to fresh air. Seek medical attention if adverse effect continues after removal to fresh air.

Eye Exposure: If this product contaminates the eyes, rinse eyes under gently running water. Remove contact lenses if easy to do. Use sufficient force to open eyelids and then “roll” eyes while flushing. Minimum flushing is for 20 minutes. The contaminated individual must seek medical attention if any adverse effect continues after rinsing.

Ingestion: If this product is swallowed, CALL PHYSICIAN OR POISON CONTROL CENTER FOR MOST CURRENT INFORMATION. If professional advice is not available, DO NOT INDUCE VOMITING. Never induce vomiting or give diluents (milk or water) to someone who is unconscious, having convulsions, or unable to swallow. If victim is convulsing, maintain an open airway and obtain immediate medical attention.

MEDICAL CONDITIONS AGGRAVATED BY EXPOSURE: See Section 11.

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

5. FIRE-FIGHTING MEASURES

FLASH POINT: Not determined.

AUTOIGNITION TEMPERATURE: Not available.

FLAMMABLE LIMITS (in air by volume, %): Not applicable.

FIRE EXTINGUISHING MEDIA: Use extinguishing materials suitable for the surrounding area.

UNSUITABLE FIRE EXTINGUISHING MEDIA: None known.

UNUSUAL FIRE AND EXPLOSION HAZARDS: This product is formulated to be non-flammable and non-combustible. When involved in a fire, this material may decompose and produce irritating vapors and toxic gases. Explosion Sensitivity to Mechanical Impact: Not sensitive. Explosion Sensitivity to Static Discharge: Not sensitive.

SPECIAL PROTECTIVE ACTIONS FOR FIRE-FIGHTERS: No Special protective actions for fire-fighters are anticipated.

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).

PERSONAL PROTECTIVE EQUIPMENT: Proper protective equipment should be used.

Small Spills: Wear rubber gloves.

Large Spills: Minimum Personal Protective Equipment should be rubber gloves, rubber boots, face shield.
6. ACCIDENTAL RELEASE MEASURES (Continued)

METHODS FOR CLEAN-UP AND CONTAINMENT: Spills of this product present minimal hazard.
- **Small Spills:** Small releases can be carefully swept up or cleaned up using a damp sponge or polypads.
- **Large Spills:** Access to the spill area should be restricted. For large spills, dike or otherwise contain spill and sweep-up or vacuum with non-sparking vacuum.
- **All Spills:** Place all spill residue in a double plastic bag or other containment and seal. Close off sewers and take other measures to protect human health and the environment as necessary. Rinse area with soap and water solution and follow with a water rinse.

ENVIRONMENTAL PRECAUTIONS: Avoid release to the environment.

7. HANDLING and USE

PRECAUTIONS FOR SAFE HANDLING: As with all chemicals, avoid getting this material ON YOU or IN YOU. Do not eat, drink, smoke, or apply cosmetics while handling this product. Wash hands thoroughly after handling this product or containers of this product. Avoid breathing fumes or vapors. Use in a well-ventilated location.

CONDITIONS FOR SAFE STORAGE: Store containers in a cool, dry location, away from direct sunlight, sources of intense heat.

SPECIFIC END USE(S): This product is for use as a sealant. Follow all industry standards for use of this product.

PROTECTIVE PRACTICES DURING MAINTENANCE OF CONTAMINATED EQUIPMENT: Follow practices indicated in Section 6 (Accidental Release Measures). Make certain that application equipment is locked and tagged-out safely, if necessary. Collect all rinsates and dispose of according to applicable Federal, State, and local procedures.

8. EXPOSURE CONTROLS - PERSONAL PROTECTION

EXPOSURE LIMITS/CONTROL PARAMETERS:

Ventilation and Engineering Controls: Use with adequate ventilation to ensure exposure levels are maintained below the limits provided below (if applicable). Exhaust directly to the outside, taking necessary precautions for environmental protection.

<table>
<thead>
<tr>
<th>CHEMICAL NAME</th>
<th>CAS #</th>
<th>EXPOSURE LIMITS IN AIR</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td></td>
<td>ACGIH-TLVs</td>
</tr>
<tr>
<td></td>
<td></td>
<td>TWA mg/m³</td>
</tr>
<tr>
<td>Aluminum Trihydrate</td>
<td>21645-51-2</td>
<td>NE</td>
</tr>
<tr>
<td>Crystalline Silica (Quartz)</td>
<td>14808-60-7</td>
<td>0.025 (resp. fract.)</td>
</tr>
<tr>
<td>Formaldehyde</td>
<td>50-00-0</td>
<td>SEN 0.37 (ceiling)</td>
</tr>
<tr>
<td>Formaldehyde Polymer with Ammonia and Phenol</td>
<td>35297-54-2</td>
<td>NE</td>
</tr>
<tr>
<td>Phenol</td>
<td>108-95-2</td>
<td>19 (skin)</td>
</tr>
<tr>
<td>Proprietary Polymer</td>
<td>NE</td>
<td>NE</td>
</tr>
<tr>
<td>Sulfuric Acid Compound with Graphite</td>
<td>12777-87-6</td>
<td>NE</td>
</tr>
</tbody>
</table>

NE: Not Established. Ca: Carcinogen NIC: Notice of Intended Change DSEN: May Cause Dermal Sensitization. This notation is used to indicate the potential for dermal sensitization resulting from the interaction of an absorbed agent and ultraviolet light (i.e. photosensitization) RSEN: May Cause Respiratory Sensitization SEN: Confirmed Potential Worker Sensitization as a Result of Dermal Contact and/or Inhalation Exposure, Based on the Weight of Scientific Evidence See Section 16 for Definitions of Other Terms Used
8. EXPOSURE CONTROLS - PERSONAL PROTECTION (Continued)

International Occupational Exposure Limits: Currently, the following additional exposure limit values have been established by various countries for the components of this mixture. More current limits may be available; individual countries should be consulted to determine if newer limits are available.

ALUMINUM HYDROXIDE:
Australia: TWA = 2 mg/(Al) m³, JUL 2008
Belgium: TWA = 2 mg/(Al) m³, JUL 2008
Finland: TWA = 2 mg/(Al) m³, 2001
France: VME = 2 mg/(Al) m³, FEB 2006
Korea: TWA = 2 mg/(Al) m³, 2009
New Zealand: TWA = 2 mg/(Al) m³, JAN 2002
Russia: TWA = 6 mg/m³, JUN 2003
Sweden: TWA = 1 mg/(Al) m³, JUN 2005
Switzerland: MAK-W = 0.3 mg/m³, resp, JAN 2011
United Kingdom: TWA = 2 mg/(Al) m³ OCT 2007

In Argentina, Bulgaria, Colombia, Jordan, Singapore, Vietnam check ACGIH TLV
CRYSSTALLINE SILICA:
Australia: TWA = 0.1 mg/m³, JUL 2008
Belgium: TWA = 0.1 mg/m³ (resp, dust), MAR 2002
Denmark: TWA = 0.1 mg/m³ (respirable), carc, MAY 2011
Denmark: TWA = 0.1 mg/m³ (resp.), carc, MAY 2011
Denmark: TWA = 0.3 mg/m³ (total), MAY 2011
Finland: TWA = 0.05 mg/m³, resp, dust, SEP 2009
France: VME = 0.1 mg/m³ (resp), FEB 2006
Iceland: TWA = 0.1 mg/m³ (resp, dust), NOV 2011
Japan: OEL-C = 0.03 mg/m³ (respirable), APR 2007
Korea: TWA = 0.1 mg/m³, 2006
Mexico: TWA = 0.1 mg/m³ (respirable), 2004
The Netherlands: MAC-TGG = 0.075 mg/m³, 2003
New Zealand: TWA = 0.2 mg/m³ (respirable dust), JAN 2002
Norway: TWA = 0.1 mg/m³ (respirable dust), JAN 1999
Norway: TWA = 0.3 mg/m³ (total dust), JAN 1999
Peru: TWA = 0.05 mg/m³, JUL 2005
Russia: TWA = 0.1 mg/m³ (resp, dust), MAR 2002
Sweden: TWA = 0.1 mg/m³ (resp, dust, resp), JUN 2005
Switzerland: MAK-W = 0.15 mg/m³, DEC 2006
Thailand: TWA = 0.1 mg/m³ (respirable), JAN 1993
Thailand: TWA = 0.3 mg/m³ (total dust), JAN 1993
United Kingdom: TWA = 0.1 mg/m³ (resp, dust), OCT 2007

In Argentina, Bulgaria, Colombia, Jordan, Singapore, Vietnam check ACGIH TLV

FOMALDEHYDE (continued):
Iceland: TWA = 0.3 ppm (0.4 mg/m³), STEL = 1 ppm (1.2 mg/m³), Sen, NOV 2011
Japan: OEL = 0.1 ppm (0.12 mg/m³), 2A Carc, AZ Sen, s1 Sen, MAY 2012
Japan: OEL = 0.2 ppm (0.24 mg/m³), MAY 2012
Korea: TWA = 1 ppm (1.5 mg/m³), STEL = 2 ppm (3 mg/m³), 2006
Mexico: PEAK = 2 ppm (3 mg/m³), 2004
The Netherlands: MAC-TGG = 1.5 mg/m³, 2003
New Zealand: CL = 1 ppm (1.2 mg/m³), sen, JAN 2002
Norway: TWA = 0.5 ppm (0.6 mg/m³), JAN 1999
Peru: TWA STEL = 0.3 ppm (0.37 mg/m³), JUL 2005
The Philippines: TWA = 5 ppm (8 mg/m³), JAN 1993
Poland: MAC(TWA) = 0.5 mg/m³, MAC(ESTL) = 1 mg/m³, JAN 1999
Russia: TWA = 0.5 mg/m³, Skin, JUN 2003
Sweden: TWA = 0.5 ppm (0.6 mg/m³), CL = 1 ppm (1.2 mg/m³), Carcinogen, Sen, JUN 2005
Switzerland: MAK-W = 0.3 ppm (0.37 mg/m³), KZG-W = 0.6 ppm (0.74 mg/m³), Carc 3, Sen, JAN 2011

Thailand: TWA = 3 ppm, STEL = 5 ppm, JAN 1993
Turkey: TWA = 5 ppm (8 mg/m³), JAN 1993
United Kingdom: TWA = 2 ppm (2.5 mg/m³), OCT 2007

In Argentina, Bulgaria, Colombia, Jordan, Singapore, Vietnam check ACGIH TLV

PHENOL:
ARAB Republic of Egypt: TWA = 5 ppm (19 mg/m³), Skin, JAN 1993
Australia: TWA = 1 ppm (4 mg/m³), JUL 2008
Austria: MAK-TMW = 2 ppm (7.8 mg/m³), skin, 2007
Belgium: TWA = 2 ppm (7.8 mg/m³), Skin, MAR 2002
Denmark: TWA = 1 ppm (4 mg/m³), skin, MAY 2011
EC: TWA = 7.8 mg/m³ (2 ppm), skin, JUN 2000
Finland: TWA = 2 ppm (8 mg/m³), STEL = 4 ppm (16 mg/m³), skin, NOV 2011
France: VME = 2 ppm (7 mg/m³), Skin, FEB 2006
Hungary: TWA = 7.8 mg/m³, STEL = 78 mg/m³, Skin, SEP 2000
Iceland: TWA = 1 ppm (4 mg/m³), skin, NOV 2011
Japan: OEL = 5 ppm (19 mg/m³), Skin, MAY 2012
Korea: TWA = 5 ppm (19 mg/m³), skin, 2006
Mexico: TWA = 5 ppm (19 mg/m³), STEL = 10 ppm (38 mg/m³) (skin), 2004
The Netherlands: MAC-TGG = 8 mg/m³, Skin, 2003
Australia: TWA = 1 ppm (4 mg/m³), Skin, JUN 2002
New Zealand: TWA = 5 ppm (19 mg/m³), skin, JAN 2002
Peru: TWA = 5 ppm (19 mg/m³), JUL 2005
The Philippines: TWA = 5 ppm (19 mg/m³), Skin, JAN 1993
Poland: MAC(TWA) = 10 mg/m³, MAC(ESTL) = 20 mg/m³, JAN 1999
Russia: TWA = 0.3 mg/m³, STEL = 1 mg/m³, Skin, JUN 2003
Sweden: TWA = 1 ppm (4 mg/m³), STEL = 2 ppm (8 mg/m³), Skin, JUN 2005
Switzerland: CL 5 ppm (19 mg/m³), skin, JAN 2011
Thailand: TWA = 5 ppm (19 mg/m³), JAN 1993
Turkey: TWA = 5 ppm (19 mg/m³), Skin, JAN 1993
United Kingdom: TWA = 2 ppm (7.8 mg/m³), skin, OCT 2007

In Argentina, Bulgaria, Colombia, Jordan, Singapore, Vietnam check ACGIH TLV


Respiratory Protection: Maintain airborne contaminant concentrations below exposure limits listed above. For materials without listed exposure limits, minimize respiratory exposure. If necessary, use only respiratory protection authorized under appropriate regulations.

Eye Protection: Wear splash goggles or safety glasses as appropriate for the task.

Hand Protection: During manufacture or other similar operations, wear the appropriate hand protection for the process.

Skin Protection: Use appropriate protective clothing. If necessary, refer to the U.S. OSHA Technical Manual (Section VII: Personal Protective Equipment) or other appropriate regulations. Full-body chemical protective clothing is recommended for emergency response procedures.

9. PHYSICAL and CHEMICAL PROPERTIES

FORM: Putty
MOLECULAR FORMULA: Mixture.
ODOR: Minimal.
FLAMMABLE LIMITS (in air by volume, %): Not applicable.
DECOMPOSITION TEMPERATURE: Not available.
AUTOIGNITION TEMPERATURE: Not available.
FREEZING/MELTING POINT: Not available.
COLOR: Red.
MOLECULAR WEIGHT: Mixture.
ODOR THRESHOLD: Not available.
OXIDIZING PROPERTIES: Not applicable.
PERCENT VOLATILE: Not available.
FLASH POINT: Not available.
BOILING POINT: Not available.
9. PHYSICAL and CHEMICAL PROPERTIES (Continued)

VAPOR PRESSURE: Not available.
VAPOR DENSITY (air = 1): Not available.
EVAPORATION RATE (n-BuAc = 1): Not Applicable
SOLUBILITY IN WATER: Insoluble.
COEFFICIENT WATER/OIL DISTRIBUTION: Not established.
HOW TO DETECT THIS SUBSTANCE (warning properties in event of accidental release): The appearance may be characteristics to distinguish a release of this product.

10. STABILITY and REACTIVITY

CHEMICAL STABILITY: This product is stable when properly stored at normal temperature and pressures (see Section 7, Handling and Storage).
DECOMPOSITION PRODUCTS: Combustion: If exposed to extremely high temperatures, thermal decomposition may generate irritating fumes and toxic gases. Hydrolysis: None known.
MATERIALS WITH WHICH SUBSTANCE IS INCOMPATIBLE: This product is incompatible with strong oxidizers.
POSSIBILITY OF HAZARDOUS POLYMERIZATION OR REACTION: Will not occur.
CONDITIONS TO AVOID: Avoid exposure to or contact with extreme temperatures and incompatible chemicals.

11. TOXICOLOGICAL INFORMATION

SYMPTOMS OF EXPOSURE BY ROUTE OF EXPOSURE: The health hazard information provided below is pertinent to employees using this product in an occupational setting. The following paragraphs describe the symptoms of exposure by route of exposure.

Inhalation: Inhalation of fumes or vapors if heated may cause irritation of the nose, throat, and lungs and cause coughing. Removal to fresh air should relieve symptoms. The trace Crystalline Silica and Formaldehyde components are known human carcinogens. Due to the form of this product, this hazard is not as significant due to viscosity and consistency of the mixture.
Contact with Skin or Eyes: Direct contact with fumes can cause irritation. May be harmful if swallowed. Contact with contaminated object can cause redness at the site of injection.
Skin Absorption: The Phenol component and trace Formaldehyde component can be absorbed through intact skin. Phenol in all forms (solid, solutions and vapor) is readily absorbed through the skin and can cause harmful effects if a large area of the skin is involved or if contact is prolonged. Due to the small amount of each of these materials, the possibility of adverse effects is not expected to be significant however, skin contact should be avoided. Formaldehyde and Phenol can cause sensitization effects as described under ‘Sensitization Effect’s’.

SYMPTOMS OF EXPOSURE BY ROUTE OF EXPOSURE (continued):

Ingestion: Ingestion is not a significant route of occupational exposure and is unlikely to occur. If this product is swallowed, irritation of the mouth, throat, esophagus and other tissues of the digestive system may occur. Symptoms of ingestion may include nausea, vomiting, and diarrhea.
Injection: Accidental injection of this product, via laceration or puncture by a contaminated object can cause redness at the site of injection.

HEALTH EFFECTS OR RISKS FROM EXPOSURE: Exposure to this product may cause the following health effects:

Acute: Inhalation of fumes or vapors may cause irritation of respiratory system. Eye contact may cause mechanical irritation. Eye contact with fumes can cause irritation. May be harmful if swallowed.
Chronic: Prolonged or repeated skin exposure may cause dermatitis (dry red skin).

TARGET ORGANS: Acute: Skin, eyes, respiratory system. Chronic: Skin.

TOXICITY DATA: Currently, the following toxicological data are available for components of 1% or more concentration.

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

ALUMINUM TRINITRATE

TDLo (Oral-Child) 79 gm/kg/2 years-intermittent: Behavioral: changes in motor activity (specific assay), muscle contraction or spasticity; Musculoskeletal: osteomalacia
TDLo (Oral-Child) 122 gm/kg/4 days: Gastrointestinal: other changes; Nutritional and Gross Metabolic: body temperature increase
TDLo (Oral-Woman) 84 gm/kg: female 1-40 week(s) after conception: Reproductive: Effects on Newborn: physical
TDLo (Oral-Infant) 68040 mg/kg/24 weeks-intermittent: Musculoskeletal: osteoporosis; Nutritional and Gross Metabolic: body temperature increase
TDLo (Oral-Infant) 68040 mg/kg/67 days-continuous: Blood: changes in serum composition (e.g. TP, bilirubin, cholesterol); Nutritional and Gross Metabolic: changes in phosphorus
TDLo (Oral-Infant) 39 gm/kg/24 days-intermittent: Musculoskeletal: osteomalacia
TDLo (Unreported-Infant) 39 gm/kg/24 days-intermittent: Musculoskeletal: osteomalacia
TDLo (Oral-Child) 79 gm/kg/2 years-intermittent: Behavioral: changes in motor activity (specific assay), muscle contraction or spasticity; Musculoskeletal: osteomalacia
TDLo (Oral-Child) 122 gm/kg/4 days: Gastrointestinal: other changes; Nutritional and Gross Metabolic: body temperature increase
TDLo (Oral-Woman) 84 gm/kg/4 days: Gastrointestinal: other changes; Nutritional and Gross Metabolic: body temperature increase
TDLo (Oral-Infant) 68040 mg/kg/24 weeks-intermittent: Musculoskeletal: osteoporosis; Nutritional and Gross Metabolic: body temperature increase
TDLo (Oral-Infant) 68040 mg/kg/67 days-continuous: Blood: changes in serum composition (e.g. TP, bilirubin, cholesterol); Nutritional and Gross Metabolic: changes in phosphorus
TDLo (Oral-Infant) 39 gm/kg/24 days-intermittent: Musculoskeletal: osteomalacia
TDLo (Unreported-Infant) 39 gm/kg/24 days-intermittent: Musculoskeletal: osteomalacia
TDLo (Oral-Rat) 15 mg/kg: Gastrointestinal: other changes
TDLo (Oral-Rat) 6040 mg/kg/67 days-continuous: Blood: changes in serum composition (e.g. TP, bilirubin, cholesterol); Nutritional and Gross Metabolic: changes in phosphorus
TDLo (Oral-Mouse) 80,880 mg/kg/23 weeks-continuous: Liver: other changes; Musculoskeletal: other changes; Nutritional and Gross Metabolic: changes in iron
TDLo (Oral-Mouse) 80,880 mg/kg/23 weeks-continuous: Liver: other changes; Musculoskeletal: other changes; Nutritional and Gross Metabolic: changes in iron
TDLo (Intraperitoneal-Rat) 6240 mg/kg/26 weeks-intermittent: Blood: changes in serum composition (e.g. TP, bilirubin, cholesterol); Nutritional and Gross Metabolic: changes in phosphorus
TDLo (Intraperitoneal-Rat) 6240 mg/kg/26 weeks-intermittent: Blood: changes in serum composition (e.g. TP, bilirubin, cholesterol); Nutritional and Gross Metabolic: changes in phosphorus
TDLo (Intraperitoneal-Rat) 15 mg/kg: Gastrointestinal: other changes
TDLo (Intraperitoneal-Rat) 6240 mg/kg/26 weeks-intermittent: Blood: changes in serum composition (e.g. TP, bilirubin, cholesterol); Nutritional and Gross Metabolic: changes in iron
TDLo (Intraperitoneal-Rat) 1920 mg/kg/8 weeks-intermittent: Blood: microcytosis with or without anemia
TDLo (Intraperitoneal-Rat) 960 mg/kg/4 weeks-intermittent: Blood: changes in erythrocyte (RBC) count

10. STABILITY and REACTIVITY

CHEMICAL STABILITY: This product is stable when properly stored at normal temperature and pressures (see Section 7, Handling and Storage).
DECOMPOSITION PRODUCTS: Combustion: If exposed to extremely high temperatures, thermal decomposition may generate irritating fumes and toxic gases. Hydrolysis: None known.
MATERIALS WITH WHICH SUBSTANCE IS INCOMPATIBLE: This product is incompatible with strong oxidizers.
POSSIBILITY OF HAZARDOUS POLYMERIZATION OR REACTION: Will not occur.
CONDITIONS TO AVOID: Avoid exposure to or contact with extreme temperatures and incompatible chemicals.
**ALUMINUM TRIHYDRATE:**

TDLo (Oral-Child) 79 mg/kg/2 years-internment: Behavioral: changes in motor activity (specific assay), muscle contraction or spasticity; Musculoskeletal: osteomalacia

TDLo (Oral-Child) 179 g/kg/4 days: Gastrointestinal: other changes; Nutritional and Gross Metabolic: body temperature increase

TDLo (Oral-Woman) 84 mg/kg: female 1–40 week(s) after conception: Reproductive: effects on Newborn: other changes; Renal: proximal tubule; skin irritation

TDLo (Oral-Infant) 68040 mg/kg/24 weeks-internment: Musculoskeletal: osteoporosis; Nutritional and Gross Metabolic: weight loss or decreased weight gain, changes in phosphorus

TDLo (Oral-Rat) 73912.5 mg/kg/26 weeks-internment: Blood: changes in serum composition (e.g. TP, bilirubin, cholesterol); Musculoskeletal: osteoporosis; Nutritional and Gross Metabolic: changes in phosphorus

TDLo (Mouse) 3739.21 mg/kg/26 weeks-internment: Blood: changes in serum composition (e.g. TP, bilirubin, cholesterol); Musculoskeletal: osteoporosis; Nutritional and Gross Metabolic: changes in phosphorus

TDLo (Unreported-Infant) 39 mg/kg/24 days-internment: Musculoskeletal: osteomalacia

TDLo (Oral-Rat) 15 mg/kg: Gastrointestinal: other changes

TDLo (Oral-Woman) 6040 mg/kg/7 days: Blood: changes in serum composition (e.g. TP, bilirubin, cholesterol); Musculoskeletal: other changes; Nutritional and Gross Metabolic: changes in metals, not otherwise specified

TDLo (Intraperitoneal-Rat) 150 mg/kg: Gastrointestinal: other changes

TDLo (Intraperitoneal-Rat) 6240 mg/kg/26 weeks-internment: Blood: pigmented or oriental red blood cells; Musculoskeletal: osteoporosis; Nutritional and Gross Metabolic: changes in phosphorus

TDLo (Oral-Human) 80,880 mg/kg/23 weeks-internment: Liver: other changes; Behavioral: hallucinations, distorted perceptions; Skin: changes in serum composition (e.g. TP, bilirubin, cholesterol); Musculoskeletal: osteoporosis; Nutritional and Gross Metabolic: other changes

TDLo (Oral-Woman) 140 mg/kg: Behavioral: hallucinations, distorted perceptions; Skin and Appendages: sweating

TDLo (Oral-Infant) 10 mg/kg: Behavioral: muscle weakness; Lungs, Thorax, or Respiratory: cyanosis

TDLo (Parenteral-Man) 105.3 mg/kg: Peripheral Nerve and Sensation: peripheral nerve injury; Kidney/Ureter/Bladder: renal function tests depressed

TDLo (Unreported-Man) 5714 µg/kg: Sense Organs and Special Senses (Olfaction): anosmia

LD50 (Skin-Rabbit) 630 mg/kg: Skin irritation

LD50 (Oral-Mouse) 270 mg/kg: Behavioral: convulsions or effect on seizure threshold

LD50 (Subacute-Rat) 512 mg/kg: Gastrointestinal: other changes

LD50 (Subacute-Mouse) 270 mg/kg: Gastrointestinal: other changes

LD50 (Oral-Mammal-Species Unspecified) 500 mg/kg: Behavioral: convulsions or effect on seizure threshold

LD50 (Skin-Rat) 1500 mg/kg: Gastrointestinal: other changes

LD50 (Intraperitoneal-Man) 669 mg/kg: Behavioral: tremor; Kidney/Ureter/Bladder: hematuria; Skin and Appendages: cutaneous sensitization, experimental (after topical exposure)

LD50 (Skin-Rabbit) 630 mg/kg: Gastrointestinal: other changes

LD50 (Intraperitoneal-Rat) 177 mg/kg: Gastrointestinal: other changes

LD50 (Intraperitoneal-Rat) 180 mg/kg: Gastrointestinal: other changes

LD50 (Subacute-Rat) 300 mg/kg: Gastrointestinal: other changes

LD50 (Subacute-Mouse) 344 mg/kg: Gastrointestinal: other changes

LD50 (Intravenous-Mouse) 112 mg/kg: Behavioral: tremor

IC50 (In vitro-Venous Lungs) 1.12 mmol/L/24 hours: In Vitro Toxicity Studies: cell viability (mitochondrial reductase assay); MTX, XTT, MTS, WSTS assays etc.

IC50 (In vitro-Venous Lungs) 0.30 mmol/L/24 hours: In Vitro Toxicity Studies: cell viability (mitochondrial reductase assay); MTX, XTT, MTS, WSTS assays etc.

IC50 (In vitro-Rat Liver) 0.30 mmol/L/24 hours: In Vitro Toxicity Studies: cell viability (mitochondrial reductase assay); MTX, XTT, MTS, WSTS assays etc.

IC50 (In vivo-Human Liver) 2.7 (in Vivo-Chicken Neurons) 4770 µmol/L/21 hours: In Vivo Toxicity Studies: cell viability (mitochondrial reductase assay); MTX, XTT, MTS, WSTS assays etc.

IC50 (In vitro-Rat Liver) 0.30 mmol/L/24 hours: In Vitro Toxicity Studies: cell viability (mitochondrial reductase assay); MTX, XTT, MTS, WSTS assays etc.

IC50 (In vitro-Rat Liver) 1.33 mmol/L/24 hours: In Vitro Toxicity Studies: cell viability (mitochondrial reductase assay); MTX, XTT, MTS, WSTS assays etc.

IC50 (In vitro-Rat Liver) 0.67 mmol/L/24 hours: In Vitro Toxicity Studies: cell viability (mitochondrial reductase assay); MTX, XTT, MTS, WSTS assays etc.

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IC50 (In vitro-Rat Liver) 0.67 mmol/L/24 hours: In Vitro Toxicity Studies: cell viability (mitochondrial reductase assay); MTX, XTT, MTS, WSTS assays etc.
IRRITANTY OF PRODUCT: Inhalation of fumes or vapors may cause respiratory irritation. Eye contact may cause irritation. Eye contact with fumes may cause irritation. Prolonged skin contact may cause irritation.

CARCINOGENIC POTENTIAL OF COMPONENTS: Components of this product are listed by agencies tracking the potential of various chemical compounds, as follows:

CRYSTALLINE SILICA: ACGIH-TLV-A2 (Suspected Human Carcinogen); 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); NIOSH-Ca (Potential Occupational Carcinogen with No Further Categorization); NTP-K (Known to Be a Human Carcinogen)

FORMALDEHYDE: ACGIH-TLV-A2 (Suspected Human Carcinogen); EPA-B1 (Probable Human Carcinogen-Limited Evidence of Carcinogenicity from Epidemiological Studies); IARC-1 (Carcinogenic to Humans); MAK-4 (Substances with Carcinogenic Potential for Which Genotoxicity Plays No or at Most a Minor Role. No significant contribution to human cancer risk is expected, provided the MAK value is observed); NIOSH-Ca (Potential Occupational Carcinogen with No Further Categorization); NTP-K (Known to Be a Human Carcinogen); OSHA-Ca (Carcinogen Defined with No Further Categorization)

PHENOL: ACGIH TLV-A4 (Not Classifiable as a Human Carcinogen); EPA-I (Data are Inadequate for an Assessment of Human Carcinogenic Potential); EPA-D (Not Classifiable as to Human Carcinogenicity); IARC-3 (Unclassifiable as to Carcinogenicity in 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.)

The remaining components are not found on the following lists: U.S. EPA, U.S. NTP, U.S. OSHA, U.S. NIOSH, GERMAN MAK, IARC, or ACGIH and therefore is neither considered to be nor suspected to be a cancer-causing agent by these agencies.

REPRODUCTIVE TOXICITY INFORMATION: This product is not expected or reported to cause human mutagenic, embryotoxic, teratogenic or reproductive toxicity effects. The following gives information on possible effects from components.

Mutagenicity: Formaldehyde is considered mutagenic, based on positive results (e.g., chromosomal aberrations in lung cells) observed in studies with live animals. In occupational exposure studies, which are limited by such problems as low numbers of workers studied and mixed exposures, both positive and negative results (micronuclei, sister chromatid exchanges (SCEs), chromosome aberrations in lymphocytes or cheek and nose cells) and a negative result (abnormal sperm) were obtained. However, positive results (SCEs in lymphocytes, DNA-protein crosslinks in lymphocytes) were obtained in 2 reasonably well-conducted studies.

Embryotoxicity/Teratogenicity: There is insufficient evidence to determine if Formaldehyde causes reproductive toxicity in humans. Despite limitations, the few animal studies available do not suggest that Formaldehyde exposure will affect fertility.

ACGIH BIOLOGICAL EXPOSURE INDICES (BEIs): Currently, there are no ACGIH Biological Exposure Indices (BEIs) determined for this material.

DEGREE OF EFFECT TO THE HEALTH OF THE POLLUTING AGENT OF ENVIRONMENT OF WORK (per Mexican NOM-010 STPS-1999): 0

12. ECOLOGICAL INFORMATION

ALL WORK PRACTICES MUST BE AIMED AT ELIMINATING ENVIRONMENTAL CONTAMINATION.

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

PERSISTENCE AND BIODEGRADABILITY: This product has not been tested for persistence or biodegradability. The mineral components are not expected to biodegrade to great extent.

ECOTOXICITY: This product has not been tested for aquatic or animal toxicity. All releases to terrestrial, atmospheric and aquatic environments should be avoided.

OTHER ADVERSE EFFECTS: This material is not listed as having ozone depletion potential.

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

13. DISPOSAL CONSIDERATIONS

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

DISPOSAL CONTAINERS: Waste materials must be placed in and shipped in appropriate 5-gallon or 55-gallon poly or metal waste pails or drums. 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.

U.S. EPA WASTE NUMBER: Not applicable.
14. TRANSPORTATION INFORMATION

U.S. DEPARTMENT OF TRANSPORTATION REGULATIONS: This product is not classified as dangerous goods, per U.S. DOT regulations, under 49 CFR 172.101.

TRANSPORT CANADA TRANSPORTATION OF DANGEROUS GOODS REGULATIONS: This product is not classified as Dangerous Goods, per regulations of Transport Canada.

INTERNATIONAL AIR TRANSPORT ASSOCIATION (IATA): This product is not classified as dangerous goods under rules of IATA.

INTERNATIONAL MARITIME ORGANIZATION (IMO) DESIGNATION: This product is not classified as Dangerous Goods by the International Maritime Organization.

OFFICIAL MEXICAN STANDARD; REGULATION FOR THE TRANSPORT OF DANGEROUS GOODS AND RESIDUES: This product is not classified as Dangerous Goods, per transport regulations of Mexico.

SINGAPORE STANDARD 286: PART A: This product has no requirements under the Specification for Caution Labeling for Hazardous Substances, Part 4: Marking of Packages, Containers and Vehicles, as it does not meet the criteria for any hazard class under this regulation.

TRANSPORT IN BULK ACCORDING TO THE IBC CODE: See the information under the individual jurisdiction listings for IBC information.

ENVIRONMENTAL HAZARDS: This material does 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) and is not listed in Annex III under MARPOL 73/78.

15. REGULATORY INFORMATION

UNITED STATES 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 as follows.

<table>
<thead>
<tr>
<th>CHEMICAL NAME</th>
<th>SARA 302 (40 CFR 355, Appendix A)</th>
<th>SARA 304 (40 CFR Table 302.4)</th>
<th>SARA 313 (40 CFR 372.65)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Formaldehyde</td>
<td>Yes</td>
<td>Yes</td>
<td>Yes</td>
</tr>
<tr>
<td>Phenol</td>
<td>Yes</td>
<td>Yes</td>
<td>Yes</td>
</tr>
</tbody>
</table>

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

U.S. SARA Threshold Planning Quantity (TPQ): Formaldehyde: 500 lb (27.2 kg); Phenol: 500 lb (27.2 kg)

U.S. CERCLA Reportable Quantity (RQ): Formaldehyde: 100 lb (45.4 kg); Phenol: 1000 lb (454 kg)

U.S. TSCA Inventory Status: Components of this product are listed on the TSCA Inventory.

California Safe Drinking Water and Toxic Enforcement Act (Proposition 65): The Crystalline Silica and Formaldehyde (gas) components are on the California Proposition 65 lists. WARNING! This product contains compounds known to the State of California to cause Cancer. This product contains trace amounts of a suspected human carcinogen by inhalation; however, this hazard is not expected to be significant due to viscosity and consistency of the mixture.

CANADIAN REGULATIONS:

Canadian DSL/NDSL Inventory Status: Components are on the DSL or NDSL Inventories.

Canadian Environmental Protection Act (CEPA) Priorities Substances Lists: The Phenol and Formaldehyde components are on the CEPA Priorities Substances 2 List.

Canadian WHMIS Classification and Symbols: This product would be categorized as a Controlled Product, D2B (Other Toxic Effects-Potential Carcinogenic and Mutagenic Effect, Irritation, Skin Sensitization) as per the Controlled Product Regulations.

CHINESE REGULATIONS:

Chinese Inventory of Existing Chemical Substances Status: Components listed by CAS# are listed on the Chinese Inventory of Existing Chemical Substances (IECSC), or are not listed, per information in Section 2.

JAPANESE REGULATIONS:

Japanese ENCS: Components listed by CAS# are on the ENCS Inventory, are excepted, or are not listed, per information in Section 2.

Japanese Ministry of Economy, Trade, and Industry (METI) Status: Components are not listed as Class I Specified Chemical Substances, Class II Specified Chemical Substances, or Designated Chemical Substances by the Japanese METI.

Poisonous and Deleterious Substances Control Law: Components are not listed as a Specified Poisonous Substance under the Poisonous and Deleterious Substances Control Law.

KOREAN REGULATIONS:

Korean Existing Chemicals List (ECL) Status: Components listed by CAS# are listed on the Korean ECL Inventory, or are not listed, per information in Section 2.

MEXICAN REGULATIONS:

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

SINGAPORE REGULATIONS:

List of Controlled Hazardous Substances: Components listed by CAS# are not listed on the Singapore List of Controlled Substances.

Code of Practice on Pollution Control Requirements: The components identified by CAS# in Section 2 (Composition and Information on Ingredients) NOT are subject to the requirements under the Singapore Code of Practice on Pollution Control.

TAIWANESE REGULATIONS:

Taiwan Existing Chemicals Inventory Status: Components listed by CAS# are listed on the Taiwan Existing Chemicals List.
DEFINITION OF TERMS

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

CAS #: 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 workday.

DGF MAKs: Federal Republic of Germany Maximum Concentration Values in the workplace.

DGF MAK: Maximum Allowable Concentrations that have been shown to increase the mutant frequency in the progeny of exposed humans. 2: Germl cell mutagens that have been shown to increase the mutant frequency in the progeny of exposed mammals. 3A: Substances that are suspected of being germ cell mutagens because of their genotoxic effects in mammals in vivo and in vitro. 3B: Substances that are suspected of being germ cell mutagens because of their genotoxic effects in mammalian somatic cell in vivo. In exceptional cases, for substances for which there is no in vivo data, but that 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).

RATINGs:

NE: Not established. When no exposure guidelines are established, an entry of NE is made for that substance or preparation.

References:

NATIONAL FIRE PROTECTION ASSOCIATION HAZARD RATINGS:

HEALTH HAZARD: 6 Materials that, under emergency conditions, would offer no hazard beyond that of ordinary combustible materials. Gases and vapors with an LCLo for acute inhalation toxicity greater than 10,000 ppm. Dusts and mists with an LCLo for acute inhalation toxicity greater than 10 mg/L. Dusts and mists with an LCLo for acute dermal toxicity greater than 50 mg/kg but less than or equal to 500 mg/kg. Materials that, under emergency conditions, can cause temporary incapacitation or residual injury. Gases with an LCLo for acute inhalation toxicity greater than 3,000 ppm but less than or equal to 5,000 ppm. Any liquid whose saturated vapor concentration at 20°C (68°F) is equal to or greater than one-fifth its LC50 for acute inhalation toxicity, if its LC50 is less than or equal to 500 ppm and that does not meet the criteria for either degree of hazard 3 or degree of hazard 4. Dusts and mists with an LCLo for acute inhalation toxicity greater than 2 mg/L but less than or equal to 10 mg/L. Dusts and mists with an LCLo for acute dermal toxicity greater than 200 mg/kg but less than or equal to 1000 mg/kg. Compressed liquefied gases with boiling points between -1,000°F (-57°C) and -5°C (-23°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 lacrimation agents. Materials that are primary skin irritants or sensizers. Materials whose LC50 for acute oral toxicity is greater than 50 mg/kg but less than or equal to 500 mg/kg. 3 Materials that, under emergency conditions, can cause serious or permanent injury. Gases with an LCLo for acute inhalation toxicity greater than 1,000 ppm but less than or equal to 3,000 ppm. Any liquid whose saturated vapor concentration at 20°C (68°F) is equal to or greater than one percent. Any liquid whose saturated vapor concentration at 20°C (68°F) is equal to or greater than ten times its LC50 for acute inhalation toxicity if its LC50 is less than or equal to 500 ppm. Any liquid whose saturated vapor concentration at 20°C (68°F) is equal to or greater than 10,000 ppm. Any liquid whose saturated vapor concentration at 20°C (68°F) is equal to or greater than 100,000 ppm. Any liquid whose saturated vapor concentration at 20°C (68°F) is equal to or greater than one percent but that generally do not form explosive mixtures with air and are readily dispersed in air. Any liquid whose saturated vapor concentration at 20°C (68°F) is equal to or greater than one percent but that generally do not form explosive mixtures with air and are readily dispersed in air. Any liquid whose saturated vapor concentration at 20°C (68°F) is equal to or greater than one percent but that generally do not form explosive mixtures with air and are readily dispersed in air.

HEALTH HAZARD (continued): 4 Materials that, under emergency conditions, can be lethal. Gases with an LCLo for acute inhalation toxicity less than or equal to 1,000 ppm. Any liquid whose saturated vapor concentration at 20°C (68°F) is equal to or greater than ten times its LC50 for acute inhalation toxicity, if its LC50 is less than or equal to 500 ppm. Any liquid whose saturated vapor concentration at 20°C (68°F) is equal to or greater than 10,000 ppm. Any liquid whose saturated vapor concentration at 20°C (68°F) is equal to or greater than 100,000 ppm. Any liquid whose saturated vapor concentration at 20°C (68°F) is equal to or greater than one percent but that generally do not form explosive mixtures with air and are readily dispersed in air. Any liquid whose saturated vapor concentration at 20°C (68°F) is equal to or greater than one percent but that generally do not form explosive mixtures with air and are readily dispersed in air. Any liquid whose saturated vapor concentration at 20°C (68°F) is equal to or greater than one percent but that generally do not form explosive mixtures with air and are readily dispersed in air. Any liquid whose saturated vapor concentration at 20°C (68°F) is equal to or greater than one percent but that generally do not form explosive mixtures with air and are readily dispersed in air.

FLAMMABILITY LIMITS IN AIR:

Much of the information related to fire and explosion is derived from the National Fire Protection Association's Flash Point Method. Flash Point Method is a test used to determine the lowest temperature at which a vapor or gas will form an ignitable mixture with air near the surface of the liquid or within the test vessel used. Autoignition Temperature: Minimum temperature of a solid, liquid, or gas required to initiate or continue combustion in the absence of an external heat source or ignition. Flamability: The tendency of a vapor cloud to form. Flammability is the minimum concentration of a flammable vapor or gas mixture that will ignite and burn with a flame. The lower limit (LEL) is the lowest concentration of a flammable vapor or gas mixture that will ignite and burn with a flame. The upper limit (UEL) is the highest concentration of a flammable vapor or gas mixture that will ignite and burn with a flame.

TOXICOLOGICAL INFORMATION:

Human and Animal Toxicology Information: Many hazard ratings as derived from human data, animal studies, or from the results of studies with similar compounds are presented. LDC50: Median lethal dose (or concentration) in mg/kg. LDLo, LDo, LCLo, LCLo: Lowest dose (or concentration) to produce a symptom. TCLo: Lowest concentration to produce a symptom. TDo, LDLo, and TCLo: Lowest dose (or concentration) to cause lethal or toxic effects. LCLo: Lowest concentration to produce a symptom. Median threshold limit. log KOW or log KOC: Coefficient of Oil/Water Distribution is used to assess the potential for bioaccumulation. IARC: International Agency for Research on Cancer. NTP: U.S. National Toxicology Program. RTEDS: Registry of Toxic Effects of Chemicals. JAPAN: Ministry of Economy, Trade and Industry.