SAFETY DATA SHEET


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

IDENTIFICATION OF THE MIXTURE

TRADE/MATERIAL NAME: STI Thermal Barrier Wrap

RELEVANT USE of the SUBSTANCE: Insulation Fire Barrier

USES ADVISED AGAINST: None

SUPPLIER/MANUFACTURER'S NAME: 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)

EMAIL of Competent Person for Information on SDS: techserv@stifirestop.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, Eye Iritation Category 2A, Specific Target Organ Toxicity (Inhalation-Respiratory Irritation)

Single Exposure Category 3

Signal Word: Warning


Precautionary Statements:


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. P304 + P340: If inhaled, remove victim to fresh air and keep at rest in a position comfortable for breathing. P312: Call a POISON CENTER or doctor if you feel unwell. 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>Amorphous Silica</td>
<td>112945-52-5</td>
<td>Listed</td>
<td>Not Listed</td>
<td>KE-30953</td>
<td>Listed</td>
<td>&lt; 90.0%</td>
<td>GHS &amp; Japanese JIS Z7253 Classification, Korean ISHA Classification, GHS Hazard Codes</td>
</tr>
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</table>

STI THERMAL BARRIER WRAP SDS

EFFECTIVE DATE: JANUARY 24, 2017

PAGE 1 OF 11
3. COMPOSITION and INFORMATION ON INGREDIENTS (Continued)

<table>
<thead>
<tr>
<th>Chemical Name</th>
<th>CAS #</th>
<th>Chinese IECSC Inventory</th>
<th>Japanese ENCS #</th>
<th>Korean ENCL #</th>
<th>Taiwan NESCI ECS</th>
<th>WT%</th>
<th>LABEL ELEMENTS</th>
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<tr>
<td>Hydrated Alumina</td>
<td>21645-51-2</td>
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<td>1-17</td>
<td>KE-00980</td>
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<tr>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td>Classification: Eye Irritation Cat. 2A</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td>Hazard Codes: H319</td>
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<tr>
<td>Titanium Dioxide (Rutile)</td>
<td>1317-80-2</td>
<td>Listed</td>
<td>1-558</td>
<td>KE-30681</td>
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</tr>
<tr>
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<td></td>
<td></td>
<td></td>
<td>Classification: Not Applicable</td>
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<tr>
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<td>KE-17630</td>
<td>Listed</td>
<td>0.0-20.0%</td>
<td>SELF CLASSIFICATION GHS &amp; JAPANESE JIS Z7253, KOREAN ISHA:</td>
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<tr>
<td>Consists of:</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td>Classification: Carcinogenic Cat. 2, Eye Irritation Cat. 2A, STOT (Inhalation-Respiratory Irritation) SE Cat. 3</td>
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<tr>
<td>Vitreous Silicate Continuous Filament Glass Fiber</td>
<td>80%</td>
<td>20%</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Proprietary Polyester Fiber</td>
<td>Unknown</td>
<td>Unknown</td>
<td>Unknown</td>
<td>Unknown</td>
<td>Unknown</td>
<td>0.0-10.0%</td>
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</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td>Classification: Not Determined</td>
</tr>
</tbody>
</table>

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 particulates 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.

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.

MEDICAL CONDITIONS AGGRAVATED BY EXPOSURE: Pre-existing respiratory disorders may be aggravated by overexposures to this product.

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 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 or Static Discharge: Not sensitive.

SPECIAL PROTECTIVE ACTIONS FOR FIRE-FIGHTERS: Incipient fire responders should wear eye protection.

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 (613-996-6668). PERSONAL PROTECTIVE EQUIPMENT: Proper protective equipment should be used.

Small Spills: Wear rubber gloves, safety glasses, and appropriate body protection.

Large Spills: Minimum Personal Protective Equipment should be rubber gloves, rubber boots, safety glasses.

METHODS FOR CLEAN-UP AND CONTAINMENT:

Small Spills: Small releases of this product can be carefully picked-up, swept up or cleaned up avoiding generating of particulates.

NFPA RATING

- FLAMMABILITY: 0
- HEALTH: 2
- INSTABILITY: 0
- OTHER: 0

Hazard Scale: 0 = Minimal 1 = Slight 2 = Moderate 3 = Serious 4 = Severe
6. ACCIDENTAL RELEASE MEASURES (Continued)

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, avoiding generation of dusts and particulates.

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. Run-off water may be contaminated by other materials and should be contained to prevent possible environmental damage.

7. HANDLING and STORAGE

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 particulates generated by this product. 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). 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>ACGIH-TLVs</th>
<th>OSHA-PELs</th>
<th>NIOSH-RELs</th>
<th>NIOSH</th>
<th>OTHER</th>
</tr>
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<tbody>
<tr>
<td></td>
<td></td>
<td>TWA mg/m³</td>
<td>STEL mg/m³</td>
<td>TWA mg/m³</td>
<td>STEL mg/m³</td>
<td>IDLH mg/m³</td>
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<tr>
<td>Aluminum Trihydrate</td>
<td>21645-51-2</td>
<td>NE</td>
<td>NE</td>
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<tr>
<td>Amorphous Silica</td>
<td>112945-52-5</td>
<td>NE</td>
<td>NE</td>
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<td>NE</td>
</tr>
<tr>
<td>Mineral Wool Fiber</td>
<td>65997-17-3</td>
<td>10</td>
<td>15 (total dust); 10 (vacated 1989 PEL)</td>
<td>NE</td>
<td>5 (total mineral wool dust, or 3 f/cc TWA (fibers &lt; 3.5 um diameter; &gt; 10 um length])</td>
<td>NE</td>
</tr>
<tr>
<td>Synthetic Vitreous Fibers</td>
<td></td>
<td>1 f/cc(1)</td>
<td>NE</td>
<td>NE</td>
<td>NE</td>
<td>NE</td>
</tr>
<tr>
<td>Proprietary Polyester Fiber</td>
<td></td>
<td>NE</td>
<td>NE</td>
<td>NE</td>
<td>NE</td>
<td>NE</td>
</tr>
</tbody>
</table>

NE = Not Established. See Section 16 for Definitions of Other Terms Used.
Protective clothing). Please reference applicable regulations and standards for relevant details.


Assist employers in complying with OSHA regulations found in 29 CFR Subpart I (beginning at 1910.132, including equivalent standards of Canada (including CSA Respiratory Standard Z94.3-1992), and individual countries should be consulted to determine if newer limits are available.

**ALUMINUM OXIDE:**
- Austria: TWA = 5 mg/m³; Z94.3-M1982, 8.0 mg/m³, resp, 2007
- Belgium: TWA = 10 mg/m³; MAY 2002
- Denmark: TWA = 2 mg/m³, MAR 2002
- France: TWA = 6 mg/m³, MAY 2011
- Hungary: TWA = 6 mg/m³, SEP 2000
- Iceland: TWA = 10 mg/m³, NOV 2011
- Japan: OEL = 0.5 mg/m³ (resp. dust), 2 mg/m³ (total dust), MAY 2012
- Korea: TWA = 10 mg/m³, 2006
- Mexico: TWA = 10 mg/m³ (AO203)/m³ (inhaleable), 2004
- The Netherlands: MAC-TGG = 10 mg/m³, 2003
- New Zealand: TWA = 10 mg/m³ (inspirable dust), JAN 2002
- Norway: TWA = 2 mg/m³, JAN 1999
- Poland: MAC(TWA) = 2 mg/m³, MAC(STEL) = 16 mg/m³, JAN 1999
- Russia: TWA = 6 mg/m³, JUN 2003
- Sweden: TWA = 5 mg/m³ (total dust); TWA = 2 mg/m³ (resp. dust), JUN 2005
- Switzerland: MAK-W = 3 mg/m³, KZW-W = 24 mg/m³, resp, fume, JAN 2011
- Switzerland: MAK-W = 3 mg/m³, resp, JAN 2011
- United Kingdom: TWA = 10 mg/m³ (inhaled dust), OCT 2007
- United Kingdom: TWA = 4 mg/m³ (resp. dust), OCT 2007
- In Argentina, Bulgaria, Colombia, Jordan, Singapore, Vietnam check ACGIH TLV

**AMORPHOUS SILICA:**
- Australia: TWA = 2 mg/m³ (respirable dust), JUL 2008
- United Kingdom: TWA = 6 mg/m³ (inhaled dust), OCT 2007
- United Kingdom: TWA = 2.4 mg/m³ (resp. dust), OCT 2007

**ALUMINUM (HYDRATED):**
- Australia: TWA = 2 mg/m³; JUL 2008
- Belgium: TWA = 2 mg/m³, MAR 2002
- Finland: TWA = 2 mg/m³, NOV 2011
- France: VME = 10 mg/m³, FEB 2006
- Korea: TWA = 2 mg/m³, JUL 2005
- New Zealand: TWA = 2 mg/m³, JAN 2002
- Russia: TWA = 6 mg/m³, JUN 2003
- Sweden: TWA = 1 mg/m³, JUN 2005
- Switzerland: MAK-W = 3 mg/m³, resp, JAN 2011
- United Kingdom: TWA = 2 mg/m³ (OCT 2007
- In Argentina, Bulgaria, Colombia, Jordan, Singapore, Vietnam check ACGIH TLV

**MINERAL WOOL FIBERS:**
- Mexico: TWA = 10 mg/m³ (dust), 2004


**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. Oxygen levels below 19.5% are considered IDLH by U.S. 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 U.S. OSHA’s Respiratory Protection Standard (1910.134-1998). The following are NIOSH Respiratory Protective Equipment Guidelines for the Mineral Wool Fiber component to aid in selection of respiratory equipment in event of release of fibers or Amorphous Silica dust.

<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>TWA (mg/m³)</td>
<td>STEL (mg/m³)</td>
</tr>
<tr>
<td>Titanium Dioxide (Rutile)</td>
<td>1317-80-2</td>
<td>NE</td>
</tr>
</tbody>
</table>

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

PROTECTIVE EQUIPMENT (continued):

Respiratory Protection (continued):

AMORPHOUS SILICA

CONCENTRATION RESPIRATORY PROTECTION

Up to 30 mg/m³: Any quarter-mask respirator.
Up to 60 mg/m³: Any particulate respirator equipped with an N95, R95, or P95 filter (including N95, R95, and P95 filtering facepieces) except quarter-mask respirators. The following filters may also be used: N99, R99, P99, N100, R100, P100 or any Supplied-Air Respirator (SAR).
Up to 150 mg/m³: Any SAR operated in a continuous-flow mode. Any Powered Air-Purifying Respirator (PAPR) with a high-efficiency particulate filter.
Up to 300 mg/m³: Any Air-Purifying, Full-Facepiece Respirator with an N100, R100, or P100 filter. Any supplied-air respirator that has a tight-fitting facepiece and is operated in a continuous-flow mode. Any powered, air-purifying respirator with a tight-fitting facepiece and a high-efficiency particulate filter, or any self-contained breathing apparatus with a full facepiece, or any supplied-air respirator with a full facepiece.
Up to 3000 mg/m³: Any SAR operated in a pressure-demand or other positive-pressure mode.

Emergency or planned entry into unknown concentrations or IDLH conditions: Any Self-Contained Breathing Apparatus (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.

Escape: Any Air-Purifying, Full-Facepiece Respirator with an N100, R100, or P100 filter or any appropriate escape-type, SCBA.

MINERAL WOOL FIBERS

CONCENTRATION RESPIRATORY PROTECTION

5X REL: Qm 10X REL: 95XQ Any supplied-air respirator (SAR).
25X REL: Sa:Cf Any Powered Air-Purifying Respirator (PAPR) with a high-efficiency particulate filter.
50X REL: 100F PAPR with a tight-fitting facepiece and a high-efficiency particulate filter, or any Self-Contained Breathing Apparatus (SCBA) with a full facepiece, or any SAR with a full facepiece.

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 with an N100, R100, or P100 filter.

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: Solid COLOR: Silver
MOLECULAR FORMULA: Mixture. MOLECULAR WEIGHT: Mixture.
ODOR: None. ODOR THRESHOLD: Not available.
FLAMMABLE LIMITS (in air by volume, %): Not applicable. OXIDIZING PROPERTIES: Not applicable.
DECOMPOSITION TEMPERATURE: Not available. PERCENT VOLATILE: Zero.
AUTOIGNITION TEMPERATURE: Not available. FLASH POINT: Not applicable.
MELTING POINT: Not determined. BOILING POINT: Not applicable.
VAPOR PRESSURE: Not applicable. SPECIFIC GRAVITY (water = 1): Not available.
VAPOR DENSITY (air = 1): Not applicable. CARB VOC: Not applicable.
EVAPORATION RATE (n-BuAc = 1): Not applicable. SCAQMD (U.S. EPA Method 24): Not applicable.
SOLUBILITY IN WATER: Insoluble. SOLUBILITY IN SOLVENTS: Not available.
COEFFICIENT WATER/OIL DISTRIBUTION: Not established. pH: Not applicable.
HOW TO DETECT THIS SUBSTANCE (warning properties in event of accidental release): The appearance may be a characteristic 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 (e.g., aluminum, carbon, silicon, nitrogen or titanium oxides, formaldehyde, phenol and ammonia). Hydrolysis: None known.

MATERIALS WITH WHICH SUBSTANCE IS INCOMPATIBLE: This product is incompatible with strong acids.

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: Although unlikely due to the form of the product, inhalation of particles can cause irritation to the respiratory system. Chronic inhalation of Mineral Wool fibers can cause damage to the lungs. The Mineral Wool component is a suspect carcinojen by inhalation. Due to the encapsulate form of this product, this hazard is lessened; however, all inhalation exposure must be avoided in order to mitigate carcinogenic potential.

Contact with Skin or Eyes: Direct eye contact with particulates may cause irritation, redness, and tearing from mechanical irritation. Skin contact with the Mineral Wool may cause mechanical irritation of the skin.

Skin Absorption: Components are not known to be absorbed through intact skin.

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 blockage of the digestive system may occur.

Injection: Accidental injection of this product, via laceration or puncture by a contaminated object can cause redness at the site of injection.

Additional Health Information: Polycrystalline fibers have not been shown to migrate from the lung and/or gut and do not become located in other organs of the body.

AES fibers contained in this product have been designed to be rapidly cleared from lung tissue. This low bio-persistence has been confirmed in many studies on AES using EU protocol ECB/TTM/27 (rev 7). When inhaled, even at very high doses, AES fibers do not accumulate to any level capable of producing a serious adverse biological effect.

Lifet ime rat inhalation studies in the rat on Polycrystalline Wool fibers at the maximum levels achievable have shown no evidence of lung cancer, lung fibrosis or any other adverse effect, apart from a minimal pulmonary response typical of that of a 'low toxicity dust'. Also, a lifetime feeding study in rats has produced no evidence of any adverse effects at levels up to 2.5 % in the diet. In intraperitoneal, intratracheal and intrapleural studies in rats, together with two in vitro tests, all showed negative results whereas asbestos and crystalline silica which were used as positive controls (where relevant) produced positive responses. The results of these extensive testing programs indicate that Polycrystalline Wool materials lack one or more of the fundamental characteristics necessary for mesothelio ma induction, as well as not possessing fibrogenic potential.

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

Acute: Inhalation of particulates may cause irritation of respiratory system. Eye contact may cause mechanical irritation.

Chronic: Prolonged or repeated skin exposure may cause dermatitis (dry red skin). The Mineral Wool component is a suspect human carcinogen by inhalation.

TARGET ORGANS: Acute: Eyes, respiratory system. Chronic: Respiratory system.

TOXICITY DATA: Currently, the following toxicological data are available for components of 1% or more concentration.
11. TOXICOLOGICAL INFORMATION (Continued)

TOXICITY DATA (continued):

**AMORPHOUS SILICA (continued):**

TDLo (Intratracheal-Mouse) 2 mg/kg: Lungs, Thorax, or Respiration: fibrosing alveolitis; Biochemical: Enzyme inhibition, induction, or change in blood or tissue levels: peptidases, Metabolism (Intermediary); effect on inflammation or mediation of inflammation

LDLo (Intratracheal-Rat) 50 mg/kg

LDLo (Intratracheal-Rat) 10 mg/kg

LDLo (Intratracheal-Mouse) 96.77 mg/kg: Lungs, Thorax, or Respiration: acute pulmonary edema, dyspnea, other changes

**MINERAL WOOL FIBER:**

TDLo (Implant-Rat) 400 mg/kg: Tumorigenic: equivocal tumorigenic agent by RTECS criteria; Gastrointestinal: tumors; Tumorigenic: tumors at site of application

TDLo (Implant-Rabbit) 20 mg/kg: Lungs, Thorax, or Respiration: fibrosis (interstitial); Gastrointestinal: hypermotility, diarrhea; Nutritional and Gross Metabolism: weight loss or decreased weight gain

LDLo (Intraperitoneal-Mouse) 40 mg/kg: Behavioral: somnolence (general depressed activity), tremor; Gastrointestinal: other changes

LDLo (Intratracheal-Rat) 120 mg/kg: Lungs, Thorax, or Respiration: changes in pulmonary vascular resistance, acute pulmonary edema

LDLo (Intravenous-Rabbit) 35 mg/kg: Behavioral: somnolence (general depressed activity); Cardiac: other changes; Lungs, Thorax, or Respiration: other changes

LDLo (Intravenous-Cat) 5 mg/kg: Behavioral: convulsions or effect on seizure threshold, muscle weakness, Lungs, Thorax, or Respiration: respiratory stimulation

LD (Intratracheal-Mouse) > 20 mg/kg: Lungs, Thorax, or Respiration: other changes; Biochemical: Enzyme inhibition, induction, or change in blood or tissue levels: phosphatases

TCLo (Inhalation-Rat) 16 mg/m³/6 hours/13 weeks-intermittent: Lungs, Thorax, or Respiration: other changes

TCLo (Inhalation-Rat) 5 mg/m³/7 hours/90 weeks-intermittent: Tumorigenic: carcinogenic by RTECS criteria; Blood: leukemia

**MINERAL WOOL FIBER (continued):**

TCLo (Inhalation-Hamster) 30 mg/m³/6 hours/78 weeks-intermittent: Lungs, Thorax, or Respiration: other changes

TDLo (Intraperitoneal-Rat) 50 mg/kg: Tumorigenic: equivocal tumorigenic agent by RTECS criteria; Gastrointestinal: tumors

TDLo (Intratracheal-Hamster) 400 mg/kg: Tumorigenic: equivocal tumorigenic agent by RTECS criteria; Gastrointestinal: tumors

TDLo (Intraperitoneal-Rabbit) 25 mg/kg: Tumorigenic: equivocal tumorigenic agent by RTECS criteria; Gastrointestinal: tumors

TDLo (Intracrural-Rat) 125 mg/kg/5 weeks-intermittent: Tumorigenic: equivocal tumorigenic agent by RTECS criteria; Lungs, Thorax, or Respiration: tumors

TDLo (Intrapleural-Rat) 100 mg/kg: Tumorigenic: equivocal tumorigenic agent by RTECS criteria; Lungs, Thorax, or Respiration: tumors

TDLo (Implant-Rat) 200 mg/kg: Tumorigenic: neoplastic by RTECS criteria, tumors at site of application

TDLo (Implant-Rabbit) 200 mg/kg: Tumorigenic: equivocal tumorigenic agent by RTECS criteria, tumors at site of application

TDLo (Implant-Mouse) 1600 mg/kg: Tumorigenic: equivocal tumorigenic agent by RTECS criteria; Lungs, Thorax, or Respiration: tumors; Kidney/Ureter/Bladder: tumors

Mutation Test Systems-Not Otherwise Specified (Human-Fibroblast) 10 mg/L

Mutation Test Systems-Not Otherwise Specified (Hamster Ovary) 10 mg/L

Micronucleus Test (Hamster Ovary) 2 μg/cm²

IRRITANCY OF PRODUCT: When tested using approved methods (Directive 67/548/EEC, Annex 5, Method B4), fibers contained in this material give negative results for chemical irritancy. Particles from this product may cause irritation by inhalation or eye contact due to mechanical irritation.

SENSITIZATION OF PRODUCT: No sensitization effects known.

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

**AMORPHOUS SILICA & AMORPHOUS SILICA, FUSED:** IARC-3 (Unclassifiable as to Carcinogenicity in Humans)

**MINERAL WOOL FIBER (as synthetic vitreous fibers):**

ACGIH TLV-A3 (Confirmed Animal Carcinogen); IARC-3 (Unclassifiable as to Carcinogenicity in Humans)

GERMAN MAK, IARC, or ACGIH and therefore is neither considered to be nor suspected to be a cancer-causing agent by these agencies.

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: Components of this product have no reported mutagenic, embryotoxic, teratogenic or reproductive toxicity.

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.

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

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

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, 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. 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.

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: This product is not subject to the reporting requirements of Sections 302, 304, and 313 of Title III of the Superfund Amendments and Reauthorization Act.

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

U.S. SARA Threshold Planning Quantity (TPQ): There are no specific Threshold Planning Quantities for components. 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. CERCLA Reportable Quantity (RQ): Not applicable.

U.S. TSCA Inventory Status: Components of this product are listed on the TSCA Inventory, except the AES Fibers and Polycrystalline Wools components.
15. REGULATORY INFORMATION (Continued):

UNITED STATES REGULATIONS (continued):
California Safe Drinking Water and Toxic Enforcement Act (Proposition 65): The Mineral Wool component (Listed as Glass Wool Fiber) is on the California Proposition 65 lists. WARNING! This product contains a compound known to the State of California to cause cancer.

CANADIAN REGULATIONS:
• Canadian DSL/INDS Inventory Status: Components are on the DSL or NDSL Inventories.
• Canadian Environmental Protection Act (CEPA) Priorities Substances Lists: Components are not on the CEPA Priorities Substances Lists.
• Canadian WHMIS Classification and Symbols: This product would be categorized as a Controlled Product.

CHINESE REGULATIONS:
• Chinese Inventory of Existing Chemical Substances Status: Components listed by CAS# are listed on the Chinese Inventory of Existing Chemical Substances (IECSC), as indicated in Section 2.

JAPANESE REGULATIONS:
• Japanese ENCS: Components listed by CAS# are on the ENCS Inventory as indicated in Section 2.

JAPANESE REGULATIONS (continued):
• 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 Existing Chemicals List (ECL) Status: Components listed by CAS# are listed on the Korean ECL Inventory as indicated 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 Chemical Substances Inventory Status: Components listed by CAS# are listed on the Taiwan Existing Chemicals List as indicated in Section 2.

16. OTHER INFORMATION

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

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

DEFINITION OF TERMS

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

OSHA's Permissible Exposure Limits. This exposure value means exactly the same as a NIOSH's Permissible Exposure Limits. Although the two values are not enforceable, they are used as guidelines by employers for the protection of employees.

NIOSH MAK Germ Cell Mutagen Categories:
1: Germ cell mutagens that have been shown to increase the mutant frequency in the progeny of exposed humans. 2: Germ cell mutagens that have been shown to increase the mutant frequency in the progeny of exposed mammals. 3A: Substances that have been shown to induce genetic damage in germ cells of human animals, or which produce mutagenic effects in somatic cells of mammals in vivo and have been shown to reach the germ cells in an active form. 3B: Substances that 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 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. 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.

NIOSH 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.

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

LOQ: Limit of Quantitation.

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

NLOS: Notice of Intended Change.

OSHA 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.

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

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

STEL: Short Term Exposure Limit, usually a 15-minute time-weighted average (TWA) exposure that should not be exceeded at any time during a workday, even if the 8-hr TWA is within the TLV-TWA, PEL-TWA or REL-TWA.
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. No significant change has been made in this degree of hazard system. The degree of hazard rating is established for the chemical in its pure form. If the substance is a mixture, the degree of hazard may be higher or lower than that of the pure chemical, depending on the proportion of the materials in the mixture.

1. Minimal Hazard: No significant health risk, irritation of skin or eyes not anticipated.
2. Slight Hazard: Minor reversible injury may occur; may irritate the stomach if swallowed; may defat the skin and exacerbate existing dermatitis.
3. Moderate Hazard: Materials that may cause minor or moderate injury when inhaled, absorbed, ingested, inhaled or absorbed, or otherwise come in contact with the body; or may cause irreversible tissue damage.
4. Severe Hazard: Major injury likely unless prompt action is taken and medical treatment is given; high level of toxicity; corrosive. Skin Irritation: Severe to very severe; eye irritation: Severe, severe or moderate; respiratory irritation: Severe, very severe and moderate to severe, severe or moderate; systemic effects: irreversible, irreversible or moderate; serious or irreversible organ system toxicity.
5. Serious Hazard: Materials that will rapidly or completely vaporize at atmospheric pressure and normal ambient temperature or that are readily dispersed in air, and that are readily ignitable or flammable. Materials that on account of their physical form or environmental conditions can form explosive mixtures with air and are readily ignitable. Materials that, under emergency conditions, can cause significant heat generation or explosion.

Acute Oral Toxicity LD50 RAT or Rabbit: > 20,000 mg/kg. Inhaled Toxicity LC50 Rat or Rabbit: > 30,000 ppm. Substances that are very heat sensitive, or that are exothermic in nature. Substances that are capable of volatilizing to the atmosphere, and the volatilization of which may cause significant chemical change in the atmosphere. Materials that will ignite spontaneously when exposed to air at a temperature of 54°C (130°F) or below (pyrophoric).

Organic Peroxides: Materials that may decompose explosively if heated, absorbed, or otherwise come in contact with the body; or which give off flammable vapors in air; or which are capable of detonation or explosive reaction. Materials that are capable of decomposing explosively at temperature below OSHA definition or must be heated under confinement before initiation; or materials that react explosively with water. Explosives: Substances that are Non-Explosive. Pyrophoric: No Rating. Explosives: No Rating. Unstable Reactives: Substances that may not polymerize, decompose, condense, or self-react at ambient temperature and pressure and/or have a low potential (or low risk) for significant heat generation or explosion. Materials that may become unstable under fire conditions and will react violently with water. Organic Peroxides: Materials that, in general, are normally stable, but can become unstable at high temperatures. Materials that may react with water, but will not release energy violently. Explosives: Division 1.5 and 1.6 explosives. Substances that are very insensitive explosives or that do not have a mass explosion hazard.

1 Water Reactivity (continued): Compressed Gases: Pressure below OSHA definition. Pyrophoric: No Rating. Oxidizers: Packaging Group II oxidizers; Solid materials that in either concentration tested, exhibit a burning time of less than or equal to 1 minute, according to NFPA 704. Flammable Gases: Flammable gases that can be ignited by a source or must be heated under confinement before initiation; or materials that react explosively with water. Explosives: Substances that are Non-Explosive. Pyrophoric: No Rating. Explosives: No Rating. Unstable Reactives: Substances that may not polymerize, decompose, condense, or self-react at ambient temperature and pressure and/or have a low potential (or low risk) for significant heat generation or explosion. Materials that may decompose or condense, but will not react with water or form a flammable mixture.

1 Water Reactivity (continued): Compressed Gases: Pressure below OSHA definition. Pyrophoric: No Rating. Oxidizers: Packaging Group II oxidizers; Solid materials that in either concentration tested, exhibit a burning time of less than or equal to 1 minute, according to NFPA 704. Flammable Gases: Flammable gases that can be ignited by a source or must be heated under confinement before initiation; or materials that react explosively with water. Explosives: Substances that are Non-Explosive. Pyrophoric: No Rating. Oxidizers: Packaging Group II oxidizers; Solid materials that in either concentration tested, exhibit a burning time of less than or equal to 1 minute, according to NFPA 704. Flammable Gases: Flammable gases that can be ignited by a source or must be heated under confinement before initiation; or materials that react explosively with water. Explosives: Substances that are Non-Explosive. Pyrophoric: No Rating. Oxidizers: Packaging Group II oxidizers; Solid materials that in either concentration tested, exhibit a burning time of less than or equal to 1 minute, according to NFPA 704. Flammable Gases: Flammable gases that can be ignited by a source or must be heated under confinement before initiation; or materials that react explosively with water. Explosives: Substances that are Non-Explosive. Pyrophoric: No Rating. Oxidizers: Packaging Group II oxidizers; Solid materials that in either concentration tested, exhibit a burning time of less than or equal to 1 minute, according to NFPA 704. Flammable Gases: Flammable gases that can be ignited by a source or must be heated under confinement before initiation; or materials that react explosively with water. Explosives: Substances that are Non-Explosive. Pyrophoric: No Rating. Oxidizers: Packaging Group II oxidizers; Solid materials that in either concentration tested, exhibit a burning time of less than or equal to 1 minute, according to NFPA 704. Flammable Gases: Flammable gases that can be ignited by a source or must be heated under confinement before initiation; or materials that react explosively with water. Explosives: Substances that are Non-Explosive. Pyrophoric: No Rating. Oxidizers: Packaging Group II oxidizers; Solid materials that in either concentration tested, exhibit a burning time of less than or equal to 1 minute, according to NFPA 704. Flammable Gases: Flammable gases that can be ignited by a source or must be heated under confinement before initiation; or materials that react explosively with water. Explosives: Substances that are Non-Explosive. Pyrophoric: No Rating. Oxidizers: Packaging Group II oxidizers; Solid materials that in either concentration tested, exhibit a burning time of less than or equal to 1 minute, according to NFPA 704. Flammable Gases: Flammable gases that can be ignited by a source or must be heated under confinement before initiation; or materials that react explosively with water. Explosives: Substances that are Non-Explosive. Pyrophoric: No Rating. Oxidizers: Packaging Group II oxidizers; Solid materials that in either concentration tested, exhibit a burning time of less than or equal to 1 minute, according to NFPA 704. Flammable Gases: Flammable gases that can be ignited by a source or must be heated under confinement before initiation; or materials that react explosively with water. Explosives: Substances that are Non-Explosive. Pyrophoric: No Rating. Oxidizers: Packaging Group II oxidizers; Solid materials that in either concentration tested, exhibit a burning time of less than or equal to 1 minute, according to NFPA 704. Flammable Gases: Flammable gases that can be ignited by a source or must be heated under confinement before initiation; or materials that react explosively with water. Explosives: Substances that are Non-Explosive. Pyrophoric: No Rating. Oxidizers: Packaging Group II oxidizers; Solid materials that in either concentration tested, exhibit a burning time of less than or equal to 1 minute, according to NFPA 704. Flammable Gases: Flammable gases that can be ignited by a source or must be heated under confinement before initiation; or materials that react explosively with water. Explosives: Substances that are Non-Explosive. Pyrophoric: No Rating. Oxidizers: Packaging Group II oxidizers; Solid materials that in either concentration tested, exhibit a burning time of less than or equal to 1 minute, according to NFPA 704. Flammable Gases: Flammable gases that can be ignited by a source or must be heated under confinement before initiation; or materials that react explosively with water. Explosives: Substances that are Non-Explosive.
a flammable or combustible solvent are rated by the closed cup flash point of the solvent. Materials in themselves are normally stable, even under fire conditions. Materials that have an instantaneous power density (product of heat of reaction and reaction rate) at 250°C (482°F) below 0.01 W/mL. Materials that do not exhibit an exotherm at temperatures less than or equal to 500°C (932°F) when tested by differential scanning calorimetry. 1 Materials that in themselves are normally stable, but that can become unstable at elevated temperatures and pressures. Materials that have an instantaneous power density (product of heat of reaction and reaction rate) at 250°C (482°F) at or above 0.01 W/mL and below 10 W/mL. 2 Materials that readily undergo violent chemical change at elevated temperatures and pressures. Materials that have an instantaneous power density (product of heat of reaction and reaction rate) at 250°C (482°F) at or above 10 W/mL and below 100 W/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 readily undergo violent chemical change at elevated temperatures and pressures. Materials that in themselves are readily capable of detonation or explosive decomposition or explosive reaction at normal temperatures and pressures. Materials that are sensitive to localized thermal or mechanical shock at normal temperatures and pressures. Materials that have an estimated instantaneous power density (product of heat of reaction and reaction rate) at 250°C (482°F) of 10 W/mL or greater.

INSTABILITY HAZARD: 4 Materials that in themselves are normally stable, but that can become unstable at elevated temperatures and pressures. Materials that have an instantaneous power density (product of heat of reaction and reaction rate) at 250°C (482°F) of 1000 W/mL or greater.

FLAMMABILITY LIMITS IN AIR: Much of the information related to fire and explosion is derived from the National Fire Protection Association (NFPA). Flash Point: Minimum temperature at which a liquid gives off sufficient vapor to form an ignitable mixture with air near the surface of the liquid or within the test vessel used. Autoignition Temperature: Minimum temperature of a solid, liquid, or gas required to initiate or cause self-sustained combustion in air with no other source of ignition. LEL: Lowest concentration of a flammable vapor or gas/air mixture that will ignite and burn with a flame. UEL: Highest concentration of a flammable vapor or gas/air mixture that will ignite and burn with a flame.

ECOLOGICAL INFORMATION: Much of the information related to fire and explosion is derived from the National Fire Protection Association (NFPA). Flash Point: Minimum temperature at which a liquid gives off sufficient vapor to form an ignitable mixture with air near the surface of the liquid or within the test vessel used. Autoignition Temperature: Minimum temperature of a solid, liquid, or gas required to initiate or cause self-sustained combustion in air with no other source of ignition. LEL: Lowest concentration of a flammable vapor or gas/air mixture that will ignite and burn with a flame. UEL: Highest concentration of a flammable vapor or gas/air mixture that will ignite and burn with a flame.

ECOLOGICAL INFORMATION: Much of the information related to fire and explosion is derived from the National Fire Protection Association (NFPA). Flash Point: Minimum temperature at which a liquid gives off sufficient vapor to form an ignitable mixture with air near the surface of the liquid or within the test vessel used. Autoignition Temperature: Minimum temperature of a solid, liquid, or gas required to initiate or cause self-sustained combustion in air with no other source of ignition. LEL: Lowest concentration of a flammable vapor or gas/air mixture that will ignite and burn with a flame. UEL: Highest concentration of a flammable vapor or gas/air mixture that will ignite and burn with a flame.