SAFETY DATA SHEET

A-103 Mastic

PART I  What is the material and what do I need to know in an emergency?

1. PRODUCT IDENTIFICATION

IDENTIFICATION of the SUBSTANCE or PREPARATION

TRADE NAME (AS LABELED): A-103 Mastic

PRODUCT DESCRIPTION: Asphalt Based Mastic

CHEMICAL NAME/CLASS: Asphaltic Solvent Mixture

SYNONYMS: None

RELEVANT USE: Asphaltic Acid-Resistant Mastic

USES ADVISED AGAINST: Other Than Relevant Use

COMPANY/UNDERTAKING IDENTIFICATION:

SUPPLIER/MANUFACTURER’S NAME: Pecora Corporation

ADDRESS: 165 Wambold Road, Harleysville, PA 19438

EMERGENCY PHONE: 800-424-9300 (CHEMTREC, 24-hours)

BUSINESS PHONE: 215-723-6051 (Mon–Fri, 8 AM–5 PM ET)

PREPARATION DATE: February 20, 2012

REVISION DATE: December 29, 2014

This product is sold for commercial use. This MSDS has been developed to address safety concerns of those individuals working with bulk quantities of this material, as well as those of potential users of this product in industrial/occupational settings. ALL United States Occupational Safety and Health Administration Standard (29 CFR 1910.1200), U.S. State equivalent Standards, and Canadian WHMIS (Controlled Products Regulations) and the Global Harmonization Standard 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 LABELING AND CLASSIFICATION: This product has been classified per GHS Standards.

Classification: Flammable Liquid Cat. 3, Carcinogenic Cat. 1B, Acute Oral Toxicity Cat. 5, Acute Dermal Toxicity Cat. 5, Acute Inhalation Toxicity Cat. 5, Skin irritation Cat. 2, Eye Irritation Cat. 2A, STOT (Inhalation-Respiratory Irritation) SE Cat. 3

Signal Word: Danger

Hazard Statement Codes: H226, H350i, H303 + H313, + H333, H315 + H320, H335


Hazard Symbols/Pictograms: GHS02, GHS07, GHS08

EMERGENCY OVERVIEW:

PHYSICAL DESCRIPTION: This product is a black paste with a solvent odor.

HEALTH HAZARDS: CAUTION! May cause skin, and respiratory tract irritation, especially if exposure is prolonged. Fumes from heating may cause eye irritation. May be harmful if swallowed. May be harmful by prolonged skin contact. Inhalation of vapors may cause adverse central nervous system effects. Fumes can increase susceptibility to sunburn. Contains compounds that are suspect carcinogens and trace amounts of crystalline silica, a known human carcinogen by inhalation.

FLAMMABILITY HAZARD: This product is flammable and can ignite if exposed to temperature at or above 54.4°C (130°F) or direct flame.

REACTIVITY HAZARD: This product is not reactive and will not polymerize.

ENVIRONMENTAL HAZARD: This product has not been tested for environmental impact. All release to the environment should be avoided.

HAZARDOUS MATERIALS IDENTIFICATION SYSTEM (HMIS®)

<table>
<thead>
<tr>
<th>Health</th>
<th>2</th>
<th>See Section 16 for definitions of ratings</th>
</tr>
</thead>
<tbody>
<tr>
<td>Flammability</td>
<td>2</td>
<td>0 = Minimal 3 = Serious</td>
</tr>
<tr>
<td>Physical Hazard</td>
<td>0</td>
<td>1 = Slight 4 = Severe</td>
</tr>
<tr>
<td></td>
<td></td>
<td>2 = Moderate * = Chronic</td>
</tr>
</tbody>
</table>

HMIS® is a registered trademark of the National Paint and Coatings Association.

CANADIAN WHMIS CLASSIFICATION: Class D2B and Class B2. See Section 15 (Regulatory Information) for all classification details.

U.S. OSHA REGULATORY STATUS: This material is classified as hazardous under OSHA regulations.

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What should I do if a hazardous situation occurs?

4. FIRST-AID MEASURES

PROTECTION OF FIRST AID RESPONDERS: Rescuers should not attempt to retrieve victims of exposure to this material without adequate personal protective equipment. Rescuers should be taken for medical attention, if necessary.

DESCRIPTION OF FIRST AID MEASURES: Remove victim(s) to fresh air, as quickly as possible. Only trained personnel should remove and isolate contaminated clothing and shoes. Seek immediate medical attention. Take copy of label and MSDS to physician or other health professional with victim(s).

INHALATION: If dusts of this material are inhaled, remove victim to fresh air. If necessary, use artificial respiration to support vital functions. Do not interrupt flushing. Remove exposed or contaminated clothing, taking care not to contaminate eyes. Victim must seek immediate medical attention.

SKIN EXPOSURE: If the material contaminates the skin, immediately begin decontamination with running water. Minimum flushing is for 20 minutes. Do not interrupt flushing. Remove exposed or contaminated clothing, taking care not to contaminate eyes. Victim must seek immediate medical attention.

EYE EXPOSURE: If this product enters the eyes, open victim's eyes while under gently running water. Use sufficient force to open eyelids. Have victim "roll" eyes. Minimum flushing is for 20 minutes. Do not interrupt flushing.

INGESTION: If this material is swallowed, CALL PHYSICIAN OR POISON CONTROL CENTER FOR MOST CURRENT INFORMATION. DO NOT INDUCE VOMITING, unless directly by medical personnel. Have victim rinse mouth with water or give several cupsfuls of water, if conscious. Never induce vomiting or give diluents (milk or water) to someone who is unconscious, having convulsions, or unable to swallow. If vomiting occurs, lean patient forward or place on left side (head-down position, if possible) to maintain an open airway and prevent aspiration.

MEDICAL CONDITIONS AGGRAVATED BY EXPOSURE: Dermatitis or other pre-existing skin disorders may be aggravated by overexposure to this product.

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

5. FIRE-FIGHTING MEASURES

FLASH POINT: 54.4°C (130°F)  AUTOIGNITION: Unknown.

FLAMMABLE LIMITS IN AIR: LEL: 1%; UEL: 7%

EXTINGUISHING MEDIA:

SUITABLE EXTINGUISHING MEDIA: Use extinguishing material suitable to the surrounding fire, including foam, halon, carbon dioxide, water spray and dry chemical.

UNSUITABLE EXTINGUISHING MEDIA: None known.

PROTECTION OF FIREFIGHTERS:

SPECIAL HAZARDS ARISING FROM THE SUBSTANCE: This product is combustible and can be ignited when exposed to its flashpoint. Not sensitive to mechanical impact under normal conditions. Closed containers may develop pressure and rupture in event of fire.

SPECIAL PROTECTIVE ACTIONS FOR FIRE-FIGHTERS: Incipient fire responders should wear eye protection. Structural firefighters must wear Self-Contained Breathing Apparatus and full protective equipment. Move containers from fire area if it can be done without risk to personnel. If possible, prevent runoff water from entering storm drains, bodies of water, or other environmentally sensitive areas.
6. ACCIDENTAL RELEASE MEASURES

PERSONAL PRECAUTIONS AND EMERGENCY PROCEDURES: An accidental release can result in a fire. Uncontrolled releases should be responded to by trained personnel using pre-planned procedures. Proper protective equipment should be used. Eliminate any possible sources of ignition, and provide maximum explosion-proof ventilation. Use only non-sparking tools and equipment during the response. The atmosphere must at least 19.5 percent Oxygen before non-emergency personnel can be allowed in the area without Self-Contained Breathing Apparatus and fire protection.

PERSONAL PROTECTIVE EQUIPMENT: Responders should wear the level of protection appropriate to the type of chemical released, the amount of the material spilled, and the location where the incident has occurred.

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

Large Spills: Minimum Personal Protective Equipment should be rubber gloves, rubber boots, face shield, and Tyvek suit. Minimum level of personal protective equipment for releases in which the level of oxygen is less than 19.5% or is unknown must be Level B: triple-gloves (rubber gloves and nitrile gloves over latex gloves), chemical resistant suit, fire-retardant clothing and boots, hard hat, and Self-Contained Breathing Apparatus.

METHODS FOR CLEAN-UP AND CONTAINMENT:

All Spills: Access to the spill area should be restricted. Spread should be limited by gently covering the spill with poly pads. Absorb spilled liquid with clay, sand, poly pads, or other suitable inert absorbent materials. All contaminated absorbents and other materials should be placed in an appropriate container and seal. Do not mix with wastes from other materials. Dispose of in accordance with applicable Federal, State, and local procedures (see Section 13, Disposal Considerations). Dispose of recovered material and report spill per regulatory requirements. Remove all residue before decontamination of spill area. Clean spill area with soap and copious amounts of water. Monitor area for combustible vapor levels and confirm levels are below exposure limits given in Section 8 (Exposure Controls-Personal Protection), if applicable, and that levels are below applicable LEVs (see Section 5 – Fire Fighting Measures) before non-response personnel are allowed into the spill area. Purge equipment with inert gas prior to reuse.

ENVIRONMENTAL PRECAUTIONS: Minimize use of water to prevent environmental contamination. Prevent spill or rinsate from contaminating storm drains, sewers, soil or groundwater. Place all spill residues in a suitable container and seal. Do not discharge effluent containing this product into streams, ponds, estuaries, oceans or other waters unless in accordance with the requirements of a National Pollutant Discharge Elimination System (NPDES) permit and the permitting authority has been notified in writing prior to discharge. Do not discharge effluent containing this product to sewer systems without previously notifying the local sewage treatment plant authority. For guidance, contact your State Water Board or Regional Office of the EPA.

OTHER INFORMATION: U.S. regulations may require reporting of spills of this material that reach surface waters if a sheen is formed. If necessary, the toll-free phone number for the US Coast Guard National Response Center is 1-800-424-8802.

REFERENCE TO OTHER SECTIONS: See information in Section 8 (Exposure Controls – Personal Protection) and Section 13 (Disposal Considerations) for additional information.

PART III

How can I prevent hazardous situations from occurring?

7. HANDLING and STORAGE

PRECAUTIONS FOR SAFE HANDLING: As with all chemicals, avoid getting this product ON YOU or IN YOU. Wash thoroughly after handling this product. Do not eat or drink while handling this material. Avoid contact with eyes, skin, and clothing. Avoid breathing fumes, dusts, vapors or mist. Do not taste or swallow. Use only with adequate ventilation. Contaminated clothing needs to be laundered prior to reuse. Keep away from heat and flame. In the event of a spill, follow practices indicated in Section 6: ACCIDENTAL RELEASE MEASURES.

CONDITIONS FOR SAFE STORAGE: Keep container tightly closed when not in use. Store containers in a cool, dry location, away from direct sunlight, sources of intense heat, or where freezing is possible. Material should be stored in secondary containers or in a diked area, as appropriate. Place all spill residues in a suitable container and seal. Inspect all incoming containers before storage, to ensure containers are properly labeled and not damaged. Containers should be separated from oxidizing materials by a minimum distance of 20 ft. or by a barrier of non-combustible material at least 5 ft. high having a fire-resistance rating of at least 0.5 hours. Storage areas should be made of fire resistant materials. Local Fire Departments should be notified of the storage of this product on site. Storage and processing areas of this product should be identified with a NFPA 704 placard (diamond) large enough to be seen from a distance. Post warning and “NO SMOKING” signs in storage and use areas, as appropriate. Refer to NFPA 30, Flammable and Combustible Liquids Code, for additional information on storage. Have appropriate extinguishing equipment in the storage area (such as sprinkler systems or portable fire extinguishers). Inspect all incoming containers before storage to ensure containers are properly labeled and not damaged. Empty containers may contain residual product; therefore, empty containers should be handled with care.

PRODUCT USE: This product is used as a mastic. Follow all industry standards for use of this product.

8. EXPOSURE CONTROLS - PERSONAL PROTECTION

EXPOSURE LIMITS/CONTROL PARAMETERS:

<table>
<thead>
<tr>
<th>Chemical Name</th>
<th>CAS #</th>
<th>Guideline</th>
<th>Value</th>
</tr>
</thead>
<tbody>
<tr>
<td>Asbestos</td>
<td>142844-00-6</td>
<td>OSHA PEL, TWA</td>
<td>15 mg/m³ total dust, 5 mg/m³ respirable fraction or 50 mppcf total dust, 15 mppcf respirable fraction</td>
</tr>
<tr>
<td>Asphalt Fume</td>
<td>8052-42-4</td>
<td>ACGIH TLV TWA</td>
<td>0.5 mg/m³ (as benzene-soluble aerosol)</td>
</tr>
<tr>
<td></td>
<td></td>
<td>NIOSH REL STEL</td>
<td>5 mg/m³ (ceiling)</td>
</tr>
</tbody>
</table>

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

EXPOSURE LIMITS/CONTROL PARAMETERS (continued):
OCCUPATIONAL/WORKPLACE EXPOSURE LIMITS/GUIDELINES (continued):

<table>
<thead>
<tr>
<th>Chemical Name</th>
<th>CAS #</th>
<th>Guideline</th>
<th>Value</th>
</tr>
</thead>
<tbody>
<tr>
<td>Kaolin</td>
<td>1332-5-7</td>
<td>ACGIH TLV TWA</td>
<td>2 mg/m³</td>
</tr>
<tr>
<td></td>
<td></td>
<td>OSHA PEL TWA</td>
<td>15 mg/m³ (Total Dust); 5 mg/m³ (Respirable Fraction)</td>
</tr>
<tr>
<td></td>
<td></td>
<td>NIOSH REL TWA</td>
<td>10 mg/m³ (Total Dust); 5 mg/m³ (Respirable Fraction)</td>
</tr>
<tr>
<td>Mineral Spirits</td>
<td>8052-41-3</td>
<td>ACGIH TLV TWA</td>
<td>525 mg/m³</td>
</tr>
<tr>
<td></td>
<td></td>
<td>OSHA PEL TWA</td>
<td>2000 mg/m³</td>
</tr>
<tr>
<td></td>
<td></td>
<td>NIOSH REL TWA</td>
<td>350 mg/m³</td>
</tr>
<tr>
<td></td>
<td></td>
<td>NIOSH REL STEL</td>
<td>1800 mg/m³ (15 min.)</td>
</tr>
<tr>
<td>Xylene</td>
<td>1330-20-7</td>
<td>ACGIH TLV TWA</td>
<td>100 ppm</td>
</tr>
<tr>
<td></td>
<td></td>
<td>OSHA PEL TWA</td>
<td>150 ppm</td>
</tr>
<tr>
<td></td>
<td></td>
<td>NIOSH REL TWA</td>
<td>100 ppm</td>
</tr>
<tr>
<td></td>
<td></td>
<td>NIOSH REL STEL</td>
<td>100 ppm (vacated 1989 PEL)</td>
</tr>
<tr>
<td></td>
<td></td>
<td>DFG MAK TWA</td>
<td>150</td>
</tr>
<tr>
<td></td>
<td></td>
<td>DFG MAK PEAK</td>
<td>4×MAK 15 minute average value, 1-hr interval 4 per shift</td>
</tr>
<tr>
<td>Quartz</td>
<td>14808-60-7</td>
<td>ACGIH TLV TWA</td>
<td>0.025 mg/m³ Respirable Fraction</td>
</tr>
<tr>
<td></td>
<td></td>
<td>OSHA PEL TWA</td>
<td>30 mg/m³ / % SiO₂ + 2 Total Dust; 10 mg/m³ / % SiO₂ + 2 Respirable Fraction</td>
</tr>
<tr>
<td></td>
<td></td>
<td>NIOSH REL TWA</td>
<td>0.05 mg/m³ (Respirable Dust)</td>
</tr>
</tbody>
</table>

**NE = Not Established**  **mppcf = Millions of Particles per Square Foot**  See Section 16 for Definitions of Terms Used

VENTILATION AND ENGINEERING CONTROLS: Use with adequate ventilation to ensure exposure levels are maintained below the limits provided above.


EYE/FACE PROTECTION: Use approved safety goggles or safety glasses. If necessary, refer to appropriate regulations.

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

BODY PROTECTION: Use body protection appropriate for task (e.g., lab coat, coveralls, Tyvek suit). If necessary, refer to the OSHA Technical Manual (Section VII: Personal Protective Equipment) or appropriate Standards of Canada. If a hazard to the feet exists due to falling objects, rolling objects, where objects may pierce the soles of the feet or where employee's feet may be exposed to electrical hazards, use foot protection, as described in appropriate regulations.

RESPIRATORY PROTECTION: If fumes from this product are created during use, use appropriate respiratory protection. If necessary, use only respiratory protection authorized in appropriate regulations. Oxygen levels below 19.5% are considered IDLH by OSHA. In such atmospheres, use of a full-facepiece pressure-demand SCBA or a full facepiece, supplied air respirator with auxiliary self-contained air supply is required under appropriate regulations. The following are NIOSH respiratory protection equipment guidelines for the Asphalt fumes and the Mineral Spirits component to aid in selection of respiratory equipment in event exposure to level of this material during product use exceeds exposure limits.

ASPHALT FUMES

<table>
<thead>
<tr>
<th>CONCENTRATION</th>
<th>RESPIRATORY PROTECTION</th>
</tr>
</thead>
<tbody>
<tr>
<td>At Concentrations Above the NIOSH REL, or Where There is no REL, at Any Detectable Concentration: 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 Supplied-Air Respirator (SAR) that has a full facepiece and is operated in a pressure-demand or other positive-pressure mode in combination with an auxiliary self-contained breathing apparatus operated in pressure-demand or other positive-pressure mode.</td>
<td></td>
</tr>
</tbody>
</table>

Escape:
Any Air-Purifying, Full-Facepiece Respirator (gas mask) with a chin-style, front- or back-mounted organic vapor canister having a high-efficiency particulate filter, or any appropriate escape-type, SCBA.

MINERAL SPIRITS

<table>
<thead>
<tr>
<th>CONCENTRATION</th>
<th>RESPIRATORY PROTECTION</th>
</tr>
</thead>
<tbody>
<tr>
<td>Up to 3500 mg/m³:</td>
<td>Any Chemical Cartridge Respirator with organic vapor cartridge(s), or any Supplied-Air Respirator (SAR).</td>
</tr>
<tr>
<td>Up to 8750 mg/m³:</td>
<td>Any SAR operated in a continuous-flow mode, or any Powered, Air-Purifying Respirator (PAPR) with organic vapor cartridge(s).</td>
</tr>
<tr>
<td>Up to 17,500 mg/m³:</td>
<td>Any Chemical Cartridge Respirator with a full facepiece and organic vapor cartridge(s), or any Air-Purifying, Full-Facepiece Respirator (gas mask) with a chin-style, front- or back-mounted organic vapor canister, or any Powered, Air-Purifying Respirator (PAPR) with a tight-fitting facepiece and organic vapor cartridge(s), or any Self-Contained Breathing Apparatus (SCBA) with a full facepiece, or any SAR with a full facepiece.</td>
</tr>
<tr>
<td>Up to 20,000 mg/m³:</td>
<td>Any SAR that has a full facepiece and is operated in a pressure-demand or other positive-pressure mode.</td>
</tr>
</tbody>
</table>

Emergency or Planned Entry into Unknown Concentrations or IDLH Conditions: Any SCBA that has a full facepiece and is operated in a pressure-demand or other positive-pressure mode, or any SAR that has a full facepiece and is operated in a pressure-demand or other positive-pressure mode in combination with an auxiliary SCBA operated in pressure-demand or other positive-pressure mode.

Escape:
Any Air-Purifying, Full-Facepiece Respirator (gas mask) with a chin-style, front- or back-mounted organic vapor canister, or any appropriate escape-type, SCBA.

9. PHYSICAL and CHEMICAL PROPERTIES

FORM: Paste.

MOLECULAR WEIGHT: Mixture.

ODOR: Solvent

SPECIFIC GRAVITY: 1.1-1.2

RELATIVE VAPOR DENSITY (air = 1): Heavier than air.

SOLUBILITY IN WATER: Insoluble.

COLOR: Black.

MOLECULAR FORMULA: Mixture.

odor threshold: Not available.

VAPOR PRESSURE: mm Hg @ 20°C: Not established.

EVAPORATION RATE (BuAc = 1): < 1

OTHER SOLUBILITIES: Not available.
9. PHYSICAL and CHEMICAL PROPERTIES (Continued)

MELTING/FREEZING POINT: Not established.
VOC (less water and exempt): 285 g/L
FLASH POINT: 54.4°C (130°F)
FLAMMABLE LIMITS (in air by volume, %): LEL: 1%; UEL: 7%
COEFFICIENT OF OIL/WATER DISTRIBUTION (PARTITION COEFFICIENT): Not established.
HOW TO DETECT THIS SUBSTANCE (WARNING PROPERTIES): The appearance and odor of this product may act as warning properties in the event of an accidental release.

10. STABILITY and REACTIVITY

CHEMICAL STABILITY: Stable under normal circumstances of use and handling.
CONDITIONS TO AVOID: Avoid contact with incompatible chemicals and exposure to extreme temperatures.
INCOMPATIBLE MATERIALS: This product is not compatible with strong bases, strong acids, and powerful oxidizers.
HAZARDOUS DECOMPOSITION PRODUCTS: Combustion: Thermal decomposition of this product can generate carbon and nitrogen oxides and unknown hydrocarbons. Hydrolysis: None known.
POSSIBILITY OF HAZARDOUS REACTIONS/POLYMERIZATION: This product is not expected to undergo hazardous polymerization, decomposition, condensation or self-reactivity.

PART IV Is there any other useful information about this material?

11. TOXICOLOGICAL INFORMATION

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

CONTACT WITH SKIN or EYES: Contact may irritate the skin and cause redness and discomfort. Prolonged or repeated skin contact may cause dermatitis (dry, red skin) and defatting. Eye contact may cause redness, pain, and tearing.

SKIN ABSORPTION: Prolonged skin contact may cause adverse systemic effects by skin absorption.

INGESTION: If the product is swallowed, it can irritate the mouth, throat, and other tissues of the gastro-intestinal system and may cause nausea, vomiting, and diarrhea as well as adverse effects on the central nervous system. Symptoms can include dizziness, vomiting and incoordination. Ingestion of large amounts may be harmful and cause systemic toxicity.

INHALATION: Due to paste form, inhalation is not a significant route of exposure. Vapors or fumes when used in an enclosed space, if heated or during curing may cause irritation of the respiratory system and adverse central nervous system effects. Symptoms include nose irritation, dry or sore or burning throat, runny nose, shortness of breath, dizziness, incoordination.

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

TARGET ORGANS: Acute: Skin, eyes, respiratory system. Chronic: Skin, respiratory and central nervous systems.

TOXICITY DATA: There are currently no toxicity data available for this product; the following toxicology data are available for components greater than 1% in concentration.

ASPHALT:
TCLo (Inhalation-Human) 10 mg/m3/5.5 years-intermittent: Sense Organs and Special Senses (Eye): conjunctive irritation; Lungs, Thorax, or Respiration: cough; Gastrointestinal: changes in structure or function of salivary glands
TCLo (Inhalation-Human) 10 mg/m3/19 years-intermittent: Lungs, Thorax, or Respiration: other changes; Gastrointestinal: changes in structure or function of salivary glands; Biochemical: Metabolism (Intermediary): effect on inflammation or medication of inflammation
LD50 (Oral-Rat) > 5000 mg/kg; Gastrointestinal: hypermotility, diarrhea
LD50 (Inhalation-Rat) > 94.4 mg/m3
TCLo (Inhalation-Rat) 100 mg/m3/14 weeks-intermittent: Kidney/Ureter/Bladder: other changes; Nutritional and Gross Metabolic: weight loss or decreased weight gain; Biochemical: Enzyme induction, induction, or change in blood or tissue levels: multiple enzyme effects
TCLo (Inhalation-Rat) 100 mg/m3/6 hours/14 weeks-intermittent: Sense Organs and Special Senses (Olfaction): tumors; Behavioral: food intake (animal); Nutritional and Gross Metabolic: weight loss or decreased weight gain
TCLo (Inhalation-Mouse) 35 mg/m3/10 days-intermittent: Immunological Including Allergic: decrease in humoral immune response
TDLo (Skin-Mouse) 130 gm/kg/81 weeks-intermittent: Tumorigenic: carcinogenic by RTECS criteria; Lungs, Thorax, or Respiration: tumors; Skin and Appendages: tumors
TDLo (Skin-Mouse) 905 gm/kg/2 years-intermittent: Tumorigenic: neoplastic by RTECS criteria; Lungs, Thorax, or Respiration: tumors; Skin and Appendages: tumors
TDLo (Intramuscular-Rat) 5400 mg/kg/24 weeks-intermittent: Tumorigenic: neoplastic by RTECS criteria, facilitates action of known carcinogen
TDLo (Intratracheal-Rat) 1.35 mg/kg/3 days-intermittent: Biochemical: Enzyme inhibition, induction, or change in blood or tissue levels: hepatic microsomal mixed oxidase (dealkylation, hydroxylation, etc.)
TDLo (Intratracheal-Rat) 26.64 mg/kg/5 days-intermittent: Blood: changes in bone marrow (not otherwise specified)
TDLo (Intratracheal-Rat) 12 gm/kg/12 weeks-intermittent: Tumorigenic: neoplastic by RTECS criteria, tumors at site of application
TD (Skin-Mouse) 69 gm/kg/3 weeks-intermittent: Tumorigenic: equivocal tumorigenic agent by RTECS criteria; Lungs, Thorax, or Respiration: tumors; Skin and Appendages: tumors
DNA Adduct (Skin-Mouse) 600 mg/kg
DNA Damage (Rat Cells-Not Otherwise Specified) 641 µg/L
Micronucleus Test (Rat Cells-Not Otherwise Specified) 57.8 µg/L

KAOLIN:
TCLo (Inhalation-Rat) 300 mg/m3/12 weeks-intermittent: Lungs, Thorax, or Respiration: other changes
TCLo (Inhalation-Rat) 30 mg/m3/96 weeks-intermittent: Lungs, Thorax, or Respiration: fibrosis (interstitial), other changes, tumors
TCLo (Inhalation-Rat) 9 mg/m3/96 weeks-intermittent: Lungs, Thorax, or Respiration: fibrosis (interstitial)
TCLo (Inhalation-Rat) 30 mg/m3/72 weeks-intermittent: Lungs, Thorax, or Respiration: fibrosis (interstitial)
TCLo (Inhalation-Rat) 30 mg/m3/48 weeks-intermittent: Lungs, Thorax, or Respiration: fibrosis (interstitial), other changes, tumors
TCLo (Inhalation-Hamster) 30 mg/m3/72 weeks-intermittent: Lungs, Thorax, or Respiration: fibrosis (interstitial), other changes, tumors
TCLo (Inhalation-Hamster) 30 mg/m3/24 weeks-intermittent: Lungs, Thorax, or Respiration: other changes, fibrosis (interstitial)
TCLo (Inhalation-Hamster) 30 mg/m3/48 weeks-intermittent: Lungs, Thorax, or Respiration: fibrosis (interstitial), tumors
TDLo (Oral-Rat) 370 gm/kg/37 days-intermittent: Blood: normocytic anemia, other changes, changes in erythrocyte (RBC) count
TDLo (Oral-Rat) 590 gm/kg: female 37 day(s) pre-mating 1-22 day(s) after conception: Reproductive: Effects on Newborn: growth statistics (e.g., reduced weight gain)
LD (Oral-Rat) > 3 gm/kg: female 37 day(s) pre-mating 1-22 day(s) after conception: Reproductive: Maternal Effects: other effects; Effects on Newborn: other neonatal measures or effects

MINERAL SPIRITS:
Standard Draize Test (Eye-Human) 100 ppm: Mild Standard Draize Test (Eye-Rabbit) 500 mg/24 hours: Moderate LC50 (Inhalation-Rat) > 1400 ppm/8 hours LD (Oral-Rat) > 3 gm/kg: Behavioral: somnolence (general depressed activity)
LD (Skin-Rabbit) > 3 gm/kg LC (Inhalation-Rat) > 5500 mg/m3/4 hours: Behavioral: somnolence (general depressed activity)
LC (Inhalation-Dog) > 8 gm/m3/8 hours-continuous: Behavioral: tremor, convulsions or effect on seizure threshold

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11. TOXICOLOGICAL INFORMATION (Continued)

TOXICITY DATA (continued):

MINERAL SPIRITS (continued):
LC50 (Inhalation-Dog) 8000 mg/m³ 3/4 hours: Behavioral: alteration of classical conditioning
TC50 (Inhalation-Rat) 330 ppm/65 days-intermittent: Kidney/Ureter/Bladder: changes in tubules (including acute renal failure, acute tubular necrosis); Blood: other changes
TC50 (Inhalation-Rat) 1100 mg/m³ 65 days-intermittent: Kidney/Ureter/Bladder: renal function tests depressed; Blood: normochromic anemia
TDLo (Skin-Rabbit) 2 gm/kg/4 weeks-intermittent: Skin and Appendages: dermatitis, other (after systemic exposure)

XYLENE:
Standard Draize Test (Eye-Human) 200 ppm
LDLo (Oral-Human) 50 mg/kg
LDLo (Inhalation-Human) 10,000 ppm/6 hours: Behavioral: general anesthetic; Lungs, Thorax, or Respiration: cyanosis; Blood: other changes
TC50 (Inhalation-Human) 200 ppm: Sense Organs and Special Senses (Olfaction): effect, not otherwise specified; Sense Organs and Special Senses (Eye): conjunctive irritation; Lungs, Thorax, or Respiration: other changes
Standard Draize Test (Skin-Rabbit) 100%: Moderate
Standard Draize Test (Skin-Rabbit) 500 mg/24 hours: Moderate
Standard Draize Test (Eye-Rabbit) 87 mg/L: Mild
Standard Draize Test (Eye-Rabbit) 5 mg/24 hours: Severe
Open Irritation Test (Skin-Rat) 60 ÅL/hours: Mild
LC50 (Inhalation) 5000 ppm/4 hours
LC50 (Inhalation-Mammal-Species Unspecified) 30 gm/m³
LD50 (Oral-Rat) 4300 mg/kg: Liver: other changes; Kidney/Ureter/Bladder: other changes
LD50 (Oral-Mouse) 2119 mg/kg
LD50 (Oral-Mammal-Species Unspecified) 4300 mg/kg
LD50 (Skin-Rabbit) > 1700 mg/kg
LD50 (Intraperitoneal-Rat) 2459 mg/kg
LD50 (Intraperitoneal-Mouse) 1548 mg/kg
LD50 (Subcutaneous-Rat) 1700 mg/kg
LDLo (Intravenous-Rabbit) 129 mg/kg
LDLo (Intraperitoneal-Guinea Pig) 2 gm/kg: Liver: fatty liver degeneration; Biochemical: Enzyme inhibition, induction, or change in blood or tissue levels: other transfersases
LDLo (Intraperitoneal-Mammal-Species Unspecified) 2 gm/kg: Peripheral Nerve and Sensation: flaccid paralysis without anesthesia (usually neuromuscular blockage); Behavioral: convulsions or effect on seizure threshold, irritability
TC50 (Oral-Rat) 28 gm/kg/14 days-continuous: Related to Chronic Data: death
TC50 (Oral-Rat) 63 gm/kg/90 days-intermittent: Liver: changes in liver weight; Endocrine: changes in adrenal weight; Nutritional and Gross Metabolic: weight loss or decreased weight gain
TDLo (Oral-Mouse) 28 gm/kg/14 days-continuous: Nutritional and Gross Metabolic: weight loss or decreased weight gain
TC50 (Oral-Rat) 20,600 µg/kg: female 6-15 day(s) after conception: Reproductive: Effects on Embryo or Fetus: fetotoxicity (except death, e.g., stunted fetus); Specific Developmental Abnormalities: craniofacial (including nose and tongue), musculoskeletal system
TDLo (Oral-Mouse) 31 mg/kg: female 6-15 day(s) after conception: Reproductive: Fertility: post-implantation mortality (e.g. dead and/or resorbed implants per total number of implants)
TDLo (Skin-Rat) 920 µL/kg/1 hour: Skin and Appendages: primary irritation (after topical exposure)
TDLo (Skin-Rat) 909.1 µL/kg/2 hours: Biochemical: Metabolism (Intermediary): other

XYLENE (continued):
TDLo (Skin-Rat) 960 uL/kg/4 days-intermittent: Skin and Appendages: primary irritation (after topical exposure)
TDLo (Skin-Rat) 960 µL/kg/4 days-intermittent: Skin and Appendages: primary irritation (after topical exposure); Biochemical: Metabolism (Intermediary): effect on inflammation or mediation of inflammation
TDLo (Skin-Mouse) 4.21 mL/kg: Biochemical: Metabolism (Intermediary): effect on inflammation or mediation of inflammation
TDLo (Intraperitoneal-Rat) 12,740 µg/kg/30 days-intermittent: Blood: changes in serum composition (e.g. TP, bilirubin, cholesterol); Biochemical: Enzyme inhibition, induction, or change in blood or tissue levels: phosphatases, Enzyme inhibition, induction, or change in blood or tissue levels: transaminases
TDLo (Intraperitoneal-Rat) 4128 mg/kg/3 days-intermittent: Brain and Coverings: other degenerative changes; Biochemical: Enzyme inhibition, induction, or change in blood or tissue levels: phosphatases
LC50 (Inhalation-Guinea Pig) 450 ppm: Lungs, Thorax, or Respiration: other changes; Liver: fatty liver degeneration
TC50 (Inhalation-Rat) 1600 ppm/20 hours/7 days-intermittent: Behavioral: general anesthetic; Blood: changes in erythrocyte (RBC) count; Related to Chronic Data: death
TC50 (Inhalation-Rat) 15 mg/m³/24 hours/85 days-continuous: days-continuous: Brain and Coverings: recordings from specific areas of CNS; Blood: changes in leukocyte (WBC) count
TC50 (Inhalation-Rat) 800 ppm/14 hours/6 weeks-intermittent: Sense Organs and Special Senses (Ear): change in acuity
TC50 (Inhalation-Rat) 200 ppm/6 hours: female 4-20 days after conception: Reproductive: Specific Developmental Abnormalities: musculoskeletal system; Effects on Newborn: behavioral
TC50 (Inhalation-Rat) 50 mg/m³/6 hours: female 1-21 day(s) after conception: Reproductive: Specific Developmental Abnormalities: musculoskeletal system, other developmental abnormalities; Effects on Newborn: growth statistics (e.g. %, reduced weight gain)
TC50 (Inhalation-Rat) 50 mg/m³/6 hours: female 1-21 day(s) after conception: Reproductive: Fertility: post-implantation mortality (e.g. dead and/or resorbed implants per total number of implants); Effects on Embryo or Fetus: fetotoxicity (except death, e.g., stunted fetus); Specific Developmental Abnormalities: craniofacial (including nose and tongue)
TC50 (Inhalation-Rat) 250 mg/m³/24 hours: female 7-15 day(s) after conception: Reproductive: Specific Developmental Abnormalities: musculoskeletal system
TC50 (Inhalation-Rat) 2000 ppm/6 hours/8 days-intermittent: Behavioral: food intake (animal)
TC50 (Inhalation-Rat) 1000 ppm/6 hours/8 days-intermittent: Nutritional and Gross Metabolic: weight loss or decreased weight gain
TC50 (Inhalation-Mouse) 1250 mg/m³/2 hours/60 days-intermittent: Biochemical: Enzyme inhibition, induction, or change in blood or tissue levels: phosphatases; Related to Chronic Data: changes in testicular weight
TC50 (Inhalation-Mouse) 1 gm/m³/12 hours: female 6-15 day(s) after conception: Reproductive: Effects on Embryo or Fetus: fetotoxicity (except death, e.g., stunted fetus); Specific Developmental Abnormalities: musculoskeletal system
TC50 (Inhalation-Mouse) 2000 ppm/6 hours: female 6-12 day(s) after conception: Reproductive: Effects on Embryo or Fetus: fetotoxicity (except death, e.g., stunted fetus); Specific Developmental Abnormalities: musculoskeletal system
TC50 (Inhalation-Mouse) 4000 ppm/6 hours: female 6-12 day(s) after conception: Reproductive: Effects on Newborn: growth statistics (e.g. %, reduced weight gain), physical
TC50 (Inhalation-Monkey) 100 mg/m³/90 days-intermittent: Blood: other changes
TC50 (Inhalation-Rabbit) 500 mg/m³/24 hours: female 7-20 day(s) after conception: Reproductive: Effects on Embryo or Fetus: fetotoxicity (except death, e.g., stunted fetus)
TC50 (Inhalation-Rabbit) 1 gm/m³/24 hours: female 7-20 day(s) after conception: Reproductive: Fertility: abortion

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

<table>
<thead>
<tr>
<th>CHEMICAL</th>
<th>IARC</th>
<th>EPA</th>
<th>NTP</th>
<th>NIOSH</th>
<th>ACGIH</th>
<th>OSHA</th>
<th>PROP 65</th>
</tr>
</thead>
<tbody>
<tr>
<td>Asphalt fume</td>
<td>2B (extracts of steam &amp; air-refined); 3 (steam-refined, cracking-residue &amp; air-refined)</td>
<td>No</td>
<td>No</td>
<td>Ca</td>
<td>A4</td>
<td>No</td>
<td>No</td>
</tr>
<tr>
<td>Mineral Spirits</td>
<td>3</td>
<td>No</td>
<td>No</td>
<td>No</td>
<td>No</td>
<td>No</td>
<td>No</td>
</tr>
<tr>
<td>Kaolin</td>
<td></td>
<td>No</td>
<td>No</td>
<td>No</td>
<td>A4</td>
<td>No</td>
<td>No</td>
</tr>
<tr>
<td>Quartz</td>
<td>1</td>
<td>No</td>
<td>K</td>
<td>Ca</td>
<td>A2</td>
<td>No</td>
<td>Yes</td>
</tr>
<tr>
<td>Xylene</td>
<td>3</td>
<td>1</td>
<td>No</td>
<td>No</td>
<td>A4</td>
<td>No</td>
<td>No</td>
</tr>
</tbody>
</table>


IRRITANTITY OF PRODUCT: This product may irritate contaminated tissue, especially if contact is prolonged.

SENSITIZATION TO THE PRODUCT: This product is not known to cause skin or respiratory sensitization effects.

TOXICOLOGICAL SYNERGISTIC PRODUCTS: There have been several studies in humans and animals on the interaction of Xylenes with drugs, alcohol and other solvents. Xylene has a high potential to interact with other compounds because it increases metabolic enzymes in the liver and decreases metabolic enzymes in the lungs. In general, exposure to related solvents, such as benzene, toluene and ethanol (alcohol) slows the rate of clearance of Xylenes from the body, thus enhancing its toxic effects.
11. TOXICOLOGICAL INFORMATION (Continued)

REPRODUCTIVE TOXICITY INFORMATION: This product has not been tested for reproductive toxicity. The following information is available for some components.

Mutagenicity: Either no information is available for components, or negative results from testing have been obtained.

Embryotoxicity/Teratogenicity: Xylene (mixed isomers) are considered fetotoxic in humans, based on observations of reduced fetal weight, delayed ossification and persistent behavioral effects in animal studies in the absence of maternal toxicity. Other developmental effects have been observed in animal studies in the presence of maternal toxicity. Several human population studies have suggested a link between exposure to organic solvents (including xylene) and increased occurrence of miscarriages or birth defects in children. However, in the majority of cases, there was exposure to a variety of solvents at the same time, exposures were ill-defined, and the number of cases examined was small.

Reproductive Toxicity: No information is available.

BIOLOGICAL EXPOSURES INDICES (BEIs): Currently, the following BEI’s have been established for some components of this product.

<table>
<thead>
<tr>
<th>CHEMICAL: DETERMINANT</th>
<th>SAMPLING TIME</th>
<th>BEI</th>
</tr>
</thead>
<tbody>
<tr>
<td>Xylenes</td>
<td></td>
<td></td>
</tr>
<tr>
<td>• Methylhippuric acids in urine</td>
<td>• End of shift</td>
<td>• 1.5 g/g creatine</td>
</tr>
</tbody>
</table>

12. ECOLOGICAL INFORMATION

ALL WORK PRACTICES MUST BE AIMED AT ELIMINATING ENVIRONMENTAL CONTAMINATION.

MOBILITY: This product has not been tested for mobility in soil. The following information is available for the Xylene component.

XYLENE: Several experimental Koc values for this compound have been reported depending upon the pH and organic carbon content of the soil. Batch experiments conducted with five low organic carbon content (0.04-1.12%), field contaminated soils (3 silty clay and two sandy loams) yielded Koc values ranging from 39-365. This compound in Norwegian forest soil at pH 5.6 and organic carbon content of 0.2 percent has a reported experimental Koc of 129; in Norwegian agricultural soil at pH 7.4 and organic carbon content of 2.2 percent has a reported experimental Koc of 158; in Norwegian forest soil at pH 4.2 and organic carbon content of 3.7 percent has a reported experimental Koc of 289. Based on a recommended classification scheme and the experimentally determined Koc values, this material is expected to have moderate to high mobility in soils. Xylene isomers have been observed to pass through soil at a dune-infiltration site on the Rhine River and to leach into groundwater under a rapid infiltration site.

PERSISTENCE AND BIODEGRADABILITY: This product has not been tested for persistence or biodegradability. The following information is available for the Asphalt and Xylene components.

ASPHALT: The biodegradation of both an n-alkane and several carboxylated cycloalkanes was examined within tailings produced by the extraction of bitumen from the Athabasca oil sands. The carboxylated cycloalkanes examined were structurally similar to naphthenic acids that have been associated with the acute toxicity of oil sand tailings. The biodegradation potential of naphthenic acids was estimated by determining the biodegradation of both the carboxylated cycloalkanes and hexadecane in oil sand tailings. Carboxylated cycloalkanes were biodegraded within oil sand tailings, although compounds with methyl substitutions on the cycloalkane ring were more resistant to microbial degradation. Microbial activity against hexadecane and certain carboxylated cycloalkanes was found to be nitrogen and phosphorus limited.

XYLENE: Based upon an experimental vapor pressure of 7.99 mm Hg at 25°C, this compound is expected to exist entirely in the vapor phase. Vapor-phase material is degraded in the atmosphere by reaction with photochemically-produced hydroxyl radicals with an estimated atmospheric lifetime of about 1.2 days. This compound is expected to have moderate to high mobility in soils based upon experimental Koc values obtained with a variety of soils differing pH values and organic carbon content. Volatilization from moist soil surfaces is expected based on an experimental Henry's Law constant of 7.0X10^5 atm cm^2/mol. Biodegradation is an important environmental fate process for this compound. In general, it has been found that this material is biodegraded in soil and groundwater samples under aerobic conditions and may be degraded under anaerobic denitrifying conditions. In water, this compound is expected to adsorb somewhat to sediment or particulate matter based on its measured Koc values. This compound is expected to volatilize from water surfaces given its experimental Henry's Law constant. Estimated half-lives for a model river and model lake are 3 and 99 hours, respectively. Log Kow = 3.5-6.8.

BIO-ACCUMULATION POTENTIAL: This product has not been tested for bio-accumulation potential. The following information is available for the Xylene component.

XYLENE: An experimental BCF value of 20 was measured for all isomers in eels exposed to petroleum for 10 days. According to a classification scheme, this BCF value suggests that bioconcentration in aquatic organisms is low.

ECOTOXICITY: This product has not been tested for aquatic or animal toxicity. All release to terrestrial, atmospheric and aquatic environments should be avoided. The following aquatic toxicity data are available for the Xylene component of this product.

XYLENE (continued):

LC50 (fathead minnow) 24-96 hours = 46 mg/L at 18-22°C, in a static bioassay (No specific isomer)

LC50 (Carassius auratus goldfish) 96 hours = 16.9 ppm (conditions of bioassay not specified, no specific isomer)

OTHER ADVERSE EFFECTS: This material is not expected to have any 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

PREPARING WASTES FOR DISPOSAL: As supplied, this product would be a hazardous waste as defined by U.S. federal regulation (40 CFR 261) if discarded or disposed. It has the characteristic of Ignitability. State and local regulations may differ from federal regulations. The generator of the waste is responsible for proper waste determination and management.

U.S. EPA WASTE NUMBER: D001.

14. TRANSPORTATION INFORMATION

U.S. DEPARTMENT OF TRANSPORTATION: This product is classified as Dangerous Goods, per U.S. DOT regulations, under 49 CFR 172.101.

UN IDENTIFICATION NUMBER: UN 1133

PROPER SHIPPING NAME: Adhesives, containing a flammable liquid

HAZARD CLASS NUMBER and DESCRIPTION: 3 (Flammable)

PACKING GROUP: PG II

DOT LABEL(S) REQUIRED: Class 3 (Flammable)

NORTH AMERICAN EMERGENCY RESPONSE GUIDEBOOK NUMBER (2008): 128

MARINE POLLUTANT: This material is not classified by the DOT as a Marine Pollutant (as defined by 49 CFR 172.101).
14. TRANSPORTATION INFORMATION

**TRANSPORT CANADA TRANSPORTATION OF DANGEROUS GOODS REGULATIONS:** This product is classified as Dangerous Goods, per regulations of Transport Canada.

- **UN IDENTIFICATION NUMBER:** UN 1133
- **PROPER SHIPPING NAME:** Adhesives, containing a flammable liquid
- **HAZARD CLASS NUMBER and DESCRIPTION:** 3 (Flammable)
- **PACKING GROUP:** PG III
- **HAZARD SHIPPING LABEL(S) REQUIRED:** Class 3 (Flammable)
- **SPECIAL PROVISIONS:** 83
- **EXPLOSIVE LIMIT & LIMITED QUANTITY INDEX:** 5
- **ERAP INDEX:** None
- **INTERNATIONAL AIR TRANSPORT ASSOCIATION SHIPPING INFORMATION (IATA):** This product is classified as dangerous goods, per the International Air Transport Association.
  - **UN IDENTIFICATION NUMBER:** UN 1133
  - **PROPER SHIPPING NAME:** Adhesives, containing a flammable liquid
  - **HAZARD CLASS or DIVISION:** 3 (Flammable)
  - **HAZARD LABEL(S) REQUIRED:** Class 3 (Flammable)
  - **PACKING GROUP:** III
  - **EXCEPTED QUANTITIES:** E1
  - **PASSENGER and CARGO AIRCRAFT PACKING INSTRUCTION:** 355
  - **PASSENGER and CARGO AIRCRAFT MAXIMUM NET QUANTITY PER PKG:** 60 L
  - **PASSENGER and CARGO AIRCRAFT LIMITED QUANTITY PACKING INSTRUCTION:** Y344
  - **PASSENGER and CARGO AIRCRAFT LIMITED QUANTITY MAXIMUM NET QUANTITY PER PKG:** 10 L
  - **SPECIAL PROVISIONS:** A3
- **INTERNATIONAL MARITIME ORGANIZATION SHIPPING INFORMATION (IMO):** This product is classified as dangerous goods, per the International Maritime Organization.
  - **UN No.:** 1133
  - **HAZARD CLASS NUMBER:** 3 (Flammable)
  - **LABELS:** Class 3 (Flammable)
  - **SPECIAL PROVISIONS:** 223, 995
  - **LIMITED QUANTITIES:** 5 L
  - **EXCEPTED QUANTITIES:** E1
  - **PACKING:** Instructions: P001, LP01; Provisions: PP1
  - **IBC s:** Instructions: IBC03; Provisions: None
  - **TANKS:** Instructions: T2; Provisions: T2, TP1
  - **EmS:** F-E, S-D
  - **STOWAGE CATEGORY:** Category A.
  - **MARINE POLLUTANT:** No component of this product is designated by the IMO to be a Marine Pollutant.

15. REGULATORY INFORMATION

**ADDITIONAL U.S. REGULATIONS:**

- **U.S. SARA REPORTING REQUIREMENTS:** The following 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.
  - | CHEMICAL | SECTION 302 EHS (TPQ) | SECTION 304 RQ | SECTION 313 TRI (threshold) |
<table>
<thead>
<tr>
<th></th>
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</thead>
<tbody>
<tr>
<td>Xylene</td>
<td>No</td>
<td>No</td>
<td>Yes</td>
</tr>
</tbody>
</table>

- **U.S. SARA HAZARD CATEGORIES (SECTION 311/312, 40 CFR 370-21):** ACUTE: Yes; CHRONIC: Yes; FIRE: Yes; REACTIVE: No; SUDDEN RELEASE: No

- **U.S. TSCA INVENTORY STATUS:** All components of this product are in compliance with the inventory listing requirements of the U.S. Toxic Substances Control Act (TSCA) Chemical Substance Inventory.

- **U.S. CERCLA REPORTABLE QUANTITY (RQ):** Xylene = 100 lb (45.4 kg)

- **U.S. CLEAN AIR ACT (CA 112r) THRESHOLD QUANTITY (TQ):** The Xylene component is listed as a Hazardous Air Pollutant (HAP) generally known or suspected to cause serious health problems. The Clean Air Act, as amended in 1990, directs EPA to set standards requiring major sources to sharply reduce routine emissions of toxic pollutants. EPA is required to establish and phase in specific performance based standards for all air emission sources that emit one or more of the listed pollutants. Xylenes are included on this list.

- **U.S. CLEAN WATER ACT REQUIREMENTS:** Xylene (mixed) is designated as a hazardous substance under section 311(b)(2)(A) of the Federal Water Pollution Control Act and further regulated by the Clean Water Act Amendments of 1977 and 1978. These regulations apply to discharges of this substance. This designation includes any isomers and hydrates, as well as all solutions and mixtures containing this substance.

- **CALIFORNIA SAFE DRINKING WATER AND TOXIC ENFORCEMENT ACT (PROPOSITION 65):** The trace Quartz component (airborne, unbound particles of respirable size) is found on the Proposition 65 List of chemicals known to the state to cause cancer. Due to the form of the product, the Proposition 65 warning is not applicable to the Quartz in this product.
ADDITIONAL CANADIAN REGULATIONS:
CANADIAN DSL/NDSL INVENTORY STATUS: The components of this product listed by CAS# in Section 3 (MATERIAL IDENTIFICATION) are listed on the DSL Inventory.
CANADIAN ENVIRONMENTAL PROTECTION ACT (CEPA) PRIORITIES SUBSTANCES LISTS: The Xylene component is on the CEPA Priority Substances 1 list, not considered as "TOXIC" under Section 64 of CEPA.
CANADIAN WHMIS REGULATIONS: This product is classified as a Controlled Product, Hazard Classes B2 (Flammable Liquid) D2A and D2B (Immediate Acute Toxicity/Acute Toxicity and Irritation) as per the Controlled Product Regulations.

ADDITIONAL MEXICAN REGULATIONS:
MEXICAN WORKPLACE REGULATIONS (NOM-018-STPS-2000): This product is classified as hazardous.

16. OTHER INFORMATION

U.S. ANSI STANDARD LABELING (Precautionary Statements): DANGER! FLAMMABLE LIQUID. MAY CAUSE EYE, SKIN, IRRITATION, ESPECIALLY IF EXPOSURE IS PROLONGED. VAPORS MAY BE IRRITATING AND CAUSE CENTRAL NERVOUS SYSTEM EFFECTS. CONTAINS COMPONENTS THAT ARE SUSPECT AND KNOWN CARCINOGENS. CONTAINS TRACE AMOUNT OF QUARTZ/CRYSTALLINE SILICA, A KNOWN HUMAN CARCINOGEN BY INHALATION. Avoid contact with eyes, skin, and clothing. Avoid breathing fumes, dusts, vapors or mist. Do not touch or swallow. Wash thoroughly after handling. Keep container tightly closed. Use only with adequate ventilation. Keep away from heat and flame. Wear gloves, eye protection, respiratory protection, and appropriate body protection. FIRST-AID: In case of contact, immediately flush skin and eyes with plenty of water. Remove contaminated clothing and shoes. Get medical attention if irritation develops or persists. If inhaled, remove to fresh air. If not breathing, give artificial respiration. If breathing is difficult, give oxygen. If swallowed, do not induce vomiting. Get medical attention. IN CASE OF FIRE: Use water fog, foam, dry chemical, or CO2. IN CASE OF SPILL: Absorb spilled product with poly pads or other suitable absorbing material. Place all spill residue in an appropriate container and seal. Dispose of in accordance with U.S. Federal, State, and local hazardous waste disposal regulations and those of Canada.

GLOBAL HARMONIZATION SYSTEM CLASSIFICATION:
Classification: Flammable Liquid Category 3, Carcinogenic Category 1B, Acute Oral Toxicity Category 5, Acute Dermal Toxicity Category 5, Acute Inhalation Toxicity Category 5, Skin Irritation Category 2, Eye Irritation Category 2A, Specific Target Organ Toxicity (Inhalation-Renal) Category 3, Acute Oral Toxicity Category 5, Acute Inhalation Toxicity Category 5, Skin Irritation Category 2, Eye Irritation Category 2A, Specific Target Organ Toxicity (Inhalation-Renal) Category 3
Signal Word: Danger
Precautionary Statements:
Response: P330 + P361 + P353: IF ON SKIN (or hair): Remove/Take off immediately all contaminated clothing. Rinse skin with water/shower. P370 + P377: In case of fire, stop leak if it is safe to do so. P308 + P313: IF exposed or concerned: Get medical advice/attention. P304 + P312: If inhaled, Call a POISON CENTER or doctor if you feel unwell.
Disposal: P501: Dispose of contents/containers in accordance with all local, national, regional and international regulations.
Hazard Symbols/Pictograms: GH02, GH07, GH08

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The information presented in this Material Safety Data Sheet is presented in good faith based on data believed to be accurate as of the date this Material Safety Data Sheet was prepared. HOWEVER, NO WARRANTY OF MERCHANTABILITY, FITNESS FOR ANY PARTICULAR PURPOSE, OR ANY OTHER WARRANTY IS EXPRESSED OR IS TO BE IMPLIED REGARDING THE ACCURACY OR COMPLETENESS OF THE INFORMATION PROVIDED ABOVE, THE RESULTS TO BE OBTAINED FROM THE USE OF THIS INFORMATION OR THE PRODUCT, THE SAFETY OF THIS PRODUCT, OR THE HAZARDS RELATED TO ITS USE. In no case shall the descriptions, information, data or designs provided be considered a part of our terms and conditions of sale.
All materials may present hazards and should be used with caution. Because many factors may affect processing or application, we recommend that you make tests to determine the suitability of a product for your particular purpose prior to use. No responsibility is assumed for any damage or injury resulting from abnormal use or from any failure to adhere to recommended practices or applicable federal, state, or local laws or regulations. The information provided above, and the product, are furnished on the condition that the person receiving them shall make their own determination as to the suitability of the product for their particular purpose and on the condition that they assume the risk of their use. In addition, no authorization is given nor implied to practice any patented invention without a license.

REFERENCES AND DATA SOURCES: Contact the supplier for information.

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

REVISION DETAILS: February 2012: Up-date and revise entire MSDS to include current GHS requirements.

DATE OF PRINTING: December 29, 2014

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

KEY ACRONYMS:
CHEMTREC: Chemical Transportation Emergency Center, a 24-hour emergency information and/or emergency assistance to emergency responders.
CEILING LEVEL: The concentration that shall not be exceeded during any part of the working exposure.
DGF MAKs: Federal Republic of Germany Maximum Concentration Values in the workplace. Exposure limits are given as TWA (Time-Weighted Average) or PEAK (short-term exposure) values.
DGF 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 or 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.

KEY ACRONYMS (continued):
DGF MAK Germ Cell Mutagen Categories (continued): 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.
DEFINITIONS OF TERMS (Continued)

**Hazardous Materials Identification System (Hazards Ratings)**

This rating system was developed by the National Paint and Coating Association and has been adopted by industry to identify the degree of chemical hazards.

**Health Hazard:** 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 Men and Women, respectively) can be considered indications that 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 B: Carcinogenic substances that are ubiquitously distributed and for which a sufficient basis to fear a risk of damage to the developing embryo or fetus when MAK and BAT values are observed.

**Physical Hazard:** Substances that readily polymerize, decompose, condense, or self-explode when exposed to temperature conditions before ignition and combustion can occur. This usually includes the following: Substances that are normally stable, but can become unstable at high temperature and/or pressure conditions. These materials may ignite and cause fire or explosion by heat generation or explosion hazard. Substances that readily undergo hazardous polymerization in the absence of inhibitors. Materials that may react violently with water. Organic Peroxides: Materials that are normally stable, but can become unstable at high temperature and/or pressure conditions. These materials may ignite and cause fire or explosion by heat generation or explosion hazard. Substances that will not polymerize, decompose, condense, or self-explode. 1. Water Reactivity: Materials that may react violently with water. 2. Organic Peroxides: Materials that, in themselves, are normally unstable and will readily undergo violent chemical changes, but will not detonate. These materials may also react violently with water.

**Water Reactivity:** Materials that do not react with water. 1. Oxidizers: Materials that are readily capable of detonation or explosive reaction, but require a strong initiating source or must be heated under confinement before initiation; or materials that react explosively with water. Explosives: Division 1.1 and 1.2 explosives. Explosive substances that have a fire hazard, but whose potential explosive hazard is controlled by water and that the transport through Group I is not met. Liquids: any material that exhibits a mean pressure rise time less than or equal to the pressure rise of a 1:1 aqueous sodium chloride solution (40%) and that will burn in water. Explosives: Division 1.4 explosives. Explosive substances where the explosive effects are largely confined to the package and no projection of fragments of appreciable size or range are expected. An explosive mixture: a material that is not a liquid, but that, under high pressure, can cause self-exlosion at ambient temperature and/or pressure, but have a low potential (or no risk) for significant heat generation or explosion. Substances that readily form peroxides upon exposure to air or oxygen at room temperature. 3. Water Reactivity: Materials that, in either liquid or gaseous form, exhibit a flash point below 21°C or 70°F. Water Reactivity: Materials that react explosively with water without requiring heat or confinement. Organic Peroxides: Substances that are easily oxidized, but not necessarily reactive. Substances that readily undergo hazardous polymerization in the absence of inhibitors. Solid oxidizers: Solids that exhibit a mean pressure rise time less than or equal to the pressure rise of a 1:1 perloric acid (50%) and that will burn in water. Explosives: Division 1.1.2 explosives. Explosive substances that have a mass explosion hazard or have a projection hazard. A mass explosion is one that affects almost the entire load of the material. 2. Oxidizers: Materials that either in concentration tested, exhibits a mean pressure rise time less than or equal to the pressure rise of a 1:1 aqueous sodium chloride solution (40%) and that will burn in water. Explosives: Division 1.1 and 1.2 explosives. Explosive substances that have a mass explosion hazard or have a projection hazard. A mass explosion is one that affects almost the entire load of the material.

**AHAIR:** Water Reactivity: Materials that do not react with water. Organic Peroxides: Materials that are normally stable, but under high temperature and/or pressure conditions, may undergo a chemical change, but will not detonate. These materials may also react violently with water.

**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 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.

**STEEL:** 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-hour TWA is within the TLV-TWA, PEL-TWA or REL-TWA.

**TLV:**Threshold Limit Value. An airborne concentration of a substance that represents conditions under which it is generally believed that nearly all workers may be repeatedly exposed without adverse effect. The duration must be considered, including the 8-hour TWA. TWA: Time Weighted Average exposure concentration for a conventional 8-hour (TWA, REL or STEL) and a 40-hour workweek.

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

**Hazard Ratings:**

**Flammability Hazards:**

**Flammability Hazard:** 1. Dusts and mists with an LDC or acute inhalation toxicity greater than 10 mg/L. Solids with an LDC or acute inhalation toxicity greater than 5 mg/L. Materials with an LDC or acute inhalation toxicity greater than 20 mg/L. Materials with an LDC or acute inhalation toxicity greater than 50 mg/L. Materials with an LDC or acute inhalation toxicity greater than 100 mg/L. Materials with an LDC or acute inhalation toxicity greater than 250 mg/L. Materials with an LDC or acute inhalation toxicity greater than 500 mg/L. Materials with an LDC or acute inhalation toxicity greater than 1000 mg/L. Materials with an LDC or acute inhalation toxicity greater than 2500 mg/L. Materials with an LDC or acute inhalation toxicity greater than 5000 mg/L. Materials with an LDC or acute inhalation toxicity greater than 10,000 mg/L. Materials with an LDC or acute inhalation toxicity greater than 20,000 mg/L. Materials with an LDC or acute inhalation toxicity greater than 50,000 mg/L. Materials with an LDC or acute inhalation toxicity greater than 100,000 mg/L. Materials with an LDC or acute inhalation toxicity greater than 250,000 mg/L. Materials with an LDC or acute inhalation toxicity greater than 500,000 mg/L. Materials with an LDC or acute inhalation toxicity greater than 1,000,000 mg/L. Materials with an LDC or acute inhalation toxicity greater than 2,000,000 mg/L. Materials with an LDC or acute inhalation toxicity greater than 5,000,000 mg/L. Materials with an LDC or acute inhalation toxicity greater than 10,000,000 mg/L. Materials with an LDC or acute inhalation toxicity greater than 20,000,000 mg/L. Materials with an LDC or acute inhalation toxicity greater than 50,000,000 mg/L. Materials with an LDC or acute inhalation toxicity greater than 100,000,000 mg/L. Materials with an LDC or acute inhalation toxicity greater than 250,000,000 mg/L. Materials with an LDC or acute inhalation toxicity greater than 500,000,000 mg/L. Materials with an LDC or acute inhalation toxicity greater than 1,000,000,000 mg/L.

**AHAIR:** Water Reactivity: Materials that do not react with water. Organic Peroxides: Materials that are normally stable, but under high temperature and/or pressure conditions, may undergo a chemical change, but will not detonate. These materials may also react violently with water.

**Water Reactivity:** Materials that do not react with water. Organic Peroxides: Materials that are normally stable, but under high temperature and/or pressure and have little or no potential to cause significant heat generation or explosion hazard. Substances that readily undergo hazardous polymerization in the absence of inhibitors. Materials that may react violently with water. Organic Peroxides: Materials that, in themselves, are normally unstable and will readily undergo violent chemical changes, but will not detonate. These materials may also react violently with water.

**Water Reactivity:** Materials that do not react with water. Organic Peroxides: Materials that are normally stable, but under high temperature and/or pressure conditions, may undergo a chemical change, but will not detonate. These materials may also react violently with water.

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DEFINITIONS OF TERMS (Continued)

NATIONAL FIRE PROTECTION ASSOCIATION HAZARD RATINGS (continued):

HEALTH HAZARD (continued): 3 Materials that have acute inhalation toxicity greater than 30 mg/L but less than or equal to 150 mg/L. Materials with an LC50 for acute dermal toxicity greater than 40 mg/kg but less than or equal to 200 mg/kg. Materials that are corrosive to the respiratory tract. Materials that are corrosive to the eyes or cause irreversible corneal opacity. Materials corrosive to the skin. Cryogenic gases that cause frostbite and irreversible tissue damage. Materials that ignite when exposed to air, Solids 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 500 W/mL. Materials that in themselves are readily capable of detonation or explosive decomposition or explosive reaction, but that require a strong initiating source or that must be heated under confinement before initiation. Materials that have an estimated instantaneous power density (product of heat of reaction and reaction rate) at 250°C (482°F) at or above 100 W/mL and below 1000 W/mL. Materials that are reactive to thermal or mechanical shock at elevated temperatures and pressures. Materials that are sensitive to localized thermal or mechanical shock at normal temperatures and pressures. Materials that have an estimated instantaneous power density (product of heat of reaction and reaction rate) at 250°C (482°F) of 1000 W/mL or greater.

FLAMMABILITY HAZARD: Materials that will not burn under typical fire conditions, including intrinsically noncombustible materials such as concrete, stone, and sand. Materials that will not burn in air when exposed to a temperature of 816°C (1500°F) for a period of 5 minutes in accordance with Annex D of NFPA 704. 1 Materials that must be preheated before ignition can occur. Materials in this degree require considerable preheating, under all ambient temperature conditions, before ignition and combustion can occur: Materials that will burn in air when exposed to a temperature of 816°C (1500°F) for a period of 5 minutes in accordance with Annex D of NFPA 704. Liquids, solids, and semisolids that have a flash point at or above 93.4°C (200°F) (i.e. Class IIIIB liquids). Liquids with a flash point greater than 35°C (95°F) that do not sustain combustion when tested using the Method of Testing for Sustained Combustibility, per 49 CFR 173. Appendix H or the UN Recommendations on the Transport of Dangerous Goods, Model Regulations (current edition) and the related Manual of Tests and Criteria (current edition). Liquids with a flash point greater than 35°C (95°F) in a water-miscible solution or dispersion with a water non-combustible liquid/solid content of more than 85% by weight. Liquids that have no fire point when tested by ASTM D 92, Standard Test Method for Flash and Fire Points by Cleveland Open Cup, up to the boiling point of the liquid or up to a temperature at which the sample being tested shows an obvious physical change. Combustible pellets with a diameter greater than 2 mm (10 mesh) that do not sustain combustion. Materials containing greater than 0.5% by weight of a flammable or combustible solvent are rated by the closed cup flash point of the solvent. 2 Materials that must be moderately heated or exposed to relatively high ambient temperature or pressure during ignition can occur. Materials in this degree would not under normal conditions form hazardous atmospheres with air, but under high ambient temperatures or under moderate heating could release vapor in sufficient quantities to produce hazardous atmospheres with air. Liquids having a flash point at or above 37.8°C (100°F) and below 93.4°C (200°F) (i.e. Class I and Class IIIIA liquids.) Solids in the form of powders or coarse dusts of representative diameter between 420 microns (40 mesh) and 2 mm (10 mesh) that burn rapidly but that generally do not form explosive mixtures with air. Solid materials in fibrous or shredded form that burn rapidly and create flash fire hazards, such as cotton, sisal, and hemp. Liquids and semisolids that readily give off flammable vapors. Solids containing greater than 0.5% by weight of a flammable or combustible solvent are rated by the closed cup flash point of the solvent. 3 Liquids and solids that will not burn under almost all ambient temperature conditions. Materials in this degree produce hazardous atmospheres with air under almost all ambient temperatures or, though unaffected by ambient temperatures, are readily ignited under almost all conditions. Liquids having a flash point below 22.8°C (73°F) and having a boiling point at or above 37.8°C (100°F) and those liquids having a flash point at or above 22.8°C (73°F) and below 37.8°C (100°F) (i.e. Class IB and IC liquids). Materials that on account of their physical form or environmental conditions can form explosive mixtures with air and are readily dispersed in air. Flammable or combustible dusts with representative diameter less than 420 microns (40 mesh). Materials that burn with extreme rapidity, usually by reason of self-contained oxygen (e.g. dry nitrocellulose and many organic peroxides). Solids containing greater than 0.5% by weight of a flammable or combustible solvent are rated by the closed cup flash point of the solvent. 4 Materials that will rapidly or completely vaporize at atmospheric pressure and normal ambient temperature or that are readily dispersed in air and will burn readily. Flammable gases. Flammable cryogenic materials. Any liquid or gaseous materials that is liquid while under pressure and has a flash point below 22.8°C (73°F) and a boiling point below 37.8°C (100°F) (i.e. Class IA liquids). Materials that ignite when exposed to air. Solids containing greater than 0.5% by weight of a flammable or combustible solvent are rated by the closed cup flash point of the solvent.

INSTABILITY HAZARD: Materials that in themselves are normally stable, even under fire conditions. Materials that have an instantaneous power density (product of heat of reaction and reaction rate) at 250°C (482°F) below 0.01 W/mL and below 10 W/mL. 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. 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. 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 10 W/mL and below 100 W/mL. 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 10 W/mL and below 50 W/mL. 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 10 W/mL and below 100 W/mL. 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.