# Table of Contents

Diesel................................................................. 1  
Gasoline............................................................. 16  
Propane............................................................... 30  
Hilti FS-One......................................................... 42  
Metacaulk 1000...................................................... 47  
LCI Fire Stop.......................................................... 51  
Mineral Wool......................................................... 59  
Spear FS-5 One Step............................................... 67  
Tyco TFP 500 One Step............................................ 69  
Super Dope............................................................. 73  
Tuf-Cut Clear Cutting Oil.......................................... 76  
Tuf-Glide Paste....................................................... 79  
Tuf-Lube Grease...................................................... 84  
FM-200................................................................. 94  
Novec 1230............................................................ 105  
Jet-X  2%.............................................................. 114  
Glycerine  48%....................................................... 124  
Propylene Glycol..................................................... 133  
Ridgid Thread Cutting Oil........................................... 142
SAFETY DATA SHEET
CITGO No. 2 Diesel Fuel, Low Sulfur, All Grades

Section 1. Identification

GHS product identifier : CITGO No. 2 Diesel Fuel, Low Sulfur, All Grades
Chemical name : Fuels, diesel, No 2
Synonyms : No. 2-D Grade Diesel Fuel Oil (defined by ASTM D-975); Treated or Refined Diesel Fuel No. 2; Grade 2 Distillate Fuel; Hydrodesulfurized Middle Distillate; C9-C16 Petroleum Hydrocarbons
Code : Various
MSDS # : AG2DF
Supplier's details : CITGO Petroleum Corporation
P.O. Box 4689
Houston, TX 77210
sdsvend@citgo.com

Emergency telephone number : Technical Contact: (832) 486-4000
Medical Emergency: (832) 486-4700
CHEMTREC Emergency: (800) 424-9300
(United States Only)

Section 2. Hazards identification

OSHA/HCS status : This material is considered hazardous by the OSHA Hazard Communication Standard (29 CFR 1910.1200).
Classification of the substance or mixture : FLAMMABLE LIQUIDS - Category 3
ACUTE TOXICITY: INHALATION - Category 4
SKIN CORROSION/IRRITATION - Category 2
SERIOUS EYE DAMAGE/ EYE IRRITATION - Category 2B
CARCINOGENICITY - Category 2
SPECIFIC TARGET ORGAN TOXICITY (REPEATED EXPOSURE) [central nervous system (CNS)] - Category 2
ASPIRATION HAZARD - Category 1

GHS label elements
Hazard pictograms : 

Signal word : Danger
Hazard statements : Flammable liquid and vapor.
Harmful if inhaled.
Causes skin and eye irritation.
Suspected of causing cancer.
May be fatal if swallowed and enters airways.
May cause damage to organs through prolonged or repeated exposure. (central nervous system (CNS))

Precautionary statements
Prevention : Obtain special instructions before use. Do not handle until all safety precautions have been read and understood. Use personal protective equipment as required. Wear protective gloves. Wear eye or face protection. Keep away from heat, sparks, open flames and hot surfaces. - No smoking. Use explosion-proof electrical, ventilating, lighting and all material-handling equipment. Use only non-sparking tools. Take precautionary measures against static discharge. Keep container tightly closed. Use only outdoors or in a well-ventilated area. Do not breathe vapor. Wash hands thoroughly after handling.

Date of issue/Date of revision : 3/26/2015.
Section 2. Hazards identification

Response

: Get medical attention if you feel unwell. IF exposed or concerned: Get medical attention. IF INHALED: Remove victim to fresh air and keep at rest in a position comfortable for breathing. Call a POISON CENTER or physician if you feel unwell. IF SWALLOWED: Immediately call a POISON CENTER or physician. Do NOT induce vomiting. IF ON SKIN (or hair): Take off immediately all contaminated clothing. Rinse skin with water or shower. IF ON SKIN: Wash with plenty of soap and water. Take off contaminated clothing. If skin irritation occurs: Get medical attention. IF IN EYES: Rinse cautiously with water for several minutes. Remove contact lenses, if present and easy to do. Continue rinsing. If eye irritation persists: Get medical attention.

Storage

: Store locked up. Store in a well-ventilated place. Keep cool.

Disposal

: Dispose of contents and container in accordance with all local, regional, national and international regulations.

Hazards not otherwise classified

: None known.

Section 3. Composition/information on ingredients

Substance/mixture

: Substance

Chemical name

: Fuels, diesel, No 2

Other means of identification

: No. 2-D Grade Diesel Fuel Oil (defined by ASTM D-975); Treated or Refined Diesel Fuel No. 2; Grade 2 Distillate Fuel; Hydrodesulfurized Middle Distillate; C9-C16 Petroleum Hydrocarbons

CAS number

: 68476-34-6

<table>
<thead>
<tr>
<th>Ingredient name</th>
<th>%</th>
<th>CAS number</th>
</tr>
</thead>
<tbody>
<tr>
<td>Ethyltoluene</td>
<td>&lt;3</td>
<td>25550-14-5</td>
</tr>
<tr>
<td>Trimethylbenzene, all isomers</td>
<td>&lt;2</td>
<td>25551-13-7</td>
</tr>
<tr>
<td>Naphthalene</td>
<td>&lt;2</td>
<td>91-20-3</td>
</tr>
<tr>
<td>Biphenyl</td>
<td>&lt;2</td>
<td>92-52-4</td>
</tr>
<tr>
<td>Cumene</td>
<td>&lt;1</td>
<td>98-82-8</td>
</tr>
<tr>
<td>Xylenes, mixed isomers</td>
<td>&lt;1</td>
<td>1330-20-7</td>
</tr>
<tr>
<td>Ethylbenzene</td>
<td>&lt;1</td>
<td>100-41-4</td>
</tr>
</tbody>
</table>

* = Various            ** = Mixture            *** = Proprietary

Any concentration shown as a range is to protect confidentiality or is due to process variation.

Occupational exposure limits, if available, are listed in Section 8.

Section 4. First aid measures

Description of necessary first aid measures

Eye contact

: Immediately flush eyes with plenty of water, occasionally lifting the upper and lower eyelids. Check for and remove any contact lenses. Continue to rinse for at least 10 minutes. Get medical attention.

Inhalation

: Remove victim to fresh air and keep at rest in a position comfortable for breathing. If it is suspected that gas or vapor is still present, the rescuer should wear an appropriate mask or self-contained breathing apparatus. If not breathing, if breathing is irregular or if respiratory arrest occurs, provide artificial respiration or oxygen by trained personnel. It may be dangerous to the person providing aid to give mouth-to-mouth resuscitation. Get medical attention. If necessary, call a poison center or physician. If unconscious, place in recovery position and get medical attention immediately. Maintain an open airway. Loosen tight clothing such as a collar, tie, belt or waistband.

Skin contact

: Wash contaminated skin with soap and water. Remove contaminated clothing and shoes. Continue to rinse for at least 10 minutes. Get medical attention. Wash clothing before reuse. Clean shoes thoroughly before reuse.

Date of issue/Date of revision

: 3/26/2015.
Section 4. First aid measures

Ingestion: Get medical attention immediately. Call a poison center or physician. Wash out mouth with water. Remove dentures if any. Remove victim to fresh air and keep at rest in a position comfortable for breathing. Aspiration hazard if swallowed. Can enter lungs and cause damage. Do not induce vomiting. If vomiting occurs, the head should be kept low so that vomit does not enter the lungs. Never give anything by mouth to an unconscious person. If unconscious, place in recovery position and get medical attention immediately. Maintain an open airway. Loosen tight clothing such as a collar, tie, belt or waistband.

Most important symptoms/effects, acute

Potential acute health effects

Eye contact: Causes eye irritation.
Inhalation: Harmful if inhaled.
Skin contact: Causes skin irritation.
Ingestion: May be fatal if swallowed and enters airways. Irritating to mouth, throat and stomach.

Over-exposure signs/symptoms

Eye contact: Adverse symptoms may include the following:
- pain or irritation
- watering
- redness

Inhalation: No specific data.

Skin contact: Adverse symptoms may include the following:
- irritation
- redness

Ingestion: Adverse symptoms may include the following:
- nausea or vomiting

Indication of immediate medical attention and special treatment needed, if necessary

Notes to physician: If ingested, this material presents a significant aspiration and chemical pneumonitis hazard. Induction of emesis is not recommended. Consider activated charcoal and/or gastric lavage. If patient is obtunded, protect the airway by cuffed endotracheal intubation or by placement of the body in a Trendelenburg and left lateral decubitus position.

Specific treatments: Treat symptomatically and supportively.

Protection of first-aiders: No action shall be taken involving any personal risk or without suitable training. If it is suspected that gas or vapor is still present, the rescuer should wear an appropriate mask or self-contained breathing apparatus. It may be dangerous to the person providing aid to give mouth-to-mouth resuscitation.

See toxicological information (Section 11)

Section 5. Fire-fighting measures

Specific hazards arising from the chemical: Flammable liquid and vapor. In a fire or if heated, a pressure increase will occur and the container may burst, with the risk of a subsequent explosion. The vapor/gas is heavier than air and will spread along the ground. Vapors may accumulate in low or confined areas or travel a considerable distance to a source of ignition and flash back. Runoff to sewer may create fire or explosion hazard.

Extinguishing media

Suitable extinguishing media: Use dry chemical. CO₂, water spray (fog) or foam.

Unsuitable extinguishing media: Do not use water jet.
**Section 5. Fire-fighting measures**

**Hazardous thermal decomposition products**: Decomposition products may include the following materials:
- Carbon dioxide
- Carbon monoxide

**Special protective actions for fire-fighters**: Promptly isolate the scene by removing all persons from the vicinity of the incident if there is a fire. No action shall be taken involving any personal risk or without suitable training. Move containers from fire area if this can be done without risk. Use water spray to keep fire-exposed containers cool.

**Special protective equipment for fire-fighters**: Fire-fighters should wear appropriate protective equipment and self-contained breathing apparatus (SCBA) with a full face-piece operated in positive pressure mode.

**Section 6. Accidental release measures**

**Personal precautions, protective equipment and emergency procedures**

**For non-emergency personnel**: No action shall be taken involving any personal risk or without suitable training. Evacuate surrounding areas. Keep unnecessary and unprotected personnel from entering. Do not touch or walk through spilled material. Shut off all ignition sources. No flares, smoking or flames in hazard area. Avoid breathing vapor or mist. Provide adequate ventilation. Wear appropriate respirator when ventilation is inadequate. Put on appropriate personal protective equipment.

**For emergency responders**: If specialized clothing is required to deal with the spillage, take note of any information in Section 8 on suitable and unsuitable materials. See also the information in "For non-emergency personnel".

**Environmental precautions**: Avoid dispersal of spilled material and runoff and contact with soil, waterways, drains and sewers. Inform the relevant authorities if the product has caused environmental pollution (sewers, waterways, soil or air).

**Methods and materials for containment and cleaning up**

**Small spill**: Stop leak if without risk. Move containers from spill area. Use spark-proof tools and explosion-proof equipment. Dilute with water and mop up if water-soluble. Alternatively, or if water-insoluble, absorb with an inert dry material and place in an appropriate waste disposal container. Dispose of via a licensed waste disposal contractor.

**Large spill**: Stop leak if without risk. Move containers from spill area. Use spark-proof tools and explosion-proof equipment. Approach release from upwind. Prevent entry into sewers, water courses, basements or confined areas. Wash spillages into an effluent treatment plant or proceed as follows. Contain and collect spillage with non-combustible, absorbent material e.g. sand, earth, vermiculite or diatomaceous earth and place in container for disposal according to local regulations (see Section 13). Dispose of via a licensed waste disposal contractor. Contaminated absorbent material may pose the same hazard as the spilled product. Note: see Section 1 for emergency contact information and Section 13 for waste disposal.

**Section 7. Handling and storage**

**Precautions for safe handling**

**Protective measures**: Put on appropriate personal protective equipment (see Section 8). Avoid exposure - obtain special instructions before use. Do not handle until all safety precautions have been read and understood. Do not get in eyes or on skin or clothing. Do not breathe vapor or mist. Do not swallow. Use only with adequate ventilation. Wear appropriate respirator when ventilation is inadequate. Do not enter storage areas and confined spaces unless adequately ventilated. Keep in the original container or an approved alternative made from a compatible material, kept tightly closed when not in use. Store and use away from heat, sparks, open flame or any other ignition source. Use explosion-proof electrical (ventilating, lighting and material handling) equipment. Use only non-sparking tools. Take precautionary measures against electrostatic discharges. Empty containers retain product residue and can be hazardous. Do not reuse container. Non equilibrium conditions may increase the fire hazard associated with this product. Always bond receiving containers to the fill pipe before and during loading. Always confirm that receiving container is properly grounded. Bonding and grounding alone may be inadequate to eliminate fire and explosion hazards. Carefully review operations.
Section 7. Handling and storage

Advice on general occupational hygiene:
Eating, drinking and smoking should be prohibited in areas where this material is handled, stored and processed. Workers should wash hands and face before eating, drinking and smoking. Remove contaminated clothing and protective equipment before entering eating areas. See also Section 8 for additional information on hygiene measures.

Conditions for safe storage, including any incompatibilities:
Store in accordance with local regulations. Store in a segregated and approved area. Store in original container protected from direct sunlight in a dry, cool and well-ventilated area, away from incompatible materials (see Section 10) and food and drink. Store locked up. Eliminate all ignition sources. Separate from oxidizing materials. Keep container tightly closed and sealed until ready for use. Containers that have been opened must be carefully resealed and kept upright to prevent leakage. Do not store in unlabeled containers. Use appropriate containment to avoid environmental contamination.

Bulk Storage Conditions: Maintain all storage tanks in accordance with applicable regulations. Use necessary controls to monitor tank inventories. Inspect all storage tanks on a periodic basis. Test tanks and associated piping for tightness. Maintain the automatic leak detection devices to assure proper working condition.

Section 8. Exposure controls/personal protection

Control parameters

Occupational exposure limits

<table>
<thead>
<tr>
<th>Ingredient name</th>
<th>Exposure limits</th>
</tr>
</thead>
<tbody>
<tr>
<td>Trimethylbenzene, all isomers</td>
<td>ACGIH TLV (United States, 4/2014).</td>
</tr>
<tr>
<td></td>
<td>TWA: 25 ppm 8 hours.</td>
</tr>
<tr>
<td></td>
<td>TWA: 123 mg/m³ 8 hours.</td>
</tr>
<tr>
<td>Naphthalene</td>
<td>ACGIH (United States). Absorbed through skin.</td>
</tr>
<tr>
<td></td>
<td>TWA: 10 ppm 8 hours.</td>
</tr>
<tr>
<td></td>
<td>STEL: 15 ppm 15 minutes.</td>
</tr>
<tr>
<td></td>
<td>OSHA (United States).</td>
</tr>
<tr>
<td></td>
<td>TWA: 10 ppm 8 hours.</td>
</tr>
<tr>
<td></td>
<td>ACGIH TLV (United States, 4/2014). Absorbed through</td>
</tr>
<tr>
<td></td>
<td>skin.</td>
</tr>
<tr>
<td></td>
<td>TWA: 10 ppm 8 hours.</td>
</tr>
<tr>
<td></td>
<td>TWA: 52 mg/m³ 8 hours.</td>
</tr>
<tr>
<td>Biphenyl</td>
<td>OSHA PEL (United States, 2/2013).</td>
</tr>
<tr>
<td></td>
<td>TWA: 10 ppm 8 hours.</td>
</tr>
<tr>
<td></td>
<td>TWA: 50 mg/m³ 8 hours.</td>
</tr>
<tr>
<td>Cumene</td>
<td>OSHA PEL Z2 (United States).</td>
</tr>
<tr>
<td></td>
<td>TWA: 0.2 ppm 8 hours.</td>
</tr>
<tr>
<td></td>
<td>ACGIH TLV (United States, 4/2014).</td>
</tr>
<tr>
<td></td>
<td>TWA: 0.2 ppm 8 hours.</td>
</tr>
<tr>
<td></td>
<td>TWA: 1.3 mg/m³ 8 hours.</td>
</tr>
<tr>
<td></td>
<td>OSHA PEL (United States, 2/2013).</td>
</tr>
<tr>
<td></td>
<td>TWA: 0.2 ppm 8 hours.</td>
</tr>
<tr>
<td></td>
<td>TWA: 1 mg/m³ 8 hours.</td>
</tr>
<tr>
<td></td>
<td>ACGIH TLV (United States, 4/2014).</td>
</tr>
<tr>
<td></td>
<td>TWA: 50 ppm 8 hours.</td>
</tr>
<tr>
<td></td>
<td>OSHA PEL (United States, 2/2013).</td>
</tr>
</tbody>
</table>

Date of issue/Date of revision: 3/26/2015.
## Section 8. Exposure controls/personal protection

### Xylenes, mixed isomers

- **ACGIH TLV (United States, 4/2014).**
  - TWA: 100 ppm 8 hours.
  - TWA: 434 mg/m³ 8 hours.
  - STEL: 150 ppm 15 minutes.
  - STEL: 651 mg/m³ 15 minutes.
- **OSHA PEL (United States, 2/2013).**
  - TWA: 100 ppm 8 hours.
  - TWA: 435 mg/m³ 8 hours.

### Ethylbenzene

- **ACGIH TLV (United States, 4/2014).**
  - TWA: 20 ppm 8 hours.
- **OSHA PEL (United States, 2/2013).**
  - TWA: 100 ppm 8 hours.
  - TWA: 435 mg/m³ 8 hours.

### Appropriate engineering controls

- Use only with adequate ventilation. Use process enclosures, local exhaust ventilation or other engineering controls to keep worker exposure to airborne contaminants below any recommended or statutory limits. The engineering controls also need to keep gas, vapor or dust concentrations below any lower explosive limits. Use explosion-proof ventilation equipment.

### Environmental exposure controls

- Emissions from ventilation or work process equipment should be checked to ensure they comply with the requirements of environmental protection legislation. In some cases, vapor controls, filters or engineering modifications to the process equipment will be necessary to reduce emissions to acceptable levels.

### Individual protection measures

#### Hygiene measures

- Wash hands, forearms and face thoroughly after handling chemical products, before eating, smoking and using the lavatory and at the end of the working period. Appropriate techniques should be used to remove potentially contaminated clothing. Wash contaminated clothing before reusing. Ensure that eyewash stations and safety showers are close to the workstation location.

#### Eye/face protection

- Safety glasses equipped with side shields are recommended as minimum protection in industrial settings. If contact is possible, the following protection should be worn, unless the assessment indicates a higher degree of protection: Splash goggles. Safety eyewear complying with an approved standard should be used when a risk assessment indicates this is necessary to avoid exposure to liquid splashes, mists, gases or dusts. Chemical splash goggles. If inhalation hazards exist, a full-face respirator may be required instead.

### Skin protection

#### Hand protection

- Chemical-resistant gloves complying with an approved standard should be worn at all times when handling chemical products if a risk assessment indicates this is necessary. Considering the parameters specified by the glove manufacturer, check during use that the gloves are still retaining their protective properties. It should be noted that the time to breakthrough for any glove material may be different for different glove manufacturers.

#### Body protection

- Personal protective equipment for the body should be selected based on the task being performed and the risks involved and should be approved by a specialist before handling this product.

#### Other skin protection

- Appropriate footwear and any additional skin protection measures should be selected based on the task being performed and the risks involved and should be approved by a specialist before handling this product.

#### Respiratory protection

- Use a properly fitted, air-purifying or supplied-air respirator complying with an approved standard if a risk assessment indicates this is necessary. Respirator selection must be based on known or anticipated exposure levels, the hazards of the product and the safe working limits of the selected respirator.
## Section 9. Physical and chemical properties

<table>
<thead>
<tr>
<th>Property</th>
<th>Value</th>
</tr>
</thead>
<tbody>
<tr>
<td>Physical state</td>
<td>Liquid.</td>
</tr>
<tr>
<td>Color</td>
<td>Colorless to light yellow or red.</td>
</tr>
<tr>
<td>Odor</td>
<td>Characteristic.</td>
</tr>
<tr>
<td>pH</td>
<td>Not available.</td>
</tr>
<tr>
<td>Melting point</td>
<td>-30 to -18°C (-22 to -0.4°F)</td>
</tr>
<tr>
<td>Boiling point/bubbling range</td>
<td>282 to 338°C (539.6 to 640.4°F)</td>
</tr>
<tr>
<td>Flash point</td>
<td>Closed cup: 52°C (125.6°F) [Pensky-Martens.]</td>
</tr>
<tr>
<td>Evaporation rate</td>
<td>&lt;1 (butyl acetate = 1)</td>
</tr>
<tr>
<td>Lower and upper explosive</td>
<td>Lower: 0.6%</td>
</tr>
<tr>
<td>(flammable) limits</td>
<td>Upper: 6.5%</td>
</tr>
<tr>
<td>Vapor pressure</td>
<td>0.27 kPa (2 mm Hg) [room temperature]</td>
</tr>
<tr>
<td>Vapor density</td>
<td>5 [Air = 1]</td>
</tr>
<tr>
<td>Relative density</td>
<td>0.84</td>
</tr>
<tr>
<td>Density lbs/gal</td>
<td>Estimated 7 lbs/gal</td>
</tr>
<tr>
<td>Gravity, °API</td>
<td>Estimated 37 @ 60 F</td>
</tr>
<tr>
<td>Solubility</td>
<td>Very slightly soluble in the following materials: cold water.</td>
</tr>
<tr>
<td>Solubility in water</td>
<td>0.005 g/l</td>
</tr>
<tr>
<td>Partition coefficient: n-</td>
<td>&gt;3.3</td>
</tr>
<tr>
<td>octanol/water</td>
<td></td>
</tr>
<tr>
<td>Auto-ignition temperature</td>
<td>254 to 285°C (489.2 to 545°F)</td>
</tr>
<tr>
<td>Viscosity</td>
<td>Kinematic (room temperature): 0.03 cm²/s (3 cSt)</td>
</tr>
</tbody>
</table>

## Section 10. Stability and reactivity

<table>
<thead>
<tr>
<th>Property</th>
<th>Value</th>
</tr>
</thead>
<tbody>
<tr>
<td>Reactivity</td>
<td>Not expected to be Explosive, Self-Reactive, Self-Heating, or an Organic Peroxide under US GHS Definition(s).</td>
</tr>
<tr>
<td>Chemical stability</td>
<td>The product is stable.</td>
</tr>
<tr>
<td>Possibility of hazardous</td>
<td>Under normal conditions of storage and use, hazardous reactions will not occur.</td>
</tr>
<tr>
<td>reactions</td>
<td></td>
</tr>
<tr>
<td>Conditions to avoid</td>
<td>Avoid all possible sources of ignition (spark or flame). Do not pressurize, cut, weld, braze, solder, drill, grind or expose containers to heat or sources of ignition. Do not allow vapor to accumulate in low or confined areas.</td>
</tr>
<tr>
<td>Incompatible materials</td>
<td>Reactive or incompatible with the following materials: oxidizing materials</td>
</tr>
<tr>
<td>Hazardous decomposition products</td>
<td>Under normal conditions of storage and use, hazardous decomposition products should not be produced.</td>
</tr>
</tbody>
</table>

## Section 11. Toxicological information

### Information on toxicological effects

#### Acute toxicity
### Section 11. Toxicological information

<table>
<thead>
<tr>
<th>Product/ingredient name</th>
<th>Result</th>
<th>Species</th>
<th>Dose</th>
<th>Exposure</th>
<th>Observation</th>
</tr>
</thead>
<tbody>
<tr>
<td>Trimethylbenzene, all isomers</td>
<td>LD50 Oral</td>
<td>Rat</td>
<td>8970 mg/kg</td>
<td>-</td>
<td></td>
</tr>
<tr>
<td>Naphthalene</td>
<td>LD50 Oral</td>
<td>Rat</td>
<td>490 mg/kg</td>
<td>-</td>
<td></td>
</tr>
<tr>
<td>Biphenyl</td>
<td>LD50 Dermal</td>
<td>Rabbit</td>
<td>&gt;5010 mg/kg</td>
<td>-</td>
<td></td>
</tr>
<tr>
<td></td>
<td>LD50 Oral</td>
<td>Rat</td>
<td>2140 mg/kg</td>
<td>-</td>
<td></td>
</tr>
<tr>
<td>Cumene</td>
<td>LC50 Inhalation Vapor</td>
<td>Mouse</td>
<td>10 g/m³</td>
<td>7 hours</td>
<td></td>
</tr>
<tr>
<td></td>
<td>LD50 Dermal</td>
<td>Rabbit</td>
<td>12300 uL/kg</td>
<td>-</td>
<td></td>
</tr>
<tr>
<td></td>
<td>LD50 Oral</td>
<td>Rat</td>
<td>2.9 g/kg</td>
<td>-</td>
<td></td>
</tr>
<tr>
<td></td>
<td>LD50 Oral</td>
<td>Rat</td>
<td>4000 mg/kg</td>
<td>-</td>
<td></td>
</tr>
<tr>
<td>Xylenes, mixed isomers</td>
<td>LC50 Inhalation Gas.</td>
<td>Cat</td>
<td>9500 ppm</td>
<td>2 hours</td>
<td></td>
</tr>
<tr>
<td></td>
<td>LC50 Inhalation Gas.</td>
<td>Rat</td>
<td>5000 ppm</td>
<td>4 hours</td>
<td></td>
</tr>
<tr>
<td></td>
<td>LC50 Inhalation Gas.</td>
<td>Rat</td>
<td>6700 ppm</td>
<td>4 hours</td>
<td></td>
</tr>
<tr>
<td></td>
<td>LC50 Inhalation Gas.</td>
<td>Rat</td>
<td>6670 ppm</td>
<td>4 hours</td>
<td></td>
</tr>
<tr>
<td></td>
<td>LD50 Oral</td>
<td>Mouse</td>
<td>2119 mg/kg</td>
<td>-</td>
<td></td>
</tr>
<tr>
<td></td>
<td>LD50 Oral</td>
<td>Rat</td>
<td>4300 mg/kg</td>
<td>-</td>
<td></td>
</tr>
<tr>
<td></td>
<td>LD50 Oral</td>
<td>Rat</td>
<td>4300 mg/kg</td>
<td>-</td>
<td></td>
</tr>
<tr>
<td>Ethylbenzene</td>
<td>LD50 Dermal</td>
<td>Rabbit</td>
<td>&gt;5000 mg/kg</td>
<td>-</td>
<td></td>
</tr>
<tr>
<td></td>
<td>LD50 Oral</td>
<td>Rat</td>
<td>3500 mg/kg</td>
<td>-</td>
<td></td>
</tr>
</tbody>
</table>

**Conclusion/Summary** : No additional information.

### Irritation/Corrosion

<table>
<thead>
<tr>
<th>Product/ingredient name</th>
<th>Result</th>
<th>Species</th>
<th>Score</th>
<th>Exposure</th>
<th>Observation</th>
</tr>
</thead>
<tbody>
<tr>
<td>Trimethylbenzene, all isomers</td>
<td>Eyes - Mild irritant</td>
<td>Rabbit</td>
<td>-</td>
<td>24 hours 500 milligrams</td>
<td>-</td>
</tr>
<tr>
<td></td>
<td>Skin - Moderate irritant</td>
<td>Rabbit</td>
<td>-</td>
<td>24 hours 500 milligrams</td>
<td>-</td>
</tr>
<tr>
<td>Naphthalene</td>
<td>Skin - Mild irritant</td>
<td>Rabbit</td>
<td>-</td>
<td>495 milligrams</td>
<td>-</td>
</tr>
<tr>
<td>Biphenyl</td>
<td>Eyes - Mild irritant</td>
<td>Rabbit</td>
<td>-</td>
<td>100 milligrams</td>
<td>-</td>
</tr>
<tr>
<td></td>
<td>Skin - Severe irritant</td>
<td>Rabbit</td>
<td>-</td>
<td>24 hours 500 microliters</td>
<td>-</td>
</tr>
<tr>
<td>Cumene</td>
<td>Eyes - Mild irritant</td>
<td>Rabbit</td>
<td>-</td>
<td>86 milligrams</td>
<td>-</td>
</tr>
<tr>
<td></td>
<td>Skin - Mild irritant</td>
<td>Rabbit</td>
<td>-</td>
<td>24 hours 10 milligrams</td>
<td>-</td>
</tr>
<tr>
<td>Xylenes, mixed isomers</td>
<td>Skin - Mild irritant</td>
<td>Rat</td>
<td>-</td>
<td>8 hours 60 microliters</td>
<td>-</td>
</tr>
<tr>
<td></td>
<td>Skin - Moderate irritant</td>
<td>Rabbit</td>
<td>-</td>
<td>24 hours 500 milligrams</td>
<td>-</td>
</tr>
<tr>
<td>Ethylbenzene</td>
<td>Skin - Moderate irritant</td>
<td>Rabbit</td>
<td>-</td>
<td>100 Percent</td>
<td>-</td>
</tr>
</tbody>
</table>

**Skin** : No additional information.

**Eyes** : No additional information.

**Respiratory** : No additional information.

### Sensitization

**Skin** : No additional information.

**Respiratory** : No additional information.

### Mutagenicity

**Conclusion/Summary** : No additional information.

### Carcinogenicity

**Conclusion/Summary** : No additional information.

### Classification

**Conclusion/Summary** : No additional information.
Section 11. Toxicological information

<table>
<thead>
<tr>
<th>Product/ingredient name</th>
<th>OSHA</th>
<th>IARC</th>
<th>NTP</th>
<th>Category</th>
<th>Route of exposure</th>
<th>Target organs</th>
</tr>
</thead>
<tbody>
<tr>
<td>Fuels, diesel, No 2</td>
<td>-</td>
<td>3</td>
<td>-</td>
<td>Category 2</td>
<td>Not applicable.</td>
<td>Respiratory tract irritation and Narcotic effects</td>
</tr>
<tr>
<td>Naphthalene</td>
<td>-</td>
<td>2B</td>
<td>-</td>
<td>Category 3</td>
<td>Not applicable.</td>
<td>Respiratory tract irritation</td>
</tr>
<tr>
<td>Cumene</td>
<td>-</td>
<td>2B</td>
<td>-</td>
<td>Category 3</td>
<td>Not applicable.</td>
<td>Respiratory tract irritation</td>
</tr>
<tr>
<td>Xylenes, mixed isomers</td>
<td>-</td>
<td>3</td>
<td>-</td>
<td>Category 3</td>
<td>Not applicable.</td>
<td>Respiratory tract irritation</td>
</tr>
<tr>
<td>Ethylbenzene</td>
<td>-</td>
<td>2B</td>
<td>-</td>
<td>Category 3</td>
<td>Not applicable.</td>
<td>Respiratory tract irritation</td>
</tr>
</tbody>
</table>

Reproductive toxicity

Conclusion/Summary: No additional information.

Teratogenicity

Conclusion/Summary: No additional information.

Specific target organ toxicity (single exposure)

<table>
<thead>
<tr>
<th>Name</th>
<th>Category</th>
<th>Route of exposure</th>
<th>Target organs</th>
</tr>
</thead>
<tbody>
<tr>
<td>Trimethylbenzene, all isomers</td>
<td>Category 3</td>
<td>Not applicable.</td>
<td>Respiratory tract irritation and Narcotic effects</td>
</tr>
<tr>
<td>Biphenyl</td>
<td>Category 3</td>
<td>Not applicable.</td>
<td>Respiratory tract irritation</td>
</tr>
<tr>
<td>1,2,4-Trimethylbenzene</td>
<td>Category 3</td>
<td>Not applicable.</td>
<td>Respiratory tract irritation</td>
</tr>
<tr>
<td>Cumene</td>
<td>Category 3</td>
<td>Not applicable.</td>
<td>Respiratory tract irritation</td>
</tr>
<tr>
<td>Ethylbenzene</td>
<td>Category 3</td>
<td>Not applicable.</td>
<td>Respiratory tract irritation</td>
</tr>
<tr>
<td>Propylbenzene</td>
<td>Category 3</td>
<td>Not applicable.</td>
<td>Respiratory tract irritation</td>
</tr>
</tbody>
</table>

Specific target organ toxicity (repeated exposure)

<table>
<thead>
<tr>
<th>Name</th>
<th>Category</th>
<th>Route of exposure</th>
<th>Target organs</th>
</tr>
</thead>
<tbody>
<tr>
<td>Trimethylbenzene, all isomers</td>
<td>Category 2</td>
<td>Not determined</td>
<td>central nervous system (CNS) ears</td>
</tr>
<tr>
<td>Ethylbenzene</td>
<td>Category 2</td>
<td>Inhalation</td>
<td></td>
</tr>
</tbody>
</table>

Aspiration hazard

<table>
<thead>
<tr>
<th>Name</th>
<th>Result</th>
</tr>
</thead>
<tbody>
<tr>
<td>Trimethylbenzene, all isomers</td>
<td>ASPIRATION HAZARD - Category 1</td>
</tr>
<tr>
<td>Cumene</td>
<td>ASPIRATION HAZARD - Category 1</td>
</tr>
<tr>
<td>Ethylbenzene</td>
<td>ASPIRATION HAZARD - Category 1</td>
</tr>
<tr>
<td>propylbenzene</td>
<td>ASPIRATION HAZARD - Category 1</td>
</tr>
</tbody>
</table>

Information on the likely routes of exposure: Routes of entry anticipated: Dermal, Inhalation.

Potential acute health effects

Eye contact: Causes eye irritation.
Inhalation: Harmful if inhaled.
Skin contact: Causes skin irritation.
Ingestion: May be fatal if swallowed and enters airways. Irritating to mouth, throat and stomach.

Symptoms related to the physical, chemical and toxicological characteristics

Eye contact: Adverse symptoms may include the following:
- pain or irritation
- watering
- redness

Inhalation: No specific data.

Date of issue/Date of revision: 3/26/2015.
### Section 11. Toxicological information

**Skin contact**: Adverse symptoms may include the following:
- irritation
- redness

**Ingestion**: Adverse symptoms may include the following:
- nausea or vomiting

#### Potential chronic health effects

**General**: May cause damage to organs through prolonged or repeated exposure.

**Carcinogenicity**: Suspected of causing cancer. Risk of cancer depends on duration and level of exposure.

**Mutagenicity**: No known significant effects or critical hazards.

**Teratogenicity**: No known significant effects or critical hazards.

**Developmental effects**: No known significant effects or critical hazards.

**Fertility effects**: No known significant effects or critical hazards.

### Section 12. Ecological information

#### Toxicity

<table>
<thead>
<tr>
<th>Product/ingredient name</th>
<th>Result</th>
<th>Species</th>
<th>Exposure</th>
</tr>
</thead>
<tbody>
<tr>
<td>Trimethylbenzene, all isomers</td>
<td>Acute LC50 5600 µg/l Marine water</td>
<td>Crustaceans - Palaemonetes pugio</td>
<td>48 hours</td>
</tr>
<tr>
<td></td>
<td>Acute EC50 1600 µg/l Fresh water</td>
<td>Daphnia - Daphnia magna - Neonate</td>
<td>48 hours</td>
</tr>
<tr>
<td></td>
<td>Acute LC50 2350 µg/l Marine water</td>
<td>Crustaceans - Palaemonetes pugio</td>
<td>48 hours</td>
</tr>
<tr>
<td></td>
<td>Acute LC50 213 µg/l Fresh water</td>
<td>Fish - Melanotaenia fluviatilis - Larvae</td>
<td>96 hours</td>
</tr>
<tr>
<td>Biphenyl</td>
<td>Chronic NOEC 0.67 ppm Fresh water</td>
<td>Fish - Oncorhynchus kisutch</td>
<td>40 days</td>
</tr>
<tr>
<td></td>
<td>Acute LC50 360 µg/l Fresh water</td>
<td>Daphnia - Daphnia magna - Neonate</td>
<td>48 hours</td>
</tr>
<tr>
<td></td>
<td>Acute LC50 1450 µg/l Fresh water</td>
<td>Fish - Pimephales promelas - Neonate</td>
<td>96 hours</td>
</tr>
<tr>
<td></td>
<td>Chronic NOEC 0.17 mg/l Fresh water</td>
<td>Daphnia - Daphnia magna - Neonate</td>
<td>21 days</td>
</tr>
<tr>
<td>Cumene</td>
<td>Chronic NOEC 0.229 mg/l Fresh water</td>
<td>Fish - Oncorhynchus mykiss - Neonate</td>
<td>87 days</td>
</tr>
<tr>
<td></td>
<td>Acute EC50 2600 µg/l Fresh water</td>
<td>Algae - Pseudokirchneriella subcapitata</td>
<td>72 hours</td>
</tr>
<tr>
<td></td>
<td>Acute EC50 7400 µg/l Fresh water</td>
<td>Crustaceans - Artemia sp. - Nauplii</td>
<td>48 hours</td>
</tr>
<tr>
<td></td>
<td>Acute EC50 10600 µg/l Fresh water</td>
<td>Daphnia - Daphnia magna - Neonate</td>
<td>48 hours</td>
</tr>
<tr>
<td>Xylenes, mixed isomers</td>
<td>Acute LC50 2700 µg/l Fresh water</td>
<td>Fish - Oncorhynchus mykiss - Neonate</td>
<td>96 hours</td>
</tr>
<tr>
<td></td>
<td>Acute EC50 90 µg/ml Fresh water</td>
<td>Crustaceans - Cypris subglobosa</td>
<td>48 hours</td>
</tr>
<tr>
<td></td>
<td>Acute LC50 8.5 ppm Marine water</td>
<td>Crustaceans - Palaemonetes pugio - Adult</td>
<td>48 hours</td>
</tr>
<tr>
<td></td>
<td>Acute LC50 8500 µg/l Marine water</td>
<td>Crustaceans - Palaemonetes pugio</td>
<td>48 hours</td>
</tr>
<tr>
<td></td>
<td>Acute LC50 15700 µg/l Fresh water</td>
<td>Fish - Lepomis macrochirus - Juvenile (Fledgling, Hatchling, Weanling)</td>
<td>96 hours</td>
</tr>
<tr>
<td>Ethylbenzene</td>
<td>Acute LC50 19000 µg/l Fresh water</td>
<td>Fish - Lepomis macrochirus</td>
<td>96 hours</td>
</tr>
<tr>
<td></td>
<td>Acute LC50 13400 µg/l Fresh water</td>
<td>Fish - Pimephales promelas</td>
<td>96 hours</td>
</tr>
<tr>
<td></td>
<td>Acute LC50 16940 µg/l Fresh water</td>
<td>Fish - Carassiusaurus</td>
<td>96 hours</td>
</tr>
<tr>
<td></td>
<td>Acute EC50 4600 µg/l Fresh water</td>
<td>Algae - Pseudokirchneriella subcapitata</td>
<td>72 hours</td>
</tr>
<tr>
<td></td>
<td>Acute EC50 3600 µg/l Fresh water</td>
<td>Algae - Pseudokirchneriella subcapitata</td>
<td>96 hours</td>
</tr>
</tbody>
</table>

**Date of issue/Date of revision**: 3/26/2015.
Section 12. Ecological information

<table>
<thead>
<tr>
<th>Product/ingredient name</th>
<th>LogP&lt;sub&gt;ow&lt;/sub&gt;</th>
<th>BCF</th>
<th>Potential</th>
</tr>
</thead>
<tbody>
<tr>
<td>Fuels, diesel, No 2</td>
<td>&gt;3.3</td>
<td>-</td>
<td>low</td>
</tr>
<tr>
<td>Trimethylbenzene, all isomers</td>
<td>3.4 to 3.8 3.4</td>
<td>-</td>
<td>low</td>
</tr>
<tr>
<td>Naphthalene</td>
<td>3.4</td>
<td>36.5 to 168</td>
<td>low</td>
</tr>
<tr>
<td>Biphenyl</td>
<td>4.008</td>
<td>1900</td>
<td>high</td>
</tr>
<tr>
<td>Cumene</td>
<td>3.55</td>
<td>94.69</td>
<td>low</td>
</tr>
<tr>
<td>Xylenes, mixed isomers</td>
<td>3.12</td>
<td>8.1 to 25.9</td>
<td>low</td>
</tr>
<tr>
<td>Ethylbenzene</td>
<td>3.6</td>
<td>-</td>
<td>low</td>
</tr>
</tbody>
</table>

Persistence and degradability

Conclusion/Summary: Not available.

Bioaccumulative potential

Conclusion/Summary: Not available.

Mobility in soil

Soil/water partition coefficient (K<sub>oc</sub>): Not available.

Other adverse effects: No known significant effects or critical hazards.

Section 13. Disposal considerations

Disposal methods: The generation of waste should be avoided or minimized wherever possible. Disposal of this product, solutions and any by-products should at all times comply with the requirements of environmental protection and waste disposal legislation and any regional local authority requirements. Dispose of surplus and non-recyclable products via a licensed waste disposal contractor. Waste should not be disposed of untreated to the sewer unless fully compliant with the requirements of all authorities with jurisdiction. Waste packaging should be recycled. This material and its container must be disposed of in a safe way. Care should be taken when handling emptied containers that have not been cleaned or rinsed out. Empty containers or liners may retain some product residues. Vapor from product residues may create a highly flammable or explosive atmosphere inside the container. Do not cut, weld or grind used containers unless they have been cleaned thoroughly internally. Avoid dispersal of spilled material and runoff and contact with soil, waterways, drains and sewers.

RCRA classification: D001, D018

Section 14. Transport information

<table>
<thead>
<tr>
<th>DOT Classification</th>
<th>IMDG</th>
<th>IATA</th>
</tr>
</thead>
<tbody>
<tr>
<td>UN number</td>
<td>NA1993</td>
<td>UN 1202</td>
</tr>
<tr>
<td>UN proper shipping name</td>
<td>NA 1993, Diesel Fuel, 3, PG III</td>
<td>UN 1202, Diesel Fuel, 3, PG III</td>
</tr>
</tbody>
</table>

Date of issue/Date of revision: 3/26/2015.
## Section 14. Transport information

<table>
<thead>
<tr>
<th>Transport hazard class(es)</th>
<th>Packing group</th>
<th>Environmental hazards</th>
<th>Additional information</th>
</tr>
</thead>
<tbody>
<tr>
<td>3</td>
<td>III</td>
<td>No.</td>
<td>Packaging instruction</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>Passenger aircraft</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>Quantity limitation: 60 L</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>Packaging instructions: Y309</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>Cargo aircraft</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>Quantity limitation: 220 L</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>Packaging instructions: 310</td>
</tr>
<tr>
<td></td>
<td></td>
<td>Yes.</td>
<td>Remarks</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>49 CFR 173.150 (f)(1) states that a flammable liquid with a flash point at or above 38ºC (100ºF) that does not meet the definition of any other hazard class may be reclassified as a combustible liquid. This provision does not apply to transportation by vessel or aircraft except where other means of transportaion is impracticable.</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>Special precautions for user: Transport within user’s premises: always transport in closed containers that are upright and secure. Ensure that persons transporting the product know what to do in the event of an accident or spillage.</td>
</tr>
<tr>
<td></td>
<td></td>
<td>No.</td>
<td>Cargo Aircraft Only</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>Quantity limitation: 220 L</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>Packaging instructions: 310</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>Limited Quantities -</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>Passenger Aircraft</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>Quantity limitation: 60 L</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>Packaging instructions: 309Y</td>
</tr>
</tbody>
</table>

## Section 15. Regulatory information

**U.S. Federal regulations**
- **United States inventory (TSCA 8b):** All components are listed or exempted.
- **Clean Water Act (CWA) 307:** Ethylbenzene; Naphthalene; Toluene; Benzene
- **Clean Water Act (CWA) 311:** Ethylbenzene; Xylenes, mixed isomers; Naphthalene; Toluene; Benzene

This material is classified as an oil under Section 311 of the Clean Water Act (CWA) and the Oil Pollution Act of 1990 (OPA). Discharges or spills which produce a visible sheen on waters of the United States, their adjoining shorelines, or into conduits leading to surface waters must be reported to the EPA's National Response Center at (800) 424-8802.

**SARA 302/304**
- **Composition/information on ingredients:**
  - **SARA 304 RQ:** Not applicable.

**Date of issue/Date of revision:** 3/26/2015.
Section 15. Regulatory information

SARA 311/312

Classification: Fire hazard
Immediate (acute) health hazard
Delayed (chronic) health hazard

Composition/information on ingredients

<table>
<thead>
<tr>
<th>Name</th>
<th>Fire hazard</th>
<th>Sudden release of pressure</th>
<th>Reactive</th>
<th>Immediate (acute) health hazard</th>
<th>Delayed (chronic) health hazard</th>
</tr>
</thead>
<tbody>
<tr>
<td>Fuels, diesel, No 2</td>
<td>Yes.</td>
<td>No.</td>
<td>No.</td>
<td>Yes.</td>
<td>Yes.</td>
</tr>
<tr>
<td>Trimethylbenzene, all isomers</td>
<td>Yes.</td>
<td>No.</td>
<td>No.</td>
<td>Yes.</td>
<td>Yes.</td>
</tr>
<tr>
<td>Naphthalene</td>
<td>Yes.</td>
<td>No.</td>
<td>No.</td>
<td>Yes.</td>
<td>Yes.</td>
</tr>
<tr>
<td>Cumene</td>
<td>Yes.</td>
<td>No.</td>
<td>No.</td>
<td>Yes.</td>
<td>Yes.</td>
</tr>
<tr>
<td>Xylenes, mixed isomers</td>
<td>Yes.</td>
<td>No.</td>
<td>No.</td>
<td>Yes.</td>
<td>Yes.</td>
</tr>
<tr>
<td>Ethylbenzene</td>
<td>Yes.</td>
<td>No.</td>
<td>No.</td>
<td>Yes.</td>
<td>Yes.</td>
</tr>
</tbody>
</table>

SARA 313

<table>
<thead>
<tr>
<th>Form R - Reporting requirements</th>
<th>Product name</th>
<th>CAS number</th>
<th>%</th>
</tr>
</thead>
<tbody>
<tr>
<td>Supplier notification</td>
<td>Naphthalene</td>
<td>91-20-3</td>
<td>&lt;1</td>
</tr>
<tr>
<td></td>
<td>Ethylbenzene</td>
<td>100-41-4</td>
<td>&lt;1</td>
</tr>
</tbody>
</table>

SARA 313 notifications must not be detached from the SDS and any copying and redistribution of the SDS shall include copying and redistribution of the notice attached to copies of the SDS subsequently redistributed.

State regulations

Massachusetts: The following components are listed: Trimethylbenzene, all isomers; Ethyltoluene

New York: The following components are listed: Ethylbenzene; Cumene; Benzene, 1-methylethyl-; Naphthalene

New Jersey: The following components are listed: Ethylbenzene; Cumene; NAPHTHALENE; TRIMETHYL BENZENE (mixed isomers); BENZENE, TRIMETHYL-; ETHYLTOLUENES; BENZENE, ETHYLMETHYL-

Pennsylvania: The following components are listed: Ethylbenzene; Cumene; NAPHTHALENE; Trimethylbenzene, all isomers; Ethyltoluene

California Prop. 65

WARNING: This product contains a chemical known to the State of California to cause cancer.

WARNING: This product contains less than 1% of a chemical known to the State of California to cause birth defects or other reproductive harm.

<table>
<thead>
<tr>
<th>Ingredient name</th>
<th>%</th>
<th>Cancer</th>
<th>Reproductive</th>
<th>No significant risk level</th>
<th>Maximum acceptable dosage level</th>
</tr>
</thead>
<tbody>
<tr>
<td>Naphthalene</td>
<td>&lt;1</td>
<td>Yes.</td>
<td>No.</td>
<td>Yes.</td>
<td>No.</td>
</tr>
<tr>
<td>Cumene</td>
<td>&lt;1</td>
<td>Yes.</td>
<td>No.</td>
<td>No.</td>
<td>No.</td>
</tr>
<tr>
<td>Ethylbenzene</td>
<td>&lt;1</td>
<td>Yes.</td>
<td>No.</td>
<td>No.</td>
<td>No.</td>
</tr>
<tr>
<td>Diesel exhaust particulate</td>
<td>&lt;1</td>
<td>Yes.</td>
<td>No.</td>
<td>No.</td>
<td>No.</td>
</tr>
<tr>
<td>Toluene</td>
<td>&lt;0.1</td>
<td>No.</td>
<td>Yes.</td>
<td>No.</td>
<td>No.</td>
</tr>
<tr>
<td>Benzene</td>
<td>&lt;0.1</td>
<td>Yes.</td>
<td>Yes.</td>
<td>6.4 µg/day (ingestion)</td>
<td>24 µg/day (ingestion)</td>
</tr>
</tbody>
</table>

International regulations
Section 15. Regulatory information

<table>
<thead>
<tr>
<th>International lists</th>
<th>Canada inventory</th>
<th>EU Inventory</th>
<th>WHMIS (Canada)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Australia inventory (AICS): All components are listed or exempted.</td>
<td>All components are listed or exempted.</td>
<td>All components are listed or exempted.</td>
<td>Class B-3: Combustible liquid with a flash point between 37.8°C (100°F) and 93.3°C (200°F). Class D-2A: Material causing other toxic effects (Very toxic).</td>
</tr>
<tr>
<td>China inventory (IECSC): All components are listed or exempted.</td>
<td>All components are listed or exempted.</td>
<td>Not determined.</td>
<td></td>
</tr>
<tr>
<td>Japan inventory: All components are listed or exempted.</td>
<td>All components are listed or exempted.</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Korea inventory: All components are listed or exempted.</td>
<td>All components are listed or exempted.</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Malaysia Inventory (EHS Register): Not determined.</td>
<td>All components are listed or exempted.</td>
<td></td>
<td></td>
</tr>
<tr>
<td>New Zealand Inventory of Chemicals (NZIoC): All components are listed or exempted.</td>
<td>All components are listed or exempted.</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Philippines inventory (PICCS): All components are listed or exempted.</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Taiwan inventory (CSNN): Not determined.</td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

Section 16. Other information

National Fire Protection Association (U.S.A.)

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Copyright ©2001, National Fire Protection Association, Quincy, MA 02269. This warning system is intended to be interpreted and applied only by properly trained individuals to identify fire, health and reactivity hazards of chemicals. The user is referred to certain limited number of chemicals with recommended classifications in NFPA 49 and NFPA 325, which would be used as a guideline only. Whether the chemicals are classified by NFPA or not, anyone using the 704 systems to classify chemicals does so at their own risk.

History

Date of issue/Date of revision: 3/26/2015.


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Section 16. Other information

PRODUCT.

CITGO is a registered trademark of CITGO Petroleum Corporation
SECTION 1. PRODUCT AND COMPANY IDENTIFICATION

Product name : Gasoline, Unleaded
Synonyms : Blend of Highly Flammable Petroleum Distillates, Regular, Mid-Grade, Premium, 888100008809
SDS Number : 888100008809  Version : 1.1
Product Use Description : Fuel
Company : For: Tesoro Refining & Marketing Co.
           19100 Ridgewood Parkway, San Antonio, TX 78259
Tesoro Call Center : (877) 783-7676  Chemtrec : (800) 424-9300
           (Emergency Contact)

SECTION 2. HAZARDS IDENTIFICATION

Classifications : Flammable Liquid – Category 1 or 2 depending on formulation.
                 Aspiration Hazard – Category 1
                 Carcinogenicity – Category 2
                 Specific Target Organ Toxicity (Repeated Exposure) – Category 2
                 Specific Target Organ Toxicity (Single Exposure) – Category 3
                 Skin Irritation – Category 2
                 Eye Irritation – Category 2B
                 Chronic Aquatic Toxicity – Category 2

Pictograms :

Signal Word : Danger

Hazard Statements :
Extremely flammable liquid and vapor.
May be fatal if swallowed and enters airways – do not siphon gasoline by mouth.
Suspected of causing blood cancer if repeated over-exposure by inhalation and/or skin contact occurs.
May cause damage to liver, kidneys and nervous system by repeated and prolonged inhalation or skin contact. Causes eye irritation. Can be absorbed through skin.
May cause drowsiness or dizziness. Extreme exposure such as intentional inhalation may cause unconsciousness, asphyxiation and death.
Repeated or prolonged skin contact can cause irritation and dermatitis.
Harmful to aquatic life.

Precautionary statements

**Prevention**
- Obtain special instructions before use.
- Do not handle until all safety precautions have been read and understood.
- Keep away from heat, sparks, open flames, welding and hot surfaces.
- No smoking.
- Keep container tightly closed.
- Ground and/or bond container and receiving equipment.
- Use explosion-proof electrical equipment.
- Use only non-sparking tools (if tools are used in flammable atmosphere).
- Take precautionary measures against static discharge.
- Wear gloves, eye protection and face protection (as needed to prevent skin and eye contact with liquid).
- Wash hands or liquid-contacted skin thoroughly after handling.
- Do not eat, drink or smoke when using this product.
- Do not breathe vapors.
- Use only outdoors or in a well-ventilated area.

**Response**
- In case of fire: Use dry chemical, CO2, water spray or fire fighting foam to extinguish.
- If swallowed: Immediately call a poison center, doctor, hospital emergency room, medical clinic or 911. Do NOT induce vomiting. Rinse mouth.
- If on skin (or hair): Take off immediately all contaminated clothing. Rinse skin with water/shower.
- If in eye: Rinse cautiously with water for several minutes. Remove contact lenses, if present and easy to do. Continue rinsing.
- If skin or eye irritation persists, get medical attention.
- If inhaled: Remove person to fresh air and keep comfortable for breathing. Get medical attention if you feel unwell.

**Storage**
- Store in a well ventilated place. Keep cool. Store locked up. Keep container tightly closed. Use only approved containers. Some containers not approved for gasoline may dissolve and release flammable gasoline liquid and vapors.

**Disposal**
- Dispose of contents/containers to approved disposal site in accordance with local, regional, national, and/or international regulations.

### SECTION 3. COMPOSITION/INFORMATION ON INGREDIENTS

<table>
<thead>
<tr>
<th>Component</th>
<th>CAS-No.</th>
<th>Weight %</th>
</tr>
</thead>
<tbody>
<tr>
<td>Gasoline, natural; Low boiling point naphtha</td>
<td>8006-61-9</td>
<td>10 - 30%</td>
</tr>
<tr>
<td>Toluene</td>
<td>108-88-3</td>
<td>10 - 30%</td>
</tr>
<tr>
<td>Xylene</td>
<td>1330-20-7</td>
<td>10 - 30%</td>
</tr>
<tr>
<td>Ethanol; ethyl alcohol</td>
<td>64-17-5</td>
<td>0-8.2%</td>
</tr>
<tr>
<td>Trimethylbenzene</td>
<td>25551-13-7</td>
<td>1 - 5%</td>
</tr>
<tr>
<td>Isopentane; 2-methylbutane</td>
<td>78-78-4</td>
<td>1 - 5%</td>
</tr>
</tbody>
</table>
SAFETY DATA SHEET
GASOLINE, UNLEADED

<table>
<thead>
<tr>
<th>Compound</th>
<th>CAS Number</th>
<th>Concentration</th>
</tr>
</thead>
<tbody>
<tr>
<td>Naphthalene</td>
<td>91-20-3</td>
<td>1 - 5%</td>
</tr>
<tr>
<td>Benzene</td>
<td>71-43-2</td>
<td>Less than 1.3%</td>
</tr>
<tr>
<td>Pentane</td>
<td>109-66-0</td>
<td>1 - 5%</td>
</tr>
<tr>
<td>Cyclohexane</td>
<td>110-82-7</td>
<td>1 - 5%</td>
</tr>
<tr>
<td>Ethylbenzene</td>
<td>100-41-4</td>
<td>1 - 5%</td>
</tr>
<tr>
<td>Butane</td>
<td>106-97-8</td>
<td>1 - 20%</td>
</tr>
<tr>
<td>Heptane [and isomers]</td>
<td>142-82-5</td>
<td>0.5 - 0.75%</td>
</tr>
<tr>
<td>N-hexane</td>
<td>110-54-3</td>
<td>0.5 - 0.75%</td>
</tr>
</tbody>
</table>

SECTION 4. FIRST AID MEASURES

Inhalation: If inhaled, remove to fresh air. If not breathing, give artificial respiration. If breathing is difficult, give oxygen. Seek medical attention immediately.

Skin contact: In case of contact, immediately flush skin with plenty of water. Take off contaminated clothing and shoes immediately. Wash contaminated clothing before re-use. Contaminated leather, particularly footwear, must be discarded. Note that contaminated clothing may be a fire hazard. Seek medical advice if symptoms persist or develop.

Eye contact: Remove contact lenses. Rinse immediately with plenty of water, also under the eyelids, for at least 15 minutes. Seek medical advice if symptoms persist or develop.

Ingestion: Do NOT induce vomiting. Never give anything by mouth to an unconscious person. Obtain medical attention.

Notes to physician: Symptoms: Dizziness, Discomfort, Headache, Nausea, Kidney disorders, Liver disorders. Aspiration may cause pulmonary edema and pneumonitis. Swallowing gasoline is more likely to be fatal for small children than adults, even if aspiration does not occur.

SECTION 5. FIRE-FIGHTING MEASURES

Suitable extinguishing media: SMALL FIRES: Any extinguisher suitable for Class B fires, dry chemical, CO2, water spray or fire fighting foam. LARGE FIRES: Water spray, fog or fire fighting foam. Water may be ineffective for fighting the fire, but may be used to cool fire-exposed containers. Keep containers and surroundings cool with water spray.

Specific hazards during fire fighting: Extremely flammable liquid and vapor. This material is combustible/flammable and is sensitive to fire, heat, and static discharge.

Special protective equipment for fire-fighters: Firefighting activities that may result in potential exposure to high heat, smoke or toxic by-products of combustion should require NIOSH/MSHA- approved pressure-demand self-contained breathing apparatus with full facepiece and full protective clothing.
Further information: Isolate area around container involved in fire. Cool tanks, shells, and containers exposed to fire and excessive heat with water. For massive fires the use of unmanned hose holders or monitor nozzles may be advantageous to further minimize personnel exposure. Major fires may require withdrawal, allowing the tank to burn. Large storage tank fires typically require specially trained personnel and equipment to extinguish the fire, often including the need for properly applied fire fighting foam. Exposure to decomposition products may be a hazard to health. Use extinguishing measures that are appropriate to local circumstances and the surrounding environment. Use water spray to cool unopened containers. Fire residues and contaminated fire extinguishing water must be disposed of in accordance with local regulations.

SECTION 6. ACCIDENTAL RELEASE MEASURES

Personal precautions: Evacuate personnel to safe areas. Ventilate the area. Remove all sources of ignition. Response and clean-up crews must be properly trained and must utilize proper protective equipment (see Section 8).

Environmental precautions: Discharge into the environment must be avoided. If the product contaminates rivers and lakes or drains inform respective authorities.

Methods for cleaning up: Contain and collect spillage with non-combustible absorbent material, (e.g. sand, earth, diatomaceous earth, vermiculite) and place in container for disposal according to local / national regulations.

SECTION 7. HANDLING AND STORAGE

Precautions for safe handling: Keep away from fire, sparks and heated surfaces. No smoking near areas where material is stored or handled. The product should only be stored and handled in areas with intrinsically safe electrical classification.

Hydrocarbon liquids including this product can act as a non-conductive flammable liquid (or static accumulators), and may form ignitable vapor-air mixtures in storage tanks or other containers. Precautions to prevent static-initiated fire or explosion during transfer, storage or handling, include but are not limited to these examples:

1. Ground and bond containers during product transfers. Grounding and bonding may not be adequate protection to prevent ignition or explosion of hydrocarbon liquids and vapors that are static accumulators.

2. Special slow load procedures for “switch loading” must be followed to avoid the static ignition hazard that can exist when higher flash point material (such as fuel oil or diesel) is loaded into tanks previously containing low flash point products (such gasoline or naphtha).

3. Storage tank level floats must be effectively bonded.

For more information on precautions to prevent static-initiated fire or explosion, see NFPA 77, Recommended Practice on Static Electricity (2007), and API Recommended Practice 2003, Protection Against Ignitions Arising Out of Static, Lightning, and Stray Currents (2008).

Conditions for safe storage, including incompatibilities: Keep away from flame, sparks, excessive temperatures and open flame. Use approved containers. Keep containers closed and clearly labeled. Empty or partially full product containers or vessels may contain explosive vapors. Do not pressurize, cut, heat, weld or expose containers to sources of ignition. Store in a well-ventilated area. The storage area should comply with NFPA 30 “Flammable and Combustible Liquid Code”. The cleaning of tanks previously containing this product should follow API Recommended Practice (RP) 2013 “Cleaning Mobile Tanks In Flammable and Combustible Liquid Service” and API RP 2015 “Cleaning Petroleum Storage Tanks”.
Reports suggest that government-mandated ethanol, if present, may not be compatible with fiberglass gasoline tanks. Ethanol may dissolve fiberglass resin, causing engine damage and possibly allow leakage of explosive gasoline.

Keep away from food, drink and animal feed. Incompatible with oxidizing agents. Incompatible with acids.

No decomposition if stored and applied as directed. Emergency eye wash capability should be available in the near proximity to operations presenting a potential splash exposure. Store only in containers approved and labeled for gasoline.

### SECTION 8. EXPOSURE CONTROLS / PERSONAL PROTECTION

#### Exposure Guidelines

<table>
<thead>
<tr>
<th>List</th>
<th>Components</th>
<th>CAS-No.</th>
<th>Type:</th>
<th>Value</th>
</tr>
</thead>
<tbody>
<tr>
<td>OSHA</td>
<td>Benzene</td>
<td>71-43-2</td>
<td>TWA</td>
<td>1 ppm</td>
</tr>
<tr>
<td></td>
<td></td>
<td>71-43-2</td>
<td>STEL</td>
<td>5 ppm</td>
</tr>
<tr>
<td></td>
<td></td>
<td>71-43-2</td>
<td>OSHA_ACT</td>
<td>0.5 ppm</td>
</tr>
<tr>
<td>OSHA Z1</td>
<td>Xylene</td>
<td>1330-20-7</td>
<td>PEL</td>
<td>100 ppm</td>
</tr>
<tr>
<td></td>
<td>Ethanol; Ethyl alcohol</td>
<td>64-17-5</td>
<td>PEL</td>
<td>1,000 ppm</td>
</tr>
<tr>
<td></td>
<td>Naphthalene</td>
<td>91-20-3</td>
<td>PEL</td>
<td>10 ppm</td>
</tr>
<tr>
<td></td>
<td>Cyclohexane</td>
<td>110-82-7</td>
<td>PEL</td>
<td>300 ppm</td>
</tr>
<tr>
<td></td>
<td>Ethylbenzene</td>
<td>100-41-4</td>
<td>PEL</td>
<td>100 ppm</td>
</tr>
<tr>
<td></td>
<td>Heptane [and isomers]</td>
<td>142-82-5</td>
<td>PEL</td>
<td>500 ppm</td>
</tr>
<tr>
<td></td>
<td>N-hexane</td>
<td>110-54-3</td>
<td>PEL</td>
<td>500 ppm</td>
</tr>
<tr>
<td>ACGIH</td>
<td>Toluene</td>
<td>108-88-3</td>
<td>TWA</td>
<td>50 ppm</td>
</tr>
<tr>
<td></td>
<td>Xylene</td>
<td>1330-20-7</td>
<td>TWA</td>
<td>100 ppm</td>
</tr>
<tr>
<td></td>
<td>Ethanol; Ethyl alcohol</td>
<td>64-17-5</td>
<td>STEL</td>
<td>150 ppm</td>
</tr>
<tr>
<td></td>
<td>Trimethylbenzene</td>
<td>25551-13-7</td>
<td>TWA</td>
<td>25 ppm</td>
</tr>
<tr>
<td></td>
<td>Isopentane; 2-Methylbutane</td>
<td>78-78-4</td>
<td>TWA</td>
<td>600 ppm</td>
</tr>
<tr>
<td></td>
<td>Naphthalene</td>
<td>91-20-3</td>
<td>TWA</td>
<td>10 ppm</td>
</tr>
<tr>
<td></td>
<td>Benzenene</td>
<td>71-43-2</td>
<td>TWA</td>
<td>0.5 ppm</td>
</tr>
<tr>
<td></td>
<td></td>
<td>71-43-2</td>
<td>STEL</td>
<td>2.5 ppm</td>
</tr>
<tr>
<td></td>
<td>Pentane</td>
<td>109-66-0</td>
<td>TWA</td>
<td>600 ppm</td>
</tr>
<tr>
<td></td>
<td>Cyclohexane</td>
<td>110-82-7</td>
<td>TWA</td>
<td>100 ppm</td>
</tr>
<tr>
<td></td>
<td>Ethylbenzene</td>
<td>100-41-4</td>
<td>TWA</td>
<td>100 ppm</td>
</tr>
<tr>
<td></td>
<td></td>
<td>100-41-4</td>
<td>STEL</td>
<td>125 ppm</td>
</tr>
<tr>
<td></td>
<td>Heptane [and isomers]</td>
<td>142-82-5</td>
<td>TWA</td>
<td>400 ppm</td>
</tr>
<tr>
<td></td>
<td></td>
<td>142-82-5</td>
<td>STEL</td>
<td>500 ppm</td>
</tr>
</tbody>
</table>
### Engineer measures
Use adequate ventilation to keep gas and vapor concentrations of this product below occupational exposure and flammability limits, particularly in confined spaces. Use only intrinsically safe electrical equipment approved for use in classified areas.

### Eye protection
Safety glasses or goggles are recommended where there is a possibility of splashing or spraying. Ensure that eyewash stations and safety showers are close to the workstation location.

### Hand protection
Gloves constructed of nitrile or neoprene are recommended. Consult manufacturer specifications for further information.

### Skin and body protection
If needed to prevent skin contact, chemical protective clothing such as of DuPont TyChem®, Saranex or equivalent recommended based on degree of exposure. Flame resistant clothing such as Nomex® is recommended in areas where material is stored or handled.

### Respiratory protection
A NIOSH/MSHA-approved air-purifying respirator with organic vapor cartridges or canister may be permissible under certain circumstances where airborne concentrations are or may be expected to exceed exposure limits or for odor or irritation. Protection provided by air-purifying respirators is limited. Refer to OSHA 29 CFR 1910.134, ANSI Z88.2-1992, NIOSH Respirator Decision Logic, and the manufacturer for additional guidance on respiratory protection selection. Use a NIOSH/MSHA-approved positive-pressure supplied-air respirator if there is a potential for uncontrolled release, exposure levels are not known, in oxygen-deficient atmospheres, or any other circumstance where an air-purifying respirator may not provide adequate protection.

### Work / Hygiene practices
Emergency eye wash capability should be available in the near proximity to operations presenting a potential splash exposure. Use good personal hygiene practices. Avoid repeated and/or prolonged skin exposure. Wash hands before eating, drinking, smoking, or using toilet facilities. Do not use as a cleaning solvent on the skin. Do not use solvents or harsh abrasive skin cleaners for washing this product from exposed skin areas. Waterless hand cleaners are effective. Promptly remove contaminated clothing and launder before reuse. Use care when laundering to prevent the formation of flammable vapors which could ignite via washer or dryer. Consider the need to discard contaminated leather shoes and gloves.

### SECTION 9. PHYSICAL AND CHEMICAL PROPERTIES

<table>
<thead>
<tr>
<th>Property</th>
<th>Value</th>
</tr>
</thead>
<tbody>
<tr>
<td>Appearance</td>
<td>Clear to straw colored liquid</td>
</tr>
<tr>
<td>Odor</td>
<td>Characteristic hydrocarbon-like</td>
</tr>
<tr>
<td>Odor threshold</td>
<td>0.5 - 1.1 ppm</td>
</tr>
<tr>
<td>pH</td>
<td>Not applicable</td>
</tr>
<tr>
<td>Melting point/freezing point</td>
<td>About -101°C (-150°F)</td>
</tr>
<tr>
<td>Initial boiling point &amp; range</td>
<td>Boiling point varies: 30 – 200°C (85 – 392°F)</td>
</tr>
<tr>
<td>Flash point</td>
<td>&lt; -21°C (-5.8°F)</td>
</tr>
<tr>
<td>Evaporation rate</td>
<td>Higher initially and declining as lighter components evaporate</td>
</tr>
<tr>
<td>Flammability (solid, gas)</td>
<td>Flammable vapor released by liquid</td>
</tr>
</tbody>
</table>
### Upper explosive limit
7.6 %(V)

### Lower explosive limit
1.3 %(V)

### Vapor pressure
345 - 1,034 hPa at 37.8 °C (100.0 °F)

### Vapor density (air = 1)
Approximately 3 to 4

### Relative density (water = 1)
0.8 g/mL

### Solubility (in water)
Negligible

### Partition coefficient (n-octanol/water)
2 – 7 as log Pow

### Auto-ignition temperature
Approximately 250°C (480°F)

### Decomposition temperature
Will evaporate or boil and possibly ignite before decomposition occurs.

### Kinematic viscosity
0.64 to 0.88 mm²/s range reported for gasoline

### Conductivity (conductivity can be reduced by environmental factors such as a decrease in temperature)
Hydrocarbon liquids without static dissipater additive may have conductivity below 1 picoSiemens per meter (pS/m). The highest electro-static ignition risks are associated with "ultra-low conductivities" below 5 pS/m. See Section 7 for sources of information on defining safe loading and handling procedures for low conductivity products.

### SECTION 10. STABILITY AND REACTIVITY

| Reactivity | Vapors may form explosive mixture with air. Hazardous polymerization does not occur. |
| Chemical stability | Stable under normal conditions. |
| Possibility of hazardous reactions | Can react with strong oxidizing agents, peroxides, alkaline products and strong acids. Contact with nitric and sulfuric acids will form nitrocresols that can decompose violently. |
| Conditions to avoid | Avoid high temperatures, open flames, sparks, welding, smoking and other ignition sources. Avoid static charge accumulation and discharge (see Section 7). |
| Hazardous decomposition products | Ignition and burning can release carbon monoxide, carbon dioxide and non-combusted hydrocarbons (smoke). |

### SECTION 11. TOXICOLOGICAL INFORMATION

| Skin contact | Irritating to skin. Can be partially absorbed through skin. |
| Eye contact | Irritating to eyes. |
| Ingestion | Aspiration hazard if liquid is inhaled into lungs, particularly from vomiting after ingestion. Aspiration may result in chemical pneumonia, severe lung damage, respiratory failure and even death. Ingestion may cause gastrointestinal disturbances, including irritation, nausea, vomiting and diarrhea, and central nervous (brain) effects similar to alcohol intoxication. In severe cases, tremors, convulsions, loss of consciousness, coma, respiratory arrest and death may occur. |
Inhalation and further information

Acute toxicity of benzene results primarily from depression of the central nervous system (CNS). Inhalation of concentrations over 50 ppm can produce headache, lassitude, weariness, dizziness, drowsiness, over excitation. Exposure to very high levels can result in unconsciousness and death.

Repeated over-exposure may cause liver and kidney injuries. Components of the product may affect the nervous system.

IARC has determined that gasoline and gasoline exhaust are possibly carcinogenic in humans. Inhalation exposure to completely vaporized unleaded gasoline caused kidney cancers in male rats and liver tumors in female mice. The U.S. EPA has determined that the male kidney tumors are species-specific and are irrelevant for human health risk assessment. The significance of the tumors seen in female mice is not known. Exposure to light hydrocarbons in the same boiling range as this product has been associated in animal studies with effects to the central and peripheral nervous systems, liver, and kidneys. The significance of these animal models to predict similar human response to gasoline is uncertain.

This product contains benzene. Human health studies indicate that prolonged and/or repeated overexposure to benzene may cause damage to the blood-forming system (particularly bone marrow), and serious blood disorders such as aplastic anemia and leukemia. Benzene is listed as a human carcinogen by the NTP, IARC, OSHA and ACGIH.

Component:

Gasoline, natural; Low boiling point naphtha 8006-61-9   **Acute oral toxicity:** LD50 rat  
Dose: 18.8 mg/kg

**Acute inhalation toxicity:** LC50 rat  
Dose: 20.7 mg/l  
Exposure time: 4 h

**Skin irritation:** Classification: Irritating to skin.  
Result: Mild skin irritation

**Eye irritation:** Classification: Irritating to eyes.  
Result: Moderate eye irritation

**Toluene** 108-88-3   **Acute oral toxicity:** LD50 rat  
Dose: 636 mg/kg

**Acute dermal toxicity:** LD50 rabbit  
Dose: 12,124 mg/kg

**Acute inhalation toxicity:** LC50 rat  
Dose: 49 mg/l  
Exposure time: 4 h

**Skin irritation:** Classification: Irritating to skin.  
Result: Mild skin irritation

**Eye irritation:** Classification: Irritating to eyes.  
Result: Mild eye irritation

**Prolonged skin contact may defat the skin and produce dermatitis.**

**Eye irritation:** Classification: Irritating to eyes.  
Result: Mild eye irritation

**Xylene** 1330-20-7   **Acute oral toxicity:** LD50 rat  
Dose: 2,840 mg/kg

**Acute dermal toxicity:** LD50 rabbit  
Dose: ca. 4,500 mg/kg

**Acute inhalation toxicity:** LC50 rat  
Dose: 6,350 mg/l  
Exposure time: 4 h

**Skin irritation:** Classification: Irritating to skin.  
Result: Mild skin irritation
Ethanol; Ethyl alcohol 64-17-5
- **Acute oral toxicity:** LD50 rat
  - Dose: 6,200 mg/kg
- **Acute dermal toxicity:** LD50 rabbit
  - Dose: 19,999 mg/kg
- **Acute inhalation toxicity:** LC50 rat
  - Dose: 8,001 mg/l
  - Exposure time: 4 h

Skin irritation: Classification: Irritating to skin.
Result: Mild skin irritation
Prolonged skin contact may cause skin irritation and/or dermatitis.

Eye irritation: Classification: Irritating to eyes.
Result: Mild eye irritation

Naphthalene 91-20-3
- **Acute oral toxicity:** LD50 rat
  - Dose: 2,001 mg/kg
- **Acute dermal toxicity:** LD50 rat
  - Dose: 2,501 mg/kg
- **Acute inhalation toxicity:** LC50 rat
  - Dose: 101 mg/l
  - Exposure time: 4 h

Skin irritation: Classification: Irritating to skin.
Result: Mild skin irritation

Eye irritation: Classification: Irritating to eyes.
Result: Mild eye irritation

Benzene 71-43-2
- **Acute oral toxicity:** LD50 rat
  - Dose: 930 mg/kg
- **Acute inhalation toxicity:** LC50 rat
  - Dose: 44 mg/l
  - Exposure time: 4 h

Skin irritation: Classification: Irritating to skin.
Result: Mild skin irritation
Repeated or prolonged exposure may cause skin irritation and dermatitis, due to degreasing properties of the product.

Eye irritation: Classification: Irritating to eyes.
Result: Risk of serious damage to eyes.

Pentane 109-66-0
- **Acute oral toxicity:** LD50 rat
  - Dose: 2,001 mg/kg
- **Acute inhalation toxicity:** LC50 rat
  - Dose: 364 mg/l
  - Exposure time: 4 h

Skin irritation: Repeated or prolonged exposure may cause skin irritation and dermatitis, due to degreasing properties of the product.

Eye irritation: Classification: Irritating to eyes.
Result: Mild eye irritation

Cyclohexane 110-82-7
- **Acute dermal toxicity:** LD50 rabbit
  - Dose: 2,001 mg/kg
- **Acute inhalation toxicity:** LC50 rat
  - Dose: 14 mg/l
  - Exposure time: 4 h
<table>
<thead>
<tr>
<th>Substance</th>
<th>CAS No.</th>
<th>Acute Oral Toxicity: LD50 rat</th>
<th>Dose</th>
<th>Acute Dermal Toxicity: LD50 rabbit</th>
<th>Dose</th>
<th>Acute Inhalation Toxicity: LC50 rat</th>
<th>Dose</th>
<th>Exposure Time</th>
</tr>
</thead>
<tbody>
<tr>
<td>Ethylbenzene</td>
<td>100-41-4</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
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<tr>
<td></td>
<td></td>
<td></td>
<td>3,500 mg/kg</td>
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<td></td>
</tr>
<tr>
<td>Heptane [and isomers]</td>
<td>142-82-5</td>
<td></td>
<td></td>
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<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>15,001 mg/kg</td>
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<td></td>
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<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>103 g/m3</td>
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<td></td>
<td></td>
</tr>
<tr>
<td>N-hexane</td>
<td>110-54-3</td>
<td></td>
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<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>25,000 mg/kg</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>2,001 mg/kg</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

**Skin irritation:** Classification: Irritating to skin. Result: Skin irritation

**Eye irritation:** Classification: Irritating to eyes. Result: Mild eye irritation

**Skin irritation:** Classification: Irritating to skin. Result: Mild skin irritation

**Eye irritation:** Classification: Irritating to eyes. Result: Risk of serious damage to eyes.

**Skin irritation:** Classification: Irritating to skin. Result: Skin irritation Repeated or prolonged exposure may cause skin irritation and dermatitis, due to degreasing properties of the product.

**Eye irritation:** Classification: Irritating to eyes. Result: Mild eye irritation

**Teratogenicity:** N11.00418960

### Carcinogenicity

**NTP**

- Naphthalene (CAS-No.: 91-20-3)
- Benzene (CAS-No.: 71-43-2)

**IARC**

- Gasoline, natural; Low boiling point naphtha (CAS-No.: 8006-61-9)
- Naphthalene (CAS-No.: 91-20-3)
- Benzene (CAS-No.: 71-43-2)
- Ethylbenzene (CAS-No.: 100-41-4)

**OSHA**

- Benzene (CAS-No.: 71-43-2)

**CA Prop 65**

- WARNING! This product contains a chemical known to the State of California to cause birth defects or other reproductive harm. Toluene (CAS-No.: 108-88-3)
**SECTION 12. ECOLOGICAL INFORMATION**

**Additional ecological information**: Keep out of sewers, drainage areas, and waterways. Report spills and releases, as applicable, under Federal and State regulations.

<table>
<thead>
<tr>
<th>Component</th>
<th>Toxicity to fish:</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Toluene</strong></td>
<td><strong>LC50</strong></td>
</tr>
<tr>
<td>Species: Carassius auratus (goldfish)</td>
<td>Dose: 13 mg/l, Exposure time: 96 h</td>
</tr>
<tr>
<td><strong>Acute and prolonged toxicity for aquatic invertebrates:</strong></td>
<td><strong>EC50</strong></td>
</tr>
<tr>
<td>Species: Daphnia magna (Water flea)</td>
<td>Dose: 11.5 mg/l, Exposure time: 48 h</td>
</tr>
<tr>
<td><strong>Toxicity to algae:</strong></td>
<td><strong>IC50</strong></td>
</tr>
<tr>
<td>Species: Selenastrum capricornutum (green algae)</td>
<td>Dose: 12 mg/l, Exposure time: 72 h</td>
</tr>
</tbody>
</table>

- **Ethanol; Ethyl alcohol**
- **LC50**
- Species: Leuciscus idus (Golden orfe)
- Dose: 8,140 mg/l, Exposure time: 48 h

- **Acute and prolonged toxicity for aquatic invertebrates:**
  - **EC50**
  - Species: Daphnia magna (Water flea)
  - Dose: 9,268 - 14,221 mg/l, Exposure time: 48 h

<table>
<thead>
<tr>
<th><strong>Isopentane; 2-Methylbutane</strong></th>
<th>Toxicity to fish:</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>LC50</strong></td>
<td><strong>Species:</strong> Oncorhynchus mykiss (rainbow trout)</td>
</tr>
<tr>
<td>Dose: 3.1 mg/l, Exposure time: 96 h</td>
<td><strong>Acute and prolonged toxicity for aquatic invertebrates:</strong></td>
</tr>
<tr>
<td><strong>EC50</strong></td>
<td><strong>Species:</strong> Daphnia magna (Water flea)</td>
</tr>
<tr>
<td>Dose: 2.3 mg/l, Exposure time: 96 h</td>
<td></td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th><strong>Naphthalene</strong></th>
<th>Toxicity to algae:</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>EC50</strong></td>
<td><strong>Species:</strong></td>
</tr>
<tr>
<td>Dose: 33 mg/l, Exposure time: 24 h</td>
<td></td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th><strong>Pentane</strong></th>
<th><strong>Acute and prolonged toxicity for aquatic invertebrates:</strong></th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>EC50</strong></td>
<td><strong>Species:</strong> Daphnia magna (Water flea)</td>
</tr>
<tr>
<td>Dose: 9.74 mg/l, Exposure time: 48 h</td>
<td></td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th><strong>Cyclohexane</strong></th>
<th><strong>Acute and prolonged toxicity for aquatic invertebrates:</strong></th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>EC50</strong></td>
<td><strong>Species:</strong> Daphnia magna (Water flea)</td>
</tr>
<tr>
<td>Dose: 3.78 mg/l, Exposure time: 48 h</td>
<td></td>
</tr>
</tbody>
</table>
Heptane [and isomers] 142-82-5  Toxicity to fish:

LC50
Species: Carassius auratus (goldfish)
Dose: 4 mg/l
Exposure time: 24 h

Acute and prolonged toxicity for aquatic invertebrates:
EC50
Species: Daphnia magna (Water flea)
Dose: 1.5 mg/l
Exposure time: 48 h

N-hexane 110-54-3  Toxicity to fish:

LC50
Species: Pimephales promelas (fathead minnow)
Dose: 2.5 mg/l
Exposure time: 96 h

Acute and prolonged toxicity for aquatic invertebrates:
EC50
Species: Daphnia magna (Water flea)
Dose: 2.1 mg/l
Exposure time: 48 h

SECTION 13. DISPOSAL CONSIDERATIONS

Disposal : Dispose of container and unused contents in accordance with federal, state and local requirements.

SECTION 14. TRANSPORT INFORMATION

CFR
Proper shipping name : Petrol
UN-No. : 1203
Class : 3
Packing group : II

TDG
Proper shipping name : Gasoline
UN-No. : UN1203
Class : 3
Packing group : II

IATA Cargo Transport
UN UN-No. : UN1203
Description of the goods : Gasoline
Class : 3
Packing group : II
ICAO-Labels : 3
Packing instruction (cargo aircraft) : 364
Packing instruction (cargo aircraft) : Y341

IATA Passenger Transport
UN UN-No. : UN1203
Description of the goods : Gasoline
Class : 3
Packaging group : II
ICAO-Labels : 3
Packing instruction (passenger aircraft) : 353
Packing instruction (passenger aircraft) : Y341

IMDG-Code

UN-No. : UN 1203
Description of the goods : Gasoline
Class : 3
Packaging group : II
IMDG-Labels : 3
EmS Number : F-E S-E
Marine pollutant : No

SECTION 15. REGULATORY INFORMATION

OSHA Hazards : Flammable liquid
Highly toxic by ingestion
Moderate skin irritant
Severe eye irritant
Carcinogen

TSCA Status : On TSCA Inventory

DSL Status : . All components are on the Canadian DSL list.

SARA 311/312 Hazards : Fire Hazard
Acute Health Hazard
Chronic Health Hazard

CERCLA SECTION 103 and SARA SECTION 304 (RELEASE TO THE ENVIRONMENT)
The CERCLA definition of hazardous substances contains a “petroleum exclusion” clause which exempts crude oil. Fractions of crude oil, and products (both finished and intermediate) from the crude oil refining process and any indigenous components of such from the CERCLA Section 103 reporting requirements. However, other federal reporting requirements, including SARA Section 304, as well as the Clean Water Act may still apply.

California Prop. 65 : WARNING! This product contains a chemical known to the State of California to cause birth defects or other reproductive harm.
Toluene 108-88-3
Benzene 71-43-2

SECTION 16. OTHER INFORMATION

Further information
The information provided in this Safety Data Sheet is correct to the best of our knowledge, information and belief at the date of its publication. The information given is designed only as guidance for safe handling, use, processing, storage, transportation, disposal and release and is not to be considered a warranty or quality specification. The information relates only to the specific material designated and may not be valid for such material used in combination with any other materials or in any process, unless specified in the text.
6, 8, 10, 12, 14, 16, 64, 68, 91, 112, 306, 1092, 1106, 1500, 1570, 1571, 1651, 1652, 1654, 1700, 1701, 1702, 1710, 1711, 1714, 1726, 1729, 1730, 1732, 1733, 1826, 1848, 1880, 1950
**Section 1. Identification**

- **GHS product identifier**: Propane
- **Chemical name**: propane
- **Other means of identification**: Propyl hydride; n-Propane; Dimethyl methane; Bottled gas; propane in gaseous state; propane liquefied, n-Propane; Dimethylmethane; Freon 290; Liquefied petroleum gas; Lpg; Propyl hydride; R 290; C3H8; UN 1075; UN 1978; A-108; Hydrocarbon propellant.
- **Product use**: Synthetic/Analytical chemistry.
- **Synonym**: Propyl hydride; n-Propane; Dimethyl methane; Bottled gas; propane in gaseous state; propane liquefied, n-Propane; Dimethylmethane; Freon 290; Liquefied petroleum gas; Lpg; Propyl hydride; R 290; C3H8; UN 1075; UN 1978; A-108; Hydrocarbon propellant.
- **SDS #**: 001045
- **Supplier’s details**: Airgas USA, LLC and its affiliates
  259 North Radnor-Chester Road
  Suite 100
  Radnor, PA 19087-5283
  1-610-687-5253
- **Emergency telephone number (with hours of operation)**: 1-866-734-3438

**Section 2. Hazards identification**

- **OSHA/HCS status**: This material is considered hazardous by the OSHA Hazard Communication Standard (29 CFR 1910.1200).
- **Classification of the substance or mixture**: FLAMMABLE GASES - Category 1
  GASES UNDER PRESSURE - Liquefied gas

**GHS label elements**

- **Hazard pictograms**: 

**Signal word**: Danger

**Hazard statements**: Extremely flammable gas.
Contains gas under pressure; may explode if heated.
May cause frostbite.
May displace oxygen and cause rapid suffocation.

**Precautionary statements**

- **General**: Read and follow all Safety Data Sheets (SDS’S) before use. Read label before use. Keep out of reach of children. If medical advice is needed, have product container or label at hand. Close valve after each use and when empty. Use equipment rated for cylinder pressure. Do not open valve until connected to equipment prepared for use. Use a back flow preventative device in the piping. Use only equipment of compatible materials of construction. Always keep container in upright position. Approach suspected leak area with caution.

- **Prevention**: Never Put cylinders into unventilated areas of passenger vehicles. Keep away from heat, sparks, open flames and hot surfaces. - No smoking. Use and store only outdoors or in a well ventilated place.

**Date of issue/Date of revision**: 10/16/2014
**Date of previous issue**: 10/8/2014
**Version**: 0.02
Section 2. Hazards identification

Response: Leaking gas fire: Do not extinguish, unless leak can be stopped safely. Eliminate all ignition sources if safe to do so.

Storage: Protect from sunlight. Protect from sunlight when ambient temperature exceeds 52°C/125°F. Store in a well-ventilated place.

Disposal: Not applicable.

Hazards not otherwise classified: In addition to any other important health or physical hazards, this product may displace oxygen and cause rapid suffocation.

Section 3. Composition/information on ingredients

<table>
<thead>
<tr>
<th>Substance/mixture</th>
<th>Chemical name</th>
<th>Other means of identification</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>propane</td>
<td>Propyl hydride; n-Propane; Dimethyl methane; Bottled gas; propane in gaseous state; propane liquefied, n-Propane; Dimethylmethane; Freon 290; Liquefied petroleum gas; Lpg; Propyl hydride; R 290; C3H8; UN 1075; UN 1978; A-108; Hydrocarbon propellant.</td>
</tr>
</tbody>
</table>

CAS number/other identifiers

- **CAS number**: 74-98-6
- **Product code**: 001045

<table>
<thead>
<tr>
<th>Ingredient name</th>
<th>%</th>
<th>CAS number</th>
</tr>
</thead>
<tbody>
<tr>
<td>Propane</td>
<td>100</td>
<td>74-98-6</td>
</tr>
</tbody>
</table>

There are no additional ingredients present which, within the current knowledge of the supplier and in the concentrations applicable, are classified as hazardous to health or the environment and hence require reporting in this section.

Occupational exposure limits, if available, are listed in Section 8.

Section 4. First aid measures

Eye contact: Immediately flush eyes with plenty of water, occasionally lifting the upper and lower eyelids. Check for and remove any contact lenses. Continue to rinse for at least 10 minutes. Get medical attention if irritation occurs.

Inhalation: Remove victim to fresh air and keep at rest in a position comfortable for breathing. If not breathing, if breathing is irregular or if respiratory arrest occurs, provide artificial respiration or oxygen by trained personnel. It may be dangerous to the person providing aid to give mouth-to-mouth resuscitation. Get medical attention if adverse health effects persist or are severe. If unconscious, place in recovery position and get medical attention immediately. Maintain an open airway. Loosen tight clothing such as a collar, tie, belt or waistband.

Skin contact: Wash contaminated skin with soap and water. Remove contaminated clothing and shoes. To avoid the risk of static discharges and gas ignition, soak contaminated clothing thoroughly with water before removing it. Get medical attention if symptoms occur. Wash clothing before reuse. Clean shoes thoroughly before reuse.

Ingestion: As this product is a gas, refer to the inhalation section.

Most important symptoms/effects, acute and delayed

Potential acute health effects

- **Eye contact**: No known significant effects or critical hazards.
- **Inhalation**: No known significant effects or critical hazards.
- **Skin contact**: No known significant effects or critical hazards.
Section 4. First aid measures

Protection of first-aiders:
No action shall be taken involving any personal risk or without suitable training. It may be dangerous to the person providing aid to give mouth-to-mouth resuscitation.

Notes to physician:
Treat symptomatically. Contact poison treatment specialist immediately if large quantities have been ingested or inhaled.

Specific treatments:
No specific treatment.

As this product is a gas, refer to the inhalation section.

Section 5. Fire-fighting measures

Suitable extinguishing media:
Use an extinguishing agent suitable for the surrounding fire.

Unsuitable extinguishing media:
None known.

Specific hazards arising from the chemical:
Contains gas under pressure. Extremely flammable gas. In a fire or if heated, a pressure increase will occur and the container may burst, with the risk of a subsequent explosion.

Hazardous thermal decomposition products:
Decomposition products may include the following materials:
- carbon dioxide
- carbon monoxide

Special protective actions for fire-fighters:
Promptly isolate the scene by removing all persons from the vicinity of the incident if there is a fire. No action shall be taken involving any personal risk or without suitable training. Contact supplier immediately for specialist advice. Move containers from fire area if this can be done without risk. Use water spray to keep fire-exposed containers cool. If involved in fire, shut off flow immediately if it can be done without risk. If this is impossible, withdraw from area and allow fire to burn. Fight fire from protected location or maximum possible distance. Eliminate all ignition sources if safe to do so.

Special protective equipment for fire-fighters:
Fire-fighters should wear appropriate protective equipment and self-contained breathing apparatus (SCBA) with a full face-piece operated in positive pressure mode.

Section 6. Accidental release measures

For non-emergency personnel:
Accidental releases pose a serious fire or explosion hazard. No action shall be taken involving any personal risk or without suitable training. Evacuate surrounding areas. Keep unnecessary and unprotected personnel from entering. Shut off all ignition sources. No flares, smoking or flames in hazard area. Avoid breathing gas. Provide adequate ventilation. Wear appropriate respirator when ventilation is inadequate. Put on appropriate personal protective equipment.
Section 6. Accidental release measures

For emergency responders: If specialised clothing is required to deal with the spillage, take note of any information in Section 8 on suitable and unsuitable materials. See also the information in “For non-emergency personnel”.

Environmental precautions: Ensure emergency procedures to deal with accidental gas releases are in place to avoid contamination of the environment. Inform the relevant authorities if the product has caused environmental pollution (sewers, waterways, soil or air).

Methods and materials for containment and cleaning up

Small spill: Immediately contact emergency personnel. Stop leak if without risk. Use spark-proof tools and explosion-proof equipment.

Large spill: Immediately contact emergency personnel. Stop leak if without risk. Use spark-proof tools and explosion-proof equipment. Note: see Section 1 for emergency contact information and Section 13 for waste disposal.

Section 7. Handling and storage

Precautions for safe handling

Protective measures: Put on appropriate personal protective equipment (see Section 8). Contains gas under pressure. Avoid contact with eyes, skin and clothing. Avoid breathing gas. Use only with adequate ventilation. Wear appropriate respirator when ventilation is inadequate. Do not enter storage areas and confined spaces unless adequately ventilated. Store and use away from heat, sparks, open flame or any other ignition source. Use explosion-proof electrical (ventilating, lighting and material handling) equipment. Use only non-sparking tools. Empty containers retain product residue and can be hazardous. Do not puncture or incinerate container. Use equipment rated for cylinder pressure. Close valve after each use and when empty. Protect cylinders from physical damage; do not drag, roll, slide, or drop. Use a suitable hand truck for cylinder movement.

Advice on general occupational hygiene: Eating, drinking and smoking should be prohibited in areas where this material is handled, stored and processed. Workers should wash hands and face before eating, drinking and smoking. Remove contaminated clothing and protective equipment before entering eating areas. See also Section 8 for additional information on hygiene measures.

Conditions for safe storage, including any incompatibilities: Store in accordance with local regulations. Store in a segregated and approved area. Store away from direct sunlight in a dry, cool and well-ventilated area, away from incompatible materials (see Section 10). Eliminate all ignition sources. Keep container tightly closed and sealed until ready for use. Cylinders should be stored upright, with valve protection cap in place, and firmly secured to prevent falling or being knocked over. Cylinder temperatures should not exceed 52 °C (125 °F).

Section 8. Exposure controls/personal protection

Control parameters

Occupational exposure limits

<table>
<thead>
<tr>
<th>Ingredient name</th>
<th>Exposure limits</th>
</tr>
</thead>
</table>
| Propane        | ACGIH TLV (United States, 3/2012).  
|                | TWA: 1000 ppm 8 hours.  
|                | NIOSH REL (United States, 1/2013).  
|                | TWA: 1800 mg/m³ 10 hours.  
|                | TWA: 1000 ppm 10 hours.  
|                | OSHA PEL (United States, 6/2010).  
|                | TWA: 1800 mg/m³ 8 hours.  
|                | TWA: 1000 ppm 8 hours.  |

Date of issue/Date of revision: 10/16/2014.  
Date of previous issue: 10/8/2014.  
Version: 0.02  
Powered by IHS
Section 8. Exposure controls/personal protection

Appropriate engineering controls: Use only with adequate ventilation. Use process enclosures, local exhaust ventilation or other engineering controls to keep worker exposure to airborne contaminants below any recommended or statutory limits. The engineering controls also need to keep gas, vapor or dust concentrations below any lower explosive limits. Use explosion-proof ventilation equipment.

Environmental exposure controls: Emissions from ventilation or work process equipment should be checked to ensure they comply with the requirements of environmental protection legislation. In some cases, fume scrubbers, filters or engineering modifications to the process equipment will be necessary to reduce emissions to acceptable levels.

Individual protection measures

Hygiene measures: Wash hands, forearms and face thoroughly after handling chemical products, before eating, smoking and using the lavatory and at the end of the working period. Appropriate techniques should be used to remove potentially contaminated clothing. Wash contaminated clothing before reusing. Ensure that eyewash stations and safety showers are close to the workstation location.

Eye/face protection: Safety eyewear complying with an approved standard should be used when a risk assessment indicates this is necessary to avoid exposure to liquid splashes, mists, gases or dusts. If contact is possible, the following protection should be worn, unless the assessment indicates a higher degree of protection: safety glasses with side-shields.

Skin protection

Hand protection: Chemical-resistant, impervious gloves complying with an approved standard should be worn at all times when handling chemical products if a risk assessment indicates this is necessary. Considering the parameters specified by the glove manufacturer, check during use that the gloves are still retaining their protective properties. It should be noted that the time to breakthrough for any glove material may be different for different glove manufacturers. In the case of mixtures, consisting of several substances, the protection time of the gloves cannot be accurately estimated.

Body protection: Personal protective equipment for the body should be selected based on the task being performed and the risks involved and should be approved by a specialist before handling this product. When there is a risk of ignition from static electricity, wear anti-static protective clothing. For the greatest protection from static discharges, clothing should include anti-static overalls, boots and gloves.

Other skin protection: Appropriate footwear and any additional skin protection measures should be selected based on the task being performed and the risks involved and should be approved by a specialist before handling this product.

Respiratory protection: Use a properly fitted, air-purifying or air-fed respirator complying with an approved standard if a risk assessment indicates this is necessary. Respirator selection must be based on known or anticipated exposure levels, the hazards of the product and the safe working limits of the selected respirator.

Section 9. Physical and chemical properties

Appearance

Physical state: Gas. [Liquefied compressed gas.]
Color: Colorless.
Molecular weight: 44.11 g/mole
Molecular formula: C3-H8
Boiling/condensation point: -161.48°C (-258.7°F)

TWA: 1800 mg/m³ 8 hours.
TWA: 1000 ppm 8 hours.
# Section 9. Physical and chemical properties

<table>
<thead>
<tr>
<th>Property</th>
<th>Value</th>
</tr>
</thead>
<tbody>
<tr>
<td>Melting/freezing point</td>
<td>-187.6°C (-305.7°F)</td>
</tr>
<tr>
<td>Critical temperature</td>
<td>96.55°C (205.8°F)</td>
</tr>
<tr>
<td>Odor</td>
<td>Odorless. BUT MAY HAVE SKUNK ODOR ADDED.</td>
</tr>
<tr>
<td>Odor threshold</td>
<td>Not available.</td>
</tr>
<tr>
<td>pH</td>
<td>Not available.</td>
</tr>
<tr>
<td>Flash point</td>
<td>Closed cup: -104°C (-155.2°F)</td>
</tr>
<tr>
<td></td>
<td>Open cup: -104°C (-155.2°F)</td>
</tr>
<tr>
<td>Burning time</td>
<td>Not applicable.</td>
</tr>
<tr>
<td>Burning rate</td>
<td>Not applicable.</td>
</tr>
<tr>
<td>Evaporation rate</td>
<td>Not available.</td>
</tr>
<tr>
<td>Flammability (solid, gas)</td>
<td>Extremely flammable in the presence of the following materials or conditions: open flames, sparks and static discharge and oxidizing materials.</td>
</tr>
<tr>
<td>Lower and upper explosive (flammable) limits</td>
<td>Lower: 1.8%</td>
</tr>
<tr>
<td></td>
<td>Upper: 8.4%</td>
</tr>
<tr>
<td>Vapor pressure</td>
<td>109 (psig)</td>
</tr>
<tr>
<td>Vapor density</td>
<td>1.6 (Air = 1)</td>
</tr>
<tr>
<td>Specific Volume (ft³/lb)</td>
<td>8.6206</td>
</tr>
<tr>
<td>Gas Density (lb/ft³)</td>
<td>0.116 (25°C / 77 to °F)</td>
</tr>
<tr>
<td>Relative density</td>
<td>Not applicable.</td>
</tr>
<tr>
<td>Solubility</td>
<td>Not available.</td>
</tr>
<tr>
<td>Solubility in water</td>
<td>0.0244 g/l</td>
</tr>
<tr>
<td>Partition coefficient: n-octanol/water</td>
<td>1.09</td>
</tr>
<tr>
<td>Auto-ignition temperature</td>
<td>287°C (548.6°F)</td>
</tr>
<tr>
<td>Decomposition temperature</td>
<td>Not available.</td>
</tr>
<tr>
<td>SADT</td>
<td>Not available.</td>
</tr>
<tr>
<td>Viscosity</td>
<td>Not applicable.</td>
</tr>
</tbody>
</table>

# Section 10. Stability and reactivity

<table>
<thead>
<tr>
<th>Property</th>
<th>Value</th>
</tr>
</thead>
<tbody>
<tr>
<td>Reactivity</td>
<td>No specific test data related to reactivity available for this product or its ingredients.</td>
</tr>
<tr>
<td>Chemical stability</td>
<td>The product is stable.</td>
</tr>
<tr>
<td>Possibility of hazardous reactions</td>
<td>Under normal conditions of storage and use, hazardous reactions will not occur.</td>
</tr>
<tr>
<td>Conditions to avoid</td>
<td>Avoid all possible sources of ignition (spark or flame). Do not pressurize, cut, weld, braze, solder, drill, grind or expose containers to heat or sources of ignition.</td>
</tr>
<tr>
<td>Incompatibility with various substances</td>
<td>Extremely reactive or incompatible with the following materials: oxidizing materials.</td>
</tr>
<tr>
<td>Hazardous decomposition products</td>
<td>Under normal conditions of storage and use, hazardous decomposition products should not be produced.</td>
</tr>
<tr>
<td>Hazardous polymerization</td>
<td>Under normal conditions of storage and use, hazardous polymerization will not occur.</td>
</tr>
</tbody>
</table>

**Date of issue/Date of revision**: 10/16/2014  **Date of previous issue**: 10/8/2014  **Version**: 0.02
Section 11. Toxicological information

Information on toxicological effects

Acute toxicity
Not available.

Irritation/Corrosion
Not available.

Sensitization
Not available.

Mutagenicity
Not available.

Carcinogenicity
Not available.

Reproductive toxicity
Not available.

Teratogenicity
Not available.

Specific target organ toxicity (single exposure)
Not available.

Specific target organ toxicity (repeated exposure)
Not available.

Aspiration hazard
Not available.

Information on the likely routes of exposure

Potential acute health effects
Eye contact : No known significant effects or critical hazards.
Inhalation : No known significant effects or critical hazards.
Skin contact : No known significant effects or critical hazards.
Ingestion : As this product is a gas, refer to the inhalation section.

Symptoms related to the physical, chemical and toxicological characteristics
Eye contact : No specific data.
Inhalation : No specific data.
Skin contact : No specific data.
Ingestion : No specific data.

Delayed and immediate effects and also chronic effects from short and long term exposure

Short term exposure
Potential immediate effects : Not available.
Potential delayed effects : Not available.

Long term exposure
Section 11. Toxicological information

Potential immediate effects: Not available.
Potential delayed effects: Not available.
Potential chronic health effects: Not available.

General: No known significant effects or critical hazards.
Carcinogenicity: No known significant effects or critical hazards.
Mutagenicity: No known significant effects or critical hazards.
Teratogenicity: No known significant effects or critical hazards.
Developmental effects: No known significant effects or critical hazards.
Fertility effects: No known significant effects or critical hazards.

Numerical measures of toxicity
Acute toxicity estimates: Not available.

Section 12. Ecological information

Toxicity: Not available.

Persistence and degradability: Not available.

Bioaccumulative potential

<table>
<thead>
<tr>
<th>Product/ingredient name</th>
<th>LogP_{ow}</th>
<th>BCF</th>
<th>Potential</th>
</tr>
</thead>
<tbody>
<tr>
<td>Propane</td>
<td>1.09</td>
<td>-</td>
<td>low</td>
</tr>
</tbody>
</table>

Mobility in soil
Soil/water partition coefficient (K_{OC}): Not available.

Other adverse effects: No known significant effects or critical hazards.

Section 13. Disposal considerations

Disposal methods: The generation of waste should be avoided or minimized wherever possible. Disposal of this product, solutions and any by-products should at all times comply with the requirements of environmental protection and waste disposal legislation and any regional local authority requirements. Dispose of surplus and non-recyclable products via a licensed waste disposal contractor. Waste should not be disposed of untreated to the sewer unless fully compliant with the requirements of all authorities with jurisdiction. Empty Airgas-owned pressure vessels should be returned to Airgas. Waste packaging should be recycled. Incineration or landfill should only be considered when recycling is not feasible. This material and its container must be disposed of in a safe way. Empty containers or liners may retain some product residues. Do not puncture or incinerate container.

Date of issue/Date of revision: 10/16/2014. Date of previous issue: 10/8/2014. Version: 0.02 8/12
Section 14. Transport information

<table>
<thead>
<tr>
<th>UN number</th>
<th>DOT</th>
<th>TDG</th>
<th>Mexico</th>
<th>IMDG</th>
<th>IATA</th>
</tr>
</thead>
<tbody>
<tr>
<td>UN number</td>
<td>UN1978</td>
<td>UN1978</td>
<td>UN1978</td>
<td>UN1978</td>
<td>UN1978</td>
</tr>
</tbody>
</table>

**UN proper shipping name**
- PROPAINE

**Transport hazard class(es)**
- 2.1

**Packing group**
- No.

**Environment**
- No.

**Limited quantity**
- Yes.

**Packaging instruction**
- Passenger aircraft
  - Quantity limitation: Forbidden.
- Cargo aircraft
  - Quantity limitation: 150 kg

**Special provisions**
- 19, T50

**Explosive Limit and Limited Quantity Index**
- 0.125

**ERAP Index**
- 3000

**Passenger Carrying Ship Index**
- 65

**Passenger Carrying Road or Rail Index**
- Forbidden

**Special provisions**
- 29, 42

**Additional information**

---

"Refer to CFR 49 (or authority having jurisdiction) to determine the information required for shipment of the product."

**Special precautions for user**
- Transport within user's premises: always transport in closed containers that are upright and secure. Ensure that persons transporting the product know what to do in the event of an accident or spillage.

**Transport in bulk according to Annex II of MARPOL 73/78 and the IBC Code**
- Not available.

Section 15. Regulatory information

**U.S. Federal regulations**
- TSCA 8(a) CDR Exempt/Partial exemption: Not determined
- Clean Air Act (CAA) 112 regulated flammable substances: propane

**Clean Air Act Section 112 (b) Hazardous Air Pollutants (HAPs)**
- Not listed

**Clean Air Act Section 602 Class I Substances**
- Not listed

**Clean Air Act Section 602 Class II Substances**
- Not listed

**DEA List I Chemicals (Precursor Chemicals)**
- Not listed

---

**Date of issue/Date of revision**
- 10/16/2014

**Date of previous issue**
- 10/8/2014

**Version**
- 0.02

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Powered by IHS
Section 15. Regulatory information

DEA List II Chemicals (Essential Chemicals) : Not listed

SARA 302/304

Composition/information on ingredients

No products were found.

SARA 304 RQ : Not applicable.
SARA 311/312

Classification : Fire hazard
Sudden release of pressure

Composition/information on ingredients

<table>
<thead>
<tr>
<th>Name</th>
<th>%</th>
<th>Fire hazard</th>
<th>Sudden release of pressure</th>
<th>Reactive</th>
<th>Immediate (acute) health hazard</th>
<th>Delayed (chronic) health hazard</th>
</tr>
</thead>
<tbody>
<tr>
<td>Propane</td>
<td>100</td>
<td>Yes.</td>
<td>Yes.</td>
<td>No.</td>
<td>No.</td>
<td>No.</td>
</tr>
</tbody>
</table>

State regulations

Massachusetts : This material is listed.
New York : This material is not listed.
New Jersey : This material is listed.
Pennsylvania : This material is listed.
Canada inventory : This material is listed or exempted.

International regulations

International lists

Australia inventory (AICS): This material is listed or exempted.
China inventory (IECSC): This material is listed or exempted.
Japan inventory: This material is listed or exempted.
Korea inventory: This material is listed or exempted.
Malaysia Inventory (EHS Register): Not determined.
New Zealand Inventory of Chemicals (NZIoC): This material is listed or exempted.
Philippines inventory (PICCS): This material is listed or exempted.
Taiwan inventory (CSNN): Not determined.

Chemical Weapons Convention List Schedule I Chemicals : Not listed
Chemical Weapons Convention List Schedule II Chemicals : Not listed
Chemical Weapons Convention List Schedule III Chemicals : Not listed

Canada

WHMIS (Canada)

Class A: Compressed gas.
Class B-1: Flammable gas.
CEPA Toxic substances: This material is not listed.
Canadian ARET: This material is not listed.
Canadian NPRI: This material is listed.
Alberta Designated Substances: This material is not listed.
Ontario Designated Substances: This material is not listed.
Quebec Designated Substances: This material is not listed.

Date of issue/Date of revision : 10/16/2014. Date of previous issue : 10/8/2014. Version : 0.02 10/12
Section 16. Other information

Canada Label requirements: Class A: Compressed gas.
Class B-1: Flammable gas.

Hazardous Material Information System (U.S.A.)

<table>
<thead>
<tr>
<th>Health</th>
<th>Flammability</th>
<th>Physical hazards</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>4</td>
<td>2</td>
</tr>
</tbody>
</table>

Caution: HMIS® ratings are based on a 0-4 rating scale, with 0 representing minimal hazards or risks, and 4 representing significant hazards or risks. Although HMIS® ratings are not required on SDSs under 29 CFR 1910.1200, the preparer may choose to provide them. HMIS® ratings are to be used with a fully implemented HMIS® program. HMIS® is a registered mark of the National Paint & Coatings Association (NPCA). HMIS® materials may be purchased exclusively from J. J. Keller (800) 327-6868.

The customer is responsible for determining the PPE code for this material.

National Fire Protection Association (U.S.A.)

Reprinted with permission from NFPA 704-2001, Identification of the Hazards of Materials for Emergency Response Copyright ©1997, National Fire Protection Association, Quincy, MA 02269. This reprint material is not the complete and official position of the National Fire Protection Association, on the referenced subject which is represented only by the standard in its entirety.

Copyright ©2001, National Fire Protection Association, Quincy, MA 02269. This warning system is intended to be interpreted and applied only by properly trained individuals to identify fire, health and reactivity hazards of chemicals. The user is referred to certain limited number of chemicals with recommended classifications in NFPA 49 and NFPA 325, which would be used as a guideline only. Whether the chemicals are classified by NFPA or not, anyone using the 704 systems to classify chemicals does so at their own risk.

History

Date of printing: 10/16/2014.
Date of issue/Date of revision: 10/16/2014.
Date of previous issue: 10/8/2014.
Version: 0.02

Key to abbreviations:
ATE = Acute Toxicity Estimate
BCF = Bioconcentration Factor
GHS = Globally Harmonized System of Classification and Labelling of Chemicals
IATA = International Air Transport Association
IBC = Intermediate Bulk Container
IMDG = International Maritime Dangerous Goods
LogPow = logarithm of the octanol/water partition coefficient
UN = United Nations/ACGIH – American Conference of Governmental Industrial Hygienists
AIHA – American Industrial Hygiene Association
CAS – Chemical Abstract Services
CEPA – Canadian Environmental Protection Act
CERCLA – Comprehensive Environmental Response, Compensation, and Liability Act (EPA)
Section 16. Other information

To the best of our knowledge, the information contained herein is accurate. However, neither the above-named supplier, nor any of its subsidiaries, assumes any liability whatsoever for the accuracy or completeness of the information contained herein.

Final determination of suitability of any material is the sole responsibility of the user. All materials may present unknown hazards and should be used with caution. Although certain hazards are described herein, we cannot guarantee that these are the only hazards that exist.

Notice to reader

To the best of our knowledge, the information contained herein is accurate. However, neither the above-named supplier, nor any of its subsidiaries, assumes any liability whatsoever for the accuracy or completeness of the information contained herein.

Final determination of suitability of any material is the sole responsibility of the user. All materials may present unknown hazards and should be used with caution. Although certain hazards are described herein, we cannot guarantee that these are the only hazards that exist.
1 Identification

- Product identifier
  - Trade name: FS-ONE MAX
  - Hilti Firestop Filler Mastic CFS-FIL
  - Relevant identified uses of the substance or mixture and uses advised against: No further relevant information available.
- Application of the substance / the mixture: Construction chemicals
- Details of the supplier of the safety data sheet
  - Manufacturer/Supplier: Hilti, Inc.
  - 5400 South 122nd East Ave.
  - US-Tulsa, OK 74146
  - Phone: (800) 879-8000
  - Fax: (800) 879-7000
  - Español: (800) 879-7000
  - Information department: chemicals.hse@hilti.com
  - see section 16
- Emergency telephone number:
  - Chem-Trec
  - Tel.: 1 800 424 9300
  - Tox Info Suisse - 24 h Service
  - Tel.: 0041 / 44 251 51 51 (international)

2 Hazard(s) identification

- Classification of the substance or mixture: The product is not classified according to the Globally Harmonized System (GHS).
- Label elements
  - GHS label elements: Void
  - Hazard pictograms: Void
  - Signal word: Void
  - Hazard statements: Void
- Classification system
  - NFPA ratings (scale 0-4)
    - Health = 0
    - Fire = 0
    - Reactivity = 0
  - Other hazards
- Results of PBT and vPvB assessment
  - PBT: Not applicable.
  - vPvB: Not applicable.

3 Composition/information on ingredients

- Chemical characterization: Mixtures
- Description:
  - Mixture of the substances listed below with nonhazardous additions.
- Dangerous components:
  - 57-55-6 propane-1,2-diol <2.5%
- Additional information: For the wording of the listed risk phrases refer to section 16.

4 First-aid measures

- Description of first aid measures
  - General information: No special measures required.
  - After inhalation: Take affected persons into fresh air and keep quiet.
  - After skin contact: Immediately wash with water and soap and rinse thoroughly.
  - After eye contact: Rinse opened eye for several minutes under running water. Then consult a doctor.
  - After swallowing: Seek immediate medical advice.
- Information for doctor
  - Most important symptoms and effects, both acute and delayed: No further relevant information available.
  - Indication of any immediate medical attention and special treatment needed: No further relevant information available.

5 Fire-fighting measures

- Extinguishing media: CO2, extinguishing powder or water spray. Fight larger fires with water spray or alcohol resistant foam.
- Suitable extinguishing agents: CO2, extinguishing powder or water spray. Fight larger fires with water spray or alcohol resistant foam.
6 Accidental release measures

- Personal precautions, protective equipment and emergency procedures
  Ensure adequate ventilation
  Wear protective clothing.
  Particular danger of slipping on leaked/spilled product.
- Environmental precautions: Do not allow product to reach sewage system or any water course.
- Methods and material for containment and cleaning up:
  Pick up mechanically.
  Dispose contaminated material as waste according to item 13.
- Reference to other sections
  See Section 7 for information on safe handling
  See Section 8 for information on personal protection equipment.
  See Section 13 for disposal information.

7 Handling and storage

- Handling
  Precautions for safe handling No special measures required.
  Information about protection against explosions and fires: No special measures required.
  Conditions for safe storage, including any incompatibilities
  Storage
  Requirements to be met by storerooms and receptacles: keep containers securely closed and dry, store at 5 - 25 °C / 41 - 77 °F
  Information about storage in one common storage facility: Not required.
  Further information about storage conditions: None.
  Storage class 10
  Specific end use(s) No further relevant information available.

8 Exposure controls/personal protection

- Control parameters
  Components with limit values that require monitoring at the workplace:

<table>
<thead>
<tr>
<th>Component</th>
<th>Limit Value</th>
</tr>
</thead>
<tbody>
<tr>
<td>57-55-6 propane-1,2-diol</td>
<td>10 mg/m³</td>
</tr>
</tbody>
</table>

  WEEL Long-term value: 10 mg/m³
  Additional information: The lists that were valid during the creation were used as basis.

- Exposure controls
- Personal protective equipment
- General protective and hygienic measures
  The usual precautionary measures for handling chemicals should be followed.
  Avoid contact with the eyes and skin.
  Keep away from foodstuffs, beverages and feed.
  Wash hands before breaks and at the end of work.
- Breathing equipment: Not necessary if room is well-ventilated.
- Protection of hands:
  Protective gloves.
  The glove material has to be impermeable and resistant to the product/ the substance/ the preparation.
  Selection of the glove material on consideration of the penetration times, rates of diffusion and the degradation
  EN 374

- Material of gloves
  Synthetic gloves
  The selection of the suitable gloves does not only depend on the material, but also on further marks of quality and varies from manufacturer to manufacturer. As the product is a preparation of several substances, the resistance of the glove material can not be calculated in advance and has therefore to be checked prior to the application.

- Penetration time of glove material
  The exact break through time has to be found out by the manufacturer of the protective gloves and has to be observed.

- For the permanent contact gloves made of the following materials are suitable: Nitrile rubber, NBR

(Contd. on page 3)
**9 Physical and chemical properties**

- **Information on basic physical and chemical properties**
- **General Information**
  - **Appearance:** Pasty
  - **Color:** Red
  - **Odor:** Characteristic
  - **Odour threshold:** Not determined.
  - **pH-value:** Not determined.
  - **Change in condition**
    - **Melting point/Melting range:** Not determined.
    - **Boiling point/Boiling range:** 100 °C (212 °F)
  - **Flash point:** Not applicable
  - **Flammability (solid, gaseous):** Not applicable.
  - **Ignition temperature:**
    - **Decomposition temperature:** Not determined.
  - **Auto igniting:**
    - **Product is not selfigniting.**
  - **Danger of explosion:**
    - **Product does not present an explosion hazard.**
  - **Explosion limits:**
    - **Lower:** Not determined.
    - **Upper:** Not determined.
  - **Vapor pressure at 20 °C (68 °F):** 23 hPa (17 mm Hg)
  - **Density:**
    - **Relative density:** Not determined.
    - **Vapour density:** Not determined.
    - **Evaporation rate:** Not determined.
  - **Solubility in / Miscibility with**
    - **Water:** Not miscible or difficult to mix
  - **Partition coefficient (n-octanol/water):** Not determined.
  - **Viscosity:**
    - **dynamic:** Not determined.
    - **kinematic:** Not determined.
  - **Solvent content:**
    - **Organic solvents:** 1.0 %
    - **Water:** 18.5 %
  - **Other information**
    - **VOC Content:** 9 g/l (EPA Method 24)

---

**10 Stability and reactivity**

- **Reactivity**
- **Chemical stability**
  - **Thermal decomposition / conditions to be avoided:** No decomposition if used according to specifications.
  - **Possibility of hazardous reactions:** No dangerous reactions known
  - **Conditions to avoid:** No further relevant information available.
  - **Incompatible materials:** No further relevant information available.
  - **Hazardous decomposition products:** No dangerous decomposition products known
11 Toxicological information

- Information on toxicological effects
  - Acute toxicity:
  - Primary irritant effect:
  - on the skin: No irritant effect.
  - on the eye: No irritating effect.
  - Sensitization: No sensitizing effects known.
  - Additional toxicological information:
  When used and handled according to specifications, the product does not have any harmful effects according to our experience and the information provided to us.

- IARC (International Agency for Research on Cancer)
  14808-60-7 Quartz (SiO2) L

- NTP (National Toxicology Program)
  14808-60-7 Quartz (SiO2) K

- OSHA-Ca (Occupational Safety & Health Administration)
  None of the ingredients is listed.

12 Ecological information

- Toxicity
  - Aquatic toxicity: No further relevant information available.
  - Persistence and degradability No further relevant information available.
  - Behavior in environmental systems:
  - Bioaccumulative potential No further relevant information available.
  - Mobility in soil No further relevant information available.
  - Results of PBT and vPvB assessment
    - PBT: Not applicable.
    - vPvB: Not applicable.
  - Other adverse effects No further relevant information available.

13 Disposal considerations

- Waste treatment methods
  - Recommendation Must not be disposed of together with household garbage. Do not allow product to reach sewage system.

- European waste catalogue:
  08 00 00
  08 04 00
  08 04 10

- Uncleaned packagings:
  - Recommendation: Dispose of packaging according to regulations on the disposal of packagings.

14 Transport information

- UN-Number
  - DOT, ADR, ADN, IMDG, IATA Void
  - UN proper shipping name
    - DOT, ADR, ADN, IMDG, IATA Void
  - Transport hazard class(es)
    - DOT, ADR, ADN, IMDG, IATA Void
    - Class Void
  - Packing group
    - DOT, ADR, IMDG, IATA Void
  - Environmental hazards:
    - Marine pollutant: No
  - Special precautions for user
    - Not applicable.
  - Transport in bulk according to Annex II of MARPOL73/78 and the IBC Code
    - Not applicable.
  - UN "Model Regulation": -

15 Regulatory information

- Safety, health and environmental regulations/legislation specific for the substance or mixture
- Sara

- Section 355 (Extremely hazardous substances):
  None of the ingredients is listed.
### Safety Data Sheet

**acc. to ISO 11014**

**Printing date 05/18/2015**

**Reviewed on 05/18/2015**

**Version number 1**

---

<table>
<thead>
<tr>
<th>Section 313 (Specific toxic chemical listings):</th>
<th>None of the ingredients are listed.</th>
</tr>
</thead>
<tbody>
<tr>
<td>TSCA (Toxic Substances Control Act):</td>
<td>All ingredients are listed.</td>
</tr>
<tr>
<td>Proposition 65:</td>
<td></td>
</tr>
<tr>
<td>Chemicals known to cause cancer:</td>
<td>14808-60-7 Quartz (SiO2)</td>
</tr>
<tr>
<td>TSCA (Toxic Substances Control Act):</td>
<td>All ingredients are listed.</td>
</tr>
<tr>
<td>Proposition 65:</td>
<td></td>
</tr>
<tr>
<td>Chemicals known to cause cancer:</td>
<td>14808-60-7 Quartz (SiO2)</td>
</tr>
<tr>
<td>Cancerogenity categories</td>
<td></td>
</tr>
<tr>
<td>EPA (Environmental Protection Agency)</td>
<td>None of the ingredients is listed.</td>
</tr>
<tr>
<td>TLV (Threshold Limit Value established by ACGIH)</td>
<td></td>
</tr>
<tr>
<td>14808-60-7 Quartz (SiO2)</td>
<td>A2</td>
</tr>
<tr>
<td>MAK (German Maximum Workplace Concentration)</td>
<td></td>
</tr>
<tr>
<td>14808-60-7 Quartz (SiO2)</td>
<td>1</td>
</tr>
<tr>
<td>NIOSH-Ca (National Institute for Occupational Safety and Health)</td>
<td></td>
</tr>
<tr>
<td>14808-60-7 Quartz (SiO2)</td>
<td></td>
</tr>
<tr>
<td>Chemical safety assessment:</td>
<td>not required.</td>
</tr>
</tbody>
</table>

### 16 Other information

- This information is based on our present knowledge. However, this shall not constitute a guarantee for any specific product features and shall not establish a legally valid contractual relationship.
- Department issuing SDS:
  - Hilti Corporation
  - Business Unit Chemicals
  - Quality/Safety/Environment
  - FL-9494 Schaan / Liechtenstein
- chemicals.hse@hilti.com
- Tel.: +423 234 3004
- FAX.: +423 234 3462
- Date of preparation / last revision 05/18/2015 / -
- Abbreviations and acronyms:
  - ADR: Accord européen sur le transport des marchandises dangereuses par Route (European Agreement concerning the International Carriage of Dangerous Goods by Road)
  - IMDG: International Maritime Code for Dangerous Goods
  - DOT: US Department of Transportation
  - IATA: International Air Transport Association
  - ACGIH: American Conference of Governmental Industrial Hygienists
  - EINECS: European Inventory of Existing Commercial Chemical Substances
  - ELINCS: European List of Notified Chemical Substances
  - CAS: Chemical Abstracts Service (division of the American Chemical Society)
  - NFPA: National Fire Protection Association (USA)
- * Data compared to the previous version altered.
SAFETY DATA SHEET

SDS 0169

Section 1 -- PRODUCT AND COMPANY IDENTIFICATION

PRODUCT NAME
Metacaulk 1000

PRODUCT CODES
66640, 66242, 66302, 66303, 66305, 66307, 66309, 66312

CHEMICAL FAMILY
Organic/Inorganic

USE
Firestopping Sealant

MANUFACTURER'S NAME
The RectorSeal Corporation
2601 Spenwick Drive
Houston, Texas 77055 USA

DATE OF VALIDATION
January 23, 2015

DATE OF PREPARATION
May 22, 2012

Section 2 -- HAZARDS IDENTIFICATION

GHS CLASSIFICATION
PHYSICAL HAZARDS: None
HEALTH HAZARDS
Acute Toxicity:
Oral: Not Classified
Dermal: Not Classified
Inhalation: Not Classified
Skin Corrosion/Irritation: Not Classified
Serious Eye Damage/Eye Irritation: Not Classified
Respiratory or Skin Sensitization: Not Classified
Germ Cell Mutagenicity: Not Classified
Carcinogenicity: Not Classified
Reproductive Toxicology: Not Classified
Target Organ Systemic Toxicity - Single Exposure: Not Classified
Target Organ Systemic Toxicity - Repeated Exposure: Not Classified
Aspiration Toxicity: Not Classified

ENVIRONMENTAL HAZARDS
Hazardous to the Aquatic Environment: Not Classified
Acute aquatic toxicity: Not Classified
Chronic aquatic toxicity: Not Classified
Bioaccumulation potential: Not Classified
Rapid degradability: Not Classified

GHS Label elements, including precautionary statements
Pictogram: None
Signal Word: None
Hazard Statements: None
Precautionary Statements:
P102 - Keep out of reach of children.
P264 - Wash hands thoroughly after handling.
Classification according to EU Directives 67/548/EEC or 1999/45/EC

LABELING SYMBOLS: None
RISK R-PHRASES: None
SAFETY S-PHRASES:
S2 : Keep out of the reach of children.

-------------------------------------------------------------
SUMMARY OF ACUTE HAZARDS
May cause skin irritation.
ROUTE OF EXPOSURE, SIGNS AND SYMPTOMS
INHALATION
Not a respiratory irritant.
EYE CONTACT
Contact may cause eye irritation.
SKIN CONTACT
Contact may cause skin irritation.
INGESTION
Possible irritation to mucous membranes of the mouth, throat, and stomach.
SUMMARY OF CHRONIC HAZARDS
None known.
MEDICAL CONDITIONS AGGRAVATED BY EXPOSURE
Persons with pre-existing skin conditions or chemical allergies may be more susceptible to contact effects of the cured elastomer.

Section 3 -- COMPOSITION/INFORMATION ON INGREDIENTS

% by WT   CAS No.   INGREDIENT   UNITS

Section 4 -- FIRST AID MEASURES

If INHALED: Not a respiratory irritant.
If on SKIN: Wash with soap and water. If irritation occurs, seek medical attention.
If in EYES: Immediately flush with large amounts of water. If irritation occurs, seek medical attention.
If SWALLOWED: If swallowed, call a physician immediately. Only induce vomiting at the instruction of a physician. Never give anything by mouth to an unconscious person.

Section 5 -- FIRE FIGHTING MEASURES

EXTINGUISHING MEDIA
Foam, dry chemical, carbon dioxide or water fog.
SPECIAL FIRE FIGHTING PROCEDURES: Wear self-contained breathing apparatus (SCBA) and other protective clothing. Hazardous decomposition products possible (see Section 10).
UNUSUAL FIRE AND EXPLOSION HAZARDS: Heat may build up and rupture closed containers.

Section 6 -- ACCIDENTAL RELEASE MEASURES

STEPS TO BE TAKEN IN CASE MATERIAL IS RELEASED OR SPILLED: Wipe up spills to prevent footing hazard. Avoid flushing into sewers, drains, waterways and soil. Wear protective clothing during clean up.

Section 7 -- HANDLING AND STORAGE

PRECAUTIONS TO BE TAKEN IN HANDLING AND STORING: Keep container closed and upright when not in use. To prevent freezing and possible rupture of container, do not store below 35 F.
OTHER PRECAUTIONS: Avoid prolonged or repeated contact with skin or clothing. Empty containers may contain residues and vapors; treat as if full and observe all product precautions. Do not reuse empty containers. KEEP OUT OF REACH OF CHILDREN.

Section 8 -- EXPOSURE CONTROLS/PERSONAL PROTECTION

RESPIRATORY PROTECTION (SPECIFY TYPE): None required.
VENTILATION - LOCAL EXHAUST: N/A
SPECIAL: N/A
MECHANICAL (GENERAL): N/A
OTHER: N/A

PROTECTIVE GLOVES: None required.
EYE PROTECTION: None required.
OTHER PROTECTIVE CLOTHING OR EQUIPMENT: None required.
WORK/HYGIENIC PRACTICES: Where use can result in skin contact, wash exposed areas thoroughly before eating, drinking, smoking, or leaving work area. Launder contaminated clothing before reuse.

Section 9 -- PHYSICAL AND CHEMICAL PROPERTIES

BOILING POINT: 212 F (100 C) @ 760 mm Hg
SPECIFIC GRAVITY (H2O = 1): 1.25
VAPOUR PRESSURE (mm Hg): 17 @ 68 F (20 C)
MELTING POINT: N/A
VAPOUR DENSITY (AIR = 1): N/A
EVAPORATION RATE (ETHYL ACETATE = 1): >1
APPEARANCE/ODOR: Red Paste/Mild Odor
SOLUBILITY IN WATER: Soluble
VOLATILE ORGANIC COMPOUNDS (VOC) Content (Theoretical Percentage By Weight): <1% or <10 g/L
FLASH POINT: None
LOWER EXPLOSION LIMIT: None
UPPER EXPLOSION LIMIT: None

Section 10 -- STABILITY AND REACTIVITY

STABILITY: Stable
CONDITIONS TO AVOID: None
INCOMPATIBILITY (MATERIALS TO AVOID): None known.
HAZARDOUS DECOMPOSITION PRODUCTS: CO, CO2 and fragmented hydrocarbons.
HAZARDOUS POLYMERIZATION: Will not occur.

Section 11 -- TOXICOLOGY INFORMATION

CHRONIC HEALTH HAZARDS
No ingredient in this product is an IARC, NTP or OSHA listed carcinogen.

TOXICOLOGY DATA
Ingredient Name
None

Section 12 -- Ecological Information

ECOLOGICAL DATA
Ingredient Name
None
Food Chain Concentration Potential N/A
WATERFOWL TOXICITY N/A
BOD N/A
AQUATIC TOXICITY N/A

Section 13 -- DISPOSAL CONSIDERATIONS

Waste Classification: Non-regulated solid waste
Disposal Method: Approved landfill
Waste from this product is not considered hazardous as defined under the Resource Conservation and Recovery Act (RCRA) 40 CFR 261. Dispose of in accordance with Federal, State, and Local regulation regarding pollution.

Section 14 -- TRANSPORTATION INFORMATION

DOT: Non-Regulated
OCEAN (IMDG): Non-Regulated
AIR (IATA): Non-Regulated
WHMIS (CANADA): Non-Regulated

Section 15 -- REGULATORY INFORMATION

REGULATORY DATA
Ingredient Name

None

SARA 313 N/A
TSCA Inventory All components listed
CERCLA RQ N/A
RCRA Code N/A

Section 16 -- OTHER INFORMATION

LABELING SYMBOLS: None
RISK R-PHRASES: None
SAFETY S-PHRASES:
S2 : Keep out of the reach of children.

This document is prepared pursuant to 91/155/EEC ISO 11014-1. The information herein is given in good faith, but no warranty, expressed or implied is made. Consult RectorSeal for further information: (713) 263-8001
1. IDENTIFICATION OF THE SUBSTANCE/MIXTURE AND OF THE COMPANY UNDERTAKING

TRADE/MATERIAL NAME: SpecSeal® LCI Sealant

RELEVANT USE of the SUBSTANCE: Firestop and Sound Transmission

USES ADVISED AGAINST: None

SUPPLIER/MANUFACTURER’S NAME (USA/Canada):
Specified Technologies, Inc.
210 Evans Way,
Somerville, New Jersey 08876
(908) 526-8000 (8:00 am to 5:00 pm Eastern Standard Time)
U.S., Canada: 1-800-255-3924 (24 hrs)
International: +1-813-248-0585 (collect-24 hrs)

SUPPLIER/IMPORTER’S NAME (Asia):
Address:
Business Phone:
Emergency Phone:

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, SPRINGS 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 Irritation Category 2A, Specific Target Organ Toxicity (Inhalation-Respiratory Irritation) Single Exposure Category 3

Signal Word: Warning

Hazard Statements:
H351: Suspected of causing cancer. H319: Causes serious eye irritation. H335: May cause respiratory irritation.

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 ECSC 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>Proprietary Acrylate Coating</td>
<td>Not Determined</td>
<td>Not Determined</td>
<td>Not Determined</td>
<td>Not Determined</td>
<td>Not Determined</td>
<td>35-50%</td>
<td>Classification Not Applicable</td>
</tr>
<tr>
<td>Aluminum Trihydrate</td>
<td>21645-51-2</td>
<td>Listed</td>
<td>1-17</td>
<td>KE-00980</td>
<td>15-25%</td>
<td>SELF CLASSIFICATION GHS &amp; JAPANESE JIS Z7253 Classification Korean ISHA Classification GHS Hazard Codes</td>
<td></td>
</tr>
<tr>
<td>Ground Limestone</td>
<td>1317-65-3</td>
<td>Listed</td>
<td>Excepted as Mineral</td>
<td>KE-21996</td>
<td>10-18%</td>
<td>Classification Not Applicable</td>
<td></td>
</tr>
<tr>
<td>Glass Oxide</td>
<td>65997-17-3</td>
<td>Listed</td>
<td>Not Listed</td>
<td>KE-17630</td>
<td>8-12%</td>
<td>Classification Not Applicable</td>
<td></td>
</tr>
</tbody>
</table>

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

<table>
<thead>
<tr>
<th>Chemical Name</th>
<th>CAS #</th>
<th>Chinese ENCS 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>Sulfuric Acid Compound with Graphite</td>
<td>12777-87-6</td>
<td>Not Listed</td>
<td>Not Listed</td>
<td>KE-32585</td>
<td></td>
<td>2-5%</td>
<td>GHS &amp; Japanese JIS Z7253 Classification</td>
</tr>
<tr>
<td>Proprietary Acrylic Copolymer in Aqueous Dispersion</td>
<td>Not Determined</td>
<td>Not Determined</td>
<td>Not Determined</td>
<td>Not Determined</td>
<td></td>
<td>1-2%</td>
<td>Classification Not Applicable</td>
</tr>
<tr>
<td>Crystalline Silica</td>
<td>14808-60-7</td>
<td>Listed</td>
<td>1-548</td>
<td>KE-29983</td>
<td></td>
<td>0.1-0.2%</td>
<td>GHS &amp; Japanese JIS Z7253, KOREAN ISHA:</td>
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<tr>
<td>Water and Other Trace Ingredients</td>
<td>Balance</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td>Classification Not Applicable</td>
</tr>
</tbody>
</table>

See Section 16 for full text of Classification

4. FIRST-AID MEASURES

Skin Exposure: If adverse skin effects occur, discontinue use and flush contaminated area.
Inhalation: If fumes or vapors are inhaled, remove victim 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
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: 338 °C (640 °F)
AUTOIGNITION TEMPERATURE: Not available.
FLAMMABLE LIMITS (in air by volume, %): Not applicable.
FIRE EXTINGUISHING MEDIA: Use extinguishing materials suitable for the surrounding area.
UNSUITABLE FIRE EXTINGUISHING MEDIA: None known.
UNUSUAL FIRE AND EXPLOSION HAZARDS: This product is formulated to be non-flammable and non-combustible. When involved in a fire, this material may decompose and produce irritating vapors and toxic gases
Explosion Sensitivity to Static Discharge: Not sensitive.
SPECIAL PROTECTIVE ACTIONS FOR FIRE-FIGHTERS: No Special protective actions for fire-fighters are anticipated

6. ACCIDENTAL RELEASE MEASURES

PERSONAL PRECAUTIONS AND EMERGENCY PROCEDURES: Uncontrolled releases should be responded to by trained personnel using pre-planned procedures. Proper protective equipment should be used. Call CHEMTREC (1-800-424-9300) for emergency assistance. Or if in Canada, call CANUTEC (613-996-6666). PERSONAL PROTECTIVE EQUIPMENT: Proper protective equipment should be used.
Small Spills: Wear rubber gloves, safety glasses.
PERSONAL PROTECTIVE EQUIPMENT (continued):
Large Spills: Minimum Personal Protective Equipment should be rubber gloves, rubber boots, face shield.
METHODS FOR CLEAN-UP AND CONTAINMENT: Spills of this product present minimal hazard.
Small Spills: Small releases can be carefully swept up or cleaned up using a damp sponge or polypads.
Large Spills: Access to the spill area should be restricted. For large spills, dike or otherwise contain spill and sweep-up or vacuum with non-sparking vacuum.
All Spills: Place all spill residue in a double plastic bag or other containment and seal. Close off sewers and take other measures to protect human health and the environment as necessary. Rinse area with soap and water solution and follow with a water rinse. Decontaminate the area thoroughly. Do not mix with wastes from other materials. Dispose of in accordance with applicable Federal, State, and local procedures (see Section 13, Disposal Considerations). For spills on water, contain, minimize dispersion and collect. Dispose of recovered material and report spill per regulatory requirements.
ENVIRONMENTAL PRECAUTIONS: Avoid release to the environment. Run-off water may be contaminated by other materials and should be contained to prevent possible environmental damage.
PRECAUTIONS FOR SAFE HANDLING: As with all chemicals, avoid getting this material ON YOU or IN YOU. Do not eat, drink, smoke, or apply cosmetics while handling this product. Wash hands thoroughly after handling this product or containers of this product. Avoid breathing fumes or vapors 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. Do not store above 55°C (131°F)

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

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.

Workplace Exposure Limits/Control Parameters:

<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>
</thead>
<tbody>
<tr>
<td>Aluminum Trihydrate</td>
<td>21645-51-2</td>
<td>NE</td>
<td>NE</td>
<td>NE</td>
<td>NE</td>
<td>NE</td>
</tr>
<tr>
<td>Crystalline Silica (Quartz)</td>
<td>14808-60-7</td>
<td>0.025 (resp. fract.)</td>
<td>NE</td>
<td>30 mg/m³ (total dust)</td>
<td>0.05 (resp. fract.)</td>
<td>50</td>
</tr>
<tr>
<td>Glass Oxide</td>
<td>65997-17-3</td>
<td>NE</td>
<td>NE</td>
<td>NE</td>
<td>NE</td>
<td>NE</td>
</tr>
<tr>
<td>Ground Limestone</td>
<td>1317-65-3</td>
<td>NE</td>
<td>15 (total dust); 1 (resp. fract.)</td>
<td>NE</td>
<td>10 (total dust); 1 (resp. fract.)</td>
<td>NE</td>
</tr>
<tr>
<td>Proprietary Acrylate Coating</td>
<td>NE</td>
<td>NE</td>
<td>NE</td>
<td>NE</td>
<td>NE</td>
<td>NE</td>
</tr>
<tr>
<td>Proprietary Acrylic Copolymer in Aqueous Dispersion</td>
<td>NE</td>
<td>NE</td>
<td>NE</td>
<td>NE</td>
<td>NE</td>
<td>NE</td>
</tr>
<tr>
<td>Sulfuric Acid Compound with Graphite</td>
<td>12777-87-6</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.

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

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

CRYSTALLINE SILICA:
Czech Republic: 5 mg/m³; TWA = 5 mg/m³, DEC 2006
France: VME = 2 mg(Al)/m³, FEB 2006
In Argentina, Bulgaria, Columbia, Jordan, Singapore, Vietnam check ACGIH TLV

CRYSTALLINE SILICA (continued):
Norway: TWA = 0.1 mg/m³ (resp. dust), JAN 1999
Peru: TWA = 0.05 mg/m³, JUL 2005
Russia: TWA = 1 mg/m³, STEL = 3 mg/m³, JUN 2003
Sweden: TWA = 0.1 mg/m³ (resp. dust), JUN 2005
Switzerland: MAK-W = 0.15 mg/m³, DEC 2006
Thailand: TWA = 10 mg/m³ (resp. dust), JAN 1993
Thailand: TWA = 30 mg/m³ (total dust), JAN 1993
United Kingdom: TWA = 0.1 mg/m³ (resp. dust), OCT 2007
In Argentina, Bulgaria, Columbia, Jordan, Singapore, Vietnam check ACGIH TLV

GROUND LIMESTONE:
Belgium: TWA = 10 mg/m³, MAR 2002
Hungary: TWA = 10 mg/m³, SEP 2000
Japan: OEL = 2 mg/m³ (resp. dust), 84 mg/m³ (total dust), MAY 2012
Korea: TWA = 10 mg/m³, 2006
Mexico: TWA = 10 mg/m³ (inhalable), 2004
The Netherlands: MAC-TGG = 10 mg/m³, 2003
New Zealand: TWA = 10 mg/m³ (inhalable dust), JAN 2002
Poland: MAC(TWA) dust = 10 mg/m³, JAN 1999
Russia: STEL = 6 mg/m³, JUN 2003
Thailand: TWA = 10 mg/m³ (resp. dust), JAN 1993
Thailand: TWA = 30 mg/m³ (total dust), JAN 1993
United Kingdom: TWA = 0.1 mg/m³ (resp. dust), OCT 2007
In Argentina, Bulgaria, Columbia, Jordan, Singapore, Vietnam check ACGIH TLV

SPECSEAL® LCI SEALANT SDS PAGE 3 OF 8 EFFECTIVE DATE: JANUARY 21, 2016
8. EXPOSURE CONTROLS - PERSONAL PROTECTION (Continued)


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

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

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

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

9. PHYSICAL and CHEMICAL PROPERTIES

FORM: Paste. COLOR: Red
MOLECULAR FORMULA: Mixture. MOLECULAR WEIGHT: Mixture.
ODOR: Mild acrylic. ODOR THRESHOLD: Not available.
FLAMMABLE LIMITS (in air by volume, %): Not applicable. OXIDIZING PROPERTIES: Not applicable.
DECOMPOSITION TEMPERATURE: Not available. PERCENT VOLATILE: 22
AUTOIGNITION TEMPERATURE: Not available. FLASH POINT: Not available.
FREEZING/MELTING Point: Not available. BOILING POINT: > 100°C (> 212°F)
VAPOR PRESSURE: Not available. SPECIFIC GRAVITY (water = 1): 1.38
VAPOR DENSITY (air = 1): Not available. CARB VOC: 0.2.29 wt % (calc.)
EVAPORATION RATE (n-BuAc = 1): > 1 SCAQMD (U.S. EPA Method 24): 33 gm/L
SOLUBILITY IN WATER: Insoluble. SOLUBILITY IN SOLVENTS: Not available.
COEFFICIENT WATER/OIL DISTRIBUTION: Not established. pH: Not available.
HOW TO DETECT THIS SUBSTANCE (warning properties in event of accidental release): The appearance may be characteristics to distinguish a release of this product.

10. STABILITY and REACTIVITY

CHEMICAL STABILITY: This product is stable when properly stored at normal temperature and pressures (see Section 7, Handling and Storage).

DECOMPOSITION PRODUCTS: Combustion: If exposed to extremely high temperatures, thermal decomposition may generate irritating fumes and toxic gases (e.g., aluminum, calcium, carbon, and sulfur oxides, and acrylic monomers). Hydrolysis: None known.

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

POSSIBILITY OF HAZARDOUS POLYMERIZATION OR REACTION: Will not occur.

CONDITIONS TO AVOID: Avoid exposure to or contact with extreme temperatures and incompatible chemicals.

11. TOXICOLOGICAL INFORMATION

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

Inhalation: Inhalation of fumes or vapors may cause irritation of the nose, throat, and lungs and cause coughing. Removal to fresh air should relieve symptoms. This product contains trace amounts of a suspected human carcinogen by inhalation: however, this hazard is not expected to be significant due to viscosity and consistency of the mixture.

Contact with Skin or Eyes: Direct eye contact may cause irritation, redness, and tearing from mechanical irritation. Prolonged or repeated skin exposures may cause dermatitis (dry red 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.

Injection: Accidental injection of this product, via laceration or puncture by a contaminated object can cause redness at the site of injection. Animal data for the Crystalline Silica component indicate that it may cause carcinogenic effects by this route of exposure.
HEALTH EFFECTS OR RISKS FROM EXPOSURE: Exposure to this product may cause the following health effects:

Acute: Inhalation of fumes or vapors may cause irritation of respiratory system. Eye contact may cause mechanical irritation.

Chronic: Prolonged or repeated skin exposure may cause dermatitis (dry red skin). This product contains trace amounts of a suspected human carcinogen by inhalation: however, this hazard is not expected to be significant due to viscosity and consistency of the mixture.

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

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

**IRRITANT OF PRODUCT:** Inhalation of fumes or vapors may cause respiratory irritation. Eye contact may cause irritation. Prolonged skin contact may cause irritation.

**SENSITIZATION OF PRODUCT:** This product is not currently known to cause allergic skin or respiratory reaction.

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

CRYSTALLINE SILICA: ACGIH-TLV-A2 (Suspected Human Carcinogen); IARC-1 (Carcinogenic to Humans); MAK-1 (Substances that Cause Cancer in Man and Can Be Assumed to Make a Significant Contribution to Cancer Risk); NIOSH-Ca (Potential Occupational Carcinogen with No Further Categorization); NTP-K (Known to Be a Human Carcinogen)

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

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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.

**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: Yes; 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.

California Safe Drinking Water and Toxic Enforcement Act (Proposition 65): The Crystalline Silica component 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/NDSL 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, D2B (Other Toxic Effects-Potential Carcinogenic Effect, Irritation) as per the Controlled Product Regulations.

CHINESE REGULATIONS:

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

JAPANESE REGULATIONS:

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

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

Poisonous and Deleterious Substances Control Law: Components are not listed as a Specified Poisonous Substance under the Poisonous and Deleterious Substances Control Law.
KAOREN REGULATIONS:
Korean Existing Chemicals List (ECL) Status: Components listed by CAS# are listed on the Korean ECL Inventory, or are not listed, in per information in Section 2.

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

SINGAPORE REGULATIONS:
List of Controlled Hazardous Substances: Components listed by CAS# are not listed on the Singapore List of Controlled Substances. Code of Practice on Pollution Control Requirements: The components identified by CAS# in Section 2 (Composition and Information on Ingredients) NOT are subject to the requirements under the Singapore Code of Practice on Pollution Control.

TAWANEGE REGULATIONS:
Taiwan Existing Chemical Substances Inventory List: Components listed by CAS# are listed on the Taiwan Existing Chemicals List.

16. OTHER INFORMATION

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

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

EXPOSURE LIMITS:

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

DFG 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.

DFG MAK Germ Cell Mutagen Categories: 1: Germ cell mutations that have been shown to increase the mutant frequency in the progeny of exposed humans. 2: Germ cell mutations 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 induce 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 vivo 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 Category 4 for germ cell mutants 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 mutations, 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 to be significant.

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

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

LOQ: Limit of Quantitation.

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

NIEC: Notice of Intended Change.

NOISH CEILING: The exposure shall not be exceeded during any part of the workday. If instantaneous monitoring is not feasible, the ceiling shall be assumed as a 15-minute TWA exposure (unless otherwise specified) that shall not be exceeded at any time during a workday.

NOISH Permissible Exposed Concentration Limits.

PEL: OSHA's Permissible Exposure Limits. This exposure value means exactly the same as a TLEV, except that it is enforced by OSHA. The OSHA Permissible Exposure Limits are based in the 1983 edition of Code of Federal Regulations (Federal Register, 50:35373-35351 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: Under the danger of cutaneous irritation:

STEL: Short Term Exposure Limit, usually a 15-minute time-weighted average (TWA) exposure that shall not be exceeded at any time during a workday, even if the 6-hr TWA is within the TWA-TWA, PEL-TWA or REL-TWA.

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

TWA: Time Weighted Average exposure concentration for a conventional 8-hr (TWA, PEL) or up to a 10-hr (REL, STEL, and 4-hr TWA) workweek.

WEEL: Workplace Environmental Exposure Limits from the AIHA.

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

HEALTH HAZARD: 0 Minimal Hazard: No significant health risk, irritation of skin or eyes not anticipated. Skin irritation: Essentially non-irritating, Mechanical irritation may occur. PII or Draize ≤ 0.5 mg/kg. 

Minimal Hazard: No significant health risk, irritation of skin or eyes not anticipated. 

Skin Irritation: Essentially non-irritating, minimal effects clearing in < 24 hours. Mechanical irritation may occur. Draize ≤ 0. Oral Toxicity LD₅₀: ≤ 5000 mg/kg. 

Corneal Irritation LD₅₀: ≤ 0.5–2 mg/L. 

Eye Irritation: \( \geq \) 20 mg/kg. 

PDE (Proximity Distance Exposure): This distance makes this seem sensible. 

Explosives: Substances that are Non-Explosive, Compressed Gases: 

Physical Hazard: 0 Water Reactivity: Materials that do not react with water. 

Organic Peroxides: Materials that are normally stable, even under fire conditions and will not react with water.

Explosives: Substances that are Non-Explosive, Compressed Gases: 

Physical Hazard: 0 Water Reactivity: Materials that do not react with water. 

Organic Peroxides: Materials that are normally stable, even under fire conditions and will not react with water.
Substances that may polymerize, decompose, condense, or self-react at less than or equal to 50 mg/kg.

- Corrosive to the skin. Cryogenic gases that cause frostbite and irreversible tissue damage.
- Acute oral toxicity is greater than 50 mg/kg but less than or equal to 500 mg/kg.
- Respiratory irritants. Materials that cause severe, but reversible irritation to the eyes or are with an LC50 for acute inhalation toxicity greater than 2 mg/L but less than or equal to 10 mg/L.
- Materials that have an estimated instantaneous power density (product of heat of reaction and reaction rate) greater than 250 (482°F) at or above 0.10 W/mL and below 10 W/mL. Materials that have an estimated instantaneous power density (product of heat of reaction and reaction rate) greater than 250 (482°F) at or above 0.10 W/mL and below 100 W/mL. Materials that have an estimate in themselves, are normally unstable, even under emergency conditions. Materials that have an instantaneous power density (product of heat of reaction and reaction rate) at 250 (482°F) (at or above 0.01 W/mL and below 10 W/mL). Materials that readily undergo violent chemical change at elevated temperatures and pressures and may produce toxic gases, fumes, fumes, or spray that can be lethal in air and will burn readily. Flammable gases. Flammable cryogenic materials. Any liquid or gaseous materials that is liquid under while pressure and has a flash point below 22.8°C (73°F) and below 20°C (68°F) or below 10°C (50°F) when solidified. Materials that can 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. Materials that will rapidly or completely vaporize and disperse. Materials that can 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. 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.

**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 of vapor and air in the mixture of the liquid used.
- Autoignition Temperature: Minimum temperature of a solid, liquid, or gas that causes a self-sustained combustion in air with no other source of ignition.
- LL: Lowest concentration of a flammable vapor or gas/air mixture that will ignite and burn with a flame. LEL: Lowest concentration of a flammable vapor or gas/air mixture that will ignite and burn with a flame. UEL: Highest concentration of a flammable vapor or gas/air mixture that will ignite and burn with a flame.

**TOXICOLOGICAL INFORMATION:**

Human health and safety information on the health hazards as derived from human data, animal studies, or from the results of studies with similar compounds are presented. LD50: Lethal Dose (solids & liquids) that kills 50% of the exposed animals. LC50: Lethal Concentration (gases) that kills 50% of the exposed animals. CF: Combustible limit; UL: Upper limit; LL: Lower limit; LEL: Lower concentration of a flammable vapor or gas/air mixture that will ignite and burn with a flame.

**ECOLOGICAL INFORMATION:**

- TC: Effect concentration in water. BCF: Bioconcentration Factor, which is used to determine if a substance will bioaccumulate in life stages. Daphnia magna: A common species of Daphnia that is often used in bioassays because it is easy to grow and reproduce. Daphnia magna is a small crustacean that is often used in bioassays because it is easy to grow and reproduce. Daphnia magna is a small crustacean that is often used in bioassays because it is easy to grow and reproduce. Daphnia magna is a small crustacean that is often used in bioassays because it is easy to grow and reproduce. Daphnia magna is a small crustacean that is often used in bioassays because it is easy to grow and reproduce. Daphnia magna is a small crustacean that is often used in bioassays because it is easy to grow and reproduce. Daphnia magna is a small crustacean that is often used in bioassays because it is easy to grow and reproduce. Daphnia magna is a small crustacean that is often used in bioassays because it is easy to grow and reproduce. Daphnia magna is a small crustacean that is often used in bioassays because it is easy to grow and reproduce. Daphnia magna is a small crustacean that is often used in bioassays because it is easy to grow and reproduce. Daphnia magna is a small crustacean that is often used in bioassays because it is easy to grow and reproduce. Daphnia magna is a small crustacean that is often used in bioassays because it is easy to grow and reproduce. Daphnia magna is a small crustacean that is often used in bioassays because it is easy to grow and reproduce. Daphnia magna is a small crustacean that is often used in bioassays because it is easy to grow and reproduce. Daphnia magna is a small crustacean that is often used in bioassays because it is easy to grow and reproduce. Daphnia magna is a small crustacean that is often used in bioassays because it is easy to grow and reproduce. Daphnia magna is a small crustacean that is often used in bioassays because it is easy to grow and reproduce. Daphnia magna is a small crustacean that is often used in bioassays because it is easy to grow and reproduce. Daphnia magna is a small crustacean that is often used in bioassays because it is easy to grow and reproduce. Daphnia magna is a small crustacean that is often used in bioassays because it is easy to grow and reproduce. Daphnia magna is a small crustacean that is often used in bioassays because it is easy to grow and reproduce. Daphnia magna is a small crustacean that is often used in bioassays because it is easy to grow and reproduce. Daphnia magna is a small crustacean that is often used in bioassays because it is easy to grow and reproduce. Daphnia magna is a small crustacean that is often used in bioassays because it is easy to grow and reproduce. Daphnia magna is a small crustacean that is often used in bioassays because it is easy to grow and reproduce. Daphnia magna is a small crustacean that is often used in bioassays because it is easy to grow and reproduce. Daphnia magna is a small crustacean that is often used in bioassays because it is easy to grow and reproduce. Daphnia magna is a small crustacean that is often used in bioassays because it is easy to grow and reproduce. Daphnia magna is a small crustacean that is often used in bioassays because it is easy to grow and reproduce. Daphnia magna is a small crustacean that is often used in bioassays because it is easy to grow and reproduce. Daphnia magna is a small crustacean that is often used in bioassays because it is easy to grow and reproduce. Daphnia magna is a small crustacean that is often used in bioassays because it is easy to grow and reproduce. Daphnia magna is a small crustacean that is often used in bioassays because it is easy to grow and reproduce. Daphnia magna is a small crustacean that is often used in bioassays because it is easy to grow and reproduce. Daphnia magna is a small crustacean that is often used in bioassays because it is easy to grow and reproduce. Daphnia magna is a small crustacean that is often used in bioassays because it is easy to grow and reproduce. Daphnia magna is a small crustacean that is often used in bioassays because it is easy to grow and reproduce. Daphnia magna is a small crustacean that is often used in bioassays because it is easy to grow and repro...
1. IDENTIFICATION

Product Name  Thermafiber K-FAC-19

Product Code  OCMW00005

Recommended Use  This product is used as a backup insulation in high temperature applications such as, furnaces, reactors and other processing units

Manufacturer Address  Owens Corning Mineral Wool, LLC
One Owens Corning Parkway
Toledo, Ohio 43659

Company Phone Number  1-800-GET-PINK or 1-800-438-7465
Chemtrec 1-800-424-9300
Emergency Telephone  1-419-248-5330 (after 5 pm ET and weekends)

E-mail address  safetydatasheet@owenscorning.com
Company Website  http://owenscorning.com/

2. HAZARDS IDENTIFICATION

OSHA Regulatory Status  This chemical is considered hazardous by the 2012 OSHA Hazard Communication Standard (29 CFR 1910.1200)

WHMIS Regulatory Status  This chemical is considered hazardous by the Canadian Hazardous Products Regulation SOR/2015-17

Carcinogenicity  Category 1A
Specific target organ toxicity (repeated exposure)  Category 2

Label elements

Danger

Hazard statements
May cause cancer
May cause damage to organs through prolonged or repeated exposure

ERG Code  If exposed or concerned: Get medical advice/attention

Precautionary Statements - Storage  Store locked up
Precautionary Statements - Disposal
Dispose of contents/container to an approved waste disposal plant

Hazards not otherwise classified (HNOC)
• Not applicable

Unknown acute toxicity
• No information available

3. COMPOSITION/INFORMATION ON INGREDIENTS

Components

<table>
<thead>
<tr>
<th>Chemical Name</th>
<th>CAS No.</th>
<th>Weight-%</th>
<th>Trade Secret</th>
</tr>
</thead>
<tbody>
<tr>
<td>Mineral Wool</td>
<td>65997-17-3</td>
<td>30-40</td>
<td>*</td>
</tr>
<tr>
<td>Aluminum hydrous silicate: Kaolin Clay</td>
<td>1332-58-7</td>
<td>20-30</td>
<td>*</td>
</tr>
<tr>
<td>Quartz</td>
<td>14808-60-7</td>
<td>1-5</td>
<td>*</td>
</tr>
<tr>
<td>Titanium Dioxide</td>
<td>13463-67-7</td>
<td>0.1-1</td>
<td>*</td>
</tr>
</tbody>
</table>

• The remaining components of this product are non-hazardous or are in a small enough quantity as to not meet regulatory thresholds for disclosure. These components contain no substances or impurities which would influence the classification of this product
• *The exact percentage (concentration) of composition has been withheld as a trade secret

4. FIRST AID MEASURES

Description of First Aid Measures

Eye contact
• In the case of contact with eyes, rinse immediately with plenty of water and seek medical advice
• Rinse immediately with plenty of water, also under the eyelids, for at least 15 minutes
• DO NOT rub or scratch eyes
• If eye irritation persists: Get medical advice/attention

Skin contact
• Wash off immediately with soap and plenty of cold water
• DO NOT use warm water because this will open up the pores of the skin, which will cause further penetration of the fibers
• Use a wash cloth to help remove fibers
• DO NOT rub or scratch affected area
• Remove contaminated clothing and shoes
• If skin irritation persists, call a physician
• If fibers are seen penetrating from the skin, the fibers can be removed by applying and removing adhesive tape so that the fibers adhere to the tape and are pulled out of the skin
• Never use compressed air to remove fibers from skin

Inhalation
• Remove to fresh air
• If symptoms persist, call a physician

Ingestion
• Accidental ingestion of this material is unlikely
• Rinse mouth with water and drink water to remove fibers from the throat
• If this does occur watch person for several days to make sure intestinal blockage does not occur
• If symptoms persist, call a physician

Note to physicians
Treat symptomatically.

5. FIRE-FIGHTING MEASURES

Suitable extinguishing media
• Use extinguishing measures that are appropriate to local circumstances and the surrounding environment

Unsuitable extinguishing media
• Caution: Use of water spray when fighting fire may be inefficient
Specific hazards arising from the chemical
- No information available

Hazardous combustion products
- Carbon monoxide
- Carbon dioxide (CO2)
- Ammonia
- Other undetermined compounds could be released in small quantities

Explosion data
- Sensitivity to Mechanical Impact: None
- Sensitivity to Static Discharge: None

Protective equipment and precautions for firefighters
- As in any fire, wear self-contained breathing apparatus pressure-demand, MSHA/NIOSH (approved or equivalent) and full protective gear

6. ACCIDENTAL RELEASE MEASURES

Personal precautions, protective equipment and emergency procedures
- Personal precautions: Avoid contact with eyes and skin
- Environmental precautions: See Section 12 for ecotoxicology additional information
  - Prevent further leakage or spillage if safe to do so

Methods and material for containment and cleaning up
- Methods for containment: This material will settle out of air
  - Prevent from spreading by covering, diking or other means
- Methods for cleaning up: Use personal protective equipment as required
  - Cover powder spill with plastic sheet or tarp to minimize spreading and keep powder dry
  - Take up mechanically, placing in appropriate containers for disposal
  - Avoid creating dust
  - Clean contaminated surface thoroughly
  - Use an industrial vacuum cleaner with a high efficiency filter to clean up dust and fiber contamination
  - Avoid dry sweeping
  - Pick up and transfer to properly labeled containers

7. HANDLING AND STORAGE

Conditions for safe storage, including any incompatibilities
- Storage Conditions: Keep product in packaging until use to minimize potential dust generation
  - Product should be kept dry and undercover
- Incompatible materials: None known based on information supplied

8. EXPOSURE CONTROLS/PERSONAL PROTECTION

Control parameters

Exposure Guidelines

<table>
<thead>
<tr>
<th>Chemical Name</th>
<th>ACGIH TLV</th>
<th>OSHA PEL</th>
<th>NIOSH REL</th>
</tr>
</thead>
<tbody>
<tr>
<td>Aluminum hydrous silicate: Kaolin Clay 1332-58-7</td>
<td>TWA: 2 mg/m³ particulate matter containing no asbestos and &lt;1% crystalline silica, respirable fraction</td>
<td>TWA: 15 mg/m³ total dust (vacated) TWA: 10 mg/m³ total dust (vacated) TWA: 5 mg/m³ respirable dust</td>
<td>TWA: 10 mg/m³ total dust TWA: 5 mg/m³ respirable dust</td>
</tr>
<tr>
<td>Compound</td>
<td>TWA: 10 mg/m³</td>
<td>TWA: 15 mg/m³</td>
<td>TWA: 10 mg/m³</td>
</tr>
<tr>
<td>---------------------------</td>
<td>---------------</td>
<td>---------------</td>
<td>---------------</td>
</tr>
<tr>
<td>Starch 9005-25-8</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Quartz 14608-60-7</td>
<td>TWA: 0.025 mg/m³ respirable fraction</td>
<td>(vacated) TWA: 0.1 mg/m³ respirable dust</td>
<td>(vacated) TWA: 0.1 mg/m³ respirable dust</td>
</tr>
<tr>
<td>Ground Calcium Carbonate  1317-65-3</td>
<td>-</td>
<td>TWA: 15 mg/m³ total dust</td>
<td>TWA: 5 mg/m³ total dust</td>
</tr>
<tr>
<td>Fiberglass wool 65997-17-3</td>
<td>TWA: 1 fiber/cm³ respirable fibers; length &gt;5 µm, aspect ratio &gt;=3:1, as determined by the membrane filter method at 400-450X magnification [4-mm objective], using phase-contrast illumination TWA: 5 mg/m³ inhalable fraction</td>
<td>-</td>
<td>-</td>
</tr>
<tr>
<td>Titanium Dioxide 13463-67-7</td>
<td>TWA: 10 mg/m³</td>
<td>TWA: 15 mg/m³</td>
<td>TWA: 10 mg/m³</td>
</tr>
</tbody>
</table>

NIOSH REL: Immediately Dangerous to Life or Health

Other Information
Vacated limits revoked by the Court of Appeals decision in AFL-CIO v. OSHA, 965 F.2d 962 (11th Cir., 1992).

Engineering Controls
Provide local exhaust and/or general ventilation to maintain exposure below regulatory and recommended limits
Dust collection system must be used in transferring operations, cutting or other dust generating processes, such as using power tools
Vacuum or wet clean-up methods should be used

Individual protection measures, such as personal protective equipment

Eye/face protection
• Wear safety glasses with side shields (or goggles)

Skin and body protection
• Wear protective gloves
• Wear long-sleeved shirt and long pants

Respiratory protection
• When workers are facing airborne particulates/dust concentrations above the exposure limits, they must use an appropriate certified respirator
• A properly fitted NIOSH approved disposable N 95 type dust respirator or better is recommended

General Hygiene Considerations
• Wash hands before breaks and immediately after handling products
• Remove and wash contaminated clothing before re-use

9. PHYSICAL AND CHEMICAL PROPERTIES
10. STABILITY AND REACTIVITY

Reactivity
- Not applicable

Chemical stability
- Stable under recommended storage conditions

Possibility of Hazardous Reactions
- None under normal processing

Conditions to avoid
- None known

Incompatible materials
- None known based on information supplied

Hazardous Decomposition Products
- None known based on information supplied

11. TOXICOLOGICAL INFORMATION

Information on likely routes of exposure

Product Information
- Dusts may cause mechanical irritation to eyes and skin. Ingestion may cause transient irritation of throat, stomach and gastrointestinal tract. Inhalation may cause coughing, nose and throat irritation, and sneezing. High exposures may cause difficulty breathing, congestion, and chest tightness

<table>
<thead>
<tr>
<th>Chemical Name</th>
<th>Oral LD50</th>
<th>LD50/dermal/rat - NO UNITS (Wizards mg/kg)</th>
<th>Inhalation LC50</th>
</tr>
</thead>
<tbody>
<tr>
<td>Quartz 14808-60-7</td>
<td>= 500 mg/kg (Rat)</td>
<td>-</td>
<td>-</td>
</tr>
<tr>
<td>Titanium Dioxide 13463-67-7</td>
<td>&gt; 10000 mg/kg (Rat)</td>
<td>-</td>
<td>-</td>
</tr>
</tbody>
</table>

Delayed and immediate effects as well as chronic effects from short and long-term exposure

Immediate Health Effects:
- Product may cause temporary skin and mucous membrane itching

Sensitization
- No information available.

Germ cell mutagenicity
- No information available.

Carcinogenicity
- This product contains one or more substances which are classified by IARC as carcinogenic to humans (Group 1), probably carcinogenic to humans (Group 2A) or possibly carcinogenic to humans (Group 2B).

<table>
<thead>
<tr>
<th>Chemical Name</th>
<th>ACGIH</th>
<th>IARC</th>
<th>NTP</th>
<th>OSHA</th>
</tr>
</thead>
<tbody>
<tr>
<td>Mineral Wool 65997-17-3</td>
<td>-</td>
<td>Group 3</td>
<td>-</td>
<td>-</td>
</tr>
<tr>
<td>Quartz 14808-60-7</td>
<td>A2</td>
<td>Group 1</td>
<td>Known</td>
<td>X</td>
</tr>
<tr>
<td>Titanium Dioxide 13463-67-7</td>
<td>-</td>
<td>Group 2B</td>
<td>-</td>
<td>X</td>
</tr>
</tbody>
</table>

ACGIH (American Conference of Governmental Industrial Hygienists)
- A2 - Suspected Human Carcinogen

IARC (International Agency for Research on Cancer)
- Group 1 - Carcinogenic to Humans
- Group 2B - Possibly Carcinogenic to Humans
- Group 3 - Not classifiable as a human carcinogen

NTP (National Toxicology Program)
- Known - Known Carcinogen

OSHA (Occupational Safety and Health Administration of the US Department of Labor)
- X - Present
12. ECOLOGICAL INFORMATION

- **Persistence and degradability**: No information available
- **Bioaccumulation**: No information available
- **Other adverse effects**: No information available

13. DISPOSAL CONSIDERATIONS

- **Disposal of wastes**: Disposal should be in accordance with applicable regional, national and local laws and regulations
- **Contaminated packaging**: Do not reuse container

14. TRANSPORT INFORMATION

- **DOT**: Not regulated
- **TDG**: Not regulated
- **MEX**: Not regulated
- **ICAO (air)**: Not regulated
- **IATA**: Not regulated
- **IMDG**: Not regulated
- **RID**: Not regulated
- **ADR**: Not regulated
- **ADN**: Not regulated

15. REGULATORY INFORMATION

<table>
<thead>
<tr>
<th>Chemical Name</th>
<th>TSCA</th>
<th>DSL</th>
<th>NDSL</th>
<th>EINECS</th>
<th>ELINCS</th>
<th>ENCS</th>
<th>IECSC</th>
<th>KECL</th>
<th>PICCS</th>
<th>AICS</th>
</tr>
</thead>
<tbody>
<tr>
<td>Mineral Wool 65997-17-3</td>
<td>X</td>
<td>X</td>
<td></td>
<td>926-099-9</td>
<td>X</td>
<td>X</td>
<td>X</td>
<td>X</td>
<td>X</td>
<td>X</td>
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<tr>
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<td>X</td>
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<tr>
<td>Quartz 14808-60-7</td>
<td>X</td>
<td>X</td>
<td></td>
<td>X</td>
<td>X</td>
<td>X</td>
<td>X</td>
<td>X</td>
<td>X</td>
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<tr>
<td>Titanium Dioxide</td>
<td>X</td>
<td>X</td>
<td></td>
<td>X</td>
<td>X</td>
<td>X</td>
<td>X</td>
<td>X</td>
<td>X</td>
<td>X</td>
</tr>
</tbody>
</table>
Legend:
TSCA - United States Toxic Substances Control Act Section 8(b) Inventory
DSL/NDDSL - Canadian Domestic Substances List/Non-Domestic Substances List
EINECS/ELINCS - European Inventory of Existing Chemical Substances/European List of Notified Chemical Substances
ENCS - Japan Existing and New Chemical Substances
IECSC - China Inventory of Existing Chemical Substances
KECL - Korean Existing and Evaluated Chemical Substances
PICCS - Philippines Inventory of Chemicals and Chemical Substances
AICS - Australian Inventory of Chemical Substances

US Federal Regulations

SARA 313
Section 313 of Title III of the Superfund Amendments and Reauthorization Act of 1986 (SARA). This product does not contain any chemicals which are subject to the reporting requirements of the Act and Title 40 of the Code of Federal Regulations, Part 372

SARA 311/312 Hazard Categories

<table>
<thead>
<tr>
<th>Hazard Category</th>
<th>Yes</th>
<th>No</th>
</tr>
</thead>
<tbody>
<tr>
<td>Acute health hazard</td>
<td>Yes</td>
<td></td>
</tr>
<tr>
<td>Chronic Health Hazard</td>
<td>Yes</td>
<td></td>
</tr>
<tr>
<td>Fire hazard</td>
<td>No</td>
<td></td>
</tr>
<tr>
<td>Sudden release of pressure hazard</td>
<td>No</td>
<td></td>
</tr>
<tr>
<td>Reactive Hazard</td>
<td>No</td>
<td></td>
</tr>
</tbody>
</table>

CERCLA
This material, as supplied, does not contain any substances regulated as hazardous substances under the Comprehensive Environmental Response Compensation and Liability Act (CERCLA) (40 CFR 302) or the Superfund Amendments and Reauthorization Act (SARA) (40 CFR 355). There may be specific reporting requirements at the local, regional, or state level pertaining to releases of this material

US State Regulations

California Proposition 65
WARNING! This product contains a chemical known in the State of California to cause cancer

U.S. State Right-to-Know Regulations

<table>
<thead>
<tr>
<th>Chemical Name</th>
<th>New Jersey</th>
<th>Massachusetts</th>
<th>Pennsylvania</th>
</tr>
</thead>
<tbody>
<tr>
<td>Aluminum hydrous silicate: Kaolin Clay 1332-58-7</td>
<td>X</td>
<td>-</td>
<td>-</td>
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<tr>
<td>Starch 9005-25-8</td>
<td>-</td>
<td>X</td>
<td>X</td>
</tr>
<tr>
<td>Quartz 14808-60-7</td>
<td>X</td>
<td>X</td>
<td>X</td>
</tr>
<tr>
<td>Ground Calcium Carbonate 1317-65-3</td>
<td>X</td>
<td>X</td>
<td>X</td>
</tr>
<tr>
<td>Titanium Dioxide 13463-67-7</td>
<td>X</td>
<td>X</td>
<td>X</td>
</tr>
</tbody>
</table>

16. OTHER INFORMATION, INCLUDING DATE OF PREPARATION OF THE LAST REVISION

<table>
<thead>
<tr>
<th>Creation Date</th>
<th>01-Feb-2014</th>
</tr>
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<tbody>
<tr>
<td>Revision Date</td>
<td>28-Jul-2016</td>
</tr>
<tr>
<td>Revision Note</td>
<td>This Safety Data Sheet replaces the Material Safety Data Sheet numbered Thermafiber®</td>
</tr>
</tbody>
</table>

Disclaimer
Reasonable care has been taken in the preparation of this information, but the manufacturer makes no warranty of merchantability or any other warranty, expressed or implied, with respect to this information. The manufacturer makes no representations and assumes no liability for any direct, incidental or consequential damages resulting from its use

End of Safety Data Sheet
GHS SAFETY DATA SHEET

SECTION 1 - PRODUCT AND COMPANY IDENTIFICATION

PRODUCT NAME: Spears® FS-5 One-Step Low VOC Cement for CPVC Fire Sprinkler Systems

PRODUCT USE: Solvent Cement for CPVC Plastic Pipe

MANUFACTURER: Spears® Manufacturing Company
15853 Olden Street, Sylmar, CA 91342
Tel. 818-364-1611

SUPPLIER: Spear Plastics

EMERGENCY: Transportation/Medical Issues: Tel. 800-535-5053 or 352-323-3500 (outside of USA) INFOTRAC

SECTION 3 - COMPOSITION/INFORMATION ON INGREDIENTS

<table>
<thead>
<tr>
<th>CAS#</th>
<th>EINECS #</th>
<th>REACH Pre-registration Number</th>
<th>CONCENTRATION % by Weight</th>
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</thead>
<tbody>
<tr>
<td>Tetrahydrofuran (THF)</td>
<td>109-99-9</td>
<td>203-726-8</td>
<td>30 - 60</td>
</tr>
<tr>
<td>Methyl Ethyl Ketone (MEK)</td>
<td>78-93-3</td>
<td>201-159-0</td>
<td>2 - 25</td>
</tr>
<tr>
<td>Cyclohexanone</td>
<td>108-84-1</td>
<td>200-631-1</td>
<td>5 - 15</td>
</tr>
<tr>
<td>Acetone</td>
<td>67-64-1</td>
<td>200-1662-2</td>
<td>1 - 5</td>
</tr>
</tbody>
</table>

All of the constituents of this adhesive product are listed on the TSCA inventory of chemical substances maintained by the US EPA, or are exempt from that listing.

* Indicates this chemical is subject to the reporting requirements of Section 313 of the Emergency Planning and Community Right-to-Know Act of 1986 (40CFR372).
# Indicates that this chemical is found on Proposition 65's List of chemicals known to the State of California to cause cancer or reproductive toxicity.

SECTION 4 - FIRST AID MEASURES

Contact with eyes: Flush eyes immediately with plenty of water for 15 minutes and seek medical advice immediately.

Skin contact: Remove contaminated clothing and shoes. Wash skin thoroughly with soap and water. If irritation develops, seek medical advice.

Inhalation: Remove to fresh air. If breathing is stopped, give artificial respiration. If breathing is difficult, give oxygen. Seek medical advice.

Ingestion: Rinse mouth with water. Give 1 or 2 glasses of water or milk to dilute. Do not induce vomiting. Seek medical advice immediately.

Likely Routes of Exposure: Inhalation, Eye and Skin Contact

Acute symptoms and effects:
Inhalation: Severe overexposure may result in nausea, dizziness, headache. Can cause drowsiness, irritation of eyes and nasal passages.

Skin Contact: May cause skin rashes or sensitivity to light.

Eye Contact: Irritation.

Chronic (long-term) effects: Category 2 Carcinogenic

SECTION 5 - FIREFIGHTING MEASURES

Suitable Extinguishing Media: Dry chemical powder, carbon dioxide gas, foam, Halon, water fog.

Unsuitable Extinguishing Media: Water spray or stream.

Exposure Hazards: Inhalation and dermal contact.

Combustion Products: Oxides of carbon, hydrogen chloride and smoke.

Protection for Firefighters: Self-contained breathing apparatus or full-face positive pressure airline masks.

SECTION 6 - ACCIDENTAL RELEASE MEASURES

Personal precautions: Keep away from heat, sparks and open flame.

Provide sufficient ventilation, use explosion-proof exhaust ventilation equipment or wear suitable respiratory protective equipment.

Prevent contact with skin or eyes (see section 8).

Environmental Precautions: Prevent product or liquids contaminated with product from entering sewers, drains, soil or open water course.

Methods for Cleaning up: Clean up with sand or other inert absorbent material. Transfer to a disposable steel vessel.

Materials not to be used for clean up: Aluminum or plastic containers.

SECTION 7 - HANDLING AND STORAGE

Handling: Avoid breathing of vapor, avoid contact with eyes, skin and clothing.

Keep away from ignition sources, use only electrically grounded handling equipment and ensure adequate ventilation/fume exhaust hoods.

Do not eat, drink or smoke while handling.

Storage: Store in ventilated room or shade below 33 °C (90 °F) and away from direct sunlight.

Keep away from ignition sources and incompatible materials: caustics, ammonia, inorganic acids, chlorinated compounds, strong oxidizers and isocyanates.

Follow all precautionary information on container label, product bulletins and solvent cementing literature.
SECTION 9 - PHYSICAL AND CHEMICAL PROPERTIES

**Appearance:** Red, heavy syrupy liquid  
**Odor:** Ether-Like  
**Odor Threshold:** 0.88 ppm (Cyclohexanone)  
**pH:** Not Applicable  
**Melting/Freezing Point:** -108.5 °C (-163.3 °F) Based on first melting component: THF  
**Boiling Point:** 66 °C (151 °F) Based on first boiling component: THF  
**Flash Point:** 29 °C (84 °F) FCC based on THF  
**Specific Gravity:** 0.857 ± 0.01 @ 23°C ± 2° (73°F ± 3.6°)  
**Solubility:** Solvent portion soluble in water. Resin portion separates out.  
**Partition Coefficient n-octanol/water:** Not Available  
**Auto-ignition Temperature:** 321 °C (655°F) based on THF  
**Decomposition Temperature:** Not Applicable  
**VOC Content:** When applied as directed, per SCAQMD Rule 1168, Test Method 316A; VOC content is: < 490 g/l.

SECTION 10 - STABILITY AND REACTIVITY

**Stability:** Stable  
**Hazardous decomposition products:** None in normal use. When forced to burn, this product gives off oxides of carbon, hydrogen chloride and smoke.  
**Conditions to avoid:** Keep away from heat, sparks, open flame and other ignition sources.  
**Incompatible Materials:** Oxidizers, strong acids and bases, amines, ammonia

SECTION 11 - TOXICOLOGICAL INFORMATION

**Toxicity:**  
**LD50:** Oral: 2842 mg/kg (rat)  
**LC50:** Inhalation 3 hrs. 21,000 mg/m³ (rat)  
**Target Organs:** STOT SE3  
**Tetrahydrofuran (THF)  
**Methyl Ethyl Ketone (MEK)  
**Cyclohexanone  
**Acetone**  
**Reproductive Effects:** Not Established  
**Teratogenicity:** Not Established  
**Mutagenicity:** Not Established  
**Embryotoxicity:** Not Established  
**Sensitization to Product:** Not Established  
**Synergistic Products:** Not Established

SECTION 12 - ECOLOGICAL INFORMATION

Ecotoxicity: None Known  
Mobility: In normal use, emission of volatile organic compounds (VOC’s) to the air takes place, typically at a rate of < 490 g/l.

SECTION 13 - WASTE DISPOSAL CONSIDERATIONS

Follow local and national regulations. Consult disposal expert.

SECTION 14 - TRANSPORT INFORMATION

**Proper Shipping Name:** Adhesives  
**Hazard Class:** 3  
**Secondary Risk:** None  
**Identification Number:** UN 1133  
**Packing Group:** PG II  
**Label Required:** Class 3 Flammable Liquid  
**Marine Pollutant:** NO

SECTION 15 - REGULATORY INFORMATION

**Precautionary Label Information:** Highly Flammable, Irritant  
**Risk Phrases:** R11: Highly flammable.  
R36/37: Irritating to eyes and respiratory system.  
**Safety Phrases:** S2: Keep out of the reach of children.  
S4: Keep container in a well-ventilated place.  
S16: Keep away from sources of ignition - No smoking.

SECTION 16 - OTHER INFORMATION

**Specification Information:**  
**Department issuing data sheet:** Environmental Health & Safety  
**E-mail address:** EHSInfo@Spearsfitt.net  
**Training necessary:** Yes, training in practices and procedures contained in product literature.  
**Reissue date / reason for reissue:** 5/01/15 / Updated GHS Standard Format  
**Intended Use of Product:** Solvent Cement for CPVC Plastic Pipe
TYCO CPVC
TFP-500 One Step Solvent Cement
SDS (Safety Data Sheet)

Tyco
GHS SAFETY DATA SHEET
TFP-500 RED Low VOC Cement for CPVC Plastic Pipe

SECTION 1 - PRODUCT AND COMPANY IDENTIFICATION
PRODUCT NAME: TFP-500 RED Low VOC Cement for CPVC Plastic Pipe
PRODUCT USE: Low VOC Solvent Cement for CPVC Plastic Pipe
SUPPLIER: IPS Corporation
17109 South Main Street, Gardena, CA 90248-3127
P.O. Box 379, Gardena, CA  90247-0379
Tel. 1-310-898-3300

EMERGENCY: Transportation: CHEMTEL Tel. 800.255-3924, +1 813-248-0585 (International)
Medical: CHEMTEL Tel. 800.255-3924, +1 813-248-0585 (International)

SECTION 2 - HAZARDS IDENTIFICATION
GHS CLASSIFICATION:
Acute Toxicity: Category 4
Environmental: None Known
Physical: Category 2
Skin Irritation: Category 3
Eye: Category 2

GHS LABEL:
Signal Word: Danger
WHMIS CLASSIFICATION: CLASS B, DIVISION 2

Hazard Statements
H225: Highly flammable liquid and vapor
H319: Causes serious eye irritation
H335: May cause respiratory irritation
H360: May cause drowsiness or dizziness
H351: Suspected of causing cancer
P337+P313: Get medical advice/attention

Precautionary Statements
P210: Keep away from heat/sparks/open flames/hot surfaces – No smoking
P261: Avoid breathing dust/fume/gas/mist/vapors/spray
P280: Wear protective gloves and/eye protection/face protection
P271: Use only for labeled purpose
P305+P330+P331: If exposed or overexposed, seek medical advice/attention

SECTION 3 - COMPOSITION/INFORMATION ON INGREDIENTS
CAS# EINECS # Pre-registration Number % by Weight
Tetrahydrofuran (THF) 109-99-9 203-726-8 05-2116297729-22-0000 30 - 60
Methyl Ethyl Ketone (MEK) 78-93-3 201-159-0 05-2116297724-0000 2 - 25
Acetone 67-64-1 200-662-2 05-2116297713-35-0000 5 - 15
Cyclohexanone 108-84-1 203-631-1 05-2116297718-25-0000 1 - 5

Protect all of the constituents of this adhesive product are listed on the TSCA inventory of chemical substances maintained by the US EPA, or are exempt from that listing.

* Indicates this chemical is subject to the reporting requirements of Section 313 of the Emergency Planning and Community Right-to-Know Act of 1986 (40CFR372).
# Indicates that this chemical is found on Proposition 65’s List of chemicals known to the State of California to cause cancer or reproductive toxicity.

SECTION 4 - FIRST AID MEASURES
Contact with eyes: Flush eyes immediately with plenty of water for 15 minutes and seek medical advice immediately.
Skin contact: Remove contaminated clothing and shoes. Wash skin thoroughly with soap and water. If irritation develops, seek medical advice.
Inhalation: Remove to fresh air. If breathing is stopped, give artificial respiration. If breathing is difficult, give oxygen. Seek medical advice.
Ingestion: Rinse mouth with water. Give 1 or 2 glasses of water or milk to dilute. Do not induce vomiting. Seek medical advice immediately.

SECTION 5 - FIREFIGHTING MEASURES
Suitable Extinguishing Media: Dry chemical powder, carbon dioxide gas, foam, Halon, water fog.
Unsuitable Extinguishing Media: Water spray or stream.
Health: 1-Slight
Flammability: 3 3 2-Moderate
Reactivity: 0 0 3-Serious
PPE: RPE 4-Severe

Protection for Firefighters: Self-contained breathing apparatus or full-face positive pressure airline masks.

SECTION 6 - ACCIDENTAL RELEASE MEASURES
Personal precautions: Keep away from heat, sparks and open flame.
Provide sufficient ventilation, use explosion-proof exhaust ventilation equipment or wear suitable respiratory protective equipment.
Prevent contact with skin or eyes (see section 8).

Environmental Precautions: Prevent product or liquids contaminated with product from entering sewers, drains, soil or open water course.

Methods for Cleaning up: Clean up with sand or other inert absorbent material. Transfer to a closable steel vessel.

Materials not to be used for clean up: Aluminium or plastic containers

Sections 1-6 excerpt from: Filename: TFP-500 RED LoVoc 1-15.xls
TFP1990

Tyco

GHS SAFETY DATA SHEET

TFP-500 RED Low VOC Cement for CPVC Plastic Pipe

Date Revised: JAN 2015

Supersedes: JUN 2013

SECTION 7 - HANDLING AND STORAGE

Handling: Avoid breathing of vapor, avoid contact with eyes, skin and clothing. Keep away from ignition sources, use only electrically grounded handling equipment and ensure adequate ventilation/fume exhaust hoods. Do not eat, drink or smoke while handling.

Storage: Store in ventilated room or shade below 33°C (91°F) and away from direct sunlight. Keep away from ignition sources and incompatible materials: caustics, ammonia, inorganic acids, chlorinated compounds, strong oxidizers and isocyanates.

Follow all precautionary information on container label, product bulletins and solvent cementing literature.

SECTION 8 - PRECAUTIONS TO CONTROL EXPOSURE / PERSONAL PROTECTION

Personal Protective Equipment (PPE):

Eye Protection: Avoid contact with eyes, wear splash-proof chemical goggles, face shield, safety glasses (spectacles) with brow guards and side shields, etc. as may be appropriate for the exposure.

Skin Protection: Prevent contact with the skin as much as possible. Butyl rubber gloves should be used for frequent immersion. Use of solvent-resistant gloves or solvent-resistant barrier cream should provide adequate protection when normal adhesive application practices and procedures are used for making structural bonds.

Respiratory Protection: Prevent inhalation of the solvents. Use in a well-ventilated room. Open doors and/or windows to ensure airflow and air changes. Use local exhaust ventilation to remove airborne contaminants from employee breathing zone and to keep contaminants below levels listed above.

With normal use, the Exposure Limit Value will not usually be reached. When limits approached, use respiratory protection equipment.

SECTION 9 - PHYSICAL AND CHEMICAL PROPERTIES

Appearance: Orange or gray, heavy syrupy liquid

Odor: Ketone

pH: Not Applicable

Melting/Freezing Point: -108.5°C (-163.3°F) Based on first melting component: THF

Boiling Point: 66°C (151°F) Based on first boiling component: THF

Flash Point: -20°C (-4°F) TCC based on THF

Specific Gravity: 0.986 @23°C (73°F)

Solubility: Solvent portion soluble in water. Resin portion separates out.

Partition Coefficient n-octanol/water: Not Available

Auto-ignition Temperature: 321°C (610°F) based on THF

Vapor Density: 1.1% based on Cyclohexanone

Odor Threshold: 0.88 ppm (Cyclohexanone)

SECTION 10 - STABILITY AND REACTIVITY

Stability: Stable

Hazardous decomposition products: None in normal use. When forced to burn, this product gives off oxides of carbon, hydrogen chloride and smoke.

Conditions to avoid: Keep away from heat, sparks, open flame and other ignition sources.

Incompatible Materials: Oxidizers, strong acids and bases, amines, ammonia

SECTION 11 - TOXICOLOGICAL INFORMATION

Likely Routes of Exposure: Inhalation, Eye and Skin Contact

Acute symptoms and effects:

Inhalation: Severe overexposure may result in nausea, dizziness, headache. Can cause drowsiness, irritation of eyes and nasal passages.

Eye Contact: Vapors slightly uncomfortable. Overexposure may result in severe eye injury with conjunctival inflammation on contact with the liquid.

Skin Contact: Liquid contact may remove natural skin oils resulting in skin irritation. Dermatitis may occur with prolonged contact.

Ingestion: May cause nausea, vomiting, diarrhea and mental sluggishness.

Chronic (long-term) effects: Category 2 Carcinogen

Toxicity:

Tetrahydrofuran (THF) Oral: 2842 mg/kg (rat) Inhalation 3 hrs. 21,000 mg/m³ (rat) STOT SE3

Methyl Ethyl Ketone (MEK) Oral: 2737 mg/kg (rat), Dermal: 6480 mg/kg (rabbit) Inhalation 8 hrs. 23,500 mg/m³ (rat) STOT SE3

Acetone Oral: 5800 mg/kg (rat) Inhalation 50,100 mg/m³ (rat) STOT SE3

Cyclohexanone Oral: 1535 mg/kg (rat), Dermal: 948 mg/kg (rabbit) Inhalation 4 hrs. 8,000 PPM (rat)

Reproductive Effects Not Established

Teratogenicity Not Established

Mutagenicity Not Established

Embryotoxicity Not Established

Sensitization to Product Not Established

Synergistic Products Not Established

SECTION 12 - ECOLOGICAL INFORMATION

Ecotoxicity: None Known

Mobility: In normal use, emission of volatile organic compounds (VOC’s) to the air takes place, typically at a rate of < 490 g/l.

Degradability: Not readily biodegradable

Bioaccumulation: Minimal to none.

SECTION 13 - WASTE DISPOSAL CONSIDERATIONS

Follow local and national regulations. Consult disposal expert.

SECTION 14 - TRANSPORT INFORMATION

Proper Shipping Name: Adhesives

Hazard Class: 3

Secondary Risk: None

Identification Number: UN 1133

Packaging Group: PG II

Label Required: Class 3 Flammable Liquid

Marine Pollutant: NO

EXCEPTION for Ground Shipping

DOT Limited Quantity: Up to 5L per inner packaging, 30 kg gross weight per package.

Consumer Commodity: Depending on packaging, these quantities may qualify under DOT as “ORM-D”.

TDG INFORMATION

TDG CLASS: FLAMMABLE LIQUID 3

SHIPPING NAME: ADHESIVES

UN NUMBER/PACKING GROUP: UN 1133, PG II

Sections 7-14 excerpt from: Filename: TFP-500 RED LoVoc 1-15.xls
**Tyco**  
**GHS SAFETY DATA SHEET**  
TFP-500 RED Low VOC Cement for CPVC Plastic Pipe  

**SECTION 15 - REGULATORY INFORMATION**

<table>
<thead>
<tr>
<th>Precautionary Label Information:</th>
<th>Ingredient Listings:</th>
</tr>
</thead>
<tbody>
<tr>
<td>Highly Flammable, Irritant, Carc. 2</td>
<td>USA TSCA, Europe EINECS, Canada DSL, Australia</td>
</tr>
<tr>
<td>F, Xi</td>
<td>AICS, Korea ECL/TCL, Japan MITI (ENCS)</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Risk Phrases:</th>
</tr>
</thead>
<tbody>
<tr>
<td>R11: Highly flammable.</td>
</tr>
<tr>
<td>R36/37: Irritating to eyes and respiratory system.</td>
</tr>
<tr>
<td>R66: Repeated exposure may cause skin dryness or cracking</td>
</tr>
<tr>
<td>R67: Vapors may cause drowsiness and dizziness</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Safety Phrases:</th>
</tr>
</thead>
<tbody>
<tr>
<td>S2: Keep out of the reach of children</td>
</tr>
<tr>
<td>S8: Keep container in a well-ventilated place.</td>
</tr>
<tr>
<td>S16: Keep away from sources of ignition - No smoking.</td>
</tr>
<tr>
<td>S25: Avoid contact with eyes.</td>
</tr>
<tr>
<td>S26: In case of contact with eyes, rinse immediately with plenty of water and seek medical advice.</td>
</tr>
<tr>
<td>S33: Take precautionary measures against static discharges.</td>
</tr>
</tbody>
</table>

**SECTION 16 - OTHER INFORMATION**

<table>
<thead>
<tr>
<th>Specification Information:</th>
<th>All ingredients are compliant with the requirements of the European Department issuing data sheet: Safety Health &amp; Environmental Affairs Safety &amp; Health Affairs Directive on RoHS (Restriction of Hazardous Substances).</th>
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</thead>
<tbody>
<tr>
<td>Training necessary:</td>
<td>Yes, training in practices and procedures contained in product literature.</td>
</tr>
<tr>
<td>Reissue date / reason for reissue:</td>
<td>1/16/2015 / Updated GHS Standard Format</td>
</tr>
<tr>
<td>Intended Use of Product:</td>
<td>Solvent Cement for CPVC Plastic Pipe</td>
</tr>
</tbody>
</table>

This product is intended for use by skilled individuals at their own risk. The information contained herein is based on data considered accurate based on current state of knowledge and experience. However, no warranty is expressed or implied regarding the accuracy of this data or the results to be obtained from the use thereof.

Final Sections 15-16 excerpt from: Filename: TFP-500 RED LoVoc 1-15.xls
Limited Warranty
For warranty terms and conditions, visit www.tyco-fire.com.
HAZARD COMMUNICATION SAFETY DATA SHEET
SUPERDOPE™ ANAEROBIC THREAD SEALANT

SECTION 1 – IDENTIFICATION

Distributor's name: Allied Rubber & Gasket Company, Inc. - ARGCO
5816 Dryden Place #101
Carlsbad, CA 92008
For information call: (800) 854-1015
Date prepared: 4/30/2015
Product name: Superdope™ Anaerobic Thread Sealant
Recommended Use: Pipe Thread Sealant
Chemical Name & Synonyms: Anaerobic Composition (Thread Sealant)
Trade Name & Synonyms: PS67
Chemical Family: Methacrylate Esters
Formula: Various
Flammability: Low
Health: Low
Reactivity: Low
Specific Hazard: Mild Skin Irritant

SECTION 2 – HAZARDS IDENTIFICATION

Non-toxic; basically non-hazardous.
OSHA Status: Contains no “hazardous chemicals” as defined by OSHA Hazard Communication Standard, 29CFR, 1910.1200
TSCA Status: All ingredients listed.

SECTION 3 – COMPOSITION/INGREDIENTS

Chemical Name & Synonyms: Anaerobic Composition (Thread Sealant)
Trade Name & Synonyms: PS67
Chemical Family: Methacrylate Esters
Formula: Various
SECTION 4 – FIRST AID MEASURES

Note to Physician:  Treat as soap irritation.
Eyes:  Flush with water for 15 minutes, if irritation persists get medical aid.
Skin:  Wash with soap and water, if irritation persists get medical aid.

SECTION 5 – FIRE FIGHTING MEASURES

Flash Point:  None
Flammable Limits:  Not applicable
Extinguishing Media:  Not applicable
Special Fire Fighting Method:  Not applicable
Unusual fire & explosion hazards:  None
LEL:  Not applicable
UEL:  Not applicable

SECTION 6 – ACCIDENTAL RELEASE

Steps to be taken in case material is released or spilled: Wipe up with paper towels or cloth and place in appropriate containers for disposal. Material is non-hazardous waste.
Storage Temperature:  Ambient

SECTION 7 – HANDLING AND STORAGE

No special handling or storage procedures required.

SECTION 8 – EXPOSURE CONTROL/PERSONAL PROTECTION

Respiratory Protection:  None required
Engineering Controls:  None required.
Gloves:  Recommended to prevent possible dermal irritation.
Safety Glasses:  Recommended to prevent possible eye irritation.
Other protective clothing or equipment:  None required

SECTION 9 – PHYSICAL AND CHEMICAL PROPERTIES

Boiling point:  Not applicable
Vapor Density:  Not applicable
Vapor pressure:  Not applicable
Solubility in Water:  Appreciable
Appearance & odor:  Tan colored paste – mild odor
Specific gravity (H2O = 1):  1.06
Melting point:  Not applicable
Evaporation Rate:  Not applicable
SECTION 10 – STABILITY AND REACTIVITY DATA

Stability: Stable
Conditions to avoid: None
Hazardous Decomposition or Byproducts: None known.
Hazardous Polymerization: Will not occur
Conditions to Avoid: Not applicable
Materials to Avoid: None

SECTION 11 - TOXICOLOGICAL INFORMATION

Eye Contact: May cause slight irritation.
Skin Contact: May cause slight irritation to persons sensitive to soap products.
Inhalation: Non-hazardous by inhalation.
Ingestion: Unlikely to occur.

SECTION 12 - ECOLOGICAL INFORMATION

SECTION 13 - DISPOSAL CONSIDERATIONS

In accordance with federal, state, and local regulations.

SECTION 14 - TRANSPORT INFORMATION

Product is not regulated.

SECTION 15 - REGULATORY INFORMATION

CERCLA: Not reportable.
SARA Title III: No reportable ingredients.
Sections 302,311,312,313: No reportable ingredients.
RCRA Status: Not regulated.

SECTION 16 - OTHER INFORMATION

Date Prepared: 4/20/2015

Disclaimer

The information contained herein is accurate and reliable as of the date issued to the best of the manufacturer’s knowledge. ARGCO doesn’t warrant or guarantee its accuracy or reliability and shall not be liable for any loss or damage arising from the use thereof. It is the user’s responsibility to satisfy itself that the information offered for its consideration is suitable for its particular use.

END OF SDS
HAZARD COMMUNICATION SAFETY DATA SHEET
TUF-CUT CLEAR™ CUTTING OIL

SECTION I – PRODUCT INFORMATION

Distributor’s name: Allied Rubber & Gasket Company, Inc. - ARGCO
5816 Dryden Place #101
Carlsbad, CA 92008
For information call: (800) 854-1015
Date prepared: 3/6/2015
Product name: Tuf-Cut Clear™ Cutting Oil
Recommended Use: Lubrication for threading and cutting pipe

SECTION II – HAZARDS IDENTIFICATION

Emergency Overview

SLIGHT IRRITANT
(SKIN AND EYE)

Non-toxic; basically non-hazardous.

Potential Health Effects:
Eye Contact: May cause slight irritation.
Skin Contact: May cause slight irritation to persons sensitive to soap products.
Inhalation: Non-hazardous by inhalation.
Ingestion: Unlikely to occur.

First Aid Measures

Note to Physician: Treat as soap irritation.
Eyes: Flush with water for 15 minutes , if irritation persists get medical aid.
Skin: Wash with soap and water , if irritation persists get medical aid.

OSHA Status: Contains no “hazardous chemicals” as defined by OSHA Hazard Communication Standard, 29CFR, 1910.1200
TSCA Status: All ingredients listed.
CERCLA: Not reportable.
SARA Title III: No reportable ingredients.
Sections 302,311,312,313: No reportable ingredients.
RCRA Status: Not regulated.
SECTION III – COMPOSITION/INGREDIENTS

Boiling point: Not applicable
Vapor Density: Not applicable
Vapor pressure: Not applicable
Solubility in Water: Appreciable
Appearance & odor: Tan colored paste – mild odor
Specific gravity (H2O = 1): 1.06
Melting point: Not applicable
Evaporation Rate: Not applicable

SECTION VI – FIRST AID MEASURES

HMIS/NFPA Health – 0 Fire – 0 Reactivity – 0 Personal Protection - B

Steps to be taken in case material is released or
Spilled: Wipe up with paper towels or cloth and place in appropriate containers for disposal.
Material is non-hazardous waste.
Storage Temperature: Ambient
Handling: No special handling or storage procedures required.
Disposal Considerations: In accordance with federal, state, and local regulations.

SECTION V – FIRE FIGHTING MEASURES

Flash Point: None
Flammable Limits: Not applicable
Extinguishing Media: Not applicable
Special Fire Fighting Method: Not applicable
Unusual fire & explosion hazards: None
LEL: Not applicable
UEL: Not applicable

SECTION VI – REACTIVITY DATA

Stability: Stable
Conditions to avoid: None
Hazardous Decomposition or Byproducts: None known.
Hazardous Polymerization: Will not occur
Conditions to Avoid: Not applicable
Materials to Avoid: None
SECTION VIII – SPECIAL PROTECTION INFORMATION

Respiratory Protection: None required
Engineering Controls: None required.
Gloves: Recommended to prevent possible dermal irritation.
Safety Glasses: Recommended to prevent possible eye irritation.
Other protective clothing or equipment: None required

SECTION IX - TRANSPORTATION INFORMATION

Product is not regulated.

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END OF SDS
HAZARD COMMUNICATION SAFETY DATA SHEET
TUF-GLIDE™ PASTE

SECTION 1 – IDENTIFICATION

Distributor's name: Allied Rubber & Gasket Company, Inc. - ARGCO
5816 Dryden Place #101
Carlsbad, CA 92008
For information call: (800) 854-1015
Emergency Phone: CHEMTREC: +1-703-527-3887 (INTL)1-800-424-9300 (NORTH AMERICA)
Date prepared: 3/16/2016
Product name: TUF-GLIDE™ Thread Seal Paste with PTFE

SECTION 2 – HAZARDS IDENTIFICATION

Non-toxic; basically non-hazardous.
This chemical is not hazardous according to OSHA Hazard Communication Standard, 29CFR, 1910.1200
Appearance: Off White Physical State: Liquid, Gel Odor: Sweet, Corn Syrup-Like
Precautionary Statements: None

SECTION 3 – COMPOSITION/INGREDIENTS

<table>
<thead>
<tr>
<th>Chemical Name</th>
<th>CAS-No</th>
<th>Weight %</th>
<th>Trade Secret</th>
</tr>
</thead>
<tbody>
<tr>
<td>Talc</td>
<td>14807-96-6</td>
<td>10-20</td>
<td>*</td>
</tr>
<tr>
<td>Kaolin</td>
<td>1332-58-7</td>
<td>15-20</td>
<td>*</td>
</tr>
<tr>
<td>Mica</td>
<td>12001-26-2</td>
<td>2-5</td>
<td>*</td>
</tr>
<tr>
<td>Titanium Dioxide</td>
<td>13463-67-7</td>
<td>1-2</td>
<td>*</td>
</tr>
</tbody>
</table>

Exact percentage (concentration) of composition has been withheld as a trade secret
SECTION 4 – FIRST AID MEASURES

Eye Contact: Rinse thoroughly with plenty of water for at least 15 minutes and consult a physician.

Skin Contact: Wash off immediately with soap and plenty of water removing all contaminated clothes and shoes.

Inhalation: Move to fresh air.

Ingestion: Clean mouth with water and afterwards drink plenty of water.

Notes to Physician: Notes to Physician Treat symptomatically.

SECTION 5 – FIRE FIGHTING MEASURES

- **Flammable Properties:** Not Flammable
- **Flash Point:** 320° F / > 160° C
- **Flash Point Media:** Open Cup
- **Suitable Extinguishing Media:** Dry Powder. Carbon dioxide (CO₂). Foam. Water spray. Use extinguishing measures that are appropriate to local circumstances and the surrounding environment.

- **Unsuitable Extinguishing Media:** Do not use a solid water stream as it may scatter and spread fire.
- **Explosion Data:** None
- **Sensitivity to Mechanical Impact:** None
- **Sensitivity to Static Discharge:** None
- **Specific Hazards:** Burning produces obnoxious and toxic fumes. Carbon monoxide, carbon dioxide and unburned hydrocarbons (smoke) Halogenated compounds

**Protective Equipment and Precautions for Firefighters**
As in any fire, wear self-contained breathing apparatus pressure-demand, MSHA/NIOSH (approved or equivalent) and full protective gear.

SECTION 6 – ACCIDENTAL RELEASE

**Personal Precautions:** Use personal protective equipment.

**Environmental Precautions:** Prevent further leakage or spillage if safe to do so. Do not allow material to contaminate ground water system. Prevent product from entering drains. Local authorities should be advised if significant spillages cannot be contained.

**Methods for Containment:** Prevent further leakage or spillage if safe to do so.

**Methods for Cleaning Up:** Take up mechanically and collect in suitable container for disposal.

SECTION 7 – HANDLING AND STORAGE

**Handling:** Avoid dust formation. Do not breathe vapors/dust. Wear personal protective equipment. Ensure adequate ventilation. Wash thoroughly after handling. Fine dust dispersed in air may ignite. Keep away from open flames, hot surfaces and sources of ignition.

**Storage:** Keep container tightly closed in a dry and well-ventilated place.
SECTION 8 – EXPOSURE CONTROL/PERSONAL PROTECTION

<table>
<thead>
<tr>
<th>Chemical Name</th>
<th>ACGIH TLV</th>
<th>OSHA PEL</th>
<th>NIOSH IDLH</th>
</tr>
</thead>
<tbody>
<tr>
<td>Titanium dioxide</td>
<td>TWA: 10 mg/m³</td>
<td>TWA: 15 mg/m³ total dust (vacated) TWA: 10 mg/m³ total dust</td>
<td>IDLH: 5000 mg/m³</td>
</tr>
</tbody>
</table>

OSHA PEL: Occupational Safety and Health Administration - Permissible Exposure Limits. ACGIH TLV: American Conference of Governmental Industrial Hygienists - Threshold Limit Value. NIOSH IDLH: Immediately Dangerous to Life or Health. 2

Other Exposure Guidelines: Vacated limits revoked by the Court of Appeals decision in AFL-CIO v. OSHA, 965 F.2d 962 (11th Cir., 1992).

Engineering Measures: Ensure adequate ventilation, especially in confined areas.

Personal Protective Equipment:
- Eye/Face Protection: Safety glasses with side-shields.
- Skin and Body Protection: Long sleeved clothing, Protective gloves.
- Respiratory Protection: None required under normal usage. If exposure limits are exceeded or irritation is experienced, NIOSH/MSHA approved respiratory protection should be worn. Positive-pressure supplied air respirators may be required for high airborne contaminant concentrations. Respiratory protection must be provided in accordance with current local regulations.

Hygiene Measures: When using, do not eat, drink or smoke. Remove and wash contaminated clothing before re-use.

SECTION 9 – PHYSICAL AND CHEMICAL PROPERTIES

Appearance: Off white grainy paste
Odor Threshold: No information available
pH: Neutral
Odor: Sweet, Corn syrup-like
Autoignition Temperature: > 260 °C / 500 °F
Boiling Point/Boiling Range: <260 °C / 500 °F
Melting Point/Range: 149 °C / 300 °F
Physical State: Liquid Gel
Flash Point: 350 °F / > =177 °C
Flashpoint Method: Open cup
Water Solubility: Insoluble in cold water, hot water
Evaporation Rate: No information available.
Vapor Density: >5 (air = 1)

Density: 10.0 lb/gal
Specific Gravity: 1.20
Oil Separation: <5.0

SECTION 10 – STABILITY AND REACTIVITY DATA

Stability: Stable under recommended storage conditions. Decomposes in contact with water
Incompatible Products: Strong oxidizing agents.
Conditions to avoid: Dust formation. Heat, flames and sparks
Hazardous Decomposition or Byproducts: None known.
Hazardous Polymerization: Will not occur
SECTION 11 - TOXICOLOGICAL INFORMATION

Acute Toxicity
Product Information
Product does not present an acute toxicity hazard based on known or supplied information.

Inhalation
May cause irritation of respiratory tract.

Eye Contact
May cause slight irritation.

Skin Contact
No known effect based on information supplied.

Ingestion
Not an expected route of exposure. Ingestion may cause gastrointestinal irritation, nausea, vomiting and diarrhea.

SECTION 12 - ECOLOGICAL INFORMATION

Ecotoxicity
The environmental impact of this product has not been fully investigated.

SECTION 13 - DISPOSAL CONSIDERATIONS

Waste Disposal Methods
Dispose of in accordance with federal, state, and local regulations.

Contaminated Packaging
Empty containers should be taken to an approved waste handling site for recycling or disposal.

SECTION 14 - TRANSPORT INFORMATION

DOT: Not regulated
TDG: Not regulated
MEX: Not regulated

SECTION 15 - REGULATORY INFORMATION

International Inventories

Legend

TSCA - United States Toxic Substances Control Act:
All components are listed

DSL/NDSL - Canadian Domestic Substances List/Non-Domestic Substances List

U.S. Federal Regulations
Section 313 of Title III of the Superfund Amendments and Reauthorization Act of 1986 (SARA). This product does not contain any chemicals which are subject to the reporting requirements of the Act and Title 40 of the Code of Federal Regulations, Part 372.
SARA 311/312 Hazard Categories
Acute Health Hazard  No
Chronic Health Hazard  No
Fire Hazard  No
Sudden Release of Pressure Hazard  No
Reactive Hazard  No

Clean Water Act
This product does not contain any substances regulated as pollutants pursuant to the Clean Water Act (40 CFR 122.21 and 40 CFR 122.42). CERCLA
This material, as supplied, does not contain any substances regulated as hazardous substances under the Comprehensive Environmental Response Compensation and Liability Act (CERCLA) (40 CFR 302) or the Superfund Amendments and Reauthorization Act (SARA) (40 CFR 355). There may be specific reporting requirements at the local, regional, or state level pertaining to releases of this material.

U.S. State Regulations
California Proposition 65
This product contains the following Proposition 65 chemicals:
Chemical Name: Titanium dioxide  CAS-No: 13463-67-7  California Prop. 65: Carcinogen

U.S. EPA Label Information
TSCA - All components are listed
EPA Pesticide Registration Number: Not applicable

<table>
<thead>
<tr>
<th>NFPA</th>
<th>Health Hazard 1</th>
<th>Flammability 1</th>
<th>Instability 0</th>
<th>Physical and Chemical Hazards</th>
</tr>
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<tr>
<td>HMIS</td>
<td>Health Hazard 1</td>
<td>Flammability 1</td>
<td>Physical Hazard 0</td>
<td>Personal Protection X</td>
</tr>
</tbody>
</table>

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END OF SDS
HAZARD COMMUNICATION SAFETY DATA SHEET
TUF-LUBE™ COUPLING GREASE

SECTION 1 – IDENTIFICATION

Distributor’s name: Allied Rubber & Gasket Company, Inc. - ARGCO
5816 Dryden Place #101
Carlsbad, CA 92008
For information call: (800) 854-1015
Date prepared: September 25, 2000; revised 4/30/2015
Product name: Tuf-Lube™ Coupling Grease
Recommended Use: Lubrication for Grooved Coupling Gaskets

SECTION 2 – HAZARDS IDENTIFICATION

Non-toxic; basically non-hazardous.
OSHA Status: Contains no “hazardous chemicals” as defined by OSHA Hazard Communication Standard, 29CFR, 1910.1200
TSCA Status: All ingredients listed.

SECTION 3 – COMPOSITION/INGREDIENTS

Recommended Use: Pipe Thread Sealant
Chemical Name & Synonyms: Titanium Dioxide
CAS No: 13463-67-7
Weight %: 1-5

SECTION 4 – FIRST AID MEASURES

Eye Contact: Rinse thoroughly with plenty of water for at least 15 minutes and consult a physician.
Skin Contact: Wash off immediately with soap and plenty of water removing all contaminated clothes and shoes.
Inhalation: Move to fresh air.
Ingestion: Clean mouth with water and afterwards drink plenty of water.
Notes to Physician: Notes to Physician Treat symptomatically.
SECTION 5 – FIRE FIGHTING MEASURES

Flammable Properties: Not Flammable  
Flash Point: 320° F / > 160° C  
Flash Point Media: Open Cup  
Suitable Extinguishing Media: Dry Powder. Carbon dioxide (CO₂). Foam. Water spray. Use extinguishing measures that are appropriate to local circumstances and the surrounding environment.  
Unsuitable Extinguishing Media: Do not use a solid water stream as it may scatter and spread fire.  
Explosion Data: None  
Sensitivity to Mechanical Impact: None  
Sensitivity to Static Discharge: None  
Specific Hazards: Burning produces obnoxious and toxic fumes. Carbon monoxide, carbon dioxide and unburned hydrocarbons (smoke) Halogenated compounds  
Protective Equipment and Precautions for Firefighters As in any fire, wear self-contained breathing apparatus pressure-demand, MSHA/NIOSH (approved or equivalent) and full protective gear.

SECTION 6 – ACCIDENTAL RELEASE

Personal Precautions: Use personal protective equipment.  
Environmental Precautions: Prevent further leakage or spillage if safe to do so. Do not allow material to contaminate ground water system. Prevent product from entering drains. Local authorities should be advised if significant spillages cannot be contained.  
Methods for Containment: Prevent further leakage or spillage if safe to do so.  
Methods for Cleaning Up: Take up mechanically and collect in suitable container for disposal.

SECTION 7 – HANDLING AND STORAGE

Storage: Keep container tightly closed in a dry and well-ventilated place.

SECTION 8 – EXPOSURE CONTROL/PERSONAL PROTECTION

<table>
<thead>
<tr>
<th>Chemical Name</th>
<th>ACGIH TLV TWA: 10 mg/m³</th>
<th>OSHA PEL TWA: 15 mg/m³ total dust (vacated) TWA: 10 mg/m³ total dust</th>
<th>NIOSH IDLH IDLH: 5000 mg/m³</th>
</tr>
</thead>
<tbody>
<tr>
<td>Titanium dioxide</td>
<td>13463-67-7</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

OSHA PEL: Occupational Safety and Health Administration - Permissible Exposure Limits. ACGIH TLV: American Conference of Governmental Industrial Hygienists - Threshold Limit Value. NIOSH IDLH: Immediately Dangerous to Life or Health.  
Other Exposure Guidelines: Vacated limits revoked by the Court of Appeals decision in AFL-CIO v. OSHA, 965 F.2d 962 (11th Cir., 1992).  
Engineering Measures: Ensure adequate ventilation, especially in confined areas.
Personal Protective Equipment:
Eye/Face Protection: Safety glasses with side-shields.
Skin and Body Protection: Long sleeved clothing. Protective gloves.
Respiratory Protection: None required under normal usage. If exposure limits are exceeded or irritation is experienced, NIOSH/MSHA approved respiratory protection should be worn. Positive-pressure supplied air respirators may be required for high airborne contaminant concentrations. Respiratory protection must be provided in accordance with current local regulations.

Hygiene Measures: When using, do not eat, drink or smoke. Remove and wash contaminated clothing before re-use.

SECTION 9 – PHYSICAL AND CHEMICAL PROPERTIES

<table>
<thead>
<tr>
<th>Property</th>
<th>Value</th>
</tr>
</thead>
<tbody>
<tr>
<td>Appearance</td>
<td>Off white</td>
</tr>
<tr>
<td>Odor Threshold</td>
<td>No information available</td>
</tr>
<tr>
<td>pH</td>
<td>Neutral</td>
</tr>
<tr>
<td>Odor</td>
<td>Sweet, Corn syrup-like</td>
</tr>
<tr>
<td>Autoignition Temperature</td>
<td>&gt; 260 °C / 500 °F</td>
</tr>
<tr>
<td>Boiling Point/Boiling Range</td>
<td>&lt;260 °C / 500 °F</td>
</tr>
<tr>
<td>Melting Point/Range</td>
<td>149 °C / 300 °F</td>
</tr>
<tr>
<td>Physical State</td>
<td>Liquid Gel</td>
</tr>
<tr>
<td>Flash Point</td>
<td>320 °F / &gt;=160 °C</td>
</tr>
<tr>
<td>Flashpoint Method</td>
<td>Open cup</td>
</tr>
<tr>
<td>Water Solubility</td>
<td>Insoluble in cold water, hot water</td>
</tr>
<tr>
<td>Evaporation Rate</td>
<td>No information available</td>
</tr>
<tr>
<td>Vapor Density</td>
<td>&gt;5 (air = 1)</td>
</tr>
</tbody>
</table>

SECTION 10 – STABILITY AND REACTIVITY DATA

<table>
<thead>
<tr>
<th>Property</th>
<th>Value</th>
</tr>
</thead>
<tbody>
<tr>
<td>Stability</td>
<td>Stable under recommended storage conditions. Decomposes in contact with water</td>
</tr>
<tr>
<td>Incompatible Products</td>
<td>Strong oxidizing agents.</td>
</tr>
<tr>
<td>Conditions to avoid</td>
<td>Dust formation. Heat, flames and sparks</td>
</tr>
<tr>
<td>Hazardous Decomposition or Byproducts</td>
<td>None known.</td>
</tr>
<tr>
<td>Hazardous Polymerization</td>
<td>Will not occur</td>
</tr>
</tbody>
</table>

SECTION 11 - TOXICOLOGICAL INFORMATION

Acute Toxicity
Product Information: Product does not present an acute toxicity hazard based on known or supplied information.

Inhalation: May cause irritation of respiratory tract.
Eye Contact: May cause slight irritation.
Skin Contact: No known effect based on information supplied.
Ingestion: Not an expected route of exposure. Ingestion may cause gastrointestinal irritation, nausea, vomiting and diarrhea.
SECTION 12 - ECOLOGICAL INFORMATION

Ecotoxicity

The environmental impact of this product has not been fully investigated.

SECTION 13 - DISPOSAL CONSIDERATIONS

Waste Disposal Methods  Dispose of in accordance with federal, state, and local regulations

Contaminated Packaging  Empty containers should be taken to an approved waste handling site for recycling or disposal.

SECTION 14 - TRANSPORT INFORMATION

DOT:  Not regulated
TDG:  Not regulated
MEX  Not regulated

SECTION 15 - REGULATORY INFORMATION

TSCA - United States Toxic Substances Control Act Section 8(b) Inventory
DSL/NDSL - Canadian Domestic Substances List/Non-Domestic Substances List
EINECS/ELINCS - European Inventory of Existing Commercial Chemical Substances/EU List of Notified Chemical Substances
ENCS - Japan Existing and New Chemical Substances
IECSC - China Inventory of Existing Chemical Substances
KECL - Korean Existing and Evaluated Chemical Substances
PICCS - Philippines Inventory of Chemicals and Chemical Substances
AICS - Australian Inventory of Chemical Substances

U.S. Federal Regulations
Section 313 of Title III of the Superfund Amendments and Reauthorization Act of 1986 (SARA). This product does not contain any chemicals which are subject to the reporting requirements of the Act and Title 40 of the Code of Federal Regulations, Part 372.

SARA 311/312 Hazard Categories
Acute Health Hazard Yes
Chronic Health Hazard Yes
Fire Hazard No
Sudden Release of Pressure Hazard No
Reactive Hazard No

Clean Water Act
This product does not contain any substances regulated as pollutants pursuant to the Clean Water Act (40 CFR 122.21 and 40 CFR 122.42).
CERCLA
This material, as supplied, does not contain any substances regulated as hazardous substances under the Comprehensive Environmental Response Compensation and Liability Act (CERCLA) (40 CFR 302) or the Superfund Amendments and Reauthorization Act (SARA) (40 CFR 355). There may be specific reporting requirements at the local, regional, or state level pertaining to releases of this material.

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HAZARD COMMUNICATION SAFETY DATA SHEET
TUF-LUBE™ COUPLING GREASE

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5816 Dryden Place #101
Carlsbad, CA 92008
For information call: (800) 854-1015
Date prepared: September 25, 2000; revised 4/30/2015
Product name: Tuf-Lube™ Coupling Grease
Recommended Use: Lubrication for Grooved Coupling Gaskets

SECTION 2 – HAZARDS IDENTIFICATION

Non-toxic; basically non-hazardous.
OSHA Status: Contains no “hazardous chemicals” as defined by OSHA Hazard Communication Standard, 29CFR, 1910.1200
TSCA Status: All ingredients listed.

SECTION 3 – COMPOSITION/INGREDIENTS

Recommended Use: Pipe Thread Sealant
Chemical Name & Synonyms: Titanium Dioxide
CAS No: 13463-67-7
Weight %: 1-5

SECTION 4 – FIRST AID MEASURES

Eye Contact: Rinse thoroughly with plenty of water for at least 15 minutes and consult a physician.

Skin Contact: Wash off immediately with soap and plenty of water removing all contaminated clothes and shoes.

Inhalation: Move to fresh air.

Ingestion: Clean mouth with water and afterwards drink plenty of water.

Notes to Physician: Notes to Physician Treat symptomatically.
SECTION 5 – FIRE FIGHTING MEASURES

Flammable Properties: Not Flammable
Flash Point: 320° F / > 160° C
Flash Point Media: Open Cup
Suitable Extinguishing Media: Dry Powder. Carbon dioxide (CO₂). Foam. Water spray. Use extinguishing measures that are appropriate to local circumstances and the surrounding environment.

Unsuitable Extinguishing Media: Do not use a solid water stream as it may scatter and spread fire.
Explosion Data: None
Sensitivity to Mechanical Impact: None
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Specific Hazards: Burning produces obnoxious and toxic fumes. Carbon monoxide, carbon dioxide and unburned hydrocarbons (smoke) Halogenated compounds

Protective Equipment and Precautions for Firefighters As in any fire, wear self-contained breathing apparatus pressure-demand, MSHA/NIOSH (approved or equivalent) and full protective gear.

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Personal Precautions: Use personal protective equipment.
Environmental Precautions: Prevent further leakage or spillage if safe to do so. Do not allow material to contaminate ground water system. Prevent product from entering drains. Local authorities should be advised if significant spillages cannot be contained.
Methods for Containment: Prevent further leakage or spillage if safe to do so.
Methods for Cleaning Up: Take up mechanically and collect in suitable container for disposal.

SECTION 7 – HANDLING AND STORAGE

Storage: Keep container tightly closed in a dry and well-ventilated place.

SECTION 8 – EXPOSURE CONTROL/PERSONAL PROTECTION

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Engineering Measures: Ensure adequate ventilation, especially in confined areas.
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Eye/Face Protection: Safety glasses with side-shields.
Skin and Body Protection: Long sleeved clothing. Protective gloves.
Respiratory Protection: None required under normal usage. If exposure limits are exceeded or irritation is experienced, NIOSH/MSHA approved respiratory protection should be worn. Positive-pressure supplied air respirators may be required for high airborne contaminant concentrations. Respiratory protection must be provided in accordance with current local regulations.

Hygiene Measures: When using, do not eat, drink or smoke. Remove and wash contaminated clothing before re-use.

SECTION 9 – PHYSICAL AND CHEMICAL PROPERTIES

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</tr>
<tr>
<td>Flashpoint Method</td>
<td>Open cup</td>
</tr>
<tr>
<td>Water Solubility</td>
<td>Insoluble in cold water, hot water</td>
</tr>
<tr>
<td>Evaporation Rate</td>
<td>No information available</td>
</tr>
<tr>
<td>Vapor Density</td>
<td>&gt; 5 (air = 1)</td>
</tr>
</tbody>
</table>

SECTION 10 – STABILITY AND REACTIVITY DATA

Stability: Stable under recommended storage conditions.
Incompatible Products: Decomposes in contact with water
Conditions to avoid: Strong oxidizing agents. Dust formation. Heat, flames and sparks
Hazardous Decomposition or Byproducts: None known.
Hazardous Polymerization: Will not occur

SECTION 11 - TOXICOLOGICAL INFORMATION

Acute Toxicity
Product Information: Product does not present an acute toxicity hazard based on known or supplied information
Inhalation: May cause irritation of respiratory tract.
Eye Contact: May cause slight irritation.
Skin Contact: No known effect based on information supplied
Ingestion: Not an expected route of exposure. Ingestion may cause gastrointestinal irritation, nausea, vomiting and diarrhea
SECTION 12 - ECOLOGICAL INFORMATION

Ecotoxicity

The environmental impact of this product has not been fully investigated.

SECTION 13 - DISPOSAL CONSIDERATIONS

Waste Disposal Methods  Dispose of in accordance with federal, state, and local regulations
Contaminated Packaging  Empty containers should be taken to an approved waste handling site for recycling or disposal.

SECTION 14 - TRANSPORT INFORMATION

DOT:  Not regulated
TDG:  Not regulated
MEX  Not regulated

SECTION 15 - REGULATORY INFORMATION

TSCA - United States Toxic Substances Control Act Section 8(b) Inventory
DSL/NDSL - Canadian Domestic Substances List/Non-Domestic Substances List
EINECS/ELINCS - European Inventory of Existing Commercial Chemical Substances/EU List of Notified Chemical Substances
ENCS - Japan Existing and New Chemical Substances
IECSC - China Inventory of Existing Chemical Substances
KECL - Korean Existing and Evaluated Chemical Substances
PICCS - Philippines Inventory of Chemicals and Chemical Substances
AICS - Australian Inventory of Chemical Substances

U.S. Federal Regulations
Section 313 of Title III of the Superfund Amendments and Reauthorization Act of 1986 (SARA). This product does not contain any chemicals which are subject to the reporting requirements of the Act and Title 40 of the Code of Federal Regulations, Part 372.

SARA 311/312 Hazard Categories
Acute Health Hazard Yes
Chronic Health Hazard Yes
Fire Hazard No
Sudden Release of Pressure Hazard No
Reactive Hazard No

Clean Water Act
This product does not contain any substances regulated as pollutants pursuant to the Clean Water Act (40 CFR 122.21 and 40 CFR 122.42).
CERCLA
This material, as supplied, does not contain any substances regulated as hazardous substances under the Comprehensive Environmental Response Compensation and Liability Act (CERCLA) (40 CFR 302) or the Superfund Amendments and Reauthorization Act (SARA) (40 CFR 355). There may be specific reporting requirements at the local, regional, or state level pertaining to releases of this material.

Disclaimer

The information contained herein is accurate and reliable as of the date issued to the best of the manufacturer’s knowledge. ARGCO doesn’t warrant or guarantee its accuracy or reliability and shall not be liable for any loss or damage arising from the use thereof. It is the user’s responsibility to satisfy itself that the information offered for its consideration is suitable for its particular use.

END OF SDS
**SECTION 1. PRODUCT AND COMPANY IDENTIFICATION**

<table>
<thead>
<tr>
<th><strong>Product name</strong></th>
<th>FM-200®</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Tradename/Synonym</strong></td>
<td>FE-227</td>
</tr>
<tr>
<td>2-Hydroperfluoropropane</td>
<td></td>
</tr>
<tr>
<td>Propane, 1,1,1,2,3,3,3-Heptafluoro-HFC-227eaHP</td>
<td></td>
</tr>
<tr>
<td>2-Hydroheptafluoropropane</td>
<td></td>
</tr>
<tr>
<td>Heptafluoropropane</td>
<td></td>
</tr>
<tr>
<td>2-H-heptafluoropropane</td>
<td></td>
</tr>
<tr>
<td>1,1,1,2,3,3,3-Heptafluoropropane</td>
<td></td>
</tr>
<tr>
<td>R-227</td>
<td></td>
</tr>
<tr>
<td>R227</td>
<td></td>
</tr>
<tr>
<td>HFC-227ea</td>
<td></td>
</tr>
</tbody>
</table>

| **Product Use**        | Fire extinguishing agent, For professional users only. |
| **Restrictions on use**| Do not use product for anything outside of the above specified uses |
| **Manufacturer/Supplier** | DuPont |
|                        | 1007 Market Street |
|                        | Wilmington, DE 19898 |
|                        | United States of America |

| **Product Information** | +1-800-441-7515 (outside the U.S. +1-302-774-1000) |
| **Medical Emergency**   | 1-800-441-3637 (outside the U.S. 1-302-774-1139) |
| **Transport Emergency** | CHEMTREC: +1-800-424-9300 (outside the U.S. +1-703-527-3887) |

**SECTION 2. HAZARDS IDENTIFICATION**

| **Product hazard category** | Gases under pressure | Liquefied gas |
**Label content**

**Pictogram**: : 

**Signal word**: Warning

**Hazardous warnings**: Contains gas under pressure; may explode if heated.

**Hazardous prevention measures**: Protect from sunlight. Store in a well-ventilated place.

**Other hazards**
Misuse or intentional inhalation abuse may lead to death without warning. Vapours are heavier than air and can cause suffocation by reducing oxygen available for breathing. Rapid evaporation of the liquid may cause frostbite.

### SECTION 3. COMPOSITION/INFORMATION ON INGREDIENTS

<table>
<thead>
<tr>
<th>Component</th>
<th>CAS-No.</th>
<th>Concentration</th>
</tr>
</thead>
<tbody>
<tr>
<td>1,1,1,2,3,3-Heptafluoropropane</td>
<td>431-89-0</td>
<td>100 %</td>
</tr>
</tbody>
</table>

### SECTION 4. FIRST AID MEASURES
**General advice**: Never give anything by mouth to an unconscious person. When symptoms persist or in all cases of doubt seek medical advice.

**Inhalation**: Remove from exposure, lie down. Move to fresh air. Keep patient warm and at rest. Artificial respiration and/or oxygen may be necessary. Consult a physician.

**Skin contact**: In case of contact, immediately flush skin with plenty of water for at least 15 minutes. Take off all contaminated clothing immediately. Consult a physician. Wash contaminated clothing before re-use. Treat for frostbite if necessary by gently warming affected area.

**Eye contact**: In case of contact, immediately flush eyes with plenty of water for at least 15 minutes. Consult a physician if necessary.

**Ingestion**: Is not considered a potential route of exposure.

**Most important symptoms/effects, acute and delayed**: No applicable data available.

**Protection of first-aiders**: If potential for exposure exists refer to Section 8 for specific personal protective equipment.

**Notes to physician**: Because of possible disturbances of cardiac rhythm, catecholamine drugs, such as epinephrine, that may be used in situations of emergency life support should be used with special caution.

---

**SECTION 5. FIREFIGHTING MEASURES**

**Suitable extinguishing media**: This material is a fire extinguishing agent.

**Unsuitable extinguishing media**: No applicable data available.

**Specific hazards**: The product is not flammable.

**Special protective equipment for firefighters**: No applicable data available.

**Further information**: No applicable data available.
SECTION 6. ACCIDENTAL RELEASE MEASURES

NOTE: Review FIRE FIGHTING MEASURES and HANDLING (PERSONNEL) sections before proceeding with clean-up. Use appropriate PERSONAL PROTECTIVE EQUIPMENT during clean-up.

Safeguards (Personnel): Evacuate personnel, thoroughly ventilate area, use self-contained breathing apparatus. Keep upwind of leak - evacuate until gas has dispersed.

Environmental precautions: Should not be released into the environment. In accordance with local and national regulations.

Spill Cleanup: Evaporates. Ventilate area using forced ventilation, especially low or enclosed places where heavy vapors might collect.

Accidental Release Measures: No applicable data available.

SECTION 7. HANDLING AND STORAGE

Handling (Personnel): Do not breathe gas. Avoid contact with skin, eyes and clothing. Provide sufficient air exchange and/or exhaust in work rooms. For personal protection see section 8. Wash hands thoroughly after handling. Wash clothing after use. Decomposition will occur when product comes in contact with open flame or electrical heating elements. Handle in accordance with good industrial hygiene and safety practice.

Handling (Physical Aspects): No applicable data available.

Dust explosion class: No applicable data available.

Storage: Valve protection caps and valve outlet threaded plugs must remain in place unless container is secured with valve outlet piped to use point. Do not drag, slide or roll cylinders. Never attempt to lift cylinder by its cap. Use a check valve or trap in the discharge line to prevent hazardous back flow into the cylinder. Cylinders should be stored upright and firmly secured to prevent falling or being knocked over.

Separate full containers from empty containers. Keep at temperature not exceeding 52°C. Do not store near combustible materials. Keep container tightly closed in a dry and well-ventilated place.
Safety Data Sheet

**FM-200®**

Version 2.2

Revision Date 05/09/2015 Ref. 130000036866

- Store in original container.
- Protect from contamination.
- Avoid area where salt or other corrosive materials are present.
- The product has an indefinite shelf life when stored properly.

**Storage period** : > 10 yr

**Storage temperature** : < 52 °C (< 126 °F)

**SECTION 8. EXPOSURE CONTROLS/PERSOAL PROTECTION**

**Engineering controls** : Use only with adequate ventilation. Keep container tightly closed.

**Personal protective equipment**

- **Respiratory protection** : Wear NIOSH approved respiratory protection as appropriate.
- **Hand protection** : Additional protection: Impervious gloves
- **Eye protection** : Safety glasses with side-shields Additionally wear a face shield where the possibility exists for face contact due to splashing, spraying or airborne contact with this material.
- **Skin and body protection** : Where there is potential for skin contact, have available and wear as appropriate, impervious gloves, apron, pants, jacket, hood and boots.
- **Protective measures** : Self-contained breathing apparatus (SCBA) is required if a large release occurs.

**Exposure Guidelines**

**Exposure Limit Values**

<table>
<thead>
<tr>
<th>Substance</th>
<th>AEL * (DUPONT)</th>
<th>Limit</th>
</tr>
</thead>
<tbody>
<tr>
<td>1,1,1,2,3,3,3-Heptafluoropropane</td>
<td>1,000 ppm</td>
<td>8 &amp; 12 hr. TWA</td>
</tr>
</tbody>
</table>

* AEL is DuPont’s Acceptable Exposure Limit. Where governmentally imposed occupational exposure limits which are lower than the AEL are in effect, such limits shall take precedence.

**SECTION 9. PHYSICAL AND CHEMICAL PROPERTIES**

5 / 11
# Appearance

**Physical state**: gaseous  
**Form**: Liquefied gas  
**Color**: No applicable data available.

**Odor**: none  
**Odor threshold**: No applicable data available.

**pH**: No applicable data available.

**Melting point/freezing point**
- **Melting point/range**: -131 °C (-204 °F)

**Boiling point/boiling range**
- **Boiling point**: -16.3 °C (2.7 °F)

**Flash point**: No applicable data available.

**Evaporation rate**: No applicable data available.

**Flammability (solid, gas)**: The product is not flammable.

**Upper explosion limit**: Method: None per ASTM E681-98

**Lower explosion limit**: Method: None per ASTM E681-98

**Vapor pressure**: 4.547 hPa at 25 °C (77 °F)

**Vapour density**: No applicable data available.

**Density**: 1.388 g/cm³ at 25 °C (77 °F) (as liquid)

**Specific gravity (Relative density)**: No applicable data available.

**Water solubility**: No applicable data available.

**Solubility(ies)**: No applicable data available.

**Partition coefficient: n-octanol/water**: No applicable data available.
Auto-ignition temperature : No applicable data available.
Decomposition temperature : No applicable data available.
Viscosity, kinematic : No applicable data available.
Viscosity, dynamic : No applicable data available.

SECTION 10. STABILITY AND REACTIVITY
Reactivity : Decomposes on heating.
Chemical stability : Stable at normal temperatures and storage conditions.
Possibility of hazardous reactions : Polymerization will not occur.
Conditions to avoid : The product is not flammable in air under ambient conditions of temperature and pressure. When pressurised with air or oxygen, the mixture may become flammable. Certain mixtures of HCFCs or HFCs with chlorine may become flammable or reactive under certain conditions. To avoid thermal decomposition, do not overheat.
Incompatible materials : Alkali metals Alkaline earth metals, Powdered metals, Powdered metal salts
Hazardous decomposition products : Hazardous decomposition products formed under fire conditions: Hazardous thermal decomposition products may include: Hydrogen halides, Carbon oxides, Fluorocarbons, Carbonyl halides

SECTION 11. TOXICOLOGICAL INFORMATION
FM-200®
Inhalation 4 h LC50 : > 788698 ppm, Rat
Inhalation : Dog
Cardiac sensitization
Dermal : Not applicable
Oral : Not applicable
Skin irritation : No skin irritation, Not tested on animals
Not expected to cause skin irritation based on expert review of the
Safety Data Sheet

**FM-200®**

Version 2.2

Revision Date 05/09/2015

Ref. 130000036866

Eye irritation: No eye irritation, Not tested on animals
Not expected to cause eye irritation based on expert review of the properties of the substance.

Sensitisation: Does not cause skin sensitisation, Not tested on animals
Not expected to cause sensitization based on expert review of the properties of the substance.

Did not cause sensitisation on laboratory animals. There are no reports of human respiratory sensitization.

Repeated dose toxicity: Inhalation
Rat
- No toxicologically significant effects were found.

Further information: Cardiac sensitisation threshold limit: 730190 mg/m3

1,1,2,3,3,3-Heptafluoropropane Carcinogenicity: Not classifiable as a human carcinogen.
Animal testing did not show any carcinogenic effects.

Mutagenicity: Animal testing did not show any mutagenic effects.
Tests on bacterial or mammalian cell cultures did not show mutagenic effects.

Reproductive toxicity: No toxicity to reproduction
Animal testing showed no reproductive toxicity.

Teratogenicity: Animal testing showed no developmental toxicity.

Carcinogenicity
The carcinogenicity classifications for this product and/or its ingredients have been determined according to HazCom 2012, Appendix A.6. The classifications may differ from those listed in the National Toxicology Program (NTP) Report on Carcinogens (latest edition) or those found to be a potential carcinogen in the International Agency for Research on Cancer (IARC) Monographs (latest edition).

None of the components present in this material at concentrations equal to or greater than 0.1% are listed by IARC, NTP, or OSHA, as a carcinogen.
SECTION 12. ECOLOGICAL INFORMATION

Aquatic Toxicity
1,1,1,2,3,3,3-Heptafluoropropane

96 h LC50
: Danio rerio (zebra fish) > 200 mg/l OECD Test Guideline 203
Information given is based on data obtained from similar substances.

72 h ErC50
: Pseudokirchneriella subcapitata (green algae) > 114 mg/l OECD Test Guideline 201
Information given is based on data obtained from similar substances.

72 h NOEC
: Pseudokirchneriella subcapitata (green algae) 13.2 mg/l OECD Test Guideline 201
Information given is based on data obtained from similar substances.

48 h EC50
: Daphnia magna (Water flea) > 200 mg/l OECD Test Guideline 202
Information given is based on data obtained from similar substances.

SECTION 13. DISPOSAL CONSIDERATIONS

Waste disposal methods - Product
: Can be used after re-conditioning. Recover by distillation or remove to a permitted waste disposal facility. Comply with applicable Federal, State/Provincial and Local Regulations.

Contaminated packaging
: Empty pressure vessels should be returned to the supplier.

SECTION 14. TRANSPORT INFORMATION

DOT UN number : 3296

Proper shipping name : Heptafluoropropane
Class : 2.2
Labelling No. : 2.2
IATA_C UN number : 3296
Proper shipping name : Heptafluoropropane

Class : 2.2
Labelling No. : 2.2
UN number : 3296

Proper shipping name : HEPTAFLUOROPROPANE
Class : 2.2
Labelling No. : 2.2

SECTION 15. REGULATORY INFORMATION

TSCA : On the inventory, or in compliance with the inventory

SARA 313 Regulated Chemical(s) : This material does not contain any chemical components with known CAS numbers that exceed the threshold (De Minimis) reporting levels established by SARA Title III, Section 313.

California Prop. 65 : Chemicals known to the State of California to cause cancer, birth defects or any other harm: none known

SECTION 16. OTHER INFORMATION

© DuPont's registered trademark
Before use read DuPont's safety information.
For further information contact the local DuPont office or DuPont's nominated distributors.

Revision Date : 05/09/2015

The information provided in this Safety Data Sheet is correct to the best of our knowledge, information and belief at the date of its publication. The information given is designed only as a guidance for safe handling, use, processing, storage, transportation, disposal and release and is not to be considered a warranty or quality specification. The information relates only to the specific material designated and may not be valid for such material used in combination with any other materials or in any process, unless specified in the text.

Significant change from previous version is denoted with a double bar.
Safety Data Sheet

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SECTION 1: Identification

1.1. Product identifier
3M™ Novec™ 1230 Fire Protection Fluid [FK-5-1-12]

Product Identification Numbers

1.2. Recommended use and restrictions on use

Recommended use
Streaming and Flooding Fire Protection

1.3. Supplier’s details

MANUFACTURER: 3M
DIVISION: Electronic Materials Solutions Division
ADDRESS: 3M Center, St. Paul, MN 55144-1000, USA
Telephone: 1-888-3M HELPS (1-888-364-3577)

1.4. Emergency telephone number
1-800-364-3577 or (651) 737-6501 (24 hours)

SECTION 2: Hazard identification

2.1. Hazard classification

2.2. Label elements

Signal word
Not applicable.

Symbols
Not applicable.

Pictograms
Not applicable.

2.3. Hazards not otherwise classified
None.
SECTION 3: Composition/information on ingredients

<table>
<thead>
<tr>
<th>Ingredient</th>
<th>C.A.S. No.</th>
<th>% by Wt</th>
</tr>
</thead>
<tbody>
<tr>
<td>1,1,1,2,2,4,5,5,5-Nonafluoro-4-(trifluoromethyl)-3-pentanone</td>
<td>756-13-8</td>
<td>&gt; 99.9</td>
</tr>
</tbody>
</table>

SECTION 4: First aid measures

4.1. Description of first aid measures

**Inhalation:**
No need for first aid is anticipated.

**Skin Contact:**
Wash with soap and water. If signs/symptoms develop, get medical attention.

**Eye Contact:**
Flush with large amounts of water. Remove contact lenses if easy to do. Continue rinsing. If signs/symptoms persist, get medical attention.

**If Swallowed:**
Rinse mouth. If you feel unwell, get medical attention.

4.2. Most important symptoms and effects, both acute and delayed
See Section 11.1. Information on toxicological effects.

4.3. Indication of any immediate medical attention and special treatment required
Not applicable

SECTION 5: Fire-fighting measures

5.1. Suitable extinguishing media
Product is a fire-extinguishing agent. Material will not burn.

5.2. Special hazards arising from the substance or mixture
Exposure to extreme heat can give rise to thermal decomposition.

**Hazardous Decomposition or By-Products**

<table>
<thead>
<tr>
<th>Substance</th>
<th>Condition</th>
</tr>
</thead>
<tbody>
<tr>
<td>Carbon monoxide</td>
<td>During Combustion</td>
</tr>
<tr>
<td>Carbon dioxide</td>
<td>During Combustion</td>
</tr>
<tr>
<td>Toxic Vapor, Gas, Particulate</td>
<td>During Combustion</td>
</tr>
</tbody>
</table>

5.3. Special protective actions for fire-fighters
When fire fighting conditions are severe and total thermal decomposition of the product is possible, wear full protective clothing, including helmet, self-contained, positive pressure or pressure demand breathing apparatus, bunker coat and pants, bands around arms, waist and legs, face mask, and protective covering for exposed areas of the head.

SECTION 6: Accidental release measures

6.1. Personal precautions, protective equipment and emergency procedures
Evacuate area. Ventilate the area with fresh air. Refer to other sections of this SDS for information regarding physical and
health hazards, respiratory protection, ventilation, and personal protective equipment.

6.2. Environmental precautions
Avoid release to the environment. For larger spills, cover drains and build dikes to prevent entry into sewer systems or bodies of water.

6.3. Methods and material for containment and cleaning up
Contain spill. Working from around the edges of the spill inward, cover with bentonite, vermiculite, or commercially available inorganic absorbent material. Mix in sufficient absorbent until it appears dry. Remember, adding an absorbent material does not remove a physical, health, or environmental hazard. Collect as much of the spilled material as possible. Place in a closed container approved for transportation by appropriate authorities. Clean up residue with an appropriate solvent selected by a qualified and authorized person. Ventilate the area with fresh air. Read and follow safety precautions on the solvent label and SDS. Seal the container. Dispose of collected material as soon as possible.

SECTION 7: Handling and storage

7.1. Precautions for safe handling
Do not breathe thermal decomposition products. For industrial or professional use only. Do not use in a confined area with minimal air exchange. Do not eat, drink or smoke when using this product. Wash thoroughly after handling. Avoid release to the environment.

7.2. Conditions for safe storage including any incompatibilities
Protect from sunlight. Store in a well-ventilated place. Store away from strong bases. Store away from other materials.

SECTION 8: Exposure controls/personal protection

8.1. Control parameters

Occupational exposure limits
If a component is disclosed in section 3 but does not appear in the table below, an occupational exposure limit is not available for the component.

<table>
<thead>
<tr>
<th>Ingredient</th>
<th>C.A.S. No.</th>
<th>Agency</th>
<th>Limit type</th>
<th>Additional Comments</th>
</tr>
</thead>
<tbody>
<tr>
<td>1,1,1,2,2,4,5,5,5-Nonafluoro-4-(trifluoromethyl)-3-pentanone</td>
<td>756-13-8</td>
<td>Manufacturer determined</td>
<td>TWA:150 ppm(1940 mg/m3)</td>
<td></td>
</tr>
</tbody>
</table>

ACGIH : American Conference of Governmental Industrial Hygienists
AIHA : American Industrial Hygiene Association
CMRG : Chemical Manufacturer's Recommended Guidelines
OSHA : United States Department of Labor - Occupational Safety and Health Administration
TWA: Time-Weighted-Average
STEL: Short Term Exposure Limit
CEIL: Ceiling

8.2. Exposure controls

8.2.1. Engineering controls
Provide appropriate local exhaust when product is heated. For those situations where the material might be exposed to extreme overheating due to misuse or equipment failure, use with appropriate local exhaust ventilation sufficient to maintain levels of thermal decomposition products below their exposure guidelines. Use general dilution ventilation and/or local exhaust ventilation to control airborne exposures to below relevant Exposure Limits and/or control dust/fume/gas/mist/vapors/spray. If ventilation is not adequate, use respiratory protection equipment.

8.2.2. Personal protective equipment (PPE)

Eye/face protection
Eye protection not required.
Skin/hand protection
No protective gloves required.

Respiratory protection
Use a positive pressure supplied-air respirator if there is a potential for over exposure from an uncontrolled release, exposure levels are not known, or under any other circumstances where air-purifying respirators may not provide adequate protection. If thermal degradation products are expected, use a full facepiece supplied-air respirator.

SECTION 9: Physical and chemical properties

9.1. Information on basic physical and chemical properties

<table>
<thead>
<tr>
<th>Property</th>
<th>Value</th>
</tr>
</thead>
<tbody>
<tr>
<td>General Physical Form:</td>
<td>Liquid</td>
</tr>
<tr>
<td>Specific Physical Form:</td>
<td>Liquid</td>
</tr>
<tr>
<td>Odor, Color, Grade:</td>
<td>Clear colorless liquid with low odor</td>
</tr>
<tr>
<td>Odor threshold</td>
<td>No Data Available</td>
</tr>
<tr>
<td>pH</td>
<td>Not Applicable</td>
</tr>
<tr>
<td>Melting point</td>
<td>-108 ºC</td>
</tr>
<tr>
<td>Boiling Point</td>
<td>49 ºC [@ 760 mmHg]</td>
</tr>
<tr>
<td>Flash Point</td>
<td>No flash point</td>
</tr>
<tr>
<td>Evaporation rate</td>
<td>&gt; 1 [Ref Std: BUOAC=1]</td>
</tr>
<tr>
<td>Flammability (solid, gas)</td>
<td>Not Applicable</td>
</tr>
<tr>
<td>Flammable Limits(LEL)</td>
<td>None detected</td>
</tr>
<tr>
<td>Flammable Limits(UEL)</td>
<td>None detected</td>
</tr>
<tr>
<td>Vapor Pressure</td>
<td>40.4 kPa [@ 25 ºC]</td>
</tr>
<tr>
<td>Vapor Density</td>
<td>11.6 [Ref Std: AIR=1]</td>
</tr>
<tr>
<td>Specific Gravity</td>
<td>1.6 [@ 68 ºF] [Ref Std: WATER=1]</td>
</tr>
<tr>
<td>Solubility in Water</td>
<td>Nil</td>
</tr>
<tr>
<td>Solubility- non-water</td>
<td>No Data Available</td>
</tr>
<tr>
<td>Partition coefficient: n-octanol/ water</td>
<td>No Data Available</td>
</tr>
<tr>
<td>Autoignition temperature</td>
<td>Not Applicable</td>
</tr>
<tr>
<td>Decomposition temperature</td>
<td>No Data Available</td>
</tr>
<tr>
<td>Viscosity</td>
<td>0.6 centipoise [@ 25 ºC ]</td>
</tr>
<tr>
<td>Volatile Organic Compounds</td>
<td>1600 g/l [Test Method: calculated SCAQMD rule 443.1]</td>
</tr>
<tr>
<td>Percent volatile</td>
<td>100 %</td>
</tr>
<tr>
<td>VOC Less H2O &amp; Exempt Solvents</td>
<td>1600 g/l [Test Method: calculated SCAQMD rule 443.1]</td>
</tr>
</tbody>
</table>

SECTION 10: Stability and reactivity

10.1. Reactivity
This material may be reactive with certain agents under certain conditions - see the remaining headings in this section.

10.2. Chemical stability
Stable.

10.3. Possibility of hazardous reactions
Hazardous polymerization will not occur.

10.4. Conditions to avoid
Light
10.5. Incompatible materials
Strong bases
Amines
Alcohols
Water

10.6. Hazardous decomposition products

<table>
<thead>
<tr>
<th>Substance</th>
<th>Condition</th>
</tr>
</thead>
<tbody>
<tr>
<td>Hydrogen Fluoride</td>
<td>At Elevated Temperatures - extreme conditions of heat</td>
</tr>
</tbody>
</table>

Refer to section 5.2 for hazardous decomposition products during combustion.

If the product is exposed to extreme condition of heat from misuse or equipment failure, toxic decomposition products that include hydrogen fluoride and perfluoroisobutylene can occur. Extreme heat arising from situations such as misuse or equipment failure can generate hydrogen fluoride as a decomposition product.

**SECTION 11: Toxicological information**

The information below may not be consistent with the material classification in Section 2 if specific ingredient classifications are mandated by a competent authority. In addition, toxicological data on ingredients may not be reflected in the material classification and/or the signs and symptoms of exposure, because an ingredient may be present below the threshold for labeling, an ingredient may not be available for exposure, or the data may not be relevant to the material as a whole.

11.1. Information on Toxicological effects

**Signs and Symptoms of Exposure**

Based on test data and/or information on the components, this material may produce the following health effects:

**Inhalation:**
No known health effects.

**Skin Contact:**
Contact with the skin during product use is not expected to result in significant irritation.

**Eye Contact:**
Contact with the eyes during product use is not expected to result in significant irritation.

**Ingestion:**
May be harmful if swallowed.

**Toxicological Data**

If a component is disclosed in section 3 but does not appear in a table below, either no data are available for that endpoint or the data are not sufficient for classification.

**Acute Toxicity**

<table>
<thead>
<tr>
<th>Name</th>
<th>Route</th>
<th>Species</th>
<th>Value</th>
</tr>
</thead>
<tbody>
<tr>
<td>1,1,1,2,2,4,5,5,5-Nonafluoro-4-(trifluoromethyl)-3-pentanone</td>
<td>Dermal</td>
<td>Rat</td>
<td>LD50 &gt; 2,000 mg/kg</td>
</tr>
<tr>
<td>1,1,1,2,2,4,5,5,5-Nonafluoro-4-(trifluoromethyl)-3-pentanone</td>
<td>Inhalation-Vapor (4 hours)</td>
<td>Rat</td>
<td>LC50 &gt; 1,227 mg/l</td>
</tr>
<tr>
<td>1,1,1,2,2,4,5,5,5-Nonafluoro-4-(trifluoromethyl)-3-pentanone</td>
<td>Ingestion</td>
<td>Rat</td>
<td>LD50 &gt; 2,000 mg/kg</td>
</tr>
</tbody>
</table>

ATE = acute toxicity estimate
## Skin Corrosion/Irritation

<table>
<thead>
<tr>
<th>Name</th>
<th>Species</th>
<th>Value</th>
</tr>
</thead>
<tbody>
<tr>
<td>1,1,1,2,2,4,5,5,5-Nonafluoro-4-(trifluoromethyl)-3-pentanone</td>
<td>Rabbit</td>
<td>No significant irritation</td>
</tr>
</tbody>
</table>

## Serious Eye Damage/Irritation

<table>
<thead>
<tr>
<th>Name</th>
<th>Species</th>
<th>Value</th>
</tr>
</thead>
<tbody>
<tr>
<td>1,1,1,2,2,4,5,5,5-Nonafluoro-4-(trifluoromethyl)-3-pentanone</td>
<td>Rabbit</td>
<td>No significant irritation</td>
</tr>
</tbody>
</table>

## Skin Sensitization

<table>
<thead>
<tr>
<th>Name</th>
<th>Species</th>
<th>Value</th>
</tr>
</thead>
<tbody>
<tr>
<td>1,1,1,2,2,4,5,5,5-Nonafluoro-4-(trifluoromethyl)-3-pentanone</td>
<td>Guinea pig</td>
<td>Not sensitizing</td>
</tr>
</tbody>
</table>

## Respiratory Sensitization

For the component/components, either no data are currently available or the data are not sufficient for classification.

## Germ Cell Mutagenicity

<table>
<thead>
<tr>
<th>Name</th>
<th>Route</th>
<th>Value</th>
</tr>
</thead>
<tbody>
<tr>
<td>1,1,1,2,2,4,5,5,5-Nonafluoro-4-(trifluoromethyl)-3-pentanone</td>
<td>In Vitro</td>
<td>Not mutagenic</td>
</tr>
<tr>
<td>1,1,1,2,2,4,5,5,5-Nonafluoro-4-(trifluoromethyl)-3-pentanone</td>
<td>In vivo</td>
<td>Not mutagenic</td>
</tr>
</tbody>
</table>

## Carcinogenicity

For the component/components, either no data are currently available or the data are not sufficient for classification.

## Reproductive Toxicity

### Reproductive and/or Developmental Effects

<table>
<thead>
<tr>
<th>Name</th>
<th>Route</th>
<th>Value</th>
<th>Species</th>
<th>Test Result</th>
<th>Exposure Duration</th>
</tr>
</thead>
<tbody>
<tr>
<td>1,1,1,2,2,4,5,5,5-Nonafluoro-4-(trifluoromethyl)-3-pentanone</td>
<td>Inhalation</td>
<td>Not toxic to female reproduction</td>
<td>Rat</td>
<td>NOAEL 3,000 ppm</td>
<td>premating &amp; during gestation</td>
</tr>
<tr>
<td>1,1,1,2,2,4,5,5,5-Nonafluoro-4-(trifluoromethyl)-3-pentanone</td>
<td>Inhalation</td>
<td>Not toxic to male reproduction</td>
<td>Rat</td>
<td>NOAEL 3,000 ppm</td>
<td>premating &amp; during gestation</td>
</tr>
<tr>
<td>1,1,1,2,2,4,5,5,5-Nonafluoro-4-(trifluoromethyl)-3-pentanone</td>
<td>Inhalation</td>
<td>Not toxic to development</td>
<td>Rat</td>
<td>NOAEL 3,000 ppm</td>
<td>premating &amp; during gestation</td>
</tr>
</tbody>
</table>

## Target Organ(s)

### Specific Target Organ Toxicity - single exposure

<table>
<thead>
<tr>
<th>Name</th>
<th>Route</th>
<th>Target Organ(s)</th>
<th>Value</th>
<th>Species</th>
<th>Test Result</th>
<th>Exposure Duration</th>
</tr>
</thead>
<tbody>
<tr>
<td>1,1,1,2,2,4,5,5,5-Nonafluoro-4-(trifluoromethyl)-3-pentanone</td>
<td>Inhalation</td>
<td>nervous system</td>
<td>All data are negative</td>
<td>Rat</td>
<td>NOAEL 100,000 ppm</td>
<td>2 hours</td>
</tr>
<tr>
<td>1,1,1,2,2,4,5,5,5-Nonafluoro-4-(trifluoromethyl)-3-pentanone</td>
<td>Inhalation</td>
<td>cardiac sensitization</td>
<td>All data are negative</td>
<td>Dog</td>
<td>Sensitization Negative</td>
<td>17 minutes</td>
</tr>
</tbody>
</table>

### Specific Target Organ Toxicity - repeated exposure

<table>
<thead>
<tr>
<th>Name</th>
<th>Route</th>
<th>Target Organ(s)</th>
<th>Value</th>
<th>Species</th>
<th>Test Result</th>
<th>Exposure Duration</th>
</tr>
</thead>
<tbody>
<tr>
<td>1,1,1,2,2,4,5,5,5-Nonafluoro-4-(trifluoromethyl)-3-pentanone</td>
<td>Inhalation</td>
<td>liver</td>
<td>kidney and/or bladder</td>
<td>Some positive data exist, but the data are not sufficient for classification</td>
<td>Rat</td>
<td>NOAEL 3,000 ppm</td>
</tr>
</tbody>
</table>
### Section 12: Ecological Information

**Ecotoxicological Information**

<table>
<thead>
<tr>
<th>Test Organism</th>
<th>Test Type</th>
<th>Result</th>
</tr>
</thead>
<tbody>
<tr>
<td>Green algae, Selenastrum capricornutum</td>
<td>72 hours Effect Concentration 50%</td>
<td>7.7 mg/l</td>
</tr>
<tr>
<td>Zebra Fish, Brachydanio rerio</td>
<td>96 hours Lethal Concentration 50%</td>
<td>&gt;1200 mg/l</td>
</tr>
<tr>
<td>Water flea, Daphnia magna</td>
<td>48 hours Effect Concentration 50%</td>
<td>&gt;1200 mg/l</td>
</tr>
<tr>
<td>Green algae, Selenastrum capricornutum</td>
<td>72 hours No obs Effect Conc</td>
<td>1.2 mg/l</td>
</tr>
</tbody>
</table>

Aspiration Hazard

For the component/components, either no data are currently available or the data are not sufficient for classification.

Please contact the address or phone number listed on the first page of the SDS for additional toxicological information on this material and/or its components.

### Section 13: Disposal Considerations

**13.1. Disposal methods**

Dispose of contents/container in accordance with the local/regional/national/international regulations.

Dispose of waste product in a permitted industrial waste facility. As a disposal alternative, incinerate in a permitted waste incineration facility. Proper destruction may require the use of additional fuel during incineration processes. Combustion products will include halogen acid (HCl/HF/HBr). Facility must be capable of handling halogenated materials. Empty drums/barrels/containers used for transporting and handling hazardous chemicals (chemical substances/mixtures/preparations classified as Hazardous as per applicable regulations) shall be considered, stored, treated & disposed of as hazardous wastes unless otherwise defined by applicable waste regulations. Consult with the respective regulating authorities to determine the available treatment and disposal facilities.

EPA Hazardous Waste Number (RCRA): Not regulated

### Section 14: Transport Information

For Transport Information, please visit [http://3M.com/Transportinfo](http://3M.com/Transportinfo) or call 1-800-364-3577 or 651-737-6501.

### Section 15: Regulatory Information

**15.1. US Federal Regulations**

Contact 3M for more information.
311/312 Hazard Categories:
Fire Hazard - No  Pressure Hazard - No  Reactivity Hazard - No  Immediate Hazard - No  Delayed Hazard - No

15.2. State Regulations
Contact 3M for more information.

15.3. Chemical Inventories
The components of this product are in compliance with the new substance notification requirements of CEPA.

The components of this material are in compliance with the China "Measures on Environmental Management of New Chemical Substance". Certain restrictions may apply. Contact the selling division for additional information.

The components of this material are in compliance with the provisions of the Korean Toxic Chemical Control Law. Certain restrictions may apply. Contact the selling division for additional information.

The components of this material are in compliance with the provisions of Japan Chemical Substance Control Law. Certain restrictions may apply. Contact the selling division for additional information.

The components of this material are in compliance with the provisions of Philippines RA 6969 requirements. Certain restrictions may apply. Contact the selling division for additional information.

The components of this material are in compliance with the chemical notification requirements of TSCA.

Contact 3M for more information.

15.4. International Regulations
Contact 3M for more information.

This SDS has been prepared to meet the U.S. OSHA Hazard Communication Standard, 29 CFR 1910.1200.

SECTION 16: Other information

NFPA Hazard Classification
Health: 3  Flammability: 0  Instability: 1  Special Hazards: None

National Fire Protection Association (NFPA) hazard ratings are designed for use by emergency response personnel to address the hazards that are presented by short-term, acute exposure to a material under conditions of fire, spill, or similar emergencies. Hazard ratings are primarily based on the inherent physical and toxic properties of the material but also include the toxic properties of combustion or decomposition products that are known to be generated in significant quantities.

HMIS Hazard Classification
Health: 1  Flammability: 0  Physical Hazard: 1  Personal Protection: X - See PPE section.

Hazardous Material Identification System (HMIS® III) hazard ratings are designed to inform employees of chemical hazards in the workplace. These ratings are based on the inherent properties of the material under expected conditions of normal use and are not intended for use in emergency situations. HMIS® III ratings are to be used with a fully implemented HMIS® III program. HMIS® is a registered mark of the American Coatings Association (ACA).

Document Group: 16-3425-2  Version Number: 28.00
Issue Date: 02/05/15  Supercedes Date: 11/11/14

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3M USA SDSs are available at www.3M.com
Safety Data Sheet

This safety data sheet complies with the requirements of: 2012 OSHA Hazard Communication Standard (29 CFR 1910.1200)

Product name  JET-X 2% High Expansion Foam Concentrate

1. Identification

1.1. Product Identifier
Product name  JET-X 2% High Expansion Foam Concentrate

1.2. Other means of identification
Product code  436879
Synonyms  None
Chemical Family  No information available

1.3. Recommended use of the chemical and restrictions on use
Recommended use  Fire extinguishing agent
Uses advised against  Consumer use

1.4. Details of the Supplier of the Safety Data Sheet

Company Name  Tyco Fire Protection Products
One Stanton Street
Marinette, WI 54143-2542
Telephone: 715-735-7411

Contact point  Product Stewardship at 1-715-735-7411
E-mail address  psra@tycofp.com

1.5. Emergency Telephone Number
Emergency telephone  CHEMTREC 800-424-9300 or 703-527-3887

2. Hazards Identification

Classification
OSHA Regulatory Status
This chemical is considered hazardous by the 2012 OSHA Hazard Communication Standard (29 CFR 1910.1200)

Serious eye damage/eye irritation  - Category 2A
Carcinogenicity  - Category 1A

2.2. Label Elements
Signal Word  DANGER

hazard statements
Causes serious eye irritation
May cause cancer

Revision date  25-May-2015
Version 25
Precautionary Statements

Prevention
Obtain special instructions before use. Do not handle until all safety precautions have been read and understood. Use personal protective equipment as required. Wash face, hands and any exposed skin thoroughly after handling.

Response
IF exposed or concerned: Get medical advice/attention.
IF IN EYES: Rinse cautiously with water for several minutes. Remove contact lenses, if present and easy to do. Continue rinsing. If eye irritation persists: Get medical advice/attention.

Storage
Store locked up.

Disposal
Dispose of contents/container to an approved waste disposal plant.

2.3. Hazards Not Otherwise Classified (HNOC)
Not Applicable.

2.4. OTHER INFORMATION
Toxic to aquatic life with long lasting effects.
Unknown Acute Toxicity 14.855% of the mixture consists of ingredient(s) of unknown toxicity

3. Composition/information on Ingredients

3.1. Mixture
The following component(s) in this product are considered hazardous under applicable OSHA(USA)

<table>
<thead>
<tr>
<th>Chemical name</th>
<th>CAS No</th>
<th>weight-%</th>
</tr>
</thead>
<tbody>
<tr>
<td>Sulfuric Acid, mono-C10-16 esters, Ammonium salts</td>
<td>68081-96-9</td>
<td>10 - 30</td>
</tr>
<tr>
<td>Ethylene Glycol</td>
<td>107-21-1</td>
<td>7 - 13</td>
</tr>
<tr>
<td>2-(2-Butoxyethoxy)ethanol</td>
<td>112-34-5</td>
<td>3 - 7</td>
</tr>
<tr>
<td>Dodecan-1-ol, ethoxylated, sulfates, Ammonium salts</td>
<td>32612-48-9</td>
<td>1 - 5</td>
</tr>
<tr>
<td>Lauryl Alcohol</td>
<td>112-53-8</td>
<td>1 - 5</td>
</tr>
<tr>
<td>Ethanol</td>
<td>64-17-5</td>
<td>0.1 - 1</td>
</tr>
</tbody>
</table>

4. First aid measures

4.1. Description of first aid measures
Eye Contact  Rinse thoroughly with plenty of water for at least 15 minutes, lifting lower and upper eyelids. Consult a physician.

Skin contact  Wash skin with soap and water. Get medical attention if irritation develops and persists.

Inhalation  Remove to fresh air. If breathing is difficult, give oxygen. (Get medical attention immediately if symptoms occur.).
Ingestion

Rinse mouth. Do not induce vomiting without medical advice. If swallowed, call a poison control center or physician immediately.

4.2. Most Important Symptoms and Effects, Both Acute and Delayed

Symptoms

No information available.

4.3. Indication of Any Immediate Medical Attention and Special Treatment Needed

Note to physicians

Treat symptomatically.

5. Fire-fighting measures

5.1. Suitable Extinguishing Media

Product is extinguishing agent. Use extinguishing measures that are appropriate to local circumstances and the surrounding environment.

5.2. Unsuitable Extinguishing Media

None.

5.3. Specific Hazards Arising from the Chemical

None known.

- Hazardous Combustion Products
  Carbon oxides, Nitrogen oxides (NOx), Oxides of sulfur

5.4. Explosion Data

- Sensitivity to Mechanical Impact
  None.

- Sensitivity to Static Discharge
  None.

5.5. Protective Equipment and Precautions for Firefighters

As in any fire, wear self-contained breathing apparatus pressure-demand, MSHA/NIOSH (approved or equivalent) and full protective gear.

6. Accidental release measures

6.1. Personal precautions, protective equipment and emergency procedures

- Personal Precautions
  Ensure adequate ventilation, especially in confined areas.

- For emergency responders
  Use personal protection recommended in Section 8.

6.2. Environmental Precautions

- Environmental Precautions
  Prevent further leakage or spillage if safe to do so. Prevent entry into waterways, sewers, basements or confined areas. See Section 12 for additional Ecological Information.

6.3. Methods and material for containment and cleaning up

- Methods for Containment
  Prevent further leakage or spillage if safe to do so.

- Methods for Cleaning Up
  Pick up and transfer to properly labeled containers.

7. Handling and Storage

Revision date 25-May-2015
Version 25
7.1. Precautions for Safe Handling

**Advice on safe handling**

Avoid contact with skin and eyes. Handle in accordance with good industrial hygiene and safety practice.

7.2. Conditions for safe storage, including any incompatibilities

**Storage Conditions**

Keep containers tightly closed in a dry, cool and well-ventilated place.

**Incompatible Materials**


8. Exposure Controls/Personal Protection

8.1. Control Parameters

**Exposure guidelines**

<table>
<thead>
<tr>
<th>Chemical name</th>
<th>ACGIH TLV</th>
<th>OSHA PEL</th>
<th>NIOSH IDLH</th>
</tr>
</thead>
<tbody>
<tr>
<td>Ethylene Glycol 107-21-1</td>
<td>Ceiling: 100 mg/m³ aerosol only</td>
<td>-</td>
<td>-</td>
</tr>
<tr>
<td>2-(2-Butoxyethoxy)ethanol 112-34-5</td>
<td>TWA: 10 ppm inhalable fraction and vapor</td>
<td>-</td>
<td>-</td>
</tr>
<tr>
<td>Ethanol 64-17-5</td>
<td>STEL: 1000 ppm</td>
<td>-</td>
<td>IDLH: 3300 ppm TWA: 1000 ppm TWA: 1900 mg/m³</td>
</tr>
</tbody>
</table>

ACGIH (American Conference of Governmental Industrial Hygienists) OSHA (Occupational Safety and Health Administration of the US Department of Labor) NIOSH IDLH Immediately Dangerous to Life or Health

8.2. Appropriate Engineering Controls

**Engineering controls**

Showers
Eyewash stations
Ventilation systems.

8.3. Individual protection measures, such as personal protective equipment

**Eye/Face Protection**

Avoid contact with eyes. Tight sealing safety goggles.

**Skin and Body Protection**

Wear protective gloves and protective clothing.

**Respiratory Protection**

If exposure limits are exceeded or irritation is experienced, NIOSH/MSHA approved respiratory protection should be worn. Positive-pressure supplied air respirators may be required for high airborne contaminant concentrations. Respiratory protection must be provided in accordance with current local regulations.

**Ventilation**

Use local exhaust or general dilution ventilation to control exposure with applicable limits

8.4. General hygiene considerations

Do not eat, drink or smoke when using this product. Handle in accordance with good industrial hygiene and safety practice.

9. Physical and Chemical Properties

9.1. Information on basic physical and chemical properties
10. Stability and Reactivity

10.1. Chemical Stability

Stable under recommended storage conditions.

10.2. Reactivity

No data available

10.3. Possibility of hazardous reactions

None under normal processing.

   hazardous polymerization    Hazardous polymerization does not occur.

10.4. Conditions to Avoid

Extremes of temperature and direct sunlight.

10.5. Incompatible Materials


10.6. Hazardous decomposition products

11. Toxicological Information

11.1. Information on Likely Routes of Exposure

Product information: no data available.

INHALATION: no data available.

Eye Contact: no data available.

Skin Contact: no data available.

INGESTION: no data available.

Acute Toxicity

<table>
<thead>
<tr>
<th>Chemical name</th>
<th>Oral LD50 (Rat)</th>
<th>dermal LD50 (Rabbit)</th>
<th>Inhalation LC50</th>
</tr>
</thead>
<tbody>
<tr>
<td>Ethylene Glycol</td>
<td>= 4000 mg/kg</td>
<td>= 9530 µL/kg</td>
<td>-</td>
</tr>
<tr>
<td>107-21-1</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>2-(2-Butoxyethoxy)ethanol</td>
<td>= 3384 mg/kg</td>
<td>= 2700 mg/kg</td>
<td>-</td>
</tr>
<tr>
<td>112-34-5</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Dodecan-1-ol, ethoxylated, sulfates, Ammonium salts</td>
<td>= 630 mg/kg (Rat)</td>
<td>-</td>
<td>-</td>
</tr>
<tr>
<td>32612-48-9</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Lauryl Alcohol</td>
<td>&gt; 5000 mg/kg (Rat)</td>
<td>-</td>
<td>-</td>
</tr>
<tr>
<td>112-53-8</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Ethanol</td>
<td>= 7060 mg/kg (Rat)</td>
<td>-</td>
<td>= 124.7 mg/L (Rat) 4 h</td>
</tr>
<tr>
<td>64-17-5</td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

11.2. Information on Toxicological Effects

Symptoms: No information available.

11.3. Delayed and immediate effects as well as chronic effects from short and long-term exposure

sensitization: No information available.

Germ Cell Mutagenicity: No information available.

carcinogenicity: The table below indicates whether each agency has listed any ingredient as a carcinogen.

<table>
<thead>
<tr>
<th>Chemical name</th>
<th>ACGIH</th>
<th>IARC</th>
<th>NTP</th>
<th>OSHA</th>
</tr>
</thead>
<tbody>
<tr>
<td>Ethanol</td>
<td>A3</td>
<td>Group 1</td>
<td>Known</td>
<td>X</td>
</tr>
<tr>
<td>64-17-5</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

ACGIH (American Conference of Governmental Industrial Hygienists)
A3 - Animal Carcinogen

IARC (International Agency for Research on Cancer)
Group 1 - Carcinogenic to Humans

NTP (National Toxicology Program)
Known - Known Carcinogen

OSHA (Occupational Safety and Health Administration of the US Department of Labor)
X - Present

Reproductive Toxicity: No information available.

STOT - Single Exposure: No information available.

STOT - Repeated Exposure: No information available.

Target organ effects: Central Nervous System, EYES, Respiratory System, skin.

Aspiration Hazard: No information available.

11.4. Numerical Measures of Toxicity - Product information

The following values are calculated based on chapter 3.1 of the GHS document (mg/kg)

12. Ecological Information
### 12.1. ecotoxicity
Toxic to aquatic life with long lasting effects

0% of the mixture consists of components(s) of unknown hazards to the aquatic environment

<table>
<thead>
<tr>
<th>Chemical name</th>
<th>Algae/aquatic plants</th>
<th>Fish</th>
<th>Crustacea</th>
</tr>
</thead>
<tbody>
<tr>
<td>Sulfuric Acid, mono-C10-16 esters, Ammonium salts</td>
<td>EC50 96 h = 42 mg/L</td>
<td>LC50 48 h = 19 mg/L Leuciscus idus static</td>
<td>EC50 24 h = 56 mg/L Daphnia magna</td>
</tr>
<tr>
<td>68081-96-9</td>
<td>Desmodesmus subspicatus</td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Ethylene Glycol 107-21-1</td>
<td>EC50 96 h = 6500 - 13000 mg/L</td>
<td>LC50 96 h = 41000 mg/L Oncorhynchus mykiss LC50 96 h = 14 - 18 mL/L Oncorhynchus mykiss static LC50 96 h = 27540 mg/L Lepomis macrochirus static LC50 96 h = 40761 mg/L Oncorhynchus mykiss static LC50 96 h = 40000 - 60000 mg/L Pimephales promelas static LC50 96 h = 16000 mg/L Poecilia reticulata static</td>
<td>EC50 48 h = 46300 mg/L Daphnia magna</td>
</tr>
<tr>
<td></td>
<td>Desmodesmus subspicatus</td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>2-(2-Butoxyethoxy)ethanol 112-34-5</td>
<td>EC50 96 h &gt; 100 mg/L</td>
<td>LC50 96 h = 1300 mg/L Lepomis macrochirus static</td>
<td>EC50 24 h = 2850 mg/L Daphnia magna</td>
</tr>
<tr>
<td></td>
<td>Desmodesmus subspicatus</td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Lauryl Alcohol 112-53-8</td>
<td>EC50 96 h = 0.62 mg/L</td>
<td>LC50 96 h = 1.01 mg/L Pimephales promelas flow-through LC50 96 h = 0.1855 mg/L Pimephales promelas</td>
<td>EC50 48 h = 320 mg/L Daphnia magna</td>
</tr>
<tr>
<td></td>
<td>Desmodesmus subspicatus</td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Ethanol 64-17-5</td>
<td>-</td>
<td>LC50 96 h = 12.0 - 16.0 mL/L Oncorhynchus mykiss static LC50 96 h = 13400 - 15100 mg/L Pimephales promelas flow-through LC50 96 h &gt; 100 mg/L Pimephales promelas static</td>
<td>EC50 48 h = 9268 - 14221 mg/L Daphnia magna EC50 24 h = 10800 mg/L Daphnia magna EC50 48 h = 2 mg/L Daphnia magna Static</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Ammonium sulfate, technical 7783-20-2</td>
<td>-</td>
<td>LC50 96 h = 460 - 1000 mg/L Leuciscus idus static: LC50 96 h = 123 - 128 mg/L Poecilia reticulata semi-static; LC50 96 h = 126 mg/L Poecilia reticulata; LC50 96 h &gt; 100 mg/L Pimephales promelas; LC50 96 h = 32.2 - 41.9 mg/L Oncorhynchus mykiss flow-through; LC50 96 h = 5.2 - 8.2 mg/L Oncorhynchus mykiss static: LC50 96 h = 18 mg/L Cyprinus carpio; LC50 96 h = 480 mg/L Brachydanio rerio flow-through; LC50 96 h = 420 mg/L Brachydanio rerio semi-static; LC50 96 h = 250 mg/L Brachydanio rerio</td>
<td>LC50 48 h = 14 mg/L Daphnia magna, EC50 24 h = 423 mg/L Daphnia magna</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Triethanolamine 102-71-6</td>
<td>EC50 72 h = 216 mg/L</td>
<td>LC50 96 h = 10600 - 13000 mg/L Pimephales promelas flow-through LC50 96 h &gt; 1000 mg/L Pimephales promelas static LC50 96 h = 450 - 1000 mg/L Lepomis macrochirus static</td>
<td>EC50 24 h = 1386 mg/L Daphnia magna</td>
</tr>
<tr>
<td></td>
<td>Desmodesmus subspicatus</td>
<td></td>
<td></td>
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<tr>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Diethanolamine 111-42-2</td>
<td>EC50 72 h = 7.8 mg/L</td>
<td>LC50 96 h = 4460 - 4980 mg/L Pimephales promelas flow-through LC50 96 h = 1200 - 1580 mg/L Pimephales promelas static LC50 96 h = 600 - 1000 mg/L Lepomis macrochirus static</td>
<td>EC50 48 h = 55 mg/L Daphnia magna</td>
</tr>
<tr>
<td></td>
<td>Desmodesmus subspicatus</td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Sodium Hydrogen Carbonate</td>
<td>EC50 120 h = 650 mg/L Nitzschia linearis</td>
<td>LC50 96 h 8250 - 9000 mg/L Lepomis macrochirus static</td>
<td>EC50 48 h = 2350 mg/L Daphnia magna</td>
</tr>
<tr>
<td>------------------------</td>
<td>------------------------------------------</td>
<td>-------------------------------------------------</td>
<td>-------------------------------------</td>
</tr>
<tr>
<td>Hexamethylenetetramine</td>
<td>-</td>
<td>LC50 96 h 44600 - 55600 mg/L Pimephales promelas flow-through</td>
<td>EC50 48 h 29868 - 43390 mg/L Daphnia magna</td>
</tr>
<tr>
<td>Methylene chloride</td>
<td>EC50 96 h &gt; 500 mg/L Pseudokirchneriella subcapitata</td>
<td>Pimephales promelas flow-through LC50 96 h 262 - 855 mg/L Pimephales promelas static LC50 96 h = 193 mg/L Lepomis macrochirus static LC50 96 h = 193 mg/L Lepomis macrochirus flow-through</td>
<td>EC50 48 h 1532 - 1847 mg/L Daphnia magna Static EC50 48 h = 190 mg/L Daphnia magna</td>
</tr>
<tr>
<td>1,3-Dichloropropene</td>
<td>EC50 96 h 2.45 - 6.45 mg/L Pseudokirchneriella subcapitata EC50 72 h 3.12 - 10.5 mg/L Pseudokirchneriella subcapitata</td>
<td>LC50 96 h 1.52 - 2.68 mg/L Pimephales promelas static LC50 96 h 0.211 - 0.271 mg/L Pimephales promelas flow-through LC50 96 h 3.1 - 4.9 mg/L Oncorhynchus mykiss static LC50 96 h = 4.5 mg/L Oncorhynchus mykiss semi-static LC50 96 h = 2 mg/L Oncorhynchus mykiss LC50 96 h 5.1 - 6.8 mg/L Lepomis macrochirus static</td>
<td>EC50 48 h 0.063 - 0.129 mg/L Daphnia magna Static EC50 48 h = 0.09 mg/L Daphnia magna</td>
</tr>
</tbody>
</table>

**12.2. Persistence and Degradability**
No information available.

**12.3. Bioaccumulation**
No information available.

<table>
<thead>
<tr>
<th>Chemical name</th>
<th>Partition coefficient</th>
</tr>
</thead>
<tbody>
<tr>
<td>Ethylene Glycol</td>
<td>-1.93</td>
</tr>
<tr>
<td>107-21-1</td>
<td></td>
</tr>
<tr>
<td>Lauryl Alcohol</td>
<td>5.36</td>
</tr>
<tr>
<td>112-53-8</td>
<td></td>
</tr>
<tr>
<td>Ethanol</td>
<td>-0.32</td>
</tr>
<tr>
<td>64-17-5</td>
<td></td>
</tr>
</tbody>
</table>

**12.4. Other Adverse Effects**
No information available.

**13. Disposal Considerations**

**13.1. Waste Treatment Methods**
Disposal should be in accordance with applicable regional, national and local laws and regulations.

Contaminated Packaging
Do not reuse container.

**14. Transport Information**

DOT
NOT REGULATED

Revision date 25-May-2015  Version 25
15. Regulatory Information

15.1. International Inventories

<table>
<thead>
<tr>
<th>Regulation</th>
<th>Complies/Does not comply</th>
</tr>
</thead>
<tbody>
<tr>
<td>TSCA</td>
<td>Complies</td>
</tr>
<tr>
<td>DSL/NDSL</td>
<td>Complies</td>
</tr>
<tr>
<td>ENCS</td>
<td>Does not comply</td>
</tr>
<tr>
<td>IECSC</td>
<td>Complies</td>
</tr>
<tr>
<td>KECL</td>
<td>Complies</td>
</tr>
<tr>
<td>PICCS</td>
<td>Complies</td>
</tr>
<tr>
<td>AICS</td>
<td>Complies</td>
</tr>
</tbody>
</table>

Legend:
- TSCA - United States Toxic Substances Control Act Section 8(b) Inventory
- DSL/NDSL - Canadian Domestic Substances List/Non-Domestic Substances List
- ENCS - Japan Existing and New Chemical Substances
- IECSC - China Inventory of Existing Chemical Substances
- KECL - Korean Existing and Evaluated Chemical Substances
- PICCS - Philippines Inventory of Chemicals and Chemical Substances
- AICS - Australian Inventory of Chemical Substances

15.2. US Federal Regulations

SARA 313

Section 313 of Title III of the Superfund Amendments and Reauthorization Act of 1986 (SARA). This product contains a chemical or chemicals which are subject to the reporting requirements of the Act and Title 40 of the Code of Federal Regulations, Part 372

<table>
<thead>
<tr>
<th>Chemical name</th>
<th>SARA 313 - Threshold Values %</th>
</tr>
</thead>
<tbody>
<tr>
<td>Ethylene Glycol - 107-21-1</td>
<td>1.0</td>
</tr>
<tr>
<td>2-(2-Butoxyethoxy)ethanol - 112-34-5</td>
<td>1.0</td>
</tr>
</tbody>
</table>

SARA 311/312 Hazard Categories

<table>
<thead>
<tr>
<th>Hazard Category</th>
<th>No</th>
</tr>
</thead>
<tbody>
<tr>
<td>Acute Health Hazard</td>
<td></td>
</tr>
<tr>
<td>Chronic health hazard</td>
<td></td>
</tr>
<tr>
<td>Fire Hazard</td>
<td></td>
</tr>
<tr>
<td>Sudden Release of Pressure Hazard</td>
<td></td>
</tr>
<tr>
<td>Reactive Hazard</td>
<td></td>
</tr>
</tbody>
</table>

CWA (Clean Water Act)

This product does not contain any substances regulated as pollutants pursuant to the Clean Water Act (40 CFR 122.21 and 40 CFR 122.42)

CERCLA

This material, as supplied, contains one or more substances regulated as a hazardous substance under the Comprehensive Environmental Response Compensation and Liability Act (CERCLA) (40 CFR 302)
Product code 436879 / Product name JET-X 2% High Expansion Foam Concentrate

<table>
<thead>
<tr>
<th>Chemical name</th>
<th>Hazardous Substances RQs</th>
<th>CERCLA/SARA RQ</th>
<th>Reportable Quantity (RQ)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Ethylene Glycol 107-21-1</td>
<td>5000 lb</td>
<td></td>
<td>RQ 5000 lb final RQ</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>RQ 2270 kg final RQ</td>
</tr>
</tbody>
</table>

15.3. US State Regulations

California Proposition 65

This product contains the following Proposition 65 chemicals

<table>
<thead>
<tr>
<th>Chemical name</th>
<th>California Proposition 65</th>
</tr>
</thead>
<tbody>
<tr>
<td>Ethanol - 64-17-5</td>
<td>Carcinogen</td>
</tr>
<tr>
<td>Diethanolamine - 111-42-2</td>
<td>Carcinogen Developmental</td>
</tr>
<tr>
<td>Methylene chloride - 75-09-2</td>
<td>Carcinogen</td>
</tr>
<tr>
<td>1,3-Dichloropropene - 542-75-6</td>
<td>Carcinogen</td>
</tr>
</tbody>
</table>

U.S. State Right-to-Know Regulations

<table>
<thead>
<tr>
<th>Chemical name</th>
<th>New Jersey</th>
<th>Massachusetts</th>
<th>Pennsylvania</th>
</tr>
</thead>
<tbody>
<tr>
<td>Ethylene Glycol 107-21-1</td>
<td>X</td>
<td>X</td>
<td>X</td>
</tr>
<tr>
<td>2-(2-Butoxyethoxy)ethanol</td>
<td>X</td>
<td></td>
<td>X</td>
</tr>
<tr>
<td>112-34-5</td>
<td></td>
<td>X</td>
<td>X</td>
</tr>
<tr>
<td>Ethanol 64-17-5</td>
<td>X</td>
<td>X</td>
<td>X</td>
</tr>
<tr>
<td>Diethanolamine 111-42-2</td>
<td>X</td>
<td>X</td>
<td>X</td>
</tr>
<tr>
<td>Hexamethylenetetramine 100-97-0</td>
<td>X</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Methylene chloride 75-09-2</td>
<td>X</td>
<td>X</td>
<td>X</td>
</tr>
<tr>
<td>1,3-Dichloropropene 542-75-6</td>
<td>X</td>
<td>X</td>
<td>X</td>
</tr>
</tbody>
</table>

16. Other information, including date of preparation of the last revision

<table>
<thead>
<tr>
<th>NFPA</th>
<th>Health Hazards</th>
<th>flammability</th>
<th>Instability</th>
<th>Physical and chemical properties</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>2</td>
<td>1</td>
<td>0</td>
<td></td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>HMIS</th>
<th>Health Hazards</th>
<th>flammability</th>
<th>Physical Hazards</th>
<th>Personal Protection</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>2</td>
<td>1</td>
<td>0</td>
<td>X</td>
</tr>
</tbody>
</table>

Revision note

No information available

Disclaimer

The information provided in this Safety Data Sheet is correct to the best of our knowledge, information and belief at the date of its publication. The information given is designed only as a guidance for safe handling, use, processing, storage, transportation, disposal and release and is not to be considered a warranty or quality specification. The information relates only to the specific material designated and may not be valid for such material used in combination with any other materials or in any process, unless specified in the text.

End of Safety Data Sheet
SECTION 1: Identification of the substance/mixture and of the company/undertaking

- 1.1 Product identifier
- Trade name: Glycerine 48%
- Article number: 220395
- 1.2 Relevant identified uses of the substance or mixture and uses advised against
  No further relevant information available.
- Application of the substance / the mixture Industrial uses.
- 1.3 Details of the supplier of the Safety Data Sheet
  Manufacturer/Supplier:
  Industrial Chemicals Corporation
  4631 W. 58th Avenue
  Arvada, CO 80002
  Phone: (303) 427-2727
- 1.4 Emergency telephone number:
  ChemTel Inc.
  (800)255-3924, +1 (813)248-0585

SECTION 2: Hazards identification

- 2.1 Classification of the substance or mixture
  Classification according to Regulation (EC) No 1272/2008
  The product is not classified as hazardous according to OSHA GHS regulations within the United States.
  The product is not classified as hazardous according to the CLP regulation.

- Additional information:
  There are no other hazards not otherwise classified that have been identified.
  0 % of the mixture consists of component(s) of unknown toxicity.

- 2.2 Label elements
  Labelling according to Regulation (EC) No 1272/2008
  This product does not have a classification according to the CLP regulation.
  The product is not classified as hazardous according to OSHA GHS regulations within the United States.
  Hazard pictograms Not Regulated
  Signal word Not Regulated
  Hazard-determining components of labelling: None.
  Hazard statements Not Regulated

(Contd. on page 2)
Safety Data Sheet
according to 1907/2006/EC (REACH), 1272/2008/EC (CLP), and OSHA
GHS

Printing date 18.06.2015
Revision: 18.06.2015

Trade name: Glycerine 48%

· Precautionary statements: Not Regulated
· Additional information:
  Safety data sheet available on request.
· Hazard description:
  · WHMIS-symbols: Not hazardous under WHMIS.
  · NFPA ratings (scale 0 - 4)
  0
  Health = 0
  Fire = 1
  Reactivity = 0
· HMIS-ratings (scale 0 - 4)
  Health = 0
  Fire = 1
  Reactivity = 0

· HMIS Long Term Health Hazard Substances
  None of the ingredients are listed.
· 2.3 Other hazards
  · Results of PBT and vPvB assessment
  · PBT: Not applicable.
  · vPvB: Not applicable.

SECTION 3: Composition/information on ingredients

· 3.2 Mixtures
· Description: Mixture of substances listed below with nonhazardous additions.

· Dangerous components:
  | CAS: 56-81-5 | EINECS: 200-289-5 | glycerol | substance with a Community workplace exposure limit | 25-50% |

· Additional information:
  For the listed ingredients, the identity and exact percentages are being withheld as a trade secret.

SECTION 4: First aid measures

· 4.1 Description of first aid measures
· General information: No special measures required.
· After inhalation: Supply fresh air; consult doctor in case of complaints.
· After skin contact:
  Immediately rinse with water.
  If skin irritation is experienced, consult a doctor.
· After eye contact:
  Remove contact lenses if worn.
  Rinse opened eye for several minutes under running water. If symptoms persist, consult a doctor.

(Contd. on page 3)
Safety Data Sheet
according to 1907/2006/EC (REACH), 1272/2008/EC (CLP), and OSHA
GHS

Printing date 18.06.2015
Revision: 18.06.2015

Trade name: Glycerine 48%

- After swallowing:
  Rinse out mouth and then drink plenty of water.
  Do not induce vomiting; call for medical help immediately.
- 4.2 Most important symptoms and effects, both acute and delayed
  Slight irritant effect on skin and mucous membranes.
  Slight irritant effect on eyes.
  Nausea in case of ingestion.
  Gastric or intestinal disorders when ingested.
- Hazards No further relevant information available.
- 4.3 Indication of any immediate medical attention and special treatment needed
  No further relevant information available.

SECTION 5: Firefighting measures

- 5.1 Extinguishing media
- Suitable extinguishing agents: Use fire extinguishing methods suitable to surrounding conditions.
- For safety reasons unsuitable extinguishing agents: None.
- 5.2 Special hazards arising from the substance or mixture
  Formation of toxic gases is possible during heating or in case of fire.
- 5.3 Advice for firefighters
  - Protective equipment:
    Wear self-contained respiratory protective device.
    Wear fully protective suit.
  - Additional information No further relevant information available.

SECTION 6: Accidental release measures

- 6.1 Personal precautions, protective equipment and emergency procedures
  Particular danger of slipping on leaked/spilled product.
  Ensure adequate ventilation
  For large spills, wear protective clothing.
  For large spills, use respiratory protective device against the effects of fumes/dust/aerosol.
- 6.2 Environmental precautions: Do not allow to enter sewers/ surface or ground water.
- 6.3 Methods and material for containment and cleaning up:
  Absorb with liquid-binding material (sand, diatomite, acid binders, universal binders, sawdust).
  Dispose of the material collected according to regulations.
- 6.4 Reference to other sections
  See Section 7 for information on safe handling.
  See Section 8 for information on personal protection equipment.
  See Section 13 for disposal information.

SECTION 7: Handling and storage

- 7.1 Precautions for safe handling
  Avoid splashes or spray in enclosed areas.
  Use only in well ventilated areas.

(Contd. on page 4)
Safety Data Sheet
according to 1907/2006/EC (REACH), 1272/2008/EC (CLP), and OSHA
GHS

Printing date 18.06.2015
Revision: 18.06.2015

Trade name: Glycerine 48%

- Information about fire - and explosion protection: No special measures required.
- 7.2 Conditions for safe storage, including any incompatibilities
  - Storage:
    - Requirements to be met by storerooms and receptacles:
      Avoid storage near extreme heat, ignition sources or open flame.
    - Information about storage in one common storage facility:
      Store away from foodstuffs.
      Store away from oxidising agents.
    - Further information about storage conditions: Store in cool, dry conditions in well sealed receptacles.
    - 7.3 Specific end use(s) No further relevant information available.

SECTION 8: Exposure controls/personal protection

- Additional information about design of technical facilities: No further data; see section 7.

  8.1 Control parameters

  - Ingredients with limit values that require monitoring at the workplace:

<table>
<thead>
<tr>
<th>56-81-5 glycerol</th>
</tr>
</thead>
<tbody>
<tr>
<td>PEL (USA)</td>
</tr>
<tr>
<td>TLV (USA)</td>
</tr>
<tr>
<td>EL (Canada)</td>
</tr>
<tr>
<td>EV (Canada)</td>
</tr>
</tbody>
</table>

- DNELs No further relevant information available.
- PNECs No further relevant information available.
- Additional information: No further relevant information available.

  8.2 Exposure controls

  - Personal protective equipment:
    - General protective and hygienic measures:
      The usual precautionary measures are to be adhered to when handling chemicals.
      Keep away from foodstuffs, beverages and feed.
      Immediately remove all soiled and contaminated clothing.
      Do not inhale gases / fumes / aerosols.
      Wash hands before breaks and at the end of work.
      Avoid contact with the eyes.
      Avoid close or long term contact with the skin.
    - Respiratory protection:
      Not required under normal conditions of use.
      Use suitable respiratory protective device when aerosol or mist is formed.
      For spills, respiratory protection may be advisable.
    - Protection of hands:
      Wear protective gloves to handle contents of damaged or leaking units.
      The glove material has to be impermeable and resistant to the product/ the substance/ the preparation.

(Contd. on page 5)
Eye protection: Safety glasses

Body protection:
- Not required under normal conditions of use.
- Protection may be required for spills.

Limitation and supervision of exposure into the environment:
- No special requirements.

Risk management measures:
- No special requirements.

SECTION 9: Physical and chemical properties

9.1 Information on basic physical and chemical properties

General Information
Appearance:
- Form: Liquid
- Colour: Colourless
- Odour: Odourless
- Odour threshold: Not determined.
- pH-value: Not determined.

Change in condition:
- Melting point/Melting range: Not Determined.
- Boiling point/Boiling range: 100 °C (212 °F)

Flash point: 160 °C (320 °F)

Flammability (solid, gaseous): Not applicable.

Auto/Self-ignition temperature: Not determined.

Decomposition temperature: Not determined.

Self-igniting: Product is not self-igniting.

Danger of explosion: Product does not present an explosion hazard.

Explosion limits:
- Lower: 0,9 Vol %
- Upper: Not determined.

Oxidising properties: Non-oxidising.

Vapour pressure at 20 °C (68 °F): 23 hPa (17 mm Hg)

Density at 20 °C (68 °F): 1,12 g/cm³ (9,346 lbs/gal)

Relative density: Not determined.

Vapour density: Not determined.

Evaporation rate: Not determined.

Solubility in / Miscibility with water: Fully miscible.
Trade name: Glycerine 48%

- Partition coefficient (n-octanol/water): Not determined.
- Viscosity:
  - Dynamic: Not determined.
  - Kinematic: Not determined.
- 9.2 Other information: No further relevant information available.

SECTION 10: Stability and reactivity

- 10.1 Reactivity
- 10.2 Chemical stability
  - Thermal decomposition / conditions to be avoided:
    No decomposition if used and stored according to specifications.
    To avoid thermal decomposition do not overheat.
  - 10.3 Possibility of hazardous reactions
    Toxic fumes may be released if heated above the decomposition point.
    Reacts with strong acids and oxidising agents.
- 10.4 Conditions to avoid: Store away from oxidising agents.
- 10.5 Incompatible materials: No further relevant information available.
- 10.6 Hazardous decomposition products: Carbon monoxide and carbon dioxide

SECTION 11: Toxicological information

- 11.1 Information on toxicological effects
  - Acute toxicity
  - LD/LC50 values relevant for classification: None.
  - Primary irritant effect:
  - Skin corrosion/irritation: Slight irritant effect on skin and mucous membranes.
  - Serious eye damage/irritation: Slight irritant effect on eyes.
  - Respiratory or skin sensitisation: No sensitising effects known.
  - Additional toxicological information:
    The product is not subject to classification according to the calculation method of the General EU Classification Guidelines for Preparations as issued in the latest version.
    When used and handled according to specifications, the product does not have any harmful effects to our experience and the information provided to us.
  - Repeated dose toxicity: No further relevant information available.
  - CMR effects (carcinogenity, mutagenicity and toxicity for reproduction):
  - Germ cell mutagenicity: Based on available data, the classification criteria are not met.
  - Carcinogenicity: Based on available data, the classification criteria are not met.
  - Reproductive toxicity: Based on available data, the classification criteria are not met.
  - STOT-single exposure: Based on available data, the classification criteria are not met.
  - STOT-repeated exposure: Based on available data, the classification criteria are not met.
  - Aspiration hazard: Based on available data, the classification criteria are not met.
SECTION 12: Ecological information

- 12.1 Toxicity
- Aquatic toxicity: No further relevant information available.
- 12.2 Persistence and degradability No further relevant information available.
- 12.3 Bioaccumulative potential No further relevant information available.
- 12.4 Mobility in soil No further relevant information available.
- Additional ecological information:
  - General notes:
    Water hazard class 1 (German Regulation) (Self-assessment): slightly hazardous for water
    Do not allow undiluted product or large quantities of it to reach ground water, water course or sewage system.
- 12.5 Results of PBT and vPvB assessment
  - PBT: Not applicable.
  - vPvB: Not applicable.
- 12.6 Other adverse effects No further relevant information available.

SECTION 13: Disposal considerations

- 13.1 Waste treatment methods
- Recommendation
  Smaller quantities can be disposed of with household waste.
The user of this material has the responsibility to dispose of unused material, residues and containers in compliance with all relevant local, state and federal laws and regulations regarding treatment, storage and disposal for hazardous and nonhazardous wastes.
- Uncleaned packaging:
  - Recommendation: Disposal must be made according to local official regulations.
  - Recommended cleansing agents: Water, if necessary together with cleansing agents.

SECTION 14: Transport information

- 14.1 UN-Number
- DOT, ADR, ADN, IMDG, IATA Not Regulated
- 14.2 UN proper shipping name
- DOT, ADR, ADN, IMDG, IATA Not Regulated
- 14.3 Transport hazard class(es)
- DOT, ADR, ADN, IMDG, IATA Not Regulated
- Class
- 14.4 Packing group
- DOT, ADR, IMDG, IATA Not Regulated
- 14.5 Environmental hazards:
  - Marine pollutant: No
- 14.6 Special precautions for user
- Not applicable.
- 14.7 Transport in bulk according to Annex II of MARPOL73/78 and the IBC Code
- Not applicable.
SECTION 15: Regulatory information

- 15.1 Safety, health and environmental regulations/legislation specific for the substance or mixture
- United States (USA)
  - SARA
    - Section 355 (extremely hazardous substances):
      None of the ingredients are listed.
    - Section 313 (Specific toxic chemical listings):
      None of the ingredients are listed.
  - TSCA (Toxic Substances Control Act):
    All ingredients are listed.
  - Proposition 65 (California):
    - Chemicals known to cause cancer:
      None of the ingredients is listed.
    - Chemicals known to cause reproductive toxicity for females:
      None of the ingredients are listed.
    - Chemicals known to cause reproductive toxicity for males:
      None of the ingredients are listed.
    - Chemicals known to cause developmental toxicity:
      None of the ingredients are listed.
  - Carcinogenic Categories
    - EPA (Environmental Protection Agency)
      None of the ingredients are listed.
  - IARC (International Agency for Research on Cancer)
    None of the ingredients are listed.
  - TLV (Threshold Limit Value established by ACGIH)
    None of the ingredients are listed.
  - NIOSH-Ca (National Institute for Occupational Safety and Health)
    None of the ingredients are listed.
- Canada
  - Canadian Domestic Substances List (DSL)
    All ingredients are listed.
  - Canadian Ingredient Disclosure list (limit 0.1%)
    None of the ingredients are listed.
  - Canadian Ingredient Disclosure list (limit 1%)
    None of the ingredients are listed.
SECTION 16: Other information

This information is based on our present knowledge. However, this shall not constitute a guarantee for any specific product features and shall not establish a legally valid contractual relationship.

Abbreviations and acronyms:
ADR: Accord européen sur le transport des marchandises dangereuses par Route (European Agreement concerning the International Carriage of Dangerous Goods by Road)
IMDG: International Maritime Code for Dangerous Goods
DOT: US Department of Transportation
IATA: International Air Transport Association
GHS: Globally Harmonised System of Classification and Labelling of Chemicals
ACGIH: American Conference of Governmental Industrial Hygienists
EINECS: European Inventory of Existing Commercial Chemical Substances
ELINCS: European List of Notified Chemical Substances
CAS: Chemical Abstracts Service (division of the American Chemical Society)
NFPA: National Fire Protection Association (USA)
HMIS: Hazardous Materials Identification System (USA)
WHMIS: Workplace Hazardous Materials Information System (Canada)
DNEL: Derived No-Effect Level (REACH)
PNEC: Predicted No-Effect Concentration (REACH)
LC50: Lethal concentration, 50 percent
LD50: Lethal dose, 50 percent

Sources
SDS Prepared by:
ChemTel Inc.
1305 North Florida Avenue
Tampa, Florida USA 33602-2902
Toll Free North America 1-888-255-3924 Intl. +01 813-248-0573
Website: www.chemtelinc.com
SECTION 1: Identification of the substance/mixture and of the company/undertaking

- 1.1 Product identifier
- Trade name: Propylene Glycol Inhibited 38%
- Article number: 100186
- 1.2 Relevant identified uses of the substance or mixture and uses advised against
  No further relevant information available.
- Application of the substance / the mixture HVAC systems
- Uses advised against Contact manufacturer.
- 1.3 Details of the supplier of the Safety Data Sheet
- Manufacturer/Supplier:
  Industrial Chemicals Corporation
  4631 W. 58th Avenue
  Arvada, CO 80002
  Phone: (303) 427-2727
- 1.4 Emergency telephone number:
  ChemTel Inc.
  (800)255-3924, +1 (813)248-0585

SECTION 2: Hazards identification

- 2.1 Classification of the substance or mixture
- Classification according to Regulation (EC) No 1272/2008
  The product is not classified as hazardous according to the Globally Harmonized System (GHS).
  The product is not classified as hazardous according to the CLP regulation.
- Additional information:
  There are no other hazards not otherwise classified that have been identified.
  0 % of the mixture consists of component(s) of unknown toxicity.

- 2.2 Label elements
- Labelling according to Regulation (EC) No 1272/2008
  This product does not have a classification according to the CLP regulation.
  The product is not classified as hazardous according to OSHA GHS regulations within the United States.
- Hazard pictograms Not Regulated
- Signal word Not Regulated
- Hazard-determining components of labelling: None.
Safety Data Sheet
according to 1907/2006/EC (REACH), 1272/2008/EC (CLP), and OSHA GHS

Printing date 26.08.2015
Revision: 26.08.2015

Trade name: Propylene Glycol Inhibited 38%

(Cont'd. from page 1)

· Hazard statements Not Regulated
· Precautionary statements Not Regulated
· Additional information:
  Safety data sheet available on request.
· NFPA ratings (scale 0 - 4)
  Health = 0
  Fire = 1
  Reactivity = 0

· HMIS-ratings (scale 0 - 4)

· 2.3 Other hazards
· Results of PBT and vPvB assessment
  PBT: Not applicable.
  vPvB: Not applicable.

SECTION 3: Composition/information on ingredients

· 3.2 Mixtures
· Description: Mixture of substances listed below with nonhazardous additions.

· Dangerous components:

<table>
<thead>
<tr>
<th>CAS: 57-55-6</th>
<th>Propylene Glycol</th>
</tr>
</thead>
<tbody>
<tr>
<td>EINECS: 200-338-0</td>
<td>substance with a Community workplace exposure limit 25-50%</td>
</tr>
</tbody>
</table>

· Additional information:
  For the listed ingredient(s), the identity and exact percentages are being withheld as a trade secret.

SECTION 4: First aid measures

· 4.1 Description of first aid measures
· General information: No special measures required.
· After inhalation: Supply fresh air; consult doctor in case of complaints.
· After skin contact:
  Generally the product does not irritate the skin.
  Wash with soap and water.
  If skin irritation is experienced, consult a doctor.
· After eye contact:
  Remove contact lenses if worn.
  Rinse opened eye for several minutes under running water. If symptoms persist, consult a doctor.
· After swallowing:
  Rinse out mouth and then drink plenty of water.
  Do not induce vomiting; call for medical help immediately.

(Cont'd. on page 3)
Trade name: Propylene Glycol Inhibited 38%

- 4.2 Most important symptoms and effects, both acute and delayed
  Gastric or intestinal disorders when ingested.
- Hazards No further relevant information available.
- 4.3 Indication of any immediate medical attention and special treatment needed
  No further relevant information available.

SECTION 5: Firefighting measures

- 5.1 Extinguishing media
- Suitable extinguishing agents: Use fire extinguishing methods suitable to surrounding conditions.
- For safety reasons unsuitable extinguishing agents: None.
- 5.2 Special hazards arising from the substance or mixture
  Formation of toxic gases is possible during heating or in case of fire.
- 5.3 Advice for firefighters
- Protective equipment:
  Wear self-contained respiratory protective device.
  Wear fully protective suit.
- Additional information No further relevant information available.

SECTION 6: Accidental release measures

- 6.1 Personal precautions, protective equipment and emergency procedures
  Particular danger of slipping on leaked/spilled product.
  For large spills, wear protective clothing.
  For large spills, use respiratory protective device against the effects of fumes/dust/aerosol.
- 6.2 Environmental precautions: No special measures required.
- 6.3 Methods and material for containment and cleaning up:
  Absorb liquid components with liquid-binding material.
  Dispose of the material collected according to regulations.
  Send for recovery or disposal in suitable receptacles.
- 6.4 Reference to other sections
  See Section 7 for information on safe handling.
  See Section 8 for information on personal protection equipment.
  See Section 13 for disposal information.

SECTION 7: Handling and storage

- 7.1 Precautions for safe handling
  Prevent formation of aerosols.
  Avoid splashes or spray in enclosed areas.
- Information about fire - and explosion protection: No special measures required.
- 7.2 Conditions for safe storage, including any incompatibilities
- Storage:
  Requirements to be met by storerooms and receptacles:
  Avoid storage near extreme heat, ignition sources or open flame.
Safety Data Sheet
according to 1907/2006/EC (REACH), 1272/2008/EC (CLP), and
OSHA GHS

Printing date 26.08.2015
Revision: 26.08.2015

Trade name: Propylene Glycol Inhibited 38%

(Cont’d. from page 3)

· Information about storage in one common storage facility:
  Store away from foodstuffs.
  Store away from oxidising agents.
· Further information about storage conditions: Store in cool, dry conditions in well sealed receptacles.
· 7.3 Specific end use(s) No further relevant information available.

SECTION 8: Exposure controls/personal protection

· Additional information about design of technical facilities: No further data; see section 7.
· 8.1 Control parameters
· Ingredients with limit values that require monitoring at the workplace:

<table>
<thead>
<tr>
<th>57-55-6 Propylene Glycol</th>
</tr>
</thead>
<tbody>
<tr>
<td>WEEL (USA)</td>
</tr>
<tr>
<td>EV (Canada)</td>
</tr>
<tr>
<td></td>
</tr>
</tbody>
</table>

· DNELs No further relevant information available.
· PNECs No further relevant information available.
· Additional information: No further relevant information available.
· 8.2 Exposure controls
· Personal protective equipment:
  · General protective and hygienic measures:
    The usual precautionary measures are to be adhered to when handling chemicals.
    Keep away from foodstuffs, beverages and feed.
    Wash hands before breaks and at the end of work.
    Do not inhale gases / fumes / aerosols.
    Avoid contact with the eyes.
    Avoid close or long term contact with the skin.
  · Respiratory protection:
    Not required under normal conditions of use.
    Use suitable respiratory protective device when high concentrations are present.
    Use suitable respiratory protective device when aerosol or mist is formed.
    For spills, respiratory protection may be advisable.
· Protection of hands:
  Gloves not required under normal conditions of use.
  Wear protective gloves to handle contents of damaged or leaking units.
  The glove material has to be impermeable and resistant to the product/ the substance/ the preparation.
· Material of gloves
  The selection of the suitable gloves does not only depend on the material, but also on further marks of quality and varies from manufacturer to manufacturer. As the product is a preparation of several substances, the resistance of the glove material can not be calculated in advance and has therefore to be checked prior to the application.
· Penetration time of glove material
  The exact break through time has to be found out by the manufacturer of the protective gloves and has to be observed.

(Cont’d. on page 5)
Safety Data Sheet
according to 1907/2006/EC (REACH), 1272/2008/EC (CLP), and OSHA GHS

Printing date 26.08.2015
Revision: 26.08.2015

Trade name: Propylene Glycol Inhibited 38%

- Eye protection:
  - Safety glasses

- Body protection:
  - Not required under normal conditions of use.
  - Protection may be required for spills.

- Limitation and supervision of exposure into the environment: No special requirements.

- Risk management measures: No special requirements.

SECTION 9: Physical and chemical properties

- 9.1 Information on basic physical and chemical properties
- General Information
  - Appearance:
    - Form: Liquid
    - Colour: Colourless
    - Odour: Odourless
    - Odour threshold: Not determined.
    - pH-value: Not determined.
  - Change in condition
    - Melting point/Melting range: Not Determined.
    - Boiling point/Boiling range: Undetermined.
  - Flash point: Not applicable.
  - Flammability (solid, gaseous): Not applicable.
  - Auto/Self-ignition temperature: Not determined.
  - Decomposition temperature: Not determined.
  - Self-igniting: Product is not self-igniting.
  - Danger of explosion: Product does not present an explosion hazard.
- Explosion limits:
  - Lower: Not determined.
  - Upper: Not determined.
- Oxidising properties: Non-oxidising.
- Vapour pressure: Not determined.
- Density: Not determined.
- Relative density: Not determined.
- Vapour density: Not determined.
- Evaporation rate: Not determined.
- Solubility in / Miscibility with water: Fully miscible.
Safety Data Sheet
according to 1907/2006/EC (REACH), 1272/2008/EC (CLP), and OSHA GHS

Printing date 26.08.2015
Revision: 26.08.2015

Trade name: Propylene Glycol Inhibited 38%

- Partition coefficient (n-octanol/water): Not determined.
- Viscosity:
  - Dynamic: Not determined.
  - Kinematic: Not determined.
- 9.2 Other information
  No further relevant information available.

SECTION 10: Stability and reactivity

- 10.1 Reactivity No further relevant information available.
- 10.2 Chemical stability
  - Thermal decomposition / conditions to be avoided:
    No decomposition if used and stored according to specifications.
    To avoid thermal decomposition do not overheat.
  - 10.3 Possibility of hazardous reactions
    Toxic fumes may be released if heated above the decomposition point.
    Reacts with strong acids and oxidising agents.
    Reacts with strong alkali.
- 10.4 Conditions to avoid
  Keep away from heat and direct sunlight.
  Store away from oxidising agents.
- 10.5 Incompatible materials: No further relevant information available.
- 10.6 Hazardous decomposition products: Carbon monoxide and carbon dioxide

SECTION 11: Toxicological information

- 11.1 Information on toxicological effects
  - Acute toxicity
  - LD/LC50 values relevant for classification: None.
  - Primary irritant effect:
    - Skin corrosion/irritation Based on available data, the classification criteria are not met.
    - Serious eye damage/irritation Slight irritant effect on eyes.
    - Respiratory or skin sensitisation Based on available data, the classification criteria are not met.
    - Repeated dose toxicity: No further relevant information available.
  - CMR effects (carcinogenicity, mutagenicity and toxicity for reproduction):
    - Germ cell mutagenicity
      Based on available data, the classification criteria are not met.
    - Carcinogenicity
      Based on available data, the classification criteria are not met.
    - Reproductive toxicity
      Based on available data, the classification criteria are not met.
    - STOT-single exposure
      Based on available data, the classification criteria are not met.
    - STOT-repeated exposure
      Based on available data, the classification criteria are not met.
    - Aspiration hazard
      Based on available data, the classification criteria are not met.
SECTION 12: Ecological information

- 12.1 Toxicity
- Aquatic toxicity: No further relevant information available.
- 12.2 Persistence and degradability biodegradable
- 12.3 Bioaccumulative potential No further relevant information available.
- 12.4 Mobility in soil No further relevant information available.
- Additional ecological information:
  General notes:
  Negative ecological effects are, according to the current state of knowledge, not expected.
- 12.5 Results of PBT and vPvB assessment
  PBT: Not applicable.
  vPvB: Not applicable.
- 12.6 Other adverse effects No further relevant information available.

SECTION 13: Disposal considerations

- 13.1 Waste treatment methods
  Recommendation
  Can be burned with household garbage after consulting with the waste disposal facility operator and the pertinent authorities and adhering to the necessary technical regulations.
  Small amounts may be diluted with plenty of water and washed away. Dispose of larger amounts in accordance with Local Authority requirements.
  The user of this material has the responsibility to dispose of unused material, residues and containers in compliance with all relevant local, state and federal laws and regulations regarding treatment, storage and disposal for hazardous and nonhazardous wastes.
  Uncleaned packaging:
  Recommendation: Disposal must be made according to local official regulations.
  Recommended cleansing agents: Water, if necessary together with cleansing agents.

SECTION 14: Transport information

- 14.1 UN-Number
- DOT, ADR, IMDG, IATA: Not Regulated
- 14.2 UN proper shipping name
- DOT, ADR, IMDG, IATA: Not Regulated
- 14.3 Transport hazard class(es)
- DOT, ADR, ADN, IMDG, IATA: Not Regulated
- Class
- 14.4 Packing group
- DOT, ADR, IMDG, IATA: Not Regulated
- 14.5 Environmental hazards:
- Not applicable.
- 14.6 Special precautions for user
- Not applicable.
- 14.7 Transport in bulk according to Annex II of Marpol and the IBC Code
- Not applicable.
Safety Data Sheet
according to 1907/2006/EC (REACH), 1272/2008/EC (CLP), and
OSHA GHS

Printing date 26.08.2015
Revision: 26.08.2015

Trade name: Propylene Glycol Inhibited 38%

(Cont'd. from page 7)

### SECTION 15: Regulatory information

- **15.1 Safety, health and environmental regulations/legislation specific for the substance or mixture**
  - United States (USA)
  - SARA
    - Section 355 (extremely hazardous substances):
      - None of the ingredients are listed.
    - Section 313 (Specific toxic chemical listings):
      - None of the ingredients are listed.
    - TSCA (Toxic Substances Control Act):
      - All ingredients are listed.
    - Proposition 65 (California):
      - Chemicals known to cause cancer:
        - None of the ingredients is listed.
      - Chemicals known to cause reproductive toxicity for females:
        - None of the ingredients are listed.
      - Chemicals known to cause reproductive toxicity for males:
        - None of the ingredients are listed.
      - Chemicals known to cause developmental toxicity:
        - None of the ingredients are listed.
  - Carcinogenic Categories
    - EPA (Environmental Protection Agency)
      - None of the ingredients are listed.
    - IARC (International Agency for Research on Cancer)
      - None of the ingredients are listed.
    - TLV (Threshold Limit Value established by ACGIH)
      - None of the ingredients are listed.
    - NIOSH-Ca (National Institute for Occupational Safety and Health)
      - None of the ingredients are listed.
  - Canada
    - Canadian Domestic Substances List (DSL)
      - All ingredients are listed.
    - Canadian Ingredient Disclosure list (limit 0.1%)
      - None of the ingredients are listed.
    - Canadian Ingredient Disclosure list (limit 1%)
      - 57-55-6 | Propylene Glycol

(Cont'd. on page 9)
Trade name: Propylene Glycol Inhibited 38%

· Directive 2012/18/EU

· Named dangerous substances - ANNEX I
  None of the ingredients are listed.

· Other regulations, limitations and prohibitive regulations
  This product has been classified in accordance with hazard criteria of the Controlled Products Regulations and the SDS contains all the information required by the Controlled Products Regulations.

· Substances of very high concern (SVHC) according to REACH, Article 57
  None of the ingredients are listed.

· 15.2 Chemical safety assessment: A Chemical Safety Assessment has not been carried out.

SECTION 16: Other information

This information is based on our present knowledge. However, this shall not constitute a guarantee for any specific product features and shall not establish a legally valid contractual relationship.

· Abbreviations and acronyms:
  ADR: Accord européen sur le transport des marchandises dangereuses par Route (European Agreement concerning the International Carriage of Dangerous Goods by Road)
  IMDG: International Maritime Code for Dangerous Goods
  DOT: US Department of Transportation
  IATA: International Air Transport Association
  GHS: Globally Harmonised System of Classification and Labelling of Chemicals
  ACGIH: American Conference of Governmental Industrial Hygienists
  EINECS: European Inventory of Existing Commercial Chemical Substances
  ELINCS: European List of Notified Chemical Substances
  CAS: Chemical Abstracts Service (division of the American Chemical Society)
  NFPA: National Fire Protection Association (USA)
  HMIS: Hazardous Materials Identification System (USA)
  DNEL: Derived No-Effect Level (REACH)
  PNEC: Predicted No-Effect Concentration (REACH)
  LC50: Lethal concentration, 50 percent
  LD50: Lethal dose, 50 percent
  PBT: Persistent, Bioaccumulative and Toxic
  SVHC: Substances of Very High Concern
  vPvB: very Persistent and very Bioaccumulative

· Sources
  Website, European Chemicals Agency (http://echa.europa.eu/)
  Website, US EPA Substance Registry Services (http://ofmpub.epa.gov/sor internet/registry/substreg/home/overview/home.do)
  Website, Chemical Abstracts Registry, American Chemical Society (https://www.cas.org)
  Safety Data Sheets, Individual Manufacturers
  SDS Prepared by:
  ChemTel Inc.
  1305 North Florida Avenue
  Tampa, Florida USA 33602-2902
  Toll Free North America 1-888-255-3924 Intl. +01 813-248-0573
  Website: www.chemtelinc.com
SAFETY DATA SHEET

Section 1 – Product & Company Identification

Product Name ..................... : RIDGID Endura-Clear Thread Cutting Oil
Product Catalog No. ............... : 32803, 32808, 32813, 32818

Recommended Use............... : Thread Cutting
Restrictions on Use.............: Use in the manufacturing process only

Company Name .................. : Ridge Tool Company
Address ............................ : 400 Clark Street
: Elyria, Ohio 44035-6001
Telephone .......................... : 1-800-519-3456 (USA) (8:00 am – 5:00 pm EST, M-F)
Emergency Telephone ..........: call 9-1-1 or local emergency number
Website ............................ : www.RIDGID.com

Issue Date ........................ : June 23, 2015

Section 2 – Hazards Identification

This product is classified as not hazardous per US OSHA 29CFR 1910.1200 (HazCom 2012) and Canada’s Hazardous Products Regulations (WHMIS 2015).

GHS Label Elements: Not applicable

Section 3 – Composition / Information On Ingredients

<table>
<thead>
<tr>
<th>Component</th>
<th>CAS #</th>
<th>% By Weight</th>
</tr>
</thead>
<tbody>
<tr>
<td>Mineral Oil</td>
<td>Confidential</td>
<td>60-100%</td>
</tr>
<tr>
<td>Zinc Compound</td>
<td>Confidential</td>
<td>1-5%</td>
</tr>
</tbody>
</table>

This product does not contain silicone or chlorinated additives.

Specific chemical identities and/or exact percentages have been withheld as trade secrets.
Section 4 – First Aid Measures

INGESTION:
Rinse mouth thoroughly. Call a Poison Center or doctor if you feel unwell. Do NOT induce vomiting.

INHALATION:
Move to fresh air. Call a Poison Center or doctor if you feel unwell.

SKIN CONTACT:
Remove contaminated/saturated clothing and shoes. Wash contact areas with soap and water. If skin irritation occurs: Get medical advice/attention.

EYE CONTACT:
Flush thoroughly with water. If irritation occurs, get medical assistance. Continue to rinse for at least 15 minutes.

MOST IMPORTANT SYMPTOMS/EFFECTS, ACUTE AND DELAYED
Symptoms:
No data available.

INDICATION OF IMMEDIATE MEDICAL ATTENTION AND SPECIAL TREATMENT NEEDED
Treatment:
Get medical attention as appropriate or if symptoms persist

Section 5 – Fire Fighting Measures

GENERAL FIRE HAZARDS:
No unusual fire or explosion hazards noted.

SUITABLE (AND UNSUITABLE) EXTINGUISHING MEDIA
Suitable extinguishing media:
No data available.

Unsuitable extinguishing media:
Do not use water jet as an extinguisher, as this will spread the fire.

SPECIFIC HAZARDS ARISING FROM THE CHEMICAL:
Heat may cause the containers to pressurize and possibly rupture. During fire, gases hazardous to health may be formed.
SPECIAL PROTECTIVE EQUIPMENT AND PRECAUTIONS FOR FIREFIGHTERS

Special firefighting procedures:
No data available.

Special protective equipment for fire-fighters:
Firefighters must use standard protective equipment appropriate for Industrial fires.

Section 6 – Accidental Release Measures

PERSONAL PRECAUTIONS, PROTECTIVE EQUIPMENT AND EMERGENCY PROCEDURES:
See Section 8 of the SDS for Personal Protective Equipment. Do not handle damaged containers or spilled material unless wearing appropriate protective clothing. Keep unauthorized personnel away. Ensure adequate ventilation.

METHODS AND MATERIAL FOR CONTAINMENT AND CLEANING UP:
Absorb with sand or other inert absorbent. Stop the flow of material, if this is without risk.

ENVIRONMENTAL PRECAUTIONS:
Avoid release to the environment. Do not contaminate water sources or sewer. Prevent further leakage or spillage if safe to do so and protect against releases into the environment. Remediate as appropriate.

Section 7 – Handling And Storage

PRECAUTIONS FOR SAFE HANDLING:
Observe good industrial hygiene practices. Wear appropriate personal protective equipment. Do not expose to intense heat as product may expand and pressurize container.

CONDITIONS FOR SAFE STORAGE, INCLUDING ANY INCOMPATIBILITIES:
Store in original tightly closed container. Avoid contact with oxidizing agents. Store away from incompatible materials.

SHELF LIFE:
720 days
**Section 8 – Exposure Controls / Personal Protection**

**EXPOSURE LIMITS:**

<table>
<thead>
<tr>
<th>Chemical name</th>
<th>type</th>
<th>Exposure Limit Values</th>
<th>Source</th>
</tr>
</thead>
<tbody>
<tr>
<td>Mineral oil - Mist.</td>
<td>PEL</td>
<td>5 mg/m³</td>
<td>US. OSHA Table Z-1 Limits for Air Contaminants (29 CFR 1910.1000) (02 2006)</td>
</tr>
</tbody>
</table>

**PROTECTIVE MEASURES:**
Use personal protective equipment as required.

**RESPIRATORY PROTECTION:**
In case of inadequate ventilation use suitable respirator. Seek advice from supervisor on the company's respiratory protection standards.

**EYE PROTECTION:**
Wear safety glasses with side shields (or goggles).

**SKIN AND BODY PROTECTION:**
Wear protective clothing appropriate for the risk of exposure. Contact health and safety professional or manufacturer for specific information.

**HYGIENE MEASURES:**
Always observe good personal hygiene measures, such as washing after handling the material and before eating, drinking, and/or smoking. Routinely wash work clothing to remove contaminants. Contaminated work clothing should not be allowed out of the workplace. Discard contaminated footwear that cannot be cleaned. Avoid contact with skin, eyes, and clothing.
### Section 9 – Physical And Chemical Properties

<table>
<thead>
<tr>
<th>Property</th>
<th>Value</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Appearance</strong></td>
<td></td>
</tr>
<tr>
<td>Physical State</td>
<td>Liquid</td>
</tr>
<tr>
<td>Form</td>
<td>No data available</td>
</tr>
<tr>
<td>Color</td>
<td>Amber</td>
</tr>
<tr>
<td>Odor</td>
<td>Mild petroleum</td>
</tr>
<tr>
<td>Odor Threshold</td>
<td>No data available</td>
</tr>
<tr>
<td>pH</td>
<td>No data available</td>
</tr>
<tr>
<td>Melting point/freezing point</td>
<td>No data available</td>
</tr>
<tr>
<td>Initial boiling point and boiling range</td>
<td>No data available</td>
</tr>
<tr>
<td>Flash point</td>
<td>177 °C (351 °F)</td>
</tr>
<tr>
<td>Evaporation rate</td>
<td>No data available</td>
</tr>
<tr>
<td>Flammability (solid, gas)</td>
<td>No data available</td>
</tr>
<tr>
<td>Upper/lower limit on flammability or explosive limits</td>
<td>No data available</td>
</tr>
<tr>
<td>Flammability limit - upper (%)</td>
<td>No data available</td>
</tr>
<tr>
<td>Flammability limit - lower (%)</td>
<td>No data available</td>
</tr>
<tr>
<td>Explosive limit – upper (%)</td>
<td>No data available</td>
</tr>
<tr>
<td>Explosive limit – lower (%)</td>
<td>No data available</td>
</tr>
<tr>
<td>Vapor pressure</td>
<td>No data available</td>
</tr>
<tr>
<td>Vapor density</td>
<td>No data available</td>
</tr>
<tr>
<td>Relative density</td>
<td>0.9297</td>
</tr>
<tr>
<td>Solubility(ies)</td>
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</tr>
<tr>
<td>Solubility in water</td>
<td>Insoluble</td>
</tr>
<tr>
<td>Solubility (other)</td>
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</tr>
<tr>
<td>Partition coefficient (n-octanol/water)</td>
<td>No data available</td>
</tr>
<tr>
<td>Auto-ignition temperature</td>
<td>No data available</td>
</tr>
<tr>
<td>Decomposition temperature</td>
<td>No data available</td>
</tr>
<tr>
<td>Viscosity</td>
<td>44.5 mm²/s (40 °C, measured)</td>
</tr>
<tr>
<td>VOC</td>
<td>1.1 g/l</td>
</tr>
</tbody>
</table>
Section 10 – Stability And Reactivity

REACTIVITY:
Not reactive during normal use.

CHEMICAL STABILITY:
No data available.

POSSIBILITY OF HAZARDOUS REACTIONS:
None under normal conditions.

CONDITIONS TO AVOID:
Avoid heat or contamination.

INCOMPATIBLE MATERIALS:
No data available.

HAZARDOUS DECOMPOSITION PRODUCTS:
Contains a component which may release flammable substances, including trimethylpentene, by distillation in systems with solvent recovery. This may lead to accumulation in the solvent circuit.

Section 11 – Toxicological Information

INFORMATION ON LIKELY ROUTES OF EXPOSURE
Ingestion:
May be ingested by accident. Ingestion may cause irritation and malaise.

Inhalation:
Inhalation is the primary route of exposure. In high concentrations, vapors, fumes or mists may irritate nose, throat and mucus membranes.

Skin Contact:
Prolonged skin contact may cause redness and irritation.

Eye contact:
Eye contact is possible and should be avoided.
SYMPOTMS RELATED TO THE PHYSICAL, CHEMICAL AND TOXICOLOGICAL CHARACTERISTICS

Ingestion:
No data available.

Inhalation:
No data available.

Skin Contact:
No data available.

Eye contact:
No data available.

INFORMATION ON TOXICOLOGICAL EFFECTS

Acute toxicity

Oral Product:
ATEmix (): 2000 - 5000 mg/kg

Dermal Product:
ATEmix (): 2000 - 5000 mg/kg

Inhalation Product:
Not classified for acute toxicity based on available data.

Repeated dose toxicity Product:
No data available.

Skin Corrosion/Irritation Product:
No data available.

Serious Eye Damage/Eye Irritation Product:
No data available.

Respiratory or Skin Sensitization Product:
No data available.

Carcinogenicity Product: No data available.

IARC Monographs on the Evaluation of Carcinogenic Risks to Humans:
No carcinogenic components identified

US. National Toxicology Program (NTP) Report on Carcinogens:
No carcinogenic components identified

No carcinogenic components identified

Germ Cell Mutagenicity

In vitro Product:
No data available.

In vivo Product:
No data available.
Product Name ...................... : RIDGID Endura-Clear Thread Cutting Oil

Reproductive toxicity Product:
   No data available.
Specific Target Organ Toxicity - Single Exposure Product:
   No data available.
Specific Target Organ Toxicity - Repeated Exposure Product:
   No data available.
Aspiration Hazard Product:
   No data available.
Other effects:
   No data available

Section 12 – Ecological Information

GENERAL INFORMATION:
   This product has not been evaluated for ecological toxicity or other environmental effects.

Section 13 – Disposal Consideration

DISPOSAL INSTRUCTIONS:
   Discharge, treatment, or disposal may be subject to national, state, or local laws. Dispose of waste at an appropriate treatment and disposal facility in accordance with applicable laws and regulations, and product characteristics at time of disposal. It is the responsibility of the product user or owner to determine at the time of disposal, which waste regulations must be applied.

CONTAMINATED PACKAGING:
   Empty containers should be taken to an approved waste handling site for recycling or disposal.

Section 14 – Transportation Information

This material is not subject to transport regulations.
Section 15 – Regulatory Information

US FEDERAL REGULATIONS
US. OSHA Specifically Regulated Substances (29 CFR 1910.1001-1050)
None present or none present in regulated quantities.

Superfund Amendments and Reauthorization Act of 1986 (SARA)
Hazard categories - None
SARA 313 (TRI Reporting)

<table>
<thead>
<tr>
<th>Chemical Identity</th>
<th>Reported threshold for other users</th>
<th>Reported threshold for other users</th>
</tr>
</thead>
<tbody>
<tr>
<td>zinc compound</td>
<td>10000 lbs</td>
<td>25000 lbs</td>
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</table>

US STATE REGULATIONS
US. California Proposition 65
No component is regulated by CA Prop 65.

Section 16 – Other Information

Prepared by: . . . . . . . . Ridge Tool Company

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Last Revision Date: . . . . June 23, 2015

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