**SECTION 1: Identification**

### 1.1. Identification

<table>
<thead>
<tr>
<th>Parameter</th>
<th>Value</th>
</tr>
</thead>
<tbody>
<tr>
<td>Product name</td>
<td>BORON TRIFLUORIDE ETHERATE</td>
</tr>
<tr>
<td>Product code</td>
<td>INBO060</td>
</tr>
<tr>
<td>Product form</td>
<td>Substance</td>
</tr>
<tr>
<td>Physical state</td>
<td>Liquid</td>
</tr>
<tr>
<td>Formula</td>
<td>C4H10BF3O</td>
</tr>
<tr>
<td>Synonyms</td>
<td>BORON TRIFLUORIDE DIETHYL ETHERATE (1:1)</td>
</tr>
<tr>
<td>Chemical family</td>
<td>BORON COMPOUND</td>
</tr>
</tbody>
</table>

### 1.2. Recommended use and restrictions on use

**Recommended use:** Chemical intermediate

### 1.3. Supplier

**GELEST, INC.**

11 East Steel Road  
Morrisville, PA 19067  
USA  
T 215-547-1015 - F 215-547-2484 - (M-F): 8:00 AM - 5:30 PM EST  
info@gelest.com - www.gelest.com

### 1.4. Emergency telephone number

**Emergency number:** CHEMTREC: 1-800-424-9390 (USA); +1 703-527-3887 (International)

**SECTION 2: Hazard(s) identification**

### 2.1. Classification of the substance or mixture

**GHS-US classification**

- Flammable liquids Category 3 H226 - Flammable liquid and vapor
- Acute toxicity (oral) Category 4 H302 - Harmful if swallowed
- Skin corrosion/irritation Category 1A H314 - Causes severe skin burns and eye damage
- Serious eye damage/eye irritation Category 1 H318 - Causes serious eye damage
- Specific target organ toxicity (single exposure) Category 3 H335 - May cause respiratory irritation

**Full text of H statements:** see section 16

### 2.2. GHS Label elements, including precautionary statements

#### GHS US labeling

- **Signal word (GHS US):** Danger
- **Hazard pictograms (GHS US):**
  - 🔥
  - ⚠️

- **Hazard statements (GHS US):**
  - H226 - Flammable liquid and vapor
  - H302 - Harmful if swallowed
  - H314 - Causes severe skin burns and eye damage
  - H318 - Causes serious eye damage
  - H335 - May cause respiratory irritation

- **Precautionary statements (GHS US):**
  - P280 - Wear protective gloves/protective clothing/eye protection/face protection.
  - P210 - Keep away from heat, open flames, sparks. - No smoking.
  - P240 - Ground/Bond container and receiving equipment
  - P241 - Use explosion-proof electrical equipment
  - P242 - Use only non-sparking tools.
  - P243 - Take precautionary measures against static discharge.
  - P260 - Do not breathe vapors.
  - P264 - Wash hands thoroughly after handling.
  - P260 - Do not eat, drink or smoke when using this product.
  - P271 - Use only outdoors or in a well-ventilated area.
  - P301+P330+P331 - If swallowed: rinse mouth. Do NOT induce vomiting
  - P301+P312 - If swallowed: Call a doctor if you feel unwell
  - P303+P361+P353 - If on skin (or hair): Take off immediately all contaminated clothing. Rinse skin with water/shower
  - P304+P340 - If inhaled: Remove person to fresh air and keep comfortable for breathing
  - P305+P351+P338 - IF IN EYES: Rinse cautiously with water for several minutes. Remove contact lenses, if present and easy to do. Continue rinsing
2.3. Hazards not otherwise classified (HNOC)

No additional information available

2.4. Unknown acute toxicity (GHS US)

Not applicable

SECTION 3: Composition/Information on ingredients

3.1. Substances

<table>
<thead>
<tr>
<th>Substance type</th>
<th>Name</th>
<th>CAS-No.</th>
<th>Product identifier</th>
<th>%</th>
<th>GHS-US classification</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Ethyl ether</td>
<td></td>
<td>(CAS-No.) 60-29-7</td>
<td>&lt; 1</td>
<td>Flam. Liq. 1, H224, Acute Tox. 4 (Oral), H302, STOT SE 3, H336</td>
</tr>
<tr>
<td></td>
<td>Hydrogen fluoride</td>
<td></td>
<td>(CAS-No.) 7664-39-3</td>
<td></td>
<td>Not classified</td>
</tr>
</tbody>
</table>

Full text of hazard classes and H-statements: see section 16

3.2. Mixtures

Not applicable

SECTION 4: First-aid measures

4.1. Description of first aid measures

First-aid measures general: Remove contaminated clothing and shoes. In case of accident or if you feel unwell, seek medical advice immediately (show the label where possible). If possible show this sheet; if not available show packaging or label.

First-aid measures after inhalation: Remove victim to fresh air and keep at rest in a position comfortable for breathing. Get medical advice/attention.

First-aid measures after skin contact: Wash with plenty of soap and water. Get immediate medical advice/attention.

First-aid measures after eye contact: Immediately flush eyes thoroughly with water for at least 15 minutes. Remove contact lenses, if present and easy to do. Continue rinsing. Get immediate medical advice/attention.

First-aid measures after ingestion: Never give anything by mouth to an unconscious person. Get medical advice/attention.

4.2. Most important symptoms and effects (acute and delayed)

Symptoms/effects: Causes severe skin burns and eye damage.

Symptoms/effects after inhalation: May cause respiratory irritation.

Symptoms/effects after skin contact: Causes (severe) skin burns.

Symptoms/effects after eye contact: Causes serious eye damage.

Symptoms/effects after ingestion: Harmful if swallowed. Swallowing a small quantity of this material will result in serious health hazard.

4.3. Immediate medical attention and special treatment, if necessary

No additional information available

SECTION 5: Fire-fighting measures

5.1. Suitable (and unsuitable) extinguishing media

Suitable extinguishing media: Alcohol-resistant foam. Carbon dioxide. Dry chemical. Use of high expansion foam (100:1) is recommended to cover flames.

Unsuitable extinguishing media: Water.

5.2. Specific hazards arising from the chemical

Fire hazard: Flammable liquid and vapor. Irritating fumes of hydrogen fluoride and organic acid vapors may develop when material is exposed to water or open flame.

5.3. Special protective equipment and precautions for fire-fighters

Firefighting instructions: Use only dry media to extinguish flames. Water spray or fog should only be used to knock down hydrogen fluoride vapors in areas downwind from the fire.
Protection during firefighting: Do not enter fire area without proper protective equipment, including respiratory protection. Avoid all eye and skin contact and do not breathe vapor and mist.

### SECTION 6: Accidental release measures

#### 6.1. Personal precautions, protective equipment and emergency procedures

**General measures**: Remove ignition sources. Use special care to avoid static electric charges.

**6.1.1. For non-emergency personnel**

**Emergency procedures**: Evacuate unnecessary personnel.

**6.1.2. For emergency responders**

**Protective equipment**: Equip cleanup crew with proper protection.

#### 6.2. Environmental precautions

Prevent entry to sewers and public waters. Notify authorities if liquid enters sewers or public waters.

**6.3. Methods and material for containment and cleaning up**

**Methods for cleaning up**: Clean up any spills as soon as possible, using an absorbent material to collect it. Sweep or shovel spills into appropriate container for disposal. Use only non-sparking tools.

**6.4. Reference to other sections**

See Heading 8. Exposure controls and personal protection.

### SECTION 7: Handling and storage

#### 7.1. Precautions for safe handling

**Precautions for safe handling**: Avoid all eye and skin contact and do not breathe vapor and mist. Provide good ventilation in process area to prevent accumulation of vapors. Ground/bond container and receiving equipment. Bottles may develop pressure on storage; open slowly. Take precautionary measures against static discharge. Use only non-sparking tools.

**Hygiene measures**: Wash hands and other exposed areas with mild soap and water before eating, drinking or smoking and when leaving work. Wash contaminated clothing before reuse.

#### 7.2. Conditions for safe storage, including any incompatibilities

**Storage conditions**: Keep container tightly closed. Store in sealed corrosion resistant containers.


**Storage area**: Store in a well-ventilated place. Store away from heat.

### SECTION 8: Exposure controls/personal protection

#### 8.1. Control parameters

<table>
<thead>
<tr>
<th>Boron trifluoride etherate (109-63-7)</th>
<th>OSHA PEL (TWA) (ppm)</th>
<th>1 ppm BF3</th>
</tr>
</thead>
<tbody>
<tr>
<td>OSHA</td>
<td></td>
<td></td>
</tr>
<tr>
<td>ACGIH</td>
<td>ACGIH TWA (ppm)</td>
<td>400 ppm</td>
</tr>
<tr>
<td>ACGIH</td>
<td>ACGIH STEL (ppm)</td>
<td>500 ppm</td>
</tr>
<tr>
<td>OSHA</td>
<td>OSHA PEL (TWA) (mg/m³)</td>
<td>1200 mg/m³</td>
</tr>
<tr>
<td>OSHA</td>
<td>OSHA PEL (TWA) (ppm)</td>
<td>400 ppm</td>
</tr>
<tr>
<td>IDLH</td>
<td>US IDLH (ppm)</td>
<td>1900 ppm (10% LEL)</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Ethyl ether (60-29-7)</th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td>ACGIH</td>
<td>ACGIH TWA (ppm)</td>
</tr>
<tr>
<td>ACGIH</td>
<td>ACGIH Ceiling (ppm)</td>
</tr>
<tr>
<td>OSHA</td>
<td>OSHA PEL (TWA) (ppm)</td>
</tr>
<tr>
<td>IDLH</td>
<td>US IDLH (ppm)</td>
</tr>
<tr>
<td>NIOSH</td>
<td>NIOSH REL (TWA) (mg/m³)</td>
</tr>
<tr>
<td>NIOSH</td>
<td>NIOSH REL (TWA) (ppm)</td>
</tr>
<tr>
<td>NIOSH</td>
<td>NIOSH REL (ceiling) (mg/m³)</td>
</tr>
<tr>
<td>NIOSH</td>
<td>NIOSH REL (ceiling) (ppm)</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Hydrogen fluoride (7664-39-3)</th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td>ACGIH</td>
<td>ACGIH TWA (ppm)</td>
</tr>
<tr>
<td>ACGIH</td>
<td>ACGIH Ceiling (ppm)</td>
</tr>
<tr>
<td>OSHA</td>
<td>OSHA PEL (TWA) (ppm)</td>
</tr>
<tr>
<td>IDLH</td>
<td>US IDLH (ppm)</td>
</tr>
<tr>
<td>NIOSH</td>
<td>NIOSH REL (TWA) (mg/m³)</td>
</tr>
<tr>
<td>NIOSH</td>
<td>NIOSH REL (TWA) (ppm)</td>
</tr>
<tr>
<td>NIOSH</td>
<td>NIOSH REL (ceiling) (mg/m³)</td>
</tr>
<tr>
<td>NIOSH</td>
<td>NIOSH REL (ceiling) (ppm)</td>
</tr>
</tbody>
</table>

#### 8.2. Appropriate engineering controls

**Appropriate engineering controls**: Provide local exhaust or general room ventilation.
**BORON TRIFLUORIDE ETHERATE**

**Safety Data Sheet**

8.3. **Individual protection measures/Personal protective equipment**

**Personal protective equipment:**
Avoid all unnecessary exposure. Emergency eye wash fountains and safety showers should be available in the immediate vicinity of any potential exposure.

**Hand protection:**
Neoprene or nitrile rubber gloves

**Eye protection:**
Chemical goggles or face shield. Contact lenses should not be worn

**Skin and body protection:**
Wear suitable protective clothing

**Respiratory protection:**
NIOSH-certified combination organic vapor/acid gas (yellow cartridge) respirator.

### SECTION 9: Physical and chemical properties

9.1. **Information on basic physical and chemical properties**

- **Physical state:** Liquid
- **Appearance:** Clear liquid.
- **Molecular mass:** 141.94 g/mol
- **Color:** Straw.
- **Odor:** Acrid. Hydrogen fluoride.
- **Odor threshold:** No data available
- **Refractive index:** 1.348
- **pH:** No data available
- **Relative evaporation rate (butyl acetate=1):** ~ 1
- **Melting point:** No data available
- **Freezing point:** -58 °C
- **Boiling point:** 126 °C
- **Flash point:** 48 °C
- **Auto-ignition temperature:** 160 °C
- **Decomposition temperature:** No data available
- **Flammability (solid, gas):** Flammable liquid and vapor
- **Vapor pressure:** 4.2 mm Hg @ 20°C
- **Relative vapor density at 20 °C:** 4.9
- **Relative density:** 1.12
- **% Volatiles:** 100 %
- **Solubility:** Reacts violently with water.
- **Log Pow:** No data available
- **Log Kow:** No data available
- **Viscosity, kinematic:** No data available
- **Viscosity, dynamic:** No data available
- **Explosive properties:** No data available
- **Oxidizing properties:** No data available
- **Explosion limits:** 1.9 - 36 vol % (lower; upper)

9.2. **Other information**
No additional information available

### SECTION 10: Stability and reactivity

10.1. **Reactivity**
No additional information available

10.2. **Chemical stability**
Stable in sealed corrosion resistant containers stored under a dry inert atmosphere.

10.3. **Possibility of hazardous reactions**
Reacts with water and moisture in air, liberating boron trifluoride and hydrogen fluoride.
BORON TRIFLUORIDE ETHERATE
Safety Data Sheet

10.4. Conditions to avoid
Heat. Open flame. Sparks.

10.5. Incompatible materials

10.6. Hazardous decomposition products

SECTION 11: Toxicological information

11.1. Information on toxicological effects
Acute toxicity: Not classified

<table>
<thead>
<tr>
<th>Substance</th>
<th>LD₅₀ oral rat</th>
<th>LC₅₀ inhalation rat</th>
</tr>
</thead>
<tbody>
<tr>
<td>BORON TRIFLUORIDE ETHERATE (109-63-7)</td>
<td>358 mg/kg</td>
<td>1180 mg/m³ (For BF₃ @ 4H)</td>
</tr>
<tr>
<td>Boron trifluoride etherate (109-63-7)</td>
<td>369.072 mg/kg body weight</td>
<td></td>
</tr>
<tr>
<td>Ethyl ether (60-29-7)</td>
<td>1215 mg/kg</td>
<td></td>
</tr>
<tr>
<td>Hydrogen fluoride (7664-39-3)</td>
<td>1215 mg/kg body weight</td>
<td></td>
</tr>
</tbody>
</table>

Skin corrosion/irritation: Causes severe skin burns and eye damage.
Serious eye damage/irritation: Causes serious eye damage.
Respiratory or skin sensitization: Not classified
Germ cell mutagenicity: Not classified
Carcinogenicity: Not classified
Reproductive toxicity: Not classified
Specific target organ toxicity – single exposure: May cause respiratory irritation.
Specific target organ toxicity – repeated exposure: Not classified
Aspiration hazard: Not classified

Potential Adverse human health effects and symptoms:
- Animal data indicates that chronic exposure to BF₃ may cause dental fluorosis (mottling of teeth) and hypocalcemia as well as damage to kidneys and lungs.
- May cause respiratory irritation.
- Causes severe skin burns.
- Causes serious eye damage.
- Harmful if swallowed. Swallowing a small quantity of this material will result in serious health hazard.
Reason for classification: Expert judgment

SECTION 12: Ecological information

12.1. Toxicity

<table>
<thead>
<tr>
<th>Substance</th>
<th>LC₅₀ fish 1</th>
<th>LC₅₀ fish 2</th>
</tr>
</thead>
<tbody>
<tr>
<td>Ethyl ether (60-29-7)</td>
<td>2560 mg/l (Exposure time: 96 h - Species: Pimephales promelas [flow-through])</td>
<td></td>
</tr>
<tr>
<td>Hydrogen fluoride (7664-39-3)</td>
<td>&gt; 10000 mg/l (Exposure time: 96 h - Species: Lepomis macrochirus [static])</td>
<td></td>
</tr>
</tbody>
</table>

12.2. Persistence and degradability
No additional information available

12.3. Bioaccumulative potential

<table>
<thead>
<tr>
<th>Substance</th>
<th>Log Pow</th>
<th>BCF fish 1</th>
</tr>
</thead>
<tbody>
<tr>
<td>Ethyl ether (60-29-7)</td>
<td>0.82 (at 23 °C)</td>
<td></td>
</tr>
<tr>
<td>Hydrogen fluoride (7664-39-3)</td>
<td>(no bioaccumulation)</td>
<td></td>
</tr>
</tbody>
</table>
BORON TRIFLUORIDE ETHERATE
Safety Data Sheet

Hydrogen fluoride (7664-39-3)

<table>
<thead>
<tr>
<th>Log Pow</th>
</tr>
</thead>
<tbody>
<tr>
<td>-1.4</td>
</tr>
</tbody>
</table>

12.4. Mobility in soil
No additional information available

12.5. Other adverse effects
Other adverse effects: This substance may be hazardous to the environment.
Effect on the ozone layer: No additional information available

SECTION 13: Disposal considerations

13.1. Disposal methods

Product/Packaging disposal recommendations: Dispose in a safe manner in accordance with local/national regulations. Dispose of contents/container to licensed waste disposal facility.

Ecology - waste materials: Avoid release to the environment.

SECTION 14: Transport information

14.1. UN number
UN-No. (DOT): 2604
DOT NA no.: UN2604

14.2. UN proper shipping name
Transport document description: UN2604 Boron trifluoride diethyl etherate, 8 (3), I
Proper Shipping Name (DOT): Boron trifluoride diethyl etherate
Class (DOT): 8 - Class 8 - Corrosive material 49 CFR 173.136
Packing group (DOT): I - Great Danger
Hazard labels (DOT): 8 - Corrosive 3 - Flammable liquid

DOT Packaging Non Bulk (49 CFR 173.xxx): 201
DOT Packaging Bulk (49 CFR 173.xxx): 243
DOT Packaging Exceptions (49 CFR 173.xxx): None

14.3. Additional information
Emergency Response Guide (ERG) Number: 132
Other information: No supplementary information available.

Transport by sea
DOT Vessel Stowage Location: D - The material must be stowed “on deck only” on a cargo vessel and on a passenger vessel carrying a number of passengers limited to not more than the larger of 25 passengers or one passenger per each 3 m of overall vessel length, but the material is prohibited on passenger vessels in which the limiting number of passengers is exceeded.

DOT Vessel Stowage Other: 40 - Stow “clear of living quarters”

Air transport
DOT Quantity Limitations Passenger aircraft/rail (49 CFR 173.27): 0.5 L
DOT Quantity Limitations Cargo aircraft only (49 CFR 173.75): 2.5 L

SECTION 15: Regulatory information

15.1. US Federal regulations

Boron trifluoride etherate (109-63-7)
Listed on the United States TSCA (Toxic Substances Control Act) inventory

Ethyl ether (60-29-7)
Listed on the United States TSCA (Toxic Substances Control Act) inventory

EPA TSCA Regulatory Flag: T - T - indicates a substance that is the subject of a final TSCA section 4 test rule.
### Hydrogen fluoride (7664-39-3)
- Listed on the United States TSCA (Toxic Substances Control Act) inventory
- Listed on the United States SARA Section 302
- Subject to reporting requirements of United States SARA Section 313

| SARA Section 302 Threshold Planning Quantity (TPQ) | 100 |
| SARA Section 313 - Emission Reporting | 1 % |

### 15.2. International regulations

#### CANADA

**Boron trifluoride etherate (109-63-7)**
- Listed on the Canadian DSL (Domestic Substances List)

**Ethyl ether (60-29-7)**
- Listed on the Canadian DSL (Domestic Substances List)

**Hydrogen fluoride (7664-39-3)**
- Listed on the Canadian DSL (Domestic Substances List)

#### EU-Regulations

**Boron trifluoride etherate (109-63-7)**
- Listed on the EEC inventory EINECS (European Inventory of Existing Commercial Chemical Substances)

**Ethyl ether (60-29-7)**
- Listed on the EEC inventory EINECS (European Inventory of Existing Commercial Chemical Substances)

**Hydrogen fluoride (7664-39-3)**
- Listed on the EEC inventory EINECS (European Inventory of Existing Commercial Chemical Substances)

### National regulations

#### Boron trifluoride etherate (109-63-7)
- Listed on the AICS (Australian Inventory of Chemical Substances)
- Listed on IECSC (Inventory of Existing Chemical Substances Produced or Imported in China)
- Listed on the Japanese ENCS (Existing & New Chemical Substances) inventory
- Listed on the Korean ECL (Existing Chemicals List)
- Listed on NZIoC (New Zealand Inventory of Chemicals)
- Listed on PICCS (Philippines Inventory of Chemicals and Chemical Substances)
- Japanese Pollutant Release and Transfer Register Law (PRTR Law)
- Listed on the Canadian IDL (Ingredient Disclosure List)
- Listed on INSQ (Mexican National Inventory of Chemical Substances)

#### Ethyl ether (60-29-7)
- Listed on the AICS (Australian Inventory of Chemical Substances)
- Listed on IECSC (Inventory of Existing Chemical Substances Produced or Imported in China)
- Listed on the Japanese ENCS (Existing & New Chemical Substances) inventory
- Listed on the Korean ECL (Existing Chemicals List)
- Listed on NZIoC (New Zealand Inventory of Chemicals)
- Listed on PICCS (Philippines Inventory of Chemicals and Chemical Substances)
- Japanese Pollutant Release and Transfer Register Law (PRTR Law)
- Listed on the Canadian IDL (Ingredient Disclosure List)
- Listed on INSQ (Mexican National Inventory of Chemical Substances)
- Listed on CICR (Turkish Inventory and Control of Chemicals)

#### Hydrogen fluoride (7664-39-3)
- Listed on the AICS (Australian Inventory of Chemical Substances)
- Listed on IECSC (Inventory of Existing Chemical Substances Produced or Imported in China)
- Listed on the Japanese ENCS (Existing & New Chemical Substances) inventory
- Listed on the Japanese ISHL (Industrial Safety and Health Law)
- Listed on the Korean ECL (Existing Chemicals List)
- Listed on NZIoC (New Zealand Inventory of Chemicals)
- Listed on PICCS (Philippines Inventory of Chemicals and Chemical Substances)
- Japanese Poisonous and Deleterious Substances Control Law
- Japanese Pollutant Release and Transfer Register Law (PRTR Law)
- Listed on the Canadian IDL (Ingredient Disclosure List)
- Listed on INSQ (Mexican National Inventory of Chemical Substances)
- Listed on CICR (Turkish Inventory and Control of Chemicals)

### 15.3. US State regulations
BORON TRIFLUORIDE ETHERATE
Safety Data Sheet

California Proposition 65 - This product does not contain any substances known to the state of California to cause cancer, developmental and/or reproductive harm

<table>
<thead>
<tr>
<th>Boron trifluoride etherate (109-63-7)</th>
</tr>
</thead>
<tbody>
<tr>
<td>U.S. - Massachusetts - Right To Know List</td>
</tr>
<tr>
<td>U.S. - New Jersey - Right to Know Hazardous Substance List</td>
</tr>
<tr>
<td>U.S. - Pennsylvania - RTK (Right to Know) List</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Ethyl ether (60-29-7)</th>
</tr>
</thead>
<tbody>
<tr>
<td>U.S. - Massachusetts - Right To Know List</td>
</tr>
<tr>
<td>U.S. - New Jersey - Right to Know Hazardous Substance List</td>
</tr>
<tr>
<td>U.S. - Pennsylvania - RTK (Right to Know) - Environmental Hazard List</td>
</tr>
<tr>
<td>U.S. - Pennsylvania - RTK (Right to Know) List</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Hydrogen fluoride (7664-39-3)</th>
</tr>
</thead>
<tbody>
<tr>
<td>U.S. - Massachusetts - Right To Know List</td>
</tr>
<tr>
<td>U.S. - New Jersey - Right to Know Hazardous Substance List</td>
</tr>
<tr>
<td>U.S. - Pennsylvania - RTK (Right to Know) - Environmental Hazard List</td>
</tr>
<tr>
<td>U.S. - Pennsylvania - RTK (Right to Know) List</td>
</tr>
</tbody>
</table>

SECTION 16: Other information

Full text of H-phrases:

<table>
<thead>
<tr>
<th>H224</th>
<th>Extremely flammable liquid and vapor</th>
</tr>
</thead>
<tbody>
<tr>
<td>H226</td>
<td>Flammable liquid and vapor</td>
</tr>
<tr>
<td>H302</td>
<td>Harmful if swallowed</td>
</tr>
<tr>
<td>H314</td>
<td>Causes severe skin burns and eye damage</td>
</tr>
<tr>
<td>H318</td>
<td>Causes serious eye damage</td>
</tr>
<tr>
<td>H335</td>
<td>May cause respiratory irritation</td>
</tr>
<tr>
<td>H336</td>
<td>May cause drowsiness or dizziness</td>
</tr>
</tbody>
</table>

Abbreviations and acronyms:

Abbreviations: ND: Not Determined; No Data; NA: Not Applicable; LD: Lethal Dose; LC: Lethal Concentration; ATE: Acute Toxicity Estimates; H: hour; °: °C unless otherwise stated; mm: millimeters Hg, torr; PEL: permissible exposure level; TWA: time weighted average; TLV: threshold limit value; TG: Test Guideline; NIOSH: National Institute for Occupational Safety and Health; IARC: International Agency for Research on Cancer; NTP: National Toxicology Program; HMIS: Hazardous Material Information System; CAS No.: Chemical Abstract Service Registration Number; EC No.: European Commission Registration Number; EC Index No.: \( \text{OECD: The Organisation for Economic Co-operation and Development; GHS: The Globally Harmonized System of Classification and Labelling; APF: Assigned Protection Factor.} \)

Hazard Rating

Health: 4 Severe Hazard - Life-threatening, major or permanent damage may result from single or repeated overexposures

Flammability: 2 Moderate Hazard - Materials which must be moderately heated or exposed to high ambient temperatures before ignition will occur. Includes liquids having a flash point at or above 100 F but below 200 F. (Classes II & IIIA)

Physical: 1 Slight Hazard - Materials that are normally stable but can become unstable (self-react) at high temperatures and pressures. Materials may react non-violently with water or undergo hazardous polymerization in the absence of inhibitors.

Prepared by safety and environmental affairs.

Date of issue: 03/03/2015 Version: 1.0

SDS US (GHS HazCom 2012) - Custom

According to Federal Register / Vol. 77, No. 58 / Monday, March 26, 2012 / Rules and Regulations

The information contained in this document has been gathered from reference materials and/or Gelest, Inc. test data and is to the best knowledge and belief of Gelest, Inc. accurate and reliable. Such information is offered solely for your consideration, investigation and verification. It is not suggested or guaranteed that the hazard precautions or procedures described are the only ones which exist. Gelest, Inc. makes no warranties, express or implied, with respect to the use of such information and assumes no responsibility therefore. Information on this safety data sheet is not intended to constitute a basis for product specifications.

© 2019 Gelest Inc. Morrisville, PA 19067