SECTION 1: Identification of the substance/mixture and of the company/undertaking

1.1. Product identifier

Product form: Mixture
Physical state: Liquid
Product name: BIS-[3-(TRIETHOXYSILYLPROPOXY)-2-HYDROXYPROPOXY]POLYETHYLENE OXIDE, 65% in ethanol
Product code: SIB1824.2
Formula: C_{24}H_{54}O_{11}Si_{2}(C_{2}H_{4}O)_{5-8}
Chemical family: ORGANOETHOXYSILANE

1.2. Relevant identified uses of the substance or mixture and uses advised against

Use of the substance/mixture: Chemical intermediate
For research use only

1.3. Details of the supplier of the safety data sheet

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: 1-800-424-9300 (USA); +1 703-527-3887 (International)

SECTION 2: Hazards identification

2.1. Classification of the substance or mixture

Classification (GHS-US)
Flam. Liq. 3 H226
Eye Irrit. 2A H319
STOT SE 3 H335
Aquatic Acute 2 H401

Full text of H-phrases: see section 16

2.2. Label elements

GHS-US labeling
Hazard pictograms (GHS-US): 

GHS02
GHS07

Signal word (GHS-US): Warning
Hazard statements (GHS-US): 
H226 - Flammable liquid and vapor
H319 - Causes serious eye irritation
H335 - May cause respiratory irritation
H401 - Toxic to aquatic life

Precautionary statements (GHS-US): 
P280 - Wear protective gloves/protective clothing/eye protection/face protection
P200 - 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
P261 - Avoid breathing vapors
P264 - Wash hands thoroughly after handling
P271 - Use only outdoors or in a well-ventilated area
P273 - Avoid release to the environment
P303+P361+P335 - 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
P337+P313 - If eye irritation persists: Get medical advice/attention
BIS-[3-(TRIETHOXYSILYLPROPOXY)-2-HYDROXYPROPOXY]POLYETHYLENE OXIDE, 65% in ethanol
Safety Data Sheet

SECTION 3: Composition/information on ingredients

3.1. Substance
Not applicable

3.2. Mixture

<table>
<thead>
<tr>
<th>Name</th>
<th>Product identifier</th>
<th>%</th>
<th>Classification (GHS-US)</th>
</tr>
</thead>
<tbody>
<tr>
<td>BIS-[3-(triethoxysilylpropoxy)-2-hydroxypropoxy]polyethylene oxide</td>
<td>(CAS No) Not found</td>
<td>&gt; 60</td>
<td>Eye Irrit. 2A, H319</td>
</tr>
<tr>
<td>Ethanol</td>
<td>(CAS No) 64-17-5</td>
<td>&lt; 40</td>
<td>Flam. Liq. 2, H225 Carc. 1A, H350 STOT SE 3, H335 Aquatic Acute 2, H401</td>
</tr>
</tbody>
</table>

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. If you feel unwell, seek medical advice.

First-aid measures after skin contact : Wash with plenty of soap and water.

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 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, both acute and delayed


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

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

Symptoms/injuries after ingestion : May be harmful if swallowed.

4.3. Indication of any immediate medical attention and special treatment needed
No additional information available

SECTION 5: Firefighting measures

5.1. Extinguishing media


Unsuitable extinguishing media : None known.

5.2. Special hazards arising from the substance or mixture

Fire hazard : Flammable liquid and vapor. Irritating fumes and organic acid vapors may develop when material is exposed to elevated temperatures or open flame.

5.3. Advice for firefighters

Firefighting instructions : Use water spray to cool exposed surfaces. Exercise caution when fighting any chemical 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.
BIS-[3-(TRIETHOXYSILYLPROPOXY)-2-HYDROXYPROPOXY]POLYETHYLENE OXIDE, 65% in ethanol

Safety Data Sheet

6.1.1. For non-emergency personnel
Protective equipment: Wear protective equipment as described in Section 8.
Emergency procedures: Evacuate unnecessary personnel.

6.1.2. For emergency responders
Protective equipment: Do not attempt to take action without suitable protective equipment. Equip cleanup crew with proper protection. For further information refer to section 8: "Exposure controls/personal 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
For containment: Contain any spills with dikes or absorbents to prevent migration and entry into sewers or streams.
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. Containers must be properly grounded before beginning transfer. 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
Technical measures: Ground/bond container and receiving equipment. Proper grounding procedures to avoid static electricity should be followed.
Storage conditions: Keep container tightly closed.
Storage area: Store in a well-ventilated place. Store away from heat.

7.3. Specific end use(s)
No additional information available

SECTION 8: Exposure controls/personal protection

8.1. Control parameters

<p>| | | |</p>
<table>
<thead>
<tr>
<th></th>
<th></th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td>USA ACGIH</td>
<td>ACGIH STEL (ppm)</td>
<td>1000 ppm</td>
</tr>
<tr>
<td>USA NIOSH</td>
<td>NIOSH REL (TWA) (mg/m³)</td>
<td>1900 mg/m³</td>
</tr>
<tr>
<td>USA NIOSH</td>
<td>NIOSH REL (TWA) (ppm)</td>
<td>1000 ppm</td>
</tr>
<tr>
<td>USA OSHA</td>
<td>OSHA PEL (TWA) (mg/m³)</td>
<td>1900 mg/m³</td>
</tr>
<tr>
<td>USA OSHA</td>
<td>OSHA PEL (TWA) (ppm)</td>
<td>1000 ppm</td>
</tr>
<tr>
<td>USA IDLH</td>
<td>US IDLH (ppm)</td>
<td>3300 ppm (10% LEL)</td>
</tr>
</tbody>
</table>

8.2. Exposure controls
Appropriate engineering controls: Provide local exhaust or general room ventilation.
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. Contact lenses should not be worn.
Skin and body protection: Wear suitable protective clothing.
Respiratory protection: Where exposure through inhalation may occur from use, respiratory protection equipment is recommended. NIOSH-certified organic vapor (black cartridge) respirator.

SECTION 9: Physical and chemical properties

9.1. Information on basic physical and chemical properties
Physical state: Liquid
BIS-[3-(TRIETHOXYSILYLPROPOXY)-2-HYDROXYPROPOXY]POLYETHYLENE OXIDE, 65% in ethanol

Safety Data Sheet

Appearance: Clear liquid.
Molecular mass: 800 - 900 g/mol
Color: Straw.
Odor: Mild. Ethanol.
Odor threshold: No data available
Refractive index: 1.421
pH: No data available
Relative evaporation rate (butyl acetate=1): No data available
Melting point: No data available
Freezing point: < 0 °C
Boiling point: 76 °C (initial, ethanol)
Flash point: 24 °C
Auto-ignition temperature: No data available
Decomposition temperature: No data available
Flammability (solid, gas): Flammable liquid and vapor
Vapor pressure: No data available
Relative vapor density at 20 °C: > 1
Relative density: 0.959
VOC content: < 40 %
Solubility: Reacts 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: No data available

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 when stored in sealed containers.

10.3. Possibility of hazardous reactions
Reacts with water and moisture in air, liberating ethanol.

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

10.5. Incompatible materials

10.6. Hazardous decomposition products
Organic acid vapors.

SECTION 11: Toxicological information

11.1. Information on toxicological effects
Acute toxicity: Not classified

<table>
<thead>
<tr>
<th>Ethanol (64-17-5)</th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td>LD50 oral rat</td>
<td>7060 mg/kg</td>
</tr>
<tr>
<td>LC50 inhalation rat (mg/l)</td>
<td>124.7 mg/l/4h</td>
</tr>
<tr>
<td>ATE US (oral)</td>
<td>7060.000 mg/kg body weight</td>
</tr>
<tr>
<td>ATE US (vapors)</td>
<td>124.700 mg/l/4h</td>
</tr>
<tr>
<td>ATE US (dust, mist)</td>
<td>124.700 mg/l/4h</td>
</tr>
</tbody>
</table>

Skin corrosion/irritation: Not classified
Serious eye damage/irritation: Causes serious eye irritation.
BIS-[3-(TRIETHOXYSILYLPROPOXY)-2-HYDROXYPROPOXY]POLYETHYLENE OXIDE, 65% in ethanol

Safety Data Sheet

Respiratory or skin sensitization: Not classified
Germ cell mutagenicity: Not classified
Carcinogenicity: Not classified.

### Ethanol (64-17-5)

<table>
<thead>
<tr>
<th>IARC group</th>
<th>1 - Carcinogenic to humans</th>
</tr>
</thead>
<tbody>
<tr>
<td>Reproductive toxicity</td>
<td>Not classified</td>
</tr>
<tr>
<td>Specific target organ toxicity (single exposure)</td>
<td>May cause respiratory irritation.</td>
</tr>
<tr>
<td>Specific target organ toxicity (repeated exposure)</td>
<td>Not classified</td>
</tr>
<tr>
<td>Aspiration hazard</td>
<td>Not classified</td>
</tr>
<tr>
<td>Symptoms/injuries after skin contact</td>
<td>Causes (severe) skin burns.</td>
</tr>
<tr>
<td>Symptoms/injuries after eye contact</td>
<td>Causes serious eye damage.</td>
</tr>
<tr>
<td>Symptoms/injuries after ingestion</td>
<td>May be harmful if swallowed.</td>
</tr>
<tr>
<td>Reason for classification</td>
<td>Expert judgment</td>
</tr>
</tbody>
</table>

### SECTION 12: Ecological information

#### 12.1. Toxicity

**Ethanol (64-17-5)**

| LC50 fish 1 | 12.0 - 16.0 mL/l (Exposure time: 96 h - Species: Oncorhynchus mykiss [static]) |
| EC50 Daphnia 1 | 9268 - 14221 mg/l (Exposure time: 48 h - Species: Daphnia magna) |
| LC50 fish 2 | > 100 mg/l (Exposure time: 96 h - Species: Pimephales promelas [static]) |
| EC50 Daphnia 2 | 2 mg/l (Exposure time: 48 h - Species: Daphnia magna [Static]) |

#### 12.2. Persistence and degradability

No additional information available

#### 12.3. Bioaccumulative potential

**Ethanol (64-17-5)**

| Log Pow | -0.32 |

#### 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 ozone layer: No additional information available
Effect on the global warming: No known ecological damage caused by this product.

### SECTION 13: Disposal considerations

#### 13.1. Waste treatment methods

Sewage disposal recommendations: Do not dispose of waste into sewer.
Waste disposal recommendations: May be incinerated. Dispose in a safe manner in accordance with local/national regulations. Dispose of contents/container to licensed waste disposal facility.
Additional information: Handle empty containers with care because residual vapors are flammable.
Ecology - waste materials: Avoid release to the environment.

### SECTION 14: Transport information

#### 14.1. UN number

<table>
<thead>
<tr>
<th>UN-No. (DOT)</th>
<th>1993</th>
</tr>
</thead>
<tbody>
<tr>
<td>DOT NA no.</td>
<td>UN1993</td>
</tr>
</tbody>
</table>

#### 14.2. UN proper shipping name

| Proper Shipping Name (DOT) | Flammable liquids, n.o.s. (BIS-[3-(TRIETHOXYSILYLPROPOXY)-2-HYDROXYPROPOXY]POLYETHYLENE OXIDE, 65% in ethanol) |
| Department of Transportation (DOT) Hazard Classes | 3 - Class 3 - Flammable and combustible liquid 49 CFR 173.120 |
### Hazard labels (DOT)

<table>
<thead>
<tr>
<th>label</th>
<th>description</th>
</tr>
</thead>
<tbody>
<tr>
<td>3</td>
<td>Flammable liquid</td>
</tr>
</tbody>
</table>

### DOT Symbols
- **G**: Identifies PSN requiring a technical name

### Packing group (DOT)
- **III**: Minor Danger

### DOT Packaging Exceptions (49 CFR 173.xxx)
- 150

### DOT Packaging Non Bulk (49 CFR 173.xxx)
- 203

### DOT Packaging Bulk (49 CFR 173.xxx)
- 242

#### 14.3. Additional information

**Other information**: No supplementary information available.

### Transport by sea

**DOT Vessel Stowage Location**
- **A**: The material may be stowed “on deck” or “under deck” on a cargo vessel and on a passenger vessel.

### Air transport

**DOT Quantity Limitations Passenger aircraft/rail**
- 60 L

**DOT Quantity Limitations Cargo aircraft only**
- 220 L

### SECTION 15: Regulatory information

#### 15.1. US Federal regulations

**TSCA Exemption/Exclusion**

**CAUTION**: This material is supplied for research and development purposes subject to the R&D exemption under TSCA, 40 CFR 720.36, and must meet the requirements of the exemption, including supervision by a "technically qualified individual" as defined by 40 CFR 720.3(ee). The use of this material for "commercial purposes" as defined by 40 CFR 720.3(r) is not permitted in the United States.

**Ethanol (64-17-5)**
- Listed on the United States TSCA (Toxic Substances Control Act) inventory

**Bis-[3-(triethoxysilylpropoxy)-2-hydroxypropoxy]polyethylene oxide (Not found)**
- Not listed on the United States TSCA (Toxic Substances Control Act) inventory

#### 15.2. International regulations

**Ethanol (64-17-5)**
- Listed on IARC (International Agency for Research on Cancer)
- Listed on the AICS (Australian Inventory of Chemical Substances)
- Listed on the Canadian DSL (Domestic Substances List)
- Listed on the Japanese ENCS (Existing & New Chemical Substances)
- Listed on the EEC inventory EINECS (European Inventory of Existing Commercial Chemical Substances)
- 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)
- Listed on the Canadian IDL (Ingredient Disclosure List)
- Listed on INSAQ (Mexican national Inventory of Chemical Substances)
- Listed on Turkish inventory of chemical

**Bis-[3-(triethoxysilylpropoxy)-2-hydroxypropoxy]polyethylene oxide (Not found)**

#### 15.3. US State regulations

**Bis-[3-(triethoxysilylpropoxy)-2-hydroxypropoxy]polyethylene oxide, 65% in ethanol (Not found)**

**U.S. - California - Proposition 65 - Carcinogens List**
- No

**U.S. - California - Proposition 65 - Developmental Toxicity**
- No

**U.S. - California - Proposition 65 - Reproductive Toxicity - Female**
- No

**U.S. - California - Proposition 65 - Reproductive Toxicity - Male**
- No
SECTION 16: Other information

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.: European Commission Index Number; OECD: The Organisation for Economic Co-operation and Development.

Full text of H-phrases:

- Aquatic Acute 2: Hazardous to the aquatic environment - Acute Hazard Category 2
- Carc. 1A: Carcinogenicity Category 1A
- Eye Irrit. 2A: Serious eye damage/eye irritation Category 2A
- Flam. Liq. 2: Flammable liquids Category 2
- Flam. Liq. 3: Flammable liquids Category 3
- STOT SE 3: Specific target organ toxicity (single exposure) Category 3
- H225: Highly flammable liquid and vapor
- H226: Flammable liquid and vapor
- H319: Causes serious eye irritation
- H335: May cause respiratory irritation
- H350: May cause cancer
- H401: Toxic to aquatic life

HMIS III Rating

- Health: 2 Moderate Hazard - Temporary or minor injury may occur
- Flammability: 4 Severe Hazard
- Physical: 1 Slight Hazard

Prepared by safety and environmental affairs.

Date of issue: 08/17/2015 Version: 1.0

SDS US (GHS HazCom 2012) - Custom

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

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