SECTION 1: Identification

1.1. Identification

Product name: (3-GLYCIDOXYPROPYL)TRIMETHOXYSILANE
Product code: SIG5840.0
Product form: Substance
Physical state: Liquid
Formula: C9H20O5Si
Synonyms:
3-(2,3-EPoxypropanoyl)propyltrimethoxysilane
TRIMETHOXY-[3-(OXIRAN-2-YL METHOXY)PROPIL]SILANE
3-(TRIMETHOXYSILYL)PROPYL GLYCIDYL ETHER

Chemical family: ORGANOMETOXYSILANE

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

SECTION 2: Hazard(s) identification

2.1. Classification of the substance or mixture

GHS-US classification
Serious eye damage/eye irritation Category 1 H318 Causes serious eye damage
Full text of H statements: see section 16

2.2. GHS Label elements, including precautionary statements

GHS US labeling
Hazard pictograms (GHS US): :

Signal word (GHS US): Danger
Hazard statements (GHS US): H318 - Causes serious eye damage
Precautionary statements (GHS US): P280 - Wear protective gloves/protective clothing/eye protection/face protection.
P305+P351+P338 - IF IN EYES: Rinse cautiously with water for several minutes. Remove contact lenses, if present and easy to do. Continue rinsing.
P310 - Immediately call a doctor

2.3. Hazards not otherwise classified (HNOC)

Other hazards not contributing to the classification: Additional methanol may be formed by reaction with moisture and water. The US OSHA PEL (TWA) for methanol is 200 ppm.

2.4. Unknown acute toxicity (GHS US)

Not applicable

SECTION 3: Composition/Information on ingredients

3.1. Substances

Substance type: Mono-constituent
Name: (3-GLYCIOXYPROPYL)TRIMETHOXYSILANE
CAS-No.: 2530-83-8

<table>
<thead>
<tr>
<th>Name</th>
<th>Product identifier</th>
<th>%</th>
<th>GHS-US classification</th>
</tr>
</thead>
<tbody>
<tr>
<td>3-Glycidoxypropyltrimethoxysilane</td>
<td>(CAS-No.) 2530-83-8</td>
<td>97 - 100</td>
<td>Eye Dam. 1, H318</td>
</tr>
</tbody>
</table>
### SECTION 4: First-aid measures

<table>
<thead>
<tr>
<th>Description of first aid measures</th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td>First-aid measures general</td>
<td>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.</td>
</tr>
<tr>
<td>First-aid measures after inhalation</td>
<td>Remove victim to fresh air and keep at rest in a position comfortable for breathing. If you feel unwell, seek medical advice.</td>
</tr>
<tr>
<td>First-aid measures after skin contact</td>
<td>Wash with plenty of soap and water. Get medical advice/attention.</td>
</tr>
<tr>
<td>First-aid measures after eye contact</td>
<td>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.</td>
</tr>
<tr>
<td>First-aid measures after ingestion</td>
<td>Never give anything by mouth to an unconscious person. Get medical advice/attention.</td>
</tr>
</tbody>
</table>

### Most important symptoms and effects (acute and delayed)

| Symptoms/effects after inhalation | May cause irritation to the respiratory tract. |
| Symptoms/effects after skin contact | May cause mild skin irritation. |
| Symptoms/effects after eye contact | Causes serious eye damage. |
| Symptoms/effects after ingestion | Oral toxicity is associated with methanol, the solvent and a hydrolysis product which causes nausea, vomiting, headache, visual effects including blindness. Onset of symptoms may be delayed up to 48 hours. |

**Chronic symptoms:** On contact with water this compound liberates methanol which is known to have a chronic effect on the central nervous system. Methanol may effect the central nervous system resulting in persistent or recurring headaches or impaired vision.

### SECTION 5: Fire-fighting measures

<table>
<thead>
<tr>
<th>Suitable (and unsuitable) extinguishing media</th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td>Unsuitable extinguishing media</td>
<td>Do not use straight streams.</td>
</tr>
</tbody>
</table>

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

**Reactivity:** Can react exothermically with amines.

### SECTION 6: Accidental release measures

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

<table>
<thead>
<tr>
<th>For non-emergency personnel</th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td>Protective equipment</td>
<td>Wear protective equipment as described in Section 8.</td>
</tr>
<tr>
<td>Emergency procedures</td>
<td>Evacuate unnecessary personnel.</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>For emergency responders</th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td>Protective equipment</td>
<td>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”.</td>
</tr>
</tbody>
</table>

**Environmental precautions**

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

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

<table>
<thead>
<tr>
<th>For containment</th>
<th>Contain any spills with dikes or absorbents to prevent migration and entry into sewers or streams.</th>
</tr>
</thead>
<tbody>
<tr>
<td>Methods for cleaning up</td>
<td>Clean up any spills as soon as possible, using an absorbent material to collect it. Sweep or shovel spills into appropriate container for disposal.</td>
</tr>
</tbody>
</table>
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.

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

7.2. Conditions for safe storage, including any incompatibilities
Storage conditions : Keep container tightly closed.
Storage area : Store in a well-ventilated place. Store away from heat.

SECTION 8: Exposure controls/personal protection

8.1. Control parameters
No additional information available

8.2. Appropriate engineering controls
Appropriate engineering controls : Provide local exhaust or general room ventilation.

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:
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
Appearance : Clear liquid.
Molecular mass : 236.34 g/mol
Color : Straw.
Odor : Mild.
Odor threshold : No data available
Refractive index : 1.429
pH : No data available
Relative evaporation rate (butyl acetate=1) : No data available
Melting point : No data available
Freezing point : < -70 °C
Boiling point : 120 °C @ 2 mm Hg
Flash point : 135 °C
Auto-ignition temperature : 231 °C
Decomposition temperature : No data available
Flammability (solid, gas) : No data available
Vapor pressure : 2 mm Hg @ 120 °C
Relative vapor density at 20 °C : 8.1
Relative density : 1.07
Solubility : Reacts with water.
Log Pow : No data available
Log Kow : No data available
Viscosity, kinematic : 3.2 cSt
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
Can react exothermically with amines.

10.2. Chemical stability
Stable in sealed containers.

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

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

10.5. Incompatible materials

10.6. Hazardous decomposition products
Methanol. Organic acid vapors.

SECTION 11: Toxicological information

11.1. Information on toxicological effects
3-Glycidoxypropyltrimethoxysilane (2530-83-8)

<table>
<thead>
<tr>
<th>Test</th>
<th>Value</th>
</tr>
</thead>
<tbody>
<tr>
<td>LD50 oral rat</td>
<td>8400 mg/kg</td>
</tr>
<tr>
<td>LC50 inhalation rat (mg/l)</td>
<td>&gt; 5.3 mg/l/4h</td>
</tr>
<tr>
<td>ATE US (oral)</td>
<td>8400 mg/kg body weight</td>
</tr>
</tbody>
</table>

Skin corrosion/irritation : Not classified
Skin Irritation - rabbit: 500 mg open: mild irritant effect

Serious eye damage/irritation : Causes serious eye damage.
Irreversible effects on the eye: rabbit

Respiratory or skin sensitization : Not classified

Germ cell mutagenicity : Not classified
Glycidoxypropyltrimethoxysilane has been found to be weakly mutagenic in Ames in vitro screening.
In vivo studies have shown that repeated exposure to this material, even at otherwise toxic doses, does not cause any mutagenic events.
No tumourogenic response to the chronic recurrent application of the material to the skin of mice was observed.

Carcinogenicity : Not classified
Reproductive toxicity : Not classified
Specific target organ toxicity – single exposure : Not classified
Specific target organ toxicity – repeated exposure : Not classified

Aspiration hazard : Not classified
Symptoms/effects after inhalation : May cause irritation to the respiratory tract.
Symptoms/effects after skin contact : May cause mild skin irritation.
Symptoms/effects after eye contact : Causes serious eye damage.
Symptoms/effects after ingestion: Oral toxicity is associated with methanol, the solvent and a hydrolysis product which causes nausea, vomiting, headache, visual effects including blindness. Onset of symptoms may be delayed up to 48 hours.

Chronic symptoms: On contact with water this compound liberates methanol which is known to have a chronic effect on the central nervous system. Methanol may effect the central nervous system resulting in persistent or recurring headaches or impaired vision.

SECTION 12: Ecological information

12.1. Toxicity

3-Glycidoxypropyltrimethoxysilane (2530-83-8)

EC50 Daphnia 1: 324 mg/l Simocephalus vetulus
ErC50 (algae): 119 mg/l Anabaena flos-aquae

12.2. Persistence and degradability

No additional information available

12.3. Bioaccumulative potential

3-Glycidoxypropyltrimethoxysilane (2530-83-8)

Log Pow: -2.6

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

Sewage disposal recommendations: Do not dispose of waste into sewer.
Product/Packaging disposal recommendations: May be incinerated. Dispose in a safe manner in accordance with local/national regulations.
Ecology - waste materials: Avoid release to the environment.

SECTION 14: Transport information

14.1. UN number

Not regulated for transport.

14.2. UN proper shipping name

Not applicable

14.3. Additional information

Other information: No supplementary information available.

Transport by sea

No additional information available

Air transport

No additional information available

SECTION 15: Regulatory information

15.1. US Federal regulations

3-Glycidoxypropyltrimethoxysilane (2530-83-8)
Listed on the United States TSCA (Toxic Substances Control Act) inventory

15.2. International regulations

CANADA

3-Glycidoxypropyltrimethoxysilane (2530-83-8)
Listed on the Canadian DSL (Domestic Substances List)

EU-Regulations

3-Glycidoxypropyltrimethoxysilane (2530-83-8)
Listed on the EEC inventory EINECS (European Inventory of Existing Commercial Chemical Substances)
National regulations

3-Glycidoxypropyltrimethoxysilane (2530-83-8)

- 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)
- Listed on CICR (Turkish Inventory and Control of Chemicals)

15.3. US State regulations

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

SECTION 16: Other information

Full text of H-phrases:

| H318 | Causes serious eye damage |

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; GHS: The Globally Harmonized System of Classification and Labelling; APF: Assigned Protection Factor.

Hazard Rating

Health:

- 3 Serious Hazard - Major injury likely unless prompt action is taken and medical treatment is given

Flammability:

- 1 Slight Hazard - Materials that must be preheated before ignition will occur. Includes liquids, solids and semi solids having a flash point above 200 F. (Class IIIB)

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.

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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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