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

1.1. Product identifier

Product form: Substance
Physical state: Liquid
Substance name: 3-ISOCYANATOPROPYLTRIETHOXYSILANE, 95%
Product code: SII6455.0
Formula: C10H21NO4Si
Synonyms: TRIETHOXYSILYLPROPYLISOCYANATE
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 and industrial 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. 4  H227
Acute Tox. 4 (Oral) H302
Acute Tox. 4 (Dermal) H312
Acute Tox. 1 (Inhalation/vapour) H330
Skin Corr. 1B H314
Eye Dam. 1 H318

Full text of H-phrases: see section 16

2.2. Label elements

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

Signal word (GHS-US): Danger
Hazard statements (GHS-US): H330 - Fatal if inhaled
H314 - Causes severe skin burns and eye damage
H302+H312 - Harmful if swallowed or in contact with skin
H318 - Causes serious eye damage
H227 - Combustible liquid

Precautionary statements (GHS-US): P280 - Wear protective gloves/protective clothing/eye protection/face protection
P260 - Do not breathe vapors
P284 - In case of inadequate ventilation wear respiratory protection
P304+P340 - If inhaled: Remove person to fresh air and keep comfortable for breathing
P310 - Immediately call a doctor
P305+P351+P338 - IF IN EYES: Rinse cautiously with water for several minutes. Remove contact lenses, if present and easy to do. Continue rinsing
P270 - Do not eat, drink or smoke when using this product
P301+P312 - If swallowed: Call a doctor if you feel unwell
P210 - Keep away from heat, sparks, open flames. - No smoking
P271 - Use only outdoors or in a well-ventilated area
P362+P364 - Take off contaminated clothing and wash it before reuse
P403+P405 - Store in a well-ventilated place. Keep container tightly closed
3-ISOCYANATOPROPYLTRIETHOXYSILANE, 95%
Safety Data Sheet

2.3. Other hazards
Other hazards not contributing to the classification: Note: The hydrolysis product of this product is ethanol. Overexposure to ethanol by skin absorption, inhalation or ingestion may have a narcotic effect (headache, nausea, drowsiness). Ethanol is metabolized to acetaldehyde and acetic acid which in large quantities result in metabolic acidosis, CNS depression and death due to respiratory arrest. This product contains ethanol which is classified as a carcinogen by IARC in alcoholic beverages.

2.4. Unknown acute toxicity (GHS US)
No data available

SECTION 3: Composition/information on ingredients

3.1. Substance

Substance type: Mono-constituent
Name: 3-ISOCYANATOPROPYLTRIETHOXYSILANE, 95%
CAS No: 24801-88-5
EC no: 246-467-6

<table>
<thead>
<tr>
<th>Name</th>
<th>Product identifier</th>
<th>%</th>
<th>Classification (GHS-US)</th>
</tr>
</thead>
<tbody>
<tr>
<td>3-Isocyanatopropyltriethoxysilane</td>
<td>(CAS No) 24801-88-5</td>
<td>95 - 100</td>
<td>Flam. Liq. 4, H227, Acute Tox. 4 (Oral), H302, Acute Tox. 4 (Dermal), H312, Acute Tox. 1 (Inhalation:vapour), H330, Skin Corr. 1B, H314, Eye Dam. 1, H318</td>
</tr>
<tr>
<td>Ethanol</td>
<td>(CAS No) 64-17-5</td>
<td>Flam. Liq. 2, H225, Carc. 1A, H350, STOT SE 3, H335, Aquatic Acute 2, H401</td>
<td></td>
</tr>
</tbody>
</table>

3.2. Mixture
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. Immediately consult a doctor/medical service.

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: Rinse mouth. Never give anything by mouth to an unconscious person. Obtain emergency medical attention.

4.2. Most important symptoms and effects, both acute and delayed

Symptoms/injuries: Causes severe skin burns and eye damage.
Symptoms/injuries after skin contact: Harmful in contact with skin. Causes (severe) skin burns. Skin contact may cause sensitization and an allergic reaction.
Symptoms/injuries after eye contact: Causes serious eye damage.
Symptoms/injuries after ingestion: Harmful if swallowed. Swallowing a small quantity of this material will result in serious health hazard.

Chronic symptoms: On contact with water this compound liberates ethanol which is known to have a chronic effect on the central nervous system.

4.3. Indication of any immediate medical attention and special treatment needed

NOTE TO PHYSICIAN: This product reacts with water in the acid contents of the stomach to form ethanol.
SECTION 5: Firefighting measures

5.1. Extinguishing media

5.2. Special hazards arising from the substance or mixture
Fire hazard: Combustible liquid. Irritating fumes and organic acid vapors may develop when material is exposed to elevated temperatures or open flame.
Reactivity: Can react exothermically with amines.

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.

6.1.1. For non-emergency personnel
Emergency procedures: Evacuate unnecessary personnel.

6.1.2. For emergency responders
Protective equipment: Wear respiratory protection. 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. Use only outdoors or in a well-ventilated area. Ground/bond container and receiving equipment. Use only non-sparking tools.
Hygiene measures: Wash contaminated clothing before reuse. Do not eat, drink or smoke when using this product. Wash hands thoroughly after handling.

7.2. Conditions for safe storage, including any incompatibilities
Technical measures: 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

<table>
<thead>
<tr>
<th>Ethanol (64-17-5)</th>
<th>ACGIH STEL (ppm)</th>
<th>USA NIOSH NIOSH REL (TWA) (mg/m³)</th>
<th>USA OSHA OSHA PEL (TWA) (mg/m³)</th>
<th>USA IDLH (ppm)</th>
</tr>
</thead>
<tbody>
<tr>
<td>USA ACGIH</td>
<td></td>
<td>1000 ppm</td>
<td></td>
<td></td>
</tr>
<tr>
<td>USA NIOSH</td>
<td></td>
<td>1900 mg/m³</td>
<td></td>
<td></td>
</tr>
<tr>
<td>USA OSHA</td>
<td></td>
<td>1000 ppm</td>
<td>1900 mg/m³</td>
<td></td>
</tr>
<tr>
<td>USA IDLH</td>
<td></td>
<td>1000 ppm</td>
<td></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.
3-ISOCYANATOPROPYLTRIETHOXYSILANE, 95%
Safety Data Sheet

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>Physical state</td>
<td>Liquid</td>
</tr>
<tr>
<td>Appearance</td>
<td>Clear liquid</td>
</tr>
<tr>
<td>Molecular mass</td>
<td>247.37 g/mol</td>
</tr>
<tr>
<td>Color</td>
<td>Straw</td>
</tr>
<tr>
<td>Odor</td>
<td>Mild</td>
</tr>
<tr>
<td>Odor threshold</td>
<td>No data available</td>
</tr>
<tr>
<td>Refractive index</td>
<td>1.4190</td>
</tr>
<tr>
<td>pH</td>
<td>No data available</td>
</tr>
<tr>
<td>Relative evaporation rate (butyl acetate=1)</td>
<td>No data available</td>
</tr>
<tr>
<td>Melting point</td>
<td>No data available</td>
</tr>
<tr>
<td>Freezing point</td>
<td>&lt; 0 °C</td>
</tr>
<tr>
<td>Boiling point</td>
<td>130 °C @ 20 mm Hg</td>
</tr>
<tr>
<td>Flash point</td>
<td>80 °C</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>Flammability (solid, gas)</td>
<td>Combustible liquid</td>
</tr>
<tr>
<td>Vapor pressure</td>
<td>&lt; 1 mm Hg @ 20 °C</td>
</tr>
<tr>
<td>Relative vapor density at 20 °C</td>
<td>&gt; 1</td>
</tr>
<tr>
<td>Relative density</td>
<td>0.99</td>
</tr>
<tr>
<td>Solubility</td>
<td>Reacts with water</td>
</tr>
<tr>
<td>Log Pow</td>
<td>No data available</td>
</tr>
<tr>
<td>Log Kow</td>
<td>No data available</td>
</tr>
<tr>
<td>Viscosity, kinematic</td>
<td>No data available</td>
</tr>
<tr>
<td>Viscosity, dynamic</td>
<td>No data available</td>
</tr>
<tr>
<td>Explosive properties</td>
<td>No data available</td>
</tr>
<tr>
<td>Oxidizing properties</td>
<td>No data available</td>
</tr>
<tr>
<td>Explosion limits</td>
<td>No data available</td>
</tr>
</tbody>
</table>

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 ethanol. Hazardous polymerization may occur at temperatures exceeding 100°C.

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

10.5. Incompatible materials

10.6. Hazardous decomposition products
Ethanol. Organic acid vapors.

SECTION 11: Toxicological information
11.1. Information on toxicological effects
3-ISOCYANATOPROPYLTRIETHOXYSILANE, 95%
Safety Data Sheet

3-Isocyanatopropyltriethoxysilane (24801-88-5)

**LD50 oral rat**  
710 mg/kg

**LD50 dermal rabbit**  
1260 mg/kg

**LC50 inhalation rat (mg/l)**  
0.36 mg/l/4h (Exposure time: 4 h)

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

<table>
<thead>
<tr>
<th>Parameter</th>
<th>Value</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**  
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

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

**IARC group**  
1 - Carcinogenic to humans

**Reproductive toxicity**  
Not classified

**Specific target organ toxicity (single exposure)**  
Not classified

**Specific target organ toxicity (repeated exposure)**  
Not classified

**Aspiration hazard**  
Not classified

**Potential Adverse human health effects and symptoms**  
Fatal if inhaled. Harmful if swallowed. Harmful in contact with skin.

**Symptoms/injuries after inhalation**  

**Symptoms/injuries after skin contact**  
Harmful in contact with skin. Causes (severe) skin burns. Skin contact may cause sensitization and an allergic reaction.

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

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

**Chronic symptoms**  
On contact with water this compound liberates ethanol which is known to have a chronic effect on the central nervous system.

**SECTION 12: Ecological information**

12.1. **Toxicity**

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

<table>
<thead>
<tr>
<th>Parameter</th>
<th>Value</th>
</tr>
</thead>
<tbody>
<tr>
<td>LC50 fish 1</td>
<td>12.0 - 16.0 ml/l (Exposure time: 96 h - Species: Oncorhynchus mykiss [static])</td>
</tr>
<tr>
<td>EC50 Daphnia 1</td>
<td>9268 - 14221 mg/l (Exposure time: 48 h - Species: Daphnia magna)</td>
</tr>
<tr>
<td>LC50 fish 2</td>
<td>&gt; 100 mg/l (Exposure time: 96 h - Species: Pimephales promelas [static])</td>
</tr>
<tr>
<td>EC50 Daphnia 2</td>
<td>2 mg/l (Exposure time: 48 h - Species: Daphnia magna [Static])</td>
</tr>
</tbody>
</table>

12.2. **Persistence and degradability**

No additional information available

12.3. **Bioaccumulative potential**

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

<table>
<thead>
<tr>
<th>Parameter</th>
<th>Value</th>
</tr>
</thead>
<tbody>
<tr>
<td>Log Pow</td>
<td>-0.32</td>
</tr>
</tbody>
</table>

12.4. **Mobility in soil**

No additional information available

12.5. **Other adverse effects**

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**

**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.

**Ecology - waste materials**  
Avoid release to the environment.
3-ISOCYANATOPROPYLTRIETHOXYSILANE, 95%
Safety Data Sheet

SECTION 14: Transport information

14.1. UN number
UN-No.(DOT) : 2927
DOT NA no. : UN2927

14.2. UN proper shipping name
Proper Shipping Name (DOT) : Toxic liquids, corrosive, organic, n.o.s.
(3-ISOCYANATOPROPYLTRIETHOXYSILANE)
Hazard labels (DOT) : 6.1 - Poison
8 - Corrosive

DOT Symbols : G - Identifies PSN requiring a technical name
Packing (DOT) : II - Medium Danger
DOT Packaging Exceptions (49 CFR 173.xxx) : 153
DOT Packaging Non Bulk (49 CFR 173.xxx) : 202
DOT Packaging Bulk (49 CFR 173.xxx) : 243

14.3. Additional information
Other information : No supplementary information available.

Transport by sea
DOT Vessel Stowage Location : B - (i) The material may be stowed “on deck” or “under deck” 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; and (ii) “On deck only” on passenger vessels in which the number of passengers specified in paragraph (k)(2)(i) of this section is exceeded.
DOT Vessel Stowage Other : 40 - Stow “clear of living quarters”

Air transport
DOT Quantity Limitations Passenger aircraft/rail (49 CFR 173.27) : 1 L
DOT Quantity Limitations Cargo aircraft only (49 CFR 175.75) : 30 L

SECTION 15: Regulatory information

15.1. US Federal regulations
3-isocyanatopropytriethoxysilane (24801-88-5)
Listed on the United States TSCA (Toxic Substances Control Act) inventory
Ethanol (64-17-5)
Listed on the United States TSCA (Toxic Substances Control Act) inventory

15.2. International regulations
3-isocyanatopropytriethoxysilane (24801-88-5)
Listed on the AICS (Australian Inventory of Chemical Substances)
Listed on the Canadian NDSL (Non-Domestic Substances List)
Listed on IIECS (Inventory of Existing Chemical Substances Produced or Imported in China)
Listed on the EEC inventory EINECS (European Inventory of Existing Commercial Chemical Substances)
Listed on the Japanese ENCS (Existing & New Chemical Substances) inventory
Listed on the Japanese ISHL (Industrial Safety and Health Law)
Listed on NZIoC (New Zealand Inventory of Chemicals)
Listed on PICCS (Philippines Inventory of Chemicals and Chemical Substances)
3-ISOCYANATOPROPYLTRIETHOXYSILANE, 95%
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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 IECSC (Inventory of Existing Chemical Substances Produced or Imported in China)
Listed on the EEC inventory EINECS (European Inventory of Existing Commercial Chemical Substances)
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 the Canadian DSL (Domestic Substances List)
Listed on the AICS (Australian Inventory of Chemical Substances)
Listed on IARC (International Agency for Research on Cancer)

15.3. US State regulations

3-ISOCYANATOPROPYLTRIETHOXYSILANE, 95% (24801-88-5)

<table>
<thead>
<tr>
<th></th>
<th></th>
<th></th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td>No</td>
<td>No</td>
<td>No</td>
<td>No</td>
</tr>
</tbody>
</table>

3-Isocyanopropyltriethoxysilane (24801-88-5)

<table>
<thead>
<tr>
<th></th>
<th></th>
<th></th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td>No</td>
<td>No</td>
<td>No</td>
<td>No</td>
</tr>
</tbody>
</table>

Ethanol (64-17-5)

<table>
<thead>
<tr>
<th></th>
<th></th>
<th></th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td>Yes</td>
<td>Yes</td>
<td>No</td>
<td>No</td>
</tr>
</tbody>
</table>

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; EN 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:

- Acute Tox. 1 (Inhalation:vapour) Category 1
- Acute Tox. 4 (Dermal) Category 4
- Acute Tox. 4 (Oral) Category 4
- Aquatic Acute 2 Category 4
- Carc. 1A Category 1A
- Eye Dam. 1 Category 1
- Flam. Liq. 2 Category 2
- Flam. Liq. 4 Category 4
- Skin Corr. 1B Category 1B
- Specific target organ toxicity (single exposure) Category 3
- H225 Category 3
- H227 Category 4
- H302 Category 4
- H312 Category 4
3-ISOCYANATOPROPYLTRIETHOXYSILANE, 95%
Safety Data Sheet

<table>
<thead>
<tr>
<th>H314</th>
<th>Causes severe skin burns and eye damage</th>
</tr>
</thead>
<tbody>
<tr>
<td>H318</td>
<td>Causes serious eye damage</td>
</tr>
<tr>
<td>H330</td>
<td>Fatal if inhaled</td>
</tr>
<tr>
<td>H335</td>
<td>May cause respiratory irritation</td>
</tr>
<tr>
<td>H350</td>
<td>May cause cancer</td>
</tr>
<tr>
<td>H401</td>
<td>Toxic to aquatic life</td>
</tr>
</tbody>
</table>

**HMIS III Rating**

- **Health**: 3 Serious Hazard - Major injury likely unless prompt action is taken and medical treatment is given
- **Flammability**: 2 Moderate Hazard
- **Physical**: 1 Slight Hazard

Prepared by safety and environmental affairs.

Date of issue: 07/10/2014  Revision date: 08/28/2015  Version: 2.0

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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