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

1.1. Product identifier

- **Product form**: Substance
- **Physical state**: Liquid
- **Substance name**: 1-(TRIETHOXYSILYL)-2-(DIETHOXYMETHYLSILYL)ETHANE
- **Product code**: SIT8185.8
- **Formula**: C13H32O5Si2
- **Synonyms**: 4,4,7-TRIETHOXY-7-METHYL-3,8-DIOXA-4,7-DISILADECANE
- **Chemical family**: ORGANOETHOXY SILANE

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

1.2.1. Relevant identified uses

- **Use of the substance/mixture**: Chemical intermediate

1.2.2. Uses advised against

- No additional information available

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

**GELEST INC.**
Fritz-Klatte-Strasse 8
65933 Frankfurt
Germany
T +49 (0) 69 3535106-500 - F +49 (0) 69 3535106-501 - (M-F): 8:00 AM - 4:00 PM
info@gelestde.com - www.gelestde.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 according to Regulation (EC) No. 1272/2008 [CLP]**
- Acute toxicity (oral), Category 4: H302
- Serious eye damage/eye irritation, Category 2: H319

- Full text of H statements: see section 16

**Adverse physicochemical, human health and environmental effects**

- No additional information available

2.2. Label elements

**Labelling according to Regulation (EC) No. 1272/2008 [CLP]**

- **Hazard pictograms (CLP)**: ![Hazard Pictogram]

- **Signal word (CLP)**: Warning

- **Hazard statements (CLP)**: H302 - Harmful if swallowed.
  H319 - Causes serious eye irritation.

- **Precautionary statements (CLP)**: P280 - Wear protective gloves/protective clothing/eye protection/face protection.
  P264 - Wash hands thoroughly after handling.
2.3. Other hazards

Other hazards not contributing to the classification

: The hydrolysis product of this compound is ethanol. Consequently ingestion of the product is anticipated to have physiological effects similar to alcohol ingestion. This product contains ethanol which is classified as a carcinogen by IARC in alcoholic beverages. The US OSHA PEL (TWA) for ethanol is 1000 ppm.

SECTION 3: Composition/information on ingredients

3.1. Substances

<table>
<thead>
<tr>
<th>Substance type</th>
<th>Name</th>
<th>CAS-No.</th>
</tr>
</thead>
<tbody>
<tr>
<td>Mono-constituent</td>
<td>1-(TRIETHOXYSILYL)-2-(DIETHOXYMETHYLSILYL)ETHANE</td>
<td>18418-54-7</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Product identifier</th>
<th>%</th>
<th>Classification according to Regulation (EC) No. 1272/2008 [CLP]</th>
</tr>
</thead>
<tbody>
<tr>
<td>(CAS-No.) 18418-54-7</td>
<td>95 - 100</td>
<td>Acute Tox. 4 (Oral), H302 Eye Irrit. 2, H319</td>
</tr>
</tbody>
</table>

Full text of 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 person to fresh air and keep comfortable for breathing. If you feel unwell, seek medical advice.

First-aid measures after skin contact

: Wash with plenty of 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. Call a POISON CENTER/doctor if you feel unwell.

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

Symptoms/effects after inhalation

: May cause irritation to the respiratory tract.

Symptoms/effects after skin contact

: May cause skin irritation.

Symptoms/effects after eye contact

: Causes eye irritation.

Symptoms/effects after ingestion

: Harmful if swallowed. Swallowing a small quantity of this material will result in serious health hazard.

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

No additional information available

SECTION 5: Firefighting measures

5.1. Extinguishing media

Suitable extinguishing media


5.2. Special hazards arising from the substance or mixture

Fire hazard

: 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 or fog for cooling exposed containers. 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 vapour and mist.
### SECTION 6: Accidental release measures

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

**6.1.1. For non-emergency personnel**

<table>
<thead>
<tr>
<th>Emergency procedures</th>
<th>Evacuate unnecessary personnel.</th>
</tr>
</thead>
</table>

**6.1.2. For emergency responders**

<table>
<thead>
<tr>
<th>Protective equipment</th>
<th>Equip cleanup crew with proper protection.</th>
</tr>
</thead>
</table>

**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**

<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>
</table>

<table>
<thead>
<tr>
<th>Methods for cleaning up</th>
<th>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.</th>
</tr>
</thead>
</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**

<table>
<thead>
<tr>
<th>Precautions for safe handling</th>
<th>Use only in well ventilated areas. Avoid all eye and skin contact and do not breathe vapour and mist.</th>
</tr>
</thead>
</table>

<table>
<thead>
<tr>
<th>Hygiene measures</th>
<th>Wash contaminated clothing before reuse. Do not eat, drink or smoke when using this product. Wash hands thoroughly after handling.</th>
</tr>
</thead>
</table>

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

<table>
<thead>
<tr>
<th>Storage conditions</th>
<th>Keep container tightly closed.</th>
</tr>
</thead>
</table>

<table>
<thead>
<tr>
<th>Incompatible materials</th>
<th>Oxidizing agent. Moisture. Water</th>
</tr>
</thead>
</table>

<table>
<thead>
<tr>
<th>Storage area</th>
<th>Store in a well-ventilated place. Store away from heat.</th>
</tr>
</thead>
</table>

**7.3. Specific end use(s)**

No additional information available

### SECTION 8: Exposure controls/personal protection

**8.1. Control parameters**

No additional information available

**8.2. Exposure controls**

**Appropriate engineering controls:**

Provide local exhaust or general room ventilation.

**Personal protective equipment:**

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

<table>
<thead>
<tr>
<th>Physical state</th>
<th>Liquid</th>
</tr>
</thead>
</table>

<table>
<thead>
<tr>
<th>Appearance</th>
<th>Clear liquid.</th>
</tr>
</thead>
</table>

<table>
<thead>
<tr>
<th>Molecular mass</th>
<th>324.56 g/mol</th>
</tr>
</thead>
</table>
# 1-(TRIETHOXYSILYL)-2-(DIETHOXYMETHYLSILYL)ETHANE

## Safety Data Sheet

<table>
<thead>
<tr>
<th>Property</th>
<th>Value</th>
</tr>
</thead>
<tbody>
<tr>
<td>Colour</td>
<td>Colourless.</td>
</tr>
<tr>
<td>Odour</td>
<td>Slight.</td>
</tr>
<tr>
<td>Odour threshold</td>
<td>No data available</td>
</tr>
<tr>
<td>Refractive index</td>
<td>1.4112</td>
</tr>
<tr>
<td>pH</td>
<td>No data available</td>
</tr>
<tr>
<td>Relative evaporation rate (butylacetate=1)</td>
<td>No data available</td>
</tr>
<tr>
<td>Melting point</td>
<td>&lt; 0 °C</td>
</tr>
<tr>
<td>Freezing point</td>
<td>No data available</td>
</tr>
<tr>
<td>Boiling point</td>
<td>100 °C @ 0.5 mm Hg</td>
</tr>
<tr>
<td>Flash point</td>
<td>102 °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>No data available</td>
</tr>
<tr>
<td>Vapour pressure</td>
<td>&lt; 0.1 mm Hg @ 25°C</td>
</tr>
<tr>
<td>Relative vapour density at 20 °C</td>
<td>&lt; 1</td>
</tr>
<tr>
<td>Relative density</td>
<td>0.946</td>
</tr>
<tr>
<td>% Volatiles</td>
<td>&lt; 5 %</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>Oxidising properties</td>
<td>No data available</td>
</tr>
<tr>
<td>Explosive limits</td>
<td>No data available</td>
</tr>
</tbody>
</table>

## SECTION 10: Stability and reactivity

### 10.1. Reactivity

No additional information available

### 10.2. Chemical stability

Stable in sealed containers.

### 10.3. Possibility of hazardous reactions

Material decomposes slowly in contact with moist air or with water liberating ethanol.

### 10.4. Conditions to avoid

Heat. Sparks. Open flame.

### 10.5. Incompatible materials

Oxidizing agent. Moisture. Water:

### 10.6. Hazardous decomposition products


## SECTION 11: Toxicological information

### 11.1. Information on toxicological effects

#### Acute toxicity

Harmful if swallowed.

<table>
<thead>
<tr>
<th>Toxicity</th>
<th>Classification</th>
</tr>
</thead>
<tbody>
<tr>
<td>LD50 oral rat</td>
<td>&gt; 500 mg/kg</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Toxicity</th>
<th>Classification</th>
</tr>
</thead>
<tbody>
<tr>
<td>Skin corrosion/irritation</td>
<td>Not classified</td>
</tr>
<tr>
<td>Serious eye damage/irritation</td>
<td>Causes serious eye irritation.</td>
</tr>
<tr>
<td>Respiratory or skin sensitisation</td>
<td>Not classified</td>
</tr>
<tr>
<td>Germ cell mutagenicity</td>
<td>Not classified</td>
</tr>
<tr>
<td>Carcinogenicity</td>
<td>Not classified</td>
</tr>
<tr>
<td>Reproductive toxicity</td>
<td>Not classified</td>
</tr>
<tr>
<td>STOT-single exposure</td>
<td>Not classified</td>
</tr>
<tr>
<td>STOT-repeated exposure</td>
<td>Not classified</td>
</tr>
</tbody>
</table>
1-(TRIETHOXYSILYL)-2-(DIETHOXYMETHYLSILYL)ETHANE
Safety Data Sheet

Aspiration hazard: Not classified
Potential adverse human health effects and symptoms: Harmful if swallowed.
Symptoms/effects after inhalation: May cause irritation to the respiratory tract.
Symptoms/effects after skin contact: May cause skin irritation.
Symptoms/effects after eye contact: Causes eye irritation.
Symptoms/effects after ingestion: Harmful if swallowed. Swallowing a small quantity of this material will result in serious health hazard.

SECTION 12: Ecological information

12.1. Toxicity
Acute aquatic toxicity: Not classified
Chronic aquatic toxicity: Not classified

12.2. Persistence and degradability
No additional information available

12.3. Bioaccumulative potential
No additional information available

12.4. Mobility in soil
No additional information available

12.5. Results of PBT and vPvB assessment
No additional information available

12.6. Other adverse effects
No additional information available

SECTION 13: Disposal considerations

13.1. Waste treatment methods
Product/Packaging disposal recommendations: Incinerate. 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
In accordance with ADR / RID / IMDG / IATA / ADN

14.1. UN number
UN-No. (ADR): Not applicable
UN-No. (IMDG): Not applicable
UN-No. (IATA): Not applicable
UN-No. (ADN): Not applicable
UN-No. (RID): Not applicable

14.2. UN proper shipping name
Proper Shipping Name (ADR): Not applicable
Proper Shipping Name (IMDG): Not applicable
Proper Shipping Name (IATA): Not applicable
Proper Shipping Name (ADN): Not applicable
Proper Shipping Name (RID): Not applicable

14.3. Transport hazard class(es)
ADR
Transport hazard class(es) (ADR): Not applicable
IMDG
Transport hazard class(es) (IMDG): Not applicable
IATA
Transport hazard class(es) (IATA): Not applicable
ADN
Transport hazard class(es) (ADN): Not applicable
1-(TRIETHOXYSILYL)-2-(DIETHOXYMETHYLSILYL)ETHANE
Safety Data Sheet

RID
Transport hazard class(es) (RID) : Not applicable

14.4. Packing group

Packing group (ADR) : Not applicable
Packing group (IMDG) : Not applicable
Packing group (IATA) : Not applicable
Packing group (ADN) : Not applicable
Packing group (RID) : Not applicable

14.5. Environmental hazards

Dangerous for the environment : No
Marine pollutant : No
Other information : No supplementary information available

14.6. Special precautions for user

- Overland transport
Not applicable

- Transport by sea
No data available

- Air transport
No data available

- Inland waterway transport
Not applicable

- Rail transport
Not applicable

14.7. Transport in bulk according to Annex II of Marpol and the IBC Code
Not applicable

SECTION 15: Regulatory information

15.1. Safety, health and environmental regulations/legislation specific for the substance or mixture

15.1.1. EU-Regulations
No REACH Annex XVII restrictions
1-(TRIETHOXYSILYL)-2-(DIETHOXYMETHYLSILYL)ETHANE is not on the REACH Candidate List
1-(TRIETHOXYSILYL)-2-(DIETHOXYMETHYLSILYL)ETHANE is not on the REACH Annex XIV List
1-(TRIETHOXYSILYL)-2-(DIETHOXYMETHYLSILYL)ETHANE is not subject to REGULATION (EU) No 649/2012 OF THE EUROPEAN PARLIAMENT AND OF THE COUNCIL of 4 July 2012 concerning the export and import of hazardous chemicals.

% Volatiles : < 5 %

15.1.2. National regulations

Germany
12th Ordinance Implementing the Federal Immission Control Act - 12.BImSchV
: Is not subject of the 12. BImSchV (Hazardous Incident Ordinance)

Netherlands
SZW-lijst van kankerverwekkende stoffen : The substance is not listed
SZW-lijst van mutagene stoffen : The substance is not listed
NIET-limitatieve lijst van voor de voortplanting giftige stoffen – Borstvoeding : The substance is not listed
NIET-limitatieve lijst van voor de voortplanting giftige stoffen – Vruchtbaarheid : The substance is not listed
NIET-limitatieve lijst van voor de voortplanting giftige stoffen – Ontwikkeling : The substance is not listed
1-(TRIETHOXYSILYL)-2-(DIETHOXYMETHYLSILYL)ETHANE
Safety Data Sheet

Denmark
Danish National Regulations: Young people below the age of 18 years are not allowed to use the product.

15.2. Chemical safety assessment
No additional information available

SECTION 16: Other information

Abbreviations and acronyms:

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

Other information: Prepared by safety and environmental affairs.

Full text of H- and EUH-statements:

| Acute Tox. 4 (Oral) | Acute toxicity (oral), Category 4 |
| Eye Irrit. 2        | Serious eye damage/eye irritation, Category 2 |
| H302                 | Harmful if swallowed. |
| H319                 | Causes serious eye irritation. |

SDS EU (REACH Annex II) - Custom

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.

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