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

1.1. Product identifier

Product form: Substance
Physical state: Liquid
Substance name: HEXADECYLTRIETHOXYSILANE, 95%
Product code: SIH5922.0
Formula: C22H48O3Si
Synonyms: TRIETHOXYSILYLHEXADECANE; CETYLTRIETHOXYSILANE
Chemical family: ORGANOETHOXYSILANE

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]
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): GHS07

Signal word (CLP): Warning
Hazard statements (CLP): H319 - Causes serious eye irritation.
Precautionary statements (CLP): P280 - Wear protective gloves/protective clothing/eye protection/face protection.
P264 - Wash hands thoroughly after handling.
P305+P351+P338 - IF IN EYES: Rinse cautiously with water for several minutes. Remove contact lenses, if present and easy to do. Continue rinsing.
HEXADECYLTRIETHOXYSILANE, 95%
Safety Data Sheet

P337+P313 - If eye irritation persists: Get medical advice/attention.

2.3. Other hazards

Other hazards not contributing to the classification: Additional ethanol may be formed by reaction with moisture and water. The hydrolysis product of this compound 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. The US OSHA PEL (TWA) for ethanol is 1000 ppm. This product contains ethanol which is classified as a carcinogen by IARC in alcoholic beverages.

SECTION 3: Composition/information on ingredients

3.1. Substances

Substance type: Multi-constituent
Name: HEXADECYLTRIETHOXYSILANE, 95%
CAS-No.: 16415-13-7
EC-No.: 240-465-9

<table>
<thead>
<tr>
<th>Name</th>
<th>Product identifier</th>
<th>%</th>
<th>Classification according to Regulation (EC No. 1272/2008 [CLP])</th>
</tr>
</thead>
<tbody>
<tr>
<td>Triethoxyhexadecylsilane</td>
<td>(CAS-No.) 16415-13-7</td>
<td>95 - 100</td>
<td>Eye Irrit. 2, H319</td>
</tr>
<tr>
<td>Hexadecyltriethoxysilane, mixed isomers</td>
<td>(CAS-No.) Not found</td>
<td>85 - 90</td>
<td>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. IF exposed or concerned: Get medical advice/attention.

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/…. Get 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 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/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 serious eye irritation.
Symptoms/effects after ingestion: May be harmful if swallowed.
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

No additional information available

SECTION 5: Firefighting measures

5.1. Extinguishing media

Unsuitable extinguishing media: Do not use straight streams.

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 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 vapour and mist.
SECTION 6: Accidental release measures

6.1. Personal precautions, protective equipment and emergency procedures

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. Fire resistant clothing and gloves must be worn.

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.

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 vapour and mist. Provide good ventilation in process area to prevent formation of vapour.
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.
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
No additional information available

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
Appearance: Clear liquid.
HEXADECYLTRIETHOXYSILANE, 95%
Safety Data Sheet

Molecular mass : 388.71 g/mol
Colour : Straw.
Odour : No data available
Odour threshold : No data available
Refractive index : 1.437
pH : No data available
Relative evaporation rate (butylacetate=1) : No data available
Melting point : No data available
Freezing point : -9 °C
Boiling point : 160 - 161 °C @ 1 mm Hg
Flash point : > 150 °C
Auto-ignition temperature : No data available
Decomposition temperature : No data available
Flammability (solid, gas) : No data available
Vapour pressure : < 0.01 mm Hg @ 20°C
Relative vapour density at 20 °C : > 1
Relative density : 0.888
Solubility : Insoluble in water. 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
Oxidising properties : No data available
Explosive 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.

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
Moisture. Water.

10.6. Hazardous decomposition products
Ethanol. Organic acid vapors.

SECTION 11: Toxicological information

11.1. Information on toxicological effects
Acute toxicity : Not classified
Skin corrosion/irritation : Not classified
Serious eye damage/irritation : Causes serious eye irritation.
Respiratory or skin sensitisation : Not classified
Germ cell mutagenicity : Not classified
Carcinogenicity : Not classified
Reproductive toxicity : Not classified
STOT-single exposure : Not classified
STOT-repeated exposure : Not classified
Aspiration hazard : Not classified
**HEXADECYLTRIETHOXYSILANE, 95%**

**Safety Data Sheet**

<table>
<thead>
<tr>
<th>Potential adverse human health effects and symptoms</th>
<th>This compound liberates ethanol on contact with moisture. Material generates ethanol on contact with water or moisture in skin, eyes and mucous membranes and has an irritating, dehydrating effect on overexposed tissue.</th>
</tr>
</thead>
<tbody>
<tr>
<td>Symptoms/effects after inhalation</td>
<td>May cause irritation to the respiratory tract.</td>
</tr>
<tr>
<td>Symptoms/effects after skin contact</td>
<td>May cause skin irritation.</td>
</tr>
<tr>
<td>Symptoms/effects after eye contact</td>
<td>Causes serious eye irritation.</td>
</tr>
<tr>
<td>Symptoms/effects after ingestion</td>
<td>May be harmful if swallowed.</td>
</tr>
<tr>
<td>Chronic symptoms</td>
<td>On contact with water this compound liberates ethanol which is known to have a chronic effect on the central nervous system.</td>
</tr>
<tr>
<td>Reason for classification</td>
<td>Expert judgment</td>
</tr>
</tbody>
</table>

### SECTION 12: Ecological information

#### 12.1. Toxicity

<table>
<thead>
<tr>
<th>Acute aquatic toxicity</th>
<th>Not classified</th>
</tr>
</thead>
<tbody>
<tr>
<td>Chronic aquatic toxicity</td>
<td>Not classified</td>
</tr>
</tbody>
</table>

#### 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

Other adverse effects: This substance may be hazardous to the environment.

### SECTION 13: Disposal considerations

#### 13.1. Waste treatment methods

<table>
<thead>
<tr>
<th>Sewage disposal recommendations</th>
<th>Do not dispose of waste into sewer.</th>
</tr>
</thead>
<tbody>
<tr>
<td>Product/Packaging disposal recommendations</td>
<td>May be incinerated. Dispose in a safe manner in accordance with local/national regulations. Dispose of contents/container to licensed waste disposal facility.</td>
</tr>
<tr>
<td>Ecology - waste materials</td>
<td>Avoid release to the environment.</td>
</tr>
</tbody>
</table>

### 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                                               | Not applicable |
| IMDG                                              | Not applicable |

| IATA                                              | Not applicable |
Transport hazard class(es) (IATA) : Not applicable

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

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 : This product is Combustible as defined by the US Department of Transportation (DOT). It is regulated for transport in the US in container > 119 gallons (450 liters). The product is not regulated for transport by the IATA, ADR/RID, ADNR or the IMDG regulations.

14.6. Special precautions for user
- Overland transport
  No data available
- 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
HEXADECYLTRIETHOXYSILANE, 95% is not on the REACH Candidate List
HEXADECYLTRIETHOXYSILANE, 95% is not on the REACH Annex XIV List
HEXADECYLTRIETHOXYSILANE, 95% 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.

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
15.2. Chemical safety assessment

No chemical safety assessment has been carried out

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>°:</td>
<td>°C 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:

<table>
<thead>
<tr>
<th>Code</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>Eye Irrit. 2</td>
<td>Serious eye damage/eye irritation, Category 2</td>
</tr>
<tr>
<td>H319</td>
<td>Causes serious eye irritation</td>
</tr>
</tbody>
</table>

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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