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

1.1. Product identifier

Product form : Substance
Physical state : Liquid
Substance name : TETRAKIS(METHOXYETHOXY)SILANE, tech-95
Product code : SIT7286.0
Formula : C12H28O8Si
Synonyms : SILICON TETRAMETHOXYETHOXIDE
Chemical family : SILICATE ESTER

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]

Skin corrosion/irritation, Category 2 : H315
Serious eye damage/eye irritation, Category 2 : H319
Reproductive toxicity, Category 1B : H360

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) :  

Signal word (CLP) : Danger
Hazard statements (CLP) : H315 - Causes skin irritation.
H319 - Causes serious eye irritation.
H360 - May damage fertility or the unborn child.
Precautionary statements (CLP):  
P201 - Obtain special instructions before use.  
P202 - Do not handle until all safety precautions have been read and understood.  
P280 - Wear protective gloves/protective clothing/eye protection/face protection.  
P264 - Wash hands thoroughly after handling.  
P302+P352 - IF ON SKIN: Wash with plenty of water.  
P305+P351+P338 - IF IN EYES: Rinse cautiously with water for several minutes. Remove contact lenses, if present and easy to do. Continue rinsing.

2.3. Other hazards
No additional information available

SECTION 3: Composition/information on ingredients

3.1. Substances

<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>
</table>
| Tetrakis(methoxyethoxy)silane | (CAS-No.) 2157-45-1 (EC-No.) 218-470-2 | > 95 | Skin Irrit. 2, H315  
Eye Irrit. 2, H319 |
| 2-Methoxyethanol substance listed as REACH Candidate | (CAS-No.) 109-86-4 (EC-No.) 203-713-7 (EC Index-No.) 603-011-00-4 | < 5 | Flam. Liq. 3, H226  
Acute Tox. 4 (Oral), H302  
Acute Tox. 4 (Dermal), H312  
Acute Tox. 4 (Inhalation), H332  
Repr. 1B, H360FD |

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. 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: Causes skin irritation.
Symptoms/effects after eye contact: Causes serious eye irritation.
Symptoms/effects 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


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
Emergency procedures: Evacuate unnecessary personnel.

6.1.2. For emergency responders
Protective equipment: 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.

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: Use only in well ventilated areas. Avoid all eye and skin contact and do not breathe vapour and mist.
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

<table>
<thead>
<tr>
<th>2-Methoxyethanol (109-86-4)</th>
<th>EU IOELV TWA (ppm)</th>
<th>1 ppm</th>
</tr>
</thead>
<tbody>
<tr>
<td>Austria MAK (ppm)</td>
<td>1 ppm</td>
<td></td>
</tr>
<tr>
<td>Austria MAK Short time value (ppm)</td>
<td>4 ppm</td>
<td></td>
</tr>
<tr>
<td>Belgium Limit value (mg/m³)</td>
<td>0.3 mg/m³</td>
<td></td>
</tr>
<tr>
<td>Belgium Limit value (ppm)</td>
<td>0.1 ppm</td>
<td></td>
</tr>
<tr>
<td>Bulgaria OEL TWA (ppm)</td>
<td>1 ppm</td>
<td></td>
</tr>
<tr>
<td>Cyprus OEL TWA (ppm)</td>
<td>1 ppm</td>
<td></td>
</tr>
<tr>
<td>France VME (mg/m³)</td>
<td>3.2 mg/m³ (restrictive limit)</td>
<td></td>
</tr>
<tr>
<td>France VME (ppm)</td>
<td>1 ppm (restrictive limit)</td>
<td></td>
</tr>
<tr>
<td>Germany TRGS 900 Occupational exposure limit value (mg/m³)</td>
<td>3.2 mg/m³ (The risk of damage to the embryo or fetus cannot be excluded even when AGW and BGW values are observed)</td>
<td></td>
</tr>
<tr>
<td>Germany TRGS 900 Occupational exposure limit value (ppm)</td>
<td>1 ppm (The risk of damage to the embryo or fetus cannot be excluded even when AGW and BGW values are observed)</td>
<td></td>
</tr>
<tr>
<td>Germany TRGS 903 Biological limit value</td>
<td>15 mg/g (Medium; urine - Time: end of shift - Parameter: Methoxyacetic acid (measured as mg/g Creatinine))</td>
<td></td>
</tr>
<tr>
<td>Gibraltar Eight hours ppm</td>
<td>1 ppm</td>
<td></td>
</tr>
<tr>
<td>Greece OEL TWA (ppm)</td>
<td>1 ppm</td>
<td></td>
</tr>
<tr>
<td>Italy - Portugal - USA ACGIH ACGIH TWA (ppm)</td>
<td>0.1 ppm</td>
<td></td>
</tr>
<tr>
<td>Italy OEL TWA (ppm)</td>
<td>0.5 ppm</td>
<td></td>
</tr>
<tr>
<td>Latvia OEL TWA (ppm)</td>
<td>1 ppm</td>
<td></td>
</tr>
<tr>
<td>USA IDLH US IDLH (ppm)</td>
<td>200 ppm</td>
<td></td>
</tr>
<tr>
<td>USA NIOSH NIOSH REL (TWA) (mg/m³)</td>
<td>0.3 mg/m³</td>
<td></td>
</tr>
<tr>
<td>USA NIOSH NIOSH REL (TWA) (ppm)</td>
<td>0.1 ppm</td>
<td></td>
</tr>
</tbody>
</table>

Print date: 11/04/2019 EN (English) SDS ID: SIT7286.0 3/9
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

<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>328.43 g/mol</td>
</tr>
<tr>
<td>Colour</td>
<td>No data available</td>
</tr>
<tr>
<td>Odour</td>
<td>characteristic.</td>
</tr>
<tr>
<td>Odour threshold</td>
<td>No data available</td>
</tr>
<tr>
<td>Refractive index</td>
<td>1.4219</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>179 - 182 °C @ 10 mm Hg</td>
</tr>
<tr>
<td>Flash point</td>
<td>118 °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>No data available</td>
</tr>
<tr>
<td>Relative vapour density at 20 °C</td>
<td>&gt; 4</td>
</tr>
<tr>
<td>Relative density</td>
<td>1.079</td>
</tr>
<tr>
<td>% Volatiles</td>
<td>&lt; 1 %</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>4 cSt</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>

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

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

10.5. Incompatible materials
Moisture. Water:

10.6. Hazardous decomposition products

SECTION 11: Toxicological information

11.1. Information on toxicological effects
Acute toxicity: Not classified
TETRAKIS(METHOXYETHOXY)SILANE, tech-95
Safety Data Sheet

2-Methoxyethanol (109-86-4)

<table>
<thead>
<tr>
<th>Parameter</th>
<th>Value</th>
</tr>
</thead>
<tbody>
<tr>
<td>LD50 oral</td>
<td>2370 mg/kg 2460 mg/kg</td>
</tr>
<tr>
<td>LD50 dermal rabbit</td>
<td>1280 mg/kg</td>
</tr>
<tr>
<td>LC50 inhalation rat (ppm)</td>
<td>1478 ppm (Exposure time: 7 h)</td>
</tr>
<tr>
<td>ATE CLP (oral)</td>
<td>500 mg/kg bodyweight</td>
</tr>
<tr>
<td>ATE CLP (dermal)</td>
<td>1280 mg/kg bodyweight</td>
</tr>
<tr>
<td>ATE CLP (vapours)</td>
<td>11 mg/l/4h</td>
</tr>
</tbody>
</table>

Skin corrosion/irritation : Causes skin irritation.
Serious eye damage/irritation : Causes serious eye irritation.
Respiratory or skin sensitisation : Not classified
Germ cell mutagenicity : Not classified
Carcinogenicity : Not classified
Reproductive toxicity : May damage fertility or the unborn child.

The hydrolysis product of this product is methoxyethanol (ethyleneglycol, methyl ether). Methoxyethanol has been found to affect female and male reproductive systems. Additional laboratory studies with methoxyethoxyethanol observed birth defects, fetotoxicity, embryolethality, immunosuppression and damage to male reproductive tissues.

STOT-single exposure : Not classified
STOT-repeated exposure : Not classified
Aspiration hazard : Not classified

Potential adverse human health effects and symptoms : Material generates methoxyethanol on contact with water or moisture in skin, eyes and mucous membranes and has an irritating, dehydrating effect on overexposed tissue.
Symptoms/effects after inhalation : May cause irritation to the respiratory tract.
Symptoms/effects after skin contact : Causes skin irritation.
Symptoms/effects after eye contact : Causes serious eye irritation.
Symptoms/effects after ingestion : May be harmful if swallowed.

SECTION 12: Ecological information

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

2-Methoxyethanol (109-86-4)

<table>
<thead>
<tr>
<th>Parameter</th>
<th>Value</th>
</tr>
</thead>
<tbody>
<tr>
<td>LC50 fish 1</td>
<td>10000 mg/l (Exposure time: 96 h - Species: Lepomis macrochirus [static])</td>
</tr>
<tr>
<td>LC50 fish 2</td>
<td>9650 mg/l (Exposure time: 96 h - Species: Lepomis macrochirus [static])</td>
</tr>
</tbody>
</table>

12.2. Persistence and degradability
No additional information available

12.3. Bioaccumulative potential

2-Methoxyethanol (109-86-4)

<table>
<thead>
<tr>
<th>Parameter</th>
<th>Value</th>
</tr>
</thead>
<tbody>
<tr>
<td>Log Pow</td>
<td>-0.85</td>
</tr>
</tbody>
</table>

12.4. Mobility in soil
No additional information available

12.5. Results of PBT and vPvB assessment

Component

<table>
<thead>
<tr>
<th>Component</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>2-Methoxyethanol (109-86-4)</td>
<td>This substance/mixture does not meet the PBT criteria of REACH regulation, annex XIII This substance/mixture does not meet the vPvB criteria of REACH regulation, annex XIII</td>
</tr>
</tbody>
</table>

12.6. Other adverse effects
No additional information available

SECTION 13: Disposal considerations

13.1. Waste treatment methods

Product/Packaging disposal recommendations : Incinerate. 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.
## SECTION 14: Transport information

### 14.1. UN number

In accordance with ADR / RID / IMDG / IATA / ADN

| 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

#### 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

<table>
<thead>
<tr>
<th>Hazard</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>Dangerous for the environment</td>
<td>No</td>
</tr>
<tr>
<td>Marine pollutant</td>
<td>No</td>
</tr>
<tr>
<td>Other information</td>
<td>No supplementary information available</td>
</tr>
</tbody>
</table>

### 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**
  
  No data available

- **Rail transport**
  
  No data available
TETRAKIS(METHOXYETHOXY)SILANE, tech-95
Safety Data Sheet

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
TETRAKIS(METHOXYETHOXY)SILANE, tech-95 is not on the REACH Candidate List
Contains a substance on the REACH candidate list in concentration ≥ 0.1% or with a lower specific limit: 2-Methoxymethanol (EC 203-713-7, CAS 109-86-4)
TETRAKIS(METHOXYETHOXY)SILANE, tech-95 is not on the REACH Annex XIV List
TETRAKIS(METHOXYETHOXY)SILANE, tech-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.

% Volatiles : < 1 %

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-list van kankerverwekkende stoffen: The substance is not listed
SZW-list 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

Denmark
Danish National Regulations: Young people below the age of 18 years are not allowed to use the product
Pregnant/breastfeeding women working with the product must not be in direct contact with the product
The requirements from the Danish Working Environment Authorities regarding work with carcinogens must be followed during use and disposal

15.2. Chemical safety assessment
No additional information available

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

Other information: Prepared by safety and environmental affairs.

Full text of H- and EUH-statements:

Acute Tox. 4 (Dermal) Acute toxicity (dermal), Category 4
Acute Tox. 4 (Inhalation) Acute toxicity (inhal.), Category 4
Acute Tox. 4 (Oral) Acute toxicity (oral), Category 4
Eye Irrit. 2 Serious eye damage/eye irritation, Category 2
Flam. Liq. 3 Flammable liquids, Category 3
Repr. 1B Reproductive toxicity, Category 1B
Repr. 1B Reproductive toxicity, Category 1B
TETRAKIS(METHOXYETHOXY)SILANE, tech-95
Safety Data Sheet

<table>
<thead>
<tr>
<th>Skin Irrit. 2</th>
<th>Skin corrosion/irritation, Category 2</th>
</tr>
</thead>
<tbody>
<tr>
<td>H226</td>
<td>Flammable liquid and vapour.</td>
</tr>
<tr>
<td>H302</td>
<td>Harmful if swallowed.</td>
</tr>
<tr>
<td>H312</td>
<td>Harmful in contact with skin.</td>
</tr>
<tr>
<td>H315</td>
<td>Causes skin irritation.</td>
</tr>
<tr>
<td>H319</td>
<td>Causes serious eye irritation.</td>
</tr>
<tr>
<td>H332</td>
<td>Harmful if inhaled.</td>
</tr>
<tr>
<td>H360</td>
<td>May damage fertility or the unborn child.</td>
</tr>
<tr>
<td>H360FD</td>
<td>May damage fertility. May damage the unborn child.</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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