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

1.1. Product identifier
Product form : Substance
Physical state : Liquid
Substance name : TETRAISOCYANATOSILANE
Product code : SIT7125.0
Formula : C4N4O4Si
Synonyms : SILICON TETRAISOCYANATE; SILICON ISOCYANATE
Chemical family : ORGANOSILANE

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]
- Flammable liquids, Category 3: H226
- Skin corrosion/irritation, Category 1B: H314
- Serious eye damage/eye irritation, Category 1: H318
- Specific target organ toxicity — Single exposure, Category 3: H335
- Respiratory tract irritation

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)
  - GHS02
  - GHS05
  - GHS07
- Signal word (CLP): Danger
TETRAISOCYANATOSILANE
Safety Data Sheet

Hazard statements (CLP)
- H226 - Flammable liquid and vapour.
- H314 - Causes severe skin burns and eye damage.
- H335 - May cause respiratory irritation.

Precautionary statements (CLP)
- P280 - Wear protective gloves/protective clothing/eye protection/face protection.
- P260 - Do not breathe vapours.
- P210 - Keep away from heat, hot surfaces, sparks, open flames and other ignition sources. No smoking.
- P240 - Ground/bond container and receiving equipment.
- P403+P235 - Keep in a cool place
- P310 - Immediately call a POISON CENTER or doctor/physician

2.3. Other hazards
No additional information available

SECTION 3: Composition/information on ingredients

3.1. Substances

<table>
<thead>
<tr>
<th>Substance type</th>
<th>Product identifier</th>
</tr>
</thead>
<tbody>
<tr>
<td>Mono-constituent</td>
<td>TETRAISOCYANATOSILANE</td>
</tr>
</tbody>
</table>

<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>Tetraisocyanatosilane</td>
<td>(CAS-No.) 3410-77-3 (EC-No.) 222-297-8</td>
<td>&gt; 95</td>
<td>Flam. Liq. 3, H226 Skin Corr. 1B, H314 Eye Dam. 1, H318 STOT SE 3, H335</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/…. 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: 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: Causes severe skin burns and eye damage.
Symptoms/effects after skin contact: Causes (severe) skin burns.
Symptoms/effects after eye contact: Causes serious eye damage.
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
No additional information available

5.2. Special hazards arising from the substance or mixture
Fire hazard: Flammable liquid and vapour. Irritating fumes and organic acid vapors may develop when material is exposed to water or open flame.

5.3. Advice for firefighters
Firefighting instructions: 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

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: 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 vapour and mist. Containers must be properly grounded before beginning transfer. Provide good ventilation in process area to prevent formation of vapour. Use only non-sparking tools.

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

Technical measures: Ground/bond container and receiving equipment. Proper grounding procedures to avoid static electricity should be followed. Use explosion-proof electrical equipment.

Storage conditions: Keep container tightly closed. Avoid contact with water.

Incompatible materials: Moisture. Water:

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 or face shield. Contact lenses should not be worn

Skin and body protection:
Wear suitable protective clothing

Respiratory protection:
NIOSH-certified combination organic vapor - amine gas (brown 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>196.16 g/mol</td>
</tr>
<tr>
<td>Colour</td>
<td>No data available</td>
</tr>
<tr>
<td>Odour</td>
<td>No data available</td>
</tr>
<tr>
<td>Odour threshold</td>
<td>No data available</td>
</tr>
<tr>
<td>Refractive index</td>
<td>1.461</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>No data available</td>
</tr>
<tr>
<td>Freezing point</td>
<td>25 - 26 °C</td>
</tr>
<tr>
<td>Boiling point</td>
<td>86 °C</td>
</tr>
<tr>
<td>Flash point</td>
<td>50 °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>Flammable liquid and vapour.</td>
</tr>
<tr>
<td>Vapour pressure</td>
<td>&lt; 2 mm Hg @ 25°C</td>
</tr>
<tr>
<td>Relative vapour density at 20 °C</td>
<td>&gt; 1</td>
</tr>
<tr>
<td>Relative density</td>
<td>1.442</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>

**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 isocyanic acid.

**10.4. Conditions to avoid**

Heat. Open flame. Sparks.

**10.5. Incompatible materials**

Moisture. Water.

**10.6. Hazardous decomposition products**

Acid vapors.

### SECTION 11: Toxicological information

**11.1. Information on toxicological effects**

<table>
<thead>
<tr>
<th>Effect</th>
<th>Classification</th>
</tr>
</thead>
<tbody>
<tr>
<td>Acute toxicity</td>
<td>Not classified</td>
</tr>
<tr>
<td>Skin corrosion/irritation</td>
<td>Causes severe skin burns and eye damage. Sensitization and allergic reactions are frequently reported with other isocyanic acid derivatives, although none have been noted for this compound.</td>
</tr>
<tr>
<td>Serious eye damage/irritation</td>
<td>Causes serious eye damage.</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>
</tbody>
</table>
## Reproductive toxicity
Not classified

## STOT-single exposure
May cause respiratory irritation.

## STOT-repeated exposure
Not classified

## Aspiration hazard
Not classified

## Potential adverse human health effects and symptoms
Inhalation of large amounts is expected to cause necrosis of tracheal epithelium, bronchitis and interstitial pneumonia.

### Symptoms/effects after inhalation

### Symptoms/effects after skin contact
Causes (severe) skin burns.

### Symptoms/effects after eye contact
Causes serious eye damage.

### Symptoms/effects after ingestion
May be harmful if swallowed.

## Reason for classification
Expert judgment

### 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
The substance may be hazardous to the environment.

### SECTION 13: Disposal considerations

#### 13.1. Waste treatment methods
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) | 2924 |
| UN-No. (IMDG) | 2924 |
| UN-No. (IATA) | 2924 |
| UN-No. (ADN) | 2924 |
| UN-No. (RID) | 2924 |

#### 14.2. UN proper shipping name

| Proper Shipping Name (ADR) | FLAMMABLE LIQUID, CORROSIVE, N.O.S. |
| Proper Shipping Name (IMDG) | FLAMMABLE LIQUID, CORROSIVE, N.O.S. |
| Proper Shipping Name (IATA) | Flamable liquid, corrosive, n.o.s. |
| Proper Shipping Name (ADN) | FLAMMABLE LIQUID, CORROSIVE, N.O.S. |
| Proper Shipping Name (RID) | FLAMMABLE LIQUID, CORROSIVE, N.O.S. |
| Transport document description (ADR) | UN 2924 FLAMMABLE LIQUID, CORROSIVE, N.O.S. (TETRAISOCYANATOSILANE), 3 (8), III, (D/E) |
| Transport document description (IMDG) | UN 2924 FLAMMABLE LIQUID, CORROSIVE, N.O.S. (TETRAISOCYANATOSILANE), 3 (8), III |
| Transport document description (IATA) | UN 2924 Flammable liquid, corrosive, n.o.s. (TETRAISOCYANATOSILANE), 3 (8), III |
| Transport document description (ADN) | UN 2924 FLAMMABLE LIQUID, CORROSIVE, N.O.S. (TETRAISOCYANATOSILANE), 3 (8), III |
# TETRAISOCYANATOSILANE
## Safety Data Sheet

### Transport document description (RID)

| Transport document description (RID) | UN 2924 FLAMMABLE LIQUID, CORROSIVE, N.O.S. (TETRAISOCYANATOSILANE), 3 (8), III |

### 14.3. Transport hazard class(es)

#### ADR

| Transport hazard class(es) (ADR) | 3 (8) |
| Danger labels (ADR) | 3, 8 |

#### IMDG

| Transport hazard class(es) (IMDG) | 3 (8) |
| Danger labels (IMDG) | 3, 8 |

#### IATA

| Transport hazard class(es) (IATA) | 3 (8) |
| Hazard labels (IATA) | 3, 8 |

#### ADN

| Transport hazard class(es) (ADN) | 3 (8) |
| Danger labels (ADN) | 3, 8 |

#### RID

| Transport hazard class(es) (RID) | 3 (8) |
| Danger labels (RID) | 3, 8 |

### 14.4. Packing group

| Packing group (ADR) | III |
| Packing group (IMDG) | III |
| Packing group (IATA) | III |
| Packing group (ADN) | III |
| Packing group (RID) | III |

### 14.5. Environmental hazards

| Dangerous for the environment | No |

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*Print date: 11/04/2019  EN (English)  SDS ID: SIT7125.0*
### Marine pollutant
- **No**

### Other information
- **No supplementary information available**

#### 14.6. Special precautions for user

**- Overland transport**
- **Classification code (ADR)**: FC
- **Special provisions (ADR)**: 274
- **Limited quantities (ADR)**: 5 L
- **Excepted quantities (ADR)**: E1
- **Packing instructions (ADR)**: P001, IBC03, R001
- **Mixed packing provisions (ADR)**: MP19
- **Portable tank and bulk container instructions (ADR)**: T7
- **Portable tank and bulk container special provisions (ADR)**: TP1, TP28
- **Tank code (ADR)**: L4BN
- **Vehicle for tank carriage**: FL
- **Transport category (ADR)**: 3
- **Special provisions for carriage - Packages (ADR)**: V12
- **Special provisions for carriage - Operation (ADR)**: S2
- **Hazard identification number (Kemler No.)**: 38
- **Orange plates**: 

- **Tunnel restriction code (ADR)**: D/E

**- Transport by sea**
- **Special provisions (IMDG)**: 223, 274
- **Limited quantities (IMDG)**: 5 L
- **Excepted quantities (IMDG)**: E1
- **Packing instructions (IMDG)**: P001
- **IBC packing instructions (IMDG)**: IBC03
- **Tank instructions (IMDG)**: T7
- **Tank special provisions (IMDG)**: TP1, TP28
- **EmS-No. (Fire)**: F-E
- **EmS-No. (Spillage)**: S-C
- **Stowage category (IMDG)**: A
- **Stowage and handling (IMDG)**: SW2
- **Properties and observations (IMDG)**: Causes burns to skin, eyes and mucous membranes.

**- Air transport**
- **PCA Excepted quantities (IATA)**: E1
- **PCA Limited quantities (IATA)**: Y342
- **PCA limited quantity max net quantity (IATA)**: 1 L
- **PCA packing instructions (IATA)**: 354
- **PCA max net quantity (IATA)**: 5 L
- **CAO packing instructions (IATA)**: 365
- **CAO max net quantity (IATA)**: 60L
- **Special provisions (IATA)**: A3
- **ERG code (IATA)**: 3C

**- Inland waterway transport**
- **Classification code (ADN)**: FC
- **Special provisions (ADN)**: 274
- **Limited quantities (ADN)**: 5 L
- **Excepted quantities (ADN)**: E1
- **Carriage permitted (ADN)**: T
TETRAISOCYANATOSILANE
Safety Data Sheet

### Equipment required (ADN)
- PP, EP, EX, A

### Ventilation (ADN)
- VE01

### Number of blue cones/lights (ADN)
- 0

#### - Rail transport

- **Classification code (RID)**: FC
- **Special provisions (RID)**: 274
- **Limited quantities (RID)**: 5L
- **Excepted quantities (RID)**: E1
- **Packing instructions (RID)**: P001, IBC03, R001
- **Mixed packing provisions (RID)**: MP19
- **Portable tank and bulk container instructions (RID)**: T7
- **Portable tank and bulk container special provisions (RID)**: TP1, TP28
- **Tank codes for RID tanks (RID)**: L4BN
- **Transport category (RID)**: 3
- **Special provisions for carriage – Packages (RID)**: W12
- **Colis express (express parcels) (RID)**: CE4
- **Hazard identification number (RID)**: 38

### 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

TETRAISOCYANATOSILANE is not on the REACH Candidate List

TETRAISOCYANATOSILANE is not on the REACH Annex XIV List

TETRAISOCYANATOSILANE 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-list van kankerverwekkende stoffen: The substance is not listed
- SZW-list van mutagene stoffen: The substance is not listed
- NIET-limiteitlijst van voor de voortplanting giftige stoffen – Borstvoeding: The substance is not listed
- NIET-limiteitlijst van voor de voortplanting giftige stoffen – Vruchtbaarheid: The substance is not listed
- NIET-limiteitlijst van voor de voortplanting giftige stoffen – Ontwikkeling: The substance is not listed

**Denmark**
- Class for fire hazard: Class II-1
- Store unit: 5 liter
- Classification remarks: R10 <H226;H314;H335>; Emergency management guidelines for the storage of flammable liquids must be followed
- 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

Print date: 11/04/2019
EN (English) SDS ID: SIT7125.0
**TETRAISOCYANATOSILANE**
Safety Data Sheet

### 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:

<table>
<thead>
<tr>
<th>EUH Code</th>
<th>Full Text</th>
</tr>
</thead>
<tbody>
<tr>
<td>H226</td>
<td>Flammable liquid and vapour.</td>
</tr>
<tr>
<td>H314</td>
<td>Causes severe skin burns and eye damage.</td>
</tr>
<tr>
<td>H318</td>
<td>Causes serious eye damage.</td>
</tr>
<tr>
<td>H335</td>
<td>May cause respiratory 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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