SECTION 1: Identification

1.1. Identification

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

1.2. Recommended use and restrictions on use

Recommended use: Chemical intermediate

1.3. Supplier

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: Hazard(s) identification

2.1. Classification of the substance or mixture

GHS-US classification
Flammable liquids Category 3
H226 Flammable liquid and vapor
Skin corrosion/irritation Category 1B
H314 Causes severe skin burns and eye damage
H318 Causes serious eye damage
Specific target organ toxicity (single exposure) Category 3
H335 May cause respiratory irritation

Full text of H statements: see section 16

2.2. GHS Label elements, including precautionary statements

GHS US labeling
Hazard pictograms (GHS US): 

Signal word (GHS US): Danger
Hazard statements (GHS US): H226 - Flammable liquid and vapor
H314 - Causes severe skin burns and eye damage
H318 - Causes serious eye damage
H335 - May cause respiratory irritation
Precautionary statements (GHS US): P280 - Wear protective gloves/protective clothing/eye protection/face protection.
P260 - Do not breathe vapors.
P264 - Wash hands thoroughly after handling.
P310 - Immediately call a doctor
P210 - Keep away from heat, open flames, sparks. - No smoking.
P233 - Keep container tightly closed.
P240 - Ground/Bond container and receiving equipment
P241 - Use explosion-proof electrical equipment
P242 - Use only non-sparking tools.
P243 - Take precautionary measures against static discharge.
P271 - Use only outdoors or in a well-ventilated area.
P301+P330+P331 - If swallowed: rinse mouth. Do NOT induce vomiting
P303+P361+P353 - If on skin (or hair): take off immediately all contaminated clothing. Rinse skin with water/shower
P304+P340 - If inhaled: Remove person to fresh air and keep comfortable for breathing
P305+P351+P338 - IF IN EYES: Rinse cautiously with water for several minutes. Remove contact lenses, if present and easy to do. Continue rinsing
P363 - Wash contaminated clothing before reuse.
P403+P235 - Keep in a cool place
2.3. Hazards not otherwise classified (HNOC)
No additional information available

2.4. Unknown acute toxicity (GHS US)
Not applicable

SECTION 3: Composition/Information on ingredients

3.1. Substances

<table>
<thead>
<tr>
<th>Name</th>
<th>Product identifier</th>
<th>%</th>
<th>GHS-US classification</th>
</tr>
</thead>
<tbody>
<tr>
<td>Tetraisocyanatosilane</td>
<td>(CAS-No.) 3410-77-3</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 hazard classes and 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 victim to fresh air and keep at rest in a position comfortable for breathing. If you feel unwell, seek medical advice.

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: Never give anything by mouth to an unconscious person. Get medical advice/attention.

4.2. Most important symptoms and effects (acute and delayed)

Symptoms/effects: Causes severe skin burns and eye damage.

Symptoms/effects after inhalation: May cause respiratory irritation. Overexposure may cause: Coughing, Headache, Nausea.

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. Immediate medical attention and special treatment, if necessary
No additional information available

SECTION 5: Fire-fighting measures

5.1. Suitable (and unsuitable) extinguishing media
No additional information available

5.2. Specific hazards arising from the chemical

Fire hazard: Flammable liquid and vapor. Irritating fumes and organic acid vapors may develop when material is exposed to water or open flame.

5.3. Special protective equipment and precautions for fire-fighters

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 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: 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. Containers must be properly grounded before beginning transfer. Provide good ventilation in process area to prevent accumulation of vapors. 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.


Storage area: Store in a well-ventilated place. Store away from heat.

SECTION 8: Exposure controls/personal protection

8.1. Control parameters
No additional information available

8.2. Appropriate engineering controls
Appropriate engineering controls: Provide local exhaust or general room ventilation.

8.3. Individual protection measures/Personal protective equipment
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
Physical state: Liquid
Appearance: Clear liquid.
Molecular mass: 196.16 g/mol
Color: No data available
Odor: No data available
Odor threshold: No data available
Refractive index: 1.461
pH: No data available
Relative evaporation rate (butyl acetate=1): No data available
Melting point: 25 - 26 °C
Freezing point: 86 °C
Boiling point: No data available
TETRAISOCYANATOSILANE
Safety Data Sheet

<table>
<thead>
<tr>
<th>Property</th>
<th>Value</th>
</tr>
</thead>
<tbody>
<tr>
<td>Flash point</td>
<td>50 °C</td>
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<tr>
<td>Auto-ignition temperature</td>
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<tr>
<td>Decomposition temperature</td>
<td>No data available</td>
</tr>
<tr>
<td>Flammability (solid, gas)</td>
<td>Flammable liquid and vapor</td>
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<tr>
<td>Vapor pressure</td>
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<tr>
<td>Relative vapor density at 20 °C</td>
<td>&gt; 1</td>
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<tr>
<td>Relative density</td>
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<tr>
<td>Solubility</td>
<td>Reacts with water.</td>
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<tr>
<td>Log Kow</td>
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<td>Explosive properties</td>
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<tr>
<td>Oxidizing properties</td>
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<tr>
<td>Explosion limits</td>
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<tr>
<td>9.2. Other information</td>
<td>No additional information available</td>
</tr>
</tbody>
</table>

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

Acute toxicity: Not classified
Skin corrosion/irritation: 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.
Serious eye damage/irritation: Causes serious eye damage.
Respiratory or skin sensitization: Not classified
Germ cell mutagenicity: Not classified
Carcinogenicity: Not classified
Reproductive toxicity: Not classified
Specific target organ toxicity – single exposure: May cause respiratory irritation.
Specific target organ toxicity – 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 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
No additional information available

### 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. Other adverse effects
- Other adverse effects: This substance may be hazardous to the environment.
- Effect on the ozone layer: No additional information available

## SECTION 13: Disposal considerations

### 13.1. Disposal methods
- Product/Packaging disposal recommendations: 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
- UN-No.(DOT): 2924
- DOT NA no.: UN2924

### 14.2. UN proper shipping name
- Transport document description: UN2924 Flammable liquids, corrosive, n.o.s. (TETRAISOCYANATOSILANE), 3 (8), III
- Proper Shipping Name (DOT): Flammable liquids, corrosive, n.o.s. (TETRAISOCYANATOSILANE)
- Class (DOT): 3 - Class 3 - Flammable and combustible liquid 49 CFR 173.120
- Packing group (DOT): III - Minor Danger
- Hazard labels (DOT): 3 - Flammable liquid 8 - Corrosive

- DOT Packaging Non Bulk (49 CFR 173.xxx): 203
- DOT Packaging Bulk (49 CFR 173.xxx): 242
- DOT Packaging Exceptions (49 CFR 173.xxx): 150
- DOT Symbols: G - Identifies PSN requiring a technical name

### 14.3. Additional information
- Emergency Response Guide (ERG) Number: 132
- Other information: No supplementary information available.

#### Transport by sea
- DOT Vessel Stowage Location: A - The material may be stowed “on deck” or “under deck” on a cargo vessel and on a passenger vessel.
- DOT Vessel Stowage Other: 40 - Stow “clear of living quarters”

#### Air transport
- DOT Quantity Limitations Passenger aircraft/rail (49 CFR 173.27): 5 L
- DOT Quantity Limitations Cargo aircraft only (49 CFR 175.75): 60 L
TETRAISOCYANATOSILANE
Safety Data Sheet

SECTION 15: Regulatory information
15.1. US Federal regulations

| TETRAISOCYANATOSILANE (3410-77-3) | CAUTION: This material is supplied for research and development purposes subject to the R&D exemption under TSCA, 40 CFR 720.36, and must meet the requirements of the exemption, including supervision by a "technically qualified individual" as defined by 40 CFR 720.3(ee). The use of this material for "commercial purposes" as defined by 40 CFR 720.3(r) is not permitted in the United States. |

| Tetraisocyanatosilane (3410-77-3) | Not listed on the United States TSCA (Toxic Substances Control Act) inventory |

15.2. International regulations

CANADA
No additional information available

EU-Regulations

| Tetraisocyanatosilane (3410-77-3) | Listed on the EEC inventory EINECS (European Inventory of Existing Commercial Chemical Substances) |

National regulations

| Tetraisocyanatosilane (3410-77-3) | 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) |

15.3. US State regulations

California Proposition 65 - This product does not contain any substances known to the state of California to cause cancer, developmental and/or reproductive harm

SECTION 16: Other information

Full text of H-phrases:

| H226 | Flammable liquid and vapor |
| H314 | Causes severe skin burns and eye damage |
| H335 | May cause respiratory irritation |

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.

Hazard Rating

Health: 3 Serious Hazard - Major injury likely unless prompt action is taken and medical treatment is given

Flammability: 2 Moderate Hazard - Materials which must be moderately heated or exposed to high ambient temperatures before ignition will occur. Includes liquids having a flash point at or above 100 F but below 200 F. (Classes II & IIIA)

Physical: 1 Slight Hazard - Materials that are normally stable but can become unstable (self-react) at high temperatures and pressures. Materials may react non-violently with water or undergo hazardous polymerization in the absence of inhibitors.

Prepared by safety and environmental affairs.

Date of issue: 03/27/2015 Version: 1.0

SDS US (GHS HazCom 2012) - Custom
Print date: 04/11/2019 EN (English US) SDS ID: SIT7125.0 6/7
According to Federal Register / Vol. 77, No. 58 / Monday, March 26, 2012 / Rules and Regulations

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