**SECTION 1: Identification**

1.1. Identification

Product name: (3-HEPTAFLUOROISOPROPOXY)PROPYLTRICHLOROSILANE

Product code: SIH5842.0

Product form: Substance

Physical state: Liquid

Formula: C₆H₆Cl₃F₇OSi

Synonyms: TRICHLORO[3-HEPTAFLUOROISOPROXY]PROPYLENOSILANE
TRICHLORO[3-[1,2,2,2-TETRAFLUORO-1-(TRIFLUOROMETHYL)ETHOXY]PROPYLSILANE

Chemical family: ORGANOCHLOROSILANE

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
- Serious eye damage/eye irritation Category 1 H318 - Causes serious eye damage

Full text of H statements: see section 16

2.2. GHS Label elements, including precautionary statements

GHS US labeling

Hazard pictograms (GHS US):

<table>
<thead>
<tr>
<th>Signal word (GHS US)</th>
<th>: Danger</th>
</tr>
</thead>
</table>

<table>
<thead>
<tr>
<th>Hazard statements (GHS US)</th>
<th>: H226 - Flammable liquid and vapor</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>H314 - Causes severe skin burns and eye damage</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Precautionary statements (GHS US)</th>
<th>: P280 - Wear protective gloves/protective clothing/eye protection/face protection.</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>P233 - Keep container tightly closed.</td>
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<tr>
<td></td>
<td>P210 - Keep away from heat, open flames, sparks. - No smoking.</td>
</tr>
<tr>
<td></td>
<td>P240 - Ground/Bond container and receiving equipment</td>
</tr>
<tr>
<td></td>
<td>P241 - Use explosion-proof electrical equipment</td>
</tr>
<tr>
<td></td>
<td>P242 - Use only non-sparking tools.</td>
</tr>
<tr>
<td></td>
<td>P243 - Take precautionary measures against static discharge.</td>
</tr>
<tr>
<td></td>
<td>P260 - Do not breathe vapors.</td>
</tr>
<tr>
<td></td>
<td>P264 - Wash hands thoroughly after handling.</td>
</tr>
<tr>
<td></td>
<td>P301+P330+P331 - If swallowed: rinse mouth. Do NOT induce vomiting</td>
</tr>
<tr>
<td></td>
<td>P303+P361+P353 - If on skin (or hair): take off immediately all contaminated clothing. rinse skin with water/shower</td>
</tr>
<tr>
<td></td>
<td>P304+P340 - If inhaled: Remove person to fresh air and keep comfortable for breathing</td>
</tr>
<tr>
<td></td>
<td>P305+P351+P338 - IF IN EYES: Rinse cautiously with water for several minutes. Remove contact lenses, if present and easy to do. Continue rinsing</td>
</tr>
<tr>
<td></td>
<td>P310 - Immediately call a doctor</td>
</tr>
<tr>
<td></td>
<td>P321 - Specific treatment (see first aid instructions on this label)</td>
</tr>
<tr>
<td></td>
<td>P363 - Wash contaminated clothing before reuse.</td>
</tr>
<tr>
<td></td>
<td>P370+P378 - In case of fire: Use water spray, foam, carbon dioxide, dry chemical to extinguish.</td>
</tr>
<tr>
<td></td>
<td>P403+P235 - Keep in a cool place</td>
</tr>
<tr>
<td></td>
<td>P405 - Store locked up.</td>
</tr>
</tbody>
</table>
(3-HEPTAFLUOROISOPROPOXY)PROPYLTRICHLOROSILANE
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2.3. Hazards not otherwise classified (HNOC)
Other hazards not contributing to the classification:
Hydrogen chloride may be formed by reaction with water and moisture in air. The US OSHA PEL (TWA) for hydrogen chloride is 5 ppm.

2.4. Unknown acute toxicity (GHS US)
Not applicable

SECTION 3: Composition/Information on ingredients

3.1. Substances
Substance type: Mono-constituent
Name: (3-HEPTAFLUOROISOPROPOXY)PROPYLTRICHLOROSILANE
CAS-No.: 15538-93-9

<table>
<thead>
<tr>
<th>Name</th>
<th>Product identifier</th>
<th>%</th>
<th>GHS-US classification</th>
</tr>
</thead>
<tbody>
<tr>
<td>Trichloro[3-[1,2,2,2-tetrafluoro-1-(trifluoromethyl)ethoxy]propyl]silane</td>
<td>(CAS-No.) 15538-93-9</td>
<td>95 - 100</td>
<td>Flam. Liq. 3, H226, Skin Corr. 1B, H314, Eye Dam. 1, H318</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 if you feel unwell.

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 irritation to the respiratory tract.
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
Suitable extinguishing media:
Unsuitable extinguishing media:
Water.

5.2. Specific hazards arising from the chemical
Fire hazard:
Flammable liquid and vapor. Irritating fumes of hydrochloric acid 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. Use water spray to cool exposed surfaces.
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:
Eliminate ignition sources. Use special care to avoid static electric charges.

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. For further information refer to section 8: “Exposure controls/personal 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

| 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. Use only non-sparking tools. |

### 6.4. Reference to other sections

See Heading 8. Exposure controls and personal protection.

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### SECTION 7: Handling and storage

#### 7.1. Precautions for safe handling

| Additional hazards when processed | Handle empty containers with care because residual vapors are flammable. Keep away from heat/sparks/open flames/hot surfaces. - No smoking. |
| Precautions for safe handling | Avoid all eye and skin contact and do not breathe vapor and mist. Ground/bond container and receiving equipment. Provide good ventilation in process area to prevent accumulation of vapors. Take precautionary measures against static discharge. 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 | Proper grounding procedures to avoid static electricity should be followed. Use explosion-proof electrical equipment. |
| Storage conditions | Keep container tightly closed. Store in a cool area. Store locked up. |
| Storage area | Store in a well-ventilated place. Store away from heat. |

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### 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:**

Where exposure through inhalation may occur from use, respiratory protection equipment is recommended. NIOSH-certified combination organic vapor/acid gas (yellow cartridge) respirator.

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### SECTION 9: Physical and chemical properties

#### 9.1. Information on basic physical and chemical properties

| Physical state | Liquid |
| Appearance | Clear liquid. |
| Molecular mass | 361.55 g/mol |
| Color | Straw. |
Odor: Acrid. Similar to hydrogen chloride.
Odor threshold: No data available
Refractive index: 1.371
pH: No data available
Relative evaporation rate (butyl acetate=1): No data available
Melting point: No data available
Freezing point: < 0 °C
Boiling point: 85 - 88 °C @ 35 mm Hg
Flash point: > 25 °C
Auto-ignition temperature: No data available
Decomposition temperature: No data available
Flammability (solid, gas): Flammable liquid and vapor
Vapor pressure: < 5 mm Hg @ 25°C
Relative vapor density at 20 °C: > 1
Relative density: 1.497
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
Oxidizing properties: No data available
Explosion 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 in sealed containers stored under a dry inert atmosphere.

10.3. Possibility of hazardous reactions
Reacts with water and moisture in air, liberating hydrogen chloride.

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

10.5. Incompatible materials

10.6. Hazardous decomposition products

SECTION 11: Toxicological information

11.1. Information on toxicological effects
Acute toxicity: Not classified
Skin corrosion/irritation: Causes severe skin burns and eye damage.
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: Not classified

Specific target organ toxicity – repeated exposure: Not classified
Aspiration hazard: Not classified
Symptoms/effects after inhalation: May cause irritation to the respiratory tract.
# Safety Data Sheet

## (3-HEPTAFLUOROISOPROPOXY)PROPYLTRICHLOROSILANE

### 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
- Sewage disposal recommendations: Do not dispose of waste into sewer.
- Product/Packaging disposal recommendations: Dispose in a safe manner in accordance with local/national regulations. Dispose of contents/container to licensed waste disposal facility.
- Additional information: Handle empty containers with care because residual vapors are flammable.
- Ecology - waste materials: Avoid release to the environment.

## SECTION 14: Transport information

### 14.1. UN number
- UN-No.(DOT): 2986
- DOT NA no.: UN2986

### 14.2. UN proper shipping name
- Transport document description: UN2986 Chlorosilanes, corrosive, flammable, n.o.s. ((3-HEPTAFLUOROISOPROPOXY)PROPYLTRICHLOROSILANE), 8 (3), II
- Proper Shipping Name (DOT): Chlorosilanes, corrosive, flammable, n.o.s. ((3-HEPTAFLUOROISOPROPOXY)PROPYLTRICHLOROSILANE)
- Class (DOT): 8 - Class 8: Corrosive material 49 CFR 173.136
- Packing group (DOT): II - Medium Danger
- Hazard labels (DOT): 8 - Corrosive
  - 3 - Flammable liquid

### DOT Packaging
- Non Bulk (49 CFR 173.xxx): 206
- Bulk (49 CFR 173.xxx): 243
- Exceptions (49 CFR 173.xxx): None

### 14.3. Additional information
- Emergency Response Guide (ERG) Number: 155
- Other information: No supplementary information available.

### Transport by sea
- DOT Vessel Stowage Location: C - The material must be stowed “on deck only” on a cargo vessel and on a passenger vessel.
- DOT Vessel Stowage Other: 40 - Stow “clear of living quarters”
(3-HEPTAFLUOROISOPROPOXY)PROPYLTRICHLOROSILANE
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SECTION 15: Regulatory information

15.1. US Federal regulations

<table>
<thead>
<tr>
<th>(3-HEPTAFLUOROISOPROPOXY)PROPYLTRICHLOROSILANE (15538-93-9)</th>
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</thead>
<tbody>
<tr>
<td>TSCA Exemption/Exclusion</td>
</tr>
</tbody>
</table>

Trichloro[3-[1,2,2,2-tetrafluoro-1-(trifluoromethyl)ethoxy]propyl]silane (15538-93-9)

Not listed on the United States TSCA (Toxic Substances Control Act) inventory

15.2. International regulations

CANADA
No additional information available

EU-Regulations

<table>
<thead>
<tr>
<th>Trichloro[3-[1,2,2,2-tetrafluoro-1-(trifluoromethyl)ethoxy]propyl]silane (15538-93-9)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Listed on the EEC inventory EINECS (European Inventory of Existing Commercial Chemical Substances)</td>
</tr>
</tbody>
</table>

National regulations
No additional information available

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

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: 3 Serious Hazard - Materials capable of ignition under almost all normal temperature conditions. Includes flammable liquids with flash points below 73 F and boiling points above 100 F. as well as liquids with flash points between 73 F and 100 F. (Classes IB & IC)

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: 10/05/2015 Revision date: 04/08/2019 Version: 1.2

Print date: 04/10/2019  EN (English US)  SDS ID: SIHS842.0  6/7
(3-HEPTAFLUOROISOPROPOXY)PROPYLTRICHLOROSILANE
Safety Data Sheet

SDS US (GHS HazCom 2012) - Custom

According to Federal Register / Vol. 77, No. 58 / Monday, March 26, 2012 / Rules and Regulations

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NOTICE OF TSCA USE RESTRICTIONS AND REQUIRED CONTROLS FOR SIH5842.0 (3-HEPTAFLUOROISOPROPOXY)PROPYLTRICHLOROSILANE

Dear Customer:

The chemical product purchased, SIH5842.0 has been granted a Low Volume Exemption by the U.S. Environmental Protection Agency (EPA) under the Toxic Substances Control Act (TSCA) regulations (40 CFR 723.50). Any manufacturer or processor who intends to use this chemical substance for commercial purposes must comply with the specific use restrictions and controls specified as follows:

USE OF THIS CHEMICAL SUBSTANCE IS RESTRICTED TO: Hydrophobic surface treatment

CONTROLS: Workers must use personal protection equipment to limit dermal and inhalation exposures as described in Section 8: Exposure Controls/Personal Protection of the Safety Data Sheet (SDS). These exposure controls include:

Hand protection: Impervious gloves (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: Air-purifying respirator with organic vapor/acid gas cartridge.

WASTE DISPOSAL: Customer must rinse containers with solvent prior to disposal. Residues and wash solvents must be containerized for off-site disposal by incineration at licensed waste disposal facility. Do not release to publicly owned treatment works (POTW) via sewer or to surface waters.

If you have questions or need more information related to allowable use of this substance, contact Gelest Regulatory Affairs at 215-547-1015.

Best Regards,

Gelest, Inc.
Regulatory Affairs Department