SECTION 1: Identification

1.1. Identification
Product name: NONAFLUOROHEXYLTRICHLOROSILANE
Product code: SIN6597.6
Product form: Substance
Physical state: Liquid
Formula: C6H4Cl3F9Si
Synonyms: 1-(TRICHLOROSILYL)NONAFLUOROFLUOROHEXANE
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 4
Skin corrosion/irritation Category 1B
Specific target organ toxicity (single exposure) Category 3
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):
H227 - Combustible liquid
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.
P210 - Keep away from heat, open flames, sparks. - No smoking.
P260 - Do not breathe vapors.
P264 - Wash hands thoroughly after handling.
P271 - Use only outdoors or in a well-ventilated area.
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.
P310 - Immediately call a doctor.
P363 - Wash contaminated clothing before reuse.
P370+P378 - In case of fire: Use alcohol resistant foam, carbon dioxide, dry chemical to extinguish.
P403+P233 - Store in a well-ventilated place. Keep container tightly closed.
P404+P235 - Keep in a cool place.
P405 - Store locked up.
P501 - Dispose of contents/container to licensed waste disposal facility.
2.3. Hazards not otherwise classified (HNOC)

Other hazards not contributing to the classification: NOTE: Material may form a siloxane polymer on the skin, eyes or in the lungs.

2.4. Unknown acute toxicity (GHS US)

Not applicable

SECTION 3: Composition/Information on ingredients

3.1. Substances

Substance type: Mono-constituent

Name: NONAFLUOROHEXYLTRICHLOROSILANE

CAS-No.: 78560-47-1

<table>
<thead>
<tr>
<th>Name</th>
<th>Product identifier</th>
<th>%</th>
<th>GHS-US classification</th>
</tr>
</thead>
<tbody>
<tr>
<td>Nonafluorohexyltrichlorosilane</td>
<td>(CAS-No.) 78560-47-1</td>
<td>97 - 100</td>
<td>Flam. Liq. 4, H227, 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. Get medical advice/attention.

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.

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: Alcohol-resistant foam. Carbon dioxide. Dry chemical. Use of high expansion foam (100:1) is recommended to cover flames.

Unsuitable extinguishing media: Water.

5.2. Specific hazards arising from the chemical

Fire hazard: Combustible liquid. Irritating fumes of hydrogen chloride 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: Use only dry media to extinguish flames. Water spray or fog should only be used to knock down hydrogen chloride vapors in areas downwind from the fire. 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

Protective equipment: Wear protective equipment as described in Section 8.

Emergency procedures: Evacuate unnecessary personnel.
### Nonfluorohexyltrichlorosilane Safety Data Sheet

#### 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

**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. Provide good ventilation in process area to prevent accumulation of vapors. Containers must be properly grounded before beginning transfer. Use only outdoors or in a well-ventilated area. 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.

**Storage conditions:** Keep container tightly closed.

**Incompatible materials:** Acids. Alcohols. Oxidizing agent.

**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:**

- **Hand protection:** Neoprene or nitrile rubber gloves
- **Eye protection:** Chemical goggles or face shield. (Viton recommended). 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.

### 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>361.53 g/mol</td>
</tr>
<tr>
<td>Color</td>
<td>Straw</td>
</tr>
<tr>
<td>Odor</td>
<td>Acrid, similar to hydrogen chloride</td>
</tr>
<tr>
<td>Odor threshold</td>
<td>No data available</td>
</tr>
<tr>
<td>Refractive index</td>
<td>1.3587</td>
</tr>
<tr>
<td>pH</td>
<td>No data available</td>
</tr>
</tbody>
</table>

Print date: 04/10/2019 EN (English US) SDS ID: SIN6597.6
NONAFLUOROHEXYLTRICHLOROSILANE
Safety Data Sheet

Relative evaporation rate (butyl acetate=1): No data available
Melting point: No data available
Freezing point: < 0 °C
Boiling point: 70 - 72 °C @ 15 mm Hg
Flash point: > 65 °C
Auto-ignition temperature: No data available
Decomposition temperature: No data available
Flammability (solid, gas): Combustible liquid
Vapor pressure: < 25 mm Hg @ 25°C
Relative vapor density at 20 °C: > 1
Relative density: 1.542
% Volatiles: 25 %
Solubility: 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: May cause respiratory irritation.

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

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) : 2987
DOT NA no. : UN2987

14.2. **UN proper shipping name**  
Transport document description : UN2987 Chlorosilanes, corrosive, n.o.s. (NONAFLUOROHEXYLTRICHLOROSILANE), 8, II
Proper Shipping Name (DOT) : Chlorosilanes, corrosive, n.o.s. (NONAFLUOROHEXYLTRICHLOROSILANE)
Class (DOT) : 8 - Class 8 - Corrosive material 49 CFR 173.136
Packing group (DOT) : II - Medium Danger
Hazard labels (DOT) : 8 - Corrosive

DOT Packaging Non Bulk (49 CFR 173.xxx) : 206
DOT Packaging Bulk (49 CFR 173.xxx) : 242
DOT Packaging Exceptions (49 CFR 173.xxx) : None

14.3. **Additional information**  
Emergency Response Guide (ERG) Number : 156
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”

**Air transport**  
DOT Quantity Limitations Passenger aircraft/rail (49 CFR 173.27) : Forbidden
DOT Quantity Limitations Cargo aircraft only (49 CFR 175.75) : 30 L
SECTION 15: Regulatory information

15.1. US Federal regulations

**NONAFLUOROHEXYLTRICHLOROSILANE (78560-47-1)**

| TSCA Exemption/Exclusion | Low Volume Exemption in accordance with 40 CFR 723.50(c)(1). Anyone who intends to use this chemical substance for commercial purposes must comply with specific use restrictions and controls specified herein. This LVE limits site of manufacture of this substance to Gelest, Inc. unless otherwise approved by U.S. EPA |

**Nonafluorohexyltrichlorosilane (78560-47-1)**

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

15.2. International regulations

**CANADA**

No additional information available

**EU-Regulations**

No additional information available

**National regulations**

**Nonafluorohexyltrichlorosilane (78560-47-1)**

Listed on the Japanese ENCS (Existing & New Chemical Substances) inventory

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:

| H227 | Combustible liquid |
| H314 | Causes severe skin burns and eye damage |
| H318 | Causes serious 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: 07/17/2015            Revision date: 04/08/2019            Version: 1.2

SDS US (GHS HazCom 2012) - Custom

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