1. PRODUCT AND COMPANY IDENTIFICATION

1.1 Product identifiers
Product name: Trichloro(1H,1H,2H,2H-perfluorooctyl)silane
Product Number: 448931
Brand: Aldrich
CAS-No.: 78560-45-9

1.2 Relevant identified uses of the substance or mixture and uses advised against
Identified uses: Laboratory chemicals, Synthesis of substances

1.3 Details of the supplier of the safety data sheet
Company: Sigma-Aldrich
3050 Spruce Street
SAINT LOUIS MO  63103
USA
Telephone: +1 800-325-5832
Fax: +1 800-325-5052

1.4 Emergency telephone number
Emergency Phone #: +1-703-527-3887 (CHEMTREC)

2. HAZARDS IDENTIFICATION

2.1 Classification of the substance or mixture
GHS Classification in accordance with 29 CFR 1910 (OSHA HCS)
Flammable liquids (Category 4), H227
Skin corrosion (Category 1B), H314
Serious eye damage (Category 1), H318

For the full text of the H-Statements mentioned in this Section, see Section 16.

2.2 GHS Label elements, including precautionary statements
Pictogram

Signal word: Danger

Hazard statement(s)
H227 Combustible liquid.
H314 Causes severe skin burns and eye damage.
H318 Causes serious eye damage.

Precautionary statement(s)
P210 Keep away from heat/sparks/open flames/hot surfaces. No smoking.
P264 Wash skin thoroughly after handling.
P280 Wear protective gloves/ protective clothing/ eye protection/ face protection.
P301 + P330 + P331 IF SWALLOWED: Rinse mouth. Do NOT induce vomiting.
P303 + P361 + P353 IF ON SKIN (or hair): Remove/ Take off immediately all contaminated clothing. Rinse skin with water/ shower.
P304 + P340 + P310 IF INHALED: Remove victim to fresh air and keep at rest in a position
2.3 **Hazards not otherwise classified (HNOC) or not covered by GHS**
Reacts violently with water.

3. **COMPOSITION/INFORMATION ON INGREDIENTS**

3.1 **Substances**

<table>
<thead>
<tr>
<th>Synonyms</th>
<th>Trichloro(3,3,4,4,5,5,6,6,7,7,8,8,8-tridecafluorooctyl)silane 1H,1H,2H,2H-Perfluorooctyl-trichlorosilane</th>
</tr>
</thead>
<tbody>
<tr>
<td>Formula</td>
<td>C₈H₄Cl₃F₁₃Si</td>
</tr>
<tr>
<td>Molecular weight</td>
<td>481.54 g/mol</td>
</tr>
<tr>
<td>CAS-No.</td>
<td>78560-45-9</td>
</tr>
<tr>
<td>EC-No.</td>
<td>278-947-6</td>
</tr>
</tbody>
</table>

**Hazardous components**

<table>
<thead>
<tr>
<th>Component</th>
<th>Classification</th>
<th>Concentration</th>
</tr>
</thead>
<tbody>
<tr>
<td>Trichloro(3,3,4,4,5,5,6,6,7,7,8,8,8-tridecafluorooctyl)silane</td>
<td>Flam. Liq. 4; Skin Corr. 1B; Eye Dam. 1; H227, H314, H318</td>
<td>90 - 100 %</td>
</tr>
</tbody>
</table>

For the full text of the H-Statements mentioned in this Section, see Section 16.

4. **FIRST AID MEASURES**

4.1 **Description of first aid measures**

**General advice**
Consult a physician. Show this safety data sheet to the doctor in attendance. Move out of dangerous area.

**If inhaled**
If breathed in, move person into fresh air. If not breathing, give artificial respiration. Consult a physician.

**In case of skin contact**
Take off contaminated clothing and shoes immediately. Wash off with soap and plenty of water. Consult a physician.

**In case of eye contact**
Rinse thoroughly with plenty of water for at least 15 minutes and consult a physician. Continue rinsing eyes during transport to hospital.

**If swallowed**
Do NOT induce vomiting. Never give anything by mouth to an unconscious person. Rinse mouth with water. Consult a physician.

4.2 **Most important symptoms and effects, both acute and delayed**
The most important known symptoms and effects are described in the labelling (see section 2.2) and/or in section 11.

4.3 **Indication of any immediate medical attention and special treatment needed**
No data available.
5. FIREFIGHTING MEASURES

5.1 Extinguishing media
Suitable extinguishing media
Dry powder

5.2 Special hazards arising from the substance or mixture
No data available

5.3 Advice for firefighters
Wear self-contained breathing apparatus for firefighting if necessary.

5.4 Further information
No data available

6. ACCIDENTAL RELEASE MEASURES

6.1 Personal precautions, protective equipment and emergency procedures
Use personal protective equipment. Avoid breathing vapours, mist or gas. Ensure adequate ventilation. Remove all sources of ignition. Evacuate personnel to safe areas. Beware of vapours accumulating to form explosive concentrations. Vapours can accumulate in low areas.
For personal protection see section 8.

6.2 Environmental precautions
Prevent further leakage or spillage if safe to do so. Do not let product enter drains.

6.3 Methods and materials for containment and cleaning up
Contain spillage, and then collect with an electrically protected vacuum cleaner or by wet-brushing and place in container for disposal according to local regulations (see section 13). Do not flush with water. Keep in suitable, closed containers for disposal.

6.4 Reference to other sections
For disposal see section 13.

7. HANDLING AND STORAGE

7.1 Precautions for safe handling
Avoid inhalation of vapour or mist.
Keep away from sources of ignition - No smoking. Take measures to prevent the build up of electrostatic charge.
For precautions see section 2.2.

7.2 Conditions for safe storage, including any incompatibilities
Keep container tightly closed in a dry and well-ventilated place. Containers which are opened must be carefully resealed and kept upright to prevent leakage.
Never allow product to get in contact with water during storage.

7.3 Specific end use(s)
Apart from the uses mentioned in section 1.2 no other specific uses are stipulated

8. EXPOSURE CONTROLS/PERSONAL PROTECTION

8.1 Control parameters

Components with workplace control parameters
Contains no substances with occupational exposure limit values.

8.2 Exposure controls

Appropriate engineering controls
Handle in accordance with good industrial hygiene and safety practice. Wash hands before breaks and at the end of workday.

Personal protective equipment

Eye/face protection
Tightly fitting safety goggles. Faceshield (8-inch minimum). Use equipment for eye protection tested and approved under appropriate government standards such as NIOSH (US) or EN 166(EU).
Skin protection
Handle with gloves. Gloves must be inspected prior to use. Use proper glove removal technique (without touching glove's outer surface) to avoid skin contact with this product. Dispose of contaminated gloves after use in accordance with applicable laws and good laboratory practices. Wash and dry hands. Camatril® (KCL 730 / Aldrich Z677442, Size M) Butoject® (KCL 898)

Body Protection
Complete suit protecting against chemicals, Flame retardant protective clothing, The type of protective equipment must be selected according to the concentration and amount of the dangerous substance at the specific workplace.

Respiratory protection
Where risk assessment shows air-purifying respirators are appropriate use a full-face respirator with multi-purpose combination (US) or type ABEK (EN 14387) respirator cartridges as a backup to engineering controls. If the respirator is the sole means of protection, use a full-face supplied air respirator. Use respirators and components tested and approved under appropriate government standards such as NIOSH (US) or CEN (EU).

Control of environmental exposure
Prevent further leakage or spillage if safe to do so. Do not let product enter drains.

9. PHYSICAL AND CHEMICAL PROPERTIES

9.1 Information on basic physical and chemical properties
a) Appearance
   Form: clear, liquid
   Colour: colourless
b) Odour
   No data available
c) Odour Threshold
   No data available
d) pH
   No data available
e) Melting point/freezing point
   No data available
f) Initial boiling point and boiling range
   192 °C (378 °F) - lit.
g) Flash point
   87 °C (189 °F) - closed cup
h) Evaporation rate
   No data available
i) Flammability (solid, gas)
   No data available
j) Upper/lower flammability or explosive limits
   No data available
k) Vapour pressure
   No data available
l) Vapour density
   No data available
m) Relative density
   1.3 g/cm³ at 25 °C (77 °F)
n) Water solubility
   No data available
o) Partition coefficient: n-octanol/water
   No data available
p) Auto-ignition temperature
   No data available
q) Decomposition temperature
   No data available
r) Viscosity
   No data available
s) Explosive properties
   No data available
t) Oxidizing properties
   No data available

9.2 Other safety information
No data available
10. STABILITY AND REACTIVITY

10.1 Reactivity
Reacts violently with water.

10.2 Chemical stability
Stable under recommended storage conditions.

10.3 Possibility of hazardous reactions
Reacts violently with water.

10.4 Conditions to avoid
Heat, flames and sparks. Exposure to moisture

10.5 Incompatible materials
Water, Strong oxidizing agents, Alcohols, acids, Bases

10.6 Hazardous decomposition products
Hazardous decomposition products formed under fire conditions. - Carbon oxides, Hydrogen chloride gas, Hydrogen fluoride, silicon oxides
Other decomposition products - No data available
In the event of fire: see section 5

11. TOXICOLOGICAL INFORMATION

11.1 Information on toxicological effects

Acute toxicity
No data available
Inhalation: No data available
Dermal: No data available
No data available

Skin corrosion/irritation
No data available

Serious eye damage/eye irritation
No data available

Respiratory or skin sensitisation
No data available

Germ cell mutagenicity
No data available

Carcinogenicity
IARC: No component of this product present at levels greater than or equal to 0.1% is identified as probable, possible or confirmed human carcinogen by IARC.

ACGIH: No component of this product present at levels greater than or equal to 0.1% is identified as a carcinoen or potential carcinoen by ACGIH.

NTP: No component of this product present at levels greater than or equal to 0.1% is identified as a known or anticipated carcinoen by NTP.

OSHA: No component of this product present at levels greater than or equal to 0.1% is identified as a carcinoen or potential carcinoen by OSHA.

Reproductive toxicity
No data available
No data available

Specific target organ toxicity - single exposure
No data available

Specific target organ toxicity - repeated exposure
No data available
Aspiration hazard
No data available

Additional Information
RTECS: Not available

Material is extremely destructive to tissue of the mucous membranes and upper respiratory tract, eyes, and skin., Cough, Shortness of breath, Headache, Nausea
To the best of our knowledge, the chemical, physical, and toxicological properties have not been thoroughly investigated.

12. ECOLOGICAL INFORMATION

12.1 Toxicity
No data available

12.2 Persistence and degradability
No data available

12.3 Bioaccumulative potential
No data available

12.4 Mobility in soil
No data available

12.5 Results of PBT and vPvB assessment
PBT/vPvB assessment not available as chemical safety assessment not required/not conducted

12.6 Other adverse effects
No data available

13. DISPOSAL CONSIDERATIONS

13.1 Waste treatment methods

Product
This combustible material may be burned in a chemical incinerator equipped with an afterburner and scrubber. Offer surplus and non-recyclable solutions to a licensed disposal company. Contact a licensed professional waste disposal service to dispose of this material.

Contaminated packaging
Dispose of as unused product.

14. TRANSPORT INFORMATION

DOT (US)
UN number: 2987 Class: 8 Packing group: II
Proper shipping name: Chlorosilanes, corrosive, n.o.s.
Reportable Quantity (RQ): Poison Inhalation Hazard: No

IMDG
UN number: 2987 Class: 8 Packing group: II EMS-No: F-A, S-B
Proper shipping name: CHLOROSILANES, CORROSIVE, N.O.S.

IATA
UN number: 2987 Class: 8 Packing group: II
Proper shipping name: Chlorosilanes, corrosive, n.o.s.
IATA Passenger: Not permitted for transport

15. REGULATORY INFORMATION

SARA 302 Components
No chemicals in this material are subject to the reporting requirements of SARA Title III, Section 302.

SARA 313 Components
This material does not contain any chemical components with known CAS numbers that exceed the threshold (De Minimis) reporting levels established by SARA Title III, Section 313.

**SARA 311/312 Hazards**
Fire Hazard, Acute Health Hazard

**Massachusetts Right To Know Components**
No components are subject to the Massachusetts Right to Know Act.

**Pennsylvania Right To Know Components**

<table>
<thead>
<tr>
<th>Component</th>
<th>CAS-No.</th>
<th>Revision Date</th>
</tr>
</thead>
<tbody>
<tr>
<td>Trichloro(3,3,4,4,5,5,6,6,7,7,8,8,8-tridecafluoroctyl)silane</td>
<td>78560-45-9</td>
<td></td>
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**New Jersey Right To Know Components**

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<th>Component</th>
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<th>Revision Date</th>
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<td></td>
</tr>
</tbody>
</table>

**California Prop. 65 Components**
This product does not contain any chemicals known to State of California to cause cancer, birth defects, or any other reproductive harm.

### 16. OTHER INFORMATION

**Full text of H-Statements referred to under sections 2 and 3.**

- **Eye Dam.** Serious eye damage
- **Flam. Liq.** Flammable liquids
- **H227** Combustible liquid.
- **H314** Causes severe skin burns and eye damage.
- **H318** Causes serious eye damage.
- **Skin Corr.** Skin corrosion

**HMIS Rating**

- Health hazard: 3
- Chronic Health Hazard: 1
- Flammability: 2
- Physical Hazard 1

**NFPA Rating**

- Health hazard: 3
- Fire Hazard: 2
- Reactivity Hazard: 1
- Special hazard.I: W

**Further information**
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The above information is believed to be correct but does not purport to be all inclusive and shall be used only as a guide. The information in this document is based on the present state of our knowledge and is applicable to the product with regard to appropriate safety precautions. It does not represent any guarantee of the properties of the product. Sigma-Aldrich Corporation and its Affiliates shall not be held liable for any damage resulting from handling or from contact with the above product. See www.sigma-aldrich.com and/or the reverse side of invoice or packing slip for additional terms and conditions of sale.

**Preparation Information**
Sigma-Aldrich Corporation
Product Safety – Americas Region
1-800-521-8956

Version: 4.7 Revision Date: 03/13/2017 Print Date: 02/10/2018