

(HEPTADEC AFLUORO-1,1,2,2-TETRAHYDRODECYL)TRICHLOROSILANE

Safety Data Sheet SIH5841.0

Date of issue: 21/11/2014

Revision date: 14/03/2019

Version: 2.3

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

1.1. Product identifier

Product form	: Substance
Physical state	: Liquid
Substance name	: (HEPTADEC AFLUORO-1,1,2,2-TETRAHYDRODECYL)TRICHLOROSILANE
Product code	: SIH5841.0
Formula	: C ₁₀ H ₄ Cl ₃ F ₁₇ Si
Synonyms	: PERFLUORODECYL-1H,1H,2H,2H-TRICHLOROSILANE; (1H,1H,2H,2H-PERFLUORODECYL)TRICHLOROSILANE
Chemical family	: CHLOROSILANE

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.

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USA

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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]

Skin corrosion/irritation, Category 1B H314

Serious eye damage/eye irritation, Category 1 H318

Full text of H statements : see section 16

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) :



GHS05

Signal word (CLP) : Danger

Hazard statements (CLP) : H314 - Causes severe skin burns and eye damage.

Precautionary statements (CLP) : P280 - Wear protective gloves/protective clothing/eye protection/face protection.
P260 - Do not breathe vapours.

(HEPTADEC AFLUORO-1,1,2,2-TETRAHYDRODECYL)TRICHLOROSILANE

Safety Data Sheet

P264 - Wash hands thoroughly after handling.
P303+P361+P353 - IF ON SKIN (or hair): Take off immediately all contaminated clothing. Rinse skin with water/shower.
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 POISON CENTER or doctor/physician

EUH-statements : EUH014 - Reacts violently with water.

2.3. Other hazards

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.

SECTION 3: Composition/information on ingredients

3.1. Substances

Substance type : Mono-constituent
Name : (HEPTADEC AFLUORO-1,1,2,2-TETRAHYDRODECYL)TRICHLOROSILANE
CAS-No. : 78560-44-8
EC-No. : 616-629-4

Name	Product identifier	%	Classification according to Regulation (EC) No. 1272/2008 [CLP]
(Heptadecafluoro-1,1,2,2-tetrahydrodecyl)trichlorosilane	(CAS-No.) 78560-44-8 (EC-No.) 616-629-4	97 - 100	Skin Corr. 1B, H314 Eye Dam. 1, H318

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. Get medical advice/attention.
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 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. Indication of any immediate medical attention and special treatment needed

No additional information available

SECTION 5: Firefighting measures

5.1. Extinguishing media

Suitable extinguishing media : Water spray. Foam. Carbon dioxide. Dry chemical.
Unsuitable extinguishing media : Water.

5.2. Special hazards arising from the substance or mixture

Fire hazard : Irritating fumes of hydrogen chloride 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. 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 vapour and mist.

(HEPTADEC AFLUORO-1,1,2,2-TETRAHYDRODECYL)TRICHLOROSILANE

Safety Data Sheet

SECTION 6: Accidental release measures

6.1. Personal precautions, protective equipment and emergency procedures

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.

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. Provide good ventilation in process area to prevent formation of vapour.

Hygiene measures : Wash contaminated clothing before reuse. Wash hands and other exposed areas with mild soap and water before eating, drinking or smoking and when leaving work.

7.2. Conditions for safe storage, including any incompatibilities

Storage conditions : Keep container tightly closed.

Incompatible materials : Acids. alcohols. Oxidizing agent.

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:

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

(HEPTADECAFLUORO-1,1,2,2-TETRAHYDRODECYL)TRICHLOROSILANE

Safety Data Sheet

SECTION 9: Physical and chemical properties

9.1. Information on basic physical and chemical properties

Physical state	: Liquid
Appearance	: Liquid.
Molecular mass	: 581.56 g/mol
Colour	: Clear to hazy.
Odour	: Acrid. Similar to hydrogen chloride.
Odour threshold	: No data available
Refractive index	: 1.349
pH	: No data available
Relative evaporation rate (butylacetate=1)	: No data available
Melting point	: No data available
Freezing point	: 10 - 11 °C
Boiling point	: 216 - 218 °C
Flash point	: > 110 °C
Auto-ignition temperature	: No data available
Decomposition temperature	: No data available
Flammability (solid, gas)	: No data available
Vapour pressure	: < 2 mm Hg @ 25°C
Relative vapour density at 20 °C	: > 1
Relative density	: 1.703
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
Oxidising properties	: No data available
Explosive 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

Acids. alcohols. Oxidizing agent.

10.6. Hazardous decomposition products

Hydrogen chloride. Hydrogen fluoride. Organic acid vapors.

SECTION 11: Toxicological information

11.1. Information on toxicological effects

Acute toxicity : Not classified

(Heptadecafluoro-1,1,2,2-tetrahydrodecyl)trichlorosilane (78560-44-8)

LD50 oral rat	> 5000 mg/kg
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Skin corrosion/irritation : Causes severe skin burns and eye damage.

Serious eye damage/irritation : Causes serious eye damage.

Respiratory or skin sensitisation : Not classified

(HEPTADEC AFLUORO-1,1,2,2-TETRAHYDRODECYL)TRICHLOROSILANE

Safety Data Sheet

Germ cell mutagenicity	: Not classified
Carcinogenicity	: Not classified
Reproductive toxicity	: Not classified
STOT-single exposure	: Not classified
STOT-repeated exposure	: Not classified
Aspiration hazard	: Not classified
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.
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

Other adverse effects	: This substance may be hazardous to the environment.
Additional information	: Perfluorooctyl compounds have been shown to persist in the environment.

SECTION 13: Disposal considerations

13.1. Waste treatment 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.
Ecology - waste materials	: Avoid release to the environment.

SECTION 14: Transport information

14.1. UN number

In accordance with ADR / RID / IMDG / IATA / ADN

14.1. UN number

UN-No. (ADR)	: 2987
UN-No. (IMDG)	: 2987
UN-No. (IATA)	: 2987
UN-No. (ADN)	: 2987
UN-No. (RID)	: 2987

14.2. UN proper shipping name

Proper Shipping Name (ADR)	: CHLOROSILANES, CORROSIVE, N.O.S.
Proper Shipping Name (IMDG)	: CHLOROSILANES, CORROSIVE, N.O.S.
Proper Shipping Name (IATA)	: Chlorosilanes, corrosive, n.o.s.
Proper Shipping Name (ADN)	: CHLOROSILANES, CORROSIVE, N.O.S.
Proper Shipping Name (RID)	: CHLOROSILANES, CORROSIVE, N.O.S.
Transport document description (ADR)	: UN 2987 CHLOROSILANES, CORROSIVE, N.O.S. ((HEPTADEC AFLUORO-1,1,2,2-TETRAHYDRODECYL)TRICHLOROSILANE), 8, II, (E)
Transport document description (IMDG)	: UN 2987 CHLOROSILANES, CORROSIVE, N.O.S. ((HEPTADEC AFLUORO-1,1,2,2-TETRAHYDRODECYL)TRICHLOROSILANE), 8, II

(HEPTADEC AFLUORO-1,1,2,2-TETRAHYDRODECYL)TRICHLOROSILANE

Safety Data Sheet

Transport document description (IATA)	: UN 2987 Chlorosilanes, corrosive, n.o.s. ((HEPTADEC AFLUORO-1,1,2,2-TETRAHYDRODECYL)TRICHLOROSILANE), 8, II
Transport document description (ADN)	: UN 2987 CHLOROSILANES, CORROSIVE, N.O.S. ((HEPTADEC AFLUORO-1,1,2,2-TETRAHYDRODECYL)TRICHLOROSILANE), 8, II
Transport document description (RID)	: UN 2987 CHLOROSILANES, CORROSIVE, N.O.S. ((HEPTADEC AFLUORO-1,1,2,2-TETRAHYDRODECYL)TRICHLOROSILANE), 8, II

14.3. Transport hazard class(es)

ADR

Transport hazard class(es) (ADR)	: 8
Danger labels (ADR)	: 8



IMDG

Transport hazard class(es) (IMDG)	: 8
Danger labels (IMDG)	: 8



IATA

Transport hazard class(es) (IATA)	: 8
Hazard labels (IATA)	: 8



ADN

Transport hazard class(es) (ADN)	: 8
Danger labels (ADN)	: 8



RID

Transport hazard class(es) (RID)	: 8
Danger labels (RID)	: 8



14.4. Packing group

Packing group (ADR)	: II
Packing group (IMDG)	: II

(HEPTADEC AFLUORO-1,1,2,2-TETRAHYDRODECYL)TRICHLOROSILANE

Safety Data Sheet

Packing group (IATA)	: II
Packing group (ADN)	: II
Packing group (RID)	: II

14.5. Environmental hazards

Dangerous for the environment	: No
Marine pollutant	: No
Other information	: No supplementary information available

14.6. Special precautions for user

- Overland transport

Classification code (ADR)	: C3
Special provisions (ADR)	: 548
Limited quantities (ADR)	: 0
Excepted quantities (ADR)	: E0
Packing instructions (ADR)	: P010
Mixed packing provisions (ADR)	: MP15
Portable tank and bulk container instructions (ADR)	: T14
Portable tank and bulk container special provisions (ADR)	: TP2, TP7, TP27
Tank code (ADR)	: L4BN
Vehicle for tank carriage	: AT
Transport category (ADR)	: 2
Hazard identification number (Kemler No.)	: X80
Orange plates	:

X80

2987

Tunnel restriction code (ADR)	: E
EAC code	: 4W

- Transport by sea

Limited quantities (IMDG)	: 0
Excepted quantities (IMDG)	: E0
Packing instructions (IMDG)	: P010
Tank instructions (IMDG)	: T14
Tank special provisions (IMDG)	: TP2, TP7, TP13, TP27
EmS-No. (Fire)	: F-A
EmS-No. (Spillage)	: S-B
Stowage category (IMDG)	: C
Stowage and handling (IMDG)	: SW2

- Air transport

PCA Excepted quantities (IATA)	: E0
PCA Limited quantities (IATA)	: Forbidden
PCA limited quantity max net quantity (IATA)	: Forbidden
PCA packing instructions (IATA)	: Forbidden
PCA max net quantity (IATA)	: Forbidden
CAO packing instructions (IATA)	: 876
CAO max net quantity (IATA)	: 30L
Special provisions (IATA)	: A1
ERG code (IATA)	: 8L

- Inland waterway transport

Classification code (ADN)	: C3
Special provisions (ADN)	: 548
Limited quantities (ADN)	: 0

(HEPTADEC AFLUORO-1,1,2,2-TETRAHYDRODECYL)TRICHLOROSILANE

Safety Data Sheet

Excepted quantities (ADN) : E0
Equipment required (ADN) : PP, EP
Number of blue cones/lights (ADN) : 0

- Rail transport

Classification code (RID) : C3
Special provisions (RID) : 548
Limited quantities (RID) : 0
Excepted quantities (RID) : E0
Packing instructions (RID) : P010
Mixed packing provisions (RID) : MP15
Portable tank and bulk container instructions (RID) : T14
Portable tank and bulk container special provisions (RID) : TP2, TP7, TP27
Tank codes for RID tanks (RID) : L4BN
Transport category (RID) : 2
Colis express (express parcels) (RID) : CE6
Hazard identification number (RID) : X80

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

(HEPTADEC AFLUORO-1,1,2,2-TETRAHYDRODECYL)TRICHLOROSILANE is not on the REACH Candidate List

(HEPTADEC AFLUORO-1,1,2,2-TETRAHYDRODECYL)TRICHLOROSILANE is not on the REACH Annex XIV List

(HEPTADEC AFLUORO-1,1,2,2-TETRAHYDRODECYL)TRICHLOROSILANE 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.

(HEPTADEC AFLUORO-1,1,2,2-TETRAHYDRODECYL)TRICHLOROSILANE is not subject to Regulation (EC) No 850/2004 of the European Parliament and of the Council of 29 April 2004 on persistent organic pollutants and amending Directive 79/117/EEC

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-lijst van kankerverwekkende stoffen : The substance is not listed

SZW-lijst van mutagene stoffen : The substance is not listed

NIET-limitatieve lijst van voor de voortplanting giftige stoffen – Borstvoeding : The substance is not listed

NIET-limitatieve lijst van voor de voortplanting giftige stoffen – Vruchtbaarheid : The substance is not listed

NIET-limitatieve lijst van voor de voortplanting giftige stoffen – Ontwikkeling : The substance is not listed

Denmark

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

Abbreviations and acronyms:

(HEPTADEC AFLUORO-1,1,2,2-TETRAHYDRODECYL)TRICHLOROSILANE

Safety Data Sheet

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:

Eye Dam. 1	Serious eye damage/eye irritation, Category 1
Skin Corr. 1B	Skin corrosion/irritation, Category 1B
H314	Causes severe skin burns and eye damage.
H318	Causes serious eye damage.
EUH014	Reacts violently with water.

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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The logo for Gelest, featuring the word "Gelest" in a large, white, serif font. The letters are set against a light blue background that is shaped like a right-angled triangle pointing to the right. The "G" and "e" are on the left side of the triangle, and the "l", "e", "s", and "t" are on the right side, following the slope of the triangle.



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NOTICE OF SIGNIFICANT NEW USE RULE
SIH5841.0
(HEPTADEC AFLUORO-1,1,2,2-TETRAHYDRODECYL)TRICHLOROSILANE

Dear Customer:

The chemical product purchased, SIH5841.0 is subject to a U.S. Environmental Protection Agency (EPA) Significant New Use Rule (SNUR) under the Toxic Substances Control Act (TSCA) regulations. Any manufacturer or processor who intends to use a chemical substance for commercial purposes with an identified new use must file a Significant New Use Notification (SNUN) with EPA.

Please reference the US Code of Federal Regulations at 40 CFR Part 721.10536, Long-Chain Perfluoroalkyl Carboxylate Chemical Substances), to review the specific designated new use(s) for (HEPTADEC AFLUORO-1,1,2,2-TETRAHYDRODECYL)TRICHLOROSILANE [CAS #78560-44-8] which would require EPA approval prior to that new use. If this product will be used for research and development purposes, please reference 40 CFR 721.47 to understand the specific conditions for the research and development exemption.

If you have questions or need more information related to a significant new use of a chemical substance, call the Toxic Substances Control Act (TSCA) Hotline at 202-554-1404 or email: tsc-hotline@epa.gov.

Best Regards,

Gelest, Inc. Regulatory Affairs Department