HEXACHLORODISILANE

Safety Data Sheet SIH5905.0

Date of issue: 23/01/2015 Revision date: 18/04/2017 Version: 2.0

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

1.1. Product identifier

Product form	:	Substance
Physical state	:	Liquid
Substance name	:	HEXACHLORODISILANE
Product code	:	SIH5905.0
Formula	:	Cl6Si2
Synonyms	:	HCDS DISILANE HEXACHLORIDE
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.
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

GELEST INC.
Fritz-Klatte-Strasse 8
65933 Frankfurt
Germany
T +49 (0) 69 3535106-500 - F +49 (0) 69 3535106-501 - (M-F): 8:00 AM - 4:00 PM
info@gelestde.com - www.gelestde.com

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
Specific target organ toxicity — Single exposure, Category 3, Respiratory tract irritation	H335

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 GHS07

Signal word (CLP) : Danger

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

H335 - May cause respiratory irritation.

Precautionary statements (CLP) : P280 - Wear protective gloves/protective clothing/eye protection/face protection.
P260 - Do not breathe vapours.
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 : NOTE: Material may form a siloxane polymer on the skin, eyes or in the lungs. 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 : HEXACHLORODISILANE

CAS-No. : 13465-77-5

EC-No. : 236-704-1

Name	Product identifier	%	Classification according to Regulation (EC) No. 1272/2008 [CLP]
Hexachlorodisilane	(CAS-No.) 13465-77-5 (EC-No.) 236-704-1	97 - 100	Skin Corr. 1B, H314 Eye Dam. 1, H318 STOT SE 3, H335

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 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. 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 : 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. Special hazards arising from the substance or mixture

Fire hazard : Combustible liquid. Irritating fumes of hydrogen chloride and organic acid vapors may develop when material is exposed to water or open flame.

Explosion hazard	:	When heated at elevated temperatures (>150°C) hexachlorodisilane ignites in air. The following information is provided to assist if hexachlorodisilane is present in a fire situation. On long term storage several incidents of shock sensitive detonations have been reported. In all cases material was stored greater than 1 year and evidence of package seal deterioration and partial hydrolysis were observed. Possible explanations for the shock sensitivity are low level contamination with pentachlorodisilane or the formation of hydridosilanes by HCl addition to the disilane or peroxide formation. Polymeric hydrolysates or gels frequently are associated with shock sensitive behavior.

5.3. Advice for firefighters

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 vapour 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.

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. 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

Additional hazards when processed	:	Keep away from heat, hot surfaces, sparks, open flames and other ignition sources. No smoking.
Precautions for safe handling	:	Avoid all eye and skin contact and do not breathe vapour and mist. Ground/bond container and receiving equipment. Provide good ventilation in process area to prevent formation of vapour. Use only non-sparking tools.
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. Store in sealed corrosion resistant containers. Inspect containers regularly for integrity. May form explosive byproducts on extended storage. It is recommended that bottles be stored in a dry inert environment and that in no case should material be stored for greater than one year. Keep in a cool place. Store locked up.
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.

SECTION 9: Physical and chemical properties

9.1. Information on basic physical and chemical properties

Physical state	:	Liquid
Appearance	:	Clear liquid.
Molecular mass	:	268.89 g/mol
Colour	:	Straw.
Odour	:	Acrid. Similar to hydrogen chloride.
Odour threshold	:	No data available
Refractive index	:	1.475
pH	:	No data available
Relative evaporation rate (butylacetate=1)	:	No data available
Melting point	:	No data available
Freezing point	:	< -1 °C
Boiling point	:	144 - 146 °C
Flash point	:	78 °C
Auto-ignition temperature	:	320 °C
Decomposition temperature	:	No data available
Flammability (solid, gas)	:	Combustible liquid
Vapour pressure	:	110 mm Hg @ 85°C
Relative vapour density at 20 °C	:	> 5
Relative density	:	1.562
% Volatiles	:	100 %
Solubility	:	Reacts violently 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	:	7 - 70 vol % (lower; upper)

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 corrosion resistant 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. Organic 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.
Serious eye damage/irritation	:	Causes serious eye damage.
Respiratory or skin sensitisation	:	Not classified
Germ cell mutagenicity	:	Not classified
Carcinogenicity	:	Not classified None of the components in this product at concentrations >0.1% are listed by IARC, NTP, OSHA or ACGIH as a carcinogen.
Reproductive toxicity	:	Not classified
STOT-single exposure	:	May cause respiratory irritation.
STOT-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.
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.

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. (HEXACHLORODISILANE), 8, II, (E)
Transport document description (IMDG)	:	UN 2987 CHLOROSILANES, CORROSIVE, N.O.S. (HEXACHLORODISILANE), 8, II
Transport document description (IATA)	:	UN 2987 Chlorosilanes, corrosive, n.o.s. (HEXACHLORODISILANE), 8, II
Transport document description (ADN)	:	UN 2987 CHLOROSILANES, CORROSIVE, N.O.S. (HEXACHLORODISILANE), 8, II
Transport document description (RID)	:	UN 2987 CHLOROSILANES, CORROSIVE, N.O.S. (HEXACHLORODISILANE), 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
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
Special packing provisions (ADR) : RR7
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 :

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
Properties and observations (IMDG) : Colourless liquids with a pungent odour. Immiscible with water. React violently with water or steam, evolving hydrogen chloride, an irritating and corrosive gas apparent as white fumes. When involved in a fire, evolve toxic gases. In the presence of moisture, highly corrosive to most metals. Cause burns to skin, eyes and mucous membranes.

- 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
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

HEXACHLORODISILANE is not on the REACH Candidate List

HEXACHLORODISILANE is not on the REACH Annex XIV List

HEXACHLORODISILANE 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.

HEXACHLORODISILANE 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

% Volatiles	:	100 %

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

Class for fire hazard	:	Class III-1
Store unit	:	50 liter
Classification remarks	:	Flammable according to the Danish Ministry of Justice; Emergency management guidelines for the storage of flammable liquids must be followed
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:

	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.: Chemcial 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
STOT SE 3	Specific target organ toxicity — Single exposure, Category 3, Respiratory tract irritation
H314	Causes severe skin burns and eye damage.
H318	Causes serious eye damage.
H335	May cause respiratory irritation.
EUH014	Reacts violently with water.

SDS EU (REACH Annex II) - Custom

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