



**SAFETY DATA SHEET**

According to Regulation (EC) No. 1907/2006 (REACH) Article 31, Annex II as amended

**Silane**

Issue Date:	16.01.2013	Version: 2.2	SDS No.: 000010021753
Revision Date:	23.11.2023		1/16
Last revised date :	11.12.2020		

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

**1.1 Product identifier**

Product name: Silane

Trade name: Silane 5.0

**Additional identification**

Chemical name: Silane  
 Chemical formula: SiH<sub>4</sub>  
 INDEX No. -  
 CAS-No. 7803-62-5  
 EC No. 232-263-4  
 REACH Registration No. 01-2119436667-29

**1.2 Relevant identified uses of the substance or mixture and uses advised against**

Identified uses: Glass processing.  
 Use for electronic component manufacture.  
 Using gas alone or in mixtures for the calibration of analysis equipment.

Uses advised against

**1.3 Details of the supplier of the safety data sheet**

**Supplier**

Oy Linde Gas Ab  
 Itsehallintokuja 6  
 FIN-02600 ESPOO

**Telephone:** +358 10 2421

**E-mail:** sds.ren@linde.com

**1.4 Emergency telephone number:** Poison Information Center: open 24 hours a day, tel. 09 471 977

**SECTION 2: Hazards identification**

**2.1 Classification of the substance or mixture**

Classification according to Regulation (EC) No 1272/2008 as amended.



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**Physical Hazards**

Gases under pressure	Liquefied gas	H280: Contains gas under pressure; may explode if heated.
Flammable gas	Category 1A	H220: Extremely flammable gas.

**2.2 Label Elements**



<b>Signal Word:</b>	Danger
<b>Hazard Statement(s):</b>	H220: Extremely flammable gas. H280: Contains gas under pressure; may explode if heated.
<b>Precautionary Statements</b>	
General	None.
<b>Prevention:</b>	P210: Keep away from heat, hot surfaces, sparks, open flames and other ignition sources. No smoking.
<b>Response:</b>	P377: Leaking gas fire: Do not extinguish, unless leak can be stopped safely. P381: In case of leakage, eliminate all ignition sources.
<b>Storage:</b>	P403: Store in a well-ventilated place.
<b>Disposal</b>	None.
<b>Unknown toxicity - Health</b>	
Acute toxicity, inhalation, gas	100 %
<b>Unknown toxicity - Environment</b>	



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Acute hazards to the aquatic environment	100 %
Chronic hazards to the aquatic environment	100 %

**2.3 Other hazards**

Spontaneously flammable in air.

**Endocrine disrupting properties-Toxicity**

The substance/mixture does not contain components considered to have endocrine disrupting properties according to REACH Article 57(f) or Commission Delegated regulation (EU) 2017/2100 or Commission Regulation (EU) 2018/605 at levels of 0.1% or higher.

**Endocrine disrupting properties-Ecotoxicity**

The substance/mixture does not contain components considered to have endocrine disrupting properties according to REACH Article 57(f) or Commission Delegated regulation (EU) 2017/2100 or Commission Regulation (EU) 2018/605 at levels of 0.1% or higher.



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**SECTION 3: Composition/information on ingredients**

**3.1 Substances**

Chemical name: Silane  
 INDEX No.: -  
 CAS-No.: 7803-62-5  
 EC No.: 232-263-4  
 REACH Registration No.: 01-2119436667-29  
 Purity: 100%  
 The purity of the substance in this section is used for classification only, and does not represent the actual purity of the substance as supplied, for which other documentation should be consulted.  
 Trade name: Silane 5.0

Chemical name	Chemical formula	Concentration	CAS-No.	EC No.	REACH Registration No.	M-Factor:	Notes
Silane	SiH4	100%	7803-62-5	232-263-4	01-2119436667-29	-	#

The concentrations of the components in the SDS header, product name on page one and in section 3.2 are in mol due to regulatory requirements. All concentrations are nominal.

# This substance has workplace exposure limit(s).

## This substance is listed as SVHC.PBT: persistent, bioaccumulative and toxic substance.

vPvB: very persistent and very bioaccumulative substance.

**SECTION 4: First aid measures**

**4.1 Description of first aid measures**

Inhalation: No data available.  
 Eye contact: No data available.  
 Skin Contact: No data available.  
 Ingestion: No data available.



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4.2 Most important symptoms and effects, both acute and delayed: No data available.

4.3 Indication of any immediate medical attention and special treatment needed

Hazards: None.

Treatment: **None.**

**SECTION 5: Firefighting measures**

General Fire Hazards: No data available.

5.1 Extinguishing media

Suitable extinguishing media: No data available.

Unsuitable extinguishing media: No data available.

5.2 Special hazards arising from the substance or mixture: Escaping gas fire cannot be extinguished.

Hazardous Combustion Products: Silica dust (inert - but may irritate respiratory tract and eyes)

5.3 Advice for firefighters

Special fire-fighting procedures: No data available.

**SECTION 6: Accidental release measures**

6.1 Personal precautions, protective equipment and emergency procedures: No data available.

6.2 Environmental Precautions: No data available.

6.3 Methods and material for containment and cleaning up: No data available.



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6.4 Reference to other sections: Refer to sections 8 and 13.

**SECTION 7: Handling and storage:**

7.1 Precautions for safe handling: No data available.

7.2 Conditions for safe storage, including any incompatibilities: No data available.

7.3 Specific end use(s): None.

**SECTION 8: Exposure controls/personal protection**

**8.1 Control Parameters**

**Occupational Exposure Limits**

Chemical name	Type	Form of exposure	Exposure Limit Values	Source
	HTP 8H		0,5 ppm    0,67 mg/m <sup>3</sup>	Finland. Workplace Exposure Limits, as amended (08 2007)
	HTP 15MIN		1,5 ppm    2 mg/m <sup>3</sup>	Finland. Workplace Exposure Limits, as amended (08 2007)

Please refer to the latest edition of the appropriate source text and consult an industrial hygienist or similar professional, or local agencies, for further information.

**Biological Limit Values**

No biological exposure limits noted for the ingredient(s).

**DNEL-Values**

Critical component	Type	Value	Remarks
Silane	Workers - Inhalation, Systemic, short-term	0,67 mg/m <sup>3</sup>	Repeated dose toxicity
	Workers - Inhalation, Systemic, long-term	0,67 mg/m <sup>3</sup>	Repeated dose toxicity



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**8.2 Exposure controls**

Appropriate engineering controls: No data available.

**Individual protection measures, such as personal protective equipment**

General information: No data available.

Eye/face protection: No data available.

**Skin protection**

Hand Protection: No data available.

Body protection: No special precautions.

Other: Not applicable.

Respiratory Protection: Not applicable.

Thermal hazards: Not applicable.

Hygiene measures: Not applicable.

Environmental exposure controls: Not applicable.

**SECTION 9: Physical and chemical properties**

**9.1 Information on basic physical and chemical properties**

**Appearance**

Physical state: Gas

Form: Liquefied gas

Color: Colorless

Odor: Repulsive odor

Odor Threshold: Odor threshold is subjective and is inadequate to warn of over exposure.

Melting Point: -301 °F/-185 °C Experimental result, Key study

Boiling Point: -170 °F/-112 °C (1.013 hPa) Experimental result, Key study



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<b>Flammability:</b>	Flammable Gas
<b>Upper/lower limit on flammability or explosive limits</b>	
Explosive limit - upper:	96 %(V) No data, Supporting study
Explosive limit - lower:	1 %(V)
<b>Flash Point:</b>	Not applicable to gases and gas mixtures.
<b>Autoignition Temperature:</b>	< 85 °C
<b>Decomposition Temperature:</b>	Decomp at elevated temp to liberate hydrogen and deposit a high purity silicon, which leads to some of the principal uses of silanes.
<b>pH:</b>	Not applicable
<b>Viscosity</b>	
Dynamic viscosity:	No data available.
Kinematic viscosity:	No data available.
<b>Solubility(ies)</b>	
Solubility in Water:	No data available.
Solubility (other):	No data available.
<b>Partition coefficient (n-octanol/water):</b>	Not known.
<b>Dispersion Stability:</b>	No data available.
<b>Vapor pressure:</b>	29 hPa (-8 °F/-22 °C)
<b>Relative density:</b>	0,68 (-301 °F/-185 °C)
<b>Density:</b>	1,44 g/l Other, Supporting study 0,3369 g/cm <sup>3</sup> (122,0 °F/50,0 °C)
<b>Relative vapor density:</b>	No data available.
<b>Particle characteristics:</b>	Not applicable

#### 9.2 Other information

<b>Flammability:</b>	Tci: 1
<b>Molecular weight:</b>	32,13 g/mol (SiH <sub>4</sub> )
<b>Critical Temp. (°C):</b>	-3,5 °C

## SECTION 10: Stability and reactivity

**10.1 Reactivity:** No reactivity hazard other than the effects described in sub-section below.





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- 10.2 Chemical Stability: Stable under normal conditions.
- 10.3 Possibility of hazardous reactions: Can ignite spontaneously in air (fire cannot be put out). Can form violent, spontaneously explosive mixture in air. May react violently with oxidants.
- 10.4 Conditions to avoid: No data available.
- 10.5 Incompatible Materials: No data available.
- 10.6 Hazardous Decomposition Products: No data available.

**SECTION 11: Toxicological information**

General information: None.

**11.1 Information on hazard classes as defined in Regulation (EC) No 1272/2008**

- Acute toxicity - Oral Product: Based on available data, the classification criteria are not met.
- Acute toxicity - Dermal Product: Based on available data, the classification criteria are not met.
- Acute toxicity - Inhalation Product: Based on available data, the classification criteria are not met.
- Repeated dose toxicity Silane: NOAEL (Mouse(Male), Inhalation, 14 - 28 d): > 1.000 ppm(m) Inhalation  
Experimental result, Key study
- Skin Corrosion/Irritation Product: Based on available data, the classification criteria are not met.
- Serious Eye Damage/Eye Irritation Product: Based on available data, the classification criteria are not met.



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**Respiratory or Skin Sensitization**

**Product** Based on available data, the classification criteria are not met.

**Germ Cell Mutagenicity**

**Product** Based on available data, the classification criteria are not met.

**Carcinogenicity**

**Product** Based on available data, the classification criteria are not met.

**Reproductive toxicity**

**Product** Based on available data, the classification criteria are not met.

**Specific Target Organ Toxicity - Single Exposure**

**Product** Based on available data, the classification criteria are not met.

Silane May cause nausea and irritation of the respiratory tract. Hydrolysis of silanes in the body forms silicic acid or hydrated silica.

**Specific Target Organ Toxicity - Repeated Exposure**

**Product** Based on available data, the classification criteria are not met.

**Aspiration Hazard**

**Product** Not applicable to gases and gas mixtures..

**11.2 Information on other hazards**

**Endocrine disrupting properties**

**Product:** The substance/mixture does not contain components considered to have endocrine disrupting properties according to REACH Article 57(f) or Commission Delegated regulation (EU) 2017/2100 or Commission Regulation (EU) 2018/605 at levels of 0.1% or higher.;

**Components:**

Silane The substance/mixture does not contain components considered to have endocrine disrupting properties according to REACH Article 57(f) or Commission Delegated regulation (EU) 2017/2100 or Commission Regulation (EU) 2018/605 at levels of 0.1% or higher.;

**Other information**

**Product:** No data available.



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**SECTION 12: Ecological information**

**General information:** Not applicable

**12.1 Toxicity**

**Acute toxicity Product** No ecological damage caused by this product.

**12.2 Persistence and Degradability Product**

Not applicable to gases and gas mixtures..

**12.3 Bioaccumulative potential Product**

The subject product is expected to biodegrade and is not expected to persist for long periods in an aquatic environment.

**12.4 Mobility in soil Product**

Because of its high volatility, the product is unlikely to cause ground or water pollution.

**12.5 Results of PBT and vPvB assessment Product**

Not classified as PBT or vPvB.

**12.6 Endocrine disrupting properties:**

**Product:** The substance/mixture does not contain components considered to have endocrine disrupting properties according to REACH Article 57(f) or Commission Delegated regulation (EU) 2017/2100 or Commission Regulation (EU) 2018/605 at levels of 0.1% or higher.

**Components:**  
Silane The substance/mixture does not contain components considered to have endocrine disrupting properties according to REACH Article 57(f) or Commission Delegated regulation (EU) 2017/2100 or Commission Regulation (EU) 2018/605 at levels of 0.1% or higher.

**12.7 Other adverse effects:**

**Other hazards**



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**Product:** No data available.

**Other effects:** No ecological damage caused by this product.

**SECTION 13: Disposal considerations**

**13.1 Waste treatment methods**

**General information:** No data available.

**Disposal methods:** No data available.

**SECTION 14: Transport information**

**ADR**

- 14.1 UN number or ID number: UN 2203
- 14.2 UN Proper Shipping Name: SILANE
- 14.3 Transport Hazard Class(es)
  - Class: 2
  - Label(s): 2.1
  - Hazard No. (ADR): 23
  - Tunnel restriction code: (B/D)
- 14.4 Packing Group: -
  - Limited quantity: None.
  - Excepted quantity: None.
- 14.5 Environmental hazards: Not applicable
- 14.6 Special precautions for user: -



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**RID**

- 14.1 UN number or ID number: UN 2203
- 14.2 UN Proper Shipping Name: SILANE
- 14.3 Transport Hazard Class(es)
  - Class: 2
  - Label(s): 2.1
- 14.4 Packing Group: -
  - Limited quantity: None.
  - Excepted quantity: None.
- 14.5 Environmental hazards: Not applicable
- 14.6 Special precautions for user: -

**IMDG**

- 14.1 UN number or ID number: UN 2203
- 14.2 UN Proper Shipping Name: SILANE
- 14.3 Transport Hazard Class(es)
  - Class: 2.1
  - Label(s): 2.1
  - EmS No.: F-D, S-U
- 14.4 Packing Group: -
  - Limited quantity: None.
  - Excepted quantity: None.
- 14.5 Environmental hazards: Not applicable
- 14.6 Special precautions for user: -

**IATA**

- 14.1 UN number or ID number: UN 2203
- 14.2 Proper Shipping Name: Silane
- 14.3 Transport Hazard Class(es)
  - Class: 2.1
  - Label(s): -
- 14.4 Packing Group: -
  - Limited quantity: None.
  - Excepted quantity: None.



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14.5 Environmental hazards: Not applicable

14.6 Special precautions for user: -

Other information

Passenger and cargo aircraft: Forbidden.

Cargo aircraft only: Forbidden.

**14.7 Maritime transport in bulk according to IMO instruments**

Not applicable for product as supplied.

**SECTION 15: Regulatory information**

**15.1 Safety, health and environmental regulations/legislation specific for the substance or mixture:**

**EU Regulations**

**EU. REACH Annex XIV, Substances Subject to Authorization as amended:** None present or none present in regulated quantities.

**Regulation (EU) No. 649/2012 concerning the export and import of dangerous chemicals, Annex I, Part 1 as amended:** None present or none present in regulated quantities.

**Regulation (EU) No. 649/2012 concerning the export and import of dangerous chemicals, Annex I, Part 2 as amended:** None present or none present in regulated quantities.

**Regulation (EU) No. 649/2012 concerning the export and import of dangerous chemicals, Annex I, Part 3 as amended:** None present or none present in regulated quantities.

**Regulation (EU) No. 649/2012 concerning the export and import of dangerous chemicals, Annex V as amended:** None present or none present in regulated quantities.

**EU. Directive 2012/18/EU (SEVESO III) on major accident hazards involving dangerous substances, Annex I:** Not applicable

**15.2 Chemical safety assessment:** No Chemical Safety Assessment has been carried out.



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### SECTION 16: Other information

**Revision Information:** Not relevant.

#### Abbreviations and acronyms:

FN\_OEL: Finland. Workplace Exposure Limits, as amended  
 FN\_OEL / HTP 15MIN: Short Term Exposure Limit (STEL):  
 FN\_OEL / HTP 8H: Time Weighted Average (TWA):

ADN - European Agreement concerning the International Carriage of Dangerous Goods by Inland Waterways; ADR - Agreement concerning the International Carriage of Dangerous Goods by Road; AIIC - Australian Inventory of Industrial Chemicals; ASTM - American Society for the Testing of Materials; bw - Body weight; CLP - Classification Labelling Packaging Regulation; Regulation (EC) No 1272/2008; CMR - Carcinogen, Mutagen or Reproductive Toxicant; DIN - Standard of the German Institute for Standardisation; DSL - Domestic Substances List (Canada); ECHA - European Chemicals Agency; EC-Number - European Community number; ECx - Concentration associated with x% response; EIGA - European Industrial Gases Association; ELx - Loading rate associated with x% response; EmS - Emergency Schedule; ENCS - Existing and New Chemical Substances (Japan); ErCx - Concentration associated with x% growth rate response; GHS - Globally Harmonized System; GLP - Good Laboratory Practice; IARC - International Agency for Research on Cancer; IATA - International Air Transport Association; IBC - International Code for the Construction and Equipment of Ships carrying Dangerous Chemicals in Bulk; IC50 - Half maximal inhibitory concentration; ICAO - International Civil Aviation Organization; IECSC - Inventory of Existing Chemical Substances in China; IMDG - International Maritime Dangerous Goods; IMO - International Maritime Organization; ISHL - Industrial Safety and Health Law (Japan); ISO - International Organisation for Standardization; KECI - Korea Existing Chemicals Inventory; LC50 - Lethal Concentration to 50 % of a test population; LD50 - Lethal Dose to 50% of a test population (Median Lethal Dose); MARPOL - International Convention for the Prevention of Pollution from Ships; n.o.s. - Not Otherwise Specified; NO(A)EC - No Observed (Adverse) Effect Concentration; NO(A)EL - No Observed (Adverse) Effect Level; NOELR - No Observable Effect Loading Rate; NZIoC - New Zealand Inventory of Chemicals; OECD - Organization for Economic Co-operation and Development; OPPTS - Office of Chemical Safety and Pollution Prevention; PBT - Persistent, Bioaccumulative and Toxic substance; PICCS - Philippines Inventory of Chemicals and Chemical Substances; (Q)SAR - (Quantitative) Structure Activity Relationship; REACH - Regulation (EC) No 1907/2006 of the European Parliament and of the Council concerning the Registration, Evaluation, Authorisation and Restriction of Chemicals; RID - Regulations concerning the International Carriage of Dangerous Goods by Rail; SADT - Self-Accelerating Decomposition Temperature; SDS - Safety Data Sheet; SVHC - substance of very high concern; TCSI - Taiwan Chemical Substance Inventory; TECI - Thailand Existing Chemicals Inventory; TRGS - Technical Rule for Hazardous Substances; TSCA - Toxic Substances Control Act (United States); UN - United Nations; vPvB - Very Persistent and Very Bioaccumulative

**Key literature references and sources for data:** No data available.



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**Wording of the H-statements in section 2 and 3**

H220	Extremely flammable gas.
H280	Contains gas under pressure; may explode if heated.

**Training information:** None.

**Classification according to Regulation (EC) No 1272/2008 as amended.**

Press. Gas Liq. Gas, H280

Flam. Gas 1A, H220

**Last revised date:** 23.11.2023

**Disclaimer:** This information is provided without warranty. The information is believed to be correct. This information should be used to make an independent determination of the methods to safeguard workers and the environment.