Chemical Safety Data Sheet MSDS / SDS

Trichlorosilane

Revision Date:2026-04-04 Revision Number:1

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

Product identifier

Product name	: Trichlorosilane
CBnumber	: CB4852559
CAS	: 10025-78-2
EINECS Number	: 233-042-5
Synonyms	: HSiCl3,Trichlorosilane

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

Relevant identified uses	: For R&D use only. Not for medicinal, household or other use.
Uses advised against	: none

Company Identification

Company	: Chemicalbook
Address	: Building 1, Huihuang International, Shangdi 10th Street, Haidian District, Beijing
Telephone	: 010-86108875

SECTION 2: Hazards identification

Classification of the substance or mixture

Flammable liquids, Category 1

Pyrophoric liquids, Category 1

Acute toxicity - Category 4, Oral

Skin corrosion, Sub-category 1A

Acute toxicity - Category 4, Inhalation

Label elements

Pictogram(s)

Signal word Danger

Hazard statement(s)

H224 Extremely flammable liquid and vapour

H250 Catches fire spontaneously if exposed to air

H302 Harmful if swallowed

H314 Causes severe skin burns and eye damage

H331 Toxic if inhaled

H332 Harmful if inhaled

H335 May cause respiratory irritation

Precautionary statement(s)

P210 Keep away from heat/sparks/open flames/hot surfaces. — No smoking.

P231 Handle under inert gas.

P280 Wear protective gloves/protective clothing/eye protection/face protection.

P303+P361+P353 IF ON SKIN (or hair): Remove/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. Continuerinsing.

P370+P378 In case of fire: Use … for extinction.

P405 Store locked up.

P422 Store contents under …

Prevention

P210 Keep away from heat, hot surfaces, sparks, open flames and other ignition sources. No smoking.

P233 Keep container tightly closed.

P240 Ground and bond container and receiving equipment.

P241 Use explosion-proof [electrical/ventilating/lighting/...] equipment.

P242 Use non-sparking tools.

P243 Take action to prevent static discharges.

P280 Wear protective gloves/protective clothing/eye protection/face protection/hearing protection/...

P222 Do not allow contact with air.

P231+P232 Handle and store contents under inert gas/....Protect from moisture.

P264 Wash ... thoroughly after handling.

P270 Do not eat, drink or smoke when using this product.

P260 Do not breathe dust/fume/gas/mist/vapours/spray.

P261 Avoid breathing dust/fume/gas/mist/vapours/spray.

P271 Use only outdoors or in a well-ventilated area.

Response

P303+P361+P353 IF ON SKIN (or hair): Take off immediately all contaminated clothing. Rinse affected areas with water [or shower].

P370+P378 In case of fire: Use ... to extinguish.

P302+P334 IF ON SKIN: Immerse in cool water or wrap in wet bandages.

P301+P317 IF SWALLOWED: Get medical help.

P330 Rinse mouth.

P301+P330+P331 IF SWALLOWED: Rinse mouth. Do NOT induce vomiting.

P363 Wash contaminated clothing before reuse.

P304+P340 IF INHALED: Remove person to fresh air and keep comfortable for breathing.

P316 Get emergency medical help immediately.

P321 Specific treatment (see ... on this label).

P305+P351+P338 IF IN EYES: Rinse cautiously with water for several minutes. Remove contact lenses, if present and easy to do. Continue rinsing.

P317 Get medical help.

Storage

P403+P235 Store in a well-ventilated place. Keep cool.

P405 Store locked up.

Disposal

P501 Dispose of contents/container to an appropriate treatment and disposal facility in accordance with applicable laws and regulations, and product characteristics at time of disposal.

Other hazards

no data available

SECTION 3: Composition/information on ingredients

Substance

Product name	: Trichlorosilane
Synonyms	: HSiCl3,Trichlorosilane
CAS	: 10025-78-2
EC number	: 233-042-5
MF	: Cl3HSi
MW	: 135.45

SECTION 4: First aid measures

Description of first aid measures

If inhaled

Fresh air, rest. Half-upright position. Artificial respiration may be needed. Refer for medical attention. See Notes.

Following skin contact

Remove contaminated clothes. Rinse skin with plenty of water or shower. Refer for medical attention .

Following eye contact

First rinse with plenty of water for several minutes (remove contact lenses if easily possible), then refer for medical attention.

Following ingestion

Rinse mouth. Do NOT induce vomiting. Give nothing to drink. Refer for medical attention .

Most important symptoms and effects, both acute and delayed

Inhalation causes severe irritation of respiratory system. Liquid causes severe burns of eyes and skin. Ingestion causes severe burns of mouth and stomach. (USCG, 1999)

Indication of any immediate medical attention and special treatment needed

No specific antidote is available /for chlorosilanes/, but first aid treatment consists of copious irrigation with water, & subsequent treatment is as for chemical burns in general. Chlorosilanes

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SECTION 5: Firefighting measures

Extinguishing media

If material on fire or involved in fire: Do not extinguish fire unless flow can be stopped. Use "alcohol" foam, dry chemical or carbon dioxide. Cool all affected containers with flooding quantities of water. Apply water from as far a distance as possible. Do not use water on material itself. If large quantities of combustibles are involved, use water in flooding quantities as spray and fog. Use water spray to knock-down vapors.

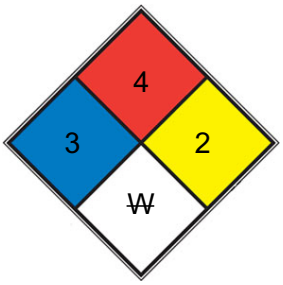
Specific Hazards Arising from the Chemical

Special Hazards of Combustion Products: Toxic hydrogen chloride and phosgene gases may form in fires. Behavior in Fire: Difficult to extinguish; re-ignition may occur. Vapor is heavier than air and may travel a considerable distance to a source of ignition and flash back. (USCG, 1999)

Advice for firefighters

NO water. Use AFFF, powder, carbon dioxide. In case of fire: keep drums, etc., cool by spraying with water. NO direct contact with water.

NFPA 704



■	HEALTH	3	Short exposure could cause serious temporary or moderate residual injury (e.g. liquid hydrogen, sulfuric acid, calcium hypochlorite, hexafluorosilicic acid)
■	FIRE	4	Will rapidly or completely vaporize at normal atmospheric pressure and temperature, or is readily dispersed in air and will burn readily. Includes pyrophoric substances. Flash point below room temperature at 22.8 °C (73 °F). (e.g. acetylene, propane, hydrogen gas)
■	REACT	2	Undergoes violent chemical change at elevated temperatures and pressures, reacts violently with water, or may form explosive mixtures with water (e.g. white phosphorus, potassium, sodium)
□	SPEC. HAZ.	W	

SECTION 6: Accidental release measures

Personal precautions, protective equipment and emergency procedures

Evacuate danger area! Consult an expert! Personal protection: chemical protection suit including self-contained breathing apparatus. Ventilation. Do NOT wash away into sewer. Collect leaking and spilled liquid in sealable non-plastic containers as far as possible. Absorb remaining liquid in dry sand or inert absorbent. Then store and dispose of according to local regulations.

Environmental precautions

Evacuate danger area! Consult an expert! Personal protection: chemical protection suit including self-contained breathing apparatus. Ventilation. Do NOT wash away into sewer. Collect leaking and spilled liquid in sealable non-plastic containers as far as possible. Absorb remaining liquid in dry sand or inert absorbent. Then store and dispose of according to local regulations.

Methods and materials for containment and cleaning up

Evacuate danger area! Consult an expert! Ventilation. Collect leaking and spilled liquid in sealable containers as far as possible; do not use plastic containers. Absorb remaining liquid in dry sand or inert absorbent and remove to safe place. Do NOT wash away into sewer. (Extra personal protection: chemical protection suit including self-contained breathing apparatus.)

SECTION 7: Handling and storage

Precautions for safe handling

NO open flames, NO sparks and NO smoking. Closed system, ventilation, explosion-proof electrical equipment and lighting. Do NOT use compressed air for filling, discharging, or handling. Handling in a well ventilated place. Wear suitable protective clothing. Avoid contact with skin and eyes. Avoid formation of dust and aerosols. Use non-sparking tools. Prevent fire caused by electrostatic discharge steam.

Conditions for safe storage, including any incompatibilities

Fireproof. Separated from food and feedstuffs and incompatible materials. See Chemical Dangers. Cool. Dry. Well closed. Ventilation along the floor.Fireproof. Separated from food and feedstuffs and incompatible materials ... Cool. Dry. Well closed. Ventilation along the floor.

SECTION 8: Exposure controls/personal protection

Control parameters

Occupational Exposure limit values

Component	Trichlorosilane			
CAS No.	10025-78-2			
	Limit value - Eight hours		**Limit value - Short term**	
	ppm	**mg/m^3**	**ppm**	**mg/m^3**
Latvia	?	1	?	?
	Remarks			

Biological limit values

no data available

Exposure controls

Ensure adequate ventilation. Handle in accordance with good industrial hygiene and safety practice. Set up emergency exits and the risk-elimination area.

Individual protection measures

Eye/face protection

Wear face shield or eye protection in combination with breathing protection.

Skin protection

Protective gloves. Protective clothing.

Respiratory protection

Use ventilation, local exhaust or breathing protection.

Thermal hazards

no data available

SECTION 9: Physical and chemical properties

Information on basic physicochemical properties

Physical state	Liquid
Colour	Colorless
Odour	ACRID ODOR
Melting point/freezing point	224°C(dec.)(lit.)
Boiling point or initial boiling point and boiling range	32-34°C(lit.)
Flammability	Extremely flammable. Gives off irritating or toxic fumes (or gases) in a fire.
Lower and upper explosion limit/flammability limit	70%
Flash point	-27°C
Auto-ignition temperature	220° F (USCG, 1999)
Decomposition temperature	no data available
pH	no data available
Kinematic viscosity	0.397 centipoise at 0 deg C; 0.332 centipoise at 20 deg C; 0.316 centipoise at 25 deg C
Solubility	Soluble in benzene, ether, heptane, chloroform and carbon tetrachloride.
Partition coefficient n-octanol/water	no data available
Vapour pressure	9.75 psi (20 °C)
Density and/or relative density	1.342
Relative vapour density	1.342
Particle characteristics	no data available

SECTION 10: Stability and reactivity

Reactivity

Decomposes on heating. This produces toxic and corrosive fumes including hydrogen chloride. Reacts violently with water, strong oxidants, strong acids and bases. This produces hydrogen chloride (see ICSC 0163). Attacks many metals in the presence of water.

Chemical stability

Volitile, moblie liquid. Fumes in air.

Possibility of hazardous reactions

A very dangerous fire hazard when exposed to heat, flame, or by chemical reaction.The vapour is heavier than air and may travel along the ground; distant ignition possible.TRICHLOROSILANE reacts with alcohols, acetone, light metals with generation of heat and combustible (H_2) and corrosive (HCl) gases [Handling Chemicals Safely 1980. p. 924].

Conditions to avoid

no data available

Incompatible materials

Water reactive. Hydrochloric acid is released ... Reacts violently with water and aqueous soln, alcohols, organic acids, peroxides, amines, and oxidizing materials ...

Hazardous decomposition products

When heated to decomposition it emits toxic fumes of /hydrogen chloride/.

SECTION 11: Toxicological information

Acute toxicity

- Oral: LD50 Rat oral 1.03 g/kg
- Inhalation: LC50 Rat inhalation 2767 ppm/1 hr
- Dermal: no data available

Skin corrosion/irritation

no data available

Serious eye damage/irritation

no data available

Respiratory or skin sensitization

no data available

Germ cell mutagenicity

no data available

Carcinogenicity

no data available

Reproductive toxicity

no data available

STOT-single exposure

The substance is corrosive to the eyes, skin and respiratory tract. Corrosive on ingestion. Inhalation of the vapour may cause lung oedema. Inhalation may cause asthma-like reactions. Exposure could cause death. Medical observation is indicated. See Notes.

STOT-repeated exposure

no data available

Aspiration hazard

No indication can be given about the rate at which a harmful concentration of this substance in the air is reached on evaporation at 20°C.

SECTION 12: Ecological information

Toxicity

Toxicity to fish: no data available

Toxicity to daphnia and other aquatic invertebrates: no data available

Toxicity to algae: no data available

Toxicity to microorganisms: no data available

Persistence and degradability

no data available

Bioaccumulative potential

Trichlorosilane has been reported to hydrolyze immediately upon contact with water(1) and therefore bioconcentration of trichlorosilane is not expected(SRC).

Mobility in soil

All silicon chlorides are immediately and completely hydrolyzed by water(1). Trichlorosilane has been reported to hydrolyze in water releasing HCl(2); therefore, adsorption to soil is not expected to be an important fate process(SRC).

Toxics Screening Level

An initial threshold screening level (ITSL) for trichlorosilane is 8 µg/m3 based on an annual averaging time.

Other adverse effects

no data available

SECTION 13: Disposal considerations

Disposal methods

Product

The material can be disposed of by removal to a licensed chemical destruction plant or by controlled incineration with flue gas scrubbing. Do not contaminate water, foodstuffs, feed or seed by storage or disposal. Do not discharge to sewer systems.

Contaminated packaging

Containers can be triply rinsed (or equivalent) and offered for recycling or reconditioning. Alternatively, the packaging can be punctured to make it unusable for other purposes and then be disposed of in a sanitary landfill. Controlled incineration with flue gas scrubbing is possible for combustible packaging materials.

SECTION 14: Transport information

UN Number

ADR/RID: UN1295 (For reference only, please check.)

IMDG: UN1295 (For reference only, please check.)

IATA: UN1295 (For reference only, please check.)

UN Proper Shipping Name

ADR/RID: TRICHLOROSILANE (For reference only, please check.)

IMDG: TRICHLOROSILANE (For reference only, please check.)

IATA: TRICHLOROSILANE (For reference only, please check.)

Transport hazard class(es)

ADR/RID: 4.3 (For reference only, please check.)

IMDG: 4.3 (For reference only, please check.)

IATA: 4.3 (For reference only, please check.)

Packing group, if applicable

ADR/RID: I (For reference only, please check.)

IMDG: I (For reference only, please check.)

IATA: I (For reference only, please check.)

Environmental hazards

ADR/RID: No

IMDG: No

IATA: No

Special precautions for user

no data available

Transport in bulk according to IMO instruments

no data available

SECTION 15: Regulatory information

Safety, health and environmental regulations specific for the product in question

European Inventory of Existing Commercial Chemical Substances (EINECS)

Listed.

EC Inventory

Listed.

United States Toxic Substances Control Act (TSCA) Inventory

Listed.

China Catalog of Hazardous chemicals 2015

Listed.

New Zealand Inventory of Chemicals (NZIoC)

Listed.

PICCS

Listed.

Vietnam National Chemical Inventory

Not Listed.

IECSC

Listed.

Korea Existing Chemicals List (KECL)

Listed.

SECTION 16: Other information

Abbreviations and acronyms

CAS: Chemical Abstracts Service

ADR: European Agreement concerning the International Carriage of Dangerous Goods by Road

RID: Regulation concerning the International Carriage of Dangerous Goods by Rail

IMDG: International Maritime Dangerous Goods

IATA: International Air Transportation Association

TWA: Time Weighted Average

STEL: Short term exposure limit

LC50: Lethal Concentration 50%

LD50: Lethal Dose 50%

EC50: Effective Concentration 50%

References

IPCS - The International Chemical Safety Cards (ICSC), website: http://www.ilo.org/dyn/icsc/showcard.home

HSDB - Hazardous Substances Data Bank, website: https://toxnet.nlm.nih.gov/newtoxnet/hsdb.htm

IARC - International Agency for Research on Cancer, website: http://www.iarc.fr/

eChemPortal - The Global Portal to Information on Chemical Substances by OECD, website: http://www.echemportal.org/echemportal/index?pageID=0&request_locale=en

CAMEO Chemicals, website: http://cameochemicals.noaa.gov/search/simple

ChemIDplus, website: http://chem.sis.nlm.nih.gov/chemidplus/chemidlite.jsp

ERG - Emergency Response Guidebook by U.S. Department of Transportation, website: http://www.phmsa.dot.gov/hazmat/library/erg

Germany GESTIS-database on hazard substance, website: http://www.dguv.de/ifa/gestis/gestis-stoffdatenbank/index-2.jsp

ECHA - European Chemicals Agency, website: https://echa.europa.eu/

Other Information

Reacts violently with fire extinguishing agents such as water.The symptoms of lung oedema often do not become manifest until a few hours have passed and they are aggravated by physical effort.Rest and medical observation are therefore essential.Immediate administration of an appropriate inhalation therapy by a doctor or a person authorized by him/her, should be considered.Toxicological properties are inferred from those of Methyldichlorosilane (ICSC 0297).

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