

**TETRACHLOROSILANE, 99.99+%****Safety Data Sheet SIT7085.1**Issue date: 12/16/2014
2.1

Revision date: 04/01/2024

Supersedes version of: 01/18/2022

Version:

SECTION 1: Identification**1.1. Identification**

Product name	: TETRACHLOROSILANE, 99.99+%
Product code	: SIT7085.1
Product form	: Substance
Physical state	: Liquid
Formula	: Cl ₄ Si
Synonyms	: SILICON CHLORIDE; SILICON TETRACHLORIDE
Chemical family	: CHLOROSILANE

1.2. Recommended use and restrictions on use

Recommended use	: Chemical intermediate
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1.3. Supplier**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**1.4. Emergency telephone number**

Emergency number	: CHEMTREC: 1-800-424-9300 (USA); +1 703-527-3887 (International)
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SECTION 2: Hazard(s) identification**2.1. Classification of the substance or mixture****GHS US classification**

Acute toxicity (oral) Category 3	H301	Toxic if swallowed
Skin corrosion/irritation Category 1B	H314	Causes severe skin burns and eye damage
Serious eye damage/eye irritation Category 1	H318	Causes serious eye damage
Specific target organ toxicity – Single exposure, Category 3, Respiratory tract irritation	H335	May cause respiratory irritation
Full text of H statements : see section 16		

2.2. GHS Label elements, including precautionary statements**GHS US labeling**

Hazard pictograms (GHS US)



Signal word (GHS US)

: Danger

Hazard statements (GHS US)

: H301 - Toxic if swallowed
 H314 - Causes severe skin burns and eye damage
 H318 - Causes serious eye damage
 H335 - May cause respiratory irritation

Precautionary statements (GHS US)

: P260 - Do not breathe vapors.
 P261 - Avoid breathing dust/fume/gas/mist/vapors/spray.
 P264 - Wash hands thoroughly after handling.

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P270 - Do not eat, drink or smoke when using this product.
P271 - Use only outdoors or in a well-ventilated area.
P280 - Wear protective gloves/protective clothing/eye protection/face protection.
P301+P310 - If swallowed: Immediately call a poison center or doctor.
P301+P330+P331 - If swallowed: rinse mouth. Do NOT induce vomiting.
P303+P361+P353 - If on skin (or hair): take off immediately all contaminated clothing. rinse skin with water/shower
P304+P340 - If inhaled: Remove person to fresh air and keep comfortable for breathing.
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 doctor.
P312 - Call a poison center or doctor if you feel unwell.
P321 - Specific treatment (see first aid instructions on this label).
P330 - Rinse mouth.
P363 - Wash contaminated clothing before reuse.
P403+P233 - Store in a well-ventilated place. Keep container tightly closed.
P405 - Store locked up.
P501 - Dispose of contents/container to licensed waste disposal facility..

2.3. Hazards not otherwise classified (HNOC)

Other hazards which do not result in 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.

2.4. Unknown acute toxicity (GHS US)

Not applicable

SECTION 3: Composition/Information on ingredients

3.1. Substances

Substance type : Mono-constituent
Name : TETRACHLOROSILANE, 99.99+%
CAS-No. : 10026-04-7

Name	Product identifier	%	GHS US classification
Silicon tetrachloride	CAS-No.: 10026-04-7	99.99 – 100	Acute Tox. 3 (Oral), H301 Skin Corr. 1B, H314 Eye Dam. 1, H318 STOT SE 3, H335

Full text of hazard classes and 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 victim to fresh air and keep at rest in a position comfortable for breathing. Get medical advice/attention if you feel unwell.

First-aid measures after skin contact : Wash with plenty of soap and 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.

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4.2. Most important symptoms and effects (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. Immediate medical attention and special treatment, if necessary

No additional information available

SECTION 5: Fire-fighting measures

5.1. Suitable (and unsuitable) 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. Specific hazards arising from the chemical

Fire hazard	: Not flammable. Irritating fumes of hydrogen chloride and organic acid vapors may develop when material is exposed to water or open flame.
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5.3. Special protective equipment and precautions for fire-fighters

Firefighting instructions	: Tetrachlorosilane is not flammable. The following information is provided to assist if tetrachlorosilane is present in a fire situation. 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 vapor and mist.

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".
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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.

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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 vapor and mist. Use only outdoors or in a well-ventilated area.
- Hygiene measures : Wash hands and other exposed areas with mild soap and water before eating, drinking or smoking and when leaving work. Wash contaminated clothing before reuse.

7.2. Conditions for safe storage, including any incompatibilities

- Storage conditions : Keep container tightly closed. Store in sealed corrosion resistant containers. Store locked up.
- Incompatible materials : Acids. Alcohols. Moisture. Oxidizing agent. Water.
- Storage area : Store in a well-ventilated place. Store away from heat.

SECTION 8: Exposure controls/personal protection

8.1. Control parameters

Silicon tetrachloride (10026-04-7)

USA - AIHA - Occupational Exposure Limits

WEEL Ceiling	1 ppm
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8.2. Appropriate engineering controls

- Appropriate engineering controls : Provide local exhaust or general room ventilation.

8.3. Individual protection measures/Personal protective equipment

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 : 169.9 g/mol
- Color : Straw.
- Odor : Acrid. Similar to hydrogen chloride.
- Odor threshold : No data available
- pH : No data available
- Relative evaporation rate (butyl acetate=1) : No data available
- Melting point : No data available
- Freezing point : -70 °C
- Boiling point : 57.6 °C
- Flash point : not flammable

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Critical temperature	: 234 °C
Auto-ignition temperature	: No data available
Decomposition temperature	: No data available
Flammability (solid, gas)	: Non flammable.
Vapor pressure	: 194 mm Hg @ 20°C
Critical pressure	: 37 atm
Relative vapor density at 20°C	: > 5
Relative density	: 1.481
Solubility	: Reacts violently with water.
Partition coefficient n-octanol/water (Log Pow)	: No data available
Partition coefficient n-octanol/water (Log Kow)	: No data available
Viscosity, kinematic	: No data available
Viscosity, dynamic	: No data available
Explosive properties	: No data available
Oxidizing properties	: No data available
Explosion 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 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

None known.

10.5. Incompatible materials

Acids. Alcohols. Moisture. Oxidizing agent. Water.

10.6. Hazardous decomposition products

Hydrogen chloride. Silicon dioxide.

SECTION 11: Toxicological information

11.1. Information on toxicological effects

Acute toxicity (oral)	: Toxic if swallowed.
Acute toxicity (dermal)	: Not classified
Acute toxicity (inhalation)	: Not classified

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ATE US (oral)	238 mg/kg body weight
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Silicon tetrachloride (10026-04-7)

LD50 oral rat	238 mg/kg body weight Animal: rat, Guideline: OECD Guideline 401 (Acute Oral Toxicity), 95% CL: 205 - 275
LC50 Inhalation - Rat [ppm]	8000 ppm/4h

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Skin corrosion/irritation	: Causes severe skin burns. Skin Irritation - rabbit: 500 mg/24H: severe irritation effect
Serious eye damage/irritation	: Causes serious eye damage. Eye Irritation - rabbit: 20 mg/24H: moderate irritation effect
Respiratory or skin sensitization	: Not classified
Germ cell mutagenicity	: Not classified
Carcinogenicity	: Not classified
Reproductive toxicity	: Not classified
STOT-single exposure	: May cause respiratory irritation.
STOT-repeated exposure	: Not classified

Silicon tetrachloride (10026-04-7)

NOAEL (oral,rat,90 days)	≥ 2000 mg/kg body weight Animal: rat, Guideline: OECD Guideline 408 (Repeated Dose 90-Day Oral Toxicity Study in Rodents)
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Aspiration hazard	: Not classified
Potential Adverse human health effects and symptoms	: NOTE: Material may form a siloxane polymer on the skin, eyes or in the lungs.
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

Silicon tetrachloride (10026-04-7)

LC50 - Fish [1]	> 245 mg/l Test organisms (species): Danio rerio (previous name: Brachydanio rerio)
EC50 - Crustacea [1]	> 844 mg/l Test organisms (species): Daphnia magna
EC50 72h - Algae [1]	> 22 mg/l Test organisms (species): Raphidocelis subcapitata (previous names: Pseudokirchneriella subcapitata, Selenastrum capricornutum)

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. Other adverse effects

Other adverse effects	: This substance may be hazardous to the environment.
Effect on the ozone layer	: No additional information available

SECTION 13: Disposal considerations

13.1. Disposal 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..
Ecological information	: Avoid release to the environment.

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SECTION 14: Transport information

In accordance with DOT / TDG / IMDG / IATA

DOT	TDG	IMDG	IATA
14.1. UN number			
1818	Not applicable	1818	1818
14.2. Proper Shipping Name			
Silicon tetrachloride	Not applicable	SILICON TETRACHLORIDE	Silicon tetrachloride
Transport document description			
UN1818 Silicon tetrachloride, 8, II	Not applicable	UN 1818 SILICON TETRACHLORIDE, 8, II	UN 1818 Silicon tetrachloride, 8, II
14.3. Transport hazard class(es)			
8	Not applicable	8	8
	Not applicable		
14.4. Packing group			
II	Not applicable	II	II
14.5. Environmental hazards			
Dangerous for the environment: No	Dangerous for the environment: No	Dangerous for the environment: No Marine pollutant: No	Dangerous for the environment: No
No supplementary information available			

14.6. Special precautions for user

DOT

UN-No.(DOT)

DOT Special Provisions (49 CFR 172.102)

: UN1818

: A3 - For combination packaging, if glass inner packaging (including ampoules) are used, they must be packed with absorbent material in tightly closed metal receptacles before packing in outer packaging.

A6 - For combination packaging, if plastic inner packaging are used, they must be packed in tightly closed metal receptacles before packing in outer packaging.

B2 - MC 300, MC 301, MC 302, MC 303, MC 305, and MC 306 and DOT 406 cargo tanks are not authorized.

B6 - Packaging shall be made of steel.

T10 - 4 6 mm Prohibited 178.275(g)(3).

TP2 - a. The maximum degree of filling must not exceed the degree of filling determined by the following: (image) Where: tr is the maximum mean bulk temperature during transport, tf is the temperature in degrees celsius of the liquid during filling, and a is the mean coefficient of cubical expansion of the liquid between the mean temperature of the liquid during filling (tf) and the maximum mean bulk temperature during transportation (tr) both in degrees celsius. b. For liquids transported under ambient conditions may be calculated using the formula: (image) Where: d15 and d50 are the densities (in units of mass per unit volume) of the liquid at 15 C (59 F) and 50 C (122 F), respectively.

TP7 - The vapor space must be purged of air by nitrogen or other means.

TP13 - Self-contained breathing apparatus must be provided when this hazardous material is transported by sea.

DOT Packaging Exceptions (49 CFR 173.xxx)

: 154

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DOT Packaging Non Bulk (49 CFR 173.xxx)	: 202
DOT Packaging Bulk (49 CFR 173.xxx)	: 242
DOT Quantity Limitations Passenger aircraft/rail (49 CFR 173.27)	: Forbidden
DOT Quantity Limitations Cargo aircraft only (49 CFR 175.75)	: 30 L
DOT Vessel Stowage Location	: C - The material must be stowed "on deck only" on a cargo vessel and on a passenger vessel.
DOT Vessel Stowage Other	: 40 - Stow "clear of living quarters"

TDG

Emergency Response Guide (ERG) Number	: 157
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IMDG

Limited quantities (IMDG)	: 0
Excepted quantities (IMDG)	: E0
Packing instructions (IMDG)	: P010
Tank instructions (IMDG)	: T10
Tank special provisions (IMDG)	: TP2, TP7, TP13
EmS-No. (Fire)	: F-A - FIRE SCHEDULE Alfa - GENERAL FIRE SCHEDULE
EmS-No. (Spillage)	: S-B - SPILLAGE SCHEDULE Bravo - CORROSIVE SUBSTANCES
Stowage category (IMDG)	: C
Properties and observations (IMDG)	: Colourless, extremely mobile liquid with a suffocating odour. Reacts violently with water, evolving hydrogen chloride, an irritating and corrosive gas apparent as white fumes. In the presence of moisture, highly corrosive to most metals. Vapour irritates mucous membranes.

IATA

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 provision (IATA)	: A1
ERG code (IATA)	: 8L

14.7. Transport in bulk according to Annex II of MARPOL 73/78 and the IBC Code

Not applicable

SECTION 15: Regulatory information

15.1. US Federal regulations

All components of this product are present and listed as Active on the United States Environmental Protection Agency Toxic Substances Control Act (TSCA) inventory

15.2. International regulations

CANADA

TETRACHLOROSILANE, 99.99+% (10026-04-7)

Listed on the Canadian DSL (Domestic Substances List)

Silicon tetrachloride (10026-04-7)

Listed on the Canadian DSL (Domestic Substances List)

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EU-Regulations

Silicon tetrachloride (10026-04-7)	
Listed on the EEC inventory EINECS (European Inventory of Existing Commercial Chemical Substances)	

National regulations

TETRACHLOROSILANE, 99.99+% (10026-04-7)	
Listed on INSQ (Mexican National Inventory of Chemical Substances)	

Silicon tetrachloride (10026-04-7)	
Listed introduction on Australian Industrial Chemicals Introduction Scheme (AICIS Inventory)	
Listed on IECSC (Inventory of Existing Chemical Substances Produced or Imported in China)	
Listed on the Japanese ENCS (Existing New Chemical Substances) inventory	
Listed on KECL/KECI (Korean Existing Chemicals Inventory)	
Listed on NZIoC (New Zealand Inventory of Chemicals)	
Listed on PICCS (Philippines Inventory of Chemicals and Chemical Substances)	
Listed on INSQ (Mexican National Inventory of Chemical Substances)	

15.3. US State regulations

TETRACHLOROSILANE, 99.99+% (10026-04-7)	
State or local regulations	U.S. - New Jersey - Right to Know Hazardous Substance List

California Proposition 65 - This product does not contain any substances known to the state of California to cause cancer, developmental and/or reproductive harm

Silicon tetrachloride (10026-04-7)	
U.S. - New Jersey - Right to Know Hazardous Substance List	

SECTION 16: Other information

Full text of H-phrases::	
H301	Toxic if swallowed
H314	Causes severe skin burns and eye damage
H318	Causes serious eye damage
H335	May cause respiratory irritation

Hazard Rating

Health

Flammability

: 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.

: 3 Serious Hazard - Major injury likely unless prompt action is taken and medical treatment is given

: 0 Minimal Hazard - Materials that will not burn

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Physical : 2 Moderate Hazard - Materials that are unstable and may undergo violent chemical changes at normal temperature and pressure with low risk for explosion. Materials may react violently with water or form peroxides upon exposure to air.

Prepared by safety and environmental affairs.

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SDS US (GHS HazCom 2012) - Custom

According to Federal Register / Vol. 77, No. 58 / Monday, March 26, 2012 / Rules and Regulations

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