

Chemical Safety Data Sheet

1. IDENTIFICATION

Product Name: Silicon tetrafluoride

Other Name:

Chemical formula: SiF₄

Recommended use of the chemical and restrictions on use:

Supplier's details:

LINGGAS(TIANJIN),LIMITED

Hexiwu Town, Wuqing District, Tianjin 301714, P.R. China

Tel: 022-29437740; Fax: 022-29437745; Email: info@linggas.com

Emergency phone number: 022-29437747

2. HAZARDS IDENTIFICATION

Emergency Overview:

Toxic by inhalation.

High pressure gas.

May react violently with water.

Do not breathe gas.

Corrosive to eyes, respiratory system and skin.

Wear self-contained breathing apparatus and protective suit.

GHS Label elements, including precautionary statements:



Potential Health Effects

Inhalation: Irritating to respiratory system. Can cause severe lung damage. Delayed adverse effects possible. Prolonged exposure to small concentrations may result in pulmonary edema. Delayed fatal pulmonary edema possible.

Eye contact: Irritating to eyes. Causes severe eye burns. May cause permanent eye injury.

Skin contact: Causes skin irritation. Causes skin burns.

Ingestion: Ingestion is not considered a potential route of exposure.

Aggravated Medical Condition: Asthma.

Target Organs: Respiratory tract.

3. COMPOSITION/INFORMATION ON INGREDIENTS

component:

Components	CAS No.	Concentration(Volume)
Silicon tetrafluoride	7783-61-1	99.99%

4. FIRST AID MEASURES
General advice:

The potential for hydrogen fluoride formation exists with every exposure, therefore its toxicity must also be considered. Remove victim to uncontaminated area wearing self contained breathing apparatus. Keep victim warm and rested. Call a doctor. Apply artificial respiration if breathing stopped. Use chemically protective clothing.

Eye contact:

Irrigate eye intermittently for 20 minutes with an aqueous calcium gluconate 1% solution, if available. In the case of contact with eyes, rinse immediately with plenty of water and seek medical advice. Keep eye wide open while rinsing.

Skin contact:

With gloved hand apply 2.5% calcium gluconate gel to the burn area. Alternative treatment is to soak the affected areas in an iced 0.13% water solution (1:750) of Zephiran® chloride (benzalkonium chloride solution, NF). Use ice cubes, not shaved ice, to prevent frostbite. If soaking is impractical, soaks or compresses may be used. (Do not use Zephiran® for burns of the eye.) If immersion is impractical, soaked compresses of the same solution should be applied to the area. Flush with copious amounts of water until treatment is available. Immediate medical treatment is necessary as untreated wounds from corrosion of the skin heal slowly and badly.

Ingestion:

Ingestion is not considered a potential route of exposure.

Inhalation:

As soon as possible give 2.5% to 3% calcium gluconate solution by nebulizer. Move to fresh air. In case of shortness of breath, give oxygen. If breathing has stopped or is labored, give assisted respirations. Supplemental oxygen may be indicated. If the heart has stopped, trained personnel should begin cardiopulmonary resuscitation immediately. Mouth to mouth resuscitation is not recommended. Consult a doctor.

5. FIRE-FIGHTING MEASURES
Suitable extinguishing media:

All known extinguishing media can be used.

Specific hazards:

Upon exposure to intense heat or flame, cylinder will vent rapidly and or rupture violently.

Product is nonflammable and does not support combustion. Use of water may result in the formation of very toxic aqueous solutions. Move away from container and cool with water from a protected position. Do not allow run-off from fire fighting to enter drains or water courses. Keep containers and surroundings cool with water spray. If possible, stop flow of product.

Special protective equipment for fire-fighters:

Use self-contained breathing apparatus and chemically protective clothing.

6. ACCIDENTAL RELEASE MEASURES

Personal precautions:

Evacuate personnel to safe areas. Approach suspected leak areas with caution. Use self-contained breathing apparatus or positive pressure air line with mask and escape pack in areas where concentration is unknown or above the exposure limits. Wear self-contained breathing apparatus when entering area unless atmosphere is proved to be safe. Ventilate the area.

Environmental precautions:

Should not be released into the environment. Prevent further leakage or spillage if safe to do so.

Methods for cleaning up:

Ventilate the area. Reduce vapor with fog or fine water spray.

Additional advice:

If possible, stop flow of product. Increase ventilation to the release area and monitor concentrations. If leak is from cylinder or cylinder valve, call the Air Products emergency telephone number. If the leak is in the user's system, close the cylinder valve, safely vent the pressure, and purge with an inert gas before attempting repairs.

7. HANDLING AND STORAGE

Handling:

Carbon steel, stainless steel, Monel or copper are suitable materials of construction when no moisture is present. Hastelloy, platinum or gold offer good resistance to corrosion when moisture is present. Use equipment rated for cylinder pressure. Cylinders should be stored upright with valve protection cap in place and firmly secured to prevent falling or being knocked over. Protect cylinders from physical damage; do not drag, roll, slide or drop. Do not allow storage area temperature to exceed 50°C (122°F). Only experienced and properly instructed persons should handle compressed gases. Before using the product, determine its identity by reading the label. Know and understand the properties and hazards of the product before use. When doubt exists as to the correct handling procedure for a particular gas, contact the supplier. Do not remove or deface labels provided by the supplier for the identification of the cylinder contents. When moving cylinders, even for short distances, use a cart (trolley, hand truck, etc.) designed to

transport cylinders. Leave valve protection caps in place until the container has been secured against either a wall or bench or placed in a container stand and is ready for use.

Storage:

Containers should be stored in a purpose build compound which should be well ventilated, preferably in the open air. Containers should be stored in the vertical position and properly secured to prevent toppling. The container valves should be tightly closed and where appropriate valve outlets should be capped or plugged. Container valve guards or caps should be in place. Full containers should be stored so that oldest stock is used first. Observe all regulations and local requirements regarding storage of containers. Stored containers should be periodically checked for general condition and leakage. Local codes may have special requirements for toxic gas storage. Protect containers stored in the open against rusting and extremes of weather. Containers should not be stored in conditions likely to encourage corrosion. Store containers in location free from fire risk and away from sources of heat and ignition. Full and empty cylinders should be segregated. Do not allow storage temperature to exceed 50°C (122°F). Return empty containers in a timely manner.

8. EXPOSURE CONTROLS / PERSONAL PROTECTION

Engineering measures:

Provide natural or explosion-proof ventilation adequate to ensure concentrations are kept below exposure limits.

Personal protective equipment:

Respiratory protection:

Use self-contained breathing apparatus or positive pressure air line with mask and escape pack in areas where concentration is unknown or above the exposure limits. Users of breathing apparatus must be trained.

Hand protection: Sturdy work gloves are recommended for handling cylinders. The breakthrough time of the selected glove(s) must be greater than the intended use period.

Eye protection:

Safety glasses recommended when handling cylinders. A full faceshield should be worn in addition to safety glasses when connecting, disconnecting or opening cylinders.

Skin and body protection:

Encapsulated chemical protective suit in emergency situations. Safety shoes are recommended when handling cylinders.

9. PHYSICAL AND CHEMICAL PROPERTIES

Form:	Liquefied gas.
Color:	Gives off white fumes in moist air
Odor:	Pungent.

Molecular Weight:	104g/mol
Relative vapor density:	3.6 (air = 1)
Density:	0.0013 g/cm ³ at 70 °F (21 °C) Note: (as vapor)
Specific Volume :	0.2304 m ³ /kg) at 70 °F (21 °C)
Specific Volume :	0.0474 m ³ /kg) at 70 °F (21 °C)
Boiling point/range:	-95.2 °C
Critical temperature:	-14.1°C
Melting point/range:	-86.8 °C
Water solubility:	Hydrolyses.

10. STABILITY AND REACTIVITY

Stability: Stable under normal conditions.

11. TOXICOLOGICAL INFORMATION

Acute Health Hazard:

Ingestion: No data is available on the product itself.

Ingestion: LC50 (1 h) : 450 ppm Species : Rat.

Skin: No data is available on the product itself.

Chronic Health Hazard:

Animals exposed to hydrogen fluoride have exhibited kidney, lung, heart and liver damage. Direct toxicity of this material may be accompanied by fluoride absorption and systemic depletion of calcium ion, an essential electrolyte. Chronic exposure may cause abnormal calcification in the bone structure (fluorosis) due to low level systemic absorption of fluoride. Fluoride toxicity from acute inhalation exposure to this product is unlikely due to the noxious and corrosive nature of this gas. Death from respiratory tract damage would likely occur before significant amounts of fluoride are absorbed. The potential for hydrogen fluoride formation exists with every exposure; therefore, its toxicity must also be considered.

12. ECOLOGICAL INFORMATION

Ecotoxicity effects

Aquatic toxicity: May cause pH changes in aqueous ecological systems.

Toxicity to other organisms: No data available.

Persistence and degradability

Mobility: No data available.

Bioaccumulation: No data is available on the product itself.

13. DISPOSAL CONSIDERATIONS

Waste from residues / unused products:

Return unused product in original cylinder to supplier.

Contaminated packaging: Return cylinder to supplier.

14. TRANSPORT INFORMATION

UN No: 1859

Proper shipping name: Hydrogen chloride

Class: 2.3

Risk label: toxic gas;



Packing: gas cylinder

Further Information:

Avoid transport on vehicles where the load space is not separated from the driver's compartment. Ensure vehicle driver is aware of the potential hazards of the load and knows what to do in the event of an accident or an emergency.

15. REGULATORY INFORMATION

The following laws, regulations and standards have made the clear legal provisions to the safe use, storage, transportation, loading and unloading, classification and marking of chemicals.

Production safety law of the People's Republic of China;

Occupational Disease Prevention and Treatment of the People's Republic of China;

Environmental Protection Law of the People's Republic of China;

Hazardous Chemicals Control Ordinance;

The list of dangerous chemicals;

The general principles of the classification of dangerous chemicals and the risk of the public (GB 13690-2009)

16. OTHER INFORMATION

Reference:

UN RTDG

Globally Harmonized System of Classification and Labeling of Chemicals

ICSC

Apply date: 2013-2-25



Revision Date:2016-9-20

Edit department: Safety and Environmental Protection Department

Data audit unit: LINGGAS TIANJIN LIMITED.

Edit Description: Modify when policies change or every 3 years.