



Material Safety Data Sheet

1. Product and Company Identification

Product name : **Silane**

Chemical formula : SiH₄

Synonyms : Silicon tetrahydride; Monosilane; Silicon hydride; Silicane; UN 2203

Company : Med Tech Gases, Inc.
20 Hall Street
Medford, MA 02155

Telephone : 800-FINE-GAS

Emergency : 800-424-9300

2. Composition/Information on Ingredients

Components	CAS Number	% Volume
Silane	7803-62-5	100%

3. Hazards Identification

Emergency Overview

May explode on contact with water. Flammable gas. May cause flash fire. Extremely flammable. May ignite spontaneously on exposure to air.
May cause respiratory tract irritation, skin irritation, eye irritation.

Potential Health Effects

Inhalation : Irritation, headache, nausea. May cause lung damage in long term exposure.
Eye contact : Irritation, blurred vision.
Skin contact : Irritation, blisters.
Ingestion : Frostbite.
Chronic Health Hazard : None known.

4. First Aid Measures

Eye contact : Contact with liquid: Immediately flush eyes with plenty of water for at least 15 minutes. Then get immediate medical attention.

Skin contact : If frostbite or freezing occur, immediately flush with plenty of lukewarm water (105-115°F; 41-46°C). DO NOT USE HOT WATER. If warm water is not available, gently wrap affected parts in blankets. Get immediate medical attention.

Ingestion : If a large amount is swallowed, get immediate medical attention.

Inhalation : If adverse effects occur, remove to uncontaminated area. Give artificial respiration if not breathing. Get immediate medical attention.

5. Fire-Fighting Measures

Suitable extinguishing media	: Regular dry chemical, carbon dioxide. Large fires: Use regular foam or flood with fine water spray.
Specific hazards	: Severe fire hazard. May ignite on exposure to air. The vapor is heavier than air. Vapors or gases may ignite at distant ignition sources and flash back.
Fire fighting	: Move container from fire area if it can be done without risk. For fires in cargo or storage area: Cool containers with water from unmanned hose holder or monitor nozzles until well after the fire is out. If this is impossible, take the following precautions: Keep unnecessary people away, isolate hazard area and deny entry. Let the fire burn. Withdraw immediately in case of rising sound from venting safety device or any discoloration of tanks due to fire. For tank, rail car or tank truck: Stop leak if possible without personal risk. Let burn unless leak can be stopped immediately. For smaller tanks or cylinders, extinguish and isolate from other flammables. Evacuation radius: 800 meters (1/2 mile). Do not attempt to extinguish fire unless flow of material can be stopped first. Flood with fine water spray. Cool containers with water spray until well after the fire is out. Apply water from a protected location or from a safe distance. Avoid inhalation of material or combustion by-products. Stay upwind and keep out of low areas. Evacuate if fire gets out of control or containers are directly exposed to fire. Evacuation radius: 500 meters (1/3 mile). Consider downward evacuation if material is leaking.
Protective Equipment and Precautions for firefighters	: Wear full protective fire fighting gear including self-contained breathing apparatus (SCBA) for protection against possible exposure.
Unsuitable Extinguishing Media	: Do not use halogenated extinguishing agents.

6. Accidental Release Measures

Occupational spill/release	: Avoid heat, sparks, flames and other sources of ignition. Stop leak if possible without personal risk. Reduce vapors with water spray. Keep unnecessary people away, isolate hazard area and deny entry. Remove sources of ignition. Ventilate closed spaces before entering.
Additional advice	: None.

7. Handling and Storage

Handling

Secure cylinder when using to protect from falling. Use suitable hand truck to move cylinders.

Storage

Store in accordance with all current regulations and standards. Subject to storage regulations: U.S. OSHA 29 CFR 1910.101. Keep separated from incompatible substances. Store above -110°C. Store in a tightly closed container. May ignite on exposure to air.

8. Exposure Controls / Personal Protection

Exposure limits

ACGIH	: 5 ppm TWA
OSHA (vacated)	: 5 ppm TWA; 7 mg/m ³ TWA
NIOSH	: 5 ppm TWA; 7 mg/m ³ TWA

Engineering measures/Ventilation

Ensure compliance with applicable exposure limits. Ventilation equipment should be explosion-resistant if explosive concentrations of material are present. Provide local exhaust ventilation system.

Personal protective equipment

- Respiratory protection : Under conditions of frequent use or heavy exposure, respiratory protection may be needed. Respiratory protection is ranked in order from minimum to maximum. Consider warning properties before use.
Any supplied-air respirator with a full facepiece that is operated in a pressure-demand or other positive-pressure mode.
Any self-contained breathing apparatus that has a full facepiece and is operated in a pressure-demand or other positive-pressure mode.
For unknown concentrations or Immediately Dangerous to Life or Health – Any supplied-air respirator with a full facepiece that is operated in a pressure-demand or other positive-pressure mode in combination with an auxiliary self-contained breathing apparatus operated in pressure-demand or other positive-pressure mode.
Any self-contained breathing apparatus that has a full facepiece and is operated in a pressure-demand or other positive-pressure mode.
- Hand protection : Wear fire-resistant gloves.
- Eye protection : Wear helmet with full face shield and fire-proof hood to prevent any possibility of burns if in contact with this substance.
- Skin and body protection : Wear appropriate chemical resistant clothing.

9. Physical and Chemical Properties

- Form : Gas.
- Color : Colorless.
- Odor : Unpleasant odor.
- Molecular weight : 32.12
- Vapor density : 1.3 (air = 1)
- Vapor pressure : Not available.
- Boiling point : -112°C
- Melting point : -185°C
- Water solubility : Insoluble.
- Solvent solubility : Insoluble: ethanol, benzene, ether, chloroform, silicochloroform, silicon tetrachloride.

10. Stability and Reactivity

- Stability : May ignite on exposure to air.
- Conditions to avoid : Avoid heat, flames, sparks and other sources of ignition. Containers may rupture or explode if exposed to heat.
- Materials to avoid : Metal salts, bases, halogens, oxidizing materials.
- Hazardous decomposition products : Thermal decomposition products: silicon hydrogen.

11. Toxicological Information

The components of this material have been reviewed in various sources and the following endpoints are published:

- SILANE (7803-62-5) : Inhalation LC50 Rat: 9600 ppm/4H

Acute Toxicity Level

- SILANE (7803-62-5) : Slightly toxic: Inhalation.

Component Carcinogenicity

None of this product's components are listed by ACGIH, IARC, NTP, OSHA or DFG.

Local Effects

SILANE (7803-62-5) : Irritant: Inhalation, skin, eye

Medical Conditions Aggravated by Exposure

SILANE (7803-62-5) : Respiratory disorders.

12. Ecological Information

No LOEL ecotoxicity data are available for this product's components.

13. Disposal Considerations

Waste from residues / unused products : Dispose in accordance with all applicable regulations. Subject to disposal regulations: U.S. EPA 40 CFR 262. Hazardous Waste Number(s): D001.
Contaminated packaging : Return cylinder to supplier.

14. Transport Information

DOT (US only)

Proper shipping name : Silane
Class : 2.1
UN/ID No. : UN2203
Labeling : Flammable Gas

15. Regulatory Information

U.S. Federal Regulations

None of this product's components are listed under SARA Section 302/304 (40 CFR 355 Appendix A), SARA Section 311/312 (40 CFR 370.21), SARA Section 313 (40 CFR 372.65), CERCLA (40 CFR 302.4), TSCA 12(b), or require an OSHA process safety plan.

SARA 311/312

Acute: Yes
Chronic: No
Fire: Yes
Reactive: Yes
Pressure: Yes

U.S. State Regulations

The following components appear on one or more of the following state hazardous substances lists:

Component	CAS	CA	MA	MN	NJ	PA	RI
SILANE	7803-62-5	Yes	Yes	Yes	Yes	Yes	Yes

Not regulated under California Proposition 65