

GELEST, INC.

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MATERIAL SAFETY
DATA SHEET

EMERGENCY TELEPHONE
CHEMTREC: 1-800-424-9300

NAME USED ON LABEL: **SILANE, 7.0-7.5% in nitrogen - SIS6950.4**

CHEMICAL NAME: SILANE, 7.0-7.5% in nitrogen

SYNONYMS: MONOSILANE; SILICON TETRAHYDRIDE; SILICANE

CHEMICAL FAMILY: HYDRIDOSILANE

FORMULA: H₄Si

HMIS CODES HEALTH: 3 FLAMMABILITY: 4 REACTIVITY: 3

INGREDIENTS

| IDENTITY | CAS NO. | % | TLV |
|----------|-----------|----------|----------------------------------|
| SILANE | 7803-62-5 | 7.0-7.5 | (ACGIH TLV for silane: 5ppm TWA) |
| NITROGEN | 7727-37-9 | 92.5-93% | |

PHYSICAL DATA

| | |
|--|----------------------------------|
| Boiling Point: -112°C | Freezing Point: -185°C |
| Specific Gravity: 0.68 at -185°C | Vapor Pressure at -118°C: 530mm |
| Vapor Density: 1.342g/liter | Solubility in water: reacts |
| % volatiles: 100% | Evaporation rate: not determined |
| Molecular Weight: 32.12 | Critical Temp: - 3.5°C |
| Appearance & Color: Colorless, pyrophoric gas with disagreeable odor | |

FIRE & EXPLOSION DATA

Silane spontaneously ignites on contact with air.

Flash Point, COC : <-40°C (-40°F) Autoignition Temp.: <20°C(68°F)
Flammability Limits- LEL: 1.37% UEL: 98%

Extinguishing Media: If unable to stop the flow of gas, silane should be allowed to burn until consumed. Secondary fires may be extinguished with alcohol resistant foam, carbon dioxide, dry chemical. Use of high expansion foam (100:1) is recommended to cover flames.

Special Fire Fighting Procedures: Silane should be allowed to burn until consumed. Excessive pressure may develop in gas cylinders exposed to fire-heated silane may explode on contact with air. Cool cylinders and surroundings with water from a suitable distance. Do not breathe fumes or inhale vapors.

Unusual Fire and Explosion Hazards: Irritating fumes and organic acid vapors may develop when material is exposed to water or open flame.

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ENVIRONMENTAL INFORMATION

Spill response: Stop flow of gas if possible. Evacuate area. The potential exists for spontaneous ignition and explosion. Allow vapors to disperse. Ventilate area.

Recommended Disposal: Incinerate. Follow all chemical pollution control regulations.

HEALTH HAZARD DATA

Eye Contact: Will cause immediate or delayed severe burns. At levels below the flammability limit, silane is expected to affect the eyes by absorption and deposition of silicon dioxide, causing severe irritation and possible corneal damage.

Skin contact: May produce irritation or contact dermatitis.

Inhalation: Inhalation of vapors will irritate the respiratory tract. Overexposure may produce severe tissue damage.

Inhalation Toxicity - rat, LD50: 9600ppm/4Hours

Oral Toxicity: not determined

Chronic Toxicity: There are no known chronic effects related to this compound.

SUGGESTED FIRST AID

EYES: In case of contact, immediately flush eyes with flowing water for at least 15 minutes. Get medical attention.

SKIN: Wash with soap and water.

INHALATION: Move exposed individual to fresh air. Call a physician.

INGESTION: Never give fluids or induce vomiting if patient is unconscious or having convulsions. Get medical attention.

REACTIVITY DATA

Stability: Stable in sealed cylinders stored under a dry inert atmosphere.

Conditions to avoid: Avoid contact with heat, sparks or open flame.

Incompatibility (materials to avoid): Reacts with oxygen in air, igniting spontaneously. Mixtures with mercury explode when shaken in the presence of air. Platinum, platinum and iron salts and other Lewis acids can cause generation of flammable hydrogen gas. Avoid contact with alcohols, acids, oxidizers.

Hazardous decomposition products: Silicon dioxide.

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SPECIAL PROTECTION INFORMATION

Ventilation: Local exhaust is required. Mechanical is recommended.

Respiratory Protection: If exposure exceeds TLV air-supplied or combination organic vapor/acid gas respirator.

Eye and Face Protection: Chemical worker's goggles. Do not wear contact lenses.

Other Clothing and Equipment: Rubber, neoprene or nitrile gloves. An eyewash and emergency shower should be available.

OTHER PRECAUTIONS

For research and industrial use only.

Storage and Handling: Store in sealed cylinders in isolated area.

Containers and transfer lines require grounding during use.

Systems utilizing silane that do not involve complete consumption of silane should be equipped with burn boxes. See- Book of SEMI Standards, Facilities Standards and Safety Guidelines, Mountain View, CA, Semiconductor Equipment and Materials Int'l, 1993

TRANSPORTATION

DOT SHIPPING NAME: COMPRESSED GAS, FLAMMABLE NO.S.

DOT HAZARD CLASS: 2.1

DOT LABEL: Flammable Gas

DOT ID No: UN1954

Transport by Air is forbidden.

Prepared by safety and environmental affairs ISSUE DATE SIS6950.4: 9/4/13

SUPERSEDES: none

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