

### Section 1: Product and Company Identification

**Minneapolis Oxygen Company**

3842 Washington Avenue North  
Minneapolis, MN 55412  
612-588-8855

PERS 1-800-633-8253  
CONTRACT #529

Product Code: 5% Silane balance Helium

**Synonyms:**

**Recommended Use:**

**Usage Restrictions:**

### Section 2: Hazards Identification



**Danger**

**Hazard Classification:**

Acute Gas Inhale Toxicity (Category 4)  
Flammable (Category 1)  
Gases Under Pressure

**Hazard Statements:**

Contains gas under pressure; may explode if heated  
Extremely flammable gas  
Harmful if inhaled

**Precautionary Statements**

**Prevention:**

Keep away from heat/sparks/open flames/hot surfaces. - No smoking.  
Use only outdoors or in a well-ventilated area.  
Avoid breathing dust/fume/gas/mist/ vapors/spray.  
[In case of inadequate ventilation] wear respiratory protection.

**Response:**

Eliminate all ignition sources if safe to do so.  
Call a poison center or doctor if you feel unwell.  
Leaking gas fire: Do not extinguish, unless leak can be stopped safely.  
If inhaled: Remove person to fresh air and keep comfortable for breathing.

**Storage:**

Protect from sunlight.

Store in well-ventilated place.

## Section 3: Composition/Information on Ingredients

	CAS #	Concentration
Silane	7803-62-5	5%
Helium	7440-59-7	BALANCE

	Chemical Substance	Chemical Family	Trade Names
Silane	SILANE	Inorganic gases	MONOSILANE (SIH4); SILICANE; SILICON HYDRIDE (SIH4); SILICON TETRAHYDRIDE; SILICON HYDRIDE; MONOSILANE; STCC 4920168; UN 2203; H4Si
Helium	HELIUM	Inorganic gases	HELIUM GAS; HELIUM COMPRESSED; HELIUM-4; ATOMIC HELIUM; UN 1046; He

## Section 4: First Aid Measures

	Skin Contact	Eye Contact	Ingestion	Inhalation	Note to Physicians
Silane	Wash skin with soap and water for at least 15 minutes while removing contaminated clothing and shoes. Get medical attention, if needed. Thoroughly clean and dry contaminated clothing and shoes before reuse.	Flush eyes with plenty of water for at least 15 minutes. Then get immediate medical attention.	If a large amount is swallowed, get medical attention.	If adverse effects occur, remove to uncontaminated area. Give artificial respiration if not breathing. Get immediate medical attention.	None
Helium	Wash exposed skin with soap and water.	Flush eyes with plenty of water.	If a large amount is swallowed, get medical attention.	If adverse effects occur, remove to uncontaminated area. Give artificial respiration if not breathing. If breathing is difficult, oxygen should be administered by qualified personnel. Get immediate medical attention.	For inhalation, consider oxygen.

## Section 5: Fire Fighting Measures

	Suitable Extinguishing Media	Products of Combustion	Protection of Firefighters
Silane	Carbon dioxide, regular dry chemical Large fires: Use regular foam or flood with fine water spray.	Pyrophoric or shock-sensitive, dark-colored solids may be formed due to incomplete oxidation	<ul style="list-style-type: none"> <li>▪ Any self-contained breathing apparatus with a full facepiece.</li> <li>▪ Any self-contained breathing apparatus with a full facepiece.</li> </ul>
Helium	Non-flammable. Use suitable extinguishing media for surrounding fire.	Non-flammable	<ul style="list-style-type: none"> <li>▪ Non-flammable</li> <li>▪ Non-flammable</li> </ul>

## Section 6: Accidental Release Measures

	Personal Precautions	Environmental Precautions	Methods for Containment
Silane	Keep unnecessary people away, isolate hazard area and deny entry. Ventilate closed spaces before entering.	Avoid heat, flames, sparks and other sources of ignition.	Stop leak if possible without personal risk. Reduce vapors with water spray. Remove sources of ignition.

	Personal Precautions	Environmental Precautions	Methods for Containment
Helium	Keep unnecessary people away, isolate hazard area and deny entry. Stay upwind and keep out of low areas.	Avoid soil, waterways, drains and sewers	Stop leak if possible without personal risk.

	Methods for Cleanup	Other Information
Silane	Evacuate area. Contact emergency personnel.	None
Helium	Stop leak, evacuate area. Contact emergency personnel.	None

## Section 7: Handling and Storage

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

## Section 8: Exposure Controls/Personal Protection

	Exposure Guidelines
Silane	SILANE: 5 ppm (7 mg/m <sup>3</sup> ) OSHA TWA (vacated by 58 FR 35338, June 30, 1993) 5 ppm ACGIH TWA 5 ppm (7 mg/m <sup>3</sup> ) NIOSH recommended TWA 10 hour(s).
Helium	HELIUM: ACGIH (simple asphyxiant)

### Engineering Controls

Handle only in fully enclosed systems.

	Eye Protection	Skin Protection	Respiratory Protection
Silane	Wear helmet with full face shield and fire-proof hood to prevent any possibility of burns if in contact with this substance.	Wear appropriate chemical resistant clothing.	Any self-contained breathing apparatus with a full facepiece.
Helium	Eye protection not required, but recommended.	Protective clothing is not required.	Non-flammable

### General Hygiene considerations

- Avoid breathing vapor or mist
- Avoid contact with eyes and skin
- Wash thoroughly after handling and before eating or drinking

## Section 9: Physical and Chemical Properties

	Physical State	Appearance	Color	Change in Appearance	Physical Form	Odor	Taste
Silane	Gas	Clear	Colorless	N/A	Gas	Unpleasant odor	N/A
Helium	Gas	Colorless	Colorless	N/A	Gas	Odorless	Tasteless

	Flash Point	Flammability	Partition Coefficient	Autoignition Temperature	Upper Explosive Limits	Lower Explosive Limits
Silane	Not available	Not available	Not available	Not available	1	0.01
Helium	Not flammable	Not available	Not available	Nonflammable	Nonflammable	Nonflammable

	Boiling Point	Freezing Point	Vapor Pressure	Vapor Density	Specific Gravity	Water Solubility	pH	Odor Threshold	Evaporation Rate	Viscosity
Silane	-170 F (-112 C)	-301 F (-185 C)	Not available	1.3 (Air=1)	Not applicable	Insoluble	Not applicable	Not available	Not applicable	0.01092 cP @ 25 C
Helium	-452 F (-269 C)	-458 F (-272 C) @ 26 atm	1719 mmHg @ -268 C	0.138 (Air=1)	Not applicable	0.94% @ 0 C	Not applicable	Not available	Not applicable	0.02012 cP @ 26.8 C

	Molecular Weight	Molecular Formula	Density	Weight per Gallon	Volatility by Volume	Volatility	Solvent Solubility
Silane	32.12	Si-H4	1.342 g/L @ 20 C	Not available	100%	1	Insoluble: Not available
Helium	4.0026	He	0.1785 g/L @ 0 C	Not available	100%	Not applicable	Insoluble: Not available

## Section 10: Stability and Reactivity

	Stability	Conditions to Avoid	Incompatible Materials
Silane	May ignite on exposure to air.	May ignite on exposure to air.	Metal salts, bases, halogens, oxidizing materials
Helium	Stable at normal temperatures and pressure.	Stable at normal temperatures and pressure.	No data available.

	Hazardous Decomposition Products	Possibility of Hazardous Reactions
Silane	Silicon, hydrogen. Thermal decomposition in the presence of air produces hydrogen gas, silicon, silicon oxides and unidentified dark-colored solid substances that may be pyrophoric or shock-sensitive.	Will not polymerize.
Helium	Miscellaneous decomposition products	Will not polymerize.

## Section 11: Toxicology Information

### Acute Effects

	Oral LD50	Dermal LD50	Inhalation
Silane	LC50, 1 hr, rat = 19,200 ppm	Not available	Respiratory tract irritation, nausea, headache
Helium	Not available	Not available	Nausea, vomiting, difficulty breathing, irregular heartbeat, headache, fatigue, dizziness, disorientation, emotional disturbances, tingling sensation, loss of coordination, suffocation, convulsions, unconsciousness, coma

	Eye Irritation	Skin Irritation	Sensitization
Silane	Irritation, blurred vision	Liquid: irritation, blisters	No health hazards classified.
Helium	Liquid: frostbite, blurred vision	Liquid: frostbite	Difficulty breathing

### Chronic Effects

	Carcinogenicity	Mutagenicity	Reproductive Effects	Developmental Effects
Silane	Not available	Available.	Not available	No data
Helium	Not available	Not available	Not available	No data

## Section 12: Ecological Information

### Fate and Transport

	Eco toxicity	Persistence / Degradability	Bioaccumulation / Accumulation	Mobility in Environment
Silane	Fish toxicity: Not available Invertebrate toxicity: Not available Algal toxicity: Not available Phyto toxicity: Not available Other toxicity: Not available	Not available	Not available	Not available
Helium	Fish toxicity: Not available Invertebrate toxicity: Not available Algal toxicity: Not available Phyto toxicity: Not available Other toxicity: Not available	Not available	Not available	Not available

## Section 13: Disposal Considerations

<b>Silane</b>	Subject to disposal regulations: U.S. EPA 40 CFR 262. Hazardous Waste Number(s): D001. Dispose in accordance with all applicable regulations.
<b>Helium</b>	Dispose in accordance with all applicable regulations.

## Section 14: Transportation Information

### U.S. DOT 49 CFR 172.101

#### DOT Information For This Mixture

<b>Shipping Name</b>	Compressed gas, flammable, n.o.s. (Helium, Silane)
<b>UN Number</b>	UN1954
<b>Hazard Class</b>	2.1
<b>Hazard Information</b>	FLAMMABLE GAS

#### Individual Component Information

	Proper Shipping Name	ID Number	Hazard Class or Division	Packing Group	Labeling Requirements	Passenger Aircraft or Railcar Quantity Limitations	Cargo Aircraft Only Quantity Limitations	Additional Shipping Description
<b>Silane</b>	Silane	UN2203	2.1	Not applicable	2.1	Forbidden	Forbidden	N/A
<b>Helium</b>	Helium, compressed	UN1046	2.2	Not applicable	2.2	75 kg or L	150 kg	N/A

#### Canadian Transportation of Dangerous Goods

	Shipping Name	UN Number	Class	Packing Group / Risk Group
<b>Silane</b>	Silane, compressed	UN2203	2.1	Not applicable
<b>Helium</b>	Helium, compressed	UN1046	2.2	Not applicable

## Section 15: Regulatory Information

### U.S. Regulations

	CERCLA Sections	SARA 355.30	SARA 355.40
<b>Silane</b>	Not regulated.	Not regulated.	Not regulated.
<b>Helium</b>	Not regulated.	Not regulated.	Not regulated.

### SARA 370.21

	Acute	Chronic	Fire	Reactive	Sudden Release
<b>Silane</b>	Yes	No	Yes	Yes	Yes
<b>Helium</b>	Yes	No	No	No	Yes

### SARA 372.65

<b>Silane</b>	Not regulated.
<b>Helium</b>	Not regulated.

### OSHA Process Safety

<b>Silane</b>	Not regulated.
<b>Helium</b>	Not regulated.

### State Regulations

	CA Proposition 65
<b>Silane</b>	Not regulated.
<b>Helium</b>	Not regulated.

### Canadian Regulations

	WHMIS Classification
Silane	AB
Helium	A

### National Inventory Status

	US Inventory (TSCA)	TSCA 12b Export Notification	Canada Inventory (DSL/NDSL)
Silane	Listed on inventory.	Not listed.	Not determined.
Helium	Listed on inventory.	Not listed.	Not determined.

## Section 16: Other Information

	NFPA Rating
Silane	HEALTH=1 FIRE=4 REACTIVITY=1
Helium	HEALTH=0 FIRE=0 REACTIVITY=0 SPECIAL=SA

0 = minimal hazard, 1 = slight hazard, 2 = moderate hazard, 3 = severe hazard, 4 = extreme hazard