

# MATERIAL SAFETY DATA SHEET

## I PRODUCT IDENTIFICATION

**Trade Name:** Silicon **Synonym:** None Known  
**Chemical Family:** Non-metal **Molecular Formula:** Si  
**CAS #:** 7440-21-3

## II HAZARDOUS INGREDIENTS

<u>%</u>	<u>OSHA/PEL</u>	<u>ACGIH/TLV</u>	<u>Other</u>	<u>Sec. 302</u>	<u>Sec. 304</u>	<u>Sec. 313</u>
100	15 mg/m <sup>3</sup>	10 mg/m <sup>3</sup>	5 mg/m <sup>3</sup> resp	No	No	No

## III PHYSICAL DATA

<b>Boiling Point:</b>	2355 - 2600 °C	<b>Freezing/Melting Point:</b>	1410 - 1420 °C
<b>Specific Gravity (H<sub>2</sub>O=1):</b>	2.33 gm/cc	<b>Evaporation Rate:</b>	N/A
<b>Vapor Density (air=1):</b>	N/A	<b>Vapor Pressure:</b>	1 mm at 1724 °C
<b>% Volatiles by Volume:</b>	N/E or N/A	<b>Solubility in H<sub>2</sub>O:</b>	Insoluble
<b>Appearance and Odor:</b>	Steel gray pieces or dark brown powder, odorless		

## IV FIRE AND EXPLOSION HAZARDS DATA

**Flash Point (Method used):** N/A **Autoignition Temp:** No Data  
**Flammable Limits: Upper:** N/A **Lower:** N/A

**Extinguishing Media:** Flammable solid in powdered form. If involved in fire, do not use water, CO<sub>2</sub>, or halogenated extinguishing agents. Use dry chemical extinguishing agents, dry sand or dry ground dolomite.

**Special Fire Fighting Procedures:** No special firefighting procedures needed. Use normal procedures which include wearing NIOSH/MSHA approved self-contained breathing apparatus, flame and chemical resistant clothing; hats, boots and gloves. If without risk, remove material from the fire area. Cool container with water from maximum distance. Fumes from fire are hazardous. Isolate runoff to prevent environmental pollution.

**Unusual Fire and Explosion Hazard:** Elemental silicon is flammable when exposed to flame or by chemical reaction with oxidizing agents. May have a violent reaction with alkali carbonates; oxidants; (Al+PbO); Ca; CsC<sub>2</sub>; CaF<sub>2</sub>; F<sub>2</sub>; IF<sub>3</sub>; MnF<sub>3</sub>; Rb<sub>2</sub>C<sub>2</sub>; FNO; AgF; and NaK alloy. When heated it will react with water or steam to produce hydrogen gas.

## V HEALTH HAZARD INFORMATION

### **Acute Effects:**

**Inhalation:** May cause abrasive irritation.  
**Ingestion:** No acute health effects recorded.  
**Skin:** May cause abrasive irritation.  
**Eye:** Dust and powder may cause abrasive irritation.

**Chronic Effects:** No chronic health effects recorded.  
**Target Organs:** No target organs recorded.

**Medical Conditions, If Any, Aggravated by the Chemical:** Pre-existing respiratory disorders.

**Carcinogenicity:** NTP: No      IARC: No      OSHA: No

**Other Health Hazards:** None known. (To the best of our knowledge the chemical, physical and toxicological properties of silicon have not been thoroughly investigated and recorded.)

#### **EMERGENCY AND FIRST AID PROCEDURES:**

**INHALATION:** Remove victim to fresh air. Seek immediate medical attention.

**INGESTION:** No data available but one should obtain medical attention.

**SKIN:** Remove contaminated clothing, flood skin with a large amount of water. If irritation persists seek medical attention.

**EYE:** Immediately flush eyes, including under eyelids, with large amounts of water, for at least 15 minutes. Call a physician.

#### **VI REACTIVITY DATA**

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**Stability:** Stable

**Conditions to Avoid:** None

**Incompatibility (Material to Avoid):** Alkali carbonates, (Al+PbO), Ca, Cs<sub>2</sub>C<sub>2</sub>, Cl<sub>2</sub>, CoF<sub>2</sub>, F<sub>2</sub>, IF<sub>3</sub>, MnF<sub>3</sub>, Rb<sub>2</sub>C<sub>2</sub>, FNO, AgF, NaK alloy, water and steam.

**Hazardous Decomposition Products:** Hydrogen gas.

**Hazardous Polymerization:** Will not occur

#### **VII SPILL OR LEAK PROCEDURES**

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**Steps to Be Taken in Case Material is Released or Spilled:** Wear appropriate respiratory and protective equipment specified in section VIII. Isolate spill area and provide ventilation. Vacuum up spill using a high efficiency particulate absolute (HEPA) air filter and place in a closed container for proper disposal. Take care not to raise dust.

**Waste Disposal Method:** In accordance with Local, State and Federal Waste Disposal Regulations.

#### **VIII SPECIAL PROTECTION INFORMATION**

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**Respiratory Protection (Specify Type):** NIOSH approved dust respirator.

**Ventilation Requirements:** Use local exhaust to maintain concentration at or below the PEL, TLV. Mechanical exhaust is recommended.

**Protective Gloves:** Rubber

**Eye/Face Protection:** Safety glasses.

**Other Protective Equipment:** Protective gear suitable to prevent contamination.

#### **IX SPECIAL PRECAUTIONS**

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**Precautions to Be Taken in Handling and Storage:** Store in a tightly closed container in a cool, dry, well-ventilated area. Wash thoroughly after handling.

**Other Precautions:** Lab coat and apron, flame and chemical resistant coveralls, eyewash capable of sustained flushing, safety drench shower and hygienic facilities for washing. Do not use tobacco or food in work area. Wash thoroughly before eating or smoking. Do not blow dust off clothing or skin with compressed air.

**HMIS Ratings (0-4): Health: 1      Flammability: 0      Reactivity: 0**

Issued by:      S. Dierks

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