

MATERIAL SAFETY DATA SHEET



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For Additional Information call  
1-800-553-0111 or 1-216-694-5300  
Emergency Number:  
Chemtrec 1-800-424-9300

Section 1 - Product:

Product Name: SILICON METAL CAS No. 7440-21-3  
Formula: Si  
Chemical Name: Silicon  
Chemical Family: Ferroalloys

Section 2 - Physical Data:

Melting Point: 1250°C  
Specific Gravity (H<sub>2</sub>O = 1.0) 2.33  
Percent Volatile by  
Volume @ 21.1°C: .001%  
Solubility: Insoluble in water.  
Soluble in hydrofluoric acid.  
Ignition Temperature: At minus 200 mesh, 860°C

Reactivity: Stable as lump and dry.  
Soluble in hydrofluoric and hydrofluoric/nitric acids as  
well as molten alkali.  
Burns in fluorine and chlorine, forms Si-halogen compounds.  
Grinding wet material may produce hydrogen.

Section 3 - Composition:

Typical Analysis (Wt % Range)  
Silicon 93.00 Min  
Iron 1.0 MAX  
Calcium .40 MAX  
Aluminum .40 MAX

Section 4 - Health Hazard:

Inhalation: Inhalation of excessive concentrations of respirable sizes  
of silicon dust may cause irritation of the upper  
respiratory tract, resulting in coughing. Continual  
exposure will produce more serious respiratory system  
irritation which in its most severe form could result in an  
obstructive lung disease such as chronic bronchitis.

Eye Contact: Exposure to fine dust can cause mechanical irritation to the  
eyes and eyelids. If not removed by thorough irrigation  
with water damage to eye and eyelid can become permanent.

Airborne Exposure

Limits: Silicon  
ACGIH - TLV/Ceiling 10mg/m<sup>3</sup> 8-hour TWA (total particulate)  
OSHA - PEL/Ceiling 10mg/m<sup>3</sup> 8-hour TWA (total particulate)  
5mg/m<sup>3</sup> (respirable fraction)

Section 5 - Precautions:

- Do not breath fine dust - Use NIOSH approved Schedule 21C Respirator Protection effective for protection against inhalation of fine dusts.
- Protect eyes from fine dust with tight fitting goggles.
- Inert atmosphere required when sizing to minus 200 Mesh.
- Keep away from strong Halogen Acids, Fluorine, Chlorine and Molten Alkali.
- Keep material dry when storing for extended period of time.
- Do not grind wet material.
- Stop smoking.

Section 6 - Occupational Control Procedures:

Eye Protection: Where exposed to fine dust wear tight fitting safety goggles to prevent eye contact.

Respiratory Protection: Where exposed to fine dust use NIOSH approved Schedule 21C Respiratory Protection effective for protection against inhalation of fine dusts.

Ventilation: Provide ventilation to control exposure levels below airborne exposure limits. Local exhaust ventilation preferred.

Skin Protection: Wear appropriate protective gloves to avoid cuts and abrasions when handling lump material. Hard toe safety shoes and safety glasses with side shields are also recommended.

Section 7 - Fire Protection Information:

Very fine dust may present a severe explosion hazard. Lump silicon is not considered flammable.

Extinguishing Media: Class D Fire. Use dry chemical, sand or CO2 to smother fire. Fire may be isolated and allowed to burn itself out.

Unusual Fire and Explosion Hazards: Very fine airborne dust (eg. minus 200 mesh) may present a severe explosion hazard particularly in presence of a spark. Autoignition temperature for material minus 200 mesh is 860°C.

Special Firefighting Procedures: Do not disturb burning metal while extinguishing the fire.

Section 8 - Emergency and First Air Procedures:

First Aid:

- If dust in eyes: flush eyes with plenty of water for at least 15 minutes. Call a physician.
- If inhaled: Move to well ventilated area.

Section 9 - Spill, Leak, and Disposal Information:

Waste Disposal: No special precautions required, silicon metal is considered inert and non-toxic. Fine material should be mixed with soil before disposal.

Spill Procedures: Shovel lump material. Sweep fine material. Prevent air entrainment of dust. Provide adequate ventilation. Do not use compressed air to remove fine material. Keep wet material separated from dry material.

Section 10 - Warning Statements:

- AVOID EXPOSURE TO FINE DUST.
- VERY FINE AIRBORNE DUST MAY PRESENT A SEVERE EXPLOSION HAZARD PARTICULARLY IN PRESENCE OF A SPARK. AUTOIGNITION TEMPERATURE FOR MATERIAL MINUS 200 MESH IS 860°C.

Section 11 - Additional Comments:

Keep material dry when storing. No special labels required. Inert atmosphere advised when sizing to minus 200 mesh. Grinding wet material may be hazardous due to hydrogen evolution which could produce an explosion hazard.

REFERENCES:

1. OSHA (29CFR 1910) Department of Labor.
2. Documentation of the Threshold Limit Values, Fourth Edition, 1980... American Conference of Governmental Industrial Hygienists Inc.
3. Third Annual Report on Carcinogens, National Toxicology Program, U.S. Department of Commerce.

IMPORTANT NOTICE:

This information relates only to the specific product or material designated and may not be valid for such product or material used in combination with any other materials or products or any process. The information is, to the best of our knowledge and belief, accurate and reliable as of the date compiled. However, no representation, warranty or guarantee is made as to its accuracy, reliability or completeness. It is the user's responsibility to satisfy himself as to the suitability and completeness of such information and the suitability of the materials for his own particular use. We do not accept liability for any loss or damage that may occur from the use of this information, nor do we offer any warranty against patent infringement.