OCHNOLOGY SOLUTION PVT. LTD
Website: www.ochnology.com
Tel: +91 9286823642/43
Address: B-153, Sector-4 Defence Colony, Dehradun, Uttarakhand, India – 248001
E-Mail: projects@ochnology.com, bd@ochnology.com

Safety Data Sheet

Microsilica (Silica Fume)

1. Identification

Product Name	Microsilica / Silica Fume (Undensified & Densified Grades)
Synonyms	Silica Fume; Condensed Silica Fume; Microsilica; Amorphous Silicon Dioxide Fume; Volatilised Silica
CAS Number	69012-64-2 (Silica fume, amorphous silicon dioxide)
Recommended Use	Pozzolanic admixture in concrete, mortar, grout and shotcrete; raw material in refractory castables and monolithics; industrial filler. For industrial / professional use only.
Restrictions on Use	Not for food, pharmaceutical, or consumer cosmetic use.
Manufacturer / Supplier	Ochnology Solution Pvt. Ltd., B-153, Sector-4, Defence Colony, Dehradun, Uttarakhand, India - 248001
Contact	Tel: +91 9286823642/43 | Email: projects@ochnology.com, bd@ochnology.com | www.ochnology.com
Emergency Contact	Available during business hours at the above telephone numbers

2. Hazard(s) Identification

GHS Classification: Not classified as a hazardous substance or mixture under GHS criteria based on its amorphous silicon dioxide composition. Silica fume consists of amorphous (non-crystalline) SiO2 and is not classified as a carcinogen under GHS, unlike products containing significant respirable crystalline silica. As a fine particulate, it may still cause mechanical irritation to eyes, skin, and the respiratory tract, and is treated as a nuisance dust.

Signal Word: Warning

Hazard Statements:

- May cause respiratory irritation (nuisance dust from fine particulates)
- Causes eye irritation (mechanical abrasion from fine particles)
- May cause skin irritation on prolonged or repeated contact
- Not classified as carcinogenic; contains no significant free crystalline silica under normal production specifications (verify against batch Certificate of Analysis)

Precautionary Statements:

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- Avoid breathing dust; use in well-ventilated areas or with local exhaust ventilation
- Wear protective gloves, eye protection, and a dust mask/respirator (NIOSH N95 or equivalent minimum) when handling
- Wash hands and exposed skin thoroughly after handling
- Avoid generating dust during bag handling, unloading, and mixing operations
- IF INHALED: Remove person to fresh air and keep comfortable for breathing
- IF IN EYES: Rinse cautiously with water for several minutes; remove contact lenses if present and easy to do

3. Composition / Information on Ingredients

Component	CAS Number	Concentration (%)
Silicon Dioxide, amorphous (SiO_2)	69012-64-2	85 - 98%
Crystalline Silica (trace, if present)	14808-60-7	< 1% (verify per batch COA)
Calcium Oxide / Magnesium Oxide	1305-78-8 / 1309-48-4	< 3% combined
Iron Oxide / Aluminium Oxide	1309-37-1 / 1344-28-1	< 3% combined
Unburned Carbon	7440-44-0	< 5%

Note: exact composition varies by furnace source (ferrosilicon vs. silicon metal production) and grade (undensified vs. densified). Refer to the batch-specific Certificate of Analysis for precise values.

4. First-Aid Measures

Eye Contact	Rinse cautiously with water for at least 15 minutes, lifting upper and lower eyelids. Remove contact lenses if present. Seek medical attention if irritation persists.
Skin Contact	Wash affected area with soap and water. Remove contaminated clothing. Seek medical attention if irritation develops or persists.
Inhalation	Remove to fresh air. If coughing or respiratory discomfort occurs, seek medical attention. If not breathing, administer artificial respiration.
Ingestion	Rinse mouth with water. Do not induce vomiting. Seek medical attention if large quantities are swallowed or discomfort occurs.

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5. Fire-Fighting Measures

- Silica fume is non-combustible and non-flammable and does not itself present a fire or explosion hazard
- Use extinguishing media appropriate to the surrounding fire
- Firefighters should avoid actions that disperse settled dust into the air
- Wear self-contained breathing apparatus in enclosed or poorly ventilated areas

6. Accidental Release Measures

- Avoid dry sweeping; use HEPA-filtered vacuum equipment or wet methods to minimise dust generation
- Ventilate the area and use appropriate respiratory protection during clean-up
- Collect material in closed, labelled containers for reuse or disposal
- Avoid discharge into drains, waterways, or soil

7. Handling and Storage

- Handle in well-ventilated areas; use local exhaust ventilation where dust generation cannot be avoided
- Keep containers/bags closed when not in use to minimise moisture absorption and dust release
- Store in a dry, covered area away from strong acids (e.g., hydrofluoric acid) and away from moisture
- Stack bags on pallets on level ground; avoid damage to packaging that could release dust
- Use appropriate PPE (respirator, gloves, eye protection) during bag handling and mixing operations

8. Exposure Controls / Personal Protection

Parameter	Limit / Guidance	Basis
Total (Inhalable) Dust - Particulates Not Otherwise Regulated	15 mg/m3 (8-hr TWA)	OSHA PEL
Respirable Fraction - Particulates Not Otherwise Regulated	5 mg/m3 (8-hr TWA)	OSHA PEL
Particulates Not Otherwise Specified - Inhalable	10 mg/m3 (8-hr TWA)	ACGIH TLV
Particulates Not Otherwise Specified - Respirable	3 mg/m3 (8-hr TWA)	ACGIH TLV
Respirable Crystalline Silica (applies only if present)	0.05 mg/m3 (8-hr TWA)	OSHA PEL - distinct, lower limit; verify actual crystalline

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		content before applying

Engineering Controls: local exhaust ventilation at dust-generating points (bag dumping, mixing). Personal Protection: NIOSH-approved N95 or P100 respirator for dusty operations, safety glasses or goggles, protective gloves, and long-sleeved work clothing.

9. Physical and Chemical Properties

Property	Value
Appearance	Fine grey to dark grey powder (undensified) or off-white to grey micro-pellets (densified)
Odour	Odourless
pH (aqueous slurry)	6 - 8 (typical)
Bulk Density - Undensified	130 - 430 kg/m3
Bulk Density - Densified	500 - 700 kg/m3
Specific Gravity	Approx. 2.2 - 2.3
Melting Point	> 1,600 degrees C
Solubility in Water	Insoluble; slow pozzolanic reaction in alkaline (cementitious) media
Particle Size (BET Surface Area)	Average particle size < 1 micron; surface area approx. 15 - 30 m2/g
Flammability	Non-flammable

10. Stability and Reactivity

- Stable under normal conditions of storage and handling
- Hygroscopic - absorbs atmospheric moisture; keep containers sealed
- Reacts slowly with lime/cement in the presence of moisture (intended pozzolanic reaction)
- Incompatible with hydrofluoric acid and strong alkalis in concentrated form
- Hazardous decomposition products: none under normal use

11. Toxicological Information

Amorphous silicon dioxide has low acute oral and dermal toxicity. IARC has not classified amorphous silica as carcinogenic to humans (Group 3), which distinguishes it from crystalline silica (quartz), classified by IARC as carcinogenic to humans (Group 1) only in its crystalline, respirable form. Repeated inhalation of any nuisance dust without adequate protection may cause mechanical irritation of the respiratory tract; prolonged

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unprotected exposure to fine particulates should be avoided regardless of chemical classification.

12. Ecological Information

- Not expected to be hazardous to aquatic organisms based on its insoluble, inert nature
- Large-scale discharge into waterways may cause turbidity and sedimentation; avoid discharge to drains or natural water bodies
- No data indicating bioaccumulation potential

13. Disposal Considerations

- Dispose of in accordance with local, state, and national regulations
- Not classified as hazardous waste under normal use conditions; verify against local waste classification rules
- Surplus material may often be reused as construction filler or in cement stabilisation applications

14. Transport Information

UN Number	Not applicable - not classified as dangerous goods
IMDG / ADR / IATA Classification	Not regulated as a dangerous good for sea, road, or air transport
Packaging for Transport	1 MT / 1.25 MT jumbo bags (FIBC); 25 kg / 50 kg woven/PP bags; bulk tankers/loose bulk for large orders

15. Regulatory Information

- Not listed as a Substance of Very High Concern (SVHC) under REACH in this form
- Amorphous silica is TSCA-listed (United States) for commercial use
- Handle in accordance with applicable local industrial chemical handling and occupational exposure regulations

16. Other Information

Revision Date: July 2026

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