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**UGEN FERRO ALLOYS PVT. LTD.**  
PHUENTSHOLING : BHUTAN

## Material Safety Data Sheet (MSDS) - Silica Fume

### SECTION 1 – IDENTIFICATION OF MATERIAL AND SUPPLIER

- **Product Name:** Silica Fume
- **Synonym:** Microsilica, Amorphous Silica  
A fine pozzolanic material, primarily composed of amorphous silica, produced as a byproduct in an electric arc furnace during ferro-silicon alloy production.
- **Company Identification:** M/s. UGEN FERRO ALLOYS PVT. LIMITED
- **Address:** Pasakha Industrial Estate, Plot No. L4, Pasakha, Chukha, Bhutan.
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### SECTION 2 - COMPOSITION, INFORMATION ON INGREDIENTS

CAS#	Chemical Name	Percentage (%)
69012-64-2	Silicon dioxide (SiO <sub>2</sub> )	>85.0
1344-28-1	Aluminium Oxide (Al <sub>2</sub> O <sub>3</sub> )	<1.0
1309-37-1	Ferric Oxide (Fe <sub>2</sub> O <sub>3</sub> )	<3.0
1305-78-8	Calcium Oxide (CaO)	<1.2
1309-48-4	Magnesium Oxide (MgO)	<0.7
1314-56-3	Phosphorous pentoxide (P <sub>2</sub> O <sub>5</sub> )	<0.1
12136-45-7	Potassium Oxide (K <sub>2</sub> O)	<0.5
1313-59-3	Sodium Oxide (Na <sub>2</sub> O)	<0.15
7440-44-0	Free Carbon (C)	<2.0





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### SECTION 3 - HAZARDS IDENTIFICATION

- May be harmful if inhaled
- Contains material that may cause cancer (Risk depends on exposure level)
- Avoid dust inhalation, ingestion, and direct contact
- OSHA Hazard Communication Standard (29 CFR 1910.1200) applies

#### Potential Health Effects:

- **Eye Contact:** Mechanical irritation.
- **Skin Contact:** Mechanical irritation.
- **Inhalation:** Respiratory irritation.
- **Ingestion:** Gastric distress, nausea, vomiting.

### SECTION 4 - FIRST AID MEASURES

- **Inhalation:** Move to fresh air, keep calm, seek medical attention.
- **Skin Contact:** Wash with plenty of water and soap.
- **Eye Contact:** Flush with water for at least 15 minutes; consult an eye specialist.
- **Ingestion:** Rinse mouth, drink water, seeks medical help.
- **Do not induce vomiting** unless directed by a doctor.

### SECTION 5 - FIRE FIGHTING MEASURES

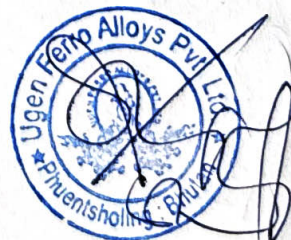
- **Fire Behavior:** Non-flammable, does not ignite.
- **Extinguishing Media:** ☒Foam, ☒Water spray, ☒Dry powder, ☒Carbon dioxide.
- **Fire Risks:** Toxic vapors, nitrogen oxides, carbon monoxide.
- **Firefighter Safety:** Wear self-contained breathing apparatus (SCBA).

#### Further Information:

- Keep containers cool by spraying with water.
- Contain contaminated extinguishing water separately—do not discharge into sewage systems.
- Dispose of contaminated water per regulations.

### SECTION 6 - ACCIDENTAL RELEASE MEASURES

- **Personal Precautions:** Avoid vapors/aerosols, wear eye protection, and follow safety practices.
- **Environmental Precautions:** Monitor emissions, use fume scrubbers/filters if needed.
- **Cleanup Measures:** Proper disposal using authorized methods.





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## SECTION 7 – HANDLING AND STORAGE

- **Handling:** Prevent dust formation, wear protective clothing.
- **Storage:** Store in original container, away from ignition sources.

## SECTION 8 - EXPOSURE CONTROLS AND PERSONAL PROTECTION

### Exposure Limits:

- **Crystalline Silica (OSHA):** TWA 2.4 million particles/cu.ft
- **Respirable Dust:** TWA 0.1 mg/m<sup>3</sup>
- **Silica Fume (ACGIH):** TWA 0.025 mg/m<sup>3</sup>

### Hygiene Measures:

- Wash hands and face after handling.
- Ensure eyewash stations & safety showers nearby.

### Personal Protection Equipment (PPE):

- **Respiratory:** NIOSH-approved particulate respirator.
- **Hands:** Chemical-resistant gloves.
- **Eyes:** Safety goggles/splash-resistant eyewear.
- **Skin:** Protective clothing per risk assessment.

## SECTION 9 - PHYSICAL AND CHEMICAL PROPERTIES

- **Physical State:** Powder,
- **Color:** Grey,
- **Odor:** Odorless
- **Melting Point:** 1,580°C
- **Density:** 2,100-2,300 kg/m<sup>3</sup>

## SECTION 10 - STABILITY AND REACTIVITY

- Stable under normal conditions
- Reacts with hydrofluoric acid & nitric acid, releasing toxic gases

## SECTION 11 - TOXICOLOGICAL INFORMATION

- **Routes of Exposure:** Eyes, skin contact, and inhalation.
- **Target Organs:** Eyes, skin, and respiratory system.
- **Toxicological Effects:**





- **Long-term inhalation** may cause irritation, inflammation, and permanent injury to the lungs.
- **Prolonged exposure** could lead to respiratory diseases such as pneumoconiosis, pulmonary fibrosis, chronic bronchitis, emphysema, bronchial asthma, and silicosis.

- **Ecotoxicity:** No known significant effects or critical hazards.
- **Aquatic Ecotoxicity:** No data available.
- **Persistence & Degradability:** No data available.

### Waste Disposal Recommendations:

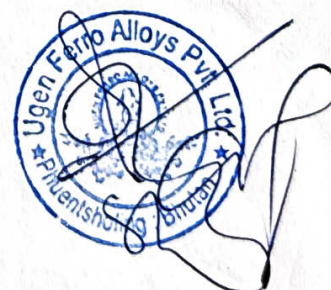
- Minimize waste generation whenever possible.
- **Do not dispose of** significant quantities via the foul sewer.
- Dispose of **surplus or non-recyclable** materials via a licensed waste contractor.
- Waste packaging should be **recycled**.
- **Incineration or landfill** is only recommended when recycling is not feasible.
- **Handle empty containers carefully**, as they may retain product residues.
- **Avoid dispersal** into soil, waterways, drains, and sewers.

**Classification:**

- **Land Transport (USDOT, TDG):** Not classified as a dangerous good.
- **Sea Transport (IMDG):** Not classified as a dangerous good.
- **Air Transport (IATA/ICAO):** Not classified as a dangerous good.

### United States Regulations:

- **HCS Classification:** Carcinogen. Target organ effects.
- **TSCA Inventory:** All components are listed or exempted.
- **SARA Hazard Categories:** No products found under SARA 302/304/311/312.
- **California Prop 65:** Contains a chemical known to cause cancer.





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**State Regulations:**

State	Regulatory Status
Massachusetts	Silica fume listed
New York	No components listed
New Jersey	Silica fume, Quartz (Crystalline silica) listed
Pennsylvania	Quartz (Crystalline silica) listed

**SECTION 16 – OTHER INFORMATION**

**HMIS III Rating:**

- **Health:** 1□
- **Flammability:** 1
- **Physical Hazard:** 0

**Disclaimer:**

This information is accurate to the best of our knowledge. However, neither the supplier nor its subsidiaries assume liability for completeness. Final determination of suitability of any material is the sole responsibility of the user. All materials may present unknown hazards and should be used with caution. Although certain hazards are described herein, we cannot guarantee that these are the only hazards that exist.

