# Material Safety Data Sheet

## 1 Identification of the Substance and Company

Product name: **Microsilica / Silica Fume**

Product application: Cementitious systems

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## 2 Composition/Information on Ingredients

| | |
|---|---|
| Otherwise Known as | Silica fumes, Microsilica, Silica powder, Amorphous silica, Silicon dioxide powder, condensed SiO2-fume, Silica fume. |
| IUPAC-name | Silicon dioxide |
| CAS No. | 69012-64-2 |
| EINECS No. | 273-761-1 |

*Microsilica may contain small amounts of crystalline quartz (<0.5%).*

## 3 Hazards Identification

Microsilica is unlikely to cause harmful effects when handled and stored as advised. See section 7.

## 4 First Aid Measures

| | |
|---|---|
| Inhalation | Remove exposed person from dusty area. Fresh air. |
| Skin contact | Wash contaminated skin with water and/or a mild detergent. |
| Eye contact | Rinse eyes with water/saline solution. If discomfort persists, obtain medical attention. |
| Ingestion | Not applicable. |

## 5 Fire Fighting Measures

Microsilica is not combustible and the dust entails no danger of explosion.

Extinguishing media: Not applicable

## 6 Accidental Release Measures

Avoid exposure to dust of microsilica. Released material should be collected in suitable containers.

## 7 Handling and Storage

| | |
|---|---|
| Handling | Avoid dust generation. See section 8. |
| Storage | Keep away from hydrofluoric acid (HF). |
| | Not to be stored at temperatures near to or below 0 C. |

## 8 Exposure Controls/Personal Protection

### A) Occupational exposure controls:

Avoid inhalation of dust. Ensure good dust ventilation during use. Wear a CE-marked respirator according to EN 149 FFP 2S/3S during dust generating operations. Use protective gloves and eye protection. Facilities for Eye flushing should be available.

Occupational Exposure Limits (HSE, EH40/2002-2003):

| | CAS Number | 8hr TWA | | 10 minute STEL | |
|---|---|---|---|---|---|
| | | ppm | mg/m³ | ppm | mg/m³ |
| Silica, amorphous (SiO2) | - | | | | |
| Total inhalable dust | | - | 6 | - | - |
| Respirable dust | | - | 4 | - | - |
| Silica, crystalline (SiO2) | - | | | | |
| Respirable dust | | - | 0.3 | - | - |

*The indicated value is a Maximum Exposure Limit, MEL.*

### B) Environmental exposure controls:

See sections 6, 7 and 12.

Limit values ambient air (Directive 1999/30/EC):

| | Averaging time | Limit value | By date |
|---|---|---|---|
| $PM_{10}$ ❺ | 24 Hrs | 50 µg/m³ | 1 January 2005 |
| $PM_{10}$ | Calendar year | 40 µg/m³ | 1 January 2005 |

❺ *not to be exceeded more than 35 times a calendar year*

## 9 Physical and Chemical Properties

| | |
|---|---|
| Form: | Ultrafine amorphous powder (respirable dust), dust forms agglomerates |
| Colour: | Grey |
| Odour: | Odourless |
| Melting Point (°C): | 1550-1570 |
| Solubility (Water): | Insoluble/Slightly soluble |
| Solubility (Organic solvents): | Insoluble/Slightly soluble |
| Specific Gravity (water =1): | 2.2-2.3 |
| Bulk density (kg/m$^3$) approx. : | 150-700 |
| Specific surface (m$^2$/g): | 15-30 |
| Particle size, mean (µm): | 0.15 (µ80 weight% of primary particles have a diameter < 5 µm). |

## 10 Stability and reactivity

| | |
|---|---|
| Conditions to avoid: | See below |
| Materials to avoid: | Hydrofluoric acid (HF). |
| Hazardous Decomposition Product(s): | Microsilica reacts with hydrofluoric acid (HF) forming toxic gas (SiF ).<br>Heating microsilica above 1000 °C can result in the formation of crystalline $SiO_2$-modifications as cristobalite / tridymite which may cause pulmonary fibrosis (silicosis). |

## 11 Toxicological Information

**Acute effects:**

| | |
|---|---|
| INGESTION: | Finely divided dust may cause irritation and dehydration of mucous membranes. |
| INHALATION: | Finely divided dust may cause irritation and dehydration of mucous membranes. |
| SKIN CONTACT: | Finely divided dust may cause mechanical irritation and dehydration. |
| EYE CONTACT: | Finely divided dust may cause mechanical irritation and dehydration. |

**Chronic effects:**

Inhalation of microsilica dust is considered to entail minimal risk of pulmonary fibrosis (silicosis). However, chronic obstructive lung disease is suspected following long term exposure (years) for concentrations above recommended occupational exposure limits.

## 12 Ecological Information

Microsilica is not characterised as dangerous for the environment.

| | |
|---|---|
| MOBILITY: | The product is not mobile under normal environmental conditions. |
| PERSISTENCE: | Not relevant for inorganic substances. |
| BIOACCUMULATION: | Not relevant. |
| ECOTOXICITY: | Microsilica: Daphnia magna:<br>24 h $EC_{50}$ > 1002 $mg.l^{-1}$<br>24 h $EC_{100}$ >1002 $mg.l^{-1}$<br>NOEC 319 $mg.l^{-1}$<br>Coarse microsilica has been subject to Microtox ⇔ screening test. No acute toxicological effects could be observed in the test<br>organisms. |

## 13 Disposal Considerations

The material should be recovered for recycling if possible.

This material is not classified as hazardous waste according to Commission Decisions 2000/532/EC and 2001/118/EC. Prior to disposal of large quantities of this material advice should be sought from the relevant Waste Regulation Authority.

## 14 Transport Information

| | |
|---|---|
| UN | - |
| IMDG/IMO | Not subject to classification |
| ADR/RID | Not subject to classification |
| ICAO/IATA | Not subject to classification |

## 15 Regulatory Information

Product classification and labelling:

| | |
|---|---|
| Symbol: | Not subject to classification |
| R-phrases: | None |
| S-phrases: | None |

The text of this Data Sheet is prepared in compliance with:

- Commission Directive 2001/58/EC.
- Council Directive 67/548/EEC and its subsequent amendments.

## 16 Other Information

Literature references are available upon application to the manufacturer.