

 *Carbon Enterprises Ltd.***MATERIAL SAFETY DATA SHEET****MICROSILICA MS 93UD**

Date of inception / date of updating: 01.07.2011 / 22.08.2017. Re Alloys, Poland

Silica Fume is not classified as hazardous under the CLP Regulation (1272/2008/EC) is not persistent bioaccumulative and toxic (PBT) or very persistent and very bioaccumulative (vPvB) as defined in Annex XIII of the REACH Regulation, and is not included in the ECHA candidate list of substances of very high concern. Therefore, provision of a Safety Data Sheet (SDS) according to Regulation 1907/2006 (REACH) is not mandatory. This Product Safety Information (PIS) is a voluntary presentation of certain information that may assist the user in the handling of Silica Fume.

1. PRODUCT AND SUPPLIER IDENTIFICATION**1.1. Product Identifier**

Trade Name: MS 93

Synonym: Silica Fume, microsilica, condensed SiO₂ (silica) fume, amorphous silica, silicon dioxide powder, silica powder, volatilized SiO₂, thermally generated silica fume (TGSF), microfume, amorphous silicon dioxide.

EC 273-761-1

CAS No: 69012-64-2

Reach registration number: 01-2119486866-17-0024sy

1.2. Relevant identified uses of the substance or mixture and uses advised against**Uses**

- Formulation (mixing) of preparations and/or re-packaging (SU 10; PROC 2, 3, 4, 5, 7, 8a&b, 9, 10, 11, 19, 22, 23, 24, 26); AC 1, 3, 5, 10, 11, 13; PC 1, 9, 32; ERC 5, 2):

Additive (mineral admixture) in manufacturing of; (ready mix) concrete, repair products (mortars & grouts), shotcrete

Manufacture of sealants and adhesives

Manufacture of polymers

Component in formulation of refractories

Plaster manufacture

- Manufacture of other non-metallic mineral products, e.g. plasters, cement, refractories, Ceramic and other special products (SU13; PROC 1, 2, 3, 4, 5, 8, 9, 14, 19, 21, 22, 23; PC 9 ; AC 2, 4 ; ERC 3, 5:

Manufacture of refractory products: bricks, tiles, table ware, sanitary ware, clay pipes for processes at elevated temperatures, refractory concrete, special concretes

Manufacture of unshaped aluminosilicate refractory materials

Additive to SiC for the production of kiln furniture

Protection of surfaces from wear

Manufacture of specialty ceramics

Cement industry: Raw material for clinker production

Manufacture of flue dust/clinker/... containing preparations: cement, hydraulic binder, controlled low strength material, concrete (ready-mix or pre-cast), mortar, grout

Additive to floor spackle

Manufacture of glass

Manufacture of well drilling products

- Mining, (including offshore industries) (SU 2b; PC 20, PROC 1, 3, 5, 8, 26; ERC 10b):

Manufacture of well drilling products

Stabilisation in mining and quarries

- Manufacture of fine chemicals (SU 9; PC 9, 18; PROC 1, 2, 3, 4, 5, 8, 9, 19; ERC 1, 2):

Manufacture of inorganic pigments

Component in formulation of monolithic refractories

Manufacture of processing aids used in the chemical industry

- Agriculture, forestry, fishery (SU1; PC12; PROC 5, 8b, 11, 19, 26; ERC 10b):

Anti-caking agent in artificial fertilisers

Silica fertilizer in agriculture

- Manufacture of rubber products (SU 11; PC 32; PROC 1, 2, 3, 5, 6, 7, 8, 9, 10, 13, 14, 15, 19; AC 1, 2, 3, 5, 8, 10, 12; ERC 3, 6d):

Manufacture of gaskets, gaskets materials and seals

Manufacture of rubber materials

Manufacture of rubber materials with coating and inks

- Manufacture of plastics products, including compounding and conversion:

Manufacture of elastomer products (SU 12; PC 32; PROC 1, 2, 15, 19, 23; AC 1, 2, 3, 5, 8, 10, 12 ; ERC 3, 6d):

Manufacture of polymers: thermoplastics Manufacturing of plastics with coating and ink

- Building and construction work (SU 19; PC 10; PROC 1, 2, 3, 5, 26, AC 1, 2, 3, 5, 8, 10, 12 ; ERC 3, 6d):

Professional use of construction chemical

Construction: Use of cement, hydraulic binder, controlled low strength material, ready-mix concrete, mortar, grout

Construction: Use of cement, hydraulic binder, controlled low strength material, mortar, grout for construction (DIY)

Oil stabilisation and improvement

Mineral filler in asphalt pavement and bituminous products

Shotcrete in tunnels

Building and construction work with coating and ink

- Manufacture of basic metals, including alloys (SU14; PROC 1, 2, 3, 5, 7, 8a&b, 9, 10, 13, 15, 19, 26; AC 1, 2, 3, 5, 8, 10, 12; ERC1
- Professional uses of adhesives (SU 22; PROC 8, 9, 11, 13, 19, ERC 8f)
- Consumer uses of adhesives (SU21; PC 19; PROC 1; ERC 1)

The chemical can be used by the general public

Not applicable

The chemical is used by the general public only

Not applicable

1.3. Details of the supplier

Company	Carbon Enterprises Ltd. 10 Orchard Way, Esher, Surrey, KT10 9DY, United Kingdom. (For Re Alloys, Poland)
Telephone	+44 1372 800 481
Fax	+44 1372 467 043
Email	ce@carbonenterprises.co.uk

1.4. Emergency telephone number

As the substance is not hazard classified emergency numbers are not relevant. However, to be complete, hereafter the known emergency phones of members states:

112 is the emergency number throughout Europe

- Austria – VergiftungsInformationsZentrale: + 431 406 43 43
- Belgium – Centre Antipoison/Antigifcentrum: + 32 (0)70 245 245
- Bulgaria – Poison center: + 359 2 9154 409
- Cyprus: 112
- Czech Republic: + 420 224 919 293
- Denmark - Gifflinjen: 82 12 12 12
- Estonia:
- Finland - Poison Information Centre: + 358 (09) 471 977
- France – Centre anti-poisons: + 33 (0)1 4005 48 48
- Germany – Giftinformationszentren: + 49 (0) 30 - 19240
- Greece- Poison Centre: Poison Centre at + 30 2107793777
- Hungary: +36 (0)6 80 20 11 99
- Iceland:
- Ireland:
- Italy:
- Latvia:
- Liechtenstein:

- Lithuania: + 370 5 236 20 52
- Luxembourg:
- Malta: + 356 2545 0000
- Netherlands: 112
- Norway - Norwegian Poison Information Centre: + 47 22 59 13 00
- Poland: +48 32 3247100
- Portugal - Centro de Informação Antivenenos: + 351 808 250 143
- Romania:
- Slovakia – National Toxicological Information Center: + 421 2 5477 4166
- Slovenia:
- Spain:
- Sweden - Giftinformationscentralen: + 46(0)8-331231
- United Kingdom - The UK National Poisons Emergency number: +44 870 600 6266

List of national helpdesks: http://www.echa.europa.eu/help/nationalhelp_contact_en.aspx

2. HAZARDS IDENTIFICATION

This product does not meet the criteria for hazard classification. Therefore, there is no requirements to produce Exposure scenarios for the identified uses of section 1.2 (Art. 14 of REACH).

2.1. Label elements

No signal word.

2.2. Other hazards

High concentrations of dust may mechanically irritate or dry out skin, eyes and respiratory system.

3. COMPOSITION / INGREDIENTS

Hazardous ingredients

CAS/EC number and the registration number	Name of the main ingredient	Concentration	Classification under EC 1272/2008	Classification under 67/548/EEC
EC 273-761-1	Silica Fume	≥ 80%	Not classified	Not classified

* This PSI is based on the Chemical Safety Report of Silica Fume made according to the qualities covered by the Silica Fume registration dossier under REACH

4. FIRST AID MEASURES

4.1. Description of first aid measures

Inhalation: Mechanical irritation of airways: Remove person from Silica fume exposed areas.

Skin contact: Wash skin with water and/or a mild detergent.

Eye contact: Rinse eyes with water/saline solution. See a physician upon persistent discomfort.

Ingestion: Remove source of further ingestion. See inhalation.

4.2. **Most important symptoms and effects, both acute and delayed**

Acute over exposure to dust may cause irritation symptoms like coughing and sore throat, reddening and heavy watering of the eyes. Skin contact can cause reddening and itching of the skin.

4.3. **Indication of any immediate medical attention and special treatment needed**

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5. **FIRE FIGHTING MEASURES**

5.1. **Extinguishing media**

Silimic Fume is not combustible, and the dust entails no danger of explosion.

5.2. **Special hazards arising from the substance or mixture**

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5.3. **5.3 Advice for firefighters**

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6. **ACCIDENTAL RELEASE MEASURES**

6.1. **Personal precautions, protective equipment and emergency procedures**

Avoid handling that generates dust build-up and exposure to silica fume

6.2. **Environmental precautions**

Dispose of in a way approved of by the competent local authorities.

6.3. **Methods and material for containment and cleaning up**

Released material should be collected in suitable containers. Use vacuum cleaner rather than sweeper.

6.4. **Reference to other sections**

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7. **HANDLING AND STORAGE**

7.1. **Precautions for safe handling**

Avoid dust generation. Wear protective clothing, gloves, suitable respiratory protection and goggles. Keep away from hydrofluoric acid (HF). Reactions with HF leads to the formation of toxic gas (SiF₄).

7.2. **Conditions for safe storage, including any incompatibilities**

Keep dry and avoid storage below 0 °C.

7.3. Specific end use(s)

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8. EXPOSURE CONTROLS / PERSONAL PROTECTION

8.1. Control parameters

National occupational exposure limit values

According to the Decree of the Minister of Labour and Social Policy from the 6th June 2014 in the matter of the highest permissible concentrations and intensities of agents, which are harmful to the health in the place of employment, Journal of Law 2017year, pos. 1348 NDS – 10 [mg/m³] – total dust; other non – toxic industrial dusts, including those, which contain free (crystalline) silica in dust below 2%.

Other limit values

DNEL (Derived No Effect Level)

Silica Fume (proposal):

4 mg/m³ for inhalable silica fume

0.3 mg/m³ for respirable silica fume

PNEC (Predict No Effect Concentration)

Not applicable

8.2. Exposure controls

Appropriate engineering controls

Dust-free closed systems and local exhaust ventilation for dusty operations.

Eye/face protection

Safety glasses or goggles

Skin protection

Protective clothes

Hand protection

Gloves

Respiratory protection

Dusty work conditions use filtering facepiece (P2).

Thermal hazards

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Environmental exposure controls

The Limit values for particles (PM 2.5 and PM 10) of the Ambient Air (Directive 1999/30/EC and its further amendments) have to be implemented.

9. PHYSICAL AND CHEMICAL PROPERTIES

9.1. Information on basic physical and chemical properties

Appearance	Silica Fume is ultrafine powder. Colour varies from white to black, depending on the carbon content. Average primary particle size (d50): 0.15 µm. forming larger agglomerates during handling (10-120 µm.)
Odour	Odourless
Odour threshold	NA
pH	see solubility
Melting point/freezing point	> 1500 °C (101.3 kPa)
Initial boiling point and boiling range	NA
Flash point	NA
Evaporation rate	N.A.
Flammability (solid, gas)	NA
Upper/lower flammability or explosive limits	NA
Vapour pressure	NA
Vapour density	N.A.
Relative density	2.2 - 2.3 g/cm ³
Solubility(ies)	Water solub. 1.3 ≤ 5.3 mg/l at pH 5.9-7.6 (20 °C) ; 614 mg Si/l at PH 6.5 (OECD 105)
Partition coefficient: n-octanol/water	NA
Auto-ignition temperature	NA
Auto-ignition temperature	N.A.
Decomposition temperature	N.A.
Viscosity	NA
Explosive properties	NA
Oxidising properties	NA

9.2. Other information

Specific surface (m²/g) – 15-30

10. HANDLING AND STORAGE

10.1. Reactivity

The product is stable.

10.2. Chemical stability

The product is stable.

10.3. Possibility of hazardous reactions

Keep away from hydrofluoric acid (HF).

10.4. Conditions to avoid

Hydrofluoric acid (HF) leads to the formation of SiF₄ (toxic gas)

10.5. Incompatible materials

Hydrofluoric acid

10.6. Hazardous decomposition products

Heating at above 1000 °C for prolonged time will convert amorphous silica (SiO₂) to crystalline silica (SiO₂).

11. EXPOSURE CONTROLS / PERSONAL PROTECTION

11.1. Acute toxicity

Based on available data, the classification criteria are not met. Substance-specific acute toxicity data on Silica Fume do not exist. Therefore, acute toxicity data of similar type of substances, such as synthetic amorphous silica (SAS), are utilised. As examples for acute toxicity of SAS, LD₅₀ = 5000 mg/kg/ oral/ rat, LD₅₀ = 5000 mg/kg/ dermal/ rabbit/ synthetic silica.

Skin corrosion/irritation

Based on available data, the classification criteria are not met.

Serious eye damage/irritation

Based on available data, the classification criteria are not met.

Respiratory or skin sensitisation

Based on available data, the classification criteria are not met.

Germ cell mutagenicity

Based on available data, the classification criteria are not met.

Carcinogenicity

Based on available data, the classification criteria are not met.

Reproductive toxicity

Based on the available data, no classification is suggested.

STOT-single exposure

Based on available data, the classification criteria are not met.

STOT-repeated exposure

NOAEC: 1,3 mg/m³/ rat

Based on available data, the classification criteria are not met.

Aspiration hazard

Reason for no classification: data lacking.

Other information

Silica Fume might contain trace amounts (<0.05%) of respirable crystalline silica and polycyclic aromatic hydrocarbons (PAH).

12. ECOLOGICAL INFORMATION**12.1. Toxicity**

Based on available data, the environment hazard classification criteria are not met.

12.2. Persistence and degradability

Silica fume is an inorganic substance and is not biodegradable. The solubility in water is considered low.

12.3. Bioaccumulative potential

No or very low potential for bioconcentration and bioaccumulation.

12.4. Mobility in soil

Particulate silica is immobile substance in soil and sediment. Dissolution product silica partitions primarily in the aquatic phase.

12.5. Results of PBT and vPvB assessment

Silica fume is an inorganic substance and it is not classifiable as a PBT/vPvB substance. The amounts of known impurities do not trigger any PBT/vPvB classification for the registered silica fume substance.

12.6. Other adverse effects

None known

13. DISPOSAL**13.1. Waste treatment methods**

Dispose in accordance with all applicable national and local regulations, Silica fume is not listed as hazardous waste in the European List of Waste (Commission Decision 2000/532/EC of 3 May 2000).

14. TRANSPORT INFORMATION**14.1. UN number**

Not regulated.

14.2. UN proper shipping name

None

14.3. Transport hazard class(es)

IMGD: not classified

ICAO/IATA: not classified

ADR/RID: not classified

14.4. **Packing group**

Not applicable.

14.5. **Environmental hazards**

Silica Fume is not considered to cause harm to aquatic organisms (Lillicrap, 2011). Silica Fume is not a marine pollutant.

14.6. **Special precautions for user**

Not applicable

14.7. **Transport**

N.A.

in bulk according to Annex II of MARPOL73/78 and the IBC Code

15. **REGULATORY INFORMATION**

15.1. **Safety, health and environmental regulations/legislation specific for the substance or mixture**

The Product Safety Information sheet is prepared in compliance with:

- Regulation /EC) No 1907/2006 for Registration, Evaluation, Authorisation and Restriction of Chemicals (REACH).
- Regulation (EC) No 1272/2008 on the classification, labelling and packaging of substances and mixtures (CLP).
- Commission Decision 2000/53 of 3 May 2000 establishing a list of wastes pursuant (European List of Wastes)
- Directive 2008/50/EC on ambient air quality and cleaner air for Europe
- Journal of Law 2017year, pos. 1348 NDS

15.2. **Chemical safety assessment**

Chemical Safety Assessment for the Silica Fume has been carried out.

16. **OTHER INFORMATION**

Other References:

- Silica Fume Chemical Safety Report
- ECHA 2010. Guidance on the compilation of safety data sheets (draft October 2010)
- Lillicrap A. Assessment of the Transformation/Dissolution (T/D) Data Generated for Silica Fume. Norwegian Institute for Water Research. Lab. Testing Report n° 6026-2010, Serial No. O-10158 of March 2011.