

SAFETY DATA SHEET

SILICA FUME

CREATION DATE / REVISION DATE: 18.03.2021 / —

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INFORMATION CARD – MSILICA FUME - MICROSILICA- SILICA FUME

Silica fume is not classified as hazardous under the CLP Regulation (1272/2008/EC) or as dangerous under the Dangerous Substances Directive (67/548/EEC). Silica fume is not persistent or bioaccumulative and is not toxic (PBT); it is not very persistent and very bioaccumulative (vPvB) either as defined in Annex XIII of the REACH Regulation (1907/2006/EC), and is not included in the ECHA candidate list of substances of very high concern.

SECTION 1: IDENTIFICATION OF THE SUBSTANCE AND IDENTIFICATION OF THE COMPANY

1.1. Product ID

Trade name

Msilica fume
Silica fume
Microsilica,
Msilica fume SiO₂

Name of the substance

Silicon dioxide

EC number

273-761-1

CAS number

69012-64-2

REACH registration number

01-2119486866-17-0013

1.2. Relevant identified uses of the substance and uses advised against

Uses:

- Determination of the composition [mixing] of the preparations and/or repackaging (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): (Mineral) supplement in production; (ready-made mixtures of) concrete, repair products (plasters and mortars), concrete sprayed by means of compressed air; Production of seals and adhesives; Production of polymers; Ingredient in the mixtures used in the production of refractory materials; Production of diluents, washing and cleaning products, production of plasters.
- Production of other non-metallic mineral products, for example - plaster, cement, refractory materials, ceramics 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): Production of refractory products: bricks, tiles, tableware, sanitary facilities, clay pipes intended for high-temperature processes, refractory concrete and special concrete; Production of refractory aluminosilicate raw materials; Supplement to SiC in the production of furnace liners; Surface protection against abrasion; Production of special ceramics; Cement industry: raw material for the production of clinker; Production with the use of chimney dust/clinker using preparations: cement, hydraulic binding material, material with small controlled resistance, concrete (ready-made mixtures or prefabrications), mortar and plaster; Supplement to floor putties; Production of glass; Production of products for excavating shafts.
- Quarrying (including sea quarrying) (SU 2b; PC 20, PROC 1, 3, 5, 8, 26; ERC 10b): Manufacture of products used in excavating shafts; Stabilisation in mines and quarries.
- Production of pure chemicals (SU 9; PC 9, 18; PROC 1, 2, 3, 4, 5, 8, 9, 19; ERC 1, 2): Production of inorganic pigments; Ingredient in the recipe of monolithic refractory materials; Production of process materials used in the chemical industry.
- Agriculture, forestry, fishing (SU1; PC12; PROC 5, 8b, 11, 19, 26; ERC 10b): Factor which prevents sintering in artificial fertilisers; Artificial silica fertiliser used in agriculture.
- Production of rubber manufactures (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): Production of pads, material for pads and seals; Production of rubber materials; Production of coated rubber products and ink.
- Production of plastic products, including mixing and conversion: manufacture of elastomer products (SU 12; PC 32; PROC 1, 2, 3, 5, 6, 7, 8, 9, 10, 13, 14, 15, 19, 23; AC 1, 2, 3, 5, 8, 10, 12; ERC 3, 6d): Manufacture of rubber products; Manufacture of coated rubber products and ink.
- Building and construction works (SU 19; PC 10; PROC 1, 2, 3, 5, 7, 8a&b, 9, 10, 13, 15, 19, 26, AC 1, 2, 3, 5, 8, 10, 12; ERC 3, 6d): Professional application of construction chemicals; Construction: the use of cement, hydraulic binding material, a material with controlled small resistance, concrete (ready-made mixtures or prefabricates), mortar and plaster; Construction: the use of cement, hydraulic binding material, a material with controlled small resistance, plaster and construction mortar (DIY); Ground stabilisation and its improvement; Mineral filler of asphalt

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surface and bituminous products; Concrete sprayed by means of compressed air in tunnels; Building and construction works with the use of coatings and paints.

- Production 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 use of adhesives (SU 22; PROC 8, 9, 11, 13, 19, ERC 8f)
- Use of adhesives by consumers (SU21; PC 19; PROC 1; ERC 1)

The substance might be used by the general public:

not applicable

The substance is used only by general public:

not applicable

1.3. Details of the data sheet supplier

Company: MSILICA TECH SP. Z O.O.
43-170 Łaziska Górne
Cieszyńska 48E
TAX IDENTIFICATION NUMBER: 635-185-67-87
Tel. +48 603750850
Email address: adudziak@msilicatech.com

1.4. Emergency telephone number

The emergency number throughout Europe is 112.
Poland - + 48 603 750 850

SECTION 2: HAZARD IDENTIFICATION

2.1. Classification of the substance or mixture

This product does not meet the criteria for hazard classification in accordance with the regulation (EC) no 1272/2008 on classification, labelling and packaging of substances and mixtures.

2.2. Label elements

Label is not required.

2.3. Other hazards

High concentration of dust may cause mechanical irritation or dry skin, irritation of the eyes and respiratory system.

SECTION 3: COMPOSITION/INFORMATION ON INGREDIENTS

Name of the main component	CAS number	EINECS/ELINCS	Concentration (%)	Classification according to EC 1272/2008	Classification according to 67/548/EEC
Amorphous synthetic silica SiO ₂	273-761-1	69012-64-2	more than 80%	Not classified	Not classified

SECTION 4: FIRST-AID MEASURES

4.1. Description of first-aid measures

4.1.1. Inhalation poisoning

Mechanical irritation caused by the presence of dust in the respiratory tract. Counteracting involves moving the injured person out of the dusty area.

4.1.2. Skin contact

Wash skin with water and/or mild detergent.

4.1.3. Eye contact

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Rinse eyes with water/salt solution. In case of prolonged problems, seek medical advice.

4.1.4. Swallowing

Remove the source to prevent swallowing larger amounts. See: "inhalation"

4.2. Main acute and delayed symptoms and effects of exposure

Excessive, acute exposure to dust may cause irritation symptoms, such as cough, sore throat, reddening and severe tearing of eyes. Skin contact may cause reddening and itching of the skin.

4.3. Indications of any immediate medical attention and special treatment needed

- none

SECTION 5: FIRE-FIGHTING MEASURES

5.1. Fire extinguishing media

The product is not flammable and the dust does not constitute any threat of explosion.

5.2. Special hazards arising from the substance or mixture

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5.3. Information for fire-fighters

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SECTION 6: PROCEEDINGS IN THE CASE OF UNINTENDED RELEASE INTO ENVIRONMENT

6.1. Personal precautions, protective equipment and emergency procedures

Avoid proceedings resulting in formation of silica dust and exposure to the dust

6.2. Environmental precautions

The material should be disposed of in the manner recommended by competent local authorities.

6.3. Methods and materials for containment and cleaning up

Released material should be collected in suitable containers. Use a vacuum cleaner for this purpose, do not broom.

SECTION 7: HANDLING AND STORAGE OF THE SUBSTANCES AND MIXTURES

7.1. Precautions for safe handling

Avoid creating dust. Wear protective clothing, gloves and glasses. Where necessary, use respiratory protection. It is recommended not to allow any contact of the product with hydrofluoric acid (HF). Reaction with the acid generates toxic gas (SiF₄).

7.2. Conditions for safe storage, including information on any mutual incompatibilities

Keep dry and avoid storing at temperatures below 0°C.

7.3. Specific end use(s)

-/-

SECTION 8: EXPOSURE CONTROLS/PERSONAL PROTECTION

8.1. Control parameters

8.1.1. National limits

With free crystalline silica content below 2%, the maximum allowable concentration (NDS) of dust has a value of 10 mg/m³ (The Regulation of the Minister of Labour and Social Policy of 29th November 2002 on maximum permissible concentration and intensity of agents harmful to health in the working environment (Dz.U. [Journal of Laws] No.217, item 1833).

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8.1.2. DNEL and PNEC

DENEL (Derived No Effect Level – the limit of exposure of man to the substance)

4 mg/m³ - value suggested for inhalable silica fume

0.3 mg/m³ - value suggested for silica fume absorbed through the respiratory tract

PNEC (Predict No Effect Concentration)

Not applicable

8.2. Exposure control

8.2.1. Appropriate technical control measures

Closed, dust-free systems and local exhaust ventilation for operations related to the formation of dust.

8.2.2. Individual protection measures, such as personal protective equipment

Gloves.

8.2.3. Face/eyes protection.

Safety glasses or goggles.

8.2.4. Skin

Protective clothing.

8.2.5. Respiratory tract

Dust mask for working in dusty conditions (P2).

8.2.6. Thermal risk

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8.2.7. Environmental exposure control

Limit values for concentration of particles (PM 2.5 and PM 10) in ambient air should be implemented (Directive 1999/30/EC, as amended)

SECTION 9: PHYSICAL AND CHEMICAL PROPERTIES

9.1. Information about basic physical and chemical properties

Appearance	Silica fume is very fine dust. Its color ranges from white to black, depending on the carbon content. Average particle size (d50): 0.15µm. with the possibility of emergence of larger agglomerates during manipulation (10-120 µm.)
Odour	Odour-free
Odour threshold	Not applicable
pH	See "solubility"
Melting/solidification temperature	>1500 °C (101,3 kPa)
Boiling point and boiling range	Not applicable
Ignition point	Not applicable
Evaporation rate	Not applicable
Flammability (solid, gas)	Not applicable
Upper/lower limit of flammability or explosion	Not applicable
Vapour pressure	Not applicable
Vapour density	Not applicable
Relative density	2.2 – 2.3 g/cm ³

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Solubility	Water solubility $1.3 \leq 5.3$ mg/litre at pH 5.9 – 7.6 (20° C); 614 mg Si/litre at pH 6.5 (OECD 105)
Partition coefficient n-octanol/water	Not applicable
Auto-ignition temperature	Not applicable
Degradation temperature	Not applicable
Viscosity	Not applicable
Explosive properties	Not applicable
Oxidizing properties	Not applicable

9.2. Other information

Specific surface area (m²/g) – 15-30

SECTION 10: STABILITY AND REACTIVITY

10.1. Reactivity

The product is stable.

10.2. Chemical stability

The product is stable.

10.3. Possibility of hazardous reactions

Do not allow to come into contact with hydrofluoric acid (HF).

10.4. Conditions to be avoided

-/-

10.5. Incompatible materials

Contact with hydrofluoric acid (HF) liberates SiF₄ (toxic gas).

10.6. Hazardous decomposition products

Prolonged heating to a temperature above 1000 °C will result in transformation of amorphous silica (SiO₂) into crystalline silica (SiO₂).

SECTION 11: TOXICOLOGICAL INFORMATION

11.1. Information on toxicological effects

11.1.1. Acute toxicity

On the basis of available data, it is concluded that the classification criteria are not met. As there is no data concerning acute toxicity of silica dust, data related to acute toxicity of a similar substance, i.e. synthetic amorphous silica (SAS), have been used.

Sample data related to acute toxicity of SAS are as follows: LD50 = 5000 mg/kg/oral administration/rat,

LD50 = 5000 mg/kg/subcutaneous administration /rabbit/synthetic silica.

11.1.2. Skin corrosion / irritation

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

11.1.3. Serious eye damage / irritation

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

11.1.4. Respiratory tract or skin sensitization

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

11.1.5. Germ cell mutagenicity

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

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11.1.6. Carcinogenicity

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

11.1.7. Reproductive toxicity

Based on available data, no classification is suggested.

11.1.8. STOT (Specific Target Organ Toxicity) – single exposure

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

11.1.9. STOT - repeated exposure

NOAEC (No-Observed-Adverse-Effect Level) -1.3 mg/m³ for rats

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

11.1.10. Aspiration hazard

No classification due to lack of data

11.1.11. Other information

Silica fume may contain traces (<0.05%) of inhalable crystalline silica and polycyclic aromatic hydrocarbons (PAH).

SECTION 12: ECOLOGICAL INFORMATION

12.1. Toxicity

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

12.2. Persistence and degradability

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

12.3. Bioaccumulative potential

No or very low potential for bioconcentration and bioaccumulation.

12.4. Mobility in soil

The silica particles are immobile substance in soil and sediment. Products of silica dissolution occur primarily in the aquatic phase.

12.5. Results of the PBT and vPvB assessment

Silica fume is a nonorganic material and is not classified as a PBT/vPvB substance. There is no data concerning the PBT/vPvB contamination above 0.1% or below 0.1%. Traces of known contaminants do not influence the classification of the PBT/vPvB for the registered fume silica.

12.6. Other adverse effects

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SECTION 13: WASTE MANAGEMENT

13.1. Waste treatment methods

Waste must be disposed of 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, as amended)

SECTION 14 TRANSPORT INFORMATION

14.1 UN Number

Not regulated

14.2 UN proper shipping name

None

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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 hazard

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

Not applicable

Transport N.A. in bulk according to Annex II of MAR POL73/78 and the IBC Code

SECTION 15: INFORMATION CONCERNING LEGAL REGULATIONS

15.1. Regulations/legislation specific to the substance or mixture on safety, health and environment

Safety data sheet has been prepared in accordance with:

- Act of February 25, 2011 on the chemical substances and their mixtures. Dz.U. [Journal of Laws] No.63, item 322,
- Regulation (EC) No. 1907/2006 of the European Parliament and of the Council of 18 December 2006 concerning the registration, evaluation, authorisation and restriction of chemicals (REACH), establishing European Chemicals Agency and amending Directive 1999/45/EC and repealing Council Regulation (EEC) No. 793/93 and Commission Regulation (EC) No. 1488/94 as well as Council Directive 76/769/EEC and Commission Directives 91/155/EEC, 93/105/EC and 2000/21/EC (Official Journal of the European Union L 396 of 30 December 2006),
- Commission Regulation (EU) no 453/2010 of 20 May 2010 amending Regulation (EC) No. 1907/2006 of the European Parliament and of the Council concerning the registration, evaluation, authorisation and restriction of chemicals (REACH),
- Corrigendum to Commission Regulation (EU) No 143/2011 on 17 February 2011 amending Annex XIV to Regulation (EC) No 1907/2006 of the European Parliament and of the Council concerning the registration, evaluation, authorisation and restriction of chemicals (REACH) (Official Journal of the European Union L 44 of 18 February 2011),
- Regulation of the European Parliament and of the Council (EC) No. 1272/2008 of 16 December 2008 on classification, labelling and packaging of substances and mixtures, amending and repealing Directive 67/548/EEC and 1999/45/EC and amending Regulation (EC) No. 1907/2006,
- The Regulation of the Minister of Labour and Social Policy of 29 November 2002 on maximum permissible concentration and intensity of agents harmful to health in the working environment. Dz.U. [Journal of Laws] 2002, No.217, item 1833, as amended,
- The Regulation of the Minister of Health of 2 February 2011 on testing and measurements of factors harmful to health in the working environment. Dz.U. [Journal of Laws] 2011, No.33, item 166,
- The Act of 27 April 2001 on wastes. Dz.U. [Journal of Laws] No.62, item 628, as amended,
- The Regulation of the Minister of Environment of 27 September 2001 on the waste catalogue. Dz.U. [Journal of Laws] 2001, No.112, item 1206, as amended,
- The Regulation of the Minister of Environment of 21 March 2006 on waste recovery or neutralisation outside installations and appliances. Dz.U. [Journal of Laws] 2006, No.49, item 356,
- Government's Statement of 28 May 2013 on the entry into force of the Amendments to Annexes A and B of the European Agreement concerning the international carriage of dangerous goods by road (ADR), done at Geneva on 30 September 1957. (Dz.U. [Journal of Laws] 2013.815),
- Act of 19 August 2011 concerning the transport of dangerous goods. Dz.U. [Journal of Laws] 2011, No.277, item 1367, as amended.

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15.2. Chemical safety assessment

Chemical safety assessment has been carried out for silica fume.

SECTION 16: OTHER INFORMATION

Other references:

- Silica Fume Chemical Safety Report
- Commission Regulation number 453/2010 on the requirements for the compilation of Product Safety Data Sheets;
- ECHA 2010. Guidelines for compiling safety data sheets (project of October 2010);
- Lillicrap A. Assessment of the transformation / dissolution. Data generated for silica fume. Norwegian Institute for Water Research, Testing Report no. 6026-2010, serial no. O-10158, March 2011.