PRODUCT SAFETY DATA SHEET (Prepared according to Annex II of the EP and Council Regulation 1907/2006/EC and Commission Regulation

(EU) 2020/878)

Number: KBU-OFZ-03-EN Rev. 7 Page 1/ 24 Release date: January 24, 2010 Date of revision: December 12, 2022

PRODUCT SAFETY DATA SHEET

for

Silica fume for concrete MICROSILICA - SIOXID, class 1

Silica fume for concrete MICROSILICA – SIOXID, class 2

(Prepared according to Annex II of the EP and Council Regulation 1907/2006/EC and Commission Regulation (EU) 2020/878)

1. IDENTIFICATION OF THE SUBSTANCE/MIXTURE AND THE COMPANY/UNDERTAKING

1.1 Product identifier

Substance name:	Silica fume for concrete MICROSILICA - SIOXID
Chemical name:	273-761-1 / Silica fume
Synonyms:	MICROSILICA - SIOXID
Trade name:	Silica fume for concrete MICROSILICA – SIOXID, class 1
	Silica fume for concrete MICROSILICA – SIOXID, class 2
EINECS:	273-761-1
CAS:	69012-64-2
Molecular weight:	60.0843
REACH registration number:	01-2119486866-17-0010

1.2 Relevant identified uses of the substance/mixture and uses advised against

Brief description of substance function:

Type II admixture used in concrete, mortars, injection mortars and other mixtures for structures and structural elements.

Uses not recommended: None

See the identified ways of using the substance/preparation in Table 1 of the Annex to the Safety Data Sheet.

(Prepared according to Annex II of the EP and Council Regulation 1907/2006/EC and Commission Regulation (EU) 2020/878)

Number: KBU-OFZ-03-EN Rev. 7 Page 2/ 24 Release date: January 24, 2010 Date of revision: December 12, 2022

1.3 Details of the supplier of the safety data sheet

Name:	OFZ, a.s.
Address:	Široká 381, 027 41 Oravský Podzámok, Slovakia
Phone number:	+421 /43/5804 111
Fax number:	+421/43/5804 320
E-mail:	ofz@ofz.sk

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1.4 Emergency telephone number

European emergency tel. number:	112
Emergency phone number company:	+421/43/5804 1
National toxicological	

information center: +421 2 5477 4166

2. HAZARDS IDENTIFICATION

2.1 Classification of substance or mixture

2.1.1 Classification of the substance according to the CLP / GHS regulation

The substance does not meet the criteria for classification in accordance with Regulation EC 1272/2008.

11

2.2 Label elements

2.2.1 Labeling according to the CLP / GHS regulation

The substance does not meet the criteria for classification in accordance with Regulation EC 1272/2008.

Signal word: None

2.3 Other hazards

The substance does not meet the criteria for classification as a PBT or vPvB substance.

During handling, dusting, damage to the packaging and subsequent leakage of MICROSILICA - SIOXID into the working environment, fine particles may be dispersed into the air and the workplace exposure limit value (OEL) may be exceeded for a short time. For a long-term exposure, employees are at risk of health damage and silicosis.

(Prepared according to Annex II of the EP and Council Regulation 1907/2006/EC and Commission Regulation (EU) 2020/878)

Number: KBU-OFZ-03-EN Rev. 7 Page 3/ 24 Release date: January 24, 2010 Date of revision: December 12, 2022

3. COMPOSITION/INFORMATION ON INGREDIENTS

Degree of purity:

> = 80.0% (w/w)

3.1 Constituents

Constituents	Contents	Notes
SiO ₂ (silicon dioxide)	\geq 85% (w/w)	Class 1
	> 80% (w/w)	Class 2

3.2 Admixtures

Si (elementary silicon)	$\leq 0.4\%$ (w/w)
Free CaO (calcium oxide)	≤ 1.0% (w/w)
Sulphates (SO ₄ ²⁻)	$\leq 2.0\%$ (w/w)
Total alkali content (Na ₂ O eq .)	$\leq 6\% (w/w)$
SO ₃ (sulphur trioxide)	$\leq 2\%$ (w/w)
Chlorides (Cl ⁻)	$\leq 0.3\%$ (w/w)

4. FIRST AID MEASURES

4.1 Description of first aid measures

General information:	In contact with clothes, skin and eyes, no damage to health is expected. However, in the event of an accident or persistent discomfort, seek medical attention immediately.
Inhalation:	Mechanical irritation caused by dust in the respiratory tract: Move the person away from the area with amorphous silica dust particles.
Skin contact:	Wash the skin with water and/or mild soap.
Eye contact:	Flush the eyes with water or saline solution. In case of persistent discomfort, consult a doctor.
Ingestion:	Remove the source to prevent further ingestion. See inhalation.

4.2 Most important symptoms and effects, both acute and delayed

There is no danger of acute poisoning or damage to health - the substance is not classified.

(Prepared according to Annex II of the EP and Council Regulation 1907/2006/EC and Commission Regulation (EU) 2020/878)

> Number: KBU-OFZ-03-EN Rev. 7 Page 4/ 24 Release date: January 24, 2010 Date of revision: December 12, 2022

5. FIREFIGHTING MEASURES

5.1 Extinguishing media

Suitable:

Silica fume in concrete MICROSILICA - SIOXID is not flammable and its dust does not pose a threat of explosion.

Not established

Unsuitable:

Not established

5.2 Special hazards arising from the substance or mixture

None

5.3 Advice for firefighters

Not established

6. ACCIDENTAL RELEASE MEASURES

6.1 Personal precautions, protective equipment and emergency procedures

6.1.1 For non-emergency personnel

Wear suitable protective equipment (see section 8).

6.1.2 For emergency personnel

Ensure adequate ventilation. Ensure that the closed places are well-ventilated before entering.

Avoid stirring up the dust and dust formation.

Avoid contact with water.

Wear appropriate protective equipment. (see section 8)

Avoid inhalation: make sure the area is well-ventilated, wear suitable respirators and protective equipment. (see section 8)

6.2 Environmental precautions

Based on the available studies, the given substance does not endanger the environment. However, large amounts of material can clog drains, so disposing of it in this way is not recommended.

(Prepared according to Annex II of the EP and Council Regulation 1907/2006/EC and Commission Regulation (EU) 2020/878)

Number: KBU-OFZ-03-EN Rev. 7 Page 5/ 24 Release date: January 24, 2010 Date of revision: December 12, 2022

6.3 Methods and material for containment and cleaning up

Avoid handling the material in the way that creates an increase in the concentration of MICROSILICA - SIOXID dust in the air and also its exposure. Released material should be collected in suitable containers. It is better to use vacuum cleaners than brooms for cleaning.

6.4 Reference to other sections

For more detailed information regarding exposure controls and personal protective equipment, see section 8.

7. HANDLING AND STORAGE

7.1 Precautions for safe handling

Avoid stirring up the dust and dust formation. Wear protective clothes, gloves, suitable respirators and safety glasses.

Avoid contact with hydrofluoric acid (HF).

The reaction with HF leads to the formation of poisonous gases (SiF₄).

7.2 Conditions for safe storage, including any incompatibilities

It is stored in the closed packaging (big bags, sacks, barrels, silos, containers, tanks and other closed large-capacity containers) in the warehouses, or on a reinforced marked storage area at the operation site.

7.3 Specific end use(s)

None. Please check the identified uses of the substance included in Table 1 of the Annex to the Safety Data Sheet.

8. EXPOSURE CONTROLS/PERSONAL PROTECTION

8.1 Control parameters

Exposure limit values

Workplace exposure limit value (OEL): 4 mg/m³ inhaled dust from MICROSILICA - SIOXIDE

Derived No-Effect Limit (DNEL) for long-term exposure: 0.3 mg/m 3 of inhaled dust from MICROSILICA - SIOXID, which is achieved while maintaining the OEL below the exposure limit value

PNEC water:None. The derivation of a PNEC value is not justified for this data set, as an
AF of 1000 together with a threshold value would result in impossibly small
PNEC values. These values would be well below the normal natural
concentrations of dissolved silica on surface waters in the natural environment.

(Prepared according to Annex II of the EP and Council Regulation 1907/2006/EC and Commission Regulation (EU) 2020/878)

> Number: KBU-OFZ-03-EN Rev. 7 Page 6/ 24 Release date: January 24, 2010 Date of revision: December 12, 2022

	Standard AF methods of PNEC derivation are not suitable for silicon. However, they may be updated after the results of new studies.
PNEC soil:	None. Pure amorphous silica is not poisonous to living organisms inhabiting the soil .
PNEC sediment :	None. Pure amorphous silica is not toxic to living organisms inhabiting sediments.

8.2 Exposure controls

To control possible exposure, it is necessary to prevent dust formation. The use of suitable protective equipment is recommended. In the case of visible swirling of dust from MICROSILICA - SIOXID, type II admixture, it is necessary to ventilate and exhaust the contaminated area and use means to protect the respiratory tract and eyes.

8.2.1 Workplace exposure control

Measure the workplace exposure limit regularly. If dust is generated during the handling of the material, use an exhaustion or ventilation system or other means to maintain dust limit values in the air.

8.2.2 Personal protective equipment

8.2.2.1 Eye/face protection

Wear safety glasses.

8.2.2.2 Skin protection

Wear protective clothes, gloves and use protective hand cream.

8.2.2.3 Protection of the respiratory system

Use a respirator with enhanced filtration efficiency.

8.2.3 Control of environmental exposure

Dust emissions from the ventilation system or workplace must be checked to see if they meet the requirements of environmental protection legislation. MICROSILICA - SIOXID does not endanger the environment.

(Prepared according to Annex II of the EP and Council Regulation 1907/2006/EC and Commission Regulation (EU) 2020/878)

Number: KBU-OFZ-03-EN Rev. 7 Page 7/ 24 Release date: January 24, 2010 Date of revision: December 12, 2022

9. PHYSICAL AND CHEMICAL PROPERTIES

9.1 Information on basic physical and chemical properties

Appearance:	white, gray or black substance in solid state in the form of powder
Odor:	none
Odor threshold:	none, the substance is odorless
pH:	not determined
Boiling point:	not determined (substance in solid state with melting point > 300°C)
Melting/solidification temperatur	e: > 1500 °C at 101.3 kPa
Flash point:	not determined (substance is inorganic and in solid, not liquid state)
Flammability:	non-flammable (the substance is inorganic with silicon in the highest oxidation state)
Explosive properties:	not determined (no chemical groups with explosive properties present in the molecule)
Oxidizing properties:	not determined (substance is not capable of exothermic reaction with flammable materials)
Vapor pressure:	not determined (melting temperature > 300°C)
Bulk weight:	300 - 850 kg/m ³
Solubility in water:	OECD T/D screening test: \leq 0.25 mg/l at pH 6 (21.5 °C); 0.37 \leq 0.72 mg/l at pH 8 (21.5 °C)
	OECD 105: 1.3 ≤ 5.3 mg/l at pH 5.9-7.6 (20 °C)
	MICROSILICA - SIOXIDE particles < 1
Loss by annealing	$\leq 4.0\%$ (w/w)
Specific surface area	$25.0 \pm 10.0 \text{ m}^2/\text{g}$
Activity index	<i>≤</i> 1.0
Distribution coefficient n-octanol/water (log. value):	not determined (substance is inorganic)
Viscosity:	not determined (at normal ambient temperature, the substance is solid and not liquid)

(Prepared according to Annex II of the EP and Council Regulation 1907/2006/EC and Commission Regulation (EU) 2020/878)

Number: KBU-OFZ-03-EN Rev. 7 Page 8/ 24 Release date: January 24, 2010 Date of revision: December 12, 2022

Autoignition temperature:	non-flammable (the substance is inorganic with silicon in the highest oxidation state)
Dissociation constant:	the substance does not decompose due to the lack of appropriate functional groups
Surface tension:	the substance is not active on the surface
Stability in organic solvents:	not determined (substance is inorganic)

9.2 Other information

No further information is available regarding the safe use of the substance.

10. STABILITY AND REACTIVITY

10.1 Reactivity

Under normal conditions, the substance is not reactive.

10.2. Chemical stability

Under normal environmental conditions and expected conditions of storage and handling, the substance is chemically stable.

10.3 Possibility of hazardous reactions

In contact with hydrofluoric acid, poisonous gases are formed.

10.4 Conditions to be avoided

There are no dangerous reactions due to temperature, light pressure and impact.

10.5 Incompatible materials

Avoid contact with hydrofluoric acid (HF).

The reaction with HF leads to the formation of poisonous gases (SiF₄).

10.6 Hazardous decomposition products

They are not, if the preparation is used in accordance with the intended use.

(Prepared according to Annex II of the EP and Council Regulation 1907/2006/EC and Commission Regulation (EU) 2020/878)

Number: KBU-OFZ-03-EN Rev. 7 Page 9/ 24 Release date: January 24, 2010 Date of revision: December 12, 2022

End points The result of the impact assessment Toxicokinetics Results of animal studies: Inhalation toxicity study (13 weeks) (OECD 413), rats: no significant signs of accumulation in the lungs Inhalation (OECD 412, GLP), rats: no evidence of accumulation in the lungs Cross reference: synthetic amorphous silica Amorphous silica reaches a balanced level at which the excretion of this substance is equal to its deposition. When exposure ends or is interrupted, synthetic amorphous silica is rapidly eliminated from the lung tissue. It is not likely that a small or low level of impurities from MICROSILICA - SIOXID should represent a burden of these elements for the human body or the toxicity of this substance. After ingestion, synthetic amorphous silica does not appear to have significant effects on tissue silica levels. MICROSILICA - SIOXID is not acutely toxic. Acute toxicity Results of animal studies: Ingestion: LD $_{50}$ > 5000 mg/kg body weight cross reference: see silicon dioxide (OECD 401, rat) Inhalation: LC $_{50}$ (4 h) > 2.08 mg/l in air, cross reference: see synthetic amorphous silica (OECD 2004a, rat) Through the skin: LD $_{50}$ > 5000 mg/kg body weight, cross reference: see silica (Woltjen R, Calkins JE (1978a-d), rabbit) The classification of MICROSILICA - SIOXID within the scope of acute toxicity is not guaranteed. Skin corrosion/Skin irritation Results of animal studies: MICROSILICA - SIOXID does not irritate the skin (rabbit). Based on the weight of evidence and the amorphous silica cross-reference , MICROSILICA - SIOXID does not irritate the skin. No inclusion or further testing is suggested. Naturally with any dust, even dust from MICROSILICA - SIOXID can also cause undetermined mechanical irritation of the eyes or respiratory tract. The classification of MICROSILICA - SIOXID in terms of irritation and corrosion is not guaranteed. Serious eye damage/Eye Results of animal studies: irritation MICROSILICA - SIOXID does not irritate the eyes (rabbit).

11. TOXICOLOGICAL INFORMATION

(Prepared according to Annex II of the EP and Council Regulation 1907/2006/EC and Commission Regulation (EU) 2020/878)

Number: KBU-OFZ-03-EN Rev. 7 Page 10/ 24 Release date: January 24, 2010 Date of revision: December 12, 2022

	Based on the weight of evidence and the amorphous silica cross-reference , MICROSILICA – SIOXID does not irritate the eyes. No inclusion or further testing is suggested. Naturally with any dust, even dust from MICROSILICA - SIOXID can also cause undetermined mechanical irritation of the eyes or respiratory tract. The classification of MICROSILICA – SIOXID in terms of irritation and
	corrosion is not guaranteed.
Respiratory or skin sensitization	MICROSILICA - SIOXID has not been tested for properties that could cause hypersensitivity. Its main ingredients, which have been shown to dissolve in artificial biological fluids (iron, magnesium, lead, aluminum and zinc), do not cause skin hypersensitivity. Despite widespread exposure to siliceous components, including synthetic amorphous silica, no cases of hypersensitivity to these components have been described. MICROSILICA – SIOXID is also not considered a substance that should cause hypersensitivity of the skin or respiratory tract.
	The inclusion of MICROSILICA - SIOXID in the framework of
	sensitization is not guaranteed.
Germ cell mutagenicity	MICROSILICA – SIOXIDE is not genotoxic .
	Results of animal studies: Analysis of a bacterial sample for the presence of a reverse mutation (Ames test, OECD 471): negative <i>In vitro</i> test for the presence of chromosome anomalies in mammals (OECD 473): negative Analysis of the sample for the presence of chromosome anomalies (OECD 475): negative Analysis of the sample for the presence of lethal mutations of dominant genes (OECD 478): negative Other metal admixtures that are present in MICROSILICA – SIOXID in a concentration of >0.1% and released in higher quantities compared to fumed silica, mainly include magnesium and zinc, which are not genotoxic elements and are not a reason for considering the inclusion of MICROSILICA – SIOXID in the group of mutagenic substances. Even if MICROSILICA – SIOXID contains lead up to 0.3% by weight, the classification of the substance as mutagenic towards germ cells is not required
	<i>In vitro</i> studies of bacteria, mammalian cell genetics, and cell transformation studies on synthetic amorphous silica (crossref) were negative. Analysis of the samples using the Comet test did not show conclusive results. <i>An in vivo</i> test for the presence of chromosome anomalies and a test for the presence of lethal mutations of dominant genes, as well as an <i>ex-vivo</i> mammalian cell gene mutation study, were negative. The inclusion of MICROSILICA – SIOXID in the scope of genotoxicity is
Carcinogenicity	not guaranteed. MICROSILICA - SIOXID is not carcinogenic.
	Results of animal studies: Chronic toxicity studies (OECD 452) mouse and rat: no effects

(Prepared according to Annex II of the EP and Council Regulation 1907/2006/EC and Commission Regulation (EU) 2020/878)

Number: KBU-OFZ-03-EN Rev. 7 Page 11/ 24 Release date: January 24, 2010 Date of revision: December 12, 2022

	The results of studies involving workers in the FeSi and silicon metal manufacturing industries did not show an increased incidence of cancer attributable to very fine MICROSILICA - SIOXID particles present when working in blast furnaces. Based on the available information on synthetic amorphous silica, amorphous silica , including MICROSILICA – SIOXID, this substance is not carcinogenic. The additives in MICROSILICA - SIOXID include crystalline silica, which may be present in this fabric at a concentration of $< 0.1\%$ respirable crystalline silica. In this context, respirable crystalline quartz is more important than its total concentration . In addition, this substance is currently not classified as carcinogenic within the EU. Silicon carbide in its fibrous or porous structure, which can be carcinogenic, is not present in MICROSILICA - SIOXID .
	The inclusion of MICROSILICA - SIOXID in the scope of carcinogenicity
Reproductive toxicity	is not guaranteed. MICROSILICA - SIOXID is not toxic for reproduction.
Reproductive toxicity	Results of animal studies: Genotoxicological test for the presence of lethal mutations of dominant genes (OECD 452) rat: NOAEL (P): 5,000 mg/kg body weight/day, test for the presence of lethal mutations: negative
	If a review of all toxicological data indicates that the data are sufficient to form a direct conclusion regarding possible reproductive toxicity, no further testing will be required. Studies with amorphous silica and the dominant gene lethal mutation study with calcium silicate were unable to demonstrate any pathological changes or harmful effects on the reproductive organs in the animals studied. The physical and chemical properties of the silicon ion and its prevalence indicate that there is no threat of any possibility of reproductive toxicity
	The inclusion of MICROSILICA – SIOXID in the framework of reproductive toxicity is not guaranteed.
Specific target organ toxicity	Based on the available data, the criteria for inclusion of the substance are
(STOT) - single exposure	not met.
Specific target organ toxicity (STOT) - repeated exposure	MICROSILICA - SIOXID is not toxic after repeated doses.
	silica was shown to be practically non-toxic. In this context, MICROSILICA - SIOXID is considered a substance resembling synthetic amorphous silica .
	Toxicity of MICROSILICA – SIOXID by the skin route: NOAEL >= $10,000 \text{ mg/kg}$
	toxicity of MICROSILICA - SIOXIDE: The results of studies of workers in the silicon, ferrosilicon and amorphous silica industries have shown a higher incidence of COPD and a decrease in lung performance, which is generally attributed to work in a dusty environment.
	Value used for CSA (inhalation): NOAEC: 1.3 mg/m ³

(Prepared according to Annex II of the EP and Council Regulation 1907/2006/EC and Commission Regulation (EU) 2020/878)

Number: KBU-OFZ-03-EN Rev. 7 Page 12/ 24 Release date: January 24, 2010 Date of revision: December 12, 2022

	Since inhaled particles cause reversible effects on the lungs at a dose level of approximately 5 mg/m ³ , in the case of marketable MICROSILICA – SIOXID, these effects are likely to be seen only at a dose more than 20 times higher, meaning its level ≥ 100 mg/m ³ . Marketable MICROSILICA – SIOXID therefore does not meet the requirements for inclusion. Levels of respirable crystalline silica are well below the 1% concentration limit by weight, so no classification is also proposed for this substance. The presence of silicon carbide fibers was not confirmed in MICROSILICA – SIOXID. Other impurity elements that are present in the fabric in a concentration above 1% and that can be released from MICROSILICA – SIOXID are not included in the group of toxic substances after a repeated dose and are not a reason to consider including MICROSILICA – SIOXID in the given group.
	The classification of MICROSILICA – SIOXID within the framework of toxicity after a repeated dose is not guaranteed.
Risk of aspiration	

12. ECOLOGICAL INFORMATION

12.1 Ecotoxicity

12.1.1 Acute and chronic toxicity to fish

Short-term toxicity:	LC 50 (96 h) for freshwater fish: 100 mg/l (OECD 203) [MICROSILICA – SIOXID]
Long-term toxicity:	This information is not available. Due to the known physical and chemical properties, the absence of acute toxic effects, as well as the considerable distribution of silicon and silicates in nature, poorly soluble silica is not expected to exhibit any toxic effects at low concentrations. A high concentration in the environment indicates that, in general, there are unlikely to be any chronic effects on fish at their natural values found in the environment.

12.1.2 Acute and chronic toxicity for aquatic invertebrates

Short-term toxicity:	EC 50 /LC 50 (24 h) for freshwater invertebrates: 1,000 mg (OECD 202) (amorphous silicon dioxide)
Long-term toxicity:	EC 50 (21 d) not known, (OECD 211) test in progress

12.1.3 Acute and chronic toxicity to aquatic plants

EC 50 /LC 50 (72 h) for freshwater algae: 250 mg/l (OECD 201) (silica)

EC 50 /LC 50 (72 h) for seaweed: 1,000 mg/t (ISO 10253) [MICROSILICA - SIOXID]

EC 10/LC 10 or NOEC for freshwater algae: 228 mg/l (OECD 201) (silica)

(Prepared according to Annex II of the EP and Council Regulation 1907/2006/EC and Commission Regulation (EU) 2020/878)

Number: KBU-OFZ-03-EN Rev. 7 Page 13/ 24 Release date: January 24, 2010 Date of revision: December 12, 2022

EC 10/LC 10 or NOEC for seaweed: 323 mg/l (OECD 201) (soluble silica salt)

12.1.4 Acute and chronic toxicity for sedimentary organisms

Long-term toxicity: EC 50 /LC 50 for freshwater sedimentary organisms: 50,000 mg/kg dry weight [MICROSILICA – SIOXID] EC 10 /LC 10 or NOEC for freshwater sedimentary organisms 49 mg/kg dry weight

12.1.5 Acute and chronic toxicity for soil macro-organisms

MICROSILICA – SIOXID toxicity to terrestrial soil macro-organisms is believed to be low, as soil-dwelling animals adapt well to the presence of MICROSILICA - SIOXID in soil and pore-filling water. Based on existing information on the exposure and effects of MICROSILICA – SIOXID, there is currently no need to conduct targeted ecotoxicological testing of silica fume (high quality) or silicon (element) in soil.

12.1.6 Acute and chronic toxicity for terrestrial plants

The toxicity of silica to terrestrial plants is thought to be low, as plants adapt well to the presence of silica in soil and pore-filling water. Based on the existing information on the exposure and effects of MICROSILICA – SIOXID, there is currently no need to conduct targeted ecotoxicological testing of silica.

12.1.7 Acute and chronic toxicity for soil microorganisms

The toxicity of amorphous silica to soil microorganisms is believed to be low since silica is present in most soils and pore-filling waters. Based on the existing information on exposure and effects and the CSA's assessment, there is currently no need to conduct targeted testing of silica .

12.1.8 Acute and chronic toxicity for aquatic microorganisms

The test substance is a bulk material that is poorly soluble in water, and the recommended standard study is not technically very suitable for this type of material. Insufficient information is available to derive a reliable toxicity test based on PNEC values for MICROSILICA - SIOXID.

12.1.9 Acute and chronic toxicity to birds

It is assumed that the toxicity of MICROSILICA – SIOXID for birds is low, since silica and its compounds are present in all types of natural soil, habitats and also in their food. Based on existing information on exposure and effects, there is currently no need to conduct targeted ecotoxicological testing of MICROSILICA – SIOXID.

(Prepared according to Annex II of the EP and Council Regulation 1907/2006/EC and Commission Regulation (EU) 2020/878)

Number: KBU-OFZ-03-EN Rev. 7 Page 14/24 Release date: January 24, 2010 Date of revision: December 12, 2022

These conclusions apply to the high quality MICROSILICA - SIOXID that our company produces. In the case of heavy metals and organic impurities found in its inferior qualities, it can have significant effects on the soil and for these impurities the cross-reference method can be used.

12.2 Mobility

MICROSILICA - SIOXID is a perfectly non-volatile substance in its powder form and solid state. MICROSILICA – SIOXID is a relatively poorly soluble substance in water with an acidic, neutral or slightly alkaline pH (< 1,000 mg/l). In unsaturated solutions (< 100 mg/l), silica is present in the form of dissolved silicon hydroxide Si(OH)₄)and in more concentrated solutions as dimer, trimer, colloidal solution or in the form of colloidal clusters of different sizes or in the form of lumpy insoluble matter. It is known that the soluble substance Si(OH) ₄ is relatively mobile in the soil. Adsorption of dissolved silica to the inorganic part of the soil is generally not strong and to the soil organic matter weak or almost negligible. Amorphous silica does not have a significant ability to bioconcentrate, it is not bioaccumulative.

12.3 Permanence and degradability

It is not established for inorganic substances.

12.4 Bioaccumulative potential

Silica is present in almost every aquatic or terrestrial environment. Measured silicon concentrations in habitats are available for various systems. These observations indicated no or low natural tendency for dissolved or undissolved silica to bioaccumulate in aquatic and terrestrial animal species. Sufficient evidence shows that bioaccumulation of silica is not a problem for the environment and no further bioaccumulation studies MICROSILICA – SIOXID are not necessary.

12.5 Results of PBT and vPvB assessment

The substance does not meet the criteria for classification as a PBT or vPvB substance.

12.6 Other adverse effects

No other adverse effects were detected.

13. DISPOSAL CONSIDERATIONS

(Prepared according to Annex II of the EP and Council Regulation 1907/2006/EC and Commission Regulation (EU) 2020/878)

Number: KBU-OFZ-03-EN Rev. 7 Page 15/ 24 Release date: January 24, 2010 Date of revision: December 12, 2022

Disposal of MICROSILICA - SIOXID must be in accordance with local and national legislation. The disposal of the unconsumed product consists in its recovery in waste recovery facilities, alternatively placement in a waste dump.

14. TRANSPORT INFORMATION

14.1 Basic information about transportation

MICROSILICA – SIOXID is not classified as dangerous in terms of ADR (road transport), RID (rail transport), IMDG (sea transport) and ICAO-TI/IATA-DGR (air transport).

14.2 Special preventive measures for the user

Avoid contact with water during transport. MICROSILICA – SIOXID is transported in tank trucks, packed in big bags or other agreed packaging during normal transport, by rail or road.

15. REGULATORY INFORMATION

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

GHS - UN Globally Harmonized System of Classification and Labeling of Chemical Substances (GHS):

According to Chapter 1.5.2 of the UN Globally Harmonized System of Classification and Labeling of Chemical Substances (GHS), safety data sheets (SDS) are required only for substances and mixtures that meet the harmonized criteria for endangering safety, health and the environment. This product does not meet these criteria.

EU CLP - CLP Regulation on classification, labeling and packaging of chemical substances and mixtures:

According to Article 59(2)(b) EC no. 1272/2008 (CLP), regulating Article 31(1) of the REACH regulation, safety data sheets (SDS) are required only for substances and mixtures/special preparations that meet the criteria for endangering safety, health and the environment. Since this product does not meet the given criteria, a safety data sheet according to EC 453/2010 does not need to be issued. To provide information related to safety and health and environmental protection, product safety information will be provided instead.

EU REACH - Registration, evaluation and authorization of chemical substances:

According to Article 31(7) of the REACH Regulation, exposure scenarios resulting from the Chemical Safety Report (CSR) are required to be documented as an annex to the Safety Data Sheet. However, according to the REACH regulation Annex I, part 0. (Introduction), subsection 0.6. no. 4 and 5 such exposure scenarios are required only for substances and mixtures that are classified as dangerous. As this product is not classified as hazardous in

(Prepared according to Annex II of the EP and Council Regulation 1907/2006/EC and Commission Regulation (EU) 2020/878)

Number: KBU-OFZ-03-EN Rev. 7 Page 16/ 24 Release date: January 24, 2010 Date of revision: December 12, 2022

the sense of CLP, the provision of exposure scenarios is not required." A chemical safety assessment has been carried out for the substance . According to the REACH regulation, this substance does not require authorization.

15.2 Chemical safety assessment

There are no special regulations, restrictions and prohibitions.

16. FURTHER INFORMATION

These data are based on our current knowledge, but do not represent any guarantee of any particular product properties and do not establish any legally binding contractual relationships.

16.1 Recommendations

Do not inhale the dust.

Wear suitable protective clothes, gloves and eye/face protection.

In case of insufficient ventilation, use a suitable respirator.

16.2 List of abbreviations used

AF:	rating factor
Comet test:	testing single cell samples for DNA damage by electrophoresis
COPD:	chronic obstructive pulmonary disease
DNEL:	derived no effect limit
EC 50:	mean value of the effective concentration
LC 50:	median value of the lethal concentration
LD 50:	median lethal dose value
NOAEC:	no observed adverse effect concentration
NOAEL: no	observed adverse effect value
NOEC:	no observed effect concentration
OEL:	workplace exposure limit value
PBT:	persistent, bioaccumulative and toxic substances
PNEC:	predicted zero effect concentration

(Prepared according to Annex II of the EP and Council Regulation 1907/2006/EC and Commission Regulation (EU) 2020/878)

Number: KBU-OFZ-03-EN Rev. 7 Page 17/ 24 Release date: January 24, 2010 Date of revision: December 12, 2022

T/D test:	substance solubility test
vPvB:	very persistent, very bioaccumulative substances

16.3 Key Resources

This Safety Data Sheet was prepared according to the Chemical Safety Report issued on September 9, 2010.

ANNEX

Table 1 Ways of using the substance or preparation (Use by workers in industry)

Confidenti	IU no	Name of Identified Use (IU)	The substance supplied for the given use	Usage Descriptors
	1	Production: a by- product of the production of FeSi or silicon via smelting in electric furnaces (reduction of quartz with carbon) or a by- product of the product of the production of zirconium oxide (ZrO2) via carbon desilication in an electric arc furnace	as such (substance in itself)	 Process category (PROC): PROC 3, 4, 8a, 8b, 9, 22, 23, 26 Category of chemical products (PC): PC 0: Other: Preparation of construction and structures Environmental release category (ERC): ERC 1 Sector of use (SU): SU 13, 14 SU 0: Other: NACE code: C24.1 and C23.4 Is the subsequent life relevant for the given use?: no
	2	Production of refractory materials: bricks, tiles, utensils for serving food, medical ceramics, clay pipes used in production processes at elevated temperatures, refractory concrete, special types of concrete / production of non-shaped aluminum-silicate refractory materials	as such (substance in itself) in the mixture	Process category (PROC): PROC 1, 2, 3, 4, 5, 8a, 8b, 9, 19, 21, 23, 24 Environmental release category (ERC): ERC 3, 5 Sector of use (SU): SU 13 SU 0: Other: NACE code: C23.20 Is the subsequent life relevant for the given use?: yes Product category (AC): AC 2

(Prepared according to Annex II of the EP and Council Regulation 1907/2006/EC and Commission Regulation (EU) 2020/878)

Number: KBU-OFZ-03-EN Rev. 7 Page 18/ 24 Release date: January 24, 2010 Date of revision: December 12, 2022

3	Silicon carbide (SiC) additive for the production of firing furnace accessories	as such (substance in itself) in the mixture	Process category (PROC): PROC 4, 5, 8a, 9, 26 Category of chemical products (PC): PC 0: Other: Preparation of construction and structures Environmental release category (ERC): ERC 3, 5 Sector of use (SU): SU 13 SU 0: Other: NACE code: C23.20 Is the subsequent life relevant for the given use? : yes Product category (AC): AC 4
4	Protection of surfaces against wear	as such (substance in itself) in the mixture	Process category (PROC): PROC 3, 4, 5, 7, 9, 10, 11, 19, 21, 23, 24 Category of chemical products (PC): PC 9a, 9b Environmental release category (ERC): ERC 3, 5 Sector of use (SU): SU 13 Is the subsequent life relevant for the given use? : no
5	Production of special types of ceramics	as such (substance in itself)	 Process category (PROC): PROC 1, 2, 3, 4, 5, 8a, 8b, 9, 19, 21, 23, 24 Category of chemical products (PC): PC 0: Other: Preparation of construction and structures Environmental release category (ERC): ERC 3, 5 Sector of use (SU): SU 13 SU 0: Other: NACE code: C23.44 Is the subsequent life relevant for the given use? : yes Product category (AC): AC 0: Other: Building products and material for outdoor use: material for building walls, material for surface treatment of roadways, ceramic, metal, plastic and wooden building material, insulation material.
6	Cement industry: raw material for the production of clinker	as such (substance in itself)	metal, plastic and wooden building material, insulation material. Process category (PROC): PROC 22 Environmental release category (ERC): ERC 3, 5 Sector of use (SU): SU 13 SU 0: Other: NACE code: C23

(Prepared according to Annex II of the EP and Council Regulation 1907/2006/EC and Commission Regulation (EU) 2020/878)

Number: KBU-OFZ-03-EN Rev. 7 Page 19/ 24 Release date: January 24, 2010 Date of revision: December 12, 2022

			Is the subsequent life relevant for the given use? : yes
7	Production of fly ash/clinker/	as such (substance	Process category (PROC): PROC 3, 4, 5, 8a, 8b, 9
	including	in itself)	1 KOC 5, 4, 5, 8a, 80, 9
	preparations: cement,		Category of chemical products (PC):
	hydraulic binder, low		PC 0: Other: Preparation of construction and structures
	strength material with controlled properties,		Environmental release category (ERC):
	concrete (ready mix		ERC 3, 5
	or prefabricated),		
	mortar, injection		
	mortar		Sector of use (SU): SU 13
			SU 0: Other: NACE code: C23
			Is the subsequent life relevant for the given use? : yes
			Product category (AC):
			AC 0: Other: Building products and material for outdoor use: material
			for building walls, material for surface treatment of roadways, ceramic,
8	Putty additive for	as such	metal, plastic and wooden building material, insulation material. Process category (PROC):
0	filling defects in	(substance	PROC 1, 2, 3, 4, 5, 8a, 8b, 9, 14, 19, 23
	wood, plaster and	in itself)	
	walls and glass		Category of chemical products (PC):
	production		PC 0: Other: Preparation of construction and structures
			Environmental release category (ERC):
			ERC 3, 5
			Sector of use (SU):
			SU 13
			SU 0: Other: NACE code: C23.61 and C23.1
			Is the subsequent life relevant for the given use? : yes
			Product category (AC):
			AC 4 AC 0: Other: Building products and material for outdoor use: material
			for building walls, material for surface treatment of roadways, ceramic,
			metal, plastic and wooden building material, insulation material.
9	Production of	as such	Process category (PROC):
	products for drilling	(substance	PROC 1, 3, 8a, 8b
	shafts	in itself)	Environmental release category (ERC):
			ERC 3, 5
			Sector of use (SU):
			SU 13
			Is the subsequent life relevant for the given use? : yes
10	Production of	as such	Process category (PROC):
	products for shaft	(substance	PROC 1, 3, 5, 8a, 8b, 26
	drilling and	in itself)	Category of chemical products (PC):
	strengthening in mines and quarries		PC 20
			Environmental release category (ERC):
1		1	E E E E E E E E E E E E E E E E E E E

(Prepared according to Annex II of the EP and Council Regulation 1907/2006/EC and Commission Regulation (EU) 2020/878)

Number: KBU-OFZ-03-EN Rev. 7 Page 20/ 24 Release date: January 24, 2010 Date of revision: December 12, 2022

			Sector of use (SU): SU 2a, 2b
			Is the subsequent life relevant for the given use? : yes
11	Production of inorganic dyes	as such (substance in itself)	Process category (PROC): PROC 2, 3
		in the	Category of chemical products (PC): PC 9a, 9b, 18
		mixture	Environmental release category (ERC): ERC 1
			Sector of use (SU): SU 9
			SU 0: Other: NACE code: C20.12 and C20.30
			Is the subsequent life relevant for the given use? : no
			Product category (AC): AC 13
12	Mixing component of monolithic refractory materials	as such (substance in itself)	Process category (PROC): PROC 1, 2, 3, 4, 5, 8a, 8b, 9, 19
			Environmental release category (ERC): ERC 1
			Sector of use (SU): SU 9
			Is the subsequent life relevant for the given use? : yes
13	Production of process aids used in the chemical industry	as such (substance in itself)	Process category (PROC): PROC 2
	enemieur mausiry		Category of chemical products (PC): PC 20
			Environmental release category (ERC): ERC 2
			Sector of use (SU): SU 9
			Is the subsequent life relevant for the given use? : no
14	Fertilizers: siliceous fertilizers in	as such (substance	Process category (PROC): PROC 5, 8b, 11, 19, 26
	agriculture and anti- hardening agent used in artificial fertilizers	in itself)	Category of chemical products (PC): PC 12
			Environmental release category (ERC): ERC 10b
			Sector of use (SU): SU 1
			Is the subsequent life relevant for the given use? : yes

(Prepared according to Annex II of the EP and Council Regulation 1907/2006/EC and Commission Regulation (EU) 2020/878)

Number: KBU-OFZ-03-EN Rev. 7 Page 21/24 Release date: January 24, 2010 Date of revision: December 12, 2022

15	Production of seals, sealing inserts and materials and seals; rubber materials; and rubber materials with a coating and with chemical dyes	as such (substance in itself)	Process category (PROC): PROC 1, 2, 3, 5, 6, 7, 8a, 8b, 9, 10, 13, 14, 15, 19, 23 Category of chemical products (PC): PC 32 Environmental release category (ERC):
			ERC 3, 6d Sector of use (SU): SU 11 SU 0: Other: NACE code: C22.19 and C20.30 Is the subsequent life relevant for the given use? : yes Product category (AC):
			AC 1, 2, 3, 5, 8, 10 AC 0: Other: construction products
16	Production of elastic polymers, thermoplastics and	as such (substance in itself)	Process category (PROC): PROC 1, 2, 3, 5, 6, 7, 8a, 8b, 9, 10, 13, 14, 15, 19, 23
	plastics with coating and chemical dyes		Category of chemical products (PC): PC 32
			Environmental release category (ERC): ERC 3, 6c
			Sector of use (SU):
			SU 12 SU 0: Other: NACE code: 22.20 and C20.30
			Is the subsequent life relevant for the given use? : yes
			Product category (AC): AC 1, 2, 3, 5, 8, 10
17	Has of a sub-to-	ag gua ¹ -	AC 0: Other: construction products
17	Use of a substance as an intermediate element	as such (substance in itself)	Process category (PROC): PROC 1
			Category of chemical products (PC): PC 19
			Environmental release category (ERC): ERC 6a
			Sector of use (SU): SU 9
			Is the subsequent life relevant for the given use? : no

Table 1 Ways of using the substance or preparation (Use by professionals)

Confidenti	IU no.	Name of Identified Use (IU)	The substance supplied for the given use	Usage Descriptors
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(Prepared according to Annex II of the EP and Council Regulation 1907/2006/EC and Commission Regulation (EU) 2020/878)

Number: KBU-OFZ-03-EN Rev. 7 Page 22/ 24 Release date: January 24, 2010 Date of revision: December 12, 2022

18	Additive (mineral admixture) in the production (ready mix) of concrete, repair products (mortars and injection mortars), sprayed concrete	as such (substance in itself) in the mixture	Process category (PROC): PROC 4, 5, 8a, 9, 26 Category of chemical products (PC): PC 0: Other: Preparation of construction and structures Environmental release category (ERC): ERC 3 Sector of use (SU): Is the subsequent life relevant for the given use? : yes
19	Production of putties, glues and adhesives	as such (substance in itself) in the mixture	Product category (AC): Process category (PROC): PROC 3, 4, 5, 7, 8b, 9, 10, 11, 19 Category of chemical products (PC): PC 1, 9a, 9b Environmental release category (ERC): ERC 2 Sector of use (SU): Is the subsequent life relevant for the given use? : yes Product category (AC):
20	Production of polymers	as such (substance in itself) in the mixture	Product category (AC): Process category (PROC): PROC 1, 2, 3, 4, 5, 6, 7, 8a, 8b, 9, 14, 19, 22, 23, 26 Category of chemical products (PC): PC 32 Environmental release category (ERC): ERC 3, 4, 5, 6a, 6b, 6c Sector of use (SU): Is the subsequent life relevant for the given use? : yes Product category (AC):
21	A component in the mixing of refractory materials	as such (substance in itself)	Product category (AC): Process category (PROC): PROC 4, 5, 8a, 9, 14, 19, 21, 23, 24, 26 Environmental release category (ERC): ERC 5 Sector of use (SU): Is the subsequent life relevant for the given use? : yes
22	Production of thinners, washing powders, cleaning agents and plaster	as such (substance in itself)	Process category (PROC): PROC 2, 3, 5, 8a, 9, 10 Category of chemical products (PC): PC 35, 9a, 9b Environmental release category (ERC): ERC 2

(Prepared according to Annex II of the EP and Council Regulation 1907/2006/EC and Commission Regulation (EU) 2020/878)

Number: KBU-OFZ-03-EN Rev. 7 Page 23/24 Release date: January 24, 2010 Date of revision: December 12, 2022

Use by professional workers in construction and construction work (e.g. chemical substance used in	as such (substance in itself)	Is the subsequent life relevant for the given use? : no Process category (PROC): PROC 1, 2, 3, 5, 7, 8a, 8b, 9, 10, 11, 13, 15, 19, 26
workers in construction and construction work (e.g. chemical	(substance	Process category (PROC):
construction; cement, hydraulic binder, low-strength material with controlled		Category of chemical products (PC): PC 9b PC 0: Other: road construction (asphalt and asphalt products) Environmental release category (ERC): ERC 10a
properties, e.g.; strengthening and melioration of soil; mineral filler for asphalt pavements and asphalt products; shotcrete in tunnels)		Sector of use (SU): Is the subsequent life relevant for the given use? : yes Product category (AC):
Production of basic metals, including alloys and alloys with plating and with chemical dyes	as such (substance in itself)	Process category (PROC): PROC 1, 2, 3, 4, 5, 7, 8a, 8b, 9, 10, 13, 15, 19, 22, 26 Category of chemical products (PC): PC 7 Environmental release category (ERC): ERC 5 Sector of use (SU): Is the subsequent life relevant for the given use? : yes
Professional use of	in the	Product category (AC): Process category (PROC):
glues and adhesives	mixture	 PROC 8a, 8b, 9, 11, 13, 19 Category of chemical products (PC): PC 1 Environmental release category (ERC): ERC 8f Sector of use (SU): Is the subsequent life relevant for the given use? : yes
	cement, hydraulic binder, low-strength material with controlled properties, e.g.; strengthening and melioration of soil; mineral filler for asphalt pavements and asphalt products; shotcrete in tunnels) Production of basic metals, including alloys and alloys with plating and with chemical dyes	construction; cement, hydraulic binder, low-strength material with controlled properties, e.g.; strengthening and melioration of soil; mineral filler for asphalt pavements and asphalt products; shotcrete in tunnels)

Table 1 Ways of using the substance or preparation (Use by consumers)

(Prepared according to Annex II of the EP and Council Regulation 1907/2006/EC and Commission Regulation (EU) 2020/878)

Number: KBU-OFZ-03-EN Rev. 7 Page 24/ 24 Release date: January 24, 2010 Date of revision: December 12, 2022

Confidenti	. IU no.	Name of Identified Use (IU)	Usage Descriptors
	26	Consumer use of glues and adhesives	Category of chemical products (PC): PC 1
			Environmental release category (ERC): ERC 8f
			Is the subsequent life relevant for the given use? : yes

Approved:

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