



# TECHNICAL DATA SHEET

for the product

## Silica fume MICROXIL Silica fume MICROXIL+

Rec. No. TL-VP-MX\_01-00

Valid since: July 1, 2019

Replacing: None

Approved by:  Ing. Milan Kelbel Director for Production & Production Services		Prepared by:  Ing. Michal Balko Head of Production Services	
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Manufacturer: OFZ, a.s.	Seat: Široká 381, 027 41 Oravský Podzámok, Slovakia		Reg. No.: 36 389 030

## 1. Introduction

Silica fumes MICROXIL and MICROXIL+ are finely dispersed powdered materials of a gray color. MICROXIL and MICROXIL+ consist of very small particles of amorphous silicon dioxide. The particles are of a spherical shape with a smooth surface and submicroscopic in diameter; thus, this material is highly puzzoulanic.

## 2. Production

Silica fumes MICROXIL and MICROXIL+ are by-products originating from the production of ferrosilicon and silicon metal in electric arc furnace (EAF). Fine-grained condensed fumes of silicon dioxide are collected by bag house filters in dedusting units.

## 3. Technical Parameters

### 3.1 Chemical Composition

Chemical Parameter	Value, w/w %
SiO <sub>2</sub>	≥ 79.99 [% w/w] for MICROXIL
SiO <sub>2</sub>	> 80,0 [% w/w] for MICROXIL+
Elementary Si	≤ 1.0 % [% w/w]
CaO	≤ 3.5 % [% w/w]
SO <sub>3</sub>	≤ 4.0 % [% w/w]
Na <sub>2</sub> O equiv.	≤ 8.0 % [% w/w]
Cl <sup>-</sup>	≤ 1.8 % [% w/w]
Loss on Ignition	≤ 4.0 % [% w/w]
Radiological Properties - Mass Activity Index	≤ 1.0 [-]
Bulk Density	0-800 kg/m <sup>3</sup>

### 3.2 Bulk Density

Bulk density of dry Silica fume MICROXIL and Silica fume MICROXIL+ in its original undensified form ranges from 0.0 - 450.0 kg/m<sup>3</sup>. The bulk density can also be tailored to the customer needs using pelletization which usually leads to the increase in bulk density to 450.0 - 800.0 kg/m<sup>3</sup>.



#### 4. Hygiene and Health Aspects

Hygiene and health aspects are in full detail included Chemical Safety Report (substance is registered under REACH regulation) and in the Product Safety Data Sheet on Silica fume MICROXIL and Silica fume MICROXIL+ namely in Chapter 11 Toxicological Effects on health, Chapter 8 Personal Protective Equipment for ensuring health & safety and Chapter 4 First-aid Measures. Avoid dust formation while handling the material. With using appropriate PPEs (overall, gloves, goggles and respiratory protection) and adhering to intended use, proper handling and storing in accordance with Technical Data Sheet and Product Safety Data Sheet for Silica fume MICROXIL and Silica fume MICROXIL+, the product does not pose a threat to human health.

#### 5. Control

The procedures for analyzing and control of Silica fume MICROXIL and Silica fume MICROXIL+ are included in the work procedures LAB-05/2007 and LAB-17/2006.

##### 5.1 Properties, Testing Methods and Minimum Testing Frequency under In-house Inspections:

Parameter	Testing Methods	Minimum Testing Frequency
SiO <sub>2</sub>	EN 196-2	Once a month
SiO <sub>2</sub>	EN 196-2	Once a month
Elementary Si	ISO 9286	Once a month
CaO	EN 451-1	Once a month
SO <sub>3</sub>	EN 196-2	Once a month
Na <sub>2</sub> O equiv.	EN 196-2	Once a month
Cl <sup>-</sup>	EN 196-2	Once a month
Loss on Ignition	EN 196-2	Once a month
Radiological Properties - Mass Activity Index	ISO 9277:2010	Once a year - externally
Bulk Density	PVS-09/2010	Once a year

#### 6. Storing

Store in the closed coverings (big-bags, bags, barrels, containers and silos). No special warehousing is needed when Silica fume MICROXIL and Silica fume MICROXIL+ are packed in a non-permeable packaging that protect this material from dampening and moisture. In the event that Silica fume MICROXIL and Silica fume MICROXIL+ are not packed in a non-permeable packaging, store in warehousing areas and bunkers which meet the criteria for covered and closed silos or for roofed dry areas (industrial charging bunkers).



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## 7. Packaging & Delivery

Silica fume MICROXIL and Silica fume MICROXIL+ is supplied in its original form or as a densified material (micropelletized). Avoid dampening material during transportation. For normal means of transport, such as road and railway transport, Silica fume MICROXIL and Silica fume MICROXIL+ are delivered in bulk in cisterns or in the closed containers. When packed in the closed big bags or in the other non-permeable packaging, Silica fume MICROXIL and Silica fume MICROXIL+ can also be transported in open vehicles.

## 8. Labeling

A delivery shall also include the product labeling according to delivery note or labeling on the cover which shall include the following:

- name of the manufacturer;
- production site;
- sort of material: MICROXIL/MICROXIL+;
- form of material when delivered;
- rec. no.;
- tonnage [kg, t];
- stamp and signature of the final inspection

## 9. Intended Use

- refractory manufacturing: bricks, tiles, dishes, sanitary ceramics, high-temperature clay tubes, refractory concrete, special types of concrete /non-shapeable aluminium-silicon refractories excluding using a silica fume as an Type II addition into concrete certified in accordance with EN 13263-1 +A1: 2009 and EN 13263-2 +A1: 2009;
- as an additive into silicon carbide (SiC) for manufacturing accessories for baking oven;
- preventing surfaces from wearing;
- manufacturing special ceramics;
- in the cement industry: raw material for clinker manufacturing;
- manufacturing fumes/clinkers including preparations - cement, hydraulic binders, low silo material with controlled properties, concrete (as a finished mixture or prefabricated), mortar, grout, excluding using a silica fume as an Type II addition into concrete certified in accordance with EN 13263-1 +A1: 2009 and EN 13263-2 +A1: 2009;
- as an additive into fillers for filling defects in wood, plaster, wall and for glass manufacturing;
- manufacturing tools for shaft drilling and for reinforcing walls in mines and quarries;
- manufacturing inorganic dyes;
- as an additive into monolithic refractory mixtures;



- manufacturing processing equipment in the chemical industry;
- fertilizers: silicon fertilizers in agriculture and as an additive against hardening of artificial fertilizers;
- manufacturing sealings, gaskets and plumbs, rubber materials and rubber materials with coatings and/or with chemical dyes;
- manufacturing elastic polymers, thermoplastics, plastics with coatings and/or with chemical dyes;
- manufacturing fillers, glues and adhesives;
- as an additive into refractory mixtures;
- manufacturing diluents, washing powders, detergents and plaster
- used by experts during construction works (for instance chemical used in the building industry, cement, hydraulic binder, low silo material with controlled properties, for example soil stabilization and melioration, mineral filler for asphalt pavement and asphalt products, sprayed concrete in tunnels), excluding using a silica fume as an Type II addition into concrete certified in accordance with EN 13263-1 +A1: 2009 and EN 13263-2 +A1: 2009;
- manufacturing base metals including alloys and alloys with coatings or chemical dyes;
- professional and consumer usage of glues and adhesives.

**In no event shall the manufacturer be liable for any damages arising from using, storing, warehousing, handling and transporting this product in a way that is in contradiction with the instructions included in the Technical Data Sheet.**