SILICA FUME - MIVASIL

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), is not persistent bio accumulative and toxic (PBT) or very persistent and very bio accumulative (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 453/2010 is not mandatory. This Product Safety Information (PIS) is a voluntary presentation of certain information that may assist the user in the handling of Mivasil.

1 IDENTIFICATION OF SUBSTANCE AND COMPANY

1.1 Product Identifier

- MIVASIL
- Microsilica®
- Silica fume
- Amorphous silica
- Silicon dioxide

Reach Reference No	01-2119486866-17-0025
CAS number	69012-64-2
EINECS number	273-761-1

1.2 Relevant identified uses of the substance and uses advised against

This product is used as additive in concrete, refractory products, sealants and adhesives. It is an additive in formulation of refractories and a raw material for clinker production.

No uses advised against.

1.3 Details of supplier/ manufacturer

Vargön Alloys AB
468 80 Vargön +46 521 277 300

www.vargonalloys.e

1.3.1 Name of contact person

Evalotta Stolt
Environment and Quality manager +46 521 27 73 37

1.4 Emergency telephone number

Call your local emergency hotline. 112 is the emergency number throughout Europe.

2 HAZARDS IDENTIFICATION

2.1 Classification of the substance

This product does not meet the criteria for hazard classification requirements of the current European legislation on classification and labelling that are applicable for substances.

2.2 Label elements

This product is not hazardous. Labelling is not required.

2.3 Other Hazards

If a significant amount of dust is generated, precautions should be taken to limit this exposure through normal control procedures.

Use appropriate protective equipment; eye-protection and gloves when handling the material directly and suitable respiratory protection where dust occurs.

3 COMPOSITION INFORMATION ON INGREDIENTS

Component	CAS Nr	EINECS/ELINCS	Amount (%)	Symbol	R-Phrases
Synthetic Amorphous Silica	69012-64-2	273-761-1	80-98	SiO_2	None
Iron oxide	1317-61-9	215-277-5	<10	Fe_2O_3	None
Aluminium oxide	1344-28-1	215-691-6	< 1,5	Al_2O_3	None
Calcium oxide	1305-78-8	215-138-9	< 0,7	CaO	None
Magnesium oxide	1309-48-4	215-171-9	< 2,0	MgO	None
Sodium oxide	1313-59-3	215-208-9	< 1,0	Na_2O	None
Potassium oxide	12136-45-7	235-227-6	< 3,0	K_2O	None
Carbon	7440-44-0	231-153-3	< 3,0	C	None

Other Components:
Remaining components of this product are proprietary, non-hazardous and/or are present at concentrations below reportable limits.

Additional Information:
Amounts indicated are typical and do not represent a specification.

4 FIRST AID MEASURES

4.1 Description of first aid measures

Move the person to fresh air - if respiratory problem persists, seek medical attention.

4.1.1 Inhalation

If mechanical irritation is caused by dust in the airways move the person to fresh air - if respiratory problem persists, seek medical attention.

4.1.2 Skin contact

Wash skin carefully with water and soap, then rinse the skin with water.

4.1.3 Eye contact

If mechanical irritation is caused by dust in the eyes, rinse eyes with plenty of water to remove dust. Seek medical attention if discomfort persists. Do not rub the eyes.

4.2 Most important symptoms and effects, both acute and delayed

This product may cause irritation symptoms like coughing and sore throat, reddening and heavy watering of the eyes. Skin contact may cause itching of the skin and dehydration.

4.3 Indication of any immediate medical attention and special treatment needed

No relevant information has been identified.

5 FIRE-FIGHTING MEASURES

5.1 Extinguishing media

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

5.2 Special hazards arising from the substance or mixture

Mivasil is not combustible.

5.3 Advice for fire-fighters

Mivasil is not combustible.

6 ACCIDENTAL RELEASE MEASURES

6.1 Personal precautions, protective equipment and emergency procedures

Eye protection and respirators should be worn were dust is a potential hazard. Gloves should be worn when handling this material because of the risk of contact with small very sharp particles.

6.2 Environmental precautions

Do not pour water on the scattered material or in the containers. Dispose in a way approved by the competent local authorities.

6.3 Methods and material for containment and cleaning up

Collect spillage in a closed container. Avoid excessive dust generation.
Mivasil should be vacuumed by using a spark proof vacuuming system rather than sweeper.

7 HANDLING AND STORAGE

7.1 Precautions for safe handling

Avoid generation of dust. Protective equipment, gloves and goggles, should be worn when handling the material. Suitable respiratory protection should be worn where dust occurs.

Avoid contact with acids like hydrofluoric acid (HF) which leads to formation of toxic gases such as silicon tetrafluoride (SiF_4).

7.2 Conditions for safe storage, including any incompatibilities

The product is stable in storage and should be kept dry and not below 0℃.

7.3 Specific end use(s)

See section 1.2 above.

8 EXPOSURE CONTROL / PERSONAL PROTECTION

8.1 Control parameters

8.1.1 National limit values

Users must always consult their national or regional regulatory authorities for advice on the current legal limits applicable to them. They should further check whether these limits are legally binding or only recommended guidelines.

Frequently used limit values for inhalable dust in Europe is

- eight hours 10 mg/m^3
- short term 20 mg/m^3 (Austria, Denmark and Germany)

National limit values for Sweden (AFS 2005:17)

Substance	**Limit value – NGV Total** (8 hours)	**Limit value – NGV Respirable** (8 hours)
Dust, total	10 mg/m^3	5 mg/m^3
Amorphous silica (SiO_2)	6 mg/m^3	3 mg/m^3
Crystalline silica (SiO_2)	-	0,1 mg/m^3

8.1.2 DNEL and PNEC

Proposal **of DNEL** *(Derived No Effect Level)*		**PNEC** *(Predict No Effect Concentration)*
Inhalable	Respirable	Not relevant
4 mg/m^3	0,3 mg/m^3	

8.2 National Exposure controls

8.2.1 Appropriate engineering controls

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

8.2.2 Individual protection measures, such as personal protective equipment

Always wash the hands after finishing work.

8.2.3 Eye/face protection

Goggles / face shield if dust is a hazard.

8.2.4 Skin

Long sleeves overalls; gloves for hands, where applicable.

8.2.5 Respiratory

If exposure is above the Occupational Health limits, suitable respiratory protection equipment approved by national authorities should be used.

8.2.6 Thermal hazards

Not identified.

8.2.7 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	Mivasil is an ultrafine powder. Colour varies from white to black depending on the carbon content. Average primary particle size (d50): 0,15µm forming larger agglomerates during handling (10-120 µm)
Odour	No odour
Odour threshold	Not applicable as there is no odour
pH	See solubility
Melting point	> 1500 ℃ (101,3 kPa)
Boiling point	Not relevant

Flash point	Not relevant
Evaporation rate	Not relevant
Flammability	Not flammable
Upper/lower flammability or explosive limits	Not relevant
Vapour pressure	Not relevant
Vapour density	Not relevant
Relative density	2,2 – 2,3 g/cm^3
Water solubility	1,3 ≤ 5.3 mg Si/l at pH 5,9-7,6 (20 ℃) 614 mg Si/l at pH 6,5 (OECD 105)
Partition coefficient: n-octanol/water	Not relevant
Auto-ignition temperature	Not relevant
Decomposition temperature	Not relevant
Viscosity;	Not relevant
Explosive properties;	No explosive properties
Oxidising properties	Not oxidizing properties

10 OTHER INFORMATION

10.1 Reactivity

The product is stable.

10.2 Chemical stability

The product is chemically stable under normal ambient and anticipated storage and handling conditions of temperature and pressure.

10.3 Possible hazardous reactions

Silica fume particles suspended in air may under certain conditions cause dust explosions.

A reaction with hydrofluoric acid (HF) leads to the formation of toxic gases such as silicon tetrafluoride (SiF_4).

10.4 Conditions to avoid

Avoid dust generating activities and avoid generating sparks and other ignition sources in areas with high dust concentrations.

10.5 Incompatible materials

The product is stable.

10.6 Hazardous decomposition products

Heating at above 1000℃ for prolonged time will con vert amorphous silica (SiO_2) to crystalline (SiO_2).

11 TOXILOGICAL INFORMATION

11.1 Information on toxicological effects

Mivasil is not classified as hazardous under the CLP Regulation (1272/2008/EC) or as dangerous under the Dangerous Substances Directive (67/548/EEC).

a. 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 on similar types of substances such as amorphous silica are utilised. As examples for the acute toxicity of amorphous silica LD50 = 5000 mg/kg/oral/rat, for synthetic silica LD50 = 5000mg/kg/dermal/ rabbit.

b. Skin corrosion/irritation

Skin contact may cause itching of the skin and dehydration.

c. Serious eye damage/irritation

This product may cause irritation symptoms of the eyes like reddening and heavy watering.

d. Respiratory or skin sensitization

No data are available on the sensitising potential. There are no data indicating a need for Mivasil to be classified as sensitising.

e. Chronic effects

Mivasil might contain trace amounts of respirable crystalline silica (<0,5%). Inhalation of Mivasil 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 health exposure limits.

f. Carcinogenicity

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

g. STOT-single exposure

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

h. STOT-repeated exposure

NOAEC; 1,3 mg/m3/rat
Based on available data, the classification criteria are not met.

i. Precautionary notes

Mivasil might contain trace amounts of respirable crystalline silica (<0,5%) and polycyclic aromatic hydrocarbons (PAH).

12 ECOLOGICAL INFORMATION

12.1 Toxicity

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

12.2 Persistence and degradability

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

12.3 Bio accumulative potential

No or very low potential for bio concentration and bioaccumulation.

12.4 Mobility in soil

Particulate silica is immobile in soil and sediment. Dissolved silica (and silicon) and all the metals within Mivasil are poorly volatile substances and partitions predominantly in the aquatic phase.

12.5 Results of PBT and vPvB assessment

Mivasil is an inorganic material and it is not classifiable as a PBT/vPvB substance.
Mivasil is not known to contain any >0,1 % or any <0,1 % PBT/vPvB impurities.

13 DISPOSAL CONSIDERATIONS

13.1 Waste treatment methods

Mivasil is not listed as hazardous waste in the European List of Waste (Commission Decision 2000/53 of 3 May 2000 and further amendments.

Disposal of waste should be undertaken by a licensed waste contractor in accordance with appropriate national and local regulations.

14 TRANSPORTATION INFORMATION

The material is not classified as hazardous for transport (ADR, RID, UN, IMO, IATA/ICAO).

15 REGULATORY INFORMATION

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

This Product Safety Information is prepared in compliance with

- Regulation (EC) No 1907/2006 for Registration, Evaluation, Authorisation of Chemicals (REACH).
- Regulation (EC) No 1272/2008 on the classification, labelling and packaging of substances and mixtures (CLP).
- Commission 453/2012/EC amending Regulation (EC) No 1907/2006 (SDS)
- Commission decision 2000/53 of 3 May 2000 establishing a list of waste pursuant (European List of Wastes)
- Directive 2008/50/EC on ambient air quality and cleaner air in Europe

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 20120 Guidance on the compilation of safety data sheets
- Lillicrap A. Assessment of the transformation/Dissolution (T/D) Data Generated for FeSi Norwegian Institute for Water Research. Lab. Testing Report nr 6025-20120, Serial nr O-10158 of March 2011.

Additional advice on specific questions can be obtained from Vargön Alloys AB