

1. Identification of the Substance/Preparation and Company

Product name: **Silgrain® Jetmilled**

Application of Silicon: Ceramic material and other industrial applications.

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Silicon Division
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Emergency Phone No.: Not applicable

2. Hazards Identification

The product does not represent a hazard to health, safety or environment when handled and stored as advised. See section 7.

Silicon-dust suspended in air may under certain conditions cause dust explosions. See section 10.

3. Composition/Information on Ingredients

Synonyms/Trade names: Silicon metal, Silgrain.
IUPAC Name: Silicon

CAS No.: 7440-21-3
EINECS No.: 231-130-8

HAZARDOUS INGREDIENT(S): None
Symbol: None
R and S Phrases: None

Constituents (analysis):

	Weight%
Silicon (Si)	96 – 99.9
Aluminium (Al)	0.05 – 1.0
Iron (Fe)	0.02 – 2.0
Calcium (Ca)	0.01 - 0.2
Oxygen (O)	0.01 - 5.0

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4. First Aid Measures

Inhalation: Irritation caused by dust: Fresh air.
Skin contact: Wash skin with water and/or a mild detergent.
Eye contact: Rinse eyes with water/saline solution. See a physician on persistent feeling of discomfort.
Ingestion: Remove the person affected from dust-exposed area. See inhalation.

5. Fire Fighting Measures

Extinguishing media: Dry sand, CO₂ or dry powder.

Lump silicon is not combustible. Dusts of silicon with particle diameter < 75 µm can be ignited and will propagate flame.

Silicon-dust suspended in air may under certain conditions cause dust explosions. See section 10.

6. Accidental Release Measures

Released material should be collected in suitable containers. Dry dust can be vacuumed or swept up.

7. Handling and Storage

Handling: Avoid handling that generates dust build-up. See section 8.
Avoid ignition sources (e.g. welding) in areas with high dust concentrations. Addition of wet material to molten metal may cause explosions. See section 10.
Storage: Keep product dry.

8. Exposure Controls/Personal Protection

A. Occupational exposure controls

Eye protection, eye flushing facilities and protective gloves. Ensure good ventilation. Wear a particulate respirator according to EN 149 FFP 2S in areas of inadequate ventilation.

Occupational Exposure Limits (HSE, EH40/2005):

	CAS number	8 hr TWA		10 minute STEL	
		ppm	mg/m ³	ppm	mg/m ³
Silicon	7440-21-3				
inhalable dust		-	10	-	-
respirable dust		-	4	-	-

B. Environmental exposure controls

See Section 6, 7 and 12.

Limit values ambient air (Directive 1999/30/EC):

	Averaging time	Limit value
PM ₁₀ ★	24 Hrs	50 µg/m ³
PM ₁₀	Calendar year	40 µg/m ³

★ not to be exceeded more than 35 times a calendar year

9. Physical and Chemical Properties

Structure	: Crystalline
Form	: Powder. Grain fractions ($\leq 75 \mu\text{m}$).
Colour	: Silvery material.
Odour	: Odourless.
Solubility (Water)	: Insoluble/slightly soluble.
Melting Point ($^{\circ}\text{C}$)	: Approx. 1410

10. Stability and Reactivity

Silicon is insoluble in most acids, but dissolves in a mixture of hydrofluoric acid (HF) and nitric acid (HNO_3) evolving hazardous gases. Impurities present in silicon (e.g. Al and Ca) may react with dilute acids evolving hazardous gases (see below).

Silicon dissolves readily in dilute lye.

Conditions to avoid:

Avoid generating sparks or other ignition sources (e.g. welding) in areas with high dust concentrations. Silicon-particles suspended in air at concentrations above 100 g/m^3 can cause dust explosions. Both ignition sensitivity and the violence of explosion increase with decreasing particle size. Silicon dust with particle diameter $> 40 \mu\text{m}$ probably entails no danger of explosion. Ignition temperature (warm surface) $\geq 800 \text{ }^{\circ}\text{C}$.

Addition of wet material to molten metal may cause explosions.

Materials to avoid:

Acids (see below).

Hazardous decomposition products:

A reaction with hydrofluoric acid (HF) and nitric acid (HNO_3) leads to the formation of toxic gases such as silicon tetrafluoride (SiF_4) or nitrous gases (NO_x). Impurities in silicon may react with dilute acids forming flammable and harmful gases such as hydrogen (H_2) and silane (SiH_4).

Wet product will form flammable hydrogen gas if added to molten metal, due to decomposition of water.

11. Toxicological Information

Acute effects:

Inhalation:	Dust may irritate and dehydrate mucous membranes.
Skin contact:	Dust may irritate and dehydrate skin.
Eye contact:	Dust may irritate and lead to dryness.
Ingestion:	Dust may irritate and dehydrate mucous membranes.

Chronic effects: No chronic effects known.

12. Ecological Information

Silicon powder is not characterised as dangerous for the environment.

MOBILITY: Silicon metal has poor mobility under normal environmental conditions.
PERSISTENCE: Not relevant for metals.
BIOACCUMULATION: Not relevant, due to low mobility and non-dispersive use.
ECO-TOXICITY: LC₅₀/LD₅₀: Not determined. Hardly relevant for inorganic, insoluble substances.

13. Disposal Considerations

The material should be recovered for recycling where possible.
Waste from the product is not considered as hazardous waste according to Commission Decisions 2000/532/EC and 2001/118/EC.
Prior to disposal of large quantities of this material, advice should be sought from the nearest Environment Agency.

14. Transport Information

UN no.	None.
IMDG-Kode:	Not subject to classification.
ICAO/IATA:	Not subject to classification.
ADR/RID:	Not subject to classification.

15. Regulatory Information

Product classification and labelling:

Symbol:	Not subject to classification.
R-phrases:	None.
S-phrases:	None.

The text of this Safety Data Sheet is prepared in compliance with:

- Commission Directive 2001/58/EC and 1999/45/EC.

- 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).

16. Other Information

Literature references are available upon application to the manufacturer.