
1. Identification of the Substance/Preparation and Company

Product name:	Silicon Secondary, Slag
Application of Silicon:	<ul style="list-style-type: none">- Manufacture of basic metals, incl. alloys.- Alloying of steel melts: steel industry.- Raw material in the production of SiMn alloys.- Other industrial applications.
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2. Hazards Identification

Classification of the substance:	The product does not meet the criteria for hazard classification in accordance with Directive 1999/45/EC (DPD) and Regulation (EC) No 1272/2008 (CLP).
Hazard symbol/Hazard pictogram:	N/A (not applicable)
Symbol letter/Indication of danger:	N/A (not applicable)
Signal word:	N/A (not applicable)
R-/H-phrases:	N/A (not applicable)
S-/P-phrases:	N/A (not applicable)

Flammable and noxious gases may be formed in contact with moisture, acids or bases. See section 10 and 11. Depending on the composition, dust from the products if suspended in air might under certain conditions cause dust explosions. See section 10.

3. Composition/Information on Ingredients

Compound	CAS No.	EINECS No.	REACH Reg. No.	Weight-%	Hazard classification	
					Directive 67/548/EEC (DSD)	Regulation (EC) No. 1272/2008 (CLP)
Slag (Silicon and SiO ₂)	102110-59-8	310-060-2	01-2119486867-15-0008	10-90	Not classified	Not classified
Silicon*	7440-21-3	231-130-8	01-2119480401-47-0015	10-90	Not classified	Not classified

*This PSI is based on the Chemical Safety Reports of Si/FeSi silicate (Slags, electric furnace smelting silicate, an UVCB substance) and of Silicon made according to the substance qualities covered by their respective registration dossier under REACH.

4. First Aid Measures

Inhalation: Mechanical irritation caused by dust: Fresh air. See a physician on persistent feeling of discomfort.

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.

Special hazards arising from the mixture

Specific fire & explosion hazards: Flammability test and contact with water test under REACH (EC guideline) show the product to be non flammable and not flammable in contact with water.

However, addition of water or wet material to molten (hot) product may cause explosion due to formation of flammable hydrogen gas, depending on the fraction of metallic material in the product.

6. Accidental Release Measures

Material in the form of dust should be collected in suitable containers. Damp product must be kept away from dry, and must not be collected and stored in closed containers. Dry dust can be vacuumed or swept up.

7. Handling and Storage

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

Storage: The products must be kept in a well-ventilated place, and away from acids and bases.

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.



National Occupational Exposure Limits (OEL) have to be adhered.

B. Environmental exposure controls

Target value and limit value for PM₁₀ and PM_{2.5} (Directive 2008/50/EC):

	Averaging period	Limit value	By date
PM ₁₀	One day	50 µg/m ³ *	1 January 2005
PM ₁₀	Calendar year	40 µg/m ³	1 January 2005
		Target value	
PM _{2,5}	Calendar year	25 µg/m ³	1 January 2010
		Limit value	
PM _{2,5}	Calendar year	25 µg/m ³	1 January 2015

* Not to be exceeded more than 35 times a calendar year.

9. Physical and Chemical Properties

Form	Lump material including fines.
Appearance	Solid material with two distinct compounds; one mix of silicates and one metal phase.
Colour	The silicate mix is grey/green, the metal phase is silvery grey.
Odour :	Odourless.
pH :	See solubility.
Solubility (Water)	2.6 µg Si/L at pH 5.7-5.9 (20°C) silicate; diameter < 1 mm. Silicon (Si): Insoluble/Poorly soluble particles (PSP).
Melting point/ Freezing point:	1414 °C (101,3 kPa) for Silicon. 1150-1450 °C (101,3 kPa) for silicate .
Initial boiling point/range	2355-3265 °C (101.3 kPa) for Silicon. NA for silicate.
Flammability(solid, gas)	Non flammable.
Auto-ignition temperature	> 400 °C at 101.3 kPa for Silicon.
Temperature	NA for silicate.

10. Stability and Reactivity

Silicon is insoluble in most acids, but dissolves in a mixture of hydrofluoric acid (HF) and nitric acid (HNO₃) 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/m³ can cause dust explosions. Both ignition sensitivity and the violence of explosion increase with decreasing particle size. Silicon dust with particle diameter > 40 µm probably entails no danger of explosion. Ignition temperature (warm surface) ≥ 800 °C. Addition of wet material to molten (hot) metal may cause explosions.

Materials to avoid:

Acids and bases.

Hazardous decomposition products:

A reaction with hydrofluoric acid (HF) and nitric acid (HNO₃) leads to the formation of toxic gases such as silicon tetrafluoride (SiF₄) or nitrous gases (NO_x). Impurities in silicon may react with dilute acids forming flammable and harmful gases such as hydrogen (H₂) and silane (SiH₄).

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

11. Toxicological Information

The product does not meet the criteria for hazard classification according to Directive 1999/45/EC (DPD) and Regulation (EC) No1272/2008 (CLP).

Acute effects:

Inhalation:	Finely divided dust may irritate and dehydrate mucous membranes.
Skin contact:	Dust may irritate the 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

The product is not characterised as dangerous for the environment.

Mobility:	The product has poor mobility under normal environmental conditions.
Persistence:	Not relevant.
Bioaccumulation:	Not relevant, due to low mobility and non-dispersive use.
Eco-Toxicity:	The product does not meet the classification criteria for ecotoxicological endpoints in accordance with Directive 1999/45/EC (DPD) and Regulation (EC) 1272/2008 (CLP).

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-Code:	Not subject to classification.
ICAO/IATA:	Not subject to classification.
ADR/RID:	Not subject to classification.

Environmental hazards

The product is not considered to cause harm to aquatic organisms (Lillicrap, 2011). The product is not marine pollutant.

15. Regulatory Information

A chemical safety assessment (CSA) has been carried out for the substance in accordance with Regulation (EC) 1907/2006 (REACH).

The text of this Product Safety Information is prepared in compliance with:

- 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) and subsequent amendments.
- Regulation (EC) No 1272/2008 (CLP) of the European Parliament and of the Council of 16 December 2008 on Classification, Labelling and Packaging of substances and mixtures, amending and repealing Directives 67/548/EEC and 1999/45/EC, and amending Regulation (EC) No 1907/2006 (REACH).

Chemical Safety Assessments for the two individual ingredients; silicate (EC 310-060-2) and Silicon (EC 231-130-8) of the Silicon (Si) slag have been carried out according to REACH.

16. Other Information

According to Chapter 1.5.2 of the UN Globally Harmonized System of Classification and Labelling of Chemicals (GHS), Article 58 (2)(a), and Article 59(2)(b) of (EC) No 1272/2008 (CLP), which amends REACH article 31(1), safety data sheets (SDS) are only required for substances and mixtures that meet the harmonised criteria for physical, health or environmental hazards. Since this product does not meet these criteria, a SDS according to 453/2010/EC is not issued. In order to communicate relevant HSE (health, safety and environmental) information, this product safety information (PSI) is provided instead.

In accordance with REACH article 31(5), safety data sheets shall be supplied in an official language of the Member State(s) where the substance or mixture is placed on the market. This obligation, however, only applies for hazard-classified products which require a formal SDS. Since this product is not hazard-classified, the product safety information (PSI) is, in accordance with current regulation, provided in English language only.

REACH article 31(7) requires relevant exposure scenarios from the Chemical Safety Report (CSR) to be annexed to the SDS. However, according to REACH Annex I, section 0. (Introduction), subsection 0.6. no 4 and 5, exposure scenarios are only required for hazard-classified substances or mixtures. Since this product is not hazard-classified according to CLP, there is no requirement for exposure scenarios.

Legal Disclaimer:

The information given in this sheet is to the best of our knowledge and believed accurate and reliable as of the date indicated. However, no representation, warranty or guarantee is made to its accuracy, reliability or completeness. It is the user's responsibility to satisfy himself as to the suitability and completeness of such information for his own particular use.