

1. Identification of the Substance/Preparation and Company

Product name: ***Ferrosilicon alloy ovoids/briquettes***

Application: Additive to metal in iron foundries

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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.

Flammable and noxious gases may be formed in contact with moisture, acids or bases. See section 10 and 11.

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

3. Composition/Information on Ingredients

Synonyms/Trade names: FeSi alloy/metallic alloy, metaloxides and -hydroxides
CAS No.: 8049-17-0 (Ferrosilicon)

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

Constituents (analysis):	Silicon (Si)	Weight%
	Iron (Fe)	40 – 75
	Portland cement (binder)	Rest
		< 10

4. First Aid Measures

Inhalation: 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.

Ferrosilicon Ovoids/Briquettes are not combustible.

FeSi-dust suspended in air may under certain conditions cause dust explosions (see section 10).

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. Ferrosilicon Ovoids/Briquettes are not dangerous for the environment.

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 may cause explosions. See section 10.

Storage: Store in a dry and 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.

Occupational Exposure Limits (HSE, EH40/amendment 2007):

	CAS-number	8 hr TWA		10 minute STEL	
		ppm	mg/m ³	ppm	mg/m ³
Inhalable dust	-	-	10	-	-
Respirable dust	-	-	4	-	-

Elkem has devised a procedure (1994) for sampling and measuring of the workplace atmosphere.

B. Environmental exposure controls

See Sections 6, 7 and 12.

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
PM _{2.5}	Calendar year	Target value 25 µg/m ³	1 January 2010
PM _{2.5}	Calendar year	Limit value 25 µg/m ³	1 January 2015

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

9. Physical and Chemical Properties

Form: Ovoids or Briquettes. There may be some dust present.
Colour: Grey.
Odour: Odourless.
Solubility (Water): Insoluble/slightly soluble.
Melting Point (°C): > 1000
Specific Gravity: > 3 (water = 1)

10. Stability and Reactivity

Conditions to avoid:

Avoid generating sparks and other ignition sources (e.g. welding) in areas with high dust concentrations. FeSi-particles suspended in air at concentrations above 100-300 g/m³ can cause dust explosions. For a given particle size, the ignition sensitivity and the violence of explosion decrease with decreasing Si/Fe ratio. Dust with Si/Fe ratio ≤ 2 and particle diameter >10 μm , is considered not to represent any danger of explosion.
Addition of wet material to molten metal may cause explosions.

Materials to avoid:

Water/humidity, acids and bases.

Hazardous decomposition products:

A reaction with hydrofluoric acid (HF) or nitric acid (HNO₃) leads to the formation of toxic gases such as silicon tetrafluoride (SiF₄) or nitrous gases (NO_x).

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

11. Toxicological Information

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.

Chronic effects:

No adverse chronic effects expected, based on both practical experience and review of available scientific literature. Historic, epidemiological studies covering cohorts of workers in the Norwegian ferro-alloy industry have been carried out.

12. Ecological Information

The product is not characterised as dangerous for the environment.

MOBILITY: Negligible mobility under normal environmental conditions.
PERSISTENCE: Not relevant for the elements in the product.
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.	1408
IMDG-code ¹⁾	Not assigned to class 4.3
ICAO/IATA ¹⁾	Not assigned to class 4.3
ADR/RID ¹⁾	Not assigned to class 4.3

- 1) Consignments of ferrosilicon with a chemical analysis as described in section 2 has been tested according to "United Nations Recommendations on the Transport of Dangerous Goods, Manual of Test and Criteria Part III - 33.4.1.4" and has passed the test. Consequently, the product is not classified as a Class 4.3 product.

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 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.