

1. Identification of the substance/mixture and of the company/undertaking**1.1. Product identifier**Product name: **Superseed® (all grades)**

Synonyms/Trade names: SrFeSi, Ferrosilicon strontium, cast alloys.

REACH registration number: 01-2119485286-28-0033 (FeSi)
01-2120734308-55-0000 (Strontium)**1.2. Relevant identified uses of the substance or mixture and uses advised against.**

Product application: Additive to metal in iron foundries.

1.3. Details of the supplier of the safety data sheetAddress/Phone No.: **Elkem ASA, Silicon Products**P.O. Box 334 Skøyen
N-0213 Oslo, Norway
Telephone: + 47 22 45 01 00

Contact:

[https://www.elkem.com/silicon-products/
support.siliconproducts@elkem.com](https://www.elkem.com/silicon-products/support.siliconproducts@elkem.com)REACH and CLP helpdesk: <https://echa.europa.eu/support/helpdesks/>**1.4. Emergency telephone number**<https://poisoncentres.echa.europa.eu/home>USA: Poison Help (AAPCC): 1-800-222-1222 & PoisonHelp.org
United Kingdom: Contact your GP or NHS 111 on 111 (for 24 hour health advice).**2. Hazards identification****2.1. Classification of the substance or mixture.**

Classification according to Regulation (EC) No. 1272/2008 [EU CLP] and the UN GHS:

Repr. 1B (H360D): May damage the unborn child.

2.2. Label elements

Hazard pictograms:



Signal word: Danger

Hazard statements:

H360D: May damage the unborn child.

Precautionary statements:

P201:	Obtain special instructions before use.
P202:	Do not handle until all safety precautions have been read and understood.
P280:	Wear protective gloves/protective clothing/eye protection/dust mask.
P405:	Store locked up.
P501:	Dispose of contents/container in accordance with local/national regulations.

2.3. Other hazards

Flammable and noxious gases may be formed in contact with moisture, acids or bases. See section 10 and 11. SrFeSi-dust suspended in air may under certain conditions cause dust explosions. See section 10.

3. Composition/information on ingredients

3.2. Mixture

Substance	Symbol	CAS No.	EC No.	Weight %
Ferrosilicon	FeSi	8049-17-0	912-631-7	Approx. 99
Strontium	Sr	7440-24-6	231-133-4	0.5 – 1.7

4. First aid measures

4.1. Description of first aid measures

Inhalation:	Irritation caused by dust: Fresh air. See a physician on persistent feeling of discomfort. Phosphine/arsine intoxication: Seek medical attention. See section 11.
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.

4.2. Most important symptoms and effects, both acute and delayed

May cause mechanical irritation. See section 11 for more information.

4.3. Indication of any immediate medical attention and special treatment needed

Treat symptomatically (see 4.1).

5. Firefighting measures

5.1. Extinguishing media: Dry sand, CO₂ or dry powder.

5.2. Special hazards arising from the substance or mixture:

The product in form of lumps is not combustible.

5.3. Advice for firefighters:

Wear self-contained breathing apparatus for firefighting if necessary.

6. Accidental release measures

6.1. Personal precautions, protective equipment and emergency procedures

Avoid handling that generates build-up of dust.

6.2. Environmental precautions

Material in the form of dust should be collected in suitable containers.

6.3. Methods and material for containment and cleaning up

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.

6.4. Reference to other sections

See section 8 and 13.

7. Handling and storage

7.1. Precautions for safe handling

7.1.1.

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

7.1.2.

Do not eat, drink or smoke at the workplace. Wash hands after handling and remove contaminated clothes before entering the dining room.

7.2. Conditions for safe storage, including any incompatibilities

Superseed® must be kept in a dry and well-ventilated place, and away from acids and bases.

7.3. Specific end use(s): -

8. Exposure controls / personal protection

8.1. Control parameters

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. If exposure to phosphine and arsine is suspected (see section 10) in areas of poor ventilation (e.g. storage holds, bunkers, etc.), a self-contained breathing apparatus or an air fed respirator should be worn.

8.2. Exposure controls

Personal protection equipment



Occupational Exposure Limits (HSE, EH40/2005):

	CAS-number		8 hr TWA	10 minute STEL	
		ppm	mg/m ³	ppm	mg/m ³
Total inhalable dust	-	-	10	-	-
Respirable dust	-	-	4	-	-
Phosphine gas (PH ₃)	7803-51-2	-	-	0.3	0.42
Arsine gas (AsH ₃)	7784-42-1	0.05	0.16	-	-

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

The low occupational exposure limit for arsine gas is due to the evidence for carcinogenicity in humans of inorganic arsenic compounds in general (IARC).

The OEL for dust does not cover possible arsine/phosphine absorption from dust deposited on mucous membranes.

Environmental exposure controls

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

	Averaging period	Limit value
PM ₁₀	One day	50 µg/m ³ ★
PM ₁₀	Calendar year	25 µg/m ³
PM _{2.5}	Calendar year	15 µg/m ³

★Not to be exceeded more than 30 times a calendar year.

9. Physical and chemical properties

9.1. Information on basic physical and chemical properties

Form	: Lump material. Sieve fractions.
Colour	: Silvery grey, metallic surface.
Odour	: Odourless.
Solubility	: Insoluble/slightly soluble.
Melting Point (°C)	: Approx. 1300
Specific Gravity (water = 1)	: Approx. 2.8

9.2. Other information

No other information.

10. Stability and reactivity

10.1. Reactivity: Stable under normal conditions.

10.2. Chemical stability: Stable under normal conditions.

10.3. Possibility of hazardous reactions:

Addition of wet material to molten metal may cause explosions.

10.4. Conditions to avoid:

Avoid generating sparks or other ignition sources (e.g. welding) in areas with high dust concentrations. 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 $> 10 \mu\text{m}$ is considered not to represent any danger of explosion.

10.5. Incompatible materials:

Water/humidity, acids and bases

10.6. Hazardous decomposition products:

Highly flammable hydrogen gas (H₂) and the highly flammable and very toxic gases phosphine and arsine (garlic-like smell), both heavier than air, may be formed if the product gets in contact with moisture, acids or bases. 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.

Phosphine (PH₃) gas may accumulate in inadequate ventilated/closed containers during shipment and storage, and in these cases special measures are needed during initial opening and unloading of containers (see sections 7 and 8).

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).

11. Toxicological Information

11.1. Information on toxicological effects

Acute toxicity: No hazard classification.

No hazard classification. Dust may cause mechanical irritation.

Inhalation: Finely divided dust may irritate and dehydrate mucous membranes. Phosphine/arsine may be absorbed from dust deposited on mucous membranes. Containers: Phosphine/arsine may be inhaled inside and close to newly opened inadequate ventilated containers. Phosphine irritates exposed mucous membranes, depresses the central nervous system (CNS) and can cause oedema of the lungs. Acute, non-fatal poisoning with phosphine gives temporary effects, among others headache, malaise, vomiting, stomach pains, cough, and difficulty in breathing.

Skin contact: Dust may irritate the skin.

Eye contact: Dust may irritate and lead to dryness.

Continues next page

Skin corrosion/irritation:	No hazard classification. Dust may cause mechanical irritation.
Serious eye damage/irritation:	No hazard classification. Dust may cause mechanical irritation.
Respiratory or skin sensitisation:	No hazard classification. Dust may cause mechanical irritation of mucous membranes.
Mutagenicity:	No hazard classification.
Carcinogenicity:	No hazard classification.
Reproductive toxicity:	May damage the unborn child.
STOT-single exposure:	No hazard classification.
STOT-repeated exposure:	No hazard classification.
Aspiration hazard:	No hazard classification.

11.2. Information on other hazards

11.2.1. Endocrine disrupting properties

The product is not identified as having endocrine disrupting properties in accordance with the criteria set out in Commission Delegated Regulation (EU)2017/2100 or Commission Regulation (EU)2018/605.

11.2.1. Other hazards: -

12. Ecological Information

12.1. Ecotoxicity:

The product does not meet the classification criteria for ecotoxicological endpoints in accordance with Regulation (EC) 1272/2008 (CLP) and the UN Globally Harmonized System of Classification and Labelling of Chemicals (GHS, 10th rev.).

12.2. Persistence and degradability:

Not relevant for inorganic substances.

12.3. Bioaccumulative potential:

Not relevant.

12.4. Mobility in soil:

The product is not mobile under normal environmental conditions.

12.5. Results of PBT and vPvB assessment:

Not relevant for inorganic compounds.

12.6. Endocrine disrupting properties:

The product is not identified as having endocrine disrupting properties in accordance with the criteria set out in Commission Delegated Regulation (EU)2017/2100 or Commission Regulation (EU)2018/605.

12.7. Other adverse effects:

None.

13. Disposal Considerations

13.1. Waste treatment methods

The product should be recovered for recycling if possible.

This material is not classified 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 relevant Waste Regulation Authority.

13.1.1. Product/packaging disposal:

Empty containers should be taken to an approved waste handling site for recycling or disposal. Do not re-use empty containers.

13.1.2. Waste treatment-relevant information:

Where possible recycling is preferred to disposal or incineration. If recycling is not practicable, dispose of in compliance with local regulations. Dispose of wastes in an approved waste disposal facility.

13.1.3. Sewage disposal-relevant information:

The product should not be allowed to enter drains water courses or the soil.

13.1.4. Other disposal recommendations: -

14. Transport information

UN no.: 1408
IMDG-code¹⁾: Not assigned to class 4.3*
ICAO/IATA¹⁾: Not assigned to class 4.3
ADR/RID¹⁾: Not assigned to class 4.3

* Substances which in contact with water emit flammable gases.

¹⁾ Consignments of ferrosilicon with a chemical analysis as described in section 3 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.

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

15. Regulatory Information

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

National and international legislation/requirements:

This Safety Data Sheet is prepared in compliance with Regulation (EC) 1907/2006 (REACH), Regulation (EC) 1272/2008 (CLP) and Regulation (EU) 2020/878 (Safety Data Sheet Regulation).

15.2. Chemical safety assessment:

A Chemical Safety Assessment (CSA) according to REACH has been carried out for FeSi alloys and for strontium.

16. Other Information

(i) Indication of changes:

(ii) Abbreviations and acronyms:

CAS No: Chemical Abstracts Service number
CE: Conformité Européene (Key indicator of a product's compliance with EU legislation)
CLP: Classification, Labelling and Packaging Regulation
CSA: Chemical Safety Assessment
CSR: Chemical Safety Report
EC: European Commission
ECHA: European Chemicals Agency
EINECS: European Inventory of Existing Commercial Chemical Substances
IMDG: International Maritime Dangerous Goods Code
ADR: The European Agreement concerning the International Carriage of Dangerous Goods by Road
RID: Regulations concerning the International Carriage of Dangerous Goods by Rail
ICAO: International Civil Aviation Organization
IATA: International Air Transport Association
N/A: Not applicable
PM₁₀: Particulate matter which passes through a size-selective inlet as defined in the reference method for the sampling and measurement of PM₁₀, EN 12341, with a 50 % efficiency cut-off at 10 µm aerodynamic diameter.
PM_{2.5}: Particulate matter which passes through a size-selective inlet as defined in the reference method for the sampling and measurement of PM_{2.5}, EN 14907, with a 50 % efficiency cut-off at 2.5 µm aerodynamic diameter.
PNEC: Predicted No-Effect Concentration
PBT: Persistent, Bioaccumulative and Toxic
REACH: Registration, Evaluation and Authorisation of Chemicals
vPvB: Very Persistent and very Bioaccumulative
SDS: Safety Data Sheet
TLV: Threshold Limit Value
TWA: Time-Weighted Average
STEL: Short-term exposure limit
UN: United Nations

(iii) Key literature references and sources for data:

Literature references are available upon request.

(iv) Classification and procedure used to derive the classification for mixtures according to Regulation (EC) 1272/2008 [CLP]:

- Expert judgement.

(v) Relevant H-statements:

H360D: May damage the unborn child.

(vi) Training advice:

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(vii) Further information: