

FERROSILICON

Safety Data Sheet SIF4910.0

Date of issue: 23/05/2016 Version: 1.0

SECTION 1: Identification of the substance/mixture and of the company/undertaking**1.1. Product identifier**

Product form	: Substance
Physical state	: Solid
Substance name	: FERROSILICON
Product code	: SIF4910.0
Formula	: FeSi ₂
Synonyms	: IRON SILICIDE
Chemical family	: INORGANIC SILICATE

1.2. Relevant identified uses of the substance or mixture and uses advised against**1.2.1. Relevant identified uses**

Use of the substance/mixture : Chemical intermediate

1.2.2. Uses advised against

No additional information available

1.3. Details of the supplier of the safety data sheet**GELEST, INC.**11 East Steel Road
Morrisville, PA 19067**USA**

T 215-547-1015 - F 215-547-2484 - (M-F): 8:00 AM - 5:30 PM EST

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info@gelestde.com - www.gelestde.com**1.4. Emergency telephone number**

Emergency number : CHEMTREC: 1-800-424-9300 (USA); +1 703-527-3887 (International)

SECTION 2: Hazards identification**2.1. Classification of the substance or mixture****Classification according to Regulation (EC) No. 1272/2008 [CLP]**

Substances and Mixtures which, in contact with water, emit flammable gases, Category 3 H261

Acute toxicity (inhalation:dust,mist) Category 3 H331

Full text of H statements : see section 16

Adverse physicochemical, human health and environmental effects

No additional information available

2.2. Label elements**Labelling according to Regulation (EC) No. 1272/2008 [CLP]**

Hazard pictograms (CLP) :



GHS02

GHS06

Signal word (CLP) :

: Danger

Hazard statements (CLP) :

: H261 - In contact with water releases flammable gases.
H331 - Toxic if inhaled.

Precautionary statements (CLP) :

: P280 - Wear protective gloves/protective clothing/eye protection/face protection.

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P231+P232 - Handle under inert gas. Protect from moisture.
P261 - Avoid breathing dust.
P271 - Use only outdoors or in a well-ventilated area.
P304+P340 - IF INHALED: Remove person to fresh air and keep comfortable for breathing.
P311 - Call a doctor.

2.3. Other hazards

No additional information available

SECTION 3: Composition/information on ingredients

3.1. Substances

Substance type : Mono-constituent
Name : FERROSILICON
CAS-No. : 8049-17-0

Name	Product identifier	%	Classification according to Regulation (EC) No. 1272/2008 [CLP]
Ferrosilicon	(CAS-No.) 8049-17-0 (EC-No.) 617-088-7	97 - 100	Water-react. 3, H261 Acute Tox. 3 (Inhalation), H331

Full text of H-statements: see section 16

3.2. Mixtures

Not applicable

SECTION 4: First aid measures

4.1. Description of first aid measures

First-aid measures general : Remove contaminated clothing and shoes. In case of accident or if you feel unwell, seek medical advice immediately (show the label where possible). If possible show this sheet; if not available show packaging or label.

First-aid measures after inhalation : Remove person to fresh air and keep comfortable for breathing. If you feel unwell, seek medical advice.

First-aid measures after skin contact : Wash with plenty of water/.... Get medical advice/attention.

First-aid measures after eye contact : Immediately flush eyes thoroughly with water for at least 15 minutes. Remove contact lenses, if present and easy to do. Continue rinsing. Get medical advice/attention.

First-aid measures after ingestion : Never give anything by mouth to an unconscious person. Get medical advice/attention.

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

Symptoms/effects after inhalation : Toxic if inhaled. Danger of serious damage to health by prolonged exposure through inhalation. May cause irritation to the respiratory tract.

Symptoms/effects after skin contact : May cause skin irritation. May be harmful in contact with skin.

Symptoms/effects after eye contact : May cause eye irritation.

Symptoms/effects after ingestion : May be harmful if swallowed.

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

No additional information available

SECTION 5: Firefighting measures

5.1. Extinguishing media

Suitable extinguishing media : Not combustible.

Unsuitable extinguishing media : Do not use straight streams.

5.2. Special hazards arising from the substance or mixture

Fire hazard : In contact with water releases flammable gases.

5.3. Advice for firefighters

Protection during firefighting : Do not enter fire area without proper protective equipment, including respiratory protection. Avoid contact with skin and eyes. Do not breathe dust.

SECTION 6: Accidental release measures

6.1. Personal precautions, protective equipment and emergency procedures

6.1.1. For non-emergency personnel

Protective equipment : Wear protective equipment as described in Section 8.

Emergency procedures : Evacuate unnecessary personnel.

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6.1.2. For emergency responders

Protective equipment : Do not attempt to take action without suitable protective equipment. Equip cleanup crew with proper protection. For further information refer to section 8: "Exposure controls/personal protection".

6.2. Environmental precautions

Prevent entry to sewers and public waters. Notify authorities if product enters sewers or public waters.

6.3. Methods and material for containment and cleaning up

For containment : Contain any spills with dikes or absorbents to prevent migration and entry into sewers or streams.

Methods for cleaning up : Sweep or shovel spills into appropriate container for disposal.

6.4. Reference to other sections

See Heading 8. Exposure controls and personal protection.

SECTION 7: Handling and storage

7.1. Precautions for safe handling

Additional hazards when processed : While not flammable, the ability of particles to generate static charge may present a hazard when used in combination with flammable liquids.

Precautions for safe handling : Avoid contact with skin and eyes. Do not breathe dust. Avoid dust formation. Handle under inert gas. Protect from moisture. Use only outdoors or in a well-ventilated area.

Hygiene measures : Wash contaminated clothing before reuse. Wash hands and other exposed areas with mild soap and water before eating, drinking or smoking and when leaving work.

7.2. Conditions for safe storage, including any incompatibilities

Storage conditions : Keep container tightly closed. Store locked up. Store in a dry place. Store in a closed container.

Incompatible materials : Acids.

Storage area : Store in a well-ventilated place. Store away from heat.

7.3. Specific end use(s)

No additional information available

SECTION 8: Exposure controls/personal protection

8.1. Control parameters

Ferrosilicon (8049-17-0)		
USA OSHA	OSHA PEL (TWA) (mg/m ³)	10 mg/m ³ total dust

8.2. Exposure controls

Appropriate engineering controls:

Handle in an enclosing hood with exhaust ventilation.

Personal protective equipment:

Avoid all unnecessary exposure. Emergency eye wash fountains and safety showers should be available in the immediate vicinity of any potential exposure.

Hand protection:

Neoprene or nitrile rubber gloves

Eye protection:

Chemical goggles. Contact lenses should not be worn

Skin and body protection:

Wear suitable protective clothing

Respiratory protection:

Where exposure through inhalation may occur from use, respiratory protection equipment is recommended. NIOSH-certified dust and mist (orange cartridge) respirator.

SECTION 9: Physical and chemical properties

9.1. Information on basic physical and chemical properties

Physical state : Solid

Appearance : Coarse. Powder.

Molecular mass : 112.02 g/mol

Colour : Silver-gray.

Odour : No data available

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Odour threshold	: No data available
Refractive index	: No additional information available
pH	: No data available
Relative evaporation rate (butylacetate=1)	: No data available
Melting point	: 1360 °C
Freezing point	: No data available
Boiling point	: No data available
Flash point	: No data available
Auto-ignition temperature	: No data available
Decomposition temperature	: No data available
Flammability (solid, gas)	: No data available
Vapour pressure	: < 0.01 mm Hg @ 20°C
Relative vapour density at 20 °C	: No data available
Relative density	: 4.75
% Volatiles	: 100 %
Solubility	: Insoluble in water.
Log Pow	: No data available
Log Kow	: No data available
Viscosity, kinematic	: No data available
Viscosity, dynamic	: No data available
Explosive properties	: No data available
Oxidising properties	: No data available
Explosive limits	: No data available

9.2. Other information

No additional information available

SECTION 10: Stability and reactivity

10.1. Reactivity

No additional information available

10.2. Chemical stability

Stable.

10.3. Possibility of hazardous reactions

Dry mixtures with sodium hydroxide react incandescently when water is added. Reacts with acids liberating hydrogen.

10.4. Conditions to avoid

No additional information available

10.5. Incompatible materials

Acids.

10.6. Hazardous decomposition products

None known.

SECTION 11: Toxicological information

11.1. Information on toxicological effects

Acute toxicity : Toxic if inhaled.

FERROSILICON (8049-17-0)

ATE CLP (dust,mist)	0.5 mg/l/4h
Toxicity information	194 mg/m ³ TOXICITY- Inhalation toxicity-rat: TCLo 6H/26W-I; LUNGS, THORAX, OR RESPIRATION: Other changes; LUNGS, THORAX, OR RESPIRATION: Characteristic changes; BIOCHEMICAL: Metabolism (intermediary): Lipids, including transport

Ferrosilicon (8049-17-0)

LD50 dermal rabbit	> 20 g/kg
ATE CLP (gases)	700 ppmv/4h
ATE CLP (vapours)	3 mg/l/4h
ATE CLP (dust,mist)	0.5 mg/l/4h

Skin corrosion/irritation	: Not classified
Serious eye damage/irritation	: Not classified
Respiratory or skin sensitisation	: Not classified
Germ cell mutagenicity	: Not classified

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Carcinogenicity	: Not classified
Reproductive toxicity	: Not classified
STOT-single exposure	: Not classified
STOT-repeated exposure	: Not classified
Aspiration hazard	: Not classified
Symptoms/effects after inhalation	: Toxic if inhaled. Danger of serious damage to health by prolonged exposure through inhalation. May cause irritation to the respiratory tract.
Symptoms/effects after skin contact	: May cause skin irritation. May be harmful in contact with skin.
Symptoms/effects after eye contact	: May cause eye irritation.
Symptoms/effects after ingestion	: May be harmful if swallowed.

SECTION 12: Ecological information

12.1. Toxicity

Acute aquatic toxicity	: Not classified
Chronic aquatic toxicity	: Not classified

12.2. Persistence and degradability

No additional information available

12.3. Bioaccumulative potential

No additional information available

12.4. Mobility in soil

No additional information available

12.5. Results of PBT and vPvB assessment

No additional information available

12.6. Other adverse effects

Other adverse effects : This substance may be hazardous to the environment.

SECTION 13: Disposal considerations

13.1. Waste treatment methods

Sewage disposal recommendations	: Do not dispose of waste into sewer.
Product/Packaging disposal recommendations	: Landfill. Dispose in a safe manner in accordance with local/national regulations.
Ecology - waste materials	: Avoid release to the environment.

SECTION 14: Transport information

14.1. UN number

In accordance with ADR / RID / IMDG / IATA / ADN

14.1. UN number

UN-No. (ADR)	: 1408
UN-No. (IMDG)	: 1408
UN-No. (IATA)	: 1408
UN-No. (ADN)	: 1408
UN-No. (RID)	: 1408

14.2. UN proper shipping name

Proper Shipping Name (ADR)	: FERROSILICON
Proper Shipping Name (IMDG)	: FERROSILICON
Proper Shipping Name (IATA)	: Ferrosilicon
Proper Shipping Name (ADN)	: FERROSILICON
Proper Shipping Name (RID)	: FERROSILICON
Transport document description (ADR)	: UN 1408 FERROSILICON, 4.3 (6.1), III, (E)
Transport document description (IMDG)	: UN 1408 FERROSILICON, 4.3 (6.1), III
Transport document description (IATA)	: UN 1408 Ferrosilicon, 4.3, III
Transport document description (ADN)	: UN 1408 FERROSILICON, 4.3 (6.1), III
Transport document description (RID)	: UN 1408 FERROSILICON, 4.3 (6.1), III

14.3. Transport hazard class(es)

ADR

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Transport hazard class(es) (ADR) : 4.3 (6.1)

Danger labels (ADR) : 4.3, 6.1



IMDG

Transport hazard class(es) (IMDG) : 4.3 (6.1)

Danger labels (IMDG) : 4.3, 6.1



IATA

Transport hazard class(es) (IATA) : 4.3 (6.1)

Hazard labels (IATA) : 4.3, 6.1



ADN

Transport hazard class(es) (ADN) : 4.3 (6.1)

Danger labels (ADN) : 4.3, 6.1



RID

Transport hazard class(es) (RID) : 4.3 (6.1)

Danger labels (RID) : 4.3, 6.1



14.4. Packing group

Packing group (ADR) : III

Packing group (IMDG) : III

Packing group (IATA) : III

Packing group (ADN) : III

Packing group (RID) : III

14.5. Environmental hazards

Dangerous for the environment : No

Marine pollutant : No

Other information : No supplementary information available

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14.6. Special precautions for user

- Overland transport

Classification code (ADR)	: WT2
Special provisions (ADR)	: 39
Limited quantities (ADR)	: 1kg
Excepted quantities (ADR)	: E1
Packing instructions (ADR)	: P003, IBC08, R001
Mixed packing provisions (ADR)	: MP14
Portable tank and bulk container instructions (ADR)	: T1, BK2
Portable tank and bulk container special provisions (ADR)	: TP33
Tank code (ADR)	: SGAN
Vehicle for tank carriage	: AT
Transport category (ADR)	: 3
Special provisions for carriage - Packages (ADR)	: V1
Special provisions for carriage - Bulk (ADR)	: VC1, VC2, AP4, AP5
Special provisions for carriage - Loading, unloading and handling (ADR)	: CV23, CV28
Hazard identification number (Kemler No.)	: 462
Orange plates	:

462

1408

Tunnel restriction code (ADR)	: E
EAC code	: 4W

- Transport by sea

Special provisions (IMDG)	: 39, 223, 932
Limited quantities (IMDG)	: 1 kg
Excepted quantities (IMDG)	: E1
Packing instructions (IMDG)	: P003
Special packing provisions (IMDG)	: PP20
IBC packing instructions (IMDG)	: IBC08
IBC special provisions (IMDG)	: B4, B6
Tank instructions (IMDG)	: T1, BK2
Tank special provisions (IMDG)	: TP33
EmS-No. (Fire)	: F-G
EmS-No. (Spillage)	: S-N
Stowage category (IMDG)	: A
Stowage and handling (IMDG)	: SW2, SW5, H1
Segregation (IMDG)	: SG35, SG36, SG26

Properties and observations (IMDG) : In contact with moisture, water, alkalis or acids, may evolve hydrogen, a flammable gas, which may form explosive mixtures with air, and also arsine and phosphine, which are highly toxic gases. These gases are evolved in proportions which, under mechanically ventilated conditions, make the poison hazard by far predominant over the explosion hazard. The rate of gas evolution is greatest from freshly broken surfaces, so is liable to increase whenever the cargo is disturbed, such as, during loading. Toxic if swallowed, by skin contact or by vapour inhalation.

- Air transport

PCA Excepted quantities (IATA)	: E1
PCA Limited quantities (IATA)	: Y477
PCA limited quantity max net quantity (IATA)	: 10kg
PCA packing instructions (IATA)	: 485
PCA max net quantity (IATA)	: 25kg
CAO packing instructions (IATA)	: 491
CAO max net quantity (IATA)	: 100kg
Special provisions (IATA)	: A3, A10
ERG code (IATA)	: 4PW

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- Inland waterway transport

Classification code (ADN)	: WT2
Special provisions (ADN)	: 39, 801
Limited quantities (ADN)	: 1 kg
Excepted quantities (ADN)	: E1
Carriage permitted (ADN)	: B
Equipment required (ADN)	: PP, EP, EX, TOX, A
Ventilation (ADN)	: VE01, VE02, VE03
Provisions prior to loading (ADN)	: LO03
Provisions for handling and stowage of the cargo (ADN)	: HA07, HA08
Provisions for inspection of holds during carriage (ADN)	: IN01, IN02, IN03
Number of blue cones/lights (ADN)	: 0

- Rail transport

Classification code (RID)	: WT2
Special provisions (RID)	: 39
Limited quantities (RID)	: 1kg
Excepted quantities (RID)	: E1
Packing instructions (RID)	: P003, IBC08, R001
Special packing provisions (RID)	: PP20, B4, B6
Mixed packing provisions (RID)	: MP14
Portable tank and bulk container instructions (RID)	: T1, BK2
Portable tank and bulk container special provisions (RID)	: TP33
Tank codes for RID tanks (RID)	: SGAN
Transport category (RID)	: 3
Special provisions for carriage – Packages (RID)	: W1
Special provisions for carriage – Bulk (RID)	: VC1, VC2, AP3, AP4, AP5
Special provisions for carriage - Loading, unloading and handling (RID)	: CW23, CW28
Colis express (express parcels) (RID)	: CE11
Hazard identification number (RID)	: 462

14.7. Transport in bulk according to Annex II of Marpol and the IBC Code

Not applicable

SECTION 15: Regulatory information

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

15.1.1. EU-Regulations

No REACH Annex XVII restrictions

FERROSILICON is not on the REACH Candidate List

FERROSILICON is not on the REACH Annex XIV List

FERROSILICON is not subject to REGULATION (EU) No 649/2012 OF THE EUROPEAN PARLIAMENT AND OF THE COUNCIL of 4 July 2012 concerning the export and import of hazardous chemicals.

FERROSILICON is not subject to Regulation (EC) No 850/2004 of the European Parliament and of the Council of 29 April 2004 on persistent organic pollutants and amending Directive 79/117/EEC

% Volatiles : 100 %

15.1.2. National regulations

Germany

12th Ordinance Implementing the Federal Immission Control Act - 12.BImSchV : Is not subject of the 12. BImSchV (Hazardous Incident Ordinance)

Netherlands

SZW-lijst van kankerverwekkende stoffen : The substance is not listed

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SZW-lijst van mutagene stoffen	: The substance is not listed
NIET-limitatieve lijst van voor de voortplanting giftige stoffen – Borstvoeding	: The substance is not listed
NIET-limitatieve lijst van voor de voortplanting giftige stoffen – Vruchtbaarheid	: The substance is not listed
NIET-limitatieve lijst van voor de voortplanting giftige stoffen – Ontwikkeling	: The substance is not listed

Denmark

Danish National Regulations : Young people below the age of 18 years are not allowed to use the product

15.2. Chemical safety assessment

No additional information available

SECTION 16: Other information

Abbreviations and acronyms:

	Abbreviations: ND: Not Determined, No Data; NA: Not Applicable; LD: Lethal Dose; LC: Lethal Concentration; ATE: Acute Toxicity Estimates; H: hour; °: °C unless otherwise stated; mm: millimeters Hg, torr; PEL: permissible exposure level; TWA: time weighted average; TLV: threshold limit value; TG: Test Guideline; NIOSH: National Institute for Occupational Safety and Health; IARC: International Agency for Research on Cancer; NTP: National Toxicology Program; HMIS: Hazardous Material Information System; CAS No.: Chemical Abstract Service Registration Number; EC No.: European Commission Registration Number; EC Index No.: European Commission Index Number; OECD: The Organisation for Economic Co-operation and Development; GHS: The Globally Harmonized System of Classification and Labelling; APF: Assigned Protection Factor
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Other information : Prepared by safety and environmental affairs.

Full text of H- and EUH-statements:

Acute Tox. 3 (Inhalation)	Acute toxicity (inhal.), Category 3
Acute Tox. 3 (Inhalation:dust,mist)	Acute toxicity (inhalation:dust,mist) Category 3
Water-react. 3	Substances and Mixtures which, in contact with water, emit flammable gases, Category 3
H261	In contact with water releases flammable gases.
H331	Toxic if inhaled.

SDS EU (REACH Annex II) - Custom

The information contained in this document has been gathered from reference materials and/or Gelest, Inc. test data and is to the best knowledge and belief of Gelest, Inc. accurate and reliable. Such information is offered solely for your consideration, investigation and verification. It is not suggested or guaranteed that the hazard precautions or procedures described are the only ones which exist. Gelest, Inc. makes no warranties, express or implied, with respect to the use of such information and assumes no responsibility therefore. Information on this safety data sheet is not intended to constitute a basis for product specifications.

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