

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

Product form	: Substance
Physical state	: Solid
Substance name	: CALCIUM SILICIDE, powder
Product code	: SIC2054.0
Formula	: CaSi ₂
Synonyms	: CALCIUM SILICON ALLOY; CALCIUM DISILICIDE
Chemical family	: METAL SILICIDE

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

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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

Hazardous to the aquatic environment — Chronic Hazard, Category 3 H412

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

Signal word (CLP) :

: Warning

Hazard statements (CLP) :

: H261 - In contact with water releases flammable gases.
H412 - Harmful to aquatic life with long lasting effects.

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.
P273 - Avoid release to the environment.
P370+P378 - In case of fire: Use extinguishing powder to extinguish.
P402+P404 - Store in a dry place. Store in a closed container.
P501 - Dispose of contents/container to licensed waste disposal facility..

2.3. Other hazards

No additional information available

SECTION 3: Composition/information on ingredients

3.1. Substances

Substance type : Multi-constituent
Name : CALCIUM SILICIDE, powder
CAS-No. : 12013-56-8
EC-No. : 234-588-7

Name	Product identifier	%	Classification according to Regulation (EC) No. 1272/2008 [CLP]
Calcium silicon	(CAS-No.) 12013-56-8 (EC-No.) 234-588-7	93 – 100	Water-react. 3, H261
Iron	(CAS-No.) 7439-89-6 (EC-No.) 231-096-4	0 – 7	Acute Tox. 4 (Oral), H302 Aquatic Chronic 2, H411

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 : May cause irritation to the respiratory tract.
Symptoms/effects after skin contact : May cause skin irritation.
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 : None known.

5.2. Special hazards arising from the substance or mixture

Fire hazard : In contact with water slowly liberates highly flammable hydrogen gas.
Explosion hazard : Air-borne dust presents fire/explosive potential.

5.3. Advice for firefighters

Firefighting instructions : Exercise caution when fighting any chemical fire.
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.

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SECTION 6: Accidental release measures

6.1. Personal precautions, protective equipment and emergency procedures

General measures : Avoid contact with water.

6.1.1. For non-emergency personnel

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

Emergency procedures : Evacuate unnecessary personnel.

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

No additional information available

SECTION 7: Handling and storage

7.1. Precautions for safe handling

Additional hazards when processed : Flammable gas. In contact with water emits flammable hydrogen gas.

Precautions for safe handling : Avoid contact with skin and eyes. Do not breathe dust. Do not allow contact with water. Provide local exhaust or general room ventilation to minimize exposure to dust. Avoid dust formation. Handle under inert gas. Protect from moisture.

7.2. Conditions for safe storage, including any incompatibilities

Storage conditions : Keep container tightly closed. Avoid contact with water. Store in a dry place. Store in a closed container.

Incompatible materials : Water. Mineral acids.

Storage area : Keep container tightly closed. Store in a well-ventilated place.

7.3. Specific end use(s)

No additional information available

SECTION 8: Exposure controls/personal protection

8.1. Control parameters

Iron (7439-89-6)		
Italy - Portugal - USA ACGIH	ACGIH TWA (mg/m ³)	1 mg/m ³ Fe
USA OSHA	OSHA PEL (TWA) (mg/m ³)	1 mg/m ³ Fe

Calcium silicon (12013-56-8)		
USA OSHA	OSHA PEL (TWA) (mg/m ³)	15 mg/m ³ nuisance dust

8.2. Exposure controls

Appropriate engineering controls:

Provide local exhaust or general room ventilation.

Personal protective equipment:

Avoid all unnecessary exposure.

Materials for protective clothing:

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

Hand protection:

Rubbers. Neoprene or nitrile rubber gloves

Eye protection:

Chemical goggles. Contact lenses should not be worn

Skin and body protection:

Wear suitable protective clothing

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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	: Solid.
Molecular mass	: 96.25 g/mol
Colour	: Gray-black.
Odour	: No data available
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	: > 700 °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)	: Flammable gas.
Vapour pressure	: < 0.01 mm Hg @ 20°C
Relative vapour density at 20 °C	: No data available
Relative density	: 2.5
% Volatiles	: 0 %
Solubility	: Reacts with water.
Partition coefficient n-octanol/water (Log Pow)	: No data available
Partition coefficient n-octanol/water (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

No additional information available

10.4. Conditions to avoid

Heat. Open flame. Sparks.

10.5. Incompatible materials

Water. Mineral acids.

10.6. Hazardous decomposition products

Calcium oxide fumes. Hydrogen. Silicon oxides.

SECTION 11: Toxicological information

11.1. Information on toxicological effects

Acute toxicity : Not classified

Iron (7439-89-6)

LD50 oral rat

750 mg/kg

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Iron (7439-89-6)

ATE CLP (oral)	750 mg/kg bodyweight
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Skin corrosion/irritation	: Not classified
Serious eye damage/irritation	: Not classified
Respiratory or skin sensitisation	: Not classified
Germ cell mutagenicity	: Not classified
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	: May cause irritation to the respiratory tract.
Symptoms/effects after skin contact	: May cause skin irritation.
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

Ecology - general	: Harmful to aquatic life.
Hazardous to the aquatic environment, short-term (acute)	: Not classified
Hazardous to the aquatic environment, long-term (chronic)	: Harmful to aquatic life with long lasting effects. Not classified.

Iron (7439-89-6)

EC50 Daphnia 1	4400 µg/l 48H
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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

No additional information available

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. Dispose of contents/container to licensed waste disposal facility..
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)	: 1405
UN-No. (IMDG)	: 1405
UN-No. (IATA)	: 1405
UN-No. (ADN)	: 1405
UN-No. (RID)	: 1405

14.2. UN proper shipping name

Proper Shipping Name (ADR)	: CALCIUM SILICIDE
Proper Shipping Name (IMDG)	: CALCIUM SILICIDE

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Proper Shipping Name (IATA)	: Calcium silicide
Proper Shipping Name (ADN)	: CALCIUM SILICIDE
Proper Shipping Name (RID)	: CALCIUM SILICIDE
Transport document description (ADR)	: UN 1405 CALCIUM SILICIDE, 4.3, III, (E)
Transport document description (IMDG)	: UN 1405 CALCIUM SILICIDE, 4.3, III
Transport document description (IATA)	: UN 1405 Calcium silicide, 4.3, III
Transport document description (ADN)	: UN 1405 CALCIUM SILICIDE, 4.3, III
Transport document description (RID)	: UN 1405 CALCIUM SILICIDE, 4.3, III

14.3. Transport hazard class(es)

ADR

Transport hazard class(es) (ADR)	: 4.3
Danger labels (ADR)	: 4.3



IMDG

Transport hazard class(es) (IMDG)	: 4.3
Danger labels (IMDG)	: 4.3



IATA

Transport hazard class(es) (IATA)	: 4.3
Danger labels (IATA)	: 4.3



ADN

Transport hazard class(es) (ADN)	: 4.3
Danger labels (ADN)	: 4.3



RID

Transport hazard class(es) (RID)	: 4.3
Danger labels (RID)	: 4.3



14.4. Packing group

Packing group (ADR)	: III
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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

14.6. Special precautions for user

- Overland transport

Classification code (ADR)	: W2		
Limited quantities (ADR)	: 1kg		
Excepted quantities (ADR)	: E1		
Packing instructions (ADR)	: P410, IBC08, R001		
Mixed packing provisions (ADR)	: MP14		
Portable tank and bulk container instructions (ADR)	: T1		
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, AP3, AP4, AP5		
Special provisions for carriage - Loading, unloading and handling (ADR)	: CV23		
Hazard identification number (Kemler No.)	: 423		
Orange plates	: <table border="1"><tr><td>423</td></tr><tr><td>1405</td></tr></table>	423	1405
423			
1405			
Tunnel restriction code (ADR)	: E		
EAC code	: 4W		

- Transport by sea

Special provisions (IMDG)	: 223, 932
Limited quantities (IMDG)	: 1 kg
Excepted quantities (IMDG)	: E1
Packing instructions (IMDG)	: P410
Special packing provisions (IMDG)	: PP31, PP40
IBC packing instructions (IMDG)	: IBC08
IBC special provisions (IMDG)	: B4
Tank instructions (IMDG)	: T1
Tank special provisions (IMDG)	: TP33
EmS-No. (Fire)	: F-G
EmS-No. (Spillage)	: S-N
Stowage category (IMDG)	: B
Stowage and handling (IMDG)	: SW5, H1
Segregation (IMDG)	: SG35, SG26
Properties and observations (IMDG)	: In contact with water, evolves hydrogen, a flammable gas. If calcium carbide is present as an impurity, acetylene will also be evolved. In contact with acids evolves silane, a spontaneously flammable gas.

- Air transport

PCA Excepted quantities (IATA)	: E1
PCA Limited quantities (IATA)	: Y477
PCA limited quantity max net quantity (IATA)	: 10kg

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PCA packing instructions (IATA)	: 486
PCA max net quantity (IATA)	: 25kg
CAO packing instructions (IATA)	: 491
CAO max net quantity (IATA)	: 100kg
Special provisions (IATA)	: A3
ERG code (IATA)	: 4W

- Inland waterway transport

Classification code (ADN)	: W2
Limited quantities (ADN)	: 1 kg
Excepted quantities (ADN)	: E1
Equipment required (ADN)	: PP, EX, A
Ventilation (ADN)	: VE01
Provisions for handling and stowage of the cargo (ADN)	: HA08
Number of blue cones/lights (ADN)	: 0

- Rail transport

Classification code (RID)	: W2
Limited quantities (RID)	: 1kg
Excepted quantities (RID)	: E1
Packing instructions (RID)	: P410, IBC08, R001
Special packing provisions (RID)	: B4
Mixed packing provisions (RID)	: MP14
Portable tank and bulk container instructions (RID)	: T1
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
Colis express (express parcels) (RID)	: CE11
Hazard identification number (RID)	: 423

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

CALCIUM SILICIDE, powder is not on the REACH Candidate List

CALCIUM SILICIDE, powder is not on the REACH Annex XIV List

CALCIUM SILICIDE, powder 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.

CALCIUM SILICIDE, powder is not subject to Regulation (EU) No 2019/1021 of the European Parliament and of the Council of 20 June 2019 on persistent organic pollutants

% Volatiles : 0 %

15.1.2. National regulations

Germany

Regulatory reference : Not classified according to Regulation Governing Systems for Handling Substances Hazardous to Waters (AwSV)

Hazardous Incident Ordinance (12. BImSchV) : Is not subject of the 12. BImSchV (Hazardous Incident Ordinance)

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Netherlands

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

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. 4 (Oral)	Acute toxicity (oral), Category 4
Aquatic Chronic 2	Hazardous to the aquatic environment — Chronic Hazard, Category 2
Aquatic Chronic 3	Hazardous to the aquatic environment — Chronic Hazard, 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.
H302	Harmful if swallowed.
H411	Toxic to aquatic life with long lasting effects.
H412	Harmful to aquatic life with long lasting effects.

SDS EU (REACH Annex II) - Custom

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