



CALCIUM SILICIDE, powder

Safety Data Sheet SIC2054.0

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Version: 1.1

SECTION 1: Identification

1.1. Identification

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

1.2. Recommended use and restrictions on use

Recommended use	: Chemical intermediate
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1.3. Supplier

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

info@gelest.com - www.gelest.com

1.4. Emergency telephone number

Emergency number	: CHEMTREC: 1-800-424-9300 (USA); +1 703-527-3887 (International)
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SECTION 2: Hazard(s) identification

2.1. Classification of the substance or mixture

GHS US classification

Substances and mixtures which in contact with water emit flammable gases Category 3 H261 In contact with water releases flammable gas
Hazardous to the aquatic environment - Acute Hazard Category 3 H402 Harmful to aquatic life

Full text of H statements : see section 16

2.2. GHS Label elements, including precautionary statements

GHS US labeling

Hazard pictograms (GHS US) :



Signal word (GHS US)	: Warning
Hazard statements (GHS US)	: H261 - In contact with water releases flammable gas H402 - Harmful to aquatic life
Precautionary statements (GHS US)	: P280 - Wear protective gloves/protective clothing/eye protection/face protection. 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. Hazards not otherwise classified (HNOC)

No additional information available

2.4. Unknown acute toxicity (GHS US)

Not applicable

SECTION 3: Composition/Information on ingredients

3.1. Substances

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

CALCIUM SILICIDE, powder

Safety Data Sheet

Name	Product identifier	%	GHS US classification
Calcium silicon	(CAS-No.) 12013-56-8	93 – 100	Water-react. 3, H261
Iron	(CAS-No.) 7439-89-6	0 – 7	Acute Tox. 4 (Oral), H302 Aquatic Acute 2, H401

Full text of hazard classes and 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 victim to fresh air and keep at rest in a position comfortable for breathing. If you feel unwell, seek medical advice.
First-aid measures after skin contact	: Wash with plenty of soap and 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 (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. Immediate medical attention and special treatment, if necessary

No additional information available

SECTION 5: Fire-fighting measures

5.1. Suitable (and unsuitable) extinguishing media

Suitable extinguishing media	: Not combustible.
Unsuitable extinguishing media	: None known.

5.2. Specific hazards arising from the chemical

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

5.3. Special protective equipment and precautions for fire-fighters

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.

SECTION 6: Accidental release measures

6.1. Personal precautions, protective equipment and emergency procedures

General measures	: Avoid contact with water.
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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".
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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

CALCIUM SILICIDE, powder

Safety Data Sheet

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.

SECTION 8: Exposure controls/personal protection

8.1. Control parameters

Iron (7439-89-6)		
ACGIH	ACGIH TWA (mg/m ³)	1 mg/m ³ Fe
OSHA	OSHA PEL (TWA) (mg/m ³)	1 mg/m ³ Fe
Calcium silicon (12013-56-8)		
OSHA	OSHA PEL (TWA) (mg/m ³)	15 mg/m ³ nuisance dust

8.2. Appropriate engineering controls

Appropriate engineering controls : Provide local exhaust or general room ventilation.

8.3. Individual protection measures/Personal protective equipment

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

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
Color : Gray-black.
Odor : No data available
Odor threshold : No data available
Refractive index : No data available
pH : No data available
Relative evaporation rate (butyl acetate=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

CALCIUM SILICIDE, powder

Safety Data Sheet

Decomposition temperature	: No data available
Flammability (solid, gas)	: Flammable gas
Vapor pressure	: < 0.01 mm Hg @ 20°C
Relative vapor 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
Oxidizing properties	: No data available
Explosion 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 (oral)	: Not classified
Acute toxicity (dermal)	: Not classified
Acute toxicity (inhalation)	: Not classified

Iron (7439-89-6)	
LD50 oral rat	750 mg/kg
ATE US (oral)	750 mg/kg body weight

Skin corrosion/irritation	: Not classified
Serious eye damage/irritation	: Not classified
Respiratory or skin sensitization	: 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.

CALCIUM SILICIDE, powder

Safety Data Sheet

SECTION 12: Ecological information

12.1. Toxicity

Ecology - general : Harmful to aquatic life.

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. Other adverse effects

Effect on the ozone layer : No additional information available

SECTION 13: Disposal considerations

13.1. Disposal 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

UN-No.(DOT) : 1405

DOT NA No : UN1405

14.2. UN proper shipping name

Transport document description : UN1405 Calcium silicide, 4.3, III

Proper Shipping Name (DOT) : Calcium silicide

Class (DOT) : 4.3 - Class 4.3 - Dangerous when wet material 49 CFR 173.124

Packing group (DOT) : III - Minor Danger

Hazard labels (DOT) : 4.3 - Dangerous when wet



DOT Packaging Non Bulk (49 CFR 173.xxx) : 213

DOT Packaging Bulk (49 CFR 173.xxx) : 241

DOT Packaging Exceptions (49 CFR 173.xxx) : 151

14.3. Additional information

Emergency Response Guide (ERG) Number : 138

Other information : No supplementary information available.

Transport by sea

DOT Vessel Stowage Location : B - (i) The material may be stowed "on deck" or "under deck" on a cargo vessel and on a passenger vessel carrying a number of passengers limited to not more than the larger of 25 passengers, or one passenger per each 3 m of overall vessel length; and (ii) "On deck only" on passenger vessels in which the number of passengers specified in paragraph (k)(2)(i) of this section is exceeded.

DOT Vessel Stowage Other : 13 - Keep as dry as reasonably practicable,52 - Stow "separated from" acids,85 - Under deck stowage must be in mechanically ventilated space,103 - Only to be loaded under dry weather conditions,148 - In addition: from flammable gases and flammable liquids when stowed on deck of a containership a minimum distance of two container spaces athwartship shall be maintained, when stowed on ro-ro ships a distance of 6 m athwartship shall be maintained.

Air transport

DOT Quantity Limitations Passenger aircraft/rail (49 CFR 173.27) : 25 kg

CALCIUM SILICIDE, powder

Safety Data Sheet

DOT Quantity Limitations Cargo aircraft only (49 : 100 kg
CFR 175.75)

SECTION 15: Regulatory information

15.1. US Federal regulations

Iron (7439-89-6)

Listed on the United States TSCA (Toxic Substances Control Act) inventory

Calcium silicon (12013-56-8)

Listed on the United States TSCA (Toxic Substances Control Act) inventory

15.2. International regulations

CANADA

Iron (7439-89-6)

Listed on the Canadian DSL (Domestic Substances List)

Calcium silicon (12013-56-8)

Listed on the Canadian NDSL (Non-Domestic Substances List)

EU-Regulations

Iron (7439-89-6)

Listed on the EEC inventory EINECS (European Inventory of Existing Commercial Chemical Substances)

Calcium silicon (12013-56-8)

Listed on the EEC inventory EINECS (European Inventory of Existing Commercial Chemical Substances)

National regulations

Iron (7439-89-6)

Listed on the AICS (Australian Inventory of Chemical Substances)
Listed on IECSC (Inventory of Existing Chemical Substances Produced or Imported in China)
Listed on KECL/KECI (Korean Existing Chemicals Inventory)
Listed on INSQ (Mexican National Inventory of Chemical Substances)
Listed on PICCS (Philippines Inventory of Chemicals and Chemical Substances)

Calcium silicon (12013-56-8)

Listed on the AICS (Australian Inventory of Chemical Substances)
Listed on IECSC (Inventory of Existing Chemical Substances Produced or Imported in China)
Listed on the Japanese ENCS (Existing & New Chemical Substances) inventory
Listed on KECL/KECI (Korean Existing Chemicals Inventory)
Listed on PICCS (Philippines Inventory of Chemicals and Chemical Substances)

15.3. US State regulations

California Proposition 65 - This product does not contain any substances known to the state of California to cause cancer, developmental and/or reproductive harm

Calcium silicon (12013-56-8)

U.S. - New Jersey - Right to Know Hazardous Substance List

SECTION 16: Other information

Full text of H-phrases::

H261	In contact with water releases flammable gas
H302	Harmful if swallowed
H401	Toxic to aquatic life
H402	Harmful to aquatic life

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.

CALCIUM SILICIDE, powder

Safety Data Sheet

Hazard Rating

Health	: 1 Slight Hazard - Irritation or minor reversible injury possible
Flammability	: 1 Slight Hazard - Materials that must be preheated before ignition will occur. Includes liquids, solids and semi solids having a flash point above 200 F. (Class IIIB)
Physical	: 1 Slight Hazard - Materials that are normally stable but can become unstable (self-react) at high temperatures and pressures. Materials may react non-violently with water or undergo hazardous polymerization in the absence of inhibitors.

Prepared by safety and environmental affairs.

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SDS US (GHS HazCom 2012) - Custom

According to Federal Register / Vol. 77, No. 58 / Monday, March 26, 2012 / Rules and Regulations

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