

# Safety Data Sheet

Complies with Regulation (EC) No 1907/2006, Annex II, amended in accordance with Regulation (EU) 2020/878

**Product name:** Micron-Silicon Powder  
**Revised on:** 27.05.2024



## 1 PRODUCT AND COMPANY IDENTIFICATION

### 1.1 Product identifiers

Product name: Micron-Silicon Powder

### 1.2 Relevant identified uses of the substance or mixture and uses advised against

Identified uses: scientific research and development, industrial use

### 1.3 Details of the supplier of the safety data sheet

Company PCC Thorion GmbH  
Moerser Straße 149  
D-47198 Duisburg

Telephone +49 (0) 2066 2019-0  
E-Mail info@pcc.eu

### 1.4 Emergency telephone number

internal company telephone number for emergencies!?  
Giftnotruf Berlin: +49 (0) 30 30686 790

## 2 HAZARDS IDENTIFICATION

### 2.1 Classification of the substance or mixture

#### **Regulations (EG) No. 1272/2008**

- Flam. Sol. 2 H228

Reference to section 16 for the full text of the above H-phrases

Sections 11 and 12 contain more detailed information concerning health hazards, symptoms and environmental risks.

### 2.2. GHS Label elements, including precautionary statements

#### **Regulations (EG) No. 1272/2008**

Hazard component(s):

Silicon, amorphous

Signal word: Danger



#### **Hazard statement(s)**

H228 Flammable solid.

#### **Precautionary statement(s)**

P210 Keep away from heat/sparks/open flames/hot surfaces. - No smoking.

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## Results of the PBT and vPvB assessment

**PBT:**  
**vPvB:**

## 3 COMPOSITION/INFORMATION ON INGREDIENTS

### 3.1 Substance(s)

Hazardous substances (Classification according to Regulation (EC) No 1272/2008)

Substance	Identifier	Amount	GHS-classification		Pictogram
Silicon amorphous	<u>CAS-Nr.:</u> 7440-21-3	100 %	Flam. Sol. 2	H228	
	<u>EG-Nr.:</u> 231-130-8				
	<u>Index-Nr.:</u> ./.				
	<u>REACH-Nr.:</u> ./.				

Particle size distribution from nano to micron size

Reference to section 16 for the full text of the above H-phrases

### 3.2 Mixture(s)

Not relevant

Contains no other components or impurities that affect the classification of this product.

## 4 FIRST AID MEASURES

### 4.1 Description of first aid measures

#### General advice:

- Self-protection is mandatory to first aiders.
- Remove the affected person out of the danger zone and lay them down.
- In the event of an accident or if you feel unwell, contain a physician immediately (if possible, show the operating instructions or this safety data sheet).

#### If inhaled:

- If breathed in, move person into fresh air. If not breathing, give artificial respiration.
- Consult a physician (if possible, show the operating instructions or this safety data sheet).

#### In case of skin contact:

- Clean the affected area thoroughly immediately with plenty of soap and water.
- Clean contaminated clothes before reuse.
- Consult a physician (if possible, show the operating instructions or this safety data sheet).

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## **In case of eye contact:**

Rinse thoroughly with plenty of water for at least 15 minutes and consult a physician (if possible, show the operating instructions or this safety data sheet).

## **If swallowed:**

- Never give anything by mouth to an unconscious person.
- Do not induce vomiting.
- Consult a physician (if possible, show the operating instructions or this safety data sheet).

## **4.2 Most important symptoms and effects, both acute and delayed**

- No symptoms and effects known so far.

## **4.3 Indication of any immediate medical attention and special treatment needed**

- Elementary aid, decontamination, symptomatic treatment.

## **5 FIREFIGHTING MEASURES**

### **5.1. Extinguishing media**

#### **Suitable extinguishing media:**

- Coordinate extinguishing measures with the environment
- Dry extinguishing agent (sand)
- Carbon dioxide (CO<sub>2</sub>)
- Alcohol-resistant extinguishing foam

#### **Non-Suitable extinguishing media:**

- Powder extinguisher
- Water

### **5.2 Special hazards arising from the substance or mixture**

- Hazardous decomposition products: Silicon oxides
- Flammable. Can be ignited by friction, heat, sparks or flames.

### **5.3 Advice for firefighter**

- Only attempt fire extinguishing when wearing suitable protective equipment.
- Fight fire with the usual precautions from an appropriate distance.
- Wear self-contained breathing apparatus.
- Avoid entering of extinguishing water to drains and watercourses.
- Collect contaminated extinguishing water separately.

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## 6 ACCIDENTAL RELEASE MEASURES

### 6.1 Personal precautions, protective equipment and emergency procedures

#### Staff not trained for emergency

- Remove all sources of ignition, evacuate the surrounding area and call the emergency services immediately.
- Do not take any measures that involve personal risk or have not been adequately trained.
- Deny access to non-essential and unprotected personnel.
- Avoid any direct contact with the product.
- No sparks, smoking or flames in the danger zone.
- Ensure adequate ventilation and avoid inhalation of vapour and/or mist as well.

#### Staff trained for emergency:

- Do not enter a confined space or poorly ventilated area contaminated with vapour, mist or fumes without the correct respiratory protective equipment and a safe system of work.
- Wear self-contained breathing apparatus (self-contained breathing apparatus), a suitable chemical protective suit and chemical-resistant boots.

### 6.2 Environmental precautions

- Avoid entering in to drain by covering of drains.
- Avoid release to the environment.

### 6.3 Methods and materials for containment and cleaning up

- Pick up and arrange disposal without creating dust.
- Ensure sufficient ventilation.

### 6.4 Reference to other sections

- Reference to section 7 and 8 (protection measures).
- Reference to section 8 (personal protection measures).
- Reference to section 13 (further information concerning disposal).

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## 7 HANDLING AND STORAGE

### 7.1. Precautions for safe handling

#### Advice on safe handling

- Wear personal protective equipment (reference to section 8).
- Avoid contact with skin, eyes and clothing.
- Never aspirate by mouth.
- Take measures to prevent aerosol formation.
- Only handle the product with adequate ventilation.
- Store and use away from heat, sparks, open flames or other sources of ignition.
- Do not mix with incompatible materials (see section 10.5).
- Store in the original container or an approved replacement container, which has been manufactured from a compatible material.
- When not in use, keep tightly closed and store in a cool, dry place.

#### Advice on fire and explosion protection

- Keep ignition sources away – no smoking.
- Take measures against electrostatic charging.

#### Advice on general hygiene measures at the workplace

- Eating and drinking is prohibited in areas where this substance is used, stored or processed.
- Use appropriate respiratory protection.
- Use only suitable, comfortable and clean protective clothing.
- Avoid contact with skin, eyes and clothing.
- Apply a skin protection cream according to the skin protection plan before handling the product.
- Remove contaminated clothing and protective equipment before entering social areas.
- Wash thoroughly after handling, shower if necessary (see point 8 for further information on hygiene measures).

### 7.2 Conditions for safe storage, including any incompatibilities

#### Advice on safety handling

- Store in a dry, cool and well-ventilated place in accordance with local regulations.
- Store away from incompatible materials (see section 10).
- Keep container tightly closed and sealed until use.
- Containers that have been opened should be carefully closed and stored upright to prevent product leakage.
- Store and use only in (labelled) vessels/containers intended for this product.
- Use suitable containers to avoid environmental contamination.

#### Advice on co-storage in accordance to TRGS 510

- Information about co-storage with other hazardous substances is shown in Table 12 Section 13.
- Classification in storage Class 4.1: (Flammable solids)

### 7.3 Specific end use(s)

No further information available.

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## 8 EXPOSURE CONTROLS/PERSONAL PROTECTION

### 8.1 Control parameters

#### Workplace exposure limit

Substance	Workplace exposure limit
A-Dust fraction	<b>TRGS 900 AGW</b> 1,25 mg/m <sup>3</sup>

#### Derived no-level-effect

./.

#### PNEC-Values

./.

### 8.2 Exposure controls

#### Appropriate engineering controls

- Ensure adequate ventilation and localised extraction at critical points.
- All activities involving chemicals should be evaluated for associated health risks to ensure that any exposure occurs under adequately controlled conditions.
- Personal protective equipment should comply with applicable standards, be suitable for purpose, kept in good condition and properly maintained.
- The final choice of protective equipment will depend on the risk assessment.

#### Individual protection measures

##### Eye/face protection

- Suitable eye protection
- Frame goggles with side protection
- Basket goggles

##### Skin protection

Only use tested protective gloves in accordance with EN ISO 374

- |  |                             |           |
|--|-----------------------------|-----------|
| • NBR (nitrile rubber)                     | thickness of glove material | ≥ 0,35 mm |
| • Butyl rubber                             | thickness of glove material | ≥ 0,50 mm |
| • FKM (Fluor rubber)                       | thickness of glove material | ≥ 0,40 mm |
| • CR (Polychloroprene, Chloroprene rubber) | thickness of glove material | ≥ 0,50 mm |
| • PVC (Polyvinylchloride)                  | thickness of glove material | ≥ 0,50 mm |

- Breakthrough times and swelling properties of the material must be taken into account
- It is recommended to clarify the chemical resistance of the above-mentioned protective gloves for special applications with the glove manufacturer.
- Wearing time for occasional contact (splashes) max. 480 min, for permanent contact 240 - 480 min.
- The wearing time limits according to the manufacturer's instructions must be observed.

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## **Respiratory protection**

- In case technical extraction or ventilation measures are either not possible or insufficient, suitable respiratory protective equipment is mandatory.
- If there is a risk of the exposure limit(s) being exceeded, suitable respiratory protective equipment must be worn.
- Before each use, the fit of the respirator and the correct fit of the equipment worn must be checked. See European standard EN 529 for further instructions on the selection, use, care and maintenance of respiratory protective devices.
- The respiratory protection filter class must be adapted to the maximum concentration of harmful substances (gas/vapour/aerosol/particles) that may be produced when handling the product.
- A suitable respirator must be worn in the following situations (independent of the ambient air):
  - ➔ if the workplace atmosphere is classified as immediately hazardous to human health and the environment
  - ➔ if the workplace atmosphere is not known
  - ➔ if the concentration of pollutants in the atmosphere exceeds the maximum permissible concentration of the filter device
  - ➔ if the workplace atmosphere is not known
- If respiratory protection is required, suitable filter devices must be worn, unless self-contained breathing apparatus must be used.
- The respiratory protection filter class must be adapted to the maximum concentration of harmful substances (gas/vapour/aerosol/particles) that may be produced when handling the product.

## **Recommendation**

- ➔ Particle filtering type P2 or P3 (DIN EN 143)

## **Control of environmental exposure**

- Emissions from aeration and process equipment should be checked to ensure that they meet the requirements of environmental legislation.
- The use of filters may be necessary to reduce potential emissions to acceptable levels.

## **9 PHYSICAL AND CHEMICAL PROPERTIES**

### **9.1 Information on basic physical and chemical properties**

Appearance	powder (solid)
Color	dark brown
Odor	inodorous
Odor Threshold	not determined.
Melting point / freezing point	1410 °C (Silicon)
Initial boiling point and boiling range	2355 °C (Silicon)
Flammability	Explosive dust-air mixtures may form during processing or handling.
Flash Point	not applicable.
Ignition Temperature	425 °C
Auto-ignition temperature	150°C (silicon)

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Decomposition temperature	not determined
Lower and higher explosion limit	not determined.
pH-value	not determined.
Solubility	water-insoluble
Density	not determined.

## 9.2 Other safety information

No further relevant data available.

## 10 STABILITY AND REACTIVITY

### 10.1 Reactivity

Oxidation when in contact with water. Classification of the mixture in fire class 3 and dust explosion class 1 as well.

### 10.2 Chemical stability

- The substance is chemically stable under the recommended storage, use and temperature conditions.

### 10.3 Possibility of hazardous reactions

- Under normal storage conditions and use, no hazardous reactions will occur.
- Under normal storage conditions and normal use no hazardous polymerisation will occur.

### 10.4 Conditions to avoid

- Avoid heat, flames, sparks and other sources of ignition. Minimize contact with material.
- Avoid inhalation of material or combustion by-products. Keep out of water supplies and sewers.
- Do not store at elevated temperatures.
- No smoking.

### 10.5 Incompatible materials

- Strong acids and strong bases, strong oxidising agents and organic peroxides

### 10.6 Hazardous decomposition products

- Application of normal storage conditions and intended use, no hazardous decomposition products should be produced.
- Decomposition products should not be formed. For hazardous combustion products, see section 5

## 11 TOXICOLOGICAL INFORMATION

### 11.1. Information on toxicological effects

#### Acute toxicity

Not listed.

Substance	LD <sub>50</sub> Inhalative (acute)	LD <sub>50</sub> Dermal	LC <sub>50</sub> Inhalative
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Silicon	> 3160 mg/kg (rat)	./.	./.
CAS-Nr.: 7440-21-3			

## Conclusion

Skin corrosion/irritation	no data available.
Serious eye damage/eye irritation	no data available.
Respiratory or skin sensitization	no data available.
CMR effects (carcinogenic, mutagenic and toxic to reproduction)	
Germ cell mutagenicity	no data available.
Carcinogenicity	no data available.
Reproductive toxicity	no data available.
Specific target organ toxicity - single exposure	no data available.
Specific target organ toxicity - repeated exposure	no data available.
Aspiration hazard	no data available.

## 11.2 Information about other hazards

## 12 ECOLOGICAL INFORMATION

### 12.1 Ecotoxicity

./.

### 12.2 Persistence and degradability

No further relevant information available.

### 12.3 Bioaccumulate potential

The material may have some potential for bioaccumulation.

### 12.4 Mobility in soil

Probably not mobile in the environment due to its low water solubility.

### 12.5. Results of PBT and vPvB assessment

This mixture contains no components classified as either persistent, bio accumulative and toxic (PBT) or very persistent and very bio accumulative (vPvB) at levels of 0.1 % or higher.

### 12.6 Endocrine disrupting properties

- No particular effects or hazards known.

### 12.7 Other adverse effects

- No particular effects or hazards known.

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## 13 DISPOSAL CONSIDERATIONS

### 13.1 Waste treatment methods

#### **Recommendation(s) concerning disposal**

- If possible, recycle the product.
- Disposal in accordance with official regulations
- Disposal must be carried out by authorised disposal companies.

#### **Disposal of uncleaned packaging and recommended cleaning agents**

- If possible, recycle the product.
- Dispose in accordance with official regulations.
- Disposals need to be carried out by authorised waste disposal companies.
- Waste and containers must be disposed of in a safe manner.
- Consider safety advance in case of handling empty that have not been cleaned or rinsed out.
- Empty containers and linings may contain product residues.
- Empty containers may contain residues.
- Prevent dust from being stirred up.

#### **Waste Ordinance**

The European Union does not have standardised regulations for the disposal of chemical waste that is considered to hazardous waste. Both, treatment, and disposal are subject to the national legislation of each country. Therefore, you should keep in touch with competent authorities or legally authorised disposal companies.  
2014/955/UE : Council Decision of December 18<sup>th</sup> in 2014, amending the list of waste contained in Decision 2000/532/EC.  
Directive 2008/98/EC of the European Parliament and of the Council of 19 November 2008, in its latest valid version.

#### **European Waste Catalogue**

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## 14 TRANSPORT INFORMATION

	ADR / RID	ADN	IMDG	IATA
<b>14.1</b> UN-number	1346	1346	1346	1346
<b>14.2</b> Proper UN-shipping name	UN 1346, SILICICON-POWDER, AMORPHOUS, 4.1, III, (E)	UN 1346, SILICICON-POWDER, AMORPHOUS, 4.1, III	UN 1346, SILICICON-POWDER, AMORPHOUS, 4.1, III	UN 1346, SILICICON-POWDER, AMORPHOUS, 4.1, III
<b>14.3</b> Transport hazard classes	4.1 	4.1 	4.1 	4.1 
<b>14.4</b> Packaging group	III	III	III	III
<b>14.5</b> Environmental hazard	./.	./.	./.	./.
<b>14.6</b> Additional information	Classification Code: F3 Special Provisions: 32 Limited Quantities: 5 kg Excepted Quantities: E1 Transport Category: 3 Hazard Identification No: 40 Tunnel Restriction Code: (E)	Classification Code: F3 Special Provisions: 32 Limited Quantities: 5 kg Excepted Quantities: E1	Special Provisions: 32 Limited Quantities: 5 kg Excepted Quantities: E1 Stowage Category: A Segregation Code: SG 17 "Separated From" Class 5.1. EmS: F-A, S-G	Special Provisions: A54 Limited Quantities / Passenger Aircraft: 10 kg Limited Quantities / Cargo Aircraft: 100 kg Excepted Menge: E1

## 15 REGULATORY INFORMATION

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

#### EU regulations (Directive 2012/18/EU)

./.

#### National regulations

- Employment restrictions in accordance with the Youth Labour Protection Act and the Act on the Protection of Mothers at Work, in Training and at University
- Technical Instructions on Air Quality Control (Technische Anleitung Luft) chapter 5.2.1:
  - Mass flow = 0.20 kg/h; mass concentration = max. 0.15 g/m<sup>3</sup> of dust emissions

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- Water hazard class (Wassergefährdungsklasse):
  - not hazardous to water
  - neither the mixture nor components of the mixture exhibit dispersing or emulsifying properties.

## Other regulations, restrictions and prohibitions

./.

**15.2. Chemical safety evaluation has not been carried out.**

## 16: OTHER INFORMATIONS

### Abbreviation(s) und acronyms

ADR	Accord européen sur le transport des marchandises dangereuses par Route (European Agreement concerning the International Carriage of Dangerous Goods by Road)
IMDG	International Maritime Code for Dangerous Goods
IATA	International Air Transport Association
GHS	Globally Harmonised System of Classification and Labelling of Chemicals
EINECS	European Inventory of Existing Commercial Chemical Substances
ELINCS	European List of Notified Chemical Substances
CAS	Chemical Abstracts Service (division of the American Chemical Society)
VbF	Verordnung über brennbare Flüssigkeiten, Österreich (Ordinance on the storage of combustible liquids, Austria)
LC50	Lethal concentration, 50 percent
LD50	Lethal dose, 50 percent
PBT	Persistent, Bioaccumulative and Toxic
vPvB	very Persistent and very Bioaccumulative
Flam. Sol. 2	Flammable solids – Category 2

### Classification of used mixtures and assessment method according to Regulation (EC) No 1272/2008

#### [CLP]

Classification	Classification procedure
Flam. Sol. 2	228 Calculation procedure

#### Wording of H and EUH phrases (number and full text)

H228	Flammable solid.
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#### Further remarks

All information in this safety data sheet are correct to the best of our knowledge, information and belief at the date of printing. The information is supposed to provide you with guidelines regard safe handling of the product, mentioned in this safety data

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sheet during storage, processing, transport and disposal. Take into account these information are not transferable to other products. If the product is mixed, blended or processed with other materials or subjected to processing, the information in this safety data sheet cannot be transferred to the new material produced in this way, unless expressly stated otherwise. The information based on our current state of knowledge, but does not constitute a guarantee of product properties and does not establish a contractual legal relationship. The recipient of our products is responsible for observing existing laws and regulations.

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## Annex with exposure scenarios