

Printing date 07/20/2021

Reviewed on 07/20/2021

## 1 Identification

- **Product name**
- **Trade name:** Silicon powder (99+%)
- **Item number:** 93-1496
- **CAS Number:**  
7440-21-3
- **EC number:**  
231-130-8
- **Details of the supplier of the safety data sheet**
- **Manufacturer/Supplier:**  
Strem Chemicals, Inc.  
7 Mulliken Way  
NEWBURYPORT, MA 01950  
USA  
info@strem.com
- **Information department:** Technical Department
- **Emergency telephone number:**  
EMERGENCY: CHEMTREC: + 1 (800) 424-9300  
During normal opening times: +1 (978) 499-1600

## 2 Hazard(s) identification

- **Classification of the substance or mixture**



GHS02 Flame

Flam. Sol. 2 H228 Flammable solid.



GHS07

Skin Irrit. 2 H315 Causes skin irritation.

Eye Irrit. 2A H319 Causes serious eye irritation.

STOT SE 3 H335 May cause respiratory irritation.

- **Label elements**

- **GHS label elements**

The substance is classified and labeled according to the Globally Harmonized System (GHS).

- **Hazard pictograms**



GHS02



GHS07

- **Signal word** Warning

- **Hazard-determining components of labeling:**

silicon

- **Hazard statements**

H228 Flammable solid.

H315 Causes skin irritation.

H319 Causes serious eye irritation.

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*H335 May cause respiratory irritation.*

· **Precautionary statements**

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

P280 *Wear protective gloves/protective clothing/eye protection/face protection.*

P261 *Avoid breathing dust/fume/gas/mist/vapors/spray*

P305+P351+P338 *If in eyes: Rinse cautiously with water for several minutes. Remove contact lenses, if present and easy to do. Continue rinsing.*

P403+P233 *Store in a well-ventilated place. Keep container tightly closed.*

P501 *Dispose of contents/container in accordance with local/regional/national/international regulations.*

· **Classification system:**

· **NFPA ratings (scale 0 - 4)**



Health = 4

Fire = 1

Reactivity = 0

· **HMIS-ratings (scale 0 - 4)**



Health = 3

Fire = 0

Reactivity = 0

· **Other hazards**

· **Results of PBT and vPvB assessment**

· **PBT:** Not applicable.

· **vPvB:** Not applicable.

**3 Composition/information on ingredients**

· **Chemical characterization: Substances**

· **CAS No. Description**

7440-21-3 silicon

· **Identification number(s)**

· **EC number:** 231-130-8

**4 First-aid measures**

· **Description of first aid measures**

· **General information:** Immediately remove any clothing soiled by the product.

· **After inhalation:** In case of unconsciousness place patient stably in side position for transportation.

· **After skin contact:** Immediately wash with water and soap and rinse thoroughly.

· **After eye contact:**

*Rinse opened eye for several minutes under running water. If symptoms persist, consult a doctor.*

· **After swallowing:** If symptoms persist consult doctor.

· **Information for doctor:**

· **Most important symptoms and effects, both acute and delayed** No further relevant information available.

· **Indication of any immediate medical attention and special treatment needed**

*No further relevant information available.*

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**5 Fire-fighting measures**

- **Extinguishing media**
- **Suitable extinguishing agents:** Use fire fighting measures that suit the environment.
- **Special hazards arising from the substance or mixture** No further relevant information available.
- **Advice for firefighters**
- **Protective equipment:** No special measures required.

**6 Accidental release measures**

- **Personal precautions, protective equipment and emergency procedures**  
Wear protective equipment. Keep unprotected persons away.
- **Environmental precautions:** No special measures required.
- **Methods and material for containment and cleaning up:**  
Dispose contaminated material as waste according to item 13.  
Ensure adequate ventilation.
- **Reference to other sections**  
See Section 7 for information on safe handling.  
See Section 8 for information on personal protection equipment.  
See Section 13 for disposal information.
- **Protective Action Criteria for Chemicals**

· **PAC-1:**

45 mg/m<sup>3</sup>

· **PAC-2:**

100 mg/m<sup>3</sup>

· **PAC-3:**

630 mg/m<sup>3</sup>

**7 Handling and storage**

- **Handling:**
- **Precautions for safe handling** Ensure good ventilation/exhaustion at the workplace.
- **Information about protection against explosions and fires:**  
Keep ignition sources away - Do not smoke.  
Protect against electrostatic charges.
- **Conditions for safe storage, including any incompatibilities**
- **Storage:**
- **Requirements to be met by storerooms and receptacles:** No special requirements.
- **Information about storage in one common storage facility:** Not required.
- **Further information about storage conditions:** Keep receptacle tightly sealed.
- **Specific end use(s)** No further relevant information available.

**8 Exposure controls/personal protection**

- **Additional information about design of technical systems:** No further data; see item 7.

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· **Control parameters**

· **Components with limit values that require monitoring at the workplace:**

**7440-21-3 silicon**

PEL	Long-term value: 15* 5** mg/m <sup>3</sup> *total dust **respirable fraction
REL	Long-term value: 10* 5** mg/m <sup>3</sup> *total dust **respirable fraction
TLV	TLV withdrawn

· **Additional information:** The lists that were valid during the creation were used as basis.

· **Exposure controls**

· **Personal protective equipment:**

· **General protective and hygienic measures:**

- Keep away from foodstuffs, beverages and feed.
- Immediately remove all soiled and contaminated clothing.
- Wash hands before breaks and at the end of work.
- Avoid contact with the eyes and skin.

· **Breathing equipment:** A NIOSH approved respirator in accordance with 29 CFR 1910.134.

· **Protection of hands:**



Protective gloves

The glove material has to be impermeable and resistant to the product/ the substance/ the preparation.  
Due to missing tests no recommendation to the glove material can be given for the product/ the preparation/ the chemical mixture.  
Selection of the glove material on consideration of the penetration times, rates of diffusion and the degradation

· **Material of gloves**

The selection of the suitable gloves does not only depend on the material, but also on further marks of quality and varies from manufacturer to manufacturer.

· **Penetration time of glove material**

The exact break through time has to be found out by the manufacturer of the protective gloves and has to be observed.

· **Eye protection:**



Tightly sealed goggles

**9 Physical and chemical properties**

· **Information on basic physical and chemical properties**

· **General Information**

· **Appearance:**

Form:	Powder
Color:	Grey
· Odor:	Odorless
· Odor threshold:	Not determined.

· **pH-value:** Not applicable.

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· <b>Change in condition</b> <b>Melting point/Melting range:</b>	1.420 °C (35 °F)
<b>Boiling point/Boiling range:</b>	2.600 °C (37 °F)
· <b>Flash point:</b>	Not applicable.
· <b>Flammability (solid, gaseous):</b>	Flammable.
· <b>Ignition temperature:</b>	
<b>Decomposition temperature:</b>	Not determined.
· <b>Auto igniting:</b>	Not determined.
· <b>Danger of explosion:</b>	Not determined.
· <b>Explosion limits:</b>	
<b>Lower:</b>	Not determined.
<b>Upper:</b>	Not determined.
· <b>Vapor pressure:</b>	1 hPa (1 mm Hg)
· <b>Density at 20 °C (68 °F):</b>	2.42 g/cm <sup>3</sup> (20.1949 lbs/gal)
· <b>Relative density</b>	Not determined.
· <b>Vapor density</b>	Not applicable.
· <b>Evaporation rate</b>	Not applicable.
· <b>Solubility in / Miscibility with Water:</b>	Insoluble.
· <b>Partition coefficient (n-octanol/water):</b>	Not determined.
· <b>Viscosity:</b>	
<b>Dynamic:</b>	Not applicable.
<b>Kinematic:</b>	Not applicable.
· <b>Solvent content:</b>	
<b>Organic solvents:</b>	0.0 %
<b>VOC content:</b>	0.0 g/l / 0.00 lb/gl
<b>Solids content:</b>	100.0 %
· <b>Other information</b>	No further relevant information available.

**10 Stability and reactivity**

- **Reactivity** No further relevant information available.
- **Chemical stability**
- **Thermal decomposition / conditions to be avoided:** No decomposition if used according to specifications.
- **Possibility of hazardous reactions** No dangerous reactions known.
- **Conditions to avoid** No further relevant information available.
- **Incompatible materials:** No further relevant information available.
- **Hazardous decomposition products:** No dangerous decomposition products known.

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### 11 Toxicological information

· **Information on toxicological effects**

· **Acute toxicity:**

· **LD/LC50 values that are relevant for classification:**

**7440-21-3 silicon**

Oral	LD50	3160 mg/kg (rat)
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· **Primary irritant effect:**

· **on the skin:** Irritant to skin and mucous membranes.

· **on the eye:** Irritating effect.

· **Sensitization:** No sensitizing effects known.

· **Additional toxicological information:**

· **Carcinogenic categories**

· **IARC (International Agency for Research on Cancer)**

Substance is not listed.

· **NTP (National Toxicology Program)**

Substance is not listed.

· **OSHA-Ca (Occupational Safety & Health Administration)**

Substance is not listed.

### 12 Ecological information

· **Toxicity**

· **Aquatic toxicity:** No further relevant information available.

· **Persistence and degradability** No further relevant information available.

· **Behavior in environmental systems:**

· **Bioaccumulative potential** No further relevant information available.

· **Mobility in soil** No further relevant information available.

· **Additional ecological information:**

· **General notes:** Not known to be hazardous to water.

· **Results of PBT and vPvB assessment**

· **PBT:** Not applicable.

· **vPvB:** Not applicable.

· **Other adverse effects** No further relevant information available.

### 13 Disposal considerations

· **Waste treatment methods**

· **Recommendation:**

Must not be disposed of together with household garbage. Do not allow product to reach sewage system.

· **Uncleaned packagings:**

· **Recommendation:** Disposal must be made according to official regulations.

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**14 Transport information**

· UN-Number	UN1346
· DOT, IMDG, IATA	
· UN proper shipping name	Silicon powder, amorphous
· DOT	SILICON POWDER, AMORPHOUS
· IMDG, IATA	
· Transport hazard class(es)	
· DOT	
	
· Class	4.1 Flammable solids, self-reactive substances and solid desensitised explosives
· Label	4.1
· IMDG, IATA	
	
· Class	4.1 Flammable solids, self-reactive substances and solid desensitised explosives
· Label	4.1
· Packing group	
· DOT, IMDG, IATA	III
· Environmental hazards:	
· Marine pollutant:	No
· Special precautions for user	Not applicable.
· Danger code (Kemler):	40
· EMS Number:	F-A,S-G
· Stowage Category	A
· Segregation Code	SG17 Stow "separated from" class 5.1
· Transport in bulk according to Annex II of MARPOL73/78 and the IBC Code	Not applicable.
· UN "Model Regulation":	UN 1346 SILICON POWDER, AMORPHOUS, 4.1, III

**15 Regulatory information**

· Safety, health and environmental regulations/legislation specific for the substance or mixture	
· Sara	
· Section 355 (extremely hazardous substances):	Substance is not listed.
· Section 313 (Specific toxic chemical listings):	Substance is not listed.

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· **TSCA (Toxic Substances Control Act):**

Substance is listed.

· **Proposition 65**

· **Chemicals known to cause cancer:**

Substance is not listed.

· **Chemicals known to cause reproductive toxicity for females:**

Substance is not listed.

· **Chemicals known to cause reproductive toxicity for males:**

Substance is not listed.

· **Chemicals known to cause developmental toxicity:**

Substance is not listed.

· **Carcinogenic categories**

· **EPA (Environmental Protection Agency)**

Substance is not listed.

· **TLV (Threshold Limit Value established by ACGIH)**

Substance is not listed.

· **NIOSH-Ca (National Institute for Occupational Safety and Health)**

Substance is not listed.

· **GHS label elements**

The substance is classified and labeled according to the Globally Harmonized System (GHS).

· **Hazard pictograms**



GHS02 GHS07

· **Signal word** Warning

· **Hazard-determining components of labeling:**

silicon

· **Hazard statements**

H228 Flammable solid.

H315 Causes skin irritation.

H319 Causes serious eye irritation.

H335 May cause respiratory irritation.

· **Precautionary statements**

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

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

P261 Avoid breathing dust/fume/gas/mist/vapors/spray

P305+P351+P338 If in eyes: Rinse cautiously with water for several minutes. Remove contact lenses, if present and easy to do. Continue rinsing.

P403+P233 Store in a well-ventilated place. Keep container tightly closed.

P501 Dispose of contents/container in accordance with local/regional/national/international regulations.

· **Chemical safety assessment:** A Chemical Safety Assessment has not been carried out.

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**16 Other information**

*This information is based on our present knowledge. However, this shall not constitute a guarantee for any specific product features and shall not establish a legally valid contractual relationship.*

- **Department issuing SDS:** Technical Department.
- **Contact:** Technical Director
- **Date of preparation / last revision** 07/20/2021 / -
- **Abbreviations and 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*

*DOT: US Department of Transportation*

*IATA: International Air Transport Association*

*ACGIH: American Conference of Governmental Industrial Hygienists*

*EINECS: European Inventory of Existing Commercial Chemical Substances*

*CAS: Chemical Abstracts Service (division of the American Chemical Society)*

*NFPA: National Fire Protection Association (USA)*

*HMIS: Hazardous Materials Identification System (USA)*

*VOC: Volatile Organic Compounds (USA, EU)*

*LC50: Lethal concentration, 50 percent*

*LD50: Lethal dose, 50 percent*

*PBT: Persistent, Bioaccumulative and Toxic*

*vPvB: very Persistent and very Bioaccumulative*

*NIOSH: National Institute for Occupational Safety*

*OSHA: Occupational Safety & Health*

*TLV: Threshold Limit Value*

*PEL: Permissible Exposure Limit*

*REL: Recommended Exposure Limit*

*Flam. Sol. 2: Flammable solids – Category 2*

*Skin Irrit. 2: Skin corrosion/irritation – Category 2*

*Eye Irrit. 2A: Serious eye damage/eye irritation – Category 2A*

*STOT SE 3: Specific target organ toxicity (single exposure) – Category 3*