



Insulation 1

EU safety data sheet according to (EG) Nr. 1907/2006

Product name: Silica Aerogel Powder AG-BRDC

Current version: 1.0.1, issued: 23.05.2023 **Replaced version:** 1.0.0, issued: 22.02.2023

SECTION 1: Identification of the substance/mixture and of the company/undertaking

1.1 Product identifier

Product name: Silica Aerogel Powder AG-BRDC

Synonyms: Modified Synthetic Amorphous Silica

1.2 Details of the supplier of the safety data sheet

Zhou Global Sourcing GmbH

Bocksgasse 11

73525 Schwäbisch Gmünd

Telephone no. +49 (0) 7171 9059 799

e-mail info@insulation1.de

1.3 Emergency telephone number

GERMANY: CHEMTREC 0800-181-7059

SECTION 2: composition of the substance or mixture

Substance	CAS No.	weight-%	REACH registration number
Silica, [(trimethylsilyl)oxy]-modified	102262-30-6	100	*

* REACH registration number: Synthetic Amorphous Silica: 01-2119379499-16

SECTION 3: Hazard statements

Classification: Product is not classified as a dangerous material or preparation according to Regulation (EC) 1272/2008 (CLP).

Emergency Overview: Mechanical processing of product may result in lightweight fragments or dust. Inhalation of excessive amounts of dust from the product may cause

mechanical irritation to the respiratory tract. Dermal contact may cause mechanical irritation to the skin.

Principle Routes of Exposure: Inhalation, Skin Contact, Eye contact

Eye Contact: Exposure to fragments or dust from this product can produce a drying sensation and mechanical irritation of the eyes.

Skin Contact: May cause mechanical irritation and skin drying. Avoid contact with skin. No cases of sensitization in humans have been reported.

Inhalation: Dust may be irritating to respiratory tract. Provide appropriate exhaust ventilation at machinery and at places where dust can be generated.

Ingestion: Adverse health effects are not expected.

Acute Health Hazards: Fragments and dust from this product are a physical irritant and may cause temporary irritation of scratchiness of the throat and/or itching and redness of the eyes and skin.

Chronic Health Hazards: Product is not known to pose any chronic health hazards.

Medical Conditions Aggravated by Exposure: Excessive inhalation of fragments or dust may aggravate pre-existing chronic lung conditions including, but not limited to, bronchitis, emphysema, and asthma. Dermal contact may aggravate existing dermatitis.

Potential Environmental Effects: None known

This product is composed of **amorphous silicon dioxide**, also referred to as silica gel or amorphous precipitated silica. Amorphous silica should not be confused with crystalline silica. Epidemiological studies indicate low potential for adverse health effects from exposure to amorphous silica.

SECTION 4: First aid measures

- General advice:** Consult a physician. Show this safety data sheet to the doctor in attendance.
- Skin Contact:** Wash thoroughly with soap and water. Seek medical attention if symptoms develop.
- Eye contact:** Flush eyes immediately with large amounts of water for 15 minutes. Seek medical attention if symptoms develop.
- Inhalation:** If cough, shortness of breath or other breathing problems occur, move to fresh air. Seek medical attention if symptoms persist. If necessary, restore normal breathing through standard first aid measures.
- Ingestion:** Do not induce vomiting. If conscious, give several glasses of water. Never give anything by mouth to an unconscious person.

SECTION 5: Fire-fighting measures

5.1 Extinguishing media

Suitable extinguishing media

Use foam, carbon dioxide, dry chemical or water spray. A fog is recommended if water is used.

Unsuitable extinguishing media

Do not use high pressure media which could cause formation of a potentially explosible dust-air mixture.

5.2 Special hazards arising from the substance or mixture

Specific hazards arising from the chemical

May release formaldehyde when heated to high temperatures in the presence of air. Formaldehyde is a known skin and lung sensitizer and is regulated as a carcinogen.

Hazardous decomposition products

Carbon monoxide (CO), Carbon dioxide (CO₂), Formaldehyde, Organic products of decomposition.

5.3 Advice for firefighters

Special protective equipment for fire-fighters

Wear suitable protective equipment. In the event of fire, wear self-contained breathing apparatus.

Risk of Dust Explosion

Dust may form explosive mixture in air.

SECTION 6: Environmental hazards and measures to limit exposure

6.1 Personal precautions, protective equipment and emergency procedures

Use personal protective equipment. Avoid dust or fragment formation. Avoid breathing dust or fragments. Ensure adequate ventilation. Use personal protective equipment as necessary.

6.2 Environmental Precautions

Contain spilled product on land, if possible. The product is insoluble and floats on water. If possible, try to contain floating material. Local authorities should be advised if significant spillages cannot be contained.

6.3 Methods and material for containment and cleaning up

Methods for containment

Prevent further leakage or spillage if safe to do so.

Methods for cleaning up

If the spilled material contains dust or has the potential to create dust, use explosion-proof vacuums and/or cleaning systems suitable for combustible dusts. Use of a vacuum with high efficiency particulate air (HEPA) filtration is recommended.

SECTION 7: Handling and storage

7.1 Handling

Dust may form explosible mixture in air. Take precautionary measures against static discharges. All metal parts of the mixing and processing equipment must be earthed/grounded. Ensure all equipment is electrically earthed/grounded before beginning transfer operations.

7.2 Storage

Keep containers tightly closed in a dry and well-ventilated place. Do not store together with volatile chemicals as they may be adsorbed onto product. Store at ambient conditions. Keep away from heat and sources of ignition. Keep in properly labeled containers. Dust deposits should not be allowed to accumulate on surfaces.

SECTION 8: Exposure controls/personal protection

8.1 Exposure Limit Values

Exposure limits for synthetic amorphous silica are based on silica (CAS Number 7631-86-9).

US OSHA PEL (TWA)^a	15 mg m ⁻³ (total dust) 5 mg m ⁻³ (respirable fraction)
US ACGH^b	10 mg m ⁻³ (inhalable) 3 mg m ⁻³ (respirable)
UK WEL	6 mg m ⁻³ (inhalable fraction) 2.4 mg m ⁻³ (respirable fraction)
Germany TRGS 900	4 mg m ⁻³ (inhalable fraction)

^aUS OSHA standard for amorphous silica is 80 mg m⁻³ % SiO₂. *NIOSH Sampling Method 7501 for Amorphous Silica* calculates the % SiO₂ based on the percentage of crystalline silica in the sample. The particulate limit for 0% crystalline silica applies for silica aerogel as it is amorphous.

^bUS ACGH based on "particles not otherwise specified" (PNOS).

8.2 Personal Protective Equipment

Ventilation:

Local exhaust in accordance with general industrial hygiene practices is recommended if dust or fragments form.

Respiratory Protection:

Where risk assessment shows air-purifying respirators are appropriate, use a dust mask type N95 (US) or P1 (EN 143) respirator. Use respirators and components tested and approved under appropriate government standards such as NIOSH (US) or CEN (EU).

Hand Protection:

Handle with gloves. The selected protective gloves have to satisfy the specifications of EU Directive 89/686/EEC and the standard EN 384 derived from it.

Eye Protection:

Safety glasses.

Skin and Body Protection:

Wear suitable protective clothing. Wash clothing daily. Work clothing should not be allowed out of the workplace.

Hygiene Measures:

Handle in accordance with good industrial hygiene and safety practice. Wash hands before breaks and at the end of the workday.

8.3 Environmental exposure controls:

In accordance with all local legislation and permit requirements as applicable for dusts.

SECTION 9: Physical and chemical properties

Appearance

Form	Monolithic solid
Color	White/customization

Materials Data

Solubility in Water	Insoluble
Density	0.012 – 0.100 g cm ⁻³
pH	Not applicable
Odor	No characteristic odor
Sintering Point	600 – 800°C
Melting Point	>1600°C
Boiling Point	2230°C
Vapor Pressure	Not applicable
Flammability	Not applicable
Flash Point	Not applicable
Ignition Temperature	Not applicable
Lower Explosion Limit	Not applicable
Upper Explosion Limit	Not applicable

SECTION 10: Stability and reactivity

Chemical Stability: Stable under recommended handling and storage conditions.

Conditions to Avoid: Keep away from heat and sources of ignition. Avoid dust formation. Heating above 250°C leads to decomposition of Aerogel surface treatment. Decomposition vapor should be ventilated. May release formaldehyde when heated to high temperatures in the presence of air.

Hazardous Decomposition Products: Carbon monoxide (CO), Carbon dioxide (CO₂), Formaldehyde, organic products of decomposition

SECTION 11: Toxicological information

Acute Toxicity: LD50 Oral - rat -5000 mg kg⁻¹. No deaths occurred and no signs of toxicity were seen during the observation periods after single oral administration of the substance. (OECD 423)

Irritation and Corrosion: No data available

Sensitization: No data available

Carcinogenicity:	No data are available on the product itself. Synthetic Amorphous Silica. No evidence of carcinogenicity was observed in multiple animal species following repeated oral or inhalation exposure to amorphous silica. Similarly, epidemiology studies show no evidence of carcinogenicity in workers who manufacture amorphous silica.
Aspiration Hazard:	Based on industrial experience and available data, no aspiration hazard is expected.

SECTION 12: Ecological information

Ecological information based on literature review for synthetic amorphous silica (CAS Number 7683-86-9).

Aquatic Toxicity:	Fish: LC50>10,000 mg L ⁻¹ (Brachydanio rerio: 96 hour), Method OECD 203 Daphnia magna: EC50>10,000 mg L ⁻¹ (24 hours), Method OECD 202
Mobility:	None expected due to insoluble nature of product.
Persistence and Biodegradability:	The methods for determining biodegradability are not applicable to inorganic substances.
Bioaccumulative Potential:	Not expected due to physicochemical properties of the substance.
Other Adverse Effects:	None expected.

SECTION 13: Disposal considerations

Disclaimer: Information in this section pertains to the product as shipped in its intended composition as described in Section 2 of this SDS. Contamination or processing may change waste characteristics and requirements. Regulations may also apply to empty containers, liners or rinsate. State/provincial and local regulations may be different from federal regulations. The person generating waste must determine its proper classification

Do not dispose of with household waste. Do not allow to enter the sewage system.

Dispose in an approved landfill in accordance with federal, state/provincial, and local regulation. The person generating waste must determine its proper classification.

Waste from residues/unused products: Disposal should be in accordance with applicable regional, national and local laws and regulations.

SECTION 14: Transport information

Not self-heating solids (Class 4.2). per UN Transportation of Dangerous Goods.

Shipping Name: Not regulated for transport

Hazard Class: None

UN Number: None

Packing Group: None

Required Label(s): None

Marine Pollutant: No

ADR/RID: Not dangerous goods

IMDG: Not dangerous goods

IATA: Not dangerous goods

SECTION 15: Regulatory information

EC Regulatory Information:

Product is not classified as a dangerous material or preparation according to Regulation (EC) 1272/2008 (CLP). Aerogel monoliths are considered an article, not a substance or preparation under the REACH directive.

Canadian Regulations:

All chemical substances in this product are included on or exempted from the Canadian Domestic Substance List (DSL). Amorphous silica (CAS Number 7631-86-9) is listed on the WHMIS Ingredient Disclosure List at a concentration threshold of 1%.

US Federal Regulations:

CERCLA (Comprehensive Response Compensation and Liability Act): Product is not classified as hazardous or reportable under this requirement.

SARA TITLE III (Superfund Amendments and Reauthorization Act): Product is not classified as hazardous or reportable under this requirement.

311/312 HAZARD CATEGORIES: Product is not classified as hazardous or reportable under this requirement.

313 REPORTABLE INGREDIENTS: Product is not classified as hazardous or reportable under this requirement.

STATE REGULATIONS:

Amorphous silica, CAS Number 7631-36-9, appears on the following state hazardous substance lists: CA, IN, KY, MA, MN, NC, NJ, OR, and PA. Check individual state requirements.

INTERNATIONAL REGULATIONS:

Amorphous silica, CAS Number 7631-86-9, is listed on the WHMIS Ingredient Disclosure List at a concentration threshold of 1%.

TSCA:

All chemical substances in this material are included on or exempted from listing on the TSCA Inventory of Chemical Substances.

SECTION 16: Other information

The above information is believed to be correct but does not purport to be all inclusive and shall be used only as a guide. The information in this document is based on the present state of our knowledge and is applicable to the product with regard to appropriate safety precautions. It does not represent any guarantee of the properties of the product. Zhou Global Sourcing GmbH shall not be held liable for any damage resulting from handling of or contact with the above product.