SHAANXI ALICE BIO-TECH CO., LTD.

Material Safety Data Sheet (MSDS)

1. Product and Company Identification

Product Name: 45S5 Bioglass Powder (Bioglass 45S5)	
Chemical Name: Calcium sodium phosphosilicate	
Chemical Formula: 45% SiO_2 + 24.5% Na_2O + 24.5% CaO + 6% P_2O_5 (weight %)	
Company Name: Shaanxi Alice Biotechnology Co., Ltd.	
Address: No. 6 Yi Road, High-Tech Zone, Xi'an, Shaanxi Province	Zip Code: 710000
Tel: 18192156304	Fax:
Recommended Uses: Dental care, cosmetics, wound healing, drug delivery, etc.	
Restricted Uses: None	

2. Hazards Identification

Hazard categories:

Skin corrosion/irritation Category 1A

Serious eye damage/eye irritation Category 1

Specific target organ toxicity – single exposure Category 3 (respiratory irritation)

Specific target organ toxicity – repeated exposure Category 2 (inhalation)

GHS/CLP labels:



GHS05



GHS07



GHS08

Hazard statements:

DANGER

H314: Causes severe skin burns and eye damage.

H335: May cause respiratory irritation.

H373: May cause damage to organs through prolonged or repeated inhalation.

Precautionary statements: Use personal protective equipment (dust mask, safety goggles, gloves); avoid dust generation; wash after handling.

Environmental hazards: No particularly adverse effects have been found to date.

Explosion hazards: This product is non-flammable and non-explosive.

Routes of entry: Inhalation, skin contact, eye contact, ingestion.

3. Composition/Information on Ingredients

Chemical Composition	Mineral Composition	CAS No.	EINECS No.	Mass Fraction %
Silicon dioxide (SiO2)	White powder	7631-86-9	238-878-4	45 wt%
Sodium oxide (Na2O)	White powder	1313-59-3	235-641-7	24.5 wt%
Calcium oxide (CaO)	White powder	1305-78-8	215-138-9	24.5 wt%
Phosphorus pentoxide (P2O5)	White powder	1314-56-3	215-236-1	6 wt%

4. First Aid Measures

First aid by route of exposure: No special precautions are required, and no special instructions are needed for first-aid providers.

Skin contact: Immediately remove contaminated clothing and rinse with plenty of running water for at least 15 minutes. Seek medical attention.

Eye contact: Immediately lift the eyelids and rinse thoroughly with plenty of running water or saline for at least 15 minutes. Seek medical attention.

Inhalation: Quickly move the affected person to fresh air. Keep the airway open. Give oxygen if breathing is difficult. Perform artificial respiration immediately if breathing stops. Seek medical attention.

Ingestion: Rinse mouth with water and give milk or egg white to drink. Seek medical attention.

Protection of first-aiders: None

5. Fire Fighting Measures

Hazard characteristics: None.

Hazardous combustion products: No known hazardous combustion products.

Extinguishing methods and media: The substance is non-combustible. Select suitable extinguishing media according to the surrounding fire (e.g., dry chemical powder, carbon dioxide, water mist).

Precautions for firefighters: Firefighters must wear self-contained breathing apparatus and full fire-proof clothing.

6. Accidental Release Measures

Personal precautions: Avoid generating dust and avoid inhaling dust. Wear appropriate personal protective equipment (e.g., dust mask, safety goggles, gloves).

Environmental precautions: Prevent dust from dispersing; avoid entry into sewers or bodies of water.

Cleanup methods: Collect the spilled material with suitable tools (e.g., a vacuum cleaner) and place it in a sealed container for disposal. Clean up residues with a damp cloth or mop; avoid dry sweeping, which raises dust.

7. Handling and Storage

Handling precautions: Handle in a well-ventilated area. Avoid generating dust. Avoid contact with skin and eyes. Wash hands thoroughly after handling.

Storage conditions: Store in a cool, sealed place. Keep containers tightly closed and store in a dry, well-ventilated warehouse. Avoid contact with strong acids and strong bases.

Special uses: When the glass powder is mixed with other substances, the safe handling recommendations above apply equally.

8. Exposure Controls / Personal Protection

Engineering controls: Local exhaust ventilation or general (dilution) ventilation is recommended.

- Workplace dust control and occupational protection: Install exhaust ventilation and filtration facilities where dust is generated; wash hands before breaks and after work; remove and launder contaminated clothing.
- Respiratory protection: When the dust concentration in the air is too high, wear a suitable dust mask (e.g., N95 level or higher).
- Eye protection: Wear chemical safety goggles.
- Body protection: Wear appropriate work clothing; avoid direct skin contact.
- Hand protection: Wear chemical-resistant gloves made of nitrile rubber or of an equivalent protection level.
- Other protection: Shower and change clothes after work. Maintain good personal hygiene.

9. Physical and Chemical Properties

Appearance: White to off-white powder, odorless
Molecular weight: 158.04 g/mol
Melting point: 680 °C
Boiling point: 1000 °C
Density (g/cm^3): 2.7–2.8 g/cm^3
Solubility: Limited solubility in physiological environments (e.g., aqueous solutions); slowly releases ions.
pH value: 11–13
Particle size: Varies with the product specification; the range can be 1–100 μm
Purity: Biomedical grade, >= 98.0%

10. Stability and Reactivity

Stability: Stable.
Hazardous reactions under special conditions: None.
Materials to avoid: None.
Hazardous decomposition products: Does not decompose.

11. Toxicological Information

Bioglass 45S5 powder is generally considered to have good biocompatibility and to be harmless to the human body. However, for its dust form, the following potential toxicities should be noted:

Acute toxicity: Rat oral acute toxicity LD50 > 2000 mg/kg body weight, which is practically non-toxic.

Skin corrosion/irritation: Causes severe skin burns.

Eye damage/irritation: Causes serious eye damage.

Respiratory/skin sensitization: No relevant evidence of sensitization.

Germ cell mutagenicity: No relevant data.

Carcinogenicity: No relevant data.
Specific target organ toxicity – single exposure: May cause respiratory irritation.
Specific target organ toxicity – repeated exposure: Prolonged or repeated inhalation may cause damage to the lungs and respiratory system.
Aspiration hazard: Inhalation of the dust form may be harmful and may cause respiratory irritation or damage.

12. Ecological Information

Possible environmental effects: Detailed ecotoxicological data for 45S5 bioglass powder are currently lacking. Its constituents (silicon, sodium, calcium, phosphate) occur naturally in the environment. Large quantities of the product should not be released directly into the environment.

13. Disposal Considerations

• Waste / unused product
It is recommended that this material be handed over to a qualified waste disposal company for incineration or landfill, or be disposed of in accordance with local regulations. Avoid dust dispersal.
• Packaging
Dispose of in accordance with local regulations. Empty containers may retain product dust and should be handled properly.

14. Transport Information

Dangerous goods No.: Not classified	UN No.: /
Packing mark: /	Packing group: /
Packing method: Coated plastic woven bags, paper bags, flexible intermediate bulk containers, etc.; net weight per bag 5±0.25 kg or 25±0.25 kg.	
Transport precautions: Ensure that the packaging is not damaged; protect from sun exposure, rain, and high temperatures during transport.	

15. Regulatory Information

Other regulations: Comply with the Regulations on the Safe Management of Hazardous Chemicals of the People's Republic of China and other relevant laws and regulations.

16. Other Information

1. Disclaimer: The information in this Safety Data Sheet is based on our current level of knowledge and is intended to describe the safety properties of this product. The information is provided for reference only and does not constitute a guarantee of any kind. Users are responsible for assessing and establishing appropriate safety and health practices for their specific operating conditions.
2. Revision History:
Version: 2.1
Revision Date: June 26, 2026
3. Important Notes:
3.1 Dust hazard warning: This product is a fine dust. Long-term inhalation can cause serious lung diseases (e.g., pneumoconiosis). Engineering control measures such as local exhaust ventilation must be used to keep the dust concentration in the workplace air low.
3.2 Please provide this MSDS to all operators and emergency personnel who may come into contact with this product.
4. Abbreviations: CAS No. – Chemical Abstracts Service registry number; EINECS No. – European Inventory of Existing Commercial Chemical Substances.