

Technical Data Sheet (TDS)

1. Product Overview

- **Product Name:** Silica Sand
- **English Name:** Silica Sand
- **CAS Number:** 68909-20-6
- **Formula:** SiO₂ (Silicon Dioxide, crystalline silica)
- **Molecular Weight:** 60.08 g/mol
- **Product Characteristics:** High-purity natural quartz sand, white to colorless granular powder/grains with neutral pH, ultra-low impurity content and high SiO₂ purity (≥99.0%). Non-combustible, chemically extremely stable, high hardness, melting point and boiling point. Insoluble in water and weak acids/bases, only soluble in hot concentrated strong alkalis and hydrofluoric acid. Excellent refractoriness, filtration and filling properties. Stable under all normal storage conditions, non-hygroscopic, no caking. Suitable for glass production, ceramic, foundry, water treatment, construction and silicon compound synthesis applications. **Note: Prolonged/repeated inhalation of respirable crystalline silica dust causes lung damage (silicosis), mandatory dust control required.**

2. Technical Specifications (Industrial Grade, 80-120 mesh)

Item	Specification
Appearance	White to colorless granular powder/grains
SiO ₂ Content	≥ 99.0%
Al ₂ O ₃ Content	≤ 0.3%
Fe ₂ O ₃ Content	≤ 0.05%
CaO Content	≤ 0.05%
MgO Content	≤ 0.05%
Moisture Content	≤ 0.2%
Ash Content	≤ 0.1%
Particle Size	80-120 mesh (125-180 μm)
pH Value (5% aq. suspension)	6.5-7.5
Heavy Metals (Pb)	≤ 5 ppm
Acid Insoluble Matter	≥ 98.0%
Loss on Ignition (800°C, 2h)	≤ 0.5%
Density (25°C)	2.65-2.66 g/cm ³
Bulk Density	1.4-1.6 g/cm ³
Hardness (Mohs)	≥ 7
Melting Point	≥ 1700°C
Solubility	Insoluble in water; soluble in hot concentrated alkalis/HF

3. Product Advantages

1. **Ultra-High Purity:** ≥99.0% SiO₂ content with ultra-low alkaline metal (CaO/MgO) and metal oxide (Al₂O₃/Fe₂O₃) impurities; ensures high quality of end products in glass/ceramic production.
2. **Excellent Chemical Stability:** Extremely stable under normal storage/processing conditions; neutral pH, no reaction with most organic/inorganic raw materials (excluding hot concentrated alkalis/HF); non-hygroscopic, no caking.
3. **Superior Physical Properties:** High hardness (7 Mohs), high melting/boiling point, excellent refractoriness; suitable for high-temperature applications (foundry, glass production).
4. **Uniform Particle Size:** Narrow particle size distribution (80-120 mesh); good porosity and filtration performance; ideal for water treatment filter media and foundry sand.
5. **Versatile Functional Performance:** Excellent filling, filtration and refractory properties; suitable for multiple high-demand industrial application scenarios with different processing requirements.
6. **Long Storage Life:** 48-month shelf life in sealed conditions; non-degradable, non-hygroscopic, no caking; suitable for long-term storage and bulk transportation.



NEWAY SINOPHC TECH. LIMITED

ADD:RM. 204, BUILDING 3, NO. 188, AONA RD., CHINA (SHANGHAI) PILOT FREE TRADE ZONE.
Email:marketing01@newayphc.com; Phone:+86-021-50350029 <https://www.newayphc.com>

4. Application Fields

- **Glass Industry:** Core raw material for float glass, optical glass, container glass and glass fiber; high SiO₂ purity ensures glass transparency, thermal stability and mechanical strength; addition amount 60-80% (w/w).
- **Ceramic Industry:** Glaze/frit raw material for ceramic tiles, sanitary ware and porcelain; improves glaze gloss, wear resistance and chemical resistance; reduces firing defects; addition amount 10-30% (w/w).
- **Foundry Industry:** Foundry sand for metal casting (iron, steel, aluminum); high refractoriness and porosity; good mold permeability and collapsibility; ensures casting surface smoothness; addition amount 80-95% (w/w).
- **Water Treatment Industry:** Filter media for drinking water, industrial wastewater and sewage treatment; high porosity and uniform particle size; excellent filtration effect for suspended solids; reusable after cleaning.
- **Construction Industry:** Aggregate for concrete, mortar and asphalt; improves concrete strength, wear resistance and dimensional stability; used in high-grade construction projects and road paving.
- **Other Fields:** Raw material for silicon compound (silicate, silicone) synthesis; filler for rubber/plastic; abrasive for sandblasting; refractory material for metallurgy.

5. Usage Methods

- **Glass Production:** Mix silica sand with other glass raw materials (soda ash, limestone, feldspar) in proportion (60-80%); grind to fine powder with ball mill; melt at 1400-1600°C in glass furnace; form and anneal to obtain glass products.
- **Foundry Application:** Mix silica sand with binder (bentonite, resin) in proportion (80-95%); add water to adjust plasticity; make casting mold; dry at 100-150°C; cast molten metal and remove sand after cooling.
- **Water Treatment Filter Media:** Fill silica sand into filter tank (single/multimedia filter) with a thickness of 50-80 cm; control filtration rate at 5-10 m/h; backwash with water/air when filtration efficiency decreases (backwash rate 10-15 m/h).
- **Ceramic Glaze:** Mix silica sand with other glaze raw materials (kaolin, feldspar) in proportion (10-30%); grind to fine powder (D₉₀ <20μm) with ball mill; adjust viscosity with water; apply to ceramic body and fire at 1100-1300°C.

6. Packaging & Storage

- **Packaging Specifications:** 25 kg coated woven bags (with PE inner liner), 50 kg HDPE drums, bulk bins (for large-scale industrial use), 1000 kg FIBC (flexible intermediate bulk containers, dust-proof); customized particle size/mesh available upon request.
- **Storage Conditions:** Cool, dry, well-ventilated warehouse (≤30°C); store in sealed packaging/bulk bins; avoid direct sunlight and dust dispersion; keep away from hot concentrated strong alkalis, hydrofluoric acid and food/medicines (industrial grade); no humidity limit (non-hygroscopic).
- **Shelf Life:** 48 months (unopened, specified conditions); 18 months after opening (seal tightly to prevent dust dispersion; no degradation).
- **Mandatory PPE:** Wear chemical splash goggles, P100 dust mask, nitrile gloves and full protective suit for all handling operations; face shield and PAPR for bulk dry processing/spills; dust-proof cap and face cover for long-term operation.
- change contaminated clothing in a dedicated area; **no prolonged/repeated exposure to dust.**

8. Quality Assurance

- Manufactured under ISO 9001 (quality) and ISO 14001 (environmental) management systems; strict raw material inspection, particle size control and purity testing.
- Each batch is tested for chemical composition, physical properties and particle size; accompanied by a Certificate of Analysis (COA) to ensure compliance with industrial standards.
- Customized products available: food/cosmetic grade, different mesh/particle size (20-200 mesh), ultra-high purity grade (≥99.9% SiO₂) and spherical silica sand; suitable for different application scenarios.