

AIF Trading® Egyptian Silica Sand: Grades, Specifications, Applications & Target Markets



AIF Trading® – Alexandria International for Trading & Contracting [AIF Trading]

This report provides a comprehensive overview of Egyptian silica sand, highlighting its grades, specifications, diverse applications, and potential target markets. Egypt boasts substantial reserves of high-purity silica sand, making it a strategic supplier for various industries globally. This document outlines the key characteristics of Egyptian silica sand, its competitive advantages, and recommended commercial strategies for international buyers.

1. Executive Summary

Egypt is a globally recognized source of high-purity silica sand with SiO₂ contents ranging from 88% up to 99.7%, suitable for glass manufacturing, foundry applications, solar-grade processing, ceramics, filtration, and industrial uses. Egyptian deposits—especially in Sinai, Zaafarana [Red Sea], Wadi El Dakhl, Wadi Qena, and other desert regions—provide consistent and export-ready silica sand with competitive pricing and large annual production volumes.

2. Reserves & Production Capacity in Egypt

- Egypt holds hundreds of millions of tons of high-purity silica sand across multiple desert basins.
- Annual commercial availability exceeds several million tons, with strong export logistics through Ain Sokhna, Suez, Alexandria, Damietta, and Red Sea ports.
- The country is positioned as a strategic supplier to Europe, the Gulf, East Asia, and North Africa due to high purity and proximity to global shipping lanes.

3. General Specifications of Egyptian Silica Sand

Specifications vary depending on the application, but standard commercial parameters include:

Chemical Composition

- SiO₂: 88% – 99.7%
- Fe₂O₃: 0.015% – 0.25% (Iron content is critical for glass applications)
- Al₂O₃, CaO, MgO: very low fractions depending on source
- Moisture: 0.1% – 0.8%

Particle Size Distribution (depending on use)

- 0.1–0.3 mm
- 0.3–0.7 mm
- 0.7–1.25 mm
- Fine silica flour [45 microns, 75 microns, 150 microns]

Color

- White to off-white depending on iron content.

Certificates of Analysis (CoA) are normally provided per shipment.

Egyptian Silica Sand Specifications

Specification	Value
SiO ₂	88% – 99.7%
Fe ₂ O ₃	0.015% – 0.25%
Al ₂ O ₃ , CaO, MgO	Very low fractions
Moisture	0.1% – 0.8%
Particle Size	0.1–1.25 mm, Fine flour
Color	White to off-white

Made with Napkin

4. Applications According to Purity (SiO₂ Levels)

SiO₂: 88% – 94% [Industrial Grade]

- Cement additives
- Construction materials
- Sandblasting
- Backfilling and infrastructure projects
- General industrial applications

SiO₂: 95% – 97% [Ceramic / Casting Grade]

- Ceramic tiles and sanitary ware
- Foundry casting molds
- Abrasives
- Waterproofing and insulation industries

SiO₂: 97.5% – 99.2% [Glass Grade]

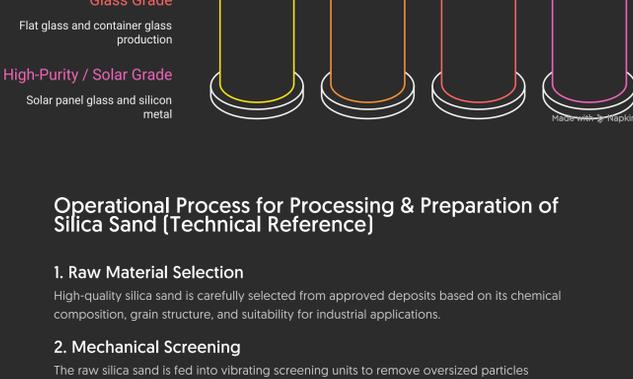
- Flat glass (windows, automotive)
- Container glass (bottles, jars)
- Fiberglass / insulation
- Cosmetic glass applications
- Purified silica for high-end industrial uses

SiO₂: 99.3% – 99.7% [High-Purity / Solar Grade]

- Solar panel glass
- Ultra-clear glass
- Optical and electronic applications
- Silicon metal (after further purification)

This category is the most in demand globally due to the growth of solar power and electronics manufacturing.

Applications of Egyptian Silica Sand by Purity



Operational Process for Processing & Preparation of Silica Sand [Technical Reference]

1. Raw Material Selection

High-quality silica sand is carefully selected from approved deposits based on its chemical composition, grain structure, and suitability for industrial applications.

2. Mechanical Screening

The raw silica sand is fed into vibrating screening units to remove oversized particles exceeding 600 microns. This step ensures uniform grain size and prepares the material for downstream processing.

3. Attrition Scrubbing

The screened sand undergoes intensive attrition scrubbing in the presence of water. This mechanical friction process removes surface contaminants, clay coatings, and adhered impurities from the sand grains, significantly improving purity.

4. Upstream Flotation

Flotation technology is applied to separate lightweight impurities. Through controlled flotation, unwanted materials float to the surface and are removed, while purified silica settles for further processing.

5. Spiral Gravity Separation

The material is processed through spiral separators operating on gravity-based separation principles. This stage removes heavy minerals and iron-bearing compounds based on density differences.

6. Thermal Drying

The purified silica sand is dried using industrial thermal dryers operating at temperatures between 120°C and 150°C. This step eliminates residual moisture and stabilizes the material for storage and packaging.

7. Electromagnetic Separation

High-intensity electromagnetic separators are used to remove any remaining traces of iron, achieving enhanced chemical purity and meeting strict industrial specifications.

8. Final Quality Control

Each production batch undergoes laboratory analysis to verify silica content, iron levels, grain size distribution, and overall conformity with industrial requirements.

9. Packaging & Dispatch Preparation

The finished product is packed in 50 KG Jumbo Bags, sealed, labeled, and prepared for immediate industrial use and export shipment.

⚙️ This process transforms raw silica sand into a fully processed, industrial-grade product suitable for glass manufacturing, ceramics, foundries, filtration systems, and other high-performance applications.

OPERATIONAL PROCESS FOR PROCESSING & PREPARATION OF SILICA SAND (Technical Reference)

1 RAW MATERIAL SELECTION

High-quality silica sand carefully selected from approved deposits based on chemical composition, grain structure, and suitability for industrial applications.

2 MECHANICAL SCREENING

The raw silica sand fed into vibrating screening units to remove oversized particles exceeding 500 microns. Significantly improving purity.

3 UPSTREAM FLOTATION

Through controlled flotation, upstream processes lightweight impurities. Through settling, purified silica settles for further processing.

5 SPIRAL GRAVITY SEPARATION

This stage eliminates residual moisture and stabilizes the material for storage and packaging.

6 THERMAL DRYING

Each production batch undergoes laboratory analysis to verify silica content, iron levels, grain-size distribution, and overall conformity with industrial requirements.

7 ELECTROMAGNETIC SEPARATION

High-intensity electromagnetic separators are used to remove any remaining chemical impurities and meets strict industrial specifications.

8 FINAL QUALITY CONTROL

Each production batch undergoes laboratory analysis to verify silica content, iron levels, grain size distribution, and overall conformity with industrial requirements.

9 PACKAGING & DISPATCH PREPARATION

The finished product is packed in 50 KG Jumbo Bags, sealed, labeled, and prepared for immediate industrial use and export.

This process transforms raw silica sand into a fully processed, industrial-grade product suitable for glass manufacturing, ceramics, foundries, filtration systems, and other applications.

5. Key Selling Advantages of Egyptian Silica Sand

1. Very high purity levels up to 99.7% SiO₂.
2. Low iron content, suitable for high-end glass and solar applications.
3. Uniform granulometry (very stable particle size distribution).
4. Competitive pricing versus Turkey, Greece, and European suppliers.
5. Fast export logistics through multiple Red Sea and Mediterranean ports.
6. Availability of washed, dried, and screened material.
7. Bulk shipping or jumbo bags depending on customer requirements.

6. Required Documents for International Buyers

- Certificate of Analysis [CoA]
- Certificate of Origin
- EuroCert or SGS Inspection
- Packing List
- MSDS (Material Safety Data Sheet)
- Loading Photos & Quality Report

7. Target Markets & Strategic Opportunities

Top Priority Markets

- **UAE, Qatar, Saudi Arabia** – High demand for glass factories, foundries, and construction.
- **Turkey** – Large glass and ceramic industries.
- **Italy, Spain, Greece** – European glass manufacturing hubs.
- **India** – One of the world's fastest-growing markets for glass, ceramics, and foundry.
- **China, Vietnam, Thailand** – High-volume demand for glass and industrial silica.

Secondary Markets

- **North Africa [Morocco, Tunisia, Algeria]** – Ceramic and glass manufacturing.
- **East Africa** – Construction and industrial uses.
- **Latin America [Brazil, Chile, Peru]** – Foundry and ceramic applications.

Specialized High-Value Markets

- Solar panel manufacturers [EU & Asia]
- Optical glass factories
- Electronic grade silicon processors

Market Prioritization for Egyptian Silica Sand



8. Recommended Commercial Strategy

- Offer multiple purity levels (88% → 99.7% SiO₂).
- Provide both washed & dried options depending on client usage.
- Present size curves (0.1–0.3 mm, 0.3–0.7 mm, 0.7–1.25 mm).
- Confirm iron content (Fe₂O₃) – most critical parameter for glass clients.
- Highlight fast loading from Red Sea ports for Asia and Gulf buyers.
- Offer flexible packing: bulk, 1-ton jumbo bags, 50 kg bags.

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AIF Trading
Applications of Egyptian Silica Sand

AIF TRADING
PROFESSIONAL REPORT – EGYPTIAN SILICA SAND
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Grades: Spectroscopic, Iron and Silicon Sand

