Document Type	Technical Datasheet & Price Guide
Product	Silica Fume (Microsilica)
Year	2026
Standards	ASTM C1240 | EN 13263
Price Range	**USD 30–50 per metric ton (FOB)**
Issued by	Ferrosilicon.co — Export Division
Website	ferrosilicon.co/silica-fume-specifications-2026/
Contact	info@ferrosilicon.co | +98 912 168 4359

SiO2 CONTENT	PARTICLE SIZE	BULK DENSITY	PRICE 2026	DOSAGE
90–96	0.1–0.2	200–700	30–50	5–10
% (typical)	micrometers	kg/m3	USD / ton FOB	% of cement wt.

01 WHAT IS SILICA FUME (MICROSILICA)?

Silica Fume, also known as Microsilica or Condensed Silica Fume (CSF), is an ultra-fine, highly reactive pozzolanic material produced as a by-product of silicon metal and ferrosilicon alloy manufacturing in electric arc furnaces. It consists primarily of amorphous silicon dioxide (SiO_2) collected from furnace exhaust gases using advanced bag-filter systems.

With an average particle size approximately **100 times smaller than cement particles** (0.1–0.2 microns), silica fume fills microscopic voids in the concrete matrix, creating an exceptionally dense micro-structure. Through its pozzolanic reaction with calcium hydroxide ($Ca(OH)_2$), it generates additional calcium silicate hydrate (C-S-H) — the primary strength-giving compound in concrete — significantly improving mechanical performance and long-term durability.

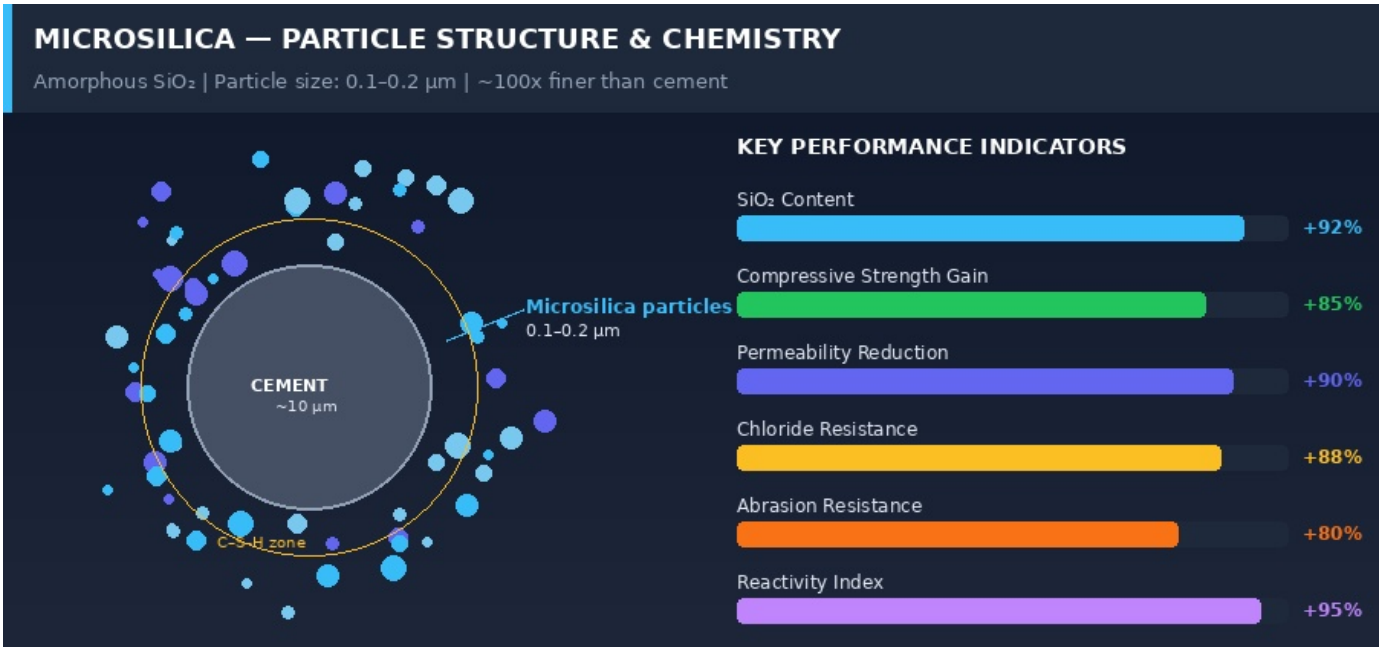

Figure 1 — Microsilica particle structure and key performance indicators vs. cement matrix

02 KEY TECHNICAL SPECIFICATIONS

Parameter	Specification / Value	Standard / Note
Product Name	Silica Fume (Microsilica)	Also: CSF, Condensed Silica Fume
Chemical Formula	SiO2 (amorphous)	Silicon Dioxide — non-crystalline
SiO2 Content	90 – 96% (up to 98% high-purity)	ASTM C1240 min. 85%
Al2O3 Content	< 1.0%	Typical impurity level
Fe2O3 Content	< 1.5%	Typical impurity level
Loss on Ignition (LOI)	< 4.0%	ASTM C1240 limit
Moisture Content	< 3.0%	At point of delivery
Particle Size (avg)	0.1 – 0.2 micrometers	~100x finer than OPC
Specific Surface Area	15,000 – 25,000 m2/kg	BET method
Bulk Density — Undensified	200 – 350 kg/m3	Raw powder form

Parameter	Specification / Value	Standard / Note
Bulk Density — Densified	500 – 700 kg/m3	Compacted form
Color	Gray to dark gray	Varies by SiO2 content
Physical Form	Undensified / Densified / Pelleted / Slurry	See Section 04
Recommended Dosage	5 – 10% by weight of cement	Mix design dependent
Quality Standard	ASTM C1240 | EN 13263	COA provided per batch
Packaging	20–25 kg bags / 500–1000 kg jumbo bags / bulk	See Section 06
Price Range 2026	**USD 30 – 50 per metric ton (FOB)**	See Section 03

03 SILICA FUME PRICE RANGE — 2026 GLOBAL MARKET

The following prices represent typical **FOB export market estimates for 2026**. Prices fluctuate based on SiO_2 purity, product form, order volume, packaging, and freight logistics. Always request an updated quotation before final procurement.

Product Type	SiO2 Content	Packaging	Price (USD/ton FOB)	Trend
Undensified Silica Fume	90 – 92%	Jumbo Bag / Bulk	$ 30 – 38	↑ Stable
Densified Silica Fume	90 – 94%	1 Ton Jumbo Bag	$ 35 – 45	↑ Growing
High Purity Silica Fume	94 – 96%	Export Grade Jumbo	$ 40 – 50	↑↑ Rising
Bulk Industrial Grade	90 – 93%	Bulk Tanker	$ 30 – 40	→ Stable
Microsilica Slurry	45–50% solid	Liquid Tanker	$ 25 – 35	↑ Growing

* Prices are indicative FOB export rates. Actual pricing depends on supplier location, shipping route, Incoterms, order volume, and market conditions. Contact ferrosilicon.co for a firm quotation.

04 TYPES: DENSIFIED vs. UNDENSIFIED vs. PELLETED

Property	Undensified	Densified	Pelleted / Slurry
Bulk Density	200–350 kg/m3	500–700 kg/m3	800–1000 kg/m3 / liquid
Dust Level	HIGH	LOW	VERY LOW / NONE
Reactivity	HIGHEST	HIGH	MODERATE
Transport Cost	HIGH	LOW	LOW – MEDIUM
Dispersion	EXCELLENT	VERY GOOD	NEEDS HIGH-SHEAR
Best Use	UHPC, Lab mixes	Ready-mix, Export	Urban sites, Automation
Price Premium	—	+10–15%	+5–20%
ASTM C1240	YES	YES	YES

Learn more: ferrosilicon.co/types-of-micro-silica/

05 INDUSTRIAL APPLICATIONS — 2026

Figure 2 — Primary industrial application sectors for Silica Fume globally in 2026

#	Application	Key Benefit	Dosage	Grade
1	High-Performance Concrete (HPC/UHPC)	Compressive strength +30–50%	7–15%	High Purity
2	Bridge Decks & Marine Structures	Chloride resistance	7–10%	Densified
3	Refractory Castables & Bricks	Thermal stability, density	3–8%	Any
4	Oil Well Cementing	High-temp integrity	5–10%	High Purity
5	Shotcrete & Tunnel Linings	Cohesion, early strength	5–8%	Undensified
6	Industrial Flooring	Abrasion & wear resistance	5–10%	Densified
7	Precast Concrete Elements	Surface quality, strength	5–10%	Densified
8	Grouts & Repair Mortars	Low permeability	5–15%	Any

06 PERFORMANCE BENEFITS IN CONCRETE

Higher Compressive Strength +85% — 85%

Pozzolanic reaction forms additional C-S-H gel, increasing 28-day strength by 20–50%

Reduced Permeability +90% — 90%

Ultra-fine particles block capillary pores — chloride diffusion reduced by 70–90%

Improved Durability +88% — 88%

Resists freeze-thaw, sulfate attack, ASR expansion and chemical exposure

Abrasion Resistance +80% — 80%

Surface hardness substantially improved — ideal for industrial floors & pavements

Mix Cohesion +75% — 75%

Reduces bleeding and segregation; improves pumpability and finishability

Sustainability +70% — 70%

Industrial by-product; reduces cement content and CO2 per m3 of concrete

07 FACTORS AFFECTING PRICE

Factor	Lower Price	Higher Price
SiO2 Purity	85–90%	94–98%
Product Form	Bulk / Undensified	Pelleted / Slurry
Order Volume	>500 metric tons	<50 metric tons
Packaging	Bulk tanker	25 kg bags
Transport	Short distance / local	International / long-haul
Standard	Basic grade	ASTM C1240 certified + COA
Contract Type	Long-term annual contract	Spot purchase

08 PACKAGING & STORAGE OPTIONS

Packaging Type	Capacity	Suitable For	Storage Note
Small Paper Bags	20–25 kg	Small projects, labs	Keep sealed & dry
Jumbo Bag (Big Bag)	500–1000 kg	Construction sites, export	Waterproof, sheltered
Bulk Tanker (Silo)	Bulk delivery	Large batching plants	Dry silo, no moisture
Liquid Slurry Tanker	40–50% solid	Automated dosing systems	Agitate before use

09 HOW TO CHOOSE HIGH-QUALITY SILICA FUME

■ Step 1 — Check SiO2 Purity

Require minimum 90% SiO2 for standard HPC. For UHPC, marine, or refractory: specify >94%. Always request a Certificate of Analysis (COA) per batch.

■ Step 2 — Verify Standards Compliance

Ensure the product meets ASTM C1240 (USA/International) or EN 13263 (European). Ask for LOI <4%, moisture <3%, and specific surface area data.

■ Step 3 — Select the Right Physical Form

Use densified for efficient international shipping. Use undensified for maximum dispersion in UHPC or specialized mixes. Slurry for automated batching plants.

■ Step 4 — Evaluate Packaging vs. Your Infrastructure

Match packaging format to your batching plant capabilities. Jumbo bags for most sites; bulk tanker for plants with silos.

■ Step 5 — Assess Supplier Experience & Export Track Record

Work with suppliers with proven export experience to your region. Verify references, delivery timelines, and document completeness (COA, MSDS, BOL, CO).

■ Step 6 — Compare Price Against 2026 Market Range

Benchmark against 30–50 USD/ton FOB for standard grades. Request quotations from ferrosilicon.co/contact-us/ specifying volume, grade, and port.

10 FREQUENTLY ASKED QUESTIONS

Q: What is the average price of silica fume in 2026?

A: USD 30–50 per metric ton FOB, depending on grade (undensified/densified/high-purity), order volume, and destination. Slurry grades start from USD 25/ton.

Q: What is the difference between densified and undensified silica fume?

A: Both have the same chemical composition. Undensified (200–350 kg/m3) disperses better but is costly to ship. Densified (500–700 kg/m3) is more economical for export and large-scale industrial supply.

Q: Why is silica fume used in high-performance concrete?

A: Its ultra-fine particles fill micro-voids and react with Ca(OH)2 to form C-S-H, increasing strength by 20–50%, reducing permeability by 70–90%, and extending service life of critical structures.

Q: Which standard should silica fume comply with?

A: ASTM C1240 (North America & internationally recognized) or EN 13263 (Europe). Always request a batch-specific COA confirming SiO2, LOI, moisture, and fineness.

11 GLOBAL MARKET TRENDS 2026

■ Infrastructure Boom in Asia & Middle East

Rapid construction expansion in the Gulf, Central Asia, and South Asia is driving unprecedented demand for high-performance concrete containing silica fume.

■ UHPC Adoption in Bridge Engineering

Ultra-High Performance Concrete (UHPC) with silica fume dosages of 10–25% is becoming the standard for new bridge construction in Europe and North America.

■ Sustainability & Green Construction

As a by-product material, silica fume supports green building certifications (LEED, BREEAM) by reducing cement content and total CO2 footprint per cubic meter.

■ Export Growth from Iran & Eastern Producers

Iran, China, and Norway remain major exporters. Iranian silica fume is increasingly competitive in Eurasian markets (Turkey, Russia, Kazakhstan, UAE) due to logistics advantages.

CONTACT & ORDER INFORMATION

FERROSILICON.CO	Global Supplier — Silicon Alloys & Microsilica
Website	https://ferrosilicon.co/
Product Page	https://ferrosilicon.co/silica-fume-specifications-2026/
Complete Guide	https://ferrosilicon.co/microsilica-complete-guide-properties-uses-applications/
Types Guide	https://ferrosilicon.co/types-of-micro-silica/
Email	info@ferrosilicon.co
Phone	+98 912 168 4359
WhatsApp RFQ	+37 494 899 133
Author	Mahboubeh Kharmanbiz — Senior Metallurgist & Technical Director
LinkedIn	linkedin.com/in/mahboubeh-kharmanbiz-98a972368/