UltraSil™ MINERALS

Global Mineral Solutions for **High-Performance Concrete**

Advanced supplementary cementitious materials engineered for ready-mix, precast and infrastructure concrete.

- Densified Micro Silica
- Metakaolin Powder
- Quartz Powder
- Microfine GGBS



www.ultrasilminerals.com

India • Bangladesh

Introducing UltraSil Minerals

UltraSil Minerals offers a comprehensive range of advanced mineral solutions engineered to elevate the performance of modern concrete. We supply high-reactivity supplementary cementitious materials to ready-mix producers, precast manufacturers and infrastructure contractors across South Asia.

Manufacturer: UltraSil Minerals (Reenald Enterprise), Galsi, Purba Bardhaman – 713406, West Bengal, India



AT A GLANCE

04	IS 15388	25 KG	2
MINERAL ADMIXTURE LINES	REFERENCE STANDARD	STANDARD BAG	OFFICES — IN & BD

WHAT SETS US APART

Advanced Mineral Science

Purpose-engineered SCMs that raise pozzolanic reactivity and long-term durability.

Built for Infrastructure

Trusted for bridges, marine works, high-rises and other critical structures.

Technical Partnership

Dedicated support for mix design, dosage optimisation and site troubleshooting.

Four Solutions, One Standard

A complete family of high-reactivity supplementary cementitious materials, each formulated for a distinct role in the mix — from ultra-fine void filling to pozzolanic reaction, particle packing and heat control.

PACKAGING 25 kg net bags across all lines. 500 kg and 1,000 kg jumbo bags available on request for high-volume projects.

MICROSILICA GRADES UltraSil Premium (UHPC, HPC, high-strength) · UltraSil Standard (ready-mix, precast) · UltraSil Economy (general construction).



The UltraSil range, supplied as standard 25 kg net bags

UltraSil Densified Micro Silica

High-Reactivity Densified Microsilica

- High strength, durability and reactivity
- Ultra-fine particles fill micro-voids and form additional C-S-H
- Excellent performance in higher-strength concrete

UltraSil Metakaolin Powder

Premium Metakaolin for Superior Concrete

- High pozzolanic reactivity
- Improved strength and durability
- Enhanced workability and surface finish

UltraSil Quartz Powder

High-Purity Quartz for Performance Concrete

- High purity and fineness
- Superior strength and abrasion resistance
- Optimises particle packing and the ITZ

UltraSil Microfine GGBS

Microfine Ground Granulated Blast Furnace Slag

- Reduces heat of hydration and thermal cracking
- Improves durability and service life
- Improves workability and particle packing

Why UltraSil MS?

UltraSil MS is a high-reactivity densified microsilica designed to improve the mechanical and durability properties of concrete. Its ultra-fine particles fill micro-voids within the cement matrix while actively reacting with calcium hydroxide to form additional calcium silicate hydrate (C-S-H) — resulting in stronger, denser concrete.

It is ideal for modern infrastructure where long service life, structural integrity and sustainability are critical.

"Build Stronger. Build Smarter."



KEY BENEFITS

- Higher compressive strength
- Reduced permeability
- Increased durability
- Improved abrasion resistance
- Superior chemical resistance
- Sustainable concrete performance

PERFORMANCE ADVANTAGES

Compressive Strength	EXCELLENT	Flexural Strength	EXCELLENT
Chloride Resistance	EXCELLENT	Sulphate Resistance	EXCELLENT
Water Tightness	EXCELLENT	Abrasion Resistance	EXCELLENT
Alkali–Silica Reaction Mitigation	EXCELLENT	Durability	EXCELLENT

Also delivers improved bond strength with reduced bleeding and segregation in the fresh mix.

Technical Data & Compliance

TYPICAL PHYSICAL PROPERTIES

Property	Typical Value
Appearance	Grey to off-white powder
Chemical Type	Amorphous silicon dioxide (SiO_2)
CAS No.	69012-64-2
Specific Gravity	2.20
Bulk Density	150 – 700 kg/m³
Specific Surface Area	15 – 30 m²/g
Mean Particle Size	< 1 µm
Odour	Odourless
Water Solubility	Insoluble / slightly soluble

TYPICAL CHEMICAL PROPERTIES · TESTED VS. IS 15388

Parameter	Tested Value	IS 15388 Requirement
Silicon Dioxide (SiO_2), %	**92.20**	≥ 85.0
Moisture Content, %	**0.82**	≤ 3.0
Loss on Ignition, %	**1.24**	≤ 4.0
Alkalies as Na_2O, %	**0.44**	≤ 1.5
Specific Surface Area, m²/g	**28.01**	≥ 15.0
Retained on 45 µm Sieve, %	**5.14**	≤ 10.0
Variation on 45 µm Sieve, %	**0.46**	≤ 5.0
7-Day Compressive Strength Index, %	**112.4**	≥ 85.0
Specific Gravity	**2.22**	Not specified
Bulk Density, kg/m³	**618**	> 500 (densified)

All parameters meet or exceed IS 15388 requirements for condensed silica fume.

OXIDE COMPOSITION (% by mass) SiO_2 92–95 · Al_2O_3 0.5–1.5 · Fe_2O_3 0.1–0.5 · CaO ≤ 1.0 · MgO 0.2–0.8 · $K_2O + Na_2O$ 0.5–1.0

RECOMMENDED DOSAGE

Optimise through trial mixes for the specific project and materials.

BY CONCRETE GRADE

M30 – M40	M50 – M70	M80+	UHPC
5 – 7%	7 – 10%	8 – 12%	10 – 14%

BY APPLICATION TYPE

General Use	High-Performance	Self-Compacting
5 – 10%	8 – 12%	6 – 9%
by cement weight	by cement weight	with superplasticizer

UltraSil™ MINERALS



APPLICATIONS, SUPPORT & QUALITY

Engineered for Demanding Work

- High-Strength Concrete
- High-Performance Concrete
- Ultra-High-Performance Concrete
- Ready-Mix Concrete
- Precast Concrete
- Bridge Decks
- Marine Structures
- Industrial Flooring
- Water-Retaining Structures
- Tunnels & Shotcrete
- Repair Mortars
- Cementitious Grouts
- Refractory Products

COMPATIBILITY

- OPC
- PPC
- PSC
- Fly Ash
- GGBS
- Limestone fillers
- PCE-based superplasticizers
- SNF-based superplasticizers
- Air-entraining admixtures
- Set retarders & accelerators

MIXING GUIDELINES

- Add together with the cementitious materials at the start of batching
- Use high-range water-reducing admixtures to maintain workability
- Never add powder directly into standing water
- Allow adequate mixing time for uniform dispersion

PACKAGING & STORAGE

- 25 kg bags (standard)
- 500 kg jumbo bags (optional)
- 1,000 kg jumbo bags (optional)
- Store in a dry, covered area
- Protect from moisture; keep sealed
- Stack on pallets, max. 10 layers

TECHNICAL SUPPORT

- Mix design optimisation
- Dosage recommendations
- Trial mix support
- Concrete performance evaluation
- Site troubleshooting

Manufactured under controlled quality procedures with routine batch testing. Refer to the latest UltraSil™ SDS before handling; avoid dust inhalation and use suitable PPE.

Ready to Build Stronger Concrete?

Elevate your next infrastructure, bridge, port or high-rise project with UltraSil mineral solutions — backed by dedicated technical guidance and mix design support.

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