

Product Data Sheet

Microsilica (Silica Fume) 94D — Densified Grade

Description

Description	Microsilica 94D (Densified Silica Fume) is a high-purity densified grade of amorphous silicon dioxide with a minimum SiO ₂ content of 94%. Produced by agglomerating ultra-fine silica fume particles, it combines the high pozzolanic reactivity and purity of premium microsilica with the handling advantages of densification — reduced dustiness, improved flow, and compatibility with standard batching equipment.
Applications	Ultra-high-performance concrete (UHPC), high-performance concrete (HPC), high-strength concrete (HSC), precast and prestressed concrete, grouts and injection mortars, self-compacting concrete (SCC), shotcrete, marine and offshore structures, oil well cementing, and low cement refractory castables where a densified form is preferred.
Grade	94D – Densified
HS Code	28112200

Key Benefits

1. High SiO₂ purity (min. 94%) – maximum pozzolanic reactivity for exceptional strength and durability gain
2. Densified form – reduced dustiness, improved flow during batching, compatible with standard concrete plant equipment
3. Enables ultra-high-performance concrete (UHPC) – compressive strengths exceeding 120 MPa
4. Greatly reduced permeability – significantly lowers chloride ion penetration and water absorption
5. Low impurity levels – tight limits on Fe₂O₃, CaO, and alkalis for demanding structural applications
6. Enhanced durability – resistance to sulphate attack, alkali-silica reaction (ASR), and carbonation
7. Suitable for concrete and select refractory applications where densified handling is preferred

Chemical Analysis & Physical Data

Chemical Composition (Weight %)

Parameter	Unit	Specification*
SiO ₂	wt%	Min. 94.0

C (Carbon)	wt%	Max. 3.0
Fe ₂ O ₃	wt%	Max. 0.4
CaO	wt%	Max. 1.2
MgO	wt%	Max. 0.8
K ₂ O	wt%	Max. 2.0
Na ₂ O	wt%	Max. 0.5
H ₂ O (when packed)	wt%	Max. 3.0

Physical Properties

Property	Unit	Specification*
Loss on Ignition (LOI)	%	Max. 3.0
Coarse Particles (>45µm)	%	Max. 5.0
pH-value	—	5.0 – 9.0
Bulk Density – Densified (when packed)	kg/m ³	500 – 700
Specific Surface Area (BET)	m ² /g	15 – 25 (typical)
Activity Index (7-day)	%	Min. 95
Activity Index (28-day)	%	Min. 105

* Specifications conform to IS 15388:2003, ASTM C1240, and EN 13263-1. Test methods available on request. HS Code: 28112200

Concrete Application Guide

Application	Typical Dosage (% by wt. of cement)	Primary Benefit
High-performance concrete (HPC)	8 – 12%	Strength >60 MPa, low permeability
High-strength concrete (HSC)	10 – 15%	Compressive strength >80 MPa
Ultra-high-performance concrete (UHPC)	15 – 25%	Compressive strength >120 MPa
Precast / prestressed concrete	8 – 12%	Early strength gain, surface finish
Grouts and injection mortars	8 – 15%	Reduced bleed, improved cohesion
Marine / aggressive environments	8 – 12%	Chloride and sulphate resistance
Self-compacting concrete (SCC)	5 – 10%	Flow, stability, reduced bleeding
Shotcrete / sprayed concrete	5 – 10%	Cohesion, reduced rebound

Dosage rates are indicative. Optimal dosage should be determined by trial mixes. Microsilica may partially replace cement (up to 15%) for cost optimisation and sustainability benefits.

Standards Compliance

Indian Standard	IS 15388:2003 – Silica Fume – Specification
ASTM	ASTM C1240 – Standard Specification for Silica Fume Used in Cementitious Mixtures
European	EN 13263-1 – Silica Fume for Concrete – Definitions, Requirements and Conformity

Packaging

Packaging	1000 kg Jumbo Bags (FIBC / Big Bags) 25 kg Small Bags (multi-wall paper / PE-lined) Custom packaging available on request.
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Storage & Handling

8. Avoid dust generation – use appropriate PPE when handling
9. Store material properly, protected from moisture and contamination
10. Keep bags sealed until point of use
11. Store in a dry, covered area away from direct sunlight

Disclaimer: The information provided in this document is based on our current knowledge and is intended as a general guide. Ochnology Solution Pvt. Ltd. reserves the right to modify specifications without prior notice. Buyers are advised to conduct their own testing for specific applications.

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