

Product Data Sheet

CasTech FS50

Nov-2025, Ver. 01.01



Micro Silica Slurry 50% – Concrete Additive

DESCRIPTION

CasTech FS50 is a technically advanced concrete additive composed of finely ground silica fume particles (SiO_2 92 – 94%) suspended in water with additives for better performance and stability. The slurry has about 50% solid content by weight and enhances concrete performance through optimized reaction with $\text{Ca}(\text{OH})_2$ during hydration. As a supplementary cementitious material, **CasTech FS50** improves the strength, durability and chemical resistance of concrete and reduces its permeability. Its formulation mixes uniformly, improving workability and reducing labour, and it does not form dust, protecting site personnel. It keeps its stability over time without sedimentation or layer separation.

USES

- High-performance concrete – strength, durability and chemical resistance
- Precast concrete – enhanced properties and consistent quality
- Marine structures such as piers, bridges and seawalls
- Bridges and highways
- Industrial flooring – wear resistance and reduced dusting
- Underground structures such as tunnels and mines
- Water treatment facilities such as tanks and pipelines

ADVANTAGES

Key advantages:

- Improved compressive and flexural strength for high-stress applications
- Increased durability: resistance to chemical attack, abrasion and weathering
- Reduced permeability, reducing water penetration and corrosion
- Better workability than silica fume powder – no agglomeration or clumping
- Higher density, improving freeze-thaw resistance and long-term durability
- Environmental benefits – uses an industrial by-product
- Cost-effective over the life of the structure, with reduced repairs, labour and time

TYPICAL PROPERTIES

Consistence	Homogeneous Liquid
Colour	Dark Grey
Chloride According to EN 934-2	< 0.01 (w/w)
Solid Content	50 ± 2.5 % (w/w)
Specific Gravity	1.39 ± 0.03 @ 25°C
SiO_2 Content	> 92% (w/w)
pH (ISO 4316)	5.5 ± 1
Equivalent Sodium Oxide	0.16% w/w
Pozzolanic Activity Index	> 107%
Specific Surface Area	15,000 – 25,000 m^2/kg

CasTech FS50 fulfils ASTM C1240 requirements and is compatible with BS EN 13263-1:2005+A1:2009.

COMPATIBILITY

CasTech FS50 is generally compatible with most cement-based materials and can be used in combination with other mineral admixtures. Small-scale trials are recommended before use in larger applications.

INSTRUCTIONS FOR USE

For best results, use a minimum cement content of 350 kg/m^3 and a water/cement ratio not exceeding 0.45. An increased dosage of CasTech superplasticizer may be added where required, subject to trials. The water in the slurry must be included in the calculated water/cement ratio.

Add **CasTech FS50** to the mixing water and ensure there has been no settling during storage. For mixing time, the definitions and regulations of EN 206-1 apply.

DOSAGE

Typically 5 – 20% of the total binder content, or replace an equal amount of micro silica powder. For concrete Grade 70 or below, reduce the mix water by 50% of the **CasTech FS50** quantity; above Grade 70, reduce it by 70%. Contact CasTech for specific advice.

PRECAUTIONS

Health & Safety:

CasTech FS50 is non-toxic. Any splashes to the skin should be washed immediately with water. Splashes to the eyes should be washed immediately with water and medical advice should be sought.

Cleaning:

Spillages of **CasTech FS50** can be removed with water.

STORAGE

Store **CasTech FS50** in closed containers to prevent

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contamination, stir or agitate regularly and protect from frost. Shelf life is six months from the production date.

Fire:

CasTech FS50 is non-flammable

PACKAGING

CasTech FS50 is available in 25 L, 50 L, 200 L drums and 1000 L IBC.

TECHNICAL SUPPORT

CasTech provides technical support service on mix design, admixture selection, evaluation of trials, dispensing equipment etc. Please contact the Technical Department in these cases.

CasTech MIDDLE EAST FZE

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