

Amorphous Silica as a Pozzolan

Product Name: SER Micronised Amorphous Silica

Product Type: Pozzolan Additive

Applications: Concrete, Mortar, Cementitious Materials

Certification: Certified Organic, Eco-friendly

Description: Mineral Magic Micronised Amorphous Silica is a high-performance pozzolanic additive used to enhance the properties of cementitious materials. It is derived from naturally occurring, high-purity silica with an amorphous structure that provides exceptional reactivity when combined with lime and other alkali compounds in cement. This pozzolan is specifically designed to improve the strength, durability, and sustainability of concrete and mortar mixtures.



Key Benefits:

Improved Strength: Reacts with calcium hydroxide to form additional calcium silicate hydrate (C-S-H), improving long-term strength and performance.

Increased Durability: Enhances resistance to chemical attacks such as sulfate, chloride, and alkali-silica reactions (ASR), ensuring longevity of structures.

Water Retention: Enhances water retention during the curing process, which leads to more complete hydration and better long-term mechanical properties.

Workability: Improves the workability and flow characteristics of concrete, allowing for easier placement and compaction.

Sustainable: Reduces the carbon footprint of cement production by decreasing the amount of cement required in the mix.

Heat Reduction: Helps lower heat generation in mass concrete pours by reducing the amount of portland cement needed.

Technical Specifications:

Silica Content: (SiO_2): >85%

Particle Size: 1-11.5 microns

Bulk Density: 650-700 kg/m^3

Specific Surface Area: 20-25 m^2/g

Pozzolan Activity Index (7 days): $\geq 75\%$

pH: Neutral (7.0)

Color: Off-white powder

Compressive Strength Test: >80 @ 24hrs

Mixing and Dosage Recommendations

Concrete: Replace 5-15% of portland cement with SER Micronised Amorphous Silica, depending on the desired strength and performance characteristics.

Mortar: Use at a 5-10% replacement rate of cement weight for increased workability, durability, and strength.

Blended Cements: Suitable for use in the production of blended cements as a supplementary cementitious material (SCM) to reduce clinker content.

Applications

High-Performance Concrete (HPC): Used in applications requiring increased strength, durability, and reduced permeability, such as bridges, tunnels, and high-rise buildings.

Marine Structures: Protects against chloride ingress and sulfate attack in coastal or submerged environments.

Industrial Floors: Enhances abrasion resistance for heavy-duty applications.

Mass Concrete Pours: Reduces thermal cracking risks by limiting heat generation.

Handling & Storage

Store in a dry, cool area to avoid moisture contamination.

Use appropriate dust control measures when handling, as it is a fine powder.

Recommended to wear protective equipment (mask, gloves, and eyewear) when handling in large quantities.

Contact Information:

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Note: The performance of SER Micronised Amorphous Silica as a pozzolan depends on the specific mix design and application requirements. For technical support or custom blend recommendations, please contact our team.