

HPM® AR

Alkali-Resistant Glass Micro Fibers

Product Description

PIONEER® HPM® AR is a high-performance alkali-resistant glass fiber product with high strength and modulus. When used in concrete, it effectively controls cracking during the curing stage, significantly improves the concrete's brittleness, and enhances its bending toughness. This results in a notable improvement in overall concrete performance. It is widely used in structural applications of high-performance and ultra-high-performance concrete and can also be applied in various composite materials.

Uses

PIONEER® HPM® AR features alkalinity resistance, corrosion resistance, impact resistance, and high tensile strength, making it an ideal choice for enhancing the performance and durability of composite materials. Its high bundle density facilitates easy integration with matrix materials, ensuring excellent adhesion and structural integrity even under harsh conditions. Typical applications include:

- Construction Materials: Glass fiber reinforced concrete (GFRC), glass fiber reinforced gypsum (GFRG)
- Composite Materials: Aerospace, automotive, marine, and other industries requiring high-performance composites
- Filtration Materials: Environmental applications such as filtration and wastewater treatment systems

- Other Applications: Pipelines, storage tanks, transmission lines, fire-resistant materials, and decorative components

Product Advantages

PIONEER® HPM® AR boasts properties such as alkalinity resistance, corrosion resistance, impact resistance, and high tensile strength, making it an ideal choice for enhancing the performance and durability of composite materials. Its high bundle density allows for easy integration with matrix materials, ensuring excellent adhesion and structural integrity even under harsh conditions

- Alkalinity Resistance: Ensures long-term durability of concrete and composite materials exposed to alkaline environments.
- Corrosion Resistance: Protects against chemical and environmental corrosion, maintaining structural integrity under harsh conditions.
- Impact Resistance: Enhances the toughness and durability of composite structures, reducing the risk of damage from external forces.
- High Tensile Strength: Strengthens composites, increasing load-bearing capacity and structural stability.
- Design Flexibility: Offers versatility for various applications, enabling the creation of complex and innovative structures.

Compliance and Certification

- Complies with ASTM C1116/C1116M, Type III fiber-reinforced concrete, and ASTM D7508.
- Suitable for floor and ceiling designs in the D700, D800, D900, G229, G243, G256, and G514 series.
- Complies with European standard EN 14889-2:2006, Concrete Reinforcing Fibers, Part 2: Class Ia.

Physical Properties

- Specific Gravity: 2.7
- Material: Glass
- ZrO₂ content: > 16% by weight
- Fiber Type: Monofilament micro glass fiber
- Diameter: 0.0005 in (0.01 mm)
- Nominal Length: 0.25, 0.5, 0.75 in. (6, 12, 19 mm)
- Tensile Strength: 225ksi (1700 MPa)
- Modulus of Elasticity: 10000 ksi (72 GPa)
- Melt Point: 2075 oF (1121 oC)
- Alkali, Acid, and Salt Resistance: High
- Colour: White

Addition Rates

The dosage of PIONEER®HPM®AR will vary based on application type and performance requirements. The recommended dosage range is 1 to 3 pounds per cubic yard (0.6 to 1.8) kilograms per cubic meter) of concrete.

Length

The standard lengths for PIONEER® HPM® AR fibers are 0.25, 0.5and 0.75 inches (6, 12 and 19 mm). Custom lengths can be selected based on project requirements—please contact a PIONEER® sales representative for custom length options.

Packaging

PIONEER[®] HPM[®] AR are available in a variety of packaging options, For custom packaging, please reach out to a PIONEER[®] sales representative.