

HPM® PP

Monofilament Micro Synthetic Fiber

Product Description

PIONEER®HPM®PP Synthetic Fibers are made from 100% pure polypropylene, designed specifically as a monofilament fiber for concrete reinforcement. In concrete, They form a three-dimensional, randomly distributed network, which help to intercept and halt the progression of micro-cracks during the early hardening stage. The fibers act like an extensive array of micro-reinforcement bars within the concrete, effectively controlling the cracking process and enhancing overall concrete performance.

Uses

PIONEER®HPM®PP is suitable for various concrete applications to control plastic shrinkage and settlement cracking and can be used as an alternative to light-gauge welded-wire reinforcement (6x6 W1.4xW1.4). Typical applications include:

- Slabs on ground
- Residential applications: sidewalks, driveways, decks, curbs
- Stamped / Stained / Polished finishes
- Precast elements
- Overlays / Toppings
- Stucco
- Shotcrete
- Roads / Pavements / Bridge decks
- Self compacting concrete

Product Advantages

PIONEER®HPM®PP offers an effective early-stage crack control solution for concrete, providing reinforcement when concrete tensile strength is at its lowest, thereby enhancing the overall performance and producing more durable concrete.

- Easy to mix and quickly disperses
- Lower dosage rates for equivalent performance
- Reduces plastic shrinkage cracking
- Reduces plastic settlement cracking
- Improves impact, shatter and abrasion resistance
- Enhances durability
- Promotes uniform bleed and reduces bleed water
- Inhibits and control the formation of intrinsic cracking in the concrete
- Increases cohesion and reduces segregation
- Reinforces against abrasion
- Helps reduce cracking due to freeze / thaw
- Provides cost-effective control of plastic shrinkage
- Provides overall higher quality of concrete.

Compliance and Certification

- Complies with ASTM C1116/C1116M, Type III fiber-reinforced concrete, and ASTM D7508
- Meets ICC ES AC32 criteria for Plastic Shrinkage Crack Reduction
- Complies with European Standard EN 14889-2:2006 Fibres for Concrete Part 2: Class Ia

Physical Properties

- Specific Gravity: 0.91
- Material: 100% virgin homopolymer polypropylene
- Fiber Type: Monofilament micro synthetic fiber
- Diameter: 0.0012 in. (0.03 mm)
- Nominal Length: 0.25, 0.5, 0.75 in. (6, 12, 19 mm)
- Tensile Strength: 62ksi (430 MPa)
- Modulus of Elasticity: > 650 ksi (> 4.5 GPa)
- Melt Point: 324 °F (162 °C)
- Alkali, Acid, and Salt Resistance: High

Addition Rates

The standard addition rate for PIONEER® HPM® PP is 0.75 to 3.0 lb/yd³ (450 to 1800 g/m³) of concrete. Typically, 1.5 lbs/yd³ (900 g/m³) of PIONEER® HPM® PP yields excellent results. Higher addition rates can be applied when special concrete properties are required.

Length

The standard lengths for PIONEER® HPM® PP fibers are 0.25, 0.5, and 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® PP are available in a variety of packaging options. For custom packaging, please reach out to a PIONEER® sales representative.