

HTM® Emb

Embossed Monofilament Macro Synthetic Fiber

Product Description

PIONEER®HTM® Emb is a macro synthetic fiber complying with ASTM C1116, Type III. It features an embossed monofilament design made from 100% virgin polypropylene. The geometry, strength, and high modulus are specifically engineered, PIONEER®HTM® Emb provides a uniform three-dimensional reinforcement system for concrete mixtures. It can replace traditional steel mesh and steel fibers, reducing both plastic and hardened stage cracking in concrete while enhancing fatigue resistance and flexural toughness. The unique embossed design of PIONEER®HTM® Emb improves concrete bonding, enhances load transfer, and improves crack control.

Uses

PIONEER®HTM® Emb is specifically designed for floor concrete applications and is suitable for commercial, industrial, and manufacturing floors. It is also highly effective for precast tunnel segments and other selected precast applications, pavements, soil stabilization projects, shotcrete, and blast-resistant structures. Recommended applications include:

- All types of slab-on-ground
- Sprayed Concrete
- Precast
- Slope stabilisation
- Rock and ground support

- Concrete linings
- Extending joints
- Pavements
- Composite metal deck
- Mass concrete
- Bridge decks
- Sidewalks
- Overlays
- Prefabricated septic tanks
- Sewage holding tanks
- Parking Lot
- Tilt-Wall

Product Advantages

As a structural reinforcement material for concrete and shotcrete, PIONEER®HTM®Emb can replace welded wire reinforcement, steel fibers, and lightweight rebar. It is easier to use and safer, with the following key features:

- Easy to mix and fast to disperse
- Cost-effective, three-dimensional reinforcement alternative to secondary wire mesh or rebar, and steel fibers.
- Can be utilized to reduce rebar or wire mesh.
- Increased safety on job site; remove lifting of reinforcement, bending to tie, and tripping hazard.
- Cuts construction time by eliminating the need for cutting, placing, tying, and securing, and removes concerns about proper placement.
- Increases safety by removing the handling of steel fibers, welded wire, and rebar.
- Improves concrete's ductility, flexural toughness, and durability.
- Inhibits plastic shrinkage and settlement cracking. Provides superior crack control .

- Enhances impact resistance, crack resistance, and wear performance of concrete.
- Barely visible on the surface obtaining highly aesthetic concrete.
- Ease of pumping, passes easily through pump grates.Reduced wear on pumps and hoses.
- Reduces rebound in shotcrete and improves cohesion.
- Reducing embodied carbon through the replacement of convention steel reinforcement with synthetic structural fibers.
- Increased durability due to high chemical resistance and corrosion free.

Compliance and Certification

- ASTM C1116 / C1116M, Fiber-Reinforced Concrete Standards, Type III Synthetic Fiber Reinforced Concrete
- ASTM D7508 / D7508M, Standard Specification for Polyolefin Cut Fiber for Concrete
- European Standard EN 14889-2:2006 Fibres for Concrete Parts 2
- UL and ULC Classified: CBXQ.R13667 and CBXQ7.R13667

Physical Properties

- Specific Gravity: 0.91
- Material: 100% virgin polypropylene
- Fiber Type: Embossed Monofilament Fiber
- Absorption: None
- Melting point: 320°F (160°C)
- Modulus of elasticity: 700-1000 ksi (5-7 GPa)
- Tensile strength: 65-96 ksi (450-660 MPa)
- Nominal Length: 1.57, 1.97, 2.36in. (40, 55, 60mm)

- Nominal Equivalent Diameter: 0.012, 0.017, 0.023, 0.027 in. (0.30, 0.43, 0.59, 0.69 mm)
- Alkali, acid & salt resistance: High
- Electrical and Thermal Conductivity: Low

Addition Rates

The dosage of PIONEER®HTM®Emb varies depending on the application type and performance requirements of your project. The standard recommended dosage is 6.6–17.6 lbs./yd³ (3–8kg/m³) of concrete. For precise dosage based on your specific application and project needs, please contact your PIONEER® representative for technical support.

Length

PIONEER® HTM®Emb is available in various diameters and lengths to suit your needs, with standard diameters of 0.0169in., 0.0232in., 0.0272 in. (0.43mm, 0.56mm, 0.69mm) , and standard lengths of 1.57in, 1.97in, 2.36 in. (40mm, 55mm, 60mm). We also offer custom sizes for PIONEER® HTM®Emb fibers based on your specific requirements. Contact a PIONEER® fiber expert for professional advice tailored to your project needs.

Packaging

PIONEER®HTM® Emb are available in a variety of packaging options, For custom packaging, please reach out to a PIONEER® sales representative.

Design and conversion services

PIONEER®HTM®Emb meets international design methods and standards from organizations such as DBV, RILEM, CNR, ACI, ITAtech, and the UK Concrete Society. PIONEER® fiber experts can guide you through the design process, help you easily calculate the dosage rates for PIONEER®HTM®Emb as a replacement for rebar in terms of temperature and shrinkage, and provide technical support for on-site applications.

PIONEER® fiber experts will assist you through every step of the process. By completing the form below, you'll receive a detailed report to help you with project design and fiber selection. We guarantee that all your information will be kept confidential.