HGM® PET

Cost-effective Synthetic Fiber for Asphalt Pavement

Product Description

PIONEER®HGM® PET is made from 100% pure polypropylene, designed specifically as a monofilament fiber for asphalt reinforcement. Adding PIONEER® HGM® PET to asphalt mixes improves adhesion, high-temperature stability, and fatigue durability. It also enhances low-temperature crack resistance and prevents reflective cracking. This makes it an effective solution for addressing asphalt pavement durability issues and early damage, ultimately extending the lifespan of asphalt surfaces.

Uses

PIONEER® HGM® PET is typically used in the intermediate and surface layers of asphalt pavements to enhance overall performance, extend pavement lifespan, and reduce long-term maintenance costs. Applications of PIONEER® HGM® PET include:

- New asphalt surface layers
- Overlays on old asphalt and concrete pavements, including bridge decks
- Asphalt pavement maintenance and repairs
- Asphalt surfacing for steel bridge decks
- Large-scale asphalt pavements, such as those for airports and parking lots
- Asphalt concrete surfaces with various gradations (e.g., SMA, AK, AC, LH, SAC)
- Asphalt concrete surfaces under various conditions, including HMA(hot mix asphalt),WMA (warm mix asphalt), and PAT (hot or cold patches).

Product Advantages

PIONEER® HGM® PET features high strength, high elongation, excellent orientation, and ease of mixing. It significantly reinforces asphalt mixes and greatly improves pavement performance, including high-temperature stability, low-temperature crack resistance, water resistance, and fatigue durability.

- Offers a cost-effective solution for reinforcing asphalt pavements;
- Maintains strength and flexibility over a temperature range of -40°F (-40°C) to 480°F (249°C);
- Enhances the dispersion of asphalt mixes and reinforces the material.
- Increases the oil content in the mix, improving adhesion strength and stability of the asphalt pavement.
- Boosts the toughness and low-temperature crack resistance of the asphalt mix.
- Reduces permanent deformation and improves resistance to wear.
- Minimizes the impact of moisture on the pavement, enhancing water stability.

Compliance and Certification

ASTM D7552: Standard Specification for Fiber-Reinforced Asphalt Concrete
AASHTO M320: Standard Specification for Performance-Graded Asphalt Binder
ASTM D8079: Standard Specification for Performance-Graded Asphalt Binder Using Ground Tire Rubber (GTR) and Other Additives

Physical Properties

- Specific Gravity: 1.36
- Material: 100% modified polyester (PET)

- Diameter：0.0008 in.（0.02 mm）
- Nominal Length：0.25，0.5 in.（6，12 mm）
- Tensile Strength：88 ksi (600 MPa)
- Modulus of Elasticity：1015 ksi (7 GPa)
- Melt Point：478-490°F (248-254°C)
- Alkali, Acid, and Salt Resistance：High

Dosage

The application of PIONEER® HGM® PET in asphalt pavements is determined based on traffic volume. For highways, major roads, urban expressways, and bridge decks, the recommended dosage of PIONEER® HGM® PET is 1-3 kg per ton of asphalt mix.

Construction

- Raw Materials: The requirements for raw materials in asphalt mixes with PIONEER® HGM® PET are the same as those without it.
- Mixing Process: The mixing process for asphalt mixes with PIONEER® HGM® PET is essentially the same as without it.
- Construction Procedure: The construction procedures for asphalt mixes with or without PIONEER® HGM® PET are identical.
- Compaction: Asphalt mixes with PIONEER® HGM® PET require 3-4
- additional passes during compaction to achieve a density of 98% or more.

Packaging

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

Technical proposal

PIONEER® HGM® PET meets the ASTM D7552: Standard Specification for Fiber-Reinforced Asphalt Concrete. Contact a PIONEER® fiber expert today to request a technical proposal for your project. Please fill out the form below; we assure you that all your information will be kept confidential.