



Polyester fiber

High-strength polyester fiber is made from modified polyester chips through blending, spinning, anti-aging, surface lipophilic treatment, short cutting and other processes. High-strength polyester fiber has excellent properties such as high strength modulus, good heat resistance and thermal stability, and good compatibility with asphalt. When the fiber addition amount is 0.4% of the mixture, one cubic meter of asphalt mixture will contain hundreds of millions of short fibers, which can improve the tensile, shear, compressive and impact strength of asphalt concrete, greatly improve the performance quality of asphalt pavement, and make asphalt concrete have high temperature stability, low temperature crack resistance, fatigue resistance, water stability, strong anti-skid performance, and low driving noise.

The main functions of High-strength polyester fiber

- Improve the quality of asphalt concrete pavement and extend the service life of the pavement;
- Prevent reflective cracks and temperature cracks on asphalt concrete pavement;
- Prevent rutting and pavement channelization on asphalt concrete pavement;
- Prevent potholes on asphalt pavement caused by strong pressure and prevent water damage.

Physical properties

ITEM	REFERENCE
Material Ignition point	100% High strength polyester resin
Relative density	1.36~1.40g/cm ³
Melting point	Around 259°C
Ignition point	Around 554°C
Diameter Fiber	16~24μm
Breaking strength	1.02*10 ³ Mpa
Breaking elongation	30%~40%
specification (length)	5、8、10mm

High-strength polyester fiber applications

- It is suitable for both mastic asphalt macadam mixture (SMA) and dense graded asphalt concrete (AC) and asphalt macadam (AM) structures;
- Dense graded asphalt concrete pavement surface layer;
- Thin layer asphalt concrete surface layer (white + black) of old asphalt concrete pavement;
- Asphalt concrete surface layer (steel + black) for steel structure bridges;
- Cold patching, grouting, curbs;
- Airport runway and apron reinforcement;
- Used for bridge deck paving.

Mechanism of action of high-strength polyester fiber

1. Strengthening ribs. High-strength polyester fiber exists in the mixture as a three-dimensional dispersed phase, distributed in random directions, overlapped with each other, forming a network entanglement constraint on the mixture, thereby overcoming the relative slip and crack generation between particles.
2. High-strength polyester fiber has a dispersing effect. Without fiber, a large amount of asphalt mineral powder is likely to become a colloid, which cannot be evenly dispersed between aggregates, resulting in oil spots commonly found on pavement. Fiber can disperse the colloid.
3. High-strength polyester fiber has the function of absorbing asphalt. Due to its large specific surface area, fiber materials are easy to absorb oil in asphalt, thereby increasing the viscosity of asphalt, making the adhesion stronger, and increasing the thickness of the structural asphalt film. According to analysis, the asphalt film is 65%~113% thicker than traditional mixtures.
4. High-strength polyester fiber has a stabilizing effect. The addition of fiber significantly prevents the flow of asphalt, making the asphalt in a relatively stable state. Fibers have a strong ability to hold asphalt. Generally, excess asphalt will drip on the fiber surface at a high temperature above 130°C. When asphalt expands due to high temperature in summer, the gaps inside the fiber become a buffer zone, so it will not become free asphalt and overflow with oil, which plays a role in stabilizing the mixture at high temperature.
5. High-strength polyester fiber has a viscosity-enhancing effect and improves the bonding force. It increases the adhesion between asphalt and mineral materials, and improves the bonding force between aggregates through the bonding of oil film.
6. High-strength polyester fiber has a toughening and crack-resistance effect. The fiber has a high modulus value and strong extension and deformation ability, and has effective stress distribution and crack-resistance functions, which can prevent low-temperature brittle cracking caused by excessive asphalt viscosity in traditional mixtures.

Storage and Handling

Polyester fiber should be stored in a cool, dry place with stable temperatures, ideally around 60-70°F (15-21°C), away from direct sunlight and extreme temperatures, in its original sealed packaging. No special handling requirements.

Packaging

This product is packaged in 25Kg bags. It can be stored for a long time in a cool and ventilated place in the warehouse without opening the package.



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