

PET Fiber FR XW-M150 (Masterbatch)

XW-M150 is a novel flame retardants for PET fibers based on ionic liquids. It's supplied as masterbatch of a concentration of 10% FR.

First, the FR exhibits excellent compatibility with PET polymers, enabling uniform dispersion within the polymer matrix without compromising smoothness of the fiber spinning. Therefore, it has addressed the key challenges associated with traditional solid flame retardants, which adversely affect fiber spinning.

Second, it demonstrates superior flame retardant performance. At a dosage level of 0.5%, the limited oxygen index (LOI) increases to over 30%. And flame doesn't drip during vertical burning.

Finally, XW-M150 improves the processability of PET fiber, lowering processing temperatures, and consequently reducing thermal degradation of the polymer.

Materials

PET: YuanFang CH610-2 (Viscosity: 1.0 dL/g)

Flame retardant masterbatch: Inovia XW-M150

Processing

Drying: 140°C for 6-8 hours;

Pre-treatment: Add 5 to 15% of XW-M150 (with a flame retardant content of 10%) to the base material and mix evenly before spinning.

The fiber was spanned at a third-party institute. Before spinning, the flame-retardant masterbatch was evenly mixed with the resin material. The extrusion temperature of the flame-retardant fiber was 5~15 °C lower than that of the blank resin material.

Limited Oxygen Index (LOI)

	Method	Unit	PET fiber	+5% XW-M150	+15% XW-M150
LOI	GB/T 5454-1997	%	26.6	30.4	33.1

Vertical Burning Test

Method		Unit	PET fiber	+ 15% XW-M150
Area density		g/m ²	100	125
length: 300mm; width: 89mm			latitude	latitude
Damaged length	GB/T 5455-2014	mm	171	133
Afterflame time	GB/T 5455-2014	s	1.1	0.4
Afterglow time	GB/T 5455-2014	s	0	0
Dripping or not	GB/T 5455-2014	/	No	No

Note: The data recommended in this document can be used as a reference for various purposes. There will also be some amendments along with new technical improvements. Therefore, when designing the product, the use environment and structure of the product should be fully considered, and whether the product has any problems should be judged by the design company itself.