威科特瑞
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Technical Data Sheet

TCA-MF6000

Char-Forming Agent

Product Overview: TCA-MF6000 is an organically modified, specially structured layered silicate. It serves as a flame-retardant syner-overviewgist and charring agent for low-smoke, zero-halogen (LSZH) flame-retardant thermoplastic materials.Its unique platelet-like layered structure effectively acts as a gas barrier, contributing to flame retardancy. It promotes the formation of a denser, stronger char layer, suppresses melt-dripping, and can enhance the mechani-cal properties of thermoplastic materials.

Product Indicators

Item	Specification
Composition	Organically modifiedlamellar silicate
Appearance	Milky white tooff-white powder
Whiteness	≥70
Density (25°℃, g/cm)	1.5-1.7
Moisture Content (105°C), %	≤3.5
Particle Size (D97, dry powder), μm	≤30
PH	6.5-9
Bulk Density, kg/m^3	0.25-0.40
XRD（d001）	≥3nm

Storage and Transportation

Store and transport at temperatures below 50°C, and store in a dry place.

Application Area

- Ethylene-vinyl acetate copolymer (EVA)
- Low-density polyethylene (LDPE)
- High Impact Polystyrene (HIPS)
- sulan （PP）
- Polyamide (PA 6)
- lactic acid （PLA）

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Product Features and Advantages

It is especially suitable for halogen-free flame-retardant thermoplastic materials, as its addition can enhance flame retardancy, improve dripping performance and carbonization capacity. It reduces the usage of aluminum hydroxide or magnesium hydroxide, thereby improving processability and physical-mechanical properties while decreasing overall weight. Additionally, it enhances barrier properties against oxygen, water vapor, and hydrocarbons.

Recommended Dosage

3-5% of the total formula

The recommended addition amounts provided above are for reference only, and the optimal addition amount should be determined through a series of experiments.

Usage Method

To achieve optimal dispersion and delamination of additives in thermoplastic composites, it is recommended to use co-rotating twin-screw extruders or kneaders during mixing. The twin-screw extruder should preferably feature a long-to-diameter ratio and high-shear-strength screw configuration. The extrusion process should maintain moderate melt temperatures to ensure polymer melt viscosity remains high, thereby providing sufficient shear forces during extrusion and enhancing the dispersion performance of organic clay.

Pay Attention To

Excessive shearing of clay should be avoided, as it may cause agglomeration and reduce the aspect ratio. It is preferable to use distributed mixing units, as their chemical affinity with the clay synergistically provides peeling without generating excessive heat.

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