

FLAME RETARDAND: FR – FS12

Description

FR-FS12 is a high-performance inorganic powder flame retardant. Developed with advanced nanotechnology, the powder surface is specially treated to enhance its effectiveness. When used alongside brominated flame retardants, FR-FS12 delivers outstanding flame-retardant performance. A dosage of 1.0 to 1.2 parts of FR-FS12 can replace 1 part of antimony trioxide in ABS applications, achieving equivalent flame-retardant results without affecting mechanical or electrical properties.



Significant overall cost advantage



Maintains good flame retardancy and mechanical properties.

Technical Data

Property	Unit	Typical Value
Appearance	N/A	White Powder
Moisture	wt /%	≤ 1.0
Whiteness	%	≥ 92
Particle Size	μm	≤ 5.0

Typical Applications – ABS

Comparison of Sb₂O₃ and FR-FS12 Properties and Performance in ABS Formulation

1. Glass fiber-reinforced PA6

2000B can directly replace Antimony Trioxide (Sb₂O₃) in 30 wt% glass fiber-reinforced PA6 without altering the formulation, processing conditions, or usage levels. It provides excellent flame retardancy and maintains robust mechanical properties.

Components	Sb ₂ O ₃ Basis (wt %)	FR-FS12 Drop-in Substitute (wt %)
ABS	77.4	77.4
Brominated Epoxy Resin	14	14
Sb ₂ O ₃	3	-
FR-FS12	-	3
168	0.2	0.2
1010	0.2	0.2
Anti-dripping Agent	0.2	0.2
High Glue Powder	5	5
Total	100	100

Property	Testing Protocol	Unit	Performance Results	
Tensile Strength	GB/T 1040-06	MPa	41.92	41.62
Flexural Modulus	GB/T 9341-08	MPa	2329	2378
Notch Impact Strength	GB/T 1803-1-08	kJ/M ²	18.56	18.35
Flame Resistance	UL94	1.6 mm	V-0	V-0
	T1+T2	S	23.5	24.1



Disclaimer

The property values presented herein are typical values and are not to be interpreted as specification limits. The information in this document is believed to be accurate and reliable as of the date of publication; however, it is provided for general guidance only. This document is intended to support safe handling, use, processing, storage, transportation, and disposal of the product, and does not constitute a warranty or guarantee of any kind—express or implied—including, without limitation, any warranty of merchantability or fitness for a particular purpose. Users are responsible for determining the suitability of the product for their specific applications and for ensuring that its use complies with all applicable safety and legal requirements.

Regulatory Notes

This product is manufactured in compliance with applicable regional chemical control regulations. Regulatory status may vary by jurisdiction, and users should verify compliance with local requirements prior to use. Certification for specific applications (such as food contact, potable water, medical, or electrical uses) is not implied and must be confirmed separately upon request. Users are responsible for ensuring that the product, its additives, and any processing aids meet all relevant regulatory and end-use obligations.

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