

Sintah Chemicals supplies sustainable polymer additives and materials engineered for demanding applications across diverse industries. Our portfolio extends beyond off-the-shelf products; we develop custom and synergistic formulations tailored to specific processing conditions, durability requirements, and regulatory frameworks. Compliance is integrated from the earliest design stages, ensuring our solutions meet evolving global standards—including RoHS, REACH, UL, and emerging sustainability directives.

Within our corporate group, Xinda Advanced Material Technology serves as our manufacturing partner, providing modern production capabilities and rigorous quality systems.

Our supply chain advantage comes from synchronized planning, robust logistics partnerships, and global coordination that minimizes disruption and maintains predictable lead times. Sintah Chemicals delivers a dependable, compliance-driven materials platform that supports operational stability and long-term regulatory confidence.

We offer a comprehensive range of high-performance flame retardants engineered to meet the evolving demands of modern polymer applications. Our portfolio spans halogen-free, synergistic, and application-specific solutions that deliver reliable fire protection without compromising mechanical strength, processing efficiency, or long-term stability. The applications cover various polymers, including but not limited to PVC, polyolefins (PP & PE), ABS, nylon (PA6 & PA66), glass-fiber-reinforced polymers, SBR, PBT, and other engineering materials. Each product is developed with a deep understanding of formulation behavior, end-use requirements, and global compliance expectations, enabling manufacturers to achieve stringent fire-safety performance while optimizing cost and sustainability targets. Whether supporting electrical components, building materials, consumer goods, or transportation systems, Sintah Chemicals provides flame-retardant technologies that enhance material performance and strengthen product safety across the value chain.



Exhibits high thermal stability



Good smoke suppression and anti-dripping performance.



Whiteness ≥ 95



鑫泰合化工（广东）有限公司

SINTAH CHEMICALS (GUANGDONG) COMPANY LIMITED

工厂地址：广东省河源市东源县仙塘镇蝴蝶岭汇通工业园

总部：广州市黄埔区瑞吉二街 49 号京广协同创新中心 1 栋主楼 13 楼

Factory: Hudieling Industrial Park, Heyuan, Guangdong, China

Headquarters: 13/F, Building 1, Jingguang Collaborative Innovation Center, Guangzhou, China.

enquiry@sintahchemicals.com <https://www.sintahchemicals.com>

FLAME RETARDAND: 2000B

Description

2000B is a flame retardant that can be used as a substitute for Antimony Trioxide (Sb_2O_3) in formulations of ABS, HIPS, PP, PBT, PA, PVC, and other polymer materials. In addition to its standalone flame-retardant properties, 2000B also acts as a synergist when used alongside halogenated flame retardants, enhancing overall flame retardancy.



Exhibits high thermal stability



Good smoke suppression and anti-dripping performance.



Whiteness ≥ 95

Technical Data

Property	Unit	Typical Value
Appearance	N/A	White Powder
Moisture	wt /%	≤ 0.5
Decomposition Temp.	$^{\circ}C$	≥ 350
Particle Size	μm	≤ 5.0
Cd	N/A	Not Detected

Typical Applications

1. Glass fiber-reinforced PBT

2000B can directly replace Antimony Trioxide (Sb_2O_3) in 30 wt% glass fiber-reinforced PBT 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 %)	2000B Drop-in Substitute (wt %)
PBT	53.2	53.2
Short Fiberglass	30	30
Brominated Epoxy Resin	13	13
Sb ₂ O ₃	3	-
2000B	-	3
Lubricant/Antioxidant	0.8	0.8
Total	100	100

Property	Testing Protocol	Unit	Performance Results	
Tensile Strength	GB/T 1040-06	MPa	134	135
Flexural Modulus	GB/T 9341-08	MPa	8236	8228
Notch Impact Strength	GB/T 1803-1-08	kJ/M^2	9.08	9.37
Flame Resistance	UL94	1.6 mm	V-0	V-0
		3.2 mm	V-0	V-0

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2. Glass fiber-reinforced PA6

2000B can directly replace Antimony Trioxide (Sb_2O_3) 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 %)	2000B Drop-in Substitute (wt %)
PA6	51.4	51.4
Short Fiberglass	30	30
DBDPE	14	14
Sb ₂ O ₃	4	-
2000B	-	4
Lubricant/Anti-oxidant	0.6	0.6
Total	100	100

Property	Testing Protocol	Unit	Performance Results	
Tensile Strength	GB/T 1040-06	MPa	148	147
Flexural Modulus	GB/T 9341-08	MPa	9765	9813
Notch Impact Strength	GB/T 1803-1-08	kJ/M ²	10.2	10.1
Flame Resistance	UL94	1.6 mm	V-0	V-0
		3.2 mm	V-0	V-0



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ANTIMONY BASIS FLAME RETARDANTS

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enquiry@sintahchemicals.com <https://www.sintahchemicals.com>

FLAME RETARDAND: FR – FS11

Description

FR-FS11 is a high-performance flame retardant specifically engineered for use in PVC and SBR (Styrene-Butadiene Rubber) applications. In flexible PVC formulations, 1.0 to 1.25 parts per hundred resin (PHR) of FR-FS11 can effectively replace 1.0 PHR of Antimony Trioxide (Sb_2O_3), delivering equivalent flame retardancy without compromising mechanical or electrical properties.

Applications and Features

Applications

- PVC wire & cable compounds
- PVC synthetic leather
- PVC tarpaulin
- SBR-based products
- Other formulations utilizing Sb_2O_3 as a flame retardant synergist

Key Features

- Superior flame retardant performance
- Maintains mechanical and electrical integrity
- Excellent cost-effectiveness

Typical Application: PVC Cable Compounds

Components	Sb2O3 Basis	At 1:1 Ratio Substitute by FR - FS11	At 1:1.2 Ratio Substitute by FR - FS11
SG-3	100	100	100
DOTP	50	50	50
CaCO ₃	22	22	22
Kaolin	8	8	8
CPE	7	7	7
Stabilizer	5	5	5
ATH	3	3	3
Zinc Borate	6	6	6
Sb ₂ O ₃	4	-	-
2000B	-	-	-
FR-FS11	-	4	4.8
Total	205	205	205.8
Test Item	Performances		
LOI (%)	30	28.8	30.2
Tensile Strength (MPa)	17.43	17.4	17.71
Elongation At Break (%)	337.12	337.34	335.12
Congo Red Time (min)	92.2	92.1	92.3
ohm ($\Omega \cdot m$)	1.389×10^{11}	1.371×10^{11}	1.718×10^{11}

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Remarks

- At a 1:1 replacement ratio with Sb_2O_3 , FR-FS11 exhibits a slightly lower oxygen index (by 1.2 units), while other properties remain comparable.
- When used at 1.2 PHR, FR-FS11 delivers mechanical properties similar to Sb_2O_3 , with a slight improvement in volume resistivity.

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enquiry@sintahchemicals.com <https://www.sintahchemicals.com>

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

3. 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



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HALOGEN – FREE FLAME RETARDANTS

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enquiry@sintahchemicals.com <https://www.sintahchemicals.com>

FLAME RETARDAND: FRX – A101

Description

FRX-A101 is a high-efficiency halogen-free flame retardant based on organic phosphorus. It delivers excellent flame retardancy and mechanical properties when used in flame-retardant modified composites such as PA (polyamide), high-temperature nylons, elastomers, and epoxy resins. Notable advantages include low required dosage, low density, and reduced smoke generation.



No plate-out under high temperature/humidity.



Better mechanical properties.



Stronger flame retardant efficiency, lower dosage levels.

Technical Data

Property	Unit	Typical Value
Bulk Density	gram/cm ³	0.4 – 0.8
Moisture	wt /%	≤ 0.5
Phosphorus Content	wt %	≥ 20



Typical Applications: Short Glass Fiber reinforced PA66 and PA6

FRX-A101, when used at 10–12 phr to replace 25 wt% of short glass fiber in reinforced PA66 and PA6 composites, maintains excellent flame retardancy—achieving UL94 V-0 at both 0.8 mm and 1.6 mm, along with a GWIT of 775°C—while simultaneously enhancing mechanical strength and impact performance. This makes it a powerful alternative to low-migration ADP.

Components	Low Migration ADP Basis (wt %)	At an 18:10 ratio substitute by FRX-A101 (wt %)	At an 18:12 ratio substitute by FRX-A101 (wt %)
PA66	46	54	52
PA6	10	10	10
Short Glass Fiber	25	25	25
FRX-A101	-	10	12
Low Migration ADP (Aluminum Diethylphosphinate)	18	-	-
Lubricant/Antioxidant	1	1	1
Total	100	100	100

Property	Testing Protocol	Unit	Performance Results		
Tensile Strength	GB/T 1040-06	MPa	140	151	145
Deflection	GB/T 9341-08	mm	6.6	8.5	7.6
Notch Impact Strength	GB/T 1803-1-08	kJ/M ²	8.0	10.8	9.0
Flame Resistance	UL94	0.8 mm	V-0	-	V-0
		1.6 mm	V-0	V-0	V-0
GWIT		°C/2 mm	775	775	775

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FLAME RETARDAND: FRX – A105

Description

FRX-A105 can fully replace antimony trioxide in traditional bromine–antimony flame retardant systems used in glass fiber-reinforced nylons (such as PA66 and PA6), while maintaining the same high standard of flame retardancy and mechanical performance. It also offers excellent electrical properties, heat resistance, and low migration, giving it a well-rounded performance advantage.



No plate-out under high temperature/humidity.



Better mechanical properties.



Stronger flame retardant efficiency, lower dosage levels.

Technical Data

Property	Unit	Typical Value
Bulk Density	gram/cm ³	0.5 – 0.8
Moisture	wt %	≤ 0.5
Phosphorus Content	wt %	≥ 18.0



Typical Applications: Glass Fiber-reinforced PA66+PA6

FRX-A105, used as a direct replacement for Sb₂O₃ at the same dosage in 30 wt% glass fiber-reinforced (PA66+PA6) nylon, delivers equivalent flame retardancy and mechanical properties – without the need to modify the existing formulation or processing conditions.

Components	Bromine-antimony system (wt %)	At a 1:1 Ratio Substitute Sb ₂ O ₃ by FRX-A105 (wt %)
PA66	33.9	33.9
PA6	12	12
Short Glass Fiber	30	30
Brominated Polystyrene	18.5	18.5
Sb ₂ O ₃	5	--
FRX-A105	--	5
Lubricant/Antioxidant	0.6	0.6
Total	100	100

Property	Testing Protocol	Unit	Performance Results	
Tensile Strength	GB/T 1040-06	MPa	148	147
Flexural Modulus	GB/T 9341-08	MPa	9765	9813
Notch Impact Strength	GB/T 1803-1-08	kJ/M ²	10.2	10.1
Flame Resistance	UL94	1.6 mm	V-0	V-0
		3.2 mm	V-0	V-0

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enquiry@sintahchemicals.com <https://www.sintahchemicals.com>

FLAME RETARDAND: FRX – A105M

Description

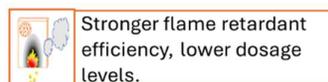
FRX-A105M is an engineered masterbatch designed for bromine–antimony flame retardant systems in fiberglass-reinforced nylon (PA66/PA6). When used at twice the original Sb_2O_3 dosage, FRX-A105M effectively replaces antimony trioxide while maintaining equivalent flame retardancy and mechanical performance—along with enhanced electrical insulation, thermal stability, and low migration characteristics.



No plate-out under high temperature/humidity.



Better mechanical properties.



Stronger flame retardant efficiency, lower dosage levels.

Technical Data

Property	Unit	Typical Value
Bulk Density	gram/cm ³	0.4–0.8
Moisture	wt %	≤ 0.5
Phosphorus Content	wt %	≥ 20.0



Typical Applications: Glass Fiber-reinforced Nylon

Comparison of Flame Retardancy and Mechanical Properties Between Bromine–Antimony Systems and FRX-A105M Replacement in 30 wt% Fiberglass-Reinforced Nylon.

Components	Bromine-antimony system (wt %)	At a 1:1 Ratio Substitute Sb_2O_3 by FRX-A105M (wt %)
PA66	33.9	33.9
PA6	12	7
Short Glass Fiber	30	30
Brominated Polystyrene	18.5	18.5
Sb_2O_3	5	--
FRX-A105M	--	10
Lubricant/Antioxidant	0.6	0.6
Total	100	100

Property	Testing Protocol	Unit	Performance Results	
Tensile Strength	GB/T 1040-06	MPa	153.1	152.9
Flexural Modulus	GB/T 9341-08	MPa	9805	9820
Notch Impact Strength	GB/T 1803-1-08	kJ/M ²	11.35	11.32
Flame Resistance	UL94	1.6 mm	V-0	V-0
		3.2 mm	V-0	V-0

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enquiry@sintahchemicals.com <https://www.sintahchemicals.com>



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SINTAH CHEMICALS (GUANGDONG) COMPANY LIMITED

工厂地址：广东省河源市东源县仙塘镇蝴蝶岭汇通工业园

总部：广州市黄埔区瑞吉二街 49 号京广协同创新中心 1 栋主楼 13 楼

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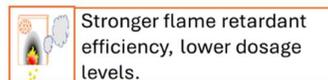
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FLAME RETARDAND: FRX – A107

Description

FRX-A107 is a modified organic phosphorus-based flame retardant designed for flame-retardant polyamides. It offers strong flame resistance and mechanical performance, with key benefits including low required dosage, reduced material density, and minimal smoke generation. At equivalent loading levels, it serves as a viable replacement for imported alternatives.



Technical Data

Property	Unit	Typical Value
Bulk Density	gram/cm ³	0.4 – 0.8
Moisture	wt %	≤ 0.5
Phosphorus Content	wt %	≥ 20



Typical Applications: Glass Fiber-reinforced PA6

FRX-A107 can directly replace the benchmark imported flame retardant at equivalent dosage levels in 30 wt% glass fiber-reinforced PA6 formulations—without requiring any changes to the existing recipe.

Components	Benchmark Import Flame Retardant (wt %)	At a 1:1 Ratio Substitute by FRX-A107 (wt %)
PA6	53.4	53.4
Short Glass Fiber	30	30
Foreign Flame Retardant	16	
FRX-A107		16
Lubricant	0.3	0.3
Antioxidant	0.3	0.3
Total	100	100

Property	Testing Protocol	Unit	Performance Results	
Tensile Strength	GB/T 1040-06	MPa	138.2	138.9
Flexural Modulus	GB/T 9341-08	MPa	7805	7815
Notch Impact Strength	GB/T 1803-1-08	kJ/M ²	12.94	12.74
Flame Resistance	UL94	1.6 mm	V-0	V-0
		3.2 mm	V-0	V-0

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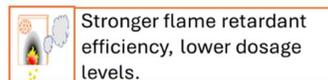
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FLAME RETARDAND: FRX – A206

Description

FRX-A206 is a modified organophosphorus flame retardant designed for use in flame-retardant PBT formulations. It delivers excellent flame resistance and mechanical performance, while offering key advantages such as low required dosage, low material density, and reduced smoke generation. At equivalent dosage levels, FRX-A206 matches the performance of leading industry benchmark grades.



Technical Data

Property	Unit	Typical Value
Bulk Density	gram/cm ³	0.4 – 0.8
Moisture	wt %	≤ 0.5
Phosphorus Content	wt %	≥ 20.0



Typical Applications: Glass Fiber-reinforced PBT

A typical dosage of 14 wt% FRX-A206 in a 30 wt% glass fiber-reinforced PBT formulation delivers flame retardancy and mechanical performance comparable to global benchmark grades at the same loading level.

Components	FRX-A206 (wt %)
PBT	55.1
Short Glass Fiber	30
Toughening Agent	0.6
FRX-A206	14
Antioxidant	0.3
Total	100

Property	Testing Protocol	Unit	Performance Results
Tensile Strength	GB/T 1040-06	MPa	102.5
Flexural Modulus	GB/T 9341-08	MPa	9262
Notch Impact Strength	GB/T 1803-1-08	kJ/M ²	7.8
Flame Resistance	UL94	1.6 mm	V-0
		3.2 mm	V-0

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总部: 广州市黄埔区瑞吉二街 49 号京广协同创新中心 1 栋主楼 13 楼

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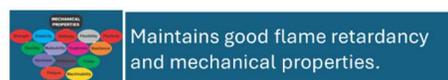
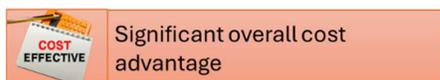
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FLAME RETARDAND: FRX – A302

Description

FRX-A302 is an antimony-free flame retardant developed using advanced polymerization technology to enhance the char-formation capability of polymers. When used in combination with brominated flame retardants, it delivers effective flame retardant performance. In ABS formulations, 1.7–1.8 PHR of FRX-A302 can replace 1 PHR of Sb_2O_3 , achieving equivalent flame retardancy without compromising mechanical or electrical properties.



Technical Data

Property	Unit	Typical Value
Appearance	N/A	White Powder
Moisture	wt /%	≤ 1.0
Whiteness	%	≥ 95
Particle Size	μm	≤ 10.0



Typical Applications: ABS as an Example

FR-FS12 at a 1:1 replacement ratio and FRX-A302 at a 5:3 ratio relative to Sb_2O_3 deliver equivalent flame retardancy and comparable mechanical properties.

Components	Sb_2O_3 (wt %)	FR-FS12 (wt %)	FRX-A302 (wt %)
ABS	77.4	77.4	75.3
Bromotriazine	14	14	14
Sb_2O_3	3	-	-
FR-FS12	-	3	-
FRX-A302	-	-	5.1
168	0.2	0.2	0.2
1010	0.2	0.2	0.2
Anti-dripping Agent	0.2	0.2	0.2
High Glue Powder	5	5	5
Total	100	100	100

Property	Testing Protocol	Unit	Performance Results		
Tensile Strength	GB/T 1040-06	MPa	41.92	41.62	41.49
Flexural Modulus	GB/T 9341-08	MPa	2329	2378	2233
Notch Impact Strength	GB/T 1803-1-08	kJ/M ²	18.56	18.35	18.88
Flame Resistance	UL94	0.8 mm	V-0	V-0	V-0
	T1+T2	S	23.5	24.1	22.8

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总部: 广州市黄埔区瑞吉二街 49 号京广协同创新中心 1 栋主楼 13 楼

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CONTACT INFORMATION

enquiry@sintahchemicals.com

+86 18902323066; +86 13691986426

ADDRESS

13th Floor, Building 1, Jingguang Collaborative Innovation Center,
49 Ruiji 2nd Street, Huangpu District,
Guangzhou, China

WEBSITE

<https://www.sintahchemicals.com>

鑫泰合化工（广东）有限公司

SINTAH CHEMICALS (GUANGDONG) COMPANY LIMITED

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FRAME RETARDANTS FOR POLYOLEFINS

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enquiry@sintahchemicals.com <https://www.sintahchemicals.com>

FLAME RETARDAND: C001

Description

C001 is suitable for use as a flame retardant in copolymer PP with high ethylene content ($\geq 8\%$). It also requires a low dosage (2–4 wt%), does not require antimony trioxide, and supports the addition of 10–20% inorganic fillers like talc or barium sulfate. It is non-halogen-free flame retardants. During combustion, dripping may occur, and the material achieves a UL94 V-2 rating.

Technical Data

Test Item	Testing Protocol	Unit	Copolymer PP with High Ethylene Content ($\geq 8\%$)	Pipe-Grade Copolymer PP
			(2.0-3.5% C001)	(2.0-4.0% C001)
Density	ISO 1183	g/cm ³	0.91	0.91
Melt Flow Rate	ISO 1133	g/10min	5	1-Feb
Tensile Strength	ISO 527	MPa	24	26
Elongation at Break	ISO 527	%	>100	>100
Flexural Modulus	ISO 178	MPa	1050	1150
Flexural Strength	ISO 178	MPa	28	31
Notched Impact Strength	ISO 180	kJ/m ²	11	15
Flame Rating (3.20 mm)	UL94	—	V-2	V-2
Flame Rating (1.60 mm)	UL94	—	V-2	V-2
GWIT (2.0mm)	IEC 60695-2-13	°C	775	775
GWIT (2.0mm)	IEC 60695-2-13	°C	960	960



Processing Precautions

- Avoid adding calcium carbonate filler, as it may negatively affect the flame-retardant performance.
- Precise temperature control of equipment is essential. Local overheating can cause flame retardant volatilization, reducing its effectiveness. Recommended processing temperature: 170–180 °C.
- Use a low-shear screw configuration to prevent excessive shear that could lead to material degradation.

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FLAME RETARDAND: H001

Description

H001 is widely applicable as a flame retardant for homopolymer PP and copolymer PP with low ethylene content ($\leq 8\%$). It requires a low dosage (1–2 wt%), does not need additional antimony trioxide, and allows for the inclusion of 10–20% inorganic fillers such as talc or barium sulfate. It is non-halogen-free flame retardants. During combustion, dripping may occur, and the material achieves a UL94 V-2 rating.

Technical Data

Test Item	Testing Protocol	Unit	Homopolymer PP	Copolymer PP with Low Ethylene Content ($\leq 8\%$)
			(1.0-2.0% H001)	(2.0-3.0% H001)
Density	ISO 1183	g/cm ³	0.91	0.91
Melt Flow Rate	ISO 1133	g/10min	13.5	12.1
Tensile Strength	ISO 527	MPa	32	26
Elongation at Break	ISO 527	%	50	80
Flexural Modulus	ISO 178	MPa	1400	1250
Flexural Strength	ISO 178	MPa	36	32
Notched Impact Strength	ISO 180	kJ/m ²	3.5	8
Flame Retardancy (3.20 mm)	UL94	N/A	V-2	V-2
Flame Retardancy (1.60 mm)	UL94	N/A	V-2	V-2



Processing Precautions

- Avoid adding calcium carbonate filler, as it may negatively affect the flame-retardant performance.
- Precise temperature control of equipment is essential. Local overheating can cause flame retardant volatilization, reducing its effectiveness. Recommended processing temperature: 170–180 °C.
- Use a low-shear screw configuration to prevent excessive shear that could lead to material degradation.

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