



Plastic & polymer additives and solution supplier
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Technical Data Sheet

ProFlame® PNPO

Halogen-free flame retardant for PP

PNPO is a Halogen-Free flame retardant , which develops its effectiveness through phosphorus/nitrogen synergism. When incorporated into polyolefine, it shows high processing stability and no migration.PNPO differs in its mode of action from halogenated flame retardants in the fire. When the polyolefine on exposure to flame, the carbon foam layer formed protects the polymer through its heat insulating effect to reduce further oxygen access and prevent dripping of the polymer. At the same time there are no halogen hydride gases to cause.

Benefits

- Shows high processing stability in contrast to similar competitive material
- Particularly effective in thermoplastic polyolefins (e. g. polyolefin hotmelts), urethanes (e. g. integral skin foams, rigid foams, sealants), and epoxy resins (adhesives, sealants, structural laminates, gelcoats)
- Positive secondary fire effects such as low smoke density, lower formation of toxic smoke or corrosive gases
- Non-halogenated flame retardant with favorable environmental and health profile

Technical Data:

Items	Spec
Appearance	White free-flowing powder
P content, %	24-27
1% TGA Temperature, °C	≥250
Average particle size, um	D50≤15
PH value	5.0-7.5
Volatile,%	≤0.5
Whiteness	≥90.0
Solubility in water, 25°C , g/100mL H2O	≤0.5

Recommended dosage:

Polymer	CO-PP	CO-PP	CO-PP	HDPE
PNPO-A,%	25	28	30	32-35
UL-94	V-0 (3.2mm)	V-0 (1.6mm)	V-0 (0.8mm)	V-0 (1.6mm)

Polymer	50% CO-PP 24% HOMO-PP	65% High impact PP 5% POE	HOMO-PP
PNPO-MD,%	26	30	25
UL-94	V-0 (2.0mm)	V-0 (1.6mm)	V-0 (2.0mm)



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Processing instruction:

1. The optimum conditions for incorporating should be determined in each individual case. Care must be taken to ensure homogeneous dispersion of all components.
- 2.Both single- and twin-screw extruders are suitable for incorporating the product. The temperature of the polymer melt should not exceed 230°C.
- 3.Choosing proper filler and control dosage .Normally ,the filler will reduct Flame retardant efficiency.
- 4.When a water bath is used for cooling the strands, it is advisable to keep the passage through the water bath as short as possible to permit optimum evaporation of any entrained water.

Package & Storage:

Net weight 25KG Kraft bag with PE liner.

Minimum shelf life is 12 months stored in a dry and ventilated warehouse.

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Typical Application Data 1-1

Material	Formula 1
PP(548R)	40
PP(300H)	32
PNPO	28
EBS	0.3
Antioxidant 1010	0.15
Antioxidant 168	0.25
Anti-dripping agent FS-200	0.2
Coupling agent	1.0

Properties 1-2

Item	Testing Method	Result
UL94 (1.6mm)	UL94-2013	V-0
Tensile Strength	GB/T 1040.1-2006	18.4 Mpa
Elongation at break	GB/T 1040.1-2006	47%
Flexural Strength	GB/T 9341-88	1622 Mpa
Flexural modulus	GB/T 9341-88	31.2 Mpa
Izod Impact strength	GB/T 9342-88	46 KJ/m ²
Heat deflection temperature	GB/T 1633	117.5
CTI	GB/T 4207-2003	250V
GWFI	EC 60695-2-12-2010	775°C
Shrinkage rate	ISO 2577-2007	1.32
Vicat softening temperature	GB/T 1633	129°C
MFI	ASTM D 1238	5.3 g/10min
resistance to heat 125°C	GB4706	1.92mm