

HP Multi Jet Fusion

PA 12 Flame Retardant (FR)

Description

PA 12 FR is a high-performance, flame-retardant nylon material designed for applications requiring superior fire safety, durability, and efficiency. This halogen-free material meets UL94 V0 flammability standards at 2.5mm thickness. With a 60% powder reusability ratio, PA 12 FR minimizes waste while reducing overall production costs. It also delivers a smooth surface finish straight from the printer, making it ideal for functional prototypes and end-use parts in industries such as aerospace, automotive, and electronics.

Benefits

- Halogen-free material
- UL94 certified
- 60% powder reusability ratio
- Premium surface finish
- Meets USP Class I-VI and US FDA guidance for Intact Skin Surface Devices
- High heat deflection temperature: 341.6°F (172°C) @ 0.45 MPa



Flammability Properties

	Value	Unit	Method
UL 94	HB (1 mm thickness) V0 (2.5 mm thickness)	Pass	UL 94
High-Current Arc Ignition (HAI)	PLC 0 (1 mm thickness & 2.5 mm thickness)	Pass	UL 746A
Hot Wire Ignition (HWI)	PLC 4 (1 mm thickness) PLC 0 (2.5 mm thickness)	Pass	UL 746A

Mechanical Properties

	PA 12 FR	Method
Description	HP 3D High Reusability PA 12 FR	ASTM D638
Tensile Strength (MPa)	Average XY (46) Average Z (46)	ASTM D638
Tensile Modulus (MPa)	Average XY (2580) Average Z (2540)	ASTM D638
Elongation at Yield (%)	Average XY (3.8) Average Z (3.6)	ASTM D638
Elongation at Break (%)	Average XY (4.7) Average Z (4.0)	ASTM D638
Izod Impact Notched (kJ/m ²)	Average XY (2.8) Average Z (2.7)	ASTM D256
Part Density (g/cm ³)	1.13	ASTM D792

Electrical Properties

	Orientation	Value	Unit	Method
Comparative Tracking Index (CTI)	XY Z	408 423	V	ASTM D3638
Dielectric Strength (Conditioning 48 h / 23 °C / 50% RH)	XY Z	7.6 6.7	kV/mm	ASTM D149
Dielectric Strength (Conditioning 96 h / 35 °C / 90% RH)	XY Z	2.5 1.9	kV/mm	ASTM D149
Volume Resistivity at 23 °C / 50% RH	XY Z	4.96E+13 5.71E+13	Ω•cm	ASTM D257
Surface Resistivity at 23 °C / 50% RH	XY Z	9.74E+14 1.03E+15	Ω	ASTM D257