

Amodel® HFFR-4133

Polyphthalamide
Solvay Specialty Polymers

Message:

Amodel HFFR-4133 is a 33% glass fiber reinforced, halogen-free, flame retardant polyphthalamide (PPA) resin, which improves the processing performance of electrical and electronic products. The UL94 test by Underwriters Laboratory of the United States rated the resin as V-0 and can be molded with warm water. High fluidity, wide process window, good surface appearance, especially for larger electrical components. This brand can withstand the harsh infrared reflow soldering process commonly used in the electronics industry. It is very suitable for connectors and other electrical equipment requiring surface mount technology (SMT).

black: HFFR-4133 BK 324
black: HFFR-4133 BK 318
natural color: HFFR-4133 NT

General Information			
UL YellowCard	E95746-100035143	E95746-100722255	
Filler / Reinforcement	Glass fiber reinforced material, 33% filler by weight		
Additive	Flame retardancy		
Features	Good dimensional stability		
	Rigid, good		
	High strength		
	Fast molding cycle		
	Good electrical performance		
	Good creep resistance		
	Good chemical resistance		
	Hot water formability		
	Halogen-free		
	Flame retardancy		
Uses	Electrical/Electronic Applications		
	Connector		
RoHS Compliance	RoHS compliance		
Appearance	Black		
	Natural color		
Forms	Particle		
Processing Method	Water temperature mold injection molding		
Physical	Nominal Value	Unit	Test Method
Density	1.46	g/cm ³	ISO 1183/A
Molding Shrinkage			ISO 294-4
Vertical flow direction	1.3	%	ISO 294-4
Flow direction	0.32	%	ISO 294-4

Water Absorption (24 hr)	0.28	%	ASTM D570
Hardness	Nominal Value	Unit	Test Method
Rockwell Hardness (R-Scale)	121		ASTM D785
Mechanical	Nominal Value	Unit	Test Method
Tensile Modulus	12000	MPa	ISO 527-2
Tensile Stress ¹ (Yield)	145 - 160	MPa	ISO 527-2
Tensile Strain ² (Break)	1.9 - 2.3	%	ISO 527-2
Flexural Modulus	10800	MPa	ISO 178
Flexural Stress ³	220 - 230	MPa	ISO 178
Impact	Nominal Value	Unit	Test Method
Notched Izod Impact ⁴	7.0 - 8.0	kJ/m ²	ISO 180/1A
Unnotched Izod Impact Strength ⁵	40 - 48	kJ/m ²	ISO 180/1U
Thermal	Nominal Value	Unit	Test Method
Heat Deflection Temperature (1.8 MPa, Unannealed)	300	°C	ISO 75-2/Af
Linear thermal expansion coefficient			ASTM E831
Flow: 0 to 90°C	2.0E-5	cm/cm/°C	ASTM E831
Flow: 120 to 200°C	1.2E-5	cm/cm/°C	ASTM E831
Lateral: 0 to 90°C	8.0E-5	cm/cm/°C	ASTM E831
Horizontal: 120 to 200°C	1.3E-4	cm/cm/°C	ASTM E831
Electrical	Nominal Value	Unit	Test Method
Volume Resistivity ⁶	1.3E+16	ohms · cm	ASTM D257
Dielectric Strength			ASTM D149
0.800 mm	30	kV/mm	ASTM D149
1.60 mm	26	kV/mm	ASTM D149
Dielectric Constant			ASTM D150
100 Hz	3.78		ASTM D150
1 MHz	3.53		ASTM D150
Dissipation Factor			ASTM D150
100 Hz	5.0E-3		ASTM D150
1 MHz	0.012		ASTM D150
Comparative Tracking Index (CTI)	PLC 0		UL 746
Flammability	Nominal Value	Unit	Test Method
Flame Rating ⁷ (0.800 mm)	V-0		UL 94
Injection	Nominal Value	Unit	
Drying Temperature	120	°C	
Drying Time	4.0	hr	
Suggested Max Moisture	0.030 - 0.060	%	
Rear Temperature	300	°C	
Front Temperature	325	°C	
Processing (Melt) Temp	340 - 350	°C	
Mold Temperature	90.0 - 110	°C	

Injection instructions

射出速度: 3~4英寸/秒 保压压力:射出压力的50%

NOTE

1.	The values of natural color and BK324 color are high.
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6.	Sample status: 95 ° F (35 ° C) , 90% RH, 96 hours
7.	These flammability ratings do not represent the risk of these materials or any other materials in actual fire situations.

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