Hepla® H9045GF H

Material Description:

Hepla® H9045GF H is a 45% glass reinforced, heat stabilized polyphthalamide (PPA) with a high heat deflection temperature, very high flexural modulus and very high tensile strength. Excellent creep resistance and low moisture absorption are also characteristic of this resin.

General		
Material Status	• Commercial: Active	
Availability	• Asia Pacific	• North America
	• Europe	• Latin America
	• Middle East	• Africa
Filler/Reinforcement	• Glass Fiber, 45% Filler by Weight	
Additive	• Heat Stabilizer	
Features	• Chemical Resistant	• Creep Resistant
	• Good Dimensional Stability	• Good Stiffness
	• High Heat Resistance	• Low Moisture Absorption
	• High Strength	• High Temperature Strength
Uses	• Automotive Applications	• Automotive Electronics
	• Valves/Valve Parts	• Automotive Under the Hood
	• Metal Replacement	• Connectors
	• Machine/Mechanical Parts	• Housings
	• Industrial Applications	• Industrial Parts
	• Power/Other Tools	
Appearance	• Black	• Natural Color
RoHS Compliance	• RoHS Compliant	
Forms	• Pellets	
Processing Method	• Injection Molding	
Multi-Point Data	• Isochronous Stress vs. Strain (ISO 11403-1)	
	• Secant Modulus vs. Strain (ISO 11403-1)	
	• Viscosity vs. Shear Rate (ISO 11403-2)	

Physical Properties	Typical Value	Unit	Test Method
Density/Specific Gravity	1.59	g/cm^3	ISO 1183/A
Molding Shrinkage			ASTM D955
Flow	0.2	%	
Across Flow	0.6	%	
Water Absorption (24 hr)	0.12	%	ASTM D570

Hardness	Typical Value	Unit	Test Method
Rockwell Hardness (R-Scale)	125		ASTM D785

Mechanical Properties	Typical Value	Unit	Test Method
Tensile Modulus			
	17535	MPa	ASTM D638
23℃	17120	MPa	ISO 527-2
100℃	11489	MPa	ISO 527-2
150℃	8255	MPa	ISO 527-2
175℃	5574	MPa	
Tensile Stress			
Break,23℃	267	MPa	ISO 527-2
Break,100℃	176	MPa	ISO 527-2
Break,150℃	87	MPa	ISO 527-2
Break,175℃	78.2	MPa	ISO 527-2
	261.5	MPa	ASTM D638

Tensile Elongation			
Break	2	%	ASTM D638
Break,23℃	2	%	ISO 527-2
Break,100℃	2.4	%	ISO 527-2
Break,150℃	6.8	%	ISO 527-2
Break,175℃	7	%	ISO 527-2
Flexural Modulus			
	14106	MPa	ASTM D790
23℃	16223	MPa	ISO 178
100℃	13320	MPa	ISO 178
150℃	5604	MPa	ISO 178
175℃	5106	MPa	ISO 178
Flexural Strength			
	368	MPa	ASTM D790
23℃	381	MPa	ISO 178
100℃	270.5	MPa	ISO 178
150℃	113	MPa	ISO 178
175℃	97	MPa	ISO 178
Compressive Strength(25.4mm)	194.6	MPa	ASTM D695
Shear Strength	107.3	MPa	ASTM D732
Poisson's Ratio	0.41	MPa	ASTM E132

Impact Properties	Typical Value	Unit	Test Method
Notched Izod Impact			
	115	J/m	ASTM D256
23℃	10.5	kJ/m^2	ISO 180/1A
Unnotched Izod Impact			
	1089	J/m	ASTM D256
23℃	60.6	kJ/m^2	ISO 180/1U
Charpy Notched Impact Strength 23℃	9.8	kJ/m^2	ISO 179/1eA
Charpy Unnotched Impact Strength 23℃	91.2	kJ/m^2	ISO 179/1eU

Flammability	Typical Value	Unit	Test Method
Flame Rating(3.2mm)	HB		UL 94

Electrical Properties	Typical Value	Unit	Test Method
Volume Resistivity	1E+16	Ohms·cm	ASTM D257
Dielectric Strength(3.2mm)	23	kV/mm	ASTM D149
Dielectric Constant			ASTM D150
60 Hz	4.6		
1 MHz	4.4		
Dissipation Factor			ASTM D150
60 Hz	5.00E-03		
1 MHz	0.016		
Arc Resistance	145	sec	ASTM D495
Comparative Tracking Index(CTI)	550	V	UL 746

Thermal Properties	Typical Value	Unit	Test Method
Deflection Temperature Under Load			
0.45 MPa, Unannealed,3.2mm	301	℃	ASTM D648
1.8 MPa, Unannealed	281	℃	ISO 75-2/A
1.8 MPa, Unannealed,3.2mm	287	℃	ASTM D648
Melting Temperature	310	℃	ASTM D570,ISO 11357-3
Continuous Use Temperature			
20000 hr	165	℃	
5000 hr	185	℃	
CLTE			ASTM E831
Flow : 0 to 100℃	1.40E-05	cm/cm/℃	
Flow : 100 to 200℃	3.50E-05	cm/cm/℃	
Transverse : 0 to 100℃	5.50E-05	cm/cm/℃	
Transverse : 100 to 200℃	1.50E-05	cm/cm/℃	

Processing Information	Typical Value	Unit

Processing (Melt) Temp	321 to 343	℃
Mold Temperature	135	℃
Drying Temperature	120	℃
Drying Time	4.5	hr
Suggested Max Moisture	0.045	%
Rear Temperature	304 to 318	℃
Front Temperature	316 to 329	℃

CAUTION/警告!

Before using, read the Molding Guide, Material Safety Data Sheets, and Bulletins available from NFD Advanced Composites Sales offices and Distributors supplied to your company. Caution! During drying, purging and molding, small amounts of hazardous gases and/or particulate matter may be released. These may irritate eyes, nose and throat. Use adequate local exhaust ventilation during thermal processing. To prevent resin decomposition, do not contaminate the resin or exceed the recommended melt temperature or hold-up time. Avoid inhalation or skin and eyes contact. Sweep up and dispose of spilled resin to eliminate slipping hazard.
在使用之前，请阅读NFD公司销售办事处和经销商提供给贵公司的材料成型指南 、材料安全数据表和公告。警告！在干燥、吹扫和成型过程中，少量有害气体或颗粒物质可能会在被释放，这些可能会刺激眼睛，鼻子和喉咙。热处理过程中请注意做好排气通风工作。为防止树脂分解，请勿污染树脂或超过我们为您推荐的熔融温度或时间。请避免吸入或与皮肤、眼睛等接触。清扫和处理溢出的树脂，以消除滑到的危险。

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