

# Hepia® H9033GF H

## Material Description:

Hepia® H9033GF H is a 33% glass reinforced, heat stabilized polyphthalamide (PPA) with a high heat deflection temperature, high flexural modulus and high tensile strength. Excellent creep resistance and low moisture absorption are also characteristic of this resin.

## General

Material Status	• Commercial: Active
Availability	• Asia Pacific • Europe • Middle East • North America • Latin America • Africa
Filler/Reinforcement	• Glass Fiber, 33% Filler by Weight
Additive	• Heat Stabilizer
Features	• Chemical Resistant • Good Dimensional Stability • High Heat Resistance • High Strength • Low Moisture Absorption • Creep Resistant • Good Stiffness • High Stiffness • High Temperature Strength
Uses	• Automotive Applications • Automotive Interior Parts • Cell Phones • Fuel Lines • Industrial Applications • Machine/Mechanical Parts • Power/Other Tools • Automotive Electronics • Automotive Under the Hood • Housings • Industrial Parts • Connectors • Metal Replacement
Appearance	• Black • Natural Color
RoHS Compliance	• RoHS Compliant
Forms	• Pellets
Processing Method	• Injection Molding
Multi-Point Data	• Isochronous Stress vs. Strain (ISO 11403-1) • Isothermal 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	1.48	g/cm <sup>3</sup>	ISO 1183/A
Molding Shrinkage			ASTM D955
Flow	0.4	%	
Across Flow	0.8	%	
Water Absorption (24 hr)	0.23	%	ASTM D570

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

Mechanical Properties	Typical Value	Unit	Test Method
Tensile Modulus			
	13421	MPa	ASTM D638
23°C	13725	MPa	ISO 527-2
100°C	11102	MPa	ISO 527-2
150°C	6958	MPa	ISO 527-2
175°C	4520	MPa	
Tensile Stress			
Break,23°C	237	MPa	ISO 527-2
Break,100°C	150	MPa	ISO 527-2

Break,150°C	82	MPa	ISO 527-2
Break,175°C	73.5	MPa	ISO 527-2
	225	MPa	ASTM D638
<b>Tensile Elongation</b>			
Break	2.4	%	ASTM D638
Break,23°C	2.4	%	ISO 527-2
Break,100°C	2.8	%	ISO 527-2
Break,150°C	8.5	%	ISO 527-2
Break,175°C	8.3	%	ISO 527-2
<b>Flexural Modulus</b>			
	11726	MPa	ASTM D790
23°C	11920	MPa	ISO 178
100°C	10128	MPa	ISO 178
150°C	4259	MPa	ISO 178
175°C	3830	MPa	ISO 178
<b>Flexural Strength</b>			
	321	MPa	ASTM D790
23°C	324	MPa	ISO 178
100°C	230	MPa	ISO 178
150°C	94.5	MPa	ISO 178
175°C	81	MPa	ISO 178
Compressive Strength	184.5	MPa	ASTM D695
Shear Strength	100.6	MPa	ASTM D732
Poisson's Ratio	0.41	MPa	ASTM E132

<b>Impact Properties</b>	<b>Typical Value</b>	<b>Unit</b>	<b>Test Method</b>
<b>Notched Izod Impact</b>			
	79.3	J/m	ASTM D256
23°C	8.5	kJ/m <sup>2</sup>	ISO 180/1A
<b>Unnotched Izod Impact</b>			
	766	J/m	ASTM D256
23°C	48.6	kJ/m <sup>2</sup>	ISO 180/1U
<b>Charpy Notched Impact Strength</b>			
23°C	9.4	kJ/m <sup>2</sup>	ISO 179/1eA
<b>Charpy Unnotched Impact Strength</b>			
23°C	72	kJ/m <sup>2</sup>	ISO 179/1eU

<b>Flammability</b>	<b>Typical Value</b>	<b>Unit</b>	<b>Test Method</b>
Flame Rating(3.2mm)	HB		UL 94

<b>Electrical Properties</b>	<b>Typical Value</b>	<b>Unit</b>	<b>Test Method</b>
Volume Resistivity	1E+16	Ohms-cm	ASTM D257
Dielectric Strength(3.2mm)	21	kV/mm	ASTM D149
Dielectric Constant			ASTM D150
60 Hz	4.4		
1 MHz	4.2		
Dissipation Factor			ASTM D150
60 Hz	5.00E-03		
1 MHz	0.017		
Arc Resistance	140	sec	ASTM D495
Comparative Tracking Index(CTI)	550	V	UL 746

<b>Thermal Properties</b>	<b>Typical Value</b>	<b>Unit</b>	<b>Test Method</b>
<b>Deflection Temperature Under Load</b>			
0.45 MPa, Unannealed,3.2mm	297	°C	ASTM D648
1.8 MPa, Unannealed	280	°C	ISO 75-2/A
1.8 MPa, Unannealed,3.2mm	285	°C	ASTM D648
Melting Temperature	313	°C	ASTM D570,ISO 11357-3
<b>Continuous Use Temperature</b>			
20000 hr	164	°C	
5000 hr	185	°C	
CLTE			ASTM E831
Flow : 0 to 100°C	2.40E-05	cm/cm/°C	
Flow : 100 to 200°C	2.70E-05	cm/cm/°C	
Transverse : 0 to 100°C	5.50E-05	cm/cm/°C	

Optical	Typical Value	Unit	Test Method
Transmittance			ASTM D1003
1070 nm : 1.60 mm	> 30	%	
940 nm : 1.60 mm	> 30	%	

Processing Information	Typical Value	Unit
Processing (Melt) Temp	321 to 343	°C
Mold Temperature	135	°C
Drying Temperature	120	°C
Drying Time	4	hr
Suggested Max Moisture	0.045	%
Rear Temperature	304 to 318	°C
Front Temperature	316 to 329	°C

## NFD ADVANCED COMPOSITES

Hepla® H9033GF H

### 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热融温度或时间。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。

### LEGAL NOTICES/法律声明

The figures indicated here are approximate values. They may be affected by different factors, and the user is not released therefore from the obligation of performing checks and trials of his own. The values indicated here have been compiled on the basis of current tests and findings. Any legally binding guarantee of certain properties, or any suitability for a specific application can not be inferred from the present data. For detailed production regulatory information, contact customer service.

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