

# Heppla® H9016GF T H

**Material Description:**

Heppla® H9016GF T H polyphthalamide (PPA) is a toughened, heat stabilized 16% glass reinforced resin, designed as a cost effective solution for applications requiring stiffness, good dimensional stability, chemical resistance and ductility. This resin has a high heat deflection temperature and a high flexural modulus. bearing retainers/cages, housings, chemical processing equipment components, motor frames, sporting equipment, lawn and garden equipment and components that require press-fit or snap-fit assembly.

General	
Material Status	<ul style="list-style-type: none"> <li>Commercial: Active</li> </ul>
Availability	<ul style="list-style-type: none"> <li>Asia Pacific</li> <li>Europe</li> <li>Middle East</li> <li>North America</li> <li>Latin America</li> <li>Africa</li> </ul>
Filler/Reinforcement	<ul style="list-style-type: none"> <li>Glass Fiber, 16% Filler by Weight</li> </ul>
Additive	<ul style="list-style-type: none"> <li>Heat Stabilizer</li> <li>Chemical Resistant</li> <li>Impact Modifier</li> <li>Good Dimensional Stability</li> </ul>
Features	<ul style="list-style-type: none"> <li>Heat Stabilized</li> <li>Impact Modified</li> <li>High Heat Resistance</li> </ul>
Uses	<ul style="list-style-type: none"> <li>Automotive Applications</li> <li>Automotive Under the Hood</li> <li>Bobbins</li> <li>General Purpose</li> <li>Industrial Parts</li> <li>Metal Replacement</li> <li>Automotive Electronics</li> <li>Bearings</li> <li>Connectors</li> <li>Industrial Applications</li> <li>Machine/Mechanical Parts</li> </ul>
Appearance	<ul style="list-style-type: none"> <li>Natural Color</li> <li>Black</li> </ul>
RoHS Compliance	<ul style="list-style-type: none"> <li>RoHS Compliant</li> </ul>
Forms	<ul style="list-style-type: none"> <li>Pellets</li> </ul>
Processing Method	<ul style="list-style-type: none"> <li>Injection Molding</li> </ul>
Multi-Point Data	<ul style="list-style-type: none"> <li>Isothermal Stress vs. Strain (ISO 11403-1)</li> <li>Secant Modulus vs. Strain (ISO 11403-1)</li> </ul>

Physical Properties	Typical Value	Unit	Test Method
Density/Specific Gravity	1.28	g/cm <sup>3</sup>	ISO 1183/A
Molding Shrinkage			ASTM D955
Flow	0.6	%	
Across Flow	0.6	%	
Water Absorption (24 hr)	0.2	%	ASTM D570

Mechanical Properties	Typical Value	Unit	Test Method
Tensile Modulus			
	6480	MPa	ASTM D638
23°C	6890	MPa	ISO 527-2
100°C	6690	MPa	ISO 527-2
Tensile Stress			
Break,23°C	160	MPa	ISO 527-2
Break,100°C	65.5	MPa	ISO 527-2
	161	MPa	ASTM D638
Tensile Elongation			
Break	3.8	%	ASTM D638
Break,23°C	3.7	%	ISO 527-2
Break,100°C	4.2	%	ISO 527-2
Flexural Modulus			
	6000	MPa	ASTM D790
23°C	6690	MPa	ISO 178

100°C	4960 MPa	ISO 178
Flexural Strength		
	226 MPa	ASTM D790
23°C	197 MPa	ISO 178
100°C	141 MPa	ISO 178
Compressive Strength	124 MPa	ASTM D695
Shear Strength	69.6 MPa	ASTM D732

Impact Properties	Typical Value	Unit	Test Method
Notched Izod Impact			
	96	J/m	ASTM D256
23°C	8	kJ/m <sup>2</sup>	ISO 180/1A
Unnotched Izod Impact Strength			
	960	J/m	ASTM D256
23°C	53	kJ/m <sup>2</sup>	ISO 180/1U
Charpy Notched Impact Strength			
23°C	9	kJ/m <sup>2</sup>	ISO 179/1eA
Charpy Unnotched Impact Strength			
23°C	86	kJ/m <sup>2</sup>	ISO 179/1eU
Instrumented Dart Impact			ASTM D3763
Energy at Maximum Load <sup>1</sup>	1.36	J	
Energy at Maximum Load <sup>2</sup>	1.76	J	
Total Energy	10	J	

Thermal Properties	Typical Value	Unit	Test Method
Deflection Temperature Under Load			
0.45 MPa, Annealed	268	°C	ASTM D648
1.8 MPa, Unannealed	258	°C	ISO 75-2/A
1.8 MPa, Annealed	254	°C	ASTM D648
Peak Melting Temperature	310	°C	ASTM D3418,ISO 11357-3
CLTE			ASTM E831
Flow : 0 to 100°C	2.20E-05	cm/cm/°C	
Flow : 100 to 200°C	1.60E-05	cm/cm/°C	
Transverse : 0 to 100°C	7.50E-05	cm/cm/°C	
Transverse : 100 to 200°C	1.20E-04	cm/cm/°C	

Processing Information	Typical Value	Unit
Processing (Melt) Temp	321 to 343	°C
Drying Temperature	110	°C
Drying Time	4	hr
Suggested Max Moisture	0.045	%
Rear Temperature	304 to 318	°C
Front Temperature	316 to 329	°C
Mold Temperature	135	°C

Notes:

<sup>1</sup> Maximum Load: 200 lb (890 N)

<sup>2</sup> Maximum Load: 240 lb (1070 N)

### 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。

### 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.

上列数据仅作参考用途, 它们可能会受不同因素的影响, 使用者有责任通过实验自行确定材料特性。上述资料根据现有测试得出, 对物料特性是否适合某特殊用途及特性不能给予保证, 数据也没有任何法律约束力。更多有关详细的产品监管信息, 请联系客户服务

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