Hepla® H9000T CL H

Material Description:

Hepla ® H9000T CL H is a neat, toughened, heat stabilized polyphthalamide (PPA) resin that offers superior retention of properties after humid thermal aging; high impact at low temperature and better mechanical properties than many unreinforced thermoplastic polyester and nylon resins.This material was specifically designed for automotive electrical/electronic applications such as connectors, sockets and sensors.

General		
Material Status	• Commercial: Active	
Availability	• Asia Pacific	• North America
	• Europe	• Latin America
	• Middle East	• Africa
Additive	• Heat Stabilizer	• Impact Modifier
	• Mold Release	• Lubricant
Features	• Chemical Resistant	• Ductile
	• Heat Stabilized	• Hot Water Moldability
	• Low Temperature Impact Resistance	• Impact Modified
	• Low Warpage	• Lubricated
Uses	• Automotive Applications	• Automotive Electronics
	• Automotive Under the Hood	• Machine/Mechanical Parts
	• Metal Replacement	• Valves/Valve Parts
Appearance	• Natural Color	
RoHS Compliance	• RoHS Compliant	
Forms	• Pellets	
Processing Method	• Water-Heated Mold Injection Molding	
Multi-Point Data	• Isothermal Stress vs. Strain (ISO 11403-1)	

Physical Properties	Typical Value	Unit	Test Method
Density/Specific Gravity	1.13	g/cm^3	ISO 1183/A
Molding Shrinkage			ASTM D955
Flow	2	%	
Across Flow	2.1	%	
Water Absorption (24 hr)	0.5	%	ASTM D570

Mechanical Properties	Typical Value	Unit	Test Method
Tensile Modulus			
	2760	MPa	ASTM D638
23℃	2760	MPa	ISO 527-2
100℃	2100	MPa	ISO 527-2
Tensile Stress			
Yield,23℃	75.2	MPa	ISO 527-2
Yield,100℃	38.6	MPa	ISO 527-2
Break,23℃	68.3	MPa	ISO 527-2
	83.4	MPa	ASTM D638
Tensile Strain			
Yield,23℃	5	%	ISO 527-2
Yield,100℃	3.7	%	ISO 527-2
Break,Type IV	80	%	ASTM D638
Break,23℃	15	%	ISO 527-2
Flexural Modulus			
	2210	MPa	ASTM D790
23℃	2280	MPa	ISO 178
100℃	1720	MPa	ISO 178
Flexural Strength			

	103	MPa	ASTM D790
23℃	79.3	MPa	ISO 178
100℃	49.6	MPa	ISO 178
Shear Strength	64.1	MPa	ASTM D732

Impact Properties	Typical Value	Unit	Test Method
Notched Izod Impact			
	140	J/m	ASTM D256
23℃	13	kJ/m^2	ISO 180/1A
Unnotched Izod Impact Strength 23℃	No Break	kJ/m^2	ISO 180/1U
Charpy Notched Impact Strength 23℃	13	kJ/m^2	ISO 179/1eA
Charpy Unnotched Impact Strength 23℃	No Break	kJ/m^2	ISO 179/1eU
Instrumented Dart Impact (Total Energy)	54.2	J	ASTM D3763
Penetration Impact (Maximum Load)	4448	N	ASTM D3763

Flammability	Typical Value	Unit	Test Method
Flame Rating	HB		UL 94

Electrical Properties	Typical Value	Unit	Test Method
Volume Resistivity	1.20E+16	Ohms·cm	ASTM D257
Surface Resistivity	8.00E+13	ohms	ASTM D257
Dielectric Strength	17	kV/mm	ASTM D149
Dielectric Constant			ASTM D150
60 Hz	3.3		
1 MHz	3.3		
Dissipation Factor(1 MHz)			ASTM D150
60 Hz	4.00E-03		
1 MHz	0.016		
Comparative Tracking Index	> 600	V	ASTM D3638
High Voltage Arc Tracking Rate (HVTR)	12	mm/min	UL 746

Thermal Properties	Typical Value	Unit	Test Method
Deflection Temperature Under Load			
0.45 MPa, Annealed	163	℃	ASTM D648
1.8 MPa, Unannealed	118	℃	ISO 75-2/A
1.8 MPa, Annealed	121	℃	ASTM D648
Melting Temperature	315	℃	ISO 11357-3 ASTM D3418
CLTE			ASTM E831
Flow : 0 to 100℃	7.80E-05	cm/cm/℃	
Flow : 100 to 200℃	1.30E-04	cm/cm/℃	
Transverse : 0 to 100℃	9.30E-05	cm/cm/℃	
Transverse : 100 to 200℃	1.40E-04	cm/cm/℃	

Processing Information	Typical Value	Unit
Processing (Melt) Temp	321 to 329	℃
Drying Temperature	110	℃
Drying Time	4	hr
Suggested Max Moisture	0.06	%
Rear Temperature	304	℃
Front Temperature	324	℃
Screw Speed	100 to 200	rpm
Screw Compression Ratio	2.5:1.0	

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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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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