

Tepla® T8012CF

Material Description:

Tepla® T8012CF is a 12% carbon fiber reinforced Polyetherimide(PEI). High modulus with ESD characteristics for high-heat applications.

General

Material Status	<ul style="list-style-type: none"> Commercial: Active
Availability	<ul style="list-style-type: none"> Asia Pacific Europe Middle East North America Latin America Africa
Filler/Reinforcement	<ul style="list-style-type: none"> Carbon Fiber, 12% Filler by Weight
Features	<ul style="list-style-type: none"> High modulus Steam Resistant Chemical Resistant Heat Resistant Wear Resistant Radiation (Gamma) Resistant Good Dimensional Stability ESD protection Fatigue Resistant Creep Resistant Flame Retardant High Stiffness UV Resistant Hydrolysis Stable Low Extractable High heat resistance
Applications	<ul style="list-style-type: none"> Hospital Goods Industrial Applications Connectors Dental Applications Aircraft Applications Medical Devices Medical/Healthcare Applications Electrical/Electronic Applications
RoHS Compliance	<ul style="list-style-type: none"> RoHS Compliant
Processing Method	<ul style="list-style-type: none"> Injection Molding
Multipoint Data	<ul style="list-style-type: none"> Coefficient of Thermal Expansion vs. Temperature (ASTM E831) Flexural DMA (ASTM D4065) Pressure -Volume -Temperature (PVT - Zoller Method) Specific Heat vs. Temperature (ASTM D3417) Tensile Fatigue Tensile Stress vs. Strain (ASTM D638) Thermal Conductivity vs. Temperature (ASTM E1530) Viscosity vs. Shear Rate (ASTM D3835)

Physical Properties	Typical Value	Unit	Test Method
Specific Gravity	1.32	g/cm ³	ASTM D792
Melt Flow Rate, 337°C/6.6 kgf	7.5	g/10 min	ASTM D1238
Mold Shrinkage			NFD Method
Flow, 3.2mm	0.12 to 0.22	%	
Across Flow, 3.2mm	0.3 to 0.5	%	

Mechanical Properties	Typical Value	Unit	Test Method
Tensile Modulus, 50 mm/min	9300	MPa	ASTM D638
Tensile Strength, yield, Type I 5 mm/min	156	MPa	ASTM D638
Tensile Elongation, yield, Type I 5 mm/min	5	%	ASTM D638
Tensile Strength, break 5 mm/min	156	MPa	ASTM D638
Tensile Elongation, break 5 mm/min	5	%	ASTM D638
Flexural Modulus, 1.3 mm/min 50 mm span	8700	MPa	ASTM D790
Flexural Modulus, 2.6 mm/min	8650	MPa	ASTM D790

100 mm span	225	MPa	ASTM D790
Flexural Strength, break, 1.3 mm/min 50 mm span	225	MPa	ASTM D790
Flexural Strength, break, 2.6 mm/min 100 mm span	197	MPa	ASTM D790

Impact Properties	Typical Value	Unit	Test Method
Notched Izod Impact, 23°C	38	J/m	ASTM D256
Unnotched Izod Impact, 23°C	414	J/m	ASTM D4812
Instrumented Impact Total Energy 23°C	6	J	ASTM D3763

Flame Properties	Typical Value	Unit	Test Method
UL Compliant, 94V-0 Flame Class Rating,1.6mm	V-0		UL 94

Electrical Properties	Typical Value	Unit	Test Method
Surface Resistivity	2.00E+05	Ohm	ASTM D257
Volume Resistivity	4.00E+02	Ohm•cm	ASTM D257
Hot Wire Ignition {PLC}	2	PLC Code	UL 746A
High Ampere Arc Ign, surface {PLC}	2	PLC Code	UL 746A
Static Decay, 5000V to <50V	<0.1	seconds	FTMS101B

Thermal Properties	Typical Value	Unit	Test Method
Deflection Temperature Under Load 1.82MPa, Unannealed, 3.2mm	208	°C	ASTM D648
0.45 MPa, Unannealed, 3.2mm	213	°C	ISO 75/ Af
1.82MPa, Unannealed, 6.4mm	210	°C	
CLTE			ASTM E831
-40°C to 40°C, Flow	1.44E-05	cm/cm/°C	
-40°C to 40°C, Xflow	3.24E-05	cm/cm/°C	
CLTE			ASTM E831
-20°C to 150°C, Flow	1.44E-05	cm/cm/°C	
-20°C to 150°C, Xflow	3.96E-05	cm/cm/°C	
Vicat Softening Temp, Rate B/50	214	°C	ASTM D1525
Relative Temp Index, Elec	105	°C	UL 746B
Relative Temp Index, Mech w/impact	105	°C	UL 746B
Relative Temp Index, Mech w/o impact	105	°C	UL 746B

Processing Information	Typical Value	Unit	
Maximum Moisture Content	0.02	%	
Melt Temperature	380 to 425	°C	
Mold Temperature	135 to 165	°C	
Drying Temperature	149	°C	
Drying Time	4 to 6	hr	
Drying Time (Cumulative)	24	hr	
Front Temperature	380 to 425	°C	
Middle Temperature	370 to 420	°C	
Rear Temperature	360 to 405	°C	
Back Pressure	0.345 to 0.689	MPa	
Screw Speed	40 to 70	rpm	
Nozzle Temperature	375 to 420	°C	
Shot to Cylinder Size	40 to 60	%	
Vent Depth	0.025 to 0.076	mm	

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, 以消除滑倒的危险。

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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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