

Tepla® T7100 CF GR TF

Material Description:

Tepla® T7100 CF GR TF is a wear resistant grade of Tepla® polyaryletherketone (PAEK) designed to provide low wear rates in both non-lubricated and lubricated environments. In addition to the outstanding wear resistance, the resin also offers the outstanding combination of ultra performance attributes commonly known for PEEK. These include: chemical resistance, mechanical strength and stiffness, even at elevated temperatures, as well as long-term and high-temperature thermal-oxidative stability.

Potential applications for Tepla® T7100 CF GR TF include bushings, bearings, wear strips, wear rings, rollers, and other parts or components where sliding friction is encountered. The resin is black in color in its natural state."

General

Material Status	• Commercial: Active	
Availability	• Asia Pacific	• North America
	• Europe	• Latin America
	• Middle East	• Africa
Additive	• Carbon Fiber + Graphite + PTFE Lubricant	
Features	• Chemical Resistant	• Flame Retardant
	• Good Dimensional Stability	• High Heat Resistance
	• Wear Resistant	
Uses	• Automotive Applications	• Bearings
	• Bushings	• Oil/Gas Applications
	• Wear Strip	
Appearance	• Black	
Forms	• Pellets	
RoHS Compliance	• Contact Manufacturer	
Processing Method	• Injection Molding	• Machining
	• Profile Extrusion	
Multi-Point Data	• Isothermal Stress vs. Strain (ISO 11403-1)	
	• Viscosity vs. Shear Rate (ISO 11403-2)	

Physical Properties	Typical Value	Unit	Test Method
Density/Specific Gravity	1.46	g/cm ³	ASTM D792
Water Absorption (24 hr)	0.03	%	ASTM D570
Melt Mass-Flow Rate (MFR)	1.9	g/10min	ASTM D1238
Molding Shrinkage ¹			ASTM D955
Flow (3.18mm)	0.1 to 0.3	%	
Across Flow (3.18mm)	1.7 to 1.9	%	

Hardness	Typical Value	Unit	Test Method
Rockwell Hardness (M-Scale)	82		ASTM D785

Mechanical Properties	Typical Value	Unit	Test Method
Tensile Modulus 5 mm/min	14500	MPa	ASTM D638
	15600	MPa	ISO 527-2/1A/1
Tensile Stress Yield 5 mm/min	154	MPa	ISO 527-2/1A/5
	148	MPa	ASTM D638
Tensile Elongation Break, 5 mm/min	2.3	%	ASTM D638
	2.2	%	ISO 527-2/1A/5
Flexural Modulus	13600	MPa	ASTM D790
	14200	MPa	ISO 178

Flexural Strength	217 MPa	ASTM D790
	212 MPa	ISO 178
Compressive Strength	108 MPa	ASTM D695
Shear Strength	72 MPa	ASTM D732
Coefficient of Friction		ASTM D3702
-- ²	0.42	
-- ³	0.59	
-- ⁴	0.11	
-- ⁵	0.08	

Impact Properties	Typical Value	Unit	Test Method
Notched Izod Impact	73	J/m	ASTM D256
	8	kJ/m ²	ISO 180
Unnotched Izod Impact	485	J/m	ASTM D4812
	31	kJ/m ²	ISO 180

Thermal Properties	Typical Value	Unit	Test Method
Deflection Temperature Under Load ⁶ 1.8 MPa, Annealed, 3.2mm	267	°C	ASTM D648
Glass Transition Temperature	152	°C	DSC
Specific Heat			DSC
50°C	1340	J/kg/°C	
200°C	1810	J/kg/°C	
Peak Melting Temperature	340	°C	ASTM D3418
Thermal Conductivity	0.3	W/m/K	ASTM E1530

Processing Information	Typical Value	Unit
Injection Rate	Fast	
Screw Compression Ratio	2.0:1.0 to 3.0:1.0	
Mold Temperature	149 to 177	°C
Drying Temperature	149	°C
Drying Time	4	hr
Front Temperature	371	°C
Middle Temperature	366	°C
Rear Temperature	354	°C
Nozzle Temperature	374	°C
Processing (Melt) Temp	366 to 388	°C

Fill Analysis	Typical Value	Unit
Melt Viscosity (400°C, 1000 sec ⁻¹)	240	Pa·s

Notes:

¹ 5" x 0.5" x 0.125" bars

² Dry conditions: 800 fpm and 31.25 psi (4.06 m/s and 215 kPa)

³ Dry conditions: 200 fpm and 125 psi (1.02 m/s and 862 kPa). Not recommended at 50 fpm and 500 psi (0.25 m/s and 3447 kPa).

⁴ Lubricated conditions: 75 fpm and 1000 psi (0.38 m/s and 6895 kPa)

⁵ Lubricated conditions: 800 fpm and 750 psi (6.06 m/s and 5171 kPa)

⁶ 2 hours at 200°C

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。

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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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