OnForce™ LFT LF0100-5004 X2 BLACK

Polyurethane

Key Characteristics

Product Description
PolyOne's Long Fiber Thermoplastic (LFT) compounds are formulated for demanding applications which require high stiffness and good impact such as metal replacement or other structural applications. These products exhibit enhanced physical and mechanical properties versus standard short fiber products. Benefits of LFT compounds include improved impact strength, elastic modulus, and material strength across wide temperature ranges from subambient to highly elevated. Furthermore, LFT compounds have been shown to offer improved performance in the areas of creep and fatigue performance, improved dimensional stability, and exhibit an exceptional surface finish when compared to traditional highly filled short fiber products.

General			
Material Status	• Commercial: Active		
Regional Availability	• Africa & Middle East • Asia Pacific	• Europe • Latin America	• North America
Filler / Reinforcement	• Long Carbon Fiber, 20% Filler by Weight		
Forms	• Pellets		

Technical Properties [1]

Physical	Typical Value (English)	Typical Value (SI)	Test Method
Specific Gravity	1.27	1.27	ISO 1183
Molding Shrinkage - Flow	1.0E-3 to 2.0E-3 in/in	0.10 to 0.20 %	ISO 294-4
Mechanical	**Typical Value (English)**	**Typical Value (SI)**	**Test Method**
Tensile Modulus [2]	2.23E+6 psi	15400 MPa	ISO 527-2
Tensile Strength (Yield)	29700 psi	205 MPa	ISO 527-2
Tensile Elongation [2] (Break)	2.0 %	2.0 %	ISO 527-2
Flexural Modulus	1.74E+6 psi	12000 MPa	ISO 178
Flexural Strength (Yield)	39200 psi	270 MPa	ISO 178
Impact	**Typical Value (English)**	**Typical Value (SI)**	**Test Method**
Charpy Notched Impact Strength	7.6 ft·lb/in²	16 kJ/m²	ISO 179
Charpy Unnotched Impact Strength	21 ft·lb/in²	45 kJ/m²	ISO 179
Gardner Impact	138 in·lb	15.6 J	ASTM D5420
Thermal	**Typical Value (English)**	**Typical Value (SI)**	**Test Method**
Heat Deflection Temperature			ISO 75-2/A
264 psi (1.8 MPa), Unannealed	230 °F	110 °C	

Processing Information

Injection	Typical Value (English)	Typical Value (SI)
Drying Temperature	194 °F	90.0 °C
Drying Time	8.0 to 12 hr	8.0 to 12 hr
Processing (Melt) Temp	428 to 482 °F	220 to 250 °C
Mold Temperature	176 °F	80.0 °C

Injection Notes
LFT compounds can be processed using equipment similar to that used for short fiber products. The mechanical properties of finished parts depend greatly on the length of the fibers in the molded part; therefore processing conditions must be set carefully in order to minimize fiber breakage. A "low shear process" is advised, with low back pressure, low screw speed and low-to-medium injection speed. This grade must be dried in a dessicant dryer with a dew point set at -40°C.

Notes

[1] Typical values are not to be construed as specifications.

[2] Type I, 0.20 in/min (5.1 mm/min)

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