



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 • Europe • Asia Pacific • 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
Density / 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/in ²	16 kJ/m ²	ISO 179
Charpy Unnotched Impact Strength	21 ft·lb/in ²	45 kJ/m ²	ISO 179
Gardner Impact	138 in·lb	15.6 J	ASTM D5420
Thermal	Typical Value (English)	Typical Value (SI)	Test Method
Heat Deflection Temperature 264 psi (1.8 MPa), Unannealed	230 °F	110 °C	ISO 75-2/A

Processing Information

Injection	Typical Value (English)	Typical Value (SI)
Drying Temperature	194 °F	90 °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 °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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