



OnForce™ LFT SF-40LCF/000 Black

Polyphenylene Sulfide

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, 40% Filler by Weight
Features	• Heat Stabilized
Forms	• Pellets

Technical Properties ¹

Physical	Typical Value (English)	Typical Value (SI)	Test Method
Density	1.50 g/cm ³	1.50 g/cm ³	ISO 1183
Molding Shrinkage ²	0.30 %	0.30 %	ISO 294-4
Mechanical	Typical Value (English)	Typical Value (SI)	Test Method
Tensile Modulus	4.35E+6 psi	30000 MPa	ISO 527-2
Tensile Stress (Break)	23200 psi	160 MPa	ISO 527-2
Tensile Strain (Break)	0.70 %	0.70 %	ISO 527-2
Flexural Modulus	3.19E+6 psi	22000 MPa	ISO 178
Flexural Stress	33400 psi	230 MPa	ISO 178
Impact	Typical Value (English)	Typical Value (SI)	Test Method
Charpy Notched Impact Strength	3.3 ft·lb/in ²	7.0 kJ/m ²	ISO 179
Charpy Unnotched Impact Strength	10 ft·lb/in ²	22 kJ/m ²	ISO 179
Gardner Impact	75.0 in·lb	8.47 J	ASTM D5420

Processing Information

Injection	Typical Value (English)	Typical Value (SI)
Drying Temperature	302 °F	150 °C
Drying Time	4.0 to 6.0 hr	4.0 to 6.0 hr
Processing (Melt) Temp	608 to 644 °F	320 to 340 °C
Mold Temperature	302 °F	150 °C
Injection Rate	Slow-Moderate	Slow-Moderate
Back Pressure	145 psi	1.00 MPa

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.

Notes

¹ Typical values are not to be construed as specifications.

² Measured on a tensile specimen. Actual mold shrinkage values are highly dependant on part geometry, mold configuration, and processing conditions.



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