OnForce™ LFT PP-40LGF/001 Natural

Polypropylene Homopolymer

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

Technical Properties [1]

Physical	Typical Value (English)	Typical Value (SI)	Test Method
Density	1.20 g/cm³	1.20 g/cm³	ISO 1183
Molding Shrinkage			
-- [2]	0.30 %	0.30 %	ISO 294-4
--	0.26 %	0.26 %	ASTM D955
Mechanical	**Typical Value (English)**	**Typical Value (SI)**	**Test Method**
Tensile Modulus			
--	1.31E+6 psi	9000 MPa	ISO 527-2
--	1.24E+6 psi	8560 MPa	ASTM D638
Tensile Stress			
Break	18900 psi	130 MPa	ISO 527-2
Break	15800 psi	109 MPa	ASTM D638
Tensile Strain			
Break	2.0 %	2.0 %	ISO 527-2
Break	2.0 %	2.0 %	ASTM D638
Flexural Modulus			
--	1.02E+6 psi	7000 MPa	ISO 178
--	1.01E+6 psi	6970 MPa	ASTM D790
Flexural Stress			
--	26100 psi	180 MPa	ISO 178
--	24800 psi	171 MPa	ASTM D790
Impact	**Typical Value (English)**	**Typical Value (SI)**	**Test Method**
Charpy Notched Impact Strength	14 ft·lb/in²	30 kJ/m²	ISO 179
Charpy Unnotched Impact Strength	29 ft·lb/in²	60 kJ/m²	ISO 179
Notched Izod Impact	3.5 ft·lb/in	190 J/m	ASTM D256
Gardner Impact	104 in·lb	11.8 J	ASTM D5420

Thermal	Typical Value (English)	Typical Value (SI)	Test Method
Heat Deflection Temperature			
264 psi (1.8 MPa), Unannealed	315 °F	157 °C	ISO 75-2/A
264 psi (1.8 MPa), Unannealed	315 °F	157 °C	ASTM D648
Heat Deflection Temperature			ISO 75-2/C
1160 psi (8.0 MPa), Unannealed	282 °F	139 °C	

Processing Information

Injection	Typical Value (English)	Typical Value (SI)
Drying Temperature	176 °F	80.0 °C
Drying Time	2.0 hr	2.0 hr
Processing (Melt) Temp	410 to 446 °F	210 to 230 °C
Mold Temperature	140 °F	60.0 °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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