

CF-PLA

(Carbon Fiber Reinforced Polylactic Acid)



Technical Data Sheet

Tensile Properties		
ASTM D638 - Type V		
Property	Imperial	Metric
Toughness*	6.1 ft·lb/in ²	12.9 KJ/m ²
Tensile Modulus	694,876 psi	4.8 GPa
Ultimate Tensile Strength	6947 psi	47.9 MPa
Tensile Strength at Yield	8400 psi	57.9 MPa
Elongation at Yield	1%	1%
Elongation at Break	2%	2%

3D Printing Properties		
Property	Imperial	Metric
Expected Max Linear Print Speed	2.76 in/s	70 mm/s
Hardness, ASTM D2240	95D	95D
Solid Density, ASTM D792	4.66 x 10 ⁻² lb/in ³	1.29 g/cc

Impact Properties		
Property	Imperial	Metric
Notched Izod (machined), 23 C, ASTM D256	0.2 f·lb/in	10.7 J/m
Gardner Impact, 23 C, ASTM D5420	6.9 ft·lb	9.3 J

Thermal Properties		
Property	Imperial	Metric
Glass Transition by DSC, ASTM E1356	140 F	60 C
Glass Transition by DMA, ASTM D792	147 F	64 C
Heat Deflection Temperature, ASTM D648	133 F	56 C
Coefficient of Thermal Expansion, ASTM E832	15 x 10 ⁻⁶ in/inR	27 x 10 ⁻⁶ m/m·K
Heat Capacity, ASTM E1269	0.43 Btu/lb/°F	1,800 J/kg·K
Thermal Conductivity, ASTM C518	0.9 Btu·in/hr/ft ² /°F	0.13 W/m·K

Available Colors
Black

Suggested Uses
CF-PLA provides a slight improvement in stiffness and resilience to thermal loading when compared to standard PLA. CF-PLA is best used for applications that require high stiffness but do not require impact strength or tolerance to significant heat loads.

*Toughness is not defined in ASTM D638 though can be calculated by taking the integral of the stress-strain curve collected by tensile data.