PET-CF

Technical Data Sheet

Adding carbon fiber reinforced materials to PET and modifying it can enhance the rigidity and heat resistance of PET. PET-CF has excellent rigidity and resistance to chemical corrosion, performing well in scenarios requiring high strength, such as tool fixtures.

Basic Information

Characteristics	• High temperature resistance • Rigidity	• Chemical Resistance • High speed printing
Applications	• Aerospace • Automotive	• Industrial Applications
Processing Method	• 3D Printing	• FDM Print

Physical Properties	Testing Method	Data
Density	GB/T 1033	1.42 g/cm3
Melt Flow Index	GB/T 3682	/

Thermal Properties	Testing Method	Data
Heat Distortion Temperature	GB/T 1634	75 ℃ (0.45Mpa) 145℃ (0.45Mpa)After annealing
Glass Transition Temperature		70℃
Continuous Service Temperature	IEC 60216	N/A
Maximum (short term) Use Temperature		N/A

Electrical Properties	Testing Method	Data
Insulation Resistance	DIN IEC 60167	N/A
Surface Resistance	DIN IEC 60093	N/A

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Mechanical Properties	Testing Method	Data
Tensile Strength (X-Y)	GB/T 1040	80.32 Mpa
Tensile Strength (Z)	GB/T 1040	22 MPa
Elongation at Break (X-Y)	GB/T 1040	3.61 %
Elongation at Break (Z)	GB/T 1040	2.11 %
Flexural Strength (X-Y)	GB/T 9341	135.6 MPa
Flexural Strength (Z)	GB/T 9341	33.4 MPa
Flexural Modulus (X-Y)	GB/T 9341	8264.15 MPa
Flexural Modulus (Z)	GB/T 9341	2165.01 MPa
IZOD Impact Strength (X-Y)	GB/T 1843	7.16 KJ/m2
IZOD Impact Strength (Z)	GB/T 1843	2.12 KJ/m2

Chemical Properties	Data
Acid and Alkali Resistance	Hydrofluoric acid resistance, organic acid resistance
Grease Resistance	Resistance to nonpolar solvents and most solvents
UV Resistance	Light-resistant aging
Water Repellency	Resistance to less than 60℃ of water environment

Recommended Printing Parameters	Data
Drying Preparation	80-100℃ 4-8H
Extruder Temperature	250-300℃
Nozzle Size	0.4-1.0℃
Nozzle Temperature	250-320℃
Build Platform Type	ALL
Build Platform Temperature	70-120℃
Build Platform Preparation	
Fan Speed	0-20%
Printing Speed	0-200mm/s
Storage Humidity	≤20%（Within 1 week）

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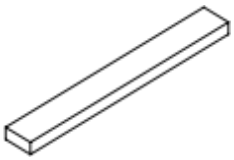
Printing Tips

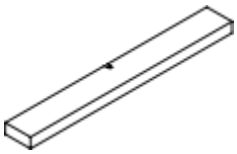
1. When slicing, it is recommended to enable the Z-seam alignment and starting point alignment functions, disable the Z-axis lift and exit feature, avoid traversing through the shell during idle movements, optimize the slicing printing path, and appropriately reduce the printing speed in order to achieve optimal print quality.
2. PET-CF filament is easy to be damp, it is recommended to dry before printing, drying temperature 80℃, drying time 4-8H. A hardened nozzle is recommended.

Test Conditions of Mechanical Properties

Tensile testing specimen GB/T 1040



Flexural testing specimen GB/T 9341



Impact testing specimen GB/T 1843

The performance of the filament is evaluated based on standard samples printed by eSUN, while the actual printing performance is influenced by various factors such as printer type, printing parameters, and print environment.

Printing Test Conditions:

Extruder Temperature	300℃
Build Platform Temperature	70℃
Outer Layer Number	2
Top/Bottom Layer Number	3
Infill Density	100%
Fan Speed	0%
Maximum Volumetric Flow Rate	4mm^3/s

*Based on Bambu P1S 0.4 mm nozzle and Orcaslicer 2.1.0 Beta.

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