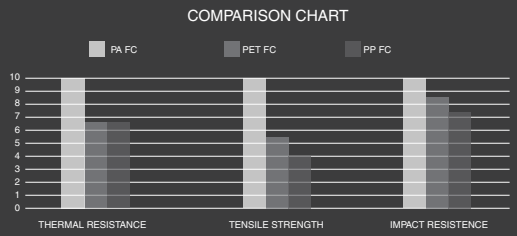
POLYAMIDE CARBON FIBER

TECHNICAL DATA SHEET VERSION 1.0

INNOVATEFIL® by smart materials 3D

Innovatefil® PA CF is a filament with a high mechanical strength and excellent performance at high temperatures, the combination of polyamide and carbon fiber allows large objects to be printed without deformation. This filament is especially indicated for a professional user who require a plus of quality in the printing pieces and they are required to be fit for end use.

- Ability to work at temperatures of 150 °C
- Great adhesion between layers (high resistance regardless of the printing position)



	TIPICAL VALUE	UNITS	TEST METHOD
PHYSICAL PROPERTIES			
Chemical name	Polyamide with Carbon Fiber		
Material density	1.25	g/cm^3	ISO 1183
MECANICAL PROPERTIES			
Tensile Strength	170	MPa	ISO 527
Modulus of Elasticity	15	GPa	ISO 527
Elongation	2	%	ISO 527
Charpy Impact (notched at 23º)	47	KJ/m^2	ISO 179 1eU
THERMAL PROPERTIES			
Continuous Service Temp	150	°C	UL 746B
Heat Distortion Temp. (HDT A)	240	°C	ISO 75
Maximum (short term) Use Temp	180	°C	
ELECTRICAL PROPERTIES			
Insulation Resistance	<=10^2	Ω	DIN/IEC 60167
Surface Resistance	<10^2	Ω	IEC 60093
PRINTING PROPERTIES			
Print temperature	240-260	°C	
Bed temperature	>60	°C	
Fan layer	0-50	%	
Print speed	30-50	mm/s	

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USE RECOMENDATIONS

PROTECT FROM HUMIDITY

Innovatefil® PA CF is delivered in a vacuum bag, with a great barrier against moisture so that the filament can not absorb humidity. Prior to bagging, the filament follows the strictest quality controls by dehumidifying the raw material until the moisture content of less than 0.02%. During the process, the filament is cooled with dry air and then pocketed to ensure that the product is of the best quality.

Once unpacked, we recommend to keep it in a dry and dark environment. If it is not maintained in a suitable environment the material can absorb up to 0.5% of the atmospheric moisture, this can create water vapor in the extrusion that confers a poor surface finish.

To maintain optimal printing conditions, it is recommended to dry the material before using it in a 3D printer filament. Many printing equipments already have these drying systems incorporated.

KEEP THE EXTRUDER IN GOOD CONDITION

Once printing is finished it is necessary to clean the nozzle eliminating the excess of material to avoid seals and defects in the printing pieces, if several materials are used we recommend to have a nozzle for each material to avoid being mixed.

RECOMMENDATIONS FOR THE USE OF CARBON FIBER

The carbon fiber makes the filament very abrasive so it is necessary to use hardened steel nozzles or similar to print, and thus avoid premature wear of the components.

To achieve a better finish and avoid printing problems, we recommend to use nozzles of 0.6 mm diameter, print layer height of 0.2 mm or greater, not following these recommendations could cause problems of nozzle clogging.