

PET CARBON FIBER

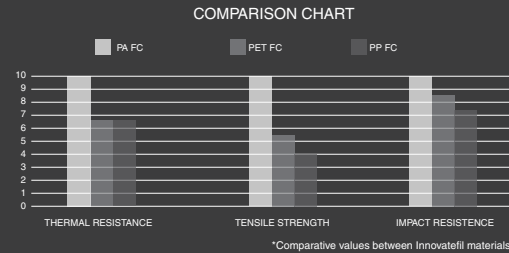


INNOVATEFIL®
by smart materials 3D

TECHNICAL DATA SHEET VERSION 1.0

Innovatefil® PET CF is a filament PET-based that incorporates carbon fiber. Thanks to this, we maintain the great qualities of PET and increase its mechanical and thermal properties. Stability and the ease of printing makes this material fantastic to print working pieces with great finish. Its main advantages are:

- High mechanical and thermal resistance.
- High resistance against chemicals.
- Low humidity absorption.
- Good dimensional stability.
- Perfect Surface finish.



	TYPICAL VALUE	UNITS	TEST METHOD
PHYSICAL PROPERTIES			
Chemical name	Polyethylene terephthalate with Carbon Fiber		
Material density	1.4	g/cm ³	ISO 1183
MECHANICAL PROPERTIES			
Tensile Strength	80	MPa	ISO 527
Modulus of Elasticity	9	GPa	ISO 527
Elongation	2.5	%	ISO 527
Charpy Impact (notched at 23 °C)	40	KJ/m ²	ISO 179 1eU
Flexural Strength	130	MPa	ISO 178
Flexural Elongation	3.5	%	ISO 178
Flexural Modulus	8	GPa	ISO 178
THERMAL PROPERTIES			
Continuous Service Temp	100	°C	UL 746B
Maximum (short term) Use Temp	125	°C	
PRINTING PROPERTIES			
Print temperature	260-280	°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® PET FC is not prone to absorb moisture, even so, is delivered in a vacuum bag with a great barrier against moisture so that the filament cannot 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%.

Once unpacked, we recommend to keep it in a dry and dark environment.

USE A SUITABLE DEVICE FOR PRINTING

This material requires demanding printing conditions, depending on the printer may require an extruder with capacity to reach 270 °C, make sure that your printer has the ability to print it.

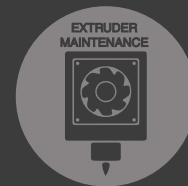
KEEP THE EXTRUDER IN GOOD CONDITION

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.



DISCLAIMER: The information provided in the data sheets is intended to be just a reference. It should not be used as design or quality control values. Actual values may differ significantly depending on the printing conditions. The final performance of the printed components does not only depend on the materials, also the design and printing conditions are important.

Smart Materials assumes no responsibility for any damage, injury or loss produced by the use of its filaments in any particular application.