

POLYCARBONATE

TECHNICAL DATA SHEET VERSION 1.2



INNOVATEFIL®
by smart materials 3D

Innovatefil® Polycarbonate is an advanced filament with great resistance against impact. It has high resistance to thermal deformation and very good dimensional stability. This material has been designed to be used for 3D printing so the contractions are minimal during use.

Some of its advantages are:

- Resistance to impact pretty high.
- High strength and stiffness.
- High resistance to thermal deformation.
- Good chemical insulation properties.
- Suitable for sterilization for medical applications.

	TIPICAL VALUE	UNITS	TEST METHOD
PHYSICAL PROPERTIES			
Chemical name	Polycarbonate		
Material density	1.2	g/cm ³	ISO 1183 B
MECANICAL PROPERTIES			
Tensile stress at yield	65	MPa	ISO 527
Modulus of elasticity in tension	2000	MPa	ISO 527
Flexural strength	90	MPa	ISO 178
Modulus in flexure	2300	MPa	ISO 178
Charpy impact (notched at 23 °C)	15	KJ/m ²	ISO 176
Rockwell hardness	75	R/M scale	ISO 20/39
THERMAL PROPERTIES			
Vicat softening point (A/10N)	145	°C	ISO 306
Temperature of deflection under load (1.82 Mpa)	124	°C	ISO 75 A
Heat conductivity	0.24	W/mK	
ELECTRICAL PROPERTIES			
Dielectric strength (1.6 mm)	30	MV/m	IEC 60243-1
Volume resistivity	>10 ¹⁶	Ω x cm	IEC 60093
FLAMMABILITY PROPERTIES			
Flammability rating	V-2	0.4 mm	UL94
PRINTING PROPERTIES			
Print temperature	250-270	°C	
Bed temperature	90-110	°C	
Fan layer	0	%	
Print speed	40-60	mm/s	

POLYCARBONATE

TECHNICAL DATA SHEET VERSION 1.2



INNOVATEFIL®
by smart materials 3D

USE RECOMENDATIONS

PROTECT FROM MOISTURE

Innovatefil® Polycarbonate is delivered in a vacuum bag with a great barrier against moisture so that the filament cannot absorb humidity. Before bagging, the filament follows the strictest quality controls by dehumidifying the raw material until the moisture content is lower than 0.02%. During the process the filament is cooled down by dry air and next it is bagged to make sure the product is the highest quality.

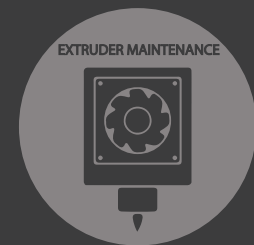
Once the product is unpacked we recommend to keep it in a dry and dark environment. If not maintained in a suitable environment the material can absorb up to 0.5% atmospheric moisture, this can create water vapour in the extrusion that can end up in a bad surface finish.

USE A SUITABLE DEVICE FOR PRINTING

This material requires demanding printing conditions, an extruder that can reach 270 °C and a hot bed able to reach 110 °C, make sure that your printer can achieve these temperatures in order to make your working pieces.

KEEP THE EXTRUDER IN GOOD CONDITION

Once printing is finished it is recommendable to clean the nozzle eliminating the excess of material to avoid seals and defects unwanted, if several materials are used it is advisable to have a nozzle for each material to avoid being mixed.



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.