



## TECHNICAL DATA SHEET VERSION 1.1

Innovatefil® PEEK is thermoplastic that offers a unique combination of high mechanical properties, temperature resistance and excellent chemical resistance. It is indicated for applications that need resistance and rigidity, as well as ductility. It is chemically resistant to aggressive environments and suitable for sterilization for medical and food contact applications. It has very good resistance to UV rays and external conditions, which is why it is recommended for outdoor use.

	CONDITIONS	TEST METHOD	UNITS	TYPICAL VALUE
<b>PHYSICAL PROPERTIES</b>				
Specific Gravity		ISO 1183	g/cm <sup>3</sup>	1,31
Water Absorption	23 °C / 24 h		%	<0,1
Melt Volume Rate	MVR 380 °C / 10kg	ISO 1133	cm <sup>3</sup> /10 Min	22
Linear Mould Shrinkage	VSR 3mm II	DIN 16901	%	1,4-1,6
Flamability Behaviour		UL 94	-	(V-0)

**MECHANICAL PROPERTIES** at 23°C/50% rh

Tensile Strength	$\sigma_M$	ISO 527	MPa	97
Elongation	$\epsilon_M$	ISO 527	%	5
Modulus of Elasticity	$E_t$	ISO 527	GPa	3,8
Flexural Strength	$\sigma_{bM}$	ISO 178	MPa	145
Flexural Elongation	$\epsilon_{bM}$	ISO 178	%	7
Flexural Modulus	$E_{3B}$	ISO 178	GPa	3,4
Charpy Impact Strength		ISO 179 1eU	KJ/m <sup>2</sup>	185
Charpy Impact Strength	-30 °C	ISO 179 1eU	KJ/m <sup>2</sup>	185
Charpy Impact Strength Notched		ISO 179 eA	KJ/m <sup>2</sup>	7
Charpy Impact Strength Notched	-30 °C	ISO 179 eA	KJ/m <sup>2</sup>	7

**THERMAL PROPERTIES**

Heat Distortion Temp.	HDT A	ISO 75	°C	145
Continuous Service Temp.		UL 746B	°C	250
Maximum (short term) Use Temp.			°C	260

**ELECTRICAL PROPERTIES**

Insulation Resistance (strip electrode)	$R_{25}$	DIN/IEC 60167	$\Omega$	$>10^{12}$
Surface Resistance	$R_{0B}$	DIN/IEC 60093	$\Omega$	$>10^{12}$

**PRINTING PROPERTIES**

Print Temperature			°C	370-420
Close Chamber Temperature			°C	> 120

# USE RECOMENDATIONS

## PROTECT FROM MOISTURE

Innovatefil® PEEK 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. For an optimal use it is advisable to use a preheating and dehumidification system on the machine.

If not maintained in a suitable environment the material can absorb up to 0.5% of atmospheric humidity, this could create water vapour in the extrusion that will bring a poor surface finish, to eliminate this moisture it is recommended to dry the material in an oven at 120° C for 12 hours, although it is preferable to use dehumidifiers with a dew point of -40° C.

## USE A SUITABLE DEVICE FOR PRINTING

PEEK is a material with a very high temperature resistance, requiring very demanding printing conditions, an extruder with a capacity of 400°C and a chamber environment higher than 120° C, make sure that your printer is suitable to print PEEK.

## CONTROL THE TEMPERATURE

During printing it is very important to maintain a homogeneous and stable chamber temperature so that there are no temperature gradients that cause contractions in the printed part.

## 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 unwanted, if several materials are used it is advisable to have a nozzle for each material to avoid being mixed.

