

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	TIPICAL VALUE	
MECHANICA	l data					
Tensile Stre	ength	Yield, 23°C	ISO 527	MPa	98	
Tensile Elor	ngation	Break, 23°C	ISO 527	%	45	
Tensile Mod	dulus	23°C	ISO 527	GPa	4.0	
Flexural Str	enath	At 3.5% strain.	23°C ISO 178	MPa	125	
		At vield, 23°C			165	
		125°C			85	
		175°C			19	
		275°C			12.5	
Flexural Mo	odulus	23°C	ISO 178	GPa	3.8	
Compressiv	ve Strength	23°C	ISO 604	MPa	125	
		120°C			70	
Charpy Imp	act Strength	Notched, 23°C	ISO 179/1eA	kJ m-2	7.0	
Izod Impact	t Strength	Notched, 23°C	ISO 180/A	kJ m-2	8.0	
THERMAL DA	ATA					
Melting Poir	nt	Yield, 23°C	ISO 11357	°C	343	
Glass Trans	sition (Tg)	Onset	ISO 11357	°C	143	
Heat Deflec	ction Temperature	As moulded, 1	.8 MPa ISO 75-f	°C	152	
Thermal Co	onductivity	Average, 23°C	ISO 22007-4	W m-1 K-1	0.29	
MISCELLANE	EOUS			0		
Density		Crystalline	ISO 1183	g cm-3	1.30	
Shore D ha	rdness	23°C	ISO 868	0/	84.5	
Water Abso	orption by immersion	Saturation, 23	°C ISO 62-1	%	0.45	
ELECTRICAL	PROPERTIES					
Dielectric S	trenath	2mm thickness	EC 60243-1	kV mm-1	23	
	liongli	50um thicknes	s		200	
Comparativ	e Tracking Index	- · · ·	IEC 60112	V	150	
Loss Tange	nt	23°C, 1MHz	IEC 60250	n/a	0.004	
Dielectric C	onstant	23°C, 1kHz	IEC 60250	n/a	165	
	onotant	23°C, 50Hz			3.0	
		200°C, 50Hz			4.5	
Volume Res	sistivity	23°C	IEC 60093	Ωcm	10 ¹⁶	
		125°C			10 ¹⁵	
		275°C			10 ⁹	
PRINTING PR	ROPERTIES					
Print Tempe	erature			°C	360-400	
Close Chan	nber Temperature			°C	>120	
SIZE	NET W.	GROSS W.	DIAMETERS	COLOR	PACKAGING	
S	400 g	421g	1'75 mm	Natural	Box, Multilayer vacuum bag	g

PEEK TECHNICAL DATA SHEET VERSION 1.0 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 its 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.



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HYDROSOLUBLE TECHNICAL DATA SHEET VERSION 1.0

INNOVATEFIL® HYDROSOLUBLE

INNOVATEFIL® HYDROSOLUBLE is a water-soluble support filament suitable for multi-head 3D printers. It is compatible with a wide range of materials for 3D printing and it is easy to print, allowing you to make pieces with complicated geometries and it can be used as support in completely inaccessible places for later removal.



ADVANTAGES



Dissolves quickly in water, eliminating the support material very easily.

Unlike PVA filaments, HYDROSOLUBLE has a great thermal stability, this allows making supports with great definition and accuracy. Besides having a lower flow index, drip is eliminated in the nozzle, avoiding stains in the piece in the extruder change.



It is compatible with a lot of materials (PLA, ABS, NYLON, PETG) that it why it is an alternative to HIPS.

LESS BSORPTION F MOISTURE Comparing HYDROSOLUBLE with PVA, it has a lower level of moisture absorption, this makes it to last longer that PVA in time and it does not increase its diameter due to the humidity.

COMPARISON OF DISSOLUTION TIMES





HYDROSOLUBLE TECHNICAL DATA SHEET VERSION 1.0 USE RECOMENDATIONS



OPTIMIZE BED TEMPERATURE ACCORDING TO MATERIAL

For materials such as PLA, we recommend to use a bed temperature lower than the indicated so PLA does not deform due to excess of temperature and still maintains its adherence.

PROTECT FROM MOISTURE

HYDROSOLUBLE dissolves in water that its why it must be protected and kept in a dry environment to avoid moisture and water absorption.

The filament is pack in a vacuum bag with a great barrier against moisture to make sure it cannot absorb humidity. This bag closes with an automatic zip including a strong desiccant bag with great absorption power, so we strongly recommend to keep the filament inside it for protection.

We recommend not to manipulate the filament with wet hands to avoid degradation.

PURGE THE MATERIAL ONCE USED.

We advise to purge the extruder to eliminate remaining material inside. Due to the nature of the material when subjected to an excess of temperature during a prolonged time, it degrades and crystallizes solidifying inside the extruder, this can cause seals.

WASTE DISPOSAL

HYDROSOLUBLE is a biodegradable product, follow local and national regulations on plastic waste disposal



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COPOLYESTER TEMPERATURE+

TECHNICAL DATA SHEET VERSION 1.0

INNOVATEFIL® COPOLYESTER TEMPERATURE+

CO-POLYESTER TEMPERATURE+ is an amorphous co-polyester with high temperature resistance. Thanks to its high glass transition temperature and its amorphous nature, it allows you to make very large pieces without worrying about contractions, important features of this material are:

- High thermal resistance, achieving up to 110°C.
- Endurance against oils, grease and alcohol.
- Styrene free.

- Same chemical resistance as PETG
- Stiffness similar to PC.
- Good UV resistance.



COPOLYESTER TEMPERATURE+

COMPARISON CHART

ABS PETG PLA

	TIPICAL VALUE	UNITS	TEST METHOD
PHYSICAL PROPERTIES			
Chemical Name	Copolyester		
Material Density	1.24	g/cm3	ASTM D792
Crystallization Temp.	110	°C	ASTM D7426
Flexural Yield Strength	90	MPa	ASTM D790
Flexural Modulus	2.5	GPa	ASTM D790
Izod impact strength, Notched	24	J/m	ASTM D256
HDT (0,45 Mpa)	96	°C	ASTM D648
Tensile Strength	56	MPa	ASTM D638

PRINTING PROPERTIES								
Print Temperature	260-280	°C						
Bed Temperature	90-110	°C						
Fan Layer	OFF	%						
Print Speed	40-80	mm/s						

SIZE	NET W.	GROSS W.	DIAMETERS	COLOR	PACKAGING
Μ	750 g	785 g	1'75 mm/2'85 mm	Natural	Box, Multilayer vacuum bag





COPOLYESTER TEMPERATURE+ TECHNICAL DATA SHEET VERSION 1.0 USE RECOMENDATIONS

PROTECT FROM MOISTURE

Innovatefil® CO-POLYESTER TEMPERATURE+ 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 100 °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 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.







INNOVATEFIL®

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TPU HARDNESS+ TECHNICAL DATA SHEET VERSION 1.0

INNOVATEFIL® TPU HARDNESS+

INNOVATEFIL® TPU HARDNESS+, is a thermoplastic polyurethane that combines hardness, elasticity and mechanical strength, so it maintains all the advantages of this elastomer, in order that we can make completely rigid parts. Its main features are:

- High resistance to wear and abrasion.
- Decreases impact and vibrations.

SHORE SCALE

PHYSICAL PROPERTIES

Chemical Name

Material Density

Tensile Strength

Tear Strength

Elongation at break

Modulus of elasticity - Tensile test

Vicat Softening Point (A/10N)

Hardness

- High resistance against fats, oils, oxygen and ozone.
- Great resistance against hydrolysis and stabilized in UV light.
- High resistance against microorganisms.



						BLE					
SHORE A	60		70	80	6	0	100				
	0	10	00		40		00	70	00	00	100
SHORED	U	10	20	30	40	50	60	70	80	90	100

THERMAL RESISTANCE VICAT SOFTENING POINT (A/10N) ISO 306

0 TPU HARDNESS+ UNITS

g/cm3

MPa

N/mm

MPa

°C

%

Shore D

80 60

40

ISO 1183-1-A ISO 7619-1 DIN 53504-S2 DIN 53504-S2 ISO 527 ISO 527 ISO 306

ABS

TEST METHOD

PRINTING PROPERTIES			
Print Temperature	210-230	°C	
Bed Temperature	80-100	°C	
Fan Layer	ON (20-100)	%	
Print Speed	40-60	mm/s	

TIPICAL VALUE

1.22

83

67

170

310

2000

164

Polyurethane thermoplastic

SIZE	NET W.	GROSS W.	DIAMETERS	COLOR	PACKAGING
М	750 g	785 g	1'75 mm/2'85 mm	Natural	Box, Multilayer vacuum bag





TPU HARDNESS+ TECHNICAL DATA SHEET VERSION 1.0 USE RECOMENDATIONS



PROTECT FROM MOISTURE

Innovatefil® TPU HARDNESS+ 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%.

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POLYCARBONATE TECHNICAL DATA SHEET VERSION 1.0

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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.

		TIPICAL	VALUE	UNITS	TEST METHOD
PHYSICAL P	ROPERTIES				
Chemical Na	ame	Polycarbo	nate		
Material Der	nsity	1.2		g/cm3	ISO 1183 B
MECHANICA	L PROPERTIES				
Tensile Stres	ss at Yield	65		MPa	ISO 527
Modulus of e	elasticity in tension	2000		MPa	ISO 527
Flexural Stre	ength	90		MPa	ISO 178
Modulus in F	lexure	2300		MPa	ISO 178
Charpy Impa	act (notched at 23º)	15		KJ/m2	ISO 176
Rockwell Ha	rdness	75		R/M scale	ISO 20/39
THERMAL P	ROPERTIES				
Vicat Soften	ing Point (A/10N)	145		°C	ISO 306
Temperature	of deflection under load (1.82 Mpa) 124		°C	ISO 75 A
Heat Condu	ctivity	0.24		W/mK	
ELECTRICA	L PROPERTIES				
Dielectric St	rength (1.6 mm)	30		MV/m	IEC 60243-1
Volume Res	istivity	>10^16		Ω x cm	IEC 60093
FLAMMABIL	ITY				
Flammability	/ Rating	V-2		0.4 mm	UL94
PRINTING P	ROPERTIES				
Print Temper	rature	250-270		°C	
Bed Tempera	ature	90-110		°C	
Fan Layer		OFF		%	
Print Speed		40-60		mm/s	
SIZE	NET W.	GROSS W.	DIAMETERS	COLOR	PACKAGING
Μ	750 g	975 g	1'75/2'85 mm	Natural	Box, Multilayer vacuum bag





POLYCARBONATE TECHNICAL DATA SHEET VERSION 1.0 USE RECOMENDATIONS

PROTECT FROM MOISTURE

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