PPSU Filament

Polyphenylsulfone (PPSU) is an amorphous high performance thermoplastic offering better impact resistance and chemical resistance than PEI. PPSU can operate in temperatures up to 180C . PPSU has superior hydrolysis resistance when compared to other amorphous thermoplastics as measured by steam autoclaving cycles, it has virtually unlimited steam sterilizability. It also resists common acids and bases over a broad temperature range. Applications are; Aerospace, Aircraft, Automotive, Dental, Medical, Surgical instruments. The PPSU filament is based on the technology of Solvay.

The 3D4MAKERS PPSU Filament has unique properties because it does not come into contact with water during the production process and is directly packaged in a vacuum packaging. These properties make the 3D4MAKERS PPSU Filament particularly suitable for usage in FDM and FFF 3D printers. The material has an excellent adhesion between layers which results in great improvement of the impact resistance, strength, durability and the printing process.

PHYSICAL	CONDITIONS	TEST METHOD	TYPICAL VALUE
Density		ASTM D792	1.29 g/cm^3
Melt volume-Flow Rate (MVR)	365 °C/5.0 kg	ASTM D1238	14 to 20 g/10 min
Molding Shrinkage-Flow	3,18	ASTM D955	0.70 %
Water Absorption	24 h	ASTM D570	0.37 %
	Equilibrium	ASTM D570	1.1 %
MECHANICAL			
Tensile modulus	3.18 mm	ASTM D638	2340 MPa
Tensile Strength	3.18 mm	ASTM D638	69.6 MPa
Tensile Elongation		ASTM D638	
Yield	3.18 mm		7.2%
Break	3.18 mm		60 to 120%
Flexural Modulus	3.18 mm	ASTM D790	2410 MPa
Flexural Strength	5.0 % Strain, 3.18 mm	ASTM D790	91.0 MPa
IMPACT			
Notched Izod Impact	3.18 mm	ASTM D256	690 J/m
Tensile Impact Strength	3.18 mm	ASTM D1822	399 kJ/m^2
THERMAL			
Heat Deflection Temperature	1.8 MPa, Unannealed, 3.18 mm	ASTM D648	207 °C
Glass Transition Temperature		ASTM E1356	220 °C
CLTE	Flow (3.18 mm)	ASTM D696	5.6E-5 cm/cm/°C
ELECTRICAL			
Volume Resistivity		ASTM D257	9.0 E+ 15 ohms•cm

Dielectric Strength		ASTM D149	
	0.0254 mm		> 200 kV/mm
	3.19 mm		15 kV/mm
Dielectric Constant	3.18 mm, 60 Hz	ASTM D150	3.44
FLAMMABILITY			
Flame Rating	0.76 mm	UL 94	V-0
OPTICAL			
Refractive index		ASTM D542	1.672
ADDITIONAL INFORMATION			
Steam Sterilization -w/ Morpholine			> 1000 Cycles

PRINT RECOMMENDATIONS			
Nozzle Temperature	360 - 400 °C		
Bed Temperature	140 °C +		
Print Speed	15-30 mm/s		
Bed Adhesion	PEI Sheet		

To get the best results while printing we advise you to keep the 3D printer in a room where there is hardly any draft and/or temperature fluctuations. Keep the 3D printer out of the sun. This cannot be a room where people sleep. When the 3D printer is not being used it is important to keep the 3D4MAKERS PPSU Filament in a bag and stored in cool, dry and dark place until it is used again

Disclaimer: 3D4Makers makes no warranties what so ever, expressed or implied, including but not limited to, any implied fitness for any particular purpose. From the moment the product is shipped it is beyond our control. The information in this document is believed to be correct at the time of writing. However, handling, processing, settings, the type of 3D printer, slicing and other variables are completely up to the user. The method through which the product is used can be varied. It is up for the customer to determine how it is 3D printed and whether it is fit for purpose or suited to a particular application.