3D printing solutions for high performance materials

PPSU Technical Data Sheet (TDS)

PPSU is a type of high temperature aromatic sulfone polymer. For a long time, it has been considered as one of the most excellent composite polymers in plastic field. PPSU can be used under a high temperature of 180ºC, PPSU has an excellent hydrolysis resistance and able to resist common acid and bases over a broad temperature range.

PPSU also offers superior high heat deflection temperature, able to withstand repeated steam sterilization, good electrical properties, and resistance to environmental stress cracking.

IEMAI 3D high performance PPSU filament is based on FFF/FDM technology, with a diameter of 1.75 mm, having excellent inter-layer adhesion, which greatly improve the strength, durability, and shock resistance of the prototype.

Since PPSU has excellent resistance in heat and chemical, which is suitable to demanding applications such as aerospace, automotive, chemical, and medical industries.

Physical	Conditions	Test Method	Typical Value
Density		ASTM D792	1.29 g/cm^3
Melt volume-Flow Rate (MVR)	365ºC / 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%

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		7.20%
Break	3.18 mm		60 to 120%
Flexural Modulus	3.18 mm	ASTM D790	2410 Mpa
Flexural Strength	50% 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	1.8MPa, Unannealed, 3.18 mm	ASTM D648	207ºC
Glass Transition Temperature		ASTM E1356	220ºC

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
	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 Recommendation	
Nozzle Temperature	360 -400 ºC
Bed Temperature	140 -160 ºC
Print Speed	30-50 mm/s
Chamber Temperature	90-150 °C
Cooling Fan	OFF