TECHNICAL DATA SHEET

PPSU

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Product specifications

PPSU (Polyphenylsulfone) is an amorphous ultra-performance filament based on sulfone polymer from Solvay. PPSU has a glass transition temperature of 220°C. Parts printed with PPSU filament can operate in temperatures up to 180°C. It is resistant against most common automotive fluids. It also is designed to meet the UL 94 V-0 standards with low smoke evolution and low smoke toxicity, making the filament extremely suitable for automotive applications.

The material is qualified for unlimited steam sterilization through EtO gas, radiation, steam autoclaving, plasma, dry heat and cold sterilization. These are ideal characteristics for usage in the medical industry. The material also meets the ISO10993 standards for medical applications. PPSU offers a better impact resistance and chemical resistance compared to regular PEI filaments.

Important key features

- Solvay PPSU inside.
- Heat resistant up to 220°C.
- Flame retardant (UL 94 V-0), low smoke evolution and low smoke toxicity.
- Superior hydrolytic resistance.
- High Environmental Stress Crack Resistance (ESCR).
- Very high impact strength and stiffness over a wide temperature range.
- Very good resistance against high energy radiation (gamma- and X-rays).
- Good electrical insulating and dielectric properties.

Suitable applications

- Industrial applications.
- Electronics.
- Medical parts.
- Aerospace applications.
- Automotive.

Material properties	**Typical value**	**Test Method**
Density	1.29 g/cm3	ASTM D792
Melt volume-Flow Rate (MVR) @365 ºC/5.0 kg	14 to 20 g/10 min	ASTM D1238
Molding Shrinkage-Flow (3.18)	0.70%	ASTM D955
Water Absorption (24h)	0.37%	ASTM D570
Mechanical properties		
Tensile modulus (3.18mm)	2340 MPa	ASTM D638
Tensile strength (3.18mm)	69.6 MPa	ASTM D638
Tensile Elongation @Yield (3.18mm)	7.2%	ASTM D638
Tensile Elongation @Break (3.18mm)	60 to 120%	ASTM D638
Flexural Modulus (3.18mm)	2410 MPa	ASTM D790
Flexural Strength (5.0 % Strain, 3.18 mm)	91 MPa	ASTM D790
Notched Izod Impact Strength (3.18mm)	690 J/m	ASTM D256
Tensile Impact Strength (3.18mm)	399 kJ/m^2	ASTM D1822
Thermal properties		
Heat Deflection Temperature	207°C	ASTM D648
Glass Transition Temperature	220°C	ASTM E1356
Electrical properties		
Volume Resistivity	9.0 E+ 15 ohms•cm	ASTM D257
Dielectric Strength (0.0254 mm)	> 200 kV/mm	ASTM D149
Dielectric Strength (3.19 mm)	15 kV/mm	ASTM D149
Dielectric Constant (3.18 mm, 60 Hz)	3.44	ASTM D150

Flammability properties

Flame Rating (0.76 mm)	UL 94 V-0	

Optical properties

Refractive index	1.672	ASTM D542

Additional information

Steam Sterilization -w/ Morpholine	> 1000 Cycles

Storage and handling

Filament should be stored at room temperature in a dry and dark place with humidity below 15%. Recommended storage temperature is ca. 18-25°C (64.4 -77.0°F). Keep out of moisture, sunlight and direct heat. When stored properly, product has a shelf life of 24 months. To obtain the best parameters of the printed object, it is recommended to dry the material prior to usage and to 3D print it directly from a dry box.

Product export information

HS Code	Description	Origin
39169090	Monofilament for 3D printing	European Union

Disclaimer

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