



PPSF/PPSU (polyphenylsulfone) material has the greatest strength, heat and chemical resistance of all Redeye RPM materials – ideal for aerospace, automotive and medical applications. FDM (Fused Deposition Modeling) systems manufacture parts using PPSF/PPSU material that are not only mechanically superior, but also dimensionally accurate, accurately predicting end-product performance. Users can also sterilize PPSF via steam autoclave, EtO sterilization, plasma sterilization, chemical sterilization and radiation⁴. PPSF/PPSU gives you the ability to manufacture Real Parts™ direct from digital files.

Mechanical Properties ¹	Test Method	Imperial	Metric
Tensile Strength, Type 1, 0.125	ASTM D638	8,000 psi	55 MPa
Tensile Modulus, Type 1, 0.125	ASTM D638	300,000 psi	2,068 MPa
Tensile Elongation, Type 1, 0.125	ASTM D638	3 %	3 %
Flexural Strength	ASTM D790	15,900 psi	110 MPa
Flexural Modulus	ASTM D790	320,000 psi	2,206 MPa
IZOD Impact, notched	ASTM D256	1.1 ft-lb/in	58.73 J/m
IZOD Impact, un-notched	ASTM D256	3.1 ft-lb/in	165.5 J/m

Thermal Properties	Test Method	Imperial	Metric
Heat Deflection Temperature @ 264 psi	ASTM D648	372° F	189° C
Glass Transition Temperature (Tg)	DMA (SSYS)	446° F	230° C
Coefficient of Thermal Expansion	ASTM D696	3.1*10 ⁻⁵ in/in F	5.5*10 ⁻⁵ mm/mm/C
Melt Point	-----	Not Applicable ²	Not Applicable ²

Other	Test Method	Value
Specific Gravity	ASTM D792	1.28
Flame Classification	UL 94	V 0, 3.2mm
Rockwell Hardness	ASTM D785	M86
Dielectric Strength kV/mm	IEC 60112	14.6
Dielectric Constant 60hz	IEC 60250	3.45

Environmental Resistance ³	24 hr. @ 23° C	24 hr. @ 100° C
Antifreeze (Prestone), 50%	Passed	Passed
Gasoline-Unleaded	Passed	Not tested
Motor Oil 10W-40	Passed	Passed
Power Steering Fluid	Passed	Passed
Transmission Fluid	Passed	Passed
Windshield Washer Fluid, 50%	Passed	Not tested

APPEARANCE: Tan (Silk)

APPLICATIONS: engine components, covers and enclosures subject to heat, industrial machinery components or any application where your part needs to be functionally tested in an environment of heat or chemicals

MASTERS: RTV molds and vacuum forming

SPECIAL PROPERTIES: Although RedEye has not done any testing on the sterilization of PPSF, other companies have used PPSF for sterilization. PPSF has been sterilized used in the following:

- Steam Autoclave
- EtO Sterilization
- Plasma Sterilization
- Chemical Sterilization
- Radiation

The information presented are typical values intended for reference and comparison purposes only. They should not be used for design specifications or quality control purposes. End-use material performance can be impacted (+/-) by, but not limited to, part design, end-use conditions, test conditions, etc. Actual values will vary with build conditions.

1 Build orientation is on side edge. 2 Due to amorphous nature, material does not exhibit a melting point. 3 Test results based on Stress Crack Resistance (24 Hr. Immersion @ 23° C and @ 100° C). 4. Redeye has not done any sterilization testing on PPSF

For more information about Redeye services and materials, contact your representative at +1 866-882-6934 or visit www.redeyeondemand.com

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