

Polyphenylsulfone (PPSU)

KEY FEATURES

- Superior Toughness and Impact Strength
- Exceptional Long-Term Hydrolytic Stability
- High HDT of 207°C (405°F)
- Better Chemical Resistance than PSU and PEI
- Colorable
- Inherently Flame Retardant
- Transparent Colorable
- Withstands Over 1,000 Cycles of Steam Sterilization Without Any Significant Loss of Properties

DESCRIPTION

Polyphenylsulfone (PPSU) delivers the highest performance of sulfone polymers, offering better impact resistance and chemical resistance than polysulfone (PSU) and polyetherimide (PEI). The high heat resistance and excellent hydrolytic stability of PPSU make it an excellent choice for hot water fittings and medical devices requiring repeated steam sterilization. PPSU is also commonly known as Radel[®]R.

TYPICAL PROPERTY VALUES

Physical	Properties	Condition	Units	Value	ASTM Test
	Density		g/cm ³	1.29	D792
	Chemical Designation			PPSU	
	Filler				

Mechanical	Properties	Condition	Units	Value	ASTM Test
	Tensile Modulus	@ 73 °F	PSI	340,000	D638
	Tensile Strength	@ 73 °F	PSI	11,000	D638
	Shear Strength	@ 73 °F	PSI	9,000	D732
	Elongation @ Yld	@ 73 °F	%		
	Elongation @ Brk	@ 73 °F	%	30	D638
	Flexural Modulus	@ 73 °F	PSI	350,000	D790
	Flexural Strength	@ 73 °F	PSI	15,500	D790
	Compressive Modulus	@ 73 °F	PSI	280,000	D695
	Compressive Strength	@ 73 °F, 10% strain	PSI	13,400	D695
	Izod (Charpy) Impact Strength	@ 73 °F	ft-lbs/in	2.5	D256
	Rockwell Hardness	@ 73 °F	M (R) Scale	120	D785
	Coefficient of Friction	Static			
	Coefficient of Friction	Dynamic, 40PSI, 50 FPM			
	Wear (K) Factor		in ³ -min/ft-lbs-hr		
Limiting PV		psi-fpm			

Thermal	Properties	Condition	Units	Value	ASTM Test
	Heat Deflection Temperature	@ 66 PSI	°F		
	Service Temperature	Long Term	°F	300	
	Heat Deflection Temperature	@ 264 PSI	°F	405	D648
	Service Temperature	Intermittent	°F	360	
	Thermal Expansion (CLTE)		in/in/°F	3.1*10 ⁻⁵	D696
	Specific Heat		BTU/lb-°F	0.27	
Thermal Conductivity		BTU-in/hr-ft ² -°F	1.74		

Electrical	Properties	Condition	Units	Value	ASTM Test
	Surface Resistivity		ohms/square		
	Volume Resistivity		ohm-cm	9.0*10 ¹⁵	D257
	Dielectric Constant	50% RH		3.44	D150
	Dielectric Strength	@ 60 Hz, 73 °F	V/mil	381	D149
Dissipation Factor	@ 60 Hz, 73 °F				

Other	Properties	Condition	Units	Value	ASTM Test
	Moisture Absorption	@ 24 hrs, 73 °F	%	0.37	D570
	Moisture Absorption	@ Saturation, 73 °F	%	1.1	D570
	Flammability	UL 94		V-0	
	Food Grade			Y	
Relative Cost			\$\$\$		

• The data stated above are typical values intended for reference and comparison purposes only.
• The data should not be used as a basis for design specifications or quality control.

• The information is provided as a guide to the best of our knowledge and given without obligation or liability.
• Testing under individual application circumstances is recommended