



MANUFACTURING CORPORATION

- Plastics Machining
- Spring Energized Seals
- Rotary Lip Seals

Material Data Sheet

Material: PSU 1000 Polysulfone (PSU)

Polysulfone

PSU 1000 Polysulfone (PSU) is an amber semi-transparent, heat-resistant, high performance engineering thermoplastic. It offers excellent mechanical, electrical and improved chemical resistance properties relative to polycarbonate. Polysulfone's properties remain relatively consistent over a broad temperature range, from -150°F (-100°C) to 300°F (100°C). PSU 1000 Polysulfone is hydrolysis resistant for continuous use in hot water and steam at temperatures up to 300°F. Its flame resistance is UL 94-V-0 at 1/4" thickness (6.35mm) and UL 94-V-2 at 1/8" thickness (3.175mm). PSU 1000 Polysulfone offers high chemical resistance to acidic and salt solutions, and good resistance to detergents, hot water and steam. In addition, polysulfone has excellent radiation stability, and offers low ionic impurity levels. PSU 1000 Polysulfone often replaces polycarbonate when higher temperatures, improved chemical resistance or autoclavability is required. It is commonly used for analytical instrumentation, medical devices and semiconductor process equipment components

Mechanical Properties	Test Method ASTM	Value	Units
Specific Gravity, 73°F	D792	1.24	
Tensile Strength, 73°F	D638	10,200	psi
Tensile Modulus of Elasticity, °F	D638	390,000	psi
Tensile Elongation (at break), 73°F	D638	30	%
Flexural Strength, 73°F	D790	15,000	psi
Flexural Modulus of Elasticity, 73°F	D790	400,000	psi
Shear Strength, 73°F	D732	9,000	psi
Compressive Strength, 10% Deformation, 73°F	D695	13,000	psi
Compressive Modulus of Elasticity, 73°F	D695	375,000	psi
Hardness, Rockwell, Scale as noted, 73°F	D785	M82 (R128)	
Hardness, Durometer, Shore "D" Scale, 73°F	D2240	D80	
Izod Impact (notched), 73°F	D256 Type A	1.3	ft-lb/in of notch
Coefficient of Friction (Dry vs. Steel) Dynamic	QTM 55007		
Limiting PV (with 4:1 safety factor applied)	QTM 55007		ft.lbs./in. ² min
Wear Factor "k" x 10 ⁻¹⁰	QTM 55010		in. ³ -min/ft.lbs.hr
Thermal Properties			
Coefficient of Linear Thermal Expansion (-40°F to 300°F)	E-831 (TMA)	3.1 x 10 ⁻⁵	in/in./°F
Heat Deflection Temperature 264 psi	D648	340	°F
TG-Glass transition (amorphous)	D3418	374	°F
Melting Point (Crystalline) peak	D3418	N/A	°F
Continuous Service Temperature in Air (Max.) (1)		300	°F
Thermal Conductivity	F433	1.8	BTU-in/hr-ft ² -°F
Electrical Properties			
Dielectric Strength, Short Term	D149	425	Volts/mil
Surface Resistivity	EOS/ESD S11.11	>10 ¹³	ohm/square
Dielectric Constant, 106 Hz	D150	3.14	
Dissipation Factor, 106 Hz	D150	0.0008	
Flammability @ 3.1 mm (1/8 in.)	UL 94	HB	
FDA Compliant		Yes	

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*The values shown in these and the following charts are typical, average properties. Actual values may differ due to variations in resin formulations and processing methods. These values are obtained from sources believed to be reliable, including the resin manufactures, converters and other published sources. However, they should not be used for specification or design purposes. Above information is provided by Quadrant EPP.