PPS (Polyphenylene Sulfide)

High temp, FDA approved thermoplastic that is an alternative to PEEK due to its high strength, chemical resistance, and high operating temperature

General Information

Chemical Designation:

PPS (Polyphenylene Sulfide)

Fillers:

Unfilled

Color:

White

Specific Gravity:

1.35

Tecatron PPS (polyphenylene sulfide) is a semi-crystalline, high temp thermoplastic. Due to its structure PPS is ideal for structural applications in corrosive environments. It has excellent chemical resistance up to 392 degrees F. It is an considered an excellent lower cost alternative to PEEK at lower temperatures.

Tecatron® PPS is off white in color and is available in a wide range of rod and sheet sizes. It is now available as FDA compliant with advance notice. It is easily machined with common metal working equipment. Tolerances of +/-.001 can be achieved with experience.

Technical Information

Specification	Test	Value	Units
Specific Gravity, 73°F	D792	1.35	–
Tensile Strength @ Yield, 73°F	D638	13,500	psi
Tensile Modulus of Elasticity, 73°F	D638	500,000	psi
Tensile Elongation (at break), 73°F	D638	15	%
Flexural Strength, 73°F	D790	21,000	psi
Flexural Modulus of Elasticity	D790	575,000	psi
Shear Strength, 73°F	D732	9,000	psi
Compressive Strength – Ultimate			psi
Compressive Strength at 2% Deformation	D695		psi
Compressive Strength at 10% Deformation	D695	21,500	psi
Deformation Under Load			%
Compressive Modulus of Elasticity, 73°F	D695	430,000	
Compressive Strength to Laminate (Modulus)			psi
Compressive Strength to Laminate (Yield)			psi
Compressive Strength to Laminate (Ultimate)			psi
Hardness, Durometer (Shore "D" scale)	D2240	D85	
Hardness, Rockwell (Scale as noted)	D785	M95 (R125)	Rockwell M
Izod Impact, Notched @ 73°F	D256 Type A	0.6	ft.lbs/in. of notch
Coefficient of Friction (Dry vs Steel) Static	PTM55007		
Coefficient of Friction (Dry vs Steel) Dynamic	PTM55007	0.40	
Maximum Static Bearing Load (P)	PTM55007		psi
Maximum Unlubricated No Load Bearing Velocity (V)	PTM55007		ft/minute
Maximum Limiting PV (Unlubricated)	PTM55007	3,000	psi x ft/min.
Wear Factor "K" x 10-10	PTM55010	2,400	Cubic in.-min/ft.lbs.hr
Sand Wheel Wear/Abrasion Test			UHMW=100
Minimum Mating Surface Hardness			Rockwell (Brinnell)
Coefficient of Linear Thermal Expansion	E-831(TMA)	2.80	in/in/°F x 10-5
Coefficient of Thermal Expansion // to Laminates	E-831(TMA)	2.8	in/in/°F x 10-5
Coefficient of Thermal Expansion l to Laminates	E-831(TMA)	2.8	in/in/°F x 10-5
Softening Point			°F
Heat Deflection Temperature 264 psi	D648	250	°F
Embrittlement Temperature			°F Min.
Continuous Service Temperature in Air		425	°F Max.
Short Term Service Temperature		450	°F Max.
Tg-Glass Transition (Amorphous)	D3418	N/A	°F
Melting Point (Crystalline) Peak	D3418	540	°F
Thermal Conductivity	F433	2	BTU-in/(hr/ft2°F)
Dielectric Strength Short Term	D149	540	Volts/mil
Surface Resistivity	D257	>1013	ohm/cm
Volume Resistivity	D257		ohm/cm
Dielectric Constant, 106 Hz	D150	3.0	
Dissipation Factor, 106 Hz	D150	0.0013	
Flammability @ 3.1mm(1/8 in.) UL94	UL94	V-O	
Arc Resistance			seconds
Water Absorption, Immersion 24 Hours	D570 (2)	0.01	%
Water Absorption, Immersion Saturation	D570 (2)	0.03	%
Machinability Rating		3	1=easy, 10=difficult
Rod Diameter Availability (Off the Shelf)		.375-4.0	inches
Sheet Thickness Availability (Off the Shelf)		.250-2.5	inches
Characteristics / Attributes	Excellent Chemical Resistance / Easily Machined / FDA		