MITSUBISHI CHEMICAL ADVANCED MATERIALS

Mitsubishi Chemical Advanced Materials Techtron® 1000 PPS Extruded Polyphenylene Sulfide (ASTM Product Data Sheet)

Categories:	Polymer; Thermoplastic; Polyphenylene Sulfide (PPS); Polyphenylene Sulfide (PPS), Unreinforced, Extruded
Material Notes:	Quadrant Engineering Plastic Products is now Mitsubishi Chemical Advanced Materials.

Physical Properties	Metric	English	Comments
Specific Gravity	1.35 g/cc	1.35 g/cc	ASTM D792
Water Absorption	0.010 %	0.010 %	Immersion, 24hr; ASTM D570(2)
Water Absorption at Saturation	0.030 %	0.030 %	Immersion; ASTM D570(2)

Mechanical Properties	Metric	English	Comments
Hardness, Rockwell M	95	95	ASTM D785
Hardness, Rockwell R	125	125	ASTM D785
Hardness, Shore D	85	85	ASTM D2240
Tensile Strength	93.1 MPa	13500 psi	ASTM D638
Tensile Strength at 150°C (300°F)	3.45 MPa	500 psi	ASTM D638
Tensile Strength at 65°C (150°F)	55.2 MPa	8000 psi	ASTM D638
Elongation at Break	15 %	15 %	ASTM D638
Tensile Modulus	3.45 GPa	500 ksi	ASTM D638
Flexural Strength	145 MPa	21000 psi	ASTM D790
Flexural Modulus	3.96 GPa	575 ksi	ASTM D790
Compressive Strength	148 MPa	21500 psi	10% Def.; ASTM D695
Compressive Modulus	2.96 GPa	430 ksi	ASTM D695
Shear Strength	62.1 MPa	9000 psi	ASTM D732
Izod Impact, Notched	0.320 J/cm	0.600 ft-lb/in	ASTM D256 Type A
Coefficient of Friction, Dynamic	0.40	0.40	Dry vs. Steel; QTM55007
K (wear) Factor	4830 x 10^{-8} mm³/N-M	2400 x 10^{-10} in³-min/ft-lb-hr	QTM 55010
Limiting Pressure Velocity	0.105 MPa-m/sec	3000 psi-ft/min	4:1 safety factor; QTM 55007

Electrical Properties	Metric	English	Comments
Surface Resistivity per Square	>= 1.00e+13 ohm	>= 1.00e+13 ohm	EOS/ESD S11.11
Dielectric Constant	3.0 @Frequency 1e+6 Hz	3.0 @Frequency 1e+6 Hz	ASTM D150
Dielectric Strength	21.3 kV/mm	540 kV/in	Short Term; ASTM D149
Dissipation Factor	0.0013 @Frequency 1e+6 Hz	0.0013 @Frequency 1e+6 Hz	ASTM D150

Thermal Properties	Metric	English	Comments
CTE, linear	50.4 µm/m-°C @Temperature -40.0 - 149 °C	28.0 µin/in-°F @Temperature -40.0 - 300 °F	ASTM E831
Thermal Conductivity	0.288 W/m-K	2.00 BTU-in/hr-ft²-°F	ASTM F433
Melting Point	282 °C	540 °F	Crystalline, Peak; ASTM D3418
Maximum Service Temperature, Air	218 °C	425 °F	Long Term
Deflection Temperature at 1.8 MPa (264 psi)	121 °C	250 °F	ASTM D648
Flammability, UL94	V-0 @Thickness 3.17 mm	V-0 @Thickness 0.125 in	Estimated Rating

Compliance Properties	Metric	English	Comments
3A-Dairy	Yes	Yes	
Canada AG	No	No	
FDA	Yes	Yes	
NSF	No	No	
USDA	No	No	
USP Class VI	No	No	

Chemical Resistance Properties	Metric	English	Comments
Acids, Strong (pH 1-3)	Limited	Limited	
Acids, Weak	Acceptable	Acceptable	
Alcohols	Acceptable	Acceptable	
Alkalies, Strong (pH 11-14)	Acceptable	Acceptable	
Alkalies, Weak	Acceptable	Acceptable	
Chlorinated Solvents	Acceptable	Acceptable	
Conductive / Static Dissipative	No	No	

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Continuous Sunlight	Limited	Limited	
Hot Water / Steam	Acceptable	Acceptable	
Hydrocarbons - Aliphatic	Acceptable	Acceptable	
Hydrocarbons - Aromatic	Acceptable	Acceptable	
Inorganic Salt Solutions	Acceptable	Acceptable	
Ketones, Esters	Acceptable	Acceptable	

Descriptive Properties

Color		Natural	
Machinability		3	1-10, 1=Easier to Machine