

Mitsubishi Chemical Advanced Materials Semitron® ESd 500HR PTFE, static dissipative, extruded (ISO Data)

Categories: Polymer; Thermoplastic; Fluoropolymer; Polytetrafluoroethylene (PTFE); Polytetrafluoroethylene (PTFE), Mica Filled

Material Notes: Reinforced with a proprietary synthetic mica, Semitron ESd 500HR offers an excellent combination of low frictional properties, good dimensional stability and electrostatic dissipation. Whenever virgin PTFE causes electrical discharge problems, Semitron ESd 500HR will provide a controlled bleed-off of static charges while maintaining typical PTFE-properties such as broad chemical resistance and low coefficient of friction

- 1 Surface resistivity: 10¹⁰ - 10¹² ohms/sq
- 1 Thermal performance to 500°F (260°C)
- 1 Thermally insulative
- 1 Very low coefficient of friction
- 1 Broad chemical resistance

Quadrant Engineering Plastic Products is now Mitsubishi Chemical Advanced Materials.

Physical Properties	Metric	English	Comments
Density	2.30 g/cc	0.0831 lb/in ³	ISO 1183-1
Moisture Absorption at Equilibrium	<= 0.10 %	<= 0.10 %	50% RH
Water Absorption at Saturation	1.0 - 2.0 %	1.0 - 2.0 %	
Mechanical Properties	Metric	English	Comments
Hardness, Rockwell R	50	50	ISO 2039-2
Hardness, Shore D	60	60	
Ball Indentation Hardness	40.0 MPa	5800 psi	ISO 2039-1
Tensile Strength, Yield	10.0 MPa	1450 psi	ISO 527-1/-2
Elongation at Break	>= 50 %	>= 50 %	ISO 527-1/-2
Elongation at Yield	4.0 %	4.0 %	ISO 527-1/-2
Tensile Modulus	1.45 GPa	210 ksi	ISO 527-1/-2
Flexural Strength	14.0 MPa	2030 psi	
Compressive Strength	10.5 MPa @ Strain 1 %	1520 psi @ Strain 1 %	ISO 604
	15.0 MPa @ Strain 2 %	2180 psi @ Strain 2 %	ISO 604
	20.0 MPa @ Strain 5 %	2900 psi @ Strain 5 %	ISO 604
Charpy Impact Unnotched	3.00 J/cm ²	14.3 ft-lb/in ²	ISO 179-1/1eU
Charpy Impact, Notched	0.750 J/cm ²	3.57 ft-lb/in ²	ISO 179-1/1eA
Electrical Properties	Metric	English	Comments
Volume Resistivity	1.0e+10 - 1.0e+12 ohm-cm	1.0e+10 - 1.0e+12 ohm-cm	IEC 60093
Surface Resistivity per Square	1.0e+10 - 1.0e+12 ohm	1.0e+10 - 1.0e+12 ohm	IEC 60093
Thermal Properties	Metric	English	Comments
CTE, linear	85.0 µm/m-°C @ Temperature 23.0 - 100 °C	47.2 µin/in-°F @ Temperature 73.4 - 212 °F	
Melting Point	327 °C	621 °F	DSC, 10°C/min.; ISO 11357-1/-3
Maximum Service Temperature, Air	260 °C	500 °F	Continuous
Deflection Temperature at 1.8 MPa (264 psi)	100 °C	212 °F	ISO 75-1/-2
Flammability, UL94	V-0	V-0	
Oxygen Index	>= 95 %	>= 95 %	ISO 4589-1/-2
Compliance Properties	Metric	English	Comments
3A-Dairy	No	No	
European Food 1935/2004	No	No	
FDA	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)	Unacceptable	Unacceptable	
Alkalies, Weak	Limited	Limited	
Chlorinated Solvents	Acceptable	Acceptable	

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

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