

Mitsubishi Chemical Advanced Materials Semitron® ESd 420- CM Dissipative Polyetherimide(ASTM Product Data Sheet)
Categories: Polymer; Thermoplastic; Polyetherimide (PEI)

Material Notes: Quadrant Engineering Plastic Products is now Mitsubishi Chemical Advanced Materials.

Key Words: PEI

Physical Properties	Metric	English	Comments
Specific Gravity	1.34 g/cc	1.34 g/cc	ASTM D792
Water Absorption	0.50 %	0.50 %	Immersion, 24hr; ASTM D570(2)
Water Absorption at Saturation	2.9 %	2.9 %	Immersion; ASTM D570(2)

Mechanical Properties	Metric	English	Comments
Hardness, Rockwell M	118	118	ASTM D785
Hardness, Shore D	85	85	ASTM D2240
Tensile Strength	79.3 MPa	11500 psi	ASTM D638
Tensile Strength at 150°C (300°F)	17.2 MPa	2500 psi	ASTM D638
Tensile Strength at 65°C (150°F)	34.5 MPa	5000 psi	ASTM D638
Elongation at Break	2.0 %	2.0 %	ASTM D638
Tensile Modulus	4.41 GPa	640 ksi	ASTM D638
Flexural Strength	100 MPa	14500 psi	ASTM D790
Flexural Modulus	4.48 GPa	650 ksi	ASTM D790
Compressive Strength	164 MPa	23800 psi	10% Def.; ASTM D695
Compressive Modulus	2.55 GPa	370 ksi	ASTM D695
Shear Strength	55.3 MPa	8020 psi	ASTM D732
Izod Impact, Notched	0.534 J/cm	1.00 ft-lb/in	ASTM D256 Type A
Coefficient of Friction, Dynamic	0.27	0.27	Dry vs. Steel; QTM55007
K (wear) Factor	201 x 10 ⁻⁸ mm ³ /N-M	100 x 10 ⁻¹⁰ in ³ -min/ft-lb-hr	QTM 55010
Limiting Pressure Velocity	0.333 MPa-m/sec	9500 psi-ft/min	4:1 safety factor; QTM 55007

Electrical Properties	Metric	English	Comments
Surface Resistivity per Square	1.00e+6 - 1.00e+9 ohm	1.00e+6 - 1.00e+9 ohm	EOS/ESD S11.11
Dielectric Constant	5.63 @Frequency 1e+6 Hz	5.63 @Frequency 1e+6 Hz	ASTM D150
Dissipation Factor	0.266 @Frequency 1e+6 Hz	0.266 @Frequency 1e+6 Hz	ASTM D150

Thermal Properties	Metric	English	Comments
CTE, linear	35.1 µm/m-°C @Temperature -40.0 - 149 °C	19.5 µin/in-°F @Temperature -40.0 - 300 °F	ASTM E831
Thermal Conductivity	0.218 W/m-K	1.51 BTU-in/hr-ft ² -°F	ASTM F433
Maximum Service Temperature, Air	171 °C	340 °F	Long Term
Deflection Temperature at 1.8 MPa (264 psi)	210 °C	410 °F	ASTM D648
Glass Transition Temp, Tg	210 °C	410 °F	ASTM D3418
Flammability, UL94	V-0 @Thickness 3.17 mm	V-0 @Thickness 0.125 in	Estimated Rating

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

Chemical Resistance Properties	Metric	English	Comments
Acids, Strong (pH 1-3)	Unacceptable	Unacceptable	
Acids, Weak	Acceptable	Acceptable	
Alcohols	Acceptable	Acceptable	
Alkalies, Strong (pH 11-14)	Unacceptable	Unacceptable	
Alkalies, Weak	Acceptable	Acceptable	
Chlorinated Solvents	Unacceptable	Unacceptable	
Conductive / Static Dissipative	Yes	Yes	

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

Descriptive Properties

Machinability	4	1-10, 1=Easier to Machine
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