

Mitsubishi Chemical Advanced Materials Semitron® ESd 490HR Static dissipative PEEK for use in test fixtures. Non-sloughing and low moisture absorption. (ASTM Product Data Sheet)
Categories: Polymer; Thermoplastic; Polyketone; Polyetheretherketone (PEEK); Polyetheretherketone, PEEK, Unreinforced

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

Physical Properties	Metric	English	Comments
Specific Gravity	1.50 g/cc	1.50 g/cc	ASTM D792
Water Absorption	0.18 %	0.18 %	Immersion, 24hr; ASTM D570(2)
Water Absorption at Saturation	1.65 %	1.65 %	Immersion; ASTM D570(2)
Mechanical Properties	Metric	English	Comments
Hardness, Rockwell M	105	105	ASTM D785
Hardness, Rockwell R	123	123	ASTM D785
Tensile Strength	96.5 MPa	14000 psi	ASTM D638
Tensile Strength at 150°C (300°F)	13.8 MPa	2000 psi	ASTM D638
Tensile Strength at 65°C (150°F)	82.7 MPa	12000 psi	ASTM D638
Elongation at Break	2.3 %	2.3 %	ASTM D638
Tensile Modulus	6.48 GPa	940 ksi	ASTM D638
Flexural Strength	145 MPa	21000 psi	ASTM D790
Flexural Modulus	6.55 GPa	950 ksi	ASTM D790
Compressive Strength	179 MPa	26000 psi	10% Def.; ASTM D695
Compressive Modulus	4.14 GPa	600 ksi	ASTM D695
Izod Impact, Notched	0.534 J/cm	1.00 ft-lb/in	ASTM D256 Type A
Coefficient of Friction, Dynamic	0.20	0.20	Dry vs. Steel; QTM55007
Limiting Pressure Velocity	0.596 MPa-m/sec	17000 psi-ft/min	4:1 safety factor; QTM 55007
Electrical Properties	Metric	English	Comments
Surface Resistivity per Square	1.00e+10 - 1.00e+12 ohm	1.00e+10 - 1.00e+12 ohm	EOS/ESD S11.11
Dielectric Constant	5.33 @Frequency 1e+6 Hz	5.33 @Frequency 1e+6 Hz	ASTM D150
Dissipation Factor	0.227 @Frequency 1e+6 Hz	0.227 @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
Melting Point	340 °C	644 °F	Crystalline, Peak; ASTM D3418
Maximum Service Temperature, Air	246 °C	475 °F	Long Term
Deflection Temperature at 1.8 MPa (264 psi)	260 °C	500 °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	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)	Limited	Limited	
Acids, Weak	Acceptable	Acceptable	
Alcohols	Acceptable	Acceptable	
Alkalies, Strong (pH 11-14)	Acceptable	Acceptable	
Alkalies, Weak	Limited	Limited	
Chlorinated Solvents	Acceptable	Acceptable	
Conductive / Static Dissipative	Yes	Yes	
Continuous Sunlight	Acceptable	Acceptable	
Hot Water / Steam	Acceptable	Acceptable	
Hydrocarbons - Aliphatic	Acceptable	Acceptable	
Hydrocarbons - Aromatic	Acceptable	Acceptable	

Inorganic Salt Solutions	Acceptable	Acceptable
Ketones, Esters	Acceptable	Acceptable

Descriptive Properties

Machinability	4	1-10, 1=Easier to Machine
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