

Mitsubishi Chemical Advanced Materials Duratron® PAI T4503 Compression Molded, Polyamide-imide, Electrical Grade (ASTM Product Data Sheet)
Categories: Polymer; Thermoplastic; Polyamide-imide (PAI); Polyamide-Imide, Molded

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

Physical Properties	Metric	English	Comments
Specific Gravity	1.40 g/cc	1.40 g/cc	ASTM D792
Water Absorption	0.35 %	0.35 %	Immersion, 24hr; ASTM D570(2)
Water Absorption at Saturation	1.7 %	1.7 %	Immersion; ASTM D570(2)
Mechanical Properties	Metric	English	Comments
Hardness, Rockwell E	80	80	ASTM D785
Hardness, Rockwell M	119	119	ASTM D785
Hardness, Shore D	90	90	ASTM D2240
Tensile Strength	110 MPa	16000 psi	ASTM D638
Tensile Strength at 150°C (300°F)	82.7 MPa	12000 psi	ASTM D638
Tensile Strength at 65°C (150°F)	103 MPa	15000 psi	ASTM D638
Elongation at Break	3.0 %	3.0 %	ASTM D638
Tensile Modulus	3.45 GPa	500 ksi	ASTM D638
Flexural Strength	165 MPa	24000 psi	ASTM D790
Flexural Modulus	4.14 GPa	600 ksi	ASTM D790
Compressive Strength	124 MPa	18000 psi	10% Def.; ASTM D695
Compressive Modulus	2.41 GPa	350 ksi	ASTM D695
Shear Strength	124 MPa	18000 psi	ASTM D732
Izod Impact, Notched	0.801 J/cm	1.50 ft-lb/in	ASTM D256 Type A
Coefficient of Friction, Dynamic	0.30	0.30	Dry vs. Steel; QTM55007
K (wear) Factor	1010 x 10 ⁻⁸ mm ³ /N-M	500 x 10 ⁻¹⁰ in ³ -min/ft-lb-hr	QTM 55010
Limiting Pressure Velocity	0.140 MPa-m/sec	4000 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	4.2 @Frequency 1e+6 Hz	4.2 @Frequency 1e+6 Hz	ASTM D150
Dielectric Strength	23.6 kV/mm	600 kV/in	Short Term; ASTM D149
Dissipation Factor	0.031 @Frequency 1e+6 Hz	0.031 @Frequency 1e+6 Hz	ASTM D150
Thermal Properties	Metric	English	Comments
CTE, linear	27.0 µm/m-°C @Temperature -40.0 - 149 °C	15.0 µin/in-°F @Temperature -40.0 - 300 °F	ASTM E831
Thermal Conductivity	0.259 W/m-K	1.80 BTU-in/hr-ft ² -°F	ASTM F433
Maximum Service Temperature, Air	260 °C	500 °F	Long Term
Deflection Temperature at 1.8 MPa (264 psi)	278 °C	532 °F	ASTM D648
Glass Transition Temp, Tg	275 °C	527 °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)	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	No	No
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

Descriptive Properties

Machinability	6	1-10, 1=Easier to Machine
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