MITSUBISHI CHEMICAL ADVANCED MATERIALS

Mitsubishi Chemical Advanced Materials Duratron® T4203 PAI Extruded Polyamide-imide (ASTM Product Data Sheet)

Categories:	Polymer; Thermoplastic; Polyamide-imide (PAI); Polyamide-Imide, Extruded
Material Notes:	Quadrant Engineering Plastic Products is now Mitsubishi Chemical Advanced Materials.

Physical Properties	Metric	English	Comments
Specific Gravity	1.41 g/cc	1.41 g/cc	ASTM D792
Water Absorption	0.40 %	0.40 %	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	120	120	ASTM D785
Tensile Strength	138 MPa	20000 psi	ASTM D638
Tensile Strength at 150°C (300°F)	103 MPa	15000 psi	ASTM D638
Tensile Strength at 65°C (150°F)	124 MPa	18000 psi	ASTM D638
Elongation at Break	10 %	10 %	ASTM D638
Tensile Modulus	4.14 GPa	600 ksi	ASTM D638
Flexural Strength	165 MPa	24000 psi	ASTM D790
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Compressive Strength	165 MPa	24000 psi	10% Def.; ASTM D695
Compressive Modulus	3.30 GPa	478 ksi	ASTM D695
Shear Strength	110 MPa	16000 psi	ASTM D732
Izod Impact, Notched	1.07 J/cm	2.00 ft-lb/in	ASTM D256 Type A
Coefficient of Friction, Dynamic	0.35	0.35	Dry vs. Steel; QTM55007
K (wear) Factor	70.5 x 10^{-8} mm³/N-M	35.0 x 10^{-10} in³-min/ft-lb-hr	With post-machine cure cycle; QTM 55010
Limiting Pressure Velocity	0.420 MPa-m/sec	12000 psi-ft/min	4:1 safety factor; QTM 55010

Electrical Properties	Metric	English	Comments
Surface Resistivity per Square	>= 1.00e+16 ohm	>= 1.00e+16 ohm	EOS/ESD S11.11
Dielectric Constant	4.2 @Frequency 1e+6 Hz	4.2 @Frequency 1e+6 Hz	ASTM D150
Dielectric Strength	22.8 kV/mm	580 kV/in	Short Term; ASTM D149
Dissipation Factor	0.026 @Frequency 1e+6 Hz	0.026 @Frequency 1e+6 Hz	ASTM D150

Thermal Properties	Metric	English	Comments
CTE, linear	37.8 µm/m-°C @Temperature -40.0 - 149 °C	21.0 µin/in-°F @Temperature -40.0 - 300 °F	ASTM E831
Thermal Conductivity	0.259 W/m-K	1.80 BTU-in/hr-ft²-°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	

Mitsubishi Chemical Advanced Materials Inc. • 2120 Fairmont Avenue • P.O. Box 14235 • Reading, PA 19612-4235
Tel: (610) 320-6660 • Fax: (610) 320-6866

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	5	1-10, 1=Easier to Machine