

Mitsubishi Chemical Advanced Materials Duratron® PAI T4203 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
Flexural Modulus	4.14 GPa	600 ksi	ASTM D790
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 mm ³ /N-M	35.0 x 10 ⁻¹⁰ in ³ -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	4.2	ASTM D150
	@Frequency 1e+6 Hz	@Frequency 1e+6 Hz	
Dielectric Strength	22.8 kV/mm	580 kV/in	Short Term; ASTM D149
Dissipation Factor	0.026	0.026	ASTM D150
	@Frequency 1e+6 Hz	@Frequency 1e+6 Hz	

Thermal Properties	Metric	English	Comments
CTE, linear	37.8 µm/m-°C	21.0 µin/in-°F	ASTM E831
	@Temperature -40.0 - 149 °C	@Temperature -40.0 - 300 °F	
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	V-0	Estimated Rating
	@Thickness 3.17 mm	@Thickness 0.125 in	

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	5	1-10, 1=Easier to Machine
---------------	---	---------------------------