Mitsubishi Chemical Advanced Materials Duratron® PEI U1000 Extruded Unfilled Polyetherimide (ASTM Product Data Sheet)

Categories:	Polymer; Thermoplastic; Polyetherimide (PEI); Polyetherimide (PEI), Extrusion Grade
Material Notes:	Quadrant Engineering Plastic Products is now Mitsubishi Chemical Advanced Materials.

Physical Properties	Metric	English	Comments
Specific Gravity	1.28 g/cc	1.28 g/cc	ASTM D792
Water Absorption	0.25 %	0.25 %	Immersion, 24hr; ASTM D570(2)
Water Absorption at Saturation	1.25 %	1.25 %	Immersion; ASTM D570(2)

Mechanical Properties	Metric	English	Comments
Hardness, Rockwell M	112	112	ASTM D785
Hardness, Rockwell R	125	125	ASTM D785
Hardness, Shore D	86	86	ASTM D2240
Tensile Strength	117 MPa	17000 psi	ASTM D638
Tensile Strength at 150°C (300°F)	86.2 MPa	12500 psi	ASTM D638
Tensile Strength at 65°C (150°F)	103 MPa	15000 psi	ASTM D638
Elongation at Break	60 %	60 %	ASTM D638
Tensile Modulus	3.45 GPa	500 ksi	ASTM D638
Flexural Strength	138 MPa	20000 psi	ASTM D790
Flexural Modulus	3.45 GPa	500 ksi	ASTM D790
Compressive Strength	152 MPa	22000 psi	10% Def.; ASTM D695
Compressive Modulus	3.31 GPa	480 ksi	ASTM D695
Shear Strength	103 MPa	15000 psi	ASTM D732

Izod Impact, Notched	0.267 J/cm	0.500 ft-lb/in	ASTM D256 Type A
Coefficient of Friction, Dynamic	0.42	0.42	Dry vs. Steel; QTM55007
K (wear) Factor	5840 x 10^{-8} mm³/N-M	2900 x 10^{-10} in³-min/ft-lb-hr	QTM 55010
Limiting Pressure Velocity	0.06568 MPa-m/sec	1875 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	3.15 @Frequency 1e+6 Hz	3.15 @Frequency 1e+6 Hz	ASTM D150
Dielectric Strength	32.7 kV/mm	830 kV/in	Short Term; ASTM D149
Dissipation Factor	0.0013 @Frequency 1e+6 Hz	0.0013 @Frequency 1e+6 Hz	ASTM D150

Thermal Properties	**Metric**	**English**	**Comments**
CTE, linear	55.8 µm/m-°C @Temperature -40.0 - 149 °C	31.0 µin/in-°F @Temperature -40.0 - 300 °F	ASTM E831
Thermal Conductivity	0.177 W/m-K	1.23 BTU-in/hr-ft²-°F	ASTM F433
Maximum Service Temperature, Air	171 °C	340 °F	Long Term
Deflection Temperature at 1.8 MPa (264 psi)	204 °C	400 °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	Yes	Yes	Black Only
FDA	Yes	Yes	
NSF	No	No	

USDA	Yes	Yes	
USP Class VI	Yes	Yes	

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	No	No	
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	

Miscellaneous Properties	Metric	English	Comments
Data Sheet Region	Americas	Americas	
Targeted Usage	Structural Uses	Structural Uses	

Descriptive Properties		
Color	Natural and black	
Machinability	3	1-10, 1=Easier to Machine