

**Mitsubishi Chemical Advanced Materials Ertalyte® TX Internally Lubricated Semi-Crystalline Polyester (ASTM Product Data Sheet)**
**Categories:** Polymer; Thermoplastic; Polyester, TP; Polyethylene Terephthalate (PET)

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

Physical Properties	Metric	English	Comments
Specific Gravity	1.44 g/cc	1.44 g/cc	ASTM D792
Water Absorption	0.060 %	0.060 %	Immersion, 24hr; ASTM D570(2)
Water Absorption at Saturation	0.47 %	0.47 %	Immersion; ASTM D570(2)

Mechanical Properties	Metric	English	Comments
Hardness, Rockwell M	96	96	ASTM D785
Hardness, Rockwell R	126	126	ASTM D785
Hardness, Shore D	84	84	ASTM D2240
Tensile Strength	72.4 MPa	10500 psi	ASTM D638
Tensile Strength at 65°C (150°F)	48.3 MPa	7000 psi	ASTM D638
Elongation at Break	5.0 %	5.0 %	ASTM D638
Tensile Modulus	3.45 GPa	500 ksi	ASTM D638
Flexural Strength	96.5 MPa	14000 psi	ASTM D790
Flexural Modulus	2.48 GPa	360 ksi	ASTM D790
Compressive Strength	105.1 MPa	15250 psi	10% Def.; ASTM D695
Compressive Modulus	2.76 GPa	400 ksi	ASTM D695
Shear Strength	58.6 MPa	8500 psi	ASTM D732
Izod Impact, Notched	0.214 J/cm	0.400 ft-lb/in	ASTM D256 Type A
Coefficient of Friction, Dynamic	0.19	0.19	Dry vs. Steel; QTM55007
K (wear) Factor	70.5 x 10 <sup>-8</sup> mm <sup>3</sup> /N-M	35.0 x 10 <sup>-10</sup> in <sup>3</sup> -min/ft-lb-hr	QTM 55010
Limiting Pressure Velocity	0.210 MPa-m/sec	6000 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	3.6	3.6	ASTM D150
	@Frequency 1e+6 Hz	@Frequency 1e+6 Hz	
Dielectric Strength	21.0 kV/mm	533 kV/in	Short Term; ASTM D149
Dissipation Factor	0.020	0.020	ASTM D150
	@Frequency 1e+6 Hz	@Frequency 1e+6 Hz	

Thermal Properties	Metric	English	Comments
CTE, linear	81.0 µm/m-°C	45.0 µin/in-°F	ASTM E831
	@Temperature -40.0 - 149 °C	@Temperature -40.0 - 300 °F	
Thermal Conductivity	0.274 W/m-K	1.90 BTU-in/hr-ft <sup>2</sup> -°F	ASTM F433
Melting Point	255 °C	491 °F	Crystalline, Peak; ASTM D3418
Maximum Service Temperature, Air	98.9 °C	210 °F	Long Term
Deflection Temperature at 1.8 MPa (264 psi)	82.2 °C	180 °F	ASTM D648
Flammability, UL94	HB	HB	Estimated Rating
	@Thickness 3.17 mm	@Thickness 0.125 in	

Compliance Properties	Metric	English	Comments
3A-Dairy	No	No	
Canada AG	No	No	
FDA	Yes	Yes	
NSF	No	No	
USDA	Yes	Yes	
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	Acceptable	Acceptable	
Chlorinated Solvents	Unacceptable	Unacceptable	
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**

Color	Gray	
Machinability	2	1-10, 1=Easier to Machine