

Quadrant EPP Ertalyte® PET-P, Polyester-semi-crystalline thermoplastic, extruded (ASTM Product Data Sheet)
Categories: Polymer; Thermoplastic; Polyester, TP; Polyethylene Terephthalate (PET); PET-P Polyester, Extruded

Material Notes: Ertalyte PET-P is an unreinforced, semi-crystalline thermoplastic polyester based on polyethylene terephthalate (PET-P). It offers the wear resistance of nylon with the dimensional stability of acetal. It is good for both wet and dry environments. The high strength and rigidity of Ertalyte makes it ideal for close tolerance parts. In addition, Ertalyte offers good chemical and abrasion resistance. It is FDA compliant in both natural and black stock shapes. Natural Ertalyte is also USDA, 3A-Dairy and Canada AG compliant. Ertalyte is an excellent candidate for parts used in the food processing and equipment industries.

Data provided by Quadrant Engineering Plastic Products.

- Good for both wet and dry environments
- High strength and rigidity -- ideal for close tolerance parts
- Excellent stain resistance
- Good wear resistance and excellent dimensional stability
- Better resistance to acids than nylon or acetal

Physical Properties	Metric	English	Comments
Specific Gravity	1.41 g/cc	1.41 g/cc	ASTM D792
Water Absorption	0.070 %	0.070 %	Immersion, 24hr; ASTM D570(2)
Water Absorption at Saturation	0.90 %	0.90 %	Immersion; ASTM D570(2)

Mechanical Properties	Metric	English	Comments
Hardness, Rockwell M	93	93	ASTM D785
Hardness, Rockwell R	125	125	ASTM D785
Hardness, Shore D	87	87	ASTM D2240
Tensile Strength	85.5 MPa	12400 psi	ASTM D638
Elongation at Break	20 %	20 %	ASTM D638
Tensile Modulus	3.17 GPa	460 ksi	ASTM D638
Flexural Strength	124 MPa	18000 psi	ASTM D790
Flexural Modulus	3.38 GPa	490 ksi	ASTM D790
Compressive Strength	103 MPa	15000 psi	10% Def.; ASTM D695
Compressive Modulus	2.90 GPa	420 ksi	ASTM D695
Shear Strength	55.2 MPa	8000 psi	ASTM D732
Izod Impact, Notched	0.267 J/cm	0.500 ft-lb/in	ASTM D256 Type A
Coefficient of Friction, Dynamic	0.20	0.20	Dry vs. Steel; QTM55007
K (wear) Factor	121 x 10 ⁻⁹ mm ³ /N-M	60.0 x 10 ⁻¹⁰ in ² -min/ft-lb-hr	QTM 55010
Limiting Pressure Velocity	0.0981 MPa-m/sec	2800 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	3.4	3.4	ASTM D150
	@Frequency 1e+6 Hz	@Frequency 1e+6 Hz	
Dielectric Strength	15.2 kV/mm	385 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	59.4 µm/m-°C	33.0 µin/in-°F	ASTM E831
	@Temperature -40.0 - 149 °C	@Temperature -40.0 - 300 °F	
Thermal Conductivity	0.288 W/m-K	2.00 BTU-in/hr-ft ² -°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)	116 °C	240 °F	ASTM D648
Flammability, UL94	HB	HB	1/8 inch (Estimated Rating)

Compliance Properties	Metric	English	Comments
3A-Dairy	Yes	Yes	Natural Only
Canada AG	Yes	Yes	Natural Only
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	Natural and black		
Machinability	2		1-10, 1=Easier to Machine