



MANUFACTURING CORPORATION

- Plastics Machining
- Spring Energized Seals
- Rotary Lip Seals

### Material Data Sheet

Material: Ertalyte® PET-P

Polyethylene terephthalate (PET-P)

Ertalyte® is an unreinforced, semi-crystalline thermoplastic polyester based on polyethylene terephthalate (PET-P). It is manufactured from proprietary resin grades made by Quadrant. Only Quadrant can offer Ertalyte®. It is characterized as having the best dimensional stability coupled with excellent wear resistance, a low coefficient of friction, high strength, and resistance to moderately acidic solutions. Ertalyte®'s properties make it especially suitable for the manufacture of precision mechanical parts which are capable of sustaining high loads and enduring wear conditions. Ertalyte®'s continuous service temperature is 210°F (100°C) and its melting point is almost 150°F higher than acetals. It retains significantly more of its original strength up to 180°F (85°C) than nylon or acetal. In addition, Ertalyte® PET-P offers good chemical and abrasion resistance. Its low moisture absorption enables mechanical and electrical properties to remain virtually unaffected by moisture (See Figure 11). Ertalyte® PET-P can be machined to precise detail on standard metal working equipment. Ertalyte® is FDA compliant in natural and black. Natural Ertalyte® is also USDA, 3A-Dairy and Canada AG compliant.

Mechanical Properties	Test Method ASTM	Value	Units
Specific Gravity, 73°F	D792	1.41	
Tensile Strength, 73°F	D638	12,400	psi
Tensile Modulus of Elasticity, °F	D638	460,000	psi
Tensile Elongation ( at break), 73°F	D638	20	%
Flexural Strength, 73°F	D790	18,000	psi
Flexural Modulus of Elasticity, 73°F	D790	490,000	psi
Shear Strength, 73°F	D732	8,000	psi
Compressive Strength, 10% Deformation, 73°F	D695	15,000	psi
Compressive Modulus of Elasticity, 73°F	D695	420,000	psi
Hardness, Rockwell, Scale as noted, 73°F	D785	M93 (R125)	
Hardness, Durometer, Shore "D" Scale, 73°F	D2240	D87	
Izod Impact (notched), 73°F	D256 Type A	0.5	ft-lb/in of notch
Coefficient of Friction (Dry vs. Steel) Dynamic	QTM 55007	0.2	
Limiting PV (with 4:1 safety factor applied)	QTM 55007	2,800	ft.lbs./in. <sup>2</sup> min
Wear Factor "k" x 10 <sup>-10</sup>	QTM 55010	60	in. <sup>3</sup> -min/ft.lbs.hr
<b>Thermal Properties</b>			
Coefficient of Linear Thermal Expansion (-40°F to 300°F)	E-831 (TMA)	3.3 x 10 <sup>-5</sup>	in/in./°F
Heat Deflection Temperature 264 psi	D648	240	°F
TG-Glass transition (amorphous)	D3418	N/A	°F
Melting Point (Crystalline) peak	D3418	491	°F
Continuous Service Temperature in Air (Max.) (1)		210	°F
Thermal Conductivity	F433	2	BTU-in/hr-ft <sup>2</sup> -°F
<b>Electrical Properties</b>			
Dielectric Strength, Short Term	D149	385	Volts/mil
Surface Resistivity	EOS/ESD S11.11	>10 <sup>13</sup>	ohm/square
Dielectric Constant, 106 Hz	D150	3.4	
Dissipation Factor, 106 Hz	D150	0.02	
Flammability @ 3.1 mm (1/8 in.)	UL 94	HB	
FDA Compliant		Yes	

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\*The values shown in these and the following charts are typical, average properties. Actual values may differ due to variations in resin formulations and processing methods. These values are obtained from sources believed to be reliable, including the resin manufactures, converters and other published sources. However, they should not be used for specification or design purposes. Above information is provided by Quadrant EPP