

Ensinger TECAPET™ PET Polyethylene Terephthalate (PET)

Category : Polymer , Thermoplastic , Polyester, TP , Polyethylene Terephthalate (PET) , Polyethylene Terephthalate (PET), Unreinforced

Material Notes:

TECAPET™ PET is an unreinforced, semicrystalline thermoplastic polyester derived from polyethylene terephthalate. Its excellent wear resistance, low coefficient of friction, high flexural modulus, and superior dimensional stability make it a versatile material for designing mechanical and electro-mechanical parts. Because TECAPET™ PET has no centerline porosity, the possibility of fluid absorption and leakage is virtually eliminated. Excellent wear resistance, low coefficient of friction, very good chemical resistance, no centerline porosity eliminates the possibility of fluid absorption and leakage, good electrical insulator, high mechanical strength, excellent hardness and stiffness, good weather resistance, in compliance with FDA regulations 21 CFR 177.1630 for use in contact with food, low water absorption, good resistance to high-energy radiation. TECAPET™ PET superior wear resistance and lack of centerline porosity give it an advantage over other materials for applications involving solvents, chemicals, and food products. TECAPET™ PET is also used in water purification systems, printing equipment, textile components, food-handling equipment, and valves. Information Provided by Ensinger Industries, Inc.

Order this product through the following link:

http://www.lookpolymers.com/polymer_Ensinger-TECAPET-PET-Polyethylene-Terephthalate-PET.php

Physical Properties	Metric	English	Comments
Specific Gravity	1.38 g/cc	1.38 g/cc	ASTM D792
Density	1.38 g/cc	0.0499 lb/in ³	ASTM D792
Water Absorption	0.10 % @Temperature 22.8 °C, Time 86400 sec	0.10 % @Temperature 73.0 °F, Time 24.0 hour	ASTM D570
Water Absorption at Saturation	0.50 % @Temperature 22.8 °C	0.50 % @Temperature 73.0 °F	ASTM D570

Mechanical Properties	Metric	English	Comments
Hardness, Rockwell M	94	94	ASTM D785
Tensile Strength, Yield	86.2 MPa @Temperature 22.8 °C	12500 psi @Temperature 73.0 °F	ASTM D638
Elongation at Break	20 % @Temperature 22.8 °C	20 % @Temperature 73.0 °F	ASTM D638
Tensile Modulus	3.24 GPa	470 ksi	ASTM D638
Flexural Strength	121 MPa @Temperature 22.8 °C	17600 psi @Temperature 73.0 °F	ASTM D790
	2.96 GPa	430 ksi	

Flexural Modulus Mechanical Properties	Metric @ Temperature 22.8 °C	English @ Temperature 73.0 °F	ASTM D790 Comments
Izod Impact, Notched	0.374 J/cm @Temperature 22.8 °C	0.700 ft-lb/in @Temperature 73.0 °F	ASTM D256
Coefficient of Friction, Dynamic	0.25 @Pressure 0.276 MPa	0.25 @Pressure 40.0 psi	50 fpm; ASTM D3702
Coefficient of Friction, Static	0.19	0.19	ASTM D3702
K Factor (Wear Factor)	2.1e-8 @Pressure 0.276 MPa	2.1e-8 @Pressure 40.0 psi	(in ³ /hr)x(1/PV), 50 fpm; ASTM D3702

Thermal Properties	Metric	English	Comments
CTE, linear	70.2 µm/m-°C	39.0 µin/in-°F	ASTM D696
Specific Heat Capacity	1.17 J/g-°C	0.280 BTU/lb-°F	UL746B
Thermal Conductivity	0.290 W/m-K	2.01 BTU-in/hr-ft ² -°F	
Melting Point	254 °C	490 °F	ASTM D3418
Maximum Service Temperature, Air	110 °C	230 °F	Long Term
	160 °C	320 °F	Intermittent
Deflection Temperature at 0.46 MPa (66 psi)	116 °C	240 °F	ASTM D648
Deflection Temperature at 1.8 MPa (264 psi)	79.4 °C	175 °F	ASTM D648
Flammability, UL94	HB	HB	

Electrical Properties	Metric	English	Comments
Volume Resistivity	1.00e+15 ohm-cm	1.00e+15 ohm-cm	ASTM D257
Dielectric Constant	3.4 @Frequency 60.0 Hz, Temperature 22.8 °C	3.4 @Frequency 60.0 Hz, Temperature 73.0 °F	50% RH; ASTM D150
Dielectric Strength	15.7 kV/mm	400 kV/in	ASTM D149
Dissipation Factor	0.0020 @Frequency 60.0 Hz, Temperature 22.8 °C	0.0020 @Frequency 60.0 Hz, Temperature 73.0 °F	ASTM D150

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