

PET+solid lubricant (POLYETHYLENE TEREPHTHALATE) [ERTALYTE TX] MATERIAL DATA SHEET

PET+solid lubricant is a polyethylene terephthalate compound incorporating a uniformly dispersed solid lubricant. Its specific formulation makes it a premium internally lubricated bearing-grade. It not only has an outstanding wear resistance, but offers in comparison with PET an even lower coefficient of friction as well as higher pressure-velocity capabilities. General characteristics:

- High mechanical strength, stiffness and hardness
- Very good creep resistance
- Low and constant coefficient of friction
- Excellent wear resistance (comparable to or even better than nylon grades)
- Very good dimensional stability (better than polyacetal)
- Excellent stain resistance
- Better resistance to acids than nylon or polyacetal
- Good electrical insulating properties
- Physiologically inert (suitable for food contact)
- Good resistance to high energy radiation (gamma- and X-rays)
- It could have food certificate (FDA)

PROPERTIES	Test methods	Units	VALUES
Colour	-	-	Pale grey
Density	ISO 1183-1	g/cm ³	1.44
Water absorption:			
- after 24/96 h immersion in water of 23°C	ISO 62	%	0.06 / 0.13
- at saturation in air of 23°C / 50% RH	-	%	0.23
- at saturation in water of 23°C	-	%	0.47
Thermal Properties			
Melting temperature (DSC, 10°C/min)	-	°C	255
Thermal conductivity at 23°C	-	W/(K.m)	0.29
Coefficient of linear thermal expansion:			
- average value between 23 and 60°C	-	m/(m.K)	65 x 10 ⁻⁶
- average value between 23 and 100°C	-	m/(m.K)	85 x 10 ⁻⁶
Temperature of deflection under load (method A: 1.8 MPa)	ISO 75	°C	75
Max. allowable service temperature in air:			
- for short periods	-	°C	160
- continuously : for min.5,000 / 20,000 h	-	°C	115/100
Flammability			
- "Oxygen Index"	ISO 4589-1/-2	%	25
- according to UL 94 (1.5 / 3 mm thickness)	-	-	HB / HB
Min. service temperature	-	°C	-20
Mechanical Properties at 23°C			
Tension test			
- tensile stress at break	ISO 527	MPa	76
- tensile strain at break	ISO 527	%	7
- tensile modulus of elasticity	ISO 527	MPa	3450
Creep test in tension: stress to produce 1% strain in 1000 h ($\bar{\epsilon}_{1/1000}$)	ISO 899-1	MPa	23
Compressive stress at 1 / 2 / 5 % nominal strain	ISO 604	MPa	24 / 47 / 95
Charpy impact strength - unnotched	ISO 179/1eU	kJ/m ²	≥30
Charpy impact strength - notched	ISO 179/1eA	kJ/m ²	2.5
Izod impact strength - notched	ISO 180/2°	kJ/m ²	2.5
Ball indentation hardness	ISO 2039-1	N/mm ²	160
Rockwell hardness	ISO 2039-2	-	M 94
Electrical Properties at 23 °C			
Electric strength	ISO 60243	kV/mm	21
Volume resistivity	IEC 60093	Ohm.cm	> 10 ¹⁵
Surface resistivity	IEC 60093	Ohm	> 10 ¹⁴
Relative permittivity ϵ_r : - at 100 MHz	IEC 60250	-	3.4
- at 1 MHz	IEC 60250	-	3.2
Dielectric dissipation factor tan δ : - at 100 MHz	IEC 60250	-	0.001
- at 1 MHz	IEC 60250	-	0.014
Comparative tracking index (CTI)	IEC 60112	-	600

Note: 1 g/cm³ = 1,000 kg/m³; 1 MPa = 1 N/mm²; 1 kV/mm = 1 MV/m.

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