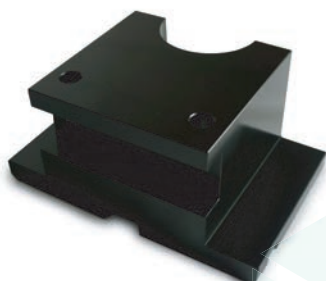




PET ● ○

ERTALYTE®

Semi-crystalline plastic, it contains specific properties that, in the virgin state, make the ERTALYTE® a particularly suitable material for precision mechanical parts exposed to high loads and subjected to high wear.



MAIN CHARACTERISTICS

- High mechanical resistance
- Very good creep resistance
- Low and uniform coefficient of friction
- Excellent wear resistance (better than polyamides)
- Very good dimensional stability (better than Ertacetal®)
- Physiologically inert
- Excellent stain resistance (consistent white appearance)
- Better acid resistance than polyamides and polyacetals
- Good chemical resistance and robustness
- Very low water absorption

APPLICATIONS

- Bushings, guides and casters
- No-impact low module gears
- Scrapers for food and similar products
- Precision parts
- Dental prosthetics
- Insulating parts
- Components for pumps in the food industry
- Components for pharmaceutical testing equipment



CHEMICAL
RESISTANCE



ELECTRICAL
INSULATION



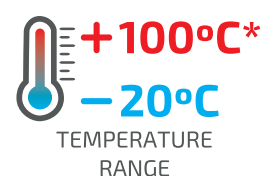
WEAR
RESISTANCE



SLIDING
PROPERTIES



IMPACT
RESISTANCE



TEMPERATURE
RANGE

*continuously (20.000H)

All figures given are indicative only, Polylanema Lda. is not liable for the use of the materials without consulting with our technical department.



PROPERTIES		TEST METHODS	UNITS	ERTALYTE®
COLOR			-	WHITE/BLACK
DENSITY		ISO 1183-1	g/cm³	1.39
WATER ABSORPTION				
AFTER 24/96H IMMERSION IN WATER OF 23°C¹		ISO 62	mg	6/13
AFTER 24/96H IMMERSION IN WATER OF 23°C¹		ISO 62	%	0.07/0.16
AT SATURATION IN AIR OF 23°C / 50% RH		-	%	0.25
AT SATURATION IN WATER OF A 23°C		-	%	0.50
THERMAL PROPERTIES²				
MELTING TEMPERARUTE (DSC, 10°C/MIN)		ISO 11357-1/-3	°C	245
GLASS TRANSITION TEMPERATURE (DSC, 20°C/MIN)³		ISO 11357-1/-3	°C	-
THERMAL CONDUCTIVITY A 23°C		-	W/(K.m)	0.29
COEFFICIENT OF LINEAR THERMAL EXPANSION				
AVERAGE VALUE BETWEEN 23-60°C		-	M/(m.K)	60 x 10⁻⁶
AVERAGE VALUE BETWEEN 23-100°C		-	M/(m.K)	80 x 10⁻⁶
TEMPERATURE OF DEFLECTION UNDER LOAD				
METHOD A 1.8 MPA	+	ISO 75-1/-2	°C	80
MAXIMUM ALLOABLE SERVICE TEMPERATURE IN AIR				
FOR SHORT PERIODS⁴		-	°C	160
CONTINUOUSLY: FOR 5.000/20.000H⁵		-	°C	115/100
MINIMUM SERVICE TEMPERATURE⁶		-	°C	-20
FAMMABILITY⁷				
"OXYGEN INDEX"		ISO 4589-1/-2	%	25
ACCORDING TO UL94 (3/6MM DE ESPESSURA)		-	-	HB/HB
MECHANICAL PROPERTIES AT 23°C⁸				
TENSION TEST⁹				
TENSILE STRESS AT YIELD/AT BREAK¹⁰	+	ISO 527-1/-2	MPa	90/-
TENSILE STRESS AT YIELD/AT BREAK¹⁰	++	ISO 527-1/-2	MPa	90/-
TENSILE STRENGTH¹⁰	+	ISO 527-1/-2	MPa	90
TENSILE STRAIN AT YIELD¹⁰	+	ISO 527-1/-2	%	4
TENSILE STRAIN AT BREAK¹⁰	+	ISO 527-1/-2	%	15
TENSILE STRAIN AT BREAK¹⁰	++	ISO 527-1/-2	%	15
TENSILE MODULUS OF ELASTICITY¹¹	+	ISO 527-1/-2	MPa	3500
TENSILE MODULUS OF ELASTICITY¹¹	++	ISO 527-1/-2	MPa	3500
COMPRESSION TEST¹²				
COMPRESSIVE STRESS AT 1/2/5% NOMINAL STRAIN¹¹ +		ISO 604	MPa	33/64/107
CHARPY IMPACT STRENGTH - UNNOTCHED¹³	+	ISO 179-1/1eU	KJ/m²	50
CHARPY IMPACT STRENGTH - NOTCHED	+	ISO 179-1/1eA	KJ/m²	2
BALL IDENTATION HARDNESS¹⁴	+	ISO 2039-1	N/mm²	170
ROCKWELL HARDNESS¹⁴	+	ISO 2039-2	-	M 96
ELECTRICAL PROPERTIES AT 23°C				
ELECTRIC STRENGTH¹⁵	+	IEC 60243-1	kV/mm	22
ELECTRIC STRENGTH¹⁵	++	IEC 60243-1	kV/mm	22
VOLUME RESISTIVITY	+	IEC 60093	Ohm.cm	> 10¹⁴
VOLUME RESISTIVITY	++	IEC 60093	Ohm.cm	> 10¹⁴
SURFACE RESISTIVITY	+	IEC 60093	Ohm	> 10¹³
SURFACE RESISTIVITY	++	IEC 60093	Ohm	> 10¹³
RELATIVE PERMITTIVITY εᵣ : A 100HZ	+	IEC 60250	-	3.4
RELATIVE PERMITTIVITY εᵣ : A 100HZ	++	IEC 60250	-	3.4
RELATIVE PERMITTIVITY εᵣ : A 1MHZ	+	IEC 60250	-	3.2
RELATIVE PERMITTIVITY εᵣ : A 1MHZ	++	IEC 60250	-	3.2
DIELECTRIC DISSIPATION FACTOR TAN δ : A 100HZ	+	IEC 60250	-	0.001
DIELECTRIC DISSIPATION FACTOR TAN δ : A 100HZ	++	IEC 60250	-	0.001
DIELECTRIC DISSIPATION FACTOR TAN δ : A 1MHZ	+	IEC 60250	-	0.014
DIELECTRIC DISSIPATION FACTOR TAN δ : A 1MHZ	++	IEC 60250	-	0.014
COMPARATIVE TRACKING INDEX (CTI)	+	IEC 60112	-	600
COMPARATIVE TRACKING INDEX (CTI)	++	IEC 60112	-	600

NOTE: 1 g/cm³ = 1000 kg/m³ ; 1 MPa = 1 N/mm² ; 1 KV/mm = 1 MV/m

+: values for dry material
++: values referring to material in equilibrium with the standard atmosphere 23°C / 50% rh

(1) According to method 1 of ISO 62 and measured on ø 50x3 mm discs. (2) The elements supplied for this property are for the most part supplied by the manufacturers of the raw materials. (3) The values of this property are only attributed to amorphous rather than semi-crystalline materials. (4) Only for short periods of exposure in applications where only very low loads are applied to the material. (5) Temperature that resists after a period of 5,000 / 20,000 hours. After this time, there is a decrease of about 50% in tensile strength compared to the original value. The given temperature values are based on the thermal oxidation degradation which occurs which causes a reduction of the properties. In the meantime, the maximum permissible service temperature depends in many cases essentially on the deduction and magnitude of the mechanical stresses to which the material is subject. (6) As the impact strength decreases with decreasing temperature, the minimum allowable service temperature is determined by the extent of impact to which the material is subjected. The values given are based on unfavorable impact conditions and can not therefore be considered absolute limits. (7) These assessments derive from the technical specifications of the manufacturers of the raw materials and do not allow the determination of the behavior of the materials under fire conditions. (8) Most of the figures given by the properties of the (+) materials are mean values of the tests done on species machined with ø 40-60 mm. (9) Specimen testing: Type 1b. (10) Speed test: 5 or 50 mm / min. (11) Speed test: 1m / min. (12) Testing specimens: cylinders ø 8 x 16 mm. (13) Pendulum used: 15J. (14) Test on 10 mm thick specimens. (15) Electrode configuration: cylinders ø 25 / ø 75 mm, in transformer oil according to IEC 60296.

Note that the electrical force for the extruded black material can be considerably lower than that of natural material. The possible micro porosity in the center of conserved forms in stock significantly reduces the electric force.