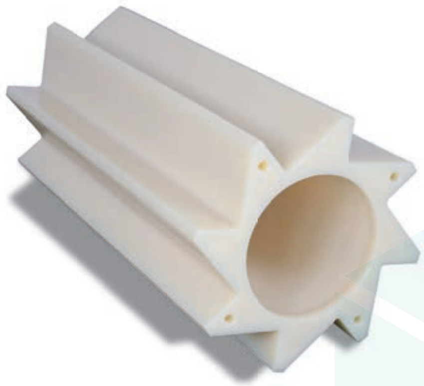
PA ● ○ ●

ERTALON® 6 PLA

Semi-crystalline plastic, ERTALON® 6 PLA is a cast polyamide 6 without additives and with very similar physical qualities to ERTALON® 66 SA. It combines high mechanical resistance, stiffness and hardness with good creep, heat and wear resistance for longer periods of time. Easy machining.



MAIN CHARACTERISTICS

- Better combination of mechanical resistance, stiffness and hardness with wear resistance
- Low coefficient of friction
- Better dimensional stability
- Good electrical insulation properties
- High mechanical damping capacity
- Good resistance to high energy radiation (gamma rays and X-rays
- Easy machining

APPLICATIONS

- High module sprockets
- Wheels and rollers
- Bushings
- Separators
- Large parts subjected to heavy loads

CHEMICAL RESISTANCE

ELECTRICAL INSULATION

WEAR RESISTANCE

SLIDING PROPERTIES

IMPACT RESISTANCE

+90ºC*
−30ºC
TEMPERATURE RANGE

*continuously (20.000H)

PA

TECHNICAL DATASHEET

PROPERTIES		TEST METHODS	UNITS	ERTALON® 6 PLA
COLOR			-	WHITE/BLACK
DENSITY		ISO 1183-1	g/cm³	1.15
WATER ABSORPTION				
AFTER 24/96H IMMERSION IN WATER OF 23ºC [1]		ISO 62	mg	44/83
AFTER 24/96H IMMERSION IN WATER OF 23ºC [1]		ISO 62	%	0.65/1.22
AT SATURATION IN AIR OF 23ºC / 50% RH		-	%	2.2
AT SATURATION IN WATER OF A 23ºC		-	%	6.5
THERMAL PROPERTIES[2]				
MELTING TEMPERARUTE (DSC, 10ºC/MIN)		ISO 11357-1/-3	ºC	215
GLASS TRANSITION TEMPERATURE (DSC, 20ºC/MIN)[3]		ISO 11357-1/-3	ºC	-
THERMAL CONDUCTIVITY A 23ºC		-	W/(K.m)	0.29
COEFFICIENT OF LINEAR THERMAL EXPANSION				
AVERAGE VALUE BETWEEN 23-60ºC		-	M/(m.K)	80×10^{-6}
AVERAGE VALUE BETWEEN 23-100ºC		-	M/(m.K)	90×10^{-6}
TEMPERATURE OF DEFLECTION UNDER LOAD				
METHOD A 1.8 MPA	+	ISO 75-1/-2	ºC	80
MAXIMUM ALLOABLE SERVICE TEMPERATURE IN AIR				
FOR SHORT PERIODS[4]		-	ºC	170
CONTINUOUSLY: FOR 5.000/20.000H[5]		-	ºC	105/90
MINIMUM SERVICE TEMPERATURE[6]		-	ºC	-30
FAMMABILITY[7]				
"OXYGEN INDEX"		ISO 4589-1/-2	%	25
ACCORDING TO UL94 (3/6MM DE ESPESSURA)		-	-	HB/HB
MECHANICAL PROPERTIES AT 23ºC[8]				
TENSION TEST[9]				
TENSILE STRESS AT YIELD/AT BREAK[10]	+	ISO 527-1/-2	MPa	86/-
TENSILE STRESS AT YIELD/AT BREAK[10]	++	ISO 527-1/-2	MPa	55/-
TENSILE STRENGTH[10]	+	ISO 527-1/-2	MPa	88
TENSILE STRAIN AT YIELD[10]	+	ISO 527-1/-2	%	5
TENSILE STRAIN AT BREAK[10]	+	ISO 527-1/-2	%	25
TENSILE STRAIN AT BREAK[10]	++	ISO 527-1/-2	%	>50
TENSILE MODULUS OF ELASTICITY[11]	+	ISO 527-1/-2	MPa	3600
TENSILE MODULUS OF ELASTICITY[11]	++	ISO 527-1/-2	MPa	1750
COMPRESSION TEST[12]				
COMPRESSIVE STRESS AT 1/2/5% NOMINAL STRAIN[11]	+	ISO 604	MPa	34/64/93
CHARPY IMPACT STRENGTH - UNNOTCHED[13]	+	ISO 179-1/1eU	KJ/m²	NO BREAK
CHARPY IMPACT STRENGTH - NOTCHED	+	ISO 179-1/1eA	KJ/m²	3
BALL IDENTATION HARDNESS[4]	+	ISO 2039-1	N/mm²	165
ROCKWELL HARDNESS[14]	+	ISO 2039-2	-	M 88
ELECTRICAL PROPERTIES AT 23ºC				
ELECTRIC STRENGTH[15]	+	IEC 60243-1	kV/mm	25
ELECTRIC STRENGTH[15]	++	IEC 60243-1	kV/mm	17
VOLUME RESISTIVITY	+	IEC 60093	Ohm.cm	$> 10^{14}$
VOLUME RESISTIVITY	++	IEC 60093	Ohm.cm	$> 10^{12}$
SURFACE RESISTIVITY	+	IEC 60093	Ohm	$> 10^{13}$
SURFACE RESISTIVITY	++	IEC 60093	Ohm	$> 10^{12}$
RELATIVE PERMITTIVITY ε_r : A 100HZ	+	IEC 60250	-	3.6
RELATIVE PERMITTIVITY ε_r : A 100HZ	++	IEC 60250	-	6.6
RELATIVE PERMITTIVITY ε_r : A 1MHZ	+	IEC 60250	-	3.2
RELATIVE PERMITTIVITY ε_r : A 1MHZ	++	IEC 60250	-	3.7
DIELECTRIC DISSIPATION FACTOR TAN δ : A 100HZ	+	IEC 60250	-	0.012
DIELECTRIC DISSIPATION FACTOR TAN δ : A 100HZ	++	IEC 60250	-	0.14
DIELECTRIC DISSIPATION FACTOR TAN δ : A 1MHZ	+	IEC 60250	-	0.016
DIELECTRIC DISSIPATION FACTOR TAN δ : A 1MHZ	++	IEC 60250	-	0.05
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 23ºC / 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.