POM

ERTACETAL® C

Semi-crystalline plastic, ERTACETAL® is a material with greater dimensional stability than polyamides despite having a lower resistance to wear. ERTACETAL® C is more resistant to hydrolysis, strong alkaline solutions and degradation by thermal oxidation than ERTACETAL® H.

MAIN CHARACTERISTICS

- High mechanical resistance, stiffness and hardness
- High elasticity module
- Good creep resistance
- High impact resistance even at low temperatures
- Excellent dimensional stability
- Good sliding properties and wear resistance
- Easy machining (better than polyamides)
- Low moisture absorption
- High resistance to chemicals
- Physiologically inert

APPLICATIONS

- Dimensionally stable precision parts
- Small module sprockets
- Couplings, sleeves, valve elements
- Bushings
- All types of parts that require better finishing and dimensional stability
- Rollers and bearings for heavy loads
- Bearings and gears with small clearances
- Components for electrical insulation

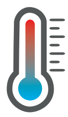
CHEMICAL RESISTANCE

ELECTRICAL INSULATION

WEAR RESISTANCE

SLIDING PROPERTIES

IMPACT RESISTANCE



+100ºC*

-50ºC

TEMPERATURE RANGE

*continuously (20.000H)

POM
TECHNICAL DATASHEET

PROPERTIES		TEST METHODS	UNITS	ERTACETAL® C
COLOR			-	WHITE/BLACK*
DENSITY		ISO 1183-1	g/cm³	1.41
WATER ABSORPTION				
AFTER 24/96H IMMERSION IN WATER OF 23ºC [1]		ISO 62	mg	20/37
AFTER 24/96H IMMERSION IN WATER OF 23ºC [1]		ISO 62	%	0.24/0.45
AT SATURATION IN AIR OF 23ºC / 50% RH		-	%	0.20
AT SATURATION IN WATER OF A 23ºC		-	%	0.80
THERMAL PROPERTIES[2]				
MELTING TEMPERARUTE (DSC, 10ºC/MIN)		ISO 11357-1/-3	ºC	165
GLASS TRANSITION TEMPERATURE (DSC, 20ºC/MIN)[3]		ISO 11357-1/-3	ºC	-
THERMAL CONDUCTIVITY A 23ºC		-	W/(K.m)	0.31
COEFFICIENT OF LINEAR THERMAL EXPANSION				
AVERAGE VALUE BETWEEN 23-60ºC		-	M/(m.K)	110×10^{-6}
AVERAGE VALUE BETWEEN 23-100ºC		-	M/(m.K)	125×10^{-6}
TEMPERATURE OF DEFLECTION UNDER LOAD				
METHOD A 1.8 MPA	+	ISO 75-1/-2	ºC	100
MAXIMUM ALLOABLE SERVICE TEMPERATURE IN AIR				
FOR SHORT PERIODS[4]		-	ºC	140
CONTINUOUSLY: FOR 5.000/20.000H[5]		-	ºC	115/100
MINIMUM SERVICE TEMPERATURE[6]		-	ºC	-50
FAMMABILITY[7]				
"OXYGEN INDEX"		ISO 4589-1/-2	%	15
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	66/-
TENSILE STRESS AT YIELD/AT BREAK[10]	++	ISO 527-1/-2	MPa	66/-
TENSILE STRENGTH[10]	+	ISO 527-1/-2	MPa	66
TENSILE STRAIN AT YIELD[10]	+	ISO 527-1/-2	%	20
TENSILE STRAIN AT BREAK[10]	+	ISO 527-1/-2	%	50
TENSILE STRAIN AT BREAK[10]	++	ISO 527-1/-2	%	50
TENSILE MODULUS OF ELASTICITY[11]	+	ISO 527-1/-2	MPa	2800
TENSILE MODULUS OF ELASTICITY[11]	++	ISO 527-1/-2	MPa	2800
COMPRESSION TEST[12]				
COMPRESSIVE STRESS AT 1/2/5% NOMINAL STRAIN[11]	+	ISO 604	MPa	23/40/72
CHARPY IMPACT STRENGTH - UNNOTCHED[13]	+	ISO 179-1/1eU	KJ/m²	NO BREAK
CHARPY IMPACT STRENGTH - NOTCHED	+	ISO 179-1/1eA	KJ/m²	8
BALL IDENTATION HARDNESS[4]	+	ISO 2039-1	N/mm²	140
ROCKWELL HARDNESS[14]	+	ISO 2039-2	-	M 84
ELECTRICAL PROPERTIES AT 23ºC				
ELECTRIC STRENGTH[15]	+	IEC 60243-1	kV/mm	20
ELECTRIC STRENGTH[15]	++	IEC 60243-1	kV/mm	20
VOLUME RESISTIVITY	+	IEC 60093	Ohm.cm	$> 10^{14}$
VOLUME RESISTIVITY	++	IEC 60093	Ohm.cm	$> 10^{14}$
SURFACE RESISTIVITY	+	IEC 60093	Ohm	$> 10^{13}$
SURFACE RESISTIVITY	++	IEC 60093	Ohm	$> 10^{13}$
RELATIVE PERMITTIVITY ε_r : A 100HZ	+	IEC 60250	-	3.8
RELATIVE PERMITTIVITY ε_r : A 100HZ	++	IEC 60250	-	3.8
RELATIVE PERMITTIVITY ε_r : A 1MHZ	+	IEC 60250	-	3.8
RELATIVE PERMITTIVITY ε_r : A 1MHZ	++	IEC 60250	-	3.8
DIELECTRIC DISSIPATION FACTOR TAN δ : A 100HZ	+	IEC 60250	-	0.003
DIELECTRIC DISSIPATION FACTOR TAN δ : A 100HZ	++	IEC 60250	-	0.003
DIELECTRIC DISSIPATION FACTOR TAN δ : A 1MHZ	+	IEC 60250	-	0.008
DIELECTRIC DISSIPATION FACTOR TAN δ : A 1MHZ	++	IEC 60250	-	0.008
COMPARATIVE TRACKING INDEX (CTI)	+	IEC 60112	-	600
COMPARATIVE TRACKING INDEX (CTI)	++	IEC 60112	-	600

* Other colors available on request

+: 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.