

Properties	Test methods	Units	Values	
Productname	-	-	PET	
Color	-	-	nature, black	
Average molar mass (average molecular weight)	-	10 ⁶ g / mol		
Density	ISO 1183-1	g / cm³	1,390	
Water apsorption				
 after 24/96 h immersion in water of 23°C (1) 	ISO 62	mg	6/13	
 after 24/96 h immersion in water of 23°C (1) 	ISO 62	%	0,07 / 0,16	
• at saturation in air of 23°C / 50% RH	-	%	0,25	
 at saturation in water of 23°C 	-	%	0,5	
THERMAL PROPERTIES (2)				
Melting temperature (DSC, 10°C/min)	ISO 11357-1/-3	°C	245	
Dynamic glass transition temperature +	ISO 3146	°C	70	
Dynamic glass transition temperature ++	ISO 3146	°C		
Thermal conductivity Lambda λ at 23°C	-	W / (K · m)	0,290	
Coefficient of linear thermal expansion				
 average value between 23 and 60°C 	-	m / (m · K)	60 x 10 ⁻⁶	
 average value between 23 and 100°C 	-	m / (m · K)	80 x 10 ⁻⁶	
 average value between 23 and 150°C 	-	m / (m · K)		
Temperature of deflection under load				
• method A: 1,8 MPa	ISO 75-1/-2	°C	80	
Vicat-Erweichungstemperatur - VST/B50	ISO 306	°C		
Maximal allowable service temperature in				
• for short periods (3)	-	°C	160	
• continously: for 5.000 / 20.000 h (4)	-	°C	115 / 100	
Minimal service temperature (5)	-	°C	-20	
Flammability (6)	150 4580 1/2	%	25	
Oxygen-Index	ISO 4589-1/-2	70	25	
 according to UL 94 (3 / 6 mm thickness) 	-		HB / HB	
Specific heat capacity	-	J / (g · K)	1,1	
MECHANICAL PROPERTIES AT 23°C (7)				
Tension test (8)				
 tensile stress at yield / tensile stress at break (9) + 	ISO 527-1/-2	N / mm²	90 / -	
 tensile stress at yield / tensile stress at break (9) ++ 	ISO 527-1/-2	N / mm²	90 / -	
• tensile strength (9) +	ISO 527-1/-2	N / mm ²	90	
• tensile strain at yield (9) +	ISO 527-1/-2	%	4	
tensile strain at break / elongation at break (9) +	ISO 527-1/-2	%	15 / -	
 tensile strain at break / elongation at break (9) ++ 	ISO 527-1/-2	%	15/-	
• tensile modulus of elasticity (10) +	ISO 527-1/-2	N / mm ²	3500	
• tensile modulus of elasticity (10) ++	ISO 527-1/-2	N / mm²	3500	
Compression test (11)				
 compressive stress at 1/2/5 % nominal strain (12) + 	ISO 604	N / mm²	26 / 51 / 103	
Creep test in tension (8)				
stress to produce 1% strain	ISO 899-1	N / mm²	26	
stress to produce 1% strain (σ 1/1000)	ISO 899-1	N / mm²	26,00	
Charpy impact strenght - Unnotched (12)	ISO 179-1/1eU	kJ / m²	50	
Charpy impact strenght - Notched	ISO 179-1/1eA	kJ / m²	2	
Charpy impact strength (15° V-notched, both-sided)	ISO 11542-2	kJ / m²		
Izod impact strength - Notched +	180/2A	kJ / m²	2	
Izod impact strength - Notched ++	180/2A	kJ / m²	2,00	
Ball intentation hardness (13)	2039-1	N / mm²	170	
Rockwell hardness (134)	ISO 2039-2	N / mm²	M 96	
Shore hardness D (3 / 15 s)	ISO 868	N / mm²		
Coefficient of sliding friction m (14)	-	-	0,15 - 0,25	



-	μ / km	0,35	
-	μ/km	3	

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ELECTRICAL PROPERTIES AT 23°C

kt/ mm 22,00 blume resistivity + IEC 60033 Ω · cm > 10 ¹⁴ blume resistivity ++ IEC 60033 Ω · cm > 10 ¹⁴ blume resistivity ++ IEC 60033 Ω · cm > 10 ¹³ urface resistivity ++ IEC 60033 Ω · cm > 10 ¹³ elative permittive f IEC 60033 Ω · cm > 10 ¹³ elative permittive f IEC 60033 Ω · cm > 10 ¹³ elative permittive f IEC 60033 Ω · cm > 10 ¹³ elative permittive f IEC 60030 Ω · C > 3,40 et 100 Hz + IEC 60250 - 3,40 et 11 MHz + IEC 60250 - 3,20 et 11 MHz ++ IEC 60250 - 3,20 et 100 Hz + IEC 60250 - 0,0010 et 100 Hz + IEC 60250 - 0,0010 et 100 Hz + IEC 60250 - 0,0014 et 11 MHz + IEC 60250 - 0,0014 et 11 MHz ++ IEC 60120 -	ctci strength (15) ++ IEC 6093 0 · cm > 10 ⁴ ume resistivity + IEC 6093 0 · cm > 10 ⁴ face resistivity + IEC 6093 0 · cm > 10 ⁴ face resistivity ++ IEC 6093 0 > 10 ⁴ face resistivity ++ IEC 6093 0 > 10 ⁴ face resistivity ++ IEC 60250 0 3.40 at 100 Hz + IEC 60250 3.40 3.20 at 100 Hz + IEC 60250 3.20 at 10 Hz + IEC 60250 0.0010 at 10 Hz + IEC 60250 0.0014 at 10 Hz ++ IEC 60250 0.0014 at 1 Mtz ++ IEC 60250 at 1 Mtz ++ IEC 60250 at 1 Mtz ++ IEC 6012 mparative tracking index	ELECTRICAL PROPERTIES AT 23°C				
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		Comparative tracking index (CTI) ++	IEC 60112	-	600	



Legend

- 1. Following the ISO 62 written procedures \emptyset 50 x 3 mm.
- 2. The values listed for properties are largely taken from the material sheets supplied by raw material suppliers and other publications.
- 3. The properties listed are all values for semi-crystalline materials, and not amorphous materials.
- 4. Valid for just a few hours of thermal stress for applications where there is little or no mechanical stress.
- 5. Quoted thermal stability over 5,000 / 20,000 hours. Beyond this period, the tensile strength decreases to around 50% of the initial value. As with all thermoplastics, the maximum permissible operating temperature is in many cases primarily dependent on the duration and magnitude of the mechanical stress which occurs during exposure to heat.
- 6. In view of the reduction in impact strength with decreasing temperature, the lower service temperature limit is in practice particularly determined by the magnitude of the impact stress applied to the material. The values listed here are based on adverse shock loads and should not be considered an absolute practical limit.
- 7. It should be noted that these values, which have been estimated from the material sheets provided by raw material suppliers, must under no circumstances be taken as a guide to behaviour or reaction when the material is subject to fire. There are no "UL Yellow Cards" for these semi-finished products.
- 8. The data given for dry material (+) are mostly average values of tests carried out on test specimens consisting of round bars Ø40 60 mm. Considering the very low water absorption of POM, PET and PC, the values for the mechanical and electrical properties of dry (+) and damp (++) specimens of these materials can be considered almost equal.
- 9. Test piece: Type 1 B
- 10. Test speed: 20 mm/min. (5 mm/min for PA6.6 + GF, POM-C + PTFE and PET TX)
- 11. Test speed: 1 mm/min.
- 12. Test specimen: cylinder (Ø 12 x 30mm)
- 13. Pendulum used: 15 J.
- 14. Measured on 10-mm thick test specimens
- 15. Electrode configuration: two cylinders Ø 25 / Ø 75 mm; in transformer oil according to IEC 296; measured on 1-mm thick natural specimens. It is important to know that the dielectric strength of black extruded material (PA6, PA6.6, POM and PET) can be up to 50% lower than that of natural-coloured material. A possible microporosity in the centre of POM semi-finished products also results in a significant reduction in dielectric strength. This table is intended to assist you in selecting materials. The values listed here are within the usual range of product properties. However, they are not guaranteed property values and should not be used as the sole basis for construction. It should be noted that PA6.6 + GF is a fibre-reinforced material which is therefore considered anisotropic (properties are different dependent upon whether the fibres are parallel or perpendicular to the extrusion direction)