

## Material: Polyethylenterephthalat (PET)

Stand 05/2020

### Short description of material

A partially crystalline thermoplastic with high hardness, stiffness and mechanical strength as well as good creep resistance. PET has very good sliding properties and shows very little wear. Because of its good dimensional stability, it is also suitable for parts with tight dimensional tolerance requirements.

### Application examples

- Precision bushings
- Switching wheel
- Cams
- Counting mechanisms
- Insulators

### Colours

Black, natural

### Mechanical values

ISO / EN / DIN

Dry

Humid

	ISO / EN / DIN	Dry	Humid	
Density	ISO 1183	1,38	--	g/cm <sup>3</sup>
Yield stress	ISO 527	80	--	MPa
Elongation at break	ISO 527	40	--	%
Modulus of elasticity from tensile test	ISO 527	3000	--	MPa
Modulus of elasticity from bending test	ISO 178	2600	--	MPa
Flexural Strength	ISO 178	125	--	MPa
Impact strength <sup>1)</sup>	ISO 179	82	--	KJ/m <sup>2</sup>
Notched-bar Impact Strength	ISO 179	14	--	KJ/m <sup>2</sup>
Ball indentation hardness H358/30	ISO 2039-1	140	--	MPa
Creep rate stress at 1% Dehnung <sup>2)</sup>	DIN EN ISO 899-1	13	--	MPa
Sliding friction coefficient against steel (dry running) <sup>3)</sup>	-	0,25	--	-
Sliding wear against steel (dry running) <sup>3)</sup>	-	0,35	--	µm/km

### Thermal values

	ISO 3146	+255	--	°C
Melting temperature	ISO 3146	+255	--	°C
Thermal conductivity	DIN EN 12939	0,24	--	W/(K*m)
Specific thermal capacity	-	1,1	--	J/(g*K)
Coefficient of thermal expansion (linear) <sup>4)</sup>	-	7-8	--	10 <sup>-5</sup> *K <sup>-1</sup>
Operating temperature range (long-term) <sup>5)</sup>	-	-20 bis +100	--	°C
Operating temperature range (short-term) <sup>5)</sup>	-	+160	--	°C
Fire behaviour	UL 94, IEC 60695	HB	--	-

### Electrical values

	IEC 60250	3,6	--	-
Dielectric constant <sup>6)</sup>	IEC 60250	3,6	--	-
Dielectric loss factor <sup>6)</sup>	IEC 60250	0,008	--	-
Specific volume resistance	IEC 60093	10 <sup>16</sup>	--	Ω *cm
Surface resistance	IEC 60093	10 <sup>14</sup>	--	Ω
Dielectric strength	IEC 60243	50	--	kV/mm
Creep current resistance	IEC 60112	CTI 600	--	-

### Miscellaneous data

	DIN EN ISO 62	0,25	--	%
Moisture absorption in normal climate until saturated	DIN EN ISO 62	0,25	--	%
Water absorption until saturated	DIN EN ISO 62	0,5	--	%

<sup>1)</sup> measured with a pendulum impact testing machine 0,1 DIN 51 222

<sup>2)</sup> tension resulting in 1% total elongation after 1.000h

<sup>3)</sup> against steel, hardened and ground

<sup>4)</sup> P = 0,05 Mpa; V = 0,6m/s; t = 60 °C near running surface

<sup>5)</sup> For a temperature range of + 23 °C up to + 60 °C

<sup>6)</sup> Experience values established with finished parts that are not under any stress in heated air, depending on the type and form of heat exposure, short-term = max. 1h, long-term=months

<sup>6)</sup> at 10<sup>6</sup> Hz

The content of this datasheet are meant to give an overview of the product's properties. It reflects our current knowledge and may not be complete. The values should be taken as guide values because they are very dependent on surrounding conditions and machining methods. The values are in no way a legally binding assurance of the product's properties or its suitability for use in a specific application. All stated values are average values established from many individual tests. They are based on a temperature of 23°C and 50% RH. For specific applications, we recommend determining suitability by means of a trial.

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