

## TECADUR PBT

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Chemical Designation: Polybutylene terephthalate

DIN Abbreviation: PBT

Colour, Filler: Opaque

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TECADUR PBT is a semi-crystalline engineering thermoplastic with very high strength and good rigidity, excellent machinability and versatility of application.

Main characteristics:

- Strong and rigid
- Very tough
- Good sliding properties
- Abrasion resistant
- Resistant to many acids, cleaning agents, numerous solvents
- Very good electrical insulation
- Easily machined and polished
- Not resistant long term to hot water over 60°C
- Easily bonded
- Easily welded

Preferred fields: Mechanical engineering, automotive engineering, transport and conveyor technology, electrical engineering, precision engineering, household appliances, food technology

Applications:

- Friction bearings
- Gear wheels
- Tool carriers
- Housing parts
- Rollers
- Friction strips
- Plugs
- Insulators
- Agitators and kneading elements
- Seals

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Ensinger Ltd  
Wilfried Way  
Tonyrefail  
Mid Glam CF39 8JQ

Tel: 01443 678400  
Fax: 01443 675777  
Web: [www.ensinger.ltd.uk](http://www.ensinger.ltd.uk)  
Email: [sales@ensinger.ltd.uk](mailto:sales@ensinger.ltd.uk)

# TECADUR PBT

The following information corresponds with our current knowledge and indicates our products and possible applications. We cannot give a legally binding guarantee of certain properties or the suitability for a specific application. Existing commercial patents must be observed. A definitive quality guarantee is given in our general conditions of sales. Unless otherwise stated, these values represent averages taken from injection moulding samples. We reserve the right of technical alterations.

Properties	Unit	Test method DIN EN ISO / ASTM	
<b>Mechanical</b>			
Density	g/cm <sup>3</sup>	527 / D 792	1.31
Tensile strength at yield	MPa	527 / D 638	55
Tensile strength at break	MPa	527 / D 638	
Elongation at break	%	527 / D 638	
Modulus of elasticity in tension	MPa	527 / D 638	2500
Modulus of elasticity in flexure	MPa	178 / D 790	
Ball indentation hardness	MPa	2039 / 1	125
Impact strength	kJ/m <sup>2</sup>	179 / D 256	no br.
Creep rupture strength after 1000 hrs with static load	MPa		36
Time yield limit for 1% elongation after 1000 hrs.	MPa		12
Coefficient of friction against hardened and ground steel p = 0,05 N/mm <sup>2</sup> , v = 0,6 m/s	-		0.24
Wear conditions as above	µm/km		0.2
<b>Thermal</b>			
Crystalline melting point	°C	DIN 53 736	225
Glass transition temperature	°C	DIN 53 736	60
Heat distortion temperature Method A Method B	°C °C	R 75 R 75	80 165

Properties	Unit	Test method DIN EN ISO / ASTM	
<b>Thermal</b>			
Max. service temperature short term long term	°C °C		170 110
Coefficient of thermal conductivity	W/(m · K)		0.21
Specific heat	J/(g · K)		1.21
Coefficient of thermal expansion	10 <sup>-6</sup> /K	DIN 53 483 / D 696	8
<b>Electrical</b>			
Dielectric constant at 10 <sup>5</sup> Hz		DIN 53 483	3
Dielectric loss factor at 10 <sup>5</sup> Hz		DIN 53 483	0.012
Specific volume resistance	Ω · cm	DIN 60093	>10 <sup>13</sup>
Surface resistance	Ω	DIN 60093	>10 <sup>15</sup>
Dielectric strength 1 mm	kV/mm	ASTM 149	>45
Tracking resistance		53 480	KB 425 KC > 600
<b>Miscellaneous</b>			
Moisture absorption: Equilibrium in standard atmosphere (23 °C / 50 % relative humidity)	%	62	0.25
Water absorption at saturation at 23 °C	%	62	0.4
Resistance to hot water, washing soda			not resistant
Flammability according to UL standard 94			HB
Resistance to weathering			not resistant

## ENSINGER: Production and stock programme

- Semi-finished product, finished parts, injection moulded parts and profiles in more than 500 materials and modifications.
- Engineering plastics: PA extruded or cast, POM, PC, PET, PBT, PPE, PP, PE
- High temperature plastics: PI, TPI, PEEK, PPS, PES, PPSU, PEI, PSU, PVDF, PCTFE, PTFE
- Stock length: Standard 3 metres. Cast rod and sheet 2 mts. Tube up to 3.5 mts. PE, PP, PVC, and PTFE 2 mts
- Pressed/sintered semi-finished product: PI, PEEK, PPS, PTFE/PI and modifications, as well as PCTFE in special sizes ie, large discs, tubes and rings with diameters up to about 1400 mm
- Material modifications: eg. glass, carbon and aramid fibre, talc, MoS<sub>2</sub>, graphite, PTFE, PE, silicone oil, internal lubrication