

TECAPET black - Stock Shapes (rods, plates, tubes)

Chemical Designation

PET (Polyethylene terephthalate)

Colour

black opaque

Density

1.39 g/cm³

Main features

- good chemical resistance
- very high strength
- easy to polish
- good weldable and bondable
- good slide and wear properties
- good machinability
- high toughness

Target Industries

- mechanical engineering
- automotive industry
- electronics
- food technology

Mechanical properties	parameter	value	unit	norm	comment
Tensile strength	50mm/min	91	MPa	DIN EN ISO 527-2	(1) For tensile test: specimen type 1b
Modulus of elasticity (tensile test)	1mm/min	3400	MPa	DIN EN ISO 527-2	1) (2) For flexural test: support span 64mm, norm specimen.
Tensile strength at yield	50mm/min	91	MPa	DIN EN ISO 527-2	(3) Specimen 10x10x10mm
Elongation at yield (tensile test)	50mm/min	4	%	DIN EN ISO 527-2	(4) Specimen 10x10x50mm, modulus range between 0.5 and 1% compression.
Elongation at break (tensile test)	50mm/min	15	%	DIN EN ISO 527-2	(5) For Charpy test: support span 64mm, norm specimen.
Flexural strength	2mm/min, 10 N	134	MPa	DIN EN ISO 178	2) (6) Specimen in 4mm thickness
Modulus of elasticity (flexural test)	2mm/min, 10 N	3400	MPa	DIN EN ISO 178	
Compression strength	1% / 2% / 5% 5mm/min, 10 N	19/36/86	MPa	EN ISO 604	3)
Compression modulus	5mm/min, 10 N	2800	MPa	EN ISO 604	4)
Impact strength (Charpy)	max. 7,5J	27	kJ/m ²	DIN EN ISO 179-1eU	5)
Ball indentation hardness		195	MPa	ISO 2039-1	6)
Thermal properties	parameter	value	unit	norm	comment
Glass transition temperature		81	°C	DIN EN ISO 11357	1) (1) Found in public sources.
Melting temperature		244	°C	DIN EN ISO 11357	(2) Found in public sources.
Service temperature	short term	170	°C		2) Individual testing regarding application conditions is mandatory.
Service temperature	long term	110	°C		
Thermal expansion (CLTE)	23-60°C, long.	8	10 ⁻⁵ K ⁻¹	DIN EN ISO 11359-1;2	
Thermal expansion (CLTE)	23-100°C, long.	10	10 ⁻⁵ K ⁻¹	DIN EN ISO 11359-1;2	
Electrical properties	parameter	value	unit	norm	comment
surface resistivity		10 ¹⁴	Ω	DIN IEC 60093	(1) Due to the black colourant and moisture uptake of the material the electrical insulation properties cannot be 100% guaranteed, despite single measurements suggesting otherwise.
volume resistivity		10 ¹⁴	Ω*cm	DIN IEC 60093	1)
Other properties	parameter	value	unit	norm	comment
Water absorption	24h / 96h (23°C)	0.02 / 0.03	%	DIN EN ISO 62	1) (1) Ø ca. 50mm, h=13mm (2) - poor resistance (3) (+)limited resistance (4) Corresponding means no listing at UL (yellow card). The information might be taken from resin, stock shape or estimation. Individual testing regarding application conditions is mandatory.
Resistance to hot water/ bases		-	-		2)
Resistance to weathering		(+)	-		3)
Flammability (UL94)	corresponding to	HB		DIN IEC 60695-11-10;	4)

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