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

Chemical Designation
PET (Polyethylene terephthalate)

Colour
black opaque

Density
1.39 g/cm^3

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 (2) For flexural test: support span 64mm, norm specimen. (3) Specimen 10x10x10mm (4) Specimen 10x10x50mm, modulus range between 0.5 and 1% compression. (5) For Charpy test: support span 64mm, norm specimen.
Modulus of elasticity (tensile test)	1mm/min	3400	MPa	DIN EN ISO 527-2	1)	
Tensile strength at yield	50mm/min	91	MPa	DIN EN ISO 527-2		
Elongation at yield (tensile test)	50mm/min	4	%	DIN EN ISO 527-2		
Elongation at break (tensile test)	50mm/min	15	%	DIN EN ISO 527-2		
Flexural strength	2mm/min, 10 N	134	MPa	DIN EN ISO 178	2)	
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	35	kJ/m^2	DIN EN ISO 179-1eU	5)	
Shore hardness	D	85		DIN EN ISO 868		

Thermal properties	parameter	value	unit	norm		comment
Glass transition temperature		81	°C	DIN EN ISO 11357	1)	(1) Found in public sources. (2) Found in public sources. Individual testing regarding application conditions is mandatory.
Melting temperature		244	°C	DIN EN ISO 11357		
Service temperature	short term	170	°C		2)	
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	-		(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	-	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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