

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

### Chemical Designation

PET (Polyethylene terephthalate)

### Colour

black

### Density

1.38 g/cm<sup>3</sup>

### Main features

- very good chemical resistance
- resistant to cleaning agents
- excellent wear properties
- excellent strength and stiffness
- low moisture absorption
- improved surface hardness
- resistance against high energy radiation

### Target Industries

- packaging and paper machinery
- semiconductor technology
- printing machines
- mechanical engineering
- pharmaceutical industry

Mechanical properties	condition	value	unit	test method	comment
Modulus of elasticity (tensile test)		485,000	psi	ASTM D 638	(1) Injection molded specimen
Tensile strength at yield	@ 73 °F	10,000	psi	ASTM D 638	(2) Injection molded specimen
Elongation at yield (tensile test)	@ 73 °F	4	%	ASTM D 638	(3) Injection molded specimen
Elongation at break (tensile test)	@ 73 °F	50	%	ASTM D 638	
Flexural strength	@ 73 °F	16,000	psi	ASTM D 790	
Modulus of elasticity (flexural test)	@ 73 °F	470,000	psi	ASTM D 790	
Compression strength	@ 73 °F 1% strain	3,600	psi	ASTM D 695	
Compression strength	@ 73 °F 10% strain	14,000	psi	ASTM D 695	
Compression modulus	@ 73 °F	360,000	psi	ASTM D 695	
Impact strength (Izod)	@ 73 °F	0.53	ft-lbs/in	ASTM D 256	
Shore hardness	D scale	85		ASTM D 2240	
Rockwell hardness	@ 73 °F, M scale	93		ASTM D 785	
Rockwell hardness	@ 73 °F, R scale	125		ASTM D 785	
Coefficient of friction	Dynamic, 40 psi, 50 fpm	0.25	%	ASTM D 3702	1)
Coefficient of friction	Static	0.19	%	ASTM D 3702	2)
Wear rate	Against Steel, 40 psi, 50 fpm	210*10 <sup>-10</sup>	in <sup>3</sup> -min/ft-lbs-hr	ASTM D 3702	3)
Thermal properties	condition	value	unit	test method	comment
Melting temperature		490	°F	-	1)
Heat distortion temperature	@264 psi	175	°F	ASTM D 648	(1) Per ASTM D3418 (2) Data obtained from public source
Heat distortion temperature	@ 66 psi	240	°F	ASTM D 648	
Service temperature	Long Term	230	°F	-	
Service temperature	Intermittent	320	°F	-	
Thermal expansion (CLTE)		3.9	*10 <sup>-5</sup> in/in/°F	ASTM D 696	2)
Specific heat		0.28	BTU/lb-F°	-	
Thermal conductivity		2.01	BTU-in/hr-ft <sup>2</sup> -°F	-	
Electrical properties	condition	value	unit	test method	comment
volume resistance		10 <sup>15</sup>	Ω*cm	ASTM D 257	1)
Dielectric strength		400	V/mil	ASTM D 149	2)
Dissipation factor	@ 60 Hz, 73 °F	0.02	%	ASTM D 150	3)
Dielectric constant	@ 60 Hz, 73 °F, 50% RH	3.4	%	ASTM D 150	4)
Other properties	condition	value	unit	test method	comment
Moisture absorption	@ 24 hrs, 73 °F	0.04	%	ASTM D 570	
Moisture absorption	@ saturation, 73 °F	0.50	%	ASTM D 570	

→ Resin specification:  
ASTM D5927-09 TPES0211 with black  
Shapes specification:  
ASTM D 6261-10 S-TPES0211

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