ENSINGER
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Material Data Sheet, February 2006

TECAPET

Chemical Designation :	PETPolyethylene terephthalate
DIN−Abbreviation:	PET
Colours, fillers:	white

Main features

- very strong
- wear resistant
- very strong and tough
- resistant to numerous detergents
- easily welded
- easily polished
- good sliding properties
- very good electrical insulation
- tough
- not resistant to hot water over 60° C
- easily bonded
- very easily machined

Preferred Fields

- mechanical engineering
- precision engineering
- automotive engineering
- domestic appliance
- transport and conveyor technology
- food technology
- electrical engineering
- medical technology

Applications

Plugs, friction plates, tool carriers, housing parts, rollers, plain bearing, gear wheels, insulators, agitators and kneading elements, seals

Properties

Mechanical	dry / moist		standard
Tensile strength at yield	88	MPa	DIN EN ISO 527
Elongation at yield	4	%	DIN EN ISO 527
Tensile strength at break		MPa	
Elongation at break		%	
Modulus of elasticity in tension	3200	MPa	DIN EN ISO 527
Modulus of elasticity after flexural test		MPa	
Hardness	95		DIN 53 456 (Kugeldruckhärte)
Impact strength 23º C (Charpy)	n.b.	KJ/m²	DIN EN ISO 179 (Charpy)
Creep rupture strength after 1000 h with static load	36	MPa	
Time yield limit for 1% elongation after 1000 h	13	MPa	
Co−efficient of friction p = 0,05 N/mm²v=0,6 m/s on steel, hardened and ground	0,25		
Wear p = 0,05 N/mm²v=0,6 m/s on steel, hardened and ground	0,35	µm/km	

Thermal	dry / moist		standard
Crystalline melting point	255	°C	
Glass transition temperature	70	°C	DIN 53 765
Heat distortion temperature HDT, Method A	95	°C	ISO−R 75 Verfahren A (DIN 53 461)
Heat distortion temperature HDT, Method B	170	°C	ISO−R 75 Verfahren B (DIN 53 461)
Max. service temperature			
short term	170	°C	
long term	110	°C	
Thermal conductivity (23º C)	0,24	W/(K·m)	
Specific heat (23º C)	1,1	J/g.K	
Coefficient of thermal expansion (23−55ºC)	7	10^{-5} 1/K	DIN 53 752

Properties

Electrical	dry / moist		standard
Dielectric constant (10^6 Hz)	3,2		DIN 53 483, IEC−250
Dielectric loss factor (10^6 Hz)	0,0021		DIN 53 483, IEC−250
Specific volume resistance	10^13	Ω*cm	DIN IEC 60093
Surface resistance	10^15	Ω	DIN IEC 60093
Dielectric strength	60	kV/mm	IEC−243, VDE 0303 Teil 2
Resistance to tracking	KC 350		DIN 53 480, VDE 0303 Teil 1

Miscellaneous	dry / moist		standard
Density	1,37	g/cm^3	DIN 53 479
Moisture absorption (23°C/50RH)	0,25	%	DIN EN ISO 62
Water absorption to equilibrium	0,5	%	DIN EN ISO 62
Flammability acc. to UL standard 94	HB		

(1) Testing of semi−finished products

The above information corresponds with our current knowledge and indicates our products and possible applications. We cannot give a legally binding guarantee of chemical resistance, of certain properties and the suitability of our products and their applications. Our products are not destined for use in medical and dental implants. Existing commercial patents must be observed. Unless otherwise stated, these values represent averages taken from injection moulding samples, dry as moulded. We reserve the right to make technical alterations.