ENSINGER
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Material Data Sheet, October 2005

TECAPEEK

Chemical Designation :	Polyetheretherketone
DIN−Abbreviation:	PEEK
Colours, fillers:	natural

Main features

- high thermal and mechanical capacity
- electrically insulating
- inherent low flammability (UL94 V−O)
- good radiation−resistance
- low ionic impurities
- good sliding properties
- resistant to numerous detergents
- creep resistant
- resistant to hydrolysis and superheated steam
- low emmision in vaccum

Preferred Fields

- electronics
- vacuum technology
- medical technology
- textile machinery
- chemical engineering
- automotive engineering
- Semiconductor technology
- food technology
- machine construction
- aircraft and aerospace industries

Applications

Gears, friction bearings, wear strips, ball valve seals, bushes, pump housings, metering pistons, wafer supports, light mountings, plug parts

Properties

Mechanical	dry / moist		standard
Tensile strength at yield	95	MPa	DIN EN ISO 527
Elongation at yield	5	%	DIN EN ISO 527
Tensile strength at break		MPa	
Elongation at break	25	%	DIN EN ISO 527
Modulus of elasticity in tension	3000	MPa	DIN EN ISO 527
Modulus of elasticity after flexural test	4100	MPa	DIN EN ISO 178
Hardness	M99		ASTM D 785
Impact strength 23º C (Charpy)	n.b.	KJ/m²	DIN EN ISO 179 (Charpy)
Creep rupture strength after 1000 h with static load		MPa	
Time yield limit for 1% elongation after 1000 h		MPa	
Co−efficient of friction p = 0,05 N/mm²v=0,6 m/s on steel, hardened and ground	0,30−0,38		
Wear p = 0,05 N/mm²v=0,6 m/s on steel, hardened and ground		µm/km	

Thermal	dry / moist		standard
Crystalline melting point		°C	
Glass transition temperature	143	°C	DIN 53 765
Heat distortion temperature HDT, Method A	140	°C	ISO−R 75 Verfahren A (DIN 53 461)
Heat distortion temperature HDT, Method B	182	°C	ISO−R 75 Verfahren B (DIN 53 461)
Max. service temperature			
short term	300	°C	
long term	260	°C	
Thermal conductivity (23º C)	0,25	W/(K·m)	
Specific heat (23º C)	0,32	J/g.K	
Coefficient of thermal expansion (23−55ºC)	5,0	10^{-5}1/K	DIN 53 752

Properties

Electrical	dry / moist		standard
Dielectric constant (10^6 Hz)	3,2−3,3		DIN 53 483, IEC−250
Dielectric loss factor (10^6 Hz)	0,001−0,004		DIN 53 483, IEC−250
Specific volume resistance	10^16	Ω*cm	DIN IEC 60093
Surface resistance	10^15	Ω	DIN IEC 60093
Dielectric strength	20	kV/mm	DIN 53 481, IEC−243, VDE 0303 Teil 2
Resistance to tracking			

Miscellaneous	dry / moist		standard
Density	1,30	g/cm^3	DIN 53 479
Moisture absorption (23°C/50RH)	0,1	%	DIN EN ISO 62
Water absorption to equilibrium	0,5	%	DIN EN ISO 62
Flammability acc. to UL standard 94	V0		

(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.