ENSINGER
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Material Data Sheet, October 2005

TECAPEEK PVX

Chemical Designation :	Polyetheretherketone
DIN−Abbreviation:	PEEK
Colours, fillers:	black, carbon fibre + PTFE + graphite

Main features

- high thermal and mechanical capacity
- easily machined
- very creep resistant
- resistant to hydrolysis and superheated steam
- very abrasion resistant
- flame retardent according to UL94 V−0
- good chemical resistance
- excellent sliding properties

Preferred Fields

- mechanical engineering
- transport and conveyor technology
- packaging and paper processing machinery
- chemical engineering
- maintenance engineering
- automotive engineering
- textile machinery
- precision engineering
- aircraft and aerospace industries
- pumps and instrument manufacture

Applications

Friction bearings, static/dynamic high loaded parts, gears, slide shoes, ball valve seats, chain bearings, pump housings, control pistons, pump impellers

Properties

Mechanical	**dry / moist**	**standard**
Tensile strength at yield		MPa
Elongation at yield		%

Tensile strength at break	130	MPa	DIN EN ISO 527
Elongation at break	1,5	%	DIN EN ISO 527
Modulus of elasticity in tension	9500	MPa	DIN EN ISO 527
Modulus of elasticity after flexural test	8100	MPa	DIN EN ISO 178
Hardness	208		DIN 53 456 (Kugeldruckhärte, 961N)
Impact strength 23º C (Charpy)	30	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	0,11		
Wear p = 0,05 N/mm²v=0,6 m/s on steel, hardened and ground		µm/km	

Thermal	**dry / moist**		**standard**
Crystalline melting point	343	°C	
Glass transition temperature	143	°C	DIN 53 765
Heat distortion temperature HDT, Method A	277	°C	ISO−R 75 Verfahren A (DIN 53 461)
Heat distortion temperature HDT, Method B		°C	
Max. service temperature			
short term	300	°C	
long term	260	°C	
Thermal conductivity (23º C)	0,24	W/(K·m)	
Specific heat (23º C)		J/g.K	
Coefficient of thermal expansion (23−55ºC)	2,2	10^{-5}1/K	DIN 53 752

Properties

Electrical	dry / moist		standard
Dielectric constant (10^6 Hz)			
Dielectric loss factor (10^6 Hz)			
Specific volume resistance	3*10^5	Ω*cm	DIN IEC 60093
Surface resistance	5*10^6	Ω	DIN IEC 60093
Dielectric strength		kV/mm	
Resistance to tracking			

Miscellaneous	dry / moist		standard
Density	1,48	g/cm^3	DIN 53 479
Moisture absorption (23°C/50RH)	0,1	%	DIN EN ISO 62
Water absorption to equilibrium	0,1	%	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.