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Material Data Sheet, December 2007

TECAPEEK ELS nano

Chemical Designation :	Polyetheretherketone
DIN-Abbreviation:	PEEK
Colours, fillers:	black, carbon nano tubes

Main features

- electrically conductive
- low warpage
- easily machined
- high thermal and mechanical capacity

Preferred Fields

- ATEX approved applications
- mechanical engineering
- transport and conveyor technology
- Semiconductor technology
- computer technology

Applications

Different kinds of handling components in semiconductor technology like vacuum wands, wafer baskets, wafer carrier, distance parts, gripper fingers and gears in printer and copy machines, parts for ultra pure water systems, bearing bushes, levers, friction rings, ball bearing housing, bearing rings,

Properties

Mechanical	dry / moist		standard
Tensile strength at yield		MPa	
Elongation at yield		%	
Tensile strength at break	100	MPa	DIN EN ISO 527
Elongation at break	15	%	DIN EN ISO 527

Modulus of elasticity in tension	4100	MPa	DIN EN ISO 527
Modulus of elasticity after flexural test		MPa	
Hardness			
Impact strength 23° C (Charpy)	50	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			
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	DIN 53 765
Glass transition temperature	143	°C	DIN 53 765
Heat distortion temperature HDT, Method A		°C	
Heat distortion temperature HDT, Method B		°C	
Max. service temperature			
short term	300	°C	
long term	260	°C	
Thermal conductivity (23° C)	0,8	W/(K·m)	
Specific heat (23° C)		J/g.K	
Coefficient of thermal expansion (23−55°C)	1,9	10^{-5} 1/K	ASTM E 831

Properties

Electrical	dry / moist		standard
Dielectric constant (10^6 Hz)			
Dielectric loss factor (10^6 Hz)			
Specific volume resistance	10^2−10^4	Ω*cm	DIN IEC 60093
Surface resistance	10^1−10^3	Ω	DIN IEC 60093
Dielectric strength		kV/mm	
Resistance to tracking			

Miscellaneous	dry / moist		standard
Density	1,34	g/cm^3	DIN 53 479
Moisture absorption (23°C/50RH)	0,1	%	DIN EN ISO 62
Water absorption to equilibrium	0,2	%	DIN EN ISO 62
Flammability acc. to UL standard 94	V0		

(1) Testing of machined 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.