

# TECAPEEK

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Chemical Designation: Polyetheretherketone

DIN Abbreviation: PEEK

Colour, Filler: Beige

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TECAPEEK is a semi-crystalline, high performance thermoplastic for very demanding applications.

Main characteristics:

- High thermal mechanical bearing strength
- Creep resistant
- Very tough
- Good chemical resistance
- Hydrolysis resistant, even against super heated steam
- Good sliding properties
- Wear resistant
- Electrically insulating
- Good machinability
- High resistance to gamma radiation
- Low emissions in vacuum

Preferred fields: Mechanical and automotive engineering, nuclear and vacuum technology, textile, packaging and paper processing machinery, electronic and electrical engineering, food processing and medical technology, chemical industry, aircraft and aerospace industries, semi conductor technology

Applications:

- Gears
- Wear strips
- Bushes
- Metering pumps
- Light mountings
- Friction bearings
- Ball valve seals
- Pump housings
- Wafer supports
- Plug parts

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# TECAPEEK

The following information corresponds with our current knowledge and indicates our products and possible applications. We cannot give a legally binding guarantee of certain properties or the suitability for a specific application. Existing commercial patents must be observed. A definitive quality guarantee is given in our general conditions of sales. Unless otherwise stated, these values represent averages taken from injection moulding samples. We reserve the right of technical alterations.

Properties	Unit	Test method DIN EN ISO / ASTM	
<b>Mechanical</b>			
Density	g/cm <sup>3</sup>	527 / D 792	1.32
Tensile strength at yield	MPa	527 / D 638	95
Tensile strength at break	MPa	527 / D 638	
Elongation at break	%	527 / D 638	25
Modulus of elasticity in tension	MPa	527 / D 638	3000
Modulus of elasticity in flexure	MPa	178 / D 790	4100
Hardness Rockwell	MPa	2039 / 1	M99
Impact strength	kJ/m <sup>2</sup>	179 / D 256	No br.
Creep rupture strength after 1000 hrs with static load	MPa		
Time yield limit for 1% elongation after 1000 hrs.	MPa		
Coefficient of friction against hardened and ground steel p = 0,05 N/mm <sup>2</sup> , v = 0,6 m/s	-		0.3 - 0.38
Wear conditions as above	µm/km		
<b>Thermal</b>			
Crystalline melting point	°C	DIN 53 736	343
Glass transition temperature	°C	DIN 53 736	143
Heat distortion temperature Method A Method B	°C °C	R 75 R 75	140 182

Properties	Unit	Test method DIN EN ISO / ASTM	
<b>Thermal</b>			
Max. service temperature short term long term	°C °C		300 260
Coefficient of thermal conductivity	W/(m · K)		0.25
Specific heat	J/(g · K)		0.32
Coefficient of thermal expansion	10 <sup>-5</sup> /K	DIN 53 483 / D 696	5.0
<b>Electrical</b>			
Dielectric constant at 10 <sup>5</sup> Hz		DIN 53 483	3.2 - 3.3
Dielectric loss factor at 10 <sup>5</sup> Hz		DIN 53 483	0.001 - 0.004
Specific volume resistance	Ω · cm	DIN 60093	10 <sup>16</sup>
Surface resistance	Ω	DIN 60093	10 <sup>15</sup>
Dielectric strength 1 mm	kV/mm	ASTM 149	20
Tracking resistance		53 480	
<b>Miscellaneous</b>			
Moisture absorption: Equilibrium in standard atmosphere (23 °C / 50 % relative humidity)	%	62	0.1
Water absorption at saturation at 23 °C	%	62	0.5
Resistance to hot water, washing soda			resistant
Flammability according to UL standard 94			VO
Resistance to weathering			not resistant

## ENSINGER: Production and stock programme

- Semi-finished product, finished parts, injection moulded parts and profiles in more than 500 materials and modifications.
- Engineering plastics: PA extruded or cast, POM, PC, PET, PBT, PPE, PP, PE
- High temperature plastics: PI, TPI, PEEK, PPS, PES, PPSU, PEI, PSU, PVDF, PCTFE, PTFE
- Stock length: Standard 3 metres. Cast rod and sheet 2 mts. Tube up to 3,5 mts. PE, PP, PVC, and PTFE 2 mts
- Pressed/sintered semi-finished product: PI, PEEK, PPS, PTFE/PI and modifications, as well as PCTFE in special sizes ie, large discs, tubes and rings with diameters up to about 1400 mm
- Material modifications: eg. glass, carbon and aramid fibre, talc, MoS<sub>2</sub>, graphite, PTFE, PE, silicone oil, internal lubrication