

TECAPEI

Chemical Designation:	Polyetherimide
DIN Abbreviation:	PEI
Colour, Filler:	Brown, translucent

TECAPEI is an amorphous, translucent engineering thermoplastic (Ultem®) with good rigidity and thermal mechanical strength for demanding applications

- Main characteristics:
- Rigid with good creep resistance
 - High thermal mechanical strength
 - Suitable for repeated hot steam sterilization
 - Good dimensional accuracy
 - Good electrical insulation
 - Good weldability
 - Easily machined, care required with coolant, susceptible to stress cracking
 - Flame retardant UL 94 V-0
 - Gamma ray resistant

Preferred fields: Food and medical technology, electrical engineering, electronics, mechanical and automotive engineering, vacuum technology, chemical industry, pump and instrument technology, transport and conveyor technology, precision engineering, jig construction, laboratory equipment, construction

- Applications:
- Metering equipment
 - Sterilization tanks
 - Microwave parts
 - Coil formers
 - Insulators
 - Sensor housings
 - Surgical instruments
 - Light sockets
 - Flanges
 - Switch parts
 - Valve bodies
 - Sight glasses

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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	
Mechanical			
Density	g/cm ³	527 / D 792	1.27
Tensile strength at yield	MPa	527 / D 638	105
Tensile strength at break	MPa	527 / D 638	
Elongation at break	%	527 / D 638	>50
Modulus of elasticity in tension	MPa	527 / D 638	3200
Modulus of elasticity in flexure	MPa	178 / D 790	3300
Ball indentation hardness	MPa	2039 / 1	140
Impact strength (Charpy)	kJ/m ²	179 / D 256	4
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 ² , v = 0,6 m/s	–		
Wear conditions as above	µm/km		
Thermal			
Crystalline melting point	°C	DIN 53 736	
Glass transition temperature	°C	DIN 53 736	217
Heat distortion temperature Method A Method B	°C °C	R 75 R 75	180 200

Properties	Unit	Test method DIN EN ISO / ASTM	
Thermal			
Max. service temperature short term	°C		200
long term	°C		170
Coefficient of thermal conductivity	W/(m · K)		0.22
Specific heat	J/(g · K)		
Coefficient of thermal expansion	10 ⁻⁶ /K	DIN 53 483 / D 696	5
Electrical			
Dielectric constant at 10 ⁵ Hz		DIN 53 483	3.15
Dielectric loss factor at 10 ⁵ Hz		DIN 53 483	0.001
Specific volume resistance	Ω · cm	DIN 60093	10 ¹⁵
Surface resistance	Ω	DIN 60093	10 ¹⁵
Dielectric strength 1 mm	kV/mm	ASTM 149	33
Tracking resistance		53 480	
Miscellaneous			
Moisture absorption: Equilibrium in standard atmosphere (23 °C / 50 % relative humidity)	%	62	0.7
Water absorption at saturation at 23 °C	%	62	1.25
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, MoS₂, graphite, PTFE, PE, silicone oil, internal lubrication