

## TECAFLON PCTFE

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Chemical Designation: Polychlorotrifluoroethylene

DIN Abbreviation: PCTFE

Colour, Filler: Opaque

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TECAFLON PCTFE is a semi-crystalline high performance thermoplastic with very good chemical resistance for highly demanding applications

- Main characteristics:
- Very good chemical resistance, including oxygen
  - Hydrolysis and superheated steam resistant
  - Very high limiting oxygen index
  - Self-extinguishing. UL 94 V-0
  - High thermal capacity
  - Very tough
  - Good sliding properties
  - Good electrical insulation
  - Good machinability
  - Difficult to bond

Preferred fields: Chemical engineering, air and space travel, nuclear and vacuum technology, construction, instrument engineering, processing technology, transmission, safety engineering, energy, cryogenics, transport and conveyor technology

- Applications:
- Ball valve seats
  - Control pistons
  - Structural parts in pure oxygen applications
  - Oxygen gauge parts
  - Pump housings
  - Pump impellers
  - Plugs
  - Insulators
  - Sensor housings
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# TECAFLON PCTFE

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	2.09
Tensile strength at yield	MPa	527 / D 638	
Tensile strength at break	MPa	527 / D 638	35
Elongation at break	%	527 / D 638	>50
Modulus of elasticity in tension	MPa	527 / D 638	1400
Modulus of elasticity in flexure	MPa	178 / D 790	
Ball indentation hardness	MPa	2039 / 1	70
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	-		0.35
Wear conditions as above	µm/km		
<b>Thermal</b>			
Crystalline melting point	°C	DIN 53 736	216
Glass transition temperature	°C	DIN 53 736	52
Heat distortion temperature Method A Method B	°C °C	R 75 R 75	126

Properties	Unit	Test method DIN EN ISO / ASTM	
<b>Thermal</b>			
Max. service temperature short term long term	°C °C		180 150
Coefficient of thermal conductivity	W/(m · K)		0.24
Specific heat	J/(g · K)		0.9
Coefficient of thermal expansion	10 <sup>-5</sup> /K	DIN 53 483 / D 696	6.5
<b>Electrical</b>			
Dielectric constant at 10 <sup>5</sup> Hz		DIN 53 483	2.5
Dielectric loss factor at 10 <sup>5</sup> Hz		DIN 53 483	0.02
Specific volume resistance	Ω · cm	DIN 60093	10 <sup>16</sup>
Surface resistance	Ω	DIN 60093	10 <sup>16</sup>
Dielectric strength 1 mm	kV/mm	ASTM 149	55 - 81
Tracking resistance		53 480	KA 3c KB > 600
<b>Miscellaneous</b>			
Moisture absorption: Equilibrium in standard atmosphere (23 °C / 50 % relative humidity)	%	62	<0.05
Water absorption at saturation at 23 °C	%	62	
Resistance to hot water, washing soda			resistant
Flammability according to UL standard 94			V0
Resistance to weathering			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