

Physical properties PCTFE natur

Properties	Test methods	Units	Values
Colour	-	-	natur
Density	D-792	g/cm ³	2.11 - 2.16
Water absorption: at saturation in water of 23°C			<0.01
Thermal Properties			
Melting temperature (DSC, 10° C/min.)		°C	210 - 212
Glass transition temperature		°C	
Thermal conductivity at 23°C		W/m-K	0.21
Coefficient of linear thermal expansion:			
- average value between +30 to -30°C	D-696	m/(m.K)	70 x 10 ⁻⁶
- average value between -30 to -100°C	D-696	m/(m.K)	51 x 10 ⁻⁶
- average value between -100 to -190°C	D-696	m/(m.K)	36 x 10 ⁻⁶
Temperature of deflection under load:			
- method B: 0,46 N/mm ²		°C	B126
Max. allowable service temperature in air:		°C	120
Min. service temperature		°C	-240
Flammability:			
- " "			>95%
- Oxygen Index ⁴ OI ASTM D2863			V-0
- according to UL 94 (1.5 / 3 mm thickness)			
Mechanical Properties at 23°C			
Tension test:			
- tensile stress at yield		MPa	
- tensile strengt at break	D-638	MPa	31 - 41
- tensile strain at yield	D-638	%	100 - 250
- tensile strain at break		%	
- tensile modulus of elasticity	D-638	MPa	1200 - 1400
Compression test:			
- compressive stress at 1% nominal strain	D-695	MPa	11 - 13
- compression modulus of elasticity	D-695	MPa	1400 - 1700
Flexural test:			
- flexural strength	D-790	MPa	66-71
- flexural strain at flexural strength		%	
- flexural strass at conventional deflection)		MPa	
Charpy impact strength - unnotched		kJ/m ²	
Charpy impact strength - notched		kJ/m ²	
Ball indentation hardness		MPa	
Hardness Shore		-	D80
Electrical Properties at 23°C			
Dielectric constant 10 ³ HZ	D-150		2.6
Dielectric dissipation factor 10 ³ HZ	D-150		0.02
Dielectric strength			
Short time			
4 mm thickness	D-149	V/mm	3000
68 mm thickness	D-149	V/mm	500
Volume resistivity 50% R.H.	D-257	Ohm-cm	2 x 10 ¹⁷
Surface resistivity 100% R.H	D-257	Ohm-cm	1 x 10 ¹⁵
Arc resistance	D-495	s	360
Comparative tracking index (CTI)			

Note: 1 g/cm³ = 1000 kg/m³; 1 Mpa = 1 N/mm²; 1 kV/mm = 1 MV/m

+ : Values for dry material
 ++ : Values for up to saturation in air of 23 ° C / 50%
 RF material stored (mostly derived from large)

This table is a valuable help in the choice of a material. The data listed here fall within the normal range of products properties, but they should not be used to establish material specification limits nor used alone as the basis of design.

PCTFE

PolyChloroTriFluoroEthylene is a fluorocarbon-based homopolymer. PCTFE offers the unique combination of physical and mechanical properties (including high compressive strength and low deformation under load), nonflammability, chemical resistance, near zero moisture absorption, and excellent electrical properties. These characteristics cannot be found in any other thermoplastic fluoropolymer with a useful temperature range of -240°C to +200°C. (short term). PCTFE also has extremely low outgassing and low gas permeability.