

PTFE

Polytetrafluoroethylene (virgin / unfilled PTFE)

PTFE is a high performance thermoplastic fluoropolymer. Offering excellent dielectric properties, a very low friction coefficient, excellent chemical resistance and a wide operating temperature range.

Properties	Test method	Unit	Value
Mechanical			
Tensile strength	D 4894	MPa	≥ 24
Elongation at break	D 4894	%	≥ 250
Modulus of elasticity (tensile)	D 638	MPa	550
Modulus of elasticity (flexural)	D 790	MPa	
Notch impact strength	D 256	J / m	No break
Flexural strength	D 790	MPa	620
Compressive strength (1% strain)	D 695	MPa	4
Deformation under load	D 621	D	≥ 17
Permanent deformation	D 621	M	≥ 9
Shore hardness	D 2240	MPa	≥ 55
Thermal			
Melting temperature	–	°C	327
Glass transition temperature (Tg)	–	°C	–
Thermal conductivity	C 177	W / (m * K)	0.2
Coef. of linear thermal expansion	ASTM D696	10 ⁻⁵ (mm/mm) / °C	≥ 13
Long term service temperature	–	°C	-50 → 260
Short term service temperature	–	°C	-200 → 260
Heat deflection temperature	DIN 75 HDT/A	°C	100
Flammability	UL 94	–	V0
Flammability (oxygen index)	ISO 4589-1/-2	%	95
Electrical			
Dielectric constant at 1MHz	D150	10 ⁶ Hz	2,1
Dissipation factor at 1MHz	D150	10 ⁶ Hz	0,0002
Volume resistivity	D257	Ω * cm	≥ 10 ¹²
Surface resistivity	D257	Ω	≥ 10 ¹²
Dielectric strength	D149	kV / mm	48
Tracking resistance (CTI)	–	V	–
Additional Data			
Density	D 792	g / cm ³	2,14 - 2,18
Water absorption (saturation)	D 570	%	0,05
Humidity absorption (saturation)	D 570	%	0,01
Food compliance	EEC	–	Yes
Food compliance	FDA	–	Yes
Coefficient of Friction (dynamic)	D 1894	–	0,06
Shapes	Rod (3 → 200 Ø)	Sheet (0,5 → 100)	Tube (on request)
Colour	White		

- **PTFE** offers great resistance to fatigue and retention of flexural and tensile properties at high temperatures.

The conditioned material values stated are average test results. The data provides information about our products and offers a guide for material selection. This does not provide an assurance of specific properties or the products suitability for a particular application.

It solely remains the customers responsibility to test and assess the suitability and compatibility of Plastim's products for its intended applications, processes and uses. The customer undertakes all liability in respect of the application, processing or use of the aforementioned information or product.

- * Long term service temperature are based on the thermal ageing of the polymer by oxidation, resulting in a decrease in mechanical capabilities
- * Short term service temperature only applies to very low mechanical stress for a very limited time only.

Properties can vary depending on the raw shape selected and the degree of crystallisation. The actual property values of a finished product may differ from the indicated values stated.