Material: Polytetrafluoreethylen
Abbreviation: PTFE

Licharz engineering plastics

Short description of Material:

A high crystalline fluoropolymer with excellent sliding properties, an anti-adhesive surface, the best insulating properties and an almost universal chemical resistance. Disadvantages are its low mechanical strength and high specific weight.

Colours: natural (white)

Application examples:

- bearings
- bushings
- shaft seals
- piston rings
- insulators
- thread guides

		dry	
Mechanical values			
Density	ISO 1183	2,18	g/cm³
Yield stress	ISO 527	25	MPa
Elongation due to tearing	ISO 527	380	%
Modulus of elasticity resulting from tensile test	ISO 527	750	MPa
Modulus of elasticity resulting from bending test	ISO 178	540	MPa
Flexural strength	ISO 178	6	MPa
Impact strength[1)]	ISO 179	o.B.	kJ/m²
Notched-bar impact strength	ISO 179	16	kJ/m²
Ball indentation hardness $H_{358/30}$	ISO 2039-1	30	MPa
Creep rate stress at 1% elongation[2)]	DIN 53 444	1,5	MPa
Sliding friction coefficient against steel (dry running)[3)]	—	0,08	—
Sliding wear against steel (dry running)[3)]	—	21,0	µm/km
Thermal values			
Melting temperature	ISO 3146	+ 327	°C
Thermal conductivity	DIN 52 612	0,23	W/(K·m)
Specific thermal capacity	—	1	J/(g·K)
Coefficient of linear expansion[4)]	—	18 - 20	$10^{-5}\cdot K^{-1}$
Operating temperature range (long-term)[5)]	—	- 200 / + 260	°C
Operating temperature range (short-term)[5)]	—	+ 280	°C
Fire behaviour	UL 94	V-0	—
Electrical values			
Dielectric constant[6)]	IEC 250	2,1	—
Dielectric loss factor[6)]	IEC 250	0,0005	—
Specific volume resistance	IEC 93	10^{18}	Ω·cm
Surface resistance	IEC 93	10^{17}	Ω
Dielectric strength	IEC 243	40	KV/mm
Creep current resistance	IEC 112	KA 3C / KB >600	—
Miscellaneous data			
Moisture absorption in normal climate until saturated	DIN 53 715	< 0,01	%
Water absorption until saturated	ISO 62	< 0,01	%

[1)]: Measured with a pendulum impact testing machine 0,1 DIN 51 222
[2)]: Tension resulting in 1% total elongation after 1.000 h
[3)]: against steel, hardened and ground , P = 0,05 MPa, V = 0,6 m/s, t = 60 °C near runnig surface
[4)]: For a temperature range of + 23 °C to + 60 °C
[5)]: Experience values established with finished parts that are not under any stress in heated air, depending on the type and form of heat exposure, short-term = max. 1 h, long-term = months
[6)]: at 10^6 Hz

w.b. = without breakage
1 MPa = 1 N/mm²
1 g/cm³ = 1.000 kg/m³
1 kV/mm = 1 MV/m

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