PTFE 500.004-00

Angst+Pfister

Engineering plastics technology
Technical Data Sheet

Application purpose and characteristics
PTFE 500 is subject to nine times less deformation under load than unfilled PTFE. Its linear coefficient of thermal expansion is close to that of aluminum and is four times lower than that of unfilled PTFE. PTFE 500 is significantly harder than unfilled PTFE. But has improved wear resistance while maintaining virtually the same coefficient of friction and does not attack most mating surfaces.
PTFE 500 offers a unique combination of stability and wear resistance for sealing and bearing applications where strict dimensional accuracy is required.

Material name, short description	PTFE
Material name, based on technical standards	Polytetrafluorethylene
Density	2.32 g/cm³
Color	natural (ivory)
Compound code	PTFE 500.004-00
Compound	PTFE + mica

Mechanical properties

Modulus of elasticity & tension 1	1750 N/mm² ISO 527-1,-2
Tensile strength	7 N/mm² ISO 527-1,-2
Shear strength	14 N/mm² ASTM D 732
Elongation at break	15 % ISO 527-1,-2
Elongation at yield	5 % ISO 527-1,-2
Bending stress	13 N/mm² ISO 178
Compressive strength 1	12 N/mm² ISO 604 1 / 2 / 5 % nominal strain
Compressive strength 2	19 N/mm² ISO 604 1 / 2 / 5 % nominal strain
Compressive strength 3	25 N/mm² ISO 604 1 / 2 / 5 % nominal strain
Impact strength	8 kJ/m² ISO 179-1/1eU
Notch impact strength	4.5 kJ/m² ISO 179-1/1eA
Friction coefficient (dynamic)	0.2 to 0.3 ISO 7148-2
Sliding wear	12 µm/km ISO 7148-2

Other attributes

Oxygen index	95 % ISO 4589-1, -2

Thermal attributes

Min. operating temperature	-20 °C
Max. operating temperature long term	260 °C
Coefficient of linear thermal expansion 1	50 µm/(m.K) (23 to 100°C) (73°F to 210°F)
Coefficient of linear thermal expansion 2	55 µm/(m.K) (23 to 150°C) (73°F to 300°F)
Coefficient of linear thermal expansion 3	85 µm/(m.K) (>150°C) (> 300°F)
Crystalline melting point	327 °C ISO 11357-1,-3 DSC, 10 °C/min
Heat deflection temperature 1	130 °C ISO 75-1,-2 method A: 1.8 MPa (264 PSI)
Thermal conductivity	0.77 W/(m·K) W/(K.m), 23°C (73°F)

Electrical attributes

Dielectric dissipation factor 1	0.008 IEC 62631-2-1 1 MHz
Dielectric constant 1	3 IEC 62631-2-1 1 MHz
Dielectric strength 1	11 kV/mm DIN EN 60243-1
Surface resistivity	10^13 Ω ANSI/ESD STM 11.11
Volume resistivity	10^13 Ω*cm IEC 62631