

PEEK (POLYETHERETHERKETONE) MATERIAL DATA SHEET

- Very high maximum allowable service temperature in air (250°C continuously, up to 310°C for short periods of time)
- High mechanical strength, stiffness and creep resistance, also at elevated temperatures
- Excellent chemical and hydrolysis resistance
- Excellent wear & frictional behaviour
- Very good dimensional stability
- Excellent resistance to high energy radiation (gamma- and X-rays)
- Inherent low flammability and very low levels of smoke evolution during combustion

This material exhibits a unique combination of mechanical properties, temperature and chemical resistance. PEEK stock shapes very suitable for applications in the medical, pharmaceutical and biotechnology markets.

PROPERTIES	Test methods	Units	VALUES
Colour	-	-	White
Density	ISO 1183-1	g/cm ³	1.39
Water absorption:			
- after 24/96 h immersion in water of 23°C	ISO 62	mg	4 / 9
	ISO 62	%	0.05 / 0.10
- at saturation in air of 23°C / 50% RH	-	%	0.20
- at saturation in water of 23°C	-	%	0.45
Thermal Properties			
Melting temperature (DSC, 10°C/min)	ISO 11357	°C	340
Thermal conductivity at 23°C	-	W/(K.m)	0.25
Coefficient of linear thermal expansion:			
- average value between 23 and 100°C	-	m/(m.K)	50 x 10 ⁻⁶
- average value between 23 and 150°C	-	m/(m.K)	55 x 10 ⁻⁶
- average value above 150°C	-	m/(m.K)	130 x 10 ⁻⁶
Temperature of deflection under load:			
- method A: 1.8 MPa	ISO 75-1/-2	°C	165
Max. allowable service temperature in air:			
- for short periods	-	°C	310
- continuously : for min. 20,000 h	-	°C	250
Flammability			
- "Oxygen Index"	ISO 4589-1/-2	%	35
- according to UL 94 (1.5 / 3 mm thickness)	-	-	V-0 / V-0
Min. service temperature	-	°C	-50
Mechanical Properties at 23°C			
Tension test			
- tensile stress at yield	ISO 527	MPa	115
- tensile strength	ISO 527	MPa	115
- tensile strain at yield	ISO 527	%	4.5
- tensile strain at break	ISO 527	%	14
- tensile modulus of elasticity	ISO 527	MPa	4600
Flexural test			
- flexural strength	178	MPa	175
- flexural strain at flexural strength	178	%	6
- flexural stress at conventional deflection	178	MPa	140
Compression test			
- compressive stress at 1 / 2 / 5 % nominal strain	ISO 604	MPa	40 / 79 / 143
Charpy impact strength - unnotched	ISO 179-1/1eU	kJ/m ²	400
Charpy impact strength - notched	ISO 179-1/1eA	kJ/m ²	3.5
Ball indentation hardness	ISO 2039-1	MPa	190
Rockwell hardness	ISO 2039-2	-	M 105
Electrical Properties at 23 °C			
Volume resistivity	(60093)	Ohm.cm	> 10 ¹⁴
Surface resistivity	(60093)	Ohm	> 10 ¹³

Note: 1 g/cm³ = 1,000 kg/m³ ; 1 MPa = 1 N/mm² ; 1 kV/mm = 1 MV/m. NA: not applicable

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