

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
- Inherent low flammability and very low levels of smoke evolution during combustion
- PEEK natural complies with the compositional requirements of the FDA regulation 21 CFR § 177.2415 "Poly(aryletherketone) resins"

This material exhibits a unique combination of mechanical properties, temperature and chemical resistance.

PROPERTIES	Test methods	Units	VALUES
Colour	-	-	Natural
Density	ISO 1183-1	g/cm ³	1.31
Water absorption:			
- after 24/96 h immersion in water of 23°C	ISO 62	mg	5 / 10
	ISO 62	%	0.06 / 0.12
- 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	343
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
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 (1.5 / 3 mm thickness)	UL 94	-	V-0 / V-0
Min. service temperature	-	°C	-60
Mechanical Properties at 23°C			
Tension test			
- tensile stress at yield	ISO 527	MPa	110
- tensile strength	ISO 527	MPa	115
- tensile strain at yield	ISO 527	%	5
- tensile strain at break	ISO 527	%	17
- tensile modulus of elasticity	ISO 527	MPa	4000
Compression test			
- compressive stress at 1 / 2 / 5 % nominal strain	ISO 604	MPa	38 / 75 / 140
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
Shore hardness	ISO 868	Scale D	88
Electrical Properties at 23 °C			
Volume resistivity	DIN EN 62631-3-1	Ohm.cm	4.9 * 10 ¹⁶
Surface resistivity	DIN EN 62631-3-1	Ohm	10 ¹⁸
Dielectric strength	IEC 60243	kV/mm	20
Dielectric constant	IEC 60250		3.2
Dielectric dissipation factor (50 Hz)	IEC 60250		0.001

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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