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PEEK **(POLYETHERETHERKETONE)** +GF

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 behavior
- 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 30% glass fiber reinforced grade offers a higher stiffness and creep resistance than PEEK and has a much better dimensional stability. This grade is very appropriate for structural applications carrying high static loads for long periods of time at elevated temperatures. The suitability of PEEK-GF30 for sliding parts, however, is to be carefully examined since the glass fibers tend to abrade the mating surface.

PROPERTIES	Test methods	Units	VALUES
Colour	-	-	natural / black
Density	ISO 1183-1	g/cm³	1.51
Water absorption:			
- after 24/96 h immersion in water of 23°C	ISO 62	mg	5 / 10
	ISO 62	%	0.05 / 0.10
- at saturation in air of 23°C / 50% RH	-	%	0.16
- at saturation in water of 23°C	-	%	0.35
Thermal Properties			
Melting temperature (DSC, 10°C/min)	ISO 11357-1/-3	°C	340
Glass transition temperature (DSC, 20°C/min)	ISO 11357-1/-2	°C	-
Thermal conductivity at 23°C	-	W/(K.m)	0.43
Coefficient of linear thermal expansion:			
- average value between 23 and 100°C	-	m/(m.K)	30×10^{-6}
- average value between 23 and 150°C	-	m/(m.K)	30×10^{-6}
- average value above 150°C		m/(m.K)	65×10^{-6}
Temperature of deflection under load:			
- method A: 1.8 MPa	ISO 75-1/-2	°C	230
Max. allowable service temperature in air:			
- for short periods	-	°C	310
- continuously : for min. 20,000 h	-	°C	250
Min. service temperature	-	°C	-20
Flammability:			
- "Oxygen Index"	ISO 4589-1/-2	%	40
- according to UL 94 (1.5 / 3 mm thickness)	-	-	V-0 / V-0
Mechanical Properties at 23°C			
Tension test:			
- tensile stress at yield / tensile stress at break	ISO 527-1/-2	MPa	NYP / 87
- tensile strength	ISO 527-1/-2	MPa	87
- tensile strain at break	ISO 527-1/-2	%	3
- tensile modulus of elasticity	ISO 527-1/-2	MPa	7000
Compression test:			
- compressive stress at 1 / 2 % nominal strain	ISO 604	MPa	54 / 103
Charpy impact strength - unnotched	ISO 179-1/1eU	kJ/m²	25
Charpy impact strength - notched	ISO 179-1/1eA	kJ/m²	3
Ball indentation hardness	ISO 2039-1	N/mm²	215
Rockwell hardness	ISO 2039-2	-	M 100
Electrical Properties at 23 °C			
Electric strength	IEC 60243-1	kV/mm	24
Volume resistivity	IEC 60093	Ohm.cm	$> 10^{14}$
Surface resistivity	ANSI/ESD STM 11.11	Ohm/sq.	$> 10^{13}$
Relative permittivity εr : - at 100 Hz	IEC 60250	-	3.2
- at 1 MHz	IEC 60250	-	3.6
Dielectric dissipation factor tan δ: - at 100 Hz	IEC 60250	-	0.001
- at 1 MHz	IEC 60250	-	0.002
Comparative tracking index (CTI)	IEC 60112175		

Note: 1 g/cm³ = 1,000 kg/m³ ; 1 MPa = 1 N/mm² ; 1 kV/mm = 1 MV/m.