

Physical properties PEEK Classix white

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 / 0.11
- 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 11357-1/-3	°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
Min. service temperature	-	°C	-50
Flammability:			
- „Oxygen Index“	ISO 4589-1/-2	%	35
- according to UL 94 (1.5 / 3 mm thickness)	--	-	V-0 / V-0
Mechanical Properties at 23°C			
Tension test:			
- tensile stress at break	ISO 527-1/-2	MPa	115
- tensile strength	ISO 527-1/-2	MPa	115
- tensile strain at yield	ISO 527-1/-2	%	4.5
- tensile strain at break	ISO 527-1/-2	%	14
- tensile modulus of elasticity	ISO 527-1/-2	MPa	4600
Compression test:			
- compressive stress at 1 / 2 / 5% nominal strain	ISO 604	MPa	40 / 79 / 143
Flexural test:			
- flexural strength	178	MPa	175
- flexural strain at flexural strength	178	%	6
- flexural stress at conventional deflection)	178	MPa	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
Ball indentation hardness	ISO 2039-1	MPa	190
Rockwell hardness	ISO 2039-2	-	M 105
Electrical Properties at 23°C			
Electrical strength	IEC 60243	kV/mm	-
Volume resistivity	IEC 60093	Ohm.cm	> 10 ¹⁴
Surface resistivity	IEC 60093	Ohm	> 10 ¹³

Note: 1 g/cm³ = 1000 kg/m³; 1 Mpa = 1 N/mm²; 1 kV/mm = 1 MV/m.

Certifications on biocompatibility type testing
USP Class VI; ISO 10993-4 (hemocompatibility); ISO 10993-5 (cytotoxicity); ISO 10993-10 (intracutaneous reactivity & sensitization); ISO 10993-11 (acute systemic toxicity)

This table is a valuable help in the choice of a material. The data listed here fall within the normal range of products properties, but they should not be used to establish material specification limits nor used alone as the basis of design.

PEEK-CLASSIX white

Stock shapes are produced from Invbio PEEK-CLASSIX White resin. This material exhibits a unique combination of mechanical properties, temperature and chemical resistance. The composition of the Invbio PEEK-CLASSIX White resin complies with the regulations that apply in the Member States of the European Union (Directive 2002/72/EC, as amended) and in the United States of America (FDA) for plastic materials and articles intended to come into contact with foodstuffs. PEEK-CLASSIX stock shapes have also been successfully type tested for their compliance with both United States Pharmacopeia (USP) an ISO 10993-1 guideline requirements for Biocompatibility Testing of Materials, and they come with full traceability from resin to stock shape. These features, added to an excellent sterilizability by means of steam, dry heat, ethylene oxide, plasma and gamma irradiation, make PEEK-CLASSIX stock shapes very suitable for applications in the medical, pharmaceutical and biotechnology markets.