PROTOTAL | UK

MATERIAL DATA SHEET: PEEK

DESCRIPTION:

Polyetheretherketone (PEEK) is a semi-crystalline, high-performance engineering thermoplastic. It belongs to polyketone family of polymers (PEK, PEEK, PEEKK, PEKK, PEKEKK) and amongst them, it is the most widely used and manufactured in large scale.

PEEK offers a unique combination of mechanical properties such as resistance to chemicals, wear, fatigue and creep, as well as exceptionally high-temperature resistance. It also has good resistance to combustion and good electrical performance.

The high thermal stability is provided by the diphenylene ketone groups, which impart high strength and high resistance to oxidation. Flexibility in the polymer backbone is provided by ether linkages. Due to the semi-crystalline nature of this polymer, its low tendency to creep, and its good sliding and wear, properties are retained over a wide temperature range.

PEEK is known for its excellent chemical resistance to many organic and inorganic chemicals and for its exceptionally good resistance to hydrolysis in hot water. For this reason, the polymer is often subjected to autoclave processes.

MATERIAL SPECIFICATION:

Property	Operating Conditions	Units	Orientation				Test Method
			XZ	XY 0°	XY 45°	ZX	
Tensile Strength	25°C	MPa	95	89.9	87.4	53	ASTM D638
Tensile Modulus	25°C	GPa	3.5	3.5	3.4	3.3	ASTM D638
Heat Deflection Temperature	1.82 MPa	°C			161		ASTM D648
Property		**Units**	**Value**				**Test method**
Specific Density		g/cm³	1.31				ISO 1183-3
Colour		N/A	Beige				N/A