

# MATERIAL DATA SHEET

Carbon PEEK - Victrex 450CA30  
Glass-Fiber 30%

Color: Black 

	Conditions	Test Method	Value
<b>Physical Properties</b>			
<b>Density/Specific Gravity</b> Density is the mass per unit volume of a material. Specific gravity is a measure of the ratio of mass of a given volume of material at 23°C to the same volume of deionized water.	Crystalline	ISO 1138	1.40 g cm <sup>-3</sup>
<b>Water Absorption</b> Polymers have a tendency to soak up water and this propensity may lead to an alteration of the properties of the plastic.	24 hr Immersion	ISO 62-1	0.04%
<b>Shore D Hardness</b> Measures the depth of penetration of a specific indenter. Shore Hardness measures are dimensionless. It goes between 0 and 100. The higher number represents the harder material.	23°C	ISO 868	88
<b>Mechanical Properties</b>			
<b>Tensile Modulus</b> The ratio of stress to elastic strain in tension. A high tensile modulus means that the material is rigid - more stress is required to produce a given amount of strain.	23°C	ISO 527	25 GPa
<b>Tensile Strength @ Break</b> The force per unit area (MPa or psi) required to break a material in such a manner.	23°C 125°C 175°C 275°C	ISO 527 ISO 527 ISO 527 ISO 527	260 MPa 160 MPa 85 MPa 50 MPa
<b>Tensile Strain @ Break (Elongation)</b> The elongation of plastic is the percentage increase in length that occurs before it breaks under tension. Rigid plastics, especially fiber reinforced ones, often exhibit values under 5%. The combination of high tensile strength and high elongation leads to materials of high toughness.	23°C	ISO 527	1.70%
<b>Flexural Modulus</b> An intensive property that is computed as the ratio of stress to strain in flexural deformation, or the tendency for a material to resist bending.	23°C	ISO 178	23 GPa
<b>Flexural Strength</b> The flexural strength of a material is defined as its ability to resist deformation under load.	23°C 125°C 175°C 275°C	ISO 178 ISO 178 ISO 178 ISO 178	380 MPa 250 MPa 120 MPa 60 MPa
<b>Charpy Notched Impact Strength</b> Used to determine the toughness. A standardized high strain-rate impact test which determines the amount of energy absorbed by a material during fracture. The notch is machined forcing a break at a specific location.	23°C	ISO 179/1eA	7.0 kJ m <sup>-2</sup>



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<p><b>Charpy Unnotched Impact Strength</b> Used to determine the toughness. A standardized high strain-rate impact test which determines the amount of energy absorbed by a material during fracture.</p>	23°C	ISO 179/1U	45 kJ m <sup>-2</sup>
<p><b>Izod Notched Impact Strength</b> The toughness of a plastic is measured by its resistance to impacts. It is the ability of a material to resist both fracture and deformation. The notch is machined forcing a break at a specific location.</p>	23°C	ISO 180/A	9.5 kJ m <sup>-2</sup>
<p><b>Izod Unnotched Impact Strength</b> The toughness of a plastic is measured by its resistance to impacts. It is the ability of a material to resist both fracture and deformation.</p>	23°C	ISO 180/U	45 kJ m <sup>-2</sup>
<b>Thermal Data</b>			
<p><b>Melting Point</b> The temperature at which the plastic melts from solid to liquid form.</p>	-	ISO 11357	343°C
<p><b>Coefficient of Thermal Expansion</b> The ability of a plastic to expand under the effect of temperature elevation. It tells you how much the developed part will remain dimensionally stable under temperature variations.</p>	Along flow below 143°C Average flow below 143°C Along flow above 143°C Average flow above 143°C	ISO 11359 ISO 11359 ISO 11359 ISO 11359	5 ppm K <sup>-1</sup> 40 ppm K <sup>-1</sup> 6 ppm K <sup>-1</sup> 100 ppm K <sup>-1</sup>