

# VICTREX<sup>®</sup> PEEK 450G

## Product Description:

High performance thermoplastic material, unreinforced PolyEtherEtherKetone (PEEK), semi crystalline, granules for injection moulding and extrusion, standard flow, FDA food contact compliant, colour natural/beige.

## Typical Application Areas:

Applications for higher strength and stiffness as well as high ductility. Chemically resistant to aggressive environments, suitable for sterilisation for medical and food contact applications.

## Material Properties

	CONDITIONS	TEST METHOD	UNITS	TYPICAL VALUE
<b>Mechanical Data</b>				
Tensile Strength	Yield, 23°C	ISO 527	MPa	100
Tensile Elongation	Break, 23°C	ISO 527	%	45
Tensile Modulus	23°C	ISO 527	GPa	3.7
Flexural Strength	At 3.5% strain, 23°C	ISO 178	MPa	125
	At yield, 23°C			165
	125°C			85
	175°C			18
	275°C			13
Flexural Modulus	23°C	ISO 178	GPa	4.1
Compressive Strength	23°C	ISO 604	MPa	125
	120°C			70
Charpy Impact Strength	Notched, 23°C	ISO 179/1eA	kJ m <sup>-2</sup>	7.0
	Unnotched, 23°C	ISO 179/U		n/b
Izod Impact Strength	Notched, 23°C	ISO 180/A	kJ m <sup>-2</sup>	7.5
	Unnotched, 23°C	ISO 180/U		n/b
<b>Thermal Data</b>				
Melting Point		ISO 11357	°C	343
Glass Transition (Tg)	Onset	ISO 11357	°C	143
Specific Heat Capacity	23°C	DSC	kJ kg <sup>-1</sup> °C <sup>-1</sup>	2.2
Coefficient of Thermal Expansion	Along flow below Tg	ISO 11359	ppm K <sup>-1</sup>	45
	Average below Tg			55
	Along flow above Tg			120
	Average above Tg			140
Heat Deflection Temperature	1.8 MPa	ISO 75-f	°C	152
Thermal Conductivity	23°C	ISO 22007-4	W m <sup>-1</sup> K <sup>-1</sup>	0.29
Relative Thermal Index	Electrical	UL 746B	°C	260
	Mechanical w/o impact			240
	Mechanical w/impact			180
<b>Flow</b>				
Melt Viscosity	400°C	ISO 11443	Pa.s	350
<b>Miscellaneous</b>				
Density	Crystalline	ISO 1183	g cm <sup>-3</sup>	1.30
	Amorphous			1.26
Shore D hardness	23°C	ISO 868		84.5
Water Absorption (3.2mm thick Tensile bar)	24h, 23°C	ISO 62-1	%	0.07
(by immersion)	Equilibrium, 23°C			0.4

Electrical Properties				
Dielectric Strength	2mm thickness	IEC 60243-1	kV mm <sup>-1</sup>	23
	50µm thickness			190
Comparative Tracking Index		IEC 60112	V	150
Loss Tangent	23°C, 1MHz	IEC 60250	n/a	0.004
Dielectric Constant	23°C, 1kHz	IEC 60250	n/a	3.1
	23°C, 50Hz			3.0
	200°C, 50Hz			4.5
Volume Resistivity	23°C	IEC 60093	Ω cm	10 <sup>16</sup>
	125°C			10 <sup>15</sup>
	275°C			10 <sup>9</sup>

Fire Smoke Toxicity				
Glow Wire Test	2mm thickness	IEC 60695-2-12	°C	960
Limiting Oxygen Index	0.4mm thickness	ISO 4589	% O <sub>2</sub>	24
	3.2mm thickness			35
Toxicity Index	CO content	NES 713	n/a	0.074
	CO <sub>2</sub> content			0.15
	Total gases			0.22

Recommended Processing Conditions	
Drying Temperature / Time	150°C / 3h or 120°C / 5h
Temperature settings	355 / 360 / 365 / 370 / 375°C (Nozzle)
Hopper Temperature	Not greater than 100°C
Mould Temperature	170°C - 200°C (max 250°C)
Runner	Die / nozzle >3mm, manifold >3.5mm
Gate	>1mm or 0.5 x part thickness

Mould Shrinkage and Spiral Flow					
Spiral Flow	375°C nozzle, 180°C tool	1mm thick section	Victrex	mm	110
Mould Shrinkage	375°C nozzle, 180°C tool	Along flow	ISO 294-4	%	1.0
		Across flow			1.3

#### Important note:

Data are generated in accordance with prevailing national, international and internal standards, and should be used for material comparison. Actual property values are highly dependent on part geometry, mould configuration and processing conditions. Properties may also differ for along flow and across flow directions

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