

## VICTREX® PEEK 650G

### ➤ Product Description:

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

### ➤ Typical Application Areas:

Applications for higher strength and stiffness as well as enhanced 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	95
Tensile Elongation	Break, 23°C	ISO 527	%	60
Tensile Modulus	23°C	ISO 527	GPa	3.9
Flexural Strength	At 3.5% strain, 23°C	ISO 178	MPa	120
	At yield, 23°C			155
	125°C			85
	175°C			16
Flexural Modulus	275°C			9
	23°C	ISO 178	GPa	3.6
	23°C	ISO 604	MPa	120
Compressive Strength	120°C			65
	Notched, 23°C	ISO 180/A	kJ m <sup>-2</sup>	9.5
Izod Impact Strength	Unnotched, 23°C	ISO 180/U		n/b
	Notched, 23°C	ISO 179/eA	kJ m <sup>-2</sup>	10
Charpy Impact Strength	Unnotched, 23°C	ISO 179/U		n/b
<b>Thermal Data</b>				
Melting Point		ISO 11357	°C	343
Glass Transition (Tg)	Onset	ISO 11357	°C	143
	Midpoint			150
Coefficient of Thermal Expansion	Along flow below Tg	ISO 11359	ppm K <sup>-1</sup>	45
	Average below Tg			65
	Along flow above Tg			125
	Average above Tg			160
Heat Deflection Temperature	As moulded, 1.8 MPa	ISO 75-f	°C	152
	Annealed 200°C / 4h, 1.8MPa			168
Thermal Conductivity	Along flow, 23°C	ISO 22007-4	W m <sup>-1</sup> K <sup>-1</sup>	0.32
	Average, 23°C			0.29
<b>Flow</b>				
Melt Viscosity	400°C	ISO 11443	Pa.s	475
<b>Miscellaneous</b>				
Density	Crystalline	ISO 1183	g cm <sup>-3</sup>	1.30
Shore D hardness	23°C	ISO 868		84
Water Absorption by immersion	Saturation, 23°C	ISO 62-1	%	0.45 *
	Saturation, 100°C			0.55 *

Electrical Properties				
Dielectric Strength	2mm thickness	IEC 60243-1	kV mm <sup>-1</sup>	23
Comparative Tracking Index		IEC 60112	V	150
Loss Tangent	23°C, 1MHz	IEC 60250	n/a	0.005
Dielectric Constant	23°C, 50Hz	IEC 60250	n/a	3.1
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 *

\* Result based on similar products

Typical Processing Conditions	
Drying Temperature / Time	150°C / 3h or 120°C / 5h
Temperature settings	375 / 380 / 385 / 390 / 395°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	395°C nozzle, 180°C tool	1mm thick section	Victrex	mm	125
		3mm thick section			630
Mould Shrinkage	415°C nozzle, 180°C tool	3mm thick section	ISO 294-4	%	700
	395°C nozzle, 180°C tool	Along flow			0.8
		Across flow			1.3

### Moulding Guidelines

Best results are obtained by using slower injection speed and higher hold pressures than for 450G

#### Important notes:

- Processing conditions quoted in our datasheets are typical of those used in our processing laboratories  
*Data for mould shrinkage should be used for material comparison. Actual mould shrinkage values are highly dependent on part geometry, mould configuration, and processing conditions.*  
*Mould shrinkage differs for along flow and across flow directions. "Along flow" direction is taken as the direction the molten material is travelling when it exits the gate and enters the mould.*  
*Mould shrinkage is expressed as a percent change in dimension of a specimen in relation to mould dimensions.*
- 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

Detailed data available on our website [www.victrex.com](http://www.victrex.com) or upon request

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