

## 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
Compressive Strength	23°C	ISO 604	MPa	120
	120°C			65
Izod Impact Strength	Notched, 23°C	ISO 180/A	kJ m <sup>-2</sup>	9.5
	Unnotched, 23°C	ISO 180/U		n/b
Charpy Impact Strength	Notched, 23°C	ISO 179/eA	kJ m <sup>-2</sup>	10
	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, 1kHz	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 *

\* 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
	415°C nozzle, 180°C tool	3mm thick section			700
Mould Shrinkage	395°C nozzle, 180°C tool	Along flow	ISO 294-4	%	0.9
		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

#### World Headquarters

Victrex plc, Hillhouse International, Thornton Cleveleys, Lancashire FY5 4QD United Kingdom

Tel: + (44) 1253 897700 Fax: + (44) 1253 897701 Email: [victrexplc@victrex.com](mailto:victrexplc@victrex.com)

VICTREX PLC BELIEVES THAT THE INFORMATION CONTAINED IN THIS BROCHURE IS AN ACCURATE DESCRIPTION OF THE TYPICAL CHARACTERISTICS AND/OR USES OF THE PRODUCT OR PRODUCTS. BUT IT IS THE CUSTOMER'S RESPONSIBILITY TO THOROUGHLY TEST THE PRODUCT IN EACH SPECIFIC APPLICATION TO DETERMINE ITS PERFORMANCE, EFFICACY AND SAFETY FOR EACH END-USE PRODUCT, DEVICE OR OTHER APPLICATION. SUGGESTIONS OF USES SHOULD NOT BE TAKEN AS INDUCEMENTS TO INFRINGE ANY PARTICULAR PATENT. THE INFORMATION AND DATA CONTAINED HEREIN ARE BASED ON INFORMATION WE BELIEVE RELIABLE. MENTION OF A PRODUCT IN THIS DOCUMENTATION IS NOT A GUARANTEE OF AVAILABILITY. VICTREX PLC RESERVES THE RIGHT TO MODIFY PRODUCTS, SPECIFICATIONS AND/OR PACKAGING AS PART OF A CONTINUOUS PROGRAM OF PRODUCT DEVELOPMENT. VICTREX® IS A REGISTERED TRADEMARK OF VICTREX MANUFACTURING LIMITED. VICTREX PIPES™ IS A TRADEMARK OF VICTREX MANUFACTURING LIMITED. PEEK-ESD™, HT™, ST™ AND WG™ ARE TRADEMARKS OF VICTREX PLC. VICOTE® AND APTIV® ARE REGISTERED TRADEMARKS OF VICTREX PLC.

VICTREX PLC MAKES NO WARRANTIES, EXPRESS OR IMPLIED, INCLUDING, WITHOUT LIMITATION, A WARRANTY OF FITNESS FOR A PARTICULAR PURPOSE OR OF INTELLECTUAL PROPERTY NON-INFRINGEMENT, INCLUDING, BUT NOT LIMITED TO PATENT NON-INFRINGEMENT, WHICH ARE EXPRESSLY DISCLAIMED, WHETHER EXPRESS OR IMPLIED, IN FACT OR BY LAW. FURTHER, VICTREX PLC MAKES NO WARRANTY TO YOUR CUSTOMERS OR AGENTS, AND HAS NOT AUTHORIZED ANYONE TO MAKE ANY REPRESENTATION OR WARRANTY OTHER THAN AS PROVIDED ABOVE. VICTREX PLC SHALL IN NO EVENT BE LIABLE FOR ANY GENERAL, INDIRECT, SPECIAL, CONSEQUENTIAL, PUNITIVE, INCIDENTAL OR SIMILAR DAMAGES, INCLUDING WITHOUT LIMITATION, DAMAGES FOR HARM TO BUSINESS, LOST PROFITS OR LOST SAVINGS, EVEN IF VICTREX HAS BEEN ADVISED OF THE POSSIBILITY OF SUCH DAMAGES, REGARDLESS OF THE FORM OF ACTION.