

VICTREX® 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 sterilization for medical and food contact applications.

➤ **Material Properties**

	CONDITIONS	TEST METHOD	UNITS	TYPICAL VALUE
Mechanical Data				
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	23°C	ISO 178	MPa	165
	125°C			85
	140°C			60
	150°C			38
	165°C			20
	185°C			18
	275°C			13
Flexural Modulus	23°C	ISO 178	GPa	4.1
Compressive Strength	23°C	ISO 604	MPa	120
	120°C			70
Charpy Impact Strength	Notched, 23°C	ISO 179/1eA	kJ m ⁻²	7.0
Izod Impact Strength	Notched, 23°C	ISO 180/A	kJ m ⁻²	7.5
	Unnotched, 23°C	ISO 180/U		n/b
Thermal Data				
Melting Point		ISO 11357	°C	343
Glass Transition (Tg)	Onset	ISO 11357	°C	143
Specific Heat Capacity	23°C	DSC	kJ kg ⁻¹ °C ⁻¹	2.2
Coefficient of Thermal Expansion	Along flow below Tg	ISO 11359	ppm °C ⁻¹	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/CD 22007-4	W m ⁻¹ °C ⁻¹	0.29
Continuous Use Temperature	Electrical	UL 746B	°C	260
	Mechanical w/o impact			240
	Mechanical w/impact			180
Flow				
Melt Viscosity	400°C	ISO 11443	Pa.s	350

Miscellaneous				
Density	Crystalline	ISO 1183	g cm ⁻³	1.30
	Amorphous			1.26
Shore D hardness	23°C	ISO 868		87
Water Absorption (3.2mm thick Tensile bar) (by immersion)	24h, 23°C	ISO 62-1	%	0.07
	Equilibrium, 23°C			0.4

Electrical Properties				
Dielectric Strength	2.5mm thickness	IEC 60243-1	kV mm ⁻¹	16
	50µm thickness			190
Comparative Tracking Index		IEC 60112	V	150
Loss Tangent	23°C, 1MHz	IEC 60250	n/a	0.003
Dielectric Constant	23°C, 50Hz	IEC 60250	n/a	3.2
	200°C, 50Hz			4.5
Volume Resistivity	23°C	IEC 60093	Ωcm	10 ¹⁶
	125°C			10 ¹⁵
	275°C			10 ⁹

Fire Smoke Toxicity				
Flammability Rating		UL94	n/a	V-0 @ 1.5 mm
Glow Wire Test	2mm thickness	IEC 60695-2-12	°C	960
Limiting Oxygen Index	0.4mm thickness	ISO 4239	% O ₂	24
	3.2mm thickness			35
Toxicity Index	CO content	NES 713	n/a	0.074
	CO ₂ 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

Detailed data available on our website 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

VICTREX PLC BELIEVES THAT THE INFORMATION CONTAINED HEREIN 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. PEEK™, APTIV™, PEEK-ESD™, T-SERIES™, PEEK-HT™ ARE TRADEMARKS OF VICTREX PLC. VICOTE® IS A REGISTERED TRADEMARK 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.

