

VICTREX™ PEEK POLYMER 450GL15

General Information

Product Description

High performance thermoplastic material, 15% glass fibre reinforced PolyEtherEtherKetone (PEEK), semi crystalline, granules for injection moulding and extrusion, standard flow, colour natural/beige.

Applications for higher strength in a static system. Low coefficient of thermal expansion. Chemically resistant to aggressive environments, suitable for sterilization for medical and food contact applications.

Molding Shrinkage² ISO 294-4 Across Flow 0.90 % Flow 0.50 % Water Absorption (Saturation, 23°C) 0.40 % ISO 62 Water Absorption Saturation (100°C) 0.50 % ISO 62 Water Absorption Saturation (100°C) Nominal Value Unit Test Method Mechanical Nominal Value Unit Test Method Tensile Stress Tensile Stress Wa ISO 527-1 Break, 23°C 145 MPa MPa Break, 175°C 80.0 MPa ISO 527-2 Break, 175°C 40 % ISO 527-2 Flexural Modulus (23°C) 720 MPa ISO 178 Flexural Stress (23°C) 240 MPa ISO 178 Compressive Stress 23°C 40 MPa ISO 178 23°C 23°C 240 MPa ISO 178 20°C 23°C 240 MPa ISO 179/16A 20°C 10 MPa ISO 179/16A <th>Physical</th> <th>Nominal Value</th> <th>Unit</th> <th>Test Method</th>	Physical	Nominal Value	Unit	Test Method
Molding Shrinkage 2	Density (Crystalline)	1.38	g/cm³	ISO 1183
Across Flow	Spiral Flow ¹	10.0	cm	Internal Method
Flow 0.50 %	Molding Shrinkage ²			ISO 294-4
Water Absorption (Saturation, 23°C) 0.40 % ISO 62 Water Absorption - Saturation (100°C) 0.50 % ISO 62 Mechanical Nominal Value Unit Test Method Tensile Modulus (23°C) 750 MPa ISO 527-2 Tensile Stress 145 MPa ISO 527-2 Break, 23°C 80 MPa ISO 527-2 Break, 125°C 80 MPa ISO 527-2 Break, 175°C 450 MPa ISO 527-2 Tensile Strain (Break, 23°C) 450 MPa ISO 178 Tensile Strain (Break, 23°C) 720 MPa ISO 178 120°C 130 MPa ISO 178 120°C 130 MPa ISO 179/120 Charpy Motched Impact Strength (23°C) 55 I/m² ISO 179/120	Across Flow	0.90	%	
Water Absorption - Saturation (100°C) 150 62 Mechanical Nominal Value Unit Test Method Tensile Modulus (23°C) 7500 MPa 150 527-1 Tensile Stress 145 MPa 150 527-2 Break, 23°C 800 MPa 150 527-2 Break, 175°C 800 MPa 150 527-2 Break, 275°C 250 MPa 150 178 Tensile Strain (Break, 23°C) 720 MPa 150 178 Flexural Modulus (23°C) 720 MPa 150 178 Flexural Stress (23°C) 720 MPa 150 178 Elevarial Stress (23°C) 200 MPa 150 178 Compressive Stress 23°C 200 MPa 150 178 120°C 130 MPa 150 178 120°C 130 MPa 150 179/16a Charpy Notched Impact Strength (23°C) 55 M/m² 150 179/16a Charpy Unnotched Impact Strength (23°C) 50 M/m² 150 180 Alardhess Nom	Flow	0.50	%	
Mechanical Nominal Value Unit Test Method Tensile Modulus (23°C) 7500 MPa 150 527-1 Tensile Stress 145 MPa 150 527-2 Break, 23°C 145 MPa 150 527-2 Break, 125°C 450 MPa 150 527-2 Break, 275°C 250 MPa 150 527-2 Flexural Modulus (23°C) 7200 MPa 150 178 Flexural Stress (23°C) 240 MPa 150 178 Compressive Stress 200 MPa 150 604 23°C 200 MPa 150 604 120°C 130 MPa 150 604 23°C 200 MPa 150 604 120°C 130 MPa 150 179/164 Charpy Notched Impact Strength (23°C) 55 I/m² 150 179/164 Charpy Unnotched Impact Strength (23°C) 60 I/m² 150 179/164 Value 150 179/164 150 179/164 150 179/164 Shore Hardness (Shore D, 23°C) 60	Water Absorption (Saturation, 23°C)	0.40	%	ISO 62
Tensile Modulus (23°C)	Water Absorption - Saturation (100°C)	0.50	%	ISO 62
Tensile Stress	Mechanical	Nominal Value	Unit	Test Method
Break, 23°C 145 MPa Break, 125°C 80.0 MPa Break, 175°C 45.0 MPa Break, 275°C 25.0 MPa Tensile Strain (Break, 23°C) 7200 MPa ISO 527-2 Flexural Modulus (23°C) 7200 MPa ISO 178 Flexural Stress (23°C) 240 MPa ISO 178 Compressive Stress 200 MPa ISO 604 23°C 200 MPa MPa 120°C 130 MPa MPa 200°C MPa ISO 179/1eA Charpy Notched Impact Strength (23°C) 55 K/m² ISO 179/1eA Charpy Unnotched Impact Strength (23°C) 60.0 k/m² ISO 180/A Vonched Izod Impact Strength (23°C) 7.0 k/m² ISO 180/A Vonched Izod Impact Strength (23°C) 86.0 ISO 868 Vertach Nominal Value Incompressive Stream ISO 180 Vertach Nominal Value Incompressive Stream ISO 180 Vertach	Tensile Modulus (23°C)	7500	MPa	ISO 527-1
Break, 125°C 80.0 MPa Break, 175°C 45.0 MPa Tensile Strain (Break, 23°C) 40.0 % ISO 527-2 Flexural Modulus (23°C) 7200 MPa ISO 178 Flexural Stress (23°C) 240 MPa ISO 178 Compressive Stress 200 MPa ISO 604 23°C 200 MPa MPa 120°C 130 MPa MPa 200°C 40.0 MPa ISO 179/1eA Charpy Notched Impact Strength (23°C) 5.5 kJ/m² ISO 179/1eA Charpy Unnotched Impact Strength (23°C) 5.5 kJ/m² ISO 179/1eA Voltage Impact Strength (23°C) 7.0 kJ/m² ISO 180/A Unnotched Izod Impact Strength (23°C) 60.0 kJ/m² ISO 180 Mardess Nominal Value Int Test Method Shore Hardness (Shore D, 23°C) 80.0 Impact Method Impact Method Deflection Temperature Under Load 298 °C Impact Method 1.8 MPa, U	Tensile Stress			ISO 527-2
Break, 175°C 45.0 MPa Break, 275°C 25.0 MPa Tensile Strain (Break, 23°C) 4.0 % ISO 527-2 Flexural Modulus (23°C) 7200 MPa ISO 178 Flexural Stress (23°C) 240 MPa ISO 178 Compressive Stress 180 MPa ISO 604 23°C 130 MPa MPa 120°C 130 MPa MPa 200°C 40.0 MPa MPa Charpy Notched Impact Strength (23°C) 5.5 kl/m² ISO 179/1eA Charpy Unnotched Impact Strength (23°C) 5.5 kl/m² ISO 179/1eA Voltage Unnotched Impact Strength (23°C) 60.0 kl/m² ISO 180/A Unnotched Izod Impact Strength (23°C) 60.0 kl/m² ISO 180/A Value Nominal Value Unit Test Method Shore Hardness (Shore D, 23°C) 80.0 ISO 868 Teermal Nominal Value Unit Test Method Thermal Nominal Value Unit	Break, 23°C	145	MPa	
Break, 275°C 25.0 MPa Tensile Strain (Break, 23°C) 4.0 % ISO 527-2 Flexural Modulus (23°C) 7200 MPa ISO 178 Flexural Stress (23°C) 240 MPa ISO 178 Compressive Stress 200 MPa ISO 604 23°C 200 MPa MPa 120°C 310 MPa MPa 200°C 40.0 MPa MPa Charpy Notched Impact Strength (23°C) 5.5 kJ/m² ISO 179/1ex Charpy Unnotched Impact Strength (23°C) 60.0 kJ/m² ISO 180/A Unnotched Izod Impact Strength (23°C) 60.0 kJ/m² ISO 180/A Variandess Nominal Value Unit Test Method Shore Hardness (Shore D, 23°C) 8.0 ISO 180 ISO 180 Termal Nominal Value Unit Test Method Shore Hardness (Shore D, 23°C) 8.0 ISO 180 Test Method 18.0 Test Method Test Method 18.0 Test Method	Break, 125°C	80.0	MPa	
Tensile Strain (Break, 23°C) 4.0 % ISO 527-2 Flexural Modulus (23°C) 7200 MPa ISO 178 Flexural Stress (23°C) 240 MPa ISO 178 Compressive Stress 200 MPa ISO 604 23°C 200 MPa 130 MPa 120°C 130 MPa 140 MPa 200°C 40.0 MPa 150 179/1ex Charpy Notched Impact Strength (23°C) 5.5 kl/m² ISO 179/1ex Charpy Unnotched Impact Strength (23°C) 60.0 kl/m² ISO 179/1u Notched Izod Impact Strength (23°C) 7.0 kl/m² ISO 180/A Hardness Nominal Value Unit Test Method Shore Hardness (Shore D, 23°C) 86.0 kl/m² ISO 868 Thermal Nominal Value Unit Test Method Deflection Temperature Under Load 298 °C ISO 75-2/Af 1.8 MPa, Unannealed 298 °C ISO 11357-2 Glass Transition Temperature ISO 11357-2 ISO 11357-2 Midpoint 143 °C ISO 11357-2	Break, 175°C	45.0	MPa	
Flexural Modulus (23°C)	Break, 275°C	25.0	MPa	
Flexural Stress (23°C) 240 MPa ISO 178 Compressive Stress 200 MPa ISO 604 23°C 200 MPa MPa 120°C 130 MPa MPa 200°C 40.0 MPa MPa Impact Nominal Value Unit Test Method Charpy Notched Impact Strength (23°C) 5.5 kJ/m² ISO 179/1eA Charpy Unnotched Impact Strength (23°C) 60.0 kJ/m² ISO 180/A Unnotched Izod Impact Strength (23°C) 60.0 kJ/m² ISO 180/A Valardness Nominal Value Unit Test Method Shore Hardness (Shore D, 23°C) 86.0 ISO 868 Thermal Nominal Value Unit Test Method Deflection Temperature Under Load 298 °C 1.8 MPa, Unannealed 298 °C Glass Transition Temperature ISO 11357-2 Onset Midpoint 150 °C	Tensile Strain (Break, 23°C)	4.0	%	ISO 527-2
SO 604 23°C 200 MPa 200°C 130 MPa 200°C 40.0 MPa 200°C 5.5 kJ/m² 1SO 179/1eA 200°C 5.5 kJ/m² 1SO 179/1eA 200°C	Flexural Modulus (23°C)	7200	MPa	ISO 178
23°C 200 MPa 120°C 130 MPa 200°C 40.0 MPa mpact Nominal Value Unit Test Method Charpy Notched Impact Strength (23°C) 5.5 kJ/m² ISO 179/10 Charpy Unnotched Impact Strength (23°C) 60.0 kJ/m² ISO 180/A Unnotched Izod Impact Strength (23°C) 7.0 kJ/m² ISO 180 Hardness Nominal Value Unit Test Method Shore Hardness (Shore D, 23°C) 86.0 ISO 868 Thermal Nominal Value Unit Test Method Deflection Temperature Under Load 86.0 ISO 75-2/Af 1.8 MPa, Unannealed 298 °C Glass Transition Temperature ISO 11357-2 Onset 143 °C Midpoint 150 °C	Flexural Stress (23°C)	240	MPa	ISO 178
120°C 130 MPa 200°C 40.0 MPa mpact Nominal Value Unit Test Method Charpy Notched Impact Strength (23°C) 5.5 kJ/m² ISO 179/1eA Charpy Unnotched Impact Strength (23°C) 60.0 kJ/m² ISO 180/A Notched Izod Impact Strength (23°C) 60.0 kJ/m² ISO 180/A Unnotched Izod Impact Strength (23°C) Nominal Value Unit Test Method Hardness Nominal Value Unit Test Method Shore Hardness (Shore D, 23°C) 86.0 ISO 868 Thermal Nominal Value Unit Test Method Deflection Temperature Under Load 298 °C I.8 MPa, Unannealed 298 °C Glass Transition Temperature ISO 11357-2 Onset 143 °C Midpoint 150 °C	Compressive Stress			ISO 604
200°C 40.0 MPa mpact Nominal Value Unit Test Method Charpy Notched Impact Strength (23°C) 5.5 kJ/m² ISO 179/1eA Charpy Unnotched Impact Strength (23°C) 60.0 kJ/m² ISO 180/A Notched Izod Impact Strength (23°C) 7.0 kJ/m² ISO 180/A Unnotched Izod Impact Strength (23°C) 60.0 kJ/m² ISO 180 Hardness Nominal Value Unit Test Method Shore Hardness (Shore D, 23°C) 86.0 ISO 868 Thermal Nominal Value Unit Test Method Deflection Temperature Under Load ISO 75-2/Af ISO 75-2/Af 1.8 MPa, Unannealed 298 °C Glass Transition Temperature ISO 11357-2 Onset 143 °C Midpoint 150 °C	23°C	200	MPa	
Mpact Nominal Value Unit Test Method Charpy Notched Impact Strength (23°C) 5.5 kJ/m² ISO 179/1eA Charpy Unnotched Impact Strength (23°C) 60.0 kJ/m² ISO 179/1U Notched Izod Impact Strength (23°C) 7.0 kJ/m² ISO 180/A Unnotched Izod Impact Strength (23°C) 60.0 kJ/m² ISO 180/A Unnotched Izod Impact Strength (23°C) 60.0 kJ/m² ISO 180 ISO	120°C	130	MPa	
Charpy Notched Impact Strength (23°C) 5.5 kJ/m² ISO 179/1eA Charpy Unnotched Impact Strength (23°C) 60.0 kJ/m² ISO 179/1U Notched Izod Impact Strength (23°C) 7.0 kJ/m² ISO 180/A Unnotched Izod Impact Strength (23°C) 60.0 kJ/m² ISO 180 Independent Strength (23°C) 60.0 kJ/m² ISO 180 Independent Strength (23°C) 86.0 kJ/m² ISO 180 Iso 868 Independent Strength (23°C) 86.0 ISO 868 Independent Strength (23°C) 86.0 ISO 868 Independent Strength (23°C) 86.0 ISO 868 Iso 868 Independent Strength (23°C) 86.0 ISO 868 Iso 868 Iso 75-2/Af 1.8 MPa, Unannealed 298 °C Glass Transition Temperature Onset 143 °C Midpoint 150 °C	200°C	40.0	MPa	
Charpy Unnotched Impact Strength (23°C) 60.0 kJ/m² ISO 179/1U Notched Izod Impact Strength (23°C) 7.0 kJ/m² ISO 180/A Unnotched Izod Impact Strength (23°C) 60.0 kJ/m² ISO 180 Industrial Nominal Value Unit Test Method Shore Hardness (Shore D, 23°C) 86.0 ISO 868 Thermal Nominal Value Unit Test Method Deflection Temperature Under Load ISO 75-2/Af 1.8 MPa, Unannealed 298 °C Glass Transition Temperature Onset 143 °C Midpoint 150 °C	mpact	Nominal Value	Unit	Test Method
Notched Izod Impact Strength (23°C) Unnotched Izod Impact Strength (23°C) Innotched Izod Impact Strength (23°C) Innotched Izod Impact Strength (23°C) Innotched Izod Impact Strength (23°C) Iso 180 Innotched Izod Impact Strength (23°C) Iso 180 Innotched Izod Impact Strength (23°C) Iso 180 Iso 868 Innote	Charpy Notched Impact Strength (23°C)	5.5	kJ/m²	ISO 179/1eA
Unnotched Izod Impact Strength (23°C) 60.0 kJ/m² ISO 180 Hardness Nominal Value Unit Test Method Shore Hardness (Shore D, 23°C) 86.0 ISO 868 Thermal Nominal Value Unit Test Method Deflection Temperature Under Load ISO 75-2/Af 1.8 MPa, Unannealed 298 °C Glass Transition Temperature Onset 143 °C Midpoint 150 °C	Charpy Unnotched Impact Strength (23°C)	60.0	kJ/m²	ISO 179/1U
Hardness (Shore D, 23°C) Shore	Notched Izod Impact Strength (23°C)	7.0	kJ/m²	ISO 180/A
Shore Hardness (Shore D, 23°C) Thermal Nominal Value Unit Test Method Deflection Temperature Under Load 1.8 MPa, Unannealed Glass Transition Temperature Onset Midpoint Shore Jas°C ISO 868 ISO 75-2/Af 180 75-2/Af 180 11357-2 ISO 11357-2 Os C	Unnotched Izod Impact Strength (23°C)	60.0	kJ/m²	ISO 180
HermalNominal ValueUnitTest MethodDeflection Temperature Under LoadISO 75-2/Af1.8 MPa, Unannealed298°CGlass Transition TemperatureISO 11357-2Onset143°CMidpoint150°C	Hardness	Nominal Value	Unit	Test Method
Deflection Temperature Under Load 1.8 MPa, Unannealed Glass Transition Temperature Onset Midpoint ISO 75-2/Af 298 °C ISO 11357-2	Shore Hardness (Shore D, 23°C)	86.0		ISO 868
1.8 MPa, Unannealed298 °CGlass Transition TemperatureISO 11357-2Onset143 °CMidpoint150 °C	Thermal	Nominal Value	Unit	Test Method
Glass Transition Temperature Onset Midpoint ISO 11357-2 ISO 11357-2 OS C	Deflection Temperature Under Load			ISO 75-2/Af
Onset 143 °C Midpoint 150 °C	1.8 MPa, Unannealed	298	°C	
Midpoint 150 °C	Glass Transition Temperature			ISO 11357-2
·	Onset	143	°C	
Melting Temperature 343 °C ISO 11357-3	Midpoint	150	°C	
	Melting Temperature	343	°C	ISO 11357-3

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Thermal	Nominal Value	Unit	Test Method
CLTE - Flow			ISO 11359-2
< 143°C	25	ppm/K	
> 143°C	30	ppm/K	
CLTE - Average			ISO 11359-2
< 143°C	50	ppm/K	
> 143°C	130	ppm/K	
Thermal Conductivity			ISO 22007-4
23°C³	0.30	W/m/K	
23°C ⁴	0.35	W/m/K	
Electrical	Nominal Value	Unit	Test Method
Volume Resistivity (23°C)	1.0E+16	ohms∙cm	IEC 60093
Dielectric Strength (2.00 mm)	24.0	kV/mm	IEC 60243-1
Dielectric Constant (23°C, 1 kHz)	3.10		IEC 60250
Dissipation Factor (23°C, 1 MHz)	5.0E-3		IEC 60250
Comparative Tracking Index	150	V	IEC 60112
Fill Analysis	Nominal Value	Unit	Test Method
Melt Viscosity (400°C)	450	Pa·s	ISO 11443

Typical	Processi	ina Inf	formation
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Injection	Nominal Value Unit
Drying Temperature	120 to 150 °C
Drying Time	3.0 to 5.0 hr
Hopper Temperature	< 100 °C
Rear Temperature	360 °C
Middle Temperature	365 to 370 °C
Front Temperature	375 ℃
Nozzle Temperature	380 °C
Mold Temperature	170 to 200 °C

Runner: Die / nozzle >3mm, manifold >3.5mm

Gate: >2mm or 0.5 x part thickness

Important notes:

- 1) 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.
- 2) 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 or upon request.

Note

- ¹ Mold Temperature: 180°C, Melt Temperature: 380°C, 1.00 mm
- ² 380°C nozzle, 180°C tool
- ³ Average
- ⁴ Along flow

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Revision Date: 2024

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