

VICTREX PC™ 101 Granules

General Information

Product Description

High performance biocompatible thermoplastic material, PolyEtherEtherKetone (PEEK), semi crystalline. Granules for injection moulding and extrusion, standard flow, specifically for drug delivery devices, pharmaceutical manufacturing and packaging. Colour natural/beige.

Typical Application Areas

For use in applications requiring high strength, high stiffness, and high ductility. Suitable for drug delivery devices, pharmaceutical manufacturing and packaging. As PEEK is hygroscopic, drying before use is recommended. Further information is available upon request.

VICTREX PC™ offers high performance for strength, chemical resistance, wear resistance, toughness and purity whilst being PFAS free.

Density (Crystalline)	Material Properties			
Molding Shrinkage ¹ ISO 294-4 Across Flow 1.3 % Flow 0.90 % Water Absorption (Saturation, 23°C) 0.45 % ISO 62 Crystallinity DSC 35.0 % Internal Method Mechanical Nominal Value Unit Test Method Tensile Modulus (23°C) 400 MPa ISO 527-1 Tensile Stress (Yield, 23°C) 45 % ISO 527-2 Tensile Strain (Break, 23°C) 45 % ISO 527-2 Flexural Modulus (23°C) 45 % ISO 178 Flexural Stress 2 (23°C) 380 MPa ISO 178 Flexural Stress 3 (23°C) 416 MPa ISO 604 March Nominal Value Unit Test Method Charpy Notched Impact Strength (23°C) 8.0 I/Impact ISO 179/1eA Notched Impact Strength (23°C) 8.1 Iso 180/A National Value Unit Test Method Glass Transition Temperature (Onset) 143 °C ISO 11357-2	Physical	Nominal Value	Unit	Test Method
Across Flow 1.3 % Flow 0.90 % Water Absorption (Saturation, 23°C) 0.45 % ISO 62 Crystallinity DSC 35.0 % Internal Method Mechanical Nominal Value Unit Test Method Tensile Modulus (23°C) 400 MPa ISO 527-1 Tensile Stress (Yield, 23°C) 45 % ISO 527-2 Tensile Strain (Break, 23°C) 45 % ISO 527-2 Flexural Modulus (23°C) 3800 MPa ISO 178 Flexural Stress 2' (23°C) 165 MPa ISO 178 Compressive Stress 3' (23°C) 165 MPa ISO 604 Impact Nominal Value Unit Test Method Charry Notched Impact Strength (23°C) 7.0 kJ/m² ISO 179/1eA Notched Izod Impact Strength (23°C) 84.5 ISO 868 Tenral Nominal Value Unit Test Method Shore Hardness (Shore D, 23°C) 84.5 ISO 868 Tenral Nominal Value	Density (Crystalline)	1.30	g/cm³	ISO 1183
Flow 0.90 % Water Absorption (Saturation, 23°C) 0.45 % ISO 62 Crystallinity DSC 35.0 % Internal Method Mechanical Nominal Value Unit Test Method Tensile Modulus (23°C) 4000 MPa ISO 527-2 Tensile Stress (Yield, 23°C) 38.0 MPa ISO 527-2 Tensile Strain (Break, 23°C) 45 % ISO 527-2 Flexural Modulus (23°C) 3800 MPa ISO 178 Flexural Stress 2 (23°C) 165 MPa ISO 178 Compressive Stress 3 (23°C) 165 MPa ISO 604 Mpact Nominal Value Unit Test Method Charpy Notched Impact Strength (23°C) 7.0 kJ/m² ISO 179/16A Mothoded Impact Strength (23°C) 84.5 ISO 868 Meriandess Nominal Value Unit Test Method Shore Hardness (Shore D, 23°C) 84.5 ISO 11357-2 Melting Temperature Nominal Value Unit Test Method	Molding Shrinkage ¹			ISO 294-4
Water Absorption (Saturation, 23°C) 0.45 % ISO 62 Crystallinity DSC 35.0 % Internal Method Mechanical Nominal Value Unit Test Method Tensile Modulus (23°C) 4000 MPa ISO 527-1 Tensile Stress (Yield, 23°C) 98.0 MPa ISO 527-2 Tensile Strain (Break, 23°C) 45 % ISO 527-2 Flexural Modulus (23°C) 3800 MPa ISO 178 Flexural Stress 2 (23°C) 165 MPa ISO 178 Compressive Stress 3 (23°C) 125 MPa ISO 604 Mapact Nominal Value Unit Test Method Charpy Notched Impact Strength (23°C) 7.0 kJ/m² ISO 179/1eA Notched Izod Impact Strength (23°C) 8.0 kJ/m² ISO 180/A Iso 180/A Nominal Value Unit Test Method Shore Hardness (Shore D, 23°C) 84.5 ISO 868 Internal Method Glass Transition Temperature (Onset) 143 °C ISO 11357-3 Recrystallizat	Across Flow	1.3	%	
Crystallinity DSC 35.0 % Internal Method Mechanical Nominal Value Unit Test Method Tensile Modulus (23°C) 4000 MPa ISO 527-1 Tensile Stress (Yield, 23°C) 98.0 MPa ISO 527-2 Tensile Strain (Break, 23°C) 45 % ISO 527-2 Flexural Modulus (23°C) 3800 MPa ISO 178 Flexural Stress 2 (23°C) 165 MPa ISO 178 Compressive Stress 3 (23°C) 125 MPa ISO 604 Mapact Nominal Value Unit Test Method Charpy Notched Impact Strength (23°C) 7.0 kJ/m² ISO 179/1eA Notched Izod Impact Strength (23°C) 8.0 kJ/m² ISO 180/A Addranes Nominal Value Unit Test Method Shore Hardness (Shore D, 23°C) 84.5 ISO 868 Termal Nominal Value Unit Test Method Glass Transition Temperature 343 °C ISO 11357-3 Recrystallization Temperature 350	Flow	0.90	%	
Mechanical Nominal Value Unit Test Method Tensile Modulus (23°C) 4000 MPa ISO 527-1 Tensile Stress (Yield, 23°C) 98.0 MPa ISO 527-2 Tensile Strain (Break, 23°C) 45 % ISO 527-2 Flexural Modulus (23°C) 3800 MPa ISO 178 Flexural Stress 2 (23°C) 165 MPa ISO 604 Compressive Stress 3 (23°C) 125 MPa ISO 604 Impact Nominal Value Unit Test Method Charpy Notched Impact Strength (23°C) 7.0 kJ/m² ISO 179/1eA Notched Izod Impact Strength (23°C) 8.0 kJ/m² ISO 180/A Mardness Nominal Value Unit Test Method Shore Hardness (Shore D, 23°C) 84.5 ISO 868 Thermal Nominal Value Unit Test Method Glass Transition Temperature (Onset) 143 °C ISO 11357-3 Recrystallization Temperature 293 °C ISO 11357-3 Fill Analysis Nominal Value	Water Absorption (Saturation, 23°C)	0.45	%	ISO 62
Tensile Modulus (23°C) 4000 MPa ISO 527-1 Tensile Stress (Yield, 23°C) 98.0 MPa ISO 527-2 Tensile Strain (Break, 23°C) 45 % ISO 527-2 Flexural Modulus (23°C) 3800 MPa ISO 178 Flexural Stress 2 (23°C) 165 MPa ISO 178 Compressive Stress 3 (23°C) 125 MPa ISO 604 Impact Nominal Value Unit Test Method Charpy Notched Impact Strength (23°C) 7.0 kJ/m² ISO 179/1eA Notched Izod Impact Strength (23°C) 8.0 kJ/m² ISO 180/A Mardness Nominal Value Unit Test Method Shore Hardness (Shore D, 23°C) 84.5 ISO 868 Thermal Nominal Value Unit Test Method Glass Transition Temperature (Onset) 143 °C ISO 11357-3 Recrystallization Temperature 293 °C ISO 11357-3 Fill Analysis Nominal Value Unit Test Method Melt Viscosity (400°C, 1000 sec^-1) 350 Pa·s Int	Crystallinity DSC	35.0	%	Internal Method
Tensile Stress (Yield, 23°C) 98.0 MPa ISO 527-2 Tensile Strain (Break, 23°C) 45 % ISO 527-2 Flexural Modulus (23°C) 3800 MPa ISO 178 Flexural Stress 2 (23°C) 165 MPa ISO 178 Compressive Stress 3 (23°C) 125 MPa ISO 604 Impact Nominal Value Unit Test Method Charpy Notched Impact Strength (23°C) 7.0 kJ/m² ISO 179/1eA Notched Izod Impact Strength (23°C) 8.0 kJ/m² ISO 180/A Mardness Nominal Value Unit Test Method Shore Hardness (Shore D, 23°C) 84.5 ISO 868 Thermal Nominal Value Unit Test Method Glass Transition Temperature (Onset) 143 °C ISO 11357-2 Melting Temperature 343 °C ISO 11357-3 Recrystallization Temperature 293 °C ISO 11357-3 Fill Analysis Nominal Value Unit Test Method Melt Viscosity (400°C, 1000 sec^-1) <t< td=""><td>Mechanical</td><td>Nominal Value</td><td>Unit</td><td>Test Method</td></t<>	Mechanical	Nominal Value	Unit	Test Method
Tensile Strain (Break, 23°C) 45 % ISO 527-2 Flexural Modulus (23°C) 3800 MPa ISO 178 Flexural Stress 2 (23°C) 165 MPa ISO 178 Compressive Stress 3 (23°C) 125 MPa ISO 604 Impact Nominal Value Unit Test Method Charpy Notched Impact Strength (23°C) 7.0 kJ/m² ISO 179/1eA Notched Izod Impact Strength (23°C) 8.0 kJ/m² ISO 180/A Iardness Nominal Value Unit Test Method Shore Hardness (Shore D, 23°C) 84.5 ISO 868 Thermal Nominal Value Unit Test Method Glass Transition Temperature (Onset) 143 °C ISO 11357-2 Melting Temperature 343 °C ISO 11357-3 Recrystallization Temperature 293 °C ISO 11357-3 Fill Analysis Nominal Value Unit Test Method Melt Viscosity (400°C, 1000 sec^-1) 350 Pa·s Internal Method	Tensile Modulus (23°C)	4000	MPa	ISO 527-1
Flexural Modulus (23°C) 3800 MPa ISO 178 Flexural Stress 2 (23°C) 165 MPa ISO 178 Compressive Stress 3 (23°C) 125 MPa ISO 604 Impact Nominal Value Unit Test Method Charpy Notched Impact Strength (23°C) 7.0 kJ/m² ISO 179/1eA Notched Izod Impact Strength (23°C) 8.0 kJ/m² ISO 180/A Idardness Nominal Value Unit Test Method Shore Hardness (Shore D, 23°C) 84.5 ISO 868 Thermal Nominal Value Unit Test Method Glass Transition Temperature (Onset) 143 °C ISO 11357-2 Melting Temperature 343 °C ISO 11357-3 Recrystallization Temperature 293 °C ISO 11357-3 Itll Analysis Nominal Value Unit Test Method Melt Viscosity (400°C, 1000 sec^-1) 350 Pa·s Internal Method	Tensile Stress (Yield, 23°C)	98.0	MPa	ISO 527-2
Flexural Stress 2 (23°C) 165 MPa ISO 178 Compressive Stress 3 (23°C) 125 MPa ISO 604 Impact Nominal Value Unit Test Method Charpy Notched Impact Strength (23°C) 7.0 kJ/m² ISO 179/1eA Notched Izod Impact Strength (23°C) 8.0 kJ/m² ISO 180/A Hardness Nominal Value Unit Test Method Shore Hardness (Shore D, 23°C) 84.5 ISO 868 Thermal Nominal Value Unit Test Method Glass Transition Temperature (Onset) 143 °C ISO 11357-2 Melting Temperature 343 °C ISO 11357-3 Recrystallization Temperature 293 °C ISO 11357-3 Till Analysis Nominal Value Unit Test Method Melt Viscosity (400°C, 1000 sec^-1) 350 Pa·s Internal Method	Tensile Strain (Break, 23°C)	45	%	ISO 527-2
Compressive Stress³ (23°C) 125 MPa ISO 604 Impact Nominal Value Unit Test Method Charpy Notched Impact Strength (23°C) 7.0 kJ/m² ISO 179/1eA Notched Izod Impact Strength (23°C) 8.0 kJ/m² ISO 180/A Hardness Nominal Value Unit Test Method Shore Hardness (Shore D, 23°C) 84.5 ISO 868 Thermal Nominal Value Unit Test Method Glass Transition Temperature (Onset) 143 °C ISO 11357-2 Melting Temperature 343 °C ISO 11357-3 Recrystallization Temperature 293 °C ISO 11357-3 Test Method Melt Viscosity (400°C, 1000 sec^-1) 350 Pa·s Internal Method	Flexural Modulus (23°C)	3800	MPa	ISO 178
Impact Nominal Value Unit Test Method Charpy Notched Impact Strength (23°C) 7.0 kJ/m² ISO 179/1eA Notched Izod Impact Strength (23°C) 8.0 kJ/m² ISO 180/A Hardness Nominal Value Unit Test Method Shore Hardness (Shore D, 23°C) 84.5 ISO 868 Thermal Nominal Value Unit Test Method Glass Transition Temperature (Onset) 143 °C ISO 11357-2 Melting Temperature 343 °C ISO 11357-3 Recrystallization Temperature 293 °C ISO 11357-3 Fill Analysis Nominal Value Unit Test Method Melt Viscosity (400°C, 1000 sec^-1) 350 Pa·s Internal Method	Flexural Stress ² (23°C)	165	MPa	ISO 178
Charpy Notched Impact Strength (23°C) Notched Izod Impact Strength (23°C) Rotched Izod Impact Strength (23°C) Rardness Nominal Value Shore Hardness (Shore D, 23°C) Nominal Value Nominal Value Unit Test Method Nominal Value Glass Transition Temperature (Onset) Melting Temperature Recrystallization Temperature Nominal Value Unit Test Method Socious 11357-2 Iso 11357-2 Iso 11357-3 Recrystallization Temperature Nominal Value Unit Test Method Nominal Value Melt Viscosity (400°C, 1000 sec^-1)	Compressive Stress ³ (23°C)	125	MPa	ISO 604
Notched Izod Impact Strength (23°C) Rardness Nominal Value Shore Hardness (Shore D, 23°C) Remal Rominal Value Unit Test Method Shore Hardness (Shore D, 23°C) Remal Nominal Value Unit Test Method Glass Transition Temperature (Onset) Melting Temperature August 200 Recrystallization Temperature Recrystallization Temperature Nominal Value Unit Test Method Nominal Value Melt Viscosity (400°C, 1000 sec^-1) Nominal Value Unit Test Method Test Method	Impact	Nominal Value	Unit	Test Method
Hardness Nominal Value Unit Test Method Shore Hardness (Shore D, 23°C) 84.5 ISO 868 Thermal Nominal Value Unit Test Method Glass Transition Temperature (Onset) 143 °C ISO 11357-2 Melting Temperature 343 °C ISO 11357-3 Recrystallization Temperature 293 °C ISO 11357-3 Fill Analysis Nominal Value Unit Test Method Melt Viscosity (400°C, 1000 sec^-1) 350 Pa·s Internal Method	Charpy Notched Impact Strength (23°C)	7.0	kJ/m²	ISO 179/1eA
Shore Hardness (Shore D, 23°C) 84.5 ISO 868 Thermal Nominal Value Unit Test Method Glass Transition Temperature (Onset) 143 °C ISO 11357-2 Melting Temperature 343 °C ISO 11357-3 Recrystallization Temperature 293 °C ISO 11357-3 Fill Analysis Nominal Value Unit Test Method Melt Viscosity (400°C, 1000 sec^-1) 350 Pa·s Internal Method	Notched Izod Impact Strength (23°C)	8.0	kJ/m²	ISO 180/A
Chermal Nominal Value Unit Test Method Glass Transition Temperature (Onset) 143 °C ISO 11357-2 Melting Temperature 343 °C ISO 11357-3 Recrystallization Temperature 293 °C ISO 11357-3 Fill Analysis Nominal Value Unit Test Method Melt Viscosity (400°C, 1000 sec^-1) 350 Pa·s Internal Method	Hardness	Nominal Value	Unit	Test Method
Glass Transition Temperature (Onset) 143 °C ISO 11357-2 Melting Temperature 343 °C ISO 11357-3 Recrystallization Temperature 293 °C ISO 11357-3 Fill Analysis Nominal Value Unit Test Method Melt Viscosity (400°C, 1000 sec^-1) 350 Pa·s Internal Method	Shore Hardness (Shore D, 23°C)	84.5		ISO 868
Melting Temperature 343 °C ISO 11357-3 Recrystallization Temperature 293 °C ISO 11357-3 III Analysis Nominal Value Unit Test Method Melt Viscosity (400°C, 1000 sec^-1) 350 Pa·s Internal Method	Thermal	Nominal Value	Unit	Test Method
Recrystallization Temperature 293 °C ISO 11357-3 Fill Analysis Nominal Value Unit Test Method Melt Viscosity (400°C, 1000 sec^-1) 350 Pa·s Internal Method	Glass Transition Temperature (Onset)	143	°C	ISO 11357-2
Fill Analysis Nominal Value Unit Test Method Melt Viscosity (400°C, 1000 sec^-1) 350 Pa·s Internal Method	Melting Temperature	343	°C	ISO 11357-3
Melt Viscosity (400°C, 1000 sec^-1) 350 Pa·s Internal Method	Recrystallization Temperature	293	°C	ISO 11357-3
	Fill Analysis	Nominal Value	Unit	Test Method
Melt Stability 400°C, 1000 sec^-1, 1 hr 1.0 % Internal Method	Melt Viscosity (400°C, 1000 sec^-1)	350	Pa·s	Internal Method
	Melt Stability 400°C, 1000 sec^-1, 1 hr	1.0	%	Internal Method

VICTREX PC™ 101 Granules

Typical Processing Information			
Injection	Nominal Value Unit		
Drying Temperature	120 to 150 °C		
Drying Time	3.0 to 5.0 hr		
Hopper Temperature	<100 °C		
Rear Temperature	355 °C		
Middle Temperature	360 to 365 °C		
Front Temperature	370 °C		
Nozzle Temperature	375 °C		
Mould Temperature	180 to 200 °C		
Injection Notes			

Drying Temperature/Time: 150 °C / 3 h or 120 °C / 5 h (residual moisture <0.02%)

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

Gate: >1mm 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.

Storage Requirements

Store in original packaging away from direct sunlight and extremes of temperatures. Do not use if sealing tab is broken prior to opening.

Development Material

During qualification activities NFHI (Not For Human Implantation) grades are available upon request.

Detailed data available on our website www.victrex.com or upon request.

Notes

¹ 375°C nozzle, 190°C tool

² At yield

³ Notched

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