

# VICTREX™ PEEK POLYMER 90G

## **General Information**

### **Product Description**

High performance thermoplastic material, unreinforced PolyEtherEtherKetone (PEEK), semi crystalline, depth filtered granules for injection moulding, very easy flow, colour natural/beige.

Complex geometries with thinner cross sections or longer flow lengths, for high strength and stiffness as well as good ductility. Chemically resistant to aggressive environments, suitable for sterilization for medical and food contact applications

Material Properties			
Physical	Nominal Value	Unit	Test Method
Density (Crystalline)	1.30	g/cm³	ISO 1183
Spiral Flow			Internal Method
_1	24.5	cm	
2	28.0	cm	
3	33.0	cm	
Molding Shrinkage <sup>4</sup>			ISO 294-4
Across Flow	1.3	%	
Flow	1.0	%	
Water Absorption (Saturation, 23°C)	0.45	%	ISO 62
Water AbsorptionSaturation (100°C)	0.55	%	ISO 62
Mechanical	Nominal Value	Unit	Test Method
Tensile Modulus (23°C)	4100	MPa	ISO 527-1
Tensile Stress (Yield, 23°C)	105	MPa	ISO 527-2
Tensile Strain (Break, 23°C)	20	%	ISO 527-2
Flexural Modulus (23°C)	3900	MPa	ISO 178
Flexural Stress			ISO 178
23°C <sup>5</sup>	175	MPa	
3.5% Strain, 23°C	130	MPa	
125°C	90.0	MPa	
175°C	20.0	MPa	
275°C	13.5	MPa	
Compressive Stress			ISO 604
23°C	130	MPa	
120°C	80.0	MPa	
mpact	Nominal Value	Unit	Test Method
Charpy Notched Impact Strength (23°C)	4.0	kJ/m²	ISO 179/1eA
Charpy Unnotched Impact Strength (23°C)	No Break		ISO 179
Notched Izod Impact Strength (23°C)	4.5	kJ/m²	ISO 180/A
Unnotched Izod Impact Strength (23°C)	No Break		ISO 180
Hardness	Nominal Value	Unit	Test Method
Shore Hardness (Shore D, 23°C)	85.0		ISO 868
Thermal	Nominal Value	Unit	Test Method
Deflection Temperature Under Load			ISO 75-2/Af
1.8 MPa, Unannealed	156	°C	
1.8 MPa, Annealed <sup>6</sup>	167	°C	

## **VICTREX™ PEEK POLYMER 90G**

Mould Temperature

Volume Resistivity         IEC 60093           23°C         1.0E+16 ohms·cm           125°C         1.0E+15 ohms·cm           275°C         1.0E+9 ohms·cm           Dielectric Strength (2.00 mm)         23.0 kV/mm         IEC 60243-1           Dielectric Constant (23°C, 1 kHz)         3.10 IEC 60250           Dissipation Factor (23°C, 1 MHz)         4.0E-3 IEC 60250           Comparative Tracking Index         150 V IEC 60112           Flammability         Nominal Value Unit         Test Method           Glow Wire Flammability Index (2.0 mm)         960 °C IEC 60695-2-12           Fill Analysis         Nominal Value Unit         Test Method           Melt Viscosity (400°C)         90.0 Pa·s         ISO 11443	Thermal	Nominal Value	Unit	Test Method
CLTE - Flow	Glass Transition Temperature (Onset)	143	°C	ISO 11357-2
< 143°C	Melting Temperature	343	°C	ISO 11357-3
S	CLTE - Flow			ISO 11359-2
CLTE - Average	< 143°C	50	ppm/K	
* 143°C       55       ppm/K         * 143°C       140       ppm/K         Thermal Conductivity       80.22 07.4       18.02 2007.4         23°C 7       0.29       Wm/K         23°C 8       0.32       Wm/K         Electrical       Nominal Value       Unit       Test Method         Volume Resistivity       IEC 60093         23°C       1.0E+16       ohms-cm         125°C       1.0E+15       ohms-cm         275°C       1.0E+15       ohms-cm         125°C       1.0E+16       ohms-cm         275°C       1.0E+15       ohms-cm         Dielectric Strength (2.00 mm)       23.0       kV/mm       IEC 60250         Dissipation Factor (23°C, 1 kHz)       3.10       IEC 60250         Dissipation Factor (23°C, 1 kHz)       Nominal Value       Unit       Test Method         Glow Wire Flammability Index (2.0 mm)       960°C       IEC 60695-2-12         Ell Analysis       Nominal Value       Unit       Test Method         Melt Viscosity (400°C)       90.0       Pa·s       ISO 11443         Exprise Information       Nominal Value       Unit       Lec 60695-2-12         Entrying Temperature       120 to 150°C       C </td <td>&gt; 143°C</td> <td>120</td> <td>ppm/K</td> <td></td>	> 143°C	120	ppm/K	
> 143°C         140° pm/K           Thermal Conductivity         ISO 22007-4           23°C 7         0.29         W/m/K           23°C 9         0.32         W/m/K           Electrical         Nominal Value         Unit         Test Method           Volume Resistivity         IEC 60093           23°C         1.0E+16         ohms-cm           125°C         1.0E+15         ohms-cm           275°C         1.0E+9         ohms-cm           Dielectric Strength (2.00 mm)         23.0         k/mm         IEC 60243-1           Dielectric Constant (23°C, 1 kHz)         3.10         IEC 60250           Dissipation Factor (23°C, 1 MHz)         4.0E-3         IEC 60250           Comparative Tracking Index         150         V         IEC 60250           Electric Constant (23°C, 1 MHz)         Nominal Value         Unit         Test Method           Glow Wire Flammability Index (2.0 mm)         960         °C         IEC 60695-2-12           Fill Analysis         Nominal Value         Unit         Test Method           Mell Viscosity (40°C)         Pars         ISO 11443           Spical Processing Information         Nominal Value         Unit         Test Method           Drying Temper	CLTE - Average			ISO 11359-2
Thermal Conductivity   23°C 7   0.29   W/m/K   23°C 8   0.32   W/m/K   25°C 10.0E+10   0.0ms·cm   1.0E+10   0.0ms·cm   1.25°C   1.0E+10   0.0ms·cm   1.25°C   1.0E+9   0.0ms·cm   1.0E+9   0	< 143°C	55	ppm/K	
23°C 7         0.29         W/m/K           23°C 8         0.32         W/m/K           Electrical         Nominal Value         Unit         Test Method           Volume Resistivity         I.0E+18         ohms-cm           23°C         1.0E+16         ohms-cm           125°C         1.0E+15         ohms-cm           275°C         1.0E+16         ohms-cm           Dielectric Strength (2.00 mm)         23.0         kV/mm         IEC 60243-1           Dielectric Constant (23°C, 1 kHz)         3.10         IEC 60250           Dissipation Factor (23°C, 1 MHz)         4.0E-3         IEC 60250           Comparative Tracking Index         150         V         IEC 60250           Glow Wire Flammability Index (2.0 mm)         960         °C         IEC 60895-2-12           Fill Analysis         Nominal Value         Unit         Test Method           Melt Viscosity (400°C)         90.0         Pa·s         ISO 11443           Expirate Processing Information         Nominal Value         Unit           Topying Temperature         3.0 to 5.0         r           Drying Time         3.0 to 5.0         r           Proper Temperature         100         °C           Middl	> 143°C	140	ppm/K	
23°C 8         0.32         W/m/K           Electrical         Nominal Value         Unit         Test Method           Volume Resistivity         IEC 60093           23°C         1.0E+16         ohms·cm           125°C         1.0E+9         ohms·cm           275°C         1.0E+9         ohms·cm           Dielectric Strength (2.00 mm)         23.0         kV/mm         IEC 60243-1           Dielectric Constant (23°C, 1 kHz)         3.1         KV/mm         IEC 60250           Dissipation Factor (23°C, 1 MHz)         4.0E-3         IEC 60250           Comparative Tracking Index         150         V         IEC 60112           Planmability         Nominal Value         Unit         Test Method           Glow Wire Flammability Index (2.0 mm)         960         °C         IEC 60895-2-12           Ell Analysis         Nominal Value         Unit         Test Method           Melt Viscosity (400°C)         90.0         Pa·s         ISO 11443           Spice IProcessing Information         Nominal Value         Unit         Unit           Unity Test Method         Nominal Value         Unit         Test Method           Projung Temperature         3.0 to 5.0         hr	Thermal Conductivity			ISO 22007-4
Nominal Value   Unit   Test Method	23°C <sup>7</sup>	0.29	W/m/K	
Volume Resistivity         IEC 60093           23°C         1.0E+16 ohms cm           125°C         1.0E+15 ohms cm           275°C         1.0E+9 ohms cm           Dielectric Strength (2.00 mm)         23.0 kV/mm         IEC 60243-1           Dielectric Constant (23°C, 1 kHz)         3.10         IEC 60250           Dissipation Factor (23°C, 1 MHz)         4.0E-3         IEC 60250           Comparative Tracking Index         150 V         IEC 60112           Iammability         Nominal Value         Unit         Test Method           Glow Wire Flammability Index (2.0 mm)         960 °C         IEC 60695-2-12           III Analysis         Nominal Value         Unit         Test Method           Melt Viscosity (400°C)         90.0 Pa·s         ISO 11443           Spical Processing Information         Nominal Value         Unit           Implection         Nominal Value         Unit           Drying Temperature         120 to 150 °C           Drying Time         3.0 to 5.0 hr           Hopper Temperature         < 100 °C	23°C <sup>8</sup>	0.32	W/m/K	
23°C         1.0E+16         ohms·cm           125°C         1.0E+15         ohms·cm           275°C         1.0E+9         ohms·cm           Dielectric Strength (2.00 mm)         23.0         kV/mm         IEC 60243-1           Dielectric Constant (23°C, 1 kHz)         3.10         IEC 60250           Dissipation Factor (23°C, 1 MHz)         4.0E-3         IEC 60250           Comparative Tracking Index         150         V         IEC 6012           Filmamability         Nominal Value         Unit         Test Method           Glow Wire Flammability Index (2.0 mm)         960         °C         IEC 60695-2-12           Fill Analysis         Nominal Value         Unit         Test Method           Melt Viscosity (400°C)         90.0         Pa·s         ISO 11443           Spical Processing Information         Nominal Value         Unit           Injection         Nominal Value         Unit           Drying Temperature         120 to 150         °C           Drying Time         3.0 to 5.0         hr           Hopper Temperature         3.0 to 5.0         hr           Hopper Temperature         3.0 to 5.0         *C           Middle Temperature         350         *C	Electrical	Nominal Value	Unit	Test Method
125°C         1.0E+15         ohms-cm           275°C         1.0E+9         ohms-cm           Dielectric Strength (2.00 mm)         23.0         kV/mm         IEC 60243-1           Dielectric Constant (23°C, 1 kHz)         3.10         IEC 60250           Dissipation Factor (23°C, 1 kHz)         4.0E-3         IEC 60250           Comparative Tracking Index         150         V         IEC 60112           Fammability         Nominal Value         Unit         Test Method           Glow Wire Flammability Index (2.0 mm)         960         °C         IEC 60695-2-12           Fill Analysis         Nominal Value         Unit         Test Method           Melt Viscosity (400°C)         90.0         Pa·s         ISO 11443           Expirate Processing Information         Nominal Value         Unit           Drying Temperature         120 to 150         °C           Drying Time         3.0 to 5.0         hr           Hopper Temperature         3.0 to 5.0         C           Rear Temperature         350         °C           Middle Temperature         355         °C           Front Temperature         355         °C	Volume Resistivity			IEC 60093
275°C         1.0E+9         ohms-cm           Dielectric Strength (2.00 mm)         23.0         kV/mm         IEC 60243-1           Dielectric Constant (23°C, 1 kHz)         3.10         IEC 60250           Dissipation Factor (23°C, 1 MHz)         4.0E-3         IEC 60250           Comparative Tracking Index         150         V         IEC 60112           Islammability         Nominal Value         Unit         Test Method           Glow Wire Flammability Index (2.0 mm)         960         °C         IEC 60695-2-12           Isl Analysis         Nominal Value         Unit         Test Method           Melt Viscosity (400°C)         90.0         Pa-s         ISO 11443           Expirection         Nominal Value         Unit         Unit         Test Method           Drying Temperature         120 to 150         °C         C           Drying Time         3.0 to 5.0         hr         F           Hopper Temperature         3.0 to 5.0         °C         E           Rear Temperature         350         °C         F           Middle Temperature         355         °C         F	23°C	1.0E+16	ohms·cm	
Dielectric Strength (2.00 mm)   23.0 kV/mm   IEC 60243-1     Dielectric Constant (23°C, 1 kHz)   3.10   IEC 60250     Dissipation Factor (23°C, 1 MHz)   4.0E-3   IEC 60250     Comparative Tracking Index   150 V   IEC 60112     Comparative Tracking Index   150 V   IEC 60112     Comparative Flammability   Nominal Value   Unit   Test Method     Glow Wire Flammability Index (2.0 mm)   960 °C   IEC 60695-2-12     III Analysis   Nominal Value   Unit   Test Method     Melt Viscosity (400°C)   90.0 Pa·s   ISO 11443     Viscosity (400°C)   90.0 Pa·s   ISO 11443     Viscosity Tracking Information   Nominal Value   Unit     Drying Temperature   120 to 150 °C     Drying Time   3.0 to 5.0 hr     Hopper Temperature   3.0 to 5.0 hr     Hopper Temperature   350 °C     Middle Temperature   355 °C     Front Temperature   355 °C	125°C	1.0E+15	ohms·cm	
Dielectric Constant (23°C, 1 kHz)   3.10   IEC 60250     Dissipation Factor (23°C, 1 MHz)   4.0E-3   IEC 60250     Comparative Tracking Index   150   V   IEC 60112     Comparative Tracking Index   150   V   IEC 60112     Comparative Tracking Index (2.0 mm)   960   °C   IEC 60695-2-12     Comparative Flammability Index (2.0 mm)   960   °C   IEC 60695-2-12     Comparative Flammability Index (2.0 mm)   960   °C   IEC 60695-2-12     Comparative Flammability Index (2.0 mm)   960   °C   IEC 60695-2-12     Comparative Flammability Index (2.0 mm)   960   °C   IEC 60695-2-12     Comparative Flammability Index (2.0 mm)   960   °C   IEC 60695-2-12     Comparative Flammability Index (2.0 mm)   960   °C   IEC 60695-2-12     Comparative Flammability Index (2.0 mm)   960   °C   IEC 60695-2-12     Comparative Flammability Index (2.0 mm)   960   °C   IEC 60695-2-12     Comparative Flammability Index (2.0 mm)   960   °C   IEC 60695-2-12     Comparative Flammability Index (2.0 mm)   960   °C   IEC 60695-2-12     Comparative Flammability Index (2.0 mm)   960   °C   IEC 60695-2-12     Comparative Flammability Index (2.0 mm)   960   °C   IEC 60695-2-12     Comparative Flammability Index (2.0 mm)   960   °C   IEC 60695-2-12     Comparative Flammability Index (2.0 mm)   960   °C   IEC 60695-2-12     Comparative Flammability Index (2.0 mm)   960   °C   IEC 60695-2-12     Comparative Flammability Index (2.0 mm)   960   °C   IEC 60695-2-12     Comparative Flammability Index (2.0 mm)   960   °C   IEC 60695-2-12     Comparative Flammability Index (2.0 mm)   960   °C   IEC 60695-2-12     Comparative Flammability Index (2.0 mm)   960   °C   IEC 60695-2-12     Comparative Flammability Index (2.0 mm)   960   °C   IEC 60695-2-12     Comparative Flammability Index (2.0 mm)   960   °C   IEC 60695-2-12     Comparative Flammability Index (2.0 mm)   960   °C   IEC 60695-2-12     Comparative Flammability Index (2.0 mm)   960   °C   IEC 60695-2-12     Comparative Flammability Index (2.0 mm)   960   °C   IEC 60695-2-12     Comparative Flammability In	275°C	1.0E+9	ohms·cm	
Dissipation Factor (23°C, 1 MHz)	Dielectric Strength (2.00 mm)	23.0	kV/mm	IEC 60243-1
Comparative Tracking Index         150 V         IEC 60112           Elammability         Nominal Value         Unit         Test Method           Glow Wire Flammability Index (2.0 mm)         960 °C         IEC 60695-2-12           It Analysis         Nominal Value         Unit         Test Method           Melt Viscosity (400°C)         90.0 Pa·s         ISO 11443           Typical Processing Information         Nominal Value         Unit           Drying Temperature         120 to 150 °C           Drying Time         3.0 to 5.0 hr           Hopper Temperature         < 100 °C	Dielectric Constant (23°C, 1 kHz)	3.10		IEC 60250
Flammability         Nominal Value         Unit         Test Method           Glow Wire Flammability Index (2.0 mm)         960 °C         IEC 60695-2-12           Fill Analysis         Nominal Value         Unit         Test Method           Melt Viscosity (400°C)         90.0 Pa·s         ISO 11443           Typical Processing Information         Nominal Value         Unit           Drying Temperature         120 to 150 °C           Drying Time         3.0 to 5.0 hr           Hopper Temperature         < 100 °C	Dissipation Factor (23°C, 1 MHz)	4.0E-3		IEC 60250
Glow Wire Flammability Index (2.0 mm)         960 °C         IEC 60695-2-12           Fill Analysis         Nominal Value         Unit         Test Method           Melt Viscosity (400°C)         90.0 Pa·s         ISO 11443           Fypical Processing Information           Injection         Nominal Value         Unit           Drying Temperature         120 to 150 °C           Drying Time         3.0 to 5.0 hr           Hopper Temperature         < 100 °C	Comparative Tracking Index	150	V	IEC 60112
Nominal Value Unit Test Method Melt Viscosity (400°C)  90.0 Pa·s ISO 11443  Typical Processing Information  Nominal Value Unit  Drying Temperature  120 to 150 °C  Drying Time  120 to 5.0 hr  Hopper Temperature  3.0 to 5.0 hr  Hopper Temperature  350 °C  Middle Temperature  355 °C  Front Temperature  355 °C	Flammability	Nominal Value	Unit	Test Method
Melt Viscosity (400°C)         90.0         Pa·s         ISO 11443           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	Glow Wire Flammability Index (2.0 mm)	960	°C	IEC 60695-2-12
Typical Processing Information  njection  Nominal Value Unit  Drying Temperature  120 to 150 °C  Drying Time  3.0 to 5.0 hr  Hopper Temperature  <100 °C  Rear Temperature  350 °C  Middle Temperature  355 °C  Front Temperature  355 °C	Fill Analysis	Nominal Value	Unit	Test Method
Nominal Value         Unit           Drying Temperature         120 to 150 °C           Drying Time         3.0 to 5.0 hr           Hopper Temperature         < 100 °C	Melt Viscosity (400°C)	90.0	Pa·s	ISO 11443
Drying Temperature 120 to 150 °C  Drying Time 3.0 to 5.0 hr  Hopper Temperature < 100 °C  Rear Temperature 350 °C  Middle Temperature 355 °C  Front Temperature 355 °C	Typical Processing Information			
Drying Time         3.0 to 5.0 hr           Hopper Temperature         < 100 °C	Injection	Nominal Value	Unit	
Hopper Temperature < 100 °C Rear Temperature 350 °C Middle Temperature 355 °C Front Temperature 355 °C	Drying Temperature	120 to 150	°C	
Rear Temperature350 °CMiddle Temperature355 °CFront Temperature355 °C	Drying Time	3.0 to 5.0	hr	
Middle Temperature 355 °C Front Temperature 355 °C	Hopper Temperature	< 100	°C	
Front Temperature 355 °C	Rear Temperature	350	°C	
	Middle Temperature	355	°C	
Nozzle Temperature 360 °C	Front Temperature	355	°C	
	Nozzle Temperature	360	°C	

160 to 200 °C

## VICTREX™ PEEK POLYMER 90G

#### Injection Notes

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.

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

#### **Notes**

- Mould Temperature: 160°C, Melt Temperature: 365°C, 1.00 mm
   Mould Temperature: 180°C, Melt Temperature: 375°C, 1.00 mm
   Mould Temperature: 200°C, Melt Temperature: 400°C, 1.00 mm
   4 360°C nozzle, 160°C tool
   5 At yield
   200°C/4h
   7 Average
- <sup>8</sup> Along flow

**Revision Date: December 2024** 

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