

VICTREX™ PEEK POLYMER 450FC30

General Information

Product Description

High performance thermoplastic material, 30% reinforced with carbon fibre / graphite / PTFE PolyEtherEtherKetone (PEEK), semi crystalline, granules for injection moulding and extrusion, standard flow, colour black.

Tribological applications for high strength. Excellent wear resistance, very low coefficient of friction, low coefficient of thermal expansion. Chemically resistant to aggressive environments.

Material Properties

Physical	Nominal Value	Unit	Test Method
Density (Crystalline)	1.45	g/cm ³	ISO 1183
Spiral Flow			Internal Method
-- 1	8.00	cm	
-- 2	38.0	cm	
Molding Shrinkage ³			ISO 294-4
Across Flow	0.70	%	
Flow	0.30	%	
Water Absorption (Saturation, 23°C)	0.35	%	ISO 62
Water Absorption Saturation (100°C)	0.45	%	ISO 62
Mechanical	Nominal Value	Unit	Test Method
Tensile Modulus (23°C)	13000	MPa	ISO 527-1
Tensile Stress			ISO 527-2
Break, 23°C	150	MPa	
Break, 125°C	95.0	MPa	
Break, 175°C	55.0	MPa	
Break, 225°C	45.0	MPa	
Break, 275°C	35.0	MPa	
Tensile Strain (Break, 23°C)	2.3	%	ISO 527-2
Flexural Modulus (23°C)	11500	MPa	ISO 178
Flexural Stress			ISO 178
23°C	230	MPa	
125°C	160	MPa	
175°C	80.0	MPa	
275°C	45.0	MPa	
Compressive Stress			ISO 604
23°C	170	MPa	
120°C	110	MPa	
200°C	45.0	MPa	
Impact	Nominal Value	Unit	Test Method
Charpy Notched Impact Strength (23°C)	5.0	kJ/m ²	ISO 179/1eA
Charpy Unnotched Impact Strength (23°C)	35.0	kJ/m ²	ISO 179/1U
Notched Izod Impact Strength (23°C)	6.0	kJ/m ²	ISO 180/A
Unnotched Izod Impact Strength (23°C)	35.0	kJ/m ²	ISO 180
Hardness	Nominal Value	Unit	Test Method
Shore Hardness (Shore D, 23°C)	83.0		ISO 868

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Thermal	Nominal Value	Unit	Test Method
Deflection Temperature Under Load 1.8 MPa, Unannealed	315	°C	ISO 75-2/Af
Glass Transition Temperature			ISO 11357-2
Onset	143	°C	
Midpoint	150	°C	
Melting Temperature	343	°C	ISO 11357-3
CLTE - Flow			ISO 11359-2
< 143°C	15	ppm/K	
> 143°C	20	ppm/K	
CLTE - Average			ISO 11359-2
< 143°C	45	ppm/K	
> 143°C	120	ppm/K	
Thermal Conductivity			ISO 22007-4
23°C ⁴	0.85	W/m/K	
23°C ⁵	1.7	W/m/K	
RTI Imp	180	°C	UL 746B
RTI Str	240	°C	UL 746B
Electrical	Nominal Value	Unit	Test Method
Volume Resistivity ⁶ (23°C)	1.0E+10	ohms·cm	IEC 60093
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)	550	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
Suggested Max Moisture	0.020	%
Hopper Temperature	< 100	°C
Rear Temperature	365	°C
Middle Temperature	370 to 375	°C
Front Temperature	380	°C
Nozzle Temperature	385	°C
Mould Temperature	170 to 200	°C

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Injection Notes

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

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.

Notes

¹ Mould Temperature: 200°C, Melt Temperature: 385°C, 1.00 mm

² Mould Temperature: 200°C, Melt Temperature: 385°C, 3.00 mm

³ 385°C nozzle, 200°C tool

⁴ Average

⁵ Along flow

⁶ 1V

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