

VICTREX® PEEK 450CA40

➤ Product Description:

High performance thermoplastic material, 40% carbon fibre reinforced PolyEtherEtherKetone (PEEK), semi crystalline, granules for injection moulding and extrusion, low flow, FDA food contact compliant, colour black.

➤ Typical Application Areas:

Applications for higher strength and stiffness in a static or dynamic system. Excellent wear resistance, low coefficient of friction, low coefficient of thermal expansion. Chemically resistant to aggressive environments.

➤ Material Properties

	CONDITIONS	TEST METHOD	UNITS	TYPICAL VALUE
Mechanical Data				
Tensile Strength	Break, 23°C	ISO 527	MPa	285
	Break, 125°C			175
	Break, 175°C			105
	Break, 275°C			65
Tensile Elongation	Break, 23°C	ISO 527	%	1.5
Tensile Modulus	23°C	ISO 527	GPa	35
Flexural Strength	23°C	ISO 178	MPa	425
	125°C			290
	175°C			160
	275°C			90
Flexural Modulus	23°C	ISO 178	GPa	30
Compressive Strength	23°C	ISO 604	MPa	360
	120°C			230
	200°C			90
	250°C			60
Izod Impact Strength	Notched, 23°C	ISO 180/A	kJ m ⁻²	11
	Unnotched, 23°C	ISO 180/U		20
Thermal Data				
Melting Point		ISO 11357	°C	343
Glass Transition (Tg)	Onset	ISO 11357	°C	143
	Midpoint			150
Coefficient of Thermal Expansion	Along flow below Tg	ISO 11359	ppm K ⁻¹	5
	Average below Tg			35
	Along flow above Tg			8
	Average above Tg			90
Flow				
Melt Viscosity	400°C	ISO 11443	Pa.s	850
Miscellaneous				
Density	Crystalline	ISO 1183	g cm ⁻³	1.44
Shore D hardness	23°C	ISO 868		88
Water Absorption by immersion	Saturation, 23°C	ISO 62-1	%	0.25
	Saturation, 100°C			0.45

Electrical Properties				
Volume Resistivity	23°C, 1V	ASTM D4496	Ω cm	10 ⁵
Fire Smoke Toxicity				
Glow Wire Test	2mm thickness	IEC 60695-2-12	°C	960 *
Toxicity Index	CO content	NES 713	n/a	0.05 *
	CO ₂ content			0.12 *
	Total gases			0.17 *

* Result based on similar products

Typical Processing Conditions	
Drying Temperature / Time	150°C / 3h or 120°C / 5h (residual moisture <0.02%)
Temperature settings	380 / 390 / 395 / 400 / 405°C (Nozzle)
Hopper Temperature	Not greater than 100°C
Mould Temperature	190°C - 210°C
Runner	Die / nozzle >3mm, manifold >3.5mm
Gate	>2mm or 0.5 x part thickness

Mould Shrinkage and Spiral Flow					
Spiral Flow	405°C nozzle, 200°C tool	1mm thick section	Victrex	mm	65
Mould Shrinkage	405°C nozzle, 200°C tool	Along flow	ISO 294-4	%	0.1
		Across flow			0.5

Important notes:

- 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.
- 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

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