

VICTREX® ST™ 45CA30

➤ Product Description:

High performance thermoplastic material, 30% carbon fibre reinforced PolyEtherKetoneEtherKetoneKetone (PEKEKK), semi crystalline, granules for injection moulding, standard flow, colour black.

➤ Typical Application Areas:

Applications for higher strength and stiffness at elevated temperatures 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	275
	Break, 125°C			180
	Break, 175°C			120
	Break, 275°C			70
Tensile Elongation	Break, 23°C	ISO 527	%	1.7
Tensile Modulus	23°C	ISO 527	GPa	28
Flexural Strength	23°C	ISO 178	MPa	400
	125°C			290
	175°C			190
	275°C			100
Flexural Modulus	23°C	ISO 178	GPa	23.5
Compressive Strength	23°C	ISO 604	MPa	310
	120°C			210
	200°C			95
	250°C			65
Charpy Impact Strength	Notched, 23°C	ISO 179/1eA	kJ m ⁻²	7.0
	Unnotched, 23°C	ISO 179/1U		50
Izod Impact Strength	Notched, 23°C	ISO 180/A	kJ m ⁻²	10.0
	Unnotched, 23°C	ISO 180/U		50
Thermal Data				
Melting Point		ISO 11357	°C	387
Glass Transition (Tg)	Onset	ISO 11357	°C	162
	Midpoint			169
Coefficient of Thermal Expansion	Along flow below Tg	ISO 11359	ppm K ⁻¹	10
	Average below Tg			40
	Along flow above Tg			13
	Average above Tg			95
Heat Deflection Temperature	1.8 MPa	ISO 75-f	°C	383
Thermal Conductivity	Along flow, 23°C	ISO 22007-4	W m ⁻¹ K ⁻¹	2.0
	Average, 23°C			0.95
Flow				
Melt Viscosity	420°C	ISO 11443	Pa.s	650

Miscellaneous				
Density	Crystalline	ISO 1183	g cm ⁻³	1.41
Shore D hardness	23°C	ISO 868		88
Water Absorption by immersion	Saturation, 100°C	ISO 62-1	%	0.8

Electrical Properties				
Volume Resistivity	23°C, 1V	ASTM D4496	Ω cm	10 ⁵

Typical Processing Conditions	
Drying Temperature / Time	180°C / 3h or 150°C / 6h (residual moisture <0.02%)
Temperature settings	390 / 400 / 405 / 410 / 415°C (Nozzle)
Hopper Temperature	Not greater than 100°C
Mould Temperature	200°C - 230°C
Runner	Die / nozzle >3mm, manifold >3.5mm
Gate	>2mm or 0.5 x part thickness

Mould Shrinkage and Spiral Flow					
Spiral Flow	415°C nozzle, 210°C tool	1mm thick section	Victrex	mm	90
		3mm thick section			410
Mould Shrinkage	415°C nozzle, 210°C tool	Along flow	ISO 294-4	%	0.1
		Across flow			0.7

Moulding Guidelines

Victrex ST (unfilled and compounds) has significantly lower thermal stability than other Victrex materials based on PEEK or HT. When moulding Victrex ST, stoppages should not exceed 5-10 minutes, in particular when processing glass filled versions. After any process interruption, however short, the barrel must be purged with fresh product until the melt is clean. It is also advisable to discard the first few mouldings

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

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

World Headquarters

Victrex plc, Hillhouse International, Thornton Cleveleys, Lancashire FY5 4QD United Kingdom
 Tel: + (44) 1253 897700 Fax: + (44) 1253 897701 Email: victrexplc@victrex.com

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