

VICTREX® ST™ 45GL30

➤ Product Description:

High performance thermoplastic material, 30% glass fibre reinforced PolyEtherKetoneEtherKetoneKetone (PEKEKK), semi crystalline, granules for injection moulding, standard flow, colour natural/beige.

➤ Typical Application Areas:

Applications for higher strength and stiffness at elevated temperatures. 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	195
	Break, 125°C			130
	Break, 175°C			80
	Break, 275°C			50
Tensile Elongation	Break, 23°C	ISO 527	%	2.8
Tensile Modulus	23°C	ISO 527	GPa	12.0
Flexural Strength	23°C	ISO 178	MPa	280
	125°C			180
	175°C			120
	275°C			70
Flexural Modulus	23°C	ISO 178	GPa	11.0
Compressive Strength	23°C	ISO 604	MPa	290
	120°C			190
	200°C			75
	250°C			50
Charpy Impact Strength	Notched, 23°C	ISO 179/1eA	kJ m ⁻²	9.0
	Unnotched, 23°C	ISO 179/1U		70
Izod Impact Strength	Notched, 23°C	ISO 180/A	kJ m ⁻²	11
	Unnotched, 23°C	ISO 180/U		60
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	21
	Average below Tg			40
	Along flow above Tg			23
	Average above Tg			100
Heat Deflection Temperature	1.8 MPa	ISO 75-f	°C	380
Thermal Conductivity	Along flow, 23°C	ISO 22007-4	W m ⁻¹ K ⁻¹	0.35
	Average, 23°C			0.30
Flow				
Melt Viscosity	420°C	ISO 11443	Pa.s	600

Miscellaneous				
Density	Crystalline	ISO 1183	g cm^{-3}	1.53
Water Absorption by immersion	Saturation, 100°C	ISO 62-1	%	0.6

Electrical Properties				
Dielectric Strength	2mm thickness	IEC 60243-1	kV mm^{-1}	22
Comparative Tracking Index		IEC 60112	V	150
Loss Tangent	23°C, 1 MHz	IEC 60250	n/a	0.004
Dielectric Constant	23°C, 1 kHz	IEC 60250	n/a	3.3
Volume Resistivity	23°C	IEC 60093	$\Omega \text{ cm}$	10^{16}

Typical Processing Conditions	
Drying Temperature / Time	180°C / 3h or 150°C / 6h (residual moisture <0.02%)
Temperature settings	385 / 395 / 400 / 405 / 410°C (Nozzle)
Hopper Temperature	Not greater than 100°C
Mould Temperature	200°C - 220°C
Runner	Die / nozzle >3mm, manifold >3.5mm
Gate	>2mm or 0.5 x part thickness

Mould Shrinkage and Spiral Flow					
Spiral Flow	410°C nozzle, 210°C tool	1mm thick section	Victrex	mm	100
		3mm thick section			440
Mould Shrinkage	410°C nozzle, 210°C tool	Along flow	ISO 294-4	%	0.3
		Across flow			0.9

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

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