

VICTREX® ST™ G45

➤ Product Description:

High performance thermoplastic material, unreinforced PolyEtherKetoneEtherKetoneKetone (PEKEKK), semi crystalline, depth filtered granules for injection moulding, standard flow, colour natural/beige.

➤ Typical Application Areas:

Applications for high strength and stiffness as well as good ductility at higher temperatures. Chemically resistant to aggressive environments.

➤ Material Properties

	CONDITIONS	TEST METHOD	UNITS	TYPICAL VALUE
Mechanical Data				
Tensile Strength	Yield, 23°C	ISO 527	MPa	115
Tensile Elongation	Break, 23°C	ISO 527	%	25
Tensile Modulus	23°C	ISO 527	GPa	4.2
Flexural Strength	At 3.5% strain, 23°C	ISO 178	MPa	130
Flexural Strength	At yield, 23°C			190
	125°C			110
	175°C			35
	275°C			20
Flexural Modulus	23°C	ISO 178	GPa	4.0
Compressive Strength	23°C	ISO 604	MPa	145
	120°C			90
	200°C			35
Charpy Impact Strength	Notched, 23°C	ISO 179/1eA	kJ m ⁻²	4.0
	Unnotched, 23°C	ISO 179/1U		n/b
Izod Impact Strength	Notched, 23°C	ISO 180/A	kJ m ⁻²	6.0
	Unnotched, 23°C	ISO 180/U		n/b
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	45
	Average below Tg			55
	Along flow above Tg			105
	Average above Tg			125
Heat Deflection Temperature	1.8 MPa	ISO 75-f	°C	172
Thermal Conductivity	Along flow, 23°C	ISO 22007-4	W m ⁻¹ K ⁻¹	0.32
	Average, 23°C			0.29
Flow				
Melt Viscosity	420°C	ISO 11443	Pa.s	225
Miscellaneous				
Density	Crystalline	ISO 1183	g cm ⁻³	1.30
Shore D hardness	23°C	ISO 868		84.5
Water Absorption by immersion	Saturation, 100°C	ISO 62-1	%	0.95

Electrical Properties				
Dielectric Strength	2mm thickness	IEC 60243-1	kV mm ⁻¹	23
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	3.0
Volume Resistivity	23°C	IEC 60093	Ω 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	>1mm or 0.5 x part thickness

Mould Shrinkage and Spiral Flow					
Spiral Flow	395°C nozzle, 200°C tool	1mm thick section	Victrex	mm	160
		3mm thick section			680
Mould Shrinkage	395°C nozzle, 200°C tool	1mm thick section			190
		Along flow	ISO 294-4	%	1.1
	415°C nozzle, 220°C tool	Across flow			1.2
		Along flow			1.4
		Across flow			1.6

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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