

VICTREX® ST™ ST45GL30

Polyetherketone Etherketone Ketone

Victrex plc

Message:

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.

General Information			
Filler / Reinforcement	Glass fiber reinforced material, 30% filler by weight		
Features	Semicrystallization		
	Rigidity, high		
	High strength		
	High temperature strength		
	Good chemical resistance		
Appearance	Beige		
	Natural color		
Forms	Particles		
Processing Method	Injection molding		
Physical	Nominal Value	Unit	Test Method
Density ¹	1.53	g/cm ³	ISO 1183
Spiral Flow			Internal method
--	10.0	cm	Internal method
-- ²	44.0	cm	Internal method
Molding Shrinkage ³			ISO 294-4
Vertical flow direction	0.90	%	ISO 294-4
Flow direction	0.30	%	ISO 294-4
Mechanical	Nominal Value	Unit	Test Method
Tensile Modulus (23°C)	12000	MPa	ISO 527-2
Tensile Stress			ISO 527-2
Fracture, 23°C	200	MPa	ISO 527-2
Fracture, 125°C	130	MPa	ISO 527-2
Fracture, 175°C	80.0	MPa	ISO 527-2
Fracture, 275°C	50.0	MPa	ISO 527-2
Tensile Strain (Break, 23°C)	2.5	%	ISO 527-2
Flexural Modulus (23°C)	11000	MPa	ISO 178
Flexural Stress			ISO 178

23°C	270	MPa	ISO 178
125°C	180	MPa	ISO 178
175°C	120	MPa	ISO 178
275°C	70.0	MPa	ISO 178
Compressive Stress			ISO 604
23°C	290	MPa	ISO 604
120°C	190	MPa	ISO 604
200°C	75.0	MPa	ISO 604
250°C	50.0	MPa	ISO 604
Impact	Nominal Value	Unit	Test Method
Charpy Notched Impact Strength (23°C)	9.0	kJ/m ²	ISO 179/1eA
Charpy Unnotched Impact Strength (23°C)	70	kJ/m ²	ISO 179/1U
Notched Izod Impact (23°C)	11	kJ/m ²	ISO 180/A
Unnotched Izod Impact Strength (23°C)	70	kJ/m ²	ISO 180
Thermal	Nominal Value	Unit	Test Method
Heat Deflection Temperature (1.8 MPa, Unannealed)	380	°C	ISO 75-2/Af
Glass Transition Temperature ⁴	162	°C	ISO 3146
Melting Temperature (DSC)	387	°C	ISO 3146
Linear thermal expansion coefficient			ISO 11359-2
Flow ⁵	2.1E-5	cm/cm/°C	ISO 11359-2
Flow ⁶	2.3E-5	cm/cm/°C	ISO 11359-2
Lateral ⁷	4.0E-5	cm/cm/°C	ISO 11359-2
Lateral ⁸	1.0E-4	cm/cm/°C	ISO 11359-2
Thermal Conductivity (23°C)	0.30	W/m/K	ISO 22007-4
Electrical	Nominal Value	Unit	Test Method
Volume Resistivity	1.0E+16	ohms · cm	IEC 60093
Dielectric Strength (2.00 mm)	22	kV/mm	IEC 60243-1
Dielectric Constant ⁹ (23°C)	3.30		IEC 60250
Comparative Tracking Index ¹⁰	150	V	IEC 60112
Fill Analysis	Nominal Value	Unit	Test Method
Melt Viscosity (420°C)	550000	mPa · s	ISO 11443
Additional Information	Nominal Value	Unit	Test Method
Loss Tangent ¹¹ (23°C)	0.00400		IEC 60250
Mold Temperature - Maximum	250	°C	
Injection	Nominal Value	Unit	
Drying Temperature			
A	180	°C	
B	150	°C	
Drying Time			
A	3.0	hr	
B	6.0	hr	

Hopper Temperature	< 100	°C
Rear Temperature	385	°C
Middle Temperature	395 - 400	°C
Front Temperature	405	°C
Nozzle Temperature	410	°C
Mold Temperature	200 - 220	°C

Injection instructions

Runner Die/nozzle: >3mm, manifold >3.5mm Gate: >2mm or 0.5 x part thickness

NOTE

1.	Crystalline
2.	3 mm
3.	410°C nozzle, 210°C tool
4.	Onset
5.	Below Tg
6.	Above Tg
7.	Below Tg
8.	Above Tg
9.	1 kHz
10.	Result based on 450G
11.	1 MHz

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