

VICTREX® ST™ STG45

Polyetherketone Etherketone Ketone

Victrex plc

Message:

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.

General Information			
Features	Semicrystallization		
	Rigidity, high		
	High strength		
	Good chemical resistance		
	Heat resistance, high		
	ductility		
Appearance	Beige		
	Natural color		
Forms	Particles		
Processing Method	Injection molding		
Physical	Nominal Value	Unit	Test Method
Density			ISO 1183
-- ¹	1.26	g/cm ³	ISO 1183
-- ²	1.30	g/cm ³	ISO 1183
Spiral Flow			Internal method
--	16.0	cm	Internal method
--	19.0	cm	Internal method
-- ³	68.0	cm	Internal method
Molding Shrinkage			ISO 294-4
Vertical flow direction ⁴	1.2	%	ISO 294-4
Vertical flow direction ⁵	1.6	%	ISO 294-4
Flow direction ⁶	1.4	%	ISO 294-4
Flow direction ⁷	1.1	%	ISO 294-4
Hardness	Nominal Value	Unit	Test Method
Durometer Hardness (Shore D, 23°C)	85		ISO 868
Mechanical	Nominal Value	Unit	Test Method
Tensile Modulus (23°C)	4300	MPa	ISO 527-2
Tensile Stress (Yield, 23°C)	115	MPa	ISO 527-2
Tensile Strain (Break, 23°C)	20	%	ISO 527-2

Flexural Modulus (23°C)	4100	MPa	ISO 178
Flexural Stress			ISO 178
3.5% strain, 23°C	135	MPa	ISO 178
23°C ⁸	180	MPa	ISO 178
125°C	110	MPa	ISO 178
175°C	36.0	MPa	ISO 178
275°C	21.0	MPa	ISO 178
Compressive Stress			ISO 604
23°C	145	MPa	ISO 604
120°C	90.0	MPa	ISO 604
200°C	35.0	MPa	ISO 604
Impact	Nominal Value	Unit	Test Method
Charpy Notched Impact Strength (23°C)	4.0	kJ/m ²	ISO 179/1eA
Charpy Unnotched Impact Strength (23°C)	No Break		ISO 179
Notched Izod Impact (23°C)	6.0	kJ/m ²	ISO 180/A
Unnotched Izod Impact Strength (23°C)	No Break		ISO 180
Thermal	Nominal Value	Unit	Test Method
Heat Deflection Temperature (1.8 MPa, Unannealed)	172	°C	ISO 75-2/Af
Glass Transition Temperature ⁹	162	°C	ISO 3146
Melting Temperature (DSC)	387	°C	ISO 3146
Linear thermal expansion coefficient			ISO 11359-2
Flow ¹⁰	4.5E-5	cm/cm/°C	ISO 11359-2
Flow ¹¹	1.1E-4	cm/cm/°C	ISO 11359-2
Lateral ¹²	5.5E-5	cm/cm/°C	ISO 11359-2
Lateral ¹³	1.3E-4	cm/cm/°C	ISO 11359-2
Thermal Conductivity (23°C)	0.29	W/m/K	ISO 22007-4
Electrical	Nominal Value	Unit	Test Method
Volume Resistivity (23°C)	1.0E+16	ohms · cm	IEC 60093
Dielectric Strength (2.50 mm)	23	kV/mm	IEC 60243-1
Dielectric Constant (23°C, 1 kHz)	3.00		IEC 60250
Dissipation Factor (23°C, 1 MHz)	4.0E-3		IEC 60250
Comparative Tracking Index ¹⁴	150	V	IEC 60112
Fill Analysis	Nominal Value	Unit	Test Method
Melt Viscosity (420°C)	220000	mPa · s	ISO 11443
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	375	°C
Middle Temperature	380 - 385	°C
Front Temperature	390	°C
Nozzle Temperature	395	°C
Mold Temperature	200 - 220	°C
Mold Temperature - Maximum	250	°C

Injection instructions

Gate: > 1mm or 0.5 x part thickness

NOTE

1.	Amorphous
2.	Crystalline
3.	3 mm
4.	395°C nozzle, 200°C tool
5.	415°C nozzle, 220°C tool
6.	415°C nozzle, 220°C tool
7.	395°C nozzle, 200°C tool
8.	at Yield
9.	Onset
10.	Below Tg
11.	Above Tg
12.	Below Tg
13.	Above Tg
14.	Result based on 450G

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