VICTREX ST™ POLYMER G45

General Information

Product Description

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

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

Material Properties

Physical	Nominal Value	Unit	Test Method
Density (Crystalline)	1.30	g/cm³	ISO 1183
Spiral Flow			Internal Method
-- [1]	16.0	cm	
-- [2]	68.0	cm	
-- [3]	19.0	cm	
Molding Shrinkage			ISO 294-4
Across Flow [4]	1.6	%	
Across Flow [5]	1.2	%	
Flow [4]	1.4	%	
Flow [5]	1.1	%	
Water Absorption - Saturation (100°C)	0.95	%	ISO 62
Mechanical	**Nominal Value**	**Unit**	**Test Method**
Tensile Modulus (23°C)	4200	MPa	ISO 527-1
Tensile Stress (Yield, 23°C)	115	MPa	ISO 527-2
Tensile Strain (Break, 23°C)	25	%	ISO 527-2
Flexural Modulus (23°C)	4000	MPa	ISO 178
Flexural Stress			ISO 178
23°C [6]	190	MPa	
3.5% Strain, 23°C	130	MPa	
125°C	110	MPa	
175°C	35.0	MPa	
275°C	20.0	MPa	
Compressive Stress			ISO 604
23°C	145	MPa	
120°C	90.0	MPa	
200°C	35.0	MPa	
Impact	**Nominal Value**	**Unit**	**Test Method**
Charpy Notched Impact Strength (23°C)	4.0	kJ/m²	ISO 179/1eA
Charpy Unnotched Impact Strength (23°C)	No Break		ISO 179/1U
Notched Izod Impact Strength (23°C)	6.0	kJ/m²	ISO 180/A
Unnotched Izod Impact Strength (23°C)	No Break		ISO 180
Hardness	**Nominal Value**	**Unit**	**Test Method**
Shore Hardness (Shore D, 23°C)	84.5		ISO 868

VICTREX ST™ POLYMER G45

Thermal	Nominal Value	Unit	Test Method
Deflection Temperature Under Load			ISO 75-2/Af
1.8 MPa, Unannealed	172	°C	
Glass Transition Temperature			ISO 11357-2
Onset	162	°C	
Midpoint	169	°C	
Melting Temperature	387	°C	ISO 11357-3
CLTE - Flow			ISO 11359-2
< 162°C	45	ppm/K	
> 162°C	105	ppm/K	
CLTE - Average			ISO 11359-2
< 162°C	55	ppm/K	
> 162°C	130	ppm/K	
Thermal Conductivity			ISO 22007-4
23°C [7]	0.29	W/m/K	
23°C [8]	0.32	W/m/K	

Electrical	Nominal Value	Unit	Test Method
Volume Resistivity (23°C)	1.0E+16	ohms·cm	IEC 60093
Dielectric Strength (2.00 mm)	23.0	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	150	V	IEC 60112

Fill Analysis	Nominal Value	Unit	Test Method
Melt Viscosity (420°C)	225	Pa·s	ISO 11443

Typical Processing Information

Injection	Nominal Value	Unit
Drying Temperature	150 to 180	°C
Drying Time	3.0 to 6.0	hr
Hopper Temperature	< 100	°C
Rear Temperature	385	°C
Middle Temperature	395 to 400	°C
Front Temperature	405	°C
Nozzle Temperature	410	°C
Mold Temperature	200 to 220	°C

Injection Notes

Runner: Die / nozzle >3mm, manifold >3.5mm
Gate: >1mm or 0.5 x part thickness

Important notes:

1) 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.

2) 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.

VICTREX ST™ POLYMER G45

Notes

[1] Mold Temperature: 200°C, Melt Temperature: 395°C, 1.00 mm

[2] Mold Temperature: 200°C, Melt Temperature: 395°C, 3.00 mm

[3] Mold Temperature: 220°C, Melt Temperature: 415°C, 1.00 mm

[4] 415°C nozzle, 220°C tool

[5] 395°C nozzle, 200°C tool

[6] At yield

[7] Average

[8] Along flow

Revision Date: December 2023