VICTREX™ PEEK POLYMER ESD101

General Information

Product Description

High performance thermoplastic material with tight electrostatic dissipative control and low outgassing. ESD performance not influenced by moulding conditions provided that recommended processing conditions are rigorously adhered to. Semi crystalline, granules for injection moulding, easy flow, colour black.

Applications in the semi-conductor industry were ESD control is essential while maintaining other performance requirements.

Material Properties

Physical	Nominal Value	Unit	Test Method
Density (Crystalline)	1.65	g/cm³	ISO 1183
Spiral Flow [1]	14.0	cm	Internal Method
Molding Shrinkage [2]			ISO 294-4
Across Flow	0.50	%	
Flow	0.40	%	
Mechanical	**Nominal Value**	**Unit**	**Test Method**
Tensile Modulus (23°C)	11500	MPa	ISO 527-1
Tensile Stress			ISO 527-2
Break, -55°C	145	MPa	
Break, 23°C	125	MPa	
Break, 120°C	80.0	MPa	
Tensile Strain (Break, 23°C)	1.6	%	ISO 527-2
Flexural Modulus (23°C)	11000	MPa	ISO 178
Flexural Stress			ISO 178
-55°C	230	MPa	
23°C	200	MPa	
125°C	145	MPa	
175°C	80.0	MPa	
275°C	45.0	MPa	
Impact	**Nominal Value**	**Unit**	**Test Method**
Notched Izod Impact Strength (23°C)	4.0	kJ/m²	ISO 180/A
Unnotched Izod Impact Strength (23°C)	25.0	kJ/m²	ISO 180
Hardness	**Nominal Value**	**Unit**	**Test Method**
Shore Hardness (Shore D, 23°C)	89.0		ISO 868
Thermal	**Nominal Value**	**Unit**	**Test Method**
Deflection Temperature Under Load			ISO 75-2/Af
1.8 MPa, Unannealed	258	°C	
Glass Transition Temperature			ISO 11357-2
Onset	143	°C	
Midpoint	147	°C	
Melting Temperature	343	°C	ISO 11357-3
CLTE - Flow			ISO 11359-2
< 143°C	25	ppm/K	
> 143°C	70	ppm/K	

VICTREX™ PEEK POLYMER ESD101

Thermal	Nominal Value	Unit	Test Method
CLTE - Average			ISO 11359-2
< 143°C	40	ppm/K	
> 143°C	130	ppm/K	
Thermal Conductivity			ISO 22007-4
23°C [3]	0.45	W/m/K	
23°C [4]	0.65	W/m/K	
Electrical	**Nominal Value**	**Unit**	**Test Method**
Surface Resistivity			Internal Method
-- [5]	1.0E+7 to 1.0E+8	ohms	
-- [6]	1.0E+6 to 1.0E+7	ohms	
Volume Resistivity [7] (23°C)	1.0E+8	ohms·cm	IEC 60093
Fill Analysis	**Nominal Value**	**Unit**	**Test Method**
Melt Viscosity (400°C)	275	Pa·s	ISO 11443
Additional Information	**Nominal Value**	**Unit**	**Test Method**
OutgassingTotal Mass Loss, 24h (125°C)	0.24	%	ASTM E595
OutgassingWater Vapour Regained, 24h (125°C)	0.11	%	ASTM E595

Typical Processing Information

Injection	Nominal Value	Unit
Drying Temperature	120 to 150	°C
Drying Time	3.0 to 5.0	hr
Hopper Temperature	< 100	°C
Rear Temperature	365	°C
Middle Temperature	370 to 375	°C
Front Temperature	380	°C
Nozzle Temperature	385	°C
Mould Temperature	180 to 220	°C

Injection Notes

Runner: Die / nozzle >3mm, manifold >3.5mm

Gate: >2mm 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™ PEEK POLYMER ESD101

Notes

[1] Mould Temperature: 180°C, Melt Temperature: 385°C, 1.00 mm

[2] 385°C nozzle, 180°C tool

[3] Average

[4] Along flow

[5] 23°C, 10V

[6] 23°C, 100V

[7] 100V

Revision Date: December 2023