

VICTREX™ PEEK ESD101

➤ 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.

➤ Typical Application Areas:

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

➤ Material Properties

	CONDITIONS	TEST METHOD	UNITS	TYPICAL VALUE
Mechanical Data				
Tensile Strength	Break, 23°C	ISO 527	MPa	125
	Break, -55°C			145
	Break, 120°C			80
Tensile Elongation	Break, 23°C	ISO 527	%	1.6
Tensile Modulus	23°C	ISO 527	GPa	11.5
Flexural Strength	23°C	ISO 178	MPa	200
	-55°C			230
	125°C			145
	175°C			80
	275°C			45
Flexural Modulus	23°C	ISO 178	GPa	11.0
Izod Impact Strength	Notched, 23°C	ISO 180/A	kJ m ⁻²	4.0
	Unnotched, 23°C	ISO 180/U		25
Thermal Data				
Melting Point		ISO 11357	°C	343
Glass Transition (T _g)	Onset	ISO 11357	°C	143
	Midpoint			147
Coefficient of Thermal Expansion	Along flow below T _g	ISO 11359	ppm K ⁻¹	25
	Average below T _g			40
	Along flow above T _g			70
	Average above T _g			125
Heat Deflection Temperature	1.8 MPa	ISO 75-f	°C	258
Thermal Conductivity (at 23°C)	Along flow	ISO 22007-4	W m ⁻¹ K ⁻¹	0.65
	Average			0.45
Flow				
Melt Viscosity	400°C	ISO 11443	Pa.s	275
Electrical Properties				
Volume Resistivity	23°C, 100V	IEC 60093	Ω cm	10 ⁸
Surface Resistivity	23°C, 10V	EOS/ESD S11.13	Ω/sq	10 ⁷ /10 ⁸
	23°C, 100V	EOS/ESD S11.13	Ω/sq	10 ⁶ /10 ⁷

Miscellaneous				
Density	Crystalline	ISO 1183	g cm ⁻³	1.65
Shore D hardness	23°C	ISO 868		89
Outgassing - Total Mass Loss	24h, 125°C	ASTM E-595	%	0.24
Outgassing - Water Vapour Regained	24h, 125°C	ASTM E-595	%	0.11

Typical Processing Conditions	
Drying Temperature / Time	150°C / 3h or 120°C / 5h
Temperature settings	365 / 370 / 375 / 380 / 385°C (Nozzle)
Hopper Temperature	Not greater than 100°C
Mould Temperature	180-220°C (max 250°C)
Runner	Die / nozzle >3mm, manifold >3.5mm
Gate	>2 mm or 0.5 x part thickness

Mould Shrinkage and Spiral Flow					
Spiral flow	385°C nozzle, 180°C tool	1mm wall thickness	Victrex	mm	140
Mould Shrinkage	385°C nozzle, 180°C tool	Along flow	ISO 294-4	%	0.4
		Across flow		%	0.5

Moulding Guidelines	
It is essential that all sections of the mould tool are at a temperature >180°C to ensure moulded part meets ESD requirement.	
The mould temperature of >180°C must be the actual surface temperature; not the set value.	
The mould temperature should be checked using a measurement probe to confirm that the recommended minimum temperature has been achieved.	
The mould heaters must be capable of reaching and holding these high temperatures. Cartridge heaters are the suggested option.	

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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