PRSPEEK 880ESD

Injection grade ESD PEEK:
PRES use carbon fiber as the conductive filler, delivering stable electrostatic dissipation with high mechanical strength. The conductive phase is homogeneously dispersed within the polymer matrix during compounding, eliminating the particle-shedding risk associated with coated or topical antistatic treatments.

Test Item	Test Method	Conditions	Units	Test Data
Mechanical Data				
Tensile Strength	ISO 527	Break, 23℃	MPa	205
Tensile Elongation	ISO 527	Break, 23℃	%	2
Flexural Strength	ISO 178	Break, 23℃	MPa	310
Flexural Modulus	ISO 178	23℃	GPa	16
Compressive Strength	ISO 604	23℃	MPa	-
Charpy Impact Strength	ISO 179/1eA	Notched	kJ m^{-2}	7
	ISO 179/1U	Unnotched	kJ m^{-2}	45
Izod Impact Strength	ISO 180/A	Notched	kJ m^{-2}	8
	ISO 180/U	Unnotched	kJ m^{-2}	40
Mould Shrinkage	ISO 294-4	Along Flow	%	0.2
		Across Flow	%	0.7
Thermal Data				
Melting Point	ISO 11357	-	℃	343
Glass Transition (Tg)	ISO 11357	Onset	℃	143
Special Heat Capacity	DSC	23℃	kJ kg^{-1} ℃-1	1.8
Coefficient of Thermal Expansion	ISO 11359	Along flow below Tg	ppm K^{-1}	8
	ISO 11359	Along flow above Tg	ppm K^{-1}	8
Heat Deflection Temperature	ISO 75	1.8 Mpa	℃	325
Thermal Conductivity	ISO 22007-4	23℃	W m^{-1} K-1	0.95
Flow				
Melt Index	ISO 1133	380℃,5kg	g $10min^{-1}$	7

Miscellaneous				
Density	ISO 1183	Crystalline	g cm^{-3}	1.37
	ISO 1183	Amorphous	g cm^{-3}	-
Shore D Hardness	ISO 868	23℃		86
Water Absorption（3.2mm thick Tensile Bar）（by immersion）	ISO 62	24h, 23℃	%	0.05
	ISO 62	Equilibrium, 23℃	%	0.4
Electrical Data				
Dielectric Strength	IEC 60243-1	2mm	kV mm^{-1}	-
Comparative Tracking Index	IEC 60112	-	V	-
Dielectric Constant	IEC 60250	23℃, 1kHz	-	-
	IEC 60250	23℃,50Hz	-	-
Loss Tangent	IEC 60250	23℃, 1MHz	-	-
Volume Resistivity	IEC 60093	23℃,1V	Ω cm	10^{6-9}
	IEC 60093	275℃	Ω cm	-

Mold Design & Processing Notes for ESD PSD PEEK:

Volume resistivity of injection ESD PEEK parts is will be affected by the effective carbon-fiber length retained after processing. Since carbon fibers form a conductive network within the matrix, excessive fiber breakage during molding raises resistivity.You need to notice:

1.Gate design:
The gate is one of the highest-shear zones in the mold and a primary location for fiber-length reduction. Undersized gates, right-angle gate geometries, and pinpoint gates generate intense localized shear that fractures fibers and degrades the conductive network, resulting in higher part resistivity. Gate type, size, and location should be evaluated against part geometry rather than used as a default.

2.Screw speed: injection, screw speed must balance cycle time against melt homogeneity. Excessively high screw RPM increases shear and accelerates fiber attrition. A moderate-to-low screw speed is recommended to preserve fiber length and maintain consistent resistivity across production runs.