

Semitron™ ESD HPV PEEK



Poly-ether-ether-ketone

Semitron™ ESD HPV PEEK electrostatic dissipative shapes contain specific additives that make it an excellent performer in wear and friction applications where antistatic properties are essential. Due to this, this grade excels in electronic fixture applications that require a high degree of dimensional stability over an extended thermal range, as well as precise machinability. Semitron™ ESD HPV PEEK is ideal for chip trays and carriers, PCB board manufacturing and fixturing for electronic assemblies.

	ISO*				ASTM*			
		Test methods	Units	Indicative values	Test methods	Units	Indicative values	
Thermal properties (1)	Melting temperature (DSC, 10°C (50°F) / min)	ISO 11357-1/-3	°C	340	ASTM D3418	°F	644	
	Glass transition temperature (DMA- Tan δ) (2)		°C			°F		
	Thermal conductivity at 23°C (73°F)		W/(K.m)	0.57		BTU in./hr.in².°F		
	Coefficient of linear thermal expansion (-40 to 150 °C) (-40 to 300°F)				ASTM E-831 (TMA)	µin./in./°F	35	
	Coefficient of linear thermal expansion (23 to 100°C) (73°F to 210°F)		µm/(m.K)	37				
	Coefficient of linear thermal expansion (23 to 150°C) (73°F to 300°F)		µm/(m.K)	42				
	Coefficient of linear thermal expansion (>150°C) (> 300°F)		µm/(m.K)	100				
	Heat Deflection Temperature: method A: 1.8 MPa (264 PSI)	ISO 75-1/-2	°C	195	ASTM D648	°F	383	
	Continuous allowable service temperature in air (20.000 hrs) (3)		°C	250		°F	482	
	Min. service temperature (4)		°C	-20		°F		
Mechanical Properties (6)	Flammability: UL 94 (3 mm (1/8 in.)) (5)			V-0				V-0
	Flammability: Oxygen Index	ISO 4589-1/-2	%					
	Tensile strength	ISO 527-1/-2 (7)	MPa	77	ASTM D638 (8)	PSI	8,600	
	Tensile strain (elongation) at yield	ISO 527-1/-2 (7)	%		ASTM D638 (8)	%		
	Tensile strain (elongation) at break	ISO 527-1/-2 (7)	%	2.4	ASTM D638 (8)	%	4	
	Tensile modulus of elasticity	ISO 527-1/-2 (9)	MPa	6,140	ASTM D638 (8)	KSI	775	
	Shear Strength	ASTM D732	MPa		ASTM D732	PSI		
	Compressive stress at 1 / 2 / 5 % nominal strain	ISO 604 (10)	MPa	42 / 76 / 125				
	Compressive strength				ASTM D695 (11)	PSI	17,500	
	Charpy impact strength - unnotched	ISO 179-1/1eU	kJ/m²	24				
	Charpy impact strength - notched	ISO 179-1/1eA	kJ/m²	2.7				
	Izod Impact notched				ASTM D256	ft.lb./in	1	
	Flexural strength	ISO 178 (12)	MPa	160	ASTM D790 (13)	PSI	15,000	
	Flexural modulus of elasticity	ISO 178 (12)	MPa	8,500	ASTM D790	KSI	760	
Electrical Properties	Rockwell M hardness (14)	ISO 2039-2		93	ASTM D785		92	
	Rockwell R hardness (14)	ISO 2039-2			ASTM D785		121	
	Electric strength	IEC 60243-1 (15)	kV/mm		ASTM D149	Volts/mil		
	Volume resistivity	IEC 62631-3-1	Ohm.cm		ASTM D257	Ohm.cm		
	Surface resistivity	ANSI/ESD STM 11.11	Ohm	10^6-10^9	ANSI/ESD STM 11.11	Ohm	10^6-10^9	
Miscellaneous	Dielectric constant at 1 MHz	IEC 62631-2-1			ASTM D150			
	Dissipation factor at 1MHz	IEC 62631-2-1			ASTM D150			
	Color			Black				Black
	Density	ISO 1183-1	g/cm³	1.45				
	Specific Gravity				ASTM D792		1.46	
	Water absorption after 24h immersion in water of 23 °C (73°F)	ISO 62 (16)	%	0.05	ASTM D570 (17)	%	0.04	
	Water absorption at saturation in water of 23 °C (73°F)		%	0.35	ASTM D570 (17)	%	0.18	
	Wear rate	ISO 7148-2 (18)	µm/km	2	QTM 55010 (19)	in³.min/ft.lbs.hrX10 ⁻¹⁰		
	Dynamic Coefficient of Friction (-)	ISO 7148-2 (18)		0.15-0.25	QTM 55007 (20)			
	Limiting PV at 100 FPM (safety factor 4)				QTM 55007 (21)	ft.lbs/in².min		
	Limiting PV at 0.1 / 1 m/s cylindrical sleeve bearings		MPa.m/s	0.66 / 0.42				
	Limiting PV at 0.5 m/s cylindrical sleeve bearings	QTM 55007 (21)	MPa.m/s					
	Chemical Resistance							

Note: 1 g/cm³ = 1,000 kg/m³ ; 1 MPa = 1 N/mm² ; 1 kV/mm = 1 MV/m NYP: there is no yield point