

Semitron[®] MP370

Key benefits

- Very low moisture absorption
- Excellent machinability
- Good economical alternative material to unfilled polyimides, but also offering higher stiffness and better dimensional stability

Common applications

- IC test sockets for semiconductor manufacturing equipment
- Structural parts in electronics and telecom equipment
- Insulating blocks and fixtures in diagnostic equipment



Excellent machinability, stability and performance value

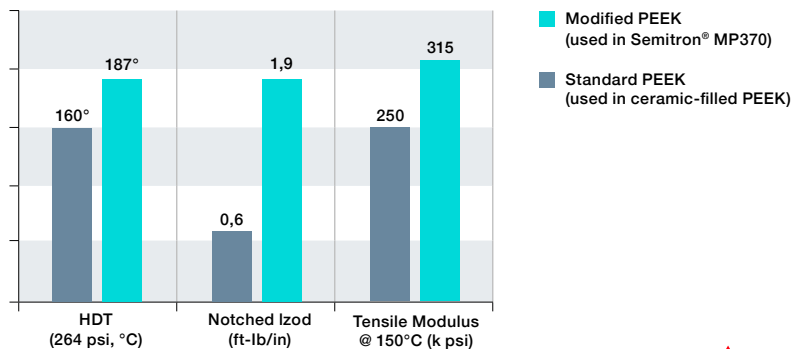
Base resin

Semitron[®] MP370 uses modified PEEK as a base resin offering higher heat for improved ability to machine clean fine features and improved toughness to resist breakage in use when compared to ceramic filled PEEK materials.

Processing

Semitron[®] MP370 uses extrusion to manufacture ultra low stress consistent plate as compared to typical injection molded ceramic filled materials. Extruded material provides far better dimensional stability during machining allowing for finer features while maintaining tighter tolerances.

Base resin comparison



Semitron® MP370

Semitron® MP 370 shapes exhibit excellent moisture and thermal resistance, while also maintaining outstanding strength and dimensional stability. As a result, this grade is often selected for test socket applications where precision machining is critical, and complex geometries are prevalent.

	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	480
	Glass transition temperature (DMA, tan delta)	DMA	°C	-	DMA	°F	-
	Thermal conductivity at 23°C (73°F)	-	W/(K.m)	0.34	-	BTU in./in.(hr.°F)	2.36
	Coefficient of linear thermal expansion (-40 to 150 °C) (-40 to 300°F)	-	µm/(m.K)	49	ASTM E-831 (TMA)	µin./in./°F	25
	Coefficient of linear thermal expansion (23 to 100°C) (73°F to 210°F)	-	µm/(m.K)	51			
	Coefficient of linear thermal expansion (23 to 150°C) (73°F to 300°F)	-	µm/(m.K)	109			
	Coefficient of linear thermal expansion (>150°C) (> 300°F) -	-	µm/(m.K)	148	ASTM D648	°F	300
	Heat Deflection Temperature: method A: 1.8 MPa (264 PSI)	ISO 75-1/-2	°C	-	-	°F	-
	Continuous allowable service temperature in air (20.000 hrs)	-	°C	-	-	°F	-
	Min. service temperature	-	°C	-	-	°F	-
Flammability: UL 94 (3 mm (1/8 in.))	-	-	V-0	-	-	V-0	
Flammability: Oxygen Index	ISO 4589-1/-2	%					
Mechanical Properties (6)	Tensile strength	ISO 527-1/-2	MPa	78	ASTM D638	PSI	11,500
	Tensile strain (elongation) at yield	ISO 527-1/-2	%	-	ASTM D638	%	4.80
	Tensile strain (elongation) at break	ISO 527-1/-2	%	2	ASTM D638	%	5.2
	Tensile modulus of elasticity	ISO 527-1/-2	MPa	4,450	ASTM D638	KSI	640
	Shear Strength	ASTM D732	MPa	78	ASTM D732	PSI	11,300
	Compressive stress at 1 / 2 / 5 % nominal strain	ISO 604	MPa	38 / 72			
	Compressive strength				ASTM D695	PSI	18,200
	Charpy impact strength - unnotched	ISO 179-1/1eU	kJ/m²	50.0			
	Charpy impact strength - notched	ISO 179-1/1eA	kJ/m²	4.0			
	Izod Impact notched				ASTM D256	ft.lb./in	0.40
	Flexural strength	ISO 178	MPa	-	ASTM D790	PSI	16,750
	Flexural modulus of elasticity	ISO 178	MPa	-	ASTM D790	KSI	625,000
	Rockwell M hardness	ISO 2039-2	-	97	ASTM D785	-	
Rockwell R Hardness	ISO 2039-2	-		ASTM D2240	-	98	
Electrical Properties	Electric strength	IEC 60243-1	kV/mm	-	ASTM D149	Volts/mil	375
	Volume resistivity	IEC 62631-3-1	Ohm.cm		IEC 60093	Ohm.cm	
	Surface resistivity	ANSI/ESD STM 11.11	Ohm/sq.	10E12	ANSI/ESD STM 11.11	Ohm/sq.	10E12
	Dielectric constant at 1 MHz	IEC 62631-2-1	-	-	ASTM D150	-	4.13
	Dissipation factor at 1 MHz	IEC 62631-2-1	-	-	ASTM D150	-	0.0040
Miscellaneous	Colour	-	-	Grey	-	-	Grey
	Density	ISO 1183-1	g/cm³	1.65			
	Specific Gravity				ASTM D792	-	1.62
	Water absorption after 24h immersion in water of 23°C (73°F)	ISO 62	%		ASTM D570	%	0.11
	Water absorption at saturation in water of 23 °C (73°F)	-	%	0.5	ASTM D570	%	0.5
	Wear rate	ISO 7148-2	µm/km	-	QTM 55010	in³.min/ft.lbs.hr×10 ⁻¹⁰	-
	Dynamic Coefficient of Friction (-)	ISO 7148-2	-	-	QTM 55007	-	-
	Limiting PV at 100 FPM				QTM 55007	ft.lbs/in².min	2,200
Limiting PV at 0.1 / 1 m/s cylindrical sleeve bearings		Mpa.m/s	- / -				
Chemical Resistance	https://www.mcam.com/en/support/chemical-resistance-information/			https://www.mcam.com/en/support/chemical-resistance-information/			

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

*This table, mainly to be used for comparison purposes, is a valuable help in the choice of a material. The data listed here fall within the normal range of product properties of dry material. However, they are not guaranteed and they should not be used to establish material specification limits nor used alone as the basis of design. This product data sheet and any data and specifications presented on our website shall provide promotional and general information about the Engineering Plastic Products (the "Products") manufactured and offered by Mitsubishi Chemical Advanced Materials and shall serve as a preliminary guide. All data and descriptions relating to the Products are of an indicative nature only. Neither this data sheet nor any data and specifications presented on our website shall create or be implied to create any legal or contractual obligation.

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