Ketron™ IM 1000 PEEK

MITSUBISHI CHEMICAL GROUP

Poly-ether-ether-ketone

Ketron™ IM 1000 PEEK (injection molded) shapes offer excellent chemical, corrosion and wear resistance across a wide range of operating temperatures. Ideal for applications within the oil and gas industry, Ketron™ IM 1000 PEEK components are often specified for backup seal rings and v-seals. In addition to the widely used Ketron 1000 PEEK grade, several specific grades are available that incorporate glass or carbon fibers, or wear-resistant additives that increase the wear life of machined parts. It is easily machined and has unrivaled chemical resistance compared to all other advanced engineering materials. 30% glass fiber-filled and 30% carbon fiber-filled grades are available

PRODUCT DATASHEET

		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		ASTM D3418	°F	644
	Glass transition temperature (DMA- Tan δ) (2)		°C			°F	
	Thermal conductivity at 23°C (73°F)		W/(K.m)			BTU in./(hr.ft².°F)	1.75
	Coefficient of linear thermal expansion (-40 to 150 °C) (-40 to 300°F)				ASTM E-831 (TMA)	µin./in./°F	26
	Coefficient of linear thermal expansion (23 to 100°C) (73°F to 210°F)		µm/(m.K)				
	Coefficient of linear thermal expansion (23 to 150°C) (73°F to 300°F)		µm/(m.K)				
	Coefficient of linear thermal expansion (>150°C) (> 300°F)		µm/(m.K)				
	Heat Deflection Temperature: method A: 1.8 MPa (264 PSI)	ISO 75-1/-2	°C		ASTM D648	°F	320
	Continuous allowable service temperature in air (20.000 hrs) (3)		°C			°F	480
	Min. service temperature (4)		°C			°F	
	Flammability: UL 94 (3 mm (1/8 in.)) (5)			V-0			V-0
	Flammability: Oxygen Index	ISO 4589-1/-2	%				
Mechanical Properties (6)	Tensile strength	ISO 527-1/-2 (7)	MPa		ASTM D638 (8)	PSI	16,000
	Tensile strain (elongation) at yield	ISO 527-1/-2 (7)	%		ASTM D638 (8)	%	4.8
	Tensile strain (elongation) at break	ISO 527-1/-2 (7)	%		ASTM D638 (8)	%	40
	Tensile modulus of elasticity	ISO 527-1/-2 (9)	MPa		ASTM D638 (8)	KSI	600
	Shear Strength	ASTM D732	MPa	90	ASTM D732	PSI	13,000
	Compressive stress at 1 / 2 / 5 % nominal strain	ISO 604 (10)	MPa				
	Compressive strength				ASTM D695 (11)	PSI	20,000
	Charpy impact strength - unnotched	ISO 179-1/1eU	kJ/m²				
	Charpy impact strength - notched	ISO 179-1/1eA	kJ/m²				
	Izod Impact notched				ASTM D256	ft.lb./in	0.6
	Flexural strength	ISO 178 (12)	MPa		ASTM D790 (13)	PSI	25,000
	Flexural modulus of elasticity	ISO 178 (12)	MPa		ASTM D790	KSI	600
	Rockwell M hardness (14)	ISO 2039-2			ASTM D785		107
	Rockwell R hardness (14)	ISO 2039-2			ASTM D785		127
Electrical Properties	Electric strength	IEC 60243-1 (15)	kV/mm		ASTM D149	Volts/mil	480
	Volume resistivity	IEC 62631-3-1	Ohm.cm		ASTM D257	Ohm.cm	
	Surface resistivity	ANSI/ESD STM 11.11	Ohm		ANSI/ESD STM 11.11	Ohm	10^13
	Dielectric constant at 1 MHz	IEC 62631-2-1			ASTM D150		3.3
	Dissipation factor at 1MHz	IEC 62631-2-1			ASTM D150		0.003
Miscellaneous	Color			Natural (beige)			Natural (beige)
	Density	ISO 1183-1	g/cm³				
	Specific Gravity				ASTM D792		1.31
	Water absorption after 24h immersion in water of 23 °C (73°F)	ISO 62 (16)	%		ASTM D570 (17)	%	0.10
	Water absorption at saturation in water of 23 °C (73°F)		%		ASTM D570 (17)	%	0.5
	Wear rate	ISO 7148-2 (18)	µm/km		QTM 55010 (19)	In³.min/ft.lbs.hrX10-¹⁰	375
	Dynamic Coefficient of Friction (-)	ISO 7148-2 (18)		-	QTM 55007 (20)		0.32
	Limiting PV at 100 FPM (safety factor 4)				QTM 55007 (21)	ft.lbs/in².min	8,500
	Limiting PV at 0.1 / 1 m/s cylindrical sleeve bearings		MPa.m/s				
	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