Ketron™ Sterra™ HPV PEEK

MITSUBISHI CHEMICAL GROUP

Recycled poly-ether-ether-ketone

Ketron™ Sterra™ HPV PEEK shapes are carbon fiber-reinforced, with graphite and PTFE lubricants, giving them the lowest coefficient of friction and the best machinability of all PEEK materials. Due to Ketron™ Sterra™ HPV PEEK's combination of low wear, low friction and high limiting pressure velocity, this material is often chosen as a solution for high speed service bearings, bushings, insulators, valves and seals.

As part of the Sterra™ product portfolio, Ketron™ Sterra™ HPV PEEK contains recycled content and therefore is associated with a significantly lower carbon footprint compared to similar materials derived from non-recycled feedstocks.

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	340	ASTM D3418	°F	644
	Glass transition temperature (DMA- Tan δ) (2)		°C			°F	
	Thermal conductivity at 23°C (73°F)		W/(K.m)	0.78		BTU in./(hr.ft².°F)	1.7
	Coefficient of linear thermal expansion (-40 to 150 °C) (-40 to 300°F)				ASTM E-831 (TMA)	µin./in./°F	17
	Coefficient of linear thermal expansion (23 to 100°C) (73°F to 210°F)		µm/(m.K)	35			
	Coefficient of linear thermal expansion (23 to 150°C) (73°F to 300°F)		µm/(m.K)	40			
	Coefficient of linear thermal expansion (>150°C) (> 300°F)		µm/(m.K)	85			
	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	
	Flammability: UL 94 (3 mm (1/8 in.)) (5)			V-0			V-0
	Flammability: Oxygen Index	ISO 4589-1/-2	%	43			
Mechanical Properties (6)	Tensile strength	ISO 527-1/-2 (7)	MPa	78	ASTM D638 (8)	PSI	11,000
	Tensile strain (elongation) at yield	ISO 527-1/-2 (7)	%		ASTM D638 (8)	%	
	Tensile strain (elongation) at break	ISO 527-1/-2 (7)	%	3	ASTM D638 (8)	%	2
	Tensile modulus of elasticity	ISO 527-1/-2 (9)	MPa	5,900	ASTM D638 (8)	KSI	850
	Shear Strength	ASTM D732	MPa	69	ASTM D732	PSI	10,000
	Compressive stress at 1 / 2 / 5 % nominal strain	ISO 604 (10)	MPa	46 / 80 / 120			
	Compressive strength				ASTM D695 (11)	PSI	20,000
	Charpy impact strength - unnotched	ISO 179-1/1eU	kJ/m²	25			
	Charpy impact strength - notched	ISO 179-1/1eA	kJ/m²	3.0			
	Izod Impact notched				ASTM D256	ft.lb./in	0.7
	Flexural strength	ISO 178 (12)	MPa	125	ASTM D790 (13)	PSI	27,500
	Flexural modulus of elasticity	ISO 178 (12)	MPa		ASTM D790	KSI	1,100
	Rockwell M hardness (14)	ISO 2039-2		85	ASTM D785		85
	Rockwell R hardness (14)	ISO 2039-2			ASTM D785		
Electrical Properties	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		ANSI/ESD STM 11.11	Ohm	
	Dielectric constant at 1 MHz	IEC 62631-2-1			ASTM D150		
	Dissipation factor at 1MHz	IEC 62631-2-1			ASTM D150		
Miscellaneous	Color			Black			Black
	Density	ISO 1183-1	g/cm³	1.45			
	Specific Gravity				ASTM D792		1.44
	Water absorption after 24h immersion in water of 23 °C (73°F)	ISO 62 (16)	%	0.05	ASTM D570 (17)	%	0.05
	Water absorption at saturation in water of 23 °C (73°F)		%	0.35	ASTM D570 (17)	%	0.3
	Wear rate	ISO 7148-2 (18)	µm/km	2	QTM 55010 (19)	In³.min/ft.lbs.hrX10-¹⁰	100
	Dynamic Coefficient of Friction (-)	ISO 7148-2 (18)		0.15-0.25	QTM 55007 (20)		0.21
	Limiting PV at 100 FPM (safety factor 4)				QTM 55007 (21)	ft.lbs/in².min	20,000
	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