

Ketron™ LSG FG PEEK



Poly-ether-ether-ketone

Ketron™ LSG FG PEEK (Life Science Grade & Food Grade) stock shapes are made from unfilled PEEK resin that is pre-assessed for biocompatibility. The stock shapes are also pre-assessed for biocompatibility for up to 24 hours contact with body and tissue according to USP VI and ISO 10993. Some color variations are also pre-assessed for use in wetted contact applications in bioprocessing. Standard food approvals include the FDA 21 CFR § 177.2415, while this specific FG type has the EU 10/2011 Food Grade as an extra feature.

Ketron™ LSG FG PEEK (Life Science Grade) shapes exhibit high stiffness and mechanical strength. The components are also sterilizable by means of steam (autoclave), dry heat, EtO (ethylene xxide), plasma and gamma and X-ray irradiation. The additional food grade compliance (based on food-related migration tests) makes this material an excellent candidate for applications in the bioprocessing fields, such as manifolds, valves, connectors, lids and adapters.

		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)	0.25		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)	50			
	Coefficient of linear thermal expansion (23 to 150°C) (73°F to 300°F)		µm/(m.K)	55			
	Coefficient of linear thermal expansion (>150°C) (> 300°F)		µm/(m.K)	130			
	Heat Deflection Temperature: method A: 1.8 MPa (264 PSI)	ISO 75-1/-2	°C	160	ASTM D648	°F	320
	Continuous allowable service temperature in air (20.000 hrs) (3)		°C	250		°F	480
	Min. service temperature (4)		°C	-50		°F	
Mechanical Properties (6)	Flammability: UL 94 (3 mm (1/8 in.)) (5)			V-0			V-0
	Flammability: Oxygen Index	ISO 4589-1/-2	%	35			
	Tensile strength	ISO 527-1/-2 (7)	MPa	115	ASTM D638 (8)	PSI	16,000
	Tensile strain (elongation) at yield	ISO 527-1/-2 (7)	%	5	ASTM D638 (8)	%	
	Tensile strain (elongation) at break	ISO 527-1/-2 (7)	%	17	ASTM D638 (8)	%	40
	Tensile modulus of elasticity	ISO 527-1/-2 (9)	MPa	4,300	ASTM D638 (8)	KSI	630
	Shear Strength	ASTM D732	MPa	55	ASTM D732	PSI	8,000
	Compressive stress at 1 / 2 / 5 % nominal strain	ISO 604 (10)	MPa	38 / 75 / 140			
	Compressive strength				ASTM D695 (11)	PSI	20,000
	Charpy impact strength - unnotched	ISO 179-1/1eU	kJ/m²	no break			
	Charpy impact strength - notched	ISO 179-1/1eA	kJ/m²	3.5			
	Izod Impact notched				ASTM D256	ft.lb./in	
	Flexural strength	ISO 178 (12)	MPa	170	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		105	ASTM D785		100
	Rockwell R hardness (14)	ISO 2039-2			ASTM D785		126
Electrical Properties	Electric strength	IEC 60243-1 (15)	kV/mm	24	ASTM D149	Volts/mil	480
	Volume resistivity	IEC 62631-3-1	Ohm.cm	10¹⁴	ASTM D257	Ohm.cm	
	Surface resistivity	ANSI/ESD STM 11.11	Ohm	10¹³	ANSI/ESD STM 11.11	Ohm	10¹³
	Dielectric constant at 1 MHz	IEC 62631-2-1		3.2	ASTM D150		3.3
	Dissipation factor at 1MHz	IEC 62631-2-1		0.001	ASTM D150		0.003
Miscellaneous	Color			Natural (beige)			Natural (beige)
	Density	ISO 1183-1	g/cm³	1.31			
	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)		%	0.45	ASTM D570 (17)	%	0.5
	Wear rate	ISO 7148-2 (18)	µm/km	28	QTM 55010 (19)	in³.min/ft.lbs.hrX10-¹⁰	375
	Dynamic Coefficient of Friction (-)	ISO 7148-2 (18)		0.3-0.5	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	0.33 / 0.21			
	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