

TYPICAL PROPERTIES OF POLYETHERETHERKETONE (PEEK)

ASTM or UL Test	Property	Unreinforced	Glass Reinforced		30% Carbon Reinforced
			20%	30%	
PHYSICAL					
D792	Specific gravity	1.32	1.43	1.49	1.44
D792	Specific volume (in ³ /lb)	21.0	19.3	18.6	—
D570	Water absorption , 24 h, 1/8-in thk (%)	0.5	—	0.11	0.06
MECHANICAL					
D638	Tensile strength (psi)	13,300	17,800	22,800	30,200
D638	Elongation (%)	50	2.5	2.2	1.3
D638	Tensile modulus (10 ⁵ psi)				
	At 302°F	1.6	—	—	—
	At 356°F	0.58	—	—	—
D790	Flexural strength (psi)	24,700	27,800	33,800	46,100
D790	Flexural modulus (10 ⁵ psi)	5.3	9.7	15	18.9
D256	Impact strength , Izod (ft-lb/in of notch)	1.6	1.6	1.8	1.6
THERMAL					
C177	Thermal conductivity (10 ⁻⁴ cal-cm/sec-cm ² -°C)	6.0	—	10.4	22.1
D696	Coefficient of thermal expansion (10 ⁻⁵ in/in-°C)				
	<150°C	4.7	2.4	2.2	1.5
	>150°C	10.8	—	—	—
D648	Deflection temperature (°F)				
	At 264 psi	320	545	600	600
UL 94	Flammability rating , 1/8 in	V-0	V-0	V-0	V-0
ELECTRICAL					
D150	Dielectric constant				
	At 1 kHz	3.3	—	—	—
D150	Dissipation factor				
	At 1 kHz	0.003	—	—	—
D257	Volume resistivity (ohm-cm)				
	At 73°F, 50% RH	4.9x10 ¹⁶	—	—	1.4x10 ⁵

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ISO or UL Test	Property	Unreinforced	Glass Reinforced		30% Carbon Reinforced
			20%	30%	
PHYSICAL					
ISO1183	Specific gravity	1.32	1.43	1.49	1.44
ISO1183	Specific volume (cm ³ /g)	0.759	0.697	0.672	—
ISO62	Water absorption , 24 h, 3.1 mm thk (%)	0.5	—	0.11	0.06
MECHANICAL					
ISO178	Tensile strength (MPa)	91.70	122.73	157.20	208.22
ISO527	Elongation (%)	50	2.5	2.2	1.3
ISO527	Tensile modulus (10 ³ MPa)				
	At 150°C	1.10	—	—	—
	At 180°C	0.39	—	—	—
ISO178	Flexural strength (MPa)	170	191	233	317
ISO178	Flexural modulus (10 ³ MPa)	3.65	6.68	10.34	13.03
ISO180	Notched Izod impact strength (J/m)	85	85	96	85
THERMAL					
ASTM C177	Thermal conductivity (10 ⁻⁴ cal-cm/sec-cm ² -°C)	6.0	—	10.4	22.1
ISO11359	Coefficient of thermal expansion (10 ⁻⁵ m/m-°C)				
	<150°C	0.84	0.43	0.39	0.27
	>150°C	1.94	—	—	—
ISO75	Deflection temperature (°C)				
	At 1.80 MPa	160	285	316	316
UL 94	Flammability rating , 1/8 in	V-0	V-0	V-0	V-0
ELECTRICAL					
IEC250	Dielectric constant				
	At 1 kHz	3.3	—	—	—
IEC250	Dissipation factor				
	At 1 kHz	0.003	—	—	—
IEC93	Volume resistivity (ohm-cm)				
	At 23°C, 50% RH	4.9x10 ¹⁶	—	—	1.4x10 ⁵