

PEEK Material Properties Data Sheet¹

PEEK (polyetheretherketone) is a high strength alternative to fluoropolymers with an upper continuous-use temperature of 250°C (480°F). PEEK exhibits excellent mechanical and thermal properties, chemical inertness, creep resistance at high temperatures, low flammability, hydrolysis resistance, and radiation resistance. These properties make PEEK a preferred product in the aircraft, automotive, semiconductor, and chemical processing industries. PEEK is used for wear and load bearing applications, such as, valve seats, pump gears, and compressor valve plates.

Mechanical Property	ASTM Method	Unit	PEEK Grade		
			450G	450GL30	450CA30
Melt Flow Rate	D-3307	g/10 min	3-3.5	1.2-1.5	0.48-0.56
Specific Gravity	D-792		1.32	1.49	1.44
Water Absorption, 24 hr.	D-570	%	0.5	0.11	0.06
Tensile Strength, 23°C	D-638	psi	14,500	24,650	32,770
Elongation, 23°C	D-638	%	50	2.2	1.3
Compressive Strength, 23°C at 5% strain	D-695	psi	17,110	31,175	34,800
Impact Strength, 23°C, Notched Izod	D-256	ft-lb/in	1.57	1.8	1.59
Flexural Modulus, 23°C	D-790	psi	594,500	1,450,000	2,900,000
Rockwell Hardness, R scale	D-785	R	126	124	124
Coefficient of Friction	D-1894		--	--	--
Deformation Under Load, 23°C, 100 psi, 10 hr.	D-621	%	--	--	--
Thermal Property					
Melting Point	DSC	°C	340	340	340
Deflection Temperature (264 psi)	D-648	°C	160	315	276
Oxygen Index	D-2863	%	24	--	--
Max. Service Temperature		°C	250	250	250
Thermal Conductivity	C-177	Btu-in/hr-ft ² -F	1.75	0.43	0.24
Flammability	UL 94		V-O	V-O	V-O
Electrical Property					
Surface Resistivity	D-257	ohm-sq	--	--	--
Volume Resistivity	D-257	ohm-cm	4.9 x 10 ¹⁶	--	--
Dielectric Strength (0.05 mil film)	D-149	KV/cm	190	--	--
Dielectric Constant, 21°C, 50 Hz-10 kHz	D-150		3.2-3.3	--	--
Dissipation Factor, 21°C, 1 MHz	D-150		0.003	--	--
Arc Resistance	D-495	sec	--	--	--