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# TECHNICAL DATA SHEET

## PEEK

PEEK (PolyEtherEther-Ketone) is a high performance engineering thermoplastic offering the same chemical and water resistance as PPS (PolyPhenylene Sulfide), but can withstand greater temperatures. PEEK is a strong and stiff thermoplastic material that is often used in applications where performance at elevated temperatures is required. PEEK has outstanding chemical resistance as well as resistance to steam and hot water. PEEK can be used continuously to 480°F (250°C) and in hot water or steam without permanent loss in physical properties. For hostile environments, PEEK is a high strength alternative to fluoropolymers. PEEK carries a V-0 flammability rating and exhibits very low smoke and toxic gas emission when exposed to flame.

### TYPICAL PROPERTIES of VIRGIN (UNFILLED) PEEK

ASTM or UL test	Property	Injection Molded	Extruded	Compression Molded
PHYSICAL				
D792	Density (lb/in <sup>3</sup> ) (g/cm <sup>3</sup> )	0.048	0.048	0.048
		1.32	1.32	1.32
D570	Water Absorption, 24 hrs (%)	0.15	0.10	0.15
MECHANICAL				
D638	Tensile Strength (psi)	14,500	16,000	15,000
D638	Tensile Modulus (psi)	550,000	500,000	450,000
D638	Tensile Elongation at Break (%)	35	20	10
D790	Flexural Strength (psi)	24,000	25,000	25,000
D790	Flexural Modulus (psi)	600,000	600,000	600,000
D695	Compressive Strength (psi)	17,000	20,000	17,000
D695	Compressive Modulus (psi)	650,000	500,000	450,000
D785	Hardness, Rockwell	M99 / R126	M100 / R126	M99 / R126

ASTM or UL test	Property	Injection Molded	Extruded	Compression Molded
D256	IZOD Impact Notched (ft-lb/in)	1.5	1.0	1.0
<b>THERMAL</b>				
D696	Coefficient of Linear Thermal Expansion ( $\times 10^{-5}$ in./in./°F)	2.6	2.6	2.6
D648	Heat Deflection Temp (°F / °C) at 264 psi	320 / 160	320 / 160	320 / 160
D3418	Melting Point Temp (°F / °C)	644 / 340	644 / 340	644 / 340
-	Max Operating Temp (°F / °C)	480 / 249	480 / 249	480 / 249
C177	Thermal Conductivity (BTU-in/ft <sup>2</sup> -hr-°F) ( $\times 10^{-4}$ cal/cm-sec-°C)	1.75 6.03	1.75 6.03	1.75 6.03
UL94	Flammability Rating	V-0	V-0	V-0
<b>ELECTRICAL</b>				
D149	Dielectric Strength (V/mil) short time, 1/8" thick	480	480	480
D150	Dielectric Constant at 1 MHz	3.30	3.30	3.30
D150	Dissipation Factor at 1 MHz	0.003	0.003	0.003
D257	Volume Resistivity (ohm-cm) at 50% RH			

## Benefits

- Excellent chemical resistance
- Very low moisture absorption
- Inherently good wear and abrasion resistance
- Unaffected by continuous exposure to hot water or steam
- UL94-V0
- Impact resistance
- High tensile
- Flexural

## Applications

- Automotive
- Marine
- Electronics
- Medical
- Aerospace
- Oil and gas

- Alternative energy

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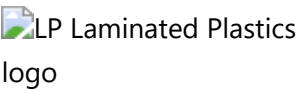


SEE NEXT PAGE FOR ADDITIONAL INFORMATION

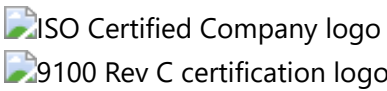
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**NOTE:** The information contained herein are typical values intended for reference and comparison purposes only. They should NOT be used as a basis for design specifications or quality control. Contact us for manufacturers' complete material property datasheets.

All values at 73°F (23°C) unless otherwise noted.



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TYPICAL PROPERTIES of EXTRUDED PEEK

ASTM or UL test	Property	Unfilled	30% Glass Fibers	30% Carbon Fibers	Bearing Grade
PHYSICAL					
D792	Density (lb/in <sup>3</sup> ) (g/cm <sup>3</sup> )	0.047 1.31	0.056 1.54	0.051 1.41	0.052 1.44
D570	Water Absorption, 24 hrs (%)	0.10	0.10	0.06	0.05
MECHANICAL					
D638	Tensile Strength (psi)	16,000	15,000	19,000	11,000
D638	Tensile Modulus (psi)	500,000	900,000	1,100,000	850,000
D638	Tensile Elongation at Break (%)	20	3	5	2
D790	Flexural Strength (psi)	25,000	28,000	25,750	27,500
D790	Flexural Modulus (psi)	600,000	1,000,000	1,250,000	1,100,000

ASTM or UL test	Property	Unfilled	30% Glass Fibers	30% Carbon Fibers	Bearing Grade
D695	Compressive Strength (psi)	20,000	26,000	29,000	26,700
D695	Compressive Modulus (psi)	500,000	1,000,000	-	1,000,000
D785	Hardness, Rockwell	M100 (R126)	M103	M102	M85
D256	IZOD Impact Notched (ft-lb/in)	1.0	1.4	1.0	0.7
<b>THERMAL</b>					
D696	Coefficient of Linear Thermal Expansion ( $\times 10^{-5}$ in./in./°F)	2.6	1.2	1.0	1.7
D648	Heat Deflection Temp (°F / °C) at 264 psi	320 / 160	600 / 315	550 / 288	383 / 195
D3418	Melting Temp (°F / °C)	644 / 340	644 / 340	644 / 340	-
-	Max Operating Temp (°F / °C)	480 / 249	480 / 249	500 / 260	482 / 250
C177	Thermal Conductivity (BTU-in/ft <sup>2</sup> -hr-°F) ( $\times 10^{-4}$ cal/cm-sec-°C)	1.75 6.03	2.98 10.3	6.4 22.0	1.7 5.9
UL94	Flammability Rating	V-0	V-0	V-0	V-0
<b>ELECTRICAL</b>					
D149	Dielectric Strength (V/mil) short time, 1/8" thick	480	500	32	-
D150	Dielectric Constant at 1 MHz	3.30	3.70	-	-
D150	Dissipation Factor at 1 MHz	0.003	-	-	-
D257	Volume Resistivity (ohm-cm) at 50% RH	$4.9 \times 10^{16}$	$5 \times 10^{16}$	$10^5$	$10^3$

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