

PLASTIC-CRAFT PEEK

Polyether Ether Ketone

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The premier high-performance semicrystalline thermoplastic. Exceptional strength and stiffness at continuous temperatures up to 480°F, with outstanding chemical resistance, inherent V-0 flame retardancy, and very low smoke generation. The benchmark for metal replacement.

STOCK AVAILABILITY

Plastic-Craft maintains extensive inventory across a wide range of standard and specialty sizes in sheets, rods, tubes, and custom profiles. Most orders ship from stock — contact us for immediate availability.

KEY HIGHLIGHTS

480°F continuous service
Inherent V-0 flame rating
Excellent chemical resistance
Very low smoke & toxicity
Outstanding wear resistance
Gamma & autoclave sterilizable

✓ The gold standard for metal-to-plastic conversion

COMMON APPLICATIONS

Aerospace structural parts
Semiconductor wafer carriers
Medical implants & instruments
Oil & gas downhole tools
Bearings & seals
Wire insulation
Compressor components

GRADES AVAILABLE

Unfilled (natural)
30% Glass-filled (GF30)
30% Carbon-filled (CF30)
Bearing grade (PEEK PVX)
FDA-compliant
Medical / implant grade

MATERIAL PROPERTIES — TYPICAL VALUES (UNFILLED)

PROPERTY	ASTM	TYPICAL VALUE	UNITS
PHYSICAL			
Specific Gravity	D792	1.31	—
Water Absorption, 24h	D570	0.10	%
MECHANICAL			
Tensile Strength, Ultimate	D638	16,000	psi (110 MPa)
Tensile Modulus	D638	500,000	psi (3,450 MPa)
Elongation at Break	D638	20	%
Flexural Strength	D790	25,000	psi (172 MPa)
Flexural Modulus	D790	595,000	psi (4,100 MPa)
Compressive Strength	D695	20,000	psi (138 MPa)
Impact, Izod Notched	D256	1.5	ft-lb/in (80 J/m)
Hardness, Rockwell	D785	M99 / R126	—
FRICTION / WEAR			
Coefficient of Friction (Dynamic)	D3702	0.35	vs Steel
Wear Factor K	D3702	400 × 10 ⁻¹⁰	in ³ ·min/ft·lb·hr
THERMAL			
Heat Deflection @ 264 psi	D648	320	°F (160°C)
Heat Deflection @ 66 psi	D648	480	°F (249°C)
Melting Point	D3418	644	°F (340°C)
Max Continuous Service	—	480	°F (250°C)
Glass Transition (Tg)	—	289	°F (143°C)
CTE (Linear)	D696	2.6 × 10 ⁻⁵	in/in/°F
Thermal Conductivity	C177	1.75	BTU·in/hr·ft²·°F
ELECTRICAL			
Volume Resistivity	D257	> 10 ¹⁶	ohm·cm
Dielectric Strength	D149	480	V/mil (19 kV/mm)
Dielectric Constant, 1MHz	D150	3.3	—
FLAMMABILITY			
UL Flammability Rating	UL 94	V-0	Inherent, no additives
Limiting Oxygen Index	D2863	35	%
DURABILITY			
Abrasion Resistance (Taber)	D1044	10	mg/1000 cycles
Radiation Resistance	—	Excellent	Gamma & E-beam stable

PROCESSING / FABRICATION NOTES: Machines well with carbide or PCD tooling | Autoclavable & gamma sterilizable | Injection moldable at 700–750°F | Annealing recommended for stress relief on machined parts

CHEMICAL RESISTANCE: Outstanding — resistant to virtually all organic & inorganic chemicals except concentrated sulfuric acid & some halogenated compounds at elevated temps. Compatible with steam, hot water, hydrocarbons, and most solvents.

Typical values; not to be used as specifications. Actual values may vary by grade, manufacturer, and processing conditions. Contact Plastic-Craft for grade-specific data.