

PEEK CA30 Polyetheretherketone, 30% carbon fiber reinforced, extruded (ASTM Data)
Categories: Polymer; Thermoplastic; Filled/Reinforced Thermoplastic; Polyketone; Polyetheretherketone (PEEK); Polyetheretherketone, PEEK, Carbon Fiber Filled

Material Notes: Extruded 30% Carbon fiber reinforced polyetheretherketone. The addition of carbon fibers enhances the compressive strength and stiffness of PEEK, and dramatically lowers its expansion rate. It offers designers optimum wear resistance and load carrying capability in a PEEK-based product. This grade provides 3-1/2 times higher thermal conductivity than unreinforced PEEK--dissipating heat from the bearing surface faster.

Physical Properties	Metric	English	Comments
Specific Gravity	1.41 g/cc	1.41 g/cc	ASTM D792
Water Absorption	0.060 %	0.060 %	Immersion, 24hr; ASTM D570(2)
Water Absorption at Saturation	0.30 %	0.30 %	Immersion; ASTM D570(2)

Mechanical Properties	Metric	English	Comments
Hardness, Rockwell M	102	102	ASTM D785
Hardness, Shore D	93	93	ASTM D2240
Tensile Strength	131 MPa	19000 psi	ASTM D638
Elongation at Break	5.0 %	5.0 %	ASTM D638
Tensile Modulus	7.58 GPa	1100 ksi	ASTM D638
Flexural Yield Strength	177.5 MPa	25750 psi	ASTM D790
Flexural Modulus	8.62 GPa	1250 ksi	ASTM D790
Compressive Strength	200 MPa	29000 psi	10% Def.; ASTM D695
Izod Impact, Notched	0.550 J/cm	1.03 ft-lb/in	ASTM D256 Type A
Coefficient of Friction	0.20	0.20	Dry vs. Steel; QTM55007
K (wear) Factor	302 x 10 ⁻⁸ mm ³ /N-M	150 x 10 ⁻¹⁰ in ³ -min/ft-lb-hr	QTM 55010
Limiting Pressure Velocity	0.876 MPa-m/sec	25000 psi-ft/min	4:1 safety factor; QTM 55007

Electrical Properties	Metric	English	Comments
Surface Resistivity per Square	<= 100000 ohm	<= 100000 ohm	EOS/ESD S11.11
Dielectric Strength	1.26 kV/mm	32.0 kV/in	Short Term; ASTM D149

Thermal Properties	Metric	English	Comments
CTE, linear	18.0 µm/m-°C @Temperature -40.0 - 149 °C	10.0 µin/in-°F @Temperature -40.0 - 300 °F	ASTM E831
Thermal Conductivity	0.922 W/m-K	6.40 BTU-in/hr-ft ² -°F	ASTM F433
Melting Point	340 °C	644 °F	Crystalline, Peak; ASTM D3418
Maximum Service Temperature, Air	250 °C	482 °F	Long Term
Deflection Temperature at 1.8 MPa (264 psi)	270 °C	518 °F	ASTM D648
Flammability, UL94	V-0	V-0	1/8 inch (Estimated Rating)

Compliance Properties	Metric	English	Comments
3A-Dairy	No	No	
Canada AG	No	No	
FDA	No	No	
NSF	No	No	
USDA	No	No	
USP Class VI	No	No	

Chemical Resistance Properties	Metric	English	Comments
Acids, Strong (pH 1-3)	Limited	Limited	
Acids, Weak	Acceptable	Acceptable	
Alcohols	Acceptable	Acceptable	
Alkalies, Strong (pH 11-14)	Acceptable	Acceptable	
Alkalies, Weak	Acceptable	Acceptable	
Chlorinated Solvents	Acceptable	Acceptable	
Conductive / Static Dissipative	Yes	Yes	
Continuous Sunlight	Acceptable	Acceptable	
Hot Water / Steam	Acceptable	Acceptable	
Hydrocarbons - Aliphatic	Acceptable	Acceptable	
Hydrocarbons - Aromatic	Acceptable	Acceptable	
Inorganic Salt Solutions	Acceptable	Acceptable	