

## Overview of materials for Polyetheretherketone, Carbon Fiber Filled

Category : Polymer , Thermoplastic , Polyketone , Polyetheretherketone (PEEK) , Polyetheretherketone, PEEK, Carbon Fiber Filled

### Material Notes:

This property data is a summary of similar materials in the MatWeb database for the category "Polyetheretherketone, Carbon Fiber Filled". Each property range of values reported is minimum and maximum values of appropriate MatWeb entries. The comments report the average value, and number of data points used to calculate the average. The values are not necessarily typical of any specific grade, especially less common values and those that can be most affected by additives or processing methods.

Order this product through the following link:

[http://www.lookpolymers.com/polymer\\_Overview-of-materials-for-Polyetheretherketone-Carbon-Fiber-Filled.php](http://www.lookpolymers.com/polymer_Overview-of-materials-for-Polyetheretherketone-Carbon-Fiber-Filled.php)

Physical Properties	Metric	English	Comments
Density	1.30 - 1.90 g/cc	0.0470 - 0.0686 lb/in <sup>3</sup>	Average value: 1.44 g/cc Grade Count:196
Filler Content	10.0 - 60.0 %	10.0 - 60.0 %	Average value: 28.6 % Grade Count:52
Water Absorption	0.0180 - 0.180 %	0.0180 - 0.180 %	Average value: 0.103 % Grade Count:108
Moisture Absorption at Equilibrium	0.0600 - 0.160 %	0.0600 - 0.160 %	Average value: 0.127 % Grade Count:3
Water Absorption at Saturation	0.0530 - 0.400 %	0.0530 - 0.400 %	Average value: 0.276 % Grade Count:20
	0.350 - 0.500 % @Temperature 100 - 100 °C	0.350 - 0.500 % @Temperature 212 - 212 °F	Average value: 0.445 % Grade Count:10
Additive Loading	10.0 - 40.0 %	10.0 - 40.0 %	Average value: 24.3 % Grade Count:7
Viscosity	175000 - 850000 cP @Temperature 400 - 420 °C	175000 - 850000 cP @Temperature 752 - 788 °F	Average value: 513000 cP Grade Count:11
	450000 - 920000 cP @Temperature 400 - 400 °C	450000 - 920000 cP @Temperature 752 - 752 °F	Average value: 513000 cP Grade Count:2
	450000 - 920000 cP @Shear Rate 1000 - 1000 1/s	450000 - 920000 cP @Shear Rate 1000 - 1000 1/s	Average value: 513000 cP Grade Count:2
Linear Mold Shrinkage	0.000 - 0.0160 cm/cm	0.000 - 0.0160 in/in	Average value: 0.00232 cm/cm Grade Count:146
Linear Mold Shrinkage, Transverse	0.00250 - 0.0170 cm/cm	0.00250 - 0.0170 in/in	Average value: 0.00629 cm/cm Grade Count:25
Melt Flow	1.10 - 122 g/10 min	1.10 - 122 g/10 min	Average value: 32.1 g/10 min Grade Count:26

Physical Properties	Metric 100 cm	English 9.4 in	Comments
			Value: 23.1 cm Grade Count:11

Mechanical Properties	Metric	English	Comments
Hardness, Rockwell M	85.0 - 125	85.0 - 125	Average value: 103 Grade Count:24
Hardness, Rockwell R	118 - 124	118 - 124	Average value: 120 Grade Count:4
Hardness, Shore D	83.0 - 94.0	83.0 - 94.0	Average value: 88.9 Grade Count:31
Ball Indentation Hardness	215 - 440 MPa	31200 - 63800 psi	Average value: 323 MPa Grade Count:4
Tensile Strength, Ultimate	51.7 - 2070 MPa	7500 - 300000 psi	Average value: 207 MPa Grade Count:186
	35.0 - 250 MPa @Temperature 60.0 - 275 °C	5080 - 36300 psi @Temperature 140 - 527 °F	Average value: 134 MPa Grade Count:14
Tensile Strength, Yield	86.2 - 2070 MPa	12500 - 300000 psi	Average value: 399 MPa Grade Count:17
Elongation at Break	0.300 - 7.00 %	0.300 - 7.00 %	Average value: 1.84 % Grade Count:119
	1.10 - 2.50 % @Temperature 60.0 - 150 °C	1.10 - 2.50 % @Temperature 140 - 302 °F	Average value: 1.46 % Grade Count:4
Elongation at Yield	0.500 - 6.80 %	0.500 - 6.80 %	Average value: 2.28 % Grade Count:77
Modulus of Elasticity	1.00 - 138 GPa	145 - 20000 ksi	Average value: 22.1 GPa Grade Count:181
	2.55 - 26.7 GPa @Temperature 60.0 - 150 °C	370 - 3870 ksi @Temperature 140 - 302 °F	Average value: 20.0 GPa Grade Count:4
Flexural Yield Strength	48.3 - 2000 MPa	7000 - 290000 psi	Average value: 300 MPa Grade Count:182
	45.0 - 350 MPa @Temperature 120 - 275 °C	6530 - 50800 psi @Temperature 248 - 527 °F	Average value: 151 MPa Grade Count:11
Flexural Modulus	2.80 - 124 GPa	406 - 18000 ksi	Average value: 18.5 GPa Grade Count:180
	6.55002 - 6.55002 GPa @Temperature 149 - 149 °C	950.015 - 950.015 ksi @Temperature 300 - 300 °F	Average value: 6.55 GPa Grade Count:1
Compressive Yield Strength	4.14 - 1360 MPa	600 - 197000 psi	Average value: 268 MPa Grade Count:38

Mechanical Properties	Metric 1250 MPa	English 180000 psi	Comments
	@Temperature 120 - 250 °C	@Temperature 248 - 482 °F	Average value: 125 MPa Grade Count:10
Compressive Modulus	2.28 - 124 GPa	330 - 18000 ksi	Average value: 29.6 GPa Grade Count:14
Shear Strength	68.9 - 186 MPa	10000 - 27000 psi	Average value: 99.4 MPa Grade Count:9
	23.4422 - 68.2581 MPa	3400.01 - 9900.02 psi	Average value: 47.3 MPa Grade Count:1
	@Temperature 65.6 - 260 °C	@Temperature 150 - 500 °F	
Izod Impact, Notched	0.235 - 1.07 J/cm	0.440 - 2.00 ft-lb/in	Average value: 0.689 J/cm Grade Count:78
Izod Impact, Unnotched	2.67 - 9.08 J/cm	5.00 - 17.0 ft-lb/in	Average value: 6.12 J/cm Grade Count:57
Izod Impact, Notched (ISO)	4.30 - 12.0 kJ/m <sup>2</sup>	2.05 - 5.71 ft-lb/in <sup>2</sup>	Average value: 8.17 kJ/m <sup>2</sup> Grade Count:19
Izod Impact, Unnotched (ISO)	20.0 - 60.0 kJ/m <sup>2</sup>	9.52 - 28.6 ft-lb/in <sup>2</sup>	Average value: 41.5 kJ/m <sup>2</sup> Grade Count:19
Charpy Impact Unnotched	0.800 - 12.0 J/cm <sup>2</sup>	3.81 - 57.1 ft-lb/in <sup>2</sup>	Average value: 4.03 J/cm <sup>2</sup> Grade Count:95
	2.00 - 3.00 J/cm <sup>2</sup>	9.52 - 14.3 ft-lb/in <sup>2</sup>	Average value: 2.41 J/cm <sup>2</sup> Grade Count:8
	@Temperature -30.0 - -30.0 °C	@Temperature -22.0 - -22.0 °F	
Charpy Impact, Notched	0.300 - 1.05 J/cm <sup>2</sup>	1.43 - 5.00 ft-lb/in <sup>2</sup>	Average value: 0.651 J/cm <sup>2</sup> Grade Count:55
	0.700 - 1.00 J/cm <sup>2</sup>	3.33 - 4.76 ft-lb/in <sup>2</sup>	Average value: 0.786 J/cm <sup>2</sup> Grade Count:7
	@Temperature -30.0 - -30.0 °C	@Temperature -22.0 - -22.0 °F	
Falling Dart Impact	4.40 - 12.5 J	3.25 - 9.22 ft-lb	Average value: 7.66 J Grade Count:5
Coefficient of Friction	0.110 - 0.350	0.110 - 0.350	Average value: 0.198 Grade Count:28
Coefficient of Friction, Static	0.110 - 0.320	0.110 - 0.320	Average value: 0.184 Grade Count:17
K (wear) Factor	6.00 - 302 x 10 <sup>-8</sup> mm <sup>3</sup> /N-M	2.98 - 150 x 10 <sup>-10</sup> in <sup>3</sup> -min/ft-lb-hr	Average value: 126 x 10 <sup>&lt;sup&gt;-8&lt;/sup&gt;</sup>
			8</sup> mm <sup>3</sup> /N-M Grade Count:7
Limiting Pressure Velocity	0.420 - 1.23 MPa-m/sec	12000 - 35000 psi-ft/min	Average value: 0.812 MPa-m/sec Grade Count:4

Thermal Properties	Metric	English	Comments
CTE, linear	3.00 - 110 µm/m-°C	1.67 - 61.1 µin/in-°F	Average value: 23.2 µm/m-°C Grade Count:47

Electrical Properties	Metric	English	Comments
Electrical Resistivity	0.100 - 1.00e+10 ohm-cm	0.100 - 1.00e+10 ohm-cm	Average value: 2.95e+8 ohm-cm Grade Count:60
Surface Resistance	50.0 - 1.00e+13 ohm	50.0 - 1.00e+13 ohm	Average value: 1.56e+11 ohm Grade Count:81
Insulation Resistance	100 - 1.00e+12 ohm	100 - 1.00e+12 ohm	Average value: 2.23e+10 ohm Grade Count:70
Dielectric Strength	1.26 - 24.5 kV/mm	32.0 - 622 kV/in	Average value: 7.07 kV/mm Grade Count:4

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