

Overview of materials for Polyetheretherketone, Unreinforced

Category : Polymer , Thermoplastic , Polyketone , Polyetheretherketone (PEEK) , Polyetheretherketone, PEEK, Unreinforced

Material Notes:

This property data is a summary of similar materials in the MatWeb database for the category "Polyetheretherketone, Unreinforced". 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-Unreinforced.php

Physical Properties	Metric	English	Comments
Density	1.26 - 1.65 g/cc	0.0454 - 0.0596 lb/in ³	Average value: 1.33 g/cc Grade Count:74
Filler Content	0.000 %	0.000 %	Average value: 0.000 % Grade Count:4
Water Absorption	0.0500 - 0.500 %	0.0500 - 0.500 %	Average value: 0.213 % Grade Count:25
Moisture Absorption at Equilibrium	0.100 - 0.500 %	0.100 - 0.500 %	Average value: 0.253 % Grade Count:12
Water Absorption at Saturation	0.100 - 1.65 %	0.100 - 1.65 %	Average value: 0.530 % Grade Count:23
	0.550 - 0.560 % @Temperature 100 - 100 °C	0.550 - 0.560 % @Temperature 212 - 212 °F	Average value: 0.551 % Grade Count:7
Particle Size	10.0 - 70.0 µm	10.0 - 70.0 µm	Average value: 35.0 µm Grade Count:3
Viscosity	90000 - 380000 cP	90000 - 380000 cP	Average value: 183000 cP Grade Count:4
	90000 - 500000 cP @Temperature 400 - 400 °C	90000 - 500000 cP @Temperature 752 - 752 °F	Average value: 324000 cP Grade Count:13
Linear Mold Shrinkage	0.00700 - 0.0180 cm/cm	0.00700 - 0.0180 in/in	Average value: 0.0108 cm/cm Grade Count:24
Linear Mold Shrinkage, Transverse	0.00900 - 0.0155 cm/cm	0.00900 - 0.0155 in/in	Average value: 0.0127 cm/cm Grade Count:12
Melt Flow	3.96 - 91.0 g/10 min	3.96 - 91.0 g/10 min	Average value: 32.0 g/10 min Grade Count:6
Spiral Flow	11.0 - 850 cm	4.33 - 335 in	Average value: 150 cm Grade Count:8

Mechanical Properties	Metric	English	Comments
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Mechanical Properties	Metric ^{95.0 - 109}	English ^{95.0 - 109}	Comments ^{Value: 102 Grade Count: 18}
Hardness, Rockwell R	120 - 127	120 - 127	Average value: 124 Grade Count:7
Hardness, Shore D	62.0 - 89.0	62.0 - 89.0	Average value: 84.6 Grade Count:19
Ball Indentation Hardness	90.0 - 230 MPa	13100 - 33400 psi	Average value: 192 MPa Grade Count:8
Tensile Strength, Ultimate	54.5 - 150 MPa	7900 - 21800 psi	Average value: 97.2 MPa Grade Count:42
	25.0 - 80.0 MPa @Temperature 60.0 - 150 °C	3630 - 11600 psi @Temperature 140 - 302 °F	Average value: 55.0 MPa Grade Count:2
Tensile Strength, Yield	75.0 - 115 MPa	10900 - 16700 psi	Average value: 97.9 MPa Grade Count:28
Elongation at Break	1.50 - 110 %	1.50 - 110 %	Average value: 26.6 % Grade Count:67
	30.0 - 45.0 % @Temperature 60.0 - 150 °C	30.0 - 45.0 % @Temperature 140 - 302 °F	Average value: 35.0 % Grade Count:2
Elongation at Yield	2.00 - 6.00 %	2.00 - 6.00 %	Average value: 4.45 % Grade Count:9
	5.00 - 8.00 % @Temperature 60.0 - 150 °C	5.00 - 8.00 % @Temperature 140 - 302 °F	Average value: 6.00 % Grade Count:2
Modulus of Elasticity	2.20 - 6.48 GPa	319 - 940 ksi	Average value: 4.10 GPa Grade Count:62
	3.00 - 3.70 GPa @Temperature 60.0 - 150 °C	435 - 537 ksi @Temperature 140 - 302 °F	Average value: 3.44 GPa Grade Count:2
Flexural Yield Strength	24.1 - 207 MPa	3500 - 30000 psi	Average value: 150 MPa Grade Count:55
	9.00 - 90.0 MPa @Temperature 125 - 275 °C	1310 - 13100 psi @Temperature 257 - 527 °F	Average value: 42.2 MPa Grade Count:8
Flexural Modulus	3.50 - 6.89 GPa	508 - 1000 ksi	Average value: 4.15 GPa Grade Count:54
	0.20312 - 0.20312 GPa @Temperature 204 - 204 °C	29.460 - 29.460 ksi @Temperature 400 - 400 °F	Average value: 0.203 GPa Grade Count:1
Compressive Yield Strength	31.0 - 183 MPa	4500 - 26500 psi	Average value: 108 MPa Grade Count:24
	65.0 - 80.0 MPa	9430 - 11600 psi	

Mechanical Properties	Metric @ Temperature 120 - 120 °C	English @ Temperature 248 - 248 °F	Comments Average value: 73.6 MPa Grade Count:1
Compressive Modulus	0.138 - 4.14 GPa	20.0 - 600 ksi	Average value: 2.97 GPa Grade Count:9
Shear Strength	55.2 - 82.7 MPa	8000 - 12000 psi	Average value: 67.3 MPa Grade Count:4
	14.3411 - 68.2581 MPa	2080.00 - 9900.02 psi	Average value: 43.8 MPa Grade Count:1
	@Temperature 65.6 - 288 °C	@Temperature 150 - 550 °F	
Izod Impact, Notched	0.214 - 1.07 J/cm	0.400 - 2.00 ft-lb/in	Average value: 0.492 J/cm Grade Count:21
Izod Impact, Unnotched	13.3 - 25.6 J/cm	25.0 - 48.0 ft-lb/in	Average value: 20.1 J/cm Grade Count:3
Izod Impact, Notched (ISO)	0.450 - 9.50 kJ/m ²	0.214 - 4.52 ft-lb/in ²	Average value: 5.65 kJ/m ² Grade Count:23
Izod Impact, Unnotched (ISO)	NB	NB	Grade Count:23
Charpy Impact Unnotched	1.40 J/cm ² - NB	6.66 ft-lb/in ² - NB	Average value: 12.5 J/cm ² Grade Count:21
Charpy Impact, Notched	0.300 - 8.00 J/cm ²	1.43 - 38.1 ft-lb/in ²	Average value: 0.889 J/cm ² Grade Count:21
Coefficient of Friction	0.150 - 0.500	0.150 - 0.500	Average value: 0.279 Grade Count:17
K (wear) Factor	15.0 - 755 x 10 ⁻⁸ mm ³ /N-M	7.45 - 375 x 10 ⁻¹⁰ in ³ - min/ft-lb-hr	Average value: 472 x 10 ^{<sup>-8</sup>} mm ³ /N-M Grade Count:9
Limiting Pressure Velocity	0.210 - 1.26 MPa- m/sec	6000 - 36000 psi- ft/min	Average value: 0.509 MPa-m/sec Grade Count:11
Compression Set	70.0 - 70.0 %	70.0 - 70.0 %	Average value: 70.0 % Grade Count:1
	@Temperature 120 - 120 °C	@Temperature 248 - 248 °F	

Thermal Properties	Metric	English	Comments
CTE, linear	4.70 - 150 μm/m-°C	2.61 - 83.3 μin/in-°F	Average value: 51.6 μm/m-°C Grade Count:29
	10.8 - 147.6 μm/m-°C	6.00 - 82.00 μin/in-°F	Average value: 122 μm/m-°C Grade Count:12
	@Temperature 143 - 150 °C	@Temperature 289 - 302 °F	

Electrical Properties	Metric	English	Comments
Electrical Resistivity	15000 - 4.90e+16 ohm- cm	15000 - 4.90e+16 ohm- cm	Average value: 7.81e+15 ohm-cm Grade Count:34

Electrical Properties	Metric 1.00e+9 - 1.00e+15 ohm-cm	English 1.00e+9 - 1.00e+15 ohm-cm	Comments Average value: 5.00e+14 ohm-cm Grade Count:8
	@Temperature 125 - 275 °C	@Temperature 257 - 527 °F	
Surface Resistance	3000 - 1.80e+15 ohm	3000 - 1.80e+15 ohm	Average value: 1.25e+14 ohm Grade Count:19
Dielectric Constant	2.20 - 10.9	2.20 - 10.9	Average value: 3.46 Grade Count:30
	4.50 - 4.50	4.50 - 4.50	Average value: 4.50 Grade Count:3
	@Temperature 200 - 200 °C	@Temperature 392 - 392 °F	
	4.50 - 4.50	4.50 - 4.50	Average value: 4.50 Grade Count:3
	@Frequency 50.0 - 50000 Hz	@Frequency 50.0 - 50000 Hz	
Dielectric Strength	15.7 - 200 kV/mm	400 - 5080 kV/in	Average value: 35.4 kV/mm Grade Count:30
Dissipation Factor	0.00100 - 0.518	0.00100 - 0.518	Average value: 0.0293 Grade Count:26
Comparative Tracking Index	150 - 175 V	150 - 175 V	Average value: 152 V Grade Count:14

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