

Overview of materials for Polycarbonate, Carbon Fiber Reinforced

Category : Polymer , Thermoplastic , Polycarbonate (PC) , Polycarbonate, Carbon Fiber Reinforced

Material Notes:

This property data is a summary of similar materials in the MatWeb database for the category "Polycarbonate, Carbon Fiber Reinforced". 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-Polycarbonate-Carbon-Fiber-Reinforced.php

Physical Properties	Metric	English	Comments
Density	1.21 - 1.45 g/cc	0.0437 - 0.0524 lb/in ³	Average value: 1.30 g/cc Grade Count:125
Filler Content	5.00 - 40.0 %	5.00 - 40.0 %	Average value: 20.2 % Grade Count:17
Water Absorption	0.0500 - 0.300 %	0.0500 - 0.300 %	Average value: 0.154 % Grade Count:71
Additive Loading	20.0 - 30.0 %	20.0 - 30.0 %	Average value: 25.8 % Grade Count:6
Linear Mold Shrinkage	-0.00100 - 0.00800 cm/cm	-0.00100 - 0.00800 in/in	Average value: 0.00220 cm/cm Grade Count:107
Linear Mold Shrinkage, Transverse	0.000800 - 0.00800 cm/cm	0.000800 - 0.00800 in/in	Average value: 0.00415 cm/cm Grade Count:30
Melt Flow	5.00 - 60.0 g/10 min	5.00 - 60.0 g/10 min	Average value: 19.3 g/10 min Grade Count:15

Mechanical Properties	Metric	English	Comments
Hardness, Rockwell R	100 - 120	100 - 120	Average value: 117 Grade Count:13
Tensile Strength, Ultimate	59.3 - 186 MPa	8600 - 27000 psi	Average value: 121 MPa Grade Count:113
	65.0 - 115 MPa @Temperature 60.0 - 120 °C	9430 - 16700 psi @Temperature 140 - 248 °F	Average value: 92.5 MPa Grade Count:2
Tensile Strength, Yield	55.2 - 160 MPa	8000 - 23200 psi	Average value: 112 MPa Grade Count:36
Elongation at Break	1.00 - 118 %	1.00 - 118 %	Average value: 4.23 % Grade Count:92
	1.30 - 1.70 % @Temperature 60.0 - 120 °C	1.30 - 1.70 % @Temperature 140 - 248 °F	Average value: 1.48 % Grade Count:2
Elongation at Yield	1.10 - 13.0 %	1.10 - 13.0 %	Average value: 2.84 % Grade Count:52

Mechanical Properties	Metric	English	Comments
Modulus of Elasticity	2.97 - 25.6 GPa	300 - 3700 ksi	Average value: 10.9 GPa Grade Count:94
	9.40 - 16.8 GPa	1360 - 2440 ksi	Average value: 13.0 GPa Grade Count:2
	@Temperature 60.0 - 120 °C	@Temperature 140 - 248 °F	
Flexural Yield Strength	51.7 - 262 MPa	7500 - 38000 psi	Average value: 178 MPa Grade Count:121
Flexural Modulus	1.38 - 26.3 GPa	200 - 3810 ksi	Average value: 9.59 GPa Grade Count:124
Izod Impact, Notched	0.320 - 2.67 J/cm	0.599 - 5.00 ft-lb/in	Average value: 0.817 J/cm Grade Count:86
Izod Impact, Unnotched	2.67 - 16.0 J/cm	5.00 - 30.0 ft-lb/in	Average value: 5.32 J/cm Grade Count:64
Izod Impact, Notched (ISO)	5.70 - 7.21 kJ/m ²	2.71 - 3.43 ft-lb/in ²	Average value: 6.60 kJ/m ² Grade Count:10
Izod Impact, Unnotched (ISO)	29.8 - 39.9 kJ/m ²	14.2 - 19.0 ft-lb/in ²	Average value: 33.3 kJ/m ² Grade Count:9
Charpy Impact Unnotched	1.00 - 4.00 J/cm ²	4.76 - 19.0 ft-lb/in ²	Average value: 3.00 J/cm ² Grade Count:38
	2.00 - 3.60 J/cm ²	9.52 - 17.1 ft-lb/in ²	Average value: 2.63 J/cm ² Grade Count:12
	@Temperature -30.0 - -30.0 °C	@Temperature -22.0 - -22.0 °F	
Charpy Impact, Notched	0.500 - 1.30 J/cm ²	2.38 - 6.19 ft-lb/in ²	Average value: 0.877 J/cm ² Grade Count:26
	0.700 - 1.10 J/cm ²	3.33 - 5.24 ft-lb/in ²	Average value: 0.909 J/cm ² Grade Count:11
	@Temperature -30.0 - -30.0 °C	@Temperature -22.0 - -22.0 °F	
Falling Dart Impact	2.26 - 31.2 J	1.67 - 23.0 ft-lb	Average value: 14.2 J Grade Count:23
Coefficient of Friction	0.120 - 0.260	0.120 - 0.260	Average value: 0.214 Grade Count:21
Coefficient of Friction, Static	0.130 - 0.230	0.130 - 0.230	Average value: 0.182 Grade Count:20

Thermal Properties	Metric	English	Comments
CTE, linear	3.60 - 72.0 µm/m-°C	2.00 - 40.0 µin/in-°F	Average value: 25.9 µm/m-°C Grade Count:38
CTE, linear, Transverse to Flow	36.0 - 60.0 µm/m-°C	20.0 - 33.3 µin/in-°F	Average value: 50.3 µm/m-°C Grade Count:14
Thermal Conductivity	0.300 - 0.700 W/m-K	2.08 - 4.86 BTU-in/hr-ft ² -°F	Average value: 0.448 W/m-K Grade Count:14
Maximum Service Temperature, Air	127 - 150 °C	260 - 302 °F	Average value: 140 °C Grade Count:34

Thermal Properties	Metric	English	Comments
Deflection Temperature at 0.46 MPa (66 psi)	152 °C	305 °F	Average value: 143 °C Grade Count:51
Deflection Temperature at 1.8 MPa (264 psi)	86.7 - 152 °C	188 - 306 °F	Average value: 139 °C Grade Count:85
Vicat Softening Point	145 - 160 °C	293 - 320 °F	Average value: 157 °C Grade Count:31
Glass Transition Temp, Tg	145 - 150 °C	293 - 302 °F	Average value: 148 °C Grade Count:4
UL RTI, Electrical	80.0 °C	176 °F	Average value: 80.0 °C Grade Count:14
UL RTI, Mechanical with Impact	80.0 °C	176 °F	Average value: 80.0 °C Grade Count:14
UL RTI, Mechanical without Impact	80.0 °C	176 °F	Average value: 80.0 °C Grade Count:14
Flammability, UL94	HB - V-0	HB - V-0	Grade Count:67

Electrical Properties	Metric	English	Comments
Electrical Resistivity	0.0100 - 1.00e+12 ohm-cm	0.0100 - 1.00e+12 ohm-cm	Average value: 1.03e+10 ohm-cm Grade Count:59
Surface Resistance	1.00 - 1.00e+12 ohm	1.00 - 1.00e+12 ohm	Average value: 1.44e+10 ohm Grade Count:92
Insulation Resistance	100 - 1.00e+9 ohm	100 - 1.00e+9 ohm	Average value: 6.71e+7 ohm Grade Count:30
Static Decay	0.0100 - 2.00 sec	0.0100 - 2.00 sec	Average value: 0.862 sec Grade Count:17

Processing Properties	Metric	English	Comments
Processing Temperature	249 - 310 °C	480 - 590 °F	Average value: 291 °C Grade Count:43
Nozzle Temperature	254 - 327 °C	489 - 620 °F	Average value: 298 °C Grade Count:47
Melt Temperature	135 - 332 °C	275 - 630 °F	Average value: 298 °C Grade Count:91
Mold Temperature	35.0 - 121 °C	95.0 - 250 °F	Average value: 93.9 °C Grade Count:100
Drying Temperature	70.0 - 130 °C	158 - 266 °F	Average value: 119 °C Grade Count:88
Moisture Content	0.0200 %	0.0200 %	Average value: 0.0200 % Grade Count:48
Dew Point	-28.9 °C	-20.0 °F	Average value: -28.9 °C Grade Count:21
Injection Pressure	4.96 - 103 MPa	720 - 15000 psi	Average value: 81.3 MPa Grade Count:31
Vent Depth	0.00250 - 0.00760 cm	0.000984 - 0.00299 in	Average value: 0.00514 cm Grade Count:14

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