

Overview of materials for Polycarbonate, Extruded

Categories: [Polymer](#); [Thermoplastic](#); [Polycarbonate \(PC\)](#); [Polycarbonate, Extruded](#)

Material Notes: This property data is a summary of similar materials in the MatWeb database for the category "Polycarbonate, Extruded". 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.

Vendors: [Click here to view all available suppliers for this material.](#)

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Physical Properties	Metric		English	Comments
Density	1.03 - 1.26 g/cc		0.0372 - 0.0455 lb/in ³	Average value: 1.20 g/cc Grade Count:89
	1.02 - 1.02 g/cc @Temperature 290 - 300 °C		0.0368 - 0.0368 lb/in ³ @Temperature 554 - 572 °F	Average value: 1.02 g/cc Grade Count:4
Water Absorption	0.0200 - 0.300 %		0.0200 - 0.300 %	Average value: 0.173 % Grade Count:24
Moisture Absorption at Equilibrium	0.120 - 0.350 %		0.120 - 0.350 %	Average value: 0.151 % Grade Count:40
Water Absorption at Saturation	0.300 - 0.400 %		0.300 - 0.400 %	Average value: 0.324 % Grade Count:16
Water Vapor Transmission	15.0 g/m ² /day		0.966 g/100 in ² /day	Average value: 15.0 g/m ² /day Grade Count:10
Oxygen Transmission	65.0 - 2760 cc-mm/m ² -24hr-atm	165 - 7010 cc-mil/100 in ² -24hr-atm	Average value: 863 cc-mm/m ² -24hr-atm Grade Count:9	
Nitrogen Transmission	12.0 - 510 cc-mm/m ² -24hr-atm	30.5 - 1300 cc-mil/100 in ² -24hr-atm	Average value: 159 cc-mm/m ² -24hr-atm Grade Count:9	
Carbon Dioxide Transmission	380 - 16900 cc-mm/m ² -24hr-atm	965 - 42900 cc-mil/100 in ² -24hr-atm	Average value: 5230 cc-mm/m ² -24hr-atm Grade Count:9	
Viscosity 	800000 - 800000 cP @Temperature 320 - 320 °C		800000 - 800000 cP @Temperature 608 - 608 °F	Average value: 800000 cP Grade Count:1
	800000 - 800000 cP @Shear Rate 25.0 - 25.0 1/s		800000 - 800000 cP @Shear Rate 25.0 - 25.0 1/s	Average value: 800000 cP Grade Count:1
Linear Mold Shrinkage	0.00200 - 0.00900 cm/cm		0.00200 - 0.00900 in/in	Average value: 0.00651 cm/cm Grade Count:44
Linear Mold Shrinkage, Transverse	0.00500 - 0.00800 cm/cm		0.00500 - 0.00800 in/in	Average value: 0.00702 cm/cm Grade Count:24
Melt Flow	1.00 - 18.0 g/10 min		1.00 - 18.0 g/10 min	Average value: 6.56 g/10 min Grade Count:56
Mechanical Properties	Metric		English	Comments
Hardness, Rockwell M	70.0 - 75.0		70.0 - 75.0	Average value: 71.7 Grade Count:12
Hardness, Rockwell R	114 - 126		114 - 126	Average value: 120 Grade Count:15
Ball Indentation Hardness	95.0 - 120 MPa		13800 - 17400 psi	Average value: 112 MPa Grade Count:13

Tensile Strength, Ultimate	28.0 - 75.0 MPa	4060 - 10900 psi	Average value: 66.3 MPa Grade Count:56
Tensile Strength, Yield	39.0 - 70.0 MPa	5660 - 10200 psi	Average value: 61.7 MPa Grade Count:68
Elongation at Break	10.0 - 138 %	10.0 - 138 %	Average value: 91.3 % Grade Count:73
Elongation at Yield	3.00 - 60.0 %	3.00 - 60.0 %	Average value: 9.40 % Grade Count:58
Modulus of Elasticity	1.79 - 3.24 GPa	260 - 470 ksi	Average value: 2.34 GPa Grade Count:58
Flexural Yield Strength	36.0 - 103 MPa	5220 - 15000 psi	Average value: 87.3 MPa Grade Count:46
Flexural Modulus	0.971 - 3.10 GPa	141 - 450 ksi	Average value: 2.29 GPa Grade Count:74
Flexural Strain at Yield	7.00 - 7.20 %	7.00 - 7.20 %	Average value: 7.10 % Grade Count:10
Compressive Yield Strength	18.0 - 86.2 MPa	2610 - 12500 psi	Average value: 61.2 MPa Grade Count:3
Izod Impact, Notched	0.481 - 9.61 J/cm	0.900 - 18.0 ft-lb/in	Average value: 6.76 J/cm Grade Count:29
	5.00 - 6.78 J/cm @Temperature -51.1 - 0.000 °C	9.37 - 12.7 ft-lb/in @Temperature -60.0 - 32.0 °F	Average value: 4.68 J/cm Grade Count:3
	2.72289 - 2.72289 J/cm @Temperature -40.0 - -40.0 °C	5.10109 - 5.10109 ft-lb/in @Temperature -40.0 - -40.0 °F	Average value: 4.68 J/cm Grade Count:1
	2.72289 - 2.72289 J/cm @Thickness 3.17 - 3.17 mm	5.10109 - 5.10109 ft-lb/in @Thickness 0.125 - 0.125 in	Average value: 4.68 J/cm Grade Count:1
Izod Impact, Notched (ISO)	10.0 - 75.0 kJ/m²	4.76 - 35.7 ft-lb/in²	Average value: 64.1 kJ/m² Grade Count:34
	10.0 - 15.0 kJ/m² @Temperature -30.0 - -30.0 °C	4.76 - 7.14 ft-lb/in² @Temperature -22.0 - -22.0 °F	Average value: 13.6 kJ/m² Grade Count:21
	12.0 - 20.0 kJ/m² @Temperature -30.0 - -30.0 °C	5.71 - 9.52 ft-lb/in² @Temperature -22.0 - -22.0 °F	Average value: 13.6 kJ/m² Grade Count:10
	12.0 - 20.0 kJ/m² @Thickness 3.00 - 3.20 mm	5.71 - 9.52 ft-lb/in² @Thickness 0.118 - 0.126 in	Average value: 13.6 kJ/m² Grade Count:10
Izod Impact, Unnotched (ISO)	NB	NB	Grade Count:4
	10.0 kJ/m² - NB @Temperature -30.0 - -30.0 °C	4.76 ft-lb/in² - NB @Temperature -22.0 - -22.0 °F	Average value: 10.0 kJ/m² Grade Count:2
	10.0 - 10.0 kJ/m² @Temperature -30.0 - -30.0 °C	4.76 - 4.76 ft-lb/in² @Temperature -22.0 - -22.0 °F	Average value: 10.0 kJ/m² Grade Count:3
	10.0 - 10.0 kJ/m² @Thickness 4.00 - 4.00 mm	4.76 - 4.76 ft-lb/in² @Thickness 0.157 - 0.157 in	Average value: 10.0 kJ/m² Grade Count:3
Charpy Impact Unnotched	1000 J/cm² - NB	4760 ft-lb/in² - NB	Grade Count:31
	999.9 J/cm² - NB @Temperature -60.0 - -30.0 °C	4759 ft-lb/in² - NB @Temperature -76.0 - -22.0 °F	Grade Count:33
Charpy Impact, Notched	0.900 - 8.80 J/cm²	4.28 - 41.9 ft-lb/in²	Average value: 6.42 J/cm² Grade Count:23
	1.10 - 1.80 J/cm² @Temperature -30.0 - -30.0 °C	5.24 - 8.57 ft-lb/in² @Temperature -22.0 - -22.0 °F	Average value: 1.34 J/cm² Grade Count:20
	1.20 - 1.80 J/cm² @Temperature -30.0 - -30.0 °C	5.71 - 8.57 ft-lb/in² @Temperature -22.0 - -22.0 °F	Average value: 1.34 J/cm² Grade Count:10
	1.20 - 1.80 J/cm² @Thickness 3.00 - 3.00 mm	5.71 - 8.57 ft-lb/in² @Thickness 0.118 - 0.118 in	Average value: 1.34 J/cm² Grade Count:10

Gardner Impact	36.2 J	26.7 ft-lb	Average value: 36.2 J Grade Count:3
Puncture Energy	50.0 - 65.0 J	36.9 - 47.9 ft-lb	Average value: 58.9 J Grade Count:14
	55.0 - 75.0 J @Temperature -30.0 - -30.0 °C	40.6 - 55.3 ft-lb @Temperature -22.0 - -22.0 °F	Average value: 66.4 J Grade Count:14
Tensile Creep Modulus, 1 hour	2200 MPa	319000 psi	Average value: 2200 MPa Grade Count:12
Tensile Creep Modulus, 1000 hours	1900 MPa	276000 psi	Average value: 1900 MPa Grade Count:12

Electrical Properties	Metric	English	Comments
Electrical Resistivity	1000 - 1.00e+17 ohm-cm	1000 - 1.00e+17 ohm-cm	Average value: 1.12e+16 ohm-cm Grade Count:50
Surface Resistance	10000 - 1.00e+16 ohm	10000 - 1.00e+16 ohm	Average value: 5.96e+15 ohm Grade Count:47
Dielectric Constant	2.70 - 3.17	2.70 - 3.17	Average value: 3.00 Grade Count:39
Dielectric Strength	15.0 - 36.0 kV/mm	380 - 914 kV/in	Average value: 28.1 kV/mm Grade Count:40
Dissipation Factor	0.000500 - 0.0400	0.000500 - 0.0400	Average value: 0.00625 Grade Count:39
Arc Resistance	120 sec	120 sec	Average value: 120 sec Grade Count:6
Comparative Tracking Index	100 - 400 V	100 - 400 V	Average value: 214 V Grade Count:20

Thermal Properties	Metric	English	Comments
CTE, linear	50.0 - 70.2 µm/m-°C	27.8 - 39.0 µin/in-°F	Average value: 66.0 µm/m-°C Grade Count:58
CTE, linear, Transverse to Flow	65.0 - 70.0 µm/m-°C	36.1 - 38.9 µin/in-°F	Average value: 66.5 µm/m-°C Grade Count:26
Specific Heat Capacity	1.17 - 1.70 J/g-°C	0.280 - 0.406 BTU/lb-°F	Average value: 1.54 J/g-°C Grade Count:9
Thermal Conductivity	0.173 - 0.210 W/m-K	1.20 - 1.46 BTU-in/hr-ft²-°F	Average value: 0.198 W/m-K Grade Count:37
Maximum Service Temperature, Air	115 - 135 °C	239 - 275 °F	Average value: 122 °C Grade Count:9
Hot Ball Pressure Test	115 - 141 °C	239 - 286 °F	Average value: 136 °C Grade Count:12
Deflection Temperature at 0.46 MPa (66 psi)	127 - 147 °C	261 - 297 °F	Average value: 138 °C Grade Count:53
Deflection Temperature at 1.8 MPa (264 psi)	80.0 - 170 °C	176 - 338 °F	Average value: 129 °C Grade Count:73
Vicat Softening Point	114 - 155 °C	237 - 311 °F	Average value: 147 °C Grade Count:55

Minimum Service Temperature, Air	-60.0 - -40.0 °C	-76.0 - -40.0 °F	Average value: -46.3 °C Grade Count:8
Glass Transition Temp, Tg	141 - 150 °C	286 - 302 °F	Average value: 147 °C Grade Count:15
UL RTI, Electrical	75.0 - 130 °C	167 - 266 °F	Average value: 114 °C Grade Count:16
UL RTI, Mechanical with Impact	75.0 - 125 °C	167 - 257 °F	Average value: 108 °C Grade Count:16
UL RTI, Mechanical without Impact	75.0 - 130 °C	167 - 266 °F	Average value: 114 °C Grade Count:16
Flammability, UL94	HB - 5VA	HB - 5VA	Grade Count:49
Flash Point	450 - 560 °C	842 - 1040 °F	Average value: 510 °C Grade Count:11
Oxygen Index	25.0 - 43.0 %	25.0 - 43.0 %	Average value: 29.3 % Grade Count:22
Glow Wire Test	750 - 960 °C	1380 - 1760 °F	Average value: 887 °C Grade Count:21
Optical Properties	Metric	English	Comments
Refractive Index	1.59 - 1.59	1.59 - 1.59	Average value: 1.59 Grade Count:28
Haze	0.500 - 1.00 %	0.500 - 1.00 %	Average value: 0.856 % Grade Count:16
Transmission, Visible	47.0 - 92.0 %	47.0 - 92.0 %	Average value: 83.8 % Grade Count:24
UV Transmittance	51.0 - 88.0 %	51.0 - 88.0 %	Average value: 74.3 % Grade Count:4
Processing Properties	Metric	English	Comments
Melt Temperature	250 - 343 °C	482 - 650 °F	Average value: 302 °C Grade Count:31
Mold Temperature	60.0 - 120 °C	140 - 248 °F	Average value: 84.9 °C Grade Count:30
Injection Velocity	200 mm/sec	7.87 in/sec	Average value: 200 mm/sec Grade Count:21
Drying Temperature	100 - 124 °C	212 - 255 °F	Average value: 119 °C Grade Count:10
Vent Depth	0.00127 cm	0.000500 in	Average value: 0.00127 cm Grade Count:3

Some of the values displayed above may have been converted from their original units and/or rounded in order to display the information in a consistent format. Users requiring more precise data for scientific or engineering calculations can click on the property value to see the original value as well as raw conversions to equivalent units. We advise that you only use the original value or one of its raw conversions in your calculations to minimize rounding error. We also ask that you refer to MatWeb's [terms of use](#) regarding this information. [Click here](#) to view all the property values for this datasheet as they were originally entered into MatWeb.