

Overview of materials for Polycarbonate, Molded

Category : Polymer , Thermoplastic , Polycarbonate (PC) , Polycarbonate, Molded

Material Notes:

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

Physical Properties	Metric	English	Comments
Density	0.950 - 1.51 g/cc	0.0343 - 0.0546 lb/in ³	Average value: 1.20 g/cc Grade Count:482
	0.960 - 1.02 g/cc @Temperature 280 - 330 °C	0.0347 - 0.0368 lb/in ³ @Temperature 536 - 626 °F	Average value: 1.01 g/cc Grade Count:43
Water Absorption	0.0150 - 0.400 %	0.0150 - 0.400 %	Average value: 0.237 % Grade Count:249
Moisture Absorption at Equilibrium	0.120 - 0.350 %	0.120 - 0.350 %	Average value: 0.147 % Grade Count:114
Water Absorption at Saturation	0.300 - 0.400 %	0.300 - 0.400 %	Average value: 0.313 % Grade Count:54
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:19
Oxygen Transmission	65.0 - 80.0 cc-mm/m ² -24hr-atm	165 - 203 cc-mil/100 in ² -24hr-atm	Average value: 71.4 cc-mm/m ² -24hr-atm Grade Count:20
Nitrogen Transmission	12.0 - 16.0 cc-mm/m ² -24hr-atm	30.5 - 40.6 cc-mil/100 in ² -24hr-atm	Average value: 13.5 cc-mm/m ² -24hr-atm Grade Count:20
Carbon Dioxide Transmission	380 - 480 cc-mm/m ² -24hr-atm	965 - 1220 cc-mil/100 in ² -24hr-atm	Average value: 429 cc-mm/m ² -24hr-atm Grade Count:20
Viscosity Test	42.0 - 68.0 cm ³ /g	42.0 - 68.0 cm ³ /g	Average value: 54.7 cm ³ /g Grade Count:39
Maximum Moisture Content	0.0200	0.0200	Average value: 0.0200 Grade Count:30
Linear Mold Shrinkage	0.00100 - 0.0100 cm/cm	0.00100 - 0.0100 in/in	Average value: 0.00624 cm/cm Grade Count:373
Linear Mold Shrinkage, Transverse	0.00400 - 0.00800 cm/cm	0.00400 - 0.00800 in/in	Average value: 0.00677 cm/cm Grade Count:95
Melt Flow	1.00 - 120 g/10 min	1.00 - 120 g/10 min	Average value: 16.1 g/10 min Grade Count:403

Mechanical Properties	Metric	English	Comments
Hardness, Rockwell M	65.0 - 122	65.0 - 122	Average value: 72.3 Grade Count:101
Hardness, Rockwell R	72.0 - 123	72.0 - 123	Average value: 119 Grade Count:120
Ball Indentation Hardness	111 - 118 MPa	16100 - 17100 psi	Average value: 115 MPa Grade Count:35
Tensile Strength, Ultimate	46.1 - 93.1 MPa	6690 - 13500 psi	Average value: 64.5 MPa Grade Count:208
	23.0 - 51.0 MPa @Temperature 60.0 - 120 °C	3340 - 7400 psi @Temperature 140 - 248 °F	Average value: 38.1 MPa Grade Count:4
Tensile Strength, Yield	37.0 - 154 MPa	5370 - 22300 psi	Average value: 63.3 MPa Grade Count:371
Elongation at Break	3.00 - 233 %	3.00 - 233 %	Average value: 82.7 % Grade Count:378
	70.0 - 70.0 % @Temperature 60.0 - 120 °C	70.0 - 70.0 % @Temperature 140 - 248 °F	Average value: 90.0 % Grade Count:1
Elongation at Yield	5.00 - 110 %	5.00 - 110 %	Average value: 8.03 % Grade Count:219
	2.50 - 4.00 % @Temperature 60.0 - 120 °C	2.50 - 4.00 % @Temperature 140 - 248 °F	Average value: 3.17 % Grade Count:1
Modulus of Elasticity	1.80 - 3.00 GPa	261 - 435 ksi	Average value: 2.34 GPa Grade Count:243
	1.60 - 2.10 GPa @Temperature 60.0 - 120 °C	232 - 305 ksi @Temperature 140 - 248 °F	Average value: 1.83 GPa Grade Count:1
Flexural Yield Strength	27.6 - 205 MPa	4000 - 29700 psi	Average value: 90.5 MPa Grade Count:340
Flexural Modulus	0.228 - 10.0 GPa	33.0 - 1450 ksi	Average value: 2.35 GPa Grade Count:391
	1.70 - 2.20 GPa @Temperature 60.0 - 120 °C	247 - 319 ksi @Temperature 140 - 248 °F	Average value: 1.88 GPa Grade Count:3
Compressive Yield Strength	76.0 - 86.2 MPa	11000 - 12500 psi	Average value: 82.8 MPa Grade Count:9
Izod Impact, Notched	0.392 J/cm - NB	0.735 ft-lb/in - NB	Average value: 6.42 J/cm Grade Count:272
	1.00 - 5.339 J/cm	1.87 - 10.00 ft-lb/in	

Mechanical Properties	Metric	English	Comments
	@Temperature -40.0 - 0.000 °C	@Temperature -40.0 - 32.0 °F	Average value: 3.16 J/cm Grade Count:3
	2.1356 - 2.1356 J/cm	4.0009 - 4.0009 ft-lb/in	Average value: 3.16 J/cm Grade Count:3
	@Temperature -40.0 - 30.0 °C	@Temperature -40.0 - 22.0 °F	
	2.1356 - 2.1356 J/cm	4.0009 - 4.0009 ft-lb/in	Average value: 3.16 J/cm Grade Count:3
	@Thickness 3.17 - 3.20 mm	@Thickness 0.125 - 0.126 in	
Izod Impact, Unnotched	7.35 - 5340 J/cm	13.8 - 10000 ft-lb/in	Average value: 12.2 J/cm Grade Count:46
Izod Impact, Notched (ISO)	8.00 - 90.0 kJ/m ²	3.81 - 42.8 ft-lb/in ²	Average value: 71.6 kJ/m ² Grade Count:85
	60.0 - 60.0 kJ/m ²	28.6 - 28.6 ft-lb/in ²	Average value: 15.1 kJ/m ² Grade Count:3
	@Temperature -20.0 - 20.0 °C	@Temperature -4.00 - 4.00 °F	
	12.0 - 16.0 kJ/m ²	5.71 - 7.61 ft-lb/in ²	Average value: 15.1 kJ/m ² Grade Count:36
	@Temperature -30.0 - 30.0 °C	@Temperature -22.0 - 22.0 °F	
	12.0 - 16.0 kJ/m ²	5.71 - 7.61 ft-lb/in ²	Average value: 15.1 kJ/m ² Grade Count:36
	@Thickness 3.20 - 3.20 mm	@Thickness 0.126 - 0.126 in	
Charpy Impact Unnotched	22.0 J/cm ² - NB	105 ft-lb/in ² - NB	Average value: 28.4 J/cm ² Grade Count:133
	25.0 J/cm ² - NB	119 ft-lb/in ² - NB	Average value: 29.3 J/cm ² Grade Count:107
	@Temperature -60.0 - 20.0 °C	@Temperature -76.0 - 4.00 °F	
Charpy Impact, Notched	0.600 - 8.90 J/cm ²	2.86 - 42.4 ft-lb/in ²	Average value: 5.14 J/cm ² Grade Count:67
	0.600 - 1.00 J/cm ²	2.86 - 4.76 ft-lb/in ²	Average value: 1.34 J/cm ² Grade Count:15
	@Temperature -30.0 - 20.0 °C	@Temperature -22.0 - 4.00 °F	
	1.20 - 1.80 J/cm ²	5.71 - 8.57 ft-lb/in ²	Average value: 1.34 J/cm ² Grade Count:33
	@Temperature -30.0 - 30.0 °C	@Temperature -22.0 - 22.0 °F	
	1.20 - 1.80 J/cm ²	5.71 - 8.57 ft-lb/in ²	Average value: 1.34 J/cm ² Grade Count:33
	@Thickness 3.00 - 3.00 mm	@Thickness 0.118 - 0.118 in	
Gardner Impact	36.2 - 169 J	26.7 - 125 ft-lb	Average value: 39.7 J Grade Count:38

Mechanical Properties	≥ 36.1552 J Metric	≥ 26.6667 ft-lb English	Comments Average value: 36.2 J Grade Count:5
	@Temperature -30.0 - - 18.0 °C	@Temperature -22.0 - - 0.400 °F	
Tensile Impact Strength	546 - 580 kJ/m ²	260 - 276 ft-lb/in ²	Average value: 572 kJ/m ² Grade Count:4
Dart Drop, Total Energy	16.0 J	11.8 ft-lb	Average value: 16.0 J Grade Count:3
	11.0 - 16.0 J	8.11 - 11.8 ft-lb	
	@Temperature -30.0 - - 30.0 °C	@Temperature -22.0 - - 22.0 °F	Average value: 14.3 J Grade Count:3
Falling Dart Impact	53.8 - 1300 J	39.7 - 960 ft-lb	Average value: 774 J Grade Count:7
	75.9 - 75.9 J	56.0 - 56.0 ft-lb	
	@Temperature -40.0 - - 40.0 °C	@Temperature -40.0 - - 40.0 °F	Average value: 75.9 J Grade Count:1

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