

Overview of materials for Polycarbonate, Unreinforced, Flame Retardant

Category : Polymer , Thermoplastic , Polycarbonate (PC) , Polycarbonate, Unreinforced, Flame Retardant

Material Notes:

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

Physical Properties	Metric	English	Comments
Density	1.00 - 1.55 g/cc	0.0361 - 0.0560 lb/in ³	Average value: 1.21 g/cc Grade Count:282
Filler Content	5.00 - 20.0 %	5.00 - 20.0 %	Average value: 11.2 % Grade Count:6
Water Absorption	0.0100 - 0.350 %	0.0100 - 0.350 %	Average value: 0.212 % Grade Count:153
Moisture Absorption at Equilibrium	0.120 - 0.340 %	0.120 - 0.340 %	Average value: 0.211 % Grade Count:52
Water Absorption at Saturation	0.120 - 0.500 %	0.120 - 0.500 %	Average value: 0.317 % Grade Count:35
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:3
Oxygen Transmission	65.0 - 70.0 cc-mm/m ² -24hr-atm	165 - 178 cc-mil/100 in ² -24hr-atm	Average value: 68.2 cc-mm/m ² -24hr-atm Grade Count:3
Nitrogen Transmission	12.0 - 13.0 cc-mm/m ² -24hr-atm	30.5 - 33.0 cc-mil/100 in ² -24hr-atm	Average value: 12.5 cc-mm/m ² -24hr-atm Grade Count:3
Carbon Dioxide Transmission	380 - 429 cc-mm/m ² -24hr-atm	965 - 1090 cc-mil/100 in ² -24hr-atm	Average value: 405 cc-mm/m ² -24hr-atm Grade Count:3
Maximum Moisture Content	0.0200 - 0.0400	0.0200 - 0.0400	Average value: 0.0211 Grade Count:19
Linear Mold Shrinkage	0.00200 - 0.0120 cm/cm	0.00200 - 0.0120 in/in	Average value: 0.00618 cm/cm Grade Count:216
Linear Mold Shrinkage, Transverse	0.00500 - 0.00800 cm/cm	0.00500 - 0.00800 in/in	Average value: 0.00641 cm/cm Grade Count:22
Melt Flow	2.00 - 50.0 g/10 min	2.00 - 50.0 g/10 min	Average value: 14.8 g/10 min Grade Count:206
Surface Tension	36.0 - 44.0 dynes/cm	36.0 - 44.0 dynes/cm	Average value: 39.7 dynes/cm Grade Count:6

Mechanical Properties	Metric	English	Comments
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Mechanical Properties	Metric ¹⁸	English ¹⁸	Comments ¹⁸ Average value: 73.4 Grade Count:64
Hardness, Rockwell R	80.0 - 123	80.0 - 123	Average value: 118 Grade Count:117
Ball Indentation Hardness	115 - 116 MPa	16700 - 16800 psi	Average value: 115 MPa Grade Count:4
Tensile Strength, Ultimate	45.0 - 228 MPa	6530 - 33000 psi	Average value: 65.6 MPa Grade Count:156
	35.0 - 35.0 MPa @Temperature 60.0 - 60.0 °C	5080 - 5080 psi @Temperature 140 - 140 °F	Average value: 35.0 MPa Grade Count:1
Tensile Strength, Yield	49.6 - 80.0 MPa	7200 - 11600 psi	Average value: 61.7 MPa Grade Count:213
Elongation at Break	2.30 - 160 %	2.30 - 160 %	Average value: 88.5 % Grade Count:217
	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	4.00 - 115 %	4.00 - 115 %	Average value: 11.8 % Grade Count:91
	2.50 - 6.00 % @Temperature 60.0 - 120 °C	2.50 - 6.00 % @Temperature 140 - 248 °F	Average value: 4.17 % Grade Count:1
Modulus of Elasticity	0.225 - 7.80 GPa	32.6 - 1130 ksi	Average value: 2.37 GPa Grade Count:101
	1.70 - 2.20 GPa @Temperature 60.0 - 120 °C	247 - 319 ksi @Temperature 140 - 248 °F	Average value: 1.93 GPa Grade Count:1
Flexural Yield Strength	9.81 - 118 MPa	1420 - 17100 psi	Average value: 89.0 MPa Grade Count:198
Flexural Modulus	0.228 - 7.90 GPa	33.0 - 1150 ksi	Average value: 2.27 GPa Grade Count:198
Compressive Yield Strength	75.0 - 86.2 MPa	10900 - 12500 psi	Average value: 77.2 MPa Grade Count:7
Izod Impact, Notched	0.343 - 9.61 J/cm	0.643 - 18.0 ft-lb/in	Average value: 6.22 J/cm Grade Count:215
	4.50 - 6.4068 J/cm @Temperature -40.0 - 0.000 °C	8.43 - 12.003 ft-lb/in @Temperature -40.0 - 32.0 °F	Average value: 3.96 J/cm Grade Count:6
	>= 1.1768 J/cm @Temperature -30.0 - -30.0 °C	>= 2.2046 ft-lb/in @Temperature -22.0 - -22.0 °F	Average value: 3.96 J/cm Grade Count:2

Mechanical Properties	Metric ^{7.21768 J/cm}	English ^{7.2146 ft-lb/in}	Comments
	@Thickness 3.20 - 3.20 mm	@Thickness 0.126 - 0.126 in	Average value: 3.96 J/cm Grade Count:2
Izod Impact, Unnotched	7.35 J/cm - NB	13.8 ft-lb/in - NB	Average value: 15.6 J/cm Grade Count:41
	NB - NB	NB - NB	Grade Count:2
	@Temperature -40.0 - -40.0 °C	@Temperature -40.0 - -40.0 °F	
Izod Impact, Notched (ISO)	8.00 - 80.0 kJ/m ²	3.81 - 38.1 ft-lb/in ²	Average value: 31.8 kJ/m ² Grade Count:15
	8.00 - 20.0 kJ/m ²	3.81 - 9.52 ft-lb/in ²	Average value: 12.6 kJ/m ² Grade Count:4
	@Temperature -30.0 - -30.0 °C	@Temperature -22.0 - -22.0 °F	
	12.0 - 14.0 kJ/m ²	5.71 - 6.66 ft-lb/in ²	Average value: 12.6 kJ/m ² Grade Count:6
	@Temperature -30.0 - -30.0 °C	@Temperature -22.0 - -22.0 °F	
	12.0 - 14.0 kJ/m ²	5.71 - 6.66 ft-lb/in ²	Average value: 12.6 kJ/m ² Grade Count:6
	@Thickness 3.20 - 3.20 mm	@Thickness 0.126 - 0.126 in	
Izod Impact, Unnotched (ISO)	NB	NB	Grade Count:3
	NB - NB	NB - NB	Grade Count:2
	@Temperature -30.0 - -30.0 °C	@Temperature -22.0 - -22.0 °F	
Charpy Impact Unnotched	3.50 J/cm ² - NB	16.7 ft-lb/in ² - NB	Average value: 6.75 J/cm ² Grade Count:71
	999.9 - 999.9 J/cm ²	4759 - 4759 ft-lb/in ²	Grade Count:6
	@Temperature -60.0 - -30.0 °C	@Temperature -76.0 - -22.0 °F	
Charpy Impact, Notched	0.650 - 10.0 J/cm ²	3.09 - 47.6 ft-lb/in ²	Average value: 4.80 J/cm ² Grade Count:50
	1.50 - 3.50 J/cm ²	7.14 - 16.7 ft-lb/in ²	Average value: 1.62 J/cm ² Grade Count:2
	@Temperature -20.0 - -20.0 °C	@Temperature -4.00 - -4.00 °F	
	1.20 - 1.60 J/cm ²	5.71 - 7.61 ft-lb/in ²	Average value: 1.62 J/cm ² Grade Count:4
	@Temperature -30.0 - -30.0 °C	@Temperature -22.0 - -22.0 °F	
	1.20 - 1.60 J/cm ²	5.71 - 7.61 ft-lb/in ²	Average value: 1.62 J/cm ² Grade Count:4
	@Thickness 3.00 - 3.00 mm	@Thickness 0.118 - 0.118 in	

Mechanical Properties	Metric	English	Comments
Gardner Impact	14.9 - 36.2 J	11.0 - 26.7 ft-lb	Average value: 32.9 J Grade Count:25
Tensile Impact Strength	378 - 631 kJ/m ²	180 - 300 ft-lb/in ²	Average value: 498 kJ/m ² Grade Count:16
Puncture Energy	45.0 - 60.0 J	33.2 - 44.3 ft-lb	Average value: 54.0 J Grade Count:5
	50.0 - 65.0 J @Temperature -30.0 - - 30.0 °C	36.9 - 47.9 ft-lb @Temperature -22.0 - - 22.0 °F	Average value: 61.3 J Grade Count:4
Tensile Creep Modulus, 1 hour	2100 - 5900 MPa	305000 - 856000 psi	Average value: 2400 MPa Grade Count:25
Tensile Creep Modulus, 1000 hours	1700 - 5400 MPa	247000 - 783000 psi	Average value: 2090 MPa Grade Count:25
Tear Strength	7.27 - 316 kN/m	41.5 - 1800 pli	Average value: 143 kN/m Grade Count:7

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