

Overview of materials for Polycarbonate, UV Stabilized

Category : Polymer , Thermoplastic , Polycarbonate (PC) , Polycarbonate, UV Stabilized

Material Notes:

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

Physical Properties	Metric	English	Comments
Density	1.15 - 1.55 g/cc	0.0415 - 0.0560 lb/in ³	Average value: 1.21 g/cc Grade Count:119
Water Absorption	0.0230 - 0.350 %	0.0230 - 0.350 %	Average value: 0.212 % Grade Count:76
Moisture Absorption at Equilibrium	0.120 - 0.350 %	0.120 - 0.350 %	Average value: 0.149 % Grade Count:29
	0.580 - 0.580 %	0.580 - 0.580 %	Average value: 0.580 % Grade Count:1
	@Temperature 100 - 100 °C	@Temperature 212 - 212 °F	
Water Absorption at Saturation	0.300 - 0.400 %	0.300 - 0.400 %	Average value: 0.314 % Grade Count:25
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:11
Oxygen Transmission	65.0 - 80.0 cc-mm/m ² -24hr-atm	165 - 203 cc-mil/100 in ² -24hr-atm	Average value: 70.0 cc-mm/m ² -24hr-atm Grade Count:12
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: 13.1 cc-mm/m ² -24hr-atm Grade Count:12
Carbon Dioxide Transmission	380 - 480 cc-mm/m ² -24hr-atm	965 - 1220 cc-mil/100 in ² -24hr-atm	Average value: 417 cc-mm/m ² -24hr-atm Grade Count:12
Linear Mold Shrinkage	0.000500 - 0.0100 cm/cm	0.000500 - 0.0100 in/in	Average value: 0.00502 cm/cm Grade Count:90
Linear Mold Shrinkage, Transverse	0.00500 - 0.0100 cm/cm	0.00500 - 0.0100 in/in	Average value: 0.00727 cm/cm Grade Count:22
Melt Flow	3.00 - 46.0 g/10 min	3.00 - 46.0 g/10 min	Average value: 14.0 g/10 min Grade Count:102

Mechanical Properties	Metric	English	Comments
Hardness, Rockwell M	65.0 - 85.0	65.0 - 85.0	Average value: 72.7 Grade Count:31

Hardness, Rockwell R Mechanical Properties	80.0 - 127 Metric	80.0 - 127 English	Average value: 119 Grade Count:56 Comments
Ball Indentation Hardness	100 - 116 MPa	14500 - 16800 psi	Average value: 112 MPa Grade Count:21
Tensile Strength, Ultimate	55.2 - 80.0 MPa	8000 - 11600 psi	Average value: 66.9 MPa Grade Count:79
Tensile Strength, Yield	49.6 - 75.0 MPa	7200 - 10900 psi	Average value: 62.8 MPa Grade Count:97
Elongation at Break	8.00 - 150 %	8.00 - 150 %	Average value: 100 % Grade Count:115
Elongation at Yield	5.00 - 88.0 %	5.00 - 88.0 %	Average value: 7.50 % Grade Count:56
Modulus of Elasticity	2.00 - 2.60 GPa	290 - 377 ksi	Average value: 2.35 GPa Grade Count:63
Flexural Yield Strength	68.0 - 110 MPa	9860 - 16000 psi	Average value: 89.4 MPa Grade Count:101
Flexural Modulus	0.228 - 3.96 GPa	33.0 - 575 ksi	Average value: 2.29 GPa Grade Count:106
Compressive Yield Strength	76.0 - 77.0 MPa	11000 - 11200 psi	Average value: 76.3 MPa Grade Count:3
Izod Impact, Notched	0.500 - 9.77 J/cm	0.937 - 18.3 ft-lb/in	Average value: 7.04 J/cm Grade Count:82
	1.00 - 1.80 J/cm	1.87 - 3.37 ft-lb/in	Average value: 1.40 J/cm Grade Count:1
	@Temperature -30.0 - -30.0 °C	@Temperature -22.0 - -22.0 °F	
	1.00 - 1.80 J/cm	1.87 - 3.37 ft-lb/in	Average value: 1.40 J/cm Grade Count:1
	@Thickness 3.20 - 3.20 mm	@Thickness 0.126 - 0.126 in	
Izod Impact, Unnotched	0.981 J/cm - NB	1.84 ft-lb/in - NB	Average value: 13.3 J/cm Grade Count:26
	NB - NB	NB - NB	Grade Count:1
	@Temperature -40.0 - -40.0 °C	@Temperature -40.0 - -40.0 °F	
Izod Impact, Notched (ISO)	12.0 - 92.0 kJ/m²	5.71 - 43.8 ft-lb/in²	Average value: 73.6 kJ/m² Grade Count:27
	25.0 - 25.0 kJ/m²	11.9 - 11.9 ft-lb/in²	Average value: 13.4 kJ/m² Grade Count:2
	@Temperature -30.0 - -30.0 °C	@Temperature -22.0 - -22.0 °F	
	12.0 - 16.0 kJ/m²	5.71 - 7.61 ft-lb/in²	Average value: 13.4 kJ/m² Grade Count:17
	@Temperature -30.0 - -30.0 °C	@Temperature -22.0 - -22.0 °F	
	12.0 - 16.0 kJ/m²	5.71 - 7.61 ft-lb/in²	

Mechanical Properties	Metric	English	Comments
	@ Thickness 3.20 - 3.20 mm	@ Thickness 0.126 - 0.126 in	Average value: 13.4 kJ/m² Grade Count:11
Izod Impact, Unnotched (ISO)	NB - NB @Temperature -30.0 - - 30.0 °C	NB - NB @Temperature -22.0 - - 22.0 °F	Grade Count:2
Charpy Impact Unnotched	1000 J/cm² - NB	4760 ft-lb/in² - NB	Grade Count:28
	999.9 - 999.9 J/cm² @Temperature -60.0 - - 30.0 °C	4759 - 4759 ft-lb/in² @Temperature -76.0 - - 22.0 °F	Grade Count:20
Charpy Impact, Notched	1.20 - 75.0 J/cm²	5.71 - 357 ft-lb/in²	Average value: 9.67 J/cm² Grade Count:22
	1.40 - 1.60 J/cm² @Temperature -30.0 - - 30.0 °C	6.66 - 7.61 ft-lb/in² @Temperature -22.0 - - 22.0 °F	Average value: 1.44 J/cm² Grade Count:16
	1.40 - 1.60 J/cm² @Thickness 3.00 - 3.00 mm	6.66 - 7.61 ft-lb/in² @Thickness 0.118 - 0.118 in	Average value: 1.44 J/cm² Grade Count:16
Dart Drop, Total Energy	72.0 - 169 J	53.1 - 125 ft-lb	Average value: 90.1 J Grade Count:19
Puncture Energy	50.0 - 60.0 J	36.9 - 44.3 ft-lb	Average value: 58.1 J Grade Count:16
	55.0 - 70.0 J @Temperature -30.0 - - 30.0 °C	40.6 - 51.6 ft-lb @Temperature -22.0 - - 22.0 °F	Average value: 64.7 J Grade Count:16
Tensile Creep Modulus, 1 hour	2200 MPa	319000 psi	Average value: 2200 MPa Grade Count:18
Tensile Creep Modulus, 1000 hours	1900 MPa	276000 psi	Average value: 1900 MPa Grade Count:18

Thermal Properties	Metric	English	Comments
CTE, linear	32.4 - 117 µm/m-°C	18.0 - 65.0 µin/in-°F	Average value: 70.3 µm/m-°C Grade Count:71

Electrical Properties	Metric	English	Comments
Electrical Resistivity	1.00e+14 - 1.00e+18 ohm-cm	1.00e+14 - 1.00e+18 ohm-cm	Average value: 1.11e+17 ohm-cm Grade Count:70
Surface Resistance	1.00e+14 - 1.00e+17 ohm	1.00e+14 - 1.00e+17 ohm	Average value: 1.50e+16 ohm Grade Count:34
Dielectric Constant	2.85 - 3.17	2.85 - 3.17	Average value: 2.99 Grade Count:61

Dielectric Strength Electrical Properties	14.9 - 35.0 kV/mm Metric	378 - 889 kV/in English	Average value: 24.6 kV/mm Grade Count:61 Comments
Dissipation Factor	0.000400 - 0.0110	0.000400 - 0.0110	Average value: 0.00488 Grade Count:61
Arc Resistance	0.000 - 180 sec	0.000 - 180 sec	Average value: 119 sec Grade Count:41
Comparative Tracking Index	100 - 600 V	100 - 600 V	Average value: 234 V Grade Count:54
Hot Wire Ignition, HWI	15.0 - 60.0 sec	15.0 - 60.0 sec	Average value: 41.1 sec Grade Count:25
High Amp Arc Ignition, HAI	15.0 - 120 arcs	15.0 - 120 arcs	Average value: 114 arcs Grade Count:25
High Voltage Arc-Tracking Rate, HVTR	10.0 - 150 mm/min	0.394 - 5.91 in/min	Average value: 65.3 mm/min Grade Count:25

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