

Overview of materials for Polycarbonate, Extruded

Category : 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.

Order this product through the following link:

http://www.lookpolymers.com/polymer_Overview-of-materials-for-Polycarbonate-Extruded.php

| Physical Properties | Metric | English | Comments |
|------------------------------------|---|---|--|
| Density | 1.19 - 1.26 g/cc | 0.0430 - 0.0455 lb/in ³ | Average value: 1.20 g/cc Grade Count:55 |
| | 1.02 - 1.02 g/cc @Temperature 290 - 310 °C | 0.0368 - 0.0368 lb/in ³ @Temperature 554 - 590 °F | Average value: 1.02 g/cc Grade Count:10 |
| Water Absorption | 0.0200 - 0.350 % | 0.0200 - 0.350 % | Average value: 0.200 % Grade Count:29 |
| Moisture Absorption at Equilibrium | 0.120 - 0.200 % | 0.120 - 0.200 % | Average value: 0.129 % Grade Count:18 |
| Water Absorption at Saturation | 0.300 - 0.400 % | 0.300 - 0.400 % | Average value: 0.354 % Grade Count:12 |
| 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:4 |
| Oxygen Transmission | 65.0 - 70.0 cc-mm/m ² -24hr-atm | 165 - 178 cc-mil/100 in ² -24hr-atm | Average value: 68.0 cc-mm/m ² -24hr-atm Grade Count:4 |
| 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:4 |
| 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:4 |
| 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: 0.00655 cm/cm Grade Count:33 |
| Linear Mold Shrinkage, Transverse | 0.00700 - 0.00800 | 0.00700 - 0.00800 in/in | Average value: 0.00780 cm/cm Grade Count:15 |

| Physical Properties | cm/cm Metric | English | Comments |
|---------------------|----------------------|----------------------|---|
| Melt Flow | 1.00 - 18.0 g/10 min | 1.00 - 18.0 g/10 min | Average value: 6.76 g/10 min Grade Count:44 |

| Mechanical Properties | Metric | English | Comments |
|----------------------------|-------------------------------|-------------------------------|---|
| Hardness, Rockwell M | 70.0 - 75.0 | 70.0 - 75.0 | Average value: 73.3 Grade Count:9 |
| Hardness, Rockwell R | 114 - 126 | 114 - 126 | Average value: 120 Grade Count:15 |
| Hardness, Shore D | 79.0 - 80.0 | 79.0 - 80.0 | Average value: 79.7 Grade Count:3 |
| Ball Indentation Hardness | 110 - 120 MPa | 16000 - 17400 psi | Average value: 115 MPa Grade Count:7 |
| Tensile Strength, Ultimate | 60.0 - 74.0 MPa | 8700 - 10700 psi | Average value: 68.0 MPa Grade Count:24 |
| Tensile Strength, Yield | 58.6 - 70.0 MPa | 8500 - 10200 psi | Average value: 63.7 MPa Grade Count:34 |
| Elongation at Break | 10.0 - 138 % | 10.0 - 138 % | Average value: 82.7 % Grade Count:41 |
| Elongation at Yield | 6.00 - 50.0 % | 6.00 - 50.0 % | Average value: 11.9 % Grade Count:25 |
| Modulus of Elasticity | 1.79 - 3.24 GPa | 260 - 470 ksi | Average value: 2.37 GPa Grade Count:27 |
| Flexural Yield Strength | 72.0 - 103 MPa | 10400 - 15000 psi | Average value: 89.2 MPa Grade Count:24 |
| Flexural Modulus | 1.96 - 3.10 GPa | 284 - 450 ksi | Average value: 2.32 GPa Grade Count:33 |
| Compressive Yield Strength | 18.0 - 86.2 MPa | 2610 - 12500 psi | Average value: 60.4 MPa Grade Count:6 |
| Compressive Modulus | 2.07 GPa | 300 ksi | Average value: 2.07 GPa Grade Count:3 |
| Shear Strength | 63.4 MPa | 9200 psi | Average value: 63.4 MPa Grade Count:3 |
| Izod Impact, Notched | 0.481 - 9.61 J/cm | 0.900 - 18.0 ft-lb/in | Average value: 6.71 J/cm Grade Count:27 |
| | 5.00 - 5.00 J/cm | 9.37 - 9.37 ft-lb/in | Average value: 3.86 J/cm Grade Count:2 |
| | @Temperature 0.000 - 0.000 °C | @Temperature 32.0 - 32.0 °F | |
| | 2.72289 - 2.72289 J/cm | 5.10109 - 5.10109 ft-lb/in | Average value: 3.86 J/cm Grade Count:1 |
| | @Temperature -40.0 - -40.0 °C | @Temperature -40.0 - -40.0 °F | |
| | 2.72289 - 2.72289 J/cm | 5.10109 - 5.10109 ft-lb/in | Average value: 3.86 J/cm Grade Count:1 |

| Mechanical Properties | @Thickness 3.17 - 3.17 Metric | @Thickness 0.125 - 0.125 in English | Comments |
|-----------------------------------|--|--|---|
| Izod Impact, Notched (ISO) | 80.0 - 90.0 kJ/m ² | 38.1 - 42.8 ft-lb/in ² | Average value: 82.5 kJ/m ² Grade Count:4 |
| | 12.0 - 14.0 kJ/m ² @Temperature -30.0 - - 30.0 °C | 5.71 - 6.66 ft-lb/in ² @Temperature -22.0 - - 22.0 °F | Average value: 13.0 kJ/m ² Grade Count:4 |
| | 12.0 - 14.0 kJ/m ² @Thickness 3.20 - 3.20 mm | 5.71 - 6.66 ft-lb/in ² @Thickness 0.126 - 0.126 in | Average value: 13.0 kJ/m ² Grade Count:4 |
| Charpy Impact Unnotched | 1000 J/cm ² - NB | 4760 ft-lb/in ² - NB | Grade Count:23 |
| | 999.9 J/cm ² - NB @Temperature -60.0 - - 30.0 °C | 4759 ft-lb/in ² - NB @Temperature -76.0 - - 22.0 °F | Grade Count:14 |
| Charpy Impact, Notched | 0.900 - 8.00 J/cm ² | 4.28 - 38.1 ft-lb/in ² | Average value: 4.73 J/cm ² Grade Count:7 |
| | 1.40 - 1.60 J/cm ² @Temperature -30.0 - - 30.0 °C | 6.66 - 7.61 ft-lb/in ² @Temperature -22.0 - - 22.0 °F | Average value: 1.50 J/cm ² Grade Count:4 |
| | 1.40 - 1.60 J/cm ² @Thickness 3.00 - 3.00 mm | 6.66 - 7.61 ft-lb/in ² @Thickness 0.118 - 0.118 in | Average value: 1.50 J/cm ² Grade Count:4 |
| 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 |
| Coefficient of Friction | 0.500 - 0.600 | 0.500 - 0.600 | Average value: 0.533 Grade Count:3 |
| 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 |
| Thermal Properties | Metric | English | Comments |
| CTE, linear | 50.0 - 70.2 µm/m-°C | 27.8 - 39.0 µin/in-°F | Average value: 65.5 µm/m-°C Grade Count:29 |
| CTE, linear, Transverse to Flow | 65.0 - 70.0 µm/m-°C | 36.1 - 38.9 µin/in-°F | Average value: 65.5 µm/m-°C Grade Count:16 |

| Electrical Properties | Metric | English | Comments |
|----------------------------|------------------------|------------------------|--|
| Electrical Resistivity | 1000 - 1.00e+17 ohm-cm | 1000 - 1.00e+17 ohm-cm | Average value: 1.27e+16 ohm-cm Grade Count:31 |
| Surface Resistance | 10000 - 1.00e+16 ohm | 10000 - 1.00e+16 ohm | Average value: 3.92e+15 ohm Grade Count:26 |
| Dielectric Constant | 2.85 - 3.17 | 2.85 - 3.17 | Average value: 3.02 Grade Count:26 |
| Dielectric Strength | 15.0 - 34.0 kV/mm | 380 - 864 kV/in | Average value: 29.6 kV/mm Grade Count:27 |
| Dissipation Factor | 0.000500 - 0.0400 | 0.000500 - 0.0400 | Average value: 0.00669 Grade Count:26 |
| Arc Resistance | 120 sec | 120 sec | Average value: 120 sec Grade Count:6 |
| Comparative Tracking Index | 100 - 350 V | 100 - 350 V | Average value: 224 V Grade Count:16 |

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