

Overview of materials for Cellulose Acetate Propionate, Molded

Category : Polymer , Renewable/Recycled Polymer , Thermoplastic , Cellulosic , Cellulose Acetate Propionate, Molded

Material Notes:

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

Physical Properties	Metric	English	Comments
Density	1.17 - 1.21 g/cc	0.0423 - 0.0437 lb/in ³	Average value: 1.20 g/cc Grade Count:74
Water Absorption	1.30 - 1.80 %	1.30 - 1.80 %	Average value: 1.51 % Grade Count:66
Linear Mold Shrinkage	0.00200 - 0.00600 cm/cm	0.00200 - 0.00600 in/in	Average value: 0.00400 cm/cm Grade Count:74

Mechanical Properties	Metric	English	Comments
Hardness, Rockwell R	40.0 - 98.0	40.0 - 98.0	Average value: 76.8 Grade Count:34
Tensile Strength, Ultimate	23.0 - 42.7 MPa	3340 - 6190 psi	Average value: 33.6 MPa Grade Count:67
	8.00 - 8.00 MPa @Temperature 120 - 120 °C	1160 - 1160 psi @Temperature 248 - 248 °F	Average value: 8.00 MPa Grade Count:1
Tensile Strength, Yield	22.1 - 41.4 MPa	3210 - 6000 psi	Average value: 30.5 MPa Grade Count:74
Elongation at Break	34.0 - 50.0 %	34.0 - 50.0 %	Average value: 42.3 % Grade Count:53
Elongation at Yield	3.70 - 25.0 %	3.70 - 25.0 %	Average value: 6.28 % Grade Count:9
	160 - 160 % @Temperature 120 - 120 °C	160 - 160 % @Temperature 248 - 248 °F	Average value: 160 % Grade Count:1
Modulus of Elasticity	1.05 - 1.85 GPa	152 - 268 ksi	Average value: 1.59 GPa Grade Count:9
	1.40 - 1.40 GPa @Temperature 120 - 120 °C	203 - 203 ksi @Temperature 248 - 248 °F	Average value: 1.40 GPa Grade Count:1
Flexural Yield Strength	29.0 - 55.8 MPa	4210 - 8090 psi	Average value: 39.9 MPa Grade Count:66

Mechanical Properties	Metric	English	Comments
Flexural Modulus	1.70 - 1.86 GPa	160 - 270 ksi	Average value: 1.40 GPa Grade Count:60
Izod Impact, Notched	1.76 - 5.33 J/cm	3.30 - 9.99 ft-lb/in	Average value: 3.80 J/cm Grade Count:66
	0.690 - 1.23 J/cm @Temperature -40.0 - - 40.0 °C	1.29 - 2.30 ft-lb/in @Temperature -40.0 - - 40.0 °F	Average value: 1.01 J/cm Grade Count:45
Charpy Impact Unnotched	NB	NB	Grade Count:8
	NB - NB @Temperature -30.0 - - 30.0 °C	NB - NB @Temperature -22.0 - - 22.0 °F	Grade Count:8
Charpy Impact, Notched	0.580 - 2.61 J/cm²	2.76 - 12.4 ft-lb/in²	Average value: 1.72 J/cm² Grade Count:8
	0.340 - 1.05 J/cm² @Temperature -30.0 - - 30.0 °C	1.62 - 5.00 ft-lb/in² @Temperature -22.0 - - 22.0 °F	Average value: 0.707 J/cm² Grade Count:8

Thermal Properties	Metric	English	Comments
CTE, linear	11.0 - 170 µm/m-°C	6.11 - 94.4 µin/in-°F	Average value: 83.8 µm/m-°C Grade Count:53
CTE, linear, Transverse to Flow	122 - 140 µm/m-°C	67.8 - 77.8 µin/in-°F	Average value: 132 µm/m-°C Grade Count:8
Specific Heat Capacity	1.26 - 1.67 J/g-°C	0.301 - 0.399 BTU/lb-°F	Average value: 1.46 J/g-°C Grade Count:45
Thermal Conductivity	0.170 - 0.330 W/m-K	1.18 - 2.29 BTU-in/hr-ft²-°F	Average value: 0.250 W/m-K Grade Count:45
Deflection Temperature at 0.46 MPa (66 psi)	77.0 - 96.0 °C	171 - 205 °F	Average value: 84.8 °C Grade Count:53
Deflection Temperature at 1.8 MPa (264 psi)	64.0 - 88.0 °C	147 - 190 °F	Average value: 75.8 °C Grade Count:74
Vicat Softening Point	81.0 - 107 °C	178 - 225 °F	Average value: 95.9 °C Grade Count:74
Glass Transition Temp, Tg	90.0 - 111 °C	194 - 232 °F	Average value: 103 °C Grade Count:9
Flammability, UL94	HB	HB	Grade Count:3

Optical Properties	Metric	English	Comments
Refractive Index	1.46 - 1.49	1.46 - 1.49	Average value: 1.47 Grade Count:46
Haze	8.50 %	8.50 %	Average value: 8.50 % Grade Count:45

Transmission Visible Optical Properties	71.0 - 90.0 % Metric	71.0 - 90.0 % English	Average value: 89.7 % Grade Count:46 Comments
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Electrical Properties	Metric	English	Comments
Electrical Resistivity	1.00e+13 - 1.00e+15 ohm-cm	1.00e+13 - 1.00e+15 ohm-cm	Average value: 5.05e+14 ohm-cm Grade Count:45
Dielectric Constant	3.30 - 3.80	3.30 - 3.80	Average value: 3.55 Grade Count:45
Dielectric Strength	11.8 - 18.7 kV/mm	300 - 475 kV/in	Average value: 15.3 kV/mm Grade Count:38
Dissipation Factor	0.0100 - 0.150	0.0100 - 0.150	Average value: 0.0800 Grade Count:45

Processing Properties	Metric	English	Comments
Melt Temperature	207 - 250 °C	405 - 482 °F	Average value: 227 °C Grade Count:29
Mold Temperature	43.0 - 74.0 °C	109 - 165 °F	Average value: 56.0 °C Grade Count:21

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