

## Overview of materials for Cyclo Olefin Polymer

Category : Polymer , Thermoplastic , Cyclo Olefin Polymer

### Material Notes:

This property data is a summary of similar materials in the MatWeb database for the category "Cyclo Olefin Polymer". 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-Cyclo-Olefin-Polymer.php](http://www.lookpolymers.com/polymer_Overview-of-materials-for-Cyclo-Olefin-Polymer.php)

Physical Properties	Metric	English	Comments
Density	0.940 - 1.17 g/cc	0.0340 - 0.0423 lb/in <sup>3</sup>	Average value: 1.03 g/cc Grade Count:41
Water Absorption	0.0100 %	0.0100 %	Average value: 0.0100 % Grade Count:17
Water Absorption at Saturation	0.0100 %	0.0100 %	Average value: 0.0100 % Grade Count:15
Moisture Vapor Transmission	0.0900 - 0.110 cc-mm/m <sup>2</sup> -24hr-atm	0.229 - 0.279 cc-mil/100 in <sup>2</sup> -24hr-atm	Average value: 0.0922 cc-mm/m <sup>2</sup> -24hr-atm Grade Count:9
Water Vapor Transmission	0.0000250 - 0.250 g/m <sup>2</sup> /day	0.00000161 - 0.0161 g/100 in <sup>2</sup> /day	Average value: 0.111 g/m <sup>2</sup> /day Grade Count:8
	0.000100 - 0.000800 g/m <sup>2</sup> /day  @Temperature 38.0 - 38.0 °C	0.00000644 - 0.0000515 g/100 in <sup>2</sup> /day  @Temperature 100 - 100 °F	Average value: 0.000343 g/m <sup>2</sup> /day Grade Count:3
Oxygen Transmission	0.0400 - 28.0 cc-mm/m <sup>2</sup> -24hr-atm	0.102 - 71.1 cc-mil/100 in <sup>2</sup> -24hr-atm	Average value: 17.7 cc-mm/m <sup>2</sup> -24hr-atm Grade Count:3
Thickness	70.0 - 127 microns	2.76 - 5.00 mil	Average value: 82.4 microns Grade Count:7
Linear Mold Shrinkage	0.00100 - 0.00700 cm/cm	0.00100 - 0.00700 in/in	Average value: 0.00540 cm/cm Grade Count:10
Melt Flow	0.100 - 60.0 g/10 min	0.100 - 60.0 g/10 min	Average value: 15.7 g/10 min Grade Count:39

Mechanical Properties	Metric	English	Comments
Tensile Strength, Ultimate	32.0 - 75.8 MPa	4640 - 11000 psi	Average value: 57.6 MPa Grade Count:15
Tensile Strength, Yield	32.0 - 72.0 MPa	4640 - 10400 psi	Average value: 56.8 MPa Grade Count:21
Film Elongation at Break, MD	1.40 - 800 %	1.40 - 800 %	Average value: 200 % Grade Count:7

Mechanical Properties	Metric	English	Comments
Film Elongation at Break, TD	1.10 - 790 %	1.10 - 790 %	Average value: 190 % Grade Count:7
Elongation at Break	0.500 - 140 %	0.500 - 140 %	Average value: 24.1 % Grade Count:21
Elongation at Yield	1.70 - 40.0 %	1.70 - 40.0 %	Average value: 7.40 % Grade Count:14
Modulus of Elasticity	0.0340 - 16.0 GPa	4.93 - 2330 ksi	Average value: 2.92 GPa Grade Count:34
Flexural Yield Strength	9.22 - 158 MPa	1340 - 22900 psi	Average value: 95.6 MPa Grade Count:17
Flexural Modulus	1.80 - 16.7 GPa	261 - 2420 ksi	Average value: 4.31 GPa Grade Count:17
	1.70 - 2.70 GPa	247 - 392 ksi	Average value: 2.13 GPa Grade Count:2
	@Temperature 40.0 - 130 °C	@Temperature 104 - 266 °F	
Izod Impact, Notched	0.108 - 0.800 J/cm	0.202 - 1.50 ft-lb/in	Average value: 0.345 J/cm Grade Count:18
Izod Impact, Unnotched (ISO)	10.0 - 33.0 kJ/m <sup>2</sup>	4.76 - 15.7 ft-lb/in <sup>2</sup>	Average value: 17.2 kJ/m <sup>2</sup> Grade Count:6
Charpy Impact Unnotched	1.30 - 2.50 J/cm <sup>2</sup>	6.19 - 11.9 ft-lb/in <sup>2</sup>	Average value: 1.65 J/cm <sup>2</sup> Grade Count:15
Charpy Impact, Notched	0.160 - 0.260 J/cm <sup>2</sup>	0.761 - 1.24 ft-lb/in <sup>2</sup>	Average value: 0.196 J/cm <sup>2</sup> Grade Count:15
Elmendorf Tear Strength MD	9.00 - 2720 g	9.00 - 2720 g	Average value: 716 g Grade Count:5
Elmendorf Tear Strength TD	9.00 - 3170 g	9.00 - 3170 g	Average value: 814 g Grade Count:5
Dart Drop Test	36.0 g	0.0794 lb	Average value: 36.0 g Grade Count:4
Film Tensile Strength at Break, MD	25.0 - 57.0 MPa	3630 - 8270 psi	Average value: 47.0 MPa Grade Count:6
Film Tensile Strength at Break, TD	22.0 - 55.0 MPa	3190 - 7980 psi	Average value: 41.2 MPa Grade Count:6

Thermal Properties	Metric	English	Comments
CTE, linear	2.80 - 70.0 µm/m-°C	1.56 - 38.9 µin/in-°F	Average value: 49.4 µm/m-°C Grade Count:7
Melting Point	80.0 - 155 °C	176 - 311 °F	Average value: 120 °C Grade Count:6
Deflection Temperature at 0.46 MPa (66 psi)	75.0 - 170 °C	167 - 338 °F	Average value: 122 °C Grade Count:17
Deflection Temperature at 1.8 MPa (264 psi)	60.0 - 151 °C	140 - 304 °F	Average value: 110 °C Grade Count:21
Vicat Softening Point	64.0 - 178 °C	147 - 352 °F	Average value: 117 °C Grade Count:9

Glass Transition Temp, Tg Thermal Properties	33.0 - 180 °C Metric	91.4 - 356 °F English	Average value: 118 °C Grade Count:40 Comments
Flammability, UL94	HB - V-2	HB - V-2	Grade Count:13

Optical Properties	Metric	English	Comments
Refractive Index	1.51 - 1.54	1.51 - 1.54	Average value: 1.53 Grade Count:29
Haze	1.00 - 8.50 %	1.00 - 8.50 %	Average value: 2.38 % Grade Count:13
Gloss	94.0 - 116 %	94.0 - 116 %	Average value: 101 % Grade Count:6
Transmission, Visible	90.0 - 94.0 %	90.0 - 94.0 %	Average value: 91.2 % Grade Count:32

Electrical Properties	Metric	English	Comments
Electrical Resistivity	1.00e+12 - 1.00e+17 ohm-cm	1.00e+12 - 1.00e+17 ohm-cm	Average value: 1.57e+16 ohm-cm Grade Count:14
Surface Resistance	10.0 - 1.00e+14 ohm	10.0 - 1.00e+14 ohm	Average value: 1.00e+14 ohm Grade Count:3
Dielectric Constant	2.20 - 2.35	2.20 - 2.35	Average value: 2.29 Grade Count:19
Dielectric Strength	40.0 - 157 kV/mm	1020 - 4000 kV/in	Average value: 81.5 kV/mm Grade Count:5
Dissipation Factor	0.0000700 - 0.000260	0.0000700 - 0.000260	Average value: 0.000131 Grade Count:12
Comparative Tracking Index	600 V	600 V	Average value: 600 V Grade Count:8

Processing Properties	Metric	English	Comments
Nozzle Temperature	220 - 320 °C	428 - 608 °F	Average value: 265 °C Grade Count:10
Melt Temperature	84.0 - 320 °C	183 - 608 °F	Average value: 249 °C Grade Count:11
Mold Temperature	40.0 - 160 °C	104 - 320 °F	Average value: 100 °C Grade Count:10
Injection Velocity	50.0 - 150 mm/sec	1.97 - 5.91 in/sec	Average value: 100 mm/sec Grade Count:7
Injection Pressure	50.0 - 110 MPa	7250 - 16000 psi	Average value: 80.0 MPa Grade Count:7

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