

Overview of materials for Acrylic, Optical Sheet

Category : Polymer , Thermoplastic , Acrylic (PMMA) , Acrylic, Optical Sheet

Material Notes:

This property data is a summary of similar materials in the MatWeb database for the category "Acrylic, Optical Sheet". 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-Acrylic-Optical-Sheet.php

Physical Properties	Metric	English	Comments
Density	1.15 - 1.19 g/cc	0.0415 - 0.0430 lb/in ³	Average value: 1.18 g/cc Grade Count:14
Water Absorption	0.200 - 0.400 %	0.200 - 0.400 %	Average value: 0.317 % Grade Count:6
Linear Mold Shrinkage	0.00200 - 0.00600 cm/cm	0.00200 - 0.00600 in/in	Average value: 0.00425 cm/cm Grade Count:4

Mechanical Properties	Metric	English	Comments
Hardness, Rockwell M	46.0 - 96.0	46.0 - 96.0	Average value: 81.6 Grade Count:7
Hardness, Rockwell R	106 - 110	106 - 110	Average value: 108 Grade Count:5
Tensile Strength, Yield	37.9 - 72.0 MPa	5500 - 10400 psi	Average value: 55.2 MPa Grade Count:11
Elongation at Break	4.50 - 5.80 %	4.50 - 5.80 %	Average value: 4.87 % Grade Count:6
Modulus of Elasticity	1.52 - 3.38 GPa	220 - 490 ksi	Average value: 2.46 GPa Grade Count:14
Flexural Yield Strength	57.0 - 117 MPa	8270 - 17000 psi	Average value: 97.6 MPa Grade Count:13
Flexural Modulus	1.86 - 3.38 GPa	270 - 490 ksi	Average value: 2.76 GPa Grade Count:10
Compressive Yield Strength	117 - 124 MPa	17000 - 18000 psi	Average value: 119 MPa Grade Count:3
Izod Impact, Notched	0.149 - 1.10 J/cm	0.280 - 2.06 ft-lb/in	Average value: 0.425 J/cm Grade Count:7
	0.200 - 0.500 J/cm @Temperature -18.0 - -18.0 °C	0.375 - 0.937 ft-lb/in @Temperature -0.400 - -0.400 °F	Average value: 0.275 J/cm Grade Count:4
Izod Impact, Unnotched	0.320 - 0.587 J/cm	0.600 - 1.10 ft-lb/in	Average value: 0.427 J/cm Grade Count:5

Gardner Impact Mechanical Properties	0.450 - 5.30 J Metric	0.332 - 3.91 ft-lb English	Average value: 2.49 J Grade Count:4 Comments
Falling Dart Impact	8.13 - 13.6 J	6.00 - 10.0 ft-lb	Average value: 10.3 J Grade Count:5

Thermal Properties	Metric	English	Comments
CTE, linear	52.2 - 101 $\mu\text{m}/\text{m}\cdot^\circ\text{C}$	29.0 - 56.0 $\mu\text{in}/\text{in}\cdot^\circ\text{F}$	Average value: 75.7 $\mu\text{m}/\text{m}\cdot^\circ\text{C}$ Grade Count:14
Thermal Conductivity	0.130 - 0.190 W/m-K	0.900 - 1.32 BTU-in/hr-ft ² -°F	Average value: 0.160 W/m-K Grade Count:4
Maximum Service Temperature, Air	60.0 - 88.0 °C	140 - 190 °F	Average value: 74.2 °C Grade Count:8
Deflection Temperature at 1.8 MPa (264 psi)	76.7 - 98.9 °C	170 - 210 °F	Average value: 87.7 °C Grade Count:14
Vicat Softening Point	105 - 115 °C	221 - 239 °F	Average value: 110 °C Grade Count:4
Minimum Service Temperature, Air	-55.0 - -34.0 °C	-67.0 - -29.2 °F	Average value: -51.5 °C Grade Count:4
Flammability, UL94	HB	HB	Grade Count:5
Flame Spread	15.2 - 25.9 mm/min	0.600 - 1.02 in/min	Average value: 20.5 mm/min Grade Count:3

Optical Properties	Metric	English	Comments
Refractive Index	1.46 - 1.49	1.46 - 1.49	Average value: 1.48 Grade Count:5
Haze	1.00 - 3.00 %	1.00 - 3.00 %	Average value: 1.78 % Grade Count:7
Gloss	90.0 %	90.0 %	Average value: 90.0 % Grade Count:4
Transmission, Visible	63.0 - 92.0 %	63.0 - 92.0 %	Average value: 90.3 % Grade Count:10

Electrical Properties	Metric	English	Comments
Shielding Effectiveness	40.0 - 120 dB	40.0 - 120 dB	Average value: 73.8 dB Grade Count:3

Processing Properties	Metric	English	Comments
Processing Temperature	143 - 160 °C	289 - 320 °F	Average value: 156 °C Grade Count:4

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