

Overview of materials for Acrylic, Cast

Category : Polymer , Thermoplastic , Acrylic (PMMA) , Acrylic, Cast

Material Notes:

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

Physical Properties	Metric	English	Comments
Density	1.18 - 1.19 g/cc	0.0426 - 0.0430 lb/in ³	Average value: 1.19 g/cc Grade Count:10
Water Absorption	0.130 - 0.480 %	0.130 - 0.480 %	Average value: 0.296 % Grade Count:8
Water Absorption at Saturation	1.10 - 2.10 %	1.10 - 2.10 %	Average value: 1.90 % Grade Count:5
Moisture Expansion	0.500 %	0.500 %	Average value: 0.500 % Grade Count:3
Moisture Vapor Transmission	55.0 cc-mm/m ² -24hr-atm	140 cc-mil/100 in ² -24hr-atm	Average value: 55.0 cc-mm/m ² -24hr-atm Grade Count:3

Mechanical Properties	Metric	English	Comments
Hardness, Rockwell M	94.0 - 102	94.0 - 102	Average value: 98.2 Grade Count:3
Ball Indentation Hardness	175 MPa	25400 psi	Average value: 175 MPa Grade Count:3
Tensile Strength, Ultimate	62.0 - 83.0 MPa	8990 - 12000 psi	Average value: 77.0 MPa Grade Count:10
	40.0 - 110 MPa @Temperature -40.0 - 70.0 °C	5800 - 16000 psi @Temperature -40.0 - 158 °F	Average value: 75.0 MPa Grade Count:3
Elongation at Break	4.00 - 5.50 %	4.00 - 5.50 %	Average value: 5.02 % Grade Count:9
Modulus of Elasticity	2.80 - 3.30 GPa	406 - 479 ksi	Average value: 3.17 GPa Grade Count:4
Flexural Yield Strength	105 - 116 MPa	15200 - 16800 psi	Average value: 113 MPa Grade Count:6
Flexural Modulus	2.96 - 3.30 GPa	429 - 479 ksi	Average value: 3.16 GPa Grade Count:3
Compressive Yield Strength	110 - 124 MPa	16000 - 18000 psi	Average value: 114 MPa Grade Count:4
Poissons Ratio	0.370	0.370	Average value: 0.370 Grade Count:3

Mechanical Properties	Metric	English	Comments
Shear Modulus	1.70 GPa	247 ksi	Average value: 1.70 GPa Grade Count:3
Izod Impact, Notched (ISO)	1.60 kJ/m ²	0.761 ft-lb/in ²	Average value: 1.60 kJ/m ² Grade Count:3
Charpy Impact Unnotched	1.20 - 2.17 J/cm ²	5.71 - 10.3 ft-lb/in ²	Average value: 1.57 J/cm ² Grade Count:5
Coefficient of Friction	0.450 - 0.800	0.450 - 0.800	Average value: 0.583 Grade Count:3

Thermal Properties	Metric	English	Comments
CTE, linear	61.0 - 104 µm/m-°C	33.9 - 57.8 µin/in-°F	Average value: 74.0 µm/m-°C Grade Count:8
Specific Heat Capacity	1.47 J/g-°C	0.351 BTU/lb-°F	Average value: 1.47 J/g-°C Grade Count:6
Thermal Conductivity	0.190 W/m-K	1.32 BTU-in/hr-ft ² -°F	Average value: 0.190 W/m-K Grade Count:6
Maximum Service Temperature, Air	80.0 - 200 °C	176 - 392 °F	Average value: 123 °C Grade Count:6
Deflection Temperature at 0.46 MPa (66 psi)	113 - 115 °C	235 - 239 °F	Average value: 114 °C Grade Count:3
Deflection Temperature at 1.8 MPa (264 psi)	99.0 - 112 °C	210 - 234 °F	Average value: 106 °C Grade Count:6
Vicat Softening Point	105 - 118 °C	221 - 244 °F	Average value: 113 °C Grade Count:8
Flash Point	425 °C	797 °F	Average value: 425 °C Grade Count:3

Optical Properties	Metric	English	Comments
Refractive Index	1.49 - 1.49	1.49 - 1.49	Average value: 1.49 Grade Count:7
Haze	0.500 - 2.20 %	0.500 - 2.20 %	Average value: 1.06 % Grade Count:5
Transmission, Visible	89.0 - 92.0 %	89.0 - 92.0 %	Average value: 91.3 % Grade Count:9
UV Transmittance	0.000 - 1.00 %	0.000 - 1.00 %	Average value: 0.400 % Grade Count:5
Reflection Coefficient, Visible (0-1)	0.0400	0.0400	Average value: 0.0400 Grade Count:3

Electrical Properties	Metric	English	Comments
Electrical Resistivity	1.00e+15 - 1.60e+16 ohm-cm	1.00e+15 - 1.60e+16 ohm-cm	Average value: 4.75e+15 ohm-cm Grade Count:4
Surface Resistance	5.00e+13 - 1.90e+15 ohm	5.00e+13 - 1.90e+15 ohm	Average value: 5.12e+14 ohm Grade Count:4
Shielding Effectiveness	26.0 - 32.0 dB	26.0 - 32.0 dB	Average value: 29.3 dB Grade Count:3

Dielectric Constant Electrical Properties	2.70 - 3.60 Metric	2.70 - 3.60 English	Average value: 3.14 Grade Count:4 Comments
Dielectric Strength	17.0 - 30.0 kV/mm	432 - 762 kV/in	Average value: 26.8 kV/mm Grade Count:4
Dissipation Factor	0.0200 - 0.0600	0.0200 - 0.0600	Average value: 0.0400 Grade Count:4
Comparative Tracking Index	600 V	600 V	Average value: 600 V Grade Count:3

Processing Properties	Metric	English	Comments
Processing Temperature	80.0 - 193 °C	176 - 379 °F	Average value: 134 °C Grade Count:4

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