

Overview of materials for Acrylic, Extruded

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

Material Notes:

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

Physical Properties	Metric	English	Comments
Density	1.13 - 1.19 g/cc	0.0408 - 0.0430 lb/in ³	Average value: 1.18 g/cc Grade Count:37
Water Absorption	0.200 - 2.00 %	0.200 - 2.00 %	Average value: 0.663 % Grade Count:23
Moisture Absorption at Equilibrium	0.300 - 0.360 %	0.300 - 0.360 %	Average value: 0.312 % Grade Count:5
Water Absorption at Saturation	0.300 - 2.10 %	0.300 - 2.10 %	Average value: 1.70 % Grade Count:9
Moisture Expansion	0.500 - 0.800 %	0.500 - 0.800 %	Average value: 0.583 % Grade Count:6
Moisture Vapor Transmission	55.0 - 56.0 cc-mm/m ² -24hr-atm	140 - 142 cc-mil/100 in ² -24hr-atm	Average value: 55.3 cc-mm/m ² -24hr-atm Grade Count:3
Linear Mold Shrinkage	0.00200 - 0.00800 cm/cm	0.00200 - 0.00800 in/in	Average value: 0.00468 cm/cm Grade Count:11
Melt Flow	0.500 - 7.00 g/10 min	0.500 - 7.00 g/10 min	Average value: 2.16 g/10 min Grade Count:23

Mechanical Properties	Metric	English	Comments
Hardness, Rockwell M	45.0 - 101	45.0 - 101	Average value: 79.9 Grade Count:18
Ball Indentation Hardness	100 - 175 MPa	14500 - 25400 psi	Average value: 149 MPa Grade Count:8
Tensile Strength, Ultimate	29.0 - 75.0 MPa	4210 - 10900 psi	Average value: 58.4 MPa Grade Count:31
	35.0 - 100 MPa @Temperature -40.0 - 70.0 °C	5080 - 14500 psi @Temperature -40.0 - 158 °F	Average value: 67.5 MPa Grade Count:4
Tensile Strength, Yield	45.0 - 86.0 MPa	6530 - 12500 psi	Average value: 73.7 MPa Grade Count:5
Elongation at Break	3.50 - 59.0 %	3.50 - 59.0 %	Average value: 16.1 % Grade Count:29

Elongation at Yield Mechanical Properties	4.00 - 6.00 % Metric	4.00 - 6.00 % English	Average value: 5.25 % Grade Count:4 Comments
Modulus of Elasticity	1.80 - 3.30 GPa	261 - 479 ksi	Average value: 2.96 GPa Grade Count:19
Flexural Yield Strength	38.0 - 142 MPa	5510 - 20600 psi	Average value: 92.7 MPa Grade Count:29
Flexural Modulus	1.20 - 3.38 GPa	174 - 490 ksi	Average value: 2.60 GPa Grade Count:18
Compressive Yield Strength	103 MPa	14900 psi	Average value: 103 MPa Grade Count:4
Poissons Ratio	0.370 - 0.430	0.370 - 0.430	Average value: 0.402 Grade Count:6
Fatigue Strength	38.0 MPa	5510 psi	Average value: 38.0 MPa Grade Count:3
Shear Modulus	0.629 - 1.70 GPa	91.2 - 247 ksi	Average value: 1.08 GPa Grade Count:6
Izod Impact, Notched	0.147 - 0.588 J/cm	0.275 - 1.10 ft-lb/in	Average value: 0.309 J/cm Grade Count:10
Izod Impact, Notched (ISO)	1.60 - 8.10 kJ/m ²	0.761 - 3.85 ft-lb/in ²	Average value: 4.20 kJ/m ² Grade Count:15
Charpy Impact Unnotched	1.00 J/cm ² - NB	4.76 ft-lb/in ² - NB	Average value: 3.90 J/cm ² Grade Count:21
Charpy Impact, Notched	0.200 - 6.40 J/cm ²	0.952 - 30.5 ft-lb/in ²	Average value: 0.846 J/cm ² Grade Count:16
Falling Dart Impact	10.8 - 20.6 J	8.00 - 15.2 ft-lb	Average value: 14.9 J Grade Count:3
Coefficient of Friction	0.450 - 0.800	0.450 - 0.800	Average value: 0.583 Grade Count:3
Tensile Creep Modulus, 1 hour	1400 - 2700 MPa	203000 - 392000 psi	Average value: 2350 MPa Grade Count:4
Tensile Creep Modulus, 1000 hours	1000 - 1800 MPa	145000 - 261000 psi	Average value: 1580 MPa Grade Count:4

Thermal Properties	Metric	English	Comments
CTE, linear	60.0 - 110 µm/m-°C	33.3 - 61.1 µin/in-°F	Average value: 73.5 µm/m-°C Grade Count:20
	72.0 - 72.0 µm/m-°C	40.0 - 40.0 µin/in-°F	Average value: 72.0 µm/m-°C Grade Count:1
	@Temperature 0.000 - 156 °C	@Temperature 32.0 - 312 °F	
Specific Heat Capacity	1.47 J/g-°C	0.351 BTU/lb-°F	Average value: 1.47 J/g-°C Grade Count:8
Thermal Conductivity	0.190 W/m-K	1.32 BTU-in/hr-ft ² -°F	Average value: 0.190 W/m-K Grade Count:4
Maximum Service Temperature, Air	65.0 - 180 °C	149 - 356 °F	Average value: 98.9 °C Grade Count:10

Thermal Properties	Metric	English	Comments
Deflection Temperature at 0.46 MPa (66 psi)	81.0 - 101 °C	178 - 214 °F	Average value: 94.2 °C Grade Count:19
Deflection Temperature at 1.8 MPa (264 psi)	60.0 - 103 °C	140 - 217 °F	Average value: 88.3 °C Grade Count:24
Vicat Softening Point	66.0 - 113 °C	151 - 235 °F	Average value: 97.4 °C Grade Count:34
Glass Transition Temp, Tg	105 - 110 °C	221 - 230 °F	Average value: 107 °C Grade Count:3
Flammability, UL94	HB	HB	Grade Count:11
Flash Point	430 °C	806 °F	Average value: 430 °C Grade Count:4

Optical Properties	Metric	English	Comments
Refractive Index	1.49 - 1.49	1.49 - 1.49	Average value: 1.49 Grade Count:20
Haze	0.200 - 3.00 %	0.200 - 3.00 %	Average value: 1.10 % Grade Count:10
Transmission, Visible	50.0 - 93.0 %	50.0 - 93.0 %	Average value: 77.9 % Grade Count:31
UV Transmittance	0.000 - 80.0 %	0.000 - 80.0 %	Average value: 10.3 % Grade Count:8
Reflection Coefficient, Visible (0-1)	0.0330 - 0.0400	0.0330 - 0.0400	Average value: 0.0391 Grade Count:8

Electrical Properties	Metric	English	Comments
Electrical Resistivity	1.00e+14 - 1.00e+15 ohm-cm	1.00e+14 - 1.00e+15 ohm-cm	Average value: 7.60e+14 ohm-cm Grade Count:15
Surface Resistance	1.00e+12 - 1.00e+14 ohm	1.00e+12 - 1.00e+14 ohm	Average value: 8.08e+13 ohm Grade Count:13
Shielding Effectiveness	26.0 - 33.0 dB	26.0 - 33.0 dB	Average value: 30.7 dB Grade Count:5
Dielectric Constant	2.80 - 4.00	2.80 - 4.00	Average value: 3.39 Grade Count:11
Dielectric Strength	15.0 - 60.0 kV/mm	381 - 1520 kV/in	Average value: 25.7 kV/mm Grade Count:13
Dissipation Factor	0.0300 - 0.0600	0.0300 - 0.0600	Average value: 0.0445 Grade Count:11
Comparative Tracking Index	600 V	600 V	Average value: 600 V Grade Count:8

Processing Properties	Metric	English	Comments
Processing Temperature	70.0 - 270 °C	158 - 518 °F	Average value: 135 °C Grade Count:9
Nozzle Temperature	220 - 245 °C	428 - 473 °F	Average value: 233 °C Grade Count:3
Adapter Temperature	230 - 240 °C	446 - 464 °F	Average value: 235 °C Grade Count:3

Die Temperature Processing Properties	220 - 240 °C Metric	428 - 464 °F English	Average value: 230 °C Grade Count:3 Comments
Melt Temperature	150 - 249 °C	302 - 480 °F	Average value: 218 °C Grade Count:5
Mold Temperature	32.2 - 90.0 °C	90.0 - 194 °F	Average value: 64.5 °C Grade Count:7

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