

Overview of materials for Acrylic, Gamma Radiation Resistant, Molded

Category : Polymer , Thermoplastic , Acrylic (PMMA) , Acrylic, Gamma Radiation Resistant, Molded

Material Notes:

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

| Physical Properties | Metric | English | Comments |
|-----------------------|-------------------------|------------------------------------|---|
| Density | 1.08 - 1.17 g/cc | 0.0390 - 0.0423 lb/in ³ | Average value: 1.13 g/cc Grade Count:13 |
| Water Absorption | 0.300 - 2.00 % | 0.300 - 2.00 % | Average value: 0.709 % Grade Count:9 |
| Linear Mold Shrinkage | 0.00300 - 0.00800 cm/cm | 0.00300 - 0.00800 in/in | Average value: 0.00543 cm/cm Grade Count:7 |
| Melt Flow | 1.60 - 12.0 g/10 min | 1.60 - 12.0 g/10 min | Average value: 5.35 g/10 min Grade Count:13 |

| Mechanical Properties | Metric | English | Comments |
|----------------------------|-------------------------------|-----------------------------|--|
| Hardness, Rockwell M | 27.0 - 60.0 | 27.0 - 60.0 | Average value: 37.8 Grade Count:6 |
| Tensile Strength, Ultimate | 36.3 - 50.3 MPa | 5270 - 7300 psi | Average value: 43.2 MPa Grade Count:11 |
| Elongation at Break | 5.00 - 50.0 % | 5.00 - 50.0 % | Average value: 24.0 % Grade Count:13 |
| Elongation at Yield | 3.60 - 4.50 % | 3.60 - 4.50 % | Average value: 3.99 % Grade Count:7 |
| Modulus of Elasticity | 1.38 - 2.96 GPa | 200 - 430 ksi | Average value: 2.06 GPa Grade Count:13 |
| Flexural Yield Strength | 46.9 - 85.5 MPa | 6800 - 12400 psi | Average value: 64.8 MPa Grade Count:11 |
| Flexural Modulus | 1.65 - 2.45 GPa | 240 - 355 ksi | Average value: 2.08 GPa Grade Count:7 |
| Izod Impact, Notched | 0.320 - 1.23 J/cm | 0.600 - 2.30 ft-lb/in | Average value: 0.776 J/cm Grade Count:11 |
| | 0.42712 - 0.58729 J/cm | 0.80017 - 1.1002 ft-lb/in | Average value: 0.534 J/cm Grade Count:3 |
| | @Temperature 0.000 - 0.000 °C | @Temperature 32.0 - 32.0 °F | |
| | 0.42712 - 0.58729 J/cm | 0.80017 - 1.1002 ft-lb/in | |

| Mechanical Properties | Metric @ Diameter 6.35 - 6.35 mm | English @ Diameter 0.250 - 0.250 in | Comments Average value: 0.534 J/cm Grade Count:4 |
|-----------------------|--|---|--|
| Gardner Impact | 3.05 - 7.34 J | 2.25 - 5.42 ft-lb | Average value: 5.20 J Grade Count:4 |

| Thermal Properties | Metric | English | Comments |
|--|--|---|--|
| CTE, linear | 72.0 - 100 $\mu\text{m}/\text{m}\cdot^{\circ}\text{C}$ | 40.0 - 55.6 $\mu\text{in}/\text{in}\cdot^{\circ}\text{F}$ | Average value: 88.4 $\mu\text{m}/\text{m}\cdot^{\circ}\text{C}$ Grade Count:7 |
| Deflection Temperature at 0.46 MPa (66 psi) | 85.0 - 90.0 $^{\circ}\text{C}$ | 185 - 194 $^{\circ}\text{F}$ | Average value: 87.6 $^{\circ}\text{C}$ Grade Count:4 |
| Deflection Temperature at 1.8 MPa (264 psi) | 70.0 - 85.6 $^{\circ}\text{C}$ | 158 - 186 $^{\circ}\text{F}$ | Average value: 78.9 $^{\circ}\text{C}$ Grade Count:13 |
| Vicat Softening Point | 80.0 - 112 $^{\circ}\text{C}$ | 176 - 234 $^{\circ}\text{F}$ | Average value: 95.1 $^{\circ}\text{C}$ Grade Count:13 |
| Flammability, UL94 | HB | HB | Grade Count:7 |

| Optical Properties | Metric | English | Comments |
|-----------------------|------------------|------------------|--|
| Refractive Index | 1.49 - 1.51 | 1.49 - 1.51 | Average value: 1.50 Grade Count:5 |
| Haze | 2.00 - 7.00 % | 2.00 - 7.00 % | Average value: 4.29 % Grade Count:7 |
| Yellow Index | -1.00 - -0.300 % | -1.00 - -0.300 % | Average value: -0.440 % Grade Count:5 |
| Transmission, Visible | 80.0 - 91.0 % | 80.0 - 91.0 % | Average value: 88.0 % Grade Count:13 |

| Processing Properties | Metric | English | Comments |
|-----------------------|--------------------------------|------------------------------|--|
| Melt Temperature | 182 - 249 $^{\circ}\text{C}$ | 360 - 480 $^{\circ}\text{F}$ | Average value: 223 $^{\circ}\text{C}$ Grade Count:5 |
| Mold Temperature | 48.9 - 82.2 $^{\circ}\text{C}$ | 120 - 180 $^{\circ}\text{F}$ | Average value: 65.6 $^{\circ}\text{C}$ Grade Count:5 |
| Drying Temperature | 71.1 - 79.4 $^{\circ}\text{C}$ | 160 - 175 $^{\circ}\text{F}$ | Average value: 74.4 $^{\circ}\text{C}$ Grade Count:5 |

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