

Overview of materials for Acetal Copolymer, Unreinforced

Category : Polymer , Thermoplastic , Acetal (POM) , Acetal Copolymer, Unreinforced

Material Notes:

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

Physical Properties	Metric	English	Comments
Density	1.14 - 2.23 g/cc	0.0412 - 0.0806 lb/in ³	Average value: 1.42 g/cc Grade Count:376
	1.43 - 1.43 g/cc @Temperature 215 - 215 °C	0.0517 - 0.0517 lb/in ³ @Temperature 419 - 419 °F	Average value: 1.43 g/cc Grade Count:1
Water Absorption	0.0500 - 7.90 %	0.0500 - 7.90 %	Average value: 0.623 % Grade Count:128
Moisture Absorption at Equilibrium	0.100 - 2.20 %	0.100 - 2.20 %	Average value: 0.261 % Grade Count:130
Water Absorption at Saturation	0.220 - 10.0 %	0.220 - 10.0 %	Average value: 1.20 % Grade Count:33
Maximum Moisture Content	0.100	0.100	Average value: 0.100 Grade Count:9
Linear Mold Shrinkage	0.00120 - 0.0400 cm/cm	0.00120 - 0.0400 in/in	Average value: 0.0207 cm/cm Grade Count:256
Linear Mold Shrinkage, Transverse	0.00210 - 0.0400 cm/cm	0.00210 - 0.0400 in/in	Average value: 0.0208 cm/cm Grade Count:102
Melt Flow	1.00 - 58.8 g/10 min	1.00 - 58.8 g/10 min	Average value: 15.7 g/10 min Grade Count:223

Mechanical Properties	Metric	English	Comments
Hardness, Rockwell M	50.0 - 97.0	50.0 - 97.0	Average value: 81.1 Grade Count:77
Hardness, Rockwell R	69.0 - 121	69.0 - 121	Average value: 100 Grade Count:57
Hardness, Shore D	75.0 - 85.0	75.0 - 85.0	Average value: 80.4 Grade Count:12
Ball Indentation Hardness	30.0 - 179 MPa	4350 - 26000 psi	Average value: 134 MPa Grade Count:74
Tensile Strength, Ultimate	5.00 - 117 MPa	725 - 17000 psi	Average value: 53.3 MPa Grade Count:181

Tensile Strength, Yield Mechanical Properties	22.0 - 120 MPa Metric	3190 - 17400 psi English	Average value: 57.4 MPa Grade Count:317
	25.0 - 93.0 MPa @Temperature -40.0 - 120 °C	3630 - 13500 psi @Temperature -40.0 - 248 °F	Average value: 46.5 MPa Grade Count:3
Elongation at Break	0.700 - 250 %	0.700 - 250 %	Average value: 34.8 % Grade Count:317
	>= 100 % @Temperature 60.0 - 90.0 °C	>= 100 % @Temperature 140 - 194 °F	Average value: 100 % Grade Count:7
Elongation at Yield	1.10 - 29.0 %	1.10 - 29.0 %	Average value: 10.7 % Grade Count:123
	5.80 - 10.0 % @Temperature -40.0 - 80.0 °C	5.80 - 10.0 % @Temperature -40.0 - 176 °F	Average value: 8.37 % Grade Count:2
Modulus of Elasticity	0.586 - 20.7 GPa	85.0 - 3000 ksi	Average value: 2.80 GPa Grade Count:238
	0.500 - 1.90 GPa @Temperature 60.0 - 90.0 °C	72.5 - 276 ksi @Temperature 140 - 194 °F	Average value: 1.78 GPa Grade Count:8
	2.41 - 2.81 GPa @Temperature 30.0 - 120 °C	350 - 408 ksi @Temperature 86.0 - 248 °F	Average value: 1.78 GPa Grade Count:1
	2.41 - 2.81 GPa @Thickness 1.50 - 4.00 mm	350 - 408 ksi @Thickness 0.0591 - 0.157 in	Average value: 1.78 GPa Grade Count:1
Flexural Yield Strength	13.0 - 179 MPa	1890 - 26000 psi	Average value: 78.4 MPa Grade Count:230
Flexural Modulus	0.276 - 17.3 GPa	40.0 - 2510 ksi	Average value: 2.63 GPa Grade Count:256
Compressive Yield Strength	14.0 - 110 MPa	2030 - 16000 psi	Average value: 60.5 MPa Grade Count:20
Compressive Modulus	1.21 - 2.76 GPa	175 - 400 ksi	Average value: 2.30 GPa Grade Count:6
Poissons Ratio	0.350 - 0.430	0.350 - 0.430	Average value: 0.363 Grade Count:6
Shear Strength	40.0 - 55.2 MPa	5800 - 8000 psi	Average value: 51.9 MPa Grade Count:18
Izod Impact, Notched	0.0500 J/cm - NB	0.0937 ft-lb/in - NB	Average value: 1.04 J/cm Grade Count:174
	0.300 - 1.00 J/cm	0.562 - 1.87 ft-lb/in	

Mechanical Properties	Metric @ Temperature -40.0 - - 29.0 °C	English @ Temperature -40.0 - - 20.2 °F	Comments Average value: 0.565 J/cm Grade Count:5
Izod Impact, Unnotched	0.480 J/cm - NB	0.899 ft-lb/in - NB	Average value: 7.02 J/cm Grade Count:48
Izod Impact, Notched (ISO)	2.50 - 47.0 kJ/m ²	1.19 - 22.4 ft-lb/in ²	Average value: 8.19 kJ/m ² Grade Count:104
	5.00 - 7.00 kJ/m ² @Temperature -40.0 - - 30.0 °C	2.38 - 3.33 ft-lb/in ² @Temperature -40.0 - - 22.0 °F	Average value: 5.88 kJ/m ² Grade Count:16
Izod Impact, Unnotched (ISO)	15.0 kJ/m ² - NB	7.14 ft-lb/in ² - NB	Average value: 129 kJ/m ² Grade Count:51
Charpy Impact Unnotched	2.40 J/cm ² - NB	11.4 ft-lb/in ² - NB	Average value: 16.1 J/cm ² Grade Count:94
	2.00 J/cm ² - NB @Temperature -40.0 - - 20.0 °C	9.52 ft-lb/in ² - NB @Temperature -40.0 - - 4.00 °F	Average value: 17.6 J/cm ² Grade Count:52
Charpy Impact, Notched	0.300 - 1000 J/cm ²	1.43 - 4760 ft-lb/in ²	Average value: 0.664 J/cm ² Grade Count:161
	0.250 J/cm ² - NB @Temperature -30.0 - - 20.0 °C	1.19 ft-lb/in ² - NB @Temperature -22.0 - - 4.00 °F	Average value: 0.568 J/cm ² Grade Count:50
Gardner Impact	22.6 - 22.6 J	16.7 - 16.7 ft-lb	Average value: 22.6 J Grade Count:5
Tensile Impact Strength	110 - 280 kJ/m ²	52.3 - 133 ft-lb/in ²	Average value: 167 kJ/m ² Grade Count:5
Dart Drop, Total Energy	3.00 - 29.0 J	2.21 - 21.4 ft-lb	Average value: 7.04 J Grade Count:27
Falling Dart Impact	22.6 - 32.1 J	16.7 - 23.7 ft-lb	Average value: 27.8 J Grade Count:3
Coefficient of Friction	0.0980 - 0.560	0.0980 - 0.560	Average value: 0.247 Grade Count:71
	0.200 - 0.200 @Temperature 60.0 - 60.0 °C	0.200 - 0.200 @Temperature 140 - 140 °F	Average value: 0.200 Grade Count:1
Coefficient of Friction, Static	0.110 - 0.440	0.110 - 0.440	Average value: 0.175 Grade Count:48
Tensile Creep Modulus, 1 hour	1800 - 2500 MPa	261000 - 363000 psi	Average value: 2280 MPa Grade Count:11
Tensile Creep Modulus, 1000 hours	400 - 1450 MPa	58000 - 210000 psi	Average value: 1160 MPa Grade Count:40
K (wear) Factor	16.1 - 806 x 10 ⁻⁸ mm ³ /N-M	8.00 - 400 x 10 ⁻¹⁰ in ³ - min/ft-lb-hr	Average value: 86.1 x 10 ^{<sup>-8</sup>}
Limiting Pressure Velocity	0.0701 - 0.590 MPa-	2000 - 16800 psi-	Average value: 0.167 MPa-m/sec

Mechanical Properties	m/sec Metric	ft/min English	Grade Count:8 Comments
Taber Abrasion, mg/ 1000 Cycles	14.0	14.0	Average value: 14.0 Grade Count: 18

Electrical Properties	Metric	English	Comments
Electrical Resistivity	0.200 - 1.00e+16 ohm-cm	0.200 - 1.00e+16 ohm-cm	Average value: 1.73e+15 ohm-cm Grade Count:175
Surface Resistance	10.0 - 1.00e+16 ohm	10.0 - 1.00e+16 ohm	Average value: 3.03e+15 ohm Grade Count:184
Insulation Resistance	1.00e+11 - 1.00e+12 ohm	1.00e+11 - 1.00e+12 ohm	Average value: 4.60e+11 ohm Grade Count:5
Static Decay	0.00300 - 2.00 sec	0.00300 - 2.00 sec	Average value: 1.38 sec Grade Count:6
Dielectric Constant	3.40 - 5.00	3.40 - 5.00	Average value: 3.85 Grade Count:112

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