

## Overview of materials for Acetal Homopolymer, Unreinforced

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

### Material Notes:

This property data is a summary of similar materials in the MatWeb database for the category "Acetal Homopolymer, 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-Homopolymer-Unreinforced.php](http://www.lookpolymers.com/polymer_Overview-of-materials-for-Acetal-Homopolymer-Unreinforced.php)

Physical Properties	Metric	English	Comments
Density	1.38 - 1.67 g/cc	0.0499 - 0.0603 lb/in <sup>3</sup>	Average value: 1.43 g/cc Grade Count:148
	1.16 - 1.42 g/cc @Temperature 200 - 215 °C	0.0419 - 0.0513 lb/in <sup>3</sup> @Temperature 392 - 419 °F	Average value: 1.22 g/cc Grade Count:16
Water Absorption	0.0100 - 1.40 %	0.0100 - 1.40 %	Average value: 0.668 % Grade Count:56
Moisture Absorption at Equilibrium	0.170 - 0.500 %	0.170 - 0.500 %	Average value: 0.243 % Grade Count:44
Water Absorption at Saturation	0.200 - 0.900 %	0.200 - 0.900 %	Average value: 0.712 % Grade Count:8
Linear Mold Shrinkage	0.00330 - 0.0400 cm/cm	0.00330 - 0.0400 in/in	Average value: 0.0203 cm/cm Grade Count:116
Linear Mold Shrinkage, Transverse	0.0100 - 0.0300 cm/cm	0.0100 - 0.0300 in/in	Average value: 0.0189 cm/cm Grade Count:61
Melt Flow	1.00 - 70.0 g/10 min	1.00 - 70.0 g/10 min	Average value: 12.4 g/10 min Grade Count:105

Mechanical Properties	Metric	English	Comments
Hardness, Rockwell M	78.0 - 94.0	78.0 - 94.0	Average value: 89.6 Grade Count:45
Hardness, Rockwell R	78.0 - 122	78.0 - 122	Average value: 117 Grade Count:45
Hardness, Shore D	81.0 - 86.0	81.0 - 86.0	Average value: 83.8 Grade Count:4
Ball Indentation Hardness	150 - 192 MPa	21800 - 27800 psi	Average value: 171 MPa Grade Count:5
Tensile Strength, Ultimate	45.0 - 78.0 MPa	6530 - 11300 psi	Average value: 61.9 MPa Grade Count:51
Tensile Strength, Yield	13.0 - 90.0 MPa	1890 - 13100 psi	Average value: 66.5 MPa Grade Count:109

<b>Mechanical Properties</b>	<b>2.00 - 80.0 % Metric</b>	<b>2.00 - 80.0 % English</b>	<b>Average value: 31.3 % Grade Count:133</b>
Elongation at Yield	1.00 - 40.0 %	1.00 - 40.0 %	Average value: 17.2 % Grade Count:72
Modulus of Elasticity	1.93 - 8.40 GPa	280 - 1220 ksi	Average value: 3.06 GPa Grade Count:116
	0.612 - 4.361 GPa @Temperature -40.0 - 120 °C	88.8 - 632.5 ksi @Temperature -40.0 - 248 °F	Average value: 2.10 GPa Grade Count:17
Flexural Yield Strength	7.60 - 134 MPa	1100 - 19400 psi	Average value: 84.2 MPa Grade Count:76
Flexural Modulus	1.90 - 6.10 GPa	276 - 885 ksi	Average value: 2.84 GPa Grade Count:113
Compressive Yield Strength	14.0 - 110 MPa	2030 - 16000 psi	Average value: 61.9 MPa Grade Count:7
Poissons Ratio	0.370	0.370	Average value: 0.370 Grade Count:4
Shear Modulus	0.827 - 1.03 GPa	120 - 149 ksi	Average value: 0.922 GPa Grade Count:11
	>= 0.121 GPa @Temperature -50.0 - 150 °C	>= 17.5 ksi @Temperature -58.0 - 302 °F	Average value: 0.724 GPa Grade Count:11
Shear Strength	55.0 - 62.1 MPa	7980 - 9000 psi	Average value: 59.7 MPa Grade Count:3
Izod Impact, Notched	0.420 - 1.28 J/cm	0.787 - 2.40 ft-lb/in	Average value: 0.679 J/cm Grade Count:53
	0.400 - 0.960 J/cm @Temperature -40.0 - - 29.0 °C	0.749 - 1.80 ft-lb/in @Temperature -40.0 - - 20.2 °F	Average value: 0.620 J/cm Grade Count:3
Izod Impact, Unnotched	0.801 J/cm - NB	1.50 ft-lb/in - NB	Average value: 7.52 J/cm Grade Count:12
Izod Impact, Notched (ISO)	3.00 - 14.0 kJ/m <sup>2</sup>	1.43 - 6.66 ft-lb/in <sup>2</sup>	Average value: 7.41 kJ/m <sup>2</sup> Grade Count:39
	5.00 - 13.0 kJ/m <sup>2</sup> @Temperature -40.0 - - 30.0 °C	2.38 - 6.19 ft-lb/in <sup>2</sup> @Temperature -40.0 - - 22.0 °F	Average value: 8.42 kJ/m <sup>2</sup> Grade Count:19
Izod Impact, Unnotched (ISO)	20.0 - 280 kJ/m <sup>2</sup>	9.52 - 133 ft-lb/in <sup>2</sup>	Average value: 54.6 kJ/m <sup>2</sup> Grade Count:12
	250 - 250 kJ/m <sup>2</sup> @Temperature -30.0 - - 30.0 °C	119 - 119 ft-lb/in <sup>2</sup> @Temperature -22.0 - - 22.0 °F	Average value: 250 kJ/m <sup>2</sup> Grade Count:1
Charpy Impact Unnotched	4.00 J/cm <sup>2</sup> - NB	19.0 ft-lb/in <sup>2</sup> - NB	Average value: 22.9 J/cm <sup>2</sup> Grade

Mechanical Properties	Metric	English	Count:53 Comments
	3.60 - 42.6 J/cm <sup>2</sup>	16.7 - 202 ft-lb/in <sup>2</sup>	
	@Temperature -30.0 - -30.0 °C	@Temperature -22.0 - -22.0 °F	Average value: 23.5 J/cm <sup>2</sup> Grade Count:36
Charpy Impact, Notched	0.300 - 1.50 J/cm <sup>2</sup>	1.43 - 7.14 ft-lb/in <sup>2</sup>	Average value: 0.892 J/cm <sup>2</sup> Grade Count:90
	0.300 - 1.40 J/cm <sup>2</sup>	1.43 - 6.66 ft-lb/in <sup>2</sup>	
	@Temperature -40.0 - -30.0 °C	@Temperature -40.0 - -22.0 °F	Average value: 0.804 J/cm <sup>2</sup> Grade Count:49
Gardner Impact	22.6 - 22.6 J	16.7 - 16.7 ft-lb	Average value: 22.6 J Grade Count:6
Tensile Impact Strength	98.1 - 358 kJ/m <sup>2</sup>	46.7 - 170 ft-lb/in <sup>2</sup>	Average value: 167 kJ/m <sup>2</sup> Grade Count:5
Dart Drop, Total Energy	1.00 - 7.00 J	0.738 - 5.16 ft-lb	Average value: 4.50 J Grade Count:8
Coefficient of Friction	0.110 - 0.460	0.110 - 0.460	Average value: 0.262 Grade Count:24
Coefficient of Friction, Static	0.0900 - 0.450	0.0900 - 0.450	Average value: 0.166 Grade Count:16
Tensile Creep Modulus, 1 hour	1500 - 2900 MPa	218000 - 421000 psi	Average value: 2590 MPa Grade Count:11
Tensile Creep Modulus, 1000 hours	800 - 1600 MPa	116000 - 232000 psi	Average value: 1480 MPa Grade Count:11
K (wear) Factor	18.1 - 403 x 10 <sup>-8</sup> mm <sup>3</sup> /N-M	9.00 - 200 x 10 <sup>-10</sup> in <sup>3</sup> -min/ft-lb-hr	Average value: 60.1 x 10 <sup>-8</sup> mm <sup>3</sup> /N-M Grade Count:12
Limiting Pressure Velocity	0.0513 - 1.08 MPa-m/sec	1460 - 30800 psi-ft/min	Average value: 0.297 MPa-m/sec Grade Count:4
Taber Abrasion, mg/1000 Cycles	10.0 - 13.0	10.0 - 13.0	Average value: 12.0 Grade Count:3

Thermal Properties	Metric	English	Comments
CTE, linear	0.920 - 130 μm/m-°C	0.511 - 72.0 μin/in-°F	Average value: 102 μm/m-°C Grade Count:66
	99.0 - 99.0 μm/m-°C	55.0 - 55.0 μin/in-°F	
	@Temperature 22.8 - 55.0 °C	@Temperature 73.0 - 131 °F	Average value: 99.0 μm/m-°C Grade Count:1
CTE, linear, Transverse to Flow	90.0 - 120 μm/m-°C	50.0 - 66.7 μin/in-°F	Average value: 107 μm/m-°C Grade Count:49

Electrical Properties	Metric	English	Comments
Electrical Resistivity	1.00e+13 - 1.00e+15 ohm-cm	1.00e+13 - 1.00e+15 ohm-cm	Average value: 5.50e+14 ohm-cm Grade Count:27
Surface Resistance	100 - 1.00e+16 ohm	100 - 1.00e+16 ohm	Average value: 1.24e+15 ohm Grade Count:22

Electrical Properties	Metric 4.20	English 4.20	Comments
Dielectric Strength	17.7 - 65.0 kV/mm	450 - 1650 kV/in	Average value: 32.0 kV/mm Grade Count:19
Dissipation Factor	0.000500 - 0.0100	0.000500 - 0.0100	Average value: 0.00436 Grade Count:19
Comparative Tracking Index	600 V	600 V	Average value: 600 V Grade Count:19

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