

Overview of materials for Phenolic, Novolac, Glass Filled

Category : Polymer , Thermoset , Phenolic , Phenolic, Novolac, Glass Filled

Material Notes:

This property data is a summary of similar materials in the MatWeb database for the category "Phenolic, Novolac, Glass Filled". 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-Phenolic-Novolac-Glass-Filled.php

Physical Properties	Metric	English	Comments
Density	1.49 - 2.12 g/cc	0.0538 - 0.0766 lb/in ³	Average value: 1.79 g/cc Grade Count:63
Apparent Bulk Density	0.770 - 1.02 g/cc	0.0278 - 0.0368 lb/in ³	Average value: 0.878 g/cc Grade Count:5
Water Absorption	0.0300 - 1.81 %	0.0300 - 1.81 %	Average value: 0.123 % Grade Count:48
Linear Mold Shrinkage	0.000500 - 0.00670 cm/cm	0.000500 - 0.00670 in/in	Average value: 0.00238 cm/cm Grade Count:58

Mechanical Properties	Metric	English	Comments
Hardness, Rockwell E	78.0 - 100	78.0 - 100	Average value: 90.4 Grade Count:15
Hardness, Rockwell M	85.0 - 120	85.0 - 120	Average value: 105 Grade Count:9
Tensile Strength, Ultimate	34.0 - 138 MPa	4930 - 20000 psi	Average value: 76.3 MPa Grade Count:61
Elongation at Break	0.500 - 1.60 %	0.500 - 1.60 %	Average value: 0.931 % Grade Count:21
Modulus of Elasticity	9.30 - 25.5 GPa	1350 - 3700 ksi	Average value: 16.3 GPa Grade Count:32
Flexural Yield Strength	75.0 - 250 MPa	10900 - 36300 psi	Average value: 141 MPa Grade Count:63
Flexural Modulus	8.60 - 21.0 GPa	1250 - 3050 ksi	Average value: 15.1 GPa Grade Count:51
Compressive Yield Strength	110 - 380 MPa	16000 - 55100 psi	Average value: 237 MPa Grade Count:63
Izod Impact, Notched	0.209 - 1.84 J/cm	0.392 - 3.44 ft-lb/in	Average value: 0.512 J/cm Grade Count:37
Izod Impact, Notched (ISO)	3.00 - 4.50 kJ/m ²	1.43 - 2.14 ft-lb/in ²	Average value: 3.83 kJ/m ² Grade Count:3
Charpy Impact Unnotched			Average value: 1.12 J/cm ² Grade

Mechanical Properties	0.570 - 2.10 J/cm ² Metric	2.71 - 9.99 ft-lb/in ² English	Count:17 Comments
Charpy Impact, Notched	0.191 - 0.620 J/cm ²	0.909 - 2.95 ft-lb/in ²	Average value: 0.350 J/cm ² Grade Count:26

Thermal Properties	Metric	English	Comments
CTE, linear	12.0 - 38.0 μm/m-°C	6.67 - 21.1 μin/in-°F	Average value: 21.1 μm/m-°C Grade Count:36
	35.0 - 48.0 μm/m-°C @Temperature 40.0 - 130 °C	19.4 - 26.7 μin/in-°F @Temperature 104 - 266 °F	Average value: 41.7 μm/m-°C Grade Count:3
CTE, linear, Transverse to Flow	26.8 - 55.0 μm/m-°C	14.9 - 30.6 μin/in-°F	Average value: 39.8 μm/m-°C Grade Count:22
Thermal Conductivity	0.360 - 1.22 W/m-K	2.50 - 8.47 BTU-in/hr-ft ² -°F	Average value: 0.644 W/m-K Grade Count:14
	0.500 - 0.580 W/m-K @Temperature 100 - 100 °C	3.47 - 4.03 BTU-in/hr-ft ² -°F @Temperature 212 - 212 °F	Average value: 0.540 W/m-K Grade Count:3
Maximum Service Temperature, Air	150 - 225 °C	302 - 437 °F	Average value: 165 °C Grade Count:25
Deflection Temperature at 1.8 MPa (264 psi)	164 - 315 °C	327 - 599 °F	Average value: 238 °C Grade Count:61
Deflection Temperature at 8.0 MPa	150 - 171 °C	302 - 340 °F	Average value: 166 °C Grade Count:3
UL RTI, Electrical	150 °C	302 °F	Average value: 150 °C Grade Count:6
UL RTI, Mechanical with Impact	150 °C	302 °F	Average value: 150 °C Grade Count:5
UL RTI, Mechanical without Impact	150 °C	302 °F	Average value: 150 °C Grade Count:5
Flammability, UL94	HB - V-0	HB - V-0	Grade Count:41
Oxygen Index	31.0 - 46.0 %	31.0 - 46.0 %	Average value: 40.5 % Grade Count:4

Electrical Properties	Metric	English	Comments
Electrical Resistivity	1.20e+11 - 8.10e+14 ohm-cm	1.20e+11 - 8.10e+14 ohm-cm	Average value: 6.48e+13 ohm-cm Grade Count:27
Surface Resistance	1.00e+11 - 4.30e+13 ohm	1.00e+11 - 4.30e+13 ohm	Average value: 1.61e+13 ohm Grade Count:10
Insulation Resistance	2.00e+7 - 1.00e+14 ohm	2.00e+7 - 1.00e+14 ohm	Average value: 1.01e+13 ohm Grade Count:7
Dielectric Constant	4.30 - 6.70	4.30 - 6.70	Average value: 5.03 Grade Count:17
			Average value: 16.0 kV/mm Grade

Dielectric Strength Electrical Properties	7.90 - 36.0 kV/mm Metric	201 - 914 kV/in English	Count:55 Comments
Dielectric Breakdown	>= 15000 V @Temperature 90.0 - 90.0 °C	>= 15000 V @Temperature 194 - 194 °F	Average value: 15000 V Grade Count:1
	>= 15000 V @Time 20.0 - 60.0 sec	>= 15000 V @Time 0.00556 - 0.0167 hour	Average value: 15000 V Grade Count:1
Dissipation Factor	0.0100 - 0.0600	0.0100 - 0.0600	Average value: 0.0289 Grade Count:17
Arc Resistance	50.0 - 193 sec	50.0 - 193 sec	Average value: 166 sec Grade Count:29
Comparative Tracking Index	125 - 399 V	125 - 399 V	Average value: 179 V Grade Count:28
Hot Wire Ignition, HWI	0.000 - 120 sec	0.000 - 120 sec	Average value: 60.0 sec Grade Count:5
High Amp Arc Ignition, HAI	15.0 - 120 arcs	15.0 - 120 arcs	Average value: 61.2 arcs Grade Count:5
High Voltage Arc-Tracking Rate, HVTR	0.000 - 10.0 mm/min	0.000 - 0.394 in/min	Average value: 5.00 mm/min Grade Count:5

Processing Properties	Metric	English	Comments
Mold Temperature	155 - 180 °C	311 - 356 °F	Average value: 168 °C Grade Count:15

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