

## Overview of materials for Epoxy Encapsulant, Unreinforced

Category : Polymer , Thermoset , Epoxy , Epoxy Encapsulant, Unreinforced

### Material Notes:

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

Physical Properties	Metric	English	Comments
Density	0.800 - 2.33 g/cc	0.0289 - 0.0842 lb/in <sup>3</sup>	Average value: 1.30 g/cc Grade Count:100
Water Absorption	0.00340 - 0.900 %	0.00340 - 0.900 %	Average value: 0.364 % Grade Count:33
	0.250 - 0.600 % @Temperature 50.0 - 100 °C	0.250 - 0.600 % @Temperature 122 - 212 °F	Average value: 0.425 % Grade Count:2
Loss On Ignition	0.250 - 0.600 % @Time 86400 - 173000 sec	0.250 - 0.600 % @Time 24.0 - 48.0 hour	Average value: 0.425 % Grade Count:2
	0.280 - 0.500 % @Temperature 150 - 155 °C	0.280 - 0.500 % @Temperature 302 - 311 °F	Average value: 0.427 % Grade Count:3
Moisture Vapor Transmission	0.280 - 0.500 % @Time 605000 - 605000 sec	0.280 - 0.500 % @Time 168 - 168 hour	Average value: 0.427 % Grade Count:3
	<= 22.6771 cc-mm/m <sup>2</sup> -24hr-atm @Temperature 40.0 - 40.0 °C	<= 57.5999 cc-mil/100 in <sup>2</sup> -24hr-atm @Temperature 104 - 104 °F	Average value: 22.7 cc-mm/m <sup>2</sup> -24hr-atm Grade Count:1
Viscosity	1.00 - 1.10e+6 cP	1.00 - 1.10e+6 cP	Average value: 25300 cP Grade Count:229
	170 - 110000 cP @Temperature 40.0 - 175 °C	170 - 110000 cP @Temperature 104 - 347 °F	Average value: 13800 cP Grade Count:12
Linear Mold Shrinkage	0.00250 - 0.00700 cm/cm	0.00250 - 0.00700 in/in	Average value: 0.00363 cm/cm Grade Count:7
Spiral Flow	63.0 - 130 cm	24.8 - 51.2 in	Average value: 88.0 cm Grade Count:7

Physical Properties	Metric	English	Comments
Mechanical Properties	Metric	English	Comments
Hardness, Shore A	15.0 - 90.0	15.0 - 90.0	Average value: 51.9 Grade Count:15
Hardness, Shore D	30.0 - 98.0	30.0 - 98.0	Average value: 78.9 Grade Count:154
	20.0 - 20.0	20.0 - 20.0	Average value: 20.0 Grade Count:1
	@Temperature 100 - 100 °C	@Temperature 212 - 212 °F	
Tensile Strength, Ultimate	2.76 - 552 MPa	400 - 80000 psi	Average value: 45.4 MPa Grade Count:74
	>= 13.7895 MPa	>= 2000.00 psi	Average value: 24.1 MPa Grade Count:2
	@Temperature 60.0 - 149 °C	@Temperature 140 - 300 °F	
Tensile Strength, Yield	0.689 - 85.1 MPa	100 - 12300 psi	Average value: 22.8 MPa Grade Count:28
Elongation at Break	0.000 - 200 %	0.000 - 200 %	Average value: 32.7 % Grade Count:38
	>= 30.0 %	>= 30.0 %	Average value: 30.0 % Grade Count:1
	@Temperature 60.0 - 60.0 °C	@Temperature 140 - 140 °F	
Elongation at Yield	1.00 - 140 %	1.00 - 140 %	Average value: 19.6 % Grade Count:7
Modulus of Elasticity	0.0138 - 6.00 GPa	2.00 - 870 ksi	Average value: 2.34 GPa Grade Count:65
	0.827371 - 1.86158 GPa	120.002 - 270.004 ksi	Average value: 1.59 GPa Grade Count:3
	@Temperature 60.0 - 149 °C	@Temperature 140 - 300 °F	
Flexural Yield Strength	62.1 - 137 MPa	9000 - 19800 psi	Average value: 111 MPa Grade Count:12
Flexural Modulus	7.00 - 18.0 GPa	1020 - 2610 ksi	Average value: 14.3 GPa Grade Count:8
Compressive Yield Strength	4.83 - 190 MPa	700 - 27600 psi	Average value: 100 MPa Grade Count:35
Compressive Modulus	0.0345 - 2.90 GPa	5.00 - 420 ksi	Average value: 1.57 GPa Grade Count:23
Shear Strength	5.52 - 65.0 MPa	800 - 9430 psi	Average value: 17.7 MPa Grade Count:32
	15.8579 - 15.8579 MPa	2300.00 - 2300.00 psi	Average value: 15.9 MPa Grade Count:2
	@Temperature 204 - 204 °C	@Temperature 400 - 400 °F	

Adhesive Bond Strength Mechanical Properties	Metric	English	Comments
	3.10 - 44.8 MPa	450 - 6500 psi	Average value: 13.0 MPa Grade Count:11
	7.58423 - 16.8922 MPa	1100.00 - 2450.00 psi	Average value: 13.5 MPa Grade Count:3
	@Temperature -54.4 - 82.2 °C	@Temperature -66.0 - 180 °F	
Izod Impact, Notched	0.187 - 0.694 J/cm	0.350 - 1.30 ft-lb/in	Average value: 0.388 J/cm Grade Count:4
Peel Strength	0.351 - 7.89 kN/m	2.00 - 45.0 pli	Average value: 3.49 kN/m Grade Count:13

Thermal Properties	Metric	English	Comments
CTE, linear	4.00 - 275 µm/m-°C	2.22 - 153 µin/in-°F	Average value: 62.6 µm/m-°C Grade Count:110
	75.0 - 180 µm/m-°C	41.7 - 100 µin/in-°F	Average value: 159 µm/m-°C Grade Count:5
	@Temperature 60.0 - 60.0 °C	@Temperature 140 - 140 °F	
CTE, linear, Transverse to Flow	45.0 - 70.0 µm/m-°C	25.0 - 38.9 µin/in-°F	Average value: 59.8 µm/m-°C Grade Count:7
Thermal Conductivity	0.140 - 3.46 W/m-K	0.972 - 24.0 BTU-in/hr-ft <sup>2</sup> -°F	Average value: 0.723 W/m-K Grade Count:74
Maximum Service Temperature, Air	32.2 - 343 °C	90.0 - 650 °F	Average value: 143 °C Grade Count:176
Minimum Service Temperature, Air	-269 - 15.6 °C	-453 - 60.0 °F	Average value: -62.8 °C Grade Count:115
Glass Transition Temp, Tg	-27.0 - 225 °C	-16.6 - 437 °F	Average value: 100 °C Grade Count:82
Flammability, UL94	V-0	V-0	Grade Count:8
Flash Point	100 - 200 °C	212 - 392 °F	Average value: 164 °C Grade Count:8

Optical Properties	Metric	English	Comments
Refractive Index	1.48 - 1.57	1.48 - 1.57	Average value: 1.54 Grade Count:5
Transmission, Visible	0.000 - 90.0 %	0.000 - 90.0 %	Average value: 84.7 % Grade Count:17

Electrical Properties	Metric	English	Comments
Electrical Resistivity	5.00 - 3.00e+17 ohm-cm	5.00 - 3.00e+17 ohm-cm	Average value: 4.97e+15 ohm-cm Grade Count:117
	1.00e+8 - 5.80e+15 ohm-cm	1.00e+8 - 5.80e+15 ohm-cm	Average value: 1.21e+15 ohm-cm Grade Count:7
	@Temperature 30.0 - 400 °C	@Temperature 86.0 - 752 °F	

Electrical Properties	Metric	English	Comments
Surface Resistance	3.90e+14 - 3.90e+14 ohm	3.90e+14 - 3.90e+14 ohm	Average value: 3.90e+14 ohm Grade Count:1
	@Temperature 149 - 149 °C	@Temperature 300 - 300 °F	
Dielectric Constant	2.70 - 6.30	2.70 - 6.30	Average value: 4.00 Grade Count:146
	2.94 - 4.70	2.94 - 4.70	
	@Temperature 30.0 - 204 °C	@Temperature 86.0 - 399 °F	Average value: 3.60 Grade Count:7
	2.94 - 4.70	2.94 - 4.70	
	@Frequency 60.0 - 1.00e+6 Hz	@Frequency 60.0 - 1.00e+6 Hz	Average value: 3.60 Grade Count:7
Dielectric Strength	11.8 - 48.2 kV/mm	300 - 1220 kV/in	Average value: 17.0 kV/mm Grade Count:103
Dissipation Factor	0.00100 - 0.120	0.00100 - 0.120	Average value: 0.0154 Grade Count:58
	0.00300 - 0.0700	0.00300 - 0.0700	
	@Temperature 30.0 - 204 °C	@Temperature 86.0 - 399 °F	Average value: 0.0139 Grade Count:6
	0.00300 - 0.0700	0.00300 - 0.0700	
	@Frequency 60.0 - 1.00e+6 Hz	@Frequency 60.0 - 1.00e+6 Hz	Average value: 0.0139 Grade Count:6
Arc Resistance	120 - 200 sec	120 - 200 sec	Average value: 175 sec Grade Count:8

Processing Properties	Metric	English	Comments
Processing Temperature	22.2 - 185 °C	72.0 - 365 °F	Average value: 129 °C Grade Count:14
Cure Time	3.00 - 18000 min	0.0500 - 300 hour	Average value: 1480 min Grade Count:90

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