

## Overview of materials for Epoxy Cure Resin

Category : Polymer , Thermoset , Epoxy , Epoxy Cure Resin

### Material Notes:

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

| Physical Properties                | Metric                                             | English                                                            | Comments                                   |
|------------------------------------|----------------------------------------------------|--------------------------------------------------------------------|--------------------------------------------|
| Density                            | 0.860 - 2.60 g/cc                                  | 0.0311 - 0.0939 lb/in <sup>3</sup>                                 | Average value: 1.34 g/cc Grade Count:114   |
|                                    | 1.025 - 1.06 g/cc<br>@Temperature 15.0 - 15.0 °C   | 0.03703 - 0.0383 lb/in <sup>3</sup><br>@Temperature 59.0 - 59.0 °F | Average value: 1.05 g/cc Grade Count:3     |
| Water Absorption                   | 0.0300 - 1.00 %                                    | 0.0300 - 1.00 %                                                    | Average value: 0.298 % Grade Count:25      |
| Moisture Absorption at Equilibrium | 2.80 - 9.40 %                                      | 2.80 - 9.40 %                                                      | Average value: 5.16 % Grade Count:7        |
| Viscosity                          | 0.650 - 1.20e+6 cP                                 | 0.650 - 1.20e+6 cP                                                 | Average value: 36500 cP Grade Count:102    |
|                                    | 15.0 - 78000 cP<br>@Temperature 40.0 - 156 °C      | 15.0 - 78000 cP<br>@Temperature 104 - 313 °F                       | Average value: 8950 cP Grade Count:4       |
| Molecular Weight                   | 158 - 1690 g/mol                                   | 158 - 1690 g/mol                                                   | Average value: 661 g/mol Grade Count:11    |
| Linear Mold Shrinkage              | 0.00100 - 0.00400 cm/cm                            | 0.00100 - 0.00400 in/in                                            | Average value: 0.00240 cm/cm Grade Count:5 |
| Vapor Pressure                     | 2.10e-8 - 0.0100 bar                               | 0.0000158 - 7.50 torr                                              | Average value: 0.00250 bar Grade Count:4   |
|                                    | 0.0100 - 0.0100 bar<br>@Temperature 50.0 - 50.0 °C | 7.50 - 7.50 torr<br>@Temperature 122 - 122 °F                      | Average value: 0.00400 bar Grade Count:3   |

| Mechanical Properties      | Metric          | English         | Comments                               |
|----------------------------|-----------------|-----------------|----------------------------------------|
| Hardness, Shore D          | 50.0 - 95.0     | 50.0 - 95.0     | Average value: 80.4 Grade Count:27     |
| Tensile Strength, Ultimate | 5.17 - 97.0 MPa | 750 - 14100 psi | Average value: 33.7 MPa Grade Count:31 |

| Mechanical Properties      | 35.8527 - 35.8527 MPa<br>Metric | 5200.01 - 5200.01 psi<br>English | Comments                               |
|----------------------------|---------------------------------|----------------------------------|----------------------------------------|
|                            | @Temperature 149 - 149 °C       | @Temperature 300 - 300 °F        |                                        |
| Tensile Strength, Yield    | 1.03 - 2900 MPa                 | 150 - 420000 psi                 | Average value: 576 MPa Grade Count:102 |
|                            | 4.137 - 2571.74 MPa             | 600.0 - 373001 psi               |                                        |
|                            | @Temperature -55.0 - 190 °C     | @Temperature -67.0 - 374 °F      | Average value: 626 MPa Grade Count:17  |
| Elongation at Break        | 0.000 - 50.0 %                  | 0.000 - 50.0 %                   | Average value: 9.35 % Grade Count:33   |
|                            | 2.40 - 6.90 %                   | 2.40 - 6.90 %                    |                                        |
|                            | @Temperature 75.0 - 300 °C      | @Temperature 167 - 572 °F        | Average value: 4.65 % Grade Count:1    |
| Elongation at Yield        | 1.00 - 13.0 %                   | 1.00 - 13.0 %                    | Average value: 3.49 % Grade Count:30   |
| Modulus of Elasticity      | 0.00370 - 215 GPa               | 0.537 - 31200 ksi                | Average value: 35.9 GPa Grade Count:99 |
|                            | 1.572 - 164.095 GPa             | 228.0 - 23800.4 ksi              |                                        |
|                            | @Temperature -67.0 - 220 °C     | @Temperature -88.6 - 428 °F      | Average value: 57.7 GPa Grade Count:17 |
| Flexural Yield Strength    | 92.0 - 1890 MPa                 | 13300 - 274000 psi               | Average value: 921 MPa Grade Count:33  |
|                            | 108.937 - 1380.95 MPa           | 15800.0 - 200290 psi             |                                        |
|                            | @Temperature 50.0 - 177 °C      | @Temperature 122 - 350 °F        | Average value: 942 MPa Grade Count:7   |
| Flexural Modulus           | 0.00350 - 205 GPa               | 0.508 - 29700 ksi                | Average value: 56.0 GPa Grade Count:34 |
|                            | 3.13711 - 109.075 GPa           | 455.007 - 15820.2 ksi            |                                        |
|                            | @Temperature 50.0 - 177 °C      | @Temperature 122 - 350 °F        | Average value: 63.0 GPa Grade Count:7  |
| Compressive Yield Strength | 2.76 - 1690 MPa                 | 400 - 246000 psi                 | Average value: 358 MPa Grade Count:79  |
|                            | 52.0 - 1585.79 MPa              | 7540 - 230000 psi                |                                        |
|                            | @Temperature -55.0 - 177 °C     | @Temperature -67.0 - 351 °F      | Average value: 574 MPa Grade Count:21  |
| Compressive Modulus        | 0.0552 - 168 GPa                | 8.00 - 24300 ksi                 | Average value: 45.2 GPa Grade Count:59 |
|                            | 12.0 - 162.027 GPa              | 1740 - 23500.4 ksi               |                                        |
|                            | @Temperature -55.0 - 177 °C     | @Temperature -67.0 - 351 °F      | Average value: 62.1 GPa Grade Count:16 |
| Poissons Ratio             | 0.350 - 0.420                   | 0.350 - 0.420                    | Average value: 0.389 Grade Count:10    |

| Mechanical Properties  | Metric                            | English                            | Comments                                                |
|------------------------|-----------------------------------|------------------------------------|---------------------------------------------------------|
| Fracture Toughness     | 0.433 - 3.69 MPa-m <sup>1/2</sup> | 0.394 - 3.36 ksi-in <sup>1/2</sup> | Average value: 1.33 MPa-m <sup>1/2</sup> Grade Count:18 |
| Shear Modulus          | 1.07 - 5.86 GPa                   | 155 - 850 ksi                      | Average value: 3.20 GPa Grade Count:23                  |
|                        | 2.96475 - 35.0 GPa                | 430.007 - 5080 ksi                 | Average value: 13.7 GPa Grade Count:2                   |
|                        | @Temperature 80.0 - 175 °C        | @Temperature 176 - 347 °F          |                                                         |
| Shear Strength         | 6.76 - 137 MPa                    | 980 - 19900 psi                    | Average value: 78.6 MPa Grade Count:51                  |
|                        | 11.0 - 164.095 MPa                | 1600 - 23800.0 psi                 | Average value: 58.8 MPa Grade Count:26                  |
|                        | @Temperature -55.0 - 177 °C       | @Temperature -67.0 - 351 °F        |                                                         |
| Adhesive Bond Strength | 5.86 - 24.1 MPa                   | 850 - 3500 psi                     | Average value: 12.8 MPa Grade Count:26                  |
| Toughness              | 51.0 - 541 J                      | 37.6 - 399 ft-lb                   | Average value: 220 J Grade Count:8                      |

| Thermal Properties               | Metric                 | English                                    | Comments                                   |
|----------------------------------|------------------------|--------------------------------------------|--------------------------------------------|
| CTE, linear                      | 16.0 - 85.5 µm/m-°C    | 8.89 - 47.5 µin/in-°F                      | Average value: 50.8 µm/m-°C Grade Count:37 |
|                                  | 98.0 - 180 µm/m-°C     | 54.4 - 100 µin/in-°F                       | Average value: 131 µm/m-°C Grade Count:9   |
|                                  | @Temperature >=27.0 °C | @Temperature >=80.6 °F                     |                                            |
| Thermal Conductivity             | 0.140 - 1.28 W/m-K     | 0.972 - 8.88 BTU-in/hr-ft <sup>2</sup> -°F | Average value: 0.510 W/m-K Grade Count:28  |
| Melting Point                    | -80.0 - 130 °C         | -112 - 266 °F                              | Average value: 40.0 °C Grade Count:4       |
| Maximum Service Temperature, Air | 25.0 - 260 °C          | 77.0 - 500 °F                              | Average value: 136 °C Grade Count:61       |
| Softening Point                  | 12.0 - 150 °C          | 53.6 - 302 °F                              | Average value: 74.4 °C Grade Count:33      |

| Electrical Properties  | Metric                     | English                   | Comments                                      |
|------------------------|----------------------------|---------------------------|-----------------------------------------------|
| Electrical Resistivity | 0.00100 - 8.10e+15 ohm-cm  | 0.00100 - 8.10e+15 ohm-cm | Average value: 2.07e+15 ohm-cm Grade Count:32 |
|                        | 1.00e+7 - 1.50e+16 ohm-cm  | 1.00e+7 - 1.50e+16 ohm-cm | Average value: 3.36e+15 ohm-cm Grade Count:2  |
|                        | @Temperature 75.0 - 300 °C | @Temperature 167 - 572 °F |                                               |
| Dielectric Constant    | 2.96 - 5.40                | 2.96 - 5.40               | Average value: 4.49 Grade Count:32            |
|                        | 2.95 - 8.00                | 2.95 - 8.00               |                                               |

| Electrical Properties | Metric                      | English                     | Average value: 5.49 Grade Count:3<br>Comments |
|-----------------------|-----------------------------|-----------------------------|-----------------------------------------------|
|                       | @ Temperature 70.0 - 150 °C | @ Temperature 158 - 302 °F  |                                               |
|                       | 2.95 - 8.00                 | 2.95 - 8.00                 |                                               |
|                       | @Frequency 60.0 - 100000 Hz | @Frequency 60.0 - 100000 Hz | Average value: 5.49 Grade Count:3             |
| Dielectric Strength   | 14.4 - 51.2 kV/mm           | 365 - 1300 kV/in            | Average value: 23.2 kV/mm Grade Count:38      |
| Dissipation Factor    | 0.00600 - 0.500             | 0.00600 - 0.500             | Average value: 0.335 Grade Count:3            |
|                       | 0.00300 - 0.500             | 0.00300 - 0.500             |                                               |
|                       | @Temperature 149 - 150 °C   | @Temperature 300 - 302 °F   | Average value: 0.252 Grade Count:2            |
|                       | 0.00300 - 0.500             | 0.00300 - 0.500             |                                               |
|                       | @Frequency 60.0 - 100 Hz    | @Frequency 60.0 - 100 Hz    | Average value: 0.252 Grade Count:2            |

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