

## Overview of materials for Epoxy, Electrically Conductive

Category : Polymer , Thermoset , Epoxy , Epoxy, Electrically Conductive

### Material Notes:

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

| Physical Properties                      | Metric             | English                           | Comments                                 |
|------------------------------------------|--------------------|-----------------------------------|------------------------------------------|
| Density                                  | 0.940 - 5.30 g/cc  | 0.0340 - 0.191 lb/in <sup>3</sup> | Average value: 2.75 g/cc Grade Count:96  |
| Volatile Organic Compounds (VOC) Content | 0.000 - 591 g/l    | 0.000 - 591 g/l                   | Average value: 88.7 g/l Grade Count:7    |
| Solubility in Water                      | 0.000 %            | 0.000 %                           | Average value: 0.000 % Grade Count:4     |
| Particle Size                            | 2.00 - 50.0 µm     | 2.00 - 50.0 µm                    | Average value: 30.4 µm Grade Count:43    |
| Viscosity                                | 220 - 2.50e+6 cP   | 220 - 2.50e+6 cP                  | Average value: 93400 cP Grade Count:78   |
| Thickness                                | 25.4 - 254 microns | 1.00 - 10.0 mil                   | Average value: 127 microns Grade Count:7 |

| Mechanical Properties | Metric                                              | English                                            | Comments                               |
|-----------------------|-----------------------------------------------------|----------------------------------------------------|----------------------------------------|
| Hardness, Shore A     | 55.0 - 93.0                                         | 55.0 - 93.0                                        | Average value: 71.0 Grade Count:6      |
| Hardness, Shore D     | 19.0 - 90.0                                         | 19.0 - 90.0                                        | Average value: 75.9 Grade Count:69     |
| Elongation at Break   | 0.200 - 60.0 %                                      | 0.200 - 60.0 %                                     | Average value: 35.0 % Grade Count:5    |
| Modulus of Elasticity | 0.146 - 7.87 GPa                                    | 21.2 - 1140 ksi                                    | Average value: 3.89 GPa Grade Count:41 |
| Shear Strength        | 4.48 - 35.2 MPa                                     | 650 - 5100 psi                                     | Average value: 14.2 MPa Grade Count:58 |
|                       | 9.65266 - 11.0316 MPa<br>@Temperature 65.6 - 116 °C | 1400.00 - 1600.00 psi<br>@Temperature 150 - 240 °F | Average value: 10.1 MPa Grade Count:3  |
|                       | 9.65266 - 11.0316 MPa<br>@Time 900 - 7200 sec       | 1400.00 - 1600.00 psi<br>@Time 0.250 - 2.00 hour   | Average value: 10.1 MPa Grade Count:3  |
|                       | 0.621 - 39.3 MPa                                    | 90.0 - 5700 psi                                    | Average value: 8.98 MPa Grade          |

| Adhesive Bond Strength<br>Mechanical Properties | Metric            | English         | Count:51<br>Comments                   |
|-------------------------------------------------|-------------------|-----------------|----------------------------------------|
| Peel Strength                                   | 0.877 - 3.51 kN/m | 5.00 - 20.0 pli | Average value: 2.48 kN/m Grade Count:6 |

| Thermal Properties               | Metric                                               | English                                                               | Comments                                                                     |
|----------------------------------|------------------------------------------------------|-----------------------------------------------------------------------|------------------------------------------------------------------------------|
| CTE, linear                      | 4.50 - 280 $\mu\text{m}/\text{m}\cdot^\circ\text{C}$ | 2.50 - 156 $\mu\text{in}/\text{in}\cdot^\circ\text{F}$                | Average value: 78.7 $\mu\text{m}/\text{m}\cdot^\circ\text{C}$ Grade Count:69 |
| Thermal Conductivity             | 0.550 - 29.0 W/m-K                                   | 3.82 - 201 BTU-in/hr-ft <sup>2</sup> -°F                              | Average value: 2.78 W/m-K Grade Count:72                                     |
|                                  | 10.9 - 23.0 W/m-K<br>@Temperature 150 - 150 °C       | 75.6 - 160 BTU-in/hr-ft <sup>2</sup> -°F<br>@Temperature 302 - 302 °F | Average value: 17.0 W/m-K Grade Count:1                                      |
|                                  | 10.9 - 23.0 W/m-K<br>@Time 3600 - 3600 sec           | 75.6 - 160 BTU-in/hr-ft <sup>2</sup> -°F<br>@Time 1.00 - 1.00 hour    | Average value: 17.0 W/m-K Grade Count:1                                      |
| Maximum Service Temperature, Air | -150 - 538 °C                                        | -238 - 1000 °F                                                        | Average value: 198 °C Grade Count:111                                        |
| Minimum Service Temperature, Air | -269 - -20.0 °C                                      | -452 - -4.00 °F                                                       | Average value: -66.1 °C Grade Count:93                                       |
| Glass Transition Temp, Tg        | -5.00 - 155 °C                                       | 23.0 - 311 °F                                                         | Average value: 74.0 °C Grade Count:80                                        |
| Decomposition Temperature        | 316 - 478 °C                                         | 601 - 892 °F                                                          | Average value: 397 °C Grade Count:43                                         |
| Flash Point                      | 7.22 - 150 °C                                        | 45.0 - 302 °F                                                         | Average value: 105 °C Grade Count:7                                          |

| Component Elements Properties | Metric        | English       | Comments                             |
|-------------------------------|---------------|---------------|--------------------------------------|
| Carbon, C                     | 4.40 - 69.0 % | 4.40 - 69.0 % | Average value: 22.5 % Grade Count:10 |
| Silver, Ag                    | 40.0 - 85.0 % | 40.0 - 85.0 % | Average value: 66.3 % Grade Count:4  |

| Electrical Properties  | Metric                                                  | English                                                | Comments                                     |
|------------------------|---------------------------------------------------------|--------------------------------------------------------|----------------------------------------------|
| Electrical Resistivity | 0.0000800 ohm-cm - 1e+05                                | 0.0000800 ohm-cm - 1e+05                               | Average value: 0.0736 ohm-cm Grade Count:105 |
|                        | 0.000300 - 0.00200 ohm-cm<br>@Temperature 65.0 - 150 °C | 0.000300 - 0.00200 ohm-cm<br>@Temperature 149 - 302 °F | Average value: 0.00364 ohm-cm Grade Count:2  |
|                        | <= 0.0100 ohm-cm<br>@Temperature 65.6 - 150 °C          | <= 0.0100 ohm-cm<br>@Temperature 150 - 302 °F          | Average value: 0.00364 ohm-cm Grade Count:5  |

| Electrical Properties | Metric                | English                 | Comments                                 |
|-----------------------|-----------------------|-------------------------|------------------------------------------|
|                       | 100 ohm-cm            | <= 0.0100 ohm-cm        | Average value: 0.00364 ohm-cm            |
|                       | @Time 900 - 10800 sec | @Time 0.250 - 3.00 hour | Grade Count:5                            |
| Surface Resistance    | 0.0100 - 6.00e+6 ohm  | 0.0100 - 6.00e+6 ohm    | Average value: 436000 ohm Grade Count:18 |

| Processing Properties  | Metric                      | English                     | Comments                                |
|------------------------|-----------------------------|-----------------------------|-----------------------------------------|
| Processing Temperature | 65.0 - 165 °C               | 149 - 329 °F                | Average value: 106 °C Grade Count:5     |
| Cure Time              | 1.00 - 10100 min            | 0.0167 - 168 hour           | Average value: 1950 min Grade Count:63  |
|                        | 0.750 - 1440 min            | 0.0125 - 24.0 hour          | Average value: 81.6 min Grade Count:121 |
|                        | @Temperature 40.0 - 302 °C  | @Temperature 104 - 576 °F   |                                         |
| Pot Life               | 10.0 - 130000 min           | 10.0 - 130000 min           | Average value: 5130 min Grade Count:105 |
|                        | 2880 - 2880 min             | 2880 - 2880 min             | Average value: 2880 min Grade Count:1   |
|                        | @Temperature 5.00 - 5.00 °C | @Temperature 41.0 - 41.0 °F |                                         |

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