

## Overview of materials for Phenolic, Novolac, Mineral/Glass Filled

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

### Material Notes:

This property data is a summary of similar materials in the MatWeb database for the category "Phenolic, Novolac, Mineral/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-MineralGlass-Filled.php](http://www.lookpolymers.com/polymer_Overview-of-materials-for-Phenolic-Novolac-MineralGlass-Filled.php)

| Physical Properties   | Metric                   | English                            | Comments                                    |
|-----------------------|--------------------------|------------------------------------|---|
| Density               | 1.55 - 2.10 g/cc         | 0.0560 - 0.0759 lb/in <sup>3</sup> | Average value: 1.87 g/cc Grade Count:23     |
| Water Absorption      | 0.0300 - 0.150 %         | 0.0300 - 0.150 %                   | Average value: 0.0842 % Grade Count:16      |
| Linear Mold Shrinkage | 0.000600 - 0.00350 cm/cm | 0.000600 - 0.00350 in/in           | Average value: 0.00197 cm/cm Grade Count:23 |

| Mechanical Properties      | Metric                         | English                           | Comments  |
|----------------------------|--------------------------------|-----------------------------------|---|
| Hardness, Rockwell E       | 80.0 - 125                     | 80.0 - 125                        | Average value: 97.9 Grade Count:13                    |
| Tensile Strength, Ultimate | 31.0 - 108 MPa                 | 4500 - 15700 psi                  | Average value: 74.4 MPa Grade Count:23                |
| Elongation at Break        | 0.272 - 1.80 %                 | 0.272 - 1.80 %                    | Average value: 0.708 % Grade Count:19                 |
| Modulus of Elasticity      | 9.50 - 30.0 GPa                | 1380 - 4350 ksi                   | Average value: 18.7 GPa Grade Count:19                |
| Flexural Yield Strength    | 60.0 - 190 MPa                 | 8700 - 27600 psi                  | Average value: 137 MPa Grade Count:23                 |
| Flexural Modulus           | 7.50 - 27.0 GPa                | 1090 - 3920 ksi                   | Average value: 16.7 GPa Grade Count:23                |
| Compressive Yield Strength | 156 - 410 MPa                  | 22600 - 59500 psi                 | Average value: 250 MPa Grade Count:23                 |
| Poissons Ratio             | 0.310 - 0.330                  | 0.310 - 0.330                     | Average value: 0.317 Grade Count:3                    |
| Shear Modulus              | 5.46 - 5.98 GPa                | 792 - 867 ksi                     | Average value: 5.76 GPa Grade Count:3                 |
| Izod Impact, Notched       | 0.163 - 0.450 J/cm             | 0.305 - 0.843 ft-lb/in            | Average value: 0.363 J/cm Grade Count:12              |
| Charpy Impact Unnotched    | 0.400 - 1.50 J/cm <sup>2</sup> | 1.90 - 7.14 ft-lb/in <sup>2</sup> | Average value: 0.928 J/cm <sup>2</sup> Grade Count:10 |
| Charpy Impact, Notched     |                                |                                   | Average value: 0.341 J/cm <sup>2</sup> Grade          |

| Mechanical Properties                       | 0.195 - 0.550 J/cm <sup>2</sup><br>Metric         | 0.928 - 2.62 ft-lb/in <sup>2</sup><br>English                          | Count:20<br>Comments                       |
|---|---|--|--|
| <b>Thermal Properties</b>                   | <b>Metric</b>                                     | <b>English</b>   | <b>Comments</b>                            |
| CTE, linear                                 | 12.0 - 30.0 µm/m-°C                               | 6.67 - 16.7 µin/in-°F  | Average value: 18.4 µm/m-°C Grade Count:14 |
|   | 49.0 - 75.0 µm/m-°C<br>@Temperature 40.0 - 130 °C | 27.2 - 41.7 µin/in-°F<br>@Temperature 104 - 266 °F                     | Average value: 62.0 µm/m-°C Grade Count:2  |
| CTE, linear, Transverse to Flow             | 20.0 - 45.0 µm/m-°C                               | 11.1 - 25.0 µin/in-°F  | Average value: 28.7 µm/m-°C Grade Count:10 |
| Thermal Conductivity                        | 0.580 - 0.580 W/m-K<br>@Temperature 100 - 100 °C  | 4.03 - 4.03 BTU-in/hr-ft <sup>2</sup> -°F<br>@Temperature 212 - 212 °F | Average value: 0.580 W/m-K Grade Count:1   |
| Maximum Service Temperature, Air            | 150 - 250 °C                                      | 302 - 482 °F   | Average value: 211 °C Grade Count:12       |
| Deflection Temperature at 1.8 MPa (264 psi) | 170 - 282 °C                                      | 338 - 540 °F   | Average value: 229 °C Grade Count:23       |
| Deflection Temperature at 8.0 MPa           | 150 - 185 °C                                      | 302 - 365 °F   | Average value: 166 °C Grade Count:3        |
| Flammability, UL94                          | HB - V-0  | HB - V-0   | Grade Count:19                             |

| Electrical Properties      | Metric                     | English                    | Comments                                      |
|----------------------------|----------------------------|----------------------------|---|
| Electrical Resistivity     | 1.90e+11 - 1.74e+15 ohm-cm | 1.90e+11 - 1.74e+15 ohm-cm | Average value: 1.77e+14 ohm-cm Grade Count:10 |
| Insulation Resistance      | 1.00e+11 - 1.00e+14 ohm    | 1.00e+11 - 1.00e+14 ohm    | Average value: 2.19e+13 ohm Grade Count:3     |
| Dielectric Constant        | 4.50 - 5.60                | 4.50 - 5.60                | Average value: 5.13 Grade Count:11            |
| Dielectric Strength        | 8.60 - 35.0 kV/mm          | 218 - 889 kV/in            | Average value: 17.7 kV/mm Grade Count:20      |
| Dissipation Factor         | 0.0120 - 0.286             | 0.0120 - 0.286             | Average value: 0.0557 Grade Count:11          |
| Arc Resistance             | 48.0 - 185 sec             | 48.0 - 185 sec             | Average value: 152 sec Grade Count:13         |
| Comparative Tracking Index | 175 - 325 V                | 175 - 325 V                | Average value: 207 V Grade Count:17           |

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