

## Overview of materials for Polystyrene + Polyphenylene Ether, Unreinforced

Category : Polymer , Thermoplastic , Polystyrene (PS) , Polystyrene + Polyphenylene Ether, Unreinforced

### Material Notes:

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

| Physical Properties                | Metric                  | English                            | Comments                                    |
|------------------------------------|-------------------------|------------------------------------|---------------------------------------------|
| Density                            | 1.06 - 1.44 g/cc        | 0.0383 - 0.0520 lb/in <sup>3</sup> | Average value: 1.19 g/cc Grade Count:40     |
| Water Absorption                   | 0.0600 - 0.100 %        | 0.0600 - 0.100 %                   | Average value: 0.0717 % Grade Count:30      |
| Moisture Absorption at Equilibrium | 0.0200 - 0.120 %        | 0.0200 - 0.120 %                   | Average value: 0.0640 % Grade Count:5       |
| Water Absorption at Saturation     | 0.0200 - 0.450 %        | 0.0200 - 0.450 %                   | Average value: 0.256 % Grade Count:5        |
| Linear Mold Shrinkage              | 0.00100 - 0.00700 cm/cm | 0.00100 - 0.00700 in/in            | Average value: 0.00429 cm/cm Grade Count:38 |
| Linear Mold Shrinkage, Transverse  | 0.00200 - 0.00600 cm/cm | 0.00200 - 0.00600 in/in            | Average value: 0.00333 cm/cm Grade Count:3  |
| Melt Flow                          | 6.00 - 60.0 g/10 min    | 6.00 - 60.0 g/10 min               | Average value: 24.2 g/10 min Grade Count:13 |

| Mechanical Properties      | Metric          | English           | Comments                               |
|----------------------------|-----------------|-------------------|----------------------------------------|
| Hardness, Rockwell M       | 88.0 - 90.0     | 88.0 - 90.0       | Average value: 88.8 Grade Count:4      |
| Hardness, H358/30          | 95.0 - 135 MPa  | 13800 - 19600 psi | Average value: 110 MPa Grade Count:3   |
| Tensile Strength, Ultimate | 48.0 - 85.5 MPa | 6960 - 12400 psi  | Average value: 58.2 MPa Grade Count:14 |
| Tensile Strength, Yield    | 37.0 - 130 MPa  | 5370 - 18900 psi  | Average value: 79.8 MPa Grade Count:32 |
| Elongation at Break        | 2.80 - 130 %    | 2.80 - 130 %      | Average value: 24.0 % Grade Count:40   |
| Elongation at Yield        | 2.80 - 5.10 %   | 2.80 - 5.10 %     | Average value: 3.99 % Grade Count:6    |
| Modulus of Elasticity      | 2.20 - 5.60 GPa | 319 - 812 ksi     | Average value: 3.24 GPa Grade Count:5  |
| Flexural Yield Strength    | 54.0 - 167 MPa  | 7830 - 24200 psi  | Average value: 111 MPa Grade Count:43  |

| Mechanical Properties          | Metric                                                   | English                                                     | Comments                                 |
|--------------------------------|----------------------------------------------------------|-------------------------------------------------------------|------------------------------------------|
| Flexural Modulus               | 1.90 - 10.1 GPa                                          | 275 - 1460 ksi                                              | Average value: 4.85 GPa Grade Count:43   |
| Izod Impact, Notched           | 0.320 - 2.94 J/cm                                        | 0.599 - 5.51 ft-lb/in                                       | Average value: 1.05 J/cm Grade Count:35  |
|                                | 0.260 - 1.30 J/cm<br>@Temperature -30.0 - -<br>30.0 °C   | 0.487 - 2.44 ft-lb/in<br>@Temperature -22.0 - -<br>22.0 °F  | Average value: 0.758 J/cm Grade Count:6  |
| Izod Impact, Notched (ISO)     | 2.00 - 20.0 kJ/m²                                        | 0.952 - 9.52 ft-lb/in²                                      | Average value: 13.8 kJ/m² Grade Count:12 |
|                                | 2.00 - 14.0 kJ/m²<br>@Temperature -40.0 - -<br>30.0 °C   | 0.952 - 6.66 ft-lb/in²<br>@Temperature -40.0 - -<br>22.0 °F | Average value: 6.80 kJ/m² Grade Count:4  |
| Izod Impact, Unnotched (ISO)   | 20.0 - 20.0 kJ/m²<br>@Temperature -30.0 - -<br>30.0 °C   | 9.52 - 9.52 ft-lb/in²<br>@Temperature -22.0 - -<br>22.0 °F  | Average value: 20.0 kJ/m² Grade Count:1  |
| Charpy Impact Unnotched        | 3.00 - 3.00 J/cm²<br>@Temperature -30.0 - -<br>30.0 °C   | 14.3 - 14.3 ft-lb/in²<br>@Temperature -22.0 - -<br>22.0 °F  | Average value: 3.00 J/cm² Grade Count:1  |
| Charpy Impact, Notched         | 0.100 - 2.00 J/cm²                                       | 0.476 - 9.52 ft-lb/in²                                      | Average value: 1.00 J/cm² Grade Count:4  |
|                                | 0.700 - 0.700 J/cm²<br>@Temperature -30.0 - -<br>30.0 °C | 3.33 - 3.33 ft-lb/in²<br>@Temperature -22.0 - -<br>22.0 °F  | Average value: 0.700 J/cm² Grade Count:2 |
| Taber Abrasion, mg/1000 Cycles | 35.0 - 75.0                                              | 35.0 - 75.0                                                 | Average value: 61.7 Grade Count:3        |

| Thermal Properties                          | Metric              | English               | Comments                                   |
|---------------------------------------------|---------------------|-----------------------|--------------------------------------------|
| CTE, linear                                 | 20.0 - 92.0 µm/m-°C | 11.1 - 51.1 µin/in-°F | Average value: 50.2 µm/m-°C Grade Count:25 |
| CTE, linear, Transverse to Flow             | 52.0 - 95.0 µm/m-°C | 28.9 - 52.8 µin/in-°F | Average value: 72.3 µm/m-°C Grade Count:5  |
| Deflection Temperature at 0.46 MPa (66 psi) | 90.0 - 157 °C       | 194 - 315 °F          | Average value: 122 °C Grade Count:31       |
| Deflection Temperature at 1.8 MPa (264 psi) | 84.0 - 151 °C       | 183 - 304 °F          | Average value: 116 °C Grade Count:16       |
| Vicat Softening Point                       | 107 - 160 °C        | 225 - 320 °F          | Average value: 130 °C Grade Count:6        |
| UL RTI, Electrical                          | 50.0 - 110 °C       | 122 - 230 °F          | Average value: 65.0 °C Grade Count:5       |
| UL RTI, Mechanical with Impact              | 50.0 - 105 °C       | 122 - 221 °F          | Average value: 64.0 °C Grade Count:5       |
| UL RTI, Mechanical without Impact           | 50.0 - 115 °C       | 122 - 239 °F          | Average value: 66.0 °C Grade Count:5       |

| Thermal Properties | Metric       | English        | Comments                            |
|--------------------|--------------|----------------|-------------------------------------|
| Glow Wire Test     | 725 - 960 °C | 1340 - 1760 °F | Average value: 816 °C Grade Count:4 |

| Electrical Properties  | Metric                  | English                 | Comments                                     |
|------------------------|-------------------------|-------------------------|----------------------------------------------|
| Electrical Resistivity | 20000 - 1.00e+15 ohm-cm | 20000 - 1.00e+15 ohm-cm | Average value: 5.00e+14 ohm-cm Grade Count:4 |
| Surface Resistance     | 100 - 5.00e+16 ohm      | 100 - 5.00e+16 ohm      | Average value: 9.11e+15 ohm Grade Count:11   |
| Static Decay           | 0.0100 - 0.100 sec      | 0.0100 - 0.100 sec      | Average value: 0.0400 sec Grade Count:3      |
| Dielectric Constant    | 2.50 - 2.90             | 2.50 - 2.90             | Average value: 2.73 Grade Count:4            |
| Dielectric Strength    | 16.0 - 33.0 kV/mm       | 406 - 838 kV/in         | Average value: 23.6 kV/mm Grade Count:3      |
| Dissipation Factor     | 0.00400 - 0.0100        | 0.00400 - 0.0100        | Average value: 0.00680 Grade Count:3         |

| Processing Properties | Metric        | English      | Comments                              |
|-----------------------|---------------|--------------|---------------------------------------|
| Nozzle Temperature    | 277 - 310 °C  | 531 - 590 °F | Average value: 294 °C Grade Count:3   |
| Melt Temperature      | 243 - 310 °C  | 469 - 590 °F | Average value: 284 °C Grade Count:3   |
| Mold Temperature      | 71.1 - 104 °C | 160 - 219 °F | Average value: 88.6 °C Grade Count:3  |
| Drying Temperature    | 104 - 110 °C  | 219 - 230 °F | Average value: 107 °C Grade Count:3   |
| Moisture Content      | 0.0200 %      | 0.0200 %     | Average value: 0.0200 % Grade Count:3 |

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