

## Overview of materials for Polybutylene Terephthalate (PBT), Impact Grade

Category : Polymer , Thermoplastic , Polyester, TP , Polybutylene Terephthalate (PBT) , Polybutylene Terephthalate (PBT), Impact Grade

### Material Notes:

This property data is a summary of similar materials in the MatWeb database for the category "Polybutylene Terephthalate (PBT), Impact Grade". 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-Polybutylene-Terephthalate-PBT-Impact-Grade.php](http://www.lookpolymers.com/polymer_Overview-of-materials-for-Polybutylene-Terephthalate-PBT-Impact-Grade.php)

| Physical Properties                | Metric  | English   | Comments                                    |
|------------------------------------|---|---|---|
| Density                            | 1.13 - 1.73 g/cc                              | 0.0408 - 0.0625 lb/in <sup>3</sup>                              | Average value: 1.30 g/cc Grade Count:55     |
|                                    | 1.03 - 1.17 g/cc<br>@Temperature 250 - 250 °C | 0.0372 - 0.0423 lb/in <sup>3</sup><br>@Temperature 482 - 482 °F | Average value: 1.10 g/cc Grade Count:2      |
| Water Absorption                   | 0.0500 - 0.400 %                              | 0.0500 - 0.400 %  | Average value: 0.189 % Grade Count:13       |
| Moisture Absorption at Equilibrium | 0.0500 - 0.200 %                              | 0.0500 - 0.200 %  | Average value: 0.152 % Grade Count:17       |
| Water Absorption at Saturation     | 0.450 - 0.800 %                               | 0.450 - 0.800 %   | Average value: 0.617 % Grade Count:3        |
| Linear Mold Shrinkage              | 0.00160 - 0.0270 cm/cm                        | 0.00160 - 0.0270 in/in  | Average value: 0.0153 cm/cm Grade Count:41  |
| Linear Mold Shrinkage, Transverse  | 0.00160 - 0.0300 cm/cm                        | 0.00160 - 0.0300 in/in  | Average value: 0.0152 cm/cm Grade Count:14  |
| Melt Flow                          | 2.00 - 73.8 g/10 min                          | 2.00 - 73.8 g/10 min  | Average value: 19.5 g/10 min Grade Count:22 |

| Mechanical Properties      | Metric         | English          | Comments                               |
|----------------------------|----------------|------------------|--|
| Hardness, Rockwell R       | 104 - 120      | 104 - 120        | Average value: 113 Grade Count:12      |
| Hardness, Shore D          | 65.0 - 70.0    | 65.0 - 70.0      | Average value: 66.7 Grade Count:3      |
| Tensile Strength, Ultimate | 27.6 - 145 MPa | 4000 - 21000 psi | Average value: 55.7 MPa Grade Count:33 |
| Tensile Strength, Yield    | 27.0 - 135 MPa | 3920 - 19600 psi | Average value: 47.0 MPa Grade Count:34 |
| Elongation at Break        | 2.00 - 120 %   | 2.00 - 120 %     | Average value: 38.9 % Grade Count:39   |
| Elongation at Yield        | 3.00 - 130 %   | 3.00 - 130 %     | Average value: 12.7 % Grade Count:16   |

| Modulus of Elasticity<br>Mechanical Properties | Metric                         | English                           | Comments   |
|--|--------------------------------|-----------------------------------|--|
|  | 1.60 - 17.0 GPa                | 232 - 2470 ksi                    | Average value: 3.03 GPa Grade Count:31               |
|  | 0.140 - 2.30 GPa               | 20.3 - 334 ksi                    | Average value: 1.32 GPa Grade Count:1                |
|  | @Temperature -40.0 - 150 °C    | @Temperature -40.0 - 302 °F       |  |
| Flexural Yield Strength                        | 45.0 - 172 MPa                 | 6530 - 25000 psi                  | Average value: 75.2 MPa Grade Count:34               |
| Flexural Modulus                               | 1.50 - 7.58 GPa                | 218 - 1100 ksi                    | Average value: 2.31 GPa Grade Count:37               |
| Izod Impact, Notched                           | 0.374 J/cm - NB                | 0.700 ft-lb/in - NB               | Average value: 3.83 J/cm Grade Count:29              |
|  | 2.24 - 7.4746 J/cm             | 4.20 - 14.003 ft-lb/in            | Average value: 4.31 J/cm Grade Count:3               |
|  | @Temperature -40.0 - - 28.9 °C | @Temperature -40.0 - - 20.0 °F    |  |
| Izod Impact, Unnotched                         | 18.7 J/cm - NB                 | 35.0 ft-lb/in - NB                | Average value: 18.7 J/cm Grade Count:6               |
| Izod Impact, Notched (ISO)                     | 8.00 - 70.0 kJ/m <sup>2</sup>  | 3.81 - 33.3 ft-lb/in <sup>2</sup> | Average value: 28.6 kJ/m <sup>2</sup> Grade Count:14 |
|  | 6.00 - 40.0 kJ/m <sup>2</sup>  | 2.86 - 19.0 ft-lb/in <sup>2</sup> | Average value: 12.9 kJ/m <sup>2</sup> Grade Count:13 |
|  | @Temperature -40.0 - - 10.0 °C | @Temperature -40.0 - 14.0 °F      |  |
| Izod Impact, Unnotched (ISO)                   | 65.0 kJ/m <sup>2</sup> - NB    | 30.9 ft-lb/in <sup>2</sup> - NB   | Average value: 65.0 kJ/m <sup>2</sup> Grade Count:9  |
|  | 60.0 kJ/m <sup>2</sup> - NB    | 28.6 ft-lb/in <sup>2</sup> - NB   | Average value: 193 kJ/m <sup>2</sup> Grade Count:9   |
|  | @Temperature -40.0 - - 30.0 °C | @Temperature -40.0 - - 22.0 °F    |  |
| Charpy Impact Unnotched                        | 1000 J/cm <sup>2</sup> - NB    | 4760 ft-lb/in <sup>2</sup> - NB   | Grade Count:14                                       |
|  | 22.0 J/cm <sup>2</sup> - NB    | 105 ft-lb/in <sup>2</sup> - NB    | Average value: 30.7 J/cm <sup>2</sup> Grade Count:14 |
|  | @Temperature -40.0 - - 30.0 °C | @Temperature -40.0 - - 22.0 °F    |  |
| Charpy Impact, Notched                         | 1.00 - 9.00 J/cm <sup>2</sup>  | 4.76 - 42.8 ft-lb/in <sup>2</sup> | Average value: 5.28 J/cm <sup>2</sup> Grade Count:16 |
|  | 0.900 - 2.50 J/cm <sup>2</sup> | 4.28 - 11.9 ft-lb/in <sup>2</sup> | Average value: 1.52 J/cm <sup>2</sup> Grade Count:14 |
|  | @Temperature -40.0 - - 20.0 °C | @Temperature -40.0 - - 4.00 °F    |  |
| Gardner Impact                                 | 36.2 - 36.2 J                  | 26.7 - 26.7 ft-lb                 | Average value: 36.2 J Grade Count:8                  |

| Thermal Properties | Metric             | English              | Comments                                  |
|--------------------|--------------------|----------------------|---|
| CTE, linear        | 25.2 - 190 µm/m-°C | 14.0 - 106 µin/in-°F | Average value: 109 µm/m-°C Grade Count:18 |

| Thermal Properties<br>CTE, linear, transverse to Flow | Metric<br>100 - 190 µm/m-°C | English<br>50 - 106 µin/in-°F | Comments<br>Average value: 139 µm/m-°C Grade Count:11 |
|---|-----------------------------|-------------------------------|---|
| Melting Point   | 210 - 255 °C                | 410 - 491 °F                  | Average value: 225 °C Grade Count:25                  |
| Deflection Temperature at 0.46 MPa (66 psi)           | 90.0 - 225 °C               | 194 - 437 °F                  | Average value: 138 °C Grade Count:44                  |
| Deflection Temperature at 1.8 MPa (264 psi)           | 48.9 - 210 °C               | 120 - 410 °F                  | Average value: 78.9 °C Grade Count:49                 |
| Vicat Softening Point                                 | 105 - 215 °C                | 221 - 419 °F                  | Average value: 155 °C Grade Count:12                  |
| UL RTI, Electrical                                    | 75.0 - 130 °C               | 167 - 266 °F                  | Average value: 112 °C Grade Count:3                   |
| UL RTI, Mechanical with Impact                        | 75.0 - 130 °C               | 167 - 266 °F                  | Average value: 112 °C Grade Count:3                   |
| UL RTI, Mechanical without Impact                     | 75.0 - 110 °C               | 167 - 230 °F                  | Average value: 87.2 °C Grade Count:3                  |
| Flammability, UL94                                    | HB - V-0                    | HB - V-0                      | Grade Count:44  |
| Flame Spread  | 0.000 - 38.0 mm/min         | 0.000 - 1.50 in/min           | Average value: 25.3 mm/min Grade Count:3              |
| Oxygen Index  | 19.0 - 25.0 %               | 19.0 - 25.0 %                 | Average value: 22.0 % Grade Count:5                   |
| Glow Wire Test  | 675 - 960 °C                | 1250 - 1760 °F                | Average value: 820 °C Grade Count:6                   |

| Electrical Properties      | Metric                     | English                    | Comments                                      |
|----------------------------|----------------------------|----------------------------|---|
| Electrical Resistivity     | 1.00e+11 - 1.00e+17 ohm-cm | 1.00e+11 - 1.00e+17 ohm-cm | Average value: 1.03e+16 ohm-cm Grade Count:25 |
| Surface Resistance         | 1.00e+6 - 1.00e+15 ohm     | 1.00e+6 - 1.00e+15 ohm     | Average value: 4.54e+14 ohm Grade Count:17    |
| Dielectric Constant        | 2.70 - 3.70                | 2.70 - 3.70                | Average value: 3.18 Grade Count:9             |
| Dielectric Strength        | 15.7 - 30.0 kV/mm          | 400 - 762 kV/in            | Average value: 25.3 kV/mm Grade Count:17      |
| Dissipation Factor         | 0.00200 - 0.0200           | 0.00200 - 0.0200           | Average value: 0.0111 Grade Count:7           |
| Arc Resistance             | 110 - 130 sec              | 110 - 130 sec              | Average value: 119 sec Grade Count:4          |
| Comparative Tracking Index | 225 - 600 V                | 225 - 600 V                | Average value: 513 V Grade Count:12           |

| Processing Properties  | Metric        | English       | Comments                             |
|------------------------|---------------|---------------|--------------------------------------|
| Processing Temperature | 230 - 280 °C  | 446 - 536 °F  | Average value: 254 °C Grade Count:10 |
| Nozzle Temperature     | 225 - 280 °C  | 437 - 536 °F  | Average value: 246 °C Grade Count:4  |
| Melt Temperature       | 190 - 280 °C  | 374 - 536 °F  | Average value: 249 °C Grade Count:27 |
| Mold Temperature       | 30.0 - 130 °C | 86.0 - 266 °F | Average value: 74.3 °C Grade         |

| Processing Properties | Metric | English | Count:32<br>Comments |
|-----------------------|--------|---------|----------------------|
|-----------------------|--------|---------|----------------------|

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