

## Overview of materials for Polyester Thermoplastic Elastomer

Category : Polymer , Thermoplastic , Elastomer, TPE , Polyester, TP , Polyester Thermoplastic Elastomer

### Material Notes:

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

| Physical Properties                | Metric                    | English                               | Comments                                     |
|------------------------------------|---------------------------|---------------------------------------|----------------------------------------------|
| Density                            | 0.000657 - 2.10 g/cc      | 0.0000237 - 0.0759 lb/in <sup>3</sup> | Average value: 1.16 g/cc Grade Count:154     |
|                                    | 0.940 - 1.30 g/cc         | 0.0340 - 0.0470 lb/in <sup>3</sup>    | Average value: 1.04 g/cc Grade Count:27      |
|                                    | @Temperature 170 - 240 °C | @Temperature 338 - 464 °F             |                                              |
| Water Absorption                   | 0.100 - 12.0 %            | 0.100 - 12.0 %                        | Average value: 1.04 % Grade Count:67         |
| Moisture Absorption at Equilibrium | 0.0500 - 0.800 %          | 0.0500 - 0.800 %                      | Average value: 0.324 % Grade Count:61        |
| Molecular Weight                   | 458 g/mol                 | 458 g/mol                             | Average value: 458 g/mol Grade Count:21      |
| Maximum Moisture Content           | 0.0100                    | 0.0100                                | Average value: 0.0100 Grade Count:28         |
| Linear Mold Shrinkage              | 0.00200 - 0.0220 cm/cm    | 0.00200 - 0.0220 in/in                | Average value: 0.0118 cm/cm Grade Count:101  |
| Linear Mold Shrinkage, Transverse  | 0.00400 - 0.0220 cm/cm    | 0.00400 - 0.0220 in/in                | Average value: 0.0130 cm/cm Grade Count:44   |
| Melt Flow                          | 0.400 - 50.0 g/10 min     | 0.400 - 50.0 g/10 min                 | Average value: 12.2 g/10 min Grade Count:117 |

| Mechanical Properties      | Metric                      | English                     | Comments                                |
|----------------------------|-----------------------------|-----------------------------|-----------------------------------------|
| Hardness, Shore A          | 65.0 - 99.0                 | 65.0 - 99.0                 | Average value: 90.7 Grade Count:52      |
| Hardness, Shore D          | 19.0 - 82.0                 | 19.0 - 82.0                 | Average value: 49.3 Grade Count:145     |
| Tensile Strength, Ultimate | 0.560 - 104 MPa             | 81.2 - 15100 psi            | Average value: 19.1 MPa Grade Count:137 |
|                            | 2.53 - 45.81 MPa            | 367 - 6644 psi              | Average value: 17.3 MPa Grade Count:1   |
|                            | @Temperature -40.0 - 160 °C | @Temperature -40.0 - 320 °F |                                         |

| Mechanical Properties   | 2.53 - 45.81 MPa<br>Metric  | 367 - 6644 psi<br>English   | Comments                                 |
|-------------------------|-----------------------------|-----------------------------|------------------------------------------|
|                         | @Strain 1.68 - 146 %        | @Strain 1.68 - 146 %        | Average value: 17.3 MPa Grade Count:1    |
| Tensile Strength, Yield | 2.60 - 72.2 MPa             | 377 - 10500 psi             | Average value: 23.7 MPa Grade Count:77   |
| Elongation at Break     | 1.90 - 900 %                | 1.90 - 900 %                | Average value: 445 % Grade Count:157     |
| Elongation at Yield     | 15.0 - 44.0 %               | 15.0 - 44.0 %               | Average value: 30.1 % Grade Count:16     |
| Modulus of Elasticity   | 0.0130 - 10.5 GPa           | 1.89 - 1520 ksi             | Average value: 0.426 GPa Grade Count:68  |
|                         | 0.00163 - 3.14966 GPa       | 0.236 - 456.827 ksi         | Average value: 0.685 GPa Grade Count:20  |
|                         | @Temperature -100 - 200 °C  | @Temperature -148 - 392 °F  |                                          |
| Flexural Yield Strength | 1.00 - 157 MPa              | 145 - 22800 psi             | Average value: 21.3 MPa Grade Count:14   |
| Flexural Modulus        | 0.0130 - 9.03 GPa           | 1.89 - 1310 ksi             | Average value: 0.356 GPa Grade Count:117 |
|                         | 0.00800 - 2.50 GPa          | 1.16 - 363 ksi              | Average value: 0.758 GPa Grade Count:10  |
|                         | @Temperature -40.0 - 100 °C | @Temperature -40.0 - 212 °F |                                          |
| Compressive Modulus     | 0.00240 - 0.0392 GPa        | 0.348 - 5.69 ksi            | Average value: 0.0153 GPa Grade Count:29 |
| Resilience              | 40.0 - 81.0                 | 40.0 - 81.0                 | Average value: 61.3 Grade Count:35       |
| Flex Crack Resistance   | 1.00e+6                     | 1.00e+6                     | Average value: 1.00e+6 Grade Count:7     |
| Shear Modulus           | 0.00640 - 0.307 GPa         | 0.928 - 44.5 ksi            | Average value: 0.0954 GPa Grade Count:12 |
|                         | >= 0.00120 GPa              | >= 0.174 ksi                | Average value: 0.246 GPa Grade Count:12  |
|                         | @Temperature -100 - 200 °C  | @Temperature -148 - 392 °F  |                                          |
| Shear Strength          | 0.0829193 - 0.654548 MPa    | 12.0264 - 94.9343 psi       | Average value: 0.314 MPa Grade Count:1   |
|                         | @Temperature 230 - 250 °C   | @Temperature 446 - 482 °F   |                                          |
|                         | 0.0829193 - 0.654548 MPa    | 12.0264 - 94.9343 psi       | Average value: 0.314 MPa Grade Count:1   |
|                         | @Shear Rate 50.0 - 5000 1/s | @Shear Rate 50.0 - 5000 1/s |                                          |
| Izod Impact, Notched    | 0.320 J/cm - NB             | 0.599 ft-lb/in - NB         | Average value: 5.39 J/cm Grade Count:70  |
|                         | 0.26695 J/cm - NB           | 0.50011 ft-lb/in - NB       |                                          |

| Mechanical Properties             | Metric<br>@ Temperature -40.0 - -<br>40.0 °C | English<br>@ Temperature -40.0 - -<br>40.0 °F | Comments<br>Average value: 1.16 J/cm Grade<br>Count:3    |
|-----------------------------------|----------------------------------------------|-----------------------------------------------|----------------------------------------------------------|
|                                   | 0.490332 - 980.567<br>J/cm                   | 0.918594 - 1837.00 ft-<br>lb/in               | Average value: 1.16 J/cm Grade<br>Count:27               |
|                                   | @Temperature -40.0 - -<br>40.0 °C            | @Temperature -40.0 - -<br>40.0 °F             |                                                          |
|                                   | 0.490332 - 980.567<br>J/cm                   | 0.918594 - 1837.00 ft-<br>lb/in               | Average value: 1.16 J/cm Grade<br>Count:27               |
|                                   | @Thickness 6.40 - 6.40<br>mm                 | @Thickness 0.252 -<br>0.252 in                |                                                          |
| Izod Impact, Unnotched            | 4.80 - 5340 J/cm                             | 8.99 - 10000 ft-lb/in                         | Average value: 4.80 J/cm Grade<br>Count:3                |
| Izod Impact, Notched (ISO)        | 3.00 kJ/m <sup>2</sup> - NB                  | 1.43 ft-lb/in <sup>2</sup> - NB               | Average value: 32.8 kJ/m <sup>2</sup> Grade<br>Count:28  |
|                                   | 3.50 kJ/m <sup>2</sup> - NB                  | 1.67 ft-lb/in <sup>2</sup> - NB               | Average value: 10.6 kJ/m <sup>2</sup> Grade<br>Count:30  |
|                                   | @Temperature -50.0 - -<br>20.0 °C            | @Temperature -58.0 - -<br>4.00 °F             |                                                          |
| Charpy Impact Unnotched           | 7.10 J/cm <sup>2</sup> - NB                  | 33.8 ft-lb/in <sup>2</sup> - NB               | Average value: 8.65 J/cm <sup>2</sup> Grade<br>Count:37  |
|                                   | 0.450 J/cm <sup>2</sup> - NB                 | 2.14 ft-lb/in <sup>2</sup> - NB               | Average value: 0.450 J/cm <sup>2</sup> Grade<br>Count:29 |
|                                   | @Temperature -30.0 - -<br>30.0 °C            | @Temperature -22.0 - -<br>22.0 °F             |                                                          |
| Charpy Impact, Notched            | 0.940 J/cm <sup>2</sup> - NB                 | 4.47 ft-lb/in <sup>2</sup> - NB               | Average value: 6.67 J/cm <sup>2</sup> Grade<br>Count:65  |
|                                   | 0.450 J/cm <sup>2</sup> - NB                 | 2.14 ft-lb/in <sup>2</sup> - NB               | Average value: 5.40 J/cm <sup>2</sup> Grade<br>Count:46  |
|                                   | @Temperature -40.0 - -<br>30.0 °C            | @Temperature -40.0 - -<br>22.0 °F             |                                                          |
| Tensile Creep Modulus, 1 hour     | 22.0 - 360 MPa                               | 3190 - 52200 psi                              | Average value: 132 MPa Grade<br>Count:17                 |
|                                   | 30.7907 - 111.849 MPa                        | 4465.82 - 16222.4 psi                         | Average value: 66.3 MPa Grade<br>Count:1                 |
|                                   | @Temperature 40.0 -<br>100 °C                | @Temperature 104 -<br>212 °F                  |                                                          |
|                                   | 30.7907 - 111.849 MPa                        | 4465.82 - 16222.4 psi                         | Average value: 66.3 MPa Grade<br>Count:1                 |
|                                   | @Pressure 0.500 - 7.00<br>MPa                | @Pressure 72.5 - 1020<br>psi                  |                                                          |
| Tensile Creep Modulus, 1000 hours | 18.0 - 310 MPa                               | 2610 - 45000 psi                              | Average value: 99.2 MPa Grade<br>Count:17                |
|                                   | 21.7457 - 83.3376 MPa                        | 3153.95 - 12087.1 psi                         | Average value: 49.2 MPa Grade<br>Count:1                 |
|                                   | @Temperature 40.0 -<br>100 °C                | @Temperature 104 -<br>212 °F                  |                                                          |

| Mechanical Properties          | 21.7457 - 83.3376 MPa<br>Metric | 3153.95 - 12087.1 psi<br>English | Comments<br>Average value: 49.2 MPa Grade<br>Count:1 |
|--------------------------------|---------------------------------|----------------------------------|------------------------------------------------------|
|                                | @Pressure 0.500 - 7.00 MPa      | @Pressure 72.5 - 1020 psi        |                                                      |
| Tear Strength                  | 40.0 - 362 kN/m                 | 228 - 2070 pli                   | Average value: 137 kN/m Grade<br>Count:115           |
| Taber Abrasion, mg/1000 Cycles | 5.00 - 90.0                     | 5.00 - 90.0                      | Average value: 20.7 Grade Count:33                   |
| Compression Set                | 1.00 - 65.0 %                   | 1.00 - 65.0 %                    | Average value: 41.5 % Grade Count:36                 |
|                                | 41.0 - 60.0 %                   | 41.0 - 60.0 %                    |                                                      |
|                                | @Temperature 70.0 - 70.0 °C     | @Temperature 158 - 158 °F        | Average value: 48.8 % Grade Count:11                 |
| Torsional Stiffness            | 20.0 - 500 MPa                  | 2900 - 72500 psi                 | Average value: 198 MPa Grade<br>Count:11             |

| Electrical Properties  | Metric                     | English                    | Comments                                         |
|------------------------|----------------------------|----------------------------|--------------------------------------------------|
| Electrical Resistivity | 1.00e+11 - 4.00e+16 ohm-cm | 1.00e+11 - 4.00e+16 ohm-cm | Average value: 1.05e+15 ohm-cm<br>Grade Count:72 |
| Surface Resistance     | 5.00e+12 - 2.00e+17 ohm    | 5.00e+12 - 2.00e+17 ohm    | Average value: 1.55e+16 ohm Grade<br>Count:28    |
| Dielectric Constant    | 3.30 - 6.80                | 3.30 - 6.80                | Average value: 4.66 Grade Count:29               |
| Dielectric Strength    | 11.8 - 34.0 kV/mm          | 300 - 864 kV/in            | Average value: 21.6 kV/mm Grade<br>Count:78      |

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