Overview of materials for Thermoplastic Polyurethane, Elastomer, Polyester Grade

Categories: Polymer; Thermoplastic; Elastomer, TPE; Polyurethane, TP; Thermoplastic Polyurethane, Elastomer, Polyester Grade

Material Notes: This property data is a summary of similar materials in the MatWeb database for the category "Thermoplastic Polyurethane, Elastomer, Polyester 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.

Vendors: **Click here to view all available suppliers for this material.**

Please click here if you are a supplier and would like information on how to add your listing to this material.

Physical Properties	Metric	English	Comments
Density	0.992 - 1.44 g/cc	0.0358 - 0.0520 lb/in³	Average value: 1.21 g/cc Grade Count:246
Viscosity	30.0 - 5500 cP	30.0 - 5500 cP	Average value: 1010 cP Grade Count:18
	28000 - 130000 cP @Temperature 204 - 204 °C	28000 - 130000 cP @Temperature 399 - 399 °F	Average value: 83800 cP Grade Count:4
Maximum Moisture Content	0.0200 - 0.0500	0.0200 - 0.0500	Average value: 0.0332 Grade Count:34
Linear Mold Shrinkage	0.00200 - 0.0250 cm/cm	0.00200 - 0.0250 in/in	Average value: 0.00758 cm/cm Grade Count:73
Linear Mold Shrinkage, Transverse	-0.00200 - 0.00900 cm/cm	-0.00200 - 0.00900 in/in	Average value: 0.00496 cm/cm Grade Count:12
Melt Flow	5.00 - 90.0 g/10 min	5.00 - 90.0 g/10 min	Average value: 34.1 g/10 min Grade Count:46

Mechanical Properties	Metric	English	Comments
Hardness, Shore A	40.0 - 101	40.0 - 101	Average value: 84.4 Grade Count:191
Hardness, Shore D	12.0 - 79.0	12.0 - 79.0	Average value: 50.2 Grade Count:122
Tensile Strength, Ultimate	3.45 - 72.1 MPa	500 - 10400 psi	Average value: 40.1 MPa Grade Count:241
Tensile Strength, Yield	20.0 - 42.1 MPa	2910 - 6100 psi	Average value: 36.3 MPa Grade Count:5
Elongation at Break	10.0 - 1580 %	10.0 - 1580 %	Average value: 554 % Grade Count:246
Modulus of Elasticity	0.00300 - 0.870 GPa	0.435 - 126 ksi	Average value: 0.147 GPa Grade Count:25
Flexural Yield Strength	2.61 - 62.7 MPa	379 - 9100 psi	Average value: 24.3 MPa Grade Count:6
Flexural Modulus	0.0276 - 1.21 GPa	4.00 - 175 ksi	Average value: 0.234 GPa Grade Count:26
Resilience	30.0 - 60.0	30.0 - 60.0	Average value: 42.3 Grade Count:22
Rebound	25.0 - 57.0 %	25.0 - 57.0 %	Average value: 37.9 % Grade Count:39
Shear Modulus	0.0120 - 0.250 GPa	1.74 - 36.3 ksi	Average value: 0.102 GPa Grade Count:3

Izod Impact, Notched	0.854 - 5340 J/cm	1.60 - 10000 ft-lb/in	Average value: 4.63 J/cm Grade Count:6
	0.26695 - 2.93645 J/cm @Temperature -40.0 - -40.0 °C	0.50011 - 5.50117 ft-lb/in @Temperature -40.0 - -40.0 °F	Average value: 1.60 J/cm Grade Count:2
Izod Impact, Unnotched	0.961 - 5340 J/cm	1.80 - 10000 ft-lb/in	Average value: 0.961 J/cm Grade Count:3
Tear Strength	17.5 - 285 kN/m	100 - 1630 pli	Average value: 115 kN/m Grade Count:220
Peel Strength	0.0400 - 7.20 kN/m	0.228 - 41.1 pli	Average value: 1.93 kN/m Grade Count:6
Graves Tear Strength	52.6 - 210 kN/m	300 - 1200 pli	Average value: 127 kN/m Grade Count:20
Taber Abrasion, mg/1000 Cycles	2.50 - 127	2.50 - 127	Average value: 37.9 Grade Count:87
Compression Set	12.0 - 90.0 %	12.0 - 90.0 %	Average value: 35.4 % Grade Count:110
Tensile Set	4.00 - 155 %	4.00 - 155 %	Average value: 52.8 % Grade Count:46
	20.0 - 20.0 % @Temperature 200 - 200 °C	20.0 - 20.0 % @Temperature 392 - 392 °F	Average value: 20.0 % Grade Count:1

Electrical Properties	**Metric**	**English**	**Comments**
Electrical Resistivity	1.00e+10 - 1.00e+13 ohm-cm	1.00e+10 - 1.00e+13 ohm-cm	Average value: 3.37e+12 ohm-cm Grade Count:3
Surface Resistance	5.00e+8 - 1.00e+12 ohm	5.00e+8 - 1.00e+12 ohm	Average value: 2.78e+11 ohm Grade Count:4
Dielectric Constant	4.10 - 7.10	4.10 - 7.10	Average value: 5.73 Grade Count:3
Dielectric Strength	31.0 - 49.0 kV/mm	787 - 1240 kV/in	Average value: 42.7 kV/mm Grade Count:3
Dissipation Factor	0.0240 - 0.200	0.0240 - 0.200	Average value: 0.0557 Grade Count:3
Comparative Tracking Index	600 V	600 V	Average value: 600 V Grade Count:6

Thermal Properties	**Metric**	**English**	**Comments**
CTE, linear	117 - 171 µm/m-°C	65.0 - 95.0 µin/in-°F	Average value: 150 µm/m-°C Grade Count:15
Melting Point	100 - 230 °C	212 - 446 °F	Average value: 167 °C Grade Count:44
Vicat Softening Point	35.0 - 165 °C	95.0 - 329 °F	Average value: 106 °C Grade Count:79
Brittleness Temperature	-70.0 - -50.0 °C	-94.0 - -58.0 °F	Average value: -66.4 °C Grade Count:7
Glass Transition Temp, Tg	-47.0 - 120 °C	-52.6 - 248 °F	Average value: -21.8 °C Grade Count:41
Transformation Temperature	-27.8 - -17.2 °C	-18.0 - 1.00 °F	Average value: -22.0 °C Grade Count:3
Clash Berg Stiffness Temperature	-40.0 - -5.00 °C	-40.0 - 23.0 °F	Average value: -26.4 °C Grade Count:6
Flammability, UL94	HB	HB	Grade Count:3
Ring & Ball Softening Point	161 - 179 °C	322 - 354 °F	Average value: 170 °C Grade Count:3

Optical Properties	Metric	English	Comments
Haze	1.10 %	1.10 %	Average value: 1.10 % Grade Count:3
Transmission, Visible	90.0 %	90.0 %	Average value: 90.0 % Grade Count:11

Processing Properties	Metric	English	Comments
Processing Temperature	155 - 216 °C	311 - 421 °F	Average value: 195 °C Grade Count:24
Nozzle Temperature	160 - 299 °C	320 - 570 °F	Average value: 200 °C Grade Count:80
Adapter Temperature	175 - 215 °C	347 - 419 °F	Average value: 193 °C Grade Count:46
Die Temperature	145 - 215 °C	293 - 419 °F	Average value: 194 °C Grade Count:59
Melt Temperature	120 - 238 °C	248 - 460 °F	Average value: 192 °C Grade Count:111
Head Temperature	170 - 210 °C	338 - 410 °F	Average value: 195 °C Grade Count:10
Mold Temperature	10.0 - 70.0 °C	50.0 - 158 °F	Average value: 35.7 °C Grade Count:53
Drying Temperature	54.0 - 110 °C	129 - 230 °F	Average value: 95.2 °C Grade Count:60
Moisture Content	0.0100 - 0.100 %	0.0100 - 0.100 %	Average value: 0.0395 % Grade Count:19
Dew Point	-40.0 - -30.0 °C	-40.0 - -22.0 °F	Average value: -35.8 °C Grade Count:36
Injection Pressure	4.96 - 15000 MPa	720 - 2.18e+6 psi	Average value: 958 MPa Grade Count:13

Some of the values displayed above may have been converted from their original units and/or rounded in order to display the information in a consistent format. Users requiring more precise data for scientific or engineering calculations can click on the property value to see the original value as well as raw conversions to equivalent units. We advise that you only use the original value or one of its raw conversions in your calculations to minimize rounding error. We also ask that you refer to MatWeb's terms of use regarding this information. Click here to view all the property values for this datasheet as they were originally entered into MatWeb.