

Overview of materials for Thermoplastic Polyurethane, Elastomer, Ether Grade

Category : Polymer , Thermoplastic , Elastomer, TPE , Polyurethane, TP , Thermoplastic Polyurethane, Elastomer, Ether Grade

Material Notes:

This property data is a summary of similar materials in the MatWeb database for the category "Thermoplastic Polyurethane, Elastomer, Ether 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-Thermoplastic-Polyurethane-Elastomer-Ether-Grade.php

Physical Properties	Metric	English	Comments
Density	1.05 - 1.53 g/cc	0.0379 - 0.0553 lb/in ³	Average value: 1.14 g/cc Grade Count:156
Loss On Ignition	28.0 - 32.0 %	28.0 - 32.0 %	Average value: 30.0 % Grade Count:5
Water Vapor Transmission	3000 - 3000 g/m ² /day @Temperature 38.0 - 38.0 °C	193 - 193 g/100 in ² /day @Temperature 100 - 100 °F	Average value: 3000 g/m ² /day Grade Count:1
Viscosity	72000 - 72000 cP @Temperature 204 - 204 °C	72000 - 72000 cP @Temperature 399 - 399 °F	Average value: 72000 cP Grade Count:1
Maximum Moisture Content	0.0200 - 0.0500	0.0200 - 0.0500	Average value: 0.0223 Grade Count:26
Linear Mold Shrinkage	0.00110 - 0.0150 cm/cm	0.00110 - 0.0150 in/in	Average value: 0.00698 cm/cm Grade Count:50
Linear Mold Shrinkage, Transverse	-0.00300 - 0.00900 cm/cm	-0.00300 - 0.00900 in/in	Average value: 0.00457 cm/cm Grade Count:22
Melt Flow	1.20 - 150 g/10 min	1.20 - 150 g/10 min	Average value: 39.0 g/10 min Grade Count:49

Mechanical Properties	Metric	English	Comments
Hardness, Shore A	52.0 - 98.0	52.0 - 98.0	Average value: 85.3 Grade Count:134
Hardness, Shore D	22.0 - 95.0	22.0 - 95.0	Average value: 49.1 Grade Count:68
Tensile Strength, Ultimate	2.60 - 65.5 MPa	377 - 9500 psi	Average value: 34.8 MPa Grade Count:158
	28.42 - 60.0 MPa @Temperature 70.0 - 100 °C	4122 - 8700 psi @Temperature 158 - 212 °F	Average value: 46.5 MPa Grade Count:6

Mechanical Properties	28.42 - 60.0 MPa Metric	4122 - 8700 psi English	Comments Average value: 46.5 MPa Grade Count:6
	@Time 0.000 - 4.84e+6 sec	@Time 0.000 - 1340 hour	
Tensile Strength, Yield	1.70 - 44.1 MPa	247 - 6400 psi	Average value: 11.3 MPa Grade Count:147
Elongation at Break	30.0 - 1000 %	30.0 - 1000 %	Average value: 582 % Grade Count:161
Modulus of Elasticity	0.0110 - 2.07 GPa	1.60 - 300 ksi	Average value: 0.243 GPa Grade Count:12
Flexural Modulus	0.0171 - 1.31 GPa	2.48 - 190 ksi	Average value: 0.248 GPa Grade Count:30
Resilience	35.0 - 52.0	35.0 - 52.0	Average value: 42.7 Grade Count:7
Rebound	25.0 - 72.0 %	25.0 - 72.0 %	Average value: 41.8 % Grade Count:23
Shear Modulus	0.00840 - 0.150 GPa	1.22 - 21.8 ksi	Average value: 0.0519 GPa Grade Count:4
	0.0138 - 0.3656 GPa	2.00 - 53.03 ksi	Average value: 0.159 GPa Grade Count:1
	@Temperature -50.0 - 0.000 °C	@Temperature -58.0 - 32.0 °F	
Tear Strength	12.4 - 257 kN/m	71.0 - 1470 pli	Average value: 87.5 kN/m Grade Count:147
Graves Tear Strength	21.0 - 175 kN/m	120 - 1000 pli	Average value: 86.8 kN/m Grade Count:26
Taber Abrasion, mg/1000 Cycles	2.00 - 350	2.00 - 350	Average value: 46.0 Grade Count:71
Compression Set	16.0 - 92.0 %	16.0 - 92.0 %	Average value: 37.2 % Grade Count:76
	33.0 - 82.0 %	33.0 - 82.0 %	Average value: 51.6 % Grade Count:11
	@Temperature 70.0 - 70.0 °C	@Temperature 158 - 158 °F	
	28.0 - 82.0 %	28.0 - 82.0 %	Average value: 51.6 % Grade Count:39
	@Temperature 70.0 - 70.0 °C	@Temperature 158 - 158 °F	
	28.0 - 82.0 %	28.0 - 82.0 %	Average value: 51.6 % Grade Count:39
	@Time 79200 - 86400 sec	@Time 22.0 - 24.0 hour	
Tensile Set	6.00 - 130 %	6.00 - 130 %	Average value: 47.8 % Grade Count:50

Thermal Properties	Metric	English	Comments
CTE, linear	88.7 - 175 µm/m-°C	49.3 - 97.2 µin/in-°F	Average value: 153 µm/m-°C Grade Count:22

Thermal Properties	Metric	English	Comments
	88.7 - 170 $\mu\text{m}/\text{m}^{\circ}\text{C}$ @Temperature -80.0 - -30.0 $^{\circ}\text{C}$	49.3 - 94.4 $\mu\text{m}/\text{in}^{\circ}\text{F}$ @Temperature -112 - -22.0 $^{\circ}\text{F}$	Average value: 137 $\mu\text{m}/\text{m}^{\circ}\text{C}$ Grade Count:6
Melting Point	110 - 200 $^{\circ}\text{C}$	230 - 392 $^{\circ}\text{F}$	Average value: 151 $^{\circ}\text{C}$ Grade Count:29
Vicat Softening Point	56.0 - 145 $^{\circ}\text{C}$	133 - 293 $^{\circ}\text{F}$	Average value: 92.1 $^{\circ}\text{C}$ Grade Count:68
Brittleness Temperature	-70.0 - -35.0 $^{\circ}\text{C}$	-94.0 - -31.0 $^{\circ}\text{F}$	Average value: -67.0 $^{\circ}\text{C}$ Grade Count:25
Glass Transition Temp, Tg	-69.0 - -17.0 $^{\circ}\text{C}$	-92.2 - 1.40 $^{\circ}\text{F}$	Average value: -40.2 $^{\circ}\text{C}$ Grade Count:49
Clash Berg Stiffness Temperature	-38.0 - 6.11 $^{\circ}\text{C}$	-36.4 - 43.0 $^{\circ}\text{F}$	Average value: -8.59 $^{\circ}\text{C}$ Grade Count:3
Flammability, UL94	V-2 - V-0	V-2 - V-0	Grade Count:9

Optical Properties	Metric	English	Comments
Haze	1.00 - 23.0 %	1.00 - 23.0 %	Average value: 7.02 % Grade Count:5
Transmission, Visible	90.0 %	90.0 %	Average value: 90.0 % Grade Count:9

Electrical Properties	Metric	English	Comments
Electrical Resistivity	2.70e+9 - 1.00e+12 ohm-cm	2.70e+9 - 1.00e+12 ohm-cm	Average value: 3.01e+11 ohm-cm Grade Count:4
Surface Resistance	1.50e+10 - 1.00e+12 ohm	1.50e+10 - 1.00e+12 ohm	Average value: 3.04e+11 ohm Grade Count:4
Dielectric Constant	4.60 - 8.00	4.60 - 8.00	Average value: 6.34 Grade Count:3
Dielectric Strength	39.0 - 49.0 kV/mm	991 - 1240 kV/in	Average value: 44.7 kV/mm Grade Count:3
Dissipation Factor	0.0250 - 0.121	0.0250 - 0.121	Average value: 0.0560 Grade Count:3
Comparative Tracking Index	600 V	600 V	Average value: 600 V Grade Count:7

Processing Properties	Metric	English	Comments
Processing Temperature	130 - 221 $^{\circ}\text{C}$	266 - 430 $^{\circ}\text{F}$	Average value: 188 $^{\circ}\text{C}$ Grade Count:17
Nozzle Temperature	170 - 227 $^{\circ}\text{C}$	338 - 441 $^{\circ}\text{F}$	Average value: 197 $^{\circ}\text{C}$ Grade Count:25
Adapter Temperature	175 - 216 $^{\circ}\text{C}$	347 - 421 $^{\circ}\text{F}$	Average value: 193 $^{\circ}\text{C}$ Grade Count:41
Die Temperature	175 - 216 $^{\circ}\text{C}$	347 - 421 $^{\circ}\text{F}$	Average value: 194 $^{\circ}\text{C}$ Grade Count:46
Melt Temperature	150 - 227 $^{\circ}\text{C}$	302 - 441 $^{\circ}\text{F}$	Average value: 191 $^{\circ}\text{C}$ Grade Count:79

Head Temperature Processing Properties	190 - 200 °C Metric	374 - 392 °F English	Average value: 195 °C Grade Count:4 Comments
Mold Temperature	15.0 - 95.6 °C	59.0 - 204 °F	Average value: 39.6 °C Grade Count:42
Drying Temperature	80.0 - 110 °C	176 - 230 °F	Average value: 98.2 °C Grade Count:50
Moisture Content	0.0100 - 0.100 %	0.0100 - 0.100 %	Average value: 0.0467 % Grade Count:3
Dew Point	-40.0 - -17.8 °C	-40.0 - 0.000 °F	Average value: -37.7 °C Grade Count:28
Injection Pressure	4.96 - 7000 MPa	720 - 1.02e+6 psi	Average value: 854 MPa Grade Count:4

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