

Overview of materials for Thermoset Polyurethane, Elastomer, Unreinforced

Category : Polymer , Thermoset , Polyurethane, TS , Thermoset Polyurethane, Elastomer, Unreinforced , Rubber or Thermoset Elastomer (TSE)

Material Notes:

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

Physical Properties	Metric	English	Comments
Density	0.210 - 1.50 g/cc	0.00759 - 0.0542 lb/in ³	Average value: 1.17 g/cc Grade Count:125
Volatile Organic Compounds (VOC) Content	0.000 - 766 g/l	0.000 - 766 g/l	Average value: 173 g/l Grade Count:9
Water Absorption at Saturation	0.200 - 5.00 %	0.200 - 5.00 %	Average value: 3.40 % Grade Count:3
Viscosity	0.890 - 8500 cP	0.890 - 8500 cP	Average value: 2670 cP Grade Count:11
	1500 - 3000 cP @Temperature 35.0 - 35.0 °C	1500 - 3000 cP @Temperature 95.0 - 95.0 °F	Average value: 2380 cP Grade Count:5
Mooney Viscosity	11.0 - 80.0	11.0 - 80.0	Average value: 33.2 Grade Count:97
Thickness	254 - 6100 microns	10.0 - 240 mil	Average value: 4190 microns Grade Count:6
Linear Mold Shrinkage	0.00100 - 0.0170 cm/cm	0.00100 - 0.0170 in/in	Average value: 0.00851 cm/cm Grade Count:16

Mechanical Properties	Metric	English	Comments
Hardness, Shore A	10.0 - 105	10.0 - 105	Average value: 68.3 Grade Count:507
	75.0 - 75.0 @Temperature -40.0 - -40.0 °C	75.0 - 75.0 @Temperature -40.0 - -40.0 °F	Average value: 75.0 Grade Count:2
Hardness, Shore D	45.0 - 85.0	45.0 - 85.0	Average value: 65.5 Grade Count:22
Tensile Strength, Ultimate	0.520 - 63.0 MPa	75.4 - 9140 psi	Average value: 15.9 MPa Grade Count:33
Tensile Strength, Yield	0.110 - 40.0 MPa	16.0 - 5800 psi	Average value: 12.9 MPa Grade Count:484
Elongation at Break			Average value: 441 % Grade

Mechanical Properties	15.0 - 1100 % Metric	15.0 - 1100 % English	Count:122 Comments
Elongation at Yield	40.0 - 950 %	40.0 - 950 %	Average value: 498 % Grade Count:393
Modulus of Elasticity	0.00379 - 0.248 GPa	0.550 - 36.0 ksi	Average value: 0.167 GPa Grade Count:3
Flexural Modulus	0.0210 - 0.980 GPa	3.05 - 142 ksi	Average value: 0.417 GPa Grade Count:13
Compressive Yield Strength	0.300 - 67.6 MPa	43.5 - 9800 psi	Average value: 17.4 MPa Grade Count:4
Resilience	4.50 - 50.0	4.50 - 50.0	Average value: 20.5 Grade Count:10
Izod Impact, Notched	2.40 - 6.70 J/cm	4.50 - 12.6 ft-lb/in	Average value: 4.20 J/cm Grade Count:7
Coefficient of Friction	2.50 - 3.30	2.50 - 3.30	Average value: 2.80 Grade Count:3
Coefficient of Friction, Static	4.10 - 15.8	4.10 - 15.8	Average value: 10.1 Grade Count:3
Tear Strength Test	17.2 - 29.0	17.2 - 29.0	Average value: 23.2 Grade Count:3
Tear Strength	4.30 - 550 kN/m	24.5 - 3140 pli	Average value: 54.4 kN/m Grade Count:453
Taber Abrasion, mg/1000 Cycles	0.000 - 60.0	0.000 - 60.0	Average value: 8.62 Grade Count:70
Compression Set	4.50 - 93.0 %	4.50 - 93.0 %	Average value: 28.8 % Grade Count:103
	3.00 - 45.0 %	3.00 - 45.0 %	Average value: 43.9 % Grade Count:39
	@Temperature 70.0 - 100 °C	@Temperature 158 - 212 °F	
	6.00 - 91.0 %	6.00 - 91.0 %	Average value: 43.9 % Grade Count:204
	@Temperature 70.0 - 100 °C	@Temperature 158 - 212 °F	
	6.00 - 91.0 %	6.00 - 91.0 %	Average value: 43.9 % Grade Count:204
	@Time 79200 - 79200 sec	@Time 22.0 - 22.0 hour	

Thermal Properties	Metric	English	Comments
CTE, linear	95.0 - 153 µm/m-°C	52.8 - 85.0 µin/in-°F	Average value: 123 µm/m-°C Grade Count:16
Thermal Conductivity	0.140 - 0.390 W/m-K	0.972 - 2.71 BTU-in/hr-ft ² -°F	Average value: 0.284 W/m-K Grade Count:5
Melting Point	80.0 °C	176 °F	Average value: 80.0 °C Grade Count:5
Maximum Service Temperature, Air	50.0 - 125 °C	122 - 257 °F	Average value: 95.1 °C Grade Count:23

Thermal Properties	Metric	English	Comments
Minimum Service Temperature, Air	-60.0 - -3.40 °C	-76.0 - 25.9 °F	Average value: -37.1 °C Grade Count:32
Brittleness Temperature	-90.0 - -27.0 °C	-130 - -16.6 °F	Average value: -62.1 °C Grade Count:31
Glass Transition Temp, Tg	-46.0 - -40.0 °C	-50.8 - -40.0 °F	Average value: -43.0 °C Grade Count:3
Flammability, UL94	HB - V-0	HB - V-0	Grade Count:8
Flash Point	18.9 - 204 °C	66.0 - 399 °F	Average value: 162 °C Grade Count:14

Optical Properties	Metric	English	Comments
Transmission, Visible	90.0 %	90.0 %	Average value: 90.0 % Grade Count:12

Electrical Properties	Metric	English	Comments
Electrical Resistivity	8.00e+12 - 1.00e+16 ohm-cm	8.00e+12 - 1.00e+16 ohm-cm	Average value: 3.34e+15 ohm-cm Grade Count:3
Dielectric Constant	3.20 - 3.60	3.20 - 3.60	Average value: 3.33 Grade Count:3
Dielectric Strength	11.1 - 17.3 kV/mm	282 - 440 kV/in	Average value: 15.5 kV/mm Grade Count:12

Processing Properties	Metric	English	Comments
Processing Temperature	20.0 - 76.7 °C	68.0 - 170 °F	Average value: 29.0 °C Grade Count:9
Mold Temperature	20.0 - 82.2 °C	68.0 - 180 °F	Average value: 41.4 °C Grade Count:14
Cure Time	5.00 - 10100 min	0.0833 - 168 hour	Average value: 1780 min Grade Count:27
	1.60 - 960 min @Temperature 68.3 - 204 °C	0.0267 - 16.0 hour @Temperature 155 - 400 °F	Average value: 31.0 min Grade Count:407
Pot Life	2.00 - 120 min	2.00 - 120 min	Average value: 28.2 min Grade Count:21

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