

## Overview of materials for Thermoset Polyurethane Foam, Unreinforced

Category : Polymer , Thermoset , Polyurethane, TS , Thermoset Polyurethane Foam, Unreinforced

### Material Notes:

This property data is a summary of similar materials in the MatWeb database for the category "Thermoset Polyurethane Foam, 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-Foam-Unreinforced.php](http://www.lookpolymers.com/polymer_Overview-of-materials-for-Thermoset-Polyurethane-Foam-Unreinforced.php)

Physical Properties	Metric	English	Comments
Density	0.0250 - 1.39 g/cc	0.000903 - 0.0504 lb/in <sup>3</sup>	Average value: 0.407 g/cc Grade Count:149
Apparent Bulk Density	0.0220 - 0.880 g/cc	0.000795 - 0.0318 lb/in <sup>3</sup>	Average value: 0.262 g/cc Grade Count:24
Water Absorption	0.700 - 38.0 %	0.700 - 38.0 %	Average value: 9.14 % Grade Count:56
Moisture Absorption at Equilibrium	2.00 %	2.00 %	Average value: 2.00 % Grade Count:16
Water Absorption at Saturation	5.00 - 20.0 %	5.00 - 20.0 %	Average value: 12.3 % Grade Count:11
Thickness	27.9 - 12700 microns	1.10 - 500 mil	Average value: 2230 microns Grade Count:26
Linear Mold Shrinkage	0.000800 - 0.0100 cm/cm	0.000800 - 0.0100 in/in	Average value: 0.00627 cm/cm Grade Count:9
Outgassing - Total Mass Loss	0.0400 - 1.73 % @Temperature 125 - 125 °C	0.0400 - 1.73 % @Temperature 257 - 257 °F	Average value: 0.609 % Grade Count:14
	0.0400 - 1.73 % @Time 86400 - 86400 sec	0.0400 - 1.73 % @Time 24.0 - 24.0 hour	Average value: 0.609 % Grade Count:14

Mechanical Properties	Metric	English	Comments
Hardness, Shore A	3.00 - 60.0	3.00 - 60.0	Average value: 26.6 Grade Count:36
Hardness, Shore D	28.0 - 81.0	28.0 - 81.0	Average value: 57.1 Grade Count:11
Hardness, Shore O	2.00 - 65.0	2.00 - 65.0	Average value: 27.6 Grade Count:34
Hardness, Shore OO	10.0 - 45.0	10.0 - 45.0	Average value: 30.8 Grade Count:4
Tensile Strength, Ultimate	0.0827 - 1900 MPa	12.0 - 276000 psi	Average value: 42.8 MPa Grade Count:111

Mechanical Properties	Metric 103 MPa	English 5000 psi	Comments Average value: 30.3 MPa Grade Count:43
Film Elongation at Break, MD	78.0 %	78.0 %	Average value: 78.0 % Grade Count:6
	74.0 - 74.0 % @Temperature 66.0 - 66.0 °C	74.0 - 74.0 % @Temperature 151 - 151 °F	Average value: 74.0 % Grade Count:6
	74.0 - 74.0 % @Time 346000 - 346000 sec	74.0 - 74.0 % @Time 96.0 - 96.0 hour	Average value: 74.0 % Grade Count:6
Film Elongation at Break, TD	32.0 %	32.0 %	Average value: 32.0 % Grade Count:6
	66.0 - 66.0 % @Temperature 66.0 - 66.0 °C	66.0 - 66.0 % @Temperature 151 - 151 °F	Average value: 66.0 % Grade Count:6
	66.0 - 66.0 % @Time 346000 - 346000 sec	66.0 - 66.0 % @Time 96.0 - 96.0 hour	Average value: 66.0 % Grade Count:6
Elongation at Break	3.20 - 760 %	3.20 - 760 %	Average value: 161 % Grade Count:116
Modulus of Elasticity	0.000138 - 3.45 GPa	0.0200 - 500 ksi	Average value: 1.39 GPa Grade Count:36
Flexural Yield Strength	6.60 - 62.0 MPa	957 - 8990 psi	Average value: 23.6 MPa Grade Count:17
Flexural Modulus	0.0165 - 1.93 GPa	2.40 - 280 ksi	Average value: 0.857 GPa Grade Count:16
Compressive Yield Strength	0.00172 - 48.0 MPa	0.250 - 6960 psi	Average value: 2.16 MPa Grade Count:134
Compressive Modulus	0.0000276 - 1.15 GPa	0.00400 - 167 ksi	Average value: 0.0996 GPa Grade Count:34
Resilience	29.0 - 52.0	29.0 - 52.0	Average value: 38.8 Grade Count:13
Rebound	19.0 - 31.0 %	19.0 - 31.0 %	Average value: 25.5 % Grade Count:6
Poissons Ratio	0.300 - 0.750	0.300 - 0.750	Average value: 0.353 Grade Count:8
Shear Modulus	0.00122 - 0.870 GPa	0.177 - 126 ksi	Average value: 0.0729 GPa Grade Count:16
Shear Strength	0.110 - 16.0 MPa	16.0 - 2320 psi	Average value: 3.10 MPa Grade Count:16
Charpy Impact, Notched	0.380 - 3.20 J/cm <sup>2</sup>	1.81 - 15.2 ft-lb/in <sup>2</sup>	Average value: 1.43 J/cm <sup>2</sup> Grade Count:9
Coefficient of Friction	0.400 - 1.40	0.400 - 1.40	Average value: 0.463 Grade Count:16

Tear Strength Test Mechanical Properties	30.0 - 137 Metric	30.0 - 137 English	Average value: 84.6 Grade Count:13 Comments
Tear Strength	0.0400 - 10.5 kN/m	0.228 - 60.0 pli	Average value: 1.08 kN/m Grade Count:71
Peel Strength	0.438 - 0.892 kN/m	2.50 - 5.09 pli	Average value: 0.648 kN/m Grade Count:6
Compression Set	1.30 - 54.0 %	1.30 - 54.0 %	Average value: 8.23 % Grade Count:68
	0.000 - 35.0 % @Temperature 70.0 - 125 °C	0.000 - 35.0 % @Temperature 158 - 257 °F	Average value: 8.36 % Grade Count:57
	<= 10.0 % @Temperature 70.0 - 70.0 °C	<= 10.0 % @Temperature 158 - 158 °F	Average value: 8.36 % Grade Count:1
	<= 10.0 % @Time 79200 - 79200 sec	<= 10.0 % @Time 22.0 - 22.0 hour	Average value: 8.36 % Grade Count:1
Seal Strength	9.40 g/25 mm	9.40 g/in	Average value: 9.40 g/25 mm Grade Count:6
	10.6 - 10.6 g/25 mm @Temperature 66.0 - 66.0 °C	10.6 - 10.6 g/in @Temperature 151 - 151 °F	Average value: 10.6 g/25 mm Grade Count:6
	10.6 - 10.6 g/25 mm @Time 346000 - 346000 sec	10.6 - 10.6 g/in @Time 96.0 - 96.0 hour	Average value: 10.6 g/25 mm Grade Count:6
Film Tensile Strength at Break, MD	207 MPa	30000 psi	Average value: 207 MPa Grade Count:3

Thermal Properties	Metric	English	Comments
CTE, linear	63.0 - 310 µm/m-°C	35.0 - 172 µin/in-°F	Average value: 214 µm/m-°C Grade Count:39
Thermal Conductivity	0.0760 - 0.830 W/m-K	0.527 - 5.76 BTU-in/hr-ft²-°F	Average value: 0.129 W/m-K Grade Count:17
Insulation R Value	5.20 - 6.00	5.20 - 6.00	Average value: 5.60 Grade Count:4
Maximum Service Temperature, Air	70.0 - 149 °C	158 - 300 °F	Average value: 99.5 °C Grade Count:57
Deflection Temperature at 0.46 MPa (66 psi)	47.0 - 100 °C	117 - 212 °F	Average value: 77.4 °C Grade Count:7
Minimum Service Temperature, Air	-183 - 121 °C	-297 - 250 °F	Average value: 38.1 °C Grade Count:27
Brittleness Temperature	-51.0 - -12.0 °C	-59.8 - 10.4 °F	Average value: -36.5 °C Grade

Thermal Properties	Metric	English	Count:24 Comments
Flammability, UL94	HB - 5VA	HB - 5VA	Grade Count:10

Optical Properties	Metric	English	Comments
Transmission, Visible	90.0 %	90.0 %	Average value: 90.0 % Grade Count:5

Electrical Properties	Metric	English	Comments
Electrical Resistivity	3.00e+10 - 3.20e+14 ohm-cm	3.00e+10 - 3.20e+14 ohm-cm	Average value: 4.19e+13 ohm-cm Grade Count:38
Surface Resistance	0.100 - 1.00e+15 ohm	0.100 - 1.00e+15 ohm	Average value: 1.08e+14 ohm Grade Count:23
	0.00700 - 0.0170 ohm	0.00700 - 0.0170 ohm	Average value: 0.0105 ohm Grade Count:5
	@Temperature 35.0 - 121 °C	@Temperature 95.0 - 250 °F	
	0.00700 - 0.0170 ohm	0.00700 - 0.0170 ohm	Average value: 0.0105 ohm Grade Count:5
	@Time 605000 - 7.88e+6 sec	@Time 168 - 2190 hour	
Shielding Effectiveness	62.0 - 110 dB	62.0 - 110 dB	Average value: 87.5 dB Grade Count:8
Dielectric Constant	1.48 - 2.69	1.48 - 2.69	Average value: 1.73 Grade Count:30
Dielectric Strength	1.65 - 13.8 kV/mm	42.0 - 350 kV/in	Average value: 2.83 kV/mm Grade Count:39
Dissipation Factor	0.0400 - 0.0500	0.0400 - 0.0500	Average value: 0.0485 Grade Count:27

Processing Properties	Metric	English	Comments
Processing Temperature	21.1 - 60.0 °C	70.0 - 140 °F	Average value: 28.9 °C Grade Count:14

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