

## Overview of materials for Silicone Rubber

Category : Polymer , Thermoset , Rubber or Thermoset Elastomer (TSE) , Silicone , Silicone Rubber

### Material Notes:

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

Physical Properties	Metric	English	Comments
Density	0.700 - 3.80 g/cc	0.0253 - 0.137 lb/in <sup>3</sup>	Average value: 1.31 g/cc Grade Count:923
Water Absorption	0.0300 - 3.00 %	0.0300 - 3.00 %	Average value: 1.57 % Grade Count:48
Viscosity	1.00 - 610000 cP	1.00 - 610000 cP	Average value: 46500 cP Grade Count:86
Thickness	12.7 - 52400 microns	0.500 - 2060 mil	Average value: 551 microns Grade Count:631
Linear Mold Shrinkage	0.00100 - 0.0350 cm/cm	0.00100 - 0.0350 in/in	Average value: 0.0300 cm/cm Grade Count:123
Outgassing - Total Mass Loss	0.100 - 1.07 %	0.100 - 1.07 %	Average value: 0.584 % Grade Count:7
	0.100 - 0.340 % @Temperature 218 - 218 °C	0.100 - 0.340 % @Temperature 425 - 425 °F	Average value: 0.220 % Grade Count:1
	0.100 - 0.340 % @Time 7200 - 7200 sec	0.100 - 0.340 % @Time 2.00 - 2.00 hour	Average value: 0.220 % Grade Count:1

Mechanical Properties	Metric	English	Comments
Hardness, Shore A	4.00 - 95.0	4.00 - 95.0	Average value: 50.9 Grade Count:1151
Hardness, Shore D	14.5 - 95.2	14.5 - 95.2	Average value: 53.6 Grade Count:12
Hardness, Shore OO	10.0 - 86.0	10.0 - 86.0	Average value: 52.3 Grade Count:9
Tensile Strength, Ultimate	0.0552 - 165 MPa	8.00 - 23900 psi	Average value: 7.09 MPa Grade Count:1176
Tensile Strength, Yield	0.0448 - 145 MPa	6.50 - 21000 psi	Average value: 6.06 MPa Grade Count:110
Elongation at Break	5.00 - 1450 %	5.00 - 1450 %	Average value: 461 % Grade Count:1167

Mechanical Properties	Metric 240 %	English 240 %	Comments
Modulus of Elasticity	0.000517 - 1.90 GPa	0.0750 - 276 ksi	Average value: 0.0881 GPa Grade Count:27
Compressive Modulus	0.000200 - 0.00590 GPa	0.0290 - 0.856 ksi	Average value: 0.00208 GPa Grade Count:10
Poissons Ratio	0.500	0.500	Average value: 0.500 Grade Count:40
Shear Modulus	0.0000689 - 1.83 GPa	0.0100 - 265 ksi	Average value: 0.208 GPa Grade Count:27
Shear Strength	0.965 - 6.05 MPa	140 - 878 psi	Average value: 2.92 MPa Grade Count:35
Adhesive Bond Strength	0.0103 - 0.103 MPa	1.50 - 15.0 psi	Average value: 0.0462 MPa Grade Count:44
Penetration P(60), 1/10 mm	36.0 - 135	36.0 - 135	Average value: 70.0 Grade Count:3
Tear Strength	0.877 - 125 kN/m	5.00 - 713 pli	Average value: 23.8 kN/m Grade Count:694
	1.5777 - 2.2789 kN/m	9.0024 - 13.003 pli	Average value: 1.93 kN/m Grade Count:1
	@Temperature 100 - 150 °C	@Temperature 212 - 302 °F	
Peel Strength	0.0877 - 7.05 kN/m	0.500 - 40.2 pli	Average value: 1.30 kN/m Grade Count:376
Compression Set	3.00 - 77.3 %	3.00 - 77.3 %	Average value: 23.3 % Grade Count:167
	3.10 - 46.0 %	3.10 - 46.0 %	Average value: 22.2 % Grade Count:77
	@Temperature 70.0 - 302 °C	@Temperature 158 - 576 °F	
	3.10 - 46.0 %	3.10 - 46.0 %	Average value: 22.2 % Grade Count:77
	@Time 79200 - 259000 sec	@Time 22.0 - 72.0 hour	
Tensile Set	5.10 - 6.00 %	5.10 - 6.00 %	Average value: 5.53 % Grade Count:3

Thermal Properties	Metric	English	Comments
CTE, linear	11.0 - 335 µm/m-°C	6.11 - 186 µin/in-°F	Average value: 133 µm/m-°C Grade Count:44
	1040 - 1040 µm/m-°C	578 - 578 µin/in-°F	Average value: 1040 µm/m-°C Grade Count:1
	@Temperature 0.000 - 0.000 °C	@Temperature 32.0 - 32.0 °F	
CTE, linear, Transverse to Flow	20.0 - 139 µm/m-°C	11.1 - 77.2 µin/in-°F	Average value: 59.8 µm/m-°C Grade Count:4

Specific Heat Capacity Thermal Properties	Metric 0.320 - 1.26 J/g-°C	English 0.0765 - 0.301 BTU/lb-°F	Average value: 0.789 J/g-°C Grade Count:20
	0.820 - 0.900 J/g-°C  @Temperature 100 - 100 °C	0.196 - 0.215 BTU/lb-°F  @Temperature 212 - 212 °F	Average value: 0.837 J/g-°C Grade Count:15
Thermal Conductivity	0.0600 - 6.50 W/m-K	0.416 - 45.1 BTU-in/hr- ft <sup>2</sup> -°F	Average value: 1.09 W/m-K Grade Count:59
	1.00 - 3.3867 W/m-K  @Temperature 50.0 - 100 °C	6.94 - 23.504 BTU- in/hr-ft <sup>2</sup> -°F  @Temperature 122 - 212 °F	Average value: 2.08 W/m-K Grade Count:15
	1.50 - 4.69 W/m-K  @Temperature 50.0 - 50.0 °C	10.4 - 32.5 BTU-in/hr- ft <sup>2</sup> -°F  @Temperature 122 - 122 °F	Average value: 2.08 W/m-K Grade Count:4
	1.50 - 4.69 W/m-K  @Pressure 30.0 - 30.0 MPa	10.4 - 32.5 BTU-in/hr- ft <sup>2</sup> -°F  @Pressure 4350 - 4350 psi	Average value: 2.08 W/m-K Grade Count:4
Maximum Service Temperature, Air	93.3 - 315 °C	200 - 599 °F	Average value: 223 °C Grade Count:644
Maximum Service Temperature, Inert	154 - 260 °C	310 - 500 °F	Average value: 221 °C Grade Count:59
Minimum Service Temperature, Air	-136 - -40.0 °C	-212 - -40.0 °F	Average value: -58.4 °C Grade Count:672
Brittleness Temperature	-73.0 - -65.0 °C	-99.4 - -85.0 °F	Average value: -70.3 °C Grade Count:3
Glass Transition Temp, Tg	-120 - 118 °C	-184 - 244 °F	Average value: -106 °C Grade Count:37
UL RTI, Electrical	65.6 - 220 °C	150 - 428 °F	Average value: 210 °C Grade Count:135
UL RTI, Mechanical without Impact	65.6 - 220 °C	150 - 428 °F	Average value: 202 °C Grade Count:135
Flammability, UL94	HB - V-0	HB - V-0	Grade Count:217
	HB - HB  @Temperature 200 - 220 °C	HB - HB  @Temperature 392 - 428 °F	Grade Count:15
Flash Point	-4.00 - 100 °C	24.8 - 212 °F	Average value: 33.0 °C Grade Count:4

Electrical Properties	Metric	English	Comments
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Electrical Properties	Metric 0.00500 - 9.00e+15 ohm-cm	English 0.00500 - 9.00e+15 ohm-cm	Comments Average value: 1.04e+15 ohm-cm Grade Count:63
Shielding Effectiveness	55.0 - 141 dB	55.0 - 141 dB	Average value: 100 dB Grade Count:5
Dielectric Constant	2.20 - 35.0	2.20 - 35.0	Average value: 13.9 Grade Count:70
	2.50 - 3.00	2.50 - 3.00	Average value: 20.8 Grade Count:9
	@Temperature 90.0 - 150 °C	@Temperature 194 - 302 °F	
Dielectric Strength	24.5 - 27.7	24.5 - 27.7	Average value: 20.8 Grade Count:8
	@Temperature 65.0 - 90.0 °C	@Temperature 149 - 194 °F	
	24.5 - 27.7	24.5 - 27.7	Average value: 20.8 Grade Count:8
	@Frequency 60.0 - 60.0 Hz	@Frequency 60.0 - 60.0 Hz	
Dissipation Factor	0.0000230 - 0.900	0.0000230 - 0.900	Average value: 0.126 Grade Count:65
Arc Resistance	60.0 - 193 sec	60.0 - 193 sec	Average value: 163 sec Grade Count:5
	3600 - 36000 sec	3600 - 36000 sec	
Track Resistance	3600 - 36000 sec	3600 - 36000 sec	Average value: 22300 sec Grade Count:17

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