

Overview of materials for Styrenic Elastomer (TES)

Category : Polymer , Thermoplastic , Elastomer, TPE , Styrenic TPE

Material Notes:

This property data is a summary of similar materials in the MatWeb database for the category "Styrenic Elastomer (TES)". 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-Styrenic-Elastomer-TES.php

Physical Properties	Metric	English	Comments
Density	0.870 - 11.0 g/cc	0.0314 - 0.397 lb/in ³	Average value: 1.06 g/cc Grade Count:952
Water Absorption	0.0500 %	0.0500 %	Average value: 0.0500 % Grade Count:10
Viscosity	0.0300 - 30000 cP	0.0300 - 30000 cP	Average value: 5130 cP Grade Count:23
	1600 - 2300 cP @Temperature 180 - 180 °C	1600 - 2300 cP @Temperature 356 - 356 °F	Average value: 2080 cP Grade Count:4
Viscosity Measure	6.00 - 80.0 cSt	6.00 - 80.0 cSt	Average value: 21.0 cSt Grade Count:31
Linear Mold Shrinkage	0.00300 - 0.0470 cm/cm	0.00300 - 0.0470 in/in	Average value: 0.0189 cm/cm Grade Count:112
Linear Mold Shrinkage, Transverse	0.00100 - 0.0190 cm/cm	0.00100 - 0.0190 in/in	Average value: 0.00861 cm/cm Grade Count:23
Melt Flow	0.100 - 84.0 g/10 min	0.100 - 84.0 g/10 min	Average value: 15.8 g/10 min Grade Count:70
Spiral Flow	49.0 - 107 cm @Temperature 200 - 200 °C	19.3 - 42.1 in @Temperature 392 - 392 °F	Average value: 73.6 cm Grade Count:8
	49.0 - 107 cm @Pressure 7.00 - 7.00 MPa	19.3 - 42.1 in @Pressure 1020 - 1020 psi	Average value: 73.6 cm Grade Count:8
Ash	0.350 - 39.0 %	0.350 - 39.0 %	Average value: 15.0 % Grade Count:12

Mechanical Properties	Metric	English	Comments
Hardness, Shore A	6.00 - 98.0	6.00 - 98.0	Average value: 59.1 Grade Count:950

Hardness, Shore D Mechanical Properties	10.0 - 69.0 Metric	10.0 - 69.0 English	Average value: 39.7 Grade Count:44 Comments
Tensile Strength, Ultimate	0.345 - 80.0 MPa	50.0 - 11600 psi	Average value: 7.65 MPa Grade Count:872
Tensile Strength, Yield	0.207 - 29.0 MPa	30.0 - 4210 psi	Average value: 3.62 MPa Grade Count:320
Elongation at Break	3.80 - 1900 %	3.80 - 1900 %	Average value: 610 % Grade Count:948
Modulus of Elasticity	0.0180 - 0.207 GPa	2.61 - 30.0 ksi	Average value: 0.0508 GPa Grade Count:9
Rebound	22.0 - 65.0 %	22.0 - 65.0 %	Average value: 46.9 % Grade Count:27
Flex Crack Resistance	35000 - 132000	35000 - 132000	Average value: 79400 Grade Count:4
Adhesive Bond Strength	0.550 - 2.65 MPa	79.8 - 384 psi	Average value: 1.13 MPa Grade Count:10
Izod Impact, Notched	0.641 - 5340 J/cm	1.20 - 10000 ft-lb/in	Average value: 1.01 J/cm Grade Count:11
Izod Impact, Unnotched	1.60 - 5340 J/cm	3.00 - 10000 ft-lb/in	Average value: 2.14 J/cm Grade Count:10
Penetration	50.0	50.0	Average value: 50.0 Grade Count:4
Tear Strength	2.00 - 113 kN/m	11.4 - 645 pli	Average value: 24.8 kN/m Grade Count:768
Peel Strength	0.500 - 35.0 kN/m	2.85 - 200 pli	Average value: 7.89 kN/m Grade Count:96
Graves Tear Strength	4.00 - 55.0 kN/m	22.8 - 314 pli	Average value: 18.6 kN/m Grade Count:44
Taber Abrasion, mg/1000 Cycles	30.0 - 540	30.0 - 540	Average value: 184 Grade Count:26
Compression Set	8.00 - 90.0 %	8.00 - 90.0 %	Average value: 27.1 % Grade Count:564
	16.0 - 95.0 % @Temperature 70.0 - 100 °C	16.0 - 95.0 % @Temperature 158 - 212 °F	Average value: 57.0 % Grade Count:147
	16.0 - 99.0 % @Temperature -25.0 - 158 °C	16.0 - 99.0 % @Temperature -13.0 - 316 °F	Average value: 57.0 % Grade Count:371
	16.0 - 99.0 % @Time 79200 - 605000 sec	16.0 - 99.0 % @Time 22.0 - 168 hour	Average value: 57.0 % Grade Count:371
Tensile Set	33.0 - 95.0 % @Temperature 70.0 - 70.0 °C	33.0 - 95.0 % @Temperature 158 - 158 °F	Average value: 58.4 % Grade Count:15

Mechanical Properties	Metric	English	Comments
	72.0 - 95.0 % @Time 79200 - 79200 sec	59.0 - 95.0 % @Time 22.0 - 22.0 hour	Average value: 58.4 % Grade Count:15

Thermal Properties	Metric	English	Comments
Maximum Service Temperature, Air	50.0 - 170 °C	122 - 338 °F	Average value: 93.4 °C Grade Count:212
Minimum Service Temperature, Air	-60.0 - -30.0 °C	-76.0 - -22.0 °F	Average value: -48.2 °C Grade Count:241
Brittleness Temperature	-65.0 - -21.0 °C	-85.0 - -5.80 °F	Average value: -59.2 °C Grade Count:41
Flammability, UL94	HB - V-0	HB - V-0	Grade Count:55
Flame Spread	37.0 - 54.0 mm/min	1.46 - 2.13 in/min	Average value: 45.2 mm/min Grade Count:15
Oxygen Index	26.0 - 29.0 %	26.0 - 29.0 %	Average value: 27.5 % Grade Count:8
Ring & Ball Softening Point	128 - 135 °C	262 - 275 °F	Average value: 131 °C Grade Count:4

Optical Properties	Metric	English	Comments
Haze	3.70 - 15.0 %	3.70 - 15.0 %	Average value: 9.78 % Grade Count:21
Transmission, Visible	90.0 %	90.0 %	Average value: 90.0 % Grade Count:67

Electrical Properties	Metric	English	Comments
Electrical Resistivity	0.0100 - 1.00e+16 ohm-cm	0.0100 - 1.00e+16 ohm-cm	Average value: 2.76e+15 ohm-cm Grade Count:79
Surface Resistance	10.0 - 9.90e+12 ohm	10.0 - 9.90e+12 ohm	Average value: 5.55e+11 ohm Grade Count:10
Static Decay	2.00 sec	2.00 sec	Average value: 2.00 sec Grade Count:5
Dielectric Constant	2.10 - 2.80	2.10 - 2.80	Average value: 2.46 Grade Count:23
Dielectric Strength	24.0 - 50.0 kV/mm	610 - 1270 kV/in	Average value: 29.9 kV/mm Grade Count:57
Dissipation Factor	0.000100 - 0.00510	0.000100 - 0.00510	Average value: 0.00258 Grade Count:23
Comparative Tracking Index	550 - 600 V	550 - 600 V	Average value: 564 V Grade Count:21

Chemical Properties	Metric	English	Comments
Butadiene Content	60.0 - 78.0 %	60.0 - 78.0 %	Average value: 70.2 % Grade Count:10

Processing Properties	Metric	English	Comments
Processing Temperature	140 - 280 °C	284 - 536 °F	Average value: 202 °C Grade Count:222
Nozzle Temperature	175 - 249 °C	347 - 480 °F	Average value: 191 °C Grade Count:13
Die Temperature	140 - 249 °C	284 - 480 °F	Average value: 198 °C Grade Count:130
Melt Temperature	140 - 280 °C	284 - 536 °F	Average value: 197 °C Grade Count:347
Head Temperature	180 °C	356 °F	Average value: 180 °C Grade Count:127
Mold Temperature	10.0 - 110 °C	50.0 - 230 °F	Average value: 39.5 °C Grade Count:416
Drying Temperature	51.7 - 90.0 °C	125 - 194 °F	Average value: 71.1 °C Grade Count:383
Moisture Content	0.0300 - 0.0400 %	0.0300 - 0.0400 %	Average value: 0.0375 % Grade Count:24
Dew Point	-17.8 °C	0.000 °F	Average value: -17.8 °C Grade Count:5
Injection Pressure	1.38 - 124 MPa	200 - 18000 psi	Average value: 60.4 MPa Grade Count:329

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