

## Overview of materials for Polystyrene, Flame Retardant

Category : Polymer , Thermoplastic , Polystyrene (PS) , Polystyrene, Flame Retardant

### Material Notes:

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

Physical Properties	Metric	English	Comments
Density	0.950 - 1.20 g/cc	0.0343 - 0.0434 lb/in <sup>3</sup>	Average value: 1.13 g/cc Grade Count:94
Water Absorption	0.000 - 0.300 %	0.000 - 0.300 %	Average value: 0.0779 % Grade Count:33
Moisture Absorption at Equilibrium	0.0400 - 0.100 %	0.0400 - 0.100 %	Average value: 0.0880 % Grade Count:5
Maximum Moisture Content	0.0100	0.0100	Average value: 0.0100 Grade Count:5
Linear Mold Shrinkage	0.00250 - 0.00800 cm/cm	0.00250 - 0.00800 in/in	Average value: 0.00517 cm/cm Grade Count:75
Melt Flow	3.00 - 20.0 g/10 min	3.00 - 20.0 g/10 min	Average value: 9.28 g/10 min Grade Count:90
Spiral Flow	34.0 - 56.0 cm @Temperature 220 - 260 °C	13.4 - 22.0 in @Temperature 428 - 500 °F	Average value: 45.8 cm Grade Count:5

Mechanical Properties	Metric	English	Comments
Hardness, Rockwell L	55.0 - 94.0	55.0 - 94.0	Average value: 67.8 Grade Count:4
Hardness, Rockwell M	55.0 - 65.0	55.0 - 65.0	Average value: 59.2 Grade Count:6
Hardness, Rockwell R	83.0 - 103	83.0 - 103	Average value: 93.4 Grade Count:14
Tensile Strength, Ultimate	12.4 - 48.3 MPa	1800 - 7000 psi	Average value: 26.2 MPa Grade Count:55
Tensile Strength, Yield	14.0 - 55.0 MPa	2030 - 7980 psi	Average value: 26.8 MPa Grade Count:62
Elongation at Break	1.00 - 80.0 %	1.00 - 80.0 %	Average value: 41.0 % Grade Count:92
Elongation at Yield	1.00 - 5.00 %	1.00 - 5.00 %	Average value: 2.78 % Grade Count:15
	1.38 - 3.45 GPa	200 - 500 ksi	Average value: 2.16 GPa Grade

Modulus of Elasticity Mechanical Properties	Metric	English	Count:23 Comments
Flexural Yield Strength	26.0 - 82.7 MPa	3770 - 12000 psi	Average value: 40.2 MPa Grade Count:58
Flexural Modulus	1.40 - 17.7 GPa	203 - 2560 ksi	Average value: 2.33 GPa Grade Count:82
Izod Impact, Notched	0.107 - 1.71 J/cm	0.200 - 3.20 ft-lb/in	Average value: 1.02 J/cm Grade Count:67
	0.600 - 0.800 J/cm @Temperature 0.000 - 0.000 °C	1.12 - 1.50 ft-lb/in @Temperature 32.0 - 32.0 °F	Average value: 0.468 J/cm Grade Count:4
	0.392266 - 0.490332 J/cm @Temperature -30.0 - - 30.0 °C	0.734875 - 0.918594 ft-lb/in @Temperature -22.0 - - 22.0 °F	Average value: 0.468 J/cm Grade Count:5
	0.392266 - 0.490332 J/cm @Thickness 3.20 - 6.40 mm	0.734875 - 0.918594 ft-lb/in @Thickness 0.126 - 0.252 in	Average value: 0.468 J/cm Grade Count:5
Izod Impact, Notched (ISO)	6.00 - 11.0 kJ/m <sup>2</sup>	2.86 - 5.23 ft-lb/in <sup>2</sup>	Average value: 7.44 kJ/m <sup>2</sup> Grade Count:18
Charpy Impact Unnotched	5.00 - 10.0 J/cm <sup>2</sup>	23.8 - 47.6 ft-lb/in <sup>2</sup>	Average value: 7.06 J/cm <sup>2</sup> Grade Count:8
	4.00 - 8.00 J/cm <sup>2</sup> @Temperature -30.0 - - 30.0 °C	19.0 - 38.1 ft-lb/in <sup>2</sup> @Temperature -22.0 - - 22.0 °F	Average value: 5.71 J/cm <sup>2</sup> Grade Count:7
Charpy Impact, Notched	0.200 - 1.20 J/cm <sup>2</sup>	0.952 - 5.71 ft-lb/in <sup>2</sup>	Average value: 0.689 J/cm <sup>2</sup> Grade Count:8
Tensile Creep Modulus, 1 hour	1600 - 2200 MPa	232000 - 319000 psi	Average value: 1930 MPa Grade Count:3
Tensile Creep Modulus, 1000 hours	1200 - 1600 MPa	174000 - 232000 psi	Average value: 1400 MPa Grade Count:4

Thermal Properties	Metric	English	Comments
CTE, linear	50.0 - 100 µm/m-°C	27.8 - 55.6 µin/in-°F	Average value: 79.7 µm/m-°C Grade Count:13
Hot Ball Pressure Test	75.0 - 85.0 °C	167 - 185 °F	Average value: 80.8 °C Grade Count:12
Deflection Temperature at 0.46 MPa (66 psi)	70.0 - 96.1 °C	158 - 205 °F	Average value: 84.7 °C Grade Count:17
Deflection Temperature at 1.8 MPa (264 psi)	60.0 - 91.0 °C	140 - 196 °F	Average value: 79.4 °C Grade Count:71
Vicat Softening Point			Average value: 92.4 °C Grade

Thermal Properties	80.0 - 104 °C Metric	176 - 219 °F English	Count:73 Comments
Heat Distortion Temperature	78.9 - 94.0 °C	174 - 201 °F	Average value: 84.2 °C Grade Count:6
UL RTI, Electrical	50.0 °C	122 °F	Average value: 50.0 °C Grade Count:5
UL RTI, Mechanical with Impact	50.0 °C	122 °F	Average value: 50.0 °C Grade Count:5
UL RTI, Mechanical without Impact	50.0 °C	122 °F	Average value: 50.0 °C Grade Count:5
Flammability, UL94	V-2 - 5VA	V-2 - 5VA	Grade Count:89
Oxygen Index	26.0 %	26.0 %	Average value: 26.0 % Grade Count:6
Glow Wire Test	650 - 960 °C	1200 - 1760 °F	Average value: 903 °C Grade Count:13

Electrical Properties	Metric	English	Comments
Electrical Resistivity	1.00e+15 - 1.00e+16 ohm-cm	1.00e+15 - 1.00e+16 ohm-cm	Average value: 8.11e+15 ohm-cm Grade Count:38
Surface Resistance	1.00e+13 - 1.00e+15 ohm	1.00e+13 - 1.00e+15 ohm	Average value: 1.09e+14 ohm Grade Count:21
Dielectric Constant	2.00 - 3.00	2.00 - 3.00	Average value: 2.42 Grade Count:17
Dielectric Strength	17.7 - 160 kV/mm	450 - 4060 kV/in	Average value: 69.6 kV/mm Grade Count:15
Dissipation Factor	0.000400 - 0.00500	0.000400 - 0.00500	Average value: 0.00110 Grade Count:15
Arc Resistance	60.0 - 180 sec	60.0 - 180 sec	Average value: 120 sec Grade Count:5
Comparative Tracking Index	225 - 600 V	225 - 600 V	Average value: 373 V Grade Count:14
Hot Wire Ignition, HWI	7.00 - 30.0 sec	7.00 - 30.0 sec	Average value: 21.1 sec Grade Count:5
High Amp Arc Ignition, HAI	60.0 - 120 arcs	60.0 - 120 arcs	Average value: 116 arcs Grade Count:5
High Voltage Arc-Tracking Rate, HVTR	10.0 - 25.4 mm/min	0.394 - 1.00 in/min	Average value: 17.7 mm/min Grade Count:5

Processing Properties	Metric	English	Comments
Processing Temperature	200 - 250 °C	392 - 482 °F	Average value: 248 °C Grade Count:21
Nozzle Temperature	200 - 232 °C	392 - 450 °F	Average value: 214 °C Grade Count:8
Melt Temperature	160 - 300 °C	320 - 572 °F	Average value: 219 °C Grade Count:53
Mold Temperature	10.0 - 71.1 °C	50.0 - 160 °F	Average value: 46.2 °C Grade Count:41
			Average value: 70.0 °C Grade

Drying Temperature  
Processing Properties

60.0 - 82.2 °C  
Metric

140 - 180 °F  
English

Count:38  
Comments

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