

Overview of materials for Polystyrene, Transparent Grade

Category : Polymer , Thermoplastic , Polystyrene (PS) , Polystyrene, Transparent Grade

Material Notes:

This property data is a summary of similar materials in the MatWeb database for the category "Polystyrene, Transparent Grade". 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-Transparent-Grade.php

Physical Properties	Metric	English	Comments
Density	1.03 - 1.07 g/cc	0.0372 - 0.0387 lb/in ³	Average value: 1.04 g/cc Grade Count:64
Water Absorption	0.0300 - 0.100 %	0.0300 - 0.100 %	Average value: 0.0733 % Grade Count:9
Maximum Moisture Content	0.0100	0.0100	Average value: 0.0100 Grade Count:4
Linear Mold Shrinkage	0.00200 - 0.00800 cm/cm	0.00200 - 0.00800 in/in	Average value: 0.00537 cm/cm Grade Count:51
Melt Flow	1.50 - 120 g/10 min	1.50 - 120 g/10 min	Average value: 12.7 g/10 min Grade Count:74

Mechanical Properties	Metric	English	Comments
Hardness, Rockwell L	70.0 - 95.0	70.0 - 95.0	Average value: 77.5 Grade Count:10
Hardness, Rockwell M	11.0 - 78.0	11.0 - 78.0	Average value: 71.5 Grade Count:27
Hardness, Rockwell R	121	121	Average value: 121 Grade Count:4
Tensile Strength, Ultimate	35.0 - 58.0 MPa	5080 - 8410 psi	Average value: 45.0 MPa Grade Count:28
Tensile Strength, Yield	34.0 - 55.0 MPa	4930 - 7980 psi	Average value: 43.7 MPa Grade Count:49
Elongation at Break	1.00 - 35.0 %	1.00 - 35.0 %	Average value: 3.41 % Grade Count:53
Elongation at Yield	1.30 - 4.50 %	1.30 - 4.50 %	Average value: 2.33 % Grade Count:8
Modulus of Elasticity	2.25 - 3.50 GPa	327 - 508 ksi	Average value: 3.02 GPa Grade Count:53
Flexural Yield Strength	7.35 - 103 MPa	1070 - 15000 psi	Average value: 75.3 MPa Grade Count:57
Flexural Modulus	1.58 - 3.53 GPa	229 - 512 ksi	Average value: 3.13 GPa Grade Count:65

Izod Impact Notched Mechanical Properties	0.0801 - 0.534 J/cm Metric	0.150 - 1.00 ft-lb/in English	Average value: 0.191 J/cm Grade Count:1
	0.0980665 - 0.0980665 J/cm	0.183719 - 0.183719 ft-lb/in	Average value: 0.0981 J/cm Grade Count:4
	@Temperature -30.0 - - 30.0 °C	@Temperature -22.0 - - 22.0 °F	
	0.0980665 - 0.0980665 J/cm	0.183719 - 0.183719 ft-lb/in	Average value: 0.0981 J/cm Grade Count:4
	@Thickness 6.40 - 6.40 mm	@Thickness 0.252 - 0.252 in	
Charpy Impact Unnotched	0.600 - 1.70 J/cm ²	2.86 - 8.09 ft-lb/in ²	Average value: 1.12 J/cm ² Grade Count:5

Thermal Properties	Metric	English	Comments
CTE, linear	71.0 - 80.0 µm/m-°C	39.4 - 44.4 µin/in-°F	Average value: 72.5 µm/m-°C Grade Count:6
Deflection Temperature at 0.46 MPa (66 psi)	80.0 - 108 °C	176 - 226 °F	Average value: 92.6 °C Grade Count:14
Deflection Temperature at 1.8 MPa (264 psi)	68.0 - 98.0 °C	154 - 208 °F	Average value: 84.6 °C Grade Count:66
Vicat Softening Point	82.8 - 108 °C	181 - 226 °F	Average value: 97.7 °C Grade Count:72
UL RTI, Electrical	50.0 °C	122 °F	Average value: 50.0 °C Grade Count:4
UL RTI, Mechanical with Impact	50.0 °C	122 °F	Average value: 50.0 °C Grade Count:4
UL RTI, Mechanical without Impact	50.0 °C	122 °F	Average value: 50.0 °C Grade Count:4
Flammability, UL94	HB	HB	Grade Count:32

Optical Properties	Metric	English	Comments
Refractive Index	1.56 - 1.59	1.56 - 1.59	Average value: 1.59 Grade Count:21
Optical Density	0.0460	0.0460	Average value: 0.0460 Grade Count:20
Transmission, Visible	80.0 - 91.7 %	80.0 - 91.7 %	Average value: 88.3 % Grade Count:28

Electrical Properties	Metric	English	Comments
Electrical Resistivity	1.00e+14 - 1.00e+18 ohm-cm	1.00e+14 - 1.00e+18 ohm-cm	Average value: 2.27e+17 ohm-cm Grade Count:9
Surface Resistance	1.00e+11 - 1.00e+14 ohm	1.00e+11 - 1.00e+14 ohm	Average value: 8.76e+13 ohm Grade Count:8
Dielectric Constant	2.50 - 2.59	2.50 - 2.59	Average value: 2.58 Grade Count:27

Electrical Properties	Metric	English	Comments
Dielectric Strength	11.7 - 135 kV/mm	499 - 5430 kV/in	Average value: 42.0 kV/mm Grade Count:46
Arc Resistance	120 - 180 sec	120 - 180 sec	Average value: 150 sec Grade Count:4
Hot Wire Ignition, HWI	7.00 - 30.0 sec	7.00 - 30.0 sec	Average value: 16.8 sec Grade Count:4
High Amp Arc Ignition, HAI	60.0 - 120 arcs	60.0 - 120 arcs	Average value: 105 arcs Grade Count:4
High Voltage Arc-Tracking Rate, HVTR	10.0 - 50.0 mm/min	0.394 - 1.97 in/min	Average value: 32.7 mm/min Grade Count:4

Processing Properties	Metric	English	Comments
Nozzle Temperature	190 - 220 °C	374 - 428 °F	Average value: 205 °C Grade Count:4
Melt Temperature	170 - 282 °C	338 - 540 °F	Average value: 219 °C Grade Count:44
Mold Temperature	4.00 - 82.0 °C	39.2 - 180 °F	Average value: 51.8 °C Grade Count:38
Drying Temperature	60.0 - 80.0 °C	140 - 176 °F	Average value: 76.6 °C Grade Count:7

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