

Overview of materials for Expanded Polystyrene (EPS)

Category : Polymer , Thermoplastic , Polystyrene (PS) , Expanded Polystyrene (EPS)

Material Notes:

This property data is a summary of similar materials in the MatWeb database for the category "Expanded Polystyrene (EPS)". 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-Expanded-Polystyrene-EPS.php

Physical Properties	Metric	English	Comments
Density	0.00310 - 1.10 g/cc	0.000112 - 0.0397 lb/in ³	Average value: 0.108 g/cc Grade Count:273
Apparent Bulk Density	0.00900 - 0.650 g/cc	0.000325 - 0.0235 lb/in ³	Average value: 0.0682 g/cc Grade Count:21
Water Absorption	0.200 - 9.00 %	0.200 - 9.00 %	Average value: 1.40 % Grade Count:21
Particle Size	100 - 3150 µm	100 - 3150 µm	Average value: 1110 µm Grade Count:47
Water Vapor Transmission	50.0 - 200 g/m ² /day	3.22 - 12.9 g/100 in ² /day	Average value: 126 g/m ² /day Grade Count:6
Viscosity	1.70 cP	1.70 cP	Average value: 1.70 cP Grade Count:4
Maximum Moisture Content	0.200	0.200	Average value: 0.200 Grade Count:13
Vapor Pressure	0.685 bar	514 torr	Average value: 0.685 bar Grade Count:9

Mechanical Properties	Metric	English	Comments
Tensile Strength, Ultimate	0.0800 - 0.911 MPa	11.6 - 132 psi	Average value: 0.405 MPa Grade Count:29
Elongation at Break	5.00 - 13.4 %	5.00 - 13.4 %	Average value: 8.33 % Grade Count:20
Creep Strength	0.0600 - 0.300 MPa	8.70 - 43.5 psi	Average value: 0.156 MPa Grade Count:6
Modulus of Elasticity	0.00650 - 0.0400 GPa	0.943 - 5.80 ksi	Average value: 0.0203 GPa Grade Count:5
Flexural Yield Strength	0.0750 - 3.17 MPa	10.9 - 460 psi	Average value: 0.641 MPa Grade Count:63
Flexural Modulus	0.00628 - 0.0676 GPa	0.911 - 9.80 ksi	Average value: 0.0225 GPa Grade Count:23
Compressive Yield Strength	0.0900 - 10.9 MPa	13.1 - 1580 psi	Average value: 0.920 MPa Grade Count:56

Mechanical Properties	Metric	English	Comments
Compressive Modulus	0.00500 - 0.0400 GPa	0.725 - 5.80 ksi	Average value: 0.0177 GPa Grade Count:6
Shear Strength	0.200 - 0.300 MPa	29.0 - 43.5 psi	Average value: 0.290 MPa Grade Count:5
Adhesive Bond Strength	0.100 - 0.400 MPa	14.5 - 58.0 psi	Average value: 0.165 MPa Grade Count:5
K Factor (Wear Factor)	54.0 - 59.0	54.0 - 59.0	Average value: 56.8 Grade Count:13
Compression Set	32.2 - 45.7 %	32.2 - 45.7 %	Average value: 41.1 % Grade Count:20

Thermal Properties	Metric	English	Comments
CTE, linear	8.00 - 70.0 $\mu\text{m}/\text{m}\cdot\text{C}$	4.44 - 38.9 $\mu\text{in}/\text{in}\cdot\text{F}$	Average value: 30.7 $\mu\text{m}/\text{m}\cdot\text{C}$ Grade Count:10
CTE, linear, Transverse to Flow	6.00 $\mu\text{m}/\text{m}\cdot\text{C}$	3.33 $\mu\text{in}/\text{in}\cdot\text{F}$	Average value: 6.00 $\mu\text{m}/\text{m}\cdot\text{C}$ Grade Count:6
Thermal Conductivity	0.0270 - 0.0418 W/m-K	0.187 - 0.290 BTU-in/hr-ft ² -F	Average value: 0.0357 W/m-K Grade Count:21
	0.0240 - 0.0370 W/m-K @Temperature -80.0 - 50.0 °C	0.167 - 0.257 BTU-in/hr-ft ² -F @Temperature -112 - 122 °F	Average value: 0.0312 W/m-K Grade Count:5
	0.0240 - 0.0370 W/m-K @Temperature -80.0 - 50.0 °C	0.167 - 0.257 BTU-in/hr-ft ² -F @Temperature -112 - 122 °F	Average value: 0.0312 W/m-K Grade Count:1
	0.0240 - 0.0370 W/m-K @Thickness 50.0 - 50.0 mm	0.167 - 0.257 BTU-in/hr-ft ² -F @Thickness 1.97 - 1.97 in	Average value: 0.0312 W/m-K Grade Count:1
Maximum Service Temperature, Air	75.0 - 118 °C	167 - 244 °F	Average value: 92.5 °C Grade Count:20
Softening Point	70.0 °C	158 °F	Average value: 70.0 °C Grade Count:26
Decomposition Temperature	220 °C	428 °F	Average value: 220 °C Grade Count:26
Flash Point	-56.0 °C	-68.8 °F	Average value: -56.0 °C Grade Count:26

Processing Properties	Metric	English	Comments
Moisture Content	0.500 - 3.00 %	0.500 - 3.00 %	Average value: 1.06 % Grade Count:37

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