

Typical Physical Properties of EPS Insulation

Specifications Reference: ASTM C 578-87a			Type I	Type VIII	Type II	Type IX
Property	Units	ASTM Test	1 lb	1.25 lb	1.5 lb	2 lb
Density, minimum Density Range	(pcf)	D 303 or D 1622	0.9	1.15	1.35	1.8
			0.90 – 1.14	1.15 – 1.34	1.35 – 1.79	1.80 – 2.20
Thermal Conductivity at 25 F	BTU/(hr.)	C 177 or C518	0.23	0.22	0.21	0.2
K Factor at 40 F	(sq.ft.)(F/in.)		0.24	0.235	0.22	0.21
Thermal Resistance at 25 F	at 1 inch thickness		4.35	4.54	4.76	5
			R-value* at 40 F	4.17	4.25	4.55
Strength Properties						
Compressive 10% Deformation	psi	D 1621	10 – 14	13 – 18	15 – 21	25 – 33
Flexural	psi	C 203	25 – 30	30 – 38	40 – 50	50 – 75
Tensile	psi	D 1623	16 – 20	17 – 21	18 – 22	23 – 27
Shear	psi	D723	18 – 22	23 – 25	26 – 32	33 – 37
Shear Modulus	psi	–	280 – 320	370 – 410	460 – 500	600 – 640
Modulus of Elasticity	psi	–	180 – 220	250 – 310	320 – 360	460 – 500
Moisture Resistance WVT						
Absorption (vol.)	perm in	E 96	2.0 – 5.0	1.5 – 3.5	1.0 – 3.5	0.6 – 2.0
Capillarity	%	C 272	less than 4.0	less than 3.0	less than 3.0	less than 2.0
	–	–	none	none	none	none
Coefficient of Thermal Expansion	In./in.)(F)	D 696	0.000035	0.000035	0.000035	0.000035
Maximum Service Temperature Long-term exposure Intermittent exposure	° F	–	167	167	167	167
			180	180	180	180
Oxygen Index	%	D 2863	24	24	24	24

* R-value means the resistance to heat flow. The higher the R-value, the greater the resistance to heat flow.

<p>The Society of the Plastics Industry, Inc. Insulation Board Council Expanded Polystyrene Division</p> <p>1275 K Street, NW, Suite 400 Washington, DC 20005 (202) 371-5200</p>	<p>Through the information presented in this bulletin is offered in good faith and believed to be accurate, ALL STATEMENTS AND SUGGESTIONS ARE MADE WITHOUT WARRANTY, EXPRESS OR IMPLIED, INCLUDING ANY IMPLIED WARRANTIES OR MERCHANTABILITY OF FITNESS FOR ANY PURPOSE. The typical values contained herein are properties believed to be representative of all EPS insulation meeting federal specifications, and were obtained using test specimens prepared in the laboratories of ARCO Chemical Company, Huntsman Chemical Company and BASF Corporation. They are not to be used as raw material specifications nor assumed to be identical on the finished product by the customer. Further, nothing contained herein should be construed as an inducement or recommendation to use any particular company's product. SPI does not endorse any particular company's product. The Society of the Plastics Industry, Inc., ARCO Chemical Company, BASF Corporation, Scott Polymers and Huntsman Chemical, singularly and collectively, disclaim any liability that may be claimed for infringement of the patents of the third parties. This brochure was developed to assist architects, specifiers and others who are selecting insulation material for commercial roofing application.</p>
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