

Energy Systems Inc.

Typical Physical Properties of EPS Insulation

Specification Reference: ASTM C578

Property	Units	ASTM Test	Type XI	Type I	Type VIII	Type II	Type IX
Density, Min	(puff)	D303 or D1622	0.75	0.9	1.15	1.35	1.8
Density Range			0.70	0.9 -1.14	1.15 – 1.34	1.35 to 1.79	1.8-2.20
Thermal Conductivity	@25 F BTU/(hr)	C177 or C518		0.23	0.22	0.21	0.2
	@40 F (sq ft) (F/in)			0.24	0.235	0.22	0.21
K Factor	@75 F			0.26	0.255	0.24	0.23
Thermal Resistance	@25 F			4.35	4.54	4.76	5.0
	@ 40 F		3.3 - 3.43	4.0-4.17	4.2 – 4.25	4.4 – 4.55	4.6 – 4.76
	@75 F		3.1 – 3.22	3.6 – 3.85	3.9 – 3.92	4.0 – 4.17	4.2 – 4.35
Strength Properties							
Compressive 10% deformation	psi	D 1621	5.0	10 – 14	13 – 18	15 – 21	25 – 33
Flexural	psi	C 203	10.0	25 – 30	30 – 38	40 – 50	50 – 75
Tensile	psi	D 1623		16 – 20	17 – 21	18 – 22	23 – 27
Shear	psi	D 723		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	perm. in.	E96	5.0	2.0 – 5.0	1.5 – 3.5	1.0 – 3.5	0.6 – 2.0
Absorption (vol)	%	C 272	4.0	less than 4.0	less than 3.0	less than 3.0	less than 2.0
Capillarity				None	None	None	None
Coefficient of Thermal Expansion	in.(in.) (F)	D 696		0.000035	0.000035	0.000035	0.000035
Maximum Service Temperature Deg. F							
Long term exposure			167	167	167	167	167
Intermittent exposure			180	180	180	180	180
Oxygen Index	%		24.0	24.0	24.0	24.0	24.0
Flame Spread			less than 25	less than 25	less than 25	less than 25	less than 25
			Less than 450	less than 450	less than 450	less than 450	less than 450

This material contains a flame retardant. However, it should be considered flammable and should not be exposed to any source of combustion. This product should be installed in accordance to fire and building codes.

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