



# PermaTherm

## Insulation Innovation

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## Expanded Polystyrene Insulation Typical Physical Properties

Specification Reference: PROPERTY	ASTM C 578-07 UNITS	ASTM TEST	Type I	Type VIII	Type II	Type IX
<b>Density, minimum</b>	(pcf)	D303 or D 1622	0.90	1.15	1.35	1.80
<b>Density Range</b>			0.90-1.14	1.15 – 1.34	1.35-1.79	1.80-2.20
<b>Thermal Conductivity</b> at 25 F	BTU/(hr.)	C177 Or C518	0.23	0.22	0.21	0.20
<b>K Factor</b> at 40 F	(sp.Ft.)(F/in.)		0.24	0.235	0.22	0.21
at 75 F			0.26	0.255	0.24	0.23
<b>Thermal Resistance</b>	at 25 F	at 1 inch	4.35	4.54	4.76	5.00
<b>R-value*</b> at 40 F	thickness		4.17	4.25	4.55	4.76
At 75 F			3.85	3.92	4.17	4.35
<b>STRENGTH PROPERTIES</b>						
Compressive 10% Deformation	psi	D 1621	10 – 24	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	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
<b>Moisture Resistance</b>						
WVT	perm. in.	E 96	2.0-5.0	1.5 – 3.5	1.0 – 3.5	0.6 – 2.0
Absorption (vol.)	%	C 272	<4.0	<3.0	<3.0	<2.0
Capillarity	----	----	none	none	none	none
<b>Coefficient of Thermal Expansion</b>	in./.(in.)(f)	D 696	0.000035	0.000035	0.000035	0.000035
<b>Maximum Service Temperature</b>	F	----				
Long term exposure			167	167	167	167
Intermittent exposure			180	180	180	180
<b>Oxygen Index</b>	%	D 2863	24.0	24.0	24.0	24.0

\*R-value is a measure of resistance to heat flow. The higher the R-value, the greater the insulating effect.

### NOTES:

1. All properties are measured at 70°F – 75°+ unless otherwise indicated and all test values from independent certified testing laboratories.
2. These are nominal values obtained from representative product samples, and are subject to normal manufacturing variances.