

TYPICAL PHYSICAL PROPERTIES OF EXPANDED POLYSTYRENE

Specification reference: ASTM C578			Type XI	Type I	Type VIII	Type II	Type IX	
Property	Units	ASTM Test						
Density, Minimum	pcf	D1622	.70	.90	1.15	1.35	1.80	
Density Range	pcf		.70-.89	.90-1.14	1.15-1.34	1.35-1.79	1.80-2.20	
Thermal Conductivity	at 40°F	BTU/ hr.	C518	0.28	0.24	0.23	0.22	0.21
(k Factor)	at 75°F	(sq.ft.)(F/in.)		0.30	0.26	0.25	0.24	0.23
Thermal Resistance	at 40°F	at 1"		3.6	4.17	4.25	4.55	4.76
(R Value)	at 75°F	thickness		3.3	3.85	3.92	4.17	4.35
Strength Properties								
Compressive 10% Deformation	psi	D1621	5-9	10-14	13-18	15-21	25-33	
Flexural	psi	C203	10-18	25-30	32-38	40-50	55-75	
Tensile	psi	D1623	14-18	16-20	17-21	18-22	23-27	
Shear	psi	D732	11-13	18-22	23-25	26-32	33-37	
Shear Modulus	psi	----	190-230	280-320	370-410	460-500	600-640	
Modulus of Elasticity	psi	----	110-150	180-220	250-310	320-360	460-500	
Moisture Resistance								
WVT	perm. In.	E96(Proc A)	1.9-3.9	1.2-3.0	1.1-2.8	0.9-2.5	0.6-1.5	
Absorption (vol.)	%	C272	<4.0	<3.5	<3.0	<3.0	<2.0	
Capillarity	----	----	none	none	none	none	none	
Coefficient of Thermal Expansion	in./(in.) (F)	D696	0.000035	0.000035	0.000035	0.000035	0.000035	
Maximum Service Temperature								
Long-term	°F	----	167	167	167	167	167	
Intermittent			180	180	180	180	180	
Oxygen Index	%	D2863	24	24	24	24	24	
Dimensional Stability	% Change	D2126 (Proc C & E)	max 2.0	max 2.0	max 2.0	max 2.0	max 2.0	