

EPS EXPANDED POLYSTYRENE ROOF INSULATIONS

TS-Technical Support SPECIFICATION REFERENCE: ASTM C578-87a

TYPICAL PHYSICAL PROPERTIES OF EXPANDED POLYSTYRENE

Property	Units	ASTM Test	Type I	Type VIII	Type II	Type IX	
Density, min.	pcf	C303 or D1622	0.90	1.15	1.35	1.80	
Thermal Conductivity k Factor	at 40°F at 75°F	BTU/(hr) (sq. Ft.)(F/in.)	C177 or C518	0.24 0.26	0.235 0.255	0.22 0.24	0.21 0.23
Strength Properties							
Compressive (10% Deformation)	psi	D1621	10-14	13-18	15-21	25-33	
Flexural	psi	C203	25-30	32-38	40-50	50-75	
Tensile	psi	D1623	16-20	17-21	18-22	23-27	
Shear	psi	D732	18-22	23-25	28-32	33-37	
Shear Modulus	psi	—	280-320	370-410	460-500	600-640	
Modulus of Elasticity	psi	—	180-220	250-310	320-360	460-600	
Moisture Resistance							
WVT	perm. in.	E96	1.2-3.0	1.1-2.8	0.9-2.5	0.6-1.5	
Absorption (vol)	%	C272	<4.0	<3.0	<3.0	<2.0	
Capillarity	—		none	none	none	none	
Coefficient of Thermal Expansion	In./(In.)(F)	D696	0.000035	0.000035	0.000035	0.000035	
Maximum Service Temperature							
Long-term	°F	—	167	167	167	167	
Intermittent			180	180	180	180	
Oxygen Index	%	D2863	24.0	24.0	24.0	24.0	
Flame Spread*	—	U.L.	10				
Smoke Developed*	—	U.L.	125				
Toxicity		Laboratory Reports	Approximately the same as burning wood, paper or cardboard.				
Fungus & Bacterial Resistance		F.H.A. Test Procedures	Will not support bacterial or fungal growth; no food value.				

*These numerical ratings are not intended to reflect hazards presented by this or any other material under actual fire conditions.

ASTM Tests C177/C518

Nom. Density lb/cu ft	3/4"		1"		2"		3"		4"		5"		
	C	R	C	R	C	R	C	R	C	R	C	R	
1.0#	@40F	0.32	3.13	0.24	4.17	0.12	8.30	0.08	12.50	0.06	16.6	0.05	20.8
	@75F	0.346	2.89	0.26	3.85	0.13	7.69	0.087	11.49	0.065	15.38	0.052	19.23
1.25#	@40F	0.313	3.19	0.235	4.26	0.118	8.47	0.078	12.82	0.059	16.95	0.047	21.28
	@75F	0.34	2.94	0.255	3.92	0.128	7.81	0.085	11.76	0.064	15.63	0.051	19.61
1.5#	@40F	0.293	3.41	0.22	4.55	0.11	9.09	0.073	13.70	0.055	18.18	0.044	22.73
	@75F	0.32	3.13	0.24	4.17	0.12	8.33	0.08	12.50	0.06	16.67	0.048	20.83
2.0#	@40F	0.30	3.33	0.21	4.76	0.105	9.52	0.07	14.29	0.53	18.87	0.042	23.81
	@75F	0.307	3.26	0.23	4.35	0.115	8.70	0.077	12.99	0.058	17.24	0.046	21.74