

# Physical Properties of EPS

Nominal Density, pcf			0.75	1.00	1.25	1.50	2.00	
Specification Reference: ASTM C578-16			Type XI	Type I	Type VIII	Type II	Type IX	
Property	Units	ASTM Test						
Density, Minimum	pcf	C303 or D1622	0.70	0.90	1.15	1.35	1.80	
Thermal Resistance (R-Value)	at 25°F	Per inch thickness	C177 or C518	3.90	4.35	4.54	4.76	5.00
	at 40°F			3.50	4.17	4.25	4.55	4.76
	at 75°F			3.20	3.85	3.92	4.17	4.35
Thermal Conductivity (K factor)	at 25°F	BTU/(hr.) (sq.ft.)(°F) per inch thickness	C177 or C518	0.290	0.230	0.220	0.210	0.200
	at 40°F			0.303	0.240	0.235	0.220	0.210
	at 75°F			0.323	0.260	0.255	0.240	0.230
<b>Strength Properties</b>								
Compressive 10% Deformation	Min. psi	D1621	5	10	13	15	25	
Flexural	Min. psi	C203	10	25	30	35	50	
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	
<b>Moisture Resistance</b>								
Water Vapor Transmission (WVT)	Max. perm/inch	E96	5.0	5.0	3.5	3.5	2.5	
Absorption	Max. vol. %	C272	4.0	4.0	3.0	3.0	2.0	
Capillarity	-	-	none	none	none	none	none	
<b>Coefficient of Thermal Expansion</b>	in./(in.)(°F)	D696	0.000035	0.000035	0.000035	0.000035	0.000035	
<b>Dimensional Stability</b>	Max. % change	D2126	2.0	2.0	2.0	2.0	2.0	
<b>Maximum Service Temperature</b>								
Long Term	°F	-	167	167	167	167	167	
Intermittent	°F	-	180	180	180	180	180	
<b>Oxygen Index</b>	Min. vol. %	D2836	24.0	24.0	24.0	24.0	24.0	
<b>Flame Spread</b>		E84	Less than 25 for all densities					
<b>Smoke Development</b>		E84	Less than 450 for all densities					