



Technical Properties for Design Professionals

Date: June 18, 2018

Atlas EPS manufacturers expanded polystyrene in various grades, recycle content, colors, and brand names. Product information sheets include physical data for many applicable properties. However, other physical properties are sometimes of interest to designers and engineers. Below are some other TYPICAL* physical properties of our foam plastic products.

Physical Property	Commodity Density "Name"				
	1 Pound	Pound and a Half	2 Pound	2 and a Half Pound	3 Pound
Min Density – pounds/ft ³	0.90	1.35	1.80	2.4	3.0
Compressive Strength psi (@10% deformation)	10 to 12	15 to 20	25 to 30	40 to 50	60 to 70
Elastic Compressive Resistance psi (@1% deformation)	3.6 to 4.5	7.3 to 8.8	10.9 to 11.5	15.0 to 16.5	18.6 to 20.0
Elastic Modulus (psi)	360	730	1090	1500	1860
Flexural Strength (psi)	25 to 30	35 to 45	50 to 60	60 to 75	75 to 95
Tensile Strength (psi)	20	30	40	50	60
Shear Strength (psi)	12	18	24	30	35
Coefficient of Absorption ("0" equals no capillary absorption)	0	0	0	0	0
Deformation Temperature -° F (permanent shrink deformity)	195	200	200	200	200
Drying Performance – Vol% (immerse 24hrs, then air 24 hrs)	<0.3	<0.3	<0.3	<0.3	<0.3
Freeze / Thaw / Immersion cycling via C1512	No Damage	No Damage	No Damage	No Damage	No Damage
Mold Growth – G21, D3273, C1338	No Growth	No Growth	No Growth	No Growth	No Growth
Thermal Resistance at -25°F (negative 25 degrees)	4.7	5.0	5.3	5.4	5.5

*When using these properties for design, it is expected that safety factors are being used per sound engineering principles. For this reason, general ranges are providing, but the minimum value is expected to always be met.

This bulletin is current as of the date above.

Please visit our website at AtlasEPS.com for the most recent technical information.