

DID YOU KNOW

HOW DENSITY IMPACTS THE PERFORMANCE OF EXPANDED POLYSTYRENE (EPS) FOAM?



Density describes the weight of materials within a given volume of foam.

EPS insulation is a rigid, closed-cell material formed by expanding and fusing polystyrene resin into a continuous structure. As more expanded polystyrene resin is incorporated into the same volume, the foam becomes denser. Density is typically expressed in pounds per cubic foot (pcf) and is calculated by dividing the weight of the EPS sample by its volume.

Higher density EPS contains more polymer and less air per unit volume, which generally results in increased strength, durability, and resistance to damage. Lower density EPS contains more air, making it lighter while still providing effective thermal insulation.

SAME SIZE, DIFFERENT DENSITY

The same size EPS can be manufactured at different densities to balance weight & performance.



Density and EPS Performance

There is a connection between density and the physical properties of EPS:

Compressive Resistance	Increases significantly as density increases
R-value per Inch	Increased slightly as density increases; remains relatively stable because EPS insulates primarily with air.
Flexural Strength	Increases significantly as density increases
Water Absorption	Decreases as density increases
Dimensional Stability	No impact with changes in density.
Durability	Increased resistance to product damage as density increases

Please refer to [ThermalStar TechData](#) for complete details on the properties of ThermalStar® EPS products.

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