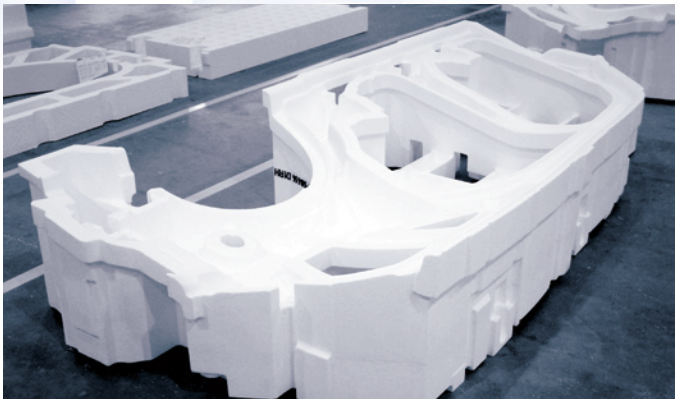
DATA SHEET

EXPANDED POLYSTYRENE

- Geo-technical applications
- Exterior Walls
- Roof Insulation
- Wall and Foundation Insulation
- Door Core Insulation
- Foam Packaging & Custom Fabrication
- Cold Storage Insulation
- Void Filler
- Pattern Foam
- Flotation Foam



FALCON FOAM® Insulation is a light-weight rigid EPS insulation that offers cost-effectiveness and energy efficiency. FALCON FOAM® Insulation's thermal and mechanical properties make it the preferred insulation for residential, commercial and industrial applications where high R-value, permanence and moisture resistance are critical.

Available in a range of densities, in standard and custom-cut sizes, FALCON FOAM® Insulation meets the specific needs of architects, contractors and building owners. FALCON FOAM® Insulation offers a smooth, nonabrasive surface for safe, easy handling and requires no special tools or construction techniques. Falcon Foam® Insulation meets appropriate ASTM Standard Specifications and building requirements.

Long-Term Insulation Value

The R-value of EPS insulation is permanent because the cellular structure of EPS contains only stabilized air. Its R-value will not decrease over time.

Temperature Cycling

EPS is able to withstand the abuse of temperature cycling, assuring long-term performance. In a series of tests conducted by Dynatech Research and Development Co., Cambridge, Mass., core specimens removed from existing freezer walls, some as old as 16 years, proved that EPS withstands freeze-thaw cycling without loss of structural integrity or other physical properties.

Permanence

EPS insulation is an inert, organic material. It provides no nutritive value to plants, animals or micro-organisms. It will not rot, and is highly resistant to mildew.

Moisture Resistance

A study by the Energy Materials Testing Laboratory (EMTL) has shown that EPS insulation installed in well-constructed roofs does not absorb appreciable moisture, even under conditions characteristic of prolonged cold, damp winters. The small amount of moisture absorbed (an average of 0.2% by weight) has little or no effect on the compressive or flexural strength, and the EPS insulation retains between 95% and 97% of its thermal efficiency.

Though it has low water vapor transmission, EPS is not a vapor barrier. Rather it "breathes", and therefore needs no costly venting as do some other relatively impermeable insulation materials which could otherwise trap moisture within walls and roof assemblies.

Recyclable — Contains No CFCs or HCFCs

Neither Falcon Foam® Insulation, or its manufacturing process, emits CFCs or HCFCs into the atmosphere. FALCON FOAM® Insulation is recyclable.

Falcon Foam Typical* Physical Properties									
Properties	**Units**	**ASTM Test**	**ASTM Designations**						
			Type XI	**Type I**	**Type VIII**	**Type II**	**Type IX**	**Type XIV**	**Type XV**
ASTM Density	pcf (min)	C 303 or D 1622	0.70	0.90	1.15	1.35	1.80	2.40	2.85
Common Designation	pcf		0.75#	1#	1.25#	1.5#	2#	2.5#	3#
Thermal Resistance Values	at 75°F	C 177 or C 518	3.20	3.85	3.92	4.20	4.36	4.40	4.40
	at 40°F	C 177 or C 518	3.50	4.22	4.35	4.55	4.66	4.70	xxx
	at 25°F	C 177 or C 518	3.90	4.40	4.55	4.82	4.94	4.96	xxx
Compressive 10% Deformation	psi	D1621	8.0	12.0	16.5	20.0	28.0	45.0	60.0
Flexural Strength	psi	C203	18.0	29.0	35.0	42.0	55.0	75.0	95.0

*The physical properties listed above are presented as typical average values as determined by accepted ASTM test methods and are subject to normal manufacturing variation. This data is offered as a service to our customers and is subject to change. All information can be confirmed by contacting Falcon Foam's Technical Department.

Thermal Conductivity– Definitions/Formulas

K-value Factor

Thermal conductivity, the quantity of heat (BTUs) which will flow through a one-foot section of a one-inch thickness of a homogeneous material, during a one hour period when there is a 1° F difference in the hot to cold side temperature. K-values are usually expressed as a decimal number, less than 1.0.

$$\text{Thus, } K = \frac{\text{BTU}}{\text{hr. x sq. ft.}} \times \frac{\text{°F}}{\text{in.}}$$

Where BTU (British Thermal Unit) is the amount of heat required to raise the temperature of 1 lb. of water 1° F. K-values are determined by either of two tests: ASTM C177 and ASTM C518.

C-value Factor

Thermal conductivity, or K-value, when the material being tested is either non-homogeneous or not 1 inch thick (but a specified thickness).

$$\text{Thus, } C = \frac{K}{\text{thickness in inches}}$$

C-values are determined in the same fashion as K-values.

R-value Factor

Thermal resistance is an index of material's resistance to the flow of heat. It is the reciprocal of the K or C-value.

$$\text{Thus, } R = \frac{T}{K} \text{ or } \frac{1}{C}$$

The higher the R-value, the better the resistance to the flow of heat (BTUs) and the better the insulation. R-values are usually reported for a stated thickness. R-values for different materials, or different thicknesses of the same material, may be added together to reach a total R-value for a system.

U-value Factor

Overall coefficient of heat transmission, or the quantity which will flow through a specific building section composed of a number of materials one square foot in area during one hour when there is hot or cold side temperature difference 1° F.

$$\text{Thus, } U = \frac{1}{R_1}$$

Where R_1 = Sum of all the R-values in the section including air space and film. ($R + R + R + R = R_1$)

Standards Compliance

When applied in accordance with code requirements, Falcon Foam® Insulation meets or exceeds ASTM Specification C578. Falcon Foam® is third party, quality assurance inspected and is listed with ICC-ES ESR-1962. Falcon Foam complies with HUD/FHA "Use of Materials Bulletin No. 71", as well as the requirement of ICC (International Code Council), which replaces BOCA, ICBO and SBCCI. Falcon Foam® Flat and Tapered Roof Insulations are approved as components in U.L. Class A roof systems. Falcon Foam® is a U.L. classified fire rated foam plastic up to 6" thick. (Flame spread less than 25, smoke development less than 450*).

**Flame spread and smoke development ratings derived are not intended to reflect hazards under actual fire conditions. Falcon Foam® Tapered Roof Insulation contains a fire retardant to inhibit accidental ignition but must be considered combustible and may constitute a fire hazard if improperly used or installed. If required it must be separated from an internally occupied area by 1/2" gypsum board or equivalent.*

FALCON FOAM® A DIVISION OF ATLAS ROOFING CORPORATION

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