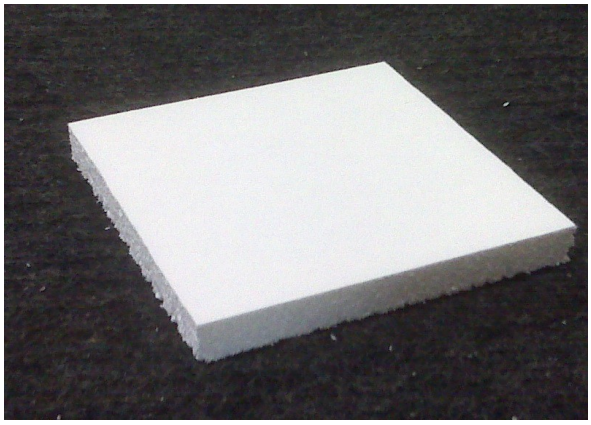
BeadBoard Void Insulation

ThermalStar® Rigid Insulation



PRODUCT DESCRIPTION

ThermalStar BeadBoard is economical void fill insulation, suitable for applications requiring minimal strength. Typically this product is used to fill voids or create separation. Where higher strength, superior moisture resistance, or higher insulating performance is required, see ThermalStar X-Grade product line. For large scale structural support applications, see Elevation Geofoam products.

Standard features include:

- High Recycle content—up to 50%
- Meets ASTM Type XI
- Recyclable

TYPICAL USES

ThermalStar BeadBoard insulation has been designed specifically for value engineering where high grade performance is not required. This rigid foam insulation is ideal for filling voids or separating adjacent materials in construction. It can also be used to create voids in poured forms.

The high recycle content can contribute towards LEED points, and the product is extremely lightweight, meeting the requirements of ASTM Type XI with a density as low as 0.70 pcf.

Table 1 Physical Properties

Property & ASTM Test Method	BeadBoard 5	BeadBoard 10
Compressive Strength (minimum psi) @10% Deformation[1] D1621	5	10
R-value per inch (minimum) at 75F mean temperature C518	3.1	3.5
ASTM Classification C578	Type XI	Type XI
R-value per inch (minimum) at 40F mean temperature C518	3.3	3.7
R-value per inch (minimum) at 25F mean temperature C518	3.4	3.8
Recycle Content	25-50%	10-25%
Flexural Strength (minimum psi) C203	10	15
Water Absorption % by volume, maximum after 24 hr immersion C272	4.0	4.0
Water Vapor Permeance at 1" thick (perms) - typical E96	5.0	5.0
Surface Burning - Flame Spread and Smoke Developed E84	Flame Spread 20, Smoke Developed 400 [meets code]	
Maximum Use Temperature	Short Term (10-15 minutes) 180F, Long term 165F	

THERMAL RESISTANCE

R-3.1 to 3.4 per inch

R means resistance to heat flow. The higher the R-value, the greater the insulating power

INSTALLATION AND HANDLING

ThermalStar BeadBoard insulation can be handled much the same as wood sheathing, using similar tools or simple utility knives to cut, score, shape, or otherwise customize panels to fit the application. Specific installation instructions for below grade applications can be accessed from www.atlaseps.com.

Atlas EPS, a Div of Atlas Roofing
8240 Byron Center Ave SW Byron Center, MI 49315
(800) 917-9138 www.atlaseps.com

ATLAS EPS Solutions. Delivered.

CHEMICAL & PHYSICAL PROPERTIES

Tables 1&2 list physical properties of various grades for US and Canada, respectively. Chemical resistance is listed in Table 3.

MOLD RESISTANCE

ThermalStar BeadBoard insulation has been tested against 4 week exposure to various mold and fungi via ASTM G21, D3273, and C1338 with no growth of spores on the product. BeadBoard insulation provides no nutritive value for mold. However, construction practices greatly impact mold growth, and fungi have been known to even grow on glass.

FREEZE/ THAW EXPOSURE

ThermalStar BeadBoard insulation has been tested via ASTM C1512 Moisture & Temperature Cycling for Insulation with no loss of physical or thermal performance. This test places the product between a cold chamber and a high humidity chamber with temperature cycling, measuring the effect on the insulation as natural moisture drive occurs.

Table 2 Canadian Physical Properties

Property & ASTM Test Method	BeadBoard 5	BeadBoard 10
Compressive Strength (minimum kpa) @10% Deformation[1] D1621	35	70
RSI per 25mm (minimum) at 75F mean temperature C518	0.55	0.63
CAN/ULC S701 Type	NA	NA
RSI per 25mm (minimum) at 40F mean temperature C518	0.58	0.65
RSI per 25mm (minimum) at 25F mean temperature C518	0.60	0.67
Recycle Content	25-50%	10-25%
Flexural Strength (minimum kpa) C203	70	105
Water Absorption % by volume, maximum after 96 hr immersion D2842	6.0	6.0
Water Vapor Permeance at 25mm thick (ng/PA*s*m^2) - typical E96	285	285
Surface Burning - Flame Spread and Smoke Developed CAN/ULC S102.2	Flame Spread 290, Smoke Developed 0ver 500	
Maximum Use Temperature	Short Term (10-15 minutes) 82C, Long term 74C	

Table 3 Chemical Compatibility of ThermalStar BeadBoard insulation

Inorganic Acids (Muriatic, Sulfuric, Boric Acid)	Excellent
Organic Acids (Carbolic, Citric, Acetic Acid)	Good
Bases (Sodium Hydroxide, Potassium Hydroxide, Ammonia)	Excellent
Alcohols (Methanol, Ethanol, Isopropyl Alcohol)	Good
Beer, Tea, Coffee, Carbonated Soda, Water, Fruit Juice	Excellent
Household Liquid Spray Insecticides (non-aqueous)	Poor
Cement	Excellent
MEK, Methylene Chloride, Acetone	Poor
Antifreeze (Ethylene Glycol - Green, Propylene Glycol - Orange)	Excellent
Hydrocarbons (Hexane, Gasoline, Diesel, Kerosene)	Poor
Mineral Oil	Excellent
Other Oils (Corn, Motor, Palm, Coconut Oil)	Good
Agricultural (Manure, Feed, Urine, Soil, Fertilizer)	Excellent
Formaldehyde, Turpentine, Chloroform, Naphtha	Poor
Salts (Ammonium, Ferrous, Sodium Chloride, Sulfur)	Excellent
MDI-based Adhesive (Gorilla Glue, Fast-Tac, Dow Great Stuff)	Good
Bleach, Detergents, Borax	Excellent
Cured Mastic, Construction Adhesive, Hardened Asphalt	Good
Wherever XPS insulation is used	Excellent

Excellent = No degradation, no effect from exposure

Good = some effect from exposure, but not significant for product performance

Poor = significant degradation affecting performance, up to completely dissolving product

This table is a guide only - consult Atlas Technical Services for specific chemical design questions

SAFETY

MSDS for this product available at www.atlaseps.com. Dust generated from sanding or cutting ThermalStar BeadBoard insulation should be avoided using a dust mask as with other building materials. BeadBoard insulation is combustible and the product should be protected from ignition sources such as open flames or welder's torch. Applications not specifically listed in ICC-ES ESR-1962 require permanent separation of BeadBoard insulation from the interior of the building by a thermal barrier such as drywall or concrete for fire safety.

ENVIRONMENTAL

ThermalStar BeadBoard insulation uses air in the insulating cells, emitting no gasses. BeadBoard insulation is readily accepted for recycle at many drop off locations.

CODE COMPLIANCE

ThermalStar BeadBoard insulation complies with the model building codes when properly installed:

- Surface Burning – UL BRYX.R16529
- Cal Std Reg #CA472
- International Energy Conservation Code
- ASTM C578—Type XI
- International Residential Code (IRC) – ICC-ES ESR-1962
- International Building Code (IBC) – ICC-ES ESR-1962

ATLAS EPS
Solutions. Delivered.