

Geofoam

Expanded Polystyrene Lightweight Fill

Geofoam is a rigid closed-cell expanded polystyrene (EPS) lightweight fill used in geotechnical applications to reduce settlement, improve stability, and reduce loads imposed on adjacent and underlying soils and structures. Because it is approximately 1% the weight of soil, Geofoam provides an efficient solution where conventional fill would create excessive vertical stress, lateral loading, or settlement. It is easy to handle on site, can be cut and shaped to suit project conditions, and is unaffected by normal weather during construction.

Geofoam is available in a wide range of material types and compressive resistances to suit project-specific performance requirements. In addition to reducing dead load, it can provide thermal insulation, vibration damping, and protection for buried structures and utilities. Geofoam is freeze/thaw resistant, has low moisture absorption, contains no CFCs or HCFCs, is biologically inert, and will not support mould, mildew, or fungus growth.

APPLICATIONS

- Road construction over poor soils
- Road widening
- Retaining walls
- Bridge abutments
- Bridge underfill
- Culverts, pipelines, and buried structures
- Compensating foundations
- Rail embankments
- Landscaping and green roofs
- Levees
- Airport runway and taxiway applications
- Slope stabilization
- Foundations for lightweight structures
- Noise and vibration damping applications

PRODUCT ATTRIBUTES AND CHARACTERISTICS

- Ultra-lightweight fill, approximately 1% the weight of soil
- Reduces settlement and improves stability on weak subgrades
- Reduces vertical stress and lateral pressure on adjacent structures
- Can help protect culverts, ducts, pipelines, and other buried structures
- Easy to handle, place, cut, and shape on site
- Freeze/thaw resistant and low moisture absorption
- Provides thermal insulation and vibration damping
- Contains no CFCs, HCFCs, or other refrigerant gases
- Biologically inert and will not support mould, mildew, or fungus growth
- Contains a chemical additive to inhibit accidental ignition from a small fire source
- Non-toxic and hypo-allergenic



CLASSIFICATIONS

- ASTM D6817 **EPS12**
- ASTM D6817 **EPS15**
- ASTM D6817 **EPS19**
- ASTM D6817 **EPS22**
- ASTM D6817 **EPS29**
- ASTM D6817 **EPS39**
- ASTM D6817 **EPS46**

SIZES

Geofoam blocks are available in custom sizes and fabricated shapes to meet project requirements. Typical standard block size is approximately 50" × 49" × 98" (1.27 m × 1.24 m × 2.49 m), with lengths available up to 220" (5.59 m). Custom fabrication is available.

PACKAGING, HANDLING AND PROTECTION

Geofoam must be protected from damage during transit and storage. Store on raised platforms and protect from UV degradation if the product will be exposed for one month or more. In windy conditions, provide ballast to prevent block movement. Geofoam should also be protected from hydrocarbons and other incompatible chemicals.

INSTALLATION

- Clear and grub site.
- Excavate existing soil and dewater as required.
- Place a sand / leveling course over the prepared surface, minimum 2" (50 mm) thick, levelled to 1/2" per 10' (±13 mm over 3 m)
- Place geotextile over the prepared surface if specified.
- Place Geofoam blocks tightly on the sand pad / leveling course.
- For multi-layer installations, orient successive layers at 90° to the previous layer and offset joints between layers.

MAINTENANCE INSTRUCTIONS AND PROCEDURES

When properly designed and installed, Geofoam requires no maintenance. Product should not be exposed to volatile hydrocarbons or anhydrous acids that may attack expanded polystyrene.

TECHNICAL DATA

Physical Property	EPS12	EPS15	EPS19	EPS22	EPS29	EPS39	EPS46
Density, min, lb/ft ³ (kg/m ³)	0.70 (11.2)	0.90 (14.4)	1.15 (18.4)	1.35 (21.6)	1.80 (28.8)	2.40 (38.4)	2.85 (45.7)
Compressive Resistance @ 1%, min, psi (kPa)	2.2 (15)	3.6 (25)	5.8 (40)	7.3 (50)	10.9 (75)	15.0 (103)	18.6 (128)
Compressive Resistance @ 5%, min, psi (kPa)	5.1 (35)	8.0 (55)	13.1 (90)	16.7 (115)	24.7 (170)	35.0 (241)	43.5 (300)
Compressive Resistance @ 10%, min, psi (kPa)	5.8 (40)	10.2 (70)	16.0 (110)	19.6 (135)	29.0 (200)	40.0 (276)	50.0 (345)
Flexural Strength, min, psi (kPa)	10.0 (69)	25.0 (172)	30.0 (207)	35.0 (240)	50.0 (345)	60.0 (414)	75.0 (517)
Oxygen Index, min, volume %	24	24	24	24	24	24	24

TECHNICAL INFORMATION

DESIGN CONSIDERATIONS

Lightweight — Geofoam is available in a range of densities to meet project requirements.

Strength — Type selection should be based on compressive resistance, particularly the 1% value for long-term performance.

Construction Time — Rapid placement can shorten schedules and reduce traffic disruption.

Cost — Geofoam can reduce backfilling and compaction requirements while lowering loads on adjacent structures.

Protection — Geofoam is not resistant to some hydrocarbons and should be protected from chemical exposure, prolonged UV exposure, and wind during construction.

CHEMICAL / ENVIRONMENTAL CHARACTERISTICS

Geofoam should be protected from hydrocarbons, solvent-extended mastics, coal tar pitch, gasoline, diesel, and other incompatible chemicals. It contains no CFCs or HCFCs and is non-toxic, hypo-allergenic, and biologically inert.

FLAMMABILITY CHARACTERISTICS

Geofoam contains a chemical additive that inhibits ignition from small fire sources. However, it will burn when exposed to a continuous flame or intense heat. Normal fire precautions should be followed during storage and installation.

ACCESSORY NOTE

Geofoam Shear Plates help maintain block position during assembly and protect the Geofoam monolith from distortion caused by unequal lateral pressure. The 4" (100 mm) diameter plate with 17 spikes per side provides lateral holding strength of 150 lb (68 kg). Geofoam Shear Plates are available from the manufacturer.

TECHNICAL SUPPORT

For technical inquiries please contact:

- productsupport@bvrthermal.com
- (888) 453-5961 Toll Free

Website:

<https://bvrthermal.com/>

APPLICABLE STANDARDS

Geofoam is manufactured to meet or exceed applicable requirements of:

ASTM C177	Standard Test Method for Steady-State Heat Flux Measurements and Thermal Transmission Properties by Means of the Guarded-Hot-Plate Apparatus.
ASTM D6817	Standard Specification for Rigid Cellular Polystyrene Geofoam.
ASTM C578	Standard Specification for Rigid, Cellular Polystyrene Thermal Insulation.
ASTM D1621	Standard Test Method for Compressive Properties of Rigid Cellular Plastics.
ASTM D1623	Standard Test Method for Tensile and Tensile Adhesion Properties of Rigid Cellular Plastics.
ASTM C272	Standard Test Method for Water Absorption of Core Materials for Structural Sandwich Constructions.
ASTM D2842	Standard Test Method for Water Absorption of Rigid Cellular Plastics.
ASTM E84	Standard Test Method for Surface Burning Characteristics of Building Materials.
ASTM E96	Standard Test Methods for Water Vapor Transmission of Materials.
CAN/ULC-S701	Standard for Thermal Insulation, Polystyrene, Boards and Pipe Covering.

MANUFACTURER

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