GeoTech Systems Corporation

GeoTech TerraLite™ EPS Geofoam

Geofoam has been used over unstable soils, in road beds and like applications worldwide for over 30 years. TerraLite™ Geofoam maximizes onsite installation efficiency.

Predictable engineering properties

no need for surcharging & wick drains

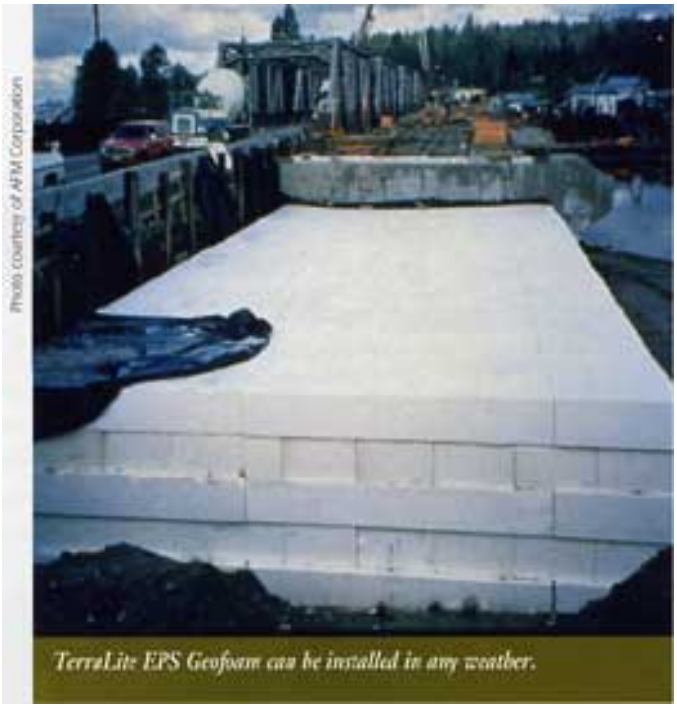
Can be installed in any weather

expedites project completion

environmentally gentle

TerraLite™ EPS Geofoam is used in ground fill applications where a light-weight fill material is required to reduce stresses on underlying soils. Projects involving roads, bridge approach fills, embankments, levees, berms, foundations, landscaping, etc., can benefit from the use of TerraLite™ Geofoam.

Traditional earth materials used as fill are heavy and can cause undesirable settlement or instability in underlying soils. Other fill materials such as foamed concrete, waste tires, wood chips, wood fiber, etc., have higher densities, are variable in their make-up and are not engineered due to field execution variables. They also have limitations in handling and can be weather sensitive. Both earth and these fill materials may require staged construction, pre loading and surcharging, draining, etc.



Composition and Materials: TerraLite™ EPS Geofoam is a cellular plastic material that is strong, but has very low density (1% of traditional earth materials). It is a manufactured block material meeting the engineered product specification standards of ASTM D 6817. Standard densities range from 12 kg/m^3 (.75 lb/ft^3) to 32 kg/m^3 (2 lb/ft^3) which have typical compressive strengths of 35 kPa (5 psi) to 173 kPa (25 psi) (at 10% deformation) under short-term loading conditions. See Table 1 for 1% deformation. Other density materials are also available. Design values can be found in Table 1.

TerraLite™ Geofoam contains Perform Guard®.* Perform Guard is a patented material** which is manufactured by infusing a natural mineral that resists termites and carpenter ants into the finished product.

TerraLite™ is unaffected by normally occurring weather at time of installation and will retain its physical properties under pre-engineered conditions of use. TerraLite™ is made under a Quality Assured manufacturing process monitored by a third party laboratory.

**Tested against termites and carpenter ants. Manufacturer has specific species on file. Perform Guard is a registered trademark of the AFM Corporation.*
***Protected under U.S. Patents No. 5,194,323 and No. 5,720,108. Other U.S. and Foreign Patents Pending. ©1997 AFM Corporation.*

Size and Shape: TerraLite™ Geofoam is produced in block form with dimensions of 901.7 mm (35.5") x 1257.3 mm (49.5") x 4927.6 mm (194.0"). Other sizes and fabrication can be provided by the manufacturer to meet any job site or handling requirements.

Environmentally Safe:
TerraLite™ Geofoam contains no CFC's, HCFC 's, HFC's, or formaldehyde. It is inert, non-nutritive and highly stable. It will not decompose, decay, or produce undesirable gases or leachates. TerraLite™ is recyclable and safe for WTE Systems and landfills.

Limitations and Cautions: TerraLite™ Geofoam stands up well to normal weather conditions encountered during installation. Long-term (6 months or greater) exposure to UV radiation will cause discoloration. Material should be covered as soon as practical. TerraLite™ Geofoam is unaffected by freeze thaw cycling, moisture, or road salts. Protect TerraLite™ from exposure to hydrocarbons, highly solvent extended mastics and coal tar pitch. TerraLite™ contains a flame retardant additive; however, it

should be considered combustible and should not be exposed to open flame or any source of ignition.

Applicable Standards: TerraLite™ Geofoam can be manufactured to the following standards: ASTM C 578 (superseding FS HH-I-524c), CAN CGSB 51.20, UL723 (ASTM E 84), ULC S102.2, ASTM D6817.

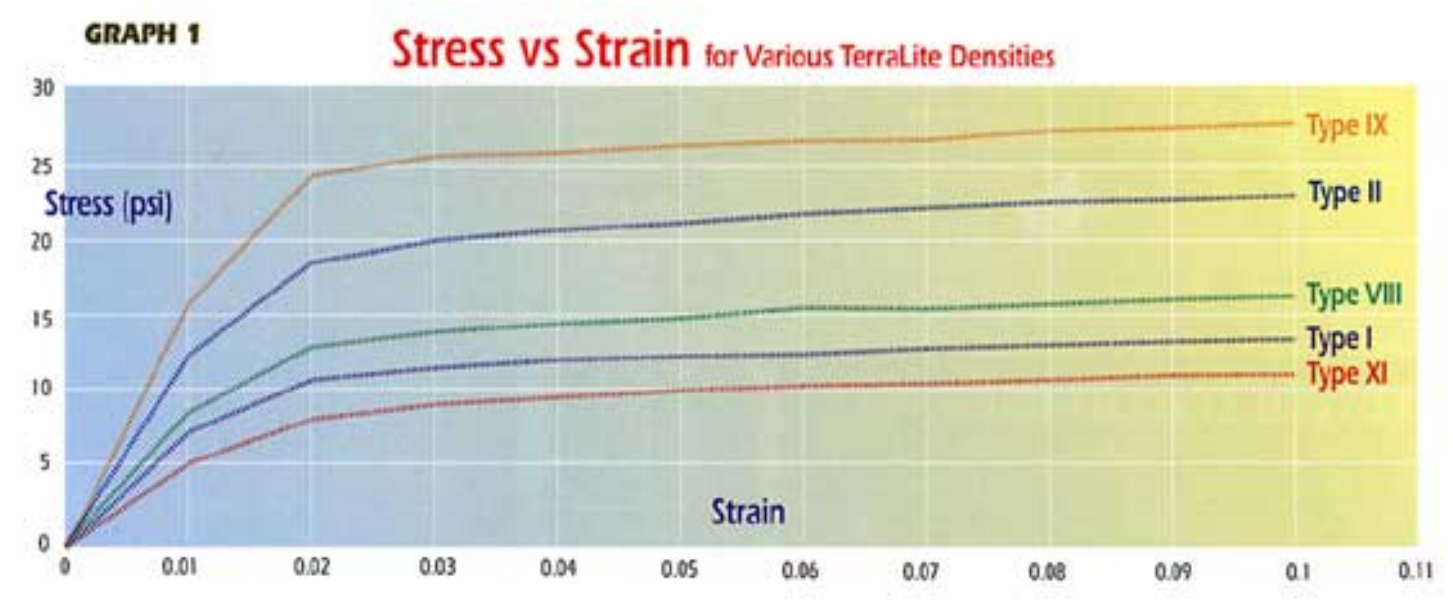
Technical Data: See Table 1 for typical physical properties of TerraLite™ Geofoam.

- ASTM D6817 Types EPS12, EPS15, EPS19, EPS22, EPS29

See Graph 1 for short-term loading stress-strain curves for various densities of TerraLite™ Geofoam. Values in Graph 1 are for EPS tested in accordance with ASTM D 1621.

Table 1

Physical Properties of TerraLite EPS Geofoam					
TYPE - ASTM D6817	**EPS12**	**EPS15**	**EPS19**	**EPS22**	**EPS29**
Density, min., kg/m 3, (lb/ft3)	11.2 (0.70)	14.4 (0.90)	18.4 (1.15)	21.6 (1.35)	28.8 (1.80)
Compressive Resistance @ 1% deformation, min., kPa (psi)	15 (2.2)	25 (3.6)	40 (5.8)	50 (7.3)	75 (10.9)
Flexural Strength min., kPa (psi)	69 (10.0)	172 (25.0)	207 (30.0)	276 (40.0)	345 (50.0)
Water Absorption by total immersion, max., volume %	4.0	4.0	3.0	3.0	2.0
Oxygen Index, min., volume %	24.0	24.0	24.0	24.0	24.0
Buoyancy Force (kg/m3) (lb/ft3)	952 (59.4)	955 (59.6)	958 (59.8)	961 (60.0)	969 (60.5)



Technical Design Notes: Reference Density Section on Table1. TerraLite™ Geofoam should be designed with the following density modifications when bulk water will be present in the in situ condition:

In conditions where TerraLite™ Geofoam is periodically subjected to submergence from fluctuating ground water, the density of the Geofoam may increase by 30 kg/m^3 (1.87 lb/ft^3).

In conditions where TerraLite™ Geofoam is continually below ground water, the density of Geofoam may increase by 80 kg/m^3 (5.00 lb/ft^3).

These design recommendations are based on potential water absorption and the effects on density when analyzing cases involving downward loading. For analysis cases involving uplift loading, the nominal dry density given in Table 1 should be utilized. TerraLite™ Geofoam physical properties are unaffected by water.

Short-term load stress-strain curves are provided in Graph 1. Long-term design loads should not exceed the linearly elastic range of TerraLite™ Geofoam. Design load stresses should not exceed 1% strain of combined live and dead loads.

Installation: TerraLite™ Geofoam is commonly used in the following applications. Other engineered applications may also be appropriate.

Transportation Earth Works

- Embankments
- Side-hill fill
- Approach fill (bridge abutments)
- General fill (roadways, parking, etc.)
- Median and sound barriers

For most applications the following guidelines apply. Additional guidelines for specific applications should be developed by the design engineer.

1. At time of material delivery, verify Quality Assurance and identification marks on face of the product. Labels on material must comply with manufacturer's data shown on its hard copy Project Certificate Form. Use material of proper type only and as specified. Field sampling and testing of TerraLite Geofoam will be as specified by the Engineer. Properties of density, compressive strength, and dimensional tolerances shall be verified in accordance with Table 1 of this document.
2. Place material as required by the engineer and as shown on the drawings.
3. Blocks of TerraLite Geofoam should be placed tightly on the prepared sand pad/leveling course (sand must not be frozen). If multiple layers of TerraLite Geofoam are required, orient successive layers with long axis of blocks at 90° to previous layer. Offset block joints between layers.
4. In order to facilitate construction during precipitation or when frost or icing is encountered, horizontal restraint between layers of TerraLite Geofoam may be desired. Use of AFM® Gripper™ Plates1 placed between horizontal layers of blocks should occur. Consult manufacturer for plate specifications.
5. TerraLite Geofoam should be ballasted in windy conditions both in storage and as placed. Activities involving high heat or open flame should not occur near the material. Heavy equipment should not operate directly on the material surface.
6. Commence with the placement of overlying materials as quickly as practical.
7. In pavement design for cold regions
   where differential icing may occur, provide an adequate thickness of a well graded (must contain a high degree of fines) subbase mix which will retainmoisture. Most designs are adequate with subbase thicknesses of 500 mm to 800 mm (20" to 32") placed over theTerraLite Geofoam.

NOTICE: The information contained herein is, to the best of GeoTech's knowledge, accurate and reliable as of August 1998. Freedom from patents of GeoTech or others is not to be inferred. For any information that may have been developed subsequent to August 1998, consult the nearest GeoTech sales office.

home | **about us** | **products** | **technical** | **site map**

GeoTech Systems Corporation
PO Box 1045
Great Falls, VA 22066

(v) 703 759 0300
(f) 703 757 0119
(e) info@geosyscorp.com

Last Modified: January 7, 2005