

Insulfoam® GF

Insulfoam® GF (Geofoam) is a high-performance, lightweight, geosynthetic fill material consisting of closed cell expanded polystyrene (EPS). Geofoam is manufactured from the same high-quality blocks as our Insulfoam EPS and meets or exceeds the requirements of ASTM D6817, Standard Specification for Rigid Cellular Polystyrene Geofoam.

Geofoam is used in both structural applications and geotechnical engineered applications. Most commonly it's used in areas where unstable soil conditions exist and as an alternative to various fill materials. The unique load disbursement and lightweight characteristics of Geofoam help to minimize post-construction settling.

GEOTECHNICAL ENGINEERED APPLICATIONS

- Under, Split & Isolated Slab Insulation
- Foundation Systems
- Buried Utility Protection
- Bridge Abutments
- Slope Stabilization
- Road Embankments, Expansions
- Cap & Stitch
- Retaining Walls
- Levees & Berms

STRUCTURAL APPLICATIONS

- Raised Slabs
- Ramps
- Parking Structures
- Plaza Decks
- Amenity Decks
- Pools
- Tiered Seating
- Monument Stairs
- Green Roofs
- And More

KEY FEATURES

- Load reduction
- Compressive resistance
- Maintains long-term R-value
- Maintains dimensional stability
- Moisture resistance
- High drying potential
- Freeze-thaw durability
- Easy to cut and install
- Lower construction costs
- Less risk over weak soil
- Standards compliant

KEY BENEFITS

- ***Lower Material & Hauling Costs:*** Fewer trucks and reduced traffic, 1 Geofoam truck replaces 12 soil trucks.
- ***Faster Construction Schedules:*** Eliminates repeated soil placement and compaction requirements.
- ***Simpler Install, Less Labor:*** Lightweight, easy to handle, no surcharging, preloading, or heavy equipment.
- ***Improved Sustainability:*** Lower global warming potential from reduced fuel use, emissions, material extraction.
- ***Long-Term Performance:*** Will not settle or decompose; minimizes settlement and lateral pressure.

READY TO USE.

Geofoam maximizes onsite installation efficiency: material arrives ready to place with less chance of weather delay than other trucked fill material. Blocks can be prefabricated or cut at the jobsite. No staging is required.



Size and Shape.

Geofoam is produced in block form and is easily positioned at the work site. Standard sizes:

- Project specified thickness, typically between 1" to 40"
- 4' width
- 8' length



Design Loads.

For most applications, long-term design loads should not exceed the linear elastic range of the Geofoam. Combined live and dead load stresses should not exceed the compressive resistance at 1% deformation. In general earthwork applications (such as levees, dikes, berms, etc.) uplift buoyancy force must be counteracted with overburden or restraint devices, such as geogrids, geomembranes, hold down devices, etc.

Storage.

Geofoam stands up well to normal short-term weather conditions encountered during installation. Geofoam should be ballasted to prevent displacement by wind or high-water conditions, both in storage and during all phases of construction.

Exposure.

Water: The mechanical properties of Geofoam are unaffected by moisture. Exposure to water or water vapor does not cause swelling.

Temperature: Geofoam can withstand the rigors of temperature cycling, assuring long-term performance. The maximum recommended long-term exposure temperature is 165°F (74°C).

Ignition Sources: Although flame retardants used in the manufacture of Geofoam provide an important margin of safety, Geofoam must be considered combustible and should not be exposed to open flame or any source of ignition.

Solvents: Adhesives, coatings and chemicals which contain solvents attack Geofoam and include esters, ketones, ethers, aromatic, and aliphatic hydrocarbons and their emulsions, among others. If Geofoam is to be placed in contact with materials (or their vapors) of unknown composition, pretest for compatibility at maximum exposure temperature.

Ultraviolet light (UV): Long-term exposure to sunlight causes yellowing and a slight embrittlement of the surface due to UV. This has little effect on mechanical properties. If stored outdoors, cover Geofoam with opaque polyethylene film, tarps, or similar material.

Termite, Carpenter Ant: Geofoam can be manufactured with borate, a proven and safe additive, that effectively mitigates wood boring insects.

Warranty.

Insulfoam® GF (Geofoam) is manufactured to the ASTM D6817 Standard Specification for Rigid Cellular Polystyrene Geofoam. Insulfoam warrants for a period of twenty (20) years, from the project completion date, that the Insulfoam Geofoam will meet the listed applicable minimum physical property requirements of ASTM D6817, if properly installed, maintained, and used for the purpose for which the manufacturer intended.

TYPICAL TESTED PHYSICAL PROPERTIES OF GEOFOAM*

ASTM D6817 Properties	Units	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 ** Min. @ 1% deformation	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 ** Min. @ 1% deformation	psf	320	520	840	1,050	1,570	2,160	2,680
Flexural Strength (min. psi)	psi (kPa)	10.0 (69)	25.0 (172)	30.0 (207)	40.0 (276)	50.0 (345)	60.0 (414)	75.0 (517)
Oxygen Index, min.	Volume %	24	24	24	24	24	24	24
Additional Physical Properties								
Compressive Res. Min. @5% deformation	psi (kPa)	5.1 (35)	8.0 (55)	13.1 (90)	16.7 (115)	24.7 (170)	35.0 (241)	43.5 (300)
Compressive Res. Min. @10% deformation	psi (kPa)	5.8 (40)	10.2 (70)	16.0 (110)	19.6 (135)	29.0 (200)	40.0 (276)	50.0 (345)
Dimensional Stability	max. %	< 2%	< 2%	< 2%	< 2%	< 2%	< 2%	< 2%
Buoyancy Force	lb/ft^3 (kg/m^3)	61.7 (990)	61.5 (980)	61.3 (980)	61.1 (980)	60.6 (970)	60.0 (960)	59.5 (950)
Poisson's Ratio	--	0.05	0.05	0.05	0.05	0.05	0.05	0.05
Coefficient of Friction	--	0.6	0.6	0.6	0.6	0.6	0.6	0.6
Absorption by Total Immersion	Volume %	< 4.0	< 4.0	< 3.0	< 3.0	< 2.0	< 2.0	< 2.0
Elastic Modulus, Min.	psi (kPa)	220 (1500)	360 (2500)	580 (4000)	730 (5000)	1090 (7500)	1500 (10300)	1860 (12800)
R-value @ 75F (1 in.)	--	3.4	3.9	3.9	4.2	4.4	4.5	4.6
R-value @ 40F (1 in.)	--	3.6	4.2	4.3	4.6	4.8	4.9	5.0

*Properties are based on data provided by resin manufacturers, independent test agencies and Insulfoam.
**The design load stresses should not exceed 1% strain for combined live and dead loads for Insulfoam GF applications.

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