



**Product Name**

GEOFOAM

April 26, 2019

**Associated Specification Section**

MasterFormat 2004 # 31 23 23.43

MasterFormat 1995 # 02321

**Manufacturer's Name**

Beaver Plastics Ltd.

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## PRODUCT DESCRIPTION

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### PRODUCT FEATURES

- DESCRIPTION / BASIC USES
  - Lightweight closed-cell polystyrene fill used in geotechnical applications to reduce settlement and/or enhance soil stability.
  - Reduces loads imposed on adjacent and underlying soils and structures.
  - A compressible inclusion under concrete and earth structures.
  - Pavement insulation to protect against frost heave and subgrade stress and deformation.
  - Utility protection for buried pipe, culverts, ducts, retaining walls and other below grade concrete structures.
  
- PRODUCT ATTRIBUTES AND CHARACTERISTICS
  - Lightweight soil replacement material:
    - 50 to 100 times lighter than soil.
    - Reduces settlement and enhances soil stability where subgrade cannot support anticipated loads using standard fill materials
    - Prevents large earth structures built on side slopes from shifting, sliding or compressing underlying ground.
    - Reduces vertical stresses and lateral forces on structures and retaining walls.
    - Reduces weight on underground structures like pedestrian, road and rail underpasses, and subway transportation tunnels.
  - Compressible inclusion under concrete and earth structures, absorbing frost and moisture induced swelling of underlying soil.
  - Protects underlying culverts, ducts, pipelines and other buried materials against unacceptable levels of stress, while preventing movement or subsidence of the overlying structure.
  - Provides vibration damping and thermal insulation.
  - Freeze/thaw resistant and low moisture absorption.
  - Contains no CFCs, HCFCs, or other refrigerant gases.
  - Biologically inert and will not support mold, mildew or fungus growth.
  - Contains a chemical additive to inhibit accidental ignition from a small fire source.
  - Non-toxic and hypo-allergenic.



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- **SELECTION CRITERIA**
  - Product is available in blocks measuring 4' x 4' x 8' and custom sizes in a range of densities.
  
- **APPLICABLE STANDARDS, RELATED REFERENCES**
  - ASTM C177 - Standard Test Method for Steady-State Heat Flux Measurements and Thermal Transmission Properties by Means of the Guarded-Hot-Plate Apparatus.
  - 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.
  
- **QUALITY STATEMENT, TESTS, CERTIFICATIONS, AND APPROVALS**
  - Performance tests certified by Intertek Testing Services Ltd.
  
- **PACKAGING, HANDLING, PROTECTION, AND DELIVERY INSTRUCTIONS**
  - GEOFOAM must be protected from damage during transit.
  - Pile void form material on raised platforms and protect from UV degradation during storage and after erection, if product is to be exposed for one month or more.
  - Provide ballast in windy conditions.
  
- **LIMITATIONS**
  - GEOFOAM is a solid foam product and does not collapse, exerting ever-increasing levels of force against concrete structures as soil expansion occurs. It should not be used under grade beams that have not been designed to absorb the stress transmitted by solid void materials.
  - Uplift buoyancy force must be counteracted with overburden or restraint devices, such as



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geogrids, geomembranes, or other hold down devices.

- Product must be protected from exposure to hydrocarbons, highly solvent extended mastic and coal tar pitch.
- Product will burn when exposed to large continuous flame.
- SAFETY PRECAUTIONS
  - Normal fire precautions and good housekeeping methods must be followed during storage and application.
- AVAILABILITY
  - Available direct from Beaver Plastics.
- COST
  - Varies with substrate condition and configuration, and specific application requirements.
  - Consult Beaver Plastics Ltd. for specific product costs or budget pricing.

**PRODUCT PROPERTIES**

- MATERIALS, COMPOSITION, PROPERTIES
  - Technical Properties
    - Rigid closed cell, expanded polystyrene (EPS) blocks.
    - Flame Spread Index/ Smoke Developed Index: Less than 25/450 to ASTM E84.

Type ASTM D6817	EPS 12	EPS15	EPS19	EPS22	EPS29	EPS39	EPS46
Density, min. kg/m <sup>3</sup> (lb/ft <sup>3</sup> )	11.2 (0.70)	14.4 (0.90)	18.4 (1.15)	21.5 (1.35)	28.8 (1.18)	38.4 (2.40)	45.7 (2.85)
Flexural Strength, min., kPa (psi)	69 (10.0)	172 (25)	207 (30)	240 (35)	345 (50)	414 (60)	517 (75)
Compressive Resistance at 1% deformation, min. kPa (psi)	15 (2.2)	25 (3.6)	40 (5.8)	50 (7.3)	75 (10.9)	103 (15.0)	128 (18.6)
Compressive Resistance at 5% deformation, min. kPa (psi)	35 (5.1)	55 (8.0)	90 (13.1)	115 (16.7)	170 (24.7)	241 (35.0)	300 (43.5)



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● **DIMENSIONS**

- Standard sizes available:

THICKNESS	NOMINAL WIDTHS*	LENGTH
75 mm to 1220 mm (3" to 48")	1220 mm (48")	Up to 2440 mm (8')

\*Other sizes and fabrication can be provided by the manufacturer.

**PRODUCT PLACEMENT**

● **PREPARATION**

- Clear and grub site.
- Excavate existing soil and dewater as required.
- Place a sand/leveling course over the prepared surface, 50 mm (2") thickness minimum. Level to +/-10 mm over 3 meters (1/2" per 10') horizontal.
- Place geotextile over graded surface if specified.

● **INSTALLATION**

- Place GEOFOAM blocks tightly on prepared sand pad/leveling course.
- If installing multiple layers, orient successive layers of blocks at 90° to previous layer. Offset block joints between layers.

● **MAINTENANCE INSTRUCTIONS AND PROCEDURES**

- Product should not be exposed to volatile hydrocarbons and anhydrous acids, which may attack the expanded polystyrene.



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**Corporate Identification**

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**Technical Services Available**

Phone toll free, fax or e-mail (see above)

**Classification and Filing**

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31 23 34.43 – Lightweight Foam Fill for Soils

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02321 – Lightweight Foam Fill for Soils

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**END**



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