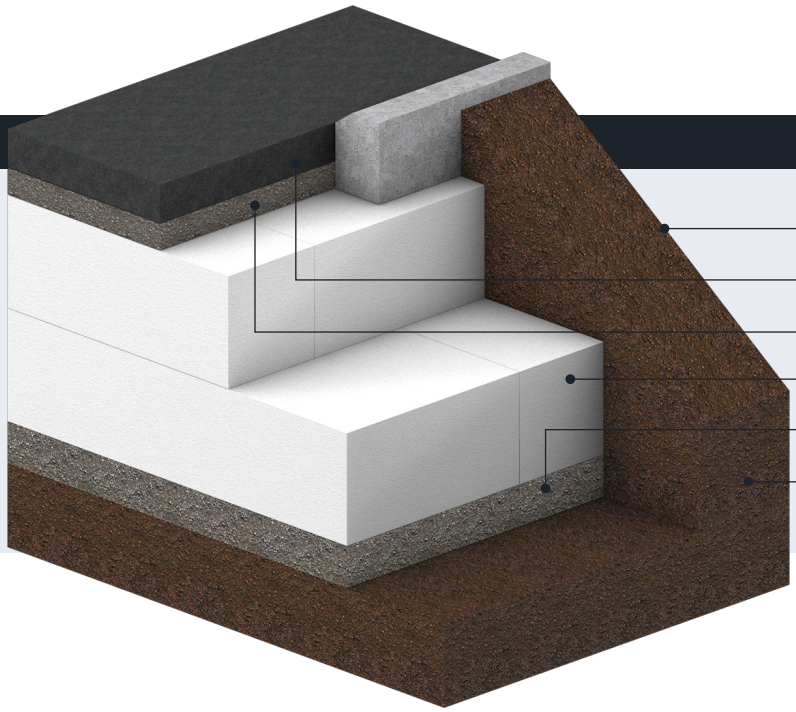
Stylite®

GEOFILL
DATASHEET

PR_15_93_30_28 - 2_030221

Expanding Possibilities



Typical Build-Up - Road Embankment

- New Soil Substrate
- Road Covering
- Road Base Course
- **Stylite Geofill Blocks**
- Blinding Layer
- Exsisting Soil Substrate

Standard Product Attributes

Length	up to 2400mm
Width	up to 1200mm
Thickness	up to 600mm
Grades	EPS 70 - 400

Design Standards

All our Stylite Expanded Polystyrene Geofill is manufactured in accordance to **BS-EN-13163-2012+A2-2016 & BS EN 14933:2007** under a Quality Management System accredited to **ISO 9001:2015** and an Environmental Management System accredited to **ISO 14001:2015.**

Product Overview

Stylite EPS Geofill is a lightweight, cellular plastic alternative to traditional fill materials such as soil or concrete. Manufactured off site it gives you the greatest possible control of your Civil Engineering project enabling you to design for key geosynthetic functions. Inherently multifunctional, Stylite EPS Geofill can be used in a wide range of Civil Engineering applications such as Earthworks & Structural Fill, Transportation and Architectural.

Product Benefits

- ☑ Lightweight compared to other fills
- ☑ High compressive strengths available
- ☑ Freeze / thaw resistant
- ☑ Lower overall cost of construction
- ☑ Reduce loads on underlying ground
- ☑ No reduction in performance over time
- ☑ Available in standard or bespoke blocks
- ☑ Minimal water absorption & permeability
- ☑ 100% recyclable
- ☑ No HFC's, CFC's or HCFC's

Need help specifying Stylite Geofill Lightweight Fill? Give us a call now on **: 01274 691 777**

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Design Considerations
With so many benefits for the use of EPS in civil engineering applications, specifiers of Stylite EPS Geofill must consider the following engineering properties and construction factors to ensure a successful project design.

Lightweight - EPS Geofill is approximately 1% the weight of soil and less than 10% the weight of other lightweight fill alternatives. As a result EPS Geofill reduces the loads and lateral stresses imposed on adjacent and underlying soils, structures and utilities.

Compressive Strength - EPS Geofill is available in a range of densities to provide options for specifiers who must consider the maximum loadings that will be imposed on their particular Civil Engineering Application.

Water Absorption - EPS Geofill has a closed cell structure which means it limits water absorption to minimal levels. When used in well-drained applications, no change in weight occurs, if installed in a submerged application EPS will have a negligible increase in the overall weight.

Ease of Handling - EPS Geofill blocks are easily carried and installed manually on-site without the need for specialist equipment or skills. This is an important consideration on restricted access sites where large earth moving and compaction equipment would be needed to install traditional fill materials.

Durability - EPS Geofill is a durable and rot proof material which will remain effective for the life of any civil engineering application. Fungi and bacteria cannot grow on EPS and offers no nutrient attraction to insects or vermin.

Typical Application
There are alot of different applications that would utilise Stylite EPS Geofill, they typically fit within the following three catagories ;

Earthworks & Structural Fill
The use of EPS Geofill in earthworks and structural fill applications provides the benefit of reducing both vertical and lateral pressures on the ground below and adjacent structures. EPS Geofill is easy to install, does not require surcharging, pre-loading or staging and is a cost-effective engineering solution.

- Retaining Walls
- Compensating Foundation
- Landscaping
- Lightweight Voidfill
- Bridge Abutments
- Pipelines & Culverts

Transportation
The use of EPS Geofill in transportation applications provides the benefit of excellent compressive strength and minimal long term compression where loads are permanent or cyclic. EPS Geofill is quick and easy to install, does not require staged construction and is a cost-effective alternative to traditional fill materials.

- Road Construction
- Rail Embankments
- Bridge Infilling
- Airport Runways
- River Embankments
- Ramps

Architectural
The use of EPS Geofill in architectural applications provides the benefit of being a strong but lightweight material. Easy cutting allows the on-site preparation of complex shapes to match the most demanding architectural and design requirements making it the preferred material of choice.

- Cinema & Stadium Seating
- Pool & Pool Decks
- Concrete Forming
- Green Roof Gardens

You can find more information specific to EPS voidformers for concrete forms in our Stylite EPS Forms Datasheet.

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PR_15_93_30_28 - 2_030221

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Specifying Geofill
To specify EPS Geofill in lightweight fill applications the predicted load per unit area can be used to approximate the percentage of compression each grade of EPS will exhibit. The equation below allows prediction of the compression up to the elastic limit of 2%. The Young's modulus for each grade can be obtained from the table below.

Note this is only a guideline for what grades of EPS would need to be specified on an individual job basis. For help specifying Stylite Geofill contact our sales team on 01274 691777 and we will be more than happy to help.

$$\frac{\text{Load Per Unit Area (N/mm2)}}{\text{Youngs Modulus (N/mm2)}} \times 100 = \text{\% Compression}$$

Geofill Grade	Youngs Modulus (Eti) (mPa)	Compressive Strength @10% (kPa)	Bending Strength (kPa)
EPS 70	3.0	70	115
EPS 100	4.5	100	150
EPS 150	7.0	150	200
EPS 200	9.0	200	250
EPS 250	10.0	250	350
EPS 300	13.5	300	450
EPS 350	15.2	350	525
EPS 400	17.3	400	600

Durability
Expanded Polystyrene is rot proof, Expanded Polystyrene is not affected by bacteria, moulds or fungi, and will not provide nutrient value for insects or vermin.

Expanded Polystyrene does not lose any performance over time and will remain an effective insulation for the life of the building.

Compatibility
Expanded Polystyrene should be kept away from hydrocarbons, solvents and volatile substances, however, Expanded Polystyrene is compatible with most chemicals and materials found in common construction environments. For more information, a full list of chemical behaviours is available on our website.

Stylite Expanded Polystyrene should not come into contact with any PVC cables. This is to avoid plasticizer migration which causes PVC cables to become brittle and fragile. Any PVC cables should be protected within a suitable conduit or with a suitable air gap.

Moisture Resistance & Breathability
Stylite Expanded Polystyrene is hydrophobic and highly resistant to the absorption of water but will allow a very minimal amount of water vapour transfer. Expanded Polystyrene is often utilised with a suitable damp proof membrane or vapour control layer to avoid any unwanted water ingress.

Reaction To Fire Classification
Stylite Expanded Polystyrene will achieve reaction to fire Euroclass F. However, the classification achieved when installing in a building will be considerably better. We also supply FRA grades which contain a Fire Retardant Additive and achieve reaction to fire Euroclass E.

Sustainability
Our Stylite Expanded Polystyrene does not contain HFC's, CFC's or HCFC's. Expanded Polystyrene has a Global Warming Potential (GWP) of zero and a low O-Zone Depletion Potential (ODP).

Our Expanded Polystyrene is 100% recyclable. For more information on our recycling policy, you can contact our office to find out more, or alternatively visit our website.

BRE Green Guide Rating
Expanded Polystyrene achieves a green guide rating from **A+**. For a full overview of grades and ratings please see technical specifications overleaf.

Delivery & Storage
The boards are delivered to site in packs, wrapped in polythene. They must be protected from prolonged exposure to sunlight and UV rays. Packs should be stored either under cover or protected with opaque light-coloured polythene sheeting. The products must be stored fully supported and flat on a firm, level base, to prevent bowing.

The products must not be exposed to open flame, care should still be taken to ensure EPS doesnt come into contact with any source of ignition.

Safety
Expanded Polystyrene is non-toxic, non-irritant and odorless, making it completley safe to handle. It can be cut on site using a fine tooth saw or a hot wire cutter. For more information refer to our Saftey Data Sheet available on our website.

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Physical Properties	EPS 70	EPS 100	EPS 150	EPS 200	EPS 250	EPS 300	EPS 350	EPS 400
Thermal Conductivity (W/mK)	0.038	0.036	0.034	0.034	0.034	0.034	0.034	0.034
Compressive Strength @ 10% (kPa)	70	100	150	200	250	300	350	400
Compressive Strength @ 1% (kPa)	20	45	70	90	100	120	140	160
Long Term Compressive Creep Strength (kPa)	21	30	45	60	75	90	105	120
Bending Strength (kPa)	115	150	200	250	350	450	525	600
Shear Strength (kPa)	55	75	100	125	170	225	260	300
Cyclic Loading Strength (kPa)	24.5	35	52.5	70	87.5	105	122.5	140
Reaction to Fire - Standard EPS	F	F	F	F	F	F	F	E
Reaction to Fire - Fire Rated EPS	E	E	E	E	E	E	E	E
Youngs Modulus (Eti) (mPa)	3.0	4.5	7.0	9.0	10.0	13.5	15.2	17.3
Length Tolerance	L2	L2	L2	L2	L2	L2	L2	L2
Width Tolerance	W2	W2	W2	W2	W2	W2	W2	W2
Thickness Tolerance	T2	T2	T2	T2	T2	T2	T2	T2
Flatness Tolerance	P5	P5	P3	P3	P3	P3	P3	P5
Squareness	S2	S2	S2	S2	S2	S2	S2	S2

Please note: The information contained within this datasheet is true and accurate at the date of issuance and is subject to change without prior notice. It is for guidance only the proper use and application of this product is the responsibility of the user.

All Stylite Expanded Polystyrene is manufactured to the following standards - **BS-EN-13163-2012+A2-2016 & BS EN 14933:2007**

6 PS

CE

A+ BRE

MADE IN BRITAIN

ISO 14001 CERTIFIED
UKAS MANAGEMENT SYSTEMS
British Assessment Bureau

ISO 9001 CERTIFIED
UKAS MANAGEMENT SYSTEMS
British Assessment Bureau

Styrene Packaging & Insulation Ltd
Morley Carr Rd, Low Moor, Bradford BD12 0RA
VAT Reg No.40876392 - Company Reg No.1800539