EXPOL GEOFOAM

BUILDING PRODUCT INFORMATION SHEET (CLASS 1)

Product Name:

EXPOL GeoFoam.

This includes the following products:

- *EXPOL GeoFoam* https://www.expol.co.nz/expol-geofoam/

Product Description and its intended use:

EXPOL GeoFoam is available in a range of:

- Sizes (from 2450mm x 1220mm x 630mm to 4900mm x 1220mm x 630mm),

- Grades (Recycled / S Grade / M Grade / H Grade and VH Grade).

EXPOL GeoFoam is used as lightweight fill in problematic situations.

It is multi-functional and is suitable for a wide range of applications, including construction on soft ground, slope stabilization and civil infrastructure work such as bridge abutments, airfield pavements and railway track systems.

Product Identifier:

- *EXPOL GeoFoam* (all sizes, thicknesses and grades).

Place of Manufacture:

New Zealand ☒

Overseas ☐

EXPOL GEOFOAM

BUILDING PRODUCT INFORMATION SHEET (CLASS 1)

Legal and trading name of the manufacturer (s):

EXPOL Limited

Address for Service:

105 Captain Springs Road

Onehunga

AUCKLAND 1061

Website:

www.expol.co.nz

Email address:

tech@expol.co.nz

Phone No.:

0800 86 33 73

NZBN:

9429040411026

Relevant Building Code Clauses:

- Clause B2 Durability, performance B2.3.1 (a), B2.3.1(b),

- Clause E3 Internal moisture performance E3.3.1,

- Clause F2 Hazardous building materials performance F2.3.1,

EXPOL GEOFOAM

BUILDING PRODUCT INFORMATION SHEET (CLASS 1)

Statement on how the building product is expected to contribute to compliance:

- **Clause B2 Durability, performance B2.3.1 (a), B2.3.1(b):** ***EXPOL GeoFoam*** has a durability of at least 50 years where transported, stored and installed correctly.

Refer to the design and installation requirements for further information.

- **Clause E3 Internal moisture performance E3.3.1:** ***EXPOL GeoFoam*** is moisture resistant where transported, stored and installed correctly.

Refer to the design and installation requirements for further information.

Refer to https://www.expol.co.nz/resource-centre/?wpdmdl=4221 for water vapor transmission rates by grade.

- **Clause F2 Hazardous building materials performance F2.3.1:** ***w*** is an inert, non-toxic material.

Limitations on the use of the building product:

EXPOL GeoFoam is manufactured in a range of grades.

Each grade has its own physical properties and as such care should be taken to ensure that the selected grade meets the projects requirements for Compressive Resistance and Cross Breaking Strength.

All ***EXPOL GeoFoam*** has been tested as follows:

- Compressive Resistance is tested to AS 2498.3.1993
- Cross Breaking Strength has been tested to AS 2498.4

Compressive Resistance and Cross Breaking Strength results are available at https://www.expol.co.nz/expol-geofoam/

Chemical Exposure

EXPOL GeoFoam can be damaged when exposed to certain hydrocarbon chemical and may need protection. There are a number of hydrocarbon resistant geomembranes that are suitable for protection of ***EXPOL GeoFoam***. Make sure that the geomembranes used are compatible with Expanded Polystyrene. For example, polypropylene, polyethylene, chlorosulphonated polyethylene (CSPE) and Ethylene Interpolymer Alloys (EIAs) are compatible geomembranes. If using ***EXPOL GeoFoam*** in a location with contaminated soils, laboratory testing should be performed to determine the nature of the contaminants and their possible effects.

Fire

Like many construction materials, Expanded Polystyrene is combustible. ***EXPOL GeoFoam*** is manufactured with a flame retardant. Appropriate precautions should be implemented at project sites if open flame procedures, such as welding, will be performed. In geotechnical finished applications ***EXPOL GeoFoam*** is protected from exposure by soil, concrete or other cover materials. When used within buildings, gypsum board or concrete should be used for protection.

- Expanded Polystyrene is combustible.

- A flame retardant is part of ***EXPOL GeoFoam***. This retardant inhibits the early stages of fire development.

UV Light

Expanded Polystyrene is susceptible to ultraviolet degradation if exposed to sunlight for long periods of time. Degradation caused by prolonged exposure to sunlight is generally surficial (yellow coloured dust) and does not cause detrimental property changes of practical importance. This discolouring can be removed by power washing or a grinder, if desired.

Wind

Wind speeds should be monitored during construction to determine if overburden weight restraints such as sandbags should be placed on top of the ***EXPOL GeoFoam*** to prevent the blocks from shifting.

Buoyancy

Because of its closed-cell structure and light weight, ***EXPOL GeoFoam*** is buoyant. Care must be taken during design, construction and postconstruction to ensure that the potential flotation forces are accounted for within the hydrological conditions of the site. Adequate surcharge, i.e., soil or pavement cover, or an alternate means of passive restraint must be provided against uplift. Alternately, the material can be installed above the water table or the water table can be lowered using suitable drains or other dewatering systems. Drainage (generally a sand or gravel layer) can be provided between the ***EXPOL GeoFoam*** fill and the natural soils to reduce potential uplift forces. Providing for adequate drainage of groundwater and/or surficial waters below the ***EXPOL GeoFoam*** prevents water from infiltration and reduces the development of uplift forces.

Water Absorption

EPS has a closed-cell structure that limit water absorption. When used in well-drained conditions, no change in ***EXPOL GeoFoam*** weight is expected over time. A slight increase in the weight of ***EXPOL GeoFoam*** can be expected over time due to water absorption if installed in a submerged application.

EXPOL GEOFOAM

BUILDING PRODUCT INFORMATION SHEET (CLASS 1)

EXPOL GeoFoam complies with manufacturing standard AS 1366 Part 3 1992.

Design requirements that would support the appropriate use of the building product:

- When transporting, storing or installing, ensure the ***EXPOL GeoFoam*** is not exposed to:

  - Petroleum based solvents, or
  - Fire, or
  - Sustained direct sunlight.

- PVC sheathed electrical cables should not be allowed direct contact with ***EXPOL GeoFoam*** .

There are numerous design considerations for ***EXPOL GeoFoam*** applications. These considerations include engineering properties and construction factors. This section presents some of the advantages and unique features of building with ***EXPOL GeoFoam***, as well as precautions that must be followed.

Lightweight

EXPOL GeoFoam is manufactured in various unit weights that typically range from about 12 – 28 kilograms per cubic meter. As a result, they impart small dead load or stress to underlying soils, structures and utilities. This is especially advantageous where the existing soils are poorly suited to support additional loading (e.g., compressible clay, peats, etc.). In fact, existing loads can be significantly reduced by excavating and replacing native soils, which commonly weigh about 1.60 kilograms per cubic meter, with ***EXPOL GeoFoam.*** This can eliminate the need for specialised foundations or site preloading to reduce settlement and improve bearing capacity. The use of ***EXPOL GeoFoam*** over existing utilities can eliminate the need for utility relocation. The use of ***EXPOL GeoFoam*** behind earth retaining structures, such as bridge abutments, can reduce lateral stresses.

Strength

EXPOL GeoFoam is available in a range of compressive resistances. A project designer can choose the specific type of Expanded Polystyrene required to support the design loading while minimising cost. Several different types of ***EXPOL GeoFoam*** can be specified on a single project to maximise savings. For example, higher strength ***EXPOL GeoFoam*** can be used in high applied stress areas while lower strength blocks are used in areas where the applied stresses are lower. ***EXPOL GeoFoam*** design loads are recommended to not exceed the compressive resistance at 1% capacity. This limit controls the amount of long-term deflection, or creep, resulting from permanent sustained loads.

Note: Adequate soil cover, or a load distribution slab, may be needed to distribute heavy concentrated loads.

Construction Time

EXPOL GeoFoam helps projects maintain extremely tight construction schedules. The ease and speed with which ***EXPOL GeoFoam*** can be constructed results in shorter construction time because of faster placement rates, reduced utility relocation and less disruption of traffic in urban areas. Additionally, adverse weather conditions typically do not affect placement rates of ***EXPOL GeoFoam***.

Ease of Handling

No special equipment is required when building with ***EXPOL GeoFoam***. Blocks can often be carried and set in place by labourers or easily handled with mechanised equipment. This is an important consideration when the construction site is congested or does not have the clearances required for traditional placement or compaction equipment. ***EXPOL GeoFoam*** can be field cut using a hot-wire cutter, hand saw or chain saw. The ***EXPOL GeoFoam*** can be trimmed on site to accommodate the shapes of existing underground utilities and services.

Construction Cost

In addition to other project costs, using ***EXPOL GeoFoam*** reduces the loading on adjacent supporting structures. Adjacent structures can be designed to be less robust and therefore less expensive. This is particularly important for underground utilities. Typically, the higher cost of some types of lightweight fill materials is usually offset by savings when all of the project costs are considered, such as lower installation costs and lower maintenance. Available in a range of compressive resistances, ***EXPOL GeoFoam*** allows for economical project design.

Stability

EXPOL GeoFoam is considered a permanent material when correctly specified and installed.

Insulation

Expanded Polystyrene is an efficient thermal insulator. Expanded Polystyrene has been used for many years as insulation for various building applications. Although some applications may not directly utilise the insulation value of ***EXPOL GeoFoam***, this aspect should be considered in all designs.

EXPOL GEOFOAM

BUILDING PRODUCT INFORMATION SHEET (CLASS 1)

Installation Requirements:

Installation Requirements:

- There are no special requirements for PPE when handling or installing ***EXPOL GeoFoam***. It is an inert, non-toxic material.

- When transporting, storing or installing, ensure the ***EXPOL GeoFoam*** is not exposed to:

  - Petroleum based solvents, or
  - Fire, or
  - Sustained direct sunlight.

- PVC sheathed electrical cables should not be allowed direct contact with ***EXPOL GeoFoam***.

- ***EXPOL GeoFoam*** is compatible with all common construction products.

Maintenance Requirements:

- No maintenance required.

Is the building products/ building product line subject to a warning or ban under section 26 of the Building Act 2004:

Yes ☐

No ☒

If yes, description of the warning or ban undersection 26:

N/A

Date

06 / 04 / 2023

EXPOL GEOFOAM

BUILDING PRODUCT INFORMATION SHEET (CLASS 1)

Version	Date	Description of changes and person responsible for making changes
1.0	04/04/2023	First draft (Cameron Brooks)
1.1	06/04/2023	Reviewed and approved (Cameron Brooks)