



Claymaster

Building Substructure - Below ground clay heave protection

Claymaster is an EPS compressible-fill material used to reduce the pressure against foundations due to clay heave.

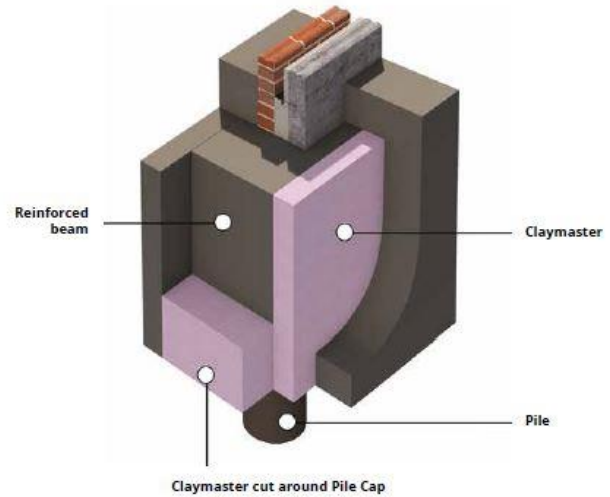
Supplied coloured pink to easily differentiate from standard EPS.

It is installed to the sides of deep trench fill and to the base and sides of concrete beam piled foundations.

Claymaster has been tested and approved by the British Board of Agrément (BBA) as a compressible fill material to reduce the pressure exerted on concrete foundations from expanding clay soils (clay heave). Certificate number 90/2543.

Claymaster does not degrade when placed in high moisture areas and is resistant to the effects of freeze thaw. Claymaster will remain an effective compressible fill for the life of the building.

Claymaster is lightweight and easy to install. There are no requirements for special PPE when installing or cutting Claymaster. (full installation details are shown later)



Dimensions

Standard Size	1200 x 2400mm and 600 x 1200mm (other sizes available to suit beam dimensions)
Standard Thickness	50, 75, 100, 150 and 200mm (Other thicknesses available to order)

Application

There are no specific requirements in the Building Regulations for the use of compressible-fill materials. Regulation A2 states that 'buildings shall be constructed so that ground movement caused by swelling, (or) shrinkage ...of the subsoil... will not impair the stability of any part of the building'. Claymaster has been assessed by the BBA to prove its performance in meeting the requirement of this Regulation when installed in areas of possible clay heave.

The NHBC Standards, Chapter 4.2, 'building near trees', states that low-density compressible polystyrene is a suitable proprietary material to alleviate ground pressures on foundations in shrinkable soils.

The table below shows thickness of Claymaster required to meet the recommended void dimensions given in the NHBC guidance.

GROUND HEAVE POTENTIAL	UNDERSIDE OF BEAM		SIDE OF FOUNDATION AND BEAM	
	NHBC VOID REQUIRED (mm)	CLAYMASTER THICKNESS (mm)	NHBC VOID REQUIRED (mm)	CLAYMASTER THICKNESS (mm)
High	150	250	35	75
Medium	100	175	25	50
Low	50	100	0	0



APPLICATION

Design

The following calculation may be used to ascertain the accurate thickness of Claymaster required.

$$T = 100 \times (H \div C) + 10$$

where:-

T = Thickness of Claymaster to be specified

H = Predicted maximum clay heave in mm

P = Maximum acceptable vertical pressure on the underside of the concrete ground beam

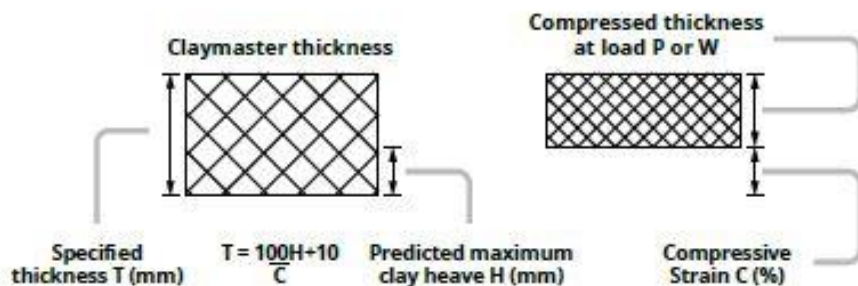
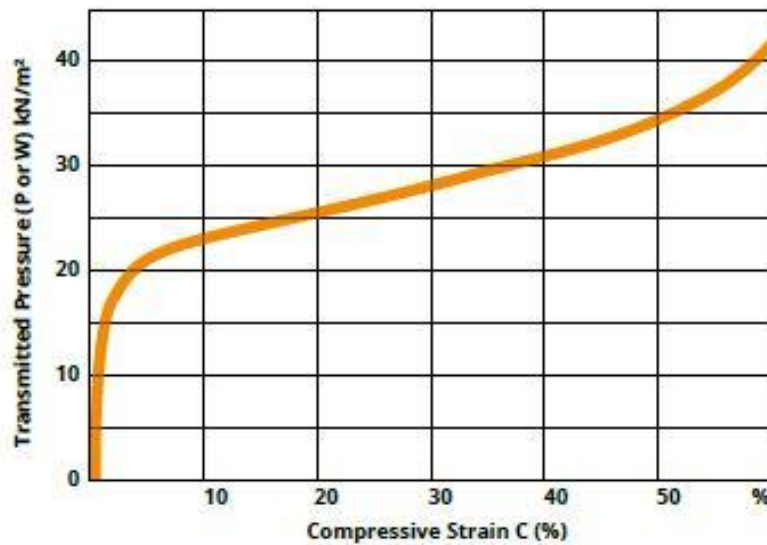
W = Maximum acceptable lateral pressure to the sides of the concrete foundations (usually less than 40kN/m²)

C = Compressive strain (%) in Claymaster under given pressure P or W (taken from graph below)

This calculation allows for any initial deflection in the Claymaster under the load of wet concrete.

When designing ground beams to support the weight of the building, care should be taken to prevent excessive local deflection of the beam in areas of low load, such as below patio doors.

Jablite Claymaster Compression Curve





Accreditation :

BBA	Jablite Claymaster has been assessed and approved by the British Board of Agrément for use as a compressible fill material in foundation construction. Certificate number 90/2543
NHBC Approved	NHBC accepts the use of Jablite Claymaster, provided it is installed, used and maintained in accordance with the BBA Certificate, in relation to NHBC Standards, Chapters 4.2 Building near trees; 4.3 Strip and trench foundations and 4.4 Raft, pile, pier and beam foundations.
CE marking	Jablite have taken the responsibility of CE marking the product in accordance with harmonised European Standard BS EN 14933 Declaration of Performance is available on request.
Quality	All Jablite products are manufactured in production facilities which are certified to ISO 9001 Quality Management
Environmental Responsibility	All Jablite manufacturing facilities are ISO 14001 certified. We operate an Environmental Management System which includes our supply chain (see BREEAM section for more information)
Compliance	Jablite Claymaster conforms to the required properties as defined in BS EN 14933 – Thermal insulation and light weight fill products for civil engineering applications – Factory made products of expanded polystyrene (EPS) – Specification
Fire	Concrete foundations below ground are not required to provide fire resistance. When properly installed Jablite Claymaster is fully protected by the foundation construction and soil backfill and will have no adverse effect on the fire performance of the building into which it is installed. Jablite Claymaster is supplied as Euroclass E flame retardant material as standard.



Environment and Sustainability :

A+	Jablite Claymaster is manufactured from EPS (expanded polystyrene) which achieves an A+ rating in the BRE Green Guide to Specification.
Climate Change	Jablite Claymaster has an ozone depletion potential (ODP) of zero and a global warming potential (GWP) of less than 5. EPS does not create any known risk to the environment
100%	Jablite Claymaster is 100% recyclable.
BREEM	<p>Responsible Sourcing.</p> <p>Jablite products are manufactured in factories which are ISO 14001 and ISO 9001 certified Jablite purchases raw material from suppliers who are ISO 14001 certified. The ISO certificate are in the Technical Resource Centre on the Jablite website www.Jablite.co.uk</p> <p>Key Process (Insulation Manufacture) ISO 14001: Certificate Number EMS 559414</p> <p>Supply Chain Processes (supply of materials for end products) ISO 14001: Certificate Number NL 015213-1</p> <p>Embodied Impact Jablite EPS is manufactured using low energy processes.</p> <p>The calculation of embodied impact relative to thermal performance is a function of the material volume (for each build), its BRE Green Guide Rating and its thermal conductivity.</p> <p>The thermal conductivity of our products is available on both the product packaging and this datasheet</p>
Biological Properties	Jablite Claymaster is non-toxic and non-biodegradable. Jablite Claymaster will not sustain mould growth and has no nutrient value to insects or vermin.





INSTALLATION

Claymaster has sufficient compressive strength to withstand the weight of up to 600mm of wet concrete being placed directly onto its surface.

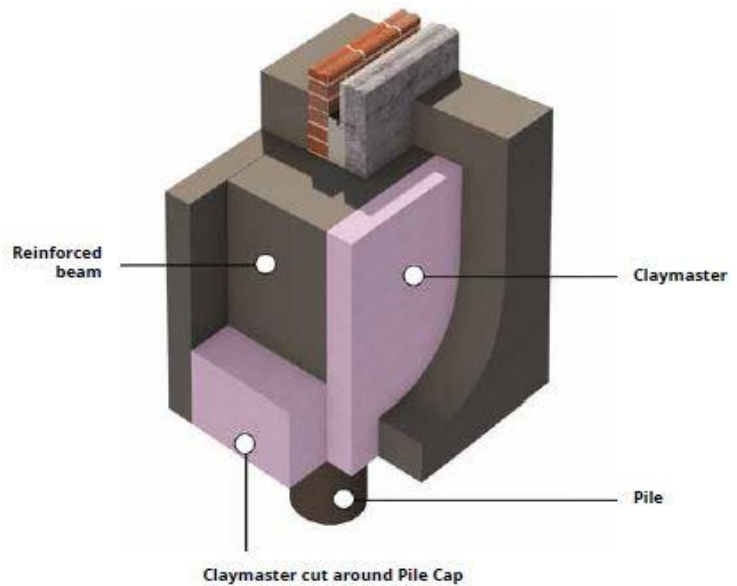
Where the concrete is to be thicker than 600mm allowance must be made to place the concrete in more than a single pour.

Claymaster is not designed for use below concrete ground floor slabs.

Piled Ground Beams

The trench should be excavated as normal but taking account of the thickness of Claymaster to be used.

The bottom of the trench should be flat and even, and if necessary, be blinded with granular fill or concrete.



Claymaster boards are laid in the bottom of the trench, ensuring that the full width of the trench is lined and that the boards are butted tightly together.

Where concrete piles protrude into the trench, the Claymaster boards should be neatly cut to fit, or factory-cut sections should be used.

The appropriate side of the ground beam, normally the inside face of an external wall, should be lined with Claymaster, ensuring that the material is fully supported to the required depth.

Claymaster must be adequately supported and restrained to prevent movement during concrete placement.

Spacer blocks may be required at the sides to ensure the correct depth of concrete cover is obtained to the steel reinforcement. Alternatively, the vertical Claymaster boards may be positioned after the ground beam has been cast.

Vertical faces of trench fill

Care should be taken that the foundation bottom is below the zone of movement.

The appropriate side of the excavation, normally the inside face, should be lined with Claymaster, ensuring that the material is fully supported to the required depth.

To meet requirements of NHBC a 500mm-deep concrete toe, the same thickness as the compressible fill, should be created below the Claymaster boards.

Claymaster must be adequately restrained to prevent uplift during concrete placement.

In flint or boulder clay soils, plywood sheeting may be required to provide external support to the Claymaster.

Reinforcement

Suitable spacer pads or blocks must be provided for steel reinforcement. They should be sufficient to reduce the pressure on the Claymaster to less than 15N/m², this prevents penetration into the surface of the Claymaster.

Note: Jablite EPS products are compatible with all common building materials. Direct contact with hydrocarbons and strong solvents should be avoided. A suitable membrane such as polythene sheet may be used to separate Jablite EPS from these substances.