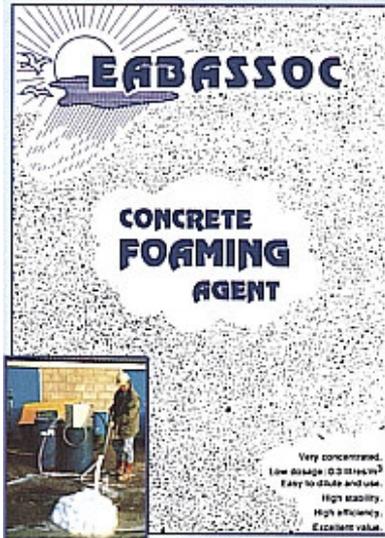


EABASSOC

LIGHTWEIGHT FOAMED CONCRETE



What is EABASSOC Lightweight Foamed Concrete?

EABASSOC Foamed Concrete is a lightweight, free flowing material which is ideal for a wide range of applications. It can have a range of dry densities, typically from 400 kg/m³ to 1600 kg/m³ and a range of compressive strengths, 1 N/mm² to 15 N/mm².

It can be placed easily, by pumping if necessary, and does not require compaction, vibrating or levelling. It has excellent resistance to water and frost, and provides a high level of both sound and thermal insulation. It is very versatile, since it can be tailored for optimum performance and minimum cost by choice of a suitable mix design

How is it made?

EABASSOC Foamed Concrete is made by adding special foam to a cement mortar slurry. This foam is made from **EABASSOC Concrete Foaming Agent**. This is a highly concentrated, highly efficient, low dosage liquid, which is fed, with water, into an **EABASSOC Foam Generator** (or similar).

Inside the Foam Generator, the **EABASSOC Foaming Agent** is diluted with water to make a pre-foaming solution which is then forced at high pressure, through the foaming lance. This produces a uniform, stable foam, which has a volume of about 20 to 25 times that of the pre-foaming solution.

What are its Advantages?

- Does not settle, hence requires no compaction.
- Lightweight...does not impose large loadings.
- Free flowing...spreads to fill all voids.
- Excellent load spreading characteristics.
- Once placed requires no maintenance.
- Excellent sound and thermal insulation.
- Excellent resistance to freeze-thaw cycle.
- Does not impose lateral loads.
- Low water absorption over time.
- Excellent fire resistant properties.
- Highly cost effective.
- Non-hazardous.
- Reliable quality control so batches are easy to reproduce.

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Applications of Lightweight Foamed Concrete

Roofing Insulation

For many years **EABASSOC Lightweight Foamed Concrete** has been supplied for *roofing insulation* in the Middle East. A low density mix is chosen, and the resulting high air content gives the material excellent thermal insulation properties. The low density also has the advantage that it does not significantly add to the overall weight of the roof.

Dry Density (kg/m ³)	Compressive Strength (N/mm ²)	Thermal Conductivity (W/mK)
430	1.34	N/A
513	1.61	N/A
614	2.31	0.084

Trench Reinstatement

Foamed Concrete is being introduced in many countries as a new and better material for *trench reinstatement* (this is the filling of trenches dug in roads when pipes are laid, or repairs are carried out).

The traditional methods of filling trenches in roads, i.e. the use of granular materials, resulted in settlement and damage to both the road and the pipes. With foamed concrete there is no settlement.

Also, the excellent load spreading characteristics of **EABASSOC Foamed Concrete** means that axle loads are not transmitted directly to the services in the trench, so the pipes are not damaged by the weight of traffic.

Void Filling

Void filling is also a very useful application. Because foamed concrete is very fluid it will pour into even the most inaccessible places. It was used to fill and stabilise the hole created when a section of the new underground railway at Heathrow airport collapsed during construction.



Discharge from a readymix truck for Trench Reinstatement

Foamed concrete has been used to fill old sewers, basements and storage tanks, and because it is free flowing and does not impose large lateral loads, it is a far better material for this kind of work than other, more traditional materials. The free flowing foamed concrete fills every gap and can be applied even through small openings. This is very important because it makes the work much easier and cheaper than do other methods.

Warehouse Walls

EABASSOC Foamed Concrete has been specified for cast in situ *warehouse walls*. The warehouse, built on a steel skeleton, will have the non-loadbearing outside walls made from foamed concrete cast in place. This will provide a quick and cheap method of building, with the added advantage of excellent thermal insulation.

Bridge Abutment

Another new application is **bridge abutment**. Foamed concrete has been used in bridge abutments instead of the traditional granular materials with great success. With traditional abutments, there is a lot of sideways pressure against the bridge walls caused by the materials used, and their compaction.



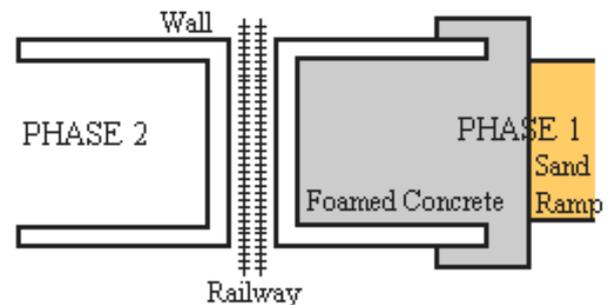
Placement by pumping for Bridge Abutment

Such settling and sinking causes subsidence of the road, which necessitates costly repair work. However, when foamed concrete is used there is no settling, and sinking is reduced by adjusting the weight of the abutment by a choice of a suitable mix design.

Foamed concrete is very easily placed. It can be poured or pumped into the site, and does not require any compaction.

This diagram shows the site of the first ever bridge abutment job carried out in the UK. In this case the bridge was being built across soft ground, and foamed concrete was chosen as the fill material to reduce settlement as well as to reduce the wall thickness and number of piles required..

The wall thickness was reduced by 500mm, 40 fewer piles were needed, and the projected settlement was cut by 50%.



The first phase of a bridge abutment contract in the UK

Tunnelling

Foamed concrete is an ideal material for **tunnel construction and repair**. It is used both for the filling of voids created or expose during the tunnelling work, for grouting the finished work, including gaps behind the tunnel lining.

Floor construction

Foamed concrete provides a very good material for floor construction. It is ideal for building subfloors quickly and cheaply, and can be used for levelling terrain and raising floor levels, as well as for insulation purposes.



When a raised floor was designed for a large warehouse to permit forklift trucks to drive straight into containers without ramps **EABASSOC Foamed Concrete** was chosen to make the 1m thick floor slab. By selecting an appropriate mix design, it was possible to prevent the slab from sinking into the ground.

Other Uses

EABASSOC Foamed Concrete can also be used in the production of *lightweight precast blocks*. The traditional method of producing lightweight blocks involves the use of aluminium powder, and autoclaving, but this is not popular due to the pollution it causes. There are no waste products in the production of foamed concrete, and all the ingredients are non-hazardous.

Another application that foamed concrete has found is *soil stabilisation*. It has been used to stabilise embankments after landslides, and has also been used in several highway widening projects in Japan.

The excellent fire resistant properties of foamed concrete make it an ideal material for *fire breaks* in buildings where there are large undivided spaces. It is used to fill the underfloor space to prevent the spread of flames through the services void between floor and ceiling.

Because **EABASSOC Foamed Concrete** is light (densities can range from 400 kg/m³ to 1600 kg/m³), it is a suitable material for the construction of the *road foundations* for roads built on soft ground. Roads built using foamed concrete as the sub-base weigh less, and so do not sink much into the soft ground, unlike roads built in the traditional way, using roadstone as the sub-base.



Placement with the use of removable shuttering

Foamed concrete had also been used on factory floors as an insulation screed. It makes an ideal flooring material for paper mills where it is necessary for the reactors to be well insulated to prevent heat losses.

Land reclamation is another area where foamed concrete is finding a use. It has been successfully used for large harbour fills, and has the advantage that it does not sink into the soft sub-soil the way that traditional materials (usually sand and stones) do, so the site can be redeveloped months or even years sooner than would otherwise be possible.

The EABASSOC Foam Generator

EABASSOC Foamed Concrete is made by adding foam to a cement mortar slurry. This foam is made in the **EABASSOC Foam Generator**, shown here. In the machine, **EABASSOC Foaming Agent** is diluted with water, and forced at high pressure through a foaming lance, producing a stiff white foam.

Quality Control

Before pouring the foamed concrete, the wet density of the material should be checked, in order to ascertain that it comes within the specified parameters. If it does not, then the mix design can easily be modified on site by altering the foam addition.

The wet density should also be checked after placing to ensure that there has been consistency throughout the batch. This is essential if the foamed concrete has been pumped.

It is also necessary to take samples (in polystyrene cube moulds), which can be crush tested for compressive strength after, say 28 days.

EABASSOC Contracting

EABASSOC Contracting Division is available to carry out every kind of work involving foamed concrete. In addition to actual contracting, we can also undertake supervision and training of workers.

