



Foam Concrete

- What is it how do I use it?

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Foam Concrete – What is it how do I use it?

Top Tips

- Foam concrete is usually placed into trenches or used to back fill voids in highways, it is important to know what strength is required for different types of roads.
- When cube testing foam concrete use 150mm polystyrene cubes, do not compact the concrete and test at 28 days.
- For jobs that require a quick turn around, it is also possible to use an accelerating admixture in the mix to help achieve this.
- Although Portland Cement (CEM I) is usually used in foam concrete it is possible to also use combination cements like CEM II
- Making foam concrete doesn't have to involve virgin separate materials, it's possible to make it using just sand or with recycled aggregates or even with the original trench material. Choose the one best suited for your business and the local roads.

Overview

Foam Concrete is known also as cellular concrete or foam-crete and it is most commonly confused with air entrained concrete. The air or voids in the concrete are added to the mix by the chemical reaction between the admixture and the cement; these large bubbles give the cured concrete the light density and lower strength that is required for the end use.

Foam concrete will often have a minimum 25% air content and this is what separates it from air-entrained concrete which can have about 3-10% air content dependent on the aggregates used, also air entraining admixtures primarily work with the fines content of the mix rather than the cement.

Air entrained concrete should be used for any concrete paving, pathway or driveway that will be exposed to the freeze-thaw effect. Where as Foam concrete is specifically used in the filling of highways after utilities equipment has been repaired or replaced.

How is it made?

Two general methods exist for making foamed concrete; the first is through the use of admixtures into the mixing water which relies on the previously mentioned chemical reaction between the admixture and the cement.



The second method is to use a foam generator that adds a '**shaving foam type**' material into the mix near the end of the mixing process and can achieve up to 50% air content in the concrete.



Properties of Foam Concrete

- **Flowable** – Foamed concrete is extremely easy to place, with its ability to work around complex or oddly shaped voids in the ground, it is even possible to use concrete pumps if required.
- **Self Levelling** – As well as being flowable, foam concrete will also self level which means it is able to settle to a uniform surface even when placed in undulating ground.
- **Lower Strengths and densities** – the high air content creates a concrete that is fit for the purpose intended, with a low strengths and densities being two of the properties required. The low strength will also enable an easy dig out of the concrete should the road be opened up again.
- **No compacting** – With the requirement for low strength and low density, compaction of foam concrete would destroy the high content and other helpful properties.
- **Multiple constituent materials** – due to the requirements for low strength it is not always necessary to use stone in the mix for foam concrete. It is possible to use just sand or other materials like recycled aggregates, recycled concrete or the original material in the trench
- **Avoids road settlement** – if the foam concrete is correctly specified for the road being repair it will match the strength of the surrounding ground and avoid any settlement or subsidence which can occur with traditional trench filling methods.