

ARMCON

How to Find a Good Aggregate?

- An Overview

ARMCON
CERTAINTY. IN CONCRETE

How to spot a Good Aggregate

Top Tips

- Dusty aggregate is 'thirsty'. Use a dust free aggregate to ensure your concrete needs the minimal water usage meaning minimal cement content
- When producing an exposed aggregate, think about the stone you will be exposing – will it look good and will it feel (with your hands) 'okay'?
- A smooth concrete surface is helped by using a smooth faced aggregate
- The cheapest aggregate does not always produce the cheapest concrete
- Use clean, sludge and contaminate free aggregate
- Dredged concrete can contains shells – A high concentration of shells can weaken your concrete – try to pick one with a low shell content
- Test your concrete to minimise the amount of cement you use

Overview

In most concrete aggregates make up 60 - 75% of the ingredients. This is why choosing the best aggregate for the concrete is so important.

Aggregates are defined as being either 'fine' or 'course'.

As a rough guide, fine aggregates are usually classed as being 9.5mm down (that means any particle size below 9.5mm) while course aggregate ranges between around 9.5mm to 37.5mm.

When deciding on the right aggregate for your concrete, what sort of concrete are you trying to produce? Do you need your concrete have a good exposed finish; does the concrete need to be strong etc.

This is a list of what a good aggregate will be like and why it is a good feature to have.



Pea Gravel

- Make sure your aggregate is free of 'dust', sludge and other contaminates

Dust makes your concrete 'thirsty' and more water means a weaker concrete, which means adding more cement in with the concrete for – meaning you spend more money.

Sludge, contaminated aggregate can be bad news, it can be difficult to produce a useable concrete, as the aggregate can clump together, worst still is if the sludge is contaminated then once laid the concrete could leak contaminants (what ever they may be) and potentially not set properly.



A dusty aggregate mix

- Size and Shape are important.

Rough textured, long, flat and angular aggregates just like the dust make the concrete 'thirsty' which again leads to using more cement. A smooth aggregate will produce a smooth finish, which is perfect for some precast works.

A rough sized and shaped aggregate will interlock well and produce a good concrete. Test different shaped aggregates to suit your finish.

- What are you producing?

If you are producing an intricate item such as a garden gnome, use a different aggregate to when you build a large block. Always keep in your mind what it is that you are building to ensure you pick the correct aggregate.

- Limestone

Limestone is the ideal aggregate, it is the only aggregate to chemically bond (apart from crushed concrete) to the cement, which is made with... limestone, and as such you can produce some great concrete using it.

- Test it - basic

Use your eyes to see whether an aggregate is good or not, some simple tests can be:

Does it break apart easily in your hand – if yes – then it's probably not the best aggregate

When you touch it does it leave a residue – if yes – then this is dusty and will probably require more water, resulting in using more cement.

Is it soaking wet – from rain etc? – See what it looks like when you dry it – it may be dusty or take on a totally different property.

- Test it – Professional

Make up different mixes of concrete using samples of the different aggregates in the same proportions and cube test the concrete.



These are a few of the ways in which to test and find a good aggregate, testing is the best way but using the above points you should be able to rule out a few aggregates right away.

Remember that cheaper aggregate does not always make up a cheaper concrete.