Product information

Newchem ACC-C65

Accelerator
for very fast setting and fast hardening hydraulic binders

Description

Newchem ACC-C65 is a mix of special calcium aluminate (ACA) with anhydride. It was developed to accelerate the setting time and early strength of cement-based products.

Newchem ACC-C65 offers exceptionally high reactivity. Newchem ACC-C65 it typically used as an addition to Portland cement to boost reactivity & early strength.

Physical properties (approx.)

Appearance:		off-white, easy handling and flowing powder
Aerated density:		950 kg/m^3 (+/- 60kg/m^3)
Bulk density:		1100 kg/m^3 (+/- 60kg/m^3)
Specific density:		2950 kg/m^3 (+/- 80kg/m^3)
Particle sizes:	D_{10}	1 - 3 µm
	D_{50}	5 - 9 µm
	D_{90}	16 - 23 µm

Function

The reaction of special calcium aluminate (ACA) clinker with anhydrite and water in a high pH solution leads to the formation of ettringite. With the comparatively higher reactivity of ACA this reaction happens very fast. Addition of specific retarders is usually recommended to reach desired open times.

Due to its very reactive nature, ACC-C65 is typically best used to achieve setting times ranging from 30 seconds to 30 min. If a longer setting time is desired, other calcium aluminate products in the Newchem range may be better suited.

The ettringite formed is a stable compound and gives the structure increased stability. There will be no conversions that could lead to a loss of strength. Given the use of enough water, the ettringite formed gives an increased volume. This leads to a chemical pre-stress and a reduced shrinkage on drying. The formation of ettringite is an exothermic process.

Advantages

Depending on the addition levels:

– Fast or very fast setting
– High / very high early strength
– Expansion / reduced shrinkage

Applications

Newchem ACC-C65 can be used in a variety of applications, such as:

– Post fixing mortars
– Dry shotcrete
– Water stop mortars
– Repair mortars
– Fast-setting low CO_2 formulations

Addition level

Properties depend on the Newchem ACC-C65 to OPC ratio. Typical addition levels are 5 – 15% replacement by weight on the cement weight depending on the properties required. Due to the very fast setting nature of Newchem ACC-C65 it is highly recommended that laboratory trials should be carried out to determine the correct addition level as well as to optimise the retarding/ accelerating balance.

Adding anhydrite – or possibly other types of calcium sulphate – may increase strength and increase expansion. However, an excess of calcium sulphate is not recommended and could lead to uncontrolled expansion. Laboratory trials should be carried out at different temperatures.

Adding too much Newchem ACC-C65 may result in extremely rapid set times and – if not retarded appropriately – very high early strength but poor long term strength development.

Important**:** Newchem ACC-C65 has extremely fast setting properties. Therefore, to achieve acceptable setting times, a suitable retarder will have to be incorporated at slightly higher levels than those normally used with crystalline calcium aluminates.

Compatibility

Newchem ACC-C65 is compatible with Portland cement and hydraulic binders, including ground blast furnace slag, fly ash and hydrated lime.

Health & Safety

Newchem ACC-C65 is alkaline and should be handled like cements. Avoid contact with skin or eyes and protective gloves and goggles should be worn. In case of contact with eye wash immediately with plenty of water. Refer to Material Safety Data Sheet for full details.

Storage

Newchem ACC-C65 is sensitive to moisture and should be stored in cool, dry conditions.

Packaging

In bags of 25kg or in big bags of 1000 kg.

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