



Product information

Denka SC-1

Accelerator for fast setting and fast hardening hydraulic binders

Description

Denka SC-1 is a mix of an amorphous calcium aluminate (ACA) with anhydrite. It was developed to accelerate the setting time and early strength of cement-based products.

The basis of Denka SC-1 is an amorphous clinker. The amorphous form and its composition give a much higher reactivity than a crystalline form. In combination with Portland cement a higher reactivity and efficiency is obtained.

Chemical composition (M.-%, approx.)

| | |
|--------------------------------|---------|
| Al ₂ O ₃ | 22 – 25 |
| CaO | 39 – 45 |
| SO ₃ | 26 – 30 |

Physical composition (approx.)

| | |
|---------------------------|--|
| Appearance | off white powder with good flow and dispensing properties. |
| Specific density | 2,9 – 3,1 g/cm ³ |
| Specific surface (Blaine) | 5000 – 7000 cm ² /g |

Function

The reaction of ACA with anhydrite and water leads to the formation of ettringite. With the comparatively higher reactivity of ACA this reaction happens very fast. An acceptable open time needs the addition of suitable retarders. This allows the user to define the working time.

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.

Advantages

Depending on the addition level

- fast and very fast setting time
- high and very high early strength
- low shrinkage
- increased durability
- good bonding properties
- ease of handling



Applications

Denka SC-1 can be used in a variety of applications, such as

- repair mortars
- grouts
- water stop mortars
- tile adhesives
- flooring compounds

Addition level

Properties depend on the Denka SC-1 to OPC ratio. Typical addition levels are 5 – 20% replacement by weight on the cement weight depending on the properties required. Due to the fast setting nature of Denka SC-1 it is highly recommended that laboratory trials should be carried out to determine the correct addition level and also to optimise the retarding/accelerating balance.

Adding too much Denka SC-1 will result in extremely rapid set times and very high early strengths.

Important: Denka SC-1 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 recommended.

Compatibility

Denka SC-1 is compatible with Portland cement and hydraulic binders, including ground blast furnace slag, fly ash and hydrated lime.

Health & Safety

Denka SC-1 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

Denka SC-1 is very sensitive to moisture and should be stored in cool, dry conditions.

Packaging

In bags of 20kg or in big bags of 1000 kg.

The above information and recommendations are based upon our experience and are offered merely for advice. They do not absolve the consumer from making his own tests. Responsibility for damage arising from the use of our products cannot be derived from the recommendations given. The observance of any intellectual property rights of third parties is the responsibility of the user in each case.

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