

DELVO[®] CRETE STABILIZER

A chemical, cement hydration control admixture

DESCRIPTION

The manufacture and use of shotcrete has traditionally been linked to many drawbacks.

Shotcrete mixes are high performance materials and their useful life is only a few hours. Long transportation and storage times as well as work interruptions in the shotcrete process cause quality loss, decreased productivity and wasted material.

DELVO CRETE Stabilizer is the adoption of DELVO[®] technology - a major breakthrough by BASF in concrete technology - for shotcrete.

DELVO CRETE Stabilizer is a unique chemical admixture that controls the dynamics of cement hydration, suspending the process. Using one of BASF's shotcrete accelerators, the hydration process can be reactivated hours or even days later.

FEATURES AND BENEFITS

- **Batched wet or dry, shotcrete mixes remain fresh for up to 3 days**
- **Fully flexible delivery options for manufactured shotcrete**
- **No cleaning of pumps or pipes during work interruptions, for up to 24 hours**
- **Complete use of wet and dry mixes**
- **Interruptions and storage do not affect fresh shotcrete properties**
- **Expensive bagged material can be replaced by economical job site mixes**
- **Considerable reduction of rebound and dust**
- **Reduced waste disposal and irritation to humans.**
- **Simpler and lower risk construction program by enabling better scheduling and easier planning**
- **Time and cost-saving through better allocation of material, equipment and manpower**
- **Considerable savings of overall construction costs and financing**
- **DELVO CRETE Stabilizer stabilised shotcrete mixes exhibit the properties of fresh shotcrete for 3 to 72 hours without loss of quality**
- **DELVO CRETE Stabilizer provides total flexibility from batching through delivery and storage for application of wet or dry mixes**

PROPERTIES

When **DELVO CRETE Stabilizer** is dispensed into wet or dry mixes at the batching plant, the hydration process is fully stabilised by forming a protective barrier around the cement particles. This barrier prevents cement from achieving initial setting.

Shotcrete accelerators when added into the spraying nozzle break up the protective barrier and accelerate the hydration process. Please consult your BASF technical representative for the most appropriate shotcrete accelerator for your purposes.

APPLICATION

DELVO CRETE Stabilizer is suitable for all fields of wet or dry shotcrete. The principal applications are:

- Tunnelling and mining.
- Temporary protection or final linings of e.g. roads, railways, city tubes, mines, hydropower projects and sewer tunnels.
- Engineered structures.
- Temporary protection or final wall of e.g. working pits and construction slopes.
- Repair of concrete structures.
- Injection suspensions.

DELVO CRETE Stabilizer is a liquid admixture for wet or dry shotcrete mixes, stabilising setting and hardening. In comparison to traditional retarders, **DELVO CRETE Stabilizer** controls hydration of all cement minerals (C3S, C3A, C2S, C4AF and Gypsum).

Material constitution

Cement: Fresh, standard Portland cement should always be used because the reaction property is reduced with cement storage time. Preliminary tests are recommended for all cements but particularly those with high sulphate resistance and blended cements.

Consumption of DELVO CRETE Stabilizer

The recommended dosage of **DELVO CRETE Stabilizer** for 3 to 72 hours stabilisation is between 0.2 - 2.0% of the binder weight.

The specific dosage for wet or dry mixes will depend on the mix design, type of cement used, ambient temperature and the stabilisation time required.



The Chemical Company

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Direction for mixing/dosing of DELVO CRETE Stabilizer with dry mix shotcrete

Premix natural humid aggregates with cement. The water content should be between 3-5% of the mixture weight. With too dry material, i.e. material with a humidity of less than 3% by weight, water should be added first in order to reach this level. Add the required quantity of **DELVO CRETE Stabilizer** into the mixer, by hand or with a dosage device, while mixing and mix for another 2-3 minutes.

The **DELVO CRETE Stabilizer** should be added slowly (not all at one time). When evenly distributed over the dry material (e.g. by spraying), mixing time can be saved.

It is recommended to add the **DELVO CRETE Stabilizer** to the freshly mixed concrete within 30 minutes of batching.

Direction for mixing/dosing of DELVO CRETE Stabilizer with wet mix shotcrete

DELVO CRETE Stabilizer should be added to concrete at the final stage of batching when the cement is 'wetted' out. It should be added prior to dosing of superplasticisers.

In case there are unexpected delays or interruptions on site, a later addition of 0.6-1.0% **DELVO CRETE Stabilizer** to wet mix concrete is possible to bridge the anticipated time delay, as long as this is done before any hydration occurs.

Note: Both dry and wet mixed concrete containing **DELVO CRETE Stabilizer** are to be kept out of direct sunlight and free from frost to prevent them from drying out.

DOSAGE

The quantities of **DELVO CRETE Stabilizer** to be added are between 0.2 - 0.6% by weight of binder for a workability time of about 3 hours, to 2% by weight of binder for a workability time of about three days (wet process).

PACKAGING

DELVO CRETE Stabilizer is supplied in 205 litre drums.

SHELF LIFE

DELVO CRETE Stabilizer has a storage life of at least 6 months if stored above 1°C in tightly closed original containers.

If **DELVO CRETE Stabilizer** has frozen, thaw at 1°C or above, and completely reconstitute with mild mechanical agitation. Do not use pressurised air for agitation.

PRECAUTIONS

For the full health and safety hazard information and how to safely handle and use this product, please make sure that you obtain a copy of the **BASF Material Safety Data Sheet (MSDS)** from our office or our website.

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STATEMENT OF RESPONSIBILITY

The technical information and application advice given in this **BASF** publication are based on the present state of our best scientific and practical knowledge. As the information herein is of a general nature, no assumption can be made as to a product's suitability for a particular use or application and no warranty as to its accuracy, reliability or completeness either expressed or implied is given other than those required by law. The user is responsible for checking the suitability of products for their intended use.

NOTE

Field service where provided does not constitute supervisory responsibility. Suggestions made by **BASF** either orally or in writing may be followed, modified or rejected by the owner, engineer or contractor since they, and not **BASF**, are responsible for carrying out procedures appropriate to a specific application.

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