

BETONAC[®]-CN.D

CORROSION INHIBITOR FOR CONCRETE

Product Description

BETONAC[®]-CN.D Corrosion Inhibitor is a liquid added to concrete during the batching process. It chemically inhibits the corrosive action of chlorides on reinforcing steel and pre-stressed strands in concrete.

BETONAC[®]-CN.D Corrosion Inhibitor is a system containing calcium nitrite which interacts with the embedded steel in concrete to prevent salt attack. By chemically reacting with the reinforcing steel, a barrier is formed which prevents chloride penetration. Corrosion initiation is delayed and corrosion rates are kept under control. Once corrosion has been inhibited, physical disruption of the concrete due to rust formation will not occur.

When added to concrete in sufficient quantity as determined by the anticipated chloride ion content of the concrete over the design life of the structure, BETONAC[®]-CN.D maintains an active corrosion controlling system within the concrete matrix.

Uses

BETONAC[®]-CN.D is recommended for all steel-reinforced, post tensioned and pre-stressed concrete that will come in contact with chlorides from de-icing salts, salty soil or a marine environment.

Examples are parking garage decks and support structures in marine environments. It may also be used in concrete where chlorides are added during manufacture.

Technical Data

Concrete set time. BETONAC[®]-CN.D is a neutral-set corrosion inhibitor formulated not to affect concrete setting times, which may also aggravate slump loss. In some cases, environmental conditions may require the addition of accelerator or a retarder. In these cases, BETONAC[®]-BE a non chloride containing accelerator and a retarder such as BETONAC[®]-VZ may be added separately to the concrete mix.

Characteristics

BETONAC[®]-CN.D contains a minimum of 30 % calcium nitrite.

Compatibility

BETONAC[®]-CN.D Corrosion Inhibitor is compatible with all types of Portland cements, and concrete's containing pozzolans. However, due to the significant variations between cements, even the same type, differences in cement response to BETONAC[®]-CN.D may result. This is especially true with respect to the effect on setting time, which also influences slump retention.

BETONAC[®]-CN.D Corrosion Inhibitor can be used in concrete with other admixtures - including air entraining admixtures, water reducers, super plasticizers, set retarders and micro silica - with out impeding their performance.

Each admixture must be added separately. Individually added, each will deliver the results desired.

Note

Facts about steel corrosion. Corrosion occurs in the presence of oxygen, moisture, and an electrolyte. As chlorides attack the reinforcing steel, the salt intensifies the electrolyte properties of concrete, thereby creating a corrosion cell. As the corrosion reaction occurs, rust is formed. It migrates away from the reinforcing bar, leaving more iron to be corroded.

The process continues and two situations develop:

1. The reinforcing bars disintegrate, which reduces the flexural strengths of the concrete structure.
2. Iron, as it oxidizes, expands to four times its original volume

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Product Data Sheet

Product No: 01.022

Packaging

BETONAC®-CN.D Corrosion Inhibitor is available in bulk quantities or, in 220 Litre drums.

Storage/Shelf life

BETONAC®-CN.D freezes at approximately -15 °C, but its corrosion inhibitor properties are completely restored by thawing and thorough agitation.

Application

General information

BETONAC®-CN.D has been formulated to provide set time characteristics similar to untreated concrete at 22 °C. One litre of BETONAC®-CN.D weighs approximately 1.28 kg ± 0.01 kg

Mix water reduction. Mix water adjustment is essential to account for the water in BETONAC®-CN.D and thus maintain the desired water/cement ratio. The mix water added at the batch plant must therefore be reduced to compensate for the addition of the corrosion inhibitor. The adjustment factor is 84 kg of water per litre of BETONAC®-CN.D. A high-range water reducer such as BETONAC®-BVF or BETONAC®-BVS may be used to maintain workability in low water/cement ratio concrete.

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Air entrainment. BETONAC®-CN.D Corrosion Inhibitor at the normal addition rates may moderately reduce the entrained air content. It may be necessary to increase the dosage of the air entraining admixture to compensate. Project specifications for BETONAC®-CN.D generally will show requirements of $6\frac{1}{2} \pm 1\frac{1}{2}$ % air in the plastic or fresh concrete.

Preconstruction trial mix. It is strongly recommended that trial mixes be made several weeks before construction start up. This will allow the concrete producer an opportunity to determine the proper batching sequence and amounts of other admixtures needed in order to deliver the required concrete mix to the jobsite. Due to the cement response variation it is vital that set time and slump retention of the proposed mix be thoroughly tested and evaluated in the light of job requirements. LEYCOCHEM broad experience with this product can help the concrete producer deliver satisfactory product regardless of the mixture proportions.

Finishing and curing. Concrete containing BETONAC®-CN.D Corrosion Inhibitor finishes with standard tools and techniques. It is not different from any other air entrained, low water/cement ratio mix in terms of finish ability. To prevent evaporation of water from concrete a curing agent such as CURASIN-W/1 or LEYCOBOND-AC is directly after setting of concrete.

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Dispensing Equipment: A complete line of accurate dispenser is available.

Dosage: Recommended addition rates range from 10 to 30 L/m³. The level of corrosion protection increases in proportion to the dosage. The project specification will indicate the addition rate.

BETONAC®-CN.D may be introduced on the sand, in the water, at the beginning or the end of the batch cycle. Similar to all concrete admixtures, BETONAC®-CN.D should not come into contact with other admixtures prior to entering the concrete.

Legal notes

Whilst information and/or specification contained herein is to the best of our knowledge true and accurate, and is based on many years experience, we cannot accept any liability either directly or indirectly arising from these of our products, whether or not in accordance with any advice, specification or recommendation given by us, as we have no direct or continuous control over how or where our products are applied.

LEYDE-PRODUCTS are guaranteed against defective materials and manufacture and are sold subject to its standard terms and conditions of sale. 01.09.2009