

EUNICOR DCIS

Corrosion inhibitor



Product Description

EUNICOR DCIS corrosion inhibitor is a liquid added to concrete during the batching process. It chemically inhibits the corrosive action of chlorides on reinforcing steel and prestressing tendons in concrete. It also promotes strength development at all ages. EUNICOR DCIS is recommended to protect all steel reinforcement, post-tensioned and prestressed concrete that will come in contact with chlorides from deicing salts or the marine environment.

- Piers & coastal structures.
- Sea defenses.
- Foundations in saline groundwater.
- Structures close to the coast.
- Parking structures.
- Bridge decks/abutments.

It may also be used to protect concrete where chloride is already present in the mix constituents, or on the rebar surface.

Corrosion Mechanism

Corrosion occurs in the presence of oxygen, moisture and an electrolyte. As chlorides attack the reinforcing steel, the salt intensifies the electrolyte properties of the concrete, degrading the normal passivating layer, thereby creating a corrosion cell. As the reaction proceeds, rust is formed. It migrates away from the bar, leaving more iron to be corroded. This process continues and two situations develop:

1. The reinforcement reduces in effective thickness, resulting in flexural failure of the structural member.
2. Iron, as it oxides, expands to four times its original volume. This expansion results in physical disruption of the concrete, evident as cracking, straining, crazing and spalling. The process accelerates.

Typical Properties

- Appearance: Pale yellow liquid.
- Specific Gravity: 1.24 ± 0.03 at 20°C .
- Calcium Nitrite: Minimum 30%.
- Freezing Point: -15°C .
- Storage Life in Manufacturer's Drums: 12 months from date of manufacture.

Compatibility

With cements: EUNICOR DCIS can be used with all types of Portland Cements, including cement replacement materials.

With Other Admixtures: EUNICOR DCIS is compatible with other liquid admixtures, providing they are added separately to the mix. It is already formulated with a retarding component to offset the acceleration in set normal with Calcium Nitrite. A moderate increase in dosage rate of air entraining agent may be required to attain the normal specified level of air.

Method of Use

EUNICOR DCIS is supplied ready for use. It should be added to concrete preferably at the same time as the mix water. It should not be added directly to the cement.

Addition Rates Range

10.0 liters - 30.0 liters per cubic meter of concrete. The project specification will indicate the addition rate, which is pre-determined on the basis of projected chloride ion ingress over the life of the structure. The performance of EUNICOR DCIS is best assessed after preliminary test on site using the actual mix constituents under consideration to determine the effect on concrete properties.

Corrosion Inhibition

EUNICOR DCIS corrosion inhibitor is a patented system based on a raw material which interacts with the embedded steel in concrete to prevent salt attack. By chemically reacting with the embedded steel the passivating layer is maintained unbroken when chlorides penetrate the concrete cover zone. Corrosion initiation is significantly delayed, and the rate of corrosion, after eventual initiation, is controlled at a slower rate. When added to concrete in sufficient quantity, as determined by the anticipated corrosion inhibition. By chemically reacting with the embedded steel the passivating layer is maintained unbroken when chlorides penetrate the concrete cover zone. Corrosion initiation is significantly delayed, and the rate of corrosion, after eventual initiation, is controlled at a slower rate. 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, EUNICOR DCIS maintains an active corrosion - controlling system within the concrete matrix.

Effects of Overdosing

Overdosing of EUNICOR DCIS will normally produce an increase in workability, and in certain circumstances this could be accompanied by a reduction in setting time. Provided overdosed concrete is properly cured, ultimate strength will generally be no lower than that of normal concrete.

Dispensing

It is preferable that liquid admixtures for concrete should be introduced into a mixer by means of automatic dispensing equipment. Such equipment is available and can be supplied on request.

Health and Safety

For further information see the EUNICOR DCIS Material Safety Data Sheet.

Packaging

EUNICOR DCIS is available in 208 liter drums.

Storage

EUNICOR DCIS should be stored protected from frost. If the product does become frozen, it should be carefully mixed after thawing out to restore it to its normal state.

Technical Service

The Technical Department is available to assist you in the correct use of our products and its resources are at your disposal entirely without obligation.

Contact Information

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