



1.26 FAST CIA 999

Corrosion Inhibiting admixture for steel reinforcement concrete

PRODUCT DESCRIPTION

FAST CIA 999 is a calcium nitrite based liquid admixture designed to inhibit the corrosion of steel in reinforced concrete. Suitable for use in tropical and hot climatic conditions.

APPLICATION INFORMATION

FAST CIA 999 admixture will effectively inhibit corrosion in all types of steel reinforced concrete including precast/ stressed and post tensioned applications. FAST CIA 999 admixture is recommended for use in:

- Parking garages
- Bridge decks
- Marine structures
- Slabs
- Floors
- Other reinforced concrete applications requiring corrosion protection against chlorides from deicing salts or marine exposure
- Inhibit the potentially corrosive effects of chloride-bearing concrete-making ingredients

PACKAGING:

Supplied in:

250kg drum

Storage:

Dry; Frost free, out of direct sunlight

Shelf life:

12months, when stores as above

Hazard class:

No dangerous goods, Observe Material Safety datasheet.

PROPERTIES:

- FAST CIA 999 is a corrosion inhibiting agent based corrosion-inhibiting admixture for steel reinforced concrete.
- Provides effective corrosion protection against chlorides in concrete.
- Extends the service life of reinforced concrete structures.
- Will not initiate or promote corrosion of reinforcing steel embedded in concrete, pre stressed concrete or concrete placed on galvanized steel floor and roof systems
- Admixture may be used with Portland cements and mineral admixtures approved under ASTM, AASHTO, or CRD specifications
- It is compatible with other chemical admixtures, including water reducers, superplasticizers, retarders and air entrainers
- Concrete setting times may be accelerated with the use of FAST CIA 999 admixture.
- If desired, a retarding or hydration control admixture may be added to the concrete mixture to offset the acceleration effects of FAST CIA 999.

STANDARDS

ASTM C 494 interim requirements for Type C.

MIXING:

Chemical admixtures should be added separately to the concrete to ensure desired results.



DIRECTION OF USE:

DOSAGE:

FAST CIA 999 is recommended for use at a rate of 5.0 to 30.0 L/m³ of concrete, depending upon the severity of the corrosion environment and the anticipated chloride loading of the structure. FAST CIA 999 may be used to offset the potentially corrosive effects of chloride-bearing concrete-making ingredients and in applications where the initial chloride ion content of the concrete may exceed code requirements or other specified chloride limits. Chloride protection limits for FAST CIA 999 are as given in the dosage table. The limits for applications involving the use of chloride-bearing materials are based on a critical chloride-to-nitrite ratio of 0.90 in accordance with the recommendations of the Federal Highway Administration (FHWA). These limits may also be used in very severe corrosion environments for enhanced protection, if desired. The chloride protection limits given for all other applications, such as parking structures and bridges, are based on critical chlorideto-nitrite ratios that range from 1.20 to 1.50.

MECHANISM OF ACTION:

1. Due to the high pH of concrete, embedded steel is surrounded by a passivating ferric oxide layer which, in the absence of aggressive ions, protects it from rusting. The passivating layer contains some ferrous oxide compounds which allows chlorides to initiate corrosion.
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3. Chloride ions attack the ferrous oxide forming complexes which move away from the steel and become rust. Newly exposed iron atoms form more ferrous oxides, continuing the vulnerability to chloride attack. The addition of FAST CIA 999 can renew the passivating layer.
4. Nitrite ions will react with ferrous oxide compounds to form ferric oxides.
5. Nitrite ions will reinforce the ferric oxide passivating layer by adding more of the same type of protection and will protect ferrous oxide defects from chloride attack by surrounding them.
6. Nitrite ions will move-in as rust moves away from the steel and protects the newly formed ferrous oxide compounds.