## **Rust**Guard<sup>™</sup>

# Inhibit corrosion while accelerating set time

Protect against structural damage due to rust in conditions where salt exposure is a concern. RustGuard chemically reacts with reinforcing steel, forming a barrier which prevents chloride penetration and keeps corrosion rates under control.



**Corrosion Inhibitor** 

RustGuard chemically inhibits the corrosive action of chlorides on reinforcing steel and prestressed strands.







### **Rust**Guard<sup>™</sup>

Corrosion of reinforcing steel in concrete with an aggressive chloride environment can be disastrous to the life cycle of any structure. The failure of reinforcing steel within concrete potentially could cost large sums of money for remedial or replacement work, not to mention lost revenue from down time for these repairs. Also to be considered are safety concerns of prematurely deteriorating concrete and the environmental impact of having to replace structures before their time.

#### HOW IT WORKS

RustGuard contains a calcium nitride based corrosion-inhibiting admixture for steel reinforced concrete.

In the alkaline environment of concrete, a natural passive ferric oxide layer naturally forms on the surface of embedded reinforcing steel and protects the steel from corrosion. This passive oxide layer may break down in the presence of chlorides, oxygen and moisture resulting in corrosion of steel.

RustGuard delays corrosion by repassivating defects on the oxide/ steel surface. These defects are where ferrous oxide ions attack the ferrous ions, they combine to create a ferrous chloride complex (rust) and initiate pitting corrosion on the reinforcing steel. If untreated, chloride ions continue to attack newly exposed ferrous ions and form additional expansive corrosion products leading to staining, cracking and spalling of the concrete.

Nitride ions contained in RustGuard are effective in preventing ferrous chloride complex formation by reacting with defective ferrous oxide ions prior to chloride attack and reforming the passive layer. Nitride ions surround the defective ferrous oxide ion and convert it to a more stable ferric ion species less susceptible to corrosion. This oxidation reaction serves to repassivate the reinforcing steel and re-establish the barrier between the steel and chlorides that initiate corrosion.

#### FINISHING AND CURING

Concrete containing RustGuard finishes with standard tools and techniques. It is no different from any other air-entrained, low water/cement ratio mix in terms of finishability. Curing procedures must follow ACI 302 and ACI 308.

#### USES

RustGuard is recommended for all steel-reinforced, post-tensioned and prestressed concrete that will come in contact with chlorides from deicing salts or a marine environment. Examples are parking garage decks and support structures, bridge decks and prestressed members, and structures in marine environments. It may also be used in concrete where chlorides are added during manufacture.

#### PRODUCT ADVANTAGES:

- Chemically inhibits the corrosive action of chlorides on reinforcing steel and prestressed strands in concrete
- Extends the service life of structures in a de-icing salt and marine environment
- Cost-effective solution to the control of reinforcing steel chloride-induced corrosion
- Accelerates the set of concrete, which would allow RustGuard to be used as a concrete set accelerator



RustGuard promotes strength development of the concrete while meeting ASTM C494 requirements.



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