

03 30 00	Cast-in-Place Concrete
03 40 00	Precast Concrete
03 70 00	Mass Concrete

MasterLife[®] CI 222

Corrosion-Inhibiting Admixture

Description

MasterLife CI 222 admixture is a patented state-of-the-art corrosion-inhibiting admixture formulated to inhibit the corrosion of steel in reinforced concrete. MasterLife CI 222 admixture provides two levels of corrosion protection, making it the most effective corrosion-inhibiting admixture available.

MasterLife CI 222 admixture meets ASTM C 494/C 494M requirements for Type S, Specific Performance, admixtures.

Applications

Recommended for use in:

- All types of reinforced concrete, including precast/prestressed and post-tensioned applications
- Parking garages, bridge decks, marine structures, slabs, floors and other reinforced concrete applications requiring corrosion protection against chlorides from de-icing salts or marine exposure

Features

- Inhibits corrosion at its most critical points
- Reduces the rate at which chlorides and moisture enter the concrete
- Adsorbs onto the reinforcing steel to form a corrosion-resistant protective film

Benefits

- Extended service life of reinforced concrete structures
- Premium corrosion protection by slowing the ingress of chlorides and moisture into the concrete and forming a strong, durable protective film on the reinforcing steel
- Effective in cracked concrete where the elements that cause corrosion have direct access to the reinforcing steel
- Increased sulfate resistance
- Normal set product that is easily used in elevated temperatures

Performance Characteristics

Plastic Properties: The plastic properties of concrete are not significantly affected by the use of MasterLife CI 222 admixture. However, a higher than normal dosage of air-entraining admixture may be required to achieve desired air contents.

Hardened Properties: Depending on the ingredients and proportions of a concrete mixture, a decrease in compressive strength may be experienced with MasterLife CI 222 admixture, typically in the range of 5 to 10 percent. Please consult your local sales representative for recommended concrete mixture adjustments prior to the use of MasterLife CI 222 admixture. Other hardened properties of concrete are not significantly affected by the use of MasterLife CI 222 admixture.

Slump and Temperature Development: MasterLife CI 222 admixture has no effect on slump or the temperature development profile of concrete.

Concrete-Steel Bond Strength: Concrete to steel bond strength is not affected by MasterLife CI 222 admixture.



Guidelines for Use

Corrosion-Inhibiting System: In order to control corrosion in reinforced concrete, the ACI 318 (ACI 318M) Building Code Requirements for Structural Concrete and Commentary requires certain design considerations, such as limiting the water-cementitious materials ratio, providing adequate concrete cover over reinforcing steel and limiting the initial chloride ion content of the concrete. Additionally, construction practices should be such that a dense, void-free concrete is obtained.

In addition to the elements of good concrete practice required by the ACI 318 (ACI 318M), Master Builders Solutions recommends a corrosion-inhibiting system that inhibits corrosion at multiple levels for maximum protection.

The use of MasterLife CI 222 admixture restricts the ingress of chlorides and moisture and additionally slows the onset and rate of corrosion by forming a protective film on the reinforcing steel. Additional protection can be attained through the use of a high-range water-reducing admixture such as MasterGlenium® admixture to provide adequate placability and consolidation at low water-cementitious materials ratios and/or the use of MasterLife® SF 100 silica fume to further reduce concrete permeability.

Dosage: MasterLife CI 222 admixture is recommended for use at a dosage of 1 gal/yd³ (5 L/m³) of concrete for all applications and corrosive environments.

MasterLife CI 222 admixture dosed at 1 gal/yd³ (5 L/m³) is formulated to provide optimum corrosion protection of reinforced concrete structures in severe corrosive environments, and, therefore provides excellent corrosion protection in less severe corrosion environments as well.

MasterLife CI 222 admixture is recommended for use at a single dosage in order to eliminate the confusion and uncertainties related to determining the severity of a corrosive environment and predicting the chloride exposure of the structure.

Mixing: MasterLife CI 222 admixture may be added with concrete batch water. It should not be mixed with any other admixtures prior to being introduced into the concrete mixer. Depending on local materials, mixing efficiency and other conditions, the use of this admixture may require changes in normal batching procedures to facilitate air entrainment.

Product Notes

Corrosivity – Non-Chloride, Non-Corrosive: MasterLife CI 222 admixture is a corrosion-inhibiting admixture and will neither initiate nor promote corrosion of reinforcing and prestressing steel embedded in concrete, or of galvanized steel floor and roof systems. Neither calcium chloride nor other chloride-based ingredients are used in the manufacture of MasterLife CI 222 admixture.

Storage and Handling

Storage Temperature: Store at ambient temperatures above 35 °F (2 °C) but not exceeding 125 °F (52 °C). Precautions should be taken to protect MasterLife CI 222 admixture from freezing. If product freezes, thaw and reconstitute by mild mechanical agitation. Do not use pressurized air for agitation.

Shelf Life: MasterLife CI 222 admixture has a minimum shelf life of 9 months. Depending on storage conditions, the shelf life may be greater than stated. Please contact your local sales representative regarding suitability for use and dosage recommendations if the shelf life of MasterLife CI 222 admixture has been exceeded.

Packaging

MasterLife CI 222 admixture is available in 52.6 gal (199 L) drums, 260.7 gal (987 L) totes, and by bulk delivery.

Related Documents

Safety Data Sheets: MasterLife CI 222 admixture

Additional Information

For additional information on MasterLife CI 222 admixture or its use in developing a concrete mixture with special performance characteristics, contact your local sales representative.

Master Builders Solutions creates technologies for the construction industry inspiring people to build better. We are active in ~40 countries and operate 35 production sites with over 1,600 employees. We develop, produce, and market high-quality chemical admixtures, as well as adjacent core technologies, to master the challenges of today and support a decarbonized future. Our people are pivotal and pair leading technologies and a strong brand heritage to surpass our customers' expectations and drive continuous value creation.

Limited Warranty Notice

Master Builders Solutions Admixtures US, LLC ("Master Builders Solutions") warrants this product to be free from manufacturing defects and to meet the technical properties on the current Technical Data Guide, if used as directed within shelf life. Satisfactory results depend not only on quality products but also upon many factors beyond our control. MASTER BUILDERS SOLUTIONS MAKES NO OTHER WARRANTY OR GUARANTEE, EXPRESS OR IMPLIED, INCLUDING WARRANTIES OF MERCHANTABILITY OR FITNESS FOR A PARTICULAR PURPOSE WITH RESPECT TO ITS PRODUCTS. The sole and exclusive remedy of Purchaser for any claim concerning this product, including but not limited to, claims alleging breach of warranty, negligence, strict liability or otherwise, is shipment to purchaser of product equal to the amount of product that fails to meet this warranty or refund of the original purchase price of product that fails to meet this warranty, at the sole option of Master Builders Solutions. Any claims concerning this product must be received in writing within one (1) year from the date of shipment and any claims not presented within that period are waived by Purchaser. MASTER BUILDERS SOLUTIONS WILL NOT BE RESPONSIBLE FOR ANY SPECIAL, INCIDENTAL, CONSEQUENTIAL (INCLUDING LOST PROFITS) OR PUNITIVE DAMAGES OF ANY KIND.

Purchaser must determine the suitability of the products for the intended use and assumes all risks and liabilities in connection therewith. This information and all further technical advice are based on Master Builders Solutions' present knowledge and experience. However, Master Builders Solutions assumes no liability for providing such information and advice including the extent to which such information and advice may relate to existing third party intellectual property rights, especially patent rights, nor shall any legal relationship be created by or arise from the provision of such information and advice. Master Builders Solutions reserves the right to make any changes according to technological progress or further developments. The Purchaser of the Product(s) must test the product(s) for suitability for the intended application and purpose before proceeding with a full application of the product(s). Performance of the product described herein should be verified by testing and carried out by qualified experts.