

MasterLife[®] CRA 007

Crack-Reducing Admixture

Description

MasterLife CRA 007 crack-reducing admixture is an innovative liquid chemical admixture that is specifically formulated to reduce the magnitude of drying shrinkage and minimize the potential for cracking. Compared to a shrinkage-reducing admixture, MasterLife CRA 007 crack-reducing admixture provides enhanced performance through (i) significant reduction in the potential for shrinkage cracking, and (ii) reduced initial crack widths if cracking does occur. MasterLife CRA 007 admixture meets ASTM C 494/C 494M, Standard Specification for Chemical Admixtures for Concrete, requirements for Type S, Specific Performance Admixtures.

Applications

Recommended for use in ready-mixed or precast concrete structures requiring shrinkage reduction and long-term durability, including:

- Slabs, parking structures, bridge decks, pavements, water-retaining structures
- Wet-mix shotcrete
- Mortars and grouts

Features

- Suitable for use in air-entrained concrete
- Reduces drying shrinkage
- Delays time-to-cracking as measured in ASTM C 1581/C 1581M ring test
- Reduces crack widths

Benefits

- Enhances watertightness in water-retaining structures
- Increases concrete durability and service life
- Reduces joint maintenance costs in concrete slabs
- Permits increase in joint spacing
- Reduces the environmental footprint of concrete

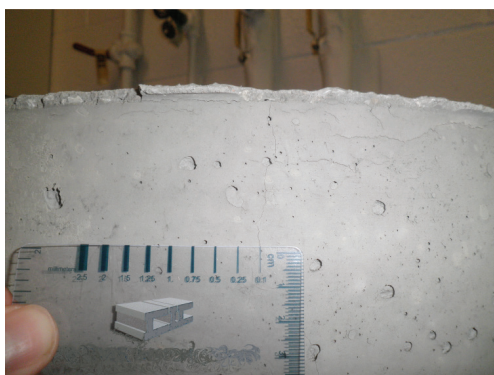
Performance Characteristics

MasterLife CRA 007 admixture does not affect slump, may delay time of set slightly and increase bleed time depending upon dosage, temperature, and mixture components. A slight reduction in compressive strength may be experienced depending on the concrete mixture ingredients and their proportions. MasterAir[®] AE 200 air-entraining admixture is the recommended air-entraining admixture for application in air-entrained concrete. Field trial batches should be conducted to achieve desired performance.

Drying Shrinkage

MasterLife CRA 007 admixture reduces the drying shrinkage of concrete relative to a plain reference mixture as measured by the ASTM C 157/C 157M test method. The reduction in drying shrinkage is similar to that obtained with conventional shrinkage-reducing admixtures. However, MasterLife CRA 007 admixture provides a greater reduction in the potential for cracking and initial crack width should cracking occur. As shown in the pictures, concrete specimens treated with MasterLife CRA 007 admixture showed a ten-fold reduction in initial crack width compared to plain concrete or conventional shrinkage-reducing admixture-treated concrete specimens, when tested in accordance with ASTM C 1581/C 1581M.

CRA-treated concrete



Crack width $\approx 100 \mu\text{m}$ (0.1 mm)

Untreated or SRA-treated concrete



Crack width $\approx 1,000 \mu\text{m}$ (1 mm)

Guidelines for Use

Dosage: The recommended dosage range of MasterLife CRA 007 admixture is 1.0 to 2.0 gal/yd³ (5.0 to 10.0 L/m³), depending on the specific application. However, dosages outside of this range may be required depending on the level of shrinkage reduction and crack control desired. A reduction of mix water content equivalent to the dosage of MasterLife CRA 007 admixture utilized is recommended.

Mixing: MasterLife CRA 007 admixture may be added to the concrete mixture during the initial batch sequence or at the jobsite. If the delayed addition method is used, mixing at high speed for 3 to 5 minutes after the addition of MasterLife CRA 007 admixture will result in mixture uniformity.

Product Notes

Corrosivity – Non-Chloride, Non-Corrosive: MasterLife CRA 007 admixture will neither initiate nor promote corrosion of reinforcing steel, prestressing steel or of galvanized steel floor and roof systems. Neither calcium chloride nor other chloride-based ingredients are used in the manufacture of MasterLife CRA 007 admixture.

Compatibility: MasterLife CRA 007 admixture is compatible with all BASF water-reducers, mid-range water-reducers, high-range water-reducers, set retarders, and accelerators. MasterLife CRA 007 admixture should be added separately to the concrete mixture to ensure desired results.

Odor: A slight odor may be noticed when MasterLife CRA 007 admixture is used in concrete placed in confined areas. This non-harmful odor is an aromatic indication that the admixture is in the concrete.

Storage and Handling

Storage Temperature: MasterLife CRA 007 admixture is a potentially combustible material with a flash point of 189 °F (87 °C). This is substantially above the upper limit of 140 °F (60 °C) for classification as a flammable material, and close to the limit of 200 °F (93 °C) where DOT requirements would classify this as a combustible material. Nonetheless, this product must be treated with care and protected from excessive heat, open flame or sparks. For more information refer to the Safety Data Sheet. MasterLife CRA 007 admixture should be stored at ambient temperatures above 35 °F (2 °C), and precautions should be taken to protect the admixture from freezing. If MasterLife CRA 007 admixture freezes, thaw and reconstitute by mild mechanical agitation. **Do not use pressurized air for agitation.**

Shelf Life: MasterLife CRA 007 admixture has a minimum shelf life of 24 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 CRA 007 admixture has been exceeded.

Durability

MasterLife CRA 007 admixture can be used in combination with other BASF durability-enhancing products such as MasterFiber® products, MasterLife CI 30 corrosion inhibitor, MasterLife SF 100 silica fume, MasterLife 300 D integral waterproofing admixture, and MasterLife ASR 30 alkali-silica reaction inhibitor to provide extended service life of concrete structures exposed to aggressive environments.

Packaging

MasterLife CRA 007 admixture is available in 55 gal (208 L) drums and 268 gal (1014 L) totes.

Related Documents

Safety Data Sheets: MasterLife CRA 007 admixture

Additional Information

For additional information on MasterLife CRA 007 admixture or its use in developing concrete mixtures with special performance characteristics, contact your local sales representative.

The Admixture Systems business of BASF's Construction Chemicals division is the leading provider of solutions that improve placement, pumping, finishing, appearance and performance characteristics of specialty concrete used in the ready-mixed, precast, manufactured concrete products, underground construction and paving markets. For over 100 years we have offered reliable products and innovative technologies, and through the Master Builders Solutions brand, we are connected globally with experts from many fields to provide sustainable solutions for the construction industry.

Limited Warranty Notice

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