

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

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

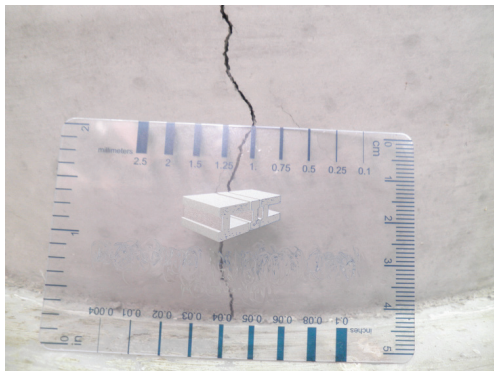
MasterLife CRA 007 admixture reduces the drying shrinkage of concrete relative to a plain reference mixture as measured by the ASTM C 157/C 157M test method. The reduction in drying shrinkage is similar to that obtained with conventional shrinkage-reducing admixtures. However, MasterLife CRA 007 admixture 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 Master Builders Solutions 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 Master Builders Solutions 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 275 gal (1040 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.

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.

