

3	03 30 00	Cast-in-Place Concrete
	03 40 00	Precast Concrete
	31 00 00	Earthwork
7	07 16 16	Crystalline Waterproofing

MasterLife® 300D

Crystalline Capillary Waterproofing Admixture

MasterLife 300C

Concentrated Crystalline Capillary Waterproofing Admixture

Description

MasterLife 300D and MasterLife 300C concentrated version are integral crystalline capillary waterproofing admixtures for concrete. They are designed for use in above- and below-grade applications.

MasterLife 300D and MasterLife 300C admixtures meet ASTM C 494/C 494M requirements for Type S, Specific Performance, admixtures.

MasterLife 300D admixture meets the requirements of ICC-ES AC531, Acceptance Criteria for Crystalline-Based Permeability-Reducing Chemical Admixtures Used in Concrete. A red-pigmented version of MasterLife 300D admixture is also available.

Applications

Recommended for use in:

- Foundations
- Sewage and water treatment plants
- Water tanks and reservoirs
- Swimming pools
- Underground vaults
- Tunnel and subway systems
- Secondary containment structures
- Below-grade parking structures
- Precast components
- Water features
- Geotechnical grouting and ground improvement

Features

- Crystalline cementitious materials
- Integral addition
- Allows concrete to breathe

Benefits

- Reduces concrete permeability and, penetration of water and other liquids
- Seals hairline cracks
- Resists positive and negative side hydrostatic pressure
- Protects against sewage and industrial wastes

Performance Characteristics

The MasterLife 300D and MasterLife 300C admixtures are permeability-reducing admixtures (PRAHs) as described in the American Concrete Institute's ACI 212 document Report on Chemical Admixtures for Concrete. These products have been evaluated using industry recognized tests for waterproofing characteristics such as water penetration and water permeability under pressure and capillary absorption. Data from third-party, independent testing is available upon request.

Hardened Properties: The MasterLife 300D and MasterLife 300C crystalline capillary waterproofing admixtures react in concrete to form non-soluble crystalline hydration products in the capillary pores of the concrete. These crystalline hydration products effectively reduce the permeability of concrete thus reducing capillary absorption and the penetration of water and other liquids.

Note: MasterLife 300C and MasterLife 300D admixtures contain similar amounts of active ingredients at their recommended dosage ranges and, hence, provide similar performance characteristics.

Guidelines for Use

Concrete Quality: Crystalline capillary waterproofing admixtures such as the MasterLife 300C and MasterLife 300D admixtures are categorized as Permeability-Reducing Admixtures (PRAs) in ACI 212.3R-16, Report on Chemical Admixtures for Concrete. These admixtures "are intended to be used in, and complement, well-proportioned concrete mixtures, not to compensate for poorly proportioned concrete mixtures. Although recommendations differ from each manufacturer, a w/cm of 0.45 or less is typical for concrete designed to resist water movement." In accordance with the recommendations provided in ACI 318, ACI 350 and ACI 212.3R, Master Builders Solutions recommends the use of the MasterLife 300C and MasterLife 300D admixtures in good quality concrete with a maximum water-cementitious materials ratio of 0.45 and a minimum compressive strength of 4000 psi (28 MPa).

Master Builders Solutions recommends adherence to the following guidelines provided in ACI 212.3R-16 when MasterLife 300C and MasterLife 300D admixtures are used:

"If the PRAH forms part of a primary waterproofing system, consider crack control measures (control joints), the admixture's crack sealing abilities, treatment of construction joints, and compatible repair systems. Also consider using concrete with the lowest drying shrinkage possible."

Dosage: For most applications, the recommended optimum dosage of MasterLife 300D admixture is 2% by mass of cement. The dosage of the red-pigmented version of MasterLife 300D admixture is 2.5% by mass of cement and the dosage of MasterLife 300C admixture is 1% by mass of cement. The minimum recommended dosages are 12 lb/yd³ (7.2 kg/m³) of concrete for MasterLife 300D admixture, 6 lb/yd³ (3.6 kg/m³) of concrete for MasterLife 300C admixture and 15 lb/yd³ (9.0 kg/m³) of concrete for red-pigmented version of MasterLife 300D admixture. Depending on the types of cementitious materials and the proportions of the project-specific concrete mixtures, dosages above or below the above values may be recommended for optimum performance. Consult your local sales representative for assistance in determining the appropriate dosage of the MasterLife 300C and MasterLife 300D admixtures for your project.

Dispensing and Mixing: MasterLife 300C and MasterLife 300D admixtures are batched at the concrete production plant in a manner similar to that for cement or other cementitious materials. The admixtures may be batched in either a central or truck mixer. Follow the procedures outlined in ASTM C 94/C 94M, Standard Specification for Ready-Mixed Concrete, for general batching and mixing instructions for concrete. Provide at least 5 minutes of mixing after the addition of MasterLife 300C or MasterLife 300D admixtures to ensure thorough and uniform distribution of the admixture in the concrete mixture.

Product Notes

Corrosivity – Non-Chloride, Non-Corrosive: MasterLife 300C and MasterLife 300D admixtures will neither initiate nor promote corrosion of reinforcing or 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 the MasterLife 300C and MasterLife 300D products.

Compatibility – Admixtures: MasterLife 300D and MasterLife 300C admixtures are compatible with most admixtures used in the production of quality concrete, including normal, mid-range and high-range water-reducers, retarders, accelerators and corrosion inhibitors. For air-entrained concrete applications, MasterLife 300D and MasterLife 300C admixtures are recommended for use with high-range water-reducing admixtures, such as the MasterGlenium® series, for maximum workability while maintaining a low water-cementitious materials ratio. For air-entrained concrete applications, MasterLife 300D and MasterLife 300C admixtures can also be used with MasterAir® series of air-entraining admixtures. The dosage of air-entraining admixture should be established through truck trials.

Compatibility – Cementitious Materials: MasterLife 300D and MasterLife 300C admixtures can be used with portland cements approved under ASTM, AASHTO or CRD specifications and supplementary cementitious materials used in concretes. Trial mixtures with MasterLife 300D and MasterLife 300C admixtures are required before project start to ensure compatibility and desired results, especially due to potential variations in material response. Different sources of cementitious materials and variations between material batches may affect setting time, slump, or other performance attributes including compressive strength. Consult your local sales representative for recommended concrete mixture adjustments if necessary.

Storage and Handling

MasterLife 300C and MasterLife 300D admixtures must be stored in a clean, dry area and must be protected from exposure to moisture. MasterLife 300D admixture must be maintained at a minimum temperature of 45 °F (7 °C). Preferably, MasterLife 300C admixture in water-soluble pods should be stored at ambient temperatures in the range of 40 °F to 105 °F (4 °C to 41 °C). If stored below 40 °F (4 °C), the water-soluble pods can become brittle and split open while handling. To alleviate this, it is recommended to warm the pails with the pods to temperatures above 40 °F (4 °C) before use. MasterLife 300C and MasterLife 300D admixtures have a shelf life of one year when stored under recommended conditions.

Packaging

MasterLife 300D admixture is available in 12 lb (5.5 kg) and 24 lb (11 kg) shreddable bags, and in 12 lb (5.5 kg) water-soluble pods. The red-pigmented version of MasterLife 300D admixture is available in 15 lb (7 kg) and 30 lb (14 kg) shreddable bags. MasterLife 300C admixture is available in 6 lb (2.7 kg) water-soluble pods.

Related Documents

Safety Data Sheets: MasterLife 300D admixture and MasterLife 300C admixture

Additional Information

For additional information on the MasterLife 300C and MasterLife 300D admixtures or their 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.

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