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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.

The MasterLife 300 series of admixtures meet ASTM C 494/C 494M requirements for Type S, Specific Performance, admixtures.

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
- Allow concrete to breathe

Benefits

- Reduce concrete permeability and, penetration of water and other liquids
- Seal hairline cracks
- Resist positive and negative side hydrostatic pressure
- Protect against sewage and industrial wastes

Performance Characteristics

Setting Time: The MasterLife 300 series of admixtures have little to no effect on concrete setting time within the recommended dosage ranges. However, time of setting testing is strongly recommended under project conditions when combinations of supplementary cementitious materials and/or admixtures are used, especially in cooler ambient conditions.

Permeability: The MasterLife 300 series of capillary waterproofing admixtures are portland cement-based crystalline cementitious materials that 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.

Typical Data for MasterLife 300D admixture @ 2% by mass of cement (Independent Testing, except *)

Performance characteristic	Test method	Performance relative to untreated concrete mixture
Water Penetration	DIN 1048	100% reduction
Water Permeability	CRD-C 48	60% reduction
Capillary Absorption*	ASTM C 1585	43% reduction
Compressive Strength	ASTM C 39/C 39M	Nominal increase



Note: All the MasterLife 300 series of 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 300 series of 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 300 series of 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).

The MasterLife 300 series of admixtures meet the requirements for PRAs for concrete exposed to hydrostatic conditions (PRAH), as defined in ACI 212.3R-16.

Master Builders Solutions recommends adherence to the following guidelines provided in ACI 212.3R-16 when the MasterLife 300 series of 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 300 series of admixtures for your project.

Dispensing and Mixing: The MasterLife 300 series of 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 the MasterLife 300 series of admixtures to ensure thorough and uniform distribution of the admixture in the concrete mixture.

Product Notes

Corrosivity – Non-Chloride, Non-Corrosive: The MasterLife 300 series of 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 300 series of admixtures.

Compatibility: The MasterLife 300 series of admixtures can be used with portland cements approved under ASTM, AASHTO or CRD specifications. They are compatible with most concrete admixtures, including all Master Builders Solutions admixtures. The MasterLife 300 series of 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.

Storage and Handling

The MasterLife 300 series of 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. The MasterLife 300 series of 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 300 series of 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

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