



Master Builders Solutions

The Master Builders Solutions brand brings expertise to create chemical solutions for new construction, maintenance, repair and renovation of structures. Master Builders Solutions is built on the experience gained from more than a century in the construction industry.

The know-how and experience of a global community of construction experts form the core of Master Builders Solutions. We combine the right elements from our portfolio to solve your specific construction challenges. We collaborate across areas of expertise and regions and draw on the experience gained from countless construction

projects worldwide. We leverage global technologies, as well as our in-depth knowledge of local building needs, to develop innovations that help make you more successful and drive sustainable construction.

The comprehensive portfolio under the Master Builders Solutions brand encompasses concrete admixtures, cement additives, chemical solutions for underground construction, fiber reinforcement solutions, waterproofing solutions, sealants, concrete repair and protection solutions, performance grouts, and performance flooring solutions.



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Product in Focus

MasterLife® 300 Series Crystalline Capillary Waterproofing Admixtures

For Producing Watertight Concrete Structures

Partnering for Success

We're here to help you with your construction challenges by providing a wide range of concrete technology solutions.

- Extensive concrete admixture portfolio
- Advanced concrete mixture optimization expertise
- Certified provider of Environmental Product Declarations
- Vast North American network of field experts and project support
- Global concrete technology research and testing centers
- Innovative concrete technology pipeline

for over 100 years



MasterLife® 300 Series Crystalline Capillary Waterproofing Admixtures

Achieving Watertight Concrete

Strategies to help achieve watertight concrete include proper construction practices, and the use of a water-reducing admixture, supplementary cementitious materials, and a permeability-reducing admixture (PRA), each working in concert to lower concrete permeability, thereby improving its watertightness. MasterLife 300 Series, integral, crystalline-based, permeability-reducing admixtures are a key component for producing durable, watertight concrete. The MasterLife Series of admixtures consist of MasterLife 300D, MasterLife 300C and MasterLife 300L admixtures.

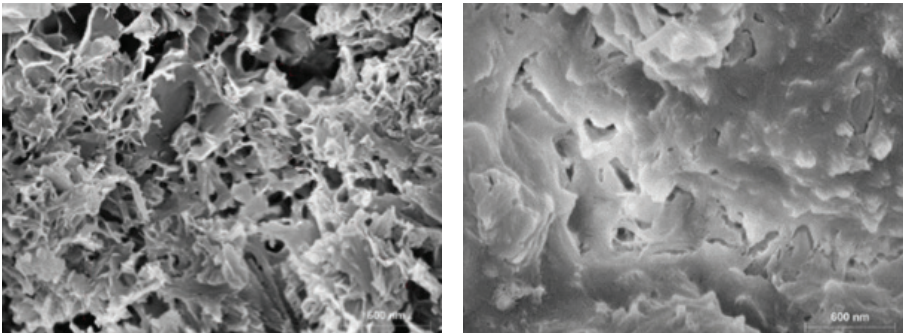
The Role of MasterLife 300 Series Admixtures in Watertight Concrete

MasterLife 300 Series admixtures are uniquely formulated to react in concrete, in the presence of moisture, to form additional calcium silicate hydrate gel and insoluble crystalline products that fill fine pores and seal hairline cracks in concrete.

Concrete structures containing MasterLife 300 Series admixtures will have reduced penetration of water and other liquids, enhanced resistance to hydrostatic pressure, and protection against sewage and industrial wastes*.

Concrete at 40,000x Magnification

The following images captured with a scanning electron microscope (SEM) compare concrete microstructure with and without the use of MasterLife 300D admixture.



This image shows a typical concrete microstructure containing a high number of capillary pores represented by the darker shaded areas.

The capillary pore-filling and crack-sealing ability of MasterLife 300D admixture results in minimized permeability (note the reduced amount of darker shaded areas).

Quantifying Performance

The penetration of water into concrete can be measured by the commonly specified DIN 1048 water penetration test method [DIN 1048, Part 5 – Testing Concrete: Testing of Hardened Concrete (specimens prepared in mould)].

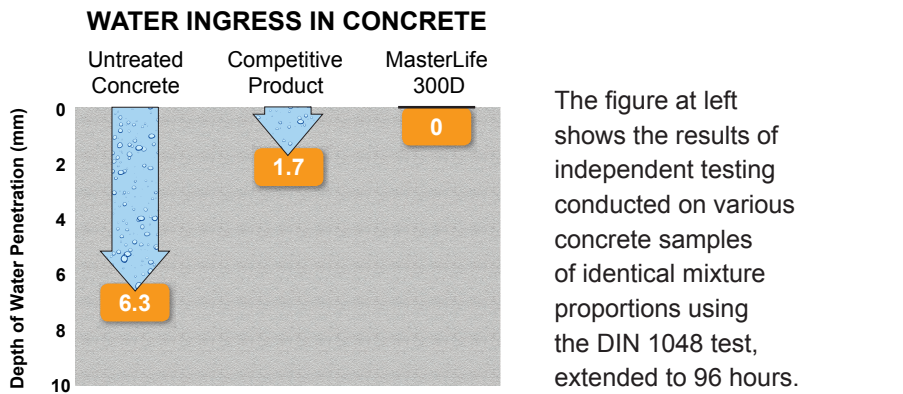


Figure 2. Independent DIN 1048 Data

As shown in Figure 2, water penetration into the concrete sample treated with MasterLife 300D admixture could not be measured.

Concrete Permeability

Concrete is a porous and absorptive material susceptible to cracking. It contains pores and microcracks that when interconnected become pathways for movement of water (referred to as its permeability) as illustrated in Figure 1.

Water Penetration

Figure 1.



Sarasota Memorial Hospital, Sarasota, FL

Applications

MasterLife 300 Series of admixtures have been used or specified for use in hundreds of structures requiring waterproofing, including precast elements, water treatment plants, wastewater treatment facilities, recreation ponds, swimming pools and other above- and below-grade concrete structures.

Sustainability

Today's demands for high-quality, long lasting structures include the need for more sustainable concrete solutions to reduce environmental impacts. We support our customers by quantifying the environmental impacts of concrete mixtures containing MasterLife 300 Series admixtures using science-based, third-party verified Eco-Efficiency Analyses and Environmental Product Declarations.

*MasterLife 300 Series admixtures are NSF certified for use in potable water applications.