

MasterLife[®] WP 3760

Crystalline waterproofing admixture for concrete & mortars

DESCRIPTION

MasterLife WP 3760 hydrophilic crystalline powder admixture which becomes an integral part of concrete and is used to produce waterproof concrete. It is designed for use in above- and below-grade applications.

MasterLife WP 3760 consists of Portland cement, very fine treated silica sand and various active, proprietary chemicals. These active chemicals react with the moisture in fresh concrete with the by-products of cement hydration to cause a reaction, which generates an insoluble crystalline deposit throughout the pores and capillary tracts of the concrete. Thus, **MasterLife WP 3760** reduces water permeability of concrete structures which can allow it to be used in place of various surface applied waterproofing membranes systems. This product also has a self-healing property under presence of moisture and can heal cracks up to 0.5 mm.

MasterLife WP 3760 can be used as an applied coating, mixed to a slurry consistency with potable water. **MasterLife WP 3760** is applied directly to concrete, blockwork or cement renders in areas where general waterproofing is required.

TYPICAL APPLICATIONS

MasterLife WP 3760 should be used in all structural concrete that is constantly or intermittently in contact with water such as sea walls, tunnels, basements, structural and pre-cast concrete. **MasterLife WP 3760** can also be used as crystalline waterproofing admixture for cement mortars and plasters. To waterproof structures such as:

- Building basement and foundations
- Sewage and water treatment plants
- Dams, canals, Tunnels, Harbours
- Tunnel and subway systems
- Water reservoirs
- Concrete pipes
- Parking structures
- Pre-cast, cast-in-place and shotcrete applications
- Swimming pools
- Retaining walls & sea defense walls

ADVANTAGES

- Unique formulation allows the product to be categorized as PRAH within ACI 212.3R-10 "Report on Chemical Admixtures for concrete" (Permeability reducing admixtures)
- Crystalline liquid material
- Integral addition
- Reduces concrete permeability
- Allows concrete to breathe
- Non toxic
- Becomes an integral part of the concrete
- Reduces penetration of water and other liquids
- Can seal hairline cracks up to 0.5 mm
- Resists positive and negative side hydrostatic pressure
- Protects against sewage and industrial wastes
- Less expensive than traditional methods
- Added to the concrete at time of batching and therefore, is not subject to climatic restraints

PACKAGING

MasterLife WP 3760 is available in 16 kg and 25 kg pack.

PERFORMANCE TEST DATA

| | |
|------------------|---------------------------------|
| Aspect | Free Flowing grey powder |
| Bulk density | 1.350 ± 0.02 gm/cm ³ |
| Chloride content | "chloride free" to EN 934 |

PERFORMANCE CHARACTERISTICS

Setting time:

MasterLife WP 3760 admixture has little to no effect on concrete setting time within the recommended dosage range. However, it is recommended to test this in case any additives or blended cementitious combinations are used in concrete.

Permeability:

MasterLife WP 3760 capillary waterproofing admixture is a portland cement-based crystalline cementitious material that reacts in concrete to form insoluble crystalline hydration products in the capillary pores/capillary tracts of the concrete. These crystalline hydration products are deposited and fill the pores and hairline cracks, effectively

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reduce the permeability of concrete, its capillary absorption and penetration of water and other liquids into the concrete.

Typical Data for MasterLife WP 3760 admixture @ 1% by mass of cement.

| OPC | Fly Ash | w/b | water | 20mm | 10mm | sand | MasterGlenium | MasterLife WP 3760 |
|-----|---------|------|-------|------|------|------|---------------|--------------------|
| 370 | 120 | 0.34 | 166.5 | 530 | 530 | 708 | 0.6% | 1% |

| Specification | Test Results |
|---|--|
| Water Permeability – 200 psi for 14 days (USACE-CRD-C48-92) | Reduction up to 80% relative to untreated concrete mixture |
| Water Penetration under pressure - Below 15mm (BS EN 12390: Part8:2000) 1.0MPa for 96 hours | Reduction up to 55% relative to untreated concrete mixture |
| Water Penetration depth - Below 15mm (DIN1048 Part 5) | 6.67mm |
| Concrete water proofing admixture shall of the crystalline growth type | SEM Report shows Crystalline growth and lower void in concrete relative to untreated concrete mixture. |
| Water Penetration – 0.5MPa for 72 hours (BS EN 12390: Part8:2000) | Reduction up to 60% relative to untreated concrete mixture |
| Workability | MasterLife WP 3760 has little or no effect on workability |
| Setting time of concrete | Relative to untreated concrete mixture |

APPLICATION GUIDELINES

As a guide, a dosage of 1000 grams per 100kg of cementitious content is recommended. Dosage up to 2000 grams per 100kg of cementitious content can be used in special requirements. For addition to ready mix concrete, a typical dosage of 5kg per cubic meter of concrete is best recommended.

For addition information on **MasterLife WP 3760** or on its use in developing concrete mixes with special performance characteristics, contact your local Master Builders Solutions representative.

Points to remember when producing waterproof concrete:

- Ensure water / cement ratio is less than 0.5
- Addition of good superplasticiser from the **MasterRheobuild** or **MasterGlenium** range is advised to achieve minimum water/cement ratio.
- Place concrete quickly and compact it well.

- Ensure complete curing with a **MasterKure** curing compound.

SURFACE PREPARATION FOR COATING

In common with all surface treatments to concrete, the quality of substrate preparation directly affects the performance system. Surfaces to be treated must be free from dust, oil, grease, paint, residual curing compound, mould oil or any previous surface treatment that will impair adhesion of the **MasterLife WP 3760** treatment or inhibit penetration of the chemicals or water into the surface. These include polymer modified renders and those substrates treated with silicon or silane water repellents. Remove any laitance and provide an open pored, slightly rough surface sufficient to act as a mechanical key, essential for adequate adhesion of the **MasterLife WP 3760** treatment. Light sand / grit blasting of the concrete surface is the preferred method of surface preparation.

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Areas of weak or honeycombed concrete must be repaired. Hollow, debonding renders must be removed and made good.

Surfaces to be treated if not already wet, should be saturated for a period of 24 hours before first applications. **MasterLife WP 3760** system technology requires the presence of water for the active chemicals to migrate into the concrete.

Crystalline development will usually extend to the depth of water penetration.

MIXING INTO FRESH CONCRETE

MasterLife WP 3760 admixture is batched at the concrete production plant in a manner similar to that for cement or other cementitious materials. It may be batched in either a central or truck mixer. Follow the procedures outlined in ASTM C94 / C94M, Standard Specification for Ready-Mixed Concrete, for general batching and mixing instructions for concrete if adding to a truck mixer. Provide at least 5 minutes of mixing after the addition of **MasterLife WP 3760** admixture to ensure thorough and uniform distribution of the admixture in the concrete mixture.

MasterLife WP 3760 admixture can be used with portland cements approved under ASTM and EN specifications. It is compatible with most concrete admixtures, including all Master Builders Solutions admixtures. **MasterLife WP 3760** admixture is recommended for use with high-range water-reducing admixtures, such as the **MasterGlenium** series, for maximum workability while maintaining a low water-to-cementitious materials ratio.

MasterLife WP 3760 is also compatible with slag and pozzolans such as fly ash, GGBS and silica fume.

MIXING FOR COATING APPLICATION

Always add water to **MasterLife WP 3760**— not in reverse order.

Mix 1 part of water to 2.25 – 2.5 parts of **MasterLife WP 3760** powder by volume.

Mix only sufficient **MasterLife WP 3760** that can be used in 20 minutes.

CORROSIVITY – NON-CHLORIDE, NON-CORROSIVE

MasterLife WP 3760 will neither initiate nor promote corrosion of reinforcing steel embedded

in concrete, prestressed concrete or concrete placed on galvanized steel floor and roof systems. Neither calcium chloride nor any calcium chloride-based ingredients are used in the manufacture of **MasterLife WP 3760**. In all concrete application, **MasterLife WP 3760** will conform to the most stringent or minimum chloride ion limits currently suggested by construction industry standards and practices.

WORKABILITY

MasterLife WP 3760 has little or no effect on workability of concrete. Prior site trials are advised to assess the effect, and any increase or decrease in the workability can be adjusted by adjusting the admixture dosage or amount of water in use.

It is strongly recommended that concrete should be properly cured particularly in hot, windy and dry climates.

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STORAGE AND SHELF LIFE

MasterLife WP 3760 must be stored where temperatures do not drop below +5°C.
The shelf life is 12 months when stored as above.

Failure to comply with the recommended storage conditions may result in premature deterioration of the product or packaging. For specific storage advice consult your local Master Builders Solutions representative.

QUALITY AND CARE

All products originating from Master Builders Solutions Dubai, UAE facility are manufactured under a management system independently certified to conform to the requirements of the quality, environmental and occupational health & safety standards ISO 9001 and ISO 14001.

* Properties listed are based on laboratory controlled tests.

® = Registered trademark of the MBCC Group in many countries.

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