

Masterseal[®]501

Surface applied capillary waterproofing system for concrete and masonry

Description

The Masterseal[®]501 waterproofing system ensures the total and permanent solution to water leakage, ingress, or seepage in concrete structures or any cementitious substrate. The formation and development of insoluble crystals into water bearing capillaries and interstices effectively blocks the further passage of water and ensures permanent water tightness for the life of the structure.

Masterseal[®]501

Supplied as a powder and mixed to a slurry consistency with water. Masterseal[®]501 is applied directly to concrete, blockwork or cement renders in areas where general waterproofing is required. In powder form, the product may be used as a dry shake on horizontal construction joints.

Typical applications

Water retaining	Water excluding
• Water tanks / towers	• Basements
• Reservoirs	• Tunnels
• Swimming pools	• Inspection pits
• Water treatment works	• Foundations
• Dams	• Retaining walls
• Canals	• Lift shafts
• Harbours	• Construction joints
• Concrete pipes	• Sea defence walls
	• Bridge decks
	• Jetties
	• Pontoons

Advantages

- Provides total and permanent waterproofing properties by becoming an integral part of the structure to which it is applied. Active ingredients will not delaminate, peel off or wear away.
- Protects concrete and reinforcement against corrosive waterborne substances.
- Crystalline action is reactivated by contact with water providing dormant additional protection.
- Effective against both positive and negative water pressure.
- Non-toxic or tainting.

Packaging

Masterseal[®]501 is supplied in 25 kg bags.

Composition

Masterseal[®]501 grade consist of a blend of moisture activated chemicals, high grade silica aggregates and selected cements.

Action

Moisture and free lime present in the substrate react with the active chemicals in Masterseal[®]501 to create a continuous barrier of insoluble crystals. The crystal formation will penetrate deep into the capillary structure of the concrete, blocking capillaries and interstices from the passage of water, whilst permitting the transmission of air and water vapour, enabling the structure to breathe.

Rate and penetration of crystalline development varies with the density and surface absorption of the concrete, but the crystals will penetrate to the depth to which water is present.

Masterseal[®]501

Surface penetration sufficient to provide full water proofing properties can be achieved after 5 - 7 days

Masterseal[®]501 is equally effective against both negative and positive water or osmotic pressure and can be applied to the internal or external surface. Wherever possible however, Masterseal[®]501 should be applied to the surface with which the water is in direct contact. This will result in an accelerated rate of penetration and crystallisation into the concrete structure. After the crystallisation process has successfully waterproofed the structure, the Masterseal[®]501 active chemicals remain dormant in the concrete. Any later contact with water will reactivate the sealing process.

Directions for use

New construction

The vast majority of leaking water retaining (or excluding) structures constructed of sound dense concrete, leak only at construction or day work joints. Costly remedial work can be avoided by the use of Masterseal[®]501 as a dry shake onto the horizontal surfaces of joints or as a slurry application on vertical surfaces.

In conditions of high water table Masterseal[®]501 may be applied as a slurry or dry shake over blinding concrete immediately prior to casting the slab. This sandwich system will prevent ingress of ground water preventing deterioration, and dampness or flooding. Foundations should be treated on the external face wherever possible, as should the face of construction joints. Masterseal[®]501 can be applied immediately after the formwork has been removed, as the water curing process required for Masterseal[®]501 will also ensure full hydration of the concrete.

If the treatment is to be exposed and an aesthetically pleasing finish is required, the Masterseal[®]501 after curing, should receive a sand/cement render on which to apply the desired finish.

Existing structures

Structures subject to water leakage or ingress, must be carefully inspected to determine the cause. Any water present should be cleared away so that a thorough survey can be conducted. Static cracks over 1mm must be chased out, dampened down and repaired with Masterseal[®]502 on a Masterseal[®]501 coat. Dynamic cracks must be formed into a watertight elastomeric movement joint.

Surface preparation

In common with all surface treatments to concrete, the quality of substrate preparation directly affects the performance of the 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 Masterseal[®]501 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 Masterseal[®]501 treatment.



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Masterseal[®] 501

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. Masterseal[®]501 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

Always add water to Masterseal[®]501 - not in reverse order.

Masterseal[®] 501

Mix 1 part of water to 2.25 - 2.5 parts Masterseal[®] powder by volume.

Masterseal[®] 502

Mix sufficient water to achieve the desired consistency. Do not add additional water after initial mixing. Mix only sufficient Masterseal that can be used in 20 minutes.

Application

Masterseal[®]501 mixes are applied by brush or spray onto the dampened substrate. Apply the material in 2 coats at right angles, the second coat whilst the first is firm, but 'green' - usually 3-4 hours after first coat (dependant on temperature). For old concrete, brickwork and granular concrete blocks, replace the second 501 coat with a render 5-10mm thick. (Do not apply to clay bricks).

Plugging leaks

Leaks and holes drilled to relieve water pressure may be sealed permanently using plugging compound Masterseal[®]505. To plug leaks under pressure, chase out the area of the leak until water flow is free and insert a length of plastic hose.

Seal around the plastic hose with plugging compound as above. Clean the cavity and apply a coat of Masterseal[®]501 and when tacky, fill the cavity with Masterseal[®]505 mortar and allow to cure.

When surrounding waterproofing is complete, withdraw the hose and plug the hole with plugging compound as above, using a gloved thumb to hold it in place until set (approximately 1 minute). Fill the remainder of the hole with Masterseal[®]502. When the mortar has set, complete the waterproofing, lapping slurry coats of Masterseal[®]501 onto the concrete surrounding the hole. Holes under low pressure can be similarly sealed, but pipe insertion and removal is omitted. Refer to Masterseal[®]502 render should always be applied to a tacky bonding slurry of 501 grade.

Curing

The Masterseal[®]501 must be prevented from drying out too rapidly and should be kept damp for 5-7 days. Mist spraying with water and covering with polythene is effective when drying out would otherwise take place. Curing compounds are unsuitable for use with Masterseal[®]501 system technology. Protect from weathering, sun, frost and wind for a similar minimum period.

Tanks and other water retaining structures may be filled 24 hours after final Masterseal[®]501 application as crystal growth is accelerated by water pressure.

Coverage

Two coat slurry application

Masterseal[®]501: 1kg per m² per coat.

Application of render coat

Masterseal[®]502: 10kg per m² at 4.5mm thick.



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Dry shake application

Unmixed Masterseal[®]501: 1kg per m².

The material shall be applied at the rates and in the manner recommended.

Unmixed material:	1kg / m ² .
Masterseal [®] 501:	1kg / m ² per coat, min. two coats.
Masterseal [®] 502:	10kg / m ² at 4.5 mm thick.

Equipment care

Clean tools and equipment immediately after use. Use of plastic or rubber containers is recommended.

Specification clause

Masterseal[®]501 system crystalline waterproofing
All areas indicated shall be waterproofed by the Masterseal[®]501 system as manufactured by BASF Construction Chemicals SA. or similar approved, to the following specification:

Composition

Premixed powders consisting of selected Portland cement blended with activating chemicals and high grade quartz.

Colour

Powder - grey

Storage

Store under cover, out of direct sunlight and protect from extremes of temperatures.

Failure to comply with the recommended storage conditions may result in premature deterioration of the product or packaging. For specific storage advice consult BASF Construction Chemicals SA's Technical Services Department.

Safety precautions

As with all chemical products, care should be taken during use and storage to avoid contact with eyes mouth, skin and foodstuffs (which can also be tainted with vapour until product is fully cured or dried). Treat splashes to eyes and skin immediately. If accidentally ingested, seek immediate medical attention. Keep away from children and animals. Reseal containers after use.

Note

Field service, where provided, does not constitute supervisory responsibility. For additional information contact your local BASF Construction Chemicals SA representative. BASF Construction Chemicals SA reserves the right to have the true cause of any difficulty determined by accepted test methods.

Quality and care

All products originating from BASF Construction Chemicals' SA facility are manufactured under a management system independently certified to conform to the requirements of the quality, environmental and occupational health & safety standards ISO 9001:2000.

Whilst any information contained herein is true, accurate and represents our best knowledge and experience, no warranty is given or implied with any recommendations made by us, our representatives or distributors, as the conditions of use and the competence of any labour involved in the application are beyond our control.

As all BASF's technical datasheets are updated on a regular basis it is the user's responsibility to obtain the most recent issue.

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