MasterSeal® 501/502

Surface applied capillary waterproofing system for concrete and mortar

DESCRIPTION

MASTERSEAL 501 and **MasterSeal 502** consist of a blend of moisture activated chemicals, high grade silica aggregates and selected cements.

MasterSeal 501 and **MasterSeal 502** 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 potable 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.

MasterSeal 502

Mixed to a **mortar** consistency with water, **MasterSeal 502** is used as a screed on surfaces subject to foot traffic, as a render, for remedial patch repairs, to form fillets, and in conjunction with **MasterSeal 501** on substrates including brickwork and badly leached concrete.

RECOMMENDED USES

Water Retaining Structure

- water tanks, towers
- Reservoirs;
- swimming pools
- Sewage and water treatment Works
- dams, canals, tunnels, harbours;
- concrete pipes.

Water Excluding Structure

- Basements
- Tunnels
- Inspection pits
- Foundations
- Retaining walls
- Life shafts
- Construction Joints
- Sea defence walls
- Bridge decks
- Jetties
- Ponttons

Advantages

- Imparts integral water tightness to structures - Permanent waterproofing properties. Active ingredients will not delaminate, peel off or wear away
- Protects concrete and reinforcement against corrosive waterborne substances.
- Permanently active - Crystalline action is reactivated by contact with water.
- Effective against both positive and negative water pressure.
- Non-toxic and non-tainting

PROPERTIES

MasterSeal 501

Aspect	Free flowing powder
Water/ powder ratio, by weight	0.3
Mixed density	2.0 kg/litre
Recoatable time	2 – 4 hours @ 25ºC
Open to foot traffic	24 hours @ 25ºC
Coverage (as slurry coat)	1 kg/m² per coat Two coat required
Coverage (as dry shake) For unmixed	1 - 2 kg m²

MasterSeal 502

Aspect	Free flowing powder
Water/ Powder Ratio, by weight	0.13
Mixed density	2.3 kg/litre
Setting time	4 Hours at 25ºC
Coverage (as render coat)	10 kg/m² @ 4-5mm thickness

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.

MasterSeal® 501/502

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. Foundations should be treated on the external face wherever possible, as should the face of construction joints.

MasterSeal 501/502 can be applied immediately after the formwork has been removed, as the water curing process required for **MasterSeal 501/502** will also ensure full hydration of the concrete.

If the treatment is to be exposed and an aesthetically pleasing finish is required, the **MasterSeal 501/502** 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.

APPLICATION

Surface preparation

It is essential to open up capillary pores for effective penetration of catalysts to foster growth of crystalline micro-structures deeper in the tracts.

Surfaces to be treated must be free from dust, oil, grease, paint, residual curing compound, mould oil or any other previous surface treatment that will impair adhesion of the **MasterSeal** system or inhibit penetration of the active 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** waterproofing system.

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

Surfaces to be treated that are not damp, must be pre-wetted and still damp at the time of application.

Action

Moisture and free lime present in the substrate react with the active chemicals in **Masterseal 501/502** 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. Surface penetration sufficient to provide full water proofing properties can be achieved after 5 - 7 days.

Masterseal 501/502 are 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 501/502** 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 501/502** active chemicals remain dormant in the concrete. Any later contact with water will reactivate the sealing process.

Mixing

Always add water to **MasterSeal 501/502** – not in reverse order.

MasterSeal 501: Mix 1 part of water to 2.0 - 2.25 parts powder by volume or mix between7 – 8 litres of water into 25 kg powder to obtain the desired consistency.

MasterSeal 502: Mix sufficient water to achieve mortar consistency. Do not add additional water after initial mixing.

Always ensure to mix only sufficient **MasterSeal 501/502** that can be used in 20 minutes.

Application

Apply **MasterSeal 501**, by brush on to the prepared surface in two coats each of 1kg/m^2, the second coat applied at right angles whilst the first is firm, but 'green' - usually 3-4 hours after first coat (depend on temperature).

In high water table situations, especially in basement concrete, **MasterSeal 501** is also recommended to be applied as a dry shake on to the PCC just before casting the RCC slab.

For old concrete, brickwork and granulated blocks, replace the second slurry coat with a **MasterSeal 502** render of 5 – 10mm thickness.

Plugging Leaks

Leaks and holes drilled to relieve water pressure may be sealed permanently using plugging compound **MasterSeal 590**

MasterSeal® 501/502

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 with 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. When the mortar has set, complete the waterproofing, lapping slurry coats of **MaserSeal 501** onto the concrete surrounding the hole. Holes under low pressure can be similarly sealed, but pipe insertion and removal is omitted. Refer to **MaserSeal 590** technical datasheet prior to use. **MaserSeal 502** render should always be applied to a tacky bonding slurry of **MaserSeal 501** grade.

Treatment of construction joints

Treat all the construction joints and insertions using appropriate active watertight system from **MasterSeal** range. Please consult Master Builders Solutions representative for advice.

CURING

Prevent **MasterSeal 501/502** from rapid drying and keep it damp for 5-7 days by mist spraying of water and covering with polythene sheet. Do not use curing compounds. Screen the area from weathering, sun, frost and wind during the period. Fill tanks and other water retaining structures 24 hours after final coat as crystal growth is accelerated by water pressure.

PACKAGING

MasterSeal 501 and **MasterSeal 502** are supplied in 25 kg bags.

SHELF LIFE

Store under cover, out of direct sunlight and protect from extremes of temperature. In tropical climates the product must be stored in an air-conditioned environment.

Shelf life is 6 months when stored as above.

PRECAUTIONS

Do not reuse containers for storage of consumable item. For further information refer to the Material Safety Data Sheet. (MSDS) available on demand or on the Master Builders Solutions web site.

MAP#MasterSeal_501_502 v3-10.2021

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