MasterCrete WR 501

Deep penetrative, reactive, Surface applied capillary waterproofing system for concrete and block work

Material Description

MasterCrete WR 501 is the most concentrated form of the surface-applied crystalline waterproofing system, containing the maximum amount of specialised catalysts. This system ensures a complete and permanent solution to water leakage, ingress, or seepage in concrete structures or any cementitious substrate. The system works by forming insoluble crystals within water-bearing capillaries and voids, effectively blocking the passage of water. As it seals pores deep within the concrete, MasterCrete WR 501 does not rely on forming a surface film and remains unaffected by negative hydrostatic pressure. It is equally effective against both positive and negative water pressure, as well as osmotic pressure.

Supplied as a powder and mixed into a slurry with potable water, MasterCrete WR 501 is applied directly to concrete, blockwork, or cement renders in areas where general waterproofing is needed. In powder form, it can also be used as a dry shake on horizontal construction joints.

MasterCrete WR 501, and MasterLife 300D are integral components of Master Builders Solutions crystalline capillary waterproofing system. These products contain special additives that act as catalysts, facilitating the formation of water-insoluble crystalline micro-structures deep within the capillaries and interstices of the cementitious matrix.

Areas of Application

- Water tanks, reservoirs
- Building basements and foundations
- Swimming pools and water parks
- Sewage and water treatment plants
- Dams, canals, tunnels, harbours
- Retaining walls and sea defense walls
- Concrete pipes

Characteristics & Benefits

- Imparts integral water tightness – crystal growth blocks pores and path for water ingress
- Protects from waterborne contaminants – stops contamination of concrete with sulphates and chlorides
- Permanently activefor continuous protection – crystalline action is reactivated by contact with water.
- Effective against both positive and negative water pressure-Active ingredients will not delaminate, peel, or wear off.
- Approved to AS/NZS 4020-2018 (tested to the maximum exposure level) – suitable for contact with potable water

Technical Data

Form	Free flowing powder
Water/ powder ratio, by weight	0.35
Mixed density	2.0 kg/litre
Recoatable	2 – 4 hours @ 25°C
Open to foot traffic	24 hours @ 25°C
Coverage (as slurry coat)	0.75 - 1 kg/m^2 per coat (375-500 micron WFT)
Coverage (as dry shake)	1 – 2 kg m^2
Potable water contact – AS4020-2018	Passed

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 MasterCrete WR 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 MasterCrete WR waterproofing system.

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

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

Mixing

Always add water to MasterCrete WR 501 – not in reverse order. Add 2/3 of the water to the powder and mechanically mix at 300-600 rpm with a mechanical stirrer with a suitable paddle (Helix or Birdcage are recommended).
Once homogeneous add the balance of the water leaving the last 5% for adjusting to the required consistency. Mix for an additional minute.
MasterCrete WR 501 will get hot and should not be left in a large volume (such as a whole mixed 20Kg bag) for more than a few minutes as flash setting may occur in hot weather.
Smaller quantities can be mixed as required
MasterCrete WR 501: Mix 1 part of water to 2.0 - 2.25 parts powder by volume or mix between 6.8-7.2 litres of water into 20 kg powder to obtain the desired consistency.

Application

Apply MasterCrete WR 501, by brush on to the prepared surface in two coats each of 1kg/m2, the second coat applied at right angles to the first, 3-4 hours later.
In conditions of high-water table MasterCrete WR 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 eterioration, and dampness or flooding. Foundations should be treated on the external face wherever possible, as should the face of construction joints. MasterCrete WR 501 can be applied immediately after the formwork has been removed, as the water curing process required for MasterCrete WR 501 will also ensure full hydration of the concrete.
If the treatment is to be exposed and an aesthetically pleasing finish is required, the MasterCrete WR 501 after curing, should receive a sand/cement render on which to apply the desired finish.
Existing 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 MasterCrete WR 902. Dynamic cracks should be sealed by injection with MasterFIll PR 1450 or MasterFill PR 1400.
Leaks and holes drilled to relieve water pressure may be sealed permanently using MasterCrete WR 902. 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 (approximately 1minute). When the mortar has set, complete the waterproofing, lapping slurry coats of MasterCrete WR 501 onto the concrete surrounding the hole. Holes under low pressure can be similarly sealed, but pipe insertion and MasterCrete WR 902 technical datasheet prior to use.
Prevent MasterCrete WR 501 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.

Pot Life

Pot life will vary depending on the ambient temperature, quantity mixed and placed.

Curing

Prevent MasterCrete WR 501 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.

Cleaning

Use water to clean equipment and tools before the material hardens. Cured material can only be removed mechanically.

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Estimating Data

Coverage (as slurry coat) 0.75 - 1 kg/m^2 per coat (375-500 microns WFT)
Coverage (as dry shake) 1 – 2 kg m^2
One 20Kg bag mixed with 7 litres of water will give a yield of approximately 13.5L
Will coat 13.5 m^2 at 1mm thickness or 27m^2 at 500 micron recommended thickness.

MasterCrete WR 501				
L	Thickness in mm /m^2	m^3	bags /m^3	m^2/mm thickness
13.5	13.5mm	(0.0135)	74	13.5 m^2

Packaging

MasterCrete WR 501 is supplied in 20 kg bags.

Shelf Life

MasterCrete WR 501 can be stored in original containers for 12 months in controlled environments.

Precautions

For the full health and safety hazard information and how to safely handle and use this product, make sure that you obtain a copy of the Safety Data Sheet (SDS) from our office or website.

Disclaimer

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