



Concrete Rescue Solutions



Plastic shrinkage cracking



CAUSE: Plastic shrinkage cracking generally occurs in conditions favourable to high evaporation of the surface moisture present in plastic concrete, including high winds, high temperatures and low humidity. Due to the fact that in its semi-fluid state, concrete is unevenly restrained by edge formwork, ground friction, reinforcement and other penetrations, the volume change caused by the loss of water results in cracks in the weaker points of the concrete's micro structure.



PREVENTION: Plastic shrinkage cracking can be reduced - particularly during extremely hot and/or windy conditions - through the application of an evaporative retardant such as MasterKure® 111, which when sprayed onto wet concrete surfaces, creates a protective film that helps to reduce surface moisture evaporation and aids in finishing. Exposed concrete surfaces should be cured using a curing agent such as MasterKure® 250 immediately following final trowelling, thereby further reducing the loss of moisture.

The ability of concrete to resist plastic shrinkage cracking can also be significantly improved through the addition of MasterFiber® polypropylene fibres. MasterFiber® fibres will also deliver significant improvements in the performance of both plastic and hardened concrete.



REPAIR: Once the concrete has hardened, little can be done. If the cracks are small, it may be best to tolerate them. However, if the cracks are 2mm or greater, and there is concern over watertightness or protection of the reinforcing steel, remedial measures should be taken. If the area has low traffic, a coating of MasterEmaco® N 5100 will fill the cracks and create a wearing surface. In high traffic areas, coating with MasterTop® 1080 or MasterTop® 1260 may be considered.



Repairing damaged surfaces



REQUIREMENT: Quick setting repair mortar for concrete with damaged edges or corners and/or for filling honeycombs, cracks, bug holes and gouges. The mortar must be fine enough to enable thin-layer patching, whilst also having the ability to be feather-edged.



SOLUTION: MasterEmaco® N 5200CI is a ready-to-use, quick setting repair and anchoring mortar, based on selected cements, high-grade quartz sands and synthetic resins. MasterEmaco® N 5200CI contains no chlorides or other salts that may cause corrosion or efflorescence (blooming).

OTHER RELATED PRODUCTS

- MasterTop® 510 - cementitious self-levelling mortar
- MasterEmaco® S 5400CI - high strength repair mortar
- MasterEmaco® N 5100 - polymer modified fairing mortar
- MasterEmaco® T 920 - shrinkage compensated micro concrete
- MasterEmaco® T 288 - trafficable fast set mortar
- MasterEmaco® T 545 - superfast strength gain trafficable mortar



Hardening and sealing concrete surfaces



REQUIREMENT: Treatment to impart greater concrete surface density which, in turn, provides increased durability, resistance to abrasion, and increased resistance to penetration by oil and grease.



SOLUTION: MasterTop® 333 is a deep-penetrating silicate solution which converts available free lime into more cementitious binder, thereby hardening and sealing the floor in the process.

MasterTop® TC 471 is a low viscosity, two-pack, UV resistant polyurethane resin coating which can be applied both internally and externally.

MasterTop® 1260 is a low viscosity, polyaspartic, fast cure, two pack coating. Its fast cure properties allow the application of two coats on one day and return to service the next day.

Bug Holes in off-Form concrete



CAUSE: Entrapped air bubbles which fail to rise to the surface - particularly in low water:cement ratio concretes - will appear as 'bug holes' on the surface of the off-form concrete.



PREVENTION: Surface imperfections in precast, prestressed and/or poured in situ concrete can be significantly reduced or eliminated through the use of MasterFinish® 211, a ready-to-use, water-based, non-toxic surface consolidation agent. MasterFinish® 211 provides easy and complete release when applied to most types of form and/or form liner.



REPAIR: Surface repairs can be made with MasterEmaco® N 5100, a concrete-grey, ready-to-use mortar, based on hydraulic binders and high-grade quartz sands, modified with synthetic polymers. MasterEmaco® N 5100 contains no chlorides or other salts that may cause corrosion or efflorescence (blooming).



Rain damaged surfaces



REQUIREMENT: Easily applied cementitious repair topping to restore the finish of a damaged slab surface.



SOLUTION: Internal floors - MasterTop® 510 is an economical self-levelling, poured-in-place, cementitious, non-structural floor topping, which has been specifically developed for use of poured in situ or precast concrete floors which will be subsequently covered by a suitable floor covering. MasterTop® 510 delivers a fast-setting level and flat surface, whilst still providing maximum available flow time.



SOLUTION: Garage floors, driveways and patios - MasterEmaco® N 5100 is a polymer modified fairing mortar which develops high early and ultimate strengths. MasterEmaco® N5100 is chloride-free, shrinkage compensated and supplied ready-to-use.



SOLUTION: Further options - Lightly grind the concrete with a grinder, and apply a MasterTop® epoxy system such as MasterTop® 1260.

Concrete surface dusting



CAUSE: Concrete surface dusting is generally a result of weak cement hydration caused by too much surface water (eg. rain induced or over-trowelling) and exposure to high evaporative conditions where not enough moisture is retained at the surface due to poor curing practices.



PREVENTION: Concrete surface dusting can be prevented in both internal and external works by ensuring good curing practices, including the use of MasterKure® curing compounds, wet hessian or plastic. MasterKure® 111 will also assist in finishing and reducing evaporation that leads to rapid moisture loss during finishing.



REPAIR: Repairs can be made using MasterTop® 333, a deep-penetrating silicate solution which has been specifically developed for sealing and dust-proofing powdery and/or friable concrete and masonry surfaces.

Exposed aggregate problems



CAUSE: Problems associated with exposed aggregate are generally caused by uncontrolled concrete setting times, which can lead to poorly exposed aggregate, insecure exposed aggregate and inconsistency of texture.



PREVENTION: These issues can be prevented through the use of a water-based chemical retarder such as MasterFinish® 380.

Specifically developed to overcome the issues that can be associated with uncontrolled concrete setting times, MasterFinish® 380 delays the setting of the mortar paste on the surface to a controlled depth, without adversely affecting the setting of the main concrete.

The chemically retarded mortar paste may be removed by washing or brushing within a 24 hour period after the set of the concrete to expose the aggregate.



Adhesion of toppings



CAUSE: For two surfaces to bond together, the conditions for adhesion must be right. Generally speaking, the joint should be stronger than the surrounding area, however, under certain conditions, the reverse can happen - resulting in a weak bond that allows the two surfaces to separate.



PREVENTION: These problems can be overcome in internal areas through the use of a wet to dry bonding agent such as MasterEmaco® P 157 - an acrylic-latex bonding agent additive that allows the application of a bonding slurry to a previously wetted surface. Alternately, MasterEmaco® 2525 permits application to both wet and dry surfaces - thereby achieving a high joint strength in all circumstances.



REPAIR: For existing poorly bonded or 'drummy' concrete - where the work cannot be removed - repairs may be possible through crack injection with MasterInject® 1380.



Sealing concrete retaining walls



REQUIREMENT: Membrane to seal the soil side of retaining walls and planter boxes. Constant movement of water through the wall can create efflorescence and destabilise the wall.



SOLUTION: Install a membrane on the soil side of the wall or planter box. MasterSeal® 5200TIX is a low VOC water based single pack fast curing membrane that contains no bitumen.

MasterSeal® 5200TIX is applied to the primed surface with a stiff brush or roller.



Waterproofing decks and podiums



REQUIREMENT: Concrete decks and podiums often need waterproofing - even while remaining an active substrate for things such as car parking, pedestrian spaces and landscaped areas.



SOLUTION: MasterSeal® Traffic Systems have been specifically designed to cope with the different needs of vehicular traffic and pedestrian traffic.

Protecting sensitive areas below from water and root ingress is important. Continuous membranes such as the MasterSeal® range of polyurea / polyurethane membranes can provide the critical protection needed - even in heavily trafficked areas.



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Master Builders Solutions

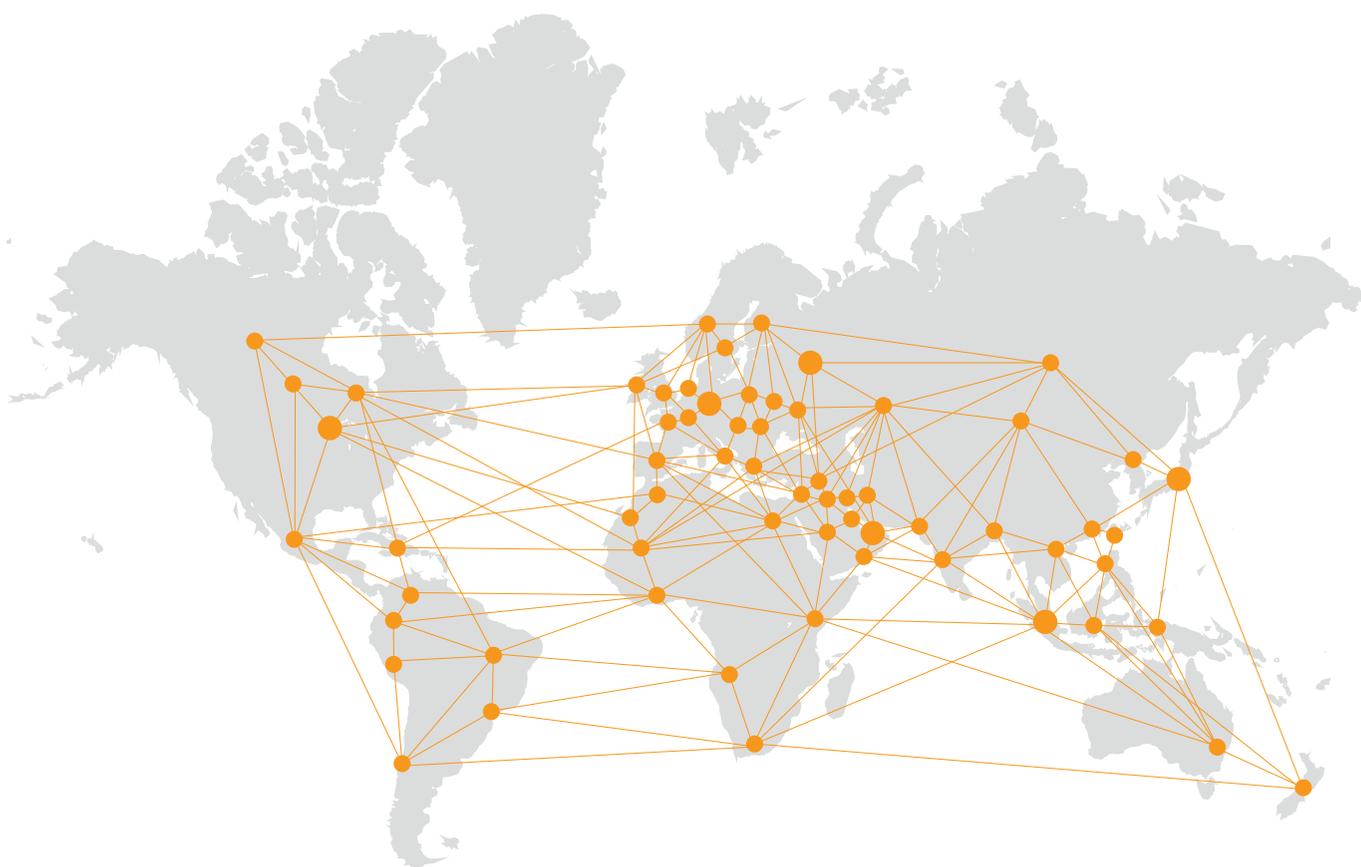
The Master Builders Solutions brand brings all of BASF's expertise together to create chemical solutions for new construction, maintenance, repair and renovation of structures. Master Builders Solutions is built on the experience gained from more than a century in the construction industry.

The know-how and experience of a global community of BASF 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 world-wide. We leverage global BASF 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.

Our comprehensive portfolio

- Concrete admixtures
- Cement additives
- Chemical solutions for underground construction
- Waterproofing solutions
- Sealants
- Concrete repair and protection solutions
- Performance grouts
- Performance flooring solutions





Master Builders Solutions from BASF for the Construction Industry

MasterAir®

Complete solutions for air entrained concrete

MasterBrace®

Solutions for concrete strengthening

MasterCast®

Solutions for the manufactured concrete product industry

MasterCem®

Solutions for cement manufacture

MasterEase®

Low viscosity for high performance concrete

MasterEmaco®

Solutions for concrete repair

MasterFinish®

Solutions for formwork treatment and surface improvement

MasterFlow®

Solutions for precision grouting

MasterFiber®

Comprehensive solutions for fiber reinforced concrete

MasterGlenium®

Solutions for high performance concrete

MasterInject®

Solutions for concrete injection

MasterKure®

Solutions for concrete curing

MasterLife®

Solutions for enhanced durability

MasterMatrix®

Advanced rheology control for concrete

MasterPel®

Solutions for water tight concrete

MasterPolyheed®

Solutions for mid-range concrete

MasterPozzolith®

Solutions for water-reduced concrete

MasterProtect®

Solutions for concrete protection

MasterRheobuild®

Solutions for high strength concrete

MasterRoc®

Solutions for underground construction

MasterSeal®

Solutions for waterproofing and sealing

MasterSet®

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