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® = registered trademark of BASF group in many countries
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<th>Gunite</th>
<th>Vertical</th>
<th>Overhead</th>
<th>Horizontal</th>
<th>Comp. Strength at 28d (MPa)</th>
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|                        | Paste     |
|                        | Medium    |
|                        | Low       |
|                        | Very low  |

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MasterEmaco® 2525
Solvent-free epoxy binder and structural adhesive

DESCRIPTION:
MasterEmaco 2525 is a solvent-free, high performance, versatile epoxy resin binder that can be used as a binder to produce a range of epoxy resin based mortars. MasterEmaco 2525 can be applied to both dry and damp surfaces and adheres to most substrates after proper preparation.

RECOMMENDED FOR:
- Structural bonding of new to old concrete
- Production of epoxy resin mortars for floor toppings
- Production of epoxy resin mortars to grout bolt holes
- Steel bonding
- Rapid structural repair of concrete
- Grouting dowels
- Priming of concrete floors prior to applying MasterTop Flooring System and/or MasterSeal systems to achieve structural bond

FEATURES AND BENEFITS:
- Adheres to wet or damp surfaces - wide application area
- Solvent free - low VOC and non-shrink
- Pre-proportioned packaging - no job site errors
- Multi-purpose binder - many uses
- Low viscosity - easy to apply as primer
- High abrasion and chemical resistance - can be used as wearing surface
- Approved to AS/NZS 4020:2002 - suitable for contact with Potable Water
- Cures hard at low temperatures - wide application range

ESTIMATING DATA:

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<th>For 1 litre of binder - volume of F1 filler</th>
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<td>Mortar</td>
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PACKAGING:
MasterEmaco 2525 is available in 2 and 20 litre kits:

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<td>Part B</td>
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MasterEmaco® N 102CI
Cementitious trowel applied lightweight polymer modified repair mortar with active corrosion inhibition

DESCRIPTION:
MasterEmaco N102CI is a non-structural, single component, polymer modified, repair and re-profiling mortar. MasterEmaco N102CI when mixed with water is a mortar that contains special cements, graded sands, selected polymers to allow the mortar to be hand or trowel applied in thicknesses from 5mm to 100mm.

RECOMMENDED FOR:
- The non-structural repair of concrete elements like balconies edges, building facades, parapet walls, precast panels, and beam edges.
- It is ideal for general, non-structural patch repairs where high build properties allowing up to 100 mm thickness in one layer are required.
- Can be applied as a smoothing or levelling coat at only 5 mm thick on large vertical and overhead areas to achieve a more aesthetic finish e.g. prior to painting.
- Contains active corrosion inhibitors making it suitable for aggressive environments.
- MasterEmaco N102CI has active corrosion inhibition to help prevent incipient anodes forming and to preserve the reinforcing steel in the immediate area of the patch

FEATURES AND BENEFITS:
- **Shrinkage compensation and corrosion inhibition** - to minimise crack tendency and extend life of repair
- **Smooth, creamy, non-slump mortar** - easy to create profiles and corners without formwork
- **High build capacity** - can be applied 80-100mm in vertical applications or up to 70-80mm overhead in one layer
- **Good strength development** - exceeding requirement of Class R2 of EN1504 part 3
- **Low modulus of elasticity** - able to cope with the thermal movement of the structure
- **Low chromate (Cr[VI] < 2 ppm)** - reduces risk of skin allergies
- **Chloride-free** - does not increase chloride load on structure

ESTIMATING DATA:
One 20 Kg bag mixed with 4 litres of water has a volume of approximately 13 litres.

PACKAGING:
MasterEmaco N102CI is available in 20kg bags
MasterEmaco® N 5100
Cementitious polymer modified thin layer fairing mortar

DESCRIPTION:
MasterEmaco N 5100 is a concrete-grey, ready-to-use mortar based on hydraulic binders, high grade quartz sands and modified with synthetic polymers. It contains no chlorides or other salts that might cause corrosion or blooming.

RECOMMENDED FOR:
MasterEmaco N 5100 is especially suitable for levelling uneven surfaces, filling honeycombs and pin holes. It can be used as a topping (render) of up to 3mm thick to face up masonry. MasterEmaco N 5100 is ideal for thin resurfacing of damaged concrete surfaces, such as in rain damaged slabs and for use in non-moving crack repairs.

FEATURES AND BENEFITS:
- Multi-purpose - allows thin layer patching and feather edging.
- Strong adhesion - bonds permanently to existing concrete.
- Thixotropic material - quick and easy to apply by trowel vertically and overhead.
- Durable - weatherproof and shrinkage compensated.
- Fast return to service - high early strength and excellent bonding.

ESTIMATING DATA:
A 20kg bag of MasterEmaco N 5100 mixed with 3-3.5 litres of water yields 11 litres (0.011m³), therefore material requirement is 5.5kg/m² @ 3mm thickness

PACKAGING:
MasterEmaco N 5100 is available in 20kg bags.
**MasterEmaco® N 5200CI**

Universal, fast-setting, polymer modified, fibre reinforced, lightweight repair and levelling mortar with active corrosion inhibition

**DESCRIPTION:**
MasterEmaco N 5200CI is a universal, single component, polymer modified, medium strength, fast setting, repair, re-profiling and levelling mortar. MasterEmaco N 5200CI contains special cements, graded sands, selected polymers and fibres to reduce shrinkage and improve physical and application properties. When mixed with water, it forms a mortar with an exceptionally wide range of applications. MasterEmaco N 5200CI can easily be hand or trowel applied in thicknesses from 3mm to 100mm.

**RECOMMENDED FOR:**
MasterEmaco N 5200CI is used for the repair of concrete elements like balconies edges, building facades, parapet walls, precast panels, beam edges and stair nosings, particularly where fast setting and overcoating are required, rather than high strength. MasterEmaco N 5200CI can be applied as a smoothing or levelling coat at 3mm thick on large vertical and overhead areas to achieve a more aesthetic finish e.g. prior to painting. MasterEmaco N 5200CI can be applied in environments where active corrosion inhibition is required.

**FEATURES AND BENEFITS:**
- **Shrinkage compensation systems and fibre reinforcement** - minimise crack tendency
- **Smooth, creamy, non-slump mortar** - easy to create profiles and corners without formwork, without the need for an additional fairing coat
- **Excellent high build capacity** - can be applied 80 - 100 mm in vertical applications or 70 – 80 mm overhead in one layer
- **Multi-use** - fairing coat and patch repair mortar in one with active corrosion inhibition
- **Fast setting** - Sets in two hours in cold weather and can be over-coated in only 4 hours
- **Good strength development** - compressive strength of 45Mpa. Exceeds the requirements of Class R2 of EN1504 part 3
- **Low modulus of elasticity** - copes with thermal movement of structures
- **Low chromate (Cr[VI] < 2 ppm)** - low risk of skin irritation
- **Chloride-free** - does not add to chloride load of structure
- **Low resistivity** - Suitable for galvanic anode use

**ESTIMATING DATA:**
One 20kg bag will yield approximately 13 litres of mortar.

**PACKAGING:**
MasterEmaco N 5200CI is available in 20kg bags.
MasterEmaco® P 157
SBR polymer based bonding and polymer modifying agent for concrete and mortars

DESCRIPTION:
MasterEmaco P 157 is an aqueous emulsion of styrene-butadiene copolymer latex, specially formulated for use in cementitious mixtures to improve wear resistance, durability, waterproofing and bonding properties.

MasterEmaco P 157 is also compatible with sulphate-resisting or high alumina cement and gypsum plaster.

RECOMMENDED FOR:
- Use with cement as a bonding slurry
- In weather resistant external or interior renderings
- In floor screeds and toppings, or plasters for improved chemical resistance
- In repair of honeycombed and spalled concrete, beams and precast elements

FEATURES AND BENEFITS:
- Easy to use - add to mixing water to improve mortars and screeds
- Economical - can create a range of polymer modified mortars and screeds with simple variations with lower cement contents than non-modified mortars
- Improved workability - mortars easier to apply
- Addition of polymer - improved bonding and impermeability and resistance to salts and other chemicals
- Controlled shrinkage - reduced cracking tendency of modified mortars

ESTIMATING DATA:
See Data Sheet

PACKAGING:
MasterEmaco P 157 comes in 5 litre plastic jerry cans and 20 litre plastic cubes.
MasterEmaco® P 5000AP
Single component, cement based, multi-use, bonding and active protective primer

DESCRIPTION:
MasterEmaco P 5000AP active primer, not only reinstates a high pH environment it also contains active corrosion inhibiting additives for the protection of steel reinforcement in concrete. It can also be used as an adhesive bonding slurry for subsequent repair mortars. When mixed with water, it forms a slurry that can be applied by brush to the clean exposed reinforcement, or directly on the dampened, prepared concrete substrate when used as a bonding coat.

RECOMMENDED FOR:
MasterEmaco P 5000AP is used for the protection of steel reinforcement in concrete:
- When steel is visible and the available depth of cover is less than required
- When concrete is contaminated with chlorides
- In critical environments when extra protection is specified
- When the timing at the jobsite does not allow for the repair mortars to be applied immediately after cleaning the steel

MasterEmaco P 5000AP can also be used to aid bond and application properties of hand applied repair mortars in extreme thicknesses and conditions.

FEATURES AND BENEFITS:
- Meets all major international norms - for steel priming in concrete repair systems
- Excellent rust inhibiting properties - as it reinstates a high pH environment
- Contains active corrosion inhibitors - to further protect the steel
- Polymer modified - for additional adhesive bond to the steel and concrete
- Long life repairs - does not reduce adhesion of repair mortars to steel or concrete
- Wide compatibility - with steel reinforcing bars and concrete or repair mortars
- Fast curing - to save time and money
- Simply mixing - just add water and mix in the supplied packaging (mixing pail)
- Multi-use - can also be used as a bonding slurry to improve bond and application thicknesses of MasterEmaco repair mortars on prepared concrete surfaces
- Orange - for easy site control of reinforcement coverage
- Only use what is needed - supplied in re-usable air-tight containers
- Low hazard - low chromate (Cr[VI] < 2 ppm)

ESTIMATING DATA:
Approx. 1.5 kg of dry powder per m² and mm layer thickness. This consumption is theoretical and depends on the roughness of the substrate. It should be verified on each particular job by means of “in situ” tests.

PACKAGING:
MasterEmaco P 5000AP is available in 5kg plastic re-sealable pails.
MasterEmaco® S 488CI

Cementitious trowel applied shrinkage compensated structural repair mortar with active corrosion inhibition

DESCRIPTION:
MasterEmaco S 488CI is a ready-to-use, high strength repair mortar containing active corrosion inhibition. Mixed with water, it provides a rheoplastic, non-segregating, thixotropic mortar with high bond to steel and concrete.

MasterEmaco S 488CI is synthetic fibre reinforced. It does not contain metallic aggregate and is free of chlorides.

MasterEmaco S 488CI is a ready-to-use powder that merely has to be mixed with water to yield an easily workable, shrinkage compensating repair mortar.

MasterEmaco S 488CI is resistant to aggressive environmental elements such as seawater, carbon dioxide, air pollution etc.

MasterEmaco S 488CI mortar is shrinkage compensated both in the plastic and in the hardened state. It is impermeable and extremely durable even in aggressive conditions.

By virtue of its uniformly dispersed synthetic fibres, MasterEmaco S 488CI can be either sprayed or trowelled onto horizontal, vertical and also overhead sections.

RECOMMENDED FOR:
MasterEmaco S 488CI is recommended for repairs needing mortar layers up to 40mm in thickness, including:

- Maintenance works at ports or sea-areas.
- Maintenance works at mechanical industries, especially in conditions where mineral oils, lubricants, etc. are present.
- Protection of concrete against aggressive waters containing sulphates, sulphides, chlorides, etc.
- Repair of damaged concrete members.
- Repair of concrete members subjected to repetitive stresses.
- Repair of structural members (reinforced or pre-stressed beams under normal or eccentric stress).
- Vertical, overhead and horizontal applications.

FEATURES AND BENEFITS:

- Durable
- Highly impermeable
- Ready-to-use
- Shrinkage compensated
- Sprayable
- Sulphate resistant
- Excellent workability
- No added chloride
- Contains non-corroding synthetic fibres
- High early and final strengths
ESTIMATING DATA:
A 20kg bag of MasterEmaco S 488CI mixed with 3.2 litres of water yields 10.5 litres (0.0105m$^3$), therefore material requirement is 19.1kg/m$^2$ at 10mm thickness.

PACKAGING:
MasterEmaco S 488CI is available in 20kg moisture resistant bags.
MasterEmaco® S 620
Cementitious hand or wet-spray applied repair mortar for aggressive environments

DESCRIPTION:
MasterEmaco S 620 is a ready-to-use, high Alumina cement based mortar. It is specially designed for sewer repair applications or where acid and/or abrasion resistance is required using hand or wet-spray applied systems.

RECOMMENDED FOR:
- Repairs to brick, cast in place concrete and precast concrete sewers
- Reinstating of linings of manholes, wet wells and other access ways
- Tunnel linings or other places where resistance to acidic waters is required

FEATURES AND BENEFITS:
- High Alumina clinker and cement - all ingredients reactive and form an acid resistant matrix
- Easy to use - requires only the addition of potable water for mixing for hand application or wet mix spray
- Self-healing - long term reactivity of matrix heals surface cracks increasing life of repair
- Good working time - over one hour at 21°C
- Controlled shrinkage - reduced cracking tendency

ESTIMATING DATA:
One 20kg bag of MasterEmaco S 620 mixed with 2.8-3.2L of water yields approximately 11 litres (0.011m³).
Refer to your BASF technical representative for further advice.

PACKAGING:
MasterEmaco S 620 is available in 20kg bags.
MasterEmaco® S 680
Cementitious spray applied repair mortar for aggressive environments

DESCRIPTION:
MasterEmaco S 680 is a ready-to-use, high alumina cement based shotcrete mix with reduced rebound. It is specially designed for sewer repair applications or where acid and/or abrasion resistance is required using dry shotcreting systems.

RECOMMENDED FOR:
- Repairs to brick, cast in place concrete and precast concrete sewers
- Reinstating linings of sewers after structural repair with MasterEmaco S 820CI
- Tunnel linings or other places where resistance to acidic waters is required

FEATURES AND BENEFITS:
- High alumina clinker and cement - all ingredients are reactive and form an acid resistant matrix
- Easy to use - requires only the addition of potable water for mixing or spraying
- Self-healing - long term reactivity of matrix heals surface cracks increasing repair life
- Good working time - over one hour at 21°C
- Controlled shrinkage - reduced cracking tendency

ESTIMATING DATA:
One 20kg bag of MasterEmaco S 680 mixed with water yields approximately 10.2 litres (0.0102m³).

Allowance must be made for rebound and cut off for finishing which will reduce the coverage accordingly.

An allowance of 10-15% can be made for rebound which assumes an experienced nozzleman and ideal conditions. For overhead spraying the rebound allowance may be increased to 10-50%. Refer to BASF for further advice.

PACKAGING:
MasterEmaco S 680 is available in 20kg bags.
MasterEmaco® S 820CI
Cementitious spray applied repair mortar with active corrosion inhibition

DESCRIPTION:
MasterEmaco S 820 CI is a ready-to-use, cement based shotcrete mix with reduced rebound and active corrosion inhibition. It is specially designed for civil and mining applications using either the wet or dry shotcreting systems.

RECOMMENDED FOR:
- Repairs to the underside of bridge decks, bridge piers and beams, tunnels, drains, sea walls, and culverts
- Reinstating of eroded concrete in sewers prior to the application of MasterEmaco S 680
- Tunnel linings and embankment stabilisation

FEATURES AND BENEFITS:
- **Active corrosion inhibition** - reduced possibility of incipient anodes and longer lasting patches. Made to order version available without corrosion inhibitor.
- **Easy to use** - requires only the addition of potable water for mixing or spraying
- **Versatile** - is easily sprayed using the wet mix shotcrete system or dry mix systems
- **Good working time** - over one hour at 21°C
- **Addition of polymer possible** - improved bonding and impermeability of hardened shotcrete
- **Controlled shrinkage** - reduced cracking tendency
- **Very low rebound and dust** - reduced cost and wastage

ESTIMATING DATA:
One 20kg bag of MasterEmaco S 820 CI mixed with water yields approximately 10.2 litres (0.0102m³).

Allowance must be made for rebound and cut off for finishing which will reduce the coverage accordingly.

Without allowing for cut-off, an allowance of 5-10% can be made for rebound. This is for an experienced nozzleman and ideal conditions. For overhead spraying the rebound allowance may be increased to 10-50%.

PACKAGING:
MasterEmaco S 820 CI is available in 20kg bags.
MasterEmaco® S 822CI
Cementitious spray applied repair mortar for cathodic protection overlays

DESCRIPTION:
MasterEmaco 822CI is a ready-to-use, cement based shotcrete mix with reduced rebound for cathodic overlays. It is specially designed for civil and mining applications using either the wet or dry shotcreting systems.

RECOMMENDED FOR:
Repairs to marine structures and the underside of bridge decks, bridge piers and beams, tunnels, drains, sea walls, and culverts where impressed current cathodic protection systems are used.

FEATURES AND BENEFITS:
- Easy to use - requires only the addition of potable water for mixing or spraying
- Economical - reduces handling and clean-up costs and speeds up repairs
- Versatile - is easily sprayed using the wet mix shotcrete system or dry mix systems
- Good working time - over one hour at 21°C
- Low resistivity - improves effectiveness of impressed current cathodic protection systems
- Controlled shrinkage - reduced cracking tendency
- Very low rebound and dust - reduced cost and wastage
- Made to order version available without corrosion inhibitor

ESTIMATING DATA:
One 20kg bag of MasterEmaco 822CI mixed with water yields approximately 10.2 litres (0.0102m³).

Allowance must be made for rebound and cut off for finishing which will reduce the coverage accordingly.

Without allowing for cut-off, an allowance of 5-10% can be made for rebound. This is for an experienced nozzleman and ideal conditions. For overhead spraying the rebound allowance may be increased to 10-50% depending on the admixtures used. Refer to your BASF Technical Representative for further advice.

PACKAGING:
MasterEmaco S 822CI is available in 20kg bags.
MasterEmaco® S 902
Cementitious rapid setting repair mortar for underwater applications

DESCRIPTION:
MasterEmaco S 902 is a ready-to-use; fast setting cement based underwater mortar. It was specifically developed for underwater repair and restoration work.

RECOMMENDED FOR:
• Repairing eroded concrete or timber piles, sea walls, wharves
• Repairing leaks or joints in marine structures, concrete reservoirs, swimming pools, pipelines, wells.

FEATURES AND BENEFITS:
• Rapid setting - quick, efficient repairs to areas exposed to wave and tide action
• Excellent adhesion - high bond strength to clean concrete and timber surfaces
• Easy to use - applied by hand
• Dense anti-washout mortar - resistant to wave action during placing
• Suitable for constant immersion - resistant to sulphurous ground waters
• Waterproof - provides a watertight seal when used to repair leaks or seal joints

ESTIMATING DATA:
A 20kg bag of MasterEmaco S 902 mixed with water yields 11.2 litres (0.0112m³)

PACKAGING:
MasterEmaco S 902 is available in 20kg moisture resistant bags.
MasterEmaco® S 5300CI
Lightweight, mid strength, polymer modified, fibre reinforced, structural repair mortar with active corrosion inhibition

DESCRIPTION:
MasterEmaco S 5300CI is a single component, lightweight, polymer modified, high build structural repair mortar. MasterEmaco S 5300CI has been specifically formulated to produce a mortar with the compressive strength and modulus characteristics defined in class R3 of EN 1504 part 3.

RECOMMENDED FOR:
MasterEmaco S 5300CI is used for the structural repair of medium strength concrete elements such as, balcony edges, soffits and decks, window ledges, lintels & beams or anywhere where concrete structures need to be repaired or reprofiled by hand

FEATURES AND BENEFITS:
- Shrinkage compensation and fibre reinforcement - minimise crack tendency creating a longer lasting repair
- Medium strengths and lower modulus of elasticity - allows the repair of medium strength concrete without problems of differential movement
- Highly thixotropic and lightweight - allows single high build layers
- High build - applied up to 75 mm in vertical applications and 50 mm overhead
- Outstanding workability - easy to create profiles and corners without formwork
- Very low shrinkage - excellent crack resistance
- Durable and weather resistant - good water and chloride impermeability
- Low chromate (Cr[VI] < 2 ppm) - low risk of skin irritation
- Chloride-free - does not add to chloride load of contaminated structures
- Active corrosion inhibition - suitable for extreme environments

ESTIMATING DATA:
One 20kg bag will yield approximately 12.4 litres of mortar. Approx. 2.0 kg of mixed product per m² per mm layer thickness (approx. 1.8 kg of dry powder per m² and mm layer thickness). This consumption is theoretical and depends on the roughness of the support, wastage etc, for which reason it should be verified in each particular job by means of “in situ” tests.

PACKAGING:
MasterEmaco S 5300CI is available in 20kg bags.
MasterEmaco® S 5400CI

High-strength, shrinkage compensated, fibre reinforced, trowelable structural repair mortar with active corrosion inhibition

DESCRIPTION:
MasterEmaco S 5400CI is a single component, extra high-strength, high modulus, shrinkage compensated structural repair mortar that meets the requirements of the new European Norm EN 1504 part 3 class R4. It contains Portland cement, graded sands, selected polymer fibres and special additives to significantly reduce the risk and incidence of shrinkage cracking.

RECOMMENDED FOR:
MasterEmaco S 5400CI is used for the structural repair of concrete elements such as:
- Columns, piers and cross beams of all bridges
- Cooling towers and chimneys and other industrial environments
- Tunnels, pipes, outfalls and below ground construction in harsh ground conditions
- Marine structures, water treatment and sewage facilities

FEATURES AND BENEFITS:
- **Versatile** - can be applied in extreme environments where active corrosion inhibition is required
- **Shrinkage compensation systems and fibre reinforcement** - minimise crack tendency
- **Highly thixotropic** - can be applied up to 50 mm without the need of secondary reinforcement
- **High early and ultimate strengths** - matches high strength concrete found in structures
- **Outstanding workability** - easy placing and finishing for applicators
- **High modulus and excellent adhesion** - ensuring load transfer in structural repair
- **Excellent freeze/thaw resistance** - suitable for all climates
- **High carbonation resistance** - suitable for exposed repairs in urban environments
- **Sulphate resistant** - suitable for contact with ground waters
- **Very low permeability to water and chlorides** - protection of reinforcing steel
- **Low chromate (Cr\([VI]\) < 2 ppm)** - low risk of skin irritation
- **Chloride-free** - does add to the chloride load in contaminated structures

ESTIMATING DATA:
One 20kg bag will yield approximately 10.5 litres of trowelable mortar. Approximately 2.2kg of mixed product per m\(^2\) per mm layer thickness (approx. 2.2 kg of dry powder per m\(^2\) and mm layer thickness). This consumption is theoretical and depends on the roughness of the support, amount of rebar, wastage etc, for which reason it should be verified in each particular job by means of “in situ” tests.

PACKAGING:
MasterEmaco S 5400CI is available in 20kg bags.
MasterEmaco® S 5440CI
Shrinkage compensated, flowable, structural repair mortar with active corrosion inhibition

DESCRIPTION:
MasterEmaco S 5440CI is a single component, extra high-strength, high modulus, shrinkage compensated structural repair mortar that meets the requirements of EN 1504 part 3 class R4. MasterEmaco S 5440CI contains Portland cement, graded sands and special additives to significantly reduce the risk and incidence of shrinkage cracking. When mixed with water, it forms a highly fluid mortar that can easily be pumped or poured into formwork.

RECOMMENDED FOR:
MasterEmaco S 5440CI is used for the structural repair of concrete elements such as:
- Columns, piers and cross beams of all bridges
- Cooling towers and chimneys and other industrial environments
- Marine structures, water treatment and sewerage facilities
- Tunnels, pipes, outfalls and all below ground construction especially in harsh ground conditions
- All form and pour repairs

FEATURES AND BENEFITS:
- Versatile - can be applied in extreme environments where active corrosion inhibition is required.
- Shrinkage compensated - minimises crack tendency.
- Highly fluid - can be applied by pump (eg Putzmeister SP11) or pouring into formwork.
- High early and ultimate strengths - matches high strength concrete found in structures.
- High modulus and excellent adhesion - ensuring load transfer in structural repair.
- Excellent freeze/thaw resistance - suitable for all climates.
- High carbonation resistance - suitable for exposed repairs in urban environments.
- Sulphate resistant - suitable for contact with ground waters.
- Very low permeability - protection of reinforcing steel.
- Low chromate (Cr[VI] < 2 ppm) - low risk of skin irritation.
- Chloride-free - does add to the chloride load in contaminated structures.

ESTIMATING DATA:
One 20kg bag will yield approximately 9.7 litres of mortar. Approx. 2.2 kg of mixed product per m² per mm layer thickness (approx. 2 kg of dry powder per m² and mm layer thickness). This consumption is theoretical and depends on the roughness of the support amount of rebar, wastage etc. It should be verified in each particular job by means of “in situ” tests.

PACKAGING:
MasterEmaco S 5440CI is available in 20kg bags.
MasterEmaco® T 288
Rapid setting trafficable repair mortar

DESCRIPTION:
MasterEmaco T 288 is a one component concrete repair and anchoring material which sets in 30 minutes and will accommodate rubber-tyre traffic 2 hours after placement. This product can be used indoors and outdoors for highway and heavy industrial repair jobs.

RECOMMENDED FOR:
- Bridge deck and highway overlays
- Concrete pavement joint repairs
- Airport runway light installations
- Full depth structural repairs
- Expansion device nosings
- Anchoring steel bridge and balcony railings
- Commercial freezer room repairs
- Loading dock repairs
- Parking deck and ramp repairs
- Heavy industrial repairs

FEATURES AND BENEFITS:
- Wide temperature application range - suitable for climates from very hot to very cold
- Rapid strength gain - fast return to service only 2 hours
- Chemically resistant - unaffected by deicing salts
- Thermal expansion/contraction rate similar to concrete - suitable for freeze thaw conditions
- Minimal drying shrinkage - long term volume stability and stability of patch
- Cement colour - patches have texture and look of concrete

NOTE: For best adhesion and under traffic conditions, use MasterEmaco 2525 epoxy bonding agent.

ESTIMATING DATA:
A 20kg bag of MasterEmaco T 288 mixed with 2.6 - 3 litres of clean water will yield approximately 10 litres of material.

PACKAGING:
MasterEmaco T 288 is packaged in 20kg moisture resistant bags.
MasterEmaco® T 545
Rapid setting trafficable repair mortar

DESCRIPTION:
MasterEmaco T 545 is a one-component concrete repair and anchoring material, which sets in 15 minutes and takes rubber-tyre traffic 45 minutes after placement. This product bonds to both concrete and masonry and can be used indoors and outdoors for highway and heavy industrial repair jobs.

RECOMMENDED FOR:
- Bridge deck and highway overlays
- Concrete pavement joint repairs
- Airport runway light installations
- Full-depth structural repairs
- Expansion device nosings
- Heavy industrial repairs
- Anchoring steel bridge and balcony railings
- Commercial freezer room repairs
- Loading dock repairs
- Parking deck and ramp repairs

FEATURES AND BENEFITS:
- **Wide temperature application range** - suitable for climates from very hot to very cold
- **Rapid strength gain** - fast return to service only 45 minutes
- **Chemically bonds to concrete** - long life of patches in trafficked areas
- **Thermal expansion/contraction rate similar to concrete** - suitable for freeze thaw conditions
- **Minimal drying shrinkage** - long term volume stability and stability of patch
- **Cement colour** - patches have texture and look of concrete
- **No priming required** - easy to use.

ESTIMATING DATA:
Note: WATER CONTENT IS CRITICAL.
A 20kg bag of MasterEmaco T 545 mixed with a maximum 1.4 litres of water produces a volume of approximately 0.01m³ (10L). A 60% extension (12kg/bag) using 14mm, rounded, sound aggregate produces a volume of approximately 0.014m³ (14L).

PACKAGING:
MasterEmaco T 545 is supplied in 20kg bags.
MasterEmaco® T 920CI
Cementitious high strength rapid setting trafficable repair mortar with active corrosion inhibitor

DESCRIPTION:
MasterEmaco T 920CI is a high strength shrinkage compensated micro concrete for the repair of concrete surfaces in both new and existing construction. Highly workable, this multi-purpose pea gravel mortar handles easily at 100mm slump and possesses excellent working time and superior performance.

RECOMMENDED FOR:
- Floor repair and overlay
- Pavement repair
- Traffic surface repair
- Repairs to structural members including pre-stressed and post-tensioned elements

FEATURES AND BENEFITS:
- High ultimate strength and abrasion resistance - durable trafficable surface up to twice the abrasion resistance of 25MPa concrete
- Extended working time - aids the finishing and/or enables the application of dry shake finishes
- Controlled shrinkage - reduced cracking tendency
- Active corrosion inhibition - long life repairs even in aggressive environments

NOTE: Minimum thickness 25 mm. Feather edging of repairs should be avoided, as this will compromise the durability. For best adhesion and under traffic conditions, use MasterEmaco 2525 epoxy bonding agent.

ESTIMATING DATA:
Approximately 2.0kg of MasterEmaco T 920CI mixed and placed as recommended is required per m² at 1mm thickness.

PACKAGING:
MasterEmaco T 920CI is available in 20kg moisture resistant bags.
MasterInject® 1380
Structural concrete bonding process injection resin

DESCRIPTION:
MasterInject 1380 is a two-component solventless, low-viscosity liquid adhesive for pressure injection grouting.

MasterInject 1380 was developed specifically for use with Structural Concrete Bonding Process (SCBP).

RECOMMENDED FOR:
- Structurally rebonding cracked concrete sections
- Filling porous or honeycombed concrete or grout
- Anchoring bolts, dowels and reinforcing bars
- Grouting areas pre-packed with aggregate to form bearing supports

FEATURES AND BENEFITS:
- Low viscosity - excellent penetration of fine fissures
- Resistance to creep and stress relaxation - due to high heat deflection temperature
- Fast cure rate - fast return to loaded conditions
- Bonds in wet and cold conditions - excellent adhesion even under adverse conditions

ESTIMATING DATA:
Usage is dependent on the crack volume and best determined by onsite trials.

PACKAGING:
MasterInject 1380 is available in 18kg (15 litre) kits.
MasterProtect® 810CP
Form and pour flowable mortar, for low resistivity environments

DESCRIPTION:
MasterProtect 810CP is a cementitious flowable mortar that is specifically formulated for galvanic and hybrid anodes used in cathodic protection of reinforced concrete structures and embedding discrete anodes used in impressed current cathodic protection installations. MasterProtect 810CP is especially developed for optimum life expectancy of these CP installations. MasterProtect 810CP is a blend of hydraulic cements, selected silica, modifying agents and special additives for pH buffering. When mixed with potable water, MasterProtect 810CP forms a flowable mortar with flow characteristics suited for steel congested form and pour applications.

RECOMMENDED FOR:
Encapsulating galvanic and hybrid anode systems and embedding discrete anodes used in impressed current cathodic protection installation.

FEATURES AND BENEFITS:
- Improved acid resistance compared to normal mortars against the chemicals created at the anode surface - long life of the anode encasement
- Low resistivity - enhances current flow through anode
- Expands during setting - guarantees good filling of the hole and embedding of the anode
- Long open time - allows for placing in complex form and pour situations

ESTIMATING DATA:
A 20kg bag of MasterProtect 810CP mixed with 3.6 litres of water yields 11 litres.

PACKAGING:
MasterProtect 810CP is available in 20kg moisture resistant paper bags.
MasterProtect® 815CP
Free-flowing, fast setting grout for embedding discrete anodes

DESCRIPTION:
MasterProtect 815CP is a cementitious grout/mortar that is specifically formulated for embedding discrete anodes used in impressed current cathodic protection installations of reinforced concrete. MasterProtect 815CP is especially developed for optimum life expectancy of these CP installations. MasterProtect 815CP powder is a blend of hydraulic cements, selected silica, modifying agents and special additives for pH buffering. When mixed with potable water, MasterProtect 815CP forms a fast-setting grout with extraordinary flow characteristics.

RECOMMENDED FOR:
MasterProtect 815CP is recommended for embedding discrete anodes used in impressed current cathodic protection installations.

FEATURES AND BENEFITS:
• Improved acid resistance compared to normal grouts against the chemicals created at the anode surface - long life of the anode encasement.
• Low resistivity - enhances current flow through anode.
• Expands during setting - guarantees good filling of the hole and embedding of the anode.
• Fast strength gain - set in under 30 minutes and 2.5MPa in 1 hour.

ESTIMATING DATA:
A 20kg bag of MasterProtect 815CP mixed with 4.2 litres of water yields 11.3 litres (0.0113m³).

PACKAGING:
MasterProtect 815CP is available in 20kg moisture resistant paper bags.
MasterProtect® 816CP
Free-flowing, long open time grout for embedding discrete anodes

DESCRIPTION:
MasterProtect 816CP is a cementitious grout/mortar that is specifically formulated for embedding discrete anodes used in impressed current cathodic protection installations of reinforced concrete. MasterProtect 816CP is especially developed for optimum life expectancy of these CP installations. MasterProtect 816CP is a blend of hydraulic cements, selected silica, modifying agents and special additives for pH buffering. When mixed with potable water, MasterProtect 816CP forms a long open timed grout with extraordinary flow characteristics.

RECOMMENDED FOR:
Embedding discrete anodes used in impressed current cathodic protection installations

FEATURES AND BENEFITS:
- Improved acid resistance compared to normal grouts against the chemicals created at the anode surface - long life of the anode encasement.
- Low resistivity - enhances current flow through anode.
- Expands during setting - guarantees good filling of the hole and embedding of the anode.
- Long open time - more than 1 hour of working time.

ESTIMATING DATA:
A 20kg bag of MasterProtect 816CP mixed with 3 litres of water yields 10.5 litres.

PACKAGING:
MasterProtect 816CP is available in 20kg moisture resistant paper bags.
MasterProtect® 8065CP
MasterProtect® 8105CP

Embedded galvanic anode for the protection of reinforcing steel

DESCRIPTION:
MasterProtect 8065CP and 8105CP galvanic anodes are engineered discrete zinc anodes encased in a proprietary mortar. Integral galvanized tie wires permit easy connection to concrete reinforcement. As a key component of a complete concrete repair strategy, the sacrificial zinc core generates a small electrical current as it is consumed, protecting the reinforcing steel from accelerated corrosion.

RECOMMENDED FOR:
- Where reinforced concrete or masonry structures will be repaired (interior or exterior)
- Where chlorides are present in the structure
- Wherever corrosion of reinforcing steel is possible In post-tensioned, pre-stressed, or conventionally reinforced structures

FEATURES AND BENEFITS:
- Chelation Driven System - Prevents re-passivation of the zinc; Optimizes service life
- Lower pH mortar - Non-caustic; Safe to handle
- High grade ASTM B418 type II zinc alloy - Prolonged shelf life; Reduced tendency toward degradation
- Pre-twisted tie wires - Proper stand-off from reinforcing steel; Ensures optimal current throw; Fast, easy installation
- Increased zinc surface area - Optimizes anode performance; Extends service life; up to 50% more efficient than other anodes of same zinc weight
- Generates small current as it deteriorates, to protect reinforcing steel - Extends service life and reduces maintenance costs
- Enhanced elimination of reaction by products - Anode reactivates after wet/dry cycles; Longer service life
- Not affected by carbonation or auto-corrosion - Greater shelf life

ESTIMATING DATA:
Consult MasterProtect 8065CP and 8105CP Installation Guide.

PACKAGING:
30 units per box for the 65 gram and 24 units for the 105 gram units.
MasterBrace® 1444
Thixotropic paste epoxy binder and adhesive

DESCRIPTION:
MasterBrace 1444 is a two pack, thixotropic epoxy binder which is ideal as a structural adhesive, bonding agent and binder for epoxy mortars. It is supplied as a solvent-free, smooth, non-sag paste.
MasterBrace 1444 is suited to applications in the water treatment industry and is approved for contact with potable water. Tested to AS/NZS 4020.

RECOMMENDED FOR:
- Application to horizontal or vertical surfaces to fill rough surfaces to 5mm
- As a primer for vertical surfaces for MasterSeal Traffic and Roof Systems
- Use as a general purpose adhesive for bonding and or repairing most materials
- Structural bonding BASF repair mortars and concrete on vertical surfaces
- Bonding metal to metal, concrete, timber etc.
- Patching and repairing cracks and defects in concrete and masonry with clearances of up to 5mm
- Mix with aggregates to provide a repair mortar or trowellable skim coat

FEATURES AND BENEFITS:
- High bond strength - tenacious adhesion to correctly prepared surfaces, including concrete, steel & timber
- Excellent chemical resistance - maximum protection against penetration or attack by water, mineral acids, oils, fats, fuels and strong alkali and salt solutions
- High early and ultimate strengths - a hard, tough adhesive which sets rapidly which helps to reduce production shutdown
- Non shrink - suitable for use in critical, precision applications
- Easy to use - on horizontal, vertical or overhead surfaces because of it’s paste consistency
- Solvent free - Low VOC
- Multi-purpose - can be applied to wet and damp surfaces
- Suitable for drinking water contact - approved AS/NZS 4020:2002 for contact with potable water

ESTIMATING DATA:
One litre of MasterBrace 1444 will cover approximately 1m² at 1mm of thickness.

PACKAGING:
MasterBrace 1444 is packed in a 1 litre kit comprising:

<table>
<thead>
<tr>
<th>Component</th>
<th>Quantity</th>
</tr>
</thead>
<tbody>
<tr>
<td>Part A</td>
<td>0.75 Litre</td>
</tr>
<tr>
<td>Part B</td>
<td>0.25 Litre</td>
</tr>
</tbody>
</table>
**MasterBrace® 1446**

*Thixotropic epoxy mortar and adhesive for high build applications*

**DESCRIPTION:**
MasterBrace 1446 is a thixotropic paste adhesive based on a two component solvent free epoxy resin system. MasterBrace 1446 is designed as a structural adhesive and may be used to bond precast elements and segments. The consistency of the material ensures that minor variations in the bonding surfaces can be catered for without compromising the strength of the bond.

MasterBrace 1446 may also be used as a polymer repair mortar and will bond to a wide variety of building and construction materials including concrete, masonry, timber and metals.

MasterBrace 1446 is ideally suited to applications in the water treatment industry and is approved for contact with potable water tested to AS/NZS 4020.

The individual product components A and B have been pigmented to provide a visual aid to mixing.

**RECOMMENDED FOR:**
- Structural bonding of precast elements
- Fixing injection ports for crack injection
- Bonding a wide variety of building and construction materials
- As a repair mortar, may be mixed with kiln dried sands for deep repairs (>25mm)
- Repair/bonding applications in potable water applications
- Abrasion resistant lining or repair

**FEATURES AND BENEFITS:**
- Low VOC - solvent free
- Multi-purpose - excellent adhesion to concrete steel and damp substrates
- Simple on-site QA - components pigmented & Pre-proportioned to aid mixing
- Wide application window - applicable at low temperatures
- Suitable for contact with potable water - approved AS/NZS 4020:2002 for contact with potable water

**ESTIMATING DATA:**
1.6kg of MasterBrace 1446 will cover approximately 1m² at 1mm of thickness.

Estimated yield of a 15kg kit is 9.5 litres.

**PACKAGING:**
MasterBrace 1446 is a two component system available in a 15kg kit comprising:

<table>
<thead>
<tr>
<th>Kit Size</th>
<th>15kg</th>
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<tbody>
<tr>
<td>Part A</td>
<td>10kg</td>
</tr>
<tr>
<td>Part B</td>
<td>5kg</td>
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MasterBrace® 4000
Epoxy resin adhesive for MasterBrace Laminate and Bar System

DESCRIPTION:
MasterBrace 4000 is the adhesive for the MasterBrace Laminate and Bar system and a filling compound for irregular surfaces. The MasterBrace Laminate and Bar Systems are based on ready to use carbon fibre laminate strips and bars that provide high tensile strength and are suitable for supplemental, externally bonded reinforcement of concrete, timber and masonry elements.

RECOMMENDED FOR:
MasterBrace 4000 is used as an adhesive for the MasterBrace Laminates and Bar to concrete, steel and wood.

FEATURES AND BENEFITS:
- Long pot life - allows installation of long laminates
- Thixotropic with high adhesive strength - self-supporting requiring no external propping and with minimal drips and runs
- High cured bond strength - creating true composite with substrate

ESTIMATING DATA:
A 5kg kit of MasterBrace 4000 yields approximately 3.3 litres. This is sufficient for approximately 1m² of laminate or a 10-12 m length of 80 mm wide laminate.

PACKAGING:
MasterBrace 4000 is available in 5kg kits.
MasterBrace® 4500
High strength saturant for MasterBrace fabric sheets

DESCRIPTION:
MasterBrace 4500 is a 100% solids, long pot life pigmented, epoxy resin for saturation of MasterBrace Fibre Sheet to form in-situ FRP Composite. MasterBrace 4500 is part of the MasterBrace resin systems for the creation of composite strengthening.

RECOMMENDED FOR:
- MasterBrace 4500 is used to saturate the MasterBrace carbon, glass or aramid fabric sheets to create a composite with the concrete structure.
- MasterBrace fibre reinforced plastic composites can be used to increase flexural, shear, impact resistance, axial load capacity. MasterBrace systems can increase fatigue resistance, reduce crack propagation and can be used as part of a blast mitigation program.

FEATURES AND BENEFITS:
- Adheres to fabric and primed concrete substrates - allows fast creation of true composite with the concrete
- Solvent free - low VOC and non-shrink
- Easy application - low viscosity penetrates fabric easily
- Cures hard at low temperatures - wide application range

ESTIMATING DATA:
A 5 litre kit of MasterBrace 4500 will yield 5 litres.

PACKAGING:
MasterBrace 4500 is available in a 5 litre kit.
MasterBrace® P 3500
Epoxy primer for MasterBrace system

DESCRIPTION:
MasterBrace P 3500 is a two component solvent-less epoxy penetrating low viscosity primer.

RECOMMENDED FOR:
For use as a primer prior to the use of the MasterBrace 4000 adhesive when used in conjunction with MasterBrace Laminates and Bar and for MasterBrace sheets and MasterBrace 4500.

FEATURES AND BENEFITS:
• Excellent adhesion to concrete substrate - ensures transfer of loads
• Solvent free - low VOC and non-shrink
• Cures at low temperatures - suitable for a range of climates
• Maximizes long term adhesion - Longevity, especially for wet-dry cycles

ESTIMATING DATA:
Typical consumption of 4-6 m² per litre

PACKAGING:
MasterBrace P 3500 is available in a 5 litres packs of 3.75 litres for Part A and 1.25 litres for Part B
MasterBrace® Laminate and Bar
Carbon Fibre Reinforced Polymer (CFRP) system for structural strengthening of concrete and timber structures

DESCRIPTION:
MasterBrace Laminate is a ready to use pultruded, carbon fibre laminate, normally externally bonded to structures, to provide additional load bearing capacity. MasterBrace Bar is a ready to use pultruded carbon fibre bar, that is near surface mounted (NSM) into grooves cut into the cover concrete. They both provide a lightweight, high tensile strength material (higher than steel reinforcement used in the concrete industry) and is largely utilised for additional flexural reinforcement (ie plate bonding) of concrete and timber members, as part of the MasterBrace Laminate and Bar system.

RECOMMENDED FOR:
To add strength and reinforce structures with material that has a high tensile capacity, MasterBrace Laminate and Bar enables the traditional technique of plating (with steel plates) to be replaced with extremely light materials, that are far easier to install, and to:

- Increase the flexural capacity of beams and slabs
- Increase the general load-bearing capacity (e.g. structural conversion following an increase in loading conditions)
- Help reduce deflection of the overall structural element (increase in rigidity)
- Help increase the fatigue strength (reduced maintenance)
- Help to increase the crack resistance of a structure (increase in durability)

FEATURES AND BENEFITS:
- Fast and easy installation - reducing overall installation cost of strengthening
- Durable - non-corroding even if in contact with moisture
- Thin section compared to traditional methods - Low profile (thickness) does not impact on architectural aesthetics or reduce useable space
- Simple design - enables the amount of reinforcement to be calculated in relation to the performance required or the flow of stress
- Customisable - a range of sizes and grades available to optimize design requirements and suitable for near surface mounting in grooves
- All laminates are supplied with a protective peel-ply to both faces - reducing preparation costs, whilst delivering better adhesion to the substrate and to any subsequent coatings

PACKAGING:
Typical size of laminates are 50, 80, 100 and 120 mm wide, by 1.4 mm thick. Typically available in 100 m rolls (up to 30 kg in weight).
Bar is available in 100 m rolls for 8 and 10 mm diameter, and pre-cut lengths for 12 and 16 mm diameter sizes.
DESCRIPTION:
MasterBrace Fibre sheet reinforcement materials are enveloped in MasterBrace 4500 resin to yield a range of high performance composites with many features.

RECOMMENDED FOR:
- Flexural and shear strengthening elements that may not be planar (flat)
- Increasing compressive strength via axial confinement of columns
- Seismic retrofitting of columns and piles for earthquake resistance
- Enhancement of fatigue resistance under repetitive loading conditions
- Walls, beams, slabs, silos, chimneys, tanks, pipes, tunnels, piles etc

FEATURES AND BENEFITS:
MasterBrace Fibres (in general):
- Lightweight and durable - easy to apply and non corroding
- High strength to thickness ratio - does not interfere with widths or thicknesses of members non-obtrusive

MasterBrace Carbon Fibre:
- Increased strength - for Flexure, Shear, Confinement & Fatigue enhancement and end anchoring of MasterBrace Laminates

MasterBrace Aramid Fibre:
- Increased strength - for impact resistance or Blast (Explosion) resistance

MasterBrace Glass Fibre:
- Increased strength - mainly for seismic strengthening

PACKAGING:
Typically MasterBrace fabric is supplied in rolls that are either 50 or 100 m long and up to 500 mm wide. Refer to specific material Performance Data tables on the technical data sheet for details.