

MasterEmaco® S 488

Dual shrinkage compensated, trowelable fiber reinforced thixotropic repair mortar

DESCRIPTION

MasterEmaco S 488 trowelable mortar is a dual shrinkage compensated, thixotropic high strength formulation for structural concrete repairs.

MasterEmaco S 488 is suitable for placing in thicknesses of 12mm to 50 mm both vertically and overhead.

MasterEmaco S 488 provides a durable, strong structural repair fully compatible with host concrete.

RECOMMENDED USES

MasterEmaco S 488 is the ideal material for vertical or horizontal structural repairs where the thickness of repair is more than 12mm and use of hand or machine applied structural repair systems is required. Typical applications are:

- Extensive repairs to beams, columns and other structural elements.
- Repair of structural members subjected to repetitive loading.
- Repairs to piers, navigation locks, dams seawalls and other marine structures
- Repairs to bridges, tunnels, garages, silos etc.

FEATURES AND BENEFITS

- **Dual shrinkage compensated** - Volume stable in wet and hardened state reducing cracking tendency
- **One component, factory made only addition of water** - Uniform predictable performance even in remote situations
- **Simple installation** - Optional use of bonding aid at selected locations.
- **Impermeable to aggressive elements**- Long life repairs
- **Sprayable** - Able to repair complex profiles easily with minimal rebound
- **Fast and easy placing** - Reduced time for repairs

PROPERTIES

Appearance	Grey powder
Water powder ratio	0.14
Density	Approx. 2300 kg/m ³
Application temperature	
Substrate	+5 to +40°C
material	+5 to +30°C
Mixing water per 25kg bag	Approx. 3.25 – 3.75 litres

Compressive strength (ASTM C109 7cm cube)	20 MPa 1 Day
	50 MPa 3 Days
	60 MPa 7 Days
	>70 MPa 28 Days
Flexural Strength (ASTM C348)	>9 MPa @ 28 days
Tensile Strength (ASTM C496)	>4 MPa @ 28 days
Modulus of Elasticity EN 13412	>15,000 MPa
Water penetration DIN 1048 (5 bars)	< 5mm
Carbonation Examination EN 13295	Absent

APPLICATION

Surface preparation

All loose traces of concrete or mortar, dust, grease oil, etc. must be removed. Damaged or contaminated concrete shall be removed to obtain a keyed aggregate exposed surface. Non-impact/vibrating cleaning methods, e.g. grit or high pressure water blasting are recommended. Cut the edges of the repair vertically to a minimum depth of 5 mm. Clean all exposed reinforcement to a minimum grade of Sa 2 according to ISO 8501-1 / ISO 2944-4. Ensure back of reinforcing bar is also clean.

Where reinforcing bars are corroded, cut back the concrete to at least 20mm behind the reinforcing bars. Grit blast around the reinforcing bars to remove corrosion products and coat with **MasterEmaco P 130** to give corrosion protection. Replace the affected part of rebar if the diameter after grit blasting is found reduced by more than 20% of the original diameter on the advice of the structural engineer responsible for the works.

Mixing

Only full bags are mixed. Damaged or opened bags should not be used. Mix **MasterEmaco S 488** in a forced action pan mixer, or with a helical paddle attached to a low speed (300-600rpm) mixer for 3 minutes until a lump free, thixotropic consistency is achieved. Only use clean water. Mixing water needed: 3.25 to 3.75litres per 25kg bag. Allow the mortar to rest for 2 - 3 minutes and then remix briefly before applying. If the temperature is more than 30°C then use chilled water for the mixing water.

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Priming Concrete

To obtain extra bonding, the damp substrate can be primed with a slurry brush coat of **MasterEmaco S 488** (2 parts powder to 1 part water).

For vertical surfaces, it is advisable to use MasterEmaco SBR2 or MasterEmaco 1414 as bonding aid, if required.

Mortar application

The minimum temperatures must be maintained during application and for at least 24 hours thereafter for optimum curing of the product.

The prepared substrate should be pre-soaked, preferably for 24 hours, but at least 2 hours before applying **MasterEmaco S 488**. The surface must be saturated surface dry, but without standing water. **MasterEmaco S 488** can be spray or hand applied. Apply mixed product directly to the prepared damp substrate, or wet in wet onto the primed surface. Spraying the material with the necessary pressure will ensure good adhesion of the material.

A thin scrape coat or contact layer before building up to the required thickness, wet on wet, will improve adhesion especially in case of hand application. Apply to the desired layer thickness of 12 mm to max 50 mm and level using a screeding bar, trowel or wooden board. Can be applied in thicker layers in smaller patches or where additional reinforcement is present. Smoothing with a trowel or finishing by float or sponge can be done as soon as the mortar has begun to stiffen.

Protective coatings

Subsequent coatings of **MasterProtect** anti-carbonation barriers or silane impregnations should

be applied as recommend on the individual datasheets.

CURING

MasterEmaco S 488 should be cured with **MasterKure 181** or clear polythene sheeting over wet hessian.

ESTIMATING DATA

Each bag of **MasterEmaco S 488** when mixed with 3.5L of water yields 12.4L.

PACKAGING

MasterEmaco S 488 is available in 25kg bags.

SHELF LIFE

MasterEmaco S 488 has a shelf life of 6 months. Store out of direct sunlight, clear of the ground on pallets protected from rainfall.

PRECAUTIONS

It is highly recommended to use necessary PPE (Gloves, mask etc.) during installation of the product. In case of Incidents of direct inhalation, causing dizziness/giddiness, loss of consciousness, contact with eyes etc, seek immediate medical advice. The requirements may vary depending on the application areas. Please ensure to have proper ventilation while working in confined areas. Contact Master Builders Solutions representative in case you need further details or refer to the material safety datasheet of the product to know more.

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