

# MasterEmaco<sup>®</sup> S 650

**Fast setting high strength thixotropic roadway patching mortar**

## DESCRIPTION

**MasterEmaco S 650** trowelable mortar is a thixotropic high strength formulation for repairs to trafficked concrete.

**MasterEmaco S 650** is suitable for placing in thicknesses of 10 mm to 50 mm horizontally.

**MasterEmaco S 650** provides a durable, strong repair fully compatible with host concrete.

## RECOMMENDED USES

**MasterEmaco S 650** is the ideal material for horizontal repairs where the thickness of repair is more than 10 mm and the patch will be subject to traffic loads. Typical applications are:

- Repairs to bridge decks, concrete road, airport runways or aprons.
- Repair of warehouse floors where rapid return to service is required.

## FEATURES AND BENEFITS

- **Shrinkage compensated** - Reduced cracking tendency
- **One component, factory made only addition of water** - Uniform predictable performance even in remote situations
- **No bonding agent required**- Simple installation
- **Impermeable to aggressive elements**- Long life repairs
- **Rapid setting** -Able to return to service in 2-3 hours
- **Fast and easy placing**-No formwork required thus reducing time for repairs

## PROPERTIES

Appearance	Grey powder
Water powder ratio	0.11
Compressive strength (ASTM C109)	15 MPa 3 hours
	25 MPa 1 Day
	50MPa 28 Days
Working life	20 minutes @ 25°C

	10 minutes @ 40°C
Final setting time	120 minutes @ 25°C
Density	Approx. 1900 kg/m <sup>3</sup>
Mixing water per 25kg bag	Approx. 2.75litres
Temperature for application (substrate and material)	Between +10 and +40°C (+5 and +30°C)

## APPLICATION

### Surface preparation

Concrete must be fully cured with a minimum direct tensile strength of 1.5 MPa. 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 to achieve CSP 5-8. Cut the edges of the repair vertically to a minimum depth of 10 mm. Clean all exposed reinforcement to a minimum grade of SA 2 according to ISO 8501-1 / ISO 2944-4. Ensure back of rebar 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. Replace and coat the affected part of reinforcing bar with **MasterEmaco P 130** for protection against corrosion. 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 one full bag at one time. Place approximately 80% of the water in the mixer/clean container. Keeping the mixer/drill running add **MasterEmaco S 650** slowly. Add remaining water while continuing to mix. Mix for

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3–4 minutes or until a lump free homogeneous consistency is achieved.

Mix **MasterEmaco S 650** 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: 2.75litres per 25kg bag. Allow the mortar to rest for 2-3 minutes and then remix briefly before applying. If the temperature is above 25<sup>o</sup>C use chilled water as the mixing water.

## Priming Concrete

No special primer is required. For extra adhesion you may use epoxy bond coat of MasterBrace 1414.

## Mortar application

The prepared substrate should be pre-soaked, preferably for 2 hours before applying **MasterEmaco S 650**. The surface must be saturated surface dry, but without standing water. Apply the mixed **MasterEmaco S 650** directly to the prepared damp substrate, or wet on wet onto the primed surface. 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. MasterEmaco S 650 loses initial flowable consistency due to fast setting nature, hence its recommended to place & tool material quickly in repair patch/pocket. Apply to the desired layer thickness of 10 mm to max 50 mm and level using a screeding bar, trowel or wooden board.

Patch repair size should be limited to max. 0.04-0.05cum in a single stage of application due to its fast-setting property and thixotropic consistency, depending on the ambient temperature.

Smoothing with a trowel or finishing by float or sponge can be done as soon as the mortar has begun to stiffen.

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## CURING

**MasterEmaco S 650** should be cured with a water mist or wet hessian for minimum 7 days and continue as long as possible.

Begin the curing process immediately after the initial set (say 1 hour of placing depending on drying conditions)

Do not use any curing compounds/ agents.

## ESTIMATING DATA

Each bag of **MasterEmaco S 650** when mixed with 2.75L of water yields 14.6L.

## PACKAGING

**MasterEmaco S 650** is available in 25kg bags.

## SHELF LIFE

**MasterEmaco S 650** has a shelf life of 6 months. Store out of direct sunlight, clear of the ground on pallets protected from rainfall.

## PRECAUTIONS

Do not exceed the recommended water/powder ratio. It may result in excessive shrinkage crack formations.

Do not pour more than the recommended volume of material in single stage application to avoid early setting of the material.

Do not mix more than 1 bag of material for mixing.

Please adhere to the working time of the material depending on the ambient temperature while finishing the material.

Please refer the Material Safety Data Sheet for handling and storage of this product.

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