

# MasterEmaco<sup>®</sup> S 422

A single component, high strength fibre reinforced structural repair mortar, engineered for repairs to new construction

## DESCRIPTION

**MasterEmaco S 422** is a combination of Portland cement, well graded sands, specially selected fibres and additives to improve physical, and installation properties and reduce the possibility of shrinkage cracks

When mixed with water **MasterEmaco S 422** produces a thixotropic repair mortar, ideally suited to hand, and wet spray application at 10-40mm thickness.

## TYPICAL APPLICATIONS

Repairs to honeycombing and other defects in all structural elements such as:

- Beams, columns, walls and slabs in high rise buildings
- Oil gas and petrochemical foundations and supports
- Columns, Piers and cross beams on highway structures
- Marine and other civil structures
- Water production, treatment, intake and outfall structures and sewerage facilities
- Tunnels, pipes and other below ground construction
- Cooling towers and chimneys and other industrial environments

## ADVANTAGES

- Cost effective
- Excellent workability for easy mixing, placing and finishing
- Reduced cracking tendency by use of EE Fibre technology and synergistic shrinkage control systems
- High modulus ensuring transfer of loads to parent concrete
- Can be applied up to 40mm thick in one layer for reduced installation time
- Concrete coloured when cured

## PACKAGING

**MasterEmaco S 422** is available in 25 kg bags.

## STANDARDS

BS EN 1504

## TYPICAL PROPERTIES\*

Compressive strength BS 1881 Part 116 - 28 days	>65 N/mm <sup>2</sup>
Flexural Strength BS EN 1015 Part 11	>10 N/mm <sup>2</sup>
Tensile Strength BS 6319 Part 7 1985	>4 N/mm <sup>2</sup>
Wet density	~2219 kg/m <sup>3</sup>
E-Modulus BS EN 13412-07	>30,000 N/mm <sup>2</sup>
Water penetration BS EN 12390 Part 8 2000	10mm @ 5 bar
Rapid chloride permeability AASHTO T 277 : 93 / ASTM C1202	Low
Slant shear bond ASTM C882	>10 N/mm <sup>2</sup>
Consistency BS EN 413 Part 2 2005	5mm @ 20 mins
Flow BS EN 1015 Part 3	>140mm at 30 min
Drying shrinkage ASTM C157:93	<1000 microstrains
Determination of the adhesion to concrete by pull off test BS EN 1542	>2 N/mm <sup>2</sup>

## APPLICATION GUIDELINES

### Substrate preparation

All repair areas must be clean, sound and free from all dirt dust, loose material and any oil or grease which would impair adhesion.

Defective concrete, honeycombing and cold joints must be removed to obtain a keyed surface. The chosen method of preparation should avoid the formation of micro-cracks and fractured aggregate.

The edges of all repairs should be cut vertically to a minimum depth of 10mm.

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## Reinforcing steel preparation

In cases where the reinforcing steel has been exposed the reinforcing shall be prepared to a clean bright finish.

## Priming of the substrate

Generally priming of the substrate is not necessary however the concrete should be thoroughly soaked constantly, to a saturated but surface dry condition for a minimum of 4 hours prior to installation of the repair.

For overhead repairs where soaking with water is not practical an alternative method of priming is by the use of **MasterBrace ADH 1414** or **MasterEmaco P 210**.

## Priming of reinforcement

For corrosion damaged reinforcement, priming of the steel is recommended with **MasterEmaco 8100 AP**, a single component, zinc rich epoxy primer.

## MIXING

It is recommended that only full bags of 25 kg are mixed.

**MasterEmaco S 422** should be mixed by mechanical means. Single bags may be mixed using a slow speed drill and spiral paddle or forced action mechanical mixer.

Place the mixing water into the mixing bucket and add the **MasterEmaco S 422** powder and mix for approximately 3-5 minutes until a smooth lump free consistency is achieved.

The water additions shall be 3.2 - 3.5 litres per 25kg bag depending upon the consistency required.

## Application

Following mixing, the **MasterEmaco S 422** can be installed by hand and trowel, ensuring good compaction. The **MasterEmaco S 422** shall applied at a minimum thickness of 10mm and a maximum layer thickness of 40mm. Deeper repair sections should be applied in layers.

Depending upon the geometry of the repair area **MasterEmaco S 422** may be installed in a single layer thickness greater than 40mm.

As soon as the **MasterEmaco S 422** starts to stiffen, finishing can be done by wooden, plastic or steel float depending upon the type of finish required.

For spray application please refer to Master Builders Solutions Technical Services Department.

## CURING

Good curing practice must always be followed. Curing of the installed repair should be carried out by either.

- **MasterKure** curing agents
- Damp Hessian and polythene

## COVERAGE / YIELD

A 25kg bag of **MasterEmaco S 422** will yield approximately 12.3 – 12.8 L of mortar.

One bag of **MasterEmaco S 422** will cover 1.25 m<sup>2</sup> at thickness of 10mm. This coverage is theoretical and depends upon the surface profile of the substrate and the wastage.

## WATCHPOINTS

- During the summer months or where elevated ambient temperatures are encountered the **MasterEmaco S 422** should be mixed using chilled water to ensure that the mixed temperature does not exceed 32°C.
- #Spray application may change the physical properties of the cured material
- Do not add cement sand, or which may affect its properties.
- Do not add water or fresh mortar to material which has begun to set.

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## STORAGE AND SHELF LIFE

MasterEmaco S 422 should be stored in dry conditions out of direct sunlight. Shelf life is 12 months when stored as above.

## HEALTH AND SAFETY

Avoid contact with eyes and prolonged contact with skin. In case of contact with eyes immediately flush for at least 15 minutes with fresh clean water. Call a physician.

In case of contact with skin wash skin thoroughly.

## QUALITY AND CARE

All products originating from Master Builders Solutions Dubai, UAE facility are manufactured under a management system independently certified to conform to the requirements of the quality, environmental and occupational health & safety standards ISO 9001 and ISO 14001.

\* Properties listed are based on laboratory controlled tests.

® = Registered trademark of the MBCC Group in many countries.

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