# MasterEmaco® S 422

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

## COMPOSITION

**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 spray application*

## 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

## BENEFITS

- 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

## TYPICAL PROPERTIES*

**@ 3.5 litres water / bag**

| | |
|---|---|
| Comp. strength BS 1881 Pt 116 - 28 days | > 65 N/mm² |
| Flexural Strength BS EN 1015 Pt 11 | > 10 N/mm² |
| Tensile Strength BS 6319 Pt 7 1985 | > 4 N/mm² |
| Wet density | Approx. 2219kg/m³ |
| EE Fibres<br>Diameter<br>E Modulus<br>Density | <br>16 micron<br>> 15 GPa<br>1.18 |
| E-Modulus | 35,500 N/mm² |
| Water penetration BS EN 12390 Pt 8 2000 | < 7mm |
| Rapid chloride permeability AASHTO T 277 : 93 | Low |
| Slant shear bond ASTM C882 | > 10 N/mm² |
| Indirect tensile strength BS 1881 Pt 117 : 1983 | > 4 N/mm² |
| Consistency BS EN 413 Pt2 2005 | 5 mm @ 20 mins |
| Flow BS EN 1015 Pt 3 | > 140mm at 30 mins |
| Drying shrinkage ASTM C157:93 | <500 microstrain |

## 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.

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

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**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 – 3.75 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 BASF 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

## YIELD/COVERAGE

A 25kg bag of **MasterEmaco S 422** will yield approximately 12.5 - 13 litres of mortar.

One bag of **MasterEmaco S 422** will cover 1.25 m² at thickness of 10mm. This coverage is theoretical and depends upon the surface profile of the substrate and the wastage.

We create chemistry

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## STORAGE

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

## 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 it's properties.
- Do not add water or fresh mortar to material which has begun to set.

## SAFETY PRECAUTIONS

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.

## NOTE

Field service, where provided, does not constitute supervisory responsibility. For additional information contact your local BASF representative.

BASF reserves the right to have the true cause of any difficulty determined by accepted test methods.

## QUALITY AND CARE

All BASF Products are manufactured under a management system independently certified to conform to the requirements of the quality, environmental and occupational health and safety standards of ISO 9001 and BASF ESHQ recommendations..

* Properties listed are based on laboratory controlled tests.

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