

# MasterEmaco® S 488CI

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

## MATERIAL 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.

## AREAS OF APPLICATION

**MasterEmaco S 488CI** is recommended for repairs needing mortar layers up to 40mm in thickness.

- 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.

## CHARACTERISTICS AND BENEFITS

- Economical
- 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

**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.

## PROPERTIES

Supply form	Powder
Water added per bag (20kg)	3.0 – 3.4 litres
Colour	Grey
Specific Gravity (mixed)	Approx. 2.2
Storage temperature	Moderate
Application temperature	Not below 5°C
Effect of humidity	Same as cement
Physiological effects	Same as cement
Toxicity	Non-toxic

## PERFORMANCE DATA

	1 day	28 days
Compressive strength	30 MPa	70 MPa
Flexural strength	4.5 MPa	8 MPa
E-Modulus		30 GPa
Bond to concrete		> 3.0 MPa
Bond to steel: smooth deformed		4 MPa 30 MPa

## APPLICATION

### Substrate Condition

Surfaces to which **MasterEmaco S 488CI** mortar are applied, should be clean, sound and free of dust or loose particles. Cement laitance, oil, grease, mould release oil or curing compound must be removed from concrete surfaces by using high pressure water jetting (1100-2500 Bar), or bush hammer, scabber, gritblasting or other approved means. Cut edges of recess or crack vertically, to a depth of at least 10mm. This step is very important, as **MasterEmaco S 488CI** needs a rough surface to achieve maximum grip.

All absorbent substrate surfaces must be thoroughly wetted down to saturate all pores. During application, the temperature of the substrate should not be below 5°C. If the mortar must be thicker than 25mm, anchor welded wire reinforcement to the concrete to be treated leaving space between the mesh and the surface. The successive cover of **MasterEmaco S 488CI** over reinforcement must be at least 10mm thick. If application thickness is less than 25mm, no mesh is needed, provided that the surface has been roughened with ridges of approximately 5mm in height, in order to provide the needed restraint to the mortar expansion.

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### Mixing

Pour minimum required water into a suitable mixer and add **MasterEmaco S 488CI** rapidly and continuously while mixing. Mix for 3-4 minutes or until a lump free, homogeneous mortar is obtained.

Add extra water, if necessary, until the required consistency is obtained and mix again for 2 - 3 minutes.

The amount of water to be added is highly dependent on ambient temperature and relative humidity. In hot and dry climates, slightly higher amounts of water may be necessary, the contrary in cold and humid climates.

### Water requirement to produce MasterEmaco S 488CI:

Mixing	Type of Applic.	Rec. Consist.	Flow ASTM C-230*	Mixing Water	
				Min.	Max.
By Mixer	Spray Trowel	Plastic Plastic	70% 45%	15% 15%	16% 16%

\* Test method was modified to 5 drops

### Priming

No special primer is required. To obtain extra strong bonding, the damp substrate can be primed with a slurry brush coat of **MasterEmaco S 488CI** (2 parts of powder to 1 part of water).

### Method of use

**MasterEmaco S 488CI** can either be sprayed or trowelled. If necessary, a wooden float may be used to level the surface. The final surface may be smoothed as desired by a wooden, plastic or synthetic sponge trowel.

Trowelling after the spray application may start only when the mortar has set, that is, when fingers do not sink beneath the surface, but mark it lightly.

### Tools

Mixing: low speed drill with suitable helical paddle (jiffy) or by pan mixer. Hand mixing of **MasterEmaco S 488CI** is not recommended to avoid the introduction of excessive amounts of water.

Applic.: by trowel, float or spatula, wet sprayer (worm gear type).

Finish : wood or steel trowel; plastic sponge trowel for very smooth texture.

### CURING

In normal ambient conditions, even without traditional curing, **MasterEmaco S 488CI** will not craze or crack due to plastic shrinkage, as often occurs with mortars, which are not protected adequately in the first 24 hours of curing. Cover with plastic sheet for 24 hours or apply **MasterKure 402** liberally to surface to achieve optimum results. Do not immerse in water to cure.

### ESTIMATING DATA

A 20kg bag of **MasterEmaco S 488CI** mixed with 3.2 litres of water yields 10.5 litres (0.0105m<sup>3</sup>), therefore material requirement is 19.1kg/m<sup>2</sup> at 10mm thickness.

MasterEmaco S 488CI				
L	Thickness in mm /m <sup>2</sup>	m <sup>3</sup>	bags /m <sup>3</sup>	m <sup>2</sup> /mm thickness
10.5	10.5mm	(0.0105)	95	10.5 m <sup>2</sup>

### POT LIFE

Temp °C	Setting times of MasterEmaco S 488CI	
	Initial (hrs)	Final (hrs)
5	2.00	3.00
20	1.45	2.45
40	1.00	2.00

At consistency of 45% flow at flow table (ASTM C-230) 5 drops

### PACKAGING

**MasterEmaco S 488CI** is available in 20kg moisture resistant bags.

### SHELF LIFE

**MasterEmaco S 488CI** can be stored in tightly sealed original bags for 12 months, if kept dry and at moderate temperature.

### PRECAUTIONS

For the full health and safety hazard information and how to safely handle and use this product, make sure that you obtain a copy of the Safety Data Sheet (SDS) from our office or website.

# MasterEmaco<sup>®</sup> S 488CI

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## DISCLAIMER

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