

# MasterEmaco<sup>®</sup> S 466

Shrinkage compensated, free flowing precision concrete

## DESCRIPTION OF PRODUCT

**MasterEmaco S 466** is a high strength precision micro-concrete, requiring only the on-site addition of water to provide a free flowing micro-concrete ideally suited for placing in nominal thicknesses of 40mm and above.

When mixed, applied and cured in accordance with the manufacturer's instructions, **MasterEmaco S 466** produces a free flowing precision micro-concrete, free from segregation and bleeding.

## PRIMARY USES

**MasterEmaco S 466** is used wherever a material is required to reconstruct heavily congested areas and areas with difficult access.

**MasterEmaco S 466** is the ideal material for vertical or horizontal structural repairs wherever the use of formwork is preferred to hand or machine applied repair systems.

Its high early and ultimate strength enables formwork to be stripped at an early age, thus minimising delays.

Due to its rheoplastic nature,

**MasterEmaco S 466** can be utilised as a grout and poured under a head of pressure. **MasterEmaco S 466** should not be used where the depth of voids to be filled is less than 20mm.

Used as the capping medium in conjunction with **MasterSeal 910** in the Master Builders Solutions pile head waterproofing system. For further details on this system, please contact your Master Builders Solutions representative.

## TYPICAL APPLICATIONS

General repair and renovation of decayed, defective or damaged concrete such as:

- Columns
- Walls
- Beams
- Honeycombed concrete
- Floors

## COMPOSITION

**MasterEmaco S 466** is a pre-packaged blend of Portland cement, carefully graded natural aggregate, specially selected sands, fillers, shrinkage control agents and fluidifiers. When mixed with the stated amount of water, it produces a free flowing, cohesive, precision micro-concrete that hardens to produce a dense, durable repair.

## ADVANTAGES

- Guaranteed performance – material is precision blended in the factory to ensure consistent results
- Durable – utilisation of low w/c ratio ensures minimum permeability and high durability
- Free flowing – eliminates honeycombing in areas of congested reinforcement
- Self-compacting – ensures complete filling of spalled/damaged areas
- Shrinkage compensated – unique formulation provides dual expansion system in plastic and hardened states
- Easy to use – simple on-site addition of water

## TYPICAL PROPERTIES

Wet density:	Approx. 2300kg/m <sup>3</sup>
Compressive strength at 20°C	>25N/mm <sup>2</sup> at 1 day
BS 1881 Part 116:	>35N/mm <sup>2</sup> at 3 days
	>45N/mm <sup>2</sup> at 7 days
	>55N/mm <sup>2</sup> at 28 days
	(At 4.2ltr/bag)
Indirect tensile strength	2.8N/mm <sup>2</sup> at 28 days
BS 1881 Part 117:	
Resistivity:	10000Ω
Water penetration	>30 times better than
DIN 1048 Part 5:	low permeability
	concrete
Co-efficient of oxygen diffusion:	7.33 x 10 <sup>-9</sup>

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## PACKAGING

**MasterEmaco S 466** is supplied in 30kg bags.

## METHOD OF USE

**MasterEmaco S 466** is a versatile repair and renovation mortar. Surface preparation, method of use, etc. are dependent on the job in hand. Detailed below are general guidelines for the use of **MasterEmaco S 466**. For full specification details and advice on specific repairs, contact your Master Builders Solutions representative.

## APPLICATION PROCEDURE PREPARATION:

It is essential that the surface of the concrete to be repaired is sound, clean and uncontaminated. Corrosion must be removed from steel reinforcement before application of **MasterEmaco S 466**. In certain instances, where there is a significant loss of section, the steel may have to be replaced. Defective areas should have a 20mm deep saw cut made around the perimeter. Cut back all defective concrete to a sound base. Feather edging must be avoided. Care should be taken to ensure formwork is water tight and constructed in line with normal concreting practice. The use of formwork tape is recommended in order to eliminate grout loss. The unrestrained surface of the repair should be kept to a minimum and care should be taken to ensure at least 20mm cover to reinforcement. Soaking

prior to placement is essential and provision should be made for drainage outlets. Where **MasterEmaco S 466** is to be poured, ensure access is available and a head of pressure can be maintained.

Coat reinforcing steel with 2 coats of zinc rich primer. Areas to be repaired should be soaked with water for several hours prior to application of

**MasterEmaco S 466** to minimise local absorption and to assist in the free flow of the **MasterEmaco S 466**. Before placing, ensure concrete surfaces are damp but free of standing water and seal drainage outlets. Ensure formwork is secure to prevent movement during placing and curing.

Providing the substrate has been thoroughly soaked, substrate priming is not normally necessary.

The use of **MasterBrac ADH 1414RS**, epoxy bonding agent, is recommended where high soluble salts are present in the parent concrete. **MasterBrac ADH 1414 RS** epoxy bonding agent is recommended as it prevents migration to the repair of deleterious salts, such as chlorides or sulphates as well as bonding new concrete to old.

When **MasterBrac ADH 1414RS** is used, pre-soaking is not necessary, but care should be taken to ensure formwork is erected and **MasterEmaco S 466** placed within open time of **MasterBrac ADH 1414RS** (generally within 8 hours) at 25°C. If the time of placement of the **MasterEmaco S 466** is expected to be longer than 8 hours after erecting formwork, consider the use of **MasterBrac ADH 1414RS**.

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## MIXING

Since **MasterEmaco S 466** is a precision micro – concrete, it is important that care is exercised in mixing and placing. It is essential that a mechanically powered mixer is used or suitable drill and paddle. The specified amount of water to obtain the desired consistency can be varied according to site conditions but should not exceed 4.2 Ltr per 30kg bag

Under no circumstances should **MasterEmaco S 466** be re-tempered by the later addition of water. Damp down the inside of the mixer with water, prior to mixing the initial batch of **MasterEmaco S 466**.

Ensure the mixer is damp but free of standing water. Add the pre-measured quantity of water. Slowly add the **MasterEmaco S 466** powder, mixing continuously. Mix for 3 to 5 minutes until a smooth, uniform, homogenous mix is achieved.

## PLACING

**MasterEmaco S 466** should be placed in a single continuous operation. Poured material should be introduced slowly to prevent entrapment of air.

It is essential to place the mixed material within 30 minutes of batching.

## CURING

As with all cementitious material, curing is of vital importance to ensure that optimum properties are obtained.

## SUBSEQUENT SURFACE FINISHES:

It is recommended that products from the **MasterSeal** range of protective finishes be applied. Where it is necessary, for aesthetic reasons, to blend the repair into the background the use of

**MasterSeal 550** is recommended.

## NOTE

In addition to shrinkage compensation, this product has been designed to develop tensile strength sufficient to withstand the internal stress

generated by volume change to reduce the incidence of drying shrinkage cracking.

Treat as concrete. Clean all tools with water, immediately after use. Hardened material can be removed using mechanical means.

## COVERAGE

Yield approximately 15ltr per 30k

## STORAGE

Store out of direct sunlight, clear of the ground, on pallets protected from rainfall. Avoid excessive compaction.

Failure to comply with the recommended storage conditions may result in premature deterioration of the product or packaging. For specific storage and disposal advice, consult Master Builders Solutions's Technical Services Department.

## SHELF LIFE

Up to 12 months if stored in unopened containers according to manufacturer's instructions.

## SAFETY PRECAUTIONS

As with other products containing Portland cement, the cementitious material in **MasterEmaco S 466** grout may cause irritation. In case of contact with eyes, immediately flush with plenty of water for at least 15 minutes; 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 Master Builders Solutions representative.

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

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### QUALITY STATEMENT

All products manufactured by Master Builders Solutions Egypt, or imported from Master Builders Solutions affiliate companies worldwide, are manufactured to procedures certified to conform to the quality, environment, health & safety management systems described in the ISO 9001:2015, ISO 14001:2015 & OHSAS 18001:2007 standards.

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