

MasterEmaco[®] S 443

A single component, microconcrete, based upon applied Nanotechnology especially designed for cast repairs to corrosion damaged concrete

COMPOSITION

MasterEmaco S 443 is a combination of Portland cement, well graded sands, aggregates and special additives to reduce the possibility of shrinkage cracks and to improve physical, and installation properties

When mixed with water **MasterEmaco S 443** produces a flowable micro concrete ideally suited to cast/poured applications

TYPICAL APPLICATIONS

Large volume repairs, to all structural elements within:

- Oil gas and petrochemical foundations, supports and retaining walls.
- Jetties piles, harbour walls and other marine structures.
- Columns, Piers and cross beams on highway 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.
- Beams, columns, walls and slabs in high rise buildings.

BENEFITS

- Improved cement hydration, reduced micro-defects and drying shrinkage better bond using applied Nanotechnology
- Dimensional stable repairs, low permeability and enhanced durability through synergistic shrinkage control systems and best binder models
- High modulus ensuring transfer of loads to parent concrete
- Reduced installation time, easy mixing, and placing of repairs with excellent flow characteristics

PACKAGING

MasterEmaco S 443 is available in 25 kg bags

TYPICAL PROPERTIES*

@ 3.25 litres of water per 25kg bag

Comp. strength @ 28 days BS EN 12190	> 65 N/mm ²
Flexural Strength 28 day BS EN 12190	> 7 N/mm ²
Synergistic shrinkage control systems (ASTM C157 : 93)	< 250 microstrain @ 28 days
Coutinho ring (cracking) test	> 90 days to cracking
E-Modulus BS 1881 Pt 121 1983	35,500 N/mm ²
Water penetration BS EN 12390 Pt 8 2000	< 5mm
Slant shear bond strength	> 9 N/mm ²
Rapid chloride permeability AASHTO T 277 93	Low
ASTM C1107 – 02 Type c	Complies

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 roughened 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 20mm.

MasterEmaco[®] S 443

Reinforcing steel preparation

Where **MasterProtect 8000CI** is to be applied to the complete structure for corrosion protection and to mitigate the 'incipient anode effect' only removal of loose corrosion products from the reinforcing steel by mechanical means is necessary prior to repair.

Where **MasterProtect 8000CI** is not to be applied to the concrete structure and for enhanced durability where chlorides are present in the parent concrete the reinforcing steel should be primed with **MasterEmaco 8100 AP**.

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.

Where soaking with water is not practical an alternative method of priming is by the use of **MasterBrace ADH 1414**.

MIXING

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

Single bags may be mixed using a slow speed drill and spiral paddle. For larger repairs and multiple bag mixes a forced action mechanical mixer should be used.

Place the gauging water into the mixing bucket and start the mixer and add the **MasterEmaco S 443** powder. The **MasterEmaco S 443** should be mixed for a approximately 3 minutes until a smooth lump free consistency is achieved.

The water additions shall be 3.0 to 3.5 litres per 25kg bag.

In elevated temperatures the **MasterEmaco S 443** should be mixed using chilled water to ensure that the mixed temperature is no higher 32°C.

Repair installation

Following mixing the **MasterEmaco S 443** can be installed by shutter and casting techniques. Where large pours are necessary the **MasterEmaco S 443** shall be introduced into the shuttering in layers working along the length of the formwork.

MasterEmaco S 443 is self-compacting and does not require vibration. Simply light tapping of the formwork is required.

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 443** will yield approximately 12.2 litres of mortar.

One bag of **MasterEmaco S 443** will cover 0.61 m² at thickness of 20mm. This coverage is theoretical and depends upon the surface profile of the substrate and the wastage.

COVERAGE

MasterEmaco S 443 should be stored in dry conditions out of direct sunlight. Shelf life when stored correctly is 12 months.

WATCHPOINTS

- During summer months or where elevated ambient temperatures are encountered the **MasterEmaco S 443** should be mixed using chilled water to ensure that the mixed temperature does not exceed 32°C.
- 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.



We create chemistry

MasterEmaco[®] S 443

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.

® = Registered trademark of the BASF-Group in many countries.

BASF_CC-UAE/Em_S443_10_06/v2/02_15

STATEMENT OF RESPONSIBILITY

The technical information and application advice given in this BASF publication are based on the present state of our best scientific and practical knowledge. As the information herein is of a general nature, no assumption can be made as to a product's suitability for a particular use or application and no warranty as to its accuracy, reliability or completeness either expressed or implied is given other than those required by law. The user is responsible for checking the suitability of products for their intended use.

NOTE

Field service where provided does not constitute supervisory responsibility. Suggestions made by BASF either orally or in writing may be followed, modified or rejected by the owner, engineer or contractor since they, and not BASF, are responsible for carrying out procedures appropriate to a specific application.

Saudi BASF for Building Materials Co. Ltd.

P.O. Box 1884, Al Khobar, KSA

Tel: +966 13 8538600, Fax: +966 13 8328671

www.master-builders-solutions.sa

