BASF
The Chemical Company

EMACO® S43 NT

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

Composition

Emaco S43 NT 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 Emaco S43 NT 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

Emaco S43 NT is available in 25 kg bags

Technical data

Properties listed are only for guidance and are not a guarantee of performance

Comp. strength BS 1881 Pt 116 1983	> 70 N/mm²
Flexural Strength 28 day BS EN 1015 Pt 11	> 10 N/mm²
Tensile Strength 28 day BS 6319 Pt 7 1985	> 4 N/mm²
Synergistic shrinkage control systems (ASTM C157 : 93)	< 250 microstrain @ 28 d
Coutinho ring (cracking)test	> 90 days to cracking
E-Modulus BS 1881 Pt 121 1983	35,500 N/mm²
Water penetration BS EN 12390 Pt 8 2000	< 5mm
Slant shear bond strength	> 9 N/mm²
Rapid chloride permeability AASHTO T 277 93	Low
ASTM C1107 – 02 Type c	Complies

BASF
The Chemical Company

EMACO® S43 NT

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.

Reinforcing steel preparation

Where **Protectosil CIT** 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 Protectosil CIT 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 CONCRESIVE ZR.

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 CONCRESIVE 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 Emaco S43 NT powder. The Emaco S43 NT 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 Emaco S43 NT should be mixed using chilled water to ensure that the mixed temperature is no higher 32°C.

Repair installation

Following mixing the Emaco S43 NT can be installed by shutter and casting techniques. Where large pours are necessary the Emaco S43 NT shall be introduced into the shuttering in layers working along the length of the formwork.

Emaco S43 NT 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

BASF
The Chemical Company

EMACO® S43 NT

Yield/Coverage
A 25kg bag of Emaco S43 NT will yield approximately 12.2 litres of mortar.

One bag of Emaco S43 NT 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.

Storage
Emaco S43 NT 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 Emaco S43 NT 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.

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.

Quality and care
All products originating from the BASF facility in Dubai are manufactured under a management system independently certified to conform to the requirements of the quality, environmental and occupational health and safety standards ISO 9001, ISO 14001 and OHSAS 18001.

Note
Similar to all the other recommendations and technical information, this technical data sheet serves only as a description of the product characteristics, mode of use and applications.

The data and information given are based on our technical knowledge obtained in the bibliography, laboratory tests and in practice. The data on consumption and dosage contained in this data sheet are based on our own experience and are therefore subject to variations due to different work conditions.

BASF Construction Chemicals UAE LLC reserves the right to modify the composition of the products provided these continue to comply with the characteristics described in the data sheet. In the case of defects in the manufacturing quality of our products we provide a guarantee, any additional claims being exempt and our liability being only to return the value of the goods supplied. The possible reservations with respect to patents or third party rights should be noted.

10/2006 BASF_CC UAE revised 02/2007

BASF Construction Chemicals UAE LLC
P.O. Box 37127, Dubai, UAE
Tel: +971 4 8090800 Fax: +971 4 8851002
www.basf-cc.ae