

EMACO[®] S42 NT

A single component, advanced repair mortar based upon applied Nanotechnology especially designed for repairs to corrosion damaged concrete.

Description

EMACO S42 NT is a combination of Portland cement, well graded sands, specially selected fibres and additives formulated to reduce the possibility of shrinkage cracks, and to improve physical and application properties.

When mixed with water EMACO S42 NT produces a thixotropic repair mortar, suited to hand and *spray application.

Typical applications

Refurbishment of all structural concrete elements such as:

- 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 reducing micro-defects, drying shrinkage, and enhancing bond using applied Nanotechnology.
- Dimensional stable repairs, low permeability and enhanced durability through synergistic shrinkage control systems and best binder models.

- Better physical properties, reduced early age and long term cracking tendency, by the use of EE Fibre technology
- Excellent workability for easier mixing placing and finishing

Packaging

EMACO S42 NT is available in 25 kg bags.

*Technical data

Comp. strength @ 28 days BS 1881 Pt 116 1983	> 70 N/mm ²
Flexural Strength @ 28 days BS EN 1015 Pt 11	> 10 N/mm ²
Tensile Strength @ 28 days BS 6319 Pt 7 1985	> 4 N/mm ²
Wet density	Approx. 2234kg/m ³
EE Fibres	
Diameter	16 micron
E Modulus	> 15 GPa
Density	1.18
Synergistic shrinkage control (ASTM C157 :93)	< 250 micro strain @ 28 days
Coutinho ring (cracking) test	> 90 days to cracking
E-Modulus BS 1881 Pt 121 1983	37,500 N/mm ²
Water penetration BS EN 12390 Pt 8 2000	> 5mm
Rapid chloride permeability AASHTO T 277 93	Low
Indirect tensile strength BS 1881 Pt 117 : 1983	> 4.5 N/mm ²
Consistency BS EN 413 Pt2 2005	> 5 mm @ 20 mins
Flow BS EN 1015 Pt 3	> 140mm at 30 mins



The Chemical Company

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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

Where Protectosil CIT is specified 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 CONCRESEIVE 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.

For overhead repairs where soaking with water is not practical an alternative method of priming is by the use of CONCRESEIVE 1414.

Mixing

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

EMACO S42 NT 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 Emaco S42 NT powder and mix for approximately 3 minutes until a smooth lump free consistency is achieved.

The water additions shall be 3.1 to 3.6 litres per 25kg bag. This may be reduced depending upon the consistency required.

Application

Following mixing the EMACO S42 NT can be installed by hand ensuring the initial application is scraped into the substrate to ensure good contact. The EMACO S42 NT shall be compacted well into the repair area to a minimum thickness of 10mm and a maximum layer thickness of 40mm. Depending upon the geometry of the repair area Emaco S42 NT may be installed in a single layer thickness greater than 40mm.

For large scale repairs EMACO S42 NT can be applied by dry or wet spray techniques. Please refer to BASF technical department for guidance. As soon as the EMACO S42 NT starts to stiffen, finishing can be done by wooden, plastic or steel float depending upon the type of finish 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

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Yield/Coverage

A 25kg bag of EMACO S42 NT will yield approximately 12.75 litres of mortar.

One bag of EMACO S42 NT will cover 1.27 m² at thickness of 10mm. This coverage is theoretical and depends upon the surface profile of the substrate and the wastage.

Storage

EMACO S42 NT 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 EMACO S42 NT 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.

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.

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* Properties listed are based on laboratory controlled tests.

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