

EMACO[®] S88C

Shrinkage Compensated, Fibre Reinforced, Thixotropic Repair Mortar for Application By Spray (Pneumatic Placement) or Trowel

Description of Product

EMACO[®] S88C is a pre-bagged ready to use product in powder form. When mixed with the correct amount of water it provides a rheoplastic, non-segregating high strength mortar, with excellent bond to steel reinforcement and to concrete. EMACO[®] S88C is chloride free.

All MBT's Concrete Repair System products are manufactured under procedures independently accredited to BS EN ISO 9001 (International Standard).

Fields of Application

- All types of structural repair can be applied by trowel or wet sprayed.
- Repair of structural members subjected to repetitive loading.
- Repairs to reinforced or pre-stressed beams or columns.
- Repairs in industrial areas, especially those containing mineral oils, lubricants.
- Repairs in marine environments.

Features and Benefits

- Positive shrinkage compensation - ensures full positive contact with host concrete and load transfer in structural repairs situations. Reduced risk of cracking due to plastic and post cure shrinkage.
- No primer required - allows rapid application at reduced cost.
- Can be spray applied - rapid application of large quantities.
- Low rebound - when spray applied rebound is minimal, with subsequent saving in material cost.
- Excellent thixotropic and rheoplastic properties allow placement in difficult areas to be executed.
- Low permeability - gives excellent resistance to attack by aggressive elements.
- Proven track record - over 20 years successful usage throughout Europe.

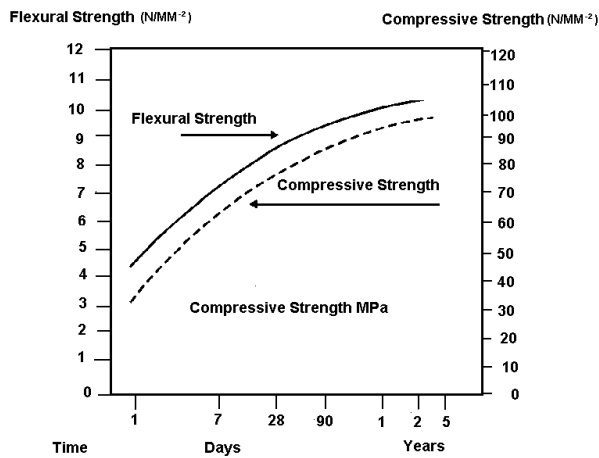
Technical Data/Typical Properties

Appearance	Grey powder containing micro fine fibres	
Plastic density	approximately 2150 kg/m ³	
Compressive Strength @ 20°C(70mm cubes) (BS 1881 Pt 4)	>20 N/mm ² at 1 day >40 N/mm ² at 3 days >50 N/mm ² at 7 days >60 N/mm ² at 28 days	
Flexural strength @ 20°C (BS 6319)	>3 N/mm ² at 7 days >8 N/mm ² at 28 days	
Expansion/ shrinkage (ASTM C806-87) @ 28 days	EMACO [®] S88C	+0.035%
	Typical non-shrinkage compensated repair mortar	-0.1025%
Cure regime	0 - 7 days 7 - 28 days	Water cured @ 20°C Air cured (RH 55 - 65%) @ 20°C
Setting time	2 - 4 hours at 20°C	

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Fig. 1 - Typical strength results for EMACO® S88C @ 20°C



Volume of pores, %

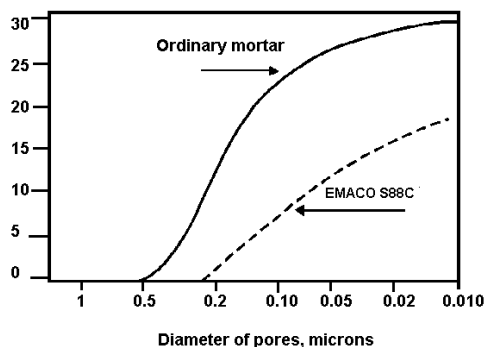


Fig. 2 Cumulative volume of pores, of EMACO® S88C, (measured by mercury porosimeter), compared with that of ordinary mortar having the same consistency

Application Procedure

Preparation of Substrate

It is essential that the substrate to be repaired is sound, clean and free of all contamination.

The damaged areas of concrete to be removed should be clearly identified. The perimeter of the area should be saw cut to a depth of 5mm and the edges cut as neatly as possible keeping the sides square. Feather-edging is not permitted and a minimum thickness of 10mm must be maintained over the whole repair area.

The substrate should be prepared to provide a rough surface having at a 5mm amplitude at 20mm frequency.

If unsound concrete is found to extend beyond the pre-marked area, consult the engineer in charge. Subject to his approval cut out as necessary to clean sound concrete.

If reinforcement is corroded ensure that the back of the steel has been exposed. Reinforcement should have all rust removed by the use of power tools, abrasive blasting (wet or dry) or wire brushing. Reinforcing steel should be exposed and cleaned around its whole circumference. Steel should be prepared to Swedish Standard SIS 05-900:1967-SA 2½ or BS4232 Ref 24 second quality.

If required, extra protection to the reinforcement can be provided by the use of MASTERSEAL® 300B dependant upon the circumstances of use and requirement of the client.

Severely corroded reinforcement may require replacement and the engineer must be consulted.

Positioning of Secondary Reinforcement

Where the application of EMACO® S88C is to exceed 20mm in thickness, fix a welded metal mesh 50mm x 50mm x 3mm to the concrete substrate, spacing the mesh away from the substrate. The required cover of the EMACO® S88C to this mesh shall not be less than 15 - 20 mm.

For repairs less than 20mm thick or less than 0.5m² no additional reinforcing mesh is needed, provided that the repair is constrained on all 4 sides.

For repairs in excess of 40mm deep, and which are applied in separate layers an additional mesh may be required in each of those layers of EMACO® S88C as they are applied. At all times minimum cover to the welded metal mesh must be 15 - 20mm. Contact your MBT concrete repair specialist.

Water Saturation

After placement of welded mesh (if required) thoroughly saturate the surface of the concrete to be prepared to provide a saturated surface dry condition. Poor quality concrete may require soaking for a significant length of time. Any surface water should be removed using an oil free compressed air jet.

Mixing

Hand mixing of EMACO® S88C is not recommended. For small mixes a variable speed electrical or air driven drill with a helical stirrer can be used. Best results are obtained using a forced action mixer, water addition: 3.75-4.0 litre/25kg bag.

Pour the minimum amount of mixing water into the mixer. Start the mixer and add the EMACO® S88C powder rapidly and continuously. Mix for 3 to 4 minutes after all the powder has been added until mortar is homogeneous and lump free.

Add water, if necessary, with the limits given, until the required consistency is achieved. Mix for a further 2-3 minutes. The amount of water required will be affected by ambient temperature and relative humidity.

The Influence of Temperature

EMACO® S88C can be used when the ambient temperature is between 5 and 50°C. However, if the ambient temperature is very low (5 to 10°C), strengths develop more slowly. The following procedures are recommended.

- a) Store the bags of EMACO® S88C in a location protected against cold weather;
- b) use hot mixing water (30 to 50°C);
- c) start placement in the morning;
- d) protect the EMACO® S88C against cold weather by sheeting over. Do not place if the weather is below 5°C.

If ambient temperature is very high (>30°C), rapid workability loss may occur. In these circumstances the following precautions should be taken:

- a) store the bags of EMACO® S88C in a cool place;
- b) use cold mixing water or add crushed ice;
- c) prepare the mortar during the coolest period of the day.

Application

After mixing, EMACO® S88C can either be sprayed or trowel applied, suitable spraying units are Meyco Deguna T20, TUROSOL T20 and Putzmester P11.

The surface of the mortar should be levelled using a wooden float. Final finishing may be done with a wooden, plastic or synthetic sponge trowel, depending on the finish required. Trowelling after spray application should start once the mortar has started to stiffen. This is indicated when the surface is only lightly marked by pressure from the fingers.

Coverage

One 25kg bag of EMACO® S88C with 4 litres added water will yield approximately 13.3 litres of mortar which will cover 1m² at 13mm average thickness.

Curing/After Treatment

Good curing is essential. Particular care is required in hot/windy conditions. Curing can either be with a single coat of MASTERKURE® 181, curing membrane, which is compatible with most subsequent protective coatings, or by covering the work with a properly secured plastic sheet.

Packaging

EMACO® S88C is supplied in 25kg moisture resistant bags.

Storage

Store as for cement in cool, dry conditions.

Shelf Life

Minimum 12 months when stored as recommended in unopened containers.

Watchpoints

Do not use EMACO® S88C for precision grouting (use MASTERFLOW® 928).

Do not use in contact with water having pH less than 5.5 (contact your Degussa Construction Chemicals (UK) representative).

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Health and Safety

*For full information on Health and Safety matters regarding this product the relevant Health and Safety Data Sheet should be consulted.

The following general comments apply to all products.

As with all chemical products, care should be taken during use and storage to avoid contact with eyes, mouth, skin and foodstuffs, (which may also be tainted with vapour until the product is fully cured and dried). Treat splashes to eyes and skin immediately. If accidentally ingested, seek medical attention. Keep away from children and animals. Reseal containers after use.

Solvent Based Products

Use in well ventilated areas; avoid inhaling. Suitable respiratory equipment may be needed, eg when spraying. Can cause skin, eye irritation. Wear protective eye shields and gloves during use. Do not smoke or allow sparks or naked lights when stored or in use.

Powder Products

Should be handled to minimise dust formation; use light mask if excessive dust unavoidable. Cement powders when wet or moistened can cause burns to skin and eyes which should be protected during use.

Resin Products

Can cause irritation, dermatitis or allergic reaction. Use protective equipment particularly for skin and eyes. Use only in well ventilated areas.

Spillage

Chemical products can cause damage; clean spillage immediately.

Disclaimer:

This information and all further technical advice is based on our present knowledge and experience. However, it implies no liability or other legal responsibility on our part, including with regard to existing third party intellectual property rights, especially patent rights. In particular, no warranty, whether express or implied, or guarantee of product properties in the legal sense is intended or implied. We reserve the right to make any changes according to technological progress or further developments. The customer is not released from the obligation to conduct careful inspection and testing of incoming goods. Performance of the product described herein should be verified by testing, which should be carried out only by qualified experts in the sole responsibility of a customer. Reference to trade names used by other companies is neither a recommendation, nor does it imply that similar products could not be used.

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