

## PRODUCT DATA SHEET

# SikaEmaco® S 488

(formerly MEmaco S 488)

DUAL SHRINKAGE COMPENSATED, FIBRE REINFORCED, THIXOTROPIC REPAIR MORTAR

### DESCRIPTION

SikaEmaco® S 488 is a dual shrinkage compensated, thixotropic, high strength, high modulus, fiber reinforced, trowelable mortar for structural concrete repairs.

SikaEmaco® S 488 is suitable for placing in thicknesses of 12 mm to 50 mm both vertically and overhead by hand or spray application.

SikaEmaco® S 488 provides a durable, strong structural repair mortar complying with the requirements of EN 1504-3 class R4.

### USES

SikaEmaco® S 488 is used for the structural repair of concrete elements such as:

- Columns, piers, girders and cross beams of bridges
- Cooling towers, chimneys, silos and other industrial environments
- Dams, Water treatment and sewerage facilities before subsequent coating
- Tunnels, pipes, outfalls and all below ground construction
- Marine structures, Jetty, deck slab etc

### PRODUCT INFORMATION

<b>Packaging</b>	25 kg bags.
<b>Shelf life</b>	6 months from date of production if stored as per recommendation.
<b>Storage conditions</b>	Store at ambient temperatures, out of direct sunlight, in cool, dry warehouse conditions and clear of the ground on pallets protected from rainfall prior to application.
<b>Appearance / Colour</b>	Grey Powder

## TECHNICAL INFORMATION

<b>Compressive strength</b>	<u>1 day</u>	<u>≥ 20 MPa</u>	(ASTM C109)
	<u>3 days</u>	<u>≥ 50 MPa</u>	
	<u>7 days</u>	<u>≥ 60 MPa</u>	
	<u>28 days</u>	<u>≥ 70 MPa</u>	
<b>Modulus of elasticity in compression</b>	≥ 15,000 N/mm <sup>2</sup>	(EN 13412)	
<b>Flexural strength</b>	9 Mpa (28 days)	(ASTM C348)	
<b>Tensile strength</b>	4 MPa (28 days)	(ASTM C496)	
<b>Pull-out bond strength</b>	≥ 2.0 MPa (after 28 days)	(EN 1542)	
<b>Water penetration under pressure</b>	< 5mm (5 bars pressure)	(DIN 1048)	
<b>Carbonation resistance</b>	Absent	(EN 13295)	
<b>Reaction to fire</b>	Class A1	(EN 13501-1)	

## APPLICATION INFORMATION

<b>Consumption</b>	~ 2300 kg/m <sup>3</sup> At Water: Powder ratio of 0.13 ~ 0.15
<b>Layer thickness</b>	From 12 to 50 mm in one layer (both vertically and overhead)
<b>Ambient air temperature</b>	+5 to +35 °C
<b>Mixing ratio</b>	Water : Powder = 3.25 ~ 3.75 litres per bag of 25 Kg (0.13 ~ 0.15)
<b>Substrate temperature</b>	+5 to +35 °C
<b>Pot life</b>	Approx. 45 minutes (at 30°C and 60% relative humidity). Higher temperatures will reduce these times and lower temperatures will extend them.
<b>Curing rate</b>	Full cure of material is reached after 28 days (at 30 °C).

## BASIS OF PRODUCT DATA

All technical data stated in this Product Data Sheet are based on laboratory tests. Actual measured data may vary due to circumstances beyond our control.

## IMPORTANT CONSIDERATIONS

- Only mix complete, undamaged bags of SikaEmaco® S 488.
- Do not apply SikaEmaco® S 488 in case of strong winds.
- Do not add cement, sand or other substances to SikaEmaco® S 488 mixes.
- Never add water or fresh mortar to a mortar mix which has already begun to set.

## ECOLOGY, HEALTH AND SAFETY

User must read the most recent corresponding Safety Data Sheets (SDS) before using any products. The SDS provides information and advice on the safe handling, storage and disposal of chemical products and contains physical, ecological, toxicological and other safety-related data.

## APPLICATION INSTRUCTIONS

### SUBSTRATE PREPARATION

Concrete must be fully cured, clean and sound to ensure good adhesion. All loose traces of concrete or mortar, dust, grease, oil, etc. must be removed. SikaEmaco® S 488 needs a rough surface to bind to. Non-impact/vibrating cleaning methods, e.g. shot blasting, sandblasting or high-pressure water jetting are recommended to prepare and roughen the surface. Aggregate should be clearly visible on the surface of the concrete structure after surface preparation. Make surface rough, using a chisel or scarifier. Cleaning methods, e.g. grit or high water pressure blasting are recommended. Aggregate should be clearly visible on the surface of the concrete structure after surface preparation. The prepared concrete must have a minimum direct tensile strength of 1.5 N/mm<sup>2</sup>. Cut the edges of the repair vertically to a minimum depth of 6 mm. The prepared substrate should be completely pre-soaked for preferably 12, but least 2 hours before applying SikaEmaco® S 488. The surface must be mat-damp, but without standing water. If re-

inforcing steel is visible, clean to a minimum grade of Sa 2 according to ISO 8501-1 / ISO 12944-4. Sandblasting of reinforcement is recommended. In case of chloride contamination of the concrete or when depth of cover is less than 10 mm, the reinforcement must be protected by using protective primers like e.g. Sika MonoTop®-1010 IN.

## MIXING

Open the bags a short time before the mixing is started. Damaged or opened sacks should not be used. Pour the minimum amount of mixing water into the forced action mixer. Use clean tap water only! Start the mixer and add SikaEmaco® S 488 rapidly and continuously. Mix for about 3 minutes until the mortar has a uniform and lump-free consistency. Add water if necessary within the allowed mixing ratio until required consistency is achieved and mix again for about 2 minutes. The water content can slightly vary depending on ambient temperature and relative humidity. Small mortar quantities can be mixed with a suitable paddle attached to a powerful, slow speed electric drill (max. 500 rpm). Do not exceed the maximum allowed water amount!

## APPLICATION

### Hand Application:

Before SikaEmaco® S 488 is applied to the final layer thickness, we advise to apply a thin scrape coat of mixed mortar or a bonding slurry mixed of SikaEmaco® S 488 mortar (with a bit more water) onto the prepared damp substrate. Then apply the mixed SikaEmaco® S 488 mortar wet-on-wet using a screeding beam, trowel or wooden board to the desired thickness between 12 to max. 50 mm.

### Spray Application:

First spray-apply a thin contact layer onto the prepared damp substrate, then apply multiple layers of SikaEmaco® S 488 until the required layer thickness of max. 50 mm is obtained. Spraying with the necessary pressure will improve the adhesion of SikaEmaco® S 488.

### Finishing:

Smoothing with a trowel or finishing by wood or steel float can be done as soon as the mortar has begun to stiffen (usually after 60 to 90 minutes at 30 °C and 60 % relative humidity). At lower temperatures and/or higher humidity these times will be extended; at higher temperatures and/or lower humidity these times will be shortened.

## CURING TREATMENT

Immediately after the SikaEmaco® S 488 surface is finally finished, cover all exposed mortar with clean wet hessian and keep moist by covering with polythene between 1 to 7 days depending on the weather conditions.

## CLEANING OF TOOLS

Tools and mixer must be cleaned immediately after use with water. Cured material can only be removed mechanically.

## LOCAL RESTRICTIONS

Note that as a result of specific local regulations the declared data and recommended uses for this product may vary from country to country. Consult the local Product Data Sheet for exact product data and uses.

## LEGAL NOTES

The information, and, in particular, the recommendations relating to the application and end-use of Sika products, are given in good faith based on Sika's current knowledge and experience of the products when properly stored, handled and applied under normal conditions in accordance with Sika's recommendations. In practice, the differences in materials, substrates and actual site conditions are such that no warranty in respect of merchantability or of fitness for a particular purpose, nor any liability arising out of any legal relationship whatsoever, can be inferred either from this information, or from any written recommendations, or from any other advice offered. The user of the product must test the product's suitability for the intended application and purpose. Sika reserves the right to change the properties of its products. The proprietary rights of third parties must be observed. All orders are accepted subject to our current terms of sale and delivery. Users must always refer to the most recent issue of the local Product Data Sheet for the product concerned, copies of which will be supplied on request.

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