

PRODUCT DATA SHEET

SikaEmaco[®] S 442

(formerly MEmaco S 442)

SINGLE COMPONENT THIXOTROPIC MORTAR FOR CORROSION DAMAGED CONCRETE REPAIR
BASED ON APPLIED NANOTECHNOLOGY

DESCRIPTION

SikaEmaco[®] S 442 is a single component cementitious, synthetic fibre reinforced, structural repair mortar that contains Portland Cement, well graded sands, specially selected fibres and additives to improve the fresh and hardened properties. Suitable for use in hot and tropical climatic conditions.

USES

SikaEmaco[®] S 442 is used for structural repair work and suitable for:

- Restoration works, repair of spalling and damaged concrete in buildings, bridges, infrastructure and superstructure works.
- Structural strengthening by increasing the bearing capacity of the concrete structure by adding mortar (section enlargement).
- Preserving or restoring passivity by increasing cover with additional mortar and replacing contaminated or carbonated concrete.

FEATURES

SikaEmaco[®] S 442 provides the following beneficial properties:

- Structural repair
- Rapid strength gain and high final strength
- Good water and oil resistance
- Low shrinkage behaviour
- High abrasion resistance
- Good adhesion
- Easy to apply
- Low permeability

PRODUCT INFORMATION

Composition	Polymer containing cementitious mortar with different additives and synthetic fibres
Packaging	25 kg paper bags
Shelf life	12 months from date of production
Storage conditions	Store in a cool, dry area in original sealed packaging and at temperatures between +5 °C and +35 °C. Protect from direct sunlight, heat and moisture.
Appearance and colour	Grey powder

TECHNICAL INFORMATION

Compressive strength		28 Days	(BS 1881, Part 116)
	w/p = 0.144	≥ 70 N/mm ²	
Tensile adhesion strength	≥ 1.5 N/mm ² (or concrete failure)		(EN 1542)
Chloride ion permeability	Low		(ASTM C1202) (AASHTO T277)

APPLICATION INFORMATION

Fresh mortar density	~2.23 kg/l (+25 °C)
Yield	~12.8 L / 25 kg bag
Layer thickness	Min. 10 mm Max. 40 mm
Ambient air temperature	+5 °C min. / +40 °C max.
Mixing ratio	3.1 - 3.6 L of water per 25 kg bag
Substrate temperature	+5 °C min. / +40 °C max.

BASIS OF PRODUCT DATA

- All technical data stated in this Data Sheet are based on laboratory tests. Actual measured data may vary due to circumstances beyond our control.
- Internal Reference - Version: MBS_CC-UAE/Em_S442_10_06/v4/10_15/v5/09_19

FURTHER DOCUMENTATION

General Method Statement (GMS)

IMPORTANT CONSIDERATIONS

- Repair sections higher than 40 mm should be applied in layers.
- When the ambient temperature is high, e.g. during summer months, special precautions must be taken so that the mixed material temperature is not above 32°C.
- Avoid application in direct sun and/or strong wind.
- Do not add additional water during the surface finishing as this will cause discolouration and cracking.
- Do not overwork the finished surface as this will produce a cement rich surface texture, which may cause the formation of random (crazing) cracking in the surface. Overwork of the finished surface could also disturb the mortar bond on the concrete substrate.
- Spray application may change the physical properties of the cured material

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 QUALITY / PRE-TREATMENT

- Substrates must be properly cured, structurally sound, free of any loose or friable particles, clean, dry and free of any contaminants such as dust, dirt, oil, grease, cement laitance or efflorescence.
- The edges of repair areas should be cut vertically to a min depth of 10 mm.
- The surface roughness should be prepared to minimum CSP9 according to ICRI
- Any contamination must be removed from the concrete surface, perform adequate preparation techniques, such as water-jet washing or blast cleaning, in order to remove all traces of any materials that could reduce the product's adhesion to the substrate.
- For applications in hot climates / environments and / or on absorbent substrates, thoroughly pre-dampen the surface immediately prior to the product application, but avoid any ponding / standing water on the surface, which must not be damp to touch and not with a dark-matt / wet surface appearance i.e. it must be saturated surface dry (SSD).
- Steel surfaces shall be prepared using abrasive blast cleaning techniques or high pressure water-blasting to SA 2.5 (ISO 8501-1)
- Reference shall be made to EN 1504-10 for specific requirements.

BONDING AGENT AND STEEL PROTECTION

- Embedded steel reinforcing should be free from scale, rust, oil and grease, and treated with a suitable anticorrosion coating such as SikaTop® Armatec®-110 EpoCem® or SikaEmaco®-8100 AP.
- The application of a suitable bonding agent, such as Sikadur®-32 LP, Sikadur® ADH 1414 or SikaTop® Armatec®-110 EpoCem®, will improve adhesion on large areas or where particularly dense concrete substrates are involved.

MIXING

Mix the full bag of SikaEmaco® S 442 with the necessary amount of cold water in a clean bucket. Add the SikaEmaco® S 442 powder slowly to the water while mixing continuously for at least 3 to 5 minutes and until a homogeneous consistency is achieved. SikaEmaco® S 442 is best mixed in a forced action mixer. Slow speed double paddle drill can be also used for mixing. Do not mix at faster rate than 500 rpm. The obtained mix results should be very creamy, easily spreadable and thixotropic.

Note: Always start with minimum recommended quantity of water (water/powder ratio), only if required, gradually add water to desired consistency. Do not exceed maximum allowed limit of water per bag weight.

APPLICATION

Apply SikaEmaco® S 442 while the bonding agent is still wet. The mortar can be applied by spatula or trowel. For large scale repairs SikaEmaco® S 442 can be applied by dry or wet spray application, please refer to Sika Technical Department for guidance. For any thickness more than 40 mm, SikaEmaco® S 442 must be applied in several layers. As soon as the mortar has started to set it can be smoothed by wooden or synthetic float. For fine surface finish SikaEmaco® N 907 or SikaRep® Fine N can be applied over the SikaEmaco® S 442.

CURING TREATMENT

Where ambient conditions may lead to rapid surface drying, the use of light water fogging, damp hessian and polythene sheet or application of a suitable water based curing compound from Sika® Antisol range is recommended. Do not commence fogging until final set has been reached.

CLEANING OF EQUIPMENT

Clean all tools and equipment with water immediately after use. Hardened SikaEmaco® S 442 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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ISO 9001, 14001, 45001 – SGS
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ISO 9001, 14001 – SGS
- Sika Saudi Arabia Limited
ISO 9001, 14001 – TÜV
- Sika MB Construction Chemicals LLC
- Sika Construction Chemicals for Manufacturing LLC
- Master Builders Solutions LLC

All products are supplied under a management system certified to conform to the requirements of the quality, environmental and occupational health & safety standards ISO 9001, ISO 14001 and ISO 45001.



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