BUILDING TRUST

PRODUCT DATA SHEET

SikaEmaco® S 443

(formerly MEmaco S 443)

SINGLE COMPONENT MICRO CONCRETE FOR CORROSION DAMAGED CONCRETE REPAIR BASED ON APPLIED NANOTECHNOLOGY

DESCRIPTION

SikaEmaco® S 443 is a cementitious, pre-bagged, free flowing, one component, non-shrink precision micro-concrete with high early and ultimate strength. Suitable for use in hot and tropical climatic conditions.

USES

SikaEmaco® S 443 precision micro-concrete is used for repair and grouting in various applications such as:

- Structural repair of deteriorated concrete
- Columns in precast construction
- Casting sections or members where the volumes required are too large for conventional grouts, and too small and inaccessible for normal concreting applications.
- Cavities, gaps and recesses
- Re-profiling of damaged concrete members and re-profiling of pile tops using formwork for both pouring and pumping techniques.

FEATURES

SikaEmaco® S 443 is an easy to use precision micro-concrete requiring only the addition of water. It offers the following beneficial properties:

- Easy to mix
- Very good flow characteristics
- Adjustable consistency
- Moderate heat of hydration
- Shrinkage compensated
- High final strength
- Non-flammable
- Vapour permeable
- Compatible with the properties of typical concrete

PRODUCT INFORMATION

Composition	Portland cement, selected fillers and aggregates, special additives
Packaging	25 kg bag
Shelf life	12 months from date of production
Storage conditions	Store in original unopened packaging in a cool and dry condition between +5 °C and +35 °C. Protect from direct sunlight, heat and moisture.
Appearance and colour	Grey powder

TECHNICAL INFORMATION

Compressive strength	+25 °C w/p = 0.13	28 Days ≥ 65 N/mm²	(BS EN 12190)
Chloride ion permeability	Low		(AASHTO T 277 93) (ASTM C 1202)

APPLICATION INFORMATION

Fresh mortar density	~ 2.3 kg/l (25 °C)
Yield	~ 12.2 L / 25 kg bag
Layer thickness	Min. 15 mm per pour Max. 200 mm per pour Note: For repair areas greater than 200 mm, aggregate "bulking" is required.
Ambient air temperature	+5 °C min. / +35 °C max.
Substrate temperature	+5 °C min. / +35 °C max.

Mixing ratio

Consistency	L water per bag	Water / Powder Ratio
Flowable	3.0 - 3.5 per 25 kg bag	0.12 - 0.14

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_S443_10_06/v4/11_15/v5/09_19/v6/09_23

FURTHER DOCUMENTATION

General Method Statement (GMS)

IMPORTANT CONSIDERATIONS

- Ensure formwork is secure and watertight to prevent movement and leaking during placing and curing.
- At high temperatures, use chilled water for mixing to keep the grout temperature below +32°C.
- In hot weather, base plates and foundations must be shaded from direct sunlight. Condition the bags below 30°C prior to use.
- When maximum thickness exceeds 200 mm, the addition of dry, clean coarse aggregates is required (Sikadur®-510 AE or SikaEmaco® FL 100) up to 2 kg per each 50 kg of the dry micro-concrete powder. Trials are recommended to confirm suitability of aggregates to be employed.
- For additional information on SikaEmaco® S 443 or other grouting materials contact Sika Technical Department.

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

Concrete:
The repair area should be regular in shape with no sharp returns or internal corners and should be delinated with a 20 mm deep saw cut. The concrete shall be thoroughly clean, rough, free from dust, loose material, surface contamination and materials which reduce bond or prevent suction or wetting by repair materials. De-laminated, weak, damaged and deteriorated concrete and where necessary sound concrete shall be removed by suitable means. Absorbent surfaces should be saturated thoroughly with clean water.
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.

Steel Reinforcement:
Rust, scale, mortar, concrete, dust and other loose and deleterious material which reduces bond or contributes to corrosion shall be removed. Surfaces shall be prepared using abrasive blast cleaning techniques or high pressure water-blasting to SA 2 (ISO 8501-1). Embedded steel reinforcing should be treated with a suitable anticorrosion coating such as SikaTop® Armatec®-110 EpoCem® or SikaEmaco®-8100 AP.
Reference shall be made to EN 1504-10 for specific requirements.

MIXING

Add water according to the desired consistency into a clean mixing vessel before slowly adding the SikaEmaco® S 443 powder. SikaEmaco® S 443 is best mixed in a forced action mixer, for 3 to 5 minutes or until the mix is free of lumps. Slow speed drill (maximum 500 rpm) can be also used for mixing. Normal tumble type concrete mixers are not suitable. Do not mix more grout than can be laced within 15 to 20 minutes. Do not add extra water or other ingredients. Mix only full bags for the best result.
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

Before pouring let the mixed grout stand for approximately 5 minutes after mixing to allow entrapped air to escape. Pour into the prepared area such that the grout has the shortest distance to travel. Ensure that air displaced by the grout is allowed to escape. When carrying out the base plate grouting, ensure a sufficient head of pressure to keep the mortar flowing. All exposed areas of the mortar surface should be kept as small as possible.

CURING TREATMENT

Treatment of exposed surfaces with Sika® Antisol® range curing compound, is highly recommended for large areas of application. Use other approved curing methods such as polyethylene sheeting or wet hessian only for small exposed areas. Do not commence fogging until final set has been reached.

CLEANING OF EQUIPMENT

Clean equipment and mixer immediately after application with water. Hardened 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

Sika Gulf B.S.C. (c)
Tel: +973 177 38188
Email: info@bh.sika.com
Sika Kuwait Cons. Mat. & Paints Co WLL
Tel: +965 22 282 296
Email: sika.kuwait@kw.sika.com
Web: gcc.sika.com

Sika UAE LLC
Sika MB Construction Chemicals LLC
Sika International Chemicals LLC
Tel: +971 4 439 8200
Email: info@ae.sika.com
Web: gcc.sika.com

Sika Saudi Arabia Limited
Sika Construction Chemicals for Manufacturing LLC
Riyadh / Jeddah / Dammam / Rabigh
Tel: +966 12 692 7079
Email: info@sa.sika.com
Web: gcc.sika.com

Sika LLC - Oman
Master Builders Solutions LLC
(part of Sika)
Tel. +968 22 826 500
Email: info@om.sika.com
Web: gcc.sika.com