

## PRODUCT DATA SHEET

# Sika MonoTop<sup>®</sup>-4400 MIC

Microbially induced corrosion resistant SEWER REPAIR MORTAR.

### PRODUCT DESCRIPTION

Sika MonoTop<sup>®</sup>-4400 MIC is a 1-part, ready to use, high performance, calcium aluminate mortar specifically designed for the repair and protection of new or existing sewer infrastructure from biogenic sulphuric acid corrosion.

### USES

Sika MonoTop<sup>®</sup>-4400 MIC may only be used by experienced professionals.

Particularly suitable for the protection and refurbishment of:

- Sewer infrastructure
- Manholes
- Lift stations, pumping stations
- Main trunk sewers, collectors
- Sewer pipes
- Waste water treatment plants

Suitable for repair work (Principle 3 concrete restoration, method 3.1 & 3.3; Principle 4 structural strengthening, method 4,4 of EN

1504-9) in sewer and waste water treatment plant.

Suitable for concrete protection (principle 2 moisture control, method 2.2; Principle

8 increase resistivity, method 8,2 & Principle 5 physical resistance, method 5,1).

### PRODUCT INFORMATION

<b>Chemical Base</b>	Calcium aluminate cement and calcium aluminate aggregates
<b>Packaging</b>	20 kg bags
<b>Appearance / Colour</b>	Grey powder
<b>Shelf Life</b>	15 months from date of production
<b>Storage Conditions</b>	Product must be stored in original, unopened and undamaged sealed packaging in dry conditions at temperatures between +5 °C and +35 °C. Always

### CHARACTERISTICS / ADVANTAGES

- Resistant to biogenic sulphuric acid corrosion
- Resistant to pure water, salt water, sulphated soils and several diluted acids
- Does not contain chlorides or other corrosion promoting additives
- Suitable for machine application (wet and dry spray technique)
- High bond strength
- High early compressive strength, class R4 of EN 1504-3
- Fast return to service (within 1 hour if Sikagard<sup>®</sup>-230 MIC surface hardener is used)

### APPROVALS / STANDARDS

- CE Marking and Declaration of Performance to EN 1504-2 - Surface protection product for concrete - Coating - Sika MonoTop<sup>®</sup>-4400 MIC
- CE Marking and Declaration of Performance to EN 1504-3 - Concrete repair product for structural repair - Sika MonoTop<sup>®</sup>-4400 MIC

refer to packaging.

**Maximum Grain Size**  $D_{\max}$ : ~3.0 mm

## TECHNICAL INFORMATION

**Compressive Strength** 24 hours 28 days (EN 14647)  
> 40 MPa > 50 MPa

**Flexural Strength** 24 hours 28 days (EN 14647)  
> 6 MPa > 9 MPa

## APPLICATION INFORMATION

**Mixing Ratio** 2.8–3.2 litres of water for 20 kg powder

**Fresh mortar density** ~2.2 kg/l

**Consumption** ~22 kg / 10 mm thickness / m<sup>2</sup>.

**Yield** 20 kg of powder yields approximately 10.5 litres of fresh material

**Layer Thickness** Standard manholes: Minimum 15 mm  
Large structures such as wet wells or pumping stations: Minimum 25 mm.

**Waiting Time / Overcoating** Minimum 12 hours at +20 °C

## VALUE BASE

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.

## LIMITATIONS

- Sika MonoTop®-4400 MIC is only mixed with clean water. Do not add Portland cement or additional aggregates
- Spray equipment must be clean and free of Portland cement contamination to avoid premature setting and reduced corrosion resistance behavior
- Avoid application in direct sun and/or strong wind
- Do not add water over the recommended dosage
- Apply only to sound, prepared substrate
- Do not add additional water during the surface finishing as this will cause discolouration and cracking

## ECOLOGY, HEALTH AND SAFETY

For information and advice on the safe handling, storage and disposal of chemical products, users shall refer to the most recent Safety Data Sheet (SDS) containing physical, ecological, toxicological and other safety-related data.

## APPLICATION INSTRUCTIONS

### SUBSTRATE QUALITY / PRE-TREATMENT

#### Concrete:

The concrete must have a minimum compressive strength of 25 MPa and minimum tensile adhesion strength of 1.5 MPa. The concrete must be thoroughly clean, free from dust, loose material, surface contam-

ination and material which reduce bond or prevent suction or wetting by repair materials. De-laminated, weak, damaged and deteriorated concrete and where necessary sound concrete must be removed by suitable means. Smooth concrete shall be mechanically prepared (e.g. wet sand blasting) to expose the aggregates and provide a suitable roughened surface.

#### Steel reinforcement:

Rust, scale, mortar, concrete, dust and other loose and deleterious material which reduces bond or contributes to corrosion must be removed. Surfaces must be prepared using abrasive blast cleaning techniques or high pressure water-blasting to Sa 2 (ISO 8501-1).

#### MIXING

Sika MonoTop®-4400 MIC can be mixed with a low speed (< 500 rpm) hand drill mixer or using a force action mixer.

Pour the minimum recommended water in a suitable mixing container. While stirring slowly, add powder to the water and mix thoroughly for at least 5 minutes adding additional water if necessary up to the maximum specified amount and adjust to the required consistency. The consistency must be checked after every mix.

## APPLICATION

Sika MonoTop®-4400 MIC can be applied mechanically using a low pressure wet-spray equipment, progressive cavity type pump, spinning head or centrifugation method. Prepare the hose of the machine with a cement aluminate slurry or with a suitable chemical pump starter. Do not use Portland cement slurry. Thoroughly pre-wet the prepared substrate a recommended 12 hours before application. Keep the surface wet and do not allow to dry. Before application remove excess water e.g with a clean sponge. The surface must appear a dark matt appearance without glistening and surface pores and cavities must not contain water.

The repair mortar must be applied onto the pre-wetted substrate between the minimum and maximum layer thicknesses without the formation of voids. Where layers are to be built up, to prevent sagging or slumping, each layer must be allowed to stiffen before applying subsequent layers "wet on wet". Finishing must be carried out to the required surface texture as soon as the mortar has started to stiffen. Do not over-work the finishing layer.

## CURING TREATMENT

If the application takes place in a live sewer environment, replacing the access covers as soon as the spraying and finishing is complete should ensure adequate moisture for good hydration and curing.

For environments with low humidity or with exposure to direct sunlight and/or strong air movement. To minimise rapid moisture evaporation and surface cracking, water curing must be applied as soon as practical after installation in addition to replacing the access covers.

Once the surface finishing is complete. To accelerate the hardening process and at the same time to provide adequate curing, apply Sikagard®-230 MIC surface hardener with low pressure spraying equipment. Conventional curing compounds are not recommended.

## CLEANING OF TOOLS

Clean all tools and application equipment with water immediately after use. Hardened material can only be mechanically removed.

## LOCAL RESTRICTIONS

Please note that as a result of specific local regulations the performance of this product may vary from country to country. Please consult the local Product Data Sheet for the exact description of the application fields.

## 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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