

PRODUCT DATA SHEET

Sika MonoTop®-412 HS

HIGH STRENGTH STRUCTURAL REPAIR MORTAR

DESCRIPTION

Sika MonoTop®-412 HS is a single component cementitious, silica fume containing, 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

Sika MonoTop®-412 HS 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.

CHARACTERISTICS / ADVANTAGES

Sika MonoTop®-412 HS 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
- Application up to 60 mm in 1 layer
- Low permeability

APPROVALS / CERTIFICATES

Sika MonoTop®-412 HS follows the main requirements of EN 1504-3:2006 class R4

PRODUCT INFORMATION

Composition	Polymer containing cementitious mortar with different additives and synthetic fibres
Packaging	25 kg paper bags
Appearance / Colour	Grey powder
Shelf life	12 months minimum 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.
Maximum Grain Size	~2 mm

TECHNICAL INFORMATION

Compressive Strength	w/p = 0.12	1 day	7 day	28 day	(EN 12190 / ASTM C109)
		≥ 35 N/mm ²	≥ 65 N/mm ²	≥ 80 N/mm ²	
Modulus of Elasticity in Compression	≥ 20 GPa				(EN 13412)
Tensile Adhesion Strength	≥ 2.0 N/mm ² (concrete failure)				(EN 1542)
Thermal Compatibility	≥ 2.0 N/mm ²				(EN 13687-2)
Capillary Absorption	≤ 0.5 kg/(m ² x h ^{0.5})				(EN 13057)
Carbonation Resistance	Dk ≤ reference concrete MC(0.45)				(EN 13295)

APPLICATION INFORMATION

Mixing Ratio	~2.75 - 3.25 L of water per 25 kg bag
Fresh Mortar Density	~2.20 kg/l
Layer Thickness	Min. 5 mm Max. 60 mm
Ambient Air Temperature	+5 °C min. / +40 °C max.
Substrate Temperature	+5 °C min. / +40 °C max.

APPLICATION INSTRUCTIONS

SUBSTRATE QUALITY / PRE-TREATMENT

Concrete:

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. The application of a suitable bonding agent, such as Sikadur®-32 LP 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) Reference shall be made to EN1504-10 for specific requirements.

MIXING

Add water according to the desired consistency into a clean mixing vessel before slowly adding the Sika MonoTop®-412 HS powder. Sika MonoTop®-412 HS is best mixed in a forced action mixer, for 2 to 3 minutes or until the mix is free of lumps, not longer than 5 minutes. Slow speed double paddle drill (maximum 500 rpm) can be also used for mixing. Normal tumble type concrete mixers are not suitable. Do not add extra water or other ingredients. Mix only full bags for the best result.

APPLICATION

Apply Sika MonoTop®-412 HS while the bonding agent is still wet. The mortar can be applied by spatula or trowel.

As soon as the mortar has started to set it can be smoothed by wooden or synthetic float, styrofoam block or sponge. For fine surface finish SikaRep® Fine-N, Sika®Rep Fine-PC® can be applied over the Sika MonoTop®-412 HS.

CURING TREATMENT

Good curing practice must always be followed. Curing of the installed repair should be done using either Antisol®-WB curing agent or by damp hessian and polythene.

CLEANING OF EQUIPMENT

Clean all tools and equipment with water immediately after use. Hardened Sika MonoTop®-412 HS can only be removed mechanically.

IMPORTANT CONSIDERATIONS

- Repair sections higher than 60 mm should be applied in layers.
- When the ambient temperature is high during summer months, special precautions must be taken so that the mixed material is not above 32 °C. Please consult Sika Technical Department.
- 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.

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.

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 the exact product data and uses.

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.

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 14001: Sika UAE LLC,
Sika Gulf B.S.C. (c),
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OHSAS: Sika UAE LLC,
Sika Gulf B.S.C. (c)

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 OHSAS
18001.

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