

PRODUCT DATA SHEET

Sika MonoTop® X3 S

NEW GENERATION ONE COMPONENT FIBRE-REINFORCED HIGH-STRENGTH MORTAR WITH BALANCED SHRINKAGE FOR RESTORATION, PROTECTION, AND FINISHING OF CONCRETE STRUCTURES



DESCRIPTION

Sika MonoTop® X3 S is a one-component ready mixed polymer modified mortar with high thixotropy, balanced shrinkage, flow and workability improved, for restoration and surface finishing of concrete structures.

It contains modified cements with synthetic polymers, silica fume, selected aggregates and synthetic fibres.

USES

- Suitable for restoration works (Principle 3, Method 3.1 of EN 1504-9) on concrete damaged, with displacing parts or with honeycombs.
- Suitable for structural reinforcement works (Principle 4, Method 4.4 of 1504-9); it increases the loading capability of concrete structures by adding mortar;
- Suitable for the preservation and restoration of passivity (Principle 7, Method 7.1 and 7.2 of EN 1504-9);
- Suitable for protection of concrete surface, according to EN 1504-9;
- Suitable for restoration, repair and local surface finishing of structural elements (beams, columns, slabs, etc.)
- Suitable for restoration, repair and non structural surface finishing of concrete (balconies, cornices, etc.)
- Regularization of honeycombs;
- Restoration and surface finishing of prefabricated structures;
- Structural reinforcement by mortar addition.

CHARACTERISTICS / ADVANTAGES

- In a single layer, it is possible to repair local damages and get an even fine-grain smooth finishing on concrete structures: substantial reduction of working times;
- Excellent workability, high thixotropy;
- Easy application even overhead
- No cracks, no shrinkage;
- Good mechanical strengths and adhesion onto most commonly used building materials (concrete, stone, bricks, etc.).
- Watertight under both positive (EN 12390-8) and negative (UNI 8298-8) pressure.

APPROVALS / CERTIFICATES

- Sika MonoTop® X3 S fulfills the performance requirements of the EN 1504-2:2004: Principle 1: Protection against Ingress (Method 1.3 - coating); Principle 2: Moisture Control (Method 2.3 - coating); Increasing Resistivity (Method 8.3 - coating); DoP nr. 68898949; provided with CE mark.
- Sika MonoTop® X3 S fulfills the performance requirements of class R3 of EN 1504-3:2005; DoP nr. 90040892; provided with CE mark.

PRODUCT INFORMATION

Composition	Portland cement, special binders, selected aggregates, fibers and admixtures.	
Packaging	25 kg bags	
Appearance / Colour	Grey powder with fibers	
Shelf life	6 months from the date of production.	
Storage conditions	Store properly in undamaged original sealed packaging, in dry and cool conditions.	
Density	~ 2.05 kg/l (mixture)	
Maximum Grain Size	~ 0.5 mm	
Soluble Chloride Ion Content	~ 0.01 %	(EN 1015-17)

TECHNICAL INFORMATION

Compressive Strength	Class R3 ~ 28 MPa	(EN 1504-3) (EN 12190)
Modulus of Elasticity in Compression	~ 17.3 GPa	(EN 13412)
Tensile Strength in Flexure	~ 5 MPa	(EN 196-1)
Tensile Adhesion Strength	~ 2.21 MPa	(EN 1542)
Overhead Application	~ 2.50 MPa (B)	(EN 13395-4)
Resistance to Impact	Class III: ≥ 20 Nm	(EN ISO 6272-1)
Thermal Compatibility	Freeze and thaw (50 cycles): ~ 2.20 MPa	(EN 13687-1)
Reaction to Fire	Euroclass A1	(EN 13501-1)
Freeze Thaw De-icing Salt Resistance	~ 2.20 MPa	(EN 13687-1)
Permeability to Water Vapour	Class I (permeable) ~ 0.90 m	(EN 1504-2) (EN ISO 7783-1-2)
Water Absorption	< 0.07 kg m ⁻² h ^{-0.5}	(EN 1062-3)
Capillary Absorption	~ 0.33 kg m ⁻² h ^{-0.5}	(EN 13057)
Water Penetration under Pressure	~ 10 mm	5 bar after 3 days (EN 12390-8)
Water Penetration under Negative Pressure	No penetration	2.5 bar after 72 hours (UNI 8298-8)
Chloride Ion Ingress	~ 0.003 %* * Value obtained after 6 months at 10 mm depth	(EN 13396)
Permeability to Carbon Dioxide	S _D ~ 52 m	(EN 1062-6)
Carbonation Resistance	Pass	(EN 13295)

APPLICATION INFORMATION

Mixing Ratio	18.0% ± 1% pbw of water: 4.50l ± 0.25l of water per 25 kg bag.
Consumption	~ 1.80 kg/m ² /mm, depending on the surface roughness.
Yield	A 25 kg bag yields ~ 13.9 l of mixture
Layer Thickness	2 mm min. / 50 mm max.
Substrate Temperature	+5°C min. / +35 °C max.
Pot Life	~ 40 min at +20°C
Initial Set Time	~ 70 min at +20°C ~ 45 min at +30°C

APPLICATION INSTRUCTIONS

SUBSTRATE QUALITY / PRE-TREATMENT

Concrete:

The substrate must be structurally sound and free from dust, dirt, loose material, surface contamination as oil or grease, cement laitance.

The concrete "Pull off" (tensile) strength must be > 1.5 MPa.

The substrate should be prepared by suitable mechanical preparation techniques, such as high water pressure or grit blasting, mechanical or manual breakers. Non impact/vibrating cleaning methods are preferred. Aggregates should be clearly visible on the surface of the prepared area. The edges of the repair area must be cut vertically (90° degree angle) to a minimum depth of 2 mm.

Pre-wet the surface up to saturation. The wetted surface should achieve a dark matt appearance, without glistening: no liquid water must be present on the surface.

Steel reinforcement:

Steel surface must be clean from rust products, oil, grease, dust and other loose materials which may reduce bond or may contribute to corrosion.

Surfaces must be prepared using approved abrasive blast cleaning techniques, to a minimum standard of SA 2½ (ISO 8501-1).

When the reinforcement is contaminated by chlorides or other materials which may cause corrosion, the reinforcement shall be cleaned by low pressure water-blasting.

Adhesion priming on concrete:

The use of adhesion promoters on well roughened and prepared substrates is not necessary, generally.

Reinforcement coating:

If required, apply around the whole exposed circumference two coats of Sika MonoTop 610 (refer to the Product Data Sheet).

MIXING

Sika MonoTop® X3 S can be mixed with a low speed (~ 500 r.p.m.) electric drill mixer. In small quantities, the mortar can also be manually mixed. Pour the water in the correct proportion into a suitable mixing contain-

er. While stirring slowly, add the powder to the water. Mix thoroughly at least for 3 minutes, until the homogeneous lump-free required consistency is reached.

APPLICATION

Sika MonoTop® X3 S must be applied manually by traditional techniques.

Apply Sika MonoTop® X3 S by trowel onto the substrate dampened up to saturation, exerting a good pressure in order to optimize adhesion on substrate, as thickness restoration mortar; when requested finish by metallic spatula.

Thickness higher than the maximum thickness stated above must be built in subsequent layers when the preceding layer starts setting (tack free).

A good surface finishing can be achieved using a plastering trowel or timber float, as soon as the mortar has started to stiffen.

CURING TREATMENT

Protect the fresh mortar from early dehydration using the relevant curing methods.

CLEANING OF EQUIPMENT

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

IMPORTANT CONSIDERATIONS

- Do not add water over recommended dosage;
- Do not add cement or other substances that could affect the properties of the mortar;
- Do not add water or fresh mortar to a mortar mix which has already started setting;
- Avoid application in direct sun and/or strong wind;
- Apply only to sound, prepared substrate;
- Protect freshly applied material from rain and freezing;
- To obtain a watertight layer, apply an even thickness ≥ 20 mm.

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.

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.

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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