

PRODUCT DATA SHEET

SikaEmaco® S 285 TIX

(formerly MEmaco S 285TIX)

Cement-free, high-strength (M15) and breathable thixotropic mortar for masonry based on natural hydraulic lime and pozzolan for reinforcement work on existing masonry

DESCRIPTION

SikaEmaco® S 285 TIX is a cement-free, pozzolanic natural hydraulic lime masonry mortar made from natural silica aggregates with a maximum diameter of 2 mm. It guarantees a compressive strength >15 MPa and is therefore classifiable as type M15 masonry mortar according to EN 998-2. SikaEmaco® S 285 TIX can be applied either by spraying or by hand, including overhead.

USES

SikaEmaco® S 285 TIX due to its high mechanical properties, is used for the consolidation of masonry structures in many situations such as:

- Reinforced slabs
- Reinforcement of vaults
- Bedding for masonry curtain foundations or for works in general requiring high-strength masonry mortars
- CEMENT-FREE concrete. For thicknesses of more than 5 cm, aggregates of a suitable grain size are added to SikaEmaco® S 285 TIX, thus obtaining high-strength NHL mortars or concretes
- Small vaulting rings
- Reinforced joints (mortar joints reinforced with carbon fibre or steel bars)

FEATURES

- Complete absence of cement: The consistency of SikaEmaco® S 285 TIX makes it completely compatible with the masonry to be consolidated.
- High mechanical performance poses exceptional requirements for a lime product, which thus combines historical requirements with structural and executional ones.
- High adhesion even in overhead applications minimising waste (ZERO GRAVITY).
- Very low content of water-soluble salts: SikaEmaco® S 285 TIX has low electrical conductivity, does not contain salts containing sulfates, chlorides, nitrates, potassium and sodium, and does not contribute to the chemical-physical degradation phenomena linked to the formation and crystallization of the salts themselves.
- Versatile application: it can be applied by trowel or spray and is used for consolidation work in thicknesses up to 5 cm. For interventions with thicknesses >5 cm, it can also be used by adding aggregates to the mortar in order to obtain high-strength lime concrete.
- High permeability to water vapour: important for allowing normal transpiration of the masonry.
- Low capillary absorption: important so that water from the outside does not enter the masonry.
- No reaction to fire: the material is not combustible and does not produce fumes (Euroclass A1).

CERTIFICATES AND TEST REPORTS

In compliance with the European Regulation (EU No 305/2011 and EU No 574/2014) the product bears the CE marking in accordance with EN 998-1 and EN 998-2 and the relevant DoP (Declaration of Performance).

PRODUCT INFORMATION

Composition	Lime and pozzolan mortar
Packaging	Bags 25 kg
Appearance and colour	Light brown powder
Shelf life	12 months from date of production
Storage conditions	The product must be stored properly in undamaged original sealed packaging, in dry and cool conditions
Maximum grain size	Max 2.0 mm
Soluble chloride ion content	<0.05% (EN 1015-17)

TECHNICAL INFORMATION

Compressive strength	~15 MPa Class M15	(EN 1015-11)
Modulus of elasticity in compression	16000 MPa Static modulus of elasticity	(EN 13412)
Flexural-strength	~4 MPa	(EN 1015-11)
Pull-out resistance	≥6 MPa Pull out resistance of steel bars and Sika® CarboDur® BAR line	(RILEM-CEB-FIP RC6-78)
Tensile adhesion strength	≥1,0 MPa Type A (between mortar and substrate)	(EN 1015-12)
Reaction to fire	Euroclass A1	(EN 13501)
Diffusion resistance to water vapour	$\mu < 35$	(EN 1015-19)
Capillary absorption	$0.1 \text{ kg} \cdot \text{m}^{-2} \cdot \text{min}^{-0.5}$	(EN 1015-18)
Thermal conductivity	~0.83 W/mK	(EN 1745)
Electrical resistivity	Specific electrical conductivity $< 80 \text{ } \mu\text{S cm}^{-1}$ $\text{SO}_4 \leq 0.1 \%$ $\text{Na}^+ < 0.05 \%$ $\text{K}^+ < 0.05 \%$ Water-soluble salt content (hardened mortar)	(UNI 11087)
Shear adhesion strength	$\tau_o > 0.80 \text{ MPa}$	(EN 1052-3)

APPLICATION INFORMATION

Mixing ratio	Each 25 kg bag requires 4 lt $\pm$ 0.25 lt water: 16 % $\pm$ 1 % by weight
Consumption	Mortar: 18 kg/m ² per cm thickness. Concrete: approx. 13 kg/m ² per cm thickness (by adding 35 % gravel or crushed stone).
Layer thickness	Min. 5 mm - max. 50 mm, maximum thickness for layer 15 mm.
Substrate temperature	Min. +5 °C / max. +35 °C
Pot Life	~60 min. a +20 °C

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.

LIMITATIONS OF USE

- SikaEmaco® S 285 TIX can be used when the ambient temperature of the substrate is between +5 °C and +35 °C
- Do not add water beyond the recommended dosage
- Do not add fresh mortar to the mix after the setting process has begun

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 PREPARATION

Degraded plaster must be removed by demolition with electric or compressed air tools or by simple tools. In addition, any residues of efflorescence and any other substance that may jeopardise good adhesion to the substrate must be removed. Before applying the mortar, the substrate must be cleaned and saturated with water at low pressure. If necessary, repeat this last operation several times. Saturation is necessary to prevent the substrate from absorbing water from the mortar. Inaccurate saturation could lead to loss of adhesion and cracking of the filler mortar. If the substrate cannot be saturated, it is nevertheless advisable to carry out minimal wetting to allow the mortar to adhere properly.

Application of structural strengthening system

In the case of reinforcement by means of Textile Reinforced Mortar system (TRM) for masonry or vault, the reinforcement mesh must have a cover of at least 2 cm and must be detached from the support by at least 1 cm by means of spacers. The minimum intervention thickness in the presence of reinforcement mesh may therefore not be less than 3 cm.

MIXING

- In the case of spraying or trowel application, SikaEmaco® S 285 TIX should be mixed with clean water, free from salts or organic particles, with the amount of water indicated in the technical values.
- In the case of higher thickness application, which is typical for application thicknesses of more than 5 cm, it is necessary to make fluid mixes with the addition of gravel or crushed stone (5-20 mm) to the mortar in a quantity equal to 35 % of the weight of the dry mortar and water in a proportion of approximately 28 % to achieve a fluid consistency (categories S3-S4). Mixing must be carried out in a concrete mixer or in the mixer of a plastering machine and must continue until a homogeneous and lump-free mixture is obtained. Mixing by hand is not recommended.

APPLICATION

SikaEmaco® S 285 TIX may be applied by trowel, by a pointing gun, by spraying with a plastering machine, including continuous cycle plastering machines (with a post-mixer), or by pouring in the case of concrete mixes. In the case of application by hand, it is advisable to apply a thin layer of ⅓ mm of rendering, made from the same material, with a semi-liquid consistency, using a trowel, in order to even out the absorption of the masonry and improve adhesion. The mortar is then applied in successive layers 1-1.5 cm thick, taking care to apply the next layer when the previous one has not completely hardened. If the substrate to be applied is very absorbent, as is the case, for example, with tuffaceous stone, it is advisable to apply the rendering coat with SikaEmaco® S 285 TIX in order to limit the absorption of the water used to mix the mortar. After trowel application of SikaEmaco® S 285 TIX, the mortar must be smoothed to obtain a flat surface. When the substrate is made up of heterogeneous materials (brick, stone, tuff, etc.), characterised by different thermal behaviour, it is advisable to insert a glass fibre mesh to counteract the risk of cracking. This is also valid at the edges of openings (doors, windows, etc.) where concentrations of stresses are generated that may cause cracking.

Float / Finishing

The trowel finishing of SikaEmaco® S 285 TIX should be carried out using a sponge trowel after a suitable time from application depending on weather conditions. The time interval between application and finishing with a trowel is established according to the first stiffening of the mortar, which is determined by touch (by resting a hand on the surface and it does not sink, but leaves a slight impression on the plaster). Correct trowelling will be essential to effectively counteract the formation of micro-cracks resulting from shrinkage. In order to improve curing, it is recommended to lay a polyethylene sheet over SikaEmaco® S 285 TIX, if this is possible as in the case of screeds and vaulting hoods, for about 1 day after application in order to maintain high humidity and contain shrinkage.

Pointing

Remove any loose joint material, and if required, fill the bed joint using SikaEmaco® S 285 TIX. When the bed joint is cured, apply the product as a joint mortar by using a joint trowel, a trowel, hand or using Sika® Pointing gun. In all cases, ensure that the product will be well-compacted. In cases of high-width joints, firmly scrap SikaEmaco® S 285 TIX on the substrate surface to form a thin layer as a scratch coat. Then apply the product, exerting good pressure and compacting well the product on the area. The surface can be finished according to the requirements using a plastering trowel (sponge trowel) while wet, a relevant rough-cast tool as soon as the mortar has started to stiffen or by a wet brush according to the aesthetic aspect.

CLEANING OF EQUIPMENT

Removal of fresh remnants from tools and application equipment can be carried out using water immediately after use. Hardened / cured 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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