BUILDING TRUST

PRODUCT DATA SHEET

SikaEmaco® T 1100 TIX

(formerly MEmaco T 1100TIX)

Rapid setting and hardening, extra high-strength, shrinkage compensated, thixotropic traffic repair mortar

PRODUCT DESCRIPTION

SikaEmaco® T 1100 TIX is a single component, fast setting and hardening thixotropic repair and bedding mortar that meets the requirements of class R4 according to EN 1504 part 3.
SikaEmaco® T 1100 TIX is a ready-to-use material that contains sulphate resistant Portland cement (HSR LA), hydraulic binders, well graded sands, specially selected polymer fibres (PAN – polyacrylonitryl) and special additives providing rapid strength build-up even at sub-zero temperatures, improved durability and unmatched low drying shrinkage.
When mixed with water, SikaEmaco® T 1100 TIX forms a plastic / thixotropic mortar which can be easily applied by hand from 10 mm up to 150 mm thickness.

USES

- Bedding small to medium size manhole frames.
- Bedding curb stones and pavement stones.
- Horizontal patch repair areas.
- Inclined patching areas.
- Optimizing traffic management.
- Both internal and external use.
- Use in cold conditions or cold store rooms.
- Applications under the most difficult jobsite conditions where very short traffic disruption periods are required.

CHARACTERISTICS / ADVANTAGES

- Ultra rapid strength build-up, can be opened to all traffic in just 2 hours (at +20 °C)
- Excellent application properties
- Higher thickness possible with the addition of gravel
- Can be used at sub-zero temperatures as low as -5°C.
- Very high early and final strengths.
- Excellent adhesion and excellent durability.
- Extra low shrinkage for durability.
- Minimized cracking tendency due to constrained shrinkage by PAN fibres.
- Excellent freeze-thaw resistance.
- Very good reinforcement protection due to very low water absorption and good carbonation resistance.
- Very good skid resistance, even in wet conditions.
- High resistance to hydrocarbons.
- CE-Certified according to EN 1504-3 class R4

PRODUCT INFORMATION

Packaging	SikaEmaco® T 1100 TIX is available in 25 kg paper bags.
Shelf Life	9 months if stored at mentioned storage conditions.
Storage Conditions	Store at ambient temperatures, out of direct sunlight, in cool, dry warehouse conditions and clear of the ground on pallets protected from rainfall prior to application.
Appearance / Colour	Grey powder
Maximum Grain Size	4.0 mm
Total Chloride Ion Content	≤ 0.05 % (EN 1015-17)

TECHNICAL INFORMATION

Compressive Strength (EN 12190)

Age	at +20 °C[1)]	at +5 °C[2)]	at -5 °C[3)]
2 hours	≥ 25 N/mm²	-	-
3 hours	-	≥ 10 N/mm²	≥ 8 N/mm²
4 hours	≥ 35 N/mm²	≥ 15 N/mm²	≥ 12 N/mm²
1 day	≥ 60 N/mm²	≥ 55 N/mm²	≥ 50 N/mm²
7 days	≥ 70 N/mm²	≥ 65 N/mm²	≥ 65 N/mm²
28 days	≥ 85 N/mm²	≥ 85 N/mm²	≥ 85 N/mm²

[1)] Curing, water and powder temperature: +20 °C
[2)] Curing, water and powder temperature: +5 °C
[3)] Curing at -5°C; water and powder temperature: +20 °C

Modulus of Elasticity in Compression 35,000 N/mm² (EN 13412)

Flexural Strength

1 day	≥ 7 N/mm²
7 days	≥ 8 N/mm²
28 days	≥ 10 N/mm²

Pull-Out Resistance

Concrete	28 days	≥ 3.0 N/mm²
Concrete after Freeze-Thaw (50 cycles with salt)	28 days	≥ 3.0 N/mm²

Shrinkage 28 days ≤ 0.300 mm/m (EN 12617-4)

Ring test Coutinho Ring no cracking up to 180 days

Service Temperature -30 °C to +80 °C

Capillary Absorption 28 days ≤ 0.1 kg·m^{-2}·h$^{-0.5}$ (EN 13057)

Carbonation Resistance 28 days dk ≤ Reference Concrete (EN 13295)

Reaction to Fire Class A1 (EN 13501-1)

APPLICATION INFORMATION

Fresh mortar density approx. 2.20 g/cm³

Consumption Approx. 1,950 kg powder is needed to prepare 1 m³ of fresh mortar. 25 kg bag will yield approximately 12.9 litres of mortar.

Layer Thickness

as repair mortar	10 - 100 mm
as bedding mortar	25 - 150 mm

Product Temperature +5 °C to +30 °C

Ambient Air Temperature	-5 °C to +35 °C	
Mixing Ratio	3.1 to 3.6 l water per 25kg bag.	
Substrate Temperature	0 °C to +30 °C	
Pot Life	approx. 20 minutes at +20 °C. (higher temperatures will reduce this time and lower temperatures will increase it)	
Applied Product Ready for Use	Open to light traffic (at +20 °C)	60 Minutes
	Open to heavy traffic (at +20 °C)	120 Minutes

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

- Do not apply SikaEmaco® T 1100 TIX at temperatures below -5 °C nor above +30 °C.
- For repair applications over 100 mm, 7.5 kg of clean gravel (4-8 mm or 8-16 mm depending on the final thickness) must be added to 25 kg of SikaEmaco® T 1100 TIX powder.
- Other additions like cement or other substances that could affect the properties of SikaEmaco® T 1100 TIX are not allowed.
- Never add water or fresh mortar to a mortar mix which has already begun to set.
- Keep the mixing water ratio between the recommended limits.
- When applying SikaEmaco® T 1100 TIX at cold or subzero temperatures, we advise to use warm mixing water in order not to delay the hardening of the mortar too much.
- Do not wet cure the material. Prevent from rain.

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 PREPARATION

Concrete must be fully cured, clean and sound to ensure good adhesion. All loose traces of concrete or mortar, dust, grease oil, etc. must be removed. Damaged or contaminated concrete should be removed to obtain a keyed surface. Non-impact/vibrating cleaning methods, e.g. shot blasting, sandblasting or high-pressure water jetting are recommended. Aggregate should be clearly visible on the surface of the concrete structure after surface preparation.

Cut the edges of the repair vertically to a minimum depth of 10 mm.
If reinforcing steel is visible, clean to a minimum grade of Sa 2 according to ISO 8501-1 / ISO 12944-4. Ensure back of rebar is also clean.
Heavily damaged reinforcement, or when rebar sections have decreased below the safety level, need to be replaced for structural reasons. Ensure a 2 cm rebar cover when installing additional reinforcement.
Although SikaEmaco® T 1100 TIX can be applied at ambient temperatures as low as -5°C, the temperature of the substrate should be minimum > 0°C and maximum +30°C. Frozen substrates need to be defrosted just prior to the application of SikaEmaco® T 1100 TIX. Make sure that any metal parts, e.g. reinforcement and manhole frames are defrosted with a temperature above the freezing point. Try to keep the temperature uniform during application and hardening.

MIXING

It is strongly recommended that only full bags are mixed. Damaged or opened bags should not be used. First pour the clean tap water in the mixing container and afterwards, while mixing, add approx. 2/3 of the SikaEmaco® T 1100 TIX powder slowly and without interruptions to the water. Continue mixing for at least 1 minute. After 1 minute, add the rest of the powder and mix continuously until a homogeneous mortar is obtained.
Mix SikaEmaco® T 1100 TIX with a suitable paddle attached to a powerful, slow speed electric drill (max 400 rpm). The total mixing time is 3 to 4 minutes until a homogenous, plastic consistency is obtained.
Mixing water needed: 3.1 to 3.6 litres per 25 kg bag are required for plastic consistency. Only use clean uncontaminated water.
Note: It is strongly recommended to follow the mixing times before adjusting the consistency by adding extra water! Do not mix more material as can be applied within the pot life of approximately 20 minutes at 20°C. Do not mix SikaEmaco® T 1100 TIX with any other material. Only the addition of maximum 30% of clean, well sized gravel is permitted for applications with a thickness over 100 mm.

APPLICATION

Concrete substrates and any metal parts coming in contact SikaEmaco® T 1100 TIX need to be defrosted. The prepared substrate should be pre-soaked, preferably for 24 hours, but at least 2 hours before applying SikaEmaco® T 1100 TIX. The surface must be mat-damp, but without standing water.

For optimum curing of the product the temperatures during application of SikaEmaco® T 1100 TIX must be between -5°C and +30°C. Do not apply SikaEmaco® T 1100 TIX if the temperature is expected to drop below -5°C during application or within 24 hours.

General Repair

In order to ensure optimum adhesion, a slurry coat of SikaEmaco® T 1100 TIX is brush applied onto the pre-dampened substrate prior to repair applications. Apply the mixed SikaEmaco® T 1100 TIX mortar to the substrate – wet on wet – and spread to the required layer thickness (maximum 100 mm). Compact the mortar using trowel. Go over the surface with a levelling board and rub down with a wooden board. Smooth surface with a finishing trowel if necessary.

Use as bedding mortar

Place SikaEmaco® T 1100 TIX onto the pre-dampened substrate and overfill to allow for compaction. Gently lower the manhole frame, curb or pavement stone into the fresh mortar and set to the required level. Make sure to apply enough material onto the individual bedding area before lowering the manhole frame or curb stone. Punctual applications of SikaEmaco® T 1100 TIX, and under-filling after previous levelling of manhole frames is not allowed.

CURING TREATMENT

SikaEmaco® T 1100 TIX is basically self-curing. Wet curing is not advised.
When working at sub-zero temperatures, cover SikaEmaco® T 1100 TIX with insulation materials or dry cloths until sufficiently hardened, preferably for 24 hours or until SikaEmaco® T 1100 TIX is to be opened for traffic.

CLEANING OF TOOLS

Tools and mixer must be cleaned immediately after use with water. Cured material can only be removed mechanically.

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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