BUILDING TRUST

PRODUCT DATA SHEET

SikaEmaco® T 545

(formerly MEmaco T 545)

Magnesia-phosphate cement based, fast setting, flowable concrete repair mortar for application down to -10 °C

PRODUCT DESCRIPTION

SikaEmaco® T 545 is a one part, fast setting and hardening pourable repair and bedding mortar that meets the requirements of class R4 according to EN 1504-3.
SikaEmaco® T 545 is a ready-to-use material that contains magnesia-phosphate cement, fine silica, well graded sands and special additives providing rapid strength build-up even at sub-zero temperatures, improved durability and low drying shrinkage.
When mixed with water, SikaEmaco® T 545 forms a mortar with flowable consistency which can be easily applied by hand from 10 up to 50 mm thickness.

USES

SikaEmaco® T 545 is used for:
- Cold store floor areas.
- Concrete roads and nosing.
- Bridge decks.
- Quays/crane rails.
- Industrial floor areas.
- Loading bays and warehouses.
- Around fixing bolts.
- Raising and levelling manhole covers, gratings, hydrants etc.

CHARACTERISTICS / ADVANTAGES

- Ready-to-use powder, only to be mixed with water.
- User friendly: low odour, no hazardous labelling.
- No additional bonding primer required, excellent adhesion to concrete and other mineral substrates.
- Flowable consistency for ease of application.
- Ultra-rapid strength build-up, can be opened to traffic in 1 hour (at +20 °C), minimum delay to traffic and production.
- Can be used at sub-zero temperatures down to -10 °C.
- High early and final strengths.
- CE-certified as Class R4 concrete repair mortar according to EN 1504-3.
- High freeze-thaw and de-icing salt resistance, can be used for exposure class XF4 as described in EN 206.
- Equipment to be cleaned simply with water.
- No curing required.

PRODUCT INFORMATION

Packaging	SikaEmaco® T 545 is available in 25 kg paper bags.
Shelf Life	12 months after date of production if stored at below 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. No permanent storage over +30 °C.
Appearance / Colour	Grey powder
Maximum Grain Size	Approx. 1.4 mm

TECHNICAL INFORMATION

Compressive Strength (EN 12190)

Age	at +20 °C[1)]	at +5 °C[2)]	at -10 °C[3)]
1 hour	≥ 20 N/mm²	≥ 12 N/mm²	≥ 12 N/mm²
2 hours	≥ 25 N/mm²	≥ 25 N/mm²	≥ 20 N/mm²
1 day	≥ 40 N/mm²	≥ 40 N/mm²	≥ 40 N/mm²
7 days	≥ 45 N/mm²	≥ 45 N/mm²	≥ 45 N/mm²
28 days	≥ 50 N/mm²	≥ 50 N/mm²	≥ 50 N/mm²

[1)] Curing, water and powder temperature: +20 °C
[2)] Curing, water and powder temperature: +5 °C
[3)] Curing at -10 °C; water temperature +20 °C and powder temperature +10 °C

Modulus of Elasticity in Compression ≥ 25,000 N/mm² (EN 13412)

Flexural Strength (EN 12190)

Age	at +20 °C[1)]	at +5 °C[2)]	at -10 °C[3)]
1 hour	≥ 3 N/mm²	≥ 2 N/mm²	≥ 2 N/mm²
2 hours	≥ 4 N/mm²	≥ 3 N/mm²	≥ 3 N/mm²
1 day	≥ 6 N/mm²	≥ 6 N/mm²	≥ 6 N/mm²
7 days	≥ 8 N/mm²	≥ 6 N/mm²	≥ 7 N/mm²
28 days	≥ 9 N/mm²	≥ 8 N/mm²	≥ 8 N/mm²

[1)] Curing, water and powder temperature: +20 °C
[2)] Curing, water and powder temperature: +5 °C
[3)] Curing at -10 °C; water temperature +20 °C and powder temperature +10 °C

Tensile adhesion strength (EN 1542)

Dry Concrete after 28 days	≥ 2.0 N/mm²
Adhesion to Concrete after Freeze-Thaw (50 cycles with salt)	≥ 2.0 N/mm²

Service Temperature -30 °C to +80 °C

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

Freeze Thaw De-Icing Salt Resistance CDF-Testing 95 g/m² (CEN/TS 12390-9)

Reaction to Fire Class A1 (EN 13501-1)

APPLICATION INFORMATION

Fresh mortar density approx. 2.2 kg/l

Consumption Approx. 2,080 kg powder is needed to prepare 1 m³ of fresh mortar.
One 25 kg bag will yield approximately 11.6 litres of mortar if mixed with 1.5 l of water.

Substrates Do not apply SikaEmaco® T 545 on carbonated concrete surfaces!

Layer Thickness 10 to 50 mm

Ambient Air Temperature -10 °C to +30 °C

Mixing Ratio 1.5 l mixing water / 25 kg bag.

Substrate Temperature -10 °C to +30 °C

Pot Life approx. 10 minutes (at +20 °C)

Applied Product Ready for Use

Open to	+20 °C	+5 °C	-5 °C	-10 °C
Pedestrian traffic	~45 min.	~1 h	~1.5 h	~2 h
Vehicular traffic	~ 1 h	~1.5 h	~2 h	~3 h

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.

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

NOTES ON INSTALLATION

- Do not apply on carbonated concrete surfaces!
- Do not apply SikaEmaco® T 545 at temperatures below -10 °C nor above +30 °C.
- Under no circumstances should either fine aggregates or cement be added to SikaEmaco® T 545.
- Do not use vibrator for placing the mortar.
- 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 545 at cold or sub-zero temperatures, we advise to use warm mixing water in order not to delay the hardening of the mortar too much.
- Check if the substrate is enough resistant to osmotic pressure, before SikaEmaco® T 545 is applied.
- When using SikaEmaco® T 545 in large volumes or at high temperatures, a slight smell of ammonia may be observed
- Do not wet cure the material! It must only be protected from rainfall for a period of not less than 30 minutes after placing and finishing.

SUBSTRATE PREPARATION

SikaEmaco® T 545 must not be applied on carbonated concrete surfaces! Check the carbonation depth of the surface first and remove all carbonated concrete prior to application.
The boundaries of the repairs must be saw cut to a minimum depth of 10 mm, as feather edging of the product is not recommended. The substrate must be free of grease, oil, paint, lime, dirt and dust before commencing the application of SikaEmaco® T 545.
Roughen up the surface by means of a scarifier, shot-blasting, or other suitable equipment down to a sound and clean substrate. Remove all rust and other contaminants from reinforcing steel.
To ensure permanent repair on concrete flooring directly in contact with the ground, the presence of a water vapour barrier is recommended. Consult your local Sika representative for further information.

MIXING

When SikaEmaco® T 545 is added to the water and mixed, an exothermic chemical reaction starts, and a chemical setting process takes place within approximately 10 to 15 minutes (at +20 °C). The material hardens to give sufficient high strength to receive traffic within less than one hour at 15 - 20 °C.
Mix as near as possible to the area of application.
Wet down the mixer and drain off the free water. Pour all the mixing water into the mixer. Add SikaEmaco® T 545 powder to water. Do not add water to powder!
When adding coarse aggregate, these must be added to the water before the addition of the powder component of SikaEmaco® T 545 into the mixer. Continue mixing for approximately 2 minutes until a lump-free, homogeneous product is obtained.
Do not re-temper and do not add extra water. The amount to be mixed should never exceed that which can be placed, compacted and finished within the pot life of the material. Longer mixing times is needed when the material is stored at cold temperatures.

APPLICATION

Thoroughly wet the substrate to be repaired. Remove excess or standing water, just prior to the application. Patch the mixed mortar onto the pre-wetted, mat humid (dampened) surface and compact. Avoid layer on layer built-up. Finish with a trowel, or wooden float for better skid resistance. The recommended application thickness is 10 - 50 mm.
For applications over 30 mm, a 4 to 10 mm round aggregate can be added (maximum 8 kg of aggregate per 25kg bag of SikaEmaco® T 545). It is essential that the additional aggregates are clean (organic free), dry and round in shape. It is always advisable to make a field trial when extra aggregate is added.
In cold climates, i.e. below +5°C and down to -10°C, it is recommended not only to condition the materials at +15 to +20 °C, but also to pre-warm the mixer and equipment with warm water before mixing. At sub-zero temperatures, or when ice is present, heat the substrate using a flame torch or other suitable heating equipment. It is advisable to insulate the repaired areas, using insulating materials, at temperatures below +5°C. The areas should be covered for not less than 3 hours, depending on the environmental temperature.
For freezer floor repairs please refer to the local Technical Service of Sika.
Where the application temperature is above +25 °C, condition the products and equipment in cooled areas (+10 to +15 °C), in order not to reduce the open time of the wet mix and thereby allowing normal application procedure and hardening times of the mortar.
The mixer, barrows and other equipment must be kept cool during the application by shading, use of cold water etc.
Do not apply SikaEmaco® T 545 if the temperature is expected to drop below -10 °C during application or within the next 4 hours.

CURING TREATMENT

SikaEmaco® T 545 is self-curing. Do not wet cure the material! It only must be protected from rainfall for a period of not less than 30 minutes, after placing and finishing.

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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