

SikaCor® 255

Epoxy-binder for mortars on concrete and steel

SikaCor® 277

Thixotropic epoxy-binder - sag resistant high-build coatings and mortars

Product description

SikaCor 255 and SikaCor 277 are 2-component binders based on epoxy resin. SikaCor 277 is the thixotropic (sag resistant) version.

By mixing with appropriate aggregates (kiln dried quartz sand or similar) coating materials and synthetic mortars can be produced with high mechanical and chemical resistance.

Crack bridging coating can be produced by reinforce with glass fibre.

Fields of application:

SikaCor 255: smoothening and coarse mortar.

SikaCor 277: levelling up/fine mortar and high build coating.

For concrete, cementitious mortar and steel. Protection against chemical aggressive agents, e.g. of walls in sewage treatment works and bridge troughs.

Properties:

- **Excellent bond to concrete, cementitious mortar, PCC, SPCC, asbestos cement and steel**
- **Tough hard**
- **Abrasion and impact resistant**
- **Excellent chemical resistance**
- **Crack bridging in combination with glass fibre**

Product data

Colour shades:

SikaCor 255: approx. RAL 7001, approx. RAL 7016, approx. RAL 7030, approx. RAL 7032.

SikaCor 277: approx. RAL 1014, approx. RAL 7010, approx. RAL 7030, approx. RAL 7032, approx. RAL 7035.

Because of the raw materials used, slight batch to batch colour variations are unavoidable.

Packaging:

SikaCor 255: 10 kg net.

SikaCor 277: 10 kg net.

Thinner K: 25; 10 and 3 litres

Shelf life:

In originally sealed containers in a cool and dry environment: min. 2 years.



Technical data

Resin: High solid epoxy resin

Flexural strength: SikaCor 255: 25-30 N/mm² (acc. to DIN 1164)
SikaCor 277: 25-30 N/mm² (acc. to DIN 1164)

Compressive strength: SikaCor 255: 50-60 N/mm² (acc. to DIN 1164)
SikaCor 277: 50 N/mm² (acc. to DIN 1164)

Chemical resistance: Permanently resistant against water, seawater, diluted acids and lyes, salts, crude- and fuel oils, detergents etc.
Short-time resistant against phenoles and phenole containing materials, acids with higher concentration, formic acid, acetic acid, lactic acid.

Thermal resistance: Dry heat up to approx. + 120°C. Damp heat and warm water up to approx. + 60°C. Short term exposure to warm water up to max. + 80°C.
SikaCor 277 high-build coating is not resistant to fluctuating temperatures of high differentials.

Mechanical resistance: Abrasion resistant, tough hard and weather resistant.

Crack bridging capability: No crack up to 0.40 mm crack width (see approval no. 4039-1)
No crack up to 0.60 mm crack width (see approval no. 4039)

Systems

Coating systems:

Concrete:

1. Rigid coating

1.1 Self-smoothing mortar:

1 pbw SikaCor 255 binder + 0.7 pbw quartz sand F 34 (0.1 - 0.3 mm).
Material consumption: 1.8 - 2.0 kg/m²/mm.

1.2 Coarse mortar:

1 pbw SikaCor 255 binder + 3.5 pbw quartz sand 0 - 4 mm.
Material consumption: 2.0 - 3.0 kg/m²/mm

1.3 Levelling mortar (scraping mortar):

1 pbw SikaCor 277 binder + 0.5 - 0,7 pbw quartz sand 0.1 - 0.3 mm.
Material consumption: 1.8 - 2.0 kg/m²/mm

1.4 Repair mortar:

1 pbw SikaCor 277 binder + 1 - 1.25 pbw quartz sand 0.1 - 0.3 mm.
Material consumption: 1.8 - 2.0 kg/m²/mm.

The quantity of quartz sand may be increased for filling holes, cavities etc.

1.5 Bonding bridge:

1 x SikaCor 255 or SikaCor 277 between old and new concrete or mortar.
Material consumption: 1.0 - 1.5 kg/m². Do not thin!

Apply wet on wet, i.e. fresh concrete onto the tacky bonding bridge.

If thick bonding bridges are required, fine kiln dried sand may be added.

1.6 High-build coating:

2 x SikaCor 277 onto PCC, ECC or PC-mortar.

Material consumption: 0.6 - 0.8 kg/m².

Apart from small areas the dry film thickness should not exceed 500 microns per layer and 1000 microns for the complete coating system.

2. Crack bridging coating

System for crack width up to max. **0.40 mm**

(see approval Nr. 4039-1; consumption 1.7 kg/m² in 2 applications)

- | | |
|---|------------------------------|
| - scraping mortar Icoment-520 | 1200 g/m ² |
| - fine mortar Icoment-520 | 1800 g/m ² |
| - embedding layer SikaCor 277 | 1000 g/m ² |
| - reinforcing Sika Betonol glass fabric | approx. 300 g/m ² |
| - top coat SikaCor 277 | 700 g/m ² |
| - seal coat SikaCor EG 5 (optional) | 100 g/m ² |

- System for crack width up to max. **0.60 mm**
 (see approval Nr. 4039; consumption 2.8 kg/m² in 2 applications)
- scraping mortar Icoment-520 1200 g/m²
 - fine mortar Icoment-520 1800 g/m²
 - embedding layer SikaCor 277 1000 g/m²
 - reinforcing Sika Betonol glass fabric approx. 300 g/m²
 - top coat SikaCor 277 1800 g/m²
 - seal coat SikaCor EG 5 (optional) 100 g/m²

Steel:

1. Areas with chemical and mechanical exposure:
2 - 3 x SikaCor 277

2. Trough bridges with ballast bed (German Federal Railways):

Coarse mortar on horizontal surfaces:

Priming coat:

1 x SikaCor 277, 300 µm, DB material no. 684.24
 Blinded continuously with quartzsand 0.4 - 0.7 mm. Remove excess of sand after final curing.

Top coat:

1 x Sika Elastomastic TF, 4000 µm, DB material no. 684.32,
 1 pbw SikaCor 277 binder + 1 pbw quartzsand 0.4 - 0.7 mm.
 (see product data sheet Sika Elastomastic TF)

Fine mortar on vertical and inclined ares:

Priming coat:

1 x SikaCor 277, 300 µm, material no. 684.24
 Blinded evenly with quartz sand 0.4 - 0.7 mm. Remove excess of sand after final curing.

Top coat:

1 x Sika Elastomastic TF, 2000 µm, DB material no. 684.32,
 1 pbw SikaCor 277 binder + 1 pbw quartzsand 0.4 - 0.7 mm.
 (see product data sheet Sika Elastomastic TF)

Material consumption:

Specific gravity liquid	Solids content approx. %		Theoretical material-consumption/coverage without loss for medium dry film thickness of			
	approx. kg/L	by vol.	by weight	dry microns	wet microns	approx. kg/m ²
1.4	95	97	250	265	0.375	2.70

Apart from small areas the dry film thickness should not exceed 500 microns per layer and 1000 microns for the complete coating system.

Condition of concrete substrate:

The substrate must be of sufficient strength (minimum C20/25 or ZE 30).
 Pull-off strength f_{ctm} not below 1.5 N/mm².

Surface preparation:

Concrete:

The surface must be dry, firm, fine gripping, free from loose and friable particles, cement laitance, dust and other contaminations.
 Adhesion can be improved by blast cleaning. In case of submerged exposure later on, blast cleaning or high-pressure water jetting is absolutely necessary.
 Holes, cavities as well as blasting roughness can be levelled up with SikaCor 277 mortar.

Steel:

Blast cleaning to Sa 2^{1/2} as per EN ISO 12 944, part 4.
 Free from dirt, grease and oil.

Application conditions

Substrate temperature: Minimum: + 10°C
 Maximum: + 30°C

Ambient temperature: Minimum: + 10°C
 Maximum: + 30°C

Substrate humidity: < 4% humidity; (CM-measuring)

Relative humidity: Maximal 85% RH

Dew point: During application and curing the substrate temperature must be at least + 3°C above dew point. Protect from condensation.

Hints on application

Mixing ratio in parts by weight: SikaCor 255: 80 : 20
SikaCor 277: 80 : 20
(Components A : B)

**Mixing instructions/
mixing time:** Stir component A very thoroughly using an electric mixer (start slowly, then increase up to approx. 300 rpm). Add component B carefully and mix both components very thoroughly (including sides and bottom of the container). Mix for at least 3 minutes until a homogeneous mixture is achieved. Fill mixed material into clean container and mix again shortly as described above. During mixing and handling of the materials always wear protective goggles, suitable gloves and other protective clothings.

**Application methods/
Tools:** Brush, roller, airless-spraying or trowelling (in case of mortar application)

SikaCor 277 high-build coating:

By brush and roller:

At low temperatures max. 5 pbw Thinner K can be added.

Airless-spraying:

With a spray pressure in gun of min. 200 bar; diameter of hoses min. 8 mm (5/8 inch);

nozzle size 0.53 - 0.66 mm (0.021 - 0.026 inch); spraying angle 40° - 80°.

Temperature of material and equipment: min. 30°C (the use of a flow heater is recommended).

Coarse mortar application on horizontal areas (by trowel):

In order to achieve a uniform and dense substrate, apply SikaCor 255 mortar onto the still wet 2. priming coat in the provided layer thickness of 4 - 5 mm (+ 1 mm).

**Cleaning of
implements:** Thinner K

Potlife:		+ 10°C	+ 20°C	+ 30°C
SikaCor 255/277		approx. 70 min.	30 - 40 min.	15 - 20 min.

Waiting time between coats:		+ 10°C	+ 20°C	+ 30°C
Walkable		35 h	15 h	10 h
Overcoating time		< 72 h	< 48 h	< 48 h
Final drying time		14 d	7 d	5 d

Blinded areas can be overcoated even after max. 1 month.

Important notice

Health and Safety Information:

Please observe safety instructions on container labels and local regulations.

Dangerous Goods regulations have to be followed.

During application in closed rooms, pits and shafts etc., sufficient ventilation must be provided. Keep away open light, including welding.

In poorly lit rooms only electric safety lamps are permitted. The installed ventilation equipment must be spark-proof.

In a liquid, or not fully cured state, the thinner and the products contaminate water and should not be allowed to enter drains or be spilled onto open ground. All spillages and liquid waste must be removed according to local Health and Safety regulations.

Further details are contained in our instructions "Health protection and the prevention of accidents".

Protective Coatings

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.

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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