Industrial Flooring

Product Data Sheet
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Sikafloor 81 EpoCem

Sikafloor® 81 EpoCem

Self-Leveling, Epoxy-Cement Slurry for Resurfacing and Water Vapor Transmission Suppresion

Description

Sikafloor 81 EpoCem is a three-component, solvent-free, odorless, moisture-tolerant, epoxy-modified, cementitious self-leveling mortar. Specifically formulated for leveling and structural reprofiling of damp, “green” or saturated surface dry concrete slabs, and slabs with excessive water vapor transmission rates at thicknesses of 120 - 160 mil (3 - 4 mm).

Where to Use

As a Temporary Moisture Barrier (TMB) minimum 120 mils (3 mm thick) under Epoxy, Polyurethane and Methyl Methcrylate (MMA) resin floors, over high moisture content substrates; even green concrete. Note: Sikafloor 81 EpoCem must be sealed with a suitable Sikafloor epoxy primer system (e.g. Sikafloor 107, Sikafloor 160 and Sikafloor 161 at 16 mils) to form a long term vapor barrier.

As a self-smoothing screed for:

- Specifically formulated for leveling and structural reprofiling or patching horizontal concrete surfaces, in new work or repairs
- Floor topping on unventilated, damp substrates with no aesthetic requirements
- Leveling layer under Epoxy, Polyurethane and MMA floor coatings /screeds, tiles, sheet floors, carpets or wooden floors
- Repair and maintenance of monolithic concrete floors
- Extend with oven-dried quartz sand as a patching and repair mortar

Advantages

- As a positive side vapor barrier prior to use with Sikafloor systems.
- Economical structural resurfacing compound.
- Water-based, solvent-free and odorless.
- Self-leveling and good flowability.
- Can be overcoated with epoxy resin compounds after 24 hrs [(68°F (20°C) at 50% relative ambient humidity]. Surface moisture measured with a Tramex® CME/CMExpert type concrete moisture meter must be < 4% prior to application of epoxy resin compound.
- Waterproof yet permeable to water vapor.
- Prevents osmotic blistering of resin based coatings over damp substrates
- Fast curing and high early strengths.
- Excellent adhesion to dry, damp, green or saturated surface dry concrete substrates.
- Modulus of elasticity and coefficient of thermal expansion comparable to concrete.
- Good adhesion after long-term water immersion in conjuction with suitable Sika coating system.
- Contains no solvents.

TYPICAL DATA

RESULTS MAY DIFFER BASED UPON STATISTICAL VARIATIONS DEPENDING UPON MIXING METHODS AND EQUIPMENT, TEMPERATURE, APPLICATION METHODS, TEST METHODS, ACTUAL SITE CONDITIONS AND CURING CONDITIONS.

Packaging

Component A: 2.4 lb (1.1 kg) in a 1 gal. Jug (liquid)
Component B: 6.5 lb (2.9 kg) in a 1 gal. Jug (liquid)
Component C: 37.4 lb (17 kg) bag (powder)
Components A+B+C: 46.3 lb (21.kg)
(Ready to mix unit)

Colors

Gray after mixing

Coverage

Primer:
Sikafloor EpoCem Module (Component ‘A’ + ‘B’) = 1 gallon (3.8 liters)
Primer sold separately. 200 - 400 ft^2 / gal, (5 - 10 m^2 / L) depending on substrate porosity.
Self-leveling Mortar:
Sikafloor 81 EpoCem (Component ‘A’ + ‘B’ + ‘C’) = 2.64 gallons (10 liters) of mortar.
43 ft^2 (4 m^2) at 100 mils (2.5 mm) thickness
Patching Mortar:
Sikafloor 81 EpoCem extended with oven-dried silica sand
Sikafloor 81 EpoCem premix (Components ‘A’ + ‘B’ + ‘C’)
46.3 lbs (21 kg) 2.64 gal (10 L)
Silica Sand (Standard US Mesh) # 24 [0.024 - 0.063 in. (0.6 - 1.6 mm)]
22 lbs (10 kg) 1.8 gal (6.9 L) by loose volume
Silica Sand (Standard US Mesh) # 16 [0.012 - 0.033 in. (0.3 - 0.85 mm)]
22 lbs (10 kg) 1.9 gal (7.1 L) by loose volume
Final Mixture
90.3 lbs (41 kg) 5.05 gal (19.1 L)
0.67 ft^3 (0.019 m^2) or 32 ft^2 (3 m^2) at 1/4” (6 mm) thickness

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Pot Life

Material Temperature	Time
+50°F (10°C)	~ 30 minutes
+68°F (20°C)	~ 20 minutes*
+86°F (30°C)	~ 5 minutes

Maximum time before de-airing with spiked roller 15 min.*Do not use after this period

Waiting / Recoat Times

Before applying Sikafloor Epoxy or Polyurethane on Sikafloor 81 EpoCem allow:

Ambient & Substrate Temperature	Minimum	Maximum
+50°F (10°C)	72 hours	7 days
+74°F (20°C)	24 hours	3 days

***Surface moisture measured with a Tramex® CME/CMExpert type concrete moisture meter must be < 4%.**

Cure Times

Ambient & Substrate Temperature	Foot traffic	Light traffic	Full cure
+50°F (10°C)	~ 24 hours	~ 6 days	~ 10 days
+68°F (20°C)	~ 12 hours	~ 4 days	~ 7 days
+86°F (30°C)	~ 8 hours	~ 2 days	~ 5 days

The above recoat/curing time are based on a 50% relative air humidity

Properties Tested at 73°F (23°C) and 50 % R.H:

Compressive Strength	**ASTM 579**		
	1 Day	**3 Days**	**28 Days**
	3,300 psi	7,250 psi	9,400 psi
Pull-off Strength	ASTM D4541	> 250 psi (1.7 MPa) substrate failure	
Chemical Resistance	Please consult Sikafloor Technical Services.		
Shelf Life	1 years in unopened packaging, Store dry between 40° - 90°F (4°- 32°C). Protect form freezing and high temperatures. If frozen, discard.		

How to Use

Surface Preparation

Surface must be clean, sound and dry. Remove dust, laitance, grease, curing compounds, bond inhibiting impregnations, waxes and any other contaminants. All projections, rough spots, etc. should be dressed off to achieve a level surface prior to the application. **Concrete** - Should be cleaned and prepared to achieve a laitance-free and contaminant-free, open textured surface by shot blasting or equivalent mechanical means (CSP-3 to CSP-4 as per ICRI guidelines). Sweep and vacuum any remaining dirt and dust with a wet/dry vacuum. Removing residual dust will help ensure a tenacious bond between the primer and substrate.
Whenever “shot-blasting” is utilized, be careful to leave concrete with a uniform texture. “Over-blasting” will result in reduced coverage rates of the primer and/or subsequent topcoats. The “shotblast” pattern may show through the last coat, known as “tracking”. The concrete substrate must be sound and ensure a minimum compressive strength of 3,500 psi (24 MPa) with a minimum pull off strength of 215 psi (1.5 MPa) in tension at the time of application. For other substrates, please contact Sikafloor Technical Services.

Priming

Use Sika EpoCem Module (A+B) at a rate of 200 - 400 ft^2 /gal. (5 - 10 m^2/L) Avoid puddling. Apply the self-leveling patching mortar after a tack-free surface. The time can vary depend on temperature and ambient humidity but within 72 hrs, maximum based on typical 68°F (20°C), 50% relative ambient humidity.

Note: For porous or excessively absorbent concrete, prime with a second or third application of Sika EpoCem Module applied at a rate of 200 - 400 ft^2/gal. (5 - 10 m^2/L).
Primer for Extended Mortar: As a primer for extended mortar with oven dried silica sand, use Sikadur® 32 Hi-Mod in accordance with the respective Product Data Sheet.

Mixing

Mixing Ratio: Only prepare full mixes. Do not batch down.

Primer: Shake Components A and B and pour them into an appropriate 5 gal. (20 L) sized mixing container. Pre-mix thoroughly with an electric or pneumatic mixer and (either jiffy or Exomixer) mixing paddle at low speed (300 - 450 rpm) for 1 minute.

Self-Leveling Mortar: Shake Components A and B and pour them into an appropriate 5 gal. (20 L) sized mixing container. Pre-mix thoroughly with an electric or pneumatic mixer (either jiffy or Exomixer) at low speed (300 - 450 rpm) for 30 sec. Progressively add Component C while mixing. Continue mixing thoroughly for 3 minutes after complete addition of Component C. Use an Exomixer type mixing paddle (recommended model). During the mixing operation, scrape down the sides and bottom of the pail with a flat or straight edge trowel at least once to ensure thorough mixing. Upon completion of mixing, Sikafloor 81 EpoCem should be uniform in consistency.

Do not mix more material than can be applied within the working time limits (i.e. Pot Life) at the actual field temperature.

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Application

Primer for Self-Leveling Slurry- Sika EpoCem Module (A+B) at a rate of 200 - 400 ft²/gal. (5 - 10 m²/L) using a squegee and back roll with a roller of appropriate length nap to control the coverage according to the surface profile of the concrete. Avoid puddling. Apply the self-leveling slurry after a tack-free surface is observed. The time required to achieve a tack free surface may vary depending on ambient temperature and relative ambient humudity but within 72 hrs, maximum based on typical 68°F (20°C), 50% relative ambient humidity.

Note: For porous or excessively absorbent concrete, prime with a second or third application of Sika EpoCem Module applied at a rate of 200 - 400 ft²/gal. (5 - 10 m²/L).

Primer for Extended Patching Mortar - As a primer for extended mortar with oven dried silica sand, use Sikadur 32 Hi-Mod in accordance with the respective Product Data Sheet.

Self-Leveling Slurry - After mixing, immediately apply the self-leveling slurry using a notched trowel (3⁄16 x 3⁄16 in. 4 x 4 mm)] or a screed rake (rubber or metal) to obtain even coverage. Immediately work down with a spiked roller to ensure uniform thickness and to remove entrapped air. When Sikafloor 81 EpoCem has cured sufficiently, sand if required and apply appropriate Sikafloor epoxy resin based product or any other authorized finished flooring systems directly over the mortar coating, ideally within 3 days. Maintain the floor topping in a clean, dry surface condition prior to the application of the floor system.

Note: Mix consistency may be adjusted to suit application requirements by slightly reducing the powdered Component C by a maximum of 10% by weight.

Extended Patching Mortar with Silica Sand - To proceed with local repairs and slope corrections for thickness of 1⁄4 - 8 in. (6 - 200 mm), Sikafloor 81 EpoCem can be extended with oven dried silica sand.

Limitations

Notes on Limitations:
Prior to application, measure and confirm Substrate Moisture Content, Ambient Relative Humidity, Ambient and Surface Temperature and Dew Point. During installation, confirm and record above values at least once every 3 hours, or more frequently whenever conditions change (e.g. Ambient Temperature rise/fall, Relative Humidity increase/decrease, etc.).

Substrate Moisture Content: Do not apply to wet or green concrete or polymer modified patches if the substrate surface moisture content is > 10%. Maximum moisture content in Sikafloor 81 EpoCem prior to subsequent application of an epoxy resin based Sikafloor coating must be < 4% by mass (pbw – part by weight) as measured with a Tramex® CME/CMExpert type concrete moisture meter.

When relative humidity tests for concrete substrate are conducted per ASTM F2170 for project specific requirements, values must be ≤ 96%.

ASTM F2170 testing **is not** a substitute for measuring substrate moisture content with a Tramex® CME/CMExpert type concrete moisture meter as described above.

Material Temperature: Precondition material for at least 24 hours between 65° to 75°F (18° to 24°C)

Ambient Temperature: Minimum/Maximum 50˚/85˚F (10˚/30˚C)

Substrate Temperature: Minimum/Maximum 50˚/85˚F (10˚/30˚C). Substrate temperature must be at least 5˚F (3˚C) above measured Dew Point.

Mixing and Application attempted at Material, Ambient and/or Substrate Temperature conditions less than 65˚F (18˚C) will result in a decrease in product workability and slower cure rates.

Relative Ambient Humidity: Maximum ambient humidity 85% (during application and curing)

Dew Point: Beware of condensation!
The substrate must be at least 5˚F (3˚C) above the Dew Point to reduce the risk of condensation, which may lead to adhesion failure or “blushing” on the floor finish. Be aware that the substrate temperature may be lower than the ambient temperature.

Mixing: Do not hand mix Sikafloor materials. Mechanically mix only.
Do not thin this product. Addition of thinners (e.g. water, solvent, etc.) will slow cure and reduce ultimate properties of this product. Use of thinners will void any applicable Sika warranty.

Application: Apply the primer to the prepared substrate using a squeegee and back roll to provide uniform coverage. If necessary, for porous or excessively absorbent concrete, prime with a second or third application of Sika EpoCem Module. Avoid puddling!

- Do not apply while ambient and substrate temperatures are rising, as pinholes may occur. Ensure there is no vapor drive at the time of application. Refer to ASTM D4263, may be used for a visual indication of vapor drive.
- Freshly applied material should be protected from dampness, condensation and water for at least 72 hrs.
- Minimum thickness of self-leveling slurry if not used as a temporary moisture barrier: 100 mils (2.5 mm)
- Maximum thickness of self-leveling slurry: 160 mils (4 mm)
- Minimum topping thickness when used as a temporary moisture barrier: 120 mils (3.0 mm)

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- Sikafloor 81 EpoCem must be sealed with a suitable Sikafloor epoxy primer system (Sikafloor 107, Sikafloor 160 and Sikafloor 161 at 16 mils) to form a long term vapor barrier. Surface moisture measured with a Tramex® CME/CMExpert type concrete moisture meter must be < 4% prior to application
- Maximum thickness for holes of 1-1⁄4 - 2 in. (32 - 50 mm) diameters: 3⁄8 in. (10 mm)
- Will discolor over time when exposed to sunlight (UV) and under certain artificial lighting conditions. Use of clear UV resistant top coat may not prevent discoloration of underlying coatings
- Always ensure good ventilation when using Sikafloor 81 EpoCem in a confined space to remove excess moisture.
- Use of unvented heaters and certain heat sources may result in defects (e.g. blushing, whitening, debonding, etc.).
- Beware of air flow and changes in air flow. Introduction of dust, debris, and particles, etc. may result in surface imperfections and other defects.
- Sikafloor 81 EpoCem must be fully broadcast with oven dry silica sand prior the application of any MMA product.
- Do not apply Sikafloor to concrete substrate containing aggregates susceptible to ASR (Alkali Silica Reaction) due to risk of natural alkali redistribution below the Sikafloor product after application. If concrete substrate has or is suspected to have ASR (Alkali Silica Reaction) present, do not proceed. Consult with design professional prior to use.
- Any aggregate used with Sikafloor systems must be non-reactive and oven-dried.
- For professional use only by experienced applicators.

Caution

WARNING: COMPONENT 'A': IRRITANT, SENSITIZER. Contains Epoxy Novolac Resin (CAS 28064-14-4) and Epoxy Resin (CAS 025068-38-6). May cause eye/ skin/respiratory irritation. Prolonged and/or repeated skin/respiratory contact may cause allergic reaction/ sensitization. Harmful if swallowed. **WARNING: COMPONENT 'B': CORROSIVE, IRRITANT, SENSITIZER.** Contains Proprietary blend of Aliphatic amines (mixture). Causes eye irritation. Contact with eyes/skin causes burns. May cause skin/respiratory irritation. Prolonged and/or repeated skin contact may result in allergic reaction/sensitization. Harmful if swallowed. **WARNING: COMPONENT 'C': IRRITANT, SENSITIZER.** Contains Calcium Silicate (CAS 1344-95-2), Magnesium Oxide (CAS 1309-48-4) and Silica Quartz (CAS 14808-60-7). May cause eye/skin/respiratory irritation. Prolonged and/or repeated skin contact may cause allergic reaction/sensitization. May cause delayed lung damage (silicosis). May be harmful if swallowed.**WARNING: This product contains a chemical known to the State of California to cause cancer. Intentional misuse by deliberate concentration and inhalation of vapors may be harmful or fatal.**

First Aid

Eyes - Hold eyelids apart and flush thoroughly with water for 15 minutes. **Skin -** Remove contaminated clothing. Wash skin thoroughly for 15 minutes with soap and water. **Inhalation -** remove to fresh air. **Ingestion-** Do not induce vomiting. Contact physician. **In all cases contact a physician immediately if symptoms persist.**

Handling and Storage

Avoid direct contact with eyes and skin. Wear chemical resistant gloves/goggles/clothing. Avoid breathing vapors. Use with adequate general and local ventilation. In absence of adequate ventilation, use properly fitted NIOSH approved respirator. Wash thoroughly after handling product. Store in a cool, dry, well ventilated area. Keep containers tightly closed.

Clean Up

Uncured material can be removed with approved solvent. Follow solvent manufacturer's instructions for use and warnings. Cured material (when Component 'A' combined with Component 'B' and Component 'C') can only be removed mechanically. In case of spill, ventilate area and contain spill. Collect with absorbent material (Component 'A' and Component 'B'). Shovel Component 'C' into approved container. Dispose of in accordance with current applicable local, state and federal regulations.

Visit our website at www.sikausa.com **1-800-933-SIKA NATIONWIDE**

Regional Information and Sales Centers. For the location of your nearest Sika sales office, contact your regional center.

Sika Corporation
201 Polito Avenue
Lyndhurst, NJ 07071
Phone: 800-933-7452
Fax: 201-933-6225

Sika Canada Inc.
601 Delmar Avenue
Pointe Claire
Quebec H9R 4A9
Phone: 514-697-2610
Fax: 514-694-2792

Sika Mexicana S.A. de C.V.
Carretera Libre Celaya Km. 8.5
Fracc. Industrial Balvanera
Corregidora, Queretaro
C.P. 76920
Phone: 52 442 2385800
Fax: 52 442 2250537

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