Construction

Sikafloor®-81 EpoCem® New HC

3-part cement and epoxy combination mortar for self-smoothing floor screeds of 1.5 to 3 mm

Product Description

Sikafloor®-81 EpoCem® New HC is a three part, epoxy modified cementitious, fine textured mortar for self smoothing floor screeds in thin layers of 1.5 to 3 mm.

Uses

As a Temporary Moisture Barrier (min. 2 mm thick) allowing the application of Epoxy, Polyurethane and resin floors requiring dry substrates, over high moisture content substrates, even green concrete, for a lasting solution.

As a self-smoothing screed for:

- Levelling or patching horizontal concrete surfaces, in new work or repairs, in aggressive chemical environments
- Floor topping on non ventilated damp substrates without particular aesthetic requirements
- Levelling layer under Epoxy and Polyurethane floor coatings / screeds, tiles, sheet floors, carpets or wooden floors
- Repair and maintenance of monolithic and vacuum concrete floors

Extended with quartz sand, as a patching and repair mortar:

- Under Epoxy and Polyurethane floor coatings / screeds

Designed for use on cementitious substrates.

Characteristics / Advantages

- Simple application system
- Prevents osmotic blistering of resin based coatings over damp substrates
- Can be overcoated with epoxy resin compounds after 24 hours (20℃, 75 % r.h.)
- Economical in use and easy to install
- Good leveling properties
- Impervious to liquids but permeable to water vapour
- Frost and de-icing salt resistant
- Thermal expansion properties similar to concrete
- Excellent adhesion to damp and green concrete
- Excellent early and final mechanical strengths
- Excellent resistance to water and oil
- Will not corrode reinforcement
- Pre-dosed sets
- For internal or external use
- Contains no solvents

Product Data

Form

Appearance / Colours

Part A - resin:	white liquid
Part B - hardener:	transparent yellowish liquid
Part C - filler:	natural grey aggregate powder
Colour:	light grey
Finish:	matt

Packaging

Prebatched 23 kg units.

Part A:	1.14 kg plastic container
Part B:	2.86 kg plastic container
Part C:	19.00 kg plastic or aluminium lined double paper bags

Storage

Storage Conditions/ Shelf-Life

Part A, part B:	12 months
Part C:	9 months

From date of production if stored in original, unopened and undamaged sealed packaging, in dry conditions at temperatures between +18℃ and +30℃.

Part C: Protect from humidity

Technical Data

Chemical Base

Epoxy modified cementitious mortar.

Density

Part A:	~ 1.05 kg/l (at +20℃)	
Part B:	~ 1.03 kg/l (at +20℃)	
Part C:	~1.72 kg/l (at +20ºC)	
Parts A+B+C mixed:	~2.10 kg/l (at +20℃)	(EN 1015- 6)

Layer Thickness

1.5 mm min. / 3.0 mm max.

If Sikafloor®-81 EpoCem® New HC is used as a Temporary Moisture Barrier (TMB), a minimum of 2 mm must be applied.

Mechanical / Physical Properties

Mechanical strengths

Compressive strength	27℃/75 % r.h.
1 day	~15 N/mm²
7 days	~38 N/mm²
28 days	~44 N/mm²
Pull off strength	
1 day	not measurable
7 days	> 1.5 N/mm² (concrete failure)
28 days	> 1.5 N/mm² (concrete failure)
Flexural tensile strength (28 days, 27℃)	approx. 10 N/mm²
E-Module static (28 days, 23℃)	+20℃ ~ 20000 N/mm²
Coefficient of thermal expansion	*ά ~15.10^{-6} m/m℃*

Resistance

Chemical Resistance

The Sikafloor® EpoCem® product range has improved chemical resistance over plain concrete in aggressive environments, but is not designed as a chemical protection. For specific chemical resistance, always overcoat with a suitable product from the Sikafloor® and Sikagard® range. For occasional exposure or spillages, consult technical department.

System Information

The system configuration as described must be fully complied with and may not be changed.

Primer indicated below is suitable for each of these substrates:

Green concrete (as soon as mechanical preparation is possible)
Damp concrete (> 14 days old)
Damp aged concrete (rising moisture)

Consumption / Dosage	*Primer:* Sikafloor®-155 WN (parts A+B), thinned with 10% water, ~ 0.3 - 0.5 kg/m^2 dependent on the substrate conditions, when repairing monolithic or vacuum concrete, or without a broadcast finish or when Sikafloor®-81 EpoCem® is over coated with itself. *Self smoothing screed*: Sikafloor®-81 EpoCem® New HC ~ 2.25 kg/m^2/mm ~ 4.5 kg/ m^2 for a 2 mm thick application (minimum for T.M.B) *Extended mortar mix* Sikafloor®-81 EpoCem® New HC ~ 2.4 kg/m^2/mm These figures are theoretical and do not allow for any additional material due to surface porosity, surface profile, variations in level or wastage, etc.
Substrate Quality	The concrete substrate must be sound and of sufficient compressive strength (minimum 25 N/mm^2) with a minimum pull off strength of 1.5 N/mm^2. The substrate can be damp but must be free of standing water and free of all contaminants such as oil, grease, coatings and surface treatments etc. If in doubt, apply a test area first.
Substrate Preparation	Concrete substrates must be prepared mechanically using abrasive blast cleaning or scarifying equipment to remove cement laitance and achieve an open textured surface. Weak concrete must be removed and surface defects such as blow holes and voids must be fully exposed. Repairs to the substrate, filling of blowholes/voids and surface levelling must be carried out using appropriate products from the Sikafloor®, SikaDur® and Sikagard® range of materials. High spots can be removed by grinding. All dust, loose and friable material must be completely removed from all surfaces before application of the product, preferably by brush or vacuum.
Application Conditions / Limitations	
Substrate Temperature	+8℃ min. / +30℃ max.
Ambient Temperature	+8℃ min. / +30℃ max.
Substrate Moisture Content	Can be applied on green or damp concrete, without any standing water. Although the product can be applied onto green concrete surfaces (> 24 hours), it is advised to allow at least 3 days for early shrinkage of concrete to occur in order to prevent concrete shrinkage cracks from appearing on the screed surface.
Relative Air Humidity	20% min. / 80% max.
Dew Point	Beware of condensation! The substrate and uncured floor temperature must be at least 3℃ above the dew point to reduce the risk of condensation or blooming on the floor finish.
Application Instructions	
Mixing	Part A : part B : part C - packing size : 1.14 : 2.86 : 19 kg *Flooring Screed:* At temperatures between +12ºC to +25ºC: 1 : 2.5 : 17 (by weight) Parts (A+B) : C = 4 kg : 19 kg At temperatures between +8ºC to +12ºC and +25ºC to +30ºC: The amount of Part C can be reduced to 18 kg in order to improve workability. Never reduce Part C by more than this amount. 1 : 2.5 : 15.8 (by weight) Parts (A+B) : C = 4 kg : 18 kg *Extended mortar mix. Repair mortar:* To repair surface irregularities and holes 3 to 5 cm in diameter and deeper than 3 mm and up to 9 mm the standard Sikafloor®-81 EpoCem® New HC mix can be

	extended with dry quartz sand. *** Please contact Technical Department for details.** For this application, to achieve a good bond of the mortar to the substrate, SikaTop® -Armatec® -110 EpoCem® must be used as bonding bridge. Apply the mortar wet on wet to the primer.
Mixing Time	Prior to mixing, shake part A (white liquid) briefly until homogenous, then pour into container of part B and shake vigorously again for at least 30 seconds. When dosing out of drums, stir and homogenise first. Pour the mixed binder mixture (A+B) into a suitable mixing container (capacity of about 30 litres) and gradually add part C to the mixer while stirring with a power mixer. Mix thoroughly for 3 minutes until a uniform mix has been achieved with no lumps. Mix only full units of A+B+C components. Do not mix smaller amounts. Do not add water. When dosing with additional aggregates, add them after adding part C to the mix. Mix thoroughly for 3 minutes until a uniform mix has been achieved.
Mixing Tools	Mix using a slow speed electric mixer (300 - 400 rpm) with helical paddle or other suitable equipment. For mixing 2 – 3 bags at once, single or counter rotating double mortar (basket type) and forced action (pan type) mixers are also recommended. Free fall mixers must not be used.
Application Method / Tools	Place mixed Sikafloor®-81 EpoCem® New HC onto the primed substrate and spread evenly to the required thickness uniformly with a rubber or metal trowel or spatula and immediately roll with a spike roller to remove entrapped air and obtain an even thickness layer. Workability can be adjusted by varying slightly the amount of part C. See “Mixing” above. Do not use additional water, which would disturb the surface finish and cause discolouration. A seamless finish can be achieved if a ‘wet’ edge is maintained during application.
Cleaning of Tools	Clean all tools and application equipment with water immediately after use. Hardened / cured material can only be removed mechanically.
Notes on Application / Limitations	If Sikafloor®-81 EpoCem® New HC is used as TMB (Temporary Moisture Barrier), a layer of a minimum 2 mm thick must be applied. (~ 4.5 kg/m^2) Always ensure good ventilation when using Sikafloor®-81 EpoCem® New HC in a confined space to remove excess moisture. Freshly applied Sikafloor®-81 EpoCem® New HC must be protected from damp, condensation and water for at least 24 hours. Prevent premature drying by protecting from strong wind and do not expose to direct sun light while fresh. Apply primer and Sikafloor®-81 EpoCem® New HC on a falling temperature. If applied during rising temperatures “pin holing” can occur. Applications under extreme conditions (high temperature and low humidity) which can cause fast drying of the product must be avoided as the product does not allow the use of curing compounds. Under no circumstances add water to the mix. Non moving construction joints require pre-treatment with a stripe of primer and Sikafloor®-81 EpoCem® New HC. Treat as follows: Static Cracks: Prefill and level with SikaDur® or Sikafloor® epoxy resin. Dynamic Cracks (> 0.4mm): To be assessed on site and if necessary apply a stripe coat of elastomeric material or design as a movement joint. The incorrect assessment and treatment of cracks can lead to a reduced service life and reflective cracking. Colour variations can occur on unsealed Sikafloor®-81 EpoCem® New HC through exposure to direct sun light. This however, will not adversely influence the mechanical properties.

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The TMB effect in Sikafloor® -EpoCem® New HC is limited in time, without additional preparation. Always verify the surface moisture content if more than 5-7 days have passed since application.

Pot life / Waiting times / Curing Details

Reactivity (75% r.h.)	30 °C
Pot life (23 kg)	~20 min.
Waiting times	
■ Can be walked on after:	15 hrs.
■ Light mechanical loading after:	2 days
■ Fully cured after:	7 days
■ Can be overcoated with epoxy based materials as soon as surface moisture content of EpoCem is less than 4%, however not earlier than:	1 day

Cleaning / Maintenance

Methods

Due to the texture of its surface, Sikafloor®-81 EpoCem® New HC is not suitable to be used as wearing layer where easy staining can occur. A seal coat of the Sikafloor® range with suitable cleaning capabilities is advisable.

Remove dirt using a brush and/or vacuum. Do not use wet cleaning methods until the product is fully cured.

Do not use abrasive methods or cleaners.

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.

Health and Safety Information

For information and advice on the safe handling, storage and disposal of chemical products, users shall refer to the most recent Material Safety Data Sheet containing physical, ecological, toxicological and other safety-related data.

Product may cause skin irritation. Wear gloves and goggles, and apply barrier cream to hands. In contact with eyes or mucous membrane, flush immediately with plenty of warm water and seek medical attention without delay.

Legal Notes

PT. Sika Indonesia
Jl. Raya Cibinong- Bekasi km. 20
Limusnunggal- Cileungsi
BOGOR 16820 - Indonesia
Tel. +62 21 8230025
Fax +62 21 8230026
Website : www.sika.co. Id
idn.sika.com
® e-mail: sikacare@id.sika.com

Branches
Surabaya :
Komp. Pergudangan Meiko Abadi III Blok B-52 & B-53, Betro, Gedangan, Sidoarjo 61254
Tel : 031-8911333; Fax : 031-8916333
Medan :
Jl. Serbaguna (Simp. Jalan Veteran), Kompleks Pergudangan Brayan Trade Center No. 34, Medan 20239
Tel : 844 6697, 844 6997 ; Fax : (061) 844 6698
Batam :
Jl. Laksamana Bintan, Komp. Bumi Riau Makmur Blok E No.3, Sungai Panas
Tel : (0778) 424928; Fax : (0778) 450189