Product Data Sheet
Edition 10/12/2014
Identification no:
02 03 02 01 002 0 000002
Sikagard®-720 EpoCem®

Construction

Sikagard®-720 EpoCem®

3-part cement and epoxy combination micro mortar for surface sealing

Product Description

Sikagard®-720 EpoCem® is a three part, epoxy modified cementitious, thixotropic, fine textured mortar for levelling and finishing of concrete, mortar or stone surfaces.

Uses

- As a levelling layer over concrete and mortars in 0.5 - 3 mm on vertical or horizontal surfaces.
- Application in new works or damaged concrete in aggressive chemical environments
- Application over high moisture content substrates, even green concrete
- As a Temporary Moisture Barrier (TMB) (min. 2 mm thick) allowing the application of Epoxy, Polyurethane and PMMA* resin coatings or floors requiring dry substrates for a lasting solution.
- As a pore sealer for the re-profiling, smoothing and levelling of concrete surfaces
- Suitable for moisture control (Principle 2, method 2.3 of EN 1504-9)
- Suitable for restoration work (Principle 3, method 3.1 and 3.3 of EN 1504-9).
- Suitable for physical resistance (Principle 5, method 5.1 of EN 1504-9)
- Suitable for preserving or restoring passivity (Principle 7, method 7.1 and 7.2 of EN 1504-9)
- Suitable for increasing resistivity (Principle 8, method 8.3 of EN 1504-9)

* See Notes on Application / Limitations

Characteristics / Advantages

- Better chemical resistance than a PCC mortar
- Excellent protection of concrete in aggressive environments
- CE certified in accordance with EN 1504 parts 2 and 3
- Impervious to liquids but permeable to water vapour
- Excellent bond to green or hardened concrete whether damp or dry
- Fast over-coating of Sika® resin based finish products
- Ideal preparation for smooth surface finishes
- For internal or external use
- Contains no solvents
- Can be applied by hand or mechanically

Tests

Approval / Standards	ITT reports(*) for EN 1504-2, Ref. 09/343-946, dated May 6th, 2009 and EN 1504-3 Ref. 09/300-964 dated May 4th, 2009 by Applus Laboratory, Barcelona, Spain. * confirm with producing company Qualification tests in accordance with Swiss Standard SIA 162/5, Ref. A-29'212-1E, dated September 26th, 2005 by LPM AG, Beinwil am See, Switzerland Conforms to the requirements of EN 1504-2 for principles 2 (MC), 5 (PR) and 8 (IR) as a Coating as well as to the requirements of EN 1504-3 for principles 3 (CR) and 7 (RP) as R4 mortar.

Product Data

Form

Appearance /Colours	Part A - resin: Part B - hardener: Part C - filler: Finish Colour:	white liquid transparent yellow liquid Aggregate powder Matt grey
Packaging	Pre-dosed 21 kg sets Part A: Part B: Part C:	 1.14 kg plastic container 2.86 kg plastic container 17.0 kg plastic or aluminium lined double paper bags

Storage

Storage Conditions/ Shelf-Life	Part A, part B: Part C: From date of production if stored in original, unopened and undamaged sealed packaging, in dry conditions at temperatures between +5°C and +30°C. Part A, part B: Part C:	12 months 6 months Protect from frost Protect from humidity

Technical Data

Chemical Base	Epoxy modified cementitious mortar.	
Density	Part A: Part B: Part C: Mixed A+B+C:	~ 1.05 kg/l (at +20°C) ~ 1.03 kg/l (at +20°C) ~ 1.30 kg/l (at +20ºC) ~ 2.00 kg/l (at +20°C) (EN 1015-6)
Layer Thickness	Min.: 0.5 mm / Max.: 3 mm Isolated and confined small areas (< 0.01 m^2) up to 5 mm	
Service Temperature	-30°C to +80°C for continuous exposure	

Mechanical / Physical Properties

Compressive Strength	> 45 N/mm^2 after 28 days	(EN 12190)
Flexural Strength	> 5 N/mm^2 after 28 days	(EN 12190)
Freeze / Thaw / De-Icing Salt Resistance	Resistance Factor WFT-99% (High)	(Method BE II acc. to D-R)
Sulphate Resistance	High Sulphate Resistance	(ASTM C 1012)
Fire Rating	Class $A2_{(fl)}$ -S1	(EN 13501-1)
Coefficient of Carbon Dioxide Diffusion	$\mu C0_2 \approx 5400$	(EN 1062-6)
Elastic Modulus	~17 GPa	SIA/162/1
Coefficient of thermal expansion	~13.0 µm / m ºC	EN 13057

Resistance

Chemical Resistance	Sikagard®-720® EpoCem® 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 your local Sika technical department.

Additional Information

EN1504-3

Compressive strength	Class R4	EN 12190
Chloride ion content	≤ 0.05%	EN1015-17
Adhesive bond	≥ 2.0 MPa	EN 1542
Restrained shrinkage / expansion	≥ 2.0 MPa (bond str. after test)	EN 12617-4
Durability Carbonation resistance	Pass	EN 13295
Thermal compatibility: Freeze Thaw	≥ 2.0 MPa	EN 13412
Skid resistance	Class III : > 55 units wet tested	EN 13687-1
Capillary absorption (water permeability)	≤ 0,5 $kg.m^{-2}.h^{-0.5}$	EN 13501-1

EN 1504-2

Abrasion resistance (Taber Test)	Weight loss < 3000mg H22/rotation, 1000cycles/load 1000g	EN ISO 5470-1
Permeability to water vapour	Class I: S_D < 5 m (permeable to water vapour)	ISO 7783-2
Capillary absorption and permeability to water	< 0,1 $kg.m^{-2}.h^{-0.5}$	EN 1062-3
Impact resistance	After loading no cracks or delamination Class III: ≥ 20Nm	EN ISO 6272-1
Adhesion strength by pull-off test	≥ 2.0 N/mm^2 (horizontal with trafficking)	EN 1542

System Information

System Structure

Sikagard®-720 EpoCem® is part of the range of Sika mortars complying with the relevant part of European Standard EN 1504 and comprising of:

Bonding primer/Corrosion Protection

- Sika MonoTop®-610 : Normal use
- SikaTop® Armatec® 110 EpoCem®: Demanding requirements

Repair mortar:

- Sika MonoTop®- 615/612 : (R3/R4 type)

Render:

- Sikagard®-720 EpoCem®

Top Coating:

- Sikafloor® and Sikagard® range

Application Details

Consumption / Dosage

Screed / Mortar / Render:
~ 2.0 $kg/m^2/mm$

This figure is theoretical and does not include for any additional material required 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 must be damp but free of standing water and free of all contaminants such as oil, grease, coatings and surface treatments, etc.
Substrate Preparation	Concrete substrates must be prepared mechanically using abrasive blast cleaning or high pressure water jetting equipment to remove cement laitance, especially oil or wax containing layers 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® , Sika MonoTop® and Sikagard® range of materials. Refer to your local Sika technical department for guidance High spots shall 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 and/or vacuum. Prime surface by pre-wetting the concrete surface and do not allow to dry before application of Sikagard®-720 EpoCem®. The surface shall not be saturated but shall appear dark matt or saturated surface dry (SSD). Priming 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)

Application Conditions / Limitations

Substrate Temperature	+8°C min. / +30°C max.
Ambient Temperature	+8°C min. / +30°C max.
Substrate Moisture Content	Sikagard®-720 EpoCem® 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.

Application instructions

Mixing	Prior to mixing, shake part A (white liquid) briefly until homogenous, then pour into the container of part B and shake vigorously for at least 30 seconds. When dosing out of drums, stir and homogenise first. Pour the mixed binder (A+B) into a suitable mixing container (capacity of about 30 litres) and gradually add part C 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.
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, using single or counter rotating double mortar (basket type) and forced action (pan type) mixers are also suitable. Free fall mixers must not be used.
Application Method / Tools	*Hand application* Place mixed Sikagard®-720 EpoCem® onto the matt-damp substrate and spread evenly to the required thickness with a trowel or spatula. When necessary, it may be finished with a moist neoprene sponge or brush. *Mechanical Application* Placement on to the surface can also be done using a hopper gun or wet spray technique. For example an Aliva Hopper gun, a Putzmeister S-5 or a Graco T-Max 405. Subsequent finishing by hand is required. Do not use additional water, which would disturb the surface finish and cause discolouration.

Freshly applied Sikagard®-720 EpoCem® must be protected from rain for at least 24 hours.

Once Sikagard®-720 EpoCem® is tack free it is possible to apply vapour permeable seal coats. Always verify that surface moisture < 4% when applying vapour tight coatings.

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 mechanically removed.

Pot Life

21 kg unit

Temperature	Time
+10°C	~ 80 minutes
+20°C	~ 40 minutes
+30°C	~ 20 minutes

Waiting Time / Over-Coating

Once Sikagard®-720 EpoCem® is tack free it is possible to apply vapour permeable seal coats.

For the application of vapour tight coatings on Sikagard®-720 EpoCem®, allow the surface moisture to fall below 4%, not earlier than:

Substrate temperature	Waiting time
+10°C	~ 60 hours
+20°C	~ 15 hours
+30°C	~ 8 hours

Note: Times are approximate at 75% r.h. and will be affected by changing ambient and substrate conditions, particularly temperature and relative humidity.

Notes on Application / Limitations

Always ensure good ventilation when using Sikagard®-720 EpoCem® in a confined space, to remove excess moisture.

Freshly applied Sikagard®-720 EpoCem® must be protected from damp, condensation and water for at least 24 hours.

For external applications, apply primer and Sikagard®-720 EpoCem® on a falling temperature. If applied during rising temperatures “pin holing” can occur.

Non moving construction joints require pre-treatment with a stripe coat of primer and Sikagard®-720 EpoCem®. 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 Sikagard®-720 EpoCem® through exposure to direct sun light. This however, will not influence the mechanical properties.

When overlaying with PMMA screeds, the surface of Sikagard®-720 EpoCem® must be fully broadcast with sand 0.4 - 0.7 mm.

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

Curing Details

Applied Product ready for use

Temperature	Full cure
+10°C	~ 14 days
+20°C	~ 7 days
+30°C	~ 4 days

Construction

	Note: All cure times are approximate and will be affected by changing substrate and ambient conditions.
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.
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.
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.
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.
EU Regulation VOC - Decopaint Directive	According EU-Directive 2004/42, the maximum allowed content of VOC (Product category IIA / Cat. C / Type wb) is, ready for use, 40 g/l (limit 2010). The max. content of Sikagard®-720 EpoCem®, ready for use, is <40 g/l VOC.

SIKA LIMITED
Head Office · Watchmead · Welwyn Garden City · Hertfordshire · AL7 1BQ · United Kingdom
Phone: +44 1 707 394444 · Fax: +44 1 707 329129 · www.sika.co.uk