Construction

Sikafloor®-381

2-part self smoothing epoxy coating, highly chemically and mechanically resistant

Product Description

Sikafloor®-381 is a two part, self-smoothing, coloured epoxy resin with high chemical and mechanical resistance.

"Total solid epoxy composition acc. to the test method Deutsche Bauchemie e.V. (German Association for construction chemicals)"

Uses

- Chemically and mechanically highly resistant coating for concrete and screed surfaces in bund areas for protection against water contaminating liquids (according to the product chemical resistance table)

Characteristics / Advantages

- High chemical resistance
- High mechanical resistance
- Liquid proof
- Abrasion resistant
- Slip resistant surface possible

Product Data

Form

Appearance / Colours

Resin - part A:	coloured, liquid
Hardener - part B:	transparent, liquid

Almost unlimited choice of colour shades.

Under direct sun radiation there may be some discolouration and colour deviation, this has no influence on the function and performance of the coating.

Packaging

Part A:	21.25 kg containers
Part B:	3.75 kg containers
Part A+B:	25 kg ready to mix units

Storage

Storage Conditions / Shelf-Life

24 months from date of production if stored properly in original, unopened and undamaged sealed packaging, in dry conditions at temperatures between +5°C and +30°C. Protect from direct sunlight.

Technical Data

Chemical Base	Epoxy	
Density	Part A: ~ 1.77 kg/l Part B: ~ 1.04 kg/l Mixed resin: ~ 1.6 kg/l All Density values at +23°C	(DIN EN ISO 2811-1)
Solid Content	~ 100% (by volume) / ~ 100% (by weight)	

Mechanical / Physical Properties

Compressive Strength	> 80 N/mm² (14 days / +23°C)	(EN 196-1)
Flexural Strength	> 55 N/mm² (14 days / +23°C)	(EN 196-1)
Bond Strength	> 1.5 N/mm² (failure in concrete)	(ISO 4624)
Shore D Hardness	82 (7 days / +23°C)	(DIN 53 505)
Abrasion Resistance	40 mg (CS 10/1000/1000) (8 days / +23°C)	(DIN 53 109) (Taber Abrader Test))

Resistance

Chemical Resistance

Resistant to many chemicals. Please ask for a detailed chemical resistance table.

Thermal Resistance

Exposure*	Dry heat
Permanent	+50°C
Short-term max. 7 d	+80°C
Short-term max. 12 h	+100°C

Short-term moist/wet heat* up to +80°C where exposure is only occasional (i.e. during steam cleaning etc.)

*No simultaneous chemical and mechanical exposure.

USGBC

Sikafloor®-381 Thixo conforms to the requirements of LEED

LEED Rating

EQ Credit 4.2: Low-Emitting Materials: Paints & Coatings

SCAQMD Method 304-91 VOC Content < 100 g/l

System Information

System Structure

Self-smoothing system (horizontal areas):

Primer:	1 x Sikafloor®-161 HC
Wearing course:	1 x Sikafloor®-381 filled with quartz sand

Smooth wearing course (vertical areas):

Smooth wearing course:	1 x Sikafloor®-161 HC
Wearing course:	2 x Sikafloor®-381 + Extender T

Broadcast system with slip resistance:

Primer:	1 x Sikafloor®-161 HC
Wearing course:	1 x Sikafloor®-381 broadcast to excess with silicon carbide or quartz sand
Seal coat:	1 x Sikafloor®-381 + 5 wt.-% Thinner C

Application Details

Consumption / Dosage

Coating System	Product	Consumption
Primer	Sikafloor®-161 HC	0.3 - 0.5 kg/m²
Levelling (optional)	Sikafloor®-161 HC mortar	Refer to PDS of Sikafloor®-161 HC
Wearing course horizontal areas (1.8 - 2.8 mm)	Sikafloor®-381 filled with quartz sand 0.1 - 0.3	1.8 kg/m²/mm Binder + quartz sand 10 - 15°C: without filling 15 - 20°C: 1 : 0.1 pbw (1.65 + 0.15 kg/m²) 20 - 30°C: 1 : 0.2 pbw (1.5 + 0.3 kg/m²)
Wearing course vertical areas (Film thickness ~ 1.5 mm)	Sikafloor®-381 + 2.5 - 4 wt.-% Extender T	2 x 1.25 kg/m²
Wearing course with slip resistance (Film thickness ~ 2.5 mm)	Sikafloor®-381, broadcast to excess with silicon carbide 0.5 - 1.0 mm or quartz sand 0.4 - 0.7 mm	1.6 kg/m² Binder without filling
		Silicon Carbide 0.5 - 1.0 mm or quartz sand 0.4 - 0.7 mm (5 - 6 kg/m²)
Seal coat (on broadcast areas only)	Sikafloor®-381 + 5 wt.-% Thinner C	0.75 - 0.85 kg/m²

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/mm²) with a minimum pull off strength of 1.5 N/mm².

The substrate must be clean, dry and free of all contaminants such as dirt, 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 blowholes 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.

The concrete or screed substrate has to be primed or levelled in order to achieve an even surface.

High spots must be removed by e.g. 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.

Application Conditions / Limitations

Substrate Temperature

+10°C min. / +30°C max.

Ambient Temperature

+10°C min. / +30°C max.

Substrate Moisture Content

≤ 4% pbw moisture content.

Test method: Sika® Tramex meter, CM - measurement or Oven-dry-method.

No rising moisture according to ASTM (Polyethylene-sheet).

Relative Air Humidity

80% r.h. max.

Dew Point

Beware of condensation!

The substrate and uncured floor must be at least 3°C above dew point to reduce the risk of condensation or blooming on the floor finish.

Note: Low temperatures and high humidity conditions increase the probability of blooming.

Application Instructions

Mixing	Part A : part B = 85 : 15 (by weight)
Mixing Time	Prior to mixing, stir part A mechanically. When all of part B has been added to part A, mix continuously for 2 minutes until a uniform mix has been achieved. When parts A and B have been mixed, add the quartz sand 0.1 - 0.3 mm and mix for a further 2 minutes until a uniform mix has been achieved. To ensure thorough mixing pour materials into another container and mix again to achieve a consistent mix. Over mixing must be avoided to minimise air entrainment.
Mixing Tools	Sikafloor®-381 must be thoroughly mixed using a low speed electric stirrer (300 - 400 rpm) or other suitable equipment.
Application Method / Tools	Prior to application, confirm substrate moisture content, relative humidity and dew point. If > 4% pbw moisture content, Sikafloor® EpoCem® should be applied as a T.M.B. (temporary moisture barrier) system. *Wearing course (horizontal areas*): Sikafloor®-381 is poured, spread evenly by means of a serrated trowel. Roll immediately in two directions with a spiked roller to ensure even thickness. *Wearing course (vertical areas):* The first layer of Sikafloor®-381, mixed with 2.5 - 4% Extender T, has to be applied by trowel. After curing, apply the second layer of Sikafloor®-381, mixed with 2.5 - 4% Extender T, by trowel. *Wearing course with slip resistance:* Sikafloor®-381 is poured, spread evenly by means of a serrated trowel and blind the fresh layer with silicon carbide or quartz sand to excess. After final drying the surplus silicon carbide / quartz sand must be swept off and the surface must be vacuumed. The seal coat (Sikafloor®-381 + 5 wt.-% Thinner C) has to be applied evenly by short-piled roller or squeegee.
Cleaning of Tools	Clean all tools and application equipment with Thinner C immediately after use. Hardened and/or cured material can only be removed mechanically.

Potlife

Temperatures	Time
+10°C	~ 60 minutes
+20°C	~ 30 minutes
+30°C	~ 15 minutes

Waiting Time / Overcoating

Before applying Sikafloor®-381 on Sikafloor®-161 HC allow:

Substrate temperature	Minimum	Maximum
+10°C	24 hours	4 days
+20°C	12 hours	2 days
+30°C	6 hours	1 day

Before applying Sikafloor®-381 on Sikafloor®-381 allow:

Substrate temperature	Minimum	Maximum
+10°C	24 hours	48 hours
+20°C	18 hours	24 hours
+30°C	6 hours	12 hours

Times are approximate and will be affected by changing ambient conditions, particularly temperature and relative humidity.

Notes on Application / Limitations

Do not apply Sikafloor® -381 on substrates with rising moisture.

Do not blind the primer.

Freshly applied Sikafloor®-381 must be protected from damp, condensation and water for at least 24 hours.

Tools
Recommended supplier of tools:
PPW-Polyplan-Werkzeuge GmbH, Phone: +49 40/5597260, www.polyplan.com
Serrated trowel for smooth wearing layer:
e.g. Large-Surface Scrapper No. 565, Toothed blades No. 25

The incorrect assessment and treatment of cracks may lead to a reduced service life and reflective cracking.

For exact colour matching, ensure Sikafloor®-381 in each area is applied from the same control batch numbers.

Under certain conditions, underfloor heating or high ambient temperatures combined with high point loading, may lead to imprints in the resin.

If heating is required do not use gas, oil, paraffin or other fossil fuel heaters, these produce large quantities of both CO_2 and H_2O water vapour, which may adversely affect the finish. For heating use only electric powered warm air blower systems.

Curing Details

Applied Product ready for use

Temperature	Foot traffic	Light traffic	Full cure
+10°C	~ 24 hours	~ 3 days	~ 10 days
+20°C	~ 18 hours	~ 2 days	~ 7 days
+30°C	~ 12 hours	~ 1 day	~ 5 days

Note: Times are approximate and will be affected by changing ambient conditions.

Cleaning / Maintenance

Methods

To maintain the appearance of the floor after application, Sikafloor®-381 must have all spillages removed immediately and must be regularly cleaned using rotary brush, mechanical scrubbers, scrubber dryer, high pressure washer, wash and vacuum techniques etc using suitable detergents and waxes

Construction

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.

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 2004/42

VOC - Decopaint Directive

According to the EU-Directive 2004/42, the maximum allowed content of VOC (Product category IIA / **j** type **sb**) is 500 g/l (Limit 2010) for the ready to use product.

The maximum content of **Sikafloor®-381** is < 500 g/l VOC for the ready to use product.

Sika Singapore Pte Ltd
200 Pandan Loop, 06-02 Pantech 21
Singapore 128388
SINGAPORE

Phone: +65 6777 2811
Fax: +65 6779 6200
e-mail: info@sg.sika.com
www.sika.com.sg

Sika Kimia Sdn Bhd
Lot 689 Nilai Industrial Estate
71800 Nilai, Negeri Sembilan DK
MALAYSIA

Phone: +606-7991762
Fax: +606-7991980
e-mail: info@my.sika.com
www.sika.com.my