BUILDING TRUST

PRODUCT DATA SHEET

Sikafloor®-31 PurCem® LP

SOLVENT FREE POLYURETHANE COATING

DESCRIPTION

Sikafloor®-31 PurCem® LP is a three part, solvent free, high build, coloured, matt finish, polyurethane modified, cement and aggregate coating with excellent chemical resistance and very good resistance to abrasion and mechanical damage.
Typically applied in two coats for a total of 0.2–0.25 mm.

USES

Sikafloor®-31 PurCem® LP may only be used by experienced professionals.
Sikafloor®-31 PurCem® LP is designed to be used as:
- Stand alone, high build coating or as a seal coat for covings and details performed with Sikafloor®-29 PurCem® LP or other products in the Sikafloor® PurCem® range
- To provide an improved aesthetic finish to the products in the broadcast texture range of Sikafloor® PurCem®
- Suitable for concrete protection providing physical resistance (Principle 5, method 5.1 of EN 1504-9)
- Suitable for concrete protection providing chemical resistance (Principle 6, method 6.1 of EN 1504-9)

As a chemical resistant concrete coating in places such as:
- Food processing plants, in wet or dry process areas, freezers and coolers
- Pharmaceutical plants
- Containment areas
- Chemical process areas

CHARACTERISTICS / ADVANTAGES

- Excellent chemical resistance. Resists a wide range of organic and inorganic acids, alkalis, amines, salts and solvents.
- Allows use of severe cleaning regimes in the Food and Beverage industry. Please refer to the Chemical Resistance Chart or consult your local Technical Dept.
- Very low VOC emissions
- Water based Odourless formulation.
- Excellent long term wear resistance from a two coat application
- Rapid one step application. Normally, no concrete primer required
- Economical and easy to apply
- Good hiding power
- Tolerant to substrate moisture. Can be applied on to 7 to 10 day old concrete after adequate preparation and with a tensile bond strength in excess of 1.5 N/mm² (218 psi).
- Bio-static surface. Does not contribute to the growth and development of bacteria or fungi.
- Wide range of application temperatures from +10°C to +35°C

APPROVALS / STANDARDS

Polyurethane screed for concrete protection according to the requirements of EN 1504-2 for principles 5 (PR) and 6 (CR) as a Coating (C) and Conforms to the requirements of EN 13813: 2002. All other values indicated are internal test results.

PRODUCT INFORMATION

Composition	Part A : Water borne polyol and pigments Part B : Isocyanate Part C : Aggregates, cement and active fillers

Packaging	Part A : 1.60 kg plastic drum Part B : 1.40 kg plastic jerrycan Part C : 1.70 kg plastic bags Part A+B+C : 4.7 kg ready to mix units
Appearance / Colour	Part A pre-tinted : Coloured liquid Part B : Brown liquid Part C : Natural grey powder Available colours: Cream , Light Grey, Grey, Green, Red Custom colour matching is available upon request. Minimum order quantities apply. Please consult the producer for required lead times. Colour uniformity cannot be completely guaranteed from batch to batch. Do not mix batch numbers in a single area.
Shelf Life	Part A : 12 months from date of production. Protect from freezing. Part B : 12 months from date of production. Protect from freezing Part C : 6 months from date of production. Must be protected from humidity
Storage Conditions	Stored properly in original, unopened and undamaged sealed packaging, in dry If stored properly in original, unopened and undamaged sealed packaging, in dry conditions at temperatures between +20 °C and +30 °C.

Density

Part A	~1.07 kg/l	(EN ISO 2811-1) & (ASTM C 905) at +20 °C
Part B	~1.24 kg/l	
Part C	~1.05 kg/l	

TECHNICAL INFORMATION

Shore D Hardness	~80	(ASTM D 2240)
Tensile Adhesion Strength	> 2.0 N/mm² (failure in concrete) (1.5 N/mm² is the minimum pull out strength of the recommended concrete substrate) **Bond Strength after Thermal Shock Resistance Test** 4.93 ± 0.42 N/mm²	(EN 1542) (EN 1542)
Reaction to Fire	Class B(fl) S1	(BS EN 13501-1)
Chemical Resistance	Resistant to many chemicals. Please ask for a detailed chemical resistance table.	
Permeability to Water Vapour	To Water Vapour: 0.260 g/h/m² (1.2 mm)	(ASTM E-96)
Temperature Resistance	When applied over Sikafloor®-20 PurCem® in 9 mm thickness, Sikafloor®-31 PurCem® LP will withstand thermal shock caused by steam cleaning if application is done within 12 hours of application of the screed layer. Not suitable for steam cleaning or thermal shock exposure as standalone coating.	

Skid / Slip Resistance (EN 13036- 4)

Substrate	SRV Dry	SRV Wet
Sikafloor®-29 PurCem® LP overcoated with Sikafloor®-31 PurCem® LP	65	40
Sikafloor®-31 PurCem® LP over Sikafloor®-21 PurCem®	60–65	35–40

TRRL Pendulum, Rapra 4S Slider

SYSTEM INFORMATION

Systems

Use the products mentioned below as indicated in their respective Product Data Sheets. For additional information, please refer to the Method Statement.
As Seal Coat :
Base coat :
Sikafloor®-20 or Sikafloor®-21 or Sikafloor®-29 PurCem® LP
Seal Coat :
1 x Sikafloor®-31 PurCem® LP
As Stand-alone Coating :
Primers :
Sikafloor®-155 WN, or Sikafloor®-161.
Seal Coat :
1 – 2 x Sikafloor®-31 PurCem® LP
As integral texture coating
Base coat :
Sikafloor®-21 PurCem® (normally)
Seal Coat:
1 x Sikafloor®-31 PurCem® LP plus 5 % by weight of Silicon Carbide (SiC) in either 45 mesh (355 µm), 60 mesh (250 µm) or 80 mesh (180 µm).
Note: These system configurations must be fully complied with as described and may not be changed

APPLICATION INFORMATION

Ambient Air Temperature

+10 °C min. / +35 °C max.

Consumption

As seal coat :
Over Sikafloor®-20/-21/-29PurCem®, 0.1–0.2 kg/m² in one coat.
As stand-alone coating:
Over an adequately prepared mineral substrate, 0.1–0.2 kg/m² per coat in two coats.
As integral finish coating:
Over Sikafloor®-21 PurCem®, 0.25–0.35 kg/m² for the 45 mesh (355 µm), 0.20–0.30 kg/m² for the 60 mesh (250 µm) and 0.15–0.25 kg/m² for the 80 mesh (180 µm).
These figures are theoretical and do not allow for any additional material due to surface porosity, surface profile, variations in level or wastage etc.
Make sure the substrate is trowelled smooth to prevent any pores from appearing on the surface of Sikafloor®-31 PurCem® LP.

Layer Thickness

As Top Coat : 70 microns min. / 140 microns max.
As stand alone coating : 140 microns min. / 275 microns max.

Relative Air Humidity

85 % 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.

Substrate Temperature

+10 °C min. / +35 °C max.

Substrate Moisture Content

The substrate can be dry or damp with no free standing water (saturated surface dry or SSD).
If any moisture is detectable according to ASTM D 4263 (Polyethylene sheet test) for the thin screeds (-21, -22) and the coating (-31), additional tests must be done to quantify actual relative moisture content amount or vapour drive.
Refer to System Structure and options for substrate priming.

Pot Life

Temperature	Time
+10 °C	~40–50 min
+20 °C	~25–30 min
+30 °C	~15–20 min
+35 °C	~10–15 min

Curing Time

Substrate	Foot traffic	Light traffic	Full cure
+10 °C	~42 h	~78 h	~7 d
+20 °C	~18 h	~60 h	~6 d
+30 °C	~12 h	~48 h	~4 d
+35 °C	~12 h	~48 h	~4 d

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

Waiting Time / Overcoating

Before applying Sikafloor®-31 PurCem® LP on Sikafloor®-20 or -21 or -29 PurCem® LP allow:

Substrate	Minimum	Maximum
+10 °C	~24 h	~72 h
+20 °C	~18 h	~48 h
+30 °C	~8 h	~24 h
+35 °C	~6 h	~24 h

Times are approximate and will be affected be changing ambient and substrate conditions, particularly temperature and relative humidity.
Always overcoat products which share the same type of part B hardener, as colour differences exist between standard and LP versions

APPLICATION INSTRUCTIONS

SUBSTRATE QUALITY / PRE-TREATMENT

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 , or saturated surface dry (SSD) and free of all contaminants such as oil, grease, coatings and surface treatments, etc.
Sikafloor® PurCem® can be applied onto recent concrete over 7 to 10 days old or onto old damp concrete (SSD) without having to prime first, as long as the substrate fulfils the above requirements.
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 to achieve CSP 3 according to the International Concrete Repair Institute.
Weak concrete must be removed and surface defects such as blow holes and voids must be fully exposed.
Repairs to 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 and/or vacuum.
For best results, applications as seal coat over recent Sikafloor® PurCem® substrates must be carried out within the recommended overcoat time of the product concerned.
(See respective PDS for limitations.)
Grinding or sanding of the Sikafloor® PurCem® screed underneath will increase the bond by providing an additional mechanical key effect to add to the chemical bond between the layers, when the application is done within the recommended open time.
(See Waiting Time / Overcoating).

MIXING

Material and ambient temperature will affect the mixing process.
If necessary, condition the materials for best use to 15–25 °C
Homogenise part A with a low speed electric stirrer and then add part B and premix part A and B separately for 30 seconds. Make sure all pigment is uniformly distributed.
Use a double paddle (axis) mixer for best results and gradually add part C (aggregate) to the mixed resin parts over a period of 15 seconds. DON'T DUMP!
Allow part C to blend for further 2 minutes minimum, to ensure complete mixing and a uniform moist mix is obtained. During the operations, scrape down the sides and bottom of the container with a flat or straight edge trowel at least once (parts A+B+C) to ensure complete mixing. **Mix full units only.**
When adding aggregate to prepare a patching / levelling mortar, gradually add the 6 kg of 2–3 mm dry quartz sand immediately after mixing the full set.
Start the pan mixer and gradually add part C (aggregate) to the mixed resin parts over a period of 15 seconds. DON'T DUMP!
Integral finish mixing instructions
When mixing the integral finish system, add the corresponding Silicon Carbide in 5 % by weight of the full set after the rest of the components have been mixed to a homogeneous consistency, and mix for an additional 10 seconds.

Mixing Tools

A low speed electric stirrer (300–400 r.p.m.) and an Exomixer-type mixing paddle (recommended) suited to the size of the mixing container to minimise the air entrapment.

APPLICATION

Prior to application, confirm substrate moisture content, r.h. and dew point.
Application as seal coat on smooth screeds or stand-alone coating.

Apply the mixed Sikafloor®-31 PurCem® LP onto the substrate using a short or medium nap roller directly from a paint tray. Push the resin well into the surface, making sure that the coating fully wets the surface, and then pulling back lightly with the roller to the required thickness.
Apply at least two coats when using as stand-alone coating.
When overcoating previously laid Sikafloor®- PurCem® screeds a single coat application generally provides sufficient coverage.
Application as seal coat onto broadcast screeds
The most efficient way to apply the seal coat(s) onto broadcast screeds is to pour the material and spread it using a squeegee and then back-roll the excess using a medium knap roller.
Application can also be done with long knap rollers (20 mm).
A slip resistant texture can also be attained by seeding the first coat of Sikafloor®-31 PurCem® LP with selected mineral aggregates and then sealing with a second coat.
Application of the integral texture finish.
Decant the mix into a tray and apply from there. Do not pour directly onto the floor as the shadow of the pour will remain. Keep agitating the material in the tray with the roller to avoid settling of the aggregate.

CLEANING OF TOOLS

Clean all tools and application equipment with Thinner C immediately after use.
Hardened or cured material can only be mechanically removed.

MAINTENANCE

CLEANING

To maintain the appearance of the floor after application, Sikafloor®-31 PurCem® LP must have all spillages removed immediately and must be regularly cleaned using rotary brushes, mechanical scrubbers, scrubber dryers, high pressure washers, wash and vacuum techniques, etc., using suitable detergents and waxes.

IMPORTANT CONSIDERATIONS

- Do not apply to PCC (polymer modified cement mortars) that may expand due to moisture when sealed with an impervious resin.
- Do not apply to water soaked, glistening wet concrete substrates.
- Do not apply to porous surfaces where significant moisture vapour transmission (out-gassing) will occur during application.
- Sika® Thinner C is flammable. NO NAKED FLAMES.
- Always ensure good ventilation when using Sikafloor®-31 PurCem® LP in a confined space, to prevent excessive ambient humidity.
- Freshly applied Sikafloor®-31 PurCem® LP, must be protected from damp, condensation and direct water contact (rain) for at least 24 hours.
- Avoid puddles on the surface.
- Steam cleaning of Sikafloor®-31 PurCem® LP as stand-alone coating may lead to delamination due to thermal shock.
- Do not apply below 9 °C or above 35 °C or a maximum relative humidity above 85 %.
- Do not apply to un-reinforced sand cement screeds, asphaltic or bituminous substrate, glazed tile or non-porous brick, tile and magnesite, copper, aluminium, soft wood or urethane composition, elastomeric membrane and fibre reinforced polyester (FRP) composites.
- Do not apply to wet or green concrete or polymer modified patches if the moisture content is above 10 %.
- Do not apply to concrete if the air or substrate temperature is within 3 °C of the dew point.
- Protect the substrate during application from condensation from pipes or any overhead leaks.
- Do not mix Sikafloor® PurCem® products by hand. Use only mechanical means.
- Do not apply to cracked or unsound substrates.
- Avoid puddles during application.
- Always allow a minimum of 48 hours after product application prior to placing into service in proximity with food stuffs.
- Products of the Sikafloor® PurCem® product range are subject to discolouration when exposed to UV radiation. Extend depends on colour. There are no measurable losses of other properties when this occurs and it is a purely aesthetical matter. Products can be used outside provided the change in appearance is acceptable by the customer.
- In some slow curing conditions, soiling of the surface may occur when opened to foot traffic, even though mechanical properties have been achieved. It is advised to remove dirt using a dry mop or cloth. Avoid scrubbing with water for the first three days.

BASIS OF PRODUCT DATA

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.

ECOLOGY, HEALTH AND SAFETY

For information and advice on the safe handling, storage and disposal of chemical products, users shall refer to the most recent Safety Data Sheet (SDS) 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.

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