

PRODUCT DATA SHEET

Sikafloor®-21 PurCem® LP

MEDIUM TO HEAVY DUTY, SELF-SMOOTHING, POLYURETHANE HYBRID FLOORING SCREED

DESCRIPTION

Sikafloor®-21 PurCem® LP is a three part, water dispersed medium to high strength coloured polyurethane modified, cement and aggregate screed with self smoothing properties.

It has an aesthetic, smooth textured aggregate surface providing medium slip resistance and is typically installed at 3 to 6 mm thickness.

USES

Sikafloor®-21 PurCem® LP may only be used by experienced professionals.

- Food processing plants (wet or dry process areas, freezers and coolers)
- Chemical plants
- Laboratories
- Workshops

CHARACTERISTICS / ADVANTAGES

- Good chemical resistance. Resists a wide range of organic and inorganic acids, alkalis, amines, salts and solvents. Please refer to the Chemical Resistance Chart or consult your local Technical Department.

- Similar coefficient of thermal expansion to concrete, allowing movement with the substrate through normal thermal cycling. It will perform and retain its physical characteristics through a wide temperature range from -5 °C up to +65 °C.
- Bond strength in excess of the tensile strength of concrete. Concrete will fail first.
- Non tainting / odourless.
- VOC free.
- High mechanical resistance. Behaves plastically subject to impact. Will deform but will not crack or debond.
- High abrasion resistance resulting from its silica aggregate structure.
- Can be applied to substrates with high moisture content (7 days old or mature damp concrete).
- Jointless. Extra expansion joints are not necessary; simply maintain and extend existing expansion joints up through the Sikafloor®-PurCem® flooring system
- Easily maintained.

APPROVALS / STANDARDS

Conforms to the requirements of EN 13813: 2002 as CT - C50 - F10 - AR0.5

Conforms to the requirements of EN 1504-2 for principle 5 (PR) and 6 (CR) as a coating (C)

All other values indicated are internal test results.

PRODUCT INFORMATION

Chemical base

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

Packaging

Part A : 3.00 kg plastic drum
Part B : 3.00 kg plastic jerrycan
Part C : 14.00 kg plastic lined, double paper bags
Part A+B+C: 20.00 kg ready to mix units

| | | | |
|---------------------|--|---|-------------------|
| Appearance / Colour | Part A : Liquid / coloured | | |
| | Part B : Liquid / brown | | |
| | Part C : Powder / natural grey | | |
| | Available colours : Green, Grey, Light Grey, Cream, Red. | | |
| Shelf life | Parts A and B: | 12 months from date of production. Must be protected from frost. | |
| | Part C: | 6 months from date of production. Must be protected from humidity. | |
| Storage conditions | If stored properly in original, unopened and undamaged sealed packaging, in dry conditions at temperatures between +18 °C and +30 °C. | | |
| Density | Part A | ~1.07 kg/L | (EN ISO 2811-1) & |
| | Part B | ~1.24 kg/L | (ASTM C 905) |
| | Part C | ~1.91 kg/L | (at +20 °C) |
| | Part A+B+C mixed | ~1.99 ± 0.03 kg/L | |

TECHNICAL INFORMATION

| | | | |
|------------------------------|---|--------------------------|--|
| Shore D Hardness | ~80 – 85 (ASTM D 2240) | | |
| Compressive Strength | 28 days | ~44 N/mm ² | (ASTM C 579) |
| | 28 days | ~50 N/mm ² | (BS EN 13892-2) (at +23 °C / 50 % r.h.) |
| Tensile Strength in Flexure | 28 days | ~14.7 N/mm ² | (ASTM C 580) |
| | 28 days | ~10 N/mm ² | (BS EN 13892-2) (+23 °C / 50 % r.h.) |
| Tensile Strength | 28 days | ~6.5 N/mm ² | (ASTM C 307) (at +23 °C / 50 % r.h.) |
| Tensile Adhesion Strength | ~1.75 N/mm ² (1.5 N/mm ² is the minimum pull off strength of the recommended concrete substrate) | (failure in concrete) | (EN 1542) |
| Reaction to Fire | Class B(f _i) S1 (BS EN 13501-1) | | |
| Chemical Resistance | Resistant to many chemicals. Please ask for a detailed chemical resistance chart. | | |
| Thermal Resistance | The product is not designed to withstand thermal shock. Hot steam cleaning is not recommended. Use Sikafloor®-20 PurCem® LP 9 mm Sikafloor®-21 PurCem® LP can be subject to thermal shock < 70 °C at 6 mm. | | |
| Permeability to Water Vapour | To water vapour (4.8 mm) | 0.115 g/h/m ² | (ASTM E-96) |
| Skid / Slip Resistance | Substrate | SRV Dry | SRV Wet |
| | Sikafloor®-21 | 70 | 60 |
| | PurCem® LP | | |
| | TRRL Pendulum, Rapra 4S Slider | | |

SYSTEMS

Systems

Sikafloor®-21 PurCem® LP system

Layer

Scratch Coat

Body Coat

Product

Sikafloor®-21 PurCem® LP

Sikafloor®-21 PurCem® LP

*As optional primers Sikafloor®-161 HC + Quartsand 0.4 – 0.8 mm broadcast to excess might be used. Please refer to the individual Product Data Sheet.

Seal Coat (Optional)

1 x Sikafloor®-31 PurCem® LP

Note: These system configurations must be fully complied with as described and may not be changed.

APPLICATION INFORMATION

| | | | |
|---|---|--------------------------|---------------------------------|
| Mixing ratio | Part A : B : C = 1 : 1 : 4.67 (packaging size = 3 : 3 : 14) by weight | | |
| Consumption | Layer | Product | Consumption |
| | Scratch Coat | Sikafloor®-21 PurCem® LP | ~3.0 kg/m ² (1.5 mm) |
| | Body Coat | Sikafloor®-21 PurCem® LP | ~1.9 kg/m ² /mm |
| This figure is theoretical and does not allow for any additional material due to surface porosity, surface profile, variations in level or wastage etc. | | | |
| Layer Thickness | 2 mm min. / 6 mm max | | |
| Ambient Air Temperature | +10 °C min. / +30 °C 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. / +30 °C max. | | |
| Substrate Moisture Content | The substrate can be dry or damp (saturated surface dry or SSD) with higher moisture content (No ponding water). Check rising moisture. The substrate needs to be visibly dry and have adequate pull-off strength min. 1.5 N/mm ² . | | |
| Pot Life | Temperature | Time | |
| | +10 °C | ~35 - 40 min | |
| | +20 °C | ~22 - 25 min | |
| | +30 °C | ~15 - 18 min | |
| | +40 °C | ~12 - 15 min | |
| Curing time | Temperature | Foot Traffic | Light Traffic |
| | +10 °C | ~24 h | ~48 h |
| | +20 °C | ~18 h | ~24 h |
| | +30 °C | ~12 h | ~18 h |
| | +35 °C | ~12 h | ~18 h |
| Full Cure | | | |
| ~7 d | | | |
| ~4 d | | | |
| ~3 - 4 d | | | |
| ~3 - 4 d | | | |
| Notes: Times are approximate and will be affected by changing ambient and substrate conditions, particularly temperature and relative humidity. If used other primers than Scratch Coat refer the Technical Data Sheet of the respective product. Make sure that the primer and the scratch coat layer is fully cured before application of Sikafloor® PurCem® previous layer. | | | |

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 and free of all contaminants such as oil, grease, coatings and surface treatments, etc.

If in doubt, apply a test area first.

Substrate priming is normally not required under typical circumstances. However due to variations in concrete quality, surface conditions, surface preparation and ambient conditions, reference test areas are recommended to determine whether priming is required to prevent the possibility of blisters, de-bonding pinholes and other aesthetic variations.

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.

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 3-6 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 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 and/or vacuum.

Edge terminations.

All free edges and working day joints of Sikafloor®-21 / -20 PurCem® LP, whether at the perimeter, along gutters or at drains require extra anchorage to distribute mechanical and thermal stresses. This is best achieved by forming or cutting grooves in the concrete. Grooves must have a depth and width of twice the thickness of the Sikafloor®-PurCem®. Refer to the edge details provided in the Method Statement. If necessary, protect all free edges with mechanically attached metal strips. Never featheredge, always turn into an anchor groove.

Expansion joints.

Expansion joints must be provided in the substrates at the intersection of dissimilar materials. Isolate areas subject to thermal stresses, vibration movements or around load-bearing columns and at vessels sealing rings.

MIXING

Material and ambient temperature will affect the mixing process. If necessary, condition the materials for best use to 18 °C - 27 °C.

Premix part A and B separately, make sure all pigment is uniformly distributed with a low speed electric stirrer.

Start mixer and add parts A and then B and blend for 30 seconds.

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.

Use a low speed electric stirrer (300 - 400 rpm) for mixing parts A+B+C.

For preparation of the mortar mix use a pan type revolving mixer.

APPLICATION

Prior to application, confirm substrate moisture content, r.h. and dew point.

Proceed with placement of the material to facilitate the release of entrapped air from the mix and CO₂ from the reaction. Do so in every batch mixed in a consistent manner in order to avoid colour differences due to increased temperatures in the reaction.

Pour the mixed Sikafloor®-21 PurCem® LP onto the substrate and work with a toothed trowel or pin screed to the desired thickness, achieving a flat surface. A straight edge trowel can also be used to smooth out the marks of the tooth trowel or instead of it. Take care to spread newly placed materials across the transition of previously applied mixes before the surface begins to set.

Remove air with a spike roller immediately (less than two minutes after placing).

Roller spikes must be at least three times longer than the product thickness applied.

Allow a minimum 18 hours cure period at 30 °C before light traffic.

Flow check

| | | |
|--------|-------------|---------------------------|
| Flow = | 310 ± 10 mm | (ASTM C 230-90/EN 1015-3) |
|--------|-------------|---------------------------|

CLEANING OF TOOLS

Clean all tools and application equipment with Thinner C immediately after use.

Hardened / cured material can only be mechanically removed.

MAINTENANCE

CLEANING

To maintain the appearance of the floor after application, Sikafloor® -21 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.

LIMITATIONS

- Construction joints require pre-treatment with a stripe coat to verify and seal loss of material through the joint.
- It is advisable to perform a groove along the perimeter of the application area particularly if there are columns or gullies in the floor surface, as indicated in the application details of the System Data Sheet, to prevent curling during curing. Large areas do not require perimeter groove. Width and depth must be twice the thickness of the floor finish.
- If an added aggregate screed layer is applied, retaining grooves must also be created for this screed.
- In cases where thermal stress is expected the formation of retaining grooves is a must also on the layer of standard mix of Sikafloor®-21 PurCem® LP.
- Do not apply to PCC (polymer modified cement mortars) that may expand due to moisture when sealed with an impervious resin.
- Always ensure good ventilation when using Sikafloor®-21 PurCem® LP in a confined space, to prevent excessive ambient humidity.
- Freshly applied Sikafloor®-21 PurCem® LP must be protected from damp, condensation and direct water contact (rain) for at least 24 hours.
- Protect the substrate during application from condensation from pipes or any overhead leaks.
- Do not apply to cracked or unsound substrates.
- Do not apply to porous surfaces where significant moisture vapour transmission (outgassing) will occur during application.
- For consistent results it is advised to always use the scratch coat prior to placing Sikafloor®-21 PurCem® LP on any substrate.
- Always allow a minimum of 48 hours after product application prior to placing into service in proximity with food stuffs.
- Products of the Sikafloor®-21 PurCem® LP product range are subject to discolouration when exposed to UV radiation. Extent depends on colour. There are no measurable losses of any properties when this occurs and it is a purely aesthetical matter.
- Products can be used outside provided the change in appearance is acceptable for 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.
- Hot steam cleaning may lead to delamination due to thermal shock.
- Do not apply to water soaked, glistening wet concrete substrates.
- Do not apply below +10 °C or above +35 °C or a maximum relative humidity 85 %.
- Sika® Thinner C is flammable. NO NAKED FLAMES.
- 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 mix Sikafloor®-PurCem® LP products by hand. Use only mechanical means.
- Colour uniformity can not be completely guaranteed from batch to batch (numbered).
- Take care when using Sikafloor®-PurCem® LP products to draw from inventory in batch number sequence. Do not mix batch numbers in a single floor area.
- Products of the Sikafloor®-PurCem® product range are subject to yellowing when exposed to UV radiation. 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.
- Sikafloor®-21 PurCem® LP is not recommended for shock freezers (in spite of suitability for -40 °C service temperature)

BASIS OF PRODUCT DATA

All technical data stated in this 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 declared data and recommended uses for this product may vary from country to country. Please consult the local Product Data Sheet for the exact product data and uses.

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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Product Data Sheet

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