Construction

Sikafloor®-29N PurCem®

High strength polyurethane coving and detailing mortar

Product Description

Sikafloor®-29N PurCem® is a multi-component, vertical grade, coloured polyurethane modified, cement and aggregate mortar for detailing work and vertical rendering.

It has a finely textured smooth aggregate appearance which offers excellent resistance to abrasion, chemical attack and mechanical damage.
Typically installed at 3 - 9 mm thickness

Uses

In combination with the rest of the PurCem® range in concrete substrate areas, to provide vertical, coving and detailing solutions in areas of abrasion and high chemical exposure, such as in:

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

Characteristics / Advantages

- Excellent 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 Dept.
- Designed specifically for trowel applications to vertical surfaces
- 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 -40ºC (-40ºF) up to +140ºC (284ºF)
- Bond strength in excess of the tensile strength of concrete. Concrete will fail first
- Non taint, odourless
- VOC free
- High mechanical resistance.
- 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 MPa (218 psi)
- Sikafloor®- 29N PurCem® detailing mortar can withstand moisture vapor transmission values of 12 lbs/1000 ft2
- Seamless, no additional expansion joints are necessary; simply maintain and extend existing expansion joints up through the Sikafloor®-PurCem® flooring system
- Easy to maintain
- Wide range of application temperatures +10 ºC - +40 ºC

Environmental Information

Specific Characteristics

Specific Approval/Standards

Specific Ratings

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 **wb**) is140 g/l (Limit 2010), for the ready to use product. **Sikafloor®-29N PurCem**, is VOC free for the ready to use product.
USGBC LEED® Rating	Conforms Section EQ (Indoor Environmental Quality), Credit 4.2 Low-Emitting Materials Paints and Coatings Calculated VOC content ≤ 50 g / l

Tests

Approval / 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, DoP 02 08 02 02 003 0 000001 1088, certified by Factory Production Control Body, 0086, certificate 541325, and provided with the CE-mark.

Concerning contact with foodstuffs, it conforms to the requirements of:

- EN1186, EN 13130, and prCEN/TS 14234 standards, and the Decree on Consumer Goods, representing the conversion of directives 89/109/EEC, 90/128/EEC and 2002/72/EC for contact with food stuffs, according to test report by ISEGA, Registered Nº 32758 U11 and 32759 U11, both dated December 6th, 2011. (Tests performed on Sikafloor® -20/21/22/29 and 31 PurCem®)
- Compliant with USDA flooring requirements
- Canadian Food Inspection Agency acceptance for use in food plants in Canada.
- British Standards Specifications (BSS) acceptance for use in the UK. Campden and Chorleywood Food Research Association, Ref. S/REP/125424/1a and 2a, dated 8th February, 2012

Fire classification report according to EN 13501-1 from Exova Warrington Fire for Sikafloor®-31N PurCem® No.-317050, dated 24th of March, 2012

Liquid water transmission rate test report from the Technology Centre, Ref. 15456 dated January 25th, 2012

Impact resistance values tested at PRA, Ref. nº 75221-151, dated January 11th, 2012

Product Data

Form

Appearance / Colours

Part A pre-tinted: coloured liquid
Part B: brown liquid
Part C: natural grey powder

Available colours:

RAL 1001	**Beige**
RAL 3020	**Traffic Red**
RAL 3009	**Oxide Red**
RAL 5015	**Sky Blue**
RAL 6002	**Dark Green**
RAL 6019	**Pastel Green**
RAL 7042	**Light Grey**
RAL 7037	**Dark Grey**

Packaging

Part A+B+C: 10.2 litre (22.0 kg) ready to mix units
Part A: 1.60 kg plastic drum
Part B: 1.40 kg plastic jerry can
Part C: 19.00 kg plastic lined, double paper bags

Storage

Storage Conditions / Shelf-Life	If stored properly in original, unopened and undamaged sealed packaging, in dry conditions at temperatures between +10°C and +25°C. Part A : 12 months from date of production. **Protect from freezing** Parts B: 12 months from date of production. **Protect from freezing**. Part C: 6 months from date of production**. Protect against humidity.**

Technical Data

Chemical Base	Polyurethane Cement		
Density	Part A: Part B: Part C: Part A+B+C mixed:	~ 1.07 kg/l (at +20°C) ~ 1.24 kg/l (at +20°C) ~ 1.58 kg/l (at +20°C) ~ 1.97 kg/l ± 0.03 (at +20°C)	(EN ISO 2811-1) & (ASTM C 905)
Layer Thickness	3 mm min. / 9 mm max.		

Mechanical / Physical Properties

Capillary Absorption / Liquid water transmission rate	Permeability to water: <0.016 kg /m^2 $h^{0.5}$ Class Low (Average of three values, system of Sikafloor® -29N PurCem® plus Sikafloor® -31 PurCem®)	(EN 1062-3)
Thermal Expansion Coefficient	α ≈ 2.44 x 10^{-5} per °C (temperature range: -20°C to +40°C)	(EN 1770)
Water Absorption	0.18%	(ASTM C 413)
Permeability	To Water Vapour: 0.104 g/h/m^2 (4.3 mm)	(ASTM E-96)
Fire Rating	Class $B_{(fl)}$ S1	(BS EN 13501-1)
Service Temperature	The product is suitable for use when exposed to continuous temperatures, wet or dry, of up to +140°C. The minimum service temperature is -40ºC at 9 mm and -20ºC at 3 mm.	
Compressive Strength	> 39 MPa after 28 days at +23°C / 50% r.h. > 44 N/mm^2 after 28 days at +23°C / 50% r.h.	(ASTM C 579) (BS EN 13892-2)
Flexural Strength	> 8.1 MPa after 28 days at +23°C / 50% r.h. > 8 N/mm^2 after 28 days at +23°C / 50% r.h.	(ASTM C 580) (BS EN 13892-2)
Bond Strength	> 2.0 N/mm^2 (failure in concrete) (1.5 N/mm^2 is the minimum pull out strength of the recommended concrete substrate)	(EN 1542)
Bond Strength after Thermal Shock Resistance Test	2.84 ± 0.20 N/mm^2 (tested as Sikafloor -29N PurCem + Sikafloor -31N PurCem)	(EN 1542)
Shore D Hardness	80 – 85	(ASTM D 2240)
Flexural Modulus	4050 MPa	(ASTM C 580)
Coefficient of Friction	Steel: 0.7 Rubber: 0.8	(ASTM D 1894-61T)
Slip Resistance	Slip Resistance Values	(EN 13036- 4)

Substrate	SRV Dry	SRV Wet
Sikafloor®-29N PurCem® overcoated with Sikafloor®-31N PurCem®	65	40

TRRL Pendulum, Rapra 4S Slider

Abrasion Resistance	Class “Special” Severe abrasion resistance AR 0.5 (Less than 0.05 mm wear depth)	(BS 8204 Part 2) (EN 13892-4)
	Class A6 6,0 $cm^3/50cm^2$	(EN 13892-3)
	501 mg Taber Abrader H-22 wheel / 1000 gr / 1000 cycles (tested in combination with Sikafloor® -31 PurCem®)	(ASTM D 4060-01)
Indentation	≈ 0%	(MIL - PFR 24613)
Impact Resistance	Class III (≥ 20Nm) (tested in combination with Sikafloor® -31N PurCem®)	(EN ISO 6272-1)
	2 pounds / 40 inches (3 mm thick)	(ASTM D 2794)

Resistance

Chemical Resistance	Resistant to many chemicals. Please ask for a detailed chemical resistance table.	
Thermal Resistance	Sikafloor®-29N PurCem® always needs to be sealed with Sikafloorr-31 PurCem® making the system build-up not able to withstand thermal shock caused by steam cleaning.	
Resistance to Thermal Shock	Pass No cracks and/or delamination	(ASTM C 884)
Softening Point	>180ºC (356ºF) Tested on Sikafloor® -20N PurCem®	(ASTM D-1525 ISO 306 Method B)

System Information

System Structure

Use the products mentioned below as indicated in their respective Product Data Sheets. For additional information, please refer to the System Data Sheet and the Method Statement.

Substrate Priming Systems

Coving and detailing and vertical applications:

- Primer:
  Sikafloor®-161 blinded with 0.4-0.7mm quartzsand
  Reprime as Sikafloor®-29N PurCem® has to be applied vertically in tacky primer.
- Coving Mortar:
  Sikafloor®-29N PurCem®
- Seal coat:
  1 x Sikafloor®-31N PurCem®

Application Details

Consumption / Dosage

Primer:
Sikafloor®-161 as primer

Always apply on to tacky primer. Reprime if allowed to cure.

Coving and detailing mortar 3 - 9 mm:
Sikafloor®-29N PurCem (part A+B+C) ~ 2.0 kg/m² / mm layer thickness.

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 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 Preparation	Refer to the Sikafloor®- PurCem® method statement

Application Conditions / Limitations

Substrate Temperature	+10°C min. / +40ºC max
Ambient Temperature	+10°C min. / +40ºC max
Substrate Humidity	≤ 4% pbw – as required by the used Sikafloor® epoxy primer Test method: Sika®-Tramex meter (equipment limited to < 6%), CM - measurement or Oven-dry-method.
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.

Application Instructions

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.
Mixing	Part A : B : C = 1 : 0.875 : 11.8 (packaging size = 1.60 : 1.40 : 19.00) by weight
Mixing Time	Refer to the Sikafloor®- PurCem® method statement Material and ambient temperature will affect the mixing process. If necessary, condition the materials for best use to 15ºC – 21ºC Premix part A with a low speed electric stirrer and then add part B and mix for 30 seconds. Make sure all pigment is uniformly distributed. Use a double paddle (axis) mixer and gradually add part C (aggregate) to the mixed resin. 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.**
Mixing Tools	Use a low speed electric stirrer (300-400 rpm) for mixing parts A and B. For preparation of the mortar mix use a pan type revolving mixer.
Application Method / Tools	Prior to application, confirm substrate moisture content, r.h. and dew point. If moisture content is > 6% pbw, Sikafloor®- 21 or 24 PurCem® or Sikagard®-720 EpoCem® can be applied as T.M.B. (temporary moisture barrier) system prior to priming with Sikafloor® -161 on vertical surfaces. Primer coat. Mix and apply the primer according to its corresponding Product Data Sheet, using a brush or roller to provide uniform coverage. The primer must be tacky during the application of Sikafloor®-29N PurCem®. Mix and apply only the amount of primer which can be overlaid before it cures. If the primer becomes glossy or loses tackiness, remove any surface contaminates, then recoat with additional material. Mortar Apply the mixed Sikafloor®-29N PurCem® onto the ready primed substrate and compact to the appropriate thickness, then finish the detailing profile with a coving trowel or steel float. Apply Sikafloor®-29N PurCem® while the primer is still tacky. If the primer becomes tack free, reapply the primer. A light brushing while the mortar is still workable will close any surface voids. Allow a minimum 10 hour cure period at 20ºC. (See Waiting time / Overcoating) For maximum sealing of the cove, application must be performed with one or two coats of Sikafloor®-31N PurCem® to seal the surface and improve aesthetics.

Cleaning of Tools

Clean all tools and application equipment with Thinner C immediately after use. Hardened/cured Sikafloor®-29N PurCem® can only be mechanically removed.

Potlife

Temperature	Time
+10°C	~ 35 - 40 minutes
+20°C	~ 22 - 25 minutes
+30°C	~ 15 – 18 minutes
+35ºC	~ 12 - 15 minutes

Waiting Time / Overcoating

Allow primer to become tacky. Re-prime if allow to cure.

Before any subsequent application on Sikafloor®-29N PurCem® allow:

	Waiting time	
+10°C	20 hours	72 hours
+20°C	10 hours	48 hours
+30°C	5 hours	24 hours
+35°C	5 hours	24 hours

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

Notes on Application / Limitations

A retaining groove must be placed top or bottom of the cove detail to anchor the coving mortar as well as around details such as drains, etc., as indicated in the application details of the Method Statement for Application to prevent curling during curing. Width and depth must be twice the thickness of the mortar.

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®-29N PurCem® in a confined space, to prevent excessive ambient humidity.

Freshly applied Sikafloor®-29N PurCem®, must be protected from damp, condensation and direct water contact (rain) for at least 24 hours.

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.

Protect the substrate during application from condensation from pipes or any overhead leaks.

Do not apply to cracked or unsound substrates.

Avoid puddles during primer 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 any 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.

Due to the technology used, colour stability of the products cannot be guaranteed when exposed to UV light.

Construction

Curing Details

Applied Product ready for use

Sikafloor®-29N PurCem®

Substrate temperature	Foot traffic	Light traffic	Full cure
+10°C	~ 24 hours	~ 36 hours	~ 7 days
+20°C	~ 12 hours	~ 22 hours	~ 5 days
+30°C	~ 8 hours	~ 16 hours	~ 3-4 days
+35ºC	~ 8 hours	~ 16 hours	~ 3-4 days

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

Cleaning / Maintenance

Methods

Refer to the method statement Sikafloor®- Cleaning Regime with cleaning agents from Diversey Care™

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.

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