

Sikafloor®-24N PurCem®

Medium duty, self-smoothing, thin layer polyurethane screed for non-regulated general industrial use.

Product Description

Sikafloor®-24N PurCem® is a multi-component, coloured polyurethane modified, cement and aggregate thin layer screed with self-smoothing properties. It provides an easy to clean, smooth surface with a medium slip resistance and is typically installed at 3.0 to 4.0 mm thick for non-regulated, general industrial applications.

Uses

In areas of medium to heavy loading and abrasion, to provide a smooth, flat and thin self-levelling layer, such as in:

- Warehouses and production facilities
- 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.
- 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 -10°C (14°F) up to 70°C (158°F)
- Bond strength in excess of the tensile strength of concrete, concrete will fail first
- Water based formulation, non-taint, odourless
- VOC free
- High mechanical and impact resistance. Behaves plastically subject to impact. Will deform but will not crack or de-bond.
- Good abrasion 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)
- Seamless, no additional- expansion joints are necessary; simply maintain and extend existing expansion joints up through the Sikafloor®-PurCem® flooring system
- Low viscosity giving the product good self-smoothing properties.
- Bio-static surface, does not contribute to the growth and development of bacteria or fungi.
- Smooth surface finish giving ease of maintenance
- Wide range of application temperatures +10 °C - +40 °C



Environmental Information

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 is 140 g/l (Limit 2010), for the ready to use product. Sikafloor®-24N 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	<p>Polyurethane screed for concrete protection according to the requirements of EN 1504-2:2004 and conforms to the requirements of EN 13813: 2002, DoP 02 08 02 02 001 0 000017 1088, certified by Factory Production Control Body, 0086, certificate 541325, and provided with the CE-mark.</p> <p>Slip resistance properties according to DIN 51130 tested at MPI (Material prüfung und Entwicklung), test reports refs. N° 12-6638-S/12, dated August 7th, 2012.</p> <p>Thermal expansion coefficient and freeze-thaw cycle resistance performed at RWTH / IBAC, report n° M-1614 dated May 29th, 2012.</p>
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Product Data

Form

Appearance / Colours	Part A pre-tinted: coloured liquid Part B: brown liquid Part C: natural grey powder
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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: 10.3 Litre (20.0 kg) ready to mix units Part A: 3.22 kg plastic drum Part B: 2.78 kg plastic jerry can Part C: 14.00 kg plastic lined, double paper bags
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Storage

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

Chemical Base	Polyurethane Cement		
Density	Part A pre-tinted:	~ 1.07 kg/l (at +20°C)	(EN ISO 2811-1)& (ASTM C 905)
	Part B:	~ 1.24 kg/l (at +20°C)	
	Part C:	~ 1.48 kg/l (at +20°C)	
	Part A+B+C mixed:	~ 1.93 kg/l ± 0.03 (at +20°C) (or A neutral+B+C+D)	
Layer Thickness	4.0 mm min. / 5.0 mm max. including a 1.0 mm scratch coat		
Fire Rating	Class B _(fl) S1 (BS EN 13501-1) Tested as Sikafloor®-20 PurCem®, Sikafloor®-21 PurCem and Sikafloor®-31 PurCem®. Sikafloor®-24N PurCem® is sharing its parts A and B with the rest of the Sikafloor® PurCem® range.		
Service Temperature	The product is suitable for use when exposed to continuous temperatures, wet or dry, of up to + 70°C. The minimum service temperature is -5°C at 2.0 mm and -10°C at 4.0 mm.		

Mechanical / Physical Properties

Compressive Strength	> 44 MPa after 28 days at +23°C / 50% r.h. > 50 N/mm ² after 28 days at +23°C / 50% r.h.	(ASTM C 579) (BS EN 13892-2)
Flexural Strength	> 14.7 MPa after 28 days at +23°C / 50% r.h. > 10 N/mm ² after 28 days at +23°C / 50% r.h.	(ASTM C 580) (BS EN 13892-2)
Bond Strength	> 1.75 N/mm ² (failure in concrete) (1.5 N/mm ² is the minimum pull off strength of the recommended concrete substrate)	(EN 1542)
Shore D Hardness	80 - 85	(ASTM D 2240)

Slip Resistance	Slip Resistance Values (EN 13036- 4)	
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Substrate	SRV Dry	SRV Wet
Sikafloor®-24N PurCem®	70	60

TRRL Pendulum, Rapra 4S Slider

Slip resistance

DIN 51130

	Av. Accp. Angle	Av. Displac area	R value	V value
Sikafloor®-24N PurCem®	11.5°	Not tested	R10	n/a

Abrasion Resistance	Class "Special" Severe abrasion resistance AR 0.5 (Less than 0.05 mm wear depth) 2360 mg Taber Abrader H-22 wheel / 1000 gr / 1000 cycles Class A6 4.90 cm ³ /50cm ²	(BS 8204 Part 2) (EN 13892-4) (ASTM D 4060-01) (EN 13892-3)
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Resistance

Chemical Resistance Resistant to many chemicals. Please ask for a detailed chemical resistance chart.

Thermal Resistance

Exposure*	4 mm	2 mm
Permanent	-10°C to 70°C	-5°C to 60°C
thermal shock	---	--

Softening Point >140°C (284°F) (ASTM D-1525 ISO 306 Method B)

System Information

System Structure

Standard System Build-up:

- Scratch coat Sikafloor®- 24N PurCem®
- Body coat Sikafloor® - 24N PurCem®

Alternative System Build-up:

- Prime with Sikafloor®- 155WN, -161
Fully blinded with quartzsand 0.4 – 0.7 mm
 - Body coat Sikafloor® - 24N PurCem®
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Application Details

Consumption / Dosage

For primers, see respective PDS)

Scratch coat:

Sikafloor®-24N PurCem® (partA+B+C) 2 kg/m² for a 1 mm layer,

Self-smoothing screed:

Sikafloor®-24N PurCem® (partA+B+C) ~ 1.9 kg/m² / mm layer thickness.

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 or saturated surface dry (SSD) and free of all contaminants such as oil, grease, coatings and surface treatments, etc.

If in doubt, apply a test area first.

Sikafloor® 24N PurCem® can be applied onto recent concrete over 7 to 10 days old or onto old damp concrete (SSD), as long as the substrate fulfils the above requirements.

Substrate Preparation

Refer to the Sikafloor®- PurCem® method statement

Sikafloor®-24N PurCem® does not require a retaining groove around perimeter or obstacles as the rest of the Sikafloor® PurCem® range requires.

Application Conditions / Limitations

Substrate Temperature	+10°C min. / +40°C max.
Ambient Temperature	+10°C min. / +40°C max.
Substrate Humidity	Check absence of rising moisture (according ASTM D 4263 Polyethylene sheet test) and/or standing water
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

Mixing	Part A : B : C = 1 : 1 : 4.35 (packaging size = 3.0 : 3.0 : 14) by weight Mix full units only.
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 15°C – 21°C 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 double paddle mixer. For best results, always use clean containers to prepare the mix. Thus you will avoid contamination with already hardened material or shortened pot life due to accelerated setting caused by the increased temperature of the mix.

Application Method / Tools

Prior to application, confirm substrate moisture content, r.h. and dew point.
Priming of concrete substrates is usually not required under typical circumstances. (See Substrate Quality), but given the thinness and fluidity of Sikafloor® -24N PurCem® a scratch coat or primer layer is highly recommended.

- Scratch coat.
Mix and apply a scratch coat of Sikafloor®-24N PurCem® using steel trowels to spread the materials to approximately 1 mm thickness, (approximately 1.9 kg/m²). This application will seal the concrete surface, fill the surface irregularities including pock marks, non-moving control joints and cracks. Allow overnight cure (24 hours at +20°C) before application of the body coat.
In case of very absorbent substrates, a second scratch coat may be required.

- or Priming
Sikafloor®-155W N, Sikafloor® -161, lightly broadcast with quartz sand 0.4 – 0.7 mm.

Body coat.
Pour the mixed Sikafloor®-24N PurCem® onto the substrate and work with a 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.
For a better surface finish use a combination of plastic spiked roller to remove trowel/spreader marks followed immediately by fine metal spiked roller.
Allow a minimum 14 hour cure period at 20°C before light traffic.

Cleaning of Tools

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

Potlife

Temperature	Time Standard version
+10°C	~ 40 - 45 minutes
+20°C	~ 20 – 25 minutes
+30°C	~ 15 - 18 minutes
+35°C	~ 12 - 15 minutes

Waiting Time / Overcoating

If you have primed, before applying Sikafloor®-24N PurCem® on Sikafloor®-155W N , -161 (broadcast with quartz sand) allow:

Substrate temperature	Waiting time	
	Minimum	Maximum
+10°C	24 hours	12 days
+20°C	12 hours	7 days
+30°C	6 hours	4 days
+35°C	6 hours	4 days

Always make sure primer is fully cured before application.

For application of the body coat of Sikafloor®-24N PurCem® over the scratch coat allow:

Substrate temperature	Waiting time	
	Minimum	Maximum
+10°C	24 hours	72 hours
+20°C	24 hours	48 hours
+30°C	12 hours	24 hours
+35°C	12 hours	24 hours

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

This table above applies also for application on to the patching mortar made by aggregate addition.

Notes on Application / Limitations

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®-24N PurCem® in a confined space, to prevent excessive ambient humidity.

After application, Sikafloor®-24N PurCem® must be protected from damp, condensation and direct water contact (rain) for 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.

Products of the Sikafloor® -PurCem® product range are subject to yellowing when exposed to UV radiation. There are no measurable losses of any properties when this occurs and it is a purely aesthetic 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.

Curing Details

Applied Product ready for use

Sikafloor®-24N PurCem®

Substrate temperature	Foot traffic	Light traffic	Full cure
+10°C	~ 20 hours	~ 34 hours	~ 7 days
+20°C	~ 12 hours	~ 16 hours	~ 4 days
+30°C	~ 8 hours	~ 14 hours	~ 3 - 4 days
+35°C	~ 8 hours	~ 14 hours	~ 3 - 4 days

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

Cleaning / Maintenance

Methods

To maintain the appearance of the floor after application, Sikafloor® -24N PurCem® 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.

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 should 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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