



PRODUCT DATA SHEET

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SPECIALTY FLOORING

Sikafloor®-22 NA PurCem® FS

ADVANCED GENERATION, FAST SET, MEDIUM DUTY AND THERMAL SHOCK RESISTANT,
SELF-LEVELLING POLYURETHANE/CEMENT SCREED

Description	Sikafloor®-22 NA PurCem® FS is a fast setting, state-of-the-art, medium-duty, phthalate-free, water-dispersed polyurethane-based/cement and aggregate screed applicable at thicknesses ranging from 4.5 to 6 mm (3/16 to 1/4 in). It is designed to provide good resistance to abrasion, impact, chemical attack and other physical aggression, including thermal shock, when applied at 6 mm (1/4 in). Selected aggregate can be broadcast onto the wet screed to produce a surface texture with slip resistance. Sikafloor®-22 NA PurCem® FS represents superior polyurethane/cement technology, combining easier application, resistance to blistering and improved performance.
Where to Use	<ul style="list-style-type: none"> ▪ Sikafloor®-22 NA PurCem® FS floors are primarily used to protect concrete substrates, but are equally effective over most steel surfaces that have been properly prepared and supported. ▪ Typically used in food processing plants, wet & dry process areas, freezers & coolers, thermal shock areas, dairies, breweries, wineries, distilleries, laboratories, chemical process plants, pulp and paper plants, warehouses and storage areas.
Advantages	<ul style="list-style-type: none"> ▪ Can be applied onto 7 to 10 day old concrete after adequate preparation and where substrate has tensile bond strength in excess of 1.5 MPa (218 psi) ▪ Easy installation requiring less labour to install than traditional Sikafloor® PurCem® trowel grade materials ▪ Faster set times make it ideal for quick turn around projects ▪ Resists a very wide range of organic and inorganic acids, alkalis, amines, salts and solvents. Consult Sika Canada for full details. Refer to the Sikafloor® PurCem® Chemical Resistance Chart ▪ Similar coefficient of thermal expansion to concrete allowing movement with the substrate through normal thermal cycling. ▪ Performs and retains its physical characteristics through a wide temperature range from -40 °C (-40 °F) up to 120 °C (248 °F) ▪ Superior formulation eliminates formation of blisters, such as those arising out of application during elevated temperatures or early and multiple layer applications ▪ Steam cleanable at 6 mm (1/4 in) thickness. Can also be easily maintained using commonly employed methods and phenol-free detergents ▪ Bond strength in excess of the tensile strength of concrete, concrete will fail first ▪ Non-taint, odourless and phthalate-free, avoiding associated toxicity to health and environmental hazards ▪ Behaves plastically under impact; deforms but will not crack or debond ▪ Extra expansion joints are not necessary; simply maintain and extend existing expansion joints up through the Sikafloor® PurCem® FS Flooring System ▪ Achieves highest performance ratings according to ASTM G21 resistance to fungi and ASTM D3273 resistance to mold growth. ▪ Meets the requirements of CFIA and USDA for use in food plants

Technical Data	
Packaging	108.80 kg (56.36 L) unit / 239.86 lb (14.88 US gal) Unit Components: Fast Set PurCem® Part A: 8 x 1.97 kg (4.34 lb) foil pouches in a cardboard box Standard PurCem® Part B: 8 x 1.66 kg (3.66 lb) foil pouches in a cardboard box Standard PurCem® Part C: 4 x 19.5 kg (43 lb) multi-wall poly laminated paper bags on a skid NOTE: A standard Sikafloor®-22NA PurCem® FS 108.80 kg (239.86 lb) unit will produce 4 mixes
Colour	RAL 3009 Oxide Red, RAL 7038 Agate Grey, Sika® Medium Grey (Formerly Telegrey 2) RAL 1001 Beige, RAL 5005 Signal blue, Special colours (on request) <i>Refer to current price list for availability.</i>
Yield	Primer: Sikafloor®-31 NA PurCem® FS 15.3 m ² (165 ft ²) at 10 mil per mix or Scratch coat: (where surface/substrate profile requires such) One (1) mix = 2 Part A foil pouches + 2 Part B foil pouches + 1 Part C multi-wall poly laminated paper bag Sikafloor®-22 NA PurCem® FS 13 m ² (140 ft ²) at 1 mm (40 mils) per mix Screed: One (1) mix = 2 Part A foil pouches + 2 Part B foil pouches + 1 Part C multi-wall poly laminated paper bag Approx. 2.9 m ² (31.6 ft ²) per unit at 4.5 mm (3/16 in) per mix Approx. 2.1 m ² (23.2 ft ²) per unit at 6 mm (1/4 in) per mix <i>These figures do not allow for surface porosity, profile or wastage.</i>

Shelf Life	12 months in original unopened packaging. Store dry at temperatures between 10 and 25 °C (50 and 77 °F) and protect from freezing. If frozen, discard product. Condition material for at least 24 hours to temperatures between 18 and 24 °C (65 and 75 °F) before use.	
Mix Ratio	Components A: B: C = A x 2 : B x 2 : C x 1. Mix full bags only.	
Application Temperature	7 °C (45 °F) min. / 38 °C (100 °F) max.	
Service Temperature	-40 °C (-40 °F) min. / 120 °C (248 °F) max.	
Cure Time	20 °C (68 °F) and 50 % R.H. / 6 mm (1/4 in)	
Foot traffic	~ 7 hours	
Light traffic	~ 12 hours	
Normal Traffic (Full cure)	~ 4 days	
Softening Point	130 °C (266 °F)	
Properties at 23 °C (73 °F) and 50 % R.H.		
Density ASTM C905	~ 1.93 kg/L (16.11 lb/US gal.)	
Flow	~ 337 mm (13.5 in)	
Pot Life	~ 15 - 20 minutes	
Compressive Strength	24 hours	~ 29 MPa (4207 psi)
ASTM C579	3 days	~ 34 MPa (4931 psi)
	7 days	~ 36 MPa (5222 psi)
	28 days	~ 39 MPa (5657 psi)
Tensile Strength ASTM C307	~ 6.51 MPa (944 psi)	
Flexural Strength ASTM C580	~ 14.6 MPa (2118 psi)	
Pull-off Strength ASTM D7234	~ 3.73 MPa (541 psi) (substrate failure)	
Surface Hardness, Shore D		
ASTM D2240	~ 83	
Indentation MIL-PRF-24613	~ 0 %	
Abrasion Resistance ASTM D4060		
H-17/1000 cycles/1000 g (2.2 lb)	~ 0.10 g (0.004 oz)	
H-22/1000 cycles/1000 g (2.2 lb)	~ 0.227 g (0.008 oz)	
Coefficient of Thermal Expansion	~ 4.32 x 10 ⁻⁵ mm/mm/°C (2.40 x 10 ⁻⁵ in/in/°F)	
ASTM D696		
Shrinkage	~ 0.216 %	
Flexural Modulus ASTM C580		
14 days	~ 1871 MPa (271 425 psi)	
Water Absorption ASTM C413	~ 0.45 %	
Resistance to Fungi Growth ASTM G21	Rated 0 (no growth)	
Resistance to Mold Growth ASTM D3273	Rated 10 (highest resistance)	
Chemical Resistance	Consult Sika Canada	
VOC Content	A+B+C = 5 g/L	

Product properties are typically averages, obtained under laboratory conditions. Reasonable variations can be expected on-site due to local factors, including environment, preparation, application, curing and test methods.

HOW TO USE

Surface Preparation

Concrete surfaces must be clean and sound. Remove all dust, dirt, existing paint films, efflorescence, exudates, laitance, form oils, hydraulic or fuel oils, brake fluid, grease, fungus, mildew, biological residues or any other contaminants which may prohibit good bond. Prepare the surface by any appropriate mechanical means, in order to achieve a profile equivalent to ICRI / CSP 3 - 6. The compressive strength of the concrete substrate should be at least 25 MPa (3625 psi) at 28 days and a minimum of 1.5 MPa (218 psi) in tension at the time of application. Repairs to cementitious substrates, filling of blowholes, levelling of irregularities, etc. should be carried out using an appropriate Sika® profiling mortar. Contact Sika Canada for recommendations.

Edge Terminations: All free edges of a Sikafloor® PurCem® FS floor, 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 should have a depth and width of 2 times thickness of the Sikafloor® PurCem® FS floor. Refer to the edge details provided. If necessary, protect all free edges with mechanically attached metal strips. Never featheredge, always turn into an anchor groove.

Expansion Joints: Should 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 vessel sealing rings. Refer to Details available upon request from Sika Canada Inc.

Mixing

Mix Ratio: Components A:B:C (A x 2 : B x 2 : C x 1). Mix full bags only

Mixing will be affected by temperature; condition materials for use to temperatures between 18 and 24 °C (65 and 75 °F) for at least 24 hours before use. A 'Ted Baugh' type mixer, incorporating a motor spun mixing pail and a shear angle mixing blade, is recommended.

Pre-agitate Components A and B separately, making sure all solids, including pigments, are uniformly distributed.

Start mixer; add component A and component B, blending for 30 seconds. Add component C (powder) pouring slowly over a period of 20 seconds. Do not dump powder into resin, add gradually.

Mixing (cont'd)

Allow component C to further blend for 2 ½ more minutes after all of the powder is emptied into the resin to ensure all powder is wetted out and a completely uniform mix is achieved. During the mixing operation, and observing good safety practices, ie turning off and removing revolving parts, scrape down the sides and bottom of the mixing container with a flat or straight edge trowel at least once to ensure complete blending of Components A + B + C.

Note: Do not attempt to attend to unmixed material that may gather on the sides of the mixing container while mechanical or electrical parts are in motion.

Cool Substrates: Application attempted at material, ambient and substrate temperatures below 18 °C (65 °F) will result in a decrease in product workability and slower cure rates. Improved flowability on cool substrates can be achieved by removing a maximum of 3 kg (6.6 lb) of Component C (powder) per unit.

Application

Prior to application, measure and confirm substrate moisture content, ambient relative humidity, ambient and surface temperature and dew point. During installation, confirm and record above values at least once every three (3) hours, or more frequently whenever conditions change (e.g. ambient temperature rise/fall, relative humidity increase/decrease, etc.).

Priming of concrete substrates is not usually 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, debonding, pinholes and other aesthetic variations.

Note: For smooth surface applications, given the fluidity of Sikafloor®-22 NA PurCem® FS a primer for porous substrates or a scratch coat where the surface profile demands such, are highly recommended.

Primer:

Mix and apply a primer coat of Sikafloor®-31 NA PurCem FS. Work the priming resin well into the surface, making sure the floor is fully wetted and then pull back lightly with the roller to the required thickness. Prime retaining (anchor) grooves but do not fill. Allow a cure period of at least three (3) hours at 20 °C (68 °F) before application of the screed mortar.

Scratch Coat:

Where the surface profile requires such and where a flat floor is intended, mix and apply a scratch coat of Sikafloor®-22 NA PurCem® FS using steel trowels to spread the materials. This application must be applied to seal the concrete surface, fill in surface irregularities; including pock marks, non-moving control joints and cracks.

Note: Should the scratch coat at 1 mm (40 mil) not fill and level the irregularities, additional coats can be applied, observing the necessary intercoat curing times.) Allow a cure period of at least three (3) hours at 20 °C (68 °F) before application of the screed.

Solid Color Broadcast Surfacing

Broadcast Body Coat

Pour mortar onto surface and spread to appropriate thickness using a notched squeegee, trowel or screed bar. Take care to spread newly mixed materials across the transition of previous applied mixes before the surface begins to set. Immediately spike roll the surface to release trapped air in the matrix. Sikafloor®-22 NA PurCem® FS requires selected mineral aggregates (selected for texture) to be broadcast on to the wet surface to rejection. Ensure complete aggregate coverage to all areas to avoid bald spots.

Top Coat

Once the broadcasted body coat has sufficiently cured to allow foot traffic, sweep-up and vacuum the loose unbonded sand. Apply a top coat of Sikafloor®-31 NA PurCem® FS or Sikafloor®-33 NA PurCem® to lock in the aggregate, using a squeegee, followed by backrolling to provide a uniform texture and finish. This application method requires a minimum 14 hours cure period at 20 °C (68 °F) and 50 % R.H. before foot traffic, see Sikafloor®-31 NA PurCem® FS Product Data Sheet.

Multi-Colour Broadcast Surfacing (SLQ)

Broadcast Body Coat

Pour mortar onto surface and spread to appropriate thickness using a notched squeegee, trowel or screed bar. Take care to spread newly mixed materials across the transition of previous applied mixes before the surface begins to set. Immediately spike roll the surface to release trapped air in the matrix. Broadcast Sikafloor® Broadcast Quartz Aggregate on to the wet surface to rejection. Ensure complete aggregate coverage to all areas to avoid bald spots.

Top Coat

Once the broadcasted body coat has sufficiently cured to allow foot traffic, sweep-up and vacuum the loose unbonded sand. Apply a top coat of Sikafloor®-510 to lock in the aggregate, using a squeegee, followed by back rolling to provide a uniform texture and finish. This application method requires a minimum eight (8) hours cure period at 20 °C (68 °F) and 50 % R.H. before light traffic, see Sikafloor®-510 Product Data Sheet.

Important: Application attempted at material, ambient and substrate temperatures below 18 °C (65 °F) will result in a decrease in product workability and slower cure rates. Low humidity during cure will slow surface cure rate.

Clean Up	Clean all tools and equipment with Sika® Urethane Thinner and Cleaner. Once hardened, product can only be removed mechanically.
Maintenance	Sikafloor® PurCem® FS floors are easily cleaned using a stiff brushing action and or high-pressure water, preferably hot, and even live steam. Degreasing agents and detergents will assist, but do not use any compounds containing Phenol as the floor colour may be damaged. Consult the cleaning compound manufacturer's instructions before use.
Limitations	<ul style="list-style-type: none"> ▪ Sikafloor® PurCem® FS systems are best installed by skilled and experience applicators. Consult Sika Canada for advice and recommendations. ▪ Do not apply below 7 °C (45 °F) or above 38 °C (100 °F) / maximum relative humidity 85 %. Use at temperatures around 38 °C (100 °F) is likely to result in reduced pot and working lives. ▪ Do not apply to concrete if measured air or substrate temperature is within 3 °C (5 °F) of surface temperature calculated dew point (substrate temperature can be lower that the ambient temperature). This will reduce the risk of condensation, which can lead to adhesion failure or blushing of the floor finish. ▪ Do not apply to polymer modified cement mortars (PCC) that may expand when sealed with an impervious resin. ▪ Do not apply to water-soaked, glistening-wet concrete substrates. ▪ Do not apply to un-reinforced sand cement screeds, asphaltic or bitumen substrate, glazed tile or non-porous brick, tile and magnesite, copper, aluminium, soft wood, or urethane composition, elastomeric membranes or fibre reinforced polyester (FRP) composites. ▪ Do not apply Sikafloor® to concrete substrate containing aggregates susceptible to ASR (Alkali Silica Reaction) due to risk of natural alkali redistribution below the Sikafloor® product after application. If concrete substrate has or is suspected to have ASR (Alkali Silica Reaction) present, do not proceed. Consult with design professional prior to use. ▪ Protect substrate during application from condensation from pipes or any overhead leaks. ▪ Do not apply to vertical or overhead surfaces / for vertical surfaces refer to Sikafloor®-29 NA PurCem® FS. ▪ This product is not designed nor intended for negative side waterproofing ▪ Do not featheredge. ▪ Do not hand mix Sikafloor® PurCem® FS materials; mechanical mixing only. ▪ On no account should this product be thinned. Addition of thinners (eg. water or solvent) will retard the cure, reduce the ultimate properties of this product and void any applicable Sika warranty. ▪ Any aggregate used with Sikafloor® systems, including PurCem®, must be non-reactive and oven-dried. ▪ Do not apply to cracked or unsound substrates. ▪ Do not use on exterior, on-grade substrates; for interior use only. ▪ Do not apply to surfaces where moisture vapour can condense and freeze. ▪ Applied material will follow undulations, depressions, lines, etc. of the underlying substrate. Visual appearance of the finished floor may vary, including, but not limited to, reflection of "waviness", slab transitions, etc. ▪ Colour uniformity cannot be completely guaranteed from batch to batch (numbered). When using Sikafloor® PurCem® FS products, take care to draw from inventory in batch number sequence, do not mix batch numbers in a single floor area. ▪ Some light custom colours may produce noticeable shade variations between Sikafloor® PurCem® FS systems (e.g. difference between floor and coving mortars). In order to achieve a uniform appearance, the use of top coats may be required. ▪ Will discolour over time when exposed to UV light and under certain artificial lighting conditions. Use Sikafloor®-33 NA PurCem® as a solid colour, UV resistant top coat. Use of clear, UV resistant top coats may not prevent discolouration of underlying materials.

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 SAFETY DATA SHEET containing physical, ecological, toxicological and other safety-related data.

KEEP OUT OF REACH OF CHILDREN
FOR INDUSTRIAL USE ONLY

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, within their shelflife. 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 recommendations, or from any other advice offered. The information contained herein does not relieve the user of the products from testing them for the intended application and purpose. 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 or may be downloaded from our website at: www.sika.ca

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