

Sikafloor® 22NA PurCem®

Medium Duty, Self-leveling Broadcast Cementitious Urethane Slurry

Description Sikafloor 22NA PurCem is a self-leveling, medium to heavy duty, solid color, three component, cementitious urethane slurry designed to provide excellent resistance to abrasion, impact, and chemical attack. Sikafloor 22NA PurCem is broadcast with dried quartz sand and sealed with Sikafloor 31NA PurCem to produce a solid color finish, or can be broadcasted with colored quartz aggregate and sealed with Sikafloor resinous flooring products for a decorative finish. The system is typically installed at 3/16 to 1/4 inch (4.5 to 6 mm) thickness.

Where to Use

- Sikafloor 22NA PurCem is primarily used to protect concrete substrates in aggressive environments.
- Typically used in food processing plants, wet & dry process areas, freezers & coolers, dairies, breweries, wineries, distilleries, laboratories, chemical process plants, pulp and paper plants, warehouses and storage areas and pharmaceutical facilities .

Advantages

- Can be applied on green concrete (typically 7 -10 days) after preparation (see surface prep section) and where substrate has tensile bond strength in excess of 218 psi (1.5 MPa).
- Can be applied to concrete substrates where <100% relative humidity is measured as per ASTM F2170.
- Resists a very wide range of organic and inorganic acids, alkalis, amines, salts and solvents. Consult Sika Technical Service 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. It will perform and retain its physical characteristics through a wide temperature range from -40°F (-40°C) up to 248°F (120°C).
- Bond strength in excess of the tensile strength of concrete, concrete will fail first.
- The broadcast finish provides a slip resistant surface.
- High abrasion qualities result from its aggregate structure.
- Can be applied over partially cured concrete substrates (<10% surface moisture), full 28 days cure time is not necessary.
- Minimal maintenance costs, superior life cycle cost advantage versus tile.
- Extra expansion joints are not necessary; maintain and extend existing expansion joints through the Sikafloor PurCem Flooring System.
- Behaves plastically under impact / deforms but will not crack or debond.
- Achieves highest performance ratings according to ASTM G21 resistance to fungi and ASTM D3273 resistance to mold growth.
- Meets the requirements of USDA for use in food plants.
- Non-tainting, odorless.

TYPICAL DATA

RESULTS MAY DIFFER BASED UPON STATISTICAL VARIATIONS DEPENDING UPON MIXING METHODS AND EQUIPMENT, TEMPERATURE, APPLICATION METHODS, TEST METHODS, ACTUAL SITE CONDITIONS AND CURING CONDITIONS.

Packaging	Component A: 1 US gal (3.78 L) 8.53 lb (3.87 kg) Component B: 0.7 US gal (2.64 L) 7.33 lb (3.325 kg) Component C: 43.96 lbs (19.94 kg) in a bag (powder) Components A+B+C: 59.83 lb (27.14 kg)	
Colors	RAL 7012 Basalt Gray RAL 7038 Agate Gray RAL 7042 Traffic Grey	RAL 3009 Oxide Red RAL 1001 Beige
Coverage	Approx. 37 ft ² (3.44 m ²) per unit at 160 mils (4 mm) Approx. 31 ft ² (2.87 m ²) per unit at 3/16" (4.75 mm) Approx. 25 ft ² (2.32 m ²) per unit at 1/4" (6 mm) (The above figures do not allow for surface porosity, profile or waste)	
Pot Life	Material Temperature	Time
	+50°F (10°C)	~ 25 - 30 minutes
	+68°F (20°C)	~ 15 - 20 minutes
	+86°F (30°C)	~ 5 - 10 minutes



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Waiting / Recoat Times	Before applying Sikafloor-22NA PurCem when a scratch primer and sealer coat is used allow:			
	Ambient & Substrate Temperature	Minimum	Maximum	
	+50°F (10°C)	24 hours	7 days	
	+68°F (20°C)	6 hours	72 hours	
	+86°F (30°C)	4 hours	24 hours	
Cure Times	Ambient & Substrate Temperature	Foot traffic	Light traffic	Full cure
	+50°F (10°C)	~ 24 hours	~ 6 days	~ 10 days
	+68°F (20°C)	~ 12 hours	~ 4 days	~ 7 days
	+86°F (30°C)	~ 6 hours	~ 2 days	~ 5 days

Properties Tested at 73°F (23°C) and 50% R.H.:

Softening Point		266°F (130°C)
Density	ASTM C905	16.84 lb/US gal. (2.02 kg/L)
Service Temperature	- 40°F (- 40°C) min. / 212°F (100°C) max.	
Compressive Strength	ASTM579 MPa)	28 days 5,802 psi (40 MPa)
Tensile Strength	ASTM C307	1,045 psi (6.5 MPa)
Flexural Strength	ASTM C580	2,314 psi (14.7 MPa)
Pull-off Strength	ASTM D4541	> 254 psi (1.75 MPa) (substrate failure)
Thermal Compatibility	ASTM C884	Pass
Hardness Shore D	ASTM D2240	80 - 85
Indentation	MIL -PRF -24613	~ 0%
Impact Resistance	ASTM D2794	5.02 ft - lb (6.81 joules) at 1/8" (3 mm) of thickness
Abrasion Resistance	ASTM D4060	CS-17/1,000 cycles/1,000 g -0.110 g
Coefficient of Thermal Expansion	ASTM D696	H-22/1,000 cycles/1,000 g -2.26 g
Water Absorption	ASTM C413	0.89 x 10 ⁵ in/in/°F (1.6 x 10 ⁵ mm/mm/°C)
Resistance to Fungi Growth	ASTM G21	0.10%
Flame Resistance	ASTM E648	Rated 0 (no growth)
(With Sikafloor 217/Sikafloor 510N LPL Topcoat)		Class I
Resistance to Mold Growth	ASTM D3273	Class I
VOC's Components A+B+C:	44 g/L	Rated 10 (highest resistance)
A+B+C+Sikafloor 15NA Accelerator	44.2 g/l	
Shelf Life		Components A+B: 1 year in original unopened packaging.
		Component C: 6 months in original unopened packaging.
		Store dry between 50°- 77°F (10°- 25°C). Protect from freezing.
Chemical Resistance	Please consult Sikafloor Technical Services.	

How to Use Surface Preparation

Concrete surfaces must be clean and sound. Remove all dust, dirt, existing paint films, efflorescence, exudates, laitance, forms 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 3,625 psi (25 MPa) at 28 days and a minimum of 218 psi (1.5 MPa) in tensile 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 Technical Service for a recommendation.

Edge Terminations - all free edges of a Sikafloor PurCem 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 floor. Refer to the edge details provided at <http://usa.sika.com>. If necessary, protect all free edges with mechanically attached metal strips. Do not 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 provided at <http://usa.sika.com>.

Priming

Substrate priming is normally not required under typical circumstances. Compressive strength of the concrete substrate of at least 3,625 psi (25 MPa) and at least 218 psi (1.5 MPa) in tensile is required. However, due to variations in concrete quality, surface conditions, surface preparation and ambient conditions, test areas are recommended to determine whether priming is required to prevent the possibility of blisters, debonding, pinholes and other aesthetic variations.

Standard primer procedure is a 40 – 60 mils (1.0 - 1.5mm) scratch coat of Sikafloor-31NA/24NA PurCem and light broadcasting of dry quartz sand. This is the preferred method for concrete substrates. The application is done by steel trowel to the substrate, a continuous coating should be ensured.



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Mixing

Mix Ratio Components A : B : C = Mix full units only

A "Kol" type mixer, incorporating a motor spun mixing pail and a shear angle mixing blade, or a forced action mixer is recommended. Mixing will be affected by temperature; condition materials for use to 60 - 70°F (15 - 21°C). Premix Components A and B separately, make sure all pigment is evenly distributed. Pour Components A and B into a clean mixing bucket, and mix for 30 seconds. Add Component C (powder) pouring slowly over a period of 20 seconds. **Note: Do not dump powder into resin!** Allow Component C to blend for a further 2-1/2 minutes after all powder is emptied into the resin to ensure complete mixing and that all powders are evenly distributed. During the mixing operations, scrape down the sides and bottom of the container with a flat or straight edge trowel at least once to ensure complete mixing (Components A+B+C).

Note: Improved flowability on cool substrates can be achieved by removing a maximum of 2.2 lb (1.0 kg) of Component C (powder) per unit.

Do not mix more material than can be applied within the working time limits (i.e. Pot Life) at the actual field temperature.

Application

Sikafloor-22NA PurCem: Scratch Coat - typically not required (see priming instructions)

Body Coat: 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.

Mix and pour the Sikafloor 22NA PurCem materials on the floor. Spread to the desired thickness (160 mils - 1/4") using a screed gauge rake or trowel. 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 22NA PurCem requires the wet surface to be broadcast to rejection with quartz or mineral aggregates. Aggregate must fall vertically to avoid surface defects / do not broadcast up to the transition line of new mixes, always broadcast 2 - 3 feet beyond the wet edge. Allow broadcast surface to cure sufficiently to be able to resist foot traffic without damaging the surface. Remove excess aggregate by sweeping or vacuuming until surface is free of all loose particles and dust. A topcoat of Sikafloor 31NA PurCem can be applied to lock in the aggregate. Allow a minimum 24 hour cure period at 68°F (20°C) before light traffic after the Sikafloor 31NA PurCem is applied.

Sikafloor 22NA PurCem Colored Quartz: Application method is the same as described above. Instead of a topcoat of Sikafloor 31NA PurCem, seal the surface using a clear polyaspartic; Sikafloor 510 (see product data sheets). Apply Sikafloor 510 top coat by squeegee and roller to provide a uniform coverage without ponding. When required, apply a second coat to achieve a specific texture. Allow a minimum 24 hour cure period at 68°F (20°C) before light traffic.

Please refer to the individual most current and respective Product Data Sheet for specific and detailed information.

Limitations

Notes on Limitations:

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 3 hours, or more frequently whenever conditions change (e.g. Ambient Temperature rise/fall, Relative Humidity increase/decrease, etc.).

Material Temperature: Precondition material for at least 24 hours between 65° to 75°F (18° to 24°C). **IMPORTANT:** Product must be protected from freezing. If frozen, discard.

Ambient Temperature: Minimum/Maximum 50°/85°F (10°/30°C)

Substrate Temperature: Minimum/Maximum 50°/85°F (10°/30°C). Substrate temperature must be at least 5°F (3°C) above measured Dew Point.

Mixing and Application must adhere to Material, Ambient and Substrate temperatures listed above or a decrease in product workability and slower cure rates will occur.

Reduced cure times may be achieved by use of Sikafloor-15NA Accelerator. Refer to Sikafloor-15NA product data sheet for complete mixing and use instructions.

Relative Ambient Humidity: Minimum ambient humidity 30%
Maximum ambient humidity 85% (during application and curing)

Dew Point: Beware of condensation!

The substrate must be at least 5°F (3°C) above the Dew Point to reduce the risk of condensation, which may lead to adhesion failure or "blushing" on the floor finish. Be aware that the substrate temperature may be lower than the ambient temperature. Calculate Dew Point from the substrate surface temperature, not the ambient temperature.

Mixing: Do not hand mix Sikafloor materials. Mechanically mix only.

Do not thin this product. Addition of thinners (e.g. water, solvent, etc.) will slow cure and reduce ultimate properties of this product. Thinners should never be added to the mix. Adding thinners will void any applicable Sika warranty.



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Limitations

- 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. (i.e standing water)
- Do not apply to un-reinforced sand cement screeds, asphaltic or bitumen substrate, glazed tile or non-porous brick, tile and magnesite, copper, aluminum, soft wood, or urethane composition, elastomeric membranes, fiber reinforced polyester (FRP) composites.
- Do not apply to cracked or unsound substrates.
- Do not apply while ambient and substrate temperatures are rising, as pinholes may occur.
- Freshly applied material should be protected from dampness, condensation and water for at least 24 hrs.
- Protect substrate during application from condensation from pipes or any overhead leaks.
- Do not apply to surfaces where moisture vapor can condense and freeze.
- Do not apply to vertical or overhead surfaces/ for vertical surfaces refer to Sikafloor-29NA PurCem.
- Do not featheredge.
- 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.
- Color uniformity cannot be completely guaranteed from batch to batch (numbered). Take care when using Sikafloor PurCem products to draw from inventory in batch number sequence, do not mix batch numbers in a single floor area.
- Will discolor over time when exposed to sunlight (UV) and under certain artificial lighting conditions. Use of clear UV resistant top coat may not prevent discoloration of underlying coatings.
- Solid color UV resistant top coat available.
- 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.
- Any aggregate used with Sikafloor systems must be non-reactive and oven-dried.
- This product is not designed for negative side waterproofing.
- For professional use only by experienced applicators.

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