

Product Data Sheet
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Sikafloor®-20NA PurCem®

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Medium to Heavy Duty, Screed Applied Cementitious Urethane Slurry

Industrial Flooring

Description Sikafloor-20NA PurCem is a resin rich, easy to trowel, heavy duty, solid color, three-component, water dispersed polyurethane-based / cement and aggregate screed. It is designed to provide excellent resistance to abrasion, impact, chemical attack and other physical aggression. Sikafloor-20NA PurCem has a textured aggregate surface providing moderate slip resistance. Selected aggregate can be broadcast on the wet screed to increase the surface texture. Typically installed at 1/4 to 3/8 in (6 to 9 mm) thickness.

Where to Use

- Sikafloor-20NA PurCem is primarily used to protect concrete substrates.
- 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

- Can be applied onto green concrete (typically 7 -10 days) after adequate preparation 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.
- Easy installation requiring less labor to install than traditional Sikafloor PurCem trowel grade materials.
- Resists a wide range of organic and inorganic acids, alkalis, amines, salts and solvents. Consult Sika Technical Sales for full details. Refer to the Sika 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).
- Steam cleanable at 1/4 - 3/8 in (6 - 9 mm) thickness.
- Bond strength in excess of the tensile strength of concrete, concrete will fail first.
- Non-taint, odorless.
- Can be applied over partially cured concrete substrates (<10% surface moisture), full 28 days cure time is not necessary.
- 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 Flooring System.
- Minimal maintenance costs, superior life cycle cost advantage versus tile.
- 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.

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: 2 x 35.7 lbs (16.23 kg) in bags (powder) Components A+B+C: 87.26 lb (39.65 kg) | | | |
| Colors | Standard colors: RAL 7046 Telegrey 2 RAL 3009 Oxide Red RAL 7038 Agate Gray RAL 7042 Traffic Grey A Color that requires lead time: RAL 1001 Beige Custom colors subject to minimum orders. Certain colors may require lead time | | | |
| Coverage | Approx. 28 ft ² (2.6 m ²) per unit at 1/4" (6 mm) Approx. 19 ft ² (1.7 m ²) per unit at 3/8" (9 mm) (The above figures do not allow for surface porosity, profile or wastage) | | | |
| 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 | | |
| Waiting / Recoat Times | Before applying Sikafloor-20NA PurCem in case a scratch primer is used allow: | | | |
| | Ambient & Substrate Temperature | Minimum | Maximum | |
| | +50°F (10°C) | 24 hours | 7 days | |
| | +68°F (20°C) | 6 hours | 3 days | |
| | +86°F (30°C) | 4 hours | 2 days | |
| 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 |



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

| | | |
|---|-----------------|--|
| Softening Point | | 266°F (130°C) |
| Density | ASTM C905 | 17.69 lb/US gal. (2.125 kg/L) |
| Flow | Approx. | 10.24 in (260 mm) |
| Service Temperature | | - 40°F (- 40°C) min. / 248°F (120°C) max. |
| Compressive Strength | ASTM579 | |
| | 24 hrs | 3,932 psi (27.1 MPa) |
| | 3 days | 5,179 psi (35.7 MPa) |
| | 7 days | 5,542 psi (38.2 MPa) |
| | 28 days | 6,209 psi (42.8 MPa) |
| Tensile Strength | ASTM C307 | 667 psi (4.6 MPa) |
| Flexural Strength | ASTM C580 | 1,676 psi (11.6 MPa) |
| Pull-off Strength | ASTM D4541 | > 254 psi (> 1.75 MPa) (substrate failure) |
| Thermal Compatibility | ASTM C884 | Pass |
| Shore D Hardness | ASTM D2240 | 80 - 85 |
| Indentation | MIL -PRF -24613 | ~ 0% |
| Impact Resistance | ASTM D2794 | 7.53 ft - lb (10.21 joules) at 1/8" (3 mm) of thickness |
| Abrasion Resistance | ASTM D4060 | CS-17/1,000 cycles/2.2 lb (1,000 g) -0.006 oz (-0.155 g) H-22/1,000 cycles/2.2 lb (1,000 g) -0.077 oz (- 2.18 g) |
| Coefficient of Friction | ASTM D1894-61T | Steel 0.4 Rubber 1.25 |
| Coefficient of Thermal Expansion | ASTM D696 | 1.56 x 10 ⁻⁵ in/in/°F (2.8 x 10 ⁻⁵ mm/mm/°C) |
| Water Absorption | ASTM C413 | 0.18% |
| Flexural Modulus | ASTM C580 | 573,989 psi (3,956.4 MPa) |
| Resistance to Fungi Growth | ASTM G21 | Rated 0 (no growth) |
| Resistance to Mold Growth | ASTM D3273 | Rated 10 (highest resistance) |
| VOC's Components A+B+C: | | < 5 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. Please consult Sikafloor Technical Services. |
| Chemical Resistance | | |

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 tension at the time of application.

Repairs to cementitious substrates, filling of blowholes, leveling of irregularities, etc. should be carried out using an appropriate Sika profiling mortar. Contact Sika Technical Sales 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 the thickness of the Sikafloor PurCem floor. Refer to the edge details provided. 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.

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 tension is required. 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.

Standard primer procedure consist of 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 all substrates. The application is carried out using a steel trowel, ensuring a continuous coating is achieved.

Mixing

Mix Ratio: Components A : B : C ("C" Consist of two bags of 35.7 lbs each) = **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 65 - 75° F (18 - 24° 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 wetted out. 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.



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Application

There is sufficient resin in the system to wet the concrete (no primer) required under normal circumstances. 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. Place mortar on surface and spread to appropriate thickness using a pin rake or screed box. Take care to spread newly mixed materials across the transition of previous applied mixes before the surface begins to set. Allow mortar to stand for a few minutes to permit entrapped air to escape. Finish the surface using a flat steel trowel, then back roll with a nylon roller to remove trowel marks. NOTE: Excessive trowelling or back rolling will bring resin to the surface reducing the antislip surface. Allow a minimum 10 hours cure period at 68°F (20°C) before foot traffic. As a second texture option, selected mineral aggregates can be broadcast on to the wet surface and sealed with a top coat of Sikafloor-31NA PurCem to lock in the aggregate. This application method requires a minimum 14 hours cure period at 20°C (68°F) before foot traffic, see Sikafloor-31NA PurCem Product Data Sheet.

Application on Slopes > 2% - To minimize movement and improve the application characteristics on slopes greater than 2%, add an additional 10% by weight [7.14 lb (3.24 kg)] of Sikafloor-20NA PurCem component C powder to each 87.26 lb (39.65 kg) unit mix.

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 attempted at Material, Ambient and/or Substrate Temperature conditions less than 65°F (18°C) will result in a decrease in product workability and slower cure rates.

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. On no account should thinners be added to the mix. Adding thinners will void any applicable Sika warranty.

Application:

- 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, aluminium, soft wood, or urethane composition, elastomeric membranes, fibre 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. Ensure there is no vapor drive at the time of application. Refer to ASTM D4263, may be used for a visual indication of vapor drive.
- Freshly applied material should be protected from dampness, condensation and water for at least 24 hrs.
- Do not apply to surfaces where moisture vapor can condense and freeze.
- 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-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.

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- 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.

Caution

COMPONENT A: CAUTION: IRRITANT. Contains Castor oil (CAS:8001-79-4), butane-1,4-diol (CAS:110-63-4), titanium dioxide (CAS:13463-67-7), Distillates (petroleum), hydrotreated middle (CAS:64742-46-7) and Carbon black (CAS:1333-86-4). Harmful if inhaled in high concentrations. May cause skin/eye/respiratory tract irritation. May cause gastrointestinal disturbance if swallowed. Reports have associated repeated and prolonged exposure to some of the chemicals in this product with permanent brain, liver, kidney and nervous system damage. **Intentional misuse by deliberate concentration and inhalation of vapors may be harmful or fatal. WARNING!** This product contains a chemical known in the State of California to cause cancer.

COMPONENT B: WARNING: IRRITANT, SENSITIZER. Contains methylenediphenyl diisocyanate (CAS:26447-40-5) and diphenylmethanediisocyanate, isomeres and homologues (CAS:9016-87-9). Harmful if inhaled/swallowed. Causes skin/eye/respiratory tract irritation. May cause allergic skin/respiratory reaction after prolonged contact. **Deliberate misuse by inhalation of vapors may be harmful or fatal.**

COMPONENT C: WARNING: IRRITANT. Contains quartz (CAS:14808-60-7), and Portland Cement (CAS:65997-15-1). Causes severe eye irritation. May cause eye injury, effects may be delayed. May cause skin/respiratory tract irritation. May cause gastrointestinal disturbance if swallowed. **WARNING!** This product contains a chemical known in the State of California to cause cancer and birth defects or other reproductive harm.

First Aid

Eyes – Hold eyelids apart and flush thoroughly with water for 15 minutes. **Skin** – Remove contaminated clothing. Wash skin thoroughly for 15 minutes with soap and water. **Inhalation** – Remove to fresh air. **Ingestion** – Do not induce vomiting. Dilute with water. Contact physician. **In all cases contact a physician immediately if symptoms persist.**

Handling and Storage

Avoid direct contact. Wear personal protective equipment (chemical resistant goggles/gloves/clothing) to prevent direct contact with skin and eyes. Use only in well ventilated areas. Open doors and windows during use. Use a properly fitted NIOSH respirator if ventilation is poor. Wash thoroughly with soap and water after use. Remove contaminated clothing and laundry before reuse.

Clean Up

Use personal protective equipment (chemical resistant gloves/goggles/clothing). Without direct contact, sweep up spilled or excess product and place in suitable sealed container. Dispose of excess product and container in accordance with applicable local, state, and federal regulations.

KEEP CONTAINER TIGHTLY CLOSED • KEEP OUT OF REACH OF CHILDREN • NOT FOR INTERNAL CONSUMPTION • FOR INDUSTRIAL USE ONLY

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