

PRODUCT DATA SHEET

Sikafloor®-20 NA PurCem®

ADVANCED GENERATION, HEAVY-DUTY AND THERMAL SHOCK RESISTANT, TROWEL GRADE
POLYURETHANE / CEMENT SCREED

PRODUCT DESCRIPTION

Sikafloor®-20 NA PurCem® is a state-of-the-art, easy to trowel, heavy-duty, phthalate-free, water-dispersed polyurethane based/cement and aggregate screed applicable at thicknesses ranging from 6 to 9 mm (1/4 to 3/8 in). It is designed to provide excellent resistance to abrasion, impact, chemical attack, thermal shock, and other physical aggression. Sikafloor®-20 NA PurCem® has a resin rich textured aggregate surface that provides good traction. Selected aggregate can be broadcast onto the wet screed to increase the surface texture for improved traction.

Sikafloor®-20 NA PurCem® represents superior polyurethane/cement technology, combining easier application, resistance to blistering and improved performance.

WHERE TO USE

Sikafloor®-20 NA PurCem® may only be used by experienced professionals.

- Sikafloor®-20 NA PurCem® floors are primarily used to protect concrete substrates, but are equally effective over most steel surfaces that have been properly prepared and supported.
- Food processing plants, wet & dry process areas, freezers & coolers, thermal shock areas, commercial kitchens, dairies, breweries, wineries, distilleries, laboratories, chemical process plants, pulp and paper plants, warehouses, and storage areas.

CHARACTERISTICS / ADVANTAGES

- 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).
- Longer pot life permits increased productivity with less waste.
- 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®-20 NA 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 - 9 mm (1/4 - 3/8 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® Flooring System.
- Achieves highest performance ratings according to ASTM G21 resistance to fungi and ASTM D3273 resistance to mold growth.

ENVIRONMENTAL INFORMATION

- Conformity with LEED®v4 IEQ Credit: Low-Emitting Materials.
- Conformity with LEED®v4 MR Credit (Option 1): Building Product Disclosure and Optimization - Sourcing of Raw Materials.

APPROVALS / CERTIFICATES

- Meets the requirements of CFIA and USDA for use in food plants.

PRODUCT INFORMATION

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| CSC MasterFormat® | 09 62 00 SPECIALTY FLOORING |
| Packaging | 166.24 kg (366.5 lb) - 79.92 L (17.58 US gal) unit Consists of 3 Components: A + B + C Part A: 8 x 1.93 kg (4.25 lb) foil pouches in a cardboard box. Part B: 8 x 1.66 kg (3.66 lb) foil pouches in a card board box. Part C: 8 x 17.19 kg (37.90 lb) multi-wall paper bags. NOTE: A 166.24 kg (366.5 lb) unit will produce 8 x 20.78 kg (45.81 lb) mixes |
| Shelf Life | 12 months in original unopened packaging. |
| Storage Conditions | Store dry between 10 °C to 25 °C (50 °F to 77 °F) Protect from freezing. If frozen, discard. |
| Appearance / 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). Refer to current price list for availability. |
| Density | ~2.08 kg/L (~17.34 lb./US gal.) (ASTM C905) |
| Volatile organic compound (VOC) content | A+B+C = ~5 g/L |

TECHNICAL INFORMATION

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| Shore D Hardness | ~81 (ASTM D2240) |
| Abrasion Resistance | ~0.24 g (~0.008 oz) CS-17 / 1000 cycles / 1000 g (2.2 lb) (ASTM D4060) ~1.96 g (~0.069 oz) H-22 / 1000 cycles / 1000 g (2.2 lb) |
| Indentation | ~0% (MIL-PRF-24613) |
| Compressive Strength | 24 hours ~25 MPa (~3626 psi) (ASTM C579) 3 days ~32 MPa (~4641 psi) 7 days ~34 MPa (~4931 psi) 28 days ~37 Mpa (~5367 psi) |
| Tensile Strength in Flexure | ~11 MPa (~1595 psi) (ASTM C580) |
| Modulus of Elasticity in Flexure | ~1685 MPa (~244 442 psi) (ASTM C580) |
| Tensile Strength | ~4.3 MPa (~624 psi) (ASTM C307) |
| Pull-Off Strength | > 3.0 MPa (> 435 psi) (substrate failure) (ASTM D7234) |
| Shrinkage | ~0.146% (ASTM C531) |
| Coefficient of Thermal Expansion | ~2.8 x 10 ⁻⁵ mm/mm/°C (~1.56 x 10 ⁻⁵ in/in/°F) (ASTM D696) |

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| Skid / Slip Resistance | ~0.62 wet (trowel & backroll finish) | (ANSI A137.1 / ANSI A326.3) DCOF - BOT 3000e |
| Service Temperature | Minimum -40 °C (-40 °F) / Maximum 120 °C (248 °F) | |
| Softening Point | ~130°C (~266°F) | |
| Thermal Compatibility | Pass | (ASTM C884) |
| Water Absorption | ~0.73% | (ASTM C413) |
| Chemical Resistance | Consult Sika Canada | |
| Microbiological Resistance | Resistance to Fungi Growth | Rated 0 (no growth) (ASTM G21) |
| | Resistance to Mold Growth | Rated 10 (highest resistance) (ASTM D3273) |

APPLICATION INFORMATION

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| Mixing Ratio | Components A: B: C = A x 1 : B x 1: C x 1 (per mix) | |
| Consumption | <p>Sikafloor®-20 NA PurCem® 1 x 20.78 kg mix (45.81 lb mix) consisting of: 1 Part A foil pouch + 1 Part B foil pouch + 1 Part C multi-wall paper bag</p> <p>~1.6 m² per 20.78 kg mix (~17 ft² per 45.81 lb mix) at 6 mm (1/4 in) w.f.t. ~1.0 m² per 20.78 kg mix (~11 ft² per 45.81 lb mix) at 9 mm (3/8 in) w.f.t.</p> <p>NOTE: A Sikafloor®-20 NA PurCem® 166.24 kg (366.50 lb) unit will produce 8 x 20.78 kg (45.81 lb) mixes.</p> <p>Actual coverage rates and material consumption will depend upon porosity and profile of substrates. Allowance must be also made for variation in film thickness or number of coats required to achieve complete coverage of surfaces. Test sections are recommended to establish correct coverage.</p> | |
| Product Temperature | Condition product between 18 °C to 24 °C (65 °F to 75 °F) before use. Mixing and application attempted at material, ambient and/or substrate temperature conditions less than 18 °C (65 °F) will result in a decrease in product workability and slower cure rates. | |
| Ambient Air Temperature | Minimum 7 °C (45 °F) / Maximum 38 °C (100 °F) | |
| Relative Air Humidity | Maximum 85% (during application and curing) | |
| Dew Point | Substrate must be at least 3 °C (5 °F) 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. | |
| Substrate Temperature | <p>Minimum 7 °C (45 °F) / Maximum 38 °C (100 °F)</p> <p>Do not apply while ambient and substrate temperatures are rising, as pinholes may occur. Ensure there is no vapour drive at the time of application. Refer to ASTM D4263, may be used for a visual indication of vapour drive.</p> | |

Substrate Moisture Content

Sikafloor®-20 NA PurCem® can be applied on substrates with higher moisture content. Check for rising moisture. The substrate must be visibly dry with no ponding water and must have a minimum pull-off strength of 1.5 MPa (218 psi).

IMPORTANT: Early application on green or young concrete before drying shrinkage has stabilized may result in reflective cracks on the finished Sikafloor®-20 NA PurCem® surface post application.

Pot Life

~25 minutes

Curing Time

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|----------------------------|-----------|------------------|
| Foot traffic | ~18 hours | at 20 °C (68 °F) |
| Light traffic | ~24 hours | and 50 % R.H. |
| Normal traffic (full cure) | ~5 days | 6 mm (1/4 in) |

Curing times will vary according to air and substrate temperature and relative humidity.

Protect from dampness, condensation from pipes or any overhead leaks and water contact during the initial 24 hour cure period.

Mechanical, chemical and physical properties will be fully achieved at full cure.

BASIS OF PRODUCT DATA

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.

Properties tested at 23 °C (73 °F) and 50 % R.H. unless stated otherwise.

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.
- 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.
- Do not apply to vertical or overhead surfaces / for vertical surfaces refer to Sikafloor®-29 NA PurCem®.
- This product is not designed nor intended for negative side waterproofing
- Do not featheredge.
- 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). 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.
- Some light custom colours may produce noticeable shade variations between Sikafloor® PurCem® 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.
- Direct-fired gas or kerosene heaters produce byproducts that can have adverse effects on the curing resin. To avoid this occurrence, heaters must be exhausted to exterior of the building to avoid defects such as surface blush, whitening, loss of adhesion or other surface deficiencies.
- Beware of air flow and changes in air flow. Introduction of dust, debris, and particles, etc. may result in surface imperfections and other defects.
- Published Dynamic Coefficient of Friction (DCOF) wet and dry test results are approximate values based on laboratory test samples produced in a controlled environment following the application instructions

published on the product data sheet. Resin flooring products are hand applied finishes subject to minor variations in surface texture due to influences partly beyond Sika Canada's control. Substrate profile, environmental conditions, variable regional aggregate size, shape and gradation, aggregate distribution, uniformity of applied resin mil thickness, and application technique can all affect the final DCOF test results achieved. Adequate provision should be made by the client throughout the selection and installation process to ensure the finished surface texture meets the end user's traction requirements.

ENVIRONMENT, HEALTH & SAFETY

User must read the most recent corresponding Safety Data Sheets (SDS) before using any products. The SDS provides information and advice on the safe handling, storage and disposal of chemical products and contains physical, ecological, toxicological and other safety-related data.

SUBSTRATE 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 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. 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 1 : B x 1 : C x 1)

Do not hand mix Sikafloor® PurCem® materials; mechanically mix only. Mixing will be affected by temperature; condition materials for use to 18 °C to 24°C (65 °F to 75°F) for at least 24 hours before use. 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.

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. Allow Component C to further blend for 2-1/2 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. 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 1 kg (2.2 lb) of Component C (powder) per mix.

Application on Slopes > 2 %: To minimize movement and improve the application characteristics on slopes greater than 2 %, add an additional 10 % by weight ~1.7 kg (~3.75 lb) of Sikafloor®-20 NA PurCem® Component C powder to each 20.78 kg (45.81 lb) mix.

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:

There is sufficient resin in the system to wet-out the concrete. Priming of concrete substrates is therefore 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.

Trowel and Roll:

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. Allow a minimum 18 hours cure period at 20 °C (68 °F) before foot traffic.

Note: Excessive trowelling or back rolling will bring resin to the surface reducing the traction value of the textured surface.

Trowel, Roll and Broadcast:

Mix and apply materials as outlined above. Broadcast selected mineral aggregates on to the wet surface and seal with a top coat of Sikafloor®-31 NA PurCem® or Sikafloor®-33 NA PurCem® to lock in the aggregate. This application method requires a minimum 24 hours cure period at 20 °C (68 °F) before foot traffic, see Sikafloor®-31 NA PurCem® or Sikafloor®-33 NA PurCem® Product Data Sheet for additional information.

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.

CLEAN UP

Clean all tools and equipment with Sika® Urethane Thinner and Cleaner. Once hardened, product can only be removed mechanically.

Sika Canada Inc.

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Edmonton (Alberta)
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MAINTENANCE

Sikafloor® PurCem® 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.

LOCAL RESTRICTIONS

Note that as a result of specific local regulations the declared data and recommended uses for this product may vary from country to country. Consult the local Product Data Sheet for exact product data and uses.

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 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