BUILDING TRUST
CONSTRUIRE LA CONFIANCE

PRODUCT DATA SHEET

# Sikafloor®-31 NA PurCem® FS

ADVANCED GENERATION, FAST SET, POLYURETHANE/CEMENT PRIMER, COATING, AND TOPCOAT

## PRODUCT DESCRIPTION

Sikafloor®-31 NA PurCem® FS represents superior polyurethane/cement technology, combining easier application, faster set times, resistance to blistering and improved performance.
Sikafloor®-31 NA PurCem® FS is a fast setting, high-build coating with a matte finish, based upon phthalate-free, water-dispersed polyurethane/cement and aggregate technology applied at thicknesses ranging from 10 mils to 20 mils per coat. It is designed as a standalone coating for concrete, as primer/sealer for Sikafloor®-22 NA PurCem® FS and Sikafloor®-24 NA PurCem® FS and as a topcoat for Sikafloor® PurCem® broadcast textured systems. It is an economical and versatile material that improves adhesion and mitigates outgassing of substrates as a primer, while providing excellent chemical resistance properties and very good durability against abrasion and mechanical damage.

## WHERE TO USE

Sikafloor®-31 NA PurCem® FS may only be used by experienced professionals.

- Sikafloor®-31 NA PurCem® FS is primarily used as a chemically resistant high build coating used to protect horizontal and vertical concrete substrates, but is equally effective over Sikafloor®-19 NA PurCem® FS, Sikafloor®-20 NA PurCem® FS, Sikafloor®-22 NA PurCem® FS, Sikafloor®-24 NA PurCem® FS and Sikafloor®-29 NA PurCem® FS.
- Typically used in food processing plants, chemical storage areas, warehouses, washrooms, laboratories, food preparation areas and chemical process plants.

## 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).
- Versatile material suitable for application as a primer, standalone coating and top coat for other PurCem systems.
- 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 -10 °C (14 °F) up to 90 °C (194 °F).
- Superior formulation eliminates formation of blisters, such as those arising out of application during elevated temperatures or early and multiple layer applications.
- 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.
- Excellent long term wear resistance from a two-coat application.
- Easily maintained using commonly employed methods and phenol-free detergents.
- Achieves highest performance ratings according to ASTM G21 resistance to fungi and ASTM D3273 resistance to mold growth.

## ENVIRONMENTAL INFORMATION

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

## APPROVALS / CERTIFICATES

- Meet 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** | 44.48 kg unit (98.06 lb unit) - 30.88 L unit (8.16 US gal unit)<br>Consists of 3 Components: A + B + C<br>Fast Set PurCem® Part A: 8 x 1.97 kg (4.34 lb) foil pouches in cardboard box<br>Standard PurCem® Part B: 8 x 1.66 kg (3.66 lb) foil pouches in cardboard box<br>Standard PurCem® Part C: 8 x 1.93 kg (4.25 lb) plastic bag in plastic pail<br>**NOTE: A 44.48 kg (98.06 lb) unit will produce 8 x 5.56 kg (12.26 lb) mixes** |
| **Appearance / Colour** | RAL 3009 Oxide Red, RAL 7038 Agate Grey, Sika® Medium Grey (Formely Telegrey 2) RAL 1001 Beige, RAL 5005 Signal Blue.<br>Special colours (on request). Refer to current price list for availability. |
| **Shelf Life** | 12 months in original unopened packaging. |
| **Storage Conditions** | Store dry between 10 °C to 25 °C (50 °F to 77 °F)<br>Protect from freezing. If frozen, discard. |
| **Density** | ~1.44 kg/L (~11.99 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) |
| **Indentation** | ~0 % | | (MIL-PRF-24613) |
| **Abrasion Resistance** | H-17/1000 cycles /1000 g (2.2 lb) | ~0.08 g (~0.003 oz) | (ASTM D4060) |
| | H-22/1000 cycles /1000 g (2.2 lb) | ~0.153 g (~0.005 oz) | |
| **Tensile Strength in Flexure** | ~31.8 MPa (~4613 psi) | | (ASTM C580) |
| **Tensile Strength** | ~15.38 MPa (~2231 psi) | | (ASTM C307) |
| **Pull-Off Strength** | > 3.0 MPa (> 435 psi) (substrate failure) | | (ASTM D7234) |
| **Shrinkage** | ~0.225 % | | (ASTM C531) |
| **Chemical Resistance** | Consult Sika Canada | | |
| **Microbiological Resistance** | Rated 0 - (no growth)<br>Resistance to Fungi Growth | | (ASTM G21) |
| | Rated 10 - (highest resistance)<br>Resistance to Mold Growth | | (ASTM D3273) |
| **Thermal Compatibility** | Pass | | (ASTM C413) |
| **Water Absorption** | ~0.07 % | | (ASTM C413) |

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| **Softening Point** | ~130 °C (~266 °F) |

## APPLICATION INFORMATION

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| **Mixing Ratio** | Components A:B:C = A x 1 : B x 1 : C x 1. Mix full bags only. |
| **Product Temperature** | Condition product between 18 °C to 24 °C (65 °F to 75 °F) before use.<br>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 workabitity and slower cure rates. |
| **Ambient Air Temperature** | Minimum 7 °C (45 °F) / Maximum 38 °C (100 °F) |
| **Consumption** | Sikafloor®-31 NA PurCem® FS 1 x 5.56 kg mix (12.26 lb mix) consisting of:<br>1 Part A foil pouch + 1 Part B foil pouch + 1 Part C plastic pail<br>~15.3 $m^2$ per 5.56 kg mix (~165 $ft^2$ per 12.26 lb mix) at 10 mil w.f.t.<br>~7.65 $m^2$ per 5.56 kg mix (~ 82.5 $ft^2$ per 12.26 lb mix) at 20 mil w.f.t.<br>**NOTE: A 44.48 kg (98.06 lb) unit will produce 8 x 5.56 kg (12.26 lb) mixes**<br>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. |
| **Relative Air Humidity** | Minimum 30 % / Maximum 85 % (during application and curing)<br>Low relative air humidity during cure will slow surface cure rate. |
| **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** | Minimum 7 °C (45 °F) / Maximum 38 °C (100 °F)<br>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. |

**Pot Life**

| Material Temperature | Time |
|---|---|
| 10°C (50°F) | ~30 to 35 minutes |
| 20°C (68 °F) | ~20 to 25 minutes |
| 30°C (86°F) | ~10 to 15 minutes |

**Curing Time**

| Substrate Temperature | Foot Traffic | Light Traffic | Full Cure |
|---|---|---|---|
| 10 °C (50 °F) | ~18 hours | ~24 hours | ~6 days |
| 20 °C (68 °F) | ~8 hours | ~15 hours | ~4 days |
| 30 °C (86 °F) | ~6 hours | ~12 hours | ~3 days |

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.

**Waiting Time / Overcoating**

Before applying additional Sikafloor®-NA PurCem® FS screed products when Sikafloor®-31 NA PurCem® FS is applied as a primer coat allow:

| Substrate Temperature | Minimum | Maximum |
|---|---|---|
| 10 °C (50 °F) | ~5 hours | ~24 hours |
| 20 °C (68 °F) | ~4 hours | ~18 hours |
| 30 °C (86 °F) | ~3 hours | ~12 hours |

# APPLICATION INSTRUCTIONS

## 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.

## 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.

Pre-agitate Components A and B separately, making sure all solids, including pigments, are uniformly distributed. Empty Component A into a clean pail and gradually add Component C (powder), mix for at least one (1) min until all powders are wetted out. Use a low speed drill (300 - 450 rpm) and *Exomixer®* -type mixing paddle (recommended) suited to the size of mixing container to minimize air entrapment. Add Component B and mix all ingredients continuously and thoroughly for three (3) minutes. During the blending operations and observing good safety practices, ie turning off and removing revolving parts, scrape down the sides and bottom of the container with a flat or straight edge trowel at least once to ensure complete blending of (Components A+B+C).
**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.

## 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.).

**Standalone Coating**
Apply two (2) coats of Sikafloor®-31 NA PurCem® FS at 10 mil w.f.t. per coat to the substrate using a short or medium nap roller. Work the resin well into the surface, making sure the floor is fully wetted and then pull back lightly with the roller to the required thickness.

**Slip-resistant Broadcast Coating**
Apply a body coat of Sikafloor®-31 NA PurCem® FS at a thickness of 10 mil w.f.t., immediately broadcast the wet coating to rejection with mineral aggregates (selected for texture). Once the broadcast body coat has dried sufficiently to allow foot traffic, sweep-up and vacuum the loose unbonded aggregate. Apply a top coat at a thickness of 10 mil w.f.t.using a squeegee followed by backrolling to provide a uniform texture and finish.

**System Top Coat**
Where a broadcast Sikafloor®-19 NA, -20 NA & -22 NA PurCem® FS screed system has been installed, and a top coat is required, apply a single coat at 10 mil to 20 mil w.f.t. using a short nap roller and back roll to encapsulate the aggregate and seal the surface.

## CLEAN UP

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

# 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.
- Protect substrate during application from condensation from pipes or any overhead leaks.
- 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).
- 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.
- This product is not designed nor intended for negative side waterproofing
- Steam cleaning may lead to delamination due to thermal shock. Apply Sikafloor®-19 NA PurCem® FS, Sikafloor®-20 NA PurCem® FS or Sikafloor®-22 NA PurCem® FS if thermal shock resistance is required. Contact Sika Canada for addition information.
- 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 topcoats 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 topcoat. Use of clear, UV resistant topcoats 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.

## 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.

## MAINTENANCE

### CLEANING

Sikafloor®-31 NA PurCem® FS floors are easily cleaned using a stiff brushing action and/or high-pressure water. 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

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