BUILDING TRUST
CONSTRUIRE LA CONFIANCE

PRODUCT DATA SHEET
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CHEMICAL-RESISTANT COATINGS

Sikagard®-381

HIGHLY RESISTANT, EPOXY NOVOLAC BINDER

Description

Sikagard®-381 is a self-levelling, two-component, solvent-free, epoxy Novolac binder and high build, smooth coating available in unlimited colours. Sikagard®-381 is typically installed as an impermeable, seamless surface that provides extremely high chemical and mechanical resistance.

Where to Use

- As a binder for high-performance, self-levelling epoxy mortars.
- As a coating for concrete inbound areas and catch basins for chemically aggressive liquids.
- As a protective coating for concrete in solvent rooms, battery rooms and storage rooms.
- For specific chemical resistance refer to Sika's chemical resistance chart.

Advantages

- Excellent protection for new or old concrete and properly prepared steel surfaces.
- Available in unlimited colour range with no minimum quantities required.
- Outstanding chemical resistance.
- High mechanical resistance.
- Excellent abrasion resistance.
- Durable, impermeable and seamless surface.
- High compressive strength within 24 hours.
- Achieves high performance ratings according to ASTM G21 resistance to fungi and ASTM D3273 resistance to mold growth (special order grade).
- Conformity with LEED® v4 EQc 2: Low-Emitting Materials.
- Meets the requirements of CFIA and USDA for use in food plants.

Technical data

Packaging	16 kg (10 L)/35 lb (2.64 US gal.) unit		
Colour	Refer to the Industrial Flooring and Coatings colour card. RAL 7046 Telegrey 2. Special colours (on request) *Refer to current price list for availability.*		
Yield	**Coating without aggregates (48 mils)**		
	Sikafloor®-156 Primer (8 mils)	5 m²/L (203 ft²/US gal.)	
	Sikagard®-381 Finish Coat (40 mils)	1 m²/L (40 ft²/US gal.)	
	Self-leveling coating with aggregates [2.5 mm (105 mils)]		
	Sikafloor®-156 Primer (8 mils)	5 m²/L (203 ft²/US gal.)	
	Self-levelling mortar* (2.5 mm (100 mils)/A+B+C)	0.4 m²/L (16 ft²/US gal.)	
	10 L unit (2.64 US gal.) of Sikagard®-381 mixed with 2.0 L (3.2 kg) (0.52 US gal.) # 70 silica sand will produce 11.18 L (2.94 US gal.) of self-levelling, ready-to-use mortar. Add # 70 oven-dried silica sand to the mixed Sikagard®-381, at the following rates:		
	20 - 30 °C (68 - 86 °F)	Add ~ 20 % by weight	
	15 - 20 °C (59 - 68 °F)	Add ~ 10 % by weight	
	10 - 15 °C (50 - 59 °F)	Add 0 %	
Shelf Life	2 years when stored in original, unopened packaging. Store dry at 5 to 32 °C (41 to 89 °F). Condition product between 18 and 30 °C (65 and 86 °F) before using.		
Mix Ratio	A:B = 3.48:1 by volume		

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

Density	~ 1.6 kg/L (13.34 lb/US gal.)		
	10 °C (50 °F)*	**20 °C (68 °F)***	**30 °C (86 °F)***
Pot Life, 250 g (8.8 oz)			
Sikafloor®-156	~ 50 min	~ 40 min	~ 15 min
Sikagard®-381	~ 60 min	~ 30 min	~ 15 min
Waiting / Recoat Time between Coats			
Sikafloor®-156 & Sikagard®-381	~ 24 - 72 hrs	~ 16 - 48 hrs	~ 8 - 24 hrs
Sikagard®-381 & Sikagard®-381	~ 24 - 48 hrs	~ 12 - 24 hrs	~ 6 - 12 hrs
Curing Time			
Open to foot traffic	~ 2 days	~ 1 day	~ 12 hrs
Lightly serviceable	~ 3 days	~ 2 days	~ 1 day
Fully serviceable	~ 7 days	~ 7 days	~ 5 days

* Product cured and tested at the temperatures indicated.

Compressive Strength	~ 80 MPa (11 603 psi)
Tensile Strength	~ 45 MPa (6527 psi)
Elongation at Break	~ 2.5 %
Flexural Strength	~ 55 MPa (7977 psi)

Heat Resistance	
Continuous exposure	up to 50 °C (122 ° F)
Cleaning with warm water	up to 80 °C (176 °F)
Short time dry heat exposure	up to 100 °C (212 °F)
Abrasion	
(Taber Abrader, Wheel CS-17/1000 g (2.2 lb)/1000 cycles)	~ 100 mg (0.0035 oz)
Pull-Off Strength ASTM D7234	> 2.7 MPa (392 psi) (concrete failure)
Resistance to Fungi Growth ASTM G21	Rated 1 (traces of growth)
Resistance to Mold Growth ASTM D3273	Rated 10 (highest resistance)
Dynamic Coefficient of Friction (DCOF)	
ANSI A326.3 /BOT 3000e	~ 0.20 Wet (smooth coating)
VOC Content	≤ 65 g/L
Chemical Resistance	Contact Sika Canada)

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

The surface must be clean, dry and sound. Remove dust, laitance, grease, oil, dirt, curing compounds, impregnations, waxes, foreign particles, coatings and disintegrated particles by any appropriate mechanical means, in order to achieve a profile equivalent to ICRI-CSP 3-4. Concrete compressive strength should be at least 25 MPa (3625 psi) at 28 days and at least 1.5 MPa (218 psi) in tension at the time of Sikagard®-381 application.

Mixing

Mix Ratio - A:B = 3.48:1 by volume

Pre-stir each component to ensure all soft settling is dispersed, solids are evenly distributed and even colours and consistencies are achieved within each component. Empty Component A (Resin) in the correct mix ratio into B (Hardener). Mix the combined components for at least three (3) minutes using a low speed drill (300 - 450 rpm) and Exomixer® or Jiffy type paddle suited to the volume of the pail to minimize entrapped air. Be careful not to introduce any air bubbles while mixing. Make sure the contents are completely mixed to avoid any weak or partially cured spots in the coating. During the mixing operation, scrape down the sides and bottom of the container with a flat or straight edge trowel at least once to ensure complete mixing. When completely mixed, Sikagard® 381 should be uniform in colour and consistency. Mix only that quantity you can use within its pot life.

Depending on the required application and once the binder has been thoroughly mixed, gradually add oven dried silica sand size 70 (0.1 - 0.3 mm). For ramps and inclined surfaces, add 1 - 2 % by weight of Extender T, as required.. Mix until uniform in colour and consistency. Sikagard®-381 can also be applied as a neat coating without adding any aggregates.

Application

Primer - Apply Sikafloor®-156 using a brush or roller, to cover a surface of 5 m²/L (203 ft²/US gal.). Rough surfaces must be levelled with Sikafloor®-156 mortar overlay. Wait until primer coating is dry before applying Sikagard®-381.

Wearing Layer - Apply Sikagard®-381 evenly using a serrated or notched spreader to a uniform thickness. Then, roll the surface of Sikagard®-381 with a spiked roller to remove entrapped air.

Note: If the Waiting/ Recoat time has passed (refer to Technical Data section) the previous coat must be lightly sanded, to remove all gloss; vacuum cleaning and solvent wiping will be necessary to remove all traces of dust. The surface should be a uniform dullness, with no gloss present after clean-up and before applying the next coat.

Clean Up

Clean all tools and equipment immediately after use with Sika® Epoxy Cleaner. Once hardened, material can only be removed mechanically.

Limitations

- Sikagard® 381 is best installed by skilled and experienced applicators. Consult Sika Canada for advice and recommendations.
- Prior to application, measure and confirm the following: substrate moisture content, ambient relative humidity, ambient and surface temperature and dew point. During installation, confirm and record above values at least once (1) every three (3) hours, or more frequently whenever conditions change (e.g. ambient temperature rise/fall, relative humidity increase/decrease, etc.).
- Moisture content of concrete substrate must be less than 4 % (pbw – part by weight) as measured with a Tramex® CME/CMExpert type concrete moisture meter on mechanically-prepared surface according to this product data sheet (preparation to ICRI / CSP 3 - 4). Do not apply to concrete substrate with moisture levels greater than 4 % (pbw – part by weight) as measured with Tramex® CME/CMExpert type concrete moisture meter. If moisture content of concrete substrate exceeds 4 % (pbw – part by weight) as measured with Tramex® CME/CMExpert type concrete moisture meter, use Sikafloor®-1610 or Sikafloor®-81 EpoCem®CA.
- When relative humidity tests for concrete substrate are conducted per ASTM F2170 for project specific requirements, values must be ≤ 85 %. If values exceed 85 % according to ASTM F2170, use Sikafloor®-1610 or Sikafloor®-81 EpoCem®CA. ASTM F2170 testing is not a substitute for measuring substrate moisture content with a Tramex® CME/CMExpert type concrete moisture meter as described above.
- Material temperature: Precondition material for at least 24 hours at temperatures between 18 to 24°C (65 to 75°F).
- Ambient and substrate temperatures (minimum / maximum): 10 °C / 30 °C (50 °F / 85 °F).
- 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.
- **Beware of condensation!** The 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.

Limitations continued...

- Do not hand mix Sikafloor® materials. Mechanically mix only. Pre-stir each component thoroughly and do not allow mixed material to stand and settle. Failure to pre-stir and keep product agitated will result in variation in gloss levels appearance and performance
- Do not thin this product. Addition of thinners (e.g. water, solvent, etc.) will slow cure and reduce ultimate properties of this product. Use of thinners will void any applicable Sika® warranty.
- 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.
- Freshly applied material should be protected from dampness, condensation and water for at least 24 hours.
- 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 polymer modified cement mortars (PCC) that may expand when sealed with an impervious resin.
- Any aggregate used with Sikafloor® systems must be non-reactive and oven-dried.
- This product is not designed for negative side waterproofing.
- Not recommended for exterior slabs on grade where freeze/thaw conditions may exist.
- Not suitable for exterior direct sunlight exposure as surface may discolour; use for interior walls and floors only.
- Not recommended for areas subject to frequent thermal cycles.
- While the material is supplied in colours, it is not intended and should not be used as a decorative finish, but as a chemical resistant barrier. In addition to discolouration due to ultraviolet light, exposure to some chemicals may result in a change in the appearance of the finish, with loss of gloss values, change in colour and or staining. This however, does not necessarily constitute a compromise of this protective surfacing.
- The influence of colour selection should be allowed for in material consumption/coverage. Light or bright colours may require higher wet film thicknesses or additional coats to achieve desired opacity. Consult Sika Canada for guidance at time of colour selection.
- Direct-fired gas or kerosene heaters produce by-products that can have adverse effects on the curing resin. To avoid this occurrence, heaters must be exhausted to the exterior of the building to avoid defects such as amine blush, whitening, loss of adhesion or other surface deficiencies.
- Mechanical, chemical & physical properties will be fully achieved at full cure.
- 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.

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

SIKA CANADA INC.
Head Office
601, avenue Delmar
Pointe-Claire, Quebec
H9R 4A9

Other locations
Toronto
Edmonton
Vancouver

1-800-933-SIKA
www.sika.ca

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