

PRODUCT DATA SHEET

SikaLevel®-250

SUPERIOR FLOW, CEMENTITIOUS, SELF-LEVELING UNDERLAYMENT

PRODUCT DESCRIPTION

SikaLevel®-250 is a one-component, polymermodified cementitious underlayment for interior concrete, engineer-approved plywood and a variety of existing substrates. Its high-flow, self-leveling properties allow it to be applied, either manually or by pump, to produce a flat and cost-effective substrate prior to the application of a final floor finish. Typical application thickness is 3–31 mm (1/8–1 1/4 in).

WHERE TO USE

- Concrete
- Approved plywood underlayment
- Poured gypsum based underlayment and poured "hybrid" (gypsum/cement based) underlayment
- Unconventional substrates with SikaLevel®-02 EZ Primer CA (see product data sheet for more information)
- SikaLevel®-250 can serve as a underlayment to receive our Sikafloor®-261 CA or Sikafloor®-219 UTE epoxy floor coatings ^{1 and 2}
- Floor heating system (heating cables or uncoupling membrane with heating cables) ³

¹ On concrete substrates only (indoor use and in dry areas or areas with intermittent exposure to water only)

² Refer to the **SURFACE PREPARATION** and **APPLICATION** sections for important information

³ Refer to the recommendations in the **RESTRICTIONS** section for important information (indoor use and in dry areas or areas with limited exposure to water only)

CHARACTERISTICS / ADVANTAGES

- High-flow fluidity and superior workability for easy installation-leveling
- Zero VOC content and low odour
- Can be mixed using a drill or by using a mixing and pumping equipment (see Pump Mixing section)
- Levels new and renovates old floors
- Can be walked on after 3 hours at 23 °C
- Ceramic tiles and non-moisture sensitive natural stone and agglomerated stones can be installed after only 3 hours
- Carpet can be installed after only 16 hours. Vinyl and PVC flooring can be installed after 1 day. Rubber and engineered wood flooring can be installed after 3 days
- Suitable on floors with in-floor radiant heating

PRODUCT INFORMATION

Composition / Manufacturing	Cement-based, fillers and Sika's latest generation of polymers
Packaging	22.7 kg (50 lb) bag
Shelf Life	12 months in original, unopened bag.
Storage Conditions	Stored (unopened) in its original packaging, in a dry place between 5 °C (41 °F) and 32 °C (90 °F). For best results, condition product between 18 °C

(65 °F) and 29 °C (84 °F) before using.

Density	2.1 kg/L (132 lb/ft³) (wet mix)		(ASTM C185)
CSC MasterFormat®			
Compressive Strength	24 hours	20 MPa (3045 psi)	(ASTM C109) modified
	7 days	30 MPa (4351 psi)	
	28 days	34.9 MPa (5061 psi)	
Tensile Strength in Flexure	7 days	6.7 MPa (972 psi)	(ASTM C348)
Tensile Strength	> 2 MPa (290 psi) failure in the substrate		
Mixing Ratio	Between 4.75 L and 5 L (1.25 and 1.32 US gal.) water per 22.7 kg (50 lb) bag		
Yield	~15.3 L (4 US gal.) per 22.7 kg (50 lb) bag		
	Approximate coverage at typical thicknesses per 22.7 kg (50 lb) bag:		
	▪ 6 mm (1/4 in) 2.4 m² (26 ft²)		
	▪ 12 mm (1/2 in) 1.2 m² (13 ft²)		
	Note: Coverage figures do not include allowance for surface profile and porosity or material waste.		
Ambient Air Temperature	Between 5 °C (41 °F) and 35 °C (95 °F)		
Relative Air Humidity	< 75 %		
	Note: The substrate and uncured product applied on the floor, must be at least 3 °C above dew point to reduce the risk of condensation, blooming or cement laitance forming on the surface.		
Substrate Temperature	Between 13 °C (55 °F) and 32 °C (90 °F)		
Waiting Time	Can be walked on after 3 hours		
	Floor covering installation:		
	▪ Ceramic tile and moisture-insensitive stone: 3 hours		
	▪ All other floor coverings: Between 16 hours and 3 days depending on the type of floor covering.		
	Note: The above data is provided as an indication, for a temperature of 23 °C (73 °F) and ambient relative humidity of 50 % when applied at 9 mm (3/8 in). Drying will be affected by the actual job site conditions (such as temperature and relative humidity in particular). Prior to the installation of the SikaLevel®-250 system, the moisture level in the concrete slab must be measured following the written instructions and meet the requirements of the manufacturer of the floor covering to be installed.		
Flowability	SikaLevel®-250 provides up to 20 minutes of working time.		

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) / 50 % r.h. unless

LIMITATIONS

NOTE: The user is solely responsible for the proper use of the product. Site visits carried out by Sika® personnel are intended solely, when requested by user, to provide written technical application recommendations based on Sika® documentation. They are in no way intended to supervise, approve or control

the quality of the work performed on site. The information contained herein does not relieve the user of the products from testing them for the intended application and purpose.

- Do not install SikaLevel®-250 over chipboard, particleboard, Oriented Strand Board (OSB), hardboard, lauan, wood floors (such as but not limited to solid wood, engineered wood, etc), crack isolation or sound reduction membrane, gypsum-based patching or over any dimensionally unstable substrates.
- Installation of SikaLevel®-250 over poured based gypsum underlayment is restricted to residential and light commercial conditions only.
- Do not install SikaLevel®-250 over poured based gypsum underlayment or poured "hybrid" (gypsum/cement based) underlayment if soft, chalky, cracked or crumbling.
- Do not install over moving control joints (with active cracks) or over expansion joints.
- Do not exceed the recommended water dosage. Do not expose to accelerated drying conditions during the first three hours. Examples of such conditions are; high temperatures and sunlight, rapid air circulation (which can be observed near doors or where air diffusers vents are not yet installed at the time of pouring, the self-leveler.

As well, Sika® recommends:

- To protect stored material from exposure to rain, condensation and high humidity as moisture may penetrate packaging, causing lumps.
- That for best results, condition SikaLevel®-250 between 18 °C (65 °F) and 29 °C (84 °F) prior to mixing and installation. Lower temperatures may result in slower strength development and longer curing times.
- To take in account that SikaLevel®-250 is designed for interior use only and should not be used in areas subjected to prolonged exposure to moisture.
- That hose length exceeding the maximum recommended lengths of 65 m (215 ft) when SikaLevel®-250 mechanically mixed using a continuous mixer and pump, or 40 m (130 ft) with a batch mixer and pump, may invite a mechanism (time + friction + shear) that can reduce the flow rate and result in a thicker mixture at the end of the hose outlet. The applicator may be tempted to compensate this by increasing the water ratio of the mixture. However, this will result in segregation (and therefore a heterogeneous mixture), cracking, and surface migration of certain components (particularly the polymer), which are detrimental to the performance of SikaLevel®-250.
- SikaLevel®-250 must be poured at a minimum thickness of 6 mm above the hearing cables (and preferably up to 12 mm for better heat distribution). Note: no primer is required on the membrane. It is recommended to consult the hard or

soft flooring manufacturer to verify for any additional information to be taken in account.

- To take in account that SikaLevel®-250 is not intended to be used as a wear layer even if coated or sealed, it must be protected by installing a suitable floor covering.
- The installation of a permanent, effective moisture vapour retarder with a minimum thickness of 0.25 mm (10 mil) and a permeance of 0.1 is required under all on- or below-grade concrete floors. The moisture vapour retarder shall be continuous and its integrity to not have been compromised.
- That the thick poured gypsum based underlayment over which SikaLevel®-250 is to be poured shall have a minimum compressive strength of 13.8 MPa (2000 psi) for use over wood subfloor and 20.7 MPa (3000 psi) use over concrete subfloors. And that it's density shall be a minimum of 1600 kg/m³ (105 lb/ft³) when tested in accordance with test method (ASTM C472).
- To take in account that in an HVAC-controlled environment, a 19 mm (3/4 in) poured gypsum based underlayment will dry in 7 days while a 32 mm (1 1/4 in) will dry in 21 days.
- That concrete, engineer approved plywood underlayment, poured based gypsum underlayment and poured "hybrid" (gypsum/cement based) underlayment must always be primed with Sikalevel®-03 Primer Plus (refer to the product data sheet for important information) and specific instructions in the PRIMER section later in this product data sheet.
- That Sikalevel®-02 EZ Primer (CA) should be used over properly prepared epoxy, ceramic tiles, old vinyl sheet flooring and old substrates with water-resistant adhesive residues. Refer to primer product data sheet for important information on preparation and product use and limitations.
- To protect SikaLevel®-250 from excessive heat and moving air by turning off radiant heating and forced air ventilation for 24 hours before installation and whilst the underlayment is curing.
- To avoid walking on the SikaLevel®-250 underlayment for at least three (3) hours and do not expose to rolling dynamic loads for three (3) days, at 23 °C / 50 % r.h.

ENVIRONMENT, HEALTH & SAFETY

SUBSTRATE QUALITY

Concrete substrates must be structurally sound and solid. Compressive strength must be at least 25 MPa (3625 psi) and tensile strength a minimum of 1.5 MPa (218 psi) at the time of application of the SikaLevel®-250.

Plywood Substrates (for residential interior flooring in dry areas only)

When applying SikaLevel®-250 to plywood substrates. The appropriate subfloor (immediately

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above the joists) must be a Douglas fir plywood (CSA 0121), Canadian softwood plywood (CSA 0151), poplar plywood (CSA 0153) construction sheathing, or APA Sturd-I-Floor OSB, Exposure 1, with a minimum thickness of 16 mm (5/8 in.). The joists must be spaced 406 mm (16 in) on center. The ends of the subfloor sheets must be spaced 3 mm (1/8 in) apart. The subfloor must be fastened with 30 mm (1 3/16 in) screws placed 150 mm (6 in) on center around the perimeter and 200 mm (8 in) on center across the entire body of the panel. All ends and edges of the panels must be supported by a framing element.

The appropriate underlayment (on the subfloor) should be Group 1 exterior plywood at least 12 mm (1/2 in) thick, CANPLY Select (SEL) or Select Tight Face (SEL TF) plywood conforming to CSA-0121 for Douglas Fir (DFP) for direct-glue applications. Before purchasing or ordering plywood, note that certification information (such as the CSA standard) is usually found on the underside of the plywood. **Note:** The wood flooring must meet at least L/360 deflection parameters, taking into account both static loads, such as kitchen islands, and dynamic loads. Refer to the final flooring manufacturer for the flooring system's deflection requirements, as more stringent criteria may apply to large-format tiles or stone products. For example, for stone, the maximum allowable deflection is L/720 (which requires the substrate to be twice as rigid) and may necessitate a thicker subfloor and underlayment.

Offset the underlayment joints relative to the subfloor joints and stagger the joints between the sheet ends. The underlayment must be fastened with 30 mm (1 3/16 in) screws spaced 150 mm (6 in) center to center around the perimeter and 200 mm (8 in) in center, through the entire panel. The underlayment screws must pass through the full thickness of the assembly but must not penetrate the joists or cross bracing/solid blocking. The edges of the underlayment sheet must be set back 6 mm (1/4 in) from all adjacent surfaces (walls, countertops, etc.)

SURFACE PREPARATION

All substrates must be free of dust, dirt, oil, grease, cement laitance, efflorescence or any contaminants or conditions that may affect adhesion or overall product performances. Surface treatments or any friable areas of the substrate must be mechanically removed and the surface be repaired with one of Sika's patching compounds or self-leveling material as required. All cracks and holes should be similarly filled to prevent seepage during the application of SikaLevel®-250. Careful consideration should be given to the selection of the method of mechanical surface preparation and the timing of application of primer and underlayment.

Immediately following mechanical preparation on some excessively porous concrete substrates, outgassing will increase for a short period of time (approx. 48 hours) until equilibrium in slab vapour pressure and the ambient environment is reached. Layers of water soluble adhesives are to be completely removed by mechanical means.

Surface Preparation for Subsequent Application of Sikafloor®-261 CA or Sikafloor®-219 UTE Coatings

1. Light Traffic Areas (offices, reception areas, etc.):

Mechanically prepare the concrete to achieve a CSP 2 profiled surface condition using an abrasive disc on a floor polisher. Use a vacuum cleaner with a brush attachment to remove dust before applying SikaLevel®-03 Primer Plus diluted according to the instructions below.

2. Areas with moderate traffic and exposure to the movement of trolleys with rubber/polyurethane wheels (commercial and institutional spaces, hospitals, etc.) and for areas with high traffic and occasional use of pallet trucks with hard rubber or polyurethane wheels (shopping centers, stores, airport terminals, work areas, laboratories, car dealership showrooms, etc.):

Mechanical preparation of the concrete to achieve a CSP 3 profiled surface condition (light shot peening). Use a vacuum cleaner with a brush attachment to remove dust before applying SikaLevel®-03 Primer Plus diluted according to the instructions below.

PRIMING

Before work commences, examine the areas to be covered and report any improper condition(s) in writing to the general contractor, architect or engineer (or otherwise, the owner). User shall not proceed with the work until surfaces and conditions comply with the requirements indicated in this document; applicable industry standards; federal, provincial and local regulations, as well as good trade practices. By starting work, the Applicator/User acknowledges that the conditions are acceptable.

Prime standard absorbent substrates such as concrete, poured gypsum based underlayments and poured "hybrid" (gypsum/cement based) underlayments diluting 1 part of SikaLevel®-03 Primer Plus with 3 parts of clean potable water (check that the concrete absorbs water well by means of a water drop test).

Furthermore, if the primer mixture is observed to be absorbed within 60 seconds over poured gypsum based underlayment in any part of the primed area. A second application of a diluted 1 part of SikaLevel®-03

Primer Plus diluted with 1 part of clean potable water is mandatory. Failure to take such a step may result in a chemical reaction which can destroy the integrity of the bond between the poured gypsum based underlayment or the poured "hybrid" (gypsum/cement based) underlayment and SikaLevel®-250. For installations that will come in contact with water or areas of intermittent exposure to water (such as residential bathrooms). Apply Sikalastic-260 Stop Aqua (CA) at 20 mils at least 60 minutes before pouring SikaLevel®-250 on poured gypsum based underlayment or poured "hybrid" (gypsum/cement based) underlayment.

Prime engineered approved plywood underlayment with undiluted SikaLevel®-03 Primer Plus.

Prime non-absorbent, smooth, sound substrates such as ceramic tiles and old water-resistant adhesive residues (removed as much as possible) with SikaLevel®-02 EZ Primer (CA). Refer to primer product data sheet for important information on preparation and product use and limitations.

Note: Read and understand the respective PDS for complete and detailed instructions on the usage of each primer.

MIXING

Use between 4.75 L and 5 L (1.25 and 1.32 US gal.) of potable water [~ 21 °C (~70 °F)] for each 22.7 kg bag of SikaLevel®-250.

Manual mixing

Pour the appropriate amount of water into a suitably sized and clean mixing container, using a calibrated measuring jug, or similar, to ensure strict control of the water content (do not add more water). Add SikaLevel®-250 to the water, while slowly mixing, adding the complete contents of the bag. If available water is not at this temperature, then consideration should be given to cooling/heating the water. Mix with a high-speed drill (> 650 rpm) and an egg beater style mixing paddle to blend water and powder for approximately three (3) minutes, until a lump-free and uniform mix has been produced. Do not overmix or allow the paddle to rise above the level of material as this will introduce and entrap air into the mix, potentially shortening the working life or causing pin-holing at the surface of SikaLevel®-250.

Pump mixing

Pump mixing can save time over manual mixing. Best industry practice will ensure proper performance of any self-leveling material and Sika wishes to share some important ones with you:

- SikaLevel®-250 can be mechanically mixed with a continuous mixer and pump using a minimum of 40 m (130 ft) of hose and a maximum of 65 m (215 ft), or with a batch mixer and pump using a minimum of 25 m (80 ft) of hose and a maximum of 40 m (130 ft). Some mixing occurs as the material travels through the hose but minimum length is critical to ensure proper consistency and lump-free material is delivered. Furthermore, when using a batch mixer, do not cut short on the mixing time (to ensure a homogeneous mix, prevent segregation, etc.).
- Consideration should be given about how the hose is held at delivery (above the shoulder). This will help provide some back pressure in the hose which can generally improve the consistency at delivery.
- Verify flow periodically (at least for each skid of selfleveling material).
- Ensure that water pressure/output to the mixing equipment is fairly consistent. Variation of water pressure at source will impact on the consistency of SikaLevel®-250. Do not exceed water ratio. The consistency and flow time will seem better but this will invite segregation which results in increase shrinkage (crack development) and weak/soft surface).

APPLICATION

Pour the mix and spread using a smoothing trowel. Even surfaces are easily achieved using a pin leveler. It's not recommended to remove trowelling defects or to level more than once. SikaLevel®-250 has an approximate self-healing (working) time of up to 20 minutes at 23 °C (73 °F). SikaLevel®-250 can be applied from 3 mm to 30 mm (1/8 in to 1 1/4 in) in a single application. Apply enough SikaLevel®-250 to sufficiently cover all high spots. Smooth the surface with a smoother tool to obtain an even surface. Consider the width of the pour so as to maintaining a wet edge throughout placement. If a second layer of leveling compound has to be applied, prime the first layer with Sikalevel®-03 Primer Plus (1:1) when the first layer is walkable. The second layer must not exceed the layer thickness of the first layer. Protect curing SikaLevel®-250 from high ambient temperatures, direct sunlight and drafts.

For application regarding Sikafloor®-261 CA or Sikafloor®-219 UTE coatings

1. Light traffic areas (offices, lobbies, etc.): Apply the [SikaLevel®-250 ensuring a thickness of at least 3 mm (1/8 in) above the highest point of the prepared substrate.

2. Moderate traffic areas and areas exposed to rubber/polyurethane wheeled cart traffic (commercial and institutional spaces, hospitals, etc.): Apply the SikaLevel®-250 ensuring a thickness of at least 6 mm (1/4 in) above the highest point of the prepared substrate.

3. High-traffic areas and areas exposed to

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occasional pallet jack traffic with hard rubber or polyurethane wheels (shopping malls, stores, airport terminals, work areas, laboratories, car dealership showrooms, etc.): Pour the SikaLevel®-250 ensuring a thickness of at least 9 mm (3/8 in) above the highest point of the prepared substrate.

Note:

1. Understand that the minimum thickness is necessary to ensure proper transfer of static and dynamic loads through the flooring system to prevent the SikaLevel®-250 coating from chipping.
2. Once the selected coating has been applied and sufficiently cured. To avoid premature wear of the two (2) Sikafloor® coatings mentioned above, ensure at all times that the wheels (such as, but not limited to trolleys and/or pallet trucks) are free of abrasive contaminants or nails/screws/bolts.

Note: Jobsite trials (while considering possibly also including the floor covering) are recommended to establish suitability of application equipment and technique, acceptable workmanship, consumption and coverage rates and the performance of the floor system as a whole.

CURING TREATMENT

SikaLevel®-250 must be allowed to air cure. Do not wet cure or use curing and sealing compounds.

CLEAN UP

Clean all tools and application equipment with water immediately after use. Hardened / cured material can only be removed mechanically.

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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