BUILDING TRUST

PRODUCT DATA SHEET

Sikafloor®-222 W ESD

WATER-BASED CONDUCTIVE PRIMER FOR CONDUCTIVE SIKAFLOOR COATINGS

PRODUCT DESCRIPTION

SikafloorSikafloor®-222 W ESD is a two-component water based epoxy primer with high electrostatic conductivity. It is designed for use in combination with Sikafloor®-200C ESD, and Sikafloor®-260 ESD and Sikafloor®-270 ESD electrostatic conductive coating systems. Sikafloor®-222 W ESD can be used on a variety of substrates, including existing non-conductive coatings or resurfacers and epoxy primed concrete. Sikafloor®-222 W ESD requires a concrete primer prior to application, such as Sikafloor®-160, Sikafloor®-161 or Sikafloor®-1610.

CHARACTERISTICS / ADVANTAGES

- Solvent free.
- Provides highly conductive ground plane.
- Easy application.
- Environmentally safe.
- Water based, solvent free and odorless
- Low VOC Content
- Consistent resistance measurements are obtained when testing in accordance with standard
- methods.

USES

- Electronics
- Data Processing
- Military/Aerospace
- Photographic, graphic arts
- Hazard industries (dust or explosion hazards)

PRODUCT INFORMATION

Packaging	Part A	0.27 US gal. (0.98 L) Containers
	Part B	1.23 US gal. (4.32 L) Containers
	Part A+B	1.5 US gal. (5.3 L) Ready to mix unit
	Resin - Part A	whitish, liquid
	Hardener - Part B	black, liquid
Appearance / Color	Black	

Shelf Life	Part A:	12 months from the date of production. Protect from freezing.
	Part B:	12 months from the date of production. Protect from freezing.
Storage Conditions	Original, unopened and undamaged sealed packaging, in dry conditions at temperatures between +40° and +90°F (+4° and +32°C). Always refer to packaging.	
Solid content by mass	~ 40%	(property tested at +73°F/+23°C and 50% r.h.)
Volatile organic compound (VOC) content	34 g/L	

TECHNICAL INFORMATION

Tensile Adhesion Strength	> 400 psi (> 2.76 MPa) (100% concrete failure)	ASTM D4541 +73°F/+23°C and 50% R.H.
Electrostatic Behavior	< 3,000 ohms[1] (@ 10 volts)	ANSI STM S7.1 73°F/+23°C and 50% R.H.
	[1] Readings may vary depending on ambient conditions (e.g. temperature, humidity) and measurement.	
Mixing Ratio	Part A : part B = 18 : 82 (by volume)	
Coverage	4 to 6 mils wet film thickness per coat, at ~ 401 ft² to ~ 267 ft² (~ 37 m² to ~ 25 m²) per gallon (3.78 L) Product will not cure properly if applied at excessive thickness.	
Product Temperature	Precondition material for at least 24 hours between +65° to +75°F (+18° to +24°C)	
Ambient Air Temperature	+50°F (+10°C) min. / +86°F (+30°C) max.	
Relative Air Humidity	80% r.h. max. (during application and curing)	
Dew Point	Beware of condensation. The substrate and uncured floor must be at least +5˚F (+3°C) above the dew point to reduce the risk of condensation or blooming on the floor finish.	
Substrate Temperature	+50°F (+10°C) min. / +86°F (+30°C) max.	
Substrate Moisture Content	Moisture content of concrete substrate must be ≤ 4% by mass (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 CSP-3 to CSP-4 as per ICRI guidelines). Do not apply to concrete substrate with moisture levels > 4% mass (pbw – part by weight) as measured with Tramex® CME/CMExpert type concrete moisture meter. If moisture content of concrete substrate is > 4% by mass (pbw – part by weight) as measured with Tramex® CME/CMExpert type concrete moisture meter, use Sikafloor®-1610 or Sikafloor®-81 EpoCem.	
Pot Life	**Material Temperature** +68°F (+20°C)	**Time** ~ 25 minutes
	Sikafloor®-222 W ESD must be applied and distributed immediately after mixing. Do not apply if indicated pot life is exceeded. End of pot life is not visible.	
Waiting / Recoat Times	Before applying Sikafloor® ESD coating on Sikafloor®-222 W ESD allow:	

Ambient & Substrate Temperature	Minimum	Maximum
+50°F (+10°C)	24 hours	6 days
+68°F (+20°C)	12 hours	3 days
+86°F (+30°C)	8 hours	2 days

BASIS OF PRODUCT 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.

AVAILABILITY/WARRANTY

Electrical Grounding
For applications that are critical or per project specifications, it is recommended that the various coatings (especially the conductive primer if a conductive system is being installed) be applied in direct, uninterrupted contact with properly prepared grounding points. Metal floor joints, metal equipment bases and steel columns or posts may be used if they have been electrically tested to confirm permanent continuity with an earth ground. Generally, a minimum of one grounding point per every 1,000 square feet (approx 100 m²) of flooring is sufficient for proper dissipation of static electricity.
Adhesive backed copper grounding tape is used as a grounding point. Copper tape can also be used to bridge control joints around columns or different concrete slabs. Copper tape and the Sikafloor®-222 W ESD cannot be expected to maintain integrity over expansion joints that experience wide movement. Embedded grounding points, such as copper tape, grounding snaps, etc, must be placed on top of a primer/isolation layer prior to installation of Sikafloor®-222 W ESD. Methods of installation include, but are not limited to, the following techniques:
1. Use the copper tape to make an electrical connection with the green wire or grounding portion of an electrical outlet. A 4 in. (10.2 cm.) portion of the copper tape is adhered to the floor (cured primer or directly beneath the first coat of Sikafloor®-222 W ESD). Run the remaining tape up the wall and attach it to the electrical outlet. A variation of this technique involves dropping a No. 10 or 12 copper wire, inside the wall from any convenient ground bus so that the wire emerges at the floor/wall junction. At this point, a small hole cut into the drywall or chipped out of the concrete to allow the copper wire to emerge. The copper grounding strip is intertwined with, or soldered to, the stranded copper wire. If intertwined, use a conductive adhesive tape to secure the copper tape with the copper wire. Insert the connection of the copper tape and wire into the wall. The balance of the grounding strip, typically 4 in. (10.2 cm.) is then adhered to the floor.
2. The copper tape can be used to make ground connections with steel columns. The copper tape is adhered to the floor and run up onto the lightly sanded steel column or base. Drill and tap a hole into the steel column or base secure the copper tape using a machine screw and washer.

LIMITATIONS

- This product may only be used by experienced professionals.
- 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.).
- When relative humidity tests for concrete substrate are conducted per ASTM F2170 for project specific requirements, values must be ≤ 85%. If values are > 85% according to ASTM F2170 use Sikafloor 1610 or Sikafloor 22 NA PurCem® or Sikafloor 24 NA PurCem®.
- ASTM F2170 testing is not a substitute for measuring substrate moisture content with a Tramex® CME/CMExpert type concrete moisture meter as described above.
- 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.
- Dew Point: Beware of condensation!
- 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. Use of thinners will void any applicable Sika warranty.
- Applied at ~ 4 - 6 mils (~ 100µm - ~ 150 µm) wet film thickness. Dry film thickness is 2 to 3.2 mils (~ 50 µm - ~ 80 µm). Product will not cure properly if applied at excessive thickness and will result in incomplete cure and non-conductive surface.
- Apply the conductive primer to the prepared substrate which should be pore-free and pinhole-free. If necessary, apply an additional coat of a suitable material to ensure the substrate is pore-free and pinhole-free and provides uniform and complete coverage over the entire substrate.
- 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 72 hrs.
- In cases where the Sikafloor Primer coat is older than 2 days, the substrate must be abraded before application.
- Do not apply directly to concrete. Concrete must be primed with either Sikafloor®-160, Sikafloor®-161,Sikafloor®-1610 or Sikafloor 2570 prior to application. Use of a Sikafloor primer and/or isolation layer prior the application of Sikafloor®-222 W ESD is required.
- Check electrical resistance of Sikafloor®-222 W ESD after the required earth connection points have been installed and prior to the application of conductive/anti-static top coat.
- Avoid puddles on surface or depressions in substrate where material may accumulate.
- Always ensure good ventilation when using Sikafloor®-222 W ESD in a confined space.
- Do not broadcast underlying layers with silica sand.
- Polymer concrete reinforcement fibers may interfere with conductive properties of Sikafloor ESD products. Consult Sikafloor Technical Services before applying to fiber reinforced substrates.
- Beware of sanding or screening cured Sikafloor®-222 W ESD Dust is highly conductive and may damage sensitive electrical/electronic equipment and computers.
- Do not apply Sikafloor®-222 W ESD 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 for negative side waterproofing.
- Typically not recommended for exterior slabs on grade where freeze/thaw conditions may exist.
- Use of unvented heaters and certain heat sources may result in defects (e.g. blushing, whitening, debonding, etc.).
- Beware of air flow and changes in air flow. Introduction of dust, debris, and particles, etc. may result in surface imperfections and other defects.

ENVIRONMENTAL, HEALTH AND SAFETY

For further information and advice regarding transportation, handling, storage and disposal of chemical products, user should refer to the actual Safety Data Sheets containing physical, environmental, toxicological and other safety related data. User must read the current actual Safety Data Sheets before using any products. In case of an emergency, call CHEMTREC at 1-800-424-9300, International 703-527-3887.

CAUTION

COMPONENT A: WARNING - IRRITANT, SENSITIZER: Contains epoxy resins, Nonyl Phenol (CAS 25154-52-3). Eye irritant. May cause skin/respiratory irritation. Prolonged and/or repeated contact with skin may cause allergic reaction/sensitization. Deliberate concentration of vapors for purposes of inhalation is harmful and can be fatal.
Harmful if swallowed. Strictly follow all use, handling and storage instructions.
COMPONENT B: WARNING: CORROSIVE , SENSITIZER, IRRITANT.Contains amines (mixture). Contact with skin and eyes causes severe burns. Respiratory irritant. May cause eye/ skin irritation.Possible skin sensitization/allergic reaction with prolonged or repeated exposure. Harmful if swallowed. Deliberate concentration of vapors for purposes of inhalation is harmful and can be fatal. Strictly follow all handling, use and storage instructions.

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

Wear protective equipment (gloves/safety glasses/clothing) to prevent contact with skin and eyes. Keep container closed in a cool dry place. Wash skin thoroughly with soap and water after use. Use with adequate, general and local, exhaust ventilation. In absence of adequate ventilation, use a properly fitted NIOSH respirator. Remove contaminated clothing. Launder before reuse.

APPLICATION INSTRUCTIONS

SURFACE PREPARATION

Cementitious substrates (concrete / screed) shall be sound and of sufficient compressive strength minimum 3,500 psi (25 MPa) with a minimum tensile strength of 215 psi (1.5 MPa). For other substrates, please contact Sikafloor Technical Services.
Substrates shall be clean, dry and free of all contaminants such as dirt, oil, grease, coatings and surface treatments, etc.
Cementitious substrates shall be prepared mechanically using suitable abrasive blast cleaning or planing / scarifying equipment to remove cement laitance and achieve an open textured surface profile suitable for the product thickness. (Reference: CSP 3-6 International Concrete Repair Institute or equivalent).
Weak cementitious substrates must be removed and surface defects such as blow holes and voids must be fully exposed.
Repairs to the substrate, filling of cracks, blowholes/voids and surface levelling must be carried out using appropriate products from the Sikafloor®, Sikadur® and Sikagard® range of materials. Products must be cured before applying Sikafloor®-222 W ESD
All dust, loose and friable material must be completely removed from all surfaces before application of the product, preferably by vacuum cleaning equipment.
Whenever “shot-blasting” is utilized, be careful to leave concrete with a uniform texture. “Overblasting” will result in reduced coverage rates of the primer and/or subsequent topcoats. The “shotblast” pattern may show through the last coat, known as “tracking”.
Apply Sikafloor®-222 W ESD only on primed, smooth concrete and screed surfaces. Priming coat must be thoroughly cleaned. In cases where the maximum permissible waiting time between priming and Sikafloor®-222 W ESD has exceeded 48 hours / 68°F (20°C), the surface must be roughened mechanically, e.g. abrading to a dull finish, before applying the conductive coat. Do not broadcast quartz sand or other aggregate into primer oat with because this will interfere with the performance of subsequent conductive coat.
If in doubt, apply a test area first.
Use of primer on concrete substrate and/or isolation layer on existing ESD or epoxy coating is required. Prime with either Sikafloor®-160, Sikafloor®-161 or Sikafloor®-1610. Allow the primer to cure (varies with temperature and humidity) until tack free before applying subsequent coats. Ensure that the primer is pore-free, pinhole-free and provides uniform and complete coverage over the entire substrate. Sikafloor®-222 W ESD requires a smooth, defect free, surface. Any pockets, dips, or other defect where the Sikafloor®-222 W ESD may accumulate in excess of the recommended wet film thickness must be repaired prior to application. Please refer to the individual most current and respective product data sheet for specific and detailed information.

MIXING

Mix full units only
Premix each component separately. Empty Component B into Component A container. Mix both components thoroughly for 3 min using a low-speed drill (300 - 400 rpm) to minimize entrapping air. Use an Exomixer or Jiffy type mixing paddle (recommended models). During the mixing operation scrape down the sides and bottom of the pail with a flat or straight edge trowel at least once to ensure thorough mixing. Upon completion of mixing, Sikafloor®-222 W ESD shall be a uniform color. Do not mix more material than can be applied within the working time limits (i.e. Pot life) at the actual field temperature. Sikafloor®-222 W ESD must be placed and distributed on the application surface immediately after mixing.

APPLICATION

Only start application of Sikafloor®-222 W ESD after the overall priming coat has dried tack-free. Otherwise there is a risk of wrinkling or impairing of the conductive properties. Apply the conductive primer to the prepared substrate which should be pore-free and pinhole-free. If necessary, apply an additional coat of a suitable material to ensure the substrate is pore-free and pinhole-free and provides uniform and complete coverage over the entire substrate.
Electrodes must be installed before the application of Sikafloor®-222 W ESD. The floor should be divided into sections (at expansion joints or doorways when possible) that can be completed without stopping. When ending a section, tape it off to form a clean edge for an adjacent section. The Sikafloor®-222 W ESD must be applied with a 3/8” nap roller and roller trays. 18 inch (46 cm) roller assemblies and trays are preferred. The roller should be wet in the tray and then the excess coating is removed by lightly rolling in the tray so as to avoid drips.
Then apply 3 pairs of 6 - 8 foot (approx. 1.80 m - 2.40 m) long paths on to the floor. Then spread the material with roller passes perpendicular to the paths of coating. It is extremely important to apply the coating at a rate of 4 - 6 mils (100 - 150 µm) to achieve proper appearance, texture, and color development, and consistent ESD properties. If areas are too thick, the coating may be too soft, if too thin, the coating will appear very flat in sheen and may exhibit poor electrical properties. Work evenly to avoid late “tie-in” and re-rolling to adjacent previously applied material; Doing so may result in color variations.
When Sikafloor®-222 W ESD is used in conjunction with Sikafloor®-200C ESD/Sikafloor®-250 ESD, or -270 ESD, test the primed surface for conductivity prior to the application of Sikafloor®-200C ESD/ Sikafloor®-700C ESD. A value of < 10 X 10^3 ohms per ANSI/ESD S7.1/ASTM F-150 must be achieved.
Caution: Excessive application thickness will result in “skinning over” which will result in soft, uncured product on the floor and unacceptable conductivity readings. Do

not exceed recommended application thickness. Beware of pockets, “bug holes” or other depressions in the concrete surface where Sikafloor®-222 W ESD may accumulate during application. Examine cured Sikafloor®-222 W ESD surface for non-uniform appearance which may
indicate areas where the product was applied in excessive thickness. These must be removed, prepared again and recoated prior to application of the top coat. Properly applied Sikafloor®-222 W ESD will exhibit a uniform dull black finish.

CLEANING OF TOOLS

Sweep up spill and place in closed container. Dispose of in accordance with applicable local, state and federal environmental regulations. Uncured materials can be removed with approved solvents.

MAINTENANCE

CLEANING

Avoid direct contact with eyes and skin. Wearing chemical resistant goggles/gloves/clothing, collect spill. Ventilate area. In absence of adequate ventilation, use properly fitted NIOSH respirator. Sweep up spill and place in closed container. Dispose of in accordance with applicable local, state and federal environmental regulations. Uncured materials can be removed with approved solvents.

OTHER RESTRICTIONS

See Legal Disclaimer.

LEGAL DISCLAIMER

- **KEEP CONTAINER TIGHTLY CLOSED**
- **KEEP OUT OF REACH OF CHILDREN**
- **NOT FOR INTERNAL CONSUMPTION**
- **FOR INDUSTRIAL USE ONLY**
- **FOR PROFESSIONAL USE ONLY**

Prior to each use of any product of Sika Corporation, its subsidiaries or affiliates (“SIKA”), the user must always read and follow the warnings and instructions on the product’s most current product label, Product Data Sheet and Safety Data Sheet which are available at usa.sika.com or by calling SIKA’s Technical Service Department at 1-800-933-7452. Nothing contained in any SIKA literature or materials relieves the user of the obligation to read and follow the warnings and instructions for each SIKA product as set forth in the current product label, Product Data Sheet and Safety Data Sheet prior to use of the SIKA product.

SIKA warrants this product for one year from date of installation to be free from manufacturing defects and to meet the technical properties on the current Product Data Sheet if used as directed within the product’s shelf life. User determines suitability of product for intended use and assumes all risks. User’s and/or buyer’s sole remedy shall be limited to the purchase price or replacement of this product exclusive of any labor costs. **NO OTHER WARRANTIES EXPRESS OR IMPLIED SHALL APPLY INCLUDING ANY WARRANTY OF MERCHANTABILITY OR FITNESS FOR A PARTICULAR PURPOSE. SIKA SHALL NOT BE LIABLE UNDER ANY LEGAL THEORY FOR SPECIAL OR CONSEQUENTIAL DAMAGES. SIKA SHALL NOT BE RESPONSIBLE FOR THE USE OF THIS PRODUCT IN A MANNER TO INFRINGE ON ANY PATENT OR ANY OTHER INTELLECTUAL PROPERTY RIGHTS HELD BY OTHERS.**

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