

Product Data Sheet
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Sikafloor® 200 ESD/200C ESD

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High Build Electrostatic Control Epoxy Coating

Description Sikafloor 200 ESD and Sikafloor 200C ESD coatings are a four-component ESD epoxy coating systems designed to impart electrostatic control properties to a variety of substrates in conjunction with ESD footwear, including existing non-conductive substrates. They are available in both a ANSI S20.20 compliant version and conductive resistance ranges to meet specific industry and DOD standards. Sikafloor 200 ESD will impart static dissipative resistance readings as a stand-alone topcoat atop a standard epoxy concrete primer such as Sikafloor 107, Sikafloor 161, Sikafloor 160, Sikafloor 1610 or over existing epoxy floors with an isolation layer of Sikafloor 264.

Where to Use Sikafloor 200 ESD can be used in almost any environment where the damaging effects of electrostatic discharge (ESD) cannot be tolerated. Industries currently using these coatings are:

- Electronics
- Data Processing
- Military/Aerospace
- Photographic, graphic arts
- Hazardous industries (dust or explosion hazards) (requires Sikafloor 220W Conductive or Sikafloor 100ESD and Sikafloor 700C ESD)

Advantages

- Consistent resistance measurements are obtained when testing in accordance with standard methods.
- Very low body voltage generation values possible when wearing heel straps C or SD footwear.
- Conforms to ANSI S20.20, $< 3.5 \times 10^7$ ohms when tested in accordance with ANSI STM 97.1
- Available in conductive range (2.5×10^4 to 1.0×10^6) ohms per ANSI/ESD S7.1/ASTM F-150 when Sikafloor 200C ESD is used in conjunction with Sikafloor 220W Conductive or Sikafloor 100 ESD primer.
- Sikafloor 200 ESD will impart static dissipative resistance readings as a stand-alone topcoat on top of a standard epoxy concrete primer such as Sikafloor 107, Sikafloor 160, Sikafloor 161 or Sikafloor 1610.
- Maintains electrical conductivity throughout the entire thickness of the system.
- Does not depend on relative humidity for conductive properties.
- Tough, smooth, non-porous surface is easy to clean and maintain.
- Good abrasion resistance.

TYPICAL 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.

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| Packaging | Component A: 2.18 US gal. (8.25 L) Component B: 1.00 US gal. (3.78 L) Component C: 0.125 US gal. (0.473 L) Color Additive: 0.25 US gal. (0.946 L) Components A+B+C+Color additive: 3.56 US gal. (13.45 L) (Ready to mix unit) Mix all units of all components according to the instructions herein. | Resin packaged in one, 5 US gal. pail Hardener packaged in one, 1 US gal. pail ESD Additive, two, half-pint cans (0.0625 US gal. each) Color Additive, two, one-pint cans (0.125 US gal. each) | | |
| Colors | Sky Gray (approx. RAL 7035) Medium Gray (approx. RAL 7001) Marshal Blue (No RAL) Other colors require lead time, or may not be possible due to pigment limitations | Light Gray (No RAL) Dark Gray (approx. RAL 7000) Brick Red (approx. RAL 3009) | | |
| Coverage | 3.56 mixed gallons (approximate coverage) at: 16 mils = 356 ft ² (35 m ²) Sikafloor 200 ESD / 200C ESD should be applied at 15 - 18 mils. Product will not cure properly if applied at excessive thickness. Do not exceed 18 mils. | | | |
| Pot Life | Material Temperature +68°F (20°C) | Time ~ 20 minutes Sikafloor 200 ESD / 200C ESD must be applied and distributed immediately after mixing. *Do not apply after indicated Pot Life is exceeded. End of Pot Life is not visible. | | |
| Cure Times | Ambient & Substrate Temperature +50°F (10°C) +68°F (20°C) +86°F (30°C) | Foot traffic ~ 48 hours ~ 24 hours ~18 hours | Light traffic ~ 6 days ~ 3 days ~ 2 days | Full cure ~ 10 days ~ 7 days ~ 5 days |
| Electrical Properties: Full electrical properties reached within 10 days of application at 73°F (23°C). | | | | |

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

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| Abraision Resistance | ASTM D4060 | CS-17 Wheels 160-180 mgs. / 1000 cycles |
| VOC Content | ≤ 50 g/L | |
| Non-Volatile Content | Depending upon the epoxy color pack used the volume and weight percent solids can range from 98 - 100 % (for Pigmented unsolvated coatings) | |
| Gloss | (60°) 80 - 90 | |
| Viscosity | 300 - 650 cps. at 73° F (23° C) | |
| Flexibility | ASTM D522 | 1/4 in. (.62 cm.) passes test |
| Adhesion | ASTM D4541 | Concrete: 350 psi (2.4 MPa) - concrete failure |
| Shelf Life | 3 months in original unopened container under proper storage conditions. Store dry between 40° - 90°F (4° - 32°C). | |
| Chemical Resistance | Please consult Sikafloor Technical Services. | |

**How to Use
Surface
Preparation**

Surface must be clean, sound and dry. Remove dust, laitance, grease, curing compounds, bond inhibiting impregnations, waxes and any other contaminants. All projections, rough spots, etc. should be dressed off to achieve a level surface prior to the application. **Concrete** - Should be cleaned and prepared to achieve a laitance-free and contaminant-free, open textured surface by shot blasting or equivalent mechanical means (CSP-3 to CSP-4 as per ICRI guidelines). Sweep and vacuum any remaining dirt and dust with a wet/dry vacuum. Removing residual dust will help ensure a tenacious bond between the primer and substrate. Whenever "shot-blasting" is utilized, be careful to leave concrete with a uniform texture. "Over-blasting" 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". The compressive strength of the concrete substrate should be at least 3,500 psi (24 MPa) at 28 days and at least 215 psi (1.5 MPa) in tension at the time of application. For other substrates, please contact Sikafloor Technical Services.

Priming

Use of Primer on concrete substrate and/or isolation layer on existing ESD or Epoxy coating is required. Prime with either **Sikafloor 107, 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.

Please refer to the individual most current and respective Product Data Sheet for specific and detailed information.

**Electrical
Grounding**

The installation of an isolation layer/primer to seals the substrate is required. A high degree of ESD control may be achieved with ESD top coats without direct connection to an earth grounding point. For applications that are more 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 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 200 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 220W Conductive / Sikafloor 100 ESD or Sikafloor 200 ESD, Sikafloor 340 ESD and Sikafloor 700 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 200 ESD). If using a conductive primer, the copper tape must be installed under the conductive primer. 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.

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Mixing**Mix full units only**

Premix each component separately. Stir every Component A container with a long margin tool to ensure contents are evenly distributed scraping the sides, corners and bottom of the pail. A jiffy-type mixing paddle with a variable speed mixing drill is then placed in the Component A container and while running add the ESD color pack (2 cans) and flow additive (2 cans) to the vortex of the mix. Then add the Component B to the pigmented Component A and mix for 3 minutes at a moderate speed (300rpm), scraping the container sides, bottom, and corners with a flat or straight edge trowel at least once to ensure complete mixing. . Immediately prior to application, strain the mixed material into a clean vessel using a fine paint strainer with a mesh size of 190 - 200 microns (nominal 80 mesh).

Do not mix more material than can be applied within the working time limits (i.e. Pot Life) at the actual field temperature. Sikafloor 200 ESD/200C ESD must be placed and distributed on the application surface immediately after mixing.

Application

The Sikafloor 200 ESD/200C ESD should be applied with a notched squeegee over a smooth primed substrate. The notched squeegee should be 18 to 24 inches (45.6 to 60.1 cm) long with 1/16 to 1/8 inch (1.6 - 3.2 mm) notches at 1/4 inch (6.4 mm) intervals. This type of squeegee will apply sufficient material to achieve 15 - 18 wet mils when back rolled. Back rolling is typically done with a 9 inch (22.8 cm) or 18 in (45.6 cm) wide, 3/8 inch (9.5 mm) short nap , solvent resistant roller cover. Back roll the Sikafloor 200 ESD/200C ESD to level the material applied. Over-rolling and late back rolling may cause bubbling and leave roller marks. Divide the floor into sections that can be completed without stopping. When ending a section, tape it off to form a clean edge for an adjacent section.

If Sikafloor 220W conductive primer or Sikafloor 100 ESD primer is used in conjunction with Sikafloor 200C ESD, test the primed surface for conductivity prior to the application of Sikafloor 200C ESD. A value of $< 10 \times 10^3$ ohms per ANSI/ESD S7.1/ASTM F-150 must be achieved.

The recommended application procedures are:

1. Take one 5 gallon (18.9 liter) pail of the mixed Sikafloor 200 ESD/200C ESD and start at one end of the section to be coated. Trim the walls and/or obstructions in the immediate area where the coating will be applied. Pour the Sikafloor 200 ESD/200C ESD in a line approximately 1 ft (0.3 m) from the wall or starting line along the entire width of the section to be coated.
2. The person using the squeegee can then make one pass along the wall or starting line, turn and come back making a second pass adjacent to the first pass. Next, use the rollers to level the Sikafloor 200 ESD/200C ESD squeegee applied material. One person can roll apply a 15 to 20 ft (4.6 - 6.1 m) wide section. Do this as quickly as possible.
3. Pour another line of Sikafloor 200 ESD/200C ESD approximately 1 ft (0.3 m) from the rolled area and repeat step 2. The rolling personnel should make sure they are not leaving puddles or thick sections of Sikafloor 200 ESD/200C ESD at the junction of the previously rolled and freshly applied Sikafloor 200 ESD/200C ESD.
4. Follow these procedures until the section is completed. If the work must stop for any reason, use a tapeline as a breaking point.

Limitations**Notes on Limitations:**

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.).

Substrate Moisture Content: Moisture content of concrete substrate must be $\leq 4\%$ 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.

When relative humidity tests for concrete substrate are conducted per ASTM F2170 for project specific requirements, values must be $\leq 85\%$. If values are $> 85\%$ according to ASTM F2170 use Sikafloor 1610 or Sikafloor 81 EpoCem.

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 between 65° to 75°F (18° to 24°C)

Ambient Temperature: Minimum/Maximum 50°/85°F (10°/30°C)

Substrate Temperature: Minimum/Maximum 50°/85° F (10°/30° C). Substrate temperature must be at least 5° F (3° C) above measured Dew Point.

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.

Relative Ambient Humidity: Minimum ambient humidity 30%
Maximum ambient humidity 75% (during application and curing)

Dew Point: Beware of condensation!

The substrate must be at least 5° F (3° C) 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.

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.

Application: Apply the coating 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.
- Do not apply Sikafloor 200 ESD/200C ESD directly onto concrete substrate. Use of a Sikafloor primer and/or insulating layer prior the application of Sikafloor 200 ESD/200C ESD is required.
- Polymer concrete reinforcement fibers may interfere with conductive properties of Sikafloor ESD products. Consult Technical Service before applying to fiber reinforced substrates.
- Will discolor over time when exposed to sunlight (UV) and under certain artificial lighting conditions. Use of clear UV resistant top coat may not prevent discoloration of underlying coatings.
- 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.
- Any aggregate used with Sikafloor systems must be non-reactive and oven-dried.
- 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.
- For professional use only by experienced applicators.

Caution

COMPONENT A: WARNING: IRRITANT, SENSITIZER. Contains Modified Epoxy Resins (Mixture), Tin Antimony Oxide (CAS: 68187-54-2), MICA (CAS: 12001-26-2), Silica Crystalline (CAS: 14808-60-7) and Benzyl Alcohol (CAS: 100-51-6). Causes eye irritation. May cause skin and respiratory irritation. May cause skin/respiratory sensitization. Reports have associated repeated and prolonged exposure to some of the chemicals in this product with permanent brain, liver, kidney and nervous system damage. **Intentional misuse by deliberate concentration and inhalation of vapors may be harmful or fatal. WARNING: This product contains a chemical known to the State of California to cause cancer.**

COMPONENT B: WARNING: CORROSIVE, IRRITANT, SENSITIZER. Contains Proprietary Blend of Aliphatic and Cycloaliphatic Amines (Mixture) and Blend of Phenols (Mixture). Causes burns to eyes/skin and digestive tract. Causes eye, skin and respiratory irritation. May cause skin/respiratory sensitization. Harmful if swallowed. **Deliberate misuse by inhalation of vapors may be harmful or fatal. Strictly follow all usage, handling and storage instructions.**

Flow Additive: CAUTION: IRRITANT. Contains Benzyl Alcohol (CAS: 100-51-6), Aromatic Petroleum Naphtha (64742-95-6). Causes eye irritation. May cause eye and skin irritation. Reports have associated repeated and prolonged exposure to some of the chemicals in this product with permanent brain, liver, kidney and nervous system damage. **Intentional misuse by deliberate concentration and inhalation of vapors may be harmful or fatal.**



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| First Aid | COMPONENT A, B and Flow Additive: 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 | COMPONENT A and Flow Additive: Avoid direct contact. Wear personal protective equipment (chemical resistant goggles/gloves/clothing) to prevent direct contact with skin and eyes. Use only in well ventilated areas. Open doors and windows during use. Use a properly fitted NIOSH respirator if ventilation is poor. Wash thoroughly with soap and water after use. Remove contaminated clothing and laundry before reuse. COMPONENT B: Avoid direct contact. Wear personal protective equipment (chemical resistant goggles/gloves/clothing) to prevent direct contact with skin and eyes. Use only in well ventilated areas. Open doors and windows during use. Use a properly fitted NIOSH respirator if ventilation is poor. Wash thoroughly with soap and water after use. Remove contaminated clothing and laundry before reuse. |
| Clean Up | COMPONENT A: and Flow Additive: Use personal protective equipment (chemical resistant gloves/ goggles/clothing). Without direct contact, sweep up spilled or excess product and place in suitable sealed container. Dispose of excess product and container in accordance with applicable local, state, and federal regulations. COMPONENT B: Avoid contact. Wear chemical resistant clothing/gloves/goggles. In absence of adequate ventilation; use a properly fitted NIOSH respirator. Uncured material can be removed with approved solvent. Follow solvent manufacturer's instructions for use and warnings. Cured material (when Component A combined with Component B) can only be removed mechanically. In case of spill, ventilate area and contain spill. Collect with absorbent material. Dispose of in accordance with current, applicable local, state, and federal regulations. |

KEEP CONTAINER TIGHTLY CLOSED • KEEP OUT OF REACH OF CHILDREN • NOT FOR INTERNAL CONSUMPTION • FOR INDUSTRIAL USE ONLY

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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 shelf life. User determines suitability of product for intended use and assumes all risks. Buyer's sole remedy shall be limited to the purchase price or replacement of product exclusive of labor or cost of labor. **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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