

Sikafloor® 422 ESD

ESD Waterborne Urethane

Description	They are based on specially formulated waterborne aliphatic urethane thin-film coating providing an effective non-yellowing, chemical resistant surface.
Where to Use	Sikafloor 422 ESD and Sikafloor 422C ESD are designed to impart electrostatic control properties to a variety of properly prepared floors, walls, or ceilings including existing non-conductive coatings or resurfacers and concrete. Both keep surfaces smooth, bright and far more chemical resistant. They are based on specially formulated waterborne aliphatic urethane thin-film coating providing an effective non-yellowing, chemical resistant surface.
Advantages	<ul style="list-style-type: none"> ■ Maintains ESD performance over wear life of the ESD coating ■ Maintains electrical conductivity throughout the entire thickness of the system ■ Does not depend on relative humidity for conductivity properties ■ UV light resistance, with long term color stability and retention of gloss ■ Good resistance to wear and abrasion ■ Consistent resistance measurements are obtained when tested at 10 to 500 volts ■ Less than 15 volts Body Voltage Generation when utilizing conductive footwear ■ Available in STATIC DISSIPATIVE 1.0 x 10⁶ to 1.0 x 10⁹ ohms) range per EOS/ESD standards (SIKAFLOOR 422 ESD) ■ Available in CONDUCTIVE 2.5 x 10⁴ to 1.0 x 10⁶ ohms) range per EOS/ESD standards (SIKAFLOOR 422C ESD) ■ Good stain resistance, including tire stains ■ Easy to apply ■ Less than 50g/L VOC ■ Economical system ■ Broad range of colors (pastels to dark) ■ Easy to maintain and simple to clean ■ Nonskid finishes available as an option

Typical Data

Coverage

Coverage of materials on primed concrete will vary depending on the surface texture of the concrete. Sikafloor 422 ESD is applied at 4-5 wet mils per coat. The dry film thickness is 2.1 - 2.6 mils per coat. Two coats are typically required.

The theoretical coverage for one coat is:

3.88 mixed gallons = 1244 - 1556 sq. ft. (115 - 144 sq. m.)

Cure Mechanism

	@ 60°F (16°C)	°F (23°C)	90°F (32°C)
For minimum foot traffic	24 hours	12 hours	8-10 hours
For moderate foot /tow motor traffic	36 hours	24 hours	20 hours
Complete cure	9 days	7 days	5 days

DO NOT WASH WITH WATER UNTIL COMPLETE CURE

Shelf Life: 1 years in original unopened container under proper storage conditions. Store dry between 50° - 90°F (5° - 32°C).

Packaging: Sikafloor 422 ESD and Sikafloor 422 C ESD are supplied in a kit form consisting of a Part H urethane portion, Color Pack, and the ESD component. Standard packaging consisting of:

1.94-gallon (7.2 liters) Kit

Part H Urethane	1-gallon (3.8 liters)
Color Pack	1-pint (0.47 liters)
ESD Pack	2-gallon(7.6liters)

3.88-gallon (14.0 liters) Kit

Part H Urethane	2-gallon (7.6 liters)
Color Pack	2-pint (0.95 liters)
ESD Pack	5-gallon (18.9 liters)





Chemical Resistance	<p>Good overall chemical resistance to a wide spectrum of chemicals, including:</p> <ol style="list-style-type: none"> 1. Aromatic and aliphatic hydrocarbons 2. Hydraulic fluids (Skydrol 500) jet fuel 3. Acids, alkalis and alcohols 4. Detergents, salts, cutting oils
How to Use Surface Preparation	<p>Do not apply Sikafloor 422 ESD directly to concrete. Concrete must be primed/sealed with a suitable Sika Corporation epoxy primer. Refer to the specific Sika Corporation Product Data Sheet for surface preparation requirements. Remove all oil, grease and chemicals by scraping or washing with detergents before acid etching, shot blasting, sanding or buffing. Sanding or buffing is sufficient preparation for previously coated areas. (Refer to section on Application to Cured Base Coat). Shot blasting is the preferred method of surface preparation. The required primer may not cover a minimal blast profile. When using shot blasting under thin film coatings modify the shot blaster: excessive shot blasting, especially over-lap marks, will not be hidden by thin film coatings. The substrate profile should be sufficient to anchor the new coating.</p>
Electrical Grounding	<p>Installing an insulative primer typically seals the substrate. A high degree of ESD control can be achieved with Sikafloor 422 ESD series without the installation of direct connection to an earth grounding point. However, for more critical applications or when required by project specifications, it is recommended that the conductive coatings be applied in direct, uninterrupted contact with properly prepared grounding points. Metal floor joints, metal equipment bases and steel columns or posts may be utilized if they have been electrically tested to confirm permanent continuity with an earth ground. Generally, a minimum of one grounding point per every 1000 square feet of flooring is sufficient for proper dissipation of static electricity. Copper grounding tape (with adhesive backing) can be 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 422 ESD can not be expected to maintain integrity over expansion joints that experience wide movement. Method of installation includes the following techniques:</p> <ol style="list-style-type: none"> 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 422 ESD) and the remainder is run up the wall to the electrical outlet where it is attached. A variation of this technique involves dropping a wire, No. 10 or 12, inside the wall from any convenient ground bus so that the wire emerges at the floor/wall junction. Cut a small hole into the drywall or chip one out of the concrete floor. The copper grounding strip is intertwined with, or soldered to, the stranded copper wire. If intertwined, use tape with a conductive adhesive. The connection of the copper tape and wire is pushed 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 steel column or base that has been lightly sanded. A hole is drilled and tapped into the steel column and the copper tape is secured using a machine screw and washer.
Mixing	<p>Do not mix more material than can be applied within the working time limits at the actual field temperature. The ESD component will be shipped in a 5-gallon (18.9 liters) pail. A jiffy-type mixer should be placed in the pail and run at a moderate speed for 2-3 minutes while adding the Part H urethane portion shipped in a 2-gallon (7.6-liter) pail. When the above materials have been mixed for 2-3 minutes add the Color Pack with the mixer running and mix for 1-2 minutes scraping the pail sides and bottom with the mixer.</p>
Application	<p>Divide the floor into sections that can be completed without stopping. Divide sections at expansion joints or doorways when possible. Where a section will end, it should be taped off to form a straight line providing a clean edge for an adjacent section.</p> <p>Floors - Roller Application The Sikafloor 422 ESD and Sikafloor 422C ESD should be applied with a notched squeegee. The squeegee should be approximately 36 inches (0.9 m) wide with 1/32- to 1/16-inch (0.8-1.6 mm) wet mils when backrolled. The backrolling is typically done with 18-inch (.5 m) width medium nap, 3/8-inch (9.5 mm), solvent resistant roller cover. The Sikafloor 422 ESD should be backrolled only to level the thickness of material applied. Over-rolling may cause bubbling or color separation by leaving thick or thin sections. The recommended application procedures are:</p> <ol style="list-style-type: none"> 1. Take one 5-gallon (18.9-liter) pail of the mixed Sikafloor 422 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 is to be applied. Pour the Sikafloor 422 ESD 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 roller to level the Sikafloor 422 ESD applied. One person can easily roll a 15-20 foot (4.6-6.1m) wide section. Do this as quickly as possible. 3. Pour another line of Sikafloor 422 ESD approximately one-foot (0.3 m) from the rolled area and repeat step 2. DO NOT ROLL ANY MORE Sikafloor 422 ESD ON THE PREVIOUSLY ROLLED

SECTION THAN POSSIBLE. The rolling personnel should make sure they are not leaving puddles or thick sections of Sikafloor 422 ESD at the junction of the previously rolled and freshly applied Sikafloor 422 ESD.

4. Continue this process until approximately half of the 5-gallon (18.9 liter) pail of Sikafloor 422 ESD remains. Take a portion of the freshly mixed unit of Sikafloor 422 ESD and pour it into the partially used 5-gallon (18.9 liter) pail. Pour the two pails back and forth 2-3 times mixing the two Sikafloor 422 ESD batches. One full 5-gallon (18.9-liter) pail can be used with half of the 5-gallon (18.9-liter) pail saved for mixing with the freshly mixed unit.

5. Follow these procedures until the section is completed. If the work must stop for any reason, use a tapeline as a breaking point

Limitations	<ul style="list-style-type: none"> ■ Minimum/Maximum substrate temperature: 60°F/85°F (15.5°C/30°C). ■ Minimum/Maximum relative humidity: 30% / 85%. ■ Substrate temperature must be 5°F (3°C) above measured dew point. ■ Determine the surface moisture content by using an impedance moisture meter designed for use on concrete as detailed in ASTM E-1907. ■ Conduct quantitative anhydrous calcium chloride testing in accordance with ASTM F1869. Maximum acceptable test result is 3 pounds per 1,000 ft² (1.5 kg per 100 m²) per 24 hours. If above use Sikafloor Epocem 81/82, Sikafloor Fast Track Primer or Sikafloor Vapor Block. ■ Do not use on exterior, on-grade substrates. ■ Freshly applied Sikafloor 422 ESD should be protected from dampness, condensation and water for at least 24 hrs.
	Dew point, Humidity and Ventilation
	<ul style="list-style-type: none"> ■ Sikafloor 422 ESD is a waterborne urethane. Color stability relies on even flashing-off of the water. Poor ventilation will delay the water evaporation, causing color separation, hazing of the coating and slow cure. The building should have proper ventilation to insure the movement of air throughout, leaving no dead spots. ■ Use exhaust fans to remove air out of the areas, as opposed to blowing air across or onto the floor. ■ Excessive air movement can flash dry the film surface before any bubbles formed during application can burst, trapping air in the film. ■ Humidity can be a problem both when the foundation temperature is below the dew point. (Check dew point in the field with a Sling Psychrometer and Surface Thermometer.) ■ When this occurs, a film of water will form on the coated surface, thus slowing the flash-off of the co-solvents and water. ■ Do not thin this product. Addition of thinners will slow the cure and reduce the ultimate properties of this product. ■ Critical recoat times will also be affected.
Caution	<p>COMPONENT R: CAUTION: IRRITANT. Contains Polyurethane Polymer (Mixture), Dipropylene Glycol Methyl Ether (CAS: 34590-94-8) and Diethylene Glycol Methyl Ether (CAS: 111-77-3). May cause eye and skin irritation. May be harmful if swallowed.</p> <p>COMPONENT ESD Pack: CAUTION: IRRITANT. Contains Polyurethane Polymer (Mixture), Tin Antimony Oxide (CAS: 68187-54-2), MICA (CAS: 12001-26-2) and Silica Crystalline (CAS:14808-60-7). May cause eye/skin/respiratory irritation. Harmful if swallowed. WARNING: This product contains a chemical known to the State of California to cause cancer.</p>
First Aid	<p>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.</p>
Handling and Storage	<p>Part R, H and Color 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.</p>
Clean Up	<p>Part R, H and Color 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.</p>



Industrial Flooring

Additional Info

Technical Data Sheets are updated periodically. To ensure the most current version is being used, visit Technical Resources on www.sikafloorusa.com. Proper material application is the responsibility of the user. Site visits made by Sika personnel are for making technical recommendations only and not for supervising or providing quality control. Before applying for protection against specific chemical environments, consult Chemical Resistance Guide or Sika Technical Service.

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The Sika logo consists of the word "Sika" in a bold, yellow, sans-serif font, set against a red triangular background.