Construction

Sikafloor® 200 ESD *(Supersedes Duochem 9600)*
Sikafloor® 200C ESD

High-Build, Smooth Finish and Static Dissipative or Conductive Epoxy Coatings for Electrostatic Discharge (ESD) Flooring Systems

Description

Sikafloor® 200 ESD and Sikafloor® 200C ESD are four-component, high-build, solid colour, smooth finish and high gloss epoxy coatings designed to provide electrostatic control properties to a variety of substrates, including non-conductive surfaces and prepared concrete.
Sikafloor® 200 ESD provides resistance readings in the 'static dissipative' range (1.0 x 10^6 to 1.0 x 10^9 ohms) as per EOS/ESD Standards. Sikafloor® 200C ESD provides resistance readings in the "conductive" range (2.5 x 10^4 to 1.0 x 10^6 ohms) as per EOS/ESD Standards. The conductive standard is met when Sikafloor® 200C ESD is installed onto a Sikafloor® 220W Conductive intermediate coating. The two grades of Sikafloor® 200 exhibit general service, broad spectrum chemical resistance (consult Sika Technical Sales for specific details), with good abrasion and excellent impact resistance properties.

Where to Use

- Semi-conductor and circuit board production rooms.
- Electronic manufacturing, calibration and repair facilities.
- Computer storage and data processing areas.
- Military premises.
- Aircraft hangers.
- Aerospace industries.
- Pharmaceutical plants.
- Hospitals and testing laboratories.
- Explosion hazard areas (gas, vapour, spray or fine dust).

Advantages

- Consistent resistance measurements are obtained when tested at 10 to 500 volts.
- Less than 15 volts Body Voltage Generation (BVG) when using conductive footwear.
- Available in 'static dissipative' range (1.0 x 10^6 to 1.0 x 10^9 ohms) as per EOS/ESD.
- Dissipates a 5000 volt charge to zero in less than 0.1 second (22°C [72°F] @ 12% R.H.).
- Maintain ESD performance over the wear life of the Sikafloor® ESD coating.
- Available in 'conductive' range (2.5 x 10^4 to 1.0 x 10^6 ohms) as per EOS/ESD.
- Maintain electrical conductivity throughout the entire thickness of the system.
- Not dependant on relative humidity for conductivity properties.
- Produce tough, smooth, non-porous surfaces that are easy to clean and allow repeated washing and decontamination.
- Low VOC; user and environmentally (air quality) friendly.

Technical Data

Packaging

13.44 L (3.56 US gal.) kit - packaged as

Part R	1 x 8.24 L (2.18 US gal.) in part filled 18.9 L (5 US gal.) pail
Part H	1 x 3.78 L (1 US gal.) packaged in full 3.78 L (1 US gal.) can
Color Pack	2 x 0.47 L (1 US pint) packaged in full 0.47 L (1 US pint) cans
ESD Pack	2 x 0.24 L (1/2 US pint) packaged in full 0.24 L (1/2 US pint) cans

Colour

Available in 8 standard colours (Refer to Sikafloor® ESD Colour Chart)

Yield

Sikafloor® 200 ESD System

Prime Coat (concrete)	Sikafloor® 156^{CA}	4 m²/L (163 ft²/US gal.) (10 mils w.f.t.)
ESD Body Coat	Sikafloor® 200 ESD	2.0 - 3.3 m²/L (80 - 135 ft²/US gal.) (12 - 20 mils w.f.t.)

Sikafloor® 200C ESD System

Prime Coat (concrete)	Sikafloor® 156^{CA}	4 m²/L (163 ft²/US gal.) (10 mils w.f.t.)
Conductive Intermediate	Sikafloor® 220W Conductive	6.6 - 9.8 m2/L (267 - 401 ft² US gal.) (4 - 6 mils w.f.t.)
ESD Body Coat	Sikafloor® 200C ESD	2.6 - 3.3 m²/L (105 - 135 ft²/US gal.) (12 - 15 mils w.f.t.)

These yield figures do not allow for surface porosity, profile or wastage.

Note: Sikafloor® 200 ESD will produce a slight orange peel / stipple finish when applied at a thickness of 12 - 15 mils w.f.t.
Sikafloor® 200C ESD must not be applied at a thickness greater than 15 mils w.f.t.

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Shelf Life	3 months from date of manufacture in original, unopened packaging. Store dry between 5 to 32°C (41 to 89°F). Condition product between 18 to 30°C (65 to 86°F) before using.

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

Density	1.26 kg/L (10.5 lb/US gal.)
Viscosity	300 - 650 cps mixed
Pot Life	15 min
Open Time on Substrate	25 min

Waiting Time between Coats (h) (min./max.)	**13°C (55°F)**	**23°C (73°F)**	**32°C (90°F)**
Sikafloor® 156CA/Sikafloor® 200 ESD	24/96	8/48	5/24
Sikafloor® 200 ESD/Sikafloor® 200 ESD	12/48	10/36	8/24
Sikafloor® 156CA/Sikafloor® 220W Conductive	24/96	8/48	5/24
Sikafloor® 220W Conductive/Sikafloor® 200C ESD	24 h / 6 days	12 h / 3 days	8 h /2 days

If the waiting time between coats exceeds the maximum recoat period, abrade the surface to remove gloss, vacuum and solvent wipe, with a damped cloth, to remove all traces of dust and dirt. **Note: If the waiting time between Sikafloor® 220W Conductive and Sikafloor® 200C ESD exceeds 5 days, do not abrade the Sikafloor® 220W Conductive surface; contact Sika Canada Technical Services for advice.**

Curing Time	**13°C (55°F)**	**23°C (73°F)**	**32°C (90°F)**
Foot traffic	16 - 20 h	12 - 16 h	8 - 10 h
Light traffic	20 - 24 h	16 - 20 h	10 - 14 h
Full Cure	7 days	5 days	3 days

Abrasion Resistance ASTM D4060 (CS-17/1000 cycles/1000 g [2.2 lb])	0.17 g loss
Impact Resistance ASTM D2794 (Direct and reverse)	89.6 cm-kg (80 in-lb)
Flexibility ASTM D522 (6 cm [1/4 in])	Pass
Hardness ASTM D3363 (Pencil)	B
Adhesion Concrete ASTM D4541	2.4 MPa (350 psi) - concrete failure
Gloss (60°)	80 - 95

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

All concrete surfaces must be clean and sound. Remove any dust, laitance, grease, oil, dirt, curing agents, impregnations, wax, foreign matters, coatings and deleterious material, from the surface by any appropriate mechanical means, in order to achieve a profile equivalent to ICRI-CSP 3. The compressive strength of the concrete substrate 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 application of Sikafloor® 156CA primer.

Repair all surface defects, including rough concrete, blemishes and cracks to create a uniform level substrate prior to priming and the general application of the Sikafloor® 200 ESD or Sikafloor® 200C ESD systems. Use an epoxy mortar or epoxy gel made from Sikafloor® 156CA and add an aggregate, as required, to level the surface. For additional information contact Sika Technical Sales for a specific recommendation.

Note: Failure to properly level and seal the substrate before application begins will result in uncontrolled thickness variations in Sikafloor® ESD system components that may affect resistance test results on the finished surface.

Priming

Apply Sikafloor® 156CA primer onto all prepared concrete, using a brush, roller or squeegee at 4 m²/L (163 ft²/US gal.) (9 - 10 mils w.f.t.) per coat to achieve a uniform coverage without puddling, to seal the surface and create an insulation layer. Porous substrates may require additional prime coats to achieve a uniform film that seals the surface. Consult applicable Product Data Sheet for preparation, mixing and application details.

Electrical Grounding

It is important that Sikafloor® electrostatic discharge systems are applied in direct, uninterrupted contact with properly prepared grounding points. Typically, ground points can be established using the green ground wire in an electrical outlet, metal floor joints, metal equipment bases, steel columns or posts, provided they have been electrically tested to confirm permanent continuity with an earth ground, accordingly. A minimum of one grounding point per 93 m² (1000 ft²) of flooring should be established, with a minimum of two ground connections for any isolated area less than 93 m² (1000 ft²) in order to achieve proper dissipation of static electricity. Adhesive backed copper grounding tape or the proprietary “Sika Earthing Set” can be used to make an electrical connection. Contact Sika Canada Technical Sales for specific details.

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Placing Connections	Begin placement of the electrode ground point connections once the Sikafloor® 156CA primer coat is dry and resists damage from foot traffic. Install the earth ground connections using copper tape or Sika® Earthing Set within the edge of the primed surface, as close as possible to walls or steel columns, to provide protection and prevent in-service traffic damage.
Conductive Intermediate (Sikafloor® 200C ESD system only)	Once the Sikafloor® 156CA primer is dry and the earth ground electrodes are installed, apply Sikafloor® 220W Conductive intermediate coating by brush, roller or squeegee at 6.6 - 9.8 m²/L (267 - 401 ft² US gal.) (4 - 6 mils w.f.t.) to achieve a uniform coverage. Avoid puddling on the primed substrate and the bare copper electrodes. Consult applicable Product Data Sheet for preparation, mixing and application details. **Note: Do not use Sikafloor® 220W Conductive intermediate beneath Sikafloor® 200 ESD.**
Mixing	Pre-stir the components of Sikafloor® 200 ESD or Sikafloor® 200C ESD separately to ensure product uniformity. The Part R (resin) container is partly filled and sized to allow use as the mixing vessel for a single unit. Start mixing the resin using a low speed drill (300 - 400 rpm) to minimize air entrapment with an Exomixer type mixing paddle (recommended model) suited to the volume of the mixing vessel. Add two cans of each Color Pack and ESD Pack (flow additive) to the vortex of the resin being mixed and blend for 1 minute until a uniform colour is achieved. Then add the Part H (hardener) to the pigmented Part R (resin) and mix for an additional 3 minutes until a uniform colour and consistency is achieved. During the mixing operations, scrape down the sides and bottom of the container with a flat or straight edge trowel at least once to ensure complete mixing. As with other such materials, the solids within this product may settle during shipment and storage: it is therefore strongly advised that mixed units be strained through a nylon mesh filter bag, as is good and recognised practice with industrial coatings, to remove any lumps that may exist and would result in surface blemishes. **Mix full units only; do not part mix.**
Application	**Sikafloor® 200 ESD Body Coat:** (Does not require the prerequisite use of the Sikafloor® 220W Conductive intermediate coat.) Once the Sikafloor® 156CA primer is dry and the electrode earth ground connections are installed, apply a final body coat of Sikafloor® 200 ESD by brush, roller or squeegee at 2.0 - 3.3 m²/L (80 - 135 ft²/US gal.) (12 - 20 mils w.f.t.) to achieve a uniform coverage, without puddling. Allow full cure before testing the resistance value of the finished floor system. **Sikafloor® 200C ESD Body Coat:** Once the Sikafloor® 220W Conductive has cured and within the maximum waiting time, apply a final body coat of Sikafloor® 200C ESD by brush, roller or squeegee at 2.6 - 3.3 m²/L (105 - 135 ft²/US gal.) (12-15 mils w.f.t.) to achieve a uniform coverage without puddling. Allow full cure before testing the resistance value of the finished floor system.
Clean Up	Clean all tools and equipment with Sika® Equipment Cleaner. Once hardened, product can only be removed mechanically. Wash soiled hands and skin thoroughly in hot soapy water or use Sika® Hand Cleaner towels.
Limitations	■ Sikafloor® ESD systems are best installed by skilled and experienced applicators. Consult Sika Canada Technical Sales for advice and recommendations. ■ Not suitable for use on exterior, slab on-grade substrates. ■ Minimum/maximum substrate temperature: 13°C/30°C (55°F/86°F). ■ Maximum relative humidity during application and cure: 85%. ■ Substrate temperature must be 3°C (5°F) above measured dew point. ■ Determine the surface moisture content by using an impedance moisture meter (Tramex) designed for use on concrete as detailed in ASTM E1907. Acceptable test results shall be 4% by mass or less. If above this value, use Sikafloor® 81/82 EpoCemCA for moisture mitigation before proceeding. ■ Conduct quantitative anhydrous calcium chloride testing in accordance with ASTM F1869. Maximum acceptable test result is 1.5 kg/100 m² (3 lb/1000 ft²) per 24 hours. If above this value, again use Sikafloor® 81/82 EpoCemCA for moisture mitigation before proceeding . ■ Do not hand mix Sikafloor® materials / mechanical mix only. ■ 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. ■ Freshly applied Sikafloor® 200 ESD and Sikafloor® 200C ESD should be protected from dampness, condensation and water for at least 24 hours immediately following application. ■ Take care that industrial or operational processess do not impart a non-conductive film on ESD/ECF floors (presence of silicone release agents, spray lubricants, paints, lacquers etc.) as these will impact upon the electrical performance of the floor system. ■ Best practice in cleaning and maintenance should be observed; with the removal of any dirt, dust or material which will impede electrical control or discharge; overly aggressive cleaning techniques and chemicals being avoided together with polishes or surface treatments.

Construction

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 Material Safety Data Sheet** containing physical, ecological, toxicological and other safety-related data.

KEEP OUT OF REACH OF CHILDREN
FOR INDUSTRIAL USE ONLY

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