Construction

Sikafloor®-230 ESD TopCoat

2-part electrostatic dissipative epoxy floor seal coat

Product Description

Sikafloor®-230 ESD TopCoat is a two part, water dispersed, coloured epoxy resin coating.

Uses

- Dissipative coloured indoor system, in conjunction with Sikafloor®-262 AS N
- Particularly suitable for areas with requirements for the lowest electrostatic charge (Body -voltage) and a dissipative surface
- Typical applications include clean rooms in the electronics industry, microbiology/microchemistry sectors, production plants in the automobile industry etc.

Characteristics / Advantages

- Body voltage generation < 20 V
- Easy application
- In accordance with general ESD requirements
- Matt finish
- Rapid-curing
- Water dispersed
- Fulfils ESD-requirements at > 12 % RH/+23°C*

Tests

Approval / Standards

Water dispersed, coloured, epoxy resin roller coat according to EN 1504-2: 2004 and EN 13813, DoP 02 08 01 02 037 0 000001 2017, certified by Factory Production Control Body No. 0921, certificate 2017, and provided with the CE-mark.

* Testing of electrostatic properties in accordance to IEC 61340-5-1, SP Institute, Test Report F900355:A, February 2009

Conforms to the requirements of ANSI/ESD S20.20-2007 and IEC 61340-5-1. (Internal Test)

Product Data

Form

Appearance / Colours

Resin - part A:	coloured, liquid
Hardener - part B:	white, liquid

ca. RAL 1001, 1015, 7030, 7032, 7035, 7038, 7040, 7042, 7044, 7046, 9002.

All colours are approximate. Under direct sun light there may be some discolouration and colour deviation; this has no influence on the function and performance of the coating.

Packaging

Part A:	4.98 kg containers
Part B:	1.02 kg containers
Unipacs:	6 kg (part A+B) ready to mix units

Storage

Storage Conditions/ Shelf-Life	12 months from date of production if stored properly in original, unopened and undamaged sealed containers, in dry conditions at temperatures between +5°C and +30°C. Comp. A+B must be protected from frost.

Technical Data

Chemical Base	Water dispersed epoxy		
Density	Part A: Part B: Mixed Resin:	~ 1.39 kg/l ~ 1.06 kg/l ~ 1.32 kg/l	(DIN EN ISO 2811-1)
	All Density values at +23°C		
Solid Content	~ 38% (by volume) / ~ 53 % (by weight)		
Electrostatic Behaviour	Resistance to ground[1]: Typical average resistance to ground[2]:	$R_g < 10^9\ \Omega$ $R_g \leq 10^7\ \Omega$	(IEC 61340-4-1) (DIN EN 1081)
	Body voltage generation[2]: System Resistance (Person/Floor/Shoe)[3]:	< 100 V < 35 M Ω	(IEC 61340-4-5) (IEC 61340-4-5)
	[1] In accordance with IEC 61340-5-1 and ANSI/ESD S20.20. [2] Readings may vary, depending on ambient conditions (i.e. temperature, humidity) and measurement equipment. [3] Or < 10^9 Ω + body voltage generation of < 100 V, in case of readings > 35 M Ω.		

Mechanical / Physical Properties

Bond Strength	> 1.5 N/mm² (failure in concrete)	(ISO 4624)
Abrasion Resistance	95 mg (CS10/1000/1000)	(DIN 53 109 (Taber Abraser Test))

Resistance

Chemical Resistance	Resistant to many chemicals. Please ask for a detailed chemical resistance table.

Thermal Resistance

Exposure*	Dry heat
Permanent	+50°C
Short-term max. 7 d	+80°C
Short-term max. 12 h	+100°C

Short-term moist/wet heat* up to +80°C where exposure is only occasional (i.e. during steam cleaning etc.)

*No simultaneous chemical and mechanical exposure.

USGBC	Sikafloor®-220 W Conductive conforms to the requirements of LEED
LEED Rating	EQ Credit 4.2: Low-Emitting Materials: Paints & Coatings
	SCAQMD Method 304-91 VOC Content < 100 g/l

System Information

System Structure

ESD-Flooring System:

Primer:	1 x Sikafloor®-156 or Sikafloor®-161
Earthing connection:	Sika® Earthing Kit
Conductive Primer:	1 x Sikafloor®-220 W Conductive
Conductive wearing course:	1 x Sikafloor®-262 AS N
Conductive seal coat:	1 x Sikafloor®-230 ESD TopCoat
Maintenance layer:	1 - 2 x Kiehl Ceradur

ESD-Roller Coating:

Primer:	1 x Sikafloor®-156 or Sikafloor®-161
Levelling course:	1 x Sikafloor®-263 SL or Sikafloor®-264
Earthing connection:	Sika® Earthing Kit
Conductive roller coat:	1 x Sikafloor®-230 ESD TopCoat
Maintenance layer:	1 - 2 x Kiehl Ceradur

ESD coating for walls and ceilings with medium mechanical load on concrete, renders and gypsum:

Primer:	1 x Sikafloor®-2530 W + 5% H_20
Intermediate Layer:	1 x Sikafloor®-2530 W
Top Coat:	2 x Sikafloor®-230 ESD TopCoat

This system configuration must be fully complied with as described and may not be changed.

Application Details

Consumption / Dosage

Conductive seal/roller coat:	0.14 - 0.16 kg/m^2 per coat
Conductive wall coat:	max. 0.10 kg/m^2 per coat
Kiehl Ceradur:	0.015 - 0.025 kg/m² per coat

These figures are theoretical and do not allow for any additional material due to surface porosity, surface profile, variations in level or wastage etc.

Substrate Quality

The surface must be clean, dry and free of all contaminants such as dirt, oil, grease, coatings and surface treatments, etc. Pull-off strength shall be not less than 1.5 N/mm^2.

If in doubt apply a test area first.

Substrate Preparation

All dust, loose and friable material must be completely removed from Sikafloor®-262 AS N preferably by vacuum.

Application Conditions / Limitations

Substrate Temperature

+10°C min, +30°C max.

Ambient Temperature

+10°C min, +30°C max.

Substrate Moisture Content

$\leq$ 4% pbw moisture content.

Test method: Sika®-Tramex meter, CM - measurement or Oven-dry-method.

No rising moisture according to ASTM (Polyethylene-sheet)

Relative Air Humidity

75% r.h. max.

Dew Point

Beware of condensation!

The substrate and uncured floor must be at least 3°C above dew point to reduce the risk of condensation or blooming on the floor finish.

Application Instructions

Mixing

Part A : part B = 83 : 17 (by weight)

Mixing Time

Prior to mixing, stir part A mechanically. When all of part B has been added to part A, mix continuously for 3 minutes until a uniform mix has been achieved.

To ensure thorough mixing pour materials into another container and mix again to achieve a consistent mix.

Over mixing must be avoided to minimise air entrainment.

Mixing Tools

Sikafloor®-230 ESD TopCoat must be thoroughly mixed using a low speed electric stirrer (300 - 400 rpm) or other suitable equipment.

Application Method / Tools

Prior to application, confirm substrate moisture content, relative humidity and dew point.

If > 4% pbw moisture content, Sikafloor® EpoCem® may be applied as a T.M.B. (temporary moisture barrier) system.

Uniformly spread 1x Sikafloor®-230 ESD TopCoat by using a short pile (12 mm) nylon roller.

Cleaning of Tools

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

Potlife

Temperatures	Time
+10°C	~ 60 minutes
+20°C	~ 30 minutes
+30°C	~ 15 minutes

Waiting Time / Overcoating

Before applying Sikafloor®-230 ESD TopCoat on Sikafloor®-262 AS N allow:

Substrate temperature	Minimum	Maximum
+10°C	3 days	7 days
+20°C	2 days	5 days
+30°C	1 day	3 days

Before applying Kiehl Ceradur on Sikafloor®-230 ESD TopCoat allow:

Substrate temperature	Minimum	Maximum
+ 10°C	36 hours	-*
+ 20°C	24 hours	-*
+ 30°C	20 hours	-*

Times are approximate and will be affected by changing ambient conditions particularly temperature and relative humidity.

*Kiehl Ceradur must be applied in cycles of approx. 3-4 month, depending on frequency of traffic.

Notes on Application / Limitations

This product may only be used by experienced professionals

Freshly applied Sikafloor®-230 ESD TopCoat must be protected from damp, condensation and water for at least 24 hours.

Apply Sikafloor®-230 ESD TopCoat to tack free Sikafloor-262 AS N.

Ensure adequate ventilation during application and drying (especially at temperatures < 13°C). Otherwise the reaction and drying processes may be impaired.

Maintenance:
Application of a floor-care product (Ceradur from Kiehl) is mandatory in order to ensure a long-lasting, high-quality finish and easy cleaning. The application of Ceradur can be executed by machine. Reference address: KAW Kiehl - Werk und Zentralverwaltung, D-85235 Odelzhausen, Rudolf-Diesel-Straße 6, Tel.: +49 8134 9305-40, Fax: +49 8134 5145. http://www.kiehl-group.com.

Possibly arising strips with application of CERADUR disappear usually after short service life. For possible changes in the composition of the recommended cleaning- and maintenance agents and their effects on the floor characteristics, Sika does not take over liability.

If the floor is exposed to mechanical and / or chemical loads, the conductivity must be controlled regularly. In case of wear and tear, the Sikafloor®-230 ESD TopCoat must be refreshed. This must be coordinated with the authorized ESD-representative or comparable.

Before the application of a conductive flooring system, a reference area has to be applied. This reference area must be assessed and accepted from the contractor/client. The desired result and method of conductivity measurement must be stated in the Specification and Method Statement. The number of conductivity measurements is strongly recommended to be as shown in the table below:

Ready applied area	Number of measurements
< 10 m²	6 measurements
< 100 m²	10-20 measurements
< 1000 m²	50 measurements
< 5000 m²	100 measurements

In case of values lower/higher as required, additional measurements has to be carried out, approx. 30 cm around the point with insufficient readings. If the newly measured values are in accordance with the requirements, the total area is acceptable.

Placing of earthing points:
Please make sure to only use the original Sikafloor® Earthing Kit in order to connect the earthing points. Every earthing point is able to conduct approx. 300 m². Ensure the longest distance of each point in the area is max. 10 m to the next earthing point. For longer distances, additional earthing points have to be placed. If site conditions do not allow placing of additional earthing points, longer distances (>10 m) have to be bridged with the help of copper tapes. The earthing points have to be connected to the ring-mains, which has to be carried out and approved by an electrical engineer and in accordance with any relevant regulations or standards.
Numbers of earth connections:
Per room at least 2 earthing points. The optimum number of earth connections depends on the local conditions and should be specified using available drawings.

Please note:
ESD clothing, ambient conditions, measurement equipment, cleanliness of the floor and the test person have a substantial influence on the measurement results.

All measurement values for Sikafloor®-230 ESD TopCoat stated in the data sheet (apart from the ones referring to proof statements) were measured under the following conditions:

ESD-footwear by using cotton socks:	The ESD-footwear must fulfill the requirements of DIN EN 61340-4-3 (Clime 2, resistance < 5 M Ohm).
Size of ESD-footwear:	42 (EU) (UK: 8; US: 8,5)
Weight of the test person:	90 kg
Ambient conditions:	+23°C/50% rel. air moisture

Measuring tool: Resistance to ground:	Insulation Tester Metriso 2000, from Warmbier or comparable.
Surface resistance probe:	Carbon Rubber electrode. Weight: 2.50 kg (+/- 0.25 kg); Diameter: 65 mm (+/- 5 mm); Rubber pad hardness: Shore A 60 (+/- 10)
Measuring tool: System test:	Insulation Tester Metriso 2000 from Warmbier or comparable.
Measuring tool: Walking test:	Walking Test Kit WT 5000 from Warmbier or comparable.

Under certain conditions, underfloor heating combined with high point loading, may lead to imprints in the resin.

If heating is required do not use gas, oil, paraffin or other fossil fuel heaters, these produce large quantities of both CO_2 and H_2O water vapor, which may adversely affect the finish. For heating use only electric powered warm air blower systems.

The incorrect assessment and treatment of cracks may lead to a reduced service life and reflective cracking - reducing or breaking conductivity.

For exact color matching, ensure the Sikafloor®-230 ESD TopCoat in each area is applied from the same batch. Please control batch numbers.

Curing Details

Applied Product ready for use

Temperature	Foot traffic	Light traffic	Full cure
+10°C	~ 30 hours	~ 3 days	~ 10 days
+20°C	~ 12 hours	~ 2 days	~ 7 days
+30°C	~ 8 hours	~ 1 day	~ 5 days

Note: Times are approximate and will be affected by changing ambient conditions.

Cleaning / Maintenance

Methods

To maintain the appearance of the floor after application, Sikafloor®-230 ESD TopCoat (polished with Ceradur) must have all spillages removed immediately and must be regularly cleaned using suitable detergents.

The floor area must daily be cleaned using a mild alkaline cleaner such as TORVAN (Kiehl). Mixing ratio: < 0.6% in water. Method of and equipment for the cleaning of the area will depend upon size and manpower available. For large areas equipment such as a Taski (Diversey) or Kaercher scrubber drier would be advantageous. Generally no undiluted cleaning agent should remain longer time onto the surface. Basic cleaning in the first 2 weeks is not permitted, only dry cleaning e.g. by broom. In the following 2 weeks only cleaning with a mop is recommended.

Construction

Value Base

All technical data stated in this Product Data Sheet are based on laboratory tests. Actual measured data may vary due to circumstances beyond our control.

Local Restrictions

Please note that as a result of specific local regulations the performance of this product may vary from country to country. Please consult the local Product Data Sheet for the exact description of the application fields.

Health and Safety Information

For information and advice on the safe handling, storage and disposal of chemical products, users shall refer to the most recent Material Safety Data Sheet containing physical, ecological, toxicological and other safety-related data.

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 written recommendations, or from any other advice offered. The user of the product must test the product's suitability for the intended application and purpose. Sika reserves the right to change the properties of its products. 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.

EU Regulation 2004/42

VOC - Decopaint Directive

According to the EU-Directive 2004/42, the maximum allowed content of VOC (Product category IIA / **j** type **wb**) is 140 g/l (Limits 2010) for the ready to use product.

The maximum content of **Sikafloor®-230 ESD TopCoat** is < 140 g/l VOC for the ready to use product.

SIKA LIMITED
Head Office · Watchmead · Welwyn Garden City · Hertfordshire · AL7 1BQ · United Kingdom
Phone: +44 1 707 394444 · Fax: +44 1 707 329129 · www.sika.co.uk