

SYSTEM DATA SHEET

Sikafloor® MultiDur ES-24 ECF/EQ

2-PART, SMOOTH, LOW-EMISSION, ELECTROSTATIC CONDUCTIVE
EPOXY FLOOR COVERING



DESCRIPTION

Sikafloor® MultiDur ES-24 ECF/EQ is a total solid, electrostatic conductive, low particle and low VOC/AMC emission, self-smoothing epoxy flooring system designed for cleanroom environments.

USES

Sikafloor® MultiDur ES-24 ECF/EQ may only be used by experienced professionals.

- Especially designed for the use in cleanroom environments, where low VOC/AMC and particle emissions are mandatory, such as optical goods, medical or space industry.
- Also suitable as a hard wearing course for many industries, such as automotive, pharmaceutical, storage facilities and warehouses.

CHARACTERISTICS / ADVANTAGES

- Low VOC/AMC emissions
- Low particle emissions
- Organo phosphate and phthalate free
- Good chemical and mechanical resistance
- Electrostatic conductive system
- Easy to clean
- Economical
- Liquid proof
- Total solid
- Gloss finish

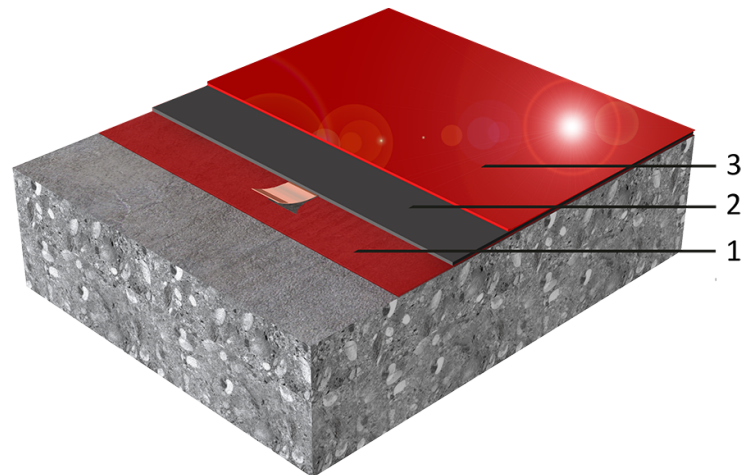
APPROVALS / STANDARDS

- Synthetic resin screed material according to EN 13813:2002, Declaration of Performance 02 08 01 02 045 0 000005 2017, certified by notified factory production control certification body 0921, certificate of conformity of the factory production control 2017, and provided with the CE marking.
- Coating for surface protection of concrete according to EN 1504-2:2004, Declaration of Performance 02 08 01 02 045 0 000005 2017, certified by notified factory production control certification body 0921, certificate of conformity of the factory production control 2017, and provided with the CE marking.
- Particle emission certificate Sikafloor-266 ECF CR CSM Statement of Qualification - ISO 14644-1, class 4 - Report No. SI 0706-406 and GMP class A, Report No. SI1008-533
- Outgassing emission certificate Sikafloor-266 ECF CR: CSM Statement of Qualification - ISO 14644-8, class - 7.7 - Report No. SI 0706-406
- Biological Resistance in accordance with ISO 846, CSM Report No. SI 1008-533
- Fire classification in accordance with EN 13501-1, Report-No. 2008-B-3883/01, MPA Dresden, Germany, October 2008
- ISEGA Certificate of Conformity 31966 U 11; 28.06.2011 – Sikafloor-266 CR may be used safely as top layer or wearing surface on floors in the food sector. The short term contact of the coating with food-stuffs is safe as far as no hygiene regulations are violated
- Outgassing Datasheet Sikafloor-266 ECF CR (+90°C), M+W Group, 13.05.2009
- Spark resistance in accordance with UFGS-09 97 23 of coating systems, Test report P 8625-E, Kiwa Polymer Institut

SYSTEM INFORMATION

System Structure

Sikafloor® MultiDur ES-24 ECF/EQ:



1. Primer + Earthing connection	Sikafloor®-144/-156/-160/-161/-701 + Sika® Earthing Kit
2. Conductive primer	Sikafloor®-220 W Conductive
3. Final conductive coating	Sikafloor®-266 ECF CR filled with Sikafloor® Filler 1

The system configurations as described must be fully complied with and may not be changed.

Chemical base	Epoxy
Appearance	Self-smoothing system – gloss finish
Colour	Almost unlimited choice of colour shades. Due to the nature of carbon fibres providing the conductivity, it is not possible to achieve exact colour matching. With very bright colours (such as yellow and orange), this effect is increased. Under direct sun light there may be some variations and colour variation, this has no influence on the function and performance of the coating.
Nominal Thickness	~ 1.0 - 1.5 mm
Volatile organic compound (VOC) content	Very low content of volatile organic compounds. Sikafloor®-266 ECF CR the finishing layer of the Sikafloor® MultiDur ES-24 ECF/EQ System has been awarded the Fraunhofer IPA CSM Certificate of Qualification with the report number SI 0706-406. The outgassing test was performed in accordance with CSM procedures. TVOC: ISO-AMC Class -7.7 (see ISO 14644-8).

TECHNICAL INFORMATION

Shore D Hardness	~ 84 (resin filled)	(14 days / +23 °C)	(DIN 53 505)
Abrasion Resistance	~ 45 mg (resin filled)	(CS 10/1000/1000) (14 days / +23 °C)	(DIN 53109 Taber Abraser Test)
Compressive Strength	~ 80 N/mm ² (resin filled)	(28 days / +23 °C)	(EN 13892-2)
Tensile Strength	~ 39 N/mm ² (resin filled)	(28 days / +23 °C)	(EN 13892-2)
Chemical Resistance	Resistant to many chemicals. Contact Sika technical service for specific information.		

Thermal Resistance**Exposure***

Permanent
Short-term max. 7 d

Dry heat

+50 °C
+80 °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 LEED Rating

Conforms to the requirements of LEED EQ Credit 4.2: Low-Emitting Materials: Paints & Coatings SCAQMD Method 304-91 VOC Content < 100 g/l.

Electrostatic Behaviour

Resistance to ground¹ $R_g < 10^9 \Omega$ (IEC 61340-4-1)
Typical average resistance to ground² $R_g < 10^6 \Omega$ (DIN EN 1081)

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.

APPLICATION INFORMATION**Consumption****Coating**

Primer
Levelling (if required)
Earthing connection

Product

Sikafloor®-144/-156/-160/-161/-701
Sikafloor®-144/-156/-160/-161/-701 levelling mortar
Sika® Earthing Kit
Sikafloor®-220 W Conductive

Consumption

1-2 x ~ 0.3 - 0.5 kg/m²
Refer to PDS of Sikafloor®-144/-156/-160/-161/-701
1 earthing point per approx. 200 -300 m², min. 2 per room.
1 x 0.08 - 0.10 kg/m²
Maximum 2.5 kg/m² Binder + Sikafloor® Filler 1. Filling grade: 1 : 0.1 pbw to 1 : 0.2 pbw (Depending on the air temperature the filling grade varies)
Maximum 2.5 kg/m² Binder + quartz sand F 34 (0.1-0.3 mm). Filling grade: 1 : 0.2 pbw to 1 : 0.4 pbw (Depending on the air temperature the filling grade varies)

Conductive primer

Final conductive coating for higher aesthetic demands

Sikafloor®-266 ECF CR N filled with Sikafloor® Filler 1*

Final conductive coating

Sikafloor®-266 ECF CR N filled with quartz sand F 34*

These figures are theoretical and do not allow for any additional material due to surface porosity, surface profile, variations in level or wastage etc.
*All values have been determined using Sikafloor® Filler 1 and quartz sand F 34 (0.1-0.3 mm) from Quarzwerke GmbH Frechen. Other type off fillers will have an effect on the product, such as filling grade, levelling properties and aesthetics. Generally, the lower the temperature the less the filling grade.

Ambient Air Temperature

+15° C min. / +30° C max.

Relative Air Humidity

80 % 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.

Substrate Temperature

+15° C min. / +30° C max.

Substrate Moisture Content

<4 % pbw moisture content.
Test method: Sika Tramex Meter, CM-measurement or Oven-Dry-Method.
No rising moisture according to ASTM (Polyethylene-sheet).

Waiting Time / Overcoating

Before applying Sikafloor®-220 W Conductive on Sikafloor®-144 allow:

Substrate temperature	Minimum	Maximum
+10 °C	26 hours	4 days
+20 °C	24 hours	2 days
+30 °C	12 hours	1 days

Before applying Sikafloor®-220 W Conductive on Sikafloor®-701 allow:

Substrate temperature	Minimum	Maximum
+10 °C	36 hours	4 days
+20 °C	24 hours	2 days
+30 °C	12 hours	1 days

Before applying Sikafloor®-220 W Conductive on Sikafloor®-156/-160/-161 allow:

Substrate temperature	Minimum	Maximum
+10 °C	24 hours	4 days
+20 °C	12 hours	2 days
+30 °C	8 hours	1 days

Before applying Sikafloor®-266 ECF CR on Sikafloor®-220 W Conductive allow:

Substrate temperature	Minimum	Maximum
+10 °C	26 hours	7 days
+20 °C	17 hours	5 days
+30 °C	12 hours	4 days

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

Applied Product Ready for Use

Temperature	Foot traffic	Light traffic	Full cure
+15 °C	~ 48 hours	~ 6 days	~ 10 days
+20 °C	~ 36 hours	~ 4 days	~ 7 days
+30 °C	~ 24 hours	~ 2 days	~ 5 days

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

PRODUCT INFORMATION

Packaging	Please refer to individual Product Data Sheet.
Shelf life	Please refer to individual Product Data Sheet.
Storage conditions	Please refer to individual Product Data Sheet.

MAINTENANCE

To maintain the appearance of the floor after application, Sikafloor® MultiDur ES-24 ECF/EQ must have all spillages removed immediately and must be regularly cleaned using rotary brush, mechanical scrubbers, scrubber dryer, high pressure washer, wash and vacuum techniques etc. using suitable detergents.

CLEANING

Please refer to the Sikafloor® Cleaning Regime.

FURTHER DOCUMENTS

Please refer to:

- Sika® Method Statement Mixing and Application of Flooring Systems
- Sika® Method Statement Surface Evaluation & Preparation

LIMITATIONS

- Due to the nature of carbon fibres providing the conductivity, surface irregularities might be possible. This has no influence on the function and performance of the coating.
- Do not apply the Sikafloor® MultiDur ES-24 ECF/EQ System on substrates in which significant vapour pressure may occur.
- Do not blind the primer.
- The freshly applied final conductive coating of the Sikafloor® MultiDur ES-24 ECF/EQ system must be protected from damp, condensation and water for at least 24 hours.
- Only start application of Sikafloor® conductive primer after the priming coat has dried tack-free all over. Otherwise there is a risk of wrinkling or impairing of the conductive properties.
- Maximum layer thickness of the final conductive coating: ~ 1.5 mm. Excessive thickness (more than 2.0 kg/m²) causes reduced conductivity.

- 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 CO₂ and H₂O water vapour, 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 colour matching, ensure the final conductive coating of the Sikafloor® MultiDur ES-24 ECF/EQ system in each area is applied from the same control batch numbers.
- 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 the Sikafloor® MultiDur ES-24 ECF/EQ system stated in the system data sheet (apart from the ones referring to proof statements) were measured under the following conditions:

Ambient conditions:	+23 °C/50%
Measurement device for the Resistance to Ground:	Metriso 2000 (Warmbier) or comparable
Surface resistance probe:	Carbon Rubber electrode. Weight: 2.50 kg / Tripod electrode acc. DIN EN 1081
Rubber pad hardness:	Shore A 60 (± 10)

The number of conductivity measurements is strongly recommended to be as shown in the table below:

Ready applied area	Number of measurements
< 10 m ²	6 measurements
< 100 m ²	10-20 measurements
<1000 m ²	50 measurements
<5000 m ²	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.

Installation of earthing points: Please refer to the Method Statement: "MIXING & APPLICATION OF FLOORING SYSTEMS".

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.

BASIS OF PRODUCT DATA

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. 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.

ECOLOGY, HEALTH AND SAFETY

For information and advice on the safe handling, storage and disposal of chemical products, users shall refer to the most recent Safety Data Sheet (SDS) 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.

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