

PRODUCT DATA SHEET

Sikafloor®-235 ESD IND EN

2-PART EPOXY ELECTROSTATIC, DISSIPATIVE, TOUGH ELASTIC, SELF SMOOTHING FLOOR COATING

DESCRIPTION

Sikafloor®-235 ESD IND EN is a 2-part, tough elastic, self-smoothing, coloured epoxy resin coating. Sikafloor®-235 ESD IND EN is the main wearing course of the Sikafloor® Multidur ES-25 ESD System and Sikafloor® Multidur ET-25 ESD System.

USES

Sikafloor®-235 ESD IND EN may only be used by experienced professionals.

Sikafloor®-235 ESD IND EN is used as:

- Decorative and protective dissipative self-smoothing system for concrete or cement screeds with normal up to medium heavy wear.
- Particularly suitable for areas with requirements for a low electrostatic charge (Body-voltage) and dissipative surface.
- Typical applications include industries that process, assemble, install, package, test or transport, such as clean room, pharmaceutical, automotive industries etc.

CHARACTERISTICS / ADVANTAGES

- Body voltage generation < 30 V *
- Good mechanical and chemical resistance
- Easy application
- Easy to clean & Liquid proof
- In accordance with general ESD requirements
- Fulfils ESD-requirements at > 25 % RH/+23°C**

ENVIRONMENTAL INFORMATION

LEED Rating

Sikafloor®-235 ESD conforms to the requirements of LEED EQ Credit 4.2: Low-Emitting Materials: Paints & Coatings SCAQMD Method 304-91 VOC Content < 100 g/L

APPROVALS / STANDARDS

- Self-smoothing, coloured epoxy resin coating according to EN 1504-2: 2004 and EN 13813, DoP 02 08 01 02 037 0 000005 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, Polymer Institute, Test Report P 4956-1-E, November 2007
- ** Testing of electrostatic properties in accordance to IEC 61340-5-1, SP Institute, Test Report F900355:B, February 2009
- Conforms to the requirements of ANSI/ESD S20.20 and IEC 61340-5-1. (Internal Test)
- Fire classification in accordance with EN 13501-1, Report-No. 2007-B-0181/18, MPA Dresden, Germany, May 2007.
- Particle emission certificate Sikafloor-235 ESD 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-235 ESD: CSM Statement of Qualification - ISO 14644-8, class - 6.8 - Report No. SI 0706-406.
- Testing of Paint Compatibility in acc. to BMW-Standard 09-09-132-5, Polymer Institute, Test Report P 5541, August 2008
- Varnishability test according to Mercedes Benz-standard PBODC380/PBVCE380 (paint wetting impairment substances (PWIS)) like silicones, Test Report VPT-Nr. 07LL165, 04.2008.
- Spark resistance in accordance with UFGS-09 97 23 of coating systems, Test report P 8625-E, Kiwa Polymer Institut



PRODUCT INFORMATION

Chemical base	EP		
Packaging	Part A	19.5 kg containers	
	Part B	5.5 kg containers	
	Part A+B	25 kg ready to mix units	
Appearance / Colour	Resin - Part A	Liquid, Coloured	
	Hardener - Part B	Liquid, Transparent	
	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.		
Shelf life	12 months from date of production.		
Storage conditions	The product has to be stored in closed, sealed and undamaged packaging in dry conditions at temperatures between +5 °C and +30 °C. The packaging must be protected from direct sunlight.		
Density	Part A	~1.69 kg/L	(DIN EN ISO 2811-1)
	Part B	~1.03 kg/L	
	Mixed Resin	~1.49 kg/L	
	All Density values at +23 °C.		

TECHNICAL INFORMATION

Shore D Hardness	7 days (at +23 °C)	~58 (resin filled)	(DIN 53 505)
Abrasion Resistance	28 days (at +23 °C)	~ 60 mg (CS 10/1000/1000)	(DIN 53109 Taber Abraser Test)
Compressive Strength	28 days (at +23 °C)	~44 N/mm ² (Resin (filled))	(EN 196-1)
Tensile Strength in Flexure	28 days (at +23 °C)	~20 N/mm ² (Resin (filled))	(EN 196-1)
Tensile Adhesion Strength	> 1.5 N/mm ² (failure in concrete)		(ISO 4624)
Chemical resistance	Resistant to many chemicals. Please contact Sika technical service for detailed 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.
Electrostatic Behaviour	Resistance to ground ¹⁾	$R_g < 10^9 \Omega$	(IEC 61340-4-1)
	Typical average resistance to ground ²⁾	$R_g < 10^6 \Omega$	(DIN EN 1081)
	Body voltage generation ²⁾	< 100 V	(IEC 61340-4-5)
	System Resistance (Person/Floor/Shoe) ³⁾	< 35 M Ω	
	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 of > 35 M Ω .		

SYSTEM INFORMATION

Systems

Please refer to the System Data Sheet of:

Sikafloor® Multidur ES-25 ESD	Smooth, unicolour high performance ESD epoxy floor covering
Sikafloor® Multidur ET-25 ESD	Textured, unicolour high performance ESD epoxy floor covering

APPLICATION INFORMATION

Mixing ratio	Part A : part B = 78:22 (by weight)			
Consumption	Coating System	Product	Consumption	
	Self-smoothing wearing course (Film thickness ~ 1.5 mm)	1 pbw Sikafloor®-235 ESD IND ^{EN} filled with quartz sand F34	Maximum 2.5 kg/m ² Binder + quartz sand F34 Depending on the temperature the filling grade varies from: 1 : 0.1 pbw (2.3 + 0.2 kg/m ²) to 1 : 0.3 pbw (1.9 + 0.6 kg/m ²)	
	Textured coating (Film thickness ~ 0.5 mm)	Sikafloor®-235 ESD IND ^{EN} + Extender T + Thinner C	0.7 - 0.8 kg/m ² 1.5 - 2% (by weight) 1.5 - 2% (by weight)	
<p>These figures are theoretical and do not allow for any additional material due to surface porosity, surface profile, variations in level or wastage etc. For detailed info, please refer to the system related System Data Sheets.</p>				
Ambient Air Temperature	+10 °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	+10 °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).			
Pot Life	Temperature	Time		
	+10 °C	~40 min		
	+20 °C	~25 min		
	+30 °C	~15 min		
Applied Product Ready for Use	Temp.	Foot traffic	Light traffic	Full cure
	+10 °C	~ 4 d	~ 8 d	~ 10 d
	+20 °C	~ 3 d	~ 6 d	~ 7 d
	+30 °C	~ 2 d	~ 5 d	~ 6 d
Note: Times are approximate and will be affected by changing ambient conditions				

APPLICATION INSTRUCTIONS

SUBSTRATE QUALITY / PRE-TREATMENT

- Concrete substrates must be sound and of sufficient compressive strength (minimum 25 N/mm²) with a minimum pull off strength of 1.5 N/mm².
- The substrate must be clean, dry and free of all contaminants such as dirt, oil, grease, coatings and surface treatments, etc.

- If in doubt, apply a test area first.
- Concrete substrates must be prepared mechanically using abrasive blast cleaning or scarifying equipment to remove cement laitance and achieve an open textured surface.
- Weak concrete must be removed and surface defects such as blowholes and voids must be fully exposed. Repairs to the substrate, filling of blowholes/voids and surface levelling can be carried out using appropriate products from the Sikafloor®,

Sikadur® and Sikagard® range of materials. The concrete or screed substrate has to be primed or levelled in order to achieve an even surface. Unevenness will influence the film thickness and thus the conductivity. High spots must be removed by e.g. grinding.

- All dust, loose and friable material must be completely removed from all surfaces before application of the product, preferably by brush and/or vacuum.

MIXING

Prior to mixing, stir part A mechanically. When all of part B has been added to part A, mix continuously for 2 minutes until a uniform mix has been achieved.

When parts A and B have been mixed, add the quartz sand F34 (0.1-0.3 mm) or Sikafloor® Filler 1 and mix for a further 2 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 reduce air entrainment.

Mixing Tools

Sikafloor®-235 ESD must be thoroughly mixed using a low speed electric stirrer (300 - 400 rpm) or other suitable equipment.

APPLICATION

Wearing course smooth:

Sikafloor®-235 ESD IND EN is poured, spread evenly by means of a serrated trowel e.g. Large-Surface Scraper No. 656, Toothed blades No. 25 (www.polyplan.com). After spreading the material evenly, turn the serrated trowel and smooth the surface in order to achieve an aesthetically higher grade of finish. Roll immediately (within max. 10 minutes of application) in two directions with a steel spiked roller to ensure even thickness and to remove entrapped air. To obtain the highest level of aesthetic finish, spike roll in two directions at a 90 degree angle, passing only once in each direction.

Wearing course textured:

Sikafloor®-235 ESD IND EN (+ Thinner C & Extender T) is applied with a serrated trowel e.g. Trowel No. 999 or Adhesive Spreader No.777, Toothed blades No. 23 = A3' (www.polyplan.com) and then back-rolled (cross-wise) with a textured roller.

CLEANING OF TOOLS

Clean all tools with Thinner C immediately after use. Hardened and/or cured material can only be mechanically removed.

MAINTENANCE

To maintain the appearance of the floor after application, Sikafloor®-235 ESD 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 and waxes. For further information regarding the cleaning of Sikafloor® -235 ESD please refer to the "Sikafloor®- CLEANING REGIME".

FURTHER DOCUMENTS

▪ Substrate Quality & Preparation

Please refer to Sika Method Statement: "EVALUATION AND PREPARATION OF SURFACES FOR FLOORING SYSTEMS".

▪ Application Instructions

Please refer to Sika Method Statement: "MIXING & APPLICATION OF FLOORING SYSTEMS".

▪ Maintenance

Please refer to "Sikafloor®- CLEANING REGIME".

LIMITATIONS

- Do not apply Sikafloor®-235 ESD IND EN on substrates in which significant vapour pressure may occur.
- Prior to application, confirm substrate moisture content, r.h. and dew point. If > 4% pbw moisture content, Sikafloor® EpoCem® may be applied as a T.M.B. (temporary moisture barrier) system.
- Do not blind the primer. Freshly applied Sikafloor®-235 ESD IND EN must be protected from damp, condensation and water for at least 24 hours.
- Measuring results of the thixotropic version of Sikafloor®-235 ESD IND EN may vary due to a difference in surface profile.
- Sikafloor®-235 ESD IND EN is not suitable for permanent water load.
- ESD clothing, ambient conditions, measurement equipment, cleanliness of the floor and the test person have a substantial influence on the measurement results.
- Under certain conditions, underfloor heating combined with high point loading, may lead to imprints in the resin.
- Due to the elasticity of Sikafloor®-235 ESD IND EN high point loads may lead to imprints.
- 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 Sikafloor®-235 ESD IND EN in each area is applied from the same control batch numbers.
- Maximum layer thickness of wearing course: ~ 1.5 mm. Excessive thickness (more than 2.5 kg/m²) causes reduced conductivity.
- 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 measuring results of the thixotropic version of Sikafloor®-235 ESD IND EN may vary due to a difference in surface profile.
- Do not use Sikafloor®-230 ESD TopCoat to overcoat Sikafloor®-235 ESD IND EN.
- All physical properties have been determined using quartz sand 0.1-0.3 mm from Quarzwerke GmbH Frechen and Sikafloor-Filler 1. Other quartz sand type will have an effect on the product, such as filling grade, levelling properties and aesthetics.

BASIS OF PRODUCT DATA

All technical data stated in this 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 declared data and recommended uses for this product may vary from country to country. Please consult the local Product Data Sheet for the exact product data and uses.

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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.

DIRECTIVE 2004/42/CE - LIMITATION OF EMISSIONS OF VOC

According to the EU Directive 2004/42/CE, the maximum allowed content of VOC (product category IIA / j type sb) is 500 g/l (Limits 2010) for the ready to use product.

The maximum content of Sikafloor®-235 ESD IND EN is ≤ 500 g/l VOC for the ready to use product.

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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