Construction

Sikafloor®-390 AS

2-Part Flexible Epoxy Coating, Chemically Resistant and Electrostatically Conductive

Product Description	**Sikafloor®-390 AS** is a two part, electrostatically conductive self-smoothing, flexible, coloured epoxy resin with high chemical resistance.
Uses	■ Crack-bridging and chemically resistant coating for concrete and screed surfaces in bund areas for the protection against water contaminating liquids (according resistance table) ■ Electrostatically conductive wearing course for areas subject to chemical exposure which are likely to crack
Characteristics / Advantages	■ High chemical resistance ■ Crack-bridging ■ Liquid proof ■ Electrostatically conductive

Test

Approval / Standards	Conforms to the requirements of DIN IEC 61340-4-1 (Internal Test) Approval as “Water protection system”, Z-59.12-108, DIBt, Germany

Product Data

Form	Liquid
Appearance / Colours	Resin - part A: coloured Hardener - part B: transparent Almost unlimited choice of colour shades. Due to the nature of the carbon fibers 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 radiation there may be some discolouration and colour deviation, this has no influence on the function and performance of the coating.
Packaging	Part A: 21.25 kg containers Part B: 3.75 kg containers Part A+B: 25 kg ready to mix units

Storage

Storage Conditions / Shelf-Life	12 months from date of production if stored properly in original, unopened and undamaged sealed packaging, in dry conditions at temperatures between +5°C and +30°C.

Technical Data

Chemical Base	Epoxy	
Density (at +23°C)	Part A: ~ 1.73 kg/lt Part B: ~ 1.05 kg/lt Mixed resin: ~ 1.6 kg/lt	(DIN EN ISO 2811-1)
Solid Content	~ 100% (by volume) / ~100% (by weight)	
Electrostatic Behaviour	Resistance to earth R_E 10^4-10^6 Ω	(DIN IEC 61340-4-1)

Mechanical / Physical Properties

Flexural Strength	~ 10 N/mm² (8 days / +23°C)	(DIN 53455)
Bond Strength	> 1.5 N/mm² (failure in concrete)	(ISO 4624)
Shore D Hardness	60 (after 14 days / +23°C)	(DIN 53 505)
Elongation at Break	~ 20% (8 days / +23°C)	(DIN 53455)
Abrasion Resistance	75 mg (CS 10 wheel / 1000 g / 1000 cycles) (8 days / +23°C)	(DIN 53 109) (Taber Abrader Test)
Crack Bridging Capacity	~ 0.25 mm, static 2 years ZG (German Standard for water protection)	

Resistance

Chemical Resistance

Resistant against many chemicals. Please ask for 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.

System Information

System Structure

Self-smoothing system (horizontal areas):
Primer: 1 x Sikafloor®-156
Earthing connection: Sikafloor® Earthing Kit
Conductive coat: 1 x Sikafloor®-220 W Conductive
Conductive screed: 1 x **Sikafloor®-390 AS**

Smooth wearing course (vertical areas):
Primer: 1 x Sikafloor®-156
Screed: 1 x **Sikafloor®-390 AS** + Extender T
Earthing connection: Sikafloor® Earthing Kit
Conductive coat: 1 x Sikafloor®-220 W Conductive
Conductive wearing course: 1 x **Sikafloor®-390 AS** + Extender T

Broadcast system with slip resistance (rigid):
Primer: 1 x Sikafloor®-156
Earthing connection: Sikafloor® Earthing Kit
Conductive coat: 1 x Sikafloor®-220 W Conductive
Conductive wearing course: 1 x **Sikafloor®-390 AS** broadcast to excess with Silicon carbide
Seal coat: 1 x **Sikafloor®-390 AS** + 5% bw Thinner C

Broadcast system with slip resistance (crack-bridging):
Primer: 1x Sikafloor®-156
Screed: 1 x **Sikafloor®-390 AS**
Earthing connection: Sikafloor® Earthing Kit
Conductive coat: 1 x Sikafloor®-220 W Conductive
Conductive screed: 1 x **Sikafloor®-390 AS** broadcast to excess with Silicon carbide
Seal coat: 1 x **Sikafloor®-390 AS** + 5% bw Thinner C

Note: These system configurations must be fully complied with as described and may not be changed.

Application Details

Consumption / Dosage

Coating System	Product	Consumption
Primer	Sikafloor®-156	0.3 - 0.5 kg/m²
Levelling (optional)	Sikafloor®-156 mortar	Refer to PDS of Sikafloor®-156
Conductive coat	Sikafloor®-220 W Conductive	0.08 - 0.10 kg/m²
Wearing course horizontal areas (Film thickness ~ 1.5 mm)	**Sikafloor®-390 AS**	2.5 kg/m²
Wearing course vertical areas (Film thickness ~ 1.5 mm)	**Sikafloor®-390 AS** + 2.5 - 4% bw Extender T	2 x 1.25 kg/m²
Wearing course with slip resistance (Film thickness ~ 2.5 mm)	**Sikafloor®-390 AS** , broadcast to excess with Silicon Carbide 0.5-1.0 mm	1.6 kg/m² Binder without filling
		Silicon Carbide 0.5-1.0 mm (5-6 kg/m²)
Seal coat (for broadcast system only)	**Sikafloor®-390 AS** + 5% bw Thinner C	0.75 - 0.85 kg/m²

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 concrete substrate 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.

Substrate Preparation	Concrete substrates must be prepared mechanically using abrasive blast cleaning or scarifying equipment to remove cement laitance and achieve a profiled open textured surface. Weak concrete must be removed and surface defects such as blow holes and voids must be fully exposed. Repairs to 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 up in order to achieve an even surface. Unevenness influences the film thickness and thus the conductivity of the following layer. 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.

Application Conditions / Limitations

Substrate Temperature	+10°C min. / +30°C max.
Ambient Temperature	+10°C min. / +30°C max.
Substrate Humidity	≤ 4% pbw moisture content. Test method: Sika-Tramex meter or CM-measurement. No rising moisture according to ASTM (Polyethylene-sheet).
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.

Application Instructions

Mixing	Part A : part B = 85 : 15 (by weight)
Mixing Time	Prior to mixing stir part A mechanically. When all of part B has been added to part A, continuously mix 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 minimize air entrainment.
Mixing Tools	**Sikafloor®-390 AS** must be mechanically mixed using an electric power 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. *Levelling:* Rough surfaces need to be levelled first because varying thickness of the **Sikafloor®-390 AS** wearing course will influence the conductivity. Therefore use Sikafloor®-156 levelling mortar (see PDS). Placing of earthing plates: See below “Notes on Application / Limits”. *Application of Sikafloor® conductive coat:* See PDS of Sikafloor®-220 W conductive

Self-smoothing system (horizontal areas):
Sikafloor®-390 AS is poured, spread evenly by means of a serrated trowel. Roll immediately in two directions with a spiked roller to ensure even thickness.

Smooth wearing course (vertical areas):
The first layer of **Sikafloor®-390 AS**, mixed with 2.5 - 4% bw Extender T, has to be applied by trowel. After placing of the earthing plates and application of the conductivity layer, apply the second layer of **Sikafloor®-390 AS**, mixed with 2.5 - 4% bw Extender T, by trowel.

Broadcast system with slip resistance:
Sikafloor®-390 AS is poured, spread evenly by means of a serrated trowel and applied in the mentioned consumption (and blind the fresh layer with silicon carbide 0.5 - 1.0 mm to excess). After final drying the surplus silicon carbide must be swept off and the surface must be vacuumed. The top sealer (**Sikafloor®-390 AS** + 5% bw Thinner C) has to be applied evenly by short-piled roller or squeegee.

Cleaning of Tools

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

Potlife

Temperatures	Time
+10°C	~ 120 minutes
+20°C	~ 60 minutes
+30°C	~ 30 minutes

Waiting Time / Overcoatability

Before applying **Sikafloor®-390 AS** on Sikafloor®-220 W Conductive allow:

Substrate temperature	Minimum	Maximum
+10°C	24 hours	7 days
+20°C	15 hours	5 days
+30°C	10 hours	4 days

Before applying Sikafloor®-220 W Conductive on **Sikafloor®-390 AS** allow:

Substrate temperature	Minimum	Maximum
+10°C	48 hours	6 days
+20°C	24 hours	4 days
+30°C	18 hours	2 days

Before applying **Sikafloor®-390 AS** on Sikafloor®-156 allow:

Substrate temperature	Minimum	Maximum
+10°C	24 hours	4 days
+20°C	12 hours	2 days
+30°C	6 hours	1 day

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

Notes on Application / Limitations

This product may only be used by experienced professionals.

Do not apply **Sikafloor® -390 AS** on substrates in which significant vapour pressure may occur.

Do not blind the primer coat.

Freshly applied **Sikafloor® -390 AS** must be protected from damp, condensation and water for at least 24 hours.

Avoid puddles on the surface with the primer

Only start application of Sikafloor® conductive coat after the priming coat has dried tack-free all over. Otherwise there is a risk of wrinkling or impairing of the conductive properties.

Tools
Recommended supplier of tools:
PPW-Polyplan-Werkzeuge GmbH, Phone: +49 40/5597260,www.polyplan.com
Serrated trowel for smooth wearing layer:
e.g. Large-Surface Scrapper No. 565, Toothed blades No. 25

Layer thickness of wearing layer: ~ 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 number of conductivity measurements is strongly recommended to be as shown in the table below:

Applied floor area	Number of measurements
< 10m²	measurement / m² 1
10 - 100 m²	measurements 20 - 10
> 100 m²	measurements / 100 m² 10

The measuring points must have a distance of at least 50 cm to the next measuring point. In case of a measurement lower/higher than required, an additional measurement has to be carried out within 50 cm of the point with the insufficient result.

If several measuring points (R_E) of the final floor are > 1 • 10^6 Ω (in case of electrostatically conductive floorings (ECF)), but the walking test (< 100 V, IEC 61340-4-5, IEC 61340-5-1, ESD STM 07.2-1999) and/or the system test (< 35 M Ω, IEC 61340-5-1) results are within the requirements, the total area is acceptable.

Placing of earthing plates:
If the Sikafloor® Earthing Kit conductor system (system of anchored brass-plates with stable earth connection) is applied, the instructions for use have to be followed exactly. Every earthing point is able to conduct 100 m². Ensure the longest distance of each point in the area is max. 10 m to the next earthing point. Clean the earthing spots carefully. For longer distances, additional earthing plates have to be placed. If site conditions do not allow placing of additional earthing points, longer distances (>10 m) have to be bridged with copper tapes. The earthing spots have to be connected to the ring-mains. This work must be executed and approved by an electrical engineer and in accordance with any relevant regulations.

Numbers of earth connections:
Per room al least 2 earthing points. The optimum number of earth connections depends on the local conditions and should be specified with documents.

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®-390 AS** in each area is applied from the same control batch numbers.

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Curing Details

Applied Product ready for use

Temperature	Foot traffic	Light traffic	Full cure
+10°C	~ 48 hours	~ 6 days	~ 14 days
+20°C	~ 30 hours	~ 4 days	~ 10 days
+30°C	~ 20 hours	~ 3 days	~ 7 days

Note: Times are approximate and will be affected by changing ambient conditions. For traffic with solid / hard wheeled lift trucks allow 3 weeks curing time.

Cleaning / Maintenance

Methods

To maintain the appearance of the floor after application, **Sikafloor®-390 AS** 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.

Notes

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 should refer to the most recent Material Safety Data Sheet containing physical, ecological, toxicological and other safety-related data.

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 **sb**) is 550 / 500 g/l (Limits 2007 / 2010), for the ready to use product.

The maximum content of **Sikafloor®-390 AS** is < 500 g/l VOC for the ready to use product.

Legal Notes

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