



## KLB-SYSTEM EPOXID EP 212 ESD

Low-emission, light-coloured, homogeneously conductive 2-component epoxy resin floor coating for demands in ESD areas.

### Packaging units



Article no.	Packaging	Content (kg)	Units/pallet
AK1285-50	Bucket combo	12.00 kg	30
AK1285-30	Hobbock combo	30.00 kg	12

### Product characteristics

Mixing ratio parts by weight	A : B = 4 : 1
Processing time	10 °C / 50 °F : 45 - 50 min. 20 °C / 68 °F : 25 - 30 min. 30 °C / 86 °F : 15 - 20 min.
Processing temperature	Minimum 10 °C / 50 °F (room and floor temperature)
Curing time (accessibility)	10 °C / 50 °F : 24 - 36 hrs. 20 °C / 68 °F : 14 - 18 hrs. 30 °C / 86 °F : 10 - 14 hrs.
Curing	2 - 3 days until mechanical load at 20 °C / 68 °F 7 days until chemical load at 20 °C / 68 °F
Consumption	1.5 - 2.0 kg/m <sup>2</sup> – Consumption quantities must be strictly adhered to!
Packaging	Bucket combo 12 kg, Hobbock combo 30 kg
Colours	Approx. RAL 7030, 7032, 7035, 7038, 7040, other colours upon request!
Shelf life	6 months (originally sealed)

### Product description

**KLB-SYSTEM EPOXID EP 212 ESD** is a low-emission, electrically conductive, pigmented self-levelling coating based on a 2-component epoxy resin for production and storage areas with increased demands to ESD protection.

With high-quality coordinated technology based on conductive mineral fillers, a homogenous, almost layer-thickness-independent product can be obtained, even in light colours.

The cured coating is suitable for commercial and industrial areas with increased demands to the conductivity.

**KLB-SYSTEM EPOXID EP 212 ESD** complies with the requirements according to DIN EN 61340-4-1 / -5-1/2, on Human/Shoe/Floor, as well as the walking test with a maximum charge of < 100 V. Can be used on all areas where static discharge on equipment and persons has to be avoided, preferably in ESD areas of electronics and electrical engineering according to DIN EN 61340-4-5. Furthermore, the coating system is suitable for applications where personal protection is required. **KLB-SYSTEM EPOXID EP 212 ESD** meets the site transition resistance according to VDE 0100-600 (2008), electrode 1 (tripod electrode) of > 50,000 Ohm, according to the limit value requirement of VDE 0100-410. Compliance with the value requires the use of the defined conductive layer **KLB-SYSTEM EPOXID EP 799 Ableitgrund** or **KLB-SYSTEM EPOXID EP 77 Spachtel-Leitschicht**. Within the build-up in **System F3**, **EP 212 ESD** fulfils the requirements on battery room suitability according to worksheet AGI J 31-1.

Even at an air humidity below 5%, the electric resistance value can be maintained.

**KLB-SYSTEM EPOXID EP 212 ESD** is certified according to "Indoor Air Comfort Gold"; thus meets the requirements for a sustainable building certification according to DGNB, LEED or BREEAM. The "Indoor Air Comfort" product certification sets the highest requirements for the emission of volatile organic compounds and meets not only the German requirements of AgBB or ABG, but also the emissions regulations of many other European countries.

**KLB-SYSTEM EPOXID EP 212 ESD** offers a good resistance to mechanical load and to chemicals, e.g. to oil, grease, water, saline solutions, and different acids or bases.

**KLB-SYSTEM EPOXID EP 212 ESD** can be delivered in different colour tones. **Note:** due to the conductive adjustment and for technical reasons, colour tone irregularities may appear.

If required, **EP 212 ESD** can be sealed with **PU 813 EL+/ESD**, **PU 813 EL+/ESD-R10** or **EP 790 EL+**. Ask for advice on this. We do not recommend the use of other sealers for the product.

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#### Area of application

- Especially for production and storage areas in the electronic and electro-technical industry for electrically conductive coatings with increased demands to ESD protection.
- For electrically conductive, commercially used areas with medium mechanical load, e.g. production or storage areas in many economic sectors.

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#### Product features

- tested, low-emission quality
  - Total Solid according to GISCODE (Test method "Deutsche Bauchemie")
  - electrically conductive
  - for increased demands on ESD protection
  - light, coloured surfaces
  - good resistance range
  - consistent to hydrolysis and saponification
  - complies with the site transfer resistance as indicated
  - resistant to abrasion and wear
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## Technical data

Viscosity - Component A+B	2000 - 2500	mPas	DIN EN ISO 3219 (23 °C / 73.4 °F)
Solid content	> 99	%	KLB method
Density - Component A+B	1.34	kg/l	DIN EN ISO 2811-2 (20 °C / 68 °F)
Weight loss	0.3	weight-%	after 28 days
Water absorption	< 0.2	% w/w	DIN 53495
Shore-hardness D	80	-	DIN 53505 (after 7 days)
Resistance to ground	10 <sup>5</sup> - 10 <sup>9</sup> (with EP 799), 10 <sup>6</sup> - 10 <sup>9</sup> (with EP 77)	Ohm	DIN EN 61340-5-1
Walking Body Model	< 100	V	DIN EN 61340-5-1
Human-shoe-floor	< 10 <sup>9</sup>	Ohm	DIN EN 61340-5-1
Point-to-ground resistance	> 50 (measured with 1 electrode/tripod, combined with EP 799 Ableitgrund or EP 77)	kOhm	DIN VDE 0100-600 (2008)

The values established in tests are average values. Deviations from the product specification may occur.

## Included in systems

- **System F3 - KLB CONDUCTIVE LOW-VOC EP ESD Exclusive**

Please visit our website to get more information about our KLB systems: [www.klb-koetzal.com](http://www.klb-koetzal.com)

## Tests

The following external test certificates are available:

- Certified as low-emission according to Eurofins "Indoor Air Comfort Gold".
- Classification of the fire behaviour according DIN EN 13501-01:2019-05: C<sub>fl</sub>-s2.
- Slip-resistance grade R9 possible, according to DIN 51130 and BGR 181.
- Cleanroom-suitable materials according to ISO 14644-1; VDI 2083 Part 17: ISO 5.
- Product is compliant with DIN EN 13813: 2003-01.

### Note:

Please ask for the tested system build-up!

## Build-up of coats

- Test and prepare the substrate, e.g. by shot-blasting.
- Prime with **EP 57**, or alternatively using the low-emission primers **EP 58**, **EP 53 Spezialgrund AgBB** or **EP 54 RAPID U**. Consumption approx. 0.300 - 0.400 kg/m<sup>2</sup>.
- Apply a scratch coat with **EP 57** or alternatives and mixed sand **KLB-Mischsand 2/1**. Mixing ratio 1.0 : 0.5 up to 0.8 parts by weight. Consumption approx. 0.8 - 1.2 kg/m<sup>2</sup>.
- Glue copper bands for discharge in an imagined grid-pattern in place into the room – every 6 - 8 m, up to approx. 1 - 2 m. Earth connection by an electrician based on VDE regulations.
- Apply a cross-conductive coating with **EP 799 Ableitgrund**, consumption approx. 0.100 - 0.140 kg/m<sup>2</sup>.
- Alternatively to the two layers of scratch coat and **EP 799 Ableitgrund**, the dissipative and cross-conductible scratch coat **EP 77 Spachtel-Leitschicht** can be applied with a surface spatula, a trowel or a hard rubber squeegee onto the primer that has been loosely scattered with quartz sand 0.1/0.5 mm to produce an even surface. Consumption approx. 0.6 - 0.8 kg/m<sup>2</sup>.

- Apply the coating **EP 212 ESD** with a toothed trowel such as **Toothed blade S6** or Pajarito TKB-S2, alternatively **Toothed blade S3** or **Pajarito 95**, consumption approx. 1.5 - 2.0 kg/m<sup>2</sup>.
- Optional: applying the light-resistant sealer **PU 813 EL+/ESD** or **PU 813 EL+/ESD-R10** is possible. Consumption approx. 0.180 - 0.22 kg/m<sup>2</sup>. As an alternative, **EP 790 EL+** can be used as a top sealer, consumption approx. 0.150 - 0.18 kg/m<sup>2</sup>.

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## Substrate

The substrate to be coated must be even, dry, free of dust, sufficiently resistant to tension and compression as well as be free from weakly-bonded components or surfaces. Materials impairing adhesion such as grease, oil and paint residues should be removed with suitable measures. Observe the information issued by the trade associations, e.g. the most recent versions of BEB worksheets KH-0/U and KH-0/S as well as the notes provided in the product information for the recommended base coats, like **EP 57**, **EP 58**, **EP 54 RAPID U** and **EP 53 Spezialgrund AgBB**. The substrates to be coated should be prepared mechanically, preferably by shot blasting. The prepared area must be saturated, pore-free and primed carefully. It is often difficult to judge the necessary pore-free condition of substrates. It is therefore recommended that a scratch coat be applied to smooth the surface. Conductive coatings must be applied in the required thickness, it is thus mandatory to prepare the substrate thoroughly - it should already be even after applying the scratch coat. If the substrate has not been primed to be pore-free, bubbles and pores can develop in the coating due to air rising from the substrate. Existing unevenness may become visible on the surface. In case of doubt, we recommend testing on a trial surface.

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## Mixing

Combo-packaging will be supplied in the correctly measured mixing ratio. the package of Component A has sufficient volume to contain the entire packaging unit. Empty all of the hardener compound B into the resin. Blend with a slow speed mixer (200 - 400 r/pm) for at least 3 minutes until a homogeneous, streak-free compound forms. To prevent mixing errors, empty ("repot") the resin/hardener mixture into a clean container and mix it once again briefly.

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## Processing

Process the material immediately after mixing with the toothed trowel (e.g. **Toothed blade S6** or Pajarito TKB-S2, respectively **Toothed blade S3** or Pajarito 95) by pulling out an even layer on the prepared substrate. The toothed trowel is to be guided in such a way that an even surface consumption is achieved. The layer thicknesses must be checked and worn tooth strips must be replaced at an early stage. Do not exceed the recommended consumption quantities! The product is adjusted for optimum deaeration, however, rolling with a spiked roller is recommended to improve the wetting of the substrate, to optimise levelling and to remove remaining air bubbles. This should be carried out time-delayed after approx. 15 - 20 minutes. In order to work seamlessly, always work "fresh-in-fresh" and define work areas before starting.

Floor and air temperature must not fall below 10 °C / 50 °F and humidity should not exceed 75 %. The difference in floor and room temperature must remain less than 3 °C / 5.4 °F so as not to impede the curing process. If a dew-point situation arises, regular curing will not be possible with hardening problems and spotting to occur. Exposure to water should be avoided during the first 7 days. The specified hardening times apply for 20 °C / 68 °F; temperatures below this require longer processing and curing times, while higher temperatures require shorter times. If working conditions are not complied with, the technical properties of the end product may deviate from those specified (surface, load capacity and conductivity).

**Special remarks:** coloured products should always belong to the same batch and be used on the same surface, as slight colour deviations in different batches cannot be excluded due to the raw material. The batch number is indicated on the container

labels. For certain colour shades - especially white, yellow and orange or pastel light shades - the recommended layer thicknesses must be observed to ensure opacity.

Colour changes, loss of gloss or yellowing may occur with certain light and weather influences and with prolonged and intensive use.

To prevent wear and tear, suitable chair castors or floor protection mats must be used with swivel chairs/office swivel chairs or other wheeled furniture.

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#### Cleaning

To remove fresh contamination and to clean tools, use **VR 24** or **VR 33** immediately. Hardened material can only be removed mechanically.

Separate cleaning and care recommendations are available for cleaning floors produced with KLB coatings and sealants.

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#### Storage

Store in dry and if possible, at frost-free conditions. Ideal storage temperature is between 10 °C - 20 °C / 50 °F - 68 °F. Bring to a suitable processing temperature before application. Tightly re-seal opened packages and use up the content as soon as possible.

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#### Special remarks

Please note the special cleaning recommendations for electrically conductive coatings. The product is regulated by the German Ordinance on Hazardous Substances (GefStoffV), the German Ordinance on Industrial Safety and Health (BetrSichV), and transport regulations for hazardous goods. The necessary information is contained in the DIN Safety Data Sheet. Observe all identification information on the container label!


GISCODE: RE90

#### Indication of VOC-content:

(EG-Regulation 2004/42) Maximum Permissible Value 500 g/l (2010,II,j/lb): Ready-for-use product contains < 500 g/l VOC.

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#### CE marking

	
KLB Kötztal Lacke + Beschichtungen GmbH Günztalstraße 25 89335 Ichenhausen, GERMANY	
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EP212ESD-V1-112025	
DIN EN 13813:2003-01	
Synthetic resin screed mortar DIN EN 13813: SR-B2,0-AR0,5-IR7	
Fire behaviour	C <sub>fl</sub> -s1
Emission of corrosive substances	SR
Wear resistance BCA	AR 0,5
Adhesive tensile strength	B 2,0
Impact resistance	IR 7

#### VOC content

The product complies with the high requirements to low VOC contents, as required for sustainable construction. Therefore, these values are well below the limits set by the European Union directive 2004/42/EG (Decopaint Directive).

	Limit value	Actual content	
Decopaint Directive 2004/42/EG - Component A	< 500	21,7	g/l
Decopaint Directive 2004/42/EG - Component B	< 500	approx. 18,4	g/l
DGNB - Components A + B	<5	approx. 1,1	%
klima:aktiv – Components A + B	<3	approx. 1,1	%
LEED - Components A + B	<100	approx. 21,0	g/l
Minergie ECO ® - Components A + B	<1(<2)	approx. 1,1	%

(According to the Decopaint directive, single components are used for calculation. In the sustainable building rating systems, the mixture of both components in the correct mixing ratio is the determining factor.)



Please consider the latest version of this product information on our website.

All stated information is based on our experience and technical preparation. We guarantee the correct and proper quality of our products. We do not assume any responsibility for the work not carried out by us, since we have no influence on the processing or processing conditions. We recommend on-site trials to be conducted in individual cases. With the publication of this new KLB product information, all prior information loses validity. The latest version is available electronically on our website [www.klb-koetztal.com](http://www.klb-koetztal.com). In addition, our "General Terms and Conditions" apply.