

KLB-SYSTEM EPOXID

EP 99 EL+

Electrically conductive, pigmented and fillable 2-component epoxy resin for producing slip-resistant RX coatings scattered with coloured sand

Packaging units



Article no.	Packaging	Content (kg)	Units/pallet
AK2163-50	Hobbock combo	10.00	30
AK2163-30	Hobbock combo	30.00	12

Product characteristics

Mixing ratio parts by weight	A : B = 2 : 1
Mixing ratio parts by volume	A : B = 100 : 55
Processing time	10 °C / 50 °F : 55 min. 20 °C / 68 °F : 30 min. 30 °C / 86 °F : 20 min.
Processing temperature	Minimum 10 °C / 50 °F (room and floor temperature)
Curing time (accessibility)	10 °C / 50 °F : 24 - 30 hrs. 20 °C / 68 °F : 12 - 16 hrs. 30 °C / 86 °F : 8 - 12 hrs.
Curing	2 - 3 days until mechanical load at 20 °C / 68 °F 7 days until chemical load at 20 °C / 68 °F
Further coatings	After 14 - 18 hours, but after 48 hours at the latest at 20 °C / 68 °F
Consumption	0.7 - 1.0 kg/m ² resin + 0.45 - 0.6 kg/m ² mixed sand KLB-Mischsand 3/1
Colours	Follow the recommendations in our coloured sand colour chart. Due to the conductive adjustment and for technical reasons, colour tone irregularities may appear.
Shelf life	12 months (originally sealed)

Product description

KLB-SYSTEM EPOXID EP 99 EL+ is a solvent-free 2-component epoxy resin binding agent for producing electrically conductive and slip-resistant RX coatings which are scattered with coloured sand mixtures.

KLB-SYSTEM EPOXID EP 99 EL+ is mixed on site with mixed sand **KLB-Mischsand 3/1** and applied over grain, then scattered with coloured sand **KLB-Colorsand CQS-47xx AS** and sealed with **KLB-SYSTEM POLYURETHAN PU 484**.

The cured coating is especially suitable for commercially or industrially used areas where an aesthetically pleasing, electrically conductive floor coating is required with a defined slip-resistance. Due to the characteristic look of the scatter coating, the floor is robust and not very susceptible to stains.

The electrically conductive coating can be used in many sectors such as those where an explosion protection is required, but also with demands on personal and ESD protection. Typical areas of application are laboratories, production and storage areas, floors in microelectronics areas, with ESD requirements for e.g. development, assembly and storage surfaces, areas of the pharmaceutical industry and medical technology and much more.

The hardened coating is very resilient to mechanical wear and resistant to various chemicals.

KLB-SYSTEM EPOXID EP 99 EL+ has good resistance to water, salts, salt solutions, alcalis and bases as well as to diluted mineral acids such as hydrochloric and sulphuric acid. But also to solvents like fuel, gasoline, grease, oil, etc. A conditional resistance is given for concentrated mineral acids, for organic acids such as formic acid, acetic acid and concentrated lactic acid, etc. Consider special standards. Obtain advice!

The coating resin can be delivered in selected colour tones. Due to the conductive adjustment, colour tone irregularities may appear. Follow the colour recommendations in our coloured sand colour chart.

Area of application

- System binding agent for high-quality, dissipative coatings scattered with coloured sand (RX coatings) for industrial use.
- For electrically conductive floors for personal, explosion and ESD protection.
- In predefined slip-resistance suitable for laboratory, pharmaceutical, production and storage areas, etc.
- In areas with special requirements to ESD protection, manufacturing areas of the electronics industry and many more.

Product features

- electrically conductive
- hard and wear-resistant
- very economical
- good filling capacity
- good resistance range
- consistent to hydrolysis and saponification
- Total Solid according to GISCODE (Test method "Deutsche Bauchemie")

Technical data

Viscosity - Component A+B	Approx. 750 - 850	mPas	DIN EN ISO 3219 (23 °C / 73.4 °F)
Solid content	100	%	KLB method
Density - Component A+B	Approx. 1.10	kg/l	DIN EN ISO 2811-2 (20 °C / 68 °F)
Weight loss	Approx. 0.25	% w/w	after 28 days
Water absorption	< 0.2	% w/w	DIN 53495
Bending tensile strength	Approx. 35	N/mm ²	DIN EN 196/1
Compressive strength	Approx. 80	N/mm ²	DIN EN 196/1
Shore-hardness D	Ca. 78	-	DIN 53505 (after 7 days)
Abrasion (Taber Abraser)	Approx. 55	mg	ASTM D4060 (CS10/1000)
Electrical resistance	Tested in the system with EP 799 Ableitgrund/ CQS-47xx AS/PU 484	-	
Electrical resistance to ground	<10 ⁶	Ohm	DIN EN 61340-5-1
Walking Body Model	< 100	V	DIN EN 61340-5-1
Person/footwear/flooring system	< 10 ⁹	Ohm	DIN EN 61340-5-1

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

Tests

- Product is compliant with DIN EN 13813: 2003-01.

Build-up of coats

RX coating with slip-resistance grade R11/12

- Prepare the substrate, preferably by shot blasting.
- Prime with the recommended KLB base coats, like **EP 50**, **EP 51 RAPID S**, **EP 52 Spezialgrund**, consumption approx. 0.3 - 0.4 kg/m², depending on the substrate.
- If required: apply a levelling coat for reducing the roughness of depths with primer and mixed sand **KLB-Mischsand 2/1**: mixing ratio approx. 1.0 : 0.7 to 0.8 parts by weight, consumption approx. 1.3 - 1.5 kg/m². To improve the layer thickness, apply a scratch coat with mixed sand **Mischsand 3/1**. Primer and mixed sand **Mischsand 3/1**: mixing ratio approx. 1.0 : 0.8 to 1.0 parts by weight, consumption approx. 1.3 - 1.5 kg/m². The mass is skimmed with the trowel under light pressure over grain.
- Scatter the previous prime/scratch coat openly with quartz sand 0.3/0.8 mm, consumption approx. 1 to 2 kg/m².
- Apply the KLB-Kupferbänder copper strips for discharge every 6-8 m in a grid pattern, approx. 1-2 m from the earthing points into the room. Approx. every 80 to 100 m² into the room. If necessary, the surface must be grinded and vacuumed off.
- Apply the conductive coat **EP 799 Ableitgrund** and a nylon roller (pile height 8 mm), consumption approx. 0.180 - 0.250 kg/m².
- Apply the base layer with **EP 99 EL+** and mixed sand **KLB-Mischsand 3/1** in a mixing ratio of 1.0 : 0.6 parts by weight, consumption approx. 1.2 - 1.5 kg/m². for subsequent scattering with dissipative coloured sand **CQS-47xx AS**. The compound is skimmed with the smoothing trowel under light pressure over grain.
- After approx. 10 to 20 minutes, scatter in excess with antistatic coloured sand **CQS-47xx AS**, consumption approx. 2.5 - 3.5 kg/m². After curing (normally within the next day), sweep off excess sand until no more loose grains remain.
- Intermediate sanding is possible if a reduced slip resistance is required. First grinding: grain size 16 in a crosswise motion, further grinding: grain size 24. 3 to 4 overgrindings are required to achieve a slip resistance of R10. **Important note:** work very carefully, in particular thoroughly remove and vacuum off any excess sand as well as sanding dust. Light-coloured and clean shoes or clothing should be worn on the surface. Visually appealing surfaces can only be created when working with great care.
- Apply the top sealer onto the completely cleaned surface with **PU 484** using a Kaupp spatula or rubber squeegee, then distribute evenly in a consumption of approx. 0.5 to 0.7 kg/m². Optional: re-roll with the nylon roller (8 mm pile height). If necessary, reduce the application quantity for obtaining a higher slip resistance! Seek advice if in doubt.

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 reducing adhesion, such as grease, oil and paint residues, must first 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 KLB base coats. 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. 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. If in doubt, we recommend processing a sample area.

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 package. Blend with a slow speed mixer (200 - 400 r/pm) for at least 2 - 3 minutes until a homogeneous, streak-free compound forms. To prevent mixing errors, empty ("repot") the entire resin/hardener mixture into a clean container and mix it once again briefly or blend the additions in a compulsory mixer. Partial quantities need to be weighed out in the right mixing ratio after having stirred up the single components.

Addition of quartz sand

The addition is done after mixing components A and B. Only mixed sand **KLB-Mischsand 3/1** is recommended for the production of RX coverings.

Mixing ratio:

EP 99 EL+ : mixed sand **Mischsand 3/1** = 1 : 0.6 parts by weight

Processing

Process the material immediately after mixing and spread it over the prepared surface with standing squeegee or smoothing trowel by skimming an even layer over grain. To work seamlessly, always work "fresh-in-fresh" and define work areas before starting. Do not scatter too early, the optimum time is at 20 °C / 68 °F after 20 - 25 minutes so that the resin layer can level itself sufficiently. If necessary, a velours roller can be used for even distribution.

Floor and air temperature must not fall below 10 °C / 50 °F and humidity must not exceed 75 %. The material must be at room temperature during processing. The difference between the dew-point and the substrate temperature must be greater than 3 °C / 3 K / 5.4 °F during processing and hardening. If a dew-point situation arises, regular curing will not be possible with hardening problems and spotting to occur.

Exposure to water and chemicals should be avoided during the first 7 days. The specified curing 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.

Cleaning

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

Storage

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

Special remarks

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: RE30

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.

CE marking

	
KLB Kötztal Lacke + Beschichtungen GmbH Günztalstraße 25 FRG-89335 Ichenhausen	
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EP99EL+-V1-092020	
DIN EN 13813:2003-01	
Synthetic resin screed mortar DIN EN 13813: SR-B1.5-AR0.5-IR5	
Fire behaviour	E _f -s1
Emission of corrosive substances	SR
Wear resistance BCA	AR 0.5
Adhesive tensile strength	B 1.5
Impact resistance	IR 5



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