KLB KÖTZTAL
Lacke + Beschichtungen GmbH

KLB-SYSTEM EPOXID
EP 231 ESD

2-component epoxy resin SiC structured coating

Packaging units

Article no.	Content (kg)	Units/pallet
AK1431-30	30.00 kg	12

Product characteristics

Mixing ratio parts by weight	A : B = 5 : 1
Mixing ratio parts by volume	A : B = 100 : 32
Processing time	10 °C / 50 °F : 60 min. 20 °C / 68 °F : 45 min. 30 °C / 86 °F : 25 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
Further coatings	After 14 - 18 hours, but after 48 hours at the latest at 20 °C / 68 °F
Consumption	0.40 - 0.55 kg/m²
Packaging	Bucket combo 10 kg, Hobbock combo 30 kg
Colours	KLB standard colours – see chart. Other colours upon request!
Shelf life	12 months (originally sealed)

Product description

KLB-SYSTEM EPOXID EP 231 EL+ is a pigmented 2-component epoxy resin coating for thin floors. To improve the wear behaviour, the product is equipped with wear-resistant silicon carbide. Slip-resistant floors can easily be produced due to the slightly rougher grain. **KLB-SYSTEM EPOXID EP 231 EL+** is electrically conductive. Compared to **KLB-SYSTEM EPOXID EP 233 EL+**, **EP 231 EL+** has a significantly stronger “grain structure.”

Apply the ready-to-use material with a trowel on the substrate and structure evenly with a textured roller. To increase robustness and slip-resistance, the product can be additionally refilled with SiC.

Using **KLB-SYSTEM EPOXID EP 231 EL+,** results in an optically appealing coating with a slightly textured, glossy surface which is free of pores.

The coating offers good resistance to chemicals, especially to aqueous salt solutions, acids and bases as well as to oil and petrol. **KLB-SYSTEM EPOXID EP 231 EL+** shows good colour tone stability - but like all epoxy resins, it is not resistant to yellowing.

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Area of application

- For textured, plain-coloured thin coatings with a non-porous surface.
- For production, storage, and working areas with light mechanical load.
- For vehicle traffic and parking areas with light load.
- For conductive coatings with an increased demand to the slip resistance.

Product features

- electrically conductive
- ESD-conductive
- Total Solid according to GISCODE (Test method "Deutsche Bauchemie")
- slip-resistant
- structured
- good resistance to water and chemicals
- very economical
- resistant to abrasion and wear

Technical data

Viscosity - Component A+B	thixotropic	-	
Density - Component A+B	1.37	kg/l	DIN EN ISO 2811-2 (20 °C / 68 °F)
Weight loss	< 1.0	weight-%	after 28 days
Water absorption	< 0.2	weight-%	DIN 53495
Flexural strength	30	N/mm²	DIN EN 196/1
Compressive strength	65	N/mm²	DIN EN 196/1
Shore-hardness D	80	-	DIN 53505 (after 7 days)
Abrasion (Taber Abraser)	50	mg	ASTM D4060 (CS10/1000)
Electrical resistance	(in combination with EP 799 Ableitgrund) 10^9	Ohm	DIN EN 61340-4-1 DIN EN 1081
Resistance to ground	(kombiniert mit EP 799 Ableitgrund) <10^6	Ohm	

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

Tests

The following external test certificates are available:

- Slip-resistance grade R10 possible, according to DIN 51130 and BGR 181.
- Product is compliant with DIN EN 13813: 2003-01.

Note:

Please ask for the tested system build-up!

Build-up of coats

- Prime with the recommended KLB base coats like **EP 50**, **EP 51 RAPID S**, **EP 52 Spezialgrund** or **EP 52 RAPID**. Consumption approx. 0.3 - 0.4 kg/m² depending on the substrate.
- Pigmented scratch coat for an even substrate, e.g. with **EP 50**, **EP 51 RAPID S** and mixed sand **KLB-Mischsand 2/1**, mixing ratio 1 : 0.8 parts by weight. Consumption approx. 1.0 kg/m². For an even colour tone, it is recommended to add 5 - 10 % of pigments in the colour tone of the coating.
- Optional: conductive coatings need to be supplemented with copper band and **EP 799 Ableitgrund**, consumption approx. 0.100 - 0.140 kg/m².
- Apply **EP 231 ESD** with a trowel. Consumption approx. 0.40 - 0.55 kg/m². Structure evenly with a structure roller in crosswise motion.
- Add 10 - 15 % of silicon carbide, grain size 0.3/0.8 mm to increase the robustness and slip-resistance. Consumption of the mixture approx. 0.750 - 0.850 kg/m².

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. Please refer to the advice issued by the trade associations, e.g. the current edition of the KH-0/U and KH-0/S BEB worksheets as well as the product information for the recommended base coats, like **EP 50, EP 51 RAPID S**, and **EP 52 Spezialgrund**. The substrates to be coated should be prepared mechanically, preferably by shot-blasting. The surface strength must then be at least 1.5 N/mm². For concrete, moisture content must not exceed 4.5 CM-%, remaining residual humidity. The possibility of moisture ingress from the rear must be permanently excluded. 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 pigmented 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. 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.

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 2 - 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 to ensure complete homogenisation.

Processing

Apply the fresh material partially onto the surface, then pull over the grain using the smoothing trowel. Watch for an even application. Always work “fresh-in-fresh”. Use a structured roller with medium-sized pores and distribute in crosswise motion. Run the roller over the surface several times until the desired uniform structure is achieved. The surface can be entered with edgeless nail shoes. The amount of material applied must be carefully measured out. If too much is being applied, roller marks may appear. Do not use the structured roller for application. Replace the roller after approx. 25 minutes.

Floor and air temperature must not fall below 10 °C / 50 °F and humidity should not be below 30% and above 75%. The difference in floor and room temperature must remain less than 3 °C / 5.4 °F so that curing will not be disturbed. If a dew-point situation arises, regular curing and adhesion may be disrupted with spotting to occur. Exposure to water should be avoided during the first 7 days. The specified hardening times apply for 20 °C / 68 °F. Lower temperature may increase; higher temperature may decrease the curing and processing times.

If working conditions are not complied with, the technical properties of the end product may deviate from those specified (also the conductivity).

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 sealers.

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.

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: 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.

CE marking

CE

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DIN EN 13813:2003-01

Synthetic resin screed mortar
DIN EN 13813: SR-B2,0-AR0,5-IR5

Fire behaviour	E_{fl}-s1
Emission of corrosive substances	SR
Wear resistance BCA	AR 0,5
Adhesive tensile strength	B 2,0
Impact resistance	IR 5

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

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