KLB KÖTZTAL
Lacke+Beschichtungen GmbH

KLB-SYSTEM EPOXY
EP 233 EL+

2-Component-Epoxy-Resin-Silicon-Carbide-Textured-Coating

Mixing Ratio	Parts by weight	A : B =	4 : 1	
	Parts by volume	A : B =	100 : 38	
Processing Time	Temperature	10 °C / 50 °F	20 °C / 68 °F	30 °C / 86 °F
	Time	60 minutes	45 minutes	25 minutes
Processing Temperature		Minimum 10 °C / 50 °F (room- and floor-temperature)		
Curing Time (Accessibility)	Temperature	10 °C / 50 °F	20 °C / 68 °F	30 °C / 86 °F
	Time	24 - 36 hrs	14 - 18 hrs	10 - 14 hrs
Curing		2 - 3 days at 20 °C / 68 °F for mechanical load		
		7 days at 20 °C / 68 °F for chemical resistance		
Further Coatings		After 14 - 18 hours, but not longer than 48 hours at 20 °C / 68 °F		
Consumption		0.450 - 0.600 kg/m²		
Electrical Conductivity		< 10^9 Ohm (in combination with EP 799 Highly Conductive Base Coat)		
Test Standard		DIN EN 1081, DIN EN 61340-4-1		
Packaging		Combi-Bucket 10 kg, Hobbock-Combi 30 kg		
Colours		KLB-Standard Colours – see chart. Other colours upon request!		
Colour Tone Deviation		Due to the conductive adjustment and technical reasons		
		deviations in colour tones may occur!		
Shelf Life		12 months (originally sealed)		

Usage and Properties

KLB-SYSTEM EPOXY EP 233 EL+ is a pigmented 2-comp. epoxy resin coating for thin coats. For an upgraded abrasion resistance the product is enhanced with silicon carbide. Slip resistant floors can easily be produced due to the slightly rougher grain. **KLB-SYSTEM EPOXY EP 233 EL+** is electrically conductive.

Apply the ready-to-use material with a trowel on the substrate and structure evenly with a textured roller. To increase the bleeder- and slip-resistance the product can additionally be enhanced with the silicon carbide.

Using **KLB-SYSTEM EPOXY EP 233 EL+** results in an optically appealing coating with a slightly textured, glossy surface, free of pores.

The coating offers good resistance to chemicals especially to aqueous salt solutions, acids and bases as well as oil and benzine. **KLB-SYSTEM EPOXY EP 233 EL+** shows good colour tone stability. But like all epoxy resins the material is not resistant to yellowing.

Product Features

- tough and abrasion resistant
- economic consumption
- resistant to chemicals
- slip resistant due to the silicon carbide
- results in a slightly textured surface
- electrically conductive

Area of Application

- For textured, single coloured thin coatings and surfaces free of pores.
- For workrooms and storage areas with light mechanical load.
- For driving and parking areas with light load.
- For conductive coatings with an increased demand to the slip resistance.

Build-up of Coats

- Prime with the recommended **KLB-Base Coats** like e.g. **EP 30, EP 50, EP 51 RAPID S, EP 52 Special Primer** or **EP 52 RAPID.** Consumption approx. 0.3 - 0.4 kg/m² depending on the substrate.
- Pigmented scratch coat for a planar surface, e.g. with **EP 30, EP 50, EP 51 RAPID S** and **KLB-Sand Blend 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 pigmentation (colour tone of the coating) to the resin.
- Optional: conductive coatings need to be supplemented with copper band and **EP 799 Highly Conductive Base Coat,** consumption approx. 0.150 kg/m².
- Apply **EP 233 EL+** with a trowel. Consumption approx. 0.450 - 0.600 kg/m². Structure evenly with a textured roller using criss-cross strokes.
- Add 10 - 15 % silicon carbide, grain size 0.3/0.8 mm to increase the bleeder- and slip-resistance.

Substrate

The substrate to be coated has to be levelled, dry, free of dust, has to have adequate tensile and compressive strength and be free from weakly-bonded components or surfaces. Materials impairing adhesion, such as grease, oil and paint residues must be removed using suitable methods. Please refer to the advice issued by the trade associations, e.g. the current edition of BEB-worksheets KH-0/U and KH-0/S as well as the product information for the suggested base coats like **EP 30, EP 50, EP 51 RAPID S** or **EP 52 Special Primer.** The surface to be coated should be prepared mechanically, preferably by shot-blasting. The surface strength must then be a minimum of 1.5 N/mm². For concrete, moisture content must not exceed 4.5 CM-%, remaining residue humidity. The possibility of moisture ingress from the rear must be permanently excluded. The prepared surface has to be primed accurately, saturated and free of pores. Estimating the substrate according to the necessary sealed state may be difficult, so a pigmented scratch coat is recommended for smoothing the surface. The conductive coating must be applied in the required thickness that is why it is mandatory to prepare the substrate thoroughly. If the substrate hasn't been sealed completely bubbles and pores may appear because of rising air. Conduct a trial if in doubt.

Mixing

Combi-trading units will be supplied in the correctly measured mixing ratio. Component A has sufficient volume for the entire trading unit. Decant hardener B into the resin completely. Blend with a slow speed mixer (200 - 400 r/pm) for at least 2 - 3 minutes, for a material that is homogeneous and free of streaks. To avoid mixing errors and to homogenize completely it is recommended to principally empty the resin/hardener mixture into a clean container and mix briefly once again.

Processing / Handling

Apply fresh material partially on the surface. Pull over the grain. Watch for an even application. Always work "fresh-in-fresh". Use a structured roller with medium-sized pores with criss-cross strokes for distribution. For an even structure repeat the strokes. The surface can be entered with edgeless nail shoes. Watch for the correct dosage of the material. If too much material is being used roller marks will appear. Do not use the structured roller for application.

Floor and air temperature must not fall below 10 °C / 50 °F and/or humidity must not exceed 75 %. The difference in floor- and room-temperature must be less than 3 °C / 37.4 °F so the curing will not be disturbed. If a dew-point situation occurs regular curing may be disturbed and spotting may occur. Exposure to water should be avoided within the first 7 days. Curing time applies to 20 °C / 68 °F. Lower temperature may increase, higher temperature may decrease the curing and processing time.

If working conditions are not complied with, deviations in the technical properties and conductivity may occur in the end product.

Cleaning

To remove fresh contamination and to clean tools use thinner **VR 24** or **VR 33** 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 containers and use the content as soon as possible.

Special Remarks

The product is subject to the hazardous material-, operational safety- and transport-regulations for hazardous goods. Refer to the DIN-Safety Data Sheet and the information on the labelled containers!

GISCODE: RE1

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

KLB Kötztal Lacke + Beschichtungen GmbH
Günztalstraße 25
FRG-89335 Ichenhausen

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EP233EL+-V1-022013

DIN EN 13813:2003-01

Synthetic resin screed mortar
DIN EN 13813: SR-B1.5-AR0.5-IR6

Flammability	E_{fl}-s1
Emission of corrosive substances	SR
Wear resistance BCA	AR 0.5
Adhesive tensile strength	B 1.5
Impact resistance	IR 6

Technical Data*

Viscosity	Components A + B	thixotropic		
Density	Components 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
Bending Tensile 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 Abrasion)		50	mg	ASTM D4060
Bleeder Resistance		< 10^9	Ohm	DIN EN 61340-4-1

(* Values achieved in sampling are average values. Variation in product specifications is possible.)

KLB
KÖTZTAL

Lacke + Beschichtungen GmbH
Günztalstraße 25
FRG-89335 Ichenhausen
Phone +49 (0) 8223-96 92-0
Fax +49 (0) 8223-96 92-33
www.klb-koetztal.com
info@klb-koetztal.com

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to ISO 9001.