KLB KÖTZTAL
Lacke + Beschichtungen GmbH

KLB-SYSTEM EPOXID
EP 158

Low-emission, 2-component epoxy resin binding agent for decorative coloured sand and industrial mortar coatings – AgBB-tested and DIBt®-accredited

Mixing ratio	Parts by weight	A : B	=	2 : 1	
	Parts by volume	A : B	=	100 : 54	
Processing time	Temperature	10 °C / 50 °F		20 °C / 68 °F	30 °C / 86 °F
	Time	70 - 90 min.		40 - 50 min.	20 - 30 min.
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 - 28 hrs.		14 - 18 hrs.	10 - 14 hrs.
Curing		2 - 3 days for mechanical load at 20 °C / 68 °F			
		Approx. 7 days for chemical resistance at 20 °C / 68 °F			
Further coatings		After 12 - 15 hours, but not longer than 48 hours at 20 °C / 68 °F			
		or “fresh-in-fresh”			
Consumption (resin)	Base coat	Approx. 0.300 - 0.400 kg/m²			
	Mortar coating	Mixture 1 : 8	resin approx. 1.35 kg/m² for a 6 mm layer thickness		
	Mortar coating	Mixture 1 : 10	resin approx. 1.10 kg/m² for a 6 mm layer thickness		
	Mortar coating	Mixture 1 : 12	resin approx. 1.00 kg/m² for a 6 mm layer thickness		
Packaging		Bucket-Combi 10 kg, Hobbock-Combi 30 kg, Drum-Combi 600 kg			
Shelf life		12 months (originally sealed)			

Usage and Properties

KLB-SYSTEM EPOXID EP 158 is a low-viscosity, low-emission 2-components epoxy resin, which is used mainly to install epoxy resin mortar coatings in coloured and natural sand.

The epoxy resin binding agent is slow hardening, easy to process, and gives a sufficient installation time and smoothness for the mortar works.

KLB-SYSTEM EPOXID EP 158 can be usually mixed with coloured and natural sands in a mixing ratio of 1 : 8 to 1 : 12 and can be applied easily by hand or mechanically.

KLB-SYSTEM EPOXID EP 158 is based on the trusted resin mortar **KLB-SYSTEM EPOXID EP 150;** it corresponds to the new generation of low-emission epoxy resins, and is free of benzyl alcohol, solvents and alkyl phenol. **KLB-SYSTEM EPOXID EP 158** was tested in combination with **KLB-SYSTEM EPOXID EP 172** and **KLB-SYSTEM POLYURETHAN PU 805 E** according to AgBB and the DIBt® (German Institute for Structural Engineering) and was accredited for the use in inner areas and recreation rooms.

KLB-SYSTEM EPOXID EP 158 is certified according to the „Indoor Air Comfort Gold“, and meets the emissions criteria for the building certification according to DGNB (Germany), LEED (United States) or BREEAM (Great Britain). „Indoor Air Comfort Gold“ sets the highest requirements for the emission of volatile organic compounds, and it does not only fulfill the German standards of AgBB or ABG, but also the emission standards of many other European Countries.

KLB-SYSTEM EPOXID EP 158 coatings are characterized by a high mechanical- and a good wear resistance. The resin also offers a good colour stability, but is not completely color-stable like all epoxy resins.

The resin offers a good resistance to chemicals, especially saline solutions, diluted inorganic acids and alkalis, as well as solvents. Conditionally resistant to organic acids and strongly oxidizing agents.

The temperature resistance of terrazzo and industrial mortar coatings, in a layer thickness of 6 mm, with moist heat can go briefly up to approx. 80 °C, and, with dry heat, to approx. 120 °C. For a longer exposure or a more intense heating of the floor, seek advice.

The smooth surface must be filled with **EP 172** in several steps in order to obtain a closed surface. Use **PU 805 E** for the final finish of the floor coating.

Produktmerkmale

- “total solid” according to Giscode (test method of the Deutsche Bauchemie, German contruction chemistry association)
- for smoothed mortar coatings 5 - 25 mm
- low-emission according to AgBB
- for coloured sand terrazzo coatings
- all-purpose and reliable
- only slightly yellowing
- suitable for manual application

Testing

External test certificates are available:

Certified low emission according to „Eurofins Indoor Air Comfort Gold”. Compliant with AgBB and with DIBt®-accreditation for recreation rooms.

Note: Please ask for the tested system structure!

Area of Application

- Terrazzo-coatings with AgBB requirements.
- Mortar coatings made of natural and decorative sand.
- Preferably, for predominantly dry productions in different industries (pharmaceuticals, food, machinery, automotive and many more), decorative exhibition areas, and museums. For wet and chemically contaminated surfaces seek advice.
- Manually and mechanically applied levelled mortar coatings in a thickness range of 5 - 25 mm.
- Levelling coats or base coats and underneath mortar coatings.

Build-up of Coats

EP 158 can be used as a mortar when mixed with coloured or natural sand in a mixing ratio of 1 : 8 to 1 : 12. The mixtures must be adapted to the particular application and laying method chosen. The installation of surface ready decorative coatings can be carried out following the procedure below:

- Prepare substrates like e.g. concrete, cement screed mechanically, e.g. by shot blasting.
- For the subsequent installation of the decorative mortar, the priming can be carried out with the resin **EP 158.** As an alternative, it is possible to use the recommended KLB-Primers, like e.g. **EP 52 Spezialgrund, EP 55,** and **EP 57.** The consumption is of approx. 0.3 - 0.4 kg/m². Scatter lightly the wet primer with quartz sand 0.7/1.2; consumption approx. 0.8 - 1.2 kg/m².
- Optional: A levelling course is not necessary for common roughness. Larger unevenness can be pre-filled with mortar if necessary.
- Mortar processing: The processing of the freshly made mortar mix of **EP 158** with an appropriate coloured or natural sand mix takes place when fresh, immediately after the production.
- **When applied by hand the mortar can be laid with the aid of levelling gauges in a uniform layer thickness, smoothed with a trowel and finally compacted.**
- **EP 158-Mortar mix** can also be laid mechanically with a screed applicator and smoothened with a power float. It is recommended to conduct a trial before the application.
- The pore sealing takes place by laying multiple layers of **EP 172** with a surface spatula, consumption approx. 0.8 - 1.2 kg/m².
- Matte sealing with **PU 805 E,** with a velour roller, consumption approx. 0.150 - 0.180 kg/m².

The laying of mortar linings requires a special experience. The installer must verify the suitability of the resin for the respective installation.

Substrate

The substrate to be coated has to be levelled, dry, free of dust, has to have adequate tensile and compressive strength, and to 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 association, e.g. the current edition of BEB-worksheets KH-0/U and KH-0/S as well as the product information for the recommended KLB-Base coats. The surface strength must then be a minimum of 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. Primers cannot remain more than 2 days without further coatings, otherwise they must be scattered with quartz sand 0.7/1.2 mm. The substrate to be coated should be prepared mechanically, preferably by shot blasting. The surface has to be prepared accurately, saturated, and free of pores. Older substrates has to be cleaned before mechanical preparation. When sealing old synthetic resin surfaces test for adequate adhesion. It is recommended to conduct a trial. The reconstruction of floors, in addition to the usual requirements, requires a test of the results, e.g. through the testing of the adhesive strength.

Mixing

For a partial use, single components need to weight in the precise mixing ratio. Combi-trading units will be supplied in the correctly measured mixing ratio. Component A has sufficient volume for the entire trading unit. Decant the hardener completely into the resin. 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.

Producing mortars: Mixing synthetic resin mortars, in order to achieve a consistent mortar quality, should generally be carried out with a compulsory mixer. Pre-mix briefly the additives, then add the mixed resin whilst the mixer is running. **Important:** The mixing time must be always constant. Process the complete mixture immediately, and in a constant working rhythm.

Processing / Handling

The mortar mixture should always be processed immediately to avoid any changes in consistency due to the reaction process and may lead to altered surface structures and visible process transitions. Apply the material in portions on the substrate and distribute evenly, e.g. with a gauge. Compact and smooth manually or mechanically. Always work “fresh-in-fresh” to avoid any shoulders. Working areas must be separated in accordance with the installation process. The mortar installation requires an experienced and trained staff. Mortar coatings should generally be sealed. The number of coats and choice of material depends on the finish requirements and the mortar system. The optimal processing temperature is between 15 - 25 °C / 59 - 77 °F.

Floor- and air-temperature must not fall below 10 °C / 50 °F and 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 adhesion may malfunction, curing may be disturbed, and spotting may occur. Exposure to water should be avoided for the first 7 days. The curing time depends on the temperature of the surroundings (see chart), with lower temperatures, the processing and hardening time will increase, while with higher temperatures they will be shortened. If working conditions are not complied with, deviations in the described properties may occur in the final product.

Cleaning

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

Storage

Store in dry and 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 (05/2018 modification): RE 30

Indication of VOC-Content:
(EG-Regulation 2004/42)
Maximum Permissible Value 140 g/l (2010,II,j/lb):
Ready-for-use product contains < 140 g/l VOC.

CE

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EP158-V1-122015
DIN EN 13813:2003-01
Synthetic resin screed mortar DIN EN 13813: SR-B1.5-AR0.5-IR4

Fire behaviour	E_{fl}-s1
Emission of corrosive substances	SR
Wear resistance BCA	AR 0.5
Adhesive tensile strength	B 1.5
Impact resistance	IR 4

Technical data*

Viscosity	Components A + B	450	mPas	DIN EN ISO 3219 (23 °C)
Density	Components A + B	1.08	kg/l	DIN EN ISO 2811-2 (20 °C)
Weight loss		0.3	weight-%	after 28 days
Water absorption		< 0.2	weight-%	DIN 53495
Bending tensile strength		30	N/mm²	DIN EN 196/1
Compressive strength		70	N/mm²	DIN EN 196/1
Shore-hardness D		75	-	DIN 53505 (after 7 days)
Adhesive tensile strength		> 1.5	N/mm²	DIN EN ISO 1542

(* Values achived in sampling are average values. Variation in product specification is possible)

VOC-Contents

The product complies with the high requirements to low VOC-contents, as required for sustainable construction.
Therefore, these values exceed by far the European Union directive 2004/42/EG (decopaint-directive).

	Reference to*	Max Value	Actual content	
Directive 2004/42/EG	Component A	≤ 500	0	g/l
Decopaint-directive	Component B	≤ 500	0	g/l
DGNB German Sustainable Building Council	Components A + B	GISCODE RE 0/1	GISCODE RE 1	
Minergie Eco® Quality standard of the "Minergie society", Switzerland	Components A + B	< 1 (< 2)	0	%

(* According to the decopaint-directive single components are used for the calculation. For the quality rating system for sustainable construction the mixture of both components in the correct mixing ratio is the determining factor.)

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Certified according
to ISO 9001.