

# KLB-SYSTEM EPOXID

## EP 99

Economical, solvent-free 2-component coating resin for self-filling with mixed sand KLB-Mischsand 2/1 or 3/1

### Packaging units



Article no.	Packaging	Content (kg)	Units/pallet
AK1072-50	Bucket combo	10.00 kg	30
AK1072-30	Hobbock combo	30.00 kg	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 - 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	1.3 - 1.5 kg/m <sup>2</sup> resin (at 2 mm thickness) + additives
Layer thickness	1.7 - 5.0 mm
Addition of quartz sand	Recommended starting at layers of above 2 mm thickness, with up to 1.5 kg additive for each 1.0 kg resin (see "Mixing")
Packaging	Bucket combo 10 kg, Hobbock combo 30 kg
Colours	KLB standard colours – see colour chart. Other colours on request! For scattered coatings with coloured sand KLB-Coloursand CQS-46xx, please refer to the colour chart of the coloured sand!
Shelf life	12 months (originally sealed)

### Product description

**KLB-SYSTEM EPOXID EP 99** is a pre-formulated 2-component epoxy resin binding agent used in combination with additives to produce economical coatings for industrial and commercial floors.

Mixed sand **KLB-Mischsand 2/1** or **KLB-Mischsand 3/1** will be added on site to the unfilled coating depending on the particular application and layer thickness. The unfilled binding agent combination is economically fillable. The mixture is easy to process and may be applied with a squeegee and results in coatings of a technically very good quality. For smooth coatings, filling sand **KLB-Mischsand 2/1** is used. Scattered coatings are filled with **KLB-Mischsand 3/1**. Coloured scattered floors are scattered with quartz sand 0.3/0.8 mm or 0.7/1.2 mm and sealed with e.g. **KLB-SYSTEM EPOXID EP 296 Kopfsiegel**. Coloured sand scattered floors are scattered with CQS-46xx and sealed with e.g. **KLB-SYSTEM EPOXID EP 175 Spezial** or **KLB-SYSTEM POLYURETHAN PU 484**.

The cured coating offers a high durability and is resistant to a wide range of chemicals.

**KLB-SYSTEM EPOXID EP 99** is resistant to water, salts, saline solutions, alkalis and bases, greases, oils as well as diluted mineral acids like salt and sulfuric acid. Also to solvents such as petrol, fuels, greases, oils, etc. Conditional stability exists for concentrated mineral acids, for organic acids such as formic acid, acetic acid, lactic acid, etc. Not permanently resistant to chlorinated hydrocarbons, esters, concentrated nitric acid. For chemical resistance requirements, please ask for a separate consultation.

The coating resin can be supplied non-pigmented or pigmented. Refer to the special notes on colours!

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#### Area of application

- Commercially used areas with medium mechanical load, e.g. production and storage areas for many economic areas (2 mm coating).
- Commercially used areas with high mechanical load, e.g. production and storage areas for many economic areas (3 - 5 mm coating).
- Areas with increased exposure to chemicals and water.
- Base coats for scattered coatings in layers of 3 - 5 mm (top coat finish possible with different products, depending on the requirements, like e.g. with **EP 296 Kopfsiegel** or **EP 175 Spezial** or others).
- Pigmented supporting layers for decorative, coloured sand scattered coatings and subsequent sealing coats, e.g. with **EP 175 Spezial** and **EP 860** or **PU 484**.

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#### Product features

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

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#### Technical data

Viscosity - Component A+B	750	mPas	DIN EN ISO 3219 (23 °C / 73.4 °F)
Solid content	100	%	KLB method
Density - Component A+B	1.10	kg/l	DIN EN ISO 2811-2 (20 °C / 68 °F)
Weight loss	0.25	weight-%	after 28 days
Water absorption	< 0.2	weight-%	DIN 53495
Bending tensile strength	35	N/mm <sup>2</sup>	DIN EN 196/1
Compressive strength	80	N/mm <sup>2</sup>	DIN EN 196/1
Shore-hardness D	78	-	DIN 53505 (after 7 days)
Abrasion (Taber Abraser)	55	mg	ASTM D4060 (CS10/1000)

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

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#### Included in systems

- [System A5 - KLB INDUSTRIAL EP RX Robust](#)
- [System A8 - KLB INDUSTRIAL EP Structured](#)
- [System G13 - KLB DECOR PU RX ColorQ](#)

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

## Tests

The following external test certificates are available:

- Scattered coating with slip resistance grade R11/V4, R11/V6, R11/V8, R12/V4, R12/V6, R13/V8 producible, according to DIN 51130 and BGR 181.
- Slip resistance grade R9 and R10 possible, according to DIN 51130 and BGR 181.
- Suitable for use in foodstuffs according § 31 para. 1, German Food and Feed Code (German law LFGB).
- Classification of the fire behaviour according DIN EN 13501-01:2010-01: B<sub>fl</sub>-s1.
- Product is compliant with DIN EN 13813: 2003-01.

### Note:

Please ask for the tested system build-up!

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## Build-up of coats

### Smooth coating

- Prime with one of 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/m<sup>2</sup>, depending on the substrate.
- Apply a scratch coat for an even substrate, e.g. with **EP 50**, **EP 51 RAPID S**, and mixed sand **KLB-Mischsand 2/1**. Mixing ratio approx. 1 : 0.8 parts by weight, consumption approx. 0.8 to 1.0 kg/m<sup>2</sup>.
- Apply **EP 99** filled with mixed sand **KLB-Mischsand 2/1** using a toothed trowel (**Toothed blade RS4** or Pajarito 48), consumption approx. 3.0 - 3.5 kg/m<sup>2</sup> for 2 mm layer thickness.
- Optional: scatter with silicium carbide, delustering agent, or decorative chips (flakes).
- Seal the surface with a suitable silky-gloss or matt sealer, such as **EP 705 E**, **PU 805 E**, **PU 880**, or **PU 882**.

### Scattered coating with coloured top sealer in R11/12 slip-resistance

- 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/m<sup>2</sup>, depending on the substrate.
- If required: apply a scratch coat for an even substrate, e.g. with **EP 50**, **EP 51 RAPID S**, and mixed sand **KLB-Mischsand 2/1**. Mixing ratio approx. 1 : 0.8 parts by weight, consumption approx. 0.8 to 1.0 kg/m<sup>2</sup>.
- Apply **EP 99** with a smoothing trowel over grain in a mixing ratio of **EP 99** : mixed sand **KLB-Mischsand 3/1** = 1 : 1.5 parts by weight, consumption approx. 1.5 kg/m<sup>2</sup>, then scatter the whole surface with quartz sand 0.3/0.8 mm or 0.7/1.2 mm, consumption approx. 3.5 - 4 kg. Final layer thickness 1.5-2 mm.
- After curing, sweep off the excess sand and vacuum thoroughly until no more sand is being released.
- Apply **EP 296 Kopfsiegel** or **EP 296 RAPID** with a rubber squeegee, then distribute evenly using a velours roller in crosswise motion. Consumption 0.7 - 0.8 kg/m<sup>2</sup>. It is mandatory to adhere to the consumption quantities for obtaining the required degree of slip-resistance.
- Optional: additional matt sealers can be applied to improve the surface quality or chemical resistance.

### Coloured sand scattered coating in R10/R11/R12 slip-resistance

- Optionally: 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/m<sup>2</sup>, depending on the substrate.
- Apply a levelling base layer for an even substrate using **EP 50** (or **EP 99**) and mixed sand **KLB-Mischsand 3/1** in a mixing ratio approx. 1 : 1.2 to 1.5 parts by weight, consumption of the mixture approx. 1.2 to 1.5 kg/m<sup>2</sup>, then re-roll with a velours roller (8 mm). For increased roughness depths, it is possible to add 0.3 - 0.5% of reinforcement fibre **Armierungsfaser VA 1004** (based on **EP 50**). If required, increase the consumption of the mixture. Scatter the entire surface with quartz sand 0.3/0.8 mm, consumption approx. 2.5 - 3.5 kg.

- If necessary, apply further levelling base layers. Each of them must be scattered with quartz sand.
- After hardening, proceed with an intermediate grinding based on the instructions, then vacuum the surface. Grinding can be done using a single disc machine and diamond paper grit 16, further grinding with diamond paper grit 24. This method is less abrasive, but requires repeated grinding in crosswise motion. Alternatively, a suitable concrete grinding machine (e.g. MKS Funke - PDG 5000) with an aggressive diamond tool (XC Wing Blue K2.5 or Titan Dry Hybrid K60 or K120) can be used. Care must be taken to ensure rapid and even removal so that the substrate remains free of grooves.
- Apply the supporting layer with a smoothing trowel over grain, in a mixing ratio of **EP 99** : mixed sand **KLB-Mischsand 3/1** = 1 : 1.2 - 1.5 parts by weight, consumption 1.2 - 1.5 kg/m<sup>2</sup>, then re-roll with a velours roller (8 mm) and scatter the whole surface with coloured sand **CQS-46xx**, consumption approx. 2.5 - 3.5 kg.
- After curing, sweep and vacuum off the excess carefully until no more grains of sand come loose. If a fine grinding shall follow, there is no need for vacuuming.
- After hardening follows an optional fine grinding with a single disc machine and grit 16 and grit 24 based on the required slip-resistance. The slip resistance can be reduced from R11 (**CQS 4601 - 4608**) or R12 (**CQS 4651 - 4658**) to R10 by repeated grinding in crosswise motion. Here, it is important to ensure that the grain is not completely grinded off and the binder matrix not exposed. After vacuuming, the surface can be sealed. Clean and light-coloured shoes must be worn on the area. Work clothes must be clean as well. Aesthetically pleasing surfaces can only be produced with the utmost care.
- For System G13, apply **PU 484** with a **hard rubber squeegee of 23 cm** (after fine grinding), **joint board** or **rubber floor wiper**. For R11 follows re-rolling with a velours roller (8 mm) to achieve the required level of slip resistance. Consumption depending on the slip resistance: 0.45 - 0.7 kg/m<sup>2</sup>.
- Alternatively for System A5, apply **EP 175 Spezial** onto the surface, then re-roll with a velours roller (8 mm) to achieve the required level of slip resistance. Consumption depending on the slip resistance: 0.55 - 0.8 kg/m<sup>2</sup>.
- Mattifying top sealer using **EP 860** within System A5 and a solvent-resistant velours roller (8 mm) in crosswise motion, consumption 0.15 - 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 KLB base coats **EP 50**, **EP 51 RAPID S** and **EP 52 Spezialgrund**. 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. To improve adhesion, scatter the surface completely with 0.5 - 1.0 kg/m<sup>2</sup> quartz sand, grain size 0.3/0.8 mm.

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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 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. Additives should be stirred in with a compulsory mixer. Partial quantities need to be weighed out in the right mixing ratio after having stirred up the single components.

**Addition of additives:** depending on the thickness of layers, different sand types may be added. Use a compulsory mixer.

Outline formula for smooth self-levelling coatings 2 - 3 mm:

1.0 parts by weight **KLB-SYSTEM EPOXID EP 99** (A + B)  
1.2 - 1.5 parts by weight of mixed sand **KLB-Mischsand 2/1**

Consumption for 2 mm: 3.0 - 3.5 kg/m<sup>2</sup> mixture  
Consumption of **EP 99** for 2 mm: 1.3 - 1.5 kg/m<sup>2</sup>

Outline formula for scattered coatings 3 - 4 mm:

1.0 parts by weight **KLB-SYSTEM EPOXID EP 99** (A + B)  
1.2 - 1.5 parts by weight of mixed sand **KLB-Mischsand 3/1**

Consumption: approx. 1.2 - 1.5 kg/m<sup>2</sup> mixture +  
Consumption scattering sand 0.3/0.8 or 0.7/1.2 mm: 2.5 - 3.5 kg/m<sup>2</sup>

The added quantities depend on layer thickness, temperature, and type of sand. For thin layers, use more quartz powder and add less aggregate overall. In case of doubt, carry out preliminary tests and seek advice.

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**Processing**

Process the material immediately after mixing with a squeegee or toothed trowel (e.g. **Toothed Blade RS4** or Pajarito 48) by pulling out an even layer on the prepared substrate. Compared to ready-to-use coatings, the material has to be processed more rapidly to avoid any deposits on the container bottom. 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. 10 - 20 minutes. To work seamlessly, always work "fresh-in-fresh" and define work areas before starting. For reasons of deaeration, do not scatter too early; the optimum time is at 20 °C / 68 °F after 20 - 30 minutes. Scatter with sand until the area is completely covered. Scattering too late may cause an uneven surface with bald spots to appear later on.

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 remain less than 3 °C / 3 K / 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.

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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 sealers.

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**Storage**

Store in dry and if possible, at frost-free conditions. Ideal storage temperature is between 10 - 20 °C / 50 - 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

	
KLB Kötztal Lacke + Beschichtungen GmbH Günztalstraße 25 FRG-89335 Ichenhausen	
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EP99-V1-022013	
DIN EN 13813:2003-01	
Synthetic resin screed mortar DIN EN 13813: SR-B1.5-AR0.5-IR5	
Fire behaviour	B <sub>1</sub> -s1
Emission of corrosive substances	SR
Wear resistance BCA	AR 0.5
Adhesive tensile strength	B 1.5
Impact resistance	IR 5



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-koetzta.com](http://www.klb-koetzta.com). In addition, our "General Terms and Conditions" apply.



# KLB-Colorsand CQS-46xx

Standard colours sand mixtures for anti skid broadcast RX flooring

Colour stable sand mixtures for decorative broadcast RX flooring. Easy to use sand mixtures with controlled consumption, grindable for floorings with slip resistance levels R10, R11 and R12.



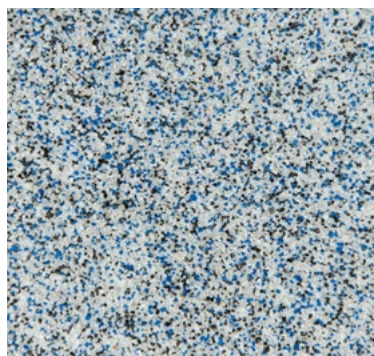
CQS-4601 | 0,3/0,8 mm  
CQS-4651 | 0,7/1,2 mm  
Base\* white



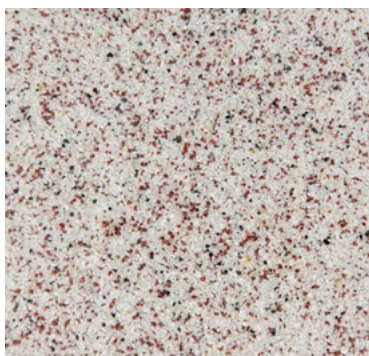
CQS-4602 | 0,3/0,8 mm  
CQS-4652 | 0,7/1,2 mm  
Base\* light grey



CQS-4603 | 0,3/0,8 mm  
CQS-4653 | 0,7/1,2 mm  
Base\* middle grey



CQS-4604 | 0,3/0,8 mm  
CQS-4654 | 0,7/1,2 mm  
Base\* light grey



CQS-4605 | 0,3/0,8 mm  
CQS-4655 | 0,7/1,2 mm  
Base\* light grey



CQS-4606 | 0,3/0,8 mm  
CQS-4656 | 0,7/1,2 mm  
Base\* white



CQS-4607 | 0,3/0,8 mm  
CQS-4657 | 0,7/1,2 mm  
Base\* light grey



CQS-4608 | 0,3/0,8 mm  
CQS-4658 | 0,7/1,2 mm  
Base\* blue

**\* Base:**  
Colour of the base coat EP 99 or PU 424

# KLB-Colorsand antistatic CQS-47xx AS

Standard colours antistatic sand mixtures for anti skid broadcast RX flooring

Colour stable antistatic sand mixtures for decorative broadcast RX flooring. Easy to use sand mixtures with controlled consumption, grindable for floorings with slip resistance levels R11 and R10.



CQS-4701 AS | 0,3/0,8 mm Base\* light grey



CQS-4702 | 0,3/0,8 mm Base\* middle grey



CQS-4703 | 0,3/0,8 mm Base\* light grey



CQS-4704 | 0,3/0,8 mm Base\* light grey

**\* Base:**

Colour of the base coat EP 99 EL+

Utilization	Anti skid RX flooring. Please consider our product information!
Standard colours	The colour chart shows available standard colours. Available from stock, in minimum quantities of 25 kg.
Special colours	Available in minimum quantities of 1.000 kg net. Please note the extended delivery time!
Packaging	Bag of 25 kg, 40 Bags/euro pallet 1.000 kg

**Important legal notice:** The samples listed show the typical colour scheme. Deviations are possible depending on the batch. In order to avoid colour deviations on one surface, it is recommended to always use the material from one batch. The present illustrations may be falsified during printing. In case of doubt, please request an original sample. All stated information is based on our previous experience and composition. It is not possible to consider every single case. Please seek advice for your special cases. We guarantee the correct and proper quality of our products. We do not assume responsibility for the work not carried out by us since we have no influence on the processing or processing conditions. We recommend that on-site-trials will be conducted. Our "General Terms and Conditions" apply.