KLB-SYSTEM
PU-BETON 4009

3-component polyurethane mortar coating for wet areas with increased temperature resistance

Packaging units

Article no.	Packaging	Inhalt	Units/pallet
PU6302-34	Combo packaging	30.50 kg	12
PU6302-14	Combo packaging	61.00 kg	12

Product characteristics

Mixing ratio parts by weight	A : B : C = 13.57 : 13.57 : 100
Processing time	15 °C / 59 °F : 35 min. 20 °C / 68 °F : 25 min. 25 °C / 77 °F : 20 min.
Processing temperature	Minimum 15 °C / 59 °F – Maximum 25 °C / 77 °F (room and floor temperature)
Curing time (accessibility)	15 °C / 59 °F : 12 - 16 hrs. 20 °C / 68 °F : 8 - 12 hrs. 25 °C / 77 °F : 6 - 8 hrs.
Curing	1 - 2 days until mechanical load at 20 °C / 68 °F 2 days until chemical load at 20 °C / 68 °F
Further coatings	After 8 - 10 hours, but after 36 hours at the latest at 20 °C / 68 °F
Consumption	16 - 20 kg/m² for layers of 8 - 10 mm
Layer thickness	8.0 - 10.0 mm
Colours	Beige, red, green, grey
Shelf life	12 months (originally sealed) – **Protect from frost!**

Product description

KLB-SYSTEM PU-BETON 4009 is a high-quality, trowelable 3-component polyurethane mortar coating. The material is suitable for coatings exposed to high load, hot water, or chemicals in wet areas. **KLB-SYSTEM PU-BETON 4009** is especially suitable for the food processing industry, like production areas in breweries, dairy farms, slaughterhouses and butcheries, as well as in areas where resistance to chemicals is required.

KLB-SYSTEM PU-BETON 4009 consists of reactive resin components and a mineral component, which are carefully aligned and result in a durable, robust, and consistent coating. The product is available in 4 standard colours and consists of the binding agent **KLB-SYSTEM PU-BETON 4000**, Components A and B, and the pigmenting additive mixture **KLB-SYSTEM PU-BETON 4009** Component C.

The mortar mixture is self-levelling, offers sufficient processing time, and may be applied with a coating knife. The material is applied on the prepared, adequately durable substrate in layers of 9 mm (8 - 10 mm).

If the stresses do not correspond to the highest (thermal, mechanical) class, a covering with a layer thickness of 6 mm is available with **KLB-SYSTEM PU-BETON 4006**.

KLB-SYSTEM PU-BETON 4009 offers high mechanical and thermal resistance, and very good resistance to many chemicals, especially to aqueous saline solutions, acids and alkalis, as well as many other chemicals.

Compared to conventional synthetic resin coatings, **KLB-SYSTEM PU-BETON 4009** offers an increased glass transition temperature. This is why the material provides an excellent temperature resistance with moist heat up to 130 °C / 266 °F, with dry heat up to 150 °C / 302 °F.

Since the coating is produced in one pour, it offers especially good impact resistance which results in a very good resistance to impact load.

As far as a slip-resistant floor is required, scatter the surface (e.g. with fire-dried quartz sand 0.7/1.2 mm), then seal with **KLB-SYSTEM PU-BETON 4080 Kopfsiegel**.

KLB-SYSTEM PU-BETON 4009 may only be applied on suitable substrates, like concrete of at least C25/30 because it shrinks slightly when curing. Closing-off edges must be fastened with a groove to absorb any tension on the coating. Yellowing may occur when exposed to UV rays because of the consistency. This will not affect any technical properties of the material though. Polyurethane mortar coatings are are functional and their optical appearance may not always be consistent. Differences in texture, shoulders, and fastening grooves may become visible, especially on smooth coatings (R9).

Area of application

- Highly resistant, trowelable, self-levelling mortar coating to be applied in layers of approx. 9 mm for high thermal, chemical, and mechanical resistance. Suitable even for fork lift traffic.
- Highly durable, slip-resistant coating with permanent or increased exposure to water. Completed with scattering and sealer.
- For areas in the food production and food processing industry with special requirements to cleaning (wet coatings), like dairy farms, slaughterhouses, breweries.
- For coatings with high load and increased chemical exposure.

Product features

- PU-Beton system component
- can be applied with a scraper
- resistant to impacts
- self-levelling
- resistant to hot water
- high mechanical resistance
- high chemical resistance
- extremely resistant to mechanical loads
- available in several colours
- hygienic
- jointless coating
- resistant to permanent moisture

Technical data

Density - Component A+B+C	2.02	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	14	N/mm²	DIN EN 196/1
Compressive strength	45	N/mm²	DIN EN 196/1
Shore-hardness D	85	-	DIN 53505 (after 7 days)
Gloss level	< 10 (85°)	-	DIN 67530

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

Included in systems

- System I1 KLB TECH PU-BETON Standard
- System I2 KLB TECH PU-BETON RX

Please visit our website to get more information about our KLB systems: www.klb-koetztal.com

Tests

External test certificates are available:

- Classification of the fire behaviour according to DIN EN 13501-01:2010-01: B_{fl}-s1.
- Slip resistance grade R11, R12/V6, R13/V4, R13/V6 possible, according to DIN 51130 and BGR 181.
- Slip resistance grade R9 possible, in combination with **PU-BETON 4080 Kopfsiegel** in R10, according to DIN 51130 and BGR 181.
- Suitable for use in foodstuffs according to § 31 para. 1, German Food and Feed Code (german law LFGB).
- Within the system with verification of applicability as industrial kitchen flooring.
- Product is compliant with DIN EN 13813: 2003-01.

Note:

Please ask for the tested system build-up!

Build-up of coats

Slightly non-slip, smooth coating R9

- Saturated base coat with the primer **PU-BETON 4050 Grundierung**, consumption approx. 0.4 - 0.5 kg/m².
- Use the specially stable **PU-BETON 4012 Standfest** for triangular or concave covings. For a side length or radius of 5 cm: consumption approx. 2.2 - 2.8 kg per running meter.
- If necessary: larger uneven areas may be filled respectively levelled with **PU-BETON 4045** or **PU-BETON 4006** and scattered with fire-dried quartz sand 0.7/1.2 mm.
- Apply the **PU-BETON 4009** with a pin screed scraper in layers of approx. 9 mm. Consumption approx. 17 - 19 kg/m². Work fast and seamless. Vent with a spiked roller.

Coating with slip resistance grade R11/12/13

- Saturated base coat with primer **PU-BETON 4050 Grundierung**, consumption approx. 0.4 - 0.5 kg/m².
- Use the specially stable **PU-BETON 4012 Standfest** for triangular or concave covings. For a side length or radius of 5 cm: consumption approx. 2.2 - 2.8 kg per running meter.

- If necessary: larger uneven areas may be filled respectively levelled with **PU-BETON 4045** or **PU-BETON 4006** and scattered with fire-dried quartz sand 0.7/1.2 mm.
- Apply **PU-BETON 4009** with a pin screed scraper in layers of approx. 9 mm. Consumption approx. 17 - 19 kg/m². Work fast and seamless. Vent with a spiked roller.
- Scatter completely with fire-dried quartz sand of a grain size 0.3/0.8 mm or 0.7/1.2 mm respectively with white corundum 0.5/1.0 mm, consumption approx. 2.0 - 2.5 kg/m². After curing, sweep off and vacuum thoroughly until no more sand is released.
- Apply **PU-BETON 4080 Kopfsiegel** with a rubber squeegee and roll with a velour roller in crosswise motion. Consumption approx. 0.650 - 0.900 kg/m². Work fast and seamless.

It is mandatory to stay within the recommended consumption for the slip resistance grade.

Substrate

The substrate to be coated must be even, non-slip, sufficiently resistant to tension and compression, clean as well as be free from weakly-bonded components or impurities. Materials impairing adhesion such as grease, oil and paint residues should be removed with suitable measures. The substrates must have a sufficiently high strength for the intended use as well as for the coating. Suitable substrates are concrete with a minimum quality of C25/30 according to DIN EN 206, cement screed and polymer-modified cement screeds with at least CT-C30-F5 bonded in a layer thickness of 60 or 30 mm, according to DIN 18560 part 3. Screeds as separating layer or insulation, polymer-modified, CT-C40-F5 at least, with a layer thickness > 65 mm, according to DIN 18560 part 4. Other substrates are not or not generally suitable. The substrates to be coated must be prepared mechanically, preferably by shot-blasting. The surface strength must then be at least 1.5 N/mm². For anchoring the coating, anchoring grooves are to be provided at the end edges, passages, etc. These should be approx. 6 to 10 mm deep and wide. For concrete, the moisture content must not exceed 6 CM-%. The possibility of moisture ingress from the rear must be permanently excluded. 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 base coat **PU-BETON 4050 Grundierung**. On areas with increased thermal exposure, use only **PU-BETON 4050 Grundierung**. The prepared area must be saturated, pore-free and primed carefully. 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. In case of doubt, we recommend testing on a trial surface. If necessary, ask for a consultation.

Product components

PU-BETON 4009 consists of the following components:

Standard unit:

1 packaging unit **PU 4000** Component A: 3.25 kg
1 packaging unit **PU 4000** Component B: 3.25 kg
1 bag **PU 4009** Component C: 24.00 kg

Total quantity: 30.50 kg

Double unit:

1 packaging unit **PU 4000** DB Component A: 6.50 kg
1 packaging unit **PU 4000** DB Component B: 6.50 kg
2 bags **PU 4009** Component C: 48.00 kg

Total quantity: 61.00 kg

Mixing

Combo-packaging will be supplied in the correctly measured mixing ratio. Only in the present mixture of the three components can the described processing and material properties be achieved. At first, the liquid binding agent components (components A + B) are emptied into a proper container and blended with a slow speed mixer (200 - 400 r/pm) for at least 1 minute until a homogeneous, streak-free compound forms. Mixing in component C should be carried out with a compulsory mixer for a consistent mortar quality. Add the premixed binding agent into the compulsory mixer, then add component C. Mix homogeneously for approx. 3 minutes at 20 °C / 68 °F. Lower temperature may increase, higher temperature may decrease the mixing times.

Note: pay attention to consistent mixing times. Process complete packaging units only! Inaccurate mixing ratios will lead to useless results. For double units, the mixing ratio (see above) must be observed!

Processing

Distribute the mortar mixture onto the area evenly without any delay and pull off with a pin screed scraper. Adjust the length of spikes according to the material before starting to work. Subsequently, after a short waiting period of about 3 - 5 minutes, vent with a spiked roller in crosswise motion. As the processing times are short due to the system, adherence to the specified working rhythm is particularly important for the end result. For slip-resistant surfaces, scatter completely with fire-dried quartz sand 0.3/0.8 mm or 0.7/1.2 mm, respectively with white corundum 0.5/1.0 mm. Seal with **PU-BETON 4080 Kopfsiegel** after the flow mortar has cured. Always work “fresh-in-fresh” to avoid any shoulders. Before starting work, divide up the work areas to be covered according to the laying capacity. Do not coat surfaces that are too wide. Avoid draughts, otherwise pore-free floors will not be achieved.

The mortar installation requires an experienced and trained staff.

Floor and air temperature must not fall below 15 °C / 59 °F and humidity should be at 40 to 85%. The difference in floor and room temperature must remain less than 3 °C / 3 K / 5.4 °F so that curing will not be disturbed. If a dew-point situation arises, regular curing may be disrupted with hardening problems and spotting to occur. 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 the description.

Cleaning

To remove fresh contamination and to clean tools and equipment, use **VR 28** 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 at frost-free conditions. Ideal storage temperature is between 15 - 20 °C / 59 - 68 °F. Bring to a suitable working temperature before application. Process complete units only!

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: PU40

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

CE marking

CE

KLB Kötztal Lacke + Beschichtungen GmbH Günztalstraße 25 FRG-89335 Ichenhausen
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PU4009-V1-022013
DIN EN 13813:2003-01
Synthetic resin screed mortar DIN EN 13813: SR-B1.5-AR0.5-IR4

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

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