KLB-SYSTEM
PU-BETON 4011 Grip

Slip-resistant 3-component polyurethane mortar coating with high durability

Packaging units

Article no.	Packaging	Inhalt	Units/pallet
AK6311-31	Combo packaging	34.50 kg	12
AK6311-40	Combo packaging	69.00 kg	12

Product characteristics

Mixing ratio parts by weight	A : B : C = 11.6 : 11.6 : 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 : 16 - 20 hrs. 20 °C / 68 °F : 8 - 10 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 4011 Grip is a high-quality, trowelable 3-component polyurethane mortar coating for highly stressed floor surfaces in wet areas exposed to hot water and chemicals with a slip-resistant, textured surface in one pour. Additional scattering and sealing is therefore no longer necessary to achieve a certain slip resistance.

KLB-SYSTEM PU-BETON 4011 Grip 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 4011 Grip 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 4011 Grip** 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 a smooth surface is required or if a scattering of quartz sand is to be applied, **KLB-SYSTEM PU-BETON 4006** and

KLB-SYSTEM PU-BETON 4009 coverings with a smooth surface structure are available.

KLB-SYSTEM PU-BETON 4011 Grip offers a very 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. Cleaning with the steam jet is possible, but here too the specifications in the cleaning instructions should be observed.

Compared to conventional synthetic resin coatings, **KLB-SYSTEM PU-BETON 4011 Grip** 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. The product composition allows grade R11 of slip resistance.

KLB-SYSTEM PU-BETON 4011 Grip 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.
- 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
- self-levelling
- resistant to impacts
- slip-resistant
- resistant to hot water
- high chemical resistance
- extremely resistant to mechanical loads
- jointless coating
- hygienic
- available in several colours

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	15	N/mm²	DIN EN 196/1
Compressive strength	50	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 I3 KLB TECH PU-BETON Grip

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 possible, 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).
- Product is compliant with DIN EN 13813: 2003-01.

Note:

Please ask for the tested system build-up!

Build-up of coats

Coating with slip resistance grade R11

- 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.** If required, **PU-BETON 4012 Standfest** can also be used.
- Apply **PU-BETON 4011 Grip** 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.
- **Important**: rolling with the spiked roller should only be done once in crosswise motion, as repeated rolling leads to further smoothing of the surface and thus reduces the slip resistance.
- To achieve a slip resistance grade of R11, the coating must be re-rolled again with a spiked roller after 15 - 20 minutes following application. **Note**: the time frame wof 15 - 20 minutes applies for a temperature of 20 °C / 68 °F and a humidity of 50%. In other conditions, the time window may shift accordingly.

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 4011 Grip 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 4011** Component C: 28.00 kg

Total quantity: 34.50 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 4011** Component C: 56.00 kg

Total quantity: 69.00 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. To achieve a defined surface structure with a slip resistance grade of R11, the installed coating must be spiked again. At a temperature of 20 °C / 68 °F and a humidity of 50%, this must be done approx. 15 to 20 minutes after installation. If the conditions on site differ from this and it is warmer or colder, spiking must be carried out correspondingly earlier or later. As the processing times are short due to the system, adherence to the specified working rhythm is particularly important for the end result. 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 frost-free conditions. Ideal storage temperature is between 15 - 20 °C / 59 - 68 °F. Bring to a suitable working temperature before application. Use 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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PU4011-V1-022013
DIN EN 13813:2003-01
Synthetic resin screed mortar DIN EN 13813: SR-B1.5-AR0.5-IR5

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 5

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