



KLB-SYSTEM POLYURETHAN

PU 405

Low-emission, elastic 2-component polyurethane coating for decorative flooring, largely light-stable

Packaging units



Article no.	Packaging	Content (kg)	Units/pallet
AK6082-50	Bucket combo	10.00 kg	30
AK6082-30	Hobbock combo	30.00 kg	12

Product characteristics

Mixing ratio parts by weight	A : B = 3 : 1
Mixing ratio parts by volume	A : B = 100 : 44
Processing time	10 °C / 50 °F : 40 - 50 min. 20 °C / 68 °F : 20 - 25 min. 30 °C / 86 °F : 15 - 20 min.
Processing temperature	Minimum 10 °C / 50 °F (room and floor temperature)
Curing time (accessibility)	10 °C / 50 °F : 30 - 36 hrs. 20 °C / 68 °F : 18 - 24 hrs. 30 °C / 86 °F : 15 - 20 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 18 - 24 hours, but after 48 hours at the latest at 20 °C / 68 °F
Consumption	Approx. 2.4 - 2.8 kg/m ² for 2 mm layer thickness
Layer thickness	Approx. 1.5 - 2.5 mm
Packaging	Combo packaging 10 kg, Hobbock combo 30 kg
Colours	KLB standard colours – see chart. Other colours upon request!
Shelf life	12 months (originally sealed)

Product description

KLB-SYSTEM POLYURETHAN PU 405 is a low-emission, light-stable, pigmented 2-component polyurethane coating which cures without shrinkage. **KLB-SYSTEM POLYURETHAN PU 405** is suitable for producing pale-coloured floor coatings on decorative interior surfaces indoors.

The flexible cured coating offers special walking comfort. The coating is especially suitable for interior areas with a high demand to the optical appearance, e.g. living rooms, offices, doctor's surgeries, fitness centers and wellness areas, schools, and many more. The coating is not suitable for industrially used areas with an increased mechanical load.

The flexible floor coating is applicable for layers starting at 1.5 mm. It is also suitable for deformable substrates, like mastic asphalt, or even older substrates, like reconstruction areas.

Within the system, **KLB-SYSTEM POLYURETHAN PU 405** is certified according to "Indoor Air Comfort Gold" and meets the requirements for a sustainable building certification according to DGNB, LEED or BREEAM. The "Indoor Air Comfort" product certification sets the highest requirements for the emission of volatile organic compounds and meets not only the German requirements of AgBB or ABG, but also the emissions regulations of many other European countries.

KLB-SYSTEM POLYURETHAN PU 405 offers good resistance to many common household chemicals, water, saline solutions, diluted acids and bases. Conditionally resistant to solvents.

The coating is available in all KLB standard colours; the usage is especially reasonable when pale colours are required.

KLB-SYSTEM POLYURETHAN PU 405 offers good abrasion resistance qualities. Sealing is generally recommended with suitable top sealers like **KLB-SYSTEM POLYURETHAN PU 805 E** or **KLB-SYSTEM POLYURETHAN PU 806 E**. It is necessary to use the transparent sealer **KLB-SYSTEM POLYURETHAN PU 805 E** when scattering with **partiColor®-Chips** (flakes).

Area of application

- Comfortable, jointless floor coating for light up to medium mechanical load on resident or commercially used areas without any industrial load.
- For decorative, non-yellowing, smooth floor surfaces, e.g. in showrooms, living rooms, and office spaces.
- Use as coating on rigid substrates and substrates susceptible to deformation, like mastic asphalt, wood or mixed material substrates.
- As low-emission coating with certification for recreation rooms, such as sales or office rooms, exhibitions, kindergartens, doctor's surgeries, schools and many more.

Product features

- tested, low-emission quality
- compliant with AgBB and suitable for recreation rooms
- decorative, appealing surface
- light-stable for the most part
- self-levelling
- elastic
- solvent-free
- free of deleterious substances against varnish
- easy application

Technical data

Viscosity - Component A+B	approx. 4900	mPas	DIN EN ISO 2811-2 (23 °C / 73.4 °F)
Solid content	> 99.7	%	KLB method
Density - Component A+B	1.35	kg/l	DIN EN ISO 2811-2 (20 °C / 68 °F)
Weight loss	0.2	weight-%	KLB method after 28 days
Water absorption	< 0.2	weight-%	DIN 53495
Elongation at break	97	%	DIN EN ISO 527-3
Shore-hardness D	50	-	DIN 53505 (after 28 days)
Abrasion (Taber Abraser)	30	mg	ASTM D4060 (CS10/1000)

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

Included in systems

- **System G7 - KLB DECOR LOW-VOC PU Light Sealed**

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

Tests

The following external test certificates are available:

- Slip resistance grade R9 and R10 possible, according to DIN 51130 and BGR 181.
- Certified as low-emission according to "Eurofins Indoor Air Comfort Gold". Compliant with AgBB for recreation rooms.
- Classification of the fire behaviour according DIN EN 13501-01:2019-05: B_{fl}-s1.
- Product is compliant with DIN EN 13813: 2003-01.

Note:

Please ask for the tested system build-up!

Build-up of coats

Preparation of mineral substrates

- Prepare the substrate like concrete, cement screed, etc. mechanically, preferably by shot-blasting.

System build-up without intermediate scattering

- Prime with one of the recommended KLB priming resins, like **EP 50**, **EP 55**, **EP 51 RAPID S**, consumption approx. 0.3 - 0.4 kg/m².
- If required: apply a scratch coat with **EP 50**, **EP 55**, **EP 51 RAPID S** and mixed sand **KLB-Mischsand 2/1**. Mixing ratio 1 : 0.8 parts by weight, consumption approx. 0.8 - 1.2 kg/m² (mixture).
- Alternatively, already after priming, a scratch coat with **PU 429** or **PU 405** can be applied without scattering by adding approx. 20 - 30 % of quartz sand 0.1/0.3 mm, consumption approx. 0.8 - 1.2 kg/m².

Important: it's only with the primers **EP 50** or **EP 55**, that **PU 405** can be applied directly without scattering after a curing time of at least 14 to max. 48 hours (at 20 °C / 68 °F). Using **EP 51 RAPID S**, the application of **PU 405** can take place without scattering after at least 4 to max. 24 hours (at 20 °C / 68 °F), provided the surface is pore-free. In the case of other primers or changed time sequences, intermediate scattering must be carried out.

- Apply **PU 405**, e.g. with a toothed trowel **Toothed Blade RS4** or Pajarito 48, consumption 2.4 - 2.8 kg/m². After 10 to 20 minutes, roll out with a pinch roller.

Substrate preparation of mastic asphalt

- Prepare the substrate mechanically, preferably by shot-blasting.
- This is followed directly by the application of a scratch coat with **PU 429** or **PU 405** and approx. 20 - 30 % of quartz sand 0.1/0.3 mm, consumption approx. 0.8 - 1.2 kg/m². The surface must be pore-less for any subsequent coating.
- Apply **PU 405**, e.g. with a toothed trowel **Toothed Blade RS4** or Pajarito 48, consumption 2.4 - 2.8 kg/m². After 10 to 20 minutes, roll out with a spiked roller.

Decorative, low-emission top sealing

- For decorative floors, apply a transparent or opaque top sealer with **PU 805 E** or **PU 806 E** which are low-emission when used in the system, consumption 0.150 - 0.180 kg/m². By mixing structuring agent **Strukturmittel RHX** into **PU 805 E** or **PU 806 E** - or by using **PU 805 E R10** or **PU 806 E R10**, the slip resistance can be adjusted up to grade R11.
- Scattering with **partiColor®-Chips** (flakes) is possible with a subsequent transparent sealer.

System build-up with intermediate scattering based on AgBB

- Prime with one of the recommended KLB priming resins, like **EP 54 RAPID U**, **EP 58**, **EP 57** or **EP 53 Spezialgrund AgBB**, consumption approx. 0.3 - 0.4 kg/m².

- If required: apply a scratch coat with **EP 54 RAPID U**, **EP 58**, **EP 57** or **EP 53 Spezialgrund AgBB** and mixed sand **KLB-Mischsand 2/1**. Mixing ratio 1 : 0.8 parts by weight, consumption approx. 0.8 - 1.2 kg/m² (mixture).
- Openly scattering the fresh surface with quartz sand 0.3/0.8 mm, consumption approx. 0.5 - 1.0 kg/m².
- Alternatively, already after priming and scattering with quartz sand 0.3/0.8 mm in a consumption of 0.5 - 1.0 kg/m², a scratch coat with **PU 429** or **PU 405** can be applied by adding approx. 20 - 30 % of quartz sand 0.1/0.3 mm, consumption approx. 0.8 - 1.0 kg/m². **NO SCATTERING!**
- Apply **PU 405**, e.g. with a toothed trowel **Toothed Blade KLB-RS4** or Pajarito 48, consumption approx. 2.4 - 2.8 kg/m². After 10 to 20 minutes, roll out with a spiked roller.
- Decorative transparent or pigmented top sealer.

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. 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. 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 coats, like **EP 54 RAPID U**, **EP 57**, **EP 58** or **EP 53 Spezialgrund AgBB**. The substrates to be coated should be prepared mechanically. 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. The surface can be scattered openly with approx. 0.5 - 1.0 kg/m² of quartz sand 0.3/0.8 mm in order to improve adhesion.

Mastic asphalt: After suitable substrate preparation, a scratch coat with **PU 429** or **PU 405** may be applied straight on top. Please ensure that the build-up is uniformly elastic or viscoplastic and not too thick. Before coating the quality grade has to be checked. Only quality grade IC 10 or IC 15 are suitable for coating. For indoor use only. No rolled asphalt!

Mixing

Combo-packaging will be supplied in the correctly measured mixing ratio. The package of Component A has sufficient volume for the entire packaging unit. Empty all of the hardener compound B into the resin A package. 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 entire resin/hardener mixture into a clean container and mix it once again briefly.

Processing

Process the material immediately after mixing and spread it over the prepared surface with a squeegee or toothed trowel in a uniform layer. 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 10 - 20 minutes. To work seamlessly, always work "fresh-in-fresh" and define work areas before starting.

Sealing of the **PU 405** covering layer must be done with clean overshoes. Nail shoes must not be used.

Polyurethane coatings are sensitive to moisture when fresh, the humidity specifications must therefore be observed. Coating dew-damp substrates and the use of damp sand as well as perspiration will cause the material to foam and must be avoided. Therefore, the conditions should be measured before starting work.

Floor and air temperature must not fall below 10 °C / 50 °F and humidity should not exceed 75 %. The material to be processed must be at room temperature during processing.

Within the recommended processing conditions, the floor temperature may be a maximum of 3 °C colder than the ambient room air temperature to exclude a dew point on the surface to be coated and the fresh coating.

If a dew-point situation arises, regular cross-linking will not be possible with hardening problems and foaming to occur. Technical properties might deviate. Do not work in direct sunlight or on strongly heated surfaces, as the processing time is greatly reduced and bubble formation is possible.

Special remarks: for a slightly thickened **PU 405**, use only our suspending agent **KLB-Stellmittel 5 FT**. Other products may disturb the curing.

Coloured products should always belong to the same batch and be used on the same surface, as slight colour deviations in different batches cannot be excluded due to the raw material. The batch number is indicated on the container labels. For certain colour shades - especially white, yellow and orange or pastel light shades - the recommended layer thicknesses must be observed to ensure opacity.

Colour changes, loss of gloss or yellowing may occur with certain light and weather influences and with prolonged and intensive use.

To prevent wear and tear, suitable chair castors or floor protection mats must be used with swivel chairs/office swivel chairs or other wheeled furniture.

Cleaning

To remove fresh contamination and to clean tools, use thinner **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 if possible, at frost-free conditions. Ideal storage temperature is 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: PU10

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 89335 Ichenhausen, GERMANY	
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PU405-V1-122025	
DIN EN 13813:2003-01	
Synthetic resin screed mortar DIN EN 13813: SR-B2,0-AR0,5-IR20	
Fire behaviour	B _{ff} -s1
Emission of corrosive substances	SR
Wear resistance BCA	AR 0,5
Adhesive tensile strength	B 2,0
Impact resistance	IR 20

VOC content

The product complies with the high requirements to low VOC contents, as required for sustainable construction. Therefore, these values are well below the limits set by the European Union directive 2004/42/EG (Decopaint Directive).

	Limit value	Actual content	
Decopaint Directive 2004/42/EG - Component A	< 500	1,0	g/l
Decopaint Directive 2004/42/EG - Component B	< 500	0	g/l
DGNB - Components A + B	GISCODE	PU10, Indoor Air Comfort Gold	
klima:aktiv – Components A + B	<3	0,05	%
LEED - Components A + B	<100	0,8	g/l
Minergie ECO ® - Components A + B	<1(<2)	0,05	%

(According to the Decopaint directive, single components are used for calculation. In the sustainable building rating systems, the mixture of both components in the correct mixing ratio is the determining factor.)



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-koetzal.com. In addition, our "General Terms and Conditions" apply.