KLB-SYSTEM POLYURETHAN
PU 410

High-quality, largely light-stable, low-emission 2-component polyurethane coating

Packaging units

Article no.	Packaging	Content (kg)	Units/pallet
AK6149-50	Bucket combo	10.00 kg	30
AK6149-30	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 : 63
Processing time	10 °C / 50 °F : 40 - 50 min. 20 °C / 68 °F : 25 - 30 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 : 24 - 36 hrs. 20 °C / 68 °F : 18 - 24 hrs. 30 °C / 86 °F : 12 - 15 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 curing, but after 48 hours at the latest at 20 °C / 68 °F
Consumption	Approx. 1.3 kg/m² for each mm of layer
Layer thickness	2 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 410 is a high-quality, self-levelling coating based on a liquid, 2-component polyurethane resin. **KLB-SYSTEM POLYURETHAN PU 410** is used for flexible coatings especially in interior areas with impact sound insulation and decorative features.

KLB-SYSTEM POLYURETHAN PU 410 is used for areas which require good usage, comfort, and an appealing appearance like showrooms, office and sales rooms, hospitals, etc.

Within the system, **KLB-SYSTEM POLYURETHAN PU 410** 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.

On the contrary to other known polyurethane industrial coatings, **KLB-SYSTEM POLYURETHAN PU 410** is made of light-stable raw materials. The coating is therefore colour-stable and can be produced in light, decorative shades. The coating has good flow and smoothing properties and cures almost shrinkage-free. The cured coating has good elasticity values and is crack-bridging from a layer thickness of

2 mm. **KLB-SYSTEM POLYURETHAN PU 410** is suitable for interior surfaces that require more flexibility due to the substrate, such as mastic asphalt, chipboard, metal substrates and renovation surfaces.

To increase the walking comfort and the impact sound insulation, **KLB-SYSTEM POLYURETHAN PU 410** may be combined with the flexible interlayer **KLB-SYSTEM POLYURETHAN PU 430 Silent**.

The material offers good resistance to water, saline solutions, diluted alkalis, and acids. **KLB-SYSTEM POLYURETHAN PU 410** is available in KLB standard colours and may also be produced in pale and brilliant special colours. The coating is very suitable for **partiColor®-Chips** (flakes) scattering.

KLB-SYSTEM POLYURETHAN PU 410 offers good abrasion resistance qualities. Sealing is generally recommended with suitable top sealers like **KLB-SYSTEM POLYURETHAN PU 805 E**, **KLB-SYSTEM POLYURETHAN PU 880**, or **KLB-SYSTEM POLYURETHAN PU 882**.

Area of application

- High-quality, comfortable, jointless floor coating for areas with light or medium mechanical load.
- High-quality, decorative flooring for areas with especially high demand to photostability and resistance to yellowing.
- As low emission coating with recreation room accreditation, like e.g. sales areas, offices, exhibition areas, kindergarten, doctor’s offices, schools, and many more.
- Suitable for exterior areas like patios, balconies, and winter gardens when the correct product system will be used.
- Suitable for substrates susceptible to deformation like mastic asphalt, metallic, wooden or mixed substrate, as well as substrate susceptible to cracks.

Product features

- light-stable for the most part
- elastic
- crack-bridging
- insulating impact sound
- tested, low-emission quality
- Total Solid according to GISCODE (Test method "Deutsche Bauchemie")
- ready-to-use
- free of deleterious substances against varnish
- coloured surface
- suitable for renovations

Technical data

Viscosity - Component A+B	3600	mPas	DIN EN ISO 3219 (23 °C / 73.4 °F)
Solid content	> 99	%	KLB method
Density - Component A+B	1.30	kg/l	DIN EN ISO 2811-2 (20 °C / 68 °F)
max. tear resistance	48	kN/m	DIN ISO 347-1
Elongation at break	55	%	DIN EN ISO 527-3
Shore-hardness D	62	-	DIN 53505 (after 7 days)
Abrasion (Taber Abraser)	25	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
- System G9 - KLB DECOR LOW-VOC PU Silent Sealed
- System G10 - KLB DECOR LOW-VOC PU Glitter Effect
- System G11 - KLB DECOR LOW-VOC PU Metalize Effect

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

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Tests

The following external test certificates are available:

- Classification of the fire behaviour according to DIN EN 13501-01:2010-01: C_{fl}-s1.
- Static load limit test (test of the recovery properties of resilient floor covering after static loading) in combination with **PU 430 Silent** according to DIN EN 1991-2-1:2010-12.
- Slip resistance according to DIN 51130 and BGR 181 possible in R9 and R10.
- Reduction of subsonic noise in combination with **PU 430 Silent** according to DIN EN ISO 717-2: 9 dB.
- Certified as low-emission according to “Eurofins Indoor Air Comfort Gold”. Compliant with AgBB for recreation rooms.
- Examining the imperviousness to radon: > 2.4 mm impervious to radon.
- Chair castor test in combination with **PU 430 Silent** according to DIN EN 425:2002-08.

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** or low-emission primers 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 410** can be applied without scattering by adding approx. 20 - 30 % of quartz sand 0.1/0.3 mm, consumption approx. 0.8 - 1.0 kg/m².

Important: it's only with the primers **EP 50** or **EP 55,** that **PU 410** 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 410** 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 410**, e.g. with a toothed trowel **Toothed Blade RS4** or Pajarito 48, consumption 2.3 - 2.6 kg/m². After 10 to 20 minutes, roll out with a pinch roller.

AgBB-compliant system build-up for interior surfaces

- Prime with one of the recommended KLB priming resins, like **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 58, EP 57, 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, after hardening of the primer, a scratch coat with **PU 429** or **PU 410** while adding approx. 20 - 30 % of quartz sand 0.1/0.3 mm (consumption approx. 0.8 - 1.0 kg/m²) may be applied right after the base coat that has been scattered with quartz sand 0.3/0.8 mm, consumption 0.5 - 1.0 kg/m². No scattering!
- Apply **PU 410,** e.g. with a toothed trowel **Toothed Blade RS4** or Pajarito 48, consumption 2.3 - 2.6 kg/m². After 10 to 20 minutes, roll out with a spiked 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 410** and approx. 20 - 30 % of quartz sand 0.1/0.3 mm, consumption approx. 0.8 - 1.0 kg/m². The surface must be pore-less for any subsequent coating.
- Apply **PU 410**, e.g. with a toothed trowel **Toothed Blade RS4** or Pajarito 48, consumption 2.3 - 2.6 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 0.140 - 0.160 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.
- A scattering with **partiColor®-Chips** (flakes) is possible when using a transparent top sealer afterwards.

System build-up **with intermediate scattering** for exterior surfaces

- Prime with **EP 52 Spezialgrund**. Consumption approx. 0.3 - 0.5 kg/m².
- Openly scattering the fresh surface with quartz sand 0.3/0.8 mm, consumption approx. 0.5 - 1.0 kg/m².
- This is followed directly by application of a scratch coat with **PU 429** or **PU 410** and approx. 20 - 30 % of quartz sand 0.1/0.3 mm, consumption approx. 0.8 - 1.0 kg/m². The surface must be pore-less for any subsequent coating.
- Apply **PU 410,** e.g. with a toothed trowel **Toothed Blade RS4** or Pajarito 48, consumption 2.3 - 2.6 kg/m². After 10 to 20 minutes, roll out with a spiked roller.
- For exterior areas, a transparent or opaque top sealer is applied - with **PU 882** or **PU 883** - consumption 0.150 - 0.180 kg/m². By adding structuring agent **Strukturmittel RHX**, the slip resistance can be adjusted up to grade R11. A scattering with **partiColor®-Chips** (flakes) is possible when using a transparent top sealer afterwards.
- If necessary, it is possible to apply a fleece-reinforced sealing layer with **PU 426** after substrate preparation.

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 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 410** 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 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.

Processing

Process the material immediately after mixing with a squeegee or toothed trowel. Pull out an even layer on the prepared surface. 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 - 15 minutes. To work seamlessly, always work “fresh-in-fresh” and define work areas before starting.

Sealing of the **PU 410** covering layer must be carried out with clean overshoes. Nail shoes must not be used.

Polyurethane coatings are sensitive to moisture when fresh, so the humidity specifications must be strictly observed. The coating of dew-damp substrates and the use of damp sand as well as sweat lead to foaming of the material and must be avoided. Conduct measurements before starting to work.

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

Within the recommended processing conditions, the floor temperature may be a maximum of 3 °C / 3K / 5.4 °F colder than the ambient room air temperature in order to exclude a dew point on the surface to be coated and the fresh coating. If a dew-point situation arises, regular curing will not be possible with hardening problems and foaming to occur. Technical properties might deviate.

Do not work in strong sunlight or on strongly heated surfaces, as the working time will be greatly reduced and bubble formation is possible.

Special remarks: for a slightly thickened **PU 410,** use only the suspending agent **KLB-Stellmittel 5 FT**. Other thixotropic agents 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

CE

1119	
KLB Kötztal Lacke + Beschichtungen GmbH Günztalstraße 25 FRG-89335 Ichenhausen	
13	
PU410-V1-022013	
DIN EN 1504-2:2004	
Surface protection products-coating DIN EN 1504-2: ZA.1d,ZA.1f,ZA.1g	
Abrasion resistance	complied with
CO_2-permeability	SD > 50m
Water vapour permeability	Class III
Capillary water absorbtion and water permeability	< 0.1 kg/m²*h0.5
Resistance to increased chemical excavation	complied with
Resistance to impact	Class II
Tear-test for adhesive strength evaluation	> 1.5 N/mm²
Fire behaviour	C_{fl}-s1

CE

KLB Kötztal Lacke + Beschichtungen GmbH Günztalstraße 25 FRG-89335 Ichenhausen	
13	
PU410-V1-022013	
DIN EN 13813:2003-01	
Synthetic resin screed mortar DIN EN 13813: SR-B1.5-AR0.5-IR20	
Fire behaviour	C_{fl}-s1
Emission of corrosive substances	SR
Wear resistance BCA	AR 0.5
Adhesive tensile strength	B 1.5
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	2,3	g/l
Decopaint Directive 2004/42/EG - Component B	< 500	0	g/l
DGNB - Components A + B	< 3	0.11	%
klima:aktiv – Components A + B	< 3	0.11	%
LEED - Components A + B	< 100	1.5	g/l
Minergie ECO ® - Components A + B	< 1 (< 2)	0.11	%

(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-koetztal.com. In addition, our "General Terms and Conditions“ apply.

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