

KLB-SYSTEM POLYURETHAN

PU 455 Techwood

Low-emission, elastic and grindable 2-component polyurethane coating for floors in wood look

Packaging units



Article no.	Content (kg)	Units/pallet
AK6151-47	12.00	30
AK6151-30	30.00	12

Product characteristics

Mixing ratio parts by weight	A : B = 5 : 1
Mixing ratio parts by volume	A : B = 100 : 25
Processing time	10 °C / 50 °F: 40 min. 20 °C / 68 °F: 30 min. 30 °C / 86 °F: 15 min.
Processing temperature	Minimum 10 °C / 50 °F (floor and air temperature)
Curing time (accessibility)	10 °C / 50 °F: 20 - 30 hrs 20 °C / 68 °F: 16 - 20 hrs 30 °C / 86 °F: 12 - 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 16 - 20 hours, but after 48 hours at the latest at 20 °C / 68 °F
Consumption	Imitation wood floor: 4.2 - 7.5 kg/m ²
Layer thickness	Imitation wood floor: 3.0 - 5.0 mm
Colours	Larch, Bangkirai, Teak, Bongossi, Black and White
Shelf life	12 months (originally sealed)

Product description

KLB-SYSTEM POLYURETHAN PU 455 is a low-emission, self-levelling 2-component polyurethane coating which is suitable for producing grinded floors in wood look.

The product has good levelling and smoothing properties and cures well without shrinkage. The hardened coating is viscoplastic and resistant to mechanical stress.

The flooring can be excellently grinded without a trace using a standard parquet belt.

The resistance to chemicals such as water, saline solutions, diluted acids and bases, mineral oils or diesel is sufficiently given. Polyurethane coatings have particular advantages with organic acids.

Note: **KLB-SYSTEM POLYURETHAN PU 455** is available in different colour tones; however, it is not resistant to yellowing. Slight colour deviations of the coating are possible for technical reasons. Please observe our note on colour/labelling. Imitation wood floors must be sealed with **KLB-SYSTEM POLYURETHAN PU 811 E**.

Area of application

- Production of imitation wood floors in commercial or private areas.
- Commercially used surfaces with mechanical stress, low exposure to chemicals and permanent wetness.

Product features

- solvent-free
- smooth, coloured surface
- elastic and deformable
- consistent to hydrolysis and saponification
- ready-to-use

Technical data

Viscosity - Component A+B	4500	mPas	DIN EN ISO 3219 (23 °C / 73.4 °F)
Solid content	99.5	%	KLB method
Density - Component A+B	1.34	kg/l	DIN EN ISO 2811-2 (20 °C / 68 °F)
Weight loss	0.3	% w/w	after 28 days
Water absorption	< 0.2	% w/w	DIN 53515
Shore-hardness A	93	-	DIN 53505 (after 7 days)
Shore-hardness D	44	-	DIN 53505 (after 7 days)
Abrasion (Taber Abraser)	1100	mg	ASTM D4060 (H22/1000)

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

Build-up of coats

Preparing mineral substrates

- Prepare substrate, like concrete, cement screed or others mechanically, e.g. by shot-blasting.

Primer/scratch coat without in-between sanding

- Prime with the recommended KLB base coats: **EP 50, EP 52 Spezialgrund, EP 51 RAPID S**, consumption approx. 0.3 - 0.4 kg/m². For low-emission coatings, use the primers **EP 53 Spezialgrund AgBB, EP 57** or **EP 58**.
- Where necessary: apply a scratch coat using **EP 50, EP 52 Spezialgrund, EP 51 RAPID S** or the low-emission products **EP 53 Spezialgrund AgBB, EP 57, EP 58** and mixed sand **KLB-Mischsand 2/1**, mixing ratio 1 : 0.8 parts by weight, consumption approx. 0.8 - 1.2 kg/m².
- **Important note:** only when using the base coat **EP 50** or **EP 55, PU 455** may be applied straight on top without in-between sanding after at least 14 hours up to 48 hours at the max. (at 20 °C / 68 °F). When using **EP 51 RAPID S, PU 455** may be applied without intermediate sanding after 4 hours up to 24 hours at the max. (at 20 °C / 68 °F) as far as the surface is free of pores. When using other base coats or modified time flows, an in-between sanding is necessary.
- Apply **PU 455**, e.g. with a toothed or pencil squeegee, see below.

Primer/scratch coat with in-between sanding

- Prime with epoxy resin primers as below: consumption approx. 0.3 - 0.4 kg/m².
- Openly sanding of the fresh surface with quartz sand 0.3/0.8 mm, consumption approx. 0.5 - 1.0 kg/m².
- Directly apply the scratch coat using **PU 421** on top. Add approx. 20 - 30 % of quartz sand, grain size 0.1/0.3 mm, consumption approx. 0.8 - 1.2 kg/m². The surface has to be free of pores for any subsequent coatings.

Producing imitation wood floors

- Apply **PU 455** with a toothed or pencil squeegee to a layer thickness of 3 to 5 mm, consumption approx. 4 to 7.5 kg. Adherence to the layer thickness is necessary due to the abrasive surface sanding.
- After 16 to 24 hours, surface treatment with HSS groove cutter to produce the joints.
- Then fill the grooves with contrasting colour (e.g. black) with a small overhang to avoid depressions.
- After 16 to 24 hours, surface treatment and creation of the wood grain haptic with belt sander (sandpaper with grain size 40 to 60).
- Then vacuum the surface and thoroughly clean it with a mop.
- Apply top seal **PU 811 E** (diluted with up to 10 % water) with a waxer, consumption 60 to 90 g/m².
- Optional: for a more realistic or creative design of the wood look, the wood fibre can be imitated with contrasting colour in an additional work step. For this purpose, the first sanding with coarse sandpaper (grain size 20 or 30) is carried out before the grooves have been made and then the second colour is applied thinly over the entire surface with a steel spatula or trowel. Now you can start making the grooves and finish the floor as described above.

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 base coats, like **EP 50**, **EP 52** or **EP 57**. The substrates to be coated should be prepared mechanically. 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. 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: direct scratch coat with **PU 421**.

Other substrates: for metal substrates, we recommend priming with **EP 724** and, if necessary, applying a scratch coat with **EP 52 Spezialgrund**. Prime steel substrates directly with **EP 52 Spezialgrund**; chipboard with **EP 50** and scatter openly with quartz sand Quarzsand 0.3/0.8 mm.

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. When processing partial quantities, they must be stirred and weighed out according to the mixing ratio before mixing.

Processing

Process the material immediately after mixing and spread it over the prepared surface with a coating knife or toothed trowel in a uniform layer. Compliance with the layer thickness must be observed. 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 - 15 minutes. To work seamlessly, always work "fresh-in-fresh" and define work areas before starting.

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 / 37.4 °F 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.

Do not work in strong sunlight or on strongly heated surfaces, as the processing time is greatly reduced with bubble formation possible. 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.

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. During curing, the recommended working conditions must be ensured. Otherwise, the technical properties of the end product may deviate from those specified.

Cleaning

To clean tools and to remove fresh contamination, use thinner **VR 28** and **VR 33**. 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 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: PU40

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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PU455-V1-022013	
DIN EN 13813:2003-01	
Synthetic resin screed mortar DIN EN 13813: SR-B1.5-AR0.5-IR5	
Fire behaviour	B ₁ -s1
Emission of corrosive substances	SR
Wear resistance BCA	AR 0.5
Adhesive tensile strength	B 1.5
Impact resistance	IR 5

VOC content

The product complies with the high requirements to low VOC contents, as required for sustainable construction. Therefore, these values exceed by far the European Union directive 2004/42/EG (decopaint directive).

	Limit value	Actual content	
Decopaint Directive 2004/42/EG - Component A	< 500	4,4	g/l
Decopaint Directive 2004/42/EG - Component B	< 500	0	g/l
DGNB - Components A + B	< 3	0,28	%
Klima:aktiv - Components A + B	< 3	0,28	%
LEED - Components A + B	< 100	4,4	g/l
Minergie ECO ® - Components A + B	< 1 (< 2)	0,28	%

(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.