




KÖSTER Bikuthan 1C

Technical Data Sheet W 251

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- Trademark "BIKUTHAN" registered Patent, German Patent office, K 51 945
- General building authority approval P-DD 4868/01/2011 (bauteist, Dresden)
- Initial type testing report, Institute for Testing and Certification, 76302 Zlin, Czech Republic

1 component polymer modified bitumen thick film sealant

 1023/0432	KÖSTER BAUCHEMIE AG Dieselstraße 1-10, 26607 Aurich 19 W 251 EN 15814:2011+A2:2014 KÖSTER Bikuthan 1C Polymer modified bitumen thick film sealant (PMB) for the waterproofing of underground structures
Watertightness Crack bridging ability Resistance against water Bending properties at low temperatures Stability at high temperatures Reaction to fire Compressive strength Durability of watertightness and reaction to fire	Class W2A Class CB2 No discoloration of the water / No debonding of the inlay No cracks No sliding and yielding Class E Class C1 passed

The execution of the waterproofing has to be made in accordance with loading conditions according to DIN 18533, Part 1, Section 5. The loading condition (water exposure class) have to be determined by the planner prior to the application.

Substrate

The substrate should be dry or slightly damp, (no visible water), frost-free, free of tar and oil and free of loose particles. Remove mortar residues and break edges. Vertical and horizontal inside corners and transitions should be rounded out by installing fillets. Mineral substrates have to be primed with KÖSTER Polysil TG 500 (approx. 100 – 130 g / m²) by spray application. Strongly absorbent surfaces may require up to 250 g / m².

Priming is not necessary on polystyrene substrates.

Surface roughness and irregularities up to 5 mm are filled with a scraped layer of KÖSTER Bikuthan 1C. Allow the scraped layer to dry far enough so that it will not be damaged by the application of the waterproofing layer. Scraped layers do not count as waterproofing layers.

Features

KÖSTER Bikuthan 1C is solvent free, polymer modified bitumen thick film sealant (PMBC) for the secure waterproofing of building structures according to DIN 18533, water exposure classes W1-E to W4-E. KÖSTER Bikuthan 1C bridges cracks in the substrate against pressurized water.

Technical Data

Material base	Polystyrene and polymer modified bitumen emulsion
Density	0.66 g / cm ³
Heat resistance	+ 70 °C
Building material class	Normally flammable (B2)
Curing time (depending on layer thickness, substrate, temperature and humidity)	2 to several days
Application temperature	min. + 5 °C
Substrate temperature	+ 5 °C to + 30 °C

Fields of Application

KÖSTER Bikuthan 1C is designed for the secure and permanent exterior waterproofing of basement walls, foundations, floor plates, etc. and for intermediate waterproofing of balconies, terraces without inhabited sub-structures, underneath screeds as well as for wet and damp rooms.

Authoritative according to DIN 18533:2017-07:

- W1-E: Soil moisture and water without hydrostatic pressure
- W2-E: Water with hydrostatic pressure
- W3-E: Water without hydrostatic pressure on earth-covered ceilings
- W4-E: Splash water and soil moisture on the wall base as well as capillary water within and under walls

If defects are deeper than 5 mm, level them beforehand with KÖSTER Repair Mortar mixed with 20 % KÖSTER SB Bonding Emulsion in the mix water.

Fillets

Fillets (leg length 4 – 6 cm) using KÖSTER Repair Mortar (Consumption per m: approx. 2.5 kg) must be applied at least 24 hours prior to beginning the waterproofing application in the wall / floor junction. When waterproofing polystyrene materials, the fillet (leg length: 2 cm) is made with KÖSTER Bikuthan 1C. The area waterproofing can always only be applied after the fillet has fully cured.

Application

With regard to the application of KÖSTER Bikuthan 1C, the DIN 18533 must always be observed. Applications that deviate from the requirements of DIN 18533 are to be agreed separately. Furthermore, the guideline of the Association of the German Chemical Industry "Guideline for the design and the application of waterproofing of construction members with ground contact using polymer modified bitumen thick film sealants" applies.

KÖSTER Bikuthan 1C is always applied in two layers. The KÖSTER Glass Fiber Mesh is embedded into the first layer while it is still fresh. Scraped layers for levelling the substrate (surface preparation) are not considered a waterproofing layer. The layers have to be applied shortly after each other using a plastering trowel or steel float. In the event of work interruptions, the material should be leveled to zero and overlapped by at least 10 cm with a previously applied material when resuming work. Work interruptions must not occur at corners or edges. The waterproofing layer has to be free of flaws, even and in the required thickness.

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Rain, frost, water pressure as well as strong sunshine are to be absolutely avoided until the coating dries out. The complete drying is weather-dependent and takes at least 24 hours to several days.

Minimum layer thickness

The actual dry layer thickness d_{\min} must nowhere be less than the required minimum thickness before exposure to soil pressure. The dry layer thickness at any point on the surface must not be more than twice the sum of the minimum dry layer thickness d_{\min} and the thickness addition d_z .

To ensure the minimum dry layer thickness, a layer thickness addition d_z resulting from application related fluctuations d_v and substrate's surface fluctuations d_u must be taken into account ($d_z = d_v + d_u$). When applying a scratch coat, d_u will be omitted.

The layer thickness addition must be determined and calculated separately. The following estimated values can be used:

$$d_v = 0,3 - 0,5 \text{ l / m}^2$$

$$d_u = 0,7 - 1,0 \text{ l / m}^2 \text{ (depending on substrate)}$$

Application

W1-E:

The layers can be applied fresh in fresh. A reinforcement layer is not required.

W2.1-E:

After the first layer a reinforcing layer has to be installed. This first layer must be thoroughly dry before applying the second layer so that it is not damaged when the second layer is applied.

W3-E:

After the first layer a reinforcing layer has to be installed. This first layer must be thoroughly dry before applying the second layer so that it is not damaged when the second layer is applied. In conjunction with a vertical waterproofing made of PMBC, the horizontal sealing (i.e. on protrusions, smaller ceiling surfaces, etc.) can be carried out in accordance with W2.1-E.

W4-E:

If the waterproofing of construction members with ground contact in the wall base area (eg behind cladding) can be continued up to the upper edge of the wall base area, it shall be carried out in the same way as in the ground contacting area.

Layer thickness testing

The wet layer thickness control must be carried out by the applicator. Measurements must be taken during application to ensure minimum dry layer film thickness. For this purpose, at least 20 measurements per object or per 100 m² must be carried out. In the area of multiple construction details, the frequency of measurements should be increased. For multi-layer applications, the layers must be checked individually. Also the material consumption is to be controlled.

The through-drying test must be performed on a reference area by eg. cutting a layer piece. The test specimen and the drying conditions must correspond to the conditions prevailing on the construction site. A documentation of the layer thickness control is specified according to DIN 18533. We refer to the KÖSTER PMBC protocol. The requirements of DIN 18195, Supplement 2, apply to testing the dry layer thickness on the object.

Cross-section waterproofing/ wall-floor junction

In the case of W4-E, this takes place either with sheet-like material or, if the cross-sectional waterproofing is arranged directly on the surface of

the floor slab, ideally with a crack-bridging MDS.

a) Connection of the top-side floor slab waterproofing to a cross-sectional waterproofing

By a waterproofing made of PMBC with W 1.1-E, the waterproofing must be brought to the horizontal waterproofing in or under the walls in such a way that no moisture bridge can arise.

b) Connection of the wall waterproofing to the cross-section waterproofing and floor slab

The waterproofing must reach at least 10 cm (15 cm for a floor slab as WP concrete construction) on the front side of the floor slab / foundation. It should also be connected so that no moisture bridge is created.

In the case of projecting floor slabs or foundations, sheet-like waterproofing materials are to be cut flush with the wall and the PMBC must be brought alongside the waterproofing fillet so that no moisture bridges are created. For a cross-section waterproofing made of MDS, the overlap with the PMBC must be at least 10 cm.

Wall base (ground level)

For walls with cladding or with Exterior Insulation and Finish System (EIFS), the PMBC must be guided under the cladding/ EIFS to the edge of the base area to be waterproofed. If the plaster surface of plastered exterior walls is sufficient to reach the ground, the PMBC must be applied from 5 cm above to 20 cm below ground level over a crack-bridging MDS, overlapping 10 cm to prevent rear filtrations. Lower plaster edges must also be sealed against moisture infiltration by at least 5 cm above ground level with MDS. For EIFS the PMBC has to be led behind the insulation on the wall surface 30 cm (15 cm in the final state) above ground level. The lower edge of the plaster should be protected as described above.

Penetrations (based on DIN 18533-3, Par. 9.3.4)

By W1-E, the PMBC can be guided with adhesive flanges, but also applied in a fillet shape around the feed through or penetration with the insert of a reinforcing layer of KÖSTER Glass Fiber Mesh. For W2.1-E suitable loose and fixed flange constructions must be used. A material compatibility of the parts to be installed must be ensured with the waterproofing material.

Expansion joints (based on DIN 18533-3, Par. 9.3.5.1)

Seal expansion joints by applying KÖSTER Joint Tape 20 / KÖSTER Joint Tape 30 in the joint areas of the thick film sealant. Avoid water seeping in behind the coating. Allow the waterproofing to cure fully before stressing the material (depends on the weather, but at the earliest after 24 hours).

Protection and drainage layer

Prior to backfilling, the fully cured coating must be protected from mechanical damage. We recommend the use of KÖSTER Protection and Drainage Sheet 3-400. Polystyrene drainage boards and perimeter insulation are to be fully bonded with eg KÖSTER Deuxan 2C. In order to avoid vertical movement of the waterproofing when backfilling the excavation pit, the surface of the protection or respective drainage boards should be covered with a gliding layer of polyethylene. Avoid stress points on the waterproofing. Dimple sheets, corrugated boards and the like are not suitable protection layers. Make sure not to damage the fillets when backfilling and compacting non-cohesive soils.

In case of horizontal waterproofing on floor areas, embed KÖSTER Glass Fiber Mesh between the waterproofing layers. Install two gliding

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layers of polyethylene foil prior to applying the screed. A following screed must be at least 50 mm thick.

Consumption

4,5 - 6,8 l/m²

With regard to the waterproofing the DIN 18533 must always be observed. (consider notes on the layer thickness addition in the "Application" section)

Water exposure class according to DIN 18533, Tab. 1	DLT [mm]	WLT [mm]	Consumption [l / m ²]
W1-E	3,0	4,0	4,5 - 5,0
W2.1-E	4,0	5,4	6,0 - 6,8
W3-E	4,0	5,4	6,0 - 6,8
W4-E	3,0	4,0	4,5 - 5,0

*: W2.2-E not intended for PMBC, consumption values based on the standard; Special agreement necessary!

Definition of terms for consumption table:

W1-E: Soil moisture and water without hydrostatic pressure

W2-E: Water with hydrostatic pressure (depth ≤ 3m)

W3-E: Water without hydrostatic pressure on earth-covered ceilings

W4-E: Splash water and soil moisture on the wall base as well as capillary water within and under walls

DLT: Dry Layer Thickness

WLT: Wet Layer Thickness

Cleaning

Clean tools with water immediately after use. Clean cured material with KÖSTER Universal Cleaner.

Packaging

W 251 030 30 l hobbock

Storage

Store the material cool but frost free. In originally sealed containers it can be stored for a period of 6 months.

Safety

Observe all governmental, state, and local safety regulations when installing the material. When spray applying a mask with particle filter P2 is required.

Related products

KÖSTER Polysil TG 500	Prod. code M 111
KÖSTER NB 1 Grey	Prod. code W 221 025
KÖSTER Bikuthan 2C	Prod. code W 250 028
KÖSTER Glass Fiber Mesh	Prod. code W 411
KÖSTER Repair Mortar	Prod. code W 530 025
KÖSTER SD Protection and Drainage Sheet 3-400	Prod. code W 901 030
KÖSTER Peristaltic Pump	Prod. code W 978 001
KÖSTER Universal Cleaner	Prod. code X 910 010

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