KÖSTER
Waterproofing Systems

KÖSTER BAUCHEMIE AG
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W - Waterproofing systems

KÖSTER Bikuthan 2C

Technical Data Sheet W 250 028

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- Initial type testing report, Institute for Testing and Certification, 76302 Zlin, Czech Republic. Test Report 463500179/2018
- Test report for determining the fire class according to EN 13501 - fire class E, Center for Building Technology, Prague, 2014, PK-14-072
- Test report for determining watertightness, Testing Institute for Building Technology, Prague No. 010-033658
- Determination of the radon diffusion coefficient and the diffusion length of a test specimen; IAF Radiökologie GmbH, Laboratory for Radionuclide Analysis; Radeberg, February 2025

2 component polymer modified bitumen thick film sealant with polystyrene light fillers for waterproofing building structures according to DIN 18533. Radon tight.

CE 1023/0432	KÖSTER BAUCHEMIE AG Dieselstraße 1-10, 26607 Aurich **19** **W 250** **EN 15814:2011+ A2:2014** **Polymer modified bitumen thick film sealant (PMB)** **for the waterproofing of underground structures**
Watertightness	Class W2A
Crack bridging ability	Class CB2
Resistance against water	No discoloration of the water / No debonding of the inlay
Bending properties at low temperatures	No cracks
Stability at high temperatures	No sliding and yielding
Reaction to fire	Class E
Compressive strength	Class C2A
Durability of watertightness and reaction to fire	passed

Features
KÖSTER Bikuthan 2C is a solvent free, crack bridging, 2 component polymer modified bitumen thick film sealant with excellent adhesion to dry and slightly damp substrates. The material has been tested and received official approval by the building authorities accordign to the DIN 18533 for the water exposure class W1-E, W2.1-E, W3-E and W4-E.

The material is rainproof shortly after application. The polystyrene additive ensures particularly easy application. KÖSTER Bikuthan 2K is also radon-resistant.

Technical Data

Base material	Polystyrene and polymer modified bitumen emulsion / reactive powder
Density of the mixture	0.93 g / cm³
Resistance to water	Watertight according to DIN 52123 slit pressure test
Building material fire class	E
Curing time (depending on layer thickness, substrate, temperature and humidity)	2 or more days
Mixing time	min. 3 minutes
Pot life	approx. 90 minutes
Application temperature	min. + 5 °C
Substrate temperature	+ 5 °C to + 30 °C
Radon tight	at 4 mm dry layer thickness

Fields of Application
KÖSTER Bikuthan 2C is a safe and long lasting external waterproofing for basement walls, foundations, slabs on grade, for waterproofing balconies and terraces on uninhabited substructures, and for waterproofing wet and damp rooms.

KÖSTER Bikuthan 2C complies with the DIN EN 18533; Waterproofing against ground moisture and non-retained seepage, waterproofing against unpressurized water on ceilings and wet rooms , and retained seepage.

Since waterproofing applications are carried out depending on the loading conditions, the loading conditions have to be determined by the planner prior to application.

KÖSTER Bikuthan 2C is also suited for waterproofing underneath screeds and for bonding insulation and drainage boards.

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

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, break edges, and vertical and horizontal inside corners and transitions should be rounded out by installing fillets. Mineral substrates are generally 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 2C. 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.

If defects are deeper than 5 mm, level them beforehand with KÖSTER Repair Mortar in which KÖSTER SB Bonding Emulsion replaces 20 %

The information contained in this technical data sheet is based on the results of our research and on our practical experience in the field. All given test data are average values which have been obtained under defined conditions. The proper and thereby effective and successful application of our products is not subject to our control. The installer is responsible for the correct application under consideration of the specific conditions of the construction site and for the final results of the construction process. This may require adjustments to the recommendations given here for standard cases. Specifications made by our employees or representatives which exceed the specifications contained in this technical guideline require written confirmation. The valid standards for testing and installation, technical guidelines, and acknowledged rules of technology have to be adhered to at all times. The warranty can and is therefore only applied to the quality of our products within the scope of our terms and conditions, not however, for their effective and successful application. This guideline has been technically revised; all previous versions are invalid.

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of the mix water.

Fillets
Fillets (leg length 4 – 6 cm) using KÖSTER Repair Mortar, in which KÖSTER SB Bonding Emulsion replaces 20 % of the mix water (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 2C. The area waterproofing can always only be applied after the fillet has fully cured.

During the construction phase, water acting on the back can have a damaging effect on the waterproofing layer. If the water can not be kept away from the structure, it may be necessary to apply an intermediate waterproofing made of a crack-bridging MDS (eg KÖSTER NB Elastic grey) or a non-crack-bridging MDS (eg KÖSTER NB 1 grey). However, the intermediate waterproofing must not be pressed from the rear side acting water from the building.

The surface temperature during coating must be at least 3 Kelvin above the dew point of the surrounding air.

Application
While applying KÖSTER Bikuthan 2C the general principals set forth in the DIN EN 18533 and the Data Sheet “Guidelines for the planning of waterproofing for building members in ground contact using polymer modified bitumen thick film sealants” are to be adhered to.

Add the powder to the liquid component slowly while continually mixing both components intensively using a slow rotating stirring device until the material becomes a paste like, lump-free, homogeneous mass, (mixing time is minimum 3 minutes).

The application of KÖSTER Bikuthan 2C is dependent on the loading conditions:
Ground water and non-retained seepage
Two layer application, fresh-in-fresh. Install reinforcing with KÖSTER Glass Fiber Mesh in Fillets, corners and details.

Non-pressurized water
Two layer application. The first layer must be completely dry before application of the second layer. Install reinforcing with KÖSTER Glass Fiber Mesh in fillets, corners and details as well as in all floor areas.

Retained seepage
Two layer application. The first layer must be completely dry before application of the second layer. Install reinforcing on all areas.
KÖSTER Bikuthan 2C is always applied in two layers using a toothed plastering trowel or steel float. Scraped layers for levelling the substrate (surface preparation) are not considered a waterproofing layer. The waterproofing layers have to be free of flaws, even, and in the required thickness. The actual layer thickness must nowhere be less than the required minimum layer thickness and in no case exceed it by more than 100 %. The waterproofing layer of the wall area has to extend at least 10 cm onto the front of the floor slab or foundation. External waterproofing must overlap the existing horizontal waterproofing in all areas by 15 cm. The pot life is approx. 90 minutes at a temperature of + 20 °C. Do not apply the material at temperatures below + 5 °C. Do not expose the material to frost, rain or water or direct sunlight until it has fully cured.
Mimimum 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 = 0,4 - 0,5 kg / m²
d_u = 0,8 - 1,0 kg / m² (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 layer must be sufficiently 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 layer must be sufficiently dry before applying the second layer so that it is not damaged when the second layer is applied.
In combination with a vertical waterproofing made of PMBC, the horizontal waterproofing (eg on protrusions, small 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.

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

Consumption
approx. 4.5 - 5.7 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 [kg / m²]
W1-E	3.0	4.5	mind. 4.5
W2.1-E	4.0	5.7	mind. 5.7
W2.2-E*	4.0	5.7	mind. 5.7
W3-E	4.0	5.7	mind. 5.7
W4-E	3.0	4.5	mind. 4.5

*: 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
W2.1-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

When used as a plate adhesive, the following consumption applies:
- full-surface bonding: at least 4.0 kg / m²

Cleaning
Clean tools from fresh material with water. If the material has already cured, clean tools mechanically and with KÖSTER Universal Cleaner.

Packaging

W 250 028	28 l hobbock; liquid component 25 l; powder component 3 l

Storage
Store the material in a cool, frost free and dry environment. In originally sealed containers, the material can be stored for a minimum of 12 months.

Safety
The powder component contains cement. Avoid skin contact. When working with the material, it is important to wear personal protective equipment (gloves and goggles). When spraying, a respiratory protection (particle filter P2) is also required. Observe all governmental, state, and local safety regulations when installing the material.

Related products

KÖSTER KB-Pox Adhesive	Prod. code J 120
KÖSTER Joint Tape 20	Prod. code J 820 020
KÖSTER Joint Tape 30	Prod. code J 830 020
KÖSTER Polysil TG 500	Prod. code M 111
KÖSTER NB 1 Grey	Prod. code W 221 025
KÖSTER NB Elastic Grey	Prod. code W 233 033
KÖSTER Glass Fiber Mesh	Prod. code W 411
KÖSTER WP Mortar	Prod. code W 534 025
KÖSTER SD Protection and Drainage Sheet 3-250	Prod. code W 903 030
KÖSTER Universal Cleaner	Prod. code X 910 010
KÖSTER Drill Stirrer	Prod. code X 911 001

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