

Sika® -1

Waterproofing Compound for Mortar and Concrete

Product Description	Sika® -1 is a normal setting waterproofing Additive, the action of which is to block the capillaries and pores in concrete and mortar. While blocking the passage of water it allows breathing to take place, thus considerably reducing the possibility of condensation. Sika® -1 is chloride free, and being non-toxic in a cement mortar is suitable for contact with potable water.
Uses	Sika® -1 is the basis of the internationally known Sika® Structural Waterproofing System which is completely suited to most types of brick and concrete structures subject to water pressure and dampness both internal and external. Sika renderings are applied in two, three or four coats depending on the water pressure being dealt with and the structure involved. The standard rendering however, normally consists of three coats.
Approval / Standard	Sika® -1 and the Sika® -1 waterproofing system are certified by the British Board of Agreement Certificate No 87/1937. Listed by the UK Water Fittings Byelaws Scheme No. 8905510. Sika® -1 been tested as per SCAQMD Rule 1168 Result: VOC content is 0 g/l.
Technical Data	
Form	Liquid.
Colour	Yellow
Specific Gravity	1.05 kg/l
Chloride Content	Nil
Freezing Point	0°C
Packing	5 and 20 kg pails 220 kg drums.
Storage and Shelf life	Store Sika® -1 in original unopened containers in dry warehouse condition between 10°C and 30°C. Protect from frost. The shelf life when stored under these conditions is 12 months minimum. (Stir Sika® -1 well before use)
Application Consumption	For wall rendering and floor topping subject to heavy water pressure. (a) Wall rendering 25mm thick, 1 liter for 1.3 - 1.5 m ² . (b) Floor topping 38mm thick, 1 liter for 1.1 - 1.4 m ² . For wall rendering (c) or dampness (d), subject to water pressure. (c) 3-coat work 20mm thick, 1 liter for 1.8 - 2.4 m ² . (d) 2-coat work 13mm thick, 1 liter for 2.6 - 3.0 m ² . As a general water proofer (e) 2.25 liters /50 kg of cement. For watertight concrete. (f) 9 liters of Sika® -1 per cubic metre or 7 liters of Sika® -1 per cubic meter plus 2 liters of Plastiment® per cubic meter (added separately to the mix). water cement ratio 0.46 or less, our Sikament® range of super plasticizers are recommended. Available on request test reports on vapour transmission, permeability and chloride diffusion resistance.
Surface Preparation	All surfaces must be 100% roughened, either by hacking or by the use of Sika® -Rugasol treated shutters and then wire brushed and thoroughly washed down. Immediately before application the substrate must be soaked with clean water, however, no standing water or puddles should be present. All fixtures must be removed. Any cracks, porous patches and generally defective areas should be cut out and made good as the work proceeds. Infiltration of water must be stopped with Sika® -4a (see separate data sheet) or the water table must be lowered.
Suitability	All Portland cements including sulphate resisting cement (S.R.C)



Application

For all uses, dilute one part Sika® -1 with ten parts clean water (with wet sand 1:8, with dry sand 1:12). Stir often, use within 12 hours.

Sika® -1 is a yellow paste and the solution must be free from lumps before use. To ensure this, first mix equal quantities of Sika® -1 and water and then add the remainder of the gauging water slowly stirring all the time.

The cement : sand ratios given below are by volume. Do not use soft sand (see Important Considerations).

1) General waterproofing admixture for mortar:

The addition of Sika® -1 to mortar for external rendering will increase the watertightness without impeding the breathing of the walls, thus reducing the risk of condensation and damage due to frost and efflorescence.

Sika® -1 can be used with advantage in all types of mortar.

Dilution: 1: 10 with the gauging water and use at approx. 2.25 liters per 50kg of cement.

2) permeability reducing agent for Concrete

Sika® -1 can be used to produce water tight concrete. The concrete should contain a minimum 400 kg/m³ of cement and a maximum W/C ratio of 0.5, the standard dosage of Sika® 1 in concrete is 9 liters per cubic meter. Sika® -1 can be used in conjunction with the water-reducing plasticizer Plastiment® at a dosage rate of 2 liters per cubic meter or Sikament® super Plasticizer. Sika® -1 is added separately to the mix at a rate of 7 liters per cubic meter.

3) Sika® -1 rendering to resist moisture and dampness above ground level:

(i.e. after D.P.C. insertion).

Prepare the surface as previously mentioned. Apply the first coat of a 1: 1 (cement : sand) mortar with Sika® -1 not less than 6mm thick, taking care to cover the whole surface.

Mix to a 'sloppy' consistency and cast on vigorously. Apply a second coat not less than 6mm thick as soon as the previous coat has stiffened sufficiently (usually after 4-5 hours). The second coat should be 1: 2.5 (cement: sand) with a wood float finish.

4) Sika® -1 rendering to resist water pressure:

(i.e. basement, vaults, swimming pools, tanks etc.)

Prepare the surface as previously mentioned, dilution of Sika® -1 by 1:10 with gauging water.

First day:

a) 1st Coat. Mortar 1: 1 Sika® -1 approx. 6mm thick taking care to cover the surface completely. Mix to a sloppy consistency and cast on vigorously.

b) 2nd Coat. Mortar 1: 1 with Sika® 1 approx. 6mm thick applied as soon as the 1st coat has stiffened sufficiently (usually after 4 - 5 hours). On completion apply a splatter coat of the same mortar, mixed to sloppy consistency with plain water, over the whole surface to form a key for the next coat.

Second day:

3rd Coat. Mortar 1: 2.5 with Sika® -1 approx 6mm thick. This final coat should be finished with a wood float. Where a four coat rendering against high water pressure

Is required then an additional 1 : 1.5 coat is applied with a following splatter key coat on the second day thus extending the process by one day.

Lap joints:

To ensure water tightness careful attention should be paid to all joints in the work,

Each coat should be stepped back 100 mm from the finishing line of the previous coat to avoid butt joints. (See diagram).

Sika® -1 waterproof topping:

Preparatory work As for rendering the surface must be roughened; wire brushed and thoroughly washed down. Sand must be both clean and sharp. It should be graded 3mm down except for the main floor coat where it is preferable to use 4.76 mm sand.

Dilution and mixing As for rendering.

Grout: Same 1:1 mortar as for bonding coat (see below) but of a sloppy consistency vigorously applied with a brush or broom. Laid in strips and not to be walked on.

Bonding coat: Mortar 1: 1 with Sika® -1, plastic consistency, spread with a trowel, not less than 10mm thick. Lay in strips and not to be walked on.

Main floor coat: Mortar 1: 2.5 to 1: 1 with Sika® -1 preferably using 4.76mm sand, laid in a semi-dry state while the bonding coat is still wet to a thickness of not less than 28mm, i.e. minimum total thickness of 38mm. The surface to be tamped vigorously until moisture rises to the surface.

Lap joint :

To ensure watertightness careful attention must be paid to all joint in the work. The edge of each strip of bonding coat must be covered by the next strip. (See diagram). After a prolonged interruption in the work the exposed area of the bonding coat must be carefully hacked and cleaned, wetted, treated with grout and then covered with a fresh layer of bonding coat.

Wall/Floor angle :

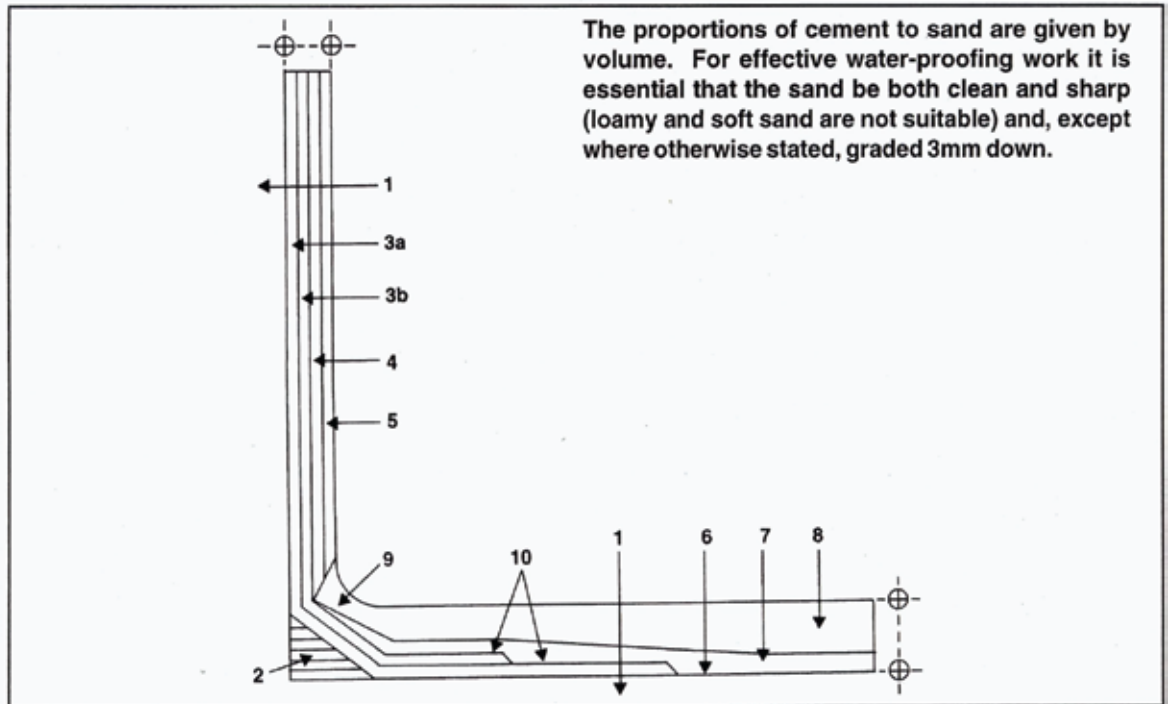
The 1st and 2nd coat of the wall rendering are carried down and out onto the floor 200mm and 100mm respectively. Before laying the floor topping these exposed strips should be prepared and treated as in 6 above. The cove in the main floor coat, formed with cove trowel or bottle, helps to strengthen the joint between the wall rendering and the floor topping.

Finishing Plasters:

Thistle Multifinish or Limelight finishing plasters are suitable for use with the Sika® -1 rendering System.

Consult our Technical Department with regard to application.

Sika® -1 rendering screed-wall to Floor Section



Key to diagram

1) Structure

Surface hacked or roughened, wire-brushed and washed down. See Sika® -4a data sheet for stopping infiltrations.

2) Corner fillet:

Mortar 1: 1 to 1: 2 with Sika® -1 after careful cleaning of the angle.

3) First Day:

(a) 1st coat: mortar 1: 1 with Sika® -1.

(b) 2nd coat: mortar 1: 1.5 with Sika® -1 followed by a splatter coat as before.

4) Second Day:

3rd coat: mortar 1: 1.5 with Sika® -1 followed by a splatter coat to form a key.

5) Third Day:

4th coat: mortar 1: 2.5 with Sika® -1.

6) Grout:

Same mortar 1: 1 as for the bonding coat (see blow) but of a sloppy consistency, applied with a brush onto a hacked surface after thorough wetting.

7) Bonding coat:

Mortar 1: 1 with Sika® -1, 10mm thick.

8) Main floor coat:

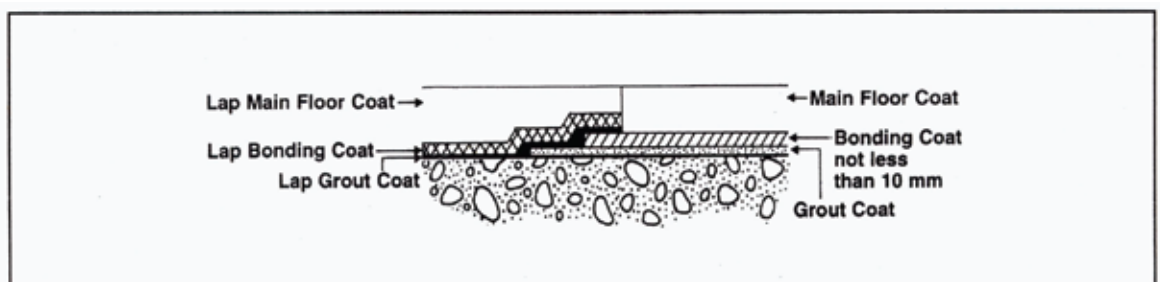
Mortar 1: 2.5 to 1: 3 with Sika® -1 preferably using 4.67mm sand not less than 28mm thick, vigorously tamped.

9) cove:

Rounded with coving tool or bottle.

10) Detail:

Lap joints to be formed in grout and bonding co.



Important Considerations

- Expansion joints can be formed within the rendering where any movement is anticipated. By using Sikaflex -1a or Sikadur Combiflex®; these materials are also suitable for the joints formed in watertight terraces, flat roofs and pavings etc...
- An application of Purigo® -5S to the completed rendering (after 14 days) will increase the surface hardness and resistance to alkaline and slightly acidic solutions. Where higher chemical resistance is required then the use of an epoxy coating from our Sikagard® range may be recommended.
- For the success of Sika® -1 rendering it is essential that care is taken to explicitly adhere to the instructions, particularly surface preparation and the choice of sand. The use of fresh Portland Cement is essential. (S.R.C. can also be used).
- Curing: Sika® -1 renderings and floor screeds must be kept moistened for a minimum 7 day period after application to stop rapid drying out. They should, also be kept insulated from adjacent sources of heat (i.e. boilers) to ensure the temperature does not exceed 32°C. Protect fresh mortars from frost.
- Finishes: Consult our Technical Department for full information on coatings, plasters etc....
- Additives: Do not mix plasticizers, lime, etc. with Sika® -1 mortars.
- Keying: Always 'key-in' the next coat of mortar with a 'splatter coat', NEVER scratch the previous coat to form a key as this may let dampness through.
- Always lap coats, NEVER butt coats.
- Sand: The correct choice of sand is vital; only washed and well graded sharp sand may be used. The basic sand required is 3mm down, (4,5mm down for main floor coat). All dry mixed sand : cement should be sieved prior to use. Do not use soft sand.
- Sika® Waterproofing Systems must not be applied to weak or friable surfaces or to structures not suitable to withstand any developed hydrostatic pressure or other loadings. Should there be any doubts this should be checked by our structural engineer.
- The use of a specialist waterproofing contractor should be considered in anything other than simple applications, Contact our Technical service Division for further advice and information.

Safety Instruction

Ecology	Do not dispose of into water or soil but according to local regulations.
Transport	Non-hazardous.
Safety Precautions	Wear gloves and goggles during application.
Toxicity	Non-Toxic under relevant health and safety codes.

Legal notes

The information, and in particular, the recommendations relating to the application and end-use of Sika products, are given in good faith based on Sika's current knowledge and experience of the products when properly stored, handled and applied under normal conditions in accordance with Sika's recommendations. In practice, the differences in materials, substrates and actual site conditions are such that no warranty in respect of merchantability or of fitness for a particular purpose, nor any liability arising out of any legal relationship whatsoever, can be inferred either from this information, or from any written recommendations, or from any other advice offered. The user of the product must test the product's suitability for the intended application and purpose. Sika reserves the right to change the properties of its products. The proprietary rights of third parties must be observed. All orders are accepted subject to our current terms of sale and delivery. Users must always refer to the most recent issue of the local Product Data Sheet for the product concerned, copies of which will be supplied on request.



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