



AQUATECH

DESCRIPTION

“**Kingfisher Aquatech**” is a premium cement based “tanking” powder with active hydrophobic ingredients that react with water and free lime to form pore blocking crystals. Mixed with water and “K-X11” it forms a brush applied slurry which is the main component of our “Aquatech System” incorporating the following companion/ related products:

- Kingfisher “K-X11” liquid copolymer admixture
- Kingfisher “Barrier Mortar”
- Kingfisher “Tank Plug”
- Kingfisher “Anti-Sulphate Solution”

Because these products make up an integral system of which “Aquatech” is the key component, this data sheet offers over-view guidance on all of them but you should still refer to the individual product data sheets for detailed application guidance – published on our website www.kingfisheruk.com.

“Tanking” means creating a waterproof barrier to either keep water out (as in a negative pressure basement) or to keep water in (as in a positive pressure pool/pond). The action of this product enables it to be used in waterproofing situations where our standard “Tankit” product is not suitable i.e. in all underground situations, where there is hydrostatic pressure of more than 2.5 metres or in water retaining projects. “**Kingfisher Aquatech**” is formulated specifically for underground situations and provides deep seal penetration with permanent protection against fresh and salt water under pressure. It can withstand up to 70 metres hydrostatic pressure of water.

USES

“**Kingfisher Aquatech**” is a highly versatile tanking system which can be used for many new-build and renovation projects (see below). Please be aware however that this list is not exhaustive and if the specific detail of your project is substantially different please consult our “technical department” for advice.

- a) Renovation:** Professional waterproofing of existing basements in the context of a renovation or conversion. “Aquatech” system bonds to the substrate allowing basements to be sealed permanently from the “inside” without resort to external excavation.
- b) Extreme water retaining situations:** i.e. swimming pools, potable (drinking) water tanks, lift shafts, service tunnels, water treatment plants and irrigation channels. Note: Drinking water tanks must be filled with water for 24 hours and then fully drained before being commissioned.
- c) New Build:** Basements and partial basements as a primary waterproofing layer for positive tanking of the external structure before secondary membrane.
- d) Miscellaneous:** A wide variety of other “below ground” scenarios.

PACKAGING

“**Kingfisher Aquatech**” is supplied in 25 Kg paper sacks. (Tough polythene outer).

COLOUR

Grey.

1. PREPARE WALLS

i) Old Brick/Block or Stonework

- a) Remove skirting boards, timber fixings, cable fixings or steelwork etc, to allow free access to the area to be treated.
- b) Remove all plaster, rendering, paint, limewash, bitumen, felting or other coverings, back to a sound substrate. This may require sand/grit blasting, needle gunning, wire brushing or power washing to ensure surface is suitably prepared for application. (Note; - If previous coatings cannot be removed, then the fixing of stainless steel Expanded Metal Lath will be required.)
- c) Rake out the mortar joints to 13mm minimum and remove all loose material by brushing. Re-point any unstable masonry using a 3:1 sand cement mix incorporating 5:1 clean water and **Kingfisher KX11**. (Allow to cure for 24 hours).
- d) See render application.

ii) New Brick/Blockwork.

- a) Apply two coats of **Kingfisher ANTI-SULPHATE SOLUTION** in strict accordance with the relevant data sheet.
- b) Damp down the area thoroughly and allow to dry until the wall is not 'glistening'.
- c) Apply a slurry primer coat of 1:1 sharp sand and cement incorporating **Kingfisher K-X11** mixed 1:1 with clean water. This coat should be brush applied at no greater than 0.5mm thickness.
- d) Within 15 minutes whilst the primer is still tacky, proceed to step **"4. Primer & Render"**

iii) Pipes, Cable conduits & Fixings

If there are pipes or cable conduits protruding through the area to be tanked, these also require preparation. Pipes in excess of 30mm diameter should have a small 45 degree recess cut around their perimeter which should be filled flush with Kingfisher "Tank Plug" mortar. Smaller protrusions such as cable conduits can be similarly recessed but instead fill flush with Kingfisher "1 for All EXTREME" sealant. To maintain the integrity of the "tanking" we suggest you limit the number of fixings but where this is unavoidable, half fill the hole with "1 for All EXTREME", press the "rawl" plug home and then apply a "collar" of "1 for All EXTREME" to the plug before fitting the screw.

iv) "Running" water

Where there is active water seepage (as opposed to just dampness) through cracks or holes in the masonry substrate, these should be filled with "Kingfisher Tank Plug" to arrest the flow of water. Refer to the "Tank Plug" product data sheet for guidance and seek advice from our technical services department.

2. PREPARE FLOOR

"Tanking" requires both mechanically stable walls and floors. In full tank situations such as basements, the walls should be tanked first, then the floor. Floors **MUST** be concrete, you cannot successfully apply "Aquatech" to timber floors, floating floors, tiles or stone slabs.

i) Existing Concrete Floor

- a) Clean all loose material from the floor by vacuuming. Check the condition of the concrete carefully to ensure substrate is strong enough i.e. $>20\text{N/mm}^2$. Many older basements had poor quality concrete poured into them so check for level, major cracks, soft spots and surface delamination. If the concrete is not mechanically sound enough to support the application of "Aquatech" it may have to be broken out and a new concrete floor installed.
- b) If the floor is tiled, you will need to break the tiles out to examine the concrete floor beneath.
- c) Remove all traces of tars, bitumen, adhesives and other residues either by floor grinder or similar mechanical means.

d) To accommodate the Kingfisher “Barrier Mortar” cut a small (25mm x 25mm) angled “V” into the floor at 45 degrees around the perimeter of the basement at the wall/floor junction. Note: You can skip this step if there is sufficient floor space to form the fillet above the floor but this will obviously depend on whether you intend to dry line with a stud frame or plaster directly to the tanking.

Polished concrete or new concrete with laitance will need to be acid etched or scabbled to gain an adequate surface key.

ii) New Concrete Floor

If the basement has a simple earthen floor or stone slabs, you will almost certainly need to install a new concrete floor.

a) Check headroom. Head height is often restricted in basements so measure the floor to ceiling height and subtract the concrete depth (usually at least 200mm) your architect/engineer recommends. It is sometimes necessary to excavate the floor of a basement to achieve a liveable headroom – again check with the architect.

b) Lay in a DPM (damp proof membrane e.g. Visqueen) and lap it up the wall past the proposed FFL (finished floor level).

c) Pour the concrete over the DPM to the desired FFL and leave to cure for at least 14 days.

d) Trim the excess DPM with a contractor’s retractable knife and to accommodate the Kingfisher “Barrier Mortar” use an angle grinder cut a “V” joint into the floor at 45 degrees around the perimeter of the basement at the wall/floor joint. Note: You can skip this step if there is sufficient floor space to form the “Barrier Mortar” fillet above the floor but this will depend on whether you intend to dry line with a stud frame or plaster directly to the tanking.

3. ANTI-SULPHATE SOLUTION (Neutralise Groundwater Salts)

One of the main causes of mortar failure in basements is the passage of highly destructive chlorides and nitrates which are naturally present in groundwater. These ground salts show up as white marks or “fur” and are highly corrosive to tanking systems. To control this we apply Kingfisher “Anti-Sulphate Solution”. Spray apply two coats of **Kingfisher ANTI-SULPHATE SOLUTION** in strict accordance with the relevant data sheet. The first coat should be diluted 1:1 with water and left for several hours (overnight preferably), the second should be applied “neat”.

4. RENDER APPLICATION (Stabilise substrate)

The objective of this step is to provide a high-integrity and uniform backing render for the “Aquatech” to bond to securely.

a) In a standard builder’s bucket, fill the bucket to roughly a third with equal proportions (50:50) of sharp sand and cement. A small shovel full of each is usually sufficient.

b) In another container mix approx. one litre of “Kingfisher K-X11” with one litre of clean water (50:50) and stir to a milky white polymer admixture.

c) Slowly pour the admixture liquid into the sand / cement and power mix with a standard paddle mixer on your electric drill until you achieve a stiff “yoghurt” consistency. Keep any excess admixture for the next mix.

d) Apply this simple primer mix with a stiff masonry brush by broad strokes or by spatter-dashing.

e) Within half an hour (whilst primer still “green”) the primer will be bonded but still tacky and you can start applying your render or plaster as required. Prepare a K-X11 polymer modified render by mixing as follows: 1 part cement to 4 parts sharp washed sand incorporating 3:1 clean water and Kingfisher K-X11.

f) Apply the render to a thickness of not less than 10mm and sponge or wooden float finish.

g) Allow render to cure overnight prior to **AQUATECH** application. Do not allow to cure for more than 48 hours.

5. "AQUATECH APPLICATION"

- a) Mix a gauging liquid of 3 parts clean water to 1 part **Kingfisher K-X11** in a clean bucket (Usually approx. 6 litres of gauging liquid per 25 kg bag) and the **AQUATECH** is mixed in ½ bag amounts i.e. 3 litres needed.)
- b) Add the powder to the liquid while mixing with a low speed, power driven paddle until a thick batter consistency is reached. Leave to stand for 10 minutes, then remix and adjust consistency with more liquid if necessary. The mixture should be stiff enough to support the weight of a fibre application brush.
- c) Using the brush, load the **AQUATECH** to it and apply to the pre wetted, prepared surface. Do not brush out as with paint but **spread** the mixture, maintaining a flowing edge.
- d) The first coat should be applied using vertical strokes and a coverage of 12.5 m² per 25 kg bag should be achieved. The first coat should be left to set for minimum 4 hours, maximum 36 hours.
- e) Apply the second coat using horizontal brush strokes and ensure coverage of 16 m² per 25 kg bag. Allow to cure. Note: - Do not allow **AQUATECH** to cure too rapidly i.e. in hot conditions mist spray with water or cover with polythene. Do not use hot air dryers or de-humidifiers in initial stages of curing.
- f) When treating wall, extend the treatment 200mm onto the concrete floor. When treating the floor extend the treatment 100mm up the wall.
- g) Floor. Assuming the floor has been prepared as in "2" above, you can apply 2 x coats of "Aquatech" by following steps a) to f) but instead of "pre-wetting" the surface, simply brush apply 2 x primer coats of "K-X11" mixed 3:1 with water, allowing 20 to 30 minutes drying time between coats. Always work towards an exit so that foot traffic is minimised during application. Please note that "Aquatech" is not trafficable so you must either lay a sand/cement screed over it or a timber floating floor. The screed is best applied soon after the initial set of the **AQUATECH** second coat. If the **AQUATECH** is allowed to dry light grey, then the surface must be dampened and primed as above prior to laying screed. In all cases the screed must be a minimum of 50mm thick. We do not recommend tiling directly to "Aquatech" or laying laminate floors directly onto it.

6. "BARRIER MORTAR" (Seal wall/floor junction)

Form a 45° angle fillet into the channel of the wall/floor joint and at the vertical wall/wall joints, using **Kingfisher BARRIER MORTAR**. NOTE: - If the wall/floor joint has any water seepage, the channel must be filled to flush with **Kingfisher TANKPLUG** prior to rendering.

7. Plastering & Dry lining

There are various options for "finishing" tanking including:

Over Plastering.

To gain a key onto the **AQUATECH**, a primer coat can be used as described in "4". The next coat must be applied to wet and tacky primer. Alternatively a spatter dash of 1:1 sharp sand and cement mixed to a yoghurt consistency with 1:1 **K-X11** and Water can be used onto the 'green' **AQUATECH** then allowed to cure. If the **AQUATECH** is allowed to cure light grey then the **K-X11** and sand/cement primer must be used. Only cement and lime based renovating plasters can be used onto the Tanking system (i.e. Kingfisher Drywall Plaster). Gypsum based backing plasters are **not** suitable. Kingfisher Drywall will gain a 'warmer' surface for the tanked wall and will not show condensation as droplets on the surface.

Thermal Boarding

The best method of providing a decorative surface is to fit a thermal laminated plasterboard system (i.e. Gyproc Thermalboard Super). This can be 'dot and dab' fixed using Gyproc adhesive direct to the

AQUATECH surface and will provide an insulated surface with a vapour barrier included. This will provide the best surface to ensure that no condensation occurs, either surface or interstitial. The plasterboard is tapered edge and can be dry-line finished or skimmed. **IMPORTANT!** Do not use standard plasterboard as the adhesive “dabs” conduct cold spots onto the board resulting in damp spots from condensation.

Dry Lining

This method involves constructing a standard timber or metal stud frame. However the frame should be mechanically fixed to the floor and ceiling but not to the wall you have just tanked. The advantage of this is that it allows space for at least 80mm of insulation and also to hide any electric cabling or pipe runs. The disadvantage is the loss of some floor space as you need to leave a 30mm air gap as well as the thickness of the frame.

CAUTIONARY NOTES

1. “**Kingfisher Aquatech**”, spatter coats and screed must be applied shortly after the initial set of the previous coats. Failure to do this will necessitate the use of the primer.
2. Protect all coats from frost or accelerate drying. **Do not** apply if frost is expected or if the air temperature is less than 5°C.
3. Wash tools thoroughly between applied coats.
4. Be careful not to pierce the new tanking with nails, screws or other fixings. Everyone working on the project, especially joiners need to be aware that skirting boards for example must be glued in place not nailed.
5. Where work is unable to be completed in one day, ensure joints are provided well clear of any corners. If the first coat is allowed to dry out too long, ie. >36 hours, then the primer coat needs to be applied prior to the second **AQUATECH** coat. (Second coat **AQUATECH** applied to wet primer).
6. Decorate using Matt Emulsion or Stone Paint. **DO NOT** use impermeable decorative systems.
7. If primer coat is allowed to dry by mistake, reapply the primer. **Do not** apply the next coat as it will not adhere to dry primer.
8. Formation of water droplets on the surface of the **AQUATECH** during the curing period is normal. This is caused by condensation forming on the cold surface. Provide a dry heat source or better ventilation to alleviate this problem.
9. Basement tanking contracts will normally include provision of adequate ventilation. **This must be pointed out in the initial survey.** The damp problem may be a combination of lateral water penetration and condensation. Installation of a tanking membrane cures the lateral water penetration but **not** the condensation.

HEALTH & SAFETY

“**Kingfisher Aquatech**” is classified as an irritant and eye protection, protective gloves and overalls should be worn when handling. Avoid breathing dust particles. You must read the Material Safety Data Sheet before use.



Before using this product read the Material Safety Data Sheet which can be obtained at www.kingfisheruk.com or by calling the Kingfisher Technical Dept. Tel: 01229 869 100.

The information given in this product data sheet is given in good faith, based on current knowledge and experience. It relates only to the specific material designated and may not be valid for such material used in combination with any other materials or in any process. Such information is to the best of the company's knowledge and belief, accurate as of the date indicated. All recommendations are made without warranty or guarantee, as to accuracy, reliability or completeness since the conditions of use are beyond our control. It is the user's responsibility to satisfy themselves as to the suitability and application of such information for their own use.