



Triton Hydrolock Installation Guide

Properties

- High chemical resistance
- Suitable for wet weather and low temperature applications
- Long term durability (performance guaranteed for the lifetime of the building)
- Compatible with all building materials
- Manufactured to meet the most up to date British Standards and guidance

Limitations

Triton Hydrolock is a pre/post applied TYPE A membrane in accordance with BS 8102:2009, and is applied to concrete structures to protect the structure from the ingress of WATER. In applications where resistance to ground gas is also required, in accordance with BS 8485:2015 – we recommend the use of our Triton Titanbond membrane.

Applications

The high swelling sodium bentonite is encapsulated between a non-woven and woven geotextile. A 'needle-punch' process interlocks the geotextiles together forming an extremely strong composite that maintains the equal coverage of bentonite, as well as, protecting it from inclement weather and construction related damage.

When wetted, unconfined bentonite can swell up to 15 times its dry volume. When confined under pressure the swell is controlled, forming a dense, monolithic, impervious waterproofing membrane. The swelling action of **Triton Hydrolock** can self-seal small concrete cracks caused by ground settlement, concrete shrinkage, etc. **Triton Hydrolock** forms a strong mechanical bond to concrete, when the geotextile fibres are encapsulated into the surface of in-situ concrete. **Triton Hydrolock** contains zero VOCs (Volatile Organic Compounds) and can be installed in almost any weather condition.

Triton Hydrolock is designed for below ground vertical and horizontal structural foundation surfaces. Typical applications, include backfilled concrete walls, structural slabs and boundary line construction.

When designing Type A structures (as classified in BS 8102:2009), the system installed correctly is capable of providing the levels of protection required for Grades 1, 2 & 3 basements.

Boundary line construction applications, include secant and contiguous piling, skin wall, metal sheet piling, sprayed concrete finishes and stabilized earth retention walls.

Applications may include structures under continuous or intermittent hydrostatic pressure.

Note: **Triton Hydrolock** is not recommended to waterproof masonry construction, and must never remain permanently exposed. The 'gelling' of **Triton Hydrolock** is adversely affected by the presence of electrolytes, and if present, or the product is being used in chemically contaminated areas, the system should be pre-hydrated prior to placing concrete or backfilling. Backfill material should not contain chalk or limestone, in applications where backfill may adversely affect product performance, consult Triton directly for advice.

Durability

Subject to normal conditions of use **Triton Hydrolock** will provide an effective barrier to the transmission of liquid water and water vapour for the life of the structure.

Ancillary products

A range of ancillary products for use with **Triton Hydrolock** is available. Please contact the Triton Systems team for more information.

Technical data

Property	Test Method	Typical Value
Bentonite Mass per Unit Area	EN 14196	5000 g/m ²
Peel Adhesion to Concrete	ASTM D 903 (modified)	5.3 kN per metre width
Water Tightness	EN1928	PASS (60kPa)
Permeability	ASTM D 5887	3.5 x 10 ⁻¹¹ m/s
Grab Tensile Strength	ASTM D 4632	400N
Puncture Resistance	EN 12236	1.8kN

Construction

All construction should conform to the Building Regulations, Codes of Practice and British Standards in current use at the time the building is being constructed. In particular it is recommended that reference is made to BS 8102: 2009.

Surface preparation

Floors: Substrate should be smooth and compacted as necessary to a minimum of 85% modified proctor density. Concrete surfaces should be free of voids and sharp projections. Surface irregularities should be removed before installation.

Walls: Honeycombing and other surface voids must be filled with a suitable strength mortar, or sealing compound as necessary. Bolt holes must be filled with a proprietary non-shrink mortar or grout, as necessary.

Boundary Line Construction: Gradually undulating surfaces are acceptable, sudden changes in level, such as ridges and hollows, are not. Concrete surfaces shall be free of large voids or projections. Voids, pits, and cracks in excess of 20mm, shall be solid filled to a flush condition, using cement grout, or sealing compound to suit. Projections greater than 20mm shall be removed, or smoothed flush.

Installation

Install **Triton Hydrolock** in strict accordance with the installation guidelines, using ancillary products as and where recommended.

Install **Triton Hydrolock**, over the properly prepared substrate, with the darker (woven) geotextile face toward the concrete to be waterproofed, and the light (non-woven) side facing outwards.

Overlap all adjoining edges a minimum of 100mm, and stagger adjacent roll ends by no less than 300mm, to avoid four way laps. Staple or nail edges together as required, to prevent any displacement before and during concrete placement.

Cut **Triton Hydrolock** to provide a tight fit around all applicable penetrations (pipes, piles, etc). Install **Triton TT Waterstop** around all pipes, as a "puddle flange" within the concrete. Finish all penetrations through the **Triton Hydrolock**, with a 40 x 40mm fillet of **Triton Bentonite** paste (Bentonite granules mixed with water), around the cut edges. Install **Triton TT Waterstop** as necessary in all applicable horizontal, and vertical, concrete construction joints. Horizontal installation surfaces shall be free of excessive standing water, particularly where a concrete under-blinding layer is not utilised.

Schedule installation of waterproofing materials to permit prompt placement of backfill material or concrete. For applications not covered below, please contact Triton Systems for advice and specific installation guidelines.

SPECIFIC USES

Floor slabs

Triton Hydrolock is recommended for use under structural reinforced concrete slabs 150mm thick or greater on compacted earth substrate or concrete blinding layer. Install the product around all foundations, (ground beams, pads, pile caps, etc).

Triton Hydrolock should not extend into foundation bearing planes (pile caps, ground beams, pads etc), but should completely envelop them. Where this is not possible/desirable, a painted or cement based waterproofing system can be used as a continuity 'membrane' through the bearing plane and the product can be sealed to this.

Where a concrete blinding layer is not used, detail an additional 40mm chase filled with **Triton Bentonite Paste** around the penetration under the **Triton Hydrolock**. Where boundary line construction, such as secant/contiguous piling, metal sheet piling, skin wall, etc, is used as the outside shuttering, continue the under-slab installation, up the boundary line a minimum of 300mm above the top edge of the floor slab, foundation, or kicker level. The extra 300mm is very important since there is no access to the outer edge after the concrete pour, and the top 100mm is to be kept free of concrete splashes etc, to enable a 'clean lap' later.

Concrete retaining walls

Triton Hydrolock can be applied to backfilled walls in two ways: mechanically fastening to cast concrete just prior to backfilling (post-applied), or preferably, by utilising the peel-adhesion properties of the system (pre-applied). The needle-punched geotextile fibres, which have been forced from the light (non-woven) side through the bentonite and darker (woven) side, will be trapped within the wet concrete, and allow the **Triton Hydrolock** to remain firmly attached to the concrete, after the formwork has been removed.

All through bolt holes, etc., must be filled, from the outside, using a proprietary non-shrink grout or similar, covered in a “mushroom” of sealing compound, either prior to backfilling (pre-fix/peel-adhered application), where additional ‘patching’ will be required, using a 200 x 200mm patch.

Backfill material shall be of compactable soils, which are free of construction debris. Backfill shall be clean, well graded, and compacted every 300mm, to 85% modified proctor (as defined by ASTM 1557), and meet the following general specifications:

- No rocks, stones or boulders, larger than 50mm.
- 90% minimum soil particles, smaller than 5mm.
- 10% maximum soil particles, finer than 74 microns. (200 mesh)

Terminate **Triton Hydrolock**, on the concrete structure, below ground level. Integrate the system with a damp proof course/cavity tray, by means of placing a 300mm wide band of **Triton Titan Tank**, over the termination point, a minimum of 150mm.

Pre-Applied: Apply **Triton Hydrolock** to timber formwork, either horizontally or vertically, by nailing or stapling as required. Ensure all laps face downwards, as applicable. Extend **Triton Hydrolock** the full depth of the formwork, so that the product laps 100mm over the **Triton Hydrolock** already cast into the slab edge and wall kicker. Allow no less than 300mm at the top of the formwork, to provide ground slab continuity later, if required. Position formwork, as required, and tie/space forms, penetrating the **Triton Hydrolock** as necessary. Normal concrete practice is sufficient in terms of striking times for formwork, but due care should be taken to ensure that **Triton Hydrolock** remains bonded to green concrete.

Where a slab ‘toe’ exists, and the under-slab **Triton Hydrolock** has terminated at the top edge of slab, additional **Triton Hydrolock** will be required to link under- slab/edge of slab **Triton Hydrolock** with wall **Triton Hydrolock**. Apply a 40 x 40mm fillet of **Triton Bentonite Paste**, at the internal wall/slab corner, and place additional **Triton Hydrolock** over the slab toe. This should lap 100mm over the edge of slab **Triton Hydrolock**, and continue over the toe terminating under the un-bonded wall **Triton Hydrolock** ‘flap’ at the back of the kicker.

Post-Applied: Apply **Triton Hydrolock** vertically or horizontally against concrete, starting with a 100mm lap at the under-slab/edge of the **Triton Hydrolock** (peel-adhered to concrete). Use washers for fixing, and follow the general application guidelines, ensuring that all laps face downwards, as applicable. The darker (woven) side, should be against the concrete, with the lighter (non-woven) side facing the installer.

Provide a 40 x 40mm fillet of **Triton Bentonite Paste**, at all horizontal and vertical internal corners, prior to application of the **Triton Hydrolock**.

Boundary line construction

Triton Hydrolock is used to waterproof various types of boundary line construction, including metal sheet piling, secant and contiguous piling, skin wall, sprayed concrete and stabilized-earth retention walls. Sprayed concrete finishes can be applied directly onto the **Triton Hydrolock**.

When working against the boundary line, always start with the vertical installation, prior to installing **Triton Hydrolock** under the slab. Apply the bottom run of **Triton Hydrolock** lengthways/horizontally against the boundary line construction, approximately 1000mm from the substrate/blinding level, allowing 150mm of **Triton Hydrolock** to extend under the slab. On profiled boundary lines (metal sheet piling, secant and contiguous piling, etc) the 150mm base flap will need to be cut and splayed as necessary, to allow the material to lay flat.

Use washers for fixing, and follow the general application guidelines, ensuring that all laps face downwards, as applicable. Ensure that the **Triton Hydrolock** closely contours the application surface. For secant piling, locate fixings close to cleavages. On contiguous piling, ensure that soil columns between piles are cut back to no less than one third of the pile diameter, to create a fixing cleavage, and reduce the likelihood of soil dislodging behind the membrane.

Due consideration should be given to termination levels and details, with reference to the height of any temporary works construction. Cutting down these works after the **Triton Hydrolock** installation/concrete placement, may destroy the waterproofing.

Safety

Full health and safety instructions are contained on the product material safety data sheets and these must be referred to before use.

Packaging

Triton Hydrolock is 7.0mm thick and supplied in 1.25 wide x 5.1m long rolls (25 per pallet). Each roll weighs approximately 35kg.

Storage

Triton Hydrolock and all associated ancillary products must be stored in dry conditions, under cover, and away from possible contact with water. Store products above 4°C, prior to use.

Technical Support

Please contact the technical team at Triton Systems for further information and advice for specific projects. We can also prepare specifications and detail drawings.

Triton Contact Details:

Triton Systems
Units 3 – 5 Crayford Commercial Centre, Greyhound Way, Crayford, Kent DA1 4HF

Tel: 01322 318 830

Fax: 01322 524 017

Email: info@tritonsystems.co.uk

www.tritonsystems.co.uk