



Triton Systems

Damp Proofing & Replastering Data Pack

BS6576: 2005 “Code of Practice for the installation of Chemical Damp-proof Courses”



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Damproofing and Replastering

DAMPROOFING

- Triton Tri-Cream
- Triton Tri-Gel
- Triton Tri-Gel BBA Certificate
- Triton Triject-Rapid DPC
- Triject Chemical DPC System BBA Certificate
- Triton Triject 3
- Triton Triject 3 BBA Certificate
- Triton Triject 2 Solvent DPC
- Triton Triject 2 BBA Certificate
- Triton Trimotic
- Triton T.I.M

REPLASTERING

- Triton Renovating Plaster
- Triton Trimix 1
- Triton Trimix 1 BBA Certificate
- Triton Tri-Rend



Triton TRI-CREAM

ADVANCED D.P.C INJECTION SYSTEM

- Fast, clean installation
- No high-pressure pump required
- Virtually odourless, low hazard
- Precise dosing
- No pump cleaning required between jobs

Description

Triton TRI-CREAM is a unique blend of silane & siloxanes for injection into brickwork etc., for the control of rising dampness. **Triton TRI-CREAM** can be used in all types of masonry without the use of high-pressure equipment. The cream is delivered by hand pressure only from a simple displacement pump and injector lance into a series of holes drilled into the mortar course. From here it migrates rapidly into the masonry pores where the injection cream reverts to a liquid phase and polysiloxanes are formed in situ. During the curing period a low molecular-weight silane vapour is also produced giving excellent migration through the wall. Curing of the DPC starts immediately with the final cure taking 2-6 weeks depending on wall thickness. Extensive field experience with this technology demonstrates that **Triton TRI-CREAM** will perform as well as any conventional liquid injection system against rising damp.

Installation

In all cases the damp proof course should, as far as possible, be installed in accordance with the British Standard 'Code of Practice for Installation of Chemical Damp Proof Courses' BS6576 (1985). In particular, the inserted DPC should be below the level of timber floors unless prevented by structural considerations (in which case other measures may be required to isolate joists etc. from damp walls below the DPC). **Triton TRI-CREAM** is designed to control rising damp but walls can remain damp after DPC installation where they are severely contaminated with hygroscopic salts. Special measures may be required to provide long-term control of dampness in such walls.

Preparation

Check and overhaul rainwater goods to ensure they are in good order and clean, repair or install drains to carry away surface water. If internal floors are below external ground level form trenches along the external face of the walls to at least 150mm below the proposed DPC level (where foundation depth allows). If this approach is not feasible the DPC must be placed 150mm above external ground level and the internal walls tanked below the DPC to prevent lateral migration of moisture/salts.

Remove skirtings, fixings and render/plaster to expose the line of the proposed DPC (mortar bed). Internal plaster which may be contaminated with hygroscopic salts should be 'cut-back' a minimum of 1m above the DPC line or 300mm above the highest signs of dampness/salts. Check flooring timbers for signs of fungal decay and recommend repair/replacement as appropriate. Ensure wall cavities are cleared of debris.

Drilling and Injection

Walls vary in thickness and type of construction so it is essential these factors are taken into account before deciding on an appropriate drilling pattern. Older properties may consist of several different styles of construction and the specification of drilling and injection should be varied accordingly. DPC height should always be at least 150mm above external ground level. In the case of solid floors, insert the DPC as close to floor level as possible. Vertical DPCs should be provided to connect horizontal DPCs where ground levels change and to isolate untreated wall areas (adjoining properties, garden walls, etc). In most cases solid brick walls may be drilled/injected from one side only (in accordance with the guidelines in the Table overleaf).

For cavity walls each leaf may be dealt with as a separate 115mm thick wall (see below). Alternatively, if preferred, drill through the selected mortar course, across the cavity, then drill the other leaf of brickwork to a depth of 90-100mm and inject in one continuous process (the physical properties of **Triton TRI-CREAM** ensure the cream remains in contact with the surrounding mortar even when the mortar bed is drilled through in this way). Always ensure that the cavity is clear before treatment.



In random stone and rubble infill walls, as far as practically possible, follow the mortar course at the appropriate level. However, if the stone is of a porous type, it may be possible to vary the drilling location (mortar/stone) as long as the mortar bed perpend is treated.

In walls of greater than 350mm thickness it is recommended that drilling is undertaken from both sides at a corresponding height. In the case of drill holes becoming blocked these should be re-drilled just prior to injection or a new hole drilled nearby to ensure that an adequate volume of **Triton TRI-CREAM** is introduced.

Drill hole size, Depth and Location

Drill 12mm diameter holes horizontally in the mortar bed at centres no greater than 120mm. The depth of hole required for various sizes of wall is shown in the table below. For walls of intermediate thickness the depth of holes should be pro rata. Where the masonry is irregular, ensure the horizontal drilling pattern targets the base of all perpend of the course selected.

Drill hole depth required for walls of various thickness:

Wall Thickness	115mm	230mm	345mm	460mm
	(4.5")	(9")	(13.5")	(18")
Depth of hole 100mm	100mm	320mm	430mm	210mm

Tri-Cream Injection

Fill the applicator unit with the Tri-Cream (approx. fill capacity 5.0ltr) and use the hand-pump to establish a positive pressure of approx. 1 bar (15lb/in²). Insert the lance of the **Triton TRI-CREAM** application gun into the full depth of the pre-drilled hole. Squeeze the gun trigger and back fill each hole fully with **Triton TRI-CREAM** to within 1cm of the surface. When treating cavity walls from one side make certain that the holes in each leaf are filled.

Application Rates*

Wall Thickness	115mm	230mm	345mm	460mm
Tri-Cream per 10m	0.9ltr	1.9ltr	2.9ltr	3.9ltr

*certain types of construction may result in higher retentions, e.g., up to twice the above figures in rubble filled walls. Some allowance should also be made for wastage (ca. 10%).

Finishing Works:

On external faces of walls drill holes can be re-pointed using a matched mortar or plugged with plastic caps of a suitable size and colour. On internal faces holes can be left open and plaster stopped short of the DPC.

Replastering:

The removal and replacement of internal salt contaminated plaster is an important part of effective damp proofing works (salts left by rising damp are hygroscopic and can cause future staining independently of structural dampness). It is essential, therefore, to follow specific guidelines drawn-up for dealing with the particular challenges posed by damp/salt-affected surfaces.

It is advisable to leave walls injected with **Triton TRI-CREAM** to dry for as long as possible, and for at least 14 days, before removing excess salts and commencing re-plastering.

Packaging

Triton TRI-CREAM is packed in a 5 litre Tub



Storage

Store in cool, frost-free conditions (temporary exposure to slight frost in transit should not affect usage and stability).

Precautions

See separate Health & Safety sheet.

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Triton TRI-GEL

ADVANCED CHEMICAL DAMP- PROOFING READY FOR USE WATERBASED D.P.C. GEL GUARANTEED EFFECTIVENESS IN DAMP WALLS

- **Triton TRI-GEL** is a unique chemical damp-proofing product based on an established and time proven active ingredient.
- **Triton TRI-GEL** is formulated in a special way to produce a Thixotropic gel. This gel consistency allows placement in horizontally drilled holes without dripping or the use of pressure.
- Traditional pressure injection can be slow and awkward, **Triton TRI-GEL** is quick and easy to apply which means improved work rates and faster job turn-around.

Key Benefits

- Water soluble / water based
- Total dispersion in damp / wet substrates
- Low odour
- User friendly
- Uses time-proven active ingredient
- No hydrocarbon solvent
- Thixotropic for easy injection
- Not reliant on substrate alkalinity for effective curing
- Ready for use
- Faster than traditional pressure injection
- Available in 1 litre cartridges or 5 litre tubs

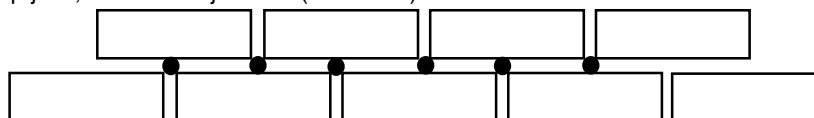
Description & Use

Triton TRI-GEL is a water based damp-proofing treatment for walls affected by rising dampness. **Triton TRI-GEL** is injected into the mortar bed between bricks, stones or blocks via horizontally drilled holes to form a continuous barrier to the passage of moisture from the ground. The UNIQUE formulation allows faster injection without the need for electric d.p.c. pumps. Being water based and water soluble, **Triton TRI-GEL** is able to diffuse naturally into damp substrates. After injection, **Triton TRI-GEL** reacts to form a water-repellent Silicone resin network within the capillaries of the substrate. This network is permeable to water vapour which means that the walls can “breathe” and dry out naturally.

Installation

Installation should, wherever possible, follow the guidelines laid down in BS6576:1985 “British Standard Code of Practice for Installation of Chemical Damp-Proof courses” and the BWPDA code of practice; “The Installation of Remedial Damp-Proof Courses in Masonry Walls.”

Triton TRI-GEL is injected into 12mm diameter holes; drilled horizontally into the chosen mortar bed at 100-120mm centres or at the perp joint, mortar bed junction (brickwork). See below:



Holes should be drilled to within 20-40mm of the far face of the wall being treated. Treatment can be carried out from one or both sides of the wall as appropriate and convenient. Cavity walls would normally be treated from both sides. The holes should be filled to within 10-20mm of the front face of the wall and capped with a plug of sand and cement mortar incorporating **Triton TRIMIX 1** or with a D.P.C wall plug. Spillages should be washed away with water before they dry.



Methods of Application

- 1. CARTRIDGE** Triton TRI-GEL is available in 1 litre cartridges, which fit into a large skeleton gun. A re-useable nozzle fits directly onto the cartridge. Place the nozzle end two thirds of the way into the injection hole, squeeze the trigger and withdraw the nozzle whilst backfilling the hole.
- 2. COMPRESSION PUMP** Triton TRI-GEL is also available in 5 litre tubs for use with a compression pump. The tub of Triton TRI-GEL is stirred thoroughly before transferring the contents to the pump using a large bore funnel if necessary. Pressurize the pump, insert the nozzle into the injection hole and fill the holes as described above.

Usage Rates

WALL THICKNESS	Litres/5m	Litres/10m
115mm (4½")	0.5	1.0
225mm (9")	1.0	2.0
340mm (13½")	1.5	3.0
460mm (18")	2.0	4.0

Specification

NBS Clause C45 30,220 Damp Proof Course renewal / insertion

Packaging

- 1 litre H.D.P.E cartridges (Separate nozzle and applicator gun required).
- 5 litre H.D.P.E Tubs

Storage

Store in the original containers, tightly closed in a safe, frost-free place. Thoroughly stir tubs before attempting transfer to a compression pump.

Precautions

Contains Potassium Methyl Silicate

Refer to the Material Safety Data Sheet

Related Products

- Waterproof render additive : TRIMIX 1
- Tanking Mix: T.T.55
- Waterproof epoxy coating: TRIMOL 40

For further information please contact:

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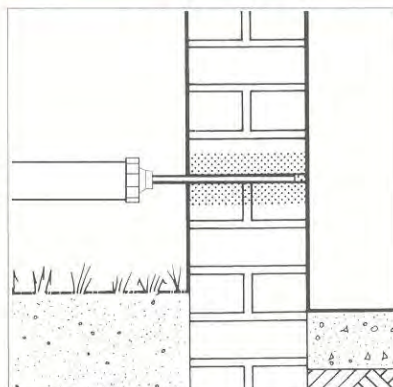
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TRI-GEL DPC SYSTEM

Product



• THIS DETAIL SHEET RELATES TO THE TRI-GEL DPC SYSTEM, AN AQUEOUS SILICONATE GEL FOR INSERTION INTO MORTAR COURSES TO FORM A REMEDIAL DAMP-PROOF COURSE IN EXISTING WALLS.

• Installation of Tri-Gel is carried out in accordance with BS 6576 : 1985 and the British Wood Preserving and Damp-proofing Association (BWPDA) Code of Practice COP3 : 1997.

This Detail Sheet must be read in conjunction with the Front Sheets, which give the product's position regarding the Building Regulations, general information relating to the product, and the Conditions of Certification, respectively.

Technical Specification

1 Description

1.1 The Tri-Gel DPC System is an aqueous gel of potassium methyl silicate, manufactured by a controlled batch blending process. Quality control is exercised over raw materials, during production and on the final product.

1.2 The installation process involves delivering a set amount of Tri-Gel via the application gun or compression pump into a series of holes drilled into the mortar course and the subsequent replastering.

1.3 Trimix 1 Replastering Additive, (the subject of Detail Sheet 5) is incorporated into a sand/cement mortar and used to plug injection holes.

2 Delivery and site handling

2.1 Tri-Gel is supplied in 1 litre cartridges or 5 litre tubs, which should be stored in a cool, dry place and protected from frost.

2.2 The product is alkaline and classified as 'Corrosive' under the Chemicals (Hazard Information and Packaging for Supply) Regulations 2002 (CHIP3). Precautions are necessary during handling, dilution and injection, to avoid contact from spilling or leakage. The normal precautions (use of goggles or visor, gloves, protective clothing and the prompt removal of contaminated clothing) should be observed with particular rigour during

the handling of the product. Should it come into contact with the skin, it must be washed off promptly. If it comes into contact with the eyes, they should be flushed with cold water for at least 15 minutes, and medical attention sought.

2.3 To protect third parties from contact with the product, the working area is tightly screened off from the public highway during treatment (for example, when treating terraced houses abutting the pavement).

Design Data

3 General

The product has no effect on expanded polystyrene or bitumen.

4 Odour



The product is odourless and does not give off harmful vapours.

5 Durability



Silicone surface water repellents for masonry are known to be effective for 12 years.

These products are applied to the surface of a wall, but a dpc application saturates the wall in depth. Excluding use in new repair work (where highly alkaline mortars are present), the process is expected to remain effective for at least 20 years.

Installation

6 Procedure

6.1 Holes 12 mm in diameter are drilled horizontally at the perpend joint, mortar bed junction at 100 mm to 120 mm centres into the selected mortar course.

6.2 Solid walls should be drilled to within 20 mm to 40 mm of the far face of the wall being treated. Treatment can be carried out from one or both sides of the wall as appropriate and convenient.

6.3 Cavity walls will normally be treated from both sides. Advice should be sought from the Certificate holder regarding treatment from one side only.

6.4 When dry substrates are to be treated, the drilled holes should be thoroughly flushed with clean water, and allowed to soak in before applying the Tri-Gel in the normal manner.

6.5 The injection process consists of:

- (1) loading the cartridge with its reusable nozzle into a skeleton gun and placing the nozzle end two-thirds of the way into the injection hole. The trigger is squeezed and the nozzle withdrawn whilst backfilling the hole to within 10 mm to 20 mm of the front face of the wall. The holes are capped with a plug of sand/cement mortar incorporating Trimix 1 Replastering Additive (see Detail Sheet 5) or with dpc wall plugs. Spillages should be washed away with water before they dry.
- (2) the tub of Tri-Gel is thoroughly stirred before the contents are transferred to the compression pump using a large bore funnel, as necessary. The pump is pressurised, the nozzle inserted into the injection hole and the procedure detailed in section 6.5 (1) followed.

6.6 Typical usage rates are detailed in Table 1.

Table 1 Usage rates

Wall thickness	Litres/5 m	Litres/10 m
115 mm (4½")	0.5	1.0
230 mm (9")	1.0	2.0
345 mm (13½")	1.5	3.0
460 mm (18")	2.0	4.0

Technical Investigations

The following is a summary of the technical investigations carried out on the Tri-Gel DPC System.

7 Tests

Tests were carried out by the BBA to determine:

- effectiveness against rising damp, generally to MOAT No 39 : 1988, Method 4.3.1.4
- substantivity of injection treatment to MOAT No 39 : 1988, Method 4.3.2
- total solids contents to BWPDA Damp-proofing 4, Method 2.1
- specific gravity to BS 3900-A19 : 1998.

Bibliography

BS 3900-A19 : 1998 *Methods of test for paints — Determination of density by the pyknometer method*

BS 6576 : 1985 *Code of practice for installation of chemical damp-proof courses*

MOAT No 39 : 1988 *The assessment of damp-proof course systems for existing buildings*

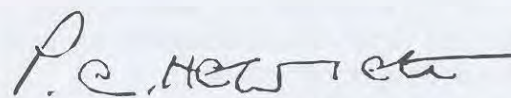
BWPDA DP4 *Method of analysis for damp-course fluids*

BWPDA Code of Practice COP3 : 1997 *Code of Practice for Installation of Chemical Damp-proof Courses*



On behalf of the British Board of Agrément

Date of issue: 21st March 2005


Chief Executive



Triton TRIJECT RAPID

HIGH PERFORMANCE DPC CONCENTRATE

Triton TRIJECT-RAPID is a unique high performance concentrate, which utilizes novel surfactant technology to produce a rapid injecting and dilution stable D.P.C fluid.

Benefits of using **Triton TRIJECT-RAPID** include:

- RAPID INJECTION
- ENHANCED SPREAD WITHIN THE SUBSTRATE
- LOW ODOUR
- DILUTION STABILITY
- REDUCED RISK OF STAINING
- NON-FLAMMABLE
- WATER BASED

Traditional solvent-based d.p.c fluids are still widely used despite their disadvantages of smell, flammability and cost. Water based fluids such as **Triton TRIJECT 3** have proved to be popular and effective but in many instances solvent is still considered to be superior. The development of **Triton TRIJECT-RAPID** now means that a water –based fluid is available with all the desirable properties of solvent systems but without the disadvantages.

Description and Use

Triton TRIJECT-RAPID is a water based damp-proofing fluid for injection into walls affected by rising dampness.

Triton TRIJECT-RAPID is injected into holes drill into the masonry units, (brick, blocks, stone) or the mortar joints to form a continuous barrier to the passage of moisture rising from the ground. The special formulation allows for faster injection into most substrates, even brick, when compared to traditional water based systems.

Within the wall, after injection, **Triton TRIJECT-RAPID** reacts to form a water-repellent Silicone resin network within the capillaries of the substrate. This silicone resin network is permeable to water vapour which means that the walls can “breathe” and dry out naturally.

The Silicone resin network:

- FORMS IN THE WALL AFTER INJECTION
- IS FULLY WATER REPELLENT SO CONTROLS RISING DAMP
- ALLOWS WATER VAPOUR TO PASS THROUGH
- REMAINS PERMANENTLY FIXED TO THE SUBSTRATE

Triton TRIJECT-RAPID is suitable for use in Brick or Mortar. The high penetrating power of the formulation means that in certain circumstances the risk of staining occurring is significantly reduced, care should still be taken however to avoid spillages.

Composition

Triton TRIJECT-RAPID is supplied in a concentrate form which when diluted at the correct ratio yields solution containing 5.8% w/w solids content. The active ingredient is potassium methyl silicate.

Physical Properties

Appearance	Clear Liquid
Odour	Odourless
Specific Gravity	1.030 – 1.34
Flash Point	Not Flammable
Alkalinity	p.H. 13 approx.



Application

Triton TRIJECT-RAPID is supplied as a concentrate to be diluted with water before use. One volume of **Triton TRIJECT-RAPID** is diluted with 9 volumes of water. **Triton TRIJECT-RAPID** is applied by pressure injection into pre-drilled holes positioned in such a way as to ensure a continuous damp-proof barrier can be formed throughout the thickness of the wall and along its length. British Standard 6576 : 1985 "Code of Practice : Installation of Chemical Damp-Proof Courses and the British Wood Preserving and Damp-Proofing Association Code of Practice "The Installation of Remedial Damp Proof Courses in Masonry Walls" describe good practice for d.p.c installation. Each injection hole is pressure injected with diluted **Triton TRIJECT-RAPID** using pressures between 20 and 50 p.s.i. (150 to 300 Kpa) until fluid is seen to reach the wall surface. The recommended usage rate is 3 litres of diluted **Triton TRIJECT-RAPID** per metre run of 9" (225mm) solid wall and pro-rata for other wall thicknesses. Drilling horizontally directly into mortar beds or through masonry units down at an angle and terminating in or near the mortar bed will result in faster and more complete injection when compared to drilling horizontally into masonry units only.

Specifications

NBS: Clause C45 30,220 Damp Proof Course Renewal / insertion

Storage

Store in the original container in a safe frost-free place.

Packaging

Triton TRIJECT-RAPID is supplied in 2.5ltr and 25ltr containers.

Precautions

See separate Health and Safety sheet.

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Designated by Government
to issue
European Technical
Approvals

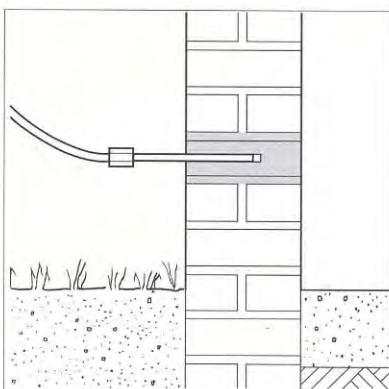
Product

• THIS CERTIFICATE RELATES TO THE TRIJECT CHEMICAL DAMP-PROOFING SYSTEM, A RANGE OF PRODUCTS FOR FORMING A DAMP-PROOF COURSE IN EXISTING WALLS, AND THE ASSOCIATED REPLASTERING.

• Installation of the damp-proofing system is carried out by Triton Chemical Manufacturing Co Ltd's approved contractors in accordance with BS 6576 : 1985 and the British Wood Preserving and Damp-proofing Association (BWPD) Code of Practice : 1997.

• Replastering is necessary to prevent damage to subsequent redecoration. To avoid split responsibility, this should be conducted by the installer or his approved agent.

These Front Sheets must be read in conjunction with the accompanying Detail Sheets, which provide information specific to the damp-proofing materials and the replastering specification.



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CI/SfB

Yu6

**Agrément
Certificate
No 95/3210**
Second issue*

TRIJECT CHEMICAL DAMP-PROOFING SYSTEM

Couche d'étanchéité pour murs par injection chimique
Feuchtigkeitssperre im Wandbereich

Regulations — Detail Sheet 1

1 The Building Regulations 1991 (as amended) (England and Wales)



The Secretary of State has agreed with the British Board of Agrément the aspects of performance to be used by the BBA in assessing the compliance of remedial damp-proofing (walls) with the Building Regulations. In the opinion of the BBA, the use of the Triject Chemical Damp-proofing System in an existing building is not subject to these Regulations, but action to satisfy Requirement C4 and Regulation 7 may be necessary for a 'Material change of use' as defined in Regulation 5(a).

Requirement: C4

Resistance to weather and ground moisture

Comment:

The damp-proofing products satisfy the BBA rising damp test and adequately resist the passage of moisture.

Requirement: Regulation 7

Materials and workmanship

Comment:

The products are acceptable. See marked section of the relevant Detail Sheet.

2 The Building Standards (Scotland) Regulations 1990 (as amended)



In the opinion of the BBA, the Triject Chemical Damp-proofing System, if used in accordance with the provisions of this Certificate, will satisfy or contribute to satisfying the various Regulations and Technical Standards listed below.

Regulation: 10

Fitness of materials

Standard: B2.1

Selection and use of materials and components

Comment:

The products are acceptable. See marked section of the relevant Detail Sheet.

Regulation: 17

Preparation of sites and resistance to moisture

Standard: G2.6

Resistance to moisture from the ground

Comment:

The damp-proofing products satisfy the BBA rising damp test and adequately resist the passage of moisture.

3 The Building Regulations (Northern Ireland) 1994 (as amended)



In the opinion of the BBA, the use of the Triject Chemical Damp-proofing System in an existing building is not controlled by these Regulations, but action to satisfy Regulations B2 and C5 may be necessary for a 'Material change of use' under Regulation A9.

Regulation: B2

Fitness of materials and workmanship

Comment:

The products are acceptable. The products are either water- or solvent-based, and do not release solvent for an unreasonable period. See marked sections of the relevant Detail Sheet.

Regulation: C5

Resistance to ground moisture and weather

Comment:

The damp-proofing products satisfy the BBA rising damp test and adequately resist the passage of moisture.

4 Construction (Design and Management) Regulations 1994

Information in this Certificate may assist the client, planning supervisor, designer and contractors to address their obligations under these Regulations.

See sections:

2 Delivery and site handling of the accompanying Detail Sheets, and 4 Odour and 6 Precautions of Detail Sheets 2 and 3 only.

Technical Specification

5 Description

5.1 The Triject damp-proofing process consists of solutions or materials which are injected or inserted into existing walls to form a damp-proof course; replastering is subsequently conducted.

5.2 The products are described in the accompanying Detail Sheets.

Design Data

6 General

6.1 The Triject Chemical Damp-proofing System is used in existing:

- (1) solid walls of brickwork, blockwork or natural stone (including flint), up to 600 mm thick
- (2) conventional cavity walls, or
- (3) walls of rubble-filled construction of any thickness to provide a barrier against rising damp where there is no damp-proof course or where the existing damp-proof course has failed.

6.2 Replastering is necessary to retain salts in the body of the wall to prevent damage to subsequent redecoration. This should be carried out according to the Trimix replastering specification (see Detail Sheet 5).

7 Drying time

After treatment, a 230 mm thick solid brick wall, previously affected by rising damp, should normally dry in 6 to 12 months provided normal heating is used during the winter months. A thicker wall may take longer. Where hygroscopic salts are present, the wall may not dry completely but the replastering system will prevent damage to internal decorations.

Installation

8 General

Installation of the Triject Chemical Damp-proofing System is carried out in accordance with BS 6576 : 1985 and the BWPDA Code of Practice : 1997 by a Triton Chemical Manufacturing Co Ltd approved contractor.

9 Action with respect to flooring timbers

9.1 Where a suspended timber floor is independently supported on sleeper walls, with an effective damp-proof course and showing no signs of dampness, these need not be treated (see Figure 1).

9.2 Where a suspended timber floor is supported on joists and/or a wallplate bearing

on, or embedded in, the wall, there is a possibility of decay, particularly where concealed timbers are in contact with the damp wall. The condition of these timbers should be ascertained and remedial action taken if necessary (see Figure 2).

9.3 If damage is limited to the joist ends, the floors may be re-formed, using sleeper walls or joist-hangers, to isolate the timbers from the damp wall (see Figure 3).

9.4 If the timbers are sound, the existing floor may be retained provided the injected damp-proof course is formed below the timber joists and/or wallplate (see Figure 4).

Figure 1 Suspended timber floor on sleeper wall

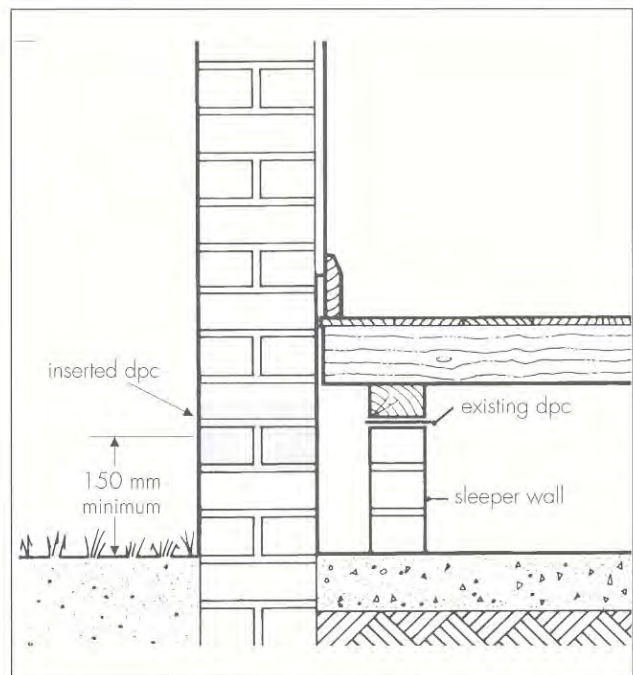


Figure 2 Check embedded timber for decay

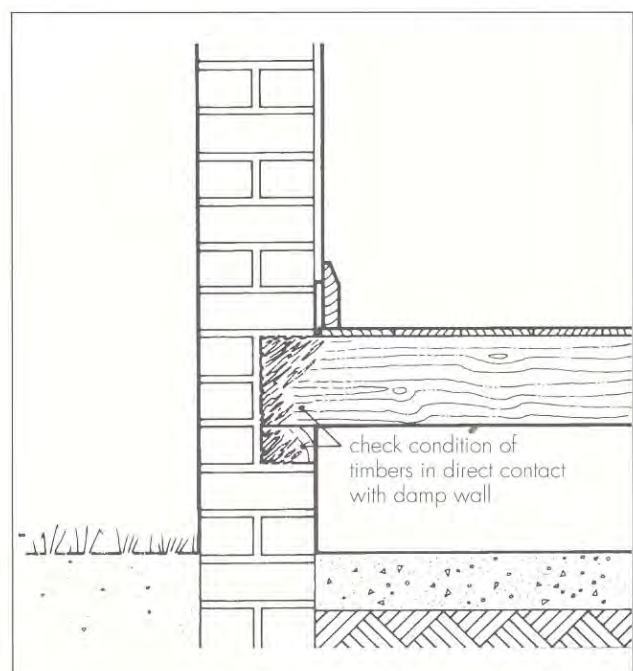


Figure 3 Isolation of timber joists from damp wall

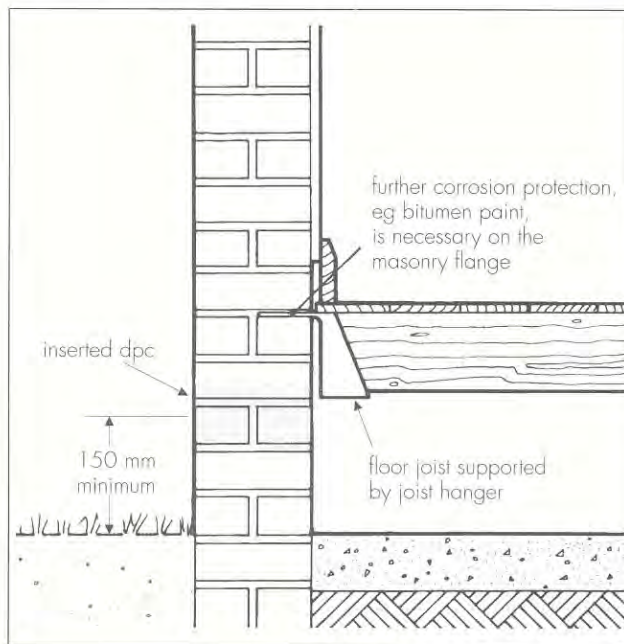
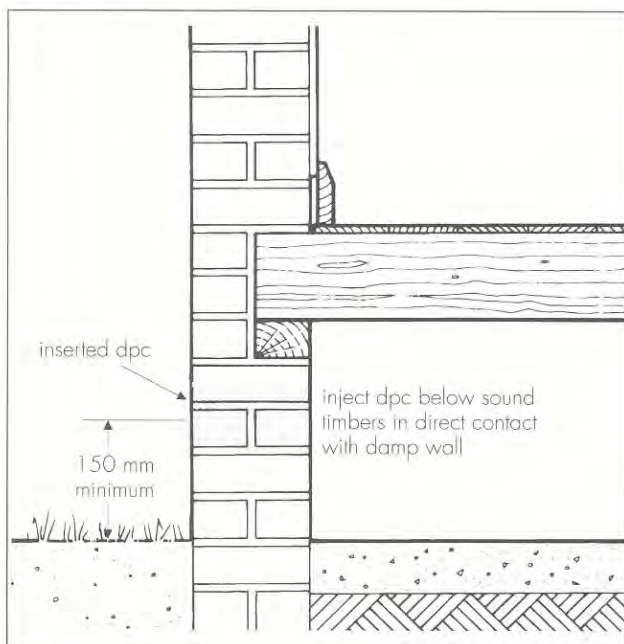


Figure 4 Inject dpc below wallplate



10 Preparation

10.1 The course to be injected is chosen so that the position of the horizontal damp-proof course complies, as far as is practicable, with the recommendations of BS 6576 : 1985, clauses 4.3 and 4.4 and the BWVDA Code of Practice : 1997, clause 8.2.3 (see section 9.4 of these Front Sheets).

10.2 Internal walls on solid floors are treated as close to the floor as possible.

10.3 Complementary vertical damp-proof courses are positioned, where necessary, to isolate treated walls from the effects of rising damp in adjoining walls or to maintain continuity between horizontal damp-proof courses at different levels.

10.4 Internal plastering affected by hygroscopic salts is removed from the area to be treated to a height of 460 mm above the maximum level of the rising damp. Internal skirting, flooring, etc is also removed, as necessary, to expose the area for treatment. Externally, the proposed damp-proof course line is exposed, where necessary, by removing any facing material.

11 Procedure

The installation of the various damp-proofing fluids is summarised in the accompanying Detail Sheets.

12 General

Untreated walls

12.1 Untreated walls are isolated by the injection of a vertical dpc throughout the thickness of the wall.

Treated walls

12.2 The treated walls are left for a period of at least 14 days to allow initial drying out. Internal plastering is applied in accordance with Detail Sheet 5 of this Certificate.

Bridging the damp-proof course

12.3 Particular care is taken to avoid bridging the damp-proof course, either internally or externally. Where external rendering has been removed, it is restored, ending in a bell casting above the injected damp-proof course.

External wall finish

12.4 Holes in the external wall surfaces are plugged with sand/cement mortar or preformed plastic plugs coloured to match the existing wall surface.

Other sources of dampness

12.5 The original survey may have identified other possible causes of dampness, and measures to rectify these are taken as necessary.

Technical Investigations

The following is a summary of the technical investigations carried out on the Triject Chemical Damp-proofing System.

13 Investigations

13.1 The manufacturing processes were examined, and the raw material specifications, formulations and quality control procedures were established.

13.2 The methods of application and durability of the products were assessed.

13.3 Visits were made to sites to assess the practicability of installation.

13.4 Assessments were made of the presence of odour and the materials available for replastering.

13.5 Assessments were made of the treatment of existing walls of rubble-filled and flint construction.

13.6 User surveys of treated properties were conducted.

13.7 An examination was made of Triton Chemical Manufacturing Co Ltd's approval procedures for contractors.

13.8 Other specific tests and investigations on the products are detailed in sections 8 and 9 of the appropriate Detail Sheets.

Additional Information

The management systems of Triton Chemical Manufacturing Co Ltd have been assessed and registered as meeting the requirements of BS EN ISO 9002 : 1994 by the British Standards Institution Quality Assurance (Certificate No FM25396).

Bibliography

BS 5492 : 1990 *Code of practice for internal plastering*

BS 6576 : 1985 *Code of practice for installation of chemical damp-proof courses*

BS EN ISO 9002 : 1994 *Quality systems — Model for quality assurance in production, installation and servicing*

British Wood Preserving and Damp-proofing Association Code of Practice *The Installation of Remedial Damp-proof Courses in Masonry Walls* : January 1997

Conditions of Certification

14 Conditions

14.1 This Certificate:

- (a) relates only to the product that is described, installed, used and maintained as set out in this Certificate;
- (b) is granted only to the company, firm or person identified on the front cover — no other company, firm or person may hold or claim any entitlement to this Certificate;
- (c) has to be read, considered and used as a whole document — it may be misleading and will be incomplete to be selective;
- (d) is copyright of the BBA.

14.2 References in this Certificate to any Act of Parliament, Regulation made thereunder, Directive or Regulation of the European Union, Statutory Instrument, Code of Practice, British Standard, manufacturers' instructions or similar publication, shall be construed as references to such publication in the form in which it was current at the date of this Certificate.

14.3 This Certificate will remain valid for an unlimited period provided that the product and the manufacture and/or fabricating process(es) thereof:

- (a) are maintained at or above the levels which have been assessed and found to be satisfactory by the BBA;

- (b) continue to be checked by the BBA or its agents; and

- (c) are reviewed by the BBA as and when it considers appropriate.

14.4 In granting this Certificate, the BBA makes no representation as to:

- (a) the presence or absence of any patent or similar rights subsisting in the product or any other product;
- (b) the right of the Certificate holder to market, supply, install or maintain the product; and
- (c) the nature of individual installations of the product, including methods and workmanship.

14.5 Any recommendations relating to the use or installation of this product which are contained or referred to in this Certificate are the minimum standards required to be met when the product is used. They do not purport in any way to restate the requirements of the Health & Safety at Work etc Act 1974, or of any other statutory, common law or other duty which may exist at the date of this Certificate or in the future; nor is conformity with such recommendations to be taken as satisfying the requirements of the 1974 Act or of any present or future statutory, common law or other duty of care. In granting this Certificate, the BBA does not accept responsibility to any person or body for any loss or damage, including personal injury, arising as a direct or indirect result of the installation and use of this product.



In the opinion of the British Board of Agrément, the Triton Chemical Damp-proofing System is fit for its intended use provided it is installed, used and maintained as set out in this Certificate. Certificate No 95/3210 is accordingly awarded to Triton Chemical Manufacturing Co Ltd.

On behalf of the British Board of Agrément

Date of Second issue: 8th October 1999

Chief Executive

**Original Certificate issued on 22nd November 1995. This amended version includes references to updated national Building Regulations, addition of CDM Regulations, updated Conditions of Certification and change of Certificate holder's name, telephone and facsimile numbers.*



Triton TRIJECT 3

DPC Fluid

Description and Use

Triton TRIJECT 3 is water based damp proofing liquid intended for injection into walls affected by rising dampness.

Triton TRIJECT 3 can be injected through pre-drilled holes formed either in bricks or the mortar joints to form a continuous barrier against water rising from the ground. Within the wall Triton TRIJECT 3 reacts with carbon dioxide to form a permanent water repellent coating within the capillaries of the masonry.

Triton TRIJECT 3 reacts with both siliceous (e.g. brick) or calcareous (e.g. mortar) materials.

Composition

Triton TRIJECT 3 is supplied in concentrate form containing 35% w/w total solids determined by the method described in BCDA technical information leaflet TIC 4 section 2.1. The active ingredient is potassium methyl silicate.

Physical Properties

Appearance	Clear Liquid
Odour	Odourless
Specific Gravity	1.24/20°C
Flash Point	Not Flammable
Alkalinity	p.H. 12 to 13

Application

- Triton TRIJECT 3 is diluted for use.
- One volume of Triton TRIJECT 3 is diluted with 6 volumes of water to give 5% concentration.

Triton TRIJECT 3 is applied by pressure injection into pre-drilled holes positioned in such a way as to ensure a continuous barrier can be formed throughout the thickness of the wall and along its length. The installation of the damp proof course is described in a separate leaflet and in BS6576: 1985 "Code of Practice for the Installation of Chemical Damp Proof Courses" and in the British Chemical Dampcourse Association Code of Practice.

Each injection hole is pressure injected with Triton TRIJECT 3 using a pressure of 20 to 50 p.s.i. (150 to 300 Kpa) until fluid is seen to reach the wall surface. The recommended dosage rate is 3 litres of Triton TRIJECT 3 per metre run of 9 inch (225mm) wall and pro-rata for other wall thicknesses.

Specifications

NBS: Clause C45 30,220 Damp Proof Course Renewal / insertion



Storage

Store in the original container in a safe place and in a place free from frost.

Packaging

Triton TRIJECT 3 is supplied in 3.6ltr, 25ltr and 200ltr containers.

Precautions

See separate Health and Safety sheet.

For further information please contact:

Triton Chemical Manufacturing Co Ltd T/a Triton Systems

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

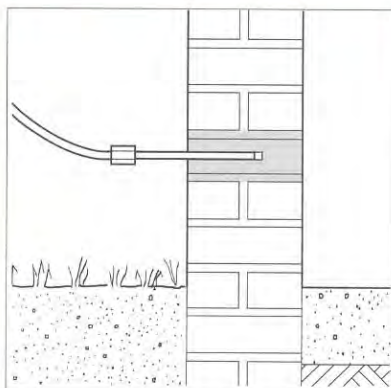
Tel: 01322 318830

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www.triton-systems.co.uk

Product



• *THIS DETAIL SHEET RELATES TO TRIJECT 3 PRESSURE INJECTION DPC SYSTEM, AN AQUEOUS SILICONATE SOLUTION IN CONCENTRATED FORM.*

• *After dilution with water it is installed by pressure injection in accordance with BS 6576 : 1985 and the BWPDA Code of Practice : 1997.*

This Detail Sheet must be read in conjunction with the Front Sheets, which give the product's position regarding the Building Regulations, general information relating to the product, and the Conditions of Certification, respectively.

Technical Specification

1 Description

1.1 Triject 3 is an aqueous concentrate of potassium methyl silicate, manufactured by a controlled batch blending process. Regular quality control checks are conducted on the final product.

1.2 The concentrate is diluted with tap water (1:6 by volume) at the installer's premises to give the injection fluid.

1.3 The installation process involves the saturation of a selected course of brickwork, or an equivalent area of blockwork or stone, with the dpc fluid by pressure injection, and the subsequent replastering.

2 Delivery and site handling

2.1 Triject 3 Pressure Injection DPC System concentrate is supplied in 4 litre, 25 litre and 200 litre plastic containers, bearing the manufacturer's markings.

2.2 The concentrate and diluted fluid are alkaline and are classified as 'Corrosive' and 'Irritant', respectively, under the Chemicals (Hazard Information and Packaging for Supply) Regulations 1994. Precautions are necessary during handling, dilution and injection, to avoid contact from spilling or leakage. The normal precautions (use of goggles or visor, gloves, protective clothing and the prompt removal of contaminated clothing) should be observed with particular rigour during the handling of the concentrate. Should the fluid come into contact with the skin it must be washed off promptly. If it comes into contact with the eyes they should be flushed with cold water for 10 minutes, and medical attention sought.

2.3 To protect third parties from contact with the alkaline fluid, the working area is tightly screened off from the public highway during treatment (for example, when treating terraced houses abutting the pavement).

Design Data

3 General

Triject 3 fluid has no effect on expanded polystyrene or bitumen.

4 Odour



The product is odourless and gives off no harmful vapours.

5 Durability



Silicone surface water repellents for masonry are known to be effective for 12 years. These products are applied to the surface of a wall, but a dpc application saturates the wall in depth. Excluding use in new repair work (where highly alkaline mortars are present), the process is expected to remain effective for at least 20 years.

Installation

6 Precautions

Triject 3 Pressure Injection DPC System concentrate and fluid are water-based and present no flammability hazards.

7 Procedure

Brickwork — high pressure

7.1 Two 10 mm or 13 mm holes are drilled in each stretcher and one in each header, to an average spacing of approximately 120 mm (maximum spacing of 150 mm). If the brickwork is too dense to allow adequate penetration of the fluid, drilling may be carried out in the adjacent mortar course. Percussion drills are not normally used on half-brick walls but may be used when the walls are in good condition. Procedures for different types of wall are:

- (1) Walls 115 mm thick — injected from one side only.
- (2) Solid walls 230 mm thick — normally injected from both sides. If access is restricted they may be drilled progressively (using a sequence of drilling, injecting, redrilling to deepen the hole by 100 mm to 120 mm and reinjecting).
- (3) Solid walls of greater thickness — treated from one or both sides. In each case the progressive injection technique is used.
- (4) Cavity walls — normally treated from both sides, but if the thickness of the individual leaves permits, the progressive injection technique is used from one side.

Mortar — low pressure

7.2 Holes 10 mm or 13 mm in diameter are drilled at 150 mm to 170 mm spacings into the mortar, and the fluid is injected at 150 kPa to 350 kPa.

7.3 The silicate solution is normally injected at pressures of between 150 kPa and 350 kPa. Nozzles fitted with pressure-tight seals are inserted into the drilled holes and injection is continued until complete saturation is achieved and the fluid begins to exude from the substrate. The application rate in typical 225 mm thick solid brickwork is approximately 3.5 litres per metre of wall. The nozzles are removed and subsequent holes are similarly injected.

Stone walls

7.4 In solid or cavity walls of conventional construction in blockwork or stone the drilling and injection procedure is adjusted to accommodate variations in the density, porosity and structure, but in each case the procedure chosen ensures a continuous unbroken treatment along the length of the wall.

Rubble-filled stone walls

7.5 In stone walls with a rubble-filled cavity, the two skins are first injected using the techniques appropriate to the substrate:

- (1) In walls 450 mm thick — holes in one leaf are redrilled to the centre of the wall (into the rubble infill) and injected singly until fluid exudes from mortar joints below the injection level. Alternatively, a timed injection method may be employed.

- (2) Thicker walls — drilled and injected in the same way from both sides, for example 600 mm walls are drilled to a depth of 200 mm and each hole is injected singly until fluid exudes from the mortar joints below the injection level.

Technical Investigations

The following is a summary of the technical investigations carried out on the Triject 3 Pressure Injection DPC System.

8 Tests

Tests were carried out by the BBA to determine:
 effectiveness against rising damp to MOAT No 39 : 1988, Method 4.3.1.3
 substantivity of injection treatment to BBA test specification total and active solids contents to BWPDPA, DP4, Method 1.1⁽¹⁾
 specific gravity to BS 3900 : Part A12 : 1975(1991).
 (1) Method of analysis of damp-course fluids.

9 Investigations

An assessment was made of Triton Chemical Manufacturing Co Ltd's safety assessment on the product under Regulation 12 of the Control of Substances Hazardous to Health Regulations 1988.

Bibliography

BS 3900 *Methods of test for paints*
 Part A12 : 1975(1991) *Determination of density*
 BS 6576 : 1985 *Code of practice for installation of chemical damp-proof courses*
 MOAT No 39 : 1988 *The assessment of damp-proof course systems for existing buildings*
 British Wood Preserving and Damp-proofing Association Code of Practice *The Installation of Remedial Damp-proof Courses in Masonry Walls* : January 1997



On behalf of the British Board of Agrément

Date of Second issue: 11th October 1999

P. C. Hewitt
 Chief Executive

**Original Certificate issued on 22nd November 1995. This amended version includes reference to change of Certificate holder's name.*



Triton TRIJECT 2

D.P.C. Injection System

Description and Use

Triton TRIJECT 2 is an organic solvent damp proofing liquid intended for injection into walls affected by rising dampness. **Triton TRIJECT 2** can be injected through pre-drilled holes formed either in bricks for the mortar joints to form a continuous barrier against water rising from the ground. Within the wall **Triton TRIJECT 2** reacts with water already present to form a permanent water repellent coating within the capillaries of the masonry.

Triton TRIJECT 2 reacts with both siliceous (e.g. brick) or calcareous (e.g. mortar) materials.

Composition

Triton TRIJECT 2 contains 4.0% w/w active silicone resin as determined by the reference method described in BCDA technical information leaflet TIC 4 section 1.2. The resin is dissolved in a hydrocarbon solvent of the white spirit type.

Physical Properties

Appearance	Clear Liquid
Odour	Hydrocarbon Solvent
Specific Gravity	0.775 – 0.785/15 Degrees
Flash Point	40 Celsius – 105 Fahrenheit

Application

Triton TRIJECT 2 is ready for use.

Triton TRIJECT 2 is applied by pressure injection into pre-drilled holes positioned in such a way as to ensure a continuous barrier can be formed throughout the thickness of the wall and along its length. The installation of the damp proof course is described in a separate leaflet and in BS6576: 1985 "Code of Practice for the Installation of Chemical Damp Proof Courses" and in the British Chemical Dampcourse Association Code of Practice.

Each injection hole is pressure injected with **Triton TRIJECT 2** using a pressure of about 100 p.s.i. (700Kpa) until fluid is seen to reach the wall surface. The recommended dosage rate is 3 litres of **Triton TRIJECT 2** per metre run of 9 inch (225mm) wall and pro rata for other wall thicknesses.

Specification

NBS: Clause C45 30,220 Damp Proof Course Renewal / insertion



Storage

Store in the original container in a safe place.

Packaging

Triton TRIJECT 2 is supplied in 25ltr and 200ltr containers.

Precautions

See separate Health and Safety sheet.

For further information please contact:

Triton Chemical Manufacturing Co Ltd T/a Triton Systems

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

Tel: 01322 318830

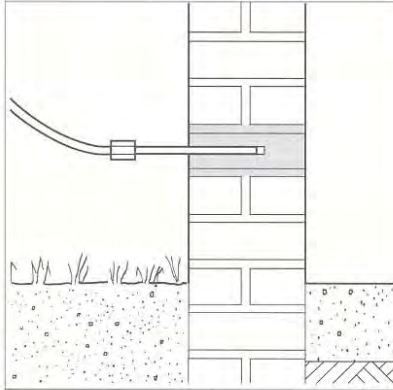
Fax: 01322 524017

Email: info@tritonsystems.co.uk

www.tritonsystems.co.uk

Ref: Triton Triject 2 07/11

Product



• THIS DETAIL SHEET REPLACES CERTIFICATE No 86/1586, AND RELATES TO TRIJECT 2 PRESSURE INJECTION DPC SYSTEM, A SILICONE SOLUTION FOR FORMING A DAMP-PROOF COURSE IN EXISTING WALLS.

• Installation is by pressure injection in accordance with BS 6576 : 1985 and the BWPDA Code of Practice : 1997.

This Detail Sheet must be read in conjunction with the Front Sheets, which give the product's position regarding the Building Regulations, general information relating to the product, and the Conditions of Certification, respectively.

Technical Specification

1 Description

1.1 Triject 2 is a solution of a silicone water repellent in white spirit. The solution is manufactured by a controlled batch blending process. Regular quality control checks are conducted on the final product.

1.2 The installation process involves the saturation of a selected course of brickwork, or an equivalent area of blockwork or stone, with this fluid by pressure injection, and the subsequent replastering.

2 Delivery and site handling

2.1 The product is supplied in 25 litre and 200 litre metal containers bearing the manufacturer's markings.

2.2 The product is flammable, with a flashpoint of 38°C, and must be stored in a cool place away from naked flames.

Design Data

3 General

Triject 2 fluid can dissolve expanded polystyrene, and injection into a cavity wall with this insulant should not be attempted. However, expanded polystyrene may be installed in a treated cavity wall, after the solvent has evaporated.

4 Odour



Under normal circumstances a building with a 230 mm thick solid wall or a conventional cavity wall should be free from solvent odour two to four weeks after the application. If the building has thicker walls, if fireplace areas have been treated, if the property has both solid and suspended timber floors (which restrict ventilation) or if the

property is cold or unventilated, solvent odour may persist for a longer period.

5 Durability



Silicone surface water repellents for masonry are known to be effective for 12 years. These products are applied to the surface of a wall, but a dpc application saturates the wall in depth. Excluding use in new repair work (where highly alkaline mortars are present), the process is expected to remain effective for at least 20 years.

Installation

6 Precautions

Triject 2 fluid gives off a flammable vapour and it is essential that no open fires are lit or other sources of ignition are present during, and for two days after, injection. Full ventilation must be provided during this time to prevent the accumulation of pockets of flammable vapour.

7 Procedure

Brickwork — high pressure

7.1 Two 10 mm or 13 mm holes are drilled in each stretcher and one in each header, to an average spacing of approximately 120 mm (maximum spacing of 150 mm). If the brickwork is too dense to allow adequate penetration of the fluid, drilling may be carried out in the adjacent mortar course.

Percussion drills are not normally used on half-brick walls but may be used when the walls are in good condition. Procedures for different types of wall are:

(1) Walls 115 mm thick — injected from one side only.

(2) Solid walls 230 mm thick — normally injected from both sides. If access is restricted they may be drilled progressively (using a sequence of drilling,

injecting, redrilling to deepen the hole by 100 mm to 120 mm and reinjecting).

(3) Solid walls of greater thickness — treated from one or both sides. In each case the progressive injection technique is used.

(4) Cavity walls — normally treated from both sides, but if the thickness of the individual leaves permits, the progressive injection technique is used from one side.

7.2 The silicone solution is normally injected at a pressure of 700 kPa. Nozzles fitted with pressure-tight seals are inserted into the drilled holes and injection is continued until complete saturation is achieved and the fluid begins to exude from the substrate. The application rate in typical 225 mm thick solid brickwork is approximately 3.0 litres per metre of wall. The nozzles are removed and subsequent holes are similarly injected.

Mortar — low pressure

7.3 Holes are drilled at 150 mm to 170 mm spacings into the mortar, and the fluid is injected at 150 kPa to 350 kPa.

Stone walls

7.4 In solid or cavity walls of conventional construction in blockwork or stone the drilling and injection procedure is adjusted to accommodate variations in the density, porosity and structure, but in each case the procedure chosen ensures a continuous unbroken treatment along the length of the wall.

Rubble-filled stone walls

7.5 In stone walls with a rubble-filled cavity, the two skins are first injected using the techniques appropriate to the substrate:

(1) In walls 450 mm thick — holes in one leaf are re-drilled to the centre of the wall (into the rubble infill) and injected singly until fluid exudes from mortar joints below the injection level. Alternatively, a timed injection method may be employed.

(2) Thicker walls — drilled and injected in the same way from both sides, for example 600 mm walls are drilled to a depth of 200 mm and each hole is injected singly until fluid exudes from the mortar joints below the injection level.

Technical Investigations

The following is a summary of the technical investigations carried out on the Triject 2 Pressure Injection DPC System.

8 Tests

Tests were carried out by the BBA to determine:
effectiveness against rising damp to MOAT No 39 : 1988, Method 4.3.1.3
substantivity of injection treatment to BBA test specification total and active solids contents to BWPDA, DP4, Method 1.1⁽¹⁾
specific gravity to BS 3900 : Part A12 : 1975(1991)
flashpoint to BS 3900 : Part A9 : 1986(1991).
(1) Method of analysis of damp-course fluids.

9 Investigations

9.1 A re-examination was made of the data and investigations on which previous Certificate No 86/1586 was based. The conclusions drawn from the original data remain valid.

9.2 An assessment was made of Triton Chemical Manufacturing Co Ltd's safety assessment on the product under Regulation 12 of the Control of Substances Hazardous to Health Regulations 1988.

Bibliography

BS 3900 *Methods of test for paints*
Part A9 : 1986(1991) *Determination of flashpoint (closed cup equilibrium method)*
Part A12 : 1975(1991) *Determination of density*
BS 6576 : 1985 *Code of practice for installation of chemical damp-proof courses*
MOAT No 39 : 1988 *The assessment of damp-proof course systems for existing buildings*
British Wood Preserving and Damp-proofing Association *Code of Practice The Installation of Remedial Damp-proof Courses in Masonry Walls* : January 1997



On behalf of the British Board of Agrément

Date of Second issue: 11th October 1999

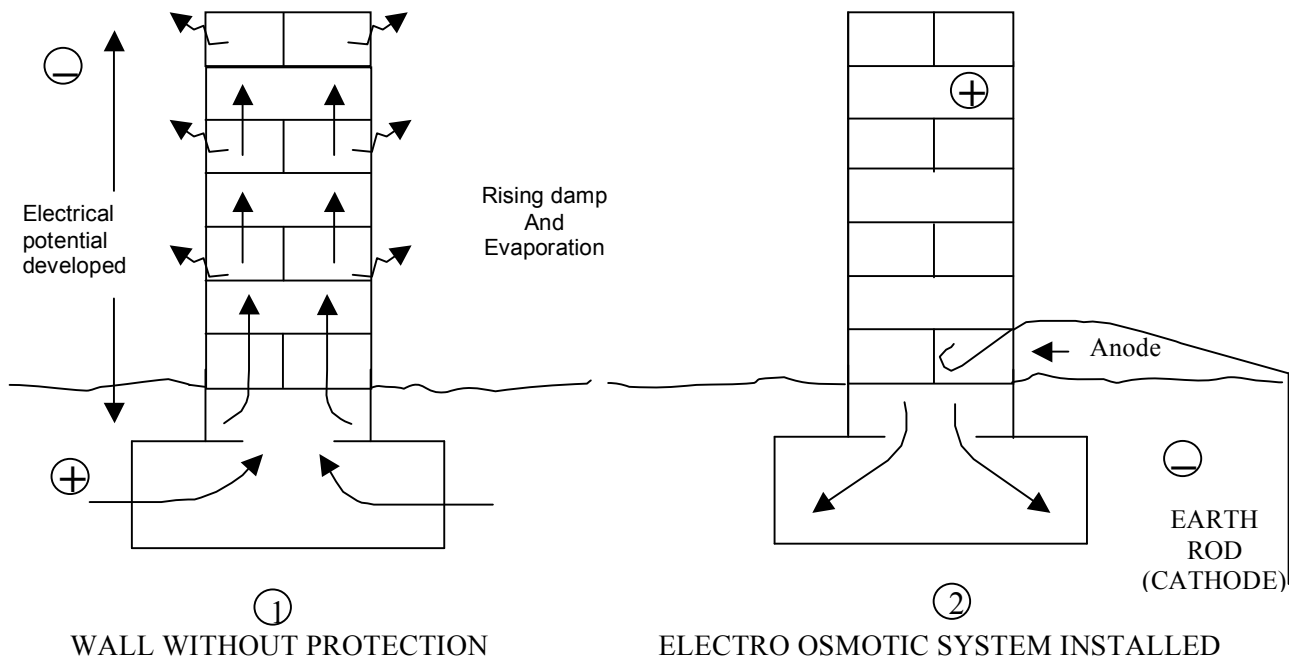

Chief Executive

**Original Certificate issued on 22nd November 1995. This amended version includes reference to change of Certificate holder's name.*

Triton TRIMOTIC

ELECTRIC OSMOTIC DAMP PROOFING SYSTEM

Triton TRIMOTIC is a chemical-free damp proofing system that utilises the principle of Electro-Osmosis. Electric-Osmosis occurs when an electrical potential is applied across a damp porous material, which causes a force to be exerted on the water, which then moves towards the cathode (earth).



The **Triton TRIMOTIC** system involves inserting platinum coated titanium wire anodes into the wall at regular intervals. These anodes (which are joined together by plain titanium wire) are placed around the building in a ring main-like configuration. One end is connected to a low voltage power supply and the circuit is completed at the other end by an earthing rod (cathode) driven into the ground to a level below that of the anodes and at a distance of at least 2 metres away from the nearest anode. The completed and operational system then provides the electric potential, which stops the rising damp and allows the wall to dry out. Removal and replacement of salt contaminated or damaged internal plastering is carried out as usual and to the normal specifications used when replastering after the insertion of a chemical d.p.c.



Components of the System

There are three key components of the **Triton TRIMOTIC Electric- osmosis system**.

1. **POWER UNIT**

The simple and robust power unit just plugs into a 13-amp socket. The plug connected to the units output lead simply into a socket fitted to the titanium wire of the installed system. Power delivery from the unit adjusts automatically to the degree of dampness in the wall thus ensuring the best possible results.

2. **ANODES**

The anodes are supplied spliced into pure titanium wire. Each anode consists of a titanium wire substrate coated with platinum. The platinum is very resistant to oxidation and is used to ensure excellent long-term electrical conductivity into the wall.

3. **EARTHING RODS**

The earthing rods complete the circuit. The electrical potential created by the power unit is between the anodes and earthing rod(s), therefore it is important to achieve a good earth contact.

Principles of installation

1. Before a **Triton TRIMOTIC** electro-osmosis system can be considered a full survey of the property should be carried out. Floor levels inside and out, wall construction type(s), floor construction etc., should be determined alongside the diagnosis of dampness survey itself. Once rising damp has been correctly diagnosed attention can be turned to the practical considerations of where Power units and earth rods can be positioned and what the best route for the installation of the anodes might be.
2. Installation of the anodes can be from the outside or the inside of the building; in either case the internal rendering will almost certainly need to be removed due to salt contamination. If not then at the very least skirting boards will need to be removed to allow access to the base of the wall when internal installation is carried out.
3. The anodes are inserted into the wall via holes drilled from a mortar bed down at an angle (varying from 10° to 30°). The titanium wire between the anodes is placed into a 20mm chase or groove cut into the mortar bed. The process typically proceeds as follows:
 - a) Cut a groove 20mm deep into mortar bed.
 - b) Drill into wall from mortar bed to at least 1/3 thickness of wall.
 - c) Form the first anode into a 'J' shape ensuring that all the platinized wire will be inside the wall.
 - d) Run the wire along the wall and push the anode into the back of the hole.
 - e) Pull the wire taught, mark and drill the wall, form the second anode and fit into the hole.
 - f) Wet the anode holes with a watering can and then fill with a cement and water slurry.
 - g) Point up the groove containing the titanium wire.
 - h) Doorways and other openings are bridged using plain titanium wire attached to the anode containing wire using special crimps.
 - i) Spurs can be created for return walls etc. by joining anode wire using the crimps. A continuous loop of wire is not required.
 - j) Place an earth rod into the ground and at a lower level than the lowest anode.
 - k) Connect the earth rod and power unit(s) (one power unit is sufficient for 100 anodes) and switch on.
4. The titanium wire should be considered to be live (although at a very low, safe voltage as far as people and animals are concerned) and should not come into contact with any other metal such as central heating pipes, electrical boxes or wiring etc. Insulating sleeving or tape should be used to isolate vulnerable wire. Warning labels are supplied for attachment to the wire for display in prominent places.



Key Benefits

- CHEMICAL FREE
- SUITABLE FOR VIRTUALLY ANY TYPE OF WALL
- ELIGIBLE FOR INSURANCE BACKED GUARANTEES
- MINIMAL RUNNING COSTS

Technical Data

ANODES:	Supplied on a roll of titanium wire carrying 25 anodes. Sufficient for 25m approx of dampcoursing.
CONNECTING WIRE:	Plain 2mm diameter titanium wire supplied as a 25m roll.
CONNECTING CRIMPS:	Pure titanium crimp connectors supplied in bags of 50.
POWER UNITS:	Supplied with output lead plugs to connect with TRIMOTIC titanium wires and earth. Each power unit is suitable for a maximum of 100 anodes.
ORANGE SLEEVING:	For covering of plain titanium wire. Internal diameter 2.5mm supplied in 100m coils.
RED SLEEVING:	For electrical isolation of the system in the vicinity of copper pipes etc. internal diameter 4mm. Supplied in 100m coils.
EARTHING RODS:	Copper coated rods, 1.2m long.
CRIMPING TOOL:	Specially designed tool, which ensures that joint and spurs are joined correctly.

Related Products

- | | |
|------------------------------------|----------|
| • Waterproof render additive : | TRIMIX 1 |
| • Cementitious Waterproof Coating: | T.T.55 |

For further information please contact:

Triton Chemical Manufacturing Co Ltd T/a Triton Systems

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

Tel: 01322 318830

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Email: info@triton-chemicals.co.uk

www.triton-systems.co.uk



Triton INJECTION MORTAR (T.I.M)

Description and Use

Triton INJECTION MORTAR is a one component injection mortar formulated to stop rising dampness in brickwork, blockwork, random rubble filled walls and all types of masonry.

Triton INJECTION MORTAR is based on ordinary portland cement, selected fine quartz aggregates and active waterproofing chemicals. **Triton INJECTION MORTAR** activates due to a chemical reaction between moisture in the structures and waterproofing chemicals in the mortar, which forms a crystalline growth that blocks the capillaries, pores and fine cracks in the mortar joints.

Triton INJECTION MORTAR is odourless and gives off no toxic vapours.

Preparation and Drilling

- Prior to drilling internally, all obstructions should be removed, i.e., Skirting Boards and Plastering/Rendering. Plaster/Render should be removed up to a line not less than 300mm above the last detectable signs of dampness and/or salt contamination (using an electrical moisture meter) or 1m above the d.p.c, whichever is the higher.
- The positioning of the d.p.c. is vital if the damp proofing works are to be effective. The d.p.c. should be placed at least 150mm above external ground level. If the external ground level is above the internal floor level it is necessary to lower the outside ground (permanently) or to incorporate an internal waterproof surface treatment, such as **Triton TT55** (See separate data sheet) to cover the gap between the inserted d.p.c. line and the floor.
- Holes should be drilled using 19-22mm drill bits at overall spacing's of 110mm and at an angle of depression of about 30°, finishing in a mortar bed at the level of the proposed d.p.c. In solid walls up to 460mm thick drilling from one side to the thickness of the wall (and at the 30° angle), should result in a hole terminating 50mm or so from the far side. It may occasionally be advantageous to drill from both sides i.e., random stonework with rubble infill or thick walls. Drilling should stop just over half way through the wall, the holes being at staggered centres of 110mm.
- Prior to application of **Triton INJECTION MORTAR** all drilled holes should be flushed out with water to remove any dust. **Triton INJECTION MORTAR** should always be injected into damp holes.
- In walls less than 120mm thick, rather than drill holes, the mortar bed at the desired level is raked out to between one third and one half its depth. The mortar bed should be flushed with water to remove debris and the injection mortar applied by trowel into the joint. The mortar should be made up to a stiffer than usual consistency. The joint should be filled to within 8mm of the front face. Re-point using 3:1 washed sharp sand : cement using Trimix 1 Render Additive.

Application of Triton Injection Mortar (T.I.M)

- For injecting **Triton INJECTION MORTAR**, a hand-caulking gun is used.
- The nozzle of the gun is inserted into the holes to the full depth and slowly withdrawn whilst filling the hole with **Triton INJECTION MORTAR**.
- **Triton INJECTION MORTAR** should be stopped approximately 50mm from the top of the hole.
- Once all holes are to this stage it may be necessary to top up due to **Triton INJECTION MORTAR** finding its way into any voids or fine cracks.
- Once **Triton INJECTION MORTAR** has set, the holes should be plugged up with 3:1 washed sharp sand: cement, using **Triton TRIMIX 1** Render Additive.

Mixing of Triton Injection Mortar

- Mix the **Triton INJECTION MORTAR** at the ratio of 2 to 3 parts water by volume to 5 parts powder by volume.
- Add the water to the powder.
- Mix thoroughly until the consistency of smooth cream is achieved, using a mechanical whisk if possible.
- Allow to stand for a few minutes; the mortar will 'false' set. Re-stir, the mortar should remain useable for approximately 20 minutes with occasional further stirring.
- Do not add extra water to the mix when re-stirring.
- Do not mix more mortar than can be used within 20 minutes.



Replastering and decorating

Replastering using a salt retardant render additive such as **Triton TRIMIX 1** is essential if hygroscopic salts and residual moisture are to be successfully held back.

The substrate to be rendered should be prepared in accordance with the good practice. Surfaces should be clean, sound and free from contaminating residues of gypsum plasters, bitumen coatings, etc. apply two coats of render, the first being a 3:1 washed sharp sand : portland cement mix with **Triton TRIMIX 1** * incorporated in the gauging liquid. Apply a minimum thickness of 10mm. Second coat being a 4:1 washed sharp sand : portland cement mix but without the **Triton TRIMIX 1**. A mortar plasticizer may be used if required. Apply to a thickness of 10mm. The finish coat should be a porous skim plaster applied when the cement render coats are fully cured.

* Refer to the **Triton TRIMIX 1** data sheet for full usage instructions.

Once replastering is complete and dry, one coat of trade Matt emulsion can be applied (NO WALLPAPERS OR OIL BASED PAINTS).

Specification

NBS Clause C45 30,220 Damp Proof course renewal/insertion

Wall Thickness MM/Inches	225mm/9"	280mm/11"	350mm/13"	460mm/18"
Consumption Kg/Linear Metre	1.1 Kg	1.4 Kg	1.8 Kg	2.4 Kg

Storage and Packaging

- **Triton INJECTION MORTAR** is supplied in 25kg lined paper sack and should be stored in a dry, frost free, enclosed area.
- Un-opened bags have a shelf life of 12 months.

Precautions

See separate Health & Safety sheet.

For further information please contact:

Triton Chemical Manufacturing Co Ltd T/a Triton Systems

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Email: info@tritonsystems.co.uk

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Triton RENOVATING PLASTER

Identification

Pre-blended and dry-bagged, **Triton RENOVATING PLASTER** is a lightweight, cementitious plaster which has been developed to control dampness passing through plastered walls of old properties. It can also be applied after insertion of a new damp-proof course or system.

Refer to BS 4049. Use in accordance with recommendations in BS 5492.

Description

Composition and manufacture

Triton RENOVATING PLASTER is manufactured under strictly controlled conditions to ensure consistency.

It is designed to have similar properties to a 1:1:6 cement:lime:sand plastering mortar, but with Perlite lightweight aggregate replacing the sand. Man-made fibres are incorporated into the mix to control shrinkage and improve flexural strength.

Density

Typical test results in KG/m³

Dry-Bulk as supplied	600
Set and Air Dried	800
Set and Oven Dried	725

Appearance

Ex-works as supplied	Fine Grey Powder
Set & Dried after application	Light Grey Keyed Finish

Performance

Strength:- Based on typical results. N/mm² at 28 days.

Compressive	3.0
Flexural	1.4
Modulus of elasticity	2,100

Effects of Moisture

Not impervious to water vapour, but will resist the passage of soluble salts.

Biological

The special constituents including lime in **Triton RENOVATING PLASTER** ensure an alkalinity, which inhibits mould growth.



Thermal

Moisture by Volume	0%	3%
Thermal conductivity (K) W/m°C	0.13	0.21
Thermal Resistance (R)		
At 13mm overall thickness m ² C/W		
At 3% moisture by volume		0.058

The above data obtained from CIBS A3 Guide: Thermal Properties of Building Structures, 1980.

Fire Resistance

Triton RENOVATING PLASTER is non-combustible as defined in BS 476: Part 4, and can be designated Class 0 in accordance with the requirements of the National Building Regulations for use as a surface finishing material.

Compatibility

Triton RENOVATING PLASTER is compatible with most building materials. The waterproofing additive and lime content in **Triton RENOVATING PLASTER** minimizes efflorescence and rusting of metal lathing and conduits, at the same time controlling pattern staining and mould growth.

Triton Plasters are not recommended for use over plasterboards, backgrounds having a bituminous coating or traces of gypsum.

Durability

Providing the installation of the damp-proof course and application of the plaster has been carried out correctly. **Triton RENOVATING PLASTER** should remain effective as long as the damp-proof course or system itself.

Applications

Uses: For plastering most traditional background materials during renovation work and also following the installation of a new damp-proof course or system.

Health & Safety

- Not hazard under normal conditions of use.
- For full information consult the relevant Material Safety Data Sheet.

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Ref: Triton Renovating Plaster 07/11



Triton TRIMIX 1

Description and Use

Triton TRIMIX 1 is a water and salt resistant additive for cement mortars. Added to properly formulated mortars, **Triton TRIMIX** improves workability of the mix and after curing, imparts water repellency and salt resistance. In addition **Triton TRIMIX** reduces the amount of water required to provide a workable mix and hence produces a more dense render. **Triton TRIMIX** is suitable for use in mortars and renders for both internal and external use, it is particularly recommended for use in internal cement rendering (replastering) of walls, which have received a chemical damp-proof course.

Safety & Composition

Triton TRIMIX 1 is an alkali metal soap of aliphatic fatty acids dissolved in water. The concentrate is mildly alkaline (about pH9).

Physical Properties

Appearance	Pale Blue Liquid
Odour	Faint Fatty Odour
Specific Gravity	0.99 – 1.01
Solubility	Disperse in water to give a clear or slightly turbid solution
Solvent	Water

Dilution for Use

Dilute 1 litre with water to make 25 litres.

The diluted **Triton TRIMIX** should be used as gauging water without further dilution.

Walls affected by rising dampness

Triton TRIMIX 1 is specially formulated for addition to cement mortars intended for replastering walls affected by rising dampness. The following specification is recommended. It is important to remember that no additive will convert a poor mix to a good one.

Materials

- **Cement** Use ordinary Portland cement to BS 12 or sulphate resisting cement to BS 4027.
- **Sand** Use sharp washed natural sand free from silt, clay and dust or excessive amounts of limestone. The sand should be graded to comply with BS 1199: 1976 table 1, Grade A or BS882: 1983 table 5, Grade M.
- 1st Coat** Use 1 part by volume of cement to 3 parts by volume of sand. Measurements should be made using a gauging box. Mix and add the minimum volume of diluted **Triton TRIMIX** compatible with the production of a workable mix.
Apply to give a 10mm thickness.



Apply to set, lightly finishing with a wooden float. If necessary bind with sand to form a key.

2nd Coat The second coat should be applied without the addition of **Triton TRIMIX** and should be applied after the 1st coat has set, but before it has dried. This is because when dry, the 1st coat (the **TRIMIX** coat) will become water repellent and keying of the 2nd coat will be impaired.

The 2nd coat may be 1 to 3.5 or 1 to 4 cement sand mix.

Finishing Coat The finish coat should be a porous lightweight plaster skim applied after the cement render coats are fully cured.

Redecoration

Plaster and renderings should be allowed to dry out thoroughly before any redecoration is carried out, only then can one coat of trade matt emulsion be used. Do not decorate permanently for at least 12 months (longer on thick walls) until such time as all residual moisture has dried out from the walls. Avoid the use of oil-based paints and other impermeable coatings and coverings.

Specification

NBS Clause M20 62,449 Plastered / Rendered / Roughcast coatings

Storage

- Store in the original container in a safe place.
- Protect from frost.

Packaging

Triton **TRIMIX 1** is supplied in 5 litre and 25 litre containers.

Precautions

See separate Health & Safety sheet.

For further information please contact:

Triton Chemical Manufacturing Co Ltd T/a Triton Systems

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

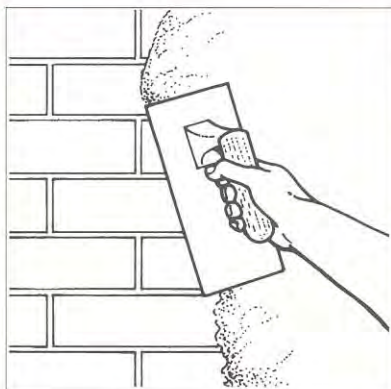
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Ref: Triton TRIMIX 1 06/11

TRIMIX 1 REPLASTERING ADDITIVE**Product**

- THIS DETAIL SHEET RELATES TO TRIMIX 1 REPLASTERING ADDITIVE FOR USE WITH CEMENT MORTARS TO PROVIDE WATER REPELLENCY AND SALT RESISTANCE FOR INTERNAL REPLASTERING ON EXISTING INTERNAL WALLS AFFECTED BY RISING DAMP.

This Detail Sheet must be read in conjunction with the Front Sheets, which give the product's position regarding the Building Regulations, general information relating to the product, and the Conditions of Certification, respectively.

Technical Specification**1 Description**

1.1 Trimix 1 Replastering Additive, a water and salt resistant additive for cement-based renders, is an alkali metal salt of an aliphatic fatty acid dissolved in water. The concentrate is mildly alkaline.

1.2 The product is diluted for use with 1 litre of the concentrate made up with water to a total of 25 litres of solution.

2 Delivery and site handling

2.1 The concentrate is supplied in 1 litre, 5 litre and 25 litre containers. The product should be stored in a cool, dry area and protected from frost.

2.2 The product is classified as 'Irritant' under the Chemicals (Hazard Information and Packaging for Supply) Regulations 1994.

2.3 Each container bears the manufacturer's markings, dilution, and the BBA identification mark incorporating the number of this Certificate.

Design Data**3 General**

3.1 Trimix 1 Replastering Additive is satisfactory for use in application to walls of all types of masonry where there has been rising damp and a remedial dpc treatment has been conducted.

3.2 The product should be used with Portland cement to BS 12 : 1996, or sulphate-resisting cement to BS 4027 : 1996. Replastering mortars should be mixed using sharp washed natural sand to BS 1199 : 1976 or BS 882 : 1992.

3.3 Renovating plaster should be applied using the normal procedures in BS 5492 : 1990 at a thickness of 10 mm and finished using 2 mm of a porous finishing plaster.

4 Durability

The addition of the product to the cementitious replastering mortar mixture will not affect the durability of the equivalent traditional mortar to BS 5492 : 1990.

Installation**5 General**

5.1 A remedial chemical damp-proofing treatment (see the appropriate Detail Sheet) is conducted in accordance with BS 6576 : 1985 and the BWPDA Code of Practice : 1997.

5.2 The standard of installation should comply with BS 8000 : Part 10 : 1995.

5.3 Replastering should not normally be conducted for at least 14 days after the remedial dpc installation.

5.4 If the background is impermeable and offers little suction (ie where rising damp has occurred in the mortar joints) the joints are raked out to provide a mechanical key and a cement slurry is applied to the surface and the wall is replastered immediately.

6 Preparation

6.1 All plaster is removed to a height of 450 mm above the highest level of dampness or salt. A moisture meter should be used to detect the affected areas.

6.2 Existing skirtings, architraves and any other surface timbers are removed.

6.3 Brickwork is stripped bare and mortar joints raked out to provide a key.

6.4 Timber fixing grounds and any built-in timbers are removed. Plastics fixings should be used where possible and new timber fixings pretreated.

6.5 Having ensured a good key for replastering, the surface is dubbed out where necessary, using 1:3 cement/sharp sand mix.

7 Replastering

7.1 The quantities, given by volume, in sections 7.2 to 7.6 should be measured in a gauging box.

First coat

7.2 The first coat is mixed using 1 part Portland cement to BS 12 : 1996, class 42.5, to 3 parts washed sharp sand to BS 882 : 1992, type M, or to BS 1199 : 1976, Table 1.

7.3 This mix is gauged with a 1:24 solution of the product and clean, potable water. It is important that the minimum amount of water is used compatible with workability.

7.4 This first coat is applied at a minimum thickness of 10 mm.

Second coat

7.5 The second coat is mixed using 1 part Portland cement to 4 parts washed sharp sand (materials as defined in section 7.2).

7.6 The gauging water should not contain any of the product; the minimum amount of water should be used to produce a compatible mix for workability. If necessary, a workability aid may be used.

7.7 The second coat is applied at a minimum thickness of 10 mm after the first coat has set but before it has fully cured. If the first coat is allowed to cure and dry, the surface will become water repellent and will not bond to the second coat.

Finishing coat

7.8 The plaster undercoat is allowed to cure and either a board finish or similar proprietary finishing plaster is applied.

Bibliography

BS 12 : 1996 *Specification for Portland cement*

BS 882 : 1992 *Specification for aggregates from natural sources for concrete*

BS 1199 : 1976(1996) *Specifications for building sands from natural sources*

BS 4027 : 1991 *Specification for sulfate-resisting Portland cement*

BS 5492 : 1990 *Code of practice for internal plastering*

BS 6576 : 1985 *Code of practice for installation of chemical damp-proof courses*

BS 8000 *Workmanship on building sites*
Part 10 : 1995 *Code of practice for plastering and rendering*

British Wood Preserving and Damp-proofing Association Code of Practice *The Installation of Remedial Damp-proof Courses in Masonry Walls* : January 1997



On behalf of the British Board of Agrément

Chief Executive

Date of Second issue: 11th October 1999

**Original Certificate issued on 22nd November 1995. This amended version includes reference to change of Certificate holder's name.*



Triton TRI-REND

WATERPROOFING, SALT INHIBITING AND PLASTICISING ADDITIVE FOR SAND AND CEMENT RENDERS AND MORTARS.

Description and Use

Triton TRI-REND is a water and salt resistant additive for cement mortars. Added to properly formulated mortars, **Triton TRI-REND** improves workability of the mix and after curing, imparts water repellency and salt resistance. In addition **Triton TRI-REND** reduces the amount of water required to provide a workable mix and hence produces a more dense render. **Triton TRI-REND** is particularly recommended for use in mortars used for internal cement rendering (replastering) of walls affected by rising dampness.

Safety & Composition

Triton TRI-REND is an alkali metal soap of aliphatic fatty acids dissolved in water. The concentrate is alkaline (about pH 11)

Physical Properties

Appearance	Pale Yellow Liquid
Odour	Faint Fatty Odour
Specific Gravity	1.01 – 1.04
Solubility	Disperse in water to give a clear or slightly turbid solution
Solvent	Water

Dilution for Use

Dilute 1 litre with water to make 40 litres.

The diluted **Triton TRI-REND** should be used as gauging water without further dilution.

Walls affected by rising dampness

Triton TRI-REND is specially formulated for addition to cement mortars intended for replastering walls affected by rising dampness. The following specification is recommended. It is important to remember that no additive will convert a poor mix to a good one.

Materials

- **Cement** Use ordinary Portland cement to BS 12 or sulphate resisting cement to BS 4027.
- **Sand** Use sharp washed natural sand free from silt, clay and dust or excessive amounts of limestone. The sand should be graded to comply with BS 1199: 1976 table 1, Grade A or BS882: 1983 table 5, Grade M.



- 1st Coat** Use 1 part by volume of cement to 3 parts by volume of sand. Measurements should be made using a gauging box. Mix and add the minimum volume of diluted **Triton TRI-REND** compatible with the production of a workable mix.
Apply to give a 10mm thickness.
Apply to set, lightly finishing with a wooden float. If necessary bind with sand to form a key.
- 2nd Coat** The second coat should be applied without the addition of **Triton TRI-REND** and should be applied after the 1st coat has set, but before it has dried. This is because when dry, the 1st coat (the **TRI-REND** coat) will become water repellent and keying of the 2nd coat will be impaired.
- The 2nd coat may be 1 to 3.5 or 1 to 4 cement sand mix.
- Finishing Coat** The finish coat should be a porous lightweight plaster skim applied after the cement render coats are fully cured.

Redecoration

Plaster and renderings should be allowed to dry out thoroughly before any redecoration is carried out, only then can one coat of trade matt emulsion be used. Do not decorate permanently for at least 12 months (longer on thick walls) until such time as all residual moisture has dried out from the walls. Avoid the use of oil-based paints and other impermeable coatings and coverings.

Specification

NBS Clause M20 62,449 Plastered / Rendered / Roughcast coatings

Storage

- Store in the original container in a safe place.
- Protect from frost.

Packaging

Triton TRI-REND is supplied in 5 litre and 25 litre containers.

Related Products

- | | |
|---------------------------------------------------------|------------------|
| ▪ Cementitious waterproof coating for below ground work | TT55 |
| ▪ Fast setting compound for plugging leaks | TRITON QUICK SET |
| ▪ Latex admix | SBR |

Precautions

See separate Health & Safety sheet.

For further information please contact:

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