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BBA BRITISH BOARD OF AGRÉMENT
TECHNICAL APPROVALS FOR CONSTRUCTION

Designated by Government to issue European Technical Approvals

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Agrément Certificate No 89/2138
*Fourth issue**

THOROSEAL AND THOROSEAL SUPER

Produit d'étanchéité hydraulique
Hydraulisch Dichtungsmittel

Product

- *THIS CERTIFICATE OF CONFIRMATION REPLACES CERTIFICATE No 85/1500/C AND RELATES TO THOROSEAL AND THOROSEAL SUPER, CEMENTITIOUS WATERPROOFING COMPOUNDS.*
- *Thoroseal and Thoroseal Super are used in two coats for internal or external waterproofing of new or existing structures of concrete, brickwork and blockwork, or to waterproof water retaining structures.*
- *The products are for application by brush, broom or spray by competent contractors.*

Confirmation of Belgian Agrément No ATG 1727 issued by the Union Belge pour l'Agrément technique dans la construction (UBAtc) to Thoro NV.

Regulations

1 The Building Regulations 2000 (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 waterproofing — tanking (walls and floors) with the Building Regulations. In the opinion of the BBA, Thoroseal and Thoroseal Super, if used in accordance with the provisions of this Certificate, will meet the relevant requirements listed below.

Requirement:	C4	Resistance to weather and ground moisture
Comment:		The products adequately resist the passage of moisture.
Requirement:	Regulation 7	Materials and workmanship
Comment:		The products are acceptable. See section 13 of this Certificate.

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

In the opinion of the BBA, Thoroseal and Thoroseal Super, if used in accordance with the provisions of this Certificate, will satisfy or contribute to satisfying the various Regulations and related Technical Standards as listed below.

Regulation:	10	Fitness of materials and workmanship
Standard:	B2.1	Selection and use of materials, fittings, and components, and workmanship
Comment:		The products are acceptable. See section 13 of this Certificate.
Regulation:	17	Resistance to moisture
Standard:	G2.6	Preparation of a site and resistance to moisture from the ground — Resistance to moisture from the ground
Comment:		The products adequately resist the passage of moisture.

3 The Building Regulations (Northern Ireland) 2000

In the opinion of the BBA, Thoroseal and Thoroseal Super, if used in accordance with the provisions of this Certificate, will satisfy or contribute to satisfying the various Building Regulations as listed below.

Regulation:	B2	Fitness of materials and workmanship
Comment:		The products are acceptable. See section 13 of this Certificate.
Regulation:	C4	Resistance to ground moisture and weather
Comment:		The products adequately resist the passage of moisture.

4 Construction (Design and Management) Regulations 1994 (as amended)
Construction (Design and Management) Regulations (Northern Ireland) 1995 (as amended)

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

See section: *6 Delivery and site handling.*

Technical Specification

5 Description

5.1 Thoroseal and Thoroseal Super are cementitious compounds containing cement, graded sands, aggregates, and chemical additives. They are supplied in powder form to be mixed with water on site and applied as a slurry.

5.2 Thoroseal contains no polymer additive but may be mixed with Acryl 60 (acrylic bonding agent admixture) when application is to be made over smooth and non-absorbent substrates.

5.3 Thoroseal Super is a one-part product, whose formulation includes a spray-dried acrylic polymer.

5.4 The products are produced by a continuous batch blending process and are available in grey and white.

5.5 Quality control checks are carried out on the raw materials, and the finished products are checked for:

sieve analysis
flexural and compressive strength
setting time.

5.6 Waterplug is a cement-based, quick-setting hydraulic compound, used to staunch running water or seepage through concrete or masonry.

6 Delivery and site handling

6.1 Thoroseal and Thoroseal Super are packed in 25 kg moisture-proof paper sacks or metal containers. Each container carries a label bearing the BBA identification mark incorporating the number of this Certificate.

6.2 The products are cement-based products and must be stored in dry conditions.

6.3 Acryl 60 must be protected from frost.

Design Data

7 General

7.1 Thoroseal and Thoroseal Super, when used in the proportions defined in section 16 of this Certificate in two coats, provide an effective barrier against the transmission of liquid water and can be applied without difficulty to brickwork, blockwork or concrete substrates by competent contractors.

7.2 The products are satisfactory for use:

(a) for interior and exterior waterproofing of concrete, brickwork, stone and blockwork structures

(b) for waterproofing concrete floors, or

(c) as a waterproofing system, eg for reservoirs and pools.

7.3 New buildings must be designed to withstand the hydrostatic pressure expected in service.

7.4 The products may be installed under most normal site conditions, but external application should not be attempted during rain nor at temperatures below 5°C.

7.5 Before application, all surfaces must be clean, sound, and free from previous coatings.

7.6 Continuity should be maintained with any membrane (new or existing) in the basement floor using a flexible waterproof joint.

8 Resistance to movement

Thoroseal and Thoroseal Super are unable to accommodate movement due to settlement and can only be used where settlement is not anticipated, or in conjunction with waterproof movement joints.

9 Fixings

9.1 Special measures are necessary to avoid breaching the waterproof rendering when attaching fixings. The measures include:

(a) the use of epoxy resin or polyurethane adhesives to bond lightweight fixings to the coated surface

(b) recesses made in the substrate to accept heavy duty fittings are filled with Waterplug to form waterproof pockets, and

(c) the use of floor standing supports.

9.2 If these techniques cannot be applied and it is necessary to breach the coating, recesses in the substrate must be packed with Waterplug.

10 Sulphate resistance

10.1 Thoroseal and Thoroseal Super are based on Portland cement and, when used conventionally, may be used in soils of Design Sulphate Class DS-1 as defined in BRE Special Digest 1 *Concrete in aggressive ground*, Part 1 : *Assessing the aggressive chemical environment* (see Table 1).

Table 1 Concentrations of sulphates

Class	In soil		
	Total SO_4 (%)	SO_4 in 2:1 water:soil extract (g per litre)	In ground water (g per litre)
DS-1	less than 0.24	less than 1.2	less than 0.4

10.2 Where the brickwork has a high sulphate content, or is efflorescing, the advice of the marketing company should be sought.

10.3 The Certificate holder can provide an analysis service on samples of substrate, soil and groundwater.

11 Resistance to damage

11.1 The coating is vulnerable to damage during installation, and in service, particularly in heavily

trafficked areas where there is a risk of impact or abrasion.

11.2 Coatings of Thoroseal and Thoroseal Super on walls should be protected, for example, by a sand/cement mix, or a proprietary cement-based plaster.

12 Internal application on a basement wall

12.1 If Thoroseal or Thoroseal Super are applied to the inside of a basement wall, the wall structure will remain cold and wet, with subsequent risks of condensation and frost damage.

12.2 The condensation risk can be minimised by the application of a coat of proprietary lightweight cement-based plaster.

13 Durability

Under normal conditions of use, Thoroseal and Thoroseal Super will provide an effective barrier to the transmission of liquid water for the life of the building to which they are applied.

Installation

14 General

All workmanship using Thoroseal and Thoroseal Super should comply with BS 8000-4 : 1989.

15 Surface preparation

15.1 Before application, all mortar joints must be flush-pointed, defects made good and irregular surfaces given a trowelled or floated finish with a sand/(lime)/cement mix.

15.2 Water infiltration through the surface to be treated is either diverted by drainage or concentrated at weepholes which will be plugged with Waterplug after the application of the final coat.

15.3 All surfaces must be free from existing coatings or contamination (eg paint, laitance, dirt).

15.4 A new concrete surface may be bush-hammered or grit-blasted to remove any surface laitance.

15.5 If the surface shows frost damage, the affected area is removed and replaced before the product is applied.

16 Application

16.1 Thoroseal and Thoroseal Super are applied at temperatures of 5°C and above.

16.2 A slurry is prepared by mixing (preferably by machine) 25 kg of the product with potable water, in clean containers, in the following ratios. Care must be taken to avoid the formation of lumps:

Thoroseal — 6 litres of water
Thoroseal Super — 5 to 5.8 litres of water.

16.3 If Acryl 60 is used with Thoroseal, it is added to the mixing water in the ratio, one part Acryl 60 to three parts of water.

16.4 If it is not already wet, the substrate must be saturated before Thoroseal is applied but it must be free from surface water.

16.5 Thoroseal and Thoroseal Super are applied to the substrate in two coats. The base coat is applied using a brush with stiff nylon bristles at an average coverage rate of 1.5 kgm^{-2} on concrete or up to 4 kgm^{-2} on other substrates for Thoroseal and 1.5 kgm^{-2} to 2.5 kgm^{-2} for Thoroseal Super.

16.6 The first coat of Thoroseal or Thoroseal Super is vigorously brushed into the surface. Application should be carried out so that a flowing edge is maintained. If this is not possible, when application is continued, the previously applied coat should be overlapped by at least 200 mm.

16.7 After the first coat has hardened (after a minimum of 24 hours), the second coat may then be applied by Tampico brush, spray or trowel at an average coverage rate of:

Thoroseal — 1 kgm^{-2}
Thoroseal Super — 1.5 kgm^{-2} to 2.0 kgm^{-2}.

16.8 Each coat is examined for damage and areas of incomplete coverage before the next coat is applied.

16.9 Mixed Thoroseal or Thoroseal Super should be used within one hour.

16.10 Once the final coating has fully hardened, the weepholes should be filled using Waterplug. A coat of proprietary cement-based plaster or sand/cement mix may be applied to protect it from damage during service.

16.11 Floors waterproofed with Thoroseal or Thoroseal Super are protected by a screed.

Technical Investigations

The following is a summary of the technical investigations carried out on Thoroseal and Thoroseal Super.

17 Tests and investigations

17.1 The following tests and investigations were carried out as part of the assessment leading to the issue of the previous Certificate:

(1) Tests were carried out by the UBAtc on Thoroseal and Acryl 60 to determine:

curing characteristics
resistance to water pressure
flexural strength
compressive strength
water vapour permeability
coefficient of thermal expansion
modulus of elasticity
resistance to frost
shrinkage and swelling
adhesion to substrates.

(2) An examination was made of existing data relating to:

effect of Acryl 60 additive
effective life
impact resistance
abrasion resistance
resistance to wind-driven rain
resistance to weathering
resistance to salt-spray
resistance to fungal growth
resistance to freeze/thaw
water absorption
toxicity.

(3) A report by the Amtliche Materialprüfanstalt für Steine und Erden on the performance of Thoro installations in Germany, dating from 1982, was examined.

(4) The data in the Belgian Agrément No ATG 1494 were assessed in the context of UK waterproofing and building regulations.

(5) A visit was made to a site in progress to assess the practicability of installation.

(6) A survey of known users was conducted to assess the performance of the product in use.

17.2 The following tests and investigations were carried out as part of the assessment leading to the issue of this Certificate:

(1) Tests were carried out by the BBA on Thoroseal Super to determine:

product characteristics
water vapour permeability.

(2) An examination was made of existing data relating to:

resistance to water pressure
shrinkage and swelling (comparative)
compressive strength (comparative)
flexural strength (comparative)
density (comparative).

18 Investigations

18.1 The following investigations were carried out as part of the assessment leading to the issue of this Certificate:

(1) A re-examination was made of the data and investigations on which the previous Certificate was based. The original conclusions remain valid.

(2) An assessment was made of the data in the replacement Belgian Agrément No ATG 1727.

(3) A user-survey was conducted to evaluate the product's performance in use.

18.2 Regular factory inspections have been carried out to ensure that quality is being maintained.

18.3 No failure of the product in use has been reported to the BBA.

Additional Information

The management systems of MBT Feb have been assessed and registered as meeting the requirements of BS EN ISO 9001 : 1994 by the British Standards Institution Quality Assurance (Certificate No FM01779).

Bibliography

BS 8000-4 : 1989 *Workmanship on building sites — Code of practice for waterproofing*

BS EN ISO 9001 : 1994 *Quality systems — Model for quality assurance in design, development, production, installation and servicing*

Conditions of Certification

19 Conditions

19.1 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.

19.2 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.

19.3 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) remain covered by a valid Belgian Agrément; and

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

19.4 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.

19.5 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.

BBA BRITISH BOARD OF AGRÉMENT
TECHNICAL APPROVALS FOR CONSTRUCTION

In the opinion of the British Board of Agrément, Thoroseal and Thoroseal Super are fit for their intended use provided they are installed, used and maintained as set out in this Certificate. Certificate No 89/2138 is accordingly awarded to MBT Feb.

On behalf of the British Board of Agrément

Date of Fourth issue: 25th March 2003

Chief Executive

**Original Certificate issued on 11th January 1989. This amended version includes change of Certificate holder's name, reference to the revised national Building Regulations, CDM Regulations, revised Standards, and new* Conditions of Certification.

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