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**Agrément
Certificate
No 06/4380**

Designated by Government
to issue
European Technical
Approvals

PmB TANKING WATERPROOFING SYSTEM

Revêtement d'étanchéité
Abdichtungen

Product




• THIS CERTIFICATE REPLACES CERTIFICATE No 01/3851 AND RELATES TO THE PmB TANKING WATERPROOFING SYSTEM, INCORPORATING A TWO-PART, SPRAY-APPLIED, BLUE-PIGMENTED POLYURETHANE ELASTOMER.

• The system is for use as a damp-proof and waterproof membrane, eg on solid concrete floors and underground structures, and for internally and externally applied tanking below ground.

• The system is marketed and installed by the Certificate holder.

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 damp-proof membranes with the Building Regulations. In the opinion of the BBA, the PmB Tanking Waterproofing System, if used in accordance with the provisions of this Certificate, will meet or contribute to meeting the relevant requirements.

Requirement: C2(a)

Resistance to moisture

Comment:

The system will meet this Requirement. See section 8.1 of this Certificate.

Requirement: Regulation 7

Materials and workmanship

Comment:

The system is an acceptable material. See section 12 of this Certificate.

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2 The Building (Scotland) Regulations 2004



In the opinion of the BBA, the PmB Tanking Waterproofing System, if used in accordance with the provisions of this Certificate, will satisfy or contribute to satisfying the various Regulations and related Mandatory Standards as listed below.

Regulation:	8	Fitness and durability of materials and workmanship
Regulation:	8(1)	Fitness and durability of materials and workmanship
Comment:		The system can contribute to a construction meeting this Regulation. See section 12 and the <i>Installation</i> part of this Certificate.
Regulation:	9	Building standards — construction
Standard:	3.4	Moisture from the ground
Comment:		The system can enable a wall and/or floor to satisfy the requirements of this Standard, with reference to clauses 3.4.1 ⁽¹⁾⁽²⁾ , 3.4.2 ⁽¹⁾⁽²⁾ and 3.4.4 ⁽¹⁾⁽²⁾ to 3.4.7 ⁽¹⁾⁽²⁾ respectively. See section 8.1 of this Certificate.
Regulation:	12	Building standards — conversions
Comment:		All comments given for this system under Regulation 9, also apply to this Regulation, with reference to clause 0.12.1 ⁽¹⁾⁽²⁾ and Schedule 6 ⁽¹⁾⁽²⁾ . (1) Technical Handbook (Domestic). (2) Technical Handbook (Non-Domestic).

3 The Building Regulations (Northern Ireland) 2000



In the opinion of the BBA, the PmB Tanking Waterproofing System, if used in accordance with the provisions of this Certificate, can satisfy or contribute to satisfying the various Building Regulations as listed below.

Regulation:	B2	Fitness of materials and workmanship
Comment:		The system comprises acceptable materials. See section 12 of this Certificate.
Regulation:	C4	Resistance to ground moisture and weather
Comment:		The system can enable a floor or structure to satisfy the requirements of this Regulation. See section 8.1 of this Certificate.

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 sections: 5 *Description* (5.1) and 6 *Delivery and site handling* (6.1 and 6.3).

Technical Specification

5 Description

5.1 The PmB Tanking Waterproofing System comprises:

- Pitchmastic PMCS/01 Primer — a single-component, solvent-based primer containing di-phenylmethane di-isocyanate
- PmB Waterproofing — a two-part, solvent-free, blue-pigmented polyurethane elastomer, comprising; Part A, PmB TP PU 0308/catalyst/blue pigment and Part B, Desmodur TP PU 0309.

5.2 The components of the system are manufactured by a batch-blending process. A series of quality control checks is conducted on each batch and on the combined components.

6 Delivery and site handling

6.1 The components of the system are delivered as detailed in Table 1.

Table 1 Weights and packaging

Component	Weight	Container	Shelf-life (months)
Pitchmastic Primer	2.5 kg, 25 kg	Metal drums	6
PmB Waterproofing	60 kg, 1 tonne IBC	Plastic drum/ tankers	6

6.2 The waterproofing components are transferred into bulk storage vessels, located on the spray vehicle, and maintained at 50°C to 80°C prior to spraying. Both components are hygroscopic; however, when stored in tightly-sealed containers they will remain stable for at least six months.

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6.3 The components are classified under The Chemicals (Hazard Information and Packaging for Supply) Regulations 2002 (CHIP3) and all containers bear the appropriate hazard warning label(s). Flashpoints and hazard classification are given in Table 2.

Table 2 Flashpoint and hazard classification

Component	Flashpoint (°C)	Classification
Primer (PMCS/01)	3	Highly flammable/Harmful
Part A (0308)	165	Harmful
Part B (0309)	>200	Harmful

Design Data

7 General

7.1 The PmB Tanking Waterproofing System is satisfactory for use as a damp-proof membrane for solid ground floors and/or waterproof membrane for below ground structures in accordance with the relevant requirements of CP 102 : 1973, BS 8102 : 1990 and the Certificate holder's instructions.

7.2 The system is compatible with concrete, smooth brickwork, blockwork and screeded substrates, and is resistant to those chemicals likely to occur in normal service conditions.

8 Weathertightness

8.1 Tests confirm that the system will adequately resist the passage of moisture from the ground and so meet the requirements of the national Building Regulations:

England and Wales

Approved Document C2(a), Section 4.7

Scotland

Mandatory Standard 3.4, clauses 3.4.2⁽¹⁾⁽²⁾ and 3.4.4⁽¹⁾⁽²⁾ to 3.4.7⁽¹⁾⁽²⁾

(1) Technical Handbook (Domestic).

(2) Technical Handbook (Non-Domestic).

Northern Ireland

Regulation C4.

8.2 The system is impervious to water and will give a waterproof layer capable of accepting minor structural movements without damage.

9 Resistance to puncture

Tests indicate that the system has adequate resistance to damage that might be caused by sharp implements or stones. However, unnecessary traffic should be avoided.

10 Adhesion and stability

Test results indicate that the adhesion of the system to a properly prepared substrate is satisfactory. The system can accommodate minor movements likely

to occur under normal service conditions in the structure in which it is incorporated.

11 Maintenance and repair

Any damage to the membrane during construction works can be adequately repaired prior to the application of protection or backfilling in accordance with the Certificate holder's instructions and section 16 of this Certificate.

12 Durability

When subjected to normal service conditions, the system will provide an effective barrier to the transmission of liquid water for the life of the structure in which it is incorporated.

Installation

13 General

13.1 The PmB Tanking Waterproofing System must be installed in accordance with the relevant requirements of CP 102 : 1973, Section 2, or BS 8102 : 1990 and the Certificate holder's instructions. Additional guidance on the use of dpm materials is available in BS 8000-4 : 1989.

13.2 Concrete or screeded surfaces should have a smooth finish, free from cavities, loosely-adhering material and sharp protrusions. Surfaces should be dry and free from oil, grease, curing compounds, moss, algae growth, bituminous products, dust and frost.

13.3 Vertical surfaces of brickwork and blockwork should preferably be rendered to provide an even surface.

13.4 Unrendered brickwork or blockwork must be flush-pointed to give a smooth surface without sudden changes in level.

13.5 The system can be installed in all normal dry site conditions; however, during any application, the substrate temperature must be above dew-point. In addition, suitable precautions must be taken to prevent moisture contamination.

14 Construction

14.1 Substrates should be primed and allowed to dry prior to the application of the system, see section 15.1.

Solid concrete floors

14.2 It is essential to extend the system in the floor up internal wall surfaces as far as the damp-proof course, and tie it in with the damp-proof course to form a continuous waterproof membrane. A sand/cement screed should be laid as soon as possible after application.

External tanking

14.3 The system is applied to the sub-base to a minimum of 200 mm beyond the proposed

external wall line. After construction of the wall, the system on the sub-base should be cleaned with a suitable solvent, prior to overcoating and extending up the vertical face.

14.4 The system does not require additional protection, but care should be taken during backfilling as per good site practice.

Internal tanking

14.5 The system is applied to the surfaces to be waterproofed.

14.6 In all instances, to resist the action of external water pressure, a wall (preferably of concrete) should be constructed immediately after the application of the system. Where brickwork or blockwork is used, it should be set 40 mm away from the coated wall and the void thoroughly filled with sand/cement mortar to resist the action of external water pressure.

15 Application procedure

Primer

15.1 Pitchmastic PMCS/O1 primer can be applied by spray, roller or brush at a coverage rate of 40 gm^{-2} to 65 gm^{-2} dependent on the porosity of the concrete.

15.2 The primer can be oversprayed with PmB waterproofing membrane at any time, within 24 hours of application, provided the primed surface is clean and dry.

15.3 If the 24 hours is exceeded or the primed surface becomes wet due to rain or condensation, the primer should be abraded and the area re-primed.

Waterproofing membrane

15.4 PmB waterproofing, components Part A and Part B are stored in temperature-controlled tanks, maintained at 50°C to 80°C , within the spray equipment plant during application.

15.5 The spray equipment is computer controlled, and maintains a Part A : Part B mix ratio of 100:96 \pm 5% by weight.

15.6 PmB waterproofing membrane, pigmented blue, is spray applied in one, two or multiple coats at a nominal coverage rate of 3.0 kgm^{-2} to give a minimum total thickness of 2 mm overall including peaks, arises and irregularities in the concrete deck.

15.7 In the two-coat system, a minimum thickness of 1 mm is applied in the first coat and allowed to dry. Within four hours the second coat is applied to bring the total minimum thickness to 2 mm. In the multiple coat system, each coat is applied within four hours of the previous coat to bring the total minimum thickness to 2 mm. Where the four-hour interval in the two-coat and multiple coat system is exceeded, application of Pitchmastic PMCS/O1

primer will be required before applying the next coat.

Lapping

15.8 Where the waterproofing membrane is to be joined to an existing PmB waterproofing membrane and at day joints, the new application should be lapped onto the existing by a minimum 100 mm.

15.9 Where the existing membrane is clean and less than four hours old, additional preparation is not necessary.

15.10 When the membrane is clean, but over four hours old, Pitchmastic PMCS/O1 primer should be applied to give a minimum margin of 20 mm greater than the lap and allowed to dry.

15.11 Where the existing membrane is dirty, the surface should be cleaned using a suitable solvent and treated as in section 15.10.

16 Repair of defects

Pin/blow holes

16.1 Within four hours of membrane application, identified pin/blow holes should be oversprayed with PmB waterproofing membrane to a minimum thickness of 2 mm.

16.2 After four hours of membrane application, the area over and around any pin/blow holes should be cleaned using a suitable solvent, ensuring a minimum 150 mm lap. The repair area should be abraded and Pitchmastic PMCS/O1 primer applied by brush or spray. A minimum of 30 minutes should be allowed for the primer to dry before the PmB waterproofing membrane is applied to a minimum thickness of 2 mm, ensuring a minimum peripheral lap of 100 mm around the repair.

Blisters and damage

16.3 These should be made good by cutting back to sound material and repairing as in sections 16.1 and 16.2.

17 On-site quality control

Site control checks are made by the Certificate holder's trained operatives in accordance with their instructions.

Technical Investigations

The following is a summary of the technical investigations carried out on the PmB Tanking Waterproofing System.

18 Tests

Samples of the system were prepared by the Certificate holder for testing. The results of the tests carried out by the BBA, which are typical values for the material, are summarised in Tables 3 and 4.

Table 3 Tests on PmB Tanking Waterproofing Membrane

Test (units)	Method ⁽¹⁾	Mean result
Water vapour permeability (75% RH/25°C (gm ⁻² day ⁻¹))	BS 3177	19.1 ⁽²⁾
Water vapour resistance (75% RH/25°C) (MNsg ⁻¹)	BS 3177	10.7
Water absorption (%)	BD 47, Appendix B : B4.1(c)	4.8
Tensile strength (Nmm ⁻²) unaged	BS EN ISO 527-3	9.5
180 days heat aged at 70°C		12.2
28 days water soak at 23°C		9.3
500 hours UV aged		10.7
Elongation at break (%) unaged	BS EN ISO 527-3	234
180 days heat aged at 70°C		324
28 days water soak at 23°C		258
500 hours UV aged		307
Resistance to water penetration	BD 47, Appendix B : B4.1(d)	satisfactory

(1) The test documents are detailed in the *Bibliography*. Numbers/letters in the table refer to sections/parts of the various documents.

(2) 2.4 mm thick sample.

Table 4 Tests on PmB Tanking Waterproofing System

Test (units)	Method ⁽¹⁾	Mean result
Resistance to chisel impact at -10°C	BD 47, Appendix B : B4.2(h)	satisfactory
23°C		satisfactory
40°C		satisfactory
Thermal shock, heat ageing and crack cycling at -10°C	BD 47, Appendix B : B4.2(j)	satisfactory
23°C		satisfactory
40°C		satisfactory
Resistance to aggregate indentation at 40°C	BD 47, Appendix B : B4.2(i)	satisfactory
80°C		satisfactory
125°C		satisfactory
Tensile adhesion to concrete at 23°C (Nmm ⁻²) unaged	BD 47, Appendix B : B4.2(d)	1.41
28 days heat aged at 70°C		1.60
28 days water soak at 23°C		1.15

(1) The test documents are detailed in the *Bibliography*. Numbers/letters in the table refer to sections/parts of the various documents.

19 Investigations

19.1 The manufacturing process was examined, including the methods adopted for quality control, and details obtained of the quality and composition of the materials used.

19.2 A visit was made to a site in progress to assess the practicability of installation.

Bibliography

BS 3177 : 1959 *Method for determining the permeability to water vapour of flexible sheet materials used for packaging*

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

BS 8102 : 1990 *Code of practice for protection of structures against water from the ground*

BS EN ISO 527-3 : 1996 *Plastics — Determination of tensile properties — Test conditions for films and sheets*

CP 102 : 1973 *Code of practice for protection of buildings against water from the ground*

BD 47/94 *Waterproofing and Surfacing of Concrete Bridge Decks, Appendix B Certification Test Requirements for Waterproofing Systems on concrete Bridge Decks*

Conditions of Certification

20 Conditions

20.1 This Certificate:

- relates only to the product/system that is named and described on the front page
- is granted only to the company, firm or person named on the front page — no other company, firm or person may hold or claim any entitlement to this Certificate
- is valid only within the UK
- has to be read, considered and used as a whole document — it may be misleading and will be incomplete to be selective
- is copyright of the BBA
- is subject to English law.

20.2 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, are references to such publication in the form in which it was current at the date of this Certificate.

20.3 This Certificate will remain valid for an unlimited period provided that the product/system and the manufacture and/or fabrication including all related and relevant processes thereof:

- are maintained at or above the levels which have been assessed and found to be satisfactory by the BBA
- continue to be checked as and when deemed appropriate by the BBA under arrangements that it will determine
- are reviewed by the BBA as and when it considers appropriate.

20.4 In granting this Certificate, the BBA is not responsible for:

- the presence or absence of any patent, intellectual property or similar rights subsisting in the product/system or any other product/system
- the right of the Certificate holder to manufacture, supply, install, maintain or market the product/system
- individual installations of the product or system, including the nature, design, methods and workmanship of or related to the installation
- the actual works in which the product/system is installed, used and maintained, including the nature, design, methods and workmanship of such works.

20.5 Any information relating to the manufacture, supply, installation, use and maintenance of this product/system which is contained or referred to in this Certificate is the minimum required to be met when the product/system is manufactured, supplied, installed, used and maintained. It does 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 information 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 manufacture, supply, installation, use and maintenance of this product/system.



In the opinion of the British Board of Agrément, the PmB Tanking Waterproofing System is fit for its intended use provided it is installed, used and maintained as set out in this Certificate. Certificate No 06/4380 is accordingly awarded to Pitchmastic PmB Ltd.

On behalf of the British Board of Agrément

Date of issue: 16th October 2006

A handwritten signature in black ink, appearing to read 'G. A. Cooper', is written over a light grey background.

Chief Executive

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British Board of Agrément

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For technical or additional information, contact the Certificate holder (see front page).
For information about the Agrément Certificate, including validity and scope, tel: Hotline 01923 665400, or check the BBA website.