



## Stirling Lloyd Polychem Ltd

Union Bank  
King Street  
Knutsford  
Cheshire WA16 6EF  
Tel: 01565 633111 Fax: 01565 633555

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**Agrement  
Certificate  
No 93/2933**  
Second issue\*

Designated by Government  
to issue  
European Technical  
Approvals

## INTEGRITANK

Revêtement d'étanchéité  
Abdichtungen

## Product



Vertical application



Horizontal application

- THIS CERTIFICATE RELATES TO INTEGRITANK, INCORPORATING A TWO-PART METHACRYLATE RESIN BASED WATERPROOF MEMBRANE APPLIED IN TWO COLOUR CODED COATS.
- 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 manufactured and marketed by Stirling Lloyd Polychem Ltd and is applied by Stirling Lloyd Polychem Ltd's authorised contractors.

## Regulations

### 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 damp-proof membranes with the Building Regulations. In the opinion of the BBA, Integritank, if used in accordance with the provisions of this Certificate, will meet the relevant requirements.

Requirement: C4	Resistance to weather and ground moisture
Comment:	When applied in accordance with this Certificate the system will meet this Requirement. See section 8.1 of this Certificate.
Requirement: Regulation 7	Materials and workmanship
Comment:	The product is an acceptable material. See section 12 of this Certificate.

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

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

Regulation: 10	Fitness of materials
Standard: B2.1	Selection and use of materials and components
Comment:	The system complies with this Standard.

continued

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Regulation:	17	Preparation of sites and resistance to moisture
Standard:	G2.6	Resistance to moisture from the ground
Comment:		The system can enable a structure to satisfy the requirements of this Standard. See section 8.1 of this Certificate.

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



In the opinion of the BBA, Integritank, if used in accordance with the provisions of this Certificate, can satisfy 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:	C5	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

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).

## Technical Specification

### 5 Description

5.1 Integritank is a waterproofing system comprising:

PA1 Primer — a single-component, solvent-based, methacrylate resin solution, for use at temperatures above 5°C.

PAR1 Primer — a single-component, solvent-free, highly reactive methacrylate resin, for use at temperatures up to 40°C.

Integritank (Spray Grade) Waterproofing — a two-part, solvent-free, methacrylate resin, comprising Part A and Part B.

Integritank (Hand Grade) Waterproofing — a single-component, solvent-free, methacrylate resin, for repair work and use in inaccessible areas.

Hardener Powder — for use in PAR1 Primer, Integritank (Spray Grade) Waterproofing Part B and Integritank (Hand Grade) Waterproofing.

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 are delivered as detailed in Table 1. When correctly stored, unopened, the products listed have a shelf life of at least six months.

Table 1 Weights and packaging

Component	Weight and packaging
PA1 Primer	5 kg, 20 kg and 190 kg supplied in metal containers
PAR1 Primer	5 kg kit 4.85 kg Primer supplied in metal containers 150 g Hardener Powder supplied in plastic bags 20 kg kit 19.4 kg Primer supplied in metal containers 600 g Hardener Powder supplied in plastic bags 200 kg kit 194 kg Primer supplied in metal containers 6 kg Hardener Powder supplied in plastic bags
Integritank (Spray Grade) Waterproofing	48 kg kit 24 kg Part A supplied in metal containers 23.04 kg Part B supplied in metal containers 960 g Hardener Powder supplied in plastic bags
Integritank (Hand Grade) Waterproofing	400 kg kit 200 kg Part A supplied in metal containers 192 kg Part B supplied in metal containers 8 kg Hardener Powder supplied in plastic bags 5 kg kit 4.85 kg supplied in metal containers 150 g Hardener Powder supplied in plastic bags 20 kg kit 19.4 kg supplied in metal containers 600 g Hardener Powder supplied in plastic bags

6.2 The components are classified under the Chemicals (Hazard Information and Packaging for Supply) Regulations 1994 (CHIPS) 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
PA1	11	Highly flammable and irritant
PAR1	30	Flammable and irritant
Spray Grade Part A	17	Highly flammable and irritant
Spray Grade Part B	17	Highly flammable and irritant
Hand grade	17	Highly flammable and irritant

## Design Data

### 7 General

7.1 Integritank is satisfactory for use in accordance with the relevant clauses of CP 102 : 1973, Section 2, or BS 8102 : 1990 as a damp-proof and/or waterproof membrane.

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 Resistance to water

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 C4, Section 3.3.

#### Scotland

Regulation 17, Standard G2.6.

#### Northern Ireland

Regulation C5.

8.2 Integritank is impervious to water and, when used and installed in accordance with this Certificate, 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 any damage that might be caused by sharp implements or stones. However, unnecessary traffic should be avoided.

### 10 Adhesion and stability

Tests indicate that the adhesion of the system to a properly prepared substrate is satisfactory. The properties of the system 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 manufacturer's instructions and section 16 of this Certificate.



When subjected to normal service conditions, Integritank 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 Integritank must be installed in accordance with the relevant requirements of CP 102 : 1973, Section 2, or BS 8102 : 1990 and the manufacturer's instructions. Additional guidance on the use of dpm materials is available in BS 8000 : Part 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 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.

13.6 New concrete should be a minimum of seven days old and preferably have a wood float finish.

13.7 Before application, tests should be carried out to ensure that the required bond of Integritank to concrete is achieved. This should be carried out in accordance with BS EN 24624 : 1993. The bond strength of Integritank to concrete should be a minimum of 0.3 Nmm<sup>-2</sup>.

### 14 Application

14.1 Substrates should be primed and allowed to dry prior to the application of Integritank (Spray Grade) and (Hand Grade) Waterproofing.

#### Solid concrete floors

14.2 It is essential to extend Integritank (Spray Grade) Waterproofing 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 should be applied to the concrete sub-base to a minimum of 200 mm beyond the proposed external wall line. After the construction of the wall the Integritank (Spray Grade) Waterproofing on the sub-base should be cleaned with a suitable solvent prior to overcoating with Integritank (Spray Grade) Waterproofing and extending up the vertical face.

14.4 The system does not require protection against backfilling.

## Internal tanking

14.5 The system should be 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 Procedure

### Priming

15.1 Priming of concrete surfaces can be carried out by spray, brush or roller. The use of PA1 Primer or PAR1 Primer will depend upon site conditions. Ponding of the primer must be avoided.

15.2 Application rates are given in Table 3.

Primer	Rate (kgm <sup>-2</sup> )	Drying time
PA1	0.15-0.25	60 mins at 20°C
PAR1	0.15-0.3	45 mins at 20°C

### Waterproofing

15.3 Integritank (Spray Grade) Waterproofing is supplied as Part A and Part B (see section 5.1). Immediately before use, the pre-weighed Hardener Powder is stirred into Part B and mixed thoroughly. Part A and Part B are metered and mixed in an airless spray unit at a rate of 1:1. Note: Part B is pigmented yellow, white or grey.

15.4 Integritank (Spray Grade) Waterproofing is spray applied in two coats, first coat pigmented yellow and second coat pigmented grey or white.

15.5 Each coat must be applied to give a minimum wet film thickness of 1.2 mm to ensure a minimum dry film thickness of 1.0 mm and a total minimum dry film thickness of 2.0 mm overall, including peaks, arrises and irregularities in the substrate. This can be achieved by a coverage rate of 1.4 kgm<sup>-2</sup> per coat on a smooth surface. This coverage rate will vary with surface irregularity.

15.6 The second coat can be applied directly onto the first coat once it has cured. This will vary with temperature but is typically 1 hour at 23°C.

### Lapping

15.7 Where the membrane is to be joined to an existing Integritank (Spray Grade) Waterproofing membrane and at day joints the new application should be lapped onto the existing by a minimum of 50 mm.

15.8 Where the existing membrane is clean, no additional preparation is necessary.

15.9 Where the existing membrane is dirty or contaminated, surface should be cleaned with a suitable solvent.

## 16 Repair of defects

### Pin/blow holes

16.1 After application of each coat, any identified pin/blow holes should be overcoated with Integritank (Spray Grade) or (Hand Grade) Waterproofing membrane with an additional minimum wet film thickness of 1.2 mm per coat.

### Blisters and damage

16.2 Any blisters or damage should be made good by cutting back to sound material, the periphery prepared if necessary as for lapping, and a repair coat of Integritank (Spray Grade) or (Hand Grade) Waterproofing membrane applied as in sections 15.5 and 15.6, ensuring a minimum peripheral lap of 50 mm around the repair.

16.3 Where the damage is through to the substrate, the exposed surface should first be cleaned and then re-primed.

## 17 On-site quality control

Site control checks should be made by the authorised contractor in accordance with manufacturer's instructions.

## Technical Investigations

The following is a summary of the technical investigations carried out on Integritank.

### 18 Tests

Samples of Integritank were obtained from the manufacturer for testing. The results of the tests carried out by the BBA, which are typical values for the material, are summarised in Tables 4 and 5.

*Table 4 Physical properties — Integritank (Spray Grade) Waterproofing*

Test (units)	Method*	Mean result
Thickness (mm)	BE27, Appendix B : Part A(ai)	2.6
Weight per unit (kgm <sup>-2</sup> )	BE27, Appendix B : Part A(aii)	3.3
Water vapour permeability (75%RH/25°C)(gm <sup>-2</sup> d <sup>-1</sup> )	BS 3177	3.36
Water vapour resistance (75%RH/25°C)(MNsg <sup>-1</sup> )	BS 3177	61.0
Dimensional stability (%)	MOAT 27 : 5.1.6.1	+0.23
Low temperature flexibility (°C)	MOAT 27 : 5.4.2	
unaged		-25
56 days heat aged at 70°C		-20
28 days water soak at 23°C		-25
Tensile strength (Nmm <sup>-2</sup> )	BS 2782 : 320A	
unaged		8.6
180 days heat aged at 70°C		10.6
28 days water soak at 23°C		9.1
500 hour UV aged		8.8
Elongation at break (%)		
unaged		117
180 days heat aged at 70°C		124
28 days water soak at 23°C		122
500 hour UV aged		123

\*The test documents are detailed in the *Bibliography*. Numbers in the table refer to sections/parts of the document.

*Table 5 Service performance — Integritank (Spray Grade) Waterproofing*

Test (units)	Method*	Mean result
Resistance to water pressure (6 metre head)	MOAT 27 : 5.1.4	no penetration
Resistance to chisel impact	BE27, Appendix B : Part C(v)	no penetration
23°C		no penetration
0°C		no penetration
Resistance to static indentation concrete substrate	MOAT 27 : 5.1.9	L <sub>4</sub>
Resistance to dynamic indentation concrete substrate	MOAT 27 : 5.1.10	I <sub>3</sub>
Resistance to cracking	BE27, Appendix B : Part C(iv)	no damage
23°C		no damage
0°C		no damage
Resistance to aggregate indentation	BE27, Appendix B : Part C(vi)	no penetration
Tensile bond strength to concrete (Nmm <sup>-2</sup> )	BE27, Appendix B : Part C(vii)	
unaged		0.62
28 days heat aged at 70°C		0.73
28 days water soak at 23°C		0.55
Resistance to sliding	MOAT 27 : 5.1.7	no slippage

\*The test documents are detailed in the *Bibliography*. Numbers in the table refer to sections/parts of the documents.

## 19 Other 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 2782 *Methods of testing plastics*  
Part 3 *Mechanical properties*

Method 320A : 1976 *Tensile strength, elongation and elastic modulus*

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

BS EN 24624 : 1993 *Paints and varnishes. Pull-off test*

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

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

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

MOAT No 27 : 1983 *General Directive for the Assessment of Roof Waterproofing Systems*

BE27 *Waterproofing and Surfacing of Bridge Decks, Appendix B : Department of Transport Checks and Tests for the Approval of Waterproofing Systems for Concrete Decks to Highway Bridges*

## Conditions of Certification

### 20 Conditions

20.1 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.

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, shall be construed as 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 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.

20.4 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.

20.5 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, Integritank is fit for its intended use provided it is installed, used and maintained as set out in this Certificate. Certificate No 93/2933 is accordingly awarded to Stirling Lloyd Polychem Ltd.

On behalf of the British Board of Agrément

Date of Second issue: 5th February 1999

Director

*\*Original Certificate issued 6th August 1993. This revised version includes reference to updated Building Regulations, and Conditions of Certification, change of Certificate holder's address, additional primer, inclusion of CONDAM Regulations and other minor amendments.*