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Agrément Certificate

**86/1651**

Product Sheet 1

### RONACRETE RENDER PRODUCTS

### RONAFIX CONCRETE RENDER ADMIXTURE

#### PRODUCT SCOPE AND SUMMARY OF CERTIFICATE

This Certificate relates to Ronafix Concrete Render Admixture, a liquid admixture for sand-cement renders.

#### AGRÉMENT CERTIFICATION INCLUDES:

- factors relating to compliance with Building Regulations where applicable
- factors relating to additional non-regulatory information where applicable
- independently verified technical specification
- assessment criteria and technical investigations
- design considerations
- installation guidance
- regular surveillance of production
- formal three-yearly review.

#### KEY FACTORS ASSESSED

**Resistance to moisture** — Sand-cement render containing the product has a greater resistance to the passage of moisture than the equivalent unmodified sand-cement render (see section 5).

**Strength and stability** — Sand-cement render containing the product has a strong and durable bond to prepared concrete (see section 6).

**Durability** — Sand-cement render containing the product is not significantly affected by frost action and will be more durable than the equivalent unmodified sand-cement render (see section 9).



The BBA has awarded this Agrément Certificate to the company named above for the product described herein. The product has been assessed by the BBA as being fit for its intended use provided it is installed, used and maintained as set out in this Certificate.

On behalf of the British Board of Agrément

Date of First issue: 21 December 2010

Originally certificated on 18 June 1986

Simon Wroe  
Head of Approvals — Materials

Greg Cooper  
Chief Executive

*The BBA is a UKAS accredited certification body — Number 113. The schedule of the current scope of accreditation for product certification is available in pdf format via the UKAS link on the BBA website at [www.bbacerts.co.uk](http://www.bbacerts.co.uk)*

*Readers are advised to check the validity and latest issue number of this Agrément Certificate by either referring to the BBA website or contacting the BBA direct.*

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# Regulations

In the opinion of the BBA, Ronafix Concrete Render Admixture, if used in accordance with the provisions of this Certificate, will meet or contribute to meeting the relevant requirements of the following Building Regulations:



## The Building Regulations 2010 (England and Wales)

|              |              |                                                                                                                                                                      |
|--------------|--------------|----------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| Requirement: | B4(1)        | External fire spread                                                                                                                                                 |
| Comment:     |              | A sand-cement render containing the product is capable of meeting this requirement. See sections 7.2 to 7.5 of this Certificate.                                     |
| Requirement: | C2(b)        | Resistance to moisture                                                                                                                                               |
| Comment:     |              | A dense concrete wall protected by a sand-cement render containing the product is capable of meeting this requirement. See sections 5.1 and 5.2 of this Certificate. |
| Requirement: | Regulation 7 | Materials and workmanship                                                                                                                                            |
| Comment:     |              | A sand-cement render containing the product is an acceptable material. See section 9 and the <i>Installation</i> part of this Certificate.                           |



## The Building (Scotland) Regulations 2004 (as amended)

|             |         |                                                                                                                                                                                                                                                                                                                                                                                                                             |
|-------------|---------|-----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| Regulation: | 8(1)(2) | Fitness and durability of materials and workmanship                                                                                                                                                                                                                                                                                                                                                                         |
| Comment:    |         | A sand-cement render containing the product is an acceptable material. See sections 8.1, 8.2, 9 and the <i>Installation</i> part of this Certificate.                                                                                                                                                                                                                                                                       |
| Regulation: | 9       | Building Standards – construction                                                                                                                                                                                                                                                                                                                                                                                           |
| Standard:   | 2.6     | Spread to neighbouring buildings                                                                                                                                                                                                                                                                                                                                                                                            |
| Standard:   | 2.7     | Spread on external walls                                                                                                                                                                                                                                                                                                                                                                                                    |
| Comment:    |         | The product is not classified as ‘non-combustible’ and is therefore restricted by these Standards, with reference to clauses 2.6.4 <sup>(1)(2)</sup> , 2.6.5 <sup>(1)</sup> , 2.6.6 <sup>(2)</sup> , and 2.7.1 <sup>(1)(2)</sup> . See sections 7.2 to 7.5 of this Certificate.                                                                                                                                             |
| Standard:   | 3.10    | Precipitation                                                                                                                                                                                                                                                                                                                                                                                                               |
| Comment:    |         | A dense concrete wall protected by a sand cement render containing the product is capable of meeting the requirements of this Standard, with reference to clauses 3.10.1 <sup>(1)(2)</sup> , 3.10.2 <sup>(1)(2)</sup> , 3.10.3 <sup>(1)(2)</sup> and 3.10.5 <sup>(1)(2)</sup> , respectively. See sections 5.1 and 5.2 of this Certificate.<br>(1) Technical Handbook (Domestic).<br>(2) Technical Handbook (Non-Domestic). |



## The Building Regulations (Northern Ireland) 2000 (as amended)

|             |       |                                                                                                                                                                     |
|-------------|-------|---------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| Regulation: | B2    | Fitness of materials and workmanship                                                                                                                                |
| Comment:    |       | A sand-cement render containing the product is an acceptable material. See section 9 and the <i>Installation</i> part of this Certificate.                          |
| Regulation: | B3(2) | Suitability of certain materials                                                                                                                                    |
| Comment:    |       | The product is acceptable. See sections 8.1 and 8.2 of this Certificate                                                                                             |
| Regulation: | C4(b) | Resistance to ground moisture and weather                                                                                                                           |
| Comment:    |       | A dense concrete wall protected by a sand-cement render containing the product is capable of meeting this Regulation. See sections 5.1 and 5.2 of this Certificate. |
| Regulation: | E5    | External fire spread                                                                                                                                                |
| Comment:    |       | A sand-cement render containing the product is capable of meeting this requirement. See sections 7.2 and 7.5 of this Certificate.                                   |

## Construction (Design and Management) Regulations 2007

## Construction (Design and Management) Regulations (Northern Ireland) 2007

Information in this Certificate may assist the client, CDM co-ordinator, designer and contractors to address their obligations under these Regulations.

See section: 2 *Delivery and site handling* (2.1) of this Certificate.

# Non-regulatory Information

## NHBC Standards 2010

NHBC accepts the use of Ronafix Concrete Render Admixture, when installed and used in accordance with this Certificate, in relation to *NHBC Standards*, Chapter 6.1 *External masonry walls*.

# Technical Specification

## 1 Description

- 1.1 Ronafix Concrete Render Admixture is a one-part styrene butadiene rubber (SBR) aqueous dispersion, containing 47% solids, which is mixed on site with cement, specified aggregate and water.
- 1.2 A bonding coat of slurry primer consists of one part Ronafix Concrete Render Admixture and one part cement.
- 1.3 Ronafix may be used with Portland cement CEM I 52,5R complying with the requirements of BS EN 197-1 : 2000. It must not be used with masonry cement.
- 1.4 Quality Control is exercised over the incoming raw materials, during the production process and on the final product.

## 2 Delivery and site handling

- 2.1 The product is delivered to site in 5, 25 and 220 litre containers bearing the manufacturer's name and the BBA identification mark incorporating the number of this Certificate.
- 2.2 The product should be stored under cover and protected from freezing and when stored under these conditions it has a shelf life of 9 months.

## Assessment and Technical Investigations

The following is a summary of the assessment and technical investigations carried out on Ronafix Concrete Render Admixture.

## Design Considerations

### 3 General

Ronafix Concrete Render Admixture is suitable for use in a designed sand-cement mortar mix, as a render for dense concrete.

### 4 Practicability of installation

The product should only be installed by operatives who have been trained and are experienced with this type of product.

### 5 Resistance to moisture



5.1 Sand-cement render containing the product has a greater resistance to the passage of moisture than the equivalent unmodified sand-cement render. Sample mix 2 (see section 12.3) may be considered to be watertight in all normal rendering situations.

5.2 Tests have shown that typical 12 mm thick Ronafix renders, as described in section 12.3 of this Certificate, have the following typical water vapour resistances:

sample mix 1      60 MN·s·g<sup>-1</sup>

sample mix 2      120 MN·s·g<sup>-1</sup>

Both renders will therefore offer a significantly greater resistance to the passage of water vapour than the equivalent unmodified sand-cement renders (typical water vapour resistance at 12 mm thick = 1.2 MN·s·g<sup>-1</sup>) and due attention should be paid to the possibility of interstitial condensation occurring.

### 6 Strength and stability

- 6.1 Sand-cement render containing the product will have similar compressive strengths and higher flexural strengths when compared to the equivalent unmodified sand-cement render.
- 6.2 Sand-cement render containing the product has a strong and durable bond to prepared concrete.
- 6.3 Sand-cement render containing the product will have similar movement characteristics to those of dense concrete.

### 7 Properties in relation to fire

7.1 The product is an aqueous emulsion and therefore presents no fire hazard during preparation and mixing.



7.2 When tested in accordance with BS 476-6 : 1981, Ronafix render mixes as described in section 12.4 of this Certificate, achieved the fire propagation indices (I) and intermediate indices (i1, i2, i3) given in Table 1.

Table 1 Fire classification

|              | Indices |      |      |      |
|--------------|---------|------|------|------|
|              | I       | i1   | i2   | i3   |
| Sample mix 1 | 0.00    | 0.00 | 0.00 | 0.02 |
| Sample mix 2 | 0.00    | 0.60 | 0.00 | 0.00 |



7.3 When tested in accordance with BS 476-7 : 1971, Ronafix renders (sample mixes 1 and 2 in section 12.3 of this Certificate), achieved a Class 1 surface.



7.4 The material combinations used for sample mixes 1 and 2 are therefore Class 0 or 'low risk' surfaces as described in the national Building Regulations.



7.5 This performance may not be achieved by other designed render mixes that may contain differing amounts, or types, of organic content. The designations of other material combinations should be confirmed by:

**England and Wales** — Test or assessment in accordance with Approved Document B, Appendix A, Clause 1

**Scotland** — Test to conform with the Table to Annex 2C<sup>(1)</sup> or 2E<sup>(2)</sup> of Regulation 9.

(1) Technical Handbook (Domestic).

(2) Technical Handbook (Non-Domestic).

**Northern Ireland** — Test or assessment by a UKAS accredited laboratory or an independent consultant with appropriate experience.

## 8 Maintenance



8.1 Regular maintenance checks should be carried out on architectural details for shedding water and on external plumbing and fittings to prevent penetration of water into the rendering.

8.2 Repair can be carried out using the methods indicated for general rendering given in the Installation part of this Certificate.

## 9 Durability



Renders containing the product are not significantly affected by frost action. Render incorporating the product will be more durable than the equivalent unmodified sand-cement render.

# Installation

## 10 General

10.1 Ronafix Concrete Render Admixture can be used in all conditions normal to sand-cement render work, using similar techniques.

10.2 The Certificate holder maintains a comprehensive design service and manufactures a range of factory batched pre-bagged Ronafix mortars based on the mixes detailed in section 12.3. Each bag of Ronafix mortar is supplied to site with a pre-diluted bottle of the Ronafix product. It is recommended that their advice is sought when any doubt exists as to the correct mix.

10.3 It is recommended that the Certificate holder is consulted over the installation and use of the product on site and where required they should carry out periodic checks to ensure that the correct procedures are being followed.

## 11 Preparation

It is important that areas intended to receive a Ronafix render are adequately prepared and any necessary remedial work undertaken. Concrete surfaces must be thoroughly cleaned and prepared by bush hammering or other methods to give a strong mechanical key, free of laitance.

## 12 Mixing

12.1 The render constituents are mixed in a pan type force action mixer; an ordinary drum type mixer should not be used.

12.2 Aggregates should be clean and dry with a sharp texture and depending on the required thickness, comply with the requirements of a fine aggregate 0/2 or 0/4 in accordance with BS EN 12620 : 2002. Allowance must be made for moisture in damp aggregates and the amount of water added to the mix adjusted accordingly.

12.3 Two typical mixes are given. The mixes are based on dry aggregate;

Sample mix 1 — for general rendering

|                                |                    |
|--------------------------------|--------------------|
| Portland cement (kg)           | — 50               |
| Fine aggregate 0/2 or 0/4 (kg) | — 125              |
| Ronafix (litres)               | — 9                |
| water (litres)                 | — 9 <sup>(1)</sup> |

Sample mix 2 — for rendering where high resistance to water penetration is required

|                                |                    |
|--------------------------------|--------------------|
| Portland cement (kg)           | — 50               |
| Fine aggregate 0/2 or 0/4 (kg) | — 125              |
| Ronafix (litres)               | — 14               |
| water (litres)                 | — 4 <sup>(1)</sup> |

(1) Due to the differing moisture content and grading of sands available on site, the quantity of water shown in the mix designs can only be taken as approximate. The quantity of water must be kept to the minimum compatible with workability and compaction.

12.4 The render will remain workable for 40 to 50 minutes depending on the mix being used and the weather conditions prevailing. A mix must not be re-gauged once it has begun to stiffen.

## 13 Application

13.1 Application must be strictly in accordance with the Certificate holder's instructions and in accordance with BS EN 13914-1 : 2005.

13.2 Mixed renders can be applied in temperatures between 5°C and 25°C.

13.3 Concrete should be dampened before the slurry primer is applied. A slurry primer of one part Ronafix to one part cement by weight is used to coat all surfaces to be bonded.

13.4 Ronafix render may be applied by hand or by using conventional spray techniques. The Certificate holder should be consulted on suitable equipment for spray applications.

13.5 The first coat of render is applied at a thickness between 6 mm to 12 mm while the slurry primer is still wet. If drying occurs, the surface should be scratched and the primer re-applied.

13.6 Once the first coat of render is firm but before it has fully set, the surface should be scratched to form a key and a further coat of slurry primer applied to the surface. The next render coat is applied as described in section 13.4.

13.7 Once applied the render should be protected from freezing conditions and from drying too rapidly due to exposure to direct sunlight or drying wind during early curing.

## 14 Finishing

Once cured and dried, the render can be coated with decorative surface coatings. The advice of the Certificate holder should be sought as regards the compatibility of specific finishes. The use of a surface coating may adversely affect the behaviour in fire as detailed in section 7.

## Technical Investigations

## 15 Tests

Independent test reports for Ronafix Concrete Render Admixture relating to the following were examined:

- bond to concrete
- bond to steel
- strength and movement characteristics
- behaviour in fire:
  - BS 476-6 : 1981
  - BS 476-7 : 1971
- moisture resistance and absorption
- water vapour permeability.

## 16 Investigations

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

16.2 Visits were made to inspect a number of sites, including a 15-year old installation, where Ronafix modified sand-cement render had been used.

# Bibliography

BS EN 197-1 : 2000 *Cement — Composition, specifications and conformity criteria for common cements*

BS 476-6 : 1981 *Fire tests on building materials and structures — Method of test for fire propagation for products*

BS 476-7 : 1971 *Fire tests on building materials and structures — Surface spread of flame tests for materials*

BS 882 : 1983 *Specification for aggregates from natural sources for concrete*

BS EN 13914-1 : 2005 *Design, preparation and application of external rendering and internal plastering — External rendering*

BS EN 12620 : 2002 *Aggregates for concrete*

## Conditions of Certification

### 17 Conditions

17.1 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.

17.2 Publications and documents referred to in this Certificate are those that the BBA deems to be relevant at the date of issue or re-issue of this Certificate and include any: Act of Parliament; Statutory Instrument; Directive; Regulation; British, European or International Standard; Code of Practice; manufacturers' instructions; or any other publication or document similar or related to the aforementioned.

17.3 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.

17.4 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/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.

17.5 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; nor is conformity with such information to be taken as satisfying the requirements of the 1974 Act or of any 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.