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Agrément Certificate

97/3428

Product Sheet 4

K REND EXTERNAL RENDERS

K REND SILICONE WP AND SILICONE FT

PRODUCT SCOPE AND SUMMARY OF CERTIFICATE

This Certificate relates to K Rend Silicone WP and Silicone FT, polymer-modified, self-coloured cementitious renders with a textured finish. The products are for use on new or existing buildings, either applied over K Rend Standard Base Coat onto suitably prepared exterior substrates of existing cement render, brickwork, blockwork or concrete, or used as a one-coat finish applied directly to the substrate over concrete blockwork only.

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

Weather resistance — the products are suitable for external use on new or existing buildings in areas where the local wind-driven rain index is less than 75 litres per m² per spell (see section 5).

Strength and stability — the products have adequate resistance to impact damage and cracking (see section 6).

Performance in relation to fire — the products have a Class 0 or 'low risk' rating as defined in the national Building Regulations (see section 8).

Durability — the products, applied over the K Rend Standard Basecoat or on a suitably prepared sound substrate, will perform satisfactorily for a period in excess of 30 years (see section 10).

The BBA has awarded this Agrément Certificate to the company named above for the product described herein. This 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

Simon Wroe
Head of Approvals — Materials

Greg Cooper
Chief Executive

Date of First issue: 28 October 2011

Originally certificated on 20 November 1997

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

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, K Rend Silicone WP and Silicone FT, 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:	The use of the products on non-combustible substrates may enable a wall to be unrestricted under this Requirement. See section 8 of this Certificate.
Requirement: C2(b)	Resistance to moisture
Comment:	Walls rendered with the products can satisfy this Requirement. See section 5.1 of this Certificate.
Requirement: Regulation 7	Materials and workmanship
Comment:	The products are acceptable. See section 10.1 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:	The use of the products satisfies the requirements of this Regulation. See sections 9, 10.1 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 products are not classified as 'non-combustible' and are therefore restricted by these Standards, with reference to clauses 2.6.4 ⁽¹⁾⁽²⁾ , 2.6.5 ⁽¹⁾ , 2.6.6 ⁽²⁾ and 2.7.1 ⁽¹⁾⁽²⁾ . See section 8 of this Certificate.
Standard: 3.10	Precipitation
Comment:	Walls rendered with the products can satisfy the requirements of this Standard, with reference to clauses 3.10.1 ⁽¹⁾⁽²⁾ , 3.10.2 ⁽¹⁾⁽²⁾ , 3.10.3 ⁽¹⁾⁽²⁾ and 3.10.5 ⁽¹⁾⁽²⁾ . See section 5.1 of this Certificate.
Standard: 7.1(a)	Statement of sustainability
Comment:	The products can contribute to meeting the relevant requirements of Regulation 9, Standards 1 to 6, and therefore will contribute to a construction meeting a bronze level of sustainability as defined in this Standard.
Regulation: 12	Building standards — conversions
Comment:	Comments made in relation to Regulation 9, Standards 1 to 6, 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).



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

Regulation: B2	Fitness of materials and workmanship
Comment:	The products are acceptable. See section 10.1 and the <i>Installation</i> part of this Certificate.
Regulation: B3(2)	Suitability of certain materials
Comment:	The products are acceptable. See section 9 of this Certificate.
Regulation: C4(b)	Resistance to ground moisture and weather
Comment:	Walls rendered with the products can satisfy this Regulation. See section 5.1 of this Certificate.
Regulation: E5(a)	External fire spread
Comment:	The use of the products on non-combustible substrates may enable a wall to be unrestricted under this Regulation. See section 8 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 sections: 2 *Delivery and site handling* (2.1 and 2.3) and 14 *Mixing* (14.2) of this Certificate.

Non-regulatory Information

NHBC Standards 2011

NHBC accepts the use of K Rend Silicone WP and Silicone FT, when installed and used in accordance with this Certificate, in relation to *NHBC Standards, Part 6 Superstructure (excluding roofs), Chapter 6.1 External masonry walls*.

Technical Specification

1 Description

1.1 K Rend Silicone WP and FT are polymer-modified, textured finish, self-coloured cementitious renders containing a silicone water-repellent additive. They are available in a range of 20 standard colours and two textures, ie standard texture (Silicone WP) and fine texture (Silicone FT).

1.2 The products are normally applied over K Rend Standard Base Coat (a polymer-modified render used as a primary coat), or directly onto the substrate in the case of concrete blockwork only.

1.3 K Rend Silicone WP and Silicone FT applied at a thickness of 12 mm each have a weight per unit area of approximately 18.6 kg·m⁻². K Rend Standard Base Coat applied at a thickness of 10 mm has a weight per unit area of between 14 kg·m⁻² and 18 kg·m⁻².

1.4 The products are manufactured in a batch blending process. Quality control is exercised over incoming raw materials, during the production process and on the final product.

2 Delivery and site handling

2.1 The products are delivered in sealed 25 kg bags on pallets. Each pallet contains 70 bags and weighs 1750 kg.

2.2 The products are cementitious materials and must be stored in dry conditions, off the ground, in a secure store and protected from frost. To avoid 'warehouse set' caused by compaction, the height of bags stacked on a pallet must not exceed one metre and no more than four pallets should be stacked. Renders should be used in the order in which they are received and each delivery should be kept separate to avoid confusion. When stored unopened the products have a shelf-life of 12 months from the date of manufacture.

2.3 The products are classified as 'Irritant' under *The Chemicals (Hazard Information and Packaging for Supply) Regulations 2009 (CHIP4)/Classification, Labelling and Packaging of Substances and Mixtures (CLP Regulation) 2009* and must be handled using the routine precautions for Portland cement.

2.4 Each bag bears the manufacturer's mark, batch number and date of production. Each pallet bears the BBA identification logo incorporating the number of this Certificate.

Assessment and Technical Investigations

The following is a summary of the assessment and technical investigations carried out on K Rend Silicone WP and Silicone FT.

Design Considerations

3 Use

3.1 K Rend Silicone WP and Silicone FT are satisfactory for external use as textured finish renders on new or existing buildings. They are applied either over K Rend Standard Base Coat onto suitably prepared exterior substrates of existing cement render or brickwork, blockwork or concrete, or directly onto the substrate in the case of concrete blockwork only.

3.2 New constructions to be rendered should be designed and constructed in accordance with the relevant recommendations of BS 5628-3 : 2005 (in particular Clause 5.5 on exclusion of water), BS EN 1996-2 : 2006 and the UK associated National Annex, and BS EN 13914-1 : 2005. The designer should select a construction appropriate to its location, paying due attention to design, detailing and workmanship (in accordance with BS 8000-10 : 1995) and the materials to be used.

3.3 It is essential that all walls are designed and constructed to prevent moisture penetration and the formation of condensation.

3.4 The assessment covers the area of the wall above damp-proof course level. The products have not been assessed for use:

- on woodwool slabs
- on metal lathing
- over painted brickwork and similar backgrounds
- over timber-frame construction
- over metal-frame construction
- on the backs of parapet and screen walls rendered on the face
- on horizontal surfaces exposed to the weather such as ledges, sills and copings
- as rendering to chimney stacks.

4 Practicability of installation

The products are designed to be installed by a competent, skilled renderer, or a contractor experienced with this type of product.

5 Weather resistance



5.1 The products are suitable for use in areas where the local wind-driven rain index is less than 75 litres per m² per spell and where two-coat traditional renders would normally be specified.

5.2 Walls to receive an application of the products must be designed and constructed in relation to local exposure conditions to minimise the incidence of rain penetration.

5.3 The products will tend to shed water and will considerably reduce the amount of water absorbed by the substrate during rain.

6 Strength and stability

6.1 The products have adequate resistance to impact damage and cracking.

6.2 In common with traditional similar products, it is essential that the surface to be covered provides a sound mechanical key to ensure a satisfactory bond between the substrate and the render.

7 Water vapour resistance

The water vapour resistance of a 12 mm thickness of K Rend Standard Base Coat is 0.98 MN·s·g⁻¹ and K Rend Silicone WP/FT are 0.95 MN·s·g⁻¹ and 0.86 MN·s·g⁻¹ respectively.

8 Performance in relation to fire



The products have a Class 0 or 'low risk' rating as defined in the national Building Regulations.

9 Maintenance



Regular maintenance checks should be carried out on architectural details and on external plumbing and fittings to ensure they are functioning correctly and to prevent water penetration into the products.

10 Durability



10.1 The products, applied to a suitable sound substrate either over K Rend Standard Base Coat or directly to concrete blockwork, will perform satisfactorily for a period in excess of 30 years.

10.2 The products may be discoloured by water runs and care should be taken to ensure that normal architectural details for shedding water clear of the building are present and functioning, and that gutters and downpipes are in good condition.

10.3 The products may become discoloured with time, the rate depending on the local environment. Appearance can normally be restored by cleaning with water, mild detergent and a stiff, bristle brush. In industrial atmospheres light colours should be avoided.

10.4 The products may suffer from algal growth in a similar manner to traditional external rendered finishes.

10.5 In common with traditional renders the products may be subject to lime bloom. The occurrence of this may be reduced by providing adequate protection and avoiding application in winter or in adverse weather conditions. The effect is less noticeable on lighter colours.

Installation

11 General

11.1 Application of K Rend Silicone WP and Silicone FT must be carried out strictly in accordance with this Certificate, the Certificate holder's instructions and specifications, and the relevant recommendations of BS EN 13914-1 : 2005.

11.2 The products must not be applied in rain or mist, at temperatures below 5°C or above 35°C, or if exposure to frost is likely to occur during curing. In common with traditional sand/cement renders, the products must not be applied to frost-bound surfaces.

11.3 In sunny weather, work should commence on the shady side of the building and be continued round following the sun to prevent the render drying out too rapidly.

11.4 Wall surface temperatures above 40°C will accelerate the chemical setting of the process and if the set is too rapid complete hydration may not be achieved.

11.5 To minimise colour shade variations and avoid dry line jointing, continuous surfaces should be completed without a break. If breaks cannot be avoided they should be made where services or architectural features such as drainpipes, reveals or lines of doors and windows will help mask cold joints. Where long, uninterrupted runs are planned, bags of the material should be checked for batch numbers. Bags with different batch numbers should be checked for colour consistency.

12 Site survey and preliminary work

12.1 Advice concerning site survey and preliminary work is made available to the designer or rendering contractor by the Certificate holder.

12.2 A pre-application survey of the property must be carried out to determine suitability of the substrate to receive the base coat (if applicable) and products and to establish whether repairs to the building structure are necessary before application. A specification is prepared for each elevation indicating:

- preliminary treatment of the background
- detailing around windows, doors and at eaves
- exact position of movement joints
- any alterations to external plumbing.
- position of beads
- damp-proof course level
- areas where flexible sealants must be used

12.3 Tests to determine the salt content of brick substrates should be conducted in accordance with BS EN 772-5 : 2001 prior to application of the underlying base coat (if applicable) or the products. Results of the tests are reported to the Certificate holder so that advice on the suitability of the substrate to receive the products can be given.

12.4 Mortar in new masonry must be compatible with the substrate and the products.

12.5 All necessary repairs to the building structure must be completed before application of the underlying base coat or the products.

12.6 It is recommended that external plumbing is removed and, where necessary, alterations made to underground drainage to accommodate its repositioning on the finished face of the installation.

12.7 On existing buildings, purpose-made oversills may be necessary to extend beyond the finished face of the installation. Sills should have an efficient throat or drip on the underside and designed to prevent water running onto the wall below, or into the jambs. New buildings should incorporate suitably wide sills.

12.8 New walls to be rendered should be left as long as possible to minimise substrate movement.

12.9 At the top of walls, the installation must be protected by an adequate overhang or by adequately sealed purpose-made flashing. The Certificate holder can advise on suitable specifications for particular circumstances.

13 Preparation of substrate

13.1 All damage to the substrate from frost attack, salts or corrosion must be carefully repaired. Damaged bricks or blocks must be replaced and any holes or inadequate joints filled. Loose and spalling render or projecting mortar must be removed and uneven surfaces levelled to avoid variations in the thickness of the products.

13.2 The relevant recommendations of BS EN 13914-1 : 2005 must be followed to achieve a satisfactory bond of the underlying base coat or the products. In particular, the surface to be rendered must provide a good mechanical key and adequate suction and be free from paint, oil, soot, efflorescence, dust, lichens, moulds and similar growth which may prevent adequate adhesion.

13.3 It is essential that new and existing substrates to be rendered are clean.

13.4 The renders must not be used on water-repellent substrates, on plaster or plaster paint or coatings.

13.5 When the substrate consists of different materials or a material of variable suction, the recommendations of BS EN 13914-1 : 2005 and the Certificate holder's instructions must be followed to ensure even quality and appearance of the finish.

13.6 When applying the underlying basecoat to porous or high suction substrates, particularly in warm weather, the surface should be wetted on the day before the render is applied. A further mist of clean water may be required immediately before application.

13.7 On backgrounds of negligible suction the advice of the Certificate holder should be sought concerning special precautions necessary to provide an adequate key.

13.8 For very smooth or irregular surfaces, the advice of the Certificate holder should be sought.

13.9 Wherever possible, independent scaffolding should be used to avoid the need to subsequently make good putlog holes and other breaks in the work.

13.10 Angles may be formed using PVC or stainless steel angle and stop beads, or using chamfered battens. The Certificate holder can advise on suitable products.

14 Mixing

14.1 The products are added to clean water, at a rate of approximately 4.4 to 5 litres of water per 25 kg of the products. They are thoroughly mixed using a drill and paddle or free fall mixer, for a minimum of five minutes, until the correct workability is achieved.

14.2 Where excessive concentrations of dust may accumulate, the measures defined in the Health and Safety Executive Publication EH40/05 *Occupational Exposure Limits* 2005 for unlisted substances should be adhered to. Since EH40 is published annually, it should be ensured that the current edition is being followed.

14.5 In common with traditional renders, slumping of the material may occur if the mix is too wet, and will increase the risk of settlement cracks developing.

14.6 The products will remain workable for approximately 45 minutes after mixing. They must not be remixed after they have begun to set.

15 Application

15.1 Render beads and expansion beads are fixed in accordance with the render bead supplier's instructions and the Certificate holder's recommendations.

15.2 K Rend Standard Base Coat is applied by hawk and trowel at approximately $15 \text{ kg}\cdot\text{m}^{-2}$ to $18 \text{ kg}\cdot\text{m}^{-2}$ to give a thickness of between 8 mm and 10 mm. Before the basecoat has set, a key is formed by scratching the render surface.

15.3 Once the basecoat has initially set, K Rend Silicone W/P or K Rend Silicone FT is applied using traditional methods at between $20 \text{ kg}\cdot\text{m}^{-2}$ and $24 \text{ kg}\cdot\text{m}^{-2}$ to give a uniform finish between 10 mm and 12 mm thick.

15.4 Alternatively, the products may be applied directly to concrete blockwork using the same techniques in one or two passes, at a total coverage of between $32 \text{ kg}\cdot\text{m}^{-2}$ and $34 \text{ kg}\cdot\text{m}^{-2}$. This will give a minimum finished thickness of 16 mm.

15.5 In either case, the render is textured in a separate operation to give the desired finish. This should be done when the mix has set, but not fully hardened (typically, after 24 hours). It is essential that all areas are textured at the same stage of readiness to achieve an even shade of finish.

15.6 Following completion of the texturing process, any loose material should be removed using a soft brush and any minor repairs carried out using the excess material.

16 Curing

16.1 The products must be protected from rain, mist or cold (less than 5°C on a falling thermometer) conditions in order to prevent an excessively prolonged drying period.

16.2 The use of polythene sheeting is recommended during curing and should hang clear of the face of the wall but be arranged in such a way that it does not form a tunnel through which wind could increase the rate of water evaporation from the products.

16.3 Care must be taken to protect the products from rapid drying due to exposure to direct sun or drying wind to ensure complete hydration of the cement.

17 Finishing

On completion of the rendering, the surface must be checked to ensure an even coverage of render and textured finish.

18 Repair

Damage to the products should be repaired immediately in accordance with the relevant recommendations of BS EN 13914-1 : 2005 using conventional rendering techniques and materials. The advice of the Certificate holder should be sought for particular installations.

Technical Investigations

19 Tests

19.1 Tests were carried out on the products and results assessed to determine:

- impact resistance
- flexural and compressive strength of mortars
- water vapour permeability
- initial surface absorption
- effect of accelerated ageing on bond strength
- sieve grading
- ash content
- density.

19.2 An evaluation was made of data from independent laboratories relating to fire propagation and surface spread of flame.

20 Investigations

- 20.1 Visits were carried out to installations in progress to assess the practicability of installation.
- 20.2 Visits were made to existing sites to evaluate the long-term durability of the products in service.
- 20.3 A survey of known users of the products was conducted.

Additional Information

The management systems of Kilwaughter Chemical Co. Ltd have been assessed and registered as meeting the requirements of BS EN ISO 9001 : 2008 by British Standards Institution Quality Assurance (Certificate No. FM 85394).

Bibliography

- BS 5628-3 : 2005 *Code of practice for the use of masonry — Materials and components, design and workmanship*
- BS 8000-10 : 1995 *Workmanship on building sites — Code of practice for plastering and rendering*
- BS EN 772-5 : 2001 *Methods of test for masonry units — Determination of the active soluble salts content of clay masonry units*
- BS EN 1996-2 : 2006 *Eurocode 6 : Design of masonry structures — Design considerations, selection of materials and execution of masonry*
- NA to BS EN 1996-2 : 2006 *UK National Annex to Eurocode 6 : Design of masonry structures — Design considerations, selection of materials and execution of masonry*
- BS EN 13914-1 : 2005 *Design, preparation and application of external rendering and internal plastering — External rendering*
- BS EN ISO 9001 : 2008 *Quality management systems — Requirements*

21 Conditions

21.1 This Certificate:

- relates only to the product/system that is named and described on the front page
- is issued only to the company, firm, organisation or person named on the front page — no other company, firm, organisation or person may hold or claim that this Certificate has been issued to them
- 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.

21.2 Publications, documents, specifications, legislation, regulations, standards and the like referenced in this Certificate are those that were current and/or deemed relevant by the BBA at the date of issue or reissue of this Certificate.

21.3 This Certificate will remain valid for an unlimited period provided that the product/system and its manufacture and/or fabrication, including all related and relevant parts and 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.

21.4 The BBA has used due skill, care and diligence in preparing this Certificate, but no warranty is provided.

21.5 In issuing this Certificate, the BBA is not responsible and is excluded from any liability to any company, firm, organisation or person, for any matters arising directly or indirectly from:

- 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 their nature, design, methods, performance, workmanship and maintenance
- any works and constructions in which the product/system is installed, including their nature, design, methods, performance, workmanship and maintenance
- any loss or damage, including personal injury, howsoever caused by the product/system, including its manufacture, supply, installation, use, maintenance and removal.

21.6 Any information relating to the manufacture, supply, installation, use, maintenance and removal 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, maintained and removed. It does not purport in any way to restate the requirements of the Health and Safety at Work etc. Act 1974, or of any other statutory, common law or other duty which may exist at the date of issue or reissue 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.