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Agrément Certificate
94/3041
Product Sheet 3

THE SYNTHA PULVIN/SYNTHATEC SYSTEMS

SYNTHA PULVIN/SYNTHATEC METALLICS

PRODUCT SCOPE AND SUMMARY OF CERTIFICATE

This Certificate relates to Synthatec Metallics, polyester powder coatings for use on aluminium and galvanized steel window frames, curtain walling, and roofing and cladding panels.

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

Properties in relation to fire — the product is not classified as ‘non-combustible’, but can achieve a Class 0 or ‘low risk’ classification, as defined in the national Building Regulations (see section 6).

Location — the product is suitable for use at low level in areas readily accessible to the public where there is a risk of accidental damage (see section 7).

Compatibility — the product is compatible with the conventional construction materials likely to be encountered in these applications, but should not come in contact with timber treated with fire retardants or preserved with copper or fluoride compounds (see section 8).

Durability — under normal conditions in non-aggressive locations, Synthatec Metallics coated on suitable aluminium or galvanized steel substrates will perform effectively with an anticipated life expectancy exceeding 30 years. It will have an anticipated decorative life of 20 years in heavily-polluted areas and 25 years in other areas (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: 9 September 2008

Originally certificated on 12 February 1998

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.

Regulations

In the opinion of the BBA, Synthatec Metallics, 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 2000 (as amended) (England and Wales)

Requirement:	B4(1)(2)	External fire spread
Comment:		The product may be unrestricted under this Requirement. See sections 6.1 to 6.5 of this Certificate.
Requirement:	Regulation 7	Materials and workmanship
Comment:		The product is an acceptable material. See section 10 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 product can contribute to a construction satisfying this Regulation. See sections 9.1 to 9.5 and 10 and the <i>Installation</i> part of this Certificate.
Regulation:	9	Building standards – construction
Standard:	2.1	Compartmentation
Comment:		The product may contribute to satisfying this Standard, with reference to clause 2.1.16 ⁽²⁾ . See sections 6.1 and 6.5 of this Certificate.
Standard:	2.2	Separation
Comment:		The product may contribute to satisfying this Standard, with reference to clauses 2.2.7 ⁽²⁾ and 2.2.10 ⁽¹⁾ . See sections 6.1 and 6.5 of this Certificate.
Standard:	2.4	Cavities
Comment:		The product may contribute to satisfying this Standard, with reference to clauses 2.4.2 ⁽¹⁾⁽²⁾ , 2.4.3 ⁽²⁾ , 2.4.7 ⁽¹⁾ and 2.4.9 ⁽²⁾ . See sections 6.2 to 6.5 of this Certificate.
Standard:	2.6	Spread to neighbouring buildings
Comment:		The product is not classified as ‘non-combustible’ and is, therefore, restricted under this Standard, with reference to clauses 2.6.4 ⁽¹⁾⁽²⁾ , 2.6.5 ⁽¹⁾ and 2.6.6 ⁽²⁾ . See sections 6.2 to 6.5 of this Certificate.
Standard:	2.7	Spread on external walls
Comment:		The product is not classified as ‘non-combustible’ and is, therefore, restricted under this Standard, with reference to clause 2.7.1 ⁽¹⁾⁽²⁾ . See sections 6.2 to 6.5 of this Certificate.
Standard:	2.8	Spread from neighbouring buildings
Comment:		The product may contribute to satisfying this Standard, with reference to clause 2.8.1 ⁽¹⁾⁽²⁾ . See sections 6.1 and 6.5 of this Certificate.
Regulation:	12	Building standards – conversions
Comment:		All comments given for this product 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).



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

Regulation:	B2	Fitness of materials and workmanship
Comment:		The product is acceptable. See section 10 and the <i>Installation</i> part of this Certificate.
Regulation:	B3(2)	Suitability of certain materials
Comment:		The product is acceptable. See sections 9.1 to 9.5 of this Certificate.
Regulation:	E5(a)	External fire spread
Comment:		The product may be unrestricted under this Regulation. See sections 6.1 to 6.5 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: 3 *Delivery and site handling* (3.3).

Non-regulatory Information

NHBC Standards 2008

NHBC accepts the use of Synthatec Metallics when applied, installed and used in accordance with this Certificate in relation to *NHBC Standards Chapter 6.7 Doors, windows and glazing* and *6.9 Curtain walling and cladding*.

Zurich Building Guarantee Technical Manual 2007

In the opinion of the BBA, Synthatec Metallics when applied, installed and used in accordance with this Certificate, is capable of satisfying the requirements of the *Zurich Building Guarantee Technical Manual, Section 4 Superstructure, Sub-sections External walls – timber frame, External walls – steel frame, External walls – render/cladding/curtain walling and Pitched roofs.*

General

This Certificate relates to Synthatec Metallics, polyester powder coatings for use on aluminium and galvanized steel window frames, curtain walling, and roofing and cladding panels.

Technical Specification

1 Description

1.1 Synthatec Metallics is a decorative/protective polyester powder coating with a metallic finish for application to aluminium and galvanized steel window frames, curtain walling, and roofing and cladding panels.

1.2 The product is available in a range of colours, details of which are available from the Certificate holder.

1.3 The product has a minimum cured coating thickness of 40 µm on aluminium and 60 µm on galvanized steel. Where an aluminium component is to be installed in a particularly corrosive environment, such as coastal locations or swimming pools, consideration should be given to increasing the minimum coating thickness to 60 µm.

1.4 Suitable substrates for Synthatec Metallics coatings are:

Wrought aluminium and aluminium alloy

- BS EN 485-1 : 1994
- BS EN 485-2 : 2004
- BS EN 485-3 : 2003
- BS EN 485-4 : 1994
- BS EN 515 : 1993
- BS EN 573-1 : 2004
- BS EN 573-2 : 1995
- BS EN 573-3 : 2003
- BS EN 573-4 : 2004
- BS EN 754-1 : 1997
- BS EN 754-2 : 1997
- BS EN 754-7 : 1998
- BS EN 754-8 : 1998
- BS EN 755-1 : 1997
- BS EN 755-2 : 1997
- BS EN 755-3 : 1996
- BS EN 755-4 : 1996
- BS EN 755-5 : 1996
- BS EN 755-6 : 1996
- BS EN 755-7 : 1998
- BS EN 755-8 : 1998
- BS EN 755-9 : 2001
- BS EN 12020-1 : 2001
- BS EN 12020-2 : 2001

Galvanized steel

- BS EN 10326 : 2004
- BS EN 10327 : 2004.

1.5 Other suitable substrates include aluminium castings to BS EN 1559-1 : 1997, BS EN 1676 : 1997, BS EN 1706 : 1998 and BS EN 1559-4 : 1999, subject to the casting's degree of porosity and surface finish.

1.6 The product is applied only by specialist contractors assessed by the Certificate holder and found to meet the requirements for Syntha Pulvin/Synthatec Approved Applicator status.

1.7 These companies are regularly inspected by the Certificate holder to ensure that the application complies with the specification and the requirements of BS EN 12206-1 : 2004 and/or BS 6496 : 1984. The Certificate holder retains the right to withdraw approval from any applicator.

1.8 The powder is manufactured by blending resin and pigments; the blend is passed through a hot-melt extrusion process and ground to a specific particle size.

1.9 Articles to be coated are given an appropriate pre-treatment and dried before electrostatically spraying with the Synthatec Metallics powder and heat curing.

2 Quality control

2.1 Quality control is exercised over the raw materials, during production and on the final product.

2.2 Approved Applicators are required to prepare and test samples to an agreed schedule. The resulting test reports and tested samples are examined by the Certificate holder.

2.3 Regular inspections of Approved Applicators' premises are carried out by the Certificate holder to ensure that quality is being maintained.

3 Delivery and site handling

3.1 Synthatec Metallics coated articles are packaged by the applicator to avoid damage in handling prior to installation.

3.2 Storage on site should follow good practice and be in a sheltered position, away from the possibility of impact and abrasion.

3.3 Coated articles should be handled in accordance with the Manual Handling Regulations 1992.

Assessment and Technical Investigations

The following is a summary of the assessment and technical investigations carried out on Synthatec Metallics.

Design Considerations

4 Practicability of installation

Items coated with the products should be installed by operatives with relevant experience in accordance with section 11.

5 Use

Synthatec Metallics is suitable for use by the Certificate holder's Approved Applicators for application to aluminium and galvanized steel window frames, curtain walling, and roofing and cladding panels.

6 Properties in relation to fire



6.1 When tested to BS 476-3 : 1958, a Synthatec Metallics coating on 3.0 mm thick aluminium achieved an EXT.S.AA rating.

6.2 When tested to BS 476-6 : 1968, a Synthatec Metallics coating achieved an overall index of performance (I) of 1.2 and a sub-index (i_1) of 0.0.

6.3 When tested to BS 476-7 : 1971, a Synthatec Metallics coating achieved a Class 1 surface.

6.4 The coating, therefore, has a Class 0 or 'low risk' surface as defined in the national Building Regulations.

6.5 The performance stated in sections 6.1 to 6.4 may not be achieved by other colours in the range. The performance of other colours 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 Table to Annex 2C⁽¹⁾ and 2E⁽²⁾ 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.

7 Location

7.1 The coatings are tough and abrasion resistant, making the product suitable for use at low level in areas readily accessible to the public (eg alongside pedestrian thoroughfares and playing fields) where accidental damage is possible. Thus coated items are suitable for use in category B (and less vulnerable) situations, as described in BS 8200 : 1985, Table 2, which is reproduced (in part) in Table 1.

Category	Description	Examples
B	Readily accessible to public and others with little incentive to exercise care. Chances of accidents occurring and of misuse	Walls adjacent to pedestrian thoroughfares or playing fields when not in category A
C	Accessible mainly to those with some incentive to exercise care. Some chance of accident occurring and of misuse	Walls adjacent to private open gardens. Back walls of balconies.
D	Only accessible, but not near a common route, to those with high incentive to exercise care. Small chance of accident occurring or of misuse	Walls adjacent to small fenced decorative gardens with no through paths.
E	Above zone of normal impacts from people but liable to impacts from thrown or kicked objects	1.5 m to 6 m above pedestrian or floor level in public areas
F	Above zone of normal impacts from people but not liable to impacts from thrown or kicked objects.	Wall surfaces at higher positions than those defined in E above

Zone of wall up to 1.5 m above pedestrian or floor level

7.2 Where coated products are to be installed in heavily polluted areas (such as near chemical works, foundries, or in coastal environments) the advice of the Certificate holder must be sought.

8 Compatibility

8.1 To prevent bimetallic corrosion, direct contact of the uncoated side of the substrate with other metals should be avoided. Fixing devices must be of the same material as, or compatible with, the substrate. Precautions must also be taken to avoid direct contact of the uncoated side with timber treated with a fire retardant or preserved with copper or fluoride compounds.

8.2 Coated components are not affected by contact with fresh mortar, sealants, glazing compounds or window-cleaning materials. Fully coated articles may be embedded in mortar.

9 Maintenance



9.1 Synthatec Metallics coated installations can be cleaned by washing with water and mild detergent, and rinsing with clean water.

9.2 In polluted atmospheres, it may be necessary to clean the coating at regular intervals to maintain appearance. Normal precautions in building design must be taken to shed water clear of the coating to prevent the surface becoming marked.

9.3 Where a cladding or roofing panel coated with Synthatec Metallics is replaced, some fading of colour may be visible although the difference in colour between new and existing panels should be acceptable under normal circumstances.

9.4 Remedial paint systems are available for on-site repair of accidental damage to the coatings.

9.5 Maintenance painting should be considered at the intervals defined in section 10, or earlier if a high aesthetic standard is required. The Certificate holder can recommend a suitable paint and maintenance system.

10 Durability



Synthatec Metallics coated on aluminium window frames, curtain walling, and roofing and cladding panels will perform effectively with an anticipated life expectancy exceeding 30 years. It will have an anticipated decorative life of 20 years in heavily polluted areas and 25 years in other areas.

Installation

11 General

11.1 Synthatec Metallics coated window frames are installed following the window frame manufacturer's instructions and generally in accordance with BS 8213-4 : 2007 and may be pointed using a silicone, polyurethane (foam or conventional) or polysulphide sealant.

11.2 Synthatec Metallics coated cladding panels are installed generally in accordance with BS 8200 : 1985 and taking into account the requirements of BS 5250 : 2002.

Technical Investigations

As part of the assessment leading to the issue of previous Certificates, the following tests and investigations were carried out.

12 Tests

Synthatec Metallics coated aluminium and galvanized steel panels were subjected to tests to determine:

- scratch resistance
- effect of artificial weathering
- mortar resistance
- cross-hatch adhesion
- effect of salt spray
- resistance to chemicals, marking and staining.
- abrasion resistance (Taber)
- effect of high humidity
- impact resistance
- ease of cleaning

13 Investigations

13.1 An assessment was made of independent test data relating to:

- fire propagation
- surface spread of flame
- fire exposure roof rating.

13.2 Visits were made to Approved Applicators to assess their methods of quality control.

13.3 Details of the procedures adopted by the Certificate holder to exercise control over their Approved Applicators were examined.

13.4 A user survey and a visit to an established site were conducted to evaluate performance in use.

13.5 An assessment of the applicators' coating processes was made to confirm compliance with BS 6496 : 1984 and BS 6497 : 1984.

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

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

Bibliography

- BS 476-3 : 1958 *Fire tests on building materials and structures — External fire exposure roof test*
- BS 476-6 : 1968 *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 5250 : 2002 *Code of practice for control of condensation in buildings*
- BS 6496 : 1984 *Specification for powder organic coatings for application and stoving to aluminium alloy extrusions, sheet and preformed sections for external architectural purposes, and for the finish on aluminium alloy extrusions, sheet and preformed sections coated with powder organic coatings*
- BS 6497 : 1984 *Specification for powder organic coatings for application and stoving to hot-dip galvanized hot-rolled steel sections and preformed steel sheet for windows and associated external architectural purposes, and for the finish on galvanized steel sections and preformed sheet coated with powder organic coatings*
- BS 8200 : 1985 *Code of practice for design of non-loadbearing external vertical enclosures of buildings*
- BS 8213-4 : 2007 *Windows, doors and rooflights — Code of practice for the survey and installation of windows and external doorsets*
- BS EN 485-1 : 1994 *Aluminium and aluminium alloys — Sheet, strip and plate — Technical conditions for inspection and delivery*
- BS EN 485-2 : 2004 *Aluminium and aluminium alloys — Sheet, strip and plate — Mechanical properties*
- BS EN 485-3 : 2003 *Aluminium and aluminium alloys — Sheet, strip and plate — Tolerances on dimensions and form for hot-rolled products*
- BS EN 485-4 : 1994 *Aluminium and aluminium alloys — Sheet, strip and plate — Tolerances on shape and dimensions for cold-rolled products*
- BS EN 515 : 1993 *Aluminium and aluminium alloys — Wrought products — Temper designations*
- BS EN 573-1 : 2004 *Aluminium and aluminium alloys — Chemical composition and form of wrought products — Numerical designation system*
- BS EN 573-2 : 1995 *Aluminium and aluminium alloys — Chemical composition and form of wrought products — Chemical symbol based designation system*
- BS EN 573-3 : 2007 *Aluminium and aluminium alloys — Chemical composition and form of wrought products — Chemical composition and form of products*
- BS EN 573-4 : 2004 *Aluminium and aluminium alloys — Chemical composition and form of wrought products — Forms of products*
- BS EN 754-1 : 1997 *Aluminium and aluminium alloys — Cold drawn rod/bar and tube — Technical conditions for inspection and delivery*
- BS EN 754-2 : 2008 *Aluminium and aluminium alloys — Cold drawn rod/bar and tube — Mechanical properties*
- BS EN 754-7 : 1998 *Aluminium and aluminium alloys — Cold drawn rod/bar and tube — Seamless tubes, tolerances on dimensions and form*
- BS EN 754-8 : 1998 *Aluminium and aluminium alloys — Cold drawn rod/bar and tube — Porthole tubes, tolerances on dimensions and form*
- BS EN 755-1 : 2008 *Aluminium and aluminium alloys — Extruded rod/bar, tube and profiles — Technical conditions for inspection and delivery*
- BS EN 755-2 : 2008 *Aluminium and aluminium alloys — Extruded rod/bar, tube and profiles — Mechanical properties*
- BS EN 755-3 : 2008 *Aluminium and aluminium alloys — Extruded rod/bar, tube and profiles — Round bars, tolerances on dimensions and form*
- BS EN 755-4 : 2008 *Aluminium and aluminium alloys — Extruded rod/bar, tube and profiles — Square bars, tolerances on dimensions and form*
- BS EN 755-5 : 2008 *Aluminium and aluminium alloys — Extruded rod/bar, tube and profiles — Rectangular bars, tolerances on dimensions and form*
- BS EN 755-6 : 2008 *Aluminium and aluminium alloys — Extruded rod/bar, tube and profiles — Hexagonal bars, tolerances on dimensions and form*
- BS EN 755-7 : 2008 *Aluminium and aluminium alloys — Extruded rod/bar, tube and profiles — Seamless tubes, tolerances on dimensions and form*
- BS EN 755-8 : 2008 *Aluminium and aluminium alloys — Extruded rod/bar, tube and profiles — Porthole tubes, tubes, tolerances on dimensions and form*
- BS EN 755-9 : 2008 *Aluminium and aluminium alloys — Extruded rod/bar, tube and profiles — Profiles, tolerances on dimensions and form*
- BS EN 1559-1 : 1997 *Founding — Technical conditions of delivery — General*
- BS EN 1559-4 : 1999 *Founding — Technical conditions of delivery — Additional requirements for aluminium alloy castings*
- BS EN 1676 : 1997 *Aluminium and aluminium alloys — Alloyed ingots for remelting — Specifications*

BS EN 1706 : 1998 *Aluminium and aluminium alloys — Castings — Chemical composition and mechanical properties*

BS EN 10326 : 2004 *Continuously hot-dip coated strip and sheet of structural steels — Technical delivery conditions*

BS EN 10327 : 2004 *Continuously hot-dip coated strip and sheet of low carbon steels for cold forming — Technical delivery conditions*

BS EN 12020-1 : 2001 *Aluminium and aluminium alloys — Extruded precision profiles in alloys EN AW-6060 and EN AW-6063 — Technical conditions for inspection and delivery*

BS EN 12020-2 : 2001 *Aluminium and aluminium alloys — Extruded precision profiles in alloys EN AW-6060 and EN AW-6063 — Tolerances on dimensions and form*

BS EN 12206-1 : 2004 *Paints and varnishes — Coating of aluminium and aluminium alloys for architectural purposes — Coatings prepared from coating powder*

BS EN 13438 : 2005 *Paints and varnishes — Powder organic coatings for galvanized or sherardised steel products for construction purposes*

14 Conditions

14.1 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.

14.2 References in this Certificate to any Act of Parliament, Statutory Instrument, Directive or Regulation of the European Union, British, European or International Standard, Code of Practice, manufacturers' instructions or similar publication, are references to such publication in the form in which it was current at the date of this Certificate.

14.3 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.

14.4 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.

14.5 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.