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Agrément Certificate

20/5822

Product Sheet 1

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JAMESTOWN INDUSTRIES LEAD BUILDING PRODUCTS

ENVIROLEAD MACHINE-CAST LEAD SHEET

This Agrément Certificate Product Sheet⁽¹⁾ relates to Envirolead Machine-Cast Lead Sheet⁽²⁾, for use in roofing, cladding and flashing applications.

(1) Hereinafter referred to as 'Certificate'.

(2) Envirolead Machine-Cast Lead Sheet is a registered trademark.

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

Weathertightness — the product has adequate resistance to the passage of moisture into the interior of a building (see section 6).

Resistance to wind uplift — the product can adequately resist the effects of wind suction (see section 7).

Performance in relation to fire — the product is classified as non-combustible and unrestricted in terms of proximity to a boundary under the national Building Regulations (see section 8).

Durability — under normal conditions, the profiled product will perform effectively with a service life in excess of 60 years (see section 10).



The BBA has awarded this 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

Date of First issue: 5 November 2020

Hardy Geisler
Chief Executive Officer

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 **MUST** check the validity and latest issue number of this Agrément Certificate by either referring to the BBA website or contacting the BBA directly.*

Any photographs are for illustrative purposes only, do not constitute advice and should not be relied upon.

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Regulations

In the opinion of the BBA, Envirolead Machine-Cast Lead Sheet, if installed, used and maintained in accordance with this Certificate, can satisfy or contribute to satisfying the relevant requirements of the following Building Regulations (the presence of a UK map indicates that the subject is related to the Building Regulations in the region or regions of the UK depicted):



The Building Regulations 2010 (England and Wales) (as amended)

| | |
|--|---|
| Requirement: A1 Comment: | Loading The product can contribute to satisfying this Requirement provided it is adequately fixed to suitably designed walls and supporting substructures. See section 7 of this Certificate. |
| Requirement: B3(4) Comment: | Internal fire spread (structure) The use of the product is unrestricted under this Requirement. See section 8.2 of this Certificate. |
| Requirement: B4(1)(2) Comment: | External fire spread The use of the product is unrestricted under this Requirement. See section 8 of this Certificate. |
| Requirement: C2(b) Comment: | Resistance to moisture The product can contribute to satisfying this Requirement. See section 6 of this Certificate. |
| Regulation: 7(1) Comment: | Materials and workmanship The product is acceptable. See section 10 and the <i>Installation</i> part of this Certificate. |
| Regulation: 7(2) Comment: | Materials and workmanship The product is unrestricted by this Regulation. See section 8 of this Certificate. |



The Building (Scotland) Regulations 2004 (as amended)

| | |
|---|--|
| Regulation: 8(1)(2) Comment: | Durability, workmanship and fitness of materials The product can contribute to a construction satisfying this Regulation. See sections 9 and 10 and the <i>Installation</i> part of this Certificate. |
| Regulation: 9 Standard: 1.1(a)(b) Comment: | Building standards applicable to construction Structure The product can contribute to satisfying this Standard provided it is adequately fixed to suitably designed walls and supporting substructures. See section 7 of this Certificate. |
| Standard: 2.6 Standard: 2.7 Comment: | Spread to neighbouring buildings Spread on external walls The product is classified as non-combustible and is unrestricted under 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: 2.8 Comment: | Spread from neighbouring buildings The product is unrestricted under this Standard, with reference to clause 2.8.1 ⁽¹⁾⁽²⁾ . See section 8 of this Certificate. |
| Standard: 3.10 Comment: | Precipitation The product can contribute to satisfying this Standard, with reference to clauses 3.10.1 ⁽¹⁾⁽²⁾ , 3.10.5 ⁽¹⁾⁽²⁾ , and 3.10.7 ⁽¹⁾⁽²⁾ . See section 6 of this Certificate. |

| | | |
|--------------------|---------------|--|
| Standard: | 7.1(a) | Statement of sustainability |
| Comment: | | The product 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 applicable to conversions |
| Comment: | | All comments given for the product under 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) 2012 (as amended)

| | | |
|--------------------|--------------------|--|
| Regulation: | 23(a)(i) | Fitness of materials and workmanship |
| Comment: | (iii)(b)(i) | The product is acceptable. See section 10 and the <i>Installation</i> part of this Certificate. |
| Regulation: | 28(b) | Resistance to moisture and weather |
| Comment: | | The product can contribute to satisfying this Regulation. See section 6 of this Certificate. |
| Regulation: | 30 | Stability |
| Comment: | | The product can contribute to satisfying this Regulation provided it is adequately fixed to suitably designed walls and supporting substructures. See section 7 of this Certificate. |
| Regulation: | 35(2)(3)(4) | Internal fire spread structure |
| Comment: | | The product is unrestricted under this Regulation. See section 8.2 of this Certificate. |
| Regulation: | 36(a)(b) | External fire spread |
| Comment: | | The product is unrestricted under this Regulation. See section 8 of this Certificate. |

Construction (Design and Management) Regulations 2015

Construction (Design and Management) Regulations (Northern Ireland) 2016

Information in this Certificate may assist the client, designer (including Principal Designer) and contractor (including Principal Contractor) to address their obligations under these Regulations.

See sections: 1 *Description* (1.3) and 13 *Safety* of this Certificate.

Additional Information

NHBC Standards 2020

In the opinion of the BBA, Envirolead Machine-Cast Lead Sheet, if installed, used and maintained in accordance with this Certificate, can satisfy or contribute to satisfying the relevant requirements in relation to *NHBC Standards*, Chapters 6.9 *Curtain walling and cladding*, 7.1 *Flat roofs and balconies* and 7.2 *Pitched roofs*.

CE marking

The Certificate holder has taken the responsibility of CE marking the product in accordance with harmonised European Standard BS EN 14783 : 2013.

Technical Specification

1 Description

1.1 Envirolead Machine-Cast Lead Sheet comprises a lead/copper alloy.

1.2 The sheet is available in standard 3 and 6 m lengths. Standard production widths range from 0.15 to 1.5 m. Other lengths and widths are available on request.

1.3 The code designations for nominal thickness and mass are given in Table 1.

Table 1 Code designations for nominal thickness and mass⁽¹⁾

| Code | | Nominal thickness (mm) | Mass of a 300 x 300 mm square (kg) |
|--------|--------|---------------------------|---------------------------------------|
| Number | Colour | | |
| 3 | green | 1.32 | 1.35 |
| 4 | blue | 1.80 | 1.84 |
| 5 | red | 2.24 | 2.29 |
| 6 | black | 2.65 | 2.70 |
| 7 | white | 3.15 | 3.22 |
| 8 | orange | 3.55 | 3.62 |

(1) Owing to the nature of lead, tolerances for the sheet are determined on a weight basis. This is defined as $\pm 5\%$ of the specified mass.

2 Manufacture

2.1 Envirolead Machine-Cast Lead Sheet is manufactured by a continuous casting process using a purpose-made and computer-controlled casting machine.

2.2 As part of the assessment and ongoing surveillance of product quality, the BBA has:

- agreed with the manufacturer the quality control procedures and product testing to be undertaken
- assessed and agreed the quality control operated over batches of incoming materials
- monitored the production process and verified that it is in accordance with the documented process
- evaluated the process for management of nonconformities
- checked that equipment has been properly tested and calibrated
- undertaken to carry out the above measures on a regular basis through a surveillance process, to verify that the specifications and quality control operated by the manufacturer are being maintained.

2.3 The management system of Jamestown Industries Limited has been assessed and registered as meeting the requirements of BS EN ISO 9001 : 2015, BS EN 14001 : 2015 and BS ISO 45001 : 2018 by BSI (Certificates FM 526065, EMS 567178 and OHS 644722 respectively).

3 Delivery and site handling

3.1 The product is delivered in rolls bound onto pallets.

3.2 Each pallet carries the BBA logo incorporating the number of this Certificate.

3.3 The rolls should be stored flat on a clean, dry surface, clear of the ground, under cover and secure.

Assessment and Technical Investigations

The following is a summary of the assessment and technical investigations carried out on Envirolead Machine-Cast Lead Sheet.

4 Use

Envirolead Machine-Cast Lead Sheet, when installed in accordance with BS 6229 : 2018 and BS 6915 : 2001, is satisfactory as a roofing or wall cladding. The sheet is satisfactory for use as a flashing when installed in accordance with principles laid down in the relevant parts of BS 5534 : 2014, BS 8000-0 : 2014 and BS 8000-6 : 2013.

5 Practicability of installation

The product is designed to be installed by a competent general builder, or a contractor, experienced with this type of product.

6 Weathertightness



The product, when incorporated into a cladding or roofing system designed and installed in accordance with conventional good practice and section 12 of this Certificate, will adequately resist the passage of moisture to the interior of the building.

7 Resistance to wind uplift



The product, when incorporated into a cladding or roofing system designed and installed in accordance with conventional good practice and section 12 of this Certificate, can adequately resist the wind loads likely to be encountered in the UK.

8 Performance in relation to fire



8.1 Cast lead sheet is classified A1 (no contribution to fire) in accordance with Commission Decision 96/603/EC.

8.2 Cast lead sheet can be considered to have a $B_{ROOF}(t4)$ classification to BS EN 13501-5 : 2016 and is therefore unrestricted in terms of proximity to a boundary by the requirements of the national Building Regulations

9 Maintenance and repair



9.1 Regular maintenance inspections should be carried out to ensure that rainwater goods are present and in good order, that flashings are secure and that fixings are present and secure.

9.2 Damaged areas can be repaired using traditional techniques.

9.3 The product may be used to repair existing lead flashings and may be used to repair zinc flashings without introducing a risk of corrosion.

10 Durability



10.1 Lead is a corrosion-resistant metal which, on weathering, forms a strongly adhering, insoluble, protective patina under normal atmospheric conditions. It is therefore possible to fix lead in contact with other metals without increasing the rate of corrosion of either by galvanic effects. In marine conditions contact between aluminium and lead should be avoided.

10.2 Envirolead Machine-Cast Lead Sheet can be fixed in contact with preservative-treated timbers (providing such treatment is allowed adequate time for fixation), including those treated with fire retardants. When used in contact with acid-bearing timbers, such as western red cedar, oak or sweet chestnut, it should be protected by a coat of bitumen paint.

10.3 Lead is susceptible to corrosive attack by cement, concrete and mortar when in consistently damp situations. In such circumstances the lead sheet should be protected by coating with bitumen paint.

10.4 The product will perform effectively as a cladding or roofing with a service life in excess of 60 years.

11 Reuse and recyclability

The product comprises lead, which can be recycled.

Installation

12 Procedure

12.1 The product is installed by specialist roofing contractors using traditional tools and techniques for lead sheet in accordance with the relevant parts of BS 5534 : 2014, BS 6229 : 2003, BS 6915 : 2001, BS 8000-0: 2014, BS 8000-6 : 2013 and this Certificate.

12.2 Lead flashings and joints between flashing should be made to ensure that free thermal movement and weathertightness are maintained. The installation of lead sheet in a particular situation should be carried out by reference to BS 6915 : 2001.

12.3 Where joints are appropriate, adjacent lengths of lead may be joined by welting, soldering, lead-burning or other details. Solder should conform to BS EN ISO 9453 : 2014. The maximum size for a single sheet of cast lead sheet in a particular situation should be determined by reference to BS 6915 : 2001.

12.4 Joints across the fall of pitched roofs or vertical cladding may be formed by laps giving a cover of 75 mm measured vertically in accordance with BS 6915 : 2001, depending on the pitch of the roof.

12.5 Underlays are necessary to isolate the lead from the substrate and may be of inodorous felt. Waterproof building paper to BS 1521 : 1972, Class A, may be used when the surface is smooth.

13 Safety

The conventional precautions for handling lead defined in the *Control of Lead at Work Regulations 2002*, the *Control of Lead at Work Regulations (Northern Ireland) 2003* and the HSE Approved Code of Practice and Guidance *Control of lead at work* should be observed.

Technical Investigations

14 Tests

Tests were conducted on Envirolead Machine-Cast Lead Sheet and the results assessed to determine:

- weight/unit area
- tensile strength
- resistance to impact (effect of dropping chisel)
- effect of cold bend.

15 Investigations

15.1 The manufacturing process was evaluated, including the methods adopted for quality control, and details were obtained of the quality and compositions of the materials used.

15.2 An assessment was made of an investigation into continuously cast lead sheet (*Microstructures of mechanical properties of milled and continuously cast lead sheet*, from Materials Science and Technology Journal, Volume 7, Issue 12, December 1991).

Bibliography

BS 1521 : 1972 *Specification for waterproof building papers*

BS 5534 : 2014 + A2 : 2018 *Slating and tiling for pitched roofs and vertical cladding — Code of practice*

BS 6229 : 2018 *Flat roofs with continuously supported flexible waterproof coverings — Code of practice*

BS 6915 : 2001 + A1 : 2014 *Design and construction of fully supported lead sheet roof and wall coverings — Code of practice*

BS 8000-0 : 2014 *Workmanship on construction sites — Introduction and general principles*

BS 8000-6 : 2013 *Workmanship on building sites — Code of practice for slating and tiling of roofs and walls*

BS EN 13501-5 : 2016 *Fire classification of construction products and building elements — Classification using data from external fire exposure to roofs tests*

BS EN 14001 : 2015 *Environmental management systems — Requirements with guidance for use*

BS EN 14783 : 2013 *Fully supported metal sheet and strip for roofing, external cladding and internal lining — Product specification and requirements*

BS EN ISO 9453 : 2014 *Soft solder alloys — Chemical compositions and forms*

BS EN ISO 9001 : 2015 *Quality management systems — Requirements*

BS ISO 45001 : 2018 *Occupational health and safety management systems — Requirements with guidance for use*

16 Conditions

16.1 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 or 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.

16.2 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.

16.3 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.

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

16.5 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
- actual 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
- any claims by the manufacturer relating to CE marking.

16.6 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.