

IKO PLC

Appley Lane North
Appley Bridge
Wigan
Lancashire WN6 9AB

Tel: 0844 412 7228 Fax: 0844 412 7229

e-mail: technical@ikogroup.co.uk

website: www.ikogroup.co.uk



Agrément Certificate

97/3310

Product Sheet 1

IKO INSULATED DPCs

HYLOAD AND HYLOAD FR INSULATED DPCs

This Agrément Certificate Product Sheet⁽¹⁾ relates to Hyload and Hyload FR Insulated DPCs, polymeric damp-proof courses (dpcs) with insulation adhered, for use where a cavity is closed around window and door openings.

(1) Hereinafter referred to as 'Certificate'.

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 effective as damp-proof barriers and, when used in a suitable wall construction, will resist the passage of water into the interior of the building in flush and check reveal installations (see section 7).

Hygrothermal behaviour — the products can be used in Accredited Construction Details for jambs and sills which require a path of minimum thermal resistance through the closer of $0.45 \text{ m}^2 \cdot \text{K} \cdot \text{W}^{-1}$ (see section 8).

Behaviour in relation to fire — Hyload FR will act as a cavity barrier. Hyload, when used in conjunction with a cavity barrier, will provide 30 minutes' fire resistance. The use of the Hyload product is restricted to buildings up to 18 m in height (see section 9).

Durability — the products, when installed correctly and protected within the cavity, will remain effective during the lifetime of a building (see section 12).



The BBA has awarded this Certificate to the company named above for the products described herein. These products have been assessed by the BBA as being fit for their intended use provided they are installed, used and maintained as set out in this Certificate.

On behalf of the British Board of Agrément

Claire Curtis-Thomas

Date of Fourth issue: 24 April 2018

John Albon – Head of Approvals
Construction Products

Claire Curtis-Thomas
Chief Executive

Originally certificated on 24 February 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.

British Board of Agrément

Bucknalls Lane
Watford
Herts WD25 9BA

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tel: 01923 665300
clientservices@bbacerts.co.uk
www.bbacerts.co.uk

Regulations

In the opinion of the BBA, Hyload and Hyload FR Insulated DPCs, 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:	B3(4)	Internal fire spread (structure)
Comment:		The FR product can contribute to satisfying this Regulation. See section 9 of this Certificate.
Requirement:	C2(b)	Resistance to moisture
Comment:		The products resist the passage of moisture from the outer leaf to the inner leaf of a cavity wall at window and door openings. See section 7 of this Certificate.
Requirement:	C2(c)	Resistance to moisture
Comment:		The products can contribute to reducing the risk of condensation. See sections 7, 8.2 and 8.3 of this Certificate.
Requirement:	L1(a)(i)	Conservation of fuel and power
Comment:		The products can contribute to satisfying this Requirement. See sections 8.1 to 8.3 of this Certificate.
Regulation:	7	Materials and workmanship
Comment:		The products are acceptable. See section 12 and the <i>Installation</i> part of this Certificate.
Regulation:	26	CO₂ emission rates for new buildings
Regulation:	26A	Fabric energy efficiency rates for new dwellings (applicable to England only)
Regulation:	26A	Primary energy consumption rates for new buildings (applicable to Wales only)
Regulation:	26B	Fabric performance values for new dwellings (applicable to Wales only)
Comment:		The products can contribute to satisfying these Regulations. See sections 8.1 to 8.3 of this Certificate.



The Building (Scotland) Regulations 2004 (as amended)

Regulation:	8(1)	Durability, workmanship and fitness of materials
Comment:		The products can contribute to a construction satisfying this Regulation. See section 12 and the <i>Installation</i> part of this Certificate.
Regulation:	9	Building standards applicable to construction
Standard:	2.4	Cavities
Comment:		The FR product can contribute to satisfying this Standard, with reference to clause 2.4.1 ⁽¹⁾⁽²⁾ . See section 9 of this Certificate.
Standard:	3.10	Precipitation
Comment:		The products can contribute to satisfying the requirements of this Standard. The products can be used where checked reveals are required. See section 7 of this Certificate.
Standard:	3.15	Condensation
Comment:		The products can contribute to reducing the risk of condensation, with reference to clauses 3.15.1, 3.15.4 and 3.15.5 of this Standard. See sections 7 and 8.1 to 8.3 of this Certificate.

Standard:	6.1(b)	Carbon dioxide emissions
Standard:	6.2	Building insulation envelope
Comment:		The products can contribute to minimising heat loss at jambs and sills. See section 8.1 of this Certificate.
Standard:	7.1(a)(b)	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. In addition, the products can contribute to a construction meeting a higher level of sustainability as defined in this Standard, with reference to clauses 7.1.4 ⁽¹⁾ [Aspects 1 and 2], 7.1.6 ⁽¹⁾⁽²⁾ [Aspects 1 and 2], 7.1.7 ⁽¹⁾ [Aspect 1], 7.1.9 ⁽²⁾ [Aspects 1 and 2] and 7.1.10 ⁽²⁾ [Aspect 1]. See sections 8.1 to 8.3 of this Certificate.
Regulation:	12	Building standards applicable to conversions
Comment:		All comments given for the products 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)	The products are acceptable. See section 12 and the <i>Installation</i> part of this Certificate.
Regulation:	28(b)	Resistance to moisture and weather
Comment:		The products can contribute to satisfying the requirements of this Regulation. The products can be used where checked reveals are required. See section 7 of this Certificate.
Regulation:	29	Condensation
Comment:		The products can contribute to reducing the risk of condensation. See sections 7, 8.1 and 8.3 of this Certificate.
Regulation:	35(4)	Internal fire spread — Structure
Comment:		The FR product can contribute to satisfying this Regulation. See section 9 of this Certificate.
Regulation:	39(a)(i)	Conservation measures
Regulation:	40(2)	Target carbon dioxide emission rate
Comment:		The products can contribute to satisfying these Regulations. See sections 8.1 and 8.3 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 section: 3 Delivery and site handling (3.1) of this Certificate.

Additional Information

NHBC Standards 2018

In the opinion of the BBA, Hyload and Hyload FR Insulated DPCs, if installed, used and maintained in accordance with this Certificate, can satisfy or contribute to satisfying the relevant requirements in relation to *NHBC Standards*, Chapter 6.1 *External masonry walls*.

Technical Specification

Description

- 1.1 Hyload and Hyload FR (fire rated) Insulated DPCs consist of an insulation bonded to a strip of a polymeric dpc.
- 1.2 The dpc strip overlaps the insulation at both edges to allow for the extension of the dpc into the window or door and cavity.
- 1.3 The products are available with the nominal characteristics given in Table 1.

Table 1 Nominal characteristics

Characteristic (unit)	Value	
	Hyload	Hyload FR
dpc	DampMaster	Hyload Trade ⁽¹⁾
insulation type	cross-linked polyethylene foam	phenolic foam
insulation thickness (mm)	17	20 ⁽²⁾
dpc thickness (mm)	0.8	0.9
length (m)	8	1.3 ⁽³⁾
dpc x insulation width (mm)	165 x 100, 180 x 100, 225 x 140	165 x 100, 180 x 100, 225 x 140
insulation λ value ($W \cdot m^{-1} \cdot K^{-1}$)	0.039	0.023

(1) The dpc is covered by BBA Certificate 95/3133, Product Sheet 3.

(2) Other insulation thicknesses are available on request.

(3) Insulation length is 1200 mm and dpc length is 1300 mm, to allow for lap joint.

- 1.4 Hyload DPC Jointing Tape is a 100 mm wide double-sided adhesive tape, protected on both sides by silicone release paper, for jointing lengths of the dpc.
- 1.5 Hyload DPC Lap Adhesive is a medium viscosity, synthetic rubber/resin contact adhesive, for use as an alternative to the double-sided tape for jointing lengths of the dpc.

2 Manufacture

- 2.1 The products are produced by adhering pre-cut insulation to the appropriate width dpc.
- 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 IKO PLC has been assessed and registered as meeting the requirements of BS EN ISO 9001 : 2008 by BSI (Certificate FM 45901).

3 Delivery and site handling

3.1 Hyload is supplied in rolls, and Hyload FR is supplied in strips, in the quantities and packaging given in Table 2. Each roll/carton has a label bearing the name of the manufacturer, product name, product code, dimensions and the BBA logo incorporating the number of this Certificate.

Table 2 Packaging and quantity

Grade	Size (mm)	Quantity	Package type	Quantity per pallet
Hyload	165	5	polythene bags	45
	180	5	polythene bags	45
	225	4	polythene bags	36
Hyload FR	165/180	10	cardboard cartons	30
	225	10	cardboard cartons	25

3.2 The pallets should be stored under cover, away from direct sunlight.

Assessment and Technical Investigations

The following is a summary of the assessment and technical investigations carried out on Hyload and Hyload FR Insulated DPCs.

Design Considerations

4 Use

4.1 Hyload and Hyload FR Insulated DPCs are satisfactory for use with timber, PVC-U or metal window and door frames, to provide an insulated dpc at areas where a cavity wall is closed.

4.2 Masonry walls into which the products are incorporated must be constructed in accordance with the national Building Regulations and one or more of the following technical specifications: BS EN 1996-1-1 : 2005, BS EN 1996-1-2 : 2005, BS EN 1996-2 : 2006 or BS EN 1996-3 : 2006 and their UK National Annexes.

5 Practicability of installation

The products are designed to be installed by competent general builders, experienced with these types of products.

6 Behaviour under load

The products are non-loadbearing and must not be used to support loads from the masonry. Work should be detailed to ensure that the foam does not carry loads.

7 Weather resistance



7.1 The products form an effective vertical dpc at the jambs of the opening. The use of a cavity tray may be required at the head of the opening to provide additional protection.

7.2 The window jambs and sills frame-to-wall gap should not exceed the dpc element thickness, so that effective damp-resistant contact can be made with the window frame or frame rebate.

7.3 The products can be used with a check reveal detail. This feature will provide enhanced resistance to water penetration and is conventional practice in Scotland and Northern Ireland. The use of the products in these situations may require the use of non-standard sizes and should be discussed with the Certificate holder.

8 Hygrothermal behaviour



8.1 The path of minimum thermal resistance through the products is at least $0.45 \text{ m}^2 \cdot \text{K} \cdot \text{W}^{-1}$ when used in jambs and sills with the window/door frame set back 30 mm or more into the wall cavity. The products can therefore be used in accordance with the Accredited Construction Details to limit heat loss and assign the associated heat loss rates (ψ -values) in SAP and SBEM calculations.



8.2 Jambs and sills incorporating the products in accordance with section 8.1 can adequately limit the risk of local surface condensation.



8.3 Under normal domestic conditions, the level of interstitial condensation associated with the products will be low, and the risk of any resultant damage minimal.

8.4 Door frames installed with proprietary fixings which cannot be set back into the wall cavity by 30 mm may require additional thermal insulation, eg insulated dry lining, to minimise excessive heat loss and the risk of excessive surface condensation.

9 Behaviour in relation to fire

Hyload FR



9.1 When installed within a window opening constructed from aerated concrete blocks, gypsum plasterboard, a 62 by 50 cm PVCU window, and sealed with a intumescent mastic, Hyload FR was tested generally in accordance with BS 476-20 : 1987 and 30 minutes' integrity was achieved as required by the national Building Regulations.

9.2 This performance may not be achieved by other versions of the product, or with its incorporation in other constructions, and the performance in such cases should be determined by test or assessment by a UKAS accredited laboratory.

Hyload



9.3 Hyload, when used in conjunction with appropriate cavity barriers as set out in the national Building Regulations, is suitable for use in walls required to provide a 30 minute fire resistance in a building no greater than 18 metres in height. If a longer period of fire resistance is required, an appropriate test or assessment must be carried out by a UKAS-accredited laboratory for the test concerned.

9.4 Hyload does not constitute a cavity barrier against the penetration of smoke and flame, as defined in the national Building Regulations.

9.5 The use of the product does not preclude the need to provide suitable fire protection to steel lintels where this is necessary to satisfy the national Building Regulations.

10 Compatibility with other materials

The products are compatible with all construction materials likely to be encountered. They are unaffected by water-based salt solution timber preservatives. Where there is doubt about the compatibility with materials in contact with the products, the advice of the Certificate holder's Technical Department should be sought.

11 Maintenance

As the products are confined within a structure and have suitable durability (see section 12), maintenance is not required.

12 Durability



The products are durable and, when installed in accordance with this Certificate, will not suffer significant degradation when protected within the cavity. The products will continue to function for the normal expected life of a building.

Installation

13 General

13.1 Installation must follow normal good practice for the detailing of dpcs, as set out in PD 6697 : 2010, clauses 6.2.7.7.4 and 6.2.7.7.5, and must be in accordance with the relevant clauses of BS 8000-3 : 2001, BS 8000-4 : 1989, BS 8215 : 1991, BRE Digest 380 and the Certificate holder's instructions.

13.2 The inner surface of the window/door frame should be set back as appropriate to overlap the products.

13.3 Installation can be carried out using traditional methods, with lengths cut to size on site using normal hand tools.

13.4 The products are sufficiently robust and flexible to allow manipulation and positioning within the cavity. However, care must be taken during site handling and cavity cleaning to avoid damaging the foam insulation and composite bond. If any significant damage occurs, the material should be replaced.

13.5 The width of the insulation must be sufficient to cover the masonry cavity closer and avoid any risk of condensation through cold bridging.

13.6 Side projections of the dpc must project beyond the masonry closer into the cavity, and not be bridged by mortar. The dpc projection into the opening must be located within the frame, with the end projection always at the bottom.

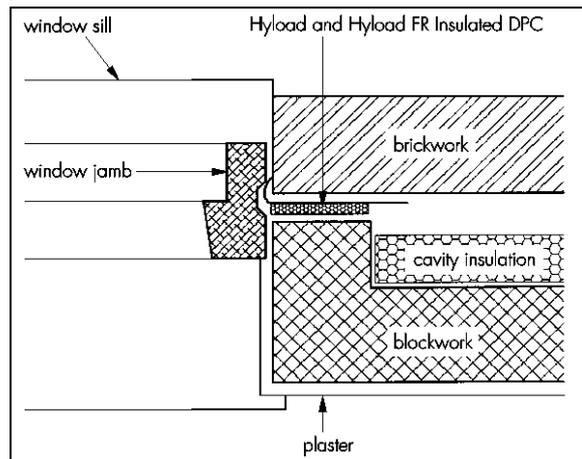
13.7 The dpc must not be secured by nailing. When required, the products may be given temporary support by turning the material over onto the top of the blockwork and holding in position with masonry.

14 Procedure

14.1 The cavity wall construction is built using conventional good practice, and return headers are installed as appropriate at openings for windows and door frames.

14.2 The products are placed vertically in the cavity, with the foam insulation towards the inner leaf and aligned with the return header (see Figure 1).

Figure 1 Typical installation



14.3 The vertically installed dpc is dressed into the sill cavity tray, and located behind the head cavity tray or sealed to the soffit of the lintel.

14.4 The products are cut to the required length using a sharp knife.

14.5 Where lap joints occur, the dpc material must overlap by a minimum of 100 mm, and the insulation strips must be tight-butted and the joint completely sealed.

14.6 Lap joints are produced either using Hyload DPC Jointing Tape or Hyload DPC Lap Adhesive. The advice of the Certificate holder should be sought regarding product dimensions for non-standard return headers and construction types.

Technical Investigations

15 Tests

15.1 Tests were carried out on the Hyload dpc component and the results assessed to determine:

- thickness
- mass per unit area
- tensile strength and elongation at break
- handling characteristics
- flexibility at low temperatures
- water vapour permeability
- resistance to water transmission under pressure
- effect of ageing at high temperatures
- impact resistance at normal and low temperatures
- peel strength of adhesive tape
- tensile shear strength of joints
- effect of water soak on joints.

15.2 Tests were carried out on the cross-linked phenolic foam insulation to determine:

- thermal properties
- density
- compressive strength.

15.3 Tests were carried out to determine the peel strength of the composite bond before and after heat ageing.

16 Investigations

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

16.2 An assessment was made of the hygrothermal properties of a construction incorporating the products.

16.3 Independent test data on fire performance of Hyload FR to BS 476-20 : 1987 were assessed.

16.4 Independent test data on fire performance of the polyethylene foam to BS 4735 : 1974 were evaluated.

Bibliography

BRE Digest 380 *Damp-proof courses*

BS 476-20 : 1987 *Fire tests on building materials and structures — Method for determination of the fire resistance of elements of construction (general principles)*

BS 4735 : 1974 *Laboratory method of test for assessment of the horizontal burning characteristics of specimens no larger than 150 mm x 50 mm x 13 mm (nominal) of cellular plastics and cellular rubber materials when subjected to a small flame*

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

BS 8000-3 : 2001 *Workmanship on building sites — Code of practice for masonry*

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

BS 8215 : 1991 *Code of practice for design and installation of damp-proof courses in masonry construction*

BS EN 1996-1-1 : 2005 + A1 2012 *Eurocode 6 — Design of masonry structures — General rules for reinforced and unreinforced masonry structures*

NA to BS EN 1996-1-1 : 2005 + A1 2012 *UK National Annex to Eurocode 6 — Design of masonry structures — General rules for reinforced and unreinforced masonry structures*

BS EN 1996-1-2 : 2005 *Eurocode 6 — Design of masonry structures — General rules — Structural fire design*

NA to BS EN 1996-1-2 : 2005 *UK National Annex to Eurocode 6 — Design of masonry structures — General rules — Structural fire design*

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 1996-3 : 2006 *Eurocode 6 — Design of masonry structures — Simplified calculation methods for unreinforced masonry structures*

NA to BS EN 1996-3 : 2006 *UK National Annex to Eurocode 6 — Design of masonry structures — Simplified calculation methods for unreinforced masonry structures*

BS EN ISO 9001 : 2008 *Quality management systems — Requirements*

PD 6697 : 2010 *Recommendations for the design of masonry structures to BS EN 1996-1-1 and BS EN 1996-2*

17 Conditions

17.1 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 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.

17.2 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.

17.3 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.

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

17.5 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.

17.6 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.