

BRE Global Classification Report

Classification of reaction to fire performance in accordance with BS EN 13501-1: 2018 on Futural pre-coated aluminium cladding panel also known as HJ TECH PVDF Pre-coated Solid Aluminium

Prepared for: Anhui HJ Tech Co., Ltd.

Date: 24 February 2023

Report Number: P122325-1004 Issue 1

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1 Introduction

This classification report defines the classification assigned to 'Futural' pre-coated aluminium cladding panel also known as 'HJ TECH PVDF Pre-coated Solid Aluminium' in accordance with the procedures given in BS EN 13501-1: 2018¹.

BRE Global

CLASSIFICATION OF REACTION TO FIRE IN ACCORDANCE WITH BS EN 13501-1: 2018

Sponsor:	Anhui HJ Tech Co., Ltd., #568 South Huizhou Rd., Chuzhou City, Anhui Province, China
Prepared for:	Anhui HJ Tech Co., Ltd., #568 South Huizhou Rd., Chuzhou City, Anhui Province, China
Manufacturer:	Anhui HJ Tech Co., Ltd., #568 South Huizhou Rd., Chuzhou City, Anhui Province, China
Place of Manufacture:	China
Prepared by:	BRE Global, Bucknalls Lane, Garston, Watford, Hertfordshire, WD25 9XX, UK
Notified Body No.:	0832
Product names:	<ul style="list-style-type: none">• 'Futural' pre-coated aluminium cladding panel• 'HJ TECH PVDF Pre-coated Solid Aluminium'
Classification report No.:	P122325-1004
Issue number:	One
Date of issue:	24 February 2023

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2 Details of classified product

2.1 General

The product, 'Futural' pre-coated aluminium cladding panel also known as 'HJ TECH PVDF Pre-coated Solid Aluminium', is defined by the test sponsor as PVDF pre-coated aluminium cladding panel.

2.2 Product description

The product, 'Futural' pre-coated aluminium cladding panel also known as 'HJ TECH PVDF Pre-coated Solid Aluminium', is described in section 2.2.2.

2.2.1 Traceability

The test sample was supplied by the test sponsor. BRE Global was not involved in the sampling process and therefore cannot comment upon the relationship between the sample supplied for test and the product supplied to market. The results apply to the sample as received.

2.2.2 Sample details

Unless otherwise stated all measurements are nominal.

Parameter	Details
Test sponsor	Anhui HJ Tech Co., Ltd. #568 South Huizhou Rd. Chuzhou City Anhui Province China, 239065
Manufacturer of sample	Anhui HJ Tech Co., Ltd. #568 South Huizhou Rd. Chuzhou City Anhui Province China, 239065
Place of manufacture	China
Trade names	<ul style="list-style-type: none"> Futural HJ TECH PVDF Pre-coated Solid Aluminium
Product reference/number	Futural or HJ TECH PVDF Pre-coated Solid Aluminium
Sample description (as provided by test sponsor/manufacturer)	PVDF pre-coated aluminium. The test sponsor's product description is shown in Appendix A of this report.
Description of sample (as received)	Nominal 3 mm-thick, dark grey pre-coated metal sheet. Batch one was provided as a jointed specimen, comprising five individual panels. Batch two consisted of two unjointed specimens, comprising two pieces each.
Test sponsor's product data	
Generic type of product	PVDF pre-coated aluminium
Nominal product thickness (mm)	3



Parameter	Details
Nominal thickness of coating (μm)	38 ± 8
Nominal density (g/cm^3)	2.7 [$2700 \text{ kg}/\text{m}^3$]
Nominal mass per unit area of product (kg/m^2)	8.1
Nominal mass per unit area of coating (kg/m^2)	0.038
Colour	Dark Grey
Flame retardant treatment added, or organic content limited during production (yes/no)	No. Note: The coating is a thermoplastic fluoropolymer.
European product standard, if applicable	Note 1
Substrate and ventilation conditions	
Generic type	Calcium silicate
Nominal thickness (mm)	12
Nominal density (kg/m^3)	870 ± 50
Nominal mass per unit area (kg/m^2)	10.44 ± 0.6
Type of air gap	80 mm-deep, ventilated cavity
Position of air gap	Between the back face of the test specimen and the front face of the 12 mm-thick calcium silicate board
Measured sample data, determined by BRE Global @ 23 °C \pm 2 °C and 50 % \pm 5 % RH	
Mean sample thickness (mm)	Batch 1: 2.83 (range 2.77 to 2.88) Batch 2: 2.84 (range 2.82 to 2.85)
Mean sample mass per unit area (kg/m^2)	Batch 1: 7.84 (range 7.81 to 7.93) Batch 2: 7.88
Test information	
Face to be tested	Coated face
Orientation aspects	The dark grey pre-coated face was the interior (test) face
Test sponsor's sampling identification	Futural A1
BRE Global sample number	Batch 1: E14494 Batch 2: E14589
Date of test	Batch 1: 21 October 2022 Batch 2: 03 February 2023
Additional information	Batch 1 was tested under the following BRE reference: P122325-1002.

Note 1: This information was not supplied by the test sponsor.



3 Reports & results in support of this classification

3.1 Reports

Name of Laboratory	Name of test sponsor	Test reports Nos.	Test method/field of application rules
BRE Global	Anhui HJ Tech Co., Ltd.	P122325-1000 Issue 3	BS EN ISO 1716 ²
BRE Global	Anhui HJ Tech Co., Ltd.	P122325-1003 Issue 1	BS EN 13823 ³

3.2 Results

Test method & test number	Parameter	No. test runs	Results	
			Continuous parameter - mean (m)	Compliance with parameters Criterion / Compliance status, A1
BS EN ISO 1716² Dk Grey PVDF coating Tested: 27 June 2022 E14244 P122325-1000 Issue 2	Q _{PCS}	3	14.53	- / -
	Q _{PCSs} @ 0.038 kg/m ²		0.55	Q _{PCSs} ≤ 2.0 MJ/m ² / Compliant*
BS EN ISO 1716² Aluminium Deemed to satisfy	Q _{PCS}	-	0.00	Q _{PCS} ≤ 2.0 MJ/kg / Compliant
	Q _{PCSs} @ 8.1		0.00	- / -
BS EN ISO 1716² Whole product	Q _{PCS}	-	0.07	Q _{PCS} ≤ 2.0 MJ/kg / Compliant
	Q _{PCSs} @ 8.138		0.55	- / -
BS EN ISO 1182⁴ Coating	The coating did not meet the requirements of a substantial component as defined in BS EN 13501-1 ¹ .			
BS EN ISO 1182⁴ Aluminium	Deemed to satisfy class A1 without testing in accordance with Commission Decision 96/603/EC (OJ L 267 19.10.1966 p23) as amended by 2000/605/EC (OJ L 258 12.10.2000 p36) and 2003/424/EC (OJ L 144 12.6.2003 p9). Not testable in this apparatus. The melting point of aluminium is lower than the average temperature of the furnace.			

Test method & test number	Parameter	No. test runs	Results	
			Continuous parameter - mean (m)	Compliance with parameters Criterion / Compliance status, A1
BS EN 13823³ Futural pre-coated aluminium cladding panel/ HJ TECH PVDF Pre-coated Solid Aluminium Tested: 21/10/22 & 03/02/23 E14494 & E14589 P122325-1003	FIGRA _{0.2MJ}	3	0.00 W/s	≤ 20 W/s / Compliant*
	FIGRA _{0.4MJ}		0.00 W/s	-/-
	LFS		(-)	≤ edge of specimen / Compliant
	THR _{600s}		0.81 MJ	≤ 4.0 MJ / Compliant*
	SMOGRA		0.00 m ² /s ²	≤ 30 m ² /s ² / Compliant*
	TSP _{600s}		5.75 m ²	≤ 50 m ² / Compliant*
	Flaming droplets/particles ≤ 10s		Not observed	Flaming ≤ 10s / Compliant
	Flaming droplets/particles > 10s		Not observed	Flaming > 10s / Compliant

* In accordance with Footnote C, Table 1 of BS EN 13501-1



4 Classification and field of application

4.1 Reference of classification

This classification has been carried out in accordance with BS EN 13501-1: 2018.

4.2 Classification

The product, 'Futural' pre-coated aluminium cladding panel also known as 'HJ TECH PVDF Pre-coated Solid Aluminium', in relation to reaction to fire behaviour is classified:

A1

The additional classification in relation to smoke production is:

-

The additional classification in relation to flaming droplets / particles is:

-

The format of the reaction to fire classification for construction products excluding floorings and linear pipe thermal insulation products is:

Fire Behaviour		Smoke Production		Flaming Droplets
A1	-	s	-	, d -

i.e., A1

Reaction to fire classification: A1



4.3 Field of application

This classification is valid for:

- i) PVDF pre-coated aluminium.

And the following product and mounting and fixing parameters:

Parameter	Field of application
Composition, including additives and flame retardant	Valid as tested, no variation allowed.
Overall thickness of product	Nominal 3 mm. 2.84 mm (range 2.77 mm to 2.88 mm) measured by BRE. Valid as tested, no variation allowed.
Overall mass per unit area of product	Overall mass per unit area 8.1 kg/m ² . 7.84 (range 7.81 to 7.93) and 7.88 kg/m ² measured by BRE. Valid as tested, no variation allowed.
Product construction	Flat panel only, not valid for preformed, shaped or cassette constructions. Valid as tested, no variation allowed.
Insulation	None. Valid as tested, no variation allowed.
Joints and edges	Valid for protected joints and edges.
Base material/core	
Generic type	Aluminium
mass per unit area of sheet material	Overall mass per unit area 8.1 kg/m ² . Valid as tested, no variation allowed.
Thickness of sheet material	Nominal 3 mm. Valid as tested, no variation allowed.
Coating	
Coating	PVDF Paint (Tradename: Note 1) Valid as tested, no variation allowed.
Colour of coating	Dark Grey. Valid as tested no variation in colour allowed.
Mass per unit area of coating	Nominal 0.038 kg/m ² . Valid as tested, no variation allowed
Organic content of coating	Valid as tested, no variation allowed.
Thickness of coating	Nominal 38 µm ± 8 µm. Valid as tested, no variation allowed.

This classification is valid for the following end-use applications:

- i) Mounted free-standing, without any material either in front or behind it.
- ii) Mounted as above, mechanically fixed in end-use.

Note 1: This commercially sensitive information has been withheld from the test report at the request of the test sponsor and is held in confidence in the BRE laboratory file.

5 Limitations

This classification document does not represent type approval or certification of the product.



The classification assigned to the product in this report is appropriate to a declaration of conformity by the manufacturer within the context of system 3 of AVCP and CE marking under the Regulation 305/2011/EU of the European Parliament and of the Council of 9 March 2011 laying down harmonised conditions for the marketing of construction products.

The manufacturer has made a declaration, which is held on file. This confirms that the product's design requires no specific processes, procedures, or stages (e.g., no addition of flame-retardants, limitation of organic content, or addition of fillers) that are aimed at enhancing the fire performance in order to obtain the classification achieved. As a consequence, the manufacturer has concluded that system 3 attestation is appropriate.

The test laboratory has, therefore, played no part in sampling the product for the test, although it holds appropriate references, supplied by the manufacturer, to provide for traceability of the samples tested.

The information in Section 2.2.2 of this report, other than that indicated otherwise, was supplied by the test sponsor, and was not independently verified by BRE Global. The validity of the results is conditional on the accuracy of that data.

Because of the nature of reaction to fire testing and the consequent difficulty in quantifying the uncertainty of measurement of reaction to fire, it is not possible to provide a stated degree of accuracy of the results.

6 References

1. BS EN 13501-1: 2018. Fire classification of construction products and building elements. Part 1: Classification using data from reaction to fire tests. BSI, London. 2018.
2. BS EN ISO 1716: 2018. Reaction to fire tests for products - Determination of the gross heat of combustion (calorific value). BSI, London. 2018.
3. BS EN 13823: 2020. Reaction to fire tests for building products - Building products excluding floorings exposed to the thermal attack by a single burning item. BSI, London. 2020.
4. BS EN ISO 1182: 2020. Reaction to fire tests for products - Non-combustibility test. BSI, London. 2020.



Appendix A Sample description

Table A.1: Test sponsor's product description

Test sponsor Company Name: Anhui HJ Tech Co., Ltd. Address: #568 South Huizhou Rd. Chuzhou City Anhui Province China Postcode: 239065	
Parameter	Details (if applicable)
Trade name of product	'Futural' or 'HJ TECH PVDF Pre-coated Solid Aluminium'
General description of product	PVDF pre-coated aluminium
Name and address of manufacturer of product	Anhui HJ Tech Co., Ltd. #568 South Huizhou Rd. Chuzhou City Anhui Province China
Place of manufacture	China
Product reference/number	'Futural' or 'HJ TECH PVDF Pre-coated Solid Aluminium'
Thickness	≤ 3 mm (Nominal 3 mm)
Density	2.7 g/cm ³
Mass per unit area	≤ 8.1 kg/m ² (Nominal 8.1)
Generic type of product	PVDF Pre-coated aluminium
Flame retardant treatment added, or organic content limited during production (yes/no), if yes give details	No
Harmonised EN product standard, and AVCP System No. if applicable	EN13501-1
Industry/in-house product standard, if applicable	Note 1
Interior facing 1 Coating	- Generic type - Product reference - Manufacturer - Thickness - Mass per unit area/density - Colour reference - Trade name flame retardant - Generic type flame retardant - Amount flame retardant
Interior facing 2	- Generic type - Product reference - Manufacturer - Thickness - Mass per unit area/density - Colour reference - Trade name flame retardant - Generic type flame retardant - Amount flame retardant
	PVDF Paint PVDF Note 2 38 µm ± 8 µm 0.038 kg/m ² Dark Grey - high calorific colour N/A N/A N/A
	Note 1 Note 1 Note 1 Note 1 Note 1 Note 1 Note 1 Note 1 Note 1 Note 1



Test sponsor Company Name: Anhui HJ Tech Co., Ltd. Address: #568 South Huizhou Rd. Chuzhou City Anhui Province China Postcode: 239065	
Parameter	Details (if applicable)
Trade name of product	'Futural' or 'HJ TECH PVDF Pre-coated Solid Aluminium'
Core material Aluminium <ul style="list-style-type: none"> - Generic type - Product reference - Manufacturer - Thickness - Mass per unit area/density - Colour reference - Trade name flame retardant - Generic type flame retardant - Amount flame retardant 	Aluminium Aluminium Note 2 ≤ 3 mm (Nominal 3 mm) ≤ 8.1 kg/m ² (Nominal 8.1 kg/m ²) Mill N/A N/A N/A
Exterior facing 2 <ul style="list-style-type: none"> - Generic type - Product reference - Manufacturer - Thickness - Mass per unit area/density - Colour reference - Trade name flame retardant - Generic type flame retardant - Amount flame retardant 	Note 1 Note 1 Note 1 Note 1 Note 1 Note 1 Note 1 Note 1 Note 1
Exterior facing 1 <ul style="list-style-type: none"> - Generic type - Product reference - Manufacturer - Thickness - Mass per unit area/density - Colour reference - Trade name flame retardant - Generic type flame retardant - Amount flame retardant 	Note 1 Note 1 Note 1 Note 1 Note 1 Note 1 Note 1 Note 1 Note 1
Adhesive (if applicable) <ul style="list-style-type: none"> - Generic type - Product reference - Manufacturer - Application rate - Application method - Specific gravity - Colour reference - Trade name flame retardant - Generic type flame retardant - Amount flame retardant 	Note 1 Note 1 Note 1 Note 1 Note 1 Note 1 Note 1 Note 1 Note 1 Note 1



Test sponsor	
Company Name: Anhui HJ Tech Co., Ltd.	
Address: #568 South Huizhou Rd. Chuzhou City Anhui Province China	
Postcode: 239065	
Parameter	Details (if applicable)
Trade name of product	'Futural' or 'HJ TECH PVDF Pre-coated Solid Aluminium'
Substrate (if applicable)	- Generic type - Product standard - Product name/reference - Manufacturer - Thickness - Density or mass per unit area - Class (EN 13501-1)
Face to be tested	Front side
Orientation aspects	Note 1
Sampling Identification Reference	HJ001
Additional information	No

Note 1: This information was not supplied by the test sponsor.

Note 2: This commercially sensitive information has been withheld from the test report at the request of the test sponsor and is held in confidence in the BRE laboratory file.



Figure A.1: EN 13823 test specimen





Figure A.2: BS EN ISO 1716 test specimen as received

