

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

Test Sponsor:

International Development Company Metal Industries LLC
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Website: www.idcuae.com

Test Material/Assembly:

4mm thick "emiCLAD" Aluminum Composite Panel (ACP) with PVDF Coating



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DUBAI

ABU DHABI

DOHA



Accreditation

ISO/IEC 17025: General requirements for the competence of testing and calibration laboratories with:

United Kingdom Accreditation Service (UKAS) - Testing Laboratory: **4439**
www.ukas.com



Memberships

Members of European Group of Organization for Fire Testing, Inspection and Certification

www.egolf.org.uk

Member of International Trade Council

www.thetradecouncil.com

Member of Association for Specialist Fire Protection

www.asfp.org.uk

Member of Centre for Window and Cladding Technology

www.cwct.co.uk



The work which is the subject of this report falls under the accreditation of **ISO 17025 UKAS**.



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1. INTRODUCTION

This classification report defines the classification assigned to 4mm thick “emiCLAD” Aluminum Composite Panel (ACP) with PVDF Coating in accordance with the procedures given in BS EN 13501-1:2018: Fire classification of construction products and building elements — Part 1: Classification using data from reaction to fire tests.

2. SPONSOR

Name: International Development Company Metal Industries LLC
 Address: PO Box No. 2621,
 Abu Dhabi, United Arab Emirates
 Telephone: +971 2 504 6300, Fax: +971 2 582 3088
 Website: www.idcuae.com

3. TESTING LABORATORY

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 Website: www.bell-wright.com

3. DETAILS OF CLASSIFIED PRODUCT

3.1. Product Description

Note: The testing laboratory does not hold any responsibility for the information that has been provided by the test sponsor which could not be verified by the testing laboratory, as this could affect the validity of the test result. All information that could not be verified will be indicated by an asterisk () mark.*

Description	Aluminium Composite Panel with PVDF Coating* (Stated)		
Product name	“emiCLAD”* (Stated)		
Manufacturer	International Development Company Metal Industries LLC* (Stated)		
Overall Thickness	4mm (Measured by TBWIC)		
Area weight	7 kg/m ² (Measured by TBWIC)		
Product Details	Layer 1	Description	Topcoat* (Stated)
		Paint type	Polyvinylidene fluoride (PVDF) * (Stated)
		Manufacturer	Good Luck Decorative Materials Manufacturer LLC* (Stated)
		Colour	Silver* (Stated)
		Thickness	0.02mm* (Stated)
		Area Density	0.055 kg/m ² * (Stated)
	Layer 2	Description	Primer* (Stated)
		Paint type	Polyester* (Stated)
		Manufacturer	Good Luck Decorative Materials Manufacturer LLC* (Stated)
		Colour	White* (Stated)
		Thickness	0.006mm* (Stated)
		Area Density	0.007 kg/m ² * (Stated)



	Layer 3	Description	Top Sheet* (Stated)
		Material	Aluminum* (Stated)
		Manufacturer	Good Luck Decorative Materials Manufacturer LLC* (Stated)
		Alloy Grade	3003-H16* (Stated)
		Thickness	0.5mm* (Stated)
		Density	2710 kg/m ³ * (Stated)
		Area Density	1.355 kg/m ² * (Stated)
	Layer 4	Description	Adhesive* (Stated)
		Material	Maleic Anhydride Modified Polyethylene* (Stated)
		Manufacturer	Emirates Panel Plastic Industries* (Stated)
		Colour	Ivory* (Stated)
		Thickness	0.05mm* (Stated)
		Area Density	0.932 g/cm ² * (Stated)
	Layer 5	Description	Core* (Stated)
		Material	Non-combustible mineral-filled core* (Stated)
		Manufacturer	Jiashan Rixin New Material Co. Ltd* (Stated)
		Thickness	3mm* (Stated)
		Area Density	5 kg/m ² * (Stated)
	Layer 6	Description	Adhesive* (Stated)
		Material	Maleic Anhydride Modified Polyethylene* (Stated)
		Manufacturer	Emirates Panel Plastic Industries* (Stated)
		Color Code	Ivory* (Stated)
		Thickness	0.05mm* (Stated)
		Area Density	0.932 g/cm ² * (Stated)
	Layer 7	Description	Bottom Sheet* (Stated)
		Material	Aluminum* (Stated)
		Manufacturer	Jiangsu Metcoplus* (Stated)
		Alloy Grade	3003-H16* (Stated)
Thickness		0.5mm* (Stated)	
Density		2710 kg/m ³ * (Stated)	
Area Density		1.355 kg/m ² * (Stated)	
Layer 8	Description	Service Coat* (Stated)	
	Paint type	Polyester* (Stated)	
	Manufacturer	Jiangsu Metcoplus* (Stated)	
	Colour	Grey* (Stated)	
	Thickness	0.006mm* (Stated)	
	Area Density	0.007 kg/m ² * (Stated)	



4. SPECIMEN VERIFICATION

The choice and design and the definition of the specimen have been made by International Development Company Metal Industries LLC, and TBWIC testing laboratory has not been involved in the selection or design of the specimen. The results apply to the sample as received.

Note: There are contexts where information has been provided by the sponsor and verification of information has been done through either technical datasheet or other document submission, or as indicated directly by the sponsor. For this reason, materials have been tested in an as-received condition and TBWIC bears no liability for the legitimacy of the submitted information.

5. REPORT & TEST RESULTS IN SUPPORT OF THIS CLASSIFICATION

5.1. Reports

Name of Laboratory	Test Sponsor	Test Report No.	Test Method/Field of Application Rules
Thomas Bell-Wright International Consultants (TBWIC)	International Development Company Metal Industries LLC	UC146-1A	BS EN 13823:2010 +A1:2014
		UC146-2A	BS EN ISO 11925-2:2010

5.2. Results

Test Method	TEST PARAMETERS	No. of tests	TEST RESULTS	
			Continuous parameter-mean (m)	Compliance parameters
BS EN ISO 11925-2:2010	$F_s \leq 150\text{mm}$ within 60 seconds	12	$F_s \leq 150\text{mm}$	Compliant
	Ignition of filter paper		Nil	Compliant
BS EN 13823:2010 +A1:2014	$\text{FIGRA}_{0,2} \text{ MJ} \leq 120 \text{ W/S}$	3	0	Compliant
	$\text{THR}_{600s} \leq 7.5 \text{ MJ}$	3	0.7	Compliant
	Lateral Flame Spread < Edge of Specimen	3	< Edge of Specimen	Compliant
	CRITERIA for subclass "s1"			
	$\text{SMOGRA} \leq 30\text{m}^2/\text{s}^2$	3	0	Compliant
	$\text{TSP}_{600s} \leq 50\text{m}^2$	3	11	Compliant
	CRITERIA for subclass "d0"			
	Flaming droplets/particles within 600s	3	Nil	Compliant



6. CLASSIFICATION & FIELD OF APPLICATION

6.1. Reference of classification

This classification has been carried out in accordance with Clause 8 of EN 13501-1:2018.

6.2. Classification

The product, 4mm thick emiCLAD Aluminium Composite Panel (ACP), in relation to its reaction to fire behavior are classified;

Fire behavior		Smoke production			Flaming droplets	
B	-	s	1	,	d	0
Reaction to fire classification: B- s1, d0						

Remark: The classes with their corresponding fire performance are given in annex A.

6.3. Field of application

This classification is valid for the following end use applications:

- i. Construction applications

This classification is also valid for the following product parameters:

Overall product thickness	No variation allowed
Product density	No variation allowed
Product composition	No variation allowed
Colour	No variation allowed
Joints	Results valid for material without joint, with vertical and horizontal joint in the tested configuration

7. LIMITATIONS

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

This report and all records of the test to which it relates may not be retained by TBWIC further than 5 years from the date of testing.

This test report is respectfully submitted by: Thomas Bell-Wright International Consultants

Prepared by:

Reviewed and Approved by:


Rachel Marie Novelo
Fire Testing Engineer




Suketa Tyagi
Reaction to Fire Manager

Note:

- i. A duplicate version of this report with a brand name, "Aluclad", had been issued under test report reference, UC146-3.



8. ANNEXURE A

Classes of reaction to fire performance for construction products excluding floorings and linear pipe thermal insulation products

Class	Test method(s)	Classification criteria	Additional classification
A1	EN ISO 1182 ^a and	$\Delta T \leq 30 \text{ }^\circ\text{C}$; and $\Delta m \leq 50 \%$; and $t_f = 0$ (i.e. no sustained flaming)	-
	EN ISO 1716	$PCS \leq 2,0 \text{ MJ/kg}$ ^a and $PCS \leq 2,0 \text{ MJ/kg}$ ^{b c} and $PCS \leq 1,4 \text{ MJ/m}^2$ ^d and $PCS \leq 2,0 \text{ MJ/kg}$ ^e	-
A2	EN ISO 1182 ^a or	$\Delta T \leq 50 \text{ }^\circ\text{C}$; and $\Delta m \leq 50 \%$; and $t_f \leq 20 \text{ s}$	-
	EN ISO 1716 and	$PCS \leq 3,0 \text{ MJ/kg}$ ^a and $PCS \leq 4,0 \text{ MJ/m}^2$ ^b and $PCS \leq 4,0 \text{ MJ/m}^2$ ^d and $PCS \leq 3,0 \text{ MJ/kg}$ ^e	-
	EN 13823	$FIGRA \leq 120 \text{ W/s}$ and $LFS < \text{edge of specimen}$ and $THR_{600s} \leq 7,5 \text{ MJ}$	Smoke production ^f and Flaming droplets/particles ^g
B	EN 13823 and	$FIGRA \leq 120 \text{ W/s}$ and $LFS < \text{edge of specimen}$ and $THR_{600s} \leq 7,5 \text{ MJ}$	Smoke production ^f and Flaming droplets/particles ^g
	EN ISO 11925-2 ⁱ : Exposure = 30 s	$F_s \leq 150 \text{ mm}$ within 60 s	
C	EN 13823 and	$FIGRA \leq 250 \text{ W/s}$ and $LFS < \text{edge of specimen}$ and $THR_{600s} \leq 15 \text{ MJ}$	Smoke production ^f and Flaming droplets/particles ^g
	EN ISO 11925-2 ⁱ : Exposure = 30 s	$F_s \leq 150 \text{ mm}$ within 60 s	
D	EN 13823 and	$FIGRA \leq 750 \text{ W/s}$	Smoke production ^f and Flaming droplets/particles ^g
	EN ISO 11925-2 ⁱ : Exposure = 30 s	$F_s \leq 150 \text{ mm}$ within 60 s	
E	EN ISO 11925-2 ⁱ : Exposure = 15 s	$F_s \leq 150 \text{ mm}$ within 20 s	Flaming droplets/particles ^h
F	EN ISO 11925-2 ⁱ : Exposure = 15 s	$F_s \geq 150 \text{ mm}$ within 20 s	Flaming droplets/particles ^h

^a For homogeneous products and substantial components of non-homogeneous products.

^b For any external non-substantial component of non-homogeneous products.

^c Alternatively, any external non-substantial component having a $PCS \leq 2,0 \text{ MJ/m}^2$, provided that the product satisfies the following criteria of EN 13823: $FIGRA \leq 20 \text{ W/s}$, and $LFS < \text{edge of specimen}$, and $THR_{600s} \leq 4,0 \text{ MJ}$, and $s1$, and $d0$.



^d For any internal non-substantial component of non-homogeneous products.

^e For the product as a whole.

^f In the last phase of the development of the test procedure, modifications of the smoke measurement system have been introduced, the effect of which needs further investigation. This may result in a modification of the limit values and/or parameters for the evaluation of the smoke production.

s1 = SMOGRA $\leq 30\text{m}^2/\text{s}^2$ and TSP_{600s} $\leq 50\text{m}^2$; **s2** = SMOGRA $\leq 180\text{m}^2/\text{s}^2$ and TSP_{600s} $\leq 200\text{m}^2$; **s3** = not s1 or s2

^g **d0** = No flaming droplets/ particles in EN 13823 within 600 s;

d1 = no flaming droplets/ particles persisting longer than 10 s in EN 13823 within 600 s;

d2 = not d0 or d1.

Ignition of the paper in EN ISO 11925-2 results in a d2 classification.

^h Pass = no ignition of the paper (no classification);

Fail = ignition of the paper (d2 classification).

ⁱ Under conditions of surface flame attack and, if appropriate to the end-use application of the product, edge flame attack.

---- End of Classification Report ----