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

Test Sponsor:

3A Composites India Pvt Ltd
Building. No. 11, Unit No. 1112,
1st Floor, Solitaire Corporate Park,
Mathuradas Wasanji Marg,
Chakala, Andheri (East),
Mumbai - 400093, India
T: +91 8828339231
Website: www.alucobond.in

Test Material

ALUCODUAL® Engineered Solid Sheets -ESS

THOMAS BELL-WRIGHT
INTERNATIONAL CONSULTANTS

Test Date: 22-Apr-24
Issue Date: 19-Jun-24
Classification Report Reference No: XK061-2

Memberships

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

www.egolf.org.uk

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 accreditations of **ISO 17025 UKAS.**

Table of Contents

1. INTRODUCTION

This classification report defines the classification assigned to ALUCODUAL® Engineered Solid Sheets - ESS as described in Section 4 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: 3A Composites India Pvt Ltd
Address: Building. No. 11, Unit No. 1112,
1st Floor, Solitaire Corporate Park,
Mathuradas Wasanji Marg,
Chakala, Andheri (East),
Mumbai - 400093, India
T: +91 8828339231
Website: www.alucobond.in

3. TESTING LABORATORY

Name: Thomas Bell-Wright International Consultants (TBWIC)
Address: Corner of 46th and 47th Streets,
Jebel Ali Industrial Area 1
Dubai, UAE
T: +971 04 821 5777
Website: www.bell-wright.com

4. DETAILS OF CLASSIFIED PRODUCT

4.1. 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.

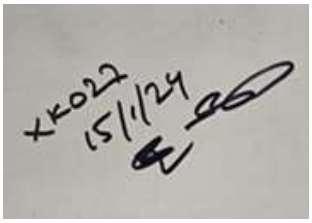
Product Description		ALUCODUAL® Engineered Solid Sheets (ESS) *	
Product Reference		ALUCODUAL®*	
Manufacturer		3A Composites India Pvt. Ltd*	
Thickness Total		2.6 mm (measured by TBWIC)	
Mass per unit area		6.56 kg/m^2 (measured by TBWIC)	
Colour Tested		Black (observed by TWBIC)	
Product Details	**Clear Coat**	Reference Name	Ultranar PVDF clear coat*
		Manufacturer	Spectrum Industries LLC*
		Thickness	15 µm* (stated)
		Mass per unit area	0.022 kg/m^2* (stated)

	Top Coat – Polyvinylidene difluoride (PVDF) Colour Coating	Reference Name	Ultranar PVDF Top coat*
		Manufacturer	Spectrum Industries LLC*
		Thickness	20 µm* (stated)
		Mass per unit area	0.035 kg/m^2* (stated)
	Primer	Reference Name	CP449 White Primer*
		Manufacturer	Spectrum Industries LLC*
		Thickness	7 µm* (stated)
		Mass per unit area	0.010 kg/m^2* (stated)
	Top Aluminium Skin	Reference Name	Aluminium coil (mill finish)*
		Manufacturer	Hindalco*
		Thickness	1.2 mm* (stated)
		Mass per unit area	3.27 kg/m^2* (stated)
		Density	2720 kg/m^3* (stated)
	Adhesive Film	Reference Name	*Note 1*
		Manufacturer	*Note 1*
		Thickness	*Note 1*
		Mass per unit area	*Note 1*
		Density	*Note 1*
	Bottom Aluminium Skin	Reference Name	Aluminium coil (mill finish)*
		Manufacturer	Hindalco*
		Thickness	1.2 mm* (stated)
		Mass per unit area	3.27 kg/m^2* (stated)
		Density	2700 kg/m^3* (stated)
	Back Coat	Reference Name	ARMIDUR® CC l156*
		Manufacturer	Monopol*
		Thickness	7 µm* (stated)
		Mass per unit area	0.009 kg/m^2* (stated)

Note 1: *Reserved information but known by the laboratory.*

5. SPECIMEN PREPARATION PROCEDURE

TBWIC testing laboratory has not been involved in the selection or design of the specimen. However, the materials were selected, marked, and signed by the representative from TBWIC Certification Division (Certification Body) on 15-Jan-24 as shown below. The results of the test apply only to the samples 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.

6. REPORT & TEST RESULTS IN SUPPORT OF THIS CLASSIFICATION

6.1. Reports

Name of Laboratory	Test Sponsor	Test Report No.	Test Method/Field of Application Rules
Thomas Bell-Wright International Consultants (TBWIC)	3A Composites India Pvt Ltd	XD021-2	BS EN ISO-1716:2018
		XK061-1	EN 13823:2020+A1:2020

6.2. Results

Test Method	Parameter for Class A2			No. of tests	Results		
	Component type	Limits	Layers		Continuous parameter-mean (m)		Compliance parameters
BS EN ISO 1716:2018	External Non-substantial	PCS ≤ 4.0 MJ/m^2	Clear Coat	3	0.4	1.3	Compliant
			PVDF Colour Coating - Red	3	0.7		
			Primer	3	0.2		
			Back Coat	3	0.2		Compliant
	Internal Non-substantial	PCS ≤ 4.0 MJ/m^2	Adhesive	3	3.3		Compliant
	Substantial	PCS ≤ 3.0 MJ/kg	Aluminium Skin	0	0.0		Compliant
			Aluminium Core	0	0.0		Compliant
	Product as a whole	PCS ≤ 3.0 MJ/kg	-	-	1.2		Compliant

Test Method	Test Parameters	No. of tests	Results	
			Continuous parameter- mean (m)	Compliance parameters
BS EN 13823:2020 +A1:2022	**CRITERIA for class "A2"**			
	$FIGRA_{0.4MJ} \leq 120$ W/s	3	0	Compliant
	$THR_{600s} \leq 7.5$ MJ	3	0.3	Compliant
	Lateral Flame Spread < Edge of specimen	3	< Edge of specimen	Compliant
	CRITERIA for subclass "s1"			
	SMOGRA ≤ 30 m^2/s^2 Note	3	0	Compliant
	$TSP_{600s} \leq 50$ m^2 Note	3	9	Compliant
	CRITERIA for subclass "d0"			
	Flaming droplets / Particles within 600s	3	Nil	Compliant

Note: *Corrected value as per Annex A, Clause A.6.1.2 of BS EN 13823:2020+A1:2022.*

7. CLASSIFICATION & FIELD OF APPLICATION

7.1. Reference of classification

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

7.2. Classification

The product, **ALUCODUAL®** Engineered Solid Sheets -ESS (2.6 mm), in relation to its reaction to fire behavior are classified:

Fire behavior		Smoke Production			Flaming droplets	
A2	-	s	1	,	d	0

Reaction to fire classification: A2 – s1, d0

7.3. 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
Product Construction	No variation allowed
Coating thickness	No variation allowed
Coating Type	No variation allowed
Color	Valid for all color range
Joints	Valid for materials with or without vertical and horizontal joints of ≤15 mm

8. LIMITATIONS

This document does not represent type approval or certification of the product. Similarly, the BS EN 13823 / BS EN ISO 1716 fire tests and related work which are a subject of this classification report have been conducted under Thomas Bell-Wright International Consultant's ISO 17025 UKAS accreditation scheme and quality management system. However, pursuant to UKAS Technical Bulletin *BS EN 13501 & BR 135 Classification Documents (Dated 02-Feb-2022)*, classification documents are completed on an unaccredited basis because they are not themselves test procedures. As such, this document is prepared on an unaccredited basis.

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

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

Prepared By:

Sally Fleming
Fire Testing Engineer

Reviewed & Authorized By:

Malak Megly
Fire Testing Engineer

Report Revision Tracking		
Revision No.	**Date Issued**	**Notes & Amendments**
Rev. 00	19-Jun-24	This is the first issue of the report. No revisions are included.

9. 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	ΔT ≤ 30 °C; and Δm ≤ 50 %; and tf = 0 (i.e. no sustained flaming)	-
	EN ISO 1716	PCS ≤ 2,0 MJ/kg [a] and PCS ≤ 2,0 MJ/kg [b c] and PCS ≤ 1,4 MJ/m² [d] and PCS ≤ 2,0 MJ/kg [e]	-
A2	EN ISO 1182 [a] or	ΔT ≤ 50 °C; and Δm ≤ 50 %; and tf ≤ 20 s	-
	EN ISO 1716 and	PCS ≤ 3,0 MJ/kg [a] and PCS ≤ 4,0 MJ/m² [b] and PCS ≤ 4,0 MJ/m² [d] and PCS ≤ 3,0 MJ/kg [e]	-
	EN 13823	FIGRA ≤ 120 W/s and LFS < edge of specimen and THR_{600s} ≤ 7,5 MJ	Smoke production [f] and Flaming droplets/particles [g]
B	EN 13823 and	FIGRA ≤ 120 W/s and LFS < edge of specimen and THR_{600s} ≤ 7,5 MJ	Smoke production [f] and Flaming droplets/particles [g]
	EN ISO 11925-2 [i]: Exposure = 30 s	Fs ≤ 150 mm within 60 s	
C	EN 13823 and	FIGRA ≤ 250 W/s and LFS < edge of specimen and THR_{600s} ≤ 15 MJ	Smoke production [f] and Flaming droplets/particles [g]
	EN ISO 11925-2 [i]: Exposure = 30 s	Fs ≤ 150 mm within 60 s	
D	EN 13823 and	FIGRA ≤ 750 W/s	Smoke production [f] and Flaming droplets/particles [g]
	EN ISO 11925-2 [i]: Exposure = 30 s	Fs ≤ 150 mm within 60 s	
E	EN ISO 11925-2 [i]: Exposure = 15 s	Fs ≤ 150 mm within 20 s	Flaming droplets/particles [h]
F	EN ISO 11925-2 [i]: Exposure = 15 s	Fs > 150 mm within 20 s	

[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 ≤ 2,0 MJ/m², provided that the product satisfies the following criteria of EN 13823: FIGRA ≤ 20 W/s, and LFS < edge of specimen, and THR_{600s} ≤ 4,0 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 ≤ 30m²/s² and TSP_{600s} ≤ 50m² ; **s2** = SMOGRA ≤ 180m²/s² and TSP_{600s} ≤ 200m²; **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 ----