ALCOPANEL CO., LTD

TEST REPORT

SCOPE OF WORK
ALCOEMBO

REPORT NUMBER
230626012SHF-001

TEST DATE(S)
2023-06-26- 2023-07-10

ISSUE DATE
2023-07-17

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7

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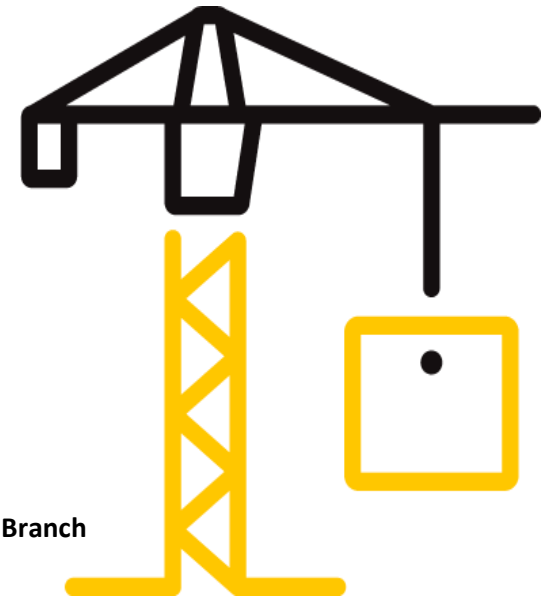

Intertek Testing Services Shenzhen Ltd. Shanghai Fengxian Branch

Test Report

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Test Report

Issue Date: 2023-07-17 Intertek Report No. 230626012SHF-001

Applicant: ALCOPANEL CO., LTD

Address: 7F, GANGNAM MAIN TOWER, 275, GANGNAM-DAERO, SEOCHO-GU, SEOUL, KOREA

Attn: Yangkwan Kim

Manufacturer: ALCOPANEL CO., LTD

Address: 7F, GANGNAM MAIN TOWER, 275, GANGNAM-DAERO, SEOCHO-GU. SEOUL, KOREA

Test Type: Performance test, samples provided by the applicant.

Product Information

Product Name	ALCOEMBO	**Brand**	ALCOEMBO
Sample Description	Good Condition	**Sample Amount**	1 box
		Received Date	2023-06-26
Sample ID	**Model**	**Specification**	
S230626012SHF.001~003	ALCOEMBO	AL 0.6mm + AL EMBO Core 2.9mm + AL 0.5mm	

Test Methods And Standards

Test Standard	EN 13823:2020 and ISO 1716:2020
Specification Standard	EN 13501-1:2018
Test Conclusion	The samples were tested according to the above standards, and the results are shown in the following page.

Note:

1.This report does not involve sampling. The report only reflects conformity of the tested items of the samples provided by the testing applicant. Representativeness and authenticity of the submitted samples are responsibilities of the testing applicant.

Report Authorized

INTERTEK TESTING SERVICES SHENZHEN LTD. SHANGHAI FENGXIAN BRANCH 检验检测专用章

Sally Xie Stone. Shi

Name: Sally Xie Name: Stone Shi

Title: Reviewer Title: Project Engineer

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Test Items, Method and Results:

EN 13501-1:2018 Fire classification of construction products and building elements - Part 1: Classification using data from reaction to fire tests

1.1 HEAT OF COMBUSTION TEST

The test was conducted in accordance with EN ISO 1716. This test evaluates the gross heat of combustion (Q_{PCS}) of products at constant volume in a bomb calorimeter.

1.2 SINGLE BURNING ITEM TEST

The test was conducted in accordance with EN 13823. This test evaluates the potential contribution of a product to the development of a fire, under a fire situation simulating a single burning item in a room corner near to the product.

1.3 CLASSIFICATION CRITERIA

The classification was determined in accordance with EN 13501-1:2018. The class A2 with its corresponding fire performance is given in the table below.

Table - Class of reaction to fire performance for construction products excluding floorings and linear pipe thermal insulation products.

Class	Test Method(s)	Classification criteria	Additional classifications
A2	EN ISO 1716 and	PCS ≤3.0 MJ/kg [a] and PCS ≤4.0 MJ/m^2 [b] and PCS ≤4.0 MJ/m^2 [c] and PCS ≤3.0 MJ/kg [d]	--
	EN 13823	$FIGRA_{0.2MJ}$ ≤ 120 W/s and LFS < edge of specimen and THR_{600s} ≤ 7.5 MJ	Smoke production [e] and Flaming droplets/particles [f]

Note:

a. For homogeneous products and substantial components of non-homogeneous products.
b. For any external non-substantial component of non-homogeneous products.
c. For any internal non-substantial component of non-homogeneous products.
d. For the product as a whole.
e. s1 = SMOGRA ≤ 30m^2/s^2 and TSP_{600s} ≤ 50m^2; s2 = SMOGRA ≤ 180m^2/s^2 and TSP_{600s} ≤ 200m^2; s3 = not s1 or s2.
f. d0 = no flaming droplets/particles in EN 13823 within 600s;
d1 = no flaming droplets/particles persisting longer than 10s in EN 13823 within 600s;
d2 = not d0 or d1.

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Test Items, Method and Results:

2 RESULTS AND OBSERATIONS

Method	Parameter		Result
EN ISO 1716:2010	PCS	facing coating, MJ/m^2	1.1327
		aluminium substrate, MJ/kg	0
		adhesive film, MJ/m^2	3.1465
		core material, MJ/kg	0
		adhesive film, MJ/m^2	3.1465
		aluminium substrate, MJ/kg	0
		the whole product, MJ/kg	1.8564
EN 13823:2020	$FIGRA_{0.2MJ}$, W/s		19.3
	THR_{600s} , MJ		0.689
	LFS, m		<Edge of specimen
	SMOGRA, m^2/s^2		0
	TSP_{600s}, m^2		17.3
	Flaming droplets/particles		No flaming droplets/particles occur within 600s

Note

1. Per EN 13823, the samples were free standing at a distance of 80mm from the backing board. Backing board was a 15mm thick calcium silicate board. The density of the calcium silicate board was 850kg/m^3.

The information of each component of the product was declared by applicant, see below table.

Layer No. (from face to back)	Material of each Layer	Mass per unit area (kg/m^2)	Thickness (mm)
1	facing coating, MJ/m^2	0.08	0.025
2	aluminium substrate, MJ/kg	1.62	0.6
3	adhesive film, MJ/m^2	0.07	0.07
4	core material, MJ/kg	0.81	0.3
5	adhesive film, MJ/m^2	0.07	0.07
6	aluminium substrate, MJ/kg	1.35	0.5

3 CLASSIFICATION

The classification has been carried out in accordance with EN 13501-1.

Fire behaviour		Smoke production			Flaming Droplets	
A2	-	s	*1*	-	d	*0*

Reaction to fire classification: *A2 - s1, d0*

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Test Items, Method and Results:

4 Test Photos of EN 13823

Before test (Long wing)

Before test (Short wing)

After test (Long wing)

After test (Short wing)

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Appendix A: Sample Received Photo

Front view (test surface)

Back view

Revision:

NO.	Date	Changes
230626012SHF-001	2023-07-17	First issue