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Title:

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

Product Name:

"Aluclad Systems Rainscreen Cladding"

Report No:

WF 502129

Issue No:

1

Prepared for:

Aluclad Systems Ltd
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Date:

30th June 2021

1. Introduction

This classification report defines the classification assigned to “Aluclad Systems Rainscreen Cladding”, a family of coated aluminium products, in line with the procedures given in EN 13501-1: 2018.

2. Details of classified product

2.1 General

The products, “Aluclad Systems Rainscreen Cladding”, are defined as being suitable for construction applications, excluding flooring and linear pipe thermal insulation.

2.2 Product description

The products, “Aluclad Systems Rainscreen Cladding”, are fully described below and in the test reports provided in support of classification listed in Clause 3.1.

General description		Powder Coated/Heat Transfer Aluminium Rainscreen Cladding
Product reference of coating system		“Aluclad Systems Rainscreen Cladding”
Name of manufacturer		Aluclad Systems Ltd.
Overall thickness		2mm or 3mm
Overall weight per unit area		5.6kg/m^2 (2mm) or 8.8kg/m^2 (3mm)
Form of panel		Flat sheet or cassette
Coating Option 1 (Test face)	Generic type	Polyester based powder coating
	Product reference	“Alesta® SD Superdurable Architectural SD Matt”
	Name of manufacturer	Axalta Coating Systems
	Colour	Any
	Number of coats	One
	Application rate	98g/m^2-142g/m^2
	Thickness per coat	60-70 microns
	Specific gravity	1.3 -1.7
	Application method	Electrostatic Spray
	Flame retardant details	**See Note 1 below**
	Curing process	20 min @ 180-200°C

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Coating Option 2 (test face)	Heat Transfer Ink	Generic type	Heat transfer ink
		Product reference	“Qualideco Class 2”
		Name of manufacturer	Decoral Systems
		Colour reference	“Wood Effect”
		Colour	“Brown”
		Number of coats	One
		Application rate	Transfer with ink / embedded with-in the main product powder coating.
		Specific gravity	1.3 -1.7
		Application method	Sublimation into the coating layer
		Flame retardant details	**See Note 1 below**
		Curing process	10 minutes @ 200°C
	Polyurethane Coating	Generic type	Polyurethane based powder coating
		Product reference	“Qualideco Class 2”
		Name of manufacturer	Decoral Systems
		Colour reference	“Wood Effect”
		Colour	“Brown”
		Number of coats	One
		Application rate	98-142g/m²
		Application thickness	60-80microns
		Specific gravity	1.3-1.7
		Application method	Electrostatic spray
		Flame retardant details	**See Note 1 below**
		Curing process	15 minutes @ 205°C
Aluminium		Generic type	Aluminium
		Product reference	“Grade 1050”
		Name of manufacturer	Gränges Konin S.A.
		Thickness	2mm or 3mm
		Weight per unit area	5.6kg/m^2 or 8.8kg/m^2
		Flame retardant details	**See Note 1 below**
Mounting and fixings details			A 40mm ventilated cavity was situated between the reverse face of the specimens and the calcium silicate substrate as defined in EN 13238:2010
Joint details			Vertical and horizontal joints were incorporated into the test specimens

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Brief description of manufacturing process	Option 1 & 2: Aluminium Flat Sheets are typically laser cut to a specific panel size Powder Coating – Surface preparation & pre-treatment, the removal of grease, oil, dirt and any other contaminants via chemical, physical or mechanical methods to clean the surface promoting coating adhesion. Option 1: The powder coat process is the application of electrostatically charged particles onto the surface of the substrate, the gun emits the powder in the form of a diffused cloud combined with an electrical field charge the charged particles seek out and adhere to the substrate. Upon application of the coating, the next step is curing, which involves baking the items in a specially designed oven. Curing results in the formation of a protective skin and promotes coating adhesion; in general, curing is performed at 180°C - 200°C for approximately 10-40 minutes. Option 2: Heat Transfer - It is processed in a standard coating unit using a special Polyurethane powder coating. Coating process consists of three different stages: pre-treatment, powder spraying & curing, the coating layer works as a receptacle which the special heat-transfer inks will be transferred into by sublimation. After the Polyurethane coat has cooled the object is then wrapped with Decoral Heat-Transfer film, air will then be vacuumed out in order to make the film perfectly adhere to the object, these are then moved and cured in a special Decoral Oven, running at high temperatures (between 200°C & 230°C), where inks contained on the Film are transferred by Sublimation into the Coating layer of the objects, after curing, it is ejected from the oven and the redundant film removed.

Note 1. The sponsor of the test has confirmed that no flame retardant additives were utilised in the production of the component.

3. Test reports/extended application reports & test results in support of classification

3.1 Test reports/extended application reports

Name of Laboratory	Name of sponsor	Test reports/extended application report Nos.	Test method / extended application rules & date
Warringtonfire	Aluclad Systems Ltd	WF 501908, WF 501909, WF 501910, WF 501911	EN ISO 1716: 2018
Warringtonfire	Aluclad Systems Ltd	WF 501912, WF 501913	EN ISO 1716: 2018 Composite summary report
Warringtonfire	Aluclad Systems Ltd	Formal: WF 502637 Indicative: WF 501903, WF 501904, WF 501905, WF 501906, WF 501907	EN 13823: 2020
Warringtonfire	Aluclad Systems Ltd	WF 502130	EN 15725:2010 and EN/TS 15117:2005

3.2 Test results

Test method & test number	Parameter	No. tests	Report	Results	
				Continuous parameter - mean (m)	Compliance parameters
EN 13823	FIGRA $_{0.2MJ}$	3	WF 502637	5 W/s	-
		1	WF 501903	0 W/s	-
		1	WF 501904	0 W/s	-
		1	WF 501905	0 W/s	-
		1	WF 501906	0 W/s	-
		1	WF 501907	0 W/s	-
	FIGRA $_{0.4MJ}$	3	WF 502637	0 W/s	-
		1	WF 501903	0 W/s	-
		1	WF 501904	0 W/s	-
		1	WF 501905	0 W/s	-
		1	WF 501906	0 W/s	-
		1	WF 501907	0 W/s	-
	THR $_{600s}$	3	WF 502637	0.5 MJ	-
		1	WF 501903	0.4 MJ	-
		1	WF 501904	0.8 MJ	-
		1	WF 501905	0.5 MJ	-
		1	WF 501906	0.6 MJ	-
		1	WF 501907	0.3 MJ	-

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	LFS	3	WF 502637	-	Compliant
		1	WF 501903	-	Compliant
		1	WF 501904	-	Compliant
		1	WF 501905	-	Compliant
		1	WF 501906	-	Compliant
		1	WF 501907	-	Compliant
	SMOGRA	3	WF 502637	0 m^2s^2	-
		1	WF 501903	0 m^2s^2	-
		1	WF 501904	0 m^2s^2	-
		1	WF 501905	0 m^2s^2	-
		1	WF 501906	0 m^2s^2	-
		1	WF 501907	0 m^2s^2	-
	TSP_{600s}	3	WF 502637	17 m^2	-
		1	WF 501903	23 m^2	-
		1	WF 501904	25 m^2	-
		1	WF 501905	12 m^2	-
		1	WF 501906	22 m^2	-
		1	WF 501907	30 m^2	-
	Fall of Flaming Droplet/Particle?	3	WF 502637	-	Compliant
		1	WF 501903	-	Compliant
		1	WF 501904	-	Compliant
		1	WF 501905	-	Compliant
		1	WF 501906	-	Compliant
		1	WF 501907	-	Compliant
EN 13823 (continued)	Flaming of Fallen Particle Exceeding 10s?	3	WF 502637	-	Compliant
		1	WF 501903	-	Compliant
		1	WF 501904	-	Compliant
		1	WF 501905	-	Compliant
		1	WF 501906	-	Compliant
		1	WF 501907	-	Compliant
EN ISO 1716 Individual component results	WF 501908 – Topcoat 1 White		3	16.6 MJ/kg	-
	WF 501909 – Topcoat 1, Black		3	20.1 MJ/kg	-
	WF 501910 – Topcoat 1, Reddest		3	19.9 MJ/kg	-
	WF 501911- Topcoat 2, Wood effect		3	25.0 MJ/kg	-

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EN ISO 1716 Worst case composite calculation, Coating 1 (as per composite summary report)	Topcoat 1 - PCS (b)	3	2.9 MJ/m^2	-
	Aluminium - PCS (a)	Deemed to satisfy (0.0)		-
	For the product as a whole PCS (e)	Summary result	0.5 MJ/kg	-
EN ISO 1716 Worst case composite calculation, Coating 2 (as per composite summary report)	Topcoat 2 - PCS (b)	3	3.5 MJ/m^2	-
	Aluminium - PCS (a)	Deemed to satisfy (0.0)		-
	For the product as a whole PCS (e)	Summary result	0.6 MJ/kg	-

4. Classification and field of application

4.1 Reference of classification

This classification has been carried out in accordance with clause 8 of EN 13501-1: 2018, BS EN 15725: 2010 and EN/TS 15117: 2005.

4.2 Classification

The products, “Aluclad Systems Rainscreen Cladding”, a family of coated aluminium products products, in relation to their reaction to fire behaviour are classified:

A2

The additional classification in relation to smoke production is:

s1

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

d0

The format of the reaction to fire classification for construction applications, excluding flooring and linear pipe thermal insulation is:

Fire Behaviour		Smoke Production			Flaming Droplets	
A2	-	s	1	,	d	0

i.e. A2 – s1 , d0

Reaction to fire classification: A2 – s1, d0

4.3 Field of application

This classification is valid for the following end use applications:

i) Construction applications mounted at a minimum distance of 40mm over a substrate with a density equal to or greater than 652.5kg/m^3, having a minimum thickness of 9 mm and a fire performance of A2-s1, d0 or better (excluding paper faced gypsum plasterboard).
ii) Airgap: ≥40mm

This classification is also valid for the following product parameters:

Topcoat	Option 1 (Alesta® SD Superdurable Architectural SD Matt) **or** Option 2 (Qualideco Class 2) as detailed above
Topcoat 1 colour	All colours allowed
Topcoat 2 colour	As tested, no variation allowed
Coating thickness	No variation allowed
Coating application rate	No variation allowed
Coating density	No variation allowed
Aluminium sheet thickness	2mm or 3mm
Form of panels	Cassette or Flat sheet
Joints	Horizontal and vertical joints allowed
Product composition	No variation allowed
Product construction	No variation allowed

5. Limitations

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

SIGNED

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Stacey Deeming
Principal Engineer
Technical Department

APPROVED

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Matthew Dale
Principal Certification Engineer
Technical Department
on behalf of Warringtonfire