

CLASSIFICATION OF REACTION TO FIRE PERFORMANCE IN ACCORDANCE WITH UNE-EN 13501-1:2019

V/F
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Petitioner's reference: **ALUCOIL, S.A.U.**
P.I. de Bayas
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09200 Miranda de Ebro (Burgos)



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Tests marked with
(*) are not covered
by the ENAC
accreditation.

Product name: **Larcore A2 8 mm + Hidetech® PRO
Larcore A2 20 mm + Hidetech® PRO**

Classification report n°: **21/22639-1005-2 M2 English Version**

Date of issue: **7th March, 2022**

Description of the modification: Due to a typographic mistake on the product characteristics, the report has been modified. The modifications are shown in italics.

The present report supersedes the classification report number 21/22639-1005-2 M1 issued on 8th November 2021. It is responsibility of the client to replace the original and all the copies.

1.- INTRODUCTION

This classification report defines the classification assigned to "Larcore A2 8 mm+ Hidetech® PRO" and "Larcore A2 20 mm + Hidetech® PRO" in accordance with the procedures given in the UNE-EN 13501-1:2019 standard.

2.- DETAILS OF CLASSIFIED PRODUCT

2.1.- General

The product, "Larcore A2 8 mm+ Hidetech® PRO" and "Larcore A2 20 mm + Hidetech® PRO", is defined as a honeycomb panel with an external lacquered aluminium skin and an inner aluminium skin. The honeycomb core with a cell size of 1/4, it has a thickness of 50 µm, and a height of 4,8 mm. To carry out the test, it used an installation system called HideTech® PRO.

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2.2.- Product description

In accordance with the technical specifications provided by the petitioner:

Sample nº1 Applus internal code 21/1005A

Product trade name: Larcore A2 8 mm + Hidetech® PRO

Larcore 8 mm 0,7/0,7, with an external lacquered aluminium skin of 0,7 mm and 0,7 mm inner aluminium skin. The honeycomb core, with a cell size of $\frac{1}{4}$, it has a thickness of 50 μm , and a height of 6,6 mm, with the installation system called HideTech® PRO.

The product is composed of 5 layers:

- Layer 1: Lacquered aluminium, with a thickness of 0,7 mm, and a density of 2,72 kg/m^3 , colour, RAL9016 and smooth and homogenous appearance. Lacquered HQPE with a consumption of 0,076 kg/m^2 .
- Layer 2: Adhesive with a superficial density of 180 g/m^2 per side and a light brown colour.
- Layer 3: Honeycomb core, with a thickness of 6,6 mm, a density of 56 kg/m^3 , aluminium colour and smooth appearance.
- Layer 4: Adhesive with a superficial density of 180 g/m^2 per side and a light brown colour.
- Layer 5: Aluminium with a thickness of 0,7 mm, density of 2,72 kg/m^3 , greyish colour and smooth and homogenous appearance.

Sample nº2 Applus internal code 21/1005B

Product trade name: Larcore A2 20 mm + Hidetech® PRO

Larcore 20 mm 1,0/1,0, with an external lacquered aluminium skin of 1 mm and 1 mm inner aluminium skin. The honeycomb core, with a cell size of $\frac{1}{4}$, it has a thickness of 50 μm , and a height of 18 mm, with the installation system called HideTech® PRO.

The product is composed of 5 layers:

- Layer 1: Lacquered aluminium, with a thickness of 1,0 mm, and a density of 2,72 kg/m^3 , colour, RAL9016 and a smooth and homogenous appearance. Lacquered HQPE with a consumption of 0,076 kg/m^2 .
- Layer 2: Adhesive with a superficial density of 180 g/m^2 per side and a light brown colour.
- Layer 3: Honeycomb core, with a thickness of 18 mm, a density of 56 kg/m^3 , aluminium colour and smooth appearance.
- Layer 4: Adhesive with a superficial density of 180 g/m^2 per side and a light brown colour.
- Layer 5: Aluminium with a thickness of 1,0 mm, density of 2,72 kg/m^3 , greyish colour and smooth and homogenous appearance.

The samples were mechanically fixed onto calcium silicate board (according to specifications indicated on UNE-EN 13238:2011 standard) by means of HideTech® PRO installation system. The system is composed of the following components:

- Support fixing brackets (LT-1A 40mm weight and wind, LT-1B 40mm wind).
- Aluminium LT-2 vertical profiles.
- Double (PRO-3A) and single (PRO-3B) aluminium hangers.
- Normal (PRO-4) and regulation (PRO-4R) cramps fixed at the internal side of the panel with 4 rivet type HideFix® 64074 for LC8 and 64090 for LC20.

Manufacturer: Alucoil, S.A.U. – P.I. de Bayas, C/Ircio, Parc R72-76, 09200 Miranda de Ebro (Burgos).

3.- REPORT AND RESULTS IN SUPPORT OF THIS CLASSIFICATION

3.1- Reports

Name of Laboratory	Name of Petitioner	Test Report Number	Testing method
Applus – LGAI	ALUCOIL, S.A.U.	21/22639-1005-1 M2	UNE-EN ISO 1716:2011* 07-06-2021
			EN 13823:2020 28-04-2021

** Due to classification standard UNE-EN 13501-1:2019 call up test standard EN ISO 1716:2011, we do not test the current version of it.*

3.2- Results of the Tests

Test Mode	RESULTS – Larcore A2 8 mm + Hidetech® PRO			
	CRITERIA CLASS A2	Nº TESTS	AVERAGE	COMPLIANCE
UNE-EN ISO 1716:2011	PCS _{a1} ≤ 3,0 MJ/kg	12	0,00	YES
	PCS _{a2} ≤ 3,0 MJ/kg		0,00	YES
	PCS _b ≤ 4,0 MJ/m ²		1,49	YES
	PCS _c ≤ 4,0 MJ/m ²		3,43	YES
	PCS _d ≤ 3,0 MJ/kg		1,82	YES
EN 13823:2020	FIGRA _{0.2 MJ} ≤ 120 W/s	3	7,76	YES
	LFS < edge of the sample	3	< to edge	YES
	THR _{600s} ≤ 7.5 MJ	3	0,63	YES
	CRITERIA subclass 's1'	Nº TESTS	AVERAGE	COMPLIANCE
	SMOGRA ≤ 30 m ² /s ²	3	1,88	YES
	TSP _{600s} ≤ 50 m ²	3	23,51	YES
	CRITERIA subclass 's1'	Nº TESTS	AVERAGE	COMPLIANCE
	Fall of droplets/particles in flames within 600 s	3	NO	YES

- a) Substantial component (Aluminium 0,7 mm, Honeycomb core)
- b) Non substantial external component (Lacquer)
- c) Non substantial internal component (Adhesive)
- d) Product as a whole

Test Mode	RESULTS – Larcore A2 20 mm + Hidetech® PRO			
	CRITERIA CLASS A2	Nº TESTS	AVERAGE	COMPLIANCE
UNE-EN ISO 1716:2011	PCS _{a1} ≤ 3,0 MJ/kg	12	0,00	YES
	PCS _{a2} ≤ 3,0 MJ/kg		0,00	YES
	PCS _b ≤ 4,0 MJ/m ²		1,49	YES
	PCS _c ≤ 4,0 MJ/m ²		3,43	YES
	PCS _d ≤ 3,0 MJ/kg		1,22	YES
EN 13823:2020	FIGRA _{0.2 MJ} ≤ 120 W/s	3	3,49	YES
	LFS < edge of the sample	3	< to edge	YES
	THR _{600s} ≤ 7.5 MJ	3	0,34	YES
	CRITERIA subclass 's1'	Nº TESTS	AVERAGE	COMPLIANCE
	SMOGR _A ≤ 30 m ² /s ²	3	0,00	YES
	TSP _{600s} ≤ 50 m ²	3	16,41	YES
	CRITERIA subclass 's1'	Nº TESTS	AVERAGE	COMPLIANCE
	Fall of droplets/particles in flames within 600 s	3	NO	YES

- a) Substantial component (Aluminium 1,0 mm, Honeycomb core)
- b) Non substantial external component (Lacquer)
- c) Non substantial internal component (Adhesive)
- d) Product as a whole

4.- CLASSIFICATION AND FIELD APPLICATION

4.1- Reference of classification

This classification has been carried out in accordance with UNE-EN 13501-1:2019: "Classification in terms of the behaviour to fire of construction products and building elements. Part 1: Classification made from the data gathered during fire reaction tests".

4.2- Classification

The product, Larcore A2 8 mm + Hidetech® PRO, in relation to its reaction to fire behaviour is classified:

A2

The additional classification in relation to smoke production is:

s1

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

d0

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

REACTION TO FIRE CLASSIFICATION : A2-s1,d0

This classification is only valid for the final conditions of use described in the present report.

The product, Larcore A2 20 mm + Hidetech® PRO, in relation to its reaction to fire behaviour is classified:

A2

The additional classification in relation to smoke production is:

s1

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

d0

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

REACTION TO FIRE CLASSIFICATION : A2-s1,d0

This classification is only valid for the final conditions of use described in the present report.

4.3- Field of application (*)

- This classification is valid for the following product parameters:

The classification is only valid for the product characteristics shown, with the following parameters being extended:

- Variable parameter 1: Substrate

After performing the test with the product fixed on calcium silicate substrate with (870±50) kg/m³ in density, (11±2) mm in thickness, the obtained results are valid for substrates of final use of the classes A1 and A2-s1,d0, according to standard UNE EN 13238:2011.

- Variable parameter 2: Thickness

The product is available in various thickness.

After performing the test with the minimum thickness (Larcore A2 8 mm + Hidetech[®] PRO) and maximum thickness (Larcore A2 20 mm + Hidetech[®] PRO), by extension it is concluded that all the products with commercial reference Larcore with thickness range between 8 - 20 mm and aluminium skin thickness between 0,7 - 1,0 mm, for any possible combination, are included in the following Euroclass:

REACTION TO FIRE CLASSIFICATION : A2-s1,d0

This classification is only valid for the final conditions of use described in the present report.

- Variable parameter 3: Lacquer

After performing the test according to UNE-EN ISO 1716:2011 standard (test report 21/22639-1004-1), the paints with commercial reference PVDF 2L, PVDF 3L, HQPE and FEVE, it was obtained the following results:

PVDF 2L paint: 19,52 MJ/kg with a maximum application consumption 1,48 MJ/m²

PVDF 3L paint: 17,46 MJ/kg with a maximum application consumption 1,33 MJ/m²

HQPE paint: 19,61 MJ/kg with a maximum application consumption 1,49 MJ/m²

FEVE paint: 19,06 MJ/kg with a maximum application consumption 1,45 MJ/m²

After carrying out the complete test on the product with commercial A2 8mm + Hidetech[®] PRO and Larcore A2 20mm + Hidetech[®] PRO, with lacquered HQPE (applying the maximum consumption), it was determined the most unfavorable because it is the product with the highest PCS. By extension, it concludes that the product "Larcore A2" with a thickness between 8-20 mm and with the other lacquers are included at the following euroclass:

REACTION TO FIRE CLASSIFICATION : A2-s1,d0

This classification is only valid for the final conditions of use described in the present report.

- Variable parameter 4: Insulation

According to the indications of EAD090062-00-0404, after performing the test with mineral wool insulation with a thickness of 40 mm, the results obtained are valid for the same system with a thicker mineral wool insulation with same density and same or better reaction to fire classification, and also for the same system without insulation.

- Variable Parameter 5: Metallic material (Aluminium, Steel, Stainless Steel and Copper)

After performing the test with aluminium and considering:

- All four components are non-combustible and considered as A1 according to the European Commission 96/603/EC.
- Melting point of aluminium is approximately 660°C.
- Melting point of the steel is approximately 1400°C
- Melting point of stainless steel is approx. 1400°C.
- Melting point of copper is approximately 1085°C.

By extension, it concluded that the products with commercial reference A2 8mm + Hidetech[®] PRO and Larcore A2 20mm + Hidetech[®] PRO for the four types of metallic material are included with the same Euroclass.

- Variable parameter 6: Joints

In accordance with EAD090062-00-0404, this classification can be extend to the products with commercial reference "Larcore A2" of thickness range between 8-20 mm, with horizontal, vertical and no joints.

- Variable parameter 7: Air gaps

Valid classification for any other greater air gaps (20 mm and higher).

- Variable Parameter 8: Honeycomb cell size.

After performing the study of honeycomb core panel with ¼ cell size on the test report number 21/22639-1004 issued on 4th August 2021, and after verifying there are not significance differences and carrying out the full test on the most unfavourable panel. It is concluded that the panels with commercial Larcore A2 8 mm + Hidetech[®] PRO and Larcore A2 20 mm + Hidetech[®] PRO, with honeycomb core with 3/8 cell size are included in the same Euroclass.

- The classification is valid for the following final use applications:
 - Architectural envelope (facade/roof)
 - False ceilings
 - Interior cladding.

Substrate	Calcium silicate s/UNE EN 13238:2011
Fixing method	Mechanically fixing (HideTech® PRO installation system)
Joints	Horizontal and vertical
Air gap	Ventilated
Others	-

5.- LIMITATIONS

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

Responsible of the Laboratory
 LGAI Technological Center S.A. (APPLUS)

Technician Responsible of Euroclasses
 LGAI Technological Center S.A. (APPLUS)

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In the event of litigation, the Spanish version will be valid
