

Bellaterra: 2nd May, 2018
File number: **17/15103-1906 M3 Part 2**
Reference of the petitioner: **ALUCOIL, S.A.**
Pol. Ind. Bayas
C/Ircio, Parc. R72-R77
09200 Miranda de Ebro
(Burgos)



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

Description of the modification: The point 2.3. Field of application has been modified.

The present report supersedes the test report number 17/15103-1906 M2 Part 2 dated on 20th November, 2017. It is responsibility of the client to replace the original and all the copies.

CLASSIFICATION REPORT

1- CHARACTERISTICS OF THE PRODUCT

There were received some panels with facings of aluminium sheets and composite core with the following indications according to technical specifications provided by the petitioner: ALUCOIL

Commercial reference of the product: LARSON FR

Composite Panel composed of two aluminium sheets bonded by means of a mineral FR core, lacquered by one face with HQPE.

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SAMPLE Nº1 – 303 FR

The product is composed of 5 layers:

- Layer 1: Aluminium, 0.3 mm thick, density of 2720 kg/m³, grey pearl dark 9023 HQ2M10 colour and smooth appearance.
Reference of the finished: HQPE, 23 µm/m² of paint applied, 1 layer, 70 g/m² of weight and dried extract of 47.5 g/m².
- Layer 2: Glue, 0.05 mm thick, density of 938 kg/m³, transparent colour and smooth appearance.
- Layer 3: Mineral Fire retardant core, 2.4 mm thick, density of 1650 kg/m³, white colour and rugous appearance.
- Layer 4: Glue, 0.05 mm thick, density of 938 kg/m³, transparent colour and smooth appearance.
- Layer 5: Aluminium, 0.3 mm thick, density 2720 kg/m³, green colour and smooth appearance.

SAMPLE Nº1 – 605 FR

The product is composed of 5 layers:

- Layer 1: Aluminium, 0.5 mm thick, density of 2720 kg/m³, smoke colour and smooth appearance.
Reference of the finished: HQPE, 23 µm/m² of paint applied, 1 layer, 70 g/m² of weight and dried extract of 47.5 g/m².
- Layer 2: Glue, 0.05 mm thick, density of 938 kg/m³, transparent colour and smooth appearance.
- Layer 3: Mineral Fire retardant core, 5 mm thick, density of 1650 kg/m³, white colour and rugous appearance.
- Layer 4: Glue, 0.05 mm thick, density of 938 kg/m³, transparent colour and smooth appearance.
- Layer 5: Aluminium, 0.5 mm thick, density 2720 kg/m³, green colour and smooth appearance.

Fixing system: The sample was fixed to the standard substrate (calcium silicate board according to UNE-EN 13238:2011) with screws.

Installation system: Vertical riveted

Larson fr® panels, machined to their final dimensions, are riveted to vertical omega-shaped aluminium profiles (LCH-1). These profiles are fixed to the building through punctual brackets (LCH-2) that can have different dimensions to balance the building construction tolerances.

Manufacturer: Alucoil, S.A. Address: Pol. Ind Bayas, C/ Ircio, Parc. R72-R77 – 09200 Miranda de Ebro (Burgos).

2- CLASSIFICATION AND DIRECT APPLICATION FIELD

This classification has been made in compliance with the procedures provided in Standard UNE-EN 13501-1:2007+A1:2010: "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".

2.1- Test Reports

Name of Laboratory	Applus – LGAI
Name of Petitioner	ALUCOIL, S.A.
Test Report Number	17/15103-1906 M2 Part 1
Testing method	UNE-EN ISO 11925-2:2011 UNE-EN 13823:2012+A1:2016

2.2- Results of the Tests

Test Method	RESULTS – 303 FR			
	CRITERIA CLASS B	Nº TESTS	MEAN VALUE	COMPLIANCE
UNE-EN-ISO 11925-2:2011	$F_s \leq 150$ mm within 60 s	24	$F_s < 150$ mm	YES
UNE-EN 13823:2012 +A1:2016	$FIGRA_{0,2 MJ} \leq 120$ W/s	3	17.12	YES
	LFS < edge of the sample	3	< to edge	YES
	$THR_{600s} \leq 7.5$ MJ	3	1.70	YES
	CRITERIA subclass 's1'	Nº TESTS	MEAN VALUE	COMPLIANCE
	$SMOGRA \leq 30$ m ² /s ²	3	2.14	YES
	$TSP_{600s} \leq 50$ m ²	3	42.68	YES
	CRITERIA subclass 'd0'	Nº TESTS	MEAN VALUE	COMPLIANCE
Fall of droplets/particles in flames within 600 s	3	NO	YES	

Test Method	RESULTS – 605 FR			
	CRITERIA CLASS B	Nº TESTS	MEAN VALUE	COMPLIANCE
UNE-EN-ISO 11925-2:2011	$F_s \leq 150$ mm within 60 s	24	$F_s < 150$ mm	YES
UNE-EN 13823:2012 +A1:2016	$FIGRA_{0,2 MJ} \leq 120$ W/s	3	10.37	YES
	LFS < edge of the sample	3	< to edge	YES
	$THR_{600s} \leq 7.5$ MJ	3	0.52	YES
	CRITERIA subclass 's1'	Nº TESTS	MEAN VALUE	COMPLIANCE
	$SMOGRA \leq 30$ m ² /s ²	3	0.00	YES
	$TSP_{600s} \leq 50$ m ²	3	31.14	YES
	CRITERIA subclass 'd0'	Nº TESTS	MEAN VALUE	COMPLIANCE
Fall of droplets/particles in flames within 600 s	3	NO	YES	

CLASSIFICATION

The product, LARSON FR (303 FR), related to its fire reaction behaviour, is classified as:

Fire Behaviour		Smoke Production			Drops in flames	
B	-	s	1	,	d	0

Fire Reaction Classification: CLASS B-s1,d0

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

The product, LARSON FR (605 FR), related to its fire reaction behaviour, is classified as:

Fire Behaviour		Smoke Production			Drops in flames	
B	-	s	1	,	d	0

Fire Reaction Classification: CLASS B-s1,d0

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

2.3- Field of application (*)

- This classification is valid for the following product parameters:

The classification is only valid for the product characteristics shown, and may extend to the following parameters:

- Variable parameter 1: COATING

After performing the test with the aluminum coating and considering that:

- Components are not combustible and classified as A1 in accordance with the European Commission 96/603/CE
- Melting point of aluminium is approx. 660°C
- Melting point of steel and stainless steel is approx. 1400°C
- Melting point of copper is approx.. 1085°C

It can be concluded by extension that the LARSON FR products with coatings:

Aluminium

Steel and stainless steel

Copper

Can be included in the same Euroclass.

- Variable parameter 2: PAINT FINISHING

Products with the commercial reference LARSON FR are manufactured with different kind of paint finishing.

After performing the study on the three paint finishing in existence (HQPE, PVDF 2L COASTAL and PVDF 3L COASTAL) in the report 16/12641-1471 on date 29th September, 2016, and having determined which one is the most unfavourable, the test was completed over that finishing. The obtained results are valid for all of these mentioned paint finishing.

- Variable parameter 3: SUBSTRATE

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

- Variable parameter 4: THICKNESS

Products with the commercial reference LARSON FR are manufactured with different thicknesses.

After performing the test with the minimum thickness (303 FR – aluminium 0.3 mm and mineral core 2.4 mm), and with the maximum thickness (605 FR – aluminium 0.5 mm and mineral core 5 mm), by extension it's concluded that the products:

303 FR – aluminium 0.3 mm and mineral core 2.4 mm

304 FR – aluminium 0.4 mm and mineral core 2.2 mm

305 FR – aluminium 0.5 mm and mineral core 2 mm

403 FR – aluminium 0.3 mm and mineral core 3.4 mm

404 FR – aluminium 0.4 mm and mineral core 3.2 mm

405 FR – aluminium 0.5 mm and mineral core 3 mm

503 FR – aluminium 0.3 mm and mineral core 4.4 mm

504 FR – aluminium 0.4 mm and mineral core 4.2 mm

505 FR – aluminium 0.5 mm and mineral core 4 mm
603 FR – aluminium 0.3 mm and mineral core 5.4 mm
604 FR – aluminium 0.4 mm and mineral core 5.2 mm
605 FR – aluminium 0.5 mm and mineral core 5 mm

Are included in the same Euroclass.

- Variable parameter 5: FIXING SYSTEM

The products with the commercial reference LARSON FR , are manufactured with different types of fixing system.

After carrying out the most unfavorable fixing system tests, by extension, it is concluded that LARSON FR product for both fixing systems:

Vertical riveted
Cassette system

They are included with the same euroclass.

Study carried out in the reports with file number 16/12641-1552 issued on September 29, 2016 and file number 18/16240-82 issued on January 18, 2018.

- The classification is valid for the following final use applications:

Making architectural facades.

2.4- Limitations

This classification standard does not represent any type approval neither a product certification

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

Responsible of Reaction to Fire
LGAI Technological Center S.A. (APPLUS)

The results refer exclusively to the samples tested at the time and under the conditions indicated.

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