LGAI Technological Center, S.A.
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QATAR CD CERTIFICATE

PRODUCT APPROVAL No. QTR-1302

APPLUS+ LGAI TECHNOLOGICAL CENTER S.A., in compliance with the requirements of Fire Prevention Department and General Directorate of Civil Defence of Ministry of Interior, State of Qatar, certifies:

Product range: **LAFFAN ALUMINIUM FOAM**

Company: **LAFFAN ALUMINIUM FACTORY**
Factory 6114, street 11, New Industrial Area,
P.O. Box 41134, DOHA - QATAR

Manufactured by: **LAFFAN ALUMINIUM FACTORY**
Factory 6114, street 11, New Industrial Area,
P.O. Box 41134, DOHA - QATAR

Description:
Aluminium foam is made from aluminium ingots, calcium metals and titanium hydrate.

Have been tested according to the standards:
ASTM E84-16: "Standard Test Method for Surface Burning Characteristics of Building Materials".

- This fire-test-response standard for the comparative surface burning behaviour of building materials is applicable to exposed surfaces such as walls and ceilings.
- The test is conducted with the specimen in the ceiling position with the surface to be evaluated exposed face down to the ignition source. The material, product, or assembly shall be capable of being mounted in the test position during the test. Thus, the specimen shall either be self-supporting by its own structural quality, held in place by added supports along the test surface, or secured from the back side.
- The purpose of this test method is to determine the relative burning behaviour of the material by observing the flame spread along the specimen. Flame spread and smoke developed index are reported. However, there is not necessarily a relationship between these two measurements.

Renovation of the initial certificate issued on November 22nd 2017 .This certificate was first issued on December 10th 2018 and will remain valid as long as the test methods and/or factory production control requirements in the certification scheme, used to assess the performance of the declared characteristics, do not change, and the product, and the manufacturing conditions in the plant are not modified significantly..

Valid until December 10th 2019.

Bellaterra, December 10th 2018

Applus LGAI Technological Center, S.A. **Xavier Ruiz Peña** Product Conformity B. U., Managing Director	
You can find this certificate on our website: https://apps.applus.com/microsites/microsites/FECIP/login	

This document shall not be valid without the technical annex, whose number coincides with the number of certificate.

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TECHNICAL ANNEX **10.12.18 / Ed.1**

Having obtained the following results:

The test specimen has been evaluated in accordance with ASTM E84.

The test results are:

FLAME SPREAD INDEX (FSI)	0
SMOKE DEVELOPED INDEX (SDI)	5

Results are valid for the tested configuration only.

More details in the following Tests reports:

- Test report 17/14925-1478 M1; Date 21/09/2017
- Test report RG014; Date 17/09/2017

Technical characteristics of specimens:

Product trade name:		**LAFFAN ALUMINIUM FOAM**
General product details		
Product description		Aluminium foam is made from aluminium ingots, calcium metals and titanium hydrate
Generic material:		Aluminium foam
Colour:		Silver
Fire side:		Top surface
Final use condition:		Several uses
Technical details of the samples		
Material	Material:	Aluminium foam
	Manufacturer	LAFFAN ALUMINIUM FACTORY
	Thickness:	9 mm
	Density:	200-400 kg/m^3
	Colour:	Silver
Technical details of the samples		
Fire side:		Aluminium foam
Manufacturer		LAFFAN ALUMINIUM FACTORY
Dimensions per panel:		1200 x 600 x 9 mm (l x w x thk) (measured)
No. Of panels:		6 Nos.
Total dimension:		7200 x 600 x 9 mm (l x w x thk) (measured)

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Specimen placement	6 nos. of Laffan Aluminium Foam were butt joined end-to-end. The test specimen was placed directly to the tunnel ledges with the top surface (fire side) towards the flame source.

Test description:

The specimen was installed horizontally in the Steiner Tunnel and supported by the ledges. The top surface of the Aluminium Foam (Fire side) was exposed to a flaming exposure during the 10 minute test duration.

Flame spread and density of the smoke are measured and recorded while the results are computed against the standard calibration materials (cement board and red oak flooring).