

Test Report

No. AJFS1711010647FF

Date: DEC.18, 2017

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SHANDONG GOLDEN SUNSHINE BUILDING MATERIALS CO., LTDNO.1 YIHE ROAD, LINYI ECONOMIC DEVELOPMENT ZONE, COMPREHENSIVE FREE ZONE
SHANDONG CHINA

The following sample(s) was / were submitted and identified on behalf of the client as:

Sample Description: FIREPROOF ALUMINUM COMPOSITE PANEL**SGS Ref No.:** QDIN1711007647PS**Test Requested:**EN 13501-1:2007+A1:2009 Fire classification of construction products and building elements — Part 1:
Classification using data from reaction to fire tests, Class A2**Test Results:** -- See attached sheet --**Test Period:**

Sample Receiving Date : NOV.30, 2017

Test Performing Date : NOV.30, 2017 TO DEC.12, 2017

Signed for and on behalf of
SGS-CSTC Co., Ltd. Anji BranchAllen Zou
Technical Manager

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I. Test conducted

This test is conducted as per EN 13501-1:2007+A1:2009 Fire classification of construction products and building elements — Part 1: Classification using data from reaction to fire tests. And the test methods as following:

1. EN 13823:2010+A1:2014 Reaction to fire tests for building products - Building products excluding floorings exposed to the thermal attack by a single burning item.
2. EN ISO 1716:2010 Reaction to fire tests for building products — Determination of the heat of combustion.

II. Details of classified product

a) Nature and end use application

The product “Fireproof Aluminum Composite Panel” is defined as building material. Its end use application: decoration of external and internal wall.

b) Description

Sample Description	Fireproof Aluminum Composite Panel
Color	Silver
Thickness	4.0mm
Bulk Density	About 2121 kg/m ³

Mounting and fixing:

Calcium silicate board, with its density approximate 900kg/m³, thickness approximate 9mm is as the substrate. The test specimens are fixed mechanically to the substrate with screws. No joint in the specimens.

To be continued...



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III. Test results

Test method	Parameter	Number of tests	Results
EN 13823	FIGRA (W/s)	3	0
	LFS < edge of specimen		Yes
	THR _{600s} (MJ)		0.2
	SMOGRA (m ² /s ²)		0
	TSP _{600s} (m ²)		0
	Flaming particles or droplets		No
EN ISO 1716	PCS/ MJ/kg ^a	3	Core: 1.21; Aluminum: 0
	PCS/ MJ/m ² ^b		Black paint: 0.03; Silver paint: 0.02
	PCS/ MJ/m ² ^d		0.04
	PCS/ MJ/kg ^e		0.82

Note: PCS — gross calorific potential [MJ/kg or MJ/m²]

IV. Classification and direct field of application

This classification has been carried out in accordance with **EN 13501-1:2007+A1:2009**

a) Classification

The product, Fireproof Aluminum Composite Panel, classification is as following,

Fire behaviour		Smoke production		Flaming droplets
A2	—	s	1	d, 0

Reaction to fire classification: A2—s1, d0

Remark: The classes with their corresponding fire performance are given in annex A.

b) Field of application

This classification for the submitted sample is valid for the following end use condition:

- With all substrate classified as A1 and A2
- With mechanically fixing
- No joint

To be continued...



This classification is valid for the following product parameters:

---Characteristics are described in § II b) of this test report.

STATEMENT: The test results relate to the behaviour of the test specimens of a product under the particular conditions of the test; they are not intended to be the sole criterion for assessing the potential fire hazard of the product in use.

WARNING:

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

The test laboratory has, therefore, play no part in sampling the product for the test, although it holds appropriate references to the manufacturer's factory production control that is aimed to be relevant to the samples tested and that will provide for their traceability.

Annex A

Classes of reaction to fire performance for construction products excluding floorings and linear pipe thermal insulation products

Class	Test method(s)	Classification criteria	Additional classification
A1	EN ISO 1182 ^a and	$\Delta T \leq 30^\circ\text{C}$, and $\Delta m \leq 50\%$, and $t_f = 0$ (i.e. no sustained flaming)	-
	EN ISO 1716	$PCS \leq 2.0\text{MJ/kg}$ ^a and $PCS \leq 2.0\text{MJ/kg}$ ^{b c} and $PCS \leq 1.4\text{MJ/m}^2$ ^d and $PCS \leq 2.0\text{MJ/kg}$ ^e	-
A2	EN ISO 1182 ^a or	$\Delta T \leq 50^\circ\text{C}$, and $\Delta m \leq 50\%$, and $t_f \leq 20\text{ s}$	-
	EN ISO 1716		
	EN 13823	$FIGRA \leq 120\text{W/s}$ and $LFS < \text{edge of specimen}$ and $THR_{600s} \leq 7.5\text{MJ}$	Smoke production ^f and Flaming droplets/particles ^g
B	EN 13823 and	$FIGRA \leq 120\text{W/s}$ and $LFS < \text{edge of specimen}$ and $THR_{600s} \leq 7.5\text{MJ}$	Smoke production ^f and Flaming droplets/particles ^g
	EN ISO 11925-2 ⁱ Exposure =30s	$F_s \leq 150\text{mm}$ within 60s	

To be continued...



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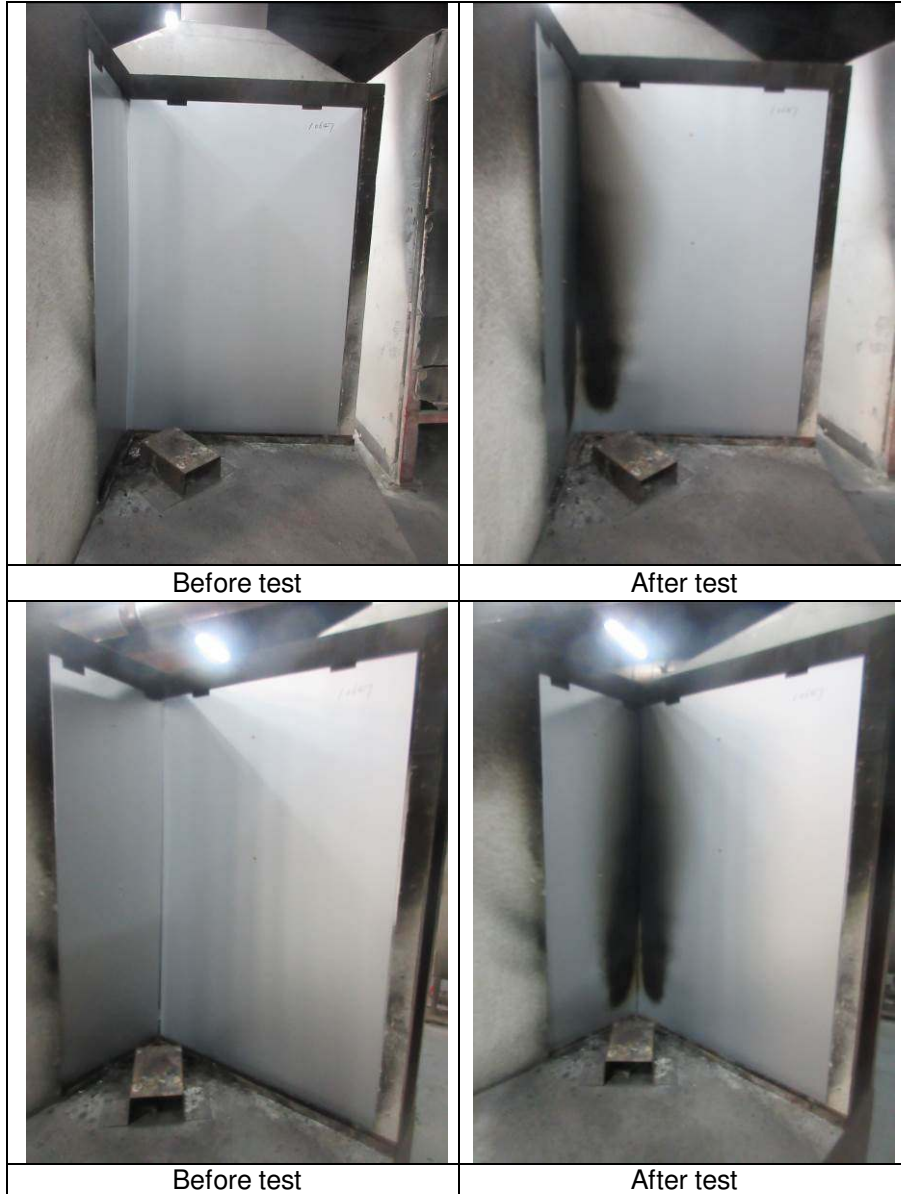
Class	Test method(s)	Classification criteria	Additional classification
C	EN 13823 and	$FIGRA \leq 250W/s$ and $LFS < \text{edge of specimen}$ and $THR_{600s} \leq 15MJ$	Smoke production ^f and Flaming droplets/particles ^g
	EN ISO 11925-2 ⁱ Exposure=30s	$F_s \leq 150mm$ within 60 s	
D	EN 13823 and	$FIGRA \leq 750W/s$	Smoke production ^f and Flaming droplets/particles ^g
	EN ISO 11925-2 ⁱ Exposure=30s	$F_s \leq 150mm$ within 60 s	
E	EN ISO 11925-2 ⁱ Exposure =15s	$F_s \leq 150mm$ within 20 s	flaming droplets/particles ^h
F	No performance determined		

^a For homogeneous products and substantial components of non-homogeneous products.
^b For any external non-substantial component of non-homogeneous products.
^c Alternatively, any external non-substantial component having a PCS $\leq 2,0 MJ/m^2$, provided that the product satisfies the following criteria of EN 13823: $FIGRA \leq 20 W/s$, and $LFS < \text{edge of specimen}$, and $THR_{600s} \leq 4,0 MJ$, and s_1 , and d_0 .
^d For any internal non-substantial component of non-homogeneous products.
^e For the product as a whole.
^f In the last phase of the development of the test procedure, modifications of the smoke measurement system have been introduced, the effect of which needs further investigation. This may result in a modification of the limit values and/or parameters for the evaluation of the smoke production.
 $s_1 = SMOGRA \leq 30m^2/s^2$ and $TSP_{600s} \leq 50m^2$; $s_2 = SMOGRA \leq 180m^2/s^2$ and $TSP_{600s} \leq 200m^2$; $s_3 = \text{not } s_1$ or s_2
^g $d_0 = \text{No flaming droplets/ particles in EN 13823 within 600 s}$;
 $d_1 = \text{no flaming droplets/ particles persisting longer than 10 s in EN 13823 within 600 s}$;
 $d_2 = \text{not } d_0$ or d_1 .
 Ignition of the paper in EN ISO 11925-2 results in a d_2 classification.
^h Pass = no ignition of the paper (no classification);
 Fail = ignition of the paper (d_2 classification).
ⁱ Under conditions of surface flame attack and, if appropriate to the end-use application of the product, edge flame attack.

To be continued...



Photo Appendix:



To be continued...

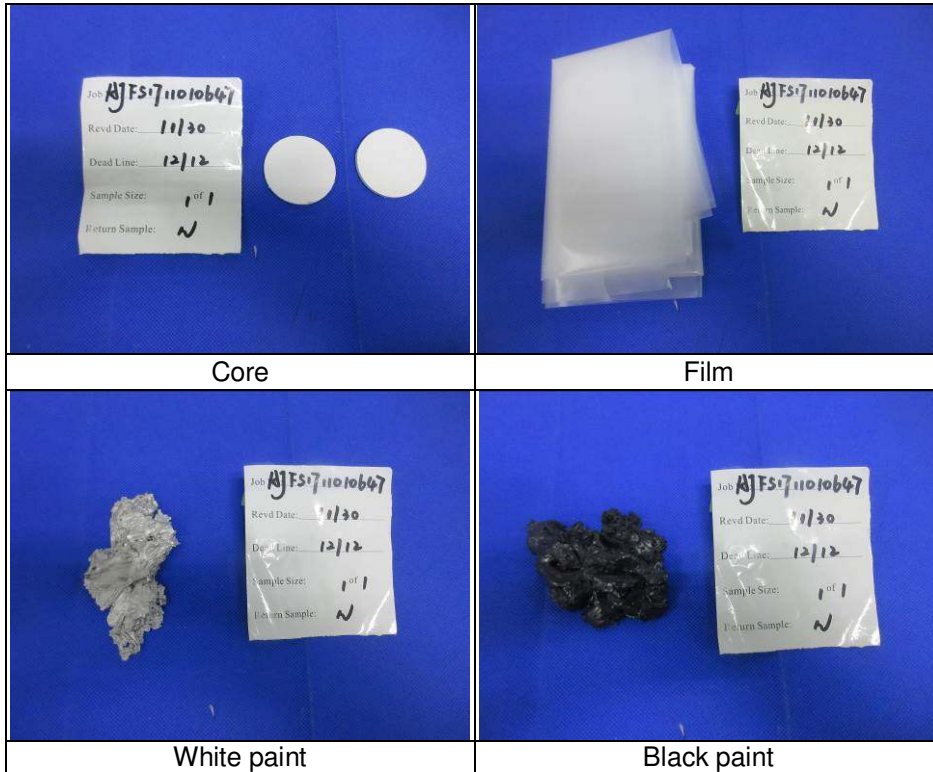


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