

No. : SC100820741-1

Date: Sep.29,2010

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JIANGSU XIECHENG SCIENCE AND TECHNOLOGY DEVE.CO.,LTD INDUSTRIAL ZONE, JINHU COUNTY, JIANGSU PROVINCE, CHINA

THIS REPORT IS TO SUPERSEDE TEST REPORT NO.SC100820741 DATE: Sep.02, 2010

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

Sample Name : A2 FIRE RESISTANT ALUMINUM COMPOSITE PANEL

Sample No. : SC100820741

Test Required : Fire test

Test Method : EN 13501-1:2007

Product specification : 1200 X 2400 X 4 X 0.5 X 0.5(mm)

Manufacturer : Jiangsu Xiecheng Science And Technology Deve.Co.,Ltd

Brand : ALMINE

Date of Receipt : Aug.09,2010

Test Period : Aug.09,2010 to Sep.02,2010

Test result(s) : Please see next pages

****** To be continued******

Signed for SGS-CSTC Standards Technical Services (Shanghai) Co., Ltd

Sally Xie

Authorized signatory

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Test Results:

I. Test conducted

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

- EN ISO 1716:2002 Reaction to fire tests for building products Determination of the heat of combustion.
- 2. EN 13823:2002 Reaction to fire tests for building products Building products excluding floorings exposed to the thermal attack by a single burning item.
- II. Details of classified product
- a) Nature and end use application

The product "A2 FIRE RESISTANT ALUMINUM COMPOSITE PANEL" is defined as a decorative sheet. Its classification is valid for the following end use application:

"Eventually be used in indoor and outdoor wall for decoration (fire resistant)".

b) <u>Description</u>

The details of the tested specimen given below have been prepared from information provided by the sponsor of the test. All values quoted are nominal, unless tolerances are given.

The product "A2 FIRE RESISTANT ALUMINUM COMPOSITE PANEL" is consists of aluminum Coil+Core Material and Adhesive film.

Layer	Name	Mass per unit area	Color	Composition
No.1: Surface Aluminum Coil 13		1360g/m ²	White	AI 99.9%, Others 0.1%
No.2: Middle	Adhesive Film	10g/m ²	White	EVA 100%
No.3: Middle	Core Material	5400g/m ²	White	MgO 60%, AI(OH) ₃ 20%; Others 20%
No.4: Middle	Adhesive Film	10g/m ²	White	EVA 100%
No.5: Surface	Aluminum Coil	1360g/m ²	White	Al 99.9%, Others 0.1%

******* To be continued******

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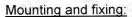
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Calcium silicate board, with its density approximate 900kg/m³, thickness 9mm is as the substrate.

The test specimens are fixed mechanically in the substrate with no cavity behind it. No joint in the long wing of the specimen.

III. Test results

Parameter	Number of tests	Results	
PCS/ MJ/kg ^a		1.25	
PCS/ MJ/ m ^{2 b}	\$ 60° 5°	.5 49 9	
PCS/ MJ/m ^{2 d}	3	0.41	
PCS/ MJ/kg ^e	5 45	0.93	
FIGRA(W/s)	7 co est	14.6	
LFS < edge of specimen		Yes	
THR _{600s} (MJ)		2.4	
SMOGRA(m²/s²)	3 5	10.4	
TSP _{600s} (m ²)	50° 60° 6	10.1	
Flaming particles or droplets	50° 50° 65	No	
	PCS/ MJ/kg ^a PCS/ MJ/ m ^{2 b} PCS/ MJ/m ^{2 d} PCS/ MJ/kg ^e FIGRA(W/s) LFS < edge of specimen THR _{600s} (MJ) SMOGRA(m ² /s ²) TSP _{600s} (m ²)	PCS/ MJ/kg a PCS/ MJ/ m² b PCS/ MJ/m² d PCS/ MJ/kg e FIGRA(W/s) LFS < edge of specimen THR _{600s} (MJ) SMOGRA(m²/s²) TSP _{600s} (m²)	

Note:

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

****** To be continued*****

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IV. Classification and direct field of application

This classification has been carried out in accordance with EN 13501-1:2007.

a) Classification

The product, A2 FIRE RESISTANT ALUMINUM COMPOSITE PANEL, classification is as following,

Fire behaviour		Smoke production		90	Flaming drople	
A2	-67	s	1 0	b , c	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 as described in §II b, is valid for the following end use condition:

- ---With all substrates classified A1 and A2
- ---With mechanical fixing
- ---No joint
- ---No an air gap

This classification is valid for the following product parameters:

---Characteristics are described in § II b of this test reports

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.

****** To be continued******

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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
	EN ISO 1182 ^a and EN ISO 1716		△T≤30°C, and △m≤50%, and t _f =0(i.e. no sustained flaming)	
A1			PCS≤2.0MJ/kg ^a and PCS≤2.0MJ/kg ^{b c} and PCS≤1.4MJ/m ^{2 d} and PCS≤2.0MJ/kg ^e	
A2	EN ISO 1182 a or	and	△ <i>T</i> ≤50℃, and △ <i>m</i> ≤50%, and t _f ≤20 s	G 5 5 5 5 5 5 5 5 5 5 5 5 5 5 5 5 5 5 5
	EN ISO 1716		PCS≤3.0MJ/kg ^a and PCS≤4.0MJ/m ^{2 b} and PCS≤4.0MJ/m ^{2 d} and PCS≤3.0MJ/kg ^e	65 965 - 565 6
	EN 13823		FIGRA≤120W/s and LFS <edge and<br="" of="" specimen="">THR_{600s}≤7.5MJ</edge>	Smoke production f and Flaming droplets/particles
В	EN 13823 and EN ISO 11925-2 i Exposure = 30s		FIGRA≤120W/s and LFS <edge and<br="" of="" specimen="">THR_{600s}≤7.5MJ</edge>	Smoke production ^f and Flaming droplets/particles
			Fs≤150mm within 60s	9

To be continued

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Class	Test method(s)	Classification criteria	Additional classification	
G C	EN 13823 and	FIGRA≤250W/s and LFS <edge and<br="" of="" specimen="">THR_{600s}≤15MJ</edge>	Smoke production ^f and Flaming droplets/particles	
	EN ISO 11925-2 i Exposure=30s	Fs≤150mm within 60 s		
-6	EN 13823 and	FIGRA≤750W/s	Smoke production ^f and Flaming droplets/particles	
D	EN ISO 11925-2 i Exposure=30s	Fs≤150mm within 60 s		
E 5	EN ISO 11925-2 i Exposure =15s	Fs≤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 ≤ 2,0 MJ/m², provided that the product satisfies the following criteria of EN 13823: FIGRA ≤ 20 W/s, and LFS < edge of specimen, and THR_{600s} ≤ 4.0 MJ, and s1, and d0.

^d For any internal non-substantial component of non-homogeneous products.

For the product as a whole.

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.

 $s1 = SMOGRA \le 30m^2/s^2$ and $TSP_{600s} \le 50m^2$; $s2 = SMOGRA \le 180m^2/s^2$ and $TSP_{600s} \le 200m^2$; s3 = not s1 or s2

gd0 = No flaming droplets/ particles in EN 13823 within 600 s;

d1 = no flaming droplets/ particles persisting longer than 10 s in EN 13823 within 600 s;

d2 = not d0 or d1.

Ignition of the paper in EN ISO 11925-2 results in a d2 classification.

h Pass = no ignition of the paper (no classification);

Fail = ignition of the paper (d2 classification).

Under conditions of surface flame attack and, if appropriate to the end-use application of the product, edge flame attack.

****** To be continued******

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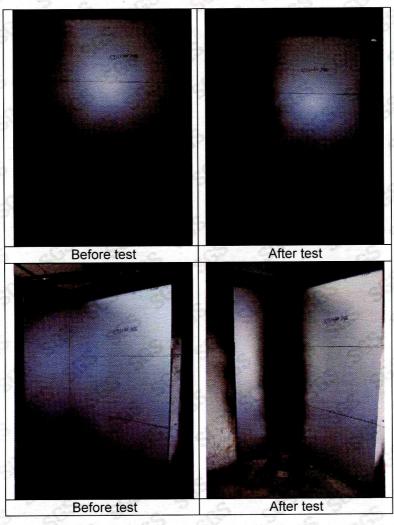


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Photo Appendix:



****** End of report ******

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