

TEST REPORT

No. : GZIN1802007567CM

Date : Apr 10, 2018

Page: 1 of 8

CUSTOMER NAME:



Sample Name : Aluminum Composite Panel **B-bond**

Product Specification : 2mm

Above information and sample(s) was/were submitted and confirmed by the client. SGS, however, assumes no responsibility to verify the accuracy, adequacy and completeness of the sample information provided by client.

Date of Receipt : Feb 09, 2018

Testing Start Date : Feb 09, 2018

Testing End Date : Apr 10, 2018

Test result(s) : For further details, please refer to the following page(s)
(Unless otherwise stated the results shown in this test report refer only to the sample(s) tested)

Signed for
SGS-CSTC Standards Technical
Services Co., Ltd. GZ Branch Testing
Center

Salon

Salon Liu
Authorized signatory

[illegible]

Member of the SGS Group (SGS SA)

TEST REPORT

No. : GZIN1802007567CM

Date : Apr 10, 2018

Page: 2 of 8

Test Result Summary

Test(s) Requested	Result(s)
EN 13501-1:2007+A1:2009 Fire classification of construction products and building elements-Part 1: Classification using data from reaction to fire tests	Classification: C-s1, d0
Summary: 1. For further details, please refer to the following page(s).	



SGS-CTI (Shanghai) Inspection & Testing Services Co., Ltd.
 Sample Test Report (For Information Only)

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TEST REPORT

No. : GZIN1802007567CM

Date : Apr 10, 2018

Page: 3 of 8

TESTS AND RESULTS

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 Reaction to fire tests for building products - Building products excluding floorings exposed to the thermal attack by a single burning item.
2. EN ISO 11925-2:2010+AC:2011 Reaction to fire tests-Ignitability of building products subjected to direct impingement of flame-Part 2: Single-flame source test.

Mounting and fixing (For EN 13823):

The specimen was tested free standing at a distance of at least 80 mm from the backing board. Both wings were clamped at the top and the bottom.

Test Results:

Test method	Parameter	Number of tests	Results
EN 13823:2010+A1:2014	FIGRA _{0.4MJ} (W/s)	3	219.2
	THR _{600s} (MJ)		10.6
	SMOGRA (m ² /s ²)		3.2
	TSP _{600s} (m ²)		19.6
	LFS < edge of specimen		Yes
	Flaming particles or droplets		No
EN ISO 11925-2:2010+AC:2011 Exposure = 30 s	F _s ≤ 150 mm	6	Yes
	Ignition of the filter paper		No

Remark:

FIGRA-Fire growth rate index used for classification purposes [W/s]



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TEST REPORT

No. : GZIN1802007567CM

Date : Apr 10, 2018

Page: 4 of 8

For the classes A2 and B, FIGRA_{0.2}MJ

For the classes C and D, FIGRA_{0.4}MJ

LFS-Lateral flame spread m

THR_{600s}-Total heat release within 600 s MJ

SMOGRA-Smoke growth rate [m²/s²]

TSP_{600s}-Total smoke production within 600 s m²

Classification and direct field of application:

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

Classification:

Fire behaviour		Smoke production			Flaming droplets	
C	-	s	1	,	d	0

Remark:

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

Reaction to fire classification is based on the 7-step scale of A1 to F, where A1 is good and F is bad

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.



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TEST REPORT

No. : GZIN1802007567CM

Date : Apr 10, 2018

Page: 5 of 8

Table 1 — 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	$PCS \leq 3.0 \text{ MJ/kg}$ ^a and $PCS \leq 4.0 \text{ MJ/m}^2$ ^b and	-



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TEST REPORT

No. : GZIN1802007567CM

Date : Apr 10, 2018

Page: 6 of 8

			$PCS \leq 4.0 \text{ MJ/m}^2$ ^d and $PCS \leq 3.0 \text{ MJ/kg}$ ^e	
	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		$F_s \leq 150 \text{ mm}$ within 60 s	
C	EN 13823	and	$FIGRA \leq 250 \text{ W/s}$ and $LFS < \text{edge of specimen}$ and $THR_{600s} \leq 15 \text{ MJ}$	Smoke production ^f and Flaming droplets/particles ^g
	EN ISO 11925-2 i		$F_s \leq 150 \text{ mm}$ within 60 s	
D	EN 13823	and	$FIGRA \leq 750 \text{ W/s}$	Smoke production ^f and Flaming droplets/particles ^g
	EN ISO 11925-2 i		$F_s \leq 150 \text{ mm}$ within 60 s	
E	EN ISO 11925-2 i		$F_s \leq 150 \text{ mm}$ 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 $PCS \leq 2.0 \text{ MJ/m}^2$, provided that the product satisfies the following criteria of EN 13823: $FIGRA \leq 20 \text{ W/s}$, and $LFS < \text{edge of specimen}$, and $THR_{600s} \leq 4.0 \text{ MJ}$, and s_1 , and d_0 .

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



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TEST REPORT

No. : GZIN1802007567CM

Date : Apr 10, 2018

Page: 7 of 8

^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.

$s1 = \text{SMOGR} \leq 30 \text{ m}^2/\text{s}^2$ and $\text{TSP}_{600\text{s}} \leq 50 \text{ m}^2$; $s2 = \text{SMOGR} \leq 180 \text{ m}^2/\text{s}^2$ and $\text{TSP}_{600\text{s}} \leq 200 \text{ m}^2$; $s3$ = not $s1$ or $s2$.

^g $d0$ = 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).

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

SAMPLE INFORMATION AND PICTURES

Thickness: About 2mm

Mass per unit area: About 3.31kg/m²



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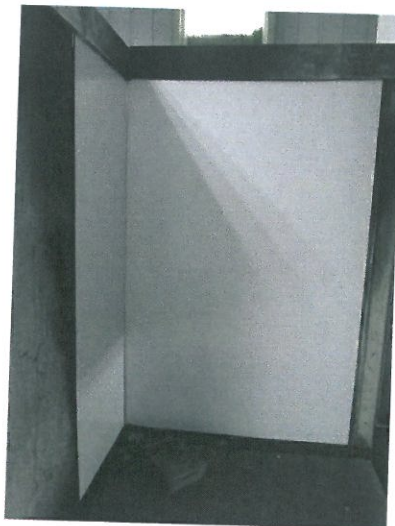
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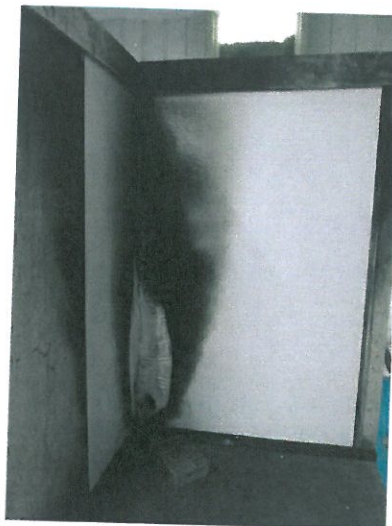
No. : GZIN1802007567CM

Date : Apr 10, 2018

Page: 8 of 8



Before Test (EN 13823)



After Test (EN 13823)

Note: The above test was carried out by SGS-CSTC Standards Technical Services Co., Ltd. Shunde Branch.

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



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Shunde Branch

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