

**PROCES-VERBAL DE CLASSEMENT  
DE REACTION AU FEU D'UN MATERIAU**  
prévu à l'article 5 de l'arrêté du 21 novembre 2002 modifié

VALABLE 5 ANS à partir du 3 février 2010

N° 14937-10

MATERIAU PRESENTE PAR : IGEP  
Rue de Bruxelles 174  
4340 AWANS  
BELGIQUE

REFERENCE COMMERCIALE : « B-BOND »

DESCRIPTION SOMMAIRE : Panneau sandwich rigide et lisse composé d'une âme centrale en polyéthylène compact noir (LDPE) et de deux parements en tôle aluminium d'épaisseur 0,2 mm recouverte d'une laque polyester.  
Masses surfaciques : 3,4 kg/m<sup>2</sup> et 6 kg/m<sup>2</sup>  
Epaisseurs totales : 2 mm et 4 mm  
Coloris présenté : blanc uni pour les parements, âme centrale noire

NATURE DES ESSAIS : Essai par rayonnement avec simulation d'un trait de scie dans le parement aluminium

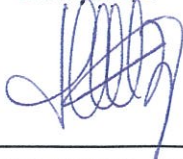
CLASSEMENT : **M1** valable pour les épaisseurs comprises entre 2 mm et 4 mm

DURABILITE DU CLASSEMENT: non limitée a priori

**\* Classement valable pour toute application pour laquelle le produit n'est pas soumis au marquage CE**

Compte tenu des critères résultant des essais décrits dans le rapport d'essai annexé n° : 14937-10 du 3 février 2010  
Ce procès verbal atteste uniquement des caractéristiques de l'échantillon soumis aux essais et ne préjuge pas des caractéristiques des produits similaires. Il ne constitue donc pas une certification de produits au sens de l'article L. 115-27 du code de la consommation et de la loi du 3 juin 1994.

Chef du Laboratoire  
"Essais au Feu"  
Bénédicte



Au Bouchet, le **3 février 2010**  
Responsable de l'essai

M. KOWALCZUK



# TEST REPORT

No. : GZMR120509330

Date : June . 5 , 2014

Page: 1 of 7

BBOND

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

Sample Name : ALUMINUM COMPOSITE PANEL  
 SGS Ref No. : GP120520208-3.1, AJD201202405  
 Test Performed : Selected test(s) as requested by applicant  
 Date of Receipt : May .02, 2012  
 Test Period : May .02, 2012 to May .30, 2012

Test result(s) : Please refer to the following page(s)

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

Signed for and on behalf of  
 SGS-CSTC Ltd.



Michelle Xu  
 Engineer

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# TEST REPORT

No. : GZMR120509330

Date : June . 5 , 2014

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## Test Information:

Sample description: See photo

## 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 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 Reaction to fire tests — Ignitability of building products subjected to direct impingement of flame — Part 2: Single-flame source test.

## II. Details of classified product

### a) Nature and end use application

The product “ALUMINUM COMPOSITE PANEL” is defined as a decorative sheet. Its classification is valid for the following end use application:

“Building curtain wall”

### b) Description

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.

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

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# TEST REPORT

No. : GZMR120509330

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General description	Aluminum composite panel
Trade name / product reference	Aluminum composite panel / 1100
Name of manufacturer	BBOND
Composition details	Alloy, Paint, PE film, Fireproofing core
Colour	White
Thickness	2mm
Bulk Density/Mass per unit area	2mm-3.194kg/m <sup>2</sup>
Brief Description of manufacturing process	Flame retardant core material by high temperature extrusion into the panel which required the thickness, using the heat film heating and composite with the aluminum roll to form the panel.
Flame retardant details	Magnesium hydroxide
End use	Building curtain wall

## Mounting and fixing:

The test specimens are fixed mechanically in the trolley free standing of a distance of 80mm from the backing board, No joint in the long wing of the specimen.

## III. Test results

Test method	Parameter	Number of tests	Results
EN 13823	FIGRA (W/s)	3	21.3
	LFS < edge of specimen		Yes
	THR <sub>600s</sub> (MJ)		1.8
	SMOGRA (m <sup>2</sup> /s <sup>2</sup> )		10.8
	TSP <sub>600s</sub> (m <sup>2</sup> )		13.9
	Flaming particles or droplets		No
EN ISO 11925-2 Exposure = 30 s	F <sub>s</sub> ≤ 150 mm	6	Yes
	Ignition of the filter paper		No

\*\*\*\*\*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+A1:2009**.

### a) Classification

The product, "ALUMINUM COMPOSITE PANEL", classification is as following,

Fire behaviour		Smoke production		Flaming droplets
<b>B</b>	—	s	1	, d 0

**Reaction to fire classification: B—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 mechanical fixing

---No joint

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
A1	EN ISO 1182 <sup>a</sup> 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		$PCS \leq 2.0\text{MJ/kg}$ <sup>a</sup> and $PCS \leq 2.0\text{MJ/kg}$ <sup>b,c</sup> and $PCS \leq 1.4\text{MJ/m}^2$ <sup>d</sup> and $PCS \leq 2.0\text{MJ/kg}$ <sup>e</sup>	-
A2	EN ISO 1182 <sup>a</sup> or	and	$\Delta T \leq 50^{\circ}\text{C}$ , and $\Delta m \leq 50\%$ , and $t_f \leq 20\text{ s}$	-
	EN ISO 1716		$PCS \leq 3.0\text{MJ/kg}$ <sup>a</sup> and $PCS \leq 4.0\text{MJ/m}^2$ <sup>b</sup> and $PCS \leq 4.0\text{MJ/m}^2$ <sup>d</sup> and $PCS \leq 3.0\text{MJ/kg}$ <sup>e</sup>	-
	EN 13823		$FIGRA \leq 120\text{W/s}$ and $LFS < \text{edge of specimen}$ and $THR_{600s} \leq 7.5\text{MJ}$	Smoke production <sup>f</sup> and Flaming droplets/particles <sup>g</sup>
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 <sup>f</sup> and Flaming droplets/particles <sup>g</sup>
	EN ISO 11925-2 <sup>i</sup> Exposure = 30s		within 60s $F_s \leq 150\text{mm}$	
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 <sup>f</sup> and Flaming droplets/particles <sup>g</sup>
	EN ISO 11925-2 <sup>i</sup> Exposure = 30s		$F_s \leq 150\text{mm}$ within 60 s	
D	EN 13823 and		$FIGRA \leq 750\text{W/s}$	Smoke production <sup>f</sup> and Flaming droplets/particles <sup>g</sup>
	EN ISO 11925-2 <sup>i</sup> Exposure = 30s		$F_s \leq 150\text{mm}$ within 60 s	
E	EN ISO 11925-2 <sup>i</sup> Exposure = 15s		$F_s \leq 150\text{mm}$ within 20 s	flaming droplets/particles <sup>h</sup>

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

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F	No performance determined
<p><sup>a</sup> For homogeneous products and substantial components of non-homogeneous products.</p> <p><sup>b</sup> For any external non-substantial component of non-homogeneous products.</p> <p><sup>c</sup> Alternatively, any external non-substantial component having a PCS <math>\leq 2,0 \text{ MJ/m}^2</math> , provided that the product satisfies the following criteria of EN 13823: FIGRA <math>\leq 20 \text{ W/s}</math>, and LFS &lt; edge of specimen, and THR<sub>600s</sub> <math>\leq 4,0 \text{ MJ}</math>, and s1, and d0.</p> <p><sup>d</sup> For any internal non-substantial component of non-homogeneous products.</p> <p><sup>e</sup> For the product as a whole.</p> <p><sup>f</sup> 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.</p> <p>s1 = SMOGRA <math>\leq 30\text{m}^2/\text{s}^2</math> and TSP<sub>600s</sub> <math>\leq 50\text{m}^2</math> ; s2 = SMOGRA <math>\leq 180\text{m}^2/\text{s}^2</math> and TSP<sub>600s</sub> <math>\leq 200\text{m}^2</math>; s3 = not s1 or s2</p> <p><sup>g</sup> 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.</p> <p>Ignition of the paper in EN ISO 11925-2 results in a d2 classification.</p> <p><sup>h</sup> Pass = no ignition of the paper (no classification); Fail = ignition of the paper (d2 classification).</p> <p><sup>i</sup> Under conditions of surface flame attack and, if appropriate to the end-use application of the product, edge flame attack.</p>	

Note: The above test was carried out by a SGS laboratory.

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

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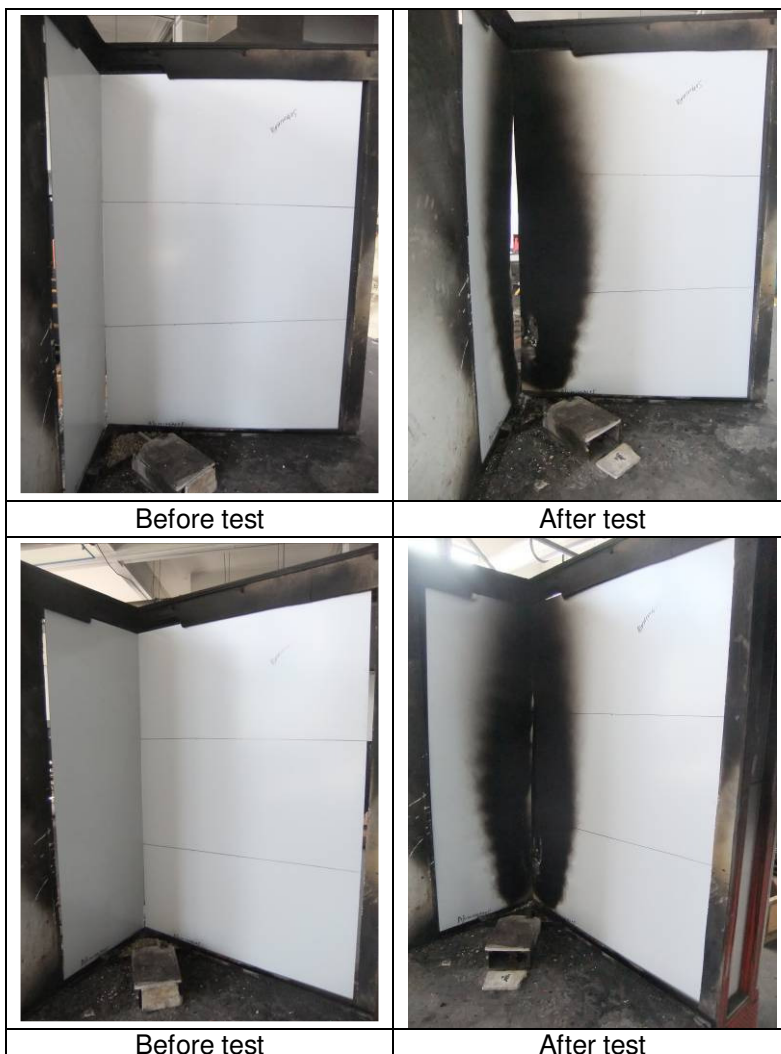
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Photo:



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

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# TEST REPORT

No. : GZMR120509331

Date : June . 5 , 2014

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BBOND

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

Sample Name : ALUMINUM COMPOSITE PANEL  
 SGS Ref No. : GP120520208-3.2, AJD201202406  
 Test Performed : Selected test(s) as requested by applicant  
 Date of Receipt : May .02, 2012  
 Test Period : May .02, 2012 to May .30, 2012

Test result(s) : Please refer to the following page(s)

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

Signed for and on behalf of  
 SGS-CSTC Ltd.



Michelle Xu  
 Engineer

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# TEST REPORT

No. : GZMR120509331

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## Test Information:

Sample description: See photo

## 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 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 Reaction to fire tests — Ignitability of building products subjected to direct impingement of flame — Part 2: Single-flame source test.

## II. Details of classified product

### a) Nature and end use application

The product “ALUMINUM COMPOSITE PANEL” is defined as a decorative sheet. Its classification is valid for the following end use application:

“Building curtain wall”

### b) Description

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.

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

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General description	Aluminum composite panel
Trade name / product reference	Aluminum composite panel / 1100
Name of manufacturer	BBOND
Composition details	Alloy, Paint, PE film, Fireproofing core
Colour	White
Thickness	3mm
Bulk Density/Mass per unit area	3mm-4.812kg/m <sup>2</sup>
Brief Description of manufacturing process	Flame retardant core material by high temperature extrusion into the panel which required the thickness, using the heat film heating and composite with the aluminum roll to form the panel.
Flame retardant details	Magnesium hydroxide
End use	Building curtain wall

## Mounting and fixing:

The test specimens are fixed mechanically in the trolley free standing of a distance of 80mm from the backing board, No joint in the long wing of the specimen.

## III. Test results

Test method	Parameter	Number of tests	Results
EN 13823	FIGRA (W/s)	3	17.3
	LFS < edge of specimen		Yes
	THR <sub>600s</sub> (MJ)		1.7
	SMOGRA (m <sup>2</sup> /s <sup>2</sup> )		8.4
	TSP <sub>600s</sub> (m <sup>2</sup> )		8.8
	Flaming particles or droplets		No
EN ISO 11925-2 Exposure = 30 s	F <sub>s</sub> ≤ 150 mm	6	Yes
	Ignition of the filter paper		No

\*\*\*\*\*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+A1:2009**.

### a) Classification

The product, "ALUMINUM COMPOSITE PANEL", classification is as following,

Fire behaviour		Smoke production		Flaming droplets
<b>B</b>	—	s	1	, d 0

**Reaction to fire classification: B—s1, d0**

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

### b) Field of application

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

---With mechanical fixing

---No joint

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
A1	EN ISO 1182 <sup>a</sup> 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	$PCS \leq 2.0\text{MJ/kg}$ <sup>a</sup> and $PCS \leq 2.0\text{MJ/kg}$ <sup>b,c</sup> and $PCS \leq 1.4\text{MJ/m}^2$ <sup>d</sup> and $PCS \leq 2.0\text{MJ/kg}$ <sup>e</sup>	-
A2	EN ISO 1182 <sup>a</sup> or	and $\Delta T \leq 50^{\circ}\text{C}$ , 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 <sup>f</sup> and Flaming droplets/particles <sup>g</sup>
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 <sup>f</sup> and Flaming droplets/particles <sup>g</sup>
	EN ISO 11925-2 <sup>i</sup> Exposure = 30s	within 60s $F_s \leq 150\text{mm}$	
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 <sup>f</sup> and Flaming droplets/particles <sup>g</sup>
	EN ISO 11925-2 <sup>i</sup> Exposure = 30s	$F_s \leq 150\text{mm}$ within 60 s	
D	EN 13823 and	$FIGRA \leq 750\text{W/s}$	Smoke production <sup>f</sup> and Flaming droplets/particles <sup>g</sup>
	EN ISO 11925-2 <sup>i</sup> Exposure = 30s	$F_s \leq 150\text{mm}$ within 60 s	
E	EN ISO 11925-2 <sup>i</sup> Exposure = 15s	$F_s \leq 150\text{mm}$ within 20 s	flaming droplets/particles <sup>h</sup>

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

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F	No performance determined
<p><sup>a</sup> For homogeneous products and substantial components of non-homogeneous products.</p> <p><sup>b</sup> For any external non-substantial component of non-homogeneous products.</p> <p><sup>c</sup> Alternatively, any external non-substantial component having a <math>PCS \leq 2,0 \text{ MJ/m}^2</math> , provided that the product satisfies the following criteria of EN 13823: <math>FIGRA \leq 20 \text{ W/s}</math>, and <math>LFS &lt; \text{edge of specimen}</math>, and <math>THR_{600s} \leq 4,0 \text{ MJ}</math>, and <math>s1</math>, and <math>d0</math>.</p> <p><sup>d</sup> For any internal non-substantial component of non-homogeneous products.</p> <p><sup>e</sup> For the product as a whole.</p> <p><sup>f</sup> 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.</p> <p><math>s1 = SMOGRA \leq 30 \text{ m}^2/\text{s}^2</math> and <math>TSP_{600s} \leq 50 \text{ m}^2</math> ; <math>s2 = SMOGRA \leq 180 \text{ m}^2/\text{s}^2</math> and <math>TSP_{600s} \leq 200 \text{ m}^2</math>; <math>s3 = \text{not } s1 \text{ or } s2</math></p> <p><sup>g</sup> <math>d0 = \text{No flaming droplets/ particles in EN 13823 within 600 s}</math>;  <math>d1 = \text{no flaming droplets/ particles persisting longer than 10 s in EN 13823 within 600 s}</math>;  <math>d2 = \text{not } d0 \text{ or } d1</math>.  Ignition of the paper in EN ISO 11925-2 results in a <math>d2</math> classification.</p> <p><sup>h</sup> Pass = no ignition of the paper (no classification);  Fail = ignition of the paper (<math>d2</math> classification).</p> <p><sup>i</sup> Under conditions of surface flame attack and, if appropriate to the end-use application of the product, edge flame attack.</p>	

Note: The above test was carried out by a SGS laboratory.

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

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Photo:



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

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BBOND

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

Sample Name : ALUMINUM COMPOSITE PANEL  
SGS Ref No. : GP120520208-3.3, AJD201202407  
Test Performed : Selected test(s) as requested by applicant  
Date of Receipt : May .02, 2012  
Test Period : May .02, 2012 to May .30, 2012

Test result(s) : Please refer to the following page(s)

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

Signed for and on behalf of  
SGS-CSTC Ltd.

Michelle Xu  
Engineer

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SGS-CSTC Standards Technical Services Co., Ltd.  
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GZMR

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## Test Information:

Sample description: See photo

## 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 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 Reaction to fire tests — Ignitability of building products subjected to direct impingement of flame — Part 2: Single-flame source test.

## II. Details of classified product

### a) Nature and end use application

The product “ALUMINUM COMPOSITE PANEL” is defined as a decorative sheet. Its classification is valid for the following end use application:

“Building curtain wall”

### b) Description

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.

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

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General description	Aluminum composite panel
Trade name / product reference	Aluminum composite panel / 1100
Name of manufacturer	BBOND
Composition details	Alloy, Paint, PE film, Fireproofing core
Colour	Silver
Thickness	4mm
Bulk Density/Mass per unit area	4mm-6.76kg/m <sup>2</sup>
Brief Description of manufacturing process	Flame retardant core material by high temperature extrusion into the panel which required the thickness, using the heat film heating and composite with the aluminum roll to form the panel.
Flame retardant details	Magnesium hydroxide
End use	Building curtain wall

## Mounting and fixing:

The test specimens are fixed mechanically in the trolley free standing of a distance of 80mm from the backing board, No joint in the long wing of the specimen.

## III. Test results

Test method	Parameter	Number of tests	Results
EN 13823	FIGRA (W/s)	3	15.8
	LFS < edge of specimen		Yes
	THR <sub>600s</sub> (MJ)		1.5
	SMOGRA (m <sup>2</sup> /s <sup>2</sup> )		8.1
	TSP <sub>600s</sub> (m <sup>2</sup> )		9.4
	Flaming particles or droplets		No
EN ISO 11925-2 Exposure = 30 s	F <sub>s</sub> ≤ 150 mm	6	Yes
	Ignition of the filter paper		No

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## 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, "ALUMINUM COMPOSITE PANEL", classification is as following,

Fire behaviour		Smoke production		Flaming droplets
<b>B</b>	—	s	1	, d 0

**Reaction to fire classification: B—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 mechanical fixing

---No joint

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.

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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
A1	EN ISO 1182 <sup>a</sup> 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	$PCS \leq 2.0\text{MJ/kg}$ <sup>a</sup> and $PCS \leq 2.0\text{MJ/kg}$ <sup>b,c</sup> and $PCS \leq 1.4\text{MJ/m}^2$ <sup>d</sup> and $PCS \leq 2.0\text{MJ/kg}$ <sup>e</sup>	-
A2	EN ISO 1182 <sup>a</sup> or	and $\Delta T \leq 50^{\circ}\text{C}$ , 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 <sup>f</sup> and Flaming droplets/particles <sup>g</sup>
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 <sup>f</sup> and Flaming droplets/particles <sup>g</sup>
	EN ISO 11925-2 <sup>i</sup> Exposure = 30s	within 60s $F_s \leq 150\text{mm}$	
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 <sup>f</sup> and Flaming droplets/particles <sup>g</sup>
	EN ISO 11925-2 <sup>i</sup> Exposure = 30s	$F_s \leq 150\text{mm}$ within 60 s	
D	EN 13823 and	$FIGRA \leq 750\text{W/s}$	Smoke production <sup>f</sup> and Flaming droplets/particles <sup>g</sup>
	EN ISO 11925-2 <sup>i</sup> Exposure = 30s	$F_s \leq 150\text{mm}$ within 60 s	
E	EN ISO 11925-2 <sup>i</sup> Exposure = 15s	$F_s \leq 150\text{mm}$ within 20 s	flaming droplets/particles <sup>h</sup>

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

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F	No performance determined
<p><sup>a</sup> For homogeneous products and substantial components of non-homogeneous products.</p> <p><sup>b</sup> For any external non-substantial component of non-homogeneous products.</p> <p><sup>c</sup> Alternatively, any external non-substantial component having a <math>PCS \leq 2,0 \text{ MJ/m}^2</math> , provided that the product satisfies the following criteria of EN 13823: <math>FIGRA \leq 20 \text{ W/s}</math>, and <math>LFS &lt; \text{edge of specimen}</math>, and <math>THR_{600s} \leq 4,0 \text{ MJ}</math>, and <math>s1</math>, and <math>d0</math>.</p> <p><sup>d</sup> For any internal non-substantial component of non-homogeneous products.</p> <p><sup>e</sup> For the product as a whole.</p> <p><sup>f</sup> 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.</p> <p><math>s1 = SMOGRA \leq 30 \text{ m}^2/\text{s}^2</math> and <math>TSP_{600s} \leq 50 \text{ m}^2</math> ; <math>s2 = SMOGRA \leq 180 \text{ m}^2/\text{s}^2</math> and <math>TSP_{600s} \leq 200 \text{ m}^2</math>; <math>s3 = \text{not } s1</math> or <math>s2</math></p> <p><sup>g</sup> <math>d0 = \text{No flaming droplets/ particles in EN 13823 within 600 s}</math>;  <math>d1 = \text{no flaming droplets/ particles persisting longer than 10 s in EN 13823 within 600 s}</math>;  <math>d2 = \text{not } d0 \text{ or } d1</math>.</p> <p>Ignition of the paper in EN ISO 11925-2 results in a <math>d2</math> classification.</p> <p><sup>h</sup> Pass = no ignition of the paper (no classification);  Fail = ignition of the paper (<math>d2</math> classification).</p> <p><sup>i</sup> Under conditions of surface flame attack and, if appropriate to the end-use application of the product, edge flame attack.</p>	

Note: The above test was carried out by a SGS laboratory.

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