

Test Report

No. SDFS2001901058FF

Date: Nov.8, 2019

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FOSHAN YIXIANG MATERIALS AND RESOURCES TRADING CO., LTD
NO.23 WUFENG 4TH ROAD, CHANCHENG DISTRICT, FOSHAN, GUANGDONG, CHINA

Brand Name : KC PANELS

Sample Description : ALUMINUM HONEYCOMB PANEL

The above data and information was / were submitted and identified on behalf of the client. SGS is not responsible for the authenticity, integrity and results of the data and information and / or the validity of the conclusion. results apply to the sample as received.

SGS Ref No. : GZIN2001906524B

Sample Receiving Date : Oct.15, 2019

Test Performing Date : Oct.18, 2019 to Oct. 30, 2019

Test Result Summary

Test(s) Requested	Result(s)
EN 13501-1:2018	Classification: A2-s1, d0

Summary:

1. For further details, please refer to the following page(s).

Signed for and on behalf of
Shunde Branch
SGS-CSTC Co., Ltd.



Daniel Guan
Approved signatory



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TESTS AND RESULTS

Test Conducted:

This test is conducted as per EN 13501-1:2018 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 products — Determination of the gross heat of combustion. (Calorific Value)

Mounting and fixing (For EN 13823:2010+A1:2014):

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 _{0.2MJ} (W/s)	3	17.0
	FIGRA _{0.4MJ} (W/s)		17.0
	THR _{600s} (MJ)		3.2
	SMOGRA (m ² /s ²)		0.8
	TSP _{600s} (m ²)		8.2
	LFS < edge of specimen		Yes
	Flaming particles or droplets		No
EN ISO 1716:2010	For the product as a whole ^e -PCS (MJ/kg)	3	0.13
	Aluminum panel ^a -PCS (MJ/kg)		0*
	Aluminum honeycomb ^a -PCS (MJ/kg)		0*
	Aluminum panel ^a -PCS (MJ/kg)		0*
	Glue 1 ^d -PCS (MJ/m ²)		1.9
	Glue 2 ^d -PCS (MJ/m ²)		1.9

Remark:

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

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]

PCS — gross heat of combustion [MJ/kg or MJ/m²]

*- Metallic components shall not be tested. Where metallic components are present, their gross heat of combustion shall be deemed to be zero.



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Classification and direct field of application:

This classification has been carried out in accordance with EN 13501-1:2018.

Classification:

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

Remark:

The classes with their corresponding fire performance are given in Table 1.

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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Annex A

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	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 ^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 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 Exposure = 30s	$F_s \leq 150\text{mm}$ 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 Exposure = 30s	$F_s \leq 150\text{mm}$ within 60 s	
E	EN ISO 11925-2 ⁱ Exposure = 15s	$F_s \leq 150\text{mm}$ within 20 s	flaming droplets/particles ^h
F	No performance determined		



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- ^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 < edge of specimen, and THR_{600s} $\leq 4,0 \text{ MJ}$, and s1, and d0.
- ^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.
- s1 = SMOGRA $\leq 30\text{m}^2/\text{s}^2$ and TSP_{600s} $\leq 50\text{m}^2$; s2 = SMOGRA $\leq 180\text{m}^2/\text{s}^2$ and TSP_{600s} $\leq 200\text{m}^2$; 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.



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