DONGGUAN SAFETY GLASS PRODUCTS CO.,LTD
BLOCK B319,NO.13 FENGXING ROAD,LINGTOU COMMUNITY,QIAOTOU TOWN,DONGGUAN,China

Sample Description : 21.52MM LAMINATED GLASS

As above test item and its relevant information regarding to the submission are provided and confirmed by the applicant. SGS is not liable to either the test item or its relevant information, in terms of the accuracy, suitability, reliability or/and integrity accordingly.

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SGS Ref No. : SDFS2104002679FF

Sample Receiving Date : Apr 29, 2021

Test Performing Date : Apr 29, 2021 to May 14, 2021

Test Performed : Selected test(s) as requested by applicant

Test Result(s) : For further details, please refer to the following page(s)

Test Result Summary

Test(s) Requested	Result(s)
EN 13501-1:2018 Fire classification of construction products and building elements-Part 1: Classification using data from reaction to fire tests	Classification: B-s1, d0

Summary:

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

Signed for and on behalf of
SGS-CSTC Standards Technical Services Co., Ltd. Xiamen Branch

scan to see the report

XMHL2104002492OT

Beck Hong
Authorized 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 13823:2020 Reaction to fire tests for building products-Building products excluding floorings exposed to the thermal attack by a single burning item.
2. EN ISO 11925-2:2020 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 13823:2020):

There is no ventilation cavity behind the specimen. The specimen was tested free standing. Both wings were clamped at the top and the bottom. There is no joint between the specimens.

Test Results:

Test method	Parameter	Number of tests	Results
EN 13823:2020	$FIGRA_{0.2MJ}$（W/s）	3	28.1
	$FIGRA_{0.4MJ}$（W/s）		21.5
	THR_{600s}（MJ）		1.1
	SMOGRA（m^2/s^2）		0.9
	TSP_{600s}（m^2）		29.7
	LFS < edge of specimen (Yes/No)		Yes
	Flaming particles or droplets within 600s (Yes/No); Combustion time, if any burning time: (≤10s / >10s)		No
EN ISO 11925-2:2020 Exposure = 30 s	*F*s ≤ 150 mm (Yes/No)	12	Yes
	Ignition of the filter paper		No

Remark:

FIGRA-Fire growth rate index used for classification purposes [W/s]
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 [m^2/s^2]
TSP_{600s}-Total smoke production within 600 s [m^2]

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	
B	—	s	1	,	d	0

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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.

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		$\triangle T \leq 30℃$, and $\triangle m \leq 50\%$, and t_f=0(i.e. no sustained flaming)	-
	EN ISO 1716		*PCS*≤2.0MJ/kg [a] and *PCS*≤2.0MJ/kg [b c] and *PCS*≤1.4MJ/m² [d] and *PCS*≤2.0MJ/kg [e]	-
A2	EN ISO 1182 [a] or	and	$\triangle T \leq 50℃$, and $\triangle m \leq 50\%$, and $t_f \leq 20$ s	-
	EN ISO 1716		*PCS*≤3.0MJ/kg [a] and *PCS*≤4.0MJ/m² [b] and *PCS*≤4.0MJ/m² [d] and *PCS*≤3.0MJ/kg [e]	-
	EN 13823		*FIGRA*≤120W/s and *LFS*<edge of specimen and THR_{600s}≤7.5MJ	Smoke production [f] and Flaming droplets/particles [g]
B	EN 13823 and		FIGRA≤120W/s and LFS<edge of specimen and THR600s≤7.5MJ	Smoke production [f] and Flaming droplets/particles [g]
	EN ISO 11925-2 [i] Exposure =30s		Fs≤150mm within 60 s	

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C	EN 13823 and	FIGRA≤250W/s and LFS<edge of specimen and THR600s≤15MJ	Smoke production [f] and Flaming droplets/particles [g]
	EN ISO 11925-2 [i] Exposure=30s	Fs≤150mm within 60 s	
D	EN 13823 and	FIGRA≤750W/s	Smoke production [f] and Flaming droplets/particles [g]
	EN ISO 11925-2 [i] Exposure=30s	Fs≤150mm within 60 s	
E	EN ISO 11925-2 [i] Exposure =15s	Fs≤150mm within 20 s	flaming droplets/particles [h]
F	EN ISO 11925-2 [i] Exposure =15s	Fs>150mm within 20 s	-

[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/m^2 , 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.
[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 ≤ 30m^2/s^2 and TSP_{600s} ≤ 50m^2 ; s2 = SMOGRA ≤ 180m^2/s^2 and TSP_{600s} ≤ 200m^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.

Remark: This test was subcontracted to Shunde Branch, SGS-CSTC Co., Ltd.

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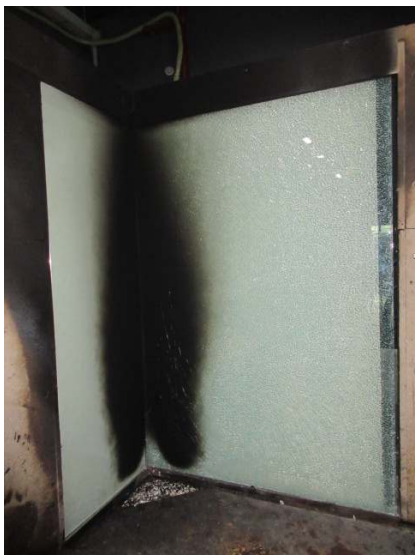
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SAMPLE INFORMATION AND PICTURES

Thickness of the test specimen: 21.52mm
Density of the test specimen: 50.0kg/m^2



Before Test (EN 13823)



After Test (EN 13823)

End of Report

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