TEST REPORT

No. : SHIN2201001316CM
Date : Jan 29, 2022

scan to see the report
SHIN2201001316CM

CUSTOMER NAME: DONGGUAN CSG JINGYU NEW MATERTAL CO., LTD
ADDRESS: CSG GREEN INDUSTIAL PARK, MACHONG TOWN, DONGGUAN CITY, GUANGDONG, CHINA

Sample Name : JADE GLASS

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.

****

Test Required	:	Please see the next page(s)
SGS Ref. No.	:	SHIN2201000906SC
Ref. Standard	:	Please see the next page(s)
Date of Receipt	:	Jan 07, 2022
Testing Start Date	:	Jan 07, 2022
Testing End Date	:	Jan 29, 2022
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 Service (Shanghai)Co., Ltd.

Ziven Wang

Ziven Wang
Authorized signatory

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Summary of Results:

No.	Test Item	Test Method	Result	Conclusion
1	Apparent Density and Water Absorption	With Reference to EN 15285:2008 Clause 4.2.2 & EN 14617-1:2013	See Result	/
2	Flexural Strength	EN 15285:2008 Clause 4.2.3 & EN 14617-2:2016	See Result	/
3	Chemical Resistance	EN 15285:2008 Clause 4.2.5 & EN 14617-10:2012	See Result	/
4	Stain Resistance	EN 14617-10:2012 Appendix A	See Result	/
5	Slipperiness	EN 15285:2008 Clause 4.2.9 & EN 14231:2003	See Result	/
6	Linear Thermal Expansion Coefficient	EN 15285:2008 Clause 4.2.13 & EN 14617-11:2005	See Result	/
7	Frost Resistance	EN 15285:2008 Clause 4.2.16 & EN 14617-5:2012	See Result	/
8	Compressive Strength	With Reference to EN 14617-15:2005	See Result	/
9	Abrasion Resistance	EN 15285-2008 Clause 4.2.4 & EN 14617-4:2012	See Result	/
10	Reaction to Fire	EN 15285-2008 Clause 4.2.8 & EN 13501-1:2018	See Result	/

Note: Pass : Meet the requirements;
Fail : Does not meet the requirements;
/ : Not Apply to the judgment.

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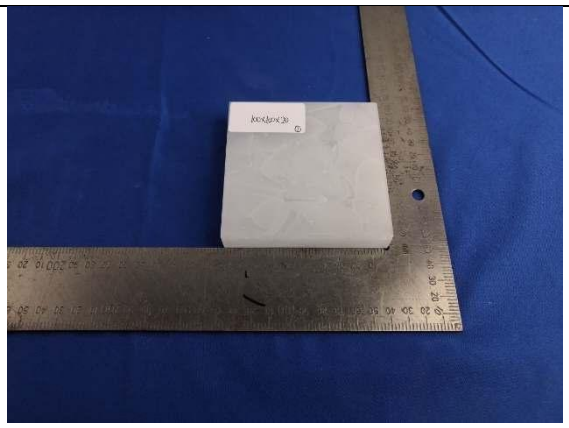
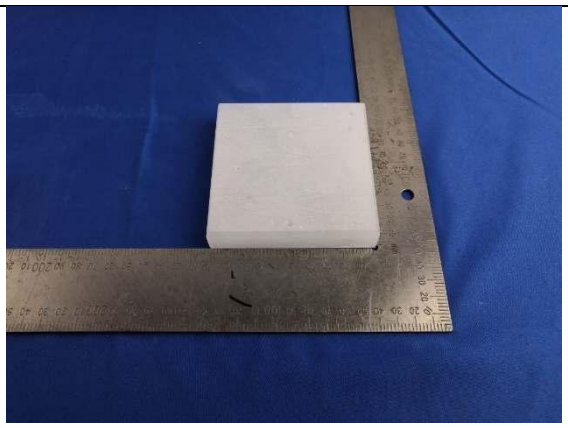
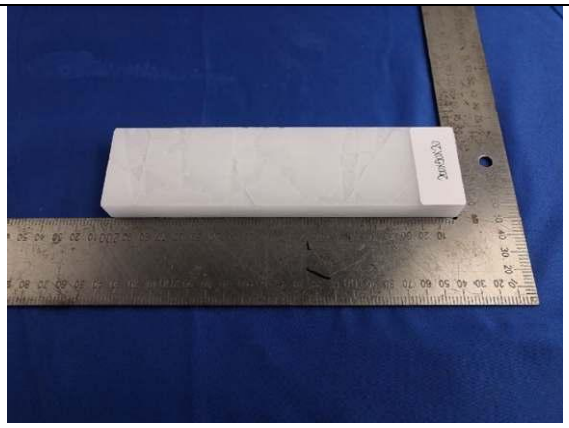
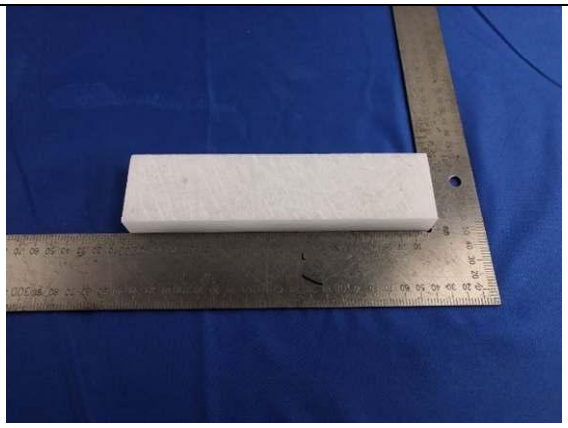
Original Sample Photo(s):

	
Apparent Density and Water Absorption —Front view	Apparent Density and Water Absorption —Back view
	
Flexural Strength/ Frost Resistance—Front view	Flexural Strength/ Frost Resistance—Back view

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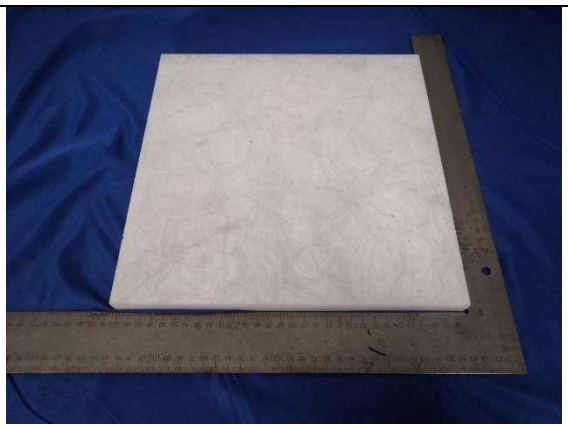
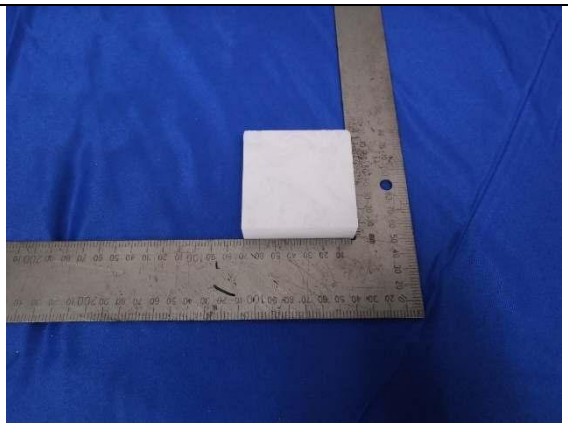
	
Chemical Resistance—Front view	Chemical Resistance—Back view
	
Stain Resistance—Front view	Stain Resistance—Back view

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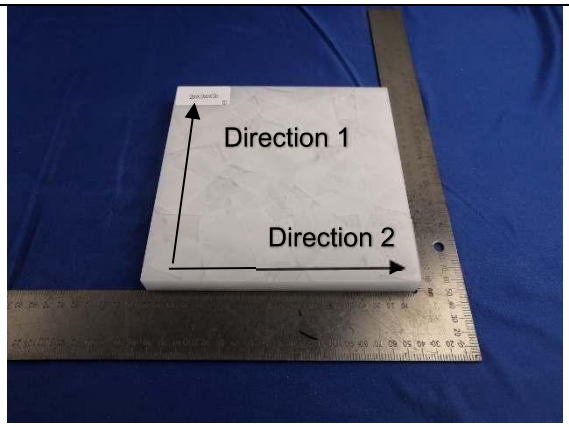
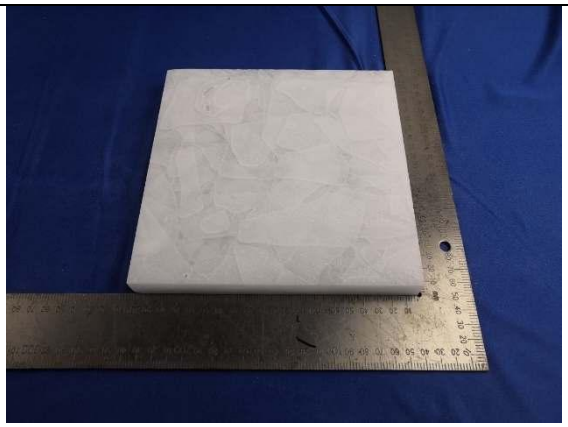
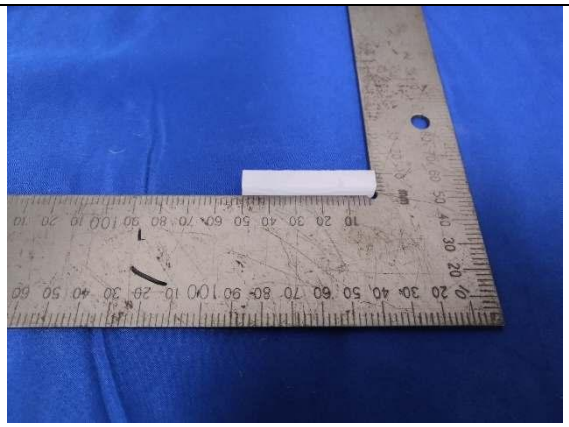
	
Slipperiness—Front view	Slipperiness—Back view
	
Linear Thermal Expansion Coefficient —Front view	Linear Thermal Expansion Coefficient —Back view

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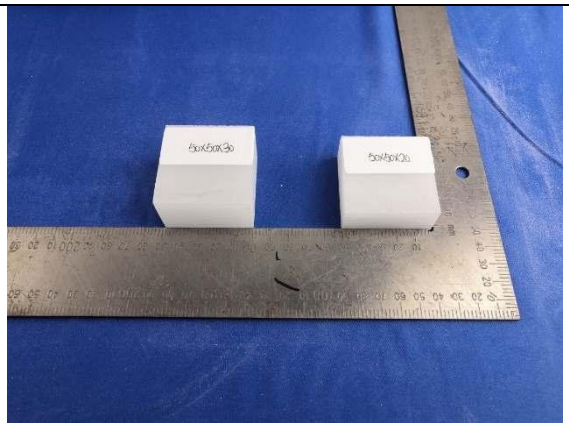
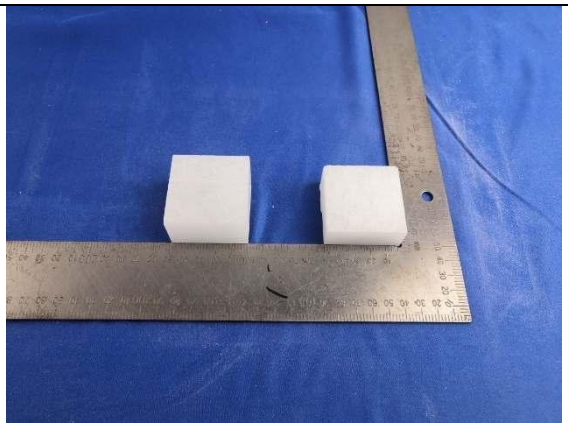
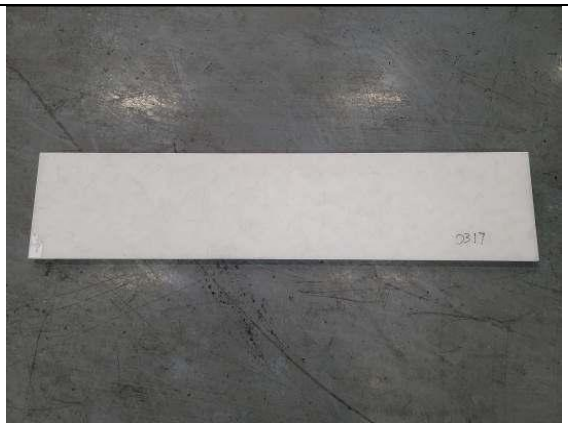
	
Compressive Strength—Front view	Compressive Strength—Back view
	
Abrasion Resistance	Reaction to Fire

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TEST REPORT

1. Test Item: Apparent Density and Water Absorption

Test Method: With Reference to EN 15285:2008 Clause 4.2.2 & EN 14617-1:2013

Test Condition:

Specimen: 100mm×100mm×20mm, 6pcs

Lab Environmental Condition: 20±2℃, 65±5%RH

Test Result:

Test Item	Test Result
Apparent Density (kg/m^3)	2488
Water Absorption	Classified according to table 2 of EN 15285:2008: W_4

Original Data:

Test Item	Test Result						
	Individual Value						Average Value
Apparent Density (kg/m^3)	2485	2482	2485	2488	2507	2483	2488
Water Absorption	0.02	0.03	0.03	0.02	0.02	0.04	0.03

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TEST REPORT

2. Test Item: Flexural Strength

Test Method: EN 15285:2008 Clause 4.2.3 & EN 14617-2:2016

Test Condition:

Specimen: 200mm×50mm×20mm, 10pcs

Test span: 180mm

Test rate: 18.5N/s

Lab Environmental Condition: 20±2℃, 65±5%RH

Test Result:

Test Item	Test Result
Flexural Strength	Classified according to table 2 of EN 15285:2008: F_2

Original Data:

Test Item	Test Result					
	Individual Value					Average Value
Flexural Strength (MPa)	22.3	18.6	22.4	24.0	23.0	22.5
	22.1	18.3	24.3	26.2	24.1	

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TEST REPORT

3. Test Item: Chemical Resistance

Test Method: EN 15285:2008 Clause 4.2.5 & EN 14617-10:2012

Test Condition:

Specimen: 300mm×300mm×20mm, 4pcs

Lab Environmental Condition: 23±2℃, 50±5%RH

Test Result:

Test Item	Test Result
Chemical Resistance	Classified according to table 2 of EN 15285:2008: C_3

Original Data:

Test Item		Contact Time	Test Result						
			Individual Value					Average Value	Retention Rate
Gloss (60 °)	Hydrochloric acid solution (50% V/V)	0h	71.2	79.2	73.2	63.9	69.2	71.3	82%
		1h	59.9	60.1	58.5	56.6	58.3	58.7	
		0h	88.1	87.5	82.6	72.1	73.4	80.7	76%
		8h	69.1	62.4	59.2	61.6	55.9	61.6	
	Sodium hydroxide (50% V/V)	0h	71.1	71.6	77.2	79.8	71.4	74.2	78%
		1h	56.5	57.5	58.0	58.8	58.1	57.8	
		0h	64.1	71.7	83.2	86.0	91.6	79.3	78%
		8h	68.3	63.8	57.2	63.3	56.8	61.9	

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TEST REPORT

4. Test Item: Stain Resistance

Test Method: EN 14617-10:2012 Appendix A

Test Condition:

Specimen: 70mm×70mm×20mm, 2pcs

Staining agent: Cola

Lab Environmental Condition: 23±2℃, 50±5%RH

Test Result:

Test Item	Contact Time	Test Result
Stain Resistance	1h	No surface change
	24h	No surface change

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TEST REPORT

5. Test Item: Slipperiness

Test Method: EN 15285:2008 Clause 4.2.9 & EN 14231:2003

Test Condition:

Specimen: 200mm×200mm×20mm, 6pcs

Slider type: TRL

Test Direction: See sample photo

Lab Environmental Condition: 20±2℃, 65±5%RH

Test Result:

Test Item			Test Result						
			Individual Value						Total Average
Slipperiness	Dry	Direction 1	68	49	47	50	52	57	53
		Direction 2	60	48	46	50	56	55	
	Wet	Direction 1	10	10	10	9	10	11	10
		Direction 2	10	10	10	9	10	11	

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Original Data:

Test Item		Test Result									
		Direction 1					Direction 2				
Slipperiness	Dry	68	68	69	68	68	60	60	60	60	60
		50	49	49	49	49	48	48	48	48	48
		47	47	47	47	47	47	47	46	46	46
		50	50	50	50	50	51	50	50	50	50
		53	52	52	52	52	57	57	55	55	56
		57	57	57	57	57	55	55	55	55	54
	Wet	10	10	10	10	10	10	10	10	10	10
		11	10	10	10	10	10	10	10	10	10
		10	10	10	10	10	10	10	10	10	10
		10	10	9	9	9	10	9	9	9	9
		10	10	10	10	10	10	10	10	10	10
		11	11	11	11	11	12	11	11	11	11

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TEST REPORT

6. Test Item: Linear Thermal Expansion Coefficient

Test Method: EN 15285:2008 Clause 4.2.13 & EN 14617-11:2005

Test Condition:

Specimen: 50mm×8mm×8mm, 3pcs

Heating Rate: 3℃/min

Temperature range: 30℃~60℃

Lab Environmental Condition: 20±2℃, 65±5%RH

Test Result:

Test Item	Test Result			
	Individual Value			Average Value
Linear Thermal Expansion Coefficient (10^{-6}·C^{-1})	6.7	6.7	0.0	4.5

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TEST REPORT

7. Test Item: Frost Resistance

Test Method: EN 15285:2008 Clause 4.2.16 & EN 14617-5:2012

Test Condition:

Specimen: 200mm×50mm×20mm, 10pcs

Treatment: - 20 ℃, 4h→20 ℃,2h, 25 cycles

Test span: 180mm

Test rate: 18.5N/s

Lab Environmental Condition: 20±2℃, 65±5%RH

Test Result:

Test Item	Test Result
Frost Resistance	115%

Original Data:

Test Item		Test Result					
		Individual Value					Average Value
Flexural Strength (MPa)	Freeze thaw cycle	22.0	24.1	22.3	24.2	26.8	23.9
	Unfrozen thaw cycle	18.5	22.6	22.7	19.6	20.1	20.7

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TEST REPORT

8. Test Item: Compressive Strength

Test Method: With Reference to EN 14617-15:2005

Test Condition:

Specimen: 50mm×50mm×50mm (specimens were jointed by two pieces), 6pcs

Test rate: 1MPa/s

Lab Environmental Condition: 20±2℃, 65±5%RH

Test Result:

Test Item	Test Result						
	Individual Value						Individual Value
Compressive Strength (MPa)	203	161	38	196	61	33	115

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TEST REPORT

9. Test Item: Abrasion Resistance

Sample Description: See photo

Test Method: EN 15285-2008 Clause 4.2.4 & EN 14617-4:2012 Agglomerated stone - Test methods - Part 4: Determination of the abrasion resistance

Test Condition:

Specimens: 150mm×100mm×20mm, one face polished

Testing surface: polished

Test Result:

Specimens identification No.	1	2	3	4	5	6
The length of the groove (mm)	28.0	30.0	31.0	27.5	27.0	29.0
Mean value(mm)	28.8					

Classification according to EN 15285:2008:

A_1 > 36.5mm, 33.0mm<A_2≤36.5 mm, 29.0 mm<A_3≤33.0mm, A_4≤29.0 mm, classification is A_4.

Note: Test item 9 was performed by SGS-CSTC Standards Technical Services Co., Ltd. Xiamen Branch Testing Center.

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TEST REPORT

10. Test Item: Reaction to Fire

I. Test Method: EN 15285:2008 Agglomerated stone- Modular tiles for flooring and stairs (internal and external), clause 4.2.4. reaction to fire. Classification according to 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 ISO 1716:2010 Reaction to fire tests for products — Determination of the gross heat of combustion (Calorific Value).

2. EN ISO 9239-1:2010 Reaction to fire tests for floorings —Part 1: Determination of the burning behaviour using a radiant heat source.

II. Details of classified product

Sample description	Jade Glass (provided by client)
Color	White
Type of material	Homogeneous product
Sample size	EN ISO 9239-1:2010: 1050mm×230mm
Mass per unit area	46.4 kg/m^2
Exposed surface	Smooth surface

Mounting and fixing:

Fibre cement board, with its density approximate 1800kg/m^3, thickness approximate 9mm, is as the substrate. The test specimens are fixed mechanically to the substrate. No joints in the specimen.

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III. Test Results

Test methods	Parameter	Number of tests	Results
EN ISO 1716	PCS≤3.0MJ/kg [a]	3	-2.28
	PCS≤4.0MJ/m^2 [b]		---
	PCS≤4.0MJ/m^2 [c]		---
	PCS≤3.0MJ/kg [e]		---
EN ISO 9239-1	Critical flux (kW/m^2)	3	≥11
	Smoke (%×minutes)		0

IV. Classification and direct field of application

a) Reference of classification

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

b) Classification

The product, Jade Glass, in relation to its reaction to fire behaviour is classified:

Fire behaviour		Smoke production	
A2 $_{fl}$	—	s	1

Reaction to fire classification: A2 $_{fl}$—s1

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

c) Field of application

This classification is valid for the following end use applications:

--- With all substrates classified as A1 and A2

--- With mechanically fixing

--- No joints

This classification is valid for the following product parameters:

--- Characteristics as described in section II of this test report.

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Statement:

This declaration of conformity is only based on the result of this laboratory activity, the impact of the uncertainty of the results was not included.

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 floorings

Class	Test methods	Classification	Additional classification
$A1_{fl}$	EN ISO 1182 [a] and	△T≤30℃, and △m≤50%, and tf=0(i.e. no sustained flaming)	-
	EN ISO 1716	PCS≤2.0MJ/kg [a] and PCS≤2.0MJ/kg [b] and PCS≤1.4MJ/m^2 [c] and PCS≤2.0MJ/kg [d]	-
$A2_{fl}$	EN ISO 1182 [a] or	△T≤50℃, and △m≤50%, and tf≤20s	-
	EN ISO 1716 and	PCS≤3.0MJ/kg [a] and PCS≤4.0MJ/m2 [b] and PCS≤4.0MJ/m2 [c] and PCS≤3.0MJ/kg [d]	-
	EN ISO 9239-1 [e]	Critical flux [f] ≥8.0kW/ m2	Smoke production [g]
B_{fl}	EN ISO 9239-1 [e] and	Critical flux [f] ≥8.0kW/ m2	Smoke production [g]
	EN ISO 11925-2 [h] Exposure =15s	Fs≤150mm within 20 s	-
C_{fl}	EN ISO 9239-1 [e] and	Critical flux [f] ≥4.5kW/ m^2	Smoke production [g]
	EN ISO 11925-2 [h] Exposure =15s	Fs≤150mm within 20 s	-
D_{fl}	EN ISO 9239-1 [e] and	Critical flux f ≥3.0 kW/m^2	Smoke production [g]
	EN ISO 11925-2 [h] Exposure =15s	Fs≤150mm within 20 s	-
E_{fl}	EN ISO 11925-2 [h] Exposure =15s	Fs≤150mm within 20 s	-

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F_{fl}	EN ISO 11925-2 [h] Exposure =15s	Fs > 150 mm 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] For any internal non-substantial component of non-homogeneous products.

[d] For the product as a whole.

[e] Test duration = 30 min.

[f] Critical flux is defined as the radiant flux at which the flame extinguishes or the radiant flux after a test period of 30 min, whichever is the lower (i.e. the flux corresponding with the furthest extent of spread of flame).

[g] s1 = Smoke ≤ 750 % minutes;

s2 = not s1.

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

Note: Test item 10 was performed by SGS-CSTC Standards Technical Services Co., Ltd. Anji Branch Testing Center.

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