

CHANGZHOU SUN PLUS LAMINATE CO.,LTD
NO.16 WUQING ROAD, WEIXING INDUSTRY, HENGLIN TOWN, WUJIN DISTRICT, CHANGZHOU,CHINA

Sample Description : HIGH PRESSURE LAMINATE

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.

Sample Receiving Date : Jan 15, 2024

Test Performing Date : Jan 17, 2024 to Feb 05, 2024

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

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

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



Kitty Kang
Authorized Signatory

Scan to see the report



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Shunde Branch

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Test Result Summary

No.	Test item	Test(s) Requested	Result(s)	Comments	
Part 1	1	Assessment of appearance	EN 438-2:2016+A1:2018(E) Clause 4	Refer to next page(s)	/
	2	Resistance to immersion in boiling water	EN 438-2:2016+A1:2018(E) Clause 12	Refer to next page(s)	/
	3	Resistance to dry heat	EN 438-2:2016+A1:2018(E) Clause 16	Refer to next page(s)	/
	4	Resistance to wet heat	EN 438-2:2016+A1:2018(E) Clause 18	Refer to next page(s)	/
	5	Resistance to impact by large diameter ball	EN 438-2:2016+A1:2018(E) Clause 21	Refer to next page(s)	/
	6	Resistance to crazing (Compact laminates)	EN 438-2:2016+A1:2018(E) Clause 24	Refer to next page(s)	/
	7	Resistance to staining	EN 438-2:2016+A1:2018(E) Clause 26	Refer to next page(s)	/
Part 2	1	Formaldehyde Emission	EN 13986:2004+A1:2015	Refer to next page(s)	/
Part 3	2	Fire classification of construction products and building elements—Part 1: Classification using data from reaction to fire tests	EN 13501-1:2018	Refer to next page(s)	/

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



Test Information:

Part 1:

Sample Description: See photo

1. Test item: Assessment of appearance

Test method: EN 438-2:2016+A1:2018(E) Clause 4

Test condition: /

Test result(s):

Test result	Conclusion
No obvious defects	/

2. Test item: Resistance to immersion in boiling water

Test method: EN 438-2:2016+A1:2018(E) Clause 12

Test condition:

Immersion time in boiling water: (120 ± 5) min

Test result(s):

Test result	Conclusion	
Mass increase (%)	0.6	/
Thickness increase (%)	3.5	/
Surface rating	Rating 5	/
Edge rating	Rating 5	/

Note:

1. Surface rating scale refers to EN 438-2:2016+A1:2018(E) Clause 12.5.2, as follows:

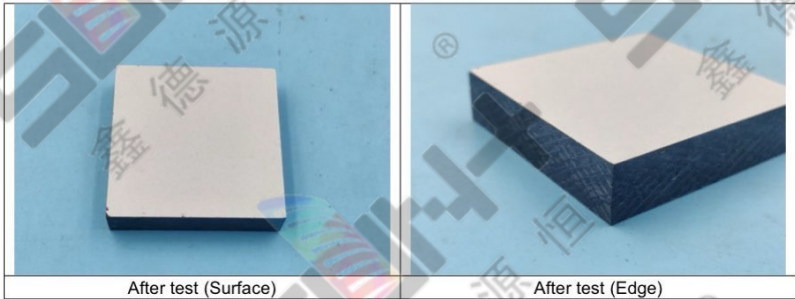
Appearance rating scale	Appearance
Rating 5	No visible change.
Rating 4	Slight change of gloss and/or colour, only visible at certain viewing angles.
Rating 3	Moderate change of gloss and/or colour.
Rating 2	Marked change of gloss and/or colour or surface blistering.
Rating 1	Surface layers delamination.



2. Edge rating scale refers to EN 438-2:2016+A1:2018(E) Clause 12.5.3, as follows:

Appearance rating scale	Appearance
Rating 5	No visible change.
Rating 4	Slight hairline edge cracks visible to the naked eyes.
Rating 3	Moderate edge cracks.
Rating 2	Severe edge cracks.
Rating 1	Core layers delamination.

Test photo:



After test (Surface)

After test (Edge)



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3. Test item: Resistance to dry heat

Test method: EN 438-2:2016+A1:2018(E) Clause 16

Test condition: 160°C, 20min

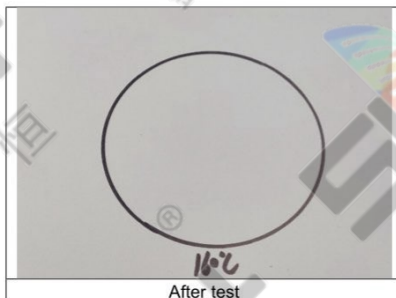
Test result(s):

Test result	Conclusion
Rating 5	/

Note: Surface rating scale refers to EN 438-2:2016+A1:2018(E) Clause 16.6, as follows:

Appearance rating scale	Appearance
Rating 5	No change Test area indistinguishable from adjacent surrounding area
Rating 4	Minor change Test area distinguishable from adjacent surrounding area, only when the light source is mirrored on the test surface and is reflected towards the observer's eye, e.g. discoloration, change in gloss and colour
Rating 3	Moderate change Test area distinguishable from adjacent surrounding area, visible in several viewing directions, e.g. discoloration, change in gloss and colour, no change in the surface structure, e.g. deformation, cracking, blistering
Rating 2	Significant change test area clearly distinguishable from adjacent surrounding area, visible in all viewing directions, e.g. discoloration, change in gloss and colour, and / or structure of the surface slightly changed, e.g. slight cracking, slight blistering
Rating 1	Strong change the structure of the surface being distinctly changed e.g. strong cracking, strong blistering and / or discoloration, change in gloss and colour, and / or the surface material being totally or partially delaminated

Test photo:



5. Test item: Resistance to impact by large diameter ball

Test method: EN 438-2:2016+A1:2018(E) Clause 21

Test condition:

Diameter of steel ball: (42.8 ± 0.2) mm

steel ball mass: (324 ± 5) g

Test result(s):

	Test result	Conclusion
Maximum drop height	2000mm	/
Indent diameter	7.2mm	

Note: The maximum height of equipment test is 2000mm.

Test photo:



6. Test item: Resistance to crazing (Compact laminates)

Test method: EN 438-2:2016+A1:2018(E) Clause 24

Test condition: (80±2) °C, (20±1)h

Test result(s):

Test result	Conclusion
Rating 4	/

Note: Surface rating scale refers to EN 438-2:2016+A1:2018(E) Clause 24.5, as follows:

Appearance rating scale	Appearance
Rating 5	Surfaces and edges unchanged from 'as received' condition.
Rating 4	Surfaces unchanged with slight hairline edge cracks visible to the naked eye.
Rating 3	Surface cracks visible to the naked eye, and/or moderate edge cracks.
Rating 2	Moderate surface cracks and/or severe edge cracks.
Rating 1	Severe surface cracks and/or delamination.

Test photo:



After test



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7. Test item: Resistance to staining

Test method: EN 438-2:2016+A1:2018(E) Clause 26

Test conditions: Covered

Test result(s):

Test liquid	Contact time	Appearance rating	Conclusion
Acetone	16h	5	/
Coffee (120g of coffee per litre of water)	16h	5	/
Sodium hydroxide (25% solution)	10min	5	/
Hydrogen peroxide (30% solution)	10min	5	/
Carbon black suspension in paraffin oil (Shoe polish simulant)	10min	5	/

Note: Appearance rating scale refers to EN 438-2:2016+A1:2018(E) Clause 26.7, as follows:

Numerical rating	Description
5	No change test area indistinguishable from adjacent surrounding area
4	Minor change test area distinguishable from adjacent surrounding area, only when the light source is mirrored on the test surface and is reflected towards the observer's eye, e. g. discoloration, change in gloss and colour
3	Moderate change test area distinguishable from adjacent surrounding area, visible in several viewing directions, e. g. discoloration, change in gloss and colour
2	Significant change test area clearly distinguishable from adjacent surrounding area, visible in all viewing directions, e. g. discoloration, change in gloss and colour, and / or structure of the surface slightly changed, e.g. cracking, blistering
1	Strong change the structure of the surface being distinctly changed and / or discoloration, change in gloss and colour, and / or the surface material being totally or partially delaminated

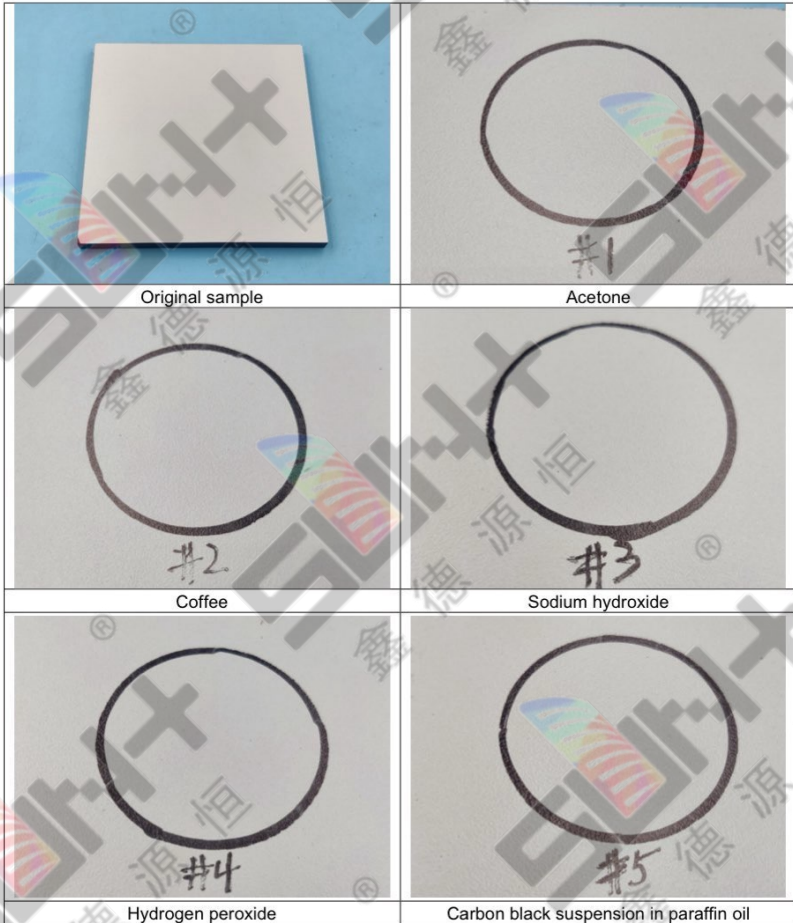


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Photo Appendix:



Unless otherwise stated, the decision rule for conformity reporting is based on Binary Statement for Simple Acceptance Rule (w=0) stated in ILAC-G8:09/2019.



Part 2 (SGS Ref. No.: CAN24-0012621)

Test Result(s):

Test Part Description: _____

SN ID	Sample No.	SGS Sample ID	Description
SN1	A1	CAN24-0012621-0001.C001	"HIGH PRESSURE LAMINATE"

Remarks:

- (1) 1 mg/kg = 1 ppm = 0.0001%
- (2) MDL = Method Detection Limit
- (3) ND = Not Detected (< MDL)
- (4) "-" = Not Regulated

EN 13986:2004+A1:2015 - Formaldehyde Emission

Test Method: With reference to EN 717-1:2004, analysis was performed by UV-Vis.

Test Item(s)	Limit	Unit(s)	MDL	A1
Formaldehyde Emission (In air)	0.124	mg/m ³	0.05	ND
Conclusion				E1

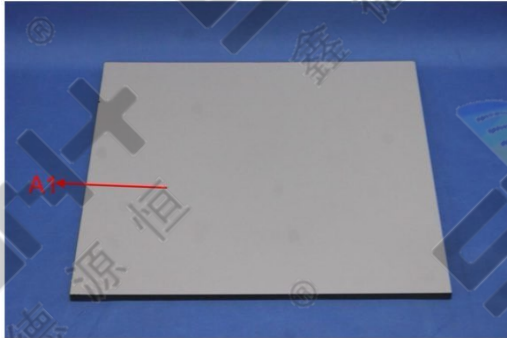
Notes:

- (1) Formaldehyde class E1: $\leq 0.124 \text{ mg/m}^3$ air
- Formaldehyde class E2: $> 0.124 \text{ mg/m}^3$ air

Unless otherwise stated, the decision rule for conformity reporting is based on Binary Statement for Simple Acceptance Rule (w=0) stated in ILAC-G8:09/2019.



Sample Photo:



Remark: Part 2 test was subcontracted to SGS-CSTC Standards Technical Services Co., Ltd. Guangzhou Branch.



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Part 3 (SGS Ref. No.: SDFS2401000470FF)

I. 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:

- EN 13823:2020+A1:2022 Reaction to fire tests for building products - Building products excluding floorings exposed to the thermal attack by a single burning item.
- EN ISO 11925-2:2020 Reaction to fire tests — Ignitability of products subjected to direct impingement of flame — Part 2: Single-flame source test.

II. Details of classified product

Sample Description	Board
Color	White
Thickness	13 mm
Area density	17.7 kg/m ²

Mounting and fixing:

Test substrate was calcium silicate board meets the requirement of EN13501-1, of Class A2-s1,d0, the density of 900 kg/m³ and thickness of 10mm.

Specimen was installed on the substrate by screw. There was no joint between specimens. Specimen had a ventilated cavity of 40mm away from the backing board.

III. Test results

Test methods	Parameter	Number of tests	Results
EN 13823	FIGRA _{0,2MJ} (W/s)	3	108.8
	FIGRA _{0,4MJ} (W/s)		108.8
	Whether lateral flame spread (LFS) to the edge of specimen (Yes/No)		No
	THR _{600s} (MJ)		11.4
	SMOGRA (m ² /s ²)		6.4
	TSP _{600s} (m ²)		42.9
EN ISO 11925-2 Exposure = 30 s	Flaming particles or droplets (Yes/No)	12	No
	Fs≤150mm within 60 s (Yes/No)		Yes
	Ignition of the filter paper (Yes/No)		No

Note:

FIGRA_{0,2MJ} - Fire growth rate index at THR threshold of 0,2 MJ [W/s]

FIGRA_{0,4MJ} - Fire growth rate index at THR threshold of 0,4 MJ [W/s]

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



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SMOGRA - Smoke growth rate [m²/s²]

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

IV. Classification and field of application

a) Reference of classification

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

b) Classification

The **product**, HIGH PRESSURE LAMINATE (as described by the sponsor), in relation to its reaction to fire behaviour is classified:

Fire behaviour	Smoke production	Flaming droplets
C	s 1	d 0

Reaction to fire classification: C – s1, d0
Remark : Mixed glue quality

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

c) Field of application

This classification is valid for the following product parameters:

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

This classification is valid for the following end use applications:

- With all substrates classified as A1 or A2
- With mechanically fixing
- No joint
- With cavity

Limitations

This classification document does not represent type approval or certification of the product.

Warning:

The test laboratory has, therefore, played no part in sampling the product for the test, although it holds appropriate references, supplied by the manufacturer, to provide for traceability of the samples tested.



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.

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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 ^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	$PC_{CS} \leq 2.0\text{MJ/kg}$ ^a and $PC_{CS} \leq 2.0\text{MJ/kg}$ ^{b,c} and $PC_{CS} \leq 1.4\text{MJ/m}^2$ ^d and $PC_{CS} \leq 2.0\text{MJ/kg}$ ^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	and $PC_{CS} \leq 3.0\text{MJ/kg}$ ^a and $PC_{CS} \leq 4.0\text{MJ/m}^2$ ^b and $PC_{CS} \leq 4.0\text{MJ/m}^2$ ^d and $PC_{CS} \leq 3.0\text{MJ/kg}$ ^e	-
	EN 13823	$FIGRA_{0,2M} \leq 120\text{W/s}$ 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	$FIGRA_{0,2M} \leq 120\text{W/s}$ 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 ¹ Exposure = 30s	$F_s \leq 150\text{mm}$ within 60s	
C	EN 13823 and	$FIGRA_{0,4M} \leq 250\text{W/s}$ 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 ¹ Exposure = 30s	$F_s \leq 150\text{mm}$ within 60 s	
D	EN 13823 and	$FIGRA_{0,4M} \leq 750\text{W/s}$	Smoke production ^f and Flaming droplets/particles ^g
	EN ISO 11925-2 ¹ Exposure = 30s	$F_s \leq 150\text{mm}$ within 60 s	
E	EN ISO 11925-2 ¹ Exposure = 15s	$F_s \leq 150\text{mm}$ within 20 s	flaming droplets/particles ^h
F	EN ISO 11925-2 ¹ Exposure = 15 s	$F_s > 150\text{mm}$ within 20 s	



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Sample Description : HIGH PRESSURE LAMINATE (COMPACT)

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Test Result Summary

No.	Test(s) Requested	Result(s)	Comments
1	EN 13501-1:2018 Fire classification of construction products and building elements - Part 1: Classification using data from reaction to fire tests.	See attached sheet	/
For further details, please refer to the following page(s)			

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



Peter Zhao
 Authorized Signatory



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— Part 1: Classification using data from reaction to fire tests. And the test methods as following:

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- EN ISO 11925-2:2020 Reaction to fire tests — Ignitability of products subjected to direct impingement of flame — Part 2: Single-flame source test.

II. Details of classified product

Sample Description	Board
Color	Black
Thickness	3.0mm
Area density	5.80kg/m ²

Mounting and fixing:

Test substrate was calcium silicate board meets the requirement of EN13501-1, of Class A2-s1,d0, the density of 900 kg/m³ and thickness of 10mm.

Specimen was installed on the substrate by screw. There was no joint between specimens. Specimen had a ventilated cavity of 40mm away from the backing board.

III. Test results

Test methods	Parameter	Number of tests	Results
EN 13823	FIGRA _{0,2MJ} (W/s)	3	37.6
	FIGRA _{0,4MJ} (W/s)		30.3
	Whether lateral flame spread (LFS) to the edge of specimen (Yes/No)		No
	THR _{600s} (MJ)		2.2
	SMOGRA (m ² /s ²)		2.3
	TSP _{600s} (m ²)		20.2
EN ISO 11925-2 Exposure = 30 s	Flaming particles or droplets (Yes/No)	12	No
	Fs≤150mm within 60 s (Yes/No)		Yes
	Ignition of the filter paper (Yes/No)		No

Note:

FIGRA_{0,2MJ} - Fire growth rate index at THR threshold of 0,2 MJ [W/s]

FIGRA_{0,4MJ} - Fire growth rate index at THR threshold of 0,4 MJ [W/s]

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

SMOGRA - Smoke growth rate [m²/s²]



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

IV. Classification and field of application

a) Reference of classification

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

b) Classification

The product, HIGH PRESSURE LAMINATE (as described by the sponsor), in relation to its reaction to fire behaviour is classified:

Fire behaviour		Smoke production		Flaming droplets
B	—	s	1	d 0

Reaction to fire classification: B—s1, d0
 Remark : Phenolic glue quality

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

c) Field of application

This classification is valid for the following product parameters:

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

This classification is valid for the following end use applications:

--- With all substrates classified as A1 or A2

--- With mechanically fixing

--- No joint

Limitations

This classification document does not represent type approval or certification of the product.

Warning:

The test laboratory has, therefore, played no part in sampling the product for the test, although it holds appropriate references, supplied by the manufacturer, to provide for traceability of the samples tested.

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.

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Annex A

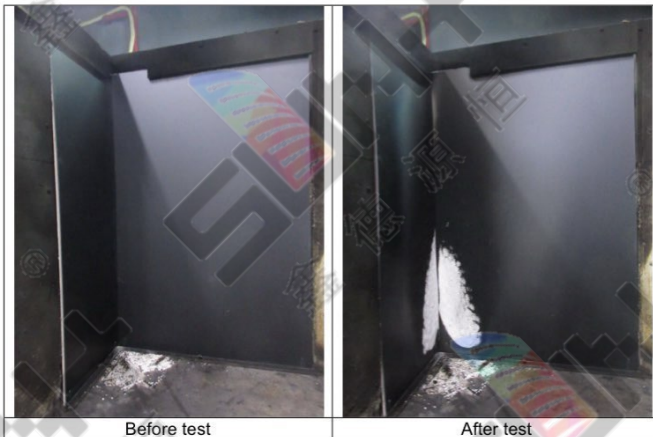
Classes of reaction to fire performance for construction products excluding floorings and linear pipe thermal insulation products

Class	Test method(s)	Classification criteria	Additional classification
A1	EN ISO 1182 ^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	$PC S \leq 2.0 \text{ MJ/kg}^a$ and $PC S \leq 2.0 \text{ MJ/kg}^{b,c}$ and $PC S \leq 1.4 \text{ MJ/m}^2^d$ and $PC S \leq 2.0 \text{ MJ/kg}^e$	-
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	and $PC S \leq 3.0 \text{ MJ/kg}^a$ and $PC S \leq 4.0 \text{ MJ/m}^2^b$ and $PC S \leq 4.0 \text{ MJ/m}^2^d$ and $PC S \leq 3.0 \text{ MJ/kg}^e$	-
	EN 13823	$FIGRA_{0,2M} \leq 120 \text{ W/s}$ 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	$FIGRA_{0,2M} \leq 120 \text{ W/s}$ 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 ¹ Exposure = 30s	$F_s \leq 150 \text{ mm}$ within 60s	
C	EN 13823 and	$FIGRA_{0,4M} \leq 250 \text{ W/s}$ 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 ¹ Exposure=30s	$F_s \leq 150 \text{ mm}$ within 60 s	
D	EN 13823 and	$FIGRA_{0,4M} \leq 750 \text{ W/s}$	Smoke production ^f and Flaming droplets/particles ^g
	EN ISO 11925-2 ¹ Exposure=30s	$F_s \leq 150 \text{ mm}$ within 60 s	
E	EN ISO 11925-2 ¹ Exposure = 15s	$F_s \leq 150 \text{ mm}$ within 20 s	flaming droplets/particles ^h
F	EN ISO 11925-2 ¹ Exposure = 15 s	$F_s > 150 \text{ mm}$ 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 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 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.

Photo Appendix:



End of Report

