

**Test Report** No.: CZHL2303000965HI **Date:** MAR. 15, 2023 Page 1 of 16  
 JIANGSU JIASHIJIA NEW MATERIAL GROUP CO., LTD  
 NO.26, NANMENG ROAD, WEIXING VILLAGE, HENGLIN TOWN, WUJIN DISTRICT, CHANGZHOU CITY

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

Sample Description : HIGH PRESSURE DECORATIVE LAMINATES  
 Style No. : 12mm  
 Manufacturer : JIANGSU JIASHIJIA NEW MATERIAL GROUP CO., LTD  
 \*\*\*\*\*  
 Sample Receiving Date : MAR. 13, 2023  
 Testing Period : MAR. 13, 2023 TO MAR. 15, 2023  
 Testing Performed : Follow selected test(s) as requested by client.

	Test Requirement	Conclusion
1	With reference to High-pressure decorative laminates (HPL) - Sheets based on thermosetting resins (usually called laminates) - Part 2: Determination of properties (EN 438-2:2016+A1:2018)	See Results

\*\*\* FOR FURTHER DETAILS, PLEASE REFER TO THE FOLLOWING PAGE(S) \*\*\*



Summer Wen  
 Authorized Signatory



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**1. With reference to High-pressure decorative laminates (HPL) - Sheets based on thermosetting resins (usually called laminates) - Part 2: Determination of properties (EN 438-2:2016+A1:2018) Clause 4**

**Assessment of appearance**

- 1) Number of test sample: 3 pcs
- 2) Viewing distance: 700mm

Clause	Result
Assessment of appearance	Total area of spot-type defects in square millimetres: 0mm <sup>2</sup> Total length of hair-like defects in millimetres: 0mm

**2. With reference to High-pressure decorative laminates (HPL) - Sheets based on thermosetting resins (usually called laminates) - Part 2: Determination of properties (EN 438-2:2016+A1) Clause 5 Determination of thickness**

- 1) Number of test sample: 3 pcs

Clause	Result
Determination of thickness	Sample1: 12.11mm Sample2: 12.09mm Sample3: 12.04mm Mean value: 12.08mm

**3. With reference to High-pressure decorative laminates (HPL) - Sheets based on thermosetting resins (usually called laminates) - Part 2: Determination of properties (EN 438-2:2016+A1:2018) Clause 6 Determination of length and width**

- 1) Number of test sample: 3 pcs

Clause	Result
Determination of length and width	Length: 2450mm Width: 1220mm



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**4. With reference to High-pressure decorative laminates (HPL) - Sheets based on thermosetting resins (usually called laminates) - Part 2: Determination of properties (EN 438-2:2016+A1:2018) Clause 7**

**Determination of edge straightness**

1) Number of test sample: 1 pc

Clause	Result
Determination of edge straightness	First edge: +0.6mm Second edge: +0.7mm Third edge: -0.4mm Fourth edge: +0.5mm

Note: Results shall be designated (+) if the edge is convex, and (-) if the edge is concave.

**5. With reference to High-pressure decorative laminates (HPL) - Sheets based on thermosetting resins (usually called laminates) - Part 2: Determination of properties (EN 438-2:2016+A1:2018) Clause 8**

**Determination of edge squareness**

1) Number of test sample: 3 pcs

Clause	Result
Determination of edge squareness	Maximum deviation: 0.4mm

**6. With reference to High-pressure decorative laminates (HPL) - Sheets based on thermosetting resins (usually called laminates) - Part 2: Determination of properties (EN 438-2:2016+A1:2018) Clause 9**

**Determination of flatness**

1) Number of test sample: 1 pc

Clause	Result
Determination of flatness	Maximum flatness deviation: 0.3mm

**7. With reference to High-pressure decorative laminates (HPL) - Sheets based on thermosetting resins (usually called laminates) - Part 2: Determination of properties (EN 438-2:2016+A1:2018) Clause 10**

**Resistance to surface wear**

- 1) Number of test sample: 3 pcs
- 2) Sample size: 100×100mm
- 3) Ambient condition: (23 ± 2) °C, (50 ± 5) %RH
- 4) Conditioning time: 72 h

Clause	Result
Determination of resistance to surface wear	Resistance to surface wear: 900r



**8. With reference to High-pressure decorative laminates (HPL) - Sheets based on thermosetting resins (usually called laminates) - Part 2: Determination of properties (EN 438-2:2016+A1:2018) Clause 11**

**Resistance to abrasion (flooring grade laminates)**

- 1) Number of test sample: 3 pcs
- 2) Sample size: 100×100mm
- 3) Ambient condition: (23 ± 2) °C, (50 ± 5) %RH
- 4) Conditioning time: 72 h

Clause	Result
Determination of resistance to abrasion	Resistance to abrasion: 700r

**9. With reference to High-pressure decorative laminates (HPL) - Sheets based on thermosetting resins (usually called laminates) - Part 2: Determination of properties (EN 438-2:2016+A1:2018) Clause 12**

**Resistance to immersion in boiling water**

- 1) Number of test sample: 3 pcs
- 2) Sample size: 50×50mm
- 3) Ambient condition: (23 ± 2) °C, (50 ± 5) %RH
- 4) Conditioning time: 72 h

Clause	Result
Resistance to immersion in boiling water	Average percentage increase in mass: 0.39% Average percentage increase in thickness: 0.42% Examination for change in appearance for surface: Rating 5 Examination for change in appearance for edge: Rating 5

Note:

1. The explanation of change in appearance for surface:

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. The explanation of change in appearance for edge:

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.



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**10. With reference to High-pressure decorative laminates (HPL) - Sheets based on thermosetting resins (usually called laminates) - Part 2: Determination of properties (EN 438-2:2016+A1:2018) Clause 13**

**Substrate protection against water vapour**

- 1) Number of test sample: 2 pcs
- 2) Sample size: 100×100mm

Clause	Result
Substrate protection against water vapour	Maximum deviation: 0.1mm

**11. With reference to High-pressure decorative laminates (HPL) - Sheets based on thermosetting resins (usually called laminates) - Part 2: Determination of properties (EN 438-2:2016+A1:2018) Clause 14**

**Resistance to water vapour**

- 1) Number of test sample: 1 pc
- 2) Sample size: 100×100mm

Clause	Result
Resistance to water vapour	Examination for change in appearance: Rating 5

Note: The result of the examination for change in appearance shall be expressed in accordance with the following rating scale:

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.

Rating 1: Blistering and/or delamination.



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**12. With reference to High-pressure decorative laminates (HPL) - Sheets based on thermosetting resins (usually called laminates) - Part 2: Determination of properties (EN 438-2:2016+A1:2018) Clause 15**

**Resistance to wet conditions (Exterior grade laminates)**

- 1) Number of test sample: 4 pcs
- 2) Sample size: 150×150mm
- 3) Ambient condition: (23 ± 2) °C, (50 ± 5) %RH
- 4) Conditioning time: 72 h

Clause	Result
Resistance to wet conditions	Average percentage increase in mass: 0.73% Examination for change in appearance for surface: Rating 5 Examination for change in appearance for edge: Rating 5

Note:

1. The explanation of change in appearance for surface:

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. The explanation of change in appearance for edge:

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.



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**13. With reference to High-pressure decorative laminates (HPL) - Sheets based on thermosetting resins (usually called laminates) - Part 2: Determination of properties (EN 438-2:2016+A1:2018) Clause 16**

**Resistance to dry heat**

- 1) Number of test sample: 1 pc
- 2) Sample size: 230×230mm
- 3) Nominal thickness of the sample: 12mm

Clause	Result
Resistance to dry heat	The rating scale to dry heat: Rating 5

Note: The result of the examination for surface disturbance shall be expressed in accordance with the rating scale reported in table below:

Rating scale	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, no change in the surface structure, e.g. deformation, cracking, blistering
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
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



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**14. With reference to High-pressure decorative laminates (HPL) - Sheets based on thermosetting resins (usually called laminates) - Part 2: Determination of properties (EN 438-2:2016+A1:2018) Clause 17**

**Dimensional stability at elevated temperature**

- 1) Number of test sample: 8 pcs
- 2) Sample size: 250×50mm
- 3) Ambient condition: (23 ± 2) °C, (50 ± 5) %RH
- 4) Conditioning time: 72 h

Clause	Result
Dimensional stability at elevated temperature	Cumulative dimensional change for the machine direction: 0.15%
	Cumulative dimensional change for the cross-machine direction: 0.05%

**15. With reference to High-pressure decorative laminates (HPL) - Sheets based on thermosetting resins (usually called laminates) - Part 2: Determination of properties (EN 438-2:2016+A1:2018) Clause 18**

**Resistance to wet heat**

- 1) Number of test sample: 1 pc
- 2) Sample size: 230×230mm
- 3) Nominal thickness of the sample: 12mm

Clause	Result
Resistance to wet heat	The rating scale to wet heat: Rating 5

Note: The result of the examination for surface disturbance shall be expressed in accordance with the rating scale reported in table below:

Rating scale	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, no change in the surface structure, e.g. deformation, cracking, blistering
2	Significant change



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	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
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

**16. With reference to High-pressure decorative laminates (HPL) - Sheets based on thermosetting resins (usually called laminates) - Part 2: Determination of properties (EN 438-2:2016+A1:2018) Clause 21**

**Resistance to impact by large diameter ball**

- 1) Number of test sample: 5 pcs
- 2) Sample size: 230×230mm
- 3) Nominal thickness of the sample: 12mm

Clause	Result
Resistance to impact by large diameter ball	Impact resistance: 150cm Indentation diameter: 5mm

**17. With reference to High-pressure decorative laminates (HPL) - Sheets based on thermosetting resins (usually called laminates) - Part 2: Determination of properties (EN 438-2:2016+A1:2018) Clause 22**

**Resistance to impact by large diameter ball (flooring grade laminates)**

- 1) Number of test sample: 5 pcs
- 2) Sample size: 180×180mm
- 3) Nominal thickness of the sample: 12mm
- 4) Ambient condition: (23 ± 2) °C, (50 ± 5) %RH
- 5) Conditioning time: 72h

Clause	Result
Resistance to impact by large diameter ball	Impact resistance: 175cm Indentation diameter: 5mm



**18. With reference to High-pressure decorative laminates (HPL) - Sheets based on thermosetting resins (usually called laminates) - Part 2: Determination of properties (EN 438-2:2016+A1:2018) Clause 24**

**Resistance to crazing (Compact laminates)**

- 1) Number of test sample: 5 pcs
- 2) Sample size: 250×250mm
- 3) Ambient condition: (23 ± 2) °C, (50 ± 5) %RH
- 4) Conditioning time: 72h

Clause	Result
Resistance to crazing	Rating scale: Rating 4

Note: The results of the examination shall be expressed in accordance with the rating scale below:

- 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.

**19. With reference to High-pressure decorative laminates (HPL) - Sheets based on thermosetting resins (usually called laminates) - Part 2: Determination of properties (EN 438-2:2016+A1:2018) Clause 25**

**Resistance to scratching**

- 1) Number of test sample: 1 pc
- 2) Sample size: 100×100mm
- 3) Ambient condition: (23 ± 2) °C, (50 ± 5) %RH
- 4) Conditioning time: 72h

Clause	Result
Resistance to scratching	Rating scale: Rating 4

**20. With reference to High-pressure decorative laminates (HPL) - Sheets based on thermosetting resins (usually called laminates) - Part 2: Determination of properties (EN 438-2:2016+A1:2018) Clause 26**

**Resistance to staining**

- 1) Number of test sample: 5 pcs
- 2) Sample size: 100×100mm

Clause	Reagent	Contacting time	Result
Resistance to staining	Acetone	16h	Rating 5
	Coffee (120 g of coffee per litre of water)	16h	Rating 5



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Clause	Reagent	Contacting time	Result
	Sodium hydroxide (25% solution)	10min	Rating 5
	Hydrogen peroxide (30% solution)	10min	Rating 5
	Carbon black suspension in paraffin oil (shoe polish simulant)	10min	Rating 5

Note: Assessment of results see the table below:

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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**Test Results:**

**21. Test item: Resistance to climatic shock**

Test method: EN 438-2:2016+A1:2018 (E) Clause 19 & EN ISO 178:2019, The steps are as follows,

- ① 80°C, 90%RH, 8 hours
- ② 80°C, 16 hours
- ③ 80°C, 90%RH, 8 hours
- ④ -20°C, 16 hours
- ⑤ 80°C, 90%RH, 8 hours
- ⑥ 80°C, 16 hours
- ⑦ -20°C, 8 hours
- ⑧ 80°C, 16 hours
- ⑨ 80°C, 90%RH, 8 hours
- ⑩ -20°C, 16 hours

Steps ① ~ ⑩ are 1 cycle, 4 cycles in total.

Test condition: Test speed: 2mm/min

Span: 64mm

Test result:

Sample	Grade (see remarks)	Appearance
A	5	No visible changes

Note:

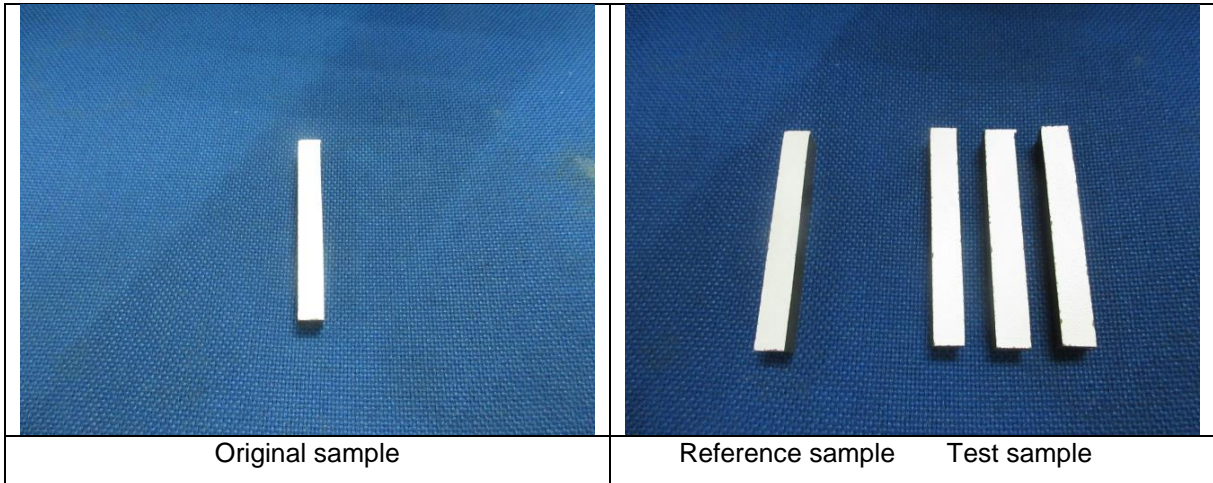
- Rating 5 No visible change.
- Rating 4 Change of gloss only.
- Rating 3 Hairline surface cracks and/or erosion of surface.
- Rating 2 Surface cracks.
- Rating 1 Blistering and/or delamination.



Test items	test results	
	Original sample	After aging
Bending strength (Ds)	12780MPa	11720MPa
Bending modulus (Dm)	160MPa	150MPa

Note: The aging sample shall be tested according to test item 1.

Test photos:



Note: The testing was performed by SGS other internal laboratory.



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**22. Test item: Small ball impact resistance**

Test method: EN 438-2:2016+A1:2018 (E) Clause 20

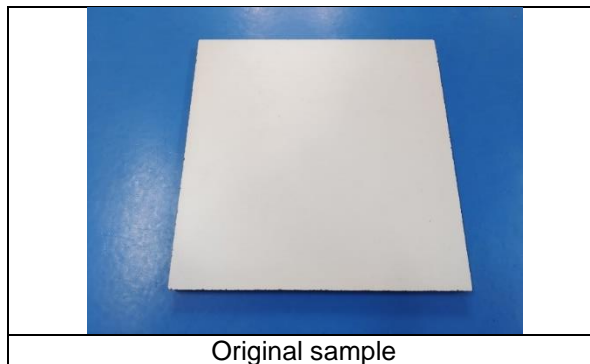
Test condition:

Impact steel ball diameter: 5mm

Test result:

Test result		Conclusion
Maximum force	42N	/

**Photo Appendix:**



Note: The testing was performed by SGS other internal laboratory.

**23. Test item: Color fastness to light (Xenon arc lamp)**

Sample Description: White coated parts

Test Method: EN 438-2:2016+A1:2018 Section 27

Test Condition:

Exposure cycle:

Irradiance: 0.5W/(m<sup>2</sup>·nm) @340nm

Continuous light at (65±3)°C BST, (50±5)%RH

Filter: Daylight-B/B

Exposure period: 52h(No. 6 blue wool changes color to grey scale 4)

Test result(s):

Test item	Grey scale
Color fastness to light (Xenon arc lamp)	4-5

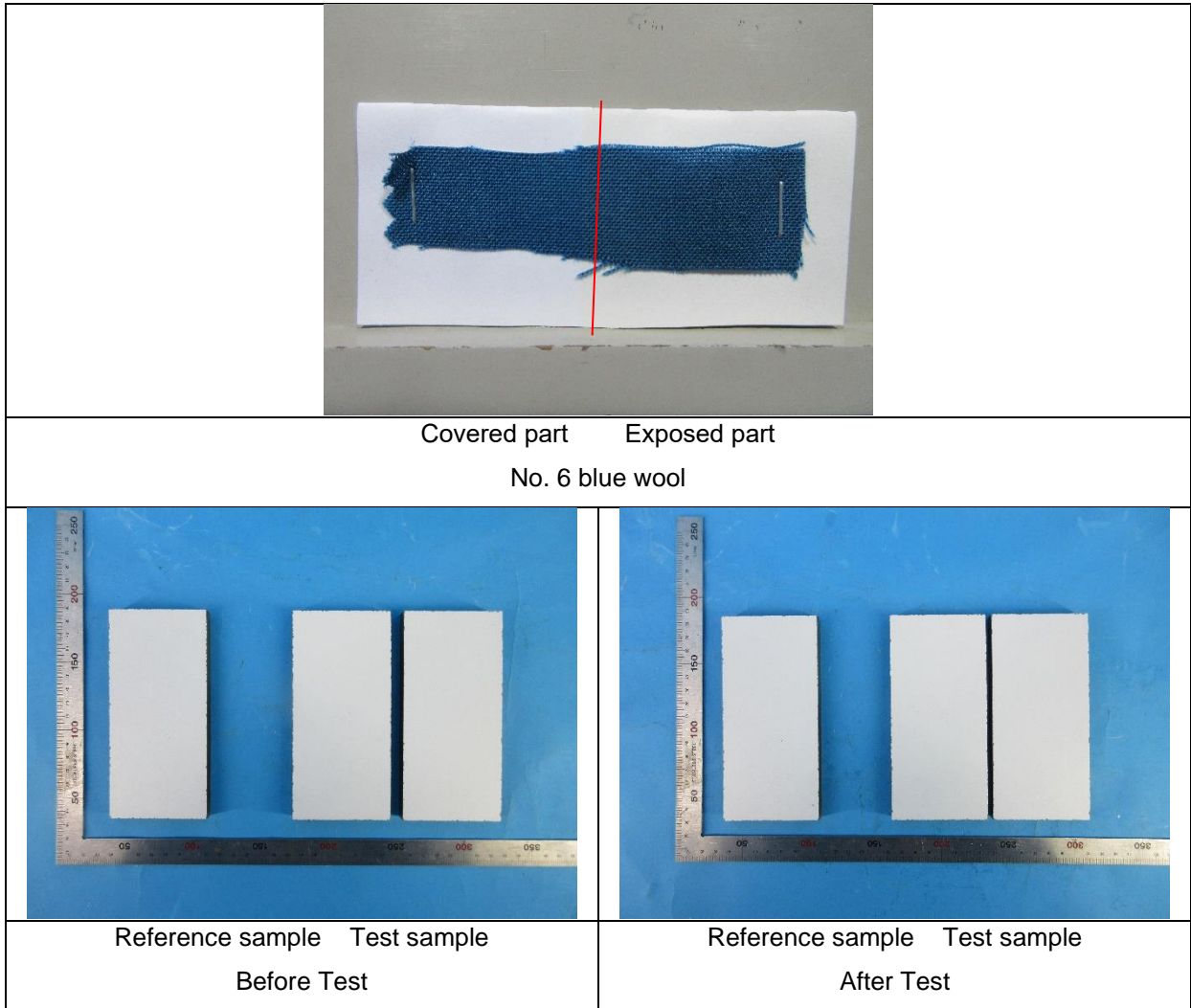
Note:

- According to ISO 105-A02:1993/Cor.2:2005, Grey scale is determined under D65 standard light, grade 5 is the best and grade 1 is the worst.



2. The results were carried out within 1 hour after above specified durations for the intermediate inspection as well as at the end of the exposure.

Test Photo:

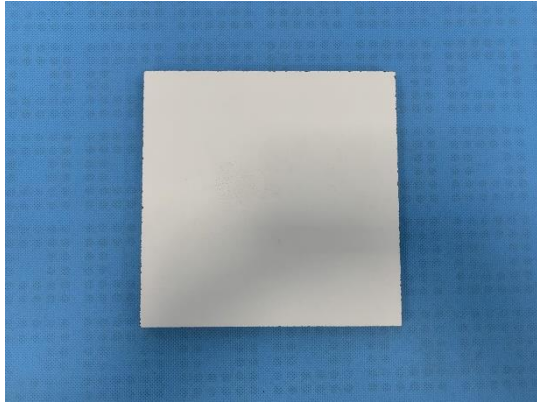


Note: The testing was performed by SGS other internal laboratory.

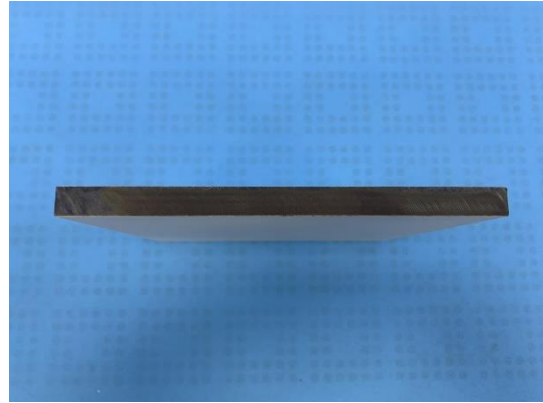


Photo Appendix

Photo relative to overall specimen:



Received Sample (front view)



Received Sample (side view)

Result/Rating/Record Key(s)

- I. Result/Rating Keys: P = Pass = Meet; F = Fail = Not Meet; N/A = Not applicable = Not suitable; NR = NC = Test not conduct/requested per client request; TT = Test terminated due to the earlier failure of last test.
- II. Record Keys: "C:" means Claimed parameter; "A:" means Actual recorded from test; "D:" means Data for reference only.

General Report Note(s)

- A. N.B. Only applicable clauses were shown.
- B. (1) 1mg/kg = 0.0001% (2) MDL = Method Detection Limit (3) ND = Not Detected (< MDL)  
(4) "-" = Not Regulated
- C. Unless otherwise stated the results shown in this test report refer only to the sample(s) tested.
- D. This document cannot be used for publicity, without prior written approval of the SGS.
- E. Since the data and / or information above division line of front page is provided by the applicant, the relevant results or conclusions of this report are only made for these data and / or information, SGS is not responsible for the authenticity, integrity and results of the data and information and / or the validity of the conclusion. Testing results only apply to the sample as received.
- F. The declaration of conformity is only based on the actual value of laboratory activity, measurement uncertainty of the results not take into account.
- G. Since the above deviation of testing method is provided by the applicant, the relevant results or conclusions of this report are only made for the deviation method, SGS is not responsible for the validity of the result and /or conclusion resulted from the deviation.

\*\*\* End of Report \*\*\*



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