TEST REPORT

No. : SHIN2102008314CM
Date : Mar 05, 2021

scan to see the report
SHIN2102008314CM

CUSTOMER NAME: JIANGSU BODA NEW MATERIALS TECHNOLOGY CO., LTD.
ADDRESS: NO.8, NEW HENGCUI ROAD, HENGLIN TOWN, CHANGZHOU, JIANGSU, 213103 CHINA

Sample Name	:	HIGH PRESSURE LAMINATE
Thickness	:	0.8mm
Specification	:	1220×2440×0.8mm
Density	:	1380kg/m^3
Composition	:	Paper, resin

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.	:	SHRS012823020311
Ref. Standard	:	Please see the next page(s)
Date of Receipt	:	Feb 04, 2021
Testing Start Date	:	Feb 04, 2021
Testing End Date	:	Mar 05, 2021
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.

Erin Huang
Authorized signatory

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TEST REPORT

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Summary of Results:

No.	Test Item	Test Method	Result	Conclusion
1	Resistance to Surface Wear	EN 438-2:2016+A1:2018 Clause 10	See Result	/
2	Resistance to Immersion in Boiling Water	EN 438-2:2016+A1:2018 Clause 12	See Result	/
3	Resistance to Water Vapour	EN 438-2:2016+A1:2018 Clause 14	See Result	/
4	Resistance to Dry Heat	EN 438-2:2016+A1:2018 Clause 16	See Result	/
5	Dimensional Stability at Elevated Temperature	EN 438-2:2016+A1:2018 Clause 17	See Result	/
6	Resistance to Wet Heat	EN 438-2:2016+A1:2018 Clause 18	See Result	/
7	Resistance to Impact by Large Diameter Ball	EN 438-2:2016+A1:2018 Clause 21	See Result	/
8	Resistance to Cracking under Stress	EN 438-2:2016+A1:2018 Clause 23	See Result	/
9	Resistance to Scratching	EN 438-2:2016+A1:2018 Clause 25	See Result	/
10	Resistance to Staining	EN 438-2:2016+A1:2018 Clause 26	See Result	/
11	Resistance to Impact by Small-diameter Ball	EN 438-2:2016+A1:2018 Clause 20	See Result	/

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

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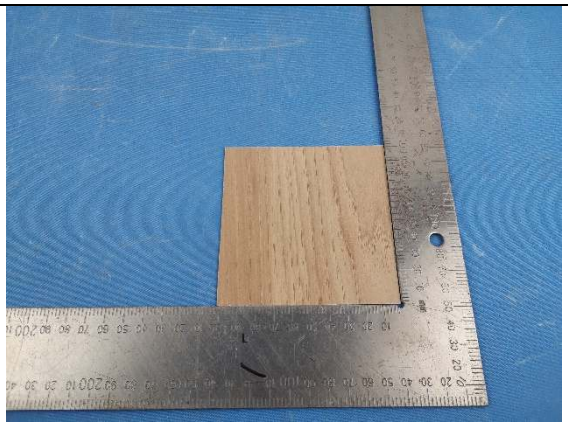
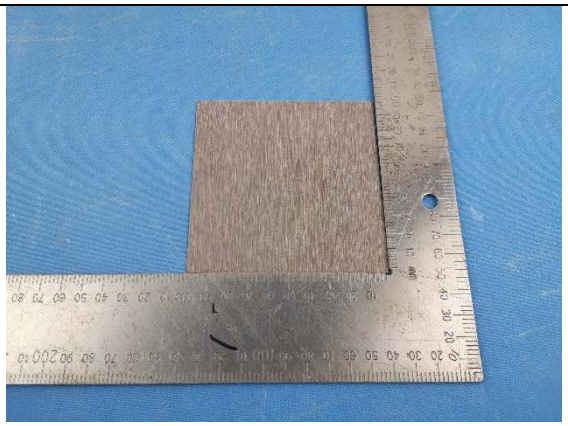
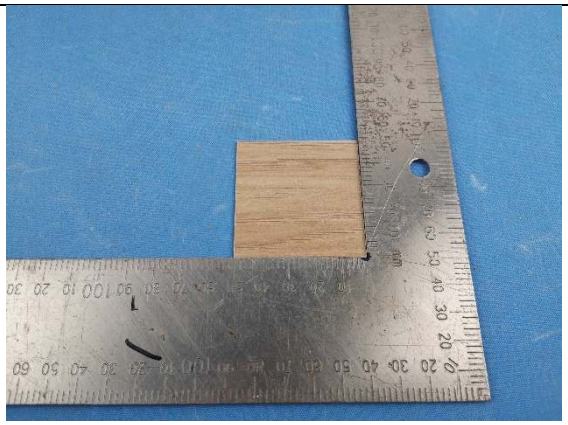
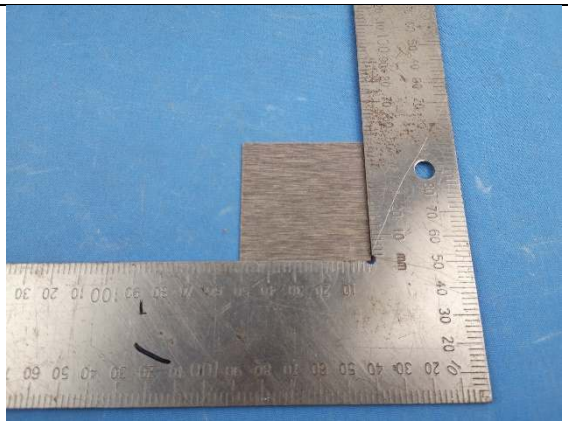
Original Sample Photo(s):

	
Resistance to Surface Wear / Resistance to Water Vapour / Resistance to Scratching / Resistance to Staining – Front view	Resistance to Surface Wear / Resistance to Water Vapour / Resistance to Scratching / Resistance to Staining – Back view
	
Resistance to Immersion in Boiling Water – Front view	Resistance to Immersion in Boiling Water – Back view

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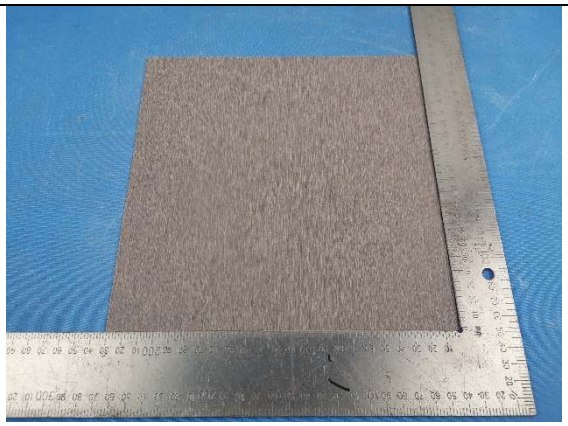
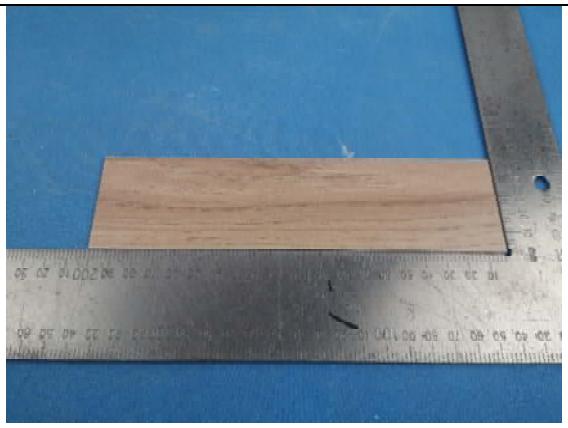
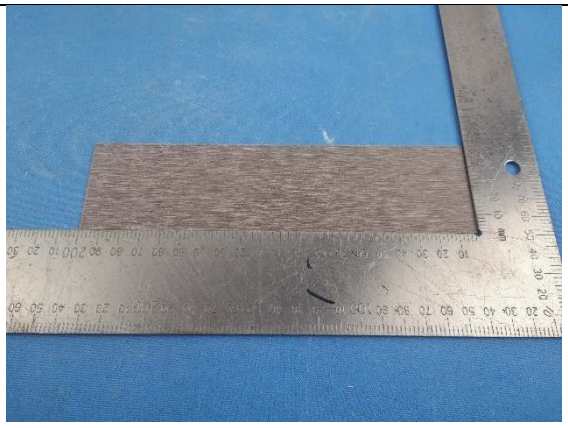
	
Resistance to Dry Heat / Resistance to Wet Heat / Resistance to Impact by Large Diameter Ball– Front view	Resistance to Dry Heat / Resistance to Wet Heat / Resistance to Impact by Large Diameter Ball – Back view
	
Dimensional Stability at Elevated Temperature – Front view	Dimensional Stability at Elevated Temperature – Back view

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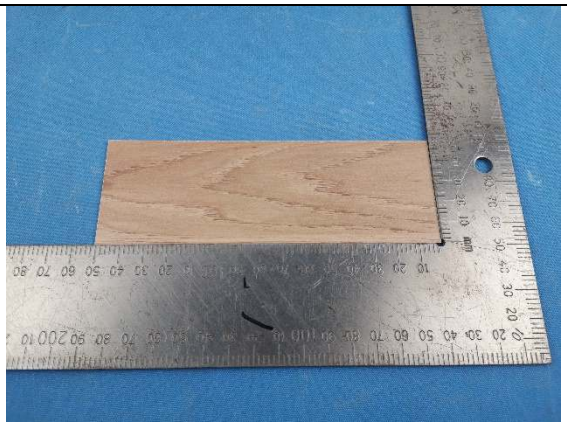
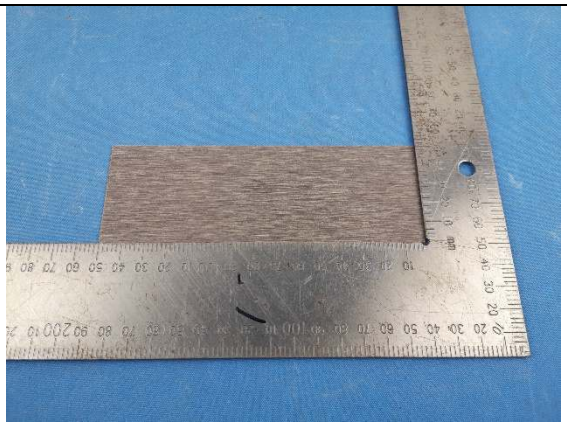
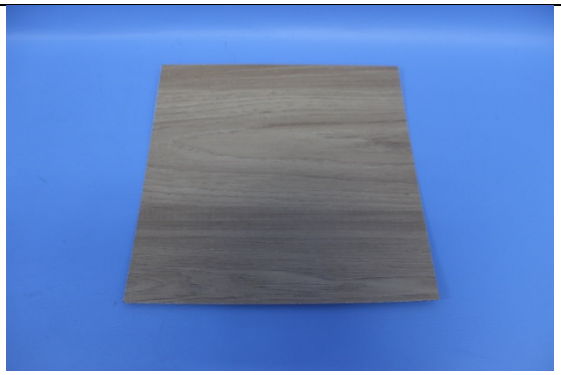
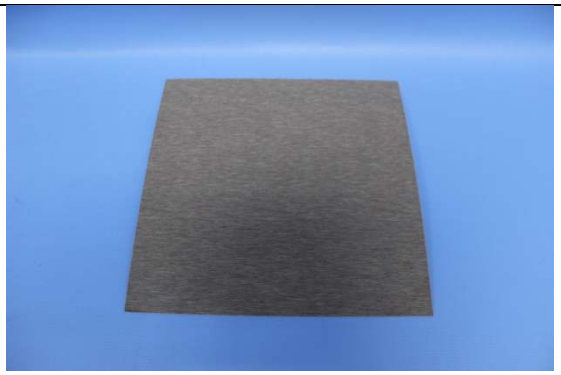
	
Resistance to Cracking under Stress – Front view	Resistance to Cracking under Stress – Back view
	
Resistance to impact by small-diameter ball – Front view	Resistance to impact by small-diameter ball – Back view

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TEST REPORT

1. Test Item: Resistance to Surface Wear

Test Method: EN 438-2:2016+A1:2018 Clause 10

Test Condition:

Specimen: 100mm×100mm×0.8mm, 3pcs

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

Test Result:

Test Item	Test Result			
	Individual value			Average value
Resistance to Surface Wear – IP value (r)	460	410	430	430

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TEST REPORT

2. Test Item: Resistance to Immersion in Boiling Water

Test Method: EN 438-2:2016+A1:2018 Clause 12

Test Condition:

Specimen: 50mm×50mm×0.8mm, 3pcs

Test Condition: Immersion in boiling water for 2h→ immersion in cooling water (23℃) for 15min.

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

Test Result:

Test Item		Test Result			
		Individual value			Average value
Resistance to Immersion in Boiling Water	Water absorption (%)	4.7	4.4	5.1	4.7
	Swelling in thickness (%)	3.8	3.7	5.3	4.5
		4.5	4.6	4.3	
		4.7	4.5	4.7	
		4.4	4.1	4.9	
	Surface rating scale*	Rating 5	Rating 5	Rating 5	/
	Edge rating scale*	Rating 5	Rating 5	Rating 5	/

Note:

*Surface 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 or surface blistering

Rating 1: Surface layers delamination

*Edge rating scale:

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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TEST REPORT

3. Test Item: Resistance to Water Vapour

Test Method: EN 438-2:2016+A1:2018 Clause 14

Test Condition:

Specimen: 100mm×100mm×0.8mm, 1pc

Test time: 1h

Test water: Boiling water

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

Test Result:

Test Item	Test Result
Resistance to Water Vapour	Rating 5

Expression of results:

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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TEST REPORT

4. Test Item: Resistance to Dry Heat

Test Method: EN 438-2:2016+A1:2018 Clause 16

Test Condition:

Specimen: 230mm×230mm×0.8mm, 1pc

Test temperature: 160℃

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

Test Result:

Test Item	Test Result
Resistance to Dry Heat	Rating 5

Rating scale:

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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TEST REPORT

5. Test Item: Dimensional Stability at Elevated Temperature

Test Method: EN 438-2:2016+A1:2018 Clause 17

Test Condition:

Specimen: 200mm×50mm×0.8mm, 8pcs (4pcs for each direction)

Dry heat test: 70℃, 24h

High humidity test: 40℃, 90%RH, 96h

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

Test Result:

Test item		Test result		
		Dry heat test	High humidity test	Mean
Dimensional Stability at Elevated Temperature (%)	Machine direction	-0.40	0.06	0.45
	Across-machine direction	-0.66	0.16	0.80

TEST REPORT

6. Test Item: Resistance to Wet Heat

Test Method: EN 438-2:2016+A1:2018 Clause 18

Test Condition:

Specimen: 230mm×230mm×0.8mm, 1pc

Test temperature: 100℃

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

Test Result:

Test Item	Test Result
Resistance to Wet Heat	Rating 5

Rating scale:

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 removed

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7. Test Item: Resistance to Impact by Large Diameter Ball

Test Method: EN 438-2:2016+A1:2018 Clause 21

Test Condition:

Specimen: 230mm×230mm×0.8mm, 5pcs

Steel ball: Φ42.8mm, 324g

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

Test Result:

Test Item	Test Result
Resistance to Impact by Large Diameter Ball	2150mm, no cracking

8. Test Item: Resistance to Cracking under Stress

Test Method: EN 438-2:2016+A1:2018 Clause 23

Test Condition:

Specimen: 150mm×50mm×0.8mm, 3pcs

Test temperature: 50℃, 6h

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

Test Result:

Test Item	Test Result
Resistance to Cracking under Stress	Rating 5

Rating scale:

Rating 5: No evidence of cracking

Rating 4: Hairline cracks only visible under ×6 magnification

Rating 3: Cracks visible with normal vision (corrected if necessary) from the edge of the hole, but not extending to either edge of the specimen

Rating 2: A crack visible with normal vision (corrected if necessary) from the edge of the hole, extending to one edge of the specimen such that the specimen is not broken into two pieces

Rating 1: Specimen broken into two pieces

9. Test Item: Resistance to Scratching

Test Method: EN 438-2:2016+A1:2018 Clause 25

Test Condition:

Specimen: 100mm×100mm×0.8mm, 1pc

Rubbing stylus: Hemispherical diamond scratching point of radius (0.09±0.003)mm and an included angle of (90 ± 1) °

Rotational frequency: (5±1) min^{-1}

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

Test Result:

Test Item	Test Result
Resistance to Scratching	Rating 5

Note: According to EN 438-2:2016+A1:2018 table 6 rating scale as follow:

Rating	Discontinuous scratches, or faint superficial marks, or no visible marks	≥90% continuous double circle of scratch marks clearly visible
Rating 5	6N	>6N
Rating 4	4N	6N
Rating 3	2N	4N
Rating 2	1N	2N
Rating 1	-	1N

TEST REPORT

10. Test Item: Resistance to Staining

Test Method: EN 438-2:2016+A1:2018 Clause 26

Test Condition:

Specimen: 100mm×100mm×0.8mm, 5pcs

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

Test Result:

Test Item		Test Result
Resistance to Staining	Acetone	Rating 5
	120g/L Coffee	Rating 5
	25% Sodium hydroxide	Rating 5
	30% Hydrogen peroxide	Rating 5
	Carbon black suspension in paraffin oil (Shoe polish simulant)	Rating 5

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Rating code:

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 surface material being totally or partially delaminated

11. Test Item: Resistance to Impact by Small-diameter Ball

Test Method: EN 438-2:2016+A1:2018 Clause 20

Test Result:

Clause	Test procedures/requirements	Rating/ Result
Resistance to Impact by Small-diameter Ball	1. The test shall be carried out in the laboratory atmosphere. 2. Place the steel plate on a convenient rigid horizontal surface and locate the specimen on it with its decorative surface uppermost. Fix the impact tester in its support fixture, load the tester, place the assembly on the specimen and release the impact bolt. Start preliminary test with a spring force of 10 N and increase by 5 N on each occasion to determine the minimum spring force at which the surface of the specimen shows damage due to impact stress. 3. Test further specimens for the final determination of the maximum force at which no damage occurs. For this purpose, start with the spring force determined in the preliminary test and reduce it in suitable stages, for example 1 N, after every five strikes. 4. To make any damage more easily visible, the surface of the specimen shall be rubbed with a contrast medium after the test. 5. The distance between points of impact shall be at least 20 mm and between points of impact and the edge of the specimen at least 30 mm. 6. Examine the surface tested for damage at the points of impact. For the purpose of this test, damage is defined by the presence of fine hairline cracks (which are frequently concentric), continuous cracks or flaking of the decorative surface. Indentations without cracks do not count as damage.	Maximum resistance force: 42N

	7. If the test is conducted only to determine whether the impact strength of a material exceeds a limiting value, the specimen shall sustain no damage after five successive individual impact strikes with the prescribed spring force.	

******** End of report********

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