

No.: SHIN2102008314CM

Date: Mar 05, 2021

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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/m³

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

Em Hm

Authorized signatory





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### Summary of Results:

Test Item	Test Method	Result	Conclusion
Posistance to Surface Wear	EN 438-2:2016+A1:2018	Soo Posult	/
Resistance to Surface Wear	Clause 10	See Result	,
Resistance to Immersion in	EN 438-2:2016+A1:2018	Soo Posult	/
Boiling Water	Clause 12	See Result	,
Posistance to Water Vaneur	EN 438-2:2016+A1:2018	Soo Posult	,
Resistance to Water Vapour	Clause 14	See Nesult	,
Posistance to Dry Heat	EN 438-2:2016+A1:2018	Soo Posult	/
Resistance to Dry Heat	Clause 16	See Result	,
Dimensional Stability at	EN 438-2:2016+A1:2018	Soo Posult	,
Elevated Temperature	Clause 17	See Nesult	,
Posistance to Wet Heat	EN 438-2:2016+A1:2018	Soo Pocult	/
Resistance to wet neat	Clause 18	See Result	
Resistance to Impact by	EN 438-2:2016+A1:2018	Soo Bosult	/
Large Diameter Ball	Clause 21	See Result	/
Resistance to Cracking	EN 438-2:2016+A1:2018	Soo Posult	/
under Stress	Clause 23	See Result	,
Posistance to Seratching	EN 438-2:2016+A1:2018	Soo Posult	/
9 Resistance to Scratching	Clause 25	See Result	,
Posistance to Staining	EN 438-2:2016+A1:2018	Soo Posult	/
ivesistance to staining	Clause 26	SEE RESUIL	/
Resistance to Impact by	EN 438-2:2016+A1:2018	Soo Posult	/
Small-diameter Ball	Clause 20	Oce Nesull	/
	Resistance to Surface Wear  Resistance to Immersion in Boiling Water  Resistance to Water Vapour  Resistance to Dry Heat  Dimensional Stability at Elevated Temperature  Resistance to Wet Heat  Resistance to Impact by Large Diameter Ball  Resistance to Cracking under Stress  Resistance to Scratching  Resistance to Staining  Resistance to Impact by	Resistance to Surface Wear         EN 438-2:2016+A1:2018	Resistance to Surface Wear  Resistance to Immersion in Boiling Water  Resistance to Water Vapour  Resistance to Dry Heat  Dimensional Stability at Elevated Temperature  Resistance to Wet Heat  Resistance to Impact by Large Diameter Ball  Resistance to Scratching  Resistance to Staining  Resistance to Staining  Resistance to Impact by Clause 23  Resistance to Staining  Resistance to Staining  Resistance to Impact by Clause 26  Resistance to Staining  Resistance to Impact by Clause 25  Resistance to Impact by Clause 26  Resistance to Impact by EN 438-2:2016+A1:2018  Resistance to Impact by See Result

Note: Pass: Meet the requirements;

Fail: Does not meet the requirements;

/: Not Apply to the judgment.



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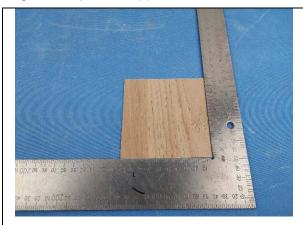


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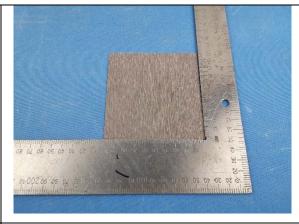
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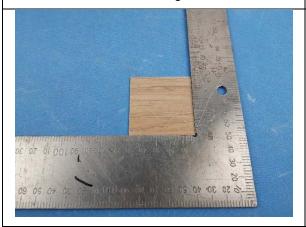
### Original Sample Photo(s):



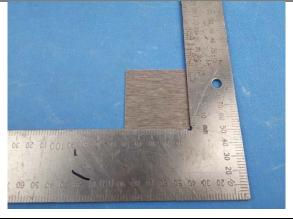
Resistance to Surface Wear / Resistance to
Water Vapour / Resistance to Scratching /
Resistance to Staining – Front view



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

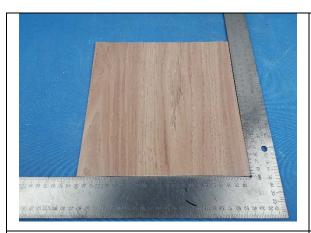




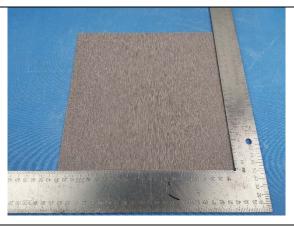
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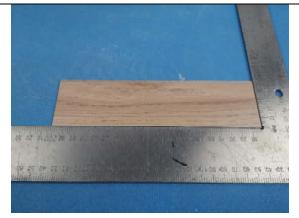
Resistance to Dry Heat / Resistance to Wet
Heat / Resistance to Impact by Large Diameter
Ball– Front view



Resistance to Dry Heat / Resistance to Wet

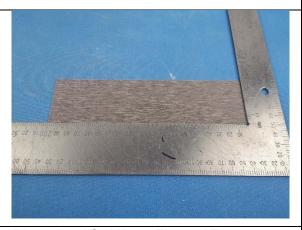
Heat / Resistance to Impact by Large Diameter

Ball – Back view



Dimensional Stability at Elevated Temperature

– Front view



Dimensional Stability at Elevated Temperature

– Back view

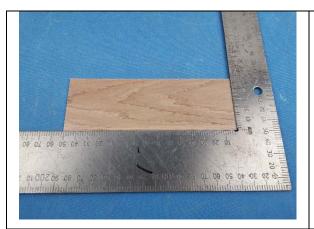




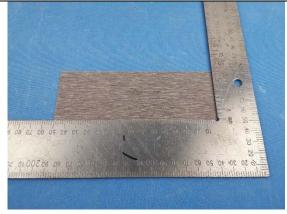
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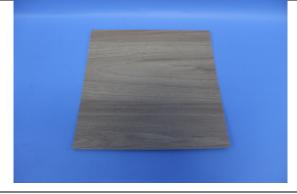
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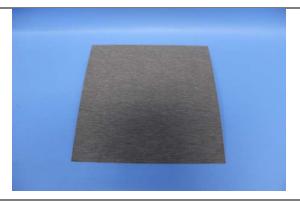
Resistance to Cracking under Stress – Front view



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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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°C, 50±5%RH

### Test Result:

Test Item	Test Result  Individual value Average value			
1 000 110111				
Resistance to Surface	460	410	430	430
Wear – IP value (r)	400	410	430	430





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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°C) for 15min.

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

#### Test Result:

Test Item		Test Result			
	rest item	I	ndividual val	ue	Average value
	Water absorption (%)	4.7	4.4	5.1	4.7
		3.8	3.7	5.3	
Resistance to	Swelling in thickness (%)	4.5	4.6	4.3	4.5
Immersion in		4.7	4.5	4.7	7.0
Boiling Water		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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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°C, 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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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°C

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

#### Test Result:

Test Item	Test Result
Resistance to Dry Heat	Rating 5

### Rating scale:

Rating scale	Description
5	No change
3	Test area indistinguishable from adjacent surrounding area
	Minor change
4	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
	Moderate change
3	Test area distinguishable from adjacent surrounding area, visible in several viewing
3	directions, e.g. discoloration, change in gloss and colour, no change in the surface
	structure, e.g. deformation, cracking, blistering
	Significant change
2	Test area clearly distinguishable from adjacent surrounding area, visible in all
2	viewing directions, e.g. discoloration, change in gloss and colour, and/or structure of
	the surface slightly changed, e.g. slight cracking, slight blistering
	Strong change
1	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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5. Test Item: Dimensional Stability at Elevated Temperature

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

**Test Condition:** 

Specimen: 200mmx50mmx0.8mm, 8pcs (4pcs for each direction)

Dry heat test: 70°C, 24h

High humidity test: 40°C, 90%RH, 96h

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

#### Test Result:

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





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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°C

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

#### Test Result:

Test Item	Test Result
Resistance to Wet Heat	Rating 5

### Rating scale:

Rating scale	Description
5	No change
3	Test area indistinguishable from adjacent surrounding area
	Minor change
4	Test area distinguishable from adjacent surrounding area, only when the light
4	source is mirrored on the test surface and is reflected towards the observer's eye,
	e.g. discoloration, change in gloss and colour
	Moderate change
3	Test area distinguishable from adjacent surrounding area, visible in several viewing
3	directions, e.g. discoloration, change in gloss and colour, no change in the surface
	structure, e.g. deformation, cracking, blistering
	Significant change
2	Test area clearly distinguishable from adjacent surrounding area, visible in all
2	viewing directions, e.g. discoloration, change in gloss and colour, and/or structure of
	the surface slightly changed, e.g. slight cracking, slight blistering
	Strong change
4	The structure of the surface being distinctly changed e.g. strong cracking, strong
1	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°C, 50±5%RH

#### Test Result:

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

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°C, 6h

Lab Environment Condition: 23±2°C, 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



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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  $\pm$  1)  $^{\circ}$ 

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





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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°C, 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	Rating 5	
	paraffin oil (Shoe polish simulant)		





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### Rating code:

Numerical rating	Description		
5	No change		
5	Test area indistinguishable from adjacent surrounding area		
	Minor change		
4	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		





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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
	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	
Resistance to		purpose, start with the spring force determined in the	Maximum
Impact by Small-		preliminary test and reduce it in suitable stages, for	resistance
diameter Ball		example 1 N, after every five strikes.	force: 42N
	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.	



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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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