TEST REPORT

REPORT NUMBER: 170215002SHF-BP-1

ORIGINAL ISSUE DATE: 2017-03-10

EVALUATION CENTER

Intertek Testing Services Ltd., Shanghai

Plant 7, No. 6958 Daye Road, Fengxian District, Shanghai, China

RENDERED TO

Taizhou Huali Plastic Co. Ltd.

Zhangdian Industrial Zone, Jiangyan, Jiangsu Prov., P.R. China

PRODUCT EVALUATED

Rigid LVT Flooring

EVALUATION PROPERTY

As requested by the applicant, for details refer to attached pages(s).

Report Template Revision Date: 2016/9/1

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Report Number: 170215002SHF-BP-1

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Applicant:	**Taizhou Huali Plastic Co. Ltd.**
Applicant Address:	**Zhangdian Industrial Zone, Jiangyan, Jiangsu Prov., P.R. China**
Attn:	**Bonnie Yuan**

Sample information:

Product:	Rigid LVT Flooring
Model:	/
Specification:	1500×220×4.5×0.5mm
Sample Quantity:	40 pieces
Sample ID:	S170215002SHF-001~050
Date Received:	2017-02-14
Date Test Conducetd:	2017-02-15~2017-03-10

Conclusion:

For details refer to attached page(s).

The conclusions of this test report may not be used as part of the requirements for Intertek product certification. Authority to Mark must be issued for a product to become certified.

Test Report

Report Number: 170215002SHF-BP-1

Report Date: 2017-03-10

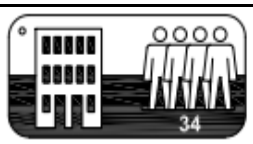
General requirements:

Characteristics	Test results	Verdict
Overall thickness (mm)	4.52	Pass
Length (mm)	1499.70	Pass
Width (mm)	220.03	
Squareness (mm)	0.10	Pass
Staightness (mm/m)	0.15	Pass
Flatness length (%)	0.02	Pass
Flatness width (%)	0.07	Pass
Joint openings average value (mm)	0.04	Pass
Joint openings maximum value (mm)	0.05	
Height differences average value (mm)	0.06	Pass
Height differences maximum value (mm)	0.08	

Classification requirements:

Characteristics	Test results	Classification
Wear resistance (method A)	> 4000 cycles	Class 34
Impact resistance (big ball)	1800 mm	Class 34
Micro-scratch resistance	MSR-B1	Class 34
Castor chair resistance	25000 cycles	Class 34
Effect of furniture leg	no visible damage	Class 34
Residual indentation	0.01	Class 34
Resistance to staining	refer to Appendix H	Class 34
Swelling	refer to Appendix I	Class 34
Locking strength	refer to Appendix J	Class 34
Dimensional stability due to variation of temperature	refer to Appendix K	Class 34

Level of use class:

Class	Symbol	Intensity of use
34		Commercial Very heavy

Note:

1. The classification scheme and use intensity symbols are described in EN ISO 10874:2012.

Test Report

Report Number: 170215002SHF-BP-1

Report Date: 2017-03-10

Appendix A:

Test Item: Geometrical Characteristics

Test Method: ISO 24337:2006

Test Item	Test Result	Nominal value	Test Requirement
Thickness	Average value= 4.52 mm $\triangle t_{avg}$ = 0.02 mm t_{max}-t_{min} = 0.05 mm	4.5 mm	$\triangle t_{avg} \leqslant$ 0.50 mm t_{max}-$t_{min} \leqslant$ 0.50mm
Length	Average value= 1499.70 mm Maximum $\triangle l$ = 0.40 mm/m	1500 mm	$\triangle l \leqslant$ 0.3 mm/m
Width	Average value= 220.03 mm $\triangle W_{avg}$ = 0.03 mm W_{max}-W_{min} = 0.06 mm	220 mm	$\triangle W_{avg} \leqslant$ 0.10 mm W_{max}-$W_{min} \leqslant$ 0.20 mm
Squareness	q_{max} = 0.10 mm	_	$q_{max} \leqslant$ 0.20 mm
Straightness	S_{max} = 0.15 mm/m	_	$S_{max} \leqslant$ 0.30 mm/m
Flatness	Maximum single values: $f_{w, convex}$ = 0.07 % Maximum single values: $f_{l, convex}$ = 0.02 %	_	Maximum single values: $f_{w, concave} \leqslant$ 0.15 %, $f_{w, convex} \leqslant$ 0.20 % $f_{l, concave} \leqslant$ 0.50 %, $f_{l, convex} \leqslant$ 1.00 %
Openings	O_{avg} = 0.04 mm O_{max} = 0.05 mm	_	$O_{avg} \leqslant$ 0.15 mm $O_{max} \leqslant$ 0.20 mm
Height difference	h_{avg} = 0.06 mm h_{max} = 0.08 mm	_	$h_{avg} \leqslant$ 0.10 mm $h_{max} \leqslant$ 0.15 mm

Test Report

Report Number: 170215002SHF-BP-1

Report Date: 2017-03-10

Appendix B:

Test Item: Wear Resistance, method A

Test Method: EN 13329:2016, Annex E

Results:

Parameter	Specimen 1	Specimen 2	Specimen 3
Initial wear point (IP) value, cycles	> 4000	> 4000	> 4000
Average IP value, cycles	> 4000		

Test Report

Report Number: 170215002SHF-BP-1

Report Date: 2017-03-10

Appendix C:

Test Item: Impact Resistance (big ball)

Test Method: EN 13329:2006+A1:2008, Annex F

Results:

Drop height (mm)	1800

Test Report

Report Number: 170215002SHF-BP-1

Report Date: 2017-03-10

Appendix D:

Test Item: Micro-Scratch Resistance

Test Method: EN 16094:2012, Procedure B

Precondition: At a temperature of (23±2) ℃ and relative humidity (50±5) % for a minimum of 24h

Test Condition: At a temperature of 23℃ and relative humidity 55 %

Results:

Specimen 1	MSR-B1
Specimen 2	MSR-B1
Specimen 3	MSR-B1
Average value	MSR-B1

Note:

1. This test was conducted at the external approved facility, located at [Shanghai].

Test Report

Report Number: 170215002SHF-BP-1

Report Date: 2017-03-10

Appendix E:

Test Item: Castor Chair Resistance

Test Method: EN 425:2002

Precondition: At a temperature of (23±2) ℃ and relative humidity (50±5) % for a minimum of 24h

Test Condition: At a temperature range of 18 ℃ to 25 ℃

Test Cycles: 25000

Results:

Type of damage	Observation
Delamination	no
Opening of joints	no
Cracks	no

Test Photo:

Test Report

Report Number: 170215002SHF-BP-1

Report Date: 2017-03-10

Appendix F:

Test Item: Effect of Furniture Leg

Test Method: EN 424:2001

Type of Feet: Type 0 (mass: 32 kg)

Test Speed: 0.18 m/s

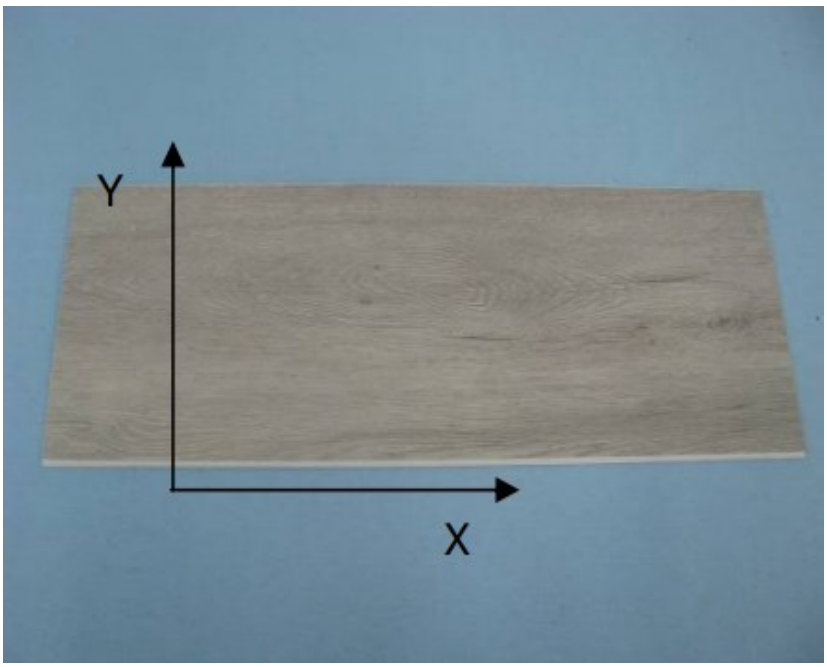
Results:

X direction	no visible damage
Y direction	no visible damage

Note:

1. This test was conducted at the external approved facility, located at [Guangzhou].

Test Photo:



Test Report

Report Number: 170215002SHF-BP-1

Report Date: 2017-03-10

Appendix G:

Test Item: Residual Indentation

Test Method: EN ISO 24343-1:2012

Results:

Residual Indentation	Result (mm)
Specimen 1	0.01
Specimen 2	0.01
Specimen 3	0.02
Average value	0.01

Test Report

Report Number: 170215002SHF-BP-1

Report Date: 2017-03-10

Appendix H:

Test Item: Resistance to Staining

Test Method: EN 438-2:2005

Results:

Substance	Duration of contact	Resut of visual changes
Group 1: water	10 min	5
Group 1: acetone	10 min	5
Group 1: cleaning solution	10 min	5
Group 2: coffee	16 h	5
Group 3: sodium hydroxide (NaOH)	10 min	5
Group 3: hydrogen peroxide (H_2O_2)	10 min	5
Group 3: shoe polish	10 min	5

Index:

5: No visible change.

4: Slight change of gloss and/or colour, only visible at certain viewing angles.

3: Moderate change of gloss and/or colour.

2: Marked change of gloss and/or colour.

1: Surface distorion and/or blistering.

Test Report

Report Number: 170215002SHF-BP-1

Report Date: 2017-03-10

Appendix G:

Test Item: Swelling

Test Method: ISO 24336:2005

Results:

Parameter	Result
Average thickness swelling in production direction (%)	0.07
Average thickness swelling in cross production direction (%)	0.14

Test Report

Report Number: 170215002SHF-BP-1

Report Date: 2017-03-10

Appendix I:

Test Item: Locking Strength

Test Method: ISO 24334:2014

Results:

Longitudinal joint

Parameter	Average Result
Maximum locking strength F_{max} (N)	890
Specific locking strength (kN/m)	4.23
Locking strength at 0.2 mm joint opening $F_{0.2}$ (N)	659
Specific locking strength at 0.2 mm joint opening (kN/m)	3.14

Transverse joint

Parameter	Average Result
Maximum locking strength F_{max} (N)	874
Specific locking strength (kN/m)	3.97
Locking strength at 0.2 mm joint opening $F_{0.2}$ (N)	820
Specific locking strength at 0.2 mm joint opening (kN/m)	3.73

Test Report

Report Number: 170215002SHF-BP-1

Report Date: 2017-03-10

Appendix J:

Test Item: Dimensional Stability

Test Method: EN ISO 23999:2012

Results:

Parameter	Result
Average dimensional change in production direction (%)	0.10
Average dimensional change in cross production direction (%)	0.05
Maximum dimensional change in production direction (%)	0.16
Maximum dimensional change in cross production direction (%)	0.09
Average curling (mm)	0.0

Appendix L: Sample received photo

Approved by:

Name: Sun Sun	Name: Sally Xie	Name: Tod Qian
Title: Approver	Title: Reviewer	Title: Project Engineer

INTERTEK TESTING SERVICES LTD., SHANGHAI 英泰检验检测专用章

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The End of Report