

JIANGSU SPANL CO., LTD

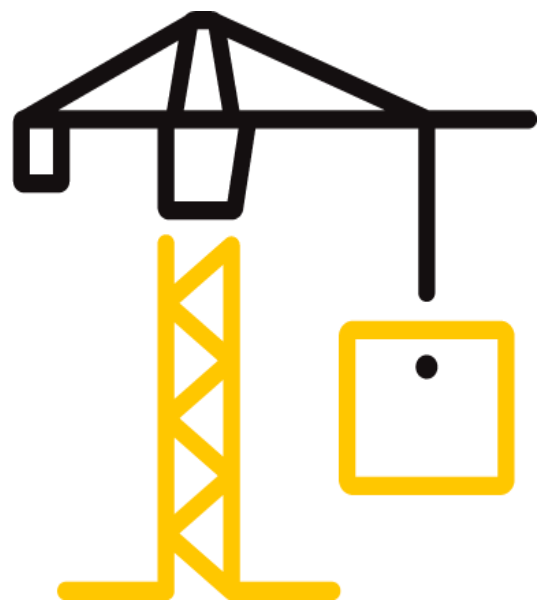
TEST REPORT

REPORT NUMBER
190409007SHF-001

ISSUE DATE
2019/5/13

PAGES
8

DOCUMENT CONTROL NUMBER
LFT-APAC-SHF-OP-10k
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Test Report

Issue Date: 2019/5/13 Intertek Report No. 190409007SHF-001

Applicant: JIANGSU SPANL CO., LTD

Applicant Address: No.18 floor 14 Hengtian Plaza, Jiangyin City, Jiangsu Province, China

Attn: Lu Geng

SUBJECT: Performance testing
Insulated Metal Siding

Dear Sir,

This test report represents the results of our evaluation of the above referenced product(s) to the requirements contained in the following standards:

TEST METHODS AND STANDARDS
Refer to the next following Pages.

SAMPLE ID	MODEL	SPECIFICATION
S190409007SHF.001~005	/	/

SAMPLE RECEIVED: 2019/4/8
TESTED FROM: 2019/4/9 TO 2019/5/10

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Test Report

Issue Date: 2019/5/13

Intertek Report No. 190409007SHF-001

Test Items, Method and Results:

Test Item: Thermal conductivity and thermal resistance

Test Sample: Insulated Metal Siding (Polyurethane core material was tested only)

Test Method: ASTM C518-17

Conditioning: Condition the test specimen at (23±2)°C and (50±5)% relative humidity to constant mass

Test Result:

Sample	Thickness	Mean Temperature	Temperature Difference	Thermal Conductivity	Thermal Resistance
	(mm)	(°C)	(°C)	(W/m·K)	(m ² ·K)/W
1	16.07	9.8	20.2	0.021	0.750
2	16.12	9.4	20.2	0.021	0.775
3	15.90	9.4	20.1	0.021	0.766
Average	16.03	10	20	0.021	0.764



Polyurethane core material

Test Report

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Test Items, Method and Results:

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Test Method: ASTM C518-17

Conditioning: Condition the test specimen at $(23\pm 2)^{\circ}\text{C}$ and $(50\pm 5)\%$ relative humidity to constant mass

Test Result:

Sample	Thickness	Mean Temperature	Temperature Difference	Thermal Conductivity	Thermal Resistance
	(mm)	($^{\circ}\text{C}$)	($^{\circ}\text{C}$)	($\text{W}/\text{m}\cdot\text{K}$)	($\text{m}^2\cdot\text{K}/\text{W}$)
1	16.07	40.5	19.9	0.025	0.651
2	16.12	40.4	19.8	0.024	0.669
3	15.90	40.3	19.8	0.024	0.666
Average	16.03	40	20	0.024	0.662



Polyurethane core material

Test Report

Issue Date: 2019/5/13

Intertek Report No. 190409007SHF-001

Test Items, Method and Results:

Test Item: Resistance to artificial weathering - Fluorescent UV lamps

Test Sample: Insulated Metal Siding

Test Method: ASTM D4587-11 Cycle 4 and ASTM D2244-16

Light Source: UVA-340

The Exposure cycle:

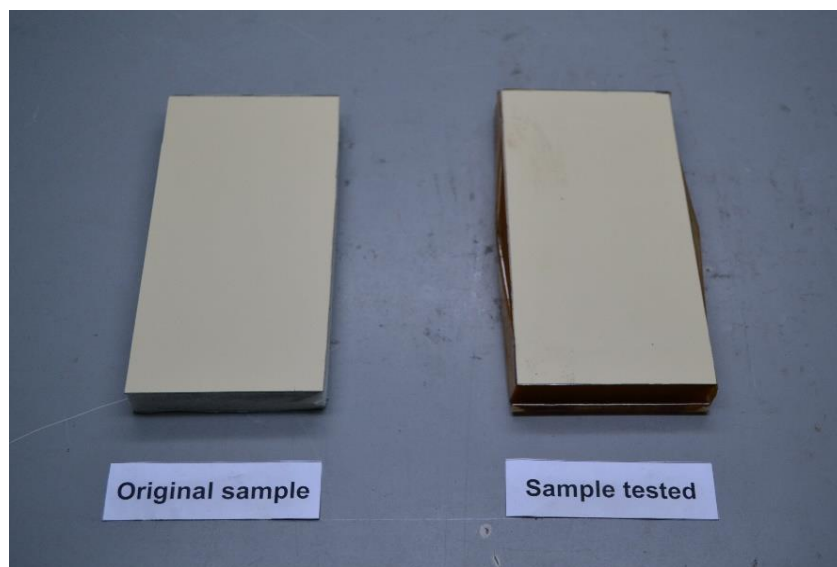
1) 8 hours UV, Irradiance: $0.89 \text{ W/m}^2/\text{nm}$ at 340 nm, Black-panel temperature: $60 \text{ }^\circ\text{C} \pm 2.5 \text{ }^\circ\text{C}$

2) 4 hours condensation, Irradiance: UV lamps off, Black-panel temperature: $50 \text{ }^\circ\text{C} \pm 2.5 \text{ }^\circ\text{C}$

Test Duration: 500 hours

Test Result:

Exposure time	ΔL^*	Δa^*	Δb^*	ΔE^*	Grey scale	Observation
500 hours	0.08	-0.11	0.17	0.23	5	Part showed no visual color change



After 500h test

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Issue Date: 2019/5/13

Intertek Report No. 190409007SHF-001

Test Items, Method and Results:

Test Item: Adhesion by tape test after weathering test

Test Method: ASTM D3359-17 Method B

Conditioning: After weathering test according to ASTM D4587-11 Cycle 4

Light Source: UVA-340

The Exposure cycle:

1) 8 hours UV, Irradiance: 0.89 W/m²/nm at 340 nm, Black-panel temperature: 60 °C ± 2.5 °C

2) 4 hours condensation, Irradiance: UV lamps off, Black-panel temperature: 50 °C ± 2.5 °C

Test Duration: 500 hours

Test Result:

Test Item	Result
Adhesion by Tape Test	Class 5B, None removed

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Test Items, Method and Results:

Test Item: Neutral salt spray test

Test Method: ASTM B117-16

Test Parameters:

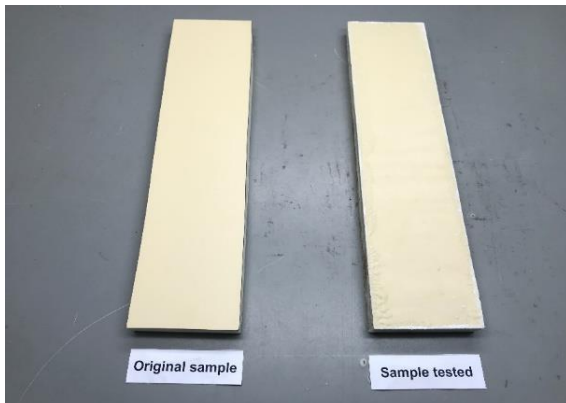
1) Sodium chloride (NaCl) solution concentration: (5±1)%

2) pH Value (collected solution): 6.5~7.2

3) Chamber temperature: (35 ± 2) °C

Test Duration: 500 hours

Test Item	Test Results
Neutral salt spray test	No corrosion on the surface, there was blisters occurred on the cut edges



After 500h test



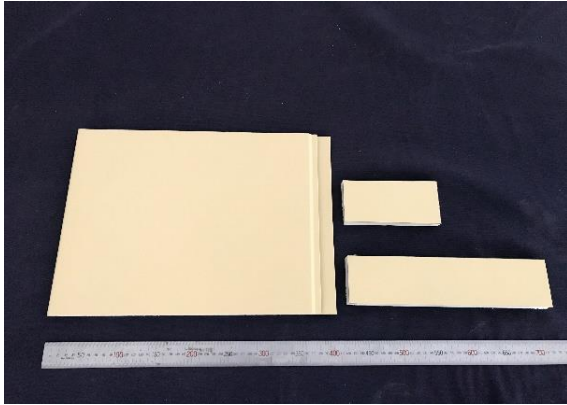
Close-up view of blisters

Test Report

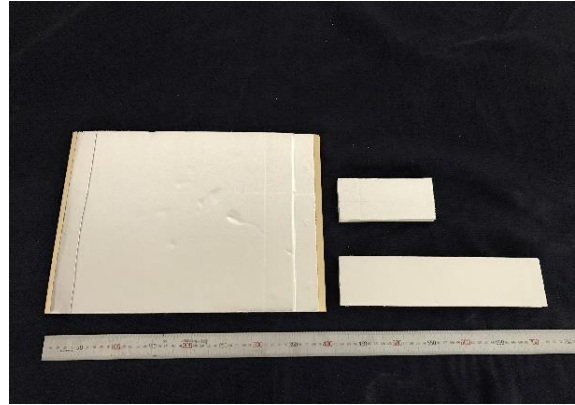
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APPENDIX: SAMPLE RECEIVED PHOTO



Front view



Back view

REPORT AUTHORIZED

When signed with physical or electronic signature, the contents of this report have been prepared and approved per Intertek's quality process in accordance with ISO 17025.


Daniel Zhang Torres Qi
Name: Daniel Zhang Name: Torres Qi
Title: Reviewer Title: Project Engineer

Revision:

NO.	DATE	CHANGES	AUTHOR	REVIEWER
190409007SHF-001	2019/5/13	First issue	Torres Qi	Daniel Zhang