

# Emission Test Certificate

Monday, April 20<sup>th</sup>, 2015

Supplier: Arrow Sun Pty Ltd (61-63 Discovery Road, Dandenong, VIC 3175)

Sample Description: Arrow Bamboo

Date Tested: April 2014 (Tested by FORAY Laboratories – NATA Accreditation 1231)


Test Method: ASTM D5116 “Standard Guide for Small-Scale Environmental Chamber Determinations of Organic Emissions from Indoor Material/Products”.

Emission Data:

<b>Green Building Council of Australia</b>  <b>Green Star Office Design v3 IEQ-13</b>	<b>Arrow Bamboo</b>
Total Volatile Organic Compound Emission Rate limit <0.5mg/m <sup>2</sup> /hr	Total Volatile Organic Compound Emission Rate: 0.015mg/m <sup>2</sup> /hr
4-phenylcyclohexene Emission Rate limit <0.05mg/m <sup>2</sup> /hr	4-phenylcyclohexene Emission Rate: <0.013 mg/m <sup>2</sup> /hr
Formaldehyde Emission Rate limit <0.1mg/m <sup>2</sup> /hr	Formaldehyde Emission Rate: <0.013mg/m <sup>2</sup> /hr



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Managing Director and Principal Consultant



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CV150325

# AWTA PRODUCT TESTING

Australian Wool Testing Authority Ltd - trading as AWTA Product Testing

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1st Floor, 191 Racecourse Road, Flemington, Victoria 3031

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Phone (03) 9371 2400 Fax (03) 9371 2499

## TEST REPORT

CLIENT : ARROWSUN AUSTRALIA  
35 DOWNARD STREET  
BRAESIDE VIC 3195

TEST NUMBER : 7-594945-CV  
ISSUE DATE : 29/11/2013  
PRINT DATE : 29/11/2013

SAMPLE DESCRIPTION Clients Ref: "ESWB Eureka"  
Tongue and groove floorboards  
Colour: Dark Brown  
Approx total thickness: 19mm

### Material Specification:

Nominal composition: Veneered Plywood  
Approx total mass: 12.5kg/m<sup>2</sup>

ASISO 9239.1-2003

Reaction to Fire Tests for Floorings  
Determination of the Burning Behaviour  
using a Radiant Heat Source

Date of sample arrival: 19/11/13  
Date tested: 29/11/2013  
Results:

	CHF Value			Mean	
Length	1	2	3	4.8	kW/m <sup>2</sup>
Width	4.3	4.6	5.5	-	kW/m <sup>2</sup>
	5.1	-	-	-	

### Smoke Value

Length	62	54	33	50	% min
Width	45	-	-	-	% min

Observations: Blistering penetration of flame through to substrate

Note: Sample was conditioned in accordance with BSEN 13238-2001 at a temperature of 23+/-2degC and Relative Humidity of 50+/-5% for a minimum of 48 hours prior to testing

Each specimen was clamped to a substrate of 6mm fibre reinforced cement board prior to testing

The test results relate to the behaviour of the test specimens of a product under the particular conditions of the test, they are not intended to be the sole criterion for assessing the potential fire hazard of the product in use

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( END OF REPORT )

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-Chemical Testing of Textiles & Related Products : Accreditation No. 983  
-Mechanical Testing of Textiles & Related Products : Accreditation No. 985  
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MANAGING DIRECTOR

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## TEST REPORT

CLIENT : ARROWSUN AUSTRALIA  
35 DOWNARD STREET  
BRAESIDE VIC 3195

TEST NUMBER : 7-594951-NV  
ISSUE DATE : 03/12/2013  
PRINT DATE : 03/12/2013

SAMPLE DESCRIPTION Clients Ref: "ESWB Eureka"  
Tongue and groove floorboards  
Colour: Dark Brown

AS/NZS 4586-2013  
APPENDIX B

Slip Resistance Classification of New Pedestrian Surface  
Materials Dry Floor Friction Test Method

Dynamic Coefficient of Friction

Run 1	Run 2	Mean (rounded to 0.05)
0.60	0.62	0.60

Classification: D1

Sampling and direction of test:

Sampling conducted by client  
Test direction parallel with grain profile

Preparation: Washed with water and pH neutral detergent  
rinsed, then dried

Fixed/Unfixed: Unfixed  
Air Temperature: 22degC  
Test Equipment: Tortus Floor Friction Tester  
Tortus Model MK III (with integral  
printer) Serial Number 318

Slider rubber: Slider 96 Batch No 47

These results apply only to the specimens tested and it  
is recommended that before selection of flooring or  
paving materials the effect of service conditions,  
including maintenance and wear on their slip  
resistance be checked

Tested at ATTAR

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35 DOWNARD STREET  
BRAESIDE VIC 3195

TEST NUMBER : 7-594951-NV  
ISSUE DATE : 03/12/2013  
PRINT DATE : 03/12/2013

AS/NZS 4586-2013 Slip Resistance of New Pedestrian Surface Materials  
APPENDIX A Wet Pendulum Test Method

	Specimen Number					
	1	2	3	4	5	SRV
British Pendulum Number	29	27	27	26	22	26
Classification	P2					

Sampling and direction of test: Sampling conducted by client  
Test direction parallel with grain profile

Preparation: Washed with water and pH neutral detergent,  
rinsed with water, then dried

Fixed/Unfixed: Unfixed  
Air Temperature: 22degC  
Test Equipment: Munroe Stanly Skid Resistance Tester (Pendulum) Serial  
Number 8117  
Slider rubber: Slider 96 Batch No. 49 prepared on a P400 and 3um lapping film

These results apply only to the specimens tested and it is recommended that  
before selection of flooring or paving materials the effect of service  
conditions, including maintenance and wear on their slip resistance be  
checked

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## TEST REPORT

CLIENT : ARROWSUN AUSTRALIA  
35 DOWNARD STREET  
BRAESIDE VIC 3195

TEST NUMBER : 7-592202-NV  
ISSUE DATE : 12/07/2013  
PRINT DATE : 12/07/2013

SAMPLE DESCRIPTION Sample of Bamboo Driftwood tongue and groove floorboards

AS/NZS 4586-2004 Slip Resistance Classification of New Pedestrian Surface  
APPENDIX B Materials  
Dry Floor Friction Test Method

Dynamic Coefficient of Friction  
Run 1 Run 2 Mean (Rounded to 0.05)  
0.70 0.62 0.65  
Classification: F: (Classification criteria at end of  
report)

Sampling and direction of test: Sampling conducted by client  
Test direction parallel with grain of timber  
Preparation: Wash with ph. neutral detergent, rinsed with  
water and dried

Fixed / Unfixed Unfixed  
Air temperature 20degC  
Test equipment Tortus Floor Friction Tester:  
Tortus Model Mk III (with intergral printer) Serial No. 318

Slider rubber: Slider 96 (Four S) Batch No. 44

These results apply only to the specimen tested and it is  
recommended that before selection of flooring or paving  
materials the effect of service conditions, including  
maintenace and wear on their slip resistance be checked

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A handwritten signature in black ink, appearing to read "Michael A. Jackson".

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## TEST REPORT

CLIENT : ARROWSUN AUSTRALIA  
35 DOWNARD STREET  
BRAESIDE VIC 3195

TEST NUMBER : 7-592202-NV  
ISSUE DATE : 12/07/2013  
PRINT DATE : 12/07/2013

AS/NZS 4586-2004 Slip Resistance of New Pedestrian Surface Materials  
APPENDIX A Wet Pendulum Test Method

	Specimen Number					
British Pendulum No	1	2	3	4	5	Mean
Classification:	24	19	20	18	16	19

Z (See Classification criteria at end of report)

Sampling and direction of test: Sampling conducted by client  
Test direction parallel with grain of timber  
Preparation: Washed with ph. neutral detergent, rinsed with water and dried

Fixed / Unfixed: Unfixed  
Air temperature: 20degC  
Test equipment: Stanley Skid Resistance Tester (Pendulum)  
Serial Number: 0320  
Slider rubber: Slider 96 (Four S) Batch No 47

These results apply only to the specimen tested and it is recommended that before selection of flooring or paving materials the effect of service conditions, including maintenance and wear on their slip resistance be checked

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Classification Criteria - AS/NZS 4586-2004  
TABLE 1  
Test and Classification Combinations

Test Conditions	Test Method	Classification Table to be used
Wet pendulum	Appendix A	Table 2
Wet pendulum and Dry floor friction	Appendix A and B	Table 2 and 3
Dry floor friction	Appendix B	Table 3*

\* Samples Tested under dry conditions only are assumed to have a default wet classification of Z and shall be reported as classification ZF or ZG

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35 DOWNARD STREET  
BRAESIDE VIC 3195

TEST NUMBER : 7-592202-NV  
ISSUE DATE : 12/07/2013  
PRINT DATE : 12/07/2013

TABLE 2  
Classification of Pedestrian Surface Materials According  
to The Wet Pendulum Test

Class	Slider 96 (Four S rubber)	Slider 55 (TRL rubber)
V	>54	>44
W	45 - 54	40 - 44
X	35 - 44	-
Y	25 - 34	-
Z	<25	-

\*While either of these test methods may be used, the test report shall specify which method was used.

Note: It is expected that these surfaces will have greater slip resistance when dry.

TABLE 3  
Classification of Pedestrian Surface Materials According  
to The Dry Floor Friction Test

Classification	Floor Friction Tester Mean Value
F	> or equal to 0.4
G	<0.04

Means of demonstrating compliance

Pedestrian surfaces that are classified in accordance with Table 2 and, where appropriate, Table 3 shall meet the following criteria:

- (a) The mean test results shall be as follows:
- (i) For the classifications in Table 2, the mean of the test results shall be within the relevant criteria set out in the Table, and each individual result shall be equal to or above the lower limit for the classification or, if below the classification, within the mean of the result minus 20%. If either of these criteria is not met, the lot shall be considered to be a lower classification
  - (ii) For classification F in Table 3, the mean of the test results shall be equal to or greater than 0.4 and each individual result shall be equal to or greater than 0.35. If either of these criteria is not met, the lot shall be considered to be Classification G
- (b) The classification in accordance with Table 2 or Table 3 shall be determined by
- (i) Selecting and testing at least five specimens at random as defined in Appendix A and B or



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TEST NUMBER : 7-592202-NV  
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- (ii) carrying out continuous testing and process control in accordance with AS 3942.
- (c) When testing individual lots, if a particular test fails to produce the expected classification it shall be permissible to:
- (i) Disregard the first sample, re-sample a minimum of 10 specimens from the whole lot, retest and apply the criteria to the new sample or
  - (ii) Subdivide the lot into smaller lots of different quality, re-sample and reclassify each of the smaller lots.

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## TEST REPORT

CLIENT : ARROWSUN AUSTRALIA  
35 DOWNARD STREET  
BRAESIDE VIC 3195

TEST NUMBER : 7-592245-CV  
ISSUE DATE : 12/07/2013  
PRINT DATE : 12/07/2013

SAMPLE DESCRIPTION Clients Ref: "Arrowsun Bamboo Driftwood"  
Bamboo flooring boards  
Colour: Brown timber  
Approximate Thickness: 14mm

### Material Specification:

Nominal Composition: Bamboo Timber  
Approximate Mass: 13 kg/m<sup>2</sup>  
Nominal Backing: N/A

ASISO 9239.1-2003  
Part 1

Reaction to Fire Tests for Floorings  
Determination of the Burning Behaviour  
using a Radiant Heat Source

Date of sample arrival: 26/06/2013

Date tested: 11/07/2013

### Results:

CHF (Critical Heat Flux / Critical Radiant Flux)

	1	2	3	Mean	
Length	7.3	8.9	8.7	8.3	kW/m <sup>2</sup>
Width	9.3	-	-	-	kW/m <sup>2</sup>

### Smoke Value

	1	2	3	Mean	
Length	11	14	11	12	% min
Width	9	-	-	-	% min

Observations: Blistering

Note: Sample was conditioned in accordance with BSEN 13238-2001 at a temperature of 23+/-2degC and Relative Humidity of 50+/-5% for a minimum of 48 hours prior to testing

Each specimen was clamped to a substrate of 6mm thick fibre reinforced cement board prior to testing

The test results relate to the behaviour of the test specimens of a product under the particular conditions of the test, they are not intended to be the sole criterion for assessing the potential fire hazard of the product in use

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