



Industrial Research Services

Materials Science & Engineering, Graham Road (PO Box 56), Highett, Victoria, Australia 3190
Telephone: 61 3 9252 6000 Facsimile: 61 3 9252 6244 Email: tiles@csiro.au Web: <http://www.cmse.csiro.au>

Registered Testing Authority - CSIRO

12 August 2010

Our Ref. EN13 / 1936 03/0212

TEST REPORT No. 5433.1s

Requested by: Inovar Floor
2 Wella Way
Somersby
NSW 2250

on (date): 21 July 2010

Manufacturer:
Product Desc.: Inovar LocSealed Design MF869 Balinese Teak
1286x190x8mm

Sampling details:
Where: Delivered
Date: 21 July 2010
By whom: Courier
How (methods): N/A

The results reported relate only to the sample(s) tested and the information received. No responsibility is taken for the accuracy of the sampling unless it is done under our own supervision. CSIRO cannot accept responsibility for deviations in the manufactured quality and performance of the product. While CSIRO takes care in preparing the reports it provides to clients, it does not warrant that the information in this particular report will be free of errors or omissions or that it will be suitable for the client's purposes. CSIRO will not be responsible for the results of any actions taken by the client or any other person on the basis of the information contained in the report or any opinions expressed in it. The reproduction of this test report is only authorised in the form of a complete photographic facsimile. Our written approval is necessary for any partial reproduction.

This test report consists of 5 pages

SUMMARY OF SLIP RESISTANCE TESTS PERFORMED:

		Result	Class
AS/NZS 4586:2004	Slip resistance classification of new pedestrian surface materials		
	Appendix A: WET Pendulum (Four S). Mean BPN:	36	X [LOW*]
	Appendix B: DRY (FFT). Mean COF:	0.55	F
	Appendix A,B: Dual classification:		X [LOW*]F
AS/NZS 4586:2004	Slip resistance classification of new pedestrian surface materials,		
	Appendix D: OIL-WET Ramp		
	Mean overall acceptance angle:	5.0°	N/A

* = CSIRO classification

In order to interpret the classifications, please refer to Standards Australia Handbook 197, An Introductory Guide to the Slip Resistance of Pedestrian Surface Materials, which recommends minimum classifications for a wide variety of locations.

It is important to realise that test results obtained on unused factory-fresh samples may not be directly applicable in service, where proprietary surface coatings, contamination, wear and subsequent cleaning all influence the behaviour of the pedestrian surface.

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SLIP RESISTANCE CLASSIFICATION OF NEW PEDESTRIAN SURFACE MATERIALS

WET PENDULUM TEST METHOD

TEST CARRIED OUT IN ACCORDANCE WITH
 AS/NZS 4586:2004 (Appendix A)

Test Date: 21 July 2010

RESULTS: Location: Slip Resistance Laboratory Rubber slider used: Four S
 Conditioned with grade P400 paper, dry
 Sample: Unfixed
 Cleaning: Deionized water
 Temperature: 23°C

Pendulum Friction Tester: Munro-Stanley (S/N: 9234, calibrated 23/09/09)
 Test conducted by: Peter Westgate

	Specimen				
	1	2	3	4	5
Last 3 swings	34	39	34	43	32
	34	39	34	43	32
	33	39	34	43	32
Averages	34	39	34	43	32

Mean BPN : 36

CLASS :

X [LOW*]

* = CSIRO classification



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SLIP RESISTANCE CLASSIFICATION OF NEW PEDESTRIAN SURFACE MATERIALS

DRY FLOOR FRICTION TEST METHOD

TEST CARRIED OUT IN ACCORDANCE WITH
AS/NZS 4586:2004 (Appendix B)

Test Date: 21 July 2010

RESULTS Location: Slip Resistance Laboratory Rubber Type: Four S
Sample Sample Unfixed Conditioned with grade P400 paper, dry
Cleaning: Dry el/static cloth
Temperature: 23°C
FFT measurements taken over 2 passes of 800mm each

Floor Friction Tester: Tortus Mk II (S/N: 224)
Test conducted by:

Run 1: Average COF: 0.58
Run 2: Average COF: 0.55
Mean COF: 0.57

According to AS/NZS 4586 the Dry Coefficient of Friction shall be reported as :
(mean rounded to the nearest 0.05)

0.55

CLASS :

F

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SLIP RESISTANCE CLASSIFICATION OF NEW PEDESTRIAN SURFACE MATERIALS

OIL-WET RAMP TEST METHOD

TEST CARRIED OUT IN ACCORDANCE WITH
AS/NZS 4586:2004 (Appendix D)

Test Date: 12 August 2010

Location: Slip Resistance Laboratory

Sample Fixed

Joint width: mm

Surface structure: Smooth
 Profiled
 Structured

RESULTS

Mean overall acceptance angle: 5.0 °

Displacement space: not tested

CLASSIFICATION:

Slip Resistance Assessment Group:

N/A

Displacement Space Assessment Group:

-

To achieve an 'R' classification the overall acceptance angle must be greater or equal to 6 degrees.

* = CSIRO classification

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Date and Place 12 August 2010, Highett, Vic

Name, Title and Digital Signature:



PETER WESTGATE
Project Leader
 Tel: 61 3 92526108
 Fax: 61 3 92526244
 Email: Peter.Westgate@csiro.au

***CSIRO recommended classification of Slip Resistance as determined from:
 AS/NZS 4586: 2004 Slip Resistance Classification of New Pedestrian Surface Materials (Appendices A & D).**

Wet Pendulum Class	BPN 4S Rubber	CSIRO Class LOW	CSIRO Class MEDIUM	CSIRO Class HIGH
V	>54	54-57	58-61	>61
W	45-54	45-48	49-51	52-54
X	35-44	35-38	39-41	42-44
Y	25-34	25-28	29-31	32-34
Z	<25	<18	18-21	22-25
Oil Wet Ramp Class	Angle (degrees)	CSIRO Class LOW	CSIRO Class MEDIUM	CSIRO Class HIGH
R9	≥6 to <10	≥6 to 7.5	7.6 to 9	9.1 to 9.9
R10	≥10 to <19	≥10 to 12	12.1 to 15	15.1 to 18.9
R11	≥19 to <27	≥19 to 21	21.1 to 24	24.1 to 26.9
R12	≥27 to <35	≥27 to 29	29.1 to 32	32.1 to 34.9
R13	≥35	≥35 to 36	36.1 to 38	≥38.1

This table should not be read or relied upon without reference to the CSIRO/Standards Australia publication:
 AS/NZS 4586 Slip Resistance Classification of New Pedestrian Surface Materials (Appendices A & D).

CSIRO has categorized the AS4586 classifications into sub-groups Low, Medium & High. The slip resistance test classification is still determined according to AS 4586 Australian Standard (Appendices A & D). The added information of Low, Medium and High allows professionals to make a better judgement of pedestrian floor requirements.



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DETERMINATION OF Rz SURFACE ROUGHNESS

(Using a Taylor-Hobson Surtronic Duo roughness meter using a 0.8mm cut off length)

Test Date: 21 July 2010

RESULTS

Location: Slip Resistance Laboratory

Rz values

1	7.6
2	12.3
3	8.1
4	13.4
5	8.1
6	9.7
7	8.1
8	7.7
9	7.8
10	7.7

Surface Roughness (Rz) mean = 9.1 microns

BS 7976:2002, Pendulum Testers, requires a different test foot preparation (lapping paper) for pedestrian surfaces that have a Rz roughness of less than 15 microns. This lapping paper tends to reduce the pendulum result, sometimes appreciably. CSIRO recommends the use of this procedure (CSIRO COF1) as an adjunct to AS/NZS 4586. It helps to discriminate among products that have marginal wet slip resistance and to identify those that may be dangerous if wet.

The measurement of the various aspects of surface roughness is complex given the number of potential roughness parameters. While there is still some uncertainty as to exactly what type of roughness needs to be measured, peak-to-trough roughness (Rz) gives a useful guide to the likely slip resistance in wet conditions. Research has suggested that hard floors need to have a slightly higher Rz roughness than polymeric floors for the same degree of safety in wet conditions, but whatever flooring material is used an Rz roughness value of at least 10 microns is required where wet slip resistance may be required. In circumstances where wetness is normal or expected, this figure should be increased by a factor of 2 or more.

Greater peak surface roughnesses are likely to be required where floors slope or where the floor is likely to become contaminated with high viscosity liquids.
