

Registered Testing Authority - CSIRO

2 June 2011

Our Ref. EN13 / 1683 03/0212

## TEST REPORT No. 5813.4s

Requested by: Forbo Flooring Systems  
23 Ornsby Place  
Wetherill Park  
NSW 2164

on (date): 25 May 2011

Manufacturer: Forbo Flooring Systems

Product Desc.: Eternal Marble 64972, PUR Pearl Vinyl Sheet Roll

Sampling details:

Where: Delivered

Date: 25 May 2011

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 6 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:	32	Y [HIGH*]
	Appendix B: DRY (FFT). Mean COF:	0.75	F
	Appendix A,B: Dual classification:		Y [HIGH*]F
AS/NZS 4586:2004	Slip resistance classification of new pedestrian surface materials		
	Appendix C: WET/BAREFOOT Ramp		
	Mean angle of inclination:	16°	A
AS/NZS 4586:2004	Slip resistance classification of new pedestrian surface materials,		
	Appendix D: OIL-WET Ramp		
	Mean overall acceptance angle:	11.1°	R 10 [LOW*]

\* = 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: 25 May 2011

RESULTS:	Location:	Slip Resistance Laboratory	Rubber slider used: Four S
	Sample:	Unfixed	Conditioned with grade P400 paper, dry
	Cleaning:	Dry el/static cloth	
	Temperature:	23°C	

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

	Specimen 1	2	3	4	5
Last 3 swings	35	32	34	32	32
	34	32	32	31	31
	33	31	32	31	30
Averages	34	32	33	31	31

Mean BPN : 32

CLASS :

Y [HIGH\*]

\* = 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: 30 May 2011

RESULTS Location: Slip Resistance Laboratory  
Sample Sample Unfixed  
Cleaning: Dry el/static cloth  
Temperature: 23°C  
FFT measurements taken over 2 passes of 800mm each

Rubber Type: Four S  
Conditioned with grade P400 paper, dry

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

**Run 1: Average COF: 0.74**  
**Run 2: Average COF: 0.76**  
**Mean COF: 0.75**

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

**0.75**

**CLASS :**

**F**

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## SLIP RESISTANCE CLASSIFICATION OF NEW PEDESTRIAN SURFACE MATERIALS

### WET/BAREFOOT RAMP TEST METHOD

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

Test Date: 26 May 2011

Location: Slip Resistance Laboratory

Sample Fixed

Joint width: 0 mm

Surface structure:

<input type="checkbox"/>	Smooth
<input checked="" type="checkbox"/>	Profiled
<input type="checkbox"/>	Structured

### RESULTS

		Actual mean	Reported mean
Mean angle of inclination:	Calibration Board A:	11.98 °	12 °
	Calibration Board B:	22.51 °	23 °
	Calibration Board C:	27.06 °	27 °
Mean angle of inclination of Test Board:		16.25 °	16 °

### CLASSIFICATION:

Quality Group:

**A**

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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: 1 June 2011

Location: Slip Resistance Laboratory

Sample Fixed

Joint width: mm

Surface structure: ☐ Smooth  
☒ Profiled  
☐ Structured

### RESULTS

Mean overall acceptance angle: 11.1 °

Displacement space: not tested

### CLASSIFICATION:

Slip Resistance Assessment Group:

R 10 [LOW\*]

Displacement Space Assessment Group:

-

\* = CSIRO classification

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Date and Place 2 June 2011, Highett, Vic

Name, Title and Digital Signature:



CSIRO

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**\*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.