



Industrial Research Services

Manufacturing & Materials Technology, 37 Graham Road (PO Box 56), Highett, Victoria 3190, Australia
Telephone: 61 3 9252 6000 Facsimile: 61 3 9252 6244 Web: <http://www.cmmt.csiro.au>

Registered Testing Authority - Building Code of Australia

22 February 2007

Our Ref: EN13 / 816 03/0211

TEST REPORT No. 3784s

Requested by: R Ten Plus Pty Ltd
 Client: David Maccioli
on (date): 12 February, 2007
Product Descriptions: Polished / Glazed Ceramic Control Tile (30x30)
 Polished / Glazed Ceramic Treated Tile (30x30)
 Polished Porcelain Control Tile (40x40)
 Polished Porcelain Treated Tile (40x40)

Sampling Details
Date: n/a
How (methods): By Client
 February 2007

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This test report consists of 4 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 Slider):		
	Ceramic Control Tile Mean BPN:	17	Z
	Ceramic Treated Tile Mean BPN:	52	W
	Porcelain Control Tile Mean BPN:	15	Z
	Porcelain Treated Tile Mean BPN:	43	X
AS/NZS 4586:2004	Slip resistance classification of new pedestrian surface materials Appendix B: DRY Floor Friction Tester:		
	Ceramic Control Tile Mean coefficient of friction:	0.57	F
	Ceramic Treated Tile Mean coefficient of friction:	0.87	F
	Porcelain Control Tile Mean coefficient of friction:	0.50	F
	Porcelain Treated Tile Mean coefficient of friction:	0.69	F



Report No: 3784s
Issue Date: 22 February 2007
Manufacturer: R Ten Plus Pty Ltd
Sample Description: Polished / Glazed Ceramic Tiles, 300x300mm

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: 14 November, 2007

RESULTS: Location Slip Resistance Laboratory Rubber Slider Used: Type Four S
Sample Cleaning Sample Unfixed Distilled water Conditioned with grade P400 paper, dry
Temperature: 23°C

Pendulum Friction Tester: Stanley (Serial #9234, calibrated 13/06/05)
Test conducted by: David Weeks

	Control					Specimen Treated				
	1	2	3	4	5	1	2	3	4	5
Last 3 swings	19	18	17	16	18	56	55	54	48	47
	19	17	17	15	18	55	54	53	48	48
	18	17	16	15	17	55	53	53	48	48
Averages:	19	17	17	15	18	55	54	53	48	48

Mean BPN

17

52

Class :

Z

W

Comment:

The surface of the tile samples were cleaned with distilled water prior to the assessment. The glazed ceramic tiles were a dark grey/green appearance and the difference in reflected luminance was noticeable between the two surfaces, control (shiny) and treated (dull).

The measured outcomes were from two tiles and it is only indicative of the potential of the anti-slip treatment for glazed ceramic tiles. There has been no assessment for changes to the surface properties of the treated tiles.



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Report No: 3784s
Issue Date: 22 February 2007
Manufacturer: R Ten Plus Pty Ltd
Sample Description: Porcelain Tiles, 450x450mm

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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: 14 November, 2007

RESULTS: Location Slip Resistance Laboratory Rubber Slider Used: Type Four S
Sample Sample Unfixed Conditioned with grade P400 paper, dry
Cleaning Dust residue removed by brush, cleaned with distilled water
Temperature: 23°C

Pendulum Friction Tester: Stanley (Serial #9234, calibrated 13/06/05)
Test conducted by: David Weeks

	Control					Specimen Treated				
	1	2	3	4	5	1	2	3	4	5
Last 3 swings	15	15	15	15	15	46	40	44	43	46
	15	15	14	15	14	46	39	43	43	46
	15	14	14	14	14	46	39	43	43	46
Averages:	15	15	14	15	14	46	39	43	43	46

Mean BPN

15

43

Class :

Z

X

Comment:

The surface of the tiles samples were cleaned with distilled water prior to the assessment. The porcelain tiles were of an ivory / beige appearance and the difference in the reflected luminance was minimal.

The measured outcomes were from single tiles and it is only indicative of the potential of the anti-slip treatment for porcelain tiles. There has been no assessment for changes to the surface properties of the treated tiles.



Report No: 3784s
Issue Date: 22 February 2007
Manufacturer: R Ten Plus Pty Ltd
Sample Description: Polished / Glazed Ceramic Tiles, 300x300mm

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: 14 February, 2007

RESULTS: Location Slip Resistance Laboratory Rubber Type: Four S
Sample Sample Fixed Conditioned with grade P400 paper, dry
Cleaning Antistatic Swipe
Temperature: 23°C
FFT measurements taken over 2 passes of 800mm each

Floor Friction Tester: Tortus MkII (S/N: 224)
Test conducted by: David Weeks

		Specimen	
		Control	Treated
Run 1:	Average COF:	0.55	0.86
Run 2:	Average COF:	0.58	0.88
	Mean COF:	0.57	0.87
According to AS/NZS 4586 the dry Coefficient of Friction shall be reported as: (mean rounded to the nearest 0.05)		0.57	0.87

Class :

F

F

Comment:

This is a dry assessment of the co-efficient of friction of the surface of the samples. The increased slip resistance is a direct result of changes to the surface structure from the anti-slip treatment and not a chemical reaction when in contact with water.



Report No: 3784s
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Manufacturer: R Ten Plus Pty Ltd
Sample Description: Porcelain Tiles, 450x450mm

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: 14 February, 2007

RESULTS: Location Slip Resistance Laboratory Rubber Type: Four S
Sample Sample Fixed Conditioned with grade P400 paper, dry
Cleaning Antistatic Swipe
Temperature: 23°C
FFT measurements taken over 2 passes of 800mm each

Floor Friction Tester: Tortus MkII (S/N: 224)
Test conducted by: David Weeks

		Specimen	
		Control	Treated
Run 1:	Average COF:	0.50	0.69
Run 2:	Average COF:	0.51	0.68
	Mean COF:	0.50	0.68

According to AS/NZS 4586 the dry Coefficient of: **0.50** **0.69**
Friction shall be reported as: (mean rounded to the nearest 0.05)

Class :

F

F

Comment:

This is a dry assessment of the co-efficient of friction of the surface of the samples. The increased slip resistance is a direct result of changes to the surface structure from the anti-slip treatment and not a chemical reaction when in contact with water.



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Date and Place 22 February 2007 Highett, Victoria

Name, Title and Signature:

A handwritten signature in black ink, appearing to read 'D. Weeks'.

David Weeks
Technical Officer

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A large, light blue, semi-transparent watermark of the CSIRO logo, consisting of a stylized map of Australia within a circle, is centered on the page.