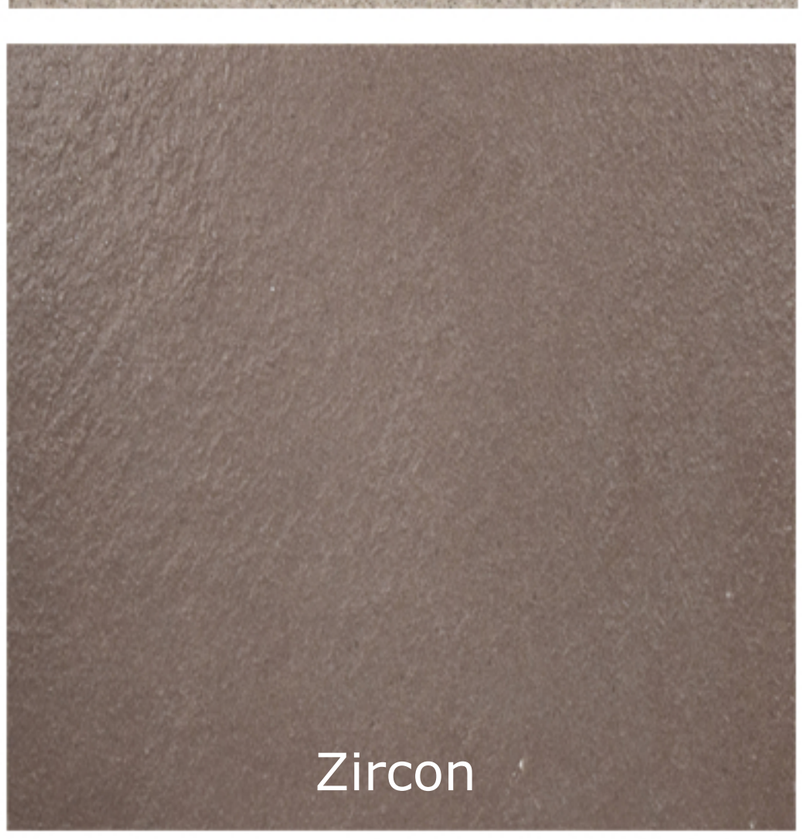
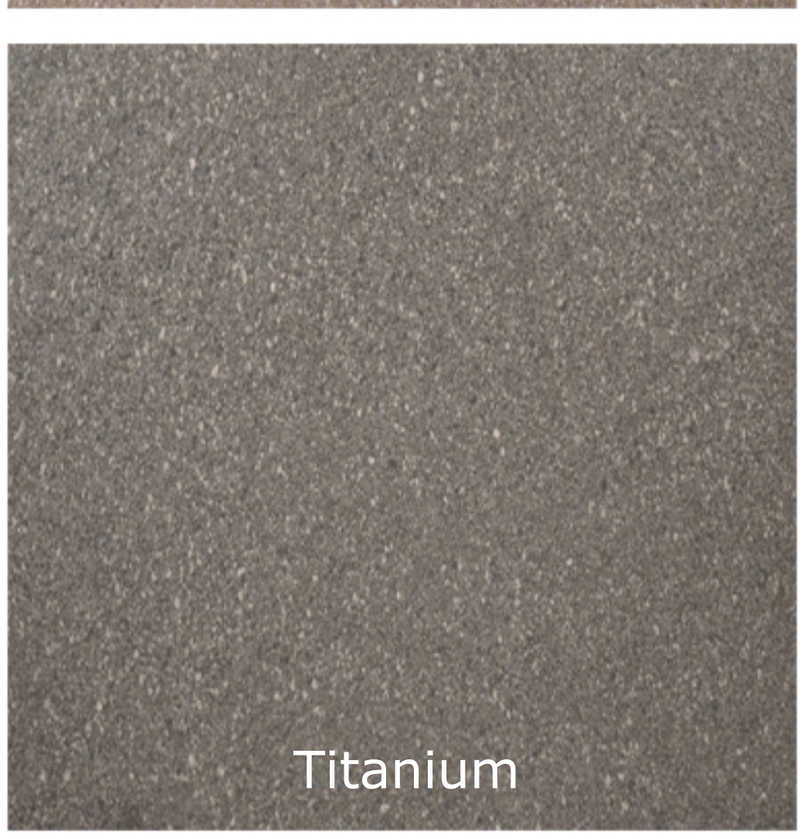
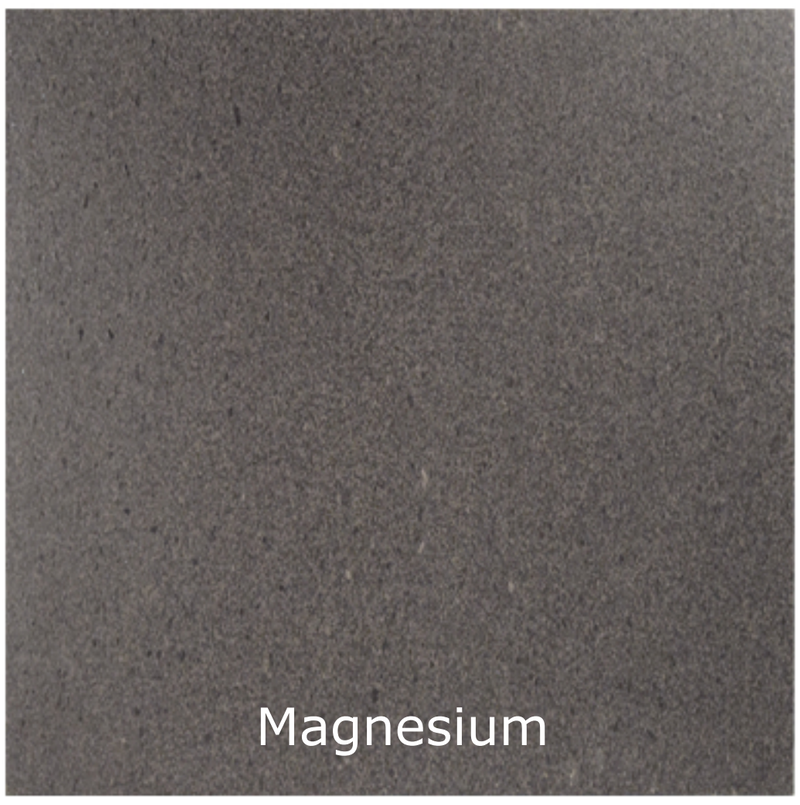
Ecotech Mineral Series - Ratings	
Surface: Lappato	
CSIRO Australian Standard 4586:2004	R10
Surface: Matt	
CSIRO Australian Standard 4586:2004	R11
NATA Australian Standard 4586:2013	P3
Surface: Rock	
CSIRO Australian Standard 4586:2004	R11

Colours available in:

- 300x300mm Lappato R10, Matt R11 P3, Grip R11 & Polished
- 300x600mm Lappato R10, Matt R11 P3, Grip R11 & Polished
- 600x600mm Lappato R10, Matt R11 P3, Grip R11 & Polished







metrotiles
metrostyle

Infrastructure Technology

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

30 May 2014 Our Ref. EN13 / 2337 03/0212

TEST REPORT No. 7058.2s

Requested by: Metro Tiles Pty Ltd
192 Granite Street
Geebung
QLD 4034
on (date): 26 May 2014
Manufacturer: Ecotech
Product Desc.: Mineral Series, Lapatto Finish, Chromium, 600x300mm

Sampling details:
Where: Delivered
Date: 26 May 2014
By whom: Courier
How (methods): N/A

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): Mean BPN:	31	Y [MEDIUM*]
AS/NZS 4586:2004	Slip resistance classification of new pedestrian surface materials, Appendix D: OIL-WET Ramp Mean overall acceptance angle:	16.8°	R 10 [HIGH*]

* = 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.

Infrastructure Technology

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

REPORT NO: 7058.2s
ISSUE DATE: 30 May 2014
MANUFACTURER: Ecotech
PRODUCT DESC: Mineral Series, Lapatto Finish, Chromium, 600x300mm

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: 29 May 2014

RESULTS: Location: Slip Resistance Laboratory
Rubber slider used: Four S
Conditioned with grade P400 paper, dry

Sample: Unfixed
Cleaning: Acetone
Temperature: 23℃

Pendulum Friction Tester: Stanley (S/N: 9234, calibrated 17/04/2013)
Test conducted by: Andy Giang

	Specimen 1	2	3	4	5
Last 3 swings	**36**	**31**	**32**	**31**	**30**
	35	**30**	**31**	**30**	**29**
	35	**30**	**31**	**30**	**29**
Averages	**35**	**30**	**31**	**30**	**29**

Mean BPN : 31

CLASS : Y [MEDIUM*]

* = CSIRO classification

Infrastructure Technology

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

REPORT NO: 7058.2s
ISSUE DATE: 30 May 2014
MANUFACTURER: Ecotech
PRODUCT DESC: Mineral Series, Lapatto Finish, Chromium, 600x300mm

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: 30 May 2014

Location: Slip Resistance Laboratory

Sample Fixed

Joint width: 0 mm

Surface structure:
[ ] Smooth
[X] Profiled
[ ] Structured

RESULTS

Mean overall acceptance angle: 16.8 °

Displacement space: not tested

CLASSIFICATION:

Slip Resistance Assessment Group: R 10 [HIGH*]

Displacement Space Assessment Group: -

* = CSIRO classification

Infrastructure Technology

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

REPORT NO: 7058.2s
ISSUE DATE: 30 May 2014
MANUFACTURER: Ecotech
TILE DESC: Mineral Series, Lapatto Finish, Chromium, 600x300mm

Date and Place 30 May 2014, Highett, Vic

Name, Title and Digital Signature:

ANDY GIANG
Technical Officer
Tel: 61 3 92526000
Fax: 61 3 92526244
Email: Andy.Giang@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.

Infrastructure Technology

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

30 May 2014 Our Ref. EN13 / 2337 03/0212

TEST REPORT No. 7058.1s

Requested by: Metro Tiles Pty Ltd
192 Granite Street
Geebung
QLD 4034
on (date): 26 May 2014
Manufacturer: Ecotech
Product Desc.: Mineral Series, Matt Finish, Chromium, 300x300mm

Sampling details:
Where: Delivered
Date: 26 May 2014
By whom: Courier
How (methods): N/A

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): Mean BPN:	39	X [MEDIUM*]
AS/NZS 4586:2004	Slip resistance classification of new pedestrian surface materials, Appendix D: OIL-WET Ramp Mean overall acceptance angle:	19.0°	R 11 [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.

Infrastructure Technology

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

REPORT NO: 7058.1s
ISSUE DATE: 30 May 2014
MANUFACTURER: Ecotech
PRODUCT DESC: Mineral Series, Matt Finish, Chromium, 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: 29 May 2014

RESULTS: Location: Slip Resistance Laboratory
Rubber slider used: Four S
Conditioned with grade P400 paper, dry

Sample: Unfixed
Cleaning: Acetone
Temperature: 23℃

Pendulum Friction Tester: Stanley (S/N: 9234, calibrated 17/04/2013)
Test conducted by: Andy Giang

	Specimen 1	2	3	4	5
Last 3 swings	**40**	**37**	**42**	**43**	**36**
	39	**37**	**42**	**43**	**36**
	39	**37**	**42**	**43**	**36**
Averages	**39**	**37**	**42**	**43**	**36**

Mean BPN : 39

CLASS : X [MEDIUM*]

* = CSIRO classification

Infrastructure Technology

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

REPORT NO: 7058.1s
ISSUE DATE: 30 May 2014
MANUFACTURER: Ecotech
PRODUCT DESC: Mineral Series, Matt Finish, Chromium, 300x300mm

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: 30 May 2014

Location: Slip Resistance Laboratory

Sample Fixed

Joint width: 0 mm

Surface structure:
[ ] Smooth
[X] Profiled
[ ] Structured

RESULTS

Mean overall acceptance angle: 19.0 °

Displacement space: not tested

CLASSIFICATION:

Slip Resistance Assessment Group: R 11 [LOW*]

Displacement Space Assessment Group: -

* = CSIRO classification

Infrastructure Technology

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

REPORT NO: 7058.1s
ISSUE DATE: 30 May 2014
MANUFACTURER: Ecotech
TILE DESC: Mineral Series, Matt Finish, Chromium, 300x300mm

Date and Place 30 May 2014, Highett, Vic

Name, Title and Digital Signature:

ANDY GIANG
Technical Officer
Tel: 61 3 92526000
Fax: 61 3 92526244
Email: Andy.Giang@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.

Infrastructure Technology

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

30 May 2014 Our Ref. EN13 / 2337 03/0212

TEST REPORT No. 7058.3s

Requested by: Metro Tiles Pty Ltd
192 Granite Street
Geebung
QLD 4034
on (date): 26 May 2014
Manufacturer: Ecotech
Product Desc.: Mineral Series, Rock Finish, Chromium, 600x300mm

Sampling details:
Where: Delivered
Date: 26 May 2014
By whom: Courier
How (methods): N/A

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): Mean BPN:	47	W [LOW*]
AS/NZS 4586:2004	Slip resistance classification of new pedestrian surface materials, Appendix D: OIL-WET Ramp Mean overall acceptance angle:	24.9°	R 11 [HIGH*]

* = 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.

Infrastructure Technology

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

REPORT NO: 7058.3s
ISSUE DATE: 30 May 2014
MANUFACTURER: Ecotech
PRODUCT DESC: Mineral Series, Rock Finish, Chromium, 600x300mm

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: 29 May 2014

RESULTS: Location: Slip Resistance Laboratory
Rubber slider used: Four S
Conditioned with grade P400 paper, dry

Sample: Unfixed
Cleaning: Acetone
Temperature: 23℃

Pendulum Friction Tester: Stanley (S/N: 9234, calibrated 17/04/2013)
Test conducted by: Andy Giang

	Specimen 1	2	3	4	5
Last 3 swings	**48**	**50**	**49**	**45**	**48**
	47	**49**	**48**	**45**	**48**
	47	**49**	**48**	**45**	**48**
Averages	**47**	**49**	**48**	**45**	**48**

Mean BPN : 47

CLASS : W [LOW*]

* = CSIRO classification

Infrastructure Technology

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

REPORT NO: 7058.3s
ISSUE DATE: 30 May 2014
MANUFACTURER: Ecotech
PRODUCT DESC: Mineral Series, Rock Finish, Chromium, 600x300mm

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: 30 May 2014

Location: Slip Resistance Laboratory

Sample Fixed

Joint width: 0 mm

Surface structure:
[ ] Smooth
[X] Profiled
[ ] Structured

RESULTS

Mean overall acceptance angle: **24.9 °**

Displacement space: **not tested**

CLASSIFICATION:

Slip Resistance Assessment Group: **R 11 [HIGH*]**

Displacement Space Assessment Group: **-**

* = CSIRO classification

Infrastructure Technology

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

REPORT NO: 7058.3s
ISSUE DATE: 30 May 2014
MANUFACTURER: Ecotech
TILE DESC: Mineral Series, Rock Finish, Chromium, 600x300mm

Date and Place 30 May 2014, Highett, Vic

Name, Title and Digital Signature:

ANDY GIANG
Technical Officer
Tel: 61 3 92526000
Fax: 61 3 92526244
Email: Andy.Giang@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.