



PRODUCT PERFORMANCE TESTING LABORATORY

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April 18, 2018

Universal White Cement Inc.
Attn: Ryan Liljenquist
5610 W Maryland Ave.
Glendale, AZ 85301

Dear Ryan Liljenquist,

Tile Council of North America has tested the samples you submitted. Test report TCNA-0376-18 is enclosed. If you have any questions or concerns, please contact us.

Best Regards,

TILE COUNCIL OF NORTH AMERICA, INC.

Nicole Spandley
Laboratory Engineer
Enclosures

TCNA TEST REPORT NUMBER: TCNA-0376-18

PAGE: 1 OF 4

TEST REQUESTED BY: Universal White Cement Inc.

TEST METHOD: ANSI A137.1-2017 Section 9.6.1: "Wet Dynamic Coefficient of Friction (DCOF)"

Informal Test Method Description: This test method covers the measurement of dynamic coefficient of friction of ceramic tile or other surfaces under the wet condition using the BOT 3000 device.

This summary is provided for the reader's convenience and is not a complete description of the method. See ANSI A137.1 Section 9.6.1 for all method details and information.

TEST SUBJECT MATERIAL: Identified by client as: "Stormy"
Approximate Size as Received: 12"x12"
Product Color: Silver/Grey

TEST DATE: 4/17/2018

TEST PROCEDURE NOTES:

- Sample Prep: None
- The tiles were cleaned with Renovator #120 prior to testing.
- Three (3) pieces of tile were tested in all four directions with 10" long measurements.
- The SBR sensor was verified using a standard tile prior to testing. The DCOF measurement on the standard tile was 0.3, within the required range.
- Testing was performed under wet conditions using 0.05% SLS water
- Testing was conducted under laboratory conditions at approximately 70°F and 50% relative humidity using a calibrated BOT 3000E device (calibration due: 8/30/2018).
- After testing the SBR sensor was verified again according to the procedure. The DCOF measurement on the standard tile after testing was 0.3, within the required range.

TEST RESULTS:

The individual and average DCOF data for each tile were as follows:

Direction	Tile 1	Tile 2	Tile 3
Direction 1	0.61	0.57	0.58
Direction 2	0.60	0.58	0.54
Direction 3	0.62	0.57	0.55
Direction 4	0.59	0.57	0.51
Average	0.61	0.57	0.55

COMMENTS: None

TCNA TEST REPORT NUMBER:

TCNA-0376-18

PAGE: 2 OF 4

TEST REQUESTED BY:

Universal White Cement Inc.

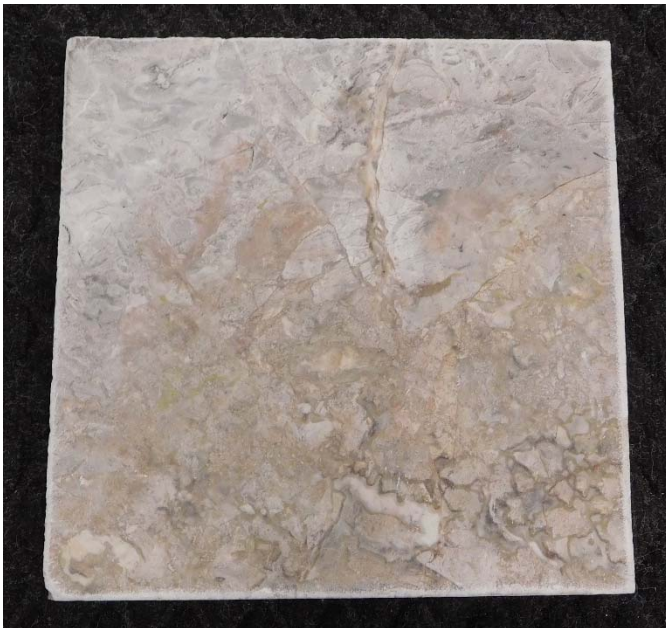
TEST SUBJECT MATERIAL:

Identified by client as: **"Stormy"**

TEST METHOD:

ANSI A137.1-2017 Section 9.6.1: "Wet Dynamic Coefficient of Friction (DCOF)"

IMAGE OF PRODUCT TESTED:





TCNA TEST REPORT NUMBER: TCNA-0376-18 **PAGE:** 3 OF 4

TEST REQUESTED BY: Universal White Cement Inc.

TEST SUBJECT MATERIAL: Identified by client as: “Stormy”

TEST METHOD: ANSI A137.1-2017 Section 9.6.1: “Wet Dynamic Coefficient of Friction (DCOF)”

ANSI SPECIFICATIONS:

According to the ANSI A137.1 standard for ceramic tile, "Unless otherwise specified, tiles suitable for level interior spaces expected to be walked upon when wet shall have a wet DCOF of 0.42 or greater when tested using SLS solution as per the procedure in section 9.6.1. However, tiles with a DCOF of 0.42 or greater are not necessarily suitable for all projects. The specifier shall determine tiles appropriate for specific project conditions, considering by way of example, but not in limitation, type of use, traffic, expected contaminants, expected maintenance, expected wear, and manufacturers' guidelines and recommendations."

This paragraph is excerpted from Section 6.2.2.1.10 of the standard. For the complete section, including necessary information for specifiers, this section can be viewed and downloaded at no cost at http://www.tcnatile.com/images/pdfs/COF_excerpt_from_ANSI_A137.1-2012_release_date_November_2012.pdf

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TCNA TEST REPORT NUMBER:

TCNA-0376-18

PAGE: 4 OF 4

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4/18/2018

Nicole Spandley
Laboratory Engineer



TCNA TEST REPORT NUMBER: TCNA-0376-18

PAGE: 1 OF 4

TEST REQUESTED BY: Universal White Cement Inc.

TEST METHOD: ANSI A137.1-2017 Section 9.6.1: "Wet Dynamic Coefficient of Friction (DCOF)"

Informal Test Method Description: This test method covers the measurement of dynamic coefficient of friction of ceramic tile or other surfaces under the wet condition using the BOT 3000 device.

This summary is provided for the reader's convenience and is not a complete description of the method. See ANSI A137.1 Section 9.6.1 for all method details and information.

TEST SUBJECT MATERIAL: Identified by client as: "Desert Wood"
Approximate Size as Received: 12"x12"
Product Color: Wood/Brown

TEST DATE: 4/17/2018

TEST PROCEDURE NOTES:

- Sample Prep: None
- The tiles were cleaned with Renovator #120 prior to testing.
- Three (3) pieces of tile were tested in all four directions with 10" long measurements.
- The SBR sensor was verified using a standard tile prior to testing. The DCOF measurement on the standard tile was 0.29, within the required range.
- Testing was performed under wet conditions using 0.05% SLS water
- Testing was conducted under laboratory conditions at approximately 70°F and 50% relative humidity using a calibrated BOT 3000E device (calibration due: 8/30/2018).
- After testing the SBR sensor was verified again according to the procedure. The DCOF measurement on the standard tile after testing was 0.28, within the required range.

TEST RESULTS:

The individual and average DCOF data for each tile were as follows:

Direction	Tile 1	Tile 2	Tile 3
Direction 1	0.64	0.64	0.66
Direction 2	0.62	0.63	0.64
Direction 3	0.63	0.63	0.63
Direction 4	0.61	0.65	0.65
Average	0.63	0.64	0.65

COMMENTS: None

TCNA TEST REPORT NUMBER:

TCNA-0376-18

PAGE: 2 OF 4

TEST REQUESTED BY:

Universal White Cement Inc.

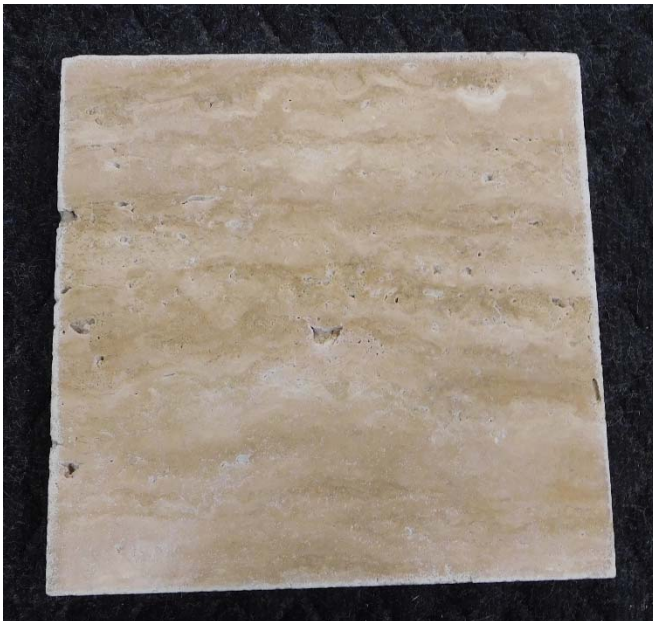
TEST SUBJECT MATERIAL:

Identified by client as: **“Desert Wood”**

TEST METHOD:

ANSI A137.1-2017 Section 9.6.1: “Wet Dynamic Coefficient of Friction (DCOF)”

IMAGE OF PRODUCT TESTED:





TCNA TEST REPORT NUMBER: TCNA-0376-18 **PAGE:** 3 OF 4

TEST REQUESTED BY: Universal White Cement Inc.

TEST SUBJECT MATERIAL: Identified by client as: “Desert Wood”

TEST METHOD: ANSI A137.1-2017 Section 9.6.1: “Wet Dynamic Coefficient of Friction (DCOF)”

ANSI SPECIFICATIONS:

According to the ANSI A137.1 standard for ceramic tile, "Unless otherwise specified, tiles suitable for level interior spaces expected to be walked upon when wet shall have a wet DCOF of 0.42 or greater when tested using SLS solution as per the procedure in section 9.6.1. However, tiles with a DCOF of 0.42 or greater are not necessarily suitable for all projects. The specifier shall determine tiles appropriate for specific project conditions, considering by way of example, but not in limitation, type of use, traffic, expected contaminants, expected maintenance, expected wear, and manufacturers' guidelines and recommendations.”

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TCNA TEST REPORT NUMBER:

TCNA-0376-18

PAGE: 4 OF 4

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4/18/2018

Nicole Spandley
Laboratory Engineer



TCNA TEST REPORT NUMBER: TCNA-0376-18

PAGE: 1 OF 4

TEST REQUESTED BY: Universal White Cement Inc.

TEST METHOD: ANSI A137.1-2017 Section 9.6.1: "Wet Dynamic Coefficient of Friction (DCOF)"

Informal Test Method Description: This test method covers the measurement of dynamic coefficient of friction of ceramic tile or other surfaces under the wet condition using the BOT 3000 device.

This summary is provided for the reader's convenience and is not a complete description of the method. See ANSI A137.1 Section 9.6.1 for all method details and information.

TEST SUBJECT MATERIAL: Identified by client as: "Chocolate"
Approximate Size as Received: 12"x12"
Product Color: Dark Brown

TEST DATE: 4/17/2018

TEST PROCEDURE NOTES:

- Sample Prep: None
- The tiles were cleaned with Renovator #120 prior to testing.
- Three (3) pieces of tile were tested in all four directions with 10" long measurements.
- The SBR sensor was verified using a standard tile prior to testing. The DCOF measurement on the standard tile was 0.31, within the required range.
- Testing was performed under wet conditions using 0.05% SLS water
- Testing was conducted under laboratory conditions at approximately 70°F and 50% relative humidity using a calibrated BOT 3000E device (calibration due: 8/30/2018).
- After testing the SBR sensor was verified again according to the procedure. The DCOF measurement on the standard tile after testing was 0.28, within the required range.

TEST RESULTS:

The individual and average DCOF data for each tile were as follows:

Direction	Tile 1	Tile 2	Tile 3
Direction 1	0.65	0.55	0.65
Direction 2	0.65	0.48	0.67
Direction 3	0.65	0.49	0.65
Direction 4	0.62	0.51	0.65
Average	0.64	0.51	0.66

COMMENTS: None

TCNA TEST REPORT NUMBER: TCNA-0376-18 **PAGE: 2 OF 4**

TEST REQUESTED BY: Universal White Cement Inc.

TEST SUBJECT MATERIAL: Identified by client as: “Chocolate”

TEST METHOD: ANSI A137.1-2017 Section 9.6.1: “Wet Dynamic Coefficient of Friction (DCOF)”

IMAGE OF PRODUCT TESTED:





TCNA TEST REPORT NUMBER: TCNA-0376-18 **PAGE:** 3 OF 4

TEST REQUESTED BY: Universal White Cement Inc.

TEST SUBJECT MATERIAL: Identified by client as: “Chocolate”

TEST METHOD: ANSI A137.1-2017 Section 9.6.1: “Wet Dynamic Coefficient of Friction (DCOF)”

ANSI SPECIFICATIONS:

According to the ANSI A137.1 standard for ceramic tile, "Unless otherwise specified, tiles suitable for level interior spaces expected to be walked upon when wet shall have a wet DCOF of 0.42 or greater when tested using SLS solution as per the procedure in section 9.6.1. However, tiles with a DCOF of 0.42 or greater are not necessarily suitable for all projects. The specifier shall determine tiles appropriate for specific project conditions, considering by way of example, but not in limitation, type of use, traffic, expected contaminants, expected maintenance, expected wear, and manufacturers' guidelines and recommendations.”

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TCNA TEST REPORT NUMBER:

TCNA-0376-18

PAGE: 4 OF 4

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4/18/2018

Nicole Spandley
Laboratory Engineer



TCNA TEST REPORT NUMBER: TCNA-0376-18

PAGE: 1 OF 4

TEST REQUESTED BY: Universal White Cement Inc.

TEST METHOD: ANSI A137.1-2017 Section 9.6.1: "Wet Dynamic Coefficient of Friction (DCOF)"

Informal Test Method Description: This test method covers the measurement of dynamic coefficient of friction of ceramic tile or other surfaces under the wet condition using the BOT 3000 device.

This summary is provided for the reader's convenience and is not a complete description of the method. See ANSI A137.1 Section 9.6.1 for all method details and information.

TEST SUBJECT MATERIAL: Identified by client as: "Sedona"
Approximate Size as Received: 12"x12"
Product Color: Red/Orange

TEST DATE: 4/17/2018

TEST PROCEDURE NOTES:

- Sample Prep: None
- The tiles were cleaned with Renovator #120 prior to testing.
- Three (3) pieces of tile were tested in all four directions with 10" long measurements.
- The SBR sensor was verified using a standard tile prior to testing. The DCOF measurement on the standard tile was 0.30, within the required range.
- Testing was performed under wet conditions using 0.05% SLS water
- Testing was conducted under laboratory conditions at approximately 70°F and 50% relative humidity using a calibrated BOT 3000E device (calibration due: 8/30/2018).
- After testing the SBR sensor was verified again according to the procedure. The DCOF measurement on the standard tile after testing was 0.29, within the required range.

TEST RESULTS:

The individual and average DCOF data for each tile were as follows:

Direction	Tile 1	Tile 2	Tile 3
Direction 1	0.65	0.64	0.66
Direction 2	0.65	0.64	0.63
Direction 3	0.66	0.66	0.69
Direction 4	0.66	0.66	0.67
Average	0.66	0.65	0.66

COMMENTS: None

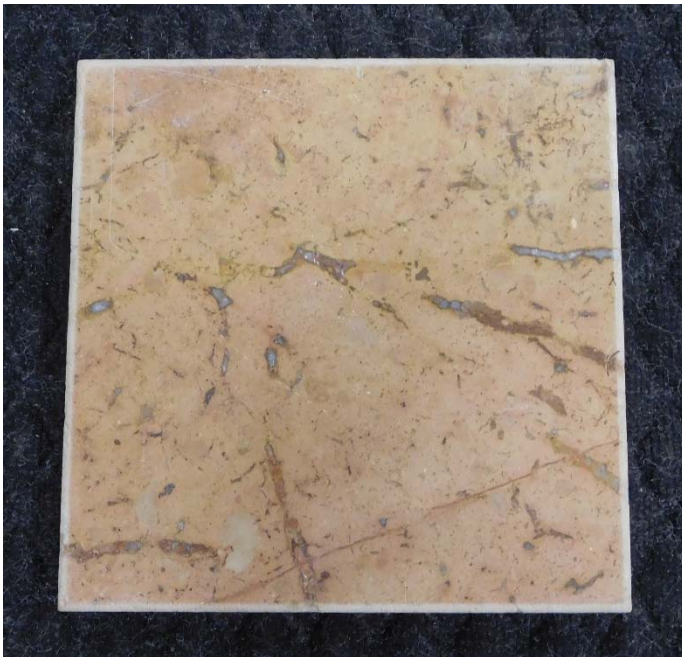
TCNA TEST REPORT NUMBER: TCNA-0376-18 **PAGE:** 2 OF 4

TEST REQUESTED BY: Universal White Cement Inc.

TEST SUBJECT MATERIAL: Identified by client as: “Sedona”

TEST METHOD: ANSI A137.1-2017 Section 9.6.1: “Wet Dynamic Coefficient of Friction (DCOF)”

IMAGE OF PRODUCT TESTED:





TCNA TEST REPORT NUMBER: TCNA-0376-18 **PAGE:** 3 OF 4

TEST REQUESTED BY: Universal White Cement Inc.

TEST SUBJECT MATERIAL: Identified by client as: "Sedona"

TEST METHOD: ANSI A137.1-2017 Section 9.6.1: "Wet Dynamic Coefficient of Friction (DCOF)"

ANSI SPECIFICATIONS:

According to the ANSI A137.1 standard for ceramic tile, "Unless otherwise specified, tiles suitable for level interior spaces expected to be walked upon when wet shall have a wet DCOF of 0.42 or greater when tested using SLS solution as per the procedure in section 9.6.1. However, tiles with a DCOF of 0.42 or greater are not necessarily suitable for all projects. The specifier shall determine tiles appropriate for specific project conditions, considering by way of example, but not in limitation, type of use, traffic, expected contaminants, expected maintenance, expected wear, and manufacturers' guidelines and recommendations."

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PAGE: 4 OF 4

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Nicole Spandley
Laboratory Engineer



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TEST REQUESTED BY: Universal White Cement Inc.

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Informal Test Method Description: This test method covers the measurement of dynamic coefficient of friction of ceramic tile or other surfaces under the wet condition using the BOT 3000 device.

This summary is provided for the reader's convenience and is not a complete description of the method. See ANSI A137.1 Section 9.6.1 for all method details and information.

TEST SUBJECT MATERIAL: Identified by client as: "Sea Shore"
Approximate Size as Received: 12"x12"
Product Color: Light Grey/Shell

TEST DATE: 4/18/2018

TEST PROCEDURE NOTES:

- Sample Prep: None
- The tiles were cleaned with Renovator #120 prior to testing.
- Three (3) pieces of tile were tested in all four directions with 10" long measurements.
- The SBR sensor was verified using a standard tile prior to testing. The DCOF measurement on the standard tile was 0.29, within the required range.
- Testing was performed under wet conditions using 0.05% SLS water
- Testing was conducted under laboratory conditions at approximately 70°F and 50% relative humidity using a calibrated BOT 3000E device (calibration due: 8/30/2018).
- After testing the SBR sensor was verified again according to the procedure. The DCOF measurement on the standard tile after testing was 0.31, within the required range.

TEST RESULTS:

The individual and average DCOF data for each tile were as follows:

Direction	Tile 1	Tile 2	Tile 3
Direction 1	0.64	0.66	0.63
Direction 2	0.65	0.66	0.64
Direction 3	0.67	0.66	0.66
Direction 4	0.68	0.66	0.66
Average	0.66	0.66	0.65

COMMENTS: None

TCNA TEST REPORT NUMBER:

TCNA-0376-18

PAGE: 2 OF 4

TEST REQUESTED BY:

Universal White Cement Inc.

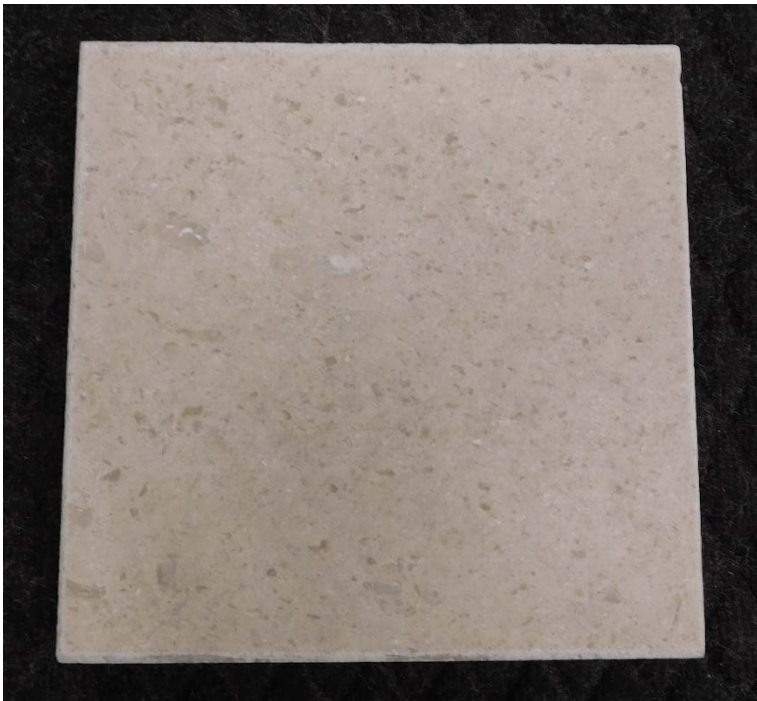
TEST SUBJECT MATERIAL:

Identified by client as: "Sea Shore"

TEST METHOD:

ANSI A137.1-2017 Section 9.6.1: "Wet Dynamic Coefficient of Friction (DCOF)"

IMAGE OF PRODUCT TESTED:





TCNA TEST REPORT NUMBER: TCNA-0376-18 **PAGE:** 3 OF 4

TEST REQUESTED BY: Universal White Cement Inc.

TEST SUBJECT MATERIAL: Identified by client as: "Sea Shore"

TEST METHOD: ANSI A137.1-2017 Section 9.6.1: "Wet Dynamic Coefficient of Friction (DCOF)"

ANSI SPECIFICATIONS:

According to the ANSI A137.1 standard for ceramic tile, "Unless otherwise specified, tiles suitable for level interior spaces expected to be walked upon when wet shall have a wet DCOF of 0.42 or greater when tested using SLS solution as per the procedure in section 9.6.1. However, tiles with a DCOF of 0.42 or greater are not necessarily suitable for all projects. The specifier shall determine tiles appropriate for specific project conditions, considering by way of example, but not in limitation, type of use, traffic, expected contaminants, expected maintenance, expected wear, and manufacturers' guidelines and recommendations."

This paragraph is excerpted from Section 6.2.2.1.10 of the standard. For the complete section, including necessary information for specifiers, this section can be viewed and downloaded at no cost at http://www.tcnatile.com/images/pdfs/COF_excerpt_from_ANSI_A137.1-2012_release_date_November_2012.pdf

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TCNA TEST REPORT NUMBER:

TCNA-0376-18

PAGE: 4 OF 4

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4/18/2018

Nicole Spandley
Laboratory Engineer



**TCNA TEST REPORT NUMBER:** TCNA-0376-18**PAGE:** 1 OF 4**TEST REQUESTED BY:** Universal White Cement Inc.**TEST METHOD:** ANSI A137.1-2017 Section 9.6.1: "Wet Dynamic Coefficient of Friction (DCOF)"

Informal Test Method Description: This test method covers the measurement of dynamic coefficient of friction of ceramic tile or other surfaces under the wet condition using the BOT 3000 device.

This summary is provided for the reader's convenience and is not a complete description of the method. See ANSI A137.1 Section 9.6.1 for all method details and information.

TEST SUBJECT MATERIAL: Identified by client as: "Cream"
Approximate Size as Received: 12"x12"
Product Color: Tan/Cream

TEST DATE: 4/18/2018**TEST PROCEDURE NOTES:**

- Sample Prep: None
- The tiles were cleaned with Renovator #120 prior to testing.
- Three (3) pieces of tile were tested in all four directions with 10" long measurements.
- The SBR sensor was verified using a standard tile prior to testing. The DCOF measurement on the standard tile was 0.29, within the required range.
- Testing was performed under wet conditions using 0.05% SLS water
- Testing was conducted under laboratory conditions at approximately 70°F and 50% relative humidity using a calibrated BOT 3000E device (calibration due: 8/30/2018).
- After testing the SBR sensor was verified again according to the procedure. The DCOF measurement on the standard tile after testing was 0.30, within the required range.

TEST RESULTS:

The individual and average DCOF data for each tile were as follows:

Direction	Tile 1	Tile 2	Tile 3
Direction 1	0.63	0.66	0.65
Direction 2	0.64	0.66	0.64
Direction 3	0.65	0.67	0.67
Direction 4	0.66	0.69	0.67
Average	0.65	0.67	0.66

COMMENTS: None

TCNA TEST REPORT NUMBER:

TCNA-0376-18

PAGE: 2 OF 4

TEST REQUESTED BY:

Universal White Cement Inc.

TEST SUBJECT MATERIAL:

Identified by client as: **"Cream"**

TEST METHOD:

ANSI A137.1-2017 Section 9.6.1: "Wet Dynamic Coefficient of Friction (DCOF)"

IMAGE OF PRODUCT TESTED:





TCNA TEST REPORT NUMBER: TCNA-0376-18 **PAGE:** 3 OF 4

TEST REQUESTED BY: Universal White Cement Inc.

TEST SUBJECT MATERIAL: Identified by client as: "Cream"

TEST METHOD: ANSI A137.1-2017 Section 9.6.1: "Wet Dynamic Coefficient of Friction (DCOF)"

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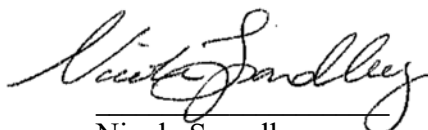
TCNA-0376-18

PAGE: 4 OF 4

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