

SOTTER ENGINEERING CORPORATION
Floor Slip Resistance Consultants

26705 Loma Verde, Mission Viejo, CA 92691
Telephone: 949-582-0889 FAX: 949-916-2193
Email: info@SafetyDirectAmerica.com
www.SafetyDirectAmerica.com

*Licensed by the State of California
Board of Professional Engineers
And Land Surveyors*

*Certified by the City of Los Angeles
as an official slip resistance testing
laboratory for flooring*

CERTIFIED

ANSI A137.1/A326.3 Flooring Slip Resistance Test Results

Client: **S-One Holdings Corporation**

Report date: 4/28/2020

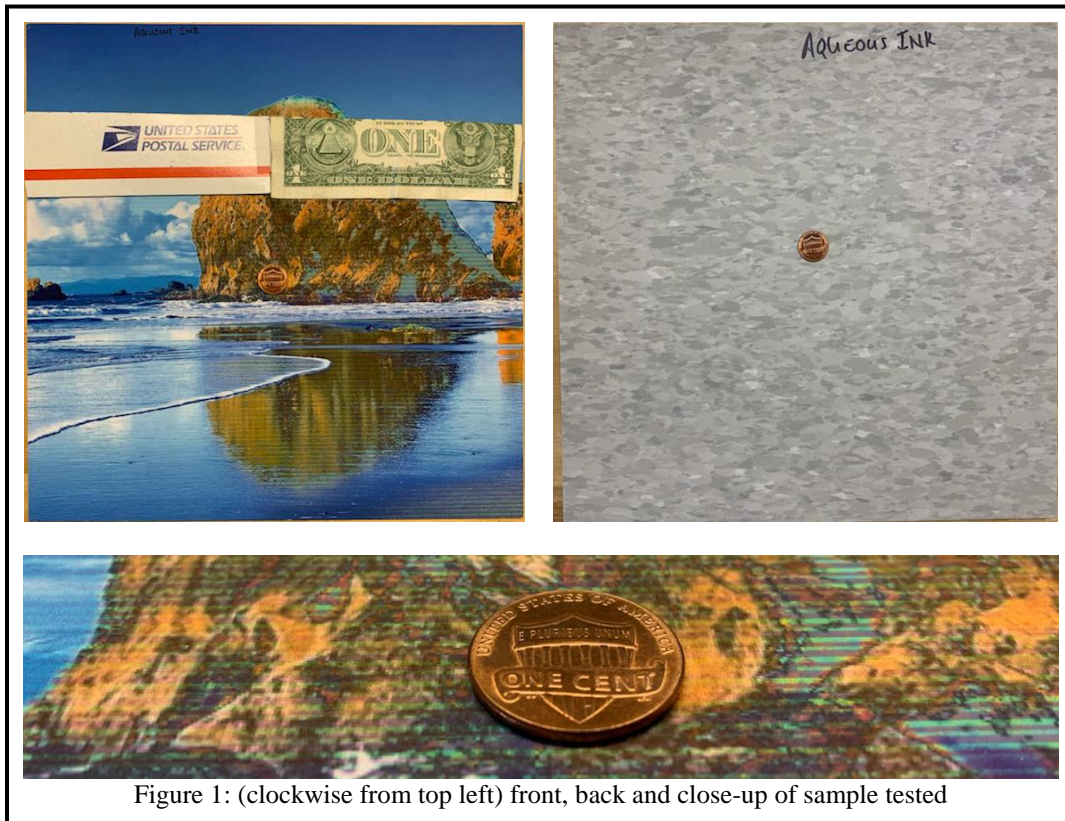
Flooring: **Aqueous Ink - 6 mil woven polyester fabric**

Page 1 of 3

Test no.: 2004-2822

Date tested: 4/28/20

Figure 1 shows (one of) the sample(s). Red, green, blue, and white color references are included, with a U.S. penny (1/16 inch thick) for scale. The back of the sample is included to aid in positive identification.



Flooring: **Aqueous Ink - 6 mil woven polyester fabric**

ANSI A137.1/A326.3 Dynamic Coefficient of Friction Test

The American National Standards Institute (ANSI) published the A137.1-2012 American National Standard test for measuring dynamic coefficient of friction (DCOF) of common hard-surface indoor level floor materials in 2012. This ANSI standard was incorporated as a requirement in “Section 2103.6 Ceramic Tile” of the 2012 International Building Code published by the International Code Council. (It was removed for the next edition in 2015.) That section states that “Ceramic tile shall be defined in, and shall conform to the requirements of, ANSI A137.1.” ANSI published A326.3 in 2017, which uses the same test method as A137.1, but allows for flooring other than ceramic tile to be tested, adds some disclaimers, and describes the method for testing in the field.

Average Dynamic Coefficient of Friction (DCOF), cleaned with Renovator #120, and tested with BOT-3000E digital tribometer using SBR rubber slider and 0.05% SLS water solution:

Area #1 Wet: 0.80, 0.81, 0.79, 0.80; Avg. = 0.80

Area #2 Wet: 0.79, 0.80, 0.78, 0.79; Avg. = 0.79

Area #3 Wet: 0.76, 0.77, 0.77, 0.76; Avg. = 0.77

Overall average: Wet: 0.79

T = 74 degrees F; Relative humidity = 62%; BOT recalibration due July 31, 2020

BOT-3000E strain gauge verified on day of test.

ANSI A326.3: DCOF on validation surface (10.1.7) before/after testing and whether in range: passed/passed

High dynamic coefficient of friction values indicate potentially good traction. The ANSI A137.1 standard, Section 6.2.2.1.10, states that

“Unless otherwise specified, tiles suitable for **level interior spaces expected to be walked upon 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.

“... The presence on installed tiles of water, oil, grease, and/or any other elements which reduce traction, creates slippery conditions ... Tile installations with exposure to such elements require extra caution in product selection, use, and maintenance. ... When tested using SLS solution as per the procedure in Section 9.6.1, tiles with a wet DCOF of less than 0.42 shall only be installed when the surface will be kept dry when walked upon and proper safety procedures will be followed when cleaning the tiles.”

*This test report shall not be reproduced, except in full,
without the written approval of Sotter Engineering Corporation*

ANSI A326.3 states, “The coefficient of friction (COF) measurement provided in this standard is an evaluation of hard surface flooring materials under known conditions using a standardized sensor material prepared according to a specific protocol. As such **it can provide a useful comparison of surfaces, but does not predict the likelihood a person will or will not slip on a hard surface flooring material.**”

This standard has no recommendations for outdoor floors or for ramps.

Respectfully submitted,
SOTTER ENGINEERING CORPORATION



J. George Sotter, P.E., Ph.D.
President



SOTTER ENGINEERING CORPORATION
Floor Slip Resistance Consultants

26705 Loma Verde, Mission Viejo, CA 92691
Telephone: 949-582-0889 FAX: 949-916-2193
Email: info@SafetyDirectAmerica.com
www.SafetyDirectAmerica.com

*Licensed by the State of California
Board of Professional Engineers
And Land Surveyors*

*Certified by the City of Los Angeles
as an official slip resistance testing
laboratory for flooring*

CERTIFIED

ANSI A137.1/A326.3 Flooring Slip Resistance Test Results

Client: **S-One Holdings Corporation**

Report date: 4/28/2020

Flooring: **Coated 6 mil woven polyester fabric**

Page 1 of 3

Test no.: 2004-2821

Date tested: 4/28/20

Figure 1 shows (one of) the sample(s). Red, green, blue, and white color references are included, with a U.S. penny (1/16 inch thick) for scale. The back of the sample is included to aid in positive identification.

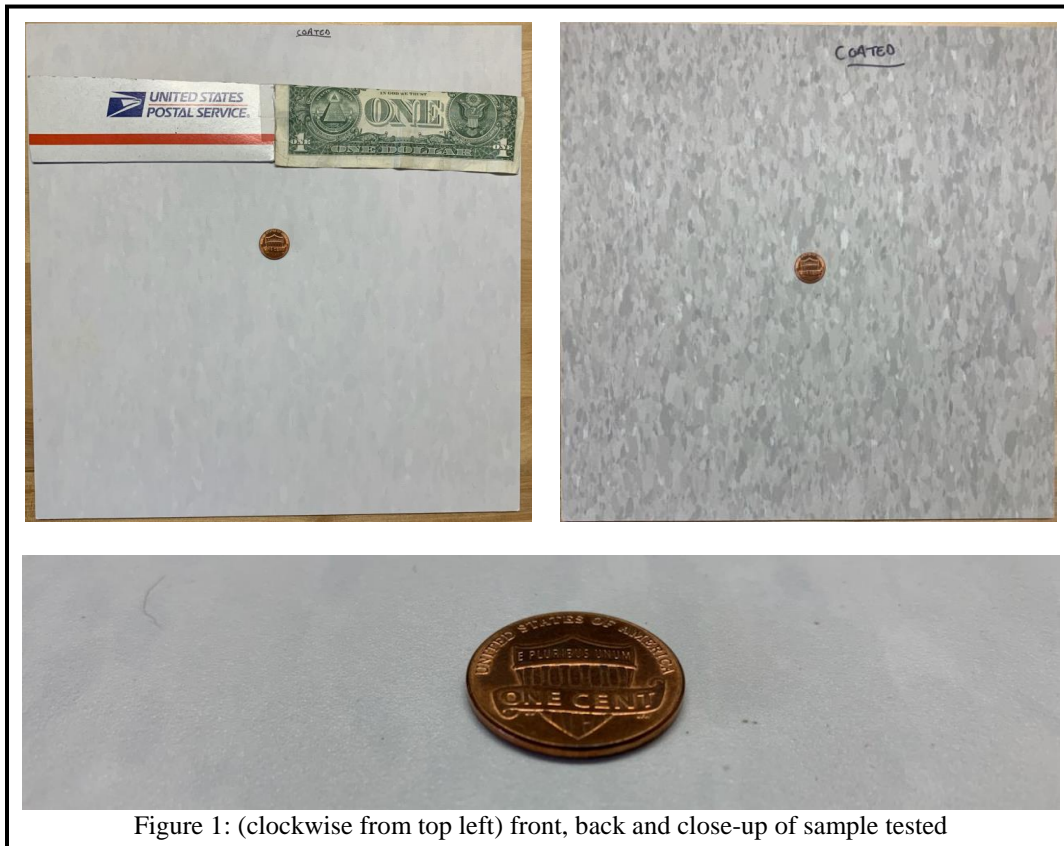


Figure 1: (clockwise from top left) front, back and close-up of sample tested

*This test report shall not be reproduced, except in full,
without the written approval of Sotter Engineering Corporation*
Page 1 of 3

Flooring: **Coated 6 mil woven polyester fabric**

ANSI A137.1/A326.3 Dynamic Coefficient of Friction Test

The American National Standards Institute (ANSI) published the A137.1-2012 American National Standard test for measuring dynamic coefficient of friction (DCOF) of common hard-surface indoor level floor materials in 2012. This ANSI standard was incorporated as a requirement in “Section 2103.6 Ceramic Tile” of the 2012 International Building Code published by the International Code Council. (It was removed for the next edition in 2015.) That section states that “Ceramic tile shall be defined in, and shall conform to the requirements of, ANSI A137.1.” ANSI published A326.3 in 2017, which uses the same test method as A137.1, but allows for flooring other than ceramic tile to be tested, adds some disclaimers, and describes the method for testing in the field.

Average Dynamic Coefficient of Friction (DCOF), cleaned with Renovator #120, and tested with BOT-3000E digital tribometer using SBR rubber slider and 0.05% SLS water solution:

Area #1 Wet: 0.45, 0.43, 0.43, 0.44; **Avg. = 0.44**

Area #2 Wet: 0.54, 0.46, 0.49, 0.49; **Avg. = 0.49**

Area #3 Wet: 0.49, 0.46, 0.47, 0.46; **Avg. = 0.47**

Overall average: Wet: 0.47

T = 74 degrees F; Relative humidity = 62%; BOT recalibration due July 31, 2020

BOT-3000E strain gauge verified on day of test.

ANSI A326.3: DCOF on validation surface (10.1.7) before/after testing and whether in range: passed/passed

High dynamic coefficient of friction values indicate potentially good traction. The ANSI A137.1 standard, Section 6.2.2.1.10, states that

“Unless otherwise specified, tiles suitable for **level interior spaces expected to be walked upon 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.

“... The presence on installed tiles of water, oil, grease, and/or any other elements which reduce traction, creates slippery conditions ... Tile installations with exposure to such elements require extra caution in product selection, use, and maintenance. ... When tested using SLS solution as per the procedure in Section 9.6.1, tiles with a wet DCOF of less than 0.42 shall only be installed when the surface will be kept dry when walked upon and proper safety procedures will be followed when cleaning the tiles.”

*This test report shall not be reproduced, except in full,
without the written approval of Sotter Engineering Corporation*

ANSI A326.3 states, “The coefficient of friction (COF) measurement provided in this standard is an evaluation of hard surface flooring materials under known conditions using a standardized sensor material prepared according to a specific protocol. As such **it can provide a useful comparison of surfaces, but does not predict the likelihood a person will or will not slip on a hard surface flooring material.**”

This standard has no recommendations for outdoor floors or for ramps.

Respectfully submitted,
SOTTER ENGINEERING CORPORATION



J. George Sotter, P.E., Ph.D.
President



SOTTER ENGINEERING CORPORATION
Floor Slip Resistance Consultants

26705 Loma Verde, Mission Viejo, CA 92691
Telephone: 949-582-0889 FAX: 949-916-2193
Email: info@SafetyDirectAmerica.com
www.SafetyDirectAmerica.com

*Licensed by the State of California
Board of Professional Engineers
And Land Surveyors*

*Certified by the City of Los Angeles
as an official slip resistance testing
laboratory for flooring*

CERTIFIED

ANSI A137.1/A326.3 Flooring Slip Resistance Test Results

Client: **S-One Holdings Corporation**

Report date: 4/28/2020

Flooring: **Latex Ink - 6 mil woven polyester fabric**

Page 1 of 3

Test no.: 2004-2823

Date tested: 4/28/20

Figure 1 shows (one of) the sample(s). Red, green, blue, and white color references are included, with a U.S. penny (1/16 inch thick) for scale. The back of the sample is included to aid in positive identification.

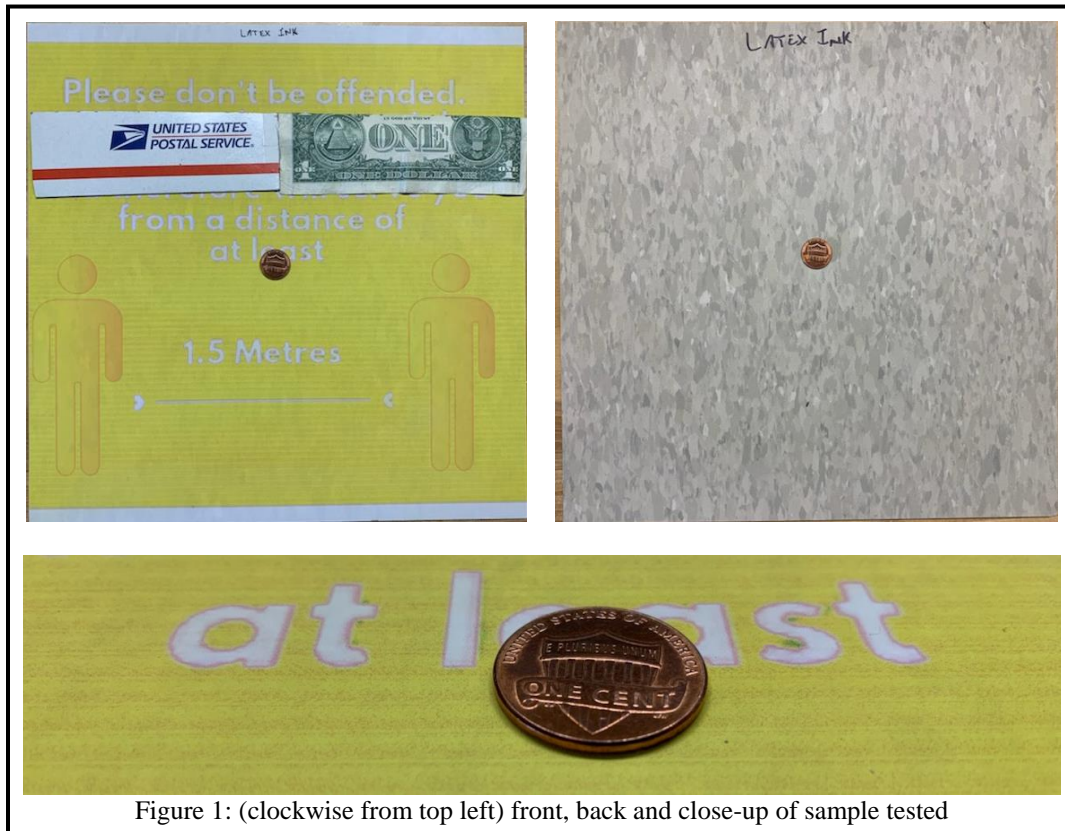


Figure 1: (clockwise from top left) front, back and close-up of sample tested

Flooring: **Latex Ink - 6 mil woven polyester fabric**

ANSI A137.1/A326.3 Dynamic Coefficient of Friction Test

The American National Standards Institute (ANSI) published the A137.1-2012 American National Standard test for measuring dynamic coefficient of friction (DCOF) of common hard-surface indoor level floor materials in 2012. This ANSI standard was incorporated as a requirement in “Section 2103.6 Ceramic Tile” of the 2012 International Building Code published by the International Code Council. (It was removed for the next edition in 2015.) That section states that “Ceramic tile shall be defined in, and shall conform to the requirements of, ANSI A137.1.” ANSI published A326.3 in 2017, which uses the same test method as A137.1, but allows for flooring other than ceramic tile to be tested, adds some disclaimers, and describes the method for testing in the field.

Average Dynamic Coefficient of Friction (DCOF), cleaned with Renovator #120, and tested with BOT-3000E digital tribometer using SBR rubber slider and 0.05% SLS water solution:

Area #1 Wet: 0.77, 0.77, 0.74, 0.73; Avg. = 0.75

Area #2 Wet: 0.77, 0.78, 0.76, 0.77; Avg. = 0.77

Area #3 Wet: 0.71, 0.72, 0.75, 0.73; Avg. = 0.73

Overall average: Wet: 0.75

T = 74 degrees F; Relative humidity = 62%; BOT recalibration due July 31, 2020

BOT-3000E strain gauge verified on day of test.

ANSI A326.3: DCOF on validation surface (10.1.7) before/after testing and whether in range: passed/passed

High dynamic coefficient of friction values indicate potentially good traction. The ANSI A137.1 standard, Section 6.2.2.1.10, states that

“Unless otherwise specified, tiles suitable for **level interior spaces expected to be walked upon 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.

“... The presence on installed tiles of water, oil, grease, and/or any other elements which reduce traction, creates slippery conditions ... Tile installations with exposure to such elements require extra caution in product selection, use, and maintenance. ... When tested using SLS solution as per the procedure in Section 9.6.1, tiles with a wet DCOF of less than 0.42 shall only be installed when the surface will be kept dry when walked upon and proper safety procedures will be followed when cleaning the tiles.”

*This test report shall not be reproduced, except in full,
without the written approval of Sotter Engineering Corporation*

ANSI A326.3 states, “The coefficient of friction (COF) measurement provided in this standard is an evaluation of hard surface flooring materials under known conditions using a standardized sensor material prepared according to a specific protocol. As such **it can provide a useful comparison of surfaces, but does not predict the likelihood a person will or will not slip on a hard surface flooring material.**”

This standard has no recommendations for outdoor floors or for ramps.

Respectfully submitted,
SOTTER ENGINEERING CORPORATION



J. George Sotter, P.E., Ph.D.
President

