

TorTestSM Floor Friction Testing Service
SOTTER ENGINEERING CORPORATION
Consultants

26705 Loma Verde, Mission Viejo, CA 92691
Telephone: 949-582-0889 FAX: 949-916-2193

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

*Approved by the City of Los Angeles
for testing slip resistance of flooring*

**Dynamic Slip Resistance using
ASTM E303-93 (2013) Pendulum Test Method**

Client: **Tile Tech Inc.** Report date: 3/14/17
 Flooring: **Porce Plank - Porcelain Pavers**
 Page 1 of 1 Sample no.: 1703-1322 Date tested: 3/13/17
 How and when sample obtained: Supplied by client 3/9/17
 Location of test: Sotter Engineering Test Laboratory in Mission Viejo, CA
 Type, age, condition, and texture of surface: paver, new, clean, rough
 Post-test free swing: 0 Age of TRL slider: 1 month Surface Temperature: 70°F

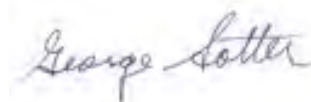
American Society for Testing and Materials Method E303-93 (2013), "Standard Test Method for Measuring Surface Frictional Properties Using the British Pendulum Tester" (astm.org) The trailing edge of a three-inch-wide spring-loaded slider, which is attached to the end of a 20-inch pendulum, contacts the tested surface when the pendulum is released from a horizontal position. The slider contact path length is pre-set to five inches. The pendulum pushes a pointer that stops and stays at the high point of the pendulum's swing. For road-related testing, the slider is usually TRL (Transport & Road Laboratory) soft rubber.

Higher Pendulum Test Values (PTV) indicate increased friction. For reference only, with TRL rubber the PTV of wet #60 grade silicon carbide abrasive cloth at normal room temperature is approximately 57. For clear wet float glass it is 8.

Average Wet PTV with TRL (soft) rubber: 44
 Individual PTV values: 44, 44, 44, 44

High Pendulum Test Values indicate potentially good traction. **The Ceramic Tile Institute of America recommends a minimum pendulum test value of 36 for level floors.** Slip resistance can be affected by factors such as floor coatings, abrasives, detergents, contamination, chemical treatments, and wear. Values of 25-35 are classed as "moderate slip potential". Values of 0-24 have "high slip potential".

Respectfully submitted,
SOTTER ENGINEERING CORPORATION



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



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**Dynamic Slip Resistance using
ASTM E303-93 (2013) Pendulum Test Method**

Client: Tile Tech Inc.	Report date: 3/14/17
Flooring: Porce Rustica – Porcelain Pavers	
Page 1 of 1 Sample no.: 1703-1323	Date tested: 3/13/17
How and when sample obtained: Supplied by client 3/9/17	
Location of test: Sotter Engineering Test Laboratory in Mission Viejo, CA	
Type, age, condition, and texture of surface: paver, new, clean, rough	
Post-test free swing: 0	Age of TRL slider: 1 month Surface Temperature: 70°F

American Society for Testing and Materials Method E303-93 (2013), "Standard Test Method for Measuring Surface Frictional Properties Using the British Pendulum Tester" (astm.org) The trailing edge of a three-inch-wide spring-loaded slider, which is attached to the end of a 20-inch pendulum, contacts the tested surface when the pendulum is released from a horizontal position. The slider contact path length is pre-set to five inches. The pendulum pushes a pointer that stops and stays at the high point of the pendulum's swing. For road-related testing, the slider is usually TRL (Transport & Road Laboratory) soft rubber.

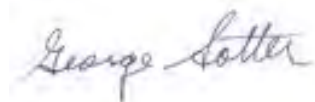
Higher Pendulum Test Values (PTV) indicate increased friction. For reference only, with TRL rubber the PTV of wet #60 grade silicon carbide abrasive cloth at normal room temperature is approximately 57. For clear wet float glass it is 8.

Average Wet PTV with TRL (soft) rubber: 60

Individual PTV values: 59, 60, 60, 60

High Pendulum Test Values indicate potentially good traction. **The Ceramic Tile Institute of America recommends a minimum pendulum test value of 36 for level floors.** Slip resistance can be affected by factors such as floor coatings, abrasives, detergents, contamination, chemical treatments, and wear. Values of 25-35 are classed as "moderate slip potential". Values of 024 have "high slip potential".

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**Dynamic Slip Resistance using
ASTM E303-93 (2013) Pendulum Test Method**

Client: Tile Tech Inc.	Report date: 3/14/17
Flooring: Porce Stone – Porcelain Pavers	
Page 1 of 1 Sample no.: 1703-1321	Date tested: 3/13/17
How and when sample obtained: Supplied by client 3/9/17	
Location of test: Sotter Engineering Test Laboratory in Mission Viejo, CA	
Type, age, condition, and texture of surface: paver, new, clean, bumpy	
Post-test free swing: 0	Age of TRL slider: 1 month Surface Temperature: 70°F

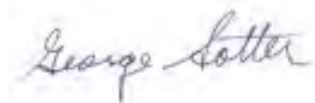
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Higher Pendulum Test Values (PTV) indicate increased friction. For reference only, with TRL rubber the PTV of wet #60 grade silicon carbide abrasive cloth at normal room temperature is approximately 57. For clear wet float glass it is 8.

Average Wet PTV with TRL (soft) rubber: 50
Individual PTV values: 51, 50, 50, 49

High Pendulum Test Values indicate potentially good traction. **The Ceramic Tile Institute of America recommends a minimum pendulum test value of 36 for level floors.** Slip resistance can be affected by factors such as floor coatings, abrasives, detergents, contamination, chemical treatments, and wear. Values of 25-35 are classed as "moderate slip potential". Values of 0-24 have "high slip potential".

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