

Dynamic Coefficient of Friction using Pendulum Method

Client Deco Park Date 9/25/02

Location 3617 W. MacArthur Santa Ana Slider material: Four S X TRRL _____

Flooring tested Deco Park Ambient temp., °C 21

Peak-to-valley surface roughness of the test area (random directions), microns

29.0	61.1	47.6	73.4	55.3	44.4	48.2	37.9	45.2	54.3
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Ignore first three readings in each direction, then record five:

Condition	Orientation	1	2	3	4	5	Median
Dry	Parallel	64.5	63.0	64.0	63.5	63.5	63.5
	Perpendicular	66.0	66.0	65.5	65.0	65.0	65.5
	Diagonal	65.0	66.0	66.0	64.0	65.0	65.0
Wet with water	Parallel	41.0	41.5	40.5	40.0	39.5	40.5
	Perpendicular	39.5	40.0	40.0	39.0	39.0	39.0
	Diagonal	42.0	42.0	40.0	40.0	40.0	40.0

Averages: Roughness, microns 50 Dry BPN 65 Wet BPN 40

Method

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 peak-to-valley mean surface roughness of the floor determines method of preconditioning the slider for the test. The pendulum pushes a pointer that stops and stays at the high point of the pendulum's swing. For areas where footwear is worn, the slider material is usually Four S (Standard Shoe Simulating) rubber. Fifteen pendulum readings result in a dry average, and another fifteen readings in a wet average, for BPN, the British Pendulum Number.

Interpretation of Results

The Ceramic Tile Institute of America, Culver City, CA, endorses the pendulum method for evaluating slip resistance of flooring. The table below aids in interpreting the numerical results for the case of a surface that becomes wet with water. In areas where footwear is worn, a minimum BPN of 35 is recommended when using a Four S rubber slider. For barefoot areas where people may be running, a TRRL rubber slider is appropriate and a minimum BPN of 35 is recommended. Please contact Safety Direct America or Ceramic Tile Institute of America for further information on pedestrian slip resistance.

Reference Values for areas where footwear is worn

Slider material > Potential for slip	Pendulum number	
	Four S rubber	TRRL rubber
High	Less than 25	Less than 19
Moderate	25-35	20-39
Low	<u>35-65</u>	40-74
Extremely low	Over 65	Over 75

Operator [Signature]
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