

CERTIFICATE of ASSESSMENT



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Corresponding report number:

02197-23/2191

Authorised by:

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Sample specimen(s) referenced as:

Anti-Slip Shower Tray SP01-2000223

Test procedure(s) in accordance with:

BS EN 16165:2021—Annex C.
Determination of slip resistance of pedestrian surfaces - Methods of evaluation
UKSRG Guidelines-5:2016
The assessment of floor slip resistance.

ASSESSMENT

Scope

National Testing Services Limited were commissioned by Just Trays Limited to determine the **Pendulum Test Value (PTV)** of the following sample specimens, referenced as:

◆ **NTS24544, Anti-Slip Shower Tray SP01-2000223**

Pendulum slip tests were therefore undertaken using standard HSE techniques in accordance with BS EN 16165:2021-Annex C, and the UK Slip Resistance Guidelines (UKSRG) - Issue 5:2016, where appropriate. For each individual area, tests were originally carried out in dry and wet "as-found surface conditions using a calibrated Pendulum tester, use **rubber slider 55/57** which is used to simulate the softer sole of a trainer or "flip-flop" type shoe and is also used as a substitute for skin when evaluating barefoot areas and a Surtronic micro-roughness tester.

Testing in wet surface conditions was completed using potable water applied by a hand-held sprayer. It was assumed that this type of contamination would be representative of the worst-case scenario encountered by pedestrian users of the area. No cleaning of the surfaces was carried out by the testing technician prior to testing in the "as-found" condition.

PTV Assessment Results

DETERMINATION OF PENDULUM TEST VALUE IN ACCORDANCE WITH BS EN 16165:2021-ANNEX C AND THE UK SLIP RESISTANCE GROUP GUIDELINES, ISSUE 5:2016								
Description of sample specimen(s) and type of slider used.	Surface		Temp (°)	Test Direction	PTV ₂₀	Max. Floor Gradient (°)	Slope Corrected Values (Based on Max. Floor Gradient)	
	Condition	Contamination					Slip Potential (Each Direction)	Overall Classification (Based on Lowest Direction)
NTS24544, Anti-Slip Shower Tray SP01-2000223	As found conditions, no cleaning carried out prior to test.	Dry Surface	18.8°	A*	94	N/A	Low	LOW PTV = 90 ≥ 1 in 1,000,000 users.
				B*	93		Low	
				C*	90		Low	
				D*	N/A		N/A	
	Wet with potable water			A*	47	N/A	Low	LOW PTV = 47 ≥ 1 in 1,000,000 users.
				B*	48		Low	
				C*	50		Low	
				D*	N/A		N/A	

PTV - Table Key

Test Direction A = 0° parallel to the principle direction (along length)
 Test Direction B = 90° to same
 Test Direction C = 45° to same
 Test Direction D = only applicable to surfaces with a raised geometric surface, when tested using the Pendulum.
 Not tested due to either space restrictions due to design, or direction not applicable or wet weather surface conditions.
 When considering the Pendulum Test Value (PTV) and slip potential results, care should be taken when interpreting results that are close to the boundaries of the categories. Current UKSRG Guidelines-5:2016 suggests that the slip potential presented by a floor with a PTV of 35 is not significantly different from one with a PTV of 37. However, the slip potential presented by a floor with a PTV of 23 is considerably higher than one with a PTV of 26, when considering the biomechanical data currently available.
 Current UKSRG guidelines-5:2016 suggests that the reading in the direction that gives the lowest PTV is likely to indicate the lowest slip resistance that a pedestrian would experience when walking at different angles and so should be considered when assessing the slip potential and design of any in-situ surface materials.
 In accordance with current UKSRG guidelines-5:2016 the risk ratios and results above are based on the basic condition of a reasonably active pedestrian aged between 18-60 years, walking in a straight line at moderate pace, not rushing, turning, carrying, pushing or pulling a load. Moving away from this basic condition creates additional risks to users of the area and therefore increases slip potential. If such risks are identified then the likelihood of a slip accident occurring is even higher than stated.

Interpretation of Results

Pendulum results should be interpreted using the information reproduced in Table 1 (from UKSRG, 2011).

Table 1 Slip potential classification, based on pendulum test values (PTV)

Table 1 - Slip potential classification	PTV
High slip potential	0 - 24
Moderate slip potential	25 - 35
Low slip potential	35 +

*Assessing the slip resistance of flooring - GEIS2. Available at: <https://www.hse.gov.uk/pubns/geis2.pdf> (Accessed: April 18, 2023).

Surface microroughness Assessment Results

Surface Roughness (Rz) Readings IN ACCORDANCE WITH THE UK SLIP RESISTANCE GROUP GUIDELINES, ISSUE 5:2016	MEAN
NTS24544, Anti-Slip Shower Tray SP01-200022	24.7 µm

Interpretation or surface microroughness

When surface microroughness data is used to supplement pendulum test data, the roughness results should be interpreted using the information reproduced in Table 2 (from UKSRG, 2011). Where only roughness data is available, use it in conjunction with the Slips Assessment Tool (SAT) detailed below.

Table 2 Slip potential classification, based on Rz microroughness values (applicable for water-wet pedestrian areas)

Table 2 - Rz surface roughness	Slip Potential
Below 10 µm	High
10 - 20 µm	Moderate
20 + µm	Low

*Assessing the slip resistance of flooring - GEIS2. Available at: <https://www.hse.gov.uk/pubns/geis2.pdf> (Accessed: April 18, 2023).