

# Pendulum Slip Test Report

Test conducted by: **Gripdoctors Ltd.,**

Test conducted in-house: Unit 5 Block 2, Ballyboggan Business Centre, Ballyboggan Road, Dubin D11 H0KF

Test date: 07/03/2024

Test report date: 07/03/2024

Prepared for: **Vincent Igoe**

Test carried out according to standard: **EN BS 7976:2**

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**MEAN PENDULUM TEST RESULTS:**

Sample: Quartz Broadcast Lava 20



DRY: 66 PTV; WET: 64 PTV

Surface temperature: 17°C; Surface level: 0°

Sufficient water was applied to the tested surfaces to simulate a spill according to the manufacturer of the testing equipment, and the UK Slip Resistance Group Guidelines issue 5 / 2016 for wet testing.

All surfaces tested with slider **#96 4S** for shod pedestrian traffic.

A slip potential classification for pedestrians walking in straight line on a level surface can then be applied using the following table from the UKSRG Guidelines and the HSA:

### **Pendulum Test Values interpretation on level surfaces**

24 PTV and below = HIGH SLIP RISK

25 PTV-35 PTV = MODERATE SLIP RISK

36 PTV and above = LOW SLIP RISK

### **Probabilities of slip per PTV value:**

20 PTV = 1 in 2 probability of a slip;

24 PTV = 1 in 20 probability of a slip;

27 PTV = 1 in 200 probabilities of a slip;

36 PTV = 1 in 1 000 000 probabilities of a slip;

**FULL PENDULUM SLIP TEST RESULTS:**

Sample: Quartz Broadcast Lava 20



Condition	Direction of test	Pendulum Test Values					Mean PTV	Slip Risk Classification
		Slider #96 4S for shod pedestrians						
DRY	principal	65	66	66	66	66	66	Low
	90° to principal	65	66	66	66	66	66	Low
	45° to principal	66	66	66	66	66	66	Low
WET	principal	65	64	64	64	64	64	Low
	90° to principal	65	65	64	64	64	64	Low
	45° to principal	65	64	64	64	64	64	Low

### **Theory:**

Theory Research carried out by the Health & Safety Laboratory, in conjunction with the UK Slip Resistance Group (UKSRG) has shown that it is possible to assess the characteristics of floor surface materials needed for satisfactory slip resistance.

The Health and Safety Laboratory has developed a reliable and robust test method that forms the basis of **GripDoctors Limited** report procedure.

The Pendulum Dynamic Coefficient Of Friction test forms the basis of the measurement of a floor. A calibrated "foot" swings from a horizontal point of release, strikes the flooring surface for a known distance then reads the "pendulum test value" on it's over swing.

The rubber slider that contacts the floor is constructed of "4S" #96 rubber (standard simulated shoe sole) and is designed to replicate the most common slipping motion experienced by shod pedestrians or TRRL rubber #55 for bare feet pedestrians. Pendulum testing is one of the few methods that model the formation of a hydrodynamic squeeze film between the floor and shoe sole, a major factor in a wet slip.

### **Method:**

#### **BS 7976-2:2002 - Pendulum Testers, Method of Operation**

#### **PTV Slip Potential**

Test carried out using slider #96 4S- for shod pedestrian surfaces.

Coefficient of dynamic friction measurement is carried out in accordance with EN BS 7976 and BS 8204 standard for resin flooring and the UK Slip Resistance Group Guidelines issue 5/2016.

A prepared standard rubber slider attached to a weighted 'shoe' is allowed to swing from a horizontal point of release. The slider is mounted on a spring loaded bracket and makes contact with the floor for a known distance. The height to which the shoe travels after contacting the floor gives a reading of the Pendulum Test Value (PTV, formally known as SRV Slip Resistance Value).

The dynamic coefficient of friction of a test surface has a direct and measurable effect on the PTV reading obtained.

Test surfaces are subject to eight measurements of the PTV with the first three being discounted from calculations of the mean. Tests are carried out in the principal direction, at 45° to the principal direction and at 90° to the principal direction where allowed by space. Each direction is tested under both wet and dry conditions, totaling 48 measurements.

A mean value is generated for wet and dry tests based on the performance in different directions.

**Testing equipment:**

**Munro TRL Portable Skid Tester**

Serial No: ST 163  
Calibrated by: Knightcott Surface Solution Ltd. 27/09/2023 cert: CN 1266  
Calibration due: 26/09/2024

**4S Rubber Sliders (Slider #96)**

Batch No: Slider 96 #26  
Calibrated by: Knightcott Surface Solutions  
Calibration date: 29/09/2023  
Disposal date: 28/09/2024

Calibration checks are carried out regularly by way of check testing on pavigres tiles previously tested by a UKAS accredited laboratory. Further to this, check testing is conducted using lapping film and float glass of a known value.

Sliders are prepared in line with guidance by the UKSRG. Check testing is conducted both on lapping film previously tested by a UKAS accredited laboratory and float glass and pavigres tile. This procedure is conducted prior to a site visit and is in addition to the site check testing.

Daily Check Test Values						Mean	Expected	Accepted
<b>Lapping film</b>	64	63	63	63	63	<b>63</b>	<b>59-64</b>	<b>YES</b>
<b>Float glass</b>	8	7	7	7	7	<b>7</b>	<b>5-9</b>	<b>YES</b>
<b>Pavigres Tile</b>	37	37	37	37	37	<b>37</b>	<b>36±2</b>	<b>YES</b>

**Yours Faithfully**

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