Specific Accreditation Criteria

ISO/IEC 17025 Application Document

Infrastructure and Asset Integrity - Annex

Slip resistance of pedestrian surfaces

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Table of Contents *to be updated at final draft

Purpose

This document provides interpretative criteria and recommendations for the application of ISO/IEC 17025 for both applicant and accredited facilities conducting slip resistance testing of pedestrian surfaces ("slip testing").

Facilities must comply with all relevant documents in the NATA Accreditation Criteria (NAC) package for Infrastructure and Asset Integrity — refer to *NATA Procedures for Accreditation.*

The clause numbers in this document follow those of ISO/IEC 17025; however, as not all clauses require interpretation, the numbering may not be consecutive.

5 Structural requirements

5.4 Slip testing is often coordinated across a geographically dispersed area, where technicians are individually responsible for their equipment and testing activities. Accredited facilities must ensure that key testing personnel are made available during NATA assessments. Where NATA is unable to evaluate the effectiveness of technical control solely from an assessment of the base facility, further assessments may be required at these other locations.

5.5 The facility shall identify the individual(s) responsible for technical control of testing activities.

6 Resource requirements

6.2 Personnel

6.2.3 The majority of slip testing is carried out in the field, typically without direct supervision by personnel responsible for technical control. For testing conducted away from the base site, accredited facilities are responsible for monitoring the implementation of their procedures and policies. Such monitoring may include:

- review of work instructions issued to field technicians;
- availability of relevant test standards and specifications;
- suitability and condition of test equipment;
- observation of test setup and performance;
- review of test records generated on-site, e.g. worksheets and reports.

6.2.6 Testing personnel may not work unsupervised and/or authorise the release of test results without being authorised by the individual(s) responsible for technical control.

6.4 Equipment

6.4.7 Facilities must ensure that where equipment calibration and checking intervals are included in standard methods or specifications, these intervals are followed.

Dry floor friction tester

Dry floor friction testers shall be calibrated. Critical components of the calibration include the slider mass and dimensions, the speed of the device, and the internal load cell.

The calibration report or certificate must demonstrate that the device fulfils the equipment specifications as outlined in the applicable standard test method(s). Calibration certificates provided by the manufacturer or distributor are not considered to be valid unless they have been endorsed by an accredited facility.

Note: A publicly available standard method for calibrating dry floor friction testers has not yet been developed or published.

Pendulum friction tester

Pendulum friction testers shall be calibrated in accordance with EN 16165. Calibration includes establishing the geometry of the tester, the mass of the pendulum arm & pointer, and spring tension.

Note: EN 16165 superseded CEN/TS 16165 in July 2021.

Note: BS 7976-3 was withdrawn in February 2022 and superseded by EN 16165. A calibration conducted prior to February 2022 in accordance with BS 7976-3 is acceptable, but subsequent calibrations are to be conducted in accordance with EN 16165.

Rubber sliders

The specified mass and dimensions of rubber sliders must be periodically verified using suitably calibrated equipment with traceability to the International System of Units (SI).

The hardness of rubber sliders has a direct influence on test results. Where the hardness value is specified, it must be metrologically traceable to the relevant hardness scale, i.e. IRHD or Shore durometer.

6.4.10 Rubber sliders are consumables and subject to wear over time. Facilities shall periodically monitor changes in rubber hardness using the IRHD or Shore durometer scales.

6.4.13 Technical records shall be maintained for surface conditioning materials used by the facility, e.g. P400 abrasive paper, lapping film.

Records must also include the test results (slip resistance readings) generated by the conditioning of rubber sliders.

7 Process requirements

7.2 Selection, verification and validation of methods

7.2.1 Selection and verification of methods

7.2.1.1 NATA endorsed test reports may constitute evidence in legal proceedings, so it is important that they are not prone to misinterpretation.

Under accreditation to ISO/IEC 17025, test results from AS 4663 (existing pedestrian surfaces) cannot be used as a basis for stating the ‘likely’ or ‘equivalent’ surface classification as per AS 4586 (new pedestrian surfaces). Such statements are

particularly problematic because legal arguments may be formed as to whether a surface is considered new or existing, i.e. whether a surface complied at the time of construction.

Significant changes in slip resistance will generally occur as soon as the material is installed. There is a risk that an inappropriate surface classification may incorrectly imply that a supplied product is not compliant. Both AS 4586 and AS 4663 clearly define the difference between new and existing surfaces:

> "A new pedestrian surface is considered to become an existing pedestrian surface once it has been installed and made available for pedestrian traffic, other than movements specifically for purposes of formal testing to determine compliance with AS 4586. New pedestrian surfaces are to be tested in accordance with AS 4586."

Consequently, if a surface has been tested in-situ, it should be tested to AS 4663 unless it has been established that there has been no pedestrian traffic other than those who installed the surface and those who undertook formal testing.

Activities such as cleaning, pressure washing, and mechanical scrubbing are not considered treatments for improving the slip resistance of existing surfaces — refer to AS/NZS 3661.2, *Slip resistance of pedestrian surfaces - Part 2: Guide to the reduction of slip hazards*.

Only treatments involving the application of a coating or other process which physically transforms the surface (e.g. chemical etchants, sandblasting) can be regarded as converting an 'existing' surface to a 'new' surface for the purposes of testing and classification.

7.3 Sampling

7.3.2 When slip testing is performed in the field, 'sampling' usually refers to the choice of test locations, e.g. high or low traffic, rough or smooth finish, variations in workmanship, and the purpose of the testing. Facilities must use documented sampling method(s).

7.6 Evaluation of measurement uncertainty

7.6.3 Unless the test method includes precision & bias statements and/or includes specific information regarding measurement uncertainty, facilities must estimate measurement uncertainty. (AS 4586 and AS 4663 do not fulfil the criteria outlined in NOTE 1 of this clause.)

Contributions to measurement uncertainty for slip testing include, but are not limited to:

- drift of calibration results between calibrations;
- known uncertainty value(s) of the test equipment, i.e. as stated on the calibration certificate;
- resolution, e.g. analog scale used by pendulum testers;
- repeatability.

Where facilities are responsible for sampling, they must also estimate uncertainty arising from sampling.

7.8 Reporting of results

7.8.2.1 Reports must describe the nature and purpose of the testing conducted, as required by AS 4663.

7.8.7.2 While the possibility of further interpretation regarding the application of slip testing results are described in SA HB 198, *Guide to the specification and testing of slip resistance of pedestrian surfaces*, this guide makes clear that any interpretations should "…only be on the advice of an expert, experienced in recognising wear, traffic and surface cleanliness and their effects on slip resistance."

Accreditation for work involving professional judgment of this kind may be provided under the inspection standard ISO/IEC 17020, but any such interpretations in test reports are not covered by accreditation under ISO/IEC 17025.

References

This section lists publications referenced in this document. The year of publication is not included as it is expected that only current versions of the references shall be used.

Standards

AS 4586	*Slip resistance classification of new pedestrian surface materials*
AS 4663	*Slip resistance measurement of existing pedestrian surfaces*
BS 7976-3	*Pendulum testers — Part 3: Method of calibration*
EN 16165	*Determination of slip resistance of pedestrian surfaces - Methods of evaluation*
ISO 48-2	*Rubber, vulcanized or thermoplastic — Determination of hardness — Part 2: Hardness between 10 IRHD and 100 IRHD*
ISO 48-4	*Rubber, vulcanized or thermoplastic — Determination of hardness — Part 4: Indentation hardness by durometer method (Shore hardness)*
ISO/IEC 17020	*Conformity assessment — Requirements for the operation of various types of bodies performing inspection*
ISO/IEC 17025	*General requirements for the competence of testing and calibration laboratories*

NATA publications

NATA Accreditation Criteria package for Infrastructure and Asset Integrity

Further reading

AS/NZS 3661.2	*Slip resistance of pedestrian surfaces - Part 2: Guide to the reduction of slip hazards*
SA HB 198	*Guide to the specification and testing of slip resistance of pedestrian surfaces*

Amendment table

The table below provides a summary of changes made to the document with this issue.

Section or clause	Amendment
Whole document	First edition.