

SKIM AKREDITASI MAKMAL MALAYSIA (SAMM)
LABORATORY ACCREDITATION SCHEME OF MALAYSIA

**STR 1.12 – SPECIFIC TECHNICAL REQUIREMENTS FOR ACCREDITATION OF
TRACE EVIDENCE ANALYSIS FOR FORENSIC SCIENCE TESTING LABORATORIES**

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MS ISO/IEC 17025

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Contents	Page	
1	Introduction and scope	1
2	Normative references	1
3	Terms and definitions	1
4	Management requirements (clause 4.1 – 4.15)	2
5	Technical requirements	
5.1	General	2
5.2	Personnel	3
5.3	Accommodation and environmental conditions	4
5.4	Test and calibration method and method validation	4
5.5	Equipment	5
5.6	Measurement traceability	5
5.7	Sampling	5
5.8	Handling of test and calibration items	6
5.9	Assuring the quality of test and calibration results	6
5.10	Reporting of results	6
	References	8

SPECIFIC TECHNICAL REQUIREMENTS FOR ACCREDITATION OF TRACE EVIDENCE ANALYSIS FOR FORENSIC SCIENCE TESTING LABORATORIES

1 Introduction and scope

i

The purpose of this document is to describe specific technical requirements for accreditation of analysis of trace evidence for forensic science testing laboratories on the following scopes:

- i. Glass
- ii. Paint
- iii. Fibres and Hairs
- iv. Soils
- v. Explosives and explosion debris
- vi. Firearm discharge residues
- vii. Other examinations related to trace evidence analysis

This document shall be read in conjunction with MS ISO/IEC 17025 standard, Specific Criteria 1.1 (SC 1.1) and related SAMM Policy requirements. The clause numbers in this document correspond to those in the standard.

2 Normative references

- i) MS ISO/IEC 17025: 2005 - General Requirements for the Competence of Testing and Calibration Laboratories
- ii) Specific Criteria 1.1 (SC 1.1) - Specific Criteria for Accreditation of Forensic Science Testing

3 Terms and definitions

- 3.1 Trace evidence – Physical evidence that results from the transfer of materials including but not limited to hair, fibre, paint, glass, gunshot residue and explosive.

- 3.2 Exhibit - a sample or an item of evidence submitted for the purpose of forensic examination and analysis
- 3.3 Competency test – the evaluation of individual’s ability to perform work in trace evidence analysis prior to the performance of an independent casework.
- 3.4 Proficiency test – a test to evaluate the competence of analysts and the quality performance of a laboratory
- 3.5 Analyst - an individual who performs casework related duties on exhibits within the laboratory and issue reports containing interpretation and opinions concerning the findings and observations resulting from the work.
- 3.6 Technical support personnel - a person or persons who perform casework related duties on exhibits within the laboratory under the supervision of an analyst.
- 3.7 Chain of custody - procedures and documents that account for the possession and integrity of an exhibit by tracking its handling and storage from its point of collection to its final disposition.
- 3.8 Administrative review – a review of the case file and report to ensure compliance with laboratory policy and editorial correctness.
- 3.9 Technical review – review of case notes, data and other documents for the reliability and interpretation that forms the basis for scientific conclusions.

4 Management requirements (clause 4.1 to clause 4.15)

As in MS ISO/IEC 17025 standard and SC 1.1 document.

5 Technical requirements

5.1 General

As in MS ISO/IEC 17025 standard and SC 1.1 document.

5.2 Personnel

- 5.2.1 The laboratory shall have sufficient personnel with the necessary educational qualification, training, technical knowledge and experience where relevant for the assigned functions.

5.2.2 The analyst shall have:

- i) a minimum academic qualification of a Bachelor of Science degree majoring in Chemistry or related field;
- ii) a minimum of one year working experience in the relevant/functional area of trace evidence analysis;
- iii) passed a competency test in the relevant/functional area of trace evidence analysis;
- iv) successfully completed a proficiency test at least once a year. Where possible, at least one of these proficiency tests should be from a recognised external proficiency test provider; and
- v) successfully completed a proficiency test in all the functional area of trace evidence analysis in which the laboratory conducts examinations over a three-year period.

5.2.3 The analyst may be assisted by technical support personnel who shall have:

- i) a minimum qualification of Malaysia Certificate of Education (*Sijil Pelajaran Malaysia*) or equivalent;
- ii) undergone a training programme in the analysis of the relevant/functional area of trace evidence analysis;
- iii) passed a competency test in the relevant/functional area of trace evidence analysis; and
- iv) successfully completed a proficiency test at least once a year.

5.2.4 The laboratory shall monitor the competency and the proficiency test performance of its analysts and technical support personnel for compliance with specified requirements. Records of actions taken to check compliance shall be maintained by the laboratory.

5.2.5 The laboratory shall have a documented program of proficiency testing for the functional area of trace evidence analysis in which the laboratory conducts. It shall include but not limited to, how the test samples are obtained, prepared and tests conducted.

5.2.6 The laboratory shall have a documented training program for training personnel in the knowledge, skills and abilities needed to perform the necessary casework related duties. The training program for analyst shall also cover presentation of evidence in the court of law.

5.2.7 The laboratory shall have documented procedures to monitor and review court testimony of each analyst.

5.3 Accommodation and environmental conditions

5.3.1 Access to operational area of the laboratory by any visitor should be restricted and accompanied by assigned laboratory personnel.

5.3.2 The laboratory shall establish procedures and maintain appropriate practices to ensure a safe and healthy working environment.

5.4 Test and calibration methods and method validation

5.4.1 The laboratory shall use procedure generally accepted in the relevant/functional area of trace evidence analysis and verified/validated.

5.4.2 When multiple examination are required, non-destructive examination procedures or technique(s) shall be performed first. However, wherever possible, some of the sample/fragment should be retained.

5.4.3 The laboratory shall have documented procedures for taking and maintaining case notes and shall maintain all documentation generated in relation to each case analysed.

5.5 Equipments

5.5.1 The laboratory shall have manuals that establish procedures and maintain appropriate practices for proper and safe handling, use and planned maintenance of the equipment to ensure proper functioning.

5.6 Measurement Traceability

- 5.6.1 The laboratory shall use certified reference material and that this reference material shall be appropriately identified in terms of its name, batch number, date of manufacture, expiry date, etc. Any other standard to be used shall be verified against certified reference material before use.
- 5.6.2 When not in use, reference standards shall be stored under appropriate condition and in a secured environment.

5.7 Sampling

- 5.7.1 When sampling is carried out by the laboratory, proper documented procedures with appropriate sampling plan and technique shall be followed.

5.8 Handling of test and calibration items

- 5.8.1 All samples submitted for analysis shall be accompanied by a formal request form or letter from the submitting authority and upon registration, an official receipt shall be issued by the laboratory.
- 5.8.2 The laboratory shall ensure that all exhibits under its custody is properly secured and protected from loss, damage or mix-up. A record of the chain of custody for all exhibits from the time of its acceptance until its proper disposition shall be maintained by the laboratory.
- 5.8.3 To avoid contamination, examination of trace evidence should be carried out in separate location where necessary.

5.9 Assuring the quality of test and calibration results

- 5.9.1 All test results shall be subjected to a technical review.

5.10 Reporting the results

5.10.1 The laboratory test report shall where applicable, include but not limited to the following information:

- (a) case reference number
- (b) date of issue
- (c) description of the exhibit received and analysed
- (d) additional marking or labeling introduced by the analyst (if any)
- (e) disposition of exhibit
- (f) method and technique used
- (g) results of analysis
- (h) interpretation of results, conclusion or opinion of the analyst on the case
- (i) name, designation and signature of the analyst

5.10.2 In the event that the form of a sample had been changed during analysis, a note stating this fact should be included in the test report.

5.10.3 All test reports shall accurately record and reflect the analyst's findings in the analysis. The results shall be reported in accordance with the request from the submitting authorities.

5.10.4 Test report signatory shall be the analyst who is involved in the testing activities. The signatory shall sign on each page of the report.

5.10.5 The test report shall be subjected to administrative and technical reviews.

5.10.6 The laboratory shall record information related to the release of the test report and exhibit(s).

References:

1. Guidance on the Production of Best Practice manuals within ENFSI, 2003
2. Forensic Science: Dictionary

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|------------------------------------------|----------------------------------------|
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