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

STR 1.14- SPECIFIC TECHNICAL REQUIREMENTS FOR ACCREDITATION OF INDUSTRIAL HYGIENE TESTING LABORATORIES

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(Supplementary to MS ISO/IEC 17025)

MS ISO/IEC 17025

JABATAN STANDARD MALAYSIA
Department of Standards Malaysia (Standards Malaysia)

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1 Introduction and scope

Industrial hygiene is the science of anticipating, recognising, evaluating and controlling health hazards at the workplace that may cause worker's injury or illness.

The purpose of this document is to describe specific technical requirements for accreditation of laboratories involved in the testing of industrial hygiene samples taken in the workplace environment.

The scope of test involves the analysis of samples or materials for the purpose of evaluating occupational exposure to chemicals hazardous to health resulting from occupational activities.

The samples may be in the form of relevant sampling media used to collect contaminants and blood or urine taken from the worker.

This document shall be read in conjunction with MS ISO/IEC 17025:2005 standard, SC 1.2 - Specific Criteria for Accreditation in the Field of Chemical Testing and related SAMM Policy requirements. The document contains only clauses of the MS ISO/IEC 17025:2005 that require further elaboration and the clause numbers in this document corresponded to those in the standard.

Applicant and accredited laboratories involved in the testing of industrial hygiene samples shall comply with the requirements contained in this document.

2 Normative references

i) MS ISO/IEC 17025:2005 – General Requirements for the Competence of Testing and Calibration Laboratories.

ii) SC 1.2 -Specific Criteria for Accreditation in the Field of Chemical Testing

3 Terms and definitions

All terms and definitions given in MS ISO/IEC 17025:2005 standard and SC 1.2 applies.

NIOSH: National Institute for Occupational Safety and Health
OSHA: Occupational Safety and Health Administration

4 Management requirements

As in MS ISO/IEC 17025:2005 standard and SC 1.2 document.

5 Technical Requirements

5.1 General

As in MS ISO/IEC 17025:2005 standard and SC 1.2 document.

5.2 Personnel

The laboratory shall have sufficient personnel with the necessary educational qualification, training, technical knowledge and experience where relevant for the assigned functions in handling industrial hygiene samples and carrying out industrial hygiene testing and analysis.

The signatory(ies) shall:

a) possess at least a Bachelor of Science degree in chemistry or equivalent discipline with at least six (6) months of working experience in relevant field including not less than three (3) months in the current laboratory;

b) be a registered chemist with Malaysian Institute of Chemistry;

c) have undergone relevant training and be knowledgeable in the fundamentals of industrial hygiene with respect to workplace exposure monitoring; and

d) be competent to validate data and interpret results obtained by the laboratory.

The laboratory technician or technical support personnel shall have:

a) a minimum qualification of *Sijil Pelajaran Malaysia* (SPM) or equivalent;

b) undergone a training programme in the testing of industrial hygiene samples;

c) passed a competency test given by the laboratory in the relevant area of industrial hygiene testing.

Records of relevant authorisation, competence, educational and professional qualification, training, skills and experience in industrial hygiene testing of all technical personnel shall be maintained by the laboratory.

5.3 Accommodation and environmental conditions

5.3.1 Laboratory facilities

The laboratory shall have adequate resources to facilitate correct performance of tests on industrial hygiene samples.

The design of the laboratory shall provide an effective separation of different activities to ensure proper conduct of each test with no interference or cross-contamination that may jeopardize validity of test results.

Specific facilities and equipment shall be dedicated where practical, for industrial hygiene sample testing.

5.4 Test and calibration methods and method validation

5.4.1 General

For gravimetric analysis, the pre and post weights of the filter paper used to collect dust or particulate matter shall be taken by the same balance at the same laboratory and the original observations and relevant information to establish an audit trail shall be recorded.

For non-gravimetric analysis where the sampling media are prepared by the laboratory, appropriate blanks (preferably of the same batch) shall be set aside for subsequent use in the preparation of positive control to be analysed with the samples.

5.4.2 Selection of methods

Internationally recognised and accepted test methods such as NIOSH Manual of Analytical Methods (NMAM), OSHA Technical Manual and Methods for Determination of Hazardous Substances (MDHS) Guidance shall preferably be used.

The laboratory shall verify that it can properly operate these standard methods before introducing them.

Non-standard methods which have been validated may also be used if they are appropriate for the intended use.

5.4.5 Validation of methods

Where modification of a standard method is done and the test method becomes an in-house method, the test method shall be validated and approved by authorised personnel before use.

In all cases, the laboratory shall ensure that each particular test method is fit for the intended use.

5.4.6 Estimation of uncertainty of measurement

Laboratories shall estimate uncertainty of measurement for all quantitative test methods and have written procedures describing the approach used for estimating uncertainty of measurement.

The laboratories shall re-estimate the measurement uncertainty when changes to their operations that may affect sources of uncertainty are made.

5.5 Equipment

As in MS ISO/IEC 17025:2005 standard.

5.6 Measurement traceability

5.6.1 Reference materials shall have a certificate of analysis that documents metrological traceability to a primary standard or certified reference material and associated uncertainty, when possible.

5.6.2 Reagents and reference materials shall be used within the stated expiry dates. In cases where the reagents and reference materials are to be used beyond their stated expiry dates, verification against valid reference materials shall be carried out on these reagents and reference materials and a new expiry date shall be assigned for each of them. The results of this verification shall be documented.

5.7 Sampling

In cases where the customer requires the sampling media to be prepared by the laboratory, there shall be a formal request made by the customer stating the requirements including test method to be used on sample(s) intended to be collected.

A record shall be maintained of the agreement between the customer and the laboratory with regards to the expected dates of sampling, submission of

sample(s) to be collected for testing, the sampling technique and test method to be used. Any differences shall be resolved before any industrial hygiene monitoring or sampling work commences.

5.8 Handling of test and calibration items

The laboratory shall ensure that test items under its custody are properly secured and protected from loss, damage, contamination or mix-up. A record of the traceability of all activities for test items from the time of receipt until their disposal shall be maintained by the laboratory.

5.9 Assuring the quality of test and calibration results

The laboratory shall participate in proficiency testing programme where available. Otherwise competency programme shall be implemented at least once a year to demonstrate the laboratory competence in industrial hygiene testing.

5.10 Reporting the results

The test report shall include the following:

i. A statement on the estimated uncertainty of measurement where applicable;

ii. Limit of detection and/or limit of quantification where non detection is reported.

Laboratories shall report the measurement uncertainty, along with the reported analyte concentration, in the same units as analyte concentration, when a customer's instruction so requires or when the uncertainty affects compliance to a specification limit.

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