



ACCREDITATION SCHEME FOR LABORATORIES

SAC-SINGLAS 004
Classification of Tests

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1. Introduction

The Singapore Laboratory Accreditation Scheme (SAC-SINGLAS) was established to accredit laboratories in specific fields of science and technology that can demonstrate compliance with currently accepted standard of good laboratory practice and management. SAC-SINGLAS accreditation is categorised by fields of testing and calibration. Presently, SAC-SINGLAS accreditation is offered for the following fields:

- A. Chemical and Biological Testing
- B. Civil Engineering Testing
- C. Calibration and Measurement
- D. Non-Destructive Testing
- E. Electrical Testing
- F. Environmental Testing
- G. Mechanical Testing
- H. Medical Testing
- I. Medical Imaging
- J. Information Technology Testing
- K. Functional Food Testing

2. Definition

For the purpose of laboratory accreditation, the types of testing and calibration covered under the various fields are defined as follows:

A. Chemical and Biological Testing

Chemical, biological, microbiological and biochemical testing and measurement of materials and products including food, drugs, pharmaceuticals and petrochemicals. It covers instrumental and automated methods of analysis and detection, and also associated physical testing such as measurement of viscosity. Chemical tests on polymeric or metallic materials can also be included under this field.

B. Civil Engineering Testing

Measurement of strength, mechanical and physical testing of materials (such as concrete, cement, aggregates, bituminous materials, masonry, repair materials, soil, rock and granite stones etc.), structure and assemblies (excluding reinforcement steel for concrete) involved in building and construction works. Non-destructive testing of concrete comes under this field.

C. Calibration and Measurement

Calibration of testing and measuring equipment such as chemical, physical, mechanical, electrical and electronic testing and measuring equipment, acoustic and vibration measuring equipment, optical and photometric equipment and heat measuring equipment; precise measurement of mass, length, time, electrical quantities and their

immediate derivatives such as angle, volume and pressure; calibration and testing of metrological equipment.

D. Non-Destructive Testing

Examination of articles and structures by techniques such as radiography, ultrasonic, penetrant, magnetic particle, eddy current visual, infrared or other non-destructive testing methods.

E. Electrical Testing

Measurement of electrical properties and testing of electrical and electronic components and equipment including commercial and industrial equipment and home appliances. Environmental reliability testing of materials, components and equipment also comes under this field.

F. Environmental Testing

Measurement of environmental parameters including physical, chemical and microbiological testing of materials and products such as air, water/wastewater, trade effluent and solid/semisolid samples. Testing of environmental noise can be included.

G. Mechanical Testing

Measurement of mechanical properties and physical testing of materials, structure and assemblies including metals and metal products (including metallographic, corrosion and coating tests), industrial products, textiles and textile products, timber and timber products, plastics, rubber, pressure and safety relief valves, toys, etc.

Performance testing for product type testing, such as sanitary ware, pipes and fittings, personal protective equipment, fire protection products and testing of fire resistance and thermal properties are also classified under this field.

Not included in this field are testing of cement, concrete and soil.

H. Medical Testing

Medical testing, including appropriate consultation services essential to patient care, is to be performed to meet the needs of all patients and clinical personnel responsible for human health care. These include requisition, patient preparation, collection of samples, patient identification, transportation, storage, processing and examination of clinical samples with subsequent validation, interpretation, and reporting, as well as safety and ethics of medical laboratory work. Medical testing is conducted in various laboratory disciplines, which may include, but are not limited to:

- 1) anatomical pathology including histopathology and cytopathology;
- 2) blood transfusion serology including histocompatibility testing;
- 3) clinical biochemistry including endocrinology, molecular biochemistry, drug therapeutic monitoring and clinical toxicology;
- 4) clinical microbiology, including bacteriology, parasitology, virology,

- and mycology;
- 5) clinical immunology;
- 6) cytogenetics;
- 7) haematology;
- 8) molecular pathology;
- 9) urinalysis;
- 10) next generation sequencing;
- 11) point-of-care testing.

Note: Whenever required, medical testing services should include the examination of patients in consultation cases, and active participation in prevention of disease together with diagnosis and management of patients should be undertaken.

(Reference document: ISO 15189: Medical Laboratories – Particular Requirements for Quality and Competence)

I. Medical Imaging

Procedures covering the use of radiography, ultrasound, mammography, computerised tomography, angiography, magnetic resonance, nuclear medical and bone mineral densitometry.

J. Information Technology Testing

Information Technology (IT) Testing covers a diverse range of hardware and software testing and evaluation. It may include protocol and/or robustness testing for the following but are not limited to:

- 1) gaming and its related equipment, machines and electronic monitoring system
- 2) IT products referred to as Target of Evaluation (TOE) comprising either a single product or multiple components configured as an IT product or system solution.
- 3) information or operational security and cybersecurity

K. Functional Food Testing

Testing of food products for health-related properties, which includes any property of natural or processed food resulting from presence of biologically-active compound(s) which in defined amount(s) provides (provide) clinically proven and documented health benefit that makes the food an important source in health management.

NOTES TO LABORATORIES

1. If an applicant laboratory is unable to determine or has questions on the fields of testing to which its works shall be categorised, the SAC Secretariat will be pleased to discuss with the laboratory to determine which field of testing best fits and describes the works of the laboratory.
2. Accreditation may also be considered for other fields of testing or sampling, associated with subsequent testing or calibration. Laboratories interested to seek accreditation for other fields of testing or sampling should contact SAC for discussion.