



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. Information Technology Testing
- J. 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 (such as paints & coatings, metals, textiles, polymers and building materials) and products (such as food & beverages, drugs, pharmaceuticals and petrochemicals). The field covers instrumental and automated methods of analysis and detection, molecular testing, chemical testing of product safety and also associated physical testing such as measurement of viscosity.

B. Civil Engineering Testing

Measurement of strength, mechanical and physical testing of materials (such as admixtures, aggregates bituminous premixes, building materials, cement, concrete, curtain wall/window, geosynthetic, paint/coatings, pile, repair materials, soil, rock and granite stones etc.), structure fixing and surface system (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 equipment, acoustic and vibration measuring equipment, optical and photometric equipment and thermal measuring equipment; precise measurement of mass, length, time, electrical quantities and their immediate derivatives such as angle, volume and pressure; calibration 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, phase array ultrasonic, time of flight diffraction 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. This includes electrical meter, electromagnetic compatibility (EMC), electrostatic, energy efficiency (e.g. Energy star), fittings, audio-visual (AV) products, lighting, power equipment, solar products, telecommunications equipment and Wiring & Accessories. 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, indoor air quality, asbestos, stack/source emission, vehicle emission, radioactivity measurement and industrial hygiene 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) acoustics, industrial products, connectors products, reinforcement bar/welded steel fabrics, textiles and garments, timber and timber products, polymer/ plastics, rubber, pressure and safety relief valves, packaging and toys, etc.

Performance testing for product type testing, such as sanitary ware, pipes and fittings, consumer safety products which includes personal protective equipment (PPE)/mask testing, 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

Entity for the examination of materials derived from the human body for the purpose of providing information for the diagnosis, monitoring, management, prevention and treatment of disease, or assessment of health. 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.

I. 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

J. Functional Food Testing

Testing of food products for health-related properties from presence of biologically-active compound(s) in natural or processed foods, which when present in defined amount(s) provide clinically proven and documented health benefit that makes the food an important source in health management. This scope includes the determination of Glycemic Index (GI).

NOTES TO LABORATORIES

1. If an applicant laboratory is unable to determine the appropriate testing field category for its work or has questions about categorisation, the SAC Secretariat is available to discuss with the laboratory to identify the most suitable field.
2. Accreditation may also be considered for testing or sampling fields associated with subsequent testing or calibration. Laboratories seeking accreditation for additional fields should contact SAC Secretariat for discussion.