

# **SPECIFIC CRITERIA FOR**

TESTING LABORATORIES PERFOMING CHEMICAL, BIOLOGICAL, MECHANICAL, ELECTRICAL AND FORENSIC TESTING.

| SRI LANKA ACCREDITATION BOARD FOR CONFORMITY ASSESSMENT |                                       |                                 |              |                         |  |  |
|---|---------------------------------------|---------------------------------|--------------|-------------------------|--|--|
| Title: Spec   | fic Criteria for Testing Laboratories | <b>Doc No</b> : TL –GL (P) - 02 |              |                         |  |  |
| Issue No: 02   Date of Issue: 2021-04-06   Rev No: 00   |                                       |                                 | Date of Rev: | <b>Page No:</b> 1 of 23 |  |  |

# **AMENDMENT SHEET**

| Doc No | Page/<br>Section | Description of Change | Revision<br>No | Approval |
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# **ABBREVIATIONS**

CRM - Certified Reference Materials

QC - Quality Control

RM - Reference Materials

SLAB - Sri Lanka Accreditation Board for Conformity Assessment

LIMS - Laboratory Information Management Systems

NVQ - National Vocational Qualifications Framework

SLQF - Sri Lanka Qualifications Framework

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# 1. INTRODUCTION

- 1.1. The requirements for accreditation are laid down in the International Standard ISO/IEC 17025: General requirements for the competence of testing and calibration laboratories. These requirements apply to all types of testing, but in certain instances additional guidance is needed to streamline the accreditation process and take account of the specific type of testing and the technologies involved.
- 1.2. This document has been prepared by the Technical Advisory Committee on Testing laboratories and approved by the Council of Sri Lanka Accreditation Board (SLAB). It supplements ISO/ IEC 17025 standard and provides specific guidance on the accreditation of Chemical, Biological, Mechanical, Electrical and Forensic testing laboratories for the use of assessors and applicant and accredited laboratories.
- 1.3. This document covers the application of the ISO/ IEC 17025 for accreditation of Chemical testing laboratories, Biological laboratories, Mechanical laboratories, Electrical laboratories, Forensic laboratories and applicable to products groups as given in Appendix A to E.
- 1.4. This document should be read in conjunction with the ISO/IEC 17025:2017 and Rules and Procedures of SLAB.

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## 2. SCOPE

Accreditation of Testing laboratories includes Forensic Science, Chemical, Biological, Mechanical and Electrical testing laboratories.

The scope of accreditation of SLAB is applicable to the following disciplines/areas of activities in relevant laboratories.

List of applicable product groups for Forensic Testing
 List of applicable product groups for Mechanical Testing
 List of applicable product groups for Chemical Testing
 Annexure – 03
 Annexure – 04
 List of applicable product groups for Electrical Testing
 Annexure – 04
 Annexure – 05

Accreditation for additional disciplines may be offered in future as per requirement arises.

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## 3. NORMATIVE REFERENCES

- ISO/IEC 17025 General requirements for the competency of testing and calibration laboratories
- ILAC-G19:08/2014 Modules in a Forensic Science Process
- ILAC G8:09/2019- Guideline on Decision rules and statement of Conformity
- ILAC G 17 Introducing the concept of uncertainty of measurement in testing in association with application of the standard ISO/IEC 17025.
- ILAC G 18:04/2010 Guideline for the formulation of scope of accreditation for laboratories
- ILAC-G 10:2020 Policy on Metrological Traceability of measurement results

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#### 4. TERMS AND DEFINITIONS

#### 4.1. Competence

Competence is the demonstrated ability to apply knowledge and skills and, where relevant, demonstrated personal attributes.

#### 4.2. Court Statement

A Court statement is a written document or any other acceptable format of the results and interpretations of forensic tests/examinations submitted to the court. Such reports may be in a format prescribed in legislation and may also be in electronic format. In addition, a copy of the court statement may be submitted to law enforcement investigators, members of the judiciary and other relevant authorities.

#### 4.3. Equipment

Equipment refers to all measuring instruments, software, measurement standards, reference materials, reference data, reagents, consumables or auxiliary apparatus that require the correct performance of the laboratory activities.

#### 4.4. Non-conforming examination and testing

Non-conforming examination and testing refers to any aspect of the forensic unit's work, including, scene examination, laboratory examination, sampling, testing, results or expert witness testimony that do not conform to the forensic unit's policies, procedures or the agreed requirements of the customer. Examples are using equipment that is out of specification, misidentifying a drug or incorrectly interpreting a blood pattern.

#### 4.5. Reference Material

A reference material is a material, sufficiently homogeneous and stable with respect to one or more specified properties, which has been established to be fit for its intended use in a measurement process.

#### 4.6. Testing

Testing is used in the document when there is an activity including measurements and analytical techniques.

#### 4.25 Decision Rule

Rule that describes how measurements uncertainty is accounted for when stating conformity with a specified requirements.

# 4,26 Risk (as per ISO 31000:2018)

Effect of uncertainty on objectives

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# 5.0. STANDARD REQUIREMENTS

#### 5.1. IMPARTIALITY & CONFIDENTIALITY

The requirements of ISO/IEC 17025 clause 4.1 & 4.2 apply.

Laboratory shall have documentations to fulfil these requirements.

#### 5.2. STRUCTURAL REQUIREMENTS

The requirements of ISO/IEC 17025 clause 5 apply.

#### **5.3. RESOURCE REQUIREMENTS**

#### 5.3.1 Personnel

The requirements of ISO/IEC 17025 clause 6.2 apply.

The management shall define each role in the laboratory and specify minimum competency requirements for each role.

Personnel work in the laboratory to be competent to perform assigned tasks. Competencies to be proved during the assessment. Records for maintaining competencies shall be available. The evaluation of competence may take a variety of forms, dependent on the task(s) performed e.g. written and / or oral examinations; practical exercises; or direct observation by a qualified person. In many cases, some combination of continuous competency evaluation /monitoring system will be the most appropriate approach.

Records must be sufficiently detailed to show that staff who involve in testing/ any activity have been properly trained, that their subsequent ability to perform assigned task(s) has been fully assessed /training evaluated and that they have been authorized to perform work independently.

#### For Forensic laboratories, Court Testimony Monitoring

The laboratory must have and follow a documented procedure whereby the testimony of each examiner is monitored regular basis. Areas that must be covered in the evaluation include appearance, poise, performance, effectiveness of presentation. The monitoring procedure must also prescribe the remedial action that is to be taken should the evaluation be less than satisfactory. A record must be kept of each evaluation.

Minimum competency requirements for each field of testing are given in **Appendix A.** 

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#### **Technical Management**

The officer in charge of a laboratory technical management, must be suitably qualified with a sound knowledge of the principles of the test, be able to provide adequate supervision and competent to handle all technical matters related to the laboratory activities.

#### **Quality management**

A person to document, establish, maintain and improve the management system, irrespective of other duties and responsibilities assigned to him/her. Should be competent person with a Science background and having experience in quality management system maintain and direct access to the highest level of the management.

#### **5.3.2** Facilities and Environmental Conditions

The requirements of ISO/IEC 17025 clause 6.3 apply.

One of the key responsibility of the laboratory management is to provide an adequate and safe working environment. Laboratory facilities should reflect due consideration of space, design, security, fire, health and safety (biological safety, laser safety, radiation safety, electrical safety..etc) and waste management (biological, chemical and hazardous etc). Laboratory management is responsible to provide adequate personnel Protective Equipment (PPE) to the staff. Where appropriate, the laboratory should have safety showers and eye wash equipment of suitable locations and in good working condition.

When radioactive and X-ray work are performed, detectors must be used regularly to monitor radiation levels and the wearing of film badges by staff may be necessary. Staff must be advised of immunization and other appropriate precautionary measures. It is recommended that relevant records be kept.

Applicable government legislations to be fulfilled.

#### 5.3.3 Equipment

The requirements of ISO/IEC 17025 clause 6.4 apply

#### **5.3.4** Metrological traceability

The requirements of ISO/IEC 17025 clause 6.5 apply

#### 5.3.5 Externally provided products and services

The requirements of ISO/IEC 17025 clause 6.6 apply All services obtained by the laboratory to be considered.

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#### **5.4 PROCESS REQUIREMENTS**

## 5.4.1 Review of Requests, Tenders and Contracts

The requirements of ISO/IEC 17025 clause 7.1 apply

#### 5.4.2 Selection, Verification and Validation of method

The requirements of ISO/IEC 17025 clause 7.2 apply

The performance characteristics to be determined by the laboratory for every test method perform at the laboratory and suitability of the method for their particular needs and matrixes to be documented. It may include; a) Selectivity & specificity, b) Range, c) Linearity, d) Sensitivity e) Limit of Detection, f) Limit of Quantification, g) Ruggedness, h) Accuracy, i) Precision. etc.

#### **5.4.3 Sampling**

The requirements of ISO/IEC 17025 clause 7.3 apply

#### **5.4.4 Handling of test items**

The requirements of ISO/IEC 17025 clause 7.4 apply

#### **5.4.5** Technical records

The requirements of ISO/IEC 17025 clause 7.5 apply

The information that is to be included in records shall be documented appropriately and may include, but not be limited to, records of any communication with the customers (verbal or written), contract review, examination and testing requested and agreements with customer, exhibit/sample receipts, descriptions of exhibits /sample including packaging and seals, subpoenas, records of observations and test/examination results, reference to procedures used, diagrams, maps, print-outs, photographs, videos etc.

#### 5.4.6 Evaluation of measurement uncertainty

The requirements of ISO/IEC 17025 clause 7.6 apply

#### **5.4.7** Ensuring the validity of results

The requirements of ISO/IEC 17025 clause 7.7 apply

SLAB Policy for Participation in External Quality Assurance activities (AC-RG(P)-02) is apply.

Quality control procedures must be documented. Where appropriate, quality control data must be recorded in such a way that trends in analysis can be readily evaluated.

#### **5.4.8 Reporting of results**

The requirements of ISO/IEC 17025 clause 7.8 apply

#### **5.4.9** Complaints

The requirements of ISO/IEC 17025 clause 7.9 apply.

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#### **5.4.10 Non Conforming Work**

The requirements of ISO/IEC 17025 clause 7.10 apply.

# 5.4.11 Control of data and information management

The requirements of ISO/IEC 17025 clause 7.11 apply.

If the laboratory has implemented LIMS it should be validated and access control. User guides to be available.

#### 5.5 MANAGEMENT SYSTEM REQUIREMENTS.

The requirements of ISO/IEC 17025 clause 8 apply.

If the laboratory follows Option B, Laboratory shall maintain management system as per ISO 9001 requirements. If the laboratory is certified as per ISO 9001 same system can be use. Internal audit of the laboratory to be covered both ISO 9001 requirements and ISO/IEC 17025 requirements.

If the laboratory follows Option A, Laboratory shall maintain management system documentation as per ISO/IEC 17025 clauses.

#### **5.5.1** Management system documentation

The requirements of ISO/IEC 17025 clause 8.2 apply

## **5.5.2** Control of management system documents

The requirements of ISO/IEC 17025 clause 8.3 apply

The requirements for the accessibility and control of documents apply to permanent facilities and also to all sites or locations where work is performed, e.g. scene of crime.

#### 5.5.3 Control of records

The requirements of ISO/IEC 17025 clause 8.4 apply

The forensic testing shall have documented procedures to create and maintain records relating to each case under investigation.

Retention time of the records to be complied to national information security regulations.

#### 5.5.4 Actions to address risks and opportunities

The requirements of ISO/IEC 17025 clause 8.5 apply

#### 5.5.5 IMPROVEMENT

The requirements of ISO/IEC 17025 clause 8.6 apply.

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Laboratory can initiate and implement improvements in conjunction with risk and opportunities identified in clause 8.5.

#### 5.5.6 CORRECTIVE ACTION

The requirements of ISO/IEC 17025 clause 8.7 apply.

## 5.5.7 INTERNAL AUDITS

The requirements of ISO/IEC clause 8.8 apply.

The internal audit shall be conduct at least annually to cover all standard requirements. Witnessing of tests/ any activity perform by the laboratory personnel to be witnessed during the internal audit.

Test/activities which are infrequently encountered may require other means by which to confirm competence, e.g. mock incident or other types of simulations, market sample analysis, etc. Other activities which take place for the purpose of confirming competence.

#### 5.5.8 MANAGEMENT REVIEW

The requirements of ISO/IEC 17025 clause 8.9 apply.

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# Appendix A Minimum competency requirements

| Field of | Task               | Educational            | Training         | Experience &      |
|----------|--------------------|------------------------|------------------|-------------------|
| Testing  |                    | qualification          |                  | Skill             |
| Chemical | Testing staff/     | GCE A/L                | Training on      | One year          |
| Testing  | Analysts           | examination with       | relevant         | experience in the |
|          |                    | Chemistry as a         | technical field  | field             |
|          |                    | subject                |                  | and               |
|          |                    | Or                     |                  | proven skills **  |
|          |                    | Diploma in             | Training on      | Six months        |
|          |                    | Laboratory             | relevant         | experience in the |
|          |                    | Technology in          | technical field  | field             |
|          |                    | Chemistry or           |                  | and               |
|          |                    | equivalent             |                  | proven skills **  |
|          |                    | qualifications such as |                  | _                 |
|          |                    | NVQ level 05 or        |                  |                   |
|          |                    | equivalent             |                  |                   |
|          |                    | Graduates in Science   | Training on      | Adequate on the   |
|          |                    | with Chemistry         | relevant         | job training      |
|          |                    | Or equivalent          | technical field  | (minimum 03       |
|          |                    | qualifications such as |                  | months)           |
|          |                    | NVQ level 06/07 or     |                  | and               |
|          |                    | equivalent             |                  | proven skills **  |
|          |                    |                        |                  |                   |
|          | Authorized         | Graduates in Science   | Training on      | Three years       |
|          | Signatory          | with Chemistry or      | relevant         | relevant work     |
|          |                    | equivalent             | technical field  | experience        |
|          |                    | qualifications such as |                  |                   |
|          |                    | NVQ level 07 or        |                  |                   |
|          |                    | equivalent             |                  |                   |
|          | Providing opinion  | Graduates in Science   | Training on      | Three years       |
|          | & interpretations/ | with Chemistry or      | relevant tests & | relevant work     |
|          | compliances        | equivalent             | knowledge on     | experience        |
|          |                    | qualifications such as | manufacturing of |                   |
|          |                    | NVQ level 07 or        | relevant         |                   |

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|                       |  | equivalent   | products, legislative requirements and understanding of the significance of deviations and applicable decision rule |  |
|-----------------------|--|--|---|--|
| Biological<br>Testing | Test perform (Analysts)  | Degree in microbiology or Bio science or an equivalent qualifications or   | Training on relevant test methods to be performed at least 6 months   | Six months experience in the field and proven skills   |
|                       |  | G.C.E. Advanced Level examination with biology as a subject and Diploma/ Certificate in Laboratory Technology in Biology/Microbiology equivalent to NVQ 05 | Training on relevant field at least one year  | One year<br>relevant<br>experience<br>related to the<br>microbiology<br>field and proven<br>skill ** |
|                       | Authorized Signatory for test report on general microbiology reports | Graduate in Science with Microbiology as one of the subjects or equivalent qualifications  | Training on relevant tests to be authorized   | 03 years<br>experience in the<br>field   |
|                       | Authorized Signatory for test report on risk group 2 and above       | Graduate in Biological science with post graduate in Microbiology  |   |  |
|                       | Providing opinion  | Graduate in  | Training on   | 03 years   |

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|                | & interpretations/ | Biological science           | relevant tests &   | experience in the |
|----------------|--------------------|------------------------------|--------------------|-------------------|
|                | compliances        | with post graduate in        | knowledge on       | field and proven  |
|                | 1                  | Microbiology                 | manufacturing of   | skills **         |
|                |                    |                              | relevant           |                   |
|                |                    |                              | products,          |                   |
|                |                    |                              | legislative        |                   |
|                |                    |                              | requirements and   |                   |
|                |                    |                              | understanding of   |                   |
|                |                    |                              | the significance   |                   |
|                |                    |                              | of deviations and  |                   |
|                |                    |                              | applicable         |                   |
|                |                    |                              | decision rule      |                   |
|                |                    |                              |                    |                   |
| Mechanical     | Testing staff/     | GCE A/L with                 | Field specific     | One year          |
| and Electrical | Analysts           | Physics as a subject         | technical training | experience in the |
| Testing        |                    | Or equivalent to             | for six months     | field and proven  |
|                |                    | NVQ 05                       |                    | skills **         |
|                |                    | Diploma in                   | Field specific     | Six months        |
|                |                    | Laboratory                   | technical training | experience in the |
|                |                    | Technology in                | for six months     | field and proven  |
|                |                    | Physical testing or          |                    | skills **         |
|                |                    | any other relevant           |                    |                   |
|                |                    | qualification                |                    |                   |
|                |                    | equivalent to National       |                    |                   |
|                |                    | Vocational                   |                    |                   |
|                |                    | Qualification (NVQ) level 05 |                    |                   |
|                |                    | Graduates in Science         | Training on        | 6 months on the   |
|                |                    | (with Physics as a           | relevant           | job training and  |
|                |                    | subject) or equivalent       | technical field    | proven skills **  |
|                |                    | J J                          | for six months     | proven skins      |
|                |                    |                              | TOT SIX MORUIS     |                   |
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|                | Authorized         | Graduates in Science         | Training on        | Three years       |
|                | Signatory          | (with Physics ) or BSc       | specifically in    | relevant work     |
|                |                    | Engineering, or equivalent   | relevant           | experience        |
|                |                    | qualifications such as       | technical field    |                   |
|                |                    | NVQ 06 or 07 level           |                    |                   |
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|                     |  | or equivalent  |   |  |
|---------------------|--|--|---|--|
|                     | Providing opinion & interpretations/ compliances                               | Graduates in Science (with Physics) with special training on specifically on the field or BSc Engineering, or equivalent qualifications such as NVQ 06 or 07 level or equivalent | Training on relevant tests & knowledge on manufacturing of relevant products, legislative requirements and understanding of the significance of deviations and applicable decision rule | Three years relevant work experience                             |
|                     |  |  |   |  |
| Forensic<br>Testing | Crime Scene<br>Investigation   | Graduates in science or equivalent qualifications related to the field   | Training on same task at least 6 months   | Three years,<br>experience and<br>proven skill. **               |
|                     | Digital Forensics<br>(Audio, Video,<br>Biometrics and<br>Computer<br>analysis) | Graduates in computer science or information technology or equivalent qualifications related to the field  | Training on same task at least 6 months   | One year<br>Experience and<br>proven skill**                     |
|                     | DNA Analysis   | Graduates in Biological science or equivalent qualifications related to the field .  | Training at least 6 months.   | 01 year in<br>relevant work<br>experience and<br>proven skill ** |
|                     | Fire investigations, Firearms and Ballistics, Handwriting and                  | Graduates in science (with Chemistry / Physics as a subject) or equivalent   | One year training in the relevant field.  | Three year relevant work experience with proven                  |

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|          | Questioned         | qualifications related                 |                   | skill**           |
|----------|--------------------|--|-------------------|-------------------|
|          | Documents,         | to the field                           |                   |                   |
|          | Forensic           |  |                   |                   |
|          | miscellaneous,     |  |                   |                   |
|          | Forensic trace     |  |                   |                   |
|          | evidence analysis, |  |                   |                   |
|          | Explosives, Marks  |  |                   |                   |
|          | and Impressions    |  |                   |                   |
|          |                    |  |                   |                   |
|          | Forensic medicine  | Medical graduate with                  | -                 | -                 |
|          | and pathology,     | MBBS or equivalent                     |                   |                   |
|          | Histopathology,    | qualification                          |                   |                   |
|          | Anthropology,      | recognized by Sri                      |                   |                   |
|          | Medical            | Lanka Medical                          |                   |                   |
|          | Toxicology,        | Council (SLMC).                        |                   |                   |
|          | Clinical forensic  |  |                   |                   |
|          | medicine           |  |                   |                   |
|          | Fingerprints       | Graduates in science                   | Training at least | Three year        |
|          |                    | or equivalent                          | 6 months          | experience with   |
|          |                    | qualifications related                 |                   | proven skill**    |
|          |                    | to the field                           |                   |                   |
|          | Forensic           | BSc Chemistry (sp) or                  | Training on       | Three years       |
| Forensic | Toxicology,        | Graduates in science                   | relevant field at | experience with   |
| Testing  | Narcotics and      | (with Chemistry as a                   | least 6 months.   | proven skill **   |
|          | Psychotropic       | subject) with MSc in                   |                   |                   |
|          | substances         | Analytical Chemistry.                  |                   |                   |
|          |                    |  | m · ·             | T                 |
|          | Forensic Serology  | Graduate in Science                    | Training on       | Three years       |
|          |                    | (Chemistry/ Biology)                   | relevant field at | relevant work     |
|          |                    | (sp) or Graduates in                   | least 6 months    | experience.       |
|          |                    | science (with                          |                   |                   |
|          |                    | Chemistry/ Biology as                  |                   |                   |
|          |                    | a subject) with MSc in relevant field. |                   |                   |
|          |                    | relevant neid.                         |                   |                   |
|          | Forensic           | Graduate in biological                 | Training on       | 03 year           |
|          | entomology         | science or equivalent                  | relevant field at | experience in the |
|          | Citomology         | qualification                          | least 6 months    | relevant field    |
|          |                    | 1                                      | Toust o months    | Toto valit field  |

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|                  |            | preferably with forensic entomology as a subject from a recognized university / institution approved by the UGC.  or Postgraduate in forensic entomology from a recognized university / institution approved by the UGC.  |                                   | 02 year<br>experience in the<br>relevant field |
|------------------|------------|---|-----------------------------------|--|
| Forensic Tarting | Forensic   | Graduate in Clinical  | Training on                       | Three year                                     |
| Testing          | Psychology | Psychology or equivalent qualification preferably with criminal or forensic psychology as a subject from a recognized university / institution approved by the UGC.  Or Postgraduate in forensic psychology from a recognized university / institution approved by the UGC. | relevant field at least 6 months. | experience                                     |

<sup>\*\*</sup> Relevant training, training evaluation, test witnessing evidences, competency evaluation to be maintained.

Level of equivalent qualification required will be finally decided by the Accreditation Committee. Competency evaluation of authorized signatories will be carried out as per the score and competency based on GUIDELINE FOR EVALUATION OF SIGNATORIES FOR LABORATORY ACCREDITATION TL-GL(P) -09. and score of the interview.

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# Annex 01: Applicable Product group in Forensic Testing

The table below lists only some of the forensic disciplines but does not preclude additional activities being undertaken by a forensic unit. Even if some forensic disciplines may not be mentioned here, they may still be included in the scope of this guidance document.

- 1. Crime Scene Investigation
- 2. Digital Forensics (Audio, Video, Biometrics and Computer analysis)
- 3. DNA Analysis
- 4. Explosives
- 5. Fingerprints
- 6. Marks and Impressions
- 7. Fire investigations
- 8. Firearms and Ballistics
- 9. Forensic medicine and pathology
  - a. Clinical forensic medicine
  - b. Forensic Histopathology
  - c. Forensic anthropology and Odontology

Entomology, Botany, Archaeology, Anthropology, Odontology

- 10. Forensic Psychology
- 11. Forensic entomology
- 12. Forensic Toxicology
- 13. Narcotics and Psychotropic substances
- 14. Handwriting and Questioned Documents
- 15. Forensic Serology
- 16. Forensic trace evidence analysis
- 17. Accident investigations
- 18. Forensic miscellaneous

| Audio, Video and Computer Analysis                                     |   |
|--|---|
| Speech, audio and video analysis                                       | <ul> <li>Automated skull reconstruction and aging simulation</li> </ul>         |
| <ul><li>Biometrics</li><li>Computers (hardware and software)</li></ul> | • CCTV  |
| Image enhancement  | Facial mapping  |
| Recovery of information from electronic devices and media              | <ul> <li>Mobile computerized devices (including phone,<br/>GPS, PDA)</li> </ul> |
| Controlled/non-controlled Substances                                   |   |
| Botanical material   | <ul> <li>Controlled pharmaceutical and drugs</li> </ul>                         |
| Related chemicals and paraphernalia                                    |   |

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# Fingerprints • Fingerprints and finger marks (development and comparison) • Palm prints (development and comparison) • Footprints (development and comparison) Firearms and ballistics • Bullets and cartridges • Firearms • Stun Guns

| Hairs, Blood, Body Fluids and Tissues and DNA profiling |   |  |  |  |
|---|---|--|--|--|
| Animal DNA profiling                                    | <ul> <li>Body fluid identification</li> </ul>   |  |  |  |
| DNA profiling   | <ul> <li>Mitochondrial DNA profiling</li> </ul> |  |  |  |
| Parentage testing                                       | Blood grouping                                  |  |  |  |
| Semen and vaginal secretion analysis                    | Hair comparison                                 |  |  |  |

| Handwriting and Document Examination            |  |
|---|--|
| Copiers and copied material                     | <ul> <li>Embossing and embossed materials</li> </ul>     |
| Handwriting                                     | <ul> <li>Indentations</li> </ul>                         |
| <ul> <li>Inks and printing materials</li> </ul> | <ul> <li>Paper</li> </ul>                                |
| Printers and other printed objects              | <ul> <li>Rubber stamps</li> </ul>                        |
| Security marks                                  | <ul> <li>Typewriters and typewritten material</li> </ul> |

| Marks and Impressions |   |  |  |  |  |  |
|-----------------------|---|--|--|--|--|--|
| Damage examination    | <ul> <li>Fabric impression</li> </ul>             |  |  |  |  |  |
| Glove marks           | <ul> <li>Non-friction ridge body marks</li> </ul> |  |  |  |  |  |
| Shoe marks            | <ul> <li>Tool marks and impressions</li> </ul>    |  |  |  |  |  |
| Tyre marks            |   |  |  |  |  |  |

| •  | Cause of death determination | • | Examination of injuries |
|----|------------------------------|---|-------------------------|
| •  | Pathology                    |   |                         |
|    |                              |   |                         |
| Sc | ene Investigation            |   |                         |

**Forensic Medicine** 

| Scene investigation          |  |
|------------------------------|--|
| Blood pattern analysis       | Bullet trajectory  |
| Fire investigation           | <ul> <li>Photography</li> </ul>                                |
| Scene of crime investigation | <ul> <li>Chemical, Biological, Radioactive, Nuclear</li> </ul> |
|                              |  |

| To | Toxicology              |   |         |  |  |
|----|-------------------------|---|---------|--|--|
| •  | Alcohol                 | • | Drugs   |  |  |
| •  | Pharmaceutical products | • | Poisons |  |  |

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#### Trace Evidence Acids Adhesives Alkalis Arson & fire evidence e.g. Fire debris Botanical material (excluding controlled Clothing/garments substances) Corrosives Components of technical or household Cosmetics appliances Electrical devices and components Dyes and pigments Explosives and explosion debris Feeding stuffs and ancillary items **Fertilizers** Fibres and hairs Firearm discharge residues Food Hydrocarbon fuels Glass Light filaments Lachrymatory chemicals Lubricants and spermicidal agents Manufacturers marks (including serial Metals and alloys number restoration) **Paints** Oils and greases **Plastics** Soils Pyrotechnic devices **Vehicles and Vehicle Accident Investigation** Component failures including light bulbs Car immobilizer systems Electrical failures Erased markings Speed calculations Tachograph charts Trajectory determination Tyre examination

## **Annex 02 – Mechanical Testing**

## Applicable fields of Mechanical testing under SLAB accreditation shall be as follows

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- (a) Mechanical Properties of Materials
- (b) Metallographic Test
- (c) Properties of Powder Metallurgical Products
- (d) Building Materials
- (e) Plastic, Rubber and Leather
- (f) Textile Materials
- (g) Soil and Rock

| (    | Group - Mechanical Properties of Materials        | Group - Properties of Powder Metallurgical      |
|------|---|---|
| 1 Te | ensile test (% elongation, Y.S., T.S., Modules of | Products  |
| Elas | sticity, Reduction of area)                       | 1 Density                                       |
| 2 C  | ompression Test                                   | 2 Porosity                                      |
| 3 A  | dhesion Strength Test                             | 3 Flow Rate                                     |
| 4 B  | onding Strength                                   | 4 Transverse                                    |
| 5 Sł | near Test   | 5.Rupture Test                                  |
| 6    | Hardness Test; a) Rockwell b) Brinell c)          | 6 Coefficient of Friction (Dynamic)             |
|      | Vickers d) Knoop e) Shore                         | 7 Coefficient Friction (Static)                 |
| 7    | Hardenability Test                                | 8. Fracture Toughness                           |
| 8    | Bend Test   | 9 Abrasive Wear Resistance                      |
| 9    | Formability Test                                  | 10 Radial Crushing Strength of Sintered Bearing |
| 10   | Drawability Test                                  | 11 Compressive Yield Strength                   |
| 11   | Impact Test a) Izod Impact b) Charpy Impact       | 12 Strength Test for Sintered Gear              |
| 12   | Machinability Test                                | 13 Sieve Analysis                               |
| 13   | Stress-rupture Test                               | 14 Particle Size Distribution                   |
| 14   | Creep Test; Stress Relaxation                     | 15 Compatibility                                |
| 15   | Lapping, Wrapping, Coiling Test                   | 16 Case Depth Measurement                       |
| 16   | Fatigue Test a) Axial Fatigue b) Flexural         |   |
|      | Fatigue c) Rotating Bending Fatigue               |   |
| 17   | Fracture Toughness Test a) Plain Strain           |   |
|      | Fracture Toughness Test b) Crack Opening          |   |
|      | Displacement Test c) Crack Growth Rate Test       |   |
|      | d) Nil Ductility Transition Test e) Drop Weight   |   |
|      | Test  |   |
| 18   | Spring Test a) In Compression b) In Tension       |   |
| 19   | Tube Testing a) Building Test b) Flattening       |   |
|      | Test c) Crushing Strength Test d) Drift           |   |
|      | Expansion Test                                    |   |
| 20   | Weldability Test (a) Impact Cold Cracking Test    |   |
|      | b) Y-groove Cracking Test                         |   |
|      | c) Hot Cracking Test                              |   |

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d) Circular Patch Test e) Diffusible Hydrogen Measurement by Hg Method & Gas Chromatography f) Thermal Cycle Reheat Cracking Test g) Thermal Hot Ductility Test h) Delta Ferrite Measurement Spot/ Projection/ Seam Weld Tests 21 (a) Cross Tension Test (b) U-Tension Test (c) Peel Off Test (d) Tensile Shear Test 22 Coated Welding Electrode Testing 23 Residual Stress Measurement a) X-ray Diffraction Stress Analyzer b) Hole Drilling Method Torsional Fatigue 24 Tests on Fasteners: a) Proof Test b) Thread Slip Measurement 25 Corrosion Tests: a). Salt Spray Test b). Cu-accelerated Acetic Acid-Salt Spray Test (CASS) c). Stress Corrosion Cracking Test d). Hydrogen Embrittlement (Stress Durability Test) 26 Wear/ Abrasion Resistance Test **Group - Buildings Materials Group - Plastics, Rubber and Leather** 1. Cement /Cement products **Plastics and Rubber** a) Fineness by wet sieving 1 Density/ Specific Gravity b) Fineness by dry sieving 2 Hardness c) Fineness by air permeability a) Durometer Hardness d) Consistency b) IRHD e) Setting Time (initial, final) c) Rebound Value f) False Setting 3 Indentation Hardness Index g) Soundness by Le Chatelier Test 4 Tensile Testing and elongation at break h) Soundness by Autoclave Test i) Compressive Strength j) Tensile Strength 5 Compression Test k) Compressive & Flexural Strength Using Flexing Test, Crystallinity Test Prism Moulds Impact Test

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1) Drying Content

a) Izod Impact

b) Charpy Impact

- m) Air Content
- n) Water Retention
- o) Specific Gravity
- p) Heat of Hydration Whiteness Index
- q) Bleeding of Cement Paste Mortars
- r) Expansion of Portland Cement Mortars Exposed to Sulphate
- s) Potential Expansion of Portland Cement

Mortars Exposed to Sulphate

t) Restrained Expansion of Expansive

**Cement Mortars** 

u) Length Change of Hardened Hydraulic

Cement Mortar and Concrete

w) Length Change of Hydraulic Cement

Mortar Exposed to a Mixed Sodium and

Magnesium Sulphate Solution

#### 2. Pozzolana

- a) Density
- b) Fineness (+45 μ Sieve)
- c) Fineness by Blaine Air Permeability

Method

- d) Cement Reactivity
- e) Lime Reactivity f) Soundness
- g) Drying Shrinkage h) Air-entrainment of Mortar

#### 3. Gypsum Board Products and Gypsum Lath

- a) Flexural Strength
- b) Humidified Deflection
- c) Core, End and Edge Hardness
- d) End Squareness
- e) Nail Pull Resistance
- f) Nominal Thickness
- g) Recessed or Tapered Edge Depth
- h) Width, Length
- i) Water Resistance Off Core-treated

Gypsum Board

j) Surface Water Resistance of Gypsum

Boards with Water-Repellent Face Paper

# **4. Joint Treatment Materials for Gypsum Board Construction Joint Compound Test**

- a) Consistency
- b) Shrinkage
- c) Check Cracking Putrefaction

- c) Falling Weight Impact
- 8 Accelerated Ageing Test
- 9 Abrasion Test
- 10 Tear Strength
- 11 Bond Strength
- 12 Brittle Point Test
- 13 Melt Flow Index (MFI)
- 14 Melting/ Softening Point
- 15 Flammability Test/ Limited Oxygen Index Test
- 16 Dimensional Stability (VICAT/ HDT)
- 17 Coefficient of Friction
- 18 Water Absorption Test
- 19 Permeability Test
- 20 Migration & Staining Test
- 21 Swelling Test
- 22 Shear Strength
- 23 Viscosity Test
- 24 Rheological Propriety Test

Low Rate Test

25 UV Resistance and Condensation Test

26Ozone Resistance Test

- a)Static Test b) Dynamic Test
- 27 Xenon/ Carbon Arc Resistance Test (Accelerated Weathering Test)
- 28 Resilience Test
- 29 Dynamic Test
  - a) Dynamic Stiffness
  - b) Loss Modulus (Tan-S)
  - c) Material Damping Coefficient
  - d) Dissipation Factor
- 30 Gloss Finish
- 31 Flammable Adhesives
  - a) Open Tack Time
- b) Gel Point
- c) Viscosity
- d) Total Solid
- e) Spreadibility
- f) Bond Strength (Initial / Aged)

# **PVC pipes& Fittings**

Hydrostatic pressure

Falling weight Impact test

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#### 5. Joint Reinforcing Tape

- a) Tensile Strength
- b) Dimensional Stability
- c) Width, Thickness

# 6. Bond of Joint Reinforcing Tape to Joint **Compound**

- a) Bond Test
- b) Edge Cracking

# 7. Adhesives for Pasting Gypsum Wall Board to **Wood Framing**

- a) Open Time
- b) Wetting Characteristics
- c) Shear Strength
- d) Tensile Strength
- e) Bridging Characteristics f) Ageing Properties g) Freeze Thaw Stability
  - h) Vinyl Covered

Gypsum Board Compatibility i) Adhesive Staining

#### 8. Aggregates

- a) Grading (Sieve Analysis)
- b) Deleterious Substances Clay Lumps Finer Than 75µ Sieve Coal and Lignite Soft Materials
- c) Organic Impurities in Fine Aggregates
- d) Estimation of Mica
- e) Unit Weight and Voids (Bulk Density)
- f) Soundness of Aggregate
- g) Potential Alkali reactivity of Cement aggregate Combinations (Mortar-Bar Method)
- h) Petrographic Examination
- i) Potential Volume Change of Cement-Aggregate Combinations
- j) Abrasion Value
- k) Impact Value
- 1) Crushing Value
- m) 10% Fines Value
- n) Compressive Strength of Rock Samples
- o) Surface Moisture, Total Moisture
- p) Specific Gravity and Absorption
- q) Straining Materials in Light Weight Concrete Aggregates
- r) Angularity Number
- s) Flaquiness Index
- t) Elongation Index

- u) Chert
- v) Effect of Organic Impurities in Fine Aggregate of

Mortar

Stress reliving test

#### Leather

- 1 Measurement of Width, Thickness and Area
- 2 Determination of Apparent Density
- 3 Tensile Test
- 4 Tear Strength
- 5 Double Hole Stitch Tear Strength

Tongue Tear Strength

- 06 Shrinkage Temperature
- 07Absorption of Water (Gravimetric Method)
- 08Cracking of Grain and Grain Index
- 09 Two Dimensional Extension
- 10 Resistance to Compression
- 11Compressibility Test
- 12 Indentation Index
- 13 Dynamic Water Proofness of Boot and Shoe Sole Leather
- 14 Flexing Endurance
- 15 Dynamic Water Proofness Test for Upper Leather
- 16 Water Vapour Permeability
- 17 Water Proofness of Gloving Leather
- 18 Bond Strength of Laminated Leather
- 19 Thermal Conductivity
- 20 Area Stability on Immersion in Water and Oil
- 21 Spray Test for Estimating Water Repellency of Clothing Leather

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# 9. Bricks 9.1 Building Bricks a) Compressive b) Water Absorption c) Efflorescence d) Bond Strength dimensional requirements e) Bulk Density f) wetting expansion g) Drying shrinkage **9.2** – Tiles a) Clay roofing tile - Permeability, Water absorption, Load baring, Transverse strength. 9.2 Fire and Silica Refractory Materials a) Cold Crushing Strength b) Apparent Porosity c) True Density and True Specific Gravity d) Sizes and Shapes e) Bulk Density 10 Coating Material on Reinforcing Steel a) Resistance to Applied Voltage b) Chloride Permeability c) Adhesion of Coating d) Bond Strength to Concrete

- f) Impact Test
- g) Hardness Test

e) Abrasion Resistance

#### 11. Building Lime Field Tests

a) Ball Test

- b) Impurity Test
- c) Plasticity Test
- d) Workability Test
- e) Visual Examination

#### **Mechanical Tests for Lime**

- a) Fineness
- b) Anhydrated Oxide of Quick Lime
- c) Volume Yield of Quick Lime
- d) Compressive and Transverse Strength

#### **Building Bricks**

- a) Workability
- b) Soundness
- c) Popping and Pitting
- d) Setting Time

#### 12. Admixtures

- a) Water Content
- b) Time of Setting

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c) Compressive Strength d) Flexural Strength e) Length Change f) Ash Content g) Relative Durability Factor h) Dry Material Content i) Relative Density 13. Concrete (Fresh) a) Unit Weight, Yield, Air Content b) Bleeding c) Water Content d) Cement Content 14. Workability a) Flow Table b) Slump c) Vee Bee Test d) Compacting Factor f) K-Slump Test e) Kelly Ball Test h) Time of Setting g) Temperature 15. Analysis of Hardened Concrete a) Water Content of Set Concrete b) Compressive Strength c) Flexural Strength d) Direct Tensile Test e) Indirect Tensile Strength (Split Cylinder Test, Punch Test, Frame Method) f) Static Modulus of Elasticity g) Poisson's Ratio h) Durability Test (Freezing and Thawing) i) Shrinkage and Moisture Movement j) Resistance of Concrete to Abrasion and Erosion k) Abrasion Resistance of Concrete by Sand Blasting 1) Abrasion Resistance of Horizontal Concrete Surfaces by Revolving Disks by Dressing Wheels by Ball Bearings m) Abrasion Resistance of Concrete/ Mortar Surfaces by Rotating Cutter Method n) Permeability of Concrete o) Absorption of Concrete p) Creep of Concrete q) Accelerated Testing of Concrete for Compressive Strength r) Time of Setting of Concrete s) Petrographic Examination of Hardened Concrete (for Alkali-Silica Gel Formation) t) Mechanical Properties of Hardened Concrete **Under Triaxial Loads** 

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u) The Break-off Number of Concrete

| v) Microscopical Determination of Parameters of the |  |
|---|--|
| Air-Void System                                     |  |
| w) Dynamic Modulus of Rigidity                      |  |
| x) Dynamic Poisson's Ratio                          |  |
|   |  |
| 16. Timber  |  |
| a) Moisture Content Using Moisture Meter            |  |
| b) Moisture Content Using Hot Air Oven Method       |  |
| c) Specific Gravity d) Static Bonding Test          |  |
| e) Compression Test f) Tension Test                 |  |
| g) Nail Holding Test h) Screw Holding Test          |  |
| i) Impact Test j) Torsion Test                      |  |
|   |  |
| 17. Plyboard  |  |
| a) Resistance to Dry Heat b) Fire Resistance        |  |
| c) Glue Shear Strength d) Adhesion of Piles         |  |
| e) Water Resistance f) Nycological Test             |  |
| g) Fibre Diameter h) Friability                     |  |
| i) Recovery After Compression j) Incombustibility   |  |
| k) Moisture Absorption 1) Linear Shrinkage          |  |
| m) Water Vapour Permeance n) Dimension              |  |
| 18. Bitumen   |  |
| a) Softening Point Test b) Flash Point Test         |  |
| c) Penetration Test d) Ductility Test               |  |
| e) Viscosity Test Marshall Stability Test           |  |
| Group - Textile Materials                           | Group - Textile Materials                      |
| 1.Fibers  | Fabric (Woven)                                 |
| a)Textile Characteristics of Individual             | a) Tensile Tests b) Abrasion Resistance Test   |
| Textiles Fibres                                     | c) Bursting Strength d) Pile Retention of Cord |
| b) Bundle Strength                                  | Fabric e) Piling Resistance Test               |
|   |  |
| 2.Yarns   | f) Stretch Properties Test                     |
| a) Breaking Strength of Yarn in Skein Form          | g) Stiffness Test                              |
| b) Tensile Properties                               | h) Snagging Pagistanga Tagt                    |
| c) Permanent Deformation of Elastomeric Yarn        | h) Snagging Resistance Test                    |
| d) Sewing Threads                                   |  |
| e) Shrinkage of Yarn                                | Fabrics (Non-Woven)                            |
| f) Coefficient of Friction                          | , ,  |
| Industrial Textiles                                 | a) Stiffness Test                              |
| a) Tensile Tests b) Drop Test                       | b) Tearing Strength Test                       |
| a, remote rests o) Drop rest                        |  |
|   |  |

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#### **Tyre Cord Fabric Test**

- a) Tensile Tests
- b) Adhesion Test of Tyre Cords to Other Reinforcing Rubber Compounds
- c) Strap Peel Adhesion of Reinforcing Cords or Fabrics to Rubber Compounds
- d) Thermal Shrinkage Test

#### **Zippers and Fasteners**

- a) Impact Resistance of Plastic Zips
- b) Operability of Zippers
- c) Peel Strength of Hook and Loop Touch Fasteners
- d) Resistance of Un-snapping of Snap Fasteners
- e) Shear Strength Test
- f) Strength Test of Zippers

# Group - Soil and Rock Testing Soil Testing

- a) Specific Gravity
- b) Grain Size Analysis
- c) Atterberg's Limit (LL, PL,SL)
- d) Unit Weight
- e) Moisture Content
- f) Direct Shear Test
- g) Unconfined Compression Test
- h) Triaxial Compression Test Oedometer
- Consolidation Test
- i) Permeability Test
- j) Field Moisture Equivalent
- k) Centrifuge Moisture Equivalent
- 1) Linear Shrinkage Test
- m) Compaction Test
- n) Vane Shear Test
- o) Free Shear Test
- p) Free Swell Index of Soil
- q) Swelling Pressure of Soil
- r) California Bearing Ratio (CBR) Test

# **Vibration**a) Measurement of Noise Reduction of Sound

**Group – Other (Acoustic Testing) - Noise &** 

- a) Measurement of Noise Reduction of Sound Isolating Enclosures.
- b) Measurement of Insertion Loss Ducts and Mufflers.
- c) Vibration Characteristics of Materials, Components, Assemblies and Structures.
- d) Measurement of Mechanical Vibrations & Performance.
- e) Dynamic Balancing
- f) Mechanical Shock Testing.
- g) Vibration Test on Connection and Relay
- h) Vibration Record on Transmission Line.

## Soil Testing (Field)

- a) Field CBR Test
- b) Direct Shear Box Test for Soil Containing Gravels
- c) Standard Penetration Test
- d) Static Cone Penetration Test
- e) Modulus of Subgrade Reaction (K-Value) of Soil
- by Plate Load Test
- f) Pile Loading Testing
- g) Field Permeability Test

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#### **Rock Testing** a) Uni-axial Compressive Strength Test b) Triaxial Compression Test c) Modulus of Elasticity and Poisson's Ratio of Rock Material in Uniaxial Compression d) Slake Durability Index of Rock e) Tensile Strength by Indirect Test on Rock Specimen f) Dynamic Modulus of Rock Core Specimen g) Point Load Test h) Pullout Test on Anchor Bars and Rock Bolts i) Hardness Testing j) Shear Strength of Rock Joints by Direct Shear Box k) Rock Mass Deformability Using a Flexible Dilatometer 1) Hydraulic Fracture Test m) Flat Jet Test **Group - Performance Test Group - Performance Test** 1 Proof Pressure Test on Pipes and Valves 27 Orque Wrench 2 Aluminium Milk Cans 3 Air Compressor 28 Water Meter 4 Air Blower 29 Rubber Sealing Ring 5 Test on Bicycle: 30 Rubber Welding Hose b) Pedal 31 Speedometer Cable a) Frame c) Crank and Chain d) Wheels 32 Prototype Transmission Tower Testing 33 Scaled Down Model Transmission Tower e) Handle Bar f) Hub h) Tubes **Testing** g) Spoke 34 Industrial Air Cleaner: 6. Test on Bip Tap and Stop Tap a) Airflow Restriction and Pressure Drop Test 7. Test on Ball Valves b) Initial Efficiency Test **8.** Test on Centrifugal Pumps c) Dust Capacity and Accumulative Efficiency 9. Test on Commercial Cooking Range & LPG d) Pre-cleaner Performance

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Temperature

35 Performance of Steel Parts at Sub-Zero

36 Performance of Rubber Parts at Sub-Zero

**Appliances** 

10. Test on Domestic Pressure Cooker

11. Test on Gas Cylinders, Valves & Regulators

- 12. Proof load Tests on Chains
- 13. Compression Test for Bridge Bearings
- **14.** Load Test on Draw Bar Hooks and Laminated Springs
- **15.** Load Test on Coil Springs
  - a) 0-1 kg
- b) 0-100 kg
- c) above 100 kg.
- 16. Load Test on Chain Pulley Block
  - a) Below 10 tons
  - b) 10 tons to 20 tons
  - c) Above 20 tons
- 17. Load Test on Hand Operated Winch Load Test on Hydraulic Jacks:
  - a) Proof load upto 100 tons
  - b) Proof load from 100 to 150 tons
  - c) Proof load above 150 tons
- 18. Load Test on Screw Jacks:
- a) Up to 15 tons
- b) Between 15 to 30 tons
- c) Above 30 tons
- 19 Load Test on Steel Wire Ropes:
- a) Up to 1" dia
- b) Between 1" & 1 ½ dia
- c) Above 1 ½ dia
- 20. Proof load Test on Electrically Operated Winch
- 21 Test on Hack Saw Blade
- 22 Test on Hurricane Lanterns
- 23 Test on Hand Sprayers
- 24 Test on Steel Files
- 25 Test on Twist Drill
- 26 Test on Sieves

- Temperature
- 37 Performance of Diesel / Petrol Engine
- 38 Performance of IC Engine at Higher Altitude
- 39 Endurance Test for Starter Motor
- 40 Endurance Test for Jacks
- 41 Performance and Life Test for Oil Seals
- 42 Life Cycle Test for AC Pumps
- 43 Performance Test of Compete Vehicle on Chassis Dynamometer
- 44 Endurance Test for Bonded Rubber Wheels
- 45 Test of Helmets
- 46 Test of Safety Glass
- 47 Test of Surgical Gloves
- 48 Test on Burners

# Annex 03 Applicable Product Group for Chemical Testing

| 1. Adhesives & sealants, Resins, Antibiotics | 21. Petroleum products |
|--|------------------------|
|--|------------------------|

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2. Air, gases & atmosphere 22. Plastics & plastic products 3. Biocides 23. Pollution & effluents 4. Building Materials 24. Pulp & Paper 5. Cement and related products 25. PPE 6. Clays, Ceramics and related materials 26. Residues in water & food Products 7. Coal, Coke & other solid fuels 27. Rubber & rubber products 8. Cosmetics & essential oils 28. Radiation level in consumables 9. Drugs & Pharmaceuticals 29. Solvents 10. Explosives & pyrotechnics 30. Sampling 11. Fertilizers 31. Soil 12. Industrial & fine chemicals 32. Soaps & detergents 13. Inks, dyes & pigments 33. Pesticides 14. Leather & Leather Products 34. Package materials 15. Food & agricultural products 35. Textile & related products 16. Metals & alloys 36. Water & Waste water 17. Oils & lubricants 37. Animal feed 18. Ores & Minerals 19. Organic chemicals 20. Paints & surface coatings

# Annex 04 Applicable Product Group for Biological Testing

| 1 Food and Agricultural Products | 2 Drugs and Pharmaceuticals |
|----------------------------------|-----------------------------|
|                                  | Antibiotics                 |

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**Animal Feeds** 

**Bakery & Confectionery Products** 

Beverages (Alcoholic / Non-Alcoholic)

Canned & Processed Foods

Cereals, Pulses & Cereal Products

Coffee & Cocoa Products

**Edible Colours & Flavours** 

Edible Oils & Fats

Eggs & Egg Products

**Essential Nutrients Including Vitamins** 

Fish & Sea Foods

Food Additives & Preservatives

Fruit & Fruit Products Gelatin and Other Gums

Genetically Modified **Foods** and

agricultural products

Herbs, Spices & Condiments

Honey & Honey Products

**Infant Foods** 

Jams, Juices, Sauces & Concentrates

Meat & Meat Products Milk & Dairy Products

Margarine

Natural Waxes

**Nutritional Supplements** 

**Nuts & Nut Products** 

Oil Seeds & By-Products

Pet Foods

Poultry & Poultry Products

Starch & Starch Products

Sugar & Sugar Products

Tea

Tobacco & Tobacco Products

Vegetables & Vegetable Products

Other Specified Food Items

Sensory Evaluation Tests on Foods

Ayurvedic Drugs

Biotechnology derived pharmaceuticals

Chemotherapeutic Agents

Drug Intermediates & Raw Materials

**Endotoxins** 

**Enzymes** 

Filterable Solutions & Soluble Preparations

Hormones

Herbal drugs

**Immunological Products** 

Microbial limit tests

Natural Drugs

Non-Filterable **Preparations** Including

**Ointments** 

Preservative efficacy

Pyrogen tests

Sterility tests

**Surgical Dressings** 

Synthetic Drugs

Vaccines

**Veterinary Drugs** 

Vitamins

Bioassays of Other Products (Other Than

Those Products Mentioned Above)

Tests for Medical devices and Medical

**Textile** 

Specific Pathogens

Sterility

Other Specified Tests

3 Water

Drinking water Potable water

**4 Pollution and Environment** 

Air

**Effluents** 

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Solid waste Packaged Drinking Water Sewage Packaged Natural Mineral Water Soil Water for Swimming Pool and Spas Water for Construction Purpose Water Purifiers Ground Water/ Surface Water Water for Medicinal Purposes Distilled /Demineralized Water Water for Processed Food Industry Water for industrial purpose Ice Test for Efficacy of Water Filtering Plants **5 Biocides** 6 Cosmetics, Perfumes and Essential Oil Algacides Pathogens **Bactericides** Microbial Count **Fungicides** Preservative Efficacy Herbicides **Sterility Tests** Insecticides Sporicides Vermicides Weedicides Antiseptics, Disinfectants 7 Industrial Cultures 8 Seed Testing **Dairy Starter Cultures** Sampling Rizhobial Cultures Moisture Yeast and Other Ferments **Purity** Mushroom Spawn Germination Meat Starter Cultures Tertazolium Other specified cultures Fluorescence Other Specified Tests 9 Plants and Plant Materials for Presence of 10 Molecular Biology **Disease** (Tests for Various Matrices) Identification of Bacterial Pathogens Genotyping Identification of Fungal Pathogens Promoter/Terminator Screening Identification of Viral Pathogens Pathogen Detection Other Specified Tests Gene Expression

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| 11 GMO Testing Detection by DNA Detection by Protein   | Gene Copy Number Bacterial Mutagenicity Tests Sister Chromatid Exchange Tests Transformation Assays In Cell culture Other Specified Tests  12 Cell Culture Cytotoxicity Cytogenetics Cell permeability test   |
|--|---|
| 13 Resistance to Microbial Attack  Textiles and Fabrics Paints and surface coatings Adhesives, glues and other bonding Paper and paper pulp Electrical Components Timber and Allied Material Other Specified Materials | 14 Biological Tests on Other Miscellaneous Test Items  Adhesives Glues and Sealant Fuels and Oils Lubricants Packaging Materials Paints & Surface Coatings Pulp & Paper Soaps & Detergents Textiles & Fabrics Wood & Wooden Products Toys and Other Children's Products Bio-fertilizer Soil Conditioners and Organic Fertilizer |
| 15 Factory Hygiene Purposes Surfaces Air Water   | Acute Toxicity Subacute Toxicity Neurobehavioral Toxicity Evaluation Promoter screening Reproductive Toxicity Chronic toxicity Generation Study Mucous membrane irritation test Skin sensitization test Hypersensitivity/allergenicity test Eye irritation test Neurotoxicity   |

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|  | C : ::                                  |
|--|---|
|  | Carcinogenicity                         |
|  | Environmental toxicity                  |
|  | Mutagenicity                            |
|  | Teratogenicity                          |
|  | Fish Toxicity Studies                   |
|  | Bird Toxicity                           |
|  |   |
| 17 Identification of Bacterial and Viral       | 18 Residue Analysis                     |
| Pathogens in Food Items by:                    | Antibiotic residue analysis by ELISA or |
| Test Kits                                      | any microbial method                    |
| ELISA  |   |
| PCR  |   |
|  |   |
| 19 Veterinary Testing                          | 20 Phytosanitary Tests                  |
| Specified tests in biochemistry,               | Testing of quarantine pathogens         |
| haematology, cytopathology, histopathology etc |   |
|  |   |
| 21 Medical devices                             | 22 Sampling                             |
| PPE  |   |

# Annex 5 Applicable field in Electric / Electrical

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Electrical appliances Electrical MCCBs

**RCBs** 

Electric meters

Isolators

Electrical lighting

Electrical Switches and sockets

Electric cables

Generators and motors

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# Annex 06 COMPOSITION OF THE TECHNICAL ADVISORY COMMITTEE

| SI<br>No | Name                      | Designation   | Status |
|----------|---------------------------|---|--------|
| 01       | Dr. S.I.Abegunawardana    | Retired Senior Lecturer. University of Kelaniya, Kelaniya                               | Member |
| 02       | Ms.W.A.J.Sajeevika Perera | Principle Research Scientist - Quality Assurance, Industrial Technology Institute       | Member |
| 03       | Ms.Hasika Thilakaratne    | Technical Manager – Bamber & Bruce Laboratory (Pvt) Ltd                                 | Member |
| 04       | Mr.E G Somapala           | Retired Government Analyst  | Member |
| 05       | Ms.Dilani Rodrigo         | Senior Deputy Director (Acting),<br>Sri Lanka Standard Institution                      | Member |
| 06       | Dr. H.P.P.S.Somasiri      | Principle Research Scientist,<br>Industrial Technology Institute                        | Member |
| 07       | Mr. T S Amarawansa        | Former Deputy Director General-<br>Sri Lanka Standard Institution                       | Member |
| 08       | Mr.Sanath Perera          | Assistant Director, Sri Lanka<br>Standard Institution                                   | Member |
| 09       | Ms.Devaki Rodrigo         | President/Sri Lanka Association of<br>Testing Laboratories                              | Member |
| 10       | Dr.Amal Vadysinghe        | Senior Lecturer , Faculty of<br>Medicine, University of Peradeniya                      | Member |
| 11       | Prof. Indira Kithulwatte  | Head/Department of Forensic<br>Medicine, Faculty of Medicine,<br>University of Kelaniya | Member |
| 12       | Mrs. Vajirapani De Silva  | Senior Scientist, Genetech<br>Molecular Diagnostics and School<br>of Gene Technology    | Member |
| 13       | Mr. R G Perera            | Head of Calibration- Lanka<br>Calibration Services (Pvt) Ltd.                           | Member |

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