ISO/IEC 17025:2005
Laboratories Accreditation System

by

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5. Technical Requirements

5.5 Equipment

5-5-1 The Lab. shall be ***furnished with all items of sampling, measurement and test equip***. to ensure the correct performance of test activities.

5-5-2 Equip. shall be ***capable of achieving the required accuracy***.

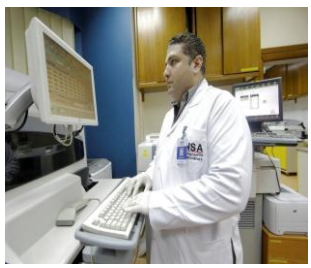
Calibration Programs

Check before use.

5-5-3 Equipment shall operated by ***authorized personnel. Personnel shall use up-to-date instructions on use & maintenance***

5-5-4 The Equip. shall be ***uniquely identified***

5-5-5 Records of the equip. and its software shall be ***maintained and contain of the related data***



5. Technical Requirements

5.5.5 Equipment

Records of the equip. and its software shall be ***maintained and contain of the related data.***

- Identity of the equipment
- Manufacturer , model and serial number
- manufacturer's instructions
- contact inf. for the supplier
- Location and Status
- date of receiving and into service
- initial acceptability records
- Maintenance plan and reports
- Calibration certificate
- Modification, repair of the equipment

5. Technical Requirements

5.5 Equipment

5-5-6 lab. shall have ***procedures for safe handling, transport, storage***, use and planned maintenance.

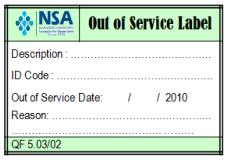
5-5-7 ***Defected equipment shall be labeled*** and taken out of service until repaired.

5-5-8 The equip. ***calibration status shall be identified and labeled***.

5-5-9 Equipment that ***goes outside the direct control*** of the lab shall be ***checked before returned to work***.

5-5-10 When intermediate checks are needed, It should be carried ***according to a defined procedure***.

5-5-11 The lab. shall have procedure to ensure that ***copies of correction factors are updated.***



5-5-12 ***Safeguard of Equipment. from invalid adjustment*** should be controlled

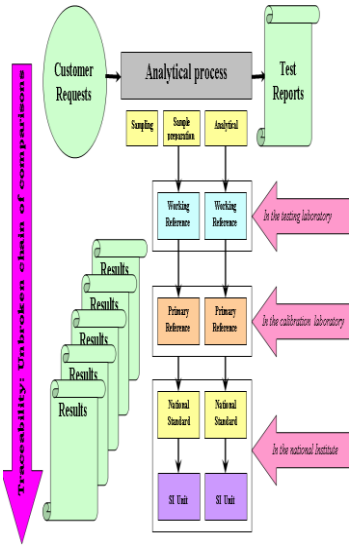
5. Technical Requirements

5.6 Measurement Tractability

The concept of traceability dates back to the Convention du Metre, signed by seventeen countries in 1875

Traceability:
Unbroken chain of comparisons

The unbroken chain of comparisons is the interconnection between a measurement and a stated reference with the highest level available through the establishment of appropriate links



5. Technical Requirements

5.6 Measurement Tractability

5.6.1 The laboratory shall established program and procedure for the calibration of its equipment which effect on the quality of the test

5.6.2.1.1 The program for calibration shall be designed and operated to ensure that calibrations and measurements are traceable to the International System of Units (SI) through :

ISO 17025 Accredited laboratory

- Traceability statement
- Uncertainty
- Logo

National metrology institute

- Participates in the activities of BIPM either directly or through regional groups
- Traceability statement
- Uncertainty

5.6.2.1.2 When calibrations that currently cannot be strictly made in SI units. In these cases calibration shall provide traceability to appropriate measurement standards such as

1- Use of certified reference materials

2- Participation in a suitable PT programs

3- Use of specified methods and/or consensus standards that are clearly described and agreed

5. Technical Requirements

5.6 Measurement Tractability

5.6.2.2 Testing Laboratories :
The extent to which the requirements in 5.6.2.1 should be followed depends on the relative contribution of the calibration uncertainty to the total uncertainty.

5.6.3.1 Reference standards
The laboratory shall have a program and procedure for calibration of its reference standards.

Shall be used for calibration only and for no other purpose and calibrated before using

5.6.3.2 Reference materials
Reference materials shall, be traceable to SI units or to certified reference materials

5.6.3.3 Intermediate checks
It is needed to reference, primary, transfer or working standards and reference materials shall be carried out according to procedures and schedule

5.6.3.4 Transport and storage
The laboratory shall have procedures for handling, transport, storage and use of reference materials

5. Technical Requirements

5.7 Sampling

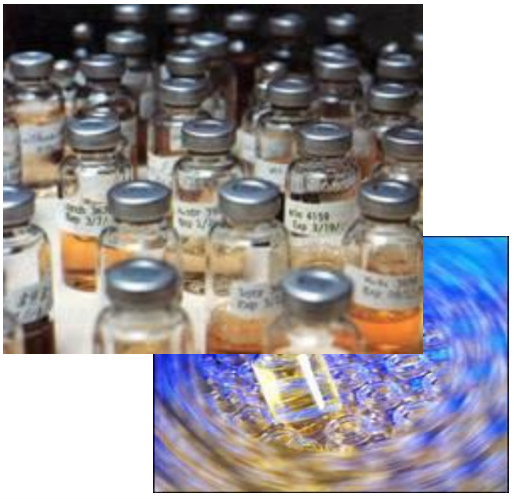
5.7.1 : The Lab. shall have ***sampling plan*** (substances, materials or products) based on statistical methods and ***Procedures for Sampling and is available at the location*** where sampling is undertaken.

5.7.2 :***Deviations, additions*** or exclusions (*requested by the client*) from sampling procedures shall be recorded.

5.7.3 : The Lab. shall have procedures for recording ***sampling data and operations***.

5. Technical Requirements

5.8 Handling of test items

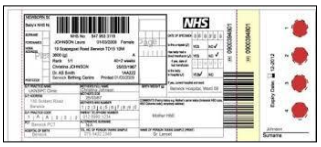


- Receipt
- Registration
- Labeling
- Identification
- Storage
- Protection
- Disposal

5. Technical Requirements

5.8 Handling of test items

5.8.1 The Laboratory shall have procedure for ***transportation, receipt, handling, storage, retention and/or disposal of test items.***



5.8.2 Design and Operate a system for ***identifying the items*** , The identification shall be retained ***throughout the life of the item*** in the laboratory.

Upon receipt , ***abnormalities or departures*** from specified conditions, as described in the test or calibration method shall be recorded

5. Technical Requirements

5.8 Handling of test items

4- The laboratory shall have Procedures and provides appropriate facilities for : -

- ❑ ***Avoiding loss or damage*** to test the items during storage, handling and preparation.`
- ❑ Following of ***the handling instructions for tested items.***
- ❑ ***Maintain, monitor and record storing environmental conditions.***
- ❑ Where a test item or a portion of an item is to be ***held secure the laboratory*** shall consider security ***arrangements for stored items***

5. Technical Requirements

5.9 Assuring the quality of test results

4.9.1 The Lab. shall have *quality control procedures* for monitoring the validity of test undertaken.

- ❑ The resulting data shall be *recorded in such a way that trends are detectable*
- ❑ *Statistical techniques* shall be applied to the reviewing of the results
- ❑ This monitoring shall be *planned and reviewed*

Monitoring activities may include:

- ❑ Regular use of the *reference materials.*
- ❑ Participation in *inter-laboratory comparison and proficiency testing* programs
- ❑ *Replicate tests using* the *same or different methods and with different analyst.*
- ❑ Duplicate tests by *using the same analyst*
- ❑ Retesting of *retained items.*
- ❑ Correlation for *different characteristics of an item*

4.9.2 Quality control data shall be *analyzed and, planned action shall be taken to correct the problem and to prevent incorrect* results from being reported.

5. Technical Requirements

5.10 Reporting the results

5.10.1 General: Report results accurately, clearly, unambiguously and objectively, information for interpretation

5-10-2 Test report certificates shall include at least:
Title, the name and address of the lab. and client, unique identification, test method, the item description, date of receipt of cal. items and date of performing test, sampling plan and procedures, results, signatures .

5-10-5- Opinions and interpretations
When included, document the basis upon which they have been made

5.10.6 Subcontractors results
It shall be clearly identified.

5-10-3 Test report:
Additional requirements are:
- Any deviation, addition or exclusion from test method.
- A statement of compliance or non-compliance with requirements.
- Statement of the estimated uncertainty.
- Opinion and interpretation
- Additional information
- Additional requirements for sampling
- Details of environmental conditions, sampling standards or specification.

5.10.7 Electronic transmission of results shall met the requirements of ISO17025

5.10.8 Format of reports to minimize the possibility of misuse or misunderstanding.

5-10-9 Amendments to test reports After issuing it shall met all the requirements of ISO17025 and shall include " Supplement to test report [or calibration certificate], serial number

Work Shop No. 3