

LEGAL METROLOGY
in OIML Corresponding Members

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October 1996

FOREWORD

This directory aims at presenting information concerning national metrological laws and regulations and their implementation in OIML Corresponding Members(*). National standards laboratories, calibration systems, and accreditation and certification activities related to metrology are also covered, where applicable.

The information is generally supplied using the following headlines:

- 1 Laws of metrology
- 2 Legal units of measurement
- 3 Instruments subject to legal control
- 4 Metrological control of quantities
- 5 Services responsible for metrology
- 5.1 National service of legal metrology
- 5.2 Local verification services
- 5.3 Laboratories responsible for maintaining national measurement standards
- 5.4 Instrument calibration and evaluation systems
- 6 Accreditation and certification systems
- 6.1 Accreditation systems for legal metrology, calibration and testing laboratories - Traceability to national, regional, international or foreign measurement standards
- 6.2 Legal and applied metrological activities in product certification
- 6.3 Legal and applied metrological activities in ISO 9000 quality management systems

For Corresponding Members not having provided updated reports at the time of publication, information has been taken from the 1990 edition of the directory and from other sources.

This directory is also supplemented by a list of other directories on metrology, developed, in particular, by and available from a number of regional organizations (*see contents*).

We hope that this directory will be useful in developing cooperation and strengthening communications between national, regional and international organizations engaged in legal metrology and related areas of metrology, testing, conformity assessment. Manufacturers and users of measuring instruments, consumer protection bodies, and other organizations connected with metrology services may also benefit from the information in this publication.

The BIML would like to thank all persons from Corresponding Members having provided the necessary information for this directory.

(*) A directory relating to OIML Member States was also published by BIML in January 1996.

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1 Laws of metrology

- Law of the Peoples' Assembly No. 7625 of 20 October 1992, on the units of measurement and control of measuring instruments (metrology),
- Decision of the Council of Ministers No. 186 of 16 April 1993, on the metrological characteristics of the measuring instruments,
- Decision of the Council of Ministers No. 212 of 4 May 1993, on metrology,
- Decision of the Council of Ministers No. 225 of 19 May 1993, on registration tariffs and payments of primary or periodical verification and calibration of measuring instruments
- Decision of the Council of Ministers No. 539 of 21 December 1992, on legal units of measurement.

2 Legal units of measurement

The International System of Units (SI). The few units outside this system will gradually be abolished.

3 Instruments subject to legal control

Instruments for the measurement of mass, length, volume, the quantity of cold water flow, electric energy and all instruments used in consumer transactions.

4 Metrological control of quantities

This control is carried out in accordance with the above decisions of the Council of Ministers and the orders, regulations, instructions and procedures issued by the National Directorate of Metrology and Calibration.

5 Services responsible for metrology

5.1 National service of legal metrology

National Directorate of Metrology and Calibration (DKMK)
Rruga "Sami Frashëri" No. 33
TIRANA

Telephone/Fax: 355-42 282 44

5.2 Local verification services

Fourteen branches and thirty-six offices forming part of the National Directorate of Metrology and Calibration are concerned with the control of measuring instruments.

5.3 Laboratories responsible for maintaining national measurement standards

The laboratories of the National Directorate of Metrology and Calibration and other laboratories accredited by this Directorate.

5.4 Instrument calibration and evaluation systems

National Directorate of Metrology and Calibration.

6 Accreditation and certification systems

No information received.

5 Services responsible for metrology

5.1 National service of legal metrology

Department of Quality and Measuring Instruments (DQIM)
BP 2037
COTONOU

Telephone: 229-31 47 92
Fax: 229-31 52 58

The DQIM was established by Decree No. 79-171 of 23 July 1979 and became responsible for the implementation of national policy in the fields of metrology and of legal metrology.

Within its field of competence, the DQIM coordinates activity at the level of various ministerial departments (studies, research, harmonization of works) with the aim of developing metrology. It also supervises implementation of metrological laws and regulations and ensures the control of measuring instruments and the quality of industrial products.

5.2 Local verification services

Based in Cotonou, the economic capital, the DIQM periodically participates in the work of the six administrative regions of the country in accordance with a pre-established programme of annual activities.

The very limited resources of qualified staff and equipment do not permit permanent local services to be established at present.

All the organizational structures are under the authority of the Ministry of Trade and Tourism.

Ministry of Trade and Tourism
BP 2037
COTONOU

Telephone: 229-31 54 02
229-31 53 46
229-31 55 13
Fax: 229-31 52 58

5.3 Laboratories responsible for maintaining national measurement standards

No information received.

5.4 Instrument calibration and evaluation systems

No information received.

6 Accreditation and certification systems

None.

1 Laws of metrology

The Weights and Measures Act 1970 as amended by The Weights and Measures (Amendment) Act 1971.

The Regulations made under these Acts are:

- The Weights and Measures (Assize) Regulations 1972 (as amended),
- The Weights and Measures (Assize Fees) Regulations 1972 (as amended),
- The Weights and Measures (Standards) Regulations 1972,
- The Weights and Measures (Certificate of Competency) Regulations 1972,
- The Weights and Measures (Sale of Articles) Regulations 1973 (as amended),
- The Weights and Measures (Prohibition of Non-Metric Instruments) Order 1974,
- The Weights and Measures (Egg Grading) Regulations 1982.

2 Legal units of measurement

The legal units of measurement are those of the International System of Units (SI).

Length: metre

Mass: kilogram

Liquid capacity: litre

3 Instruments subject to legal control

- weights, measures of length and capacity,
- weighing instruments,
- fabric measuring instruments (length),
- liquid measuring devices and meters,
- vehicle tanks and/or dipsticks.

These devices, when used in trade, are subject to control under the Weights and Measures Acts with the exception of electricity, gas, taxi and water meters and instruments used for grading or testing agricultural produce by weight.

Electricity supply meters are controlled by the Electricity Supply Regulations 1977 and are the responsibility of the Botswana Power Corporation who tests all new meters and re-tests in cases of dispute.

4 Metrological control of quantities

The Weights and Measures Acts and the Weights and Measures (Sale of Articles) Regulations control all contracts agreed to by reference to weight or measure, except in the case of land.

There are specific requirements for delivery documents, prepackaged articles and specified articles that may only be sold by weight or measure or in prescribed quantities.

5 Services responsible for metrology

5.1 National service of legal metrology

Department of Commerce and Consumer Affairs
Division of Weights and Measures
Private Bag 0048
GABORONE

Telephone: 267-352 571
Fax: 267-375 239
Telex: 2674 BD

All new patterns of weighing or measuring instruments and modifications are subject to pattern approval by the Division of Weights and Measures.

5.2 Local verification services

Local verification is carried out at "Assize Stations" held in centres of high population density.

Individual premises are visited in areas of low population density.

At present there are no permanent local verification offices apart from the headquarters office.

5.3 Laboratories responsible for maintaining national measurement standards

The Division of Weights and Measures has metrological laboratories housing the national and local standards.

5.4 Instrument calibration and evaluation systems

The Division of Weights and Measures is empowered to issue Certificates of Test for instruments or articles stating errors, quantities and general findings.

The Water Utilities Corporation tests new water meters to be installed on consumers' premises and re-tests in cases of dispute. There is a contractual agreement on meter accuracy. The test rig has been certified by the Division of Weights and Measures with reference to national standards.

6 Accreditation and certification systems

No information received.

1 Laws of metrology

- Zatu (law) No. 86-021 CNR/PRES of 24 March 1986 concerning the system of measurement and control of measuring instruments is the basic text governing all metrology activities in Burkina Faso. This law provides the system of units of measurement used in Burkina Faso, the instruments subject to control by the State, the means of control, the different verification stamps, the taxes and fees for verification, the infringements and penalties concerning measuring instruments.
- Kiti (decree) No. AN IV 168 CNR/CAPRO/DIMC of 1 December 1986 regulating the means of control implements the above law.

2 Legal units of measurement

The system used in Burkina Faso is the metric decimal system with seven base units (SI). Units of measurement are regulated by Kiti (decree) No. AN IV-457/CNR/CAPRO of 31 July 1987.

3 Instruments subject to legal control

Instruments using SI units are subject to control by the State when they are likely to be used in the following applications:

- commercial activities,
- fixing of salaries and fees for services,
- evaluations,
- activities for which the warranty of exact measure is recognized as a public necessity.

The controls (pattern approval, initial and periodic verification) concern all instruments used in the above activities whether imported (most of them) or locally produced. At present, the following categories are regulated:

- weighing instruments (Kiti (decree) No. ANIV-457/CNR/CARPO of 31 July 1987),
- weights (the same decree),
- measures of volume of liquids (the same decree),
- instruments used for purchase and sale of grain (Order No. 81-0033/PRES of 7 September 1981 and Decree No. 02161/CODIM/DGP of 25 September 1981).

Other categories (electrical energy meters, gasoline distributors, length measures, etc.) will be regulated in due course.

4 Metrological control of quantities

The control of prepackaged products is governed by Decree No. AN IV 458 bis/CNR/CAPRO of 31 July 1987 which regulates the metrological controls imposed on certain prepackages.

In addition, the control of mass of bread is regulated by Decree No. 94-0036/MICM/SG/DGQM of 7 February 1994.

5 Services responsible for metrology

5.1 National service of legal metrology

Inspection de la Métrologie et de la Qualité (IMQ)
01 BP 6614
OUAGADOUGOU 01

Telephone: 226-30 69 17
226-30 69 18
Fax: 226-30 73 07
226-31 24 18

5.2 Local verification services

The "Inspection de la Métrologie et de la Qualité" is a central service located in Ouagadougou, whose competence extends throughout the national territory. There are no regional verification services, as yet.

However, temporary verification centres in various county towns are opening every year by decree of the Minister in charge of legal metrology. These decrees establish the territorial competence of each centre and the dates of opening and closure of their activities.

5.3 Laboratories responsible for maintaining national measurement standards

The laboratory in charge of national measurement standards is the national metrology laboratory of the "Inspection de la Métrologie et de la Qualité".

5.4 Instrument calibration and evaluation systems

The instrument calibration and evaluation system is still in its infancy. The traceability of standards in Burkina Faso therefore cannot yet be completely ensured by the national metrology laboratory of the "Inspection de la Métrologie et de la Qualité".

6 Accreditation and certification systems

6.1 Accreditation systems for legal metrology, calibration and testing laboratories - Traceability to national, regional, international or foreign measurement standards

Laboratory accreditation systems are not yet established in Burkina Faso. A national standardization body and a certification system have still to be created.

Traceability to national, international, regional or foreign standards therefore cannot yet be completely ensured by the national metrology laboratory.

6.2 Legal and applied metrological activities in product certification

The national certification system is not yet operational.

In the meantime, the "Inspection de la Métrologie et de la Qualité" has started a programme of certification of import, export and national products. Within this framework, metrological activities concern the control of quantities, the calibration of measuring instruments of enterprises and the control of these instruments. In addition, certain metrological activities are carried out at the level of enterprises.

6.3 Legal and applied metrological activities in ISO 9000 quality management systems

No metrological activities are currently conducted in the ISO 9000 quality system in Burkina Faso due to the absence of demand from national enterprises for certification and to the lack of a national certification system.

1 Laws of metrology

- Law of 8 June 1853 adopted the decimal metric system for official acts.
- Law No. 33 of 27 April 1905 (Ley sobre pesas y medidas) and Decree 956 of 30 May 1931 define the application of units and control of weights and measures.

2 Legal units of measurement

The Decree 1731 of 1967 amended by Decree 3464 of 26 December 1980 makes the International System of Units (SI) official and compulsory for the whole country. The compulsory standard ICONTEC 1000 (3rd revision) also applies.

3 Instruments subject to legal control

- weights,
- balances,
- length and volume measures,
- gasoline meters,
- taximeters.

4 Metrological control of quantities

No information received.

5 Services responsible for metrology

5.1 National service of legal metrology

The general responsibility for legal metrology and application of the SI system is placed under Superintendencia de Industria y Comercio, Division de Normas y Calidades, Seccion de Pesas y Medidas:

Superintendencia de Industria y Comercio
Carrera 13, No. 27-00, piso 10
SANTAFÉ de BOGOTÁ

Telephone: 57-1-334 20 35
57-1-341 90 35
Fax: 57-1-281 39 50

5.2 Local verification services

The verification of measures and instruments used in trade are made by the legal municipal authorities (Alcaldías Municipales).

5.3 Laboratories responsible for maintaining national measurement standards

The central metrology laboratory (created with German technical assistance) comprises standards and measuring equipment for length, engineering and dimensional metrology, mass, force, density, volume, electrical DC and AC quantities, thermometry, pressure, humidity, time and frequency. Its extensive calibration facilities are described in a booklet available in Spanish.

Centro de Control de Calidad y Metrologia
Carrera 37 No. 52-95 piso 4°
Apartado Aereo
51064 BOGOTA-2

Telephone: 57-1-221 87 15
57-1-222 04 85

5.4 Instrument calibration and evaluation systems

No information received.

6 Accreditation and certification systems

No information received.

(*) Information compiled in 1990-1995



1 Laws of metrology

Law No. 5292 and its constitutive decrees establish the Oficina Nacional de Normas y Unidades de Medida (ONNUM) as the national framework for the fields of standardization, metrology and quality control.

2 Legal units of measurement

Since 1973 Costa Rica has implemented the International System of Units (SI).

Decree No. 23355 - MEIC (issued 15 June 1994) modified Decree No. 3286 - MEIC (issued 11 October 1973) and enforced the use of SI units. This decree made mandatory the standard NCR 26: 1994 Metrología, Sistema Internacional de unidades (SI), Unidades legales de medida. This standard is in accordance with the OIML International Document D 2, *Legal Units of Measurement*, 1st edition, 1978.

3 Instruments subject to legal control

The following items are subject to legal control:

- gas filling stations,
- balances used in trade,
- clinical thermometers.

4 Metrological control of quantities

There is a programme of metrological control for:

- volume of gas filling stations,
- density and viscosity of combustible materials and petroleum derivatives,
- mass, volume and density of prepackaged products.

Other metrological controls may be applied on request.

5 Services responsible for metrology

5.1 National service of legal metrology

Oficina Nacional de Normas y Unidades de Medida (ONNUM)
Ministerio de Economía Industria y Comercio
Ciudad Universitaria Rodrigo Facion, San Pedro
Apartado: 1736 - 2050
SAN JOSÉ

Telephone: 506-257 85 11
Fax: 506-222 23 05

This office has three laboratories:

- National laboratory of legal and industrial metrology,
- Chemical laboratory,
- Petroleum products laboratory.

5.2 Local verification services

There are no regional or local verification services. Verification is accomplished through the laboratories of the ONNUM (see 5.1).

5.3 Laboratories responsible for maintaining national measurement standards

The National Laboratory of Legal and Industrial Metrology of the ONNUM, created with the technical assistance of German and American metrology services (the PTB and the NIST) and with the financial assistance of the BID, will have the standards and equipment for measurement of dimensional metrology, mass, volume, thermometry, pressure, viscosity and density.

5.4 Instrument calibration and evaluation systems

A calibration and evaluation service will be offered by the National Laboratory of Legal and Industrial Metrology. At present calibrations of volumetric calibrators are carried out at the petroleum products laboratory.

6 Accreditation and certification systems

6.1 Accreditation systems for legal metrology, calibration and testing laboratories - Traceability to national, regional, international or foreign measurement standards

Decree No. 20570 - MEIC (issued 7 August 1991) created the National System of Accreditation of Laboratories.

The National Laboratory of Legal and Industrial Metrology is working towards accreditation which will allow it to produce certification in the fields of legal and industrial metrology.

6.2 Legal and applied metrological activities in product certification

Decree No. 22969 - MEIC (issued 10 March 1994) created the national subsystem of certification (see 6.1).

6.3 Legal and applied metrological activities in ISO 9000 quality management systems

No information received.

1 Laws of metrology

Two principal laws cover the definition and extent of legal metrology in Croatia: the Law of Metrology and the Law of Measurement Units.

The State Office for Standardization and Metrology, responsible for the application of these laws, issues particular regulations prescribing metrological requirements for certain types of measuring instruments, metrological requirements for calibration laboratories, hierarchy schemes for measuring instruments, etc.

2 Legal units of measurement

The legal units of measurement are those of the International System of Units (SI), together with certain additional units permitted for official use and in commercial transactions. Details are given in the Law of Measurement Units.

3 Instruments subject to legal control

Legal control is prescribed for:

- (a) measuring instruments used in commercial activities to determine:
- length, area, volume, mass, electrical or thermal energy, volume flow of fluids or gases or density of fluids,
 - water content of fats, fat content of milk and of other dairy products, moisture content of cereals or oilseeds, and sucrose content,
 - cost of transport in passenger-carrying vehicles (taxi).
- (b) measuring instruments used in official activities and traffic surveillance.

Measuring instruments under point (a) when used in connection with the following official activities such as:

- measurement in connection with customs and fiscal legislation,
 - determination of transport charges for official bodies (post service),
 - measurement and gauging of quantities that characterize ships and barges,
 - official surveillance of road traffic,
 - preparation of expert reports in connection with proceedings initiated by legal authorities or with legal proceedings, or for other official purposes.
- (c) measuring instruments used in the field of medicine and in the production and testing of pharmaceuticals such as:
- instruments, substances and devices used in the diagnosis and treatment of humans and animals,
 - instruments used in the production and testing of pharmaceuticals,
 - instruments used to measure physical aspects of humans and animals.
- (d) measuring instruments used in the field of environmental protection, occupational safety and accident prevention.
- (e) measuring instruments used in the accredited testing laboratories.
- (f) all measurement standards.

4 Metrological control of quantities

The particular regulations for the metrological control of prepackages are in preparation, and metrological control will be gradually extended to prepackaged products.

Meanwhile, only measuring instruments used for determination of quantities of prepackaged products are subject to legal metrological control.

5 Services responsible for metrology

5.1 National service of legal metrology

The organization with national responsibility for the control of activities in the field of legal metrology is the State Office for Standardization and Metrology:

Državni zavod za normizaciju i mjeriteljstvo
Ulica grada Vukovara 78
41000 ZAGREB

Telephone: 385-41-53 99 34
Fax: 385-41-53 66 88

It is in particular responsible for:

- the realization, conservation and custody of national measurement standards and their dissemination in the country,
- issuing legal metrology requirements for certain kinds of measuring instruments,
- the verification of measuring instruments and standards (including reference materials),
- pattern approvals of measuring instruments,
- the accreditation of calibration laboratories,
- the supervision of fulfilment of the provisions of the Law of Metrology and the Law of Measurement Units,
- representing Croatia in the intergovernmental metrology organizations.

Publications: *Glasilo Zavoda.*

5.2 Local verification services

The State Office for Standardization and Metrology has four regional verification services located in the following cities: Zagreb, Split, Rijeka and Osijek.

5.3 Laboratories responsible for maintaining national measurement standards

The State Office for Standardization and Metrology is responsible for the realization, conservation and maintenance of the national measurement standards.

5.4 Instrument calibration and evaluation systems

Some calibration work is carried out by a number of laboratories in private or state enterprises which have been accredited by the State Office for Standardization and Metrology.

6 Accreditation and certification systems

No information received.

1 Laws of metrology

Ecuador issued the Weights and Measures Law on 28 December 1973 which established the implementation of the International System of Units (SI) over a ten-year period, the control of weighing and measuring equipment and instruments and the control of net content of prepackages.

The same law authorizes the General Director of the Ecuadorian Institute for Standardization (INEN) to issue Regulations and Resolutions for trade and the importation of goods and products.

2 Legal units of measurement

The Weights and Measures Law makes compulsory those units established by the International System of Units (SI).

3 Instruments subject to legal control

Instruments subject to legal control:

- laboratory weights and scales used in industry and trade,
- length measures,
- instruments for measurement of volume,
- taximeters,
- other instruments of special characteristics to arbitrate a legal dispute between two or more parties.

4 Metrological control of quantities

The Weights and Measures Law establishes that control of net content of prepackages shall be carried out according to national standards issued by the INEN. Ten standards establish sampling systems for net content, maximum permissible errors and labelling. Controls are carried out in grocery stores, supermarkets and factories.

5 Services responsible for metrology

5.1 National service of legal metrology

The Ecuadorian Institute for Standardization through its Division of Legal Metrology, inspects and tests weighing and measuring equipment, and controls the net content of packaged goods and products.

Ecuadorian Institute for Standardization (INEN)
Casilla No. 17-01-3999
QUITO

Telephone: 593-2-501 885
to 891
Fax: 593-2-567 815

5.2 Local verification services

At present, Ecuador has only one central office for legal metrology located in Quito. However, controls are carried out throughout the country to verify the fulfilment of the standing Regulations and Resolutions.

To disseminate the system of control, the INEN offers training courses to inspectors (instructors), employed by government and municipal agencies.

5.3 Laboratories responsible for maintaining national measurement standards

The national laboratory of metrology forms part of the INEN and is responsible for the custody, care and use of the national measurement standards.

At present, the laboratory maintains standards for mass, length, volume, force, pressure and electrical quantities.

5.4 Instrument calibration and evaluation systems

Calibrations that are not subject to legal control are performed on pressure meters, gauges and micrometers. These instruments generally belong to the industries involved with INEN's programme of quality assurance.

6 Accreditation and certification systems

No information received.

1 Laws of metrology

No information received.

2 Legal units of measurement

The legal units of measurement are those of the International System of Units (SI).

3 Instruments subject to legal control

Instruments for trade use: length, mass, volume measurement.

4 Metrological control of quantities

No information received.

5 Services responsible for metrology**5.1 National service of legal metrology**

Weights and Measures Division
Ministry of Economic Development, Planning and Tourism
Government Buildings
PO Box 2118
SUVA

Legal metrology and measurement standards are controlled by the Chief Inspector of Weights and Measures. The legal metrology laboratory has standards of length, mass, volume, temperature, traceable to Australian standards.

5.2 Local verification services

The legal metrology service is supported by twelve inspectors in three regional offices.

5.3 Laboratories responsible for maintaining national measurement standards

No information received.

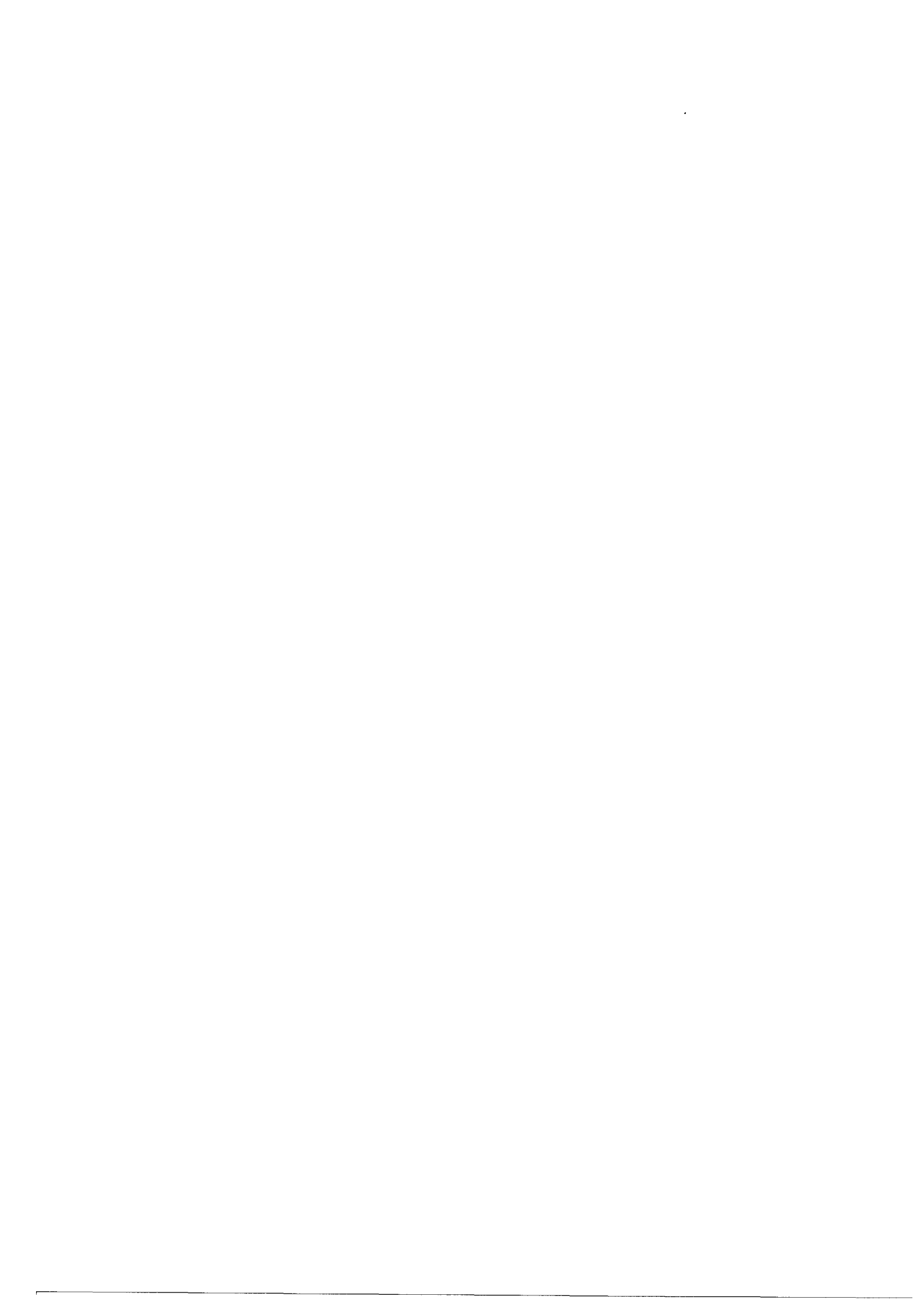
5.4 Instrument calibration and evaluation systems

No information received.

6 Accreditation and certification systems

No information received.

(*) Information compiled from CIMET Directory, 1993



1 Laws of metrology

The main laws regulating legal metrology in Ghana are the following:

- The Weights and Measures Decree 1975, NRCD 326.
- Ghana gazette, Number 38, 1993.
- Weights and Measures (permissible errors) Regulations, 1992, LI 1550.
- Weights and Measures (fees) Regulations, 1992, LI 1549.
- Prosecution of offences under the Weights and Measures Decree, 1975 (NRCD 326) Instruments, 1991: LI 1513.
- Ghana gazette, Number 8, 1991.
- Custodian of Weights and Measures (duties and powers) Regulations, 1986, LI 1325.

2 Legal units of measurement

The legal units of measurement used in Ghana are those of the International System of Units (SI).

3 Instruments subject to legal control

Instruments subject to legal control in Ghana are weights, measures, and measuring and weighing instruments used for trade and industry.

4 Metrological control of quantities

The statutory rules for regulation and control of prepackages are contained in the Weights and Measures Decree 1975, NRCD 326.

5 Services responsible for metrology

5.1 National service of legal metrology

The Ghana Standards Board is the national organization responsible for legal metrology. The Director of the Ghana Standards Board is the Custodian of Weights and Measures.

Ghana Standards Board
PO Box M 245
ACCRA

Telephone: 233-21-776191-2
Telex: 2545 Mincom (Gh)
Telegram: Stanbord Accra

5.2 Local verification services

At present, Ghana Standards Board regional offices have the responsibility for initial and subsequent verification, re-verification and control of measuring instruments used for trade and industry.

5.3 Laboratories responsible for maintaining national measurement standards

The national standards for physical quantities are in the custody of the Director of the Ghana Standards Board who is the Custodian of Weights and Measures and maintains them in the Ghana Standards Board laboratories.

5.4 Instrument calibration and evaluation systems

Calibration and evaluation of measuring instruments are undertaken on request by the Ghana Standards Board laboratories and the regional verification offices.

6 Accreditation and certification systems

No information received.



1 Laws of metrology

The legislation dealing with weights and measures in Hong Kong is the Weights and Measures Ordinance, Chapter 68, Laws of Hong Kong.

The Ordinance may be obtained from the Government Publications Sales Centre at:

G/F, General Post Office Bldg.
2 Connaught Road
HONG KONG

Telephone: 852-523 53 77
Fax: 852-537 15 43

2 Legal units of measurement

The above Ordinance prescribes the metric International System of Units (SI) as the reference system. It also permits the use of British imperial units and Chinese units. Details of these systems are set out in the First and Second Schedule annexed to the Ordinance.

3 Instruments subject to legal control

In general, nearly all weighing and measuring machines and instruments capable of indicating the mass or weight, length, width, height, area, volume, capacity or number of goods in business transactions in Hong Kong are subject to the control of the Weights and Measures Ordinance. The enforcement of the Ordinance is the responsibility of the Trading Standards Investigation Bureau (TSIB) of the Customs and Excise Department.

Trading Standards Investigation Bureau
16F, Trade Department Tower
700 Nathan Road
KOWLOON

Telephone: 852-398 51 08
Fax: 852-787 05 86
852-398 51 07

4 Metrological control of quantities

The Weights and Measures Ordinance also covers goods transacted by mass or weight, length, width, height, area, volume, capacity or number. However, it does not cover water as a commodity other than in a container nor any other type of goods for export or re-export to any place outside Hong Kong.

5 Services responsible for metrology

5.1 National service of legal metrology

The Industry Department in Hong Kong maintains authoritative reference standards of weights and measures which are traceable to the standards maintained by the National Physical Laboratory of the United Kingdom.

5.2 Local verification services

Local traders may obtain verification and calibration services for their weighing and measuring equipment from the laboratories which have joined the Hong Kong Laboratory Accreditation Scheme (HOKLAS) administered by the Industry Department.

5.3 Laboratories responsible for maintaining national measurement standards

The Standards and Calibration Laboratory (SCL) of the Industry Department maintains the national measurement standards.

Standards and Calibration Laboratory
35F and 36F, Immigration Tower
7 Gloucester Road
WANCHAI

Telephone: 852-829 48 30
Fax: 852-824 13 02

5.4 Instrument calibration and evaluation systems

No information received.

6 Accreditation and certification systems

No information received.



1 Laws of metrology

- Law No. 100/1992 on weights, measures and accreditation, deals with inspection and verification, accreditation, national measurement standards and other related matters.
- Various regulations implementing the EEC directives on metrological inspection, units of measurement and measuring instruments.
- Local regulations concerning the use and control of measuring instruments are still to be elaborated.

2 Legal units of measurement

The International System of Units (SI) as it is presented in Directive 80/181/EEC, with the exception of imperial units which will remain legal for a few years for export purposes.

3 Instruments subject to legal control

The law requires all measuring instruments used to measure products or services which are sold to the public to be subject to control and to be verified. Other categories of measuring instrument can be added to those already mentioned if required, such as instruments in the health service, road traffic control or environmental monitoring.

Traditionally, weighing instruments and petroleum volume meters have been subject to control, but other instruments such as electricity meters and hot water meters are to be covered.

4 Metrological control of quantities

Regulations and control of prepackaged products conform to Directives 75/106/EEC and 76/211/EEC.

5 Services responsible for metrology

5.1 National service of legal metrology

Löggildingarstofan
Síðumúla 13
IS-108 REYKJAVÍK

Telephone: 354-1-681 122
Fax: 354-1-685 998

Löggildingarstofan (LS) is responsible for all aspects of legal metrology in Iceland.

5.2 Local verification services

The verification service is administered solely from the office in Reykjavík. Verification is normally carried out on site, unless otherwise required.

5.3 Laboratories responsible for maintaining national measurement standards

The LS has custody of all national measurement standards currently available in Iceland (see 5.1).

5.4 Instrument calibration and evaluation systems

There is at present no system of calibration service in Iceland. A traceable calibration service is only accessible at the LS in Reykjavík.

6 Accreditation and certification systems

6.1 Accreditation systems for legal metrology, calibration and testing laboratories - Traceability to national, regional, international or foreign measurement standards

The Iceland Board for Technical Accreditation (ISAC) is an independent entity within the Löggildingarstofan, responsible for accreditation of testing and calibration laboratories, inspection bodies and certification bodies. Traceability is achieved through calibrations by EUROMET members or related calibration services.

6.2 Legal and applied metrological activities in product certification

No activities.

6.3 Legal and applied metrological activities in ISO 9000 quality management systems

No activities.

1 Laws of metrology

- Standards and Metrology Law No. 15/1994.
- Regulation on legal metrology controls No. 58/1972 (an updated draft is under consideration).
- Instruction No. 1/1995 on legal metrology service fees.

2 Legal units of measurement

The legal units of measurement are those of the International System of Units (SI).

3 Instruments subject to legal control

In general, all instruments or measuring tools for weighing or measuring in commercial transactions are subject to legal control, including:

- weights and scales,
- weighbridges,
- fuel dispensers,
- bulk fuel meters and retail capacity measures,
- taximeters.

By 1997, medical instruments such as:

- clinical thermometers,
- blood pressure gauges,

will be verified and controlled.

Electrical energy meters are verified by the Jordan Electricity Authority. Water meters are verified by the Water Authority.

4 Metrological control of quantities

Prepackages are subject to metrological controls.

5 Services responsible for legal metrology

5.1 National service of legal metrology

Jordan Institute for Standards and Metrology (JISM)
Department of Metrology
Mass Laboratory
PO Box 941287
AMMAN 11194

Telephone: 962-6-680 139
Fax: 962-6-681 099

5.2 Local verification services

Currently, no local verification services exist in Jordan; JISM services cover the whole country.

5.3 Laboratories responsible for maintaining national measurement standards

The definition of national measurement standards is under consideration.

5.4 Instrument calibration and evaluation systems

At present, the activities of calibration are carried out by:

- Royal Scientific Society (RSS)
Electronic Services and Training Centre for Electrical
Measurement Standards
- JISM (see 5.1)

Telephone: 962-6-844 701
Fax: 962-6-844 806

6 Accreditation and certification systems

Concepts for accreditation and certification are available. Accreditation and certification systems are currently under consideration. OIML certificates are acceptable for imported measuring instruments.



1 Laws of metrology

- The municipal council law No. (MB/404/) of 6 March 1961 concerning the metric system.
- The law No. 128 of 1977 concerning the setting up of Standards and Metrology Department and its jurisdictions.

2 Legal units of measurement

The legal units of measurement within the state of Kuwait are those of the International System of units (SI).

3 Instruments subject to legal control

Instruments for measuring mass, volume and length are subject to administrative control when used in commercial transactions or other fields for which accurate measurements should be guaranteed in public utilities.

4 Metrological control of quantities

- Net content control (mass, volume, length) is the responsibility of Ministry of Commerce and Industry.
- Standards for prepackages are dealt with by the Standards and Metrology Department.

5 Services responsible for metrology

There are three main departments concerned with metrology, measurements and calibration in the national metrology system of the state of Kuwait.

Standards and Metrology Department (SMD)

The main principal function and activity of the SMD is to keep the national primary and reference standards, and to issue calibration certificates.

Ministry of Commerce and Industry
Standards and Metrology Affairs
Standards and Metrology Department
P.O. Box 2944
13030 SAFAT

Telephone: 965-246 51 03
Fax: 965-245 11 41
965-243 66 38

Consumer Protection Department

The main principal functions and activities of this department are:

- regular inspection for measuring instruments related to the field of trade,
- assay and stamp all gold, silver products and materials and precious stones.

Ministry of Commerce and Industry
Consumer Protection Department
P.O. Box 2944
13030 SAFAT

Telephone: 965-241 43 56
Fax: 965-243 66 43

Calibration Section in the Ministry of Defence

The main principal functions and activities of this section are:

- calibration of high-precision measuring devices for defensive, scientific, industrial and technological laboratories,
- maintenance of measuring instruments,
- giving advice, on request, to industry and public services on problems related to measurement.

Ministry of Defence
Calibration Section / Maintenance Complex

Telephone: 965-474 96 04
965-474 98 07
Fax: 965-552 22 95

6 Accreditation and certification systems

No information received.



1 Laws of metrology

At present, the Government Resolution of 26 March 1992, No. 196, On assurance of measurement traceability in the Republic of Lithuania. A law on metrology is in preparation.

2 Legal units of measurement

The legal units of measurement are those of the International System of Units (SI).

3 Instruments subject to legal control

Measurement instruments which are related to human health protection, labour safety, ecological cleanliness, the value and amount of goods, energy and services, and the quality of foodstuffs.

4 Metrological control of quantities

Metrological control of quantities is carried out by the Lithuanian State Quality Inspectorate (LVKI).

5 Services responsible for metrology

5.1 National service of legal metrology

Lithuanian Standards Board (LST)
T. Kosciuskos g.30
2600 VILNIUS

Telephone: 370-2-70 93 60
Fax: 370-2-22 62 52

5.2 Local verification services

There are five State metrological centres in Lithuania, located in: Vilnius, Kaunas, Klaipėda, Šiauliai, Panevėžys.

5.3 Laboratories responsible for maintaining national measurement standards

See 5.2.

5.4 Instrument calibration and evaluation systems

No information received.

6 Accreditation and certification systems

6.1 Accreditation systems for legal metrology, calibration and testing laboratories - Traceability to national, regional, international or foreign measurement standards

The Lithuanian Standards Board (LST), as the national metrology and standardization body, also operates the national accreditation system.

The normative basis of Lithuanian accreditation and certification systems is formed from:

- EN 45 000 series standards adopted as Lithuanian standards,
- Lithuanian Standardization documents defining procedures for accreditation of calibration/testing laboratories and certification bodies:
 - SD 5.3 - 1992, Accreditation of testing laboratories. Regulations,
 - SD 5.4 - 1993, Accreditation of certification bodies. Regulations,
- document defining procedures for production certification:
 - SD 5.1 - 1992, Production certification. Temporary regulations,
- document defining rules for use of national mark of conformity for certification:
 - LST 1212 - 92, Mark of conformity for certification. Form, sizes and technical requirements.

National reference standards used for verification and calibration are traceable to national measurement standards of foreign countries.

6.2 Legal and applied metrological activities in product certification

Production certification tests are performed in accredited laboratories, from which measurement instruments are verified and calibrated.

6.3 Legal and applied metrological activities in ISO 9000 quality management systems

There are at present no certified ISO 9000 quality systems in Lithuania.

1 Laws of metrology

- Law of 21 August 1816 regulating the uniform system of weights and measures.
- Law of 14 October 1842 concerning the legal application of the denominations of the decimal system.
- Law of 17 May 1882 concerning prescriptions for weights and measures modified by the law of 28 December 1883.
- Royal Grandducal decree of 30 May 1882 concerning the application of the law on weights and measures.
- Grandducal regulation of 13 June 1973 applying the CEE directive of 26 July 1971 concerning the approach of legislations of Member States relative to common provisions for measuring instruments and methods of metrological control, modified by the Grandducal regulations of 21 March 1986 and 1 August 1988.

2 Legal units of measurement

Grandducal regulation of 14 October 1981 applying the CEE directive 80/181/80 of 20 December 1979 concerning units of measurement, modified by Grandducal regulation of 9 May 1986.

The compulsory use of legal units of measurement concerns the measuring instruments used, measurements made and indications of quantities expressed in units of measurement in the economic circuit, in the field of health and public security as well as in authenticated acts and during operations of an administrative nature.

However, the regulations of 14 October 1981 do not affect the use of units of measurement provided in international conventions or agreements in the field of air and sea navigation and rail-road traffic.

3 Instruments subject to legal control

- containers for distilled alcohols and brandy intended to be denatured, exported or stored in depots,
- capacity measures of glass used for dispensing drinks,
- medium- and higher-accuracy weights from 1 mg to 50 kg,
- materialized measures of length,
- non-automatic weighing instruments,
- continuous totalizing weighing instruments,
- checkweighers,
- volume flow meters for liquids other than water, and complementary devices,
- measuring assemblies for liquids other than water,
- cold water meters.

4 Metrological control of quantities

The metrological control of volume and mass of certain prepackages is carried out by the metrological service in accordance with the Grandducal regulations of 19 October 1977 and 26 November 1981. These regulations are in conformity with the corresponding CEE provisions.

5 Services responsible for metrology

5.1 National service of legal metrology

The organ in charge of legal metrology is the Service de Métrologie.

The main functions of the metrology service are the verification of measuring instruments and supervision of the implementation of the legal units of measurement.

5.2 Local verification services

The verification offices of the metrology service are located at:

Service de Métrologie
Rue J. F. Kennedy
L-7327 STEINSEL

Telephone: 352-335 507
Fax: 352-335 503

5.3 Laboratories responsible for maintaining national measurement standards

The Service de Métrologie ensures the maintenance of the national standards reproducing the legal units of measurement.

5.4 Instrument calibration and evaluation systems

No information received.

6 Accreditation and certification systems

No application in metrology at present.

1 Laws of metrology

- Weights and Measures Act of 1959.
- Metrication Act No. 9 of 1981.
- Regulations made under the Weights and Measures Act.

2 Legal units of measurement

The legal units of measurement are those of the International System of Units established by the Conférence Générale des Poids et Mesures.

The basic units of measurement and the supplementary and derived units, as well as additional units along with their symbols, are listed and described in parts I, II and III of schedule I of the Metrication Act No. 9 of 1981, the Metrication Act being construed as one with the Weights and Measures Act.

3 Instruments subject to legal control

All weighing and measuring instruments, weights and measures used in commercial transactions whether relating to mass, volume, length or area are subject to control under the Weights and Measures Act and Regulations made thereunder. Standards used for verifying equipment are calibrated regularly to ensure traceability to international standards.

The Malawi national standards are traceable to the standards kept and maintained by the National Physical Laboratory (NPL) at Teddington, Middlesex, United Kingdom.

4 Metrological control of quantities

The sale of articles and other transactions by weight or measure are subject to control.

Inspections of trade premises are undertaken to ensure that prepackages are packed according to the law.

5 Services responsible for metrology

The Malawi Bureau of Standards is responsible for the administration and enforcement of all legal metrology laws throughout the country.

The Bureau has three offices, one in each region of the country. The Head of Bureau, stationed in Blantyre, is in particular responsible for the custody, care and maintenance of the national standards. Verification work is undertaken by all three regional offices.

The main authority in matters of legal metrology and the co-ordinating authority with international bodies such as OIML is:

Malawi Bureau of Standards
PO Box 946
BLANTYRE

Telephone: 265-670 488
Fax: 265-670 756

6 Accreditation and certification systems

No information received.



1 Laws of metrology

Although Malaysia consists of thirteen States there is only one law on weights and measures, the Weights and Measures Act, 1972. The Act relates to the use of legal units, standards of measurement and control (pattern approval and verification) of measuring instruments.

Under the Act, a custodian of weights and measures, the Standards and Industrial Research Institute of Malaysia (SIRIM), was appointed and a Weights and Measures Department formed. At the State level, branches of the department implement the various legal requirements. However, specific enquiries should be made to ascertain the legislative control applicable to a particular situation. Taximeters, water meters and watthour meters, for example, are not included in the Weights and Measures Act.

2 Legal units of measurement

All instruments used in Malaysia are based on the International System of Units (SI) except for special cases of replacement of parts and in some specific industries.

Information on units and tables of weights and measures may be found in the Weights and Measures Act, 1972.

3 Instruments subject to legal control

Every measuring instrument used for trade purposes must be pattern approved by the SIRIM as custodian of weights and measures. Other measuring instruments, such as electricity, water meters and taximeters, may be subject to the approval of other governmental regulatory agencies.

4 Metrological control of quantities

Quantity control is governed by the Trade Description Act which states that any prepackaged product shall have its weight or volume printed on the wrapper or container.

5 Services responsible for metrology

5.1 National service of legal metrology

Standards and Industrial Research Institute of Malaysia (SIRIM)
Persiaran Dato' Menteri,
Section 2, PO Box 7035
40911 Shah Alam
SELANGOR DARUL EHSAN

Telephone: 60-3-559 16 30
60-3-559 26 01
Fax: 60-3-550 80 95

The SIRIM is responsible for the calibration of primary, secondary, tertiary and working standards used in the country. It also provides the technical specifications for all equipment used for trade purposes.

5.2 Local verification services

All the states and local verification services are implemented by the Weights and Measures Department of the Ministry of Trade and Industry who has branches in all major towns and cities. Inspectors from these branches inspect and verify instruments for use in trade.

5.3 Laboratories responsible for maintaining national measurement standards

All physical standards are under the custody of the SIRIM whose address is given in 5.1 above.

5.4 Instrument calibration and evaluation systems

The SIRIM is also responsible for the national laboratory accreditation system whose duty is to accredit and evaluate laboratories which undertake testing and calibration.

6 Accreditation and certification systems

6.1 Accreditation systems for legal metrology, calibration and testing laboratories - Traceability to national, regional, international or foreign measurement standards

There are two basic methods of disseminating standards of measurement. The first method is traceability through the national accredited laboratories, while the second method is through the annual verification of equipment used for trade purposes.

The SIRIM maintains the primary, secondary and tertiary standards of measurement, while the Weights and Measures Department, research laboratories and accredited laboratories, and industry, maintain the secondary or the tertiary standards. They are all traceable to the SIRIM, the national custodian of weights and measures.

6.2 Legal and applied metrological activities in product certification

The SIRIM is responsible for product certification.

6.3 Legal and applied metrological activities in ISO 9000 quality management systems

The SIRIM has adopted the ISO 9000 series in total and it is responsible for the registration of companies which meet the appropriate requirements.

1 Laws of metrology

- Legal Metrology Act 1985.
- Legal Metrology (assize) Regulations 1990.
- Legal Metrology (assize fees) Regulations 1990.
- Legal Metrology (prepacked commodities) Regulations 1994.
- Legal Metrology (periodical assizement) Regulations 1994.

The Legal Metrology Act 1985, which is the principal Act, was amended in March 1994 to provide for:

- (a) the periodical verification of instruments,
- (b) the control of prepacked commodities,
- (c) the prohibition of the sale of unassized instruments.

2 Legal units of measurement

The legal units of measurement are those of the International System of Units (SI) and are specified in the International System of Units (SI) Act, 1984.

3 Instruments subject to legal control

The following instruments which are used in trade are subject to legal control:

- weighing instruments (including weighbridges),
- volumetric capacity measures (including optic measures),
- petrol pumps,
- bulk flowmeters,
- road tankers,
- linear measures.

4 Metrological control of quantities

The Legal Metrology (prepacked commodities) Regulations 1994 provide for the following:

- (a) the proper labelling of prepackages,
- (b) the standardization of packsizes of certain mass consumption commodities,
- (c) the control of the net content of prepacked goods.

5 Services responsible for metrology

5.1 National service of legal metrology

Ministry of Trade and Shipping
Legal Metrology Division
Old Moka Rd
BELL VILLAGE

Telephone: 230-208 16 71
230-208 16 82
230-208 17 17
Fax: 230-212 63 68

5.2 Local verification services

At present, the verification services are carried out by the central government with no regionalization. Plans are under way to set up mobile units to offer verification services in all the districts of the island.

5.3 Laboratories responsible for maintaining national measurement standards

Mauritius Standards Bureau
REDUIT

Telephone: 230-454 19 33
230-464 76 75
230-464 07 30
Fax: 230-464 11 44

5.4 Instrument calibration and evaluation systems

On request, the Legal Metrology Division also offers to industries, calibration services in the fields of mass, length and volume. The Metrology Division of the Mauritius Standards Bureau offers calibration services for the parameters of mass, length, force, pressure and vacuum, DC voltage, DC current, LF current, DC and LF power, and temperature.

6 Accreditation and certification systems

6.1 Accreditation systems for legal metrology, calibration and testing laboratories - Traceability to national, regional, international or foreign measurement standards

A national laboratory accreditation system is being set up in Mauritius to provide independent assurance of the competence of laboratories and of the validity of their calibration or test data.

6.2 Legal and applied metrological activities in product certification

Product certification is the responsibility of the Mauritius Standards Bureau. Applicants for the certification mark must have their weighing and measuring instruments regularly calibrated. Metrological control of pre-packages must also be carried out.

6.3 Legal and applied metrological activities in ISO 9000 quality management systems

A national quality system certification scheme is being set up for the certification by the Mauritius Standards Bureau of quality systems of companies according to the ISO 9000 series of standards. All companies applying for the certification scheme should have good metrological control of their weighing and measuring instruments.

1 Laws of metrology

The Federal Law on Metrology and Standardization issued on 1 July 1992, regulates metrological activities such as:

- the legal system of measurement units,
- the general trade requirements for measuring instruments subject to regulation by a mandatory national standard (pattern approval),
- the initial, subsequent and extraordinary verification of measuring instruments,
- the obligation to carry out commercial transactions on a quantity basis,
- the establishment of rules for the operation of the Sistema Nacional de Calibración (SNC, national calibration laboratory accreditation program) and of the Sistema Nacional de Acreditamiento de Laboratorios de Prueba (SINALP, national testing laboratory accreditation program),
- the creation of the Centro Nacional de Metrología (CENAM, national measurement laboratory).

2 Legal units of measurement

The International System of Units (SI) accepted by the Conférence Générale sur les Poids et Mesures, and other units outside the SI adopted by the State, are compulsory in Mexico (the Mexican mandatory standard for units of measurement is NOM-008-SCFI-1993).

3 Instruments subject to legal control

According to Federal Law, every measuring instrument intended to be used in:

- commercial transactions or to determine the price of a service,
- activities that may affect life, health and human security,
- verification and calibration of other measuring instruments,

must have a certificate of approval issued by the Dirección General de Normas.

Current mandatory standards for measurement instruments are:

- meter dispensers for liquid fuels,
- taximeters,
- weighing instruments,
- manometers,
- sphygmomanometers,
- water meters,
- gas meters.

4 Metrological control of quantities

(a) Legislative control for packaging

In Mexico there are regulations on tolerances for prepackaged products. The specific requirements are established in the Federal Law on Metrology and Standardization published in 1992, and particularly in the national standard NOM-002-SCFI-1993, Prepackaged products - Net content - Tolerances and verification methods, which is a mandatory standard following OIML Recommendations.

(b) Responsible organizations

- Dirección General de Normas (DGN), responsible for formulating regulations,
- Procuraduría Federal del Consumidor (PROFECO, Office of the Consumer Protection) responsible for verification activities.

5 Services responsible for metrology

5.1 National service of legal metrology

Dirección General de Normas (DGN)
Av. Puente de Tecamachalco No. 6
Col. Lomas de Tecamaclaco, Sección Fuentes
Naucalpan de Juárez, Estado de Mexico
CP 53950 MEXICO

Telephone: 52-5-729 94 81
Fax: 52-5-729 94 81

The DGN is responsible for the following activities:

- pattern approval of measuring instruments,
- managing the Sistema Nacional de Calibración (SNC),
- managing the Sistema Nacional de Acreditamiento de Laboratorios de Prueba (SINALP),
- formulating mandatory standards for measuring instruments used in trade. Mandatory standards for measuring instruments used in other areas of legal metrology are the responsibility of other agencies. For example, the Environmental Protection Agency is in charge of regulations for measuring instruments used for environmental protection purposes. Similar arrangements exist in security (Labor Agency) and health (Health Agency) matters.
- authorizing private and public sectors to carry out verification activities in the application of measurement regulations.

The DGN also provides Mexican representation to the OIML as a Corresponding Member and coordinates the implementation of OIML International Recommendations through Measurement Instruments Regulations.

5.2 Local verification services

The Procuraduría Federal del Consumidor (PROFECO) holds the responsibility for the verification of measuring instruments subject to legal control (see 3).

The DGN holds the responsibility for the accreditation of persons and institutions of public, private, and educational sectors throughout the country to supply verification services for measuring instruments regulated by a mandatory standard.

5.3 Laboratories responsible for maintaining national measurement standards

The development and custody of all national measurement standards is the legal responsibility of the Centro Nacional de Metrología (CENAM).

Centro Nacional de Metrología (CENAM)
 km 4,5 Carretera a Los Cues, Municipio de El Marqués
 Querétaro
 76000 MEXICO

Telephone: 91-42-16 65 76
 Fax: 91-42-16 26 26

5.4 Instrument calibration and evaluation systems

The Secretaria de Comercio y Fomento Industrial (SECOFI), through the Dirección General de Normas (DGN) is in charge of the Sistema Nacional de Calibración (SNC).

The Accredited Calibration Laboratories, from the public, private and educational sectors, voluntarily decide to adhere to the SNC in order to provide calibration services for measuring instruments.

Applications from laboratories must include appropriate information on their organization, personnel, installations, instruments, procedures and security conditions used in their metrological services; they are then assessed according to guidelines based on international recommendations (ISO/IEC Guide 25, 1990), by an evaluation team composed of experts from the DGN and accredited laboratories.

All the accredited laboratories must have measurement standards traceable to the CENAM. The CENAM is also responsible for carrying out the technical assessment by means of intercomparison tests or by any other method.

Currently, the DGN, as the accreditation body, is updating its procedures to observe the international recommendations of ISO/IEC Guide 58.

6 Accreditation and certification systems

6.1 Accreditation systems for legal metrology, calibration and testing laboratories - Traceability to national, regional, international or foreign measurement standards

- (a) For calibration laboratories, the Sistema Nacional de Calibración (SNC).
- (b) For testing laboratories, the Sistema Nacional de Acreditamiento de Laboratorios de Pruebas (SINALP).

- (c) For legal metrology laboratories, the Federal Government plans to leave the responsibility for verification to the States and create a National Conference of Weights and Measures, which will coordinate the States laboratories through a central office within the Dirección General de Normas for accreditation purposes.

At present, the DGN only maintains an accreditation programme for verification units which are able to carry out these activities.

6.2 Legal and applied metrological activities in product certification

Competent agencies of the Federal Government, or the Certification Bodies accredited by the DGN, will certify for official purposes the observance of mandatory standards for products.

The Secretaria de Comercio y Fomento Industrial (SECOFI) in coordination with other agencies of the Federal Government, establishes the characteristics of official marks and countersigns that products subject to fulfilment of a mandatory standard must bear. If the mark cannot be fixed on the product itself, it must appear on the container, packaging or label.

The SECOFI will authorize the use of official marks and countersigns to those persons who fulfil the requirements of the Federal Law on Metrology and Standardization or the appropriate mandatory standards.

6.3 Legal and applied metrological activities in ISO 9000 quality management systems

Mexico has adopted the ISO 9000 standards as the NMX-CC series. The International Organization for Standardization (ISO) recognized the NMX-CC series as equivalent to the ISO 9000 series.

Some examples are:

ISO 8402/1986	NMX-CC-1-1993,
ISO 9000/1987	NMX-CC-2-1990,
ISO 9001/1987	NMX-CC-3-1990,
ISO 9002/1987	NMX-CC-4-1990,
ISO 9003/1987	NMX-CC-5-1990,
ISO 9004/1987	NMX-CC-6-1990.



1 Laws of metrology

Acts currently in force:

- Weights and Measures Law, adopted by Parliamentary Decree No. 25 of 1944.
- Government Decree No. 89 of 1992, Annex 2, Rule of the State Metrological Control.

A new law on Assurance of Measurement Uniformity adopted by the Parliament of Mongolia came into force on 1 April 1995.

2 Legal units of measurement

The legal units of measurement are the units of the International System of Units (SI).

3 Instruments subject to legal control

At present, the following instruments are subject to legal control:

- all measuring instruments used for stock-taking of material values, fuel and energy, in trade and in settling mutual accounts,
- working measuring instruments used in the examination or treatment of humans and animals, in health care, in environmental protection and for industrial safety,
- measuring instruments used in national metrological services or as reference devices for calibration and verification by enterprises,
- measuring instruments used for state arbitration and for registration of national and international sporting records.

4 Metrological control of quantities

There is at present no direct obligation for the control of prepacked goods.

Metrological control is mainly exercised in respect of the way instruments are used and the results of measurements. Control of prepackages is at the experimental stage.

5 Services responsible for metrology

5.1 National service of legal metrology

The Mongolian National Institute for Standardization and Metrology (MNISM) is responsible for pattern approval of measuring instruments intended for commercial transactions, national units of measurement, determination of technical requirements for instruments and staff training. It supplies the regional offices with equipment and working standards.

Mongolian National Institute for Standardization and Metrology
Peace Street
ULAANBAATAR - 51

Telephone: 976-1-53541
Fax: 976-1-358032
Telex: 236 CNTI MH

5.2 Local verification services

In each of eighteen administrative regions and in Darkhan and Erdenet cities, a standardization and metrology office is engaged in initial inspections and the statutory annual inspections of measuring instruments subject to legal control.

5.3 Laboratories responsible for maintaining national measurement standards

All the national measurement standards and reference standards are in the custody of the MNISM, which assures their maintenance and conservation.

5.4 Instrument calibration and evaluation systems

None.

6 Accreditation and certification systems

6.1 Accreditation systems for legal metrology, calibration and testing laboratories - Traceability to national, regional, international or foreign measurement standards

The MNISM is responsible for the accreditation of calibration and testing laboratories in industry, educational institutes and other administrations in order to carry out specific calibrations and tests which are traceable to national measurement standards.

There are national standards in the fields of time and frequency and in mass; in other fields of measurement there are reference standards. At present, all these standards are calibrated against Russian measurement standards.

6.2 Legal and applied metrological activities in product certification

No information received.

6.3 Legal and applied metrological activities in ISO 9000 quality management systems

No information received.

1 Laws of metrology

The Standard Weights and Measures Act 2025 was passed in 1968 and relevant regulations were notified in 1970. The Act and regulations were amended in 1987.

2 Legal units of measurement

The legal units of measurement are those of the International System of Units (SI).

3 Instruments subject to legal control

Mass:

- weights,
- beam scales,
- counter balances,
- weigh-bridges,
- platform weighing machines, etc.

Length:

- meter bars,
- measuring tapes.

Volume:

- cylindrical and conical measures,
- dispensing pumps for petroleum products.

Electrical energy: watt-hour meters.

4 Metrological control of quantities

In accordance with the law and regulations on prepackaged products, the work of verification is the responsibility of local weights and measures offices.

5 Services responsible for metrology

5.1 National service of legal metrology

Nepal Bureau of Standards and Metrology (NBSM)
Post Box No. 985
KATHMANDU

Telephone: 977-1-272 447
977-1-272 445
Fax: 977-1-272 689

The Metrological Laboratory of the NBSM at present provides services mainly for the branch offices, verifying their standard weights including length and capacity measures. In the field of electrical energy measurements only the verification of household and of some smaller industrial watt-hour meters are executed by the Nepal Electrical Authority, based on standards periodically calibrated in India. In the field of length measurement, in spite of its great importance for the textile industry, land surveying and civil engineering, only occasional services are provided by different governmental institutions. Volume measurements are also executed by the Nepal Oil Corporation according to requirements of traceability to national standards. Nothing is done in the remaining fields of metrology. The nation-wide activities of the NBSM range from the voluntary implementation of regulation and quality control of consumer goods, through the certification and expansion of measurement capability, to an effective national measurement system.

National standards of measurement are available in the fields of mass, length, force, volume and electrical units. These standards are traceable mainly to those of the National Physical Laboratory of India.

5.2 Local verification services

Six branch offices of the NBSM are responsible for the enforcement and implementation of legal metrology, particularly in the fields of mass, length and volume, in conformity with the Standard Weights and Measures Act and regulations.

5.3 Laboratories responsible for maintaining national measurement standards

Nepal Bureau of Standards and Metrology, NBSM (see 5.1).

5.4 Instrument calibration and evaluation systems

The regional standards are verified by the NBSM in conformity with the Act and regulations in the fields of mass, length and volume.

6 Accreditation and certification systems

No information received.

1 Laws of metrology

- Weights and Measures Act 1987 and Amendments,
- Weights and Measures Amendment Act 1991,
- Weights and Measures Regulations 1987, Amendment No. 4.
- Regulations made under the Weights and Measures Act and issued as Orders-in-Council. The main regulations are the Weights and Measures Regulations of 1987 (with their amendments).

Electricity meters and taximeters are covered by separate legislation.

The Act and Regulations are available from Government Printing Office, Private Bag, Wellington.

2 Legal units of measurement

All instruments subject to regulations shall exclusively be graduated in SI units. There is a proviso that non-metric units may be used where goods are exported to a country which trades in other systems of measurement.

3 Instruments subject to legal control

Weighing machines, instruments for measuring volume of liquids and for measuring area and length used for trade, and compressed natural gas, the latter being tested under different legislation.

Exported instruments are not subject to mandatory control.

4 Metrological control of quantities

No information received.

5 Services responsible for metrology**5.1 National service of legal metrology**

Trade Measurement Unit
Ministry of Consumer Affairs
PO Box 1473
WELLINGTON

Telephone: 64-4-474 27 50
Fax: 64-4-473 94 00

5.2 Local verification services

District Offices are located at Auckland, Palmerston North, Wellington and Christchurch.

5.3 Laboratories responsible for maintaining national measurement standards

For all physical quantities:

The New Zealand Institute for Industrial Research and Development
Industrial Research Limited
PO Box 31 310
LOWER HUTT

Telephone: 64-4-566 69 19
Fax: 64-4-566 60 04

5.4 Instrument calibration and evaluation systems

Testing Laboratory Registration Council (TELARC)
Private Bag 28901
Remuera
AUCKLAND

Telephone: 64-9-525 01 00
Fax: 64-9-525 19 00

The TELARC comprises approximately 335 laboratories throughout New Zealand distributed over industry and other administrations. The certificates they issue have an official character.

6 Accreditation and certification systems

6.1 Accreditation systems for legal metrology, calibration and testing laboratories - Traceability to national, regional, international or foreign measurement standards

The Trade Measurement Unit administers legislation controlling the activities of "accredited persons" given authority to verify/certify trade measuring instruments.

Calibration and testing laboratories are accredited and audited by the TELARC.

The Trade Measurement Unit has traceability to national measurement standards.

6.2 Legal and applied metrological activities in product certification

Product certification is undertaken by

Standards New Zealand (SANZ)
Private Bag
WELLINGTON

Telephone: 64-4-384 21 08
Fax: 64-4-384 39 38

6.3 Legal and applied metrological activities in ISO 9000 quality management systems

The Trade Measurement Unit "accredited person's scheme" is based on ISO 9002 and ISO 9003 criteria.

Publication available: *Legal Metrology Accreditation Policy Guide 1*, July 1991.

Applied metrology organizations can be assessed for laboratory accreditation against ISO Guide 25, ISO 9002 by the TELARC in accordance with the requirements of ISO Guide 58. In addition, recognition of the various other quality management system standards can be sought and assessed by several certification organizations.

1 Laws of metrology

In the Sultanate of Oman, legal metrology is controlled by the government: the Metrology and Assay of Precious Metals Department - Directorate General for Specifications and Measurement - Ministry of Commerce and Industry.

Royal Decree No. 74/90 concerning legal calibration of measuring instruments was issued on 29 September 1990. It covers all basic regulations related to legal metrology concerning legal units, calibration, stamping, etc. A new project for the law on metrology has been prepared and is under consideration.

2 Legal units of measurement

The International System of Units (SI) is used throughout the country and in particular for all instruments subject to regulations.

In this respect, the following two Royal decrees, in addition to the above, were issued:

- Royal Decree No. 38/74 for the replacement of all kinds of mass units by g, kg and ton.
- Royal Decree No. 15/75 for the replacement of some of the units of measurement used in the Sultanate by the corresponding metric units.

3 Instruments subject to legal control

Measuring instruments used for trade, industry and public health.

4 Metrological control of quantities

A new project for the law on metrology establishes control of net content in packages.

5 Services responsible for metrology

5.1 National service of legal metrology

Metrology Laboratory
Metrology and Assay of Precious Metals Department
Directorate General for Specifications and Measurement
Ministry of Commerce and Industry
PO Box 550, Post Code No. 113
MUSCAT

Telephone: 968-774 807
968-703 238
Fax: 968-795 992 Muscat
Telex: ON 3665 WIZARA MUSCAT
Cable: WIZARA

5.2 Local verification services

At present, the responsibility for regional and local verification and re-verification is controlled by the Metrology and Assay of Precious Metals Department.

5.3 Laboratories responsible for maintaining national measurement standards

The Metrology Laboratory (5.1) is responsible for maintaining national measurement standards.

5.4 Instrument calibration and evaluation system

Instrument calibration and evaluation systems are the responsibility of the Metrology and Assay of Precious Metals Department.

6 Accreditation and certification systems

No information received.



1 Laws of metrology

- Act No. 23560, Legal System of Measuring Units of Peru.
- Decree DS No. 064-84-ITI/IND, Application of the 1st Article of the Act No. 23560.
- Decree DS No. 024-93-ITINCI, Functions of National Metrology Service.
- Decree DS No. 026-93-ITINCI, Regulation of the Act No. 23560.

2 Legal units of measurement

The legal system of units of measurement of Peru is the International System of Units (SI).

3 Instruments subject to legal control

All measuring instruments used in trade, the evaluation of services and works, expert tests, public bureaux and all activities determined by competent bodies, must be verified.

Metrological control of measuring instruments used in commercial transactions is performed by the Commission of Consumer Protection of the Instituto Nacional de Defensa de la Competencia y de la Protección de la Propiedad Intelectual (INDECOPI). The Commission conducts random checks and selective inspections and it is authorized to enforce the appropriate sanctions in the event of any infringements. Sanctions include criticism, sequestration of property, destruction of measuring equipment or closure of an establishment, or negotiation.

4 Metrological control of quantities

Metrological control of prepackages is carried out by the Commission of Consumer Protection of INDECOPI on the basis of random checks and selective inspections.

5 Services responsible for metrology**5.1 National service of legal metrology**

The National Metrology Service (SNM) of INDECOPI is a national body responsible for the custody, conservation and maintenance of all national standards as well as for the development of calibration methods of reference standards. The SNM carries out verification, calibration and pattern approval of measuring instruments and issues the relevant metrological certificates.

- Commission on Supervision for Technical Norms, Metrology, Quality Control and Auxiliary Controls. This Commission, part of INDECOPI, is responsible for the approval of technical documents in all fields, including the rules of legal metrology.
- Commission of Consumer Protection. The main function of this INDECOPI Commission is the enforcement of the Law D.L. 716 on consumer protection. The Commission is entrusted with metrological controls of measuring instruments used in commercial transactions.

Instituto Nacional de Defensa de la Competencia y de la Protección de la Propiedad Intelectual (INDECOPI)
Av. Prolongación Guardia Civil N° 400
San Borja, LIMA

Telephone: 51-1-71 17 77
51-1-71 00 64
Fax: 51-1-71 16 17

5.2 Local verification services

The laboratories of the National Metrology Service of INDECOPI in coordination with the SNM office in Arequipa, carry out metrological services throughout the Peruvian territory.

5.3 Laboratories responsible for maintaining national measurement standards

All the measurement standards are preserved in SNM laboratories which assure their maintenance.

5.4 Instrument calibration and evaluation systems

All the metrological services are obliged to calibrate their instruments against the national standards of the SNM.

All measuring instruments subject to metrological control must comply with the requirements of the national metrological regulations.

6 Accreditation and certification systems

6.1 Accreditation systems for legal metrology, calibration and testing laboratories - Traceability to national, regional, international or foreign measurement standards

Accreditation systems for legal metrology, calibration and testing laboratories are being studied.

6.2 Legal and applied metrological activities in product certification

Product certification is not mandatory. The only body which issues official metrological certificates is the SNM.

6.3 Legal and applied metrological activities in ISO 9000 quality management systems

The Commission on Supervision for Technical Norms, Metrology, Quality Control and Auxiliary Controls is authorized to fulfil audit inspections for the evaluation of enterprises which apply for certification according to ISO 9000. During this evaluation, the condition of metrological equipment and its calibration is verified in the laboratories of the SNM and the offices of metrological services in conformity with the required precision level and other rules.

1 Laws of metrology

- Republic Act, R.A. 2067, known as the Science Act 1958, which pertains to the testing and analysis of products and materials, and the calibration of weights and measures.
- Batas Pambansa Blg. 8, PB Blg. 8 (National Law No. 8), which mandates the Industrial Technology Development Institute (ITDI) of the Department of Science and Technology (DOST) to establish and maintain the national standards of measurement for five base quantities: mass, length, electric current, temperature and luminous intensity, and those units derived from them.
- Consumer Act of the Philippines, R.A. 7394, which regulates practices relative to weights and measures.
- National Internal Revenue Code and Local Tax Code, which prescribe a schedule of fees for the inspection and sealing of weights and measures.
- Moisture Meter Law.

2 Legal units of measurement

The legal units of measurement in the Philippines are based on the International System of Units (SI) as provided for by Batas Pambansa Blg. 8 - An Act Defining the Metric System and its Units, Providing for its Implementation and for Other Purposes. The use of the metric system is further reinforced by the Consumer Act of the Philippines.

3 Instruments subject to legal control

Under the National Internal Revenue Code and the Local Tax Code, weighing scales, linear measures and volume measures shall be officially sealed before use in any trade or commercial transaction.

Under the Consumer Act of the Philippines, also all instruments for weights and measures in all consumer and consumer-related transactions shall be tested, calibrated and sealed.

Due to the limited calibration and testing capabilities of government measurement or regulatory bodies, meters used by companies providing basic public utilities such as water, electric power (energy) and transportation are calibrated by the companies providing the service.

4 Metrological control of quantities

The Consumer Act of the Philippines prescribes requirements for the labelling and fair packaging of consumer products. This law also fixes the liability of the suppliers for imperfections in the quantity of the products when their net content is less than that indicated on the container. The Act is implemented by the Department of Trade and Industry.

5 Services responsible for metrology

5.1 National service of legal metrology

There are several government institutions and agencies directly or indirectly concerned with metrology in the Philippines. Apart from the ITDI, the government institutions providing the regulatory functions related to legal metrology are:

- the Bureau of Product Standards (BPS) and the Bureau of Trade Regulations and Consumer Protection both under the Department of Trade and Industry,
- the Energy Regulatory Board/Bureau of Energy Utilization, under the Office of the President of the Republic of the Philippines,
- the Treasurer's Weights and Measures Office, under the Department of Interior and Local Government,
- the Land Transportation Regulatory and Franchise Board of the Department of Transportation and Communication.

(*) Information compiled from the APLMF Directory, 1995

5.2 Local verification services

Under the Local Government Code, each province, city or municipality, through their Treasurer's Office, performs on-site inspection and sealing of weights and measures used in trade and commerce, generally for mass, length and volume measurements.

The Bureau of Product Standards of the Department of Trade and Industry, or its accredited laboratories, inspects weights and measuring instruments of manufacturing and industrial companies under its PS Quality Mark Certification scheme and for consumer protection purposes.

Also, in support of industrial and technological activities in provincial regions lying outside the central capital region of Metro Manila, the DOST has set up calibration and testing laboratories to cater for their particular needs. The ITDI, as a DOST agency, plays an active role in providing calibration services to these regional laboratories including the training of their technical personnel.

5.3 Laboratories responsible for maintaining national measurement standards

The custodian of Philippine national standards, except for the second, is:

Metrology Laboratory
Standards and Testing Division (STD)
Industrial Technology Development Institute (ITDI)
Department of Science and Technology (DOST)
General Santos Avenue, Bicutan, Taguig
METRO MANILA

Telephone: 63-2-823 80 71
Fax: 63-2-822 00 32

The custodian of the Philippine national standard for the second, is the Philippine Atmospheric, Geophysical and Astronomical Services Administration (PAGASA), which also comes under the DOST.

5.4 Instrument calibration and evaluation systems

The ITDI has established a metrology laboratory which provides testing and calibration services to the general public, particularly those from the industrial sector and other government regulatory agencies. Its capabilities are however limited to certain metrological sectors.

6 Accreditation and certification systems

6.1 Accreditation systems for legal metrology, calibration and testing laboratories - Traceability to national, regional, international or foreign measurement standards

There are at present two accrediting agencies in the Philippines, the ITDI and the BPS.

The ITDI accredits institutions wishing official status and recognition for their testing and calibration services, either for their own private use or for the general public (second- and third-party basis).

The BPS also accredits private institutions or companies (second-party basis) under its PS Quality Mark Certification scheme. The BPS, in its capacity as the Philippine representative to the ISO, also provides certification to the ISO 9000 quality certification scheme.

A Memorandum of Agreement for the establishment of a Unified National Accreditation System for Calibration and Testing Laboratories has been signed by the ITDI and the BPS. The unification work is in progress.

To provide the country with a traceable source of measurements, the ITDI maintains national standards of measurement for selected fields of metrology. These national standards are regularly sent to such organizations as the CSIRO (Australia), the NRLM (Japan), the NIST (USA) for re-calibration in order to maintain their traceability.

The ITDI also maintains reference and secondary standards for use in the dissemination of measurements to consumers.

6.2 Legal and applied metrological activities in product certification

The Product Inspection Division of the BPS is responsible for the preparation, implementation and evaluation of policies, guidelines and procedures pertaining to inspection of products vested with the "PS mark" and with commodity clearances, to determine compliance with prescribed product standards or other requirements.

6.3 Legal and applied metrological activities in ISO 9000 quality management systems

The Philippines has adopted the ISO 9000 quality management and quality assurance series of standards in its entirety as national standards.

Quality certification to ISO 9000 is provided to interested parties by the BPS as the Philippine representative to the ISO. There are now some forty Philippine institutions accredited under this scheme and several institutions have applied for accreditation.

Other private, internationally recognized organizations such as S.G.S. and Nerville Clarke, provide a similar accreditation service.

The ITDI, for its part, is currently seeking accreditation under ISO/IEC Guide 25 - *General Requirements for the Competence of Calibration and Testing Laboratories*.



1 Laws of metrology

The Weights and Measures Act, 1980, and amendment regulations, 1985. The weights and measures regulations of 1981, are as follows:

Part I	Preliminary,
Part II	Stamps seals and marks,
Part III	Weights for general trade,
Part IV	Definitions for weighing instruments,
Part V	Measures of length,
Part VI	General measures of liquid capacity,
Part VII	Offences and penalties.

2 Legal units of measurement

Length: metre,
Mass: kilogram (approved SI units),
Liquid capacity: litre (see item 1).

3 Instruments subject to legal control

- weighing machines, weights (shops),
- electronic scales, weighbridges (industrial sector),
- tape measures and metre rulers,
- petrol pumps.

4 Metrological control of quantities

No information received.

5 Services responsible for metrology

5.1 National service of legal metrology

The Metrology Section
Seychelles Bureau of Standards
PO Box 648, Victoria
MAHÉ

Telephone: 248-76 631
Fax: 248-76 151
Telex: 2422 DEPIN SZ

The Inspectorate Unit of the Metrology Section carries out regular inspections of all shops in the commercial sector and also in some industrial premises. Electricity and water meters are under the responsibility of the Public Utilities Corporation.

The import of weighing machines for use in commercial sectors is controlled by the Weights and Measures Section of the Seychelles Bureau of Standards.

All new scales are verified and stamped before putting into trade use.
Records of specification, approval certificate and inspection data are kept by the Bureau of Standards.

A certificate of approval is issued for each instrument passing the verification and inspection test.

5.2 Local verification services

See 5.1.

(*) Information compiled in 1990. See also CIMET Directory, 1993

5.3 Laboratories responsible for maintaining national measurement standards

The Weights and Measures Laboratory houses the National Standards and Inspectors Working Standards for mass, length and volume (capacity).

5.4 Instrument calibration and evaluation systems

No information received.

6 Accreditation and certification systems

No information received.

1 Laws of metrology

- Weights and Measures Act, Chapter 349.
- Weights and Measures Regulations.
- Weights and Measures (Sales of Goods in Metric Units) Order.
- Weights and Measures (Prescribed Quantities of Prepacked Goods for Sale by Retail) Order.

2 Legal units of measurement

All instruments used in Singapore shall be calibrated on basis of International System of Units but the traditional Chinese units (tahils) are still permitted for trading in Chinese herb/medicine.

3 Instruments subject to legal control

The range of equipment subject to legal metrology is as follows:

- linear measures,
- liquid capacity measures,
- dry capacity measures,
- weights,
- beam scales,
- balances,
- counter machines,
- spring balances,
- steelyard,
- dead-weights machines,
- platform weighing machines,
- weighbridges,
- crane weighing machines,
- automatic weighing machines,
- personal weighing machines,
- measuring instruments for the measurement of liquid fuel and lubricants.

Electricity, gas, water and taxi meter legislations are administered by various government agencies.

4 Metrological control of quantities

The Weights and Measures Act requires that the net quantity of any prepacked goods for sale shall not be less than the declared net quantity. Any infringement constitutes an offence under the Weights and Measures Act.

Misleading or deceptive product packaging dealt with under the Consumer Protection Act which is enforced by the Ministry of Trade and Industry.

Under the Weights and Measures (Prescribed Quantities of Prepacked Goods for Sale by Retail) Order, nine essential items, rice, sugar, wheat flour, butter, margarine, edible oil, milk powder, cooking salt and powdered detergent, are required to be packed in prescribed quantities.

5 Services responsible for metrology

5.1 National service of legal metrology

Weights and Measures Office
Ministry of Trade and Industry
Bright Hill Drive
Singapore 2057

Telephone: 65-453 25 21
Fax: 65-458 14 41

(*) Information compiled from the APLMF Directory, 1995, CIMET Directory, 1993, and other sources

5.2 Local verification services

The Weights and Measures Office is responsible for the day-to-day verification of equipment used for trade purposes.

5.3 Laboratories responsible for maintaining national measurement standards

The National Metrology Centre of the Singapore Institute of Standards and Industrial Research is the custodian of national standards.

National Metrology Centre
Singapore Institute of Standards and Industrial Research (SISIR)
1 Science Park Drive
Singapore 0511
Kent Ridge PO Box 1128
SINGAPORE 9111

Telephone: 65-772 95 27
Fax: 65-778 37 98

5.4 Instrument calibration and evaluation systems

The Singapore Laboratory Accreditation Scheme (SINGLAS) accredits testing and calibration laboratories in the country.

The SISIR also conducts testing and calibration of weighing and measuring instruments for industrial and research purposes.

The Weights and Measures Office is responsible for the verification and stamping of weighing and measuring instruments which are used for trade.

6 Accreditation and certification systems

6.1 Accreditation systems for legal metrology, calibration and testing laboratories - Traceability to national, regional, international or foreign measurement standards

The Weights and Measures Office is the only organization authorized to undertake any activity related to legal metrology.

The National Metrology Centre of the SISIR maintains the primary, secondary and tertiary standards of measurement, while the Weights and Measures Office, SINGLAS-accredited laboratories and industries maintain their own secondary, tertiary and working standards. They are all traceable to the national standards of the SISIR.

6.2 Legal and applied metrological activities in product certification

The SISIR operates the product certification scheme.

6.3 Legal and applied metrological activities in ISO 9000 quality management systems

Singapore has adopted the ISO 9000 series of standards in its entirety as the national quality standards. Quality certification to ISO 9000 is provided by the SISIR and private certification bodies.

SYRIA

Surface area: 185 180 km²
Population: 12 120 000

1 Laws of metrology

A Syrian measurement law is in preparation.

2 Legal units of measurement

The legal units of measurement are those of the International System of Units (SI).

3 Instruments subject to legal control

See 1.

4 Metrological control of quantities

No information received.

5 Services responsible for metrology

The Syrian Arab Organization for Standardization and Metrology
(SASMO)
PO Box 11836
DAMASCUS

Telephone: 963-11-412 725
963-11-450 538
Fax: 963-11-413 913
Telex: 411 999 SASMO
Cable: SYSTAND

6 Accreditation and certification systems

In 1995, the SASMO adopted the ISO 9000 series of standards for quality management systems.



1 Laws of metrology

The legal basis for metrology in Thailand is set out in the Weights and Measures Law B.E. 2466, passed in 1923. This law establishes the standardized and legal system of weights and measures of Thailand:

- the legal units of measurement are those of the International System of Units (SI) together with some traditional units,
- primary standards shall be verified by the International Bureau of Weights and Measures (BIPM),
- the Central Bureau of Weights and Measures and Branch Bureaus shall be established for implementation of the law and shall be under the control and supervision of the Department of Commercial Registration, Ministry of Commerce,
- measuring instruments used in commercial transactions must be verified and inspected by the Central Bureau or Branch Bureaus.

The Department of Commercial Registration has proposed a new draft Law on Weights and Measures to replace the Weights and Measures Law B.E. 2466 in order to expand the scope of legal control of measurement and to cover measurements made for legal purposes and official dealings as well as for trade. The draft also permits manufacturers and repairers of measuring instruments, as well as other related organizations, to carry out the verification of measuring instruments under conditions specified by the Department of Commercial Registration. The draft has been approved by the Thai Cabinet and is under consideration by Parliament.

2 Legal units of measurement

The legal units of measurement in Thailand are those of the International System of Units (SI), together with certain traditional units which are defined in terms of SI units.

3 Instruments subject to legal control

All measuring instruments intended for trade use are subject to compulsory verification by the Central Bureau of Weights and Measures or Branch Bureaus.

4 Metrological control of quantities

The metrological control of prepackaged goods is provided for in the Weights and Measures Law. The law prescribes the method of quantity description, units of measurement and standardized sizes.

5 Services responsible for metrology

5.1 National service of legal metrology

Central Bureau of Weights and Measures
Department of Commercial Registration
Ministry of Commerce
Maharaj Road
BANGKOK 10200

Telephone: 66-2-224 00 31
Fax: 66-2-225 84 93

The principal functions and activities of the Central Bureau of Weights and Measures are:

- maintaining the national standards of mass and length,
- verification of measuring instruments,
- periodic inspection of measuring instruments,
- checking the net contents of prepackaged goods,
- calibration services in the fields of mass, length, volume and flow measurements for industries and other government organizations,
- providing training courses for weights and measures officers.

5.2 Local verification services

At present, there are thirty-eight Branch Bureaus established within the Department of Commercial Registration. They carry out legal metrology functions such as verification and periodic inspection of measuring instruments and checking the net contents of prepackaged goods.

5.3 Laboratories responsible for maintaining national measurement standards

In the field of legal metrology, the Central Bureau of Weights and Measures has the legal authority to maintain the national primary standards of mass and length.

The Ministry of Science, Technology and Environment has proposed a law to establish a National Metrology Institute to undertake the responsibility of maintaining national standards of all fields of measurement. This law is under consideration by the Cabinet.

5.4 Instrument calibration and evaluation systems

Many organizations are able to provide calibration services:

- the Central Bureau of Weights and Measures provides calibration services in the fields of length, mass, volume and flow measurements,
- the Department of Science Service of the Ministry of Science, Technology and Environment provides calibration services in the fields of length, mass, force, acoustics, temperature and electricity,
- the Metrology and Testing Service Center of the Ministry of Science, Technology and Environment provides calibration services in the fields of length, mass, force, pressure, acoustics, photometry, temperature and electricity.

6 Accreditation and certification systems

No information received.

1 Laws of metrology

- Weights and Measures Ordinance 1939, as amended in 1957 and 1961.
- Weights and Measures Regulations made under Section 59 of the Ordinance.
- Food and Drugs Ordinance 1960.
- Food and Drugs Regulations 1965.
- Food and Drugs (Amendment) Regulations 1974.

These laws are administered by two separate bodies.

The Weights and Measures Legislation is administered by the Ministry of Consumer Affairs through the Weights and Measures Inspectorate.

The Food and Drugs Legislation is administered by the Chemistry Food and Drugs Division of the Ministry of Health.

The Weights and Measures Ordinance has been revised and is still to be enacted by Parliament; the new draft legislation is entitled Weights, Measures and Metrology Bill.

2 Legal units of measurement

Under the present Weights and Measures Ordinance the legal units of measurement are:

- length: yard and its submultiples or their metric equivalents,
- mass: pound and its submultiples or their metric equivalents,
- liquid capacity: UK gallon and its submultiples or their metric equivalents.

The metric system has been introduced for use in the country. The International System of Units (SI) will be the legal system for use in trade when the Weights, Measures and Metrology Bill is enacted.

3 Instruments subject to legal control

The Ordinance mentions weights, measures and weighing instruments, but does not specify types, construction or categories of instruments.

The instruments subject to legal control are specified in the Weights, Measures and Metrology Bill.

4 Metrological control of quantities

The present system relates to the concept of minimum weight/volume requirement. This is not specified in the regulations.

The metrological control of quantities is included in the Weights, Measures and Metrology Bill and the average weight system is recommended.

5 Services responsible for metrology

5.1 National service of legal metrology

There is no national service of legal metrology. Some services are provided by the Weights and Measures Inspectorate and some by the Trinidad and Tobago Bureau of Standards.

5.2 Local verification services

Local verification services only exist for weighing instruments used for trade, provided by the Weights and Measures Inspectorate. There are ten inspection districts.

5.3 Laboratories responsible for maintaining national measurement standards

Under the present Ordinance the colonial standards of mass, length and volume are held by:

Chemistry, Food and Drugs Laboratory
115 Frederick Street
PORT OF SPAIN

Telephone: 1809-623 52 42

When the Weights, Measures and Metrology Bill is enacted, the Trinidad and Tobago Bureau of Standards will be the custodian of the national measurement standards.

Trinidad and Tobago Bureau of Standards
Century Drive, Macoya Road
Trincity Industrial Estate
PO Box 467
PORT OF SPAIN

Telephone: 1809-662 44 81
1809-662 44 82
Fax: 1809-663 43 35
Cable: QUALASSURE

5.4 Instrument calibration and evaluation systems

The Bureau of Standards is authorized to deliver official certificates of calibration for weighing and measuring equipment.

There are no laboratories offering pattern approval of weighing and measuring equipment.

6 Accreditation and certification systems

The Bureau of Standards is seeking accreditation for its laboratories as well as implementing the ISO 9002 quality assurance system.

1 Laws of metrology

The legal basis for measurements and calibration in Turkey is the Measurements Law No. 1782, enforced in 1931, as amended by the Measuring Law No. 6621 in 1955.

One rule, five regulations and fourteen orders were published in accordance with these laws.

Some changes and innovations have been made in the organization and the legislative structure of the Ministry of Industry and Trade. The Measurements and Calibration Law No. 3516, published in 1989, has now replaced the Measurements Law No. 1782. The 1989 law established the General Directorate of Measurements and Quality Control, whose name was changed to the General Directorate of Measurements and Standards by a decree issued in 1993.

The Regulations made under Law No. 3516 comprise:

- authorizations to repairers of measures and measuring instruments (Regulation issued in 1990),
- procedures for measures and measuring instruments which are imported and exported (Regulation issued in 1990),
- principles of stamping of measures and measuring instruments or issuing a certificate instead of stamping (Regulation issued in 1990),
- fees for verification and stamping of measures and measuring instruments (Regulation as amended in 1994),
- International System of Units (SI) (Regulation issued in 1990),
- Regulation concerning trade-mark registration and type and system approval of measures and measuring instruments,
- Regulation concerning verification of measures and measuring instruments, issued in 1994.

2 Legal units of measurement

The legal units of measurement are those of the International System of Units (SI).

3 Instruments subject to legal control

The following devices, when used in trade, are subject to control under the Measurements and Calibration Law No. 3516 :

- length, area and weight measuring instruments,
- volumeters,
- hydrometers,
- grain controlling devices,
- electricity meters,
- water meters,
- gas meters,
- liquid fuel meters,
- taximeters,
- transport and delivery tankers,
- electric current and voltage transformers.

4 Metrological control of quantities

In accordance with point (14.f) of the Measurements and Calibration Law No. 3516, the Ministry of Industry and Trade is responsible for the control of net content of packages.

5 Services responsible for metrology

5.1 National service of legal metrology

Ministry of Industry and Trade
General Directorate of Measurements and Standards
ANKARA

Telephone: 90-312-229 18 70
Fax: 90-312-231 16 94

All new patterns of manufactured and imported weighing and measuring instruments and modifications are subject to pattern approval, certification or mark registration by the General Directorate of Measurements and Standards.

5.2 Local verification services

Regional and local verification is carried out by the Directorates of Measurements and Calibration established in sixty-three provincial centres serving seventy-six provinces.

In addition, Measurements and Verification offices have been established in 130 city centres.

5.3 Laboratories responsible for maintaining national measurement standards

The General Directorate of Measurements and Standards has a metrological laboratory housing national and local standards. This laboratory is to be modernized according to the Measurements and Calibration Organization Project prepared by the Ministry of Industry and Trade.

5.4 Instrument calibration and evaluation systems

No information received.

6 Accreditation and certification systems

Work is under way to establish accreditation and certification systems.

1 Laws of metrology

Law No. 15.298 of 7 July 1982.

In order to implement the law on metrology, decrees and rules have been promulgated by the government.

The requirements of the appropriate OIML International Recommendations and Documents have generally been adopted when drafting rules, decrees and regulations concerning legal metrology.

2 Legal units of measurement

The legal system of units is the International System of Units (SI). SI units shall be used in economic activities, in the fields of health and public safety and in operations of an administrative nature.

3 Instruments subject to legal control

The law states that measuring instruments and material measures are subject to legal control and verification when they are used in trade, presented for sale or when they are used for certain measurements of interest to individuals.

The following instruments are regulated by documents issued by the government as of 1 January 1995.

- weights and weighing instruments,
- length measures,
- volume measures,
- petrol pumps.

Documents covering clinical thermometers and taximeters are in preparation.

4 Metrological control of quantities

Products in packages to be marketed on a commercial basis which are packed and sealed in the absence of the buyer (prepackages) must comply with the prescriptions of the prepackage decree (Decree No. 363/91). Prepackages are produced by the manufacturer under certain prerequisites and are controlled by the verification authorities.

5 Services responsible for metrology

5.1 National service of legal metrology

The National System of Metrology was established by law No. 15.298 of 7 July 1982, with the aims of formulating and implementing national policy in the field of metrology.

The Ministerio de Industria, Energía y Minería is responsible for determining and governing the national metrology policy and for executing the relevant administrative actions.

The Laboratorio Tecnológico del Uruguay (LATU) is responsible for the care of national standards, the reproduction and maintenance of the legal units of measurement and to conduct research related to their development.

The Gerencia de Metrología Legal (GEMEL) is responsible for the verification of measuring instruments and the collection of verification fees in compliance with the law.

By Government Decree effective as of 1 January 1995, technical activities related to verification and fiscalization of measuring instruments has been transferred from the Ministerio de Industria, Energía y Minería to the Laboratorio Tecnológico del Uruguay (LATU).

The Dirección General de Secretaría of the Ministerio de Industria, Energía y Minería - Competences and Attributions Division, lays down and supervises the national metrology policy, implements the law, imposes sanctions, represents the country at international meetings and concludes agreements.

5.2 Local verification services

Dirección General de Secretaría
Ministerio de Industria, Energía y Minería
Rincón 747
MONTEVIDEO

Telephone: 598-2-90 81 20
598-2-91 36 05
598-2-91 42 24
Fax: 598-2-92 12 45

URUGUAY

Laboratorio Tecnológico del Uruguay (LATU)
Gerencia General
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MONTEVIDEO

Telephone: 598-2-61 37 30
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Gerencia de Metrología Legal
Buenos Aires 495
MONTEVIDEO

Telephone: 598-2-95 98 80
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5.3 Laboratories responsible for maintaining national measurement standards

Laboratorio Tecnológico del Uruguay (LATU)
Sector Metrología - Gerencia de Análisis y Ensayos
Avda. Italia 6201
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Telephone: 598-2-61 37 30
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5.4 Instrument calibration and evaluation systems

Laboratorio Tecnológico del Uruguay LATU
Sector Metrología - Gerencia de Análisis y Ensayos
Avda. Italia 6201
MONTEVIDEO

Telephone: 598-2-61 37 30
598-2-61 37 32
Fax: 598-2-61 85 54

6 Accreditation and certification systems

No information received.

1 Laws of metrology

- Decree on metrology management No. 216/CP of 25 September 1974 amended by the Act on Metrology of 6 July 1990.
- Government Decree No. 115/HDBT of 13 April 1991 on the implementation of the law of 6 July 1990.

The following regulations have been issued in the implementation of the law of 6 July 1990 :

- Regulation No. 380/QD of 1 July 1991 concerning the state inspection for metrology,
- Regulation No. 381/QD of 1 July 1991 concerning the management of the measurement standards system,
- Regulation No. 103/TDC-QD of 20 July 1991 defining measuring instruments subject to verification,
- Regulation No. 104/TDC-QD of 20 July 1991 concerning the accreditation of verification competence for the state administration agencies on metrology,
- Regulation No. 109/TDC-QD of 20 July 1991 concerning the certification of reference materials,
- Regulation No. 105/TDC-QD of 20 July 1991 concerning the accreditation of verification competence of authorized bodies on metrology,
- Regulation No. 106/TDC-QD of 20 July 1991 defining the verification mark of state administration agencies and authorized bodies on metrology,
- Regulation No. 107/TDC-QD of 20 July 1991 defining the performance of certificate of state administration agencies and authorized bodies on metrology,
- Regulation No. 108/TDC-QD of 20 July 1991 concerning the registration of state verification of measuring instruments,
- Regulation No. 290/TDC-QD of 20 September 1991 concerning the registration of production, repair and pattern approval of measuring instruments,
- Regulation No. 117/TDC-QD of 4 June 1993 concerning the registration of import of measuring instruments,
- Regulation No. 168/TDC-QD of 23 July 1994 concerning prepackages.

2 Legal units of measurement

The legal units of measurement are those of the International System of Units completed by certain units permitted for use by the State. These units are defined in the Vietnam standards (TCVN).

3 Instruments subject to legal control

According to the Act on Metrology 1990, article 15, all the measuring instruments used for:

- determination of quantities of food in purchase and sale, in delivery and receipt,
 - labour safety, health and environmental protection,
 - juristic expertise and other official activities of the State,
- are submitted to state verification.

4 Metrological control of quantities

Metrological requirements for prepackages are specified in Regulation No. 168/TDC-QD.

5 Services responsible for metrology

5.1 National service of legal metrology

Vietnam Metrology Institute (VMI)
Nghĩa do - Tuliem
HANOI

Telephone: 84-4-361 126
Fax: 84-4-344 260
84-4-267 418

The Vietnam Metrology Institute (VMI) is the new name for the present National Metrology Centre (NMC).

The Institute, which forms part of the Directorate for Standards and Quality (DSQ), is responsible for custody and management of national measurement standards.

5.2 Local verification services

Metrology laboratories have been set up in Regional Technical Centres situated in Hanoi (North), Danang (Central) and Ho Chi Minh city (South).

The network of local verification services covers fifty-three provinces. The distribution of tasks among the laboratories of the regional and local verification services is in conformity with the hierarchy of measuring instruments.

5.3 Laboratories responsible for maintaining national measurement standards

No information received.

5.4 Instrument calibration and evaluation systems

No information received.

6 Accreditation and certification systems

Accreditation scheme:

Regulation No. 104/TDC-QD,

Regulation No. 105/TDC-QD.

OTHER DIRECTORIES ON METROLOGY

EUROMET Directory, 1995 (Metrology in European countries)

Secretariat:
Danish Institute of Fundamental Metrology
Building 307, Lundtoftevej 100
DK-2800 Lyngby
Denmark
Tel: 45-45-93 11 44
Fax: 45-45-93 11 37

WELMEC Directory, 1995 (Legal metrology in European countries)

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PO Box 6
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Croydon, CR9 1LG
United Kingdom
Tel: 44-181-688 19 96
Fax: 44-181-680 15 09

COOMET Directory, Part 1 - 1993, Parts 2 and 3 - 1994 (Metrology in central and eastern European countries)

Secretariat:
Slovak Institute of Metrology
Karloveská 63
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Tel: 42-7-72 98 20 and 42-7-72 98 65
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APLMF Directory, 1995 (Legal metrology in the Asia Pacific region)

Secretariat:
Asia-Pacific Legal Metrology Forum
PO Box 282
North Ryde, New South Wales 2113
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Tel: 61-2-888 39 22
Fax: 61-2-888 30 33

CIMET Directory, 1993 (National measurement systems of Commonwealth countries)

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Dr. K.S. Krishnan Road
New Dehli 110 012
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Telex: 031-77384 RSD IN

APMP Directory, in preparation (Calibration facilities in the Asia Pacific region)

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OIML Directory, 1996 (Legal Metrology in OIML Member States)

