

# ЗАРУБІЖНІ АВТОРИ

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## ADAPTATION EU REQUIREMENTS IN THE FIELD OF METROLOGY: THE EXPERIENCE OF THE REPUBLIC OF LITHUANIA

*The aim of this research is to induct the evolution of harmonization of Europe Union legislation and the legal requirements of metrology for Lithuania Republic. The content of the article is divided into two parts. The first part of the article analyses the evolution of metrology in Lithuania, reveal the legal acts regulating metrological activities of the Republic of Lithuania, and induct international recognition of metrological surety ship of Lithuania. The second part analyses European Union's as well as national legislation regulating implementation of metrology in Lithuania and peculiarities of harmonization of national law with the European Union's legislation.*

**Keywords:** metrology; legal regulation; harmonization; European Union, market.

**Introduction.** It is essential for everyone to equally understand the used concepts while transferring information and seeking for the unity of measurements. Metrology is different than any other study since many subject-matters are regulated on the basis of mutual agreement, such as measurement units, methods for assessment of inaccuracies, etc. For that reason, terms of metrology are standardized both in national and international level, particularly under current circumstances when industrial goods, appliances, foodstuff, chemical materials, gas or oil are carried among countries easily and promptly and when complex industrial equipment or domestic appliances are assembled from compo-

nents manufactured in several countries located in different continents. Naturally, such system is functional only in the case when all manufacturers are following the same standards. Technically, the validity of standards is guaranteed by measurements which have to be standardized themselves, i.e., the global unity of measurements has to be implemented.

In a globalising world, where economic cooperation is getting more intense and exchange of goods and services becoming increasingly widespread, the need of credible measuring results becomes evident almost in all the areas of human activity as they aim to protect consumers against inaccurate and false

measurement outcomes. Therefore, authorities carrying out the legal regulation in the area of metrology should emphasize the ways to ensure surety ship of measurement traceability, harmonise the actions of Lithuania in the field of metrology with other EU States; to facilitate the business establishment and development procedures as well as to reduce the State's intervention into manufacturing and use of measuring instruments.

After Lithuania joined European Union on 1 May 2004 it had to comply with the EU *Acquis Communautaire*, thus on 22 June 2006 the Seimas of the Republic of Lithuania adopted the Law Amending the Law on Metrology of the Republic of Lithuania. With an adoption of the Law on Metrology Lithuania has committed that its laboratories must comply with the requirements set forth for testing laboratory or supervisory authority that entered into force starting with 1 January 2012.

The experience of Lithuania integration into the European Union and the harmonization legislation at the national level could be useful for Ukraine seeks to be a full member of Europe Union in future. The aim of this research is to induct the evolution of harmonization of Europe Union legislation and the legal requirements of metrology for Lithuania Republic.

Problems of the research:

1) to reveal the development of metrology process regulation in Lithuania

2) to analyze metrology regulatory changes, harmonizing EU legislation at national level

### **Evolution of Metrology in Lithuania**

The first law of the Republic of Lithuania regulating metrological activities has been adopted in 1996. The Law on Metrology of the Republic of Lithuania has established the fundamental principles of metrology, institutions and implementation of their activities. This Law describes legal metrology as a branch of metrology reflecting the state policy in normalisation of measurements, their methods, measuring instruments used to achieve traceability and the required accuracy of measurements [1]. It was the first Law on Metrology of the Republic of Lithuania that formed main concepts of metrology in the legal framework of Lithuania, provided for national audit for measurement units and formed definitions for measuring systems as well as legal framework to further develop and regulate metrology.

State Metrology Service has been established as an independent institution after reorganisation of the Lithuanian Standards Board into three institutions [2]. Following the resolution of the Government of the Republic of Lithuania the State Metrology Service has been also entrusted to implement the metrology policies in Lithuania, to coordinate the uniformity of measurements, as well as to organize and carry out scientific, legal and administrative activities in relation to

metrology [3]. State Metrology Service is the founder of five metrology centres. According to the resolution of the Government of the Republic of Lithuania it has been determined that the Ministry of Environment is the subject of metrological surety ship system [4], which was entrusted to implement proprietorial rights and obligations of the State Metrology Service. Pursuant to the Resolution No. 211 of 3 March 2010 of the Republic of Lithuania [5], the Ministry of Economy of the Republic of Lithuania has been entrusted to implement proprietorial rights and obligations of the State Metrology Service from 1 July 2010.

While carrying out the formation of metrology, the Government of the Republic of Lithuania, following the Resolution of 27 May 1997, has entrusted the Lithuanian Standards Board (and the State Metrology Service from 27 January 1998) to coordinate the procedures of creation, storage and use of national standards, as well as to determine the order and level of their creation according to the needs and economical capabilities of Lithuania [6]. The main purpose of the standards of measurement units was the surety ship of metrological traceability for the measurements carried out within the country. The Law on Metrology of the Republic of Lithuania provides for the areas of economic activities, where measuring instruments used are subject to legal metrological supervision, i.e., obligatory suretyship of met-

rological traceability, the transfer of standard values of measurement units to the guiding standards and measuring instruments in such areas as: in health protection during verification of measuring instruments; in veterinary during assessment of ecological condition and its exposure; in occupational safety; during assessment of quality of goods and raw materials; during assessment of quantity and value of goods, energy and services; during banking, taxing, customs and postal operations; during measurements carried out on request of State governing and supervisory institutions [1]. It was basis of standards that was started in 1997 under decentralized structure of metrology, when both scientific institutes and other competent economy subjects with certain technical framework, premises and qualified workers have become the developers of the program.

International recognition of metrological suretyship in Lithuania has taken place while participating in the activities of regional metrological organizations. Lithuania has joined the European Regional Metrology Organization<sup>1</sup> in 1999. After joining the EURAMET Lithuania has been obliged to implement the main membership criteria, such as identification and metrological traceability chain with the SI system's units and execution of the chain for at least three years. National Metrology Institute had to submit a proof of its participation in international matching and EURAMET metro-

<sup>1</sup>Hereafter the EURAMET.

logical projects, and to demonstrate that the metrological traceability is guaranteed by the laboratories with an active quality management system. Lithuania has satisfied these requirements and that has let the State Metrology Service, as a manager of virtual national metrology institute, to sign a Multilateral Recognition Arrangement<sup>1</sup> on National measurement standards and measurement certificates issued by national metrological institutes on 12 April 2001. Multilateral Recognition Arrangement has been drafted by the International Committee for Weights and Measures<sup>2</sup> following its authorization provided by the Meter Convention. The purposes of the Multilateral Recognition Arrangement is to determine parity level for national standards of measurement units; to lay ground for mutual recognition of the calibration and measurement certificates issued by NMI, and thereby provide the governments of the states with a safe technical basis for larger agreements related to international trade. Since Lithuania had a decentralized metrological system, the virtual national metrological institute upon an agreement, included and still includes the State Metrology Service along with the following institutions holding national standards: Lithuanian Energy Institute, State Research Centre for Physical Sciences and Technology, State Enterprise Vilnius Metrology Centre and UAB "Precizika Metrology". Each of the aforementioned institutions carries out activities provided for

in the Multilateral Recognition Agreement in the area of metrology according to its expertise, i.e., ensuring international unity and traceability for measurements, providing metrological services to national institutions and economic operators and representing Lithuania within international and regional metrology organizations in their area of expertise. State Metrology Service not only fulfils organization and coordination functions within the National Metrological Institute, but also coordinates development and installation of quality management system and provides for common connections among these institutions in the quality management systems, International recognition of National Metrological Institute of Lithuania in the area of quality was once again approved during the annual meeting of the Technical Committee of EURAMET that has taken place on 24-25 February 2010 in Brussels (Belgium).

### **Peculiarities of Legal Regulation for Metrology in the European Union and Lithuania**

Regulation of legal metrology in the European Union and its harmonisation is based on the Directive 71/316/EEC of 26 July 1971, which includes the requirements for all categories of the measuring instruments, and also based on other Directives that have been issued since 1971 and covers individual categories of measuring instruments. Measuring instruments which have been of-

<sup>1</sup>Hereafter the Multilateral Recognition Arrangement.

<sup>2</sup>Hereafter the CIPM.

ficially provided with the pattern approval of the European Economic Area and for which initial verification of the European Economic Area has been carried out can be placed on the market and used in all of the Member States without carrying out additional testing and pattern approval [7]. While seeking for free movement of goods in the separated European Union's market a new conception of technical harmonisation and standardization, including metrology, was established upon the decision of Council of Europe in 2004. It is set forth that all the Directives are mandatory for all the Member States and allow avoiding possible deviation in individual states. The main purpose of the Directive 2004/22/EC concerning harmonisation of measuring instruments is to remove technical barriers in trade, while regulating trade and use of such measuring instruments as water meters, gas meters, electrical energy meters and measuring transformers, heat meters, measuring systems for liquids except water, automatic weighing scales, taximeters, measurement systems for material measures and dimensions, odour analyser and combustion gas analyser [8]. These measuring instruments have met the main requirements. The manufacturer is obliged to determine technical details and refer to the harmonised standards of the European Union. Application of standards helps to blend in the market, i.e., when measuring instruments comply with these standards a presumption can be drawn that they will also comply with the requirements of Directives [9]. Ac-

cording to the Directive 2004/22/EC, the mandatory legal supervision of measuring instruments is carried out by each Member State individually. The requirement applied for the instruments after their introduction for use have not been harmonised under this Directive, therefore the repeated verifications, inspections and verification validity periods can be defined by the Member States in accordance with the national laws. Consumer protection may vary according to the State, thus the requirements determining the use of measuring instruments depend on national legislation. Members States can also set legal requirements for the measuring instruments that are not listed in the Directive 2004/22/EC.

The ratification of technical regulation for measuring instruments [10], which implemented the Directive 2004/22/EC of EU concerning measuring instruments, has led to the amendment of legitimation procedure on measuring instruments regarding the assessment of measurement conformity and the pre-packed products assessment services acquired from legal persons. The Directive 2004/22/EC of the European Parliament and of the Council concerning the measuring instruments has obliged the Member States to adopt laws and other legislation necessary to comply with the requirements of the Directive. Once Lithuania joined the European Union on 1 May 2004 it has been subject to the EU *Acquis Communautaire*, as well as subject to the commitments arising from the Treaty establishing the European Community (Articles

28-30, Articles 153 and 157) as well as from provisions of the Article 1 of Treaty of Accession of Lithuania relating to the free movement of goods, consumer protection, reinforcement of industry competitiveness, etc. The requirements of this provision, the EU Directive 2004/22/EB and other Directives as well as experience of EU Member States have encouraged drafting new edition of the Law on Metrology of the Republic of Lithuania that was adopted by the Seimas of the Republic of Lithuania on 22 June 2006 [11]. After adoption of the Law Amending the Law on Metrology it was necessary to replace active metrological regulation legislation with the new one.

On 5 September 2007 the European Parliament and of the Council adopted the Directive establishing the procedures for nominal quantities of pre-packed products and repealing Council Directives 75/106/EEC, 80/232/EEC and amending the Council Directive 76/211/EEC. The Directive 75/106/EEC of 19 December 1974 on the approximation of the laws of the Member States relating to the making up by volume of certain pre-packaged liquids and the Directive 80/232/EEC of 15 January 1980 on the approximation of the laws of the Member States relating to the ranges of nominal quantities and nominal capacities permitted for certain pre-packaged products, established that for most products, national nominal quantities are allowed to exist alongside Community nominal quantities. For some products, however, Community nominal quantities are fixed to the

exclusion of any national nominal quantities, therefore changes in consumer preferences and innovations in prepacking and retailing at Community and national levels have made it necessary to assess whether existing legislation is still appropriate. The Court of Justice held in its judgment of 12 October 2000 in Case C-19/99 *Cidre Stassen SA and HP Bulmer* that Member States are precluded from prohibiting the marketing of a pre-package having a nominal volume not included in the Community range, which is lawfully manufactured and marketed in another Member State, unless such a prohibition is designed to meet an overriding requirement relating to consumer protection, applies without distinction to national and imported products alike, is necessary in order to meet the requirement in question and is proportionate to the objective pursued, and that objective cannot be achieved by measures which are less restrictive of intra-Community trade [12]. An impact assessment, including a wide consultation of all interested stakeholders, has indicated that, in many sectors, free nominal quantities increase the freedom of producers to provide goods according to consumer tastes and enhance competition as regards quality and price on the internal market. In other sectors, however, it is more appropriate, in the interests of consumers and business, to retain mandatory nominal quantities for the time being [12].

The Directive 2009/3/EC of 11 March 2009 of the European Parliament and of the Commission amended the Council



Directive 80/181/EEC concerning the approximation indications of the laws of the Member States relating to units of measurement. In order to avoid creating obstacles for Community undertakings exporting to certain third countries that require products to be marked, it is appropriate to maintain the authorisation to use supplementary [13]. EU Directive 80/181/EEC supported the smooth functioning of the internal market through the approximation level of measuring units, therefore it was appropriate that the Commission monitored market developments relating to that Directive and its implementation, notably as concerns possible obstacles to the functioning of the internal market and any further harmonisation required to overcome those obstacles.

A new edition of the Technical Regulation on Quantity of Pre-packed Products and Supervision of Measurement Vessels [14] entered into force on 11 April 2009 implementing the provisions of the Directive 2007/45/EC of the European Parliament and of the Council on nominal quantities for pre-packed products [15]. Its requirements also applies for the goods marked with an "e" symbol (it confirms that the quantity of product is constantly supervised and corresponds with the one stated on the package or label; permission from a competent authority is required) and non-marked goods, pre-packed up to 50 kg, determines allowable negative deviations of quantity which are applied in the Community. This guidance docu-

ment enhances requirements for the pre-packed goods; therefore the State Metrology Inspectorate also follows the aforementioned regulation while carrying out legal metrological supervision, since it has to perform inspection of the pre-packed products lots at the manufacturer by applying quantity average calculation methodology.

Directive of the European Parliament and of the Council relating to common provisions for both measuring instruments and methods of metrological control was adopted on 23 April 2009. This Directive has several times essentially amended the Council Directive 71/316/EEC of 26 July 1971 on the approximation of the laws of the Member States relating to common provisions for both measuring instruments and methods of metrological control [16]. The Directive provides for that in each Member State, mandatory provisions determine the technical characteristics of measuring instruments and the methods of metrological [16]. Those requirements differed from one Member State to another, therefore those differences hindered trade and could create unequal conditions of competition within the Community. One of the objectives of controls in each Member State is to give assurance to customers that quantities delivered correspond to the price paid. Consequently, the aim of this Directive should not be to abolish those controls but to eliminate differences between rules [16]. The aim is to reduce and remove such obstacles to the functioning of the inter-

nal market by initially complementing the valid national provisions and subsequently repealing the provisions, when the necessary conditions exist. Compliance with technical requirements is usually confirmed by Member States before measuring instruments are placed on the market or used for the first time, and where appropriate when they are in service, such confirmation being affected in particular by means of pattern approval and verification procedures. In order to achieve free movement of such instruments within the Community, it is also necessary to provide for mutual recognition of controls among Member States and to establish appropriate EC pattern approval and initial verification procedures for this purpose as well as EC methods of metrological control in accordance with this Directive and with the relevant individual Directives. The measures necessary for the implementation of this Directive should be adopted in accordance with Council Decision 1999/468/EC of 28 June 1999 laying down the procedures for the exercise of implementing powers conferred on the Commission.

Lithuania has faced some significant challenges back in 2011 due to the Commission Directive [17], which entered into force in 2009. Starting with 1 June 2011 the new permissible inaccuracies close to zero should have been set for dosing devices in petrol filling stations and for the meters of hot and cold potable water, gas, active electrical energy and heat meters in order to avoid misuse of

their maximum permissible inaccuracies and systematically favour any of the parties involved in the transaction [17]. In most of the cases the inaccuracies of these measuring instruments are close maximum negative inaccuracy and are unfair in respect of consumers. Lithuanian Metrology Inspectorate supervises the compliance of the measuring instrument users and of the companies carrying out the verifications of such measuring instruments with the requirements of the aforementioned Directive.

### **Conclusions**

1. After joining the EURAMET Lithuania has been obliged to implement the main membership criteria, such as identification and metrological traceability chain with the SI system's units and execution of the chain for at least three years. National Metrology Institute had to submit a proof of its participation in international matching and EURAMET metrological projects, and to demonstrate that the metrological traceability is guaranteed by the laboratories with an active quality management system

2. While harmonising European Union's legislation Lithuania has committed to remove technical barriers in trade, apply standards which helps blend in the market, support smooth functioning of the market by establishing approximation level of measuring units,

3. Lithuania has been obliged enhance requirements for the pre-packed goods, safeguard consumer interests by ensuring



that the quantities delivered match the paid amount and to acknowledge verifications carried out in the Member State as well as the metrological control methods applied by the European Community.

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**Новіковас А., Новіковенс Л. Адаптація вимог законодавства Європейського Союзу у сфері метрології: досвід Литовської республіки.**

*Метою цього дослідження є аналіз еволюції гармонізації правових вимог Європейського Союзу та законодавства Литовської Республіки в сфері метрології. Зміст статті розділений на дві частини. У першій частині статті аналізується еволюція регулювання метрології в Литві, визначаються правові акти, що регулюють метрологічну діяльність Литовської Республіки, а також загальні засади міжнародного визнання метрологічного поручительства Литви. Друга частина присвячена аналізу законодавства Європейського союзу та національного законодавства Литви, що регулює метрологічну діяльність, а також особливостям гармонізації національного законодавства Литви у зазначеній сфері із законодавством Європейського Союзу.*

**Ключові слова:** метрологія, правове регулювання, гармонізація, Європейський Союз, ринок.

**Новиковас А., Новиковене Л. Адаптация требований законодательства Европейского Союза в сфере метрологии: опыт Литовской республики.**

*Целью данного исследования является анализ эволюции гармонизации правовых требований Европейского Союза и законодательством Литовской Республики в сфере метрологии. Содержание статьи разделено на две части. В первой части статьи анализируется эволюция регулирования метрологии в Литве, определяются правовые акты, регулирующие метрологическую деятельность Литовской Республики, а также общие принципы международного признания метрологического поручительства Литвы. Вторая часть посвящена анализу законодательства Европейского Союза и национального законодательства Литвы, регулирующего метрологическую деятельность, а также особенностям гармонизации национального законодательства Литвы в указанной сфере с законодательством Европейского Союза.*

**Ключевые слова:** метрология, правовое регулирование, гармонизация, Европейский Союз, рынок.

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