

УДК: 004

Yusupov A.R.

***Candidate of Technical Sciences, Associate Professor,
Fergana Polytechnic Institute. Uzbekistan***

ETALONS AND THEIR TYPES USED IN THE CREATION OF UNITS OF MEASUREMENT AND METROLOGICAL SUPPLY

Annotation: ensuring the uniformity of measurements the state system is considered a normative, legal basis in the Metrological provision of accuracy of measurements in the country, which is followed by all government agencies, enterprises and organizations. The étalon is a formally approved measuring instrument (body or device) that represents the unit of physical magnitude and provides storage, with the aim of incorporating its size into the means of measuring that type of magnitude through the lower inspection links.

Keywords: physical size, benchmark, State benchmark, international, interstate scientific benchmark, national benchmark

Introduction

The organization of production based on the principles of broad specialization and co-operation, interchangeability, requires ensuring and maintaining uniformity of measurements on a nationwide scale. To this end, a state system has been developed to ensure uniformity of measurements [1]. It is considered a normative, legal basis in the Metrological provision of measurement accuracy, which is followed by all government agencies, enterprises and organizations [1].

Materials and methods:

This includes empirical methods such as modeling, fact, experiment, description and observation, as well as theoretical methods such as logical and

historical methods, abstraction, deduction, induction, synthesis and analysis. The research materials are: scientific facts, the results of previous observations, surveys, experiments and tests; means of idealization and rationalization of the scientific approach.

State benchmark refers to the benchmark recognized by the decision of the authorized national body as a measure of the unit of measurement in the territory of the Republic of Uzbekistan.

The étalon is a formally approved measuring instrument (body or device) that represents the unit of physical magnitude and provides storage, with the aim of incorporating its size into the means of measuring that type of magnitude through the lower inspection links.

In maintaining uniformity of measurements, the following grading on accuracy has been adopted [2].

Étalones, étalones representing a single unit, are also primary and secondary. A primary étalon is an étalon that represents unity at the highest resolution in the country. Many primary ethalones are attested as state ethalones. According to its Metrological function, all étalones are divided into: primary étalon of primary - independent primary magnitude; derivative-to express the derivative unit concretely; étalon - to check the witness-State étalon for invariance, and the secondary étalon, which is intended to replace it in a distorted or lost state; étalon-copy - to transfer the unit size to the working étalons, that is, to use it in place of the primary étalon at work; comparative étalon-a secondary étalon designed to compare the étalons, that is, an étalon that acts as an intermediary in the middle in cases where, for one reason or another, the étalons cannot be directly compared with each other; worker étalon - a secondary étalon designed to.

Results and discussion:

Information about these units of measurement and their reserves may have been recorded in certain regulatory technical documents. This unit of measurement in Uzbekistan has its own RST 8. 005-92 standard.

The centrally produced unit is absorbed using a special technical device. Such devices are called étalons. The étalon is such a technical device that it is used for the purpose of absorbing information about the size and storing it. Étalons are prepared and formally organized according to a special specification.

There are international, interstate scientific Etalons. At the moment, the main units of measurement are designed only centrally. There are 7 basic units of measurement in the international system.

They are second, meter, kilogram, Kelvin, Ampere, mole and Candella.

There were to be 7 main étalons, respectively. But there is no need for a mole benchmark. The 0.012 kg isotope ^{12}C contains $6,022 \cdot 10^{23}$ atoms. To determine the amount of any substance, if the value of the elements of the structure in it is clear, it is possible to determine the amount of that substance in moles, dividing this value by the number of Avagadro.

1 mol H_2 mass 2 gr

1 mol O_2 mass 32 gr

1 mol H_2O mass 18 gr.

As shown above, measurements taken at different locations at different times must be provided uniformly in order to compare the measurement results obtained using different measuring instruments. That is, the measurement unit razors must be uniformly graduated in all measuring instruments [3].

To do this, it is necessary to absorb unit razors into measuring instruments with less accuracy than measuring instruments with greater accuracy. From the Etalons present in the SI system, the unit of measurement Jack is sent to the working measuring instruments through sample measuring instruments.

Sample measurement tools when machining cross-buysunng discharge is induced. The following scheme describes how information about the unit of measurement is transferred from the benchmark to the working meter, according to which a discharge meter with a relatively small ordinal number is superior to a meter with a large discharge, that is, its Metrological accuracy is considered higher.

Measuring instruments are divided by their Metrological indicators into Etalons, sample and working measuring instruments.

Étalon is a measuring instrument (or set of measuring instruments) designed to accommodate other measuring instruments, providing the reproduction and storage of a unit of measurement.

Étalones in themselves exhibit measuring devices with high stability and high accuracy, and are the foundation of work to ensure uniformity of measurements.

A benchmark (measurement scale or unit benchmark) is a set of measuring instruments or measuring instruments designed to reconstruct and (or) store a scale or unit of magnitude and approved as a benchmark in a prescribed manner in order to assimilate the size of a scale to subsystems in a scale – comparison Scheme [4].

Étalones are divided into the following types.

The international étalon is an étalon adopted as the international basis for an international agreement to coordinate the sizes of units that are renewable and maintained with national étalons.

The National étalon is the étalon recognized by the official decision that it serves as the starting étalon for the country.

The state benchmark is the benchmark recognized by the decision of the authorized state agency that it serves as the basis for determining the sizes of units, which is renewable with all other Trumps of this magnitude on the

territory of the state. Often the concepts of national benchmark and state benchmark mean br .

A primary étalon is an étalon that ensures that the unit is recovered with the highest accuracy in the country (compared to other étalones of the same unit).

A special étalon is an étalon that ensures the regeneration of the unit under separate conditions and serves as a primary étalon for these conditions.

A secondary étalon is an étalon that takes the size of a unit from the primary étalon of that unit.

Copy-étalon is a binary étalon designed to internalize the size of a unit into working étalones.

A working étalon is an étalon designed to incorporate the size of a unit into working measuring instruments.

Sample measuring instruments are designed to transfer the unit of measurement from the étalones to the working measuring instruments.

According to the degree of accuracy AV Metrological subordination, sample measuring instruments are divided into discharges. Measurement discharges are determined by a special document – a comparison scheme, which determines the process of mastering the size of the size for each muyayan magnitude.

Working measurement tools are used when performing all measurements that are not related to the absorption of the unit of magnitude measurement.

The above measuring instruments should only be used for their function. Working measuring instruments are not allowed to be used in Metrological comparison and clipping work, Huddy also prohibits the use of sample measuring instruments in measurement work that is not related to comparative work.

Measurements can be carried out only with the help of measuring instruments – special technical means with Metrological indicators of the norm.

Conclusion:

According to its functional function, measuring instruments are divided into the following types::

a) templates, that is, serve to generate and maintain the magnitude in a given razmer (weighing stones, pliers, roulette, generator, etc.);

(b) measure modifiers, which are such measures that a certain property of an object is measured and another property is generated for reference (thermoparae);

c) measuring instruments, i.e. instruments that deliver direct results to the Observer (ammeter, voltmeter, barometer, etc.;

d)are integrated into a set of measuring devices, i.e. measuring instruments and auxiliary devices. (Electronic scales, analytical scales and hokazos);

e) measuring systems, that is, a measuring instrument, measuring instruments consist of a complex of communication channels of auxiliary parts and perform a concrete task [5].

References:

1. Tojiyev, R.J., Yusupov, A.R., Rajabova, N.R. Qurilishda metrologiya, standartlash va sertifikatlashtirish [Matn]: darslik / R.J.
2. Tojiyev, A.R. Yusupov, N.R. Rajabova. – Toshkent: «Yosh avlod matbaa», 2022. – 464 b.
3. GOST 21780-2006. Sistema obespecheniya tochnosti geometricheskix parametrov v stroitelystve. Raschet tochnosti (Mejgosudarstvennyy Standart). - Toshkent.: UzDavarxitkurilish , 1997.
4. ISO 90012. Ulchash vositalarining sifatini ta'minlaydigan talablar
5. O'z RH 51-095:2000*. Методические указания по составлению карты технического уровня и качества продукции.