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The validity of the certificate of accreditation of the testing laboratory for the quality of the tests of drinking and natural water

Annotation

Main problem: The article depicts the most important environmental problem – pollution of hydrophyte sources. The World Health Organization believes that the main source of 80 % of all human diseases is the use of dirty water. It is required to analyze the chemical and physico-chemical compositions of water by sampling. Independent testing should be carried out in laboratories with an accreditation certificate. The accreditation criteria are valid evidence of the competence of the organization, its willingness to do work on conformity assessment.

Purpose: to study the methods of natural water purification and testing by an accredited testing laboratory of household and natural waters.

Methods: method of analysis and comparison, performance of tests.

Results and their significance: All tests were carried out using drinking water and the water of the Irtysh River. The term "water analysis" naturally implies the determination of the qualitative and quantitative composition of impurities and components contained in water.

At the same time, the content of each element requires the execution of the provided research, the use of different methods and technologies. The more points and sub-points of verification, the more extensive the composition of the methods used to determine the parameters of water.

Laboratory tests are the general performance of water property checks performed under special conditions. This method is the absolute opposite of field research, which provides only primary data on the quality of samples.

During the writing of the article, we used the necessary special equipment. The work was carried out by experienced, trained specialists in an accredited laboratory according to State Standard ISO/IEC 17011-2019 "Conformity assessment. General requirements for accreditation bodies, accreditation bodies for conformity assessment".

Accreditation in the field of conformity assessment is a procedure for the official recognition by the accreditation body of the applicant's (conformity assessment body) competence to perform work in a certain area of conformity assessment. The accreditation of a laboratory, certification body or inspection body means a fairly rigorous check of the competence of technical personnel to carry out certain types of activities, an assessment of the management systems of this activity, as well as a check of the availability of the necessary equipment and techniques.

The widespread use of various forms of conformity assessment and a significant increase in the number of organizations providing services in the provided field of activity caused the need to approve the level of their competence and objectivity using certain criteria. Organizations that have passed the procedure for verifying compliance with these criteria have had the opportunity to position themselves as a competent and impartial conformity assessment body, whose work is monitored by an authorized body. Accreditation is an infinitely important component of the modern system of technical regulation.

Keywords: environmental problem, water resources, urbanization, human attitude to natural resources, cleaning methods, test methods, general requirements for the organization and methods of quality control.

Introduction

The Republic of Kazakhstan belongs to the category of states with a huge deficit of hydrophyte resources. Currently, water bodies are heavily polluted by mining, metallurgical and chemical industries, public services of cities and pose a real environmental threat. The true sources of pollution include currently unattended facilities: oil and gas and hydrogeological wells, mines, as well as mines (including with radioactive waste), reservoirs and sewage reservoirs, which are a real threat to the environmental safety of the country.

Rivers such as Nura, Irtysh, Syrdarya, or Lake Balkhash are mostly polluted. Groundwater, which is the main source of drinking water supply for the population, is also susceptible to clogging.

One of the predominant environmental protection problems of Kazakhstan was the exhaustion of water resources. The development of the use of fresh water, primarily for irrigation agriculture, has led to salinization and depletion of natural water sources [1].

The low level of purification of domestic wastewater from organic and inorganic substances is the fundamental source of pollution of water sources necessary for life in cities. Sewage and household waste get into the seas and lead to horrific pollution of the marine environment.

In countries with a developed industry, industrial effluents are 3 times higher than municipal effluents. Enterprises tend to dump waste into rivers, rather than engage in recycling or recycling them, since this will not require significant costs.

Water is also used to cool the turbines of power plants, and then discharged into reservoirs. As a result, her temperature rises in them. With thermal pollution, algae grow, and hydrophytic organisms die out.

The industry actively uses rivers to irrigate fields. Then, after processing the crops, the soil is saturated with salt, fragments of pesticides, fertilizers. Livestock and poultry farms also litter rivers with slurry. Such a process changes the chemical and biological composition of water, which leads to the early suppression or extinction of aquatic inhabitants.

Urbanization and the consumer attitude of man to natural resources have had a tremendous impact on the level of pollution of the entire world ocean. Sewage from settlements and enterprises, pesticides, household chemicals and garbage - all this continuously enters the water.

Pollution of aqua sources is divided into 4 types: chemical, biological, radioactive and thermal.

1. Chemical contamination occurs due to the ingress of various chemicals into it, including toxic elements (pesticides, salts, acids, alkalis, mercury, lead, etc.). It extends over a significant area. It is impossible to take and clean the drinking source from chemical contamination entirely.

2. Biological pollution. It is characterized by the presence of pathogenic bacteria, viruses, protozoa, etc. in the water. In groundwater, the survival rate of harmful microbes is significantly higher than in surface waters. The source of pollution is located in cesspools, faulty sewers, stockyards and other places.

3. Radioactive contamination of rivers and lakes is very dangerous, independent of the concentration of radioactive substances. This contamination occurs when radioactive waste leaks during improper storage.

4. Thermal pollution appears when the temperature of groundwater increases due to the discharge of waste thermal process wastewater into suction wells and other reasons.

When water is polluted, configurations occur in its physico-chemical parameters and organoleptic properties. When identifying such changes, the limited use of it is taken into account. The signs by which the level of water pollution is determined are color, turbidity, aroma, alkaline balance, the presence of heavy metals and organic debris, oxygen, pathogenic organisms.

The chemical and physico-chemical compositions of water are analyzed by sampling. When detecting the content of impurities in the samples, the prerequisites for contamination of surface and groundwater are clarified. The results of the analysis affect the measures to destroy the source of pollution [2].

Cleaning methods

At the national and international level, government agencies monitor the quality and functioning of water treatment systems. Five cleaning methods are used:

1. Primary cleaning does not allow mechanical impurities to enter the rivers. Protective grilles and filters are installed on the sewage pipes, as well as settling tanks are installed.

2. Specialized – purification of water from specific pollutants. Traps for oil spills, fats, phosphate ions, etc. are used.

3. Biological purification is carried out in special bioreactors, aerotanks, methane tanks, followed by disinfection with ultraviolet light for in-depth removal of organic impurities and microorganisms from the water.

4. Chemical. Chemical reagents return waste water to its original state for the purpose of its reuse. As a rule, water is reused for technical purposes.

5. Tertiary water purification is considered more thorough. Nitrogen, phosphorus, pesticides, heavy metals, sulfur compounds contained in it are eliminated by a special composition, powders or electric current.

Any kind of pollution entails quite serious consequences. To begin with, there is a change in the ecosystem of reservoirs, in fact, which leads to the extinction of its inhabitants. Secondly, polluted water enters the water supply network. The result is a deplorable increase in morbidity among the population. Sometimes people don't even mean that health problems are due to drinking dirty water. It is very important to understand that anyone needs to protect rivers from all kinds of pollution.

Perhaps, probably, if all suspended solids in untreated water were large enough that they could simply be removed using known cleaning methods, then treatment with chemical coagulants would not be required. However, most of the suspended matter consists of very small, extremely dispersed solid particles, to a significant extent colloidal. Due to their small size, they are not amenable to precipitation, flotation or filtration, and they must first be subjected to coagulation.

Materials and methods

A coagulant is a special substance that is added to the purified water. Most often it is used to remove impurities from:

- drinking water (in a country house, on a hike, etc.);
- wastewater and other waters in the process of their comprehensive preparation for supply to residential facilities;
- water parks, swimming pools, other artificial reservoirs;

– industrial effluents.

Both flocculants and coagulants are reagents that are directly applied at the first stages of water purification from polluting particles. Coagulants combine small particles of dispersed systems into large ones under the influence of coupling forces. The use of coagulants helps to reduce the degree of oxidizability of the treated aqua masses, reduce the content of suspended particles in them, improve the basic processing processes that occur in treatment facilities and clarifiers. Flocculants ensure the bonding of unstable aggressive particles and thereby intensify the process of flake formation (see Fig. 1). These preparations lighten water masses and make the quality better according to a number of controlled indicators. For example, the alkalinity decreases, the total iron content decreases, and the concentration of suspended particles drops by 3-5 times. The most popular type is aluminum-containing coagulants.

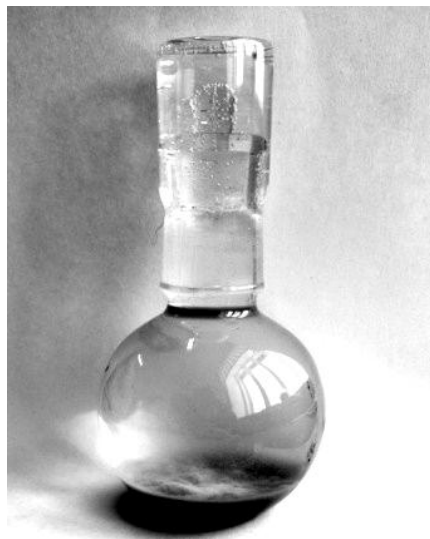


Figure1 – Natural water (Irtys river) with the addition of coagulant and flocculant

The term "water analysis" usually implies the determination of the qualitative and quantitative composition of impurities and components contained in water.

At the same time, the content of any element requires specific research, the use of various techniques and technologies. The more check points there are, the more extensive the composition of the methods used to determine the characteristics of water.

Determining the presence and quantity of any component that is part of a water sample urgently requires special studies.

There are various methods of water analysis that correspond to the characteristics and nature of a particular type of pollution.

This method of analysis is designed to determine the content of the following components –

- iron;
- copper;
- nitrates;
- organic;
- taste, smell, color.

Research methods

Organoleptic and gravimetric methods are used for the study.

The first ones are carried out mainly using their own senses. The color is determined visually by examining the water in a test tube on a snow-white background. The smell, the degree of transparency and taste are also determined independently.

Chemical analysis is necessary to determine the properties of drinking water, and also to determine the composition of samples from wells or wells, other sources. Separately, analyses of wastewater that has been treated and intended for discharge into the reservoir are conducted.

Special attention is paid to water, which is used for the manufacture of:

- food products;
- drinks;
- baby food.

The main task of the test is to detect substances dissolved in water and capable of causing damage to human health.

The following indicators are subject to research:

- dissolved iron;
- heavy metal salts;
- manganese;
- dissolved gases, including hydrogen sulfide, carbon dioxide;
- chlorine compounds and other reagents used in the process of water treatment;
- inorganic compounds;
- colloidal solutions;
- organic components.

Radiological. This type of analysis is specialized for determining the content of radon or decay products of radioactive materials. The test shows the presence (or absence) isotopes of an element, after which a conclusion is made and methods of water purification from pollutants are proposed.

The definition is subject to:

Alpha radiation. This is a sign of the presence of radon, although other sources are possible.

Beta radiation. Its presence indicates the content of radionuclides in the sample.

Check for radon. This gas is extremely harmful to the respiratory system. The radon test is done independently of the alpha radiation analysis, since it does not always give sufficiently clear indicators.

Microbiological. The water sample contains a large number of bacteria and microorganisms. This is normal, the allowable number of colonies is 50 or less.

However, among neutral types of microflora, dangerous or completely unacceptable varieties may occur. Therefore, microbiological analysis is one of the main types of studies of drinking water.

The following are subject to definition:

- common microorganisms;
- coliphages;
- total microbial number.

This is a small check list. For more in-depth research, extended lists are used, including from 20 items or more.

Bacteriological. Bacteriological analysis of water is a procedure similar to microbiological testing. However, many research laboratories distinguish between these methods, defining microbiological studies as a general analysis, and bacteriological studies as a determination of the amount of:

- helminths
- *Pseudomonas aeruginosa*,
- other types of microflora harmful to humans.

There is no fundamental difference in the research methods, you separate the test points. Special methods are required for studying. As a rule, sowing is done in a test tube with a nutrient medium, after some time the number of species and the number of colonies of microorganisms are determined.

The process is quite painstaking, the result largely depends on the level of training of laboratory assistants, as a result of this research, it is recommended to choose specialized organizations [3].

Spectral. Spectral studies of water provide a great opportunity to qualify the presence of dissolved impurities of organic and inorganic origin. The individuality of the technique consists in high accuracy, the ability to determine the presence of large numbers of impurities.

In terms of capabilities, spectral studies can compete with chromatography, and in some positions they are even ahead of alternative methods.

The verification list includes such studies as:

- Y/F studies;
- IR analysis of the sample;
- Atomic absorption spectroscopy (AAS).

The method allows to obtain perfect information about the presence and composition of impurities without making separate analyses for each element.

Laboratory. Laboratory tests are a general definition of checks of water properties performed under special conditions. This method is considered to be the direct opposite of field studies, which provide only primary data on the quality of samples.

For analyses, it is extremely necessary to use special equipment. The work must be carried out by experienced, trained specialists.

If independent verification is important, you should contact an organization listed in the Register of Testing Laboratories. The conclusion obtained from such a research center has official force, unlike the results of inspections of non-certified laboratories.

Parasitological. Parasitological analysis is a specialized study for the presence in the sample of:

- traces of vital activity or larvae of helminths;
- coliform bacteria;
- other dangerous microorganisms.

The analyses are carried out by the method of fine filtration of the sample and determination of the number of harmful microbes in the filtrate.

Separate tests of this type are made only in the case of registration of an increased number of helminthiasis diseases, the occurrence of an excessive number of digestive or skin parasites. For studies, methods are used that correspond to the characteristics of a particular type of pathogens.

In this article I would like to pay more attention to the laboratory method of research.

Laboratory research method

Laboratory tests are a continuous determination of checks of the qualitative properties of water performed under special conditions. This method is considered to be the direct opposite of field research, which provides only primary data on the quality of samples.

Drinking water is obtained from a natural river in our region. Laboratory tests make it possible to qualify whether this water is suitable for consumption or not.

Drinking sources can be divided into 3 groups:

– Plumbing. Water analysis is carried out by local Sanitary and Epidemiological Service, as well as laboratories of the Water Utility and other responsible organizations. Water quality is strictly regulated by State Standard and SanPiN standards, but verification is necessary in any case.

– The well. Drinking wells are classified as conditionally closed water sources. However, they are not completely protected from the possible penetration of impurities from the outside. In addition, constant changes in the state of underground aquifers require periodic verification of the composition of water.

It is necessary to monitor the dynamics of ongoing changes, the appearance of new components, an increase or decrease in the concentration of certain elements. As a rule, the first check (after commissioning of the well) is carried out for all positions of the Sanitary rules and regulations, and then an annual analysis of the main indicators is made – pH, mineralization, the presence of organic, inorganic compounds [4].

– The well. This is an open source of water, and therefore regular quality and composition checks are necessary for it. In addition to physico-chemical parameters and organoleptics, the microbiological background of water is determined, studies are carried out for the presence of dangerous microflora.

Drinking water requirements

In the Republic of Kazakhstan, ST RK State standard 51232-2003 DRINKING WATER is relevant and used today. General requirements for the organization and methods of quality control.

This standard applies to drinking water produced and supplied by centralized drinking water supply systems, and specifies the general requirements for the organization and methods of quality control of drinking water.

The standard applies in terms of requirements for control methods and for drinking water of non-centralized and autonomous water supply systems.

This standard is used in the organization of production control and the selection of methods for determining the quality of drinking water and water supply source, in assessing the state of measurements in laboratories, during their certification and accreditation.

The quality of drinking water must meet the requirements of the current sanitary rules and regulations approved in accordance with the established procedure.

Production control of the properties of drinking water is organized and (or) carried out by organizations that operate water supply systems and are responsible for the quality of drinking water supplied to the consumer.

Chlorination

Results

One of the important stages of water treatment is disinfection, for example chlorination. Chlorination is one of the methods of removing pathogenic microbes, typhoid bacilli, cholera and other infections from water, as well as to reduce the color of water. Chlorination as a method of disinfection of drinking water is based on the fact that free chlorine and its compounds can depress the enzymatic systems of microorganisms that accelerate the reaction in redox processes. This in turn means that chlorine is capable of destroying any organic matter and creating organochlorine compounds on its basis.

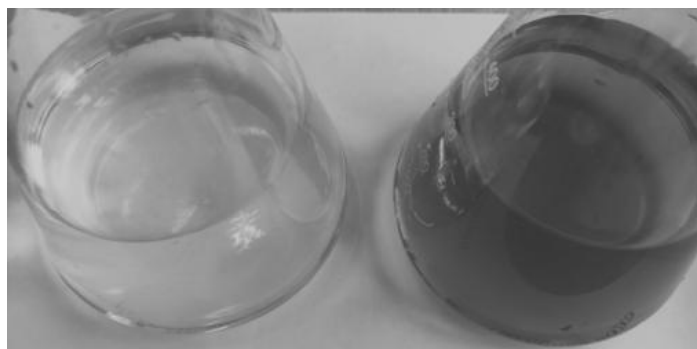


Figure2 – Conducting a test for the content of active free chlorine in water

The calculation was made according to State standard and is equal to: the Irtysh River – there is no active chlorine, drinking water – 0.32 mg / dm³.

Determination of nitrogen-containing substances

The water of open natural reservoirs has a specific percentage of nitrogen-containing compounds that are either dissolved in it, or present as a suspension or in colloidal form. Under the influence of biochemical processes occurring in reservoirs, and also under the influence of physico-chemical factors, they transform, moving from one state to another. The indicator of total nitrogen demonstrates the total saturation of the water of a natural source with both mineral and organic nitrogen compounds.

The total indicator of water saturation with nitrogen of mineral origin displays the total volume of its nitrate, nitrite forms and ammonium. An overestimated content of nitrites and ammonium nitrogen is a very reliable indicator of recent pollution, and a large amount of nitrates may indicate that the water has been contaminated for a long time. The ability to interconvert is inherent in both gaseous nitrogen compounds and all other forms of it. Table 1 shows the Maximum Permissible Concentrations (MPC) of nitrogen-containing substances.

Table 1 – MPC of nitrogen-containing substances

№	The name of the indicator	MPC	
		Drinking water	Irtysh River
1	Ammonia (by nitrogen), mg/cm ³	2,0	2,0
2	Nitrates, mg/cm ³	45,0	45,0
3	Nitrites, mg/cm ³	3,0	3,3

Ammonia is a permissible impurity in the composition of water, but only in a precisely regulated amount. The norm of the content of this gas, according to the the State Register of Accredited Bodies, is declared a concentration of 2 mg/ dm³. This means, in fact, that in case of excess, the water no longer has the opportunity to be a drinking one. Taking into account the characteristic aroma inherent in ammonia, the liquid will still taste hateful.

Apart from the aroma, ammonia also carries other annoying results in the case of a large overabundance in water and concomitant oversaturation by ingestion and /or water procedures:

- headaches;
- skin allergic reaction;
- disorders of the nervous system;
- inconstancy of blood pressure;
- probable pulmonary edema;
- violations of the proper functioning of the kidneys.

The content of a large amount of ammonia in the water has the ability to indicate whether organic fertilizers, fecal effluents or a residual amount of pesticides fall into surface sources and shallow wells.

Water usually contains two forms: ammonium and ammonia. Ammonia is not directly dangerous, but in water with other components it is able to form very toxic compounds that have every chance of causing deterioration in human health. The combination of two elements ammonia and ammonium makes up the total ammonium nitrogen. The content of ammonia, ammonium, and their derivatives in water depends directly on the water hardness index. As a rule, at a pH less than 8, ammonium ions are detected in water. When the pH is greater than 11, then ammonia ions are in the water. In the interval between 8-11, both substances are contained.

Ammonium ions come from the effluents of livestock farms and household discharges. They get into reservoirs with by-products of coke-chemical plants and other objects of the chemical field (for example, with sewage from forest chemical industries). Ammonium is supplied by both food companies and farmland (in this area, it is known for the use of ammonium fertilizers). Industrial discharges can contain up to one, and domestic discharges carry up to 2-7 mg of ammonium per liter. The daily amount of ammonium nitrogen entering the sewer system is about 10 g per inhabitant.

During the writing of the article, we conducted a study to determine ammonia (nitrogen) according to State Standard 33045-2014. Our goal was to determine the reliability of natural water purification from ammonia. It is necessary to take a measuring flask, add 50 cm³ of the water under study, 1 cm³ of potassium-sodium tartaric acid solution, mix, then add 1 cm³ of Nessler reagent and mix again (see Fig.3). After 10 minutes, measure the optical density on a photocolimeter.

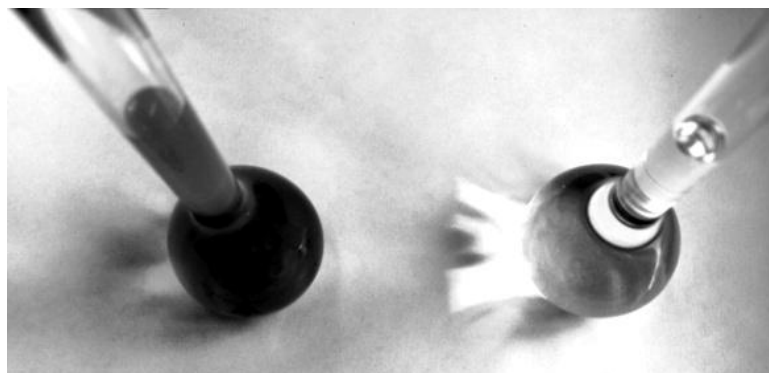


Figure 3 – Testing the determination of ammonia (by nitrogen) in water

The calculation is made according to the calibration schedule using a standard sample and is equal to: the Irtysh River is 1.59 mg/cm^3 , drinking water is 0.001 mg/cm^3 , which indicates a significant purification of drinking water from nitrogen-containing contaminants.

All tests were carried out in an accredited laboratory according to State Standard ISO/IEC 17011-2019 "Conformity assessment. General requirements for accreditation bodies, accreditation bodies for conformity assessment".

Accreditation is the official recognition by the accreditation body of the competence of an individual or legal entity to carry out work in a specific area of conformity assessment.

Accreditation is considered to be the main mechanism for ensuring public confidence in the reliability of all studies related to environmental protection, as well as human safety and health, as well as in the activities of experts who take responsibility for conclusions on the compliance of products, services, and entire organizations with the requirements [5].

Accreditation in the field of conformity assessment is the process of official recognition by the accreditation body of the applicant's (ratio assessment body) competence to carry out work in a specific area of conformity assessment. The accreditation of a laboratory, certification body or inspection body means a fairly firm check of the competence of technical personnel to carry out certain types of work, an assessment of the management systems of this activity, as well as to check the availability of the necessary equipment and techniques.

What is the difference between accreditation and certification? Accreditation is the process of official recognition by an authorized body, confirming, respectively, that the ratio assessment body has a quality management system and is able to carry out work accordingly in accordance with the scope of accreditation, whereas certification is written proof from a third party that the product, management system and personnel meet specific requirements.

Discussion

Accreditation of applicant organizations is carried out in a specific field of work - the field of accreditation in relation to certain products, services, work, process. At the same time, the parameters being checked, the established methods of research (control, inspections) and the appropriate standards and other regulatory documents are undoubtedly being clarified.

A conformity assessment body (certification body) is an organization officially recognized by accreditation for competence and independence, which has the right to perform certification of products, services, works, processes in a specific area of accreditation.

In order to accept the conclusion on accreditation, the accrediting body evaluates the act and all submitted materials. Proof of the organization's ability to certify products (services) or tests is an accreditation certificate issued by the authorized body for standardization, metrology and certification in the prescribed form [6].

Certificate of accreditation is a document issued in accordance with the rules of the State Certification System, certifying the right of the certification body or testing laboratory (center) to perform certain work in a certain field of activity.

Certificates of accreditation are registered in the State Register of Accredited Bodies for the assessment of the ratio, expert centers for accreditation, expert auditors for accreditation, about which official information is published.

Accreditation certificates issued by the State Standard are valid throughout the territory of the Republic of Kazakhstan.

Conclusion

In modern conditions, accreditation gives enormous superiority. In general, the status of an accredited institution increases the degree of competence and reliability of the results.

The extensive spread of various forms of conformity assessment and a significant increase in the number of organizations providing all kinds of services in this field of activity have caused the need to establish

the level of their competence and impartiality using specific criteria. Organizations that have passed the procedure for verifying compliance with these criteria have had the opportunity to position themselves as a competent and impartial conformity assessment body, whose activities have been verified by the authorized body. Accreditation is considered to be the main element of a progressive system of technical regulation.

Thus, the accreditation of organizations based on principles and procedures agreed at the international level provides the most significant stage in the formation of an atmosphere of mutual trust.

The presence of accreditation indicates, in fact, that the accredited organization has achieved the corresponding development value. It has reliable mechanisms to improve the quality of the work and services it provides every day.

Upon completion of the examination of the papers provided by the organization, the laboratory is issued a certificate officially confirming its right to work in accordance with international standards. The certificate is a documentary confirmation of the high level of equipment of the research center. The validity period is not more than five years.

Accredited laboratories check control inspections several times. The first check necessarily falls on the first (after receiving accreditation) the year of the organization's work. The following checks take place over the next year and a half.

The main task of the tests is to independently assess the compliance of the qualitative properties, parameters and characteristics of the products with the current regulations and accepted standards, as well as to analyze and identify the goods for compliance with the provided technical documentation. The main research program is established by the laboratory expert on the basis of technical specifications, standard programs and standard techniques. If there is an obvious need for testing on the basis of specific programs, new analysis technologies are often developed, which are subject to mandatory coordination with the certification body and organizations with certain powers of state supervision.

As practice demonstrates, you need to constantly develop and be a fairly competent employee, as the Hungarian proverb says "Only skill makes a true master."

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Ауыз суға және табиғи суларға жүргізілетін сынақтардың сапасына сынақ зертханасын аккредиттеу аттестатының қолданылуы

Мақалада негізгі экологиялық мәселе – гидрофит көздерінің ластануы көрсетілген. Дүниежүзілік денсаулық сақтау ұйымы барлық адам ауруларының 80 %-ының негізгі көзі – лас суды пайдалану деп санайды. Сынама алу арқылы судың химиялық және физика-химиялық құрамын талдау қажет. Тәуелсіз сынақтарды аккредиттеу аттестаты бар зертханаларда өткізу қажет. Аккредиттеу критерийлері ұйымның құзыреттілігін, оның сәйкестікті бағалау бойынша жұмыстарды орындауға дайындығын көрсетеді.

Мақаланың мақсаты – табиғи суды тазарту тәсілдерін және шаруашылық ішетін және табиғи суларды аккредиттелген сынақ зертханасын сынауды зерттеу.

Зерттеу барысында авторлар талдау мен салыстырудың, сынақтарды жүргізудің бірқатар әдістерін қолданды.

Жүргізілген зерттеу барлық сынақтар ауыз су мен Ертіс өзенінің суын пайдалану арқылы жүргізілгенін көрсетті. «Суды талдау» термині, әрине, судағы қоспалар мен компоненттердің сапалы және сапалы құрамын анықтайды.

Сонымен қатар, әр элементтің мазмұны ұсынылған зерттеулердің орындалуын, әртүрлі әдістер мен технологияларды қолдануды талап етеді. Тексеру тармақтары мен тармақшалары неғұрлым көп болса, су параметрлерін анықтаудың пайдаланылатын әдістерінің құрамы соғұрлым кең болады.

Зертханалық зерттеулер - бұл арнайы жағдайларда өндірілген судың қасиеттерін тексерудің жалпы орындалуы. Бұл әдіс сынақтардың сапасы туралы бастапқы деректерді ғана беретін далалық зерттеулерге сөзсіз қарама-қайшы болып табылады.

Мақала жазу барысында біз қажетті арнайы жабдықты пайдаландық. Жұмыстарды МЕМСТ ИСО/МЭК 17011-2019 «Сәйкестікті бағалау. Аккредиттеу жөніндегі органдарға, сәйкестікті бағалау жөніндегі аккредиттеуші органдарға қойылатын жалпы талаптар».

Сәйкестікті бағалаудың әр түрлі формаларының кең таралуы және ұсынылған қызмет саласында қызмет көрсететін ұйымдар санының едәуір артуы белгілі бір критерийлер арқылы олардың құзыреттілігі мен объективтілігі деңгейін бекіту қажеттілігін тудырды. Осы критерийлерге сәйкестікті тексеру рәсімінен өткен ұйымдар жұмысын уәкілетті орган бақылайтын сәйкестікті бағалау жөніндегі құзыретті және бейтарап орган ретінде өзін танытуға мүмкіндік алады. Аккредиттеу қазіргі заманғы техникалық реттеу жүйесінің шексіз маңызды құрамдас бөлігі болып табылады.

Түйінді сөздер: экологиялық мәселе, су ресурстары, урбанизация, адамның табиғи байлыққа қатынасы, тазарту әдістері, сынақ әдістері, сапаны бақылау әдістері мен әдістеріне қойылатын жалпы талаптар.

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Действие аттестата аккредитации испытательной лаборатории на качество проводимых испытаний питьевой и естественных вод

В статье отображена важная экологическая проблема - загрязнение гидрофитных источников. Всемирная организация здравоохранения считает, что основной источник 80 % всех болезней человека – использование грязной воды. Требуется проанализировать химический и физико-химический составы воды путем отбора проб. Независимые испытания необходимо проводить в лабораториях с аттестатом аккредитации. Критерии аккредитации свидетельствуют о компетентности организации, ее готовность проделывать работы по оценке соответствия.

Цель статьи – исследовать способы очистки естественной воды и испытаний аккредитованной испытательной лаборатории хозпитьевой и естественных вод. В ходе исследования авторы применили ряд методов анализа и сравнения, провели испытания.

Испытания были проведены с использованием питьевой воды и воды реки Иртыш. Под термином «анализ воды» естественно предполагают определение качественного состава примесей и компонентов, содержащихся в воде. При этом содержание каждого элемента требует использования разных методов и технологий. Лабораторные исследования – это общее выполнение проверок свойства воды, произведенных в специальных условиях. Настоящий метод является безусловной противоположностью полевым исследованиям, дающим только первичные данные о качестве проб.

В ходе написания статьи нами было использовано специальное оборудование. Работы были выполнены опытными, подготовленными специалистами в лаборатории, аккредитованной по ГОСТу ИСО/МЭК 17011–2019 «Оценка соответствия. Общие требования к органам по аккредитации, аккредитующие органы по оценке соответствия».

Широкое распространение разнообразных форм оценки соответствия и значительное увеличение численности организаций, оказывающих услуги в предоставленной сфере деятельности, вызвали необходимость утверждения уровня их компетентности и объективности с помощью определенных критериев. Организации, которые прошли процедуру проверки соответствия этим критериям, получают возможность позиционировать себя в качестве компетентного и беспристрастного органа по оценке соответствия, работа которого проконтролирована уполномоченным органом. Аккредитация является бесконечно важной составляющей современной системы технического регулирования.

Ключевые слова: экологическая проблема, водные ресурсы, урбанизация, отношение человека к природным богатствам, способы очистки, методы испытаний, общие требования к организации и методам контроля качества.

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