

## CHARACTERISTICS OF SANITARY AND HYGIENIC INDICATORS OF DRINKING WATER COMPOSITION



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### ИЧИМЛИК СУВИНИ ТАРКИБИНИНГ САНИТАР-ГИГИЕНИК КЎРСАТКИЧЛАРИНИНГ ХУСУСИЯТЛАРИ

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### ХАРАКТЕРИСТИКА САНИТАРНО-ГИГИЕНИЧЕСКИХ ПОКАЗАТЕЛЕЙ СОСТАВА ПИТЬЕВОЙ ВОДЫ

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**Резюме.** Бугунги кунда нафақат республикамиз балки, бутун дунёда долзарб муаммолардан бўлган асосий-си инсонларнинг ичимлик суви сифатида фойдаланиши, давлат томонидан унинг экологик муҳофаза қилиниши, қолаверса ундан оқилонга фойдаланишни ўрганишга қаратилган бўлиб, бунда тоза ичимлик сувига бўлган талаб кўрсаткичининг кимёвий ва органолептик таркибий қисмларини ўрганиши долзарб муаммолардан бирига айланди. Бунда агарда қўлланилиб келаётган ичимлик суви ифлосланган ҳолатда аҳоли саломатлигига катта хавф солинади. Биз биламизки, сувнинг таркибидан тананинг физиологик ва гигиеник талабларига ва сифат ва миқдор жиҳатидан иқтисодий эҳтиёжларга тўлиқ жавоб бериши талаб этилиб, унинг органолептик хусусиятлари, кимёвий таркиби, патоген микроблар ва радиоактив нурларнинг мавжудлиги ёки йўқлиги билан ифодаланган.

**Калим сўзлар:** ичимлик суви, нитрит, темир, мис, хром, селен, стронсий, из элементлари, водород, оқава сув, органолептик параметрлар, ГОСТ, коли-титр, коли-индекс.

**Abstract.** Today, not only in our republic, but throughout the world, the main problem is the use of drinking water by people, environmental protection by the state, the study of its racial use, in which the study of chemical and organoleptic indicators. The components of the demand indicator for clean drinking water have become one of the most pressing issues. Moreover, in the case of pollution of drinking water used on agar, a great danger to public health. We know that the composition of water requires full compliance with the physiological and hygienic requirements of the body and its organoleptic properties, chemical composition, the presence or absence of pathogenic microbes and radioactive rays.

**Keywords:** drinking water, nitrite, iron, copper, chromium, selenium, strontium, trace elements, hydrogen, wastewater, organoleptic parameters, GOST, coli-titer, coli-index.

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Water is one of the factors of the external environment that are important for human, animal and plant life, since 65-75% of human body weight consists of water. Water takes part in the receipt of the necessary trace elements (iodine, fluorine, cobalt, etc.), the distribution of food products by tissue, the balance of body temperature and water-salt balance in the body, leaving the form of steam from the skin and respiratory tract.

Water is one of the most important elements of the biosphere. Life of all life on the planet is impossible without water. From a hygienic point of view, clean water is a source of life and health.

The level of sanitary culture of populated areas is determined by the quality and amount of water supplied. Water consumption per capita is 40-60 liters in rural areas, 125-160 liters in buildings with water supply and sewerage, but 160-230 liters in the presence of a bath, 230-350 liters in buildings with a

centralized hot water supply system, in large cities will be around 500-1000 liter.

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The purpose of this is to determine the source of soil contamination, check water intake facilities, determine the place of water intake for laboratory studies, etc.

In addition, it is necessary to determine what diseases are found in users of this water source, get acquainted with the epidemiological situation in the area. At the same time, diseases that can spread through water are studied mainly among the population and pets. Thus, water sources and water are assessed from a hygienic point of view by comparing the results of sanitary and topographic surveys with the results of laboratory studies. Hygienic standards that determine water quality. Drinking water has two GOSTs. GOST "Drinking water" is water-based water that is intended for the needs of the population, household, cultural and household, medical and preventive institutions, children's institutions, food production, personal hygiene and other needs.

Water consumption standards and drinking water quality requirements in accordance with GOST No. 950-2011

Water consumption rates in RUz are determined by SNIIP 2.04.01-98 "Internal Water Supply and Sewerage of Buildings." The specified document defines water consumption standards for buildings for various purposes and various degrees of comfort. Thus, for residential buildings, the water consumption rate is (Table 1).

**Table 1.** Composition of normal water consumption indicators

№	Water consumers Norma, l/day/foreheads.	Water consumers Norma, l/day/foreheads.
1.	Residential building with water supply and sewage without baths	95
2.	Same plus gas water heater	150
3.	Residential building with cold and hot water supply and shower	195
4.	Residential buildings with cold and hot water supply with shower and bath	250
5.	Residential buildings and apartments of improved comfort class	360
6.	Residential buildings and apartments of high comfort class	450

**Table 2.** Norms of chemical elements of drinking water

№	Chemical element	Normal mg/L (up to)
1.	Aluminum	0.5
2.	Beryllium	0.0002
3.	Molybdenum	0.25
4.	Nitrates	45
5.	Selenium	0.001
6.	polyacrylamide	2
7.	Fluorine	0.7-1.5

**Table 3.** Norms of organoleptic properties of drinking water

№	Indicators	Norms
1	Smell of water heated to	2000 C and 6000 C, up to 2 points
2	Taste of water at 200 C up to 2 points	Water color, level up to 20
3	Turbidity of water, according to the standard up to 1.5 mg/l	
4	Smell of water heated to	2000 C and 6000 C, up to 2 points

**Table 4.** Composition of drinking water source of MSG (MFI) named after S. Mallaev, Samarkand region, Pastdargom region as of 30.12.2023

№	Indicators	Norms
1	Smell of water heated to	0
2	2000 C and 6000 C,	0
3	Taste of water at 200 C	0,06
4	Water color, level	0.04 mg/dm <sup>3</sup>

**Table 5.** Chemical Composition Standards

№	Chemicals	Normal mg/L (up to)
1.	Residual aluminium	-
2.	Beryllium	-
3.	Molybdenum	0,05
4.	Nitrates	0,03
5.	Nitrites	-
6.	Messages	0.001
7.	Selenium	-
8.	Residual polyacrylamide	0,04
9.	Copper	0,07
10.	Hardware	0.7-1.5
11.	Fluorine	4,0
12.	Overall stiffness	300

For general hospitals, the water consumption rate is 115-200 L/bed per day, for infectious diseases hospitals - 240 L/day, in polyclinics and outpatient clinics - 13 L/patient per shift. Compared to the previously used water consumption standards, the values given are below, since the factor of fresh water deficiency is taken into account.

The implementation of the State Program for the water supply of populated areas requires the right choice for the water supply of the water supply source. An important role is assigned to the medical service, since the main criterion for choosing a source is its compliance with certain hygienic requirements.

Drinking water quality requirements. Drinking water shall be safe in epidemic terms, harmless in chemical composition, have favorable organoleptic properties and be safe in radiation terms. These requirements are met when the quality of drinking water meets the requirements of GOST RUz 950:2000. "Drinking water Hygienic requirements and quality control of drinking water."

GOST consists of two main sections: "Standards for water quality indicators and methods for their control" and "Water quality control in centralized domestic and drinking water supply systems."

Standards for drinking water quality indicators include: 1. Microbiological parameters: total microbial count, coli index, escherichia (indicators of fresh fecal contamination), coliphages

2. Parasitological indicators: pathogenic protozoa and helminth eggs

3. Toxicological indicators (MAC) for: a) inorganic components (15 names) and b) organic components (4 names)

4. Organoleptic parameters and MPC of components regulated by influence on organoleptic properties of water (17 indicators)

5. Radioactive contamination - alpha and beta activity

Benign drinking water should be:

- Epidemic safe. Water shall not contain pathogenic microbes, viruses and other biological inclusions hazardous to the health of consumers.
- 2. Chemically acceptable (physiologically favorable). Harmful substances should not harm the consumer, limit the use of water in everyday life.

- 3. Radiation safe.

- 4. Have good organoleptic properties (be transparent, without color, do not have any taste or smell).

Indicators of epidemiological safety of water.

- Colithitre must be at least 300;

- The total number of bacterial colonies in 1.0 mL of water should not exceed 100.

From the above tables, we see that according to the organoleptic properties of water, the sum of GOST for clean drinking water meets the requirements. From the chemical composition, it can be seen that the water of this source contains substances such as nitrite, iron and copper, and the absence of magnesium, selenium and strontium.

Summary: It is important to ensure the sanitary and hygienic condition of water sources and their environmental protection. In particular, their protection and treatment of existing contaminated waters is important. There are mainly three types of wastewater treatment methods: mechanical, chemical and biological. Currently, these methods are widely used. In

addition, dozens of water treatment methods have been developed, and before their use, it is necessary to study the natural conditions of contaminated water sources. Having studied the chemical composition of the source of water of the MSG named after S. Mallaev, Pastdargom district of the Samarkand region, which was indicated above, we can say that it is advisable to use biological methods of water treatment in these areas, since in comparison with other methods it is considered less demanding.

It is important to note that there are only a few aspects that do not harm public health from an environmental point of view.

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**Резюме.** Сегодня не только в нашей республике, но и во всем мире основной проблемой является использование питьевой воды людьми, её экологическая охрана государством, изучение её рационального использования, а также изучение химических и органолептических показателей . Компоненты показателя спроса на чистую питьевую воду стали одним из наиболее актуальных вопросов. При этом в случае загрязнения питьевой воды, применяемой на агаре, большая опасность для здоровья населения. Мы знаем, что от состава воды требуется полное соответствие физиологическим и гигиеническим требованиям организма и его органолептическим свойствам, химическому составу, наличию или отсутствию патогенных микробов и радиоактивных лучей.

**Ключевые слова:** питьевая вода, нитрит, железо, медь, хром, селен, стронций, микроэлементы, водород, точные воды, органолептические показатели, ГОСТ, коли-титр, коли-индекс.