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Analysis of permanganous oxidity of tap water and of the efficiency of its household treatment

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Abstract

In the article results of researches of tap water quality of Samara central water supply system are shown. As the most common purity criterion, permanganate oxidizability was chosen. A solution of potassium permanganate in an acidic medium oxidizes both organic and inorganic substances in the water. Based on the results of titrimetric analysis, the indicator of chemical oxygen consumption was calculated, which, according to the standards, should not exceed 5 mg/l for drinking water. Samples of tap water taken in different districts of Samara were investigated. As a comparison, the permanganate oxidizability of the open source water in the Samara region was measured. It is shown that permanganate oxidability in the same region can fluctuate within wide limits, the difference being 25%. It was found that none of the samples examined meets the sanitary requirements for drinking water. An analysis of samples of tap water on the content of iron ions was made and their absence was shown, which made it possible to conclude that there was no influence of the corrosion processes of water pipes and equipment on the permanganate oxidation capacity. The efficiency of water purification by household filters has also been studied. As the research objects, the pitcher filters of the Barrier and Aquafor companies, occupying the main market segment, and the automatic multi-stage water purification system EkoMaster, widely distributed in organizations and offices, were selected. It is shown that only the "Barrier" filter slightly reduces the permanganate oxidizability, without achieving regulatory values. The "Aquaphor" filter and the "EcoMaster" purifier increase the value of permanganate oxidizability of tap water, which indicates a low resource of these water purification systems.

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