MONITORING OF THE STATE OF FLOWING WATER IN THE PIPELINE TO SOLVE ENVIRONMENTAL MONITORING PROBLEMS IN THE ENVIRONMENT

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Abstract

Water is life! A person consists out of the water by 80%. The water surface is more than 71% of the Earth's area. These are oceans, seas, rivers and lakes. Water is a means of quenching thirst, irrigation of soil, vehicle and so on. People activities have strong man-made impacts on water resources. This leads to the depletion of fresh water resources. In addition, there is a strong pollution, both freshwater sources and marine. All living organisms suffer from this.

Ecological monitoring of water resources makes it possible to reduce the impact of harmful influences. Monitoring the state of flowing water in the pipeline is the most difficult. Water for consumption comes to a person through pipelines. For methods of monitoring the state of water, especially drinking water, high demands are made. The most important of them: the methods of control shouldn't introduce changes in the structure of water, don't degrade biological properties.

To solve the problems of monitoring the state of flowing water in the pipeline, we propose to use a refractometer. This device allows you to measure the refractive index of water $n_в$. $n_в$ depends on the presence in the medium of dissolved or undissolved substances. The refractive index changes if the state of the medium changes. Our device registers this.

Water is differs in different regions and sources. On the basis of this we concluded: by refractometry, the state of water should be controlled not by measuring the value of $n_в$, but by changing the light-shadow boundary. The position of the boundary is determined by the value of the refractive index of water. Position of the border light shadow changes if changes $n_в$.

This optical method of control does not the change in investigated medium. This allowed us are making to refractometer a more universal in comparison with other models for monitoring of liquid medium. The device can be used for turbid media with large insoluble particles.

Keywords: ecological monitoring, refraction, refractive index, flowing water.

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