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AUTOMATED ANALYSIS OF THE ACTIVATED SLUDGE BIOCENOSIS AT WASTEWATER TREATMENT FACILITIES

Control of the process of biological treatment of wastewater in the aeration tank is to obtain and process the data of chemical, bio-chemical, bacteriological and hydrobiological analysis.

Each treatment facility forms its own unique biocenosis of activated sludge, the level of development and destructive potential of which depends on the composition of wastewater, the design of treatment facilities and the mode of operation.

Determination of the level of biocenosis development and destructive potential of activated sludge is necessary to control the efficiency of treatment. The level of biocenosis development is assessed by the predominant groups of protozoa, and the destructive potential - by the main indicators of aeration tank operation, such as sludge load and the degree of treatment by biochemical oxygen demand (BOD).

Indicators of high level of biocenosis development, i.e. high quality of wastewater treatment are predators: worms, sucking infusoria, predatory rotifers, fungi, and tardigrades. Under such conditions, when the degree of removal of organic pollutants is high nitrification proceeds intensively.

If at the moment the degree of wastewater treatment in the aeration tank meets the requirements, and at the same time activated sludge settles well in the secondary sedimentation tanks, the existing biocenosis should be recognized as characteristic for this treatment plant.

An important aspect is the timely detection of changes in the composition of indicator groups of organisms, which may indicate a deterioration of the treatment quality. If the biocoenosis deteriorates, the causes of such changes should be promptly eliminated.

The lack of qualified specialists promotes automation of biocenosis analysis. The service under development will significantly simplify and speed up the work, providing data processing in automatic mode.

The service will not only improve control and management of processes at specific treatment facilities but also create a unified database covering the entire territory of Belarus. This will make it possible to monitor the overall situation in wastewater treatment, analyze trends and promptly respond to emerging problems, which will ultimately improve the efficiency of all wastewater treatment facilities in the country.

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OVERVIEW OF PYTHON LIBRARIES FOR VIDEO CONVERSION

In the modern world, video processing is a crucial aspect of various industries, including media processing, computer vision, and multimedia systems, enabling the improvement of the quality and accessibility of visual information. Python, as a versatile programming language, offers a wide range of tools for