

AEROTENK-BIOLOGICAL METHOD FACILITY FOR WASTEWATER TREATMENT

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Abstract

Biological purification uses the vital activity of microorganisms in the soil. These microorganisms cause the oxidation (rotting) of organic substances in the waste liquid, due to which their mineralization and natural neutralization of bacteria occur. The waste liquid during biological treatment is almost completely freed from organic substances and bacteria. Oxygen, necessary for the vital activity of microorganisms, comes from the air, in addition, compressors are supplied to the aerotank.

Keywords: aerotank, biological treatment, activated sludge, waste water, organic substances.

Introduction

Dumping wastewater, which will be supplied from the population and separated from production enterprises directly into open water bodies without cleaning, is one of the most pressing problems during the growing development of the chemical industry. Mechanical and biological treatment of wastewater, while compliance with the standards required in conducting and neutralizing, is the most pressing issue of the present day.

A classic method in wastewater treatment is mechanical, biological treatment and decontamination steps, with which purified wastewater is discharged into an open body of water. The city of Tashkent currently has two large and one small stations, with which a total of 2 million 500,000 cubic meters of wastewater are treated daily and transported to the Salar, Bozsu and Chirchiq rivers flowing through the territory of the city of Tashkent. Within these cleaning methods, the biological cleaning method is the most basic stage. Biological devices in the main cleaning facilities in Tashkent include mainly-aerotenk.

Materials and methods used in the study

Laboratory inspection methods, methods of technical, topographic and epidemiological examination of the station area were used in determining the performance indicators of the devices of the aeration stations. The data obtained was processed statistically.

Discussion of research results

Each of the cleaning station devices contains 4 aerotens. The Aerotenska-cleaning facility has a total of 7-sector aerotens, with each sector consisting of 4 caridors. L-108.5 m, V - 10m, N-5m. 1 xajmi of sectional aerotenska 21700m³, working yield 100000 m³/day. Queue I has 5 sectional aerotens. Total capacity 525 thousand m³/day. Queue II has 2 sectional aerotens with a capacity of 210,000 m³ / day. The total capacity of the biological cleaning department is 735 thousand



m³/day. The operation of aerotenka is based on the process of biochemical oxidation of organic substances, the main task of which is performed by an active well. The active well consists of a large number of aerobic microorganisms and will have the ability to mineralize organic matter. In aerotenka, nitrites are dressing in the presence of oxygen under the influence of aerobic microorganisms (nitrifying bacteria), and with subsequent oxidation, the oxidation of ammonium salts nitrogen, nitrates, that is, the process of nitrification, occurs. One group of bacteria oxidizes amiac to nitric acid (nitrite bacteria) and the second group oxidizes to nitric acid (nitrate bacteria). In the process of biological purification of wastewater, organic substances are oxidized by oxygen, that is, they are mingeralized. In order for the active well to breathe microorganisms and constantly mix it with wastewater, air is supplied to the aerotenka, tubular polymer aerators are installed in three rows over the entire area of the aerotenka. Then the well mixture on the aerotenka falls into secondary clarifiers. Active il immersed in the secondary incinerator is returned to Caridor 1 of aerotenka at a rate of 50% of its total capacity for regeneration, and wastewater from Corridor 2 enters. In corridors 2-3-4, the active well mixes with wastewater, and the microorganisms contained in it serve for Biological purification of organic matter in wastewater. The microorganisms contained in the active well (kolovratka, aspidiska, vortosella, kalindina, notomatta, etc.) absorb (absorb) the organgic substances contained in the auxiliary wastewater, eliminating the polluting bacteria in the wastewater and dressing the new active well. If the active clot contains amoeba, nematode, vortosella, tufelka, it means that the performance of biological cleaning devices is low. In the case of the rest of the species of unpretentious aquatic creatures, this indicates the effective operation of water treatment facilities. In order to improve the ability of microorganisms, increase the working efficiency of cleaning devices, they are saturated with oxygen. The oxygen content is 2.0-5.0 mg/L. Oxygen also serves to mix the well with the running water. Depending on the amount and quality of wastewater, the regime in the aerotenka is selected.

Conclusion

Among the devices of cleaning stations-the role of aerotenk is very difficult. Especially in the population of large cities such as the city of Tashkent, their role is incomparable for the stations that clean the wastewater that will be supplied. A 25% regeneration regime, i.e., the provision of il from Corridor 1, the provision of wastewater from Corridor 2, the time of aeration is 2.8 hours, the sending of compressed air along with active il to devices is the most optimal conditions that increase the efficiency of devices, and it certainly increases its technical and hygienic efficiency.

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