DEVELOPMENT OF TECHNOLOGY FOR CLEANING WASTEWATER GENERATED IN CAR WASHING POTS AND RECYCLING IT IN THE CAR WASHING PROCESS

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Abstract. In this article, the development of the technology for the treatment of wastewater generated in car washes and its reuse in the process of car washing, the chemical analysis of the composition of wastewater methods are presented.

Key words: coagulant, amount of dry residue, electrical conductivity, technology, surfactant, wastewater.

Today, the constant increase in the number of car washes leads to aggravation of the environmental situation, as untreated wastewater is discharged into sewers, often on the ground , and even into fishing and drinking water bodies. The amount of such waste water from a car wash is usually from 1 to 3 m $^{3 \text{ per hour}}$. Wastewater generated in car washes is mainly contaminated with suspended solids and petroleum products, their amount reaches 2000 mg/l.[1-4]

The permissible concentration of these pollutants when dumping waste into wastewater is 15 mg/l and 0.3 mg/l, respectively, for industrial sewage, when it is discharged to the surface - 10 mg/l and 0.1 mg/l, and when it is dumped into a fishery reservoir, 3 -5 mg/l and 0.05 mg/l. At the same time, the amount of suspended matter in process water intended for car washing is up to 70 mg/l, oil products are up to 20 mg/l, and for car washing - 40 mg/l and 15 mg/l, respectively. The design of wastewater treatment and circulating water supply system is important.[5-12]

One of the urgent problems of today is the development of technology for the treatment of wastewater generated during car washing.

This technology includes various methods of physico-chemical treatment of wastewater (sedimentation, flotation and filtration through various porous filter materials), which significantly reduces costs.

Taking into account the growing need for the creation of small-sized, inexpensive and high-efficiency devices for the treatment of waste water from car washes, the Water Supply Department of Bukhara Region and the scientific research laboratory of Bukhara State University on the creation of a wastewater treatment device experimental studies were conducted. The proposed device includes:

- a filter to separate coarse solid mixtures from water;
- colloid particles and separation of petroleum products;
- non-pressure flotation device for cleaning water from surfactants;
- a dsorbent column.

The wastewater treated by this scheme contains 12-15 mg/l of suspended solids and 4.5-5 mg/l of oil products, which allows them to be reused in the car washing process. Floating oil products are collected in an intermediate tank and periodically transported to asphalt plants.

Wastewater produced in car washes is a mixture of various substances and forms a complex system: Dissolved inorganic and organic compounds, suspended coarse dispersed and colloidal compounds. Chemicals used in car washing are washed off with water, a certain part of which dissolves in water and forms a colloidal solution. Wastewater collected in tributaries contains surface active substances (SFM), petroleum products. These substances cannot be released directly into nature. If the coagulants offered by us are used to remove and neutralize the above substances from the water, which pose a threat to flora and fauna, the water will be purified and neutralized to a technical level. Drinking and technical water will be saved by purifying the wastewater from car washes to the level of technical water and sending it back to the car washing process. Up to 90% of the wastewater generated by the proposed wastewater treatment technology can be reused as technical water. will be carried out.

Table 2

Effluent from car washes used for cleaning water sample readings

Analysis example	Clarity	Dry residual mg/l	pH	comparison electricity conductivity Ch mKCm /cm	TDS mg/l	SAL	General hardness
A drink water	Clear	1000	7	30.99	15.75	0.02	7
Er under water	Clear	1050	7	4700	2100	2.5	16.5
Coming out of car washes	Dim	2200	6.5	4598	2442	2.47	20.7

Table 2

From cleaning after studied effluent from car washes water of samples indicators

Analysis example	Clarity	pH	Dry residual mg/l	comparison electricity conductivity Ch mKCm /cm	TDS mg/l	SAL	General hardness
A drink water	Clear	7	1000	30.99	15.75	0.02	7
Er under water	Clear	7	1050	4700	2100	2.5	16.5
Coming out of car washes	Clear	7.5	8 21	1 584	1 678	1 . 0 4	1 0

Based on laboratory tests, the composition of the water before and after washing the cars was fully analyzed. The results of the analysis show that when synthetic coagulants are added to the wastewater from the car wash, the pH, hardness, amount of dry residue, color, smell , properties such as electrical conductivity are equal to the parameters of drinking water. This indicates that the water purified in this way can be reused directly in the process of washing cars. At the same time, purified water can be used for greening the environment.

One of the important problems is to detoxify the waste water produced during the car washing process, to reduce its impact on the natural ecology, and to use the proposed method to pass the waste water through the treatment facilities and bring the content to the level of technical water and use it in the car washing process.

Based on experimental tests, it was scientifically proven that the content and parameters of the purified wastewater meet the requirements for technical water and that it does not affect the spare parts and color of the car when it is used in car washing.

Car wash stations connected to the drinking water network, the amount of water used to wash 1 light car is 50 liters, if an average of 100 cars are washed in the car wash stations per day The volume of consumed drinking water for 1 year is 1825 m^3, and the price of consumed drinking water is 13,687,500 soums. In the proposed method, 11,414,000 soums of economic efficiency will be achieved due to sending the used wastewater to the car washing process after cleaning it with chemical reagents, i.e. coagulants. The cost of the spent coagulant is 273,500 soums.

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