

**BIOCHEMICAL PURIFICATION OF INDUSTRIAL OIL
WASTEWATER**

Nowadays the society faces an important environmental problem, the essence of which lies in the fact that development and transformation of natural resources and systems are accompanied by environmental degradation.

Every food enterprise as a result of washing equipment, ear tanks and infiltration of technical oils into water produces oil wastewater.

As oil products in wastewater are in the form of soluble or emulsified state, it does not allow to solve completely the problem of removing these contaminants from wastewater. Contaminants of oil wastewater differ from domestic wastewater pollution and contain mainly less oxidable substances. Of course, such waste needs a specific approach both to the way of its purification and to the content of treatment facilities to remove the mentioned above contaminants, especially using the cheapest and most efficient way of biochemical purification.

We have identified key indicators of oil wastewater by food companies, and proved that they are suitable for biochemical purification, namely: the concentration of oil products is 80 mg/dm^3 , BOD -- $130 \text{ mgO}_2/\text{dm}^3$, COD -- $300 \text{ mgO}_2/\text{dm}^3$, suspended substances -- 25 mg/dm^3 , pH 6.9 -- 7.3, nitrogen of ammonium salts -- 36 mg/dm^3 , nitrites -- 0.298 mg/dm^3 , nitrates -- 0.25 mg/dm^3 . We have suggested a combination of an airtank-clarifier with a pinotank to intensify the process of biochemical purification of wastewater oil processing products. This structure includes the first stage -- a pinotank of gas-liquid countercurrent mode in which during a short time period the processes of biosorption are taking place, and the second stage -- a clarifier of aeration, drainage and suspended layers areas, the latter of which will ensure the

maintenance of sludge with sorbed contamination, where the process of oil products oxidation takes place.

To determine the benefits of the block of biochemical oxidation the research was done. The results show the experimental confirmation of a positive impact of the pinotank on the process of impurities removal. For example, the efficiency of removal of oil products increased from 93.2% to 98.5%. In our opinion the factor that caused the raising efficiency of wastewater treatment is the pinotank itself where biosorption process of oil products in foam layers is taking place.

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