

Investigation of the oxidation of organic impurities in solution under the action of a discharge with a liquid cathode

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The destruction of organic compounds in an aqueous solution under the action of a discharge with a liquid electrolyte cathode has been studied. The study was carried out on the example of aqueous solutions of isopropyl alcohol (volatile impurity) and ethylene glycol (non-volatile impurity) with a concentration of 0.15 mol/l. In the course of experiments at a discharge current of 60 mA, the integral oxidation effect for both impurities, both in solution and in the gas phase, was measured. The dependences of the isopropanol content in the solution on the time of treatment of the solution by discharge with a liquid cathode at different distances between the electrode and the surface of the solution are determined. It is shown that the dependences of the isopropanol concentration on time at all discharge intervals are well approximated by exponential functions. It is shown that for both isopropyl alcohol and ethylene glycol, the rate of destruction of organic impurities in a discharge with a liquid cathode increases with an increase in the size of the discharge gap. It is also shown that the ratio of destruction rates at different discharge intervals for isopropanol and ethylene glycol differ little from each other. Thus, it is shown that the volatility of the impurity does not significantly affect the dependence of the rate of destruction of the organic impurity on the size of the discharge gap in the discharge with a liquid cathode.

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