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MATHEMATICAL MODELING OF THE PROCESS OF OBTAINING COAGULANT BY ELECTROCOAGULATION METHOD

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Abstract

This paper presents an approach to modeling the electrocoagulation process based on the generalization of the equations of motion of an incompressible fluid between electrodes in nonisothermal conditions taking into account the ratio between the values of the parameters which characterize the domination of convective and mass-exchange components of the process over diffusion. An asymptotic approximation of solutions of corresponding boundary value problems is constructed. Based on the found solutions, it was conducted a computer simulation of the distribution of iron concentration inside the rector that allows predicting various hydrodynamic phenomena such as internal recirculation and dead zones that affects the

formation of a coagulant. In this case study, were studied the effect of current strength on the concentration of the target component at the exit from the electrocoagulator using the developed mathematical model. The study tested the influence of the rate of heat formation from electrode heating on the efficiency of obtaining of coagulant. References 14, figures 5.

Key words: mathematical modeling, electrocoagulation, electroflotation, coagulant.

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