Pulsed electric discharge in conductive microbubble liquid and its purification ability

Panov V A[@], Vetchinin S P, Saveliev A S and Kulikov Yu M

Joint Institute for High Temperatures of the Russian Academy of Sciences, Izhorskaya 13 Bldg 2, Moscow 125412, Russia

[@] panovvladislav@gmail.com

The influence of microbubbles on the trajectory of plasma channels under the conditions of completed and incomplete breakdown, as well as the interaction of discharge channels in the volume of the discharge gap and the possibility of obtaining a quasi-volume discharge in a microbubble medium using sectioned electrodes are investigated. The combustion of a quasi-volumetric discharge in a solution of isopropyl alcohol with water, which simulates the pollution of wastewater in the microelectronic industry, as well as its ability to remove model pollution from the solution with the additional introduction of air bubbles into the mixture, has been investigated. The removal of isopropyl alcohol impurities in conducting water with an initial volume concentration of 20% in a cell with a working zone volume of $8\times3\times1$ cm^3 in a water flow with fine air bubbles with a solution flow rate of 2 m^3/h by a quasi-volume electric discharge obtained using a multi-electrode system of sectioned electrodes. It is shown that at an alternating voltage of an industrial frequency of 50 Hz, the creation of a finely dispersed phase with air bubbles in an electric discharge cell increases the efficiency of isopropyl alcohol removal from the water flow by a factor of 7 and reaches 6%.

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