

Generalized current-voltage characteristics of electric discharge liquid cathode

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Abstract

© Published under licence by IOP Publishing Ltd. The experimental and calculated current-voltage characteristics of the electric discharge between the metal anode and liquid cathode was got. As the liquid electrode process water, copper sulfate solution and various concentrations of sodium chloride were used, a solid cylindrical electrode rods were made of copper, iron and steel of different diameters. The influence of pressure, distance between electrodes, the anode material, electrolyte composition of the cathode on the current-voltage characteristics of the discharge was researched. The current-voltage characteristics are falling, increasing the distance between electrodes raises these curves along the voltage axis. The methods of simulation based on the similarity theory and the dimension formula is obtained for calculating the generalized current-voltage characteristics, taking into account, inter alia, the effect of pressure and electrode spacing.

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