

The sorption of water molecules in the pores of anodic alumina films during aluminum anodizing in oxalic acid

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Abstract: The thermogravimetric analysis of membranes of anodic aluminum oxide (AAO) was carried out. The results showed that in the process of anodic growth, water molecules are adsorbed in the pores of Al₂O₃, the amount of which is determined by the anodizing voltage of aluminum. The relationship is revealed and the graphs of the relationship between anodizing voltage, annealing temperature, and

weight loss of nanostructured membranes of AAO are presented. It has been established that the adsorption of water molecules on the surface of AAO is explained by the presence of a surface charge, which disappears after annealing at 200–300 °C. An increase in the amount of adsorbed water with an increase in the anodizing voltage from 20 to 40 V indicates a decrease in the surface charge density.

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