Short Communication

Generalized Simulation Model of Nanostructure Self-Formation Process by Anodic Oxidization of Aluminum and Titanium

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The computer simulation results of physicochemical process of nanopore formation in aluminum and titanium oxides are presented in this paper. The model based on an electric field distribution in an electrochemical cell takes into account oxide formation and dissolution reactions on metal-oxide and oxide-electrolyte boundaries, respectively. Such an approach allows to describe geometric characteristics dependences of the nanostructured oxide layers on electrophysical and chemical parameters throughout the formation process. The experimental results confirm the proposed model validity.

Keywords: nanoporous metal oxide, self-formation, simulation

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