Short Communication

Effect of Hydration on Porous Anodic Alumina with Large Interpore Distances during Anodization with Ultrahigh Voltage

Jie Wang¹, Lin Jiang¹, Ning Peng^{1,2,*}, Qili Tan¹, Libo Liang²

¹ Guangxi Key Laboratory of Electrochemical and Magnetochemical Functional Materials, Guilin University of Technology, 541004, Guilin, China

² Institute of Technology Research and Development of Electronic Aluminum Foil, Guangxi Hezhou Guidong Electronics Technology Co. Ltd., 542800 Guangxi, China

*E-mail: ncdxclpn@163.com (N. Peng).

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The effects of the hydrated alumina film obtained from hydration process on the porous anodic alumina (PAA) film fabricated under the ultrahigh voltage in a mixed electrolyte were investigated. It is found that the hydrated alumina film can enhance the voltage of anodization and facilitate the uniform growth of the PAA film. The suitable thickness of the hydrated alumina film can be used to facilitate the self-assembly formation of the unite cell on porous PAA film. Besides, it is found that some of aluminum nanocones is presented on the sidewalls of the nanodents, due to the relatively poor self-assembly of the nano-structural units, which result in the inadequacy transformation of the aluminum between the nano-structural units to the alumina. These finding may can be used for fabricating the aluminum nanostructure on the aluminum surface directly.

Keywords: Porous film; Hydration; ultrahigh voltage; nanocones; Phosphoric acid;

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