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Effect of Low Voltage Anodizing on Surface Morphology and Electric Properties of Commercial Nano porous Alumina

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The paper presents a preliminary study on the obtaining of nonporous alumina membranes by one-step anodization. The nonporous alumina was obtained by anodizing the specimens at low voltage 5V for 20 minutes in phosphoric acid. Using this process, self-ordered porous structures can be obtained with variable distance between pores, high pore density on surface compared to membranes obtained by other methods. The nonporous alumina membrane was subjected to characterization of its surface morphology by scanning electron microscopy SEM and the electric properties were examined by using the electrochemical impedance test EIS. These membranes can be used for micro fluidic separation as ideal templates for the formation of various nano-structured materials.