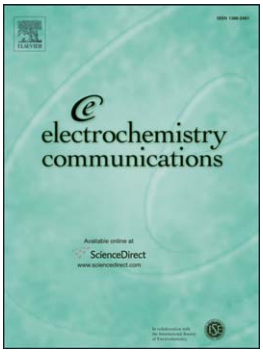

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Effect of surface topography on the anodization of titanium

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Abstract

The influence of surface topography and electrolyte composition on the anodization of titanium was investigated. The growth of the anodic oxides layer and the impedance response of the electrode/electrolyte interface were studied by mean of *ac*-voltammetry, and the surface topography before and after anodization were visualized by atomic force microscopy. It was observed that the final topographic features and the instability phenomenon during the anodization of titanium were dependent on the surface finishing and on the nature of the anions in the electrolyte. In particular, it appears that rougher surfaces lead to a more homogeneous anodic film, while polished ones form an irregular morphology. The presence of sulfates is enhancing the breakdown of the film.

Keywords: anodic titania; surface topography; dielectric breakdown; *ac*-voltammetry.

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