



“Gheorghe Asachi” Technical University of Iasi, Romania



ELECTROCHEMICAL CHARACTERIZATION OF PASSIVE FILM FORMED OVER Ti6Al4Zr ALLOY IN ARTIFICIAL SALIVA

Sorin Iacob Strugaru¹, Daniel Mareci^{2*}, Ionuț-Lucian Bistricianu¹,
Corneliu Munteanu¹, Daniel Sutiman²

¹“Gheorghe Asachi” Technical University of Iasi, Faculty of Mechanical Engineering,
61-63 Mangeron Blvd., 700050 Iasi, Romania

²“Gheorghe Asachi” Technical University of Iasi, Faculty of Chemical Engineering and Environmental Protection,
73 Prof. Dr. docent Dimitrie Mangeron Street, 700050 Iasi, Romania

Abstract

The influence of potential on electrochemical behaviour of Ti6Al4Zr alloy under simulated physiological condition was investigated by electrochemical impedance spectroscopy (EIS). The experimental results were compared with those obtained for titanium Ti6Al4V alloy. All measurements were obtained in aerated artificial saliva at 25°C and at different potentials 0 mV (SCE), 500 mV (SCE) and 1000 mV (SCE). Equivalent circuits (EC) were used to modeling EIS data, in order to characterize samples surface and better understanding the effect of zirconium addition on the titanium alloy. The Ti6Al4Zr alloy appears to posses' superior corrosion resistance than the Ti6Al4V alloy in artificial saliva.

Key words: anodic potentiodynamic polarization, EIS, passive films, SEM, titanium alloys

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* Author to whom all correspondence should be addressed: e-mail: danmareci@yahoo.com