CT2M
Center for Mechanical and Materials Technologies

Scientific Interaction Meetings

Meeting nº 15

2008.07.09 – 14-14:30h

Room: B1.15

Agenda:

14:00 : Sandra Lidia, **Study of the influence of the presence of fluoride on the degradation behavior of Titanium and Titanium alloys in contact with artificial saliva**

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1. **Study of the influence of the presence of fluoride on the degradation behavior of Titanium and Titanium alloys in contact with artificial saliva (Sandra Lidia,** sandlidia@gmail.com**)**

Abstract: The degradation of titanium and its alloys in the oral cavity is still a phenomenon that needs to be clarified in order to promote improvements and prevention of failures in titanium-based oral rehabilitation systems. The objective of this work was to evaluate the corrosion and tribocorrosion behaviour of commercially pure titanium (CP-Ti) and Ti6Al4V alloy in artificial saliva solutions containing different fluoride concentrations. Ti6Al4V and CP-Ti grade II samples (10x25mm) were ground on SiC abrasive papers to 1200 Mesh. Electrochemical tests were carried out at 37^{o}C in artificial saliva containing 0, 30, and 227 ppmF^{-} using the following sequence: open circuit potential (OCP); potentiodynamic polarization and electrochemical impedance spectroscopy (EIS). Reciprocating sliding tests were carried using a load of 3 N and 2 mm of displacement in order to evaluate the tribocorrosion of surfaces. After corrosion and tribocorrosion tests, surfaces were characterized by scanning electronic microscopy (SEM) and evaluated by atomic force microscopy (AFM). Moreover, the inductively coupled plasma-mass spectrometry (ICP-MS) was used to evaluate the releasing of metallic ions into the solutions.