CICLO DE SEMINARIOS 2010

SMAT-C Soft Matter Research and Technology Center

usach

"Galvanic coupling on aluminum 2024 alloys"

Dr. Bernard Tribollet

Laboratoire Interfaces et Systèmes Electrochimiques, CNRS, Université Pierre et Marie Curie, France

Al-Cu-Mg alloys such as 2024 aluminum alloy are widely used in the aeronautic industry but intermetallics such as S-Al2CuMg phases make them extremely susceptible to localized corrosion. It is well known that in many aqueous media, the particle dissolution occurs rapidly.

In first part, the local electrochemical behavior of a pure magnesium and pure aluminum couple in a weakly conductive sodium sulfate solution was investigated to describe the first steps of S-phase dissolution which occurs with a magnesium release.

In a second part, a very simple system was investigated to understand the corrosion behavior of copper-rich aluminum alloys after the Mg dissolution: it consisted in a pure aluminum/pure copper couple. Immersion tests were performed followed by observations with both an optical and a scanning electron microscope to reveal the corrosion morphology.

In a third part, the aim is to demonstrate that, in this crevice, the copper can dissolve even if the overall potential is cathodic.

MARTES 30 NOVIEMBRE, 13:00 HORAS

Sala Conferencias, Tercer Piso - Departamento de Física
Universidad de Santiago de Chile