

Accepted Manuscript

Title: Structure of the Copper–Enriched Layer Introduced by Anodic Oxidation of Copper-Containing Aluminium Alloy

Author: T. Hashimoto X. Zhou P. Skeldon G.E. Thompson

PII: S0013-4686(15)00179-6

DOI: <http://dx.doi.org/doi:10.1016/j.electacta.2015.01.133>

Reference: EA 24185

To appear in: *Electrochimica Acta*

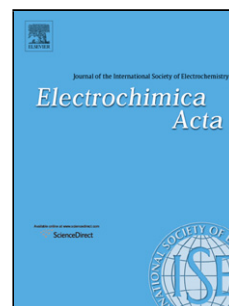
Received date: 31-12-2014

Revised date: 19-1-2015

Accepted date: 23-1-2015

Please cite this article as: T.Hashimoto, X.Zhou, P.Skeldon, G.E.Thompson, Structure of the CopperdashEnriched Layer Introduced by Anodic Oxidation of Copper-Containing Aluminium Alloy, *Electrochimica Acta* <http://dx.doi.org/10.1016/j.electacta.2015.01.133>

This is a PDF file of an unedited manuscript that has been accepted for publication. As a service to our customers we are providing this early version of the manuscript. The manuscript will undergo copyediting, typesetting, and review of the resulting proof before it is published in its final form. Please note that during the production process errors may be discovered which could affect the content, and all legal disclaimers that apply to the journal pertain.



Structure of the Copper–Enriched Layer Introduced by Anodic Oxidation of Copper-Containing Aluminium Alloy

T. Hashimoto, X.Zhou*, P.Skeldon and G. E. Thompson
School of Materials, The University of Manchester, Manchester, M13 9PL,
England, UK

Corresponding author: Tel: +44(0)1613064832; Fax: +44(0)1613064865
E-mail: xiaorong.zhou@manchester.ac.uk

Abstract

This paper investigates the structure of the copper–enriched layer formed at the alloy/anodic film interface during anodizing of Al–2wt.% Cu binary alloy using transmission electron microscopy. It was revealed that θ' phase was formed within the copper–enriched layer. For the copper–enriched layer formed on {100} aluminum planes, the interface between the aluminum matrix and the θ' phase within the copper-enriched layer is coherent. For the copper–enriched layer formed on {110} and {111} aluminum planes, the interfaces between the aluminum matrix and the θ' phase within the copper-enriched layer are semi-coherent or incoherent. The interfacial coherency influences the formation of oxygen gas bubbles within the resultant anodic films.

Keywords: Anodizing, Copper enrichment, Orientation, Aluminium Alloy

Download English Version:

<https://daneshyari.com/en/article/6610688>

Download Persian Version:

<https://daneshyari.com/article/6610688>

[Daneshyari.com](https://daneshyari.com)