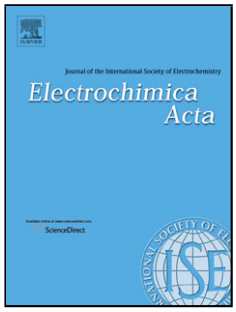

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Structure of the Copper–Enriched Layer Introduced by Anodic Oxidation of Copper-Containing Aluminium Alloy

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Abstract

This paper investigates thestructure 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 withinthe 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 withinthe 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