



Laboratory Study of Sacrificial Al-Zn-In Anodes for Reinforced Concrete

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Received December 10, 2012; Accepted January 09, 2013

Abstract: Aluminium sacrificial anodes have been widely used in the cathodic protection (CP) in conventional as well for reinforced structures. Concrete is an electrolyte with special electrochemical characteristics, and galvanic anodes which be used in these environment requires also special characteristics and behaviour. Under specific conditions these anodes become passivized or face unwanted corrosion, these phenomena influences on decrease of their efficiency. Addition of alloying elements such as Zn and In, can avoid passivation of Al anodes and improve efficiency. Zn and In as alloying elements serves as activators of Al anodes. In this are presented behaviour of Al-Zn -In anodes in solutions with different content of chlorides and pH value. For experiments tests are casting three Al- Zn -In alloys with different content of In. Behaviours of Al-Zn-In anodes are explored with gravimetric and electrochemical methods. It is shown that anodes from alloys with different content. It is not passivized during tests in these solutions. However, corrosion rate of anodes is less in solutions with pH =8, and has different value for different content of In.

Keywords: *Al - Zn - In alloy, sacrificial anode, corrosion, electrochemical potential.*

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