Short Communication

Corrosion Behaviour of TiN and CrN Coatings Produced by Magnetron Sputtering Process on Aluminium Alloy

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In this study, the corrosion properties of TiN and CrN coatings on aluminium alloy fabricated by magnetron sputtering were studied by using electrochemical techniques such as potentiodynamic measurement and salt spray tests. Results showed that CrN coatings exhibited a better corrosion resistance on aluminium alloy when compared to TiN coatings with the same thickness. The inferior corrosion performance of TiN coating is not a result of the intrinsic corrosion behaviour of the nitride coating itself but is a result of small structural defects, e.g., pinholes and cracks formed during deposition, which act as channels for the corrosion of the substrate.

Keywords: Aluminum alloy; TiN; ZrN; Magnetron sputtering; Corrosion

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