

The Effects of Different Sealing Techniques for Anodic Film of Al-12.7Si-0.7Mg Alloys

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Al-12.7Si-0.7Mg is a novel kind of high silicon aluminum alloy and urgently in need of surface treatment technologies. Optimal processing parameters of stearic acid sealing treatment were investigated by evaluating the weight loss of anodic film. The anodic films were sealed by other four sealing methods of boiling water sealing, nickel acetate sealing, chromate sealing and cold nickel fluoride sealing in order to compare with stearic acid sealing. Surface morphology of anodic oxide films after sealing treatment showed that stearic acid sealing specimens were smooth, uniform and compact. The results of potentiodynamic polarization, phosphorus-chromium acid oxide method and alkaline etching test indicated that stearic acid sealing was more highly effective and environmentally friendly and exhibited excellent corrosion resistance.

Keywords: Al-12.7Si-0.7Mg alloy; anodizing; stearic acid; sealing; corrosion resistance

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