Short Communication

Microstructure and Corrosion Resistance of Zn-Al-Mg Alloy Diffusion Coating developed on Carbon Steel by Hot Dipping

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Carbon steel samples were galvanized in Zn-6%Al-3%Mg alloy at 455°C and 475°C, respectively. Two kinds of coatings with different microstructure were obtained. The samples were examined with SEM, EDX, XRD, electrochemical and neutral salt spray test. The results show that these two coatings obtained in this study were all diffusion coatings, Al rich phase was mainly Fe₂Al₅Zn_x, and no Al phase was detected. The formation mechanism of these coatings were discussed.

Keywords: galvanizing; corrosion; diffusion; intermetallic; polarization test

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