

Characterization of oxide film by vanadium based anodic oxidation coating

Abstract

An oxide film was prepared on AZ91D magnesium alloy by anodizing in solution containing sodium metavanadate (NaVO_3). The corrosion resistance of the AZ91D magnesium alloy was investigated at fixed current density 10 mA/cm^2 for 5 min with different concentration of solution in the range of 0 - 1.0 g/l. The surface morphology, cross section morphology, phase structure, and surface roughness of oxide film were studied by optical microscope, scanning electron microscope (SEM) and energy dispersive spectrometry (EDS), atomic force microscope (AFM) and potentiodynamic polarization technique and corrosion test, respectively

Keywords; Oxide film;AZ91D magnesium alloy;Anodic oxidation coating