Pb–Ag Alloy Anode Modified with Polyaniline Film and its Electrochemical Performance in Sulfuric Acid Electrolyte

PeiPei Li¹, RenChun Fu^{*1}, Du Jun², Hui Huang^{2,3}, ZhongCheng Guo^{2,3}

¹ Department of science, Kunming University of Science and Technology, Kunming 650093, China;

² Department of Metallurgy and Energy Engineering, Kunming University of Science and Technology, Kunming 650093, China;

³ Kun Ming Hendera of Science and Technology Co.,Ltd.,Kunming 650106, China.

*E-mail: polymerminer@163.com

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The nature of the electrode surface plays an important role in the electrode reaction. In this study, Pb–Ag alloy anodes modified with polyaniline films were prepared by galvanostatic polymerisation. Linear scanning voltammetry (LSV), cyclic voltammetry and potentiodynamic polarisation were measured and compared with those of unprepared Pb–Ag (0.3 wt%) alloy anodes. The oxygen evolution reaction potential of the modified anodes was lower than that of the unprepared Pb–Ag (0.3 wt%) anode at same anodic current density. The corrosion resistance of the modified anode was better than that of the unprepared Pb–Ag (0.3 wt%) anode. SEM images were obtained to characterise the morphology of the polyaniline film, and FTIR spectra confirmed that the film coating the Pb–Ag alloy was polyaniline.

Keywords: polyaniline; cyclic voltammetry; linear scanning voltammetry; Pb–Ag alloy

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