

ABSTRACT

High efficiency sacrificial anode from Mg alloy is needed as it has higher capability of protecting underground metal structure against corrosion in cathodic protection. Solution treatment was applied to Mg sacrificial anode at 150, 250 and 350 °C for 8 hours and quenched in iced salt water. Microstructural analysis of heat treated samples was studied by metallurgical microscope. The efficiency testing was carried out according to ASTM G-97 standards. It was found that low temperature solution treatment exhibits the uniform corrosion rather than pitting. Efficiency of the Mg increased to 53% for the low solution treatment at 150 °C whereas the highest solution treatment at 250 °C gave the lowest of efficiency 41%.

Keywords: Cathodic protection, sacrificial anode, Magnesium anode, heat treatment, anode efficiency