Electrodeposition of Micro－Patterned Nickel－Phosphorus Alloy and its Electrocatalytic Properties in Sulfuric Acid Solu

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ABSTRACT

The hydrogen energy has found to be one of the most potential solutions to the problem. Ni-S and Ni-P coating both of them have high electrocatalytic activity. Ni-P alloy has excellent mechanical properties and corrosion resistance in acidic solution and becomes a viable material in this application. This study used Taguchi Methods discuss coating properties of current density, duty cycle and phosphonic acid concentration to find the best coating condition from the cathodic polarization measurements in 0.5M H2SO4 electrolyte. The micro-patterned photoresist template was used in the electrodeposition of Ni-P alloy. After removed photoresist, we can obtain micro-patterned NiP alloy. Thus, the enhancement of the electrocatalytic activity due to the increase in the surface area of the micro-patterned structure was demonstrated and discussed.

Keywords : micro-patterned NiP alloy, electrocatalytic activity

Table of Contents

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