

## Electrodeposition of nickel using choline chloride based deep eutectic solvents

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Alkaline water electrolysis is a hydrogen producing method to convert electric energy into energy carrier. The technology is cheaper and simpler than other hydrogen producing methods. Recently, choline chloride (ChCl) based deep eutectic solvents (DESs) have been received attention due to their innovative electrochemical properties such as wide potential window, high solubility of metal salts, and high conductivity compared with other non-aqueous solvents. In this study, a porous nickel cathode which will be used as a cathode at alkaline water electrolysis was manufactured through electrochemical deposition in DESs. The electrochemical characteristics of DESs were determined and then electrodeposition of nickel was carried out at nickel plate on DESs. The morphologies of the deposited nickel and electrochemical properties of the electrode were examined for the hydrogen evolution.