

Abstract

Slurry of the lignite were used in suspension in 4M H₂SO₄. The study was aimed to investigate the effect of the different factors (like acid concentration, cell potentials and temperatures) on electrolysis of coal slurry and evolution of hydrogen. It was observed that all these above factor affect the hydrogen production upon completion of the electrolysis. The graphite electrodes were used for the electrolysis process and production of hydrogen occurred at 4V and above this voltage and below the 4V, no hydrogen production occurred. And by increasing the concentration up to 5M, production of hydrogen also increases. And by increasing voltage and temperature from 40°C to 80°C, more hydrogen was produced.

Furthermore, CO₂ evolution was observed at high voltage, temperature and concentration. The results showed that coal electrolysis process was very fast and clean process for the hydrogen production which involve in the electricity production are of low cost. Coal electrolysis process was eco- friendly.