# A study on hydrogen production from sodium borohydride solutions


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**ABSTRACT**

Two major obstacles to the successful commercialization for fuel cell are its high cost and fueling infrastructure. Today's state-of-the-art for hydrogen storage includes compressed H2, liquid H2, metal hydride, carbon nanotube, and chemical hydrogen storage. Each method has its own advantages and disadvantages. Sodium borohydride, with a hydrogen storage efficiency of as high as 10.8%, is an important medium for hydrogen storage, which is suitable for fueling the fuel cells. The main purpose of the present research is to investigate the influence of sodium borohydride concentration, sodium hydroxide concentration, and catalyst on hydrogen production efficiency. The result shows that the hydrogen production efficiency decreases with the increase of sodium borohydride concentration, and the highest hydrogen production rate occurs at a borohydride concentration of 20wt%. The appearance of solid by-product in the solution slows down the hydrogen production rate; this happens when sodium borohydride concentration is over 15%.



Keywords : Sodium borohydride、Hydrogen production efficiency、Hydrogen production rate、Sodium metaborate


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