Development of non-noble alloy catalyst for accelerating hydrolysis of aqueous ammonia-borane solution

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Ammonia-borane (NH_3BH_3) has been investigated as hydrogen storage material for fuel cell application because of their good gravimetric (19.6 wt%) and volumetric hydrogen density. Non-noble metals such as cobalt, nickel, copper were employed as catalyst and their combination were also tried as catalysts. For the effective scanning method for a number of compositions, high throughput screening (HTS) test was used.
Among the catalyst investigated, the ternary composite namely $Ni_{60}Co_{20}Cu_{20}$/ACF (Active carbon fiber) showed excellent performance in releasing the hydrogen from NH_3BH_3 solution, which can be recommended for the fuel cell system application with some necessary basic improvements as the viable/suitable catalyst.