Simulation of metal-hydride hydrogen storage system

최대현, 옥치원, 김진태, 김광우, 유철희,
Mohammad Rizwan Khan[1], 임연호*
전북대학교 수소연료전지공학과; [1]전북대학교 화학공학과
(yeonhoim@chonbuk.ac.kr*)

Over the last quarter century, there have been many attempts to develop the effective hydrogen storage system. Solid-state hydrogen storage is an important problem for various technical applications such as mobile, stationary, chemical heat pumps and heat transformers. In general, the temperature of metal powers changes since hydrogen storage materials generate or absorb heat during absorption and liberation of hydrogen. In order to develop the effective reactor system, we performed fully 3-D simulation to address heat and mass transfer with surface chemical reactions in metal-hydride media of hydrogen storage system. Theoretical surface chemical kinetic equations were based on the kinetic model by V.I.Artemov's et.al. A satisfactory agreement between the simulation and previous reported results was obtained.