

Microporous Carbon containing nitrogen for hydrogen storage

강경연, 이재성*
포항공과대학교
(jlee@postech.ac.kr*)

Hydrogen energy is focused on as the most feasible energy in the future due to no pollutant emissions, high efficiency and infinite capacity. But the hydrogen gas has very low density and low explosion energy so that it is difficult to store in a high-pressure tank like any other gas. The hydrogen plan of DOE (Department of Energy of the United States) requires system weight efficiency of 6.5 wt% and system volumetric density of 62 kgH₂/m³. This study focuses on the Nano-materials with a high surface area and low adsorption energy as Hydrogen storage materials. Carbon containing nitrogen with high surface area is obtained from an ammonia gas treatment of the Resorcinol-Formaldehyde polymer which is formed in Hydrothermal or Microwave conditions without any other catalysts. It has spherical porous morphologies with an over 1000 m²/g surface area. It expects to a good hydrogen storage material.