

Investigation of dispersed clathrate hydrate in hydrophobic silica nanoparticles for CO₂ capture

임동욱, 노혜윤, 박성민, 이 혼*
KAIST
(h_lee@kaist.ac.kr*)

Clathrate hydrates have advantage for storing gas. So, it is expected to more effectively separate and store CO₂, one of the green-house gases, after increasing the surface area of water by dispersing with hydrophobic silica nanoparticle having repulsive properties with water. Therefore, I investigated CO₂ hydrate formation rate and storage capacity as changing the size of hydrophobic silica powder, mixing ratio, and dispersion method. Also, I observed how the hydrate equilibrium varies in nano-size space influencing on diffusion of guest gas and formation of hydrate cages.