

Simulation of CO₂ conversion process by mineral carbonation using aqueous NaOH

정다빈, 오승환, 노고산, 이재형†
KAIST
(jayhlee@kaist.ac.kr†)

The mineral carbonation technology is considered as a prospective CO₂ capture technology, which converts CO₂ to stable materials. However, the technology has some obstacles to be overcome such as slow carbonation rate and great potential environmental pollution to surrounding areas. Carbon capture and storage by mineralization (CCSM) process producing aqueous alkaline and using it for capturing CO₂ is suggested in this work. Sodium hydroxide (NaOH), which can be steadily supplied from chlor-alkali process, could be an innovative solution because of its ability to absorb CO₂ quickly. In this work, the CCSM process, which uses NaOH as an alkaline feed stock, was implemented in AspenPlus™ in order to identify the technical feasibility and CO₂ conversion capacity of the process. The sensitivity analysis was performed to find the major operating parameters.