Economy Evaluation of 3-Stages Circulating Fluidized Process Using Dry Absorbent for CO_2 Capture

김대욱, 이광순[1,*], 김기웅
서강대학교; [1]서강대학교 화공생명공학과
(kslee@sogang.ac.kr*)

Global warming has been one of the most important issues in the world and it is well known that the problem is caused by release of CO_2. In this situation, many researchers have suggested various possible processes to capture CO_2 from the coal-fired power plant. Among the various processes, one of the promising alternative is 3-Stages circulating fluidized process using dry absorbent, because this process have to achieve internal heat integration between the regenerator located one stage and the absorber located another stage that is hotter than one. The process simulation was carried out using Aspen custom modeler. Potassium carbonate, Magnesium oxide, and Calcium oxide are selected as the absorbents at each stage in this simulation. Results include the comparison of process efficiency changing main operating variables and finally economy evaluation was performed to compare with other CO_2 capture processes in terms of the competitiveness.