

Sensitivity Analysis for Hybrid CO₂ Capture Process with MEA process and PSA process

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Due to CO₂ emission issue, there have been a number of suggested processes for CO₂ capture such as various types of absorption, adsorption, and membrane processes. The hybrid process made by combining the absorption and membrane processes have been studied, but the combination of absorption and adsorption processes has been rarely covered. To show the possibility and to give the insight of the absorption-adsorption hybrid process, this study gives the results of the sensitivity analysis. The results are based on the simulation of one absorption-based CO₂ capture process and adsorption-based CO₂ capture process, which take monoethanolamine(MEA) and zeolite 13X as solvent and sorbent, respectively. Pressure swing adsorption (PSA) is also taken as adsorption process in this study. The main focus of this study is to the optimal CO₂ capture load of each process. Namely, the split ratio with respect to the CO₂ capture load is changed, and the results are observed.