

### Improvement of ammonia loss ratio in CO<sub>2</sub> capture by using pervaporation

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CCS(Carbon capture and sequestration) is the technology to capture and storage CO<sub>2</sub>, so it could not be released in atmosphere because CO<sub>2</sub> is mainly suspected of causing global warming. CO<sub>2</sub> capture process with MEA(monoethanolamine) is the most mature process but it has many shortcomings such as regeneration cost, corrosion problem and low CO<sub>2</sub> loading capacity. Aqueous ammonia as absorbent in CO<sub>2</sub> capture has been regarded as alternative of MEA. But having high volatility, ammonia has high loss ratio in regeneration process of absorbent.

It could be suitable to separate NH<sub>3</sub> and CO<sub>2</sub> by using difference of polarity rather than using relative volatility. By using membrane which could separate NH<sub>3</sub> from CO<sub>2</sub> by using difference of polarity in gas phase, loss ratio of ammonia is decreased. Driving force of the process is difference of partial pressure lead by vacuum pump in permeate side like pervaporation. In this study, we could confirm the feasibility of the process using pervaporation and estimate cost reduction.