

## Separation properties of carbon-silica/alumina composite membranes for CO<sub>2</sub> recovery

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Membrane technology have been a good candidate for gas separation in aspect of energy saving and environmentally friendly process. Among the membrane materials, carbon molecular sieve derived from thermosetting polymers have taken much interests for their higher performances, stability and durability. However, the difficulty of large-scale production is a main obstacle for its commercial applications. In this study, carbon-silica composite membranes were prepared onto porous alumina supports by pyrolysis after dip-coating of poly(imide siloxane) random copolymer, and the membrane module having 1,000cm<sup>2</sup> of effective area was fabricated. Gas permeation properties were measured at various temperatures, and the mixed gas experiments for CO<sub>2</sub>/N<sub>2</sub> as well as O<sub>2</sub>/N<sub>2</sub> were recorded to gas chromatography with to investigate the optimal separation conditions like stage-cut and pressure ratio.