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# A parametric study of CO<sub>2</sub>/N<sub>2</sub> gas separation membrane processes for post-combustion capture

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### Abstract

Capture of CO<sub>2</sub> from flue gases produced by the combustion of fossil fuels and biomass in air is referred to as post-combustion capture. Chemisorbent processes are considered to be the most feasible method and are already at an advanced stage of development, but gas separation membranes are attracting more and more attention as a possible alternative. This paper describes a detailed parametric study of mass and energy balances for a simulated single membrane process. Typical operating conditions (CO<sub>2</sub> concentration in the flue gas, pressure and temperature, etc.) together with the influence of the membrane quality (permeability, selectivity) and membrane area on membrane performance (CO<sub>2</sub> separation degree and CO<sub>2</sub> purity) are simulated over a wide range of parameters.



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## Keywords

CO<sub>2</sub>; Post-combustion; Gas separation membrane; Permeability; Selectivity

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