Optimization of the power consumption of the PSA process for CO_2 separation from Flue gas

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A pressure swing adsorption process, which uses zeolite 13X as an adsorbent to recover and sequester carbon dioxide from flue gas, is investigated through dynamic simulation and optimization. The effects of the operating variables and cycle configuration on the process performance, especially on the power consumption are investigated. For calculation of the power consumption, commercial vacuum pump is used. As a numerical method, the cubic spline collocation method is adopted and the general mathematical model consisting of a set of partial differential and algebraic equations is solved in matlab.