عنوان مقاله:

Optimal Operating Condition on Direct DME Synthesis Using DE Method: A Rigorous Two-Dimensional Model

محل انتشار:

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خلاصه مقاله:

Natural gas through syngas can be converted to the Dimethyl Ether (DME) as an economical and clean fuel, directly. In the current work, a conventional shell and tube reactor for direct DME synthesis from syngas is optimized. A rigorous two-dimensional, steady-state model is used to simulate the reactor configuration. The corresponding optimization results are compared with the available data for a pipe-shell fixed bed reactor for direct DME synthesis. The differential evolution (DE), an exceptionally simple evolution strategy, is applied to optimize DME mole fraction as the main objectives. The optimization results enhanced about ۱۲.۰۷% and ۸.۱۸% in DME mole fraction and selectivity, respectively. Moreover, a more favorable temperature profile is observed in optimized conventional reactor (OCR) compared to non-optimized reactor.

کلمات کلیدی:

Direct DME synthesis, Optimization, Differential evolution, two dimensional model.

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