عنوان مقاله:

Dynamic Modeling of a Novel Cascade Membrane Methanol Reactor for Reducing Carbon Dioxide Emission Mitigation

محل انتشار:

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خلاصه مقاله:

Greenhouse gas (GHG) emissions resulting from human activity are the main root of climate change. These emissions are produced from burning different types of fuels and other processes. The reduction of carbon dioxide by chemical process is considered as the most operative technique to decrease CO۲ concentration in the atmosphere. A dynamic model for cascade membrane methanol synthesis reactor (CMMR) was established for reduction of carbon dioxide emission. This reactor is a vertical shell and tube heat exchanger dual bed reactor. The wall of the tubes in the both reactor is covered with a Pd-Ag membrane, which is only permeable to hydrogen. The simulation results represent enhancement in the CO۲ removal rate during ۱۴۰۰ days of operation in the CMMR in comparison with conventional dual type methanol reactor (CDMR) and membrane dual type methanol reactor (MDMR), respectively.

کلمات کلیدی:

Dynamic model; CO۲ removal; Hydrogen perm-selective; Cascade membrane reactor; Catalyst deactivation

لینک ثابت مقاله در پایگاه سیویلیکا: