عنوان مقاله:

Numerical Simulation of a Pressure Swing Adsorption for Air Separation

محل انتشار:

هفتمین کنگره ملی مهندسی شیمی (سال: 1390)

تعداد صفحات اصل مقاله: 12

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خلاصه مقاله:

A two-bed four step pressure swing adsorption (PSA) using zeolite 5A adsorbent for oxygen separation from air studied by dynamic mathematical simulation. The mathematical model contains partial differential equations corresponding to the bulk gas phase mass, energy and momentum balances. The effects of operational variables such as purge to feed ratio, high operating to low operating pressure and feed flow rate on oxygen purity and recovery were investigated. The results show that in a constant feed flow rate, increasing purge to feed ratio can lead to a reduction the oxygen recovery, but instead will cause to increase the oxygen purity. In the same conditions, increase the feed flow rate will result in a reduction the oxygen purity while the oxygen recovery increases. Results of simulation indicated a very good agreement with some current literature experimental work

کلمات کلیدی:

Pressure swing adsorption; Simulation; Oxygen production; Mathematical modeling; zeolite 5A