

C817365 : MAJOR CHEMICAL ENGINEERING
KEY WORD: SIMULATED MOVING BED ADSORPTION / ETHANE-ETHYLENE
SEPARATION / SIMULATION

THAWATCHAI PRAWCHAENG : SIMULATION OF FOUR ZONES SIM-
ULATED MOVING BED ADSORPTION FOR SEPARATION OF THE
ETHANE-ETHYLENE MIXTURE. THESIS ADVISOR: DEACHA CHAT-
SIRIWECH, Ph.D..84 pp. ISBN 974-332-415-1.

Simulation of simulated moving bed adsorption for ethane-ethylene separation in gas phase condition was studied using axial disperse plug flow model with local multicomponent Langmuir adsorption model. Two kinds of adsorbent were used. The first adsorbent was silica gel with methane and propane as desorbent. The second one was activated carbon with nitrogen and carbon dioxide as desorbent. Product purity was affected slightly with the length of each zone, while it was significantly depended upon the number of columns in each zone and flow ratio. In addition, the number of columns had more effect on the purity of raffinate product than on that of the extract one. Silica gel provided higher separation performance than activated carbon. Both propane and nitrogen could be employed to produce greater product concentration than methane and carbon dioxide. However, the complete separation could not be obtained with carbon dioxide.

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