

39 717 555 21 : MAJOR CHEMICAL ENGINEERING

KEY WORD :

: TRANSESTERIFICATION / MOLE RATIO / CONVERSION / SIDE REACTION

WITSANU KATEKAEW : SIMULATION OF TRANSESTERIFICATION STEP IN
POLYMERIZATION OF POLYESTER. THESIS ADVISOR : ASSOC.PROF.DR.THAWATCHAI
CHARINPANICHKUL,Ph.D. THESIS CO-ADVISOR : MR SALI POOCHAIWATHANANON.
113 pp. ISBN 974-333-627-3

A mathematical model is studied and developed for simulating transesterification reaction of polyester polymerization process. In the simulation, mole ratio of DMT to EG between a range of 1:1.50 to 1:2.50 and reaction temperature ranged from 150°C to 250°C have been varied to investigate their effect on percent conversion of DMT and side reaction product. Mathlab and Mathematica programs are employed as tools to find out the solution of the mathematical model equations developed. Then the calculation results are compared with the actual data taken from the actual plant and with those of reference to determine the appropriate values of parameters presented in the model.

It is found that after adjusting value of necessary parameters, the model can provide the results, which agree with actual measurement result, especially, the DMT conversion. Also, it is found that the model predicts the best condition for minimizing the side-reaction product at 225°C and the mole ratio of DMT to EG should be between 1:2.30 and 1:2.50 .

ภาควิชา.....วิศวกรรมเคมี.....ลายมือชื่อนิสิต.....
สาขาวิชา.....วิศวกรรมเคมี.....ลายมือชื่ออาจารย์ที่ปรึกษา.....
ปีการศึกษา.....2542.....ลายมือชื่ออาจารย์ที่ปรึกษาร่วม.....

