

C817332 : MAJOR CHEMICAL ENGINEERING

KEY WORD: VAPOR-LIQUID EQUILIBRIUM / BENZENE / TOLUENE / M-XYLENE

TANONG KAEWWIRIYAKIKUL : VAPOR-LIQUID EQUILIBRIUM FOR TERNARY SYSTEM OF BENZENE, TOLUENE AND M-XYLENE. THESIS ADVISOR : ASSOC. PROF. KROEKCHAI SUKANJANAJTEE, Ph.D. THESIS CO-ADVISOR : KHANITTA MALAYAWECH. 114 pp. ISBN 974-332-453-4.

Vapor-Liquid Equilibrium for binary and ternary systems of Benzene, Toluene and m-Xylene were investigated using PVT equilibrium cell. Decreasing pressure at constant temperature can provide bubble point, which can be used to define equilibrium state. Four temperatures, viz., 148.8, 158.6, 168.5 and 178.4 °C were chosen in this research. Binary interaction parameter, k_{ij} , obtained from binary system at each temperature were used to predict pressure and composition of vapor phase in ternary system.

Relationship between k_{ij} and temperature appears to be linear. The Peng-Robinson equation can predict the equilibrium state of ternary system using k_{ij} from binary system. It was found that average derivations of pressure, Benzene composition, Toluene composition and m-Xylene composition in vapor phase were 0.0312, 0.018, 0.0227 and 0.0312 respectively.

It is suggested that Peng-Robinson equation can be used to predict ternary system for this research.

ภาควิชา.....วิศวกรรมเคมี

สาขาวิชา.....วิศวกรรมเคมี

ปีการศึกษา.....2541

ลายมือชื่อนิสิต..... ทนง กาญจนาจ๊ะ

ลายมือชื่ออาจารย์ที่ปรึกษา.....

ลายมือชื่ออาจารย์ที่ปรึกษาร่วม.....