

## Toluene/Xylene Separation By Using High Performance Liquid Chromatography and Simulated Moving Bed Process

임성하, 배윤상, 이강만, 이창하\*  
연세대학교

(leech@yonsei.ac.kr\*)

The objective of this study is to elucidate the adsorption equilibrium and transport characteristics of toluene/xylene and to optimize the SMB separating condition for toluene and xylene. This paper will discuss not only the chromatographic resolution of toluene/xylene and initial analytical method development to determine the best preparative conditions but also the SMB process for optimizing the separating condition.

The resolution and selectivity between toluene and xylene were strongly influenced by the several operating conditions. From the results of the HPLC experiments, it is confirmed that toluene acted as a raffinate and xylene as an extract in SMB process. Based on the "triangle method," the process model program was used to establish the possible optimal operating condition of a SMB unit for the correspondence of theoretical optimal operating condition with the actual complete separation. From the product purity and recovery over 99%, and the external product concentration, good separation results were obtained.