

## Dual-detector system for the calculation of adsorption isotherm and on-line monitoring of simulated moving bed (SMB) chromatography

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Simulated moving bed (SMB) chromatography system is a powerful tool for binary mixture compound, and has advantages of higher productivity and lower operation cost than that of the traditional batch chromatography system. To operate SMB chromatography, it is important to calculate exact adsorption isotherm and estimate operating parameters of SMB using it. Moreover, on-line monitoring during SMB operation is required to know propagation of each component through the series of columns, by doing so, observation of products purities and simple optimization technique, so called "Short-cut method" can be performed.

In this research two kinds of detectors, UV detector and polarimeter, were installed in recycle flow of SMB to get a relationship between UV absorbance and polarity of sample. Troeger base was used as model compound, and adsorption isotherm were calculated by breakthrough curve method. During experiment, internal concentration profiles of Troeger base were observed successfully without sampling analysis, therefore, dual detection system can be adopted as a rapid and accurate on-line monitoring system.