

### Influence of a malfunctioning packed-bed in simulated moving-bed (SMB)

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In plant-scale simulation moving-bed (SMB) operated at a high pressure, it is a crucial issue to evenly pack adsorbent particles in the beds. When the bed material of a specific bed is not properly packed, the performance of SMB will be deteriorated because of malfunctioning of the specific bed. This study presents the effect of a malfunctioning packed-bed on purity and recovery in a pilot-scale para-xylene SMB. The unsteady-state SMB model with a realistic dead volume treatment was solved by using a fast and accurate simulation tool for chromatography and simulated moving-bed (FAST-Chrom/SMB). Fowler adsorption isotherms based on binary experiments between para-xylene (PX), meta-xylene (MX), ortho-xylene (OX), ethylbenzene (EB), toluene (TO) and p-diethylbenzene (PDEB) was used.