

Separation of L-ribose and L-arabinose from binary mixtures using NH₂ column in SMB(Simulated Moving Bed) chromatography

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Simulated moving bed(SMB) chromatography is a chromatographic process to solve several difficult separation problems in batch chromatography.

We carried out pulsed input method(PIM) to find adsorption isotherms of L-ribose and L-arabinose in NH₂ column. Adsorption isotherm is calculated by Aspen chromatography, and compared with the simulation for separation of L-ribose and L-arabinose.

SMB operation is a formidable task since it is a periodic cyclic process. To find the most suitable separation condition in SMB, we carried out simulations in m₂-m₃ plane base on the triangle theory and calculated operating parameters (flow rates of four zones, switching time and feed concentration and so on) using Aspen chromatography. We determined three operating condition using Aspen chromatography and compared the simulations with experimental data.