

Practical Chiral Separation (polysaccharide-derived chiral stationary phase) by Simulated moving bed chromatography

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Separation of enantiomers using chiral chromatography is a well-accepted technology as a simple and reliable method to determine optical purity of target compounds from R&D to QC in pharmaceutical industry. Among many commercially available chiral columns, polysaccharide-derived columns are most widely used in the market due to its broad separation ability. The diversity of mobile phases is expected to be very beneficial not only to analytical separations but also to preparative ones, especially industrial scale production using simulated moving-bed (SMB) technique, in terms of productivity of chiral compounds.

In this presentation, a preparative separation process based on polysaccharide-derived chiral stationary phases (CSPs), SMB method development process, that is, screening of CSPs, loading test, computer simulation to obtain a first estimate of costs, optimization of the condition, and examples of commercial scale chiral SMB in the market, which include the Daicel facility at Arai, Japan, are explained.