

# **BUSINESS CASE STUDY**

**PDR-Separations**  **LLC**

DALP, AutoMDS, AutoPREP  
Real-Time Spectral Deconvolution

All Liquid Modes  
and Scales

**A large pharmaceutical manufacturing company utilizing simulated moving bed (SMB) chromatography systems to purify enantiomers in large production batches.**

## **PROBLEM**

**The SMB lab was struggling to process different batches quickly enough, largely due to extended method optimization time. The necessity to extract and analyze multiple samples via HPLC meant enantiomeric purity results were delayed by an hour or more.**

## **GOALS/SOLUTIONS**

The SMB lab needed to reduce method optimization time.

PDR-Separations installed DALPs (digital advanced laser polarimeter) and UV detectors on both Raffinate and Extract ports of the pilot-scale SMB. PDR-Separations installed another DALP and UV detector inside an explosion-proof enclosure plumbed in the recycle loop of the production scale SMB.

The combination of UV and DALP allows real-time calculation and plotting of enantiomeric excess.

Now data was available all the time to accurately evaluate enantiomeric purity.

## **BENEFITS/ACHIEVEMENTS**

New batches could now be optimized quickly and deterministically on the pilot-scale SMB.

Monitoring in the recycle loop of the production scale SMB allowed easy optimization and continuous refinement.

If purity degraded during a process run it was immediately obvious and adjusted.

SMB Lab productivity increased at least 10 times. Batches were processed more predictably. Staff and management were very pleased with the result.

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