

CHIRAL TECHNOLOGIES

High-Speed SFC Enantiomeric Separation Using the Optimal Daicel SFC Chiral Columns

Application Note

Introduction

Supercritical fluid chromatography (SFC) is an evolutionary technology and a powerful tool for enantiomer separation when used in combination with chiral stationary phases (CSPs).

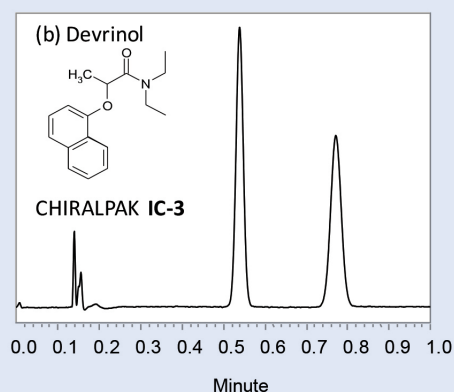
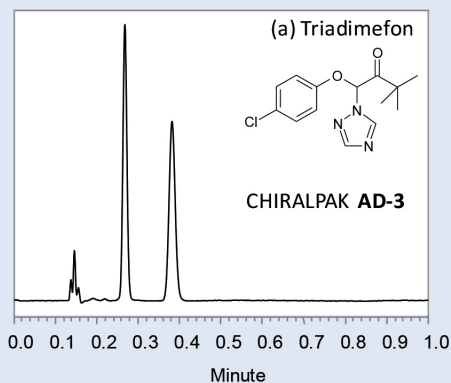
In parallel to the recent advancements in SFC instruments, there has been significant evolution of chiral columns in terms of CSP enantioselectivity, versatility, column stability and efficiency. In order to provide optimal SFC chiral columns for ultra-fast analysis, the product line of chiral columns based on polysaccharide derivatives has recently been extended to new column dimensions.

Experimental and Discussion

As shown in the separation examples, Daicel chiral columns packed with 3- μm CSP particles and sized to 3.0-mm i.d. x 100 mm long can take full advantage of state-of-the-art SFC instrumentation to achieve fast and ultra-fast chiral separations without compromising the optimal resolution of enantiomers. These beneficial properties can be attributed to the high enantioselectivity of the CSPs, van Deemter fast mass-transfer kinetics, column packing stability and the selection of column diameter.



Examples of Fast Chiral Analysis by SFC



Chromatographic Conditions

| | |
|----------------------|---|
| Columns: | Daicel 3- μm CHIRALPAK [®] AD-3 and CHIRALPAK IC-3, 3-mm i.d. x 100 mm long |
| Mobile phase: | CO ₂ /MeOH 85:15 (by volume) |
| Additive: | (a) 1% DEA in MeOH; (b) None |
| Pressure: | 150 bar |
| Flow rate: | 3.6 mL/min |
| Temperature: | 40 °C |
| Detection: | UV |
| SFC System: | AQUITY UPC ² [®] |



CHIRALPAK is a registered trademark of Daicel Corporation



CHIRAL TECHNOLOGIES, INC.
800 North Five Points Road
West Chester, PA 19380
800-6-CHIRAL
Tel: 610-594-2100
Fax: 610-594-2325
chiral@chiraltech.com
www.chiraltech.com