



# Using Whelk-O<sup>®</sup> for Chiral Method Development in Normal and Reverse Phase

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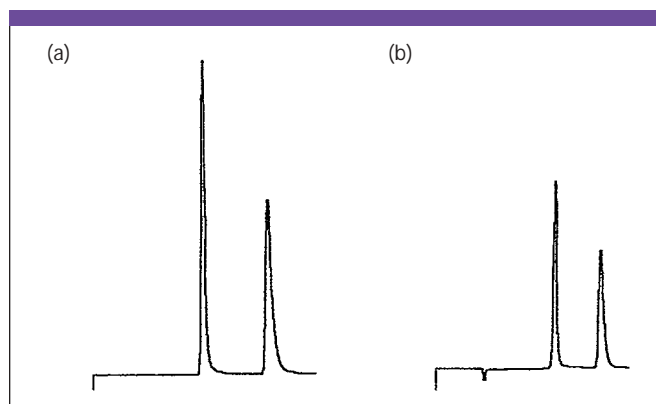
*Chirality has become vitally important in the pharmaceutical, chemical, and agricultural industries. The differences that make compounds chiral can produce critically different pharmacological effects in biological systems. As a result, demand for stereoselective separation techniques and analytical assays to evaluate purity of chiral compounds has increased. Chiral chromatography has become a necessary tool, not only for the analytical determination of enantiomeric purity, but also for the isolation of pure enantiomers.*

The ever increasing demand for faster chiral separation method development has exemplified the capabilities of the Pirkle-type chiral stationary phases (CSP). Pirkle-type CSPs are covalently bonded to the support. This distinctive advantage allows the separation scientist to perform method development in both *normal* and *reverse phase* without switching columns. The columns are able to tolerate all common HPLC, SFC, and SMB mobile phases. Pirkle-type CSPs are extremely durable and are available in both enantiomeric forms.

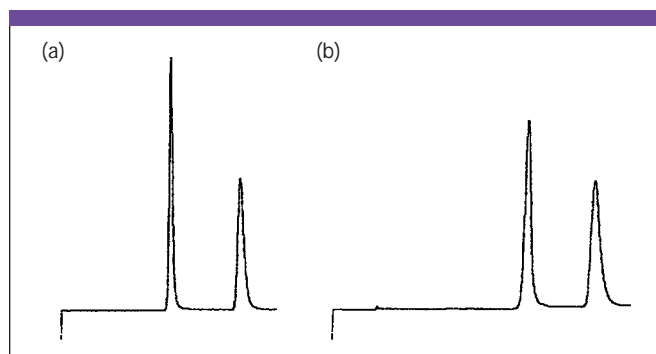
The Whelk-O<sup>®</sup> CSP is based on 1-(3,5-dinitrobenzamido)-1,2,3,4-tetrahydrophenanthrene. This phase is useful for the separation of underivatized racemates from a number of families including amides, epoxides esters, ureas, carbamates, ethers, aziridines, phosphonates, aldehydes, ketones, carboxylic acids, alcohols, and nonsteroidal anti-inflammatory drugs (NSAIDs).

This  $\pi$ -electron acceptor/ $\pi$ -electron donor phase exhibits an extraordinary degree of generality. The broad versatility observed on the Whelk-O<sup>®</sup> CSP compares favorably with polysaccharide-derived CSPs.

For more information about the properties and capabilities of Whelk-O<sup>®</sup> and the other Pirkle-type Chiral Stationary Phases available from Regis, log on to our web page at <http://www.registech.com/chiral/>. You can also contact us directly at (847) 583-7662 or e-mail at [fran@registech.com](mailto:fran@registech.com).



**Figure 1:** Separation of naproxen in (a) normal and (b) reverse phase using the same column. Column: 25 cm  $\times$  4.6 mm (R,R)-Whelk-O 1; mobile phase: (a) 60:40 (v/v) hexane-isopropanol with 0.1% acetic acid, (b) 80:20 (v/v) ethanol-water with 0.1% acetic acid; flow rate: 1.0 mL/min; detection: UV at 254 nm; run time: (a) 10.5 min, (b) 10.0 min;  $k'_1$ : (a) 1.40, (b) 1.63;  $\alpha$ : (a) 2.03, (b) 1.64.



**Figure 2:** Separation of warfarin in (a) normal and (b) reverse phase using the same column. Column: 25 cm  $\times$  4.6 mm (R,R)-Whelk-O 1; mobile phase: (a) 65:35 (v/v) hexane-isopropanol with 0.1% acetic acid, (b) 70:30 (v/v) ethanol-water with 0.1% acetic acid; flow rate: 1.0 mL/min; detection: UV at 254 nm; run time: (a) 10.5 min, (b) 15.0 min;  $k'_1$ : (a) 1.54, (b) 3.54;  $\alpha$ : (a) 2.07, (b) 1.55.

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