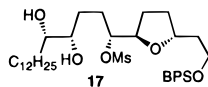


Additions and Corrections

Rules of Stereoselectivity in Tandem Oxidative Polycyclization Reaction with Rhenium(VII) Oxides [*J. Am. Chem. Soc.* **1998**, *120*, 9076–9077]. SANTOSH, C. SINHA, EHUD KEINAN, AND SUBHASH C. SINHA*

Structure **17** in Scheme 5 should be as shown below.



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Book Reviews

Supercritical Fluid Chromatography with Packed Columns: Techniques and Applications. *Chromatographic Science Series, Vol. 75.* By Klaus Anton (Novartis Pharma AG, Basel, Switzerland) and Claire Berger (Ciba Specialty Chemicals, Inc., Basel, Switzerland). Merckel Dekker: New York. 1998. ISBN 0-8247-0013-9.

Klaus Anton and Claire Berger have assembled a gem of papers from 10 countries and 15 different sets of authors. The book brings researchers up to date in the area of supercritical fluid chromatography with packed columns (pSFC, packed column supercritical fluid chromatography). The range of papers in the book provides two thrusts. These include using pSFC as an analytical and preparative tool and providing basic information, data, and examples for commercial use. Further the book should provide a basis for further research and development.

Each individual chapter (15 chapters) is well written and can stand alone in addressing a particular facet of pSFC. The book is filled with the advantages, disadvantages, constraints, comparisons, and limitations of pSFC. Discussions include the role of pSFC, solubility measurements, packing material, selectivity and retention, variations in stationary and mobile phases, modifiers, detectors, pressure control, and a number of applications.

Chapters 1–13 focus on analytical and preparative techniques while Chapters 14 and 15 discuss commercial and industrial applications. In many cases the discussion of analytical and preparative techniques can form the basis for commercial applications.

Analytical and Preparative Techniques: The supercritical fluid used as the mobile phase is carbon dioxide in pSFC, and carbon dioxide is sometimes used in a mixture with methanol as a modifier to increase solubility of polar hydrocarbons.

Chapter 1 provides a well-documented method for measuring solubilities. Applications include measurements of vitamin K₁, β-carotene, and a series of xanthenes. The second chapter provides a foundation for any researcher wishing to use pSFC as an analytical technique. It is a combination of literature review and practical experience. A discussion of analytical and preparative pSFC is discussed in Chapter 3 along with a discussion of the advantages over high-pressure liquid chromatography, HPLC. While many applications of pSFC use ultraviolet detectors, the demonstration of the use of evaporative light scattering detection is the topic of Chapter 4.

Chapter 5 is a discussion of the use of packed capillary columns in SFC, allowing for higher column efficiencies in longer columns and lower mobile phase rates. Diesel fuel samples were examined as one example of this technique. An interesting discussion of selectivity and selectivity tuning can be found in Chapter 6. The effect of organic modifiers on high molecular weight organic compounds is the subject of Chapter 7. Modifiers include heptane, methylene chloride, tetrahydrofuran, ethanol, propionitrile, acetone, 1-propanol, methanol, acetonitrile, and nitromethane. The transition from a method where density is the most important factor to a liquid type of behavior depends on

the chemical nature of the modifier extending the range of straight carbon monoxide pSFC to subcritical fluid chromatography, subFC.

The title of Chapter 8 is Chiral Chromatography using Sub- and Supercritical Fluids. These fluids are advantageous in providing a higher resolution of enantiomers in shorter times than HPLC particularly in applications to pharmaceuticals and other analytes in preparative separation. Rationally designed chiral stationary phases are discussed in Chapter 9. These are useful for the separation of enantiomers.

pSFC is used in the development of drugs in Chapter 10 and polymer additives in Chapter 11. Both chapters provide the advantages of pSFC to the development process. Chapter 12 provides an application of pSFC to the fractionation of polymer homologs. The structure and properties of these uniform polymers can then be determined. The authors of Chapter 13 demonstrate the role of pSFC in the ever increasing accuracy of environmental analysis. Examples include determining the levels of PCB in cod liver oil and soil.

Commercial and Industrial Applications: The last two chapters, 14 and 15, focus on production scale applications of pSFC.

Chapter 14 is titled Preparative Supercritical Fluid Chromatography. These authors view pSFC as a production tool within preparative pSFC. They discuss their pilot plant unit separating piperonyl butoxide and its potential scale-up. Chapter 15 is titled Production of High Purity n-3 Fatty Acid-Ethyl Esters by Process Scale Supercritical Fluid Chromatography. This author, Peter Lembke, discusses the scale-up for production of eicosapentaenoic acid (EPA) from fish oils. After performing laboratory and pilot scale testing of this separation, he uses the acquired data to perform a preliminary plant design analysis. The results of the analysis indicate that, for this high-purity separation of EPA, the pSFC process is cheaper than a similar HPLC process.

The book can be recommended to those chemical scientists looking for alternative analytical techniques, particularly environmental scientists attempting to enlarge their ability to determine trace substances. Supercritical fluid chromatography provides an analytic technique intermediate between gas chromatography and high-performance liquid chromatography. Chemical engineers looking for a new separation method will find basic information for production of specialty chemicals using pSFC.

I hope the editors can provide future leadership in this field by preparing a second monograph dealing with the potential for pSFC in commercial process applications. A follow-up volume will contribute to the growth of pSFC in industrial applications.

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