Book Reviews

CONTINUOUS FLOW ANALYSIS: THEORY AND PRACTICE (CLINICAL AND BIOCHEMICAL ANALYSIS SERIES VOLUME 3) by William B. Burman, Marcel Dekker, Inc., New York 1976, 352 Pages. Price $24.50.

This is a reference book for analytical chemists already familiar with the use of the Auto Analyzer for quality control and research applications. The author is Chief of the Methods Research Branch of the National Center for Drug Analysis of the Food and Drug Administration in St. Louis. In compiling the book, the author reviewed 3,000 papers in continuous flow analysis. The book contains 941 references to literature on this subject. Chapter 1 describes briefly the development of the Auto Analyzer and its application to analytical determinations with extensive reference to the literature. Chapter 2 deals with a description of the Auto Analyzer modules which have been developed and the problems associated with their use. Chapter 3 describes the use of other laboratory instruments in conjunction with the instrument, such as; atomic absorption, spectrophotometers, Redox systems, flame photometers, gas chromatographs, etc. Chapter 4 deals with the selection and assembly of tubings and fittings for separation of immiscible liquids and the tubings used for various materials. Chapter 5 describes various uses of continuous flow manifolds with liquid column chromatographic systems having off and on line modes. Chapter 6 deals with the use of automatic data processing in conjunction with the instrument. Chapter 7 is written by Dr. W. H. C. Walker of McMaster University in Canada and discusses the theoretical aspects of a continuous flow system from the standpoint of factors influencing peak characteristics and practical steps that can be taken to improve peak quality and analytical performance.—ROBERT T. CONNER—Consultant

FILTRATION: PRINCIPLES AND PRACTICES (IN TWO PARTS), PART I. (Chemical Processing and Engineering Series, Volume 10) Edited by Clyde Orr 1977, Marcel Dekker, Inc., New York, 1977, 544 Pages, 700 References, 160 Figures, 26 Tables, 501 Equations, bound, Illustrated. Price $45.00.

This, the first part of a two volume edition, focuses on a variety of filtration topics related in part to cosmetic processing of waste chemicals and maintenance of environmental air quality standards. Earlier chapters present a rigorous mathematical treatment of Gas and Liquid Filtration models. Medium, Depth, and Cake Liquid Filtration methods are supported by discussions on various well-known filtration aids and pretreatment techniques. Filter media strength, stability, and chemical resistance are classified according to trapped particle size, permeability, solids holding capacity, and longterm media efficiencies.

The review of industrial gas filtration techniques in Chapter 4 is particularly relevant to the treatment of airborne powders, pigments, and fumed cosmetic thickeners. Also pertinent in this and later chapters is the discussion of solid-liquid separation as a function of batch, semi-continuous, and continuous operations. Selection of most suitable equipment for filtration needs is aided by worked through problems and detailed schematics of familiar industrial equipment.

A final chapter on Ultra filtration centers on the separation of 10 to 100 Å particles and Tubular Membrane Configurations, Thin-Channel Membrane Modules, and Hollow Fiber Systems are shown. Application of Ultra Filtration to water purification is offered as an alternative to other less feasible means.

An excellent listing of filtration references is given after each chapter.—JAMES KINNEY—Clairol Inc.

ANALYSIS OF ESSENTIAL OILS BY GAS CHROMATOGRAPHY AND MASS SPECTROMETRY, Vol. I, 1st Ed., Edited by Yoshiro Masada. John Wiley & Sons, Inc., New York, 1976, IX + 334 pages. Price $37.50.

The book consists of two parts. The first part is the subject of this review. The second part (32 pages) printed only in Japanese, describes basic information on the components and methods for analysis of an essential oil as well as basic information concerning gas chromatography and mass spectrometry.

Part I, contains the botanical description, physical and chemical constants, gas chromatograms, mass spectrum, and recent bibliography for sixty-four essential oils.

The Gas Chromatograms are supplemented by peak identifications as well as instrumental conditions. The mass spectrums of major components of the oils also have peak identifications. There are 156 figures.

The book is a useful guide for anyone conducting research concerned with perfumes, flavors, and spices.

It is a guide in that the representative samples of oil used for analysis do not represent, in all cases, the actual material of commerce available in the U.S.—WINTHROP E. LANGE—The Purdue Frederick Company

SURFACTANT SCIENCE SERIES, VOLUME 7: ANIONIC SURFACTANTS, PART I, Edited by Warner M. Linfield, Marcel Dekker, Inc., New York, 1976, XI + 314 Pages. Price $35.00.

This two-part volume deals primarily with the organic chemistry of anionic surfactants, a class of surfactants which is probably the one of greatest importance from both an economic and a scientific perspective. The literature on this class of compounds is voluminous: consequently, each major type of anionic surfactant is covered in a separate chapter; the lipid and petrochemical antecedents of these surfactants are each treated in a separate chapter; also, there is a chapter on the

mechanisms of sulfonation and sulfation reactions, since so many synthetic routes to anionic surfactants include either of these reactions.

Part I included an introductory chapter on soap and lime-soap dispersing agents, which is as comprehensive and thorough treatment on the subject as can be found anywhere in the literature. This is followed by a chapter on "Petroleum-based Raw Materials for Anionic Surfactants" and another on "Lipid and Other Nonpetrochemical Raw Materials." The fourth chapter deals with the previously cited "Mechanisms of Sulfonation and Sulfation." Successive chapters deal with "Alcohol and Ether Alcohol Sulfates," "Sulfated Monoglycerides and Sulfated Alkanolamides," "Sulfated Fats and Oils," and "Alkylarylsulfonates." The separate chapters are written by experts in each individual field.

Each chapter is extremely well done and thoroughly covers the area of its scope and contains a pertinent list of references at the end. The general format for each chapter contains: an introduction, a section on the preparation of the compounds, a section on the physical or general properties of the compounds including an analysis, a section on applications of these particular compounds, and a list of products in this class by tradenames. Typical of this format is Chapter 5 on "Alcohol and Ether Alcohol Sulfates" which is comprehensive in its scope and thorough in its preparation and execution.

This is an excellent book and would be of great use to both beginners and experienced practitioners in the field of surfactant technology, particularly in the cosmetic field. However, there are some minor criticisms: Part I does not have an index of its own—there is a cumulative index in Part II of this volume; also, considering the price of this book, this reviewer is less than impressed by the quality of the print and the cover (too soft for a "hard" cover and some variation in the intensity of the print).—ROBERT MARCHISOTTO—Biosciences Information Service.

METHODS IN OLFACTORY RESEARCH, Edited by D. G. Moulton, Amos Turk, and J. W. Johnston, Jr., 497 pages. Price $28.50

Although this volume owes its conception to the NATO sponsored Summer School of 1970 which was held in the Netherlands; thanks to its three experienced editors, it has achieved more than a publication of the proceedings of the meeting. Rather, the editors have succeeded in offering a substantial text on the multidisciplinary approach to olfactory research.

The text is comprised of fourteen chapters, each one contributed by a different author from a roster of eighteen distinguished scientists.

As would be expected, the overview of Olfactory Research is treated by such widely differing contributions that one wonders how the separate contributions in any multidisciplinary research program can be brought to work in concert, in order to reach an investigative goal.

However, this problem with multidisciplinary research is not at all a shortcoming of the volume, since do doubt each reader will find the chapters that interest him or her, even if other chapters do not.

While all of the chapters are written on a scholarly level, this reviewer was particularly impressed by the comprehensiveness of chapter 5, entitled, "Applications of Scanning Electron Microscopy (SEM)" and "Autoradiography in the Study of Olfactory Mucosa." The SEM micrographs included in this chapter are rewarding to view.

The cosmetic chemist might find chapter 1, which is entitled, "Instrumental Aspects of Olfactometry," as the most likely to prove useful in cosmetic science where, for example, odor measurement to determine the efficiency of deodorants might be needed. The perfumer might also find use for such techniques.

With its bibliography of 1492 authors, this volume is an impressive compendium of our knowledge about Olfactory research.—HARRY C. SAUNDERS—Shaw Mudge and Company.

SURFACTANT SCIENCE SERIES, VOLUME 7: ANIONIC SURFACTANTS, PART II, Ed. by Warner M. Linfield, Marcel Dekker, Inc., New York, 1976, XI + 360 Pages. Price $39.95.

Part II completes Volume 7 of the Surfactant Science Series. Part II picks up where Part I left off and deals with specific groups of surfactants. Chapter 9, the initial chapter in this book, deals with "Petroleum Sulfonates" followed by "Olefin Sulfonates," "Alpha-sulfomonocarboxylic Acids and Derivatives," "Sulfopolycarboxylic Acid Derivatives," "Sulfoalkyl Esters and Amides of Fatty Acids," "Alkyl Glyceryl Ether Sulfonates," "Phosphorus-containing Anionic Surfactants," and lastly, "N-Acylated Amino Acids as Surfactants."

Again, the same format is used in this book as is described for Part I, and the treatment for each chapter is as thorough and comprehensive as in the first section of the volume. The book concludes with an author and subject index which is cumulative for both parts of the volume. This practice is an unfortunate one if one chooses to buy only the first part of the volume since, as mentioned in the review of Part I, it does not contain either an author or subject index and would make it difficult to browse and search that part effectively. The same criticisms of the printing quality that were cited for Part I also apply, unfortunately, to Part II.—ROBERT MARCHISOTTO—Biosciences Information Service.