
Publications

Book reviews

Handbook of Chromatography - Volume 1 Carbohydrates, edited by S.C. Churms (CRC Press, Inc., Boca Raton, Florida, 1982, 272 pp., \$49.95).

To cite the preface "When Volumes I and II of the **Handbook of Chromatography** were first published in 1972, the editors made an attempt to select the data that would cover most organic and inorganic compounds in a volume of about 1,000 pages." In 1982 this is not practical and "carbohydrates" represents the first of a projected series of single class or use volumes. Future volumes will prospectively cover pesticides, drugs, lipids and fatty acids, steroids, terpenoids, plant pigments, hydrocarbons, amino acids, polymers and nucleic acids.

The present volume is divided into 5 sections: chromatographic data, detection techniques, sample preparation and derivatization, products and sources of chromatographic materials, and literature references. Something over 60% of the volume is composed of tables of chromatographic data on sugars and sugar derivatives arranged by chromatographic mode. The 87 tables covering 167 pages are divided as follows; GC 25, LC 45, PC 5, TLC 6, electrophoresis 6. The detection section consists largely of recipes for 55 spray reagents and tabulations of sensitivity and colors developed for individual sugars. Descriptive text is minimal and occasionally ambiguous or misleading. On page 224 for instance "The fluorinated analog of BSA, BSTFA, has approximately the same donor strength as BSA but gives products of greater volatility." The products are the same in both cases, trimethylsilyl derivatives. The difference in volatility occurs in the reagent and in the *byproducts* of the reactions. The section on products and sources of chromatographic materials is of questionable value since it appears to have been derived from commercial catalogs predating or issued in 1978. This observation is consistent with the dedication dated April 1979 and the absence of references dated later than 1978. It is unfortunate that such a massive, comprehensive compilation of carefully selected data must be 3 years out of date when published.

This book appears to be well organized and clearly printed on good quality paper. Data are arranged in a reasonable, systematic fashion that is easy to follow. The present volume is probably of relatively little interest to most lipid chemists. It should be noted, however, as volume 1 of a prospective series which it is stated will contain volumes of specific interest to lipid chemists. There is a great deal of chromatographic data on lipids that can be constructively reviewed and gathered together. However, in part because of the prolific output of reviews by Ackman, it is difficult to imagine a justification for a similar tabulation of GC data on fatty acids.

Tall Oil, edited by J. Drew and M. Propst (Pulp Chemicals Assoc., 60 E. 42nd St., New York, NY 10165, 1981, 199 pp., \$25).

The Pulp Chemicals Association has previously published **Tall Oil and Its Uses** in 1965 and **Sulfate Turpentine Recovery** in 1971. During the kraft or sulfate pulping process, rosin acids and fatty acids are obtained as the sodium salts along with unsaponifiables in the spent cooking liquor. The rosin acids are of the abietic or pimaric type and comprise from 25% to 50% of the total depending on the climatic zone and wood type. It might be noted in passing that "tall" is the Swedish word for pine. The tall oil industry dates to about 1920 in Sweden and Finland. While interest developed in the United States in the early 1930s the first successful commercial fractionation of tall oil into high purity fatty acids and rosin dates to about 1949. Distillation techniques were adapted from the petroleum industry and a number of plants were constructed and expanded through the 1950s and 1960s. Current capacity is reported as 936,000 tons/yr. Relatively little is said about the chemistry of tall oil constituents. There are, however, extensive detailed descriptions of the chemical engineering aspects of recovery processes which are adaptable to various types of batch and continuous pulping operations.

Tall oil is a by-product of pulp production and this book is produced by the Pulp Chemical Association. The message comes through loud and clear that the tail does not feel that it is adequately appreciated by the dog. Continuous as opposed to batch pulp processing reduces the tall oil yield. Storage of feed stock as chips instead of logs results in major losses of tall oil constituents and admixture of hardwoods in the pulping process reduces tall oil quality. Acidulation of the soap stock results in production of a variety of sulfur gases including hydrogen sulfide, methyl mercaptan and dimethyl sulfide. Pulp mill wastes may result in fish kills and resin-like tasting fish. Toxicity is related to resin acid soaps but not free resin acids. Tall oil recovery would therefore seem to decrease the toxicity of pulp mill waste streams but requires careful control to minimize air pollution. Perhaps the increase in petroleum costs will stimulate greater interest in the tricyclic terpenoids as intermediates derived from a renewable source.

The editors provide authoritative coverage of a specialized area. This book can be recommended for any comprehensive library used by lipid chemists. When the chips are down, however, the book is clearly an effort to sell tall oil recovery to pulp producers.

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Practical Spectroscopy Series, Vol. 3: Part B, Mass Spectrometry, edited by C. Merritt, Jr. and C.N. McEwen, series edited by E.G. Brame, Jr. (Marcel Dekker Inc., 270 Madison Ave., New York, NY 10016, 1980, 401 pp., \$57.75).

This book contains much useful information for the researcher who needs to either use, plan experiments or derive information from mass spectrometry. Use of the infor-

mation in this book will result in better quality and more useful information from the application of mass spectrometry to separation and identification problems. The book contains chapters concerning mass spectral approaches to the study of drug metabolism, chemical derivitization gas chromatography-mass spectrometry, analytical applications of two dimensional mass spectrometry, and a collection of papers which review the state of the art in negative ion chemical ionization mass spectrometry. Two of the most useful and interesting chapters of the book for this reviewer were those dealing with drug metabolism approaches and with derivitization mass spectrometry. The former chapter reviews in great detail applications of mass spectrometry in many areas of identification of drug metabolites in various systems. Especially useful are the 464 detailed references at the end of the chapter (with paper titles included) which are classified into subject areas such as: technique, tranquilizers, steroids, stable isotopes, reviews, sedatives, etc. The chapter on derivitization is also very useful, since not only are the derivatives discussed but the fragmentation of them is also shown, this is often difficult to find without considerable effort. I would recommend that this book be at the hand of those persons needing practical information in applied mass spectrometry for problem solving.

Food Chemicals Codex, 3rd Edition (Committee on Codex Specifications, Food and Nutrition Board, National Re-

search Council, National Academy Press, Washington, DC, 1981, 735 pp., \$45).

This volume is a source book for the latest data and testing procedures for more than 800 food ingredients and processing aids. The book contains testing procedures for hundreds of materials. The book is divided into several sections, monographs (testing procedures and specifications), specifications for flavor aromatic chemicals and isolates, test methods for flavor aromatic chemicals and isolates, GLC analysis of flavor aromatic chemicals and isolates, general tests and apparatus, solutions and indicators, general information (operating practice and good manufacturing practice) and infrared spectra. The index is compiled for use to find compound types as well as specific chemical compounds. This book will be useful to food technologists, quality control persons and others who need this type of information.

Syntheses with Stable Isotopes, by Donald G. Ott (J. Wiley & Sons, 605 Third Ave., New York, NY 10016, 1981, 224 pp., \$28.50).

This volume is essentially a compilation of recipes for the synthesis of a fairly large number of organic compounds containing stable isotopes of carbon, nitrogen, and oxygen. The book is divided into several sections with preparations classified according to functional groups, i.e., acids, anhydrides, amides, esters, and nitriles; aldehydes and ketones;

SHORT COURSE PROCEEDINGS

DETERGENTS EIGHT-0

Held September 14-17, 1980, Hotel Hershey & Country Club, Hershey, Pennsylvania (86 p., \$10).

Proceedings of four sessions: "What Constraints Do We Operate under?" "What Do We Have to Work with?" "How Do We Make a Technical Product?" and "How Do We Make a Successful Consumer Product?" These topics were addressed by 23 contributors to the course.

INDUSTRIAL FATTY ACIDS

Held June 10-13, 1979, Tamiment Resort and Country Club, Tamiment, Pennsylvania (150 p., \$12 for AOCS members and \$15 for nonmembers).

Thirty-eight papers constitute these proceedings. Topics include raw materials; hydrogenation; distillation; toxicological, bacteriocidal, and fungicidal properties; federal regulations; packaging; pollution control; analytical chemistry of fatty acids and their derivatives; and new applications.

DETERGENTS IN THE CHANGING SCENE

Held June 15-18, 1975, Hotel Hershey, Hershey, Pennsylvania (76 p., \$6 for AOCS members and \$8 for nonmembers).

The volume includes 15 of the papers presented at the course. Topics include surfactant manufacture, raw materials, alcohol ethoxylates in laundry detergents, environmental acceptability and human safety.

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alcohols, ethers, and phenols; amines and hydrocarbons; heterocyclic compounds; and "other" compounds. Each preparation contains literature references describing the original synthesis. The index appears to be complete in allowing one to locate specific compounds. Practicing chemists who find it necessary to prepare compounds with stable isotopes for use in NMR, or mass spectrometry, or perhaps for metabolic experiments will find this book of considerable value.

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New publications

1981-1982 Directory of the Federation of Chemical Industries of Belgium, Federation of the Belgian Chemical Industries, Square Marie-Louise 49, 1040 Brussels, Belgium; 1982; 1,200 Belgian Francs.

An Economic and Technological Assessment of the Future of the World's Fatty Acid Industry, Hewin International Inc., Postbox 7813, Van Leyenberghlaan 159, Amsterdam, The Netherlands; 650+ pp.; 1982; \$2,200. Available in United States from Donri International Market Research, PO Box G, Somersville, CT 06072.

Food Flavors, Part A: Introduction, edited by I.D. Morton and A.J. MacLeod, Elsevier-North Holland Inc., 52 Vanderbilt Ave., New York, NY 10017, 1981, 472 pp., \$117.

Literature Guide to the GLC of Body Fluids, edited by Austin V. Signeur, Plenum Publishing Corp., 233 Spring St., New York, NY 10013, 1982, 385 pp., \$85.

Handbook of Neurochemistry, Vol. 1: Chemical and Cellular Architecture, edited by Abel Lajtha, Plenum Publishing Corp., 233 Spring St., New York, NY 10013, 1982, 470 pp., \$65.

Membranes and Transport, Vols. 1 and 2, edited by Anthony N. Martonosi, Plenum Publishing Corp., 233 Spring St., New York, NY 10013, 590 pp. and 600 pp., \$75 each.

Human Subjects Research: A Handbook for Institutional Review Boards, edited by Robert A. Greenwald et al., Plenum Publishing Corp., 233 Spring St., New York, NY 10013, 1982, 280 pp., \$25.

Advances in Nutritional Research, Vol. 4, edited by H.H. Draper, Plenum Publishing Corp., 233 Spring St., New York, NY 10013, 1982, 335 pp., \$39.50.

The Guide to Sources for Agricultural and Biological Research, edited by J. Richard Blanchard and Lois Farrell, University of California Press, 2223 Fulton St., Berkeley, CA 94720, 1982, 735 pp., \$47.50.

Occupational Exposure Guide, J.J. Keller & Associates Inc., 145 W. Wisconsin Ave., PO Box 368, Neenah, WI 54956, 1982, 800 pp., \$176.

Glossary of Chemical Terms, second edition, by Clifford A. Hampel and Gessner G. Hawley, Van Nostrand Reinhold, 135 W. 50th St., New York, NY 10020, 1982, 304

pp., \$19.95.

Calculator Programs for Chemical Engineers, by *Chemical Engineering* magazine, McGraw-Hill Book Co., 1221 Ave. of the Americas, New York, NY 10020, 1982, 328 pp., \$27.50.

ISI Atlas of Science: Biochemistry and Molecular Biology, 1978/80, Institute for Scientific Information, 3501 Market St., University City Science Center, Philadelphia, PA 19102, 1982, \$45 to individuals, \$90 to institutions.

Analytical Chemistry of Rapeseed and Its Products, edited by J.K. Daun, D.I. McGregor, and E.E. McGregor, The Canola Council of Canada, 301-433 Main St., Winnipeg, Manitoba, Canada R3B 1B3, 1982, 193 pp., \$5.00 Cdn. Proceedings of a symposium sponsored by the Canada-Sweden Exchange on Rapeseed Science held May 5-6, 1980 in Canada.

NOTE: John Wiley & Sons, publishers of *Bailey's Industrial Oil and Fat Products*, is celebrating its 175th anniversary in 1982. *Bailey's* is considered a basic reference text for the fats and oils industry and 1982 marks the completion of publication of the fourth edition. The third edition, published in 1964, sold 9,300 copies; Volume 1 of the fourth edition was published in 1979 and by April of this year had sold 3,500 copies; volume 2 sold approximately 1,200 copies its first four months.

Latest in Lipids

Scheduled for JUNE

Development of the Diurnal Rhythm of Chick 3-Hydroxy-3-methylglutaryl-CoA Reductase

Stearoyl-Coenzyme A Desaturase Activity in the Mammary Gland and Liver of Lactating Rats

Autoxidation of Phosphatidylcholine Liposomes

Positional Distribution of Fatty Acids in Triglycerides from Milk of Several Species of Mammals

Cyclic Fatty Esters: Synthesis and Characterization of Methyl ω -(6-Alkyl-3-Cyclohexenyl) Alkenoates Effects of Phosphatidylcholines on de novo Synthesis and Excretion of Sterol by L-929 Fibroblasts

Methods

Digitonide Precipitable Sterols: A Reevaluation with Special Attention to Lanosterol

Determination of Cholesteryl Esters and of Cholesteryl and Epicholesteryl Silyl Ethers by Capillary Gas Chromatography

High Performance Reversed-Phase Chromatography of the Triglycerides from Human Plasma Lipoproteins

Improved Methods for the Isolation and Study of the C₁₈, C₂₀ and C₂₂ Monoethylenic Fatty Acid Isomers of Biological Samples: Hg Adducts, HPLC, AgNO₃-TLC/FID, and Ozonolysis

An Improved Procedure for the Synthesis of Choline Phospholipids via 2-Bromoethyl Dichlorophosphate

Use of Radiolabeled Hexadecyl Cholesteryl Ether as a Liposome Marker