

Specifications and Criteria for Biochemical Compounds

The Committee on Specifications and Criteria of Biochemical Compounds was organized within the Division of Chemistry and Chemical Technology of the National Research Council in response to recommendations from the American Society of Biological Chemists and from the Division of Biological Chemistry of the American Chemical Society. The committee was formed two decades ago in an effort to improve the quality of chemicals available for biochemical research by establishing criteria, standards, or specifications for widely used biochemicals.

Since then, tremendous strides have been made in the manufacture and marketing of high quality biochemicals, but the committee feels that a need still exists for specifications that can be used by manufacturers as guidelines in preparing materials for sale, and that the research worker can use to judge the quality of purchased biochemicals.

The third edition of its book, *Specifications and Criteria for Biochemical Compounds*, published in 1972 by the National Academy of Sciences, lists data on 521 compounds, including amino acids, carbohydrates, carotenoids, coenzymes, enzymes, lipids, nucleotides, and porphyrins. In

addition, this edition contains a brief discussion of radioactive compounds, but no effort was made to include specifications on any isotopically labeled materials. Copies of the book are available from Printing and Publishing Office, National Academy of Sciences, 2101 Constitution Avenue, NW, Washington, DC 20418.

The committee recently reaffirmed its purpose to provide data on a wider range of biochemicals used extensively by biochemists. At the moment, sections dealing with metabolic intermediates, biogenic amines, and heme-associated proteins are in preparation, and these will probably appear as supplements in the near future. The committee would like to know the needs of the biochemical community and will welcome suggestions and comments from research workers. Specifically, it would be glad to know of instances of commercial biochemical compounds that were below manufacturer's specifications, suggestions of individual compounds or classes of compounds to be included in future volumes, or suggestions to improve current criteria and specifications. Any communication should be addressed to the Committee on Specification and Criteria for Biochemical Compounds, Office of Chemistry and Chemical Technology, National Research Council, 2101 Constitution Avenue, NW, Washington, DC, 20418. ■



NEW BOOKS

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Aliphatic Chemistry, Volume 3, A. McKillop, senior reporter (The Chemical Society, Burlington House, London, England, 1975, 409 p., ca. \$32).

Aliphatic Chemistry, Volume 3, is most welcome as it covers the literature in aliphatic chemistry from January to December, 1973, with the same high standards of Volumes 1 and 2. As in the case of the previous volume, Volume 3 is of tremendous interest to lipid chemists, especially those interested in the organic chemistry of long chain aliphatic compounds, including synthesis, reaction mechanisms, spectra, structure determinations, and the interplay of all of these and other related areas.

The coverage in the book is best described by giving the chapter titles: Chapter 1, "Acetylenes, Alkanes, Allenes and Olefins," by R.S. Atkinson; Chapter 2, "Functional Groups Other than Alkanes, Acetylenes, Allenes and Olefins," by E.W. Calvin; Chapter 3, "Naturally Occurring Polyolefinic and Polyacetylenic Compounds," by G. Pattenden; Chapter 4, "Chemistry of the Prostaglandins," by G. Pattenden; and Chapter 5, "Fatty Acids and Related Compounds," by F.D. Gunstone. The review of fatty acids and related compounds did not appear in Volume 2 and this is a most welcome and worthwhile addition. There is also a complete author index.

As in the case of the previous volumes, Volume 3 is not merely a brief and superficial review of aliphatic chemistry, but each of the chapters is replete with equations, structural formulas, and — of tremendous importance — reaction mechanistic pathways. Because of the many very complicated reactions discussed in this volume, the mechanistic information is extremely helpful. It is difficult to single out any of the highly essential chapters as being more valuable to lipid chemists than the others, but if one has to make such a decision, Chapter 4 on the chemistry of the prostaglandins and Chapter 5 on fatty acids and related compounds surely stand out. The prostaglandins have excited the attention of many classes of chemists, not merely lipid chemists, over the past decade or so, and the interest and activity in the field has continued unabated.

Each of the reviewers has done an outstanding job in presenting the materials succinctly and clearly, but A. McKillop, as senior reporter, deserves special credit and commendation for the overall organization and high quality. The book is remarkably free of typographical errors and the coverage extremely complete and current for the period described.

Every lipid chemist (and every organic chemist) interested in the synthesis, properties, and reactions of long chain aliphatic compounds should have a copy of this and the preceding volumes in his library. Additionally, it could almost be used as a textbook and guide book for a special topics course in the chemistry of aliphatic compounds.

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Biochemistry, A Year's Course: Selected Readings, Edited by George E. Anekwe (College and University Press, Washington, DC, 1975, 526 p., \$9.95).

This book's Table of Contents appears concise, accurate, and in the general biochemical format, and its jacket is distinctive orange with contrasting black letters. Articles reprinted from the literature, most of which are too complicated for a beginning student, make up a major portion of the book, and there seems to be an overemphasis on lipid biochemistry. Insufficient introductory material accompanies the articles, and no explanations for their selection are given. Thermodynamic principles are utilized with few biochemical applications. Misspelled words appear on pp. 18, 122, and 124, as well as a questionable definition of a prosthetic group on p. 127.

This book's overall organization is deficient and the coverage of the field poor, if, as the preface states, it is intended for a first year introductory course in biochemistry. For example, Nucleic Acids/Genetics, The

Glycolytic Pathway, and the Krebs and UREA Cycles are given only cursory treatment, and only 5 pages are devoted to proteins and amino acids, a most important area. All of these subjects require additional explanation above and beyond the excellent reprinted article by Scrutton and Utter.

Had the editor approached this book as a reference text on selected lipid readings with concentration on one area rather than attempted to select scattered readings on all biochemical areas, it could have been considered for a graduate lipid course. But it does not meet these criteria in its present form. The excellent lipid textbooks by Konrad Blak or Harry Deuel serve as better reference texts.

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Introduction to Organic Chemistry, Second Edition, Charles H. DePuy and Kenneth L. Reinhart, Jr. (John Wiley & Sons, Inc., New York, NY, 1975, 323 p., \$12.50).

This is a good introductory organic chemistry text designed for nonchemistry majors. The first 11 chapters discuss the basic chemistry of the various classes of organic compounds and the remaining 5 are devoted to fats, oils, and detergents; amino acids and proteins; nucleic acids; metabolism; and the chemistry of natural products.

Although the arrangement is the classical functional group approach to the subject, each chapter includes discussions of the mechanisms of the more important reactions. Because stereochemistry and conformation are introduced in the first chapter, the student is trained to think in 3 dimensions from the start. Each chapter contains applications of the topics discussed; for example, the properties of butyl rubber and polyethylene are related to conformation of simple hydrocarbons. The legends to the figures give the essential content of each chapter, a unique feature, and the problems, some with answers, are well chosen to illustrate the material.

Although this reviewer has not used it as a text, the book seems well designed for its purpose.

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Pigments, Part 1 (Treatise on Coatings, Vol. 3), Edited by Raymond R. Meyers and J.S. Long (Marcel Dekker, Inc., New York, NY, 1975, 570 p., \$68.00, or \$54.00 for 5 or more copies).

Pigments, Part 1 is devoted mainly to the organic and inorganic pigments, their physical and chemical properties, composition, manufacture, and application. One section describes in detail the use of additives in the coating industry. Also included is an excellent history review of the science and technology of color.

This reviewer, never having read any other works by Meyers or Long, cannot make a comparison with previous efforts. However, it is without a doubt one of the finest pieces he has ever read. Similar material by Patton (*Pigment Handbook, Volumes 1-3*, is in no way as complete and descriptive for each topic as *Pigments, Part 1*. The idea of presenting various formulations, though in many instances rather basic, is a truly genuine and refreshing concept.

Although this work is most assuredly aimed at the technically oriented reader, it could have interest in specific college courses. Without exception, this particular information should be made available to all coatings chemists and technicians.

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