Additions and Corrections

Structure Determination, Conformational Analysis, Chemical Stability Studies, and Antitumor Evaluation of the Cryptophycins. Isolation of 18 New Analogs from *Nostoc* sp. Strain GSV 224 [*J. Am. Chem. Soc.* **1995**, *117*, 12030−12049]. TRIMURTULU GOLAKOTI, JUNICHI OGINO, CARL E. HELTZEL, TRANG LE HUSEBO, CRAIG M. JENSEN, LINDA K. LARSEN, GREGORY M. L. PATTERSON, RICHARD E. MOORE,* SUSAN L. MOOBERRY, THOMAS H. CORBETT, AND FREDERICK A. VALERIOTE

Page 12032 (Chart 1): cryptophycin-40 **10**, cryptophycin-28 **11**, and cryptophycin-18 **18** X = Cl should read cryptophycin-28 **10**, cryptophycin-40 **11**, and cryptophycin-21 **18** X = Cl, respectively.

Page 12034 (Figure 2): The caption is missing and should read as follows: X-ray crystal structure of cryptophycin-3 (**3**). Numbering system according to *Chemical Abstracts* nomenclature.

Page 12039 (Table 1) and page 12040 (Table 2): 25 (**45**) should read 25 (**41**).

Page 12041, footnote 35 should read as follows: Bax, A.; Subramanian, S. *J. Magn. Reson.* **1986**, *67*, 565−9.

Page 12041, footnote 36 should read as follows: Bax, A.; Summers, M. F. *J. Am. Chem. Soc.* **1986**, *108*, 2093−4.

Page 12041, footnote 37 should read as follows: Bax, A. *J. Magn. Reson.* **1984**, *57*, 314−8.

Page 12041, footnote 38 should read as follows: Bax, A.; Davis, D. G. *J. Magn. Reson.* **1985**, *63*, 207−13.

Page 12048, paragraph head Cryptophycin-12 (**29**), line 6: ^{1}H NMR should read ^{13}C NMR.

Page 12048, paragraph head **Conversion of 1 to 41**, line 7: cryptophycin-25 (**45**) should read cryptophycin-25 (**41**).

Page 12048, paragraph head Cryptophycin-25 (**45**): The paragraph head should read Cryptophycin-25 (**41**).

JA965401M

Book Reviews

Handbook of Laboratory Health and Safety, 2nd ed. By R. Scott Stricoff (Arthur D. Little, Inc.) and Douglas B. Walters (National Institute of Environmental Health Sciences), John Wiley: New York. 1995. xvii + 462 pp. $69.95. ISBN 0-471-02628-X.

This is a significant rewrite of the first edition, which appeared in 1990. Several years ago I happened across the first edition and decided that the depth of coverage was inadequate for a modern laboratory. The second edition successfully addresses this problem, and furthermore, it provides a number of resources which are not readily available.

The intent of the book (spelled out in the preface) is "to present a feasible, easy-to-implement approach to providing a safe workplace and to protect the surrounding community and environment while complying with regulatory requirements". The book achieves these objectives.

The book is divided into six sections. The first section presents principles of hazard identification and risk management. Major chapters in this section are on management leadership, hazard evaluation and identification, and responsibilities. The book makes a clear point that safety and health are the responsibilities of all. This section also includes a 12-page sample assessment questionnaire (which is designed to orient the assessor to the nature of hazardous material use and control at their facility), a sample 7-page laboratory inspection checklist, and a 3-page sample incident investigation report form. The laboratory inspection checklist is detailed enough that the user can easily trim it down for their particular facility. I was somewhat surprised to see an item on the checklist regarding ventilation of solvent cabinets − a somewhat controversial issue, although one that must be discussed.

The second section is on administrative programs. This includes chapters on documentation, training, medical surveillance, and the chemical hygiene program. A detailed outline for a sample chemical hygiene plan is provided.

The third section is on hazard evaluation and identification. This includes detailed discussions of chemical monitoring, biosafety, radiation, controlled substance management, ergonomics, and waste management. In all cases, detailed outlines, checklists, and references are provided.

Section four is on engineering controls. This includes laboratory layout, barrier design, and ventilation. Important resources presented here are a table of important elements of design for general laboratories, sample laboratory layout schematics for a variety of facilities, detailed drawings of hoods for various applications, and a hood monitoring form.

Section five presents protective equipment and work practice controls. This includes chapters on safety showers and eyewash stations, personal protective equipment, respiratory protective equipment, chemical handling, and fire and explosion protection. Important resources provided include detailed layouts for safety showers and eyewash stations, a flowchart on the selection and use of personal protective equipment, a list of protective clothing vendors (including addresses and phone numbers), a respiratory protection selection flowchart, and a list of fire protection equipment vendors.

The last section discusses emergency response, including incidental

spill cleanup, means of egress, and emergency medical response. This section of the book is the shortest (11 pages) and provides only an introduction to this important area—it would not be suitable for anyone with direct responsibility in this area.

The second edition certainly deserves the designation of a handbook. The information required is easy to locate, concise, and exactly what is required to meet safety and health standards. The numerous figures, tables, charts, checklists, flowcharts, and other supporting materials significantly enhance the product. This book would be useful for anyone involved in laboratory activities and would be essential for anyone involved with laboratory health and safety.

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JA955258H

Active Oxygen in Chemistry. SEARCH Series, Volume 2. Edited by Christopher S. Foote (UCLA), Joan Silverstone Valentine (UCLA), Arthur Greenberg (University of North Carolina), and Joel F. Liebman (University of Maryland). Blackie Academic: London. 1995. xiv + 342 pp. ISBN 0-7514-0371-7.

A collection of eight short reviews constitutes Volume 2 of the SEARCH (Structure, Energetics, and Reactivity in CHemistry) series which, according to the series editors Liebman and Greenberg, is designed to include volumes that are "comprised of state-of-the-art reviews, explicitly pedagogical in nature, in which specific topics are treated in depth". Since the field of oxygen activation has drawn considerable interest in recent years and it has implications in a variety of industrial and biological fields, two volumes have been planned on this topic. This volume is the first one of the two and focuses on the chemistry of oxygen and various other O-containing oxidants. The biological chemistry of oxygen is reserved for the Volume 3 of this series. Although the look and format of this volume (and the rest in the series as well) resemble those of the ACS or Royal Society monographs, there are clear differences. Unlike regular monographs which often include reports on research by different groups in detail, the contributors of this volume, all well-known for their own research contributions, have addressed issues of oxygen chemistry in a more general fashion in order to reach a much diverse reader circle. Accordingly, terminologies related to energetics (thermodynamics), structure, and reactivity have been used in a somewhat liberal way throughout the text. Another important difference is the collection of references of general interest at the end of each article. They come very handy for people who are new in this area. The unique approach of the series indeed makes the text more interesting than research articles in regular monographs.

The book begins with a short overview of the energetics and reactivity of oxygen by Joan Valentine and co-workers. The tables of physical constants of the various oxidants in this article are very helpful. The second article by Cheves Walling deals with autoxidation, a process that is highly undesirable in food and rubber industries as well as in certain biological phenomena. This 30-plus-page-long account provides a nice overview of the numerous organic reactions initiated and propagated by radicals. It also includes pertinent kinetic data for many reactions. The chemistry of superoxide and hydroxyl radical in aqueous solution is reviewed in the third article by Benon Bielski and Diane Cabelli of Brookhaven National Laboratory. The authors have done a good job in highlighting the key features of this chemistry which is very lengthy and voluminous. Christopher Foote and Edward Clennan have packed the essentials of the properties and reactions of singlet dioxygen in the fourth review. This article is a good start for anyone who wishes to get involved in the singlet dioxygen chemistry. Pat Dassault has done a commendable job in summerizing the reactions of hydroperoxides and peroxides in the fifth review. The various reactions are discussed in an organized fashion with ample examples. A list of recently-published reviews on the same topic is also included. The sixth article by Dennis Riley and Jerry Ebner of Monsanto Chemical Co. focuses on catalytic oxidations with oxygen in industrial processes. This minireview is quite helpful in obtaining some insight into selected industrial processes, the details of which are often hidden under the cloak of patents. Roger Atkinson has reviewed the reactions of oxygen species in the atmosphere in the seventh article. One obtains glimpses of the chemistry of ozone and NO_x and methane oxidation chemistry in the upper atmosphere in this section. The lucid text of this account readily raises one's interest in environmental chemistry. In the last article, Neil Blough and Richard Zepp have reviewed the chemistry of reactive oxygen species (ROS) like superoxide ion and hydroxyl radical in natural water. This review is quite superficial and hardly provides insight into the ROS chemistry. The short discussion on the roles of different metals in producing ROS in water at the end of the article does not do justice to the known aqueous chemistry of the metals under consideration.

As mentioned in the preface, this volume comprises materials for a course on "oxygen chemistry". Teachers in various institutions should seriously consider this volume (along with the second one on the biological chemistry) as texts for similar courses. This volume will also serve as an excellent reference book for a course on "bioinorganic chemistry". The topics covered in this volume are all important. The text is intelligible and appealing to anyone interested in the principles of chemistry.

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JA955347U

Monte Carlo Modeling for Electron Microscopy and Microanalysis. By David C. Joy. Oxford University Press: New York. 1995. viii + 216 pp. $59.95. ISBN 0-19-5088674-3.

This book gives an overview of the analysis of electron microscopy and electron beam microanalysis by Monte Carlo simulations of electron−solid interactions. In order to simplify the simulations, only elastic scattering of the electrons, embodied by the Rutherford cross section, is considered. Inelastic scattering is treated by imposing continuous energy loss along the scattering path, the rate of which is dictated by the Bethe relationship. Two approaches to treating the elastic scattering are delineated: the single-scattering model in which individual elastic scattering events are considered, which are determined by the energy-dependent elastic mean free path of the electrons, and the so-called plural-scattering model in which fewer scattering events are considered but the electrons travel the same total path length in the specimen prior to coming to rest. The second code can obviously be executed more rapidly, frequently without loss of needed reliability. These programs which describe the electron scattering are then used with additional code to quantify electron back-scattering yield, electron beam-induced current and scanning electron microscopy, cathodoluminescence imaging, secondary electrons and imaging, and X-ray production and microanalysis. A disk is available from the author with the source codes and executable versions of all programs discussed in the book, which will greatly assist in the reader's "self-teaching". Alternatively, this book could be used as a supplement to some advanced topics courses in solid state physics or analytical chemistry, preferably supplemented also by texts which treat rigorously the principles of electron scattering in condensed media. For what it aspires to accomplish, this book succeeds and can be recommended on that basis.

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