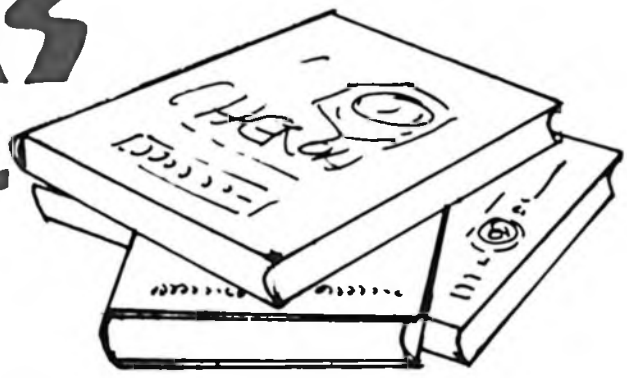
Books section



AMORPHOUS METALS AND SEMICONDUCTORS (Proceedings of an International Workshop Colonado, California USA May 1985) **P. Baasen and R.I. Jaffee**, *Pergamon Press Oxford U.K* (1986) 471 PP. price not indicated.

These days International conferences and workshops abound and it has been the fashion to bring out the proceedings in the form of a book with the ostensible reason of providing the information to a wider circle of workers. It is unfortunate that considerable time-about an year or more -elapses before the book is available and even more before the actual workers who may be benifited get them in their hand. What with dead-lines several months before the conference, the actual matter is considerably old to the extent of two to three years. Hence topicality is lost.

Hence in ascessing the merit or usefulness of such books, one is at a disadvantage. The presentation varies considerably in quality from paper to paper both in contents as well as the physical aspects. The book under consideration is no exception. Its value would have been very much more if an overview of the workshop proceedings had been prepared highlighting the really new points that have emerged as well as the focal themes for further effort. The agenda discussions are not very satisfactory for the purpose.

The present volume has a number of semi review papers presented by many well known workers in the field. The book will be useful as a record of the general state of understanding the field of amorphous metals and semiconductors around 1984. The getup is good. An index of subjects/key words would have been useful for information retrieval.

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ATLAS OF STEREOCHEMISTRY: ABSOLUTE CONFIGURATIONS OF ORGANIC MOLECULES, Second Edition, Supplement, **J. Buckingham and R.A. Hill**, *Chapman and Hall, London*, (1986) 309 pages. Price not indicated.

The number of biologically active compounds in plant and animal kingdoms, whether of terrestrial or marine origin, is countless. Added to the enormous number of naturally occuring compounds are the evergrowing synthetics designed for useful biological activity. Many of these biologically active molecules - be they medicinals, pheromones, plant growth hormones, herbicides and so on, natural or synthetic-possess one or more often multichiral centres, their specific biological activity being attributable only to one of the several stereoisomers possible for the molecule under consideration. Information on the chirality of such molecules is therefore of fundamental importance for academic as well as practical reasons. The volume under review dealing with the absolute configurations of organic molecules will therefore be highly valued by a large spectrum of research investigators dealing with natural products, biologically active organic molecules and stereochemistry. Released in 1986, the present volume, is a supplement to the greatly enlarged second edition of the Atlas of Stereochemistry which appeared in 1979 and first published by Klyne and Buckingham in 1974. The 'Atlas' like its predecessors encompasses a comprehensive coverage of organic compounds belonging to various classes like carbohydrates, terpenes, steroids, alkaloids, amino acids, chemotherapeutics, pharmacologicals, carcinogens and an array of miscellaneous natural products, besides molecules exhibiting axes and planes of chirality, non-carbon centres of chirality and chirality arising from isotopic substitution. The 'Atlas' derives its authority and authenticity from its thoroughness of presentation. Each listed chiral molecule, is accompanied by information on its absolute configuration, the sign of rotation, the

method of determination of the configuration, all the pertinent details of chemical correlations and the relevent liteature references. Exhaustive formula and name index, author index and subject index with cross references to earlier volumes occupy 136 pages (44%). It is presumed that errors, if any, must be very minimal. A few that have been casually encountered are: In compound A5'7 on page 4, NH should be NH_2 ; compound 14 on page 43 should be (S)-(-)-2-methyl-1-butrylamine; In compound 3 on page 120 a methyl group is missing in the cadinol part. The 'Atlas' is recommended to all the libraries of research institutions, universities, and research centres wherever there is serious pursuit of streochemical enquiry.

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MODERN ASPECTS OF ELECTROCHEMISTRY NO.16 [B.E. conway, Ralph E. White and J.O'M Bockris] *Plenum* (1985) 512 pages.

Electrochemists are familiar with the title 'Modern Aspects of Electro chemistry'. Different Volumes of this title are appearing since 1954 from time to time to provide a critical discussion on topics of current fundamental and Technological interest in the field of electrochemistry. It is usual to find that a single volume of this series carries topics far different from each other. This volume carries six chapters - four on topics of basic scientific interest and two on topics mainly of technological interest.

The four topics on scientific interest are 'Double layer properties at sp and sd metal single crystal electrodes ' by A. Hamelin, 'The temperature and potential dependence of electrochemical reaction rates and the real form of the Tafel equations' by Brain E. Conway, 'Electrochemistry of Semiconductors-New problems and prospects' by Yu. V. Pleskov and Yu. Ya. Gurevich and 'Surface enhanced Raman Scattering (SERS)' by S. Efrima. 'Batteries for Vehicular Propulsion' by H.S. Wroblowa of Ford Motor Company and 'Structural and Transport Properties of Perfluorinated Ion Exchange Memberane' by Richard S. Yeo of Pinnacle Research Institute and Howard L. Yeager of university of Calgary are the two articles of technological interest.

The topics are all of current interest and information on some of the topics are not available in any classical electrochemistry text book. As is usual in this series, the contributions are from experts in the field and authoritative. Thus this book is a must in all scientific libraries.

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POLYMER PRODUCTS: DESIGN MATERIALS AND PROCESSING David H. Marton-Jones & John W. Ellis, *Chapman and Hall* (1986) 345 pages.

This book deals with the selction, designing and processing of some of the plastic materials. The book is derived from sponsored projects by the Polymer engineering Directorate of the SERC and carried out at the University of Lancaster under the joint auspices of the Departments of Chemistry and Engineering.

There are 26 chapters. The studies have been ordered into a number of technological groups, each of which is preceded by a chapter on the relevant Polymer science and technology - the 'PST' chaters. There are 5 PST chapters dealing with: Injection moulding and materials; Foam coared Mouldings; Polyurethanes; Glass-reinforced plastics (GRP); and Rubbers. The case studies have been presented in the rest of the 21 chapters.

The polymer products and the topics chosen for the case studies are very interesting as they deal with real examples in day to day use, such as plastic gears, motor housing in vacuum cleaner, acetal spring for selector switch, washing machine tank, sandwich moulded TV screen frame, plyurethane shoe soles etc., Each chapter discussd the concerned case study thoroughly right from the selection of the materials up to the preparation of the end product, accompanied by a number of illustrations, tables, graphs etc.

As the authors themselves say, the book does not pretend to be a comprehensive account of polymer technology. But it certainly whets the appetite of the readers in accordance with the aim of the authors.It would lead the reader to generate new case studies for the materials he uses or is bound to use.

The book will be an ideal source material for courses dealing with polymers in the engineering, materials science and chemistry departments and for all those who are

interested in understanding the behaviour of these important materials by examining real examples of their use.

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DICTIONARY OF ORGANOMETALLIC COMPOUNDS First Suppliment *Chapman and Hall* (1985) Pages 547.

The first suppliment of the DDictionaryy of Organometallic Compounds is an useful reference volume to be added to the main work. The value of any supplement depends on its Organisational structure and its relation to the main work. In this case, the editors have done a superlative job of numbering each entry in the supplement in a manner very similar to the entries in the main work. This identification containing the symbol of the metal and a five digit number is unique and allows for Quick reference. The problem comes up only when two metals are present in the Compound. In such case, the compound is entered twice. This makes searching for the compound much easier than it would have been if it had been entered only once, with both metals included in the entry number. One wished, however, that the index was comprehensive covering the main work and the supplement.

The information provided under each entry is concise and informative. The references are most valuable and make this volume a very handy source of information. It is a must for all libraries ,which have the main work.

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ELECTROANALYTICAL CHEMISTRY VOL 14 Ed. **Allen J Bard** *Marcel Dekkar Inc Newyork and Basel*

The present book is the fourteen volume in the serial and reviews the following four topics: Precision in linear sweep and cyclic voltammetry, conformational change and isomerization associated with electrode reaction, square-wave voltammetry, infrared vibrational spectroscopy of the electrode solution interface.

The first chapter deals with linear sweep and cyclic voltammetry. Vernon D. Parka lays emphasis on the manner of doing experiments and treatment of data. Particularly noteworthy are the attempts to improve the precision of measurements. A large number of illustration systems are given.

The second chapter (D.H. Evans and K.M. Cornell) deals with conformational changes and isomerization associated with electrode reactions. Systems where product formed in more than one conformation of the product which may or may not undergo interconversion, systems in which conformational change preceeds electron transfer and conformational change or isomerization that follows electron transfer are discussed.

The third chapter (J. Osferyong and J.J. O'Dea) deals with square - wave voltammetry. This is different from the steady state, small amplitude method of Barker but is a rapid scanning, large amplitude technique. The discussion in the present chapter is concerned using potential - time wave form of Ramaley and Krause. Experimental results obtained by this technique are described and the advantages of this method pointed out. Most of the work described in this chapter is new but the conclusions are tentative.

The fourth chapter (J.K.Foley, C.Korzeniewski, J.L. Daschbaca and S. Pons) is an IR spectroscopy of the electrode-solution interface. Such in-situ spectroscopic method is useful in study of adsorbate orientation, structure of interfaces and products, and catalytic and other reaction mechanisms. Solvent adsorption problems is minimised by using a thin layer cell. Solution thickness of 1-100 micron are normally used. The application of the technique to various systems are described.

All chapters are very well written. It is extremely useful not only to electrochemists but also to inorganic and organic chemists, physicists and to research workers interested in interdiciplinary programmes.

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THE CHEMISTRY OF THE 'ACTINIDE ELEMENTS' 2nd Edition. Edited by **J.J. Katz, G.T. Seaborg and L.R. Morss,** Vols 1 and 2 (1674 pages) Publishers *Chapman and Hall* N.Y. 1986. ISBN: 0-412-10550-0 (V 1): 0-412-27370-5 (V 2).

These two volumes is a sequel to the first edition published thirty years ago when the

study of the actinide elements was in its first bloon. The present volumes therefore present to the reader an excellent exposition of the maturation reached in actinide element research. It incorporates a large number of new and important findings. The great expansion in knowledge of these materials is largely due to the application of new spectroscopic techniques, new theoritical insights, which came from a better understanding of chemical bonding, inorganic chemistry and solid state phenomena. The more or less complete ga/mub of the chemistry of the actinide elements presented in a comprehensive and authoritatve manner. All areas of actinide chemistry and chemical physics have been dealt therein.

The first volume, Part I, Chemistry of Individual Elements, comprises of a good introduction by the editors which is followed by the discriptive chemistry, their history, separation, metallurgy, solid-state chemistry, solution chemistry, thermodynamics and kinetics of six elements, namely Actinum, Thorium, Protactinium, Uranium, Neptunium and Plutonium. These chapters have been contributed by researches in the field and the exposition reflects their expert knowledge. This is followed by an author index and subject index covering both volumes.

The second volume continues chapters on individual elements and deals with Amercium, Curium, Berkelium, Californium, Einsteinium and Transeinsteinium. This is followed by Part II wherein a comparative study of these elements is presented. The chapters are on summary and comparative aspects of actinide elements, spectra and electronic structures of free actinide atoms and ions, optical spectra and electronic structure of actinide ions in compounds and in solution, thermodynamic properties, magnetic properties. The metallic state, structural chemistry, solution chemistry and kinetics of ionic reactions, organoactinide chemistry, properties of compounds having metal-carbon bands only to π - banded ligands, organoactinide chemistry, properties of compounds with actinide - carbon, actinide - transition metal σ- bands, and future elements (including super heavy elements). This volume has two Appendixs one gives Nuclear spins and moments of the actimides and the othe Nuclear properties of actinide nuclides. This is followed by Author index and subject index for both volumes.

The editors have to be congratulated for the outlay of the volumes as well as the thorough presentation of the chemistry. The special sections deal with such topics as thermochemistry, superconductivity, radioisotope, safety and work management which are subjects of much debate at the present times. This book is strongly recommended for those who work with these elements in the fields of inorganic chemistry, nuclear chemistry and engineering, radiochemistry, metallurgy, spectroscopy, solid state science and environmental science. It is needless to say that it needs acquisition by all libraries.

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