



Book reviews

Water-Soluble Polymers — Synthesis, Solution Properties and Applications. Edited by S.W. Shalaby, C.L. McCormick and G.B. Butler, American Chemical Society, Washington, DC, 1991. ix + 524 pp. ISBN 0-8412-2104-4. Price: \$99-95.

Water-Soluble Polymers was designed to provide fundamental information on the organic and physical chemistry of natural and synthetic polymers, along with recent developments in polymer synthesis and modification. It is aimed at polymer scientists and engineers as well as organic, physical and colloid chemists at both graduate and professional levels.

The 33 chapters are separated into five different sections: polymers and intermediates; polymer synthesis and modification; physiochemical aspects of aqueous solutions; biomedical and industrial applications; and advances in less conventional systems. Section one contains a paper reviewing the theory of water-soluble synthesis combining basic information on kinetics with practical polymerization methods. There is also a chapter which discusses concepts of structural arrangement, functionality, synthesis and solution behaviour. The second section deals with more specific polymer syntheses and the third covers

the behaviour of polymers in solution. Biomedical and industrial applications contains, amongst others, chapters on bioadhesive drug delivery and the synthesis and characterization of new polyethylene glycol (PEG) aldehydes. PEGs are water-soluble polymers with a wide variety of biomedical and biotechnical applications. The last section contains such topics as the potential use of enzyme-digestible hydrogels in long-term oral drug delivery, and a review of the chemistry of hydrophobically modified water-soluble and other hydrophilic polymer systems, and their biocompatibility for product use in biomedical and pharmaceutical applications.

This book forms part of the A.C.S. symposium series. To save time, the papers are not typeset and are reproduced as submitted by the authors: this means that the presentation, as well as the standard of work, varies throughout the book. Although this is not really an inspiring book to read, it would probably serve its purpose as a reference book to those with a need for a particular information on water-soluble polymers.

Rachele Hooker
John F. Kennedy

Biocatalysts for Industry. Edited by Jonathan S. Dordick, Plenum Press, New York, 1991. 330 pp. ISBN 0-306-43943-3. Price: \$75-00 (\$90-00 outside US and Canada).

Enzymes are essentially unique and special forms of catalysts. They are highly active, versatile and carry out a variety of transformations under mild conditions in a selective manner. In certain areas enzymes have been successful in replacing traditional catalysts and have opened up new applications in others. An increased range of biocatalysts with different enzyme activities are now available and more biocatalysts with improved characteristics, such as resistance to elevated temperature, extremes of pH and organic solvents, are being discovered.

Biocatalysts for Industry presents the past, present and potential applications of biocatalysts in the food, pharmaceutical and chemical industries. It gives a detailed and comprehensive update on the major groups of commercially or potentially important enzymes, although cells and catalytic antibodies are

also described. The range of topics covered includes an introduction to industrial biocatalysis and its historical perspective, the use of enzymes in depolymerization of starch, production of carbohydrates for food uses, and synthesis and modification of biopolymers. It also covers emerging and expanding areas such as enzymes in organic solvents, microbial biocatalysts for the alteration of fossil fuels, lignin-degrading enzymes, catalysis by alcohol dehydrogenases in organic solvents, lipases and their application and biocatalysis in supercritical fluids. The final section of the book deals with several key future developments including protein stabilization, protein engineering of subtilisin, catalytic antibodies and enzymatic catalysis in bioseparations.

Overall, this book is timely and will be of great value for specialists and newcomers from various fields of biotechnology.

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