



Book reviews

High Value Polymers. Edited by A.H. Fawcett, The Royal Society of Chemistry, Cambridge, 1991. xix + 480 pp. ISBN 1-85186-867-3. Price £55-00.

Since the 1930s the scientific and industrial world has realised the enormous commercial importance of polymer chemistry. Important polymers like nylon, teflon, polyethylene and polyester were produced early on. After several decades the polymers became irreplaceable components for our industrially-dependent society, since they made possible manufacture of articles in a more economical way. The continuous research and growing investments into polymer chemistry and technology have enabled the production of more sophisticated polymers. Today we can find, for instance, electronically conducting polymers, polymer liquid crystals and polymers in medicine (for pacemakers, lenses, biodegradable sutures, etc).

This interrupted development, focussed on the production of polymeric materials with specific properties, goes together with the use of these compounds in the industry and obviously with their high commercial value. The purpose of 'High Value Polymers' is to present a panorama of this kind of polymer, looking at the present knowledge and at possible future developments. The chemistry of high value polymers is considered together with their economic implications.

The introduction develops this fundamental concept very well. Unfortunately, this target is not reached completely in all the papers. The book is derived from a symposium organized by the Macro group in association with the Industrial Division, Ireland Region, of the Royal Society of Chemistry and held in the Queen's University of Belfast. The main topics reported are: polymer-supported reactive species, hydrogels, resins, liquid crystalline, conducting and electrocatalytic polymers, microlithography, paint systems, cyanoacrylates and material for composites and fibres. The different subjects covered have the highly commercial value of these polymers in common. Since the book was edited with the 'camera-ready' procedure, the presentation is not uniform. However, in production of books like this, as good a format as possible is used and should provide to the emerging scientist-entrepreneur a good source of information, both scientific and commercial. This volume will also be useful for the

researcher who needs an up-dating in some of the advances in polymer science.

Giampiero Pagliuca
John F. Kennedy

Advances in Biological Treatment of Lignocellulosic Materials. Edited by M. P. Coughlan and M.T.A. Collaco, Elsevier Applied Science, London, 1991. vii + 358 pp. ISBN 1-85166-542-0. Price £58-00.

Lignocellulosic materials are produced as waste products and residues from agricultural forests, industrial processes and domestic origins. This is, therefore, a vast area of unutilised and rejected resources. The potential for the use of lignocellulosic materials is great, both as human/animal foodstuffs and as chemical foodstocks. Lignocellulosic materials are composed, for the most part, of cellulose, hemicellulose and lignin. For maximum efficiency it would be best if all these materials could be modified and utilised. Increasingly, a biological rather than a chemical method is the preferred route of conversion for many reasons, not least for environmental considerations. Maximum priority is, therefore, being given to research into the biological systems and enzymes involved in the modification of lignocellulosics.

'Advances in Biological Treatment of Lignocellulosic Materials' is a selection of papers from the proceedings of a workshop held in Lisbon. Unlike many books produced in this form, this volume never pretends to be anything other than proceedings. It even divides itself into separate sections rather than pretending that one chapter logically follows another when, in fact, they are papers on totally different subjects. There is also a very comprehensive index which allows random access to the information required without the need to scan the whole book in search of a chosen subject. Overall, this volume is a good, honest review of the proceedings of a workshop which will be of interest to anyone wishing to find out more about the biological manipulation of lignocellulosic materials. It is a worthy addition to any

relevant science library without being an essential purchase.

John F. Kennedy
David W. Taylor

Biodegradation: Natural and Synthetic Materials. Edited by W.B. Betts, Springer-Verlag, London, 1991. xiii + 238 pp. ISBN 3-540-19705-2.

Within the last ten years public awareness, and hence public pressure concerning pollution, has vastly increased, and this pressure has been brought to bear on industry and governments alike. Environmental pollution is not now thought of as the norm for a successful technological society, but as an unacceptable alternative to clean processes. There has, therefore, been an increase in the utilization of biological methods to convert and to remedy these procedures, and to remove or convert hazardous chemicals into non-hazardous or recyclable products. Microorganisms play a major role in bioconversion and bioremediation and microbial conversion is now, very much, a growth

area and forms the basis of 'Biodegradation: Natural and Synthetic Materials'. The number of substrates available for biodegradation is vast, and so this volume shows us the most common and most important chemicals by way of an example. The reader should, therefore, get an idea of the approach, as opposed to having an exact method for a specific problem. Examples of the topics covered include: biodegradation of nitriles and cyanide, lignin degradation and degradation of haloaromatic compounds. There are also chapters on the use, structure and synthesis of lignocellulose.

This volume is essentially a collection of mostly unrelated papers under an 'umbrella' subject heading and there is little continuity between chapters. This is remedied a little, however, by the inclusion of an excellent index. This book is based upon the proceedings of an advanced study seminar held in York, UK. 'Biodegradation' would be an interesting library loan for anyone wishing to see an overview of the state of biodegradation knowledge but a decision on purchase should be reserved until then.

John F. Kennedy
David W. Taylor