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Book reviews

Sourcebook of Advanced Organic Laboratory Preparations. Edited by Stanley R. Sandler and Wolf Karo, Academic Press Inc., 1992. 332 pp. Price £44.00. ISBN 0-12-618506-9.

Along with the expanding utilisation of polysaccharides, there is a growing demand for synthetic methods which facilitate selective structural modifications in order to affect, or ideally tailor, product properties such as viscosity, hydrophilicity/hydrophobicity, polyelectrolyte characteristics, gelation and metal chelating capacity.

One of the most important applications is the synthesis of analogues of natural polysaccharides, such as dextran, heparin or xanthan gum. In the biomedical context, selective chemical procedures are of interest in areas such as structure, activity elucidation or activity modification of biologically active polysaccharides, and for the preparation of conjugates of polysaccharides and biological substances. Selective modification is also of interest in polysaccharide application involving the preparation of selective permeable membranes, matrices for drug delivery, and controlled release formulation, and are also of considerable value for the synthesis of branched polysaccharides.

'Sourcebook of Advanced Organic Laboratory Preparations' is designed as a concise reference text, looking at the manipulative technique and apparatus involved in organic synthesis. Emphasis is placed not only in simple organic compounds but also on polymers. Each chapter describes the synthesis of a given class of compound and is preceded by a general discussion outlining the salient features of the investigation. Each experiment illustrates an important reaction ensuring that all the practical skills required of an organic chemist are developed along the way, and the importance of safety in the laboratory is stressed throughout the book.

This book will undoubtedly prove useful to all students and industrial chemists as a convenient source of synthetic procedures or as a guide to choose the synthetic routes. In addition, appendices provide useful information about documentation of product and process research and development, and provide some guidance in record keeping, instructions for laboratory records, and electronic record keeping for patent purposes. However, as it provides only outline information it can only be used as a starting point to the reader interested in this field.

The improvements that we suggest be taken into account during forward planning for the next editions of the book are that the apparatus, instruments and chemicals required for each experiment should be listed at the beginning of each procedure, and estimations should be given for the amount of time necessary to complete each experiment.

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Thermoreversible Gelation of Polymers and Biopolymers. By J. Guenet, Academic Press, London, 1992. xi + 280 pp. Price £40.00. ISBN 0-12-305380-3.

Thermoreversible gelation is a rapidly growing and important area of polymeric and biopolymeric science, and encompasses a variety of different systems. It can be regarded as a relatively new science, with the majority of research occuring in the last 25 years. Put simply, thermoreversible gelation is generally concerned with the storage of a liquid in a 'solid' way by using a gel. A gel is capable of incorporating and retaining a proportion of liquid which far outweighs its own basic components. In some cases gels can contain upto 99% solvent. To date, no single work has aimed to bring all of the varied and abundant literature concerning thermoreversible gelation together. This, however, is the aim of 'Thermoreversible Gelation of Polymers and Biopolymers'. It achieves this by relying mainly on experimental results (few theories for gels have been expounded) from electron and optical microscopy, light scattering and diffraction techniques.

The volume consists of three main chapters dealing with gel formation, gel morphology and molecular structure, and mechanical properties and rheology. Each chapter is divided into two main sections. The first of these deals with synthetic polymers, the second with biopolymers. This arbitrary division is an excellent idea because it allows the biopolymer scientist to access directly the information which is of interest without wading through reams of synthetic polymer date (and vice versa). Other good points include an excellent index