

## Book Reviews

**Analytical molecular biology—quality and validation**

G.C. Saunders and H.C. Parkes (Eds.); Royal Society of Chemistry, Cambridge, 1999, 190 pages, ISBN 0-85404-472-8, £ 59.50

The technology based on DNA sequencing and organisation has revolutionised many industrial and regulatory sectors. Whereas two decades ago the analysis of DNA sequences at the gross level was limited to a select group of scientists with skills in DNA biochemistry, nowadays determination of the order of bases in short sequences is commonplace technology. DNA analysis has applications in a wide range of sciences, particularly in molecular diagnostics: forensics, food analysis, pathogen detection and clinical genetics are just a few examples. Modern kits for gene manipulation and analysis invariably employ robust protocols that may obscure the paramount importance of the meticulous attention to detail necessary to achieve repeatable and accurate results on the micro-scale on which experiments are conducted. There is a need to be familiar with all the key procedures in DNA analysis to ensure that not only are results obtained, but that they are also both precise and accurate.

*Analytical Molecular Biology—Quality and Validation* introduces the issues of validation and quality in relation to DNA-based analyses. Factors that can influence the validity of such analyses and the production of quality data are examined in detail. Successive chapters deal with DNA extraction and total DNA quantification and various aspects of the Polymerase Chain Reaction (PCR), random amplified polymorphic DNA analysis and the development of multiplex PCR, membrane hybridisation and automated DNA cycle sequencing. Great emphasis is placed on understanding factors that can lead to unwanted variance in results. This includes the additional challenges associated with the analysis of real samples such as forensic specimens or complex foods in which DNA degradation can occur. Information is collated from a wide variety of sources and includes much constructive advice.

This book is extremely well laid out and presented, providing an authoritative guide to many aspects of DNA analysis. It is highly recommended not only for anyone in the bioanalytical community involved in DNA analysis, but also for scientists from a wide variety of disciplines seeking to acquire a deeper understanding of a fascinating subject.

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**Experimental Methods in Polymer Science**

T. Tanaka (Ed.); Academic Press, San Diego, 2000, 604pages, ISBN 0-12-683265-X, £59.95

In the new millennium, polymers are some of the most important materials from scientific, technological and economic standpoints. Despite advances during the last few decades in polymer science, materials science and engineering and biotechnology, the knowledge required to design polymers is far from complete. Nature's biopolymers, life's molecular machinery, are well ahead of the most sophisticated synthetic polymers. The chemical, pharmaceutical, medical and many other industries depend on progress in the development and characterisation of polymer systems. To maximise the efficiency and cost effectiveness of the performance and utilisation of such polymer systems, we need to understand and employ the most modern methods of characterisation.

*Experimental Methods in Polymer Science* describes the most important practical techniques for experimental research in polymer science. Successive chapters cover light scattering, neutron scattering, fluorescence spectroscopy, NMR spectroscopy, mechanical spectroscopy and polymer hydrogel phase transitions. Each chapter deals with principles, practical techniques and examples of real applications. Students and researchers alike can use the volume as a handbook: it is a consolidation of experimental methods into a single source.

This book is well documented and well laid out with clear illustrations. It is highly recommended for scientists and engineers who wish to carry out experimental research using the most modern methods, as well as a one-stop laboratory manual for student or researcher.

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### **The Wiley Polymer Networks Group Review Series**

Vol. 2; B.T. Stokke and A. Elgsaeter (Eds.); Wiley, Chichester, 1999, 500pages, ISBN 0-471-98713-1, £130.00

Developments currently taking place in the field of polymer networks give an enhanced insight into the science underlying many aspects: their formation, description, determination and application. Emerging work on synthetic polymer networks in contrast to, and in comparison with natural biological networks is a source of novel and different ideas. The research in the polymer network field is multidisciplinary and rapidly expanding: biomedical applications, for example, involve both synthetic and biological networks. In this exciting field there is a need for scientists to keep abreast of all the work at the forefront of research.

*The Wiley Polymer Networks Group Review Series: Volume 2* presents articles at the leading edge of research into polymer networks. The papers included, extended for the purposes of the book, were given at the 14th Polymer Network Group Conference in Trondheim, Norway, in June 1998. Papers were orientated towards biomedical and biopolymer applications. Successive sections in the proceedings cover network formation, their characterisation, the architecture of networks and their precursors, biopolymer networks and gels, biomedical applications and polymer networks in restricted geometries. The papers are refereed: the result is a compendium of first-class authoritative information.

This book is well laid out and clearly presented and illustrated. It is highly recommended, not only for a broad range of researchers from a wide variety of disciplines, but also for anyone who is interested in the fascinating subject of polymer networks.

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### **Food Additives: What every manager needs to know about the law**

D. Flowerdrew; Chandos Publishing, Oxford, 1999, x + 129 pages, ISBN 1-902375-13-0, £45-00

Laws governing the use of additives in foods in the UK have undergone considerable changes since joining the EU. This is due to the obligation that member states of the EU have in terms of implementation of approved and centrally adopted European food legislation. This 'harmonisation' of food laws has, in recent years, focused upon detailed food authorisations for additives. Finding information on additives and the corresponding legal requirements can be a time consuming and difficult exercise. The main purpose of this book is to provide information and guidance to those in the food industry who are responsible for ensuring the legality of food additives and their uses in foods.

This volume commences with a short introductory chapter that outlines the structure, content and purpose of the volume, and provides summary comments regarding authorised additives. Chapters 2 and 3 contain general discussions of food laws in the EU and UK, and the EC additives directive, respectively, providing a background for the information contained in the remaining chapters. Chapter 2 summarises the primary legislation on which laws pertaining to food additives are based. Chapter 3 discusses the EC framework directive covering food additives, which prescribes conditions under which a member state may suspend or restrict the use of an additive, conditions for the use of new additives, labeling requirements, general use, and the prohibition of additives in specified traditional foods.

Chapters 4–8 describe the regulations controlling additives used in or on foods for specific purposes, and cover sweeteners, colours, miscellaneous food additives, flavourings, and extraction solvents, respectively. Permitted sweeteners and allowed levels in specified foods, and information on definitions, general sale and labeling of table top sweeteners, and purity criteria are discussed. With respect to colours, information on permitted colours, foods that cannot be coloured, restricted uses (foods allowed to contain only certain colours, and colours permitted only for certain applications), and purity criteria, is supplied. Miscellaneous additives covers many categories, e.g. acidity regulators, anti-caking agents, emulsifiers, gelling agents, humectants, etc. Specific extraction solvents are only permitted for use in specific food applications and their residual levels are strictly controlled. Finally, a chapter has been included on the various aspects of labeling of food additives.

Each chapter begins with an executive summary, permitting the reader to obtain an overview of key points that are elaborated upon in the chapter, and a useful list of E numbers for additives is included in the appendix. This book is part of the 'Chandos Series on the Food Industry' in association with The British Library, and is intended to be useful to all individuals who have responsibilities with