

Book Reviews

Polymers and the Environment

Gerald Scott, Royal Society of Chemistry, Cambridge, 1999, 132 pages, ISBN 0-854-04578-3, £16.95

Environmental policy will become increasingly important in the 21st century. In recent years the development of man-made polymers and their benefits has been overshadowed and obscured by concerns over their disposal and environmental impact. Misunderstandings and misconceptions over biodegradability abound, with natural polymers being perceived to be biodegradable, whereas synthetic polymers are not. There is a need to review the properties and industrial applications of polymers, and to compare their environmental benefits with those of traditional materials in an objective manner.

Polymers and the Environment: reviews the properties and industrial applications of polymers: their benefits and limitations are critically examined from an environmental standpoint. Successive initial chapters discuss polymers in modern life, their environmental impact and their environmental stability. Two further chapters deal with the management of polymer wastes and biodegradable polymers. Modern developments, such as the introduction of 'new' biodegradable polymers based on starch and cellulose, and the search for hydro-biodegradable polymers are shown to be making progress towards meeting environmental demands.

This book is extremely well written and presented, providing a balanced view of the environmental benefits and limitations of polymeric materials. It is highly recommended for students and for professionals dealing with polymers in numerous capacities: in short for anyone interested in the environment in the new millennium.

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Food Emulsions and Foams: Interfaces, Interactions and Stability

E. Dickinson, J.M. Rodríguez Patino (Eds.); Royal Society of Chemistry, Cambridge, 1999, 390 pages, ISBN 0-854-04753-0, £85.00

Many manufactured foods are complex multiphase systems: familiar examples are ice cream, yoghurt and mayonnaise. Their properties depend on processing techniques used during formulation, and on the nature of the interactions between their molecular ingredients, notably hydrocolloids, lipids and proteins. The very complex structure and composition of food colloids often means that the elucidation of the key mechanisms contributing to their taste, texture and shelf-life involves the study of model systems. Surface chemical and physicochemical properties are of paramount importance: especially the nature and strength of interactions between proteins and other components such as polysaccharides and lipids, as well as the surface properties of adsorbed protein layers. It is essential to monitor current progress and state-of-the-art developments in the understanding of the stability and rheological properties of food dispersions.

Food Emulsions and Foams—Interfaces, Interactions and Stability: records many of the contributions presented at a conference of the same title held in Seville, Spain on 16–18 March 1998. The three principal topics covered were dispersions, fluid–fluid interfaces and the rheology of food colloids. Key topic areas covered included colloid stabilisation, mechanisms of destabilisation, rheology of food colloids, surface rheology of adsorbed proteins, polysaccharide–protein interactions and the preparation of emulsions and foams. Considerable emphasis was placed on relating the behaviour of model systems to properties of adsorbed layers at oil–water and air–water interfaces. The book also includes the latest experimental and theoretical developments, as well as several review articles.

This book is extremely well presented and structured, providing a very useful source of information. It is highly recommended to anyone, either in industry or academia who is interested in food science or surface and colloid chemistry.

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Supramolecular Materials and Technologies

Vol. 4; D.N. Reinhoudt (Ed.); Wiley, New York, 1999, viii + 309 pages, ISBN 0-471-97367-X

There are many varied applications for supramolecular structures in modern chemistry. This could be due to the fact that the design of new molecules and the assemblies of these molecules is most often function driven. "Supramolecular Materials and Technologies, Volume 4" illustrates the achievements and advances that supramolecular chemistry has made in many fields, from organic chemistry to materials science, and from analytical chemistry to molecular biology.

This text describes many of the applications that have actually been achieved in three decades of supramolecular chemistry. Initially, developing applications in molecular recognition (receptors that selectively recognise ionic species) was the objective. Now, the first applications in molecular recognition are established techniques in analytical chemistry, separation science and medicine. More recently, developments towards using molecular recognition as a tool, and developments in material design (based on increased understanding of weak forces between macromolecules) have taken place. Three aspects of the latter's development have been covered: nano-structures (formed from self-assembly of smaller molecules), dendritic structures, and polymers.

The contents of this volume include the following: self-assembling systems on scales from nanometres to millimetres (design and discovery); dendritic architectures; supramolecular structures with macromolecules; chemosensors (synthetic receptors in analytical sensing applications); selective ion recognition with durable sensors; ion separation in membrane and solid phase extraction systems; and porphyrin- and expanded porphyrin-based diagnostic and therapeutic agents.

"Supramolecular Materials and Technologies, Volume 4" is representative of the field of supramolecular technologies. It includes numerous tables and illustrative figures, as well as comprehensive indexing. Extensive references at the end of each chapter are also present. The book is good as far as it can go, but clearly there is a lot more to be discovered about

the structure–function relationships of molecules before structures can be tailored to functions.

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Pharmacognosy, Phytochemistry, Medicinal Plants (2nd ed.)

Jean Brueton; Lavoisier Publishing, Paris, 1999, 1136 pages, ISBN 1-898-29863-7, £133.00

In the last few years the level of interest in plants with perceived or potential health benefits has increased significantly. The market for herbal medicines in Europe during 1995 was reportedly almost four billion pounds spent on plant-based pharmaceuticals. Novel additions to the therapeutic arsenal have included anticancer, antimalarial and antiretroviral agents; there have been major advances in natural and semi-synthetic substances. The vast amount of information available on natural products in the areas of pharmacognosy, phytochemistry and medicinal plants requires an encyclopaedic reference source.

Pharmacognosy, Phytochemistry, Medicinal Plants (2nd ed.): describes primary and secondary classes of metabolites and the drugs from which they originate. Topics covered include the phytochemical distribution, biosynthesis, extraction and quantitation, and biological aspects for each class. The index encompasses over 3000 entries, and 500 references provide an excellent basis for any literature search. Successive chapters treat compounds of primary metabolism, phenolics, terpenoids and steroids and alkaloids. The result is a comprehensive compilation that includes a phenomenal amount of botanical, chemical, analytical, pharmacological and therapeutic data. The second edition has over 200 more pages than the first English edition published just four years ago.

This book is truly a *tour de force*, an 'encyclopaedia' covering the three title topics: it is clearly written, and the presentation of the material is first class. It cannot be recommended too highly for students, teachers or anyone who uses plant resources in pharmacy, botany,