

of illegal drugs such as cocaine, cannabis and LSD. Their biochemical mode of action is described with respect to their addictive nature; the symptoms of abuse and addiction are also described. The biochemical or bacterial resistance to drugs such as antibiotics, anti-cancer agents and pain relief is discussed. The body's vitamin requirements and the use of vitamin supplements and the use of organophosphates in head lice lotion and sheep dip are also discussed.

The book reviews many aspects of modern medicine in an approachable manner for the non-scientific reader. It would also be a good reference source for those beginning to pursue a drug-related subject.

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Introduction to Soft Matter: Polymers, Colloids, Amphiphiles and Liquid Crystals

I.W. Hamley; Wiley, Chichester, 2000, 342 pages, ISBN 0-471-89951-8 (£65.00)

Technological exploitation of matter has progressed throughout successive millennia: following iron and steel in the nineteenth century, in the twentieth century engineered materials such as polymers and plastics took over many of the roles of traditional 'hard' (based on macroscopic mechanical properties) materials. Though the properties of hard matter are well understood, the learning curve for soft matter is still being traversed. Opportunities and applications for soft materials are ever expanding. Established uses in detergents, plastics, paints, foods and personal care products are being augmented by new applications involving biopolymers and nanotechnology. The field of soft matter is interdisciplinary: it encompasses aspects of physics, chemistry, materials science, biochemistry and chemical/mechanical engineering. As a consequence of this, the subject is either neglected entirely or not covered in adequate detail in conventional texts. There is a need to fill this gap with an up-to-date overview of the dynamics and thermodynamics of soft matter.

Introduction to Soft Matter presents a unified approach to soft materials. Following an introduction that includes experimental techniques for investigating soft matter, four further successive chapters cover polymers, colloids,

amphiphiles (surfactants and lipids) and liquid crystals. In each chapter basic physical chemistry is dealt with first before an outline of applications is given. Equations are kept to an essential minimum, and derivations are included where they illustrate important thermodynamic or statistical mechanical concepts. References to texts that deal with aspects of the subjects covered in the book as well as general texts are given. Sets of questions and answers are provided at the end of each chapter.

This book is well laid out and presented. It is highly recommended, not only for students from various disciplines taking courses on colloids, polymers or soft condensed matter, but also as an excellent reference for researchers in evolving areas of an intriguing topic.

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Your Choice of Food Starches—The National Starch Guide[☆]

National Starch & Chemical, 2000, 23 pages, free of charge from National Starch & Chemical, Prestbury Court, Greencourts Business Park, 333 Styal Road, Manchester, M22 5LW, UK

Starches have been used as thickening agents and adhesives for a variety of purposes for longer than their being regarded as either a carbohydrate or a chemical. Starch presents itself in a number of plants that have been cultivated, and therefore, is available, worldwide.

Speciality starches are produced from the natural polymers found within such plants. They provide viscosity and stability, influence texture and rheology, enhance mouth-feel and visual appeal in a wide variety of foods. Starches can also be used to provide sophisticated functions such as adhesion, flavour encapsulation and replacement or extension of other ingredients such as gelatine, gums, fats or dietary fibre.

The *National Starch Guide* illustrates how a range of speciality starch allows varying degrees of process tolerance, from cold processing to high-shear, high-temperature systems. They contribute acid, freeze/thaw and textural stability. The guide also draws attention to how selecting the right starch for an application is all-important and can

contribute many benefits, which bring an added dimension to the quality of products.

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* The publication of this review does not imply any recommendations from the editors of Carbohydrate Polymers or from the publishers of Carbohydrate Polymers (Elsevier Science Ltd) that National Starch & Chemical are to be preferred to any other starch producer and/or supplier. Any quality publication from any starch producer and/or supplier will be considered by the editors on an equal basis.

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Recent Advances in Carbohydrate Bioengineering

H.J. Gilbert, G.J. Davies, B. Henrissat and B. Svensson (Eds.); The Royal Society of Chemistry, 1999, pp. x + 312, £69.50, ISBN 0-854-04774-3

Recent technological advances in molecular and structural biology, protein chemistry, bioinformatics and analytical biochemistry have fuelled the rapid expansion of the field of glycobiology. The new knowledge gained has been exploited industrially to produce novel carbohydrates for use in pharmaceutical, food and agricultural applications. *Recent Advances in Carbohydrate Bioengineering* contains papers of oral presentations given at conferences held on carbohydrate bioengineering. It contains cutting edge research data and unique reviews from leading workers in the field.

The book is divided into seven sections, starting with a keynote address (shown as an integrated database) presenting classifications of both catalytic and non-catalytic enzyme modules based on their structural similarities. Topics on the use of glycosidases in oligosaccharide synthesis (especially in the production of oligosaccharides of important biological interest), the biochemistry of these enzymes and the use of 3-dimensional structure to understand the mechanisms of enzyme action are covered.

Further papers on the industrial exploitation of carbohydrate modifying enzymes, to generate industrially important polysaccharides and monosaccharides, and non-catalytic polysaccharide binding molecules are also included. The final section of the book describes the use of protein engineering in increasing the industrial use of carbohydrate modifying enzymes, and in increasing the understanding of the mechanisms of action of biocatalysts.

Recent Advances in Carbohydrate Bioengineering describes how developments in recent technologies have

changed our understanding of the catalytic, structural and biological role of carbohydrate modifying enzymes. It is a very informative and detailed text, well referenced and includes many clearly presented illustrations. It is aimed at researchers and postgraduate students, providing a unique source of information on the latest advances in this field.

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Stereoselective Biocatalysis

R.N. Patel (Ed.); Marcel Dekker, New York, 2000, xiii + 932pages, ISBN 0-8247-8282-8 (\$250.00)

Much research today is based on the interaction of small molecules with biological macromolecules. In the pharmaceutical, agrochemical and food industries, the search for selective enzyme inhibitors and receptor agonists/antagonists is essential for target-orientated research, as is the production of optically active chiral intermediates, using various approaches to synthesise chiral compounds. This is important as increased understanding, on a molecular level, of the mechanisms of drug interactions have emphasised the importance of chirality as the key efficacy of many drug products and agrochemicals.

Organic chemistry has been one of the most successful scientific disciplines, having enormous practical utilities, such as developing practical processes in the synthesis of natural products, drugs, agricultural chemicals, polymers and many functional molecules. The use of biocatalysts in organic synthesis is a very powerful method for conducting stereo- and regioselective catalysis. Biocatalysis outperforms chemical catalysis because biocatalysed reactions are stereo- and regioselective and utilise ambient temperatures, atmospheric pressures, and can be performed under environmentally friendly conditions. It minimises the problems of isomerization, racemization, epimerization and rearrangement of molecules, which may occur during chemical processes. Biocatalysts embody the key chemical processes in life such as molecular recognition and selective catalysis and employ enzymes and microbial cells, which can be immobilised and reused over many cycles, and the over-expression of enzymes allows many biocatalytical processes to be economically efficient and inexpensive.

Stereoselective Biocatalysis examines the use of different classes of enzymes in the catalysis of many types of