

properties. The ability of polymers to withstand high electric fields with negligible conduction coupling with favourable mechanical and processing properties make polymers the obvious choice for insulating applications.

Electrical properties of polymer is mainly concerned with the response of polymers to electric fields. It describes a systematic and comprehensive study of the electrical properties of polymers. The book is divided into three parts: Part I deals with the physical fundamentals of dielectrics, Part II with the relation between structure and equilibrium and dynamic dielectric properties, and Part III with the electric response of special polymers to force fields.

The opening two chapters of Part I offer the knowledge of the basic physical properties of dielectrics and how these properties are affected by molecular size. The time rate of change of a polarization vector in a dielectric isotropic system is the subject of a novel approach of extended irreversible thermodynamics (chapter 3). There are a number of the instruments which have been designed to allow determination of the dielectric behaviour of polymers over a frequency/time window of about 12 decades (chapter 4).

Statistical mechanics methods (chapter 5) allow the computation of the mean-square dipole moments of polymers by assuming that the skeletal bonds are restricted to a limited number of rotational states. The experimental measurements of the electric birefringence of polymer solutions and the development of mathematical expressions obtained by statistical mechanical procedures relate the Kerr constant with the averages of polarizability tensors associated with the conformations of the chains (chapter 6). Molecular dynamics can be used to compute the trajectory of dipole moments of molecules in the conformational space (chapter 7). The chemical structure of polymers can affect their relaxation spectra (chapter 8 and 9). The study of the buildup and decay functions and how these functions are related to the rotational relaxation times of molecular chains are mentioned at the last chapter of Part II.

The first chapter of Part III studies the microscopic and macroscopic order parameters of mesophases and their relation with the permittivity. The subject of the next chapter is focused on the relationships between the polarization vector and the stress tensor in piezoelectrics polymers as well as between temperature and polarization in pyroelectrics. The physical fundamentals of nonlinear optics and secondharmonic generation in polymers emphasize the physics underlying the relations between second-order susceptibility and hyperpolarizability, poling decay, etc (chapter 13). Double bond conjugated polymers which conveniently doped could produce good electronic conduction (chapter 14).

In conclusion, this book bring together the coverage of different electrical phenomena in polymers and how both chemical and supermolecular structure may affect them and gives a detail disruption of the fundamentals of these phenomena in relation to the structure of polymers. Problem sets and useful appendixes at the end-of-chapter aid to understand the subjects discussed in the book. This book can

be used as a textbook in undergraduate and graduate courses of materials science.

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Semih Ötles, editors, *Methods of Analysis of Food Contaminants and Additives*, Taylor and Francis Group, Boca Raton, FL, 2005 (437 pp., £97.00, ISBN 0-8493-1647-2)

The analysis of food components and additives has become an essential part of the manufacturing and marketing of food products as consumers have been made increasingly aware of health and food safety issues. It is now regarded as a necessary step in order to comply with government regulations and product quality. Food analysis covers the study of a wide range of compounds, which can be originally present in food products (e.g. nutrients like lipids and proteins, vitamins, pigments), added for conservation purposes (e.g. preservative compounds) or even be undesired molecules (e.g. pesticides residues, pollutants). This biochemical diversity, along with the great structural variety of food products reinforces the need for staff that is highly qualified and trained in order to extract, separate, identify and analyze the compounds.

The study of food components has benefited from the technical developments made in physics, chemistry and biology. This book provides a comprehensive presentation of newly developed as well as long-established methods for food analysis. In sixteen chapters, it presents concise, yet thorough, information about available analysis techniques. The first chapter gives an overview of the most common methods used, ranging from sample preparation to chromatographic, spectroscopic, physical and biological analytical techniques. The second chapter deals with statistical assessment of results, presenting the key concepts of statistical interpretation. The subsequent fourteen chapters detail the techniques commonly used in food components and drinking water analysis. Chapters generally begin with an introductory paragraph about the biochemical structure of the compounds studied, their properties and occurrence in nature.

Benefiting from the contribution of 32 leading scientists, the book provides the reader with up-to-date information about food analysis techniques. Together with the presentation of a wide range of food components, it discusses functional foods

and nutraceuticals analysis, sensory evaluation, and gives rapid techniques for food microbiology and drinking water analysis.

This volume constitutes a reference for students, scientists, engineers and manufacturers of the food industry. If needed, the reader can look for more information in the references listed at the end of each chapter. This book written in a simple, yet accurate, style, can be understood by readers not familiar with the area. It provides them with a solid background about the way the methods work, about how and when they should be used. Introductory and concluding paragraphs are very informative and help getting an overall view of each topic. Thus, it would be beneficial to include them in all the chapters.

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Jan C.J. Bart, Additives in Polymers. Industrial Analysis and Applications, Wiley and Sons, Chichester, England 2005, (xv + 819pp., £180.00, ISBN 0-470-85062-0).

Additives play a most important role in the successful use of commercial plastics, rubbers, adhesives and many other polymers. They make the extension of plastics properties possible, giving them e.g. durability, stiffness or thermal resistance. Several thousands of polymer additives are in use today, incorporated in products as diverse as antioxidants, fillers or lubricants. Innovation is a crucial element of the success of the polymer industry as the manufacture of increasingly sophisticated products is paralleled by the constant evolution of technologies and procedures.

Additives in polymers provides specialists with a comprehensive approach of the developments made in all the areas of polymer additives analysis in the last two decades. Throughout its 819 pages, the book critically discusses the latest instrumental techniques of sample preparation, extraction and analysis. It provides industrial engineers and scientists with monitoring, deformation and trouble shooting methods while defining their pitfalls and limits of application. Placing the emphasis on understanding the underlying principles rather than enumerating information, it gives chemical analysts a solid background in additives analysis.

The 10 chapters of the book can be read separately as well as in one block. The first two chapters give an introductory overview of analytical and deformation schemes. The subsequent chapters detail methods of polymer additives analysis mainly involving wet chemical routes, although

physical techniques are also discussed. The book particularly focuses on sample preparation and chromatography separation techniques, spectroscopic and mass spectrometric methods, multihyphenation, element analysis, and deformation of polymer/analysis dissolutions. The final chapter discusses trends in polymer and additive technology together with environmental and regulatory constraints, and the challenges that the industry will have to face in the future.

This book was designed to inspire a large audience of industrial and academic scientists as well as students interested in various branches of chemistry. This mine of information provides keys to understand problems and solve them in a more effective way. The size of the book gives an idea of how productive the area of polymer additive analysis is. Clear and well-illustrated, it also constitutes a comprehensive collection of recent publications, unavailable as such in any other book. No doubt it will become a reference for polymer specialists in the years to come.

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T. Brendler, J. Gruenwald and C. Jaenicke, editors. Herbal Remedies CD-ROM, Medpharm GmbH Scientific Publishers, Stuttgart Germany, 2003 (\$63.96, ISBN 3-8876-3102-1)

Herbal Remedies CD-ROM contained more than 1100 plants. This CD-ROM providing information on: general description of the plant, Etymology of plant name, Botanical description, habitat, Toxicity, protection status, Botanical synonyms and related species, vernacular names, more than 1500 colour photographs, scientific names and synonyms, scientific names or synonyms with sub selection of a family or vernacular names with sub selection of a language can be searched for. This volume covers over 1200 drugs also, with information on: usage, dosage, modes of action, use restrictions, characteristics, substances, scientific synonyms, usage in foods, vernacular names, indications (according to ICD-10, German Commission E, homeopathy, and Indian, Chinese and folk medicine), Complete German Commission E Monographs, Quality and safety status, references (pharmacopoeias, specialist literature, other references).

For the use of the CD-ROM, it provides you with the possibility of downloading a program, with all the content of the CD-ROM. Inside the programme, it offers you five