analytical chemists and senior management, and also in training programs, classrooms and laboratories.

There are 21 chapters in this book. In the first six chapters, it just is an introduction of ICP-MS. It discusses the principle of the technique, sample preparation, plasma source and the interface region and ion focusing. The following four chapters focus on the heart of the system—Mass analyzers, which is the region of the ICP-MS that separates the ion according to their mass-to-charge ratio. There are four kinds off technology being described: quadrupole technology, double-focusing magnetic sector technology, time of flight technology and collision/reaction cell technology. These technologies are differentiated by the mass separation device, but they all have one common goal and that is to separate the ions of interest from all other nonanalyte, matrix, solvent, and argon-based ions.

From chapter 12 to chapter 17, it describes the detail of ICP-MS when it is being operated, and the routine maintenance issues associated with the technique. In the remaining chapters, it discusses the ways in which ICP-MS is applied in the real world and gives the selection criteria when evaluating commercial used. It also compares ICP-MS to other techniques in terms of detection capability dynamic range, interference, sample throughput, precision speed of analysis and running cost. So that it can enable the user evaluates the benefits of ICP-MS against other atomic spectroscopy instrumentation methods.

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C. Baillie, editor. Green composites: Polymer composites and the environment (2004, Woodhead Publishing, CRC Press, North America, USA) (xii +308 pp., £115.00, ISBN: 1-85573-739-6)

Life cycle assessment is important at every stage of a product's life, from synthesis through to disposal, and a sustainable society needs environmentally safe materials and processing methods. In this way, life cycle assessment is defined as 'an objective process or activity by identifying energy and materials used and wastes released to the environment, and to evaluate the implements.'

Every day the production of chemical products, faster machines, bigger toys, etc. is higher without due consideration of the effects on the environment or on people. This is a real irresponsibility laid to the charge of humans. Due to this consideration of the effects on the environment, a growing movement of scientists and engineers have realised that they need to take responsibility for the outcome of their work. Over the past 10 years, they decided to change the direction of their research and increase the number of researchers working in this area. After all this time, it has been considered convenient to reflect on the progress and purpose of the work to make sure that we are in fact doing what we say we would like to do.

Green composites: Polymer composites and the environment is based on green composites, which are defined as composites that are designed with the lowest environmental 'footprint' possible. Furthermore, the book is focused on the fibre-reinforced polymer composites currently in use, and is dedicated to minimising the environmental impact of polymer composite production.

First of all the book starts with the choice of materials that iterates with the design and function or the application (chapter 2), and the factors affecting the life cycle analysis (chapter 3). There are different possible fibres, which can be used as reinforcement, as well as potential polymer matrices. In this latter category thermoplastics may be considered as a source which may be recycled, or as a non virgin source: composites are a means of upgrading recycled polymers as well as thermosets which need to be re-used or biodegradable thermosets which degrade. Polymers derived from natural sources are also covered. Finally, the book looks at the re use, recovery and recycling of the composites that have been made.

Green composites: Polymer composites and the environment is an essential guide for agricultural crop producers, government agricultural departments, automotive companies, composites producers and materials scientist, who are dedicated to the practice and promotion of eco-friendly processes.

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E. Riande and R. Díaz-Calleja, Electrical Properties of Polymers, Marcel Dekker, Inc.,, New York, USA 2004, (xix+630 pp., £111.00, ISBN 0-8247-5346-1).

The characteristic of polymers that have length and molecular scales larger than atomic size gives them unusual

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 polarizabiltity 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 fundaments 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 Őtleş, 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