

## Book Reviews \*

**Plastics and Resin Compositions.** Edited by W. Gordon Simpson. The Royal Society of Chemistry: Cambridge, 1995. xi + 419 pp. £79.50. ISBN 0-85404-501-5.

This volume consists of fourteen chapters by various authors which detail how polymers can be mixed or blended with other organic and inorganic materials to form different end products. It complements a previous volume, *Plastics: Surface and Finish*, by focusing on those cases where the polymer itself is a minority component of the overall product which also contains materials such as cotton, wood, and metal. Each chapter is noted below. This is a well-written book where the contributions are uniformly of a high caliber. The Editor has provided excellent uniformity throughout the book.

Chapter 1, Blending and Mixing, is written by H. Benkreira (University of Bradford). It is 25 pages long and has 8 references through 1992. It identifies the different polymers (thermoplastics, thermosets, chemisets, and elastomers) and different additives (stabilizers, colorants, reinforcing agents, fillers, plasticizers, and lubricants) which, via different mixing mechanisms, form different useful products with specific properties. Chapter 2, Reinforcement of Mouldings, A. Whelan (consultant), 28 pages with 6 references, describes the methods of modifying the properties of polymers by, for example, using fibers for reinforcement, as a means of widening the applicability of polymers to different conditions. Chapter 3, High Pressure Laminates, R. P. Godwin (Tufnol Limited), 20 pages with 1 reference, discusses the manufacture of high-pressure laminates made from thermosetting resins, such as phenolics, and reinforcements, such as paper. Chapter 4, Copper-Clad Laminates for Use as Printed Circuit Boards, M. Perry and E. W. Bird (consultants), 26 pages with 7 references (primarily to British Standards), describes the production, properties, and testing of copper-clad paper-based and woven glass fabric laminates. Chapter 5, Timber and Wood Effects, C. J. S. Standen (consultant), 20 pages with 3 references, summarizes the ways in which resins can be blended with wastes such as scrap timber to replace or extend the uses of wood. Plywood, chipboard, fiberboard, and waferboard are among the end products discussed. Chapter 6, Calendaring and Coating, A. Whelan, 32 pages with 16 references, presents the processing of materials such as poly(vinyl chloride) by calendaring (heating a polymer until soft and then converting it to a film by the action of two or more rolls). Chapter 7, Methods of Applying Coatings, H. Benkreira, 23 pages and 48 references, 7 of which are dated 1990 or later, gives the techniques (free coating, material coating flow, transfer coating flow, print or gravure coating flow) which allow for the formation of thin films on different substrates to produce products as varied as circuit boards and decorative wallpapers. Chapter 8, The Coating of Metals, C. E. Blackmore (Elf Atochem UK Limited), 22 pages with no references, discusses methods for applying a thin layer of material (e.g., low-density polyethylene, poly(vinyl chloride), fluorocarbons, and liquid polyurethane) on metals as powders, plastisols, dispersions, and multipacks. The processes include fluidized bed, flame spraying, electrostatic spraying, flock coating, pressure spraying, plastisol dipping, and coil coating. Chapter 9, Paints, W. A. Ledger (Ledger Scientific), 25 pages with no references, discusses the components of paint: pigment, binder, and thinner. Chapter 10, Developments in Printing Inks, J. W. Davison (Davison Chemographics Limited), 45 pages with no references, presents techniques used for both impact and nonimpact printing processes (e.g., flexography, lithography, driography, tampography, and xerography). Chapter 11, Materials for Packaging, J. H. Briston (consultant), 27 pages with 5 references, discusses packaging materials (thermosets, thermoplastics, cellulose, ceramics, glass, aluminum, tinplate, and tin-free steel) and methods of fabrication. Chapter 12, Resins in the Conservation of Three-Dimensional Works of Art, Y. R. Shashoua (Conservation Scientist, British Museum), 35 pages with 50

references, 15 of which are dated 1990 and later, shows the application of resins to the conservation of museum artifacts. Chapter 13, Conservation of Books and Documents, M. Hey (former Associate Professor of Chemistry, Conservation Education Program, School of Library Services, Columbia University), 47 pages with 157 references, discusses techniques used to protect library and archives collections. The book concludes with an interesting philosophical discourse on statistics, data, and the market economy, Chapter 14, entitled Trying to Look Ahead, by W. G. Simpson.

A bibliography and excellent subject index are provided. This book is of interest to scientists in the areas described above as well as to teachers and students of polymer science. It might have been possible to recommend this volume for purchase. However, that would require one to overlook the last sentence in the Preface: "The inclusion in this book of information such as a description of a technique or its use does not mean that the information provided is complete, reliable, and safe to apply, or that it will be applicable in any particular circumstance". If the information provided is not "reliable" and may not be "applicable" in *any* particular circumstance, then why on earth would one want to purchase it? Perhaps this issue should have been discussed when it was decided to include this sentence, presumably for legal, not scientific, reasons.

Spiro D. Alexandratos, *University of Tennessee*

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**Organic Electronic Spectral Data Volume XXXI, 1989.** Edited by John P. Phillips (University of Louisville), Dallas Bates, Henry Feuer (Purdue University), and B. S. Thyagarajan (The University of Texas at San Antonio). Wiley: New York, 1995. xiii + 887 pp. \$175.00. ISBN 0-471-14093-7.

The data in this volume were abstracted from the journals listed in the reference section at the end. With a few exceptions the data generally had to satisfy the following requirements: the compound had to be pure enough for satisfactory elemental analysis and for a definite empirical formula, the solvent and phase had to be given, and sufficient data to calculate molar absorptivities had to be available. Spectra are included even if the solvent is not mentioned. The most probable single solvent in such circumstances is ethanol. All entries in the compilation are organized according to the molecular formula index systems used by Chemical Abstracts. Most of the compound names have been made to conform with the Chemical Abstracts system of nomenclature. In 1956 a cooperative effort to abstract and publish in formula order all the ultraviolet-visible spectra of organic compounds presented in the journal literature was organized through the enterprise and leadership of M. J. Kamlet and H. E. Ungnade. Organic Electronic Spectral Data was incorporated in 1957 to create a formal structure for the venture, and coverage of the literature from 1946 onward was then carried out by chemists with special interests in spectrophotometry through a page by page search of the major chemical journals. After the first two volumes (covering the literature from 1946 through 1955) were produced, a regular schedule of one volume for each subsequent period of two years was introduced. In 1966 an annual schedule was inaugurated. More than fifty chemists have searched a group of journals totaling more than a hundred titles during the course of this sustained project. The total collection is the largest ever assembled, amounting to well over a half million spectra in the thirty volumes so far.

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