

by *Sherrington*, deals with broader aspects of this field, covering new types of supports, polymeric vesicles, microcapsules, polymeric drugs, photoresists, etc. This clearly demonstrates the interdisciplinary aspects of functional polymers, and should stimulate further research interest.

One would have wished to find additional chapters on the applications of functional polymers for immobilization of enzymes and microorganisms, as well as on polymer-supported synthesis of oligonucleotides, which are likely to be some of the more rapidly expanding areas of research involving polymer supports. Nevertheless, this book serves as an excellent source of information on the applications of functional polymers. The bibliography is extensive (over 1500 citations) and up-to-date. In one particular chapter, citations are sometimes given for less accessible periodicals, even though the same results have also been published in more generally available journals. Figures and formulas are quite clear and the presentation of the book is excellent, with a colorful waterproof cover. It should find its place in all chemical libraries, and is highly recommended to all scientists working with polymeric supports, as well as to aspiring newcomers to this field. It is likely to serve as the standard monograph for some years to come.

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**Polymer Modified Textile Materials.** By *J. Wypych*, Wiley, New York 1988. xiii, 317 pp., bound, £ 70.00.—ISBN 0-471-83959-0

Composites have been treated frequently in reviews and monographs; polymer-coated textile fibers, however, have been considered to a much lesser degree in the literature, although the materials and their interactions are similar. It is true that in the latter materials the polymer constitutes only a small fraction of the total mass, but it plays a key role in the often highly sophisticated applications of these textile materials.

The raw materials for coating polymers, textile materials and release papers are treated in the first chapter. In particular, solutions, emulsions/dispersions and plastisols are discussed. The second chapter deals with machines and equipment for compounding, coating, heating and finishing. Six commonly used processes, namely spreading, dipping, spraying, immersion, melt coating and lamination are treated in detail. Many photographs and diagrams of machines giving useful information are included, particularly in conjunction with examples of applications, cost analysis and ecological aspects. Production lines are described in Chapter 5, in a manner similar to that in Chapter 2, but it is incomprehensible why these two chapters were not kept together in their logical sequence.

"The scope of application of coating methods", with emphasis on end-use, type of resins, and technical demands, is discussed in Chapter 3. Topics included are consumer items, industrial uses, technical products, geotextiles and -membranes, special yarns, and PTFE-coated glass fibers. Chapter 4 describes some interesting developments, including products with advanced mechanical, thermal, and optical properties, textiles with improved dimensional stability, permeability to water and air, and special properties with regard to burning, abrasion, cleaning and ageing behavior, to give only a few examples.

Chapters 6–8 treat the rheology of the coating processes and the most important factors affecting the processes. Numerous scanning electron micrographs showing the structure of the coated materials are included. Heat and mass transfer in coating processes are discussed in relation to recent achievements of chemical engineering.

The last two chapters are concerned with toxicity (LD<sub>50</sub> values, smoke production, water pollution) and waste aspects, with particular consideration of recycling and separation methods, topics which have become increasingly important.

The organization of the material in the monograph is not entirely convincing. Furthermore, the presentation is strong in some chapters and weak in others – as is to be expected for a book written by a single author and covering such a broad field. Finally, some editorial effort would certainly have improved the text.

Nevertheless, the book gives a most valuable review of the state of the art of applying polymers to textile materials to improve their properties and make them suitable for special applications.

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**Foams and Biliquid Foams—Aphrons.** By *F. Sebba*, Wiley, Chichester 1987. vii, 236 pp., bound, £ 29.59.—ISBN 0-471-91685-4

It is not easy to assign this book to a specific category. On the one hand it is intended as a textbook on foam systems, while on the other hand it contains a number of sections which are more in the nature of popular scientific writing. The author tends very much towards a simplified style of presentation. This is certainly an advantage for readers who are not specialists in colloid chemistry. In the diagrams too one finds that only the essential relationships are outlined. The illustrations look as though they have been taken from a set of lecture notes. Furthermore the whole book makes a similar impression.

The most important of the 13 chapters have the following titles: Forces Operating at Interfaces; Thin Liquid Films; Polyhedral Gas Foams; Colloidal Gas Aphrons;

Spreading of Lenses on Water; Biliquid Foams; Polyaphrons; Applications of Polyaphrons; Invert Aphrons; Unusual Forms of Aphrons.

The Greek-derived word "aphrons" is used by the author to describe those systems which are known in general scientific usage as "concentrated emulsions". The work of *Princen* and *Lissant* and their colleagues has unfortunately been ignored, which is especially regrettable in view of the fact that modern theories on the flow behavior of foam systems originate from this group.

While the book's treatment of theoretical aspects is rather elementary, and even incomplete, the reader nevertheless finds here an extensive and hitherto unique compendium of interesting observations which the author, as an expert on this topic, has collected together. This constitutes the real worth of the book, despite some other serious shortcomings.

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**Dispersing Powders in Liquids.** By *R. D. Nelson*. Elsevier, Amsterdam 1988. xviii, 246 pp., bound, US \$ 84.25.— ISBN 0-444-43004-0

This book is published as Volume 7 in the series "Handbook of Powder Technology" and comprises 245 pages, divided into eight well-arranged chapters. These describe the fundamental characteristics that play a role in the dispersion of inorganic materials in powder form. Unfortunately, certain materials of technical importance, for example synthetic silicas and carbon blacks, are not dealt with here. This is rather a pity, since these substances have very high specific surface areas which generally render them difficult to disperse. The reviewer also feels that the book lacks two chapters which would be of relevance for practical purposes—one about dispersers and one on the correct choice of mill base compositions. In the appendices the list of "liquids" includes only chemically pure solvents, but not, for instance, a selection of liquid binders, which are of technical importance in different fields of industry. This book is therefore not so much intended for experimentalists and technologists, but is more suited to the needs of readers with educational objectives, particularly since it deals with numerous basic physical principles. In this context, it is encouraging that the HLB value is also considered here; the fact that this value was established phenomenologically has often led to it being overlooked in scientific articles.

All in all, this small book is an ideal reference source for anyone who is not familiar with the problems relating to the surface science of materials in powder form.

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**A Guide to Materials Characterization and Chemical Analysis.** Edited by *J. P. Sibilia*. VCH Verlagsgesellschaft, Weinheim 1988. x, 318 pp., bound, DM 75.00.— ISBN 3-527-26867-7

This book represents a survey of state-of-the-art techniques for modern materials characterization and analysis. The book covers approximately 75 techniques that are used in characterization of chemicals, polymers, ceramics, metals and composites. The first chapter provides an introduction to how one might utilize the techniques that follow in practical problem-solving applications. Each of the following chapters describes one or more techniques, with the presentation organized according to the use of the technique, sample preparation, underlying physical and chemical principles, applications, and limitations. Due to the breadth of coverage, only a limited amount of space is devoted to each technique. However, this is adequate to introduce the technique; several references are listed after each section, providing in-depth detailed information for the reader who is interested in a more rigorous treatment.

This is a valuable book for materials laboratories and general industrial laboratories where characterization and analysis of many different substances may require several different techniques. It serves as a good review for established scientists as well as a useful resource for beginners.

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**DECHEMA Corrosion Handbook, Vol. 2.** Edited by *D. Behrens*. VCH Verlagsgesellschaft, Weinheim 1988. x, 340 pp., bound, DM 775.00.— ISBN 3-527-26653-4

The DECHEMA Corrosion Handbook—a series of at least twelve volumes is planned—is a completely new English edition of the DECHEMA Werkstoff-Tabelle.

The second volume (340 pages) describes the corrosion properties of metallic, non-metallic inorganic, and organic materials in corrosive media of aliphatic aldehydes, ammonia and ammonium hydroxide, sodium hydroxide and the underground corrosion in soil. The largest parts of this volume are devoted to sodium hydroxide (154 pages) and soil (90 pages).

Some errors of the first volume which had earlier been criticized by the reviewer have been corrected in Volume 2. As an example, some electrochemical reference systems are now mentioned in the introductory part of some chapters, but in addition to these many others are mentioned in the detailed descriptions of the corrosion behavior of the different materials. In subsequent volumes a list of all these reference systems should be included in the introduction, citing also their potentials versus the Standard Hydrogen Electrode.

In general, the clearly arranged layout of the first volume is continued in the second volume. Much valuable in-