
BOOK REVIEWS

CRC Handbook of Polymer-Liquid Interaction Parameters and Solubility Parameters by Allan F M Barton, CRC Press (1990), ISBN 0-8493-3544-2, hard cover, 771 pp., price not available.

The collection, compilation and classification of all available information on polymer-liquid interaction parameters requires a monumental effort. The polymer community owes much to Professor Barton for his single-handed accomplishment. In Part I of this volume, the definitions of interaction parameters and cohesion parameters and the pertinent thermodynamic equations are given. Part II (388 pages) is a comprehensive compilation of the parameters for 49 major polymers. References are given at the end of listing for each polymer. A complete bibliography of 1211 entries constitutes Part IV. The handbook is highly recommended for anyone who has the need, even only occasionally, to use interaction parameters and cohesion parameters.

The companion volume, *Handbook of Solubility Parameters and Other Cohesion Parameters*, published earlier (Allan F M Barton, CRC Press, 1983), is also highly recommended.

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Polymer Synthesis, by Paul Rempp and Edward W. Merrill. Huthig and Wepf, Heidelberg and New York, 1991. ISBN 3-85739114-6; Binding: hard cover; price not available; 344 pp.

In my opinion, this book is *not* a valuable addition to the rather large number of existing texts and treatises on polymer science. It may have some merit for a very specialized student readership; namely those who are already knowledgeable in some aspects of polymers, but are *not* interested in polymer chemistry or synthesis. The concepts of organic chemical reactions and synthetic approaches are treated so superficially as to be *vague*. For example, the synthesis of *both polyimides and polybenzimidazoles* (advanced polymers of great importance) is covered in half a page (p. 54), *the concept of crosslinking* is dismissed in one paragraph (p. 25), and the bibliography is a collection of references to encyclopedia articles and prior general treatises (e.g. "Comprehensive Polymer Science" volumes), without selective judgement or comment.

The publisher's information emphasizes that the book has particular value for the chemical engineer-

ing aspects of polymer synthesis, but how can a chemical engineer understand "kinetics", "mass transfer" or "scale-up" of chemical processes without knowing or understanding the chemical reactions?

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Carbon Fibers, 2nd edition by J. B. Donnet and R. C. Bansal, Marcel Dekker, New York (1990), ISBN 470 pp., price \$150.00.

This is volume 13 of the International Fiber Science and Technology Series, edited by M. Lewin. The authors of this monograph have been active in basic research on carbon fibers at their respective institutes in France and India. They obviously have full mastery of their subject, and have covered it in a thorough and well-organized manner with references through 1987. The monograph puts more emphasis on preparation, structure and properties, and has a basic science emphasis. Engineering aspects and the patent literature are only lightly represented. A particular strength of this volume is the inclusion of numerous well-reproduced electron micrographs and representational drawings of structural features. This reviewer, having an interest in char structure, found useful insights into the manner in which carbon organizes itself under various thermal and thermo-oxidative treatments. Surface properties are covered well, in a very readable chapter, from both theoretical and descriptive standpoints. The book has a reasonably good index, although more detailed subject indexing would have been helpful.

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Inorganic and Metal Containing Polymeric Materials by J. E. Sheats, C. E. Carraher, Jr., C. U. Pittman, Jr., M. Zeldin and B. Currell, Eds, Plenum Press, New York (1990), 423 pp., price 95.00.

This volume contains expanded versions of the papers presented at the Symposium on Inorganic and Organometallic Polymers at the National Meeting of the ACS in September 1989. Like the ACS symposium volumes, to a large extent it repeats the material which many libraries already have in the form of the preprints of the Division of Polymeric