

Chapter Seven presents information on liquid-liquid dispersions, and one example in the chapter is given to show the discrepancy between various correlations. An ingenious technique is suggested for inverting the dispersion in an immiscible liquid dispersion. Gas liquid contacting is discussed in Chapter Eight. A notable omission from this chapter is information on surface aeration in waste treating systems. Chapter Nine discusses a few detailed studies of heterogeneous reactions and gives several examples of typical processes.

Professor Nagata asked me to prepare Chapter Ten and to relate previous chapters to some actual examples of mixing processes. This chapter is, therefore, written in a different style, and, unfortunately, Professor Nagata was not able to review this section in detail before his untimely death. It summarizes concepts that are important in mixing applications in practical situations.

All in all, the book contains information which will be helpful to those concerned with mixing processes. By choosing selective sections, one could use the book to present some basic concepts of fluid mixing in undergraduate and graduate courses.

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Fluid-Bed Heat Transfer, J. S. M. Botterill, Academic Press, New York, New York (1975). 299 pages, \$23.75.

Heat transfer correlations for practical fluidized-bed reactors must currently be regarded as highly empirical and specific to the equipment in use. This situation is recognized in the book, and therefore it emphasizes the mechanisms of fluidized-bed heat transfer as the necessary basis for data interpretation and application. The book primarily treats gas-solids fluidization with some reference to liquid-fluidized systems. All aspects of the subject which have been reported in the literature are covered. Particle-to-gas heat transfer, heat transfer from the bed to various types of surfaces, and radiant heat transfer are among the topics treated. Empirical heat transfer correlations for specific systems are also presented.

While heat transfer is the primary subject of this book, the dynamics of fluidized-bed behavior is in addition discussed to establish a basis for interpreting heat transfer phenomena. A chapter is also devoted to solids transport.

The extensive literature on this subject is well covered, providing a valuable reference on the current state of

knowledge of heat transfer as well as bed behavior. The author thoroughly understands the subject of fluidized-bed heat transfer and has organized the material very well. While the book provides an excellent technical description, additional editorial assistance would have been advised for removing frequent typographical errors and making the sentences read easier.

The book is quite timely, particularly for those interested in fluidized-bed coal conversion processes and should be of exceptional value to the researcher and design engineer.

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Handbook of Plastics and Elastomers, Charles A. Harper, Editor-in-Chief, 1024 pages, 525 illustrations, McGraw-Hill Book Company, \$39.50.

The Handbook of Plastics and Elastomers, Charles A. Harper, ed., is intended as a "comprehensive source-book for those who want to capitalize on product improvement and cost advantages made possible by plastics and elastomers." The more than 1000 pages and 500 tables and figures contain a massive array of useful technological data and commercial product information; the accompanying text will be especially helpful to the polymer technologist with little or no formal background in polymer science. It is disappointing, however, that the extensive bibliographies at the end of each chapter merely document sources of data and do not lead the reader to a broader perspective by referring to any of the more basic literature in the polymer field.

The overall organization of the Handbook is excellent with clearly marked chapter contents and an extensive index. The size of the print in the text and in the tables and figures is surprisingly comfortable for the reader, and the figures are generally clear and large enough to use in a quantitative manner. A weak point is the absence of any reference to the page location of the various tables and figures which rarely appear on, or even near, the page on which they are discussed in the text. The twelve chapters, prepared by a panel of industrial scientists, are organized as follows: Chapter 1 outlines background information but falls short of its claim of covering the "fundamentals" of plastics and elastomers. The following three chapters cover electrical, mechanical and environmental properties. Chapters 5-10 deal with particular polymer systems—composites, fibers, foams, resins,

coating and adhesives—and it is these chapters which will likely be the most heavily used. Chapter 11, whose presence provides an interesting commentary on today's technological bureaucracy, details current commercial and government agency standards for plastics and elastomers. Finally Chapter 12 outlines design and fabrication techniques.

In deciding whether or not to purchase this handbook one should consider the \$39.50 price tag as well as the major emphasis on polymer technology rather than polymer science. One must also consider the reliability of the data and the text material. In perusing the tables and figures this reviewer found mostly accurate information although such errors as pentavalent carbon in the structure of polypropylene (p. 4-30) and the reference to the pioneering work of "Corothers and Florey" (p. 1-107) appear with disconcerting regularity.

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Air Pollution Control and Industrial Energy Production, K. E. Noll, W. T. Davis, and J. R. Duncan, ed., Ann Arbor, Michigan (1975). 367 pages. \$22.50.

A better title for this book might be "Air Pollution Control in Industrial Processes," since over a dozen industrial processes are described, ranging from the control of odors from rendering plants to emission control of TVA electric generating plants. Each of the 21 chapters has been written by a different author or group of authors. This multitude of authors benefits the reader since each expert can describe those pollution problems encountered in the industry which he is intimately familiar with, but it does tend to give the book some lack of continuity.

When I first received this book, my first impression was skepticism, since I couldn't imagine that any book by three civil engineers could be of interest to a chemical engineer; however, the excellent descriptions of various industrial processes, the sources of pollution from these processes, and the method of abatement maintained my interest throughout the book. As expected, the emphasis is in physical removal of particulates and secondary combustion techniques rather than the removal of chemical pollutants by chemical means.

The major topics include pollution sources, performance standards, sam-