view and a remarkable list of more than 100 publications. The relevance to chemical engineering research is obvious throughout both books.

Corrosion Handbook

Vol. 1, ed., Dieter Behrens, VCH Publishers, New York, 1988, 333 pp. $450.00

This volume is a truly outstanding reference for selecting materials of construction for the handling of acetates, aluminum chloride, chlorine and chlorinated water, fluorides, potassium hydroxide, steam, and sulfonic acids. The organization of information is excellent and easy to use. Each of the substances listed above is the subject of a chapter in which the interaction with approximately 80 other categories of materials is described. These include metals and alloys, nonmetallic inorganic materials, organic materials, and materials with special properties such as coatings seals, packings, etc. The text is well written and copiously referenced with excellent scientific and engineering citations, including the extensive German and Soviet literature. The purchase of this series is highly recommended to those who are interested in materials degradation in the presence of the above substances.

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Directory of Statistical Microcomputer Software: 1988 edition

W. A. Woodward, A. C. Elliott, H. L. Gray, and D. C. Matlock, Marcel Dekker, New York, 752 pp., 1988

This book has nearly all the features one would want in a directory to the large and increasing number of statistical packages for microcomputers. References to software reviews appearing recently in the widely read computer magazines (*Byte, MacWorld,* etc.) is an invaluable feature. Indicated for each product, among other things, are main features, graphics capabilities, whether the product offers technical support, and information on over eight categories of statistical analyses that the program performs. Especially nice are the "short-form" appendices in which the program, its capabilities, its vendor, supported operating systems and hardware, are cross tabulated. The authors queried the software developers using a questionnaire that includes a comprehensive set of categories, including regression, significance tests, ANOVA, etc., as well as multivariate analyses, exploratory data analysis, and time series analysis, which are available in only a small subset of the packages on the market today. However, techniques that are useful in chemical engineering, where measurements are sometimes correlated (e.g., compositions), such as principal components regression, ridge regression, partial least squares, etc., are not covered, except in a miscellaneous category.

Barbara Krieger-Brockett
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Chemical Process Control—CPCIII

Proceedings of the Third International Conference on Chemical Process Control, Asilomar, Jan., 1986, ed., M. Morari, and T. J. McAvoy, Elsevier, 1986, 932 pp., $153.25.

Shell Process Control Workshop

Ed., D. M. Prett, and M. Morari, Butterworths, Stoneham, MA, 1987, 369 pp., $45.00.

Computer Aided Process Operations

Proceedings of the First International Conference on Foundations of Computer Aided Process Operations ("FOCAPO"), Park City, Utah, July, 1987, ed., G. V. Reklaitis, and H. D. Spriggs, Elsevier, Amsterdam, 1987, 720 pp.

CPC-III was the third in a series of conferences on chemical process control; the first was held in 1976, the second in 1981, and proceedings of both were published by AIChE. Papers were contributed by academic and industrial practitioners, and include both overviews of the field, and particular applications. Summaries of discussion provide balance, and this is a good way to get an overview of current thinking about research and application. The Shell Process Control Workshop reports in a similar way on a conference organized by Shell in December, 1986. A prototype linear control problem with uncertainties developed by Shell is included.

The FOCAPO proceedings, which are in the same format, are less quantitative, and the discussion summaries are less informative. This is an area that has been gaining attention in the research community, and the papers will provide a useful introduction and guide to the literature. It is difficult to gain any perspective from this volume, however.

Ultrastructure Processing of Advanced Ceramics

John D. MacKenzie, Donald R. Ulrich, eds., Wiley-Interscience New York, 1988, 1013 pp., $95.00

"Ultrastructure . . ." is a compilation of 82 of the papers and posters presented at the Third International Conference on Ceramics, Glasses, and Composites, held in San Diego in February 1987. Most of the contributions provide a useful overview, with comments on key issues and goals. All have extensive lists of references to aid those who would want to dig deeper.

The synthesis of sols, colloids, and gels, and their conversion to ceramics, is a predominant theme in the collection. Aspects covered include metal alkoxide chemistry in the synthesis of complex ceramics (ferrites for magnetic properties, titanates for ferro-electric and dielectric properties, polymeric organo-silicate-zirconate coatings to confer scratch resistance, LAS-like coatings for optical fiber, fiberizable gels, and many others). Another theme concerns the conversion of metal-organics and preceramic polymers to ceramics. Recent interest in SiC fiber from preceramic polymers is well covered, with reports on recent work on chemistry leading to preceramic silane, carbosilane, siloxanes, and silazane polymers, fabrication of SiC fiber and strength-limiting features of polymer-derived ceramic fibers. Other preceramic materials are described, including metallacarboranes, a boron nitride precursor, polyphosphazines, etc. Professor W. D. Kingery provided an absorbing introduction in which he discusses the development of several important ceramic technologies (e.g., porcelain in Europe) from both historical and modern ultrastructure perspectives.

O. Richard Hughes
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Dynamics of Reactive Systems
Part I. Flames and Configurations; Part II: Modeling and Heterogeneous Combustion

Vol. **105** (in two parts) in Progress in Astronautics and Aeronautics, 900 pp., $119

Dynamics of Explosions

Vol. **106** of Progress in Astronautics and Aeronautics, 657 pp., $79.50.
The technical papers presented at the 10th International Colloquium on Dynamics of Explosions and Reactive Systems, Berkeley, CA, Aug., 1985, ed., J. R. Bowen, J.-C.

Leyer, and R. I. Soloukhin, American Institute of Aeronautics and Astronautics, 1986.

The subject of combustion is intimately related to many of the concerns currently being explored by reaction engineers, and some of the topics covered by these symposium volumes are reflected in papers published by chemical engineers in the chemical engineering literature. Yet, with the exception of the first-named editor, chemical engineers—particularly chemical reaction engineers—are notably absent from the list of authors. Why this is so is a mystery to me, because there is a lot of "mainstream" chemical engineering described in these papers.

An Atlas of Functions

J. Spanier, and K. B. Oldham, Hemisphere Publishing, New York, 1987, 712 pp., $149.50

The premise of this volume is that users of special functions would prefer to have general properties, graphs giving values to two significant figures, and detailed algorithms, rather than extensive numerical tables. It could be a nice complement to Abramowitz and Stegun's, *Handbook of Mathematical Functions*, though at this price it will replace it for only a very few. It is a useful book, and well worth knowing about; libraries should have it.

CODATA Thermodynamic Tables *Selections for Some Compounds of Calcium and Related Mixtures: A Prototype Set of Tables*

Ed., D. Garvin, V. B. Parker, and H. J. White, Jr. Springer Verlag, 1987, 356 pp., $69.95

National Standard Reference Data Service of the USSR *A Series of Property Tables, English Language*

Ed., Theodore B. Selover, Jr. Springer Verlag, 1987, Vols. 1-7: thermodynamic properties of Helium, 316 pp.; Nitrogen, 342 pp.; Methane, 342 pp.; Ethane, 303 pp.; Oxygen, 308 pp.; Air, 276 pp.; Ethylene, 278 pp. Vols. 8 and 9: thermophysical properties of Freons (Methane series, parts 1 and 2, 200 and 243 pp., respectively, Vol. 10: thermophysical properties of Neon, Argon, Krypton, and Xenon, 604 pp. Vols. 1-9, $120/volume, Vol. 10, $150.

These publications tabulate a variety of thermodynamic properties. Volumes 8, 9, and 10 of the Russian compilation also present some transport properties. In addition to extensive experimental results, the authors give a critical evaluation of the data, including possible sources of experimental errors. These summaries of experimental results provide useful data for chemical process design and for theorists concerned with establishing fundamental correlations of thermodynamic and transport properties.

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The titles of the following compilations of physical property data are generally self-explanatory, except for the last, which mostly contains solidification, boiling points, and Antoine equation constants.

Handbook of Heats of Mixing, Supplementary Volume

J. J. Christensen, R. L. Rowley, and R. M. Izatt, eds., Wiley-Interscience, New York, 1988, 1145 pp.

Properties of Inorganic and Organic Fluids. CINDAS Data Series on Material Properties

Vol. V-1, P. E. Liley, T. Makita, and Y. Tanaka, Hemisphere Publishing, New York, 1988, 307 pp., $80.00

Flash Points of Organic and Organometallic Compounds

R. M. Stephenson, Elsevier, New York, 1987, 295 pp., $69.00

Handbook of the Thermodynamics of Organic Compounds

Richard M. Stephenson, and Stanislaw Malanowski, Elsevier, New York, 1987, 552 pp., $69.00

Errata

Equations 22 and 23 of the paper entitled "The Birefringence Problem in Optical Disk Substrates: A Modeling Approach" (March 1989, p. 452) should read:

$$\tau_{11} - \tau_{33} = N_1 + N_2 \tag{22}$$

$$R_N \equiv 2H\langle\Delta n_{13}\rangle = 2C_M \int_0^H (\tau_{11} - \tau_{33})_R \, dz \tag{23}$$

These changes should lower the predictions of Δn_{13} (R_N) somewhat, but the essential results and conclusions should remain unchanged.