

## Atlas of Zeolite Structure Types

W. M. Meier, and D. H. Olson, 2nd rev. ed., Butterworth, 1987

The second revised edition is a significantly expanded and updated version of the 1978 edition, including some 64 topologically distinct framework structures, compared to the 38 entries in the prior compilation. The new edition includes structure drawings and related information for new types of zeolite-like materials, including aluminophosphate molecular sieves and interrupted frameworks. In addition to the stereo drawings of the frameworks, the new *Atlas* also includes an expanded compilation of ore drawings, and an excellent index that correlates the many names used to identify these materials with their corresponding structure types. Meier and Olson's revised *Atlas* is the most valuable compendium of zeolite framework structure information available and is a useful reference for engineers interested in relating structural characteristics to various process applications.

James R. Katzer  
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## Handbook of Reactive Chemical Hazards

3rd ed., L. Bretherick, Butterworths, London, 1985, 1852 pp., \$99.95

## Hazardous Chemicals Desk Reference

N. I. Sax, and R. J. Lewis, Sr., Van Nostrand Reinhold, New York, 1987, 1084 pp., \$69.95

These are complementary books. As the title indicates, the focus of Bretherick is on reactive hazards. As such, it is one of the very few books, (perhaps) worldwide, that covers this topic competently. For practical use, an updated loose-leaf version should be preferred. Sax and Lewis is extracted from the lengthier *Dangerous Properties of Industrial Materials*.

*Book reviews in AIChE Journal will be limited to books that are of potential interest to the research community. Basic textbooks will not be reviewed. The Journal sometimes receives conference proceedings for review. Our general policy will be to decline to review proceedings, since they are usually of uneven quality and/or of such broad scope that critical review is impossible. This is the first of an occasional column of brief Book Notes on books considered by the Editor or a Consulting Editor to be worthy of notice, but not appropriate for detailed review. Unsigned notes are by the Editor.*

Mainly, it contains information about the direct hazards; i.e., flammability, toxicity, and explosion, for nearly 5,000 chemicals. A set of books like Bretherick and Sax, or their analogues, should be present in every laboratory and every chemical plant. Although voluminous, chemists will find Sax and Lewis very useful. Industrial safety practitioners might want to supplement it, or replace it, with a more action-oriented information source.

J. Mewis  
K. U. Leuven

## Safety of Reactive Chemicals

T. Yoshida, Elsevier, Amsterdam, 1987, 404 pp., \$102.25

Originally published in Japan in 1982, this translation is an excellent compilation of the resources needed to evaluate hazardous chemical reactivity. It covers thermodynamic calculations, national safety organizations, and offers a complete list of the screening and standard tests available in 1982. Methods from the U.S., Europe, and Japan are well represented, and each test is well described. Evaluation methodology is also discussed. This book will be most useful for someone familiar with the area. A beginner would find it difficult to sort through the many tests and strategies presented to find the best combination. It is an excellent reference volume, but should be supplemented

with detailed schemes for applying the information from the calculations and tests to the design and operation of chemical processes.

H. T. Kohlbrand  
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## Opportunities for Academic Research in a Low-Gravity Environment

Progress in Astronautics and Aeronautics, Vol. 108, based on papers presented at a workshop sponsored by the National Science Foundation in Washington, D.C., July 10-11, 1985. Ed., G. A. Hazelrigg, and J. M. Reynolds, American Institute of Astronautics and Aeronautics, New York, 1986, 340 pp., \$79.50

## Materials Science in Space

L. Regel, Halsted Press, New York, 1987, 244 pp., \$34.95

This topic is one that is starting to receive attention at national AIChE meetings, and a number of the contributors in the first volume are well known in the chemical engineering community. The status of research problems (as of mid-1985) covered critical phenomena, gravitation, crystal growth, metals and alloys, containerless processing, combustion, and fluid dynamics. The survey chapters are followed by "comments," making this particularly interesting reading. The second volume is a translation of a Russian text which provides a nice over-

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 cate-

gories, 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. Pretz, 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, polyphosphazenes, 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.

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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.