

just a distraction to the objective of the book. As an example of turgid English, I can only suggest that one read the opening five pages of the book; in many cases the meaning is obscure. As examples of errors, the correct use of italic font for quantity symbols and a Roman (upright) font for units, mathematical operators, and mnemonic labels is important, but they are frequently incorrectly used. The author often labors his own idiosyncratic ideas, such as that "dimensionless quantity" is a misleading name and should be replaced by "numerical quantity", where commonly accepted practice would certainly favor the former term; or that the word "per" should not be used with the meaning "divided by" (which is in fact precisely what the word *per* does mean in a technical scientific sense). As examples of inadequate references, there appear to be no text references whatever to the the two pages of references at the back of the book, and the latter are often out of date and inadequate to the extent that the reader would find it impossible to locate them (the SI Brochure, for example, which is the defining publication of the International System of Units, is listed without a publisher or indeed any indication of how to find it other than its title and is dated 1985 where the current edition is 1991). To sum up, I recommend giving this book a miss.

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**Physical Chemistry of Aqueous Systems: Meeting the Needs of Industry. Proceedings of the 12th International Conference on the Properties of Water and Steam.** Edited by H. J. White, Jr., J. V. Sengers, D. B. Neumann, and J. C. Bellows. Begell House: New York. 1995. 875 pp. \$125.00. ISBN 1-56700-034-7.

This book is a collection of 104 papers from the 12th International Conference on the Properties of Water and Steam which was held in Orlando, FL, September 11–16, 1994. This continuing Conference arose from the requirement for understanding and formulating the physical and chemical properties of substances related to the operation of steam power cycles. This need led (at the 7th Conference) to the establishment of the International Association for the Properties of Steam which is now known as the International Association for the Properties of Water and Steam (IAPWS), under whose auspices this Conference is held approximately every 5 years. The interesting history of these conferences is given both in the Introduction and in the plenary lecture by Dr. J. M. H. Levelt Sengers.

The book is organized into twelve sections: plenary lectures; thermophysical properties; calculations of water and steam properties for industrial use; molecular modeling of aqueous systems; metastable steam and nucleation; supercooled, superheated, and stretched water; high-temperature measurement techniques; frontiers of physical

chemistry of aqueous solutions; hydrothermal oxidation; chemical processes in steam cycles; plant cycle chemistry; and alternative power cycles. This book also contains an Appendix (185 pp) that contains the "Releases and Guidelines" of IAPWS. The inclusion of this Appendix was an excellent decision on the part of the editors who also did a very good job in maintaining a nice appearance to a book where it appears that most, if not all, of the contributions were prepared as camera ready copy.

Several of the contributions in this book are essential reading for those concerned with the equation of state of water and steam. This reviewer was particularly interested in Hill's view that "an integrated industrial and scientific calculation program can be provided for determining the thermodynamic properties of liquid and vapor H<sub>2</sub>O". There are also contributions that deal with new metrological quality measurements of the density and the static dielectric constant of water.

However, practical problems in power generation and in boiler chemistry require data for (water + solute) systems in addition to pure water. Here, the problems faced in corrosion, pollution abatement, and feedwater conditioning lead one into studies in aqueous solutions at high temperatures and pressures. This is an area of research that has seen a substantial increase in activity since the early pioneering work of individuals such as Marshall and Franck. We now have a significant data base that has been developed over a period of many years and is based on contributions from many laboratories. Particularly impressive is the continuing effort carried out at Oak Ridge National Laboratory, which is described in several contributions in this book. There are also contributions that deal with the use of the data in modeling programs that can be used for engineering calculations.

Many contributions deal with practical problems in power plant technology, boilers, metallurgy, pollution control, corrosion, and speculation on the future of electric power generation. Although the majority of the contributions is concerned with experimental aspects of this general area of research, there are also theoretical papers on topics such as molecular modeling calculations applied to aqueous systems. As is the case with any Conference Proceedings, there are contributions that are truly excellent as well as some that have very little information content. However, this reviewer finds this book to be substantially above the average of the typical Conference Proceedings. The Conference also did an excellent job in bringing research scientists and representatives of industry together. In summary, this is a book that is recommended to all those interested in water, in aqueous solutions at high temperatures and pressures, and in the practical applications of these systems.

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