BOOK REVIEWS

Ultraclean Technology Handbook, Volume 1, Ultrapure Water

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REFERENCE: *Ultraclean Technology Handbook, Volume 1, Ultrapure Water*, T. Ohmi, Ed., Marcel Dekker, Inc., New York, 1993, ISBN: 0-8247-8753-6, 968 pages, $195.00

This work is the first in what appears to be a comprehensive treatise on ultraclean technology in the semiconductor industry and other industries that require ultraclean technology. As the title indicates, this is a handbook, or more accurately, an in-depth encyclopedic treatment of the subject. Its audience includes scientists, engineers, and others involved with virtually any aspect of ultrapure water, and, although the author's target is the semiconductor industry, this volume is valuable to anyone working with ultrapure water.

The book is divided into nine chapters: Quality of Ultrapure Water; Ultrapure Production Systems; Elementary Technology; Equipment and Piping Material; Instrumentation; Fabrication and Construction Technologies; Analytical Technology for Ultrapure Water; Wet Processing; and Future Tasks for Ultrapure Water. Each chapter has several sections, and each section is written by a different author, apparently selected for his or her expertise in the field. There is a total of 81 contributors, giving the book an unusually wide base from which its information is drawn. All the contributors are Japanese, and it is unclear whether the book is translated into English, or originally written in English, but in either case the language is very clear and easy to read.

Each chapter begins with the basic principles of the subject being discussed, and then develops a theoretical base for that subject. The mix of theory and practical matters is not always tied together. For example, the discussion of on-line chemical monitoring is in Chapter V, Instrumentation, Section 3, On-Line Monitors, while the theory of the chemistry principles used in these monitors is discussed throughout Chapter VII, Analytical Technology for Ultrapure Water. There are Foreword and Afterword sections in each chapter that provide a useful overview and retrospective on the chapter's subject. Referencing is uneven; some sections are heavily referenced, while others have no references. Figures, graphs, tables, and illustrations are used extensively throughout the book, making the information much easier to follow and understand. The index is thorough and easy to use.

One cannot help but be impressed by the wide diversity of subjects included, and how concisely yet effectively each topic is covered. However, the book is meant to present overviews of each topic, rather than in-depth and lengthy discussions of these topics (remember, the title labels it a handbook). Each topic is covered in 5 to 20 pages; enough to give a good basic understanding of theory and practice, but not enough to make the reader an expert (which is not the book's intention). The coverage of each topic is well targeted, clear, technically correct, and effectively presented. The use of a different author for each section, while providing for a broad base of information, also results in a broad mix of writing and presentation styles.

In summary, the book is a valuable starting point for anyone working with ultrapure water systems, and will serve well as a shelf reference on this topic.