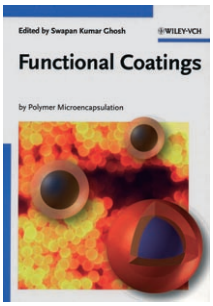
Functional Coatings by Polymer Microencapsulation



Edited by *Swapan Kumar Ghosh*. Wiley-VCH, Weinheim 2006. 357 pp., hardcover € 119.00.—ISBN 3-527-31296-X

Microencapsulation is a hot area of research in colloid science. Creating particles of a few tens of micrometers in size that consist of a core material surrounded by a shell is not only aesthetically pleasing, but also provides an elegant route to solutions for common industrial problems such as dispersing a material in an incompatible fluid, or controlling the release of active components. There are multitudinous methods for preparing core–shell particles, and the types of materials that have been used are similarly numerous. As a result, a large body of literature exists, and Swapan Kumar Ghosh's new book consolidates this literature well.

Ghosh's book gives a condensed summary of the methods of encapsulation synthesis, providing a useful reference source, although with material that is already available from primary sources. Where the book makes itself most valuable is in its comprehensive descriptions of the applications of such particles, information that is scarce in the open literature.

The nine chapters of the book are individually authored, and each could stand alone. As a result, one criticism of the book is that there is slight repetition and a lack of coherence between chapters.

Ghosh has broadly split the book into two halves. The first discusses synthesis, and covers topics that include mini-emulsion polymerization, layer-by-layer deposition, surface polymerization, and liquid encapsulation. The second half concentrates more on the applications of encapsulated particles, an example of which is the slow release of an insecticide that is impregnated into textiles, thereby preventing insect bites. However, this division is not rigid, as each chapter also contains examples of preparation and application.

With its individual chapter style, the work is clearly not a textbook, and readers wanting a "how to" of microencapsulation may be disappointed. However, the book is an impressive collection of views from a number of experts in the field, and as such is an excellent reference source for those active in the area of encapsulation. The extensive table of contents and index make it easy to navigate and find information on a particular subject, and the work is to be recommended to both academia and industry.

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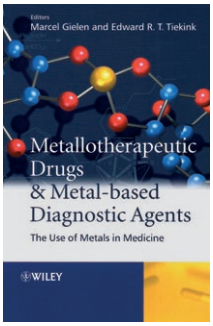
Metallotherapeutic Drugs and Metal-Based Diagnostic Agents



The Use of Metals in Medicine. Edited by *Marcel Gielen* and *Edward R. T. Tiekink*. John Wiley & Sons, Hoboken 2005. 584 pp., hardcover € 235.00.—ISBN 0-470-86403-6

Centuries of folk-medicines lie at the root of main-stream, small-molecule drug design in the pharmaceutical industry today, as medicinal agents are typically derived from lead natural products that show biological activity. Thus, a high percentage of drugs are mainly organic substances that bind to a specific enzyme or protein and alter its function. Through detailed computational structure–activity modeling and extensive screening assays, the vastness of drug–target interaction space can be effectively sampled, and viable drug candidates selected. Remarkably, the atomic composition of these main-stream drugs generally avoids the metals and metalloids that make up much of the remainder of the Periodic Table, mainly because of the potential for toxic effects arising from complex speciation, variable oxidation states, and multiple structures that exist for these elements. Unfortunately, there is a dearth of natural, metal-based molecular scaffolds that can pave the road to new metallotherapeutics, and only a small fraction of the main-stream pharmaceutical infrastructure is devoted to the development of metal-based drugs. Despite these challenges, metal-containing therapeutics have a long and rich empirical history, as exemplified by Paul Ehrlich's arsphenamine agent salvarsan, which served as an anti-syphilitic for 30 years prior to the discovery of penicillin. Today, cisplatin (*cis*-diaminodichloroplatinum(II)), which was first observed by Barnett Rosenberg in the 1960s to inhibit fission of *E. coli* when generated electrochemically in situ at a platinum electrode, serves as a potent chemotherapeutic agent for small-cell lung, testicular, and ovarian cancers.

This is the backdrop to *Metallotherapeutic Drugs and Metal-Based Diagnostic Agents: The Use of Metals in Medicine*, edited by Marcel Gielen and Edward R. T. Tiekink. A systematic and detailed element-by-element examination of applications of metals in medicine unfolds through the 28 chapters of this book. Each chapter (typically about 15 pages with 90 references up to 2004) follows a similar format, detailing the historical origins of the discovery of a particular element's role in medicinal chemistry, the chemical compositions of the active agents, as well as the biological target where known, appropriate clinical data supporting the biological activity, and potential toxicity issues.