Additions and Corrections

Design of a Double-Stranded DNA Cleaving Agent with Two Polyamine Metal-Binding Arms: Ru(DIP)$_2$Macro^{n+} [*J. Am. Chem. Soc.* **1987**, *109*, 7548–7550]. LENA A. BASILE and JACQUELINE K. BARTON*

The positions of sulfonation on the metal complex are not as indicated. The starting ligand actually is a mixture of *m,m*, *m,p*, and *p,p* sulfonate isomers.

Book Reviews*

Synthesis of High-Silica Aluminosilicate Zeolites. Studies in Surface Science and Catalysis. Volume 33. By Peter A. Jacobs and Johan A. Martens (Katholique Universiteit Leuven, Belgium). B. Delmon and J. T. Yates, Advisory Editors. Elsevier Science Publishers: Amsterdam and New York. 1987. xvi + 390 pp. ISBN 0-444-42814-3.

This book describes several dozen known members of the family of high-silica, aluminosilicate zeolites, which are presented in terms of the synthetic avenues that have been explored and the correlated X-ray crystallography.

Jacobs and Martens describe the synthetic procedures that have been tested and found to be reproducible. Typically, three key steps are involved: (1) The first step is the synthesis of gel phase which forms after mixing aqueous silicate and aluminum salt solutions in the presence of a template structure (i.e., alkyl ammonium ion). This is followed by (2) hydro-thermal treatment in an autoclave. (3) The final product is obtained by calcining, which removes the template. The synthetic mechanisms are complicated and, based upon kinetic studies, are explained in terms of early gel-phase spawning of nuclei followed by subsequent crystal growth and possible regrowth.

The authors show how the resulting zeolitic structures can be described in terms of their Al/Si or other metal atom ratios. The homogeneity within the crystal-pore lattice is not always uniform. The morphology and sizes of the crystals are subject to synthetic variation, as well. The usual products from synthesis are microcrystalline, and typically are only a few micrometers in size. For preparative chromatography, larger particles are prepared by adding a modifier and using an extrusion process that provides 50–500 μm particles.

Shape selective sorptive effects are presented with reference to probe solutes, whose size and polarity influence diffusion into the zeolitic pore structure. The pore structures can sometimes provide a finely tuned separation. For example, cyclohexane may be nearly excluded while *n*-hexane permeates.

Several interesting synthetic variations are described, including the preparation of zeolitic crystals of silicon dioxide (silicalite), and the preparation of larger than normal pore sizes. The high-silica zeolitic structures can also form when the template structure is omitted. This appears to be due to a memory effect in which the reaction vessel, in effect, remembers the nature of the template species used previously.

This book will be especially welcome by chemists and other workers who are interested in the preparation, properties, or applications of these sorbent structures. Synthetic definition is given to the preparation of commercially available materials as well as inaccessible proprietary materials. Jargon such as pentasil, MEL, MTT, TON, etc., becomes much clearer as the authors focus on synthesis and X-ray crystallography. The scope of the book goes beyond the synthetic laboratory by including the mineral ferrierite with its comparable zeolitic channel structure. Finally, a helpful chemical perspective is given to the on-going patent controversy involving the zeolitic polymorphs of silica and similar structures obtained in the presence of small amounts of alumina.

Although the book avoids delving very far into the structure–property relationships that are derived from studies of zeolitic sorption and catalysis, the treatment of this subject is useful. The book leaves the reader much better equipped to deal with this particular subject where the perspective provided by a better understanding of synthesis must be considered essential.

David H. Freeman, *University of Maryland*

Volumes of Proceedings

Secondary Ion Mass Spectrometry. Sims VI. Edited by A. Benninghoven (University of Munster), A. M. Huber (Thomson-CSF), and H. W. Werner (Phillips Research Laboratories). John Wiley & Sons: New York. 1988. xxviii + 1078 pp. $175.00. ISBN 0-471-91832-6.

This massive volume (the table of contents is 21 pages long) contains the typescripts of papers presented at a conference held in Paris in 1987. Two opening lectures (Slodzian; Evans) and several invited lectures provide reviews and interpretive insight. The many reports of original research are arranged under the following headings: "Fundamentals", "Instrumentation", "Quantification", "Ion Imaging", "Depth Profiling", "Combined Techniques", "Organic Materials", "Applications in Electronics", "Post-ionization", "Applications in Biology", "Application in Geology", "Applications in Metallurgy", and "Surface Studies". The field is quite evidently burgeoning with activity!

There is no subject index (it would have been an enormous task to construct one), but there is an index of contributors, and, curiously, a list of reviewers—an unusual but nice gesture.

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*Unsigned book reviews are by the Book Review Editor.