APPLIED ORGANOMETALLIC CHEMISTRY
Appl. Organometal. Chem. 2005; **19**: 219
Published online in Wiley InterScience (www.interscience.wiley.com)

Book Review

EDITED BY JOHN R. SHAPLEY

Inorganic syntheses volume 34

Wiley-Interscience, 2004,
260 pp; price £55.95.
ISBN 0-471-64750-0

Inside Volume I of this series is found the dedication

> To the countless unknown but valiant soldiers of science upon whose labours Inorganic Syntheses are based, this series of volumes is dedicated in the hope that it will ease the toil of future legions.

The following 32 volumes have adhered to this sentiment, containing the preparation of a wide range of inorganic compounds from across the periodic table and subsequently *Inorganic Syntheses* has proved to be an invaluable resource for synthetic chemists for over 60 years.

A defining characteristic of *Inorganic Syntheses* is that an independent laboratory validates each synthetic procedure, providing a reliable method described using unambiguous language. Discrepancies between author and checker are also highlighted, indicating potential nuances of a method, and safety implications are prominently positioned at the beginning of each procedure. The vast majority of commonly used inorganic precursors have been included in previous volumes and, therefore, later editions in this series have subsequently become more specialized. However, improved procedures and the expanding synthetic repertoire of inorganic chemists justify continuation of this series, and Volume 34 is a welcome addition. Volume 34 continues the pattern of the previous three volumes, incorporating thematic chapters and a range of inorganic complexes that could be of general interest to the chemistry community. The volume is divided into five chapters containing a total of approximately 150 syntheses of compounds, complexes, clusters and condensed solid materials. It is difficult to do justice to the breadth of materials covered in this volume, and the reader is encouraged to browse the contents.

Chapter 1 broadly describes the synthesis of some main group compounds, including diborane compounds that are finding increasing use in B–C and C–C bond-forming reactions and the sodium salt of the 'non-coordinating' anion $B(3,5\text{-}(CF_3)_2C_6H_3)_4]^-$ that is almost ubiquitous in the synthesis of electrophilic cationic metal complexes. Derivatives of arylisocyanide ligands and unsymmetrical tripod ligands related to tris(pyrazol-1-yl) methane are also included, in addition to the synthesis of a tubular morphology of α-Al_2O_3. Chapter 2 contains a collection of some organometallic and mainly coordination complexes of both general and specialized utility. The synthesis of several useful silver(I) triflate adducts for use in oxidation and halogen exchange is described, as are convenient routes to MoO_2Br_2 and UO_2Cl_2 complexes. Several examples of multidentate nitrogen ligand complexes of nickel, copper and platinum are also presented. Chapters 3 and 4 describe the synthesis of transition metal carbonyl and cyanide complexes respectively. Several improved syntheses of common precursors are presented, including $V(CO)_6$, $Ru_3(CO)_{12}$ and $K_3[Cr(CN)_6]$. Chapter 4 primarily concentrates on classes of cyanide complexes that exhibit CN bridging motifs leading to the formation of polynuclear mixed-metal clusters and cages, e.g. those derived from $[(Cp^*)Rh(CN)_3]^-$. Chapter 5 contains the synthesis of polynuclear and cluster compounds that have come to prominence in recent years. Giant wheels and balls of polyoxomolybdates and the synthesis of phosphine-substituted gold nanoparticles are amongst the larger clusters presented. Metalloborane, Group 8 and 9 carbonyl and lanthanide hydroxy-aquo clusters are also represented.

An attractive feature of *Inorganic Syntheses* is the short introductions placing procedures in a context, allowing the uninitiated reader to gain a rapid appreciation of their potential significance. In this respect Volume 34 does not disappoint, and I expect that, as with previous volumes, this addition will not only serve as a resource for reliable synthetic procedures, but also attract and potentially inspire even a cursory reader interested in inorganic chemistry.

Richard E. Douthwaite
University of York, UK

DOI:10.1002/aoc.740