

## Book Reviews

*Selective Reactions of Metal-Activated Molecules (Proceedings of the Symposium held in Würzburg, September 18–20, 1991)*

H. Werner, A.G. Griesbeck, W. Adam, G. Bringmann and W. Kiefer (eds.), Vieweg, Braunschweig/Wiesbaden, 1992, pp. 235 + x. DM98. ISBN 3-528-06450-1

This book consists of abstracts of the lectures given at the Symposium followed by abstracts of posters, which occupy about 40% of the volume. Despite the somewhat uneven presentation of some of the contributions, the editors have done a reasonable job.

I must admit to being unenthusiastic about books such as this, based upon symposia or conferences. A good lecture should provide a good review, presenting data and assessing it critically. The thirteen plenary lectures presented vary, but some of them fulfil these criteria reasonably well, though in the nature of things the authors will always concentrate on their own work. The material ranges from biological (the Role of Iron in Lipoxxygenase Activity) to very physical (Structures of Solvated Metal Ions and Complexes in Solution Determined by EXAFS). This latter is very interesting, though it is not obvious why such a lecture was included. Other lectures are more conventional in scope (asymmetric oxidation, symmetric synthesis, chiral reagents, etc.). The shortest contribution is perversely entitled "In Search of Nonselectivity". Most synthetic transition-metal chemists do not find this a problem, unless it is in the avoidance. Occasionally, the lack of the editorial hand of a native English speaker is evident, but the overall standard is excellent. However it is not clear from the index whether all thirteen or only twelve of the plenary lectures are presented here.

The poster abstracts are in three groups. A poster is meant to be a summary presentation of data which can be discussed with a presenter. I very much doubt whether poster abstracts (is that the correct word?) can fulfil this aim. There are not enough details for a good evaluation, and the reader cannot pose questions. In fact, these are more than abstracts. They cover the areas of dioxygen and C–H bond activation, organo-metal-assisted selective synthesis, and spectroscopic and theoretical studies on the structure and dynamics of metal-bonded molecules. A vibrational analysis of benzonaphthopyrone does not seem to fit well into the

last category, but in general the contributions are of fairly wide interest.

The editors state that they hope to have provided a useful (admittedly selective) survey of current trends and concepts in this area of chemistry. To a degree, they have, and many will find some value in this volume. However, if you really want to do this, why not write (or edit) a book devoted to a more comprehensive treatment?

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*Gmelin Handbook of Inorganic and Organometallic Chemistry, 8th Edition, In Organoindium Compounds 1*  
Springer-Verlag, Berlin, 1991, pp. 442 + xiii. ISBN 3-540-93541-6

This volume represents the only Gmelin volume devoted to organoindium chemistry yet to appear, and it claims a complete literature coverage until Spring, 1991. It deals with compounds in which at least one indium–carbon bonding interaction can be assumed.

The volume begins with indium "triorganyls". This is an English rendering of a German phrase which the reviewer finds unpleasant, but which he is forced to admit has certain advantages. Then the discussion moves to organoindium halides, and then on through organoindium derivatives with oxygen, sulfur, selenium, boron, nitrogen and its congeners, and transition metals. All these compounds contain indium(III), and the final section of the book considers organoindium compounds in lower oxidation states.

The author, J. Weidlein, has apparently been exceedingly thorough, listing every compound reported, including some for which apparently no properties have been determined. His "General Remarks" are useful summaries of the data in the relevant section, but he also on occasion makes valuable critical comments which aid literature evaluation.

Certainly, with this compendium one does not need access to the original literature. However, inevitably it concentrates on preparations and properties (including

structure). This is not the best format for presenting reactivity and mechanism. This notwithstanding, the current volume can stand comparison with the earlier excellent volumes of the Gmelin Handbook.

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*Gmelin Handbook of Inorganic and Organometallic Chemistry, Eighth Edition, System Number 13 B, Boron Compounds, Fourth Supplement, Vol. 3a, Boron and Nitrogen*

Edited by J. Faust (Gmelin Institute Frankfurt am Main Germany) and K. Niedenzu (University of Kentucky, Lexington, Kentucky, USA)

and Vol. 4, Boron and Cl, Br, I, S, Se, Te, Carboranes  
 Edited by K.-C. Buschbeck (Hanau am Main, Germany) and K. Niedenzu, Springer, Berlin, 1991, xv + 263 pages, DM1390, ISBN 3-540-93635-1 and xx + 322 pages, ISBN 3-540-93629-7

Even in these days of computer data bases keeping abreast of the literature remains a daunting task for any research chemist. Fragmentary publication is specifically encouraged by the worldwide use of numbers of publications and citations as performance indicators. Inevitably important developments occur at the boundaries between traditional research areas: new journals proliferate at the same time as library resources are restricted in both higher education and industry at a time of deep economic recession. The compiling of reviews in book or data base form thus remains an important and necessary task for the scientific community.

The Gmelin Institute is pre-eminent in this field. The resources which it deploys and the standards which it sets are unmatched, yet even here there are some elements and their compounds, or 'systems' as they are called in the jargon, where publication of the Gmelin volume lags far behind that of the original literature. This cannot however be said about System Number 13. The literature on boron compounds up to 1972–1976 was comprehensively covered in 20 volumes. There were three supplements covering literature up to 1977 (3 volumes), up to 1980 (2 volumes) and up to 1984–1988 (4 volumes). The two volumes reviewed here are the first of the Fourth Supplement.

Volume 3a, Boron and Nitrogen, has been written by Professor A. Meller (Institut für Anorganische Chemie, Universität Göttingen). Over half (149 pages) is devoted to boron nitride and the remainder (96

pages) to boron–nitrogen compounds containing hydrogen and/or hydrocarbon groups: more boron–nitrogen compounds will be covered in Volume 3b. Literature for the period 1984–1988 has been thoroughly reviewed with a few references to more recent work. The astonishing amount of new work on boron nitride indicates its importance as a ceramic with three well-characterised crystalline forms or as an additive in multiphase advanced ceramics. It is now recognised that the properties of many materials in bulk or as fibres or films depend crucially on the processes involved in their manufacture and that it is necessary to investigate and understand the chemistry involved at each stage. Other boron–nitrogen compounds discussed in this volume include triaminoboranes  $B(NRR')_3$ , boranes with two boron-bonded nitrogen atoms, borazines  $(BXNY)_3$ , a range of boron–nitrogen heterocycles, and monoaminoboranes e.g.  $R_2BNR'_2$ .

Volume 4 is dedicated to Dr. Günther Breil who has served on the advisory board of the Gmelin Institute since 1970 and as its chairman since 1985. Professor Meller reviews the literature from 1984–1988 on boron–chlorine (75 pages) boron–bromine (33 pages) and boron–iodine compounds (9 pages). There is still a considerable amount of new work detailing properties and reactions of quite simple compounds, particularly donor–acceptor complexes which find applications in the manufacture of semiconductors and as polymerisation catalysts. Boron–sulfur (50 pages), boron–selenium (6 pages) and boron–tellurium compounds (2 pages) are reviewed by Professor G. Heller (Institut für Anorganische und Analytische Chemie, Freie Universität, Berlin). Much of the discussion is on chemistry of boron–sulfur heterocycles but there are also references to work on simple compounds such as  $(RS)_2NBX_2$  without boron–sulfur bonds. The final section of the book (145 pages) written by Professor T. Onak (Department of Chemistry, California State University, Los Angeles) reviews the chemistry of the carboranes up to 1988 with a systematic account of compounds containing 1–40 boron atoms. The range of work published in the four year period shows that research in this area is still extremely active: routes to many of the theoretically possible structures are being discovered and more carboranes will doubtless be characterised in the future.

The Gmelin practice is to publish the indexes to volumes such as these separately when publication of the full supplement is complete so there are no indexes here. This is perhaps a pity since the cost ensures that there will be few complete sets even in libraries. For those who do have these meticulously researched and superbly written volumes there are however clear tables of contents for each volume. Others can access