

This article was downloaded by:

On: 25 January 2011

Access details: *Access Details: Free Access*

Publisher *Taylor & Francis*

Informa Ltd Registered in England and Wales Registered Number: 1072954 Registered office: Mortimer House, 37-41 Mortimer Street, London W1T 3JH, UK



Journal of Sulfur Chemistry

Publication details, including instructions for authors and subscription information:

<http://www.informaworld.com/smpp/title~content=t713926081>

A review of: “Synthetic Methods of Organometallic and Inorganic Chemistry”

Alexander Senning^a

^a Technical University of Denmark,

To cite this Article Senning, Alexander(1998) 'A review of: “Synthetic Methods of Organometallic and Inorganic Chemistry”', *Journal of Sulfur Chemistry*, 21: 1, 141 – 143

To link to this Article: DOI: 10.1080/01961779808047932

URL: <http://dx.doi.org/10.1080/01961779808047932>

PLEASE SCROLL DOWN FOR ARTICLE

Full terms and conditions of use: <http://www.informaworld.com/terms-and-conditions-of-access.pdf>

This article may be used for research, teaching and private study purposes. Any substantial or systematic reproduction, re-distribution, re-selling, loan or sub-licensing, systematic supply or distribution in any form to anyone is expressly forbidden.

The publisher does not give any warranty express or implied or make any representation that the contents will be complete or accurate or up to date. The accuracy of any instructions, formulae and drug doses should be independently verified with primary sources. The publisher shall not be liable for any loss, actions, claims, proceedings, demand or costs or damages whatsoever or howsoever caused arising directly or indirectly in connection with or arising out of the use of this material.

BOOK REVIEW

Hermann/Brauer, *Synthetic Methods of Organometallic and Inorganic Chemistry*, W. A. Hermann and C. E. Zybill (Eds.), Vol. 4, *Sulfur, Selenium, and Tellurium*, 234 pp., Georg Thieme Verlag, Stuttgart, New York, 1997, ISBN 3-13-103051-8/0-85677-661-X, DM 124/US\$87.

This book updates the venerable Brauer handbook with regard to preparations of sulfur, selenium, and tellurium compounds or does it? Quite frankly, this reviewer feels that the authors do not deliver what they promise, namely a state-of-the-art presentation of the subject matter. Considering the book's stiff price of DM 0.53 per page one cannot avoid to notice the unevenness of the individual presentations and the datedness of much of its contents. While many newer preparations are fully documented with spectral data, including chalcogen NMR, many of the older ones appear to have been copied from the previous editions in a pristine state. Thus, spectral and chromatographic data as well as state-of-the-art identity and purity checks are often lacking. Even where HPLC is mentioned, no experimental details are given.

As far as safety instructions are concerned only lip service is offered. Remarks about safety hazards such as explosiveness are rarely quantified and sometimes hidden in subordinate clauses after the description of the experimental procedure, hints about toxicity lack instructions concerning first-aid procedures, emergency measures, cleaning of glassware, and waste disposal. The book's procedure for the synthesis of the notoriously explosive S_4N_4 (on p. 94, based on a reference from 1957!) operates with a batch size of 100 g, without any safety instructions, not even hints for waste disposal! No IR data are shown.

Oddly, no text references to the current sulfur volumes of the *Gmelin* handbook and few to *Inorganic Syntheses* are given. An especially telling

example is the section dealing with Wackenroder's liquid (on p. 92), without experimental details and one lonely reference, from 1888! Is that really the state of the art? Even more annoying is the section on thionyl chloride, sulfonyl chloride, and thionyl bromide, three commercially available compounds (on pp. 73f). It is not stated what the impurities in the commercial products are, how their purity can be checked, nor how the recommended distillations should be carried out. The five references given are from the years 1926 to 1954, hardly a fountain of truth concerning the properties of currently available commercial products. The sections on sodium and potassium selenide and diselenide (on p. 140) as well as the corresponding tellurium compounds (on pp. 187ff) are outright scandalous in the way they ignore the vigorous and important developments in the mid- and late 1990s.

While the choice of preparations (which, *inter alia*, include all known allotropes of sulfur, an attractive feature) must of necessity be somewhat subjective and may raise eyebrows here and there, the omission of selenium-sulfur compounds such as the commercially important selenium disulfide is particularly hard to understand. Commercially available compounds (such as SeOCl_2 and SeO_2) are not always marked as such. Most readers would probably prefer procedures for the purification of these commercial products (with a full description of the impurities) to the *de novo* syntheses shown in the book.

The authors practice a rather capricious definition of organic chemistry including compounds such as $\text{SF}_4 = \text{NF}$. The nomenclature used here follows the idiosyncrasies of practicing inorganic chemists and the authors do not always refer to the official IUPAC and/or CAS names. Some of the synonyms mentioned are unadulterated nonsense such as "disodium disulfane" etc. (pp. 43ff).

The chapters' tables of contents are inadequate since they do not list individual compounds. There is, however, a reasonably comprehensive index. Here, oddly, the authors saw fit to mention a p.1152 (for trisulfur dinitrogen pentoxide, in a book of 234 pages!) and to list "crude (H_2S_x)" and "pure (H_2S_x)" several lines apart, separated by "dichloromonosulfane" and "monosulfane (H_2S)"!

This reviewer is of the opinion that the crystallographic data presented for some compounds (but not for others) are irrelevant in a synthetic handbook and rather dilute the core information. If desired, crystallographic data for all compounds where such data exist could be collected in an appendix.

What then is the good news? Well, the buyer of this book does acquire a reasonably complete collection of preparative procedures for key chalcogen compounds. However, this edition of the Hermann/Brauer is a far cry from the "benchtop tool" the cover proudly proclaims. In most cases an independent check of the literature will be necessary to make sure what the state of the art is before one dares to soil one's glassware. While no self-respecting chemical library can afford to skip the acquisition of this book owners of private libraries would be well advised to hold their breath until the authors produce a revised and updated version in the true sense of these words.

*Alexander Senning
Technical University of Denmark
DK-2800 Lyngby*