

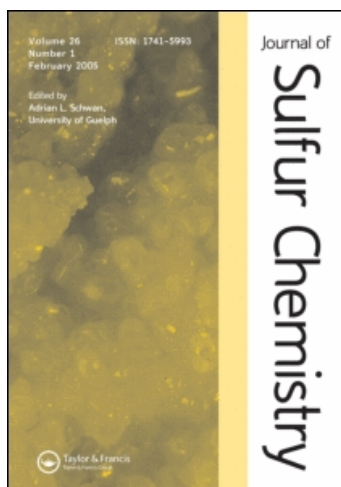
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### Book Review

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## BOOK REVIEW

T. M. Klapötke and I. C. Tornieporth-Oetting, *Nichtmetallchemie*, VCH, Weinheim, 1994, 493 pp., softcover ISBN 3-527-29052-4, DM 58.00, hardcover ISBN 3-527-29257-8, DM 128.00.

Though the word textbook does not appear in the title of this book the authors, themselves prominent contributors to the state of the art, introduce it as a textbook for graduate and postgraduate students, i.e. as a consolidation of the notes accompanying their lecture series *Metalloid Chemistry*, *Special Topics in Metalloid Chemistry*, and *Ab initio Methods in Metalloid Chemistry*.

While *Nichtmetallchemie* undoubtedly is an excellent monograph for the seasoned practising chemist its usefulness as a textbook is diminished by several shortcomings. The artwork, though fully adequate as a source of information lacks the final touch with respect to the uniformity and glossy finish standard textbooks excel in. The references, while including an impressive number of recent and most recent papers, do not present relevant textbooks, monographs, and reviews in a comprehensive and coherent manner; in fact the choice of references seems to be governed by the personal idiosyncrasies of the authors rather than by a desire for fair and even coverage. Taking a specific subject one notes for instance that carbon monosulfide is briefly mentioned on p. 220, but without literature references and without an appropriate entry in the subject index which is definitely too terse for a textbook.

A serious omission is the lack of treatment of nomenclature; in fact, by calling for instance NSF and NSF<sub>3</sub> on p. 298 thionitrosyl fluoride and thionitrosyl trifluoride, respectively, and on p. 385 thiazyl fluoride and thiazyl trifluoride, respectively, the authors create confusion rather than clarify crucial points in inorganic nomenclature.

The first (theoretical) part contains the four chapters *Structure and Bonding*, *Thermodynamics and Kinetics*, *Rings, Cages, and Clusters*, and *Chemistry in Aqueous and Non-Aqueous Solvents* while the second part deals with the descriptive chemistry of inorganic hydrogen as well as group 13 through 18 compounds. One of the strong points of *Nichtmetallchemie* is the thorough integration of quantum chemistry, molecular symmetry, and inorganic chemistry throughout the book; the currently practised computational procedures in quantum chemistry are presented in a lucid and comprehensive manner. The book's descriptive chemistry is presented with competence and contagious enthusiasm. Unfortunately not all compounds are shown with their full physical properties and the strong emphasis on balanced stoichiometric equations detracts from the question of actual reaction mechanisms with their many individual steps. A special section on nonexisting compounds or rather compounds predicted by current theory to be nonexistent, would have been helpful. The extensive tables in the appendix supply a wealth of useful data. Due to an oversight the authors duplicate the information box on p. 12 in the appendix (p. 469). In Table 5 (p. 467) a lonely asterisk does not lead to the implied explanatory footnote. In Table 7 (p. 468) <sup>17</sup>O and <sup>33</sup>S are strangely missing in the list of NMR-active nuclei.

Inevitably this text (like practically any other chemistry text) is plagued by the diffuseness of the borderline between inorganic and organic chemistry and there is, of course, the additional demarcation problem between metalloid and metal chemistry. Thus, not all compounds  $C_xO_y$  and  $C_xS_y$  are treated nor does the book deal with metal-carbonyl clusters and related compounds. While a number of highly reactive species are discussed at length other important "hot" species such as  $C_1$ ,  $C_2$ , and  $C_3$  are ignored and, for instance,  $S_2$  gets short shrift.

Further notable omissions concern the concept of pseudochalcogens [L. Jäger and H. Köhler, *Sulfur Rep.* **12**, 159 (1992)], of paraelements and pseudoelements [A. Haas, *Chem.-Zig.* **106**, 239 (1982)], and the intriguing question of element-hydrogen bonds in hypervalent compounds such as  $PF_4H$ .

In conclusion *Nichtmetallchemie* is an extremely useful and inspiring handbook of covalent inorganic chemistry and belongs on every practising chemist's bookshelf considering the moderate price of the softcover issue. Its value as a textbook, especially for self-study, is less evident, but still considerable. A translation into English (and other important languages) is strongly encouraged.

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