

Book review

NUCLEAR MAGNETIC RESONANCE SPECTROSCOPY OF BORON COMPOUNDS (Vol. 14 of "NMR Basic Principles and Progress") by H. Nöth and B. Wrackmeyer, Springer-Verlag, Berlin/Heidelberg/New York, 1978, XII + 461, DM 162, \$81.00.

This book by Nöth and Wrackmeyer fills a void which has existed for many years. This is the first real compilation of ^{11}B chemical shifts and other nmr parameters for boron compounds excluding boron hydrides and carboranes, and it comes from a laboratory which has been a leader in magnetic resonance studies of boron compounds.

The book consists of two general chapters concerning nuclear magnetic properties of boron and the application of ^{11}B nmr to investigations of structures and reactions. The following chapters discuss general trends and applications of ^{11}B nmr parameters of two-coordinate boron, three-coordinate boron, tetracoordinate boron, transition metal-boron compounds and diborane and diborane derivatives. A final chapter discusses spin-spin coupling constants between boron and other magnetically active nuclei. With the exception of diborane and its derivatives, boron compounds in which multicenter bonding dominate are not included. Thus this book does not contain data for boron hydrides, carboranes and metallo derivatives of these compounds. Literature references for Chapters 1 and 2 (which are introductory in nature) are placed at the end of each chapter. The references for Chapters 3-9 are accumulated in the back of the book in a unique manner. The references are listed by years in square brackets and these [75/12] refers to paper 12 listed under the year 1975.

The above chapters comprise approximately one-fourth of the book. The remaining three-fourths contains tables of ^{11}B nmr data which are the most well-organized and useful tables this reviewer has used. The book contains 96 tables and more than 3000 compounds! The literature has been searched through 1976 and includes some 1977 references most of which are from German journals, dissertations from the University of Munich and unpublished results from the Munich laboratory. The tables are arranged according to structural symbols and a listing of the symbols, table numbers and general compound names are given in a section immediately preceding the tables. This list is most helpful in finding the particular compound for which one is searching. However, it would have been much more helpful if the page number of the table had also been listed. The tables contain the structural

formula, the CA formula, $\delta^{11}\text{B}$, solvent, remarks (usually coupling constants and/or chemical shifts of other nuclei in the molecule) and references. The tables are exceedingly complete and all chemical shift data are based on $\text{BF}_3 \cdot \text{O}(\text{C}_2\text{H}_5)_2$ as a standard. In addition the new convention for boron of a positive sign for resonances which are deshielded relative to the reference signal is used. When specific compounds are mentioned in the discussion, their position in a table is also given. Thus (23/LVI) indicates the 23rd compound in Table LVI.

The indexes of this book make it almost impossible to be unable to locate a particular compound. There is a CA formula index, an author index and a subject index as well as the references listed by years. Indeed, this reviewer has already used this book several times to find the synthesis of a particular compound or to discover that one or more compounds of which he was unaware had been prepared and studied by nmr!

It seems almost obligatory to mention the high price of a book in a review. The price of this book is very high but if one is involved to any extent in the area of ^{11}B nmr and boron research, the book should pay for itself in the time which would be otherwise have been spent searching the literature.

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