

(except C–C bonds). The number of pages devoted to formation of the various M–M and M–M' bonds are as follows: Si–Si, 32; Ge–Ge, 34; Sn–Sn, 23; C–Si, 108; C–Ge, 57; C–Sn, 102; C–Pb, 34; M–M', 7. The division of space between these topics is in some respects rather surprising. In particular, the account of the formation of Si–Si bonds, which is especially important in view of the considerable current interest in polysilanes, is slightly shorter than that of the formation of Ge–Ge bonds, which has been much less studied. Likewise, the literature on formation of C–Si bonds is very much more extensive than that on formation of C–Sn bonds, and yet the topics have been judged to merit almost exactly the same number of pages. Very puzzlingly, the formation of C–Si bonds by addition of silicon hydrides to C=C and C≡C bonds (although described, somewhat debatably, by the author as the most important route to C–Si bond formation) is dealt with in only three pages, though within this limitation the outline provided is clear and informative. On the other hand the small amount of space devoted to formation of M–M' bonds correctly reflects the low level of activity in this area, which can confidently be expected to develop substantially in the next decade or so.

The quality of this book arises from the very sound choice of authors, *viz.*: F.F. Cartledge, M. Dräger, P.P. Gaspar, F. Glockling, P.G. Harrison, E. Hengge, F. Huber, B. Kanner, N. Kleiner, M.F. Lappert, B. Mathiasch, B.R. Mauzé, R.V. Piccione, R.C. Poller, M.A. Ring, P. Riviere and J. Satgé. As usual in this series much space (181 pages) is taken up very inefficiently by author and compound indexes. I was interested to see my own work credited variously to C. Eaborn, E. Eaborn, and C. Eborn, but I am not the only author to be treated in this way in this volume!

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Gmelin Handbook of Inorganic and Organometallic Chemistry. 8th Edition. Supplement Volume B5c. Silicon Nitride in Electronics, Springer-Verlag, Berlin, 1991, xv + 400 pages. DM 2075. ISBN 3-540-93630-0

This is the first of three Gmelin volumes devoted to silicon nitride (of empirical formula Si_3N_4), and is concerned with the application of silicon nitride in micro-electronic devices. After a short general introduction it is made up of three parts, Chapters 2–8 dealing with general aspects of microelectronic applications of the nitride, Chapters 9–31 with its applications in specific devices, and Chapter 32 to its applications in solar cells. The chemistry of preparation of silicon nitride and its various forms (powders, films, *etc.*), its physical properties and chemical reactions, and its uses in engineering ceramics will be described in later volumes (Silicon Supplement Volumes B5a and B5b).

This valuable reference work is exceptionally timely in view of the growing interest in uses of silicon nitride and is impressively up-to-date; detailed coverage of the literature is complete up to January 1990 but there are some more recent references. It is expensive (*ca.* US\$1250, £710 on the date of this review), but good value for those active in the field surveyed.

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