

### Book review

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*Gmelin Handbook of Inorganic Chemistry, 8th edition. Cu. Organocopper Compounds Part 1.* By J. Faust, J. Füssel, and H. Somer. Springer-Verlag Berlin etc., 1985, x + 470 pages. DM 1725. ISBN 3-540-93517-7.

Organocopper compounds are receiving increasing attention, partly for their own intrinsic interest but more for their application in organic synthesis. The appearance of this volume and the associated Part 2 (which was published in 1983) is thus to be greatly welcomed.

This part is concerned with mononuclear organocopper compounds having only one organic ligand bonded to the metal through carbon. (The Gilman reagents  $(R_2CuLi)_n$  are dealt with in Part 2). The account opens with 3 pages of references to reviews on organocopper compounds, followed by some brief but informative general remarks on properties of such compounds. The next 46 pages are concerned with the preparations, physical properties, and reactions of isolated compounds of the type  $(RCu)_n$  (R = alkyl, substituted alkyl, alkenyl, aryl, "cyclic systems other than aryl" (but mainly, in fact, heteroaryl — e.g. thienyl, furyl etc.), or dicarba-*closo*-dodecaboranyl). The bulk of the book is then devoted to the in situ reactions of organocopper reagents containing RCu complexes with: (i) lithium compounds, mainly lithium halides (154 pages); (ii) magnesium compounds, mainly magnesium halides (119 pages); (iii) copper, silver, gold, zinc, or tin compounds (5 pages); (iv) other metal compounds or ammonium salts (6 pages); (v) boron compounds (23 pages); 1,4-dioxane (2 pages); dialkyl sulphides (23 pages); nitrogen donors (34 pages); and phosphorus donors (52 pages). The volume is thus of special interest to organometallic and organic chemists concerned with the use of organocopper compounds in synthesis.

Finally, there is a brief section (2 pages) on compounds of the types  $RCuH$ ,  $RCuX$  (X = halogen),  $[Ph_3PCRuCl]_n$ ,  $(Ph_3P)_2CCuCl$ , and  $[Me_2S(O)CH_2-CuPMe_3]Cl$ .

The literature has been surveyed up to the end of 1983 (there are a few later references) with the thoroughness usual for Gmelin, and the information is presented with the admirable clarity we have come to expect of the series. The English is good overall; there are a few infelicities in style, but no more than would sometimes be found in texts by British or American authors. The general standard of accuracy in this series is so high that it comes as a shock to see the  $\nu(CuH)$  band in the IR reported as appearing at 1697 nm.

The high cost of the Gmelin volumes is inevitable, but it is difficult to see how institutions active in research in organometallic chemistry can afford to be without them, and the rapidly widening range of organometallic compounds, such as those in the volume under review, used in organic synthesis means that parts of the series are also of great value to organic chemists.