Journal of Organometallic Chemistry, 353 (1988) C18
Elsevier Sequoia S.A., Lausanne – Printed in The Netherlands

Book review

Gmelin Handbook of Inorganic Chemistry, 8th edition, Cu-Organocopper Compounds, Springer-Verlag, Berlin, etc., 1987, Part 4, xii + 272 pages. DM1249; ISBN 3-540-93555-X. Part 5, Index, viii + 244 pages, DM1189. ISBN 3-540-93559-2.

These two volumes bring to an end, for the time being, the Gmelin surveys of organocopper compounds. The appearance all five parts in the series has been timely, but in view of the increasing interest in organocopper compounds, in their own right and as reagents for organic synthesis, it is to be hoped that work on supplements will not be too long delayed. In the preface of Part 4 it is pointed out that exact structures are known for relatively few organocopper compounds, and in particular the state of aggregation is usually unknown, but this is a deficiency that will probably be remedied fairly quickly in view of the rapid growth in the availability of the X-ray diffraction technique.

In Part 4, 101 of the 271 pages are concerned with mononuclear compounds, and the remainder with di- to octa-nuclear and polymeric species. (Unless higher nuclearities have been firmly demonstrated, compounds are classified as mononuclear, and thus most compounds that are actually of higher nuclearity were dealt with in Parts 1–3; because of this most of the well-characterized compounds appear in Part 4, which contains over 80 X-ray structures.) The section on mononuclear compounds, or those treated as mononuclear, is concerned mainly with compounds containing ligands bound through 2 to 5 carbon atoms (e.g. alkene and cyclopentadienyl ligands) and those containing diene, triene, tetraene, enyne, and arene ligands. The section on dinuclear compounds includes brief accounts of lithium and magnesium organocuprates, and there is a good outline of the properties of $[Me_2CuLi]_n$. (Applications of organocuprates in organic synthesis were dealt with in Part 2.) The planned closing date for literature coverage was 1986, but a few 1987 references are given.

Part 5 consists of clear empirical formula and ligand formula indexes to all four parts, and is essential for effective use of Parts 1–4.

The five-part series on organocopper compounds will be of great value to organometallic and organic chemists, and should be in all good chemical reference libraries.

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