

Gmelin Handbook of Inorganic Chemistry, 8th edition, *Fe. Organoiron Compounds, Part A: Ferrocene 5*, J. Füssel, volume author, A. Slawisch, volume editor, Gmelin Institut für Anorganische Chemie der Max-Planck-Gesellschaft zur Förderung der Wissenschaften and Springer-Verlag, Berlin/Heidelberg/New York, 1981, iv + 338 pages, DM 998.00 (in German).

Seven volumes of Gmelin dealing with ferrocene derivatives have now appeared. This latest, vol. A5, completes the set dealing with monosubstituted ferrocenes and therefore includes a valuable formula index to all such compounds in vols. A1–A5. This index takes up one third of the total space reflecting the large number of derivatives prepared in 30 years from the discovery of ferrocene; the remainder is devoted to all those derivatives whose substituent includes elements other than C, H, O, N or halogen. The largest subsection, that devoted to sulphur-containing compounds, occupies 87 pages while perhaps more surprisingly the twelve subsections devoted to all the metallic substituents also total some 80 pages; the remainder are devoted to silicon (43p), phosphorus (10p), boron (5p) and selenium (two compounds) derivatives. Remarkably, the literature has been covered through the middle of 1981 with all the thoroughness characteristic of the Gmelin series. More than the English translations of section and subsection headings (in the margins), the very extensive use of tables for series of related compounds will help the non-German speaking reader to use this volume with ease. Whether in such tables or in the running text, each compound is described with most of its known physical and chemical properties including extensively tabulated spectral and structural data and of course comprehensive literature references. The coverage moreover includes substances which have been clearly identified as reaction intermediates even if they have not been isolated. Each subsection has an introductory account of general preparative methods and gives, where appropriate, common reactions or even reaction mechanisms and properties of the class, followed by specific details for individual compounds.

Workers in the field with access to this and other volumes of the set will be spared many wearisome hours of literature searching by availability of such comprehensive and reliable compilations; they will look forward to the further volumes which will complete coverage of the di- and poly-substituted derivatives.

Gmelin Handbook of Inorganic Chemistry, 8th edition, *Fe. Organoiron Compounds, Part C5: Binuclear Compounds 5*, U. Behrens and B. Lubke, volume authors, U. Krueker, volume editor, Gmelin Institut für Anorganische Chemie der Max-Planck-Gesellschaft zur Förderung der Wissenschaften and Springer-Verlag, Berlin/Heidelberg/New York, 1981, ii + 172 pages, DM 501.00.

Unlike the volume reviewed above this one follows the latest pattern of the Gmelin series in being written entirely in English. It covers those di-iron compounds which have ligands bonded to them by six, seven, eight, ten or twelve carbon atoms and completes the present series with respect to binuclear iron compounds. The 12-carbon section consists of bis(cyclopentadienyliron) derivatives of bis(cyclohexadienyl), biphenyl and polycyclic aromatics and

there are some related complexes e.g. of the type $[(\text{ArH})\text{FeC}_5\text{H}_4\text{XC}_5\text{H}_4\text{Fe}(\text{ArH})]^{2+}$ in the 10-carbon section. Nearly all the other complexes have $\text{Fe}(\text{CO})_n$ groups or (rarely) $\text{Fe}(\text{CO})_n\text{X}$ groups attached to the organic ligand.

The 8-carbon section is by far the largest (80 pages) and the majority of compounds in it contain two tricarbonyl-diene-iron systems linked in a wide variety of ways. The 6-carbon compounds more usually have iron-iron bonds and the ligands range from symmetrically bonded bis-allylic systems to fulvenes linked as cyclopentadienyl ligands to one iron and as σ -alkyl groups to the other.

The volume covers the literature comprehensively through 1978 and includes material from 1979 and 1980 publications. Access to individual compounds is facilitated by the now customary molecular formula index, misleadingly headed Empirical Formula Index, as well as by a Ligand Formula Index.

An unusually high proportion of the compounds in the present volume have had their structure determined by X-ray crystallography. The results are attractively reproduced by "ball and stick model" drawings; all key interatomic distances and bond angles are given on these drawings or in accompanying tables. Other information is presented in the manner outlined above and with equal thoroughness. While appropriate review articles are quoted, all the detailed information is clearly drawn direct from the primary literature. Obvious errors are quite difficult to find in these volumes, which tempts this reviewer to believe that they are not only a more convenient, but, at least for information from the more accessible journals, a more reliable source of information than Chemical Abstracts.

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