

sively presented than in Lange. Electrochemistry covers a range of topics including properties of solutions, such as osmotic pressures, pH, indicators, redox potentials, acid dissociation constants *etc.* Again, this is all generally in Lange, but rather more dispersed. Then comes Optics, though this would be better described as optical properties. This seems generally more detailed than Lange. It overlaps in many ways with Spectroscopy, which gives calibration frequencies, IR windows, chemical shifts, characteristic resonances, and even typical mass spectral ions. These are useful sections.

Atomic and Nuclear Physics contains an extensive table of the properties of nuclides, and Acoustics is a short section which seems a little inappropriate. The Physical Properties of Inorganic and Organic Compounds is based on the Dictionary of Inorganic Compounds and the Dictionary of Organic Compounds. Both lists are reminiscent of other handbook compilations, but they seem to be a bit less extensive. However they include hazard data and references to spectral data. In addition, organometallic compounds, amino acids, carbohydrates, steroids, polymers, and gases, and some supplementary data are tabulated separately.

The compendium concludes with Heat and Temperature (rather too physical in content for my taste), Thermodynamic Properties of Elements and Compounds (excellent, extensive, and useful), Astronomy and Geophysics (!), Chemical Kinetics (a somewhat selective compilation) and Health and Safety (or rather toxicity and hazards of chemical substances). This last is very useful.

At the end, I feel it difficult to make a firm recommendation in comparison with the established handbooks. However, the data are grouped in a new way, which make them accessible, most of the data are of chemical value rather than of general interest, and very full references are given so that all the data can be checked and more obtained. There are several unique features which make this book particularly useful. I think it a very valuable addition to the literature, and it should get even better as it is refined in subsequent editions. Certainly it is at least comparable in quality and coverage to the competition. It should be available in all reference libraries and it is cheap enough to justify personal copies.

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Energetics of Organometallic Species

J.A. Martinho Simões (ed.), NATO ASI Series, Mathematical and Physical Sciences, Vol. 367, Kluwer Academic Publishers, Dordrecht, 1992, pp. 492 + xii, USD 129, Dfl 215, £75
ISBN 0-7923-1707-6

Normally I do not react favourably to books which result from conferences or courses. The reviews are often incomplete and the material is generally easily available elsewhere. However, in this case I have to make an exception, because I found this book exceptionally interesting.

Thermochemistry is a very elevated art whose products are often misunderstood and misused. This book provides some excellent and informative reviews covering many aspects of organometallic thermochemistry. The introductory chapter is by the pioneer of organometallic thermochemistry, H. Skinner, and the following chapters discuss problems and applications of combustion calorimetric data, especially in the context of hydrocarbon activation. Then consideration is given to other techniques for establishing enthalpies and bond strengths, such as photoacoustic calorimetry, electrochemical techniques, rotating aneroid combustion calorimetry, and kinetic methods. There is also discussion of general principles – how constant is enthalpy of a given bond type in a range of compounds? The answer appears to be: it all depends. There is considerable emphasis on gas-phase studies, mainly using forms of mass spectrometry, which give data on metal–hydrogen bonds as well as metal–carbon. Finally there are some theoretical and computational reviews.

This book appeals to me strongly. It contains a wide range of reviews, data, and references. It concerns various types of metal–carbon bonds in transition metal as well as main group metal compounds. The editor admits to a certain unevenness in the formalisms used but this is not a tremendous handicap. The book needs to be read in small sections, not all at once, and seems to be a good source of data. It should be of value to anyone interested in the energetics of organometallic compounds and their reactions.

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