

Periodic trends of bond energies are dealt with at the beginning (Chapter 2) with experimental correlations, and again at the end (Chapter 19) with a discussion of density functional theory. Ionization energy–bond energy relationships are investigated in Chapter 6. Homolytic bond dissociation and kinetics are surveyed by Halpern (Chapter 7), donor–acceptor correlations by Drago (Chapter 12), and hard–soft concepts and absolute electronegativities are used to predict enthalpies of exchange reactions by Pearson (Chapter 17). Bond enthalpies of the organolanthanides are reviewed (Chapter 11), and experimental methods of determination of metal–metal and metal–ligand bond energies are detailed for FT mass spectroscopy (Chapter 4) and calorimetric methods (Chapters 13 and 14). Reaction energetics and activation parameters are discussed in Chapters 3 and 8. Surface chemistry is given an in-depth overview by Somorjai (Chapter 15) and Stair (Chapter 16), including the catalytic properties of surfaces. Gas-phase chemistry of metal–ligand systems is examined in Chapters 5 and 18. Nitrogen and hydrogen binding on chromium, molybdenum and tungsten complexes (Chapter 9), and hydrogenation and reductive coupling of carbon monoxide by rhodium(II) porphyrins (Chapter 10) are studies of interest to biochemists and catalysis chemists. The written material is adequately supported by figures and tables.

This volume meets its objectives, bringing together the diverse communities of activity in the field of organometallics. It provides a broad yet in-depth overview of reactivity and bonding energetics in metal–ligand chemistry.

C.E. Holloway

Thermodynamic Properties of Inorganic Materials, A Literature Database covering the Period 1970–1987, Parts A and B, by Bertrand Cheynet, Elsevier, Amsterdam, 1989, Part A 1630 pp., Part B 771 pp., US \$683.00/Dfl. 1400.00. ISBN 0-444-88036-4.

This is Volume 38 in the Physical Science Data Series, and is a literature database of thermodynamic properties of inorganic solids, gases, solutions, metals and alloys. Part A contains a key-word list of some 13 400 systems appearing in 25 846 references. Part B contains those references.

The book is an awesome collection of references of considerable value to those seeking data for an extensive range of inorganic systems. It will be of considerable value until such a time as similar computer databases become easily and inexpensively available to anyone.

The Editor's Desk