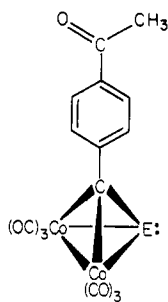


Additions and Corrections

Dietmar Seyferth, Joseph S. Merola, and Richard S. Henderson: Preparation, Properties, and Chemical Reactivity of Phospha- and Arsaacetylenedicobalt Hexacarbonyl Complexes, $(RCE)Co_2(CO)_6$ (E = P, As) 1982, 1, 859.

On page 863, structure 11 should be:



11a, E = P
b, E = As

Book Reviews

Advances in Inorganic Chemistry and Radiochemistry. Volume 24. Edited by H. J. Emeleús and A. G. Sharpe. Academic Press, New York. 1981. vii + 372 pages.

This volume of a valuable, popular, and well-established series contains five unrelated reviews: A. A. Woolf on the thermochemistry of inorganic fluorine compounds (54 pages), J. Burgess and J. Kijowski on the preparation and solution thermochemistry of anhydrous lanthanide, yttrium and scandium trihalides (48 pages), J. A. Davies on the coordination chemistry of sulfoxides with metals (58 pages), A. Engelbrecht and F. Sladky (29 pages) on selenium and tellurium fluorides, and B. F. G. Johnson and J. Lewis on transition-metal molecular clusters (142 pages). As is so often the case with review series the book will be of interest mainly to specialists in the areas covered by the five topics although most libraries and individual collectors will no doubt wish to continue their purchases.

The first chapter by A. A. Woolf provides a unified, up to date account of the measurement and chemical significance of thermochemical bond energies for inorganic fluorides. The author presents a critical evaluation of the advantages, precision, and limits of calorimetric, equilibrium, and kinetic techniques for enthalpy measurement and discusses methods for estimating heats of fluorides based on bonding concepts, molecular or spectroscopic properties, and periodic regularities or discontinuities. In the latter part of the review trends in known thermochemical data for metal and nonmetal fluorides are correlated with oxidation state, electronic configuration, and molecular structure. This survey will be a particularly valuable addition to the arsenal of those who use the isoelectronic principle, group trends, and thermodynamics in an effort to derive a semblance of order from the apparent chaos of inorganic chemistry.

The principal goals of J. Burgess and J. Kijowski in the second article are twofold: to survey methods available for the synthesis

of anhydrous lanthanide halides and to assemble thermodynamic data for the halides in aqueous and nonaqueous solution. This area owes a considerable debt to Matignon for his work at the turn of the century, a fact made clear by the authors who have made a laudable effort to gain historical perspective by comparing early and latter day enthalpy values. The article is well referenced and should prove to be a very useful information source for workers in the rare-earth field.

The article by Davies on sulfoxide-transition metal coordination chemistry extends and updates a 1970 review of Me_2SO complexes by W. L. Reynolds. Since that time the burgeoning use of X-ray diffraction in inorganic chemistry has resulted in the acquisition of a great deal of structural information on sulfoxide complexes. Tabular summaries of important structural parameters are presented. This data together with recent spectroscopic (IR, NMR, electronic, ESCA) results are used to present an up to date picture of metal-sulfoxide bonding and in another section cis-trans influences of sulfoxides. The most disappointing aspect of metal-sulfoxide chemistry is that despite the vast numbers of complexes which have been prepared, relatively few truly useful applications in stoichiometric synthesis or catalysis have been found. The sections by Davies on oxygenation, deoxygenation, and catalytic reactions confirm this view. The final 17 pages are devoted to a group by group survey of recent sulfoxide complex chemistry.

As the authors indicate the chapter on selenium and tellurium fluorides is largely a progress report, bringing up to date (1979) earlier reviews. One is impressed once again by the impact of single-crystal X-ray diffraction on the structures of the heavy group 6 fluorides and their derivatives. The article is presented in a reportive rather than critical style, but researchers in the area will find it useful as a comprehensive compilation.