

# New Data Compilations

Reviewed by the  
JC&ED Editorial Board

**Thermochemistry of the Rare Earths.** Karl A. Gschneider, Jr., Nancy Kippenhan, and O. Dale McMasters. 67 pages. Rare Earth Information Center, Institute for Atomic Research, Iowa State University, Ames, Iowa, IS-RIC-6. August 1973. Available from Molybdenum Corp. of America, 6 Corporate Park Drive, White Plains, N.Y. 10604, or Metallurgical Sales Service Office, No. 4 Gateway Center, Pittsburgh, Pa. 15222, no charge.

Heats and Gibbs energies of formation of rare earth compounds important in the manufacture of iron and steel are tabulated at 298K and other temperatures up to 2773K. Graphical presentations are also included. The three sections are: Thermochemistry of the Rare Earth Oxides, Thermochemistry of the Rare Earth Oxysulfides, and Thermochemistry of Rare Earth Compounds Formed with the Elements B, Sn, Pb, P, As, Sb, Bi, Cu, and Ag. The report is a continuation of "Thermochemistry of the Rare Earth Carbides, Nitrides, and Sulfides for Steelmaking," Gschneider and Kippenhan. See *J. Chem. Eng. Data*, 17, 519 (1972).

**Handbook of Phase Diagrams of Silicate Systems. Volume II. Metal-Oxygen Compounds in Silicate Systems.** N. A. Toropov, V. P. Barzakovskii, I. A. Bondar, and Yu. P. Udalov. National Bureau of Standards, Washington, D.C. 2nd revised ed., 1972, 363 pages. Trans. of monograph: Diagrammy Sostoyaniya Silikatnykh Sistem-Spravochnik, 2nd ed., Leningrad, 1970, 371 pages, by J. Schmorak and R. Kondor. Sponsored in part by National Science Foundation, Washington, D.C. Special Foreign Currency Science Information Program. International Standard Book No. 0-7065-1228-6. Available from NTIS, P.O. Box 1553, Springfield, Va. 22151, TT-71 50041. Paper copy, \$6.00.

The report presents data on metal-oxide phase systems. The data quoted are of importance not only in dealing with questions connected with high-temperature equilibria or with physical and technological parameters of crystalline phases formed in the system, but also concern a number of questions related to the structural theory of solids (valency of a given element in its oxides, changes in the coordination numbers of individual elements, etc.). The main objective is the compilation of individual data, by means of which a better knowledge can be gained of the behavior of individual oxide constituents of refractory systems under altered external conditions: temperature, oxygen concentration in solid and gaseous phases, pressure, etc.

**The Vapor Pressures of Pure Substances.** Tomas Boublik, Czechoslovak Academy of Sciences, Prague, Czechoslovakia; Vojtech Fried, Department of Chemistry, Brooklyn College of the City University of New York, Brooklyn, N.Y.; and Eduard Hala, Institute of Thermodynamics, UTZCHT, Czechoslovak Academy of Sciences, Prague, Czechoslovakia. Elsevier Scientific Publishing Co., New York. 1973. 626 pages. \$23.50.

Tables of vapor pressure vs. temperature, mostly in the range of 10–1000 mm Hg, are presented for approximately 500 organic compounds. Each table is based on the work of a single investigation, as reported in the scientific literature. Values of observed and calculated pressures and the differences are tabulated at each experimental temperature. All calculated values are based on the Antoine equation with parameters fitted to the experimental data by a least-squares procedure. References to the original sources are given.