New Data Compilations

Thermochemistry of the Rare Earth Carbides, Nitrides and Sulfides for Steelmaking. KARL A. GSCHNEIDNER, JR., AND NANCY KIPPENHAN, Rare Earth Information Center, Institute for Atomic Research, Iowa State University, Ames, Iowa. 1971. 27 pp. 65 references. The preparation and publication of this report was sponsored by Molybdenum Corp. of America, 280 Park Ave., New York, N. Y. 10017. Refer to IS-RIC-5.

This report tabulates the heats and free energies of formation of the rare earth carbides, nitrides, and sulfides in the temperature range 278–2700°K (77–4401°F). The free energies of formation of the rare earth compounds are compared with the corresponding nonrare earth carbides, nitrides, and sulfides in four two-color figures. Each section contains a brief discussion of the methods used to calculate the thermodynamic values.

Thermophysical Properties of Matter. Volume 3. Thermal Conductivity, Nonmetallic Liquids and Gases. Y. S. TOULOUKIAN, P. E. LILEY, AND S. C. SAXENA. New York, N. Y., and Washington, D.C.: IFI/Plenum. 1970. $55.

Volume 3 of "Thermophysical Properties of Matter," covering the thermal conductivity of fluids, presents the data on nonmetallic materials which are in the fluid state at normal temperature (25°C) and pressure (1 atm). The volume is comprised of three major sections: The front test material together with its bibliography, the main body of numerical data with its references, and the material index. The coverage includes a selected number of pure substances, identical to those covered in Vols. 1 and 2 (not as yet available) of this series, as well as a number of mixtures which are felt to hold great importance in engineering practices. The information for a given system is arranged in the following sequence: solid, saturated liquid, and saturated vapor or gaseous physical state. Within each state, the sequence of data consists of text, table, and departure plot(s). Only data covering pure substances have been critically reviewed and analyzed, and "recommended reference values" are presented for them. The material index at the end of this volume covers the contents of all three companion volumes (Volumes 1, 2, and 3) on thermal conductivity.

Selected Tables of Atomic Spectra. Atomic Energy Levels (Second Ed.) and Multiplet Tables. N_{IV}, N_V, N_{VI}, N_{VII}. Data Derived from Analyses of Optical Spectra. CHARLOTTE E. MOORE, Office of Standard Reference Data, National Bureau of Standards, Washington, D.C. 20234. 46 pp. 1971. Available from U. S. Bureau of Standards.

The present publication is the fourth Section of a series being prepared in response to the persistent need for a current revision of two sets of tables containing data on atomic spectra as derived from analyses of optical spectra. As in the previous Sections, Part A contains the atomic energy levels and Part B the multiplet tables. Four spectra of nitrogen, N_{IV}, N_V, N_{VI}, and N_{VII}, are included. The form of presentation is described in detail in the text to Section 1.

Select Values of Chemical Thermodynamic Properties. Tables for the Alkaline Earth Elements (Elements 92 through 97 in the Standard Order of Arrangement). V. B. PARKER, D. D. WAGMAN, and W. H. EVANS. Physical Chemistry Division, Institute for Materials Research, National Bureau of Standards. NBS Technical Note 270-6. Issued November 1971. Available from the Superintendent of Documents, U. S. Government Printing Office, Washington, D.C. 20402. $1.25

Contains tables of values for the standard heats and Gibbs (free) energies of formation, entropies and enthalpies at 298.15°K, and heats of formation at 0°K for compounds of beryllium, magnesium, calcium, strontium, barium, and radium. These tables are a continuation of the comprehensive revision of NBS Circular 500.