Research on such materials is of obvious current importance and there has been extensive publication of high temperature data in government reports. Properties which are reported (when "available") include formula, compound name, formula weight, formula volume, melting point, boiling point, vapor pressure, evaporation rate, X-ray density, pycnometric density, theoretical analysis, synthesis, reactivity and temperature limit of usefulness, resistivity, critical temperature, temperature coefficient of resistivity, thermal e.m.f., dielectric constant, dissipation factor, thermionic work function, magnetic susceptibility, critical field, strength, hardness, elastic moduli, Poisson's ratio, creep rate, thermal neutron capture cross section, radiation damage, color, form, refractive index, optical sign, structure, thermal conductivity, thermal expansion, specific heat, and thermodynamic constants.

A complete summary of existing data would be valuable and a critical review of such data would be monumental. This book, unfortunately, is neither for, to quote Dr. Shaffer, ". . .no attempt to obtain all the data for a specific compound was made. This compilation of data covers only those data which were at the author's disposal and did not include any specific literature searches for the sake of this data compilation." This philosophy is appropriate for a card file on a scientist's desk but with the formal publication of a "Materials Index" it would seem one is obligated to some completeness. For example, although the work of Stull and Sinke on the thermodynamic properties of the elements is cited as a reference, no effort was made to include these modern vapor pressure data, heats of sublimation, etc., in all of the tables for the various elements. The table for Al consists of eight lines (four of which are titles) and two of numerical data on electric and magnetic properties.

An extensive collection of electrical, magnetic, and thermal properties is given for some materials but, in general, the tables are almost random pieces of information. The number of compounds indexed is deceiving, for many require only two or three lines to list all the data "available." In a 100-page sequence of the book 39 pages were at least half blank. Certainly, as the author suggests, the reader may need to add data to some of these blank pages. Much of it has been available for several years.

In summary, this book presents a list of data collected uncritically and somewhat randomly. It is possible that a reader may find a useful piece of information on a high temperature material but certainly there is not a complete coverage. The nature of the data presented, the fact that the book is a reproduction of typed tables, and the high fraction of empty space on the average page make the $17.50 price appear exorbitant.

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July, 1964

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