

Book Reviews

Reactivity of Inorganic Substances. Handbook. Revised and Augmented Edition. By R. A. Lidin, V. A. Molochko, and L. L. Andreeva. Begell House Inc., New York. 1996. 938 pp. \$165.00. ISBN 1-56700-050-9.

This volume, translated from the Russian, furnishes data and describes the reactions, in the form of chemical equations, of 105 chemical elements and more than 7000 inorganic compounds. Thus, the only organic compounds which appear in the chapter on carbon are methane and acetylene and the inorganic compounds from which they can be prepared, e.g., carbides.

The chapters are organized alphabetically, each beginning with the symbol of the element. The initial entry consists of a table which lists half-reactions and the corresponding value of the reduction potential. This is followed by a paragraph which describes the physical properties of the free element such as the melting and boiling points, density, color, and its allotropic forms. There follow tabulations of the reactions of the free element and then its various compounds. The reactions of the compounds are also organized alphabetically, e.g., AlBr_3 , AlCl_3 , AlF_3 , AlI_3 . Temperatures at which the reaction are carried out and the identities of catalysts are also given.

Also very useful are descriptions of the physical properties of the reactant whose reactions are described. These include their color, basic physical and chemical properties, and solubility characteristics. Another useful feature is the inclusion of both laboratory and industrial methods of synthesis.

This volume furnishes an informative and useful compilation of the chemical reactions of elements and compounds. It will be very useful to chemists and chemical engineers as well as to biochemists and those who are interested in chemical reactions which can occur under a variety of environmental conditions.

The sources of the reported data are not given so that the reader is not informed about the criticality of the information. Consequently, there is no way to make judgments as to whether the data reflects the most recent literature.

In summary, this book presents a vast and very useful compilation of the reactions of the chemical elements and their compounds. It is a volume to which practicing chemists and chemical engineers will make frequent reference.

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Handbook of Thermodynamic Tables. Second and Revised Edition. By Kuzman Razjnevich. Begell House, Inc., New York, 1995. 247 pp. \$77.50. ISBN 1-56700-046-0.

The major contents of this book are Table of Contents, Tables of Data, Appendices, References, and Index. No mention is made about the date of publication or circumstances of the first edition.

The bulk of the book consists of tables of numerical values of thermodynamic and transport properties such as temperature of phase transitions, heat capacity, enthalpy, entropy, *PVT* data, thermal conductivity, viscosity, and thermochemical properties. These are organized into four main sections: Solids, Liquids, Vapors, and Gases. Most of the data values refer to pure compounds, but a few tables contain data for high polymers, metal alloys, minerals, air, and other materials of industrial importance. The chapter on Vapors occupies about half the contents of the book and primarily concerns refrigerants. No phase equilibrium data for mixtures are included.

The tables are well organized and clearly presented. All numerical data are presented in SI units. It includes a convenient Table of Contents and Index so that information can be readily located. It appears intended for use by chemical, mechanical, and refrigeration engineers and similar technologists. For this use it furnishes a compact collection of data values.

A list of about 60 references is included. Presumably, these are the source of data in the book, although no specific statement is made about them. There is no indication about which reference was used for any particular data value. All the citations identify other handbooks and compilations. Of these all except 3 were published before 1964. No indication is given about how the data were selected from this diverse set of tables or of whether they were derived from observation or by estimation.

Thus it does not contain information gathered in recent decades and cannot be considered as a source of accurate or evaluated data. It cannot be assumed that the number of significant digits used for the numbers bear any relationship to the expected accuracy.

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Constants of Inorganic Substances. A Handbook. Revised and Augmented Edition. By R. A. Lidin, L. L. Andreeva, and V. A. Molochko. Begell House, Inc.: New York. 1996. 444 pp. \$97.50. ISBN 1-56700-014-X.

As stated by the authors, "this handbook includes the data on more than 4000 substances, ions, and radicals chosen with due regard for their industrial and scientific importance." Additional features include a formula index for finding information on the 3127 chemical species listed in Chapter 1, a section on nomenclature, and a listing of inorganic substances with their English, French, German, and Russian names. There are seven (7) chapters to this book: inorganic physical property and reactivity data (168 pp), atomic properties (11 pp), molecular properties (41 pp), thermodynamic properties (123 pp), solubility (46 pp), nomenclature (53 pp), and references (2 pp). Each chapter has numerous subsections.

A short paragraph in the Preface indicated that the materials included in this "American" edition (this is the