

Phase Diagram Activities

CODATA Announces New Recommended Values of the Fundamental Physical Constants for International Use

Work is completed on the *1986 Adjustment of the Fundamental Physical Constants*. These are the basic quantities used in physics and chemistry worldwide for scientific investigations. The 1986 adjusted values are recommended by the Committee on Data for Science and Technology (CODATA), an interdisciplinary, scientific committee of the International Council of Scientific Unions, with headquarters in Paris.

The 1986 CODATA report is the first revision to the 1973 CODATA report that established the first internationally adopted set of values. The new set was developed over a 5-year period under CODATA sponsorship by physicists Dr. E. Richard Cohen at Rockwell International Science Center and Dr. Barry N. Taylor at NBS. The scientists received guidance on their work from other members of the CODATA Task Group on Fundamental Constants that includes representatives from Canada, France, Japan, West Germany, the Soviet Union, and the United Kingdom.

Major changes to the 1973 recommended values include decreased values for the Planck constant, the elementary charge, and the electron mass; and increased values for the Avogadro constant, the Faraday constant, and the Josephson frequency-voltage ratio. Most importantly, throughout the 1986 set of recommended numerical values, the uncertainties are now typically about 10 times smaller than those in the 1973 set.

Copies of the *1986 Adjustment of the Fundamental Physical Constants*, CODATA Bulletin 63, may be purchased in North America for \$15 prepaid from Pergamon Press Inc., Maxwell House, Fairview Park, Elmsford, NY 10523. Elsewhere, the bulletin may be obtained from Pergamon

Press Ltd., Headington Hill Hall, Oxford OX3 OBW, United Kingdom.

Thermodynamic Reference Data Base Available From NBS

A new computerized standard reference database on the thermodynamic and physical properties of chemicals is available from NBS. The interactive database, DIPPR (Design Institute for Physical Property Data)—Data Compilation of Pure Compound Properties—1986, contains information on 39 properties for 346 chemical compounds of high industrial priority. The database also includes estimates of the accuracy of each property value and provides references to the sources of measured or predicted data that were used in selecting the recommended values. The database format is designed to be expanded when new information becomes available from DIPPR. It is anticipated that the standard reference database eventually will contain evaluated data on more than 1,000 compounds. The new computerized database was automated by the Office of Standard Reference Data (OSRD) from the American Institute of Chemical Engineers' 1985 resource book, *Data Compilation: Tables of Properties of Pure Compounds*. This printed database was prepared for DIPPR by Drs. Thomas E. Daubert and Ronald P. Danner of Pennsylvania State University.

NBS Standard Reference Database 11, DIPPR—Data Compilation of Pure Compound Properties—1986, is one of 11 databases in magnetic tape form that are available from OSRD for lease to individuals, distributors, or subscription search services. For information on fees and lease agreements for DIPPR, or for a list of the other computerized standard reference databases available from NBS, contact: Office of Standard Reference Data, A323 Physics Building, National Bureau of Standards, Gaithersburg, MD 20899, telephone: 301/975-2208.

Comments and Addenda

Addenda

The Al-Au System

In Vol. 8, No. 1 the AlAu₂ region of the phase diagram is shown on p 23 and the Au-rich part of the diagram showing metastable equilibria involving β is shown at the bottom of p 22.

The Cs-Zr and Rb-Zr Systems

In Vol. 8, No. 1, pages 45 and 51, in the crystal structure tables for Cs-Zr and Rb-Zr, replace the "Comment" >1995 °C with >865 °C for β Zr.