

Book Review: *Eighth Symposium on Thermophysical Properties*

Proceedings of the Eighth Symposium on Thermophysical Properties. Vol. I: **Thermophysical Properties of Fluids.** 487 pp. Vol. II: **Thermophysical Properties of Solids and of Selected Fluids for Energy Technology.** 445 pp. Edited by J. V. Sengers. American Society of Mechanical Engineers, New York. 1982.

These two volumes are the proceedings of the eighth symposium organized by the Committee on Thermophysical Properties of the American Society of Mechanical Engineers. The symposia are held every three or four years. The many papers collected in these volumes summarize the work of scientists and engineers who produce reference data on the properties of materials. These include both thermodynamic and transport data on gaseous, liquid, and solid compounds under wide ranges of temperature and pressure. Some report new data. Others report new techniques of measurement that enable one to obtain more accurate data, data under difficult conditions, and/or data on new materials. There is a substantial representation of theorists who are increasingly successful in correlating raw data and obtaining reliable new data by extension from the raw data based on theory.

The need for these activities to be continuously pursued and supported is clearly evident in the article by Ho and Touloukian (Vol. II, p. 419). They give many examples of data, drawn from the published literature, that are entirely incorrect both quantitatively and qualitatively. They show clearly that use of some of these incorrect data can lead to disastrous results in practical applications.

With the development of new materials, the demand for reliable thermophysical data will increase. The wide availability of computers makes it possible to accumulate large bodies of data in a short time. In addition, major advances have been made in the last decade on the statistical mechanical theory of dense fluids and of the critical phenomena.

These theoretical tools make it possible to analyze, correlate, and extend raw data with some confidence. These volumes give a good overview of the state of the art in measurements of many quantities of direct interest in statistical mechanics, and are therefore of some interest to readers of this journal.

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