hydrocarbon liquid mixtures. However, moist gas mixtures at high pressures will obey neither law although that of Amagat will be closer than that of Dalton. The authors have later used Amagat's law to calculate their $\bar{p}_2$, as noted previously.

A final problem, as noted above, is that while the pure-component second and third virial coefficients appear reasonable in comparison with more recent measurements for water vapor, CO_2, ethane, and other dry gases, the interaction or cross coefficients, B_{12}, C_{112}, and C_{122}, do not always agree even approximately. For our example above, $B_{12} = -81.7$ cm^3/(g mol) as measured by Patel et al. but the authors show -96.2 at 400 K in Table 3.11.7 as estimated from a Lennard-Jones intermolecular potential model. It is well-known that this potential fails where highly polar components are involved.

In summary, this book is very valuable for its extensive tables of the thermodynamic properties of common moist gases but must be used by experts with care. All values in the tables must be checked back with the text as to their definition and units and, most importantly, the equation from which they have been calculated.

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Thermodynamic Properties of Butane. By V. V. Sychev, A. A. Vasserman, A. D. Kozlov, and V. A. Tsymarny. Begell House, Inc., New York. 1995. 265 pp. $117.50. ISBN 1-56700-049-5.

This volume continues the series of monographs that started with nitrogen and has included methane, ethane, and propane. This series has been published in both Russia and the United States. This volume on normal butane is the first of that series to be published first in the United States.

This volume provides a comprehensive correlation and set of tables of the thermodynamic properties for normal butane at temperatures from 135 to 700 K over the pressure range of 0.01 to 100 MPa. The tables include properties for the saturation curve and along isobars. The bulk of the book consists of these isobaric tables of properties such as compressibilities, enthalpies, entropies, isobaric and isochoric heat capacities, sound speeds, Joule−Thomson coefficients, and fugacities. All numerical data are presented in SI units.

The chapter on experimental data presents a comprehensive compilation of the major sources of thermodynamic property data for normal butane. It also includes useful descriptions of experimental techniques suggesting careful analysis and critical evaluation of the experimental data. A list of 80 references is included that covers sources of experimental data, other correlations, and other relevant work.

A brief description of the equation of state is presented with references given to earlier volumes in the series that provide more detail. Also presented are the formulas for calculating the thermodynamic properties.

Extensive comparisons with experimental data are presented. Also presented are comparisons with the results from previous comparable correlations. This new equation extends to slightly higher pressures and temperatures than the previous correlations. It also includes tabulation of more properties than the earlier correlations.

In summary, this book presents a useful correlation and set of tables for the thermodynamic properties of normal butane, especially of interest to practicing engineers in the oil and gas industry.

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