

# JOURNAL OF PHYSICAL AND CHEMICAL REFERENCE DATA

CODEN: JPCRBV  
ISSN: 0047-2689  
URL: <http://ojs.aip.org/jpcrd/>

Periodicals Postage  
Paid at Huntington Station, NY  
and Additional Mailing Offices

Postmaster: If undeliverable,  
send notice on Form 3579 to:  
American Institute of Physics  
Suite 1N01, 2 Huntington Quadrangle  
Melville, NY 11747-4502

Volume 31, No. 3, 2002

## Recommended Vapor–Liquid Equilibrium Data. Part 1: Binary *n*-Alkanol–*n*-Alkane Systems . . . . . 701

*Marian Góral, Paweł Oracz, Adam Skrzecz, Andrzej Bok, and Andrzej Mączyński*

The recommended vapor–liquid equilibrium (VLE) data for 39 binary *n*-alcohol–*n*-alkane systems have been obtained after critical evaluation of all data (490 data sets) reported in the open literature up to the middle of 2001. The evaluation procedure consisted in combining the thermodynamic consistency tests, data correlation, comparison with enthalpy of mixing data, and comparison of VLE data for various mixtures. The data were correlated with equations based on the local compositions concept as well as with the equation of state appended with a chemical term (EoS<sub>C</sub>) proposed by Góral.

## Cross Sections for Electron Collisions With Carbon Dioxide . . . . . 749

*Yukikazu Itikawa*

Cross section data have been compiled for electron collisions with carbon dioxide molecules (CO)<sub>2</sub>, based on 75 references. Molecular properties of CO<sub>2</sub> are summarized as far as they are helpful in understanding those collisional processes. With an evaluation of the compiled data, recommended values of the cross section are presented in a tabular form.

## Doppler Broadening and its Contribution to Compton Energy-Absorption Cross Sections: An Analysis of the Compton Component in Terms of Mass-Energy Absorption Coefficient . . . . . 769

*D. V. Rao, T. Takeda, Y. Itai, T. Akatsuka, R. Cesareo, A. Brunetti, and G. E. Gigante*

Compton energy absorption cross sections are calculated using the formulas based on a relativistic impulse approximation. The objective is to assess the contribution of Doppler broadening and to examine the Compton profile literature, exploring what effect our knowledge of this line broadening has on the Compton component in terms of the mass-energy absorption coefficient. Compton energy absorption cross sections are evaluated for all elements, *Z*=1–100 and for photon energies 1 KeV–100 MeV.

## Experimental Stark Widths and Shifts for Spectral Lines of Neutral and Ionized Atoms (A Critical Review of Selected Data for the Period 1989 Through 2000) . . . . . 819

*N. Konjević, A. Lesage, J. R. Fuhr, and W. L. Wiese*

A critical review of the available experimental data on Stark widths and shifts for spectral lines of nonhydrogenic neutral atoms and positive ions has been carried out. Data tables containing the selected experimental Stark broadening parameters are presented with an estimated accuracy. A total of 77 spectra are covered, and the material on multiply charged ions has significantly increased (in comparison to earlier reviews).