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IUPAC-NIST Solubility Data Series. 77. Nitroalkanes With Water or Organic Solvents: Binary and Multicomponent Systems 1

Valerii P. Sazonov, David G. Shaw, Kenneth N. Marsh, Nikolai V. Sazonov, Nikolai I. Lisov, and Mariya F. Chernysheva

The mutual solubilities and liquid-liquid equilibria of binary and multicomponent systems composed of C_{2+} nitroalkanes with solvents are reviewed. The solvents (mainly in liquid phase) include water, inorganic compounds and a variety of organic compounds such as hydrocarbons, halogenated hydrocarbons, alcohols, acids, esters, and nitrogen compounds. A total 81 binary, 21 ternary, 2 quarternary and 1 five component systems whose properties were described in the chemical literature through 1998 are compiled. For 14 systems sufficient data were available to allow critical evaluation. All data are expressed as mass and mole fractions as well as the originally reported units. Similar reviews of gas, liquid, and solid solubilities for other systems have been within the Solubility Data Series. This is volume 77 of this series.

Evaluated Enthalpies of Formation of the Stable Closed Shell C1 and C2 Chlorinated Hydrocarbons 123

Jeffrey A. Manion

Experimental data on the enthalpies of formation of chloromethanes, chloroethynes, chloroethenes, and chloroethanes are critically reviewed. Enthalpy of formation values for the C1 and C2 chlorinated hydrocarbons are highly cross-linked by various measured reaction equilibria and currently available sets of values are not internally self-consistent. Data on the enthalpies of vaporization are also reviewed and values of $^{\Delta}_{vap}H$[298.15 K] and $\Delta_{vap}H°$[298.15 K] are recommended.

Correlation for the Vapor Pressure of Heavy Water From the Triple Point to the Critical Point 173

Allan H. Harvey and Eric W. Lemmon

A new formation has been developed to represent the vapor pressure of heavy water (D_2O) from its triple point to its critical point. This work takes advantage of several developments since the publication of the best previous formulation: the availability of some new data in the lower part of the temperature range, the adoption of the ITS-90 temperature scale, and the adoption of recommended values for the critical constants by the International Association for the Properties of Water and Steam (IAPWS).

***pVT*-Second Virial Coefficients *B*(*T*), Viscosity $\eta(T)$, and Self-Diffusion $\rho D(T)$ of the Gases: BF_3, CF_4, SiF_4, CCl_4, $SiCl_4$, SF_6, MoF_6, WF_6, UF_6, $C(CH_3)_4$, and $Si(CH_3)_4$ Determined by Means of an Isotropic Temperature-Dependent Potential** 183

L. Zarkova and U. Hohm

Results are presented on self-consistent calculations of second *pVT*-virial coefficients B(*T*), viscosity data $\eta(T)$, and diffusion coefficients ηD for eleven heavy globular gases. The calculations are performed mainly in the temperature range between 200 and 900 K by means of isotropic *n*-6 potentials with temperature-dependent separation $r_m(T)$ and potential well-depth $\epsilon(T)$. The concept of the isotropic temperature-dependent potential (ITDP) is presented in detail where gaseous SF_6 serves as an example

Critically Evaluated Atomic Transition Probabilities for Ba I and Ba II 217

J. Z. Klose, J. R. Fuhr, and W. L. Wiese

Atomic transition probabilities for allowed and forbidden lines of Ba I and Ba II are tabulated, based on a critical evaluation of recent literature sources. The data are presented in multiplet format and are ordered by increasing excitation energies.