

**ON THE COVER:** The images shown on the cover were taken from papers in the special section in honor of Grant Wilson: (top left) Conceptual model of the evolution of rising gas bubbles/oil droplets in an open water column and into a containment structure (see DOI: 10.1021/je400765a). (top right) (a) Absolute and (b) excess isobaric heat capacities for methane + butane mixtures as functions of temperature (see DOI: 10.1021/je4007019). (middle left) Schematic illustration of the use of isochoric and isothermal data to calculate energies and entropies (see DOI: 10.1021/je400746u). (bottom) Schematic illustration of local and bulk mole fractions and plots showing deviations between local and bulk mole fractions as functions of methanol mole fraction in methanol/water mixtures (see DOI: 10.1021/je400744j).

## SPECIAL SECTION: IN HONOR OF GRANT WILSON

### Editorial

943

Preface to the Memorial Edition for Grant M. Wilson  
Loren Wilson\* and Howard Wilson

[dx.doi.org/10.1021/je500128s](http://dx.doi.org/10.1021/je500128s)

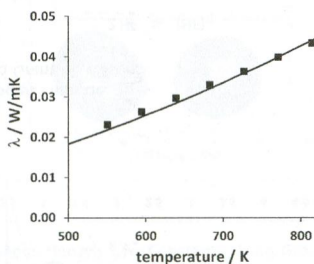
### Articles

946



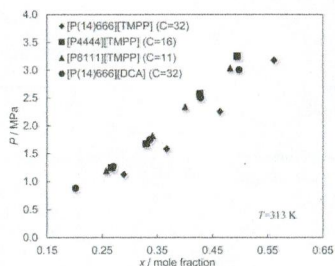
An Estimation Method for Thermal Conductivity in the Fluid Phase  
Karsten Müller\* and Wolfgang Artl

[dx.doi.org/10.1021/je4004349](http://dx.doi.org/10.1021/je4004349)



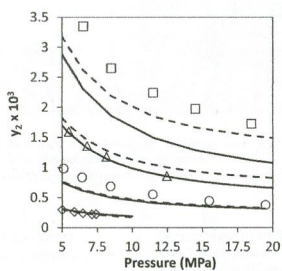
### High Solubilities of Carbon Dioxide in Tetraalkyl Phosphonium-Based Ionic Liquids and the Effect of Diluents on Viscosity and Solubility

Waheed Afzal, Xiangyang Liu, and John M. Prausnitz\*



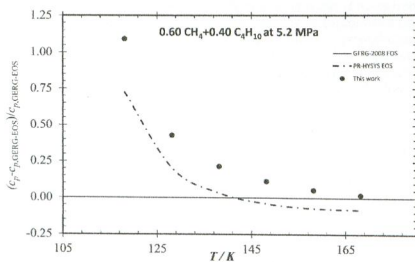
### Vapor–Liquid Equilibrium of Methane with Water and Methanol. Measurements and Modeling

Michael Frost, Eirini Karakatsani, Nicolas von Solms, Dominique Richon, and Georgios M. Kontogeorgis\*



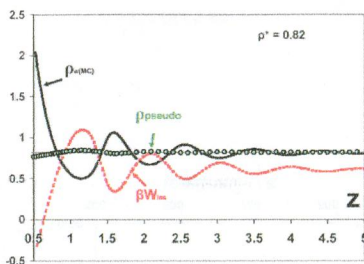
### Isobaric Heat Capacity Measurements of Liquid Methane + Propane, Methane + Butane, and a Mixed Refrigerant by Differential Scanning Calorimetry at High Pressures and Low Temperatures

Tauqir H. Syed, Thomas J. Hughes, Kenneth N. Marsh, and Eric F. May\*



### Congruent Chemical Potentials and Insertion Works in Establishing Nonuniform-Fluid Structures via Uniform-Fluid Properties

Lloyd L. Lee



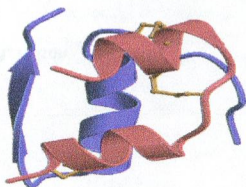
### Vapor PVT and Vapor Pressure of Hydrogen Fluoride

Loren C. Wilson,\* W. Vincent Wilding, and Grant M. Wilson



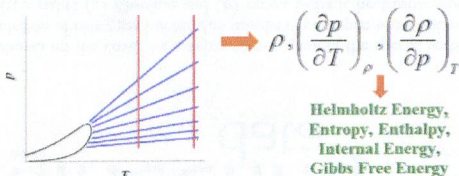
### Chemical Engineering Thermodynamics and Protein Adsorption Chromatography

Jørgen M. Møllerup\*

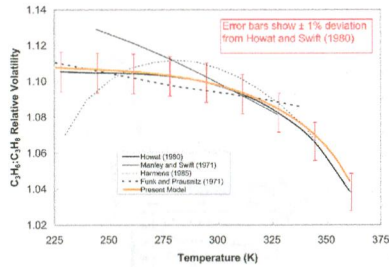


### Calculation of Energies and Entropies from Isochoric and Isothermal Experimental Data

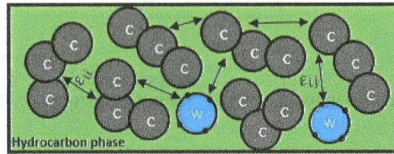
Andrea del Pilar Tibaduiza, Diego E. Cristancho, Diego Ortiz-Vega, Ivan D Mantilla, Martin A. Gomez-Osorio, Robert A. Browne, James C. Holste,\* and Kenneth R. Hall



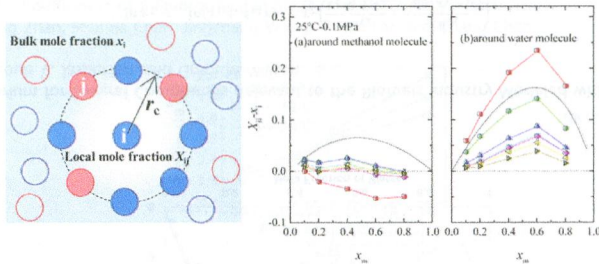
Sensitivity of Process Design to Phase Equilibrium—A New Perturbation Method Based Upon the Margules Equation  
Paul M. Mathias\*



Examining the Consistency of Water Content Data in Alkanes Using the Perturbed-Chain Form of the Statistical Associating Fluid Theory Equation of State  
Wael A. Fouad, Deepti Ballal, Kenneth R. Cox, and Walter G. Chapman\*



Insight into the Local Composition of the Wilson Equation at High Temperatures and Pressures through Molecular Simulations of Methanol–Water Mixtures  
Takumi Ono,\* Kyouhei Horikawa, Masaki Ota, Yoshiyuki Sato, and Hiroshi Inomata



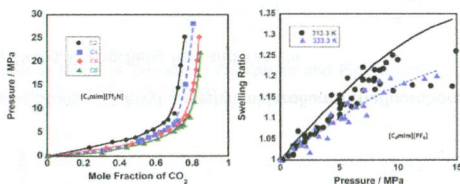
### A Systems Approach for Improved Accuracy of Thermophysical Properties in the DIPPR 801 Database: 1,*n*-Alkanediols as a Case Study

R. L. Rowley,\* W. V. Wilding, A. Congote, and N. F. Giles



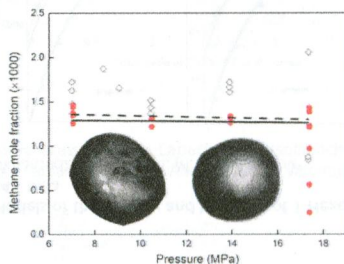
### Extension of an Associated Lattice–Fluid Equation of State to CO<sub>2</sub> + Ionic Liquid Systems

Mohammad Z. Hossain and Amyn S. Teja\*



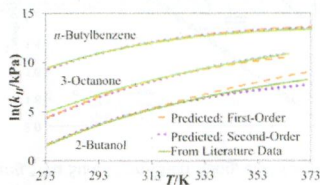
### Methane Hydrate Formation and Dissociation on Suspended Gas Bubbles in Water

Litao Chen, E. Dendy Sloan, Carolyn A. Koh, and Amadeu K. Sum\*



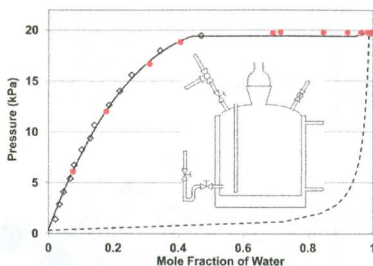
### Predicting Temperature-Dependent Aqueous Henry's Law Constants Using Group Contribution Methods

Sarah A. Brockbank,\* Neil F. Giles, Richard L. Rowley, and Wade Vincent Wilding



## Phase Equilibria in Systems with Levulinic Acid and Ethyl Levulinate

Alexander J. Resk, Lars Peereboom, Aspi K. Kolah, Dennis J. Miller, and Carl T. Lira\*



## Vapor–Liquid Equilibrium for Several Compounds Relevant to the Biofuels Industry Modeled with the Wilson Equation

Rubin J. McDougal,\* Louis V. Jaspersen, and Grant M. Wilson

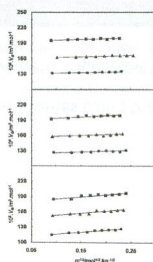
$$\ln \gamma_1 = -\ln(x_1 + A_{12}x_2) + x_2 \left( \frac{A_{12}}{x_1 + A_{12}x_2} - \frac{A_{21}}{A_{21}x_1 + x_2} \right)$$

$$\ln \gamma_2 = -\ln(x_2 + A_{21}x_1) - x_1 \left( \frac{A_{12}}{x_1 + A_{12}x_2} - \frac{A_{21}}{A_{21}x_1 + x_2} \right)$$

## Articles

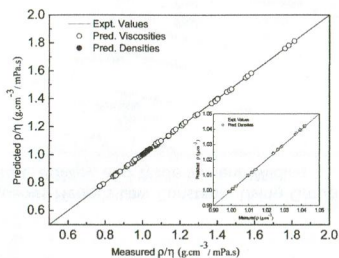
Apparent Molar Volumes of 1-Alkyl ( $n = 2, 4, 6$ )-3-methylimidazolium Bromides in a Mixed-Solvent Medium of Acetonitrile + Water at Temperatures of (293.15, 303.15, and 313.15) K

Prabir Nandi and Deresh Ramjugernath\*



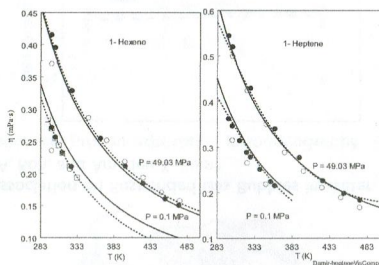
### Densities and Viscosities of the Binary and Ternary Aqueous Solutions of Pyrrolidone-Based Ionic Liquids at Different Temperatures and Atmospheric Pressure

Zhen-Yu Yang, Yu-Feng Hu,\* Zhi-Xin Wang,\* Yu Sun, Chen-Chen Jiang, and Yu-Fei Chen



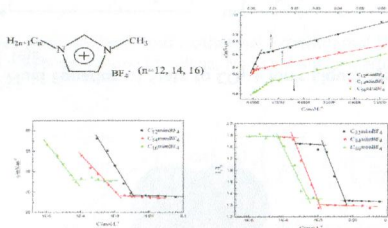
### Experimental Study and Correlation Models of the Density and Viscosity of 1-Hexene and 1-Heptene at Temperatures from (298 to 473) K and Pressures up to 245 MPa

D. I. Sagdeev, M. G. Fomina, G. Kh. Mukhamedzyanov, and I. M. Abdulgatov\*



### Micellization and Thermodynamic Study of 1-Alkyl-3-methylimidazolium Tetrafluoroborate Ionic Liquids in Aqueous Solution

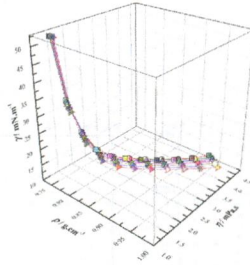
Ying Wei, Fang Wang,\* Zhiqing Zhang, Chengcheng Ren, and Yan Lin





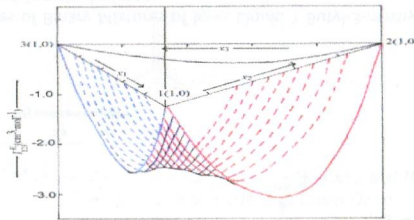
Density, Viscosity, and Interfacial Tension of Binary Mixture of Tri-*iso*-amyl Phosphate (TiAP) and *n*-Dodecane: Effect of Compositions and Gamma Absorbed Doses

Mani Lal Singh, Subhash C. Tripathi,\* Manisha Lokhande, Pritam M. Gandhi, and Vilas G. Gaikar



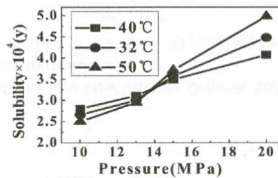
Thermodynamic Properties of Ternary Mixtures Containing Ionic Liquid and Organic Liquids: Excess Molar Volume and Excess Isentropic Compressibility

V. K. Sharma,\* S. Solanki, and S. Bhagour



Solubility and Partition Coefficients of 5-Fluorouracil in  $\text{ScCO}_2$  and  $\text{ScCO}_2/\text{Poly}(L\text{-lactic acid})$

Shiping Zhan,\* Qicheng Zhao, Shuhua Chen, Jingchang Wang, Zhijun Liu, and Chang Chen

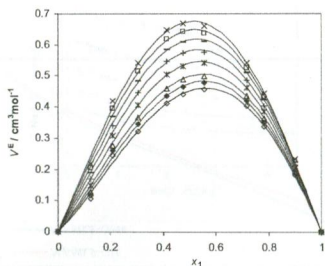


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dx.doi.org/10.1021/je400659p

### Density and Refractive Index of Binary Mixtures of Two 1-Alkyl-3-methylimidazolium Ionic Liquids with 1,4-Dioxane and Ethylene Glycol

Oana Ciocirlan,\* Oana Croitoru, and Olga Iulian

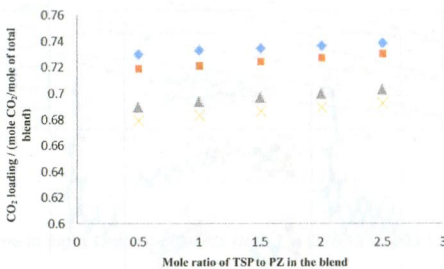


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dx.doi.org/10.1021/je400706g

### Equilibrium $\text{CO}_2$ Capture in Aqueous Blend of Trisodium Phosphate and Piperazine

Monoj Kumar Mondal,\* Jaivinder Singh, and Dishant Khatri

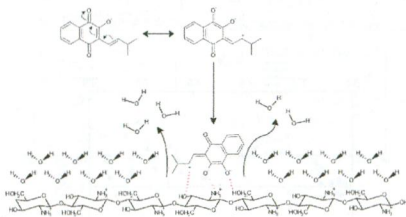


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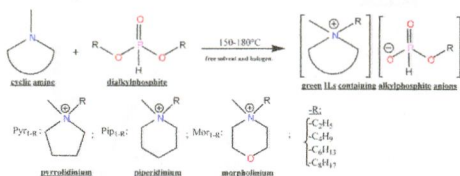
### Thermodynamic Parameters of the Interactions between Lapachol and Isolapachol Sodium Salts and Chitosan Flakes

Paulo R. B. de Miranda,\* Társila S. Silva,\* Fabiane Caxico de Abreu,\* Iara B. Valentim,\* and Marília O. F. Goulart\*



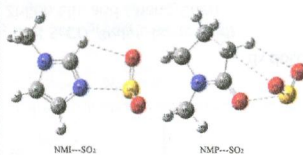
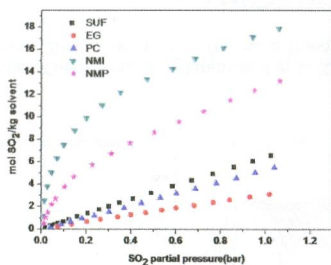
### New Series of Green Cyclic Ammonium-Based Room Temperature Ionic Liquids with Alkylphosphite-Containing Anion: Synthesis and Physicochemical Characterization.

Ramzi Zarrougui,\* Nouredine Raouafi, and Daniel Lemordant



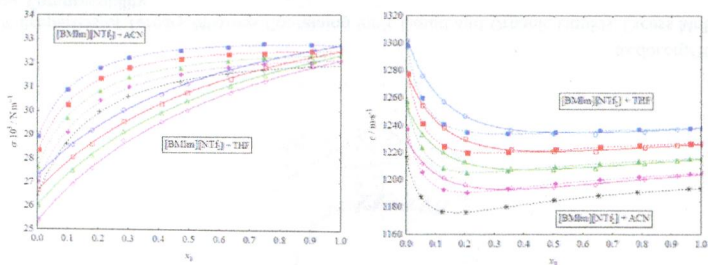
### Comparative Study of the Solubilities of SO<sub>2</sub> in Five Low Volatile Organic Solvents (Sulfolane, Ethylene Glycol, Propylene Carbonate, *N*-Methylimidazole, and *N*-Methylpyrrolidone)

Kuan Huang, Shuang Xia, Xiao-Min Zhang, Yong-Le Chen, You-Ting Wu,\* and Xing-Bang Hu\*



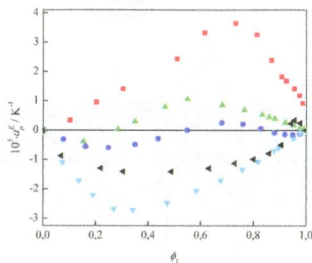
### Acoustic and Volumetric Properties of Binary Mixtures of Ionic Liquid 1-Butyl-3-methylimidazolium Bis(trifluoromethylsulfonyl)imide with Acetonitrile and Tetrahydrofuran

Monika Geppert-Rybczyńska\* and Magdalena Sitarek



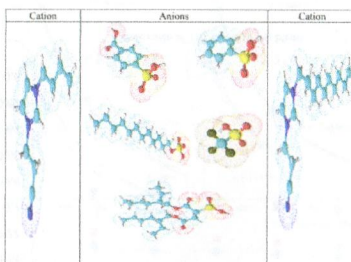
Volumetric Properties of Binary Mixtures of 1-Butyl-1-Methylpyrrolidinium Tris(pentafluoroethyl)trifluorophosphate with *N*-Methylformamide, *N*-Ethylformamide, *N,N*-Dimethylformamide, *N,N*-Dibutylformamide, and *N,N*-Dimethylacetamide from (293.15 to 323.15) K

Slobodan Gadžurić, Aleksandar Tot, Nebojša Zec, Snežana Papović, and Milan Vraneš\*



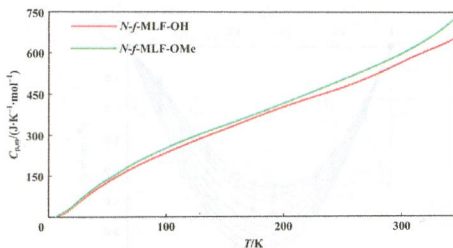
Physical Properties of Ionic Liquids Consisting of 1-Butyl-3-propanenitrile- and 1-Decyl-3-propanenitrile Imidazolium-Based Cations: Temperature Dependence and Influence of the Anion

Abobakr Khidir Ziyada\* and Cecilia Devi Wilfred

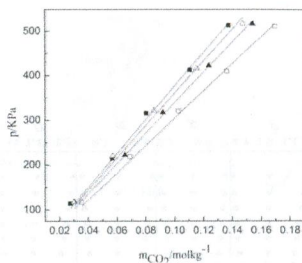


Standard Thermodynamic Functions of Tripeptides *N*-Formyl-L-methionyl-L-leucyl-L-phenylalaninol and *N*-Formyl-L-methionyl-L-leucyl-L-phenylalanine Methyl Ester

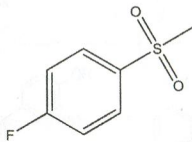
Alexey V. Markin,\* Evgeny Markhasin, Semen S. Sologubov, Natalia N. Smirnova, and Robert G. Griffin



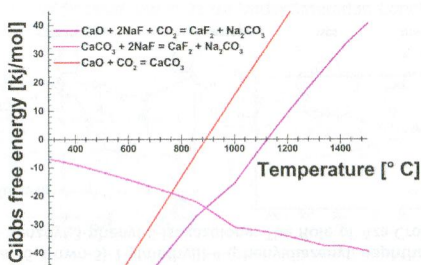
Solubilities of Carbon Dioxide in Eutectic Mixtures of Choline Chloride and Dihydric Alcohols  
 Yanfei Chen, Ning Ai,\* Guihua Li, Haifang Shan, Yanhong Cui, and Dongshun Deng\*



Solubility of 1-Fluoro-4-(methylsulfonyl)benzene in Five Pure Organic Solvents at Temperatures from (288.40 to 331.50) K  
 Chao Qian, Yayun Wang, and Xinzhi Chen\*

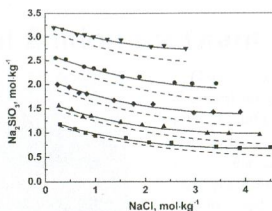


Phase Equilibria Evaluation for CO<sub>2</sub> Capture: CaO–CaF<sub>2</sub>–NaF, CaCO<sub>3</sub>–NaF–CaF<sub>2</sub>, and Na<sub>2</sub>CO<sub>3</sub>–CaF<sub>2</sub>–NaF  
 Viktorija Tomkute,\* Asbjørn Solheim, Simas Sakirzanovas, Bjarte Øye, and Espen Olsen



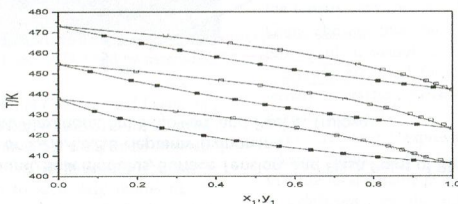
### Determination and Modeling of the Solubility of $\text{Na}_2\text{SiO}_3 \cdot 9\text{H}_2\text{O}$ in the $\text{NaCl-KCl-H}_2\text{O}$ System

Yan Zeng, Zhibao Li,\* and George P. Demopoulos



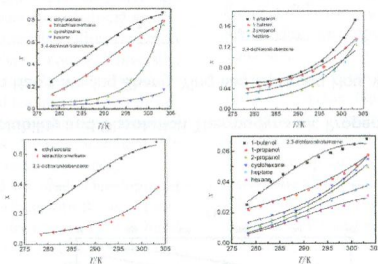
### Isobaric Vapor-Liquid Equilibrium for Four Binary Systems of Ethane-1,2-diol, Butane-1,4-diol, 2-(2-Hydroxyethoxy)ethanol-1-ol, and 2-[2-(2-Hydroxyethoxy)ethoxy]ethanol at 10.0 kPa, 20.0 kPa, and 40.0 kPa

Changsheng Yang,\* Yankai Sun, Zhenli Qin, Yang Feng, Ping Zhang, and Xue Feng



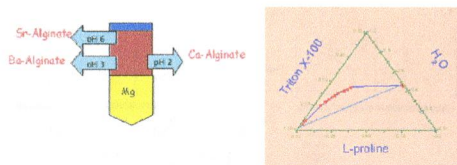
### Solubility of Dichloronitrobenzene in Eight Organic Solvents from $T = (278.15 \text{ to } 303.15) \text{ K}$ : Measurement and Thermodynamic Modeling

Hui Xu, Bin Zhang, Zhipeng Yang, Ganbing Yao, and Hongkun Zhao\*



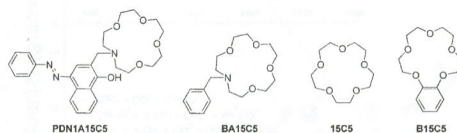
### L-Proline Based Aqueous Biphasic System: Design and Application To Isolate the Alkaline Earths

Arabinda Chakraborty and Kamalika Sen\*



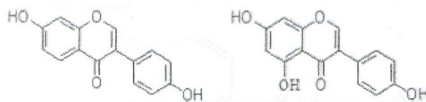
### Synergistic Efficiency of 2-[(1-Aza-15-crown-5)-1-ylmethyl]-4-(phenyldiazonyl)-naphthalen-1-ol in the Liquid Extraction of Light Lanthanoid(III) Ions with 4-Benzoyl-3-phenyl-5-isoxazolone: The Role of Aza-Crown and Azo-Dye Fragments on the Extraction Ability

Maria A. Petrova\* and Vanya B. Kurteva



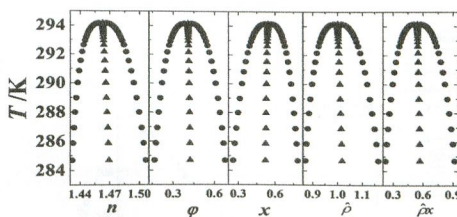
### Dissociation Constants and Solubilities of Daidzein and Genistein in Different Solvents

Guanjun Nan, Jiao Shi, Yanru Huang, Jing Sun, Jianhua Lv, Guangde Yang,\* and Yiping Li\*

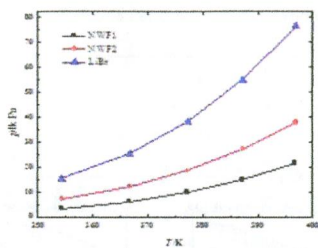


### Liquid-Liquid Phase Equilibria and Critical Phenomena of the Binary Mixture Nitrobenzene + *n*-Nonane

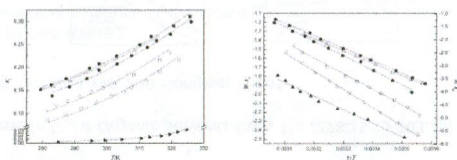
Tianxiang Yin, Aiqin Shi, Jingjing Xie, Mingjie Wang, Zhiyun Chen, Xueqin An, and Weiguo Shen\*



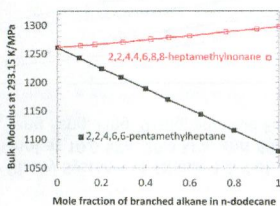
Vapor Pressure Measurement of Two Quaternary Systems  $\text{LiBr} + \text{LiNO}_3 + \text{LiCl} + \text{H}_2\text{O}$  and  $\text{LiBr} + \text{LiCl} + 1,3\text{-Propanediol} + \text{H}_2\text{O}$   
Xizhuo Jiang, Wenjie Xiong, Yun Li, Danxing Zheng, Xiao Wang, and Lin Shi\*



Measurement and Correlation of Solubility and Dissolution Thermodynamic Properties of Furan-2-carboxylic Acid in Pure and Binary Solvents  
Yuhong Guo, Qiuxiang Yin, Hongxun Hao,\* Meijing Zhang, Ying Bao, Baohong Hou, Wei Chen, Hui Zhang, and Wenjie Cong



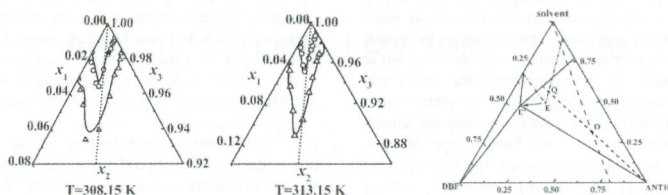
Density, Viscosity, Speed of Sound, Bulk Modulus, Surface Tension, and Flash Point of Binary Mixtures of *n*-Dodecane with 2,2,4,6,6-Pentamethylheptane or 2,2,4,4,6,8,8-Heptamethylnonane  
Dianne J. Luning Prak,\* Sarah M. Alexandre, Jim S. Cowart, and Paul C. Trulove



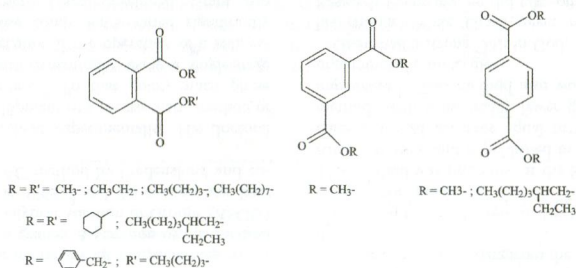


**Solid–Liquid Phase Equilibria of Ternary Mixtures Containing 1,2-Dihydroacenaphthylene and Dibenzofuran**

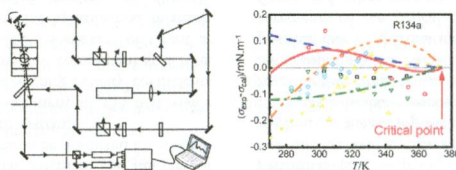
Wenjie Cong, Qixiang Yin, Junbo Gong, Ying Bao, Meijing Zhang, Hongxun Hao, Baohong Hou, Yuhong Guo, and Chuang Xie\*

**Vapor Pressures and Vaporization Enthalpies of a Series of Dialkyl Phthalates by Correlation Gas Chromatography**

Chase Gobble, James Chickos,\* and Sergey P. Verevkin

**Liquid Viscosity and Surface Tension of R1234yf and R1234ze Under Saturation Conditions by Surface Light Scattering**

Guanjia Zhao, Shengshan Bi, Andreas Paul Fröba, and Jiangtao Wu\*

**Comments and Replies****Comments on "Role of Anions (Tetrafluoroborate, Perchlorate) of Tetrabutylammonium Salts in Determining Solvation Effects Prevailing in Industrially Essential Solvents Probed by Conductance and FT-IR Spectra"**

William E. Acree Jr.