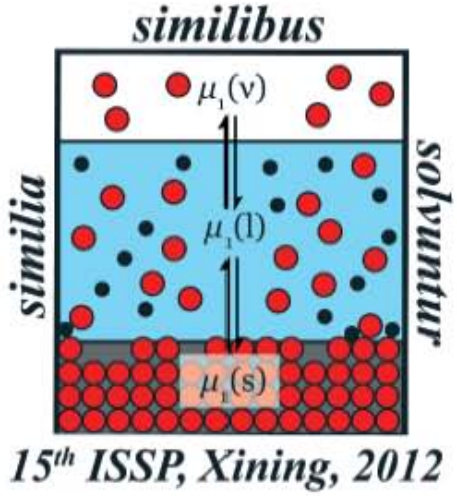
15th International Symposium on Solubility Phenomena and Related Equilibrium Processes

ISSP 2012



Qinghai Institute of Salt Lakes, China
July 23th - 27th, 2012

Scientific Programme

http://issp2012.csp.escience.cn

SCIENTIFIC PROGRAMME

Monday, 23 July 2012

9:00-9:30 **Opening Ceremony**: Auditorium, Qinghai Institute of Salt Lakes
Vice Governor, Qinghai Province
Heinz Gamsjäger, IUPAC Representative
M. Clara Magalhães, Chair SSED (IUPAC)
Haizhou Ma, Director of Qinghai Institute of Salt Lakes
Dewen Zeng, Co-chair 14th ISSP

Chairperson: **Dewen Zeng**, Qinghai Institute of Salt Lakes, Xining, China

9:35-10:25 Plenary Lecture

Heinz Gamsjäger, Montanuniversität Leoben, Leoben, Austria

"SOLUBILITY PHENOMENA IN SCIENCE AND EDUCATION–EXPERIMENTS, THERMODYNAMIC ANALYSES AND THEORETICAL ASPECTS"

10:25-10:45 *Coffee break*

Chairperson: **Wolfgang Voigt**, TU Bergakademie Freiberg, Germany

10:45-11:35 Plenary Lecture

Erich Königsberger, Murdoch Univsrsity, Murdoch, Australia

"SOLID–SOLUTE PHASE EQUILIBRIA IN AQUEOUS SOLUTION – FUNDAMENTALS AND APPLICATION"

11:35-12:15 Invited Lecture

Irina Zvereva, Saint-Petersburg State University, Saint-Petersburg, Russia

"SOLID SOLUTIONS OF LAYERED OXIDES WITH RARE EARTH ELEMENTS"

12:15-12:40 **Jianxin Chen,** Engineering Research Center of Seawater Utilization Technology, Ministry of Education, Tianjin, China

"SOLUBILITY CHANGE OF THE TERNARY SYSTEM KCl–NH_4Cl–H_2O FROM 15 °C to 65 °C"

12:40-14:00 *Lunch break*

Chairperson: **Wolfgang Voigt**, TU Bergakademie Freiberg, Germany
Kaj Thomsen, Technical University of Denmark, Kongens Lyngby, Denmark

P47 **J. Lu, S.N. Li, Q.G. Zhai, Y.C. Jiang, M.C. Hu**
Shaanxi Normal University, Xi'an, China.

ACTIVITY COEFFICIENT OF CsCl IN AQUOUES MIXTURES WITH HIGH DIELECTRIC CONSTANT SYSTEM: N-ME THYLFORMAMIDE+WATER BY POTENTIOMETRIC MEASUREMENTS AT 298.15 K

P48 **J. Tang, S.N. Li, Q.G. Zhai, Y.C. Jiang, M.C. Hu**
Shaanxi Normal University, Xi' an, China

ACTIVITY COEFFICIENTS OF $CsNO_3$ IN ALCOHOL–WATER MIXED SOLVENT FROM POTENTIOMETRIC METHOD

P49 **M.A. Martins[1], P.C. Mota[1], O. Ferreira[1], L. Hnědkovský[2], S.P. Pinho[1], I. Cibulka[2]**
[1]Instituto Politécnico de Bragança, Campus de Santa Apolónia, Bragança, Portugal
[2]Institute of Chemical Technology, Prague, Czech Republic

PARTIAL MOLAR VOLUMES OF AMINO ACIDS IN AQUEOUS SOLUTIONS CONTAINING AMMONIUM SULFATE

P50 **Y.J. Li, S.N. Li, Q.G. Zhai, Y.C. Jiang, M.C. Hu**
Shaanxi Normal University, Xi' an, China

SOLUBILITIES, DENSITIES AND REFRACTIVE INDICES FOR THE THERNARY SYSTEMS ETHYLENE GLYCOL + MBr (M = K, Rb, Cs) + H_2O AT 288.15 K

P51 **L. Ma, Sh.N. Li, Q.G. Zhai, Y.C. Jiang, M.C. Hu**
Shaanxi Normal University, Xi' an, China

THERMODYNAMIC PROPERTIES OF CsF IN WATER + L-ALANINE SYSTEM

PARTIAL MOLAR VOLUMES OF AMINO ACIDS IN AQUEOUS SOLUTIONS CONTAINING AMMONIUM SULFATE

Martins[1] M.A., Mota[1] P.C., Ferreira[1] O., Hnědkovský[2] L., Pinho[1] S.P. and Cibulka[2] I.

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Because proteins are large complex molecules, direct study of protein-electrolyte interactions is difficult. It is therefore useful to investigate the interaction of model compounds such as amino acids, peptides, and their derivatives that constitute part of the protein structures. This feature of amino acids has been strongly attracting the attention of researchers to describe their physico-chemical properties.

Hydrophobic, charged atomic groups and ions are components of almost every biologically important system. It is generally acknowledged that the hydration of such atomic groups plays an important role in the conformational stability of biopolymers [1]. Consequently, characterization of the hydration properties of both hydrophobic and charged groups should provide insights into the role of solute-solvent interactions associated with fundamental biopolymers phenomena such as folding-unfolding transitions, solubility and denaturation [2].

In this work, density measurements were carried out in aqueous ammonium sulphate solutions containing the amino acids alanine, glycine, serine or threonine, in the temperature range between 278.15 and 318.15 K. From the measured data, the partial molar volumes of amino acids were calculated, allowing the interpretation of the physico-chemical properties of those solutions. The new experimental information was combined with the one collected from the open literature in order to have an insight on the forces that rule biologically important structures.

References

[1] Chalikian T.V., Sarvazyan A.P., Breslauer K.J., Partial molar volumes, expansibilities, and compressibilities of aminocarboxylic acids in aqueous solutions between 18 and 55 °C, *J. Phys. Chem.*, **97**, (1993) 13017–13026.
[2] Ferreira L.A., Macedo E.A., Pinho S.P., The Effect of ammonium sulfate on the solubility of amino acids in water at 298.15 and 323.15 K, *J. Chem. Thermodyn.*, **41**, (2009) 193–196.