

A Priori Prediction of the Solubility of Simple and Multi-component Electrolytes in Mixed Aqueous-Organic Solvents to Extreme Temperatures

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The unified theory of electrolytes (J. Phys. Chem. B 2009, 113, 2398-2404) for predicting the standard state thermodynamic properties of aqueous electrolytes has been extended to include mixed solvents. The present model, in combination with a simple modification of Pitzer's thermodynamic treatment of aqueous solutions, allows a priori prediction of solubility of simple and multi-component electrolytes in mixed solvents systems to extreme temperatures and pressures. The novelty of the present approach is that no additional parameters are required to account for the medium effect.