Studies on the Applicability of Artificial Neural Network (ANN) in Prediction of Thermodynamic Behavior of Sodium Chloride Aqueous System Containing a Non-Electrolytes

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Abstract : In this study a ternary system containing sodium chloride as solute, water as primary solvent and ethanol as the antisolvent was considered to investigate the application of artificial neural network (ANN) in prediction of sodium solubility in the mixture of water as the solvent and ethanol as the antisolvent. The system was previously studied using by Extended UNIQUAC model by the authors of this study. The comparison between the results of the two models shows an excellent agreement between them (R2=0.99), and also approves the capability of ANN to predict the thermodynamic behavior of ternary electrolyte systems which are difficult to model.

Keywords : thermodynamic modeling, ANN, solubility, ternary electrolyte system
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