

**THERMODYNAMIC PROPERTIES OF NaSCN AND KSCN IN BINARY AND  
TERNARY AQUEOUS SOLUTIONS  
AT LIQUID - SOLID EQUILIBRUM**

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Many systems of practical or biological as well as chemical, interest involve mixed aqueous electrolytes. Representation of excess Gibbs energy and activity coefficients for aqueous electrolyte systems is a fundamental problem in the design and operation of many pharmaceutical industrial processes.

This work presents the results obtained for the activity coefficients of the alkaline thiocyanates in binary and ternary aqueous solutions determined by a differential cryoscopy method measurements from liquid-solid equilibrium study [1]. Cryometric method, like other methods such as calorimetry, is based on temperature measurements at diverse molalities of solutions, as well. Differential cryometric method utilised for obtaining experimental data has permitted the measurement of cryometric effect with a precision of  $\pm 2 \cdot 10^{-4}$  degrees [1].

The application of the additivity rule with respect to the activity coefficients of the electrolytes in binary systems KSCN - H<sub>2</sub>O, NaSCN - H<sub>2</sub>O and in ternary system KSCN - NaSCN- H<sub>2</sub>O, allowed to calculate a deviation function, the value of which, increasing with the concentration, shows the existence of ionic interactions in the solutions of mixed electrolytes [2].

The excess Gibbs free energy has been obtained for the same concentration ranges for binary solutions, at freezing points, and in case of KSCN - NaSCN -H<sub>2</sub>O ternary solution, it has been calculated the excess Gibbs free energy at mixage at liquid - solid equilibrium, using the process of dimensions with exception, obtained from cryometric data [3].

**Keywords:** thermodynamic activity coefficients, cryometric data, Gibbs free energy, freezing points, electrolytes, liquid-solid equilibrium

**References**

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