

Thermodynamic proprieties of ammonium aqueous electrolytes solutions from solubility measurement

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Abstract. In a saturated aqueous solution, between the salt and the ions from the solution an equilibrium is establishing at a certain temperature and pressure of 1 atmosphere. In the above conditions, the solid salt activity is conventionally equal to the unity and the solubility constant of the saturated solution takes the shape $k_s = a_+^{\nu_+} a_-^{\nu_-}$. Thus results the evaluation possibility of the mean molal activity coefficient of a less soluble salt from a solution which contains also other electrolytes, with the condition of knowing the solubility product, k_s and the solution mean ionic molality m_{\pm} at different compositions. This method application of a less soluble electrolyte calculation in the presence of other electrolytes will be obtained in binary, ternary and quaternary systems, with the calculation adaptation necessary for every solution type. The present study sets of ammonium solutions thermodynamic treated: $(\text{NH}_4)_2\text{S}_2\text{O}_8 + (\text{NH}_4)_2\text{S}_2\text{O}_4 + (\text{NH}_4)_2\text{SO}_4 + \text{H}_2\text{O}$ - finalized by the calculation of the ammonium peroxodisulphate activity coefficients from solubility data. The systems have been treated successively, taking account of their complexity grade, following the value calculation for ammonium peroxodisulphate from the solutions of the mentioned type from the systems.

Keywords: ammonium thiosulfate, activity coefficients, solubility data
