

# Thermodynamics of Lead(II) Halide Complex Formation in Calcium Nitrate Tetrahydrate - Acetamide Melts

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The complex formation between lead(II) ions and chloride and bromide ions in melts of  $\text{Ca}(\text{NO}_3)_2 \cdot 4\text{H}_2\text{O} \cdot a\text{CH}_3\text{CONH}_2$  has been studied at different temperatures between 30 and 70 °C. The formation constants of the complexes  $\text{PbX}^+$  and  $\text{PbX}_2$  ( $\text{X} = \text{Cl}, \text{Br}$ ) were determined from emf measurements by means of  $\text{Ag}/\text{AgX}$  electrodes. The dependence of the formation constants for  $\text{PbCl}^+$  on the solvent melt composition has been analysed. The thermodynamic parameters  $\Delta H_{11}^\theta$  and  $\Delta S_{11}^0$  for  $\text{PbX}^+$  complex formation have been estimated. The parameters are compared with the literature data for the same process in dilute aqueous solutions and in some hydrated and anhydrous salt melts.

*Key words:* Lead(II) Halide Complexes; Acetamide; Calcium Nitrate Tetrahydrate.