



Chemical Speciation of Cd(II) and Pb(II) Binary Complexes of L-Asparagine in Acetonitrile-Water Mixture

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ABSTRACT

The speciation of L-Asparagine complexes of Cd(II) and Pb(II) has been investigated pH-metrically in Acetonitrile-water mixtures (0-50% v/v) at 303K and 0.16 mol L⁻¹ ionic strength. The predominant species detected for Cd (II) and Pb(II) are ML₂, ML₂H, ML₂H₂. The appropriateness of experimental conditions is verified by introducing errors intentionally in the concentrations of reactants. The models containing different numbers of species were refined by using the computer program MINIQUAD75. The best-fit chemical models were arrived at based on statistical parameters. The trend in variation of stability constants of the complexes with dielectric constant of the medium is attributed to the electrostatic and non-electrostatic forces. The species distribution and the plausible equilibria for the formation of the species are also presented.

Keywords: Chemical speciation, L-Asparagine, Acetonitrile, Metals, stability constants.
