

IUPAC Project Progress Report

Project number: 1999-050-1-500

Project Title: Chemical Speciation of Environmentally Significant Heavy metals and Inorganic Ligands

Task Group Leader: Staffan Sjöberg

Report:

1. Current status of project: The objective of the project is to critically evaluate speciation and equilibria of a series of metal ion – ligand systems. The cations are H^+ , Cu^{2+} , Zn^{2+} , Cd^{2+} , Hg^{2+} and Pb^{2+} and the ligands are Cl^- , OH^- , CO_3^{2-} , PO_4^{3-} and SO_4^{2-} . There is an agreement that the different evaluations will result in 5+1 different papers: One paper per metal ion and a summarizing paper. So far the first paper dealing with the different Hg(II) systems is completed. It has been evaluated by external referees and is now ready to be printed in PAC. A closely related paper entitled “*Chemical Speciation of Hg(II) with Environmental Inorganic Ligands*” has just been published as a full paper in Australian Journal of Chemistry, 2004, 57, 993-1000.

In addition, the Cu(II) and Pb(II) systems are close to completion with written reports (drafts). Dead linjes for these systems are set to January 31 and May 31 2005.

Main parts of the Zn(II) and Cd(II) systems remain to be done.

2. Progress relative to 'milestones': It has not been possible to keep with the milestones set up in the application.

3. Difficulties encountered (or concerns):

4. Projected completion date (documents ready for external review): End of 2005.

5. Intended outputs and the dissemination plan for this project:

Intended articles 6 (see above). Conference presentations: Poster presentation at the World Chemistry Congress in Beijing in 2005. Invited lecture (S. Sjöberg, *Chemical Speciation of Environmentally Significant Heavy metals and Inorganic Ligands*) at SOPRO 2004, Karlsruhe, Germany March 2004.

6. Work on this project has identified the following issues and/or opportunities for related projects:

There is an obvious need for critically evaluated thermodynamic data on different metal ion - organic ligand systems.