PO 3.5

Influence of Inorganic Complexes on the Transport of Trace Metals Through Plm.

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The permeation (or supported) liquid membrane (PLM) has previously been used as an analytical tool to study copper, lead and cadmium speciation in natural waters, at trace concentrations. Under specific conditions (pH, concentrations), trace metals may form, with environmental inorganic ligands, neutral complexes which may diffuse passively through the hydrophobic membrane. In this study, metal (Cu, Cd, Pb) transport through the planar sheet PLM system described previously[1,2], was evaluated in the presence of major environmental inorganic ligands such as sulfate, carbonate and chloride. The first step of this work was a careful literature review of the stability constants for the metal-ligand complexes to select the appropriate conditions under which neutral complexes are formed. This revealed some data gaps amongst databases. In a second step, comparison of the metal transport with theoretical calculations, under conditions of neutral complex formation, will be presented. The role of passive transport of metal complexes will be discussed.

References:

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