

## Removal of copper-citrate complex by polyelectrolyte enhanced ultrafiltration

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Ligand was generally used to remove heavy metal from contaminated soils. Citrate is an environmental degradable ligand and easily complex with heavy metal. In soil washing process using citrate, the effluent has the citrate-heavy metal chelates and should be treated. In this study, polyelectrolyte enhanced ultrafiltration (PEUF) was applied to removal copper-citrate complex which was a model heavy metal-citrate complex in the soil washing effluent. Poly (diallyldimethylammonium chloride), PDADMAC, was used as a cationic polyelectrolyte. Effects of the concentration ratio between polyelectrolyte, copper and citrate and pH were observed. Below pH 3, copper did not removed by PEUF. At the same concentration of citrate and copper, removal of copper was the highest. In 1 mM citrate and 1 mM copper, removal of copper was 60%, 90%, and 98% with 5, 10 and 20 mM PDADMAC at pH 6, respectively. Removal of copper was decreased by the logarithm of ionic strength of other salts. As this result, polyelectrolyte enhanced ultrafiltration can be applied to remove the other heavy metal-citrate complexes.