

Graduate Student Recruitment and Training Support

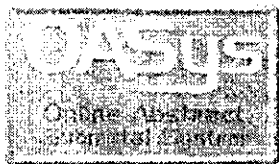
Report for

One Ajahn, One Project

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**Paper #634642**

Removal of arsenic anions from water using polyelectrolyte-enhanced ultrafiltration

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Polyelectrolyte-enhanced ultrafiltration (PEUF), using cationic poly (diallyldimethyl ammonium chloride) polyelectrolyte was used to remove arsenic(V) from dilute aqueous solutions. In PEUF, a water-soluble polyelectrolyte of opposite charge to that of the target ion binds the charged arsenate complex. The solution is then treated by ultrafiltration with membrane pore sizes small enough to block the polymer. Only the residual unbound arsenate concentration is present in the permeate solution passing through the membrane. Arsenic rejections as high as 99.95% are obtained and increase with increasing polymer concentration and decreasing ionic strength (added salt concentration). Arsenic rejection increases with increasing pH (pH of 6.5 to 8.5) as the divalent/monovalent arsenic complex ratio in solution increases, improving arsenate binding to the polymer. Gel point concentration (polymer concentration at which flux becomes zero) was found to be 655 to 665 mM, (approximately 5.98 to 6.07 wt%).

ACCEPTED

Abstract ID#: 634642

Password: 999989

Program Selection: Division of Geochemistry

Topic Selection: Advances in Arsenic Research: Integration of Experimental and Observational Studies and Implications for Mitigation: Treatment of Water and Soils

Title: Removal of arsenic anions from water using polyelectrolyte-enhanced ultrafiltration

Invited: N

Presentation Format: Oral Only

Consider for Sci-Mix: N

Conforms to Bylaw 6: Y