

143ac Magnetic Separation of Arsenic (V) from Water Using Coated Magnetic Particles

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Conventional separation processes for arsenic removal is often inefficient to reduce the arsenic concentration to comply with the new maximum contaminant level (MCL) of 10 ppb. Thus, emerging technologies are needed to replace the conventional processes. The present research investigates the removal of arsenic (V) by magnetic separation using coated magnetic particles. Cationic polymerizable surfactants are adsorbed onto magnetic particles and coating is achieved by polymerizing the adsorbed surfactant. Arsenic anions bound to the oppositely charged surface of the magnetic particles are then removed from water under a magnetic field. The effect of magnetic particle load, initial arsenic (V) concentration, and water pH on the removal of arsenic (V) were studied. Preliminary research results indicated that using this method could be an alternative technology for arsenic removal from contaminated sites.