

Abstract Submitted
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Arsenic adsorption and speciation in drinking water by GAC-based iron-containing adsorbents YEWON GIM, JEFF TERRY, Physics Division, Illinois Institute of Technology, Chicago IL 60616, ZHIMANG GU, B. HUA, BAOLIN DENG, Department of Civil and Environmental Engineering University of Missouri, Columbia, Columbia MO 65211 — Granular Activated Carbon (GAC) with Iron adsorbents were developed for effective removal of arsenic from drinking water. The structure and proposed mechanism for As removal was studied using X-ray absorption spectroscopy. The oxidation state of As(III)GAC sample was calculated using XANES spectra and verified to be predominantly As(V). The structure was determined using EXAFS spectra of As(V) and Fe. The Fe spectra suggested thin layer of Fe oxide formation on GAC surface. As data showed As oxide formed bond on the Fe oxide surface. The spectra were calculated using multiple geometrically optimized models calculated using density functional theory. Further calculations were done to verify the structure, and further examine the structure.

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