The Department of Chemistry and Biochemistry

Seminar Series

Presents a Seminar Titled:

"Novel Arsenic Filters Based on Composite Iron Matrix: Fundamental Studies, Production and Deployment"

Presented By

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It is estimated that at least 250 million people in the world are drinking groundwater containing toxic levels of arsenic. The prolonged drinking of this water has caused serious illnesses in the form of hyperkeratosis on the palms and feet, fatigue symptoms of arsenicosis, and cancer of the bladder, skin and other organs. Arsenic in drinking water is primarily present as inorganic species: $H_2AsO_4^-$, $HAsO_4^{2-}$, and H_3AsO_3, where arsenite (H_3AsO_3) is the most toxic, the most mobile, and the most difficult to remove species. This presentation covers the development of arsenic filters based on a composite iron matrix (CIM). Some basic properties such as removal capacity based on sorption isotherm, sorption kinetics, and mass transfer characteristics of composite iron granules (CIG) - the precursor of CIM are discussed. The filter passed through several environmental technologies verification programs for arsenic mitigation (ETVAM) projects. SONO filter also received the 2007 Grainger Challenge Prize for Sustainability from the US National Academy of Engineering. Presently, more than 300,000 SONO filters are deployed in remote arsenic-affected areas in Bangladesh Nepal, India, and Pakistan.

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