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# Spectroscopy Study of Arsenite [As(III)] Oxidation on Mn-Substituted Goethite

Sun Xiaohua, Harvey E. Doner and Mavrik Zavarin

Division of Ecosystem Sciences, Department of Environmental Science, Policy and Management, University of California at Berkeley, California 94720, USA

**Abstract:** Mn-substituted goethite was synthesized and the interaction between arsenite (As(III)) and Mn-substituted goethite was investigated by both solution chemistry and X-ray adsorption near edge structure (XANES) spectroscopy. Results indicate that the oxidation of As(III) is favored by Mn-substituted goethite. This reaction was more sensitive to temperature than to pH. Different reaction mechanisms may account for As(III) oxidation. Since As(III) is more mobile and toxic than As(V), the oxidation reaction of As(III) with Mn-substituted goethite may decrease arsenic toxicity under some conditions.

**Key Words:** Arsenate • Arsenite • Mn-Substituted Goethite • Oxidation • XANES

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