Determining the Reaction Time of Sulfide Removal for Large-Scale Water Treatment

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Katalox ® has been used to control sulfide levels in groundwater, but its reaction properties in high sulfide environments are unknown. Moyle (1944) found that lakes with high sulfate levels do not contain wild rice. In wetland soil with low oxygen concentrations, anaerobic bacteria convert sulfate from municipal or industrial sources into sulfide. Sulfide is toxic to wild rice and many other freshwater organisms. Sulfide reacts with iron found in soil and iron is commonly used to control sulfide generated during biogas production. In this study, we used a commercial product called Katalox Light ® (manganese oxide), which has similar properties to iron oxides, to act as a filter for converting high concentrations of hydrogen sulfide into elemental sulfur. We found that the reaction time to remove 15-20 mg/L hydrogen sulfide from an aqueous solution was between 6 and 9 minutes. This constraint on the reaction time for the removal of high hydrogen sulfide concentrations is an important step towards developing a cost effective and low waste filter to remove sulfides from natural waterways.

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