Removal Characteristics of Arsenic using Magnetite

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Arsenic is a serious environmental pollutant in the world. In Korea, arsenic pollution has been observed frequently at the abandoned mine site. Arsenic uptake makes black-foot-disease and other human health problem. It is well known that the iron oxide can remove the arsenic from the aqueous stream by the adsorption. Magnetite, a type of iron oxide, is a natural mineral and has been used in the magnetic industry as a record material. Three different types of magnetite particles were evaluated to remove arsenic from the aqueous phase. The magnetite particles come from the industry for video tape and magnetic card. The size of particles was nano-scale. As(V) was adsorbed within 30 minutes at a concentration of 20 mg/l. The maximum adsorption capacity of the magnetite was > 5 mg/g for As(V). This value is 10 times higher than other iron oxide particles. The small size of the particles causes to enhanced the adsorption capacity for As(V).