Preparations of magnetic and nanoscale iron oxide-loaded kaolinite and adsorption characteristic

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The harm of high arsenic groundwater is particularly serious. Research on how to remove the high arsenic from groundwater is important. This research improves iron oxide by kaolin loading, enhancing the arsenic removal rate and economic benefit. Nanoscale ferriferrous oxide is now widely used as adsorbent because of its adsorption efficiency [1]. Nano features increase material adsorption area. Magnetic can effectively separate the adsorbent and ground water [2]. On the basis of the geological data, clay are widely distributed in Datong Basin, Shanxi Province, China and kaolinite is the most. On the reference previous theoretical model, this research selects magnetic nanoscale iron oxide which has remarkable adsorption effect and improves it with the kaolinite. The water bath temperature, amount of kaolin, surfactant and amount of iron compounds all affect the new material. Adsorption capacity of the material is significant. Magnetic nanoscale iron oxide loaded on kaolinite can reduce the nanoparticle agglomeration effect, and increase the adsorb area of the adsorbent, to improve efficiency of the adsorbent. It also makes the costs become lower to apply to actual production.

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