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Efficient Removal of Arsenic Using Graphene-Zeolite based Composites

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ABSTRACT

Removing heavy metals from water can be considered an important problem of global magnitude due to their toxic and carcinogenic properties. The main aim of this presentation was to synthesize different composites of graphene (graphene oxide(GO) or reduced graphene oxide (RGO is referred to reduced graphene oxide, which was obtained using solvothermal method)) with Cu-exchanged zeolite A(Cu-ZEA) and nanoparticles of magnetite (Fe_3O_4) (including $\text{Fe}_3\text{O}_4/\text{RGO}/$, $\text{GO}/\text{Cu-ZEA}$, $\text{Fe}_3\text{O}_4/\text{RGO}/\text{Cu-ZEA}$ and $\text{Fe}_3\text{O}_4/\text{GO}/\text{Cu-ZEA}$) for improving the properties of the individual components of mentioned composite and eventually investigate the composites' efficiency in arsenic adsorption. Among prepared composites, $\text{Fe}_3\text{O}_4/\text{RGO}/\text{Cu-ZEA}$ composite had the highest efficiency in removing arsenic according to atomic absorption spectroscopy (AAS) results due to the high specific surface area, which was provided by the

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