

عنوان مقاله:

Nitrate removal from water using alum and ferric chloride: A comparative study of alum and ferric chloride efficiency

محل انتشار:

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خلاصه مقاله:

Background: Nitrate is an acute and well-known hazardous contaminant, and its contamination of watersources has been a growing concern worldwide in recent years. This study evaluated the feasibility of nitrateremoval from water using the traditional coagulants alum and ferric chloride with lower concentrationsthan those used in the conventional coagulation process.Methods: In this research, two coagulants, alum and ferric chloride, were compared for their efficiencyin removing nitrate in a conventional water treatment system. The removal process was done in a batchsystem (jar test) to examine the effects of coagulant dosages and determine the conditions required toachieve optimum results.Results: The results revealed that ferric chloride at an initial dose rate of 4 mg/L reduced nitrateconcentration from 70 mg/L to less than the World Health Organization (WHO) guideline value (50 mg/LN-NO₃). However, the removal efficiency of alum was not salient to significant nitrate reduction.Conclusion: In conclusion, ferric chloride was more effective than alumin removing NO₃, even in commondosage range, and can be considered a cost-effective and worthy treatment option to remediate nitratepollutedwater. Furthermore, the removal .of nitrate by coagulation can be simple and more economicalthan other treatment alternatives

کلمات کلیدی:

Nitrate, Water treatment, Coagulation, Alum, Ferric chloride

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