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Authors: Somak Chatterjee, Isuka Sivareddy, Sirshendu De



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Adsorptive removal of potentially toxic metals (cadmium, copper, nickel and zinc) by chemically treated laterite: Single and multicomponent batch and column study

Somak Chatterjee, Isuka Sivareddy, Sirshendu De*

Department of Chemical Engineering, Indian Institute of Technology Kharagpur, Kharagpur – 721302, India.

*Corresponding author:

Tel: +913222283926

Fax: +913222255303

Email – sde@che.iitkgp.ernet.in

Research Highlights

- Uptake capacity of heavy metals by laterite increases after acid base treatment.
- Adsorption is highest for cadmium followed by copper, zinc and nickel.
- Hindrance to adsorption caused by multi elements in mixed metal feed.
- Breakthrough was fastest for cadmium, followed by nickel, zinc and copper in fixed bed.
- Treated laterite loaded column is also able to purify polluted river sample.

Abstract

Efficiency of chemically treated laterite was tested to remove, copper, cadmium, zinc and nickel (potentially toxic metals) from drinking water. Infrared spectroscopy confirms the uptake of these contaminants by treated laterite. Optimum treatment parameters are observed at 10 mg/L adsorbent concentration, 0.26 mm particle size and pH range of 6-9. Maximum

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