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Comparative Performance and Computational Approach of Humic Acid Removal by Clay Adsorption

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Author(s)

Chao Yu, Jiaqian Jiang

ABSTRACT

The effective removal of humic acid is an important factor influencing the quality of treated waters. Adsorption is one of major techniques used for the removal of humic acid. This study demonstrated that modified clays could be used as alternatives to activated carbons for adsorbing humic acid. Both Al-Fe modified and Fe modified clays had high affinity to humic acid and then high removal efficiency. Al-modified clay had less removal capacity for adsorbing humic acid. Mathematics formulas were developed to predict the adsorption performance of modified clays for the humic acid removal via the parameters of UV254 absorbance and DOC concentrations. The optimal clay dose could be predicted using the developed model. The F test was used to validate the model developed by examining if it fells into the reject field. The reject field varied according to each F test. The results showed that the model developed was 99% confident and can be used to perform the simulation.

KEYWORDS

Adsorption, Clay, Humic Aid (HA), Mathematics Approach, Modification, Water Treatment

Cite this paper

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