Explosives Sorption to Coal Ash Aggregates

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ABSTRACT

The production and use of explosives, mainly by the military, has caused contamination of our environments with them. As a matter of fact, research on explosives studies also produce waste materials that contain explosives compounds such as trinitrotoluene TNT. This study investigated feasibility of the use of coal ash aggregates (CAA) in sorption processes to remediate explosives-containing water on site. Kinetic analysis and isothermal test were performed. Results yielded a Freundlish type sorption behavior with a maximum sorptive capacity of 0.0225 mg TNT/g CAA with 2 hours of sorption equilibrium time. A sequential batch reactor system showed a very similar sorptive capacity of CAAs of 0.0224 mg TNT/g CAA until 3 fill-and-draw sequences with 1-hour contact time for each sequence. Desorption trials showed TNT sorption to CAAs was irreversible.

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