

Evaluation of reactive-mat containing low-grade charcoal to control leaching of organic pollutants

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Reactive mat is a diffusion control system of various contaminants from one compartment to others, and it can be applied to contaminated sediment, landfill, and carcass burial site (Todaro, 2021). The mat can adsorb target pollutants leaching from contaminated media onto the reactive materials (Meric, 2012). Thus, adsorption is the basic working mechanism of the reactive mat in environmental application. In general, however, adsorption is a non-selective process and the target pollutants should compete with others to be adsorbed. Therefore, the adsorption of target on the reactive material should be evaluated in the presence of other competing materials. To control the organic pollutant, activated carbon is most common choice for the reactive material (Gu, 2017). In this study, we proposed low-grade charcoal, one of the industrial by-products, as a reactive material inside the mat to replace conventional activated carbon. Especially, the system was investigated the effectiveness of antibiotics control in the leachate from carcass burial site (Kim and Pramanik, 2016). The leachate contains lots of organic matters and the antibiotics are tiny amounts compared to total organic matters. Sulfonamide antibiotic was used as a model target compounds as pollutant. In the presence of high concentration of organic matters, the adsorption performance was evaluated to simulate the situation above.

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