

The Study on Adsorbent Made from Dredged Peat

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Peat is an under utilised natural resource in Hokkaido, Japan. Peat is extracted during dredging but is currently a waste product, so we would like to develop a plan for utilising peat. We focused on humin, the main ingredient in peat. Because of its high cation exchange capacity, there is the possibility it can be used as an adsorbent for heavy metals such as lead. Samples of peat, humic acid and sulfonated humic acid, both extracted from peat, and activated charcoal, a known adsorbent, were prepared. Batch experiments were carried out including investigations into the effect of pH on the adsorption process. As a result, it was found that sulfonated humic acid adsorbed lead from aqueous solutions with a higher efficiency than the other samples under acid conditions. This result suggests that sulfonated humic acid can be used as a lead adsorbent without neutralization treatment of acid waste liquid containing lead.

Keywords: Peat, Humic acid, Sulfonation, Heavy metals, Adsorption