

Soil washing of highly arsenic contaminated mine tailings with various extractants

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There are many abandoned mines, which have toxic contaminants, in Korea. Especially arsenic is a extreme toxic contaminant to environments and human and has used as a poison. The tested soil, Songchen mine tailing in Gangneung, contaminated arsenic with high concentration over 1,300 mg/kg soils. To remove arsenic, hydrochloric acid, sulfuric acid, phosphoric acid, and sodium hydroxide were used. With HCl, H₂SO₄, and H₃PO₄, the removal efficiencies of As were similar. In addition to As removal, Zn, Pb, Fe, Ca, and Mg were also extracted within those extractants. In case of NaOH, As was extracted solely. This results show that sequential extraction can be applied. Firstly, As is extracted with NaOH solution and then the remained metals like Zn and Pb are subsequently extracted with other acids.