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Effective removal of hazardous trace metals from recovery boiler fly ashes

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Highlights

- Hazardous trace metals were removed from recovery boiler fly ash (ESP salt)
- The applied method is novel and straightforward: no chemicals are required
- The removal efficiencies of the target metals were good or excellent
- The pH did not have a clear influence on the removal efficiency
- Recovery of process chemicals by crystallization was also demonstrated with success

Abstract

The objective of this study is to introduce a treatment sequence enabling straightforward and effective recovery of hazardous trace elements from recovery boiler fly ash (RBFA) by a novel method, and to demonstrate the subsequent removal of Cl and K with the existing crystallization technology. The treatment sequence comprises two stages: dissolution of most other RBFA components than the hazardous trace elements in water in Step 1 of the treatment, and crystallization of the process chemicals in Step 2. Solid-liquid separation has an important role in

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