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Alkaline-assisted leaching of iron-cyanide complex from contaminated soils

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Abstract

Soils with persistent cyanide compounds (including ferricyanide and ferrocyanide) pose potential hazards to the environment and require remediation before utilization. This study investigated the alkaline-assisted leaching behavior of iron-cyanide complexes from five cyanide-contaminated soils via batch leaching experiments spanning a wide pH range (10 to 14). The results showed that the leaching ratio of iron-cyanide complex (R) was highly dependent on pH. Leaching with alkaline solution of pH<12 resulted in a small desorption ratio (1%-5% for the laboratory-contaminated A type soils and 11% for B type soil), while alkaline solution with elevated pH (>13) significantly enhanced the desorption ratio, reaching 87%-100% within a reaction time of 0.5h except one soil sample. The desorption kinetics of the cyanide complexes at different pHs indicated that time is another parameter closely related to R. The time-dependent leaching ratio at pH 12 only slightly increased from

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