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土著微生物柱浸修复铬渣堆场土壤污染

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Column Leaching and Reduction of Cr(VI) by Indigeous Microorganism in the Soils Contaminated by Chromium-Containing Slag

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摘要 采用柱浸试验研究土著微生物对铬渣堆场污染土壤中Cr(VI)的修复.通过单因素实验测定土壤初始Cr(VI)浓度、浸出液pH值及循环淋溶时间对修复效果的影响,结果表明:加入培养基能完全修复铬渣堆场污染土壤中水溶性Cr(VI),柱浸实验结束后,浸出液中Cr(VI)浓度由初始的700.3 mg/kg降低至检出限以下;土壤中初始Cr(VI)浓度越低修复效果越好;培养基最佳pH值范围为7.5~8.5;循环淋溶修复效果好于非循环柱浸修复,循环时间越长,修复效果越好,最佳循环时间为全天循环.

关键词: 土著微生物 柱浸 铬渣堆场污染土壤 修复 六价铬

Abstract: The reduction of Cr(VI) in chromium-contaminated soils by indigeous microorganism was investigated with column experiments.The effects of initial Cr(VI) concentration,pH of leachate and circulation leaching time on reduction were investigated by single factor experiment.The results showed that the water soluble Cr(VI) in soils was completely remediated when culture medium was added,and Cr(VI) concentration in leachate decreased from 700.3mg/kg to the concentration lower than detectable level after column leaching.Low initial Cr(VI) concentration resulted in high Cr(VI) removal effectiveness.The optimum pH range was 7.8~8.5.The circulation leaching had better remediation effectiveness,more circulation time resulted in better removal effectiveness and the optimal circulation time was whole day circulation leaching.

Key words: indigeous microorganism column leaching soils contaminated by chromium-containing slag reduction Cr(VI)

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