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电场作用提高排土场渗透性能的机理

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摘 要: 根据多孔介质中电动力学效应, 在排土场浸出过程中, 提出利用电场作用强化排土场渗透性能的方法, 通过机理分析探讨了电场作用对排土场渗透性能的影响。结果表明: 电场作用能有效降低双电层作用对排土场渗透率的影响; 在足够大的电场力作用下, 孔隙中双电层产生定向迁移, 双电层厚度减小, 排土场渗透率明显提高; 在低渗透排土场中, 排土场渗透率因数随电场强度增大而单调递增; 而在高渗透排土场中, 电场作用对排土场渗透率影响的幅度较小, 表明利用电场作用提高低渗透率排土场的渗透性能具有非常大的潜力。

关键字: 电场作用; 排土场; 溶浸液; 双电层; 渗透性能

Mechanism of improving permeability in dump by effect of electric field

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Abstract: Based on electro-dynamic effect in porous media, the novel method for enhancement of permeability of dump in leaching process by effect of electric field was put forward, and the mechanism of the effect of electric field on the permeability of dump were introduced. The results show that the permeability of ore dump by electronic double layer can be depressed by effect of electric field. The thickness electronic double layer can be decreased by power of electric field large enough. The increment of permeability coefficient in low permeability dump is bigger than that in high permeability dump, showing that the potential is big to improve the permeability of dump with high clay content by effect of electric field.

Key words: effect of electric field; dump; leaching solution; electronic double layer; permeability

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