

Effect of Lime Stabilization on E. coli Destruction and Heavy Metal Bioavailability in Sewage Sludge for Agricultural Utilization

Authors : G. Petruzzelli, F. Pedron, M. Grifoni, A. Pera, I. Rosellini, B. Pezzarossa

Abstract : The addition of lime as Ca(OH)₂ to sewage sludge to destroy pathogens (Escherichia coli), was evaluated also in relation to heavy metal bioavailability. The obtained results show that the use of calcium hydroxide at the dose of 3% effectively destroyed pathogens ensuring the stability at high pH values over long period and the duration of the sewage sludge stabilization. In general, lime addition decreased the total extractability of heavy metals indicating a reduced bioavailability of these elements. This is particularly important for a safe utilization in agricultural soils to reduce the possible transfer of heavy metals to the food chain.

Keywords : biological sludge, Ca(OH)₂, copper, pathogens, sanitation, zinc

Conference Title : ICEBESE 2015 : International Conference on Environmental, Biological, Ecological Sciences and Engineering

Conference Location : Paris, France

Conference Dates : June 25-26, 2015