

HEAVY METAL BEHAVIOR IN SAWAGE SLUDGE IN TROPICAL CONDITIONS

Sígolo, J.B. and Assunção J. C. B.

The aim of this study is to research the geochemical behavior of the metals Ag, Cd, Cr, Cu, Fe, Mn, Ni, Pb and Zn incorporated in the sludges of Wastewater Treatment Plant of Barueri, SP, that remained exposed at tropical climate conditions about 18 months. The Wastewater Treatment Plant of Barueri, SP, processes sewages of São Paulo Metropolitan Region by Activated Sludge method, followed by the stages of Anaerobic Digestion and Chemical Coagulation and Precipitation by FeCl_3 and Ca(OH)_2 . The Disposed Waste and the soil under it were then sampled. All samples were analysed for pH, for the Heavy Metals Ag, Cd, Cr, Cu, Fe, Mn, Ni, Pb and Zn (digested by $\text{HNO}_3 + \text{HCl}$ process and by Deionised Water process), for the Granulometric Distribution, for the Mineralogic Composition and for the Micromorphologic Analysis at Optic Microscope and MEV with EDS equipment. The results of those analysis were conclusive: the metals incorporated in the "Disposed Waste" was being removed of the sludge. On the other hand a vertical movement of the fine grain materials ($< 2 \mu\text{m}$) is occurring from the top to the basis of the sludge layer. This material is mainly composed by neoformed substances (Ca and Mg Carbonates, Phosphates and Sulphates and Fe Hydroxides and Carbonates) originated in Chemical Coagulation and Precipitation by FeCl_3 and Ca(OH)_2 , and by detritic minerals (Caolinite and Micas) either.