

The influence of pH on the removal of ammonia from a scheduled waste landfill leachate

ABSTRACT

Leachates are formed as the result of water or other liquid passing through the landfilled waste. These leachates contain high amounts of inorganic and organic matter such as ammonia which must be treated before being discharged into the environment. A pretreatment is required to increase the efficiency of the ammonia removal process. This paper presents the influence of pH on the removal of ammonia in leachate sample by lime precipitation. A raw leachate sample taken from a scheduled waste landfill was treated with different amount of lime (2, 4, 6, 8 and 10 g/L) to investigate the removal or release of ammonia. The removal of ammonia of raw leachate (average pH=9.43) was 26% and increases to the optimum dosage of 4 g/L with 54% removal at pH=12.39. However, addition of lime of more than 6 g/L does not show any significant effect on ammonia removal due to restabilization of colloids and re-dispersion of the colloidal particulates. An appropriate dosage of lime is an important factor that could save cost and time for the downstream secondary treatment.

Keyword: Scheduled waste landfill; Ammonia removal; pH; Leachate