Improved Anaerobic Digestion Efficiency By Gas Stripper and Disintegrator Pre-treatment

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Abstract

This study aims to examine physical changes in pre-treatment of high-concentration indecomposable waste activated sludge and mixed sludge. For the purpose, it promoted decomposition in exhaustion of various pollutants in various gases by centrifugal and mechanical pre-treatment before a biological and chemical treatment, separation of solid substance, decomposition of organisms and subsequent processes in order to maximize efficiency and effects of post-treatment. The ratio of digestion tank sludge at sewage disposal plant to mixed sludge was 1:6. For a comparative analysis of efficiency according to batch test and pre-treatment, the two cases were prepared: for the one, a 30 minute pre-treatment and an anaerobic digestion were conducted with a use of ultrasonic wave. and for the other, 20 times of treatment by gas stripper and disintegrator and an anaerobic treatment of water were conducted. Their efficiencies were analysed and assessed, and as a result, daily maximum gas generation was found in sludge treated by ultrasonic wave, followed by gas stripper and disintegrator-treated sludge and water. When accumulated pure gas was examined, it was found that the anaerobic digestion of pre-treated sludge was completed faster than digestion of water, and after three weeks, total gas generation of the two was almost identical.