Long-term emissions from mechanically biologically treated waste: Influence on leachate quality – Part II

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Abstract

Mechanical biological pretreatment of waste prior to disposal is proven to effectively reduce the long-term polluting potentials of landfilled waste. The combined effect of waste pretreatment and flushing, as is possible in landfills operated in tropical or sub-tropical countries, has the potential to further reduce the landfills' environmental impact. In this study, long-term emissions from pretreated waste were monitored in anaerobic leaching columns operated at increasing liquid-to-solid ratios. The efficiency of the pretreatment, conducted in full-scale passively aerated windrows, was assessed by comparing different treatment periods (8 and 16 weeks). In order to understand the influence of sorting (separated collection) on the pretreatment, the treated waste was sieved in a 50mm diameter sieve and the coarse and fine fractions separately analysed in the leaching columns. The results showed that treating the waste markedly reduces the COD and NH_3-N loadings while the coarse fractions show a greater long-term pollutant risk.

Keywords: mechanical biological waste treatment, flushing, leaching columns, bioreactor landfill, leachate