

PENGARUH PENAMBAHAN AIR DAN RESIRKULASI LINDI TERHADAP LAJU DEKOMPOSISI SAMPAH ORGANIK DALAM BIOREAKTOR LANDFILL

Monalisa, Syafrudin, M. Arief Budihardjo

ABSTRACT

The objective of this research is to investigate the influence of water addition and leachate resirculation to the rate of waste decomposition of organic waste in the bioreactor landfill. The process of waste decomposition to conventional landfill method needs over long period of time. The bioreactor landfill significantly increases the extent of organic waste decomposition, conversion rates, and process effectiveness over that would otherwise occur within the landfill. In this research were carried out in seven reactors, six reactors were operated with water addition and leachate resirculation, one control reactor without water addition and leachate resirculation. The variation of this research are variation of water addition volume (1 litre, 1.5 litre, and 2 litre) in everyday and leachate resirculation (10 ml/minute and 15 ml/minute) in everyday. The result showed that water addition 2 litre with leachate resirculation 15 ml/minute gave the best anaerobic condition in increasing the decomposition of waste. This reactor had increased the rate of waste decomposition 35,92 % higher than control reactor in 5 weeks, reduced the BOD from 426 mg/l to 82 mg/l and reduced the COD from 832 mg/l to 128 mg/l.

Keywords: landfill, waste decomposition, anaerobic, leachate resirculation, water addition