

1 **PRETREATMENT OF MUNICIPAL SOLID WASTE PRIOR TO**
2 **LANDFILLING**

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Abstract

An outdoor pilot scale study was undertaken to pretreat municipal solid waste (MSW) by windrow composting. The raw waste was put to active composting without any source separation or pulverization. Pretreatment indicators were developed and used as a tool to measure the optimum sorting and waste stabilization. The moisture content of the waste dropped from 68% to 61% and the pile attained a thermophilic temperature in one week. It was observed that the C/N ratio, pH profile and temperature gradients were comparable to that of traditional windrow composting. Within one week of active bulk composting the easily degradable organic matter was consumed and there was a significant reduction in the bulk volume of the mixed waste. The pre-composted wastes were then sorted into four fractions. Compared to the initial untreated waste, the pretreated waste showed greater sorting efficiency and reduced volatile solids. A 1 m³ cage was used to study pile settlement and volume reduction. The results indicate that pretreatment by bulk composting could reduce by approximately 40% the total mass of waste hauled to landfill sites in developing countries.

Keywords: Solid waste; Pretreatment; Pretreatment indicators; Windrow composting;