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Short Communication

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Effect of air flowrate on the dynamic respiration activity of the raw organic fraction of municipal solid wastes

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Abstract

Scope of this work was to study the effect of the aeration rate on the respiration activity of the fresh organic fraction of MSW and to compare the resulting dynamic respiration indices with those of MSW derived compost. Thus, a categorization of the dynamic respiration activity of MSW throughout a composting facility is provided. A simulated organic fraction of MSW was used as a substrate and four experimental runs were performed to achieve unit airflow rates (UAF) from around 6 to 30 L air kg⁻¹ VS h⁻¹. Six dynamic respiration activity indices were calculated and compared to the corresponding indices of stable MSW compost from a previous work. Findings indicate that the increase of the UAF results in a corresponding increase of the dynamic stability indices. Dynamic respiration activity indices above 1500 and below 520 mg O₂ kg⁻¹ VS h⁻¹ indicate fresh and very stable MSW materials, respectively.

Keywords: composting; dynamic respiration index; microbial respiration activity; organic fraction MSW; stability.

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