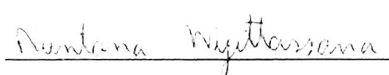


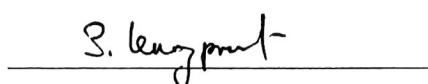
Nuntana Wijittassana 2007: Treatment of Activated Sludge from Petrochemical Industry using Co-composting Process. Master of Engineering (Environmental Engineering), Major Field: Environmental Engineering, Department of Environmental Engineering. Thesis Advisor: Mr. Suchat Leungprasert, Ph.D. 95 pages.

This study is to determine the optimum aeration rate , the optimum ratios of petrochemical activated sludge to composting material , composting efficiency , compost quality and toxicity. The experimental conditions include variation of aeration rates of 0.2 ,0.4 and 0.6 m³/kgVS/d and addition amount of sludge 0, 5 ,10 and 15 % by volume. Composting efficiency was analysed by percent removal of organic carbon ,total petroleum hydrocarbon that is a mainly component of sludge from petrochemical industry wastewater treatment plant and volatile solids. Compost quality was analysed in terms of nitrogen , phosphorus , potassium , C / N ratio , moisture and heavy metals, and then was compared to the fertilizer standard of Department of Agriculture.

The optimum aeration rate was 0.4 m³/kgVS/d . At 5 % sludge mixture , it was found that volatile solids, organic carbon and total petroleum hydrocarbon were reduced 62.26% ,52.79% and 60.16% , respectively for 41 days of composting period. The compost product contains 1.92% of nitrogen ,0.55 % of phosphorus , 0.58 % of potassium ,18.59 C / N ratio ,and 42.35 % moisture. Heavy metals including arsenic , cadmium , copper , lead , mercury were about 3.00 , 0.10 , 2.32 , 2.00 , 0.19 mg/kg , respectively .The compost product meets the fertilizer standard of Department of Agriculture. The germination test results showed that compost product is no toxic to tested seeds.



Student's signature



Thesis Advisor's signature

