RENEWABLE ENERGY FROM BIOGAS GENERATED BY SEWAGE SLUDGE: RELATIONSHIP BETWEEN VOLUME OF SLUDGE AND VOLUME OF BIOGAS

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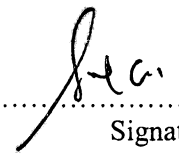

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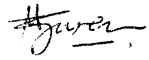

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ABSTRACT

Biogas composed of methane and carbon dioxide is a by-product of anaerobic bacteria decomposition of organic waste which municipal garbage and sewage are important sources for biogas production. The methane content in the biogas enables it to be used as engine fuel and converted to heat and electricity. An experimental study that examined the relationship between organic content of sludge and methane generation as it progressed through mesophilic anaerobic digestion was completed. This case study is needed to determine organic content represented by BOD and SS in sewage, to quantify the biogas and methane generation from sewage sludge, to determine the relationship between organic content and volume of methane and also to determine the pressure of biogas and the relationship between sludge volume and volume of biogas. It was found that methane generation is potential during anaerobic digestion even with small volume of sludge. The quality of sludge for methane generation is dependent on the characteristics of sludge. Organic content characterized by Biological Oxygen Demand (BOD) and Total Suspended Solid (TSS) were measured in accordance to APHA standard methods (1998). Wastewater from two treatment plants namely, Kolej Mawar, UiTM and IWK WWTP Section 7, Shah Alam were used in this study. This study, found that higher organic content in sewage sludge will result in higher methane being generated.

Keyword: *Methane generation, Sludge Characteristic*

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