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THERMAL EFFICIENCY OF SMALL SCALE BIOGAS PLANT FOR BIO-METHANE PRODUCTION

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Abstract

In this research, a small-scale biogas plant using methane fermentation was developed. The electrical energy consumed by the heater/pump and the outside temperature of the small-scale biogas plant were logged from 1 July 2007 until 31 July 2009. The thermal efficiency of the small-scale biogas plant was calculated based on the electrical energy consumed by the heater/pump and the generated gas quantity. The results showed that a total thermal efficiency of 17.5% was obtained in the system. To improve thermal efficiency in the small-scale biogas plant at the University of Miyazaki, Japan, it is necessary to reduce the power consumption of the heater/pump during spring and summer.

Key words: biogas plant, methane fermentation, thermal efficiency

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