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

Daisuke Tashima1*, Yoki Asano2, Shigeki Tomomatsu3, Yasuhiro Sugimoto4

1Interdisciplinary Research Organization, University of Miyazaki 1-1 Gakuenkibanadai-Nishi, Miyazaki 889-2192, Japan
2Department of Technology, Faculty of Education, Kagoshima University 1-20-6, Kohrimoto, Kagoshima 890-0065, Japan
3Department of Mechanical Design Systems Engineering, Faculty of Engineering, University of Miyazaki, 1-1 Gakuenkibanadai-Nishi, Miyazaki 889-2192, Japan
4Department of Agricultural and Environmental Sciences, Faculty of Agriculture, University of Miyazaki, 1-1 Gakuenkibanadai-Nishi, Miyazaki 889-2192, Japan

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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