ABSTRACT

Biogas is a gas produced from the decomposition of organic materials by microorganisms under anaerobic conditions. The composition of biogas consists mainly of methane (CH_4) and carbon dioxide (CO_2) and a small amount of hydrogen (H_2), nitrogen (N_2), hydrogen sulfide (H_2S) and oxygen (O_2). But only methane (CH_4) is used for fuel. Construction of a biogas system which is generally permanent is one of the major obstacles in the use of household scale biogas, both in terms of costs, installation, operation and maintenance. Biogas mobile construction is one of the solutions in using household scale biogas which is cheap and easy to operate and can be moved freely and easily. This research was conducted with the aim of comparing wet and dry digesters to biogas production of mobile households. Preliminary research was conducted with the aim to determine the temperature that can be achieved by using a wet digester and dry digester system with variations with insulators and without insulators. Dry digester has higher biogas production compared to wet digester. Dry digester with rockwool insulator has the highest biogas production of 49,1 – 50,2 liters. Wet digester with rockwool insulator has the lowest biogas production of 25,88 – 30,76 liters. However, the wet digester with rockwool insulator has the highest methane gas production of 31,76%. Digester with 9% EM4 weight ratio has higher biogas production compared to EM4 weight ratio 5 and 7%. Wet and dry digester with an EM4 weight ratio of 9% has biogas production of 30,76 - 31 liters and 47,60 – 50,2 liters. Wet digester with an EM4 weight ratio of 9% has the highest methane gas production of 31,76%.

Keywords: Biogas, household waste, Mobile Biogas, EM4 (Effective microorganisms), Wet and Dry Digester