

ABSTRACT

Maulana Afchor Aulia, S1 physic Engineering Program, Faculty of Engineering, Telkom University, in November 2014, *Performance Analysis Of Carbon Monoxide Gas Purification With Zeolite Filter In Biogas Reactor Of Laboratory Scale To Production Of Biogas*, Supervisor: Amaliyah Rohsari Beautiful Utami, S.T, M.Si. as The First Supervisor and Ahmad Qurthobi, S.T, MT. as The Second Supervisor.

Biogas is one of the alternative energy that is developed for the availability of energy in the future. Reactor design has been done to produce biogas in anaerobic fermentation process that has sensors detecting concentration of carbon monoxide gas and zeolite filter as treatment. The purpose of this study is to know the effect performance of biogas reactor anaerob based on parameter carbon monoxide gas on the biogas productivity. Anaerobic reactor regulated and unregulated carbon monoxide, filled with mixture of cow dung and tofu liquid waste with volume ratio of 2:1 for 30 days. The result is singlestage anaerobic reactor used for produce biogas as a fixed dome reactor system and batch feeding for flow rate of the substrate. Results of the concentration of carbon monoxide gas in the reactor has decreased of $2,6 \times 10^{-4}$ % everyday (before absorbed) and $2,5 \times 10^{-4}$ (after absorbed) caused the ability of zeolite as an absorbent filter. Methane gas production increased significantly on the day to 9 of 11,6896 % (before absorbed) and amounted to 11,6910 % (after absorbed). The average results before absorbed methane gas by 10,7796 %, while the average after absorbed methane gas by 10,7824 %. Changes in the concentration of carbon monoxide gas does not effect the retention time and mount of methanein the biogas productivity, but the effect on the purity of methane gas. From these data show the result of the concentration of methane gas in anaerobic reactor suffered purity after performed the absorbent process using zeolite.

Keywords - Biogas, Methane, Carbon Monoxide, Cow Manure, Tofu Waste Water.