Analisis Penyerapan Gas Karbondioksida (CO_2) Dengan Berbagai Macam Bahan Adsorben Terhadap Kualitas Biogas Kotoran Sapi *(Gas Absorbtion Analysis of Carbondioxide (CO2) adsorbent with Various Materials on the Quality of Biogas Manure).*

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ABSTRACT

Biogas is the one of renewable alternative energy, that consists from mixture of gasses are produced by methanogenic bacteria that occurs in materials such as biomass can be biodegradable under anaerobic conditions. Biomass that usually used as raw material for biogas is animal manure, urban solid waste, and others. The contain of biogas are CH_4, CO_2, N, H_2S, H, O_2 and the other gasses. The most important content of biogas is CH_4, it is about 55-75% in biogas as the main content for arson. But the amount of impurities can interfere in the process of biogas utilization and reduce the value of arson's efficiency, such as CO_2 which the content is 25-45% in biogas. Therefore the presence of CO_2 in the CH_4 is highly undesirable, because it would result the decrease of CH4 calorific value. One effort to improve CH_4 is adsorbing the CO_2 in biogas by adsorption method using natural zeolites, charcoal and calcium oxide which are activated. Based on this research, the best adsorbent is calcium oxide with purify level of CH_4 is 61,11%, the residual of carbon dioxide after purification is 1,45%, carbon dioxide (CO_2) that adsorbed or attached to the surface of calcium oxide is 21,82%, and the effectiveness of the adsorption of carbon dioxide is 94%. Because of the calcium oxide can bind carbon dioxide and the chemical reactions occurred into $CaCO_3$ (Calcium carbonate).

***Keywords**: Biogas, CH_4, CO_2, Adsorbtion, Calcium Oxide*