

ABSTRACT

Biogas can be obtained by the anaerobic process. Anaerobic process is one way of biogas production using anaerobic bacteria, which grows without oxygen gas. Methane is the largest content production of biogas if the concentration is not measured properly will have a negative impact. The concentration of methane (CH₄) that is more than 5% in the air will cause an explosion which has happened in landfill Leuwi Gajah in 2008 as well as methane gas is one of the main causes of the greenhouse effect. Thus the measuring instrument to measure the concentration of methane is necessary.

In this study, there will be made a set of measurement system of the methane (CH₄) concentration in the biogas from the fermentation of expired milk in anaerobic Baffled Reactor on a volume of 15 liters with an instrument design using MQ-4 sensor as methane gas concentration reader be in the form of percentage in monitor serial.

The sensor system that has been created is then carried out the characterization to be eligible to be used as a measurement of the concentration of methane (CH₄). The displayed via the serial monitor in percentage. This measurement instrument design methane gas concentration

system is using Arduino Uno as a controller of signal inputs and outputs, and system calibration is done by comparing the results of the measurement instrument design with a gas chromatograph GC 8A test as the final value of the concentration of methane gas.

Keywords: Biogas, Methane gas concentration (CH₄), Sensor MQ-4, Anaerobic baffled reactor.