ABSTRACT

BIOGAS PURIFICATION PROCESS USING NATURAL ZEOLITE LAMPUNG AND IRON GROWL

BY

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Along with the development of industrial technology which intensified the need for renewable energy sources will be a very important consideration.Biogas is a renewable source of energy as a substitute for petroleum. Gas content in biogas is a gas methane (CH_4), carbondioxide (CO_2) gas, nitrogen gas (N_2), hydrogen sulfide gas (H_2S) and small amounts of other gases which are not beneficial in biogas. In biogas, biogas from the purity is very important. So at observational conducting in processes biogas purification that aims to increase the levels of gas methane (CH_4) and to decrease the value of the levels of carbondioxide gas (CO_2).

One method for purifying biogas that can be done is by the method of adsorption on the surface of solids by using natural zeolite, activated charcoal and iron growl as adsorbent. This test consists of two stages. The first stage of the manufacturing process filter (purifying) biogas with a length of 35 cm and a diameter of 3 inches, then the second phase is the process of purifying biogas by using natural zeolite, activated charcoal and iron growl. A variation on this test include biogas purification by using natural zeolite, biogas purification with active charcoal purification, using biogas purification of iron growl, purification biogas of natural zeolite and iron growl, purification biogas using active charcoal and iron growl a mixture of the three. The sample gas is drawn using the direct gas sampling bags tested levels of gas reserves in the Laboratotium Agricultural Technology University of Lampung.

The result of the study, the content of a gas that is found before done purification of biogas are gaseous nitrogen (N_2) as much as 2,735 %, gas methane (CH_4) and gas as much as 46,110 % of carbondioxide (CO_2) as much as 51,155 %. Having performed the purification of biogas by the use of a mixture of a zeolite nature, the active charcoal and iron growl to a high percentage of iron obtained are gaseous nitrogen (N_2) as much as 2,314 %, gas methane (CH_4) up to 75,259 % while for gas carbondioxide (CO_2) decrease to 22,727 %. The purification of biogas by the use of a mixture of a zeolite nature, the active charcoal and iron

growl better for used the filters biogas. As by a mixture of the three is more capable of absorbing the content of gas of carbondioxide (CO_2).

Keywords: Adsorption, biogas, a nature zeolite, the active charcoal, iron growl, purifying (filter) biogas, the purification of biogas.