Studi Laju Penyerapan CO_2 pada Biogas Menggunakan Zeolit Alam *(Study of CO_2 Adsorption Rate on Biogas Using Natural Zeolites).*

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ABSTRACT

The high content of Carbon Dioxide (CO_2) in biogas can lead reduction of its calorific value. One of the method that used to purify (reducing CO_2 content) in Biogas is adsorption with a natural zeolites as an adsorbent. Zeolites have a tidy crystal form with a cavities that interconnected in all directions. Hence it generate larger surface area and extremely well used as an adsorbent. This research aims to determine which the most appropriate of sorption isotherm methods and determine maximum capacity of adsorption process. The equation that used in this research comprise are Freundlich, Langmuir, dan BET (Brunauer, Emmett, dan Teller) adsorption isotherm equation. Gas Chromatography is used to analyze the quality of gas that produce in this research. The result reveal that the minimum error persentage from the comparison between Qe (calculation of data) and Qe (model) on 1 kg, 2 kg, and 3 kg adsorption mass is Freundlich adsoption isotherm equation with the error percentage are 0,06%, 0,18% and 0,11% respectively. While the maximum ability of natural zeolites to adsorpt CO_2 using Freundlich equation was found 0.990, 0.978, and 0.971 kg adsorbate/kg adsorbent.

Keywords : *Freundlich Equation, Langmuir Equation, BET Equation, Natural Zeolites, CO_2 Adsorption.*