ABSTRACT

The one of alternative energy to overcome energy crisis is biogas from manure. The one of simplest technology in biogas is anaerobic digester with substrate from the manure. Manure will produce biogas optimal by minimizing the size of the substrate particles.

The development manure smoothing equipment has been researched. Substrate particle size reduction process mixed with water at a ratio of 1:1. Particle size reduction process is based on the variation of the time, range from one minute to ten minutes accompanied by data collection at minute n. The last process, the substrate is inserted into the biogas reactor.

The results of the study showed that the dimension of the smoothing equipment size drive gear ratio of 1:3, with a bevel gear ratio of 1:1, and substrate container is 2.7 liters. The smallest manure particle size of the smoothing equipment is 67 ± 7 µm with ten minutes smoothing. Results of methane gas (CH_4) with particle size 67 ± 7 µm is 4.7% and this result is biggest than others.

Keywords : Biogas, Anaerobic Digester, Particle Size, Smoothing Equipment, Methane Gas (CH_4).