

Using the Combination of Food Waste and Animal Waste as a Reliable Energy Source in Rural Guatemala

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Abstract : Methane gas is a common byproduct in any process of rot and degradation of organic matter. This gas, when decomposition occurs, is emitted directly into the atmosphere. Methane is the simplest alkane hydrocarbon that exists. Its chemical formula is CH₄. This means that there are four atoms of hydrogen and one of carbon, which is linked by covalent bonds. Methane is found in nature in the form of gas at normal temperatures and pressures. In addition, it is colorless and odorless, despite being produced by the rot of plants. It is a non-toxic gas, and the only real danger is that of burns if it were to ignite. There are several ways to generate methane gas in homes, and the amount of methane gas generated by the decomposition of organic matter varies depending on the type of matter in question. An experiment was designed to measure the efficiency, such as a relationship between the amount of raw material and the amount of gas generated, of three different mixtures of organic matter: 1. food remains of home; 2. animal waste (excrement) 3. equal parts mixing of food debris and animal waste. The results allowed us to conclude which of the three mixtures is the one that grants the highest efficiency in methane gas generation and which would be the most suitable for methane gas generation systems for homes in order to occupy less space generating an equal amount of gas.

Keywords : alternative energy source, energy conversion, methane gas conversion system, waste management

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