

OPTIMIZING GAS PRODUCTION THROUGH BIODIGESTER DESIGN OPTIONS IN A TROPICAL ENVIRONMENT

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ABSTRACT

The urgent need for alternative source of power brought the need for the design of the bio-digester to enable the generation of biogas for use. Different types of bio-digester and their construction have been elucidated and a better design had been decided as it concerns our region and climate. Different design concepts were discussed briefly and why the need for such designs, which will also include the methods of feeds and the method the biogas, was constructed. Various operating parameters was also discussed as it concerns the digester, which was included the digester dimension, the holder dimension and the temperature needed for adequate performance. For purposes of performance air test for digester was also included to ensure digester was fit for purpose. Basic consideration for bio-digester construction and design theories was also briefly discussed. A simple bio-digester can easily be designed and constructed by all household because it does not entail any special skill, if the said design and construction was adopted it will definitely go a long way in minimizing the complete dependent on Federal Power source which has always been epileptic and inconsistency. Hence, recommended the bio-digester design and construction using local materials for biogas production.

Keywords: Biogas production, design, continuous feed bio-digester plant, tropical environment.