

The Quality Improvement of Biogas by Air Mixing

The primary objective of this study is to design and optimize air insertion Components for biogas system widely implemented in swine farms. The experiment is performed with a small-scale 2.5 m³ operating on Controlled swine waste. The result shows that an optimum ratio of injected air per volume of biogas production is approximately 4.5 %. In this condition, measurement of H₂S trace can be reduced from an average level of 644 ppm to undetectable amount within 48 hours. Another Significant Finding is the methane content of biogas produced from digester with air supplement is decreased by maximum of 3.5 % to the lowest level of 77 % which is still acceptable by all utilization equipment. Finally economic analysis suggests that an investment in air mixing equipment and operating costs results in an average payback period of 1.32 years benefiting from utilization equipment maintenance cost reductions. And long Life cycle Period.

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