# Development of Enhanced Biogas Production from Palm Oil Mill Effluent (POME)

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The study was aimed at characterizing palm oil mill effluent (POME) as a source for biogas production and to examine biotic and abiotic factors for enhancing POME biogas production.

The results show that the POME sludge (LCPMKS) generated from *PT Swastisiddhi Amarga Bioenergi* mill is viscous, brown or greyish in colour with total solid (TS) content of 38.5-57.4, chemical oxygen demand (COD) of 56.5-75.6, biological oxygen demand (BOD) of 35.5-40.7 and suspended solid (SS) of 28.1-46.9 in g/L. These values are above the standard threshold limits, thus POME is a potential source of environmental contamination if released untreated. Abiotic factors such as addition of $Ca(OH)_2$ to neutralize the pH, provision of an agitation system and increase in temperature resulted in enhanced biogas production to 50.5 L, 50.5 L and 98.5 L respectively. Among the biotic factors, the highest biogas (250 L) was obtained using a laboratory scale anaerobic digester with substrate volume of 50 L and 25% inoculum of type mud LCPMKS pool II.