Kuakool Boonyee 2009: Biogas Production Using Anaerobic Process from Wastewater of Modified Starch Production Plant. Master of Engineering (Environmental Engineering), Major Field: Environmental Engineering, Department of Environmental Engineering. Thesis Advisor: Assistant Professor Mongkol Damrongsri, Dr.Ing 118 pages.

According to the energy crisis that affected is the world economic problems and directly to Thailand industry, therefore the research for energy development is mush were important, the purpose of this research is to find out the appropriated condition for biogas production using complete-mix anaerobic digester for modified starch wastewater. The study use reactor volume 13 lit, influent COD 4,400 mg/l and high chloride at 7,250 mg/l varied the Organic Loading Rate (OLR) at 0.40, 0.59, 0.8 and 1.0 kg COD/m^3.day. The OLR were controlled by influent flow rate at 0.82, 1.22, 1.64 and 2.05 l/day hydraulic retention time (HRT) at 4.4, 5.5, 7.4 and 11 day.

The result study in non pH controlling contain indicated that the biogas production occurred at OLR 0.4 kg COD/m^3.day which produced biogas of 0.54, 0.55, 0.47 and 0.52 m^3/kg COD removal respectively, at Standard Atmospheric Pressure and room temperature. The biogas contained 70, 62, 41 and 34 methane. The COD removal efficiency for this condition was 89%, 73%, 66% and 62%. The ORP are -421, -416, -409 and -404 mV respectively.

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